



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.

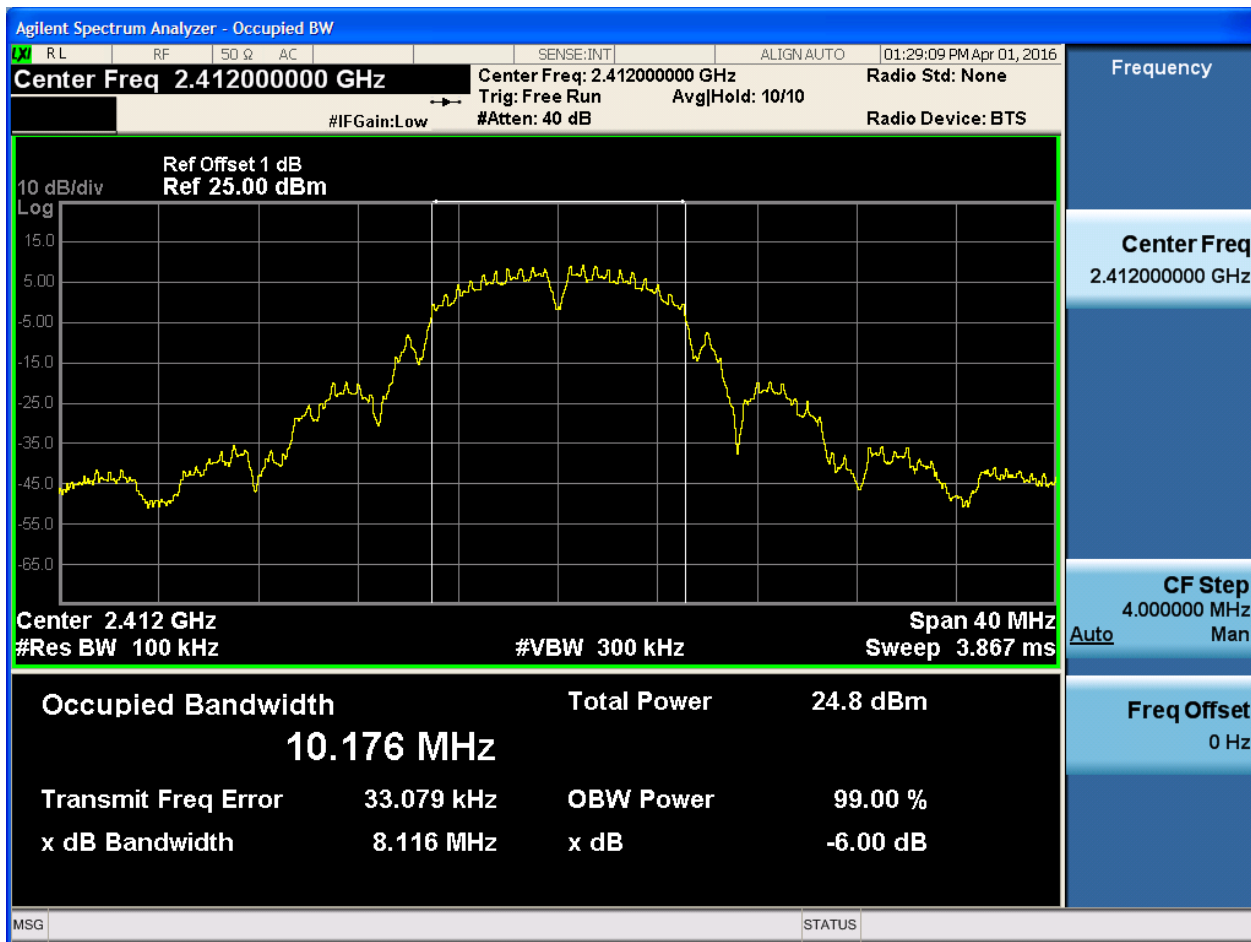
Part I - Test Results

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



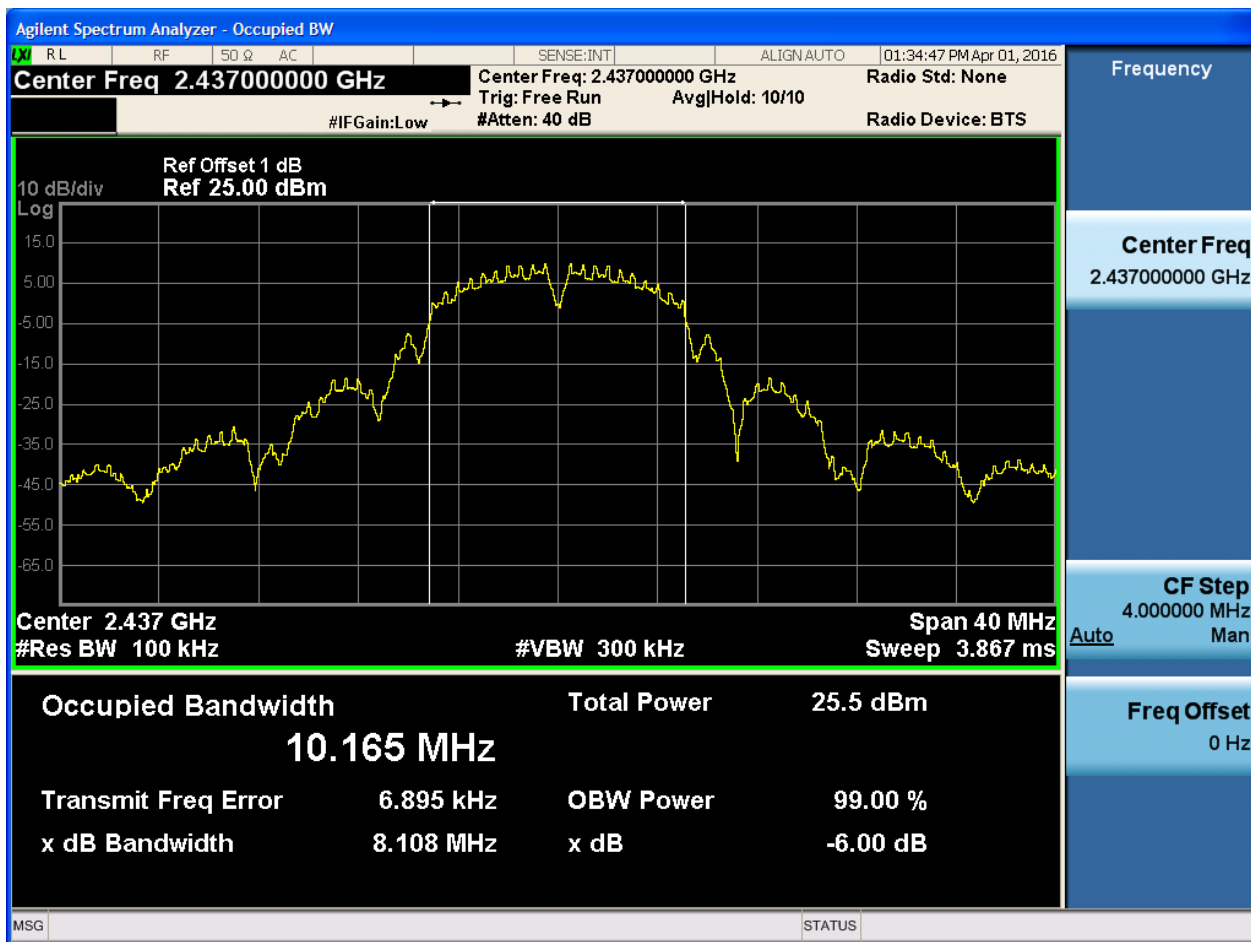
Part II - Test Plots

2.1 11B_L@Ant 1



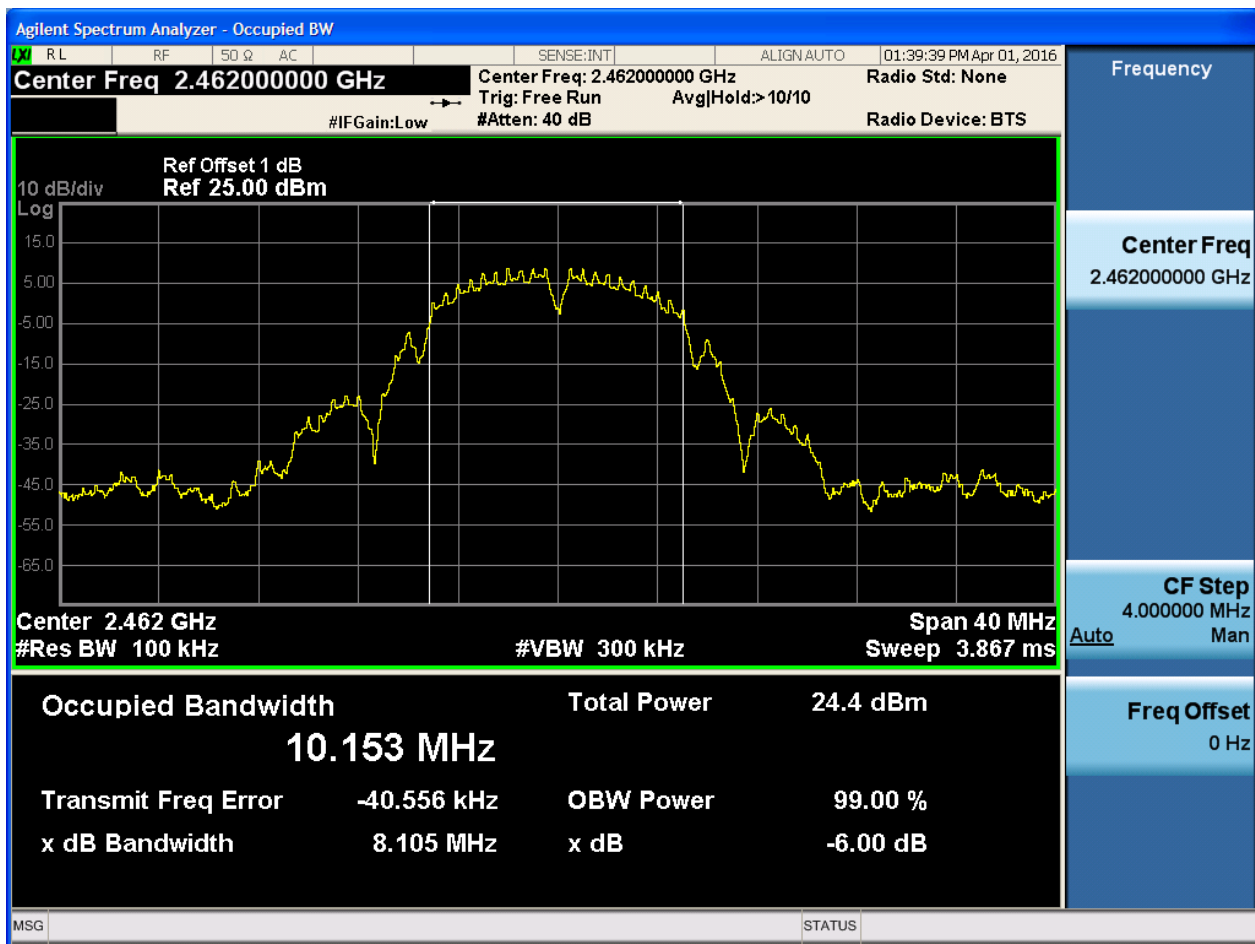


2.2 11B_M@Ant 1



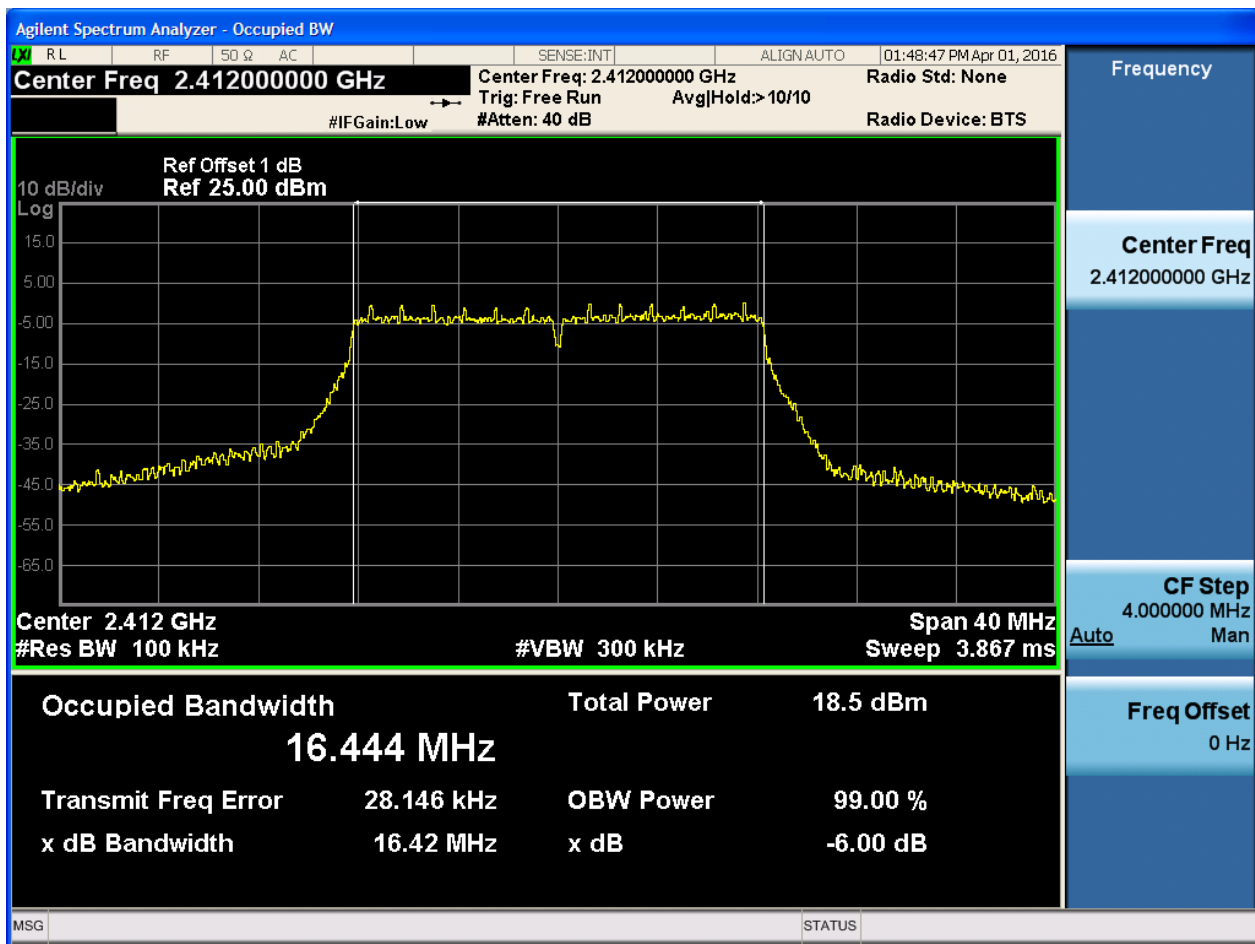


2.3 11B_H@Ant 1



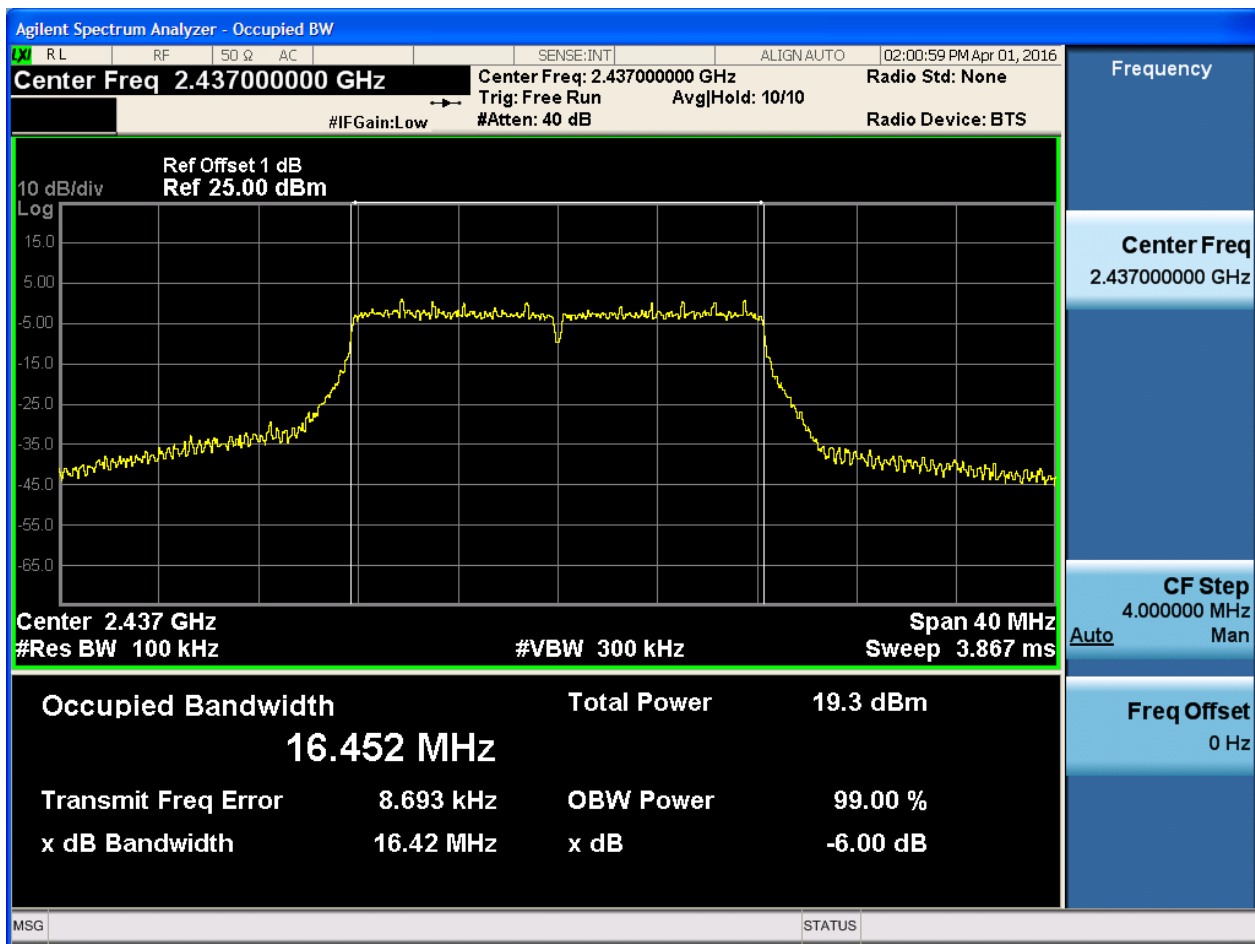


2.4 11G_L@Ant 1



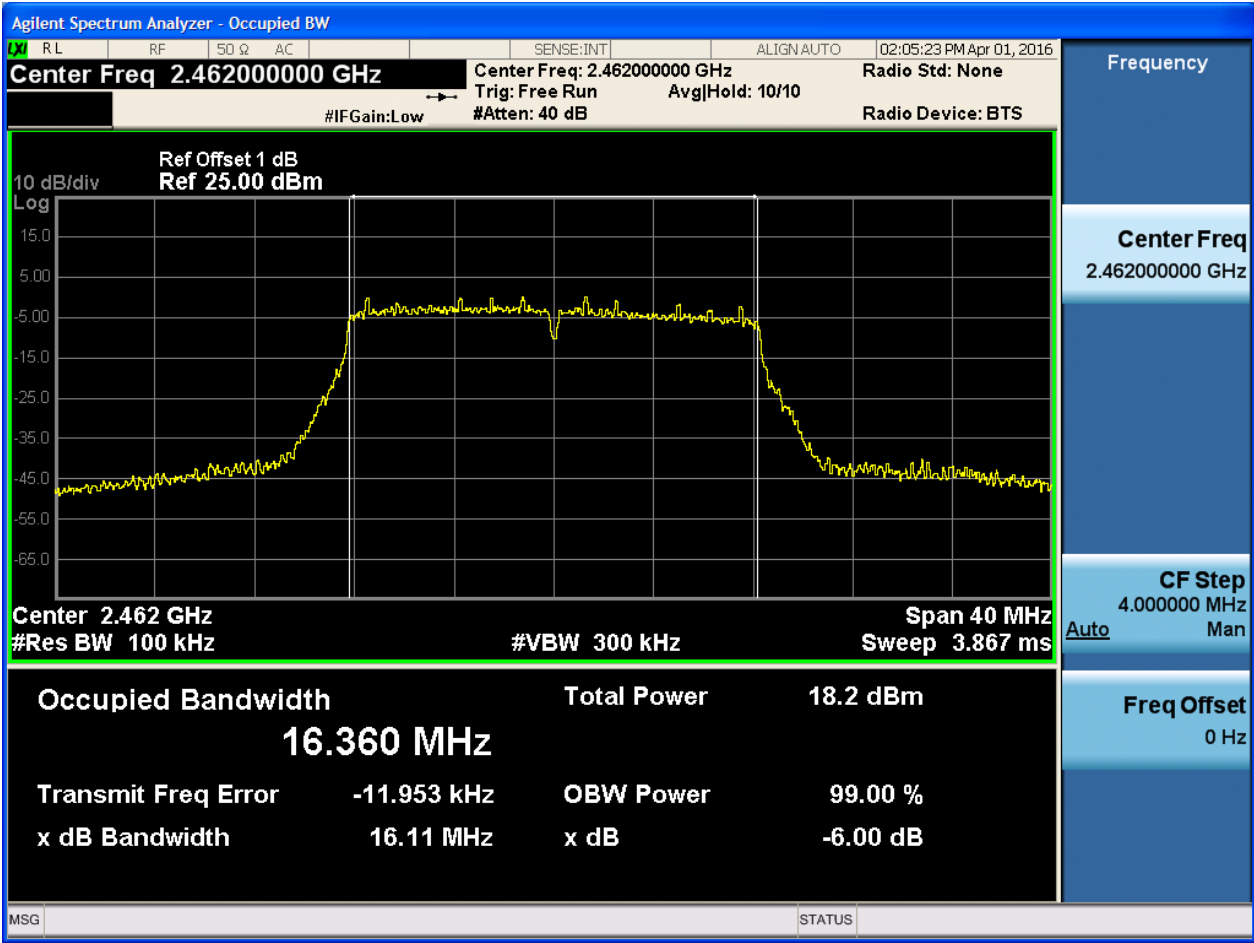


