



Appendix for 2.4G WLAN

Appendix A: DTS (6 dB) Bandwidth

In this document, the "DTS6dBBW" refers to the measured "DTS (6 dB) Bandwidth" value. In this Appendix, the "fc(DTS6dBBW)" refers to the centre of the measured "DTS6dBBW". The introduction of the "fc(DTS6dBBW)" is due to that other measurements use it as the spectrum analyzer setting.

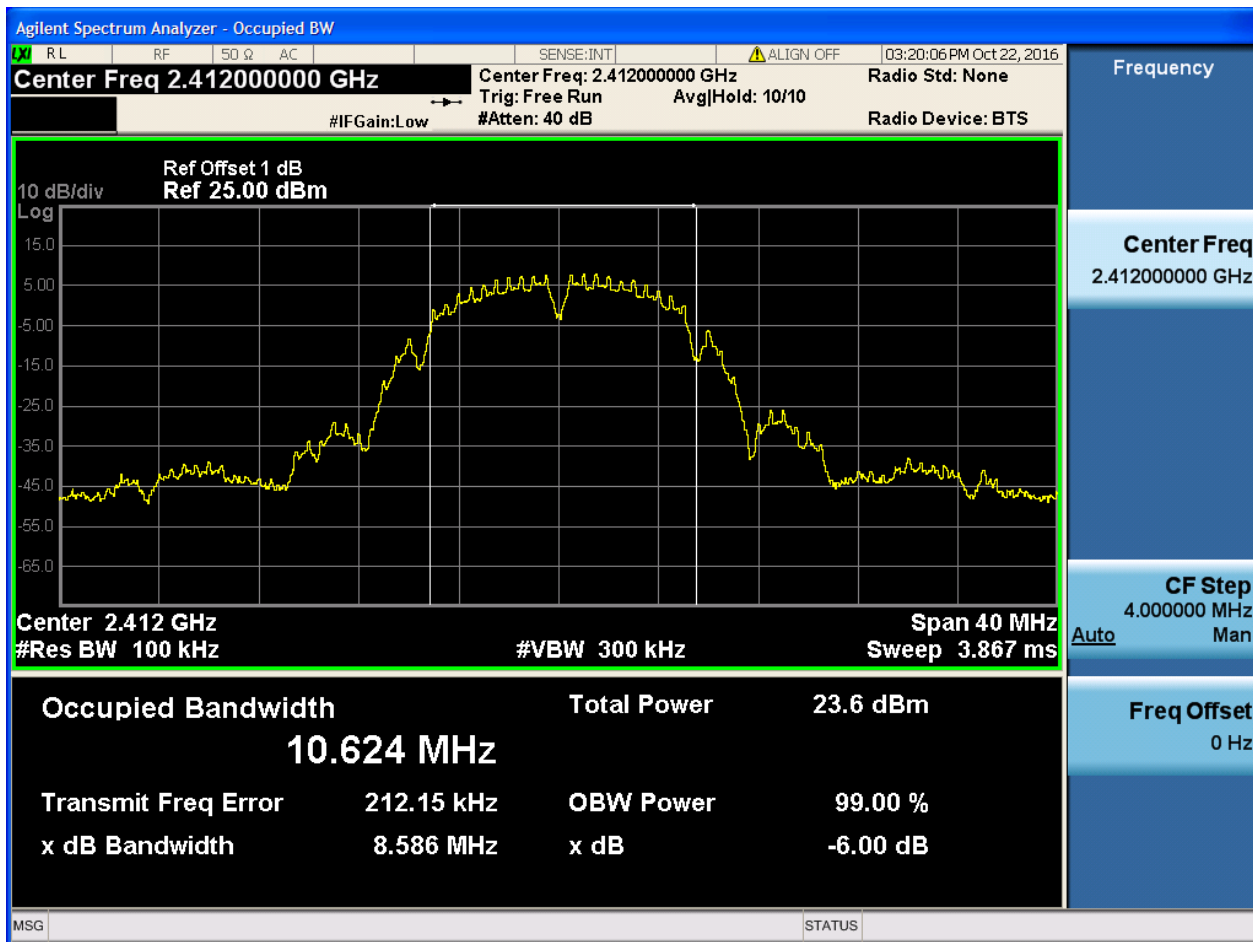
For measurements on smart antenna systems (devices with multiple transmit chains), the test is performed at each chain, and used as respective results for each chain.

Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	DTS6dBBW[MHz]	Verdict
11B	L	2412	Ant 1	8.59	pass
11B	M	2437	Ant 1	8.11	pass
11B	H	2462	Ant 1	8.12	pass
11G	L	2412	Ant 1	16.40	pass
11G	M	2437	Ant 1	16.43	pass
11G	H	2462	Ant 1	16.38	pass
11N20	L	2412	Ant 1	17.61	pass
11N20	M	2437	Ant 1	17.62	pass
11N20	H	2462	Ant 1	17.58	pass
11N40	L	2422	Ant 1	35.25	pass
11N40	M	2437	Ant 1	35.20	pass
11N40	H	2452	Ant 1	35.52	pass

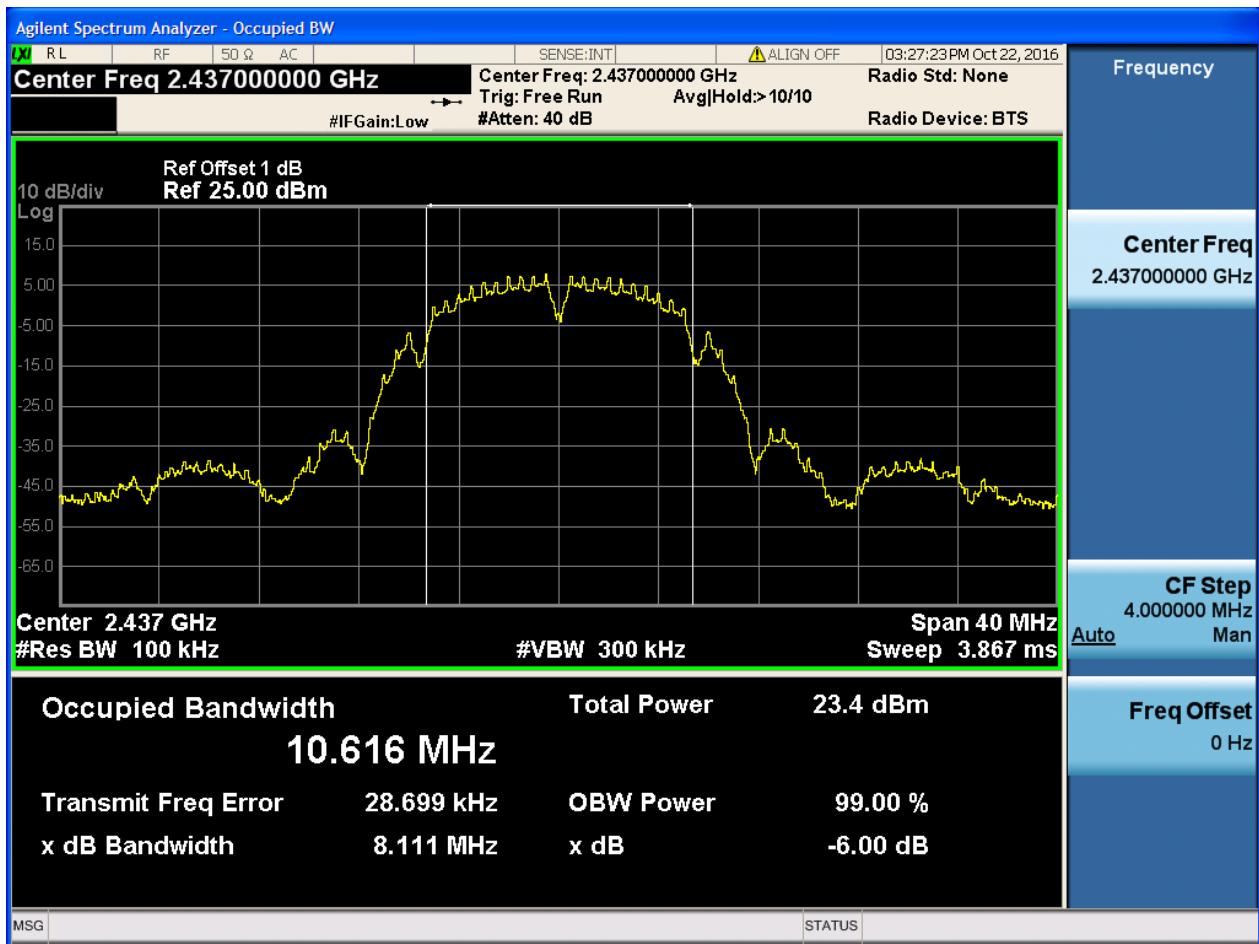
Part II - Test Plots

2.1 11B_L@Ant 1



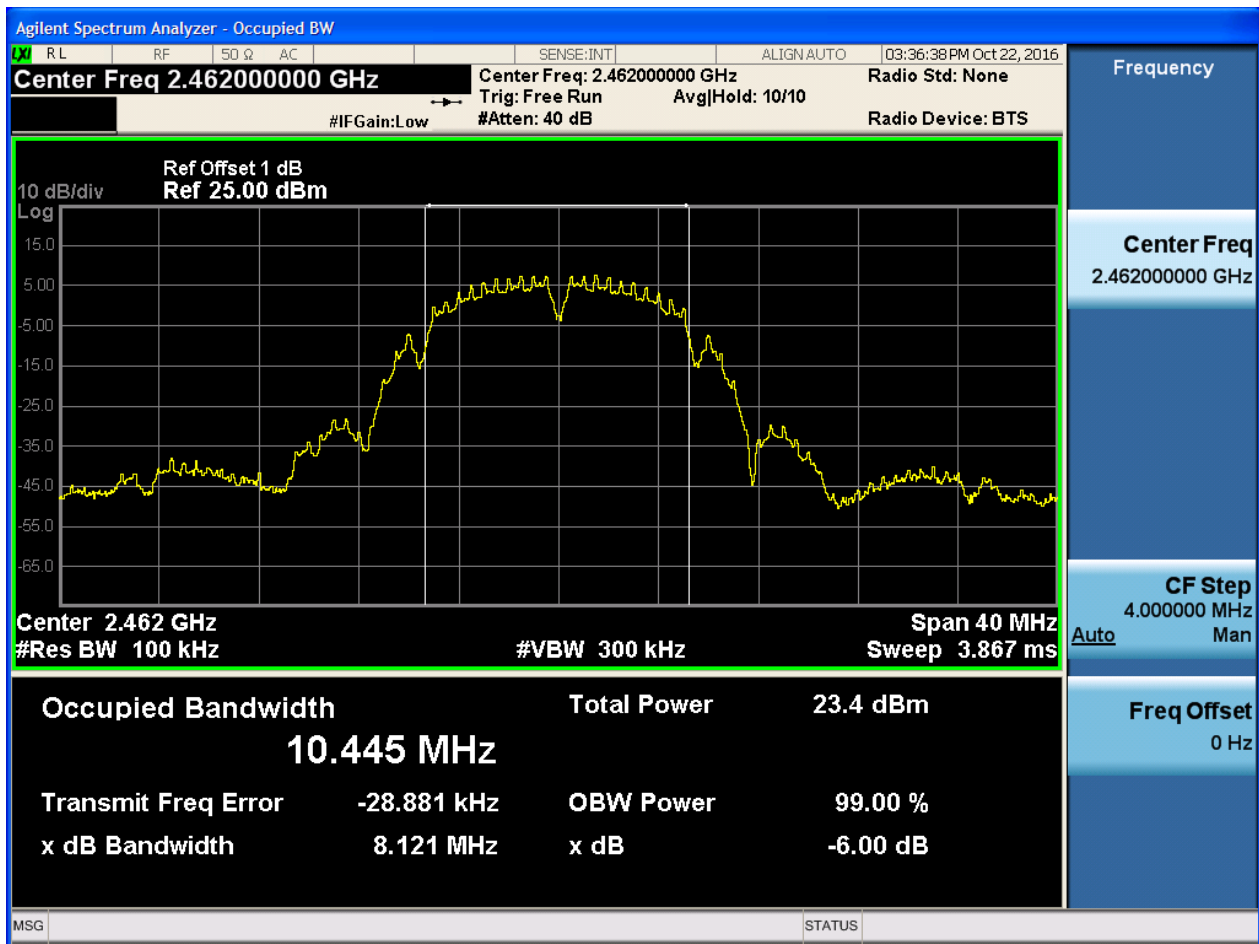


2.2 11B_M@Ant 1



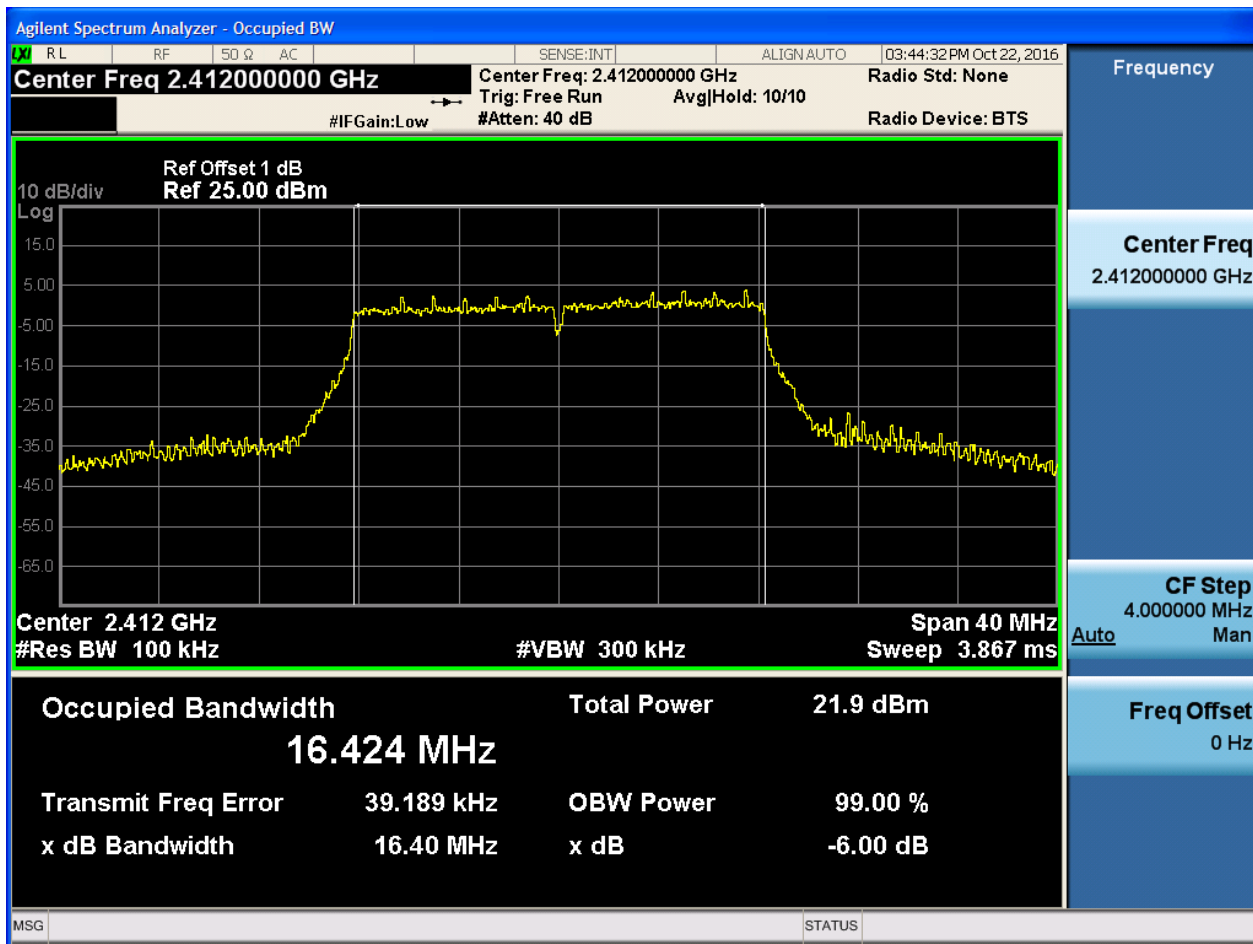


2.3 11B_H@Ant 1



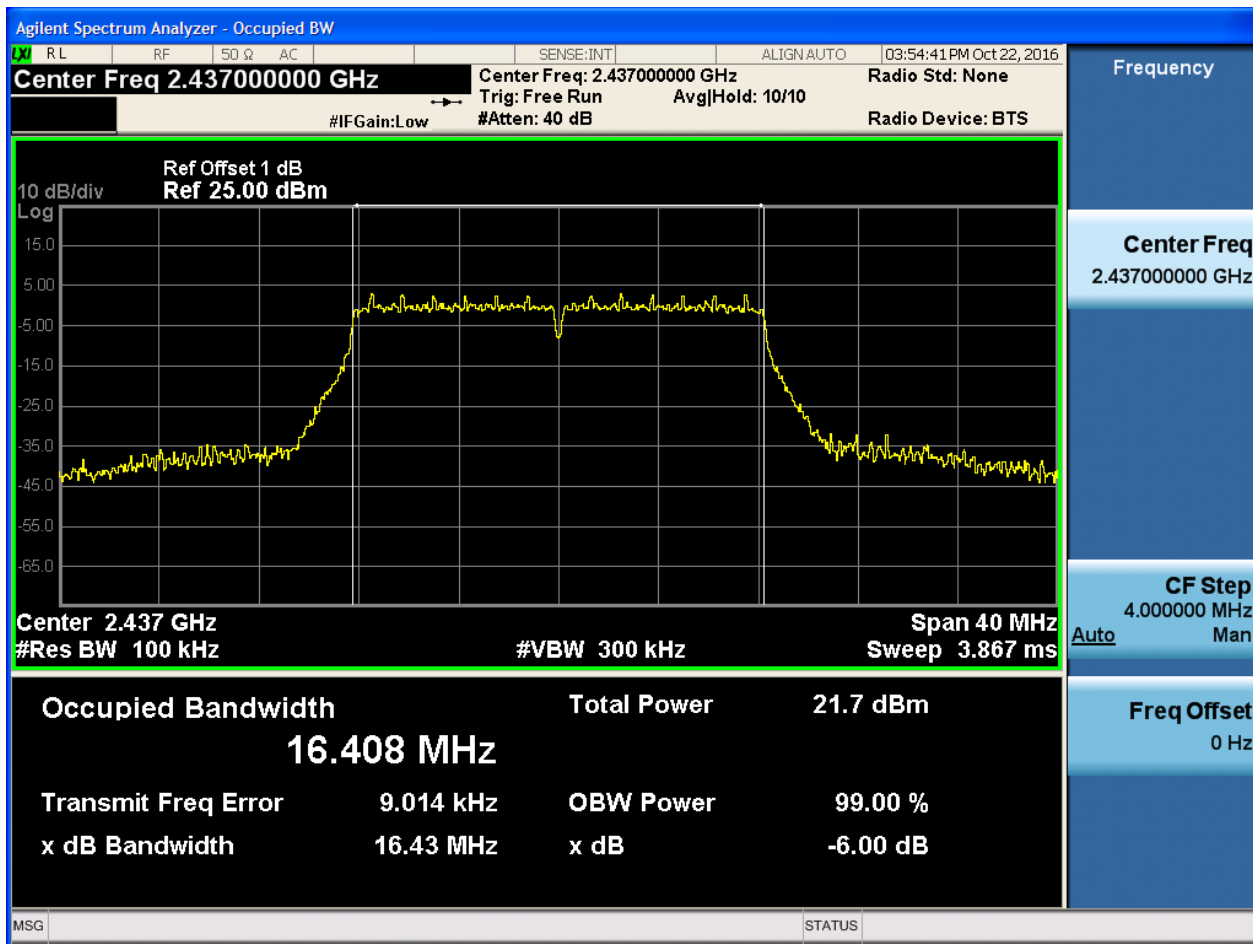


2.4 11G_L@Ant 1



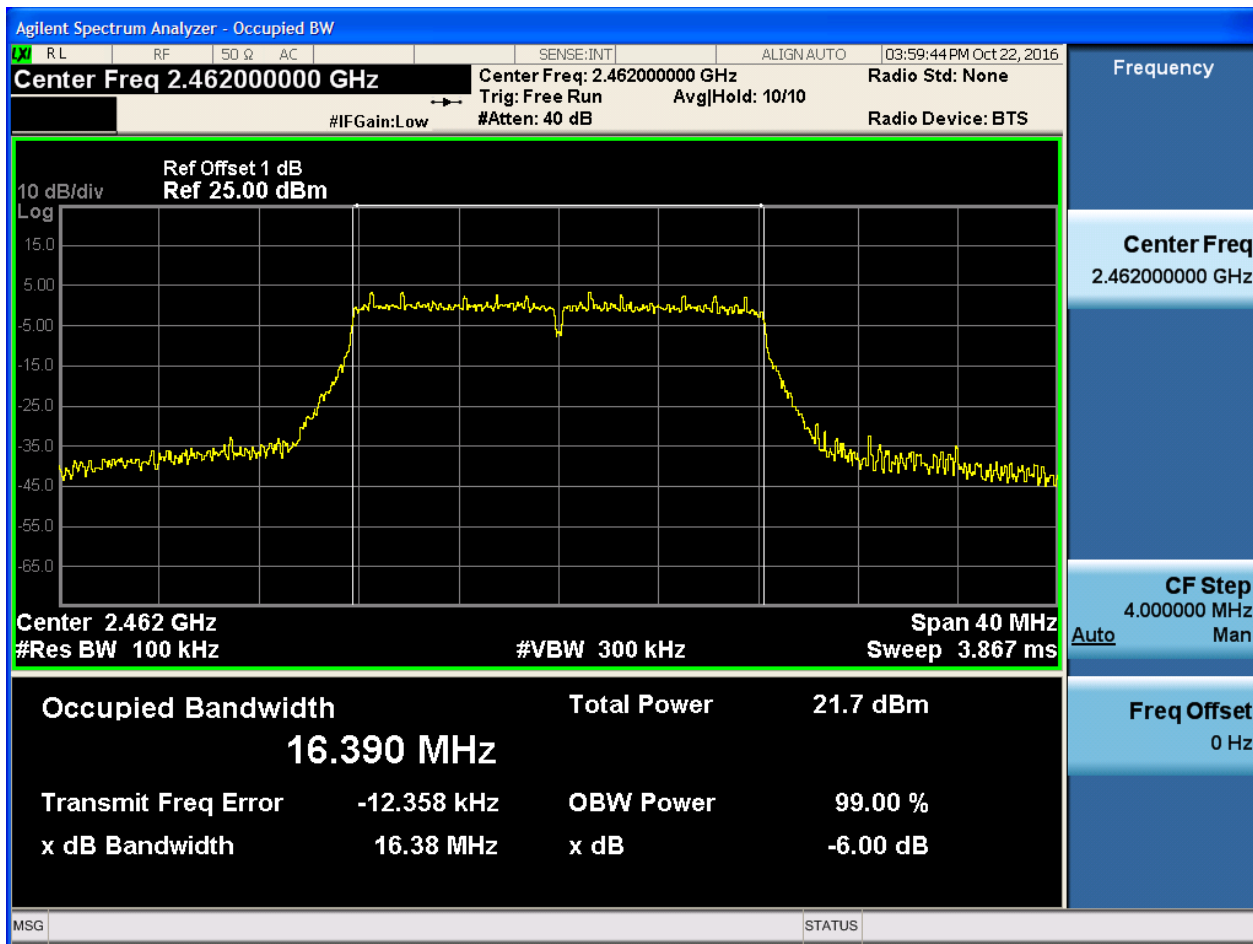


2.5 11G_M@Ant 1



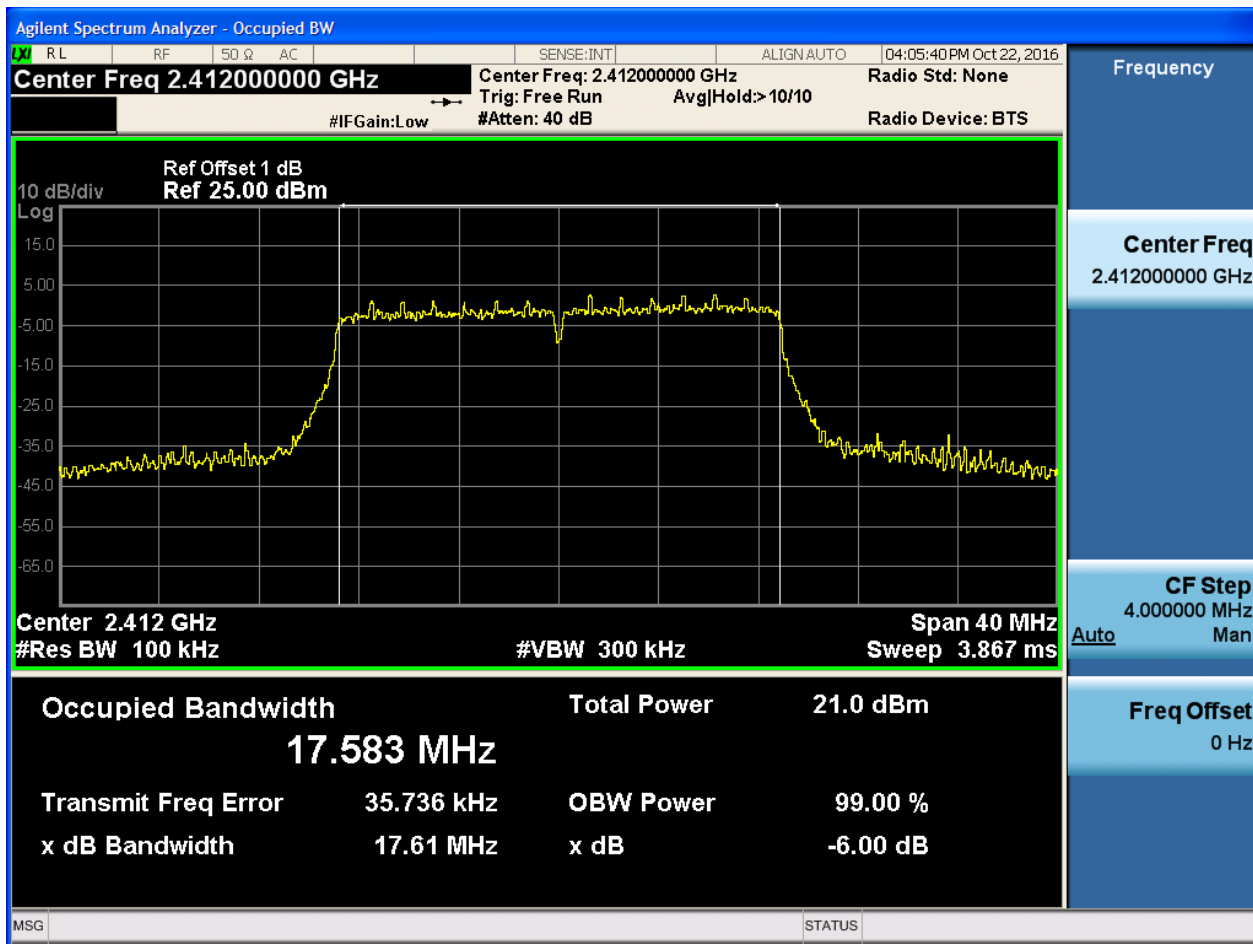


2.6 11G_H@Ant 1



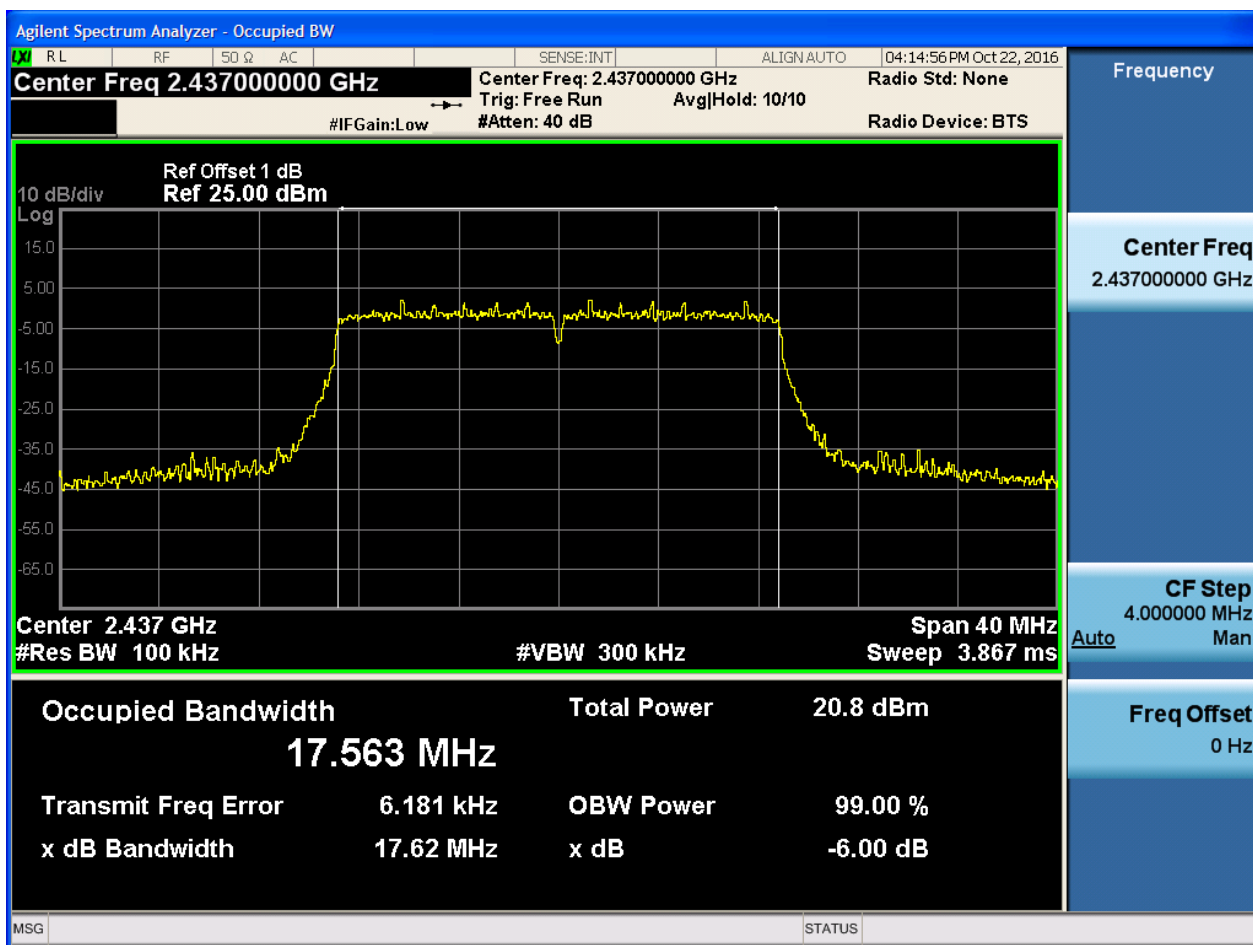


2.711N20_L@Ant 1



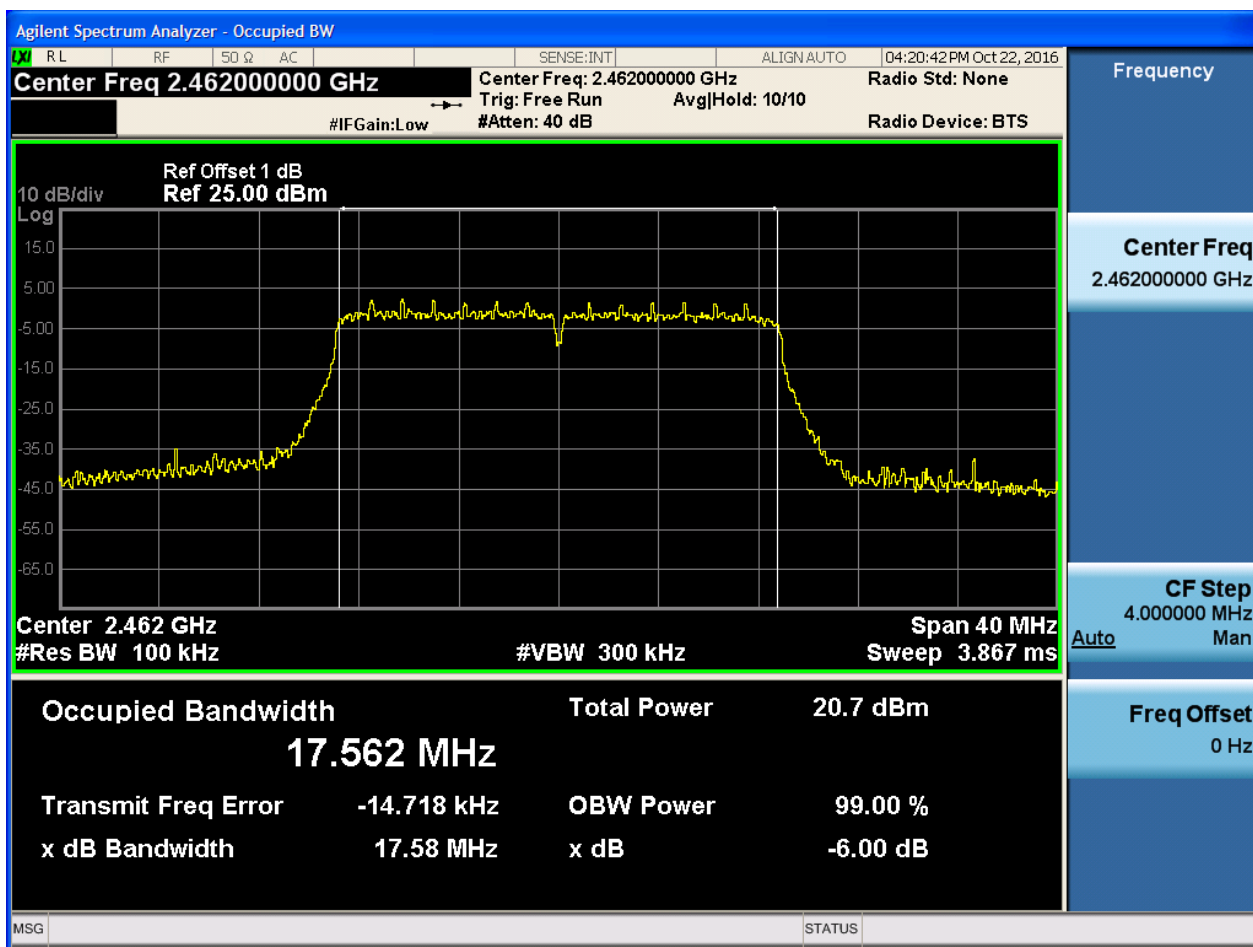


2.8 11N20_M@Ant 1



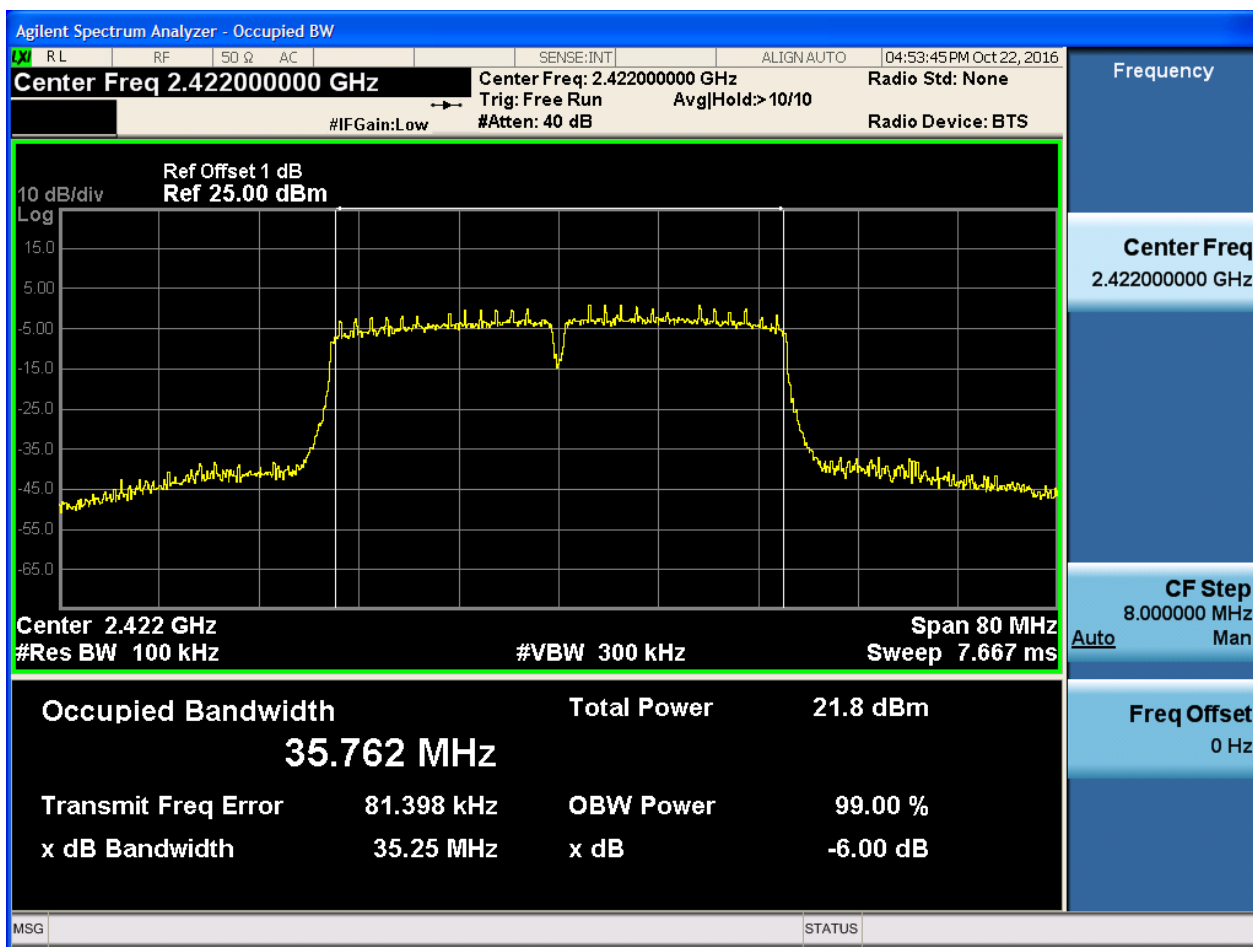


2.9 11N20_H@Ant 1



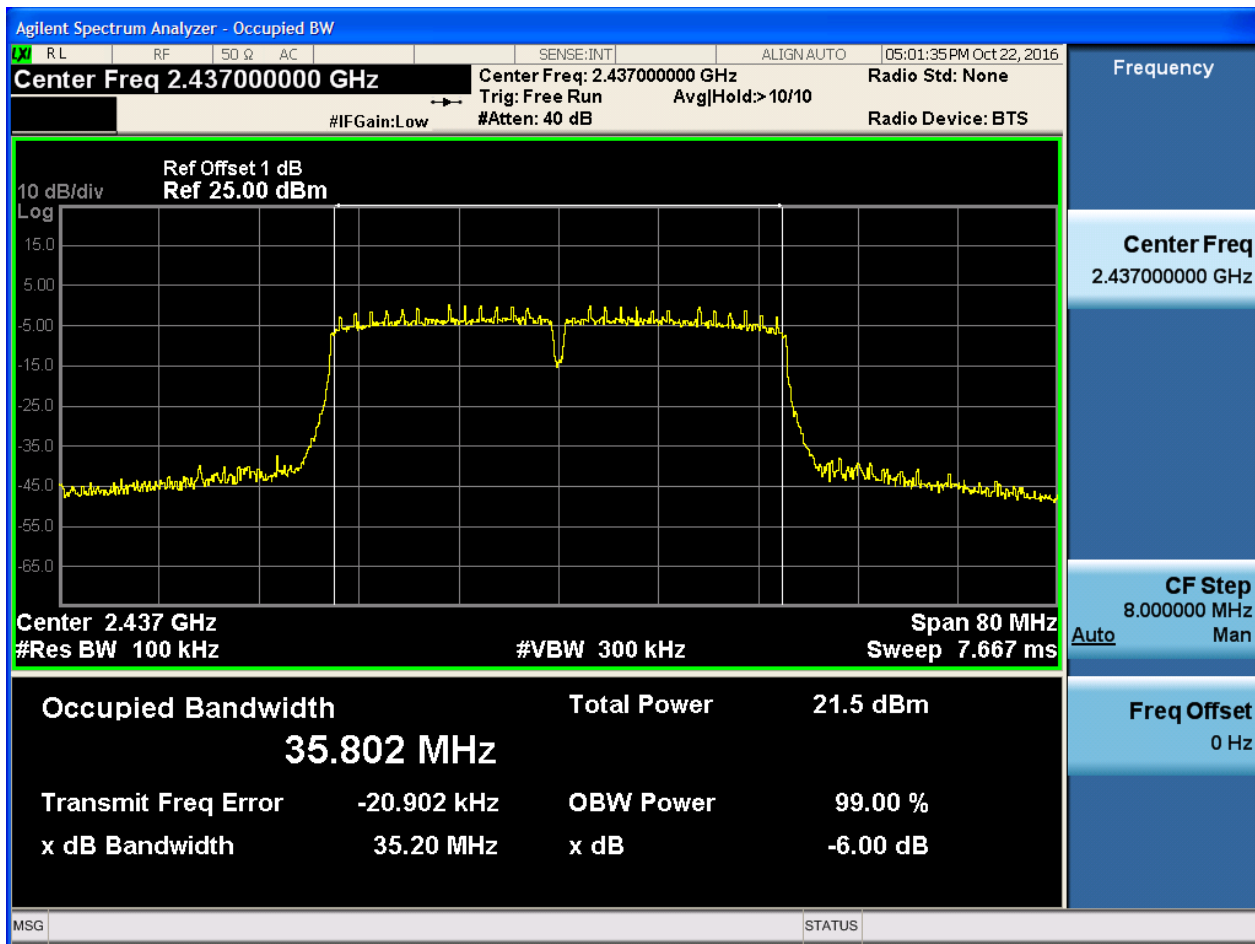


2.10 11N40_L@Ant 1



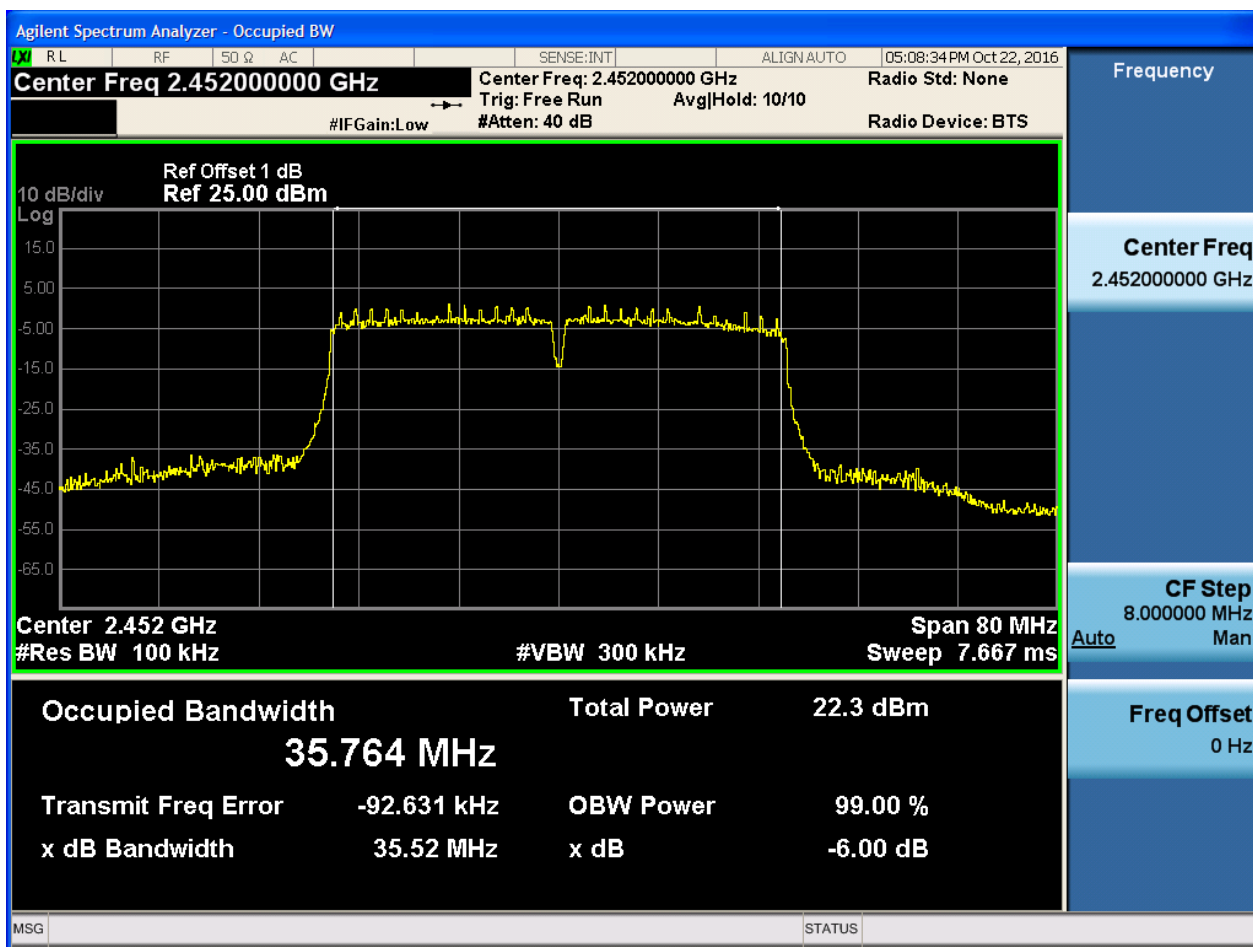


2.11 11N40_M@Ant 1





2.12 11N40_H@Ant 1



Appendix B: Occupied Bandwidth

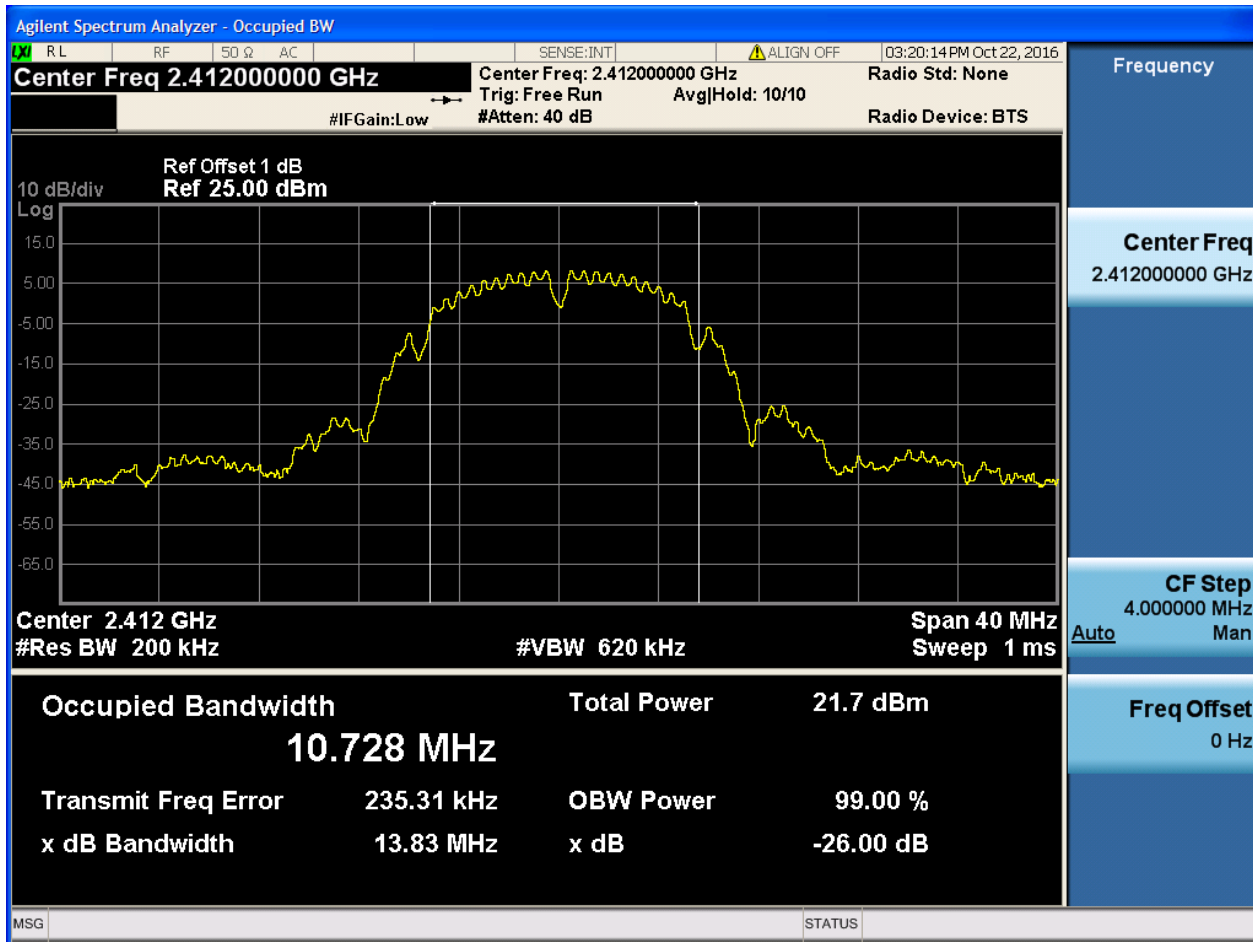
For measurements on smart antenna systems (devices with multiple transmit chains), the test is performed at each chain, and used as respective results for each chain.

Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Occupied Bandwidth [MHz]	Verdict
11B	L	2412	Ant 1	10.73	pass
11B	M	2437	Ant 1	10.67	pass
11B	H	2462	Ant 1	10.51	pass
11G	L	2412	Ant 1	16.51	pass
11G	M	2437	Ant 1	16.48	pass
11G	H	2462	Ant 1	16.47	pass
11N20	L	2412	Ant 1	17.61	pass
11N20	M	2437	Ant 1	17.59	pass
11N20	H	2462	Ant 1	17.56	pass
11N40	L	2422	Ant 1	35.76	pass
11N40	M	2437	Ant 1	35.82	pass
11N40	H	2452	Ant 1	35.82	pass

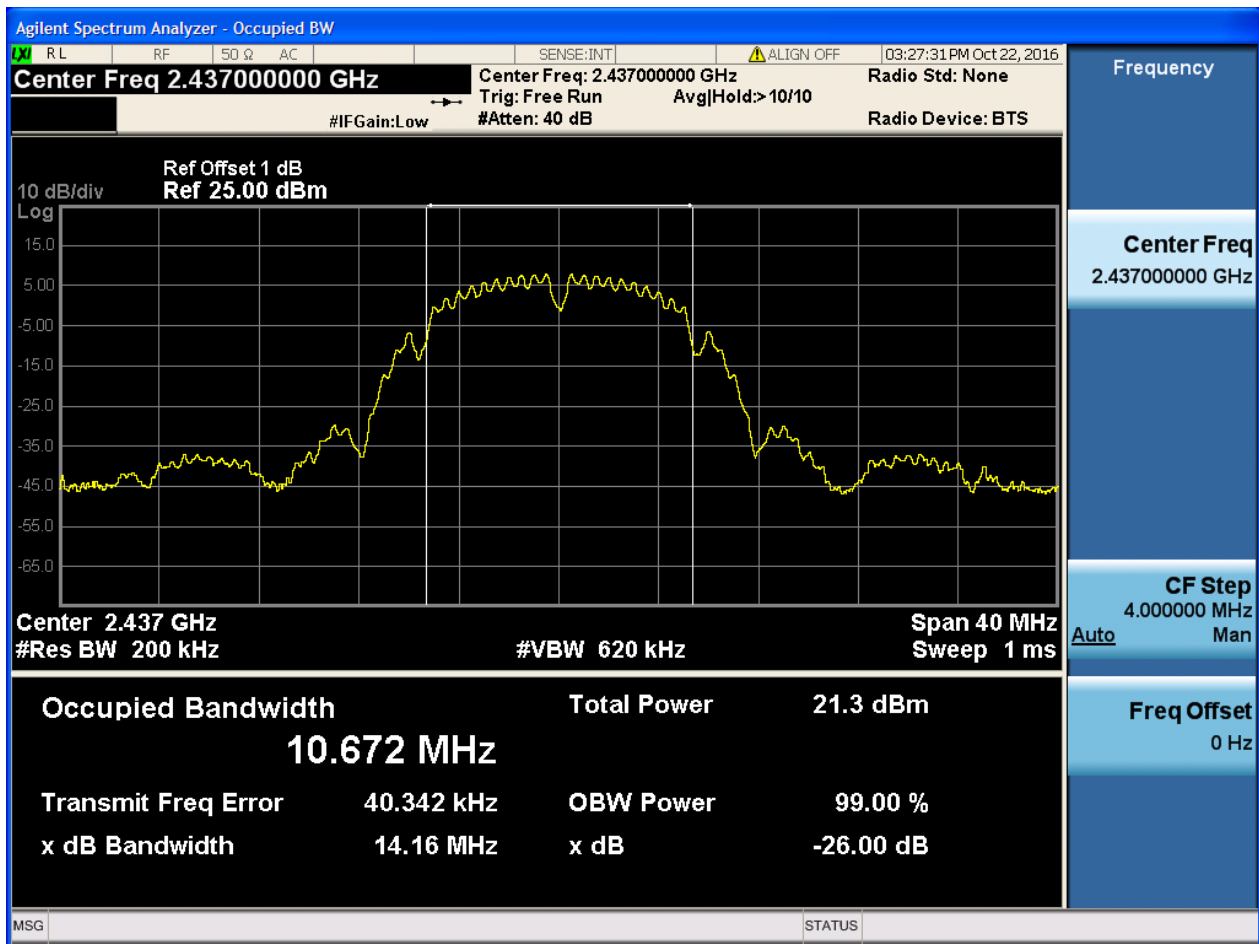
Part II - Test Plots

2.1 11B_L@Ant 1



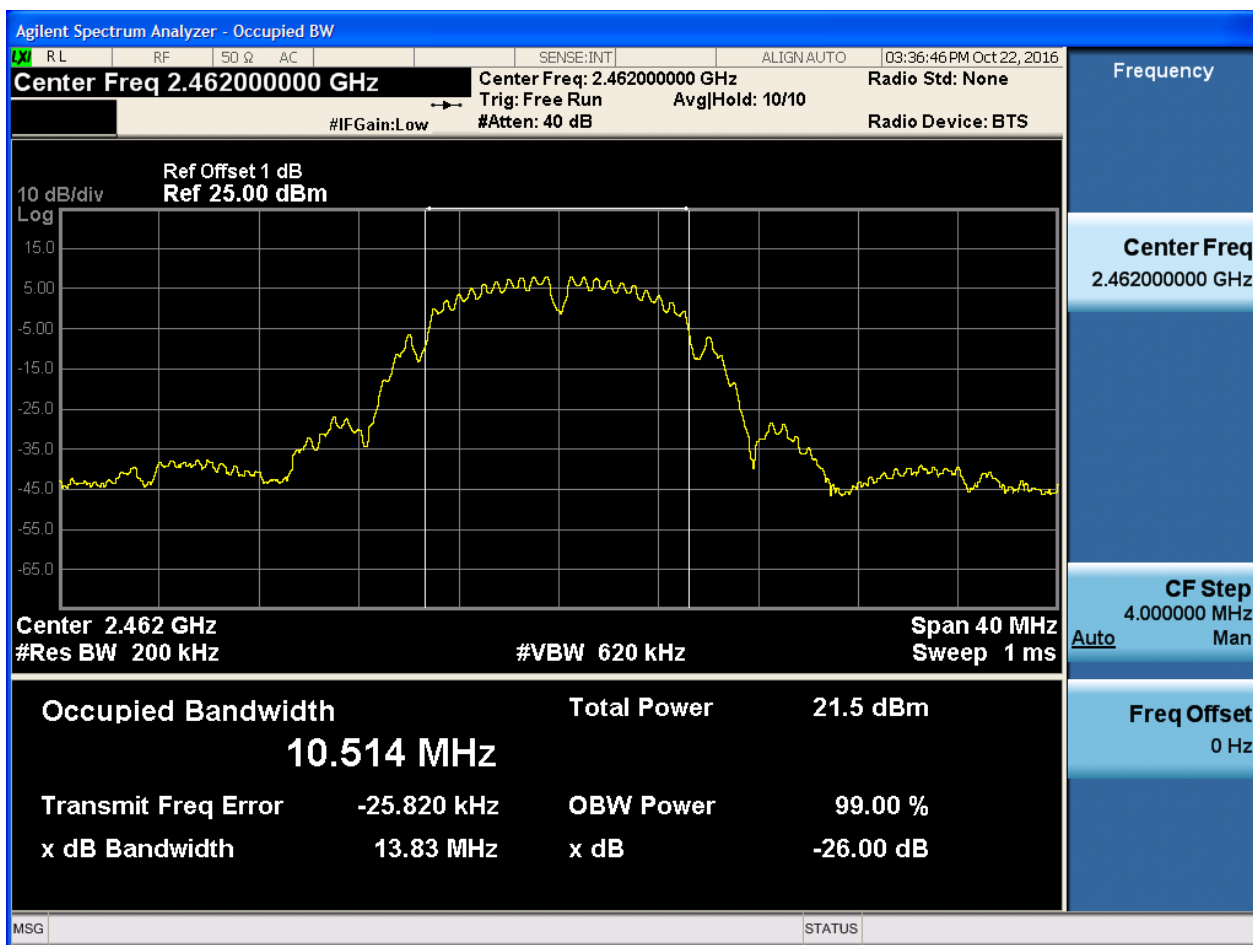


2.2 11B_M@Ant 1



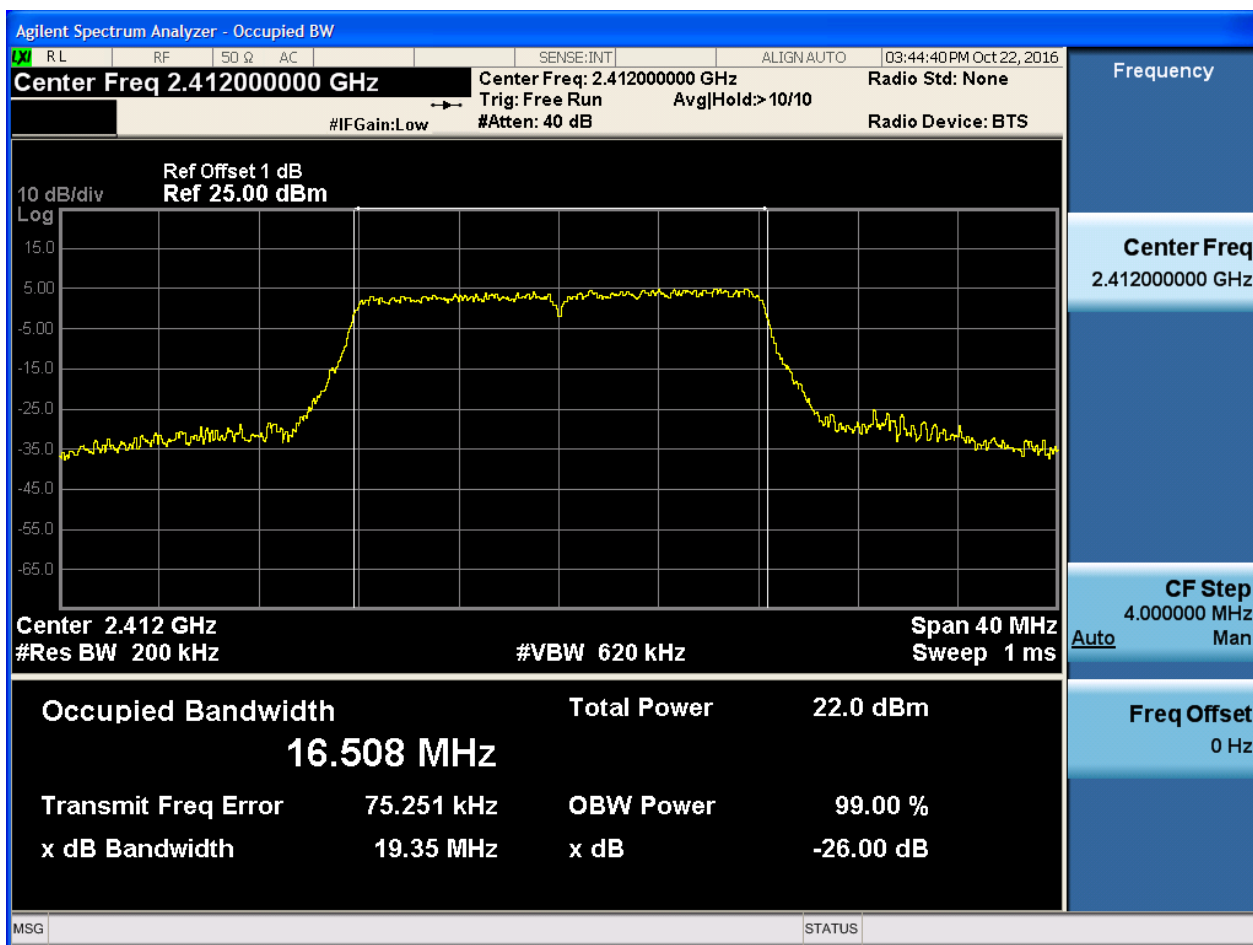


2.3 11B_H@Ant 1



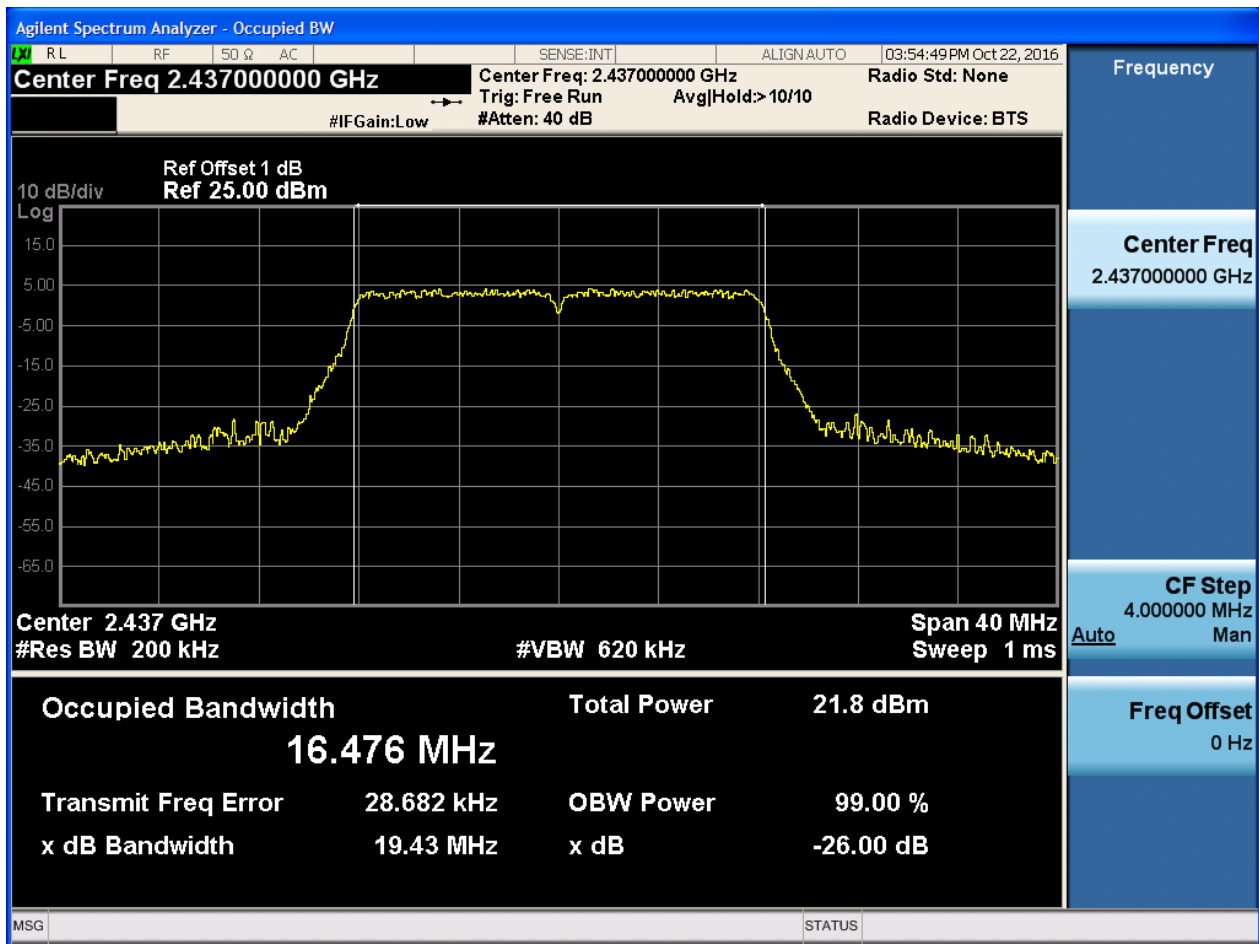


2.4 11G_L@Ant 1



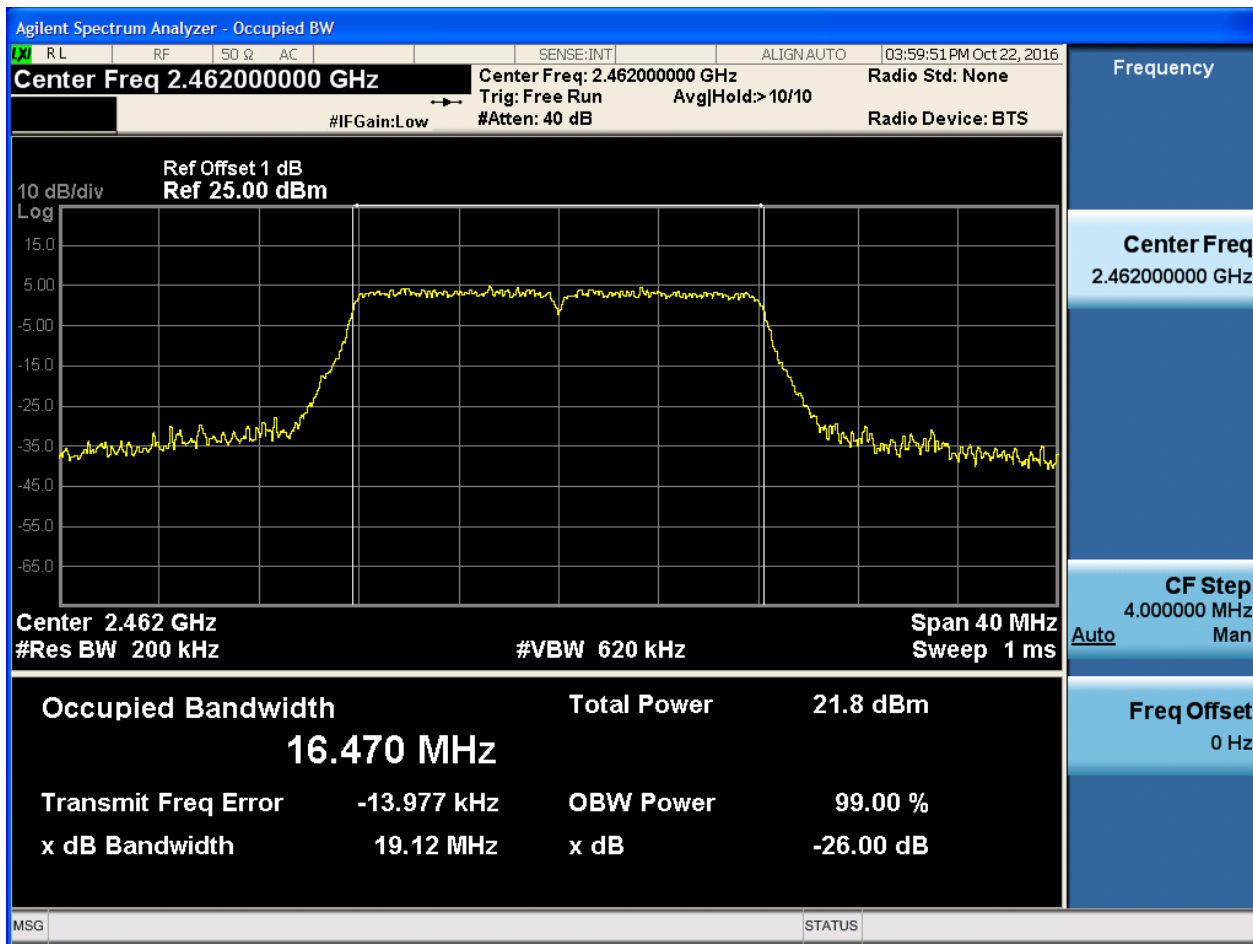


2.5 11G_M@Ant 1



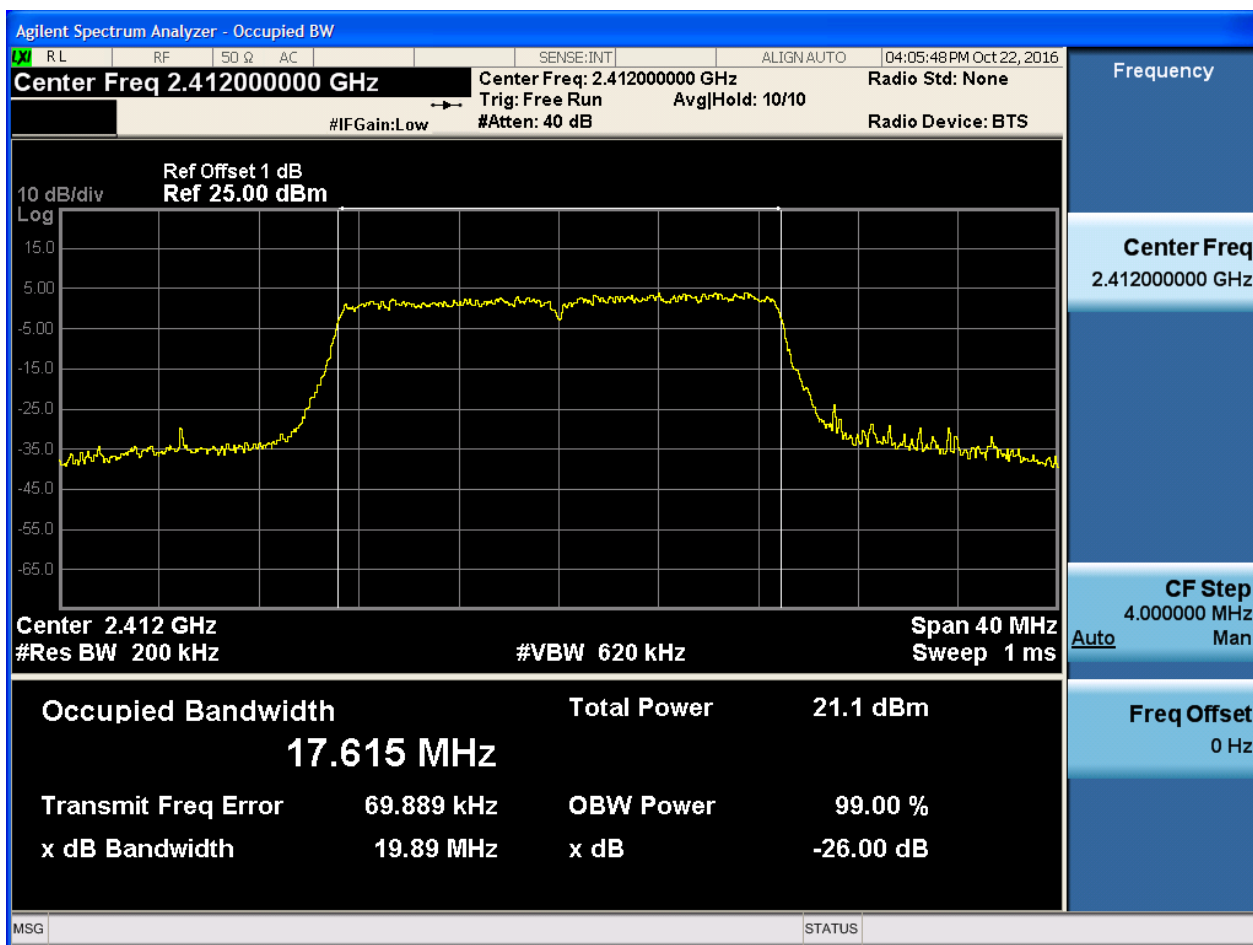


2.6 11G_H@Ant 1



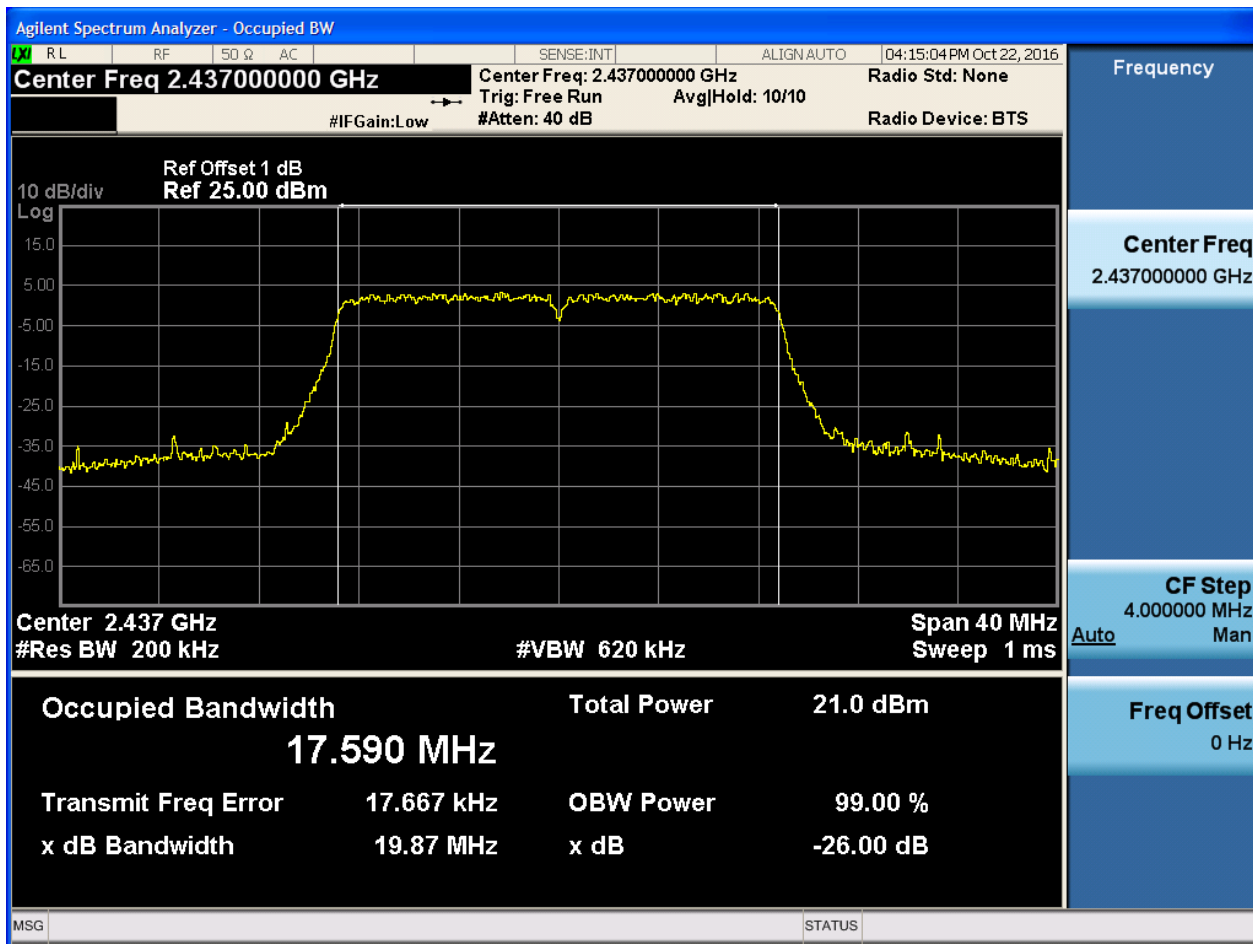


2.7 11N20_L@Ant 1



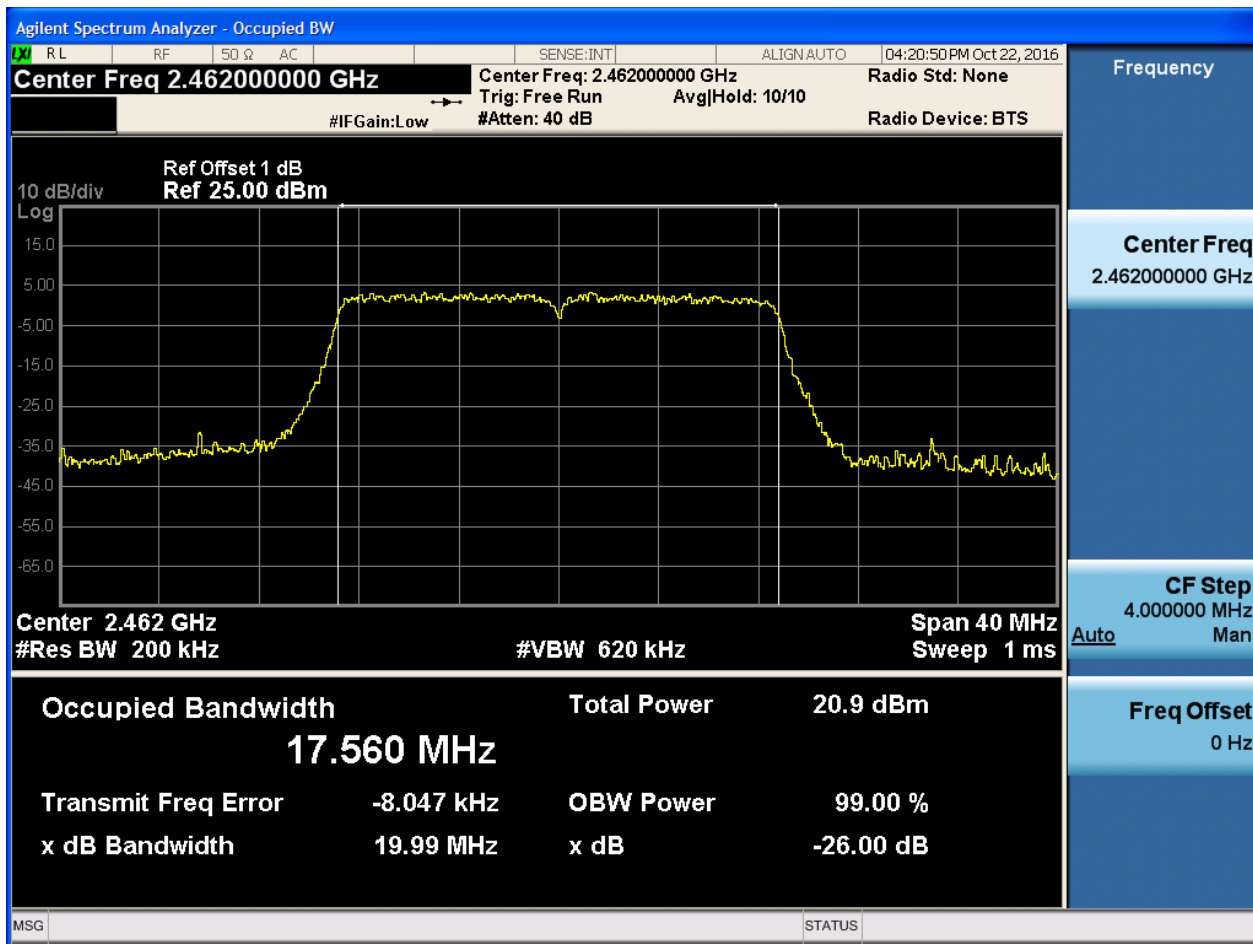


2.8 11N20_M@Ant 1



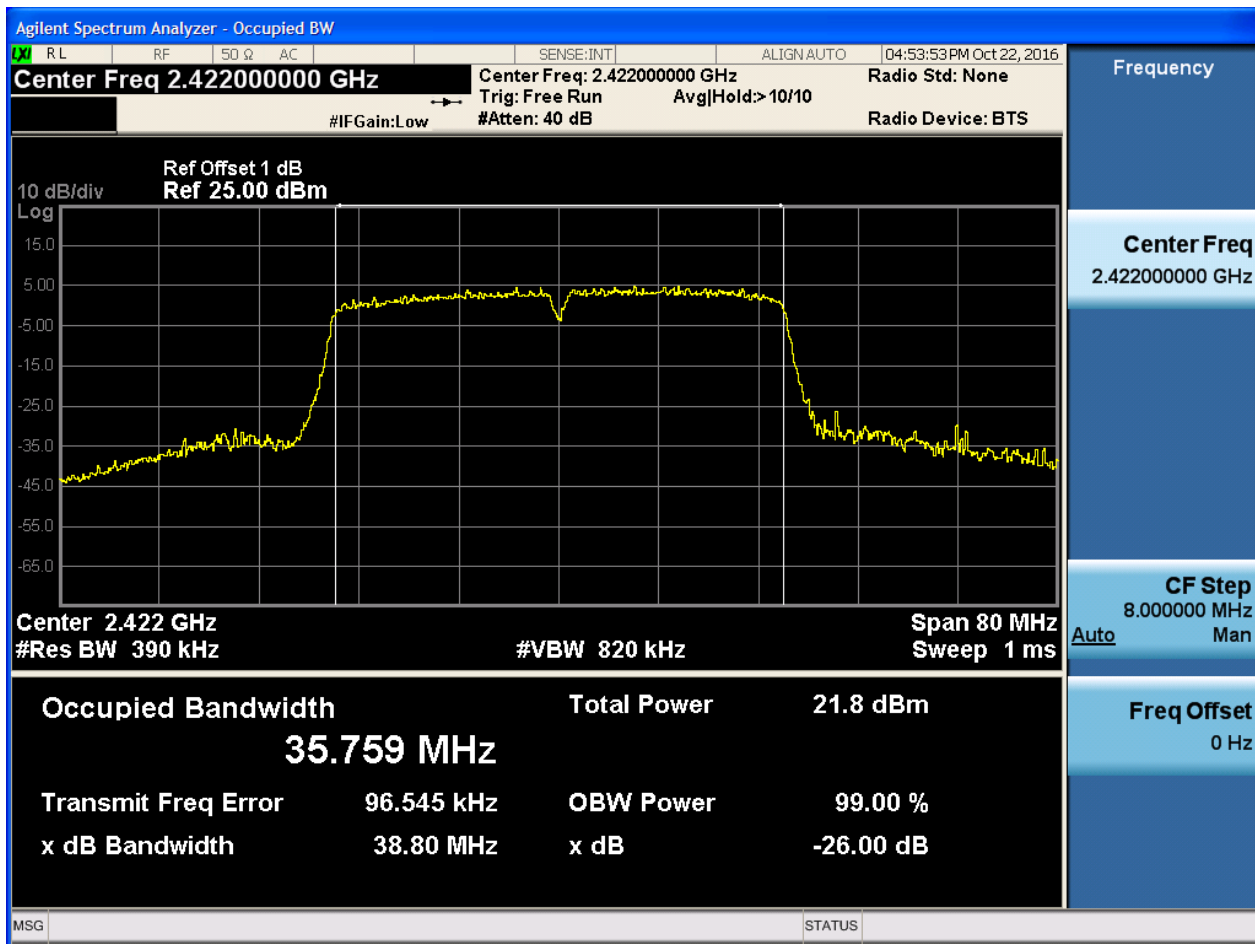


2.9 11N20_H@Ant 1



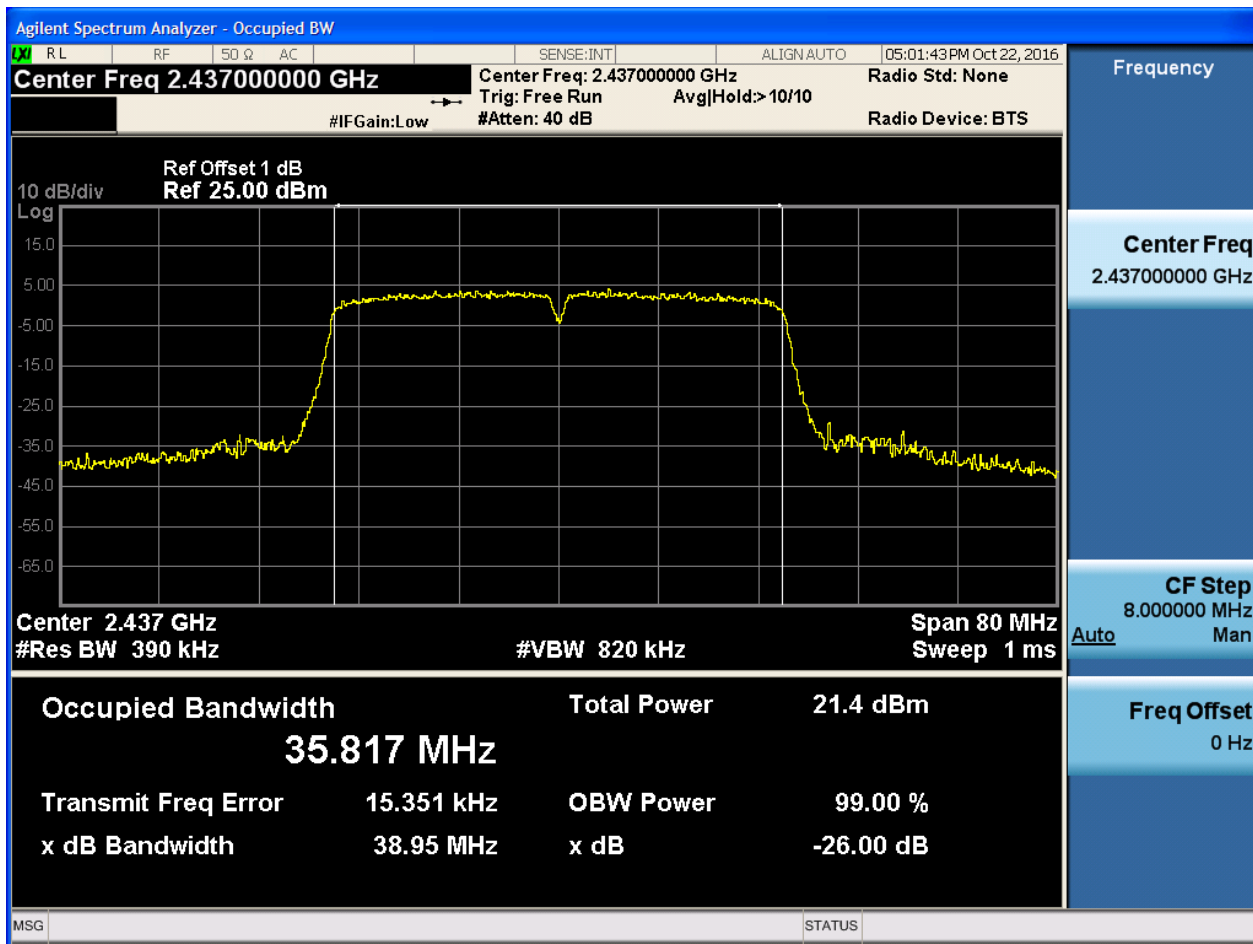


2.10 11N40_L@Ant 1



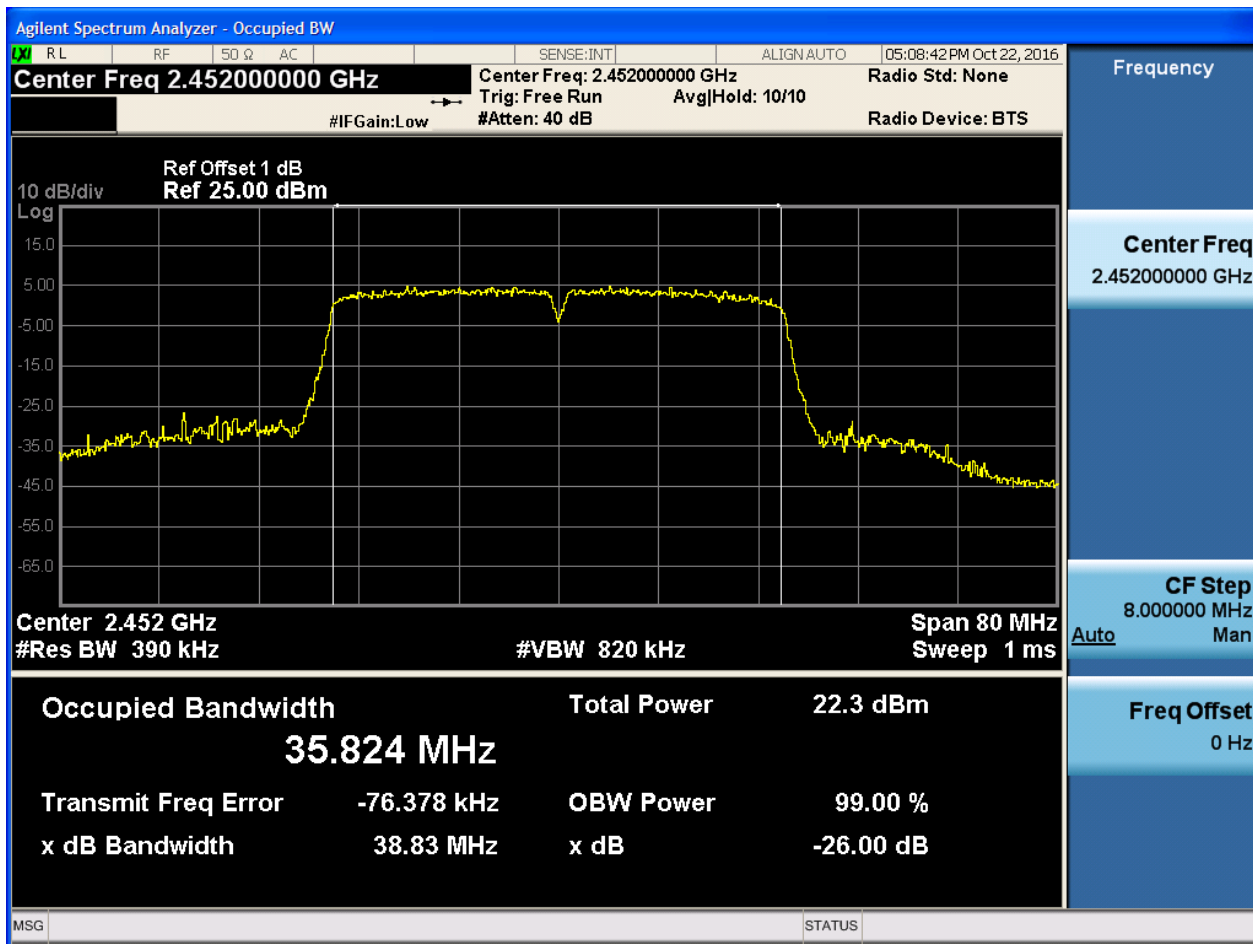


2.11 11N40_M@Ant 1





2.12 11N40_H@Ant 1



Appendix C: Duty Cycle

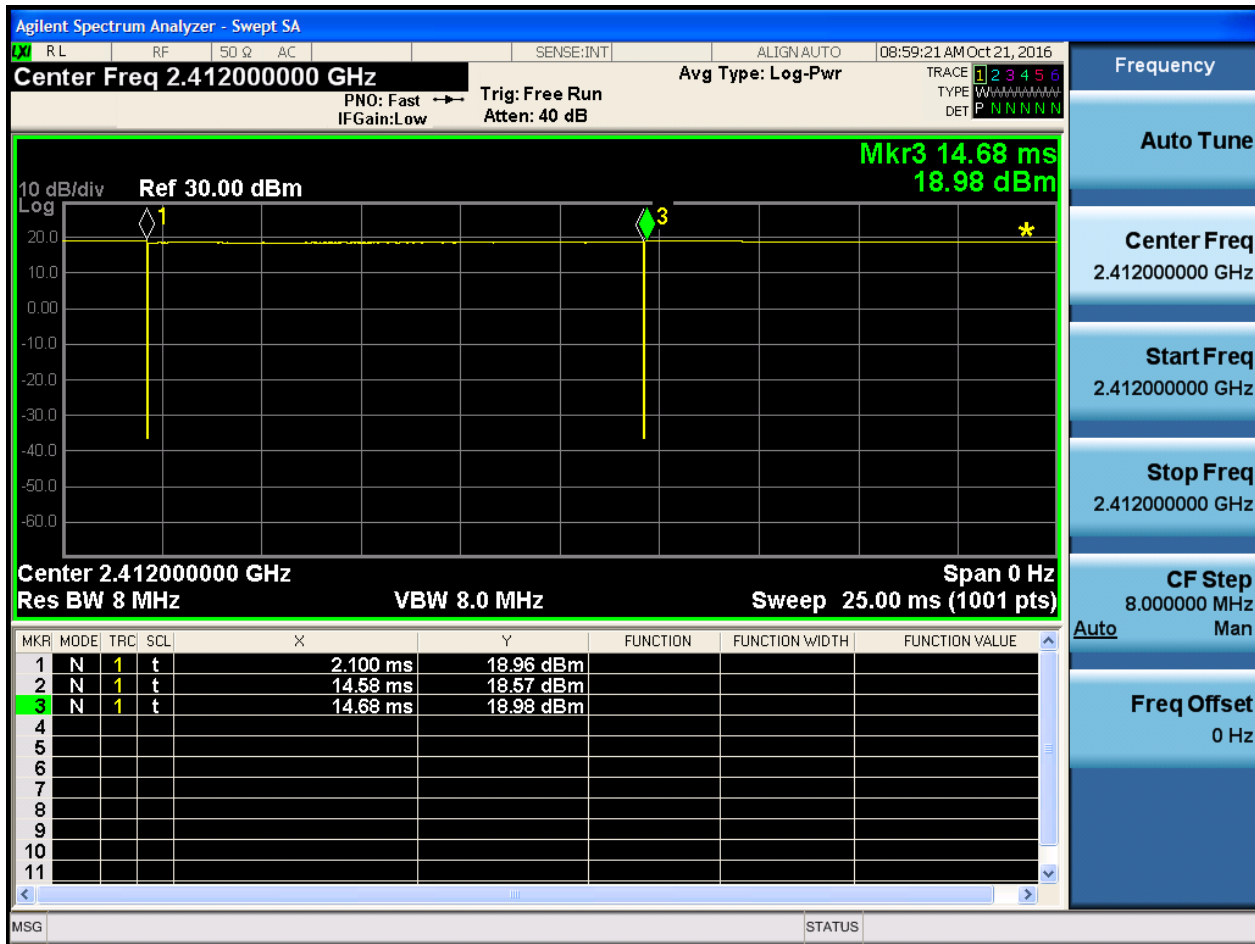
Part I - Test Results

Test Mode	TX Freq. [MHz]	Duty cycle [%]
11B	Ant 1: CH1,CH6,CH11	99
11G	Ant 1: CH1,CH6,CH11	97
11N_20M_SISO	Ant 1: CH1,CH6,CH11	97
11N_40M_SISO	Ant 1: CH3,CH6,CH9	94

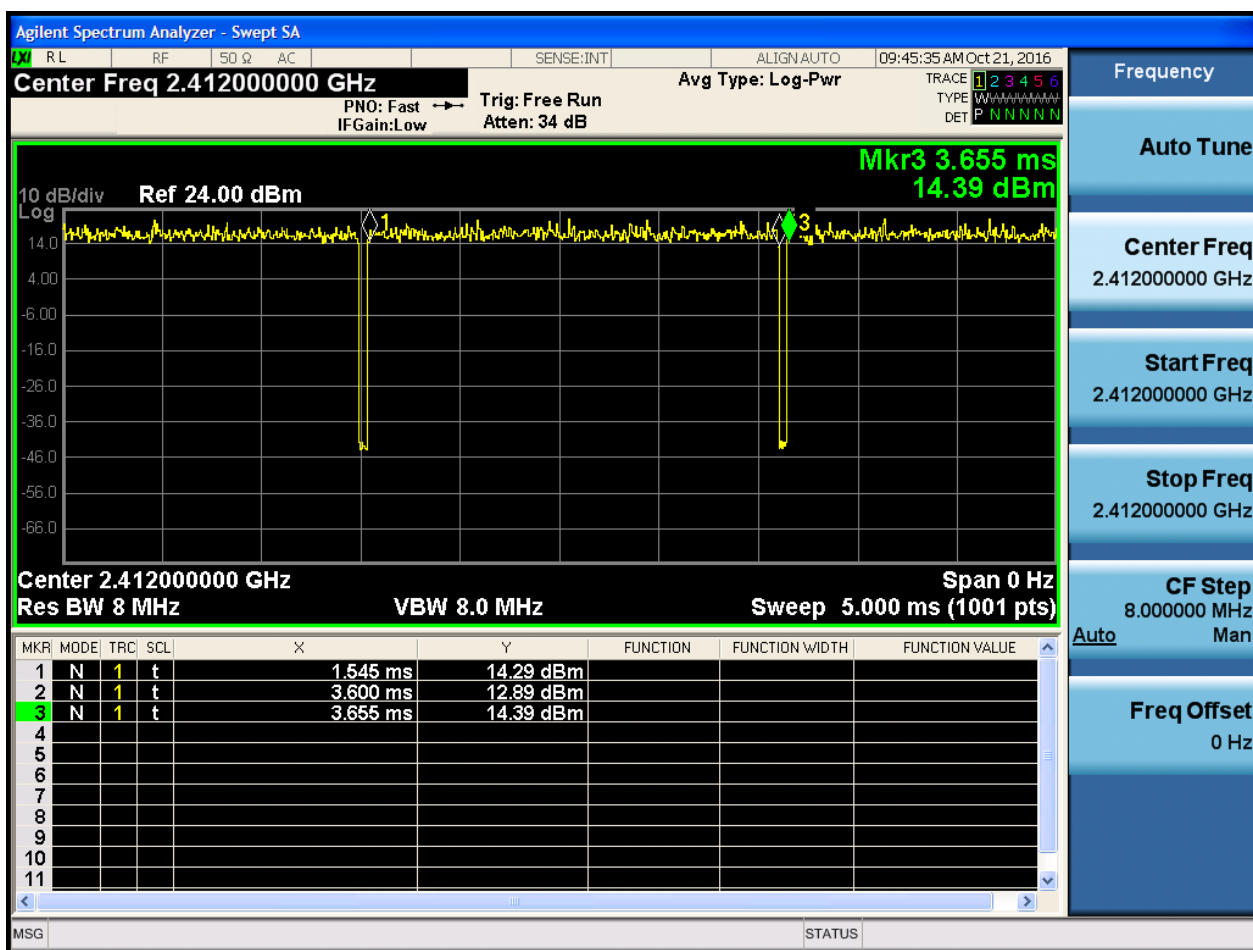


Part II - Test Plots

2.1 11B

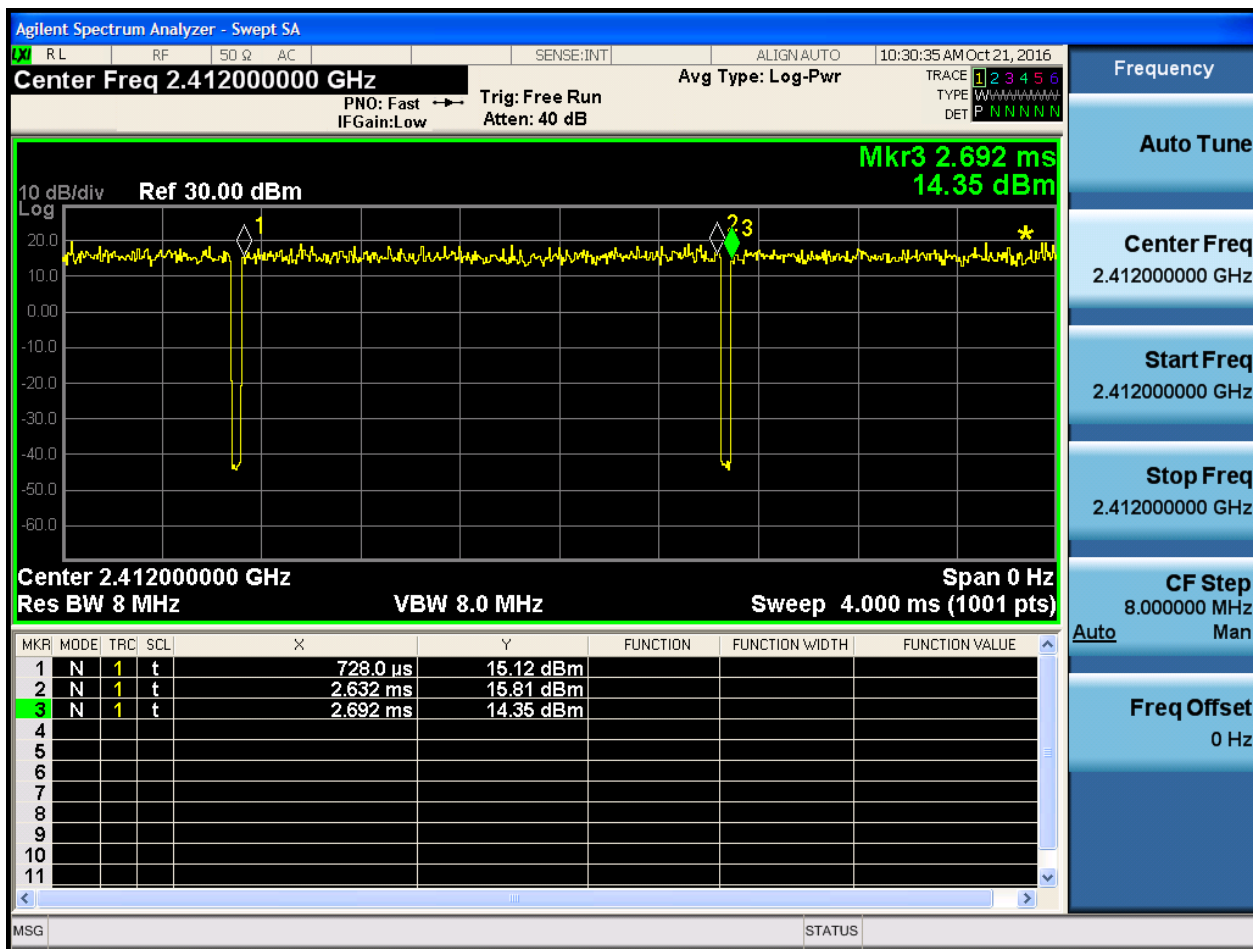


2.2 11G



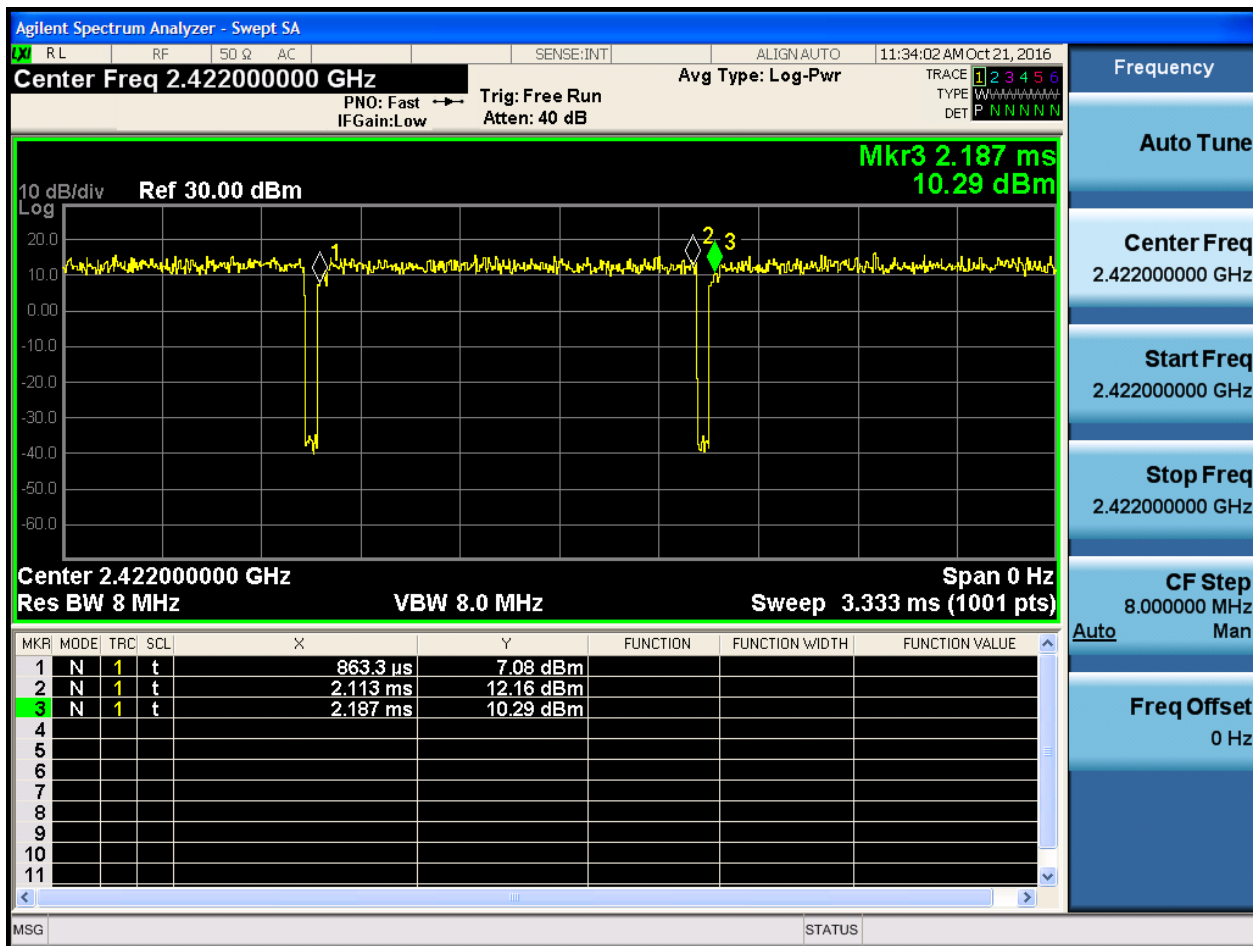


2.3 11N20





2.4 11N40



Appendix D: Maximum Conducted Average Output Power

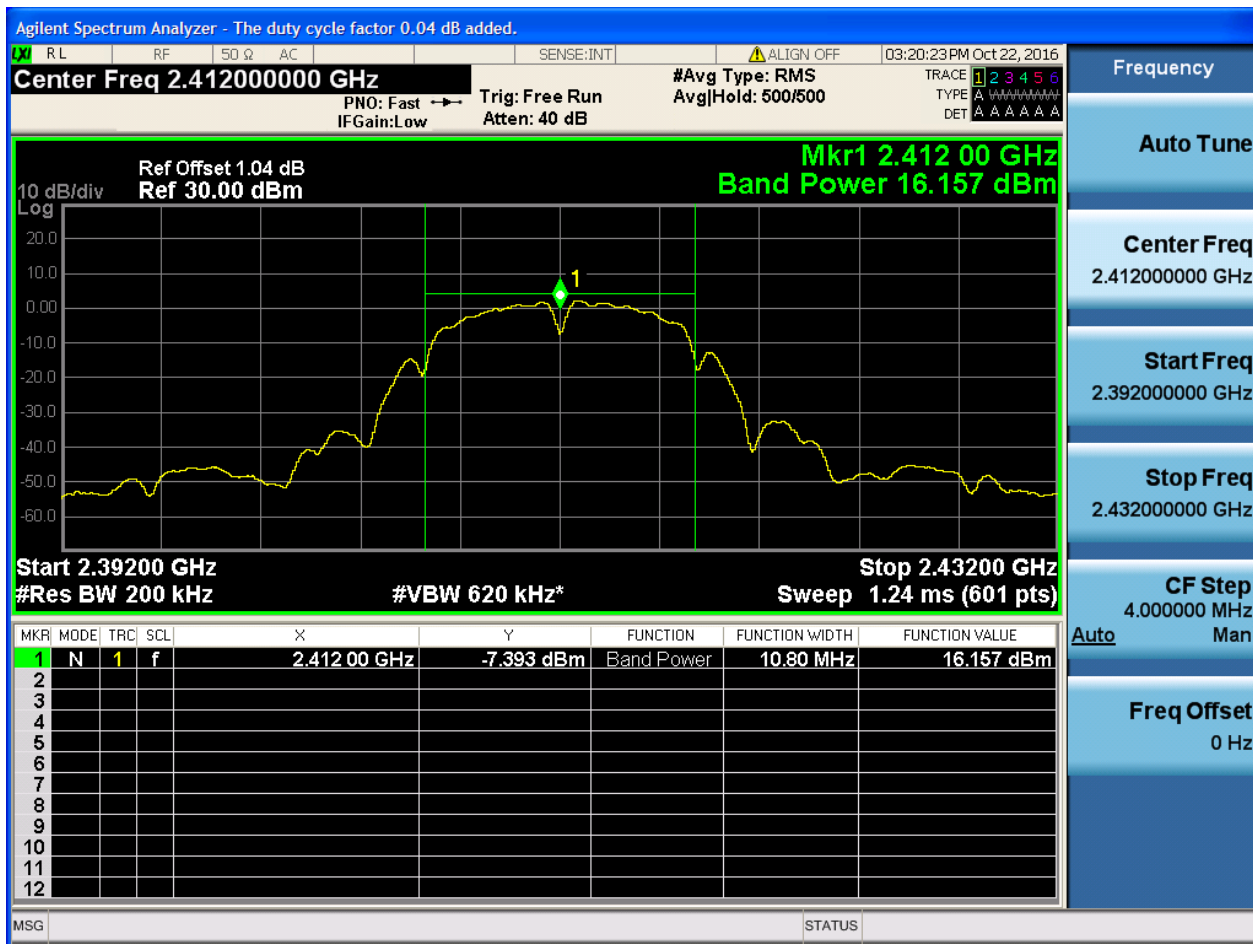
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Power[dBm]	Verdict
11B	L	2412	Ant 1	16.16	pass
11B	M	2437	Ant 1	15.81	pass
11B	H	2462	Ant 1	15.94	pass
11G	L	2412	Ant 1	14.96	pass
11G	M	2437	Ant 1	14.73	pass
11G	H	2462	Ant 1	14.78	pass
11N20	L	2412	Ant 1	13.91	pass
11N20	M	2437	Ant 1	13.81	pass
11N20	H	2462	Ant 1	13.69	pass
11N40	L	2422	Ant 1	14.57	pass
11N40	M	2437	Ant 1	14.26	pass
11N40	H	2452	Ant 1	15.08	pass



