



Appendix for Test report

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.

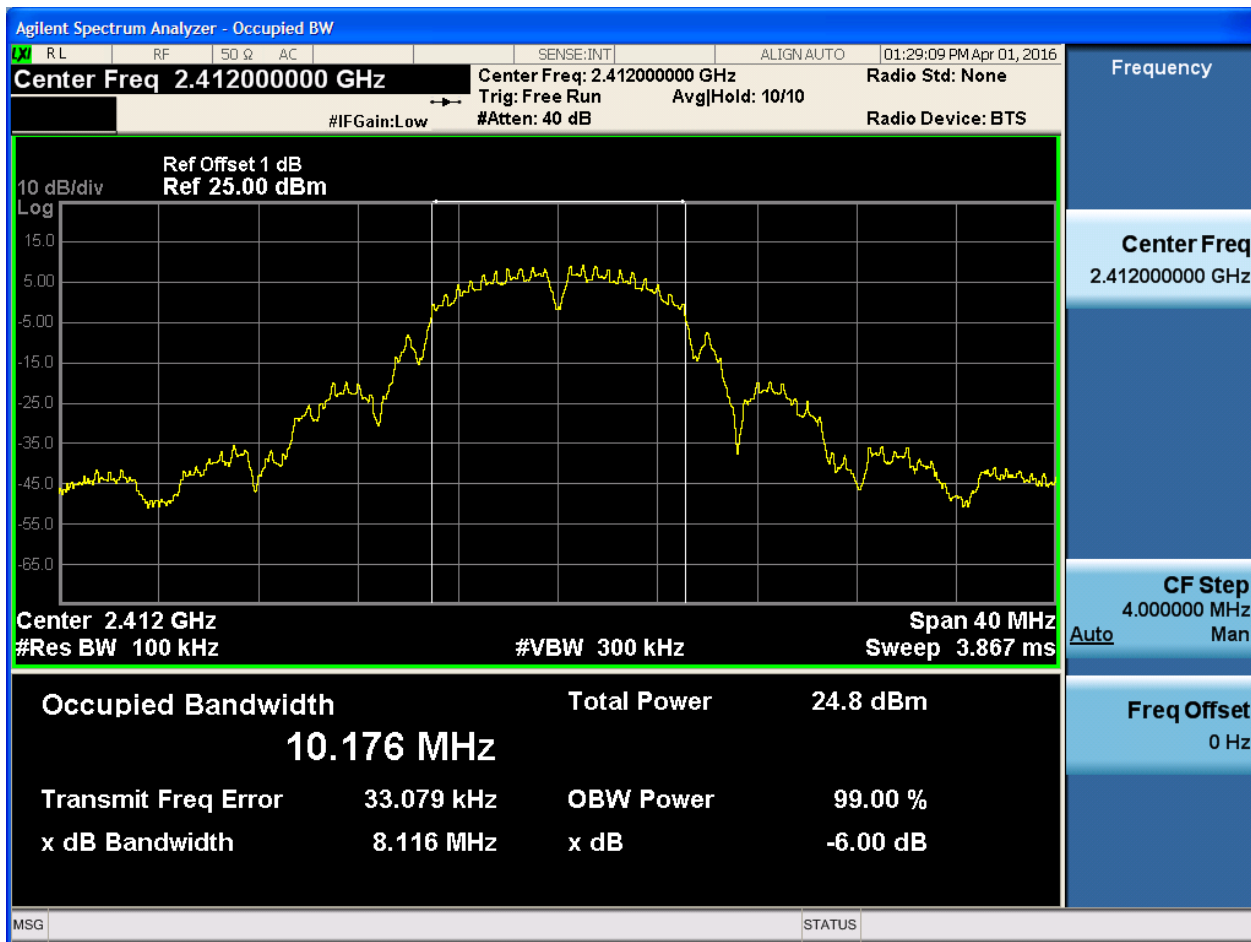
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	DTS6dBBW[MHz]	Verdict
11B	L	2412	Ant 1	8.12	pass
11B	M	2437	Ant 1	8.11	pass
11B	H	2462	Ant 1	8.10	pass
11G	L	2412	Ant 1	16.42	pass
11G	M	2437	Ant 1	16.42	pass
11G	H	2462	Ant 1	16.11	pass
11N20	L	2412	Ant 1	17.65	pass
11N20	M	2437	Ant 1	17.64	pass
11N20	H	2462	Ant 1	17.20	pass
11N40	L	2422	Ant 1	35.41	pass
11N40	M	2437	Ant 1	35.98	pass
11N40	H	2452	Ant 1	32.71	pass



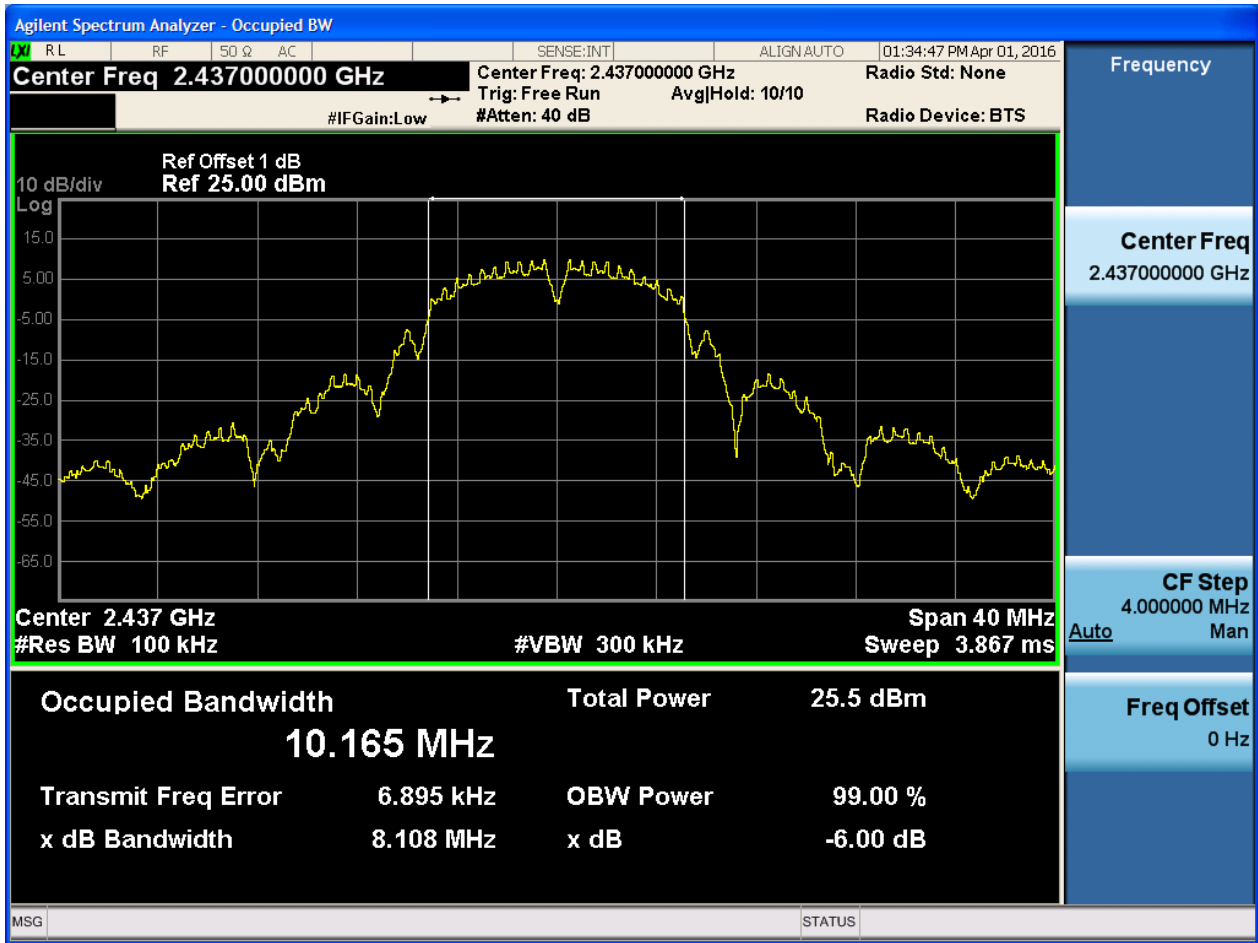
Part II - Test Plots

2.1 11B_L@Ant 1



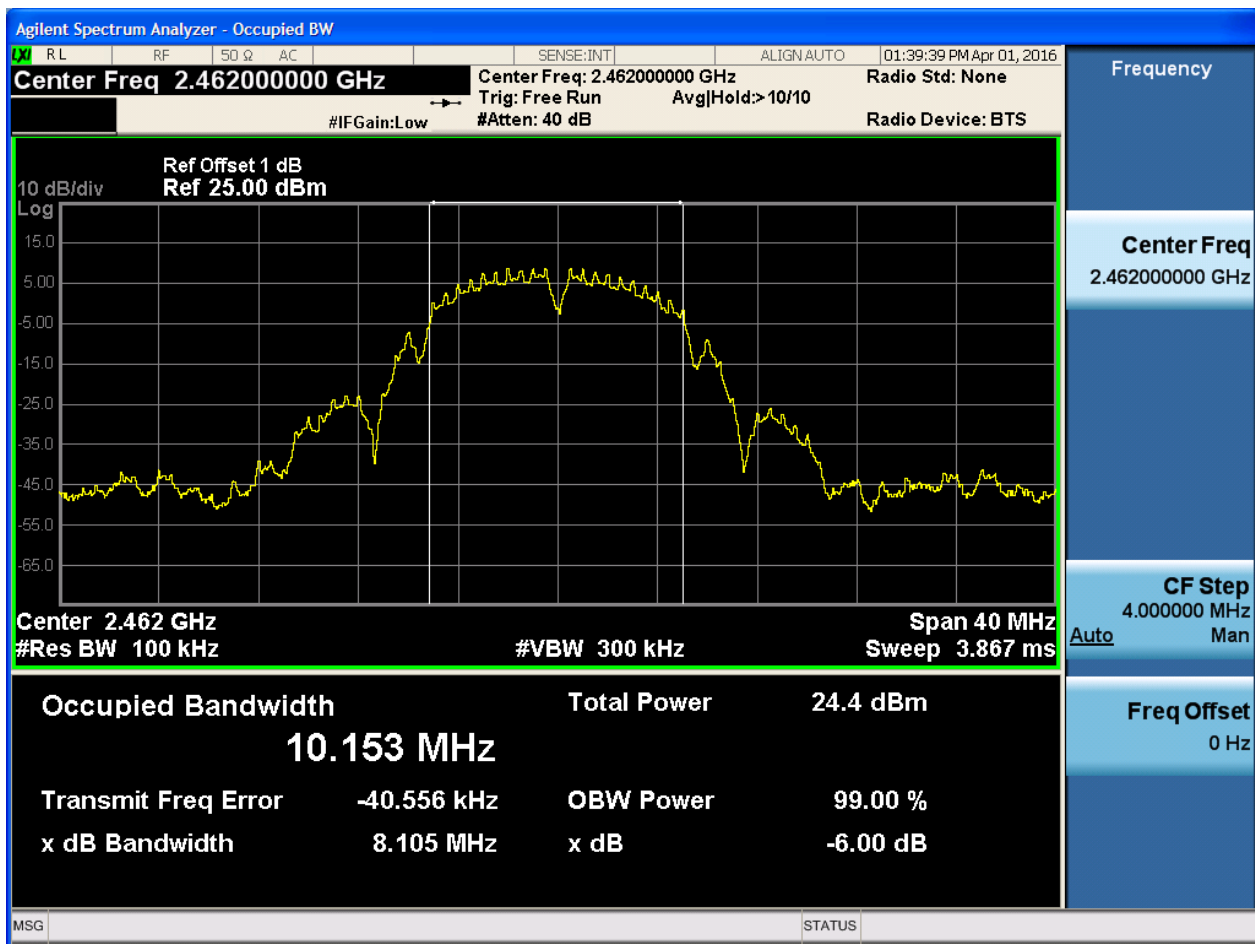


2.2 11B_M@Ant 1



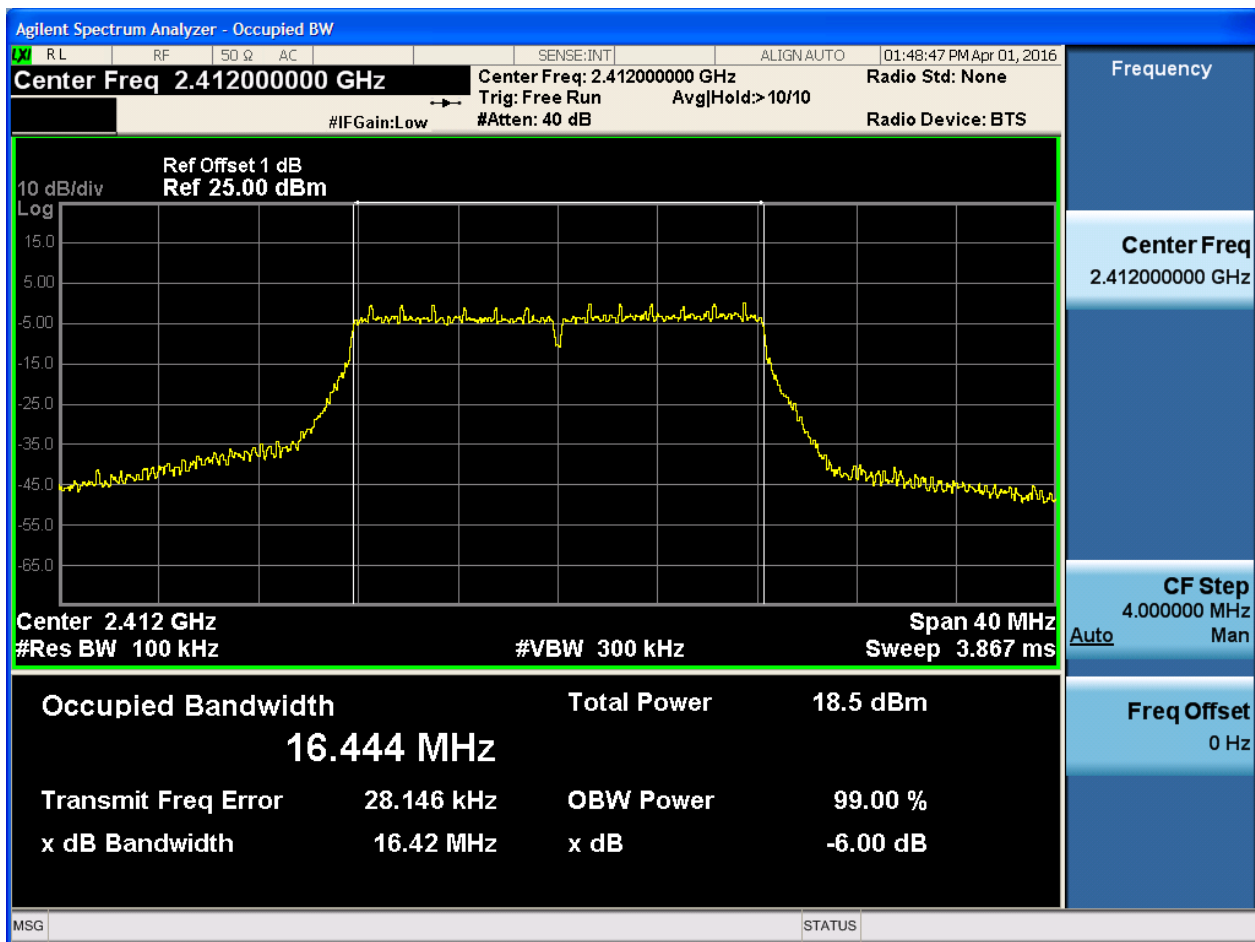


2.3 11B_H@Ant 1



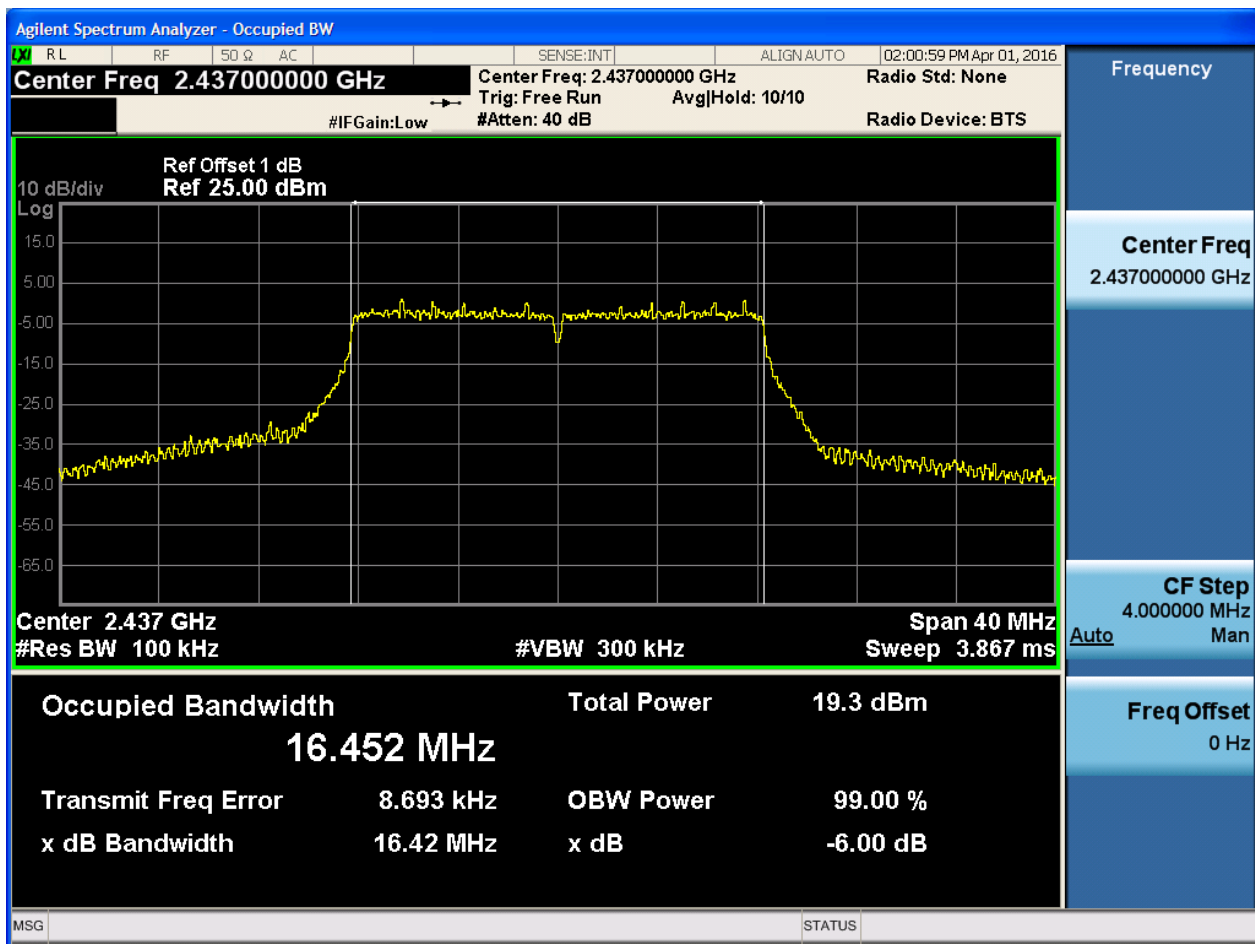


2.4 11G_L@Ant 1



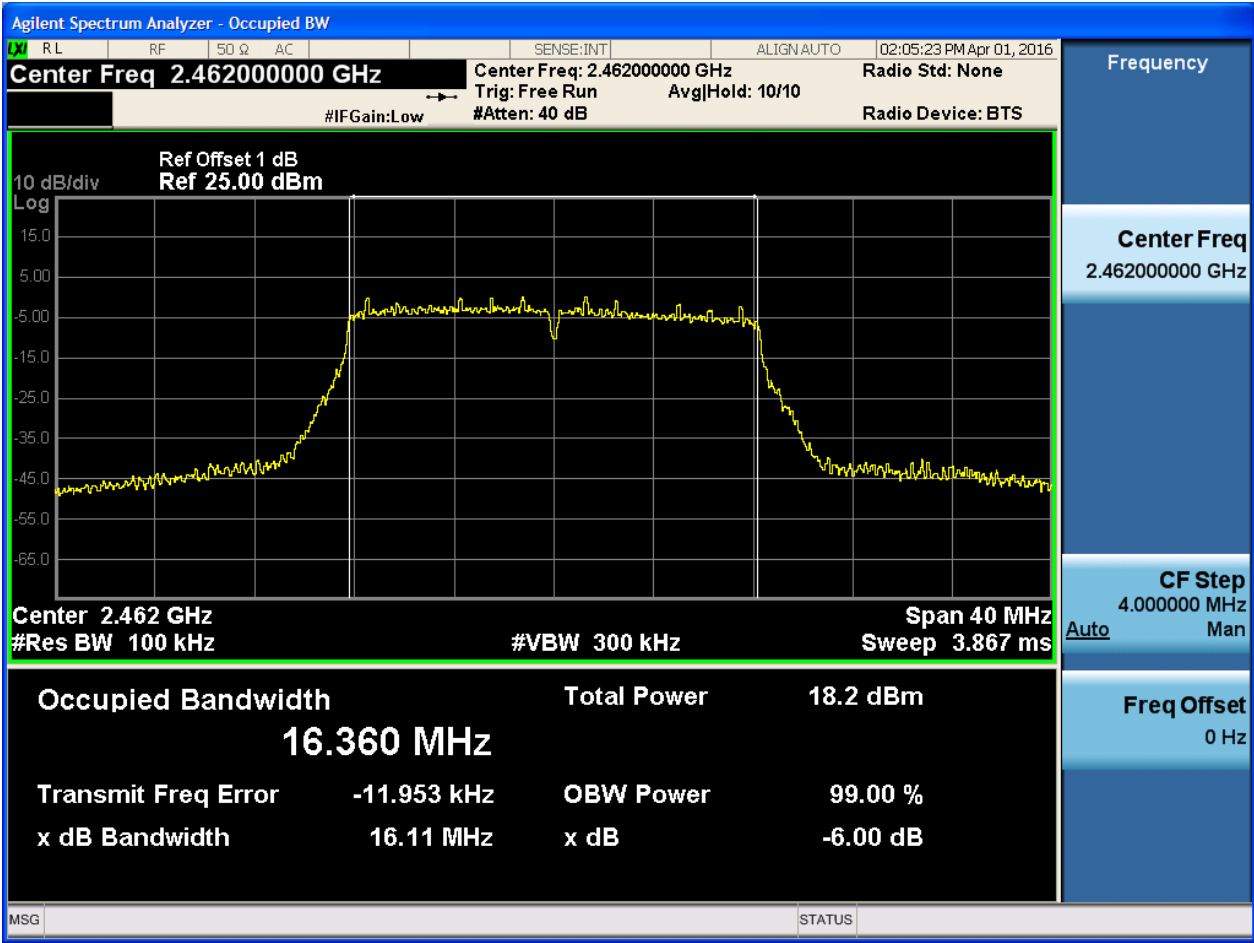


2.5 11G_M@Ant 1



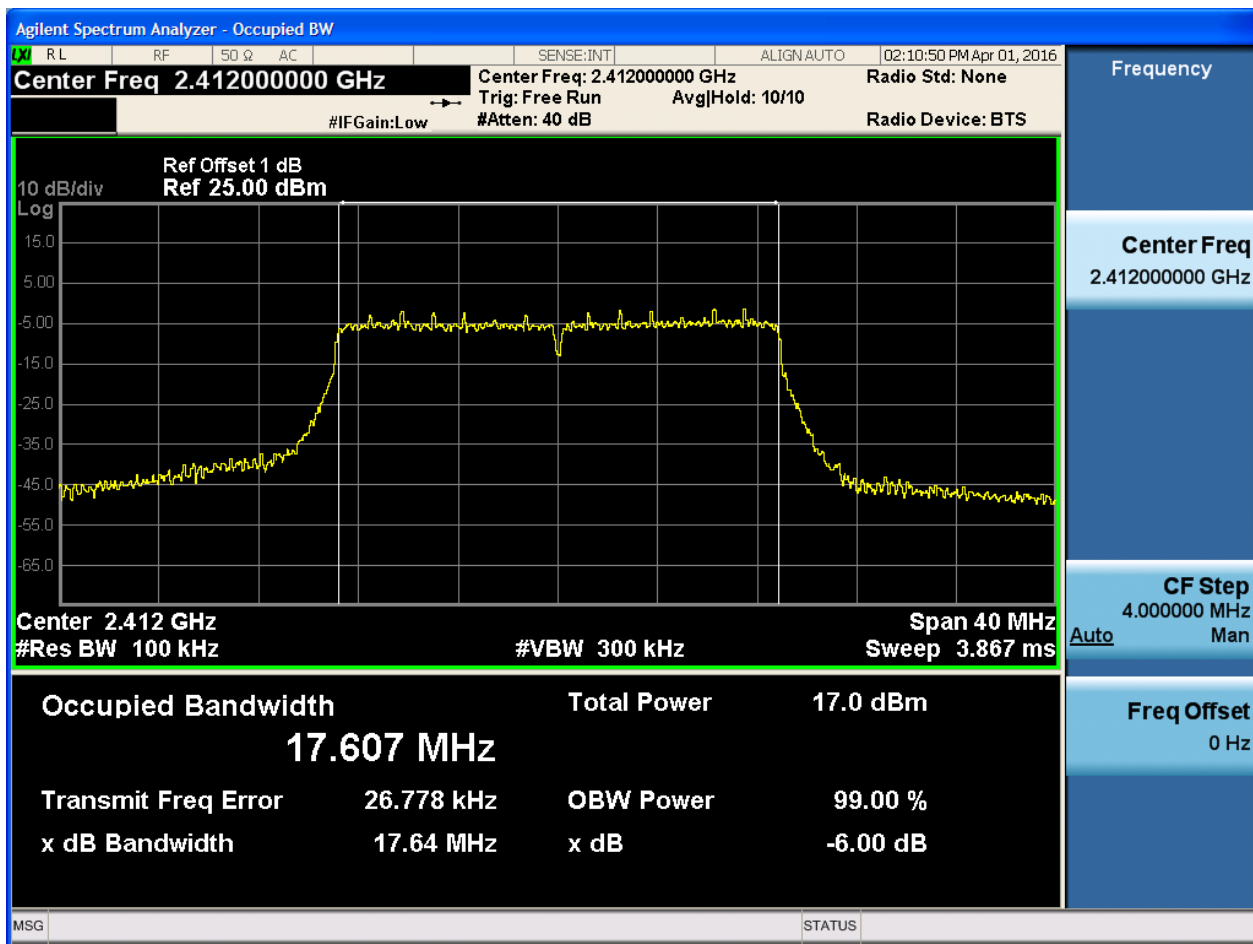


2.6 11G_H@Ant 1



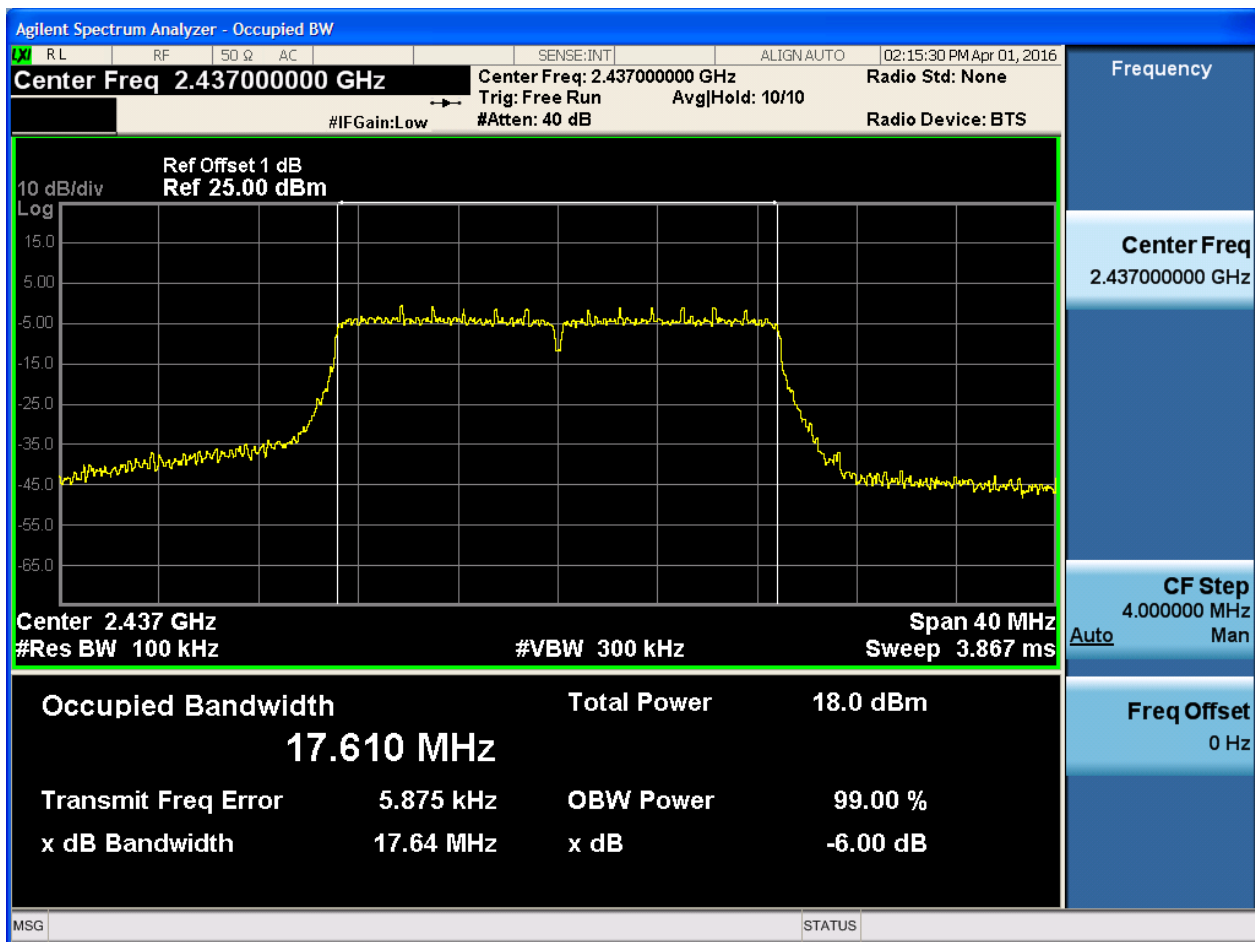


2.7 11N20_L@Ant 1



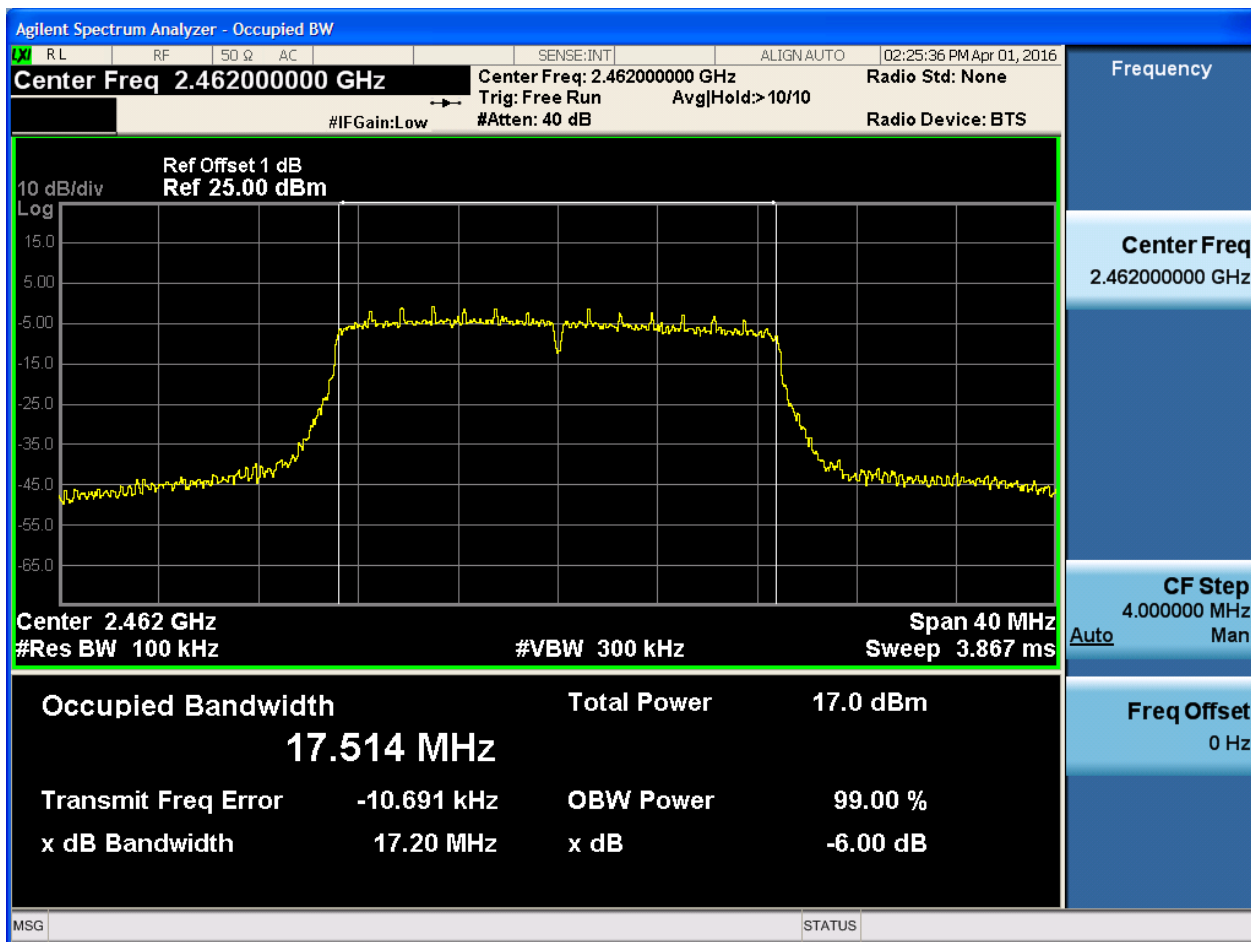


2.8 11N20_M@Ant 1



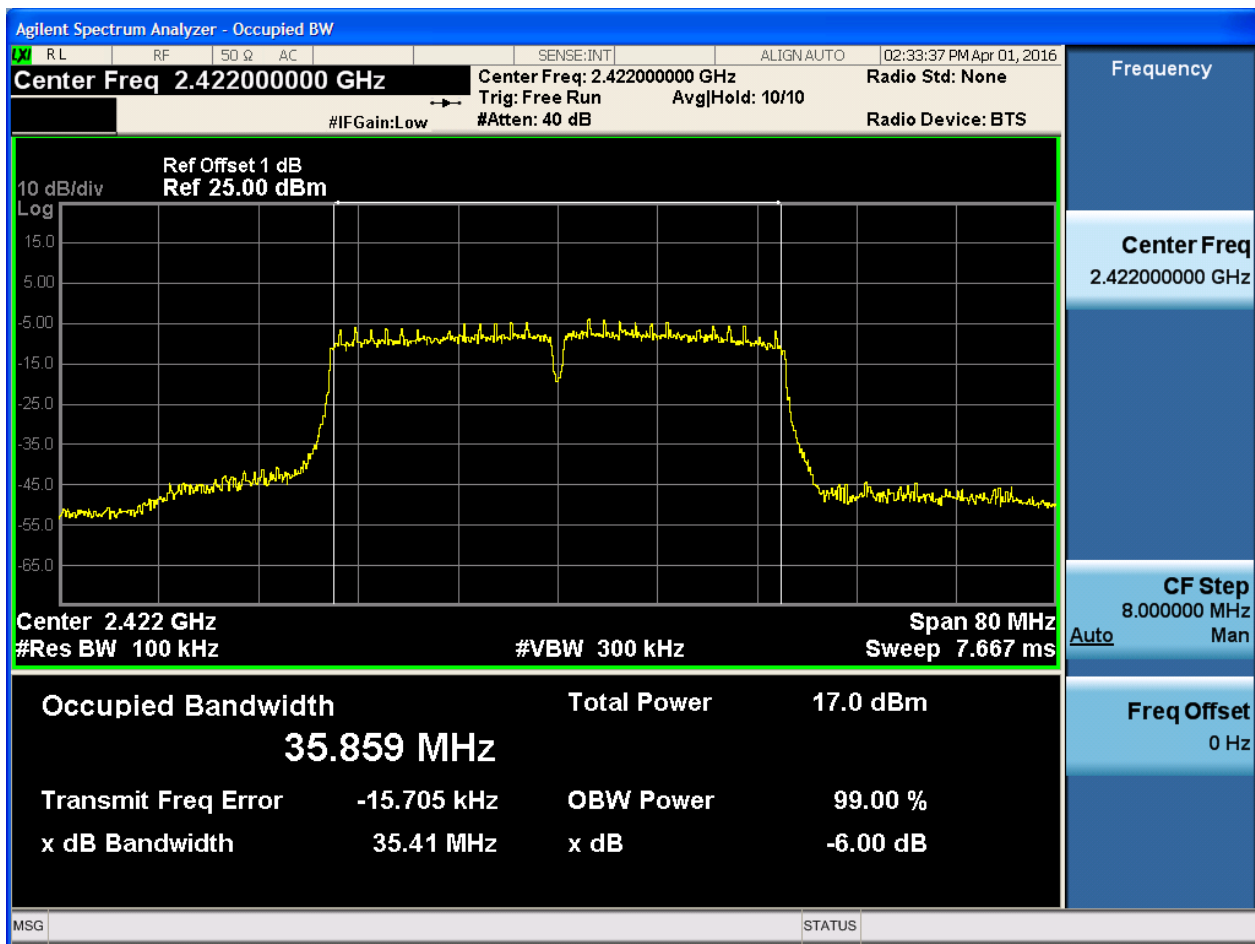


2.9 11N20_H@Ant 1



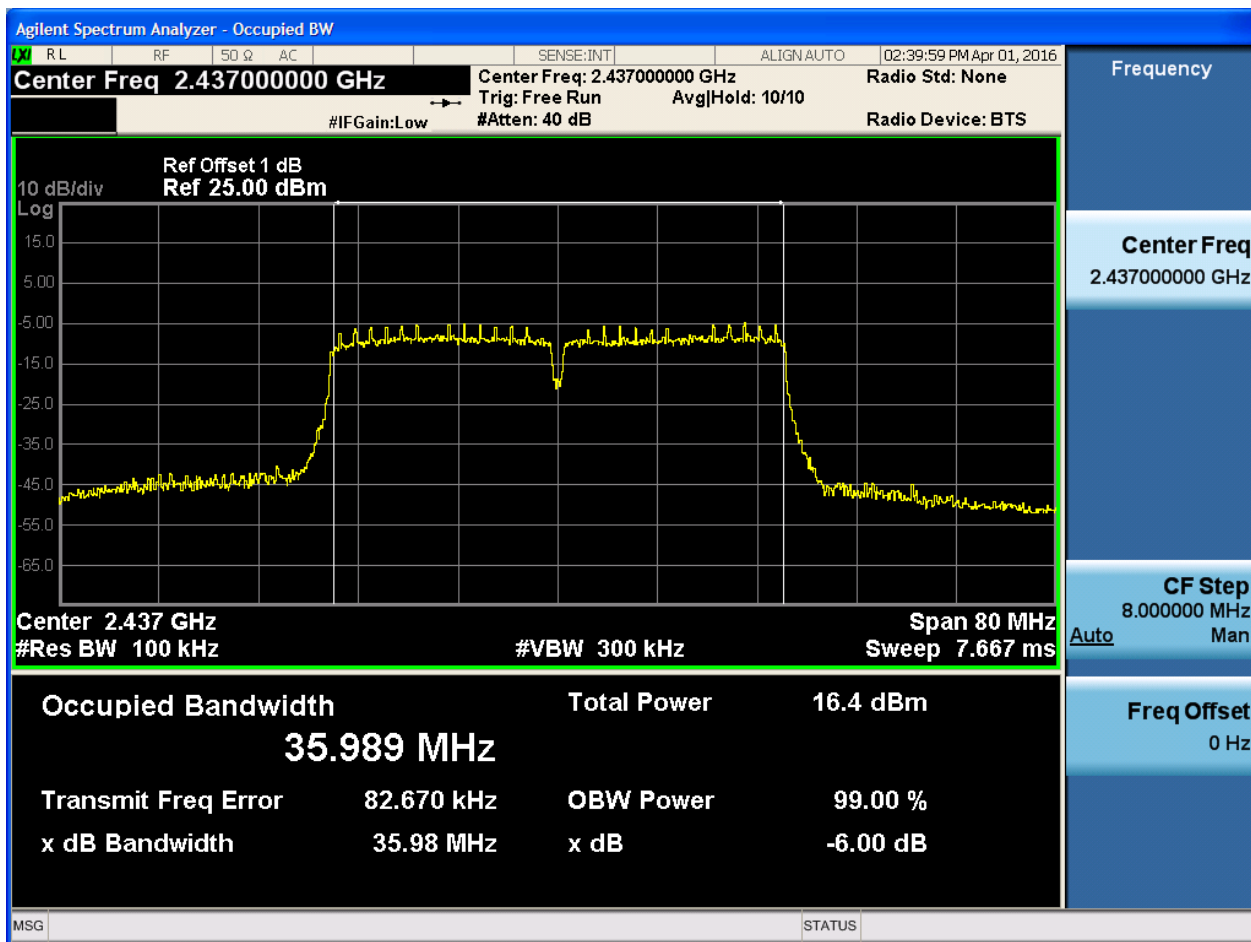


2.10 11N40_L@Ant 1



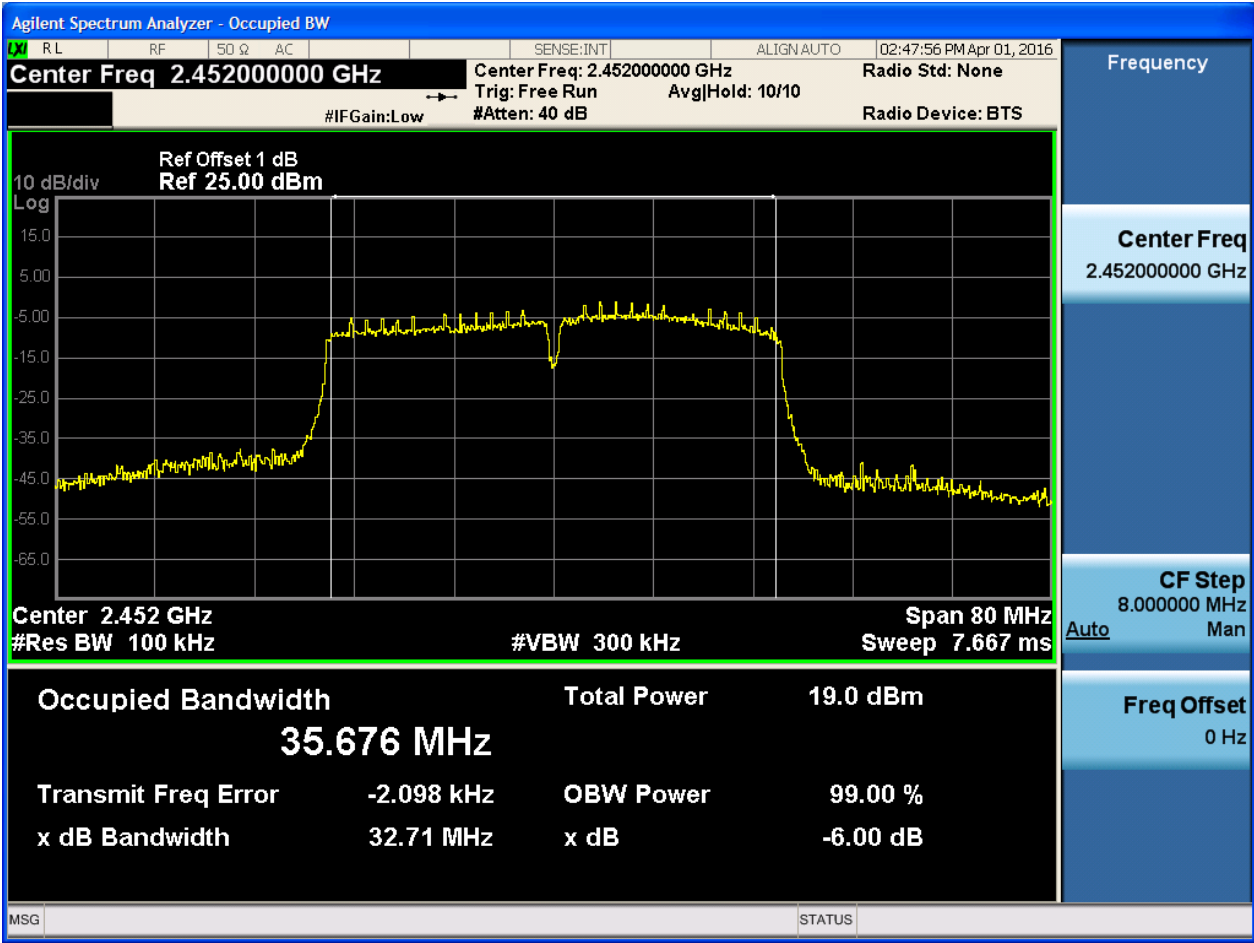


2.11 11N40_M@Ant 1





2.12 11N40_H@Ant 1



Appendix 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.