2.5 11G_M@Ant 1



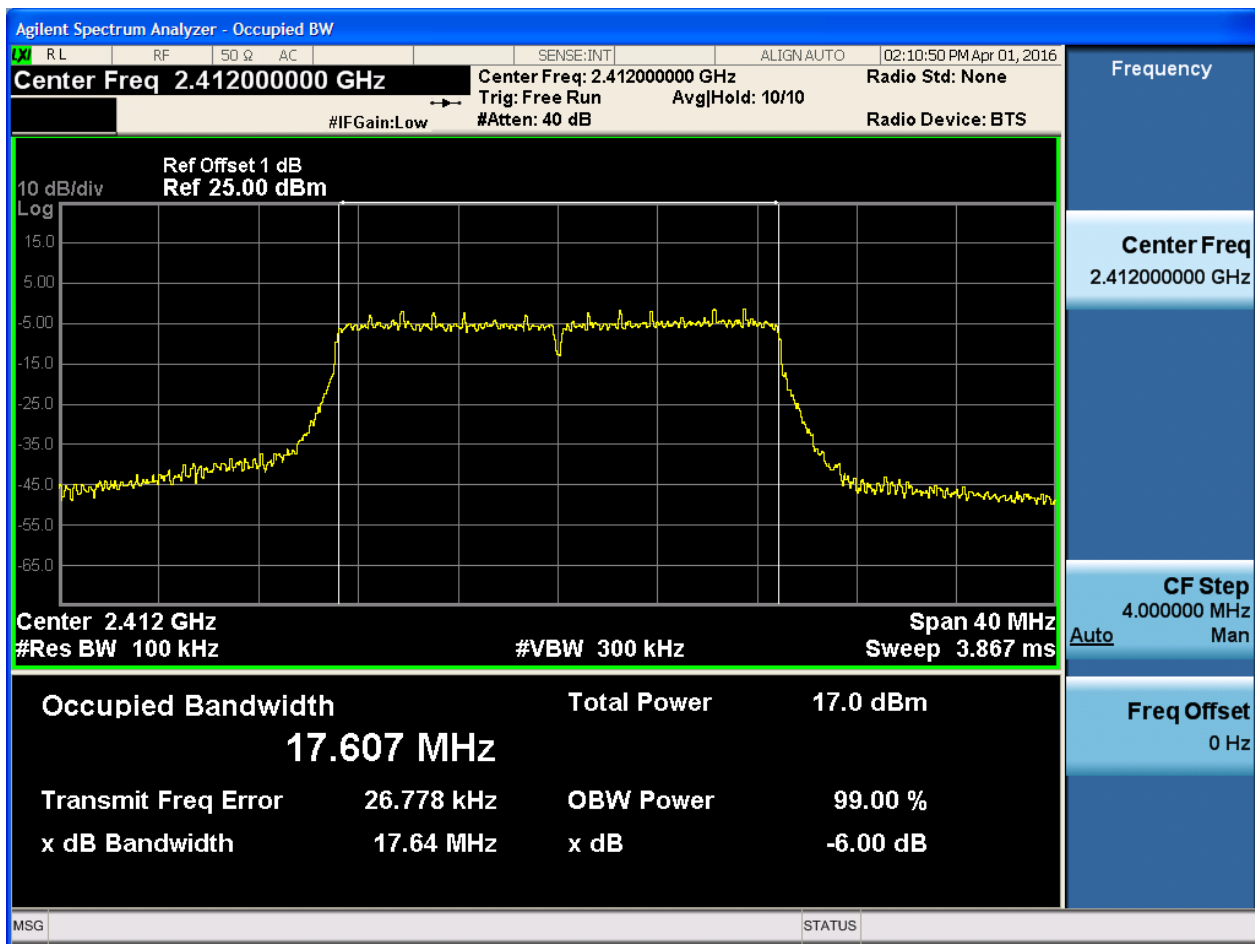


2.6 11G_H@Ant 1



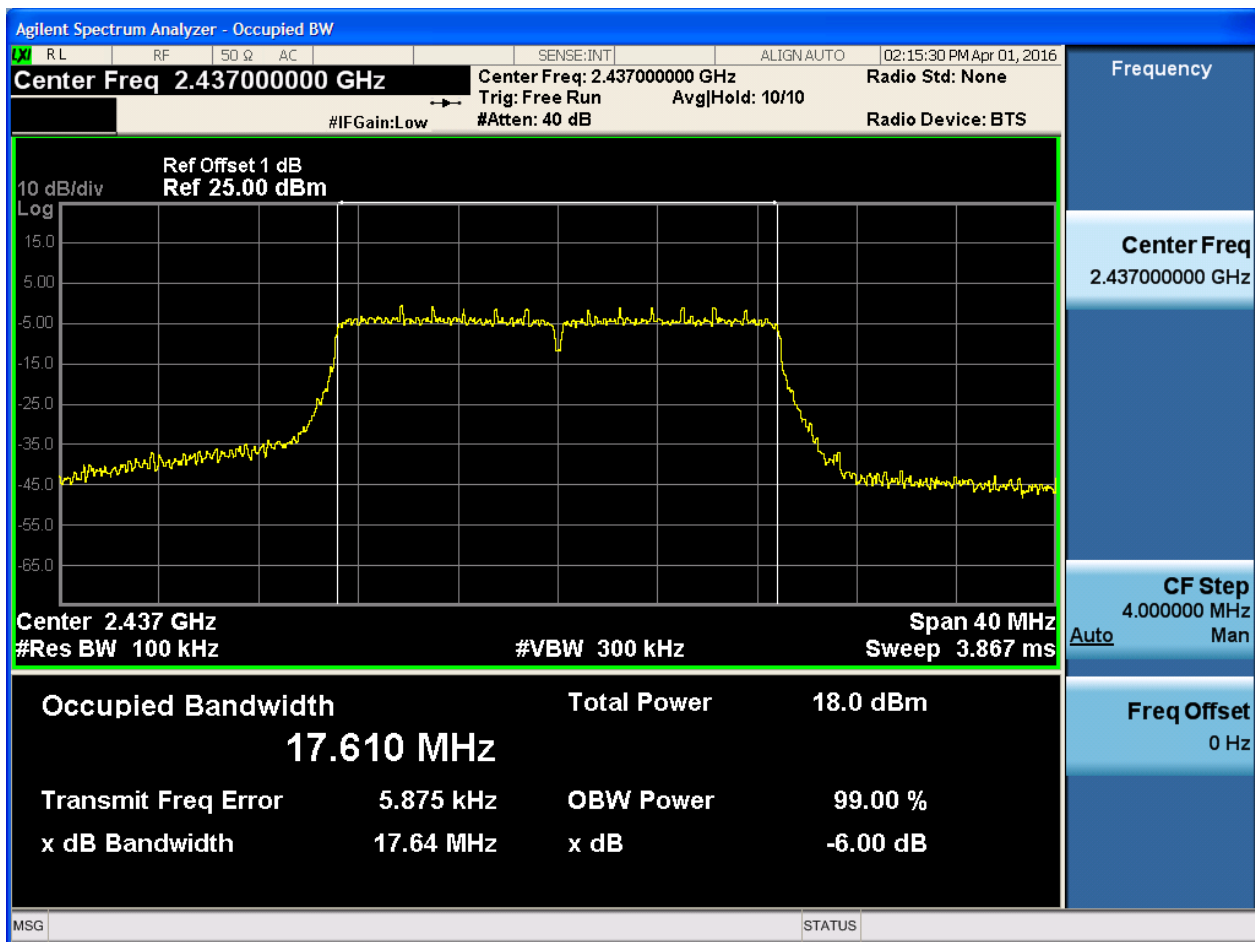


2.7 11N20_L@Ant 1



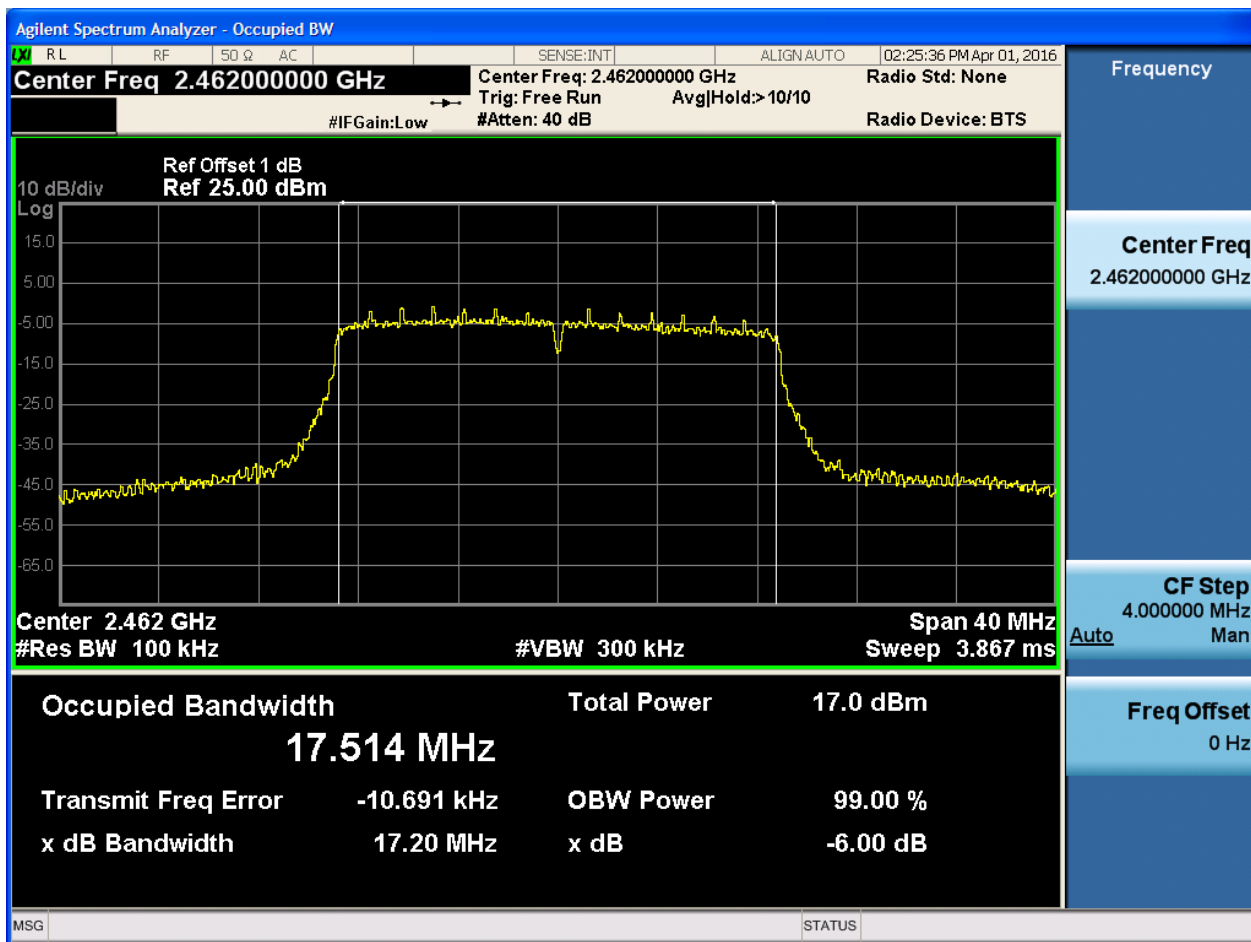


2.8 11N20_M@Ant 1



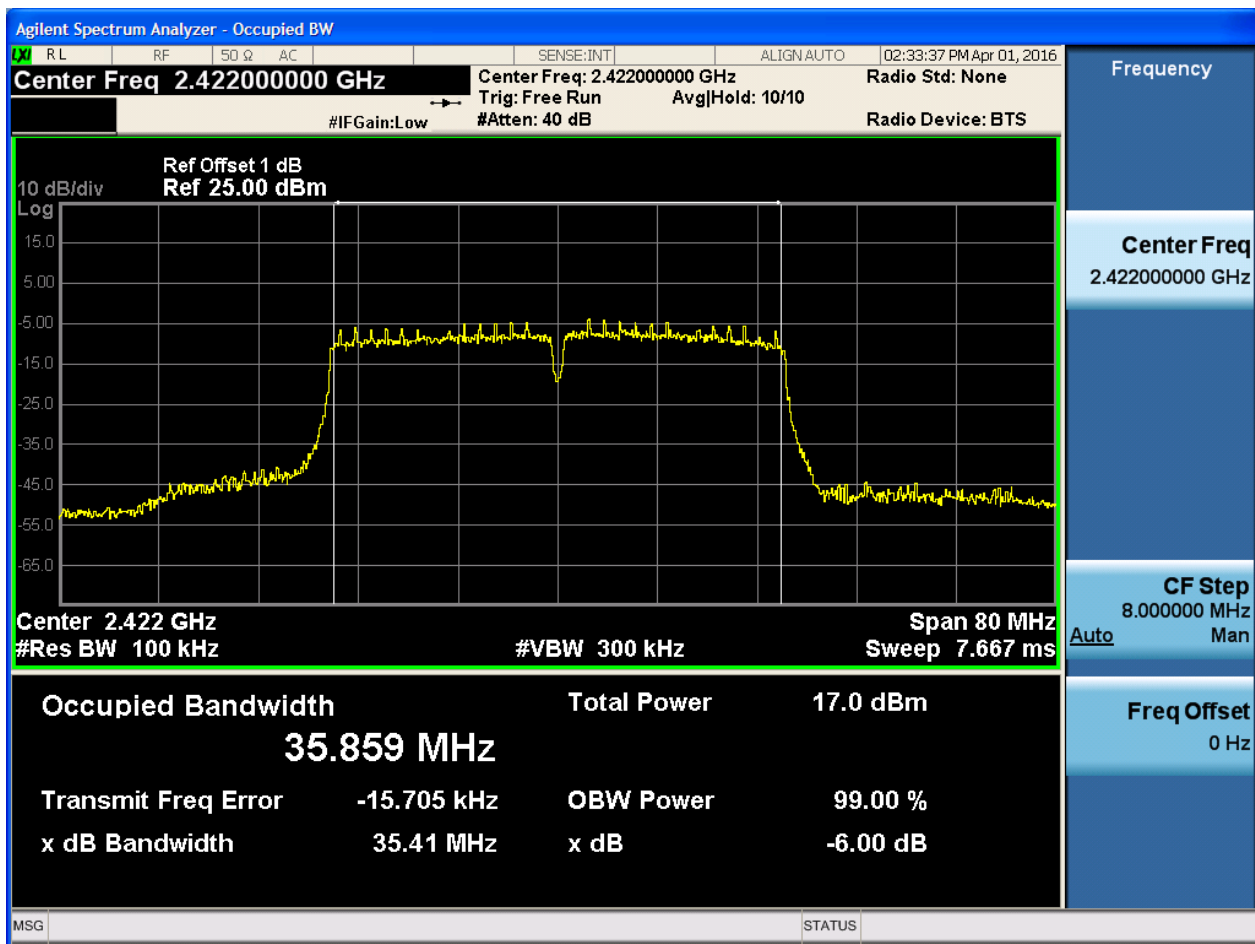


2.9 11N20_H@Ant 1



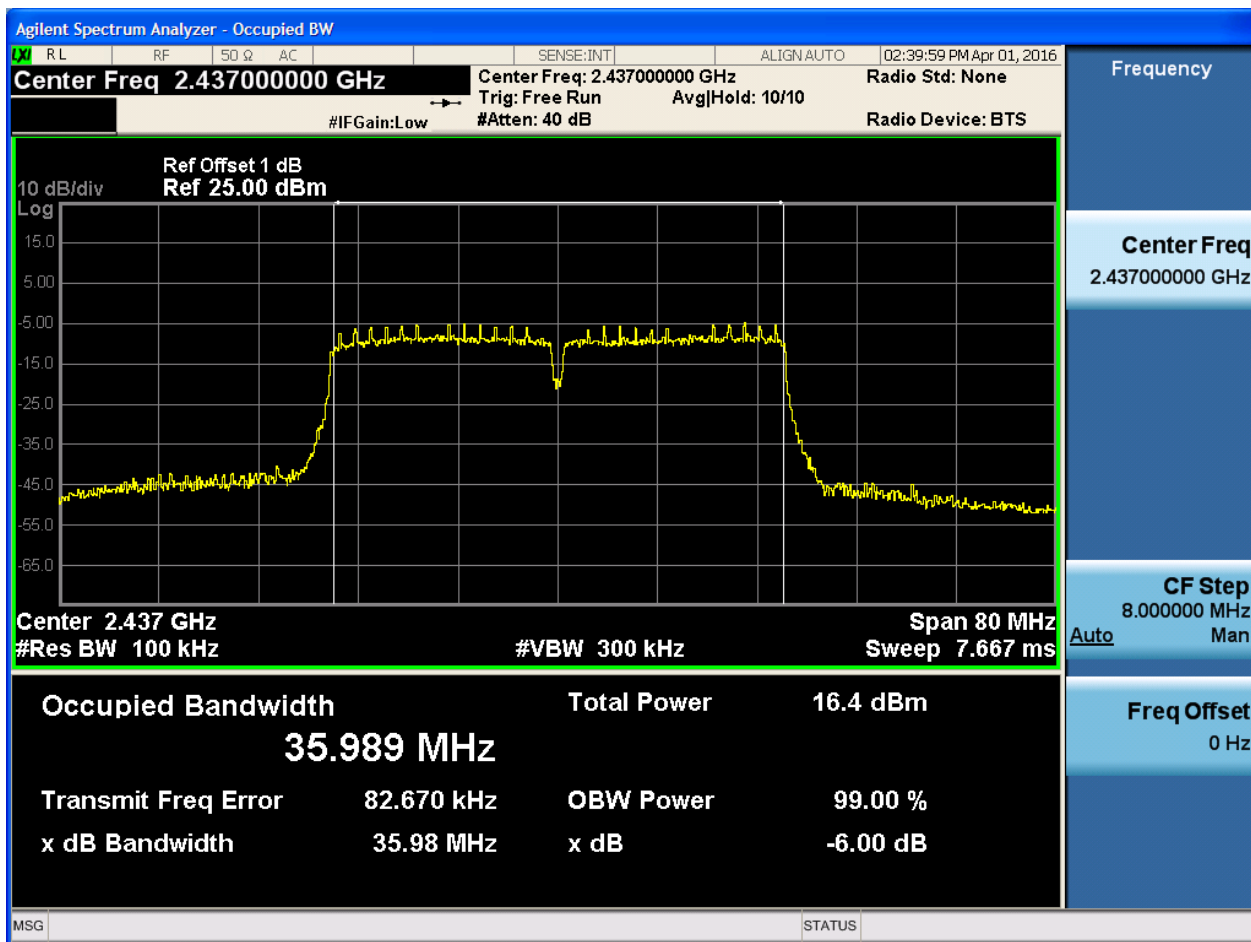


2.10 11N40_L@Ant 1



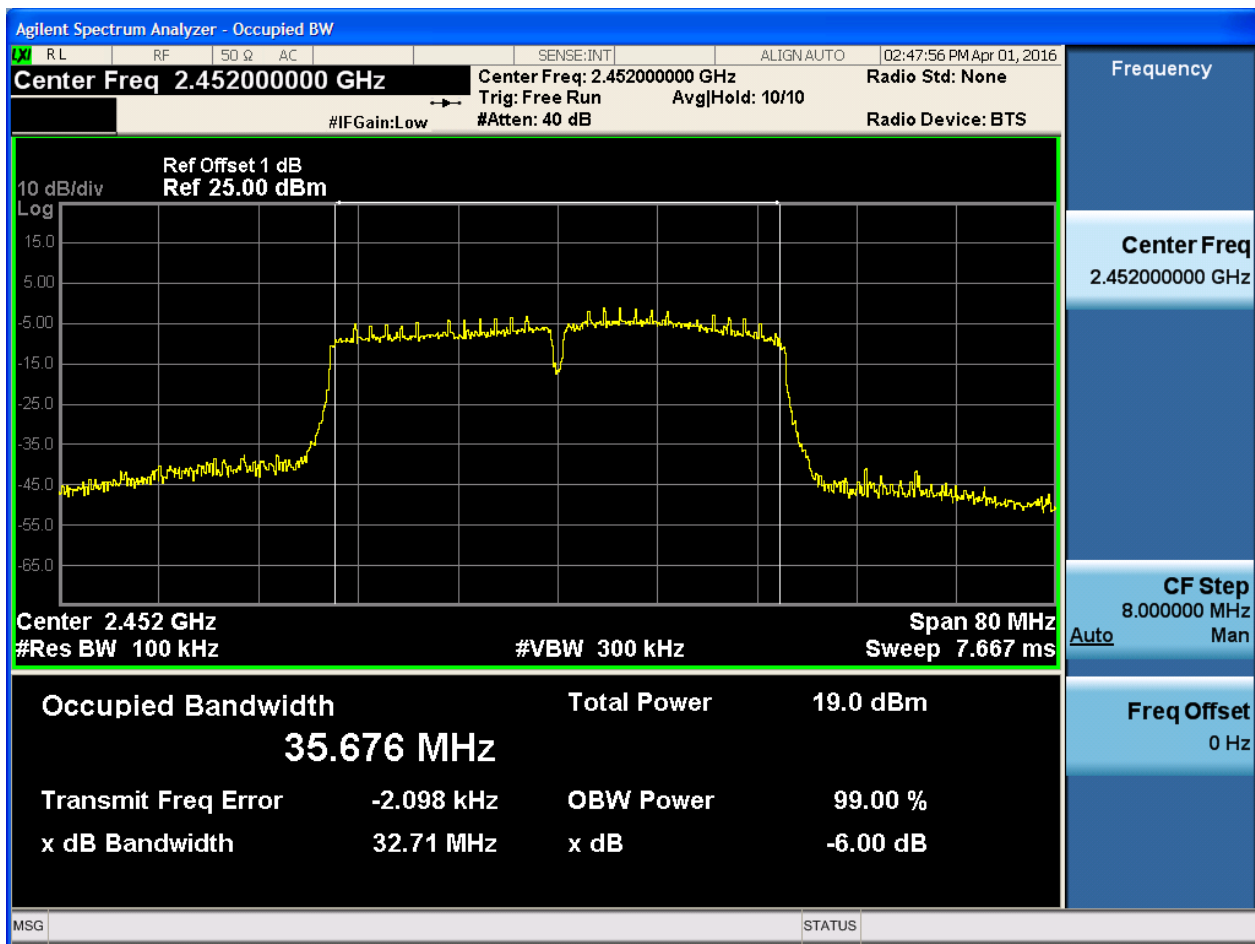


2.11 11N40_M@Ant 1





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.

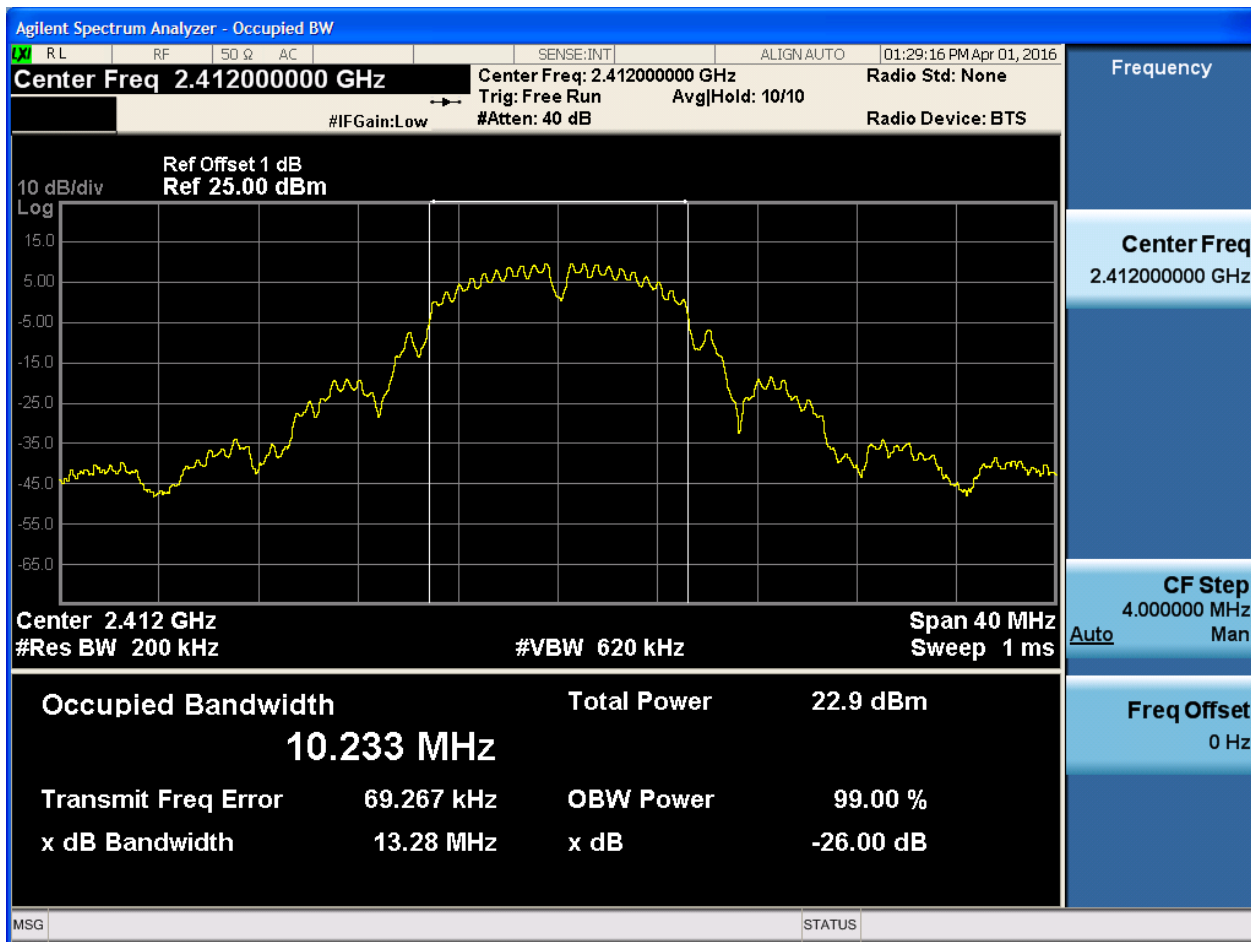
Part I - Test Results

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



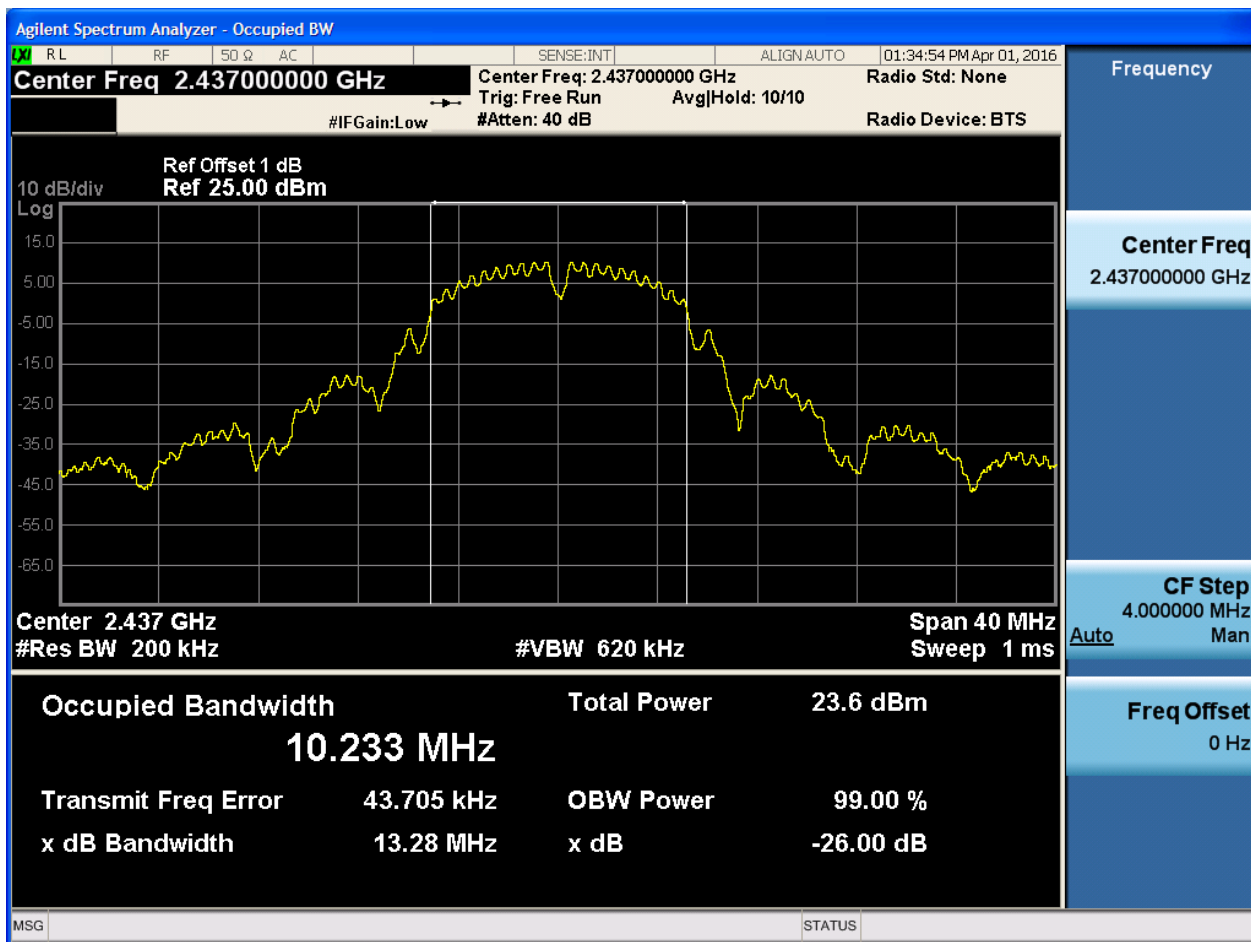
Part II - Test Plots

2.1 11B_L@Ant 1



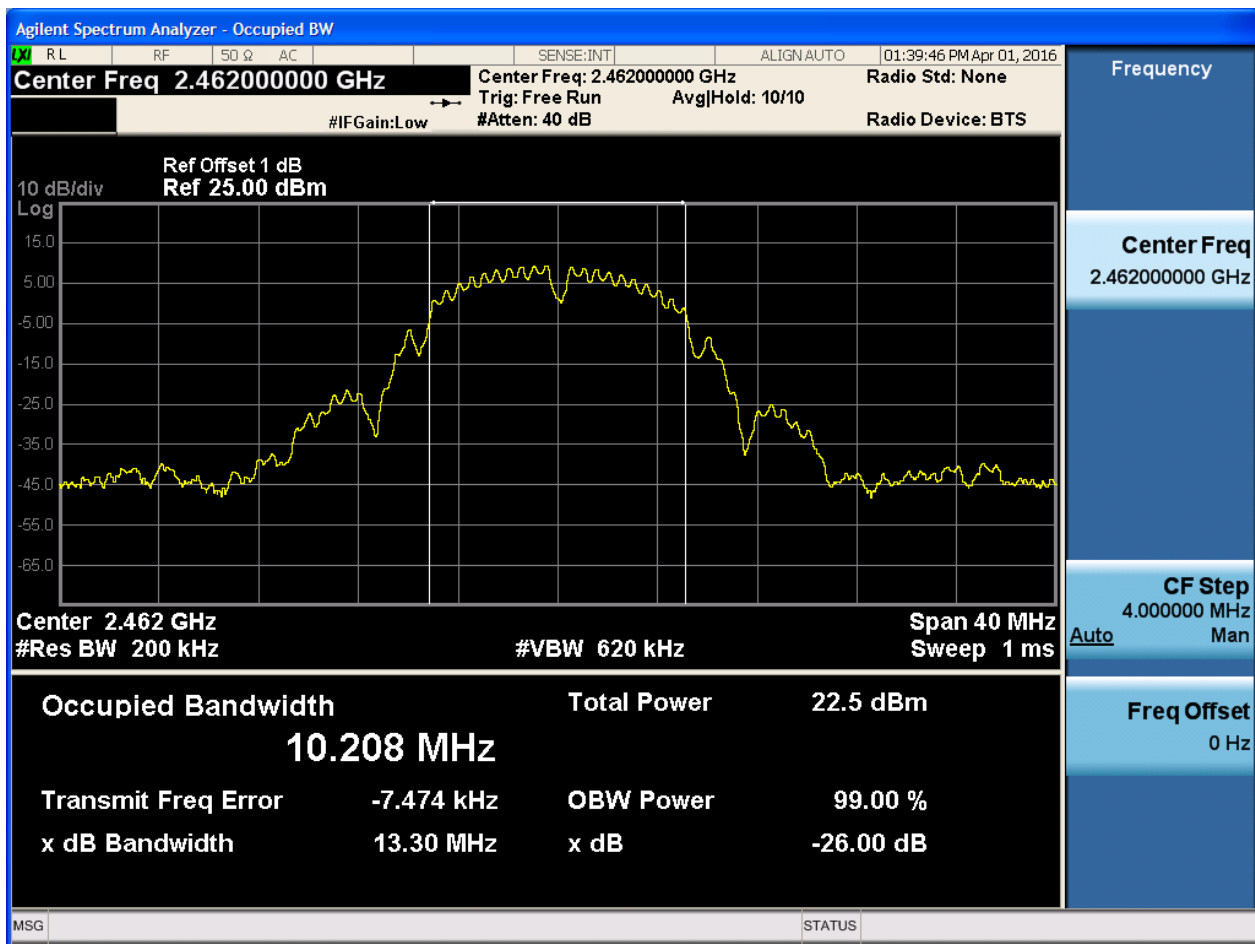


2.2 11B_M@Ant 1



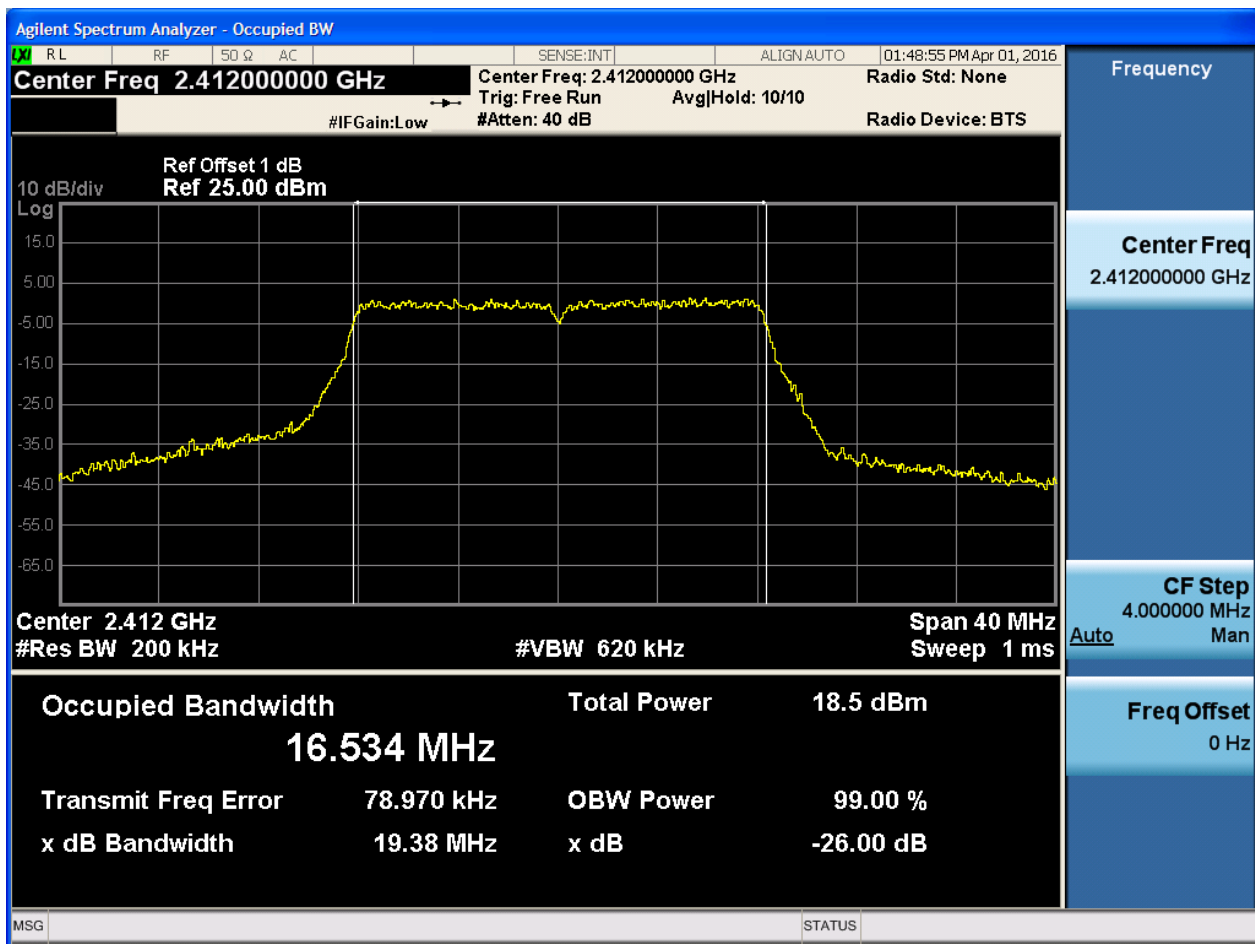


2.3 11B_H@Ant 1



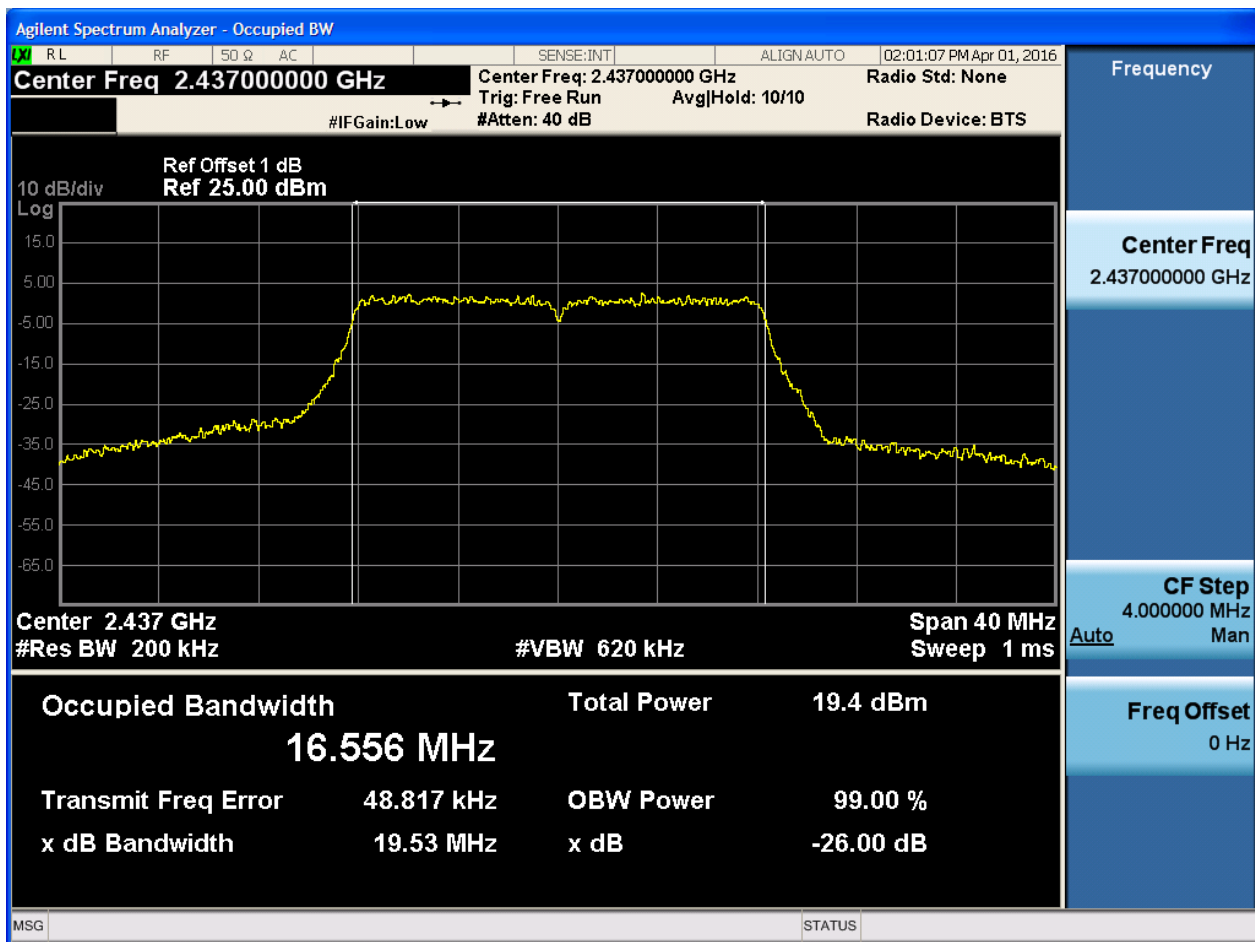


2.4 11G_L@Ant 1



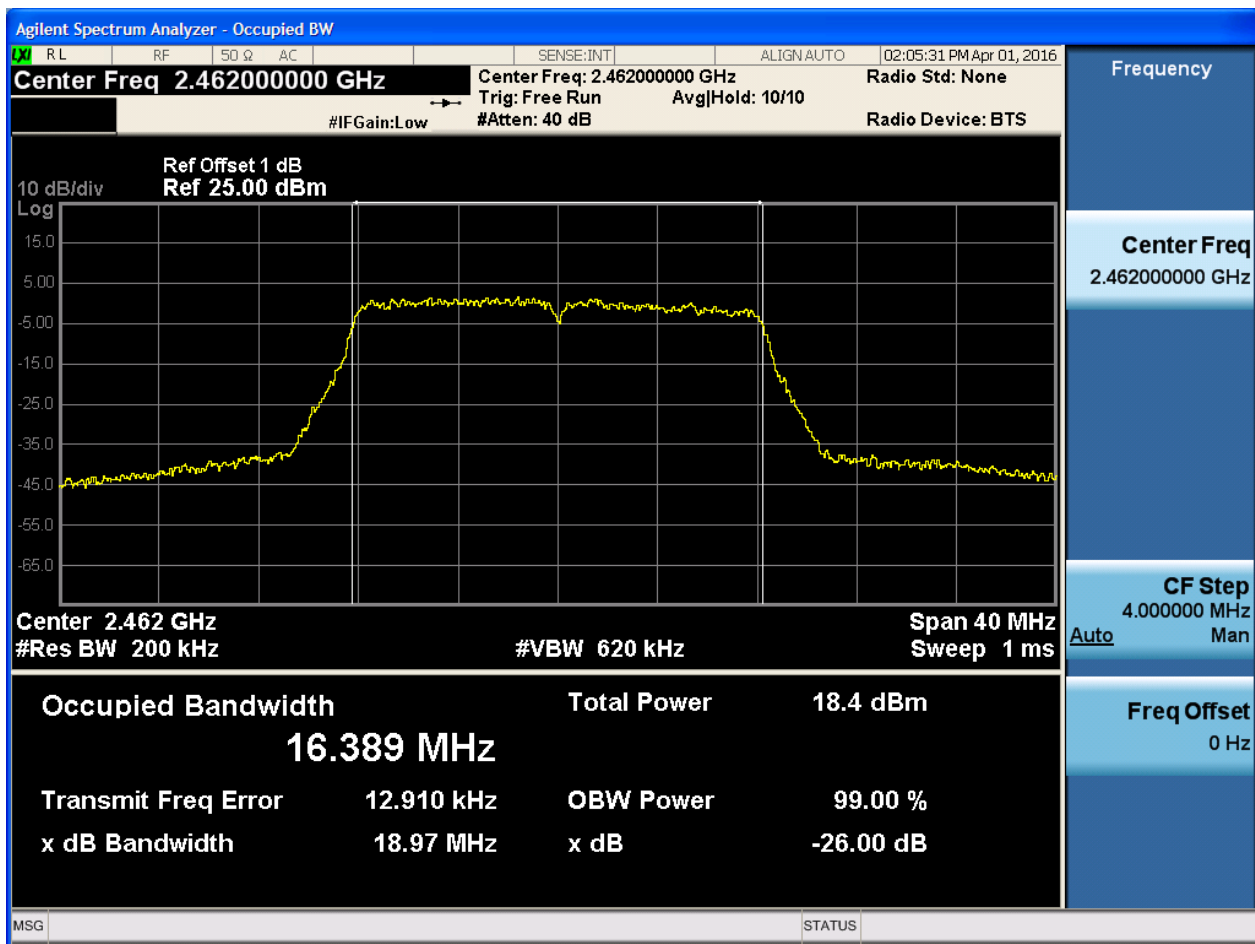


2.5 11G_M@Ant 1



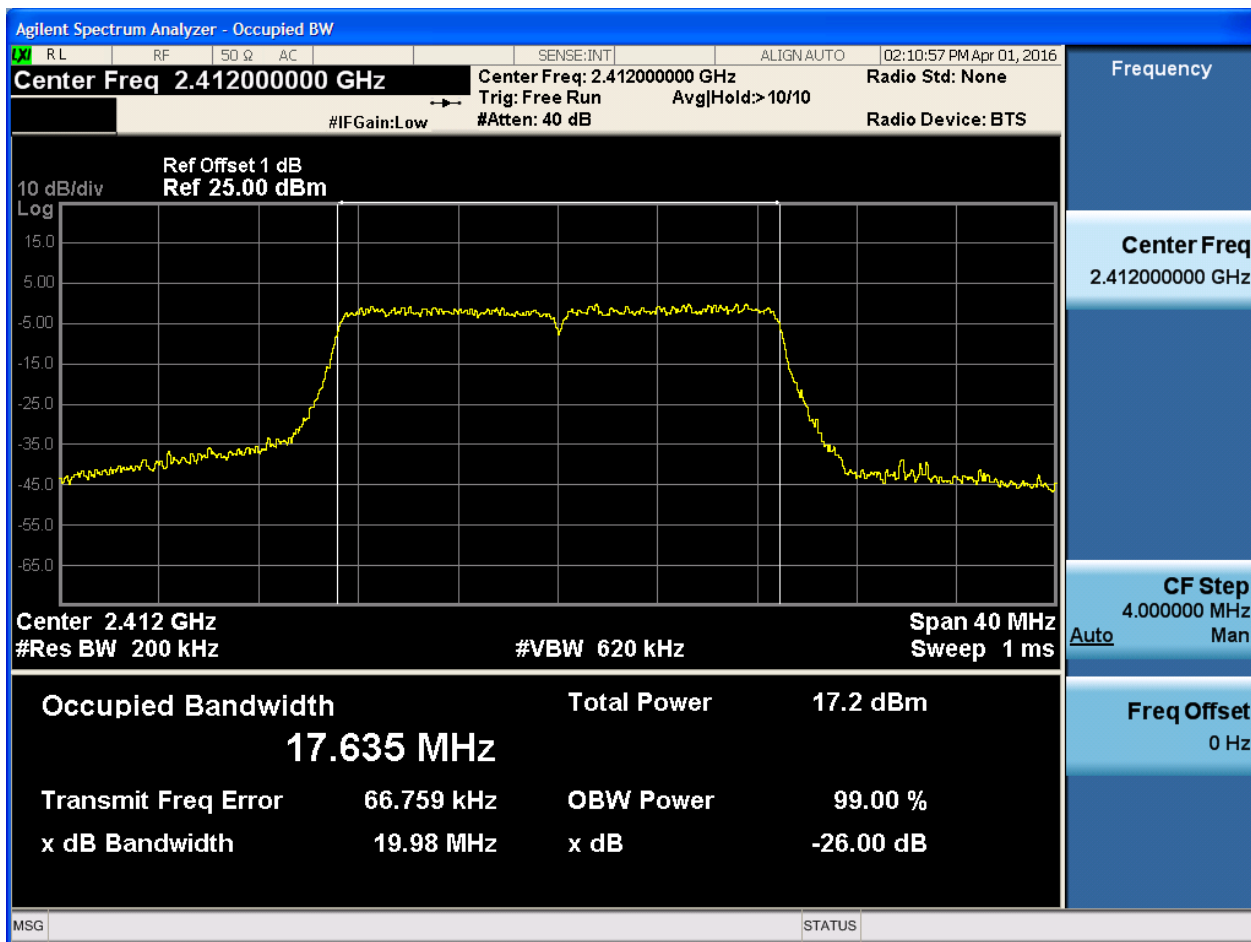


2.6 11G_H@Ant 1



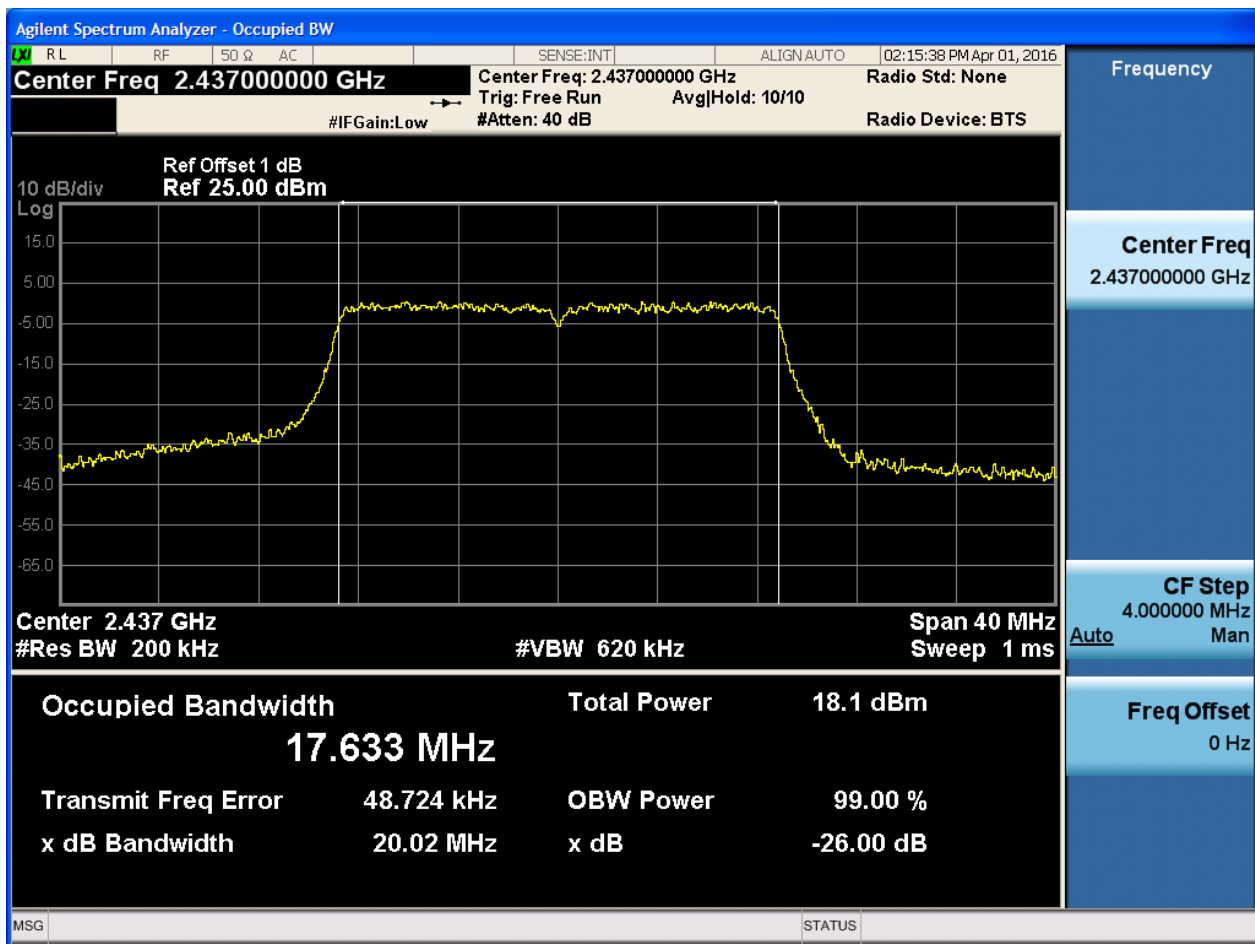


2.7 11N20_L@Ant 1



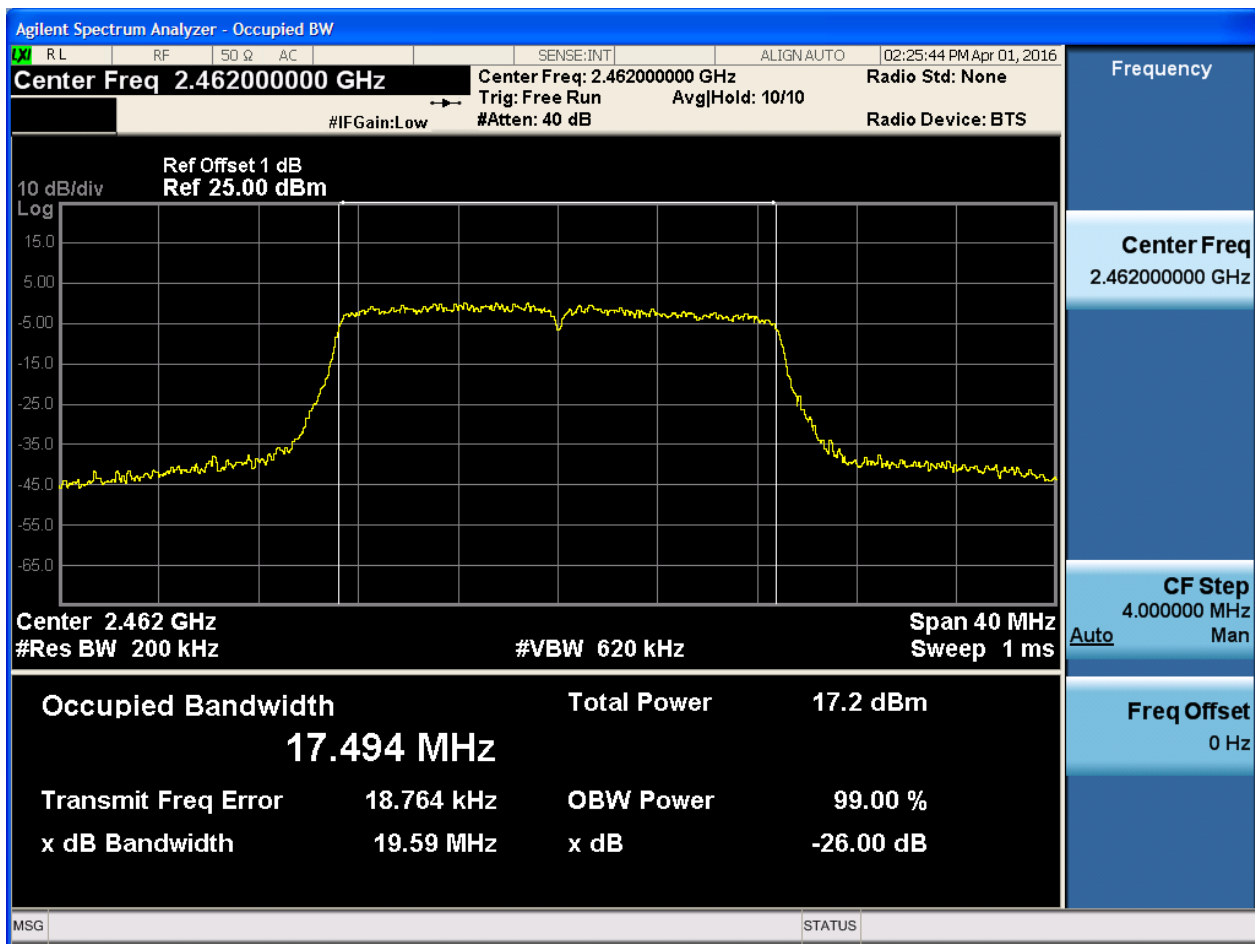


2.8 11N20_M@Ant 1



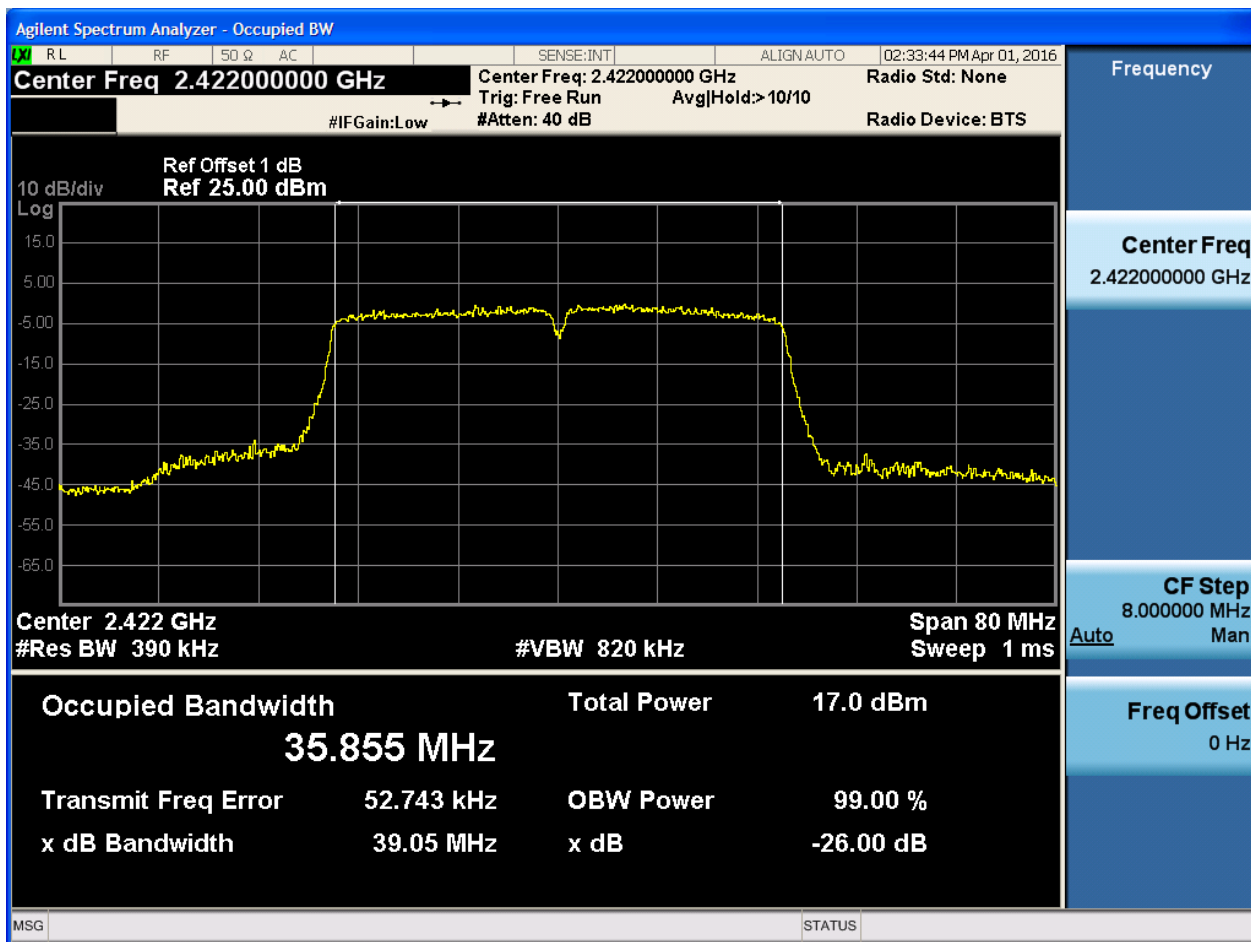


2.9 11N20_H@Ant 1



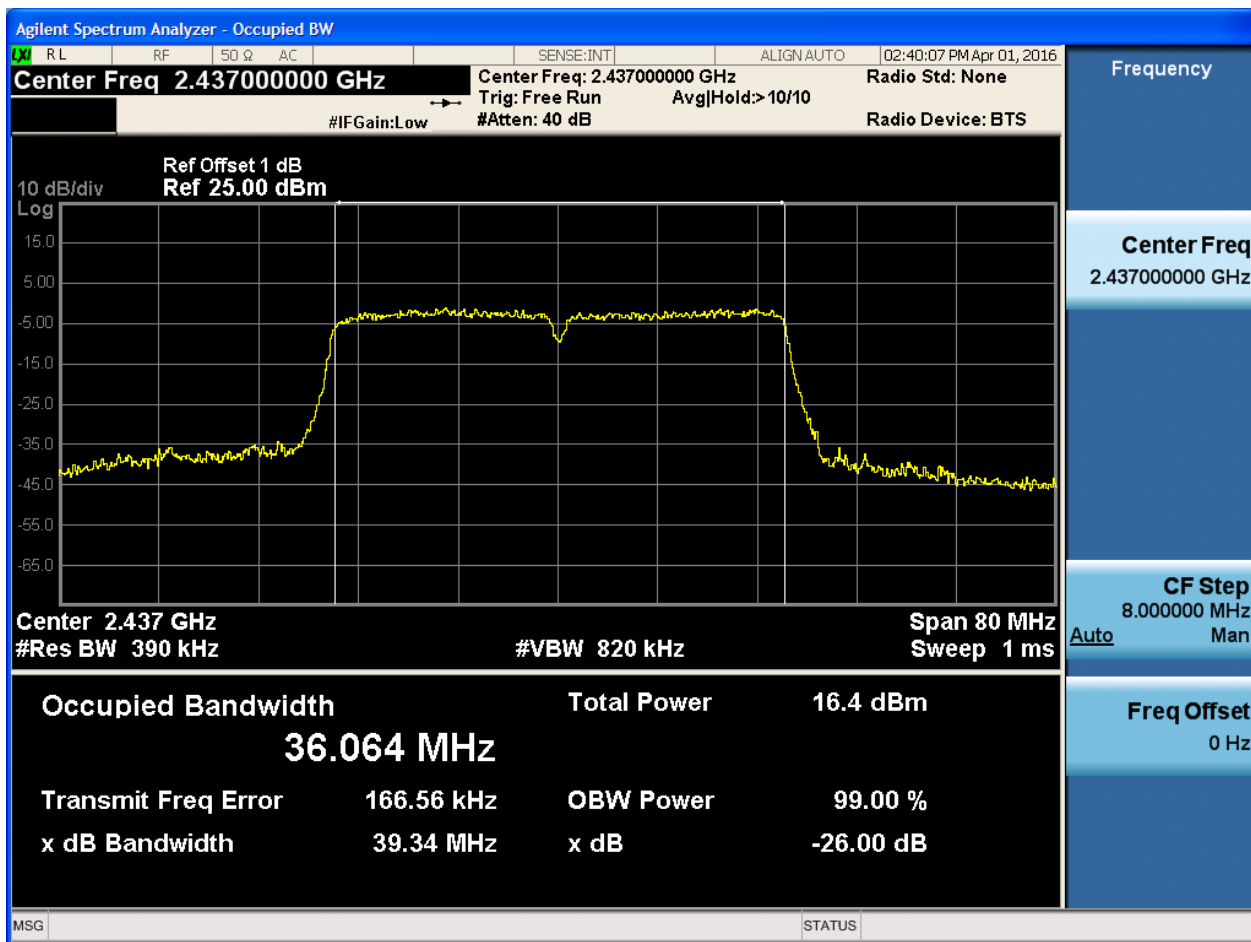


2.10 11N40_L@Ant 1



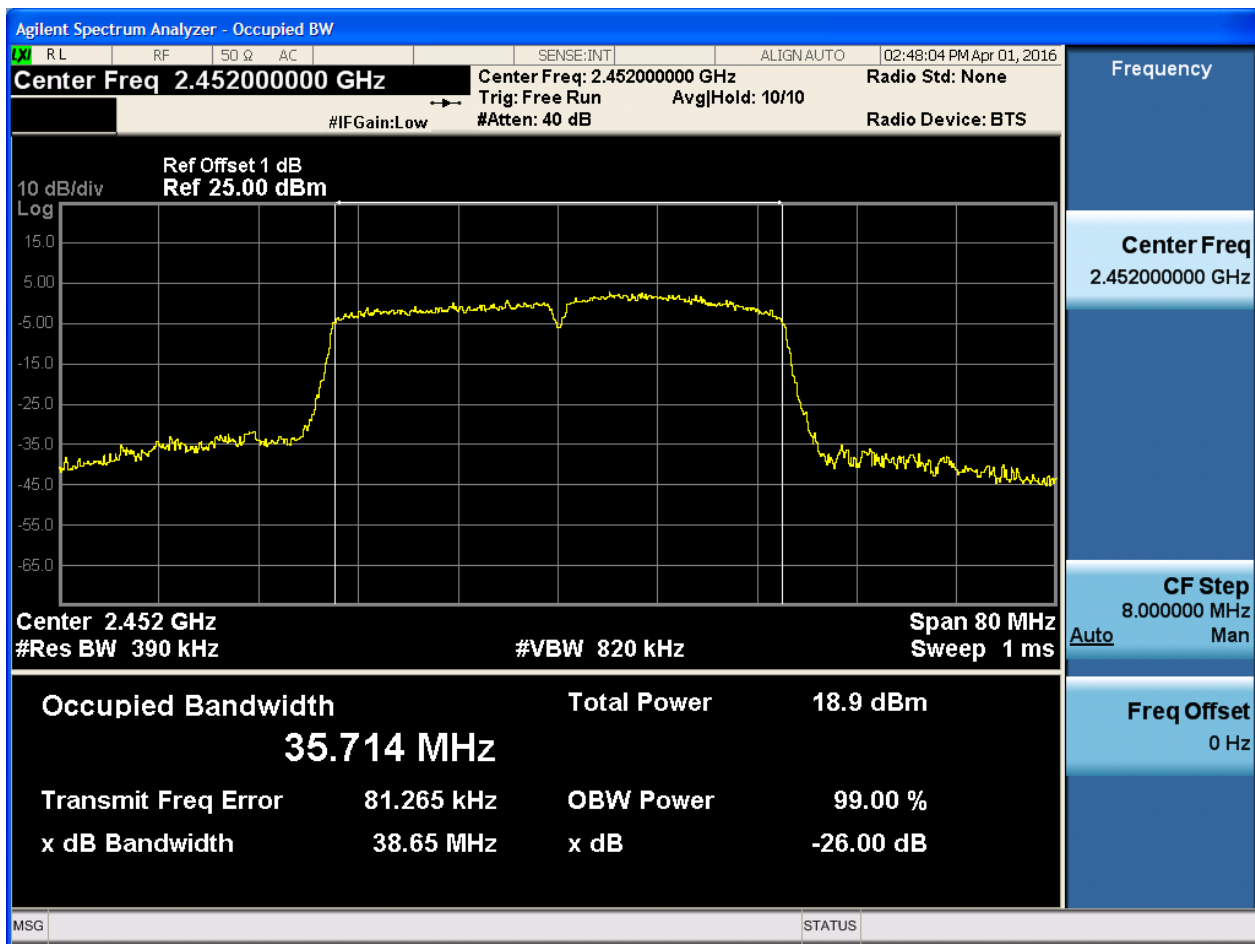


2.11 11N40_M@Ant 1





2.12 11N40_H@Ant 1



Appendix C: Duty cycle

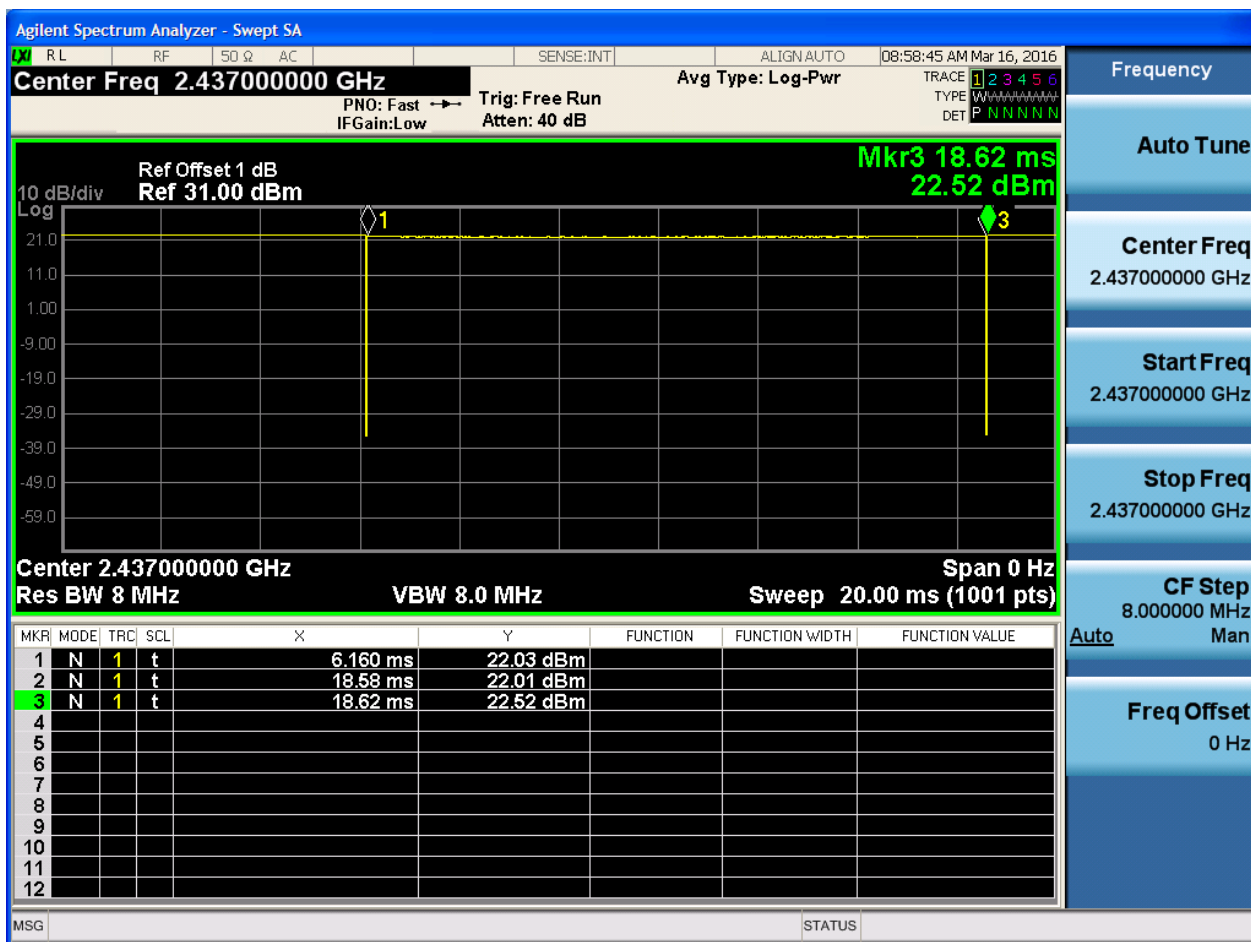
Part I - Test Results

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



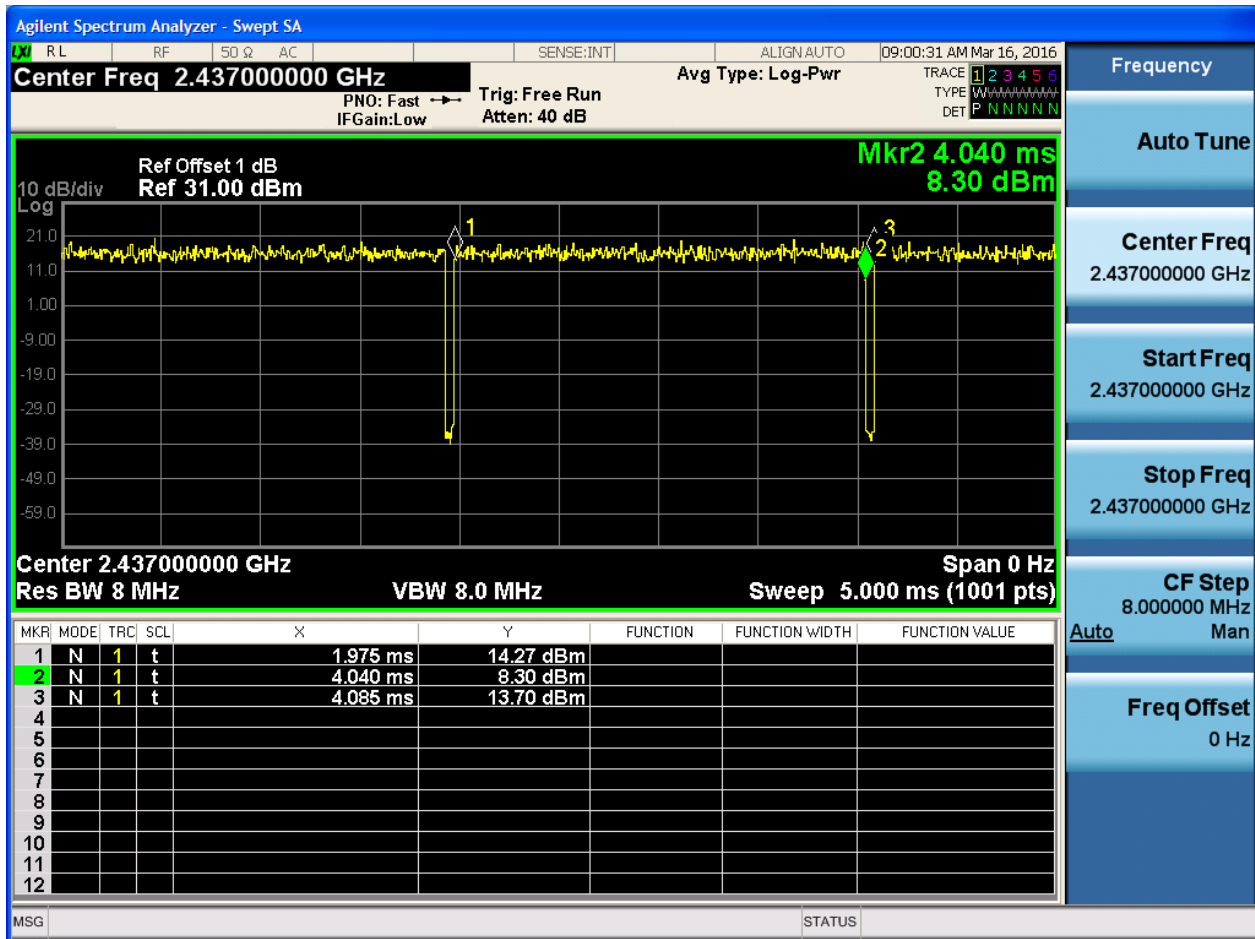
Part II - Test Plots

2.1 11B_M@Ant 1



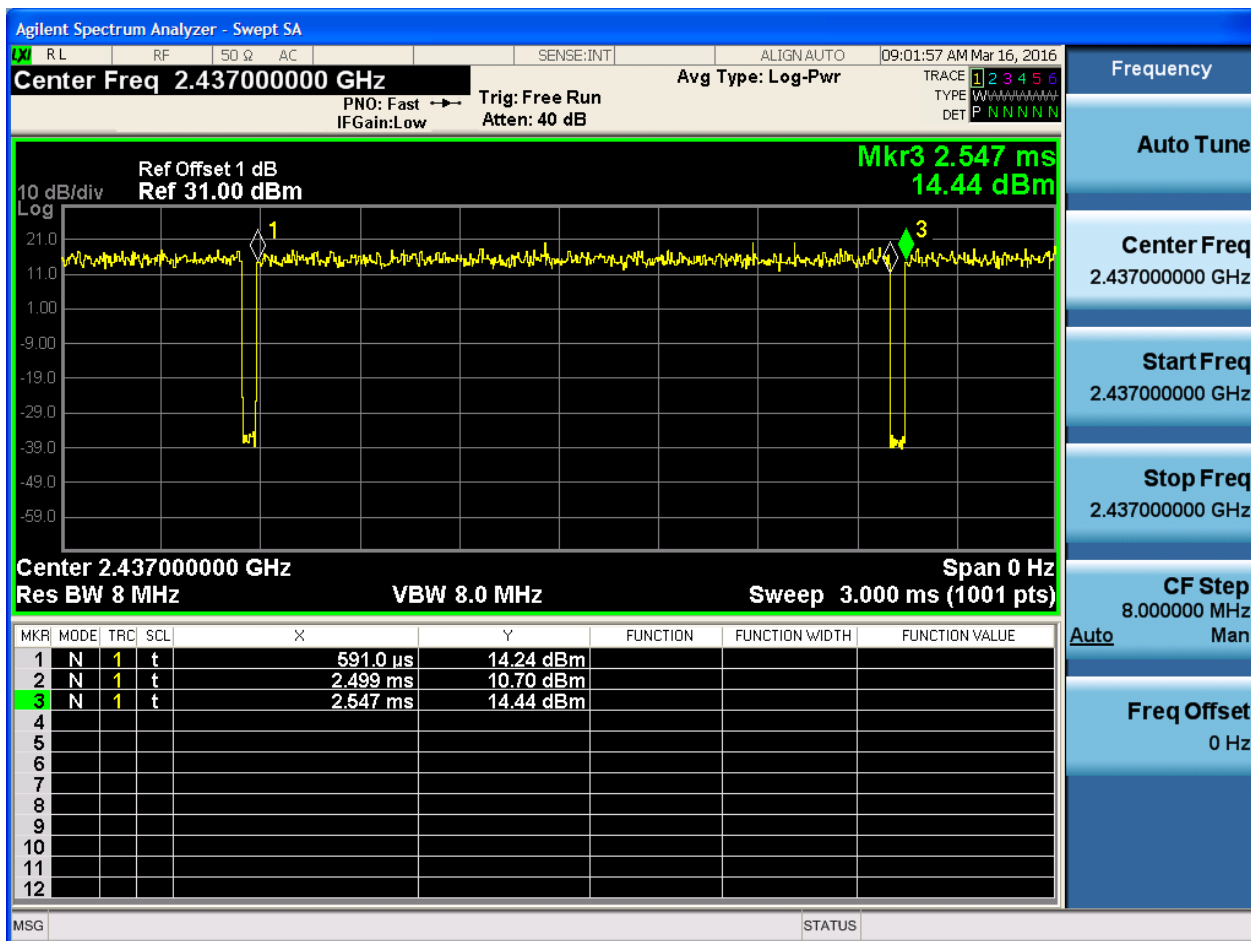


2.2 11G_M@Ant 1



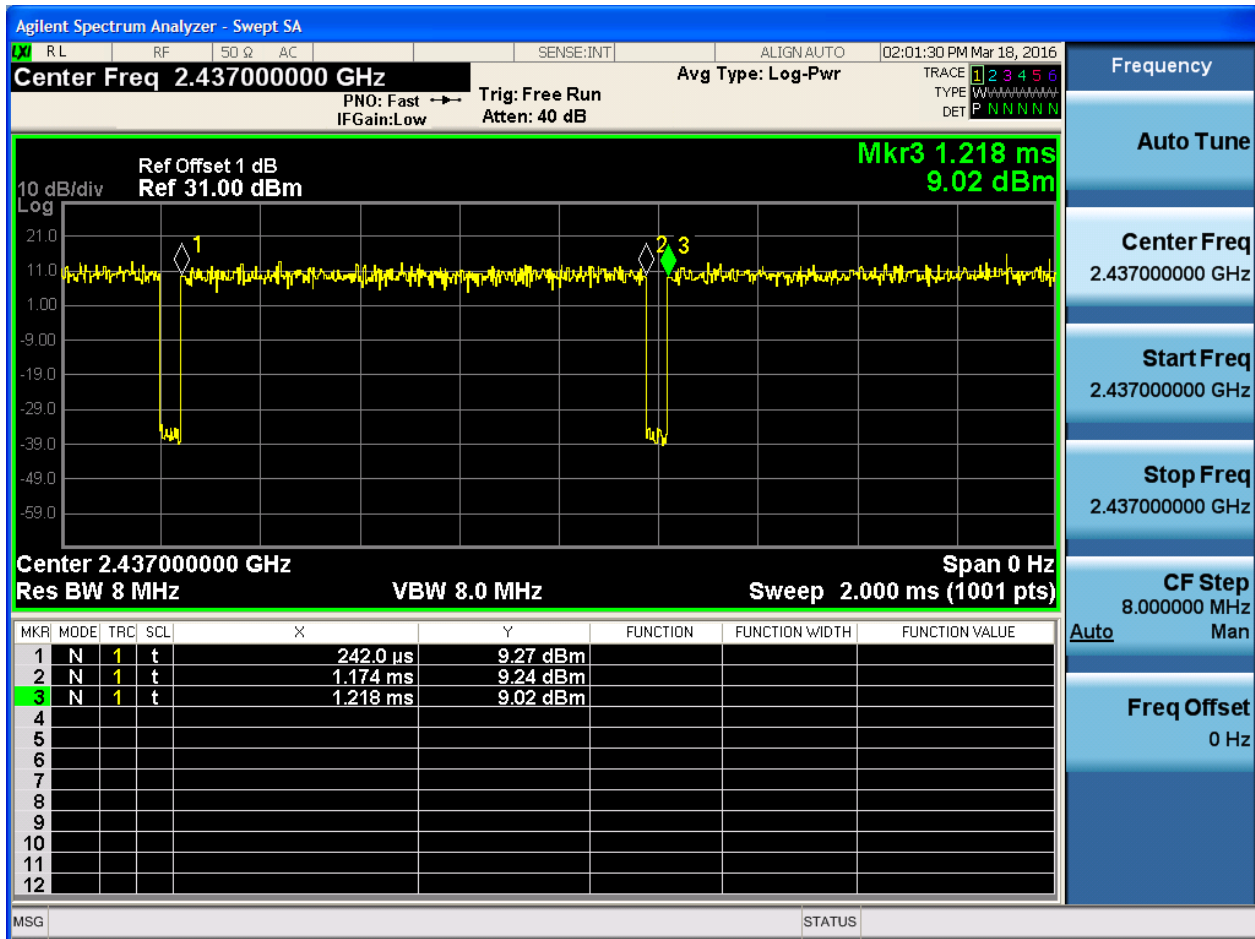


2.3 11N20SISO_M@Ant 1





2.4 11N40SISO_M@Ant 1



Appendix D: Maximum Conducted Average Output Power

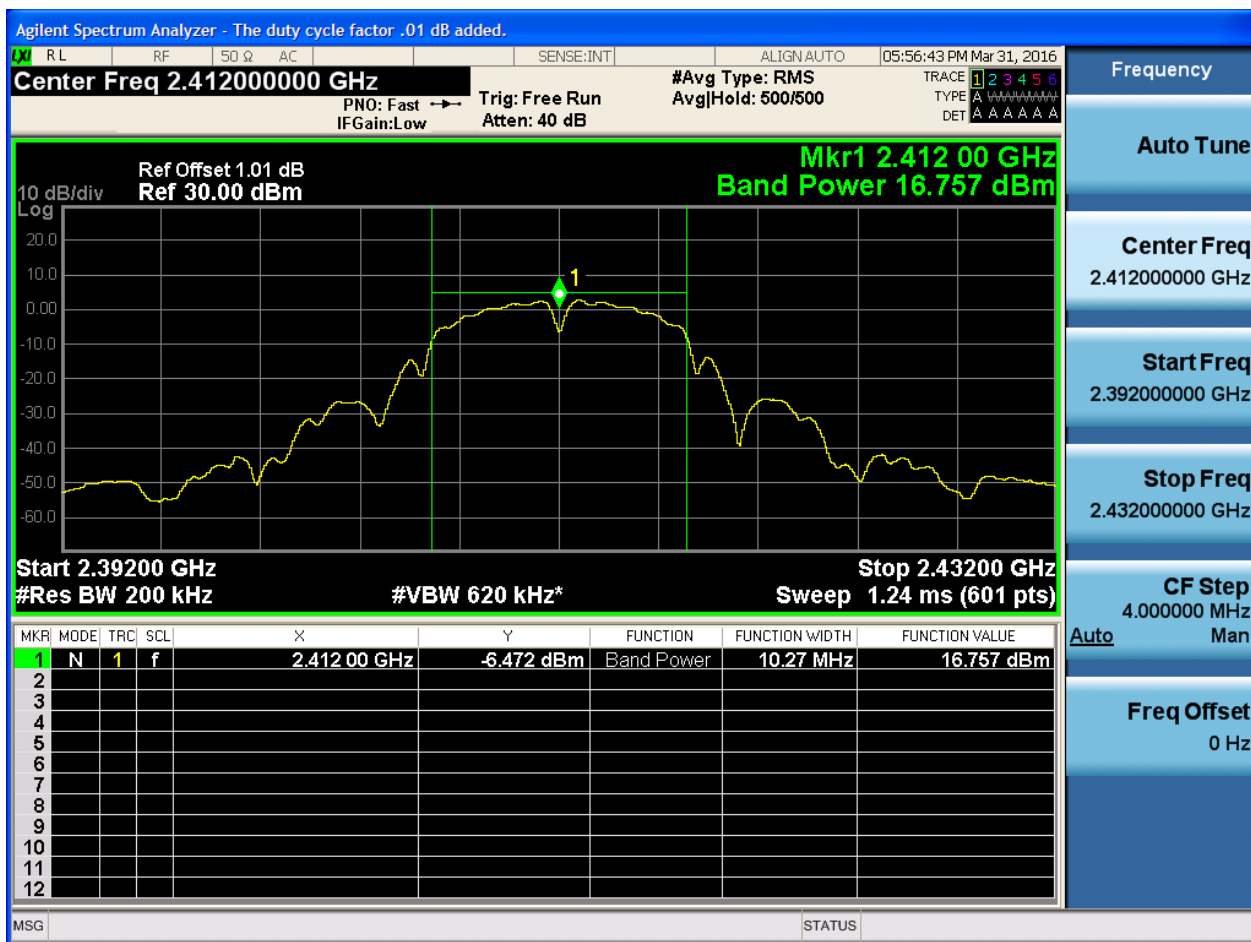
Part I - Test Results

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



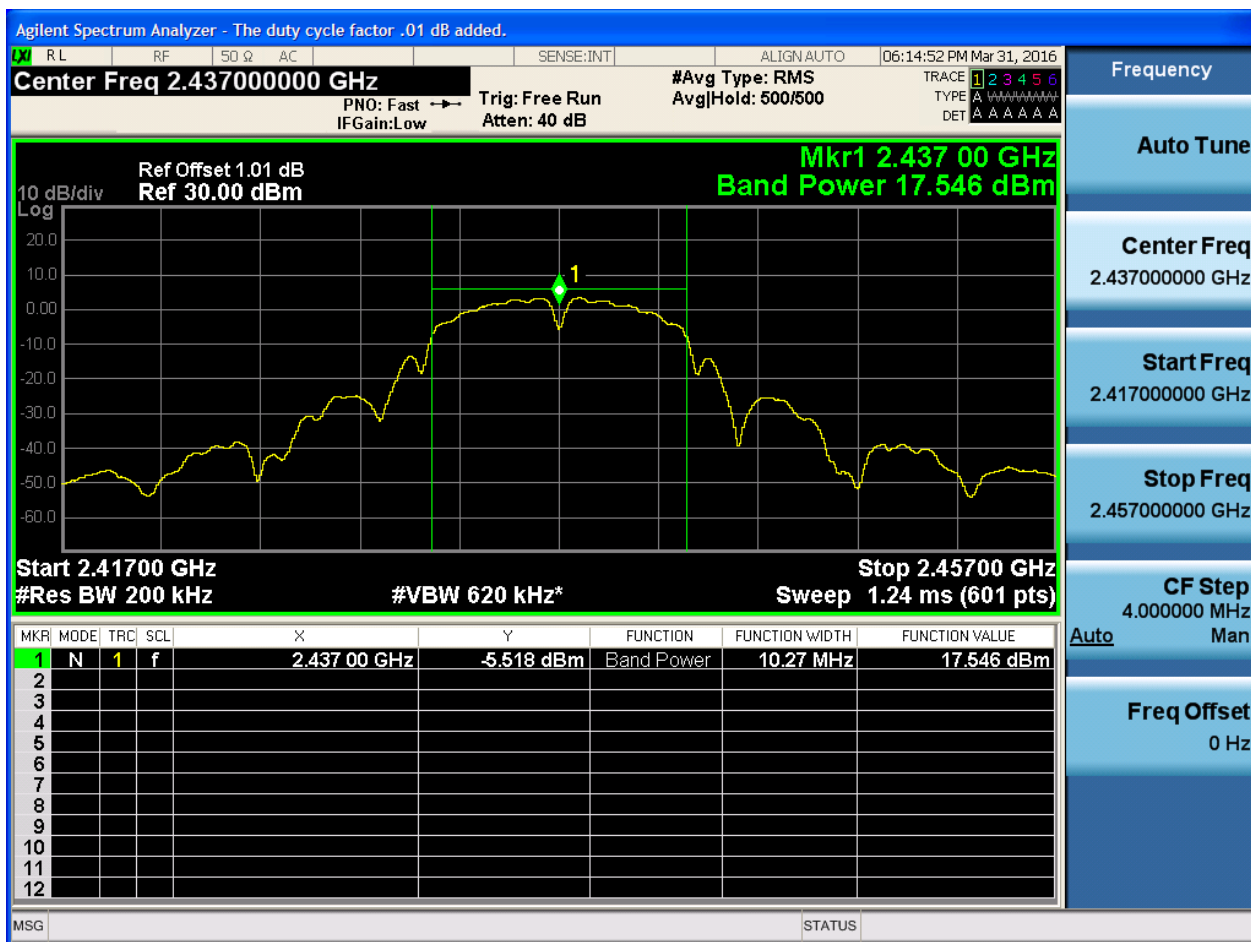
Part II - Test Plots

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*

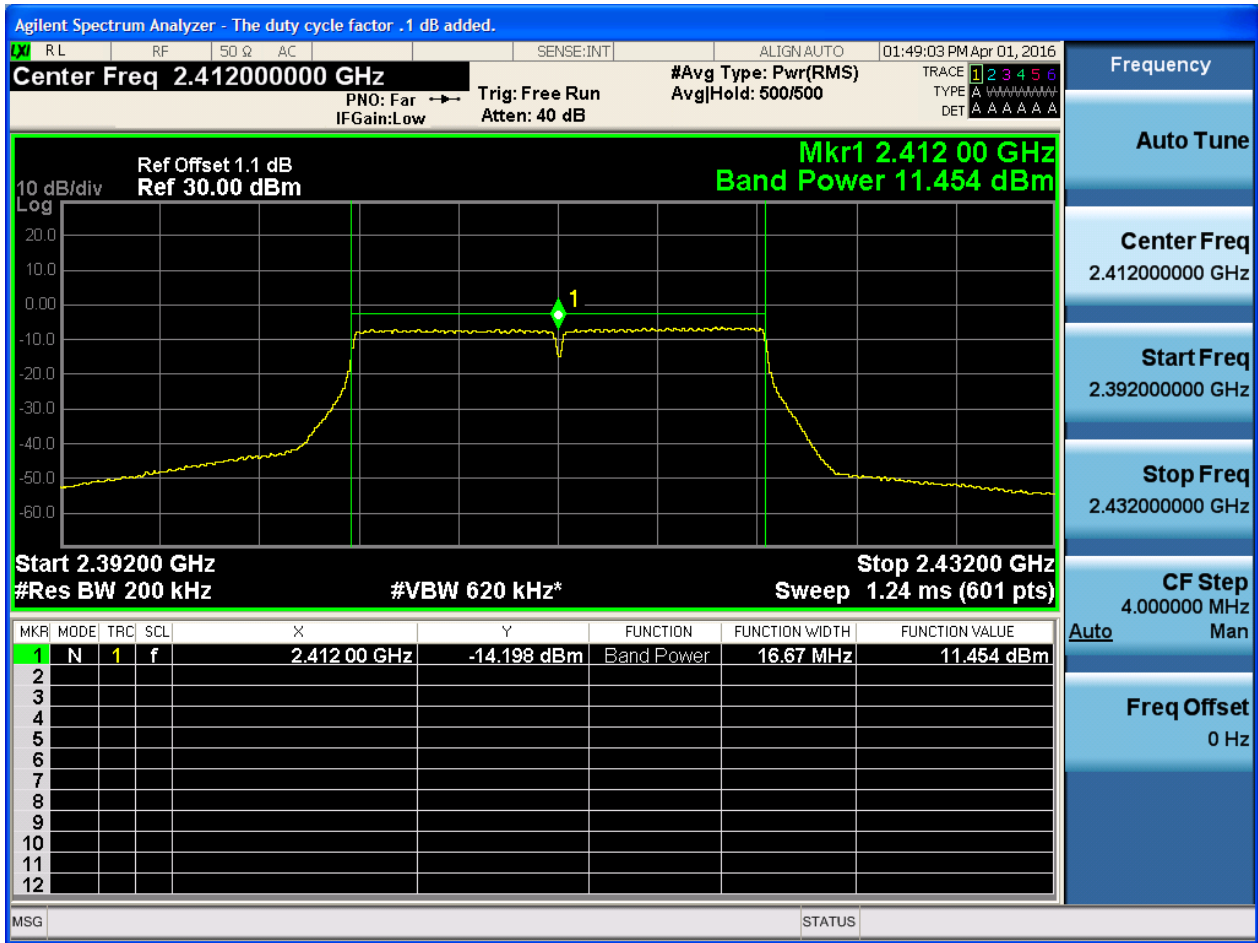
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.462 00 GHz	-5.680 dBm	Band Power	10.40 MHz	17.333 dBm
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

MSG

STATUS

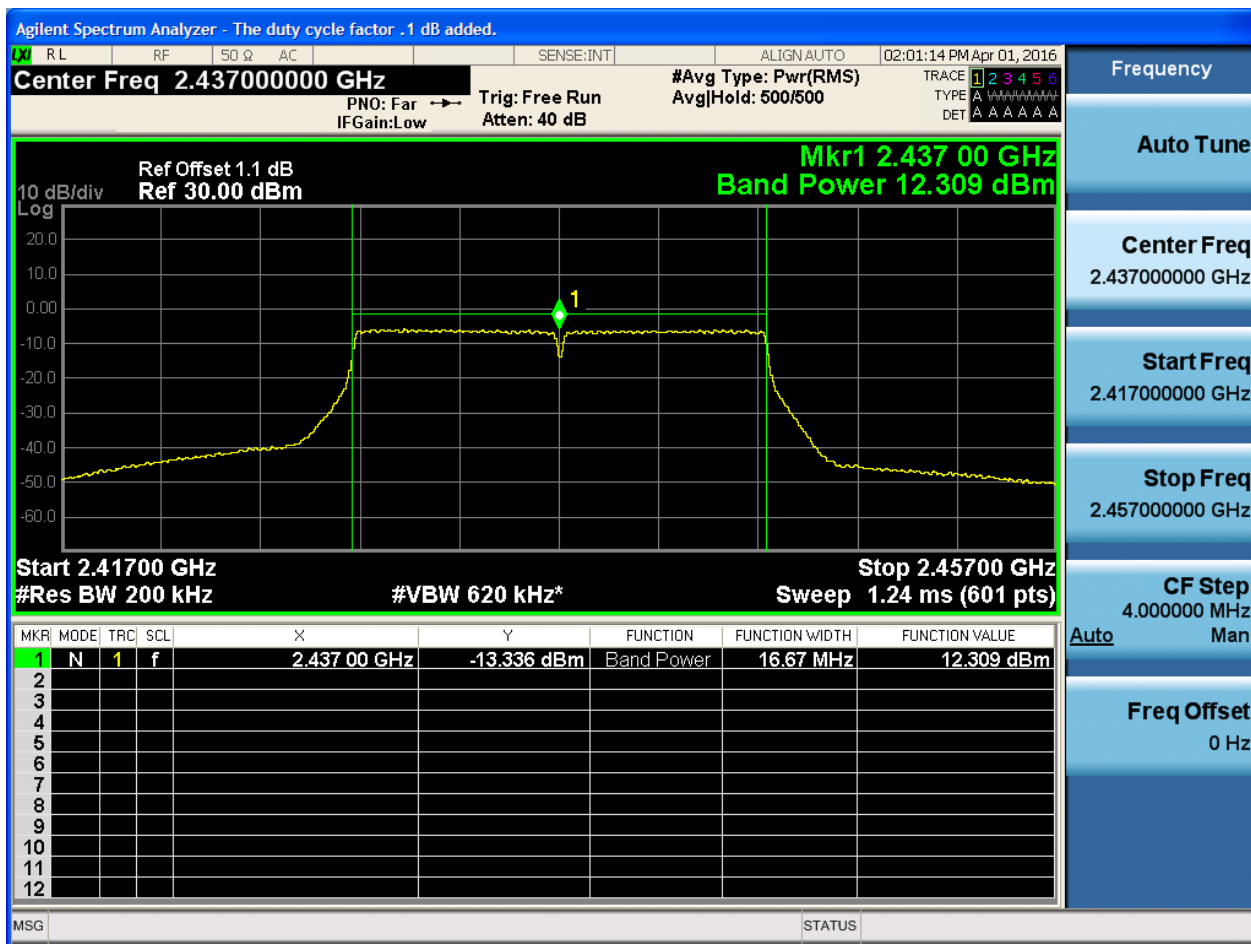


2.4 11G_L@Ant 1



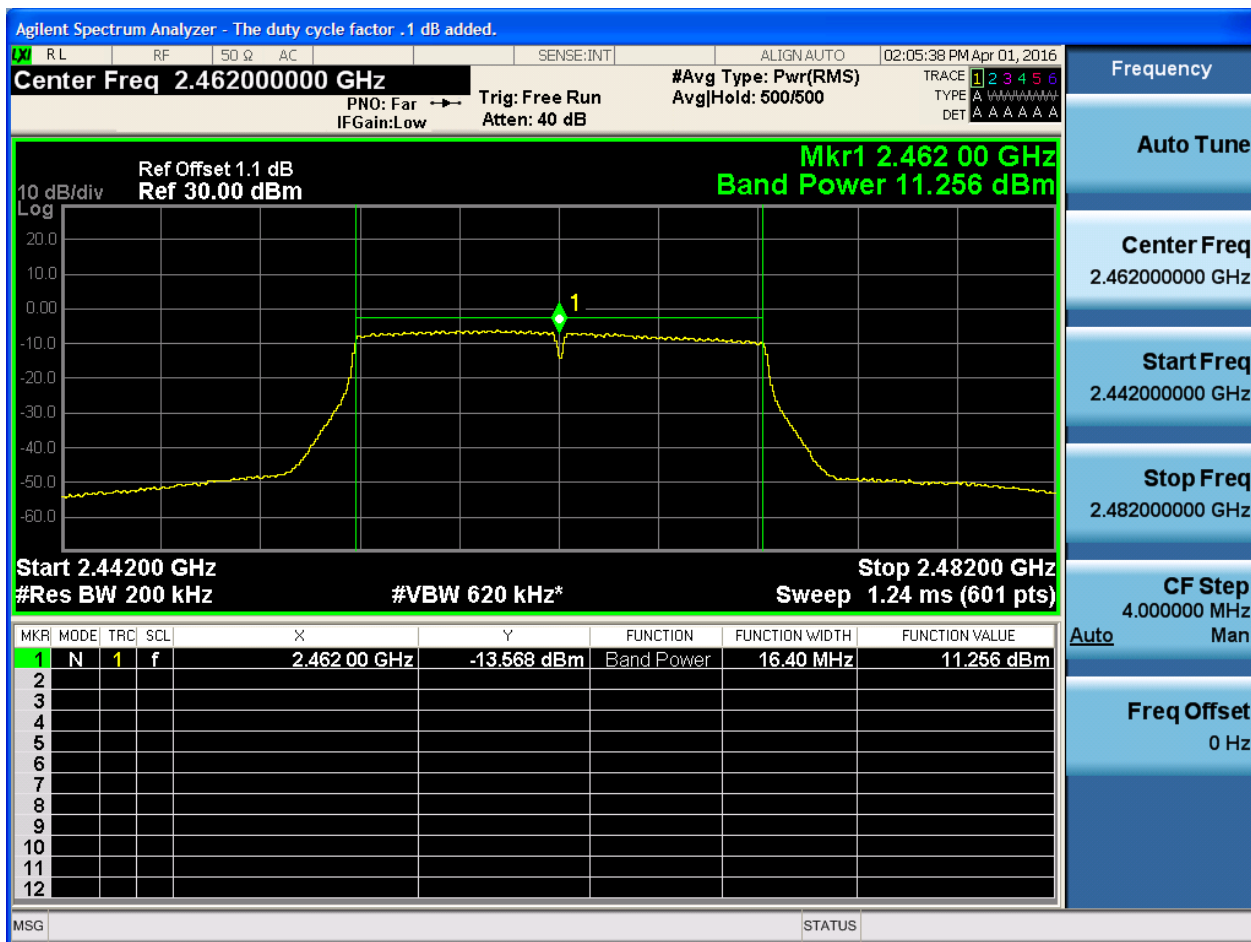


2.5 11G_M@Ant 1



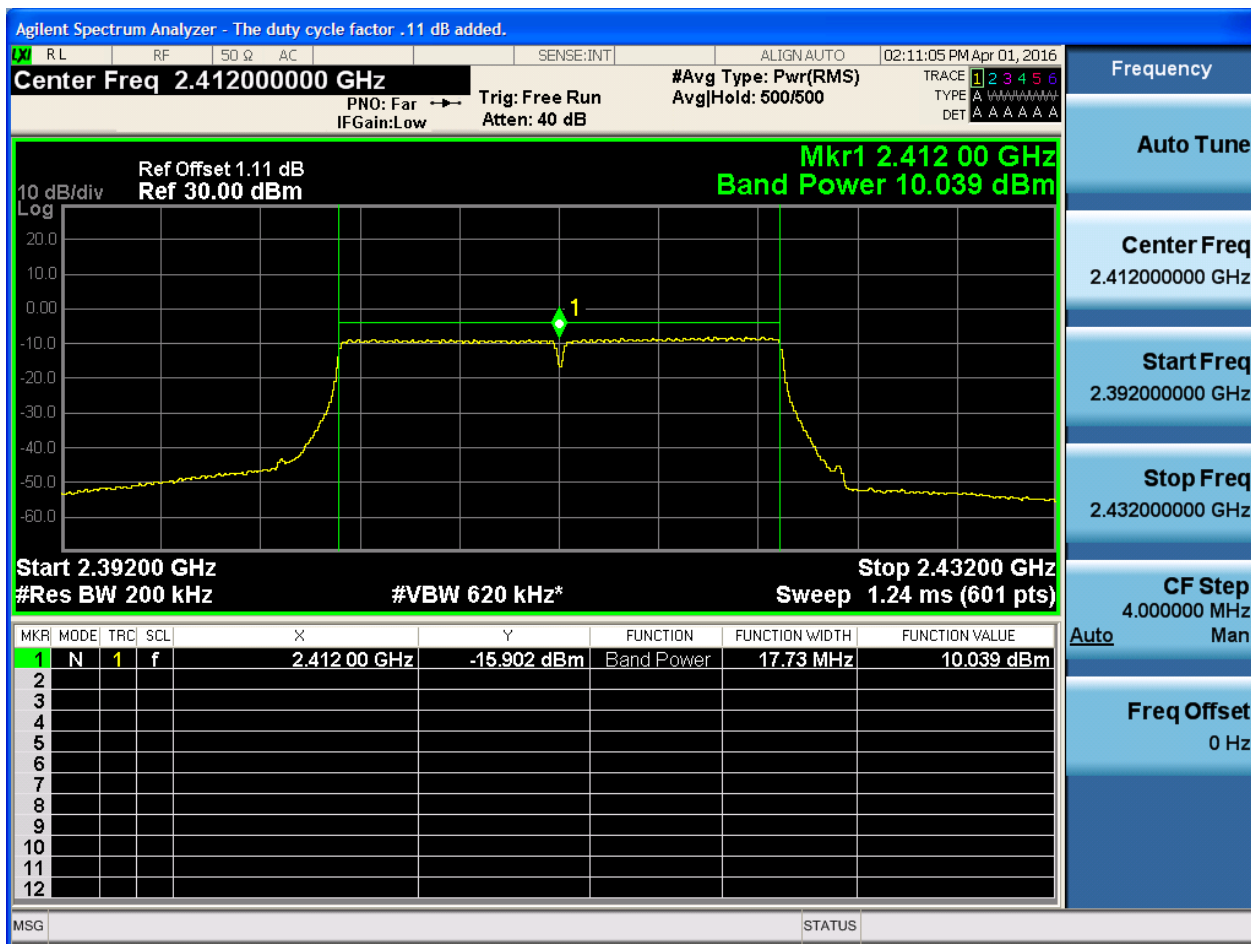


2.6 11G_H@Ant 1





2.7 11N20_L@Ant 1





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

Center Freq 2.43700000 GHz #Avg Type: Pwr(RMS) AvgHold: 500/500

Ref Offset 1.11 dB Ref 30.00 dBm

10 dB/div Log

Mkr1 2.437 00 GHz Band Power 10.883 dBm

Start 2.41700 GHz #Res BW 200 kHz #VBW 620 kHz* Stop 2.45700 GHz Sweep 1.24 ms (601 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.437 00 GHz	-14.891 dBm	Band Power	17.73 MHz	10.883 dBm
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Frequency

Auto Tune

Center Freq 2.43700000 GHz

Start Freq 2.41700000 GHz

Stop Freq 2.45700000 GHz

CF Step 4.000000 MHz Man

Freq Offset 0 Hz

MSG STATUS



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

Center Freq 2.46200000 GHz #Avg Type: Pwr(RMS) AvgHold: 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

TRC 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

10 dB/div

Log

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



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

RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 02:40:15 PM Apr 01, 2016

Center Freq 2.43700000 GHz #Avg Type: Pwr(RMS) AvgHold: 500/500

PNO: Fast → Trig: Free Run
IFGain: Low Atten: 40 dB

TRACE 1 2 3 4 5 6
TYPE A W W W W W W W W
DET A A A A A A

Ref Offset 1.2 dB
Ref 30.00 dBm

Mkr1 2.437 00 GHz
Band Power 9.174 dBm

10 dB/div
Log

Start 2.39700 GHz
#Res BW 390 kHz
#VBW 1.2 MHz*
Stop 2.47700 GHz
Sweep 1.00 ms (601 pts)

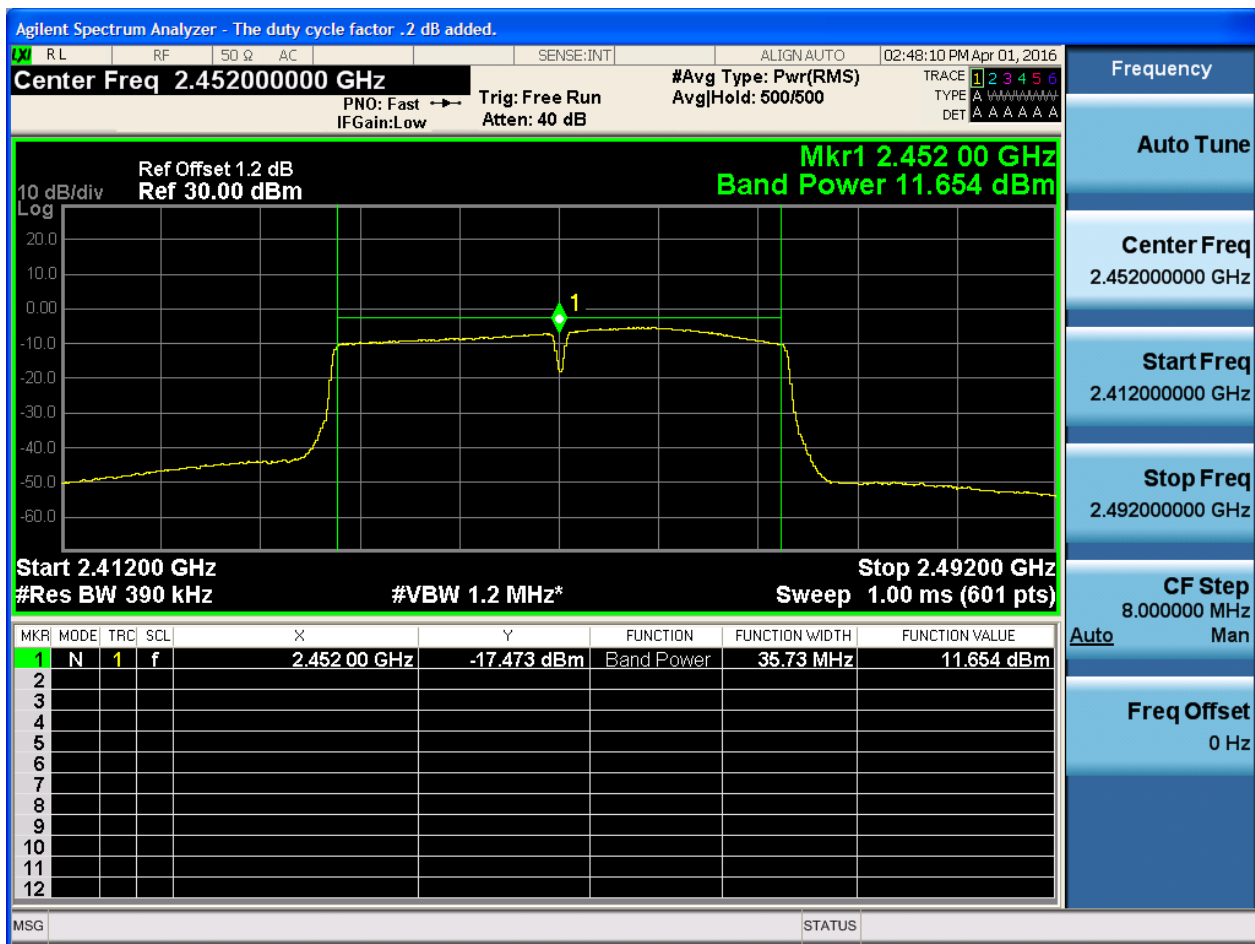
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.437 00 GHz	-20.740 dBm	Band Power	36.27 MHz	9.174 dBm
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

MSG STATUS

Frequency
Auto Tune
Center Freq 2.43700000 GHz
Start Freq 2.397000000 GHz
Stop Freq 2.477000000 GHz
CF Step 8.000000 MHz Man
Freq Offset 0 Hz



2.12 11N40_H@Ant 1



Appendix E: Maximum Power Spectral Density Level

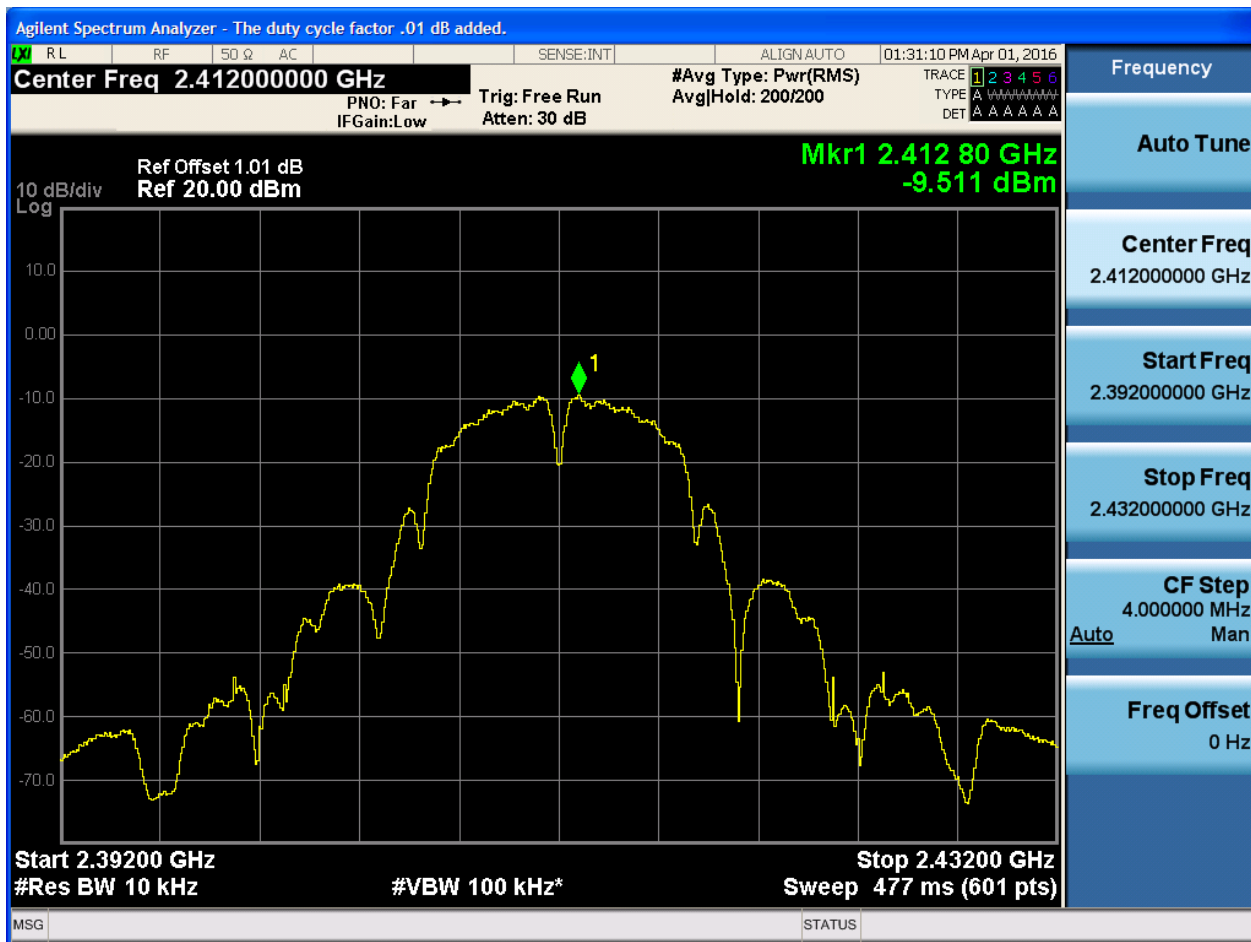
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	PD[MHz]	Verdict
11B	L	2412	Ant 1	-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



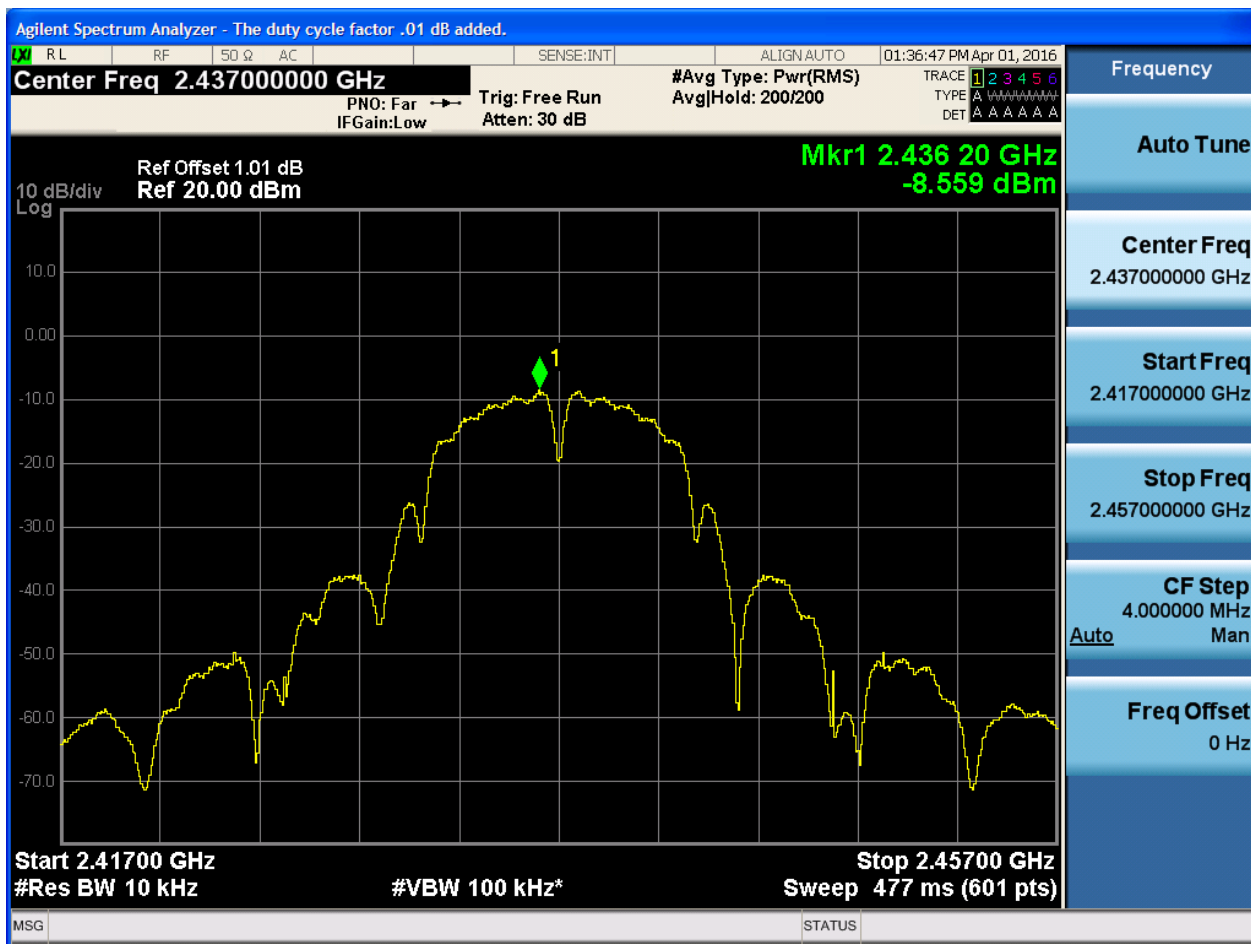
Part II - Test Plots

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

Trig: Free Run
Atten: 30 dB

Auto Tune

Center Freq
2.46200000 GHz

Start Freq
2.442000000 GHz

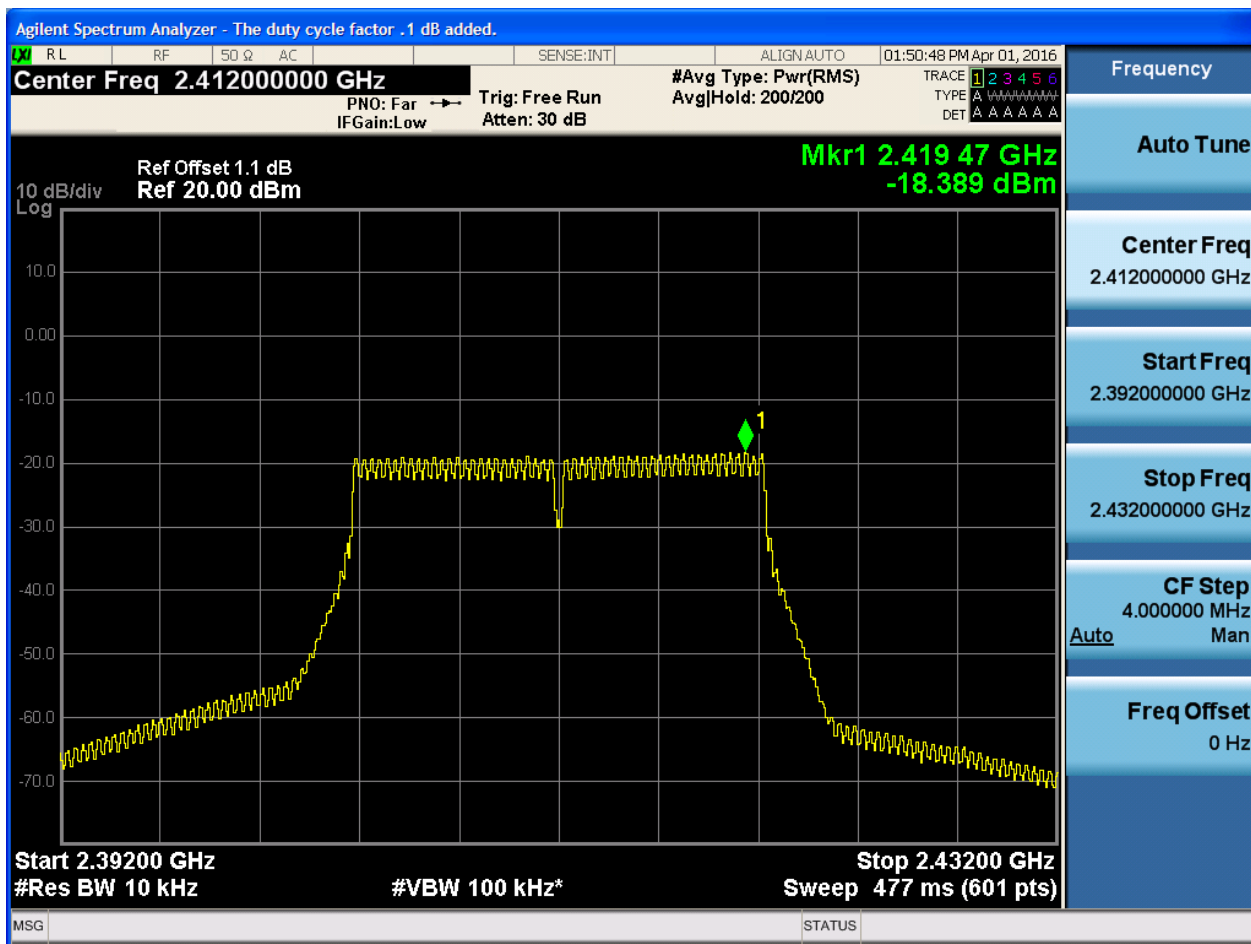
Stop Freq
2.482000000 GHz

CF Step
4.000000 MHz
Man

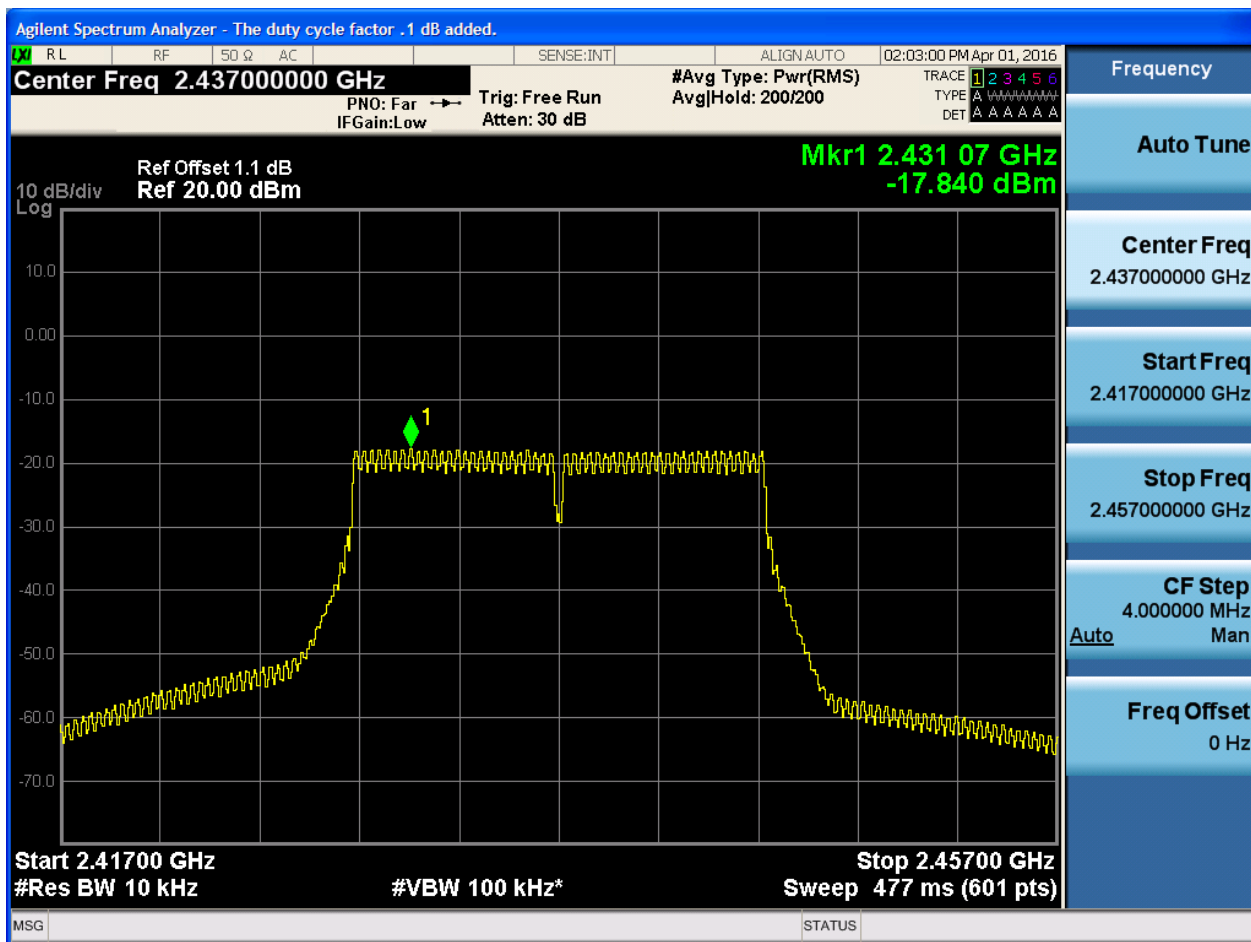
Freq Offset
0 Hz



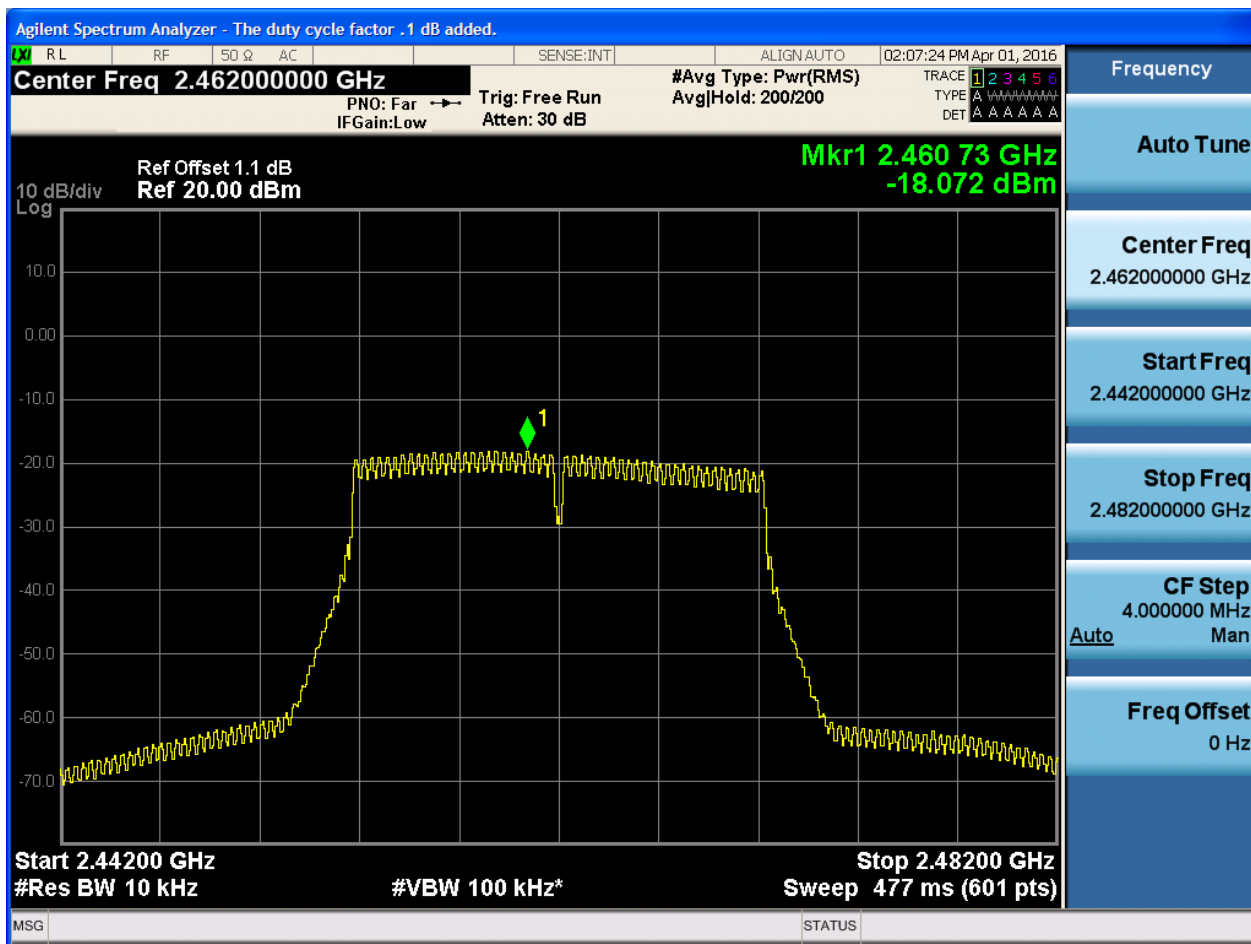
2.4 11G_L@Ant 1



2.5 11G_M@Ant 1



2.6 11G_H@Ant 1





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

Center Freq 2.41200000 GHz

Ref Offset 1.11 dB
Ref 20.00 dBm

10 dB/div
Log

Mkr1 2.417 00 GHz
-20.158 dBm

Start 2.39200 GHz
#Res BW 10 kHz

Stop 2.43200 GHz
Sweep 477 ms (601 pts)

#VBW 100 kHz*

Trig: Free Run
Atten: 30 dB

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

Frequency

Auto Tune

Center Freq
2.41200000 GHz

Start Freq
2.392000000 GHz

Stop Freq
2.432000000 GHz

CF Step
4.000000 MHz
Man

Freq Offset
0 Hz

The image shows a screenshot of an Agilent Spectrum Analyzer. The main display is a log-frequency plot with a yellow signal trace. The signal is centered around 2.417 GHz, marked by a green diamond cursor labeled '1'. The signal level is approximately -20 dBm. The plot shows a wideband signal with a sharp peak at the center frequency. The background is a grid. The top of the screen displays various settings and status information, including the center frequency, reference level, and trigger mode. The right side of the screen has a vertical panel with buttons for 'Auto Tune', 'Center Freq', 'Start Freq', 'Stop Freq', 'CF Step', and 'Freq Offset'. The bottom of the screen shows the start and stop frequencies, resolution bandwidth, and sweep time.

Parameter	Value
Center Freq	2.41200000 GHz
Ref Offset	1.11 dB
Ref	20.00 dBm
Trig	Free Run
Atten	30 dB
#Avg Type	Pwr(RMS)
Avg Hold	200/200
Start Freq	2.392000000 GHz
Stop Freq	2.432000000 GHz
CF Step	4.000000 MHz
Freq Offset	0 Hz
Start	2.39200 GHz
Stop	2.43200 GHz
#Res BW	10 kHz
#VBW	100 kHz*
Sweep	477 ms (601 pts)



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

Center Freq 2.43700000 GHz

Ref Offset 1.11 dB
Ref 20.00 dBm

10 dB/div
Log

Mkr1 2.432 00 GHz
-19.314 dBm

Start 2.41700 GHz
#Res BW 10 kHz

Stop 2.45700 GHz
Sweep 477 ms (601 pts)

#VBW 100 kHz*

Trig: Free Run
Atten: 30 dB

Frequency

Auto Tune

Center Freq
2.43700000 GHz

Start Freq
2.41700000 GHz

Stop Freq
2.45700000 GHz

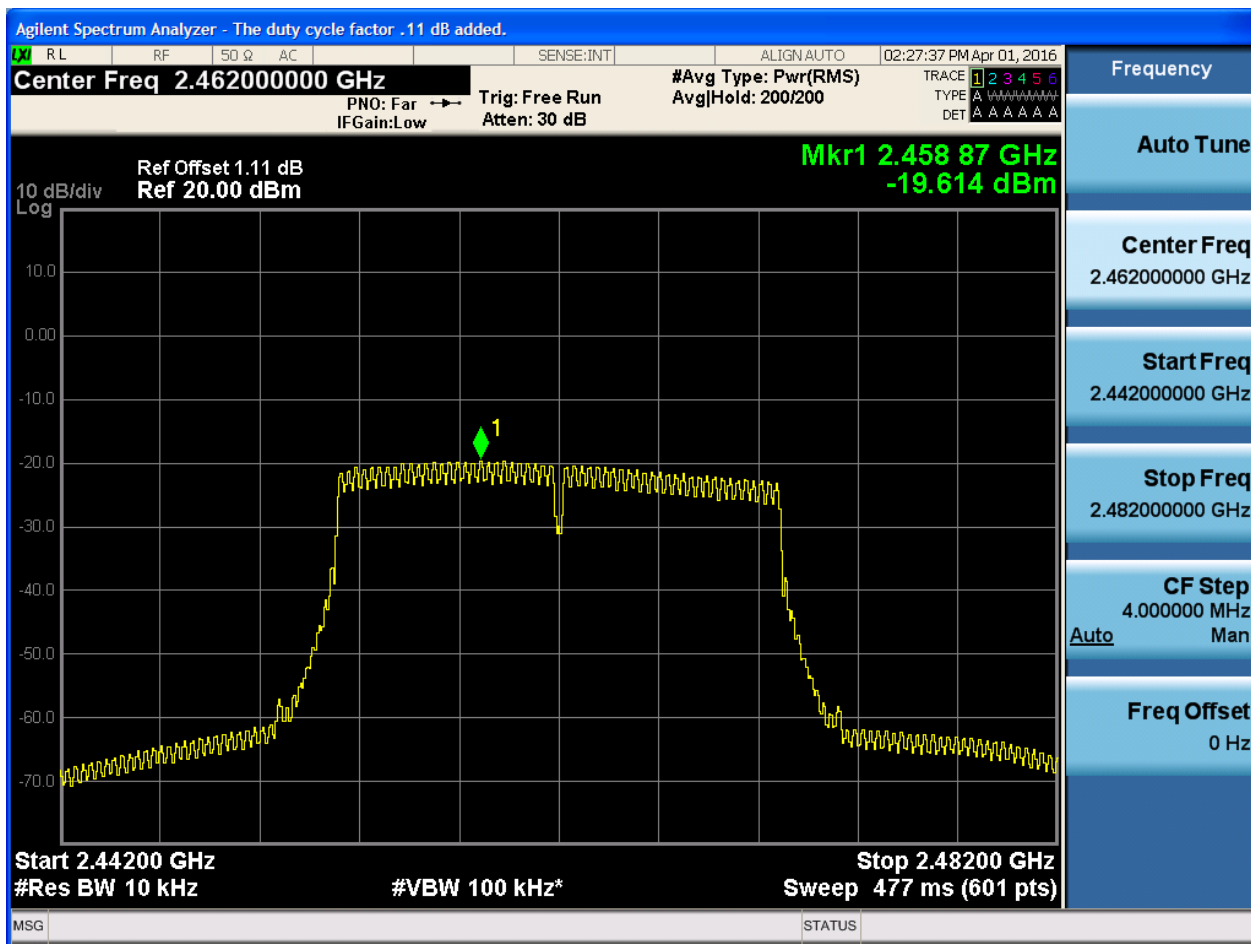
CF Step
4.000000 MHz
Man

Freq Offset
0 Hz

The screenshot displays a spectrum analyzer interface. At the top, the center frequency is set to 2.43700000 GHz. The reference offset is 1.11 dB and the reference power is 20.00 dBm. The signal is marked at 2.43200 GHz with a power of -19.314 dBm. The frequency range is from 2.41700 GHz to 2.45700 GHz with a resolution bandwidth of 10 kHz. The sweep time is 477 ms. The signal is shown as a yellow trace on a black background with a white grid. The trace shows a signal that rises from a noise floor of approximately -65 dBm to a peak of -19.314 dBm at 2.432 GHz, then falls back to the noise floor. The noise floor is approximately -65 dBm. The signal is marked with a green diamond and the number 1.



2.9 11N20_H@Ant 1





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

Center Freq 2.422000000 GHz

Ref Offset 1.2 dB
Ref 20.00 dBm

10 dB/div
Log

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)

Auto Tune

Center Freq
2.422000000 GHz

Start Freq
2.382000000 GHz

Stop Freq
2.462000000 GHz

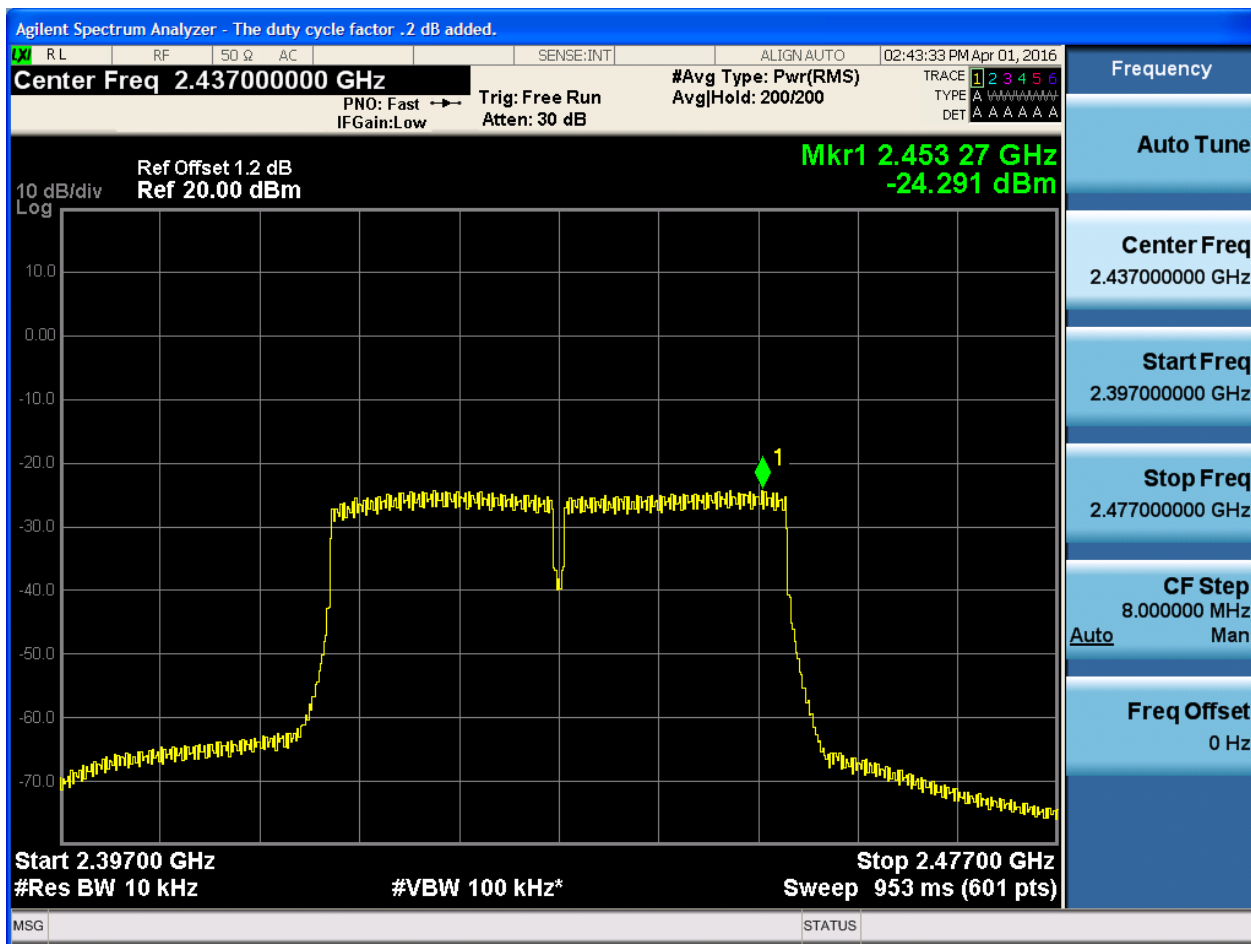
CF Step
8.000000 MHz
Man

Freq Offset
0 Hz

The screenshot displays a spectrum analyzer interface. The main plot area shows a yellow signal trace on a grid. The signal is centered at 2.42573 GHz, marked with a green diamond and labeled '1'. The signal level is -23.132 dBm. The plot has a vertical scale of 10 dB/div and a logarithmic frequency axis. The signal is a rectangular pulse with a flat top and steep edges. The top of the plot shows various settings: Center Freq 2.422000000 GHz, Ref Offset 1.2 dB, Ref 20.00 dBm, and a marker Mkr1 at 2.42573 GHz. The bottom of the plot shows the frequency range from 2.38200 GHz to 2.46200 GHz, with a resolution bandwidth of 10 kHz and a sweep time of 953 ms. On the right side, there is a vertical panel with buttons for 'Auto Tune', 'Center Freq', 'Start Freq', 'Stop Freq', 'CF Step', and 'Freq Offset'. The top of the interface shows the Agilent logo and the text 'The duty cycle factor .2 dB added.'

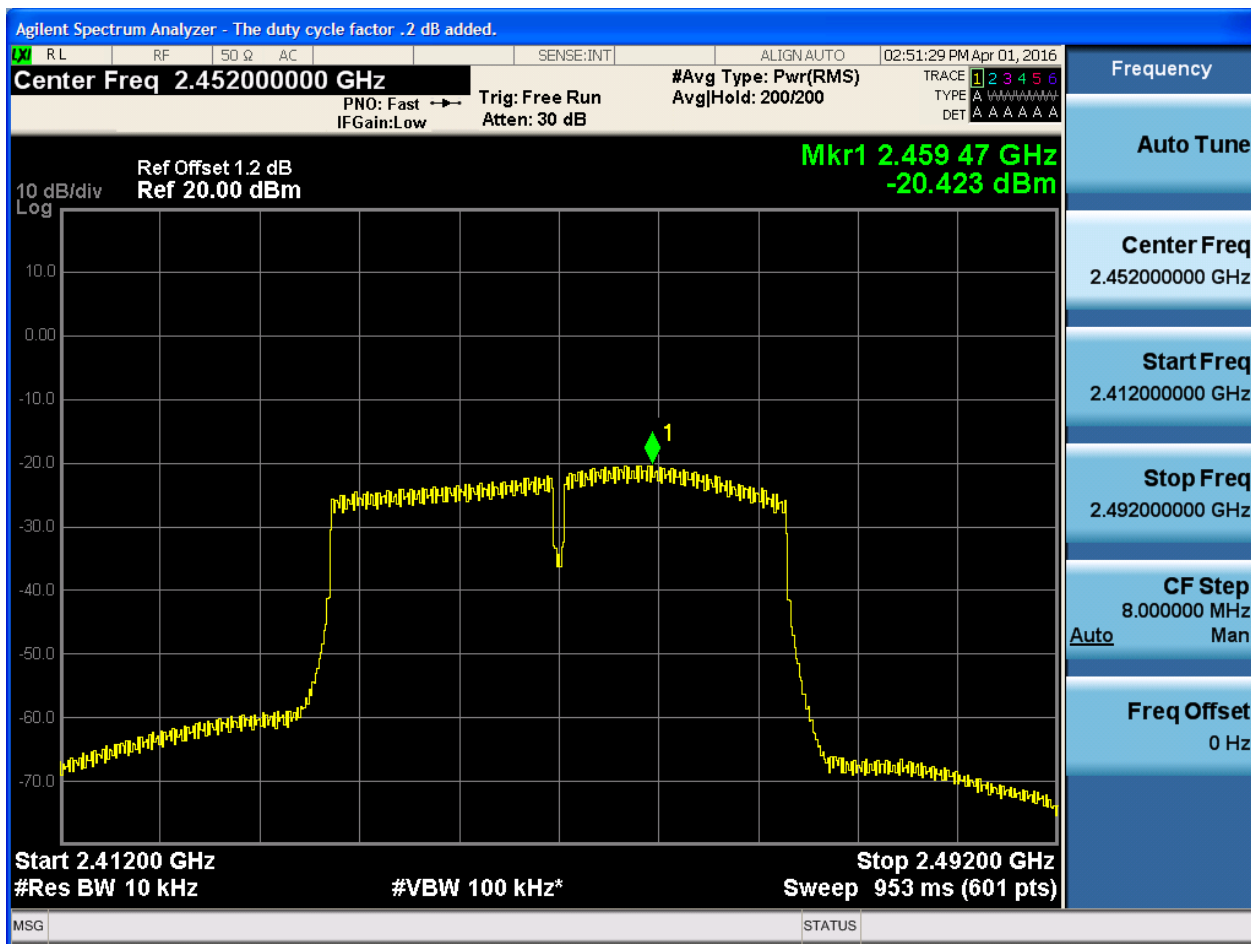


2.11 11N40_M@Ant 1





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



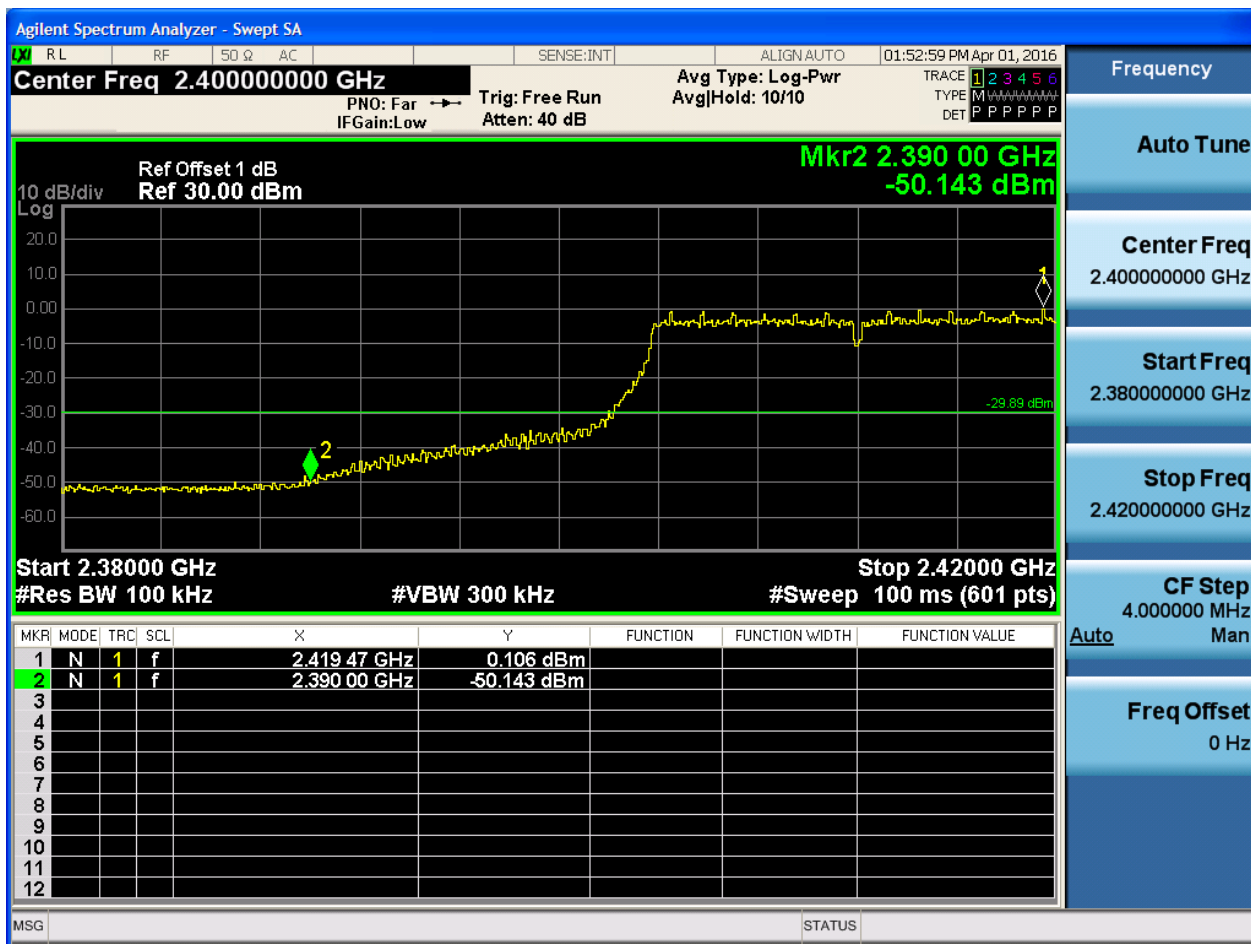


2.2 11B_H@Ant 1



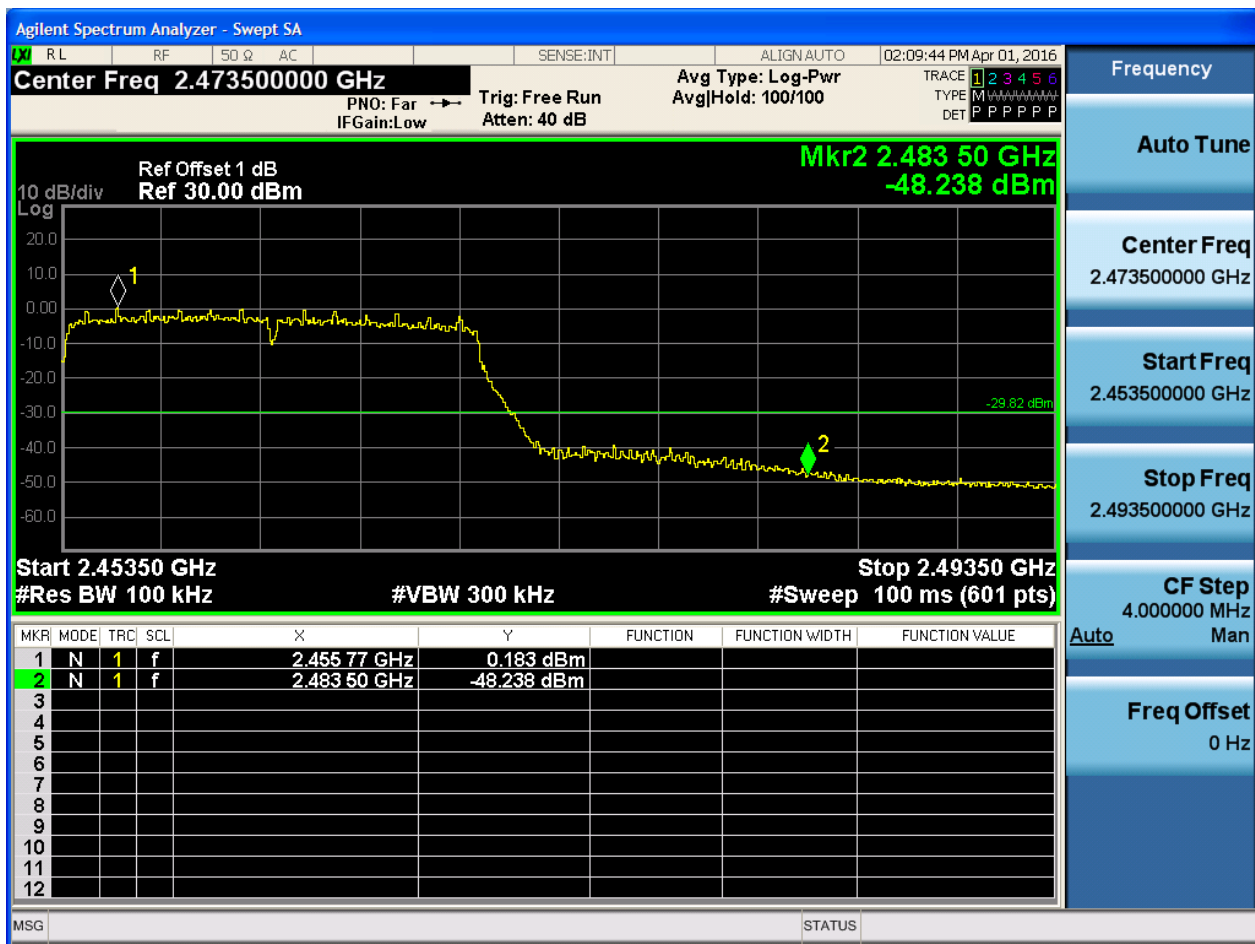


2.3 11G_L@Ant 1



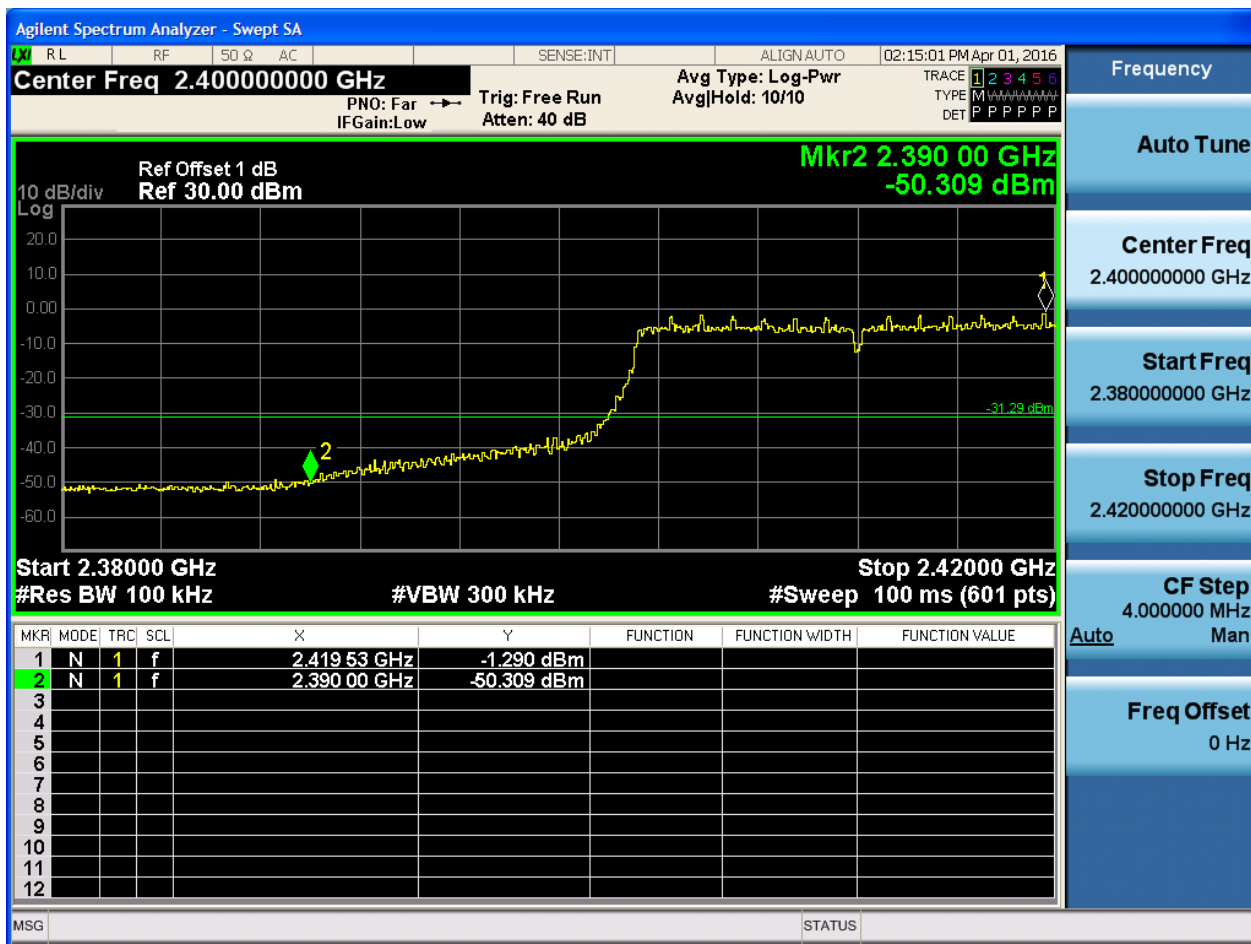


2.4 11G_H@Ant 1



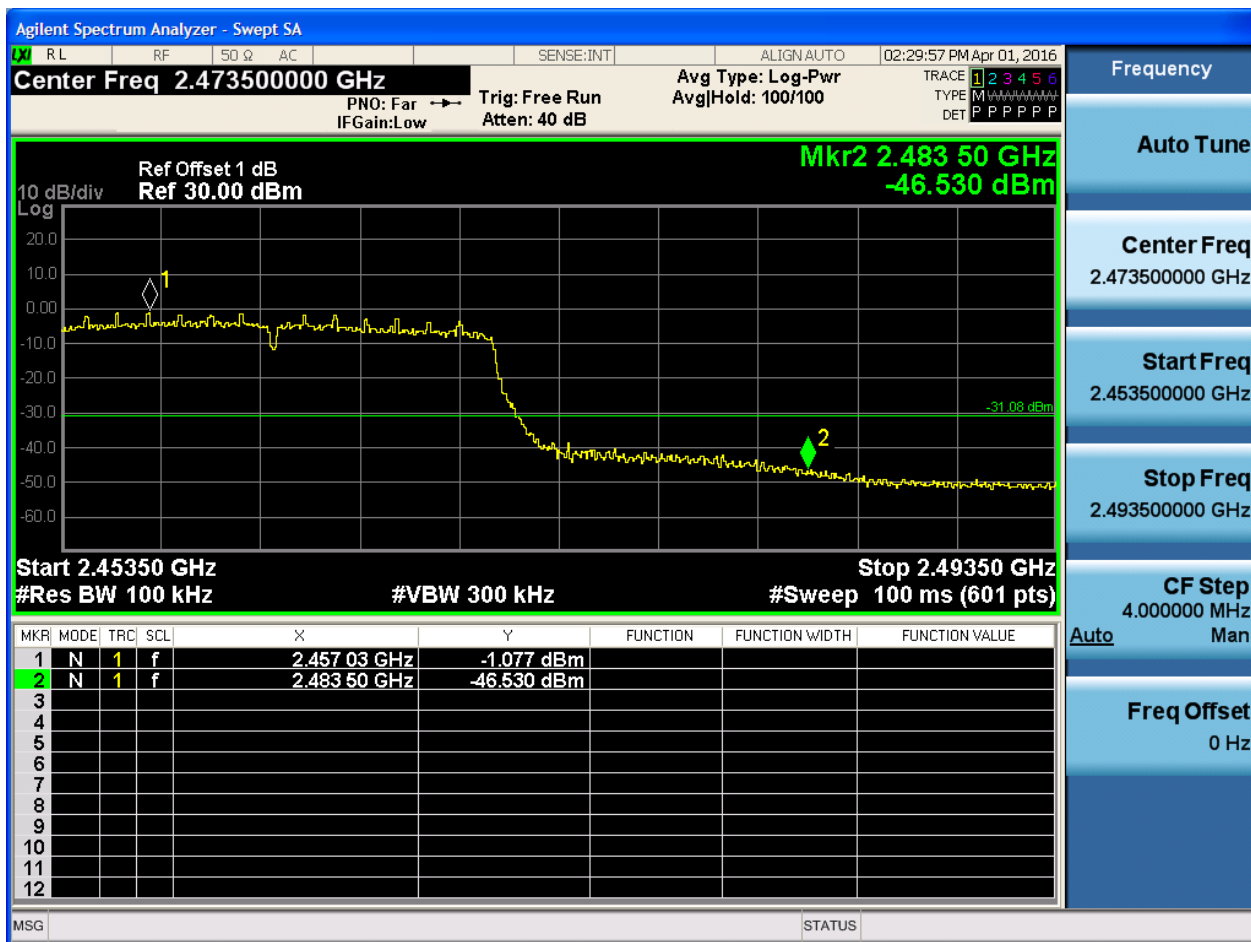


2.5 11N20_L@Ant 1



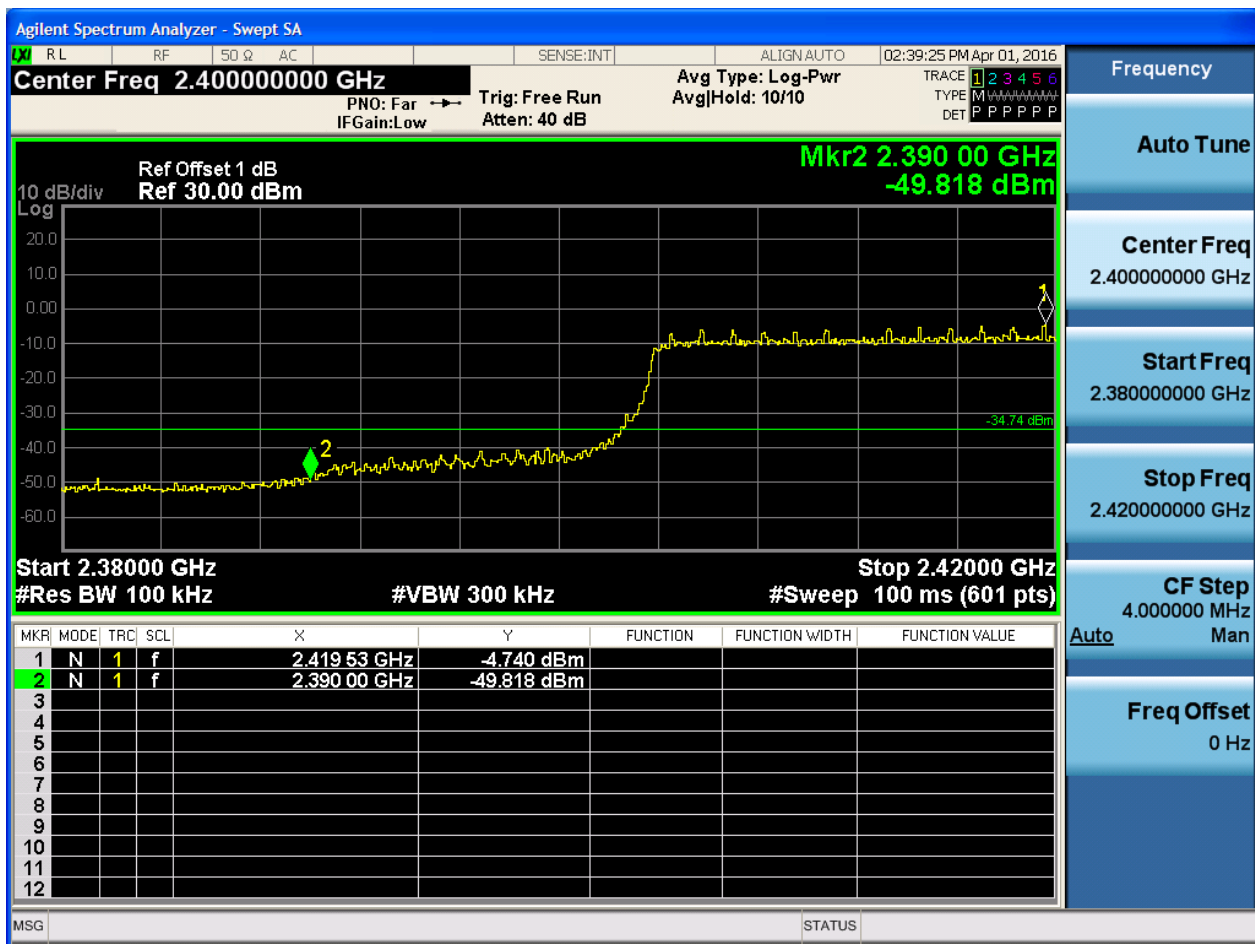


2.6 11N20_H@Ant 1



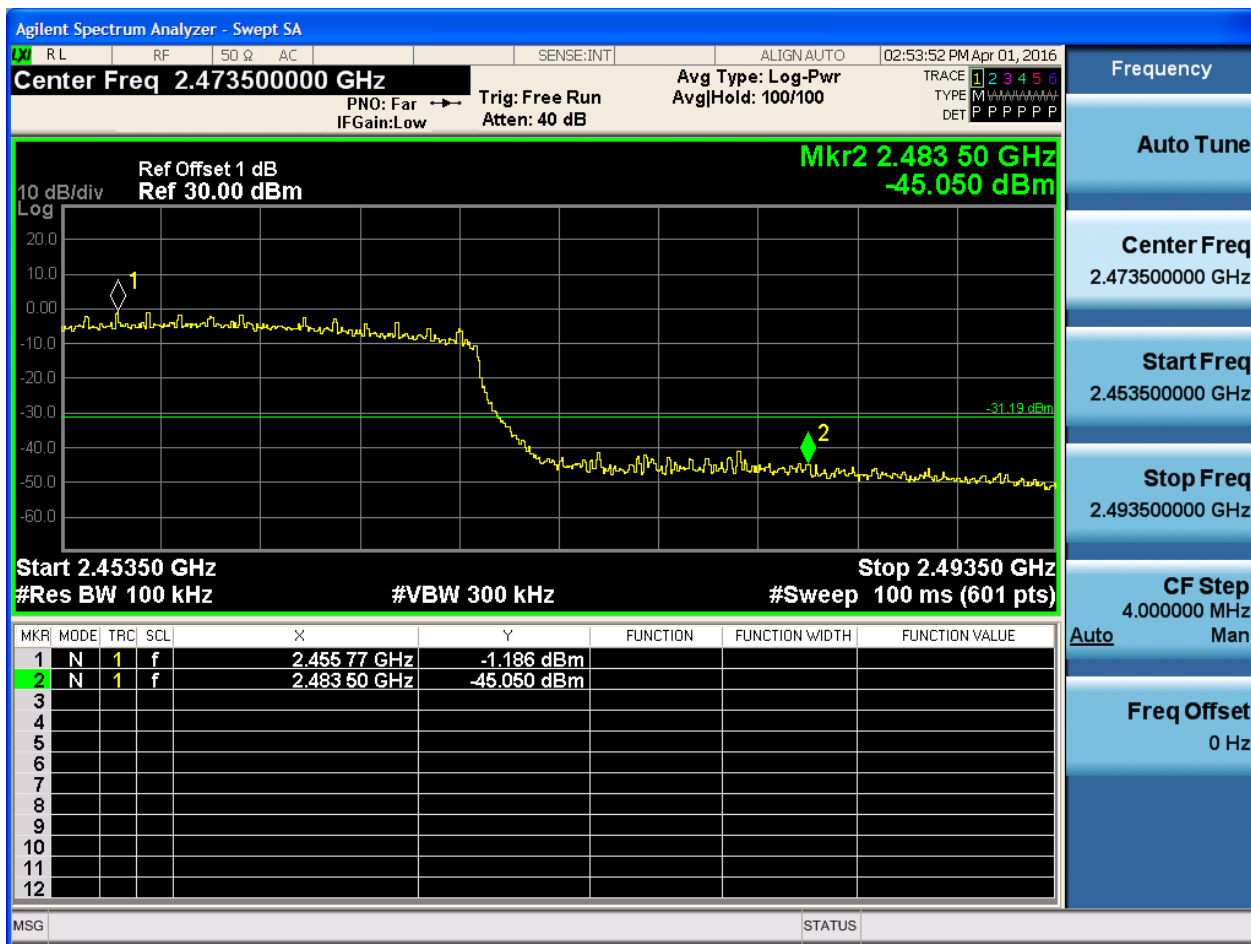


2.7 11N40_L@Ant 1





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

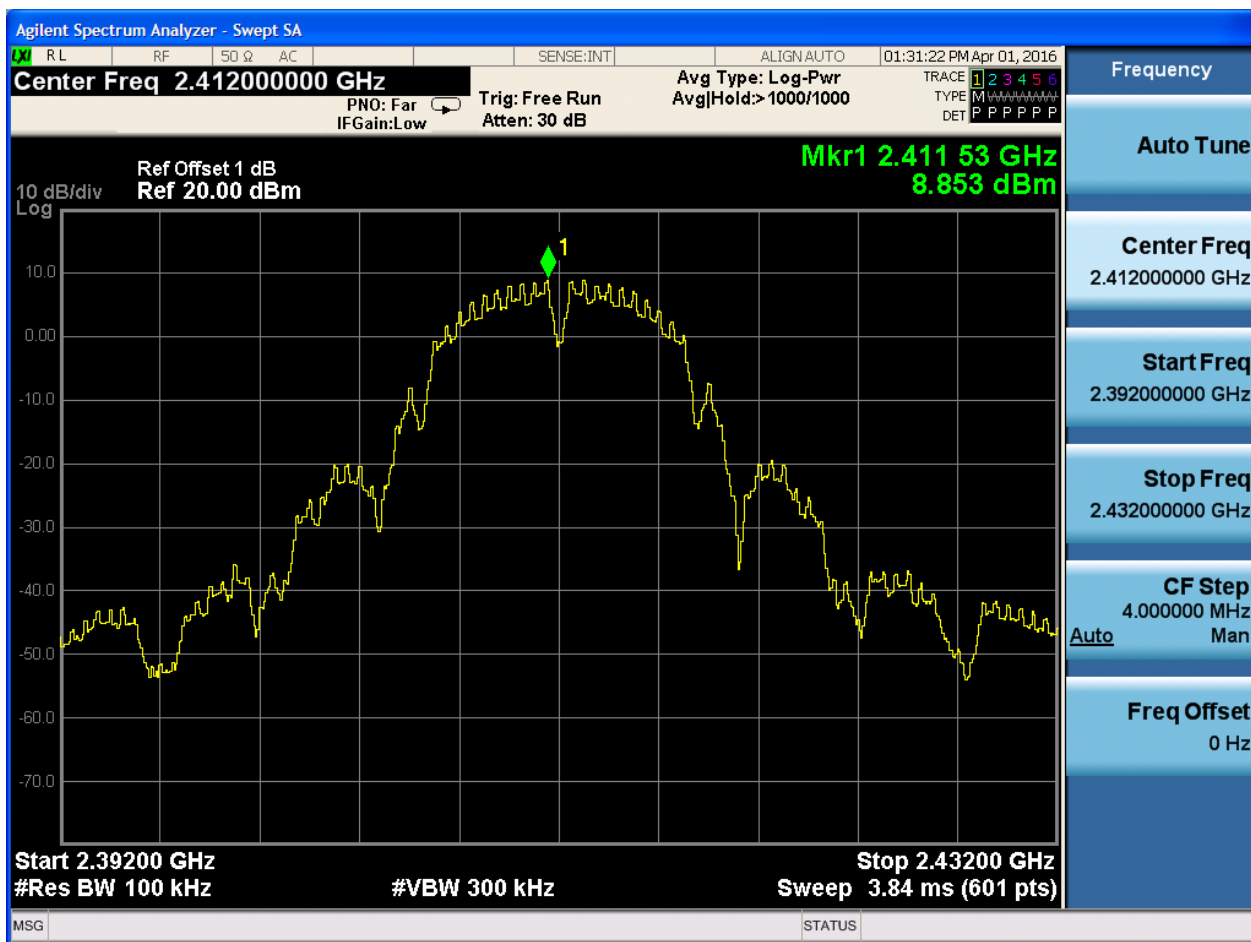