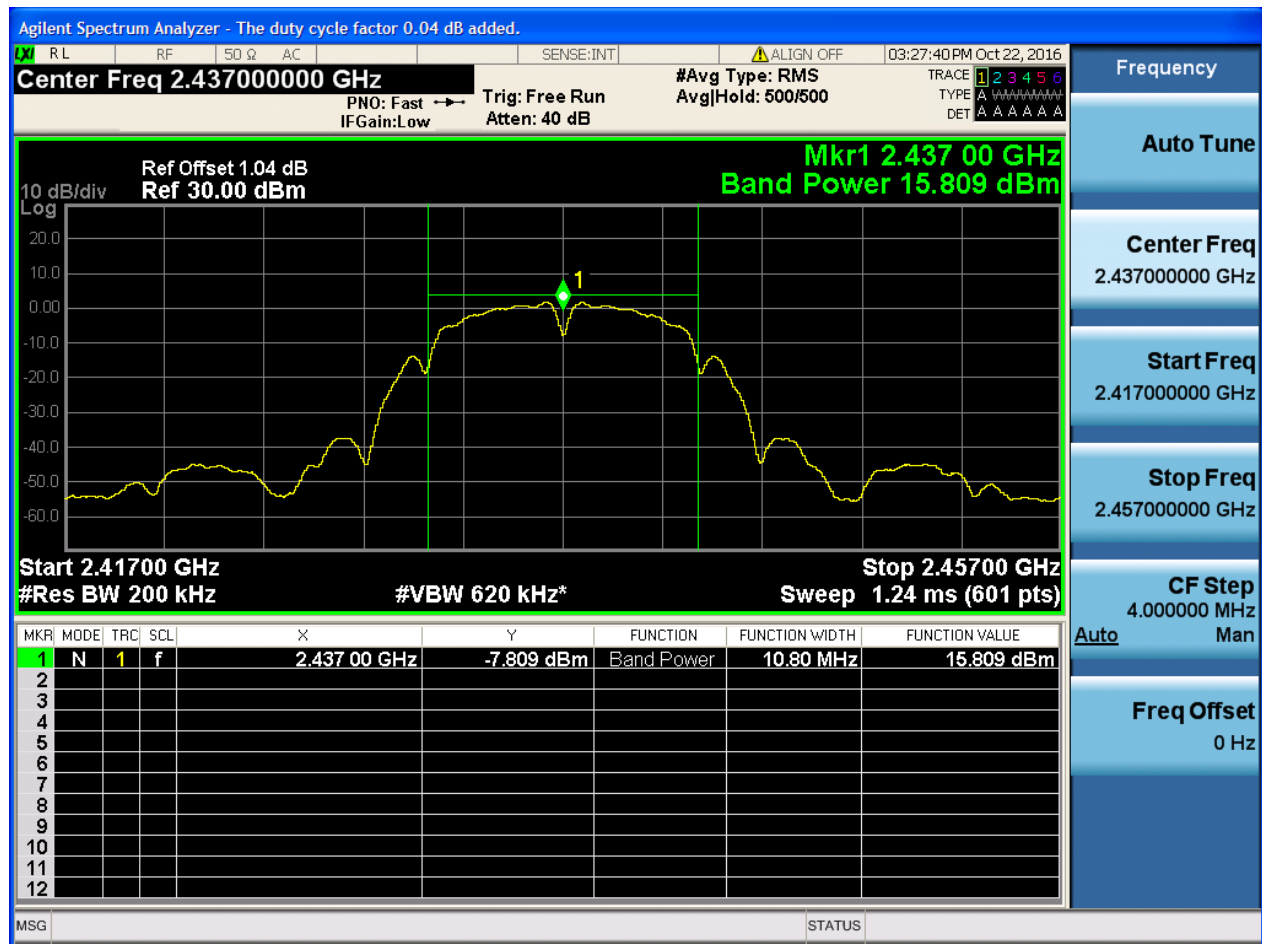
Part II - Test Plots

2.1 11B_L@Ant 1



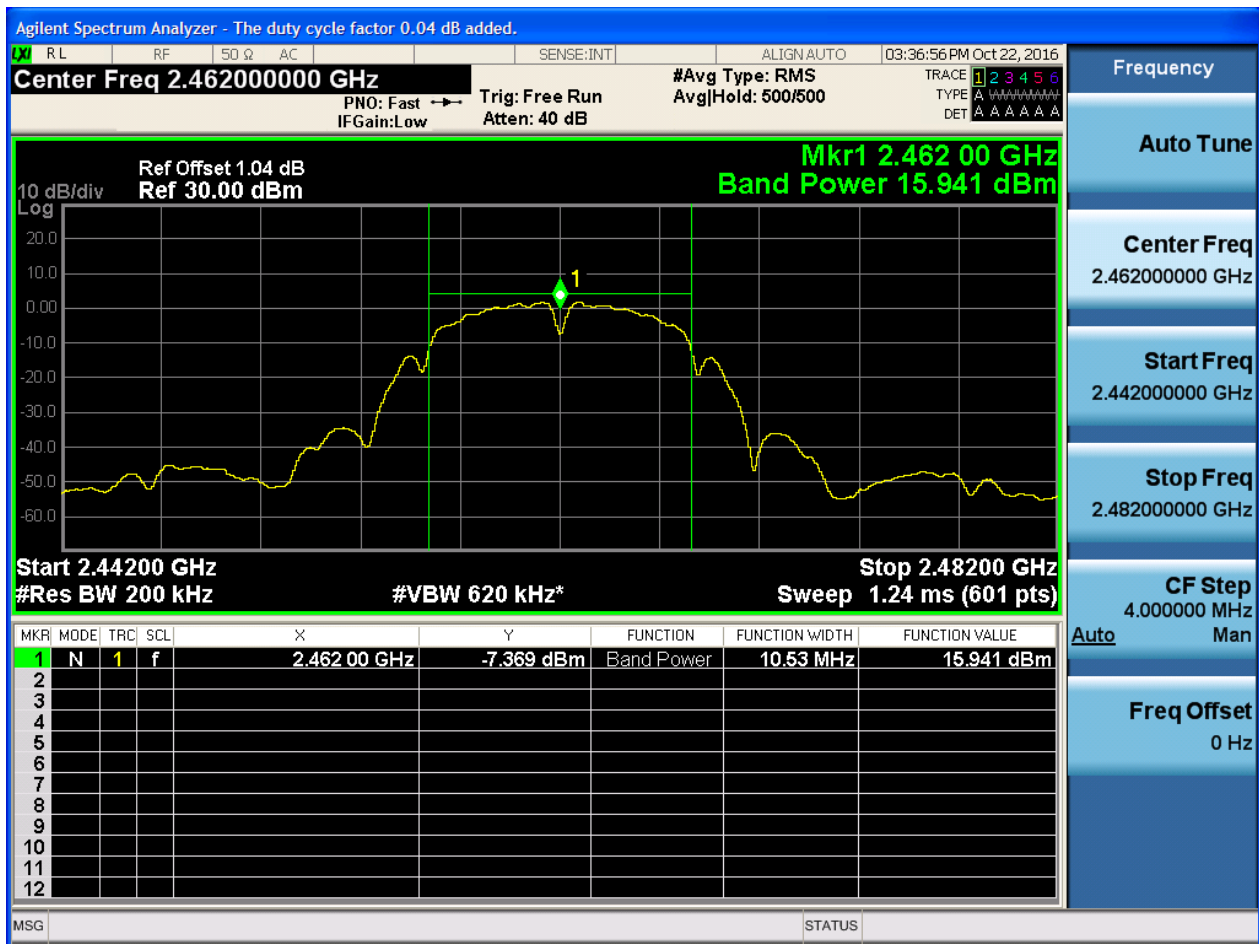


2.2 11B_M@Ant 1



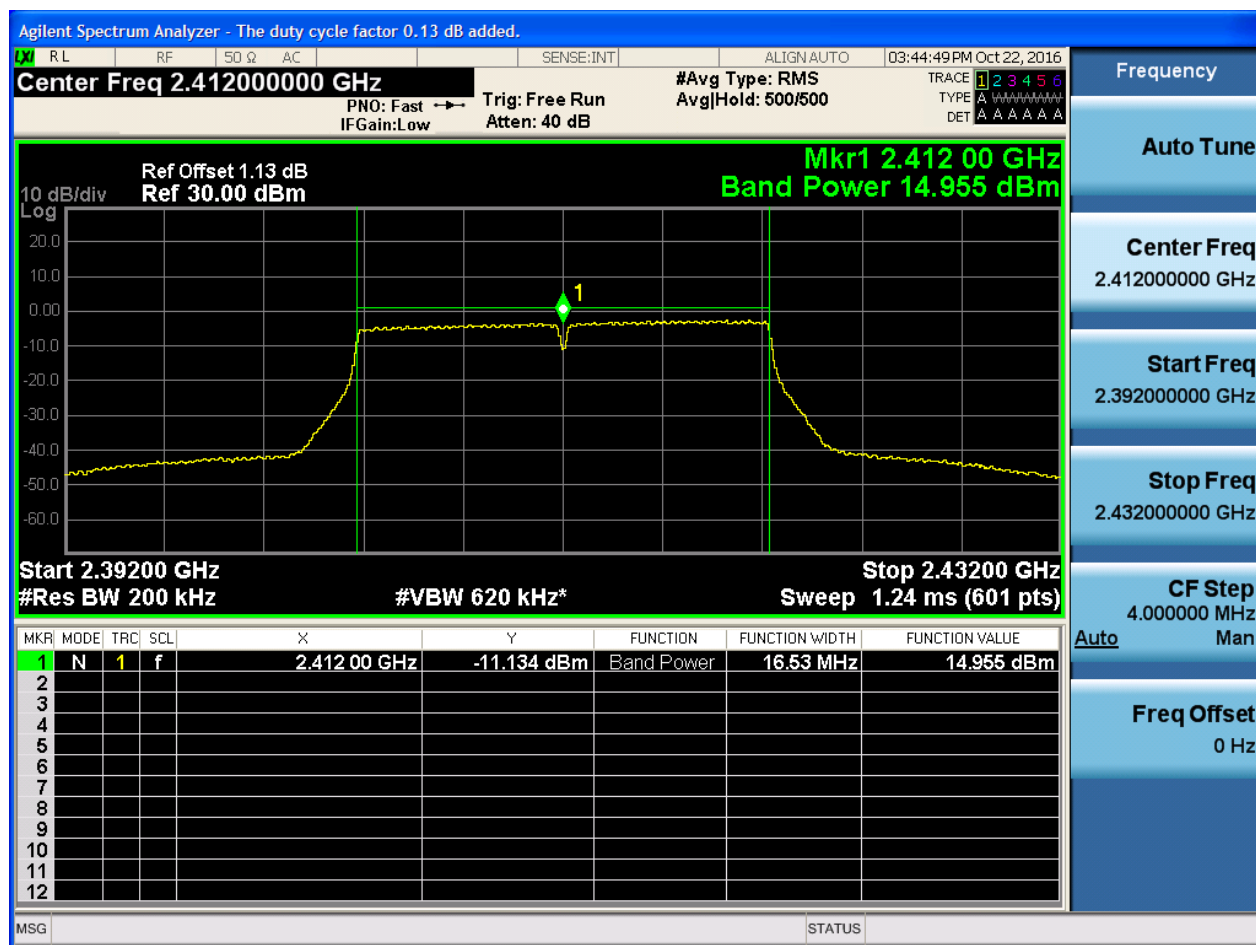


2.3 11B_H@Ant 1



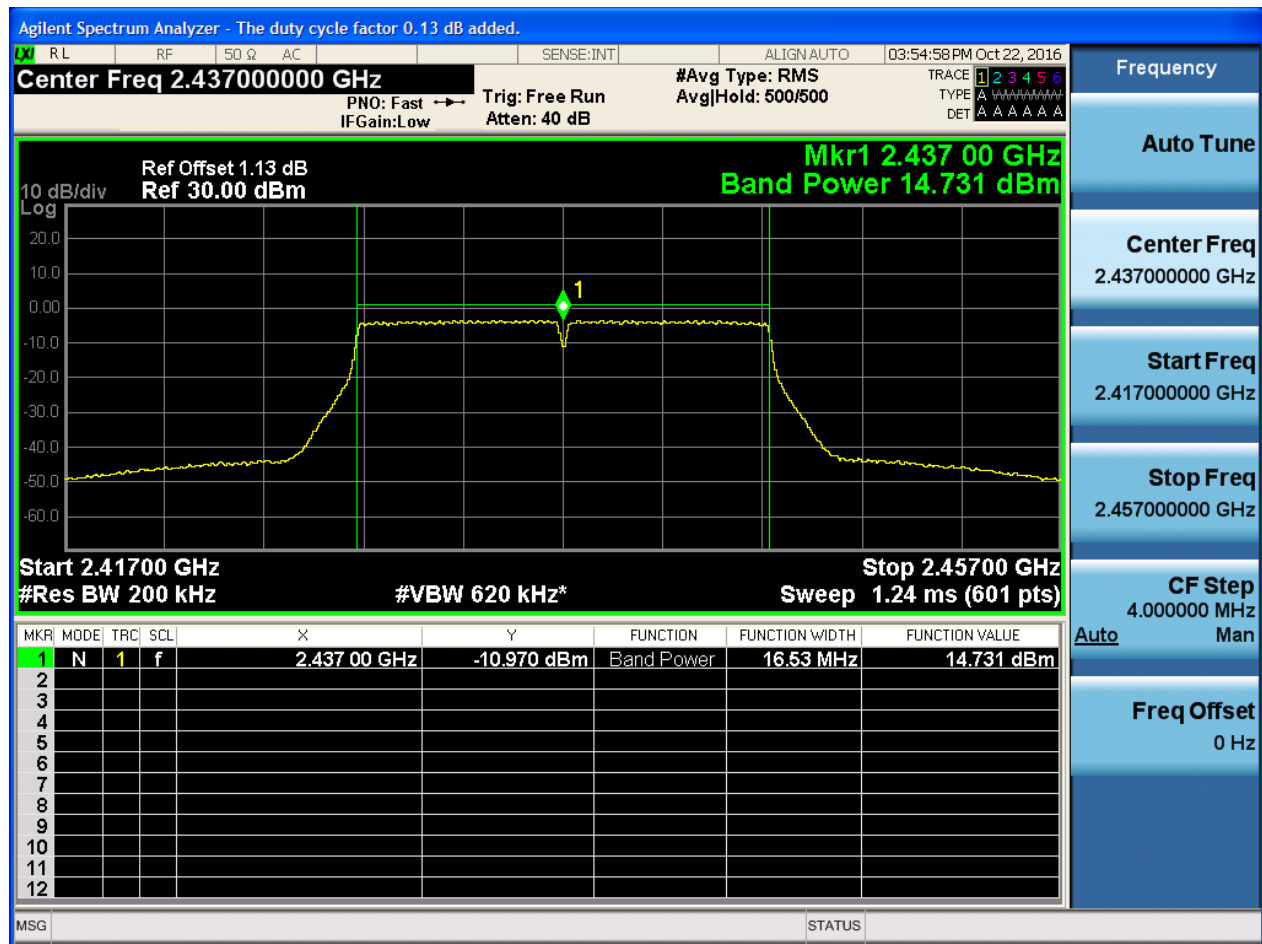


2.4 11G_L@Ant 1



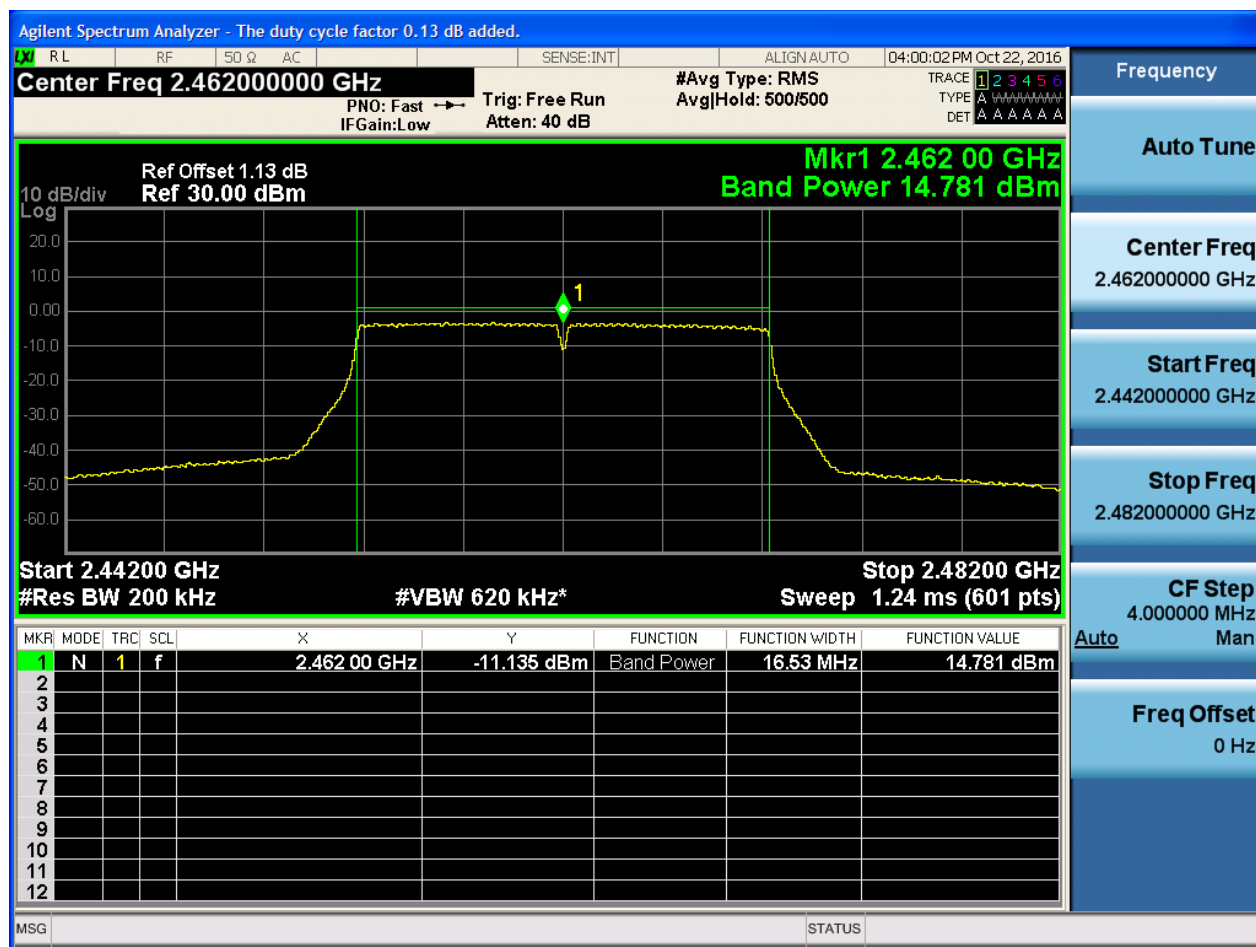


2.5 11G_M@Ant 1



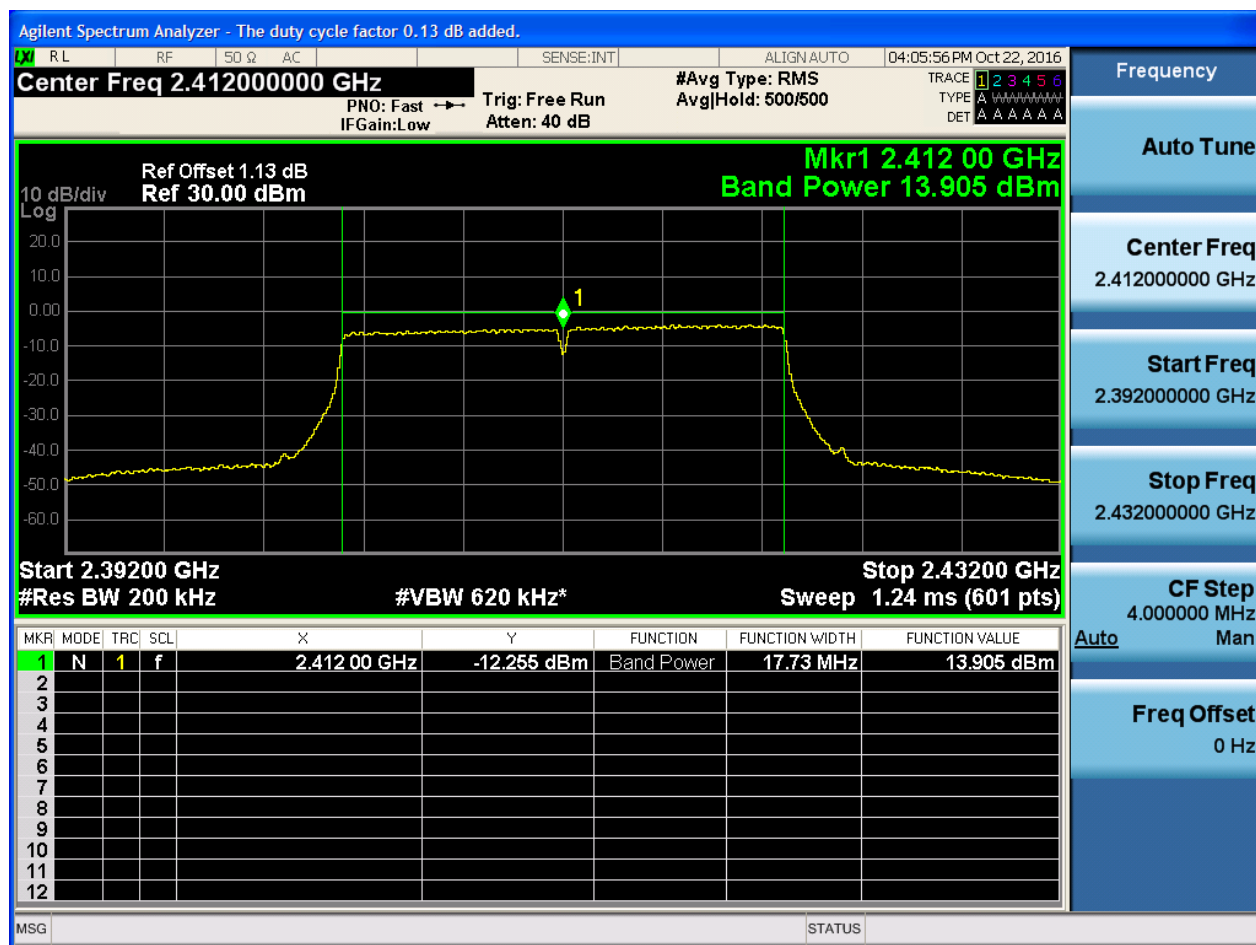


2.6 11G_H@Ant 1



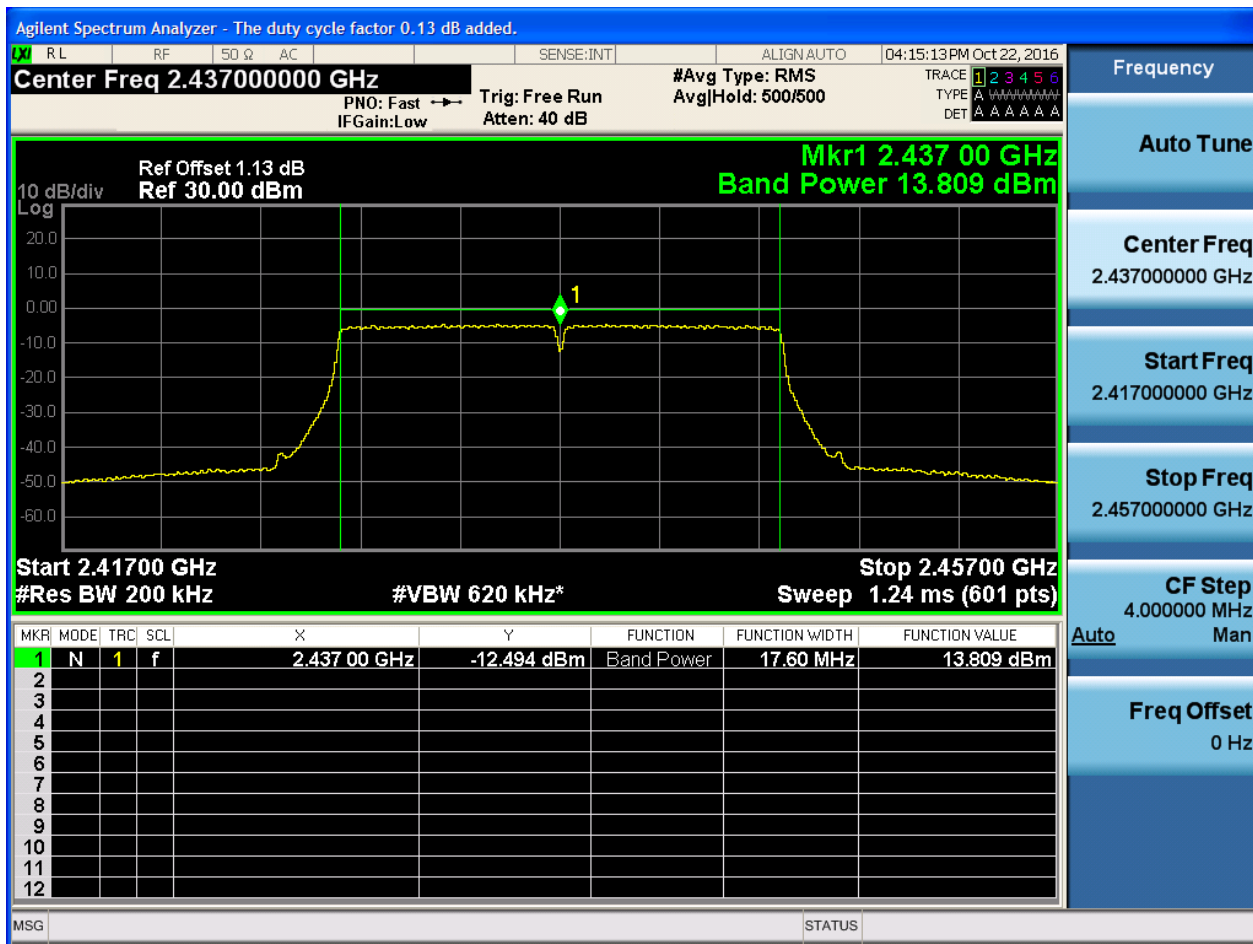


2.7 11N20_L@Ant 1



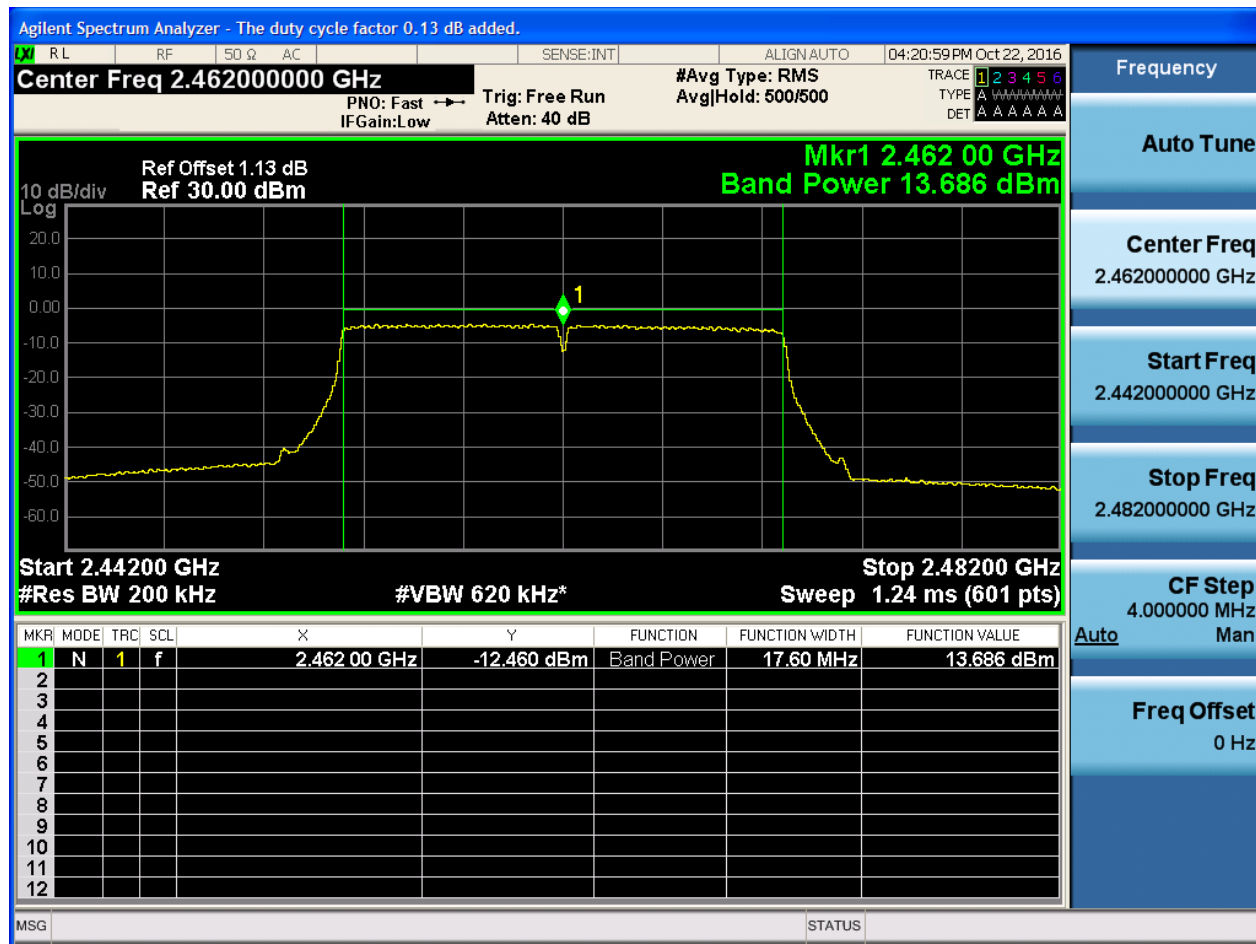


2.8 11N20_M@Ant 1



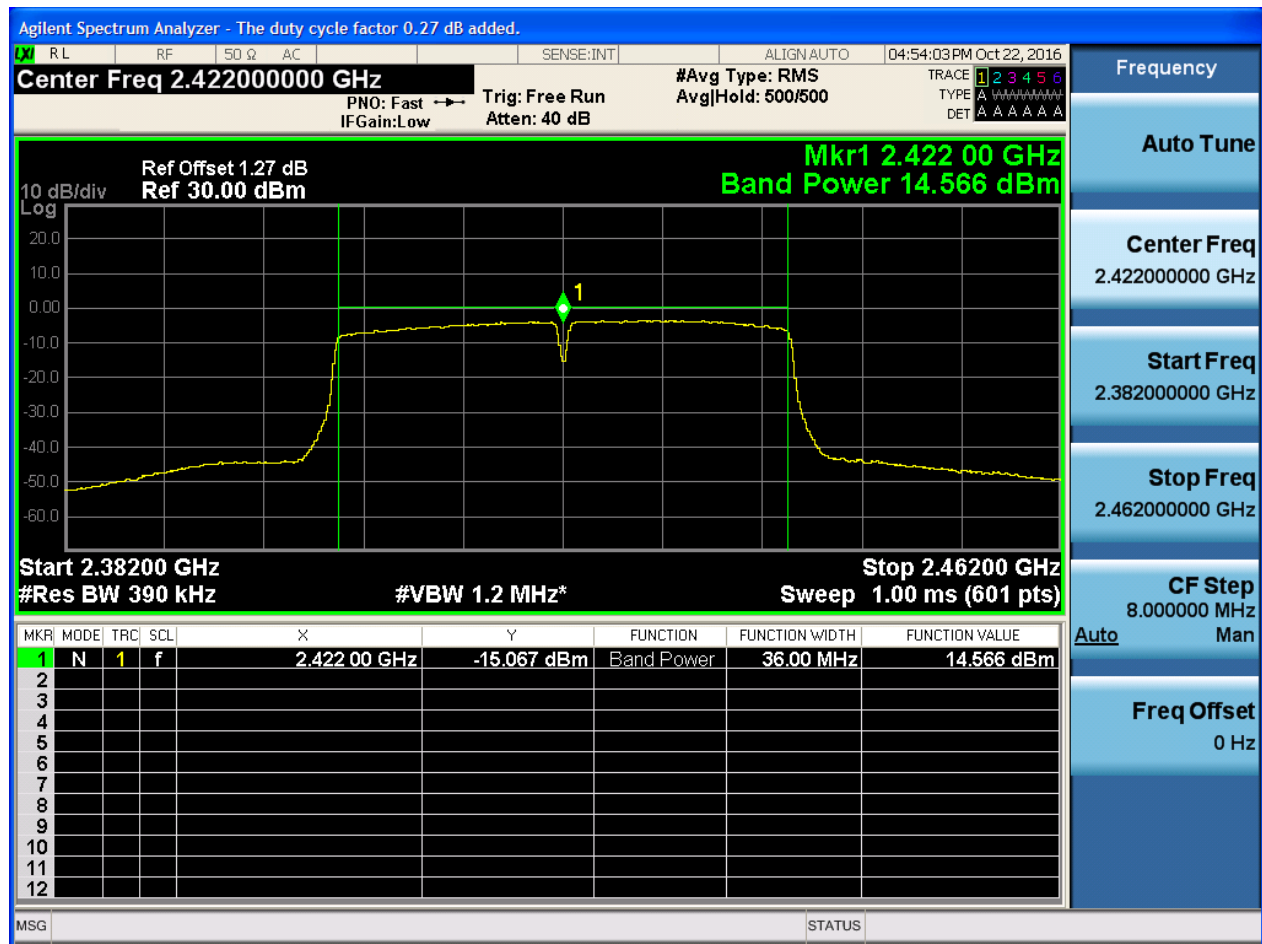


2.9 11N20_H@Ant 1



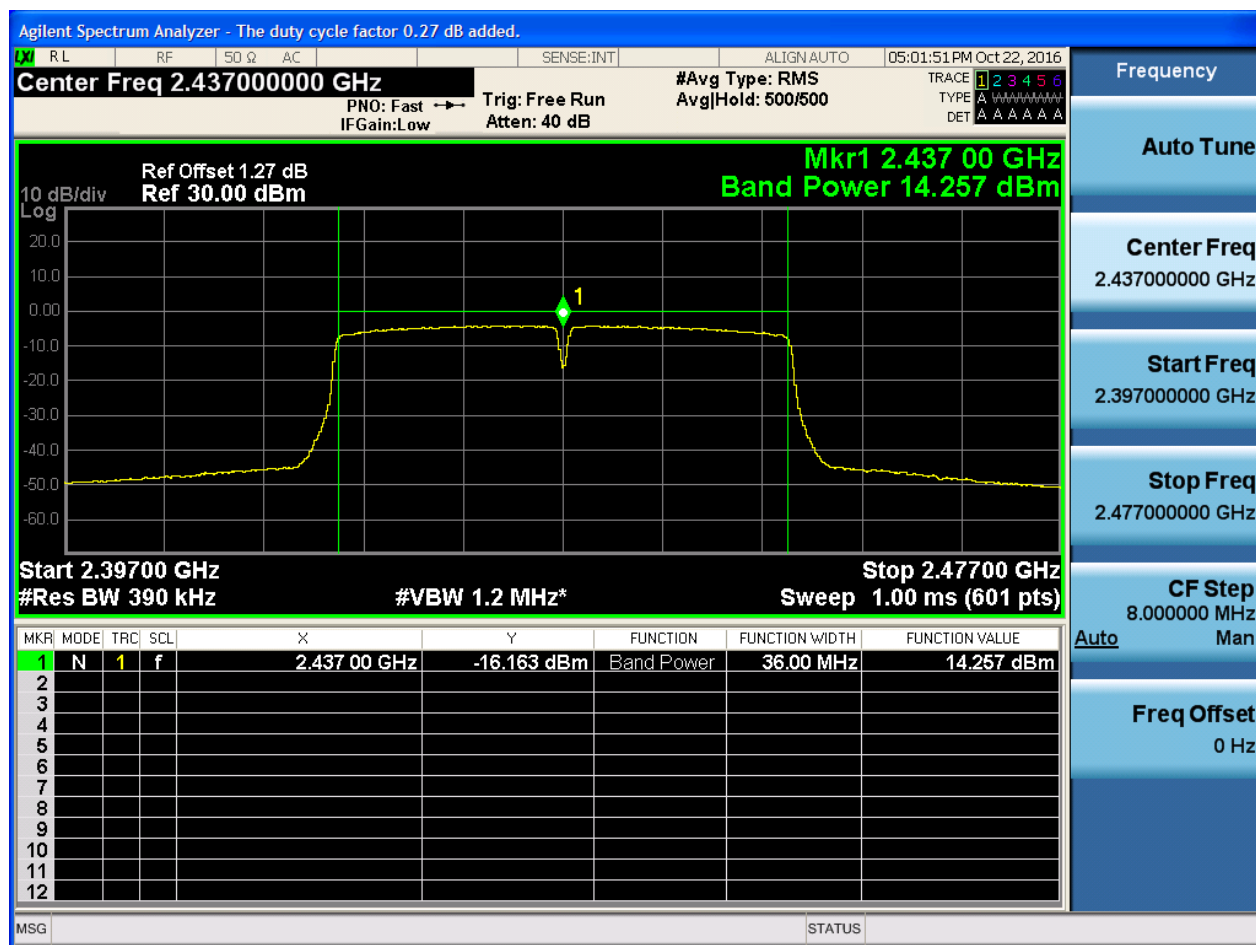


2.10 11N40_L@Ant 1



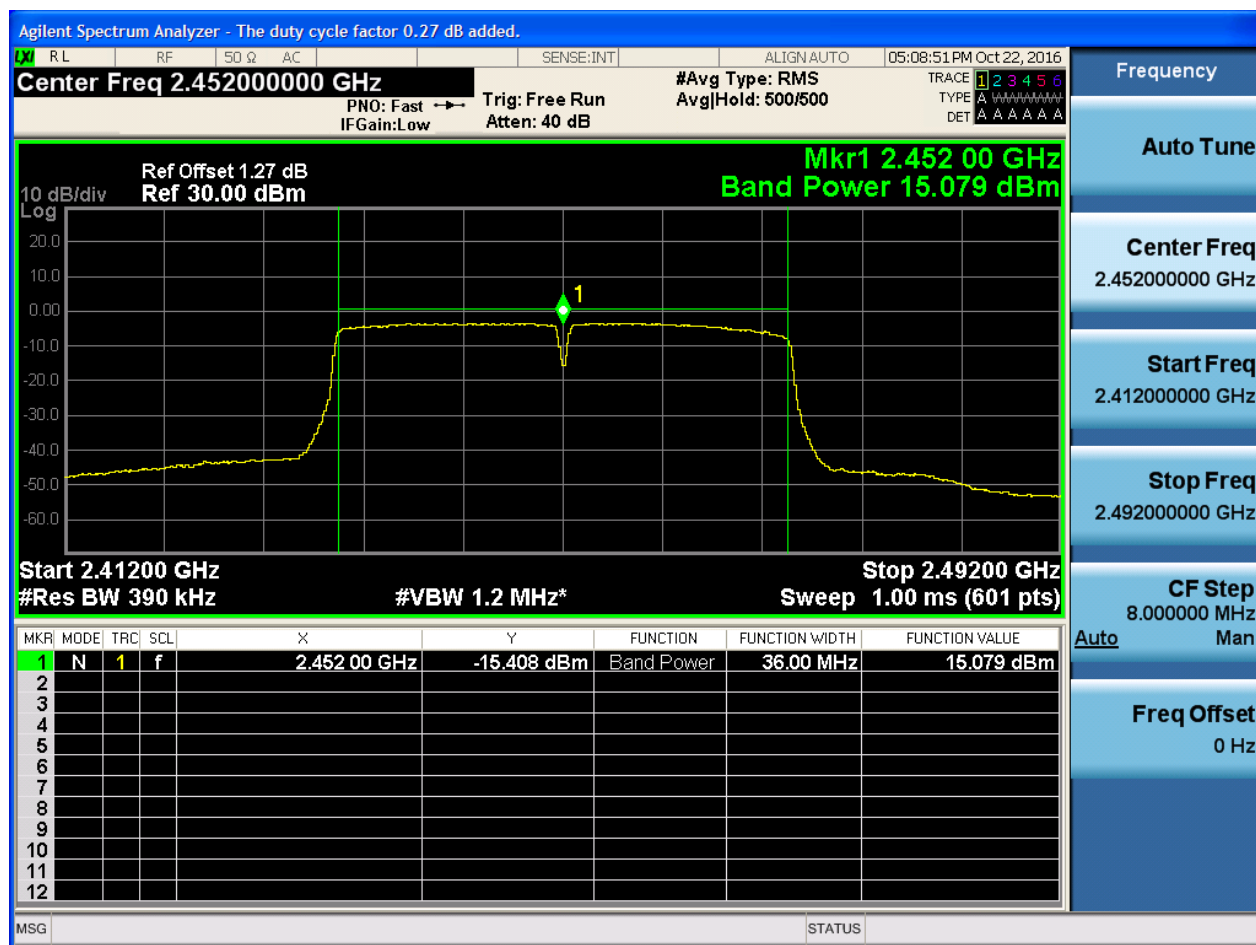


2.11 11N40_M@Ant 1





2.12 11N40_H@Ant 1



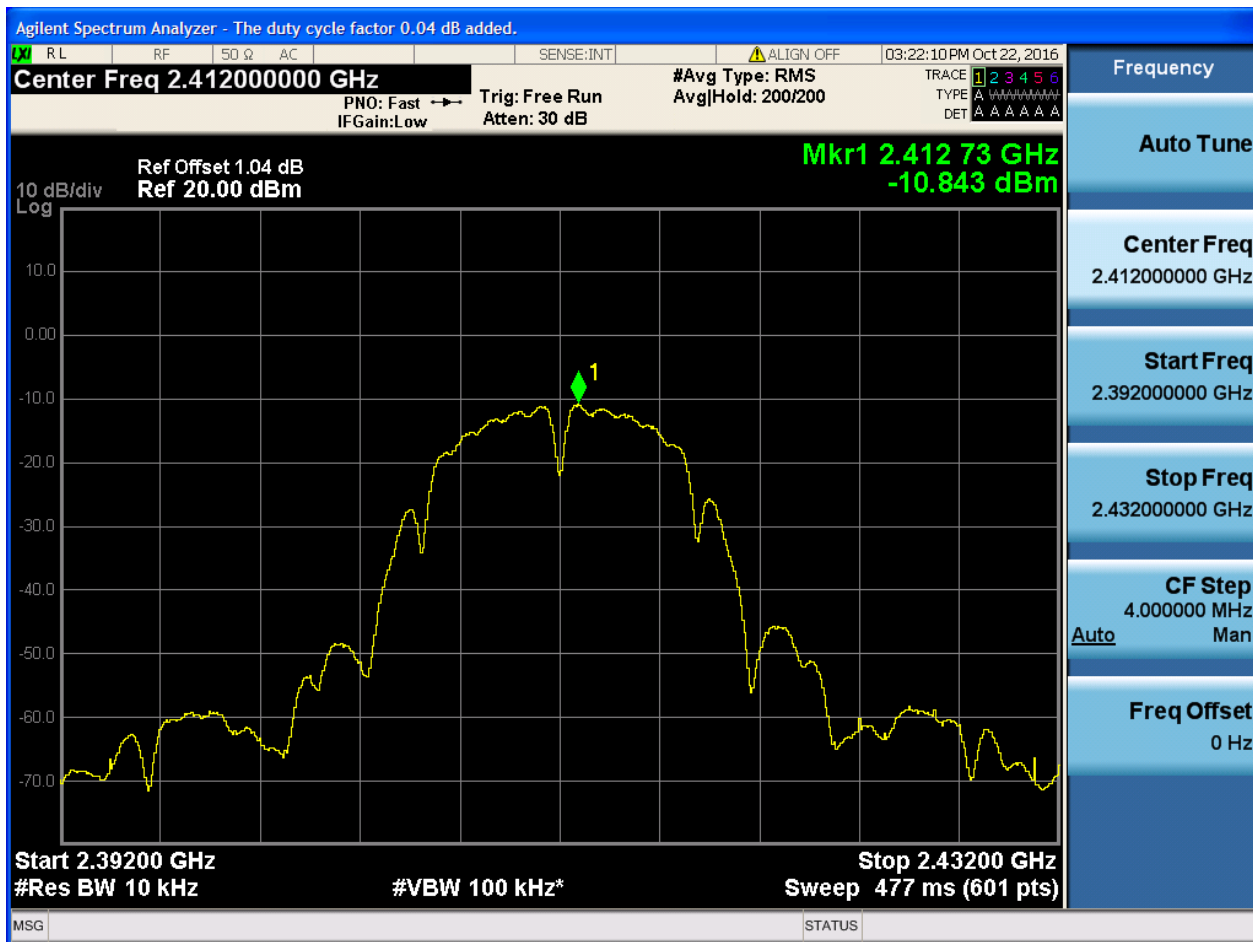
Appendix E: Maximum Power Spectral Density Level

Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	PD[MHz]	Verdict
11B	L	2412	Ant 1	-10.84	pass
11B	M	2437	Ant 1	-11.16	pass
11B	H	2462	Ant 1	-11.04	pass
11G	L	2412	Ant 1	-14.46	pass
11G	M	2437	Ant 1	-15.48	pass
11G	H	2462	Ant 1	-15.26	pass
11N20	L	2412	Ant 1	-15.78	pass
11N20	M	2437	Ant 1	-16.53	pass
11N20	H	2462	Ant 1	-16.43	pass
11N40	L	2422	Ant 1	-18.52	pass
11N40	M	2437	Ant 1	-19.08	pass
11N40	H	2452	Ant 1	-18.34	pass

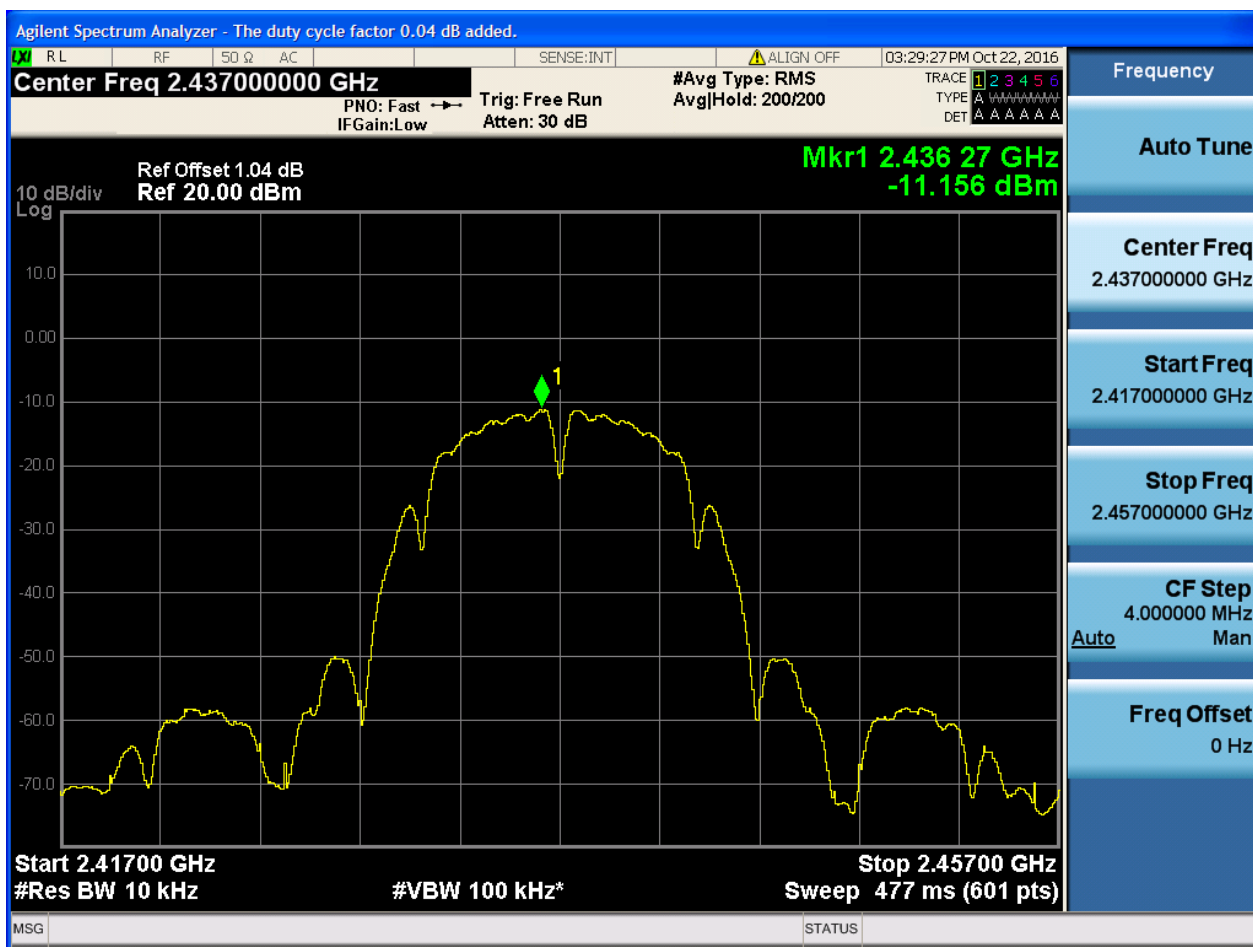
Part II - Test Plots

2.1 11B_L@Ant 1



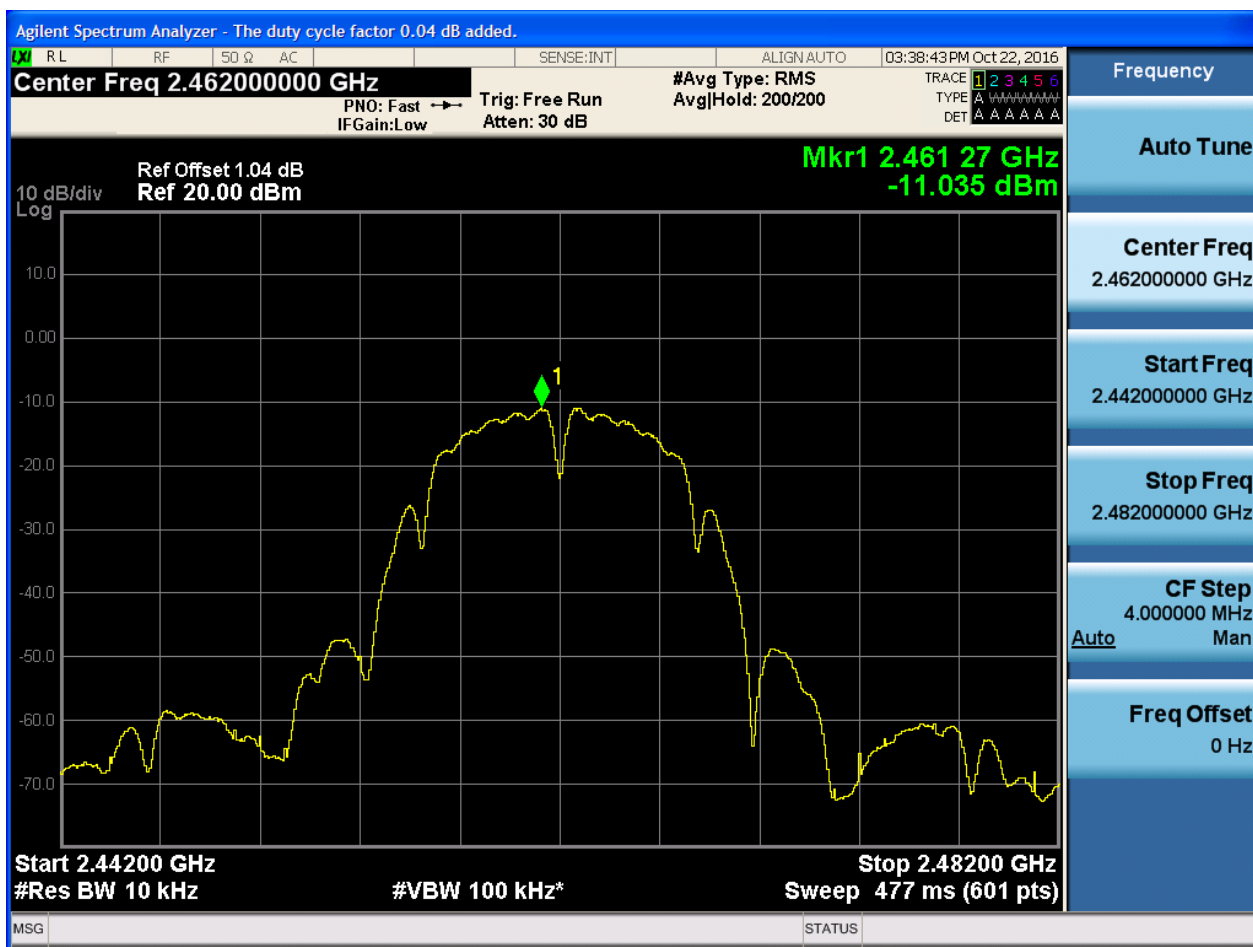


2.2 11B_M@Ant 1



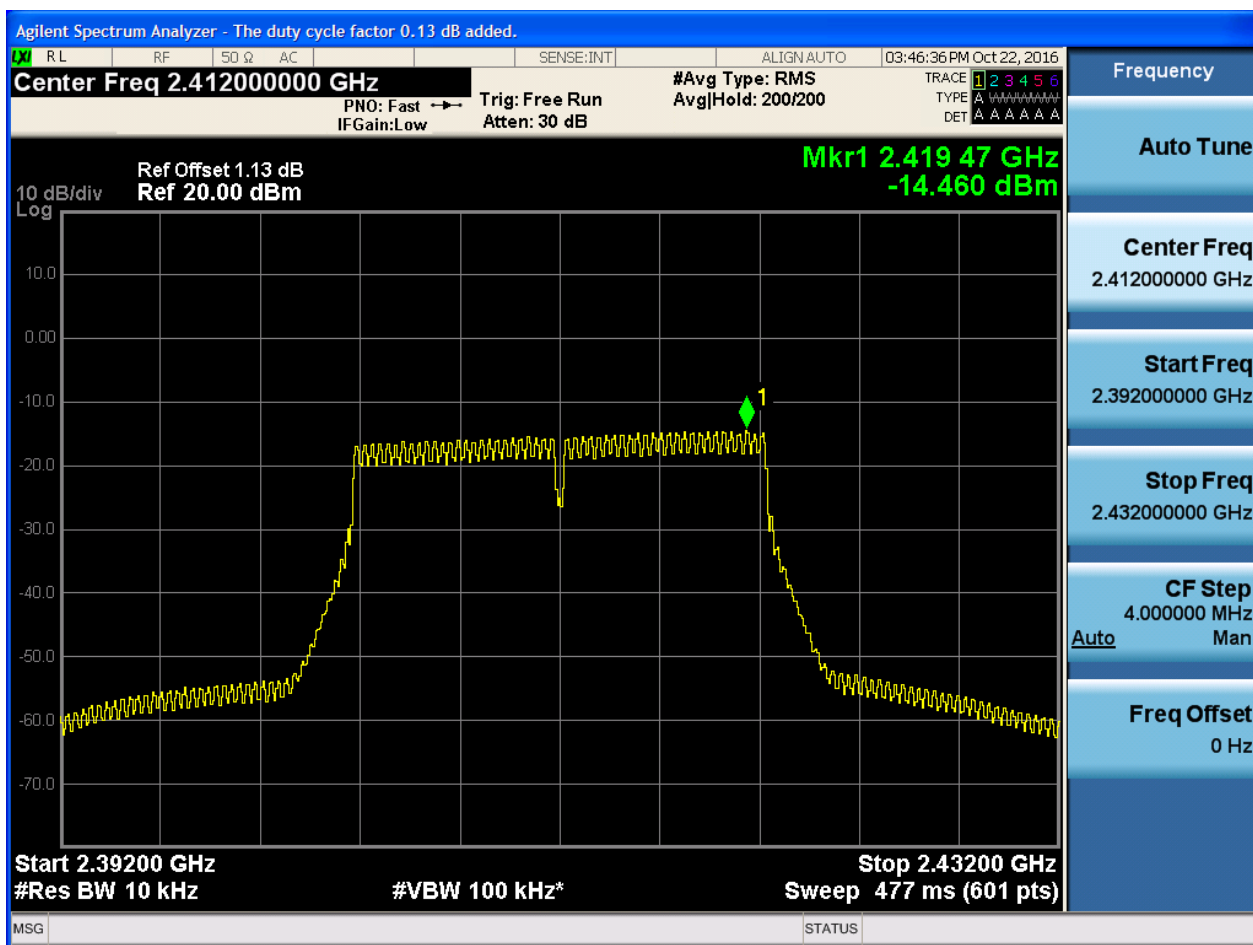


2.3 11B_H@Ant 1



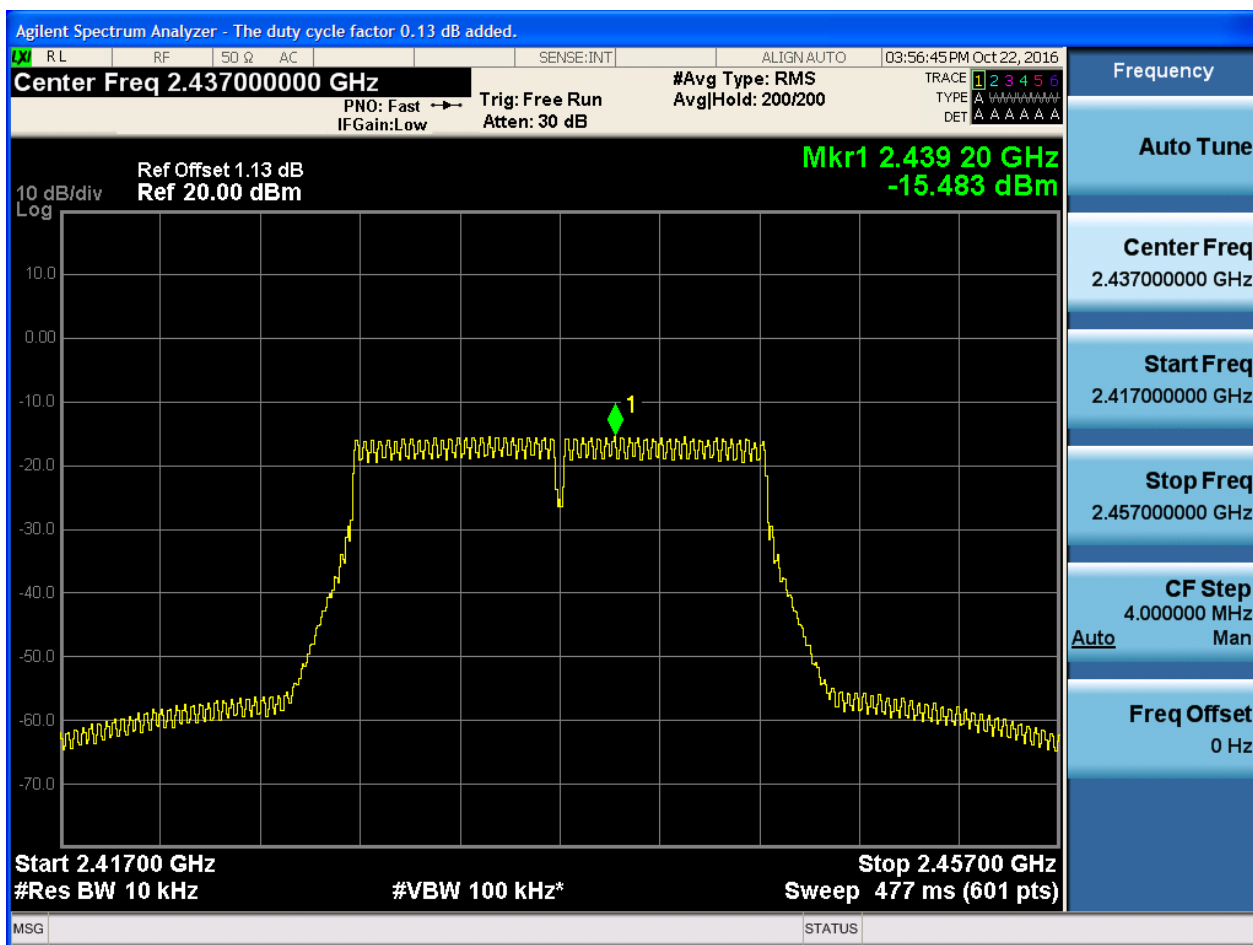


2.4 11G_L@Ant 1



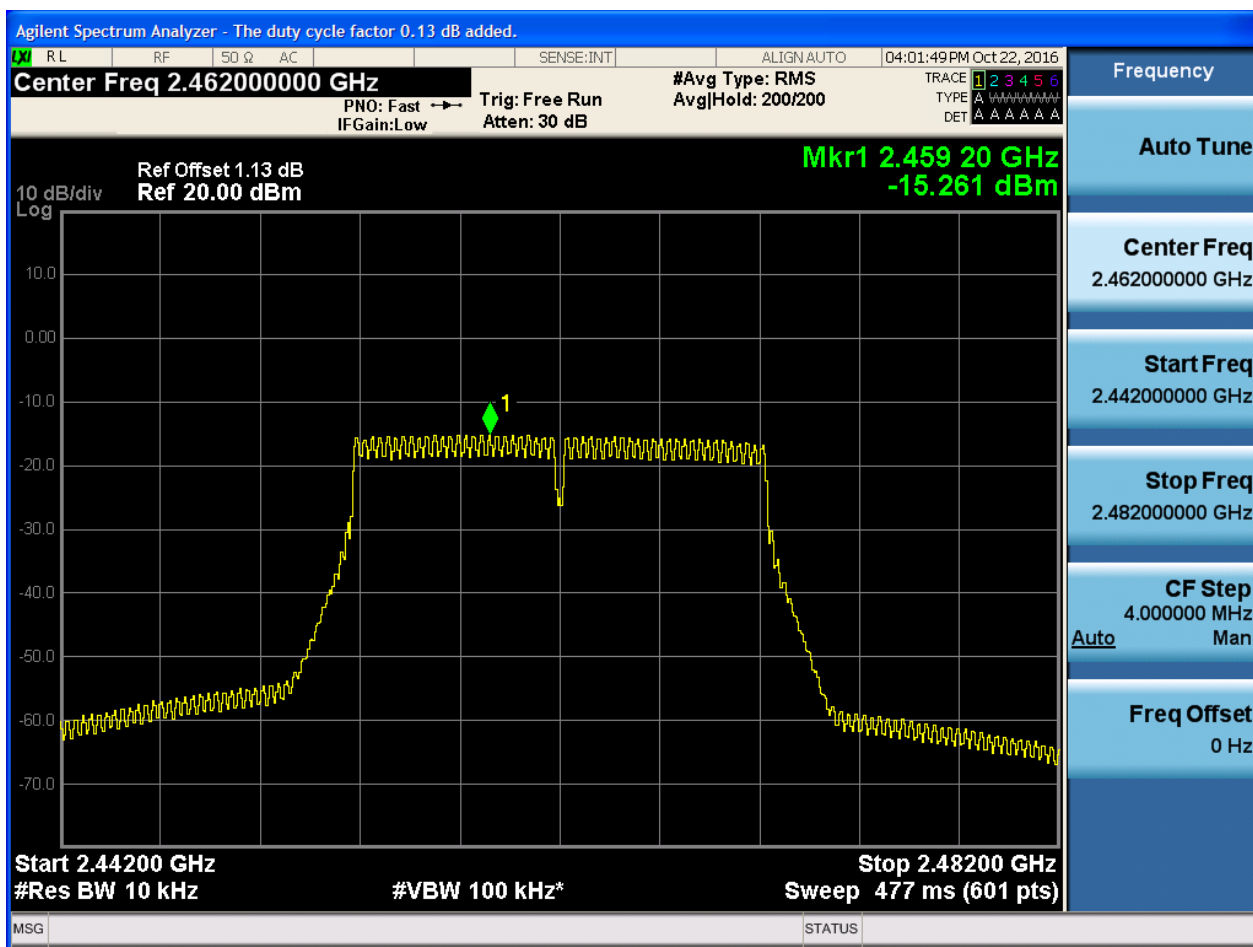


2.5 11G_M@Ant 1



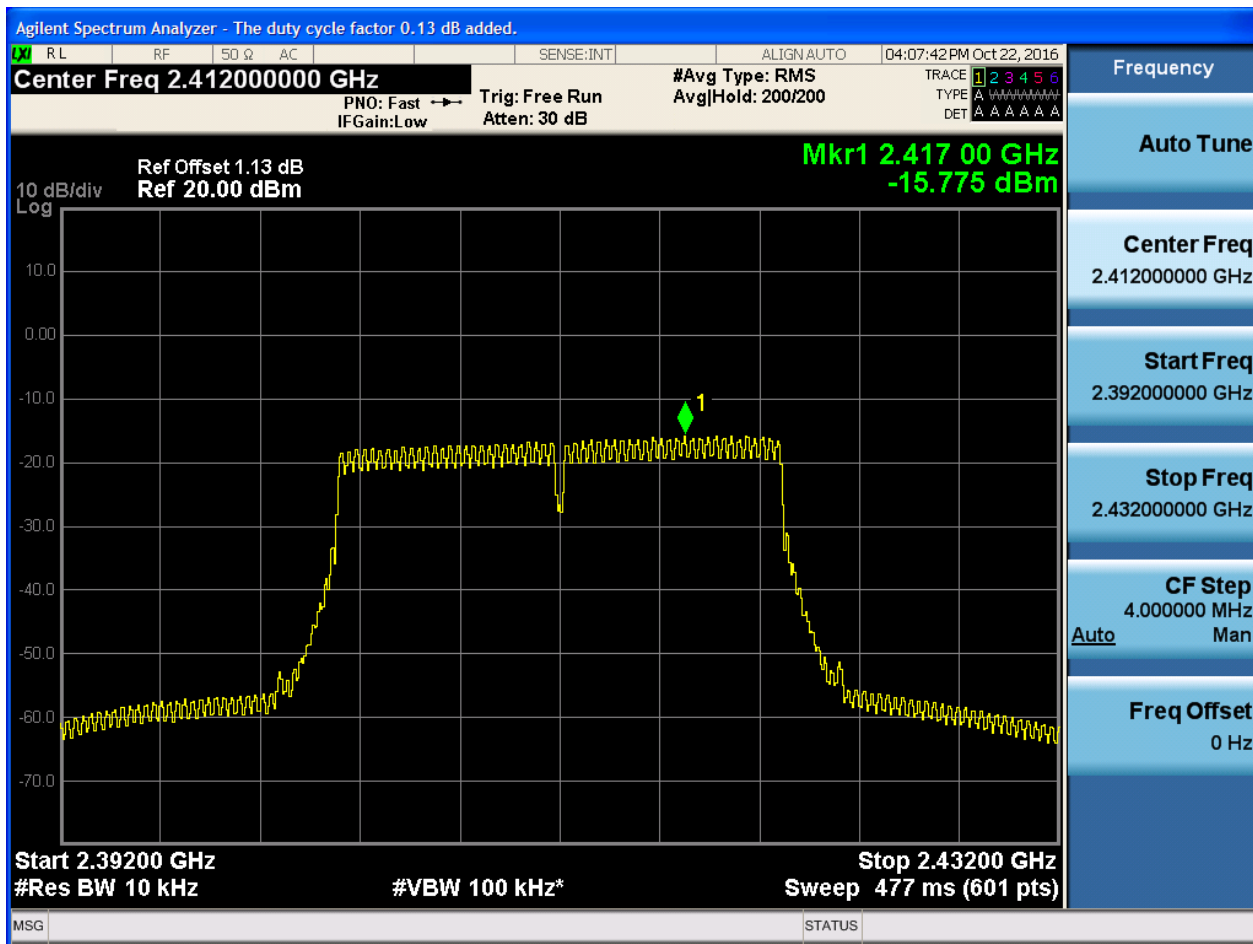


2.6 11G_H@Ant 1



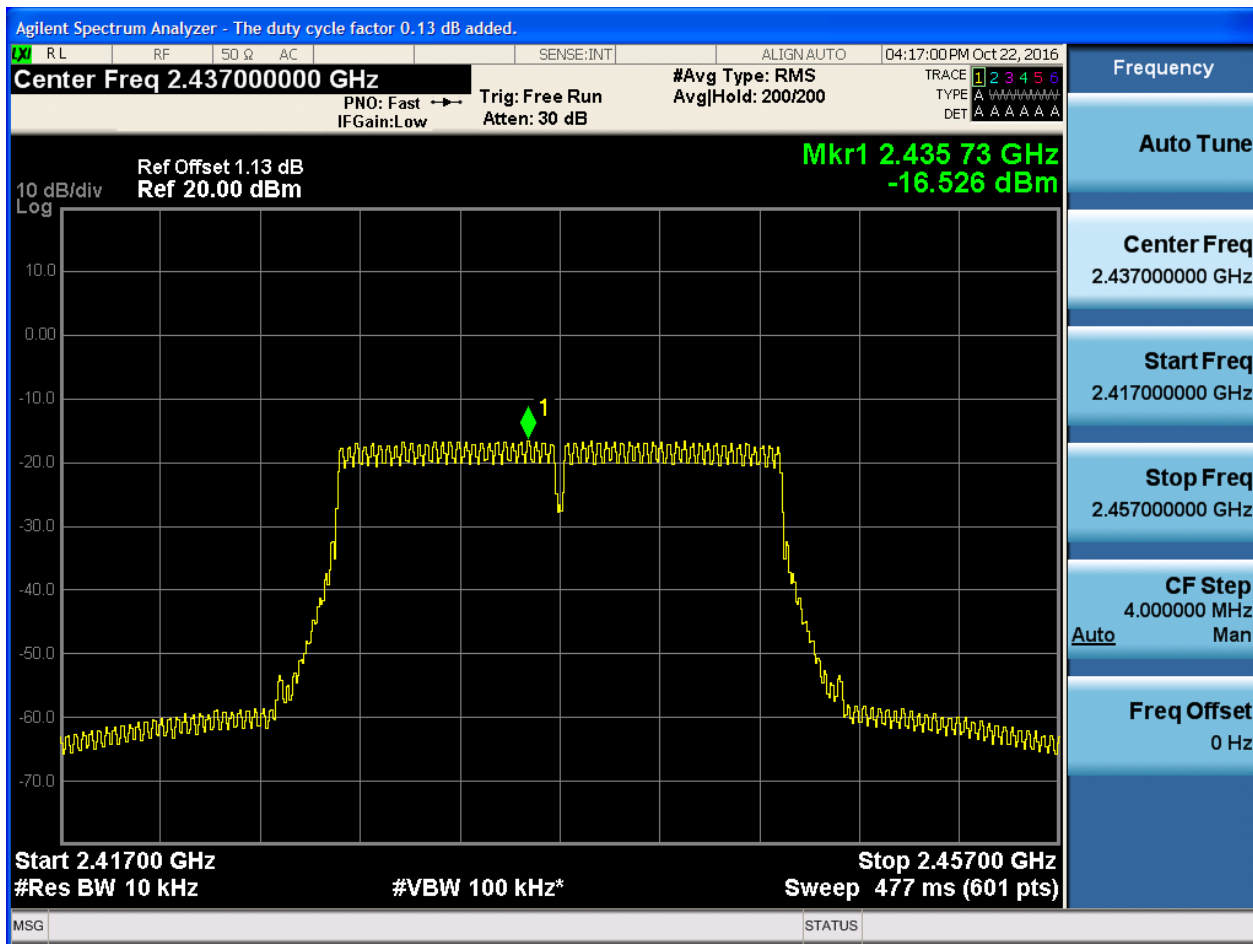


2.7 11N20_L@Ant 1



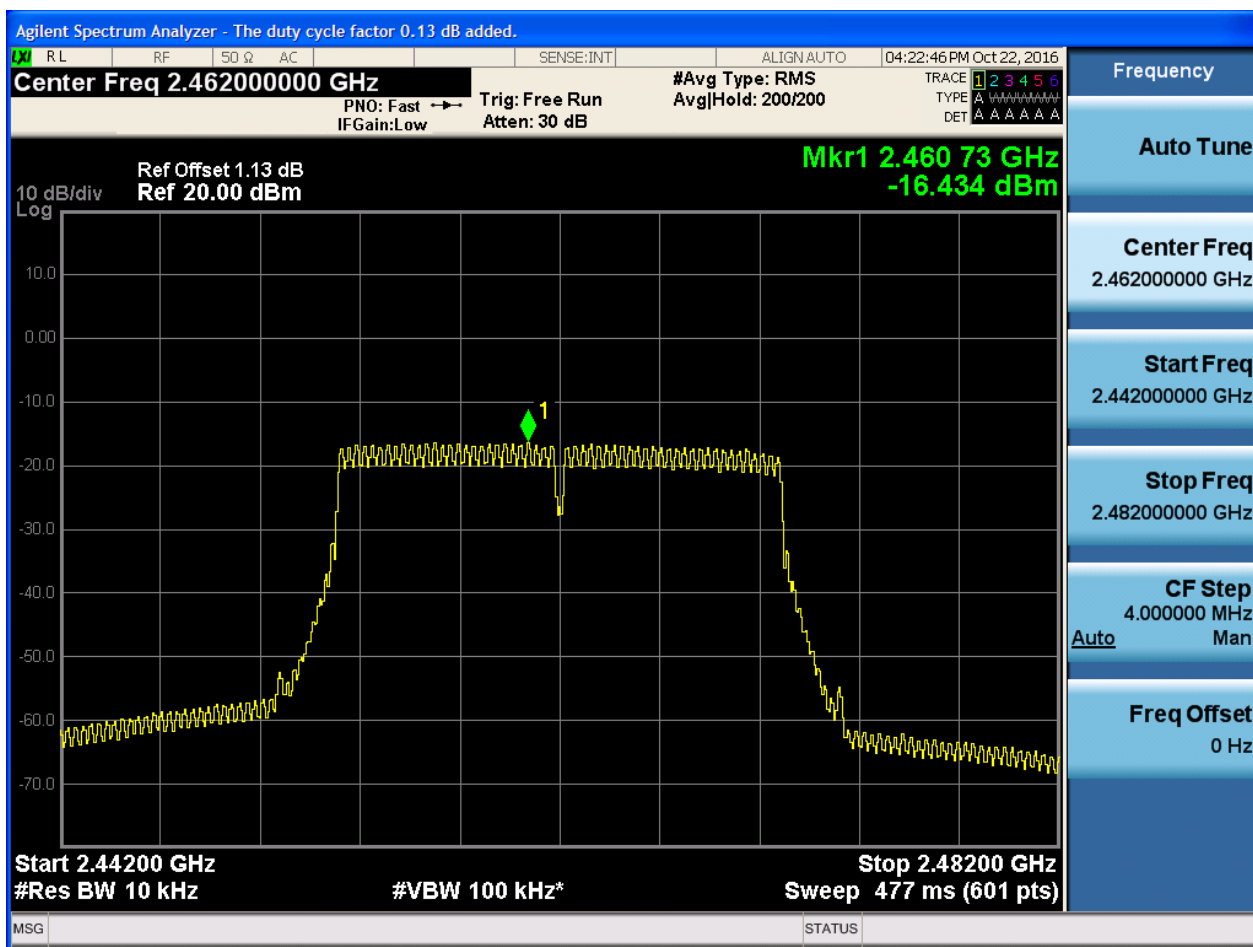


2.8 11N20_M@Ant 1



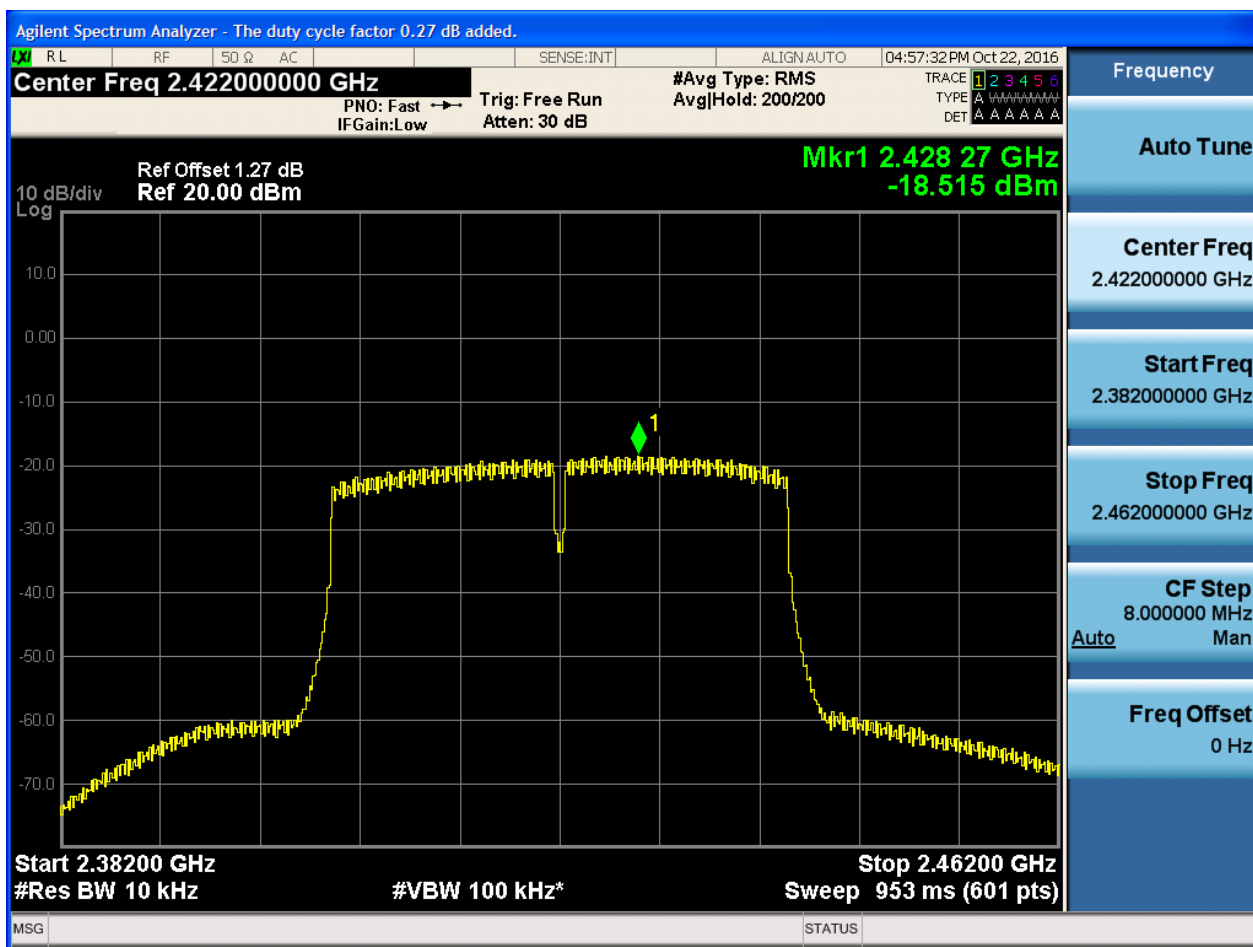


2.9 11N20_H@Ant 1



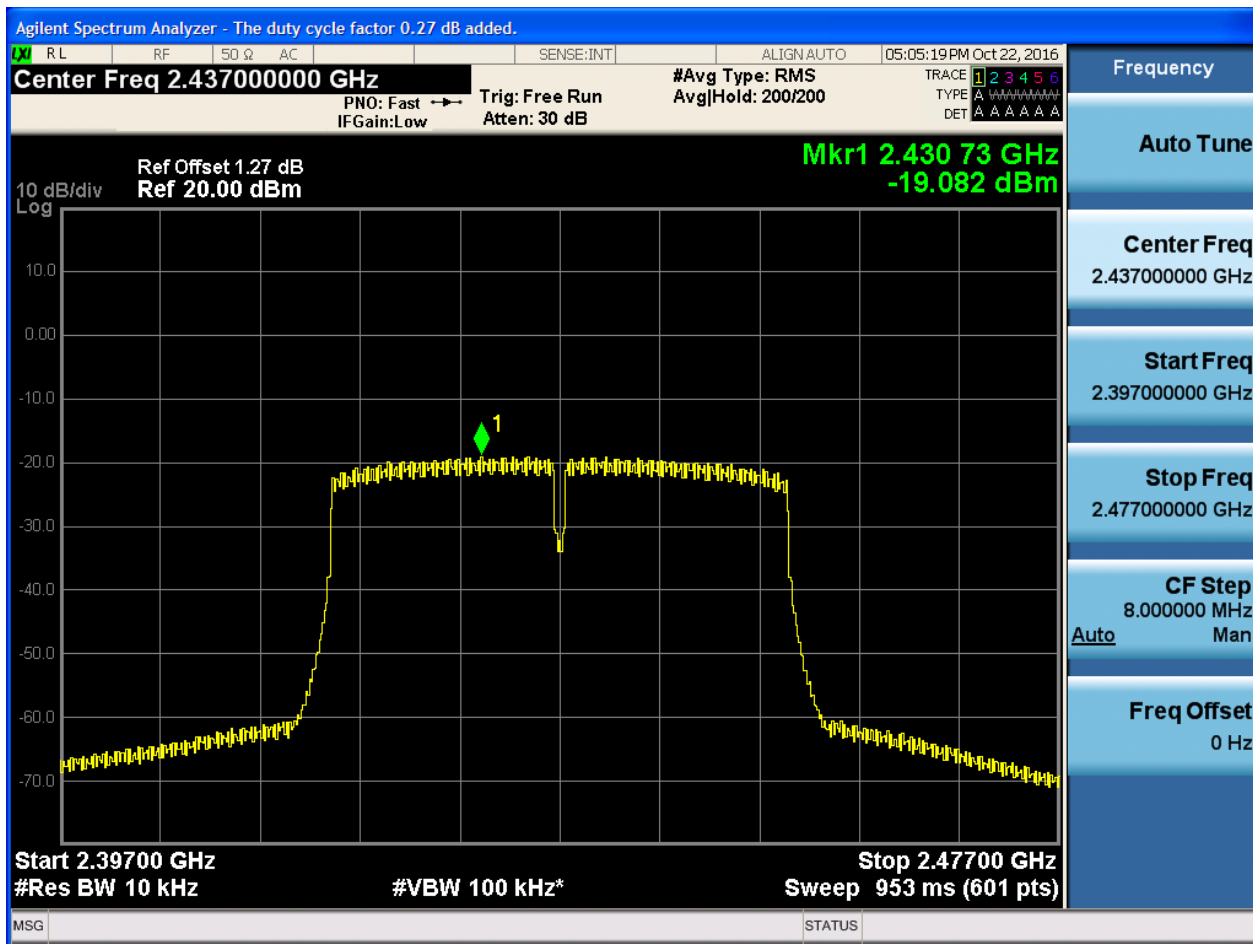


2.10 11N40_L@Ant 1



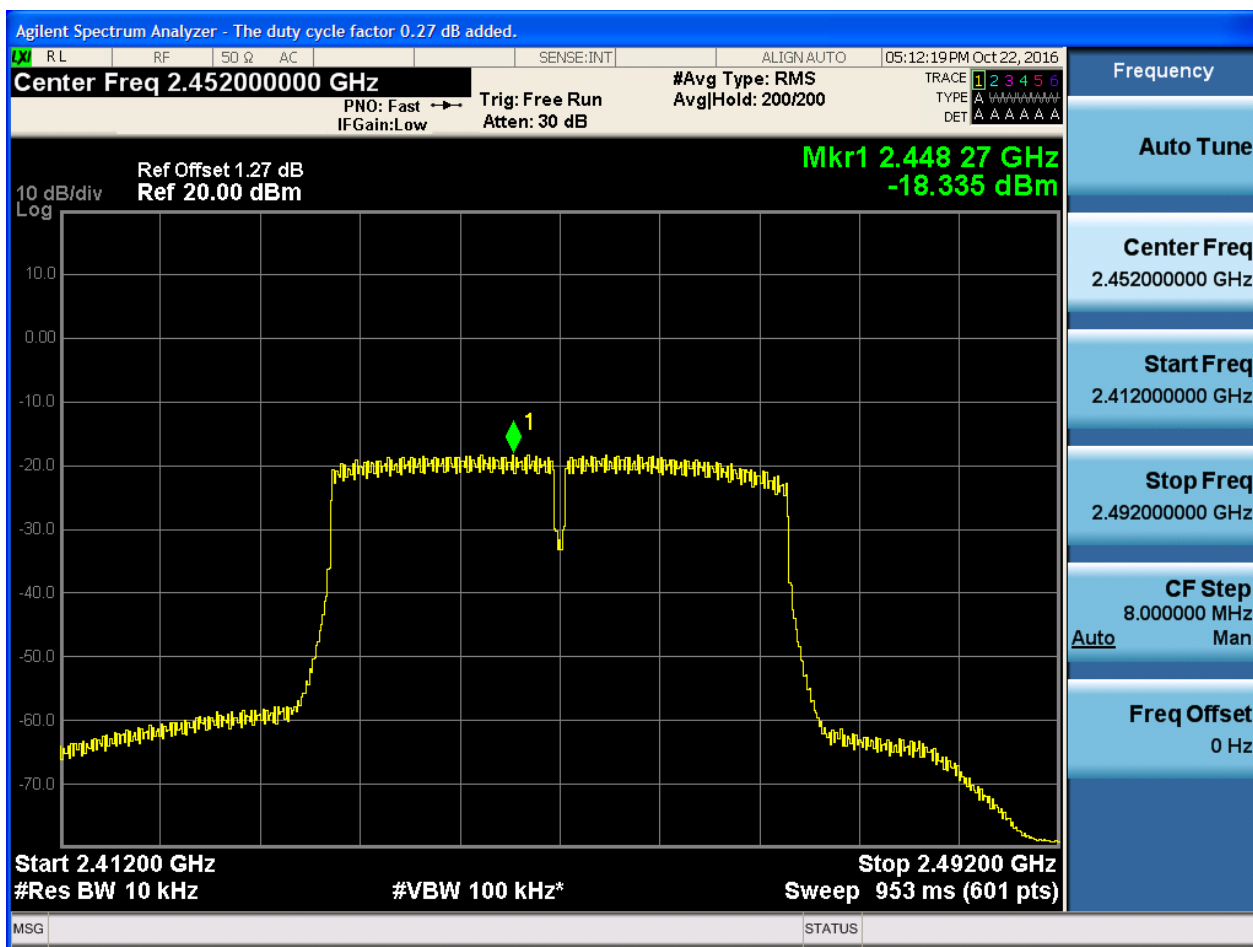


2.11 11N40_M@Ant 1





2.12 11N40_H@Ant 1



Appendix F: Band Edges Compliance

Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Carrier Power[dBm]	Max.Spurious Level[dBm]	Verdict
11B	L	2412	Ant 1	7.81	-50.06	pass
11B	H	2462	Ant 1	7.85	-46.97	pass
11G	L	2412	Ant 1	3.65	-44.26	pass
11G	H	2462	Ant 1	3.25	-44.66	pass
11N20	L	2412	Ant 1	2.87	-43.69	pass
11N20	H	2462	Ant 1	2.24	-46.61	pass
11N40	L	2422	Ant 1	-0.23	-44.01	pass
11N40	H	2452	Ant 1	0.78	-43.87	pass



Part II - Test Plots

2.1 11B_L@Ant 1

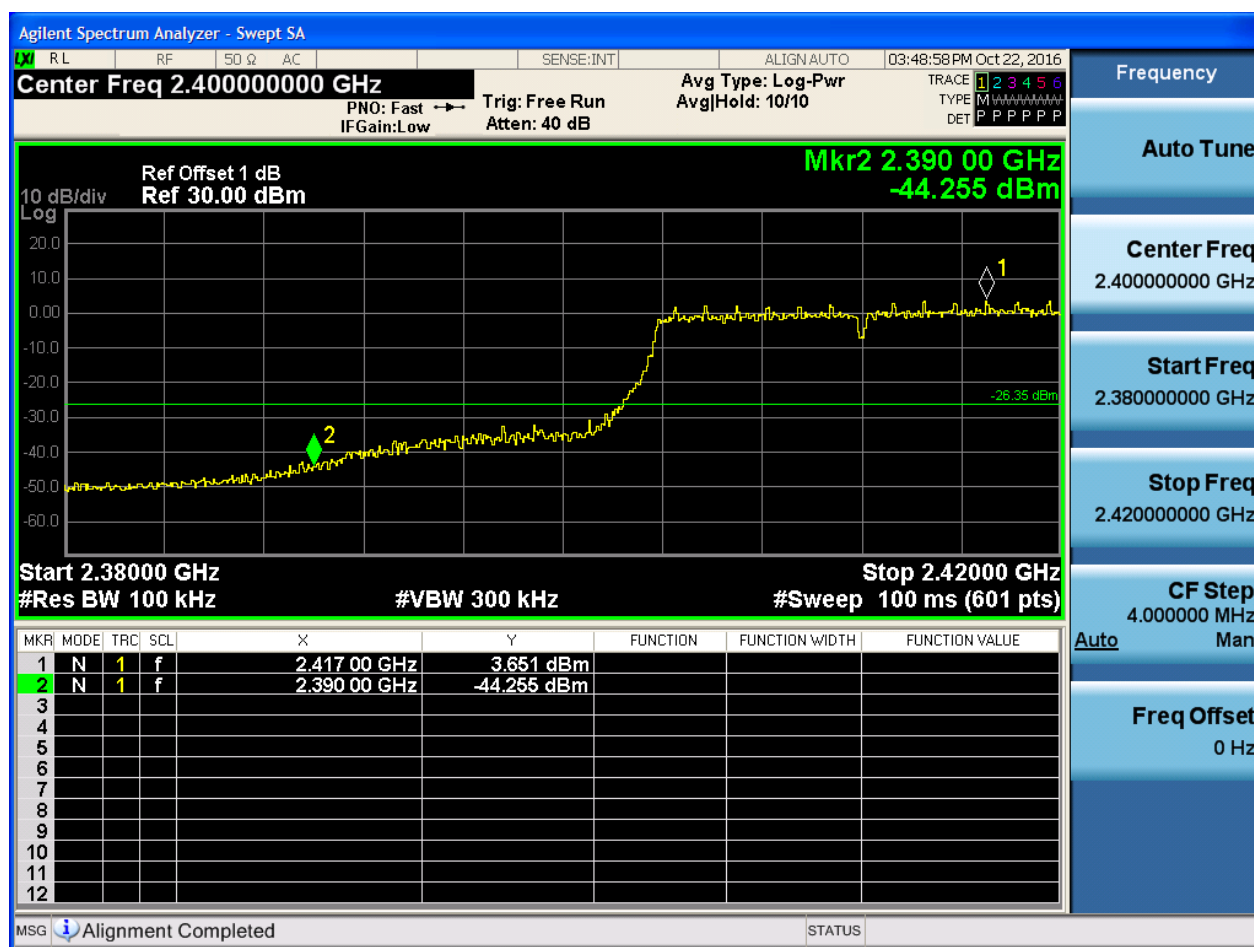




2.3 11B_H@Ant 1



2.5 11G_L@Ant 1





2.7 11G_H@Ant 1





Agilent Spectrum Analyzer - Swept SA

Center Freq 2.40000000 GHz

Ref Offset 1 dB
Ref 30.00 dBm

Mkr2 2.390 00 GHz
-43.692 dBm

Start 2.38000 GHz
#Res BW 100 kHz

Stop 2.42000 GHz
#Sweep 100 ms (601 pts)

Trig: Free Run
Atten: 40 dB

Avg Type: Log-Pwr
Avg/Hold: 10/10

Frequency

Auto Tune

Center Freq
2.40000000 GHz

Start Freq
2.380000000 GHz

Stop Freq
2.420000000 GHz

CF Step
4.000000 MHz
Man

Freq Offset
0 Hz

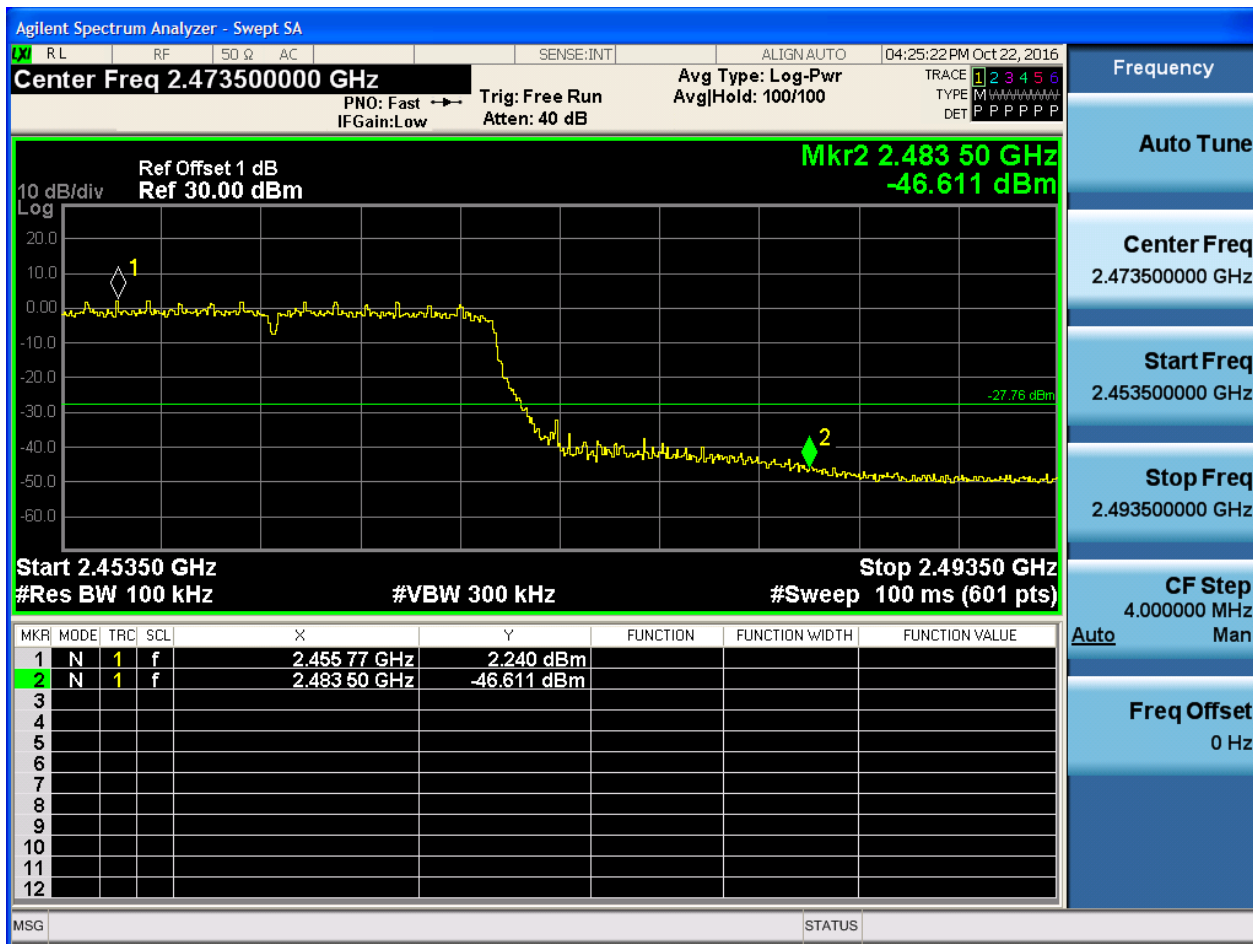
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.419 47 GHz	2.865 dBm			
2	N	1	f	2.390 00 GHz	-43.692 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

MSG

STATUS

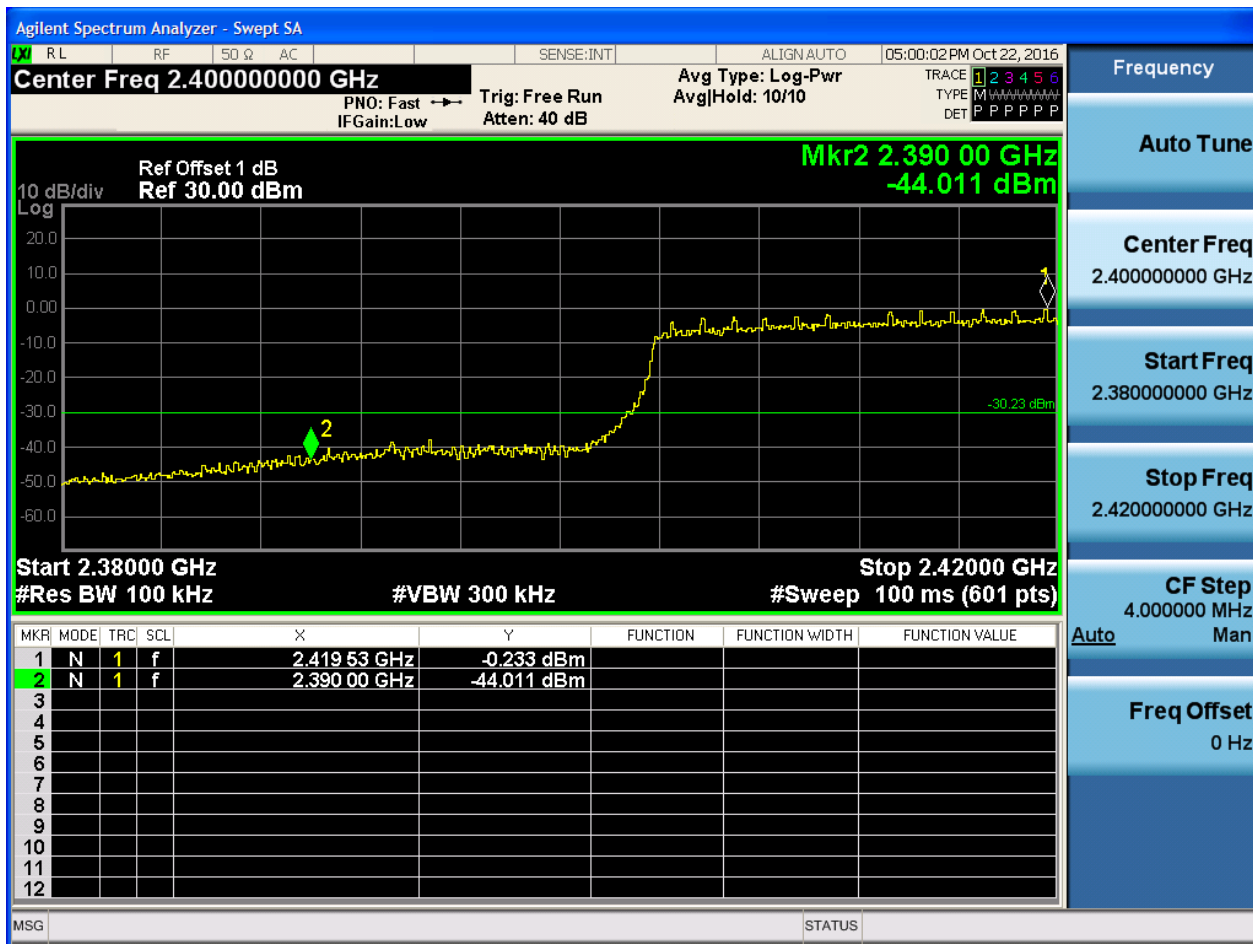


2.11 11N20_H@Ant 1



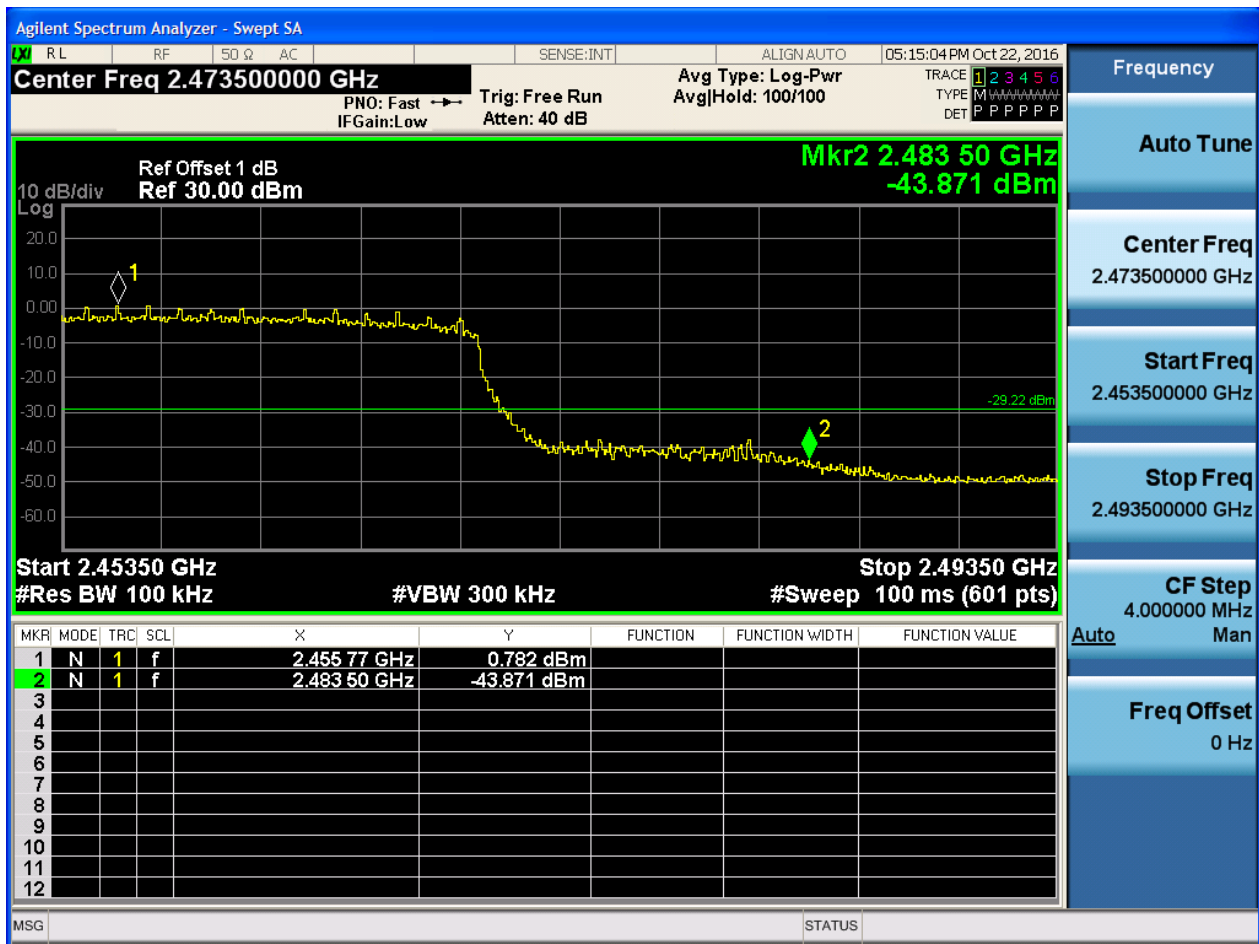


2.13 11N40_L@Ant 1





2.15 11N40_H@Ant 1



Appendix G: Unwanted Emissions into Non-Restricted Frequency

Bands

In this Appendix, the "Pref", which is used as the reference level, refers to the peak power level in any 100 kHz bandwidth within the fundamental emission, the "Puw" refers to the maximum emission power in 100 kHz band segments outside of the authorized frequency band.

Considering that the higher ratio of RBW to the span for the frequency ranges below 30 MHz makes the results determination be complicated, a narrower RBW other than 100 kHz is used for these ranges. The measured value should add a RBW correction factor (RBWCF) where $RBWCF [dB] = 10 \times \lg(100 [kHz]/\text{narrower RBW [kHz]})$. As to this Appendix, the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

For measurements on smart antenna systems (devices with multiple transmit chains), the test is performed at each chain and used as respective results for each chain, due to the relative-limit requirement.

In the result table, the "< Limit" denotes that "The Puw [dBm] is less than Pref[dBm]-30[dBm], see test plots for detailed".

Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Pref[dBm]	Puw[dBm]	Verdict
11B	L	2412	Ant 1	7.83	<limit	pass
11B	M	2437	Ant 1	7.75	<limit	pass
11B	H	2462	Ant 1	7.81	<limit	pass
11G	L	2412	Ant 1	4.11	<limit	pass
11G	M	2437	Ant 1	3.27	<limit	pass
11G	H	2462	Ant 1	3.49	<limit	pass
11N20	L	2412	Ant 1	3.18	<limit	pass
11N20	M	2437	Ant 1	2.40	<limit	pass
11N20	H	2462	Ant 1	2.43	<limit	pass
11N40	L	2422	Ant 1	0.58	<limit	pass
11N40	M	2437	Ant 1	0.08	<limit	pass
11N40	H	2452	Ant 1	0.80	<limit	pass

Part II - Test Plots

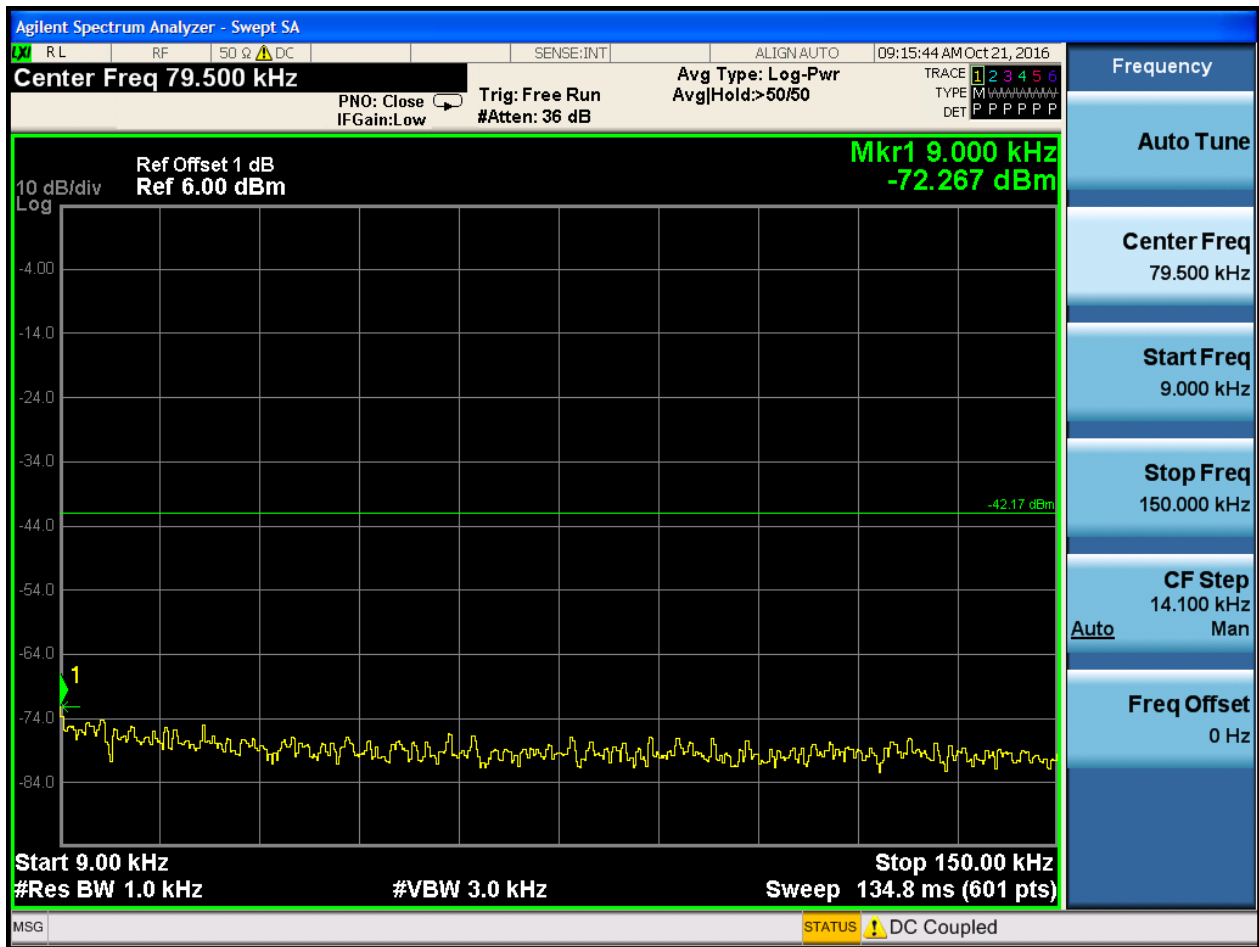
2.1 11B L@Ant 1

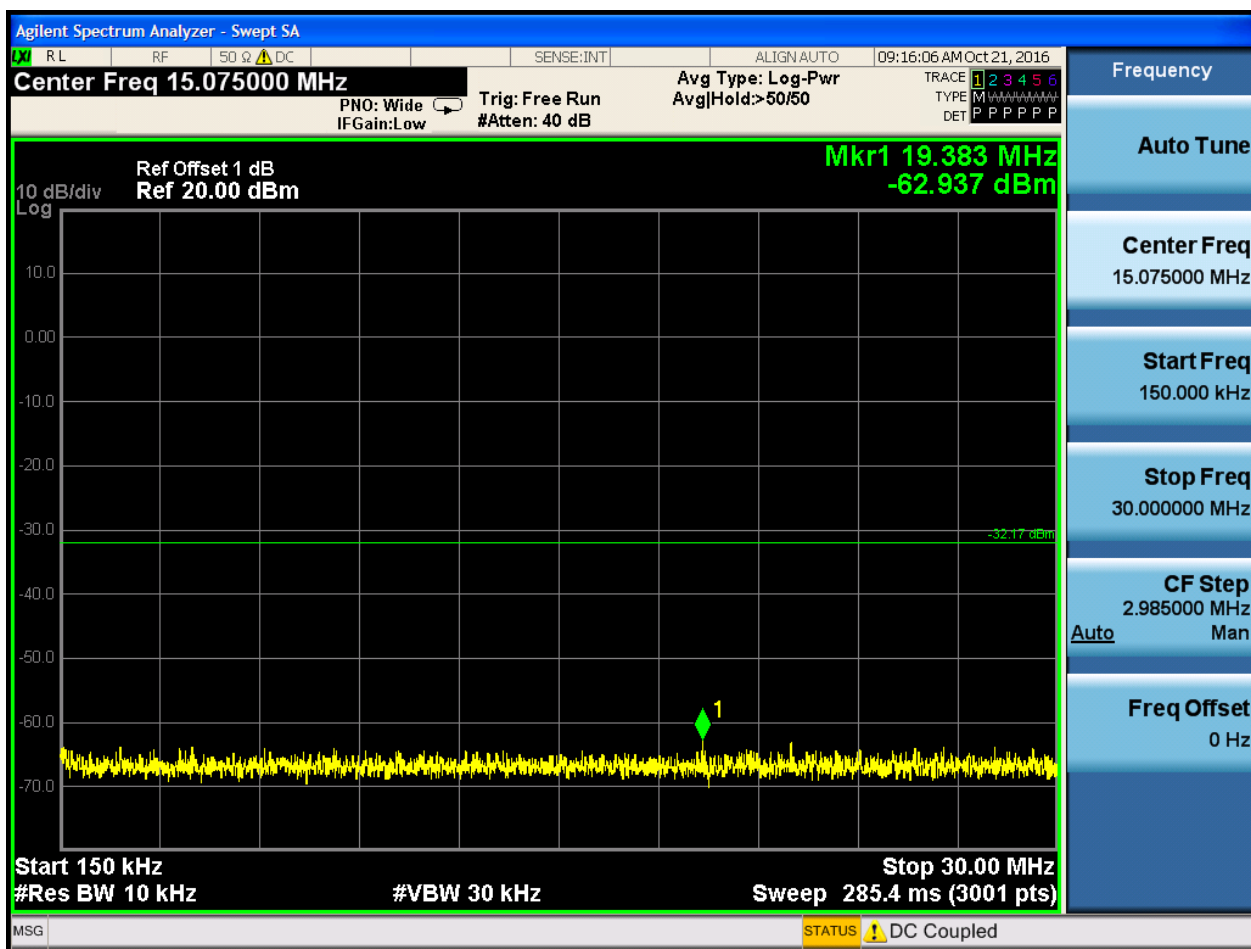
Pref:

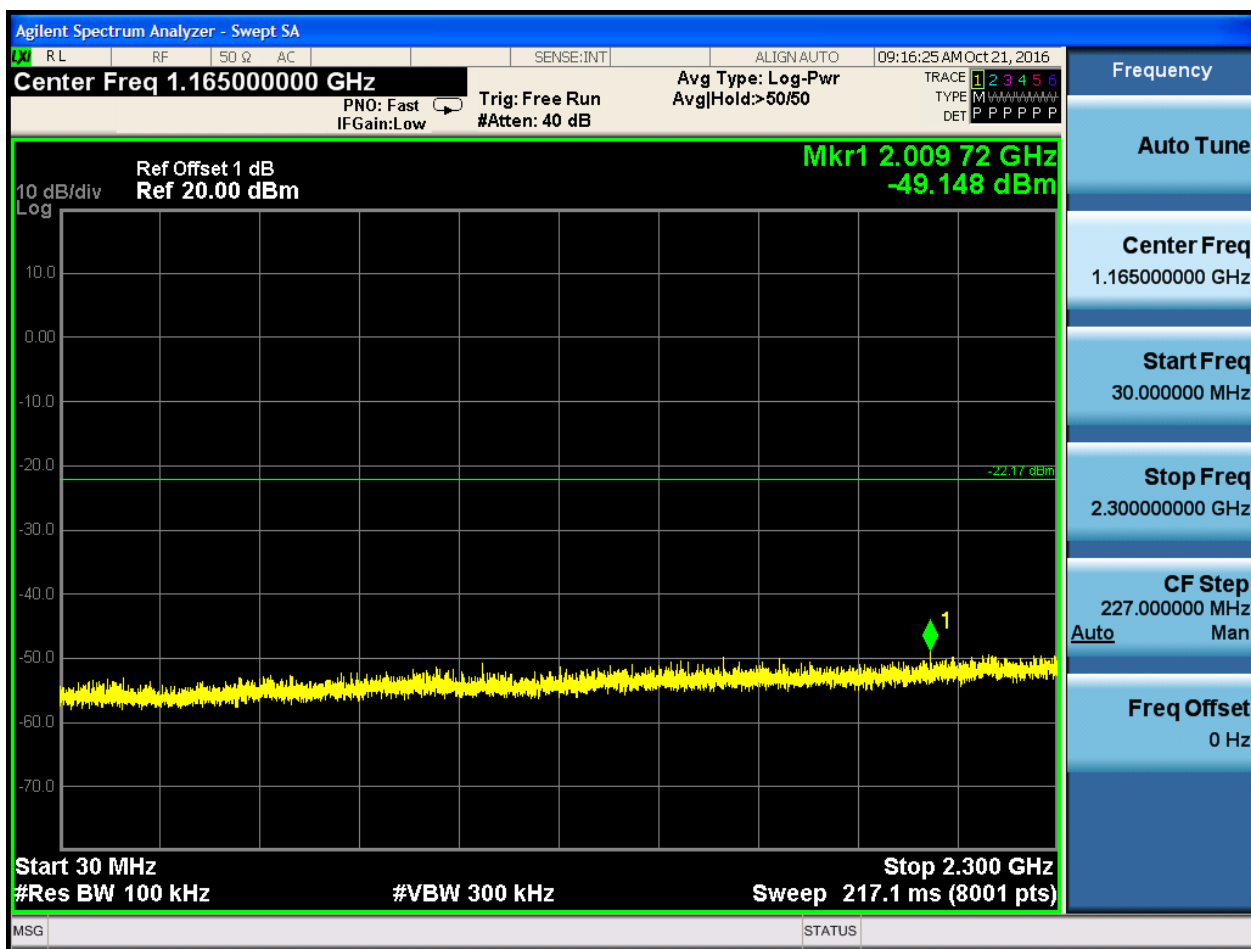


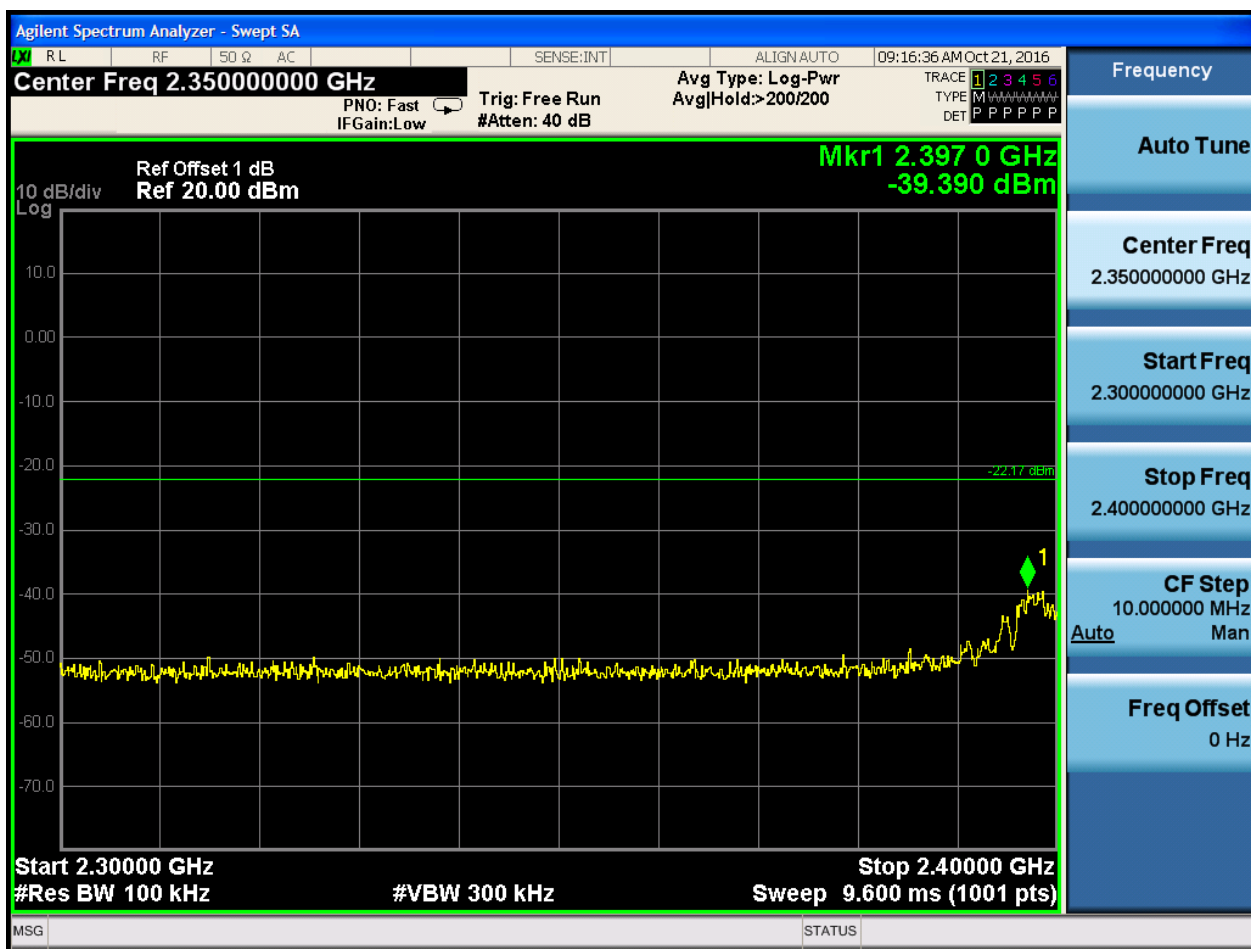


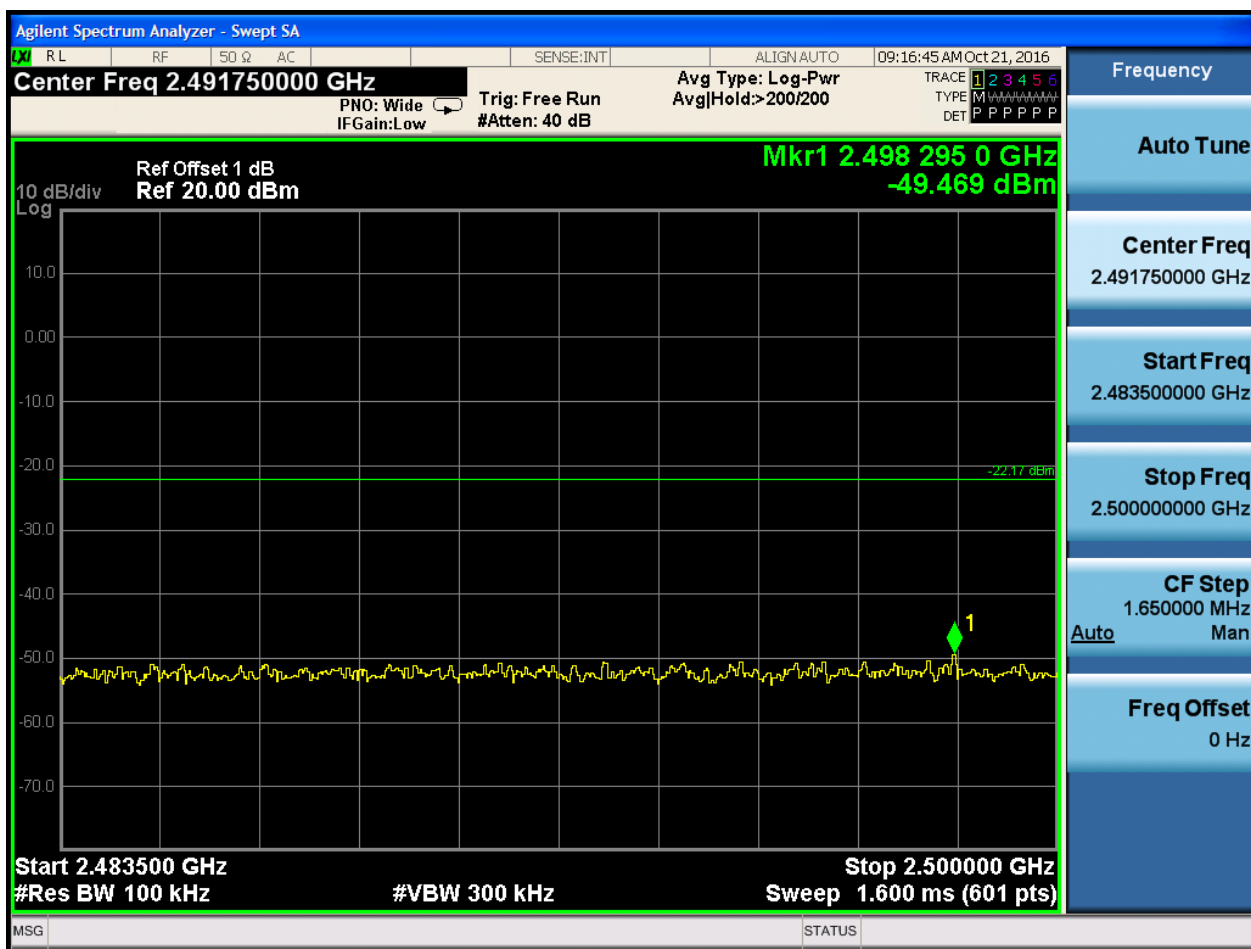
Puw:









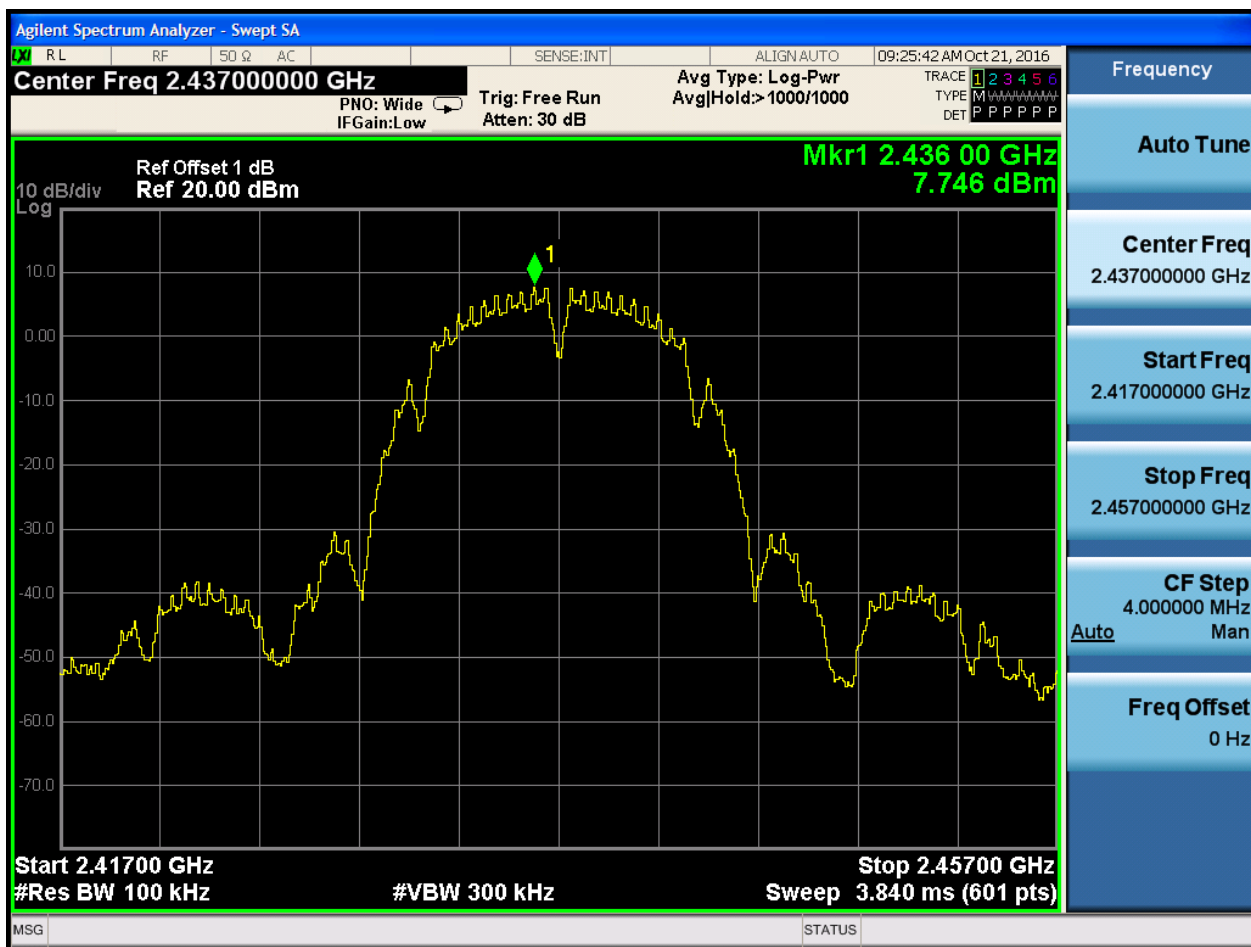






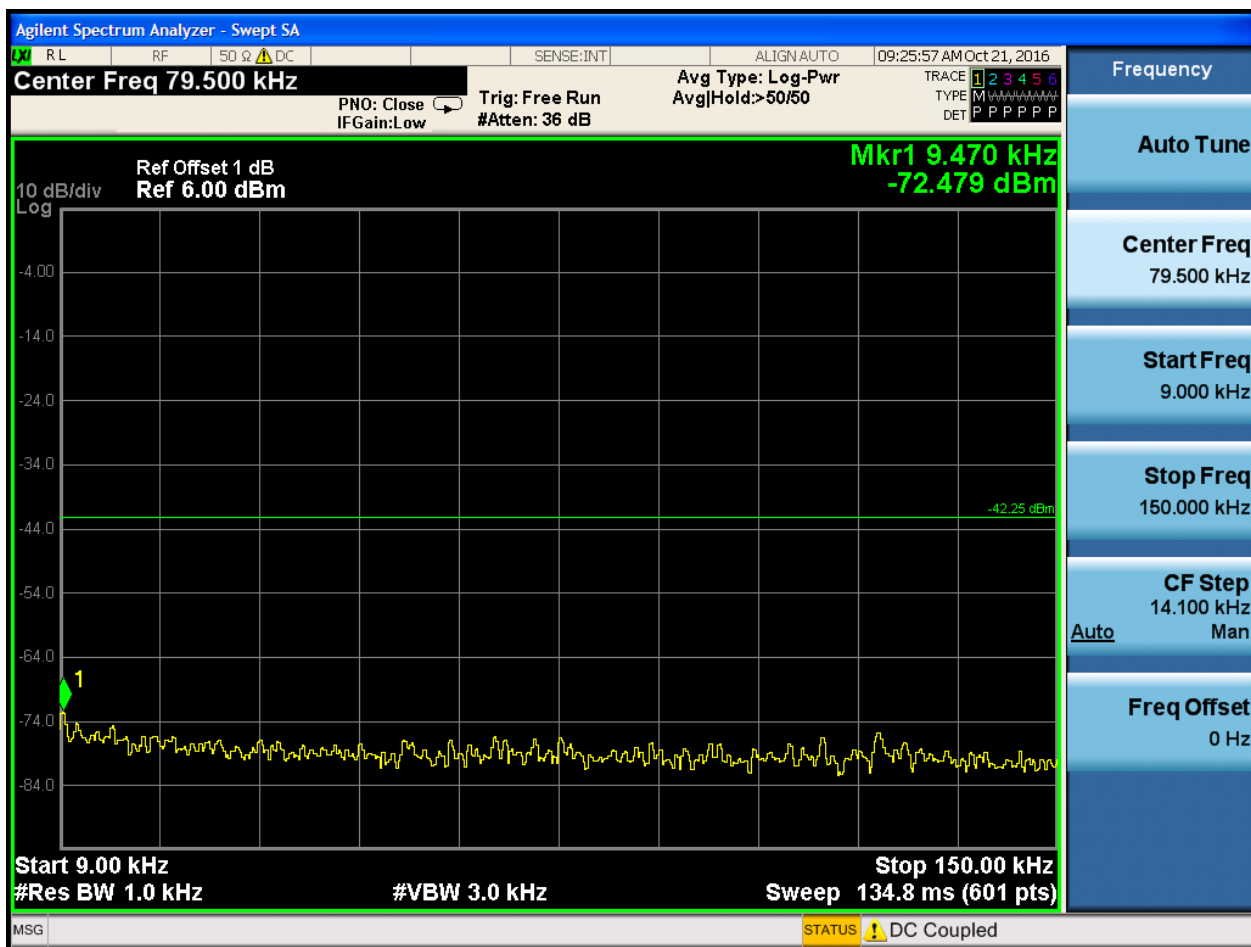
2.2 11B_M@Ant 1

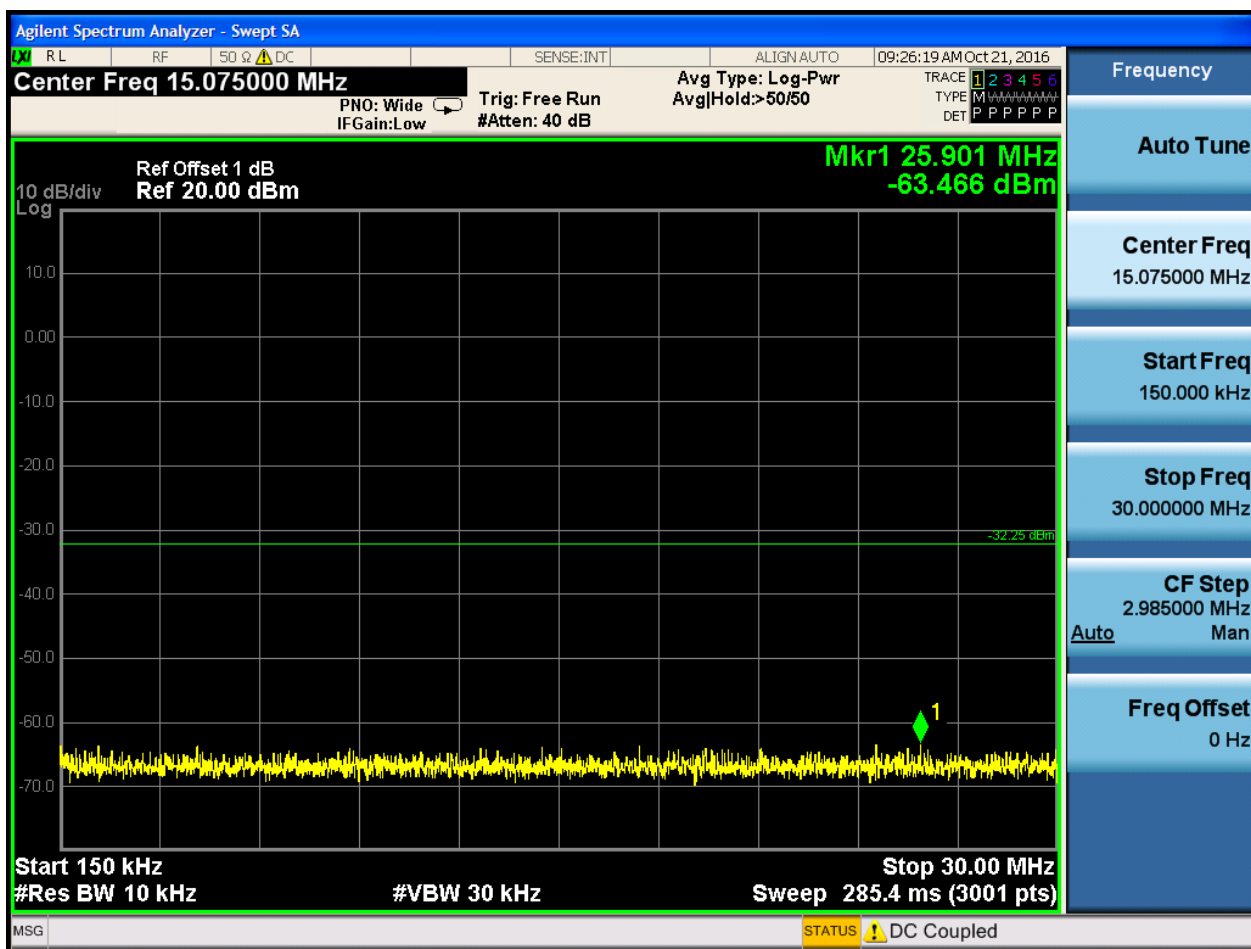
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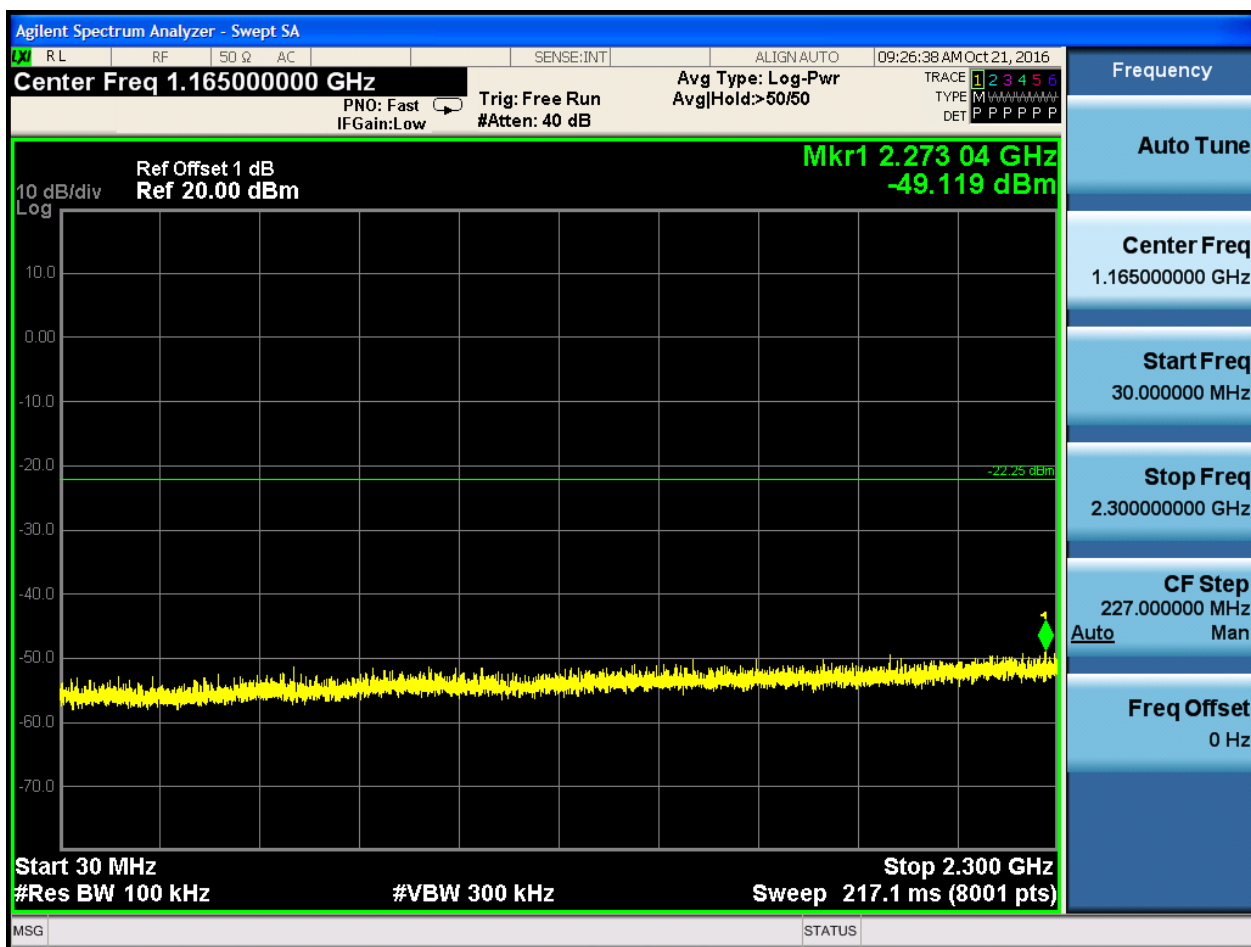


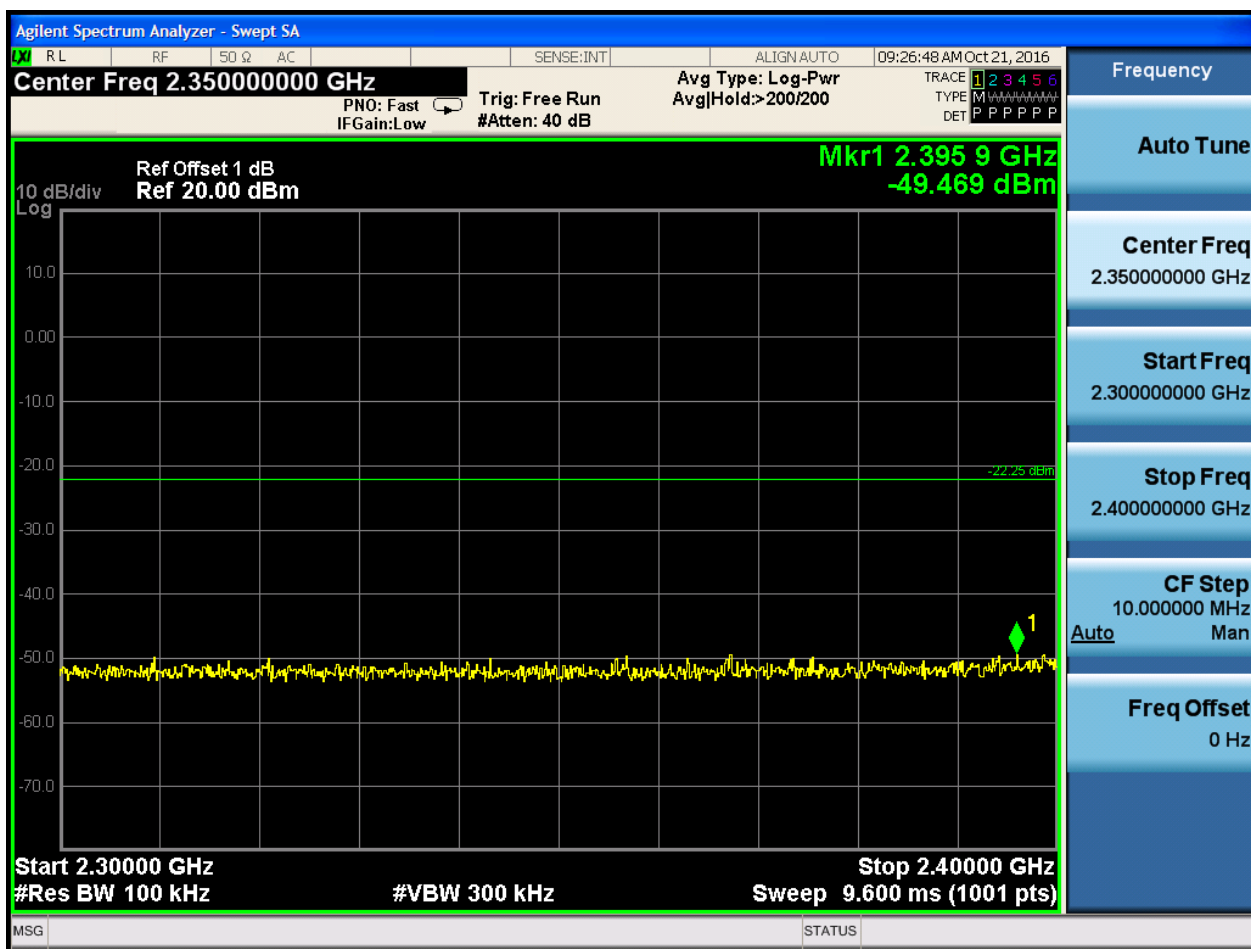


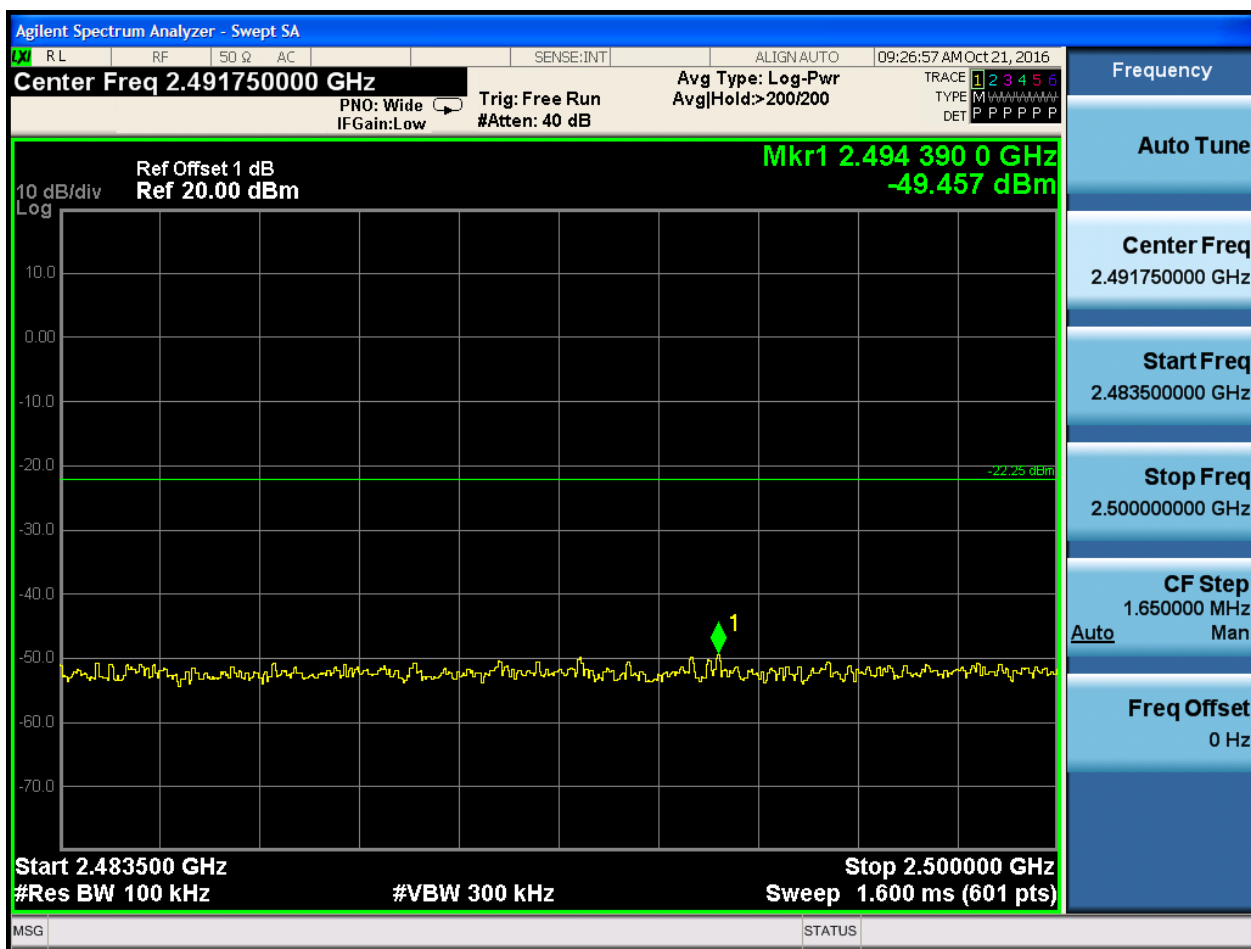
Puw:















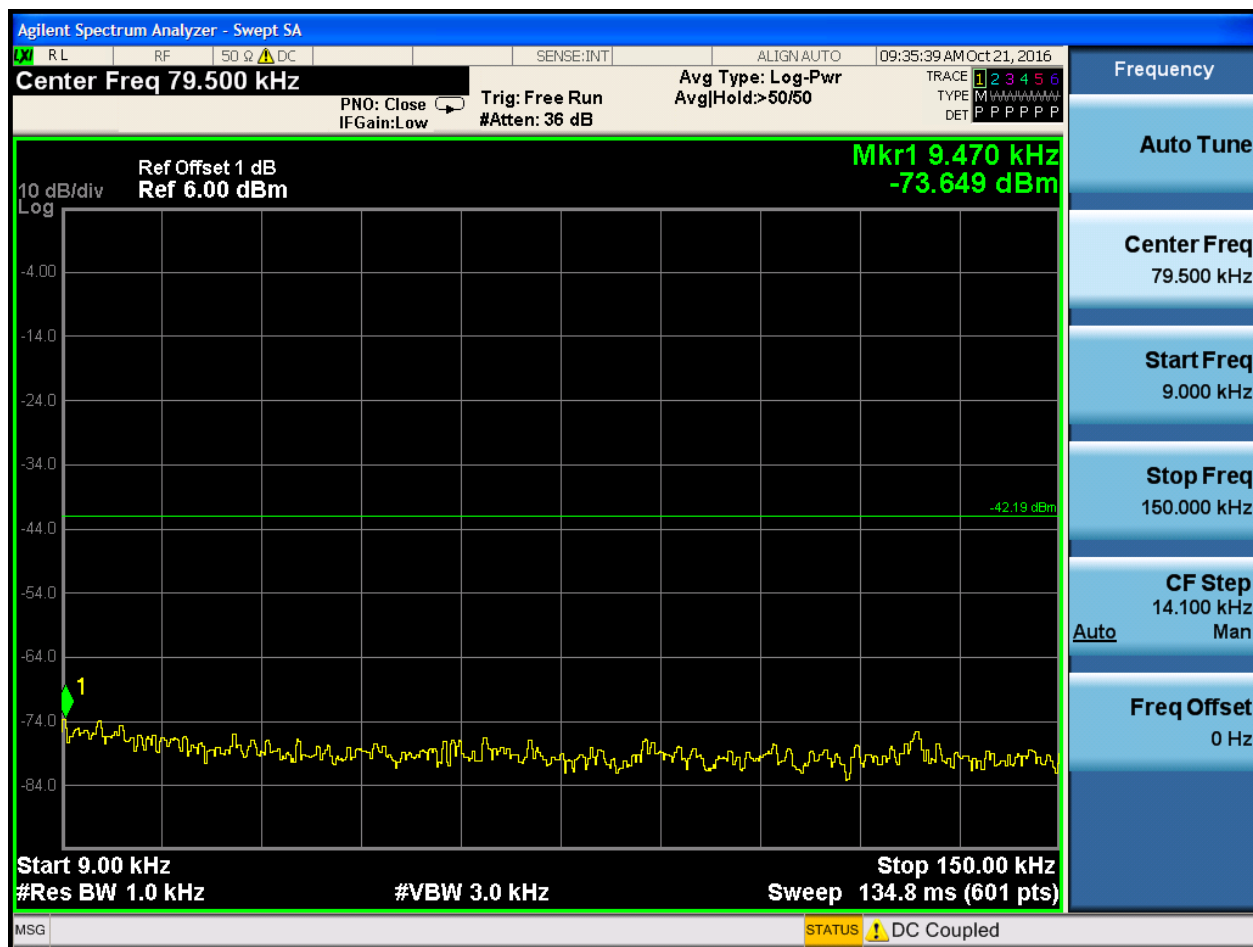
2.3 11B_H@Ant 1

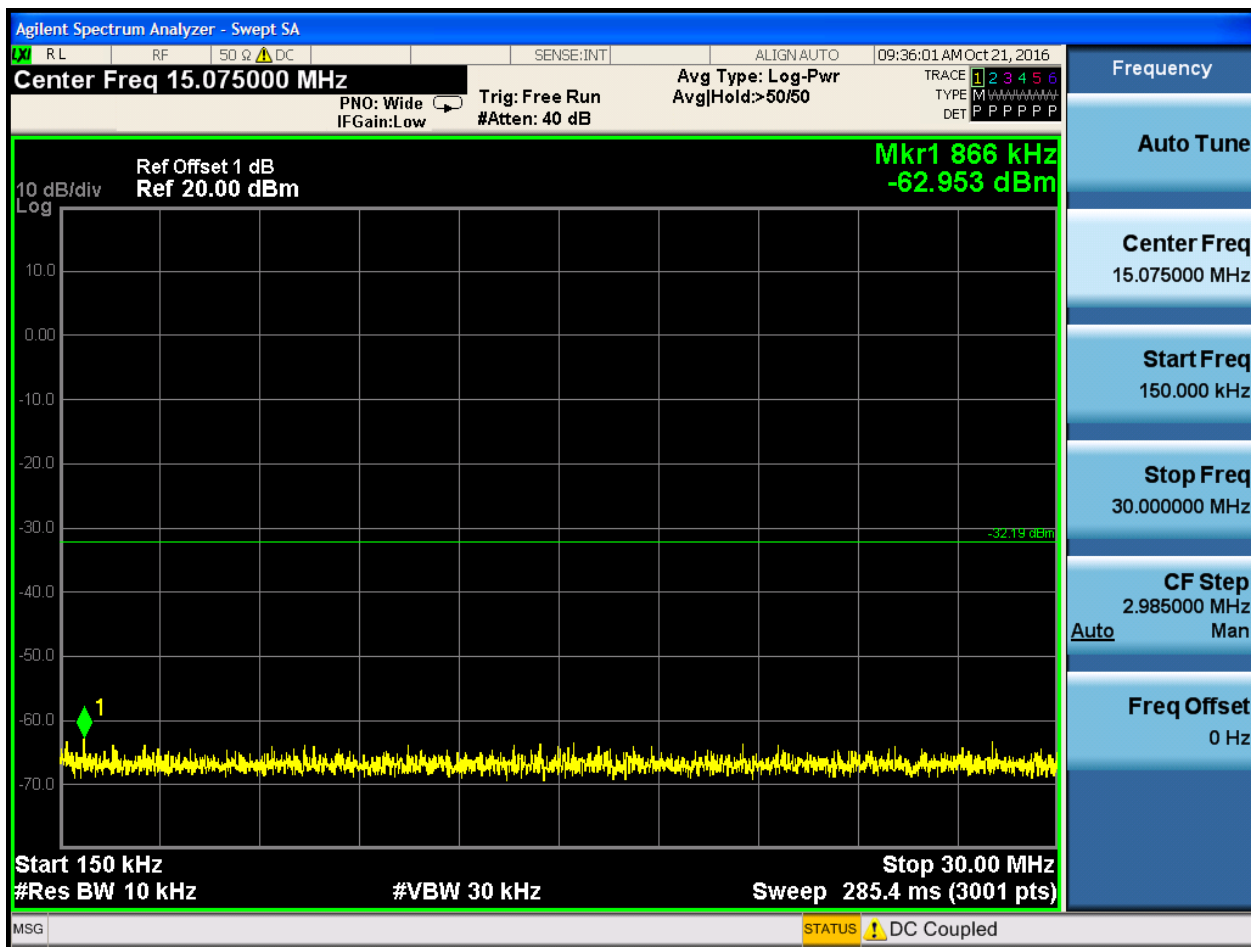
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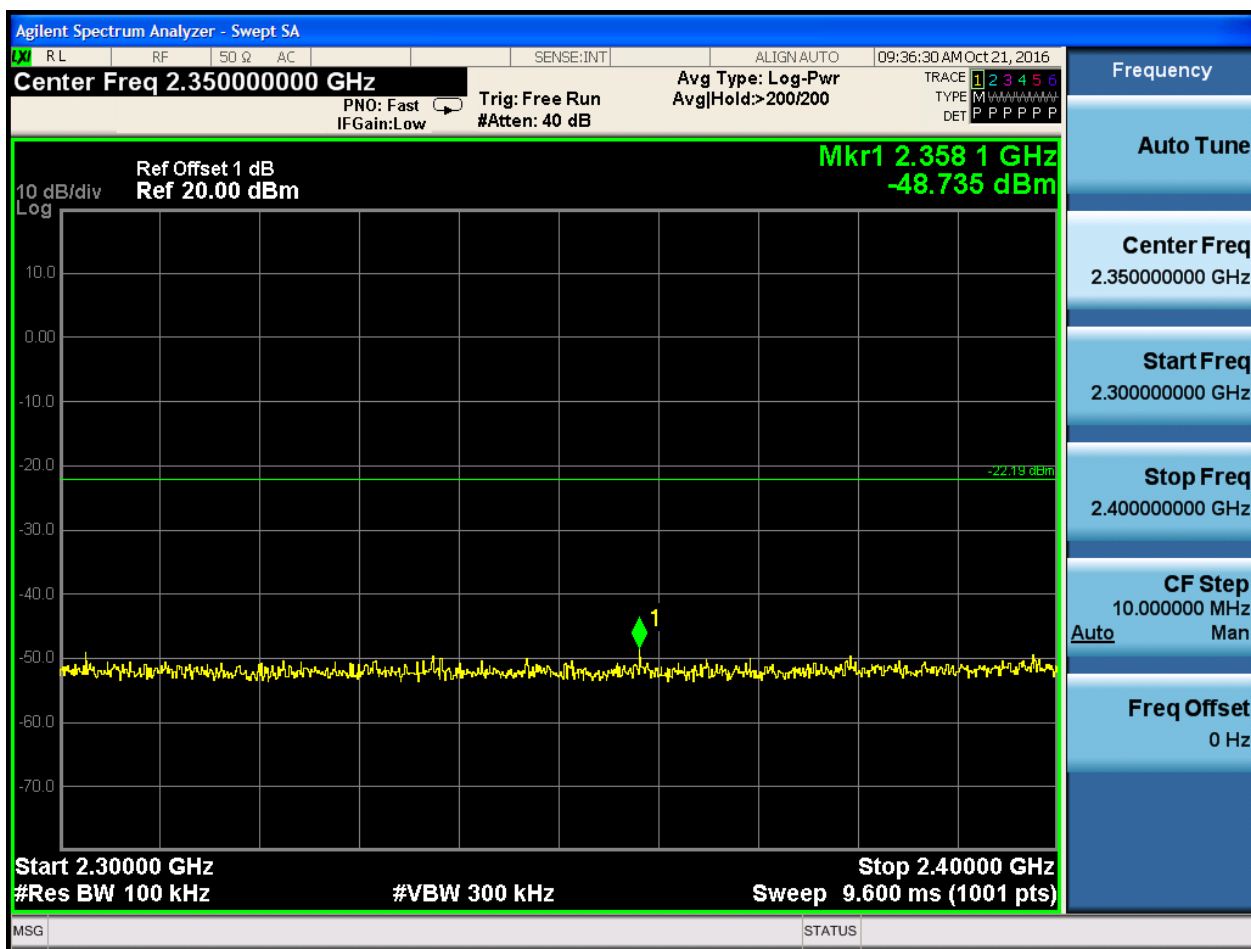


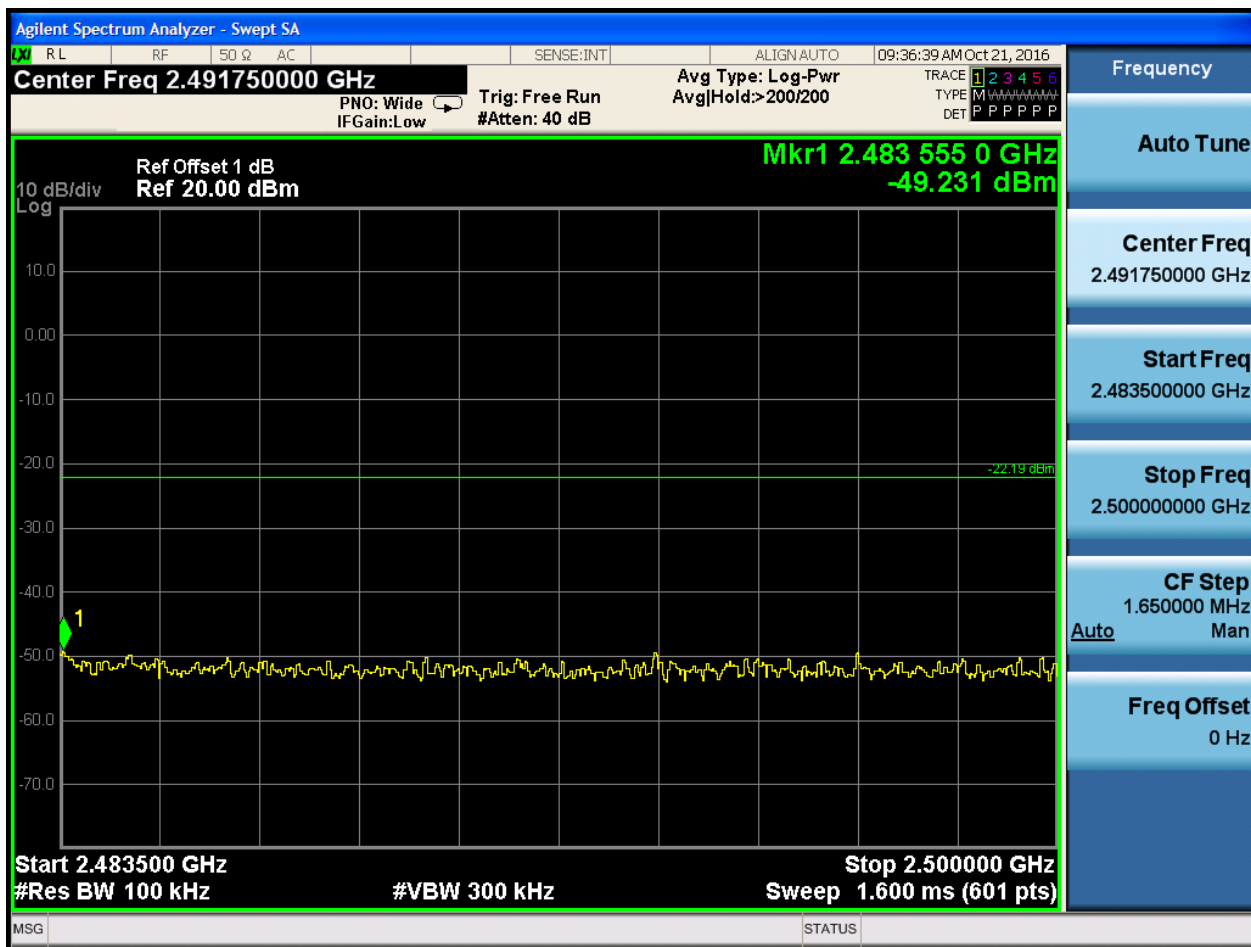
PuW:









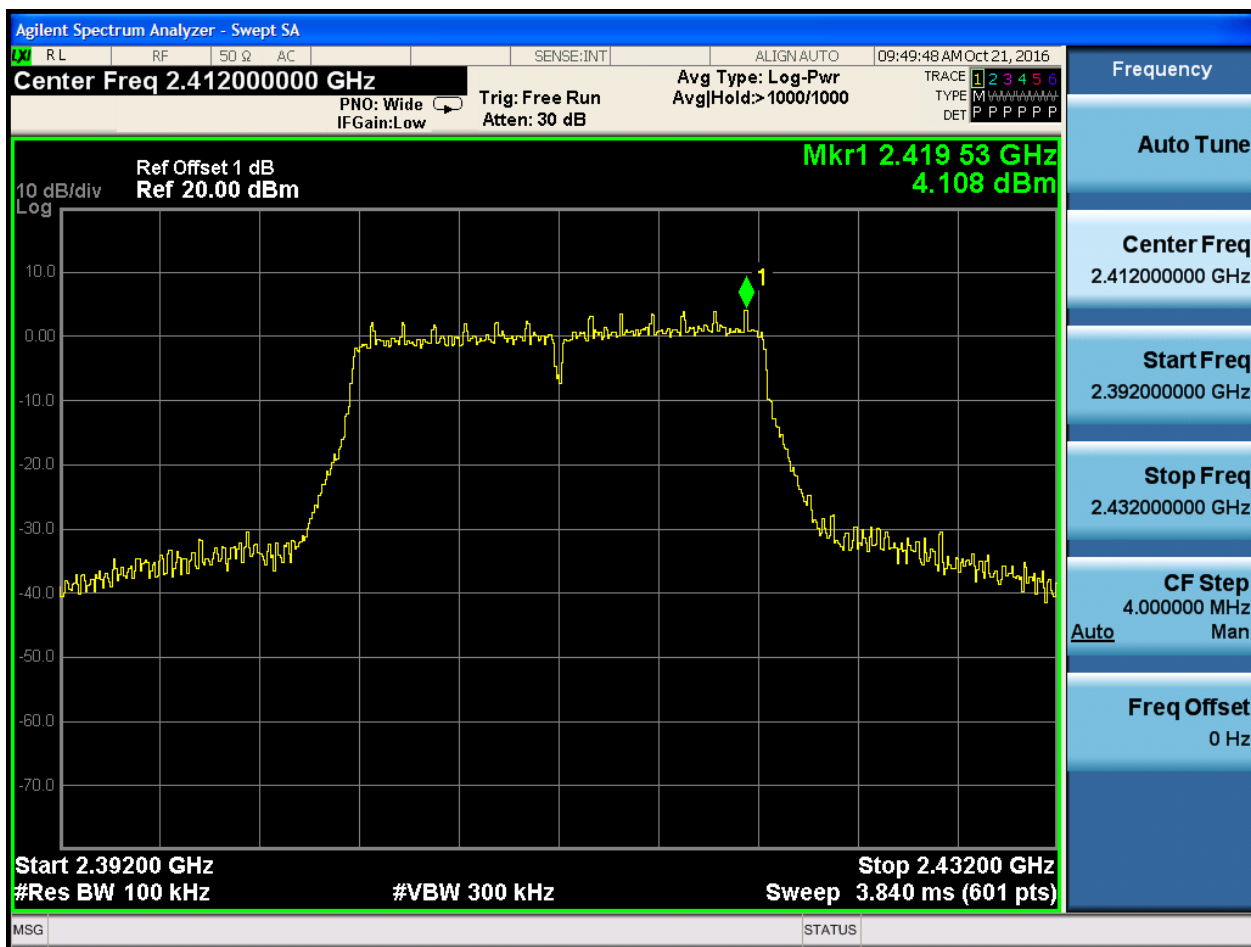






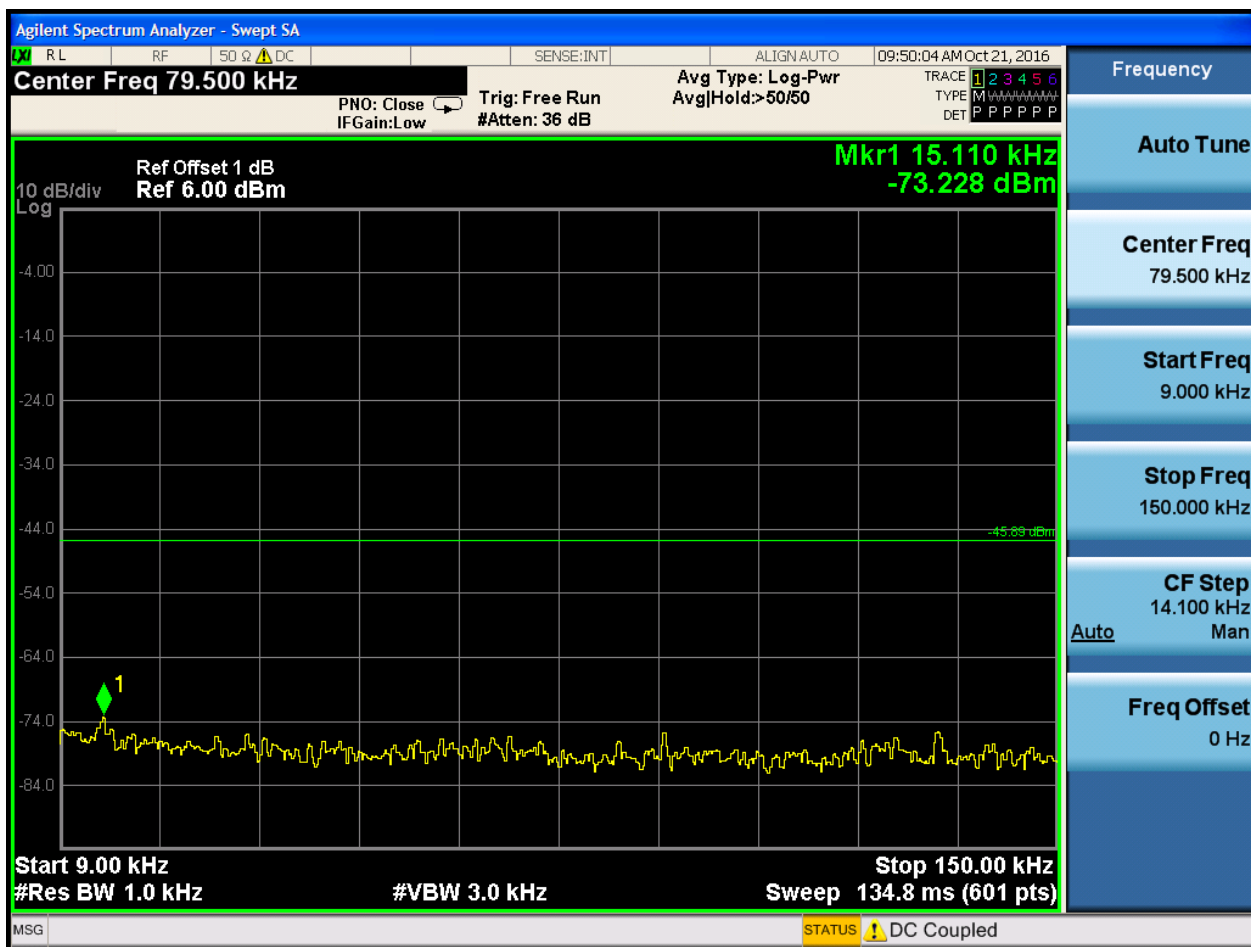
2.4 11G_L@Ant 1

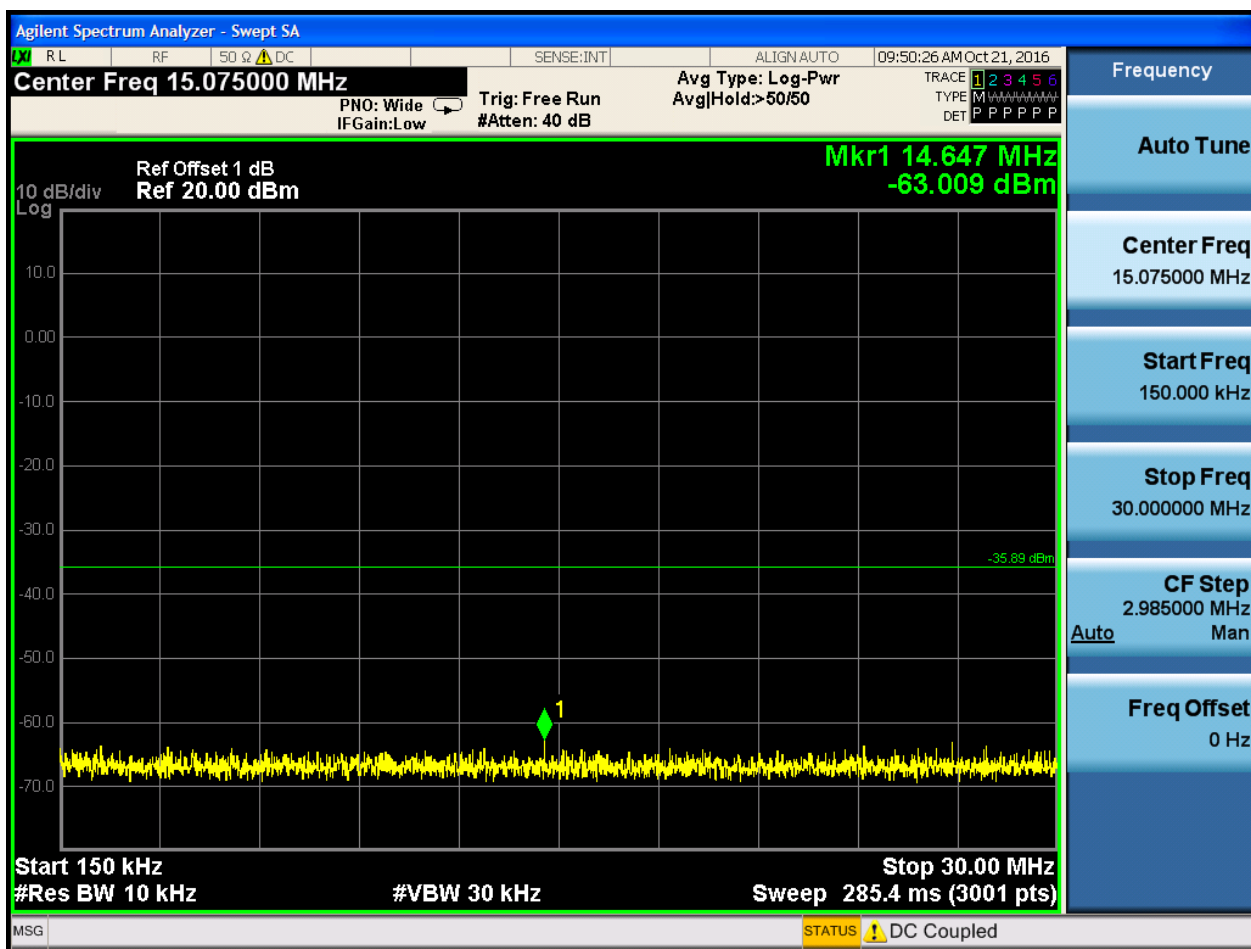
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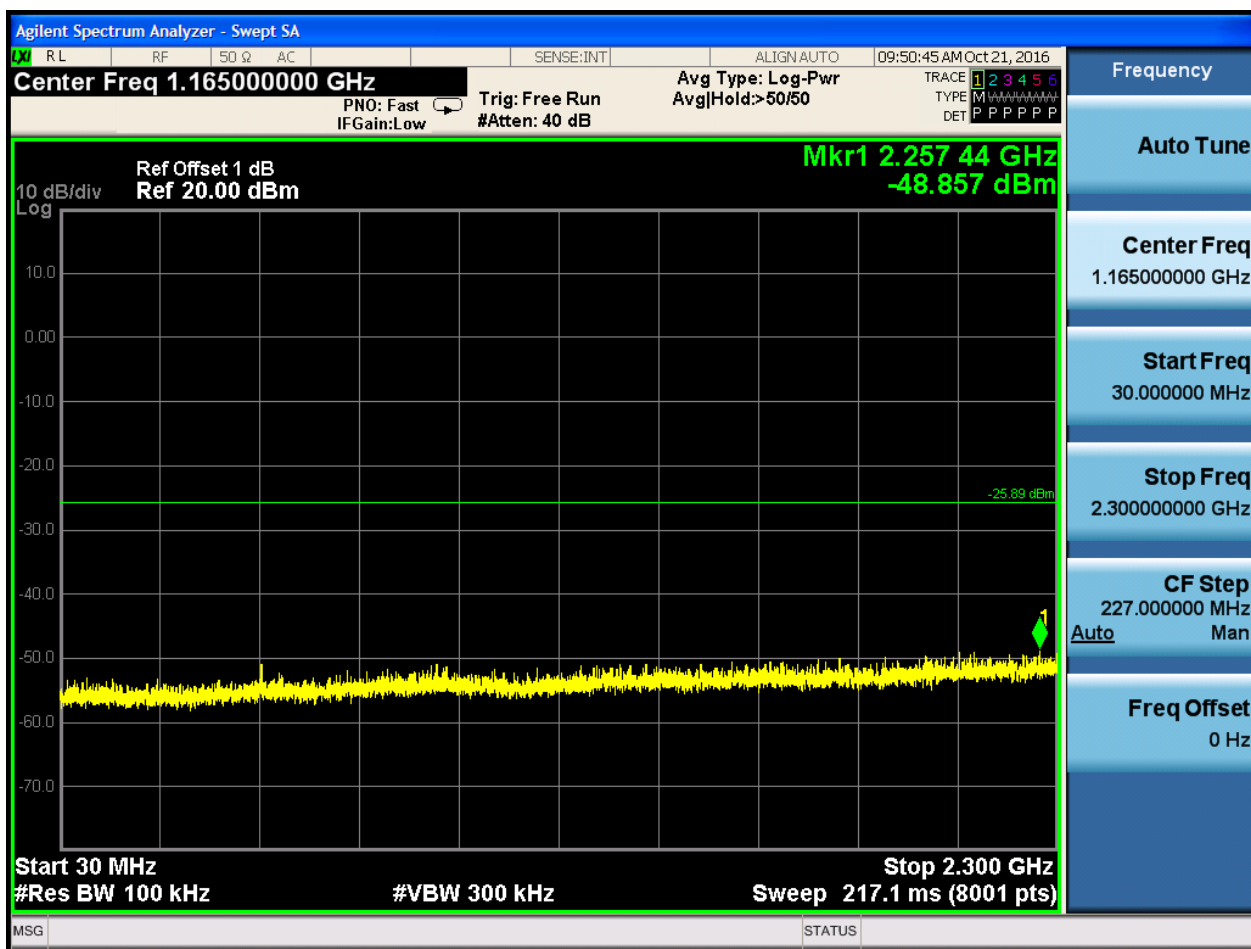


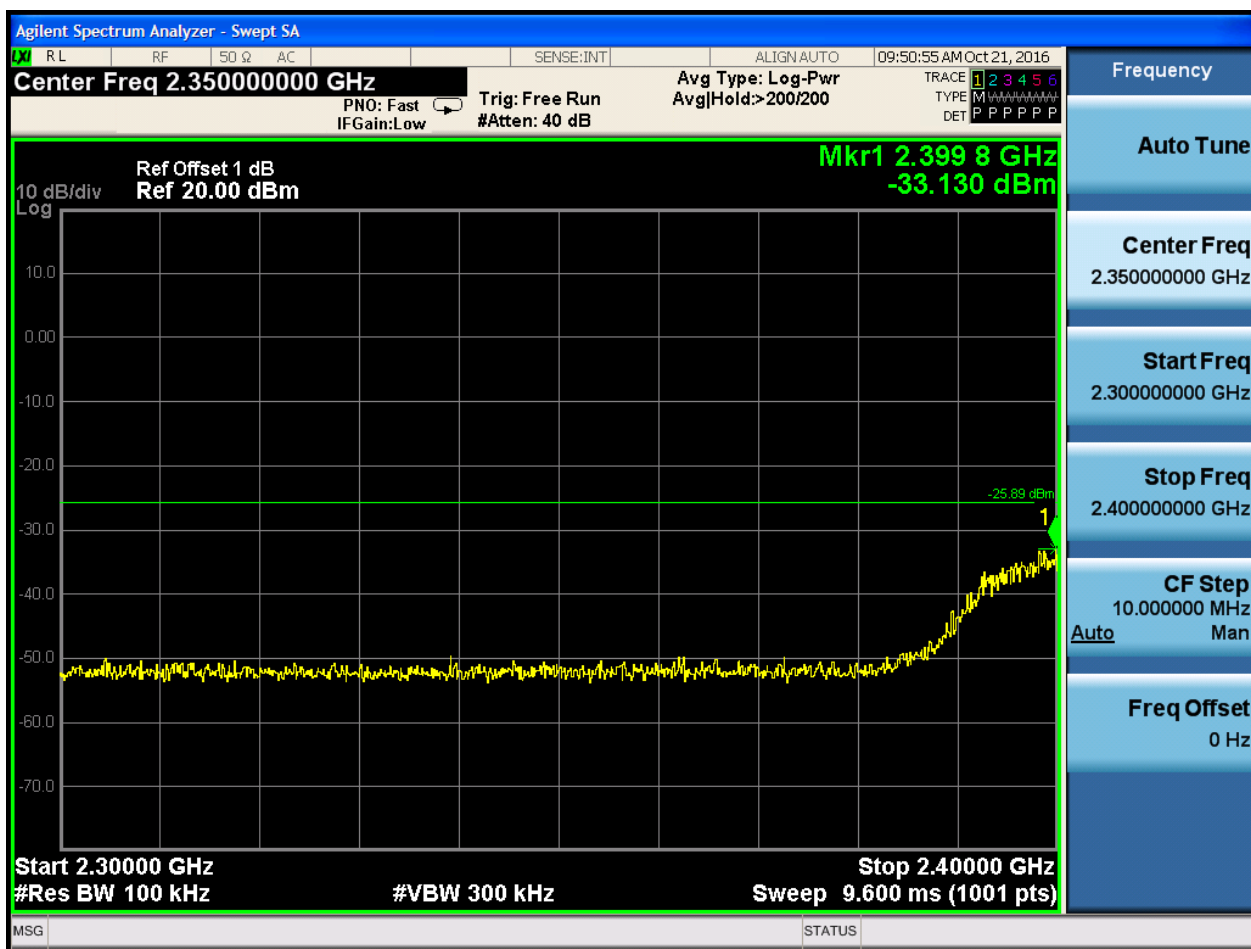


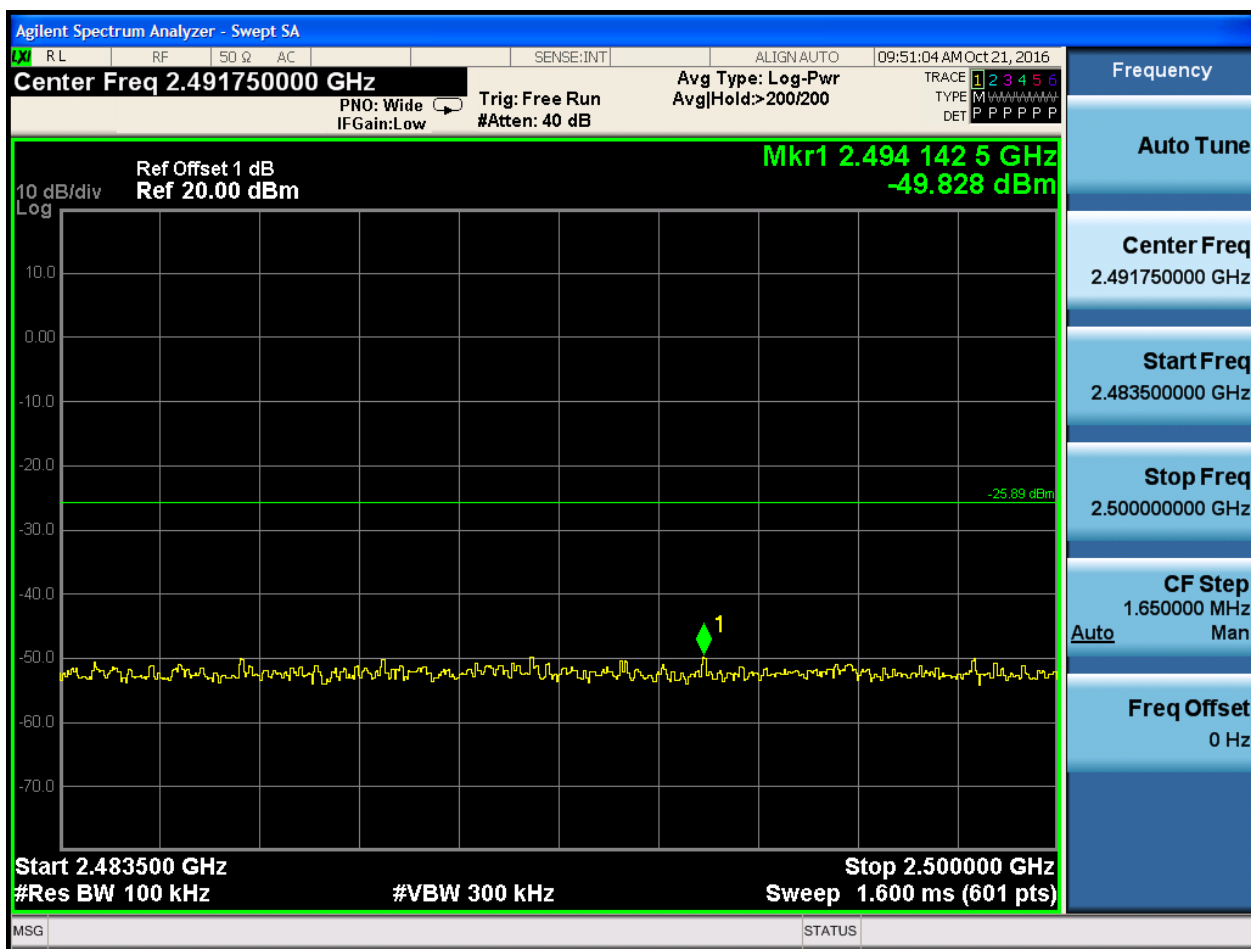
Puw:









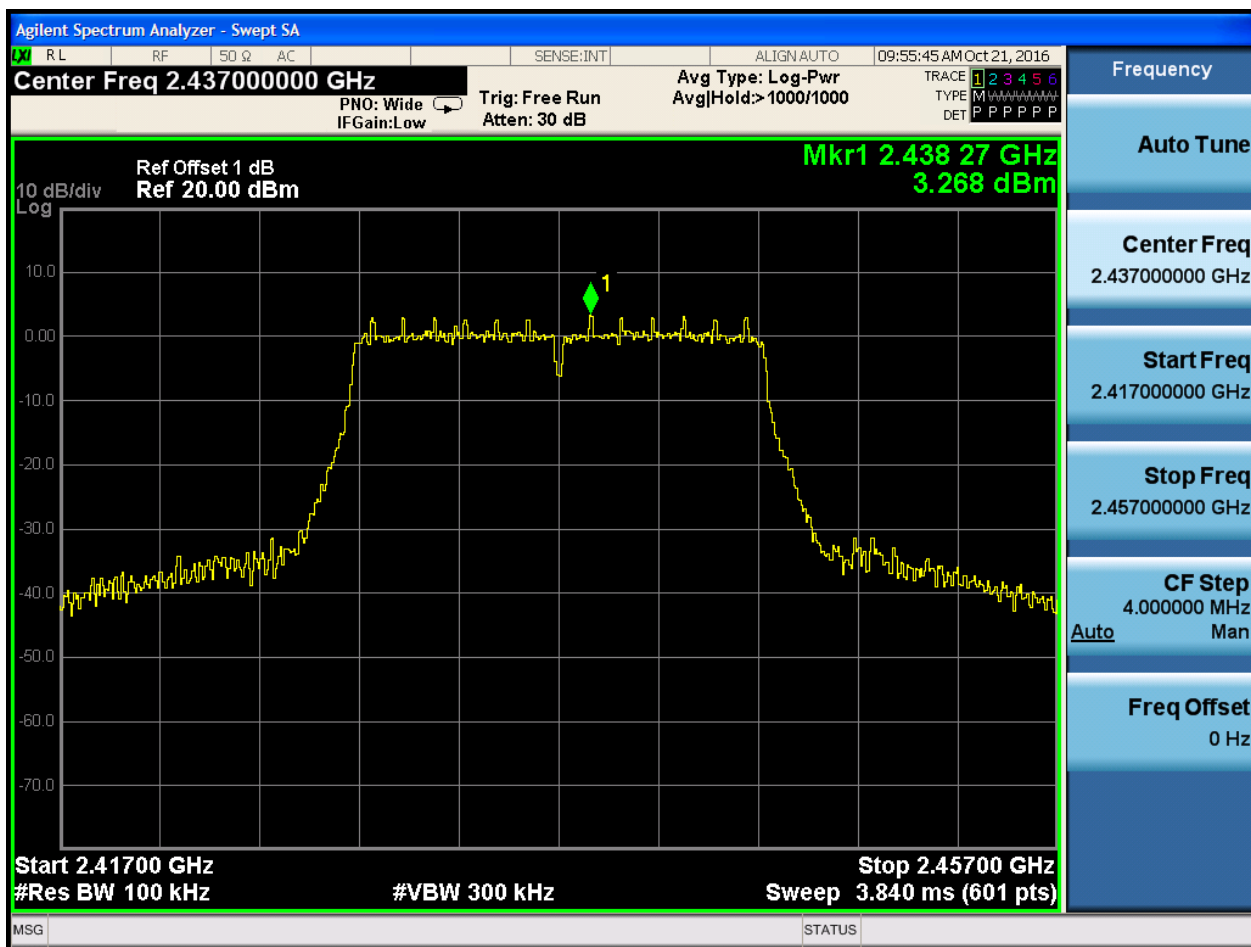






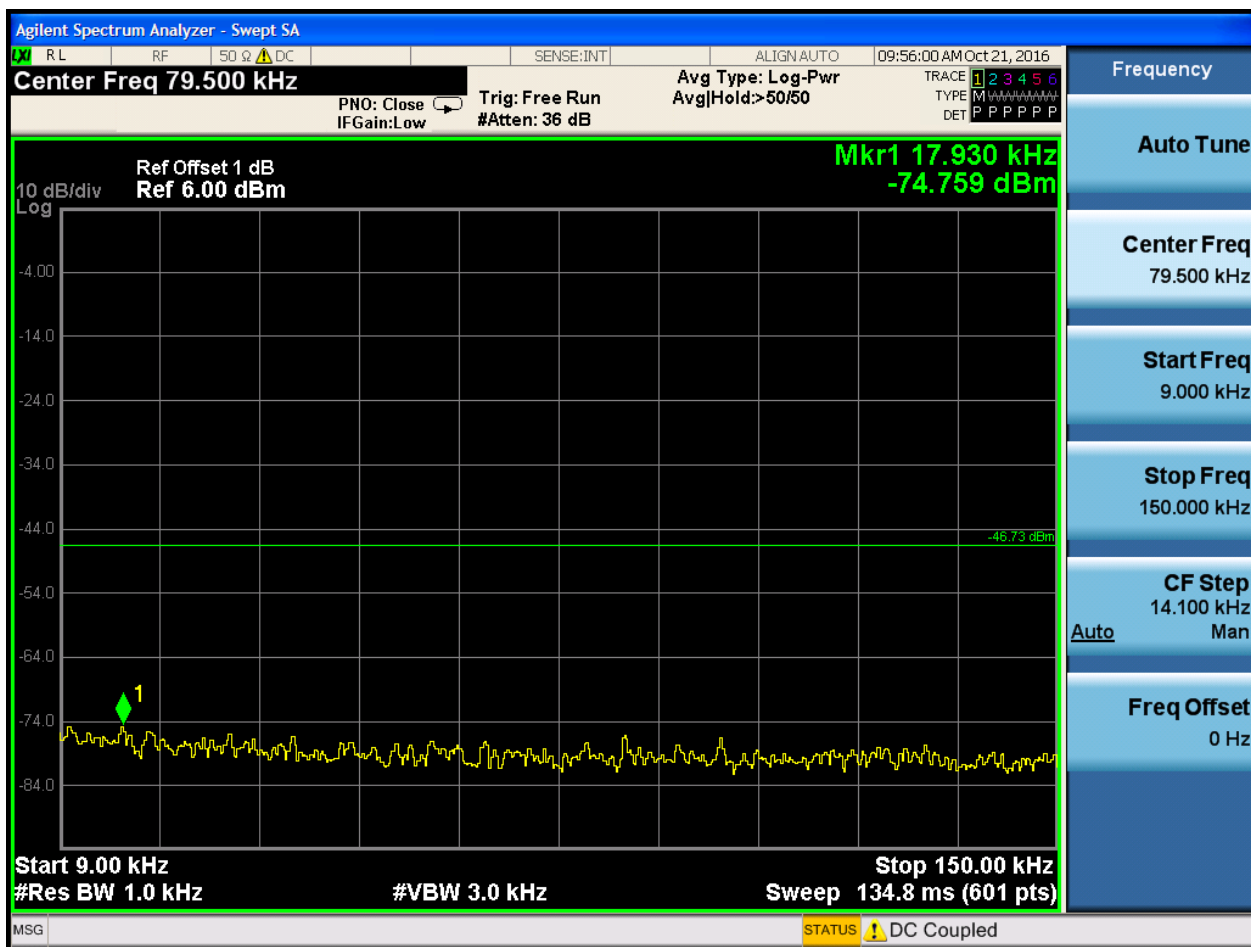
2.5 11G_M@Ant 1

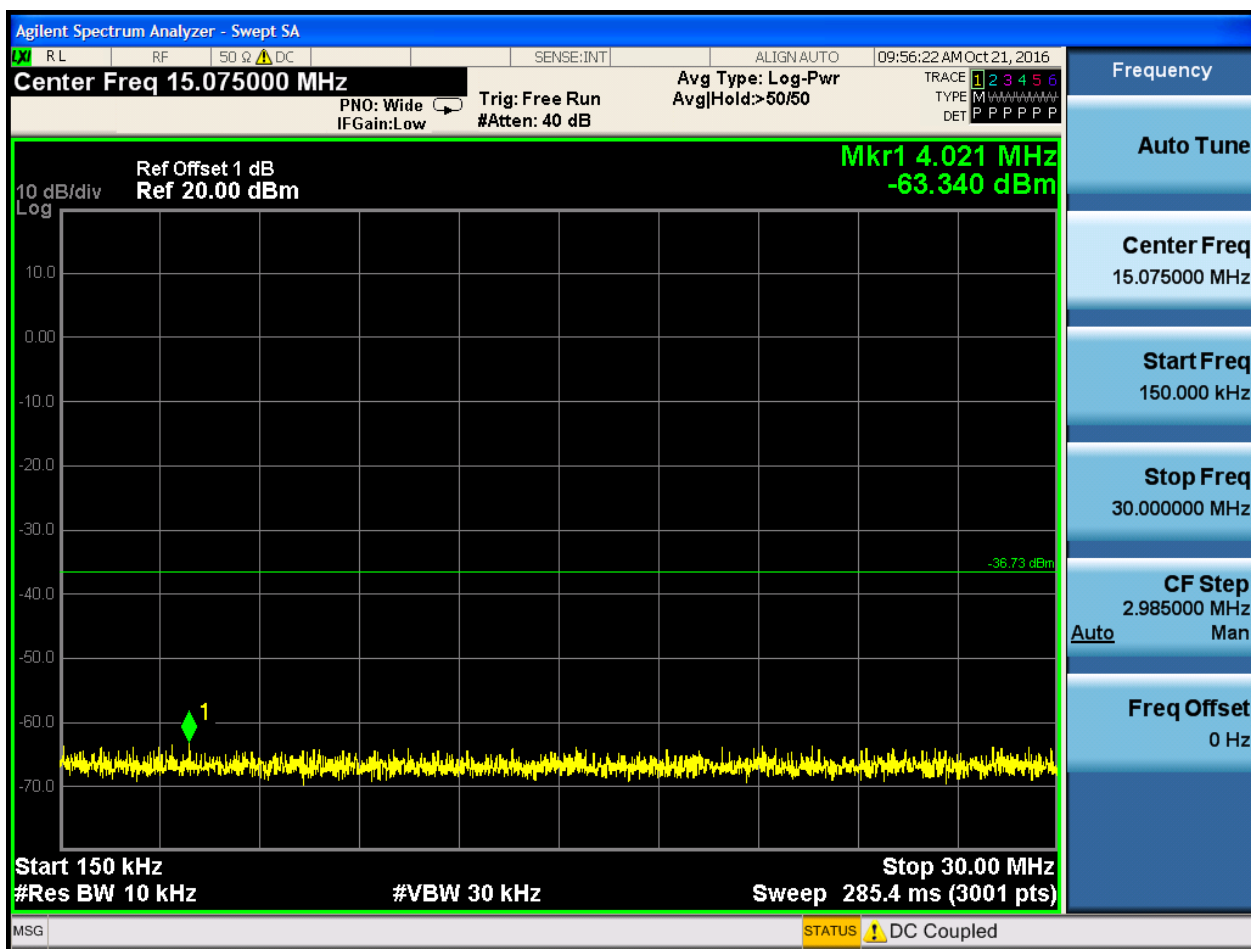
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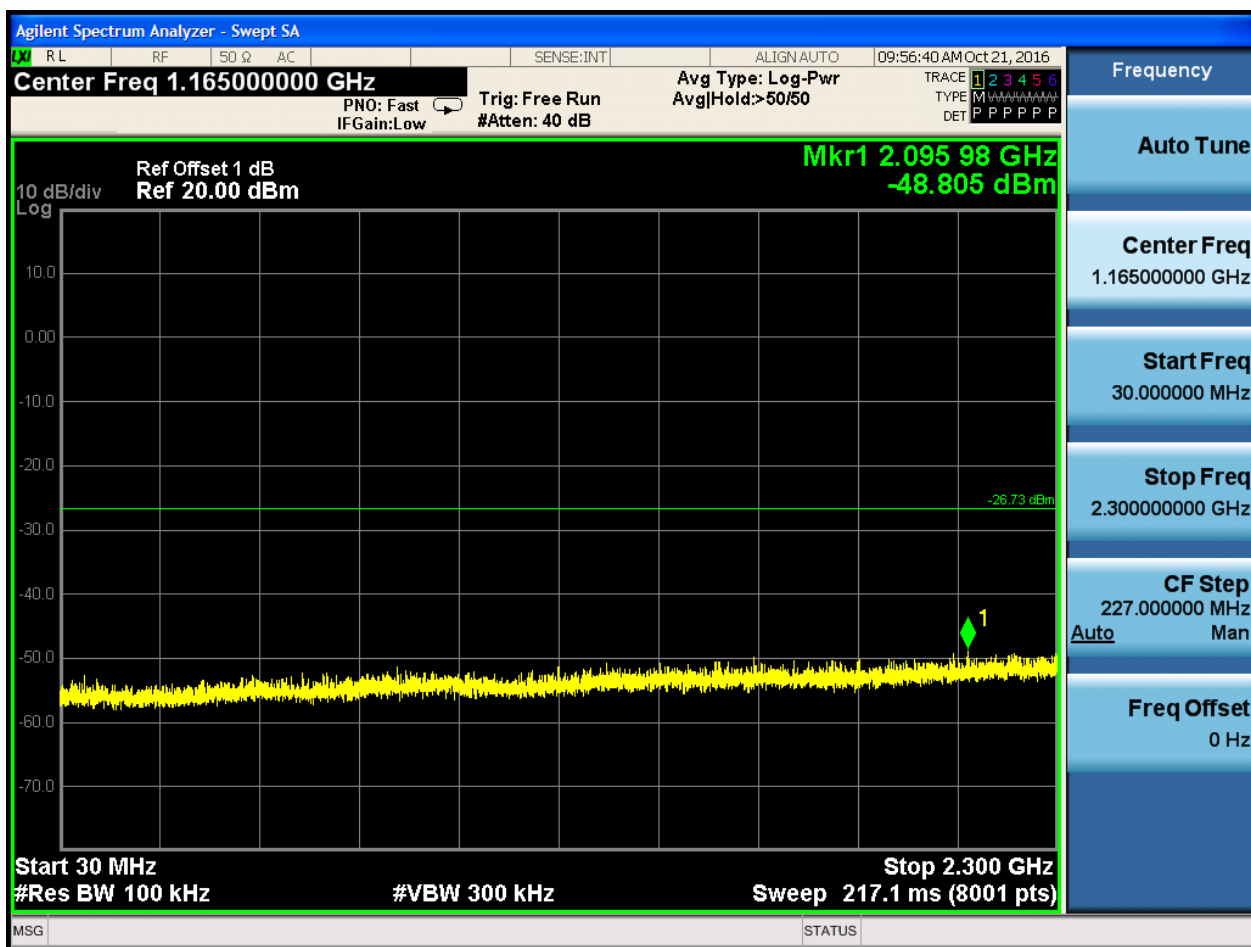


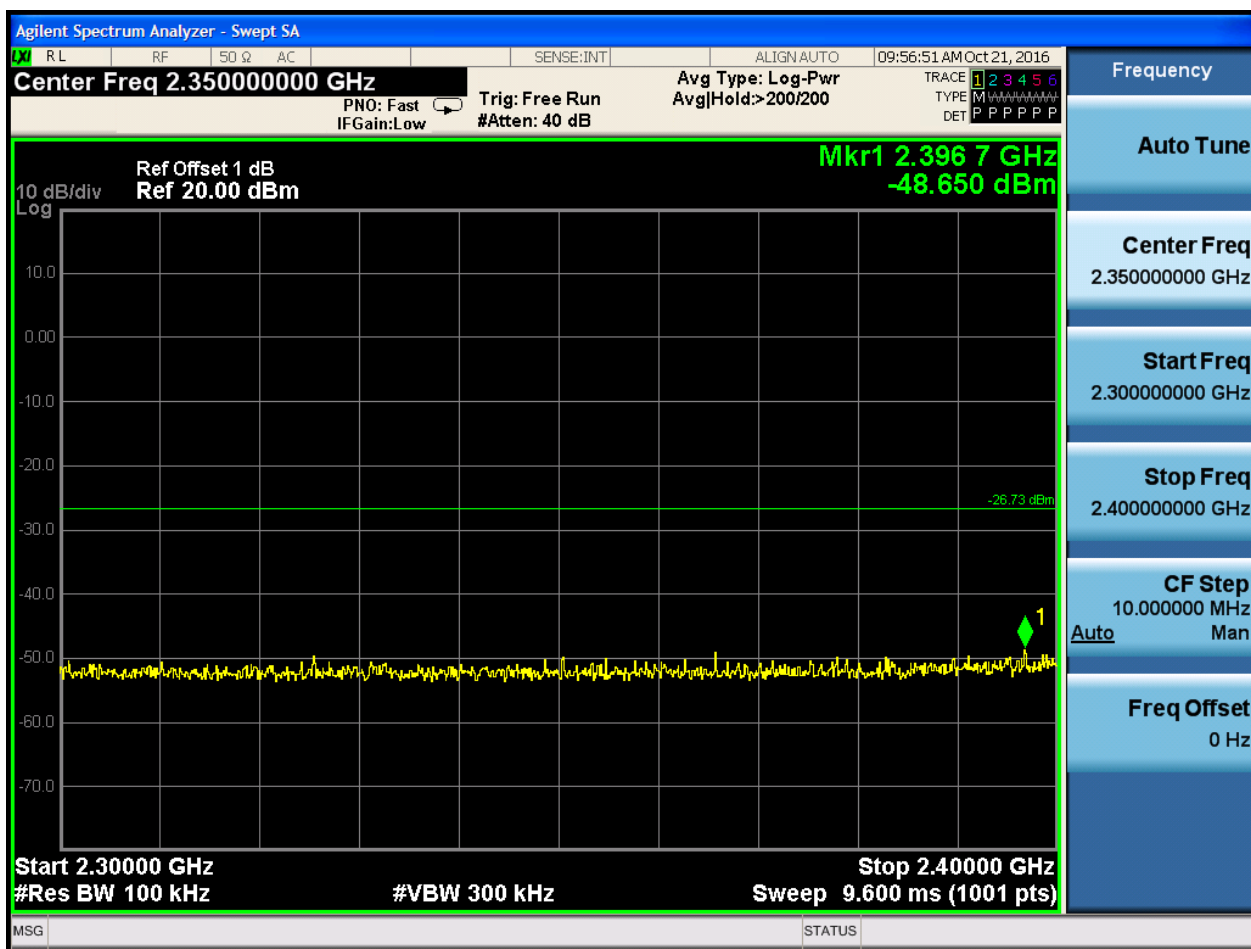


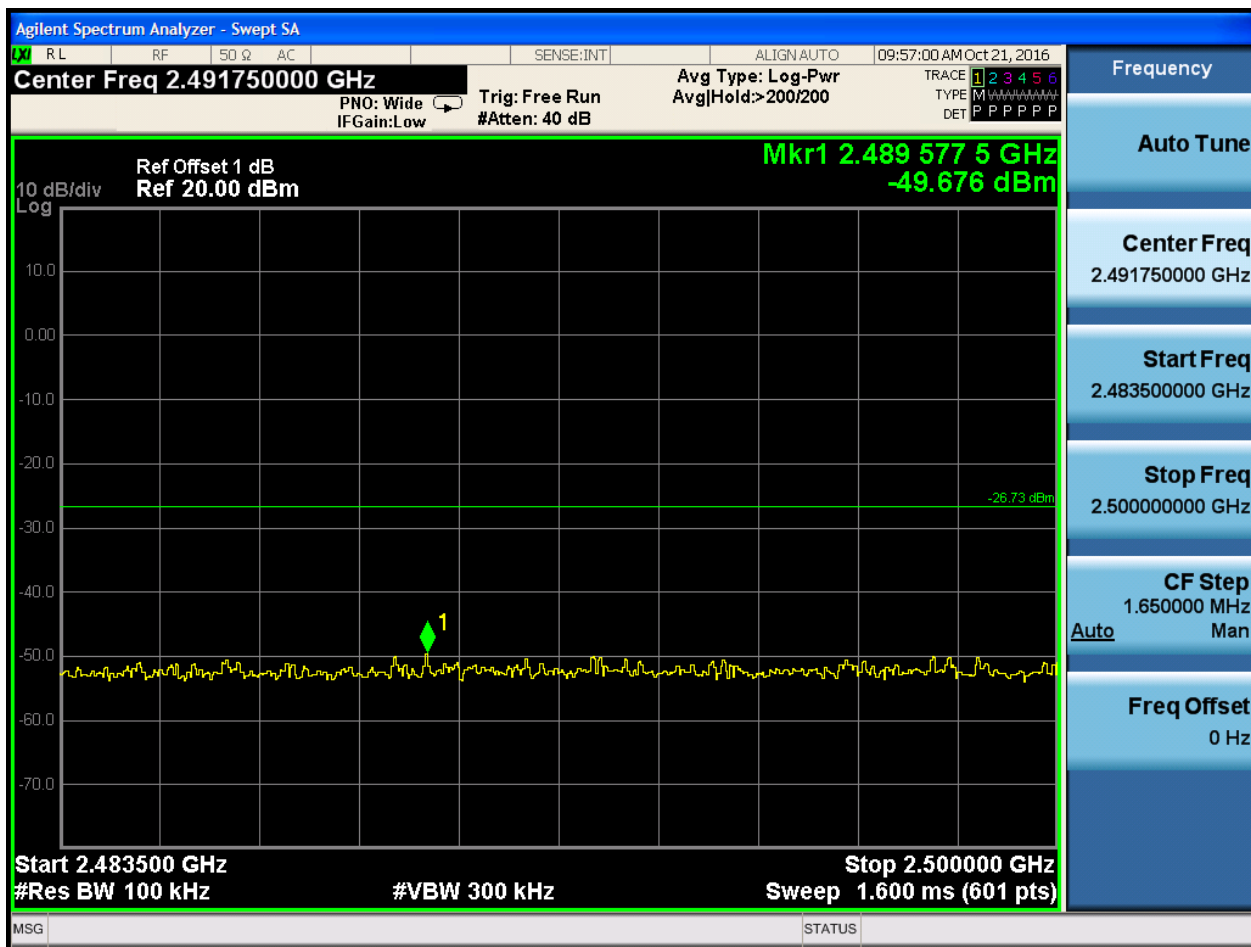
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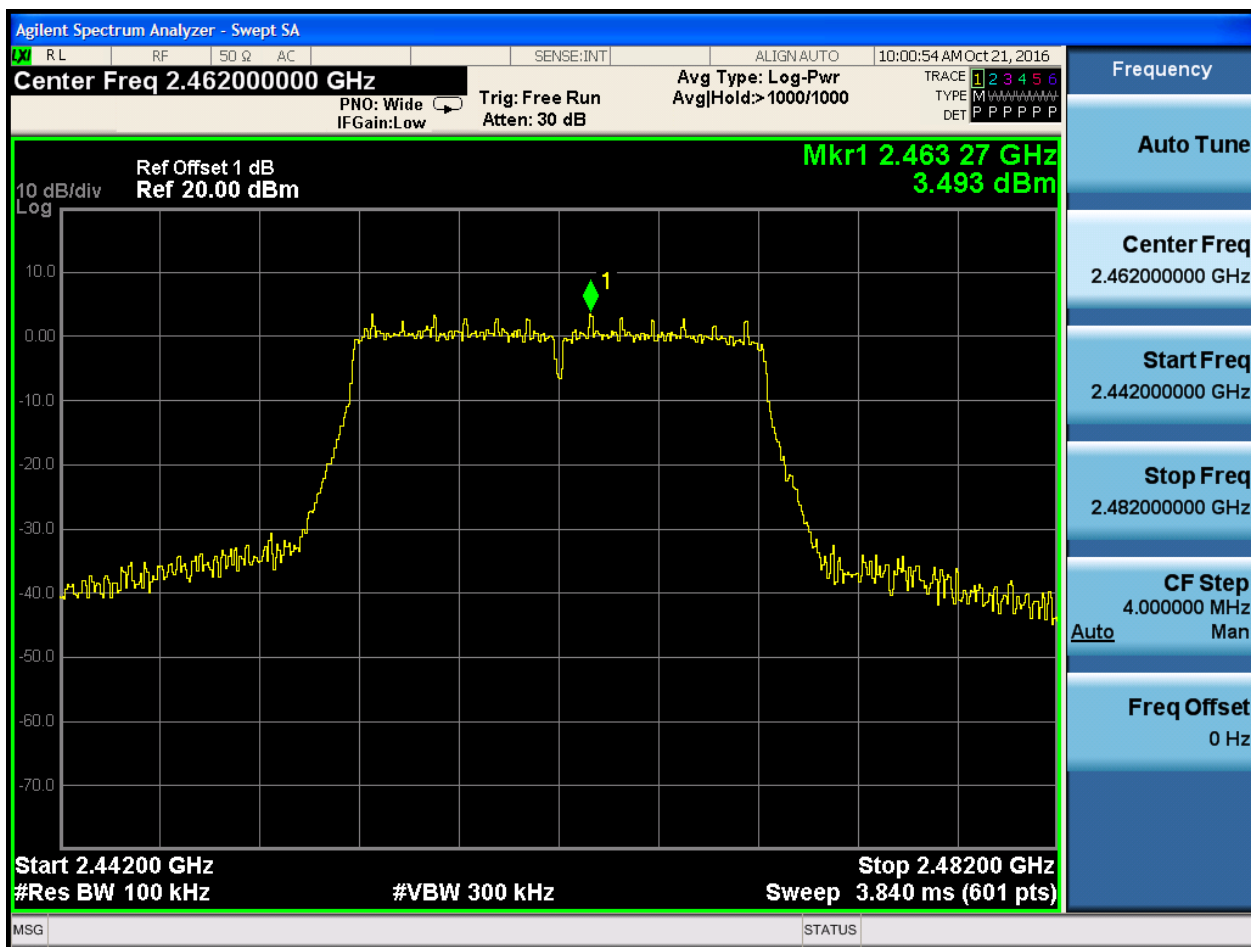