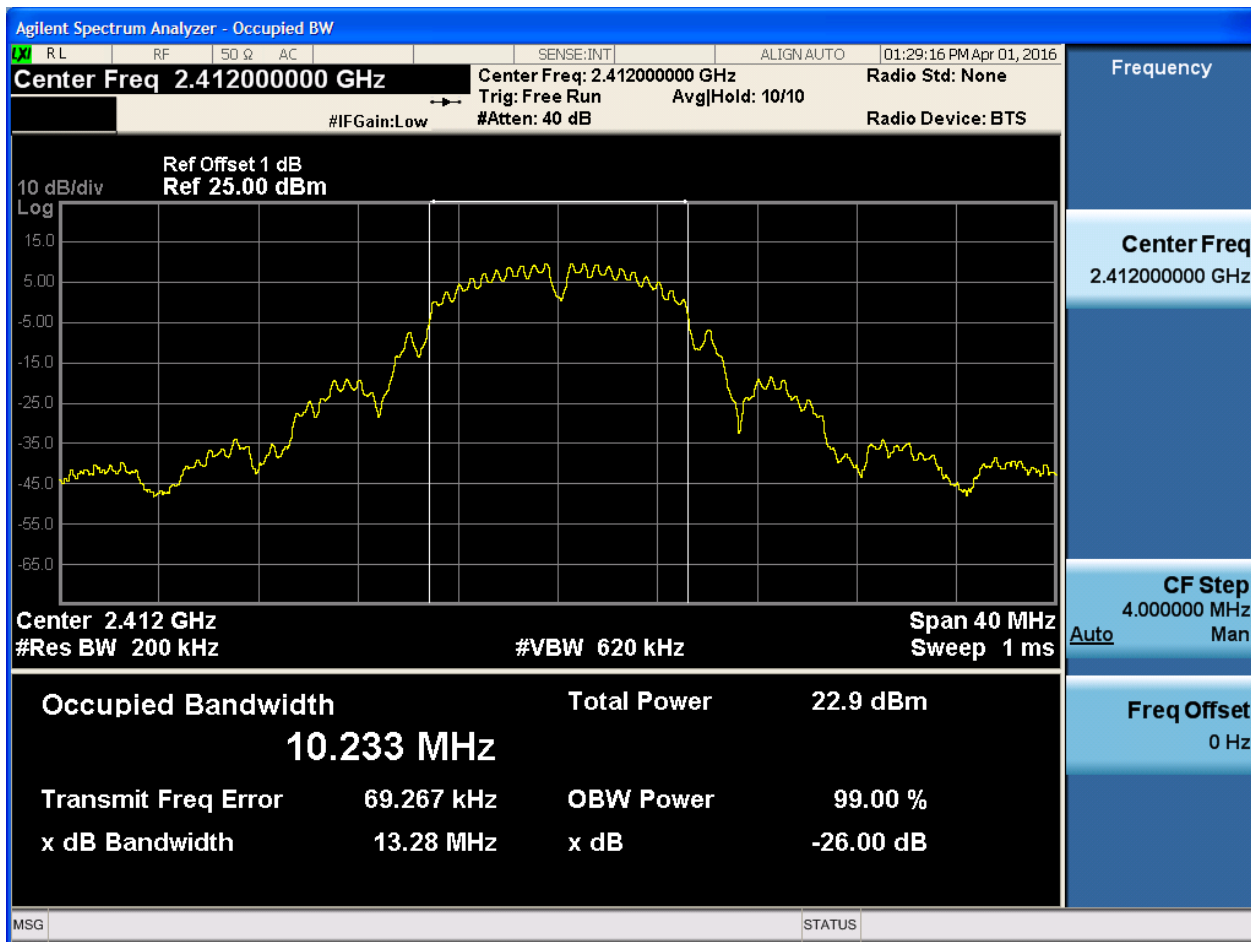
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Occupied Bandwidth [MHz]	Verdict
11B	L	2412	Ant 1	10.23	pass
11B	M	2437	Ant 1	10.23	pass
11B	H	2462	Ant 1	10.21	pass
11G	L	2412	Ant 1	16.53	pass
11G	M	2437	Ant 1	16.56	pass
11G	H	2462	Ant 1	16.39	pass
11N20	L	2412	Ant 1	17.63	pass
11N20	M	2437	Ant 1	17.63	pass
11N20	H	2462	Ant 1	17.49	pass
11N40	L	2422	Ant 1	35.86	pass
11N40	M	2437	Ant 1	36.06	pass
11N40	H	2452	Ant 1	35.71	pass



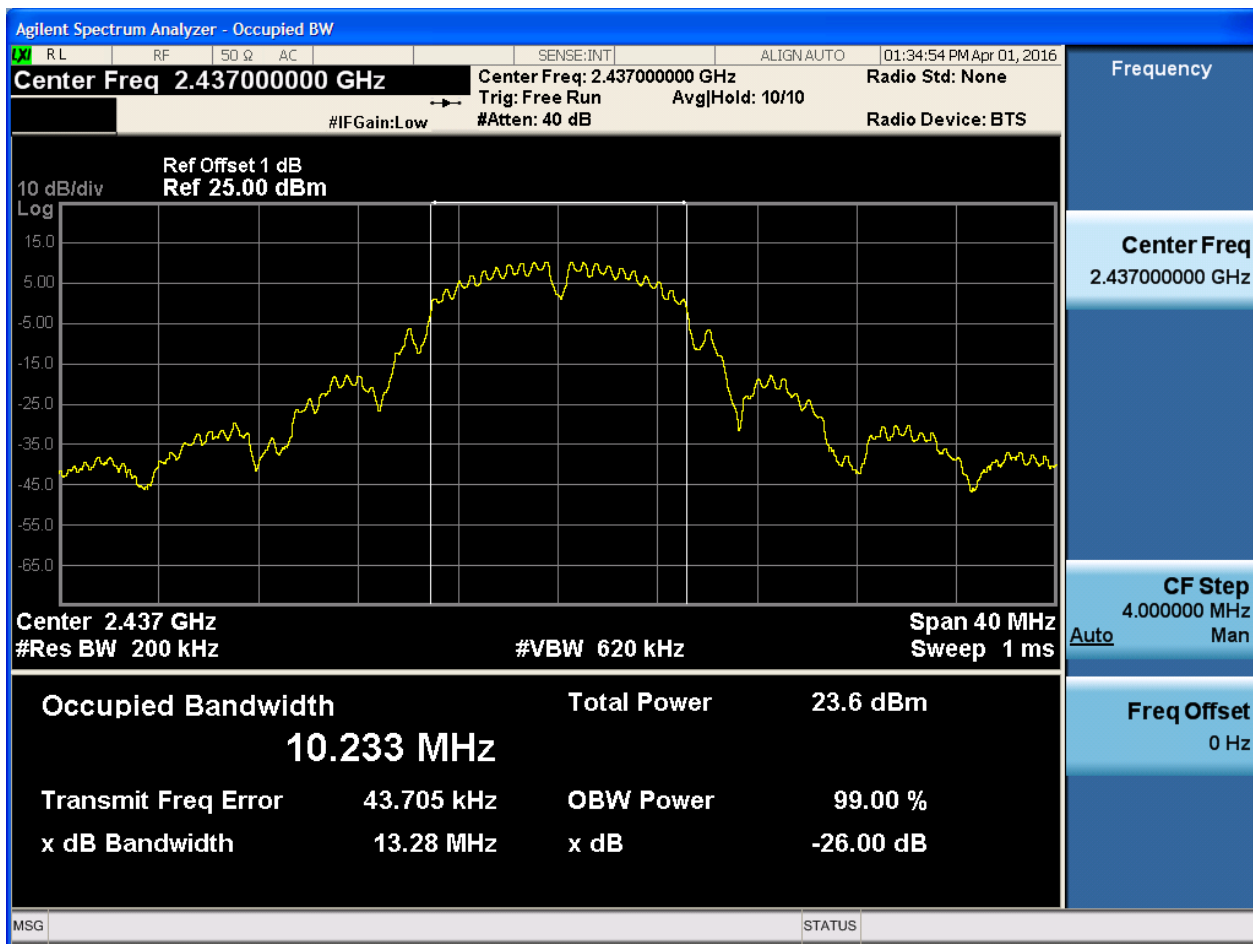
Part II - Test Plots

2.1 11B_L@Ant 1



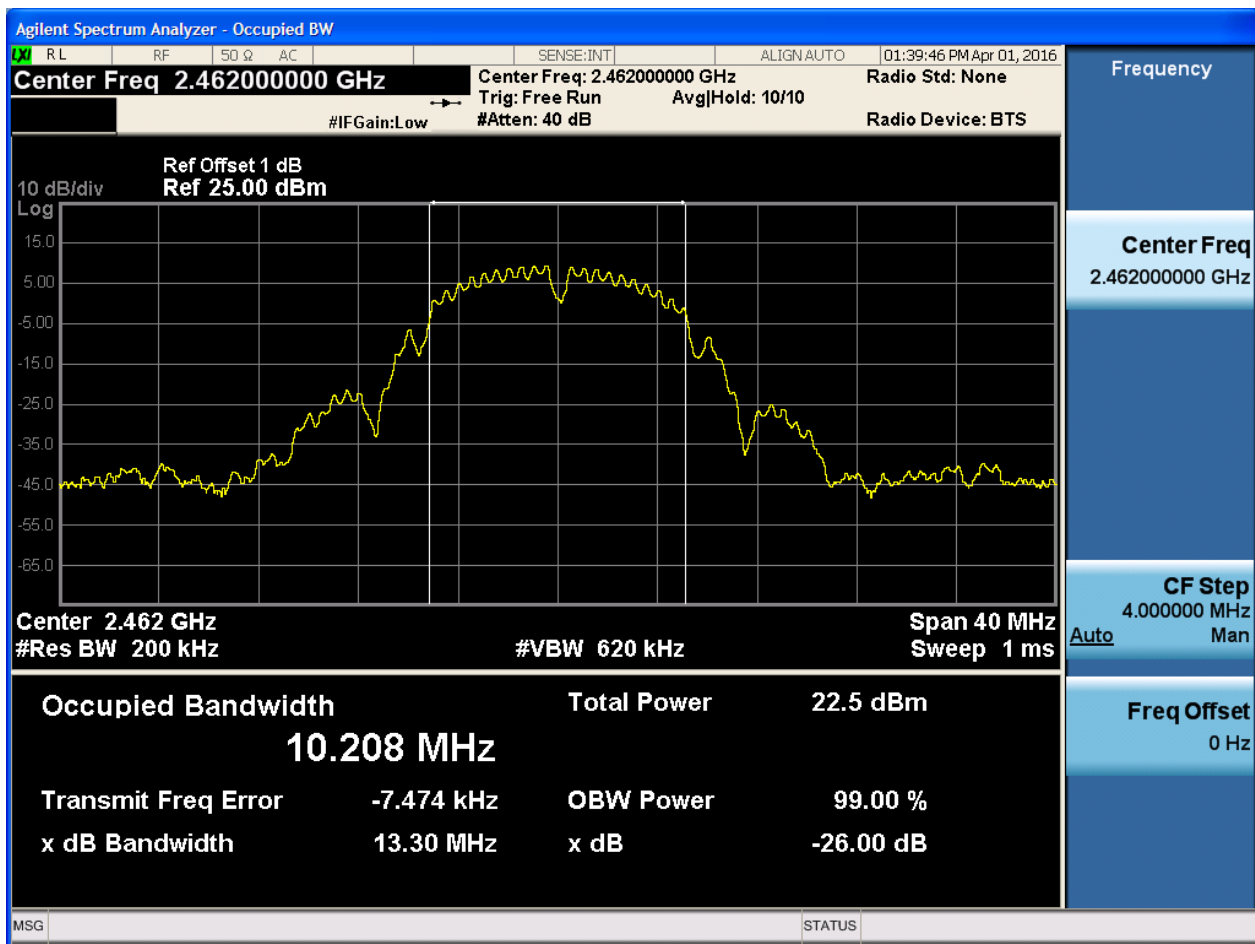


2.2 11B_M@Ant 1



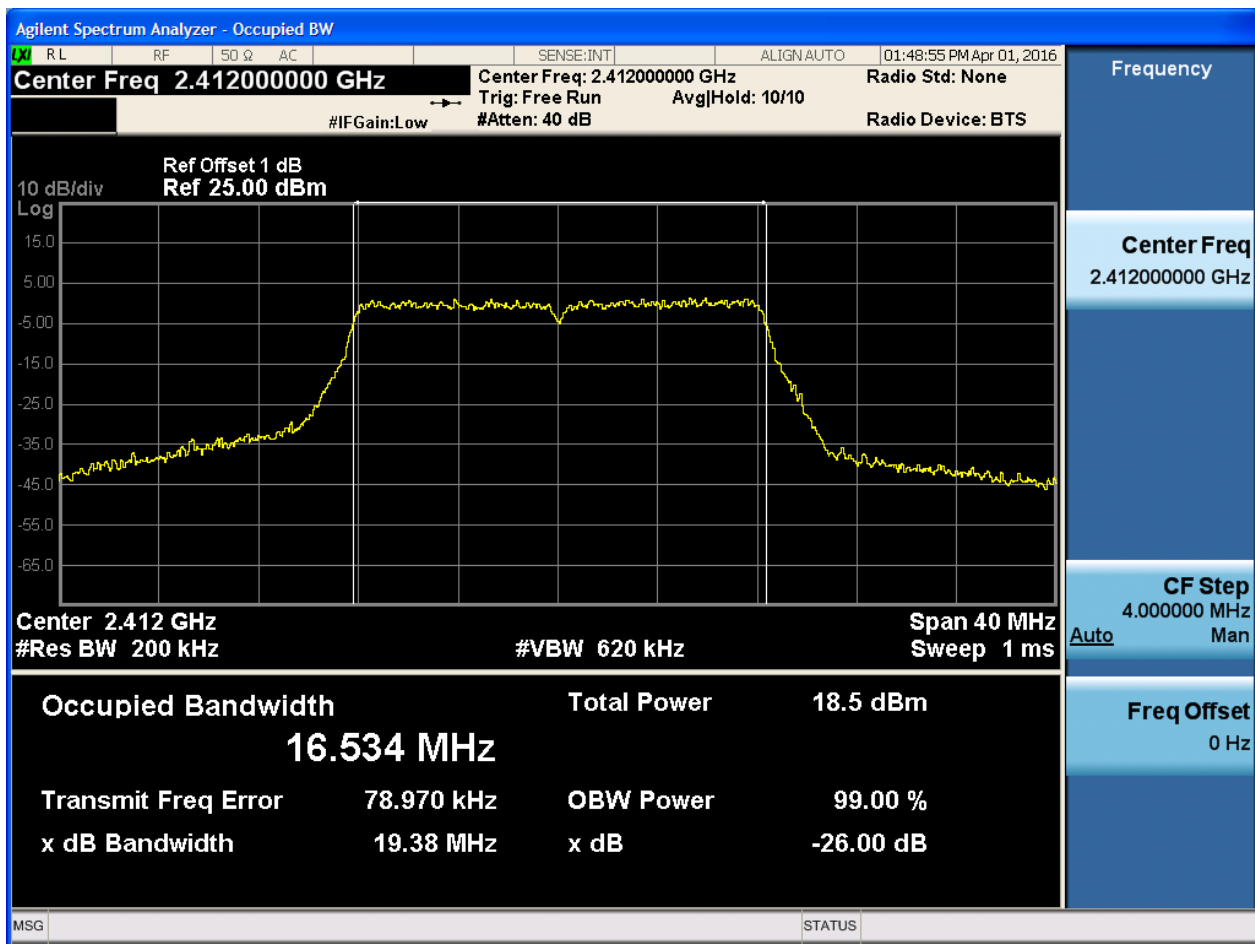


2.3 11B_H@Ant 1



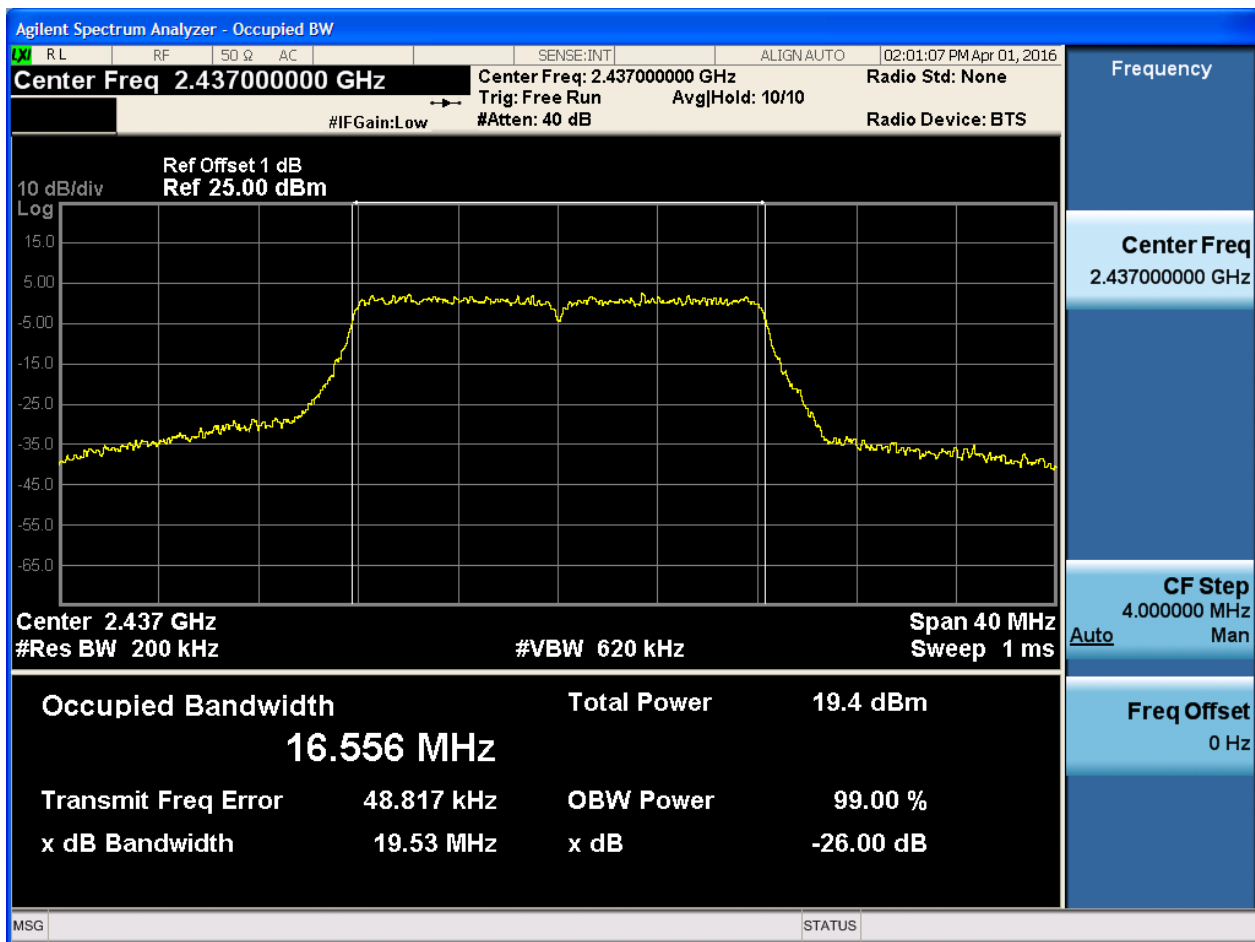


2.4 11G_L@Ant 1



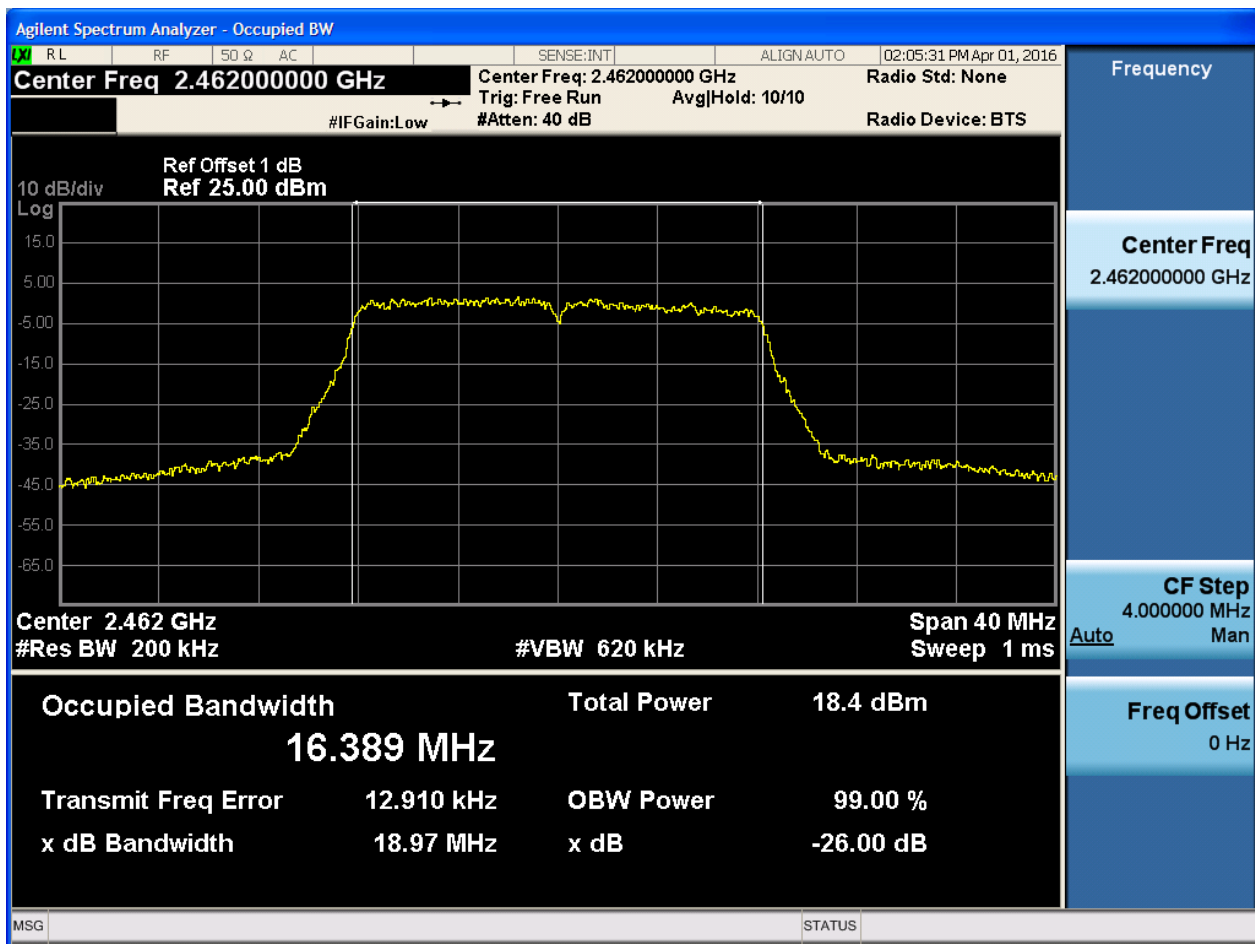


2.5 11G_M@Ant 1



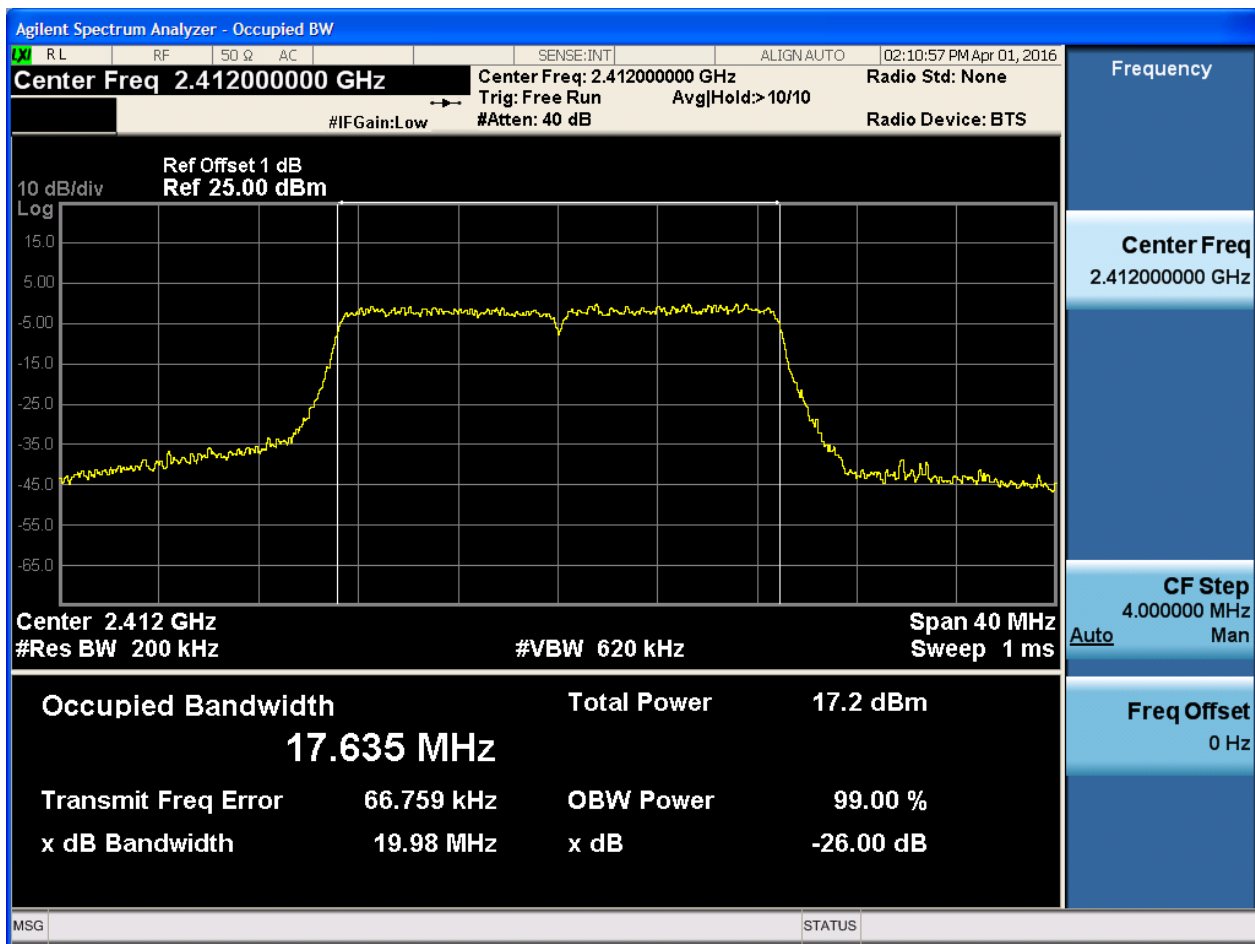


2.6 11G_H@Ant 1



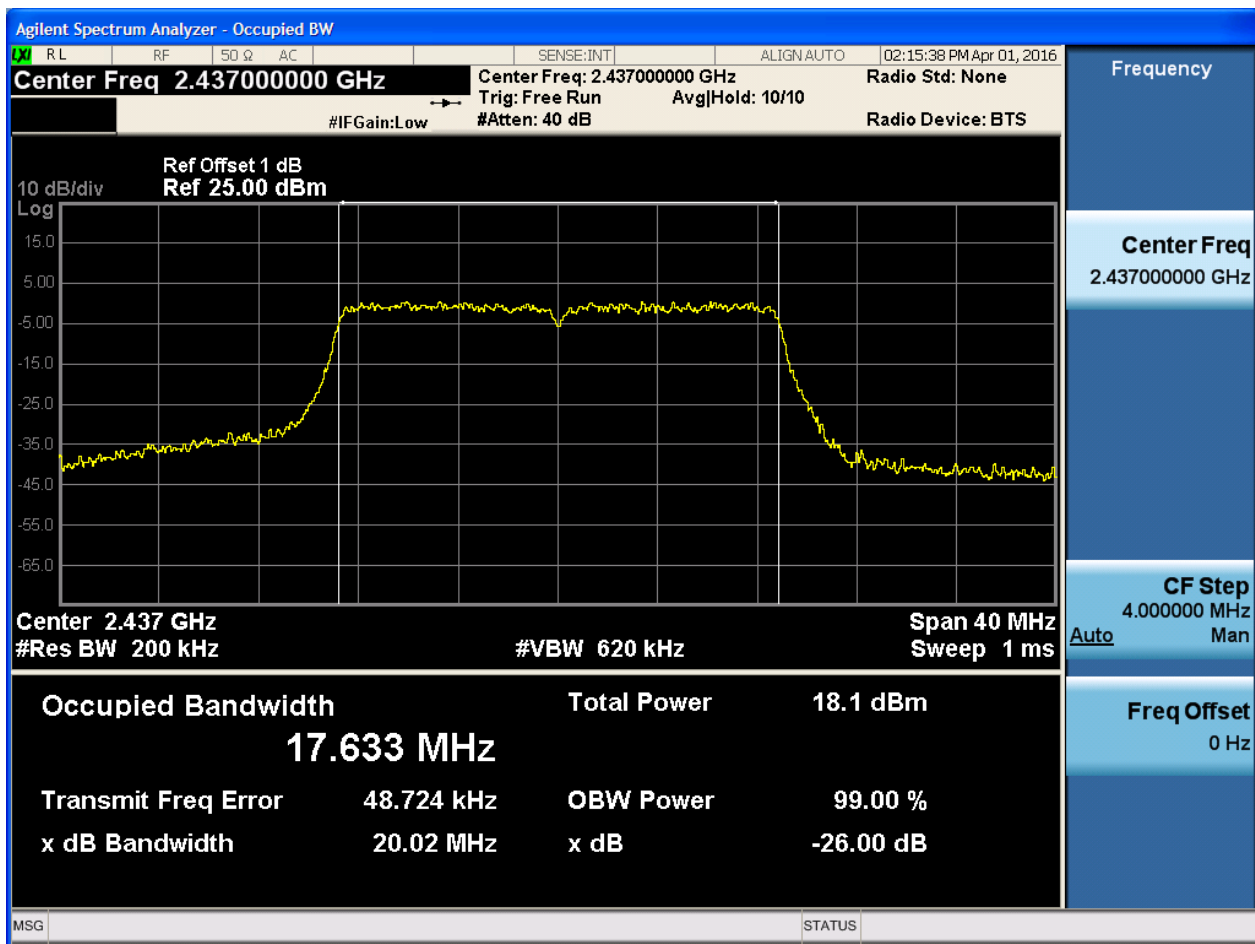


2.7 11N20_L@Ant 1



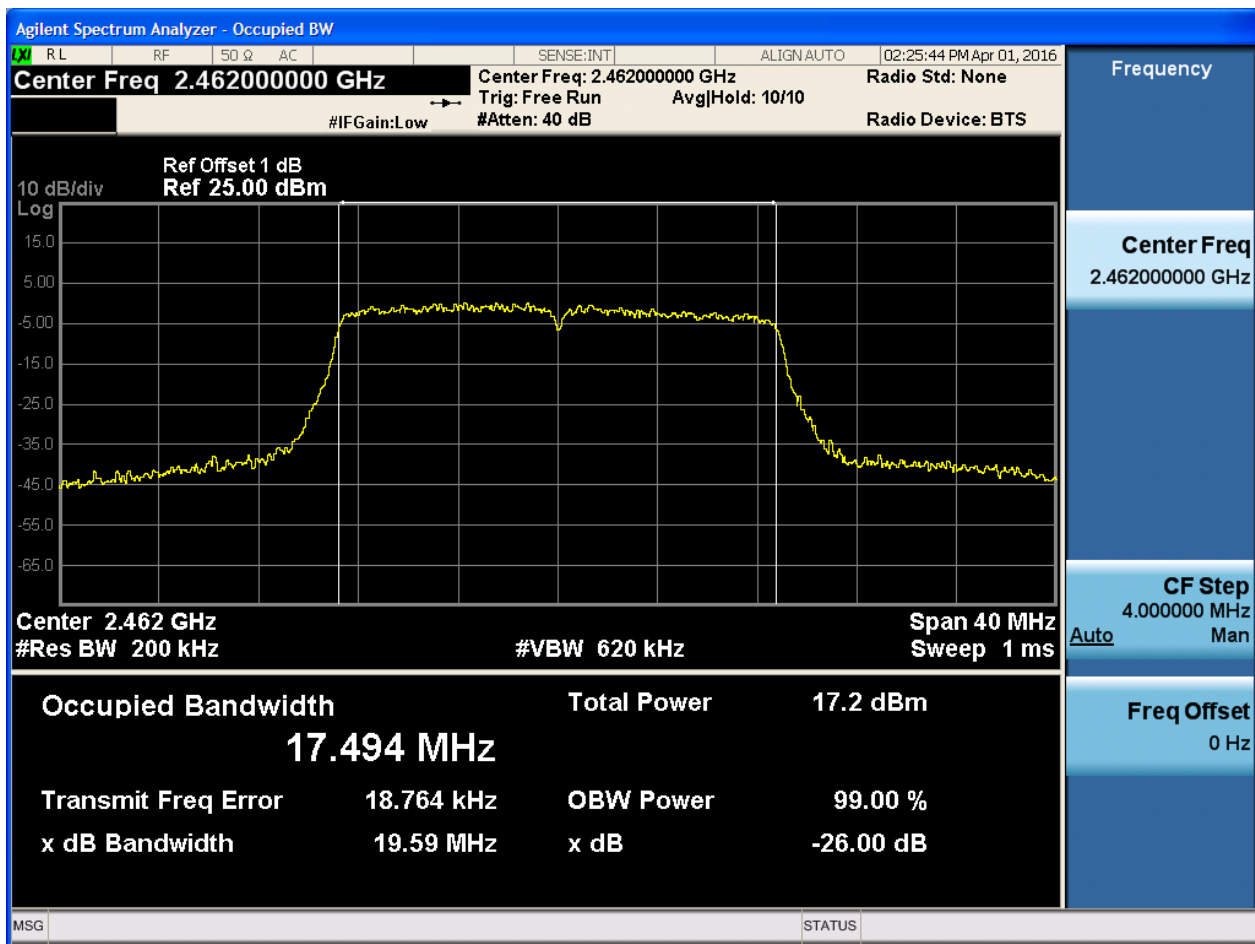


2.8 11N20_M@Ant 1



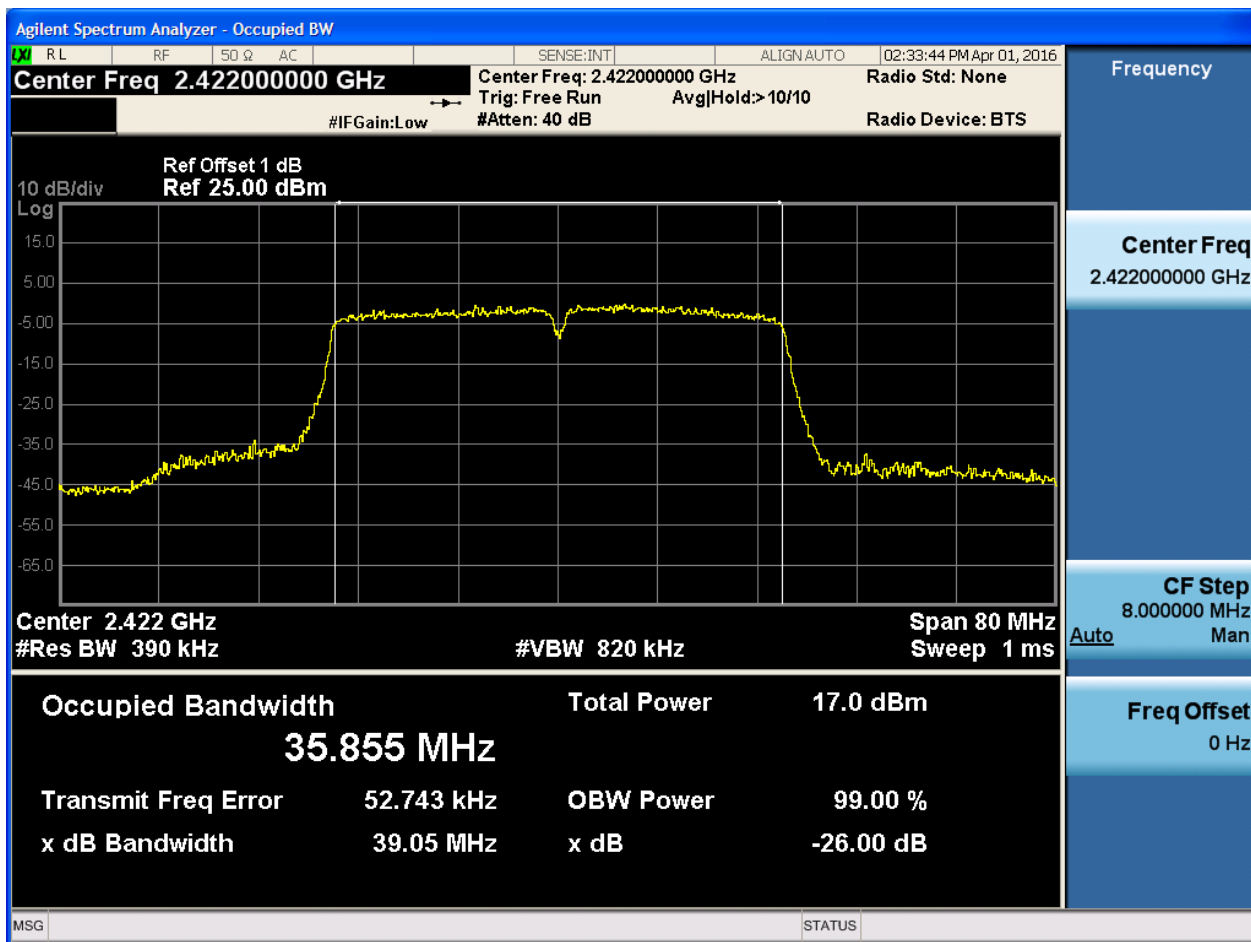


2.9 11N20_H@Ant 1



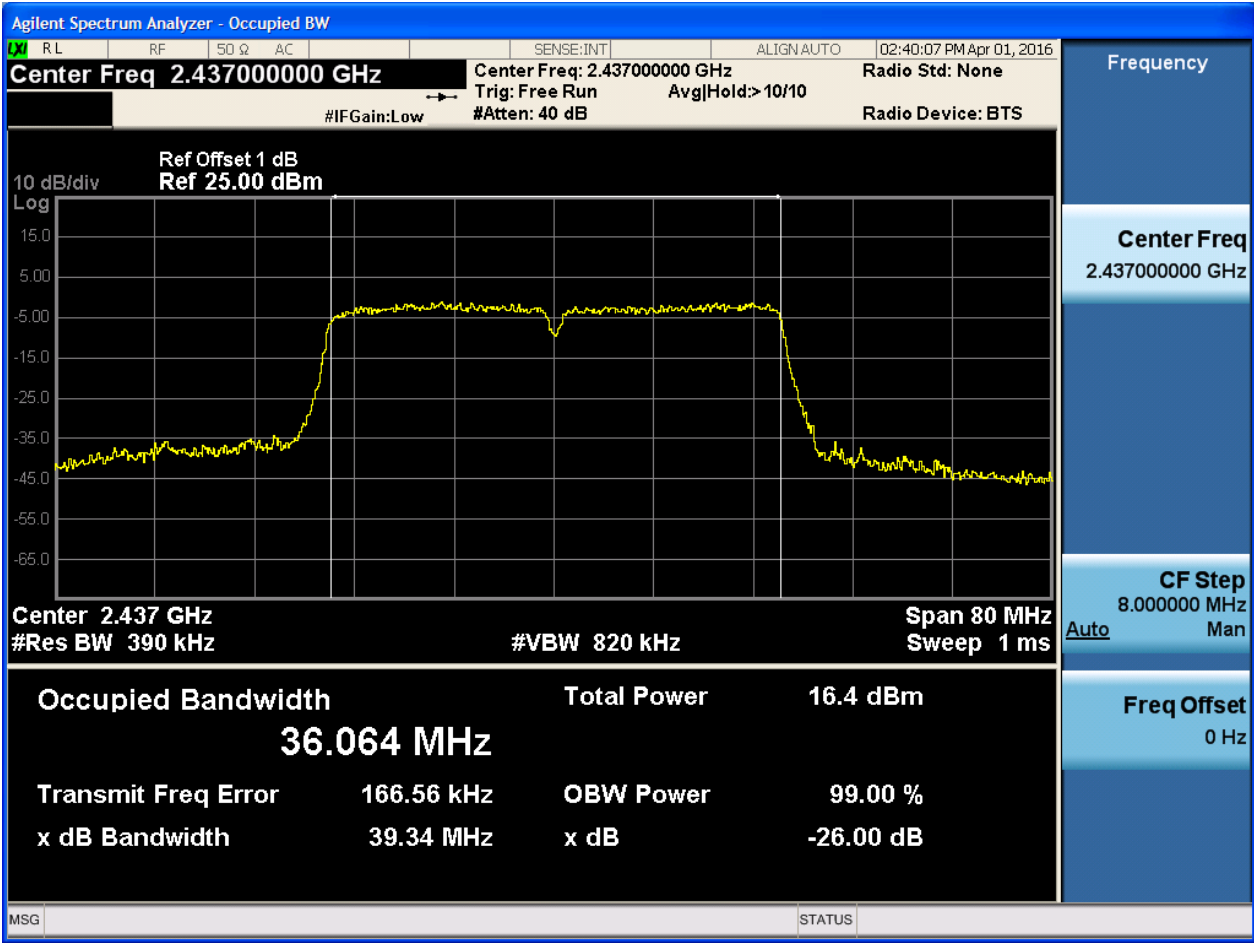


2.10 11N40_L@Ant 1



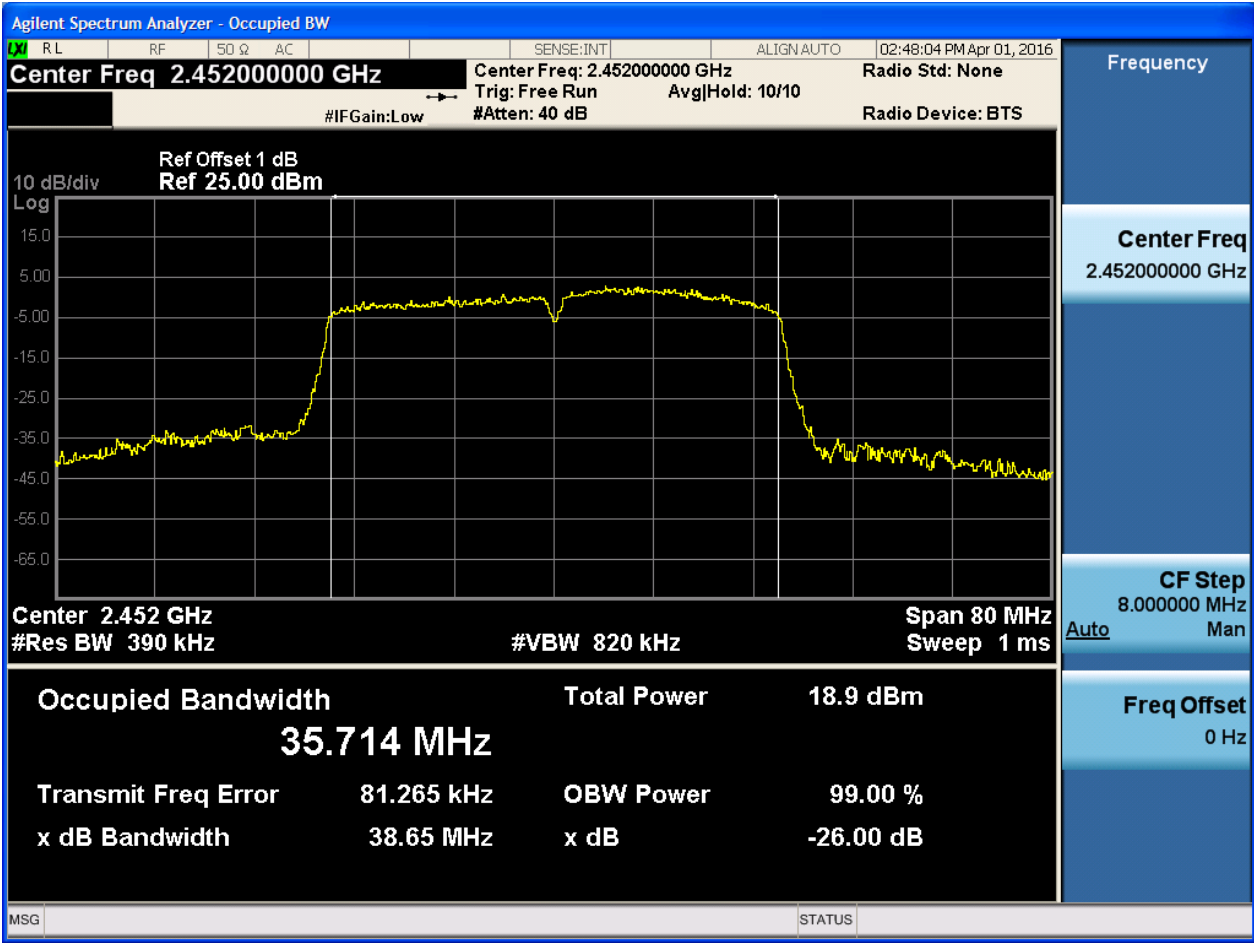


2.11 11N40_M@Ant 1





2.12 11N40_H@Ant 1



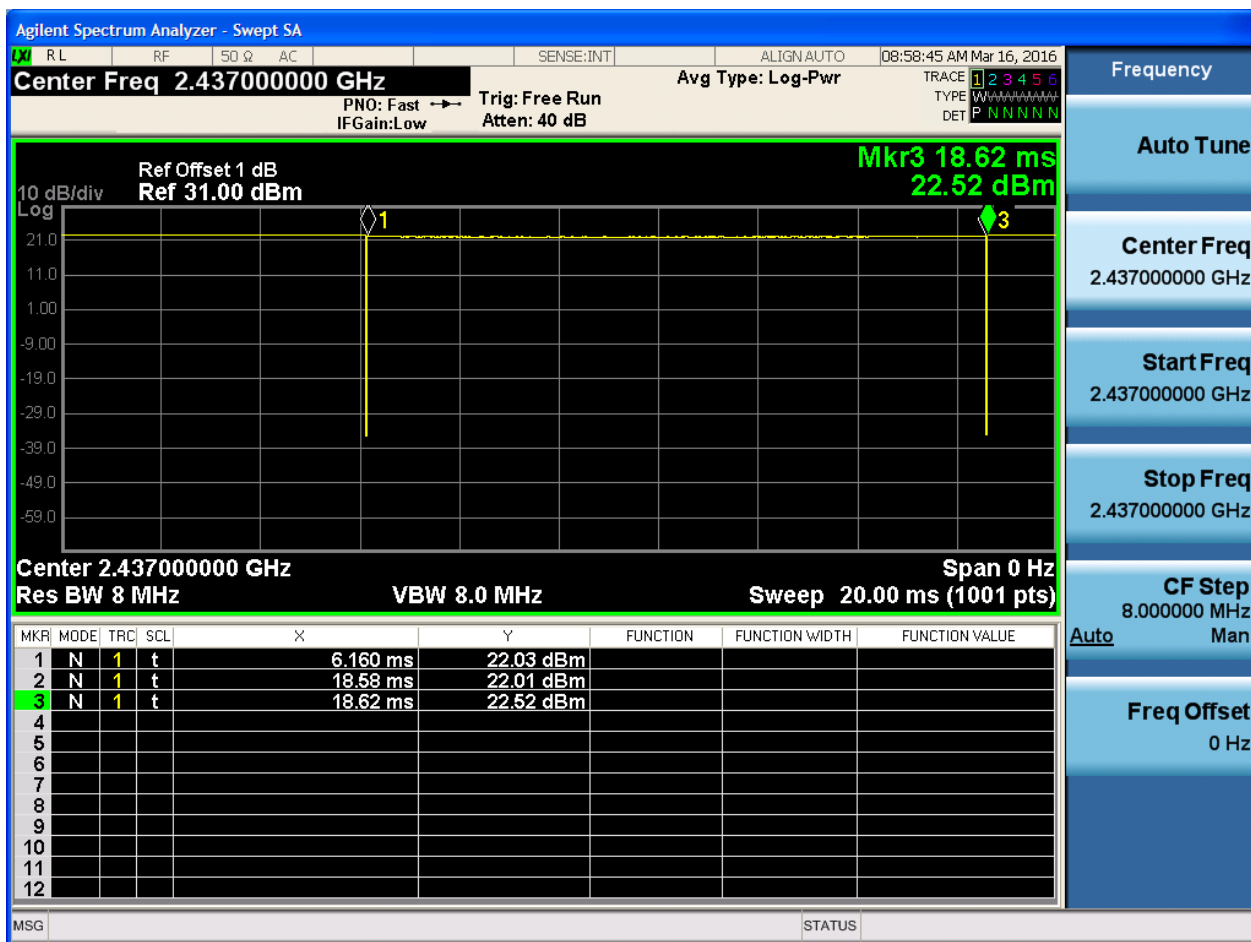
Appendix C: Duty cycle

Part I - Test Results

Test Mode	TX Freq. [MHz]	Ant	Duty cycle [%]
11B	CH1,CH6,CH11	Ant 1	99.7
11G	CH1,CH6,CH11	Ant 1	97.9
11N20SISO	CH1,CH6,CH11	Ant 1	97.5
11N40SISO	CH3,CH6,CH9	Ant 1	95.5

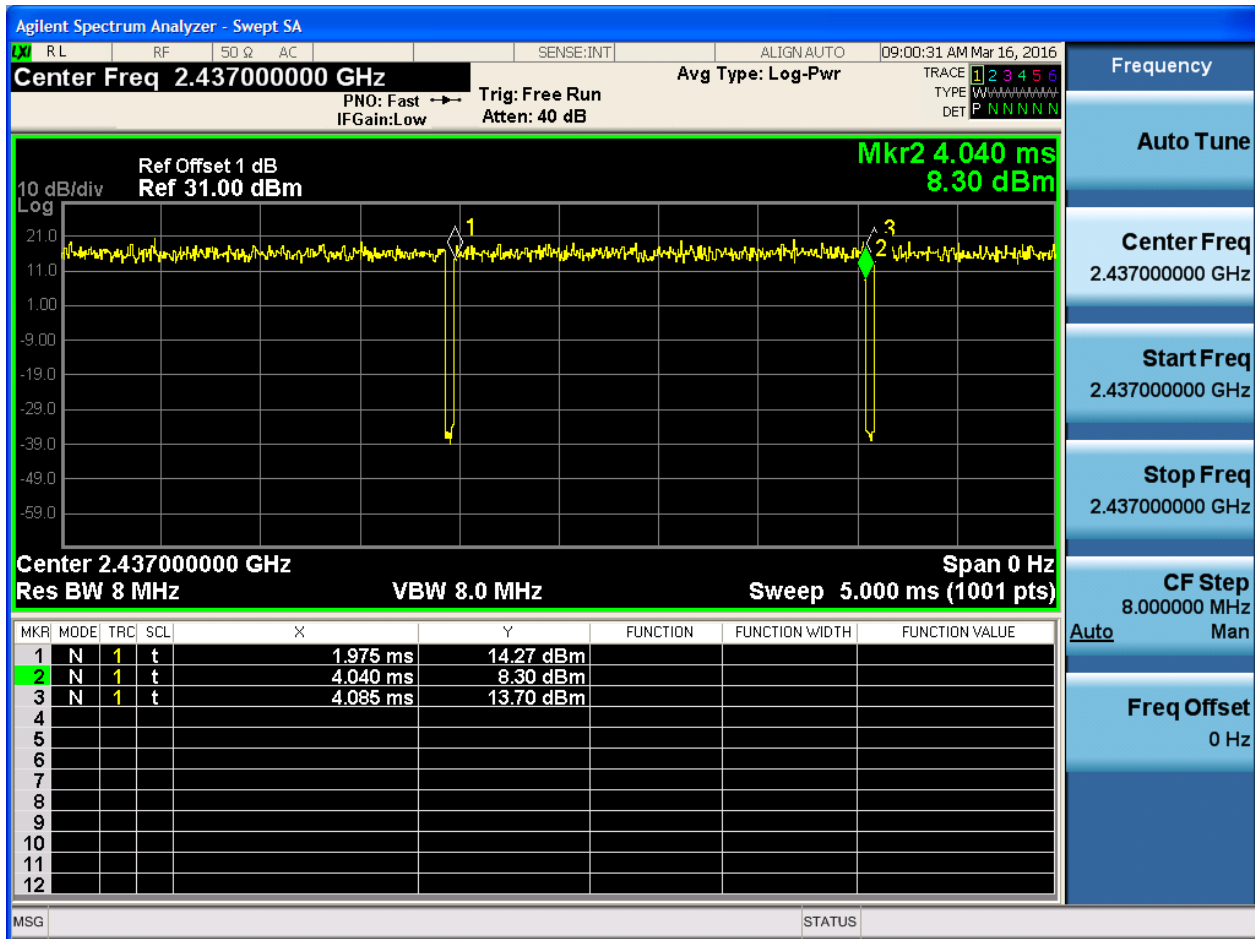


2.1 11B_M@Ant 1



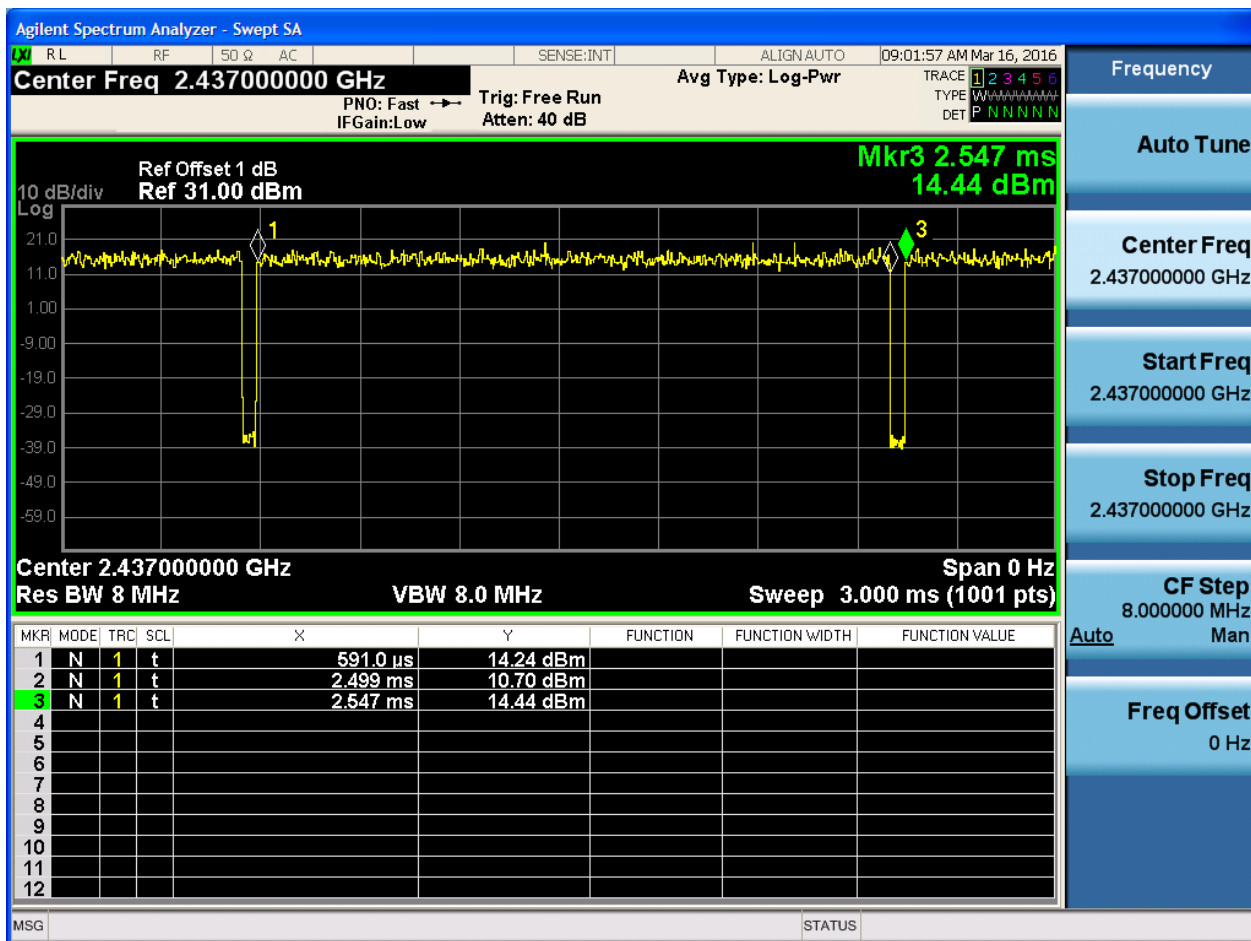


2.2 11G_M@Ant 1



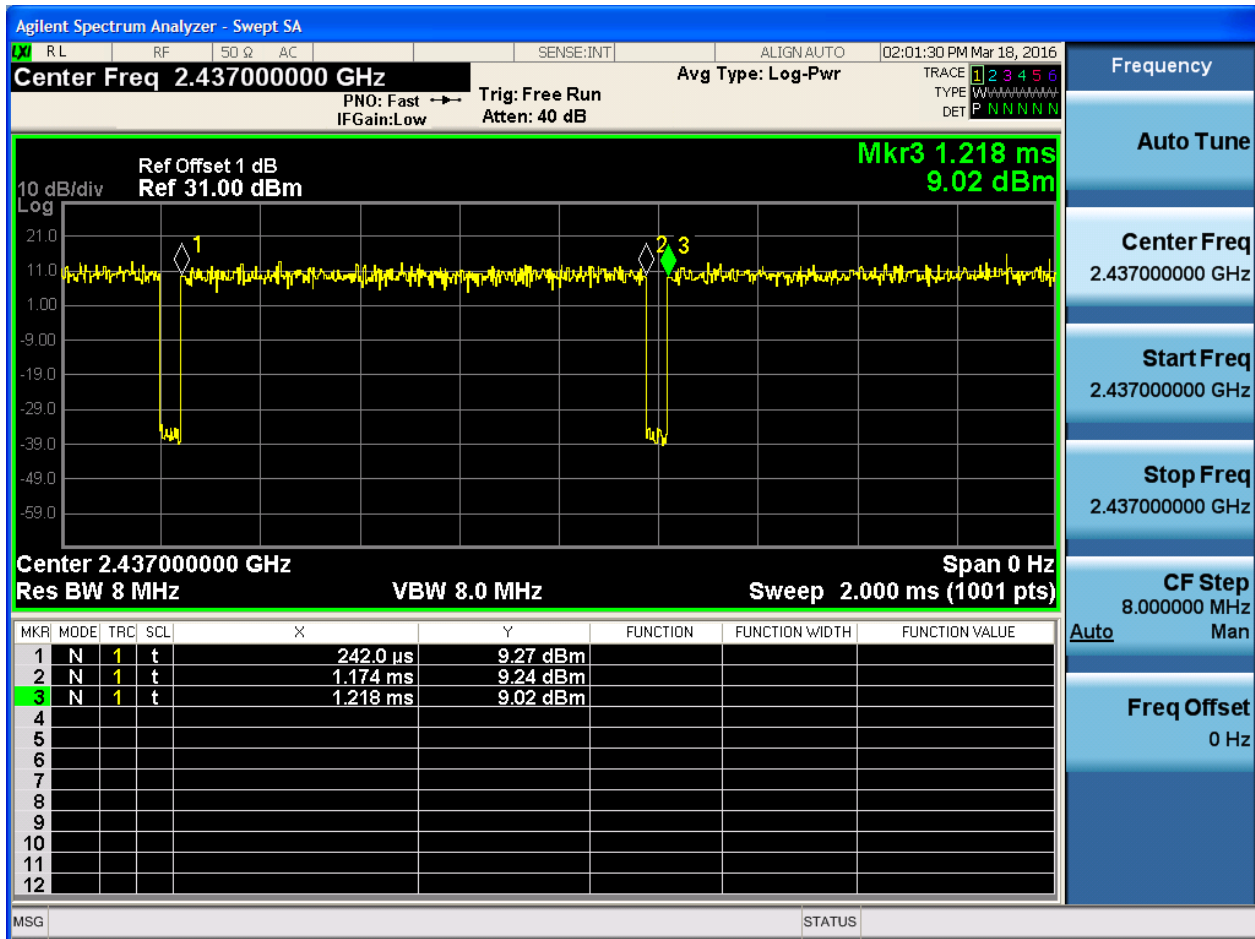


2.3 11N20SISO_M@Ant 1





2.4 11N40SISO_M@Ant 1



Appendix D: Maximum Conducted Average Output Power

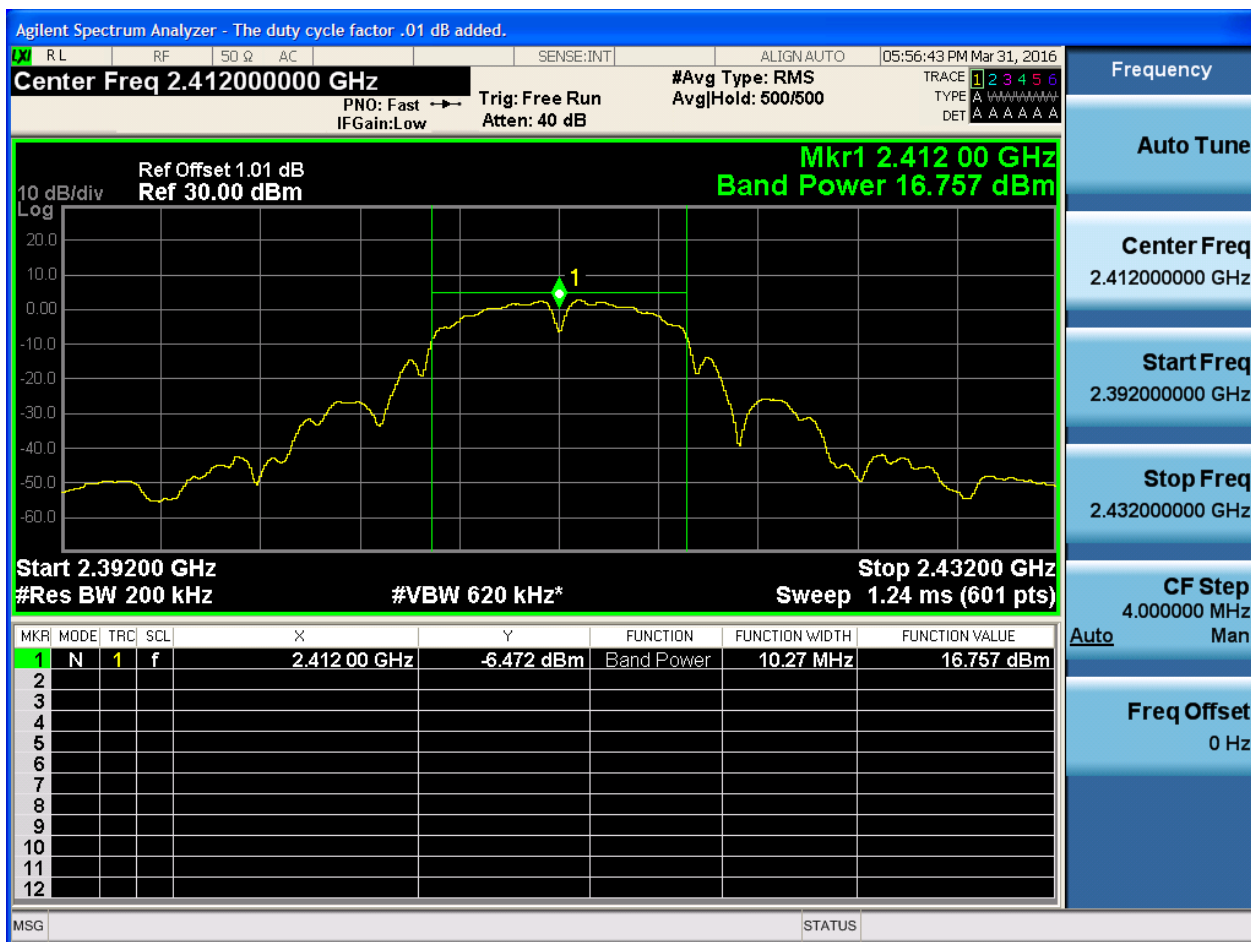
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Power[dBm]	Verdict
11B	L	2412	Ant 1	16.76	pass
11B	M	2437	Ant 1	17.55	pass
11B	H	2462	Ant 1	17.33	pass
11G	L	2412	Ant 1	11.45	pass
11G	M	2437	Ant 1	12.31	pass
11G	H	2462	Ant 1	11.26	pass
11N20	L	2412	Ant 1	10.04	pass
11N20	M	2437	Ant 1	10.88	pass
11N20	H	2462	Ant 1	9.94	pass
11N40	L	2422	Ant 1	9.69	pass
11N40	M	2437	Ant 1	9.17	pass
11N40	H	2452	Ant 1	11.65	pass



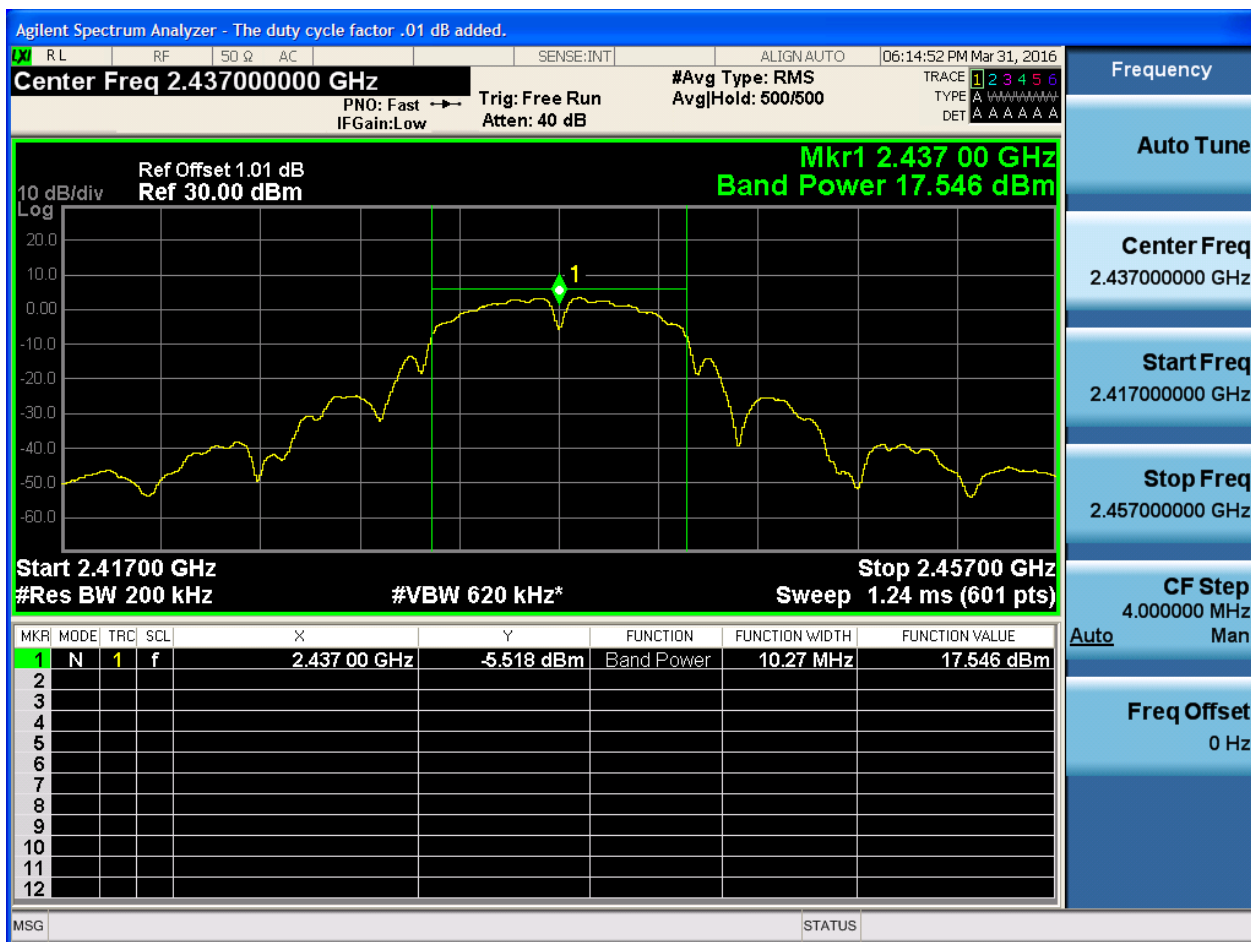
Part II - Test Plots

2.1 11B_L@Ant 1





2.2 11B_M@Ant 1





Agilent Spectrum Analyzer - The duty cycle factor .01 dB added.

Center Freq 2.46200000 GHz

#Avg Type: RMS
Avg|Hold: 500/500

Ref Offset 1.01 dB
Ref 30.00 dBm

Mkr1 2.462 00 GHz
Band Power 17.333 dBm

Start 2.44200 GHz
#Res BW 200 kHz

Stop 2.48200 GHz
Sweep 1.24 ms (601 pts)

#VBW 620 kHz*

Frequency

Auto Tune

Center Freq
2.46200000 GHz

Start Freq
2.44200000 GHz

Stop Freq
2.48200000 GHz

CF Step
4.000000 MHz
Man

Freq Offset
0 Hz

Log

10 dB/div

Ref Offset 1.01 dB
Ref 30.00 dBm

Mkr1 2.462 00 GHz
Band Power 17.333 dBm

Start 2.44200 GHz
#Res BW 200 kHz

Stop 2.48200 GHz
Sweep 1.24 ms (601 pts)

#VBW 620 kHz*

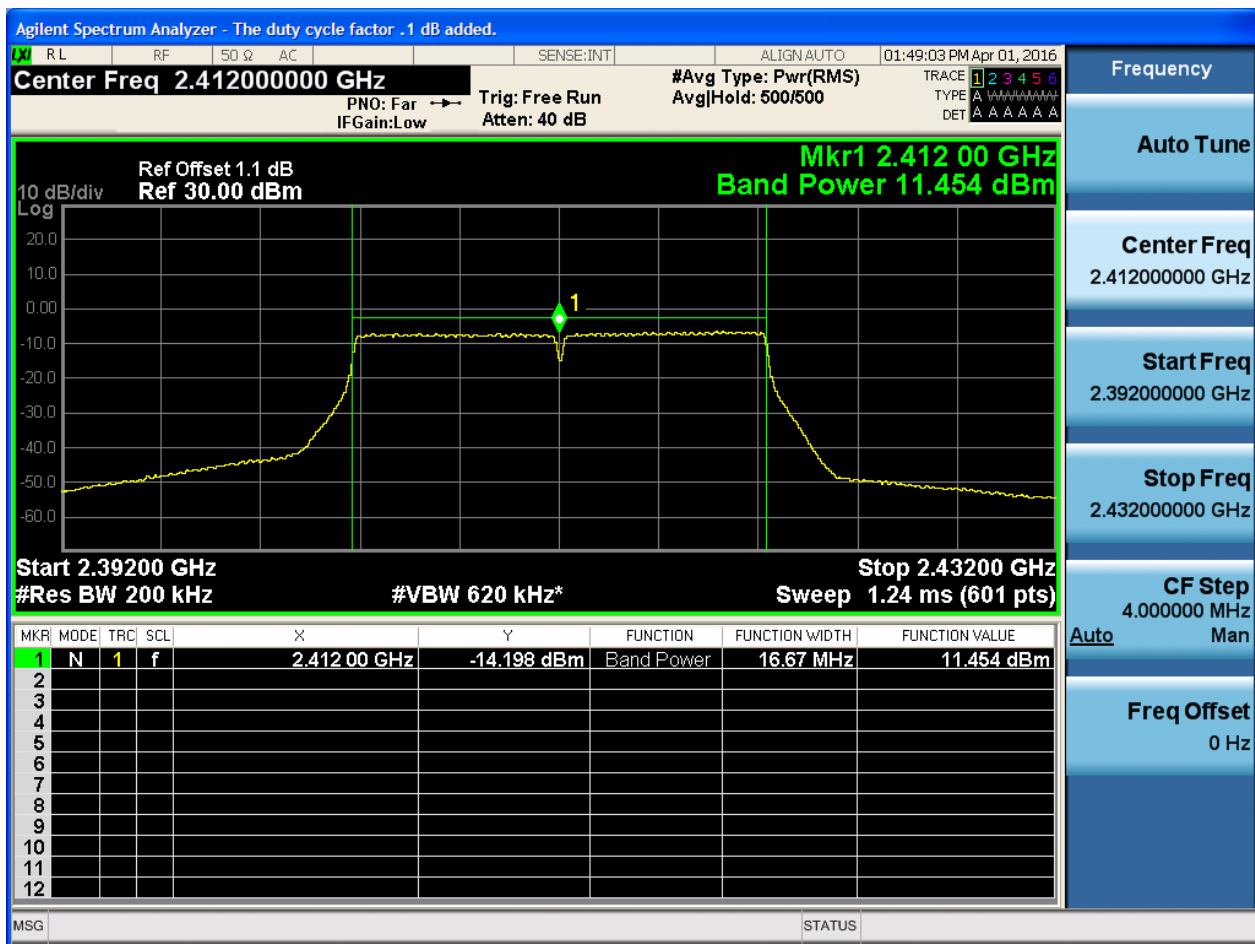
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.462 00 GHz	-5.680 dBm	Band Power	10.40 MHz	17.333 dBm
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

MSG

STATUS

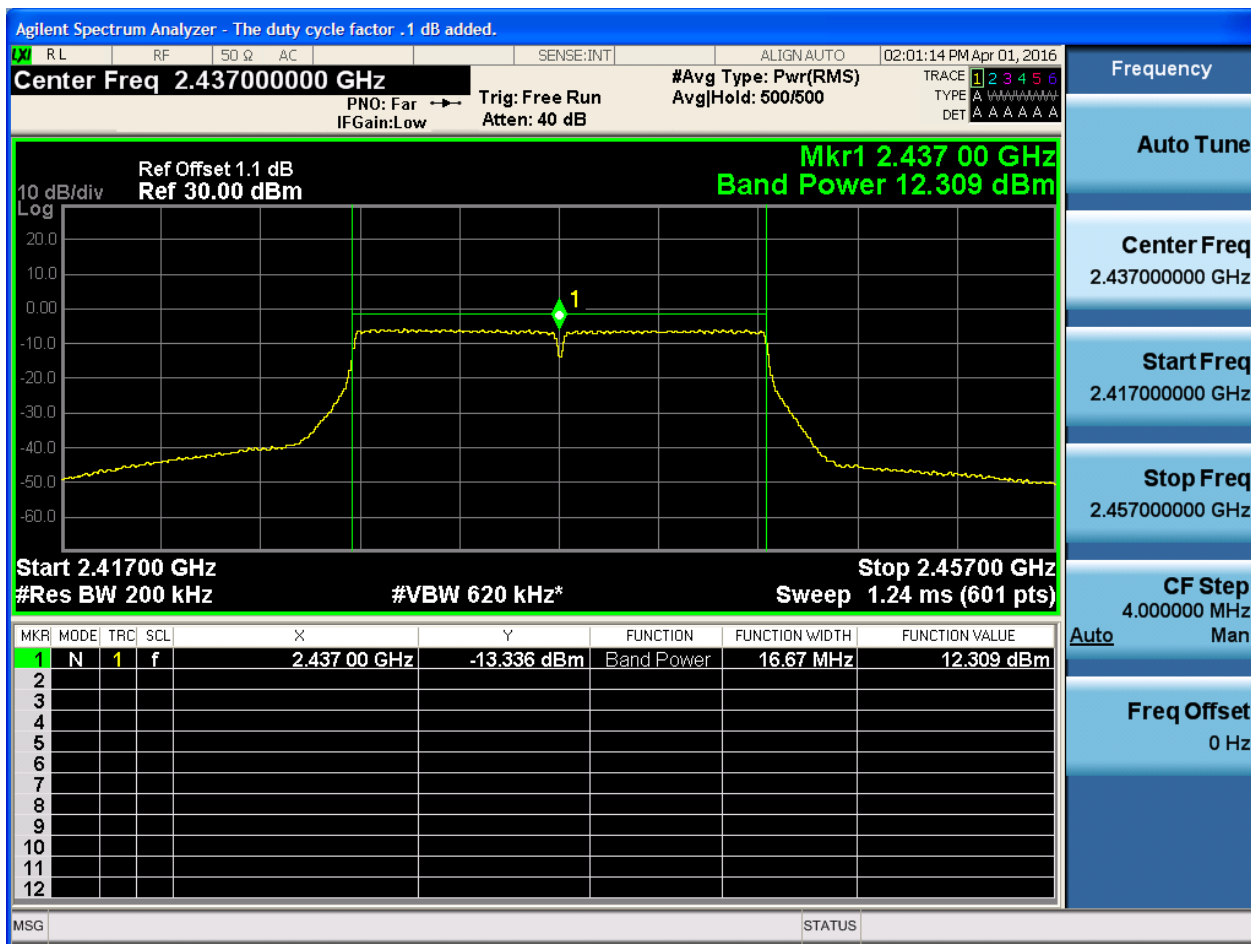


2.4 11G_L@Ant 1



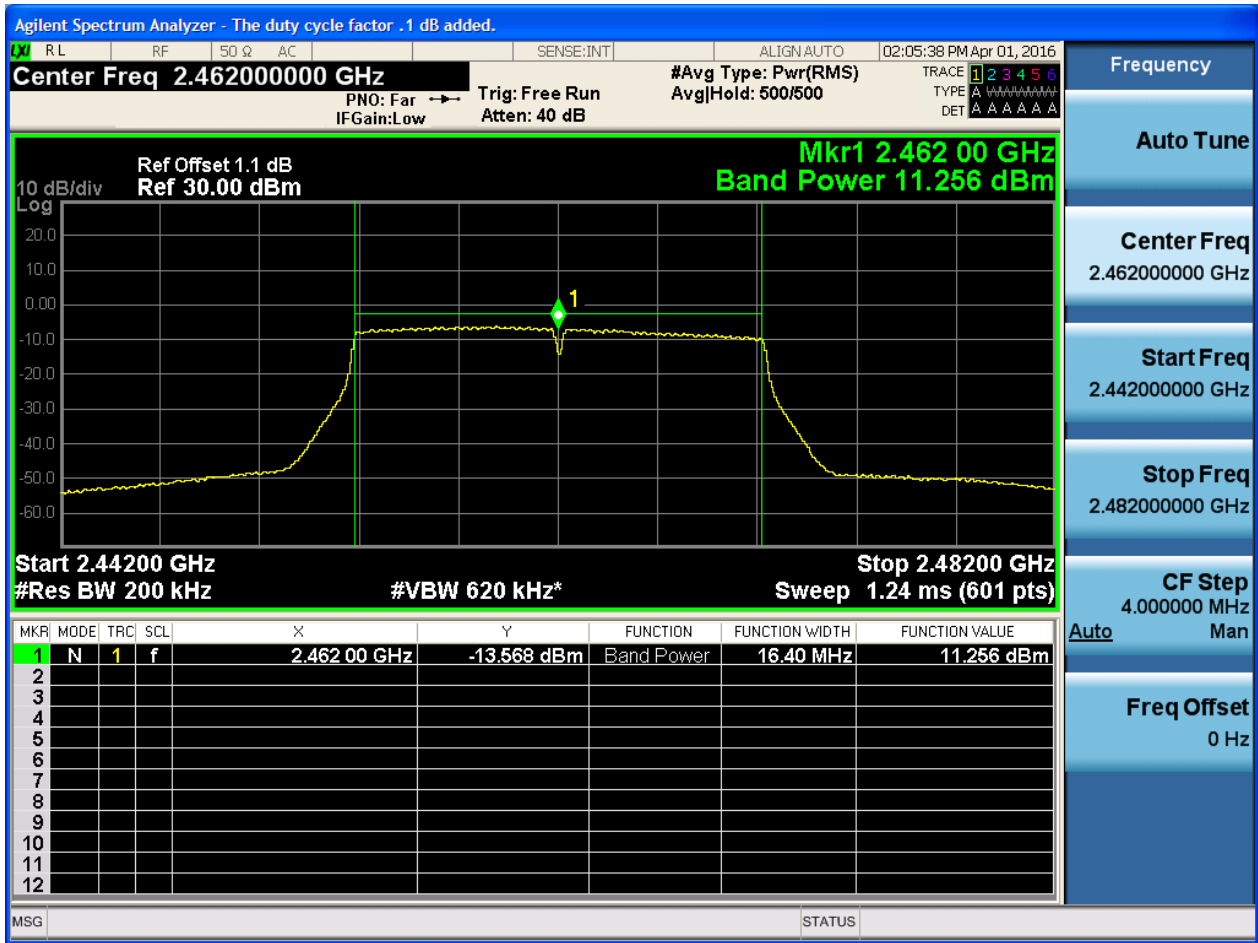


2.5 11G_M@Ant 1



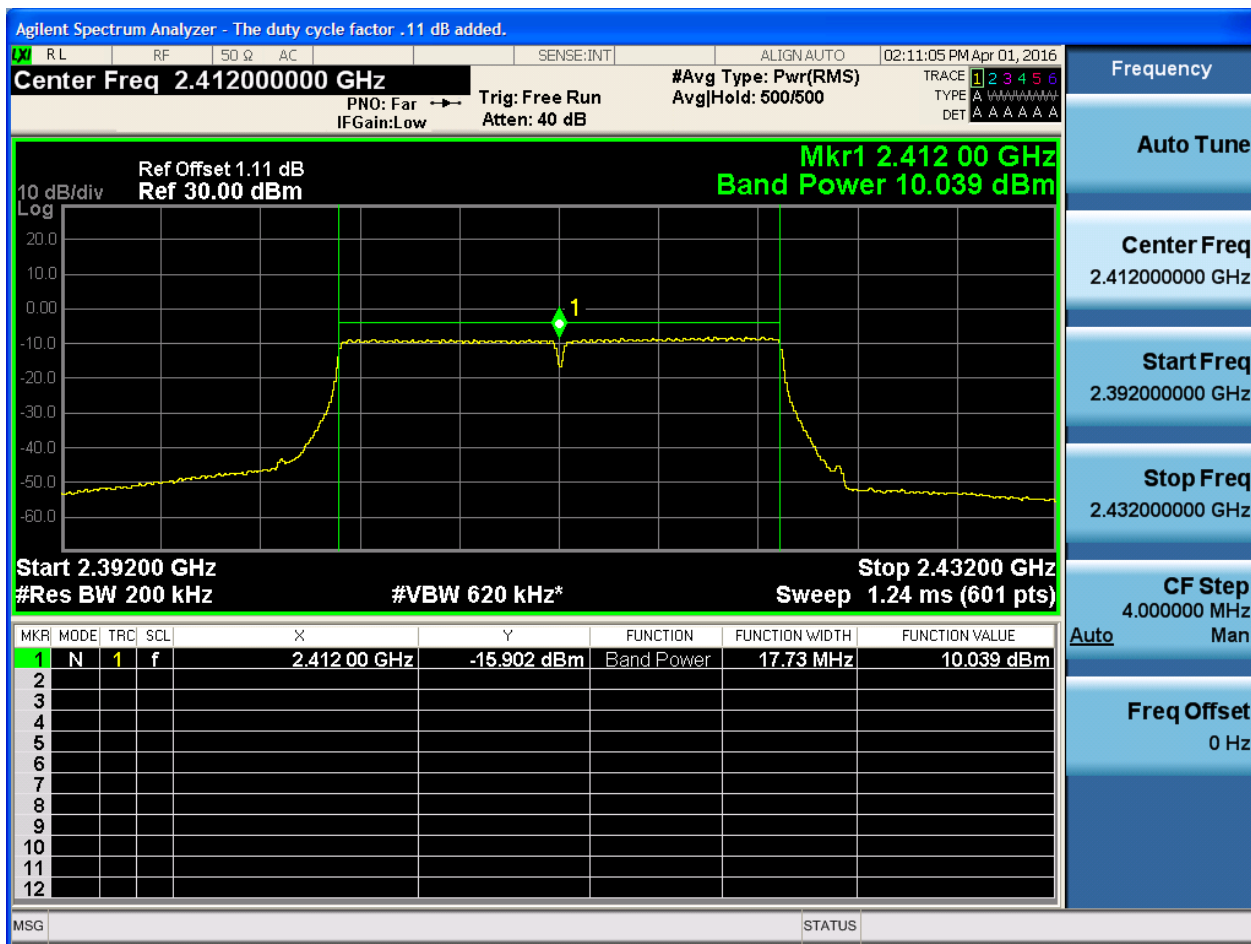


2.6 11G_H@Ant 1



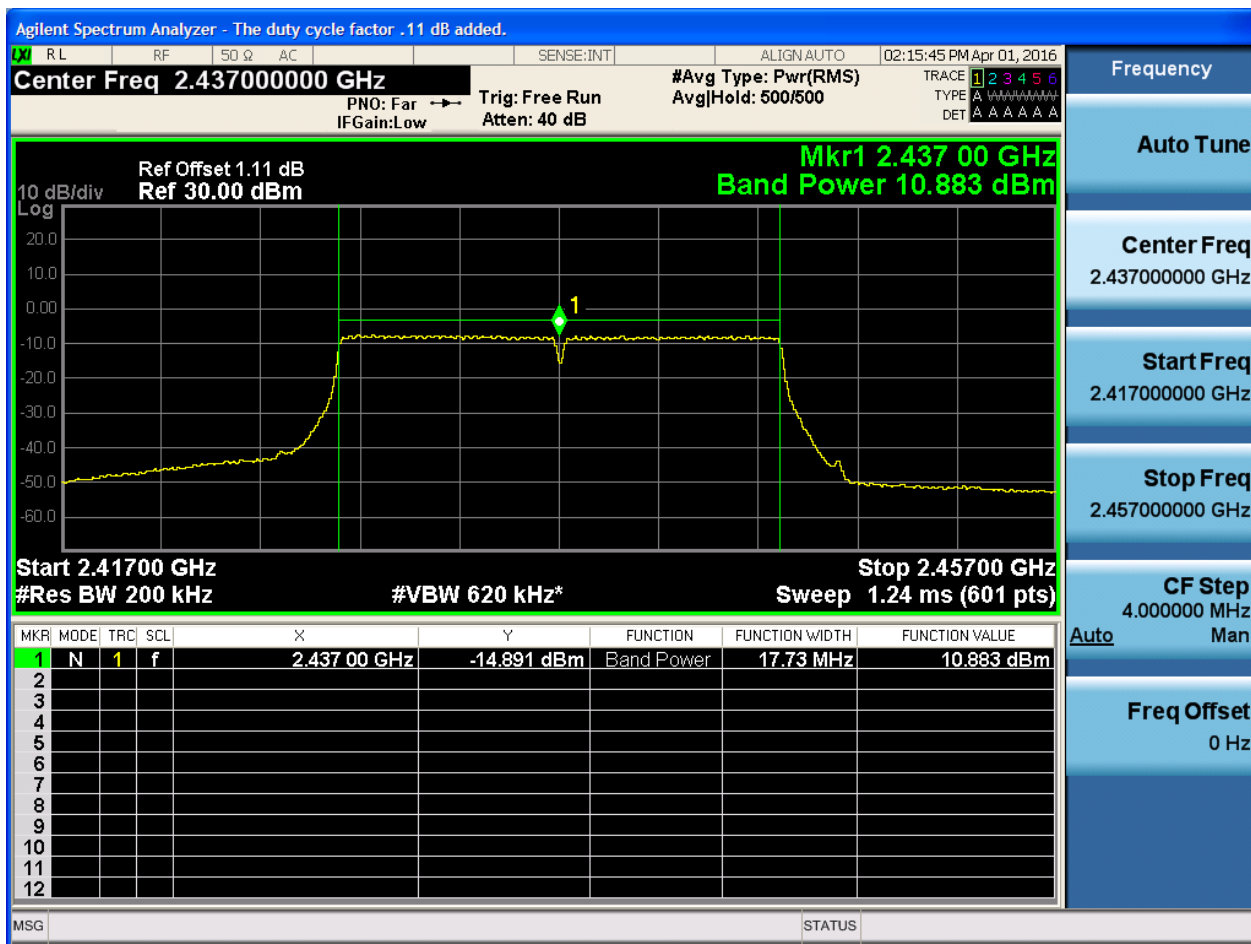


2.7 11N20_L@Ant 1





2.8 11N20_M@Ant 1





Agilent Spectrum Analyzer - The duty cycle factor .11 dB added.

Center Freq 2.46200000 GHz #Avg Type: Pwr(RMS) Avg|Hold: 500/500

Ref Offset 1.11 dB Ref 30.00 dBm

Mkr1 2.462 00 GHz Band Power 9.937 dBm

Start 2.44200 GHz Stop 2.48200 GHz

#Res BW 200 kHz #VBW 620 kHz* Sweep 1.24 ms (601 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.462 00 GHz	-15.085 dBm	Band Power	17.60 MHz	9.937 dBm
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Frequency

Auto Tune

Center Freq 2.46200000 GHz

Start Freq 2.44200000 GHz

Stop Freq 2.48200000 GHz

CF Step 4.000000 MHz Man

Freq Offset 0 Hz

Auto

MSG STATUS



Agilent Spectrum Analyzer - The duty cycle factor .2 dB added.

Center Freq 2.42200000 GHz

#Avg Type: Pwr(RMS) AvgHold: 500/500

TRAC 1 2 3 4 5 6

TYPE A W W W W W W W W

DET A A A A A A

PNO: Fast → Trg: Free Run

IFGain:Low Atten: 40 dB

Ref Offset 1.2 dB

Ref 30.00 dBm

Mkr1 2.422 00 GHz

Band Power 9.690 dBm

Start 2.38200 GHz

#Res BW 390 kHz

#VBW 1.2 MHz*

Stop 2.46200 GHz

Sweep 1.00 ms (601 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.422 00 GHz	-19.096 dBm	Band Power	36.00 MHz	9.690 dBm
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Frequency

Auto Tune

Center Freq
2.422000000 GHz

Start Freq
2.382000000 GHz

Stop Freq
2.462000000 GHz

CF Step
8.000000 MHz

Man

Freq Offset
0 Hz

MSG

STATUS

[illegible]



Agilent Spectrum Analyzer - The duty cycle factor .2 dB added.

Center Freq 2.45200000 GHz #Avg Type: Pwr(RMS) TRACE 1 2 3 4 5 6
 PNO: Fast → Trg: Free Run Avg|Hold: 500/500
 IFGain:Low Atten: 40 dB TYPE A WWWWWW
 DET A A A A A A

Ref Offset 1.2 dB
 Ref 30.00 dBm

Mkr1 2.452 00 GHz
 Band Power 11.654 dBm

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.452 00 GHz	-17.473 dBm	Band Power	35.73 MHz	11.654 dBm
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Start 2.41200 GHz Stop 2.49200 GHz
 #Res BW 390 kHz #VBW 1.2 MHz* Sweep 1.00 ms (601 pts)

MSG STATUS

Appendix E: Maximum Power Spectral Density Level

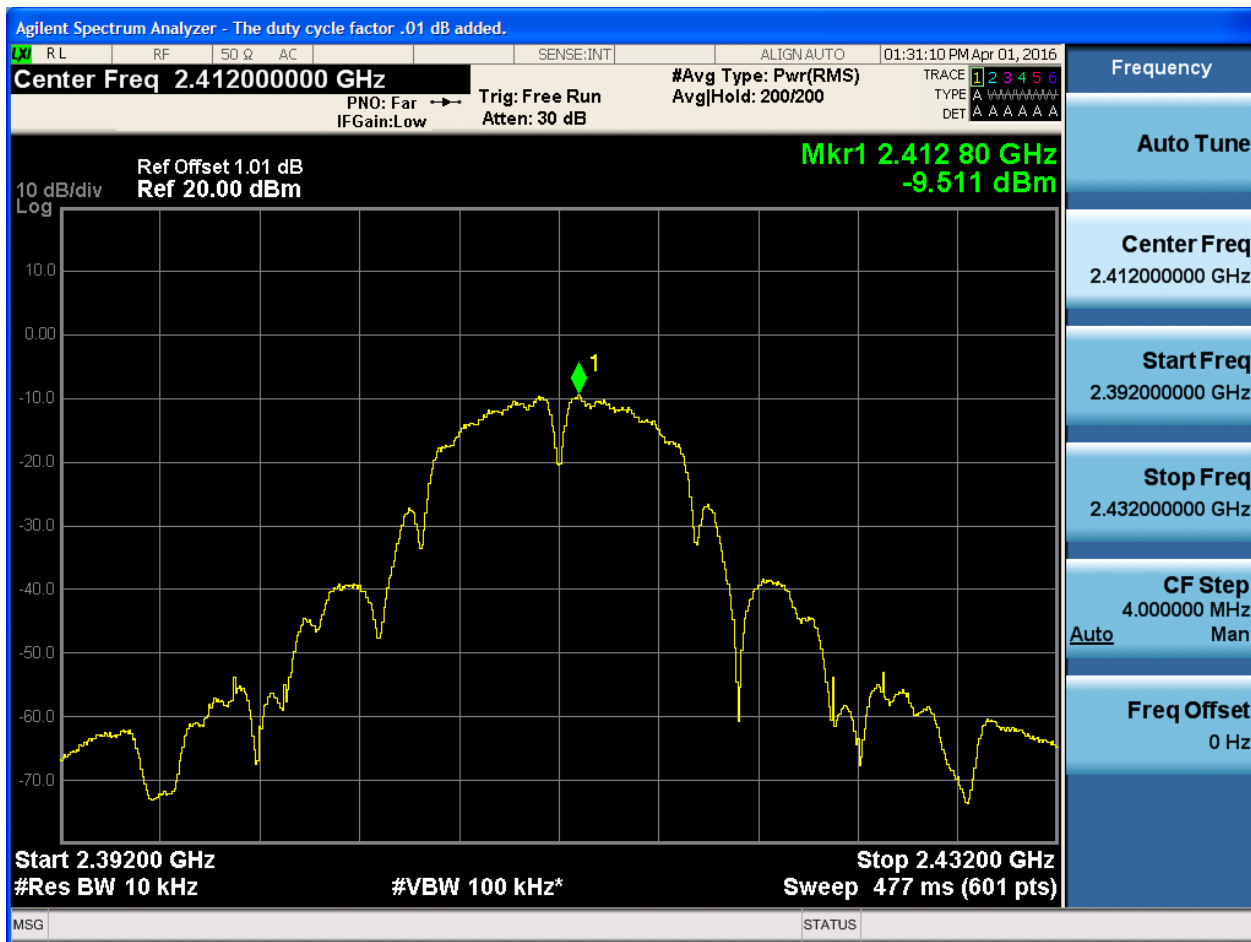
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	PD[MHz]	Verdict
11B	L	2412	Ant 1	-9.51	pass
11B	M	2437	Ant 1	-8.56	pass
11B	H	2462	Ant 1	-9.34	pass
11G	L	2412	Ant 1	-18.39	pass
11G	M	2437	Ant 1	-17.84	pass
11G	H	2462	Ant 1	-18.07	pass
11N20	L	2412	Ant 1	-20.16	pass
11N20	M	2437	Ant 1	-19.31	pass
11N20	H	2462	Ant 1	-19.61	pass
11N40	L	2422	Ant 1	-23.13	pass
11N40	M	2437	Ant 1	-24.29	pass
11N40	H	2452	Ant 1	-20.42	pass



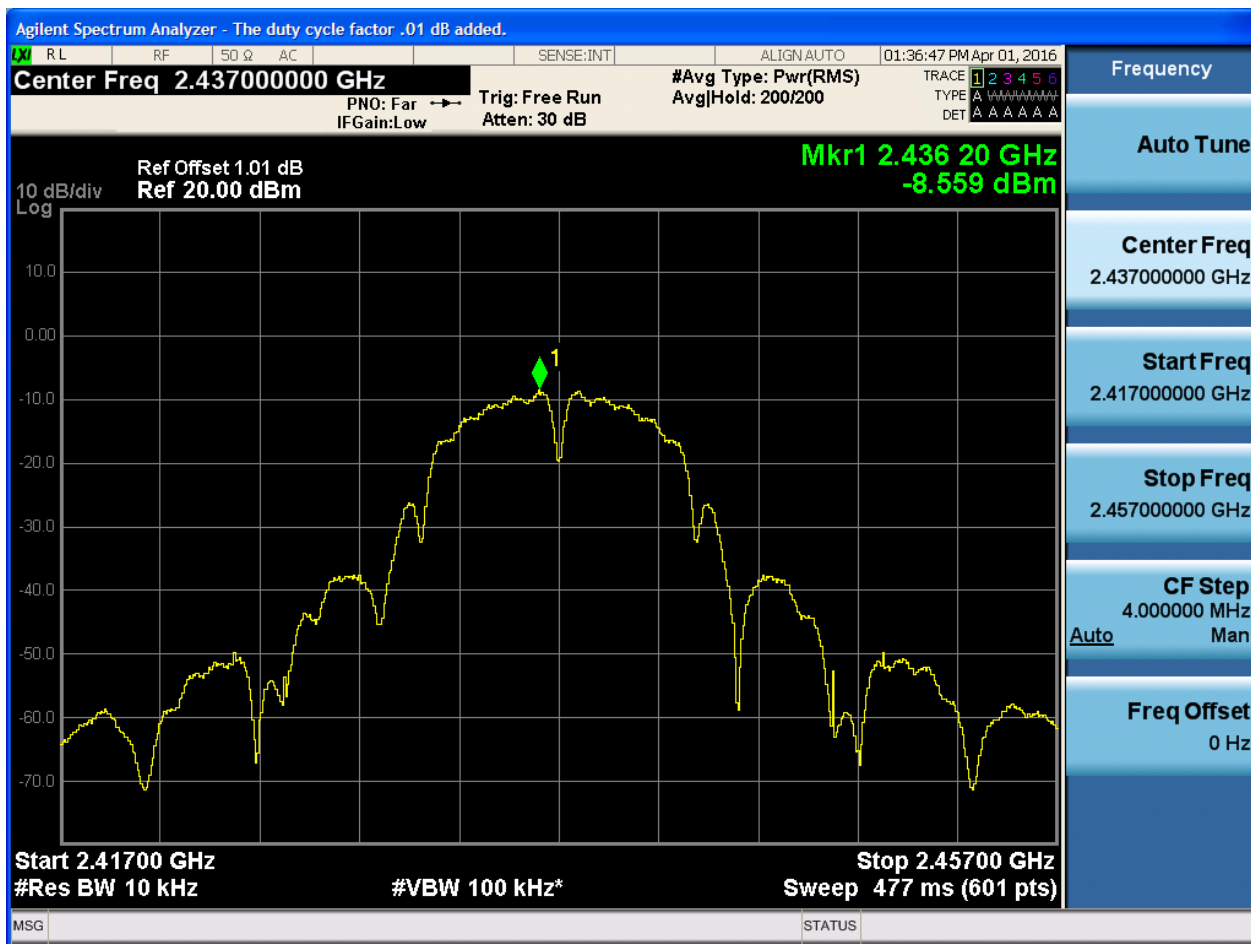
Part II - Test Plots

2.1 11B_L@Ant 1





2.2 11B_M@Ant 1





Agilent Spectrum Analyzer - The duty cycle factor .01 dB added.

Center Freq 2.46200000 GHz

Ref Offset 1.01 dB
Ref 20.00 dBm

10 dB/div
Log

Start 2.44200 GHz
#Res BW 10 kHz

Stop 2.48200 GHz
Sweep 477 ms (601 pts)

#VBW 100 kHz*

Mkr1 2.461 20 GHz
-9.337 dBm

Auto Tune

Center Freq
2.46200000 GHz

Start Freq
2.44200000 GHz

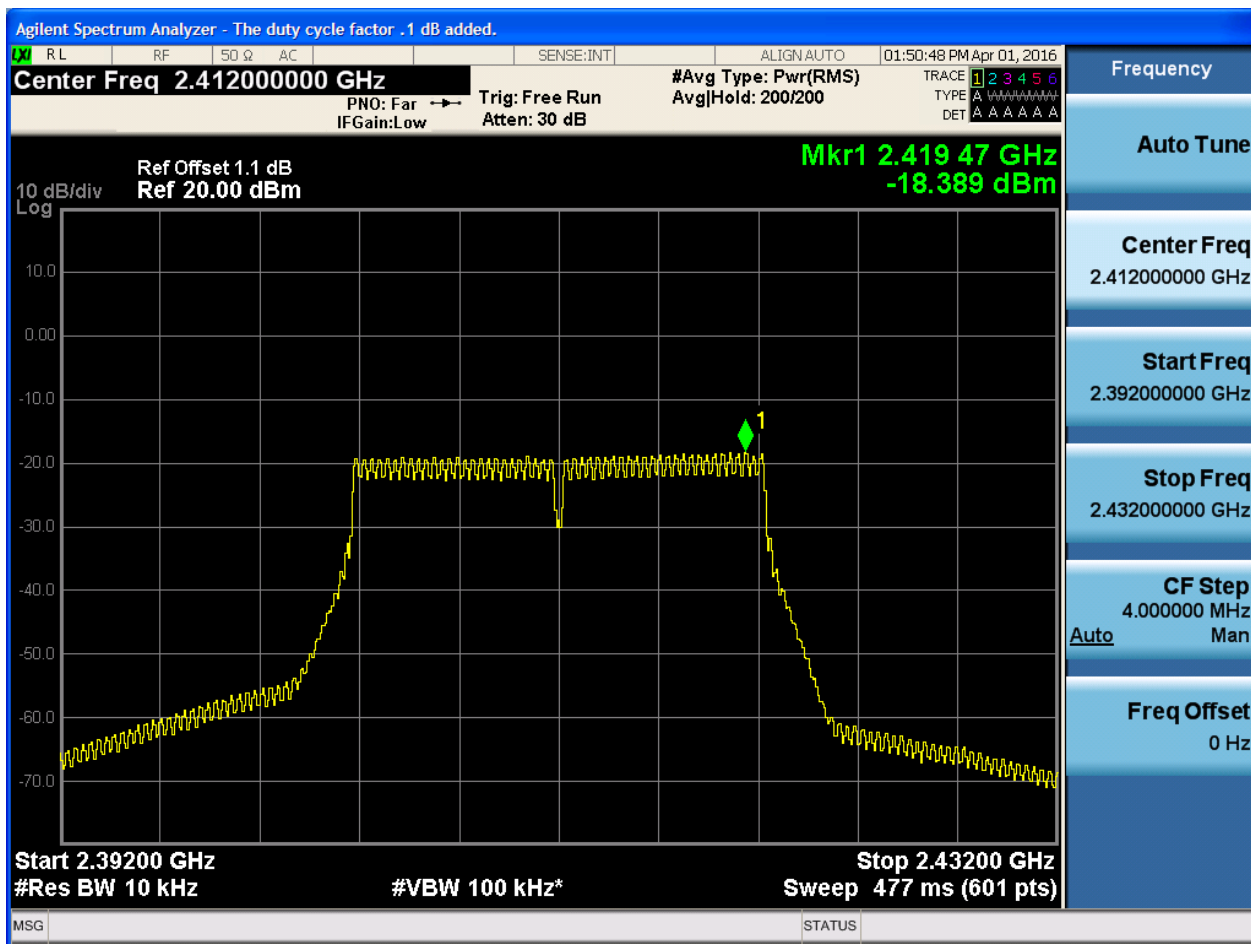
Stop Freq
2.48200000 GHz

CF Step
4.000000 MHz
Man

Freq Offset
0 Hz

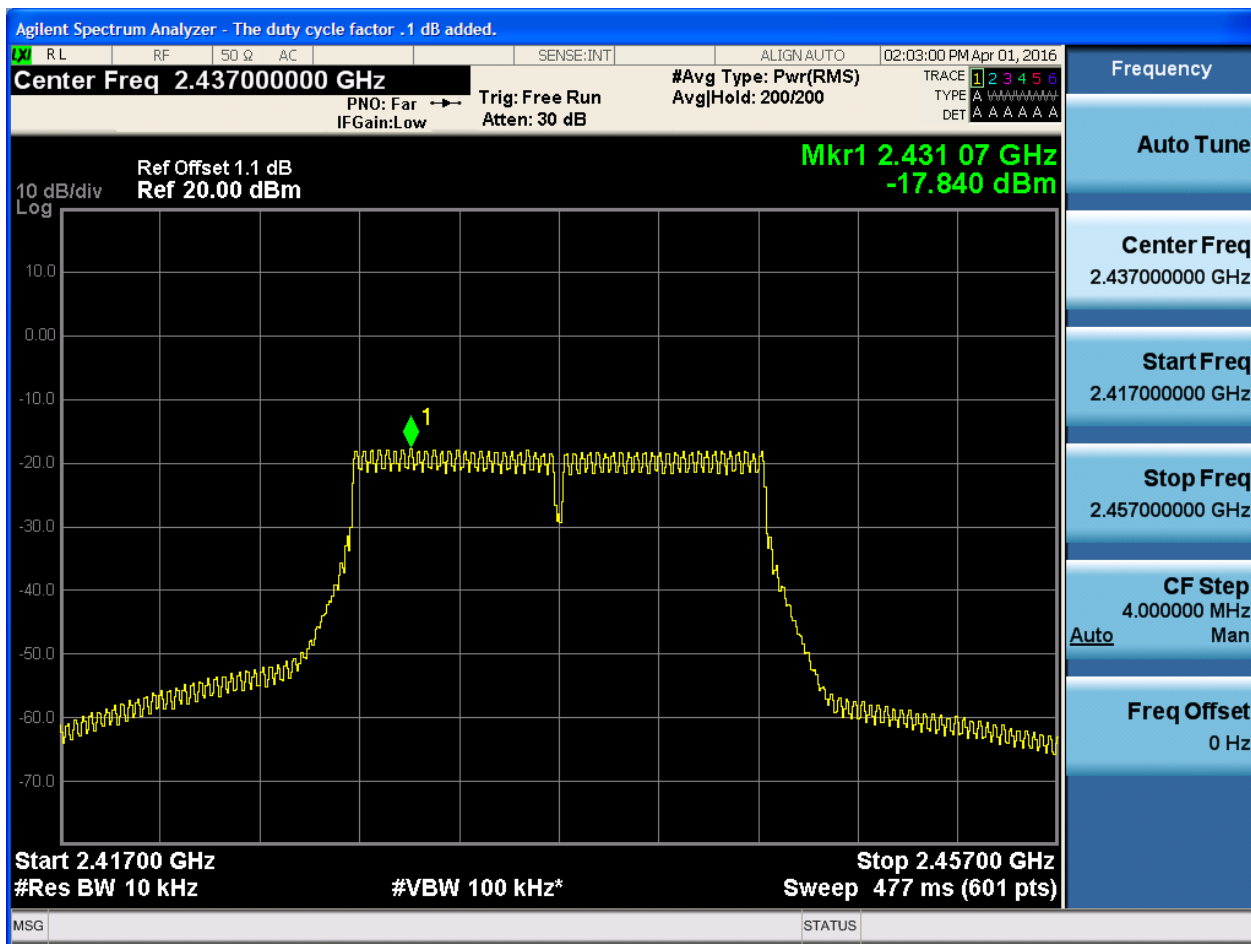


2.4 11G_L@Ant 1





2.5 11G_M@Ant 1





Agilent Spectrum Analyzer - The duty cycle factor .1 dB added.

Center Freq 2.46200000 GHz

Ref Offset 1.1 dB
Ref 20.00 dBm

Mkr1 2.460 73 GHz
-18.072 dBm

Start 2.44200 GHz
#Res BW 10 kHz

Stop 2.48200 GHz
Sweep 477 ms (601 pts)

#VBW 100 kHz*

10 dB/div
Log

1

Auto Tune

Center Freq
2.46200000 GHz

Start Freq
2.44200000 GHz

Stop Freq
2.48200000 GHz

CF Step
4.000000 MHz
Man

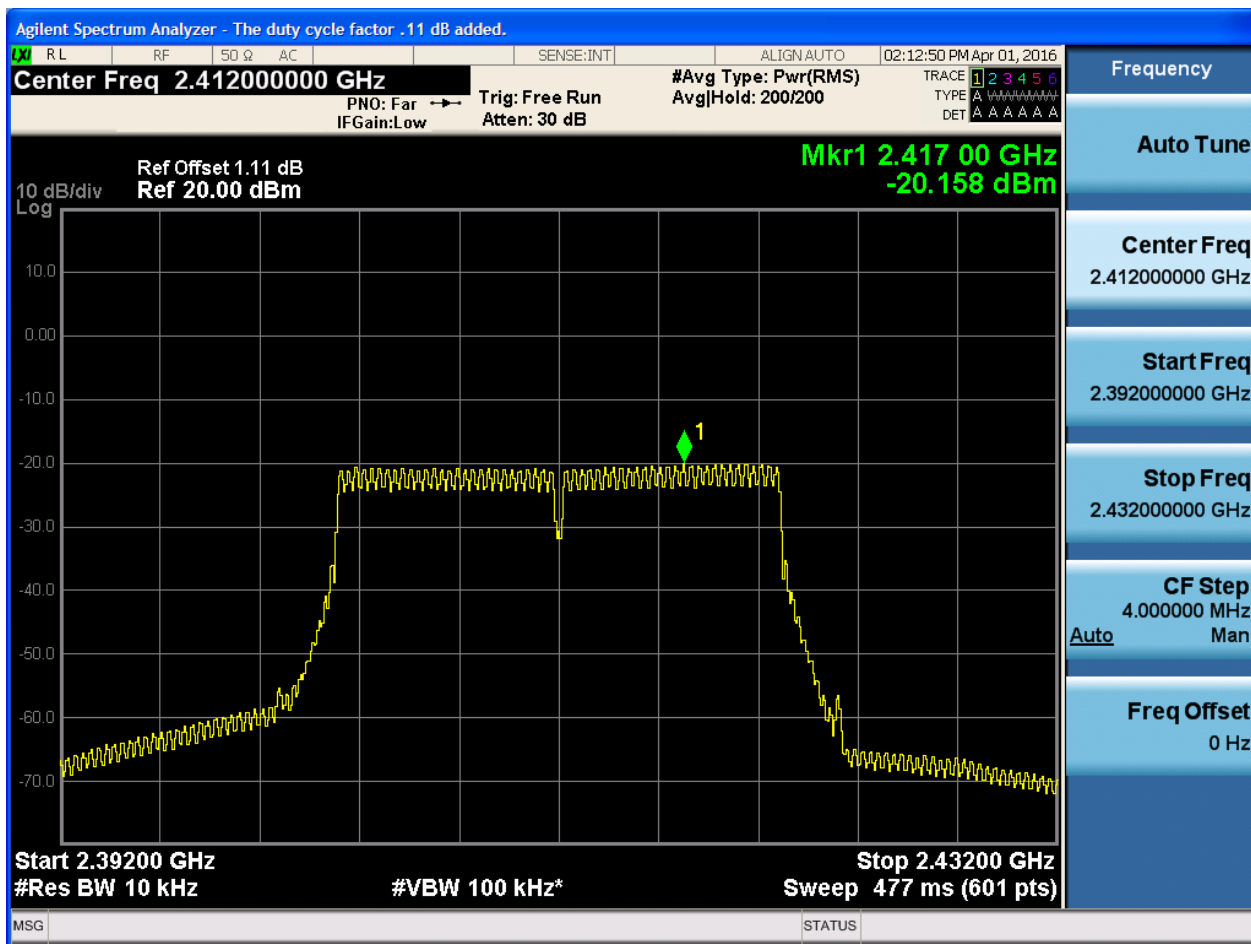
Freq Offset
0 Hz

MSG STATUS

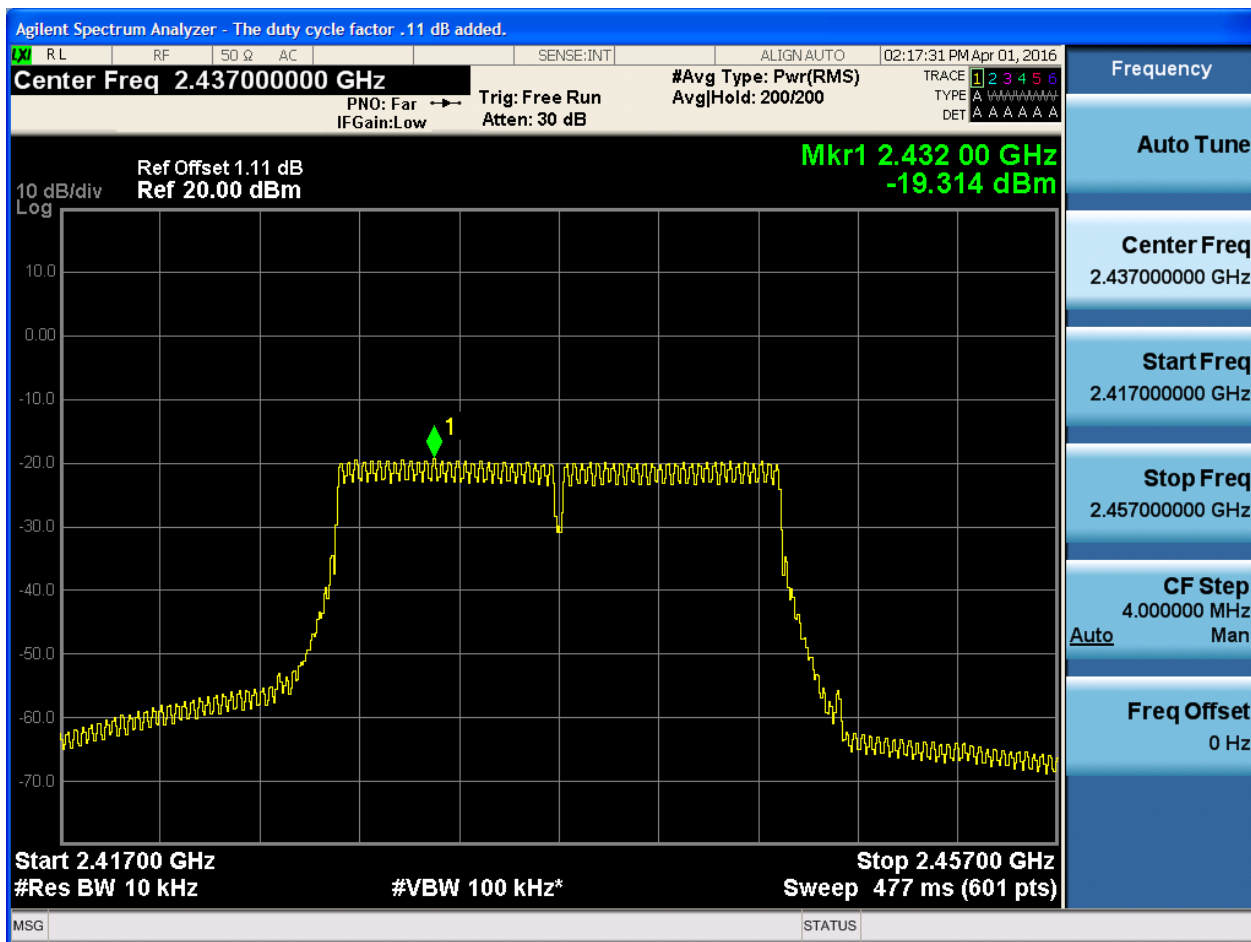
The image shows a screenshot of an Agilent Spectrum Analyzer. The main display area shows a signal spectrum with a peak at 2.46073 GHz and a power level of -18.072 dBm. The signal is centered around 2.46200 GHz. The display includes various settings and parameters such as Center Freq, Ref Offset, Ref Power, Start Freq, Stop Freq, CF Step, Freq Offset, and a grid showing the signal spectrum. The signal is marked with a yellow diamond and the number 1. The display also shows the duty cycle factor as .1 dB added. The bottom of the screen shows the message and status indicators.



2.7 11N20_L@Ant 1

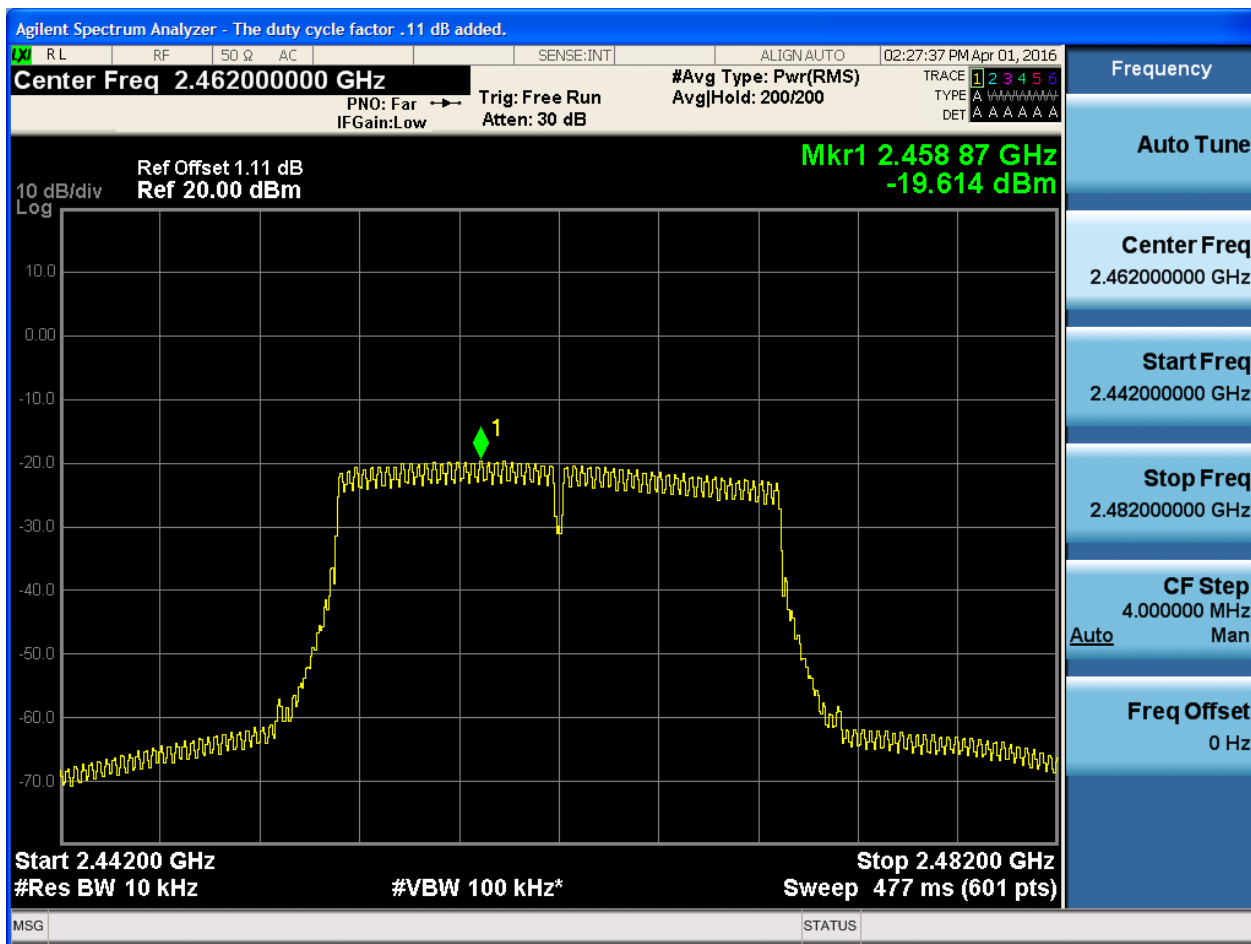


2.8 11N20_M@Ant 1





2.9 11N20_H@Ant 1





Agilent Spectrum Analyzer - The duty cycle factor .2 dB added.

Center Freq 2.422000000 GHz

#Avg Type: Pwr(RMS)
Avg|Hold: 200/200

Ref Offset 1.2 dB
Ref 20.00 dBm

Mkr1 2.425 73 GHz
-23.132 dBm

Start 2.38200 GHz
#Res BW 10 kHz
#VBW 100 kHz*

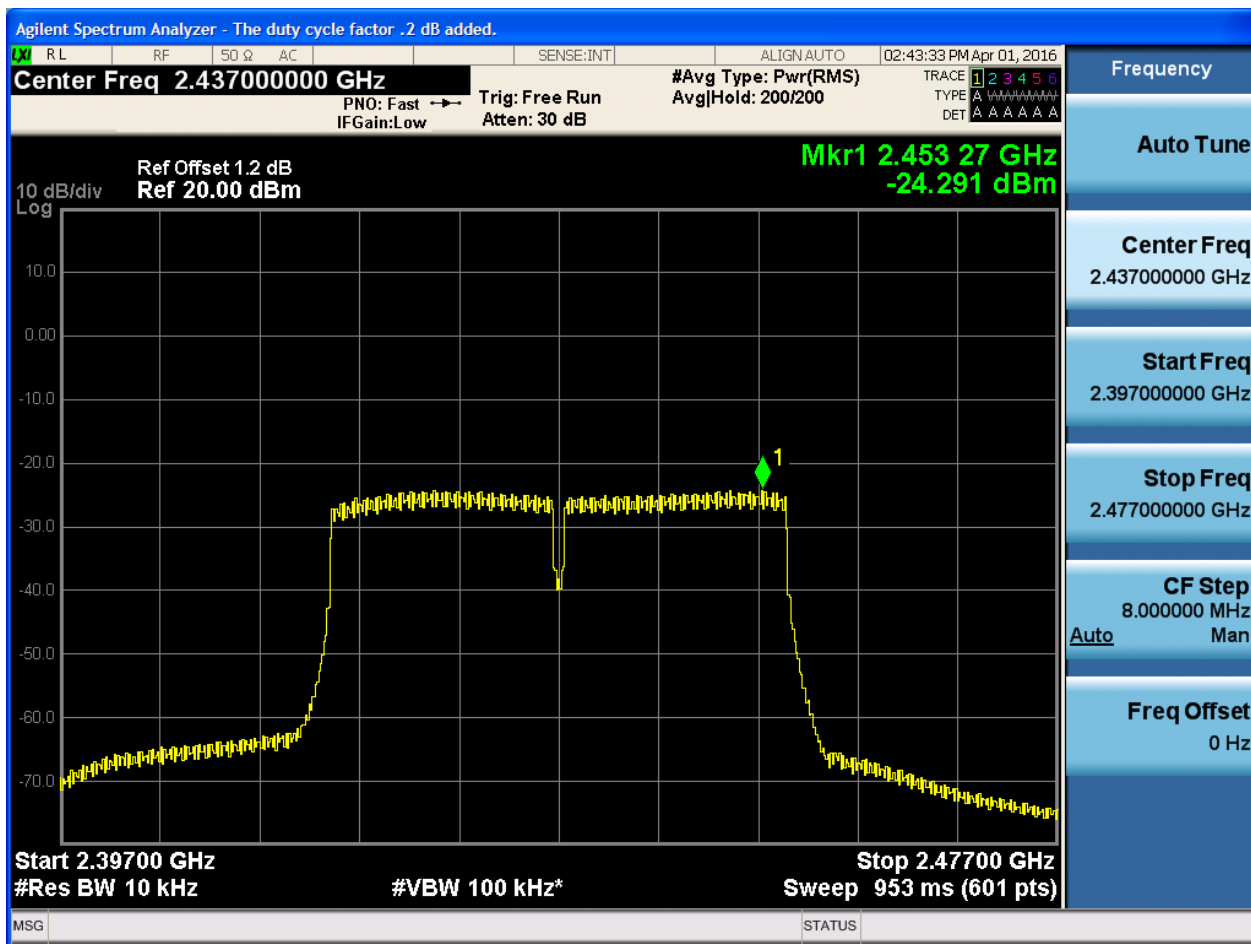
Stop 2.46200 GHz
Sweep 953 ms (601 pts)

The image shows a screenshot of an Agilent Spectrum Analyzer. The main display is a log-frequency plot with a yellow trace showing a signal spectrum. The frequency range is from 2.38200 GHz to 2.46200 GHz. The power level is in dBm, ranging from -70.0 to 10.0. A peak is marked with a green diamond and labeled '1' at 2.42573 GHz with a power of -23.132 dBm. The background is dark gray with a grid. The top of the screen shows various settings and status information, including the center frequency, average type, and resolution bandwidth. The bottom of the screen shows the start and stop frequencies, resolution bandwidth, and sweep time.

Frequency
Auto Tune
Center Freq 2.422000000 GHz
Start Freq 2.382000000 GHz
Stop Freq 2.462000000 GHz
CF Step 8.000000 MHz Man
Freq Offset 0 Hz

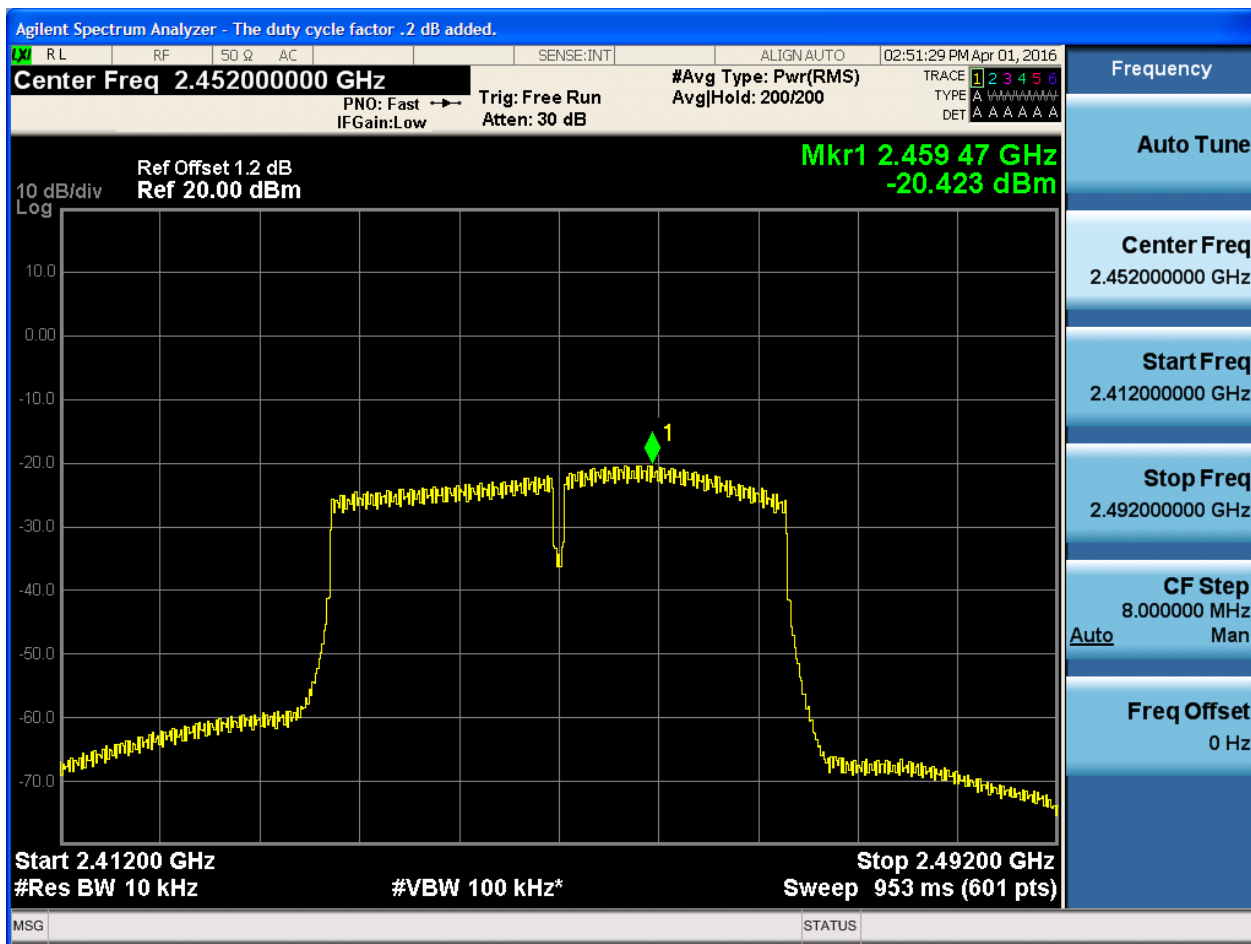


2.11 11N40_M@Ant 1





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	8.53	-50.05	pass
11B	H	2462	Ant 1	8.86	-44.46	pass
11G	L	2412	Ant 1	0.11	-50.14	pass
11G	H	2462	Ant 1	0.18	-48.24	pass
11N20	L	2412	Ant 1	-1.29	-50.31	pass
11N20	H	2462	Ant 1	-1.08	-46.53	pass
11N40	L	2422	Ant 1	-4.74	-49.82	pass
11N40	H	2452	Ant 1	-1.19	-45.05	pass



Part II - Test Plots

2.1 11B_L@Ant 1



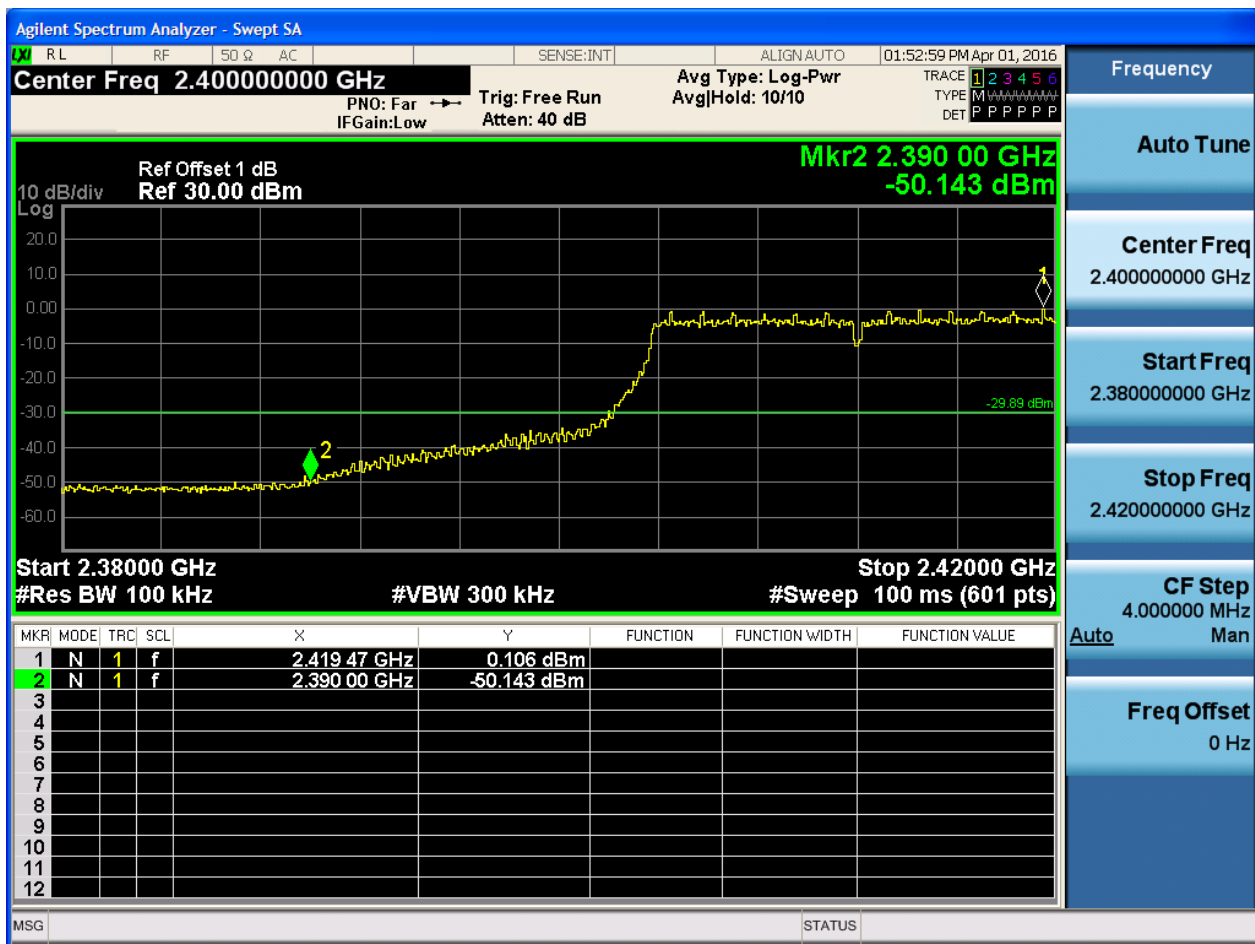


2.2 11B_H@Ant 1



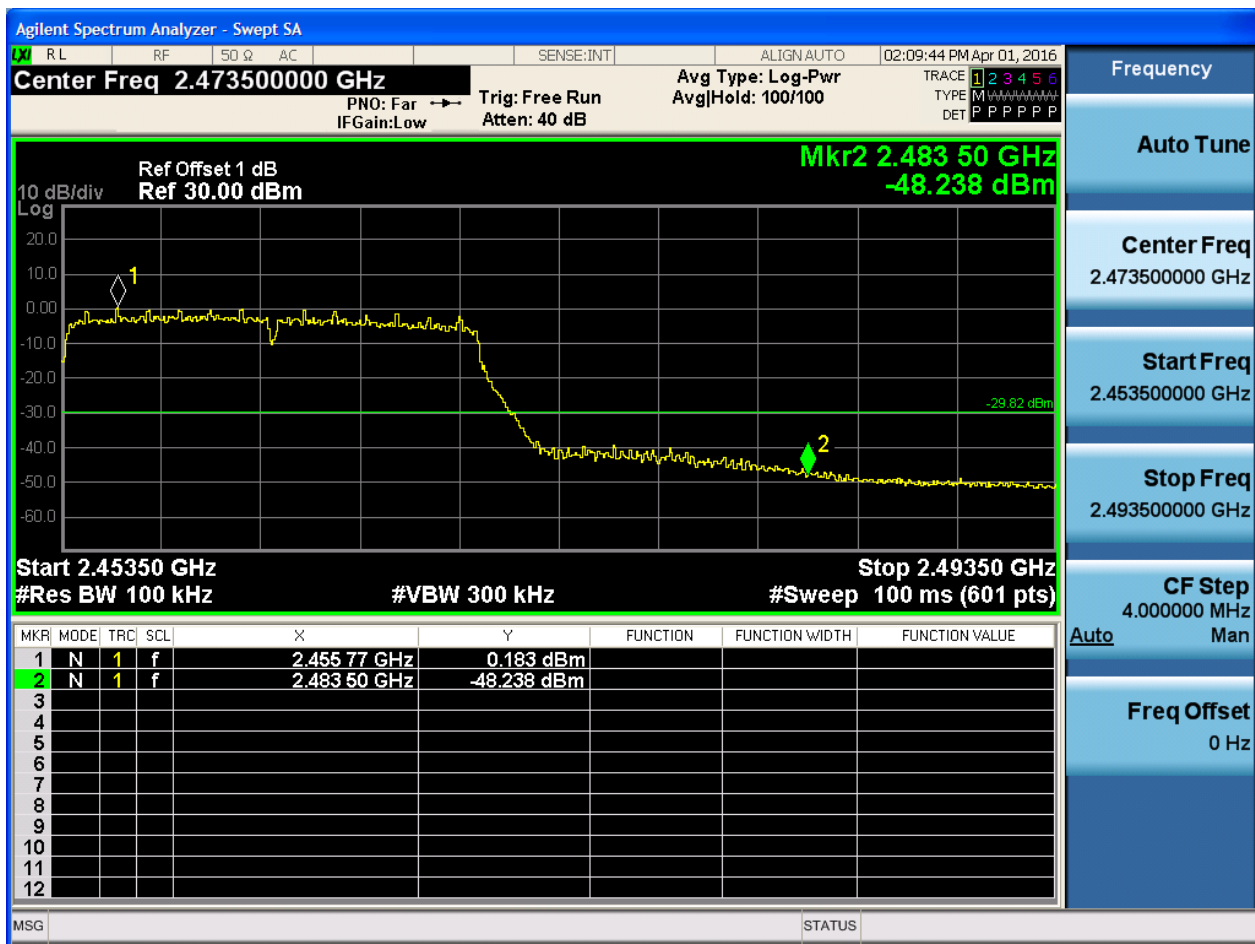


2.3 11G_L@Ant 1





2.4 11G_H@Ant 1





Agilent Spectrum Analyzer - Swept SA

[X] RL RF 50 Ω AC SENSE:INT ALIGN:AUTO 02:15:01 PM Apr 01, 2016

Center Freq 2.40000000 GHz Avg Type: Log-Pwr
PNO: Far → Trg: Free Run Atten: 40 dB TYPE M W W W W W W W W DET P P P P P P
IFGain:Low

Ref Offset 1 dB Ref 30.00 dBm **Mkr2 2.390 00 GHz -50.309 dBm**

10 dB/div Log

The spectrum plot shows a frequency range from approximately 2.37 GHz to 2.43 GHz. The vertical axis represents power density in dBm/dB, ranging from -60.0 to +10.0. A yellow trace shows a relatively flat noise floor around -50 dBm until about 2.38 GHz, where it begins to rise sharply, reaching a plateau of approximately -10 dBm above 2.40 GHz. Two green diamond-shaped cursors are placed on the rising portion of the curve. Cursor 1 is at approximately 2.385 GHz and -50.3 dBm. Cursor 2 is at approximately 2.390 GHz and -50.3 dBm.

Start 2.38000 GHz Stop 2.42000 GHz
#Res BW 100 kHz #VBW 300 kHz #Sweep 100 ms (601 pts)

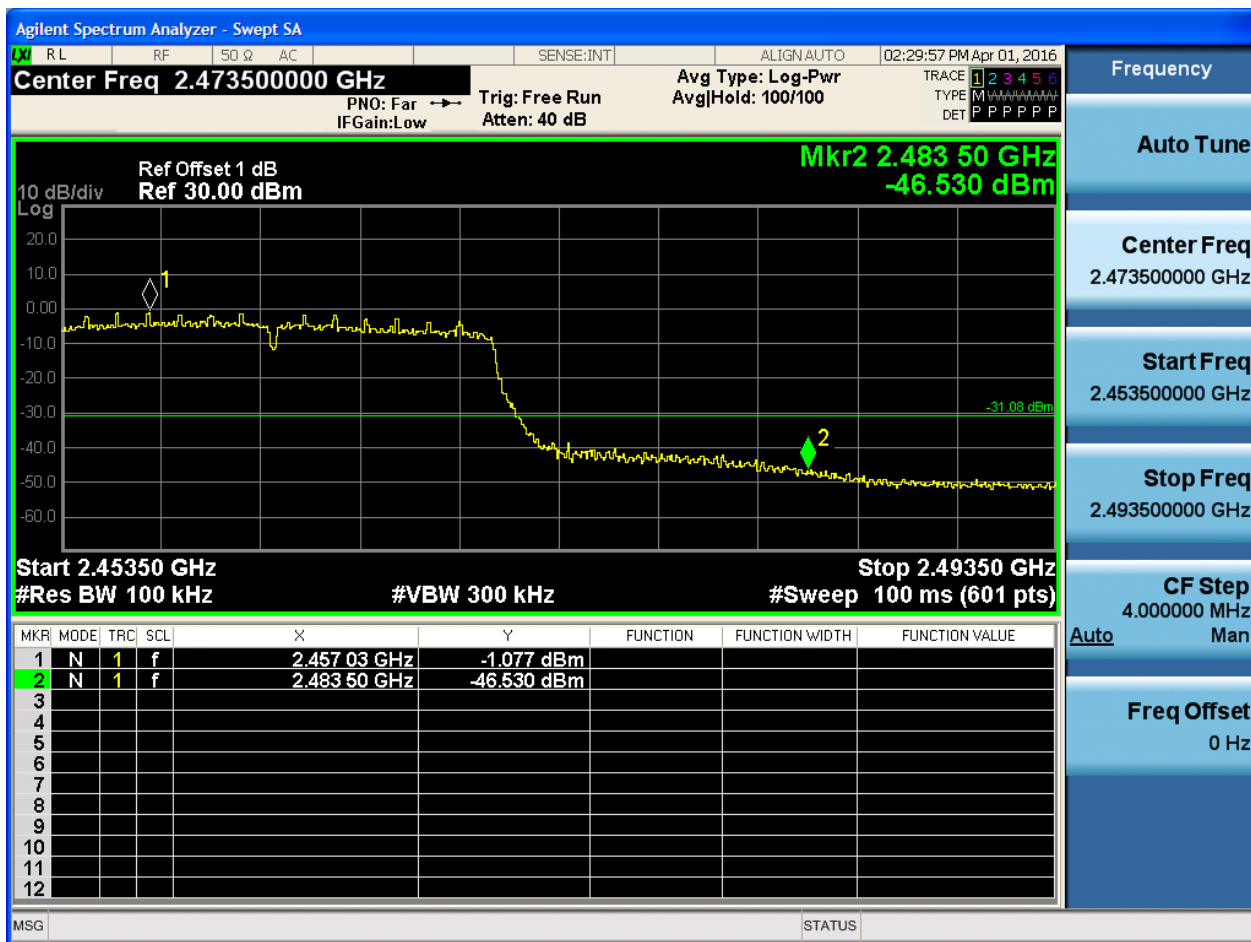
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.419 53 GHz	-1.290 dBm			
2	N	1	f	2.390 00 GHz	-50.309 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

MSG STATUS

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

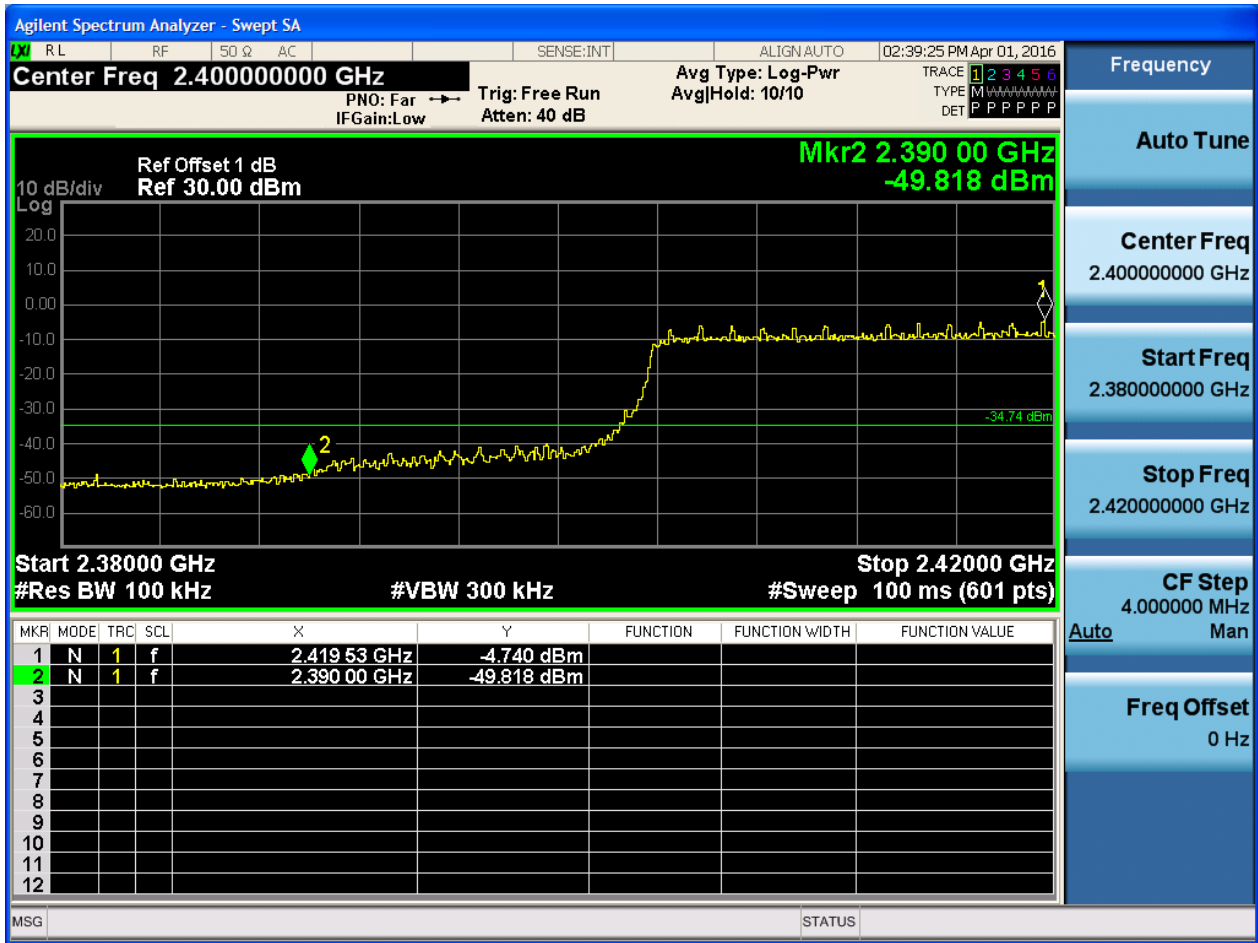


2.6 11N20_H@Ant 1



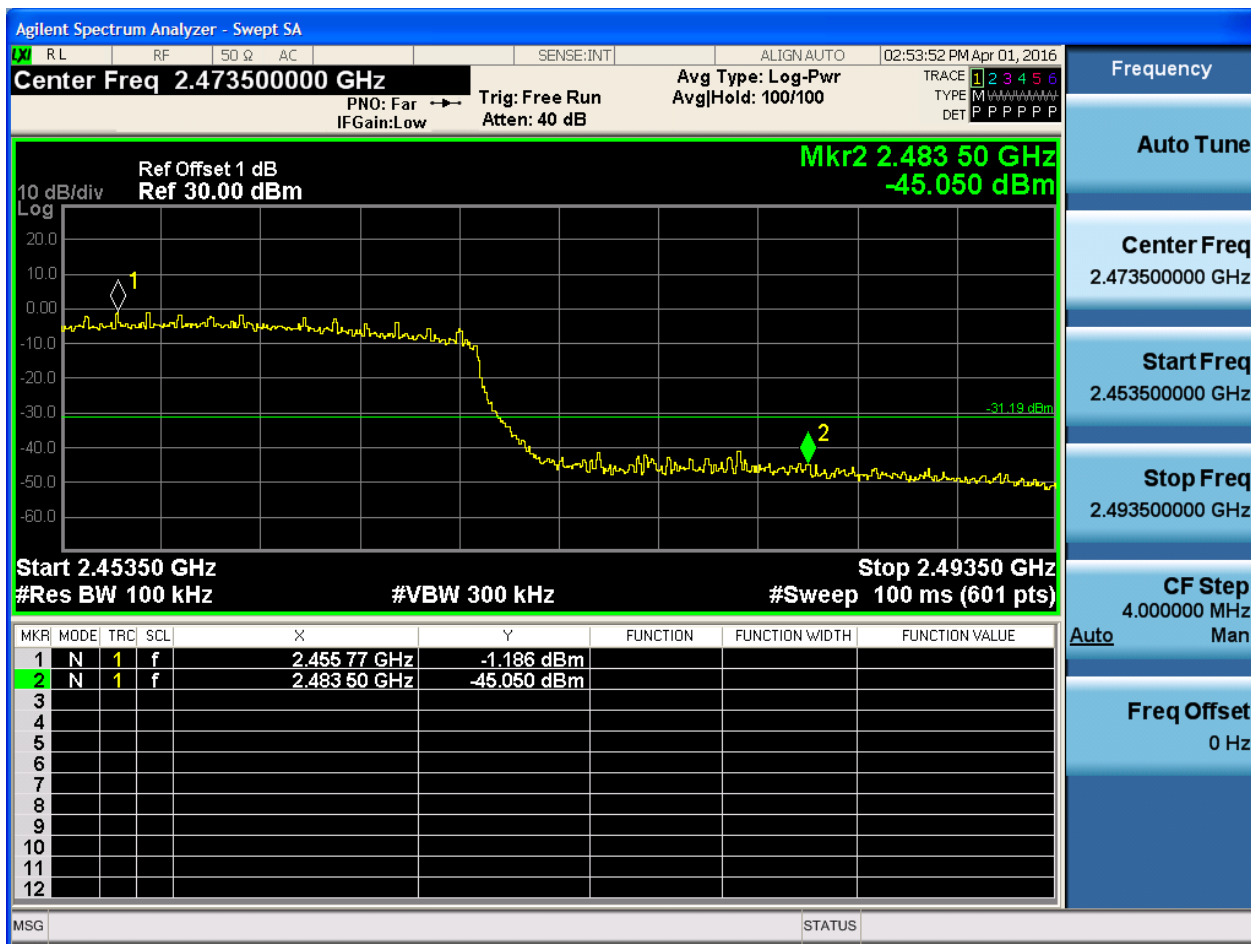


2.7 11N40_L@Ant 1





2.8 11N40_H@Ant 1



Appendix H: 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

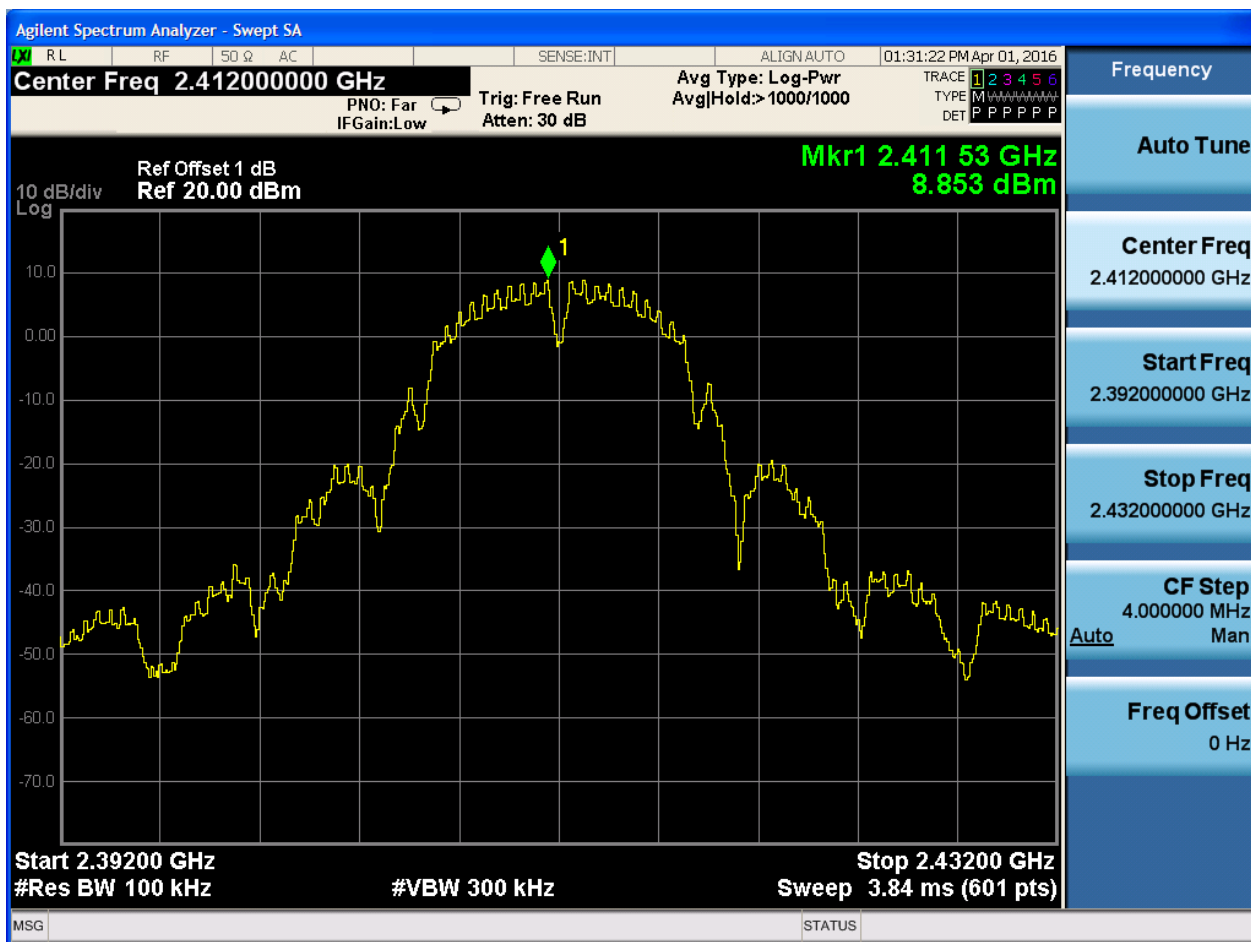
Test Mode	Test Channel	Frequency[MHz]	Ant	Pref[dBm]	Puw[dBm]	Verdict
11B	L	2412	Ant 1	8.85	<limit	pass
11B	M	2437	Ant 1	9.85	<limit	pass
11B	H	2462	Ant 1	8.80	<limit	pass
11G	L	2412	Ant 1	0.33	<limit	pass
11G	M	2437	Ant 1	0.97	<limit	pass
11G	H	2462	Ant 1	0.32	<limit	pass
11N20	L	2412	Ant 1	-1.12	<limit	pass
11N20	M	2437	Ant 1	-0.47	<limit	pass
11N20	H	2462	Ant 1	-0.95	<limit	pass
11N40	L	2422	Ant 1	-3.70	<limit	pass
11N40	M	2437	Ant 1	-4.81	<limit	pass
11N40	H	2452	Ant 1	-1.02	<limit	pass



Part II - Test Plots

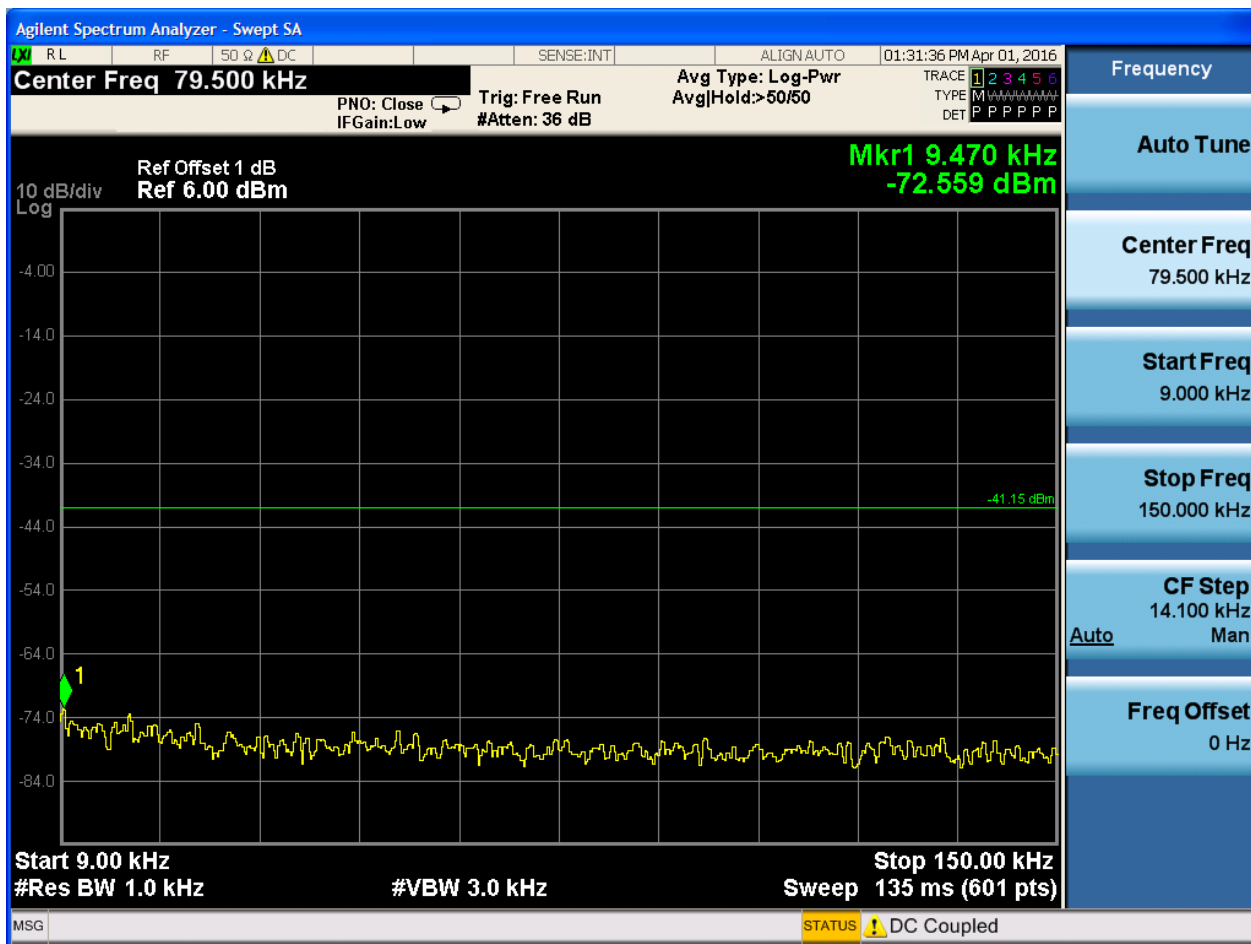
2.1 11B_L@Ant 1

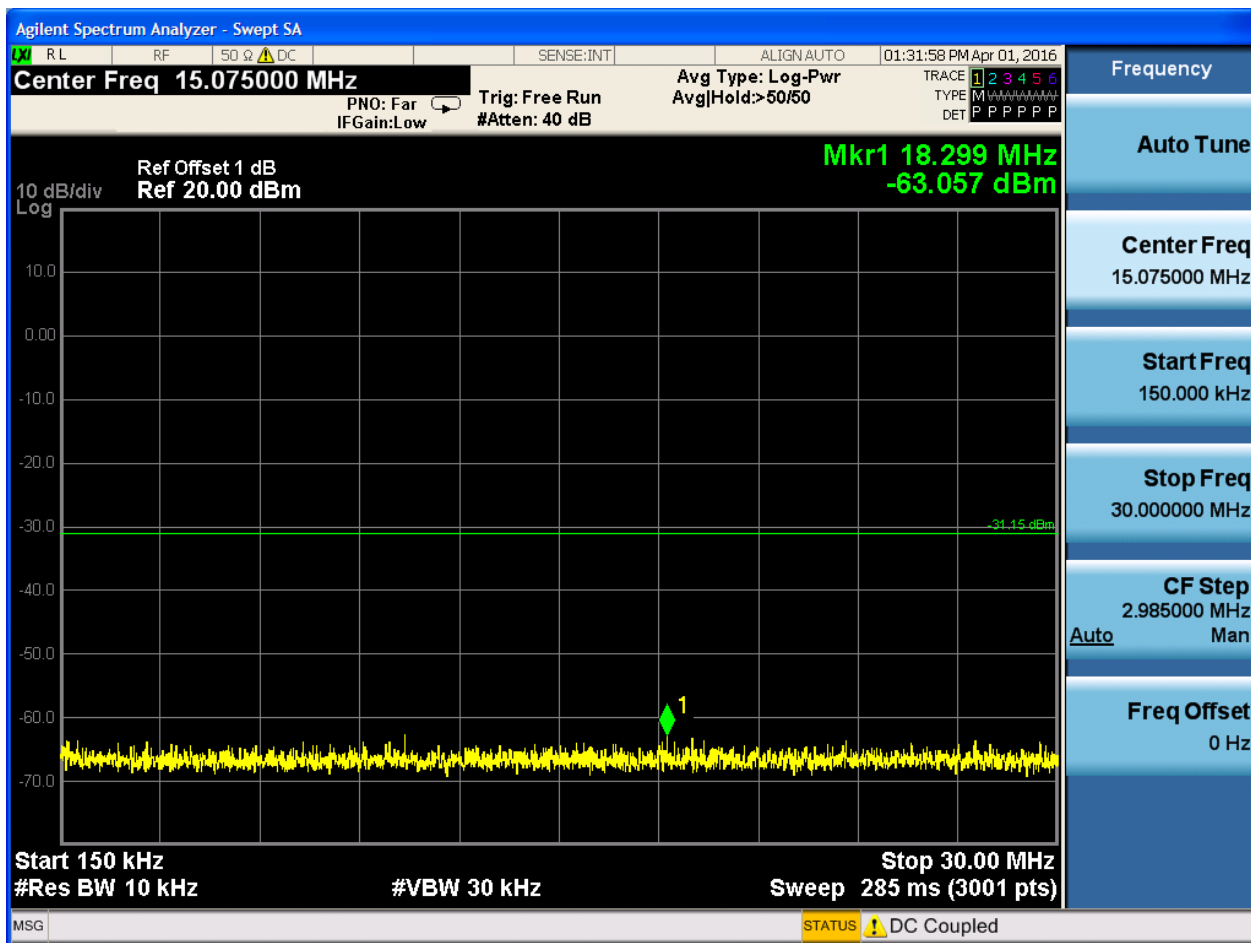
Pref:

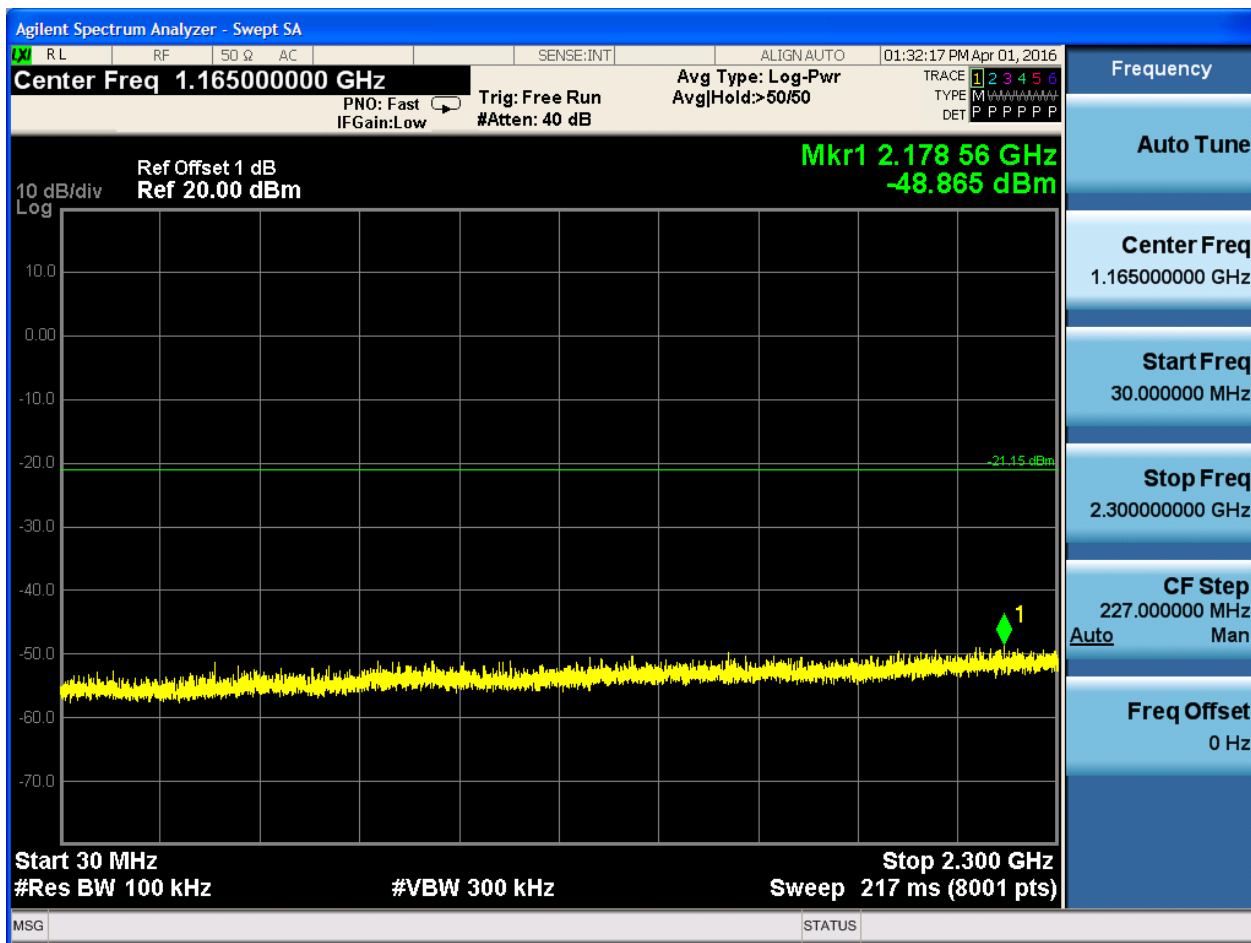


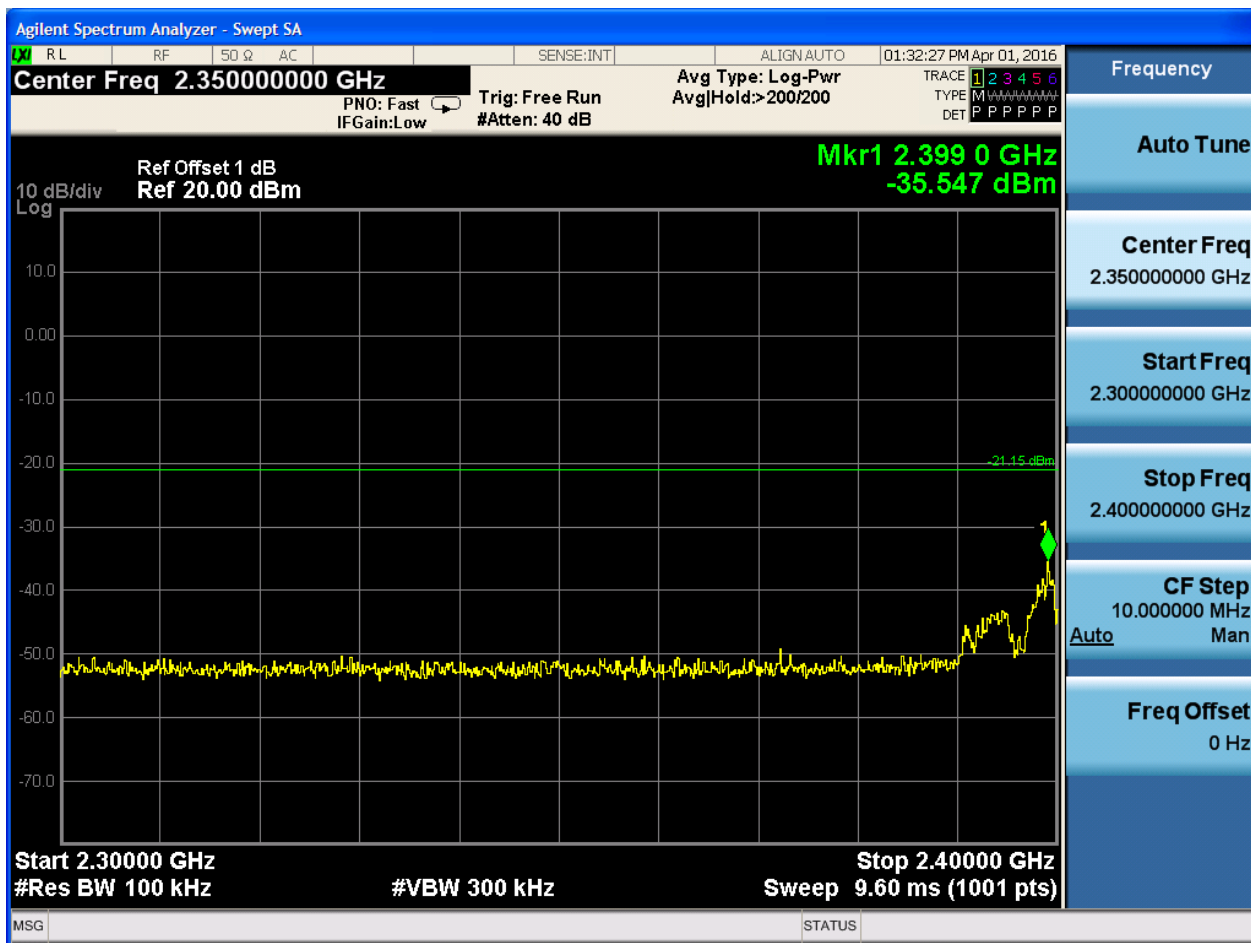


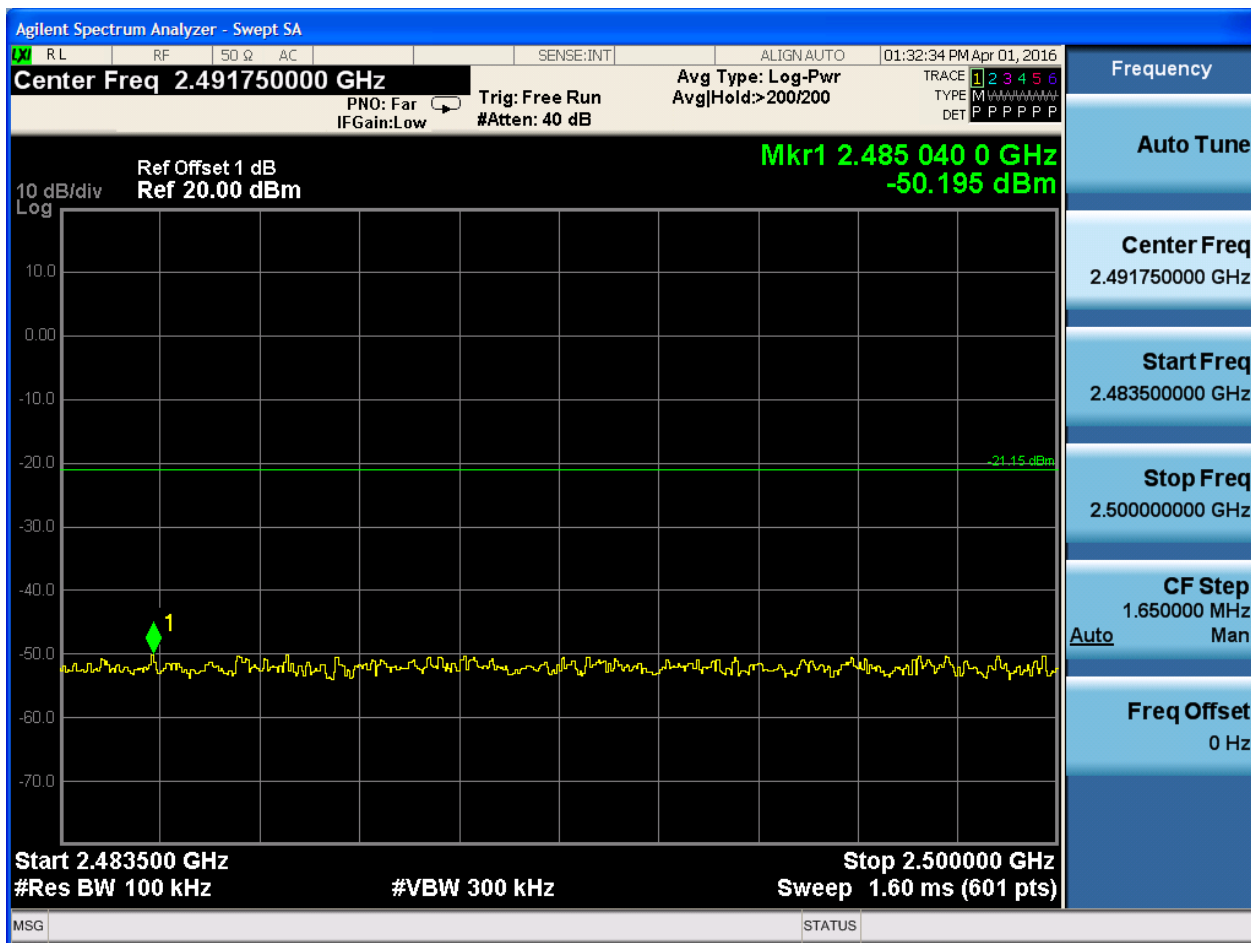
Puw:









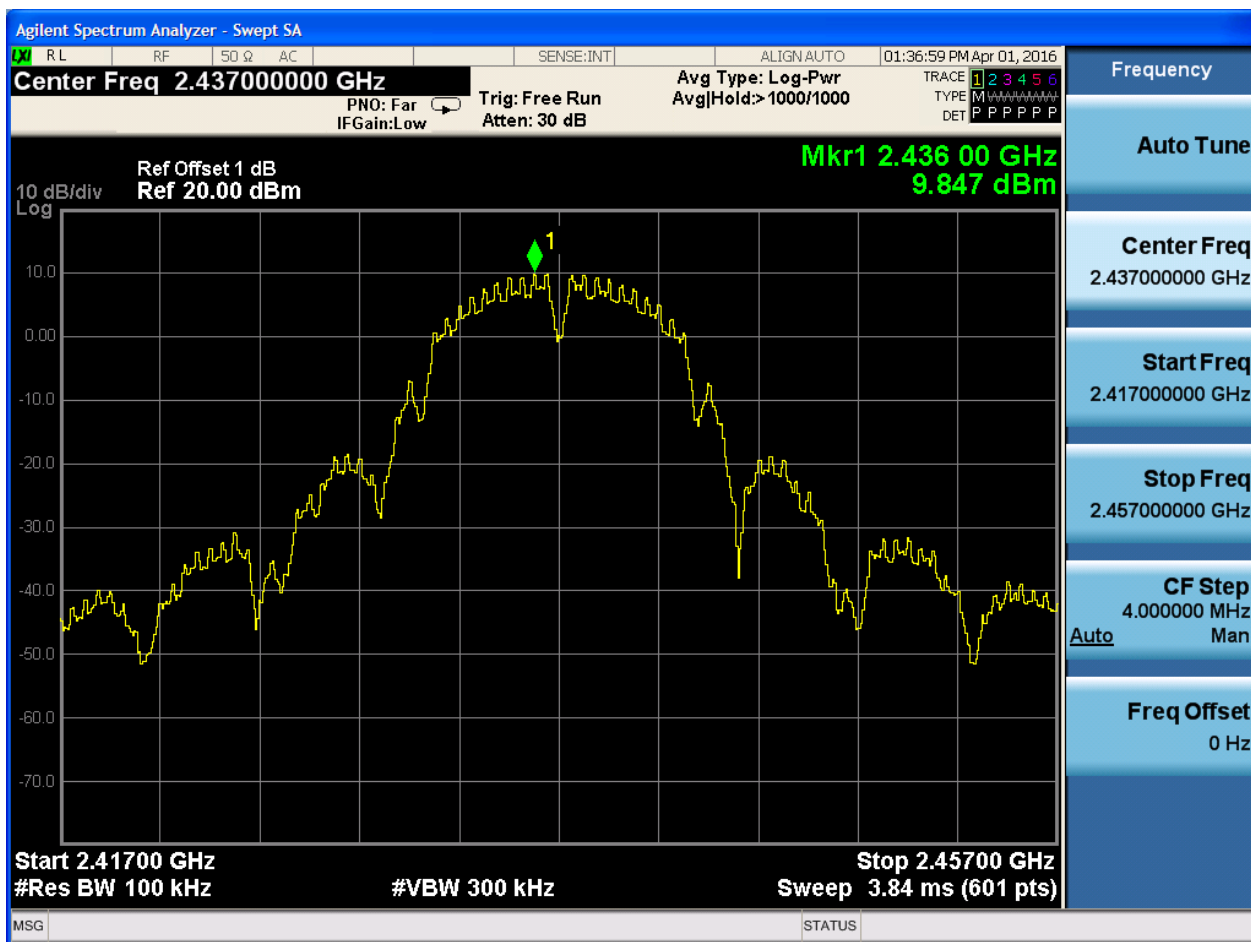






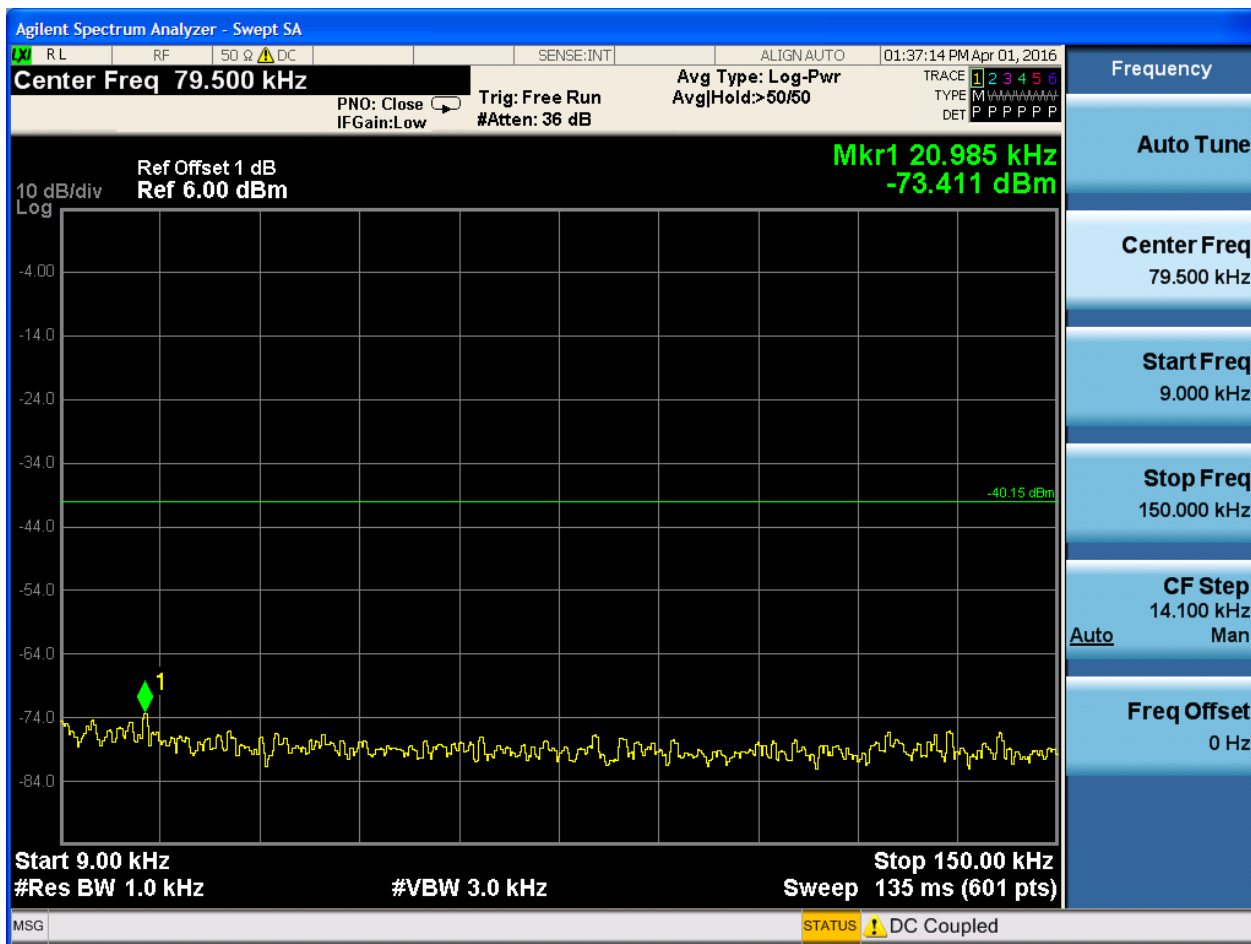
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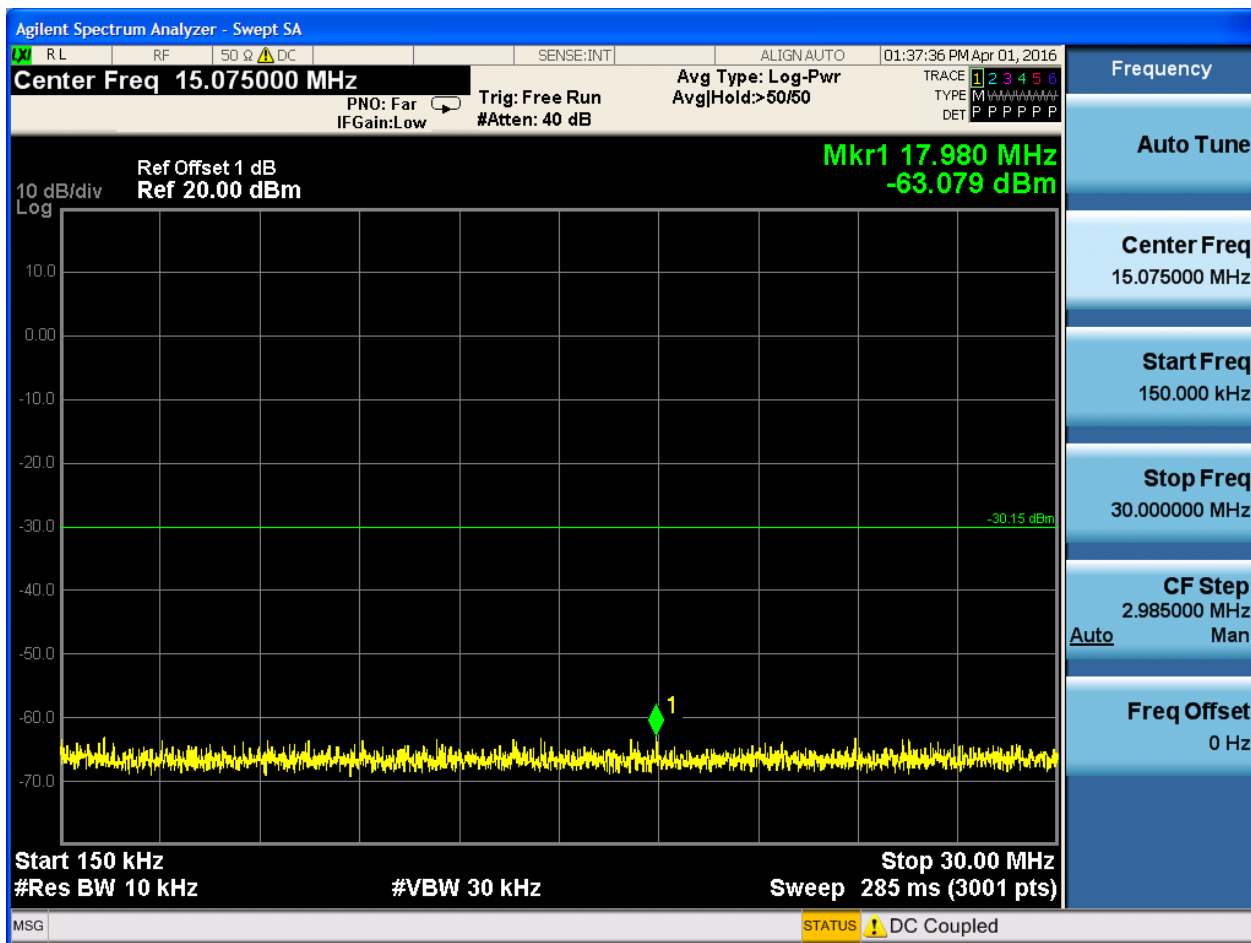
Pref:

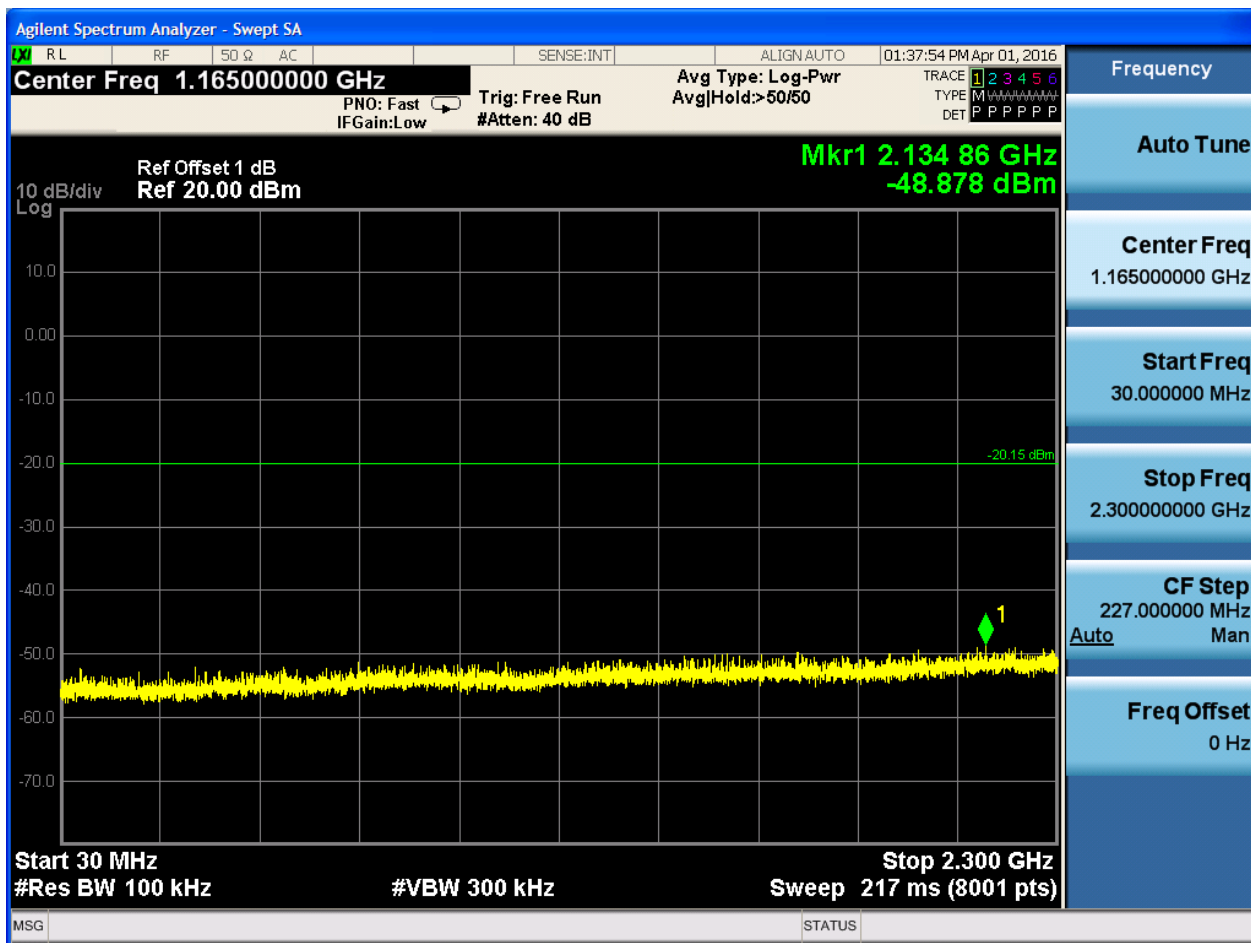


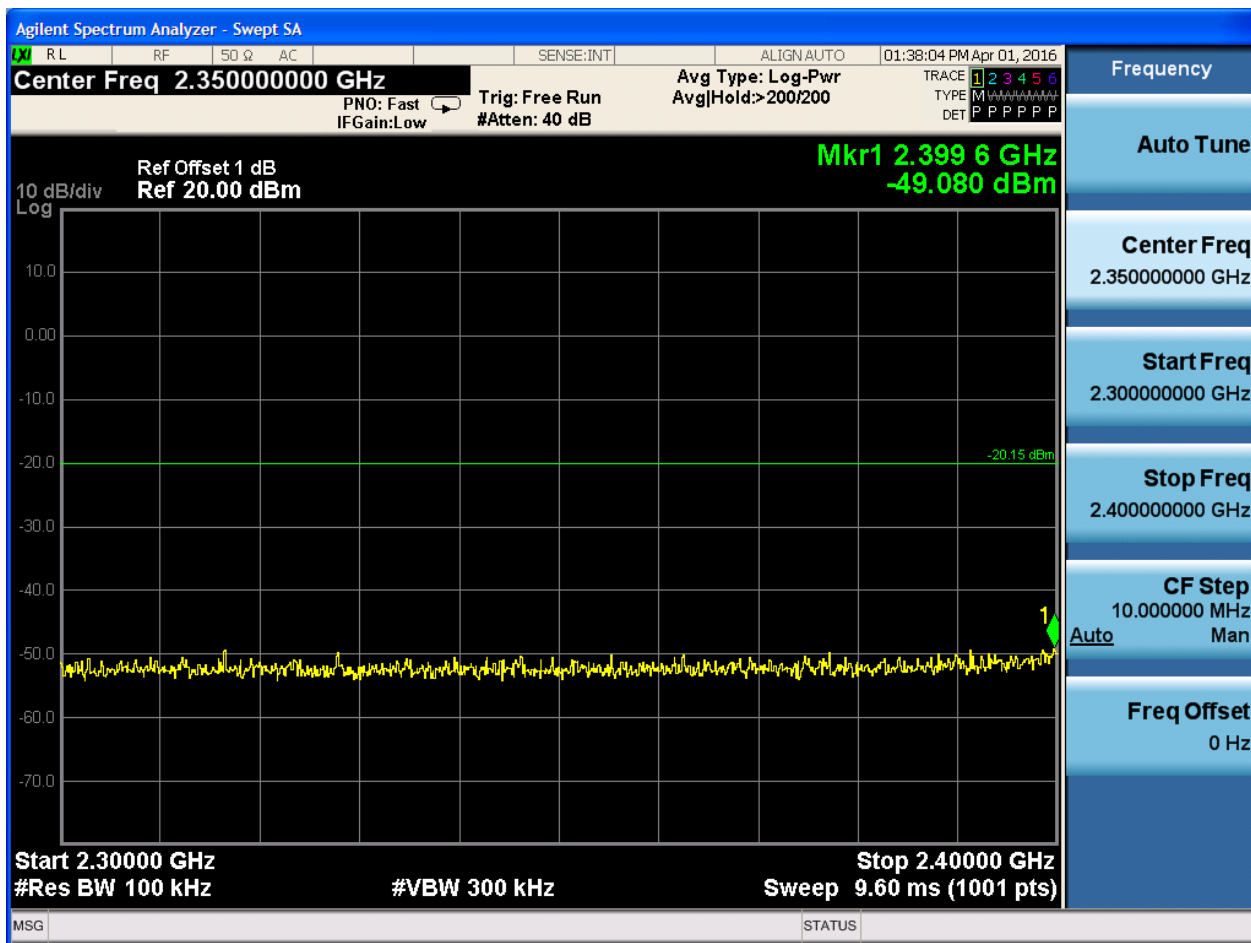


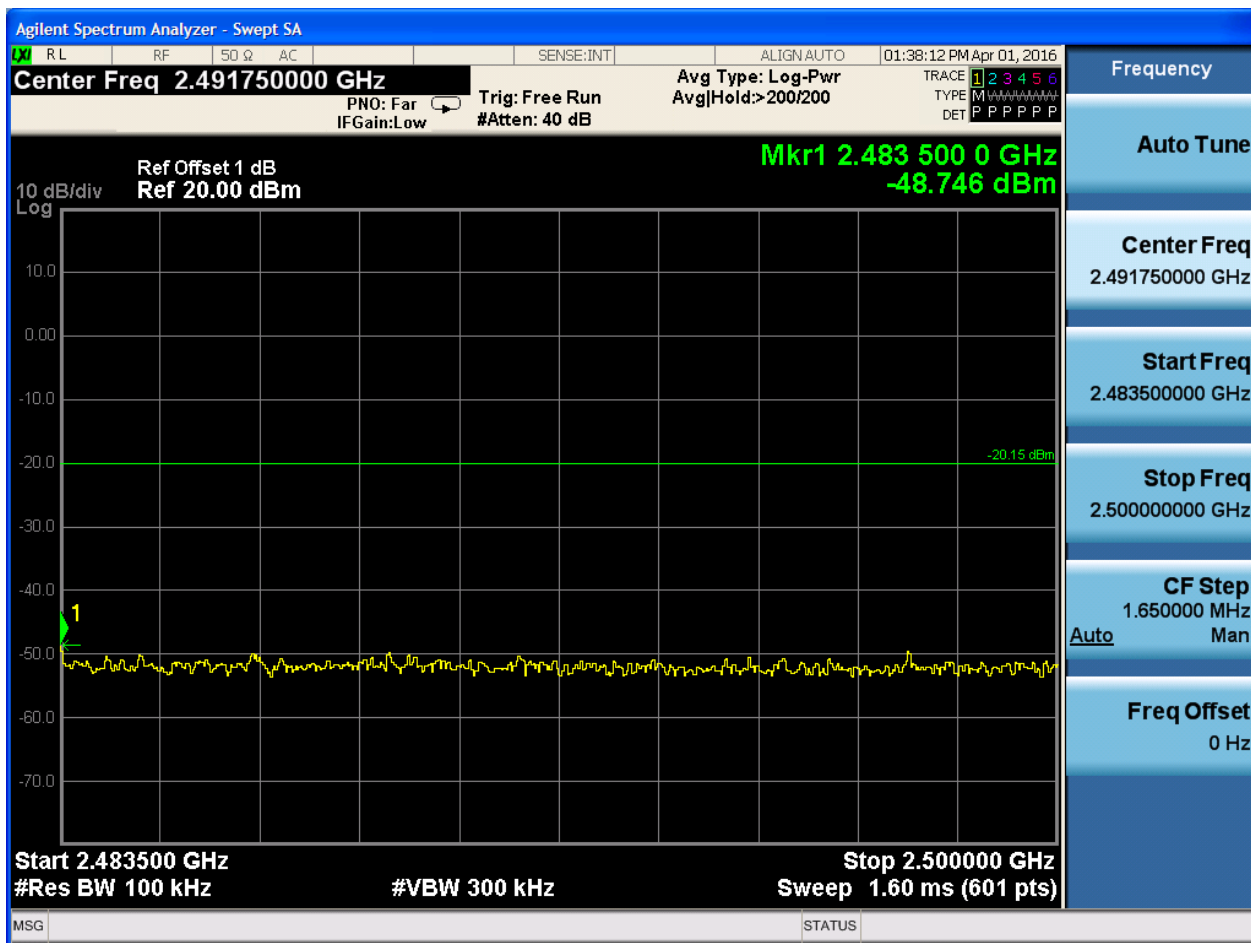
Puw:













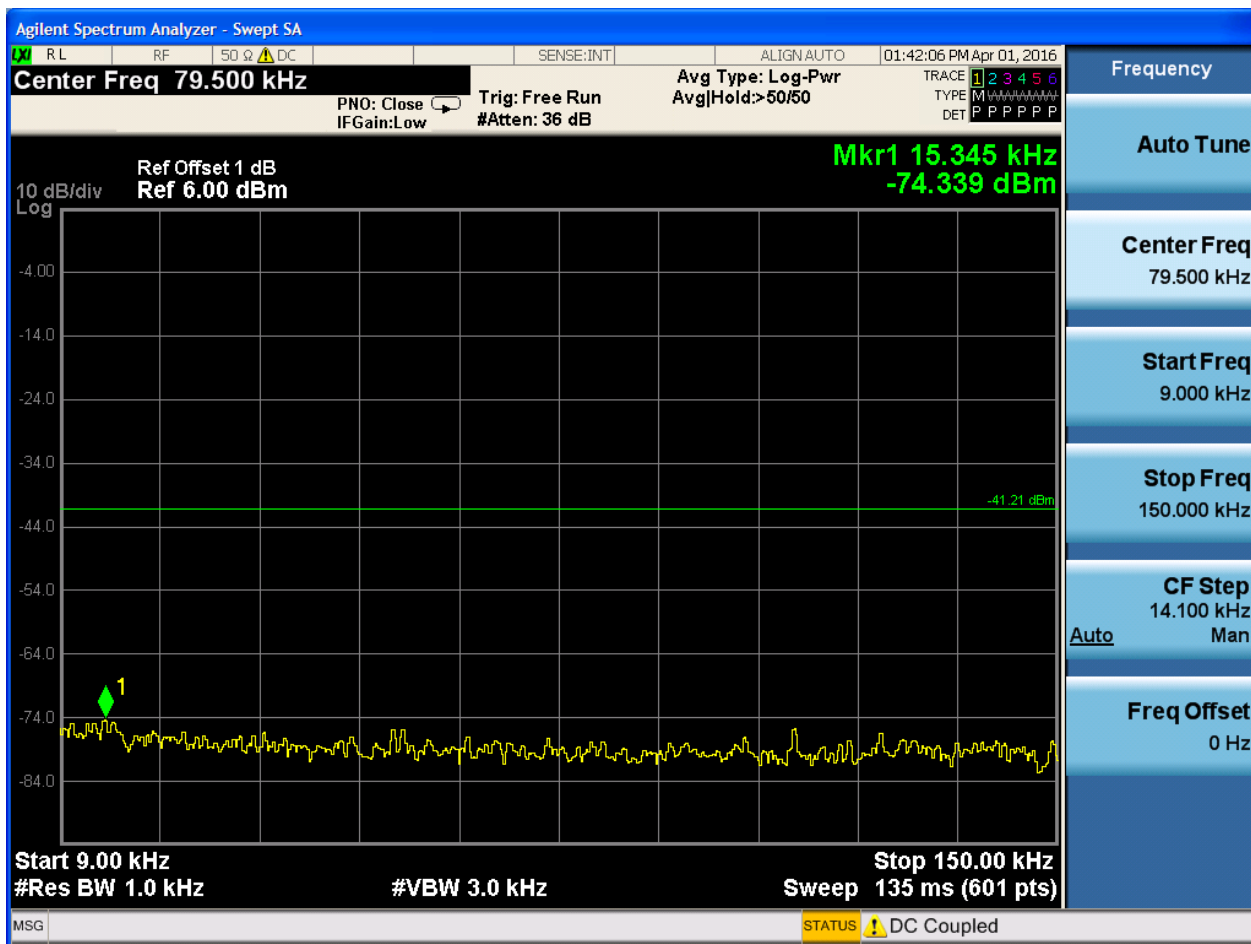
2.3 11B_H@Ant 1

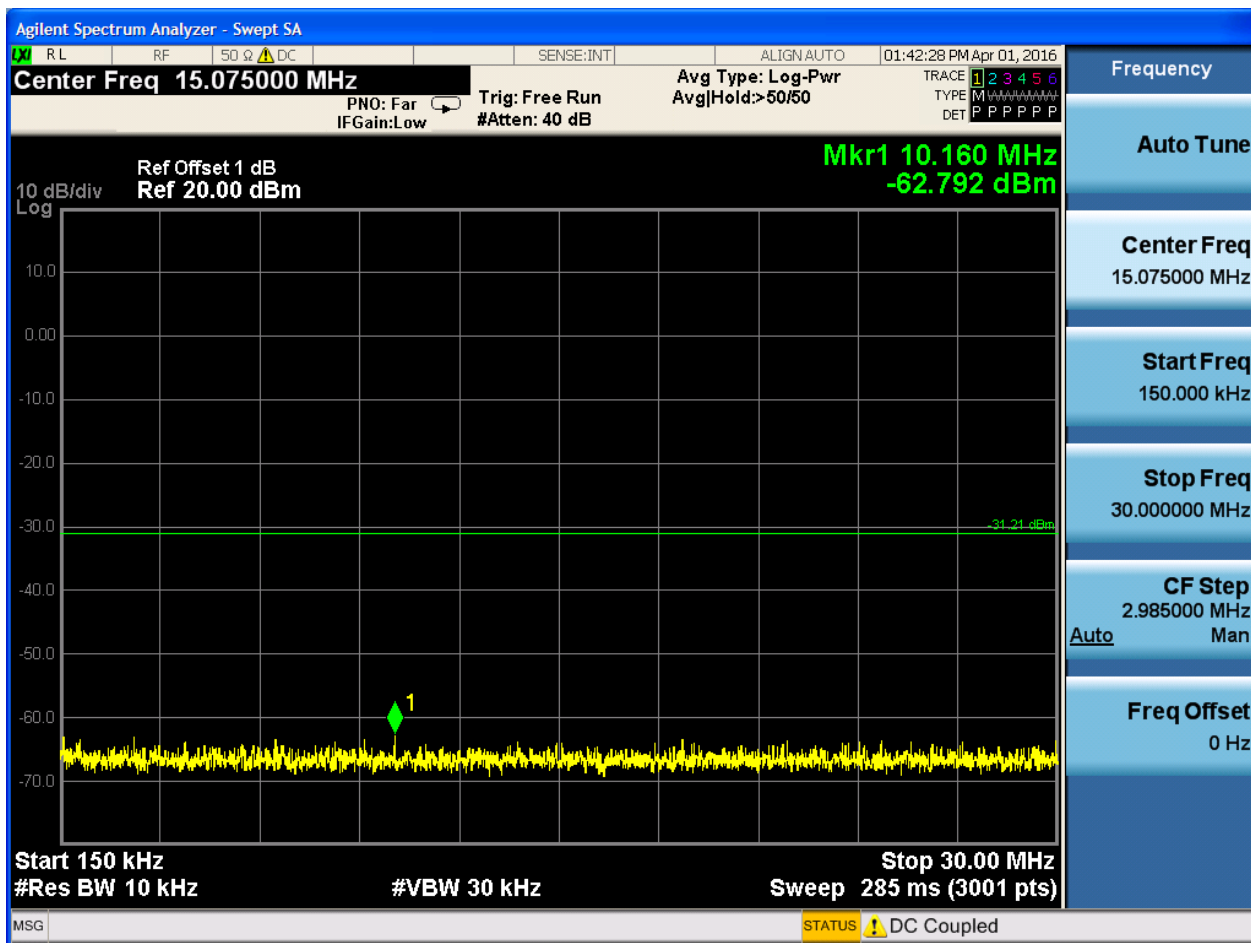
Pref:

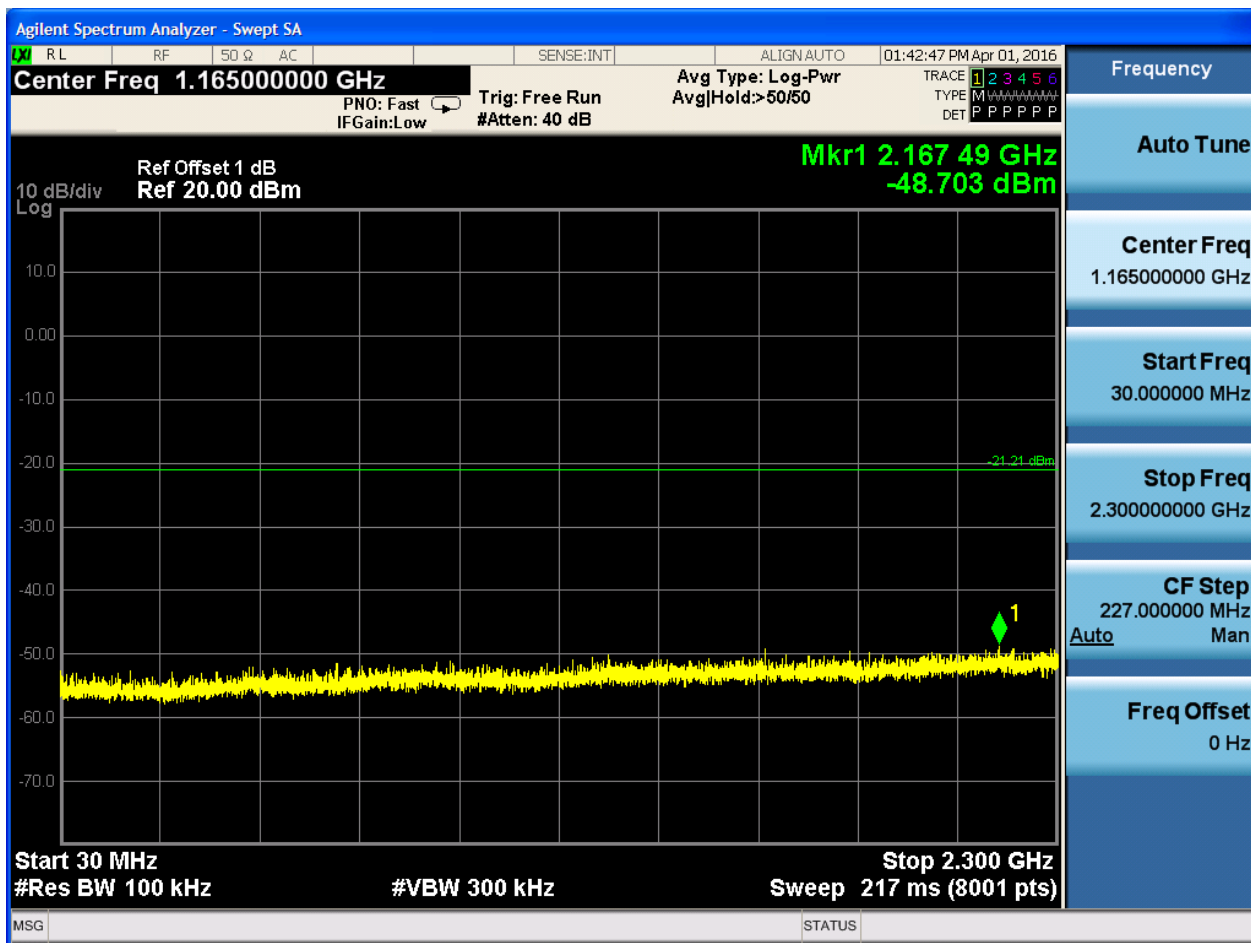


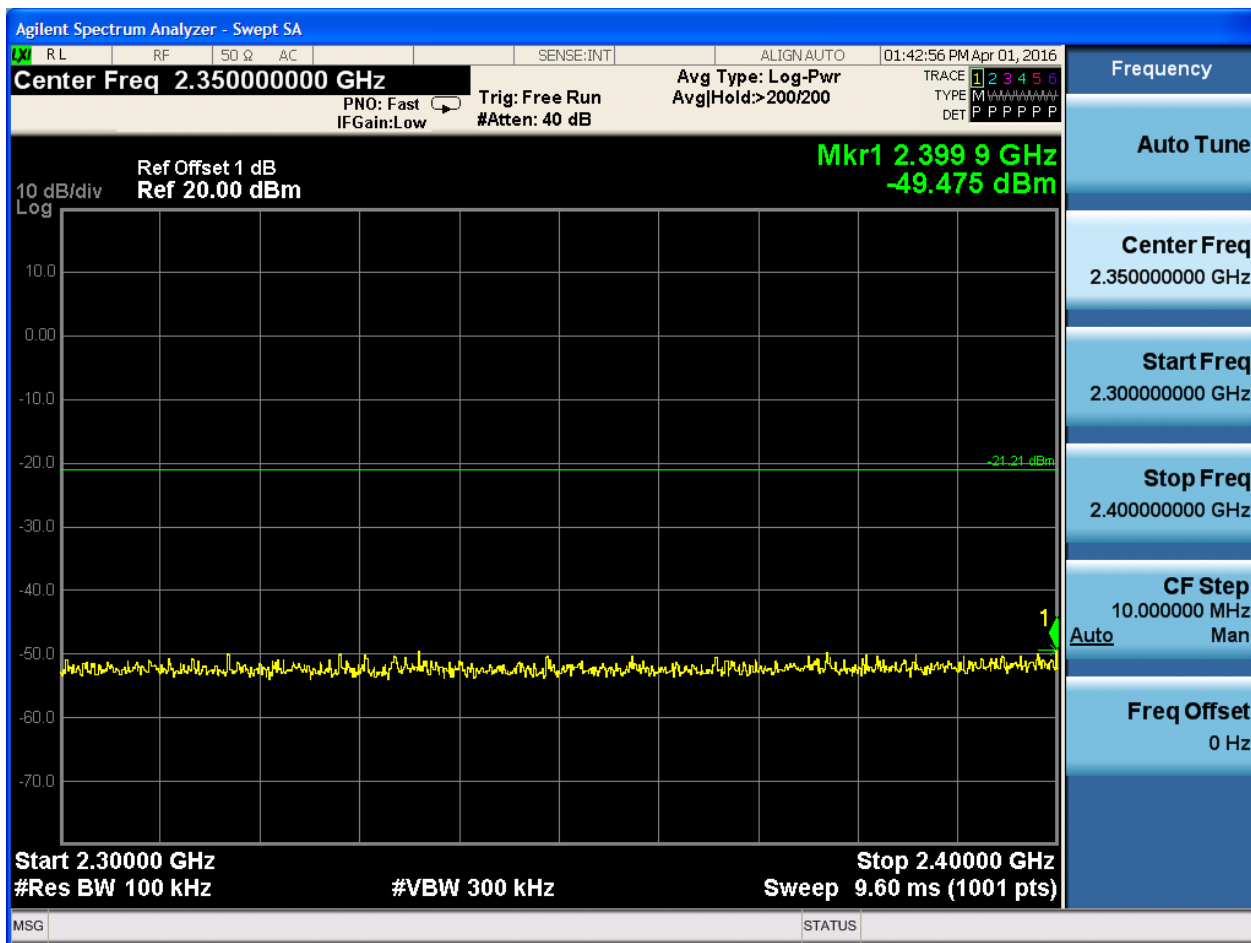


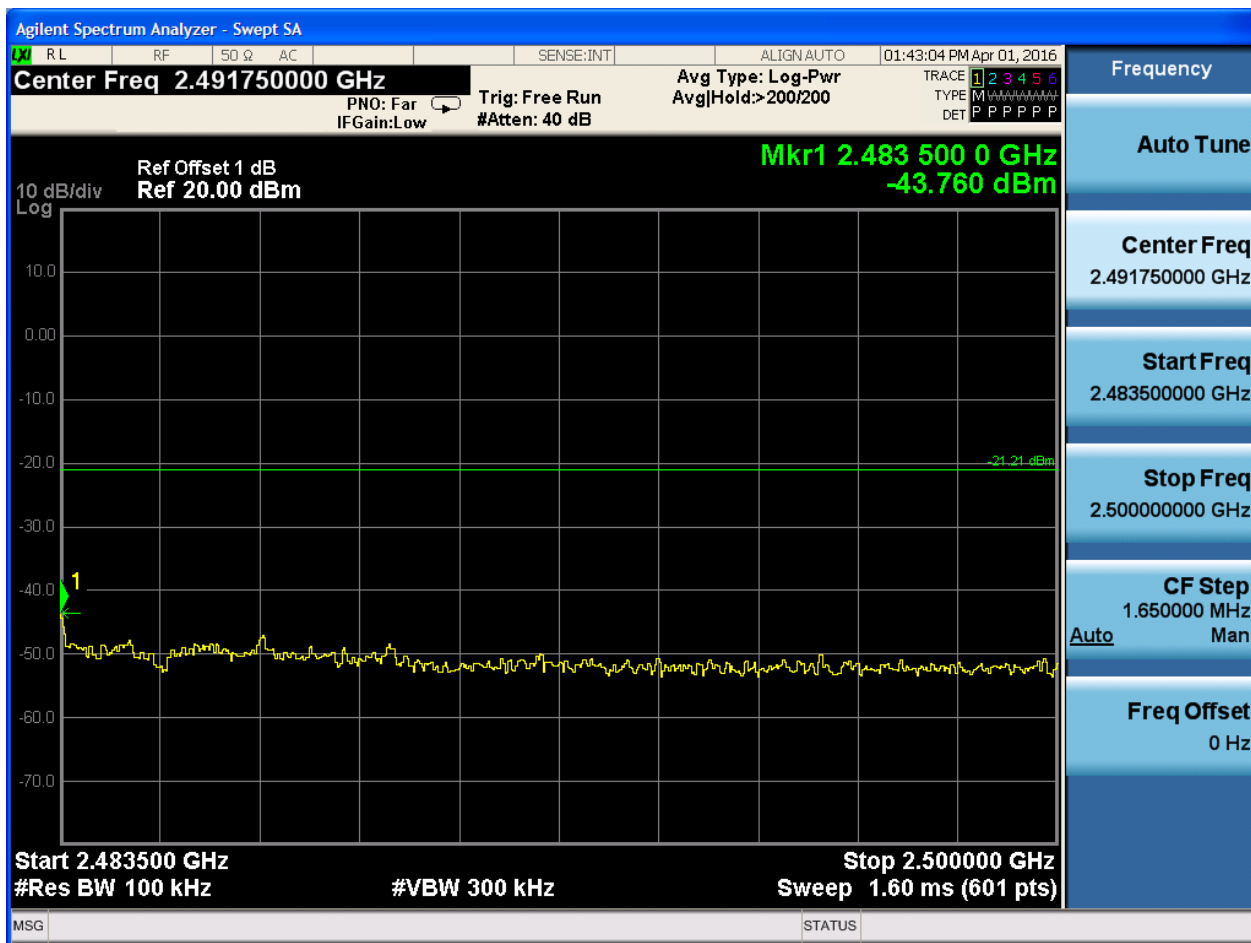
Puw:









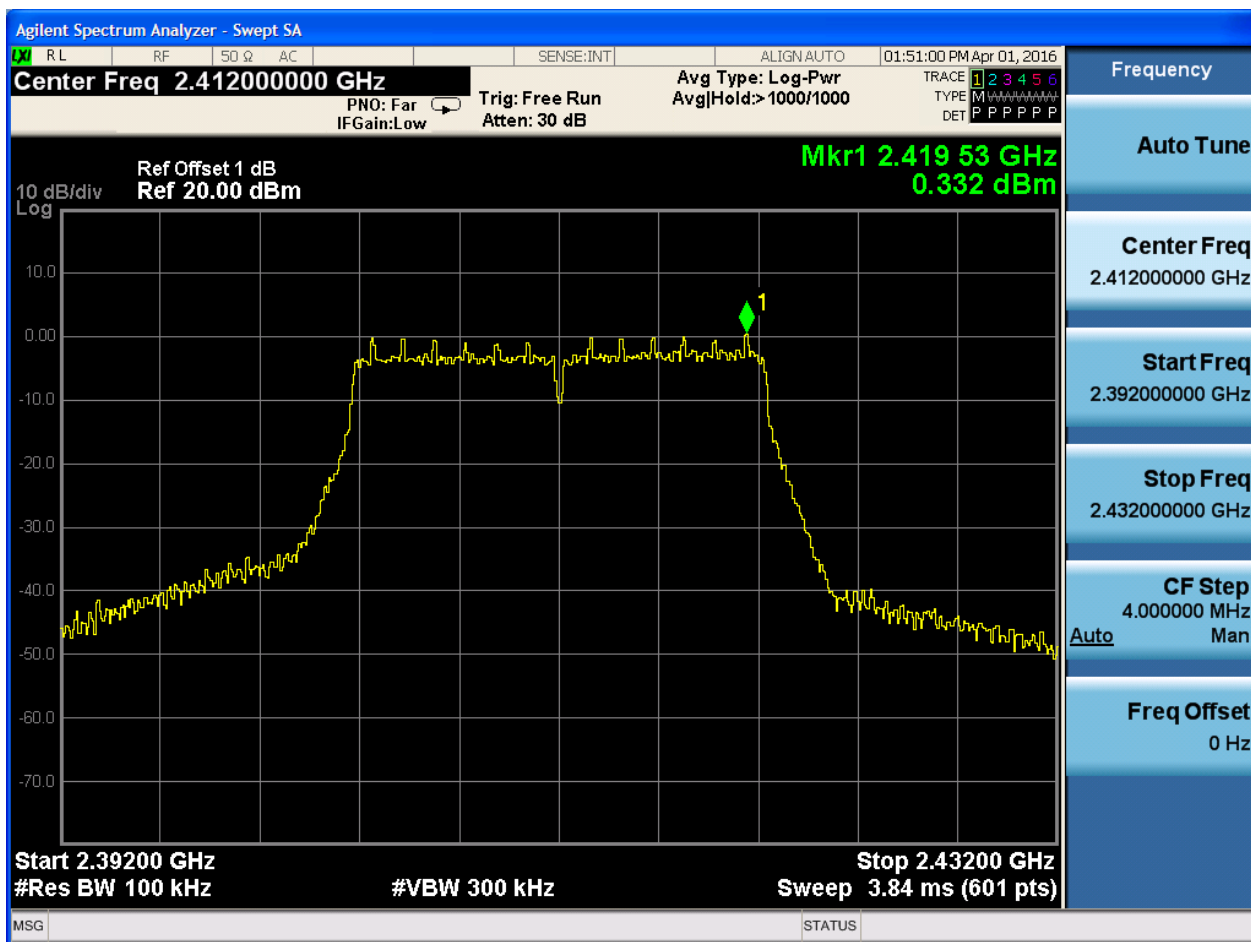






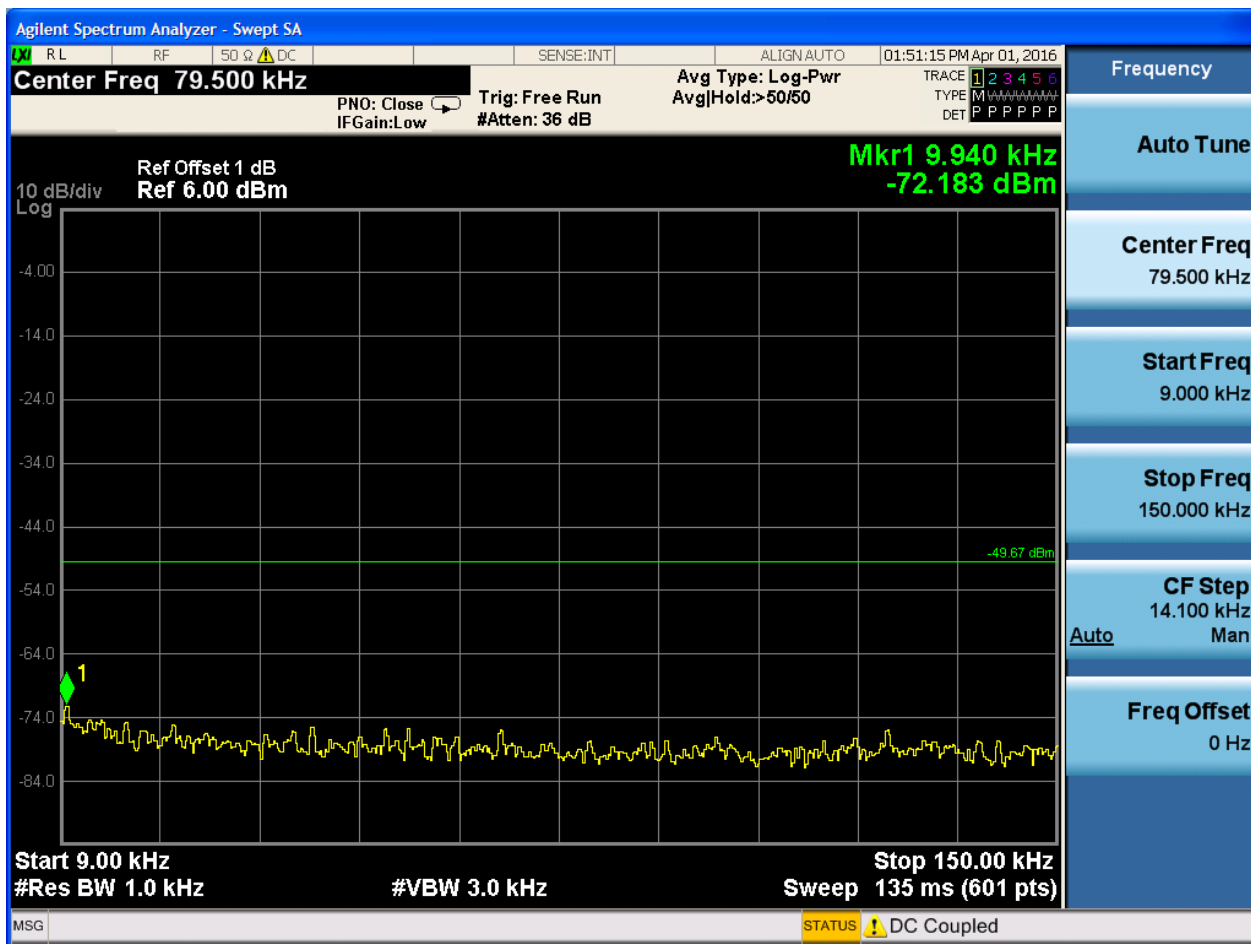
2.4 11G_L@Ant 1

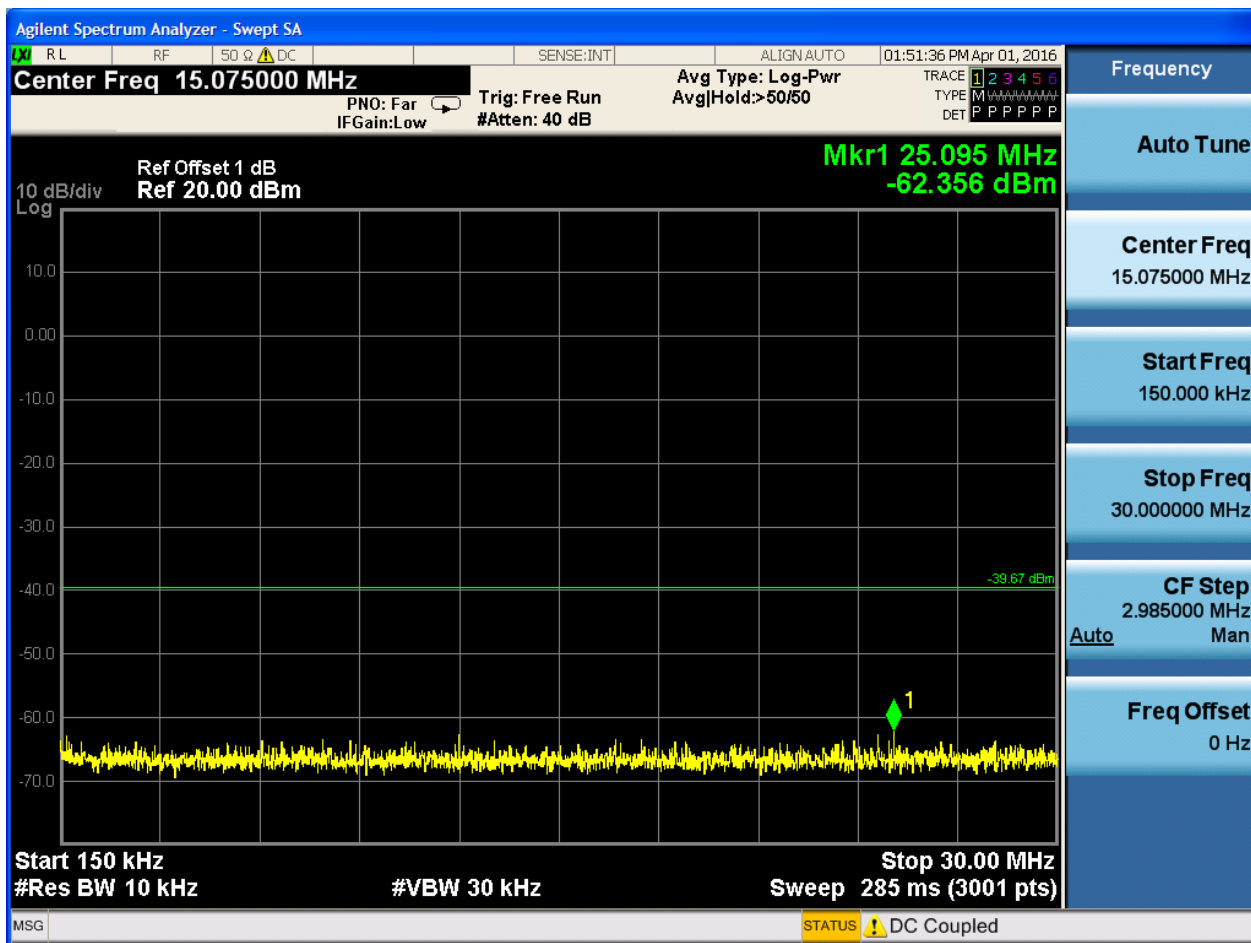
Pref:

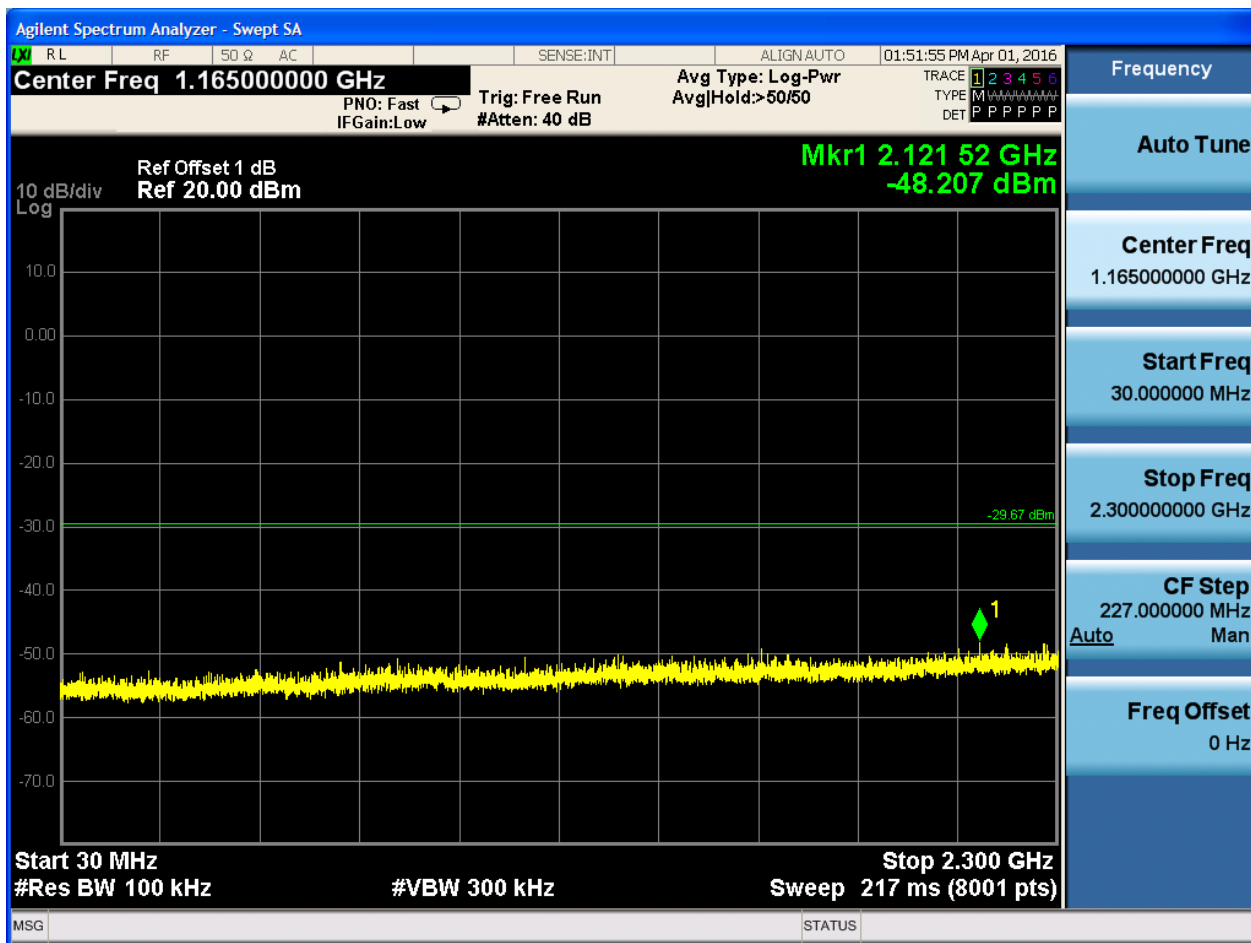


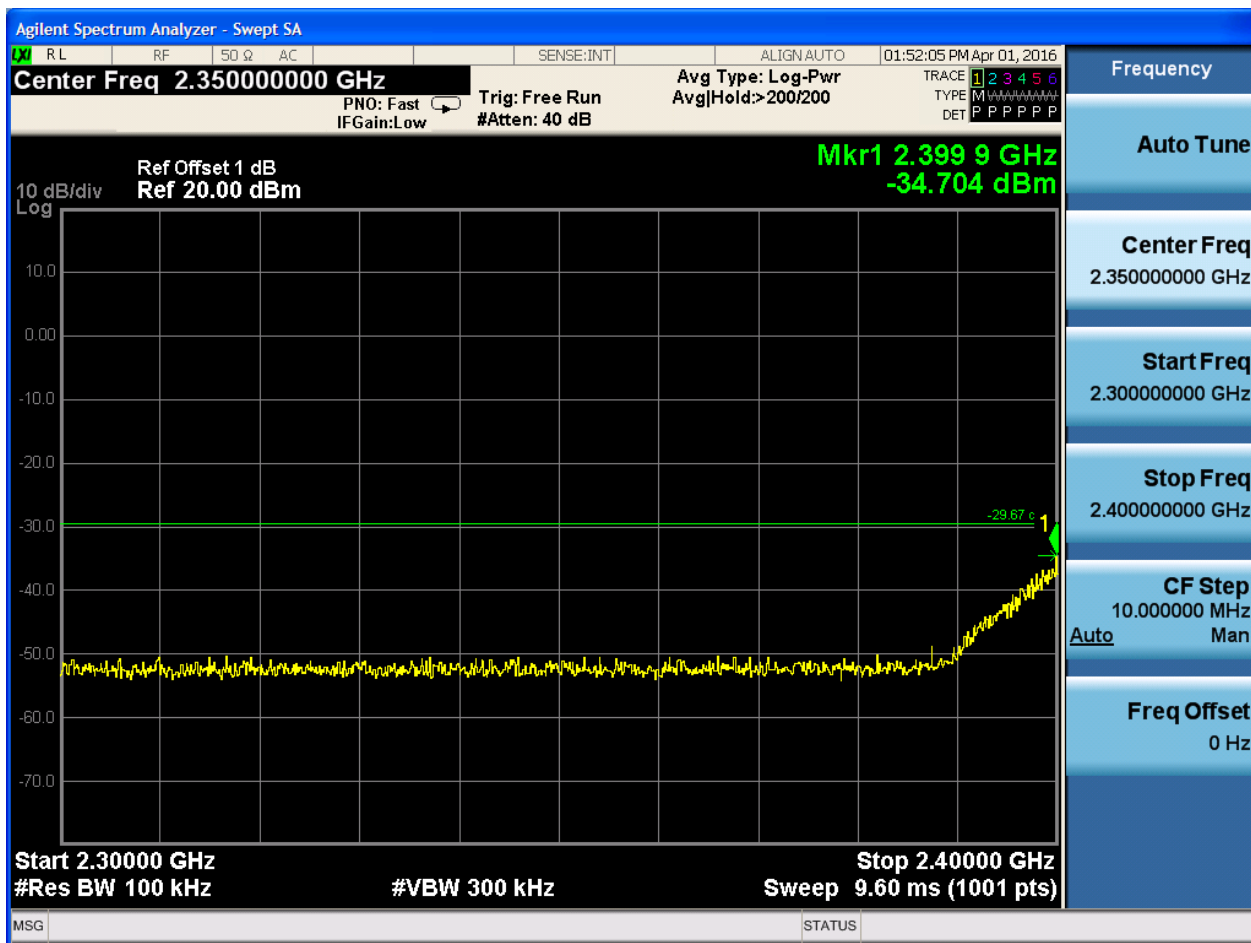


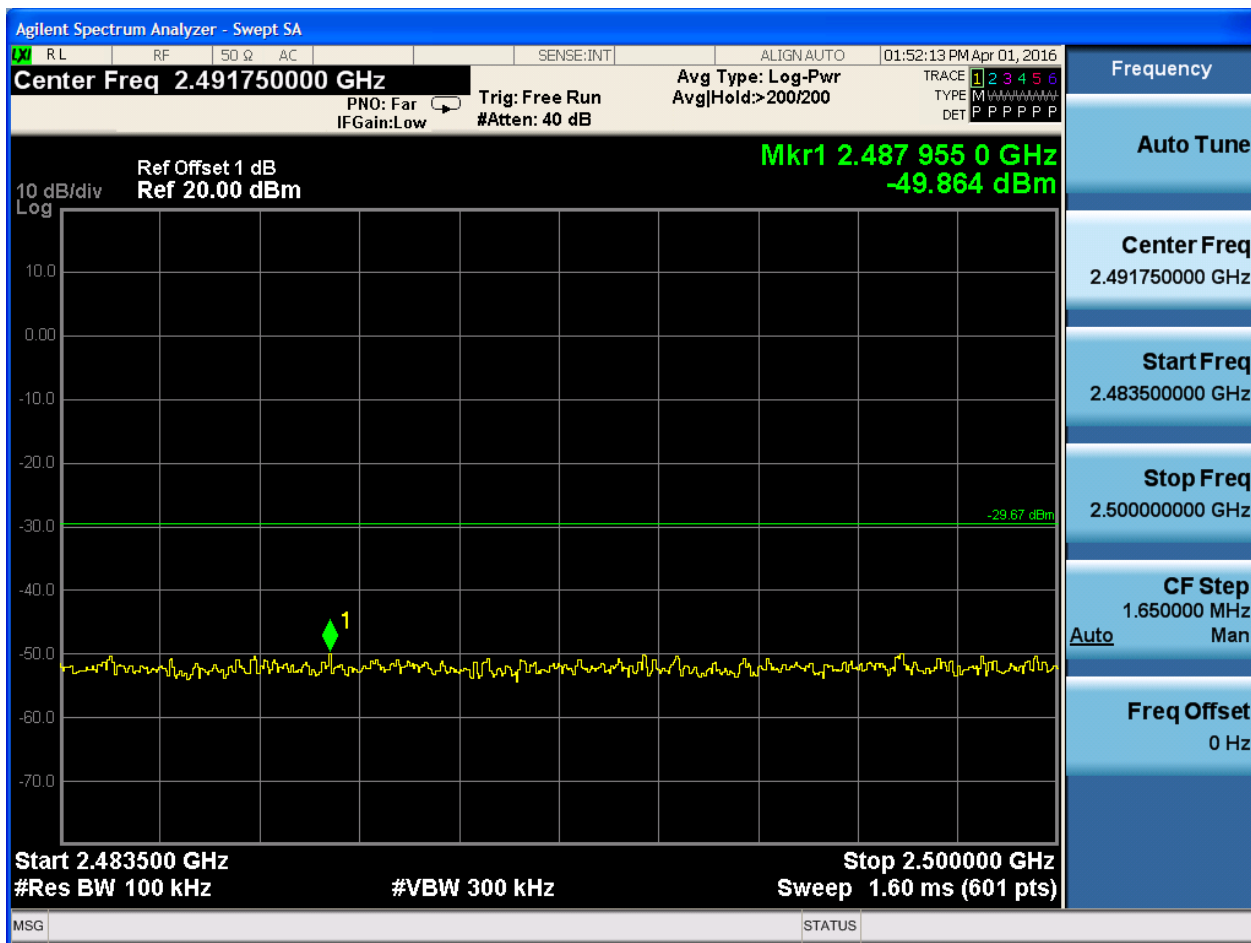
Puw:









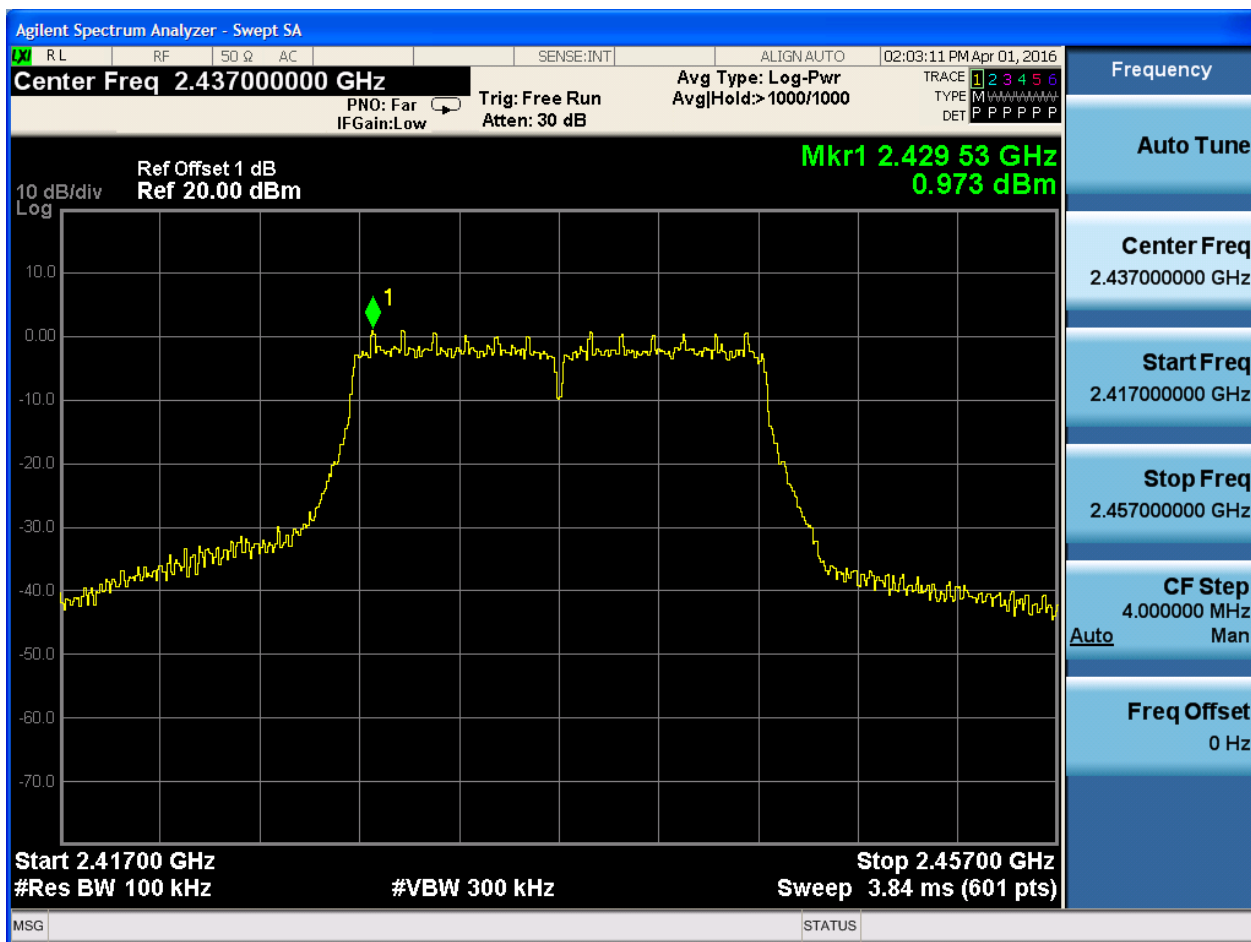






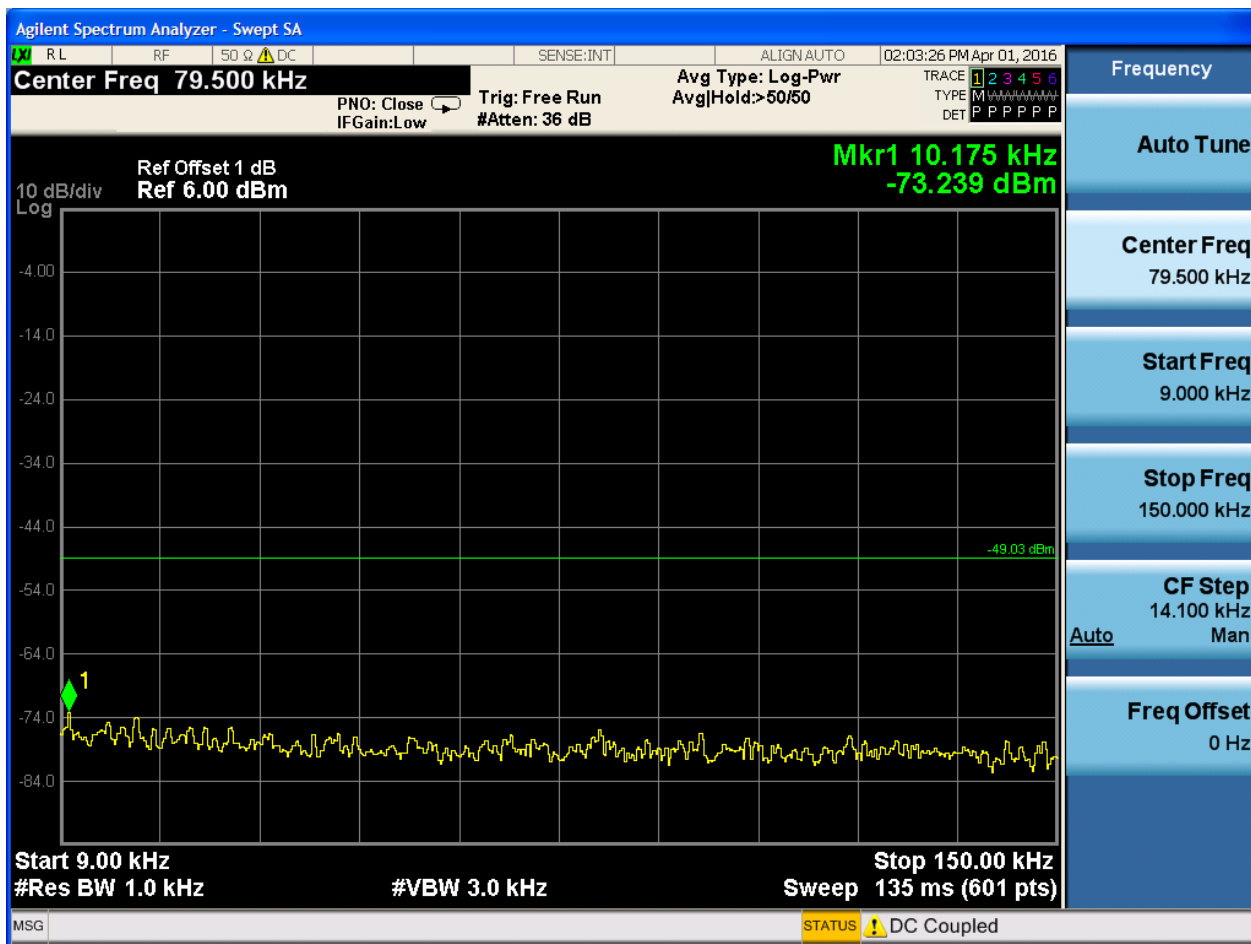
2.5 11G_M@Ant 1

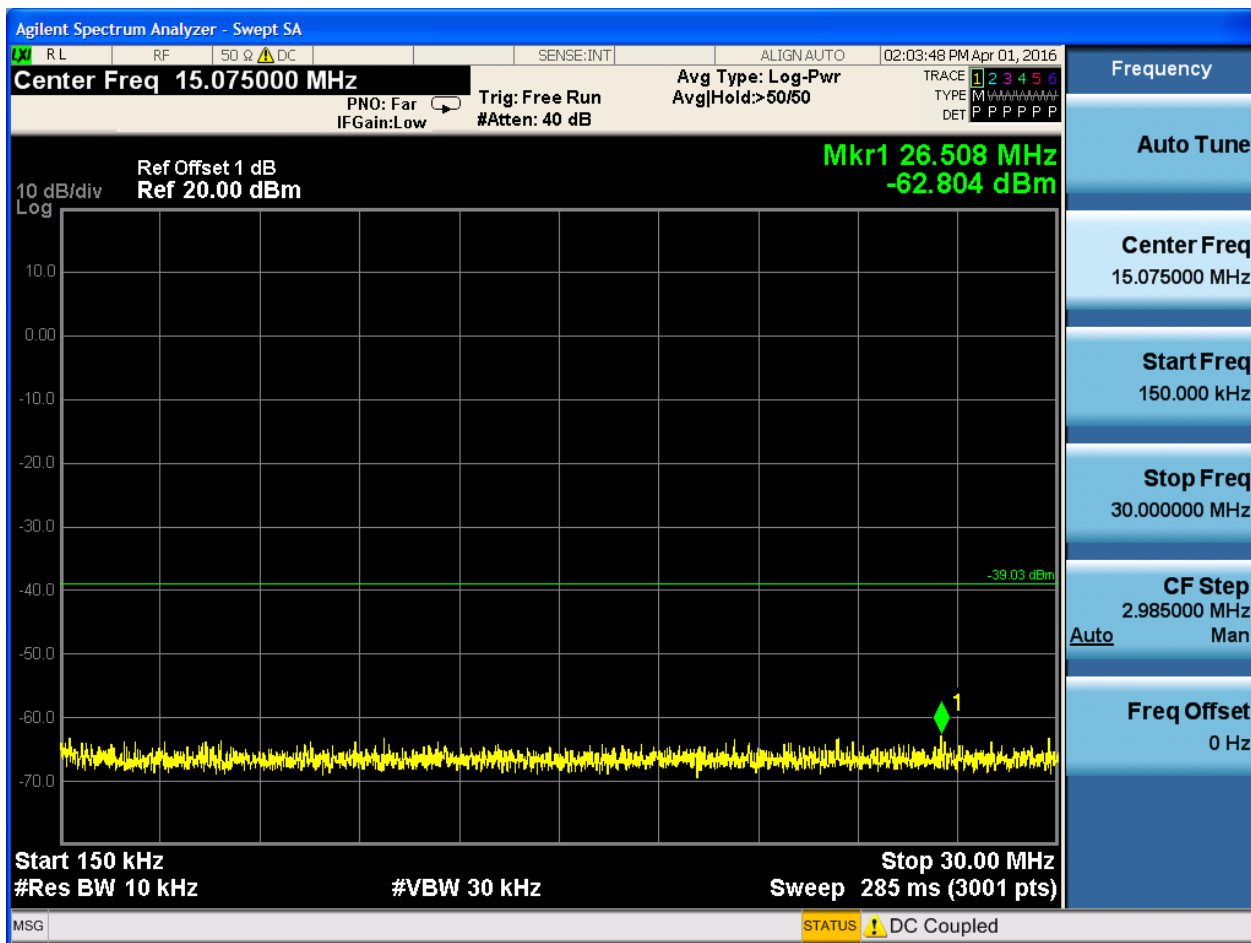
Pref:

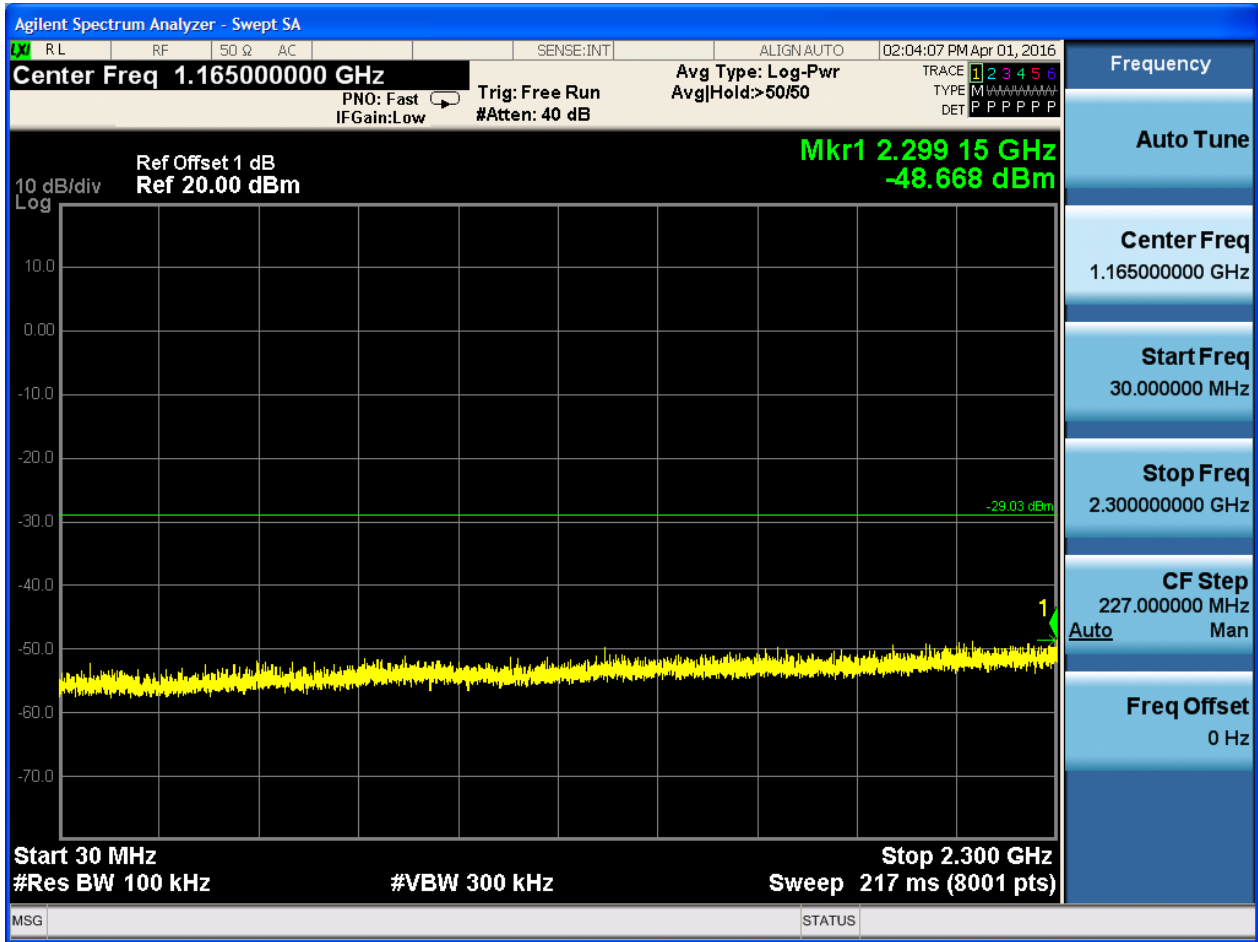


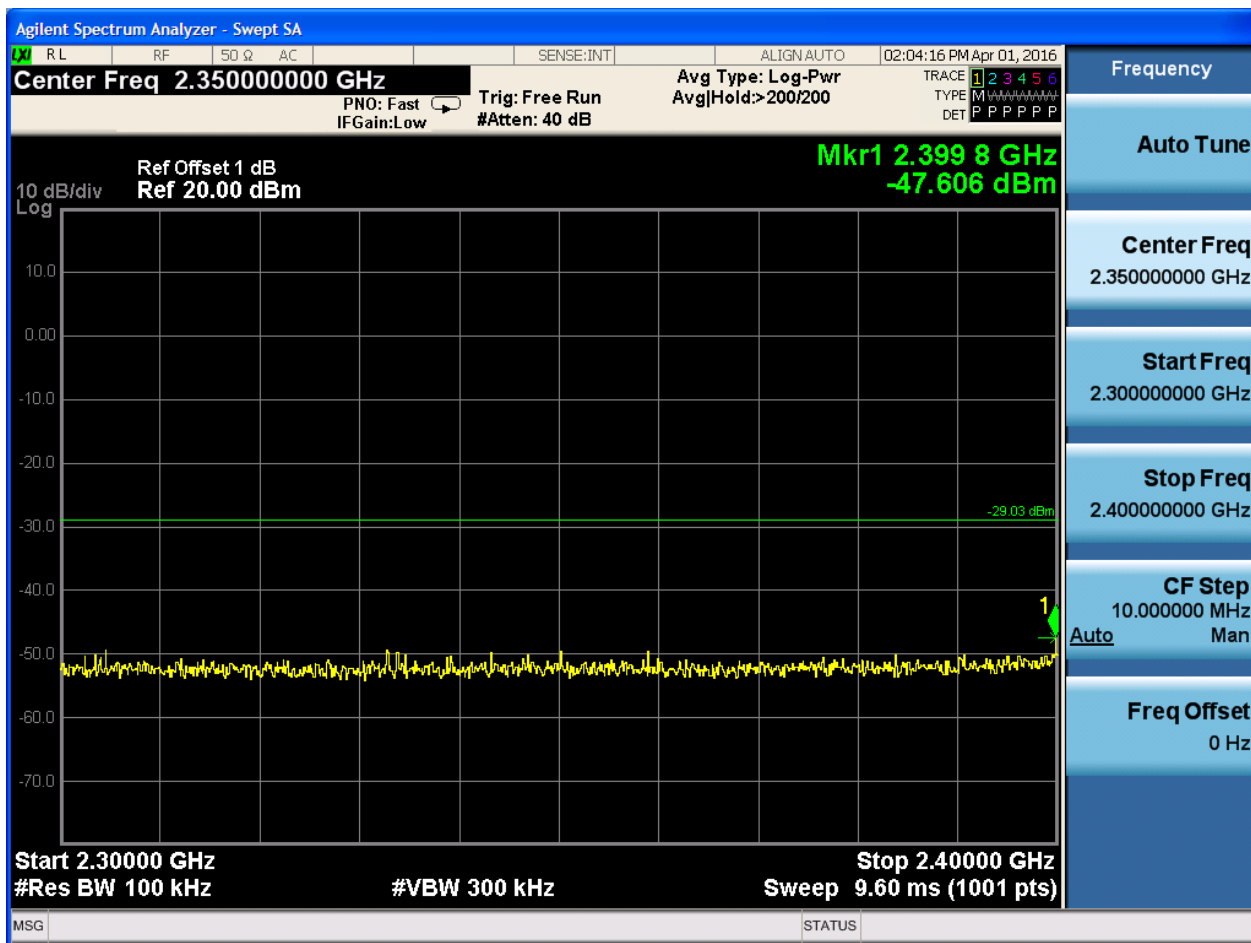


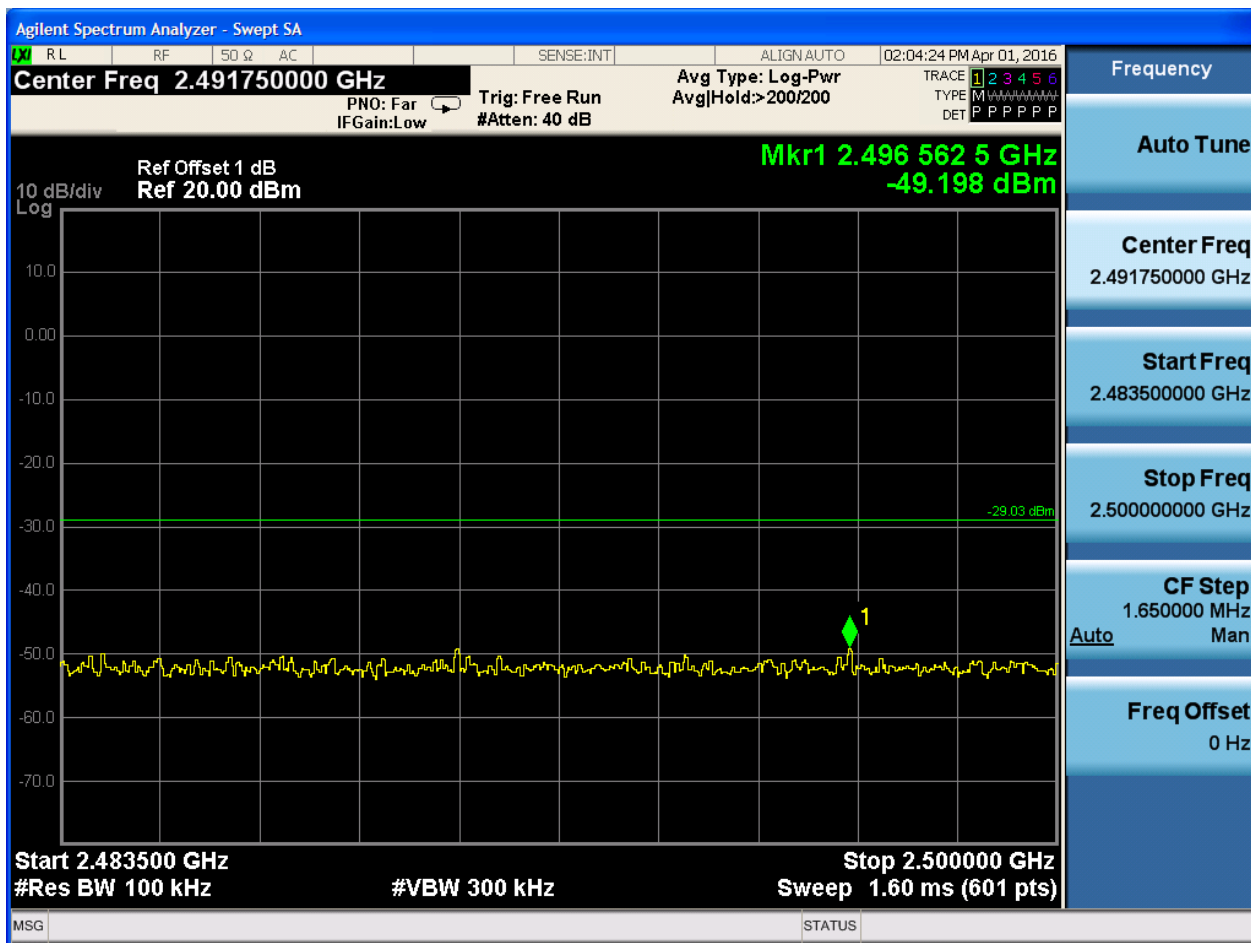
Puw:









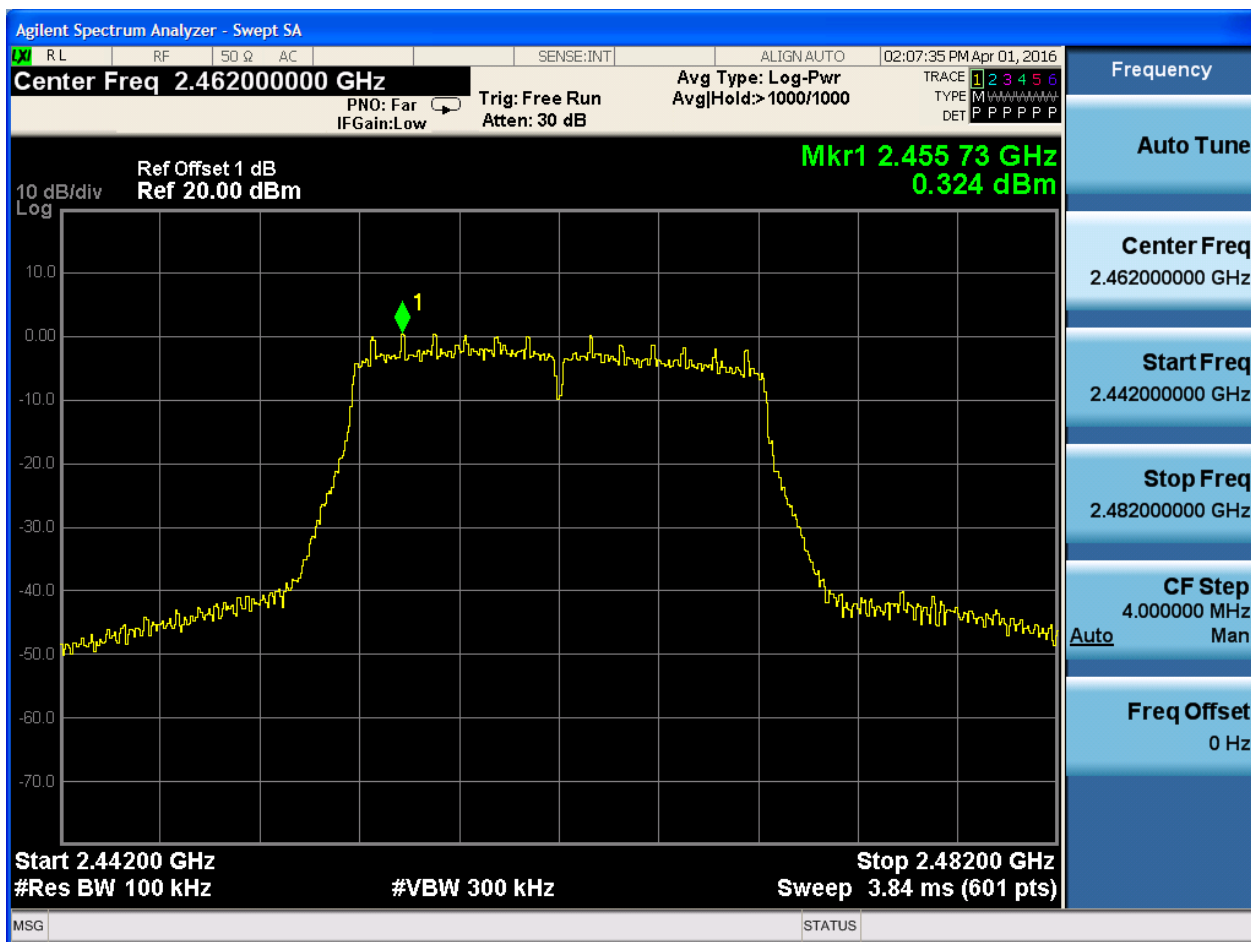


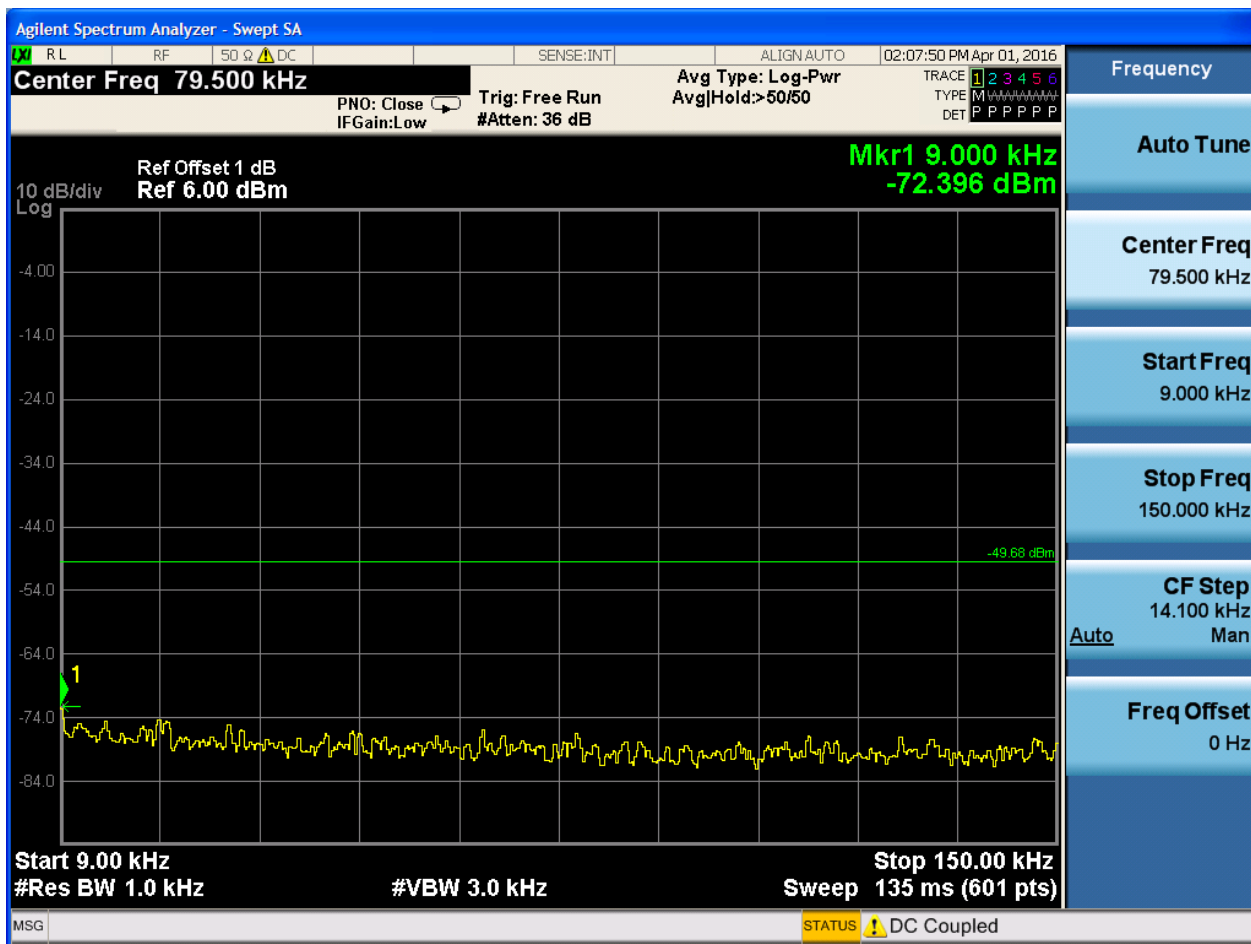


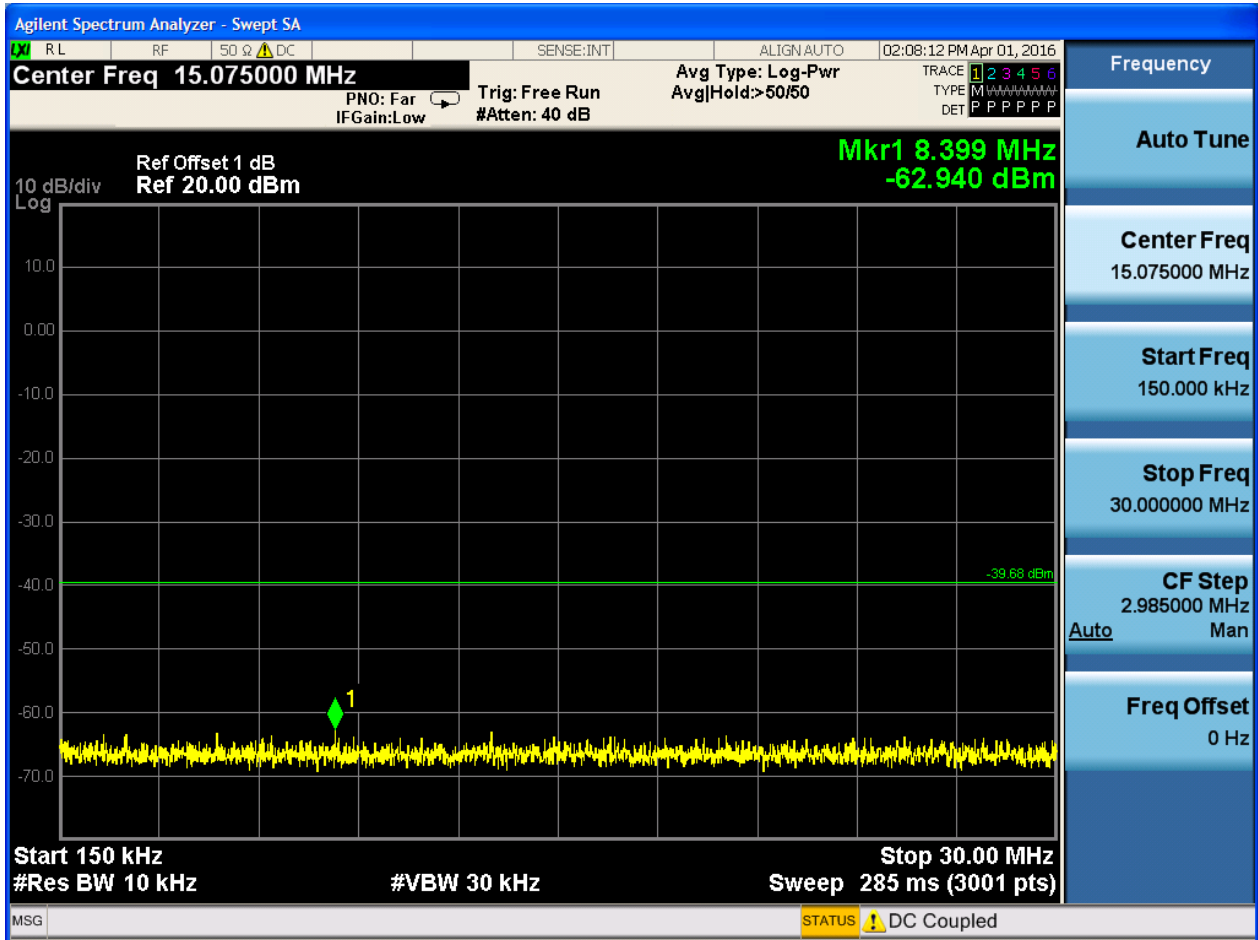


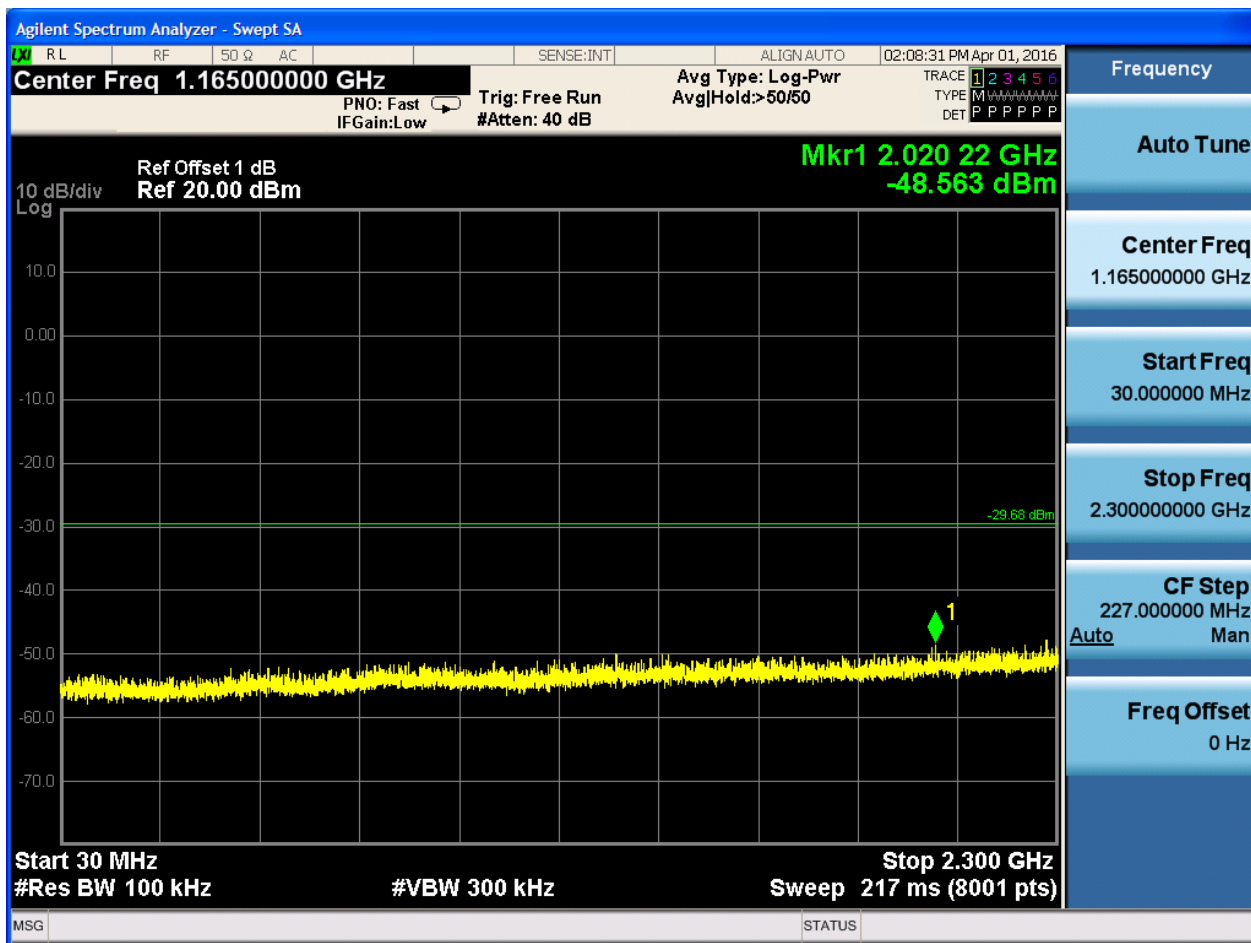
2.6 11G_H@Ant 1

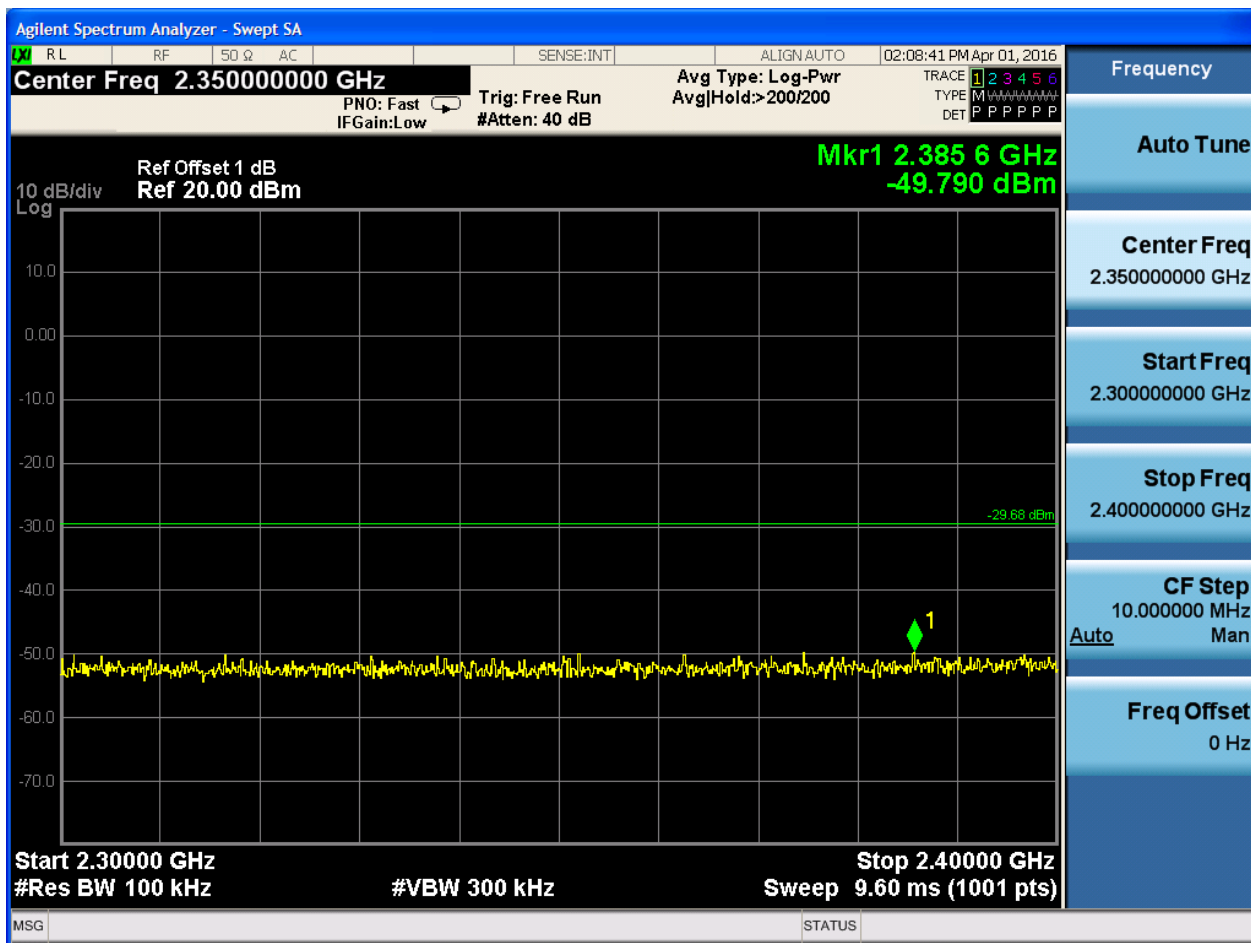
Pref:

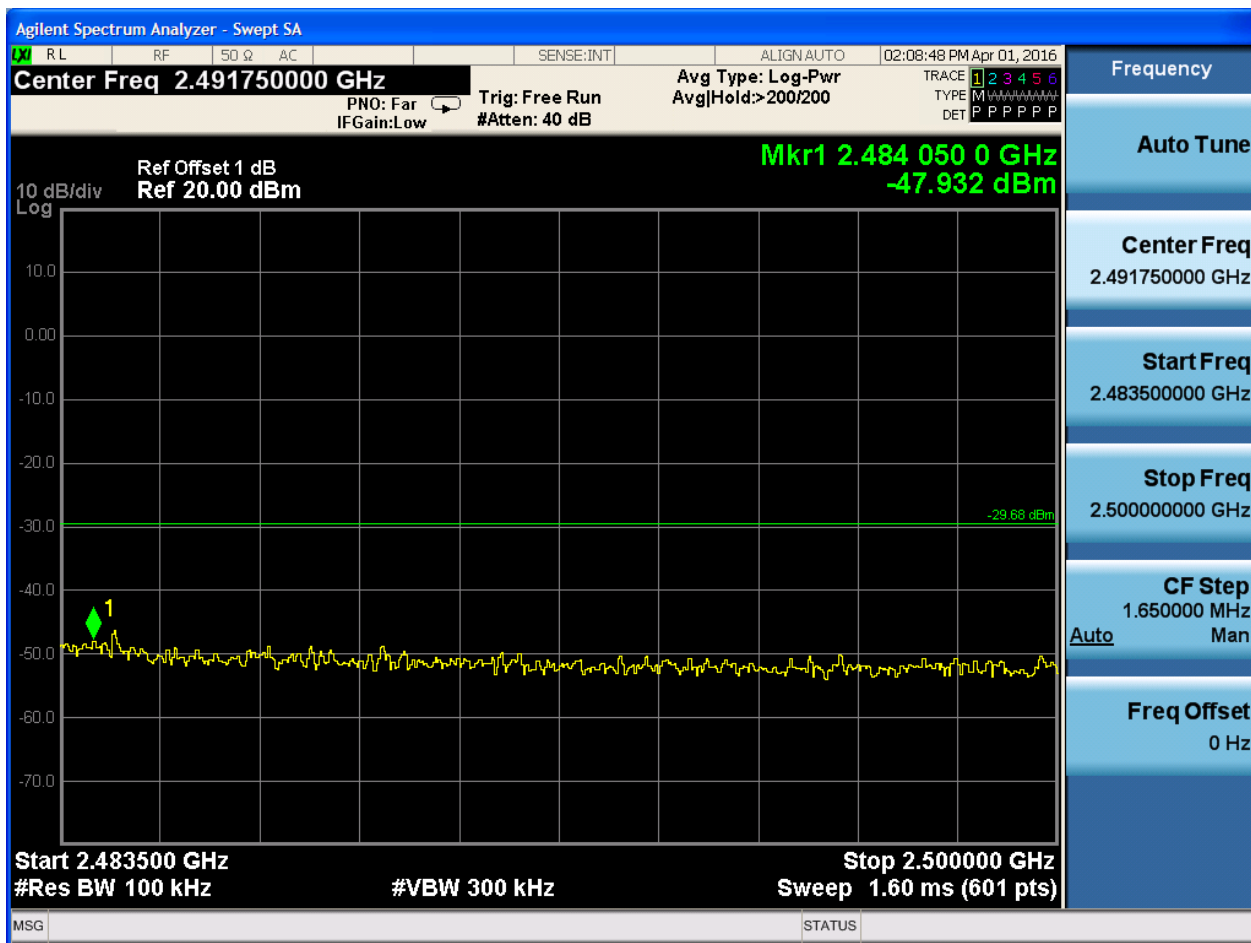


P_uw:







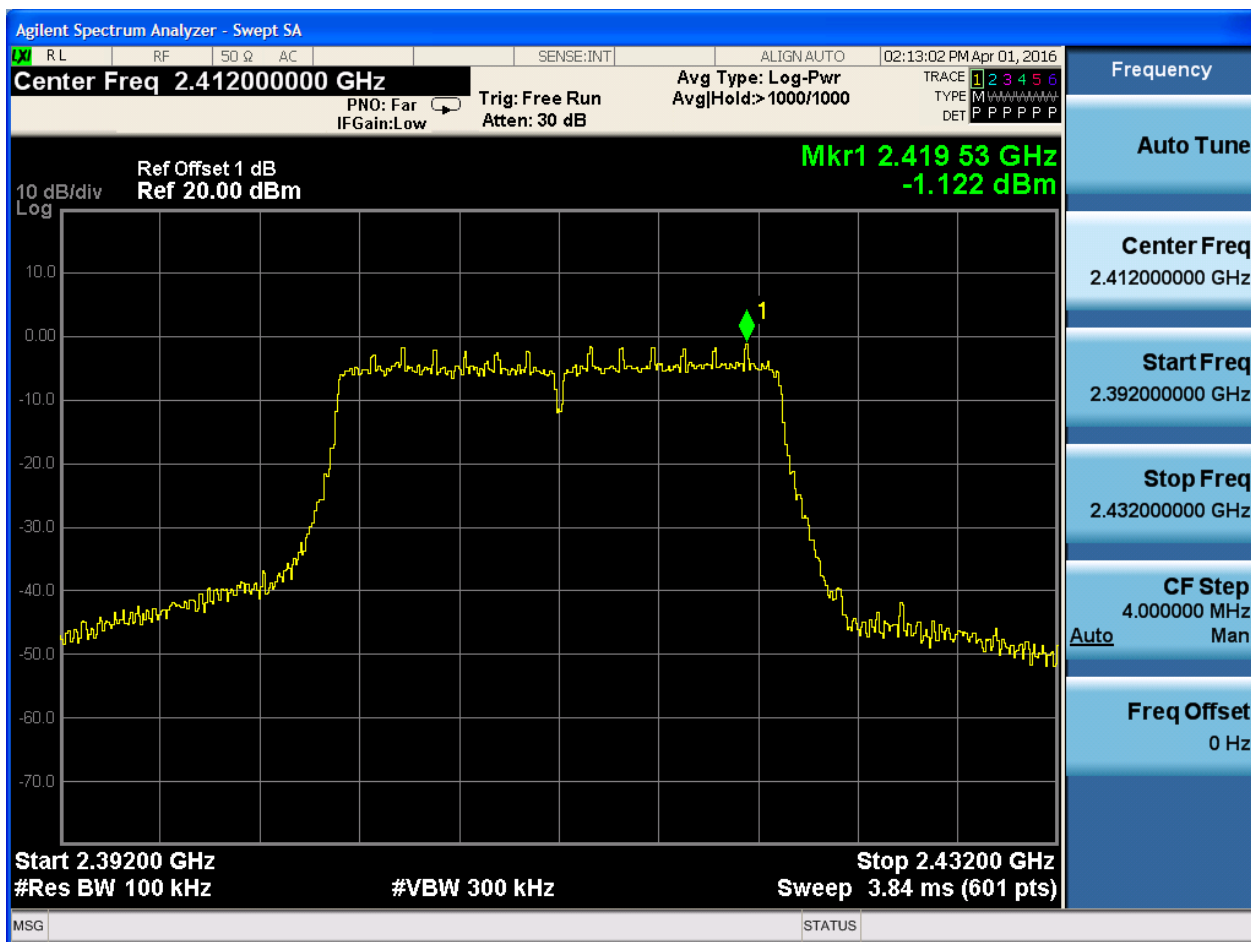






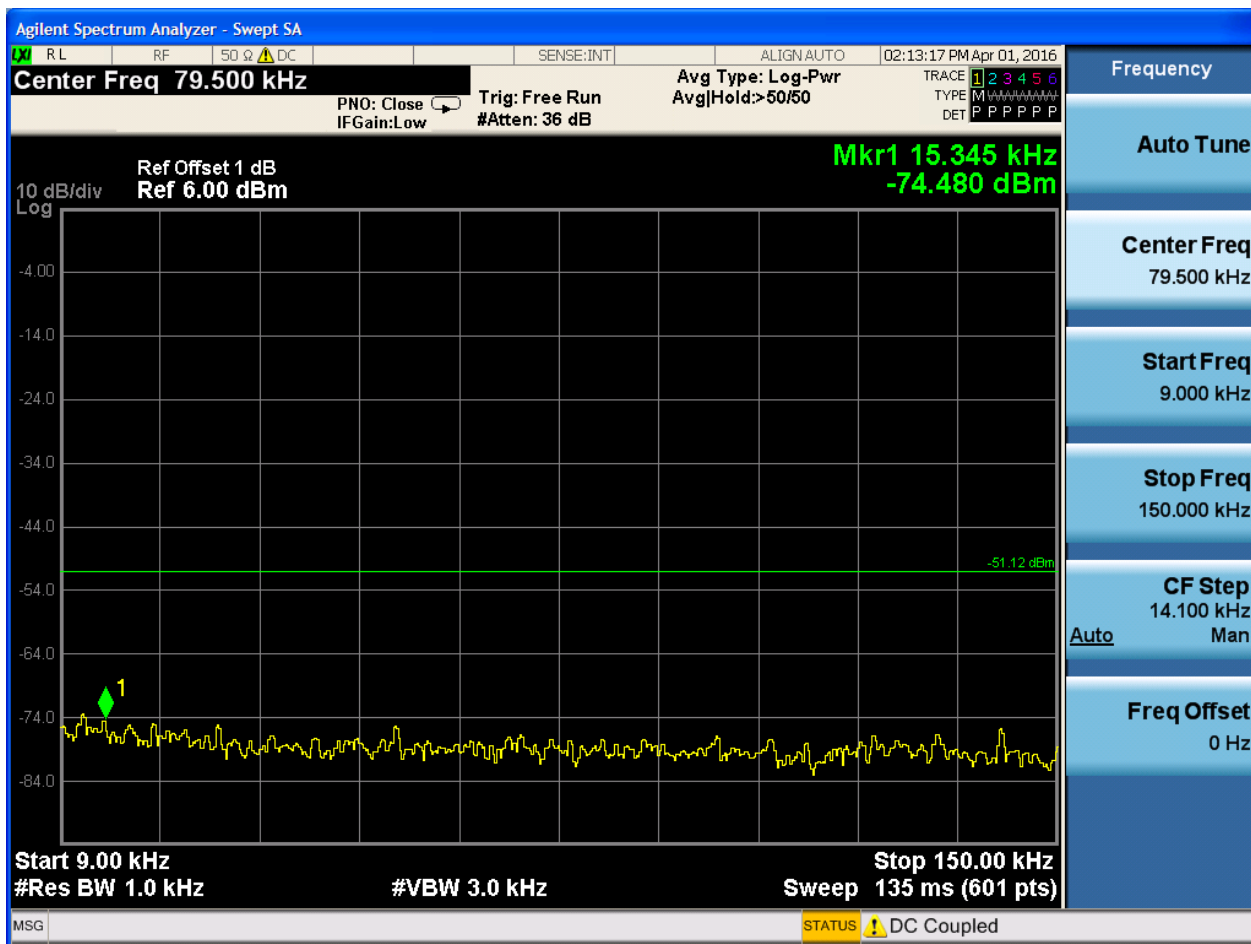
2.7 11N20_L@Ant 1

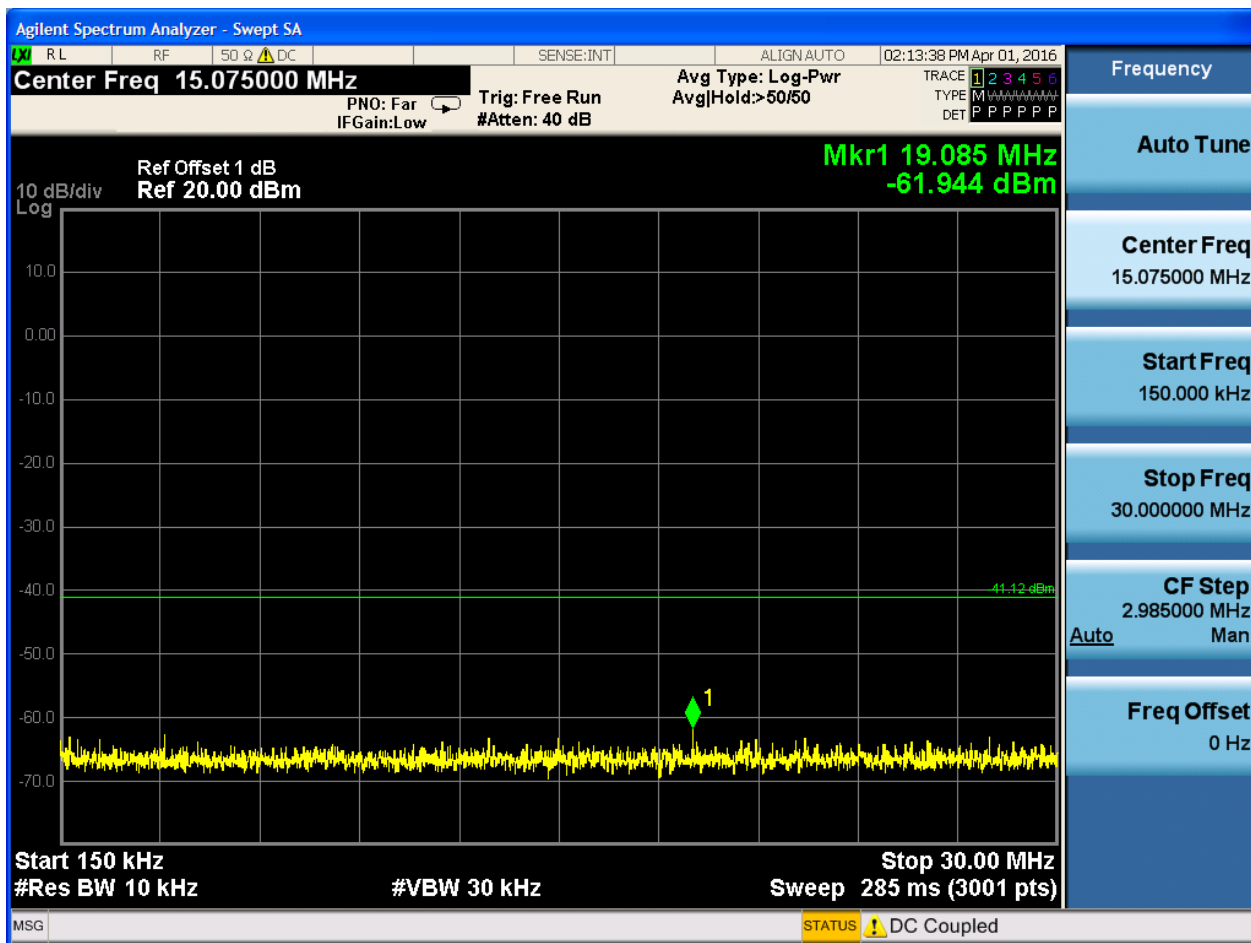
Pref:



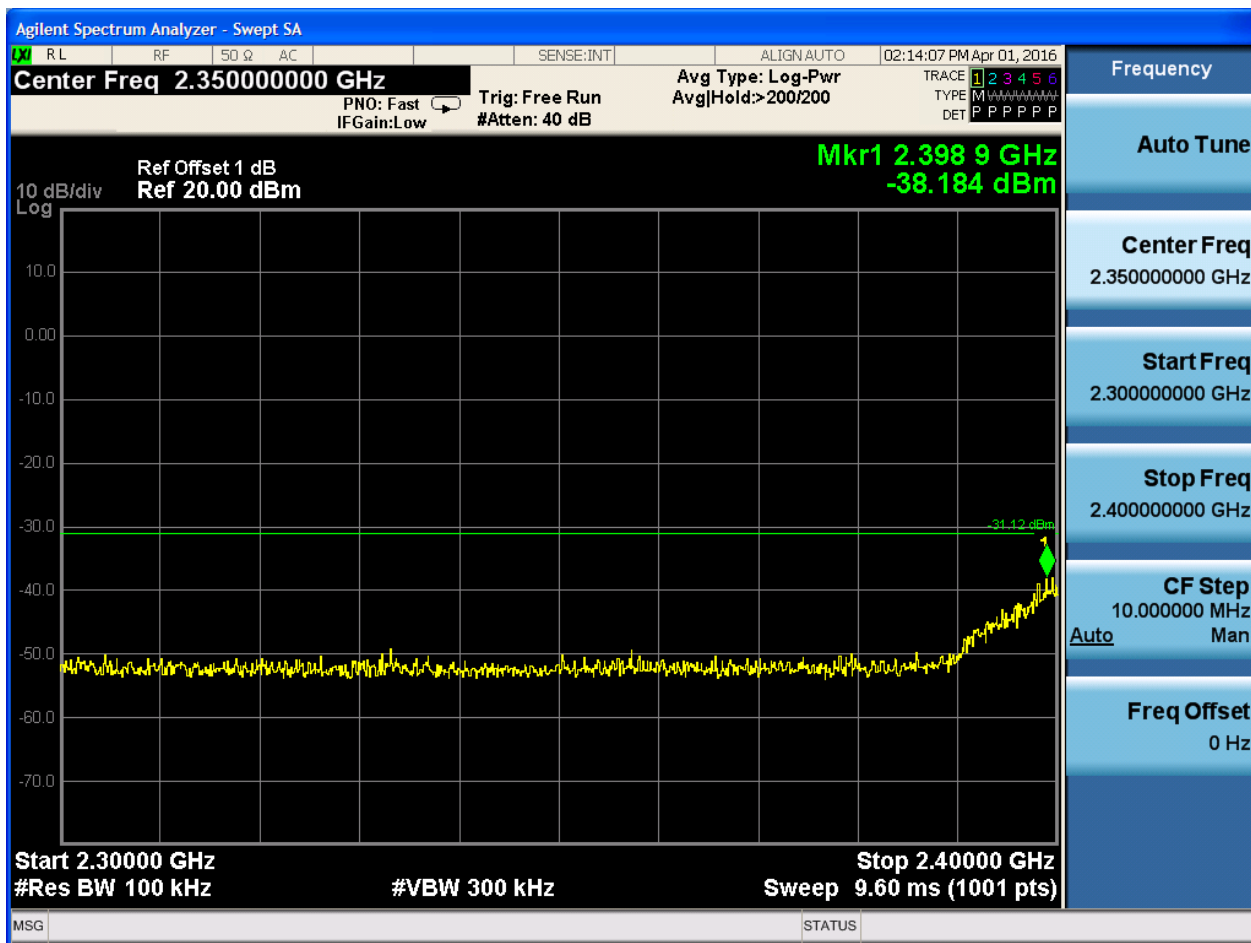


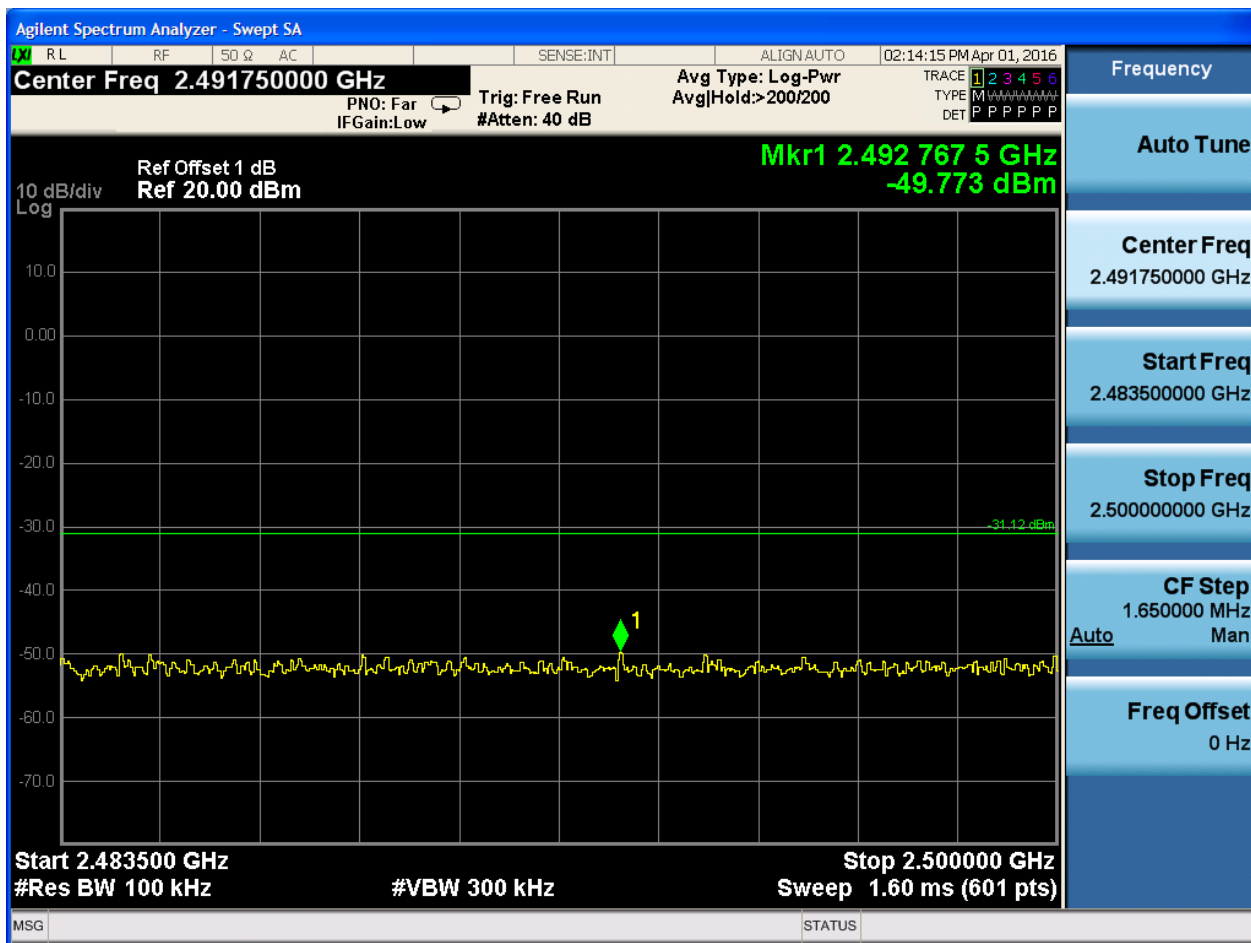
Puw:









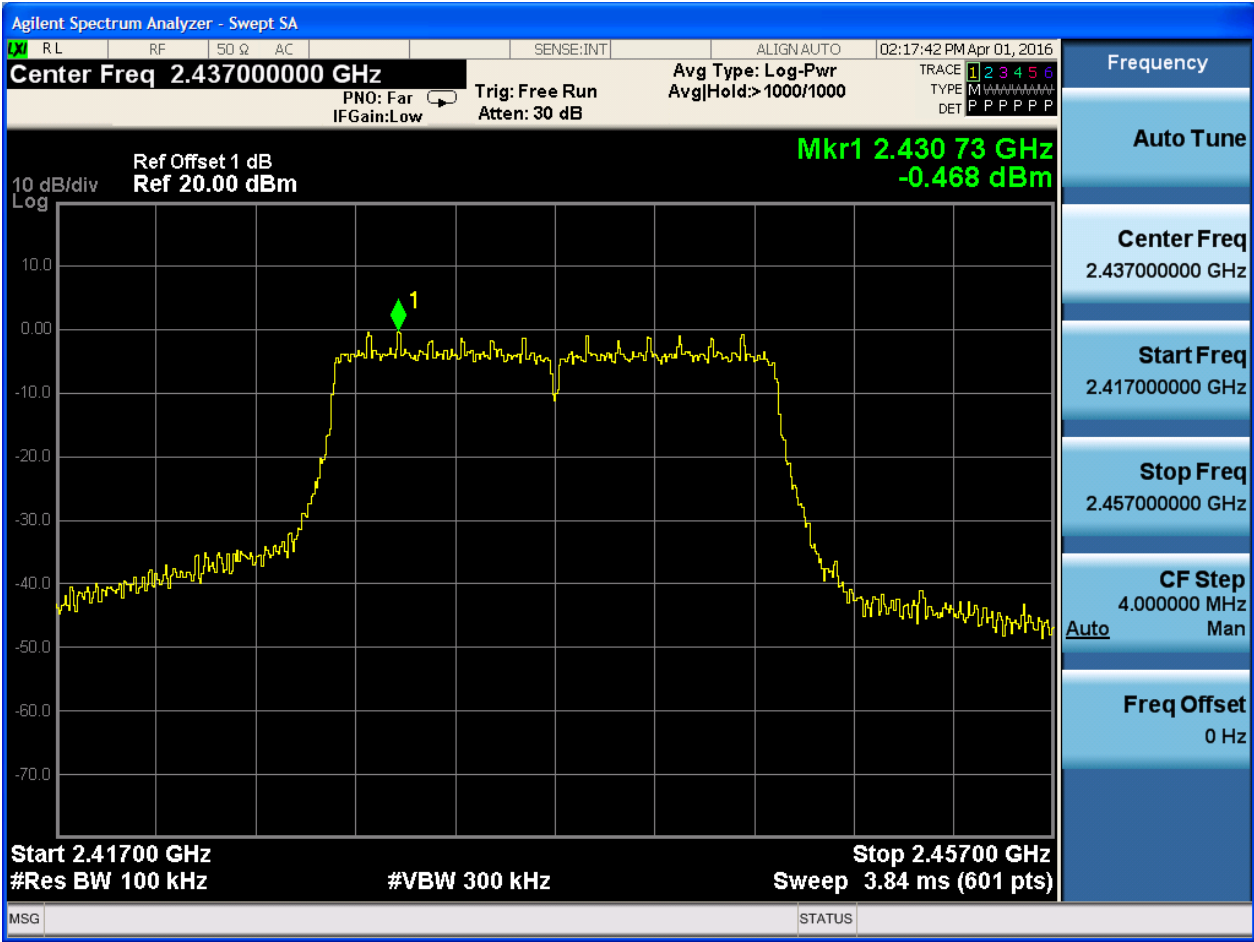






2.8 11N20_M@Ant 1

Pref:





Puw:

