

TEST REPORT



DT&C Co., Ltd.

42, Yurim-ro, 154Beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea, 17042

Tel : 031-321-2664, Fax : 031-321-1664

1. Report No : DRTFCC1708-0135(1)

2. Customer

• Name : LG Electronics MobileComm USA, Inc.

• Address : 1000 Sylvan Ave., Englewood Cliffs, New Jersey, United States, 07632

3. Use of Report : FCC Original Grant

4. Product Name / Model Name : Mobile Phone / LG-H930

FCC ID : ZNFH930

5. Test Method Used : KDB558074 D01v04

Test Specification : FCC Part 15.247

6. Date of Test : 2017.06.26 ~ 2017.07.22

7. Testing Environment : See appended test report.

8. Test Result : Refer to the attached test result.

Affirmation	Tested by	Technical Manager
	Name : SunGeun Lee (Signature)	Name : Geunki Son (Signature)

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2017 . 08 .09 .

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

Test Report Version

Test Report No.	Date	Description
DRTFCC1708-0135	Aug. 03, 2017	Initial issue
DRTFCC1708-0135(1)	Aug. 09, 2017	Added the note in section 8.5 and 9

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1. EUT DESCRIPTION

FCC Equipment Class	Digital Transmission System(DTS)
Product	Mobile Phone
Model Name	LG-H930
Add Model Name	LG-H930DS, LG-H930K, LG-H930G
Power Supply	DC 3.85 V
Frequency Range	▪ 802.11b/g/n/ac(20 MHz) : 2412 MHz ~ 2462 MHz
Max. RF Output Power	2.4GHz Band ▪ 802.11b : 21.752 dBm ▪ 802.11g : 23.818 dBm ▪ 802.11n (HT20) : 23.208 dBm ▪ 802.11ac (VHT20) : 23.368 dBm
Modulation Type	▪ 802.11b: CCK, DSSS ▪ 802.11g/n/ac: OFDM
Antenna Specification	Antenna type: Internal Antenna Antenna gain: Refer to the clause 7 in test report.

Transmitting configuration of EUT

Mode	SISO		MIMO(CDD)	MIMO(SDM)
	Ant 1	Ant 2	Ant 1 & 2	Ant 1 & 2
	Data rate			
802.11b	1~11 Mbps	1~11 Mbps	1~11 Mbps	-
802.11a	6~54Mbps	6~54Mbps	6~54Mbps	-
802.11n(HT20)	MCS 0 ~ 7	MCS 0 ~ 7	MCS 0 ~ 7	MCS 8 ~ 15
802.11ac(VHT20)	MCS 0 ~ 8	MCS 0 ~ 8	MCS 0 ~ 8	MCS 0 ~ 8

Note1: SDM = Spatial Diversity Multiplexing, CDD = Cycle Delay Diversity

Note2: This device supports WiFi DBS(dual-band simultaneous) transmission operation, which allows for two SISO channels to operate independent of one another in the 2.4GHz and 5GHz bands simultaneously on each antenna. (Ant 1: 5GHz band transmitting & ANT 2: 2.4GHz band transmitting)
And the test results for WiFi DBS were included in UNII test report of this device.

. INFORMATION ABOUT TESTING

2.1 Test mode

Test mode	Worst case data rate	Tested Frequency(MHz)		
		Lowest	Middle	Highest
TM 1	802.11b 1 Mbps (Single transmitting)	2412	2437	2462
TM 2	802.11g 24 Mbps (Single transmitting)	2412	2437	2462
TM 3	802.11n(HT20) MCS 3 (Single transmitting)	2412	2437	2462
TM 4	802.11ac(VHT20) NSS1 MCS 3 (Single transmitting)	2412	2437	2462
TM 5	802.11b 1 Mbps (CDD Multiple transmitting)	2412	2437	2462
TM 6	802.11g 24 Mbps (CDD Multiple transmitting)	2412	2437	2462
TM 7	802.11n(HT20) MCS 3 (CDD Multiple transmitting)	2412	2437	2462
TM 8	802.11ac(VHT20) NSS1 MCS 3 (CDD Multiple transmitting)	2412	2437	2462
TM 9	802.11n(HT20) MCS 11 (SDM Multiple transmitting)	2412	2437	2462
TM 10	802.11ac(VHT20) NSS2 MCS 3 (SDM Multiple transmitting)	2412	2437	2462

Note 1: The worst case data rate is determined as above test mode according to the power measurements.

Also radiated spurious emission was performed at lowest data rate.

Note 2: We have done all TX test cases and attached the MIMO test result of 802.11b/g/n/ac mode since MIMO is the worst case.

Note 3: The power measurement results for all modes and data rate were reported.

2.2 Auxiliary equipment

Equipment	Model No.	Serial No.	Manufacturer	Note
-	-	-	-	-
-	-	-	-	-

2.3 Tested environment

Temperature	: 22 ~ 27 °C
Relative humidity content	: 42 ~ 47 % R.H..
Details of power supply	: DC 3.85 V

2.4 EMI suppression Device(s) / Modifications

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

2.5 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with requirements of ANSI C 63.4-2014 and ANSI C 63.10-2013. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence.

Test items	Measurement uncertainty
Transmitter Output Power	0.7 dB (The confidence level is about 95 %, $k = 2$)
Conducted spurious emission	1.0 dB (The confidence level is about 95 %, $k = 2$)
AC conducted emission	2.4 dB (The confidence level is about 95 %, $k = 2$)
Radiated spurious emission (1 GHz Below)	5.1 dB (The confidence level is about 95 %, $k = 2$)
Radiated spurious emission (1 GHz ~ 18 GHz)	5.4 dB (The confidence level is about 95 %, $k = 2$)
Radiated spurious emission (18 GHz Above)	5.3 dB (The confidence level is about 95 %, $k = 2$)

3. SUMMARY OF TESTS

FCC Part Section(s)	Parameter	Limit	Test Condition	Status Note 1
15.247(a)	6 dB Bandwidth	> 500 kHz	Conducted	C
15.247(b)	Transmitter Output Power	< 1 Watt		C
15.247(d)	Out of Band Emissions / Band Edge	20 dBc in any 100 kHz BW		C
15.247(e)	Transmitter Power Spectral Density	< 8 dBm/3 kHz		C
-	RSS-Gen [6.6]	Occupied Bandwidth (99 %)		NA
15.247(d) 15.205 15.209	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	FCC 15.209 limits	Radiated	C Note 2, 3, 4
15.207	AC Line Conducted Emissions	FCC 15.207 limits	AC Line Conducted	C
15.203	Antenna Requirements	FCC 15.203	-	C

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

Note 2: This test item was performed in each axis and the worst case data was reported.

Note 3: This device supports wireless charging capability.

So per KDB648474 D03v01r04, the radiated test items were performed both normal and charging conditions. For wireless charging condition, the handset is placed on the representative charging pad under normal conditions and in a simulated call configuration.

Note 4: For radiated emission tests below 30 MHz were performed on semi-anechoic chamber which is correlated with OATS.

4. TEST METHODOLOGY

Generally the tests were performed according to the KDB558074 D01v04, KDB662911 D01v02r01. 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 15.247 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 KDB558074 D01v04.

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 KDB558074 D01v04. 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 as stated on section 12.1 of the KDB558074 D01V04.

The EUT is placed on a non-conductive table. For emission measurements at or below 1 GHz, the table height is 80 cm. For emission measurements above 1 GHz, the table height is 1.5 m. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 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 axes.

4.4 Description of test modes

The EUT has been tested with all modes of operating conditions to determine the worst case emission characteristics. A test program is used to control the EUT for staying in continuous transmitting mode.

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 equipment, which is traceable to recognized national standards.

6. FACILITIES AND ACCREDITATIONS

6.1 Facilities

DT&C Co., Ltd.		
The 3 m test site and conducted measurement facility used to collect the radiated data are located at the 42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 17042. The site is constructed in conformance with the requirements. - FCC MRA Accredited Test Firm No. : KR0034		
www.dtnet.net		
Telephone	:	+ 82-31-321-2664
FAX	:	+ 82-31-321-1664

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, and/or ridged waveguide, loop, 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 antenna is attached on the device by means of unique coupling method (Spring Tension).
Therefore this E.U.T Complies with the requirement of §15.203**

7.2 Directional antenna gain:

Bands	SISO		MIMO (CDD) ^{Note 1.}	MIMO (SDM) ^{Note 2}
	ANT 1 [dBi]	ANT 2 [dBi]	Directional Gain [dBi]	Directional Gain [dBi]
2.4 GHz	-3.86	-2.34	-0.05	-3.03

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

$$10 \log \left[\left(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20} \right)^2 / N_{ANT} \right] \text{ dBi}$$

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

$$10 \log \left[\left(10^{G1/10} + 10^{G2/10} + \dots + 10^{GN/10} \right) / N_{ANT} \right] \text{ dBi}$$

8. TEST RESULT

8.1 6dB bandwidth

■ Test Requirements and limit, §15.247(a)

The bandwidth at 6 dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the receive antenna while the EUT is operating in transmission mode at the appropriate frequencies.

The minimum permissible 6 dB bandwidth is 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 **KDB558074 D01V04**

1. Set resolution bandwidth (RBW) = 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
(RBW : 100 kHz / VBW : 300 kHz)
3. Detector = **Peak**.
4. Trace mode = **Max hold**.
5. Sweep = **Auto couple**.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

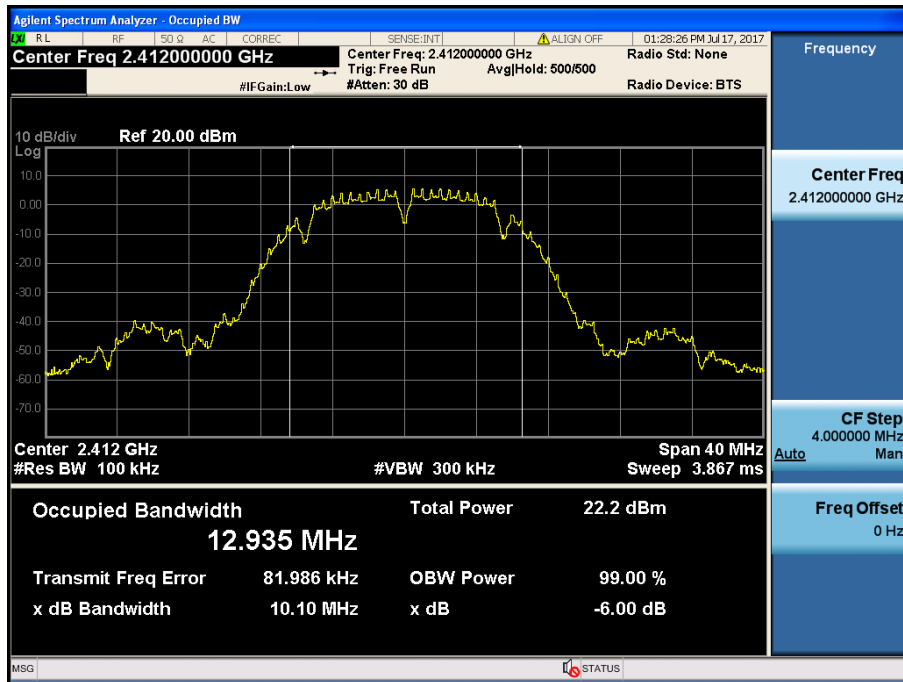
■ Test Results: **Comply**

Test Mode	Frequency	Test Results[MHz]	
		ANT 1	ANT 2
TM 5	Lowest	10.100	10.100
	Middle	10.110	10.120
	Highest	10.100	10.110
TM 6	Lowest	15.700	15.140
	Middle	15.440	15.160
	Highest	15.320	15.450
TM 7	Lowest	15.120	15.120
	Middle	15.150	15.150
	Highest	15.140	15.150
TM 8	Lowest	15.380	15.130
	Middle	15.710	15.130
	Highest	15.150	15.150
TM 9	Lowest	15.140	16.320
	Middle	15.170	17.090
	Highest	15.140	17.180
TM 10	Lowest	15.140	16.320
	Middle	15.400	17.600
	Highest	15.150	17.310

RESULT PLOTS

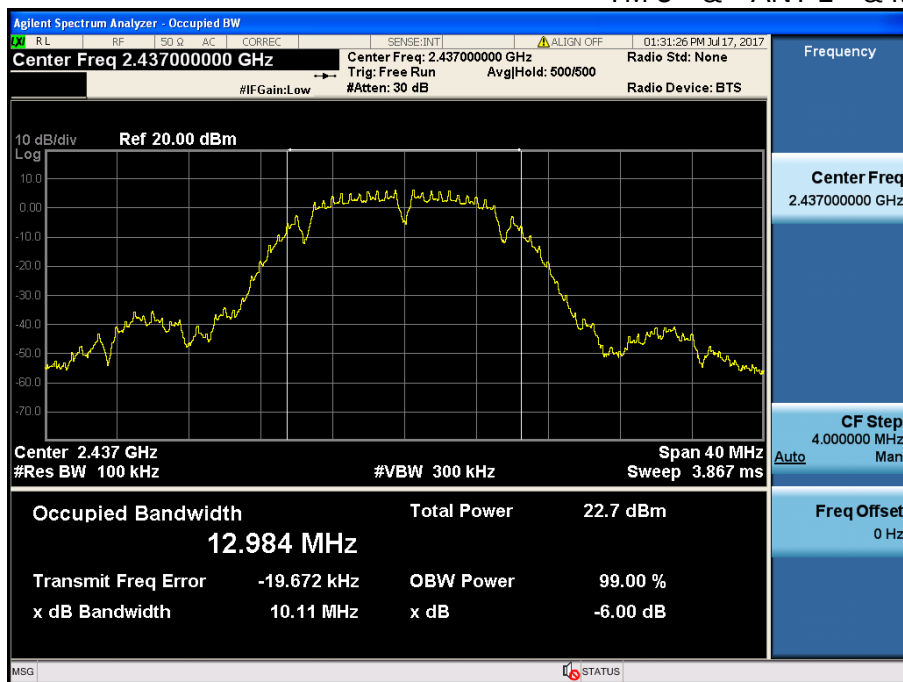
6 dB Bandwidth

TM 5 & ANT 1 & Lowest



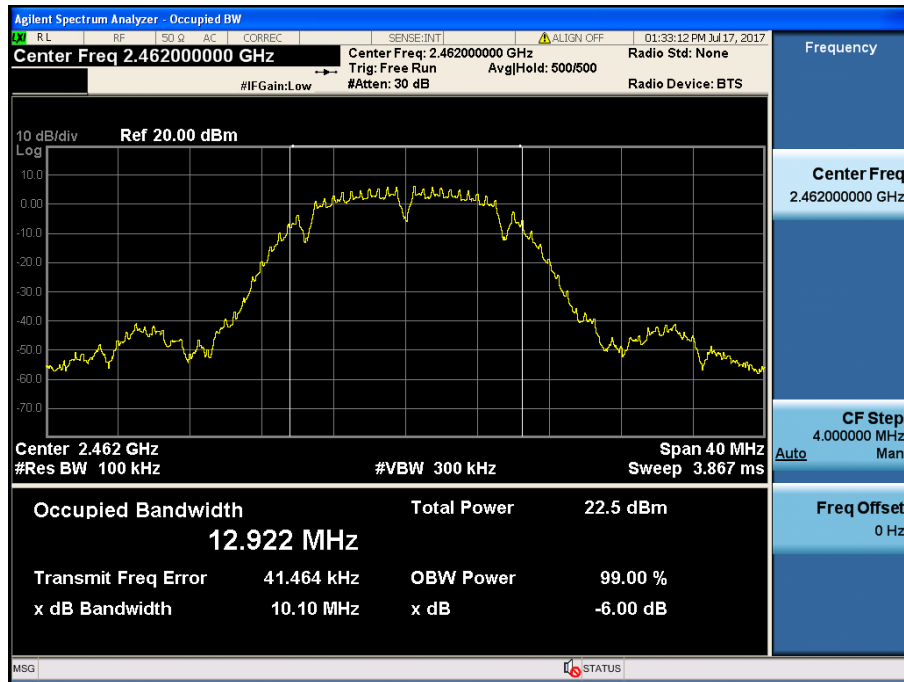
6 dB Bandwidth

TM 5 & ANT 1 & Middle



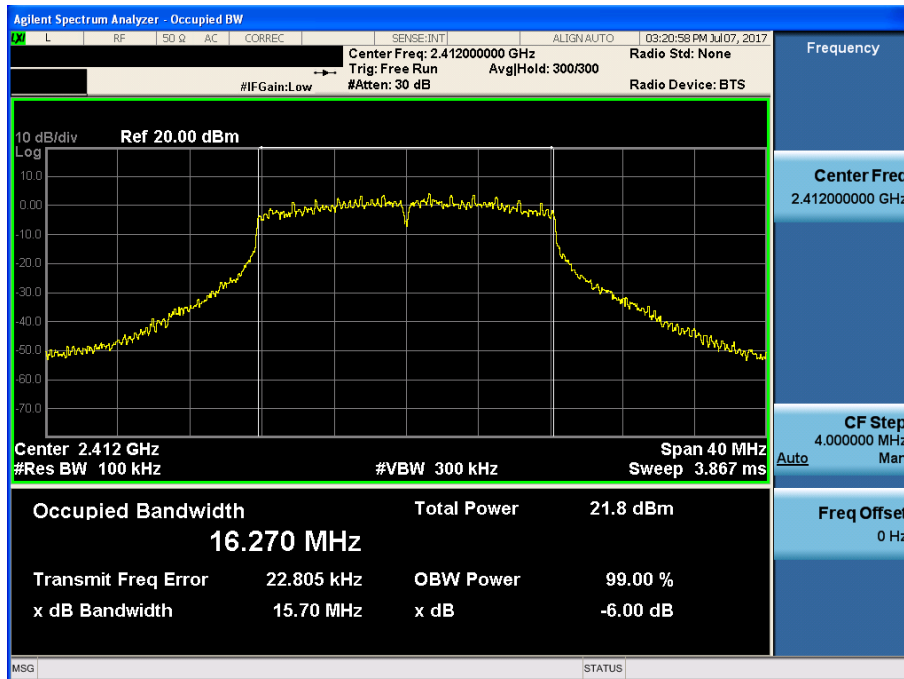
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TM 5 & ANT 1 & Highest



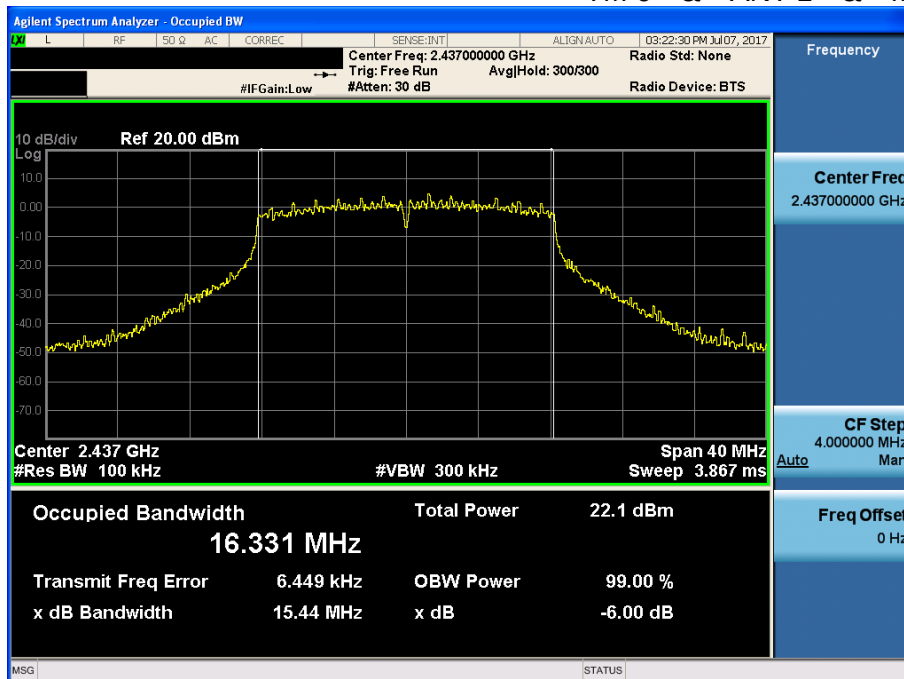
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TM 6 & ANT 1 & Lowest



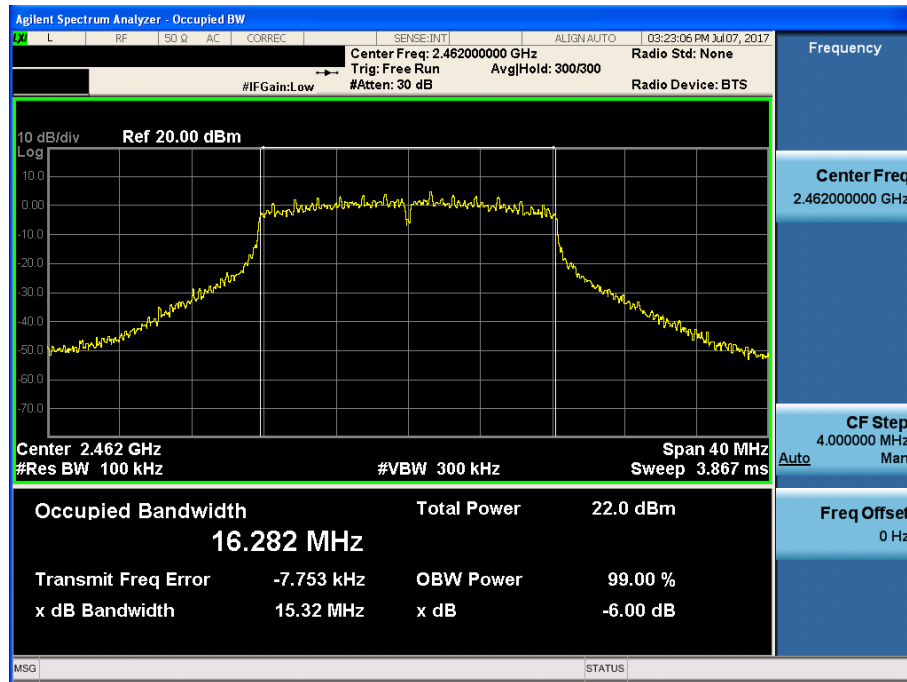
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TM 6 & ANT 1 & Middle



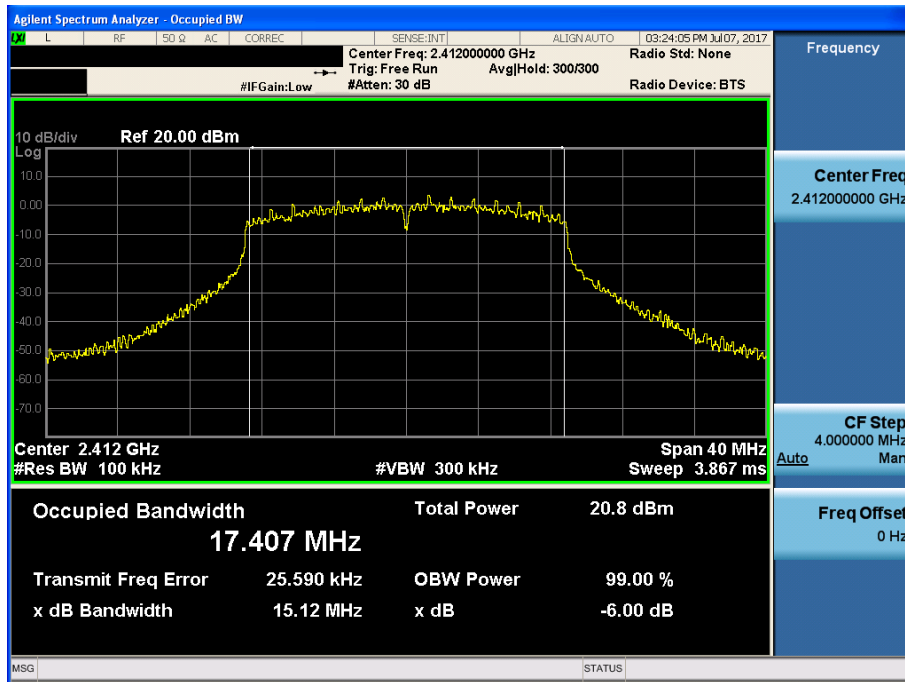
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TM 6 & ANT 1 & Highest



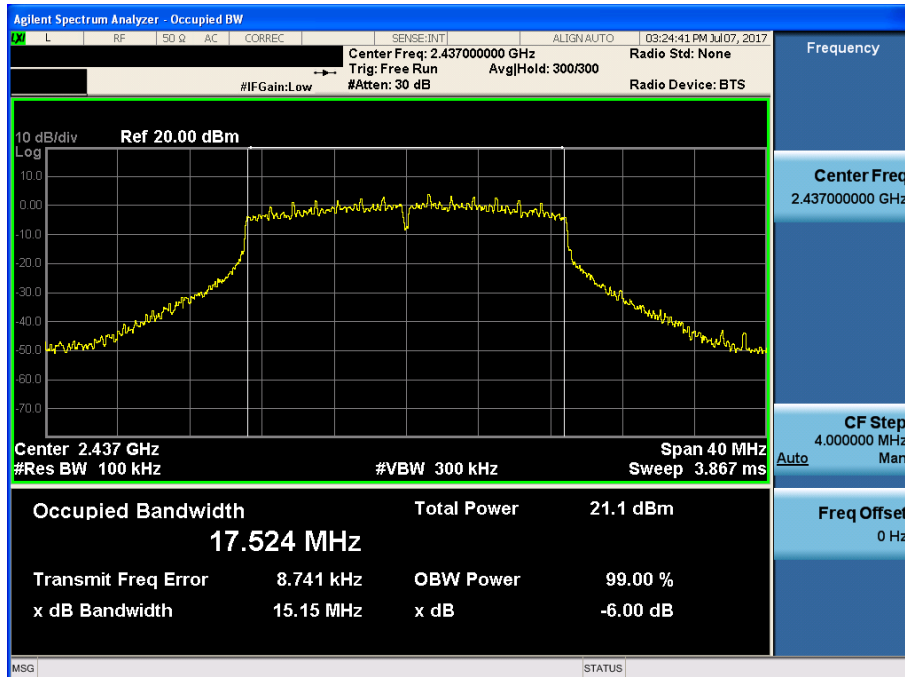
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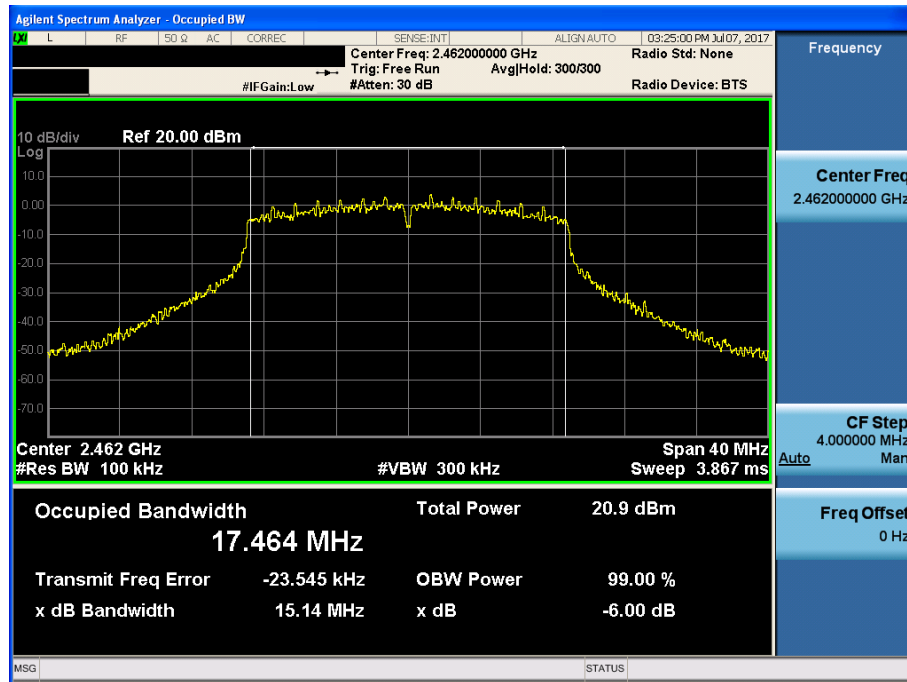
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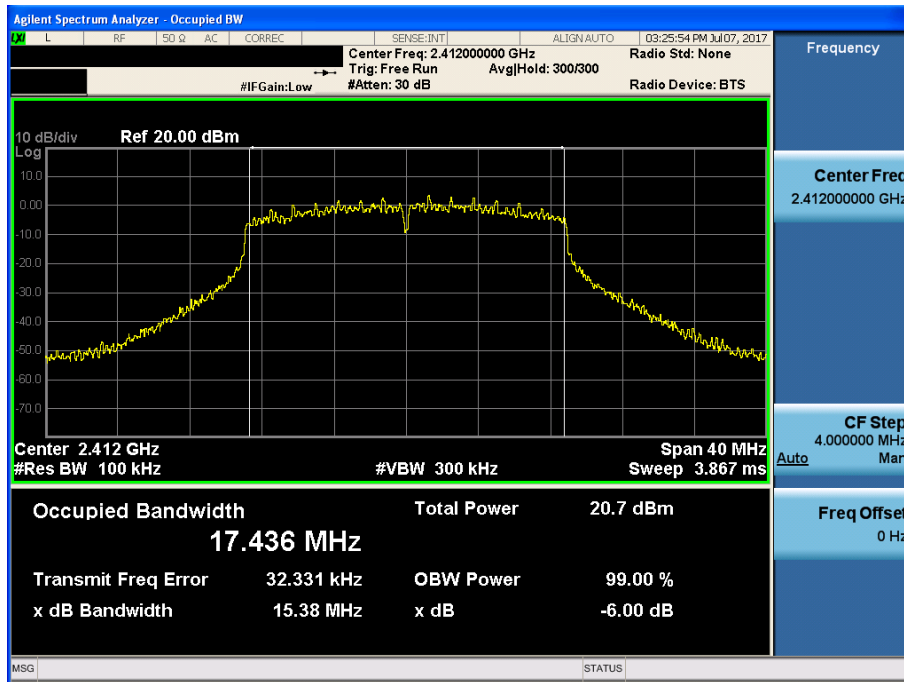
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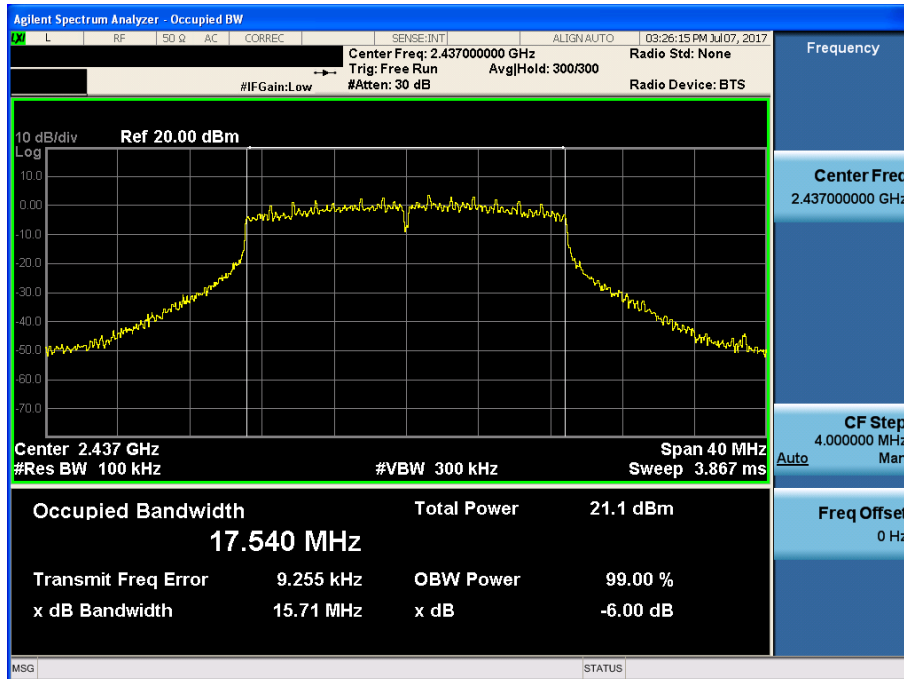
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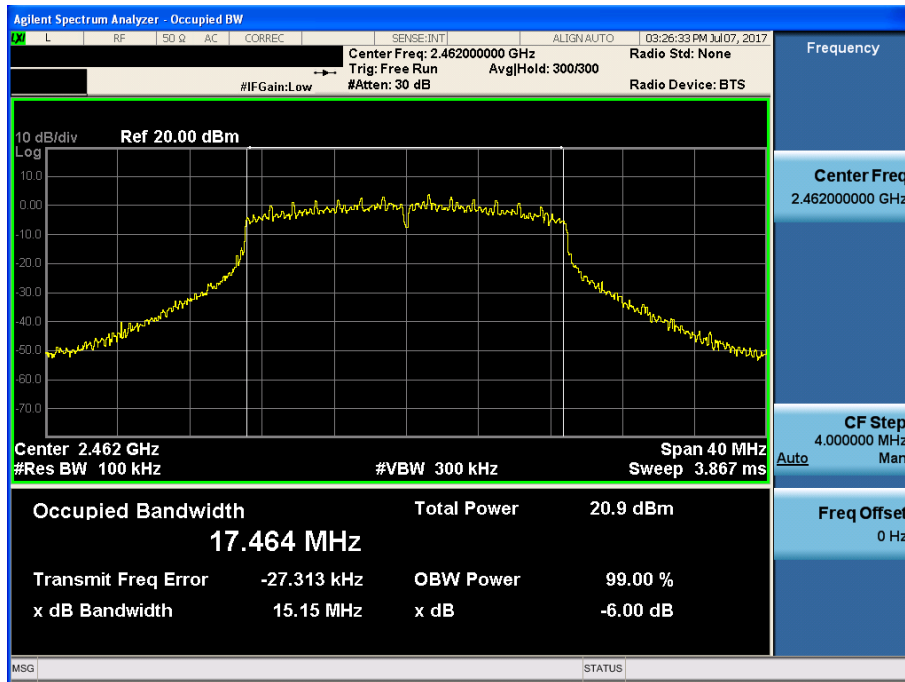
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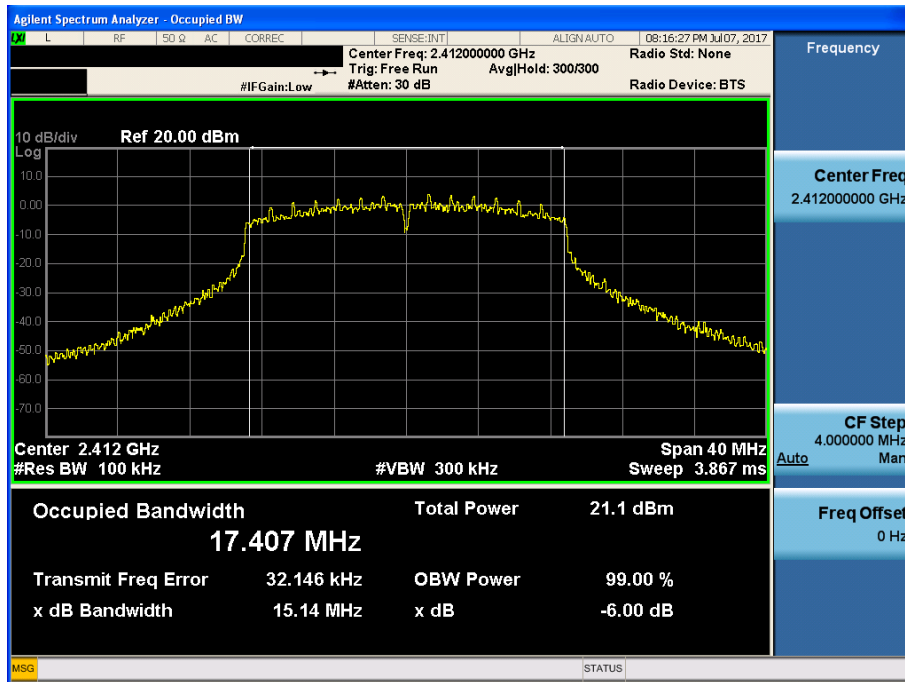
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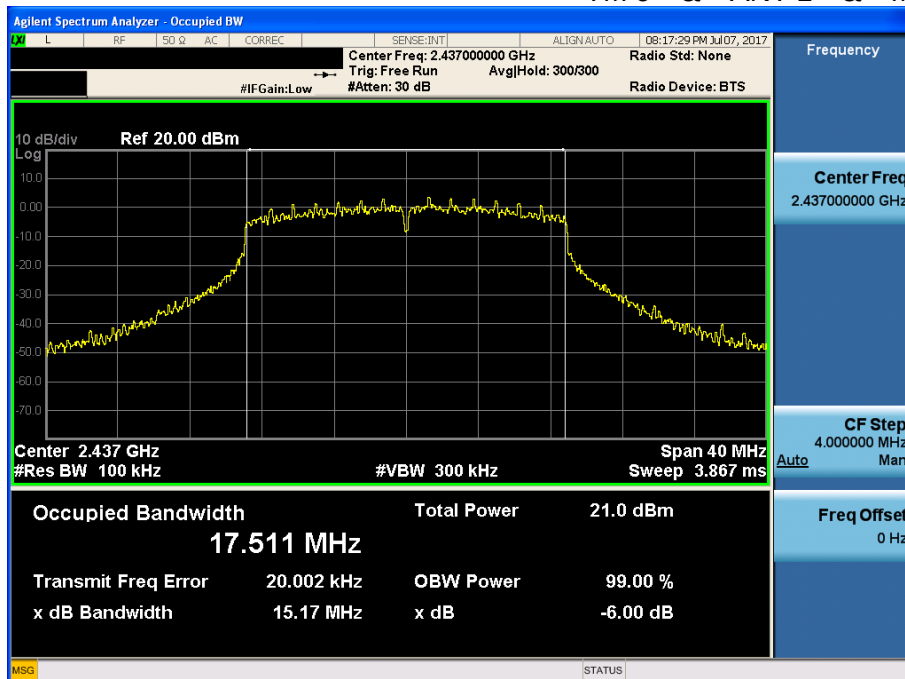
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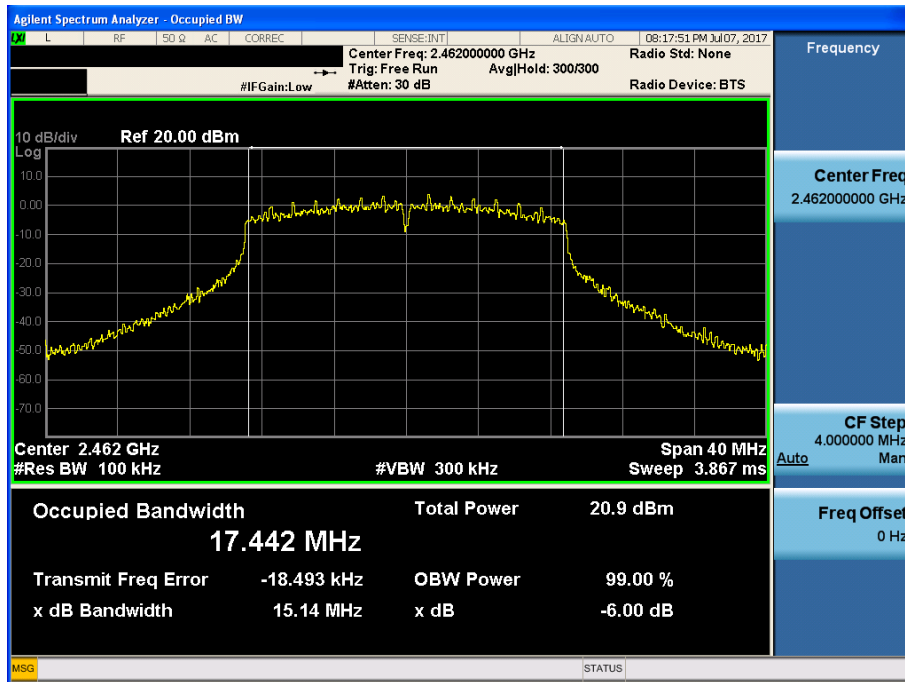
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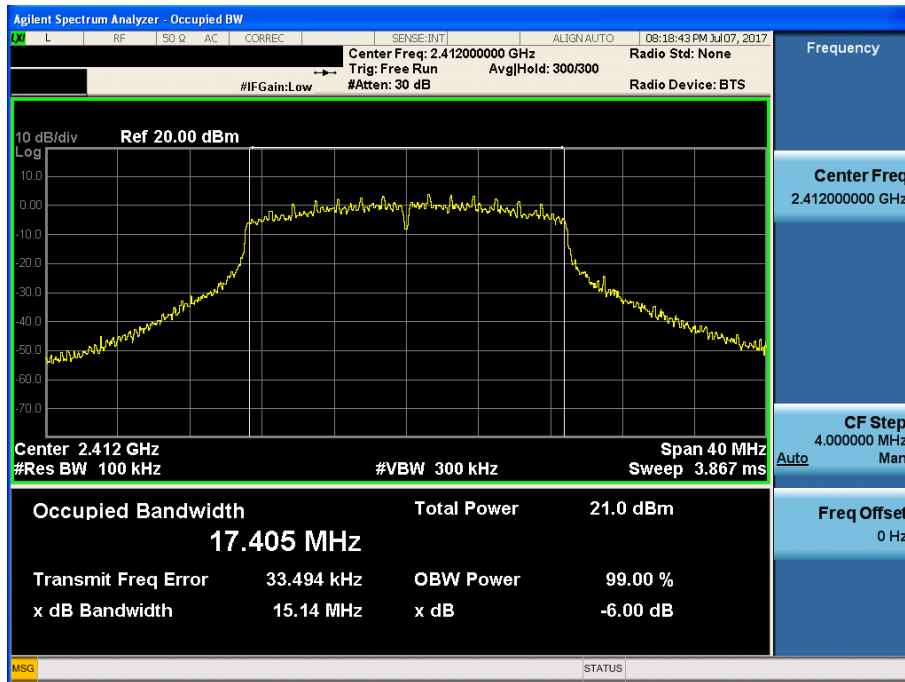
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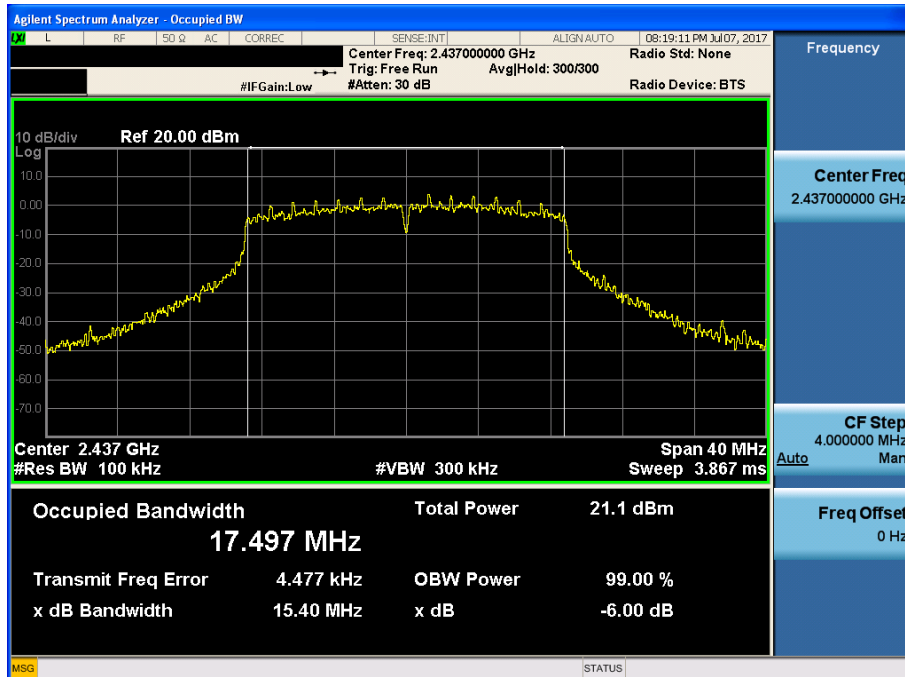
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TM 10 & ANT 1 & Lowest



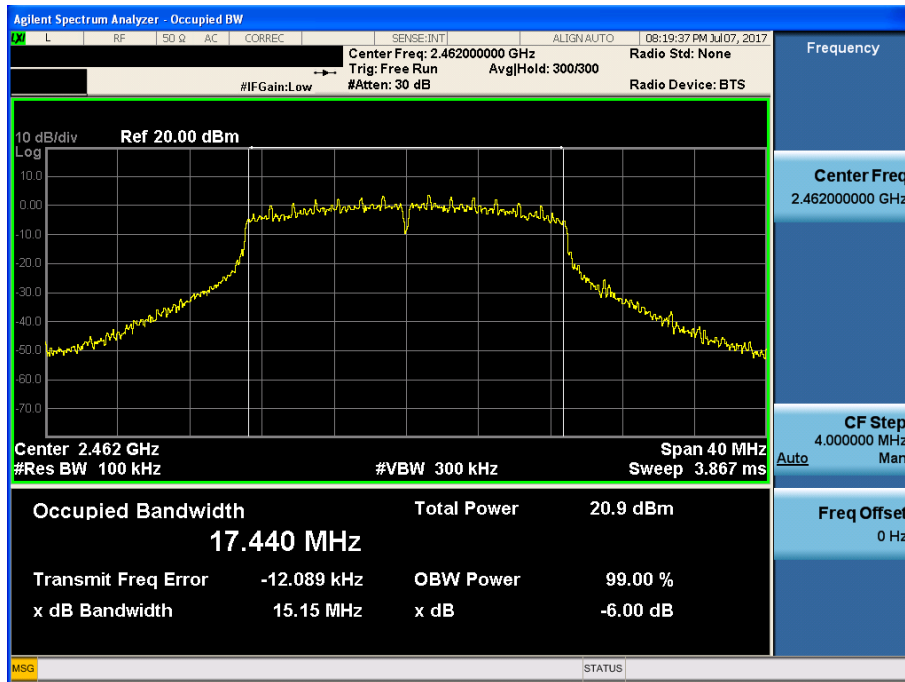
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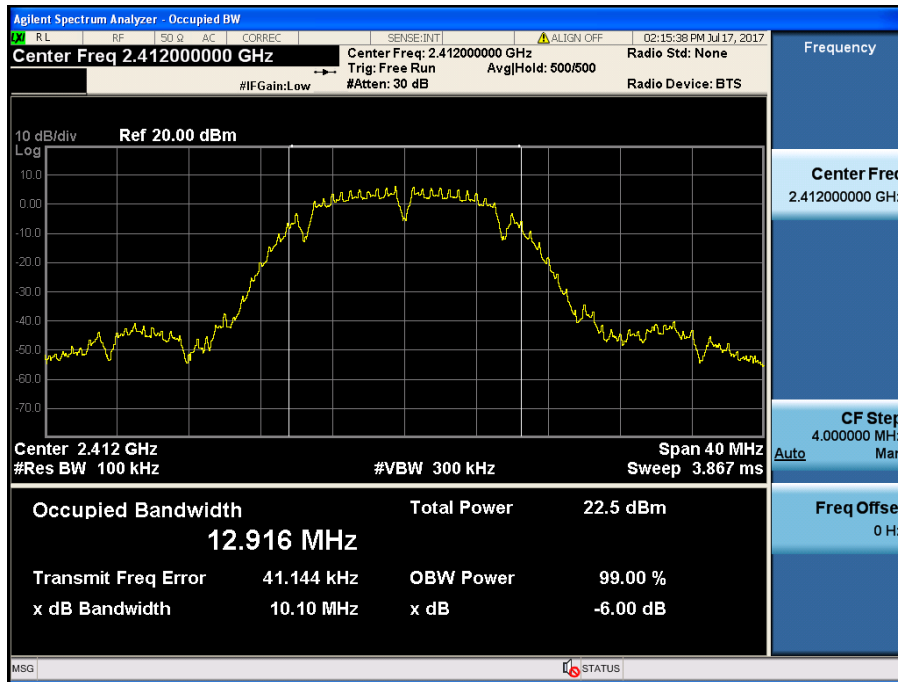
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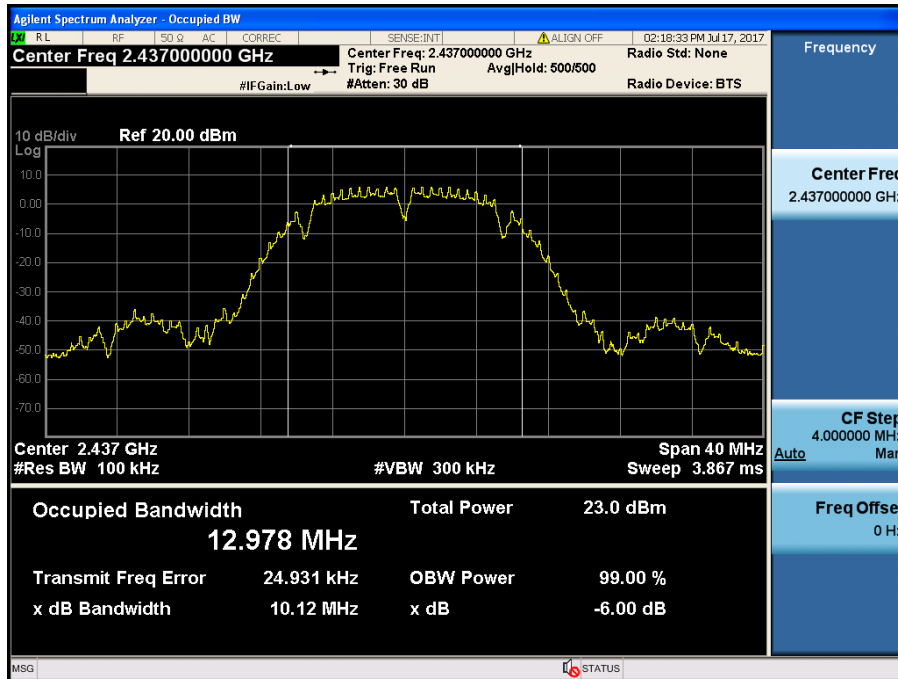
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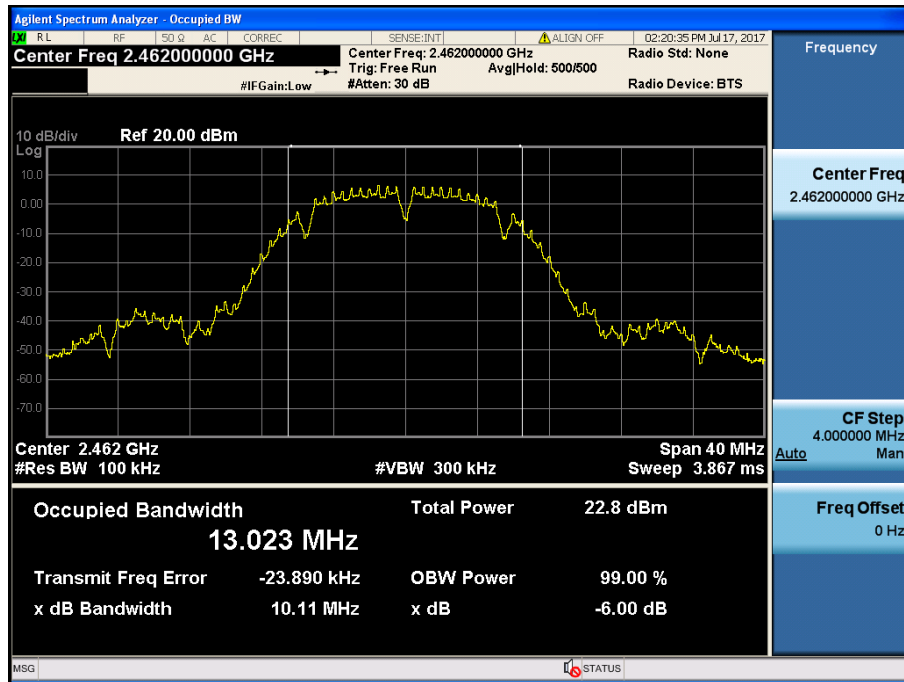
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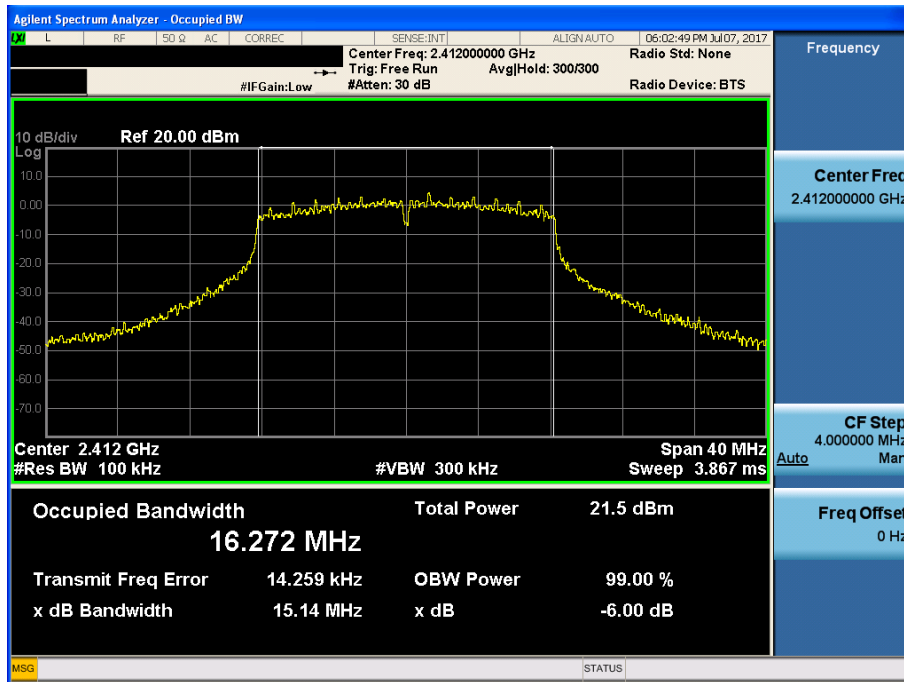
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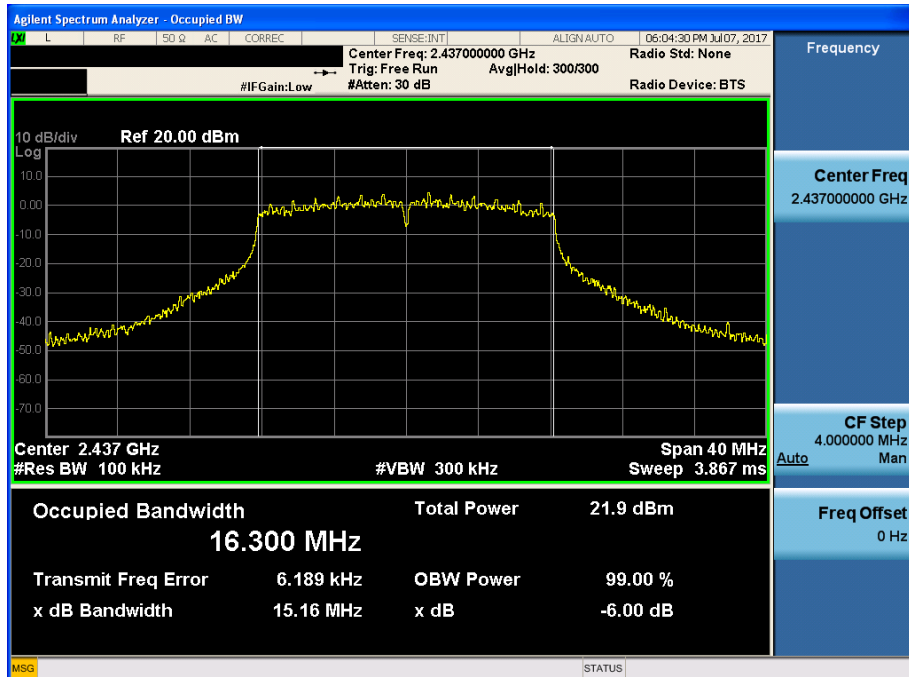
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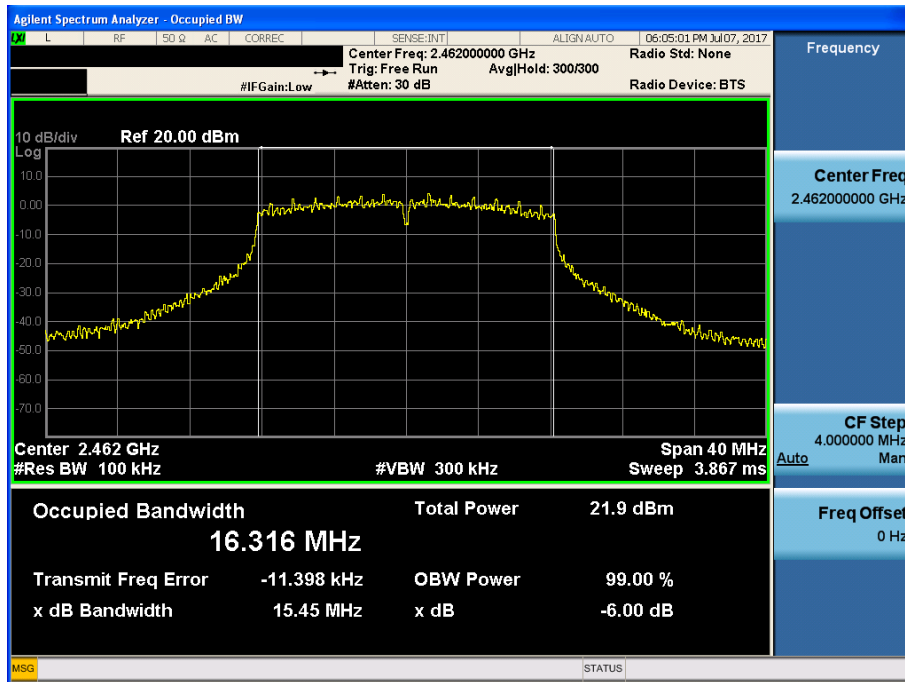
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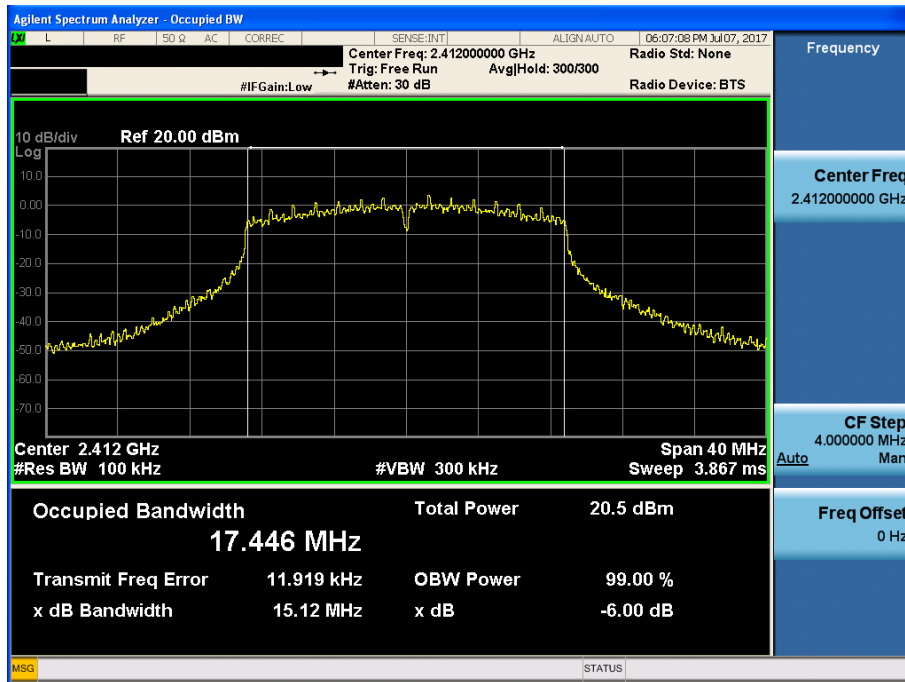
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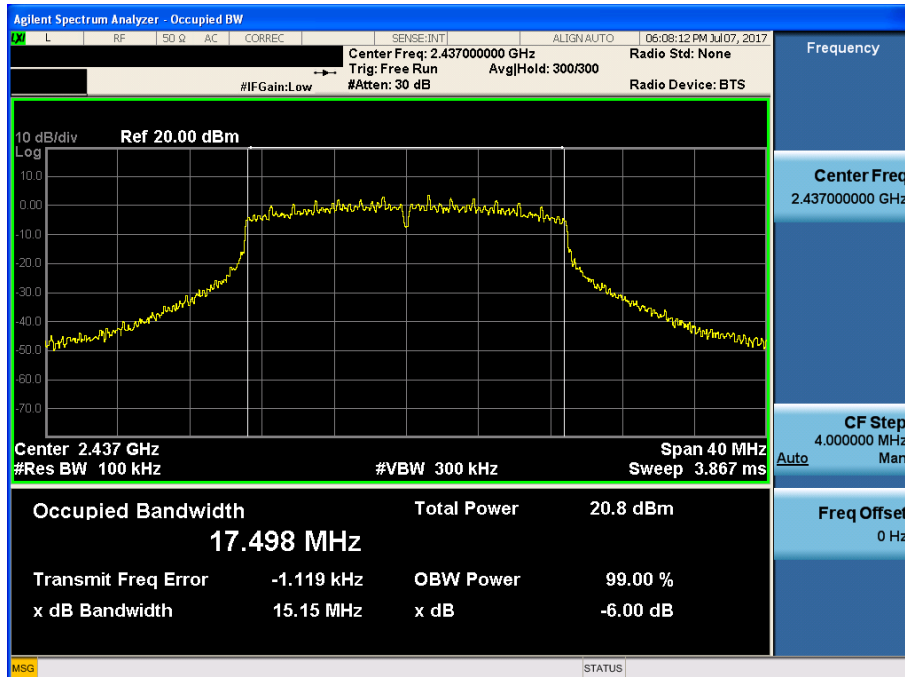
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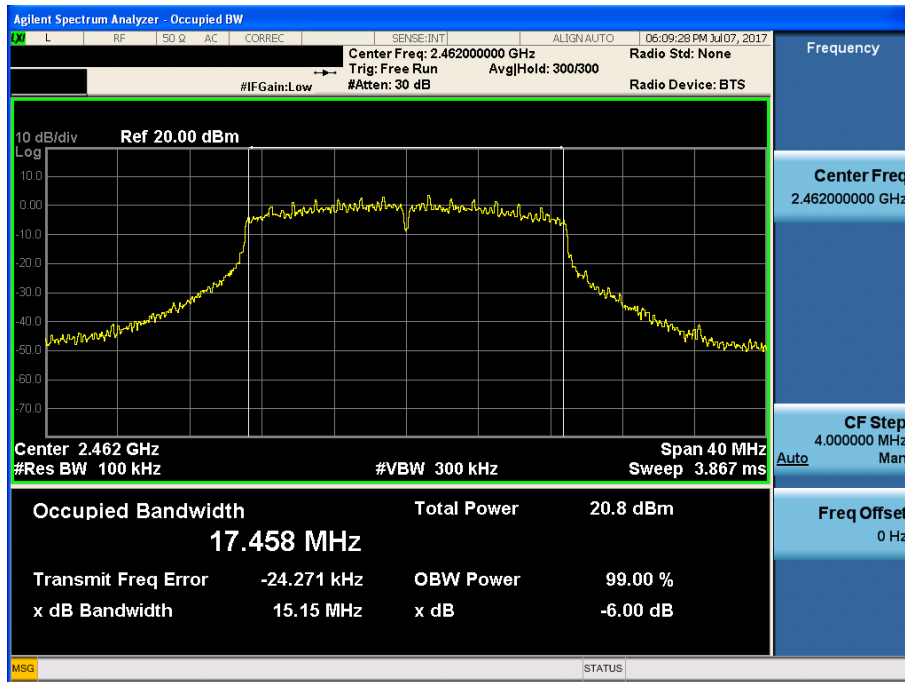
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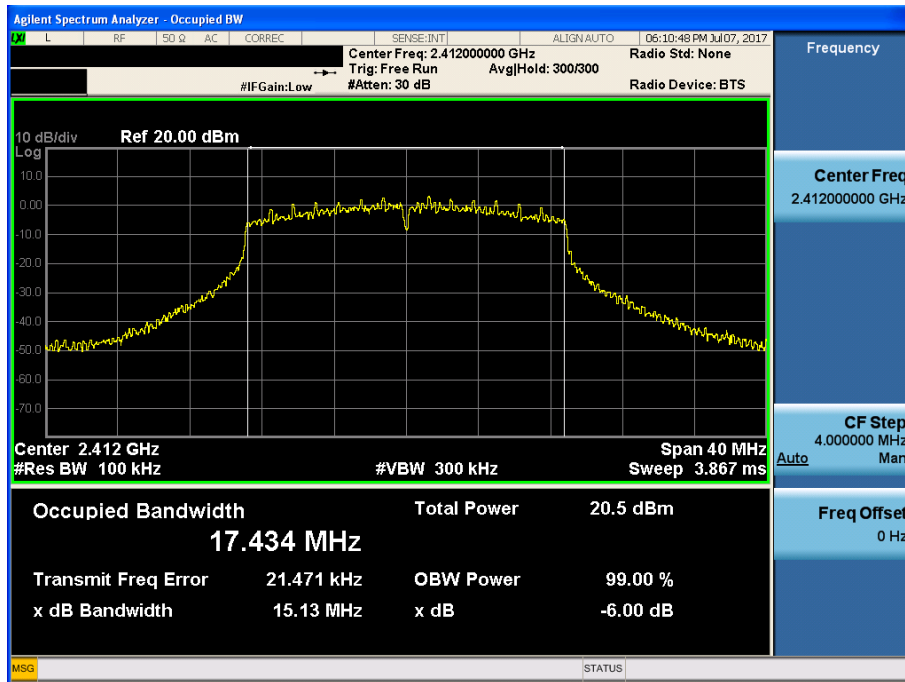
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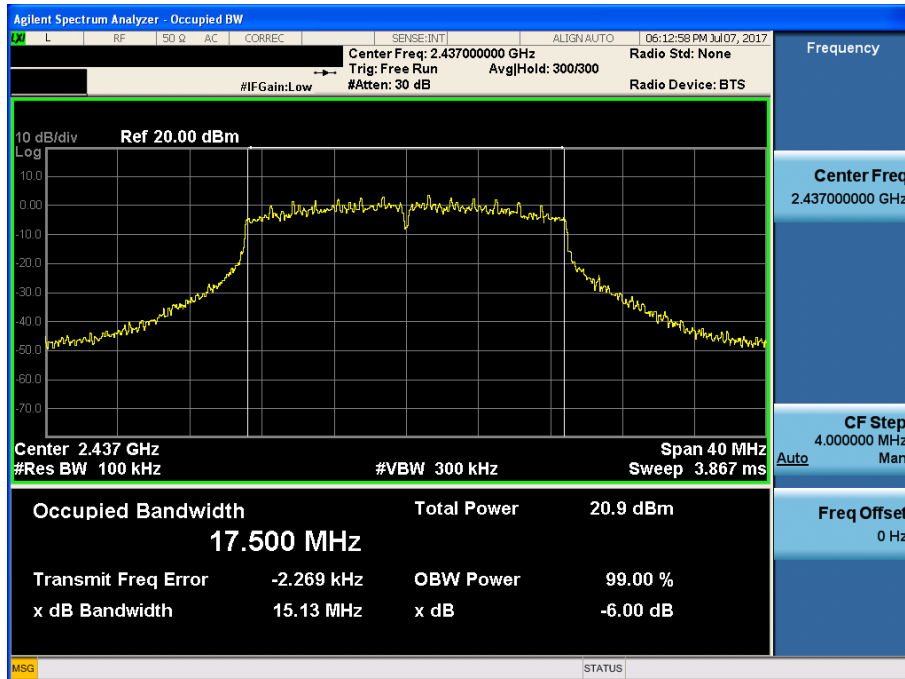
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TM 8 & ANT 2 & Lowest



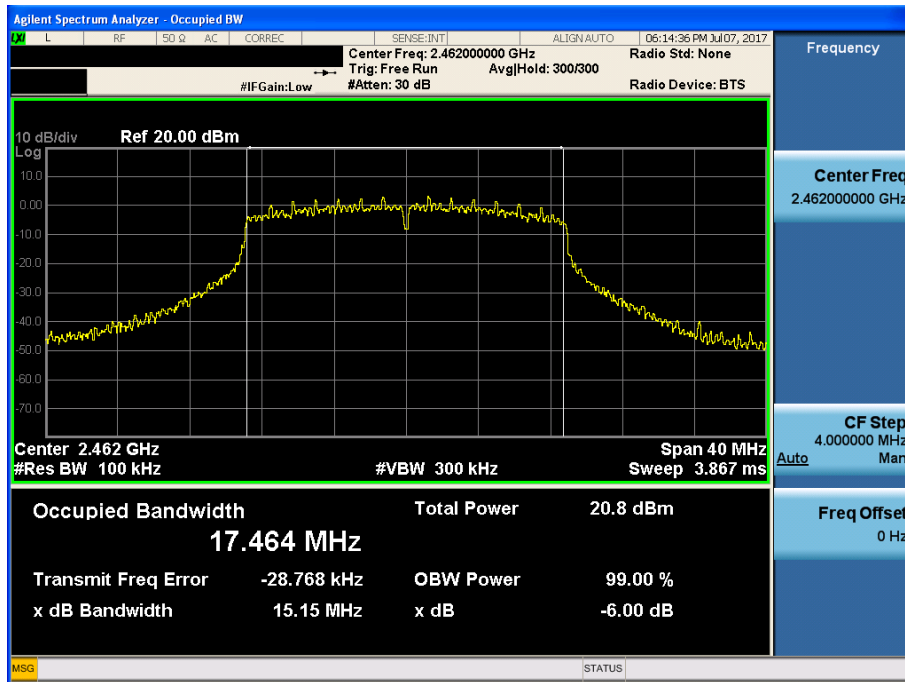
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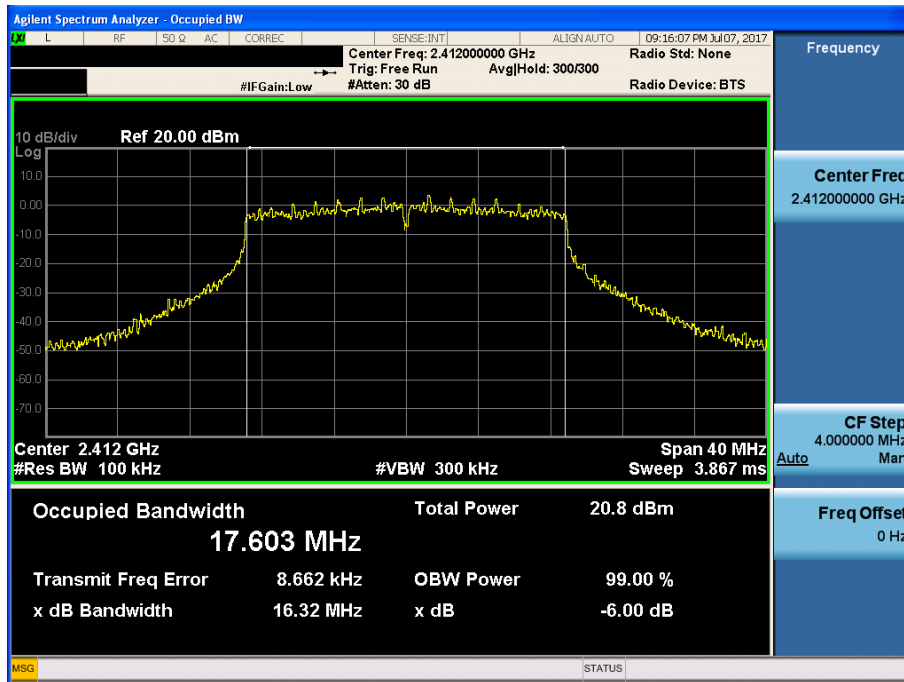
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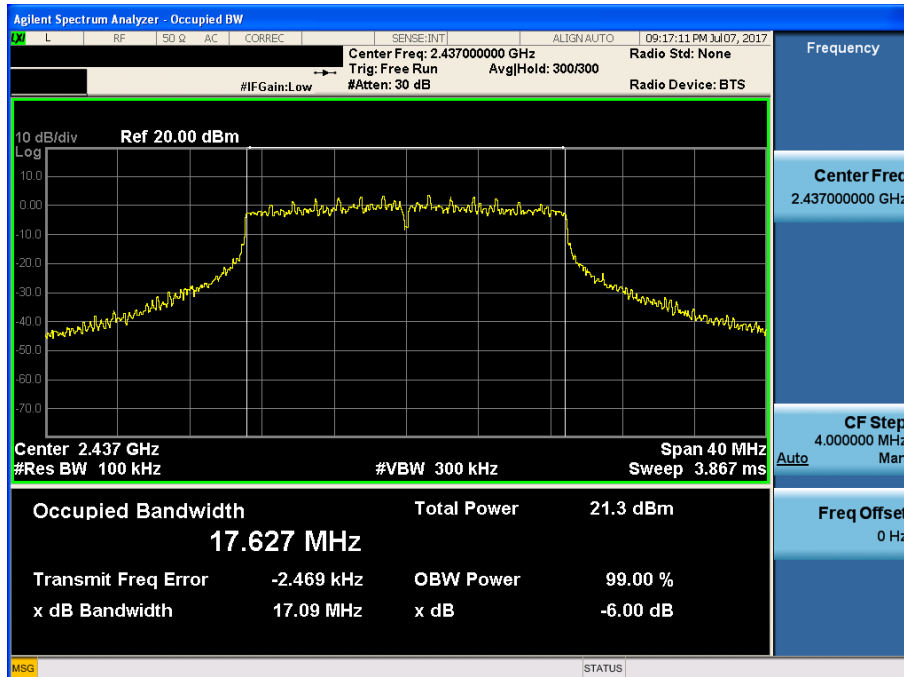
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TM 9 & ANT 2 & Lowest



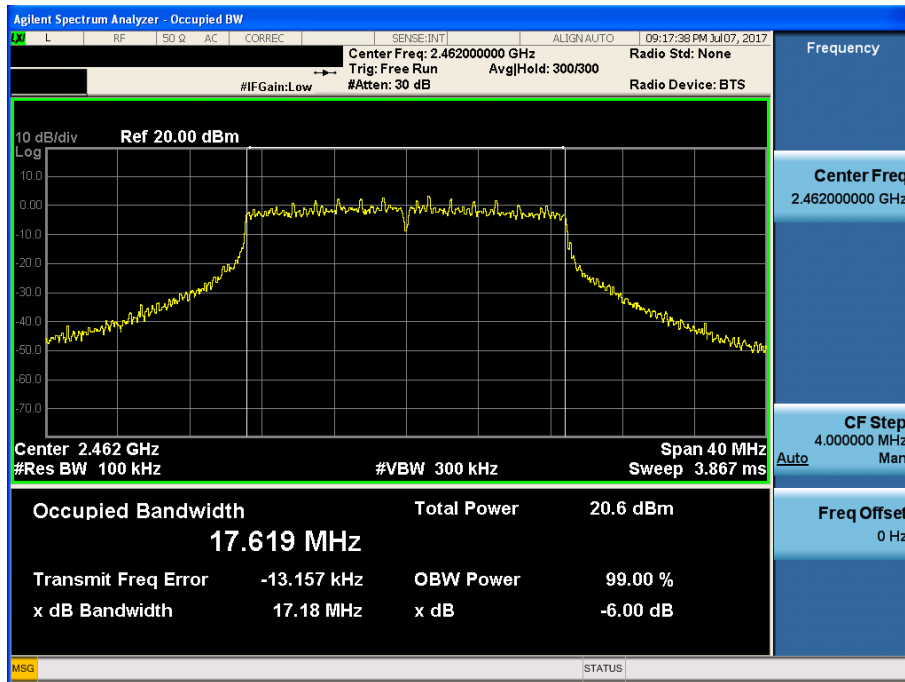
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TM 9 & ANT 2 & Middle



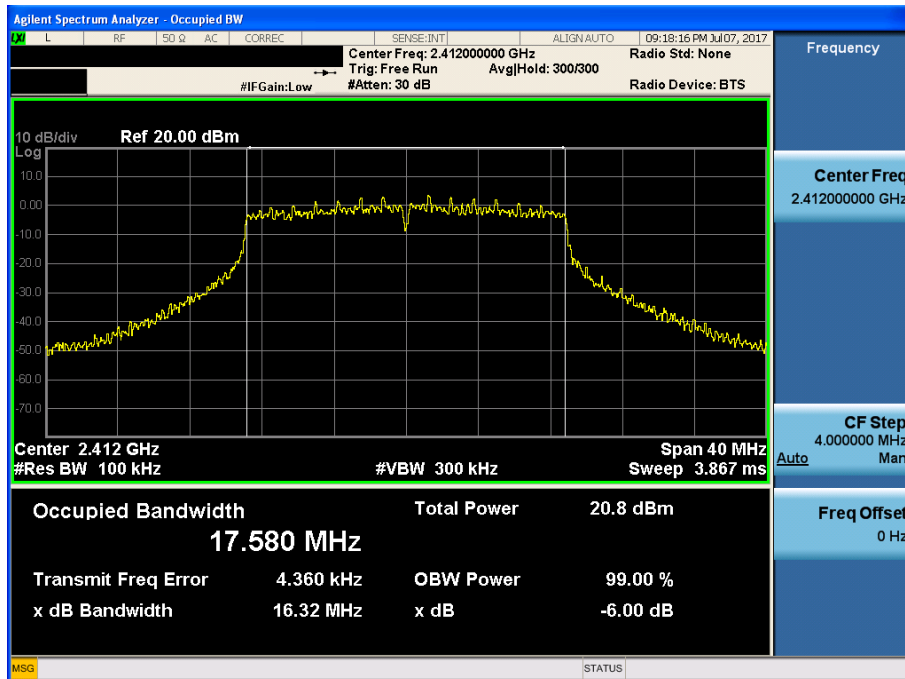
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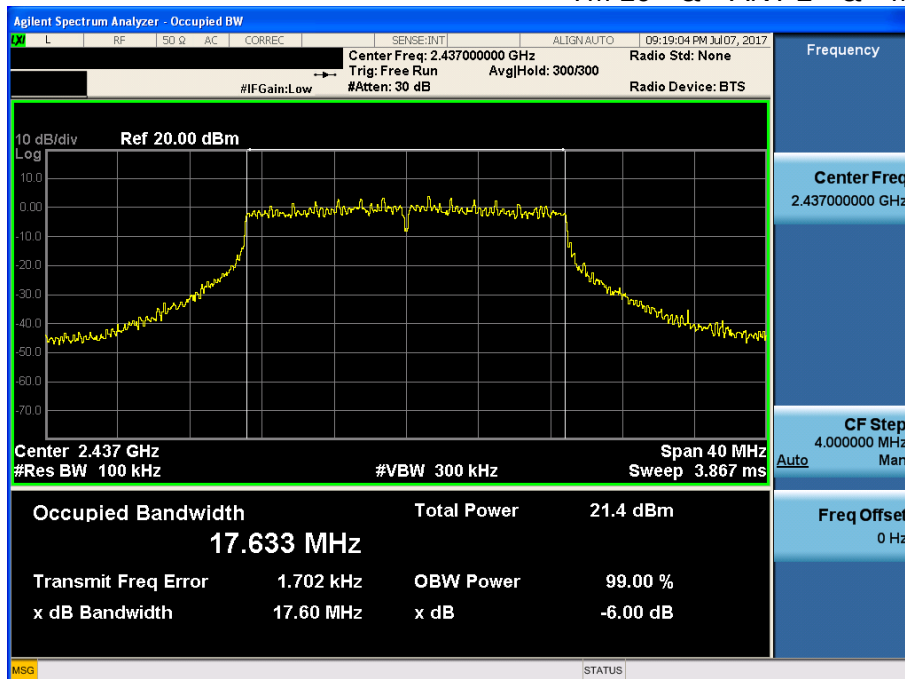
6 dB Bandwidth

TM 10 & ANT 2 & Lowest



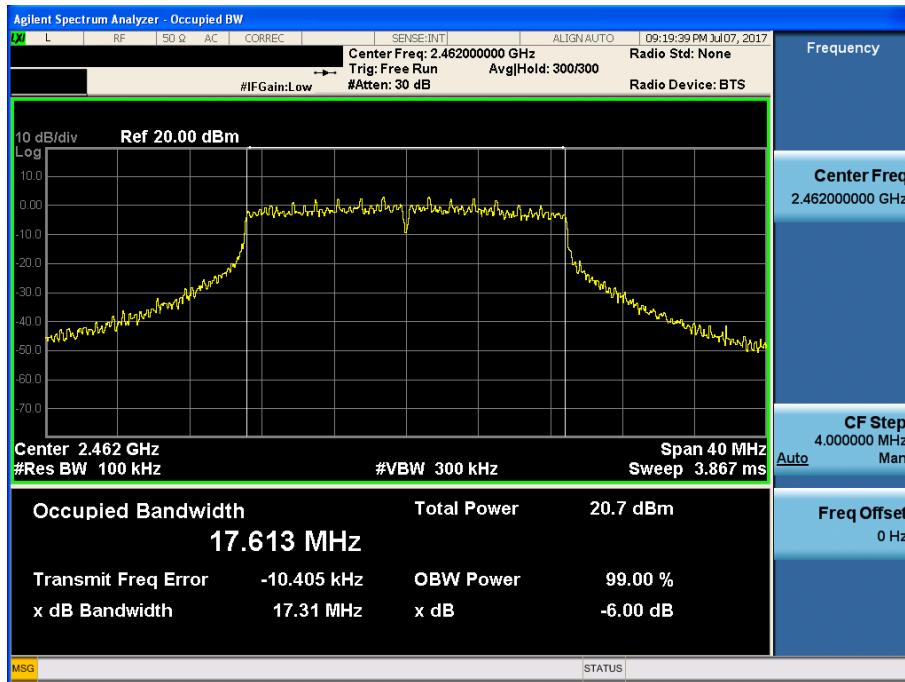
6 dB Bandwidth

TM 10 & ANT 2 & Middle



6 dB Bandwidth

TM 10 & ANT 2 & Highest

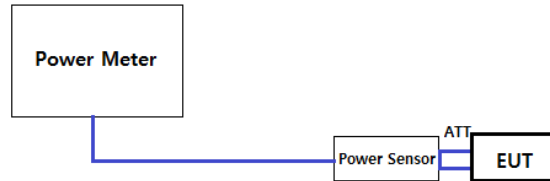


8.2 Maximum peak conducted output power

■ Test Requirements and limit, §15.247(b)

The maximum permissible conducted output power is **1 Watt**.

■ Test Configuration



■ Test Procedure

1. PKPM1 Peak power meter method of KDB558074 D01V04

The maximum conducted output powers were measured using a broadband peak RF power meter which has greater video bandwidth than DUT's DTS bandwidth and utilize a fast-responding diode detector.

2. Method AVGPM-G (Measurement using a gated RF average power meter) of KDB558074 D01V04

The average conducted output powers were measured using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since this measurement is made only during the ON time of the transmitter, no duty cycle correction is required.

Note: The measure-and-sum technique is used for test mode with multiple transmitting.

■ Test Results: **Comply**

▪ Single transmitting

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for <u>802.11b</u>							
			Data Rate [Mbps]							
			1	2	5.5	11	-	-	-	-
ANT 1	2412	PK	18.620	18.260	18.390	18.600	-	-	-	-
		AV	15.430	15.070	14.990	15.410	-	-	-	-
	2437	PK	18.820	18.520	18.610	18.800	-	-	-	-
		AV	15.770	15.430	15.240	15.710	-	-	-	-
	2462	PK	18.720	18.330	18.470	18.630	-	-	-	-
		AV	15.570	15.180	15.150	15.560	-	-	-	-
ANT 2	2412	PK	18.510	18.290	18.190	18.410	-	-	-	-
		AV	15.280	14.990	14.850	15.270	-	-	-	-
	2437	PK	18.660	18.260	18.380	18.500	-	-	-	-
		AV	15.640	15.420	15.330	15.500	-	-	-	-
	2462	PK	18.450	18.090	18.250	18.360	-	-	-	-
		AV	15.560	15.170	15.190	15.230	-	-	-	-

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for <u>802.11g</u>							
			Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
ANT 1	2412	PK	19.020	19.040	18.940	20.850	20.940	20.340	20.430	20.510
		AV	14.220	14.120	14.070	14.210	14.220	11.130	11.120	11.190
	2437	PK	19.470	19.460	19.350	20.670	20.750	20.320	20.220	20.590
		AV	14.660	14.640	14.590	14.320	14.080	11.050	10.950	10.980
	2462	PK	18.940	18.030	18.940	20.710	20.820	20.650	20.540	20.650
		AV	14.210	14.040	14.170	14.200	14.190	11.170	11.270	11.190
ANT 2	2412	PK	18.670	18.780	18.830	20.430	20.670	19.820	20.480	20.040
		AV	14.250	13.880	13.890	14.100	14.120	11.240	10.980	11.080
	2437	PK	19.190	19.540	19.270	20.450	20.830	20.230	19.780	20.340
		AV	14.740	14.650	14.660	14.700	14.710	11.450	11.390	11.190
	2462	PK	18.690	18.730	18.760	20.480	20.570	19.940	20.260	20.150
		AV	14.380	14.200	14.280	14.270	14.360	11.420	11.390	11.600

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for <u>802.11n(HT20)</u>							
			Data Rate [MCS]							
			0	1	2	3	4	5	6	7
ANT 1	2412	PK	18.310	18.240	19.870	20.120	19.860	19.880	19.720	19.360
		AV	13.370	13.220	13.050	13.060	11.150	11.130	10.240	10.230
	2437	PK	18.490	18.520	19.880	20.070	19.920	20.030	20.040	19.410
		AV	13.650	13.560	13.450	13.530	11.460	11.270	10.720	10.730
	2462	PK	17.920	18.140	19.860	19.980	19.690	19.420	19.880	19.170
		AV	13.480	13.140	13.140	13.100	11.220	11.240	10.210	10.130
ANT 2	2412	PK	18.060	17.880	19.970	20.020	19.230	19.870	18.770	18.130
		AV	13.280	13.190	13.010	13.020	11.580	11.890	10.890	10.730
	2437	PK	18.980	18.900	19.830	20.320	20.080	19.730	19.260	18.770
		AV	13.750	13.710	13.410	13.790	11.660	11.480	10.960	10.890
	2462	PK	18.010	18.020	19.720	20.250	20.160	20.040	18.480	18.460
		AV	13.160	13.080	13.140	13.150	11.600	11.870	10.510	10.470

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for <u>802.11ac(VHT20)</u>								
			Data Rate [MCS]								
			0	1	2	3	4	5	6	7	8
ANT 1	2422	PK	18.260	18.280	20.030	20.230	20.120	20.210	19.930	19.750	17.990
		AV	13.120	13.060	13.050	13.150	11.630	11.390	10.510	10.500	9.260
	2437	PK	18.550	18.530	20.080	20.050	19.840	20.040	19.880	19.440	18.110
		AV	13.560	13.440	13.350	13.350	11.590	11.610	10.660	10.480	9.170
	2452	PK	18.140	18.140	20.090	20.270	19.950	20.120	20.040	20.150	18.150
		AV	13.220	13.170	13.440	13.410	11.580	11.560	10.620	10.510	9.370
ANT 2	2422	PK	18.080	18.100	19.910	20.480	20.150	20.450	19.030	18.100	17.430
		AV	13.120	13.070	13.010	13.110	11.730	11.920	10.840	10.340	9.370
	2437	PK	18.240	18.450	20.100	20.360	19.500	20.160	18.800	17.810	17.950
		AV	13.720	13.610	13.860	13.700	11.940	11.900	10.840	10.730	9.710
	2452	PK	18.000	18.320	19.640	20.130	19.920	19.180	19.220	18.170	17.180
		AV	13.270	13.070	13.580	13.280	12.070	11.630	11.030	10.400	9.450

Multiple transmitting CDD

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for <u>802.11b</u>							
			Data Rate [Mbps]							
			1	2	5.5	11	-	-	-	-
ANT 1	2412	PK	18.620	18.260	18.390	18.600	-	-	-	-
		AV	15.430	15.070	14.990	15.410	-	-	-	-
	2437	PK	18.820	18.520	18.610	18.800	-	-	-	-
		AV	15.770	15.430	15.240	15.710	-	-	-	-
	2462	PK	18.720	18.330	18.470	18.630	-	-	-	-
		AV	15.570	15.180	15.150	15.560	-	-	-	-
ANT 2	2412	PK	18.510	18.290	18.190	18.410	-	-	-	-
		AV	15.280	14.990	14.850	15.270	-	-	-	-
	2437	PK	18.660	18.260	18.380	18.500	-	-	-	-
		AV	15.640	15.420	15.330	15.500	-	-	-	-
	2462	PK	18.450	18.090	18.250	18.360	-	-	-	-
		AV	15.560	15.170	15.190	15.230	-	-	-	-
Sum (ANT 1+2)	2412	PK	21.576	21.286	21.302	21.517	-	-	-	-
	2437	PK	21.752	21.403	21.507	21.663	-	-	-	-
	2462	PK	21.598	21.222	21.372	21.508	-	-	-	-

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for <u>802.11g</u>							
			Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
ANT 1	2412	PK	19.020	19.040	18.940	20.850	20.940	20.340	20.430	20.510
		AV	14.220	14.120	14.070	14.210	14.220	11.130	11.120	11.190
	2437	PK	19.470	19.460	19.350	20.670	20.750	20.320	20.220	20.590
		AV	14.660	14.640	14.590	14.320	14.080	11.050	10.950	10.980
	2462	PK	18.940	18.030	18.940	20.710	20.820	20.650	20.540	20.650
		AV	14.210	14.040	14.170	14.200	14.190	11.170	11.270	11.190
ANT 2	2412	PK	18.670	18.780	18.830	20.430	20.670	19.820	20.480	20.040
		AV	14.250	13.880	13.890	14.100	14.120	11.240	10.980	11.080
	2437	PK	19.190	19.540	19.270	20.450	20.830	20.230	19.780	20.340
		AV	14.740	14.650	14.660	14.700	14.710	11.450	11.390	11.190
	2462	PK	18.690	18.730	18.760	20.480	20.570	19.940	20.260	20.150
		AV	14.380	14.200	14.280	14.270	14.360	11.420	11.390	11.600
Sum (ANT 1+2)	2412	PK	21.859	21.923	21.896	23.656	23.818	23.099	23.466	23.292
	2437	PK	22.343	22.511	22.321	23.572	23.801	23.286	23.016	23.478
	2462	PK	21.828	21.405	21.862	23.607	23.708	23.320	23.413	23.418

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for <u>802.11n(HT20)</u>							
			Data Rate [MCS]							
			0	1	2	3	4	5	6	7
ANT 1	2412	PK	18.310	18.240	19.870	20.120	19.860	19.880	19.720	19.360
		AV	13.370	13.220	13.050	13.060	11.150	11.130	10.240	10.230
	2437	PK	18.490	18.520	19.880	20.070	19.920	20.030	20.040	19.410
		AV	13.650	13.560	13.450	13.530	11.460	11.270	10.720	10.730
	2462	PK	17.920	18.140	19.860	19.980	19.690	19.420	19.880	19.170
		AV	13.480	13.140	13.140	13.100	11.220	11.240	10.210	10.130
ANT 2	2412	PK	18.060	17.880	19.970	20.020	19.230	19.870	18.770	18.130
		AV	13.280	13.190	13.010	13.020	11.580	11.890	10.890	10.730
	2437	PK	18.980	18.900	19.830	20.320	20.080	19.730	19.260	18.770
		AV	13.750	13.710	13.410	13.790	11.660	11.480	10.960	10.890
	2462	PK	18.010	18.020	19.720	20.250	20.160	20.040	18.480	18.460
		AV	13.160	13.080	13.140	13.150	11.600	11.870	10.510	10.470
Sum (ANT 1+2)	2412	PK	21.198	21.075	22.931	23.081	22.567	22.886	22.282	21.799
	2437	PK	21.753	21.725	22.866	23.208	23.012	22.893	22.678	22.113
	2462	PK	20.976	21.091	22.801	23.128	22.942	22.752	22.247	21.840

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for <u>802.11ac(VHT20)</u>								
			Data Rate [MCS]								
			0	1	2	3	4	5	6	7	8
ANT 1	2422	PK	18.260	18.280	20.030	20.230	20.120	20.210	19.930	19.750	17.990
		AV	13.120	13.060	13.050	13.150	11.630	11.390	10.510	10.500	9.260
	2437	PK	18.550	18.530	20.080	20.050	19.840	20.040	19.880	19.440	18.110
		AV	13.560	13.440	13.350	13.350	11.590	11.610	10.660	10.480	9.170
	2452	PK	18.140	18.140	20.090	20.270	19.950	20.120	20.040	20.150	18.150
		AV	13.220	13.170	13.440	13.410	11.580	11.560	10.620	10.510	9.370
ANT 2	2422	PK	18.080	18.100	19.910	20.480	20.150	20.450	19.030	18.100	17.430
		AV	13.120	13.070	13.010	13.110	11.730	11.920	10.840	10.340	9.370
	2437	PK	18.240	18.450	20.100	20.360	19.500	20.160	18.800	17.810	17.950
		AV	13.720	13.610	13.860	13.700	11.940	11.900	10.840	10.730	9.710
	2452	PK	18.000	18.320	19.640	20.130	19.920	19.180	19.220	18.170	17.180
		AV	13.270	13.070	13.580	13.280	12.070	11.630	11.030	10.400	9.450
Sum (ANT 1+2)	2412	PK	21.182	21.202	22.981	23.368	23.146	23.342	22.514	22.014	20.730
	2437	PK	21.409	21.501	23.101	23.219	22.684	23.111	22.384	21.712	21.042
	2462	PK	21.081	21.242	22.882	23.211	22.946	22.686	22.660	22.283	20.703

▪ Multiple transmitting SDM

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for <u>802.11n(HT20)</u>							
			Data Rate [MCS]							
			8	9	10	11	12	13	14	15
ANT 1	2412	PK	17.810	17.890	19.580	19.670	18.930	19.200	18.290	18.060
		AV	13.400	13.280	13.310	13.280	12.030	11.890	10.950	11.080
	2437	PK	18.500	18.570	19.750	19.860	19.090	18.650	17.920	19.300
		AV	13.720	13.670	13.630	13.530	11.620	11.640	10.780	10.860
	2462	PK	17.610	17.870	19.580	19.420	18.430	19.480	18.160	17.960
		AV	13.310	13.210	13.220	13.190	11.760	11.390	11.240	11.060
ANT 2	2412	PK	17.900	17.510	19.280	19.880	19.430	19.730	18.130	18.250
		AV	13.430	13.220	13.160	13.150	11.680	11.810	10.970	11.160
	2437	PK	18.400	18.510	19.870	20.430	19.410	18.680	18.140	18.890
		AV	13.850	13.730	13.820	13.740	11.830	11.620	11.160	11.060
	2462	PK	17.710	17.950	19.550	19.620	19.580	19.320	18.410	17.650
		AV	13.340	13.300	13.250	13.060	12.260	11.810	11.550	10.640
Sum (ANT 1+2)	2412	PK	20.866	20.715	22.443	22.787	22.198	22.484	21.222	21.167
	2437	PK	21.461	21.551	22.821	23.165	22.264	21.676	21.042	22.111
	2462	PK	20.671	20.921	22.576	22.532	22.054	22.412	21.298	20.819

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for <u>802.11ac(VHT20)</u>								
			Data Rate [MCS]								
			0	1	2	3	4	5	6	7	8
ANT 1	2422	PK	17.970	17.770	19.660	20.250	19.650	20.070	18.990	18.170	17.140
		AV	13.460	13.320	13.360	13.310	11.480	11.650	10.600	10.520	9.530
	2437	PK	18.600	18.390	19.880	20.020	19.750	19.550	18.770	19.200	18.050
		AV	13.660	13.500	13.340	13.260	11.260	11.420	10.070	10.230	9.440
	2452	PK	17.620	18.190	19.830	19.670	19.830	19.460	18.960	18.920	18.120
		AV	13.350	13.240	13.220	13.180	12.080	11.750	10.630	10.860	9.950
ANT 2	2422	PK	17.740	17.430	19.160	19.520	19.360	19.310	18.120	17.320	16.260
		AV	13.370	13.220	13.120	13.020	11.610	11.920	10.730	10.750	9.600
	2437	PK	18.900	18.550	19.500	19.840	18.790	19.680	17.510	18.900	16.870
		AV	13.720	13.700	13.630	13.630	11.320	11.630	10.300	10.610	9.770
	2452	PK	17.540	17.770	19.420	19.380	19.150	19.420	17.940	18.240	17.090
		AV	13.340	13.220	13.130	13.170	11.740	11.830	10.810	10.920	10.410
Sum (ANT 1+2)	2412	PK	20.867	20.614	22.428	22.911	22.518	22.717	21.588	20.777	19.733
	2437	PK	21.763	21.482	22.705	22.942	22.307	22.626	21.196	22.063	20.511
	2462	PK	20.591	20.996	22.641	22.538	22.514	22.451	21.491	21.604	20.646

8.3 Maximum power spectral density

■ Test requirements and limit, §15.247(e)

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

■ Test Configuration:

Refer to the APPENDIX I.

■ Test Procedure

Method PKPSD of KDB558074 D01V04 is used.

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to **1.5 times** the DTS bandwidth.
3. Set the RBW to : **3 kHz $\leq$ RBW $\leq$ 100 kHz**
4. Set the VBW **$\geq 3 \times$ RBW**
5. Detector = **Peak**
6. Sweep time = **Auto couple**
7. Trace mode = **Max hold.**
8. Allow trace to fully stabilize.
9. Use the **peak marker function** to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

■ Test Results: **Comply**

Test Mode	Frequency	RBW	PKPSD [dBm]		
			ANT 1	ANT 2	SUM (ANT 1 + ANT 2)
TM 5	Lowest	3 kHz	-7.410	-7.930	-4.652
	Middle	3 kHz	-7.560	-6.770	-4.137
	Highest	3 kHz	-6.580	-7.060	-3.804
TM 6	Lowest	3 kHz	-10.410	-10.460	-7.425
	Middle	3 kHz	-10.420	-10.040	-7.216
	Highest	3 kHz	-10.380	-10.220	-7.289
TM 7	Lowest	3 kHz	-11.620	-12.220	-8.900
	Middle	3 kHz	-11.620	-11.150	-8.369
	Highest	3 kHz	-11.830	-11.260	-8.526
TM 8	Lowest	3 kHz	-11.200	-11.660	-8.414
	Middle	3 kHz	-11.330	-10.640	-7.962
	Highest	3 kHz	-11.750	-11.050	-8.376
TM 9	Lowest	3 kHz	-10.650	-10.570	-7.600
	Middle	3 kHz	-10.740	-10.900	-7.809
	Highest	3 kHz	-10.140	-11.960	-7.946
TM 10	Lowest	3 kHz	-11.750	-11.790	-8.760
	Middle	3 kHz	-10.710	-12.140	-8.357
	Highest	3 kHz	-11.220	-11.860	-8.518

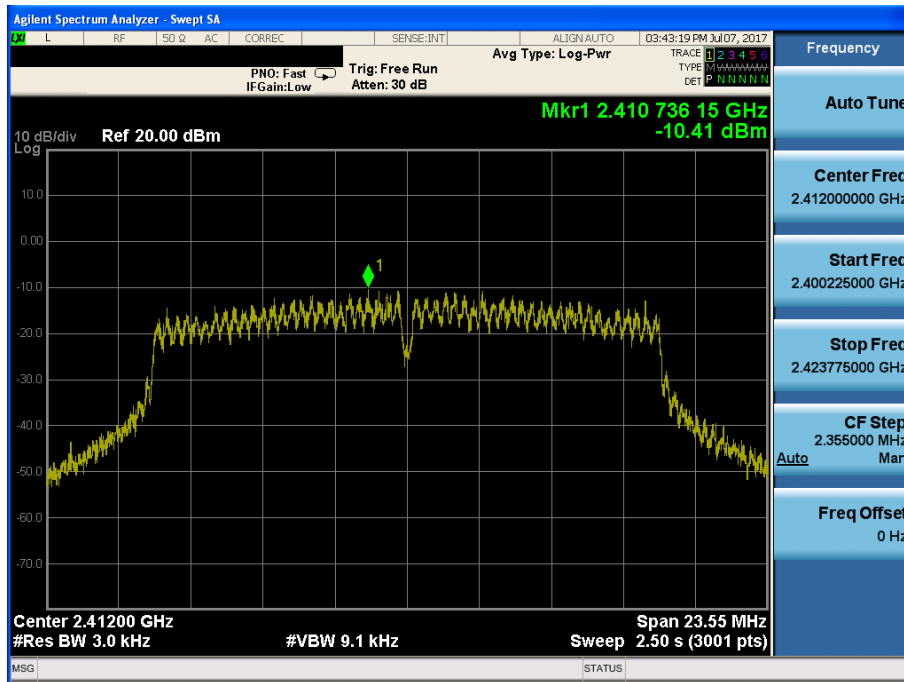
Maximum PPSD

TM 5 & ANT 1 & Highest



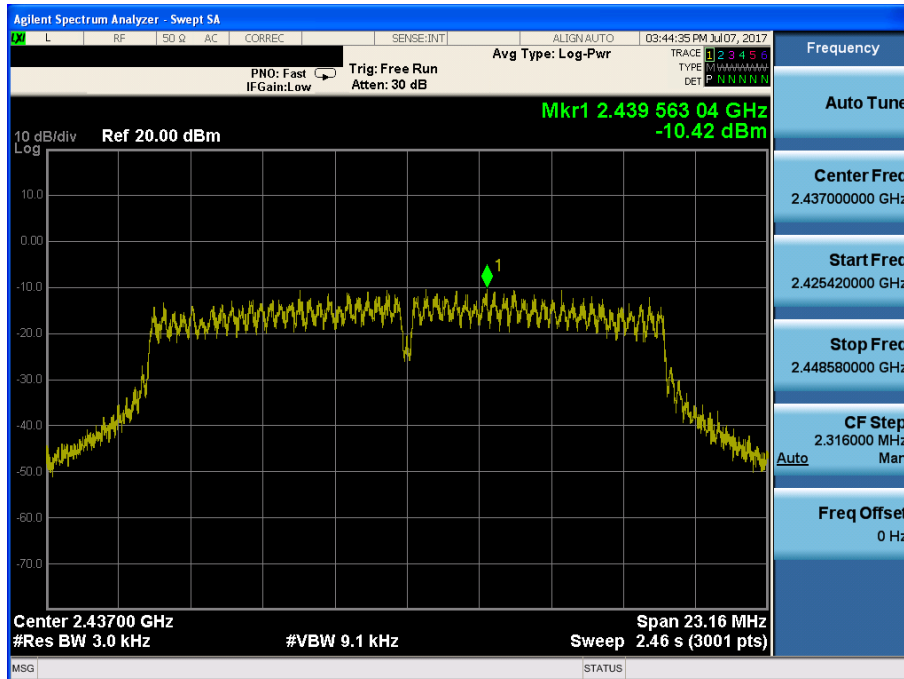
Maximum PPSD

TM 6 & ANT 1 & Lowest



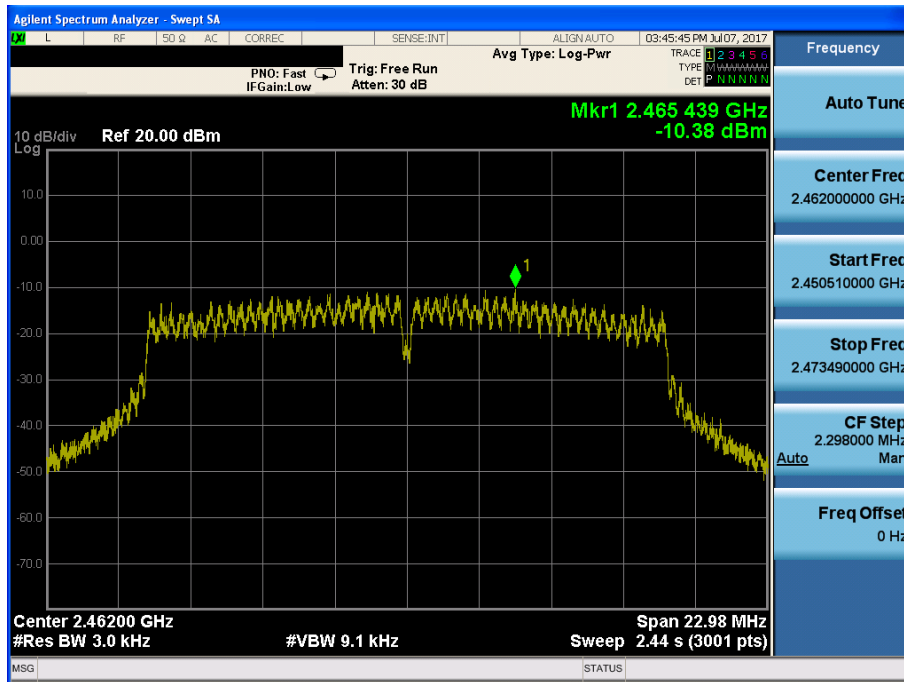
Maximum PPSD

TM 6 & ANT 1 & Middle



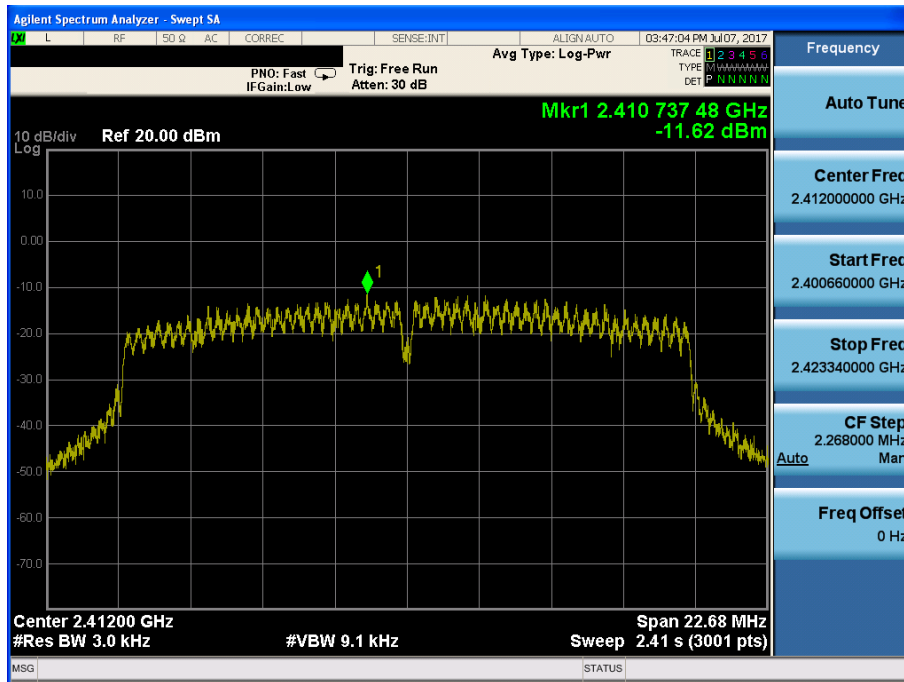
Maximum PPSD

TM 6 & ANT 1 & Highest



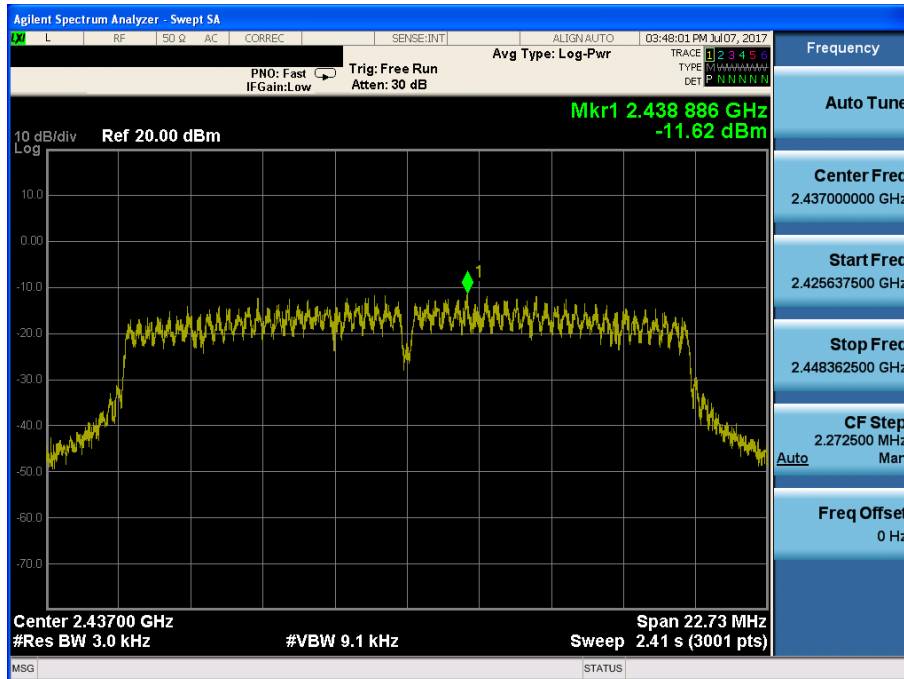
Maximum PPSD

TM 7 & ANT 1 & Lowest



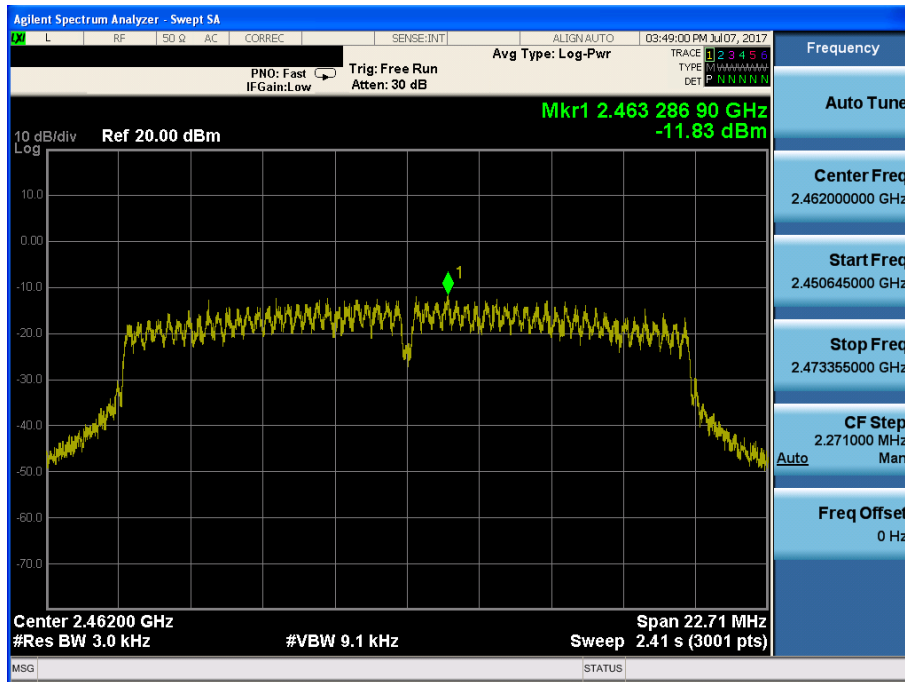
Maximum PPSD

TM 7 & ANT 1 & Middle



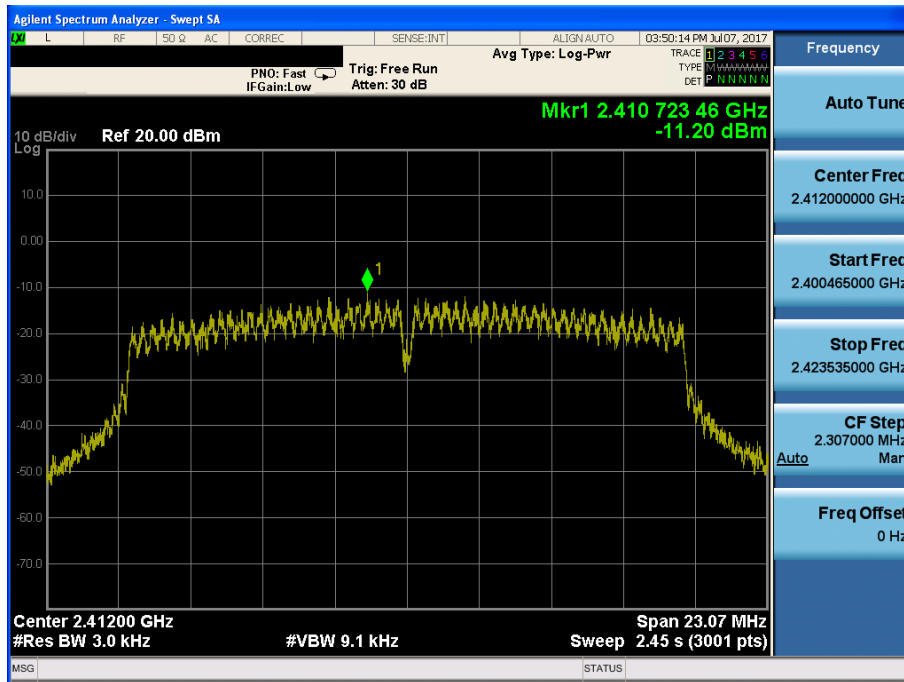
Maximum PPSD

TM 7 & ANT 1 & Highest



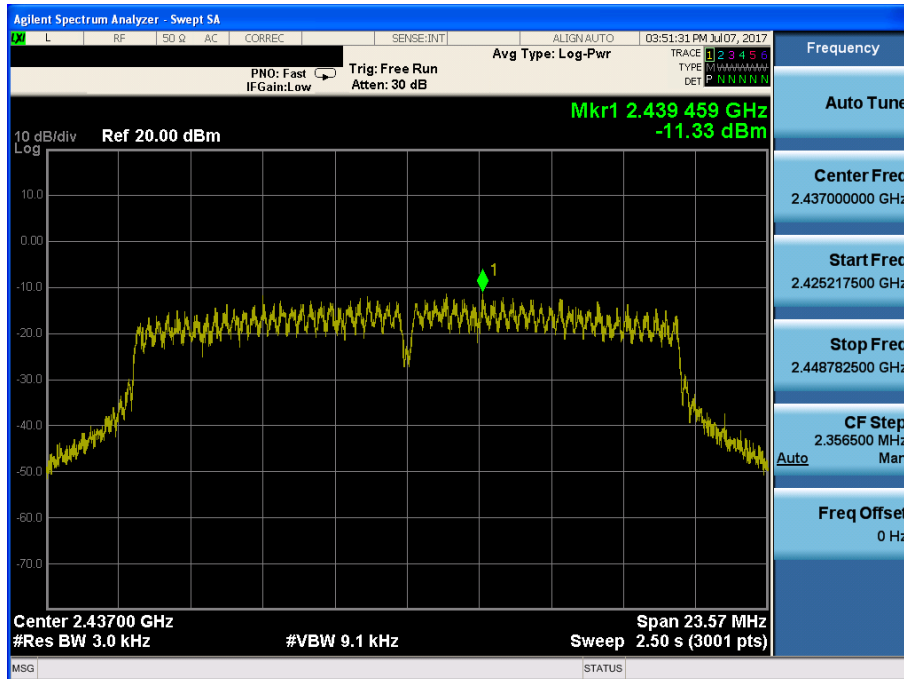
Maximum PPSD

TM 8 & ANT 1 & Lowest



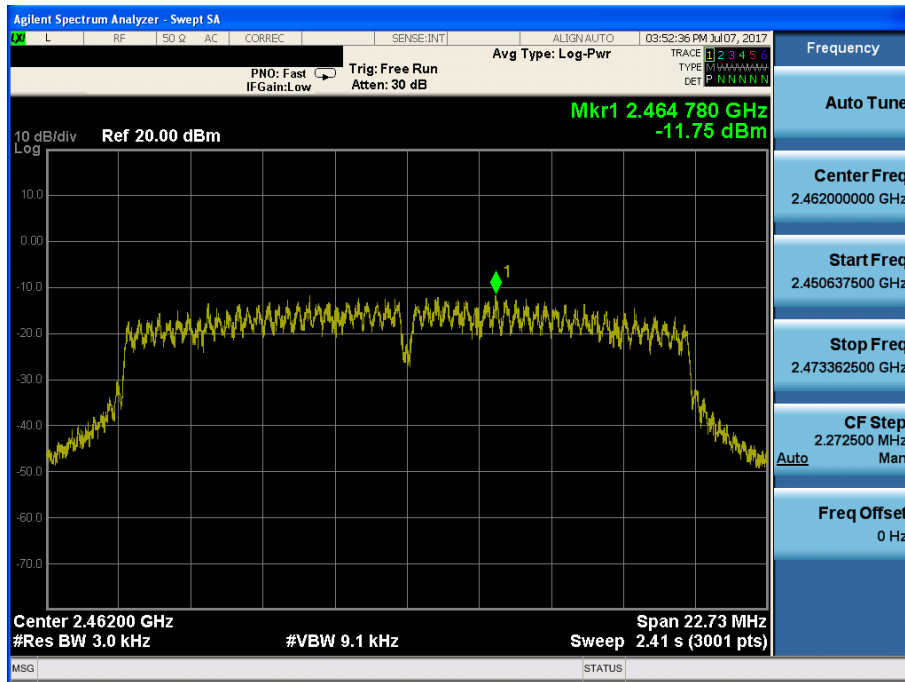
Maximum PPSD

TM 8 & ANT 1 & Middle



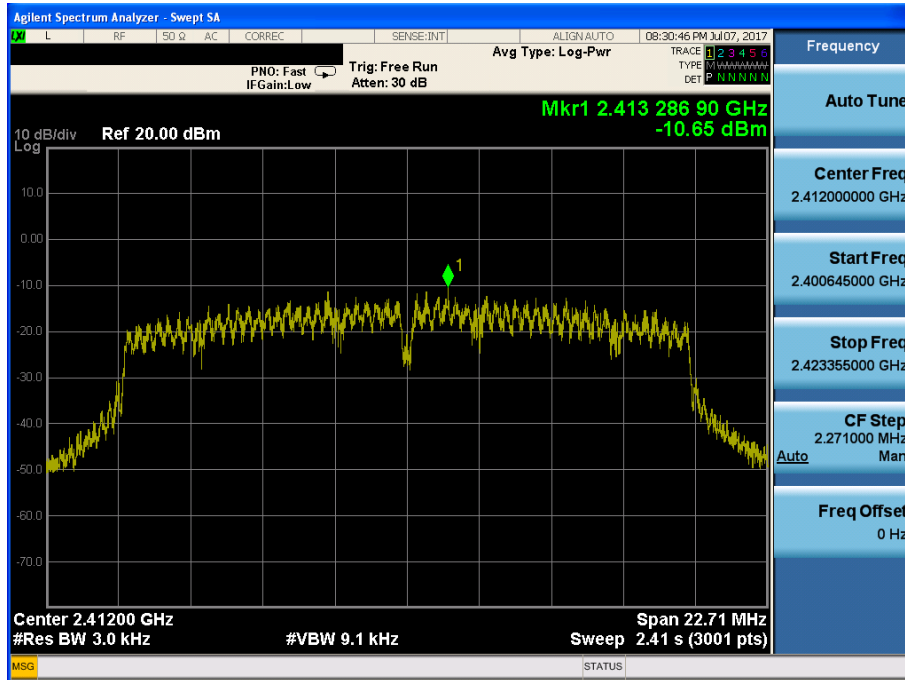
Maximum PPSD

TM 8 & ANT 1 & Highest



Maximum PPSD

TM 9 & ANT 1 & Lowest



Maximum PPSD

TM 9 & ANT 1 & Middle