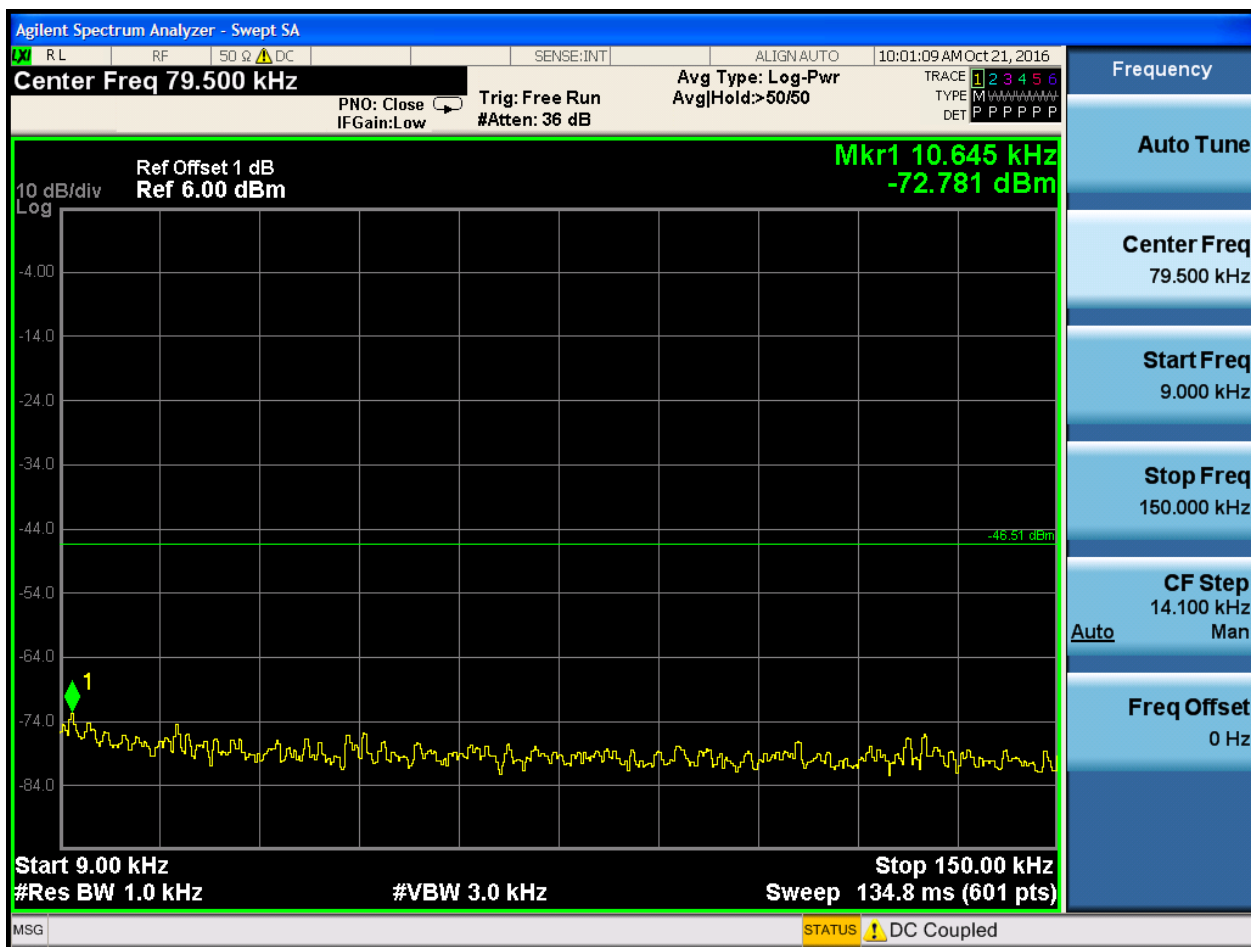
2.6 11G_H@Ant 1

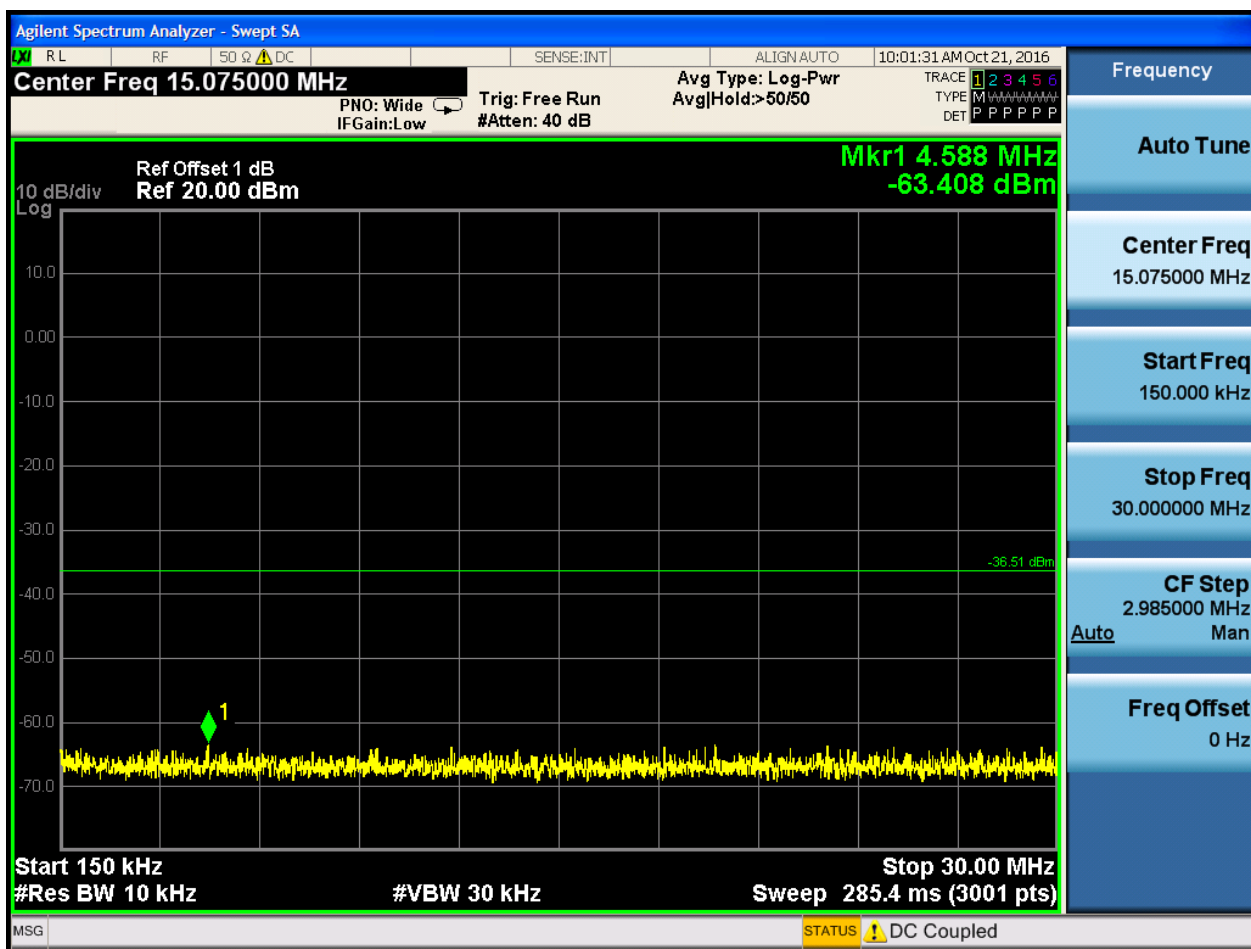
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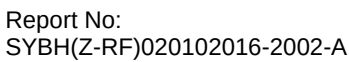


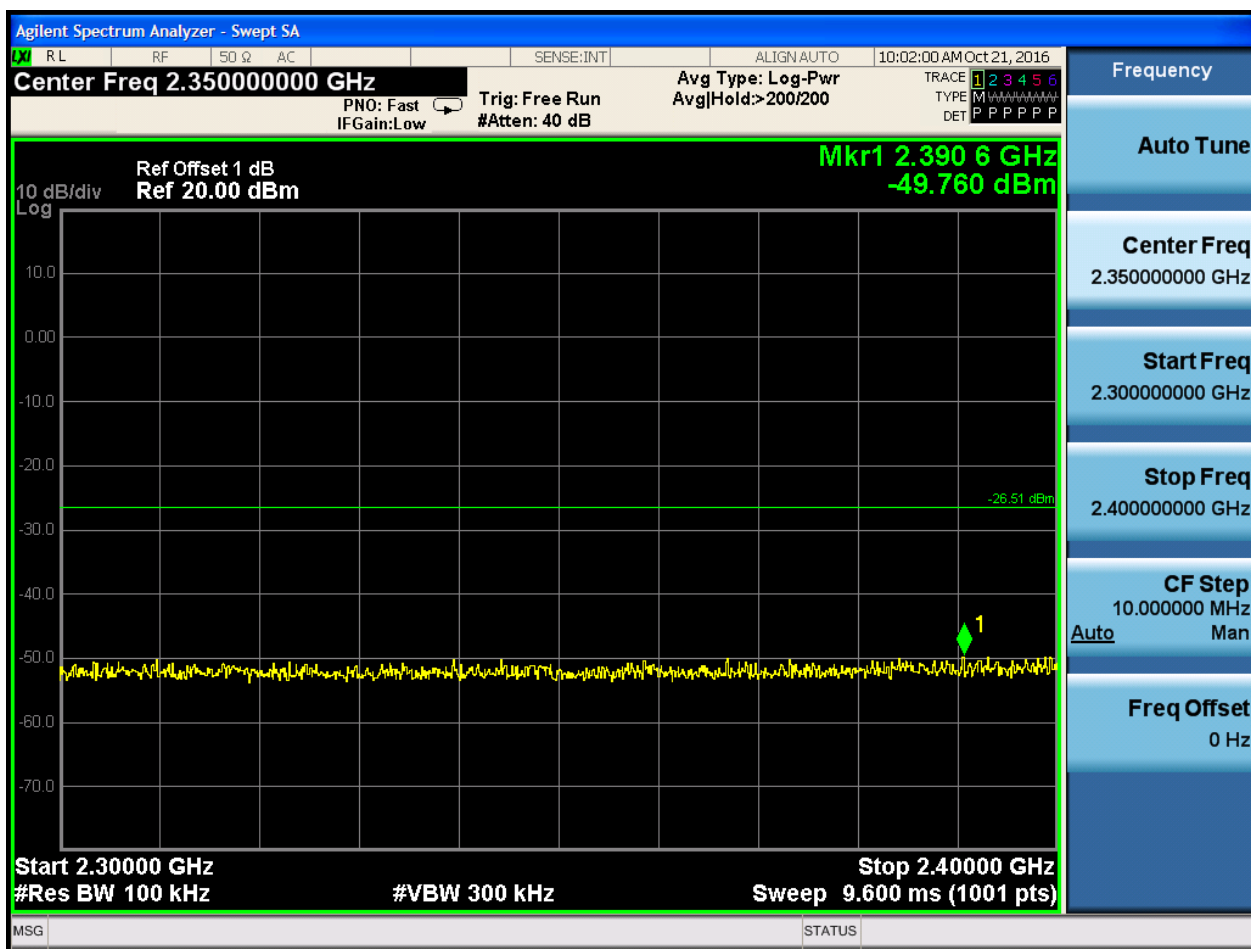


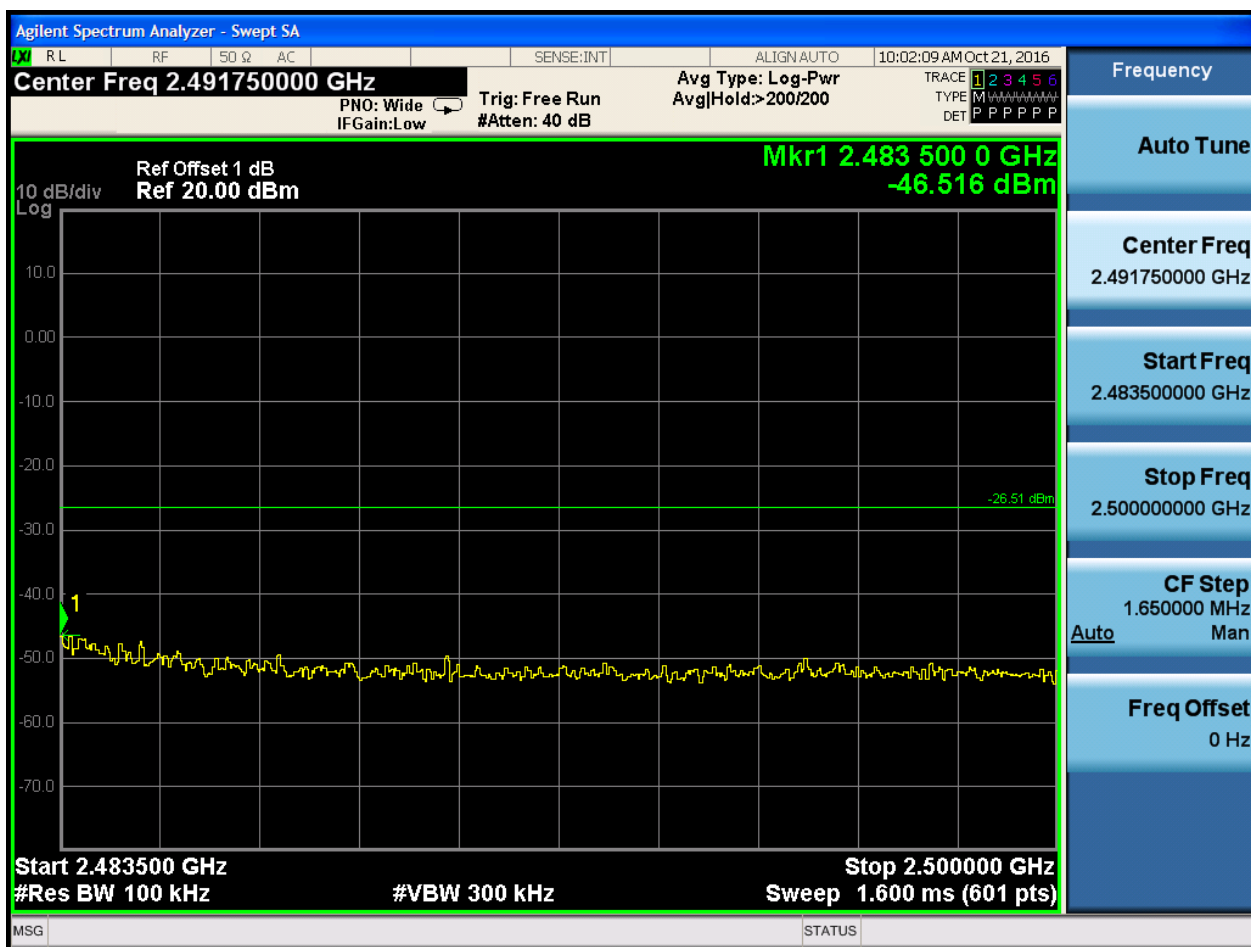
Puw:









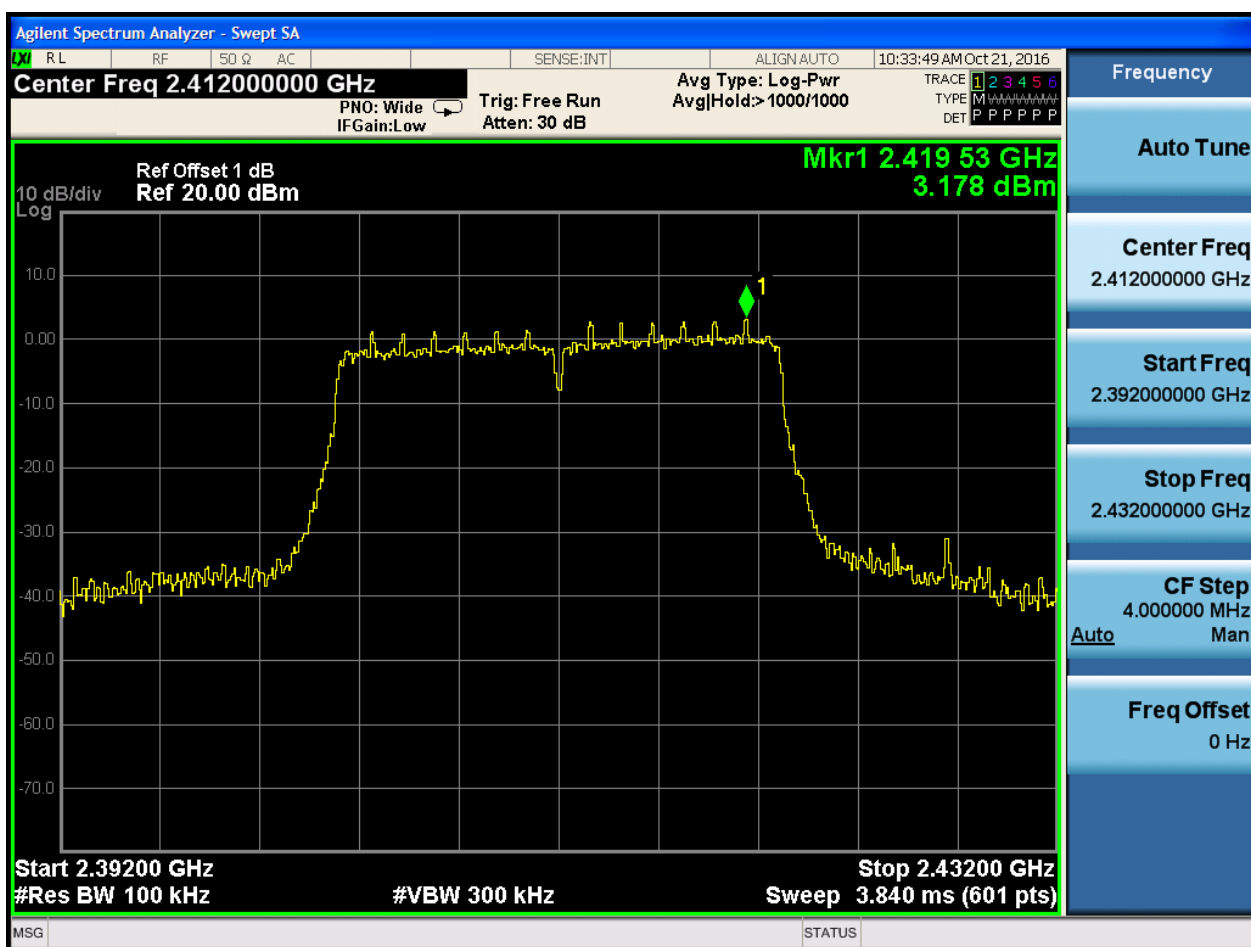






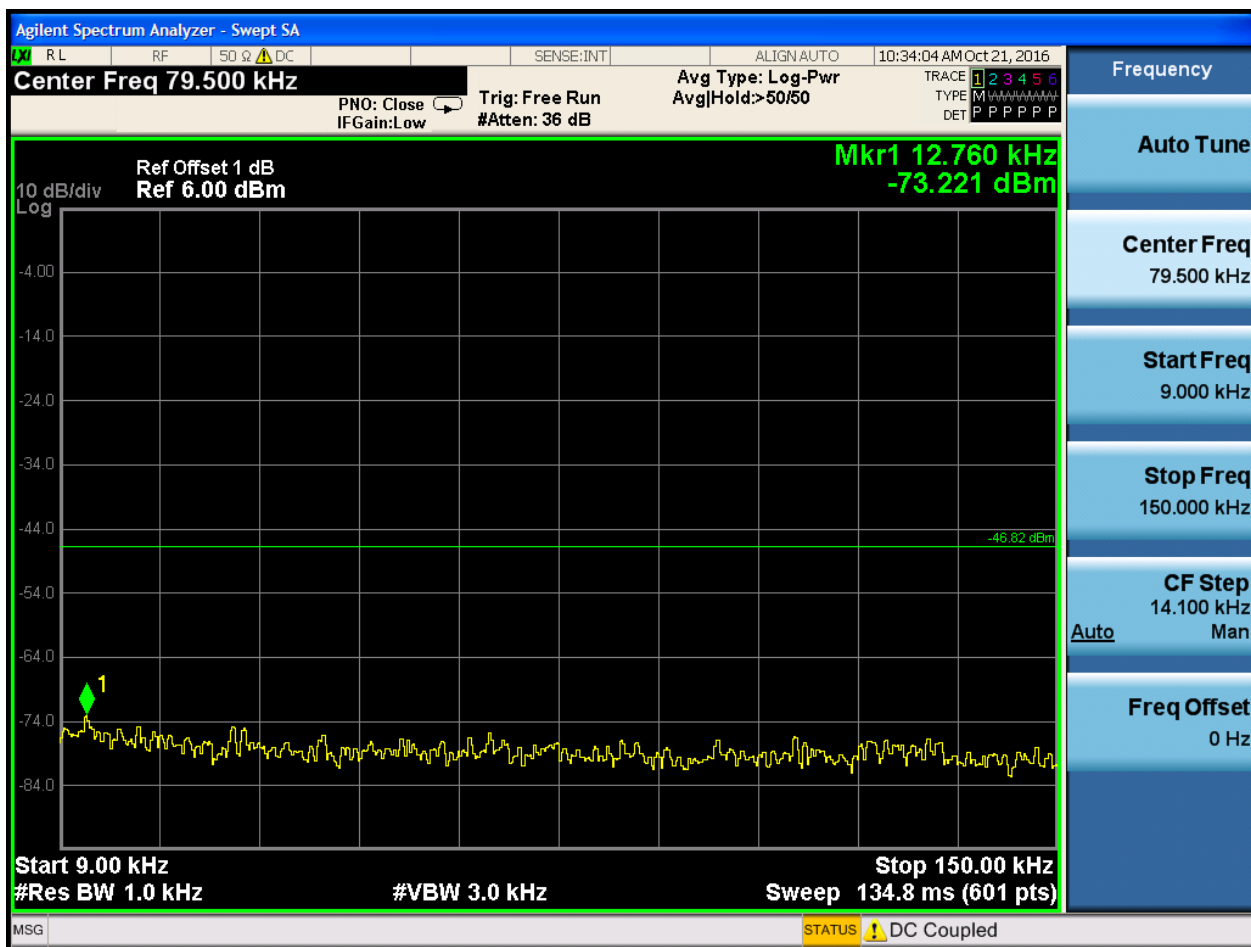
2.7 11N20_L@Ant 1

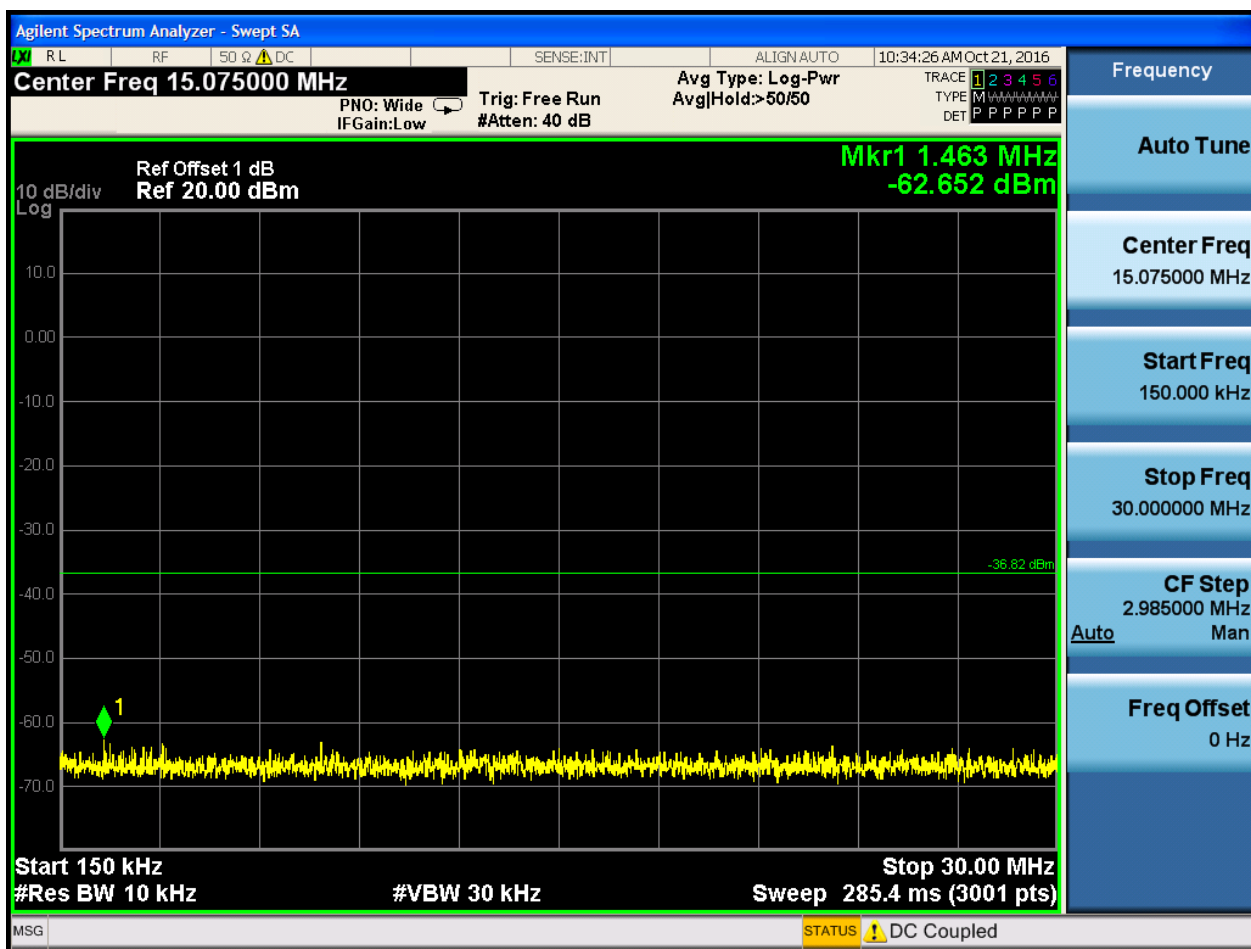
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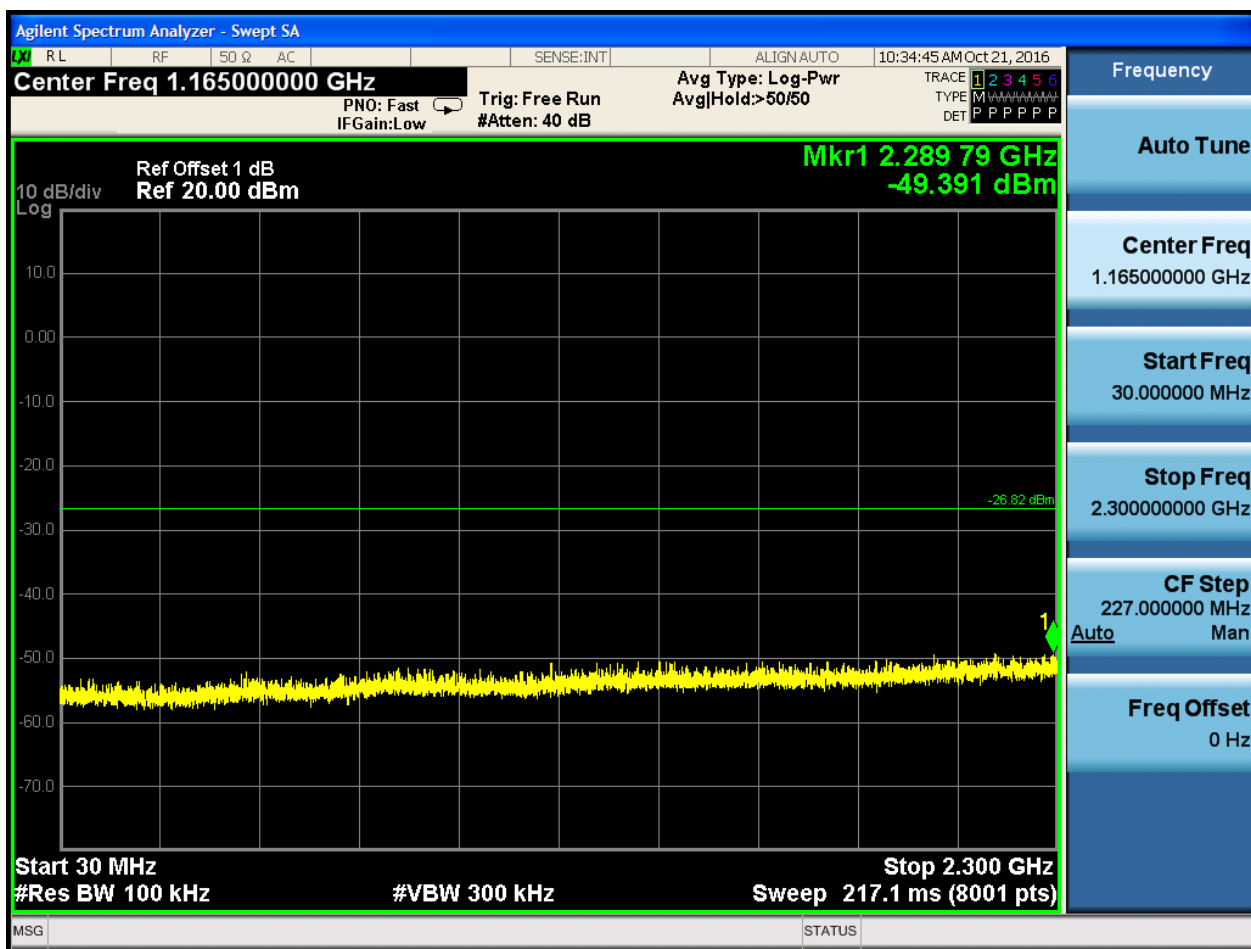


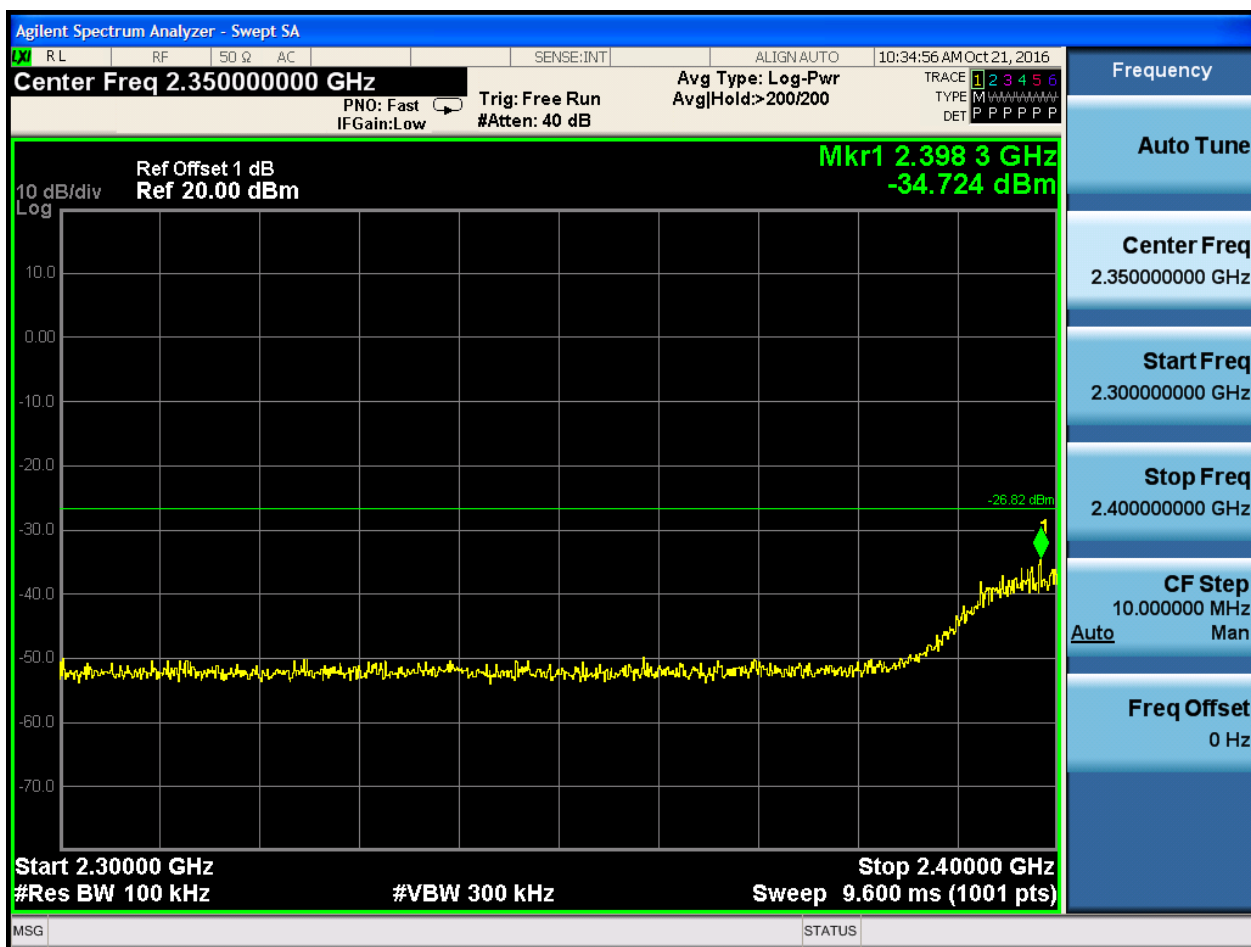


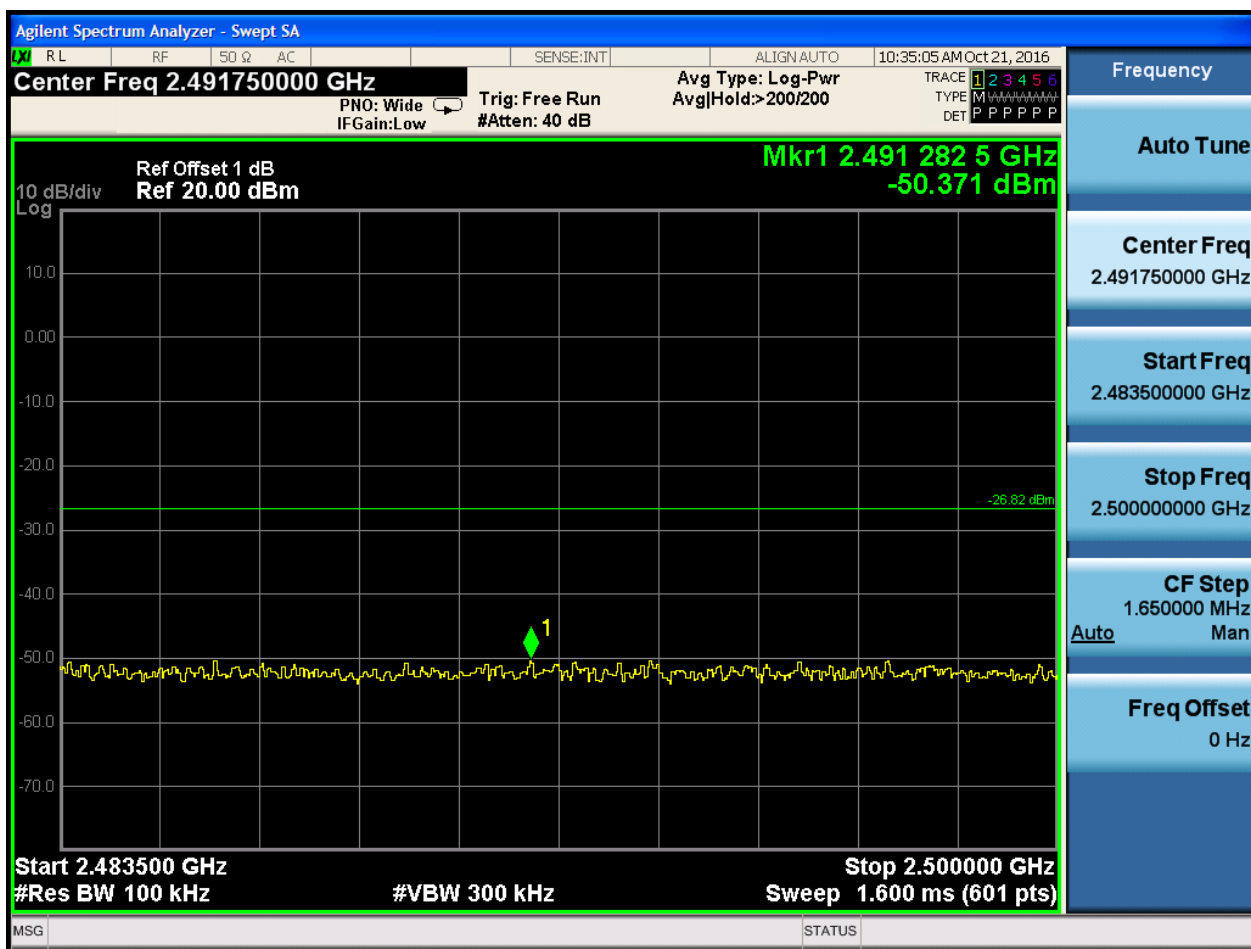
Puw:









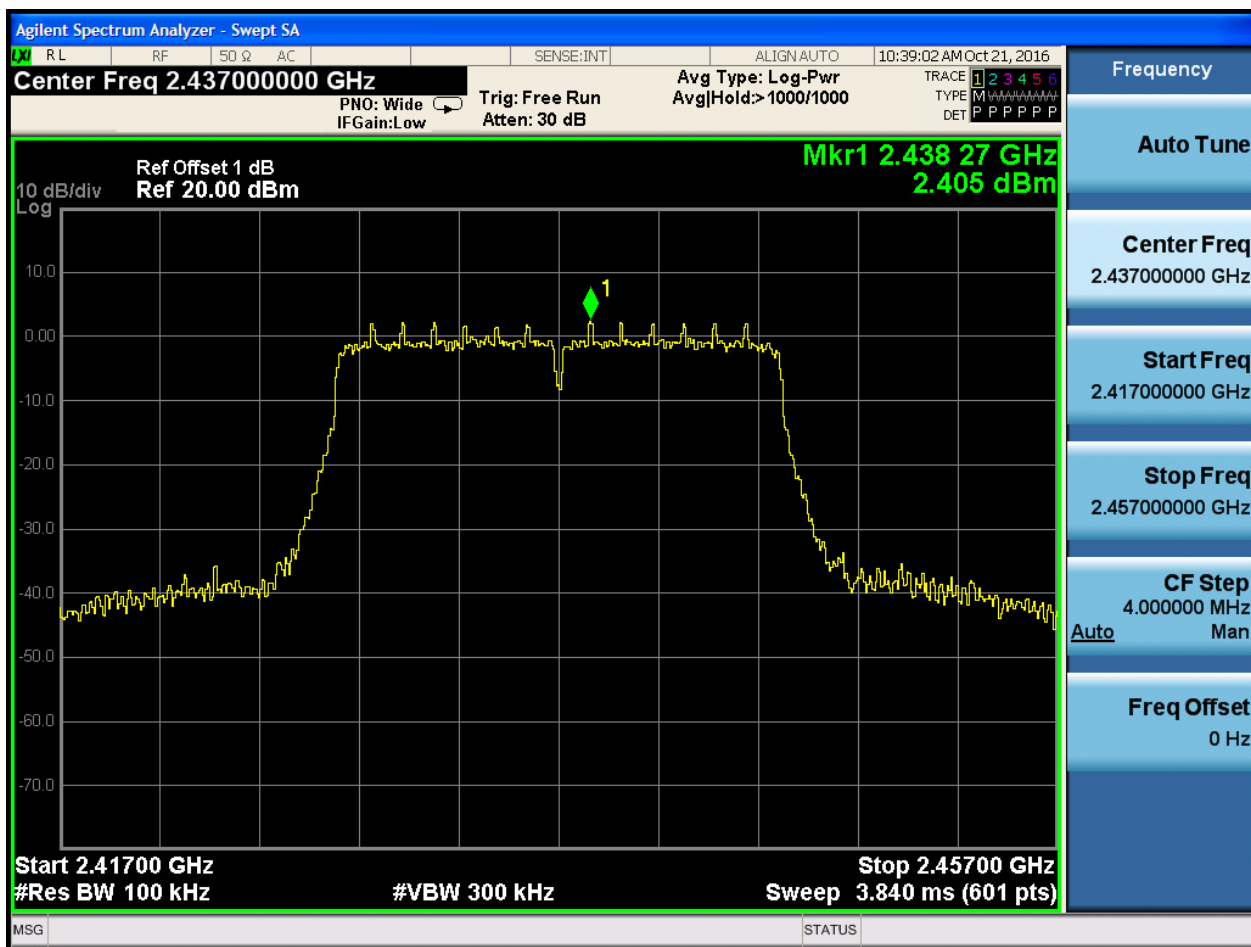






2.8 11N20_M@Ant 1

Pref:





Puw:

