

RF TEST REPORT

Test item : Wi-Fi Transmitter
Model No. : WDG720M
Order No. : DEMC1402-00360
Date of receipt : 2014-02-03
Test duration : 2014-03-22 ~ 2014-04-16
Date of issue : 2014-06-03
Use of report : FCC & IC Original Grant

Applicant : Samsung Electronics Co., Ltd.
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Test laboratory : Digital EMC Co., Ltd.
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Test specification : FCC Part 15 Subpart C 247
RSS-210 Issue 8: 2010

Test environment : See appended test report

Test result : Pass Fail

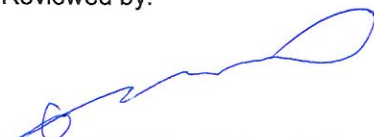
The test results presented in this test report are limited only to the sample supplied by applicant and the use of this test report is inhibited other than its purpose. This test report shall not be reproduced except in full, without the written approval of DIGITAL EMC CO., LTD.

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Test Report Version

Test Report No.	Date	Description
DRTFCC1406-0724	Jun. 03, 2014	Initial issue

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1. EUT DESCRIPTION

FCC Equipment Class	Digital Transmission System(DTS)
Product	Wi-Fi Transmitter
Model Name	WDG720M
Add Model Name	N/A
Power Supply	DC 5 V
Frequency Range	2.4 GHz Band <ul style="list-style-type: none">▪802.11b/g/n(HT20): 2412 MHz ~ 2462 MHz▪ 802.11n(HT40): 2422 MHz ~ 2452 MHz 5.7 GHz Band <ul style="list-style-type: none">▪ 802.11a/n(HT20): 5745 MHz ~ 5825 MHz▪ 802.11n(HT40): 5755 MHz ~ 5795 MHz
Modulation Type	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK BPSK for OFDM
Transmissions category	Completely uncorrelated signal
Antenna Specification	Antenna type: Internal Antenna Antenna gain <ul style="list-style-type: none">▪2.4GHz Band: ANT 1 : 2.19dBi& ANT 2 : 2.92dBi▪5.7 GHz Band: ANT 1 : 2.48 dBi& ANT 2 : 1.21dBi Antenna configuration <ul style="list-style-type: none">▪802.11b/g/a: Single Transmitting (ANT 1 or ANT 2)▪ 802.11n(MCS0 ~ 7) : Single Transmitting (ANT 1 or ANT 2)▪ 802.11n(MCS8 ~ 15): Multiple Transmitting(ANT 1 and ANT 2)

2. INFORMATION ABOUT TESTING

2.1 Test mode

Test mode	Worst case data rate	Tested Frequency(MHz)		
		Lowest	Middle	Highest
TM 1	802.11b 5.5 Mbps	2412	2442	2472
TM 2	802.11g 54 Mbps	2412	2442	2472
TM 3	802.11n(HT20) MCS 0	2412	2442	2472
TM 4	802.11n(HT40) MCS 0	2422	2437	2452
TM 5	802.11a 54 Mbps	5745	5785	5825
TM 6	802.11n(HT20) MCS 7	5745	5785	5825
TM 7	802.11n(HT40) MCS 7	5755	-	5795

The worst case data rate for each mode was determined as above table. All tests conducted in this report were made at the worst case data rate of each mode.

2.3 Auxiliary equipment

Equipment	Model No.	Serial No.	Manufacturer	Note
Laptop	Satellite L510	3A033073Q	Toshiba	FCC DoC
-	-	-	-	-

2.4 Tested environment

Temperature	: 21°C ~ 24°C
Relative humidity content	: 39% ~ 45 % R.H.
Details of power supply	: DC 5 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 Section(s)	Parameter	Limit	Test Condition	Status Note 1
I. Transmitter Mode (TX)					
15.247(a)	RSS-210 [A8.2]	6 dB Bandwidth	> 500 kHz	Conducted	C
15.247(b)	RSS-210 [A8.4]	Transmitter Output Power	< 1Watt		C
15.247(d)	RSS-210 [A8.5]	Out of Band Emissions / Band Edge	20dBc in any 100kHz BW		C
15.247(e)	RSS-210 [A8.2]	Transmitter Power Spectral Density	< 8dBm / 3kHz		C
-	RSS Gen [4.6.1]	Occupied Bandwidth (99%)	RSS-Gen(4.6.1)		C
15.205 15.209	RSS-210 [A8.5]	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	FCC 15.209 limits	Radiated	C ^{Note2}
15.207	RSS-Gen [7.2.4]	AC Conducted Emissions	FCC 15.207 limits	AC Line Conducted	C
15.203	-	Antenna Requirements	FCC 15.203 limits	-	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.					

4. TEST METHODOLOGY

Generally the tests were performed according to the KDB558074 v03r1. And ANSI C63.10-2009 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 Commission's 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 engineering 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 KDB 558074 v03r1. So this test was fulfilled with the requirements in Section 6.2 of ANSI C63.10.

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

Radiated Emissions

Basically the radiated tests were performed with KDB 558074 v03r1. 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 KDB 558074 v03r1.

The EUT is placed on a turn 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 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

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 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 38, 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 :678747

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, 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& RSS-Gen [7.1.2]:

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 antennas are installed permanently on this module by means of soldering.

Therefore this module Complies with the requirement of §15.203

7.2 Directional antenna gain for MIMO :

Bands	ANT1 [dBi]	ANT2 [dBi]	Directional Gain for uncorrelated signals [dBi]
2.4 GHz	2.190	2.920	2.570
5.7 GHz	2.480	1.210	1.891

$$\text{Directional gain} = 10 \log[(10^{G1/10} + 10^{G2/10} + \dots + 10^{GN/10})/N_{\text{ANT}}] \text{ dBi for MIMO uncorrelated signal}$$

8. TEST RESULT

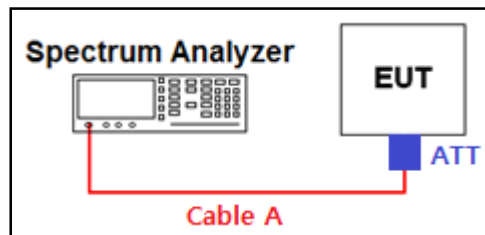
8.1 6dB bandwidth

Test Requirements and limit, §15.247(a)& RSS-210 [A8.2]

The bandwidth at 6dB 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 6dB bandwidth is 500 kHz.

■ TEST CONFIGURATION



■ TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer and used following test procedure of **KDB558074 v03r1**.

1. Set resolution bandwidth (RBW) = 100 KHz
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
(RBW:100KHz/VBW:300KHz)
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**(Refer to next page.)

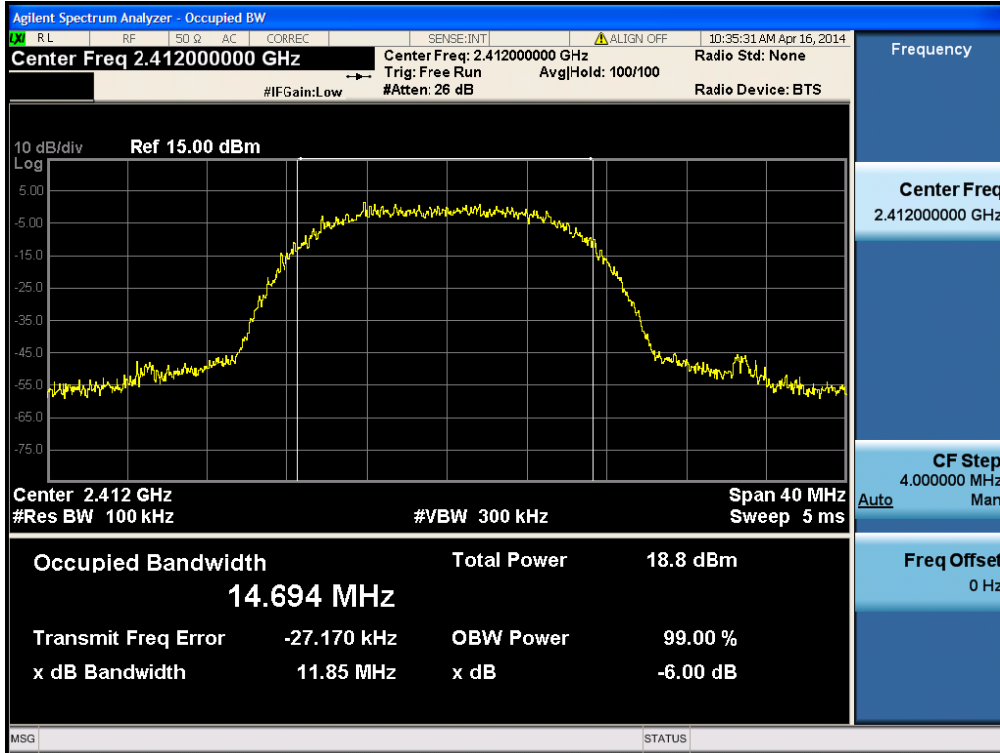
- Measurement Data:

Test Mode	Frequency	Test Results[MHz]	
		ANT 1	ANT 2
TM 1	Lowest	11.850	10.060
	Middle	10.040	10.090
	Highest	10.020	10.100
TM 2	Lowest	16.410	16.460
	Middle	16.440	16.380
	Highest	16.410	16.320
TM 3	Lowest	17.010	16.630
	Middle	16.550	16.900
	Highest	16.640	16.810
TM 4	Lowest	35.360	35.360
	Middle	35.650	35.190
	Highest	35.580	35.390
TM 5	Lowest	16.390	16.140
	Middle	16.440	16.350
	Highest	15.940	16.390
TM 6	Lowest	15.710	16.550
	Middle	16.490	16.280
	Highest	16.890	16.950
TM 7	Lowest	35.170	35.160
	Highest	35.160	35.130

RESULT PLOTS

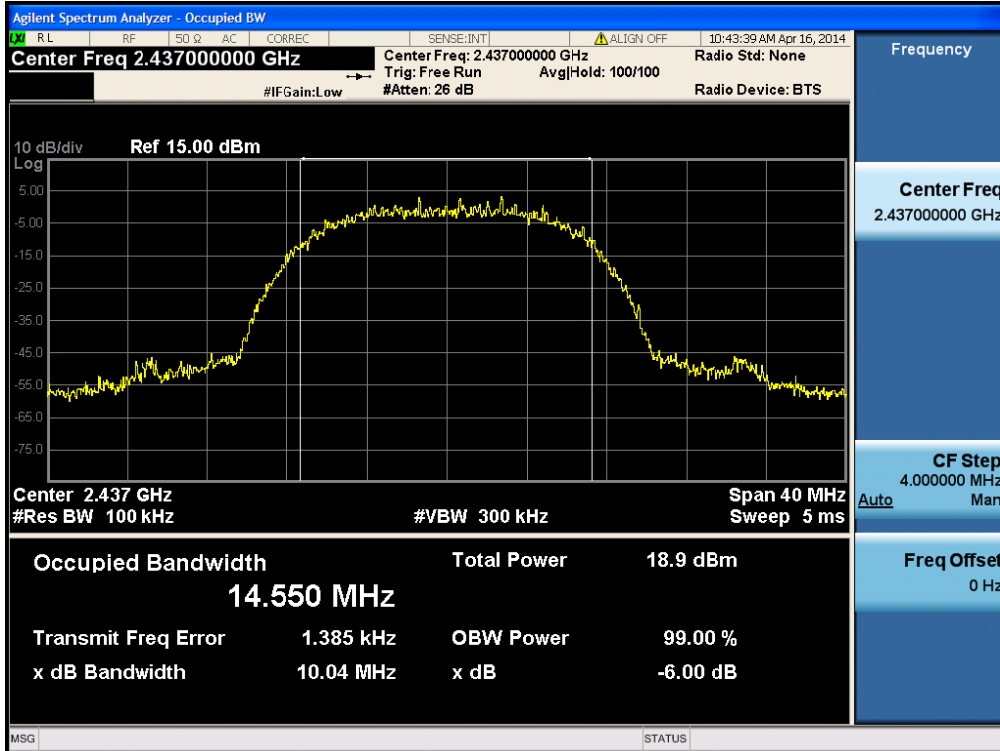
6 dB Bandwidth

TM 1& ANT 1&Lowest



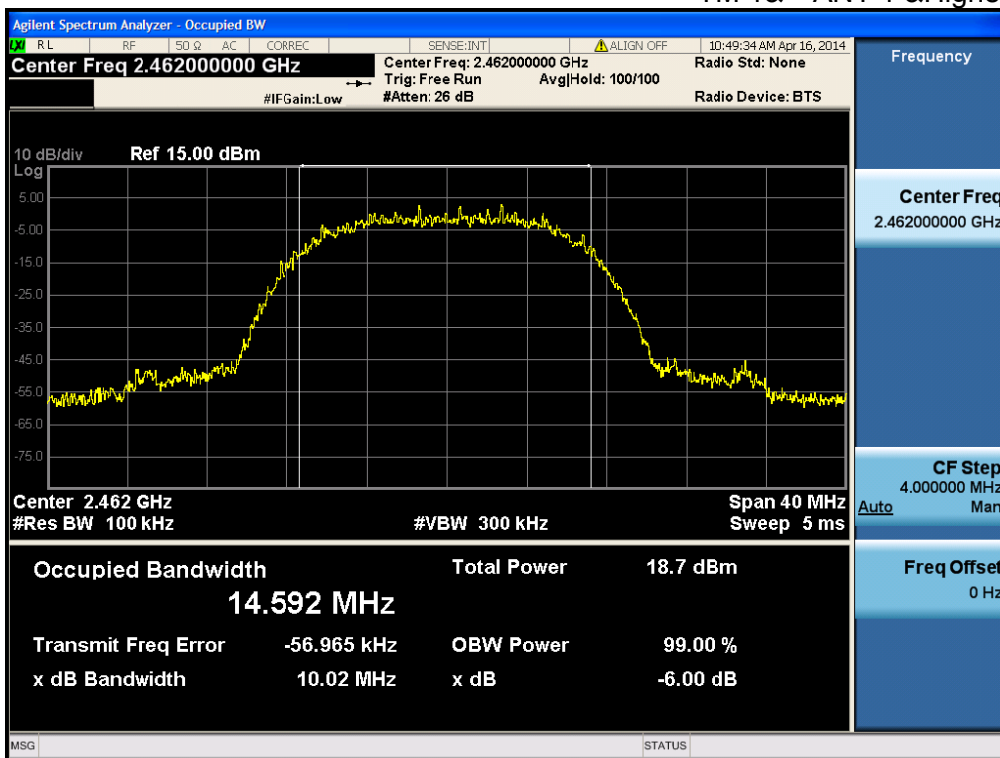
6 dB Bandwidth

TM 1& ANT 1 &Middle



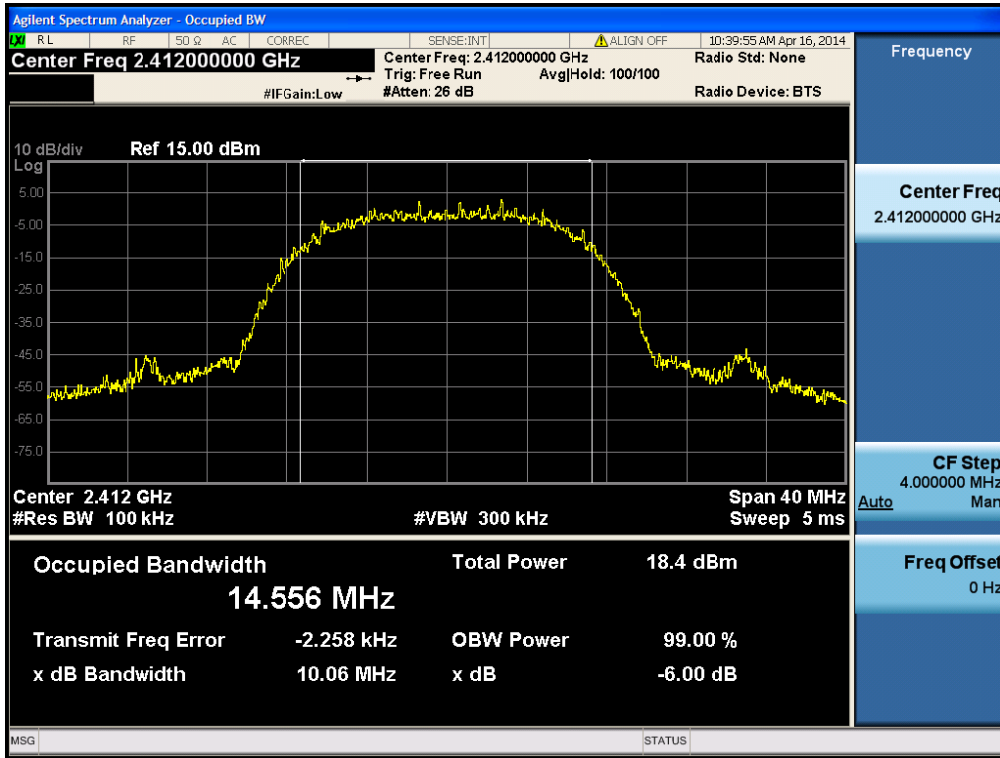
6 dB Bandwidth

TM 1& ANT 1 & Highest



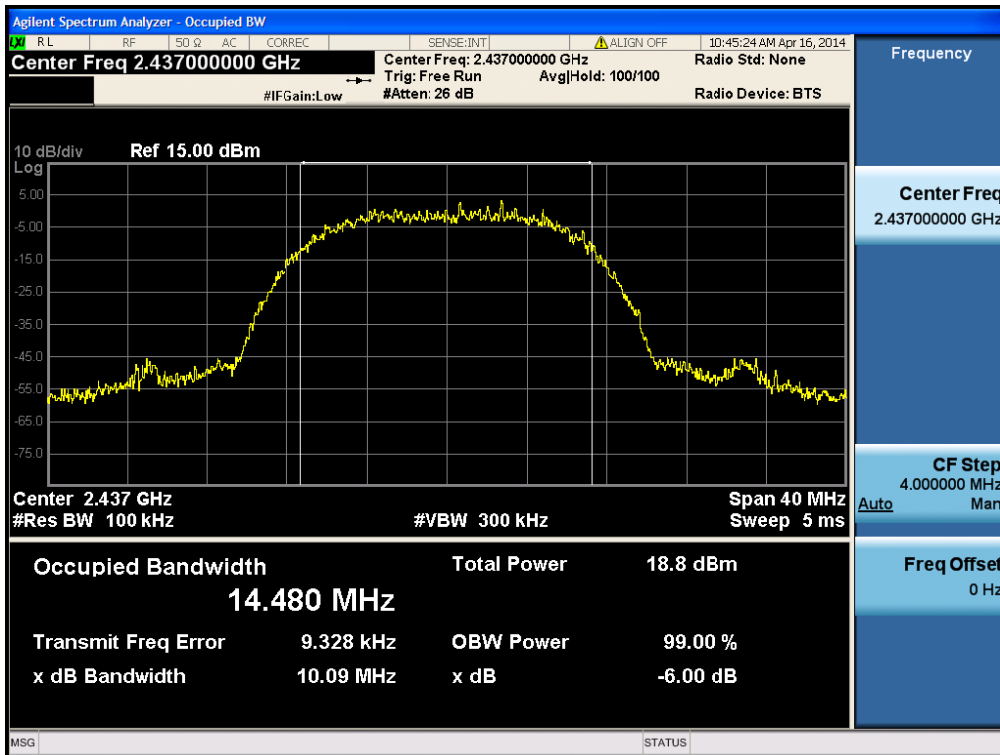
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TM 1& ANT 2 & Lowest



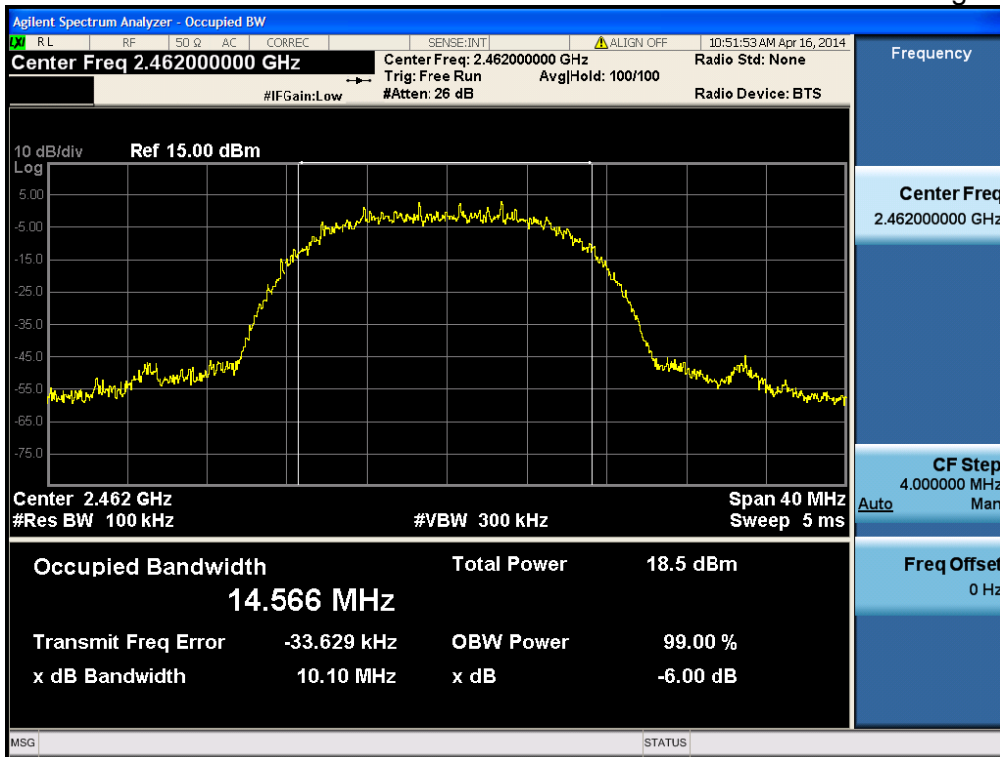
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TM 1& ANT 2 & Middle



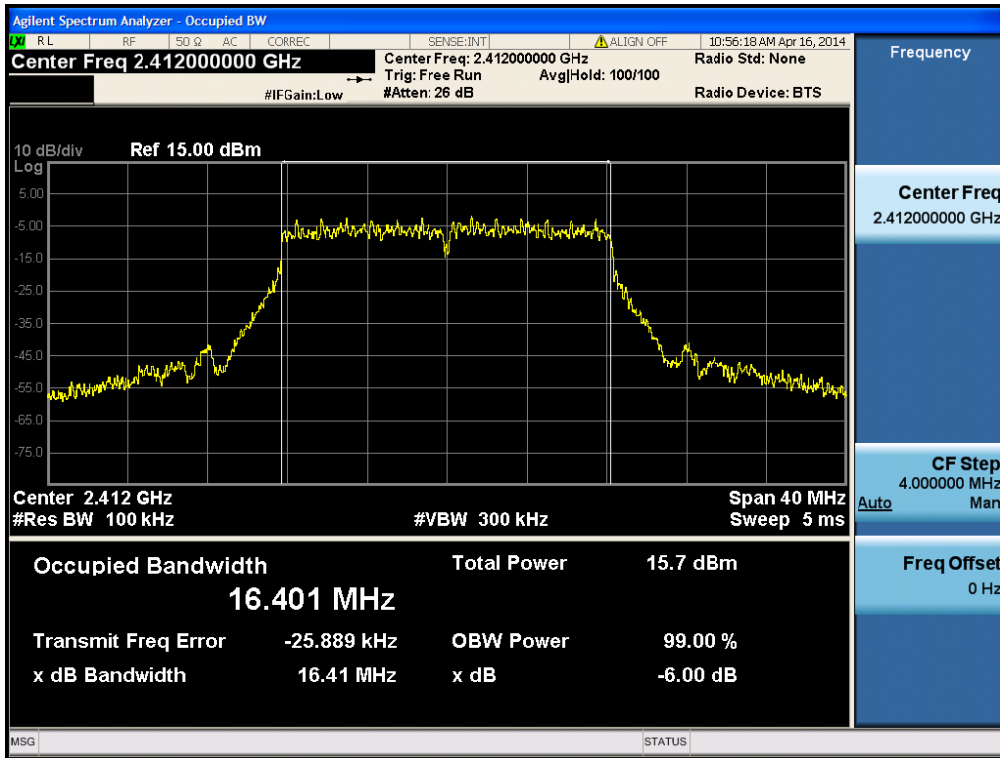
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TM 1& ANT 2 & Highest



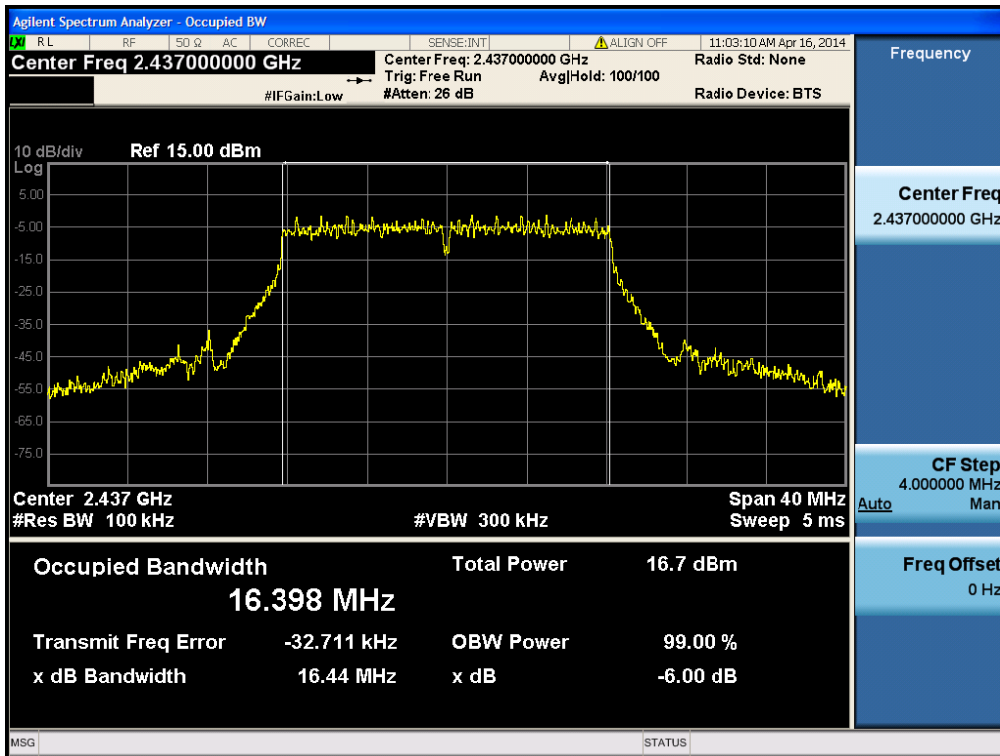
6 dB Bandwidth

TM 2 & ANT 1 & Lowest



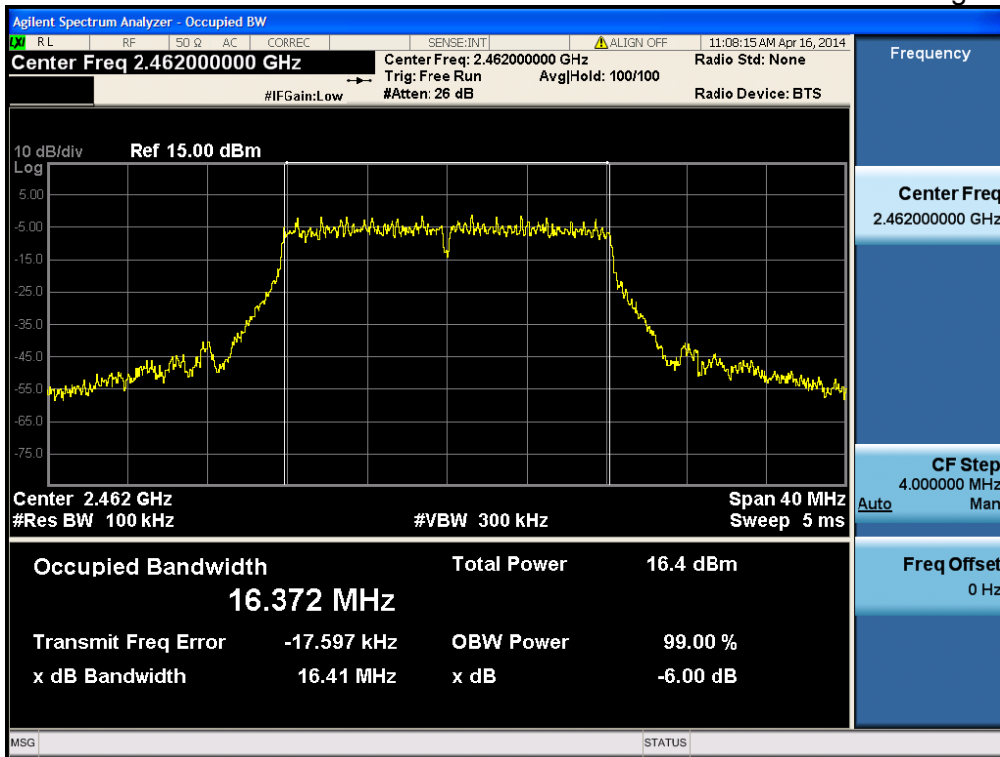
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TM 2 & ANT 1 & Middle



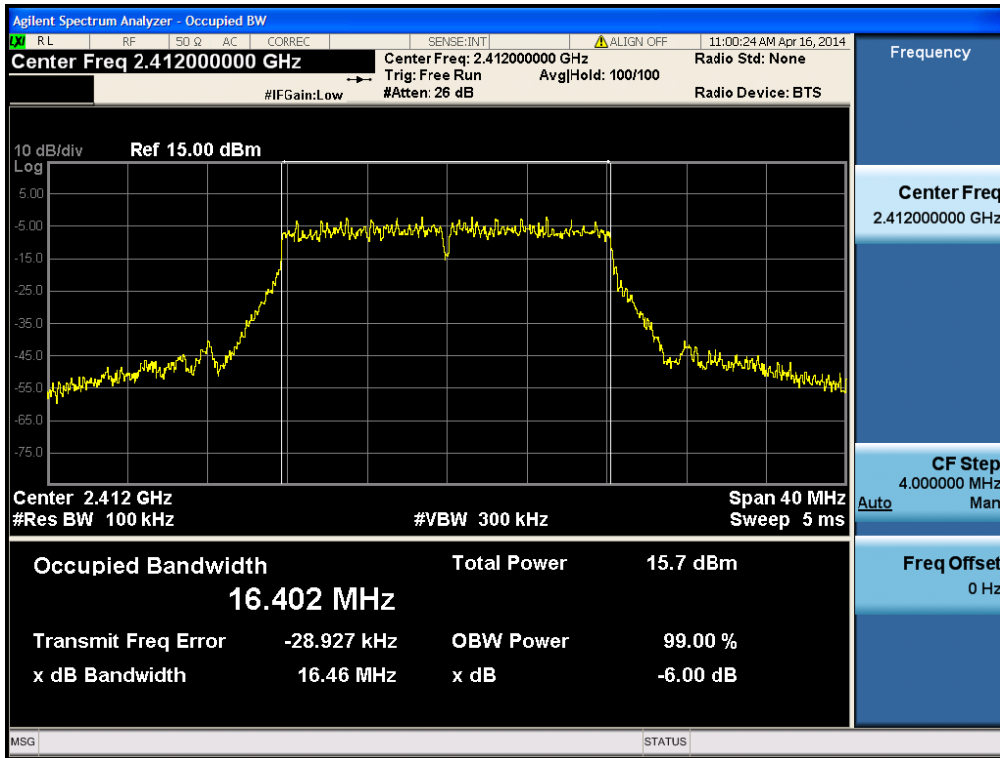
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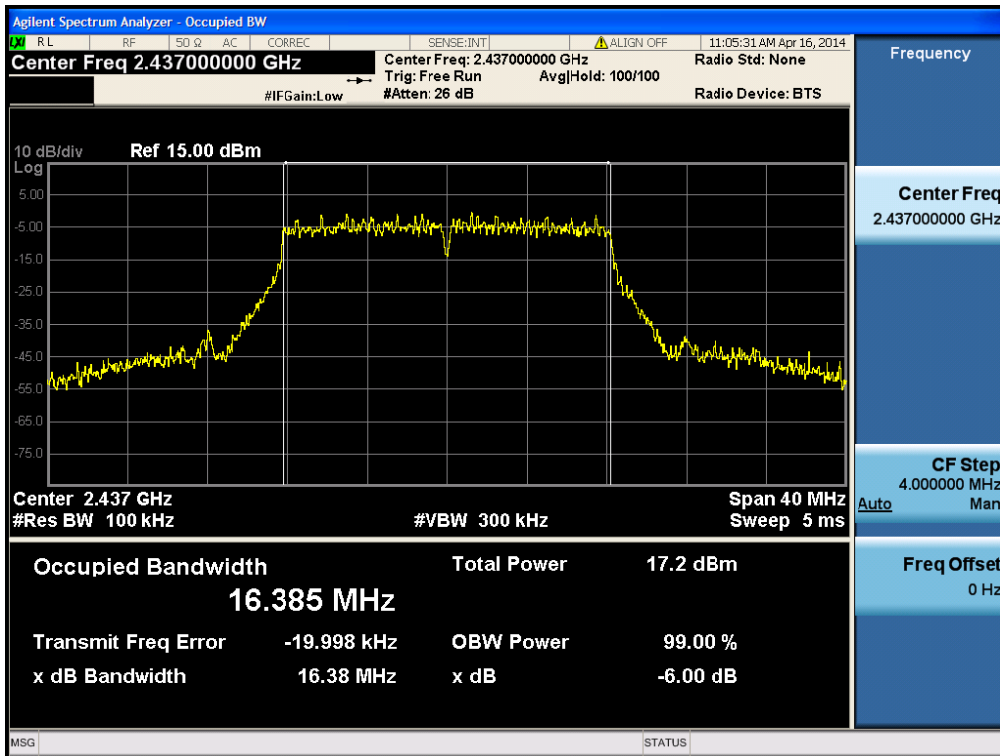
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TM 2 & ANT 2 & Lowest



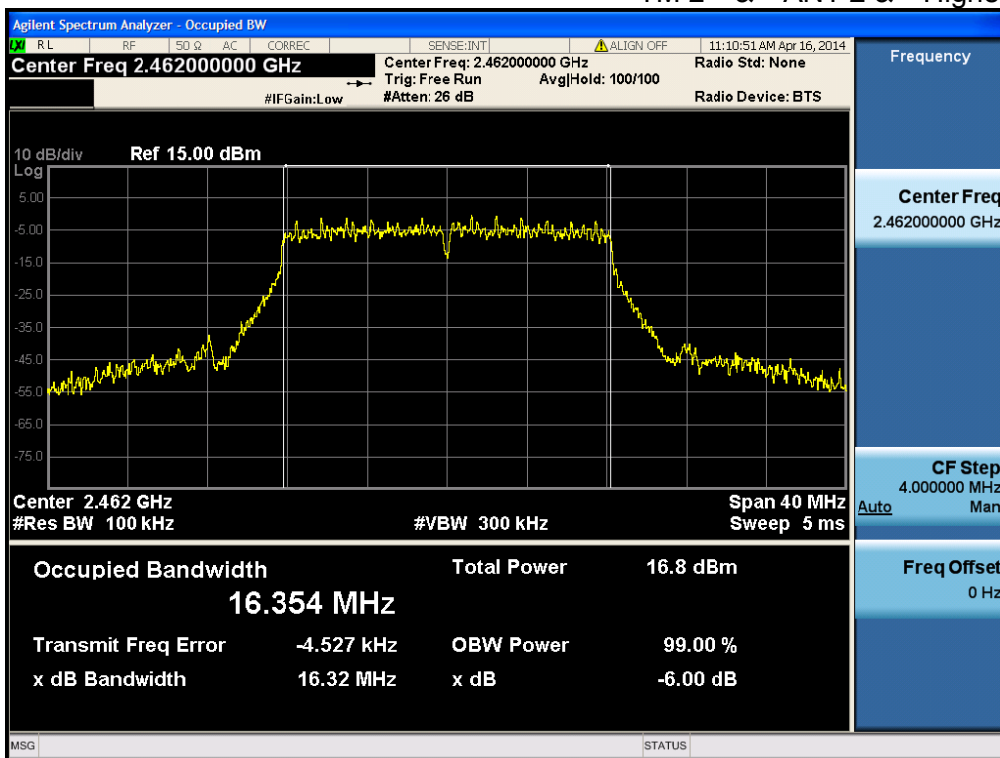
6 dB Bandwidth

TM 2 & ANT 2 & Middle



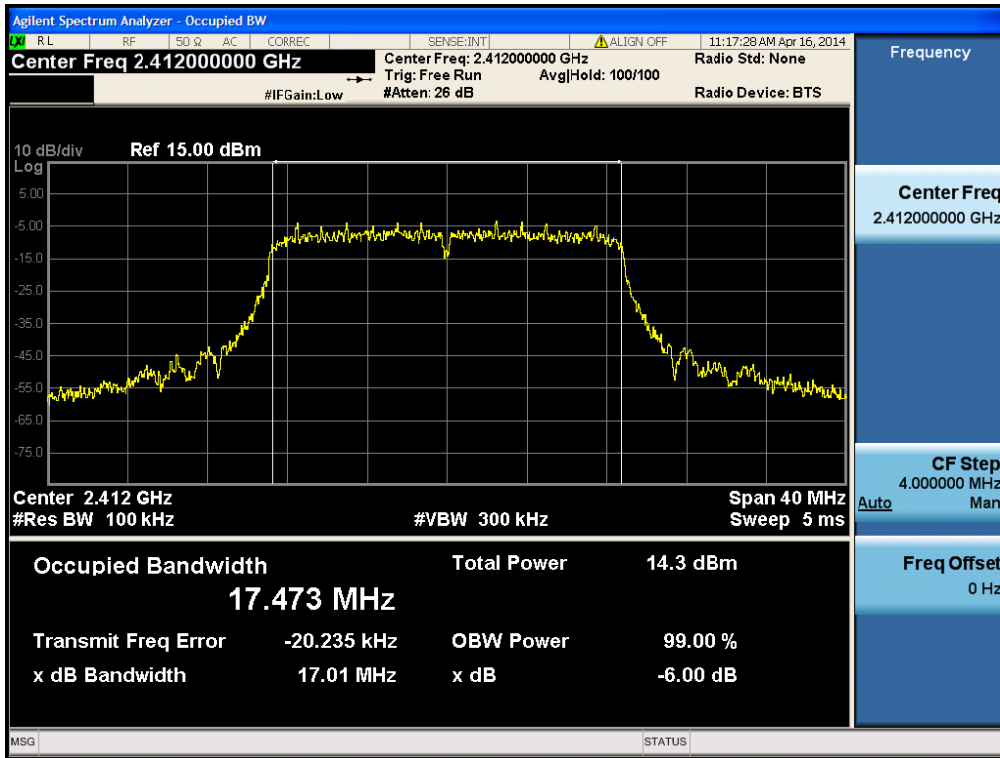
6 dB Bandwidth

TM 2 & ANT 2 & Highest



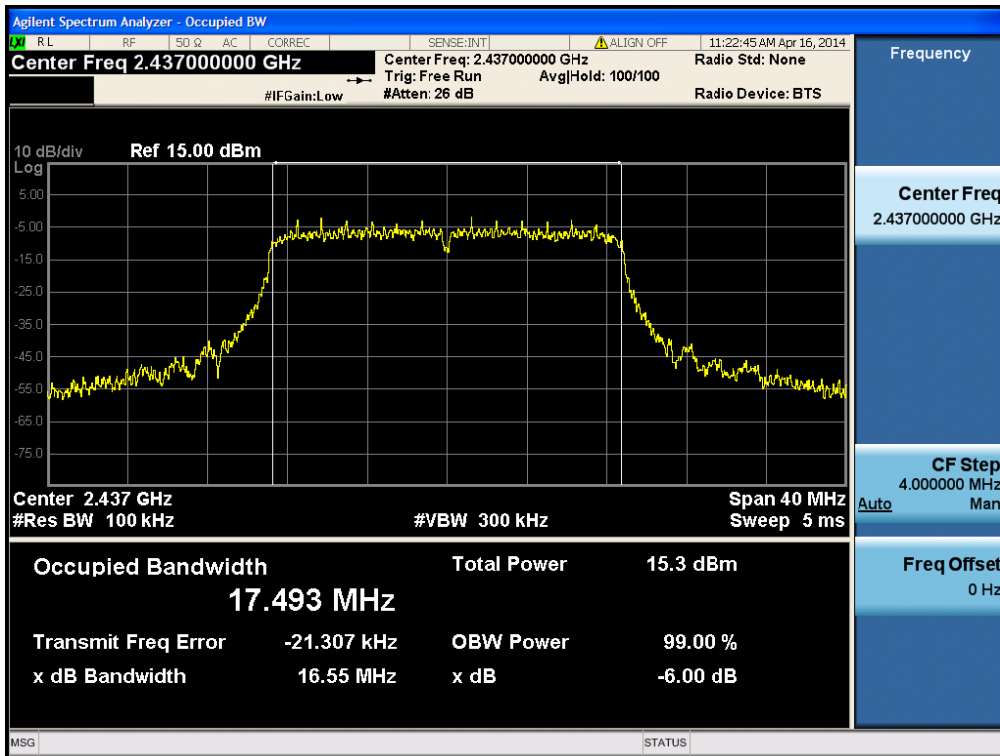
6 dB Bandwidth

TM 3 & ANT 1 & Lowest



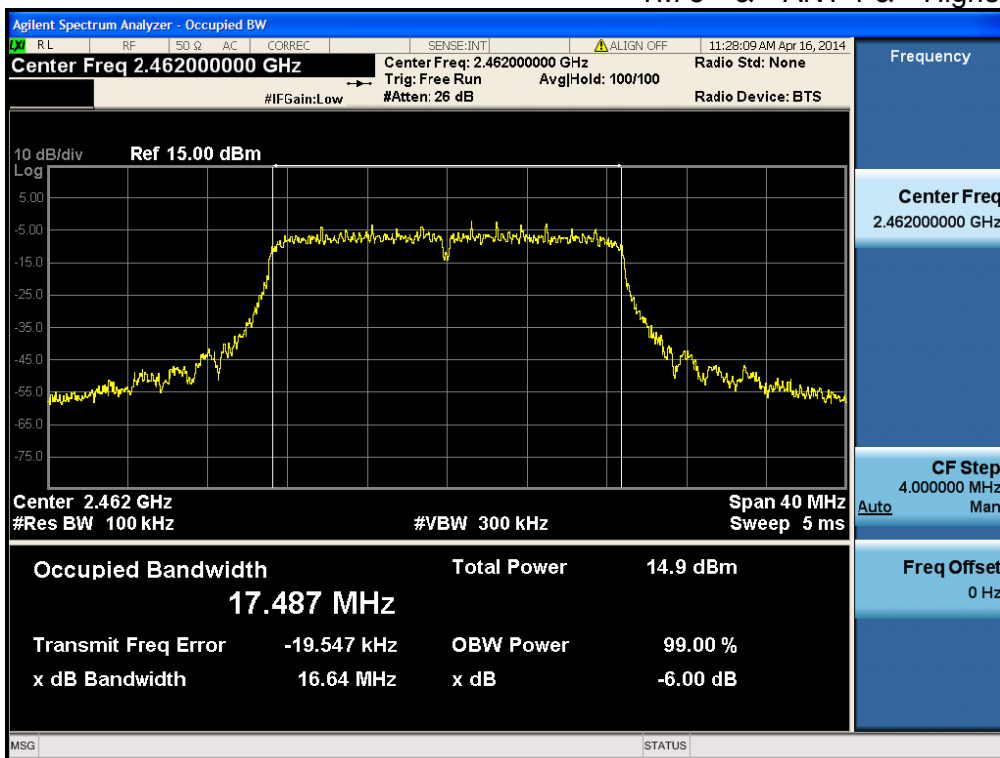
6 dB Bandwidth

TM 3 & ANT 1 & Middle



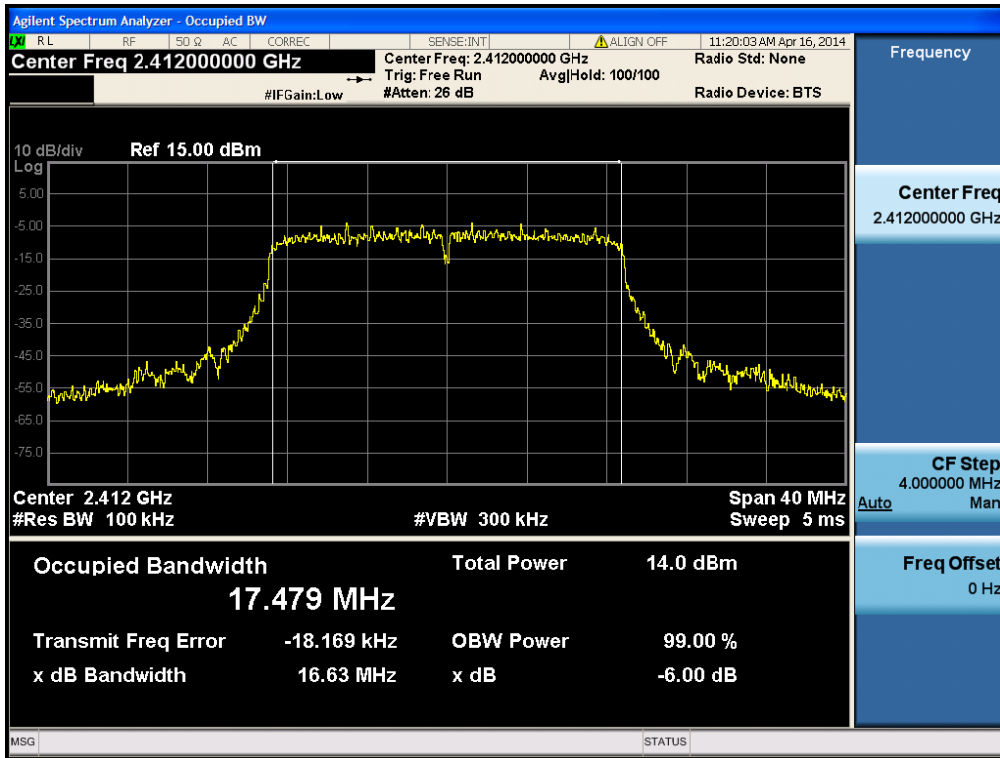
6 dB Bandwidth

TM 3 & ANT 1 & Highest



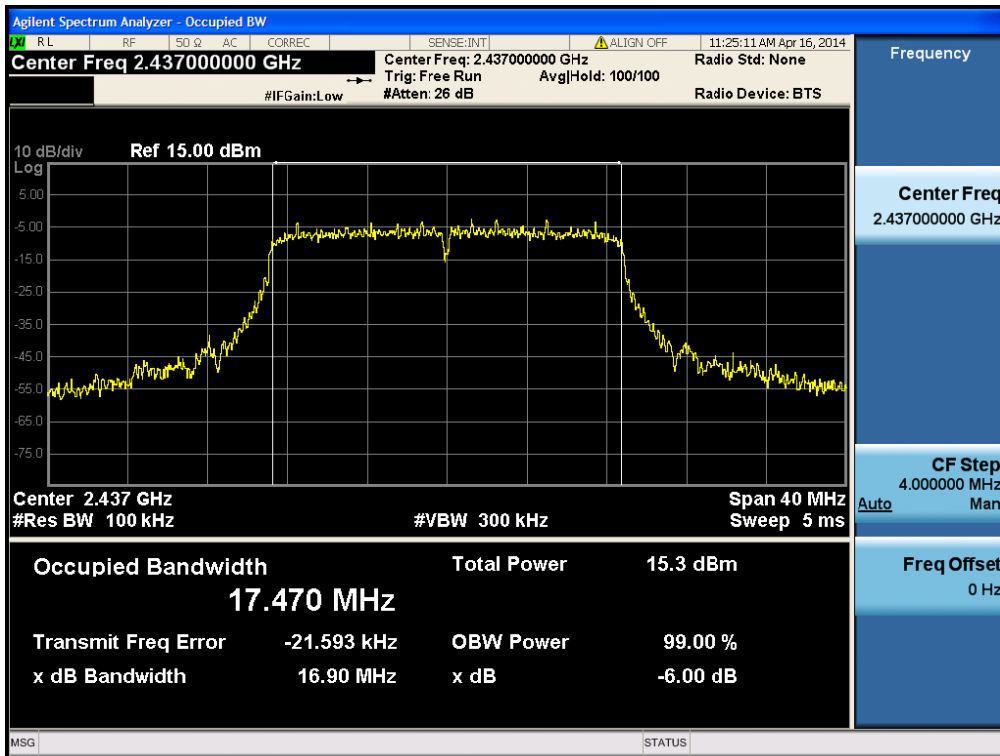
6 dB Bandwidth

TM 3 & ANT 2 & Lowest



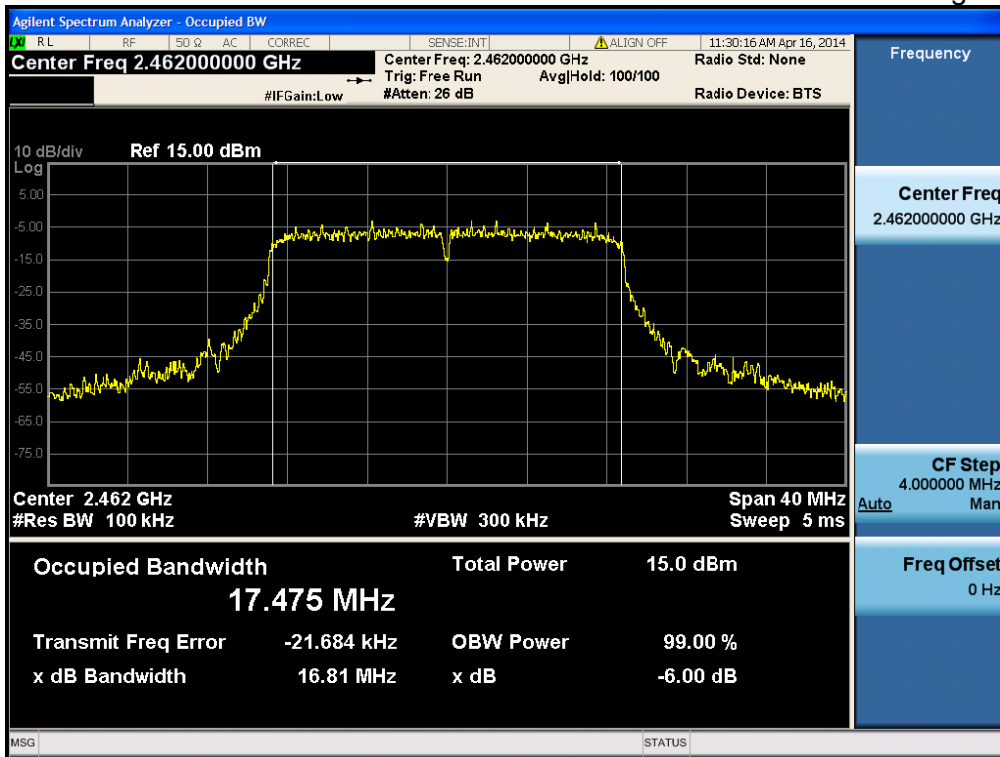
6 dB Bandwidth

TM 3 & ANT 2 & Middle



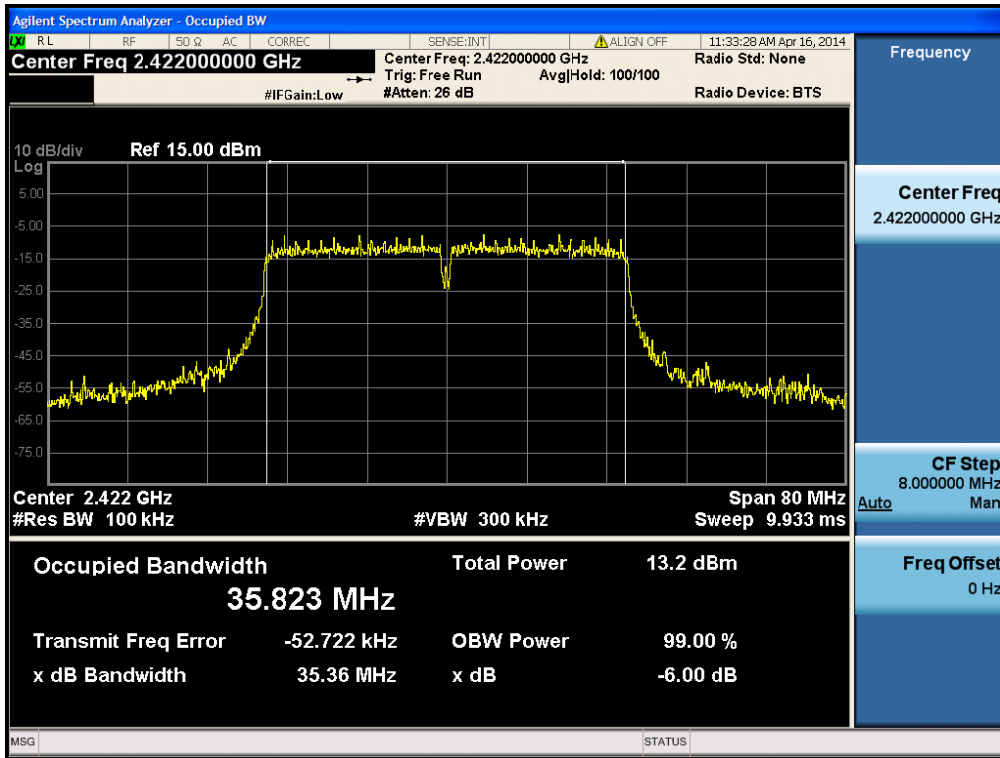
6 dB Bandwidth

TM 3 & ANT 2 & Highest



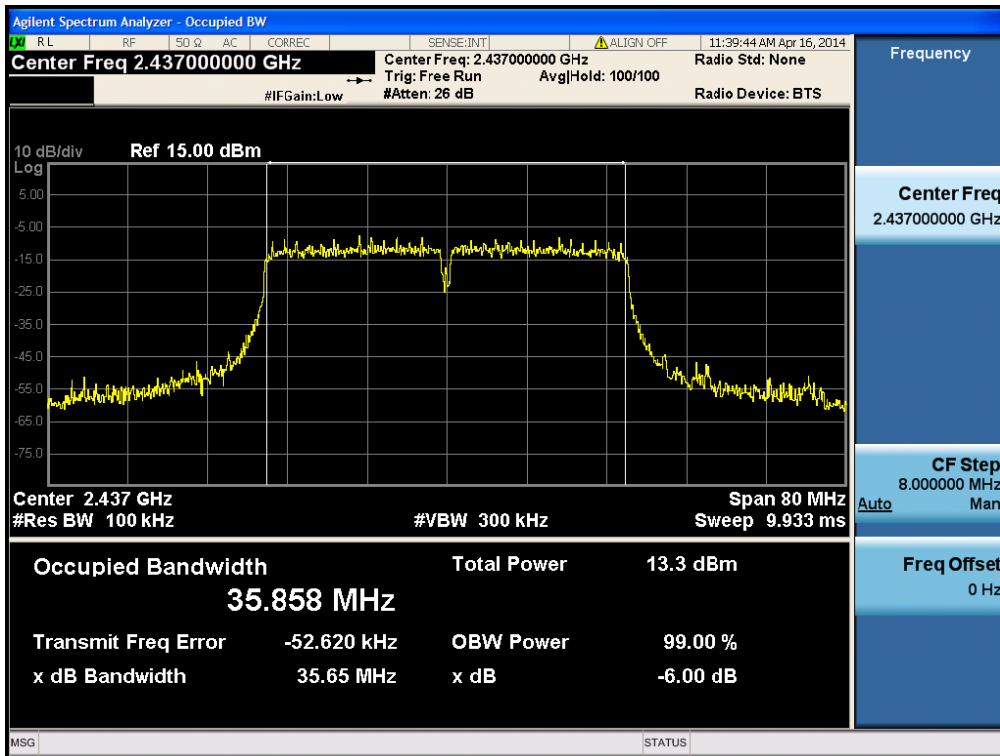
6 dB Bandwidth

TM 4 & ANT 1 & Lowest



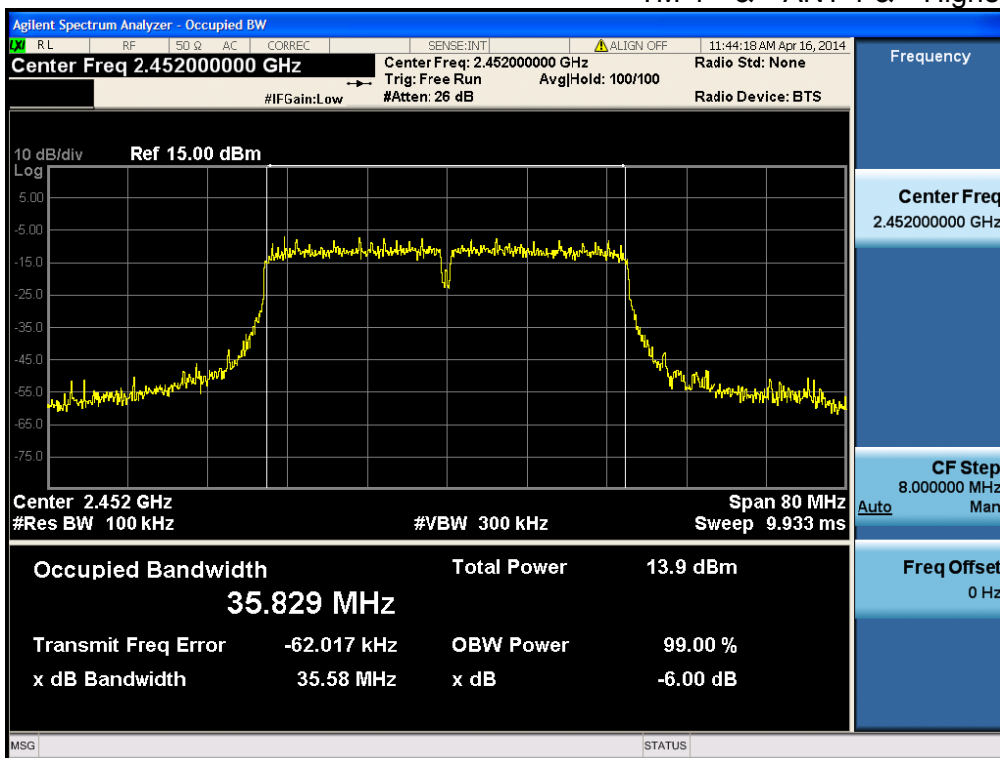
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TM 4 & ANT 1 & Middle



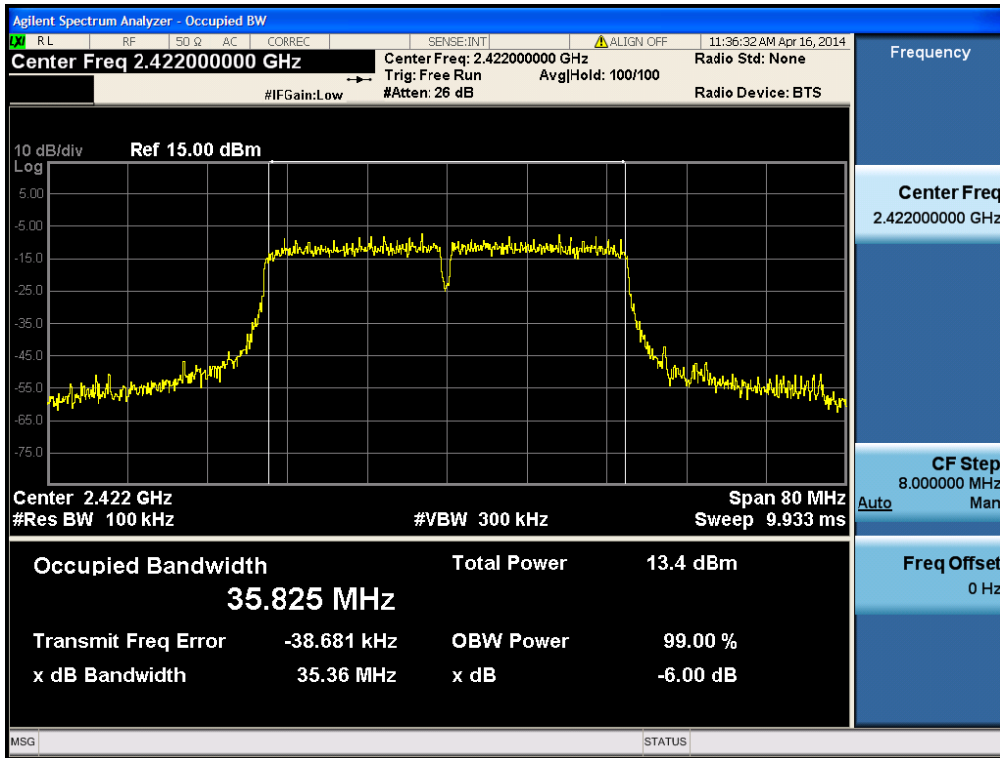
6 dB Bandwidth

TM 4 & ANT 1 & Highest



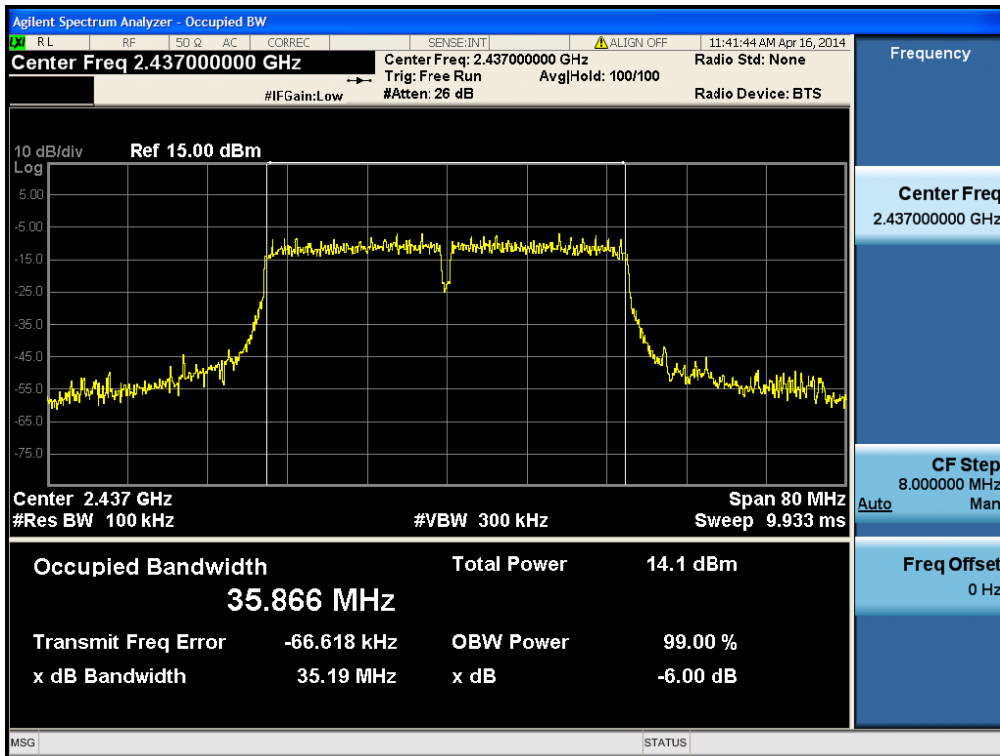
6 dB Bandwidth

TM 4 & ANT 2 & Lowest



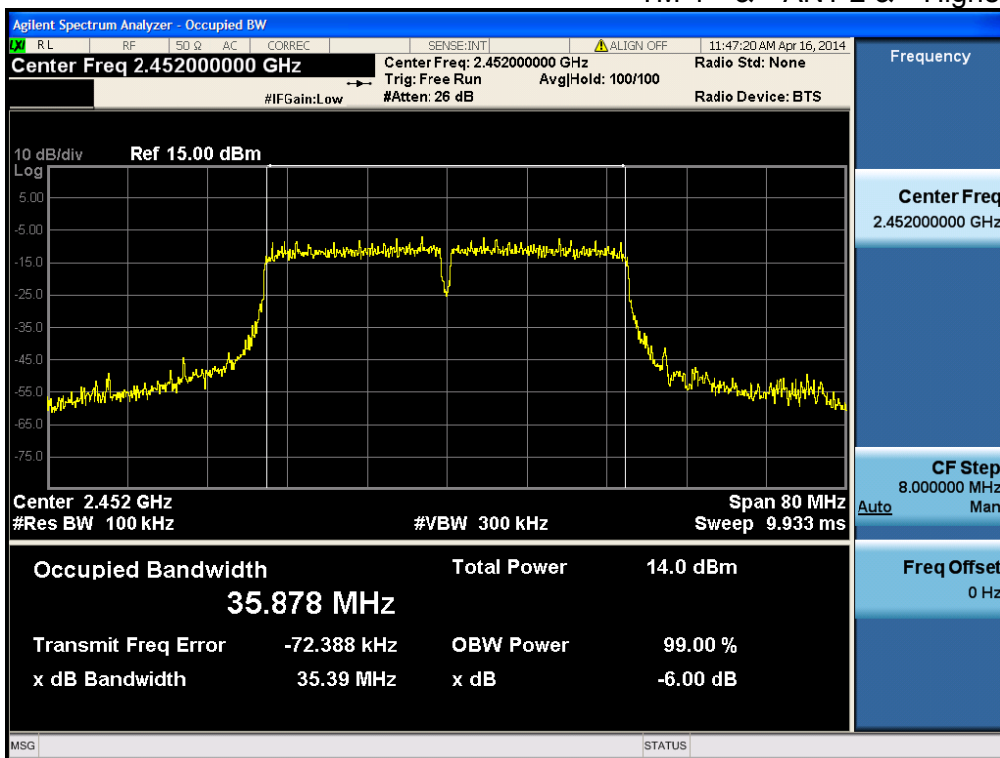
6 dB Bandwidth

TM 4 & ANT 2 & Middle



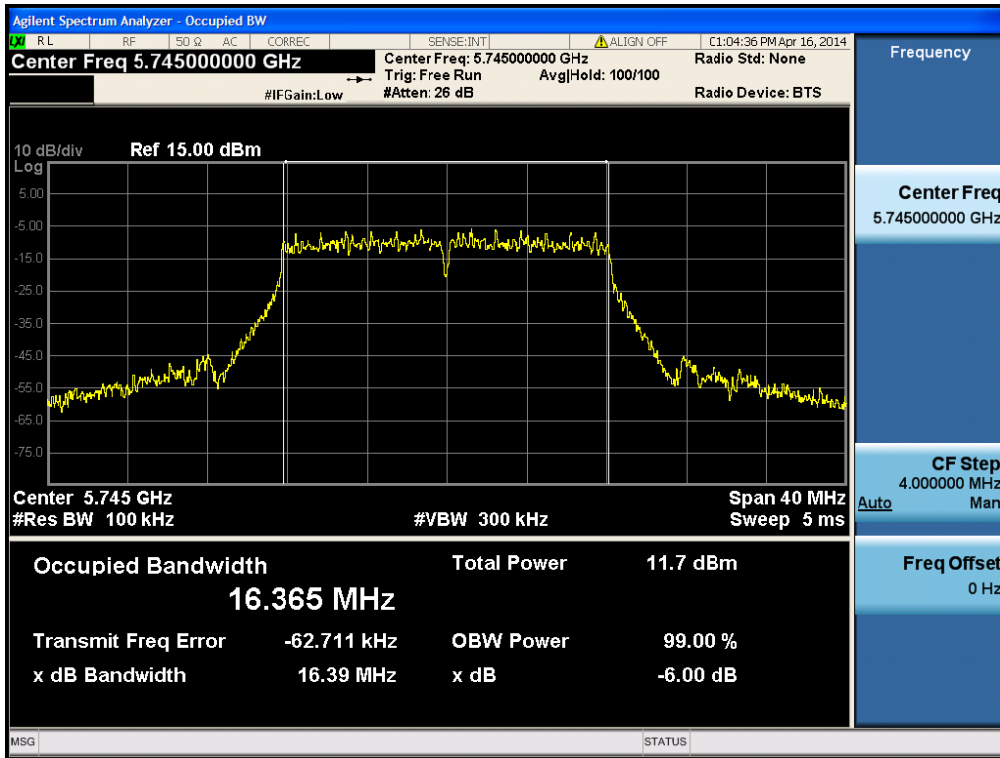
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TM 4 & ANT 2 & Highest



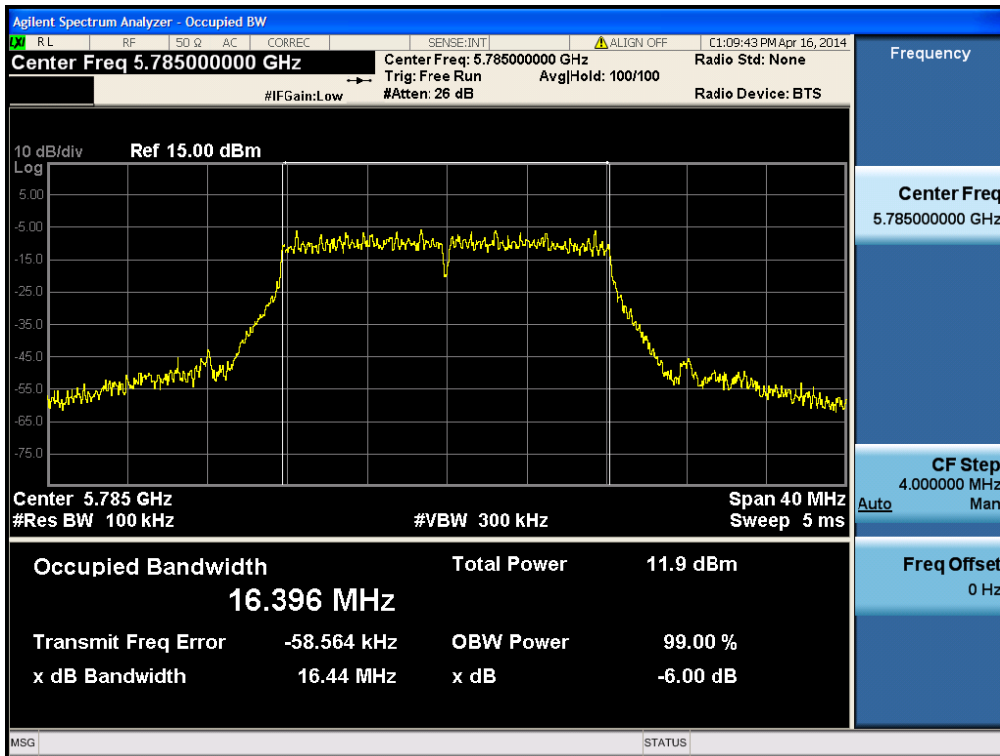
6 dB Bandwidth

TM 5 & ANT 1 & Lowest



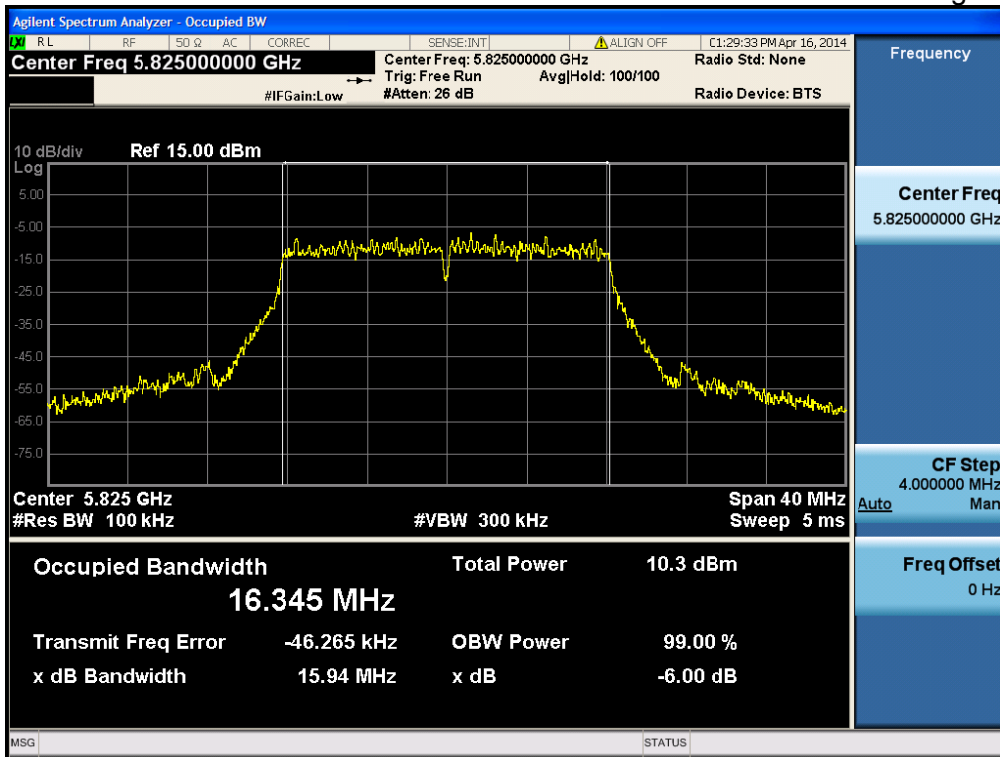
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TM 5 & ANT 1 & Middle



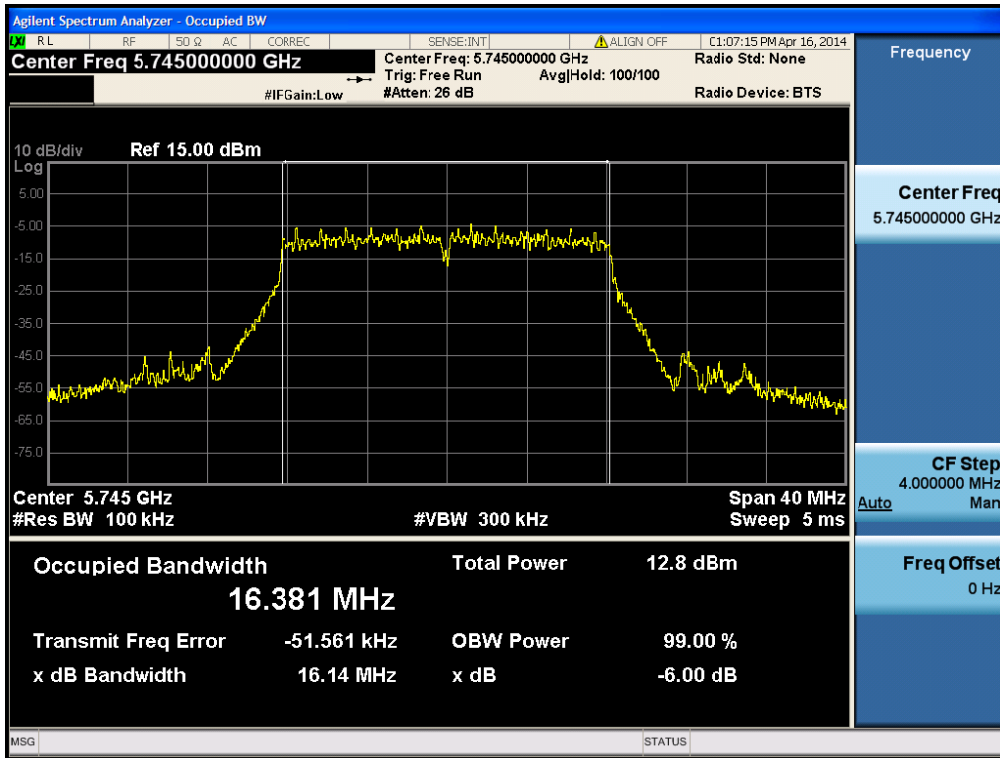
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TM 5 & ANT 1 & Highest



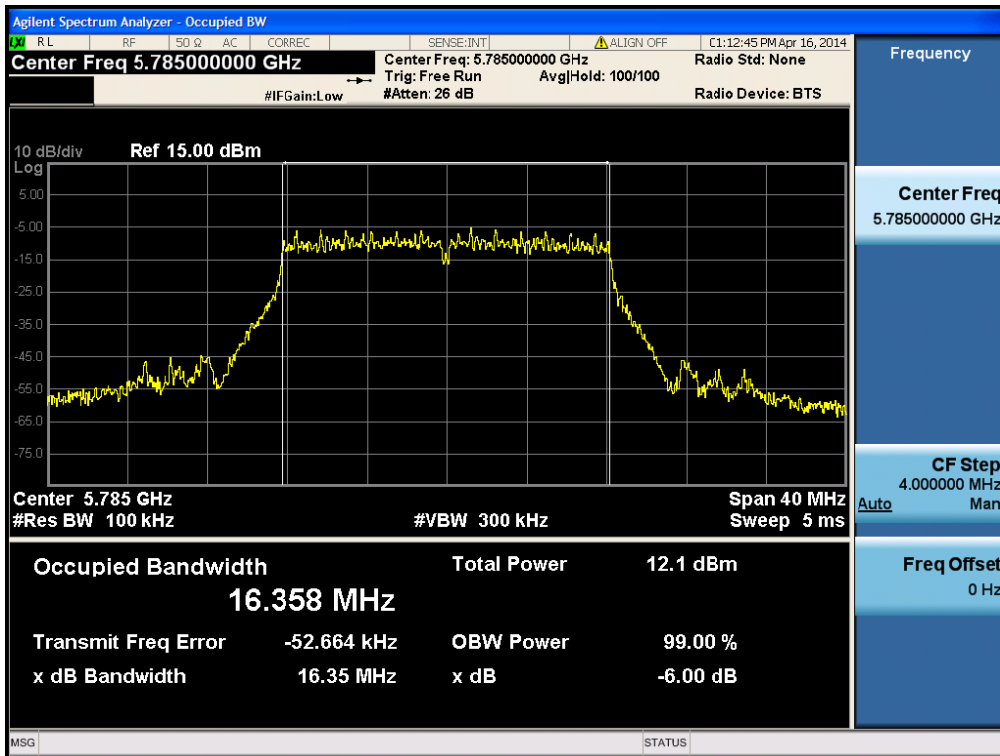
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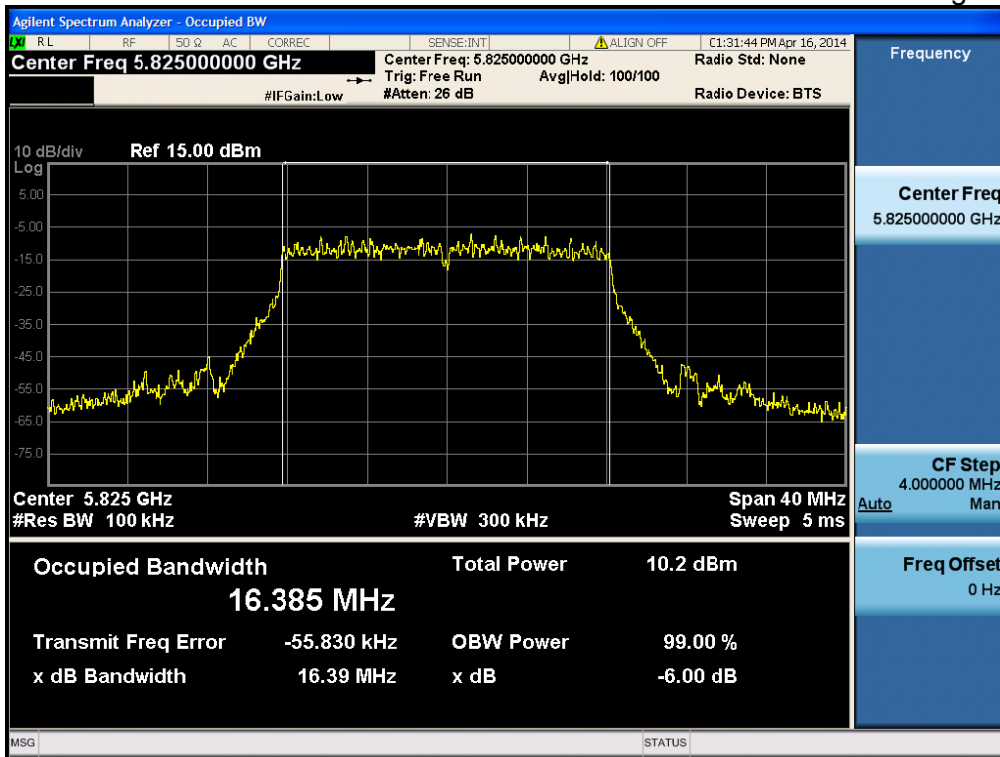
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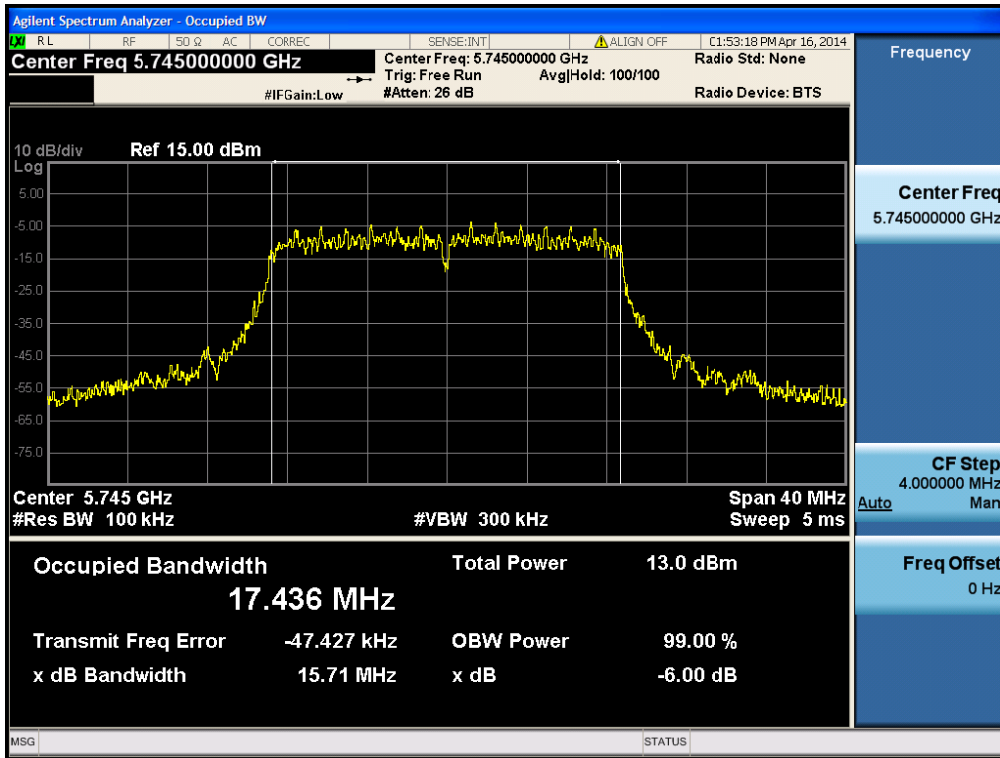
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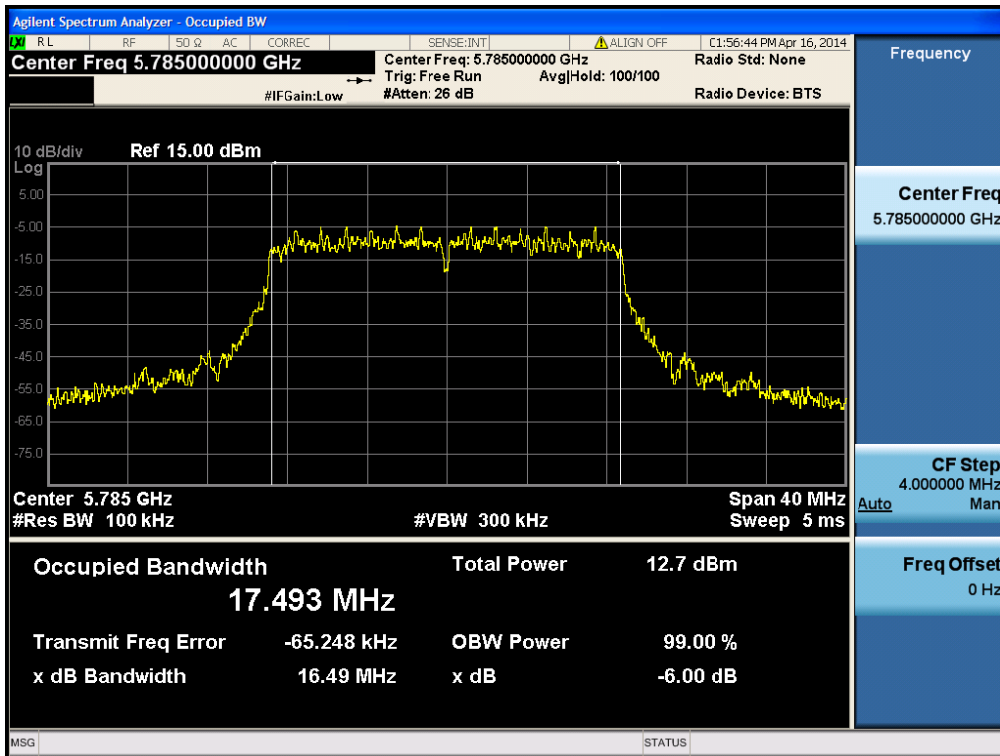
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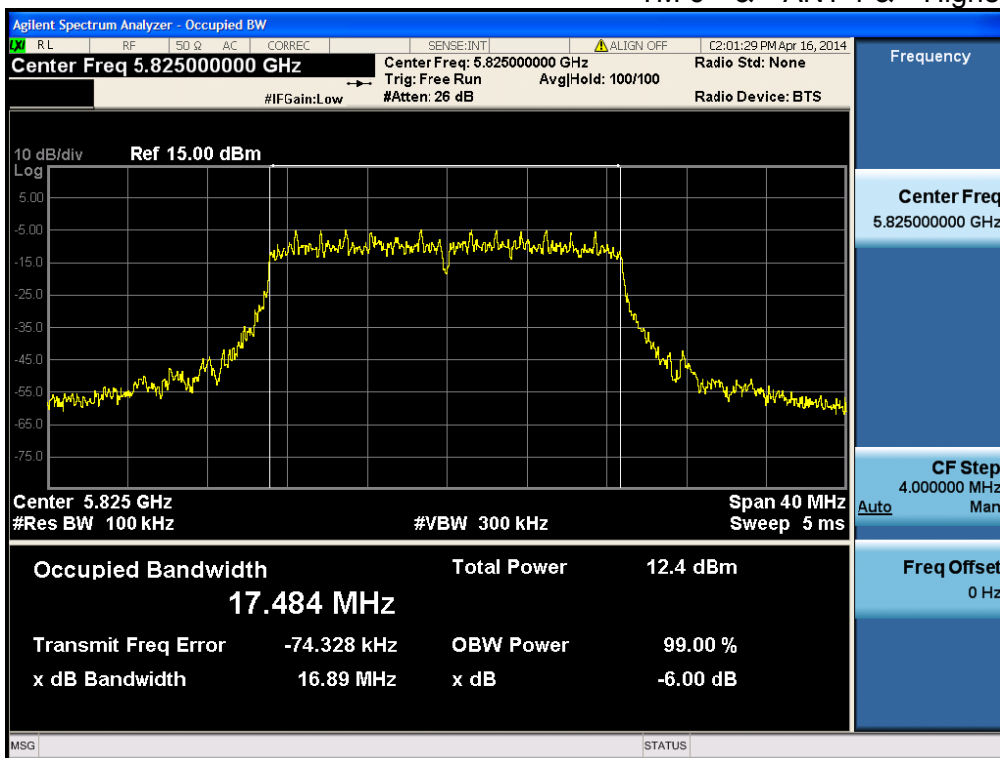
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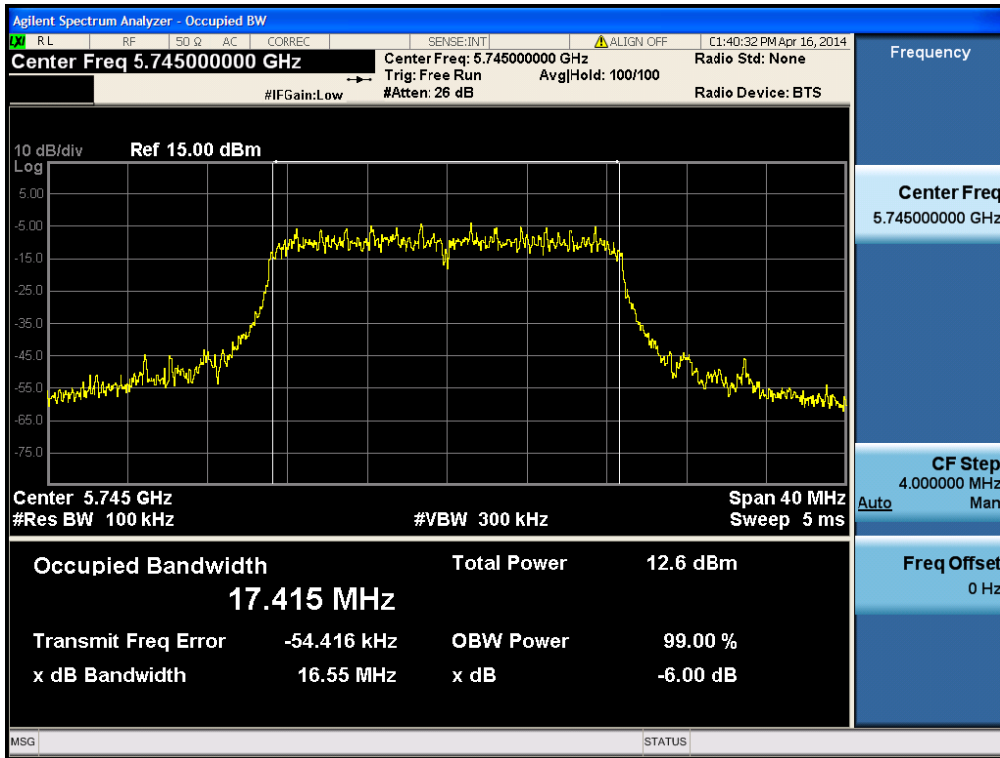
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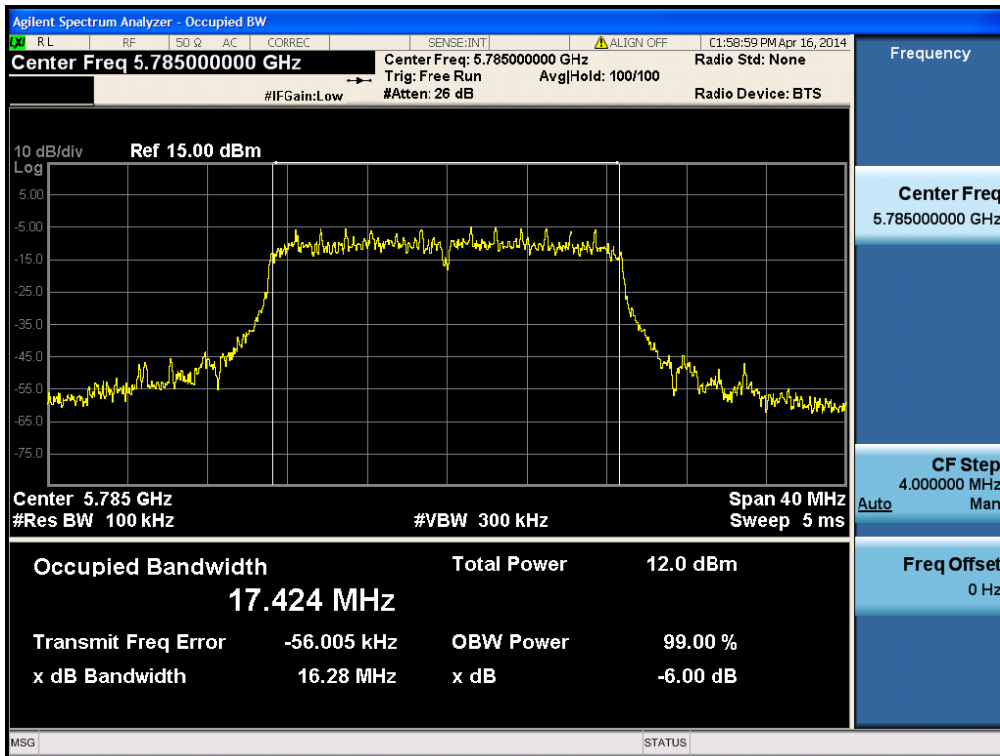
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TM 6 & ANT 2 & Lowest



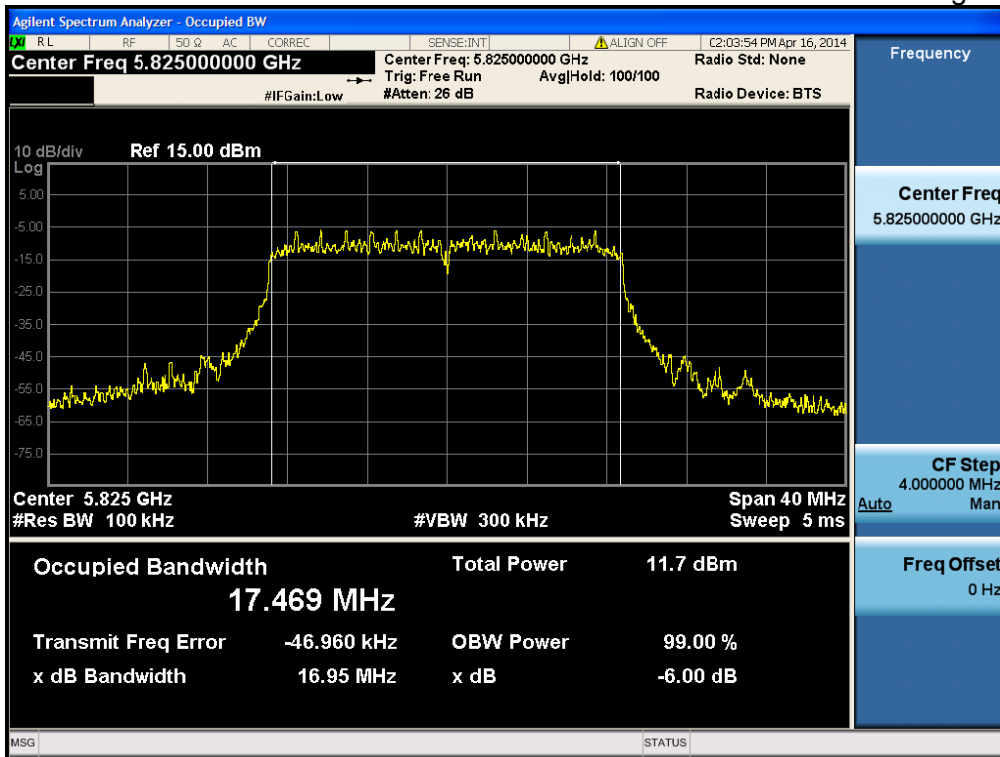
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TM 6 & ANT 2 & Middle



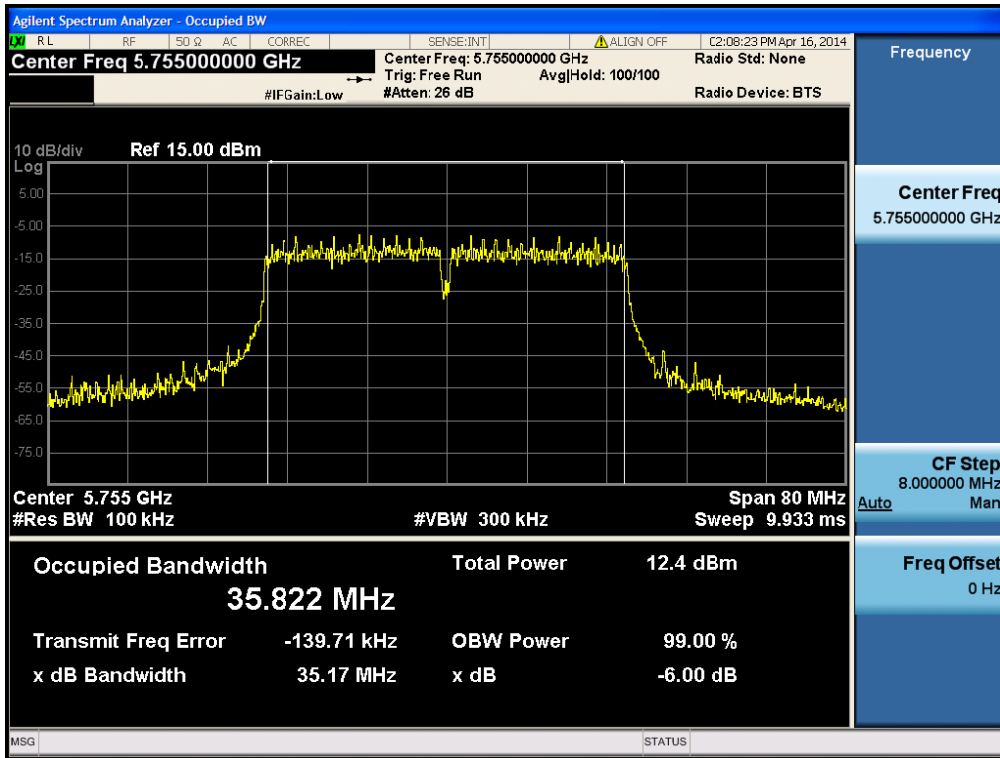
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TM 6 & ANT 2 & Highest



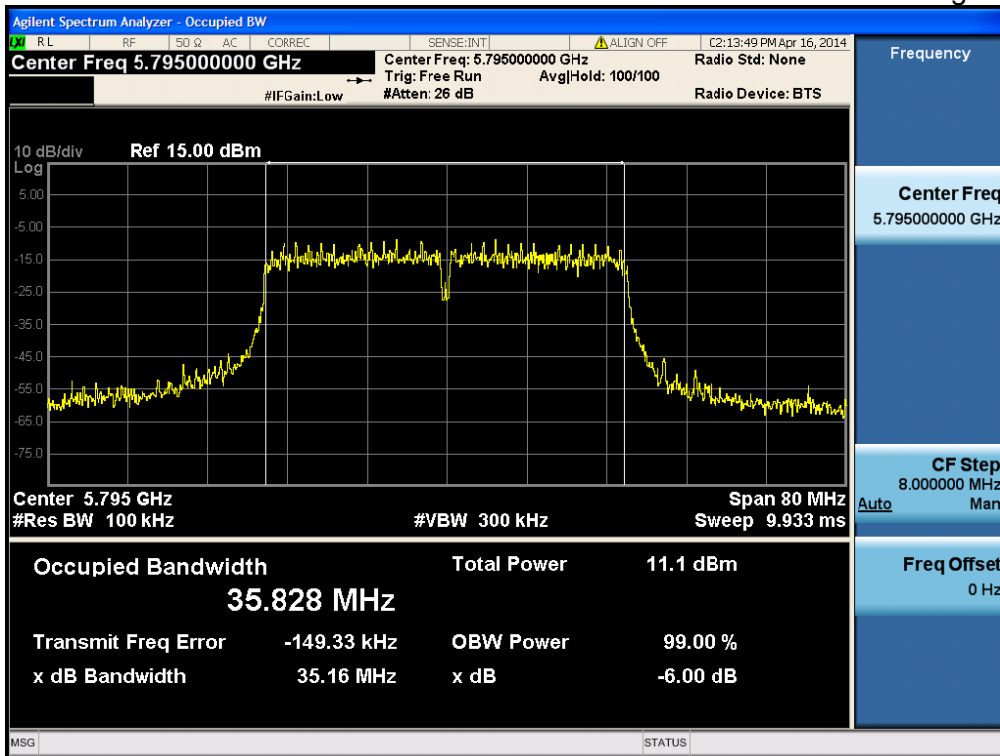
6 dB Bandwidth

TM 7& ANT 1& Lowest



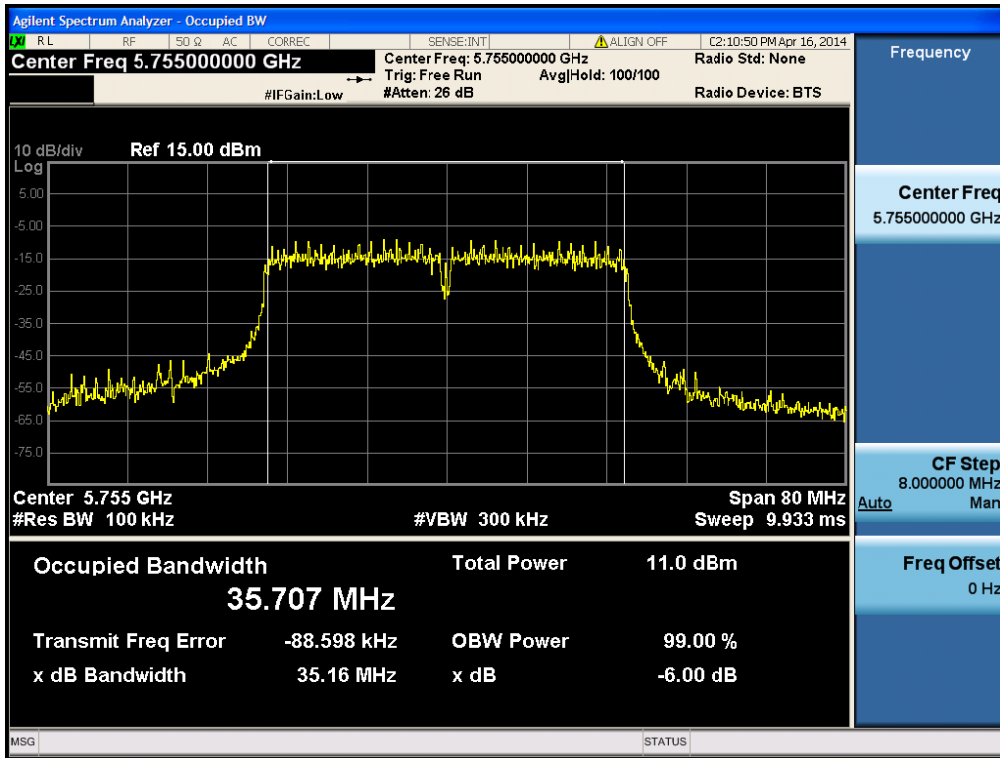
6 dB Bandwidth

TM 7 & ANT 1 & Highest



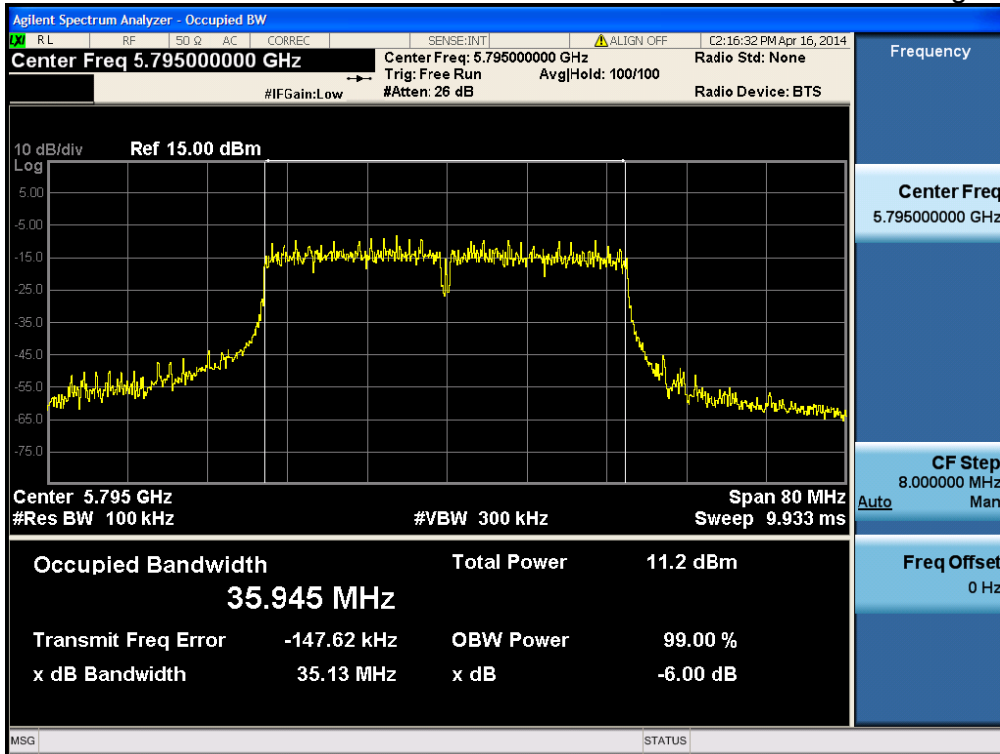
6 dB Bandwidth

TM 7 & ANT 2 & Lowest



6 dB Bandwidth

TM 7 & ANT 2 & Highest

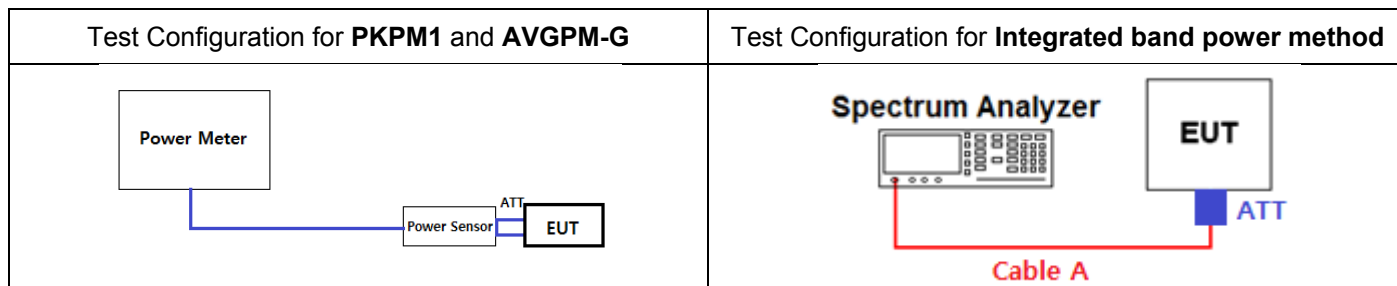


8.2 Maximum peak conducted output power

Test Requirements and limit, §15.247(b)& RSS-210 [A8.4]

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

■ TEST CONFIGURATION



■ TEST PROCEDURE:

1. PKPM1 Peak power meter method of KDB558074 v03r1

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. Integrated band power method of KDB558074 v03r1 for maximum peak conducted output power

The maximum conducted output powers were measured using a spectrum analyzer as below setting.

- RBW = 1MHz & VBW \geq 3 X RBW
- Span \geq 1.5 X DTS bandwidth
- Detector = Peak & Sweep time = auto couple
- Trace mode = max hold
- Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges.
-

3. Method AVGPM-G (Measurement using a gated RF average power meter) of KDB558074 v03r1

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.

■ **TEST RESULTS: Comply**

▪Single transmitting

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for 802.11b			
			Data Rate [Mbps]			
			1	2	5.5	11
ANT 1	2412	PK	16.984	17.472	17.525	17.510
		AV	14.778	14.919	14.999	14.835
	2437	PK	16.992	17.172	17.344	17.266
		AV	14.852	14.898	15.010	14.912
	2462	PK	16.791	16.857	17.141	16.827
		AV	14.696	14.958	15.124	15.121
ANT 2	2412	PK	16.684	16.723	16.954	16.943
		AV	14.912	15.054	15.172	15.087
	2437	PK	16.630	16.938	17.224	17.053
		AV	14.854	14.847	14.910	13.749
	2462	PK	16.968	17.001	17.320	17.037
		AV	14.889	15.032	15.191	15.099

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for 802.11g							
			Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
ANT 1	2412	PK	22.684	22.732	23.087	22.994	23.017	22.822	22.928	23.107
		AV	12.954	13.022	13.109	13.114	13.042	12.955	12.955	13.127
	2437	PK	22.512	22.868	22.637	22.796	22.961	22.746	22.754	23.028
		AV	12.978	13.030	13.131	13.033	13.071	13.015	13.112	13.133
	2462	PK	22.258	22.368	22.333	22.334	22.375	22.303	22.310	22.402
		AV	12.743	12.835	12.820	12.814	12.852	12.911	12.814	12.936
ANT 2	2412	PK	22.476	22.502	23.050	22.863	22.547	23.222	22.915	23.389
		AV	13.017	13.083	13.129	13.040	13.131	13.045	13.136	13.216
	2437	PK	22.526	22.949	23.151	22.885	22.843	23.169	23.091	23.271
		AV	12.938	13.019	13.074	13.053	12.999	13.042	13.081	13.102
	2462	PK	22.008	22.013	22.136	22.045	22.111	22.200	22.221	22.293
		AV	12.627	12.714	12.723	12.837	12.666	12.901	12.924	12.946

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for 802.11n(HT20)							
			Modulation and Coding Scheme [MCS]							
			0	1	2	3	4	5	6	7
ANT 1	2412	PK	22.027	21.912	22.021	21.973	22.006	21.939	21.008	21.998
		AV	12.379	12.187	12.169	12.278	12.376	12.187	12.260	12.127
	2437	PK	22.136	22.052	21.913	21.938	22.105	22.126	22.074	22.090
		AV	12.133	12.091	12.092	12.061	12.050	12.080	12.076	12.027
	2462	PK	22.092	22.006	22.076	21.590	21.799	21.848	21.995	21.947
		AV	12.367	12.166	12.321	12.083	12.294	12.342	12.124	12.078
ANT 2	2412	PK	22.212	21.917	21.409	21.603	21.810	22.022	21.665	21.439
		AV	12.326	12.162	12.257	12.178	12.270	12.081	12.079	12.065
	2437	PK	22.137	22.022	22.120	21.903	22.027	21.924	21.929	21.942
		AV	12.325	12.062	12.236	12.076	12.262	12.267	12.102	11.990
	2462	PK	22.006	21.525	21.905	21.467	21.606	21.219	21.112	20.993
		AV	12.323	12.125	12.224	12.021	12.127	12.166	12.038	12.016

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for 802.11n(HT40)							
			Modulation and Coding Scheme [MCS]							
			0	1	2	3	4	5	6	7
ANT 1	2422	PK	20.834	20.811	20.645	20.575	20.552	20.561	20.788	20.469
		AV	10.719	10.678	10.701	10.694	10.655	10.692	10.663	10.635
	2437	PK	20.602	20.408	20.199	19.910	20.182	20.064	20.173	19.899
		AV	10.634	10.584	10.597	10.561	10.558	10.514	10.598	10.513
	2452	PK	21.014	20.997	20.983	20.982	21.008	20.980	20.958	20.950
		AV	10.967	10.831	10.799	10.785	10.792	10.936	10.789	10.769
ANT 2	2422	PK	20.650	20.462	20.598	20.343	20.549	20.447	20.625	20.098
		AV	10.869	10.492	10.796	10.367	10.209	10.515	10.401	10.092
	2437	PK	20.466	19.622	20.084	20.309	19.605	20.318	20.393	19.455
		AV	10.744	10.502	10.511	10.721	10.326	10.692	10.339	10.237
	2452	PK	20.256	18.943	20.033	19.959	18.958	19.397	20.000	18.860
		AV	10.555	10.107	10.399	10.111	10.268	10.135	10.274	10.056

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for 802.11a							
			Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
ANT 1	5745	PK	17.954	18.010	18.064	18.116	18.123	18.064	18.033	18.124
		AV	9.001	9.398	9.053	9.041	9.126	9.270	9.186	9.420
	5785	PK	17.551	17.758	17.786	17.671	17.802	17.869	17.716	17.894
		AV	8.954	9.148	9.150	9.126	9.061	9.107	9.040	9.278
	5825	PK	17.321	17.372	17.390	17.386	17.658	17.542	17.516	17.684
		AV	8.799	9.005	8.897	9.054	9.090	9.003	8.948	9.109
ANT 2	5745	PK	18.001	18.185	18.385	18.134	18.423	18.411	18.285	18.445
		AV	8.709	8.733	8.754	8.832	8.745	9.017	8.973	9.029
	5785	PK	17.554	17.730	17.576	17.632	17.635	17.802	17.839	17.888
		AV	8.459	8.677	8.647	8.499	8.659	8.587	8.504	8.749
	5825	PK	18.008	18.107	18.059	18.202	18.210	18.206	18.080	18.232
		AV	8.511	8.860	8.599	8.816	8.624	8.676	8.535	8.919

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for 802.11n(HT20)							
			Modulation and Coding Scheme [MCS]							
			0	1	2	3	4	5	6	7
ANT 1	5745	PK	17.894	18.092	18.094	18.164	18.147	18.126	18.028	18.221
		AV	9.006	9.252	9.233	9.246	9.046	9.026	9.029	9.436
	5785	PK	17.789	17.873	17.836	17.811	17.847	17.927	17.811	18.024
		AV	8.910	9.227	8.999	8.931	9.029	9.111	8.975	9.237
	5825	PK	17.804	17.987	17.892	17.957	17.838	17.937	17.958	18.018
		AV	8.679	8.723	8.862	8.760	8.965	8.758	8.766	9.003
ANT 2	5745	PK	17.894	17.909	17.935	17.955	17.923	17.972	17.965	18.024
		AV	8.612	8.641	8.800	8.729	8.712	8.622	8.882	8.987
	5785	PK	17.241	17.400	17.652	17.283	17.480	17.256	17.587	17.671
		AV	8.268	8.538	8.269	8.431	8.451	8.351	8.403	8.625
	5825	PK	18.002	18.254	18.059	18.057	18.131	18.113	18.125	18.344
		AV	8.790	8.892	8.871	8.982	8.976	8.978	8.879	9.001

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for 802.11n(HT40)							
			Modulation and Coding Scheme [MCS]							
			0	1	2	3	4	5	6	7
ANT 1	5755	PK	17.795	17.965	17.846	18.125	18.089	17.864	18.017	18.188
		AV	8.990	9.099	9.090	9.093	9.009	9.064	9.105	9.107
	5795	PK	17.890	17.924	18.062	17.906	18.042	18.032	18.075	18.106
		AV	8.853	8.909	9.002	9.018	8.988	8.897	8.957	9.054
ANT 2	5755	PK	18.008	18.053	18.013	18.062	18.115	18.084	18.241	18.246
		AV	8.751	8.826	8.904	8.944	8.916	8.861	8.806	8.967
	5795	PK	17.953	18.118	18.102	18.013	17.995	17.954	18.114	18.126
		AV	8.701	8.760	8.853	8.750	8.859	8.774	8.706	8.904

Multiple transmitting

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for <u>802.11n(HT20)</u>							
			Modulation and Coding Scheme [MCS]							
			8	9	10	11	12	13	14	15
ANT 1	2412	PK	21.846	21.758	21.844	21.790	21.682	21.741	21.651	21.614
		AV	12.138	11.897	11.919	12.108	12.007	11.907	12.082	11.889
	2437	PK	21.886	21.727	21.725	21.724	21.677	21.796	21.828	21.835
		AV	12.092	11.809	11.711	11.978	12.030	11.925	11.672	11.667
	2462	PK	21.882	20.979	21.326	21.073	21.705	21.874	21.360	21.192
		AV	12.043	11.770	11.795	11.682	11.760	11.965	11.989	11.672
ANT 2	2412	PK	21.824	21.183	21.710	21.751	21.089	21.411	21.714	21.460
		AV	12.311	12.201	12.193	12.181	12.226	12.200	12.192	12.221
	2437	PK	22.052	22.015	21.817	21.891	21.839	21.872	22.033	22.017
		AV	12.128	11.981	11.980	12.014	11.970	12.009	12.032	11.966
	2462	PK	21.844	21.374	21.626	20.879	21.107	21.521	21.333	20.842
		AV	12.262	12.220	12.242	12.201	12.203	12.232	12.259	12.200
Sum (ANT 1+2)	2412	PK	24.846	24.491	24.788	24.781	24.406	24.590	24.693	24.548
	2437	PK	24.981	24.884	24.782	24.819	24.770	24.845	24.943	24.938
	2462	PK	24.874	24.192	24.489	23.988	24.427	24.712	24.357	24.031

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for <u>802.11n(HT40)</u>							
			Modulation and Coding Scheme [MCS]							
			8	9	10	11	12	13	14	15
ANT 1	2422	PK	20.539	20.428	20.320	20.293	20.480	20.415	20.348	20.132
		AV	10.663	10.570	10.578	10.546	10.615	10.608	10.566	10.539
	2437	PK	20.372	20.215	19.979	20.140	20.205	19.885	20.307	19.732
		AV	10.595	10.435	10.530	10.559	10.490	10.529	10.559	10.414
	2452	PK	20.813	20.574	20.773	20.715	20.577	20.616	20.593	20.497
		AV	10.791	10.653	10.647	10.624	10.633	10.672	10.628	10.622
ANT 2	2422	PK	20.437	20.241	19.991	19.550	19.654	20.091	20.204	19.266
		AV	10.693	10.262	10.686	10.581	10.354	10.134	10.421	10.040
	2437	PK	19.689	19.458	18.929	19.403	19.412	19.276	19.353	18.786
		AV	10.675	10.334	10.604	10.323	10.589	10.616	10.571	10.069
	2452	PK	19.133	18.400	18.518	10.321	10.503	10.349	19.036	18.299
		AV	10.477	9.909	9.865	10.111	10.451	10.197	9.953	9.818
Sum (ANT 1+2)	2422	PK	23.499	23.346	23.169	22.948	23.097	23.267	23.287	22.731
	2437	PK	23.055	22.864	22.496	22.798	22.837	22.602	22.867	22.296
	2452	PK	23.065	22.632	22.801	21.095	20.985	21.007	22.895	22.546

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for 802.11n(HT20)							
			Modulation and Coding Scheme [MCS]							
			8	9	10	11	12	13	14	15
ANT 1	5745	PK	17.774	17.809	17.861	17.931	17.845	17.919	17.776	18.004
		AV	8.890	8.972	9.155	8.951	8.982	9.079	9.151	9.224
	5785	PK	17.661	17.859	17.869	17.937	17.945	17.955	17.940	17.975
		AV	8.804	8.853	8.823	9.019	8.922	8.808	8.871	9.110
	5825	PK	17.756	17.867	17.763	17.824	17.816	17.832	17.894	17.898
		AV	8.504	8.867	8.521	8.701	8.635	8.705	8.736	8.899
ANT 2	5745	PK	17.751	17.827	17.933	17.928	17.836	17.789	17.932	18.001
		AV	8.302	8.507	8.569	8.505	8.708	8.431	8.499	8.881
	5785	PK	17.210	17.222	17.236	17.264	17.228	17.260	17.366	17.440
		AV	8.114	8.530	8.504	8.229	8.208	8.369	8.441	8.552
	5825	PK	17.992	18.198	18.019	18.151	18.075	18.200	18.232	18.242
		AV	8.684	8.678	8.592	8.642	8.632	8.559	8.630	8.552
Sum (ANT 1+2)	5745	PK	20.773	20.829	20.908	20.940	20.851	20.865	20.866	21.013
	5785	PK	20.452	20.563	20.575	20.624	20.612	20.632	20.673	20.727
	5825	PK	20.886	21.046	20.904	21.001	20.958	21.031	21.077	21.084

ANT	Freq. (MHz)	Det.	Maximum Peak Conducted Output Power (dBm) for 802.11n(HT40)							
			Modulation and Coding Scheme [MCS]							
			8	9	10	11	12	13	14	15
ANT 1	5755	PK	17.842	17.858	17.864	17.904	17.951	17.860	17.993	18.005
		AV	8.515	8.793	8.639	8.271	8.937	8.717	8.687	8.999
	5795	PK	17.668	17.909	17.759	17.706	17.722	17.677	17.958	17.998
		AV	8.804	8.837	8.880	8.869	8.867	8.864	8.829	8.881
ANT 2	5755	PK	17.890	17.977	17.993	18.008	17.956	17.993	17.924	18.009
		AV	8.652	8.696	8.851	8.881	8.835	8.665	8.791	8.895
	5795	PK	17.861	17.995	18.020	17.888	17.981	18.036	17.883	18.088
		AV	8.604	8.771	8.715	8.704	8.750	8.729	8.779	8.790
Sum (ANT 1+2)	5755	PK	20.877	20.929	20.940	20.967	20.964	20.938	20.969	21.018
	5795	PK	20.776	20.963	20.902	20.809	20.864	20.871	20.931	21.054

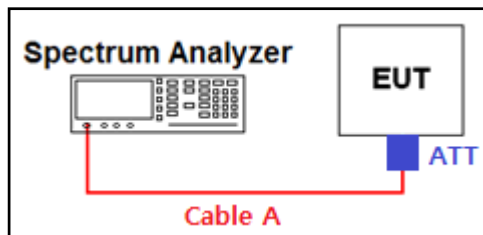
8.3 Maximum power spectral density

Test requirements and limit, §15.247(e)& RSS-210[A8.2]

The peak power density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies.

Minimum Standard –specifies a conducted power spectral density (PSD) limit of 8 dBm in any 3 kHz band segment within the fundamental EBW during any time interval of continuous transmission.

■ TEST CONFIGURATION



■ TEST PROCEDURE:

The Measurement Procedure **Method PKPSD of KDB558074 v03r1** 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 ≤ RBW ≤ 100 kHz**
4. Set the VBW **≥ 3 x 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.

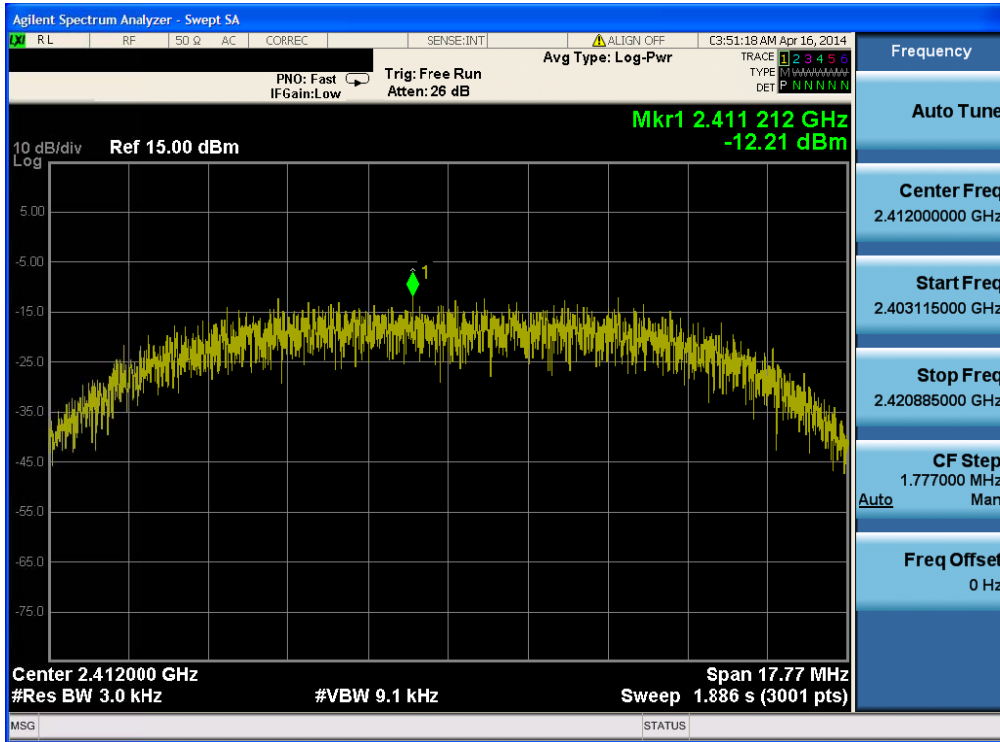
■ **TEST RESULTS: Comply**

Test Mode	Frequency	RBW	PKPSD [dBm]		
			ANT 1	ANT 2	SUM (ANT 1 + ANT 2)
TM 1	Lowest	3 kHz	-12.210	-12.630	N/A
	Middle	3 kHz	-12.230	-12.430	N/A
	Highest	3 kHz	-12.810	-12.430	N/A
TM 2	Lowest	3 kHz	-16.970	-16.020	N/A
	Middle	3 kHz	-16.390	-15.250	N/A
	Highest	3 kHz	-16.080	-14.880	N/A
TM 3	Lowest	3 kHz	-17.440	-18.250	-14.816
	Middle	3 kHz	-16.500	-16.550	-13.515
	Highest	3 kHz	-16.730	-16.880	-13.795
TM 4	Lowest	3 kHz	-20.450	-20.050	-17.236
	Middle	3 kHz	-20.170	-20.970	-17.542
	Highest	3 kHz	-18.600	-20.860	-16.575
TM 5	Lowest	3 kHz	-20.220	-19.220	N/A
	Middle	3 kHz	-19.470	-20.000	N/A
	Highest	3 kHz	-22.280	-21.190	N/A
TM 6	Lowest	3 kHz	-19.580	-20.130	-16.836
	Middle	3 kHz	-20.350	-20.580	-17.454
	Highest	3 kHz	-20.870	-21.100	-17.974
TM 7	Lowest	3 kHz	-23.740	-23.080	-20.388
	Highest	3 kHz	-25.280	-23.890	-21.520

RESULT PLOTS

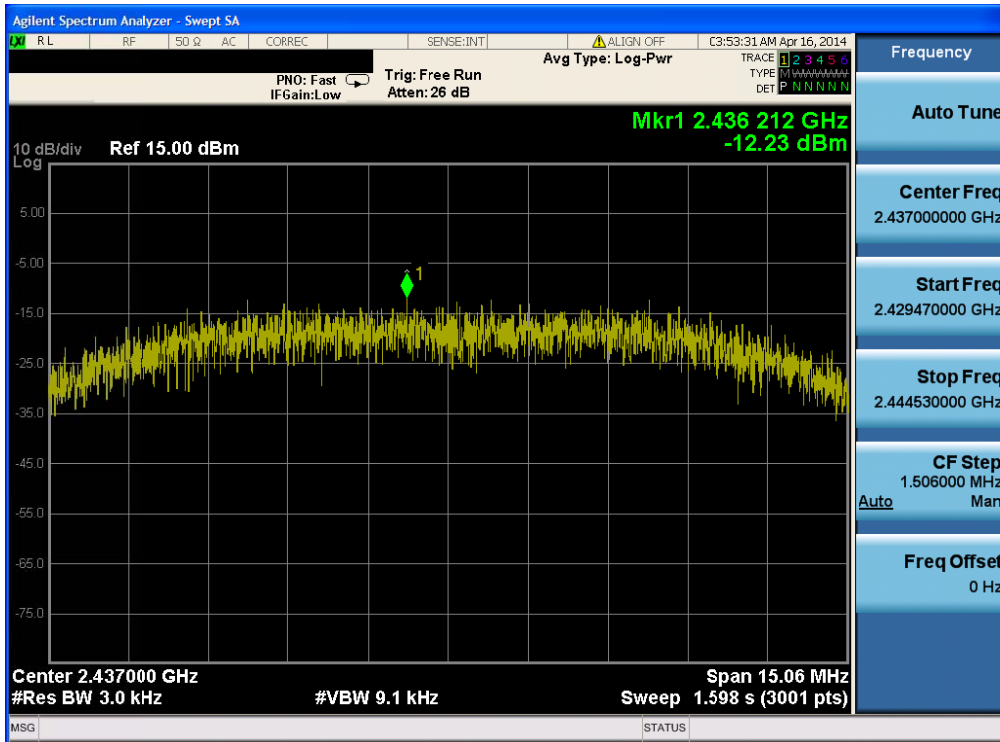
Maximum PPSD

TM 1 & ANT 1 & Lowest



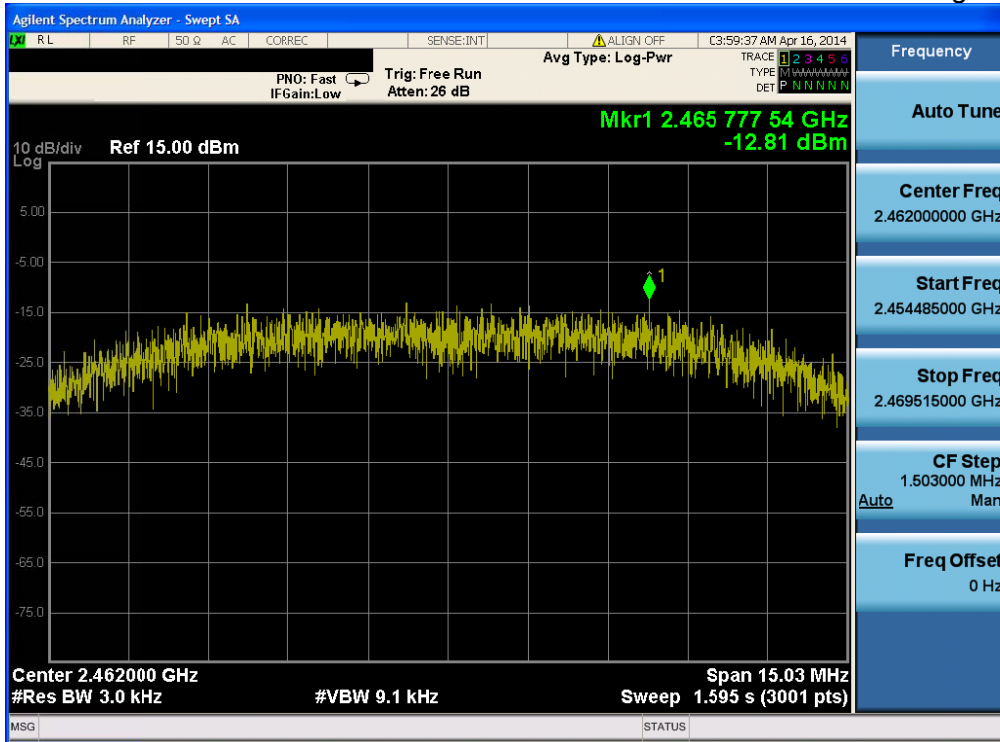
Maximum PPSD

TM 1 & ANT 1 & Middle



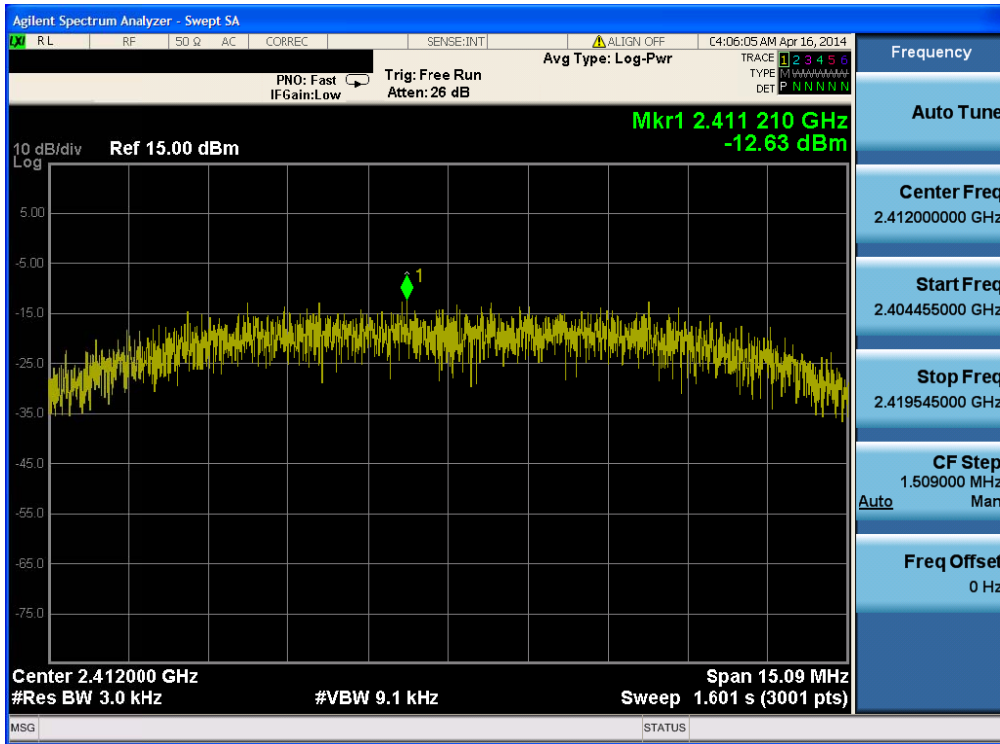
Maximum PPSD

TM 1 & ANT 1 & Highest



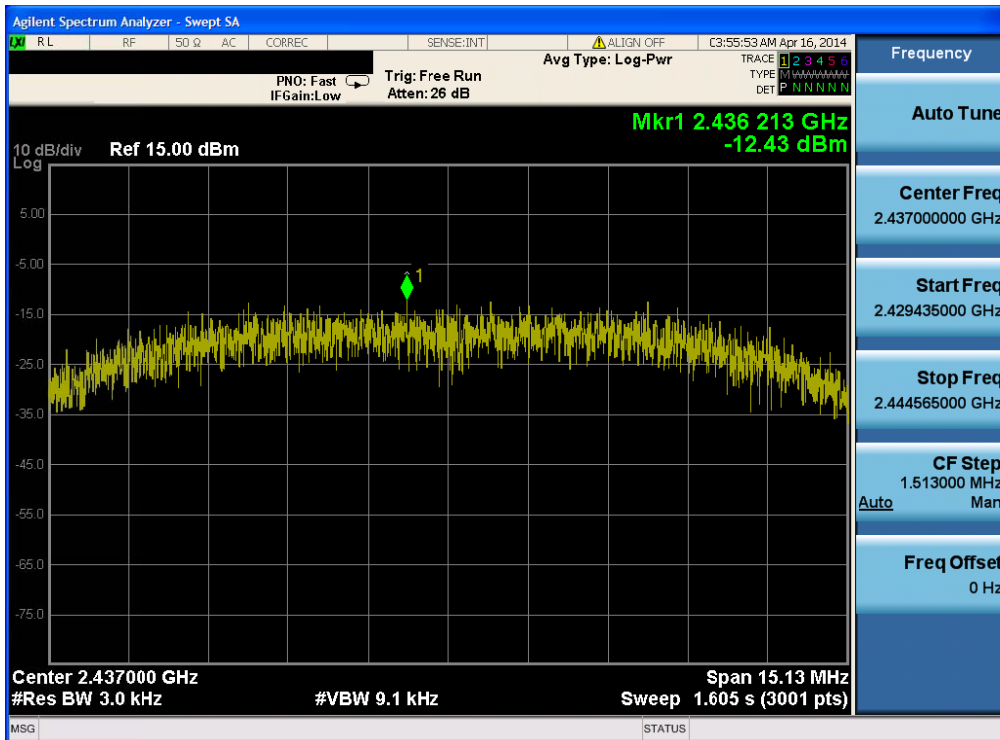
Maximum PPSD

TM 1 & ANT 2 & Lowest



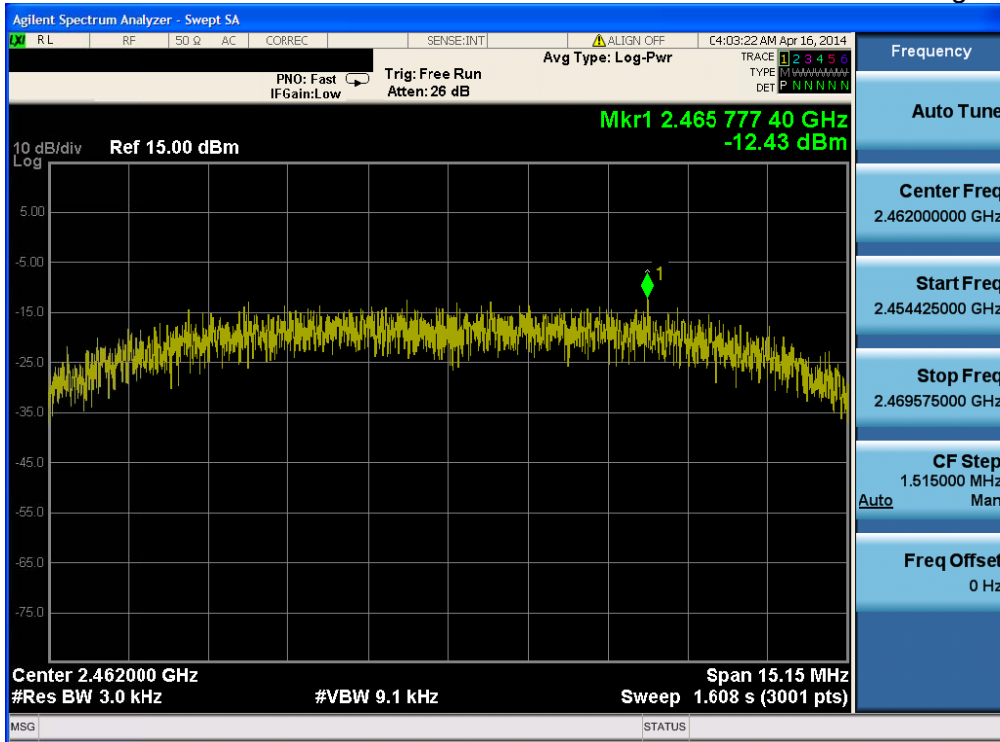
Maximum PPSD

TM 1 & ANT 2 & Middle



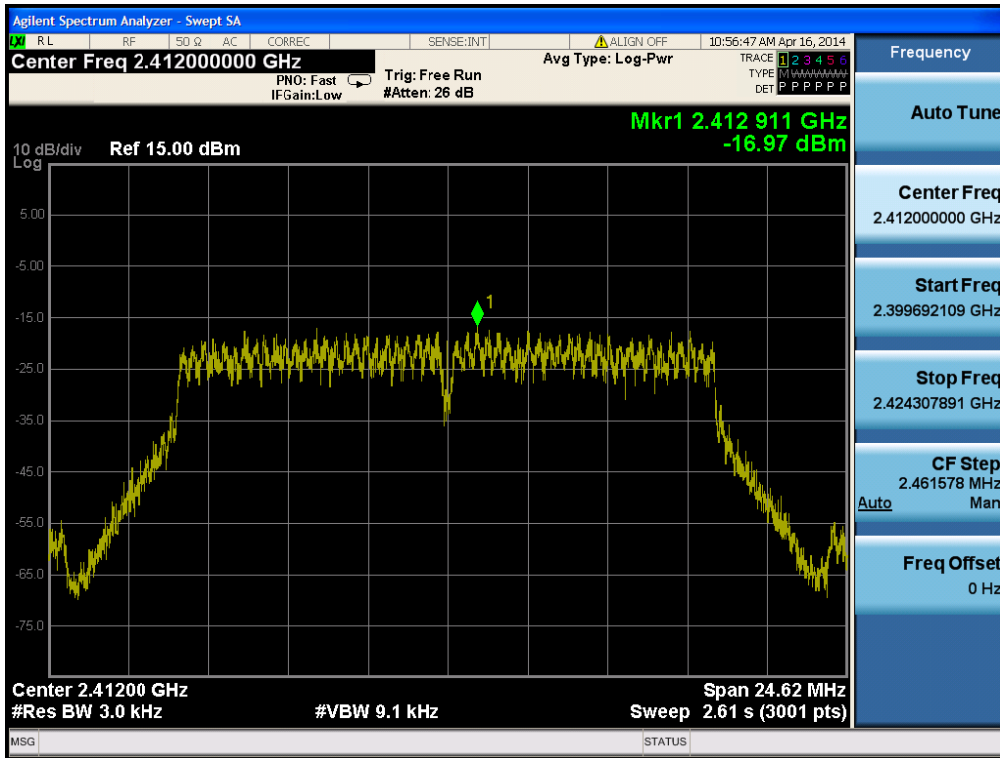
Maximum PPSD

TM 1 & ANT 2 & Highest



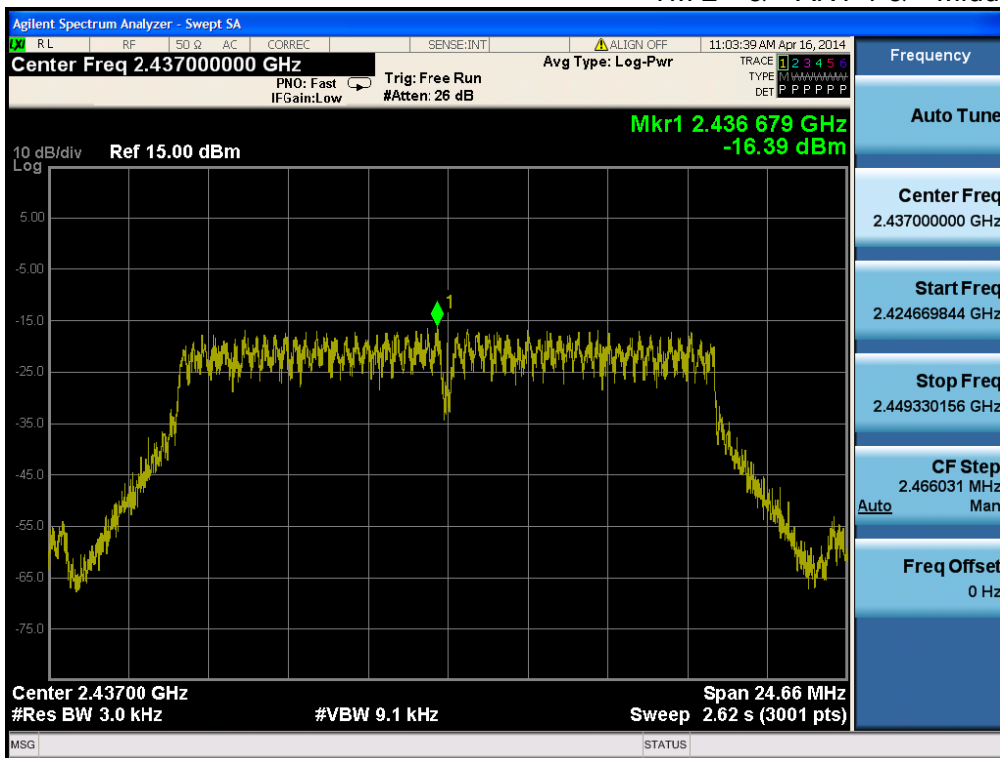
Maximum PPSD

TM 2 & ANT 1 & Lowest



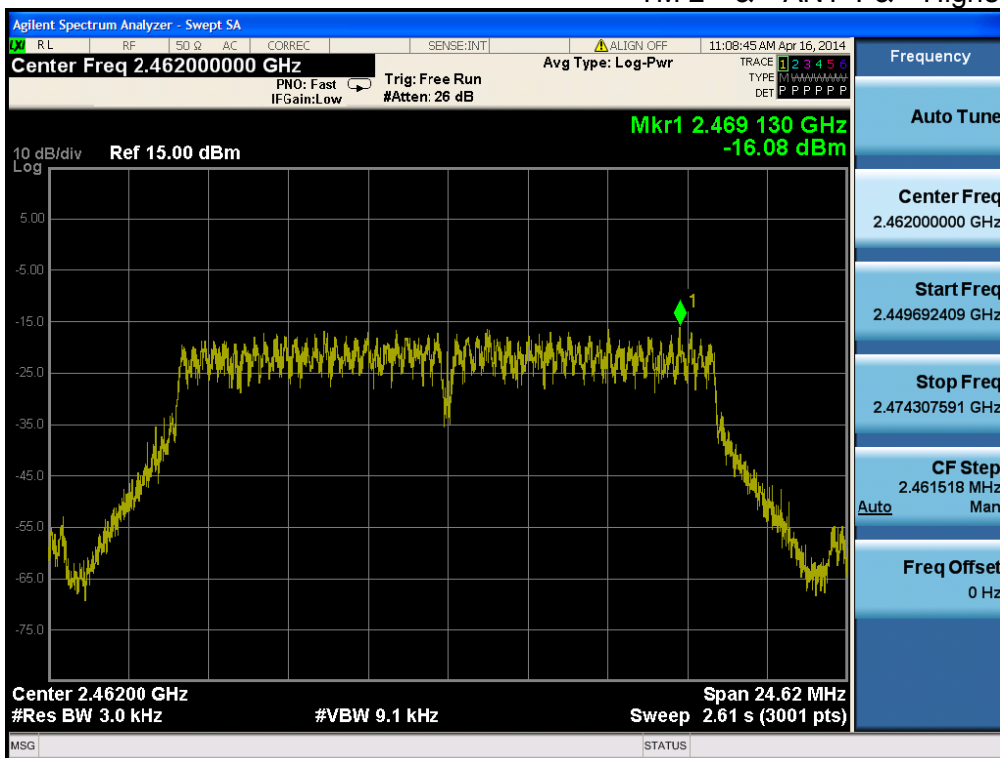
Maximum PPSD

TM 2 & ANT 1 & Middle



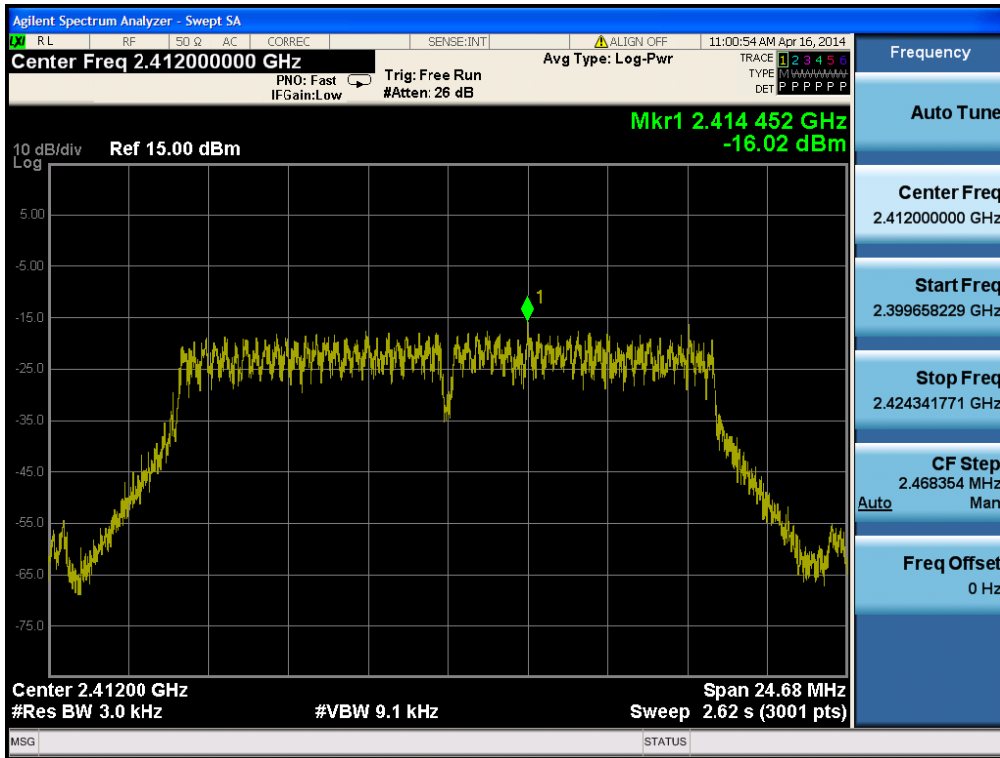
Maximum PPSD

TM 2 & ANT 1 & Highest



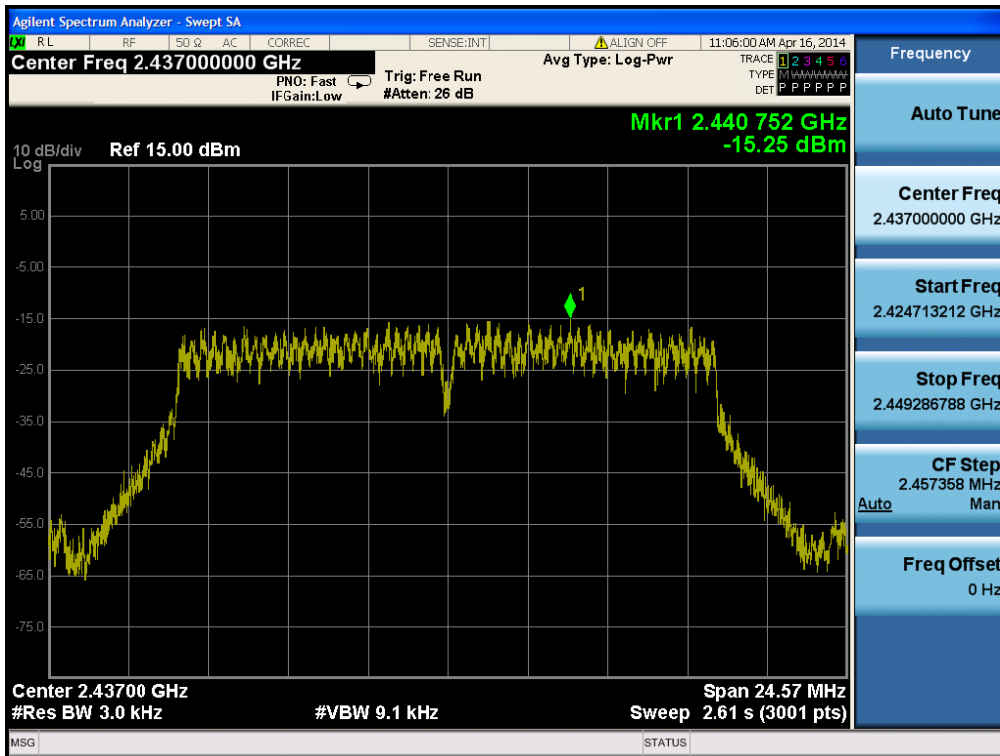
Maximum PPSD

TM 2 & ANT 2 & Lowest



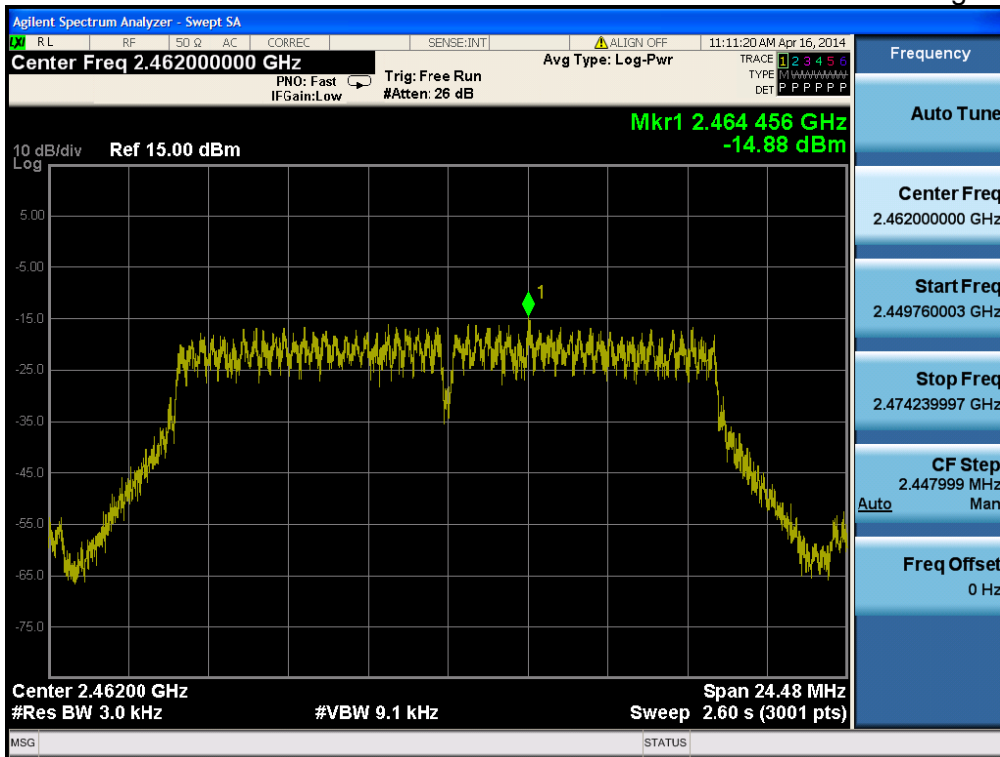
Maximum PPSD

TM 2 & ANT 2 & Middle



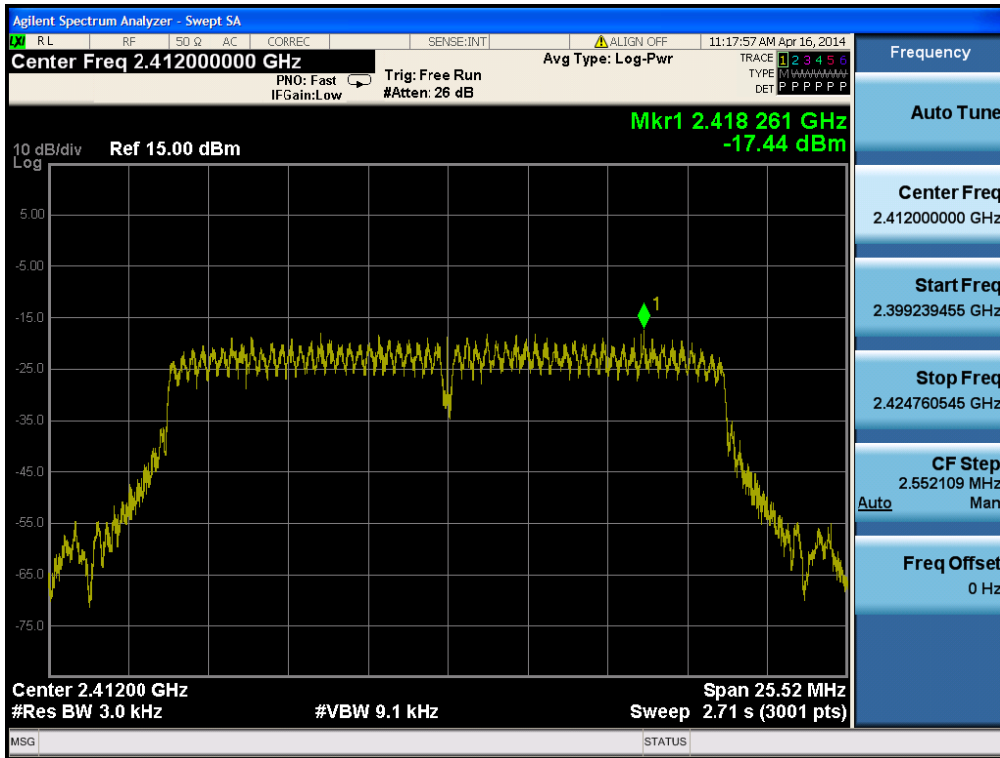
Maximum PPSD

TM 2 & ANT 2 & Highest



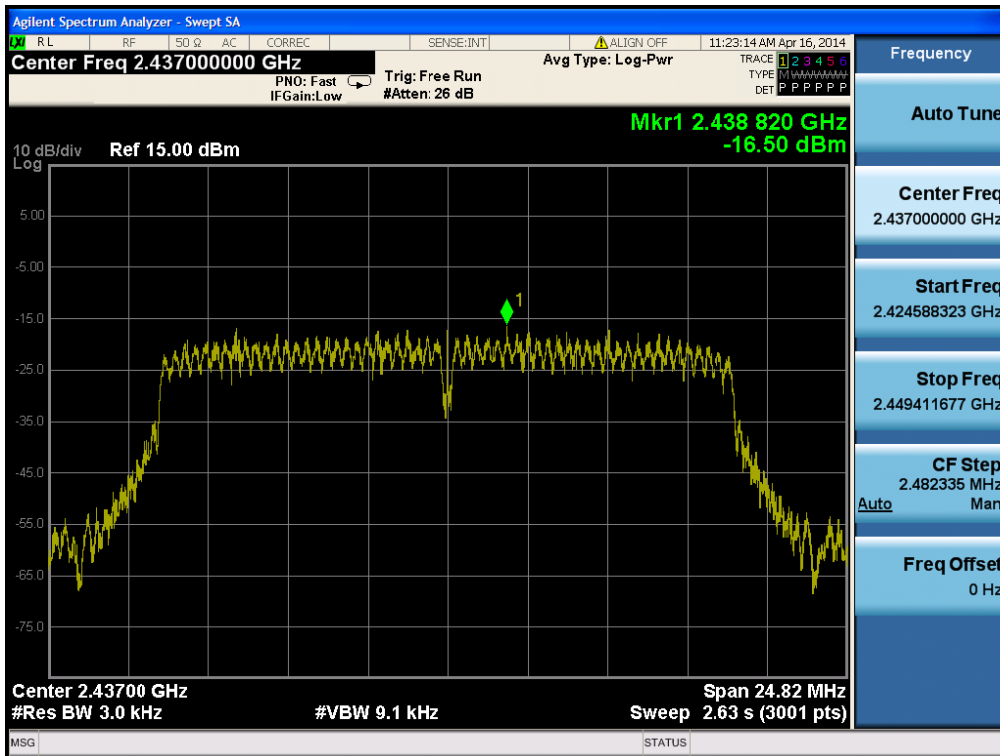
Maximum PPSD

TM 3 & ANT 1 & Lowest



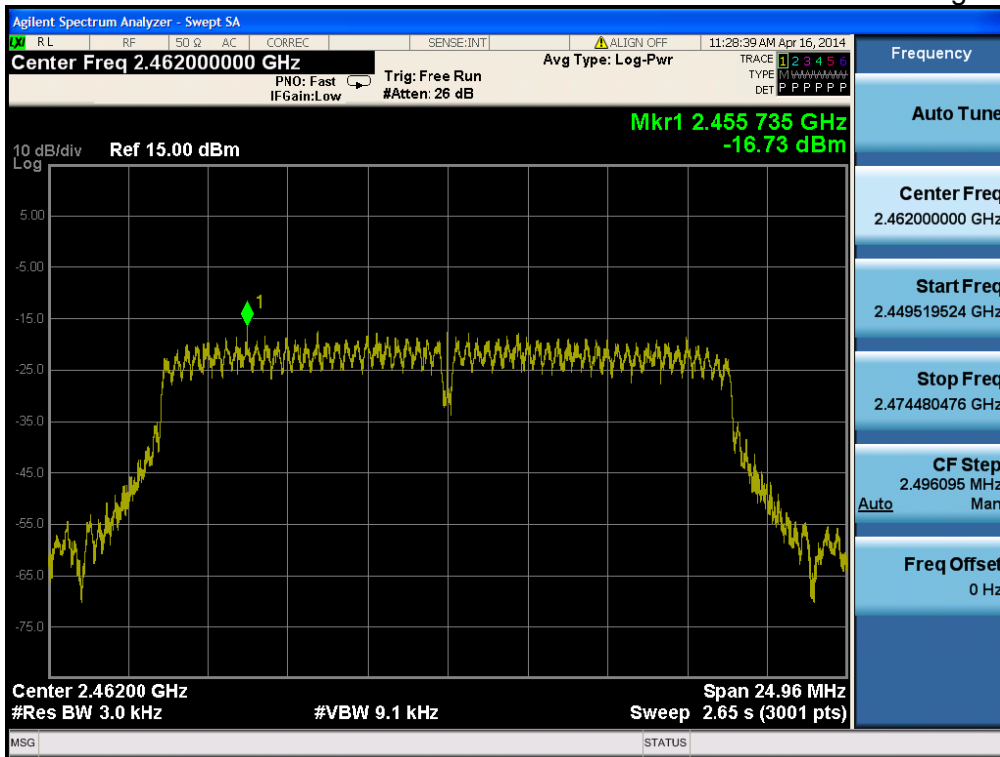
Maximum PPSD

TM 3 & ANT 1 & Middle



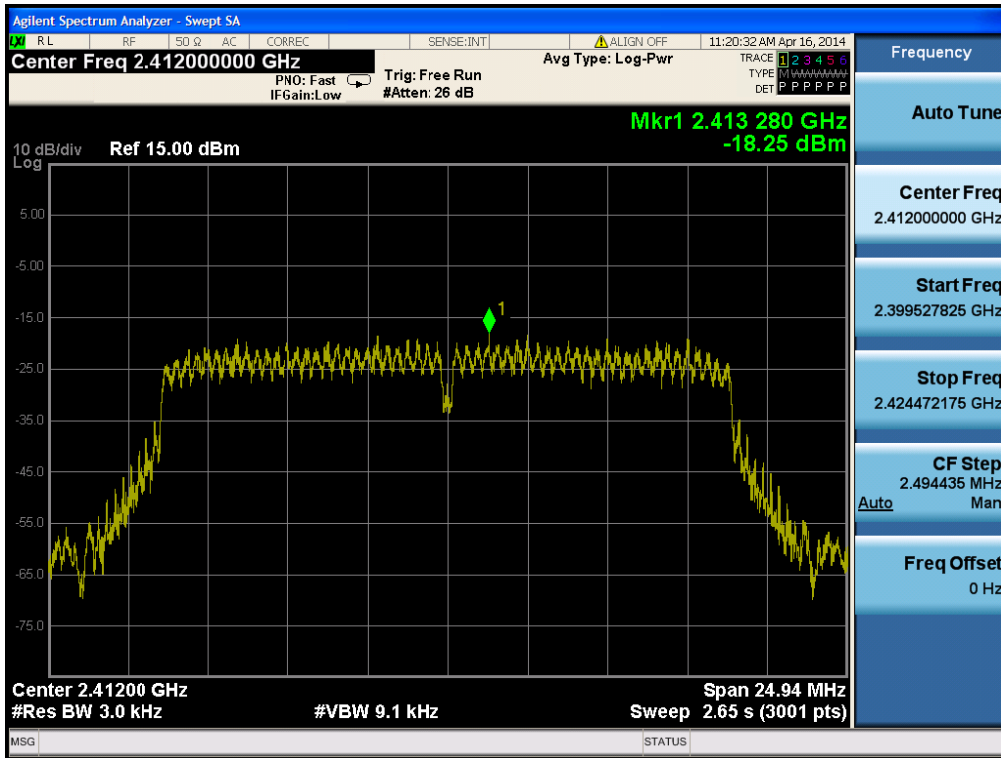
Maximum PPSD

TM 3 & ANT 1 & Highest



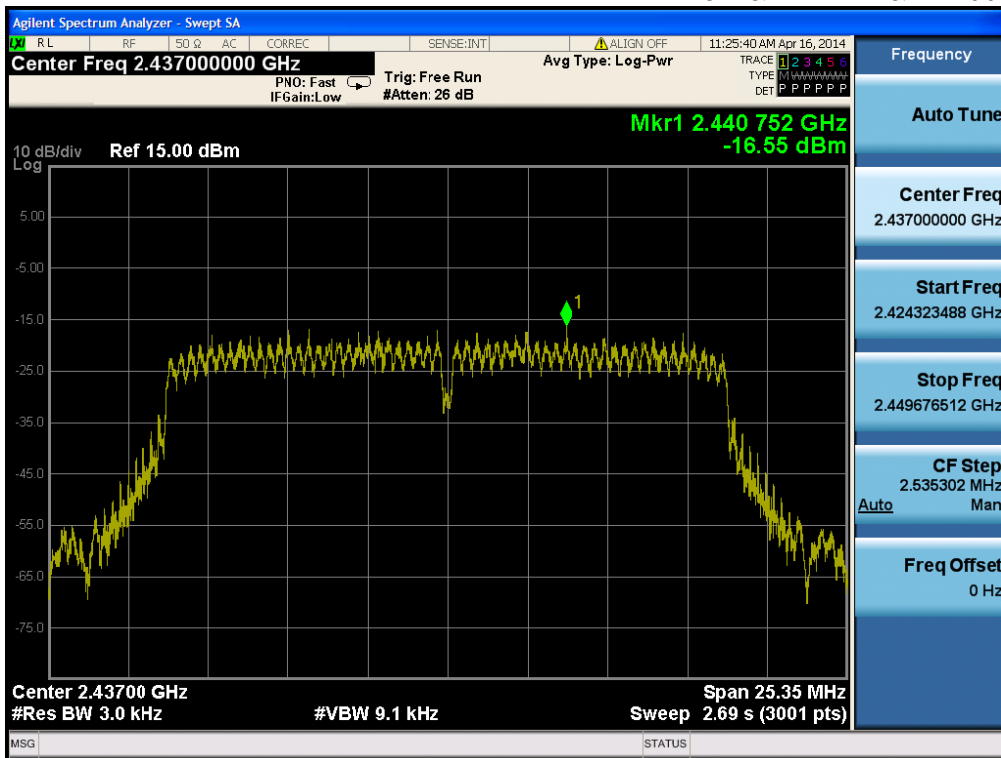
Maximum PPSD

TM 3 & ANT 2 & Lowest



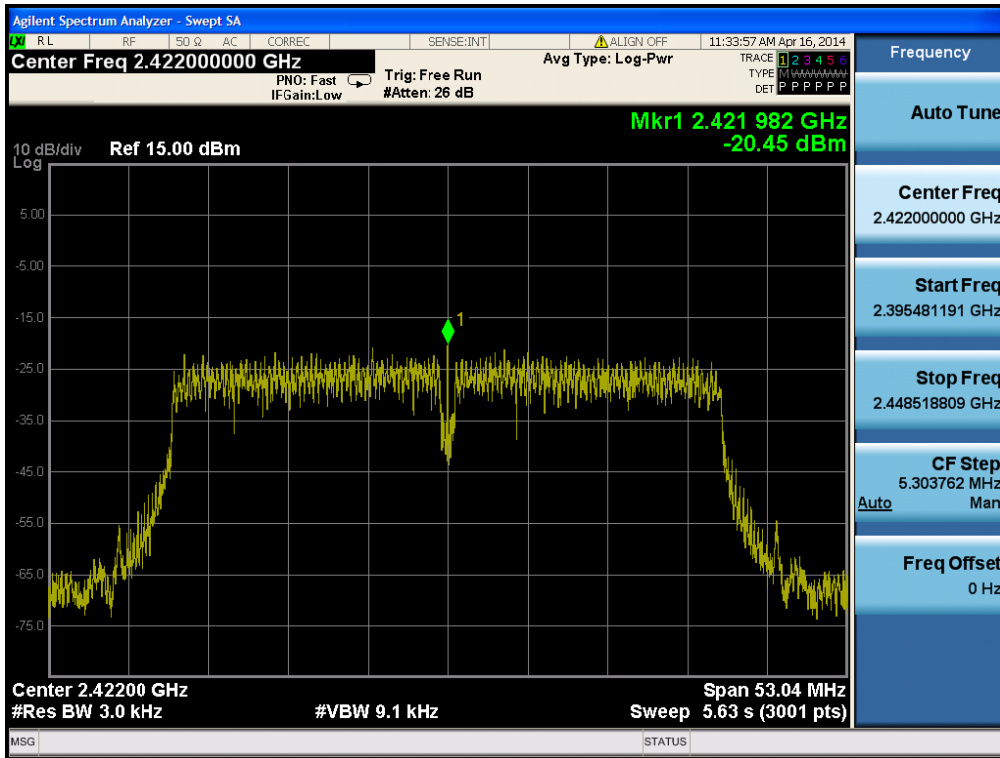
Maximum PPSD

TM 3 & ANT 2 & Middle



Maximum PPSD

TM 4 & ANT 1 & Lowest



Maximum PPSD

TM 4 & ANT 1 & Middle