Test Mode	Test Channel	Frequency[MHz]	Ant	Pref[dBm]	Puw[dBm]	Verdict
11B	L	2412	Ant 1	8.85	<limit	pass
11B	M	2437	Ant 1	9.85	<limit	pass
11B	H	2462	Ant 1	8.80	<limit	pass
11G	L	2412	Ant 1	0.33	<limit	pass
11G	M	2437	Ant 1	0.97	<limit	pass
11G	H	2462	Ant 1	0.32	<limit	pass
11N20	L	2412	Ant 1	-1.12	<limit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

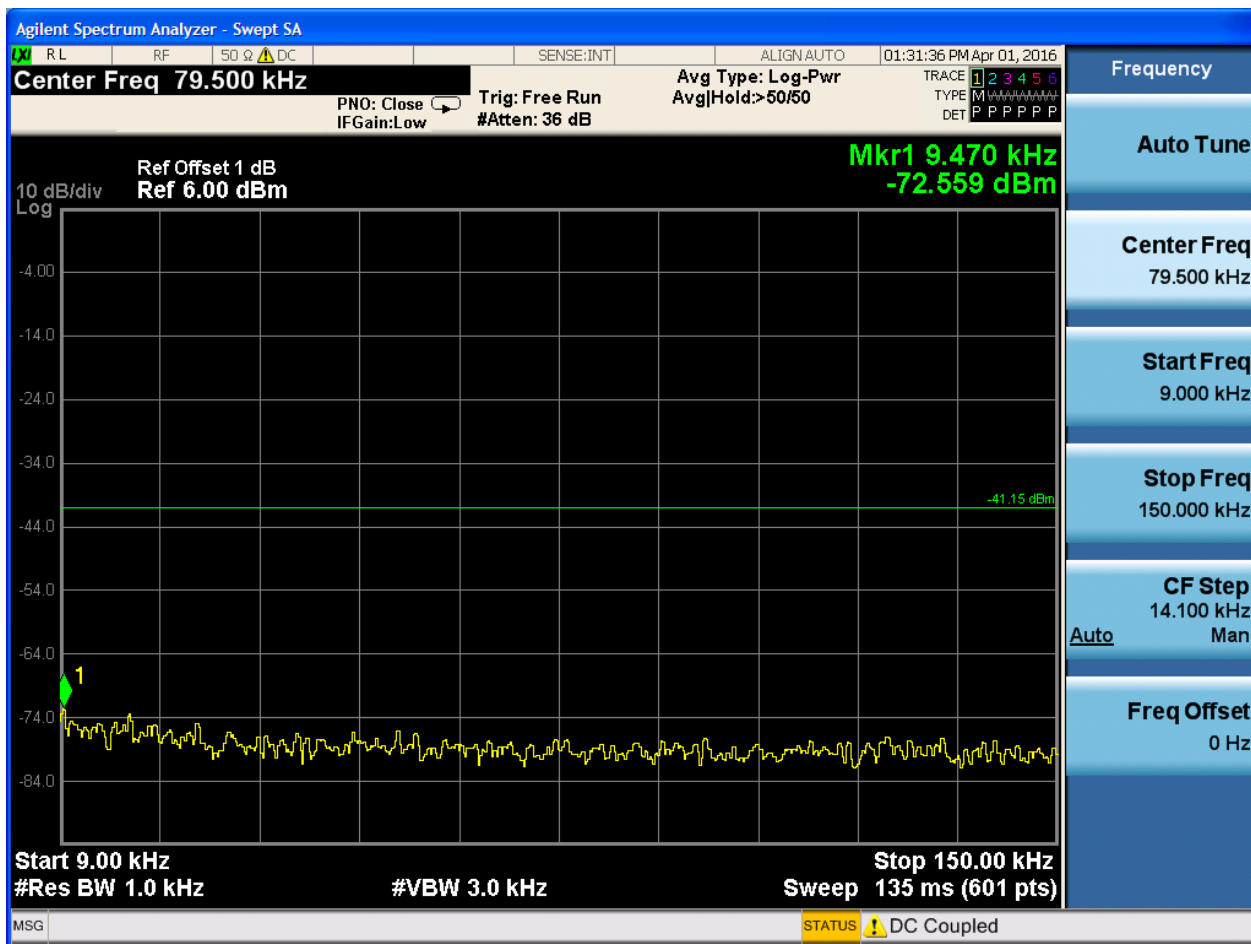
2.1 11B_L@Ant 1

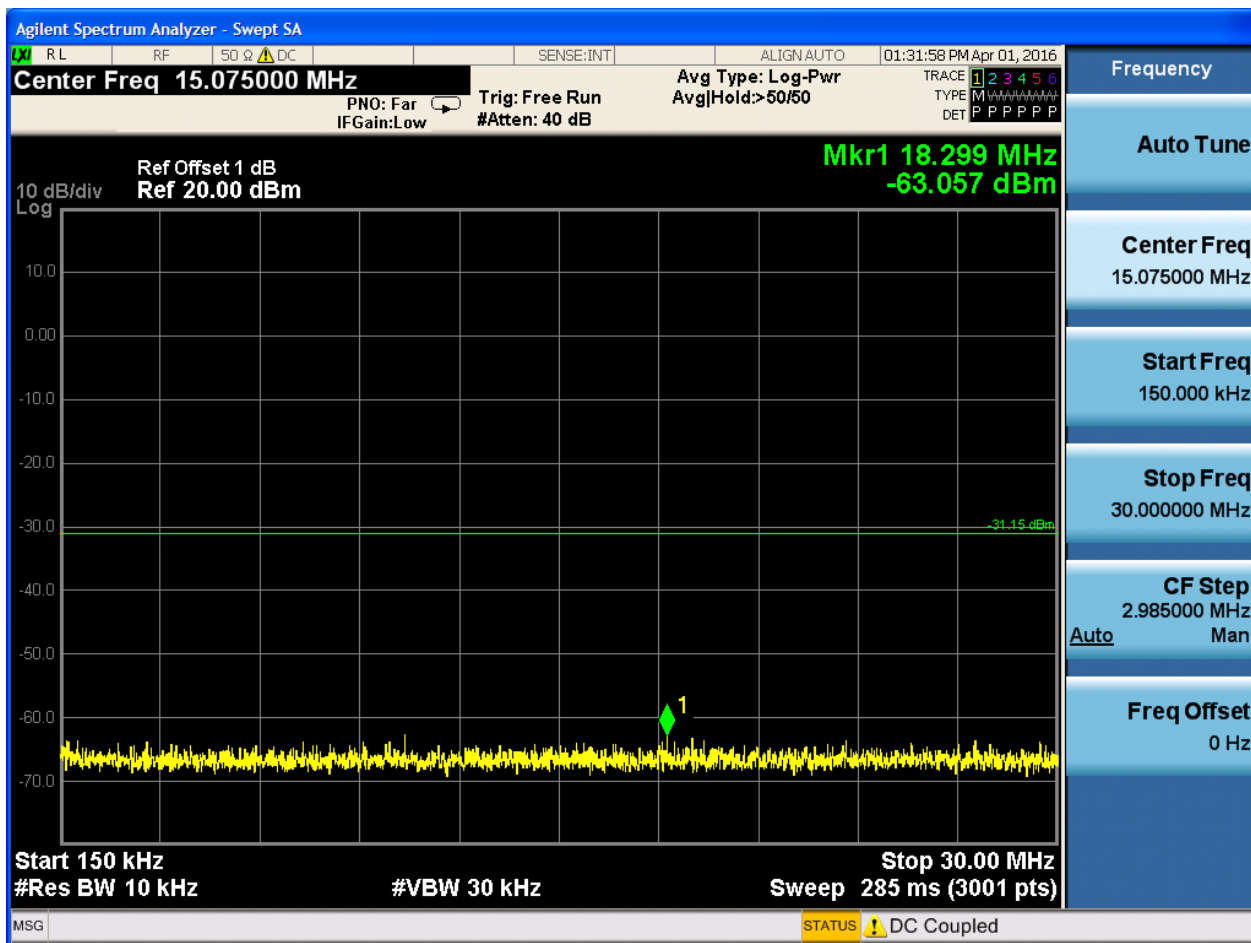
Pref:

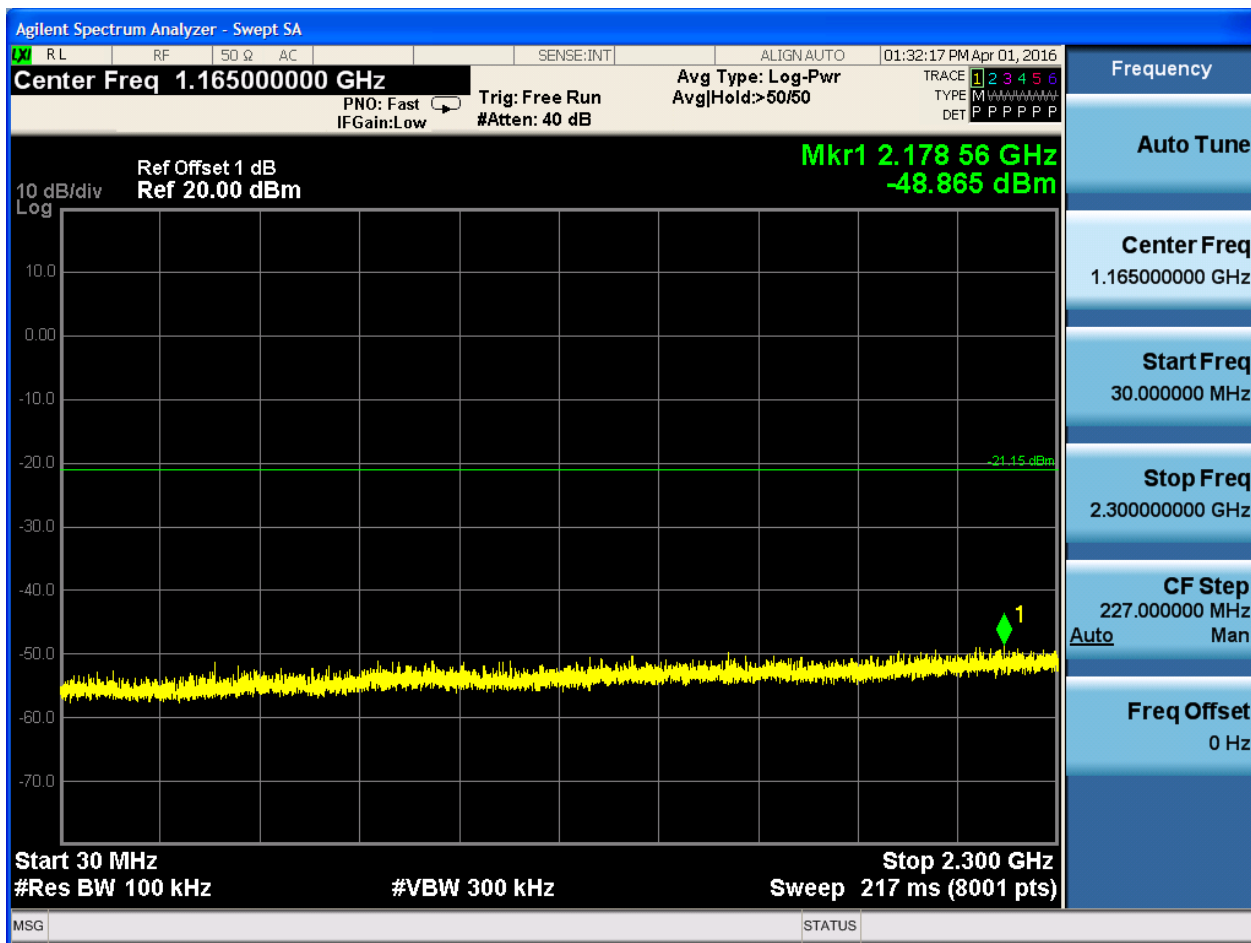


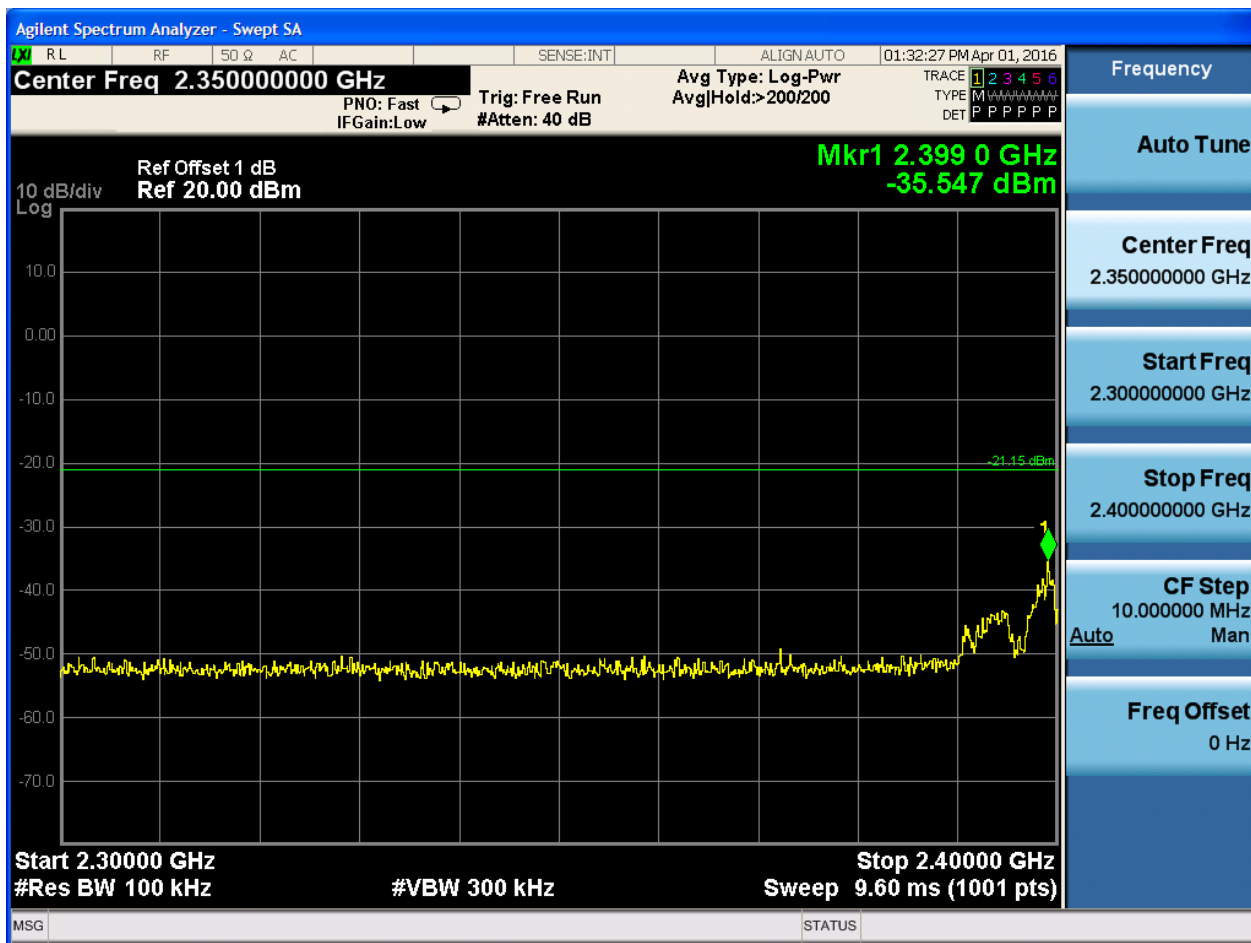


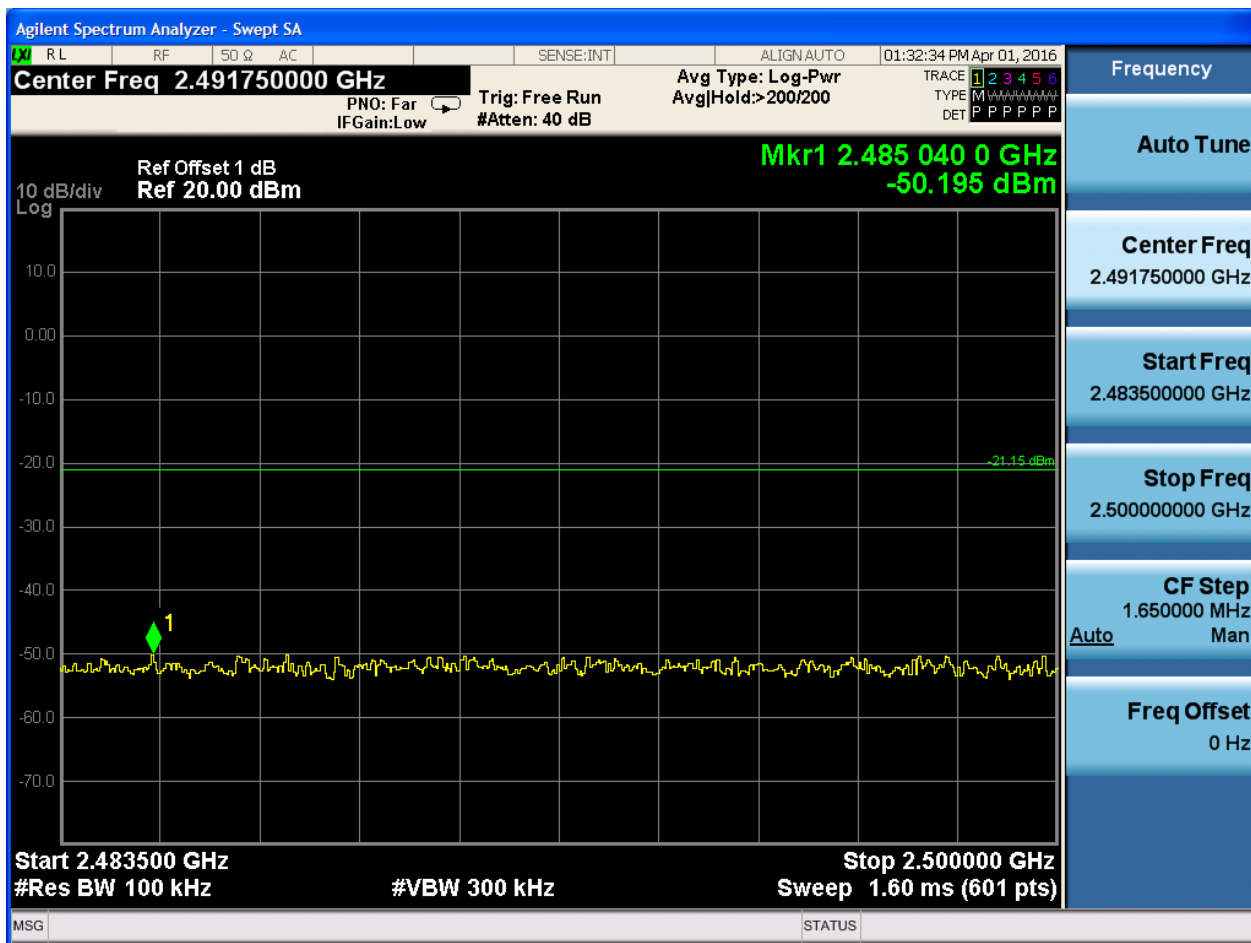
PuW:









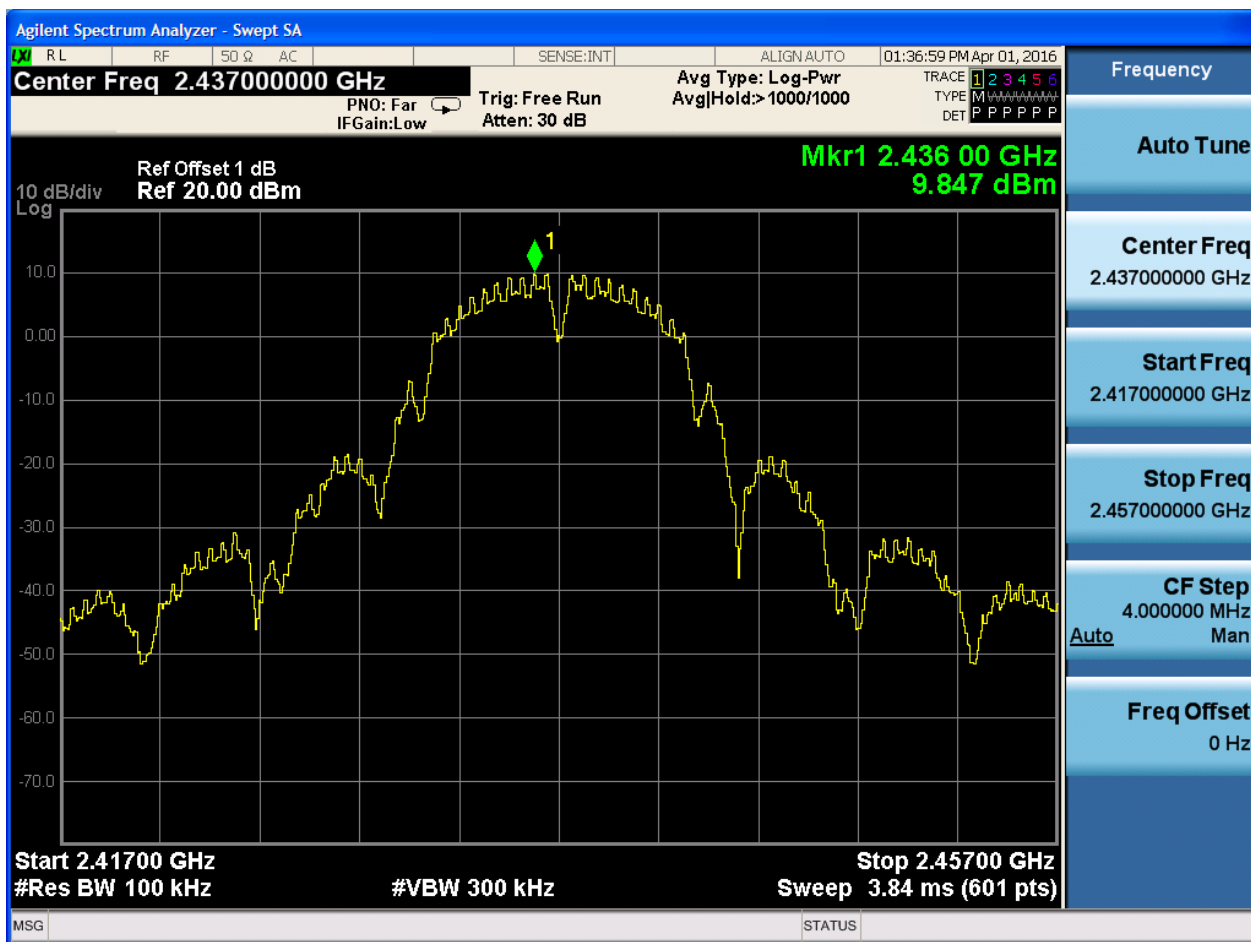






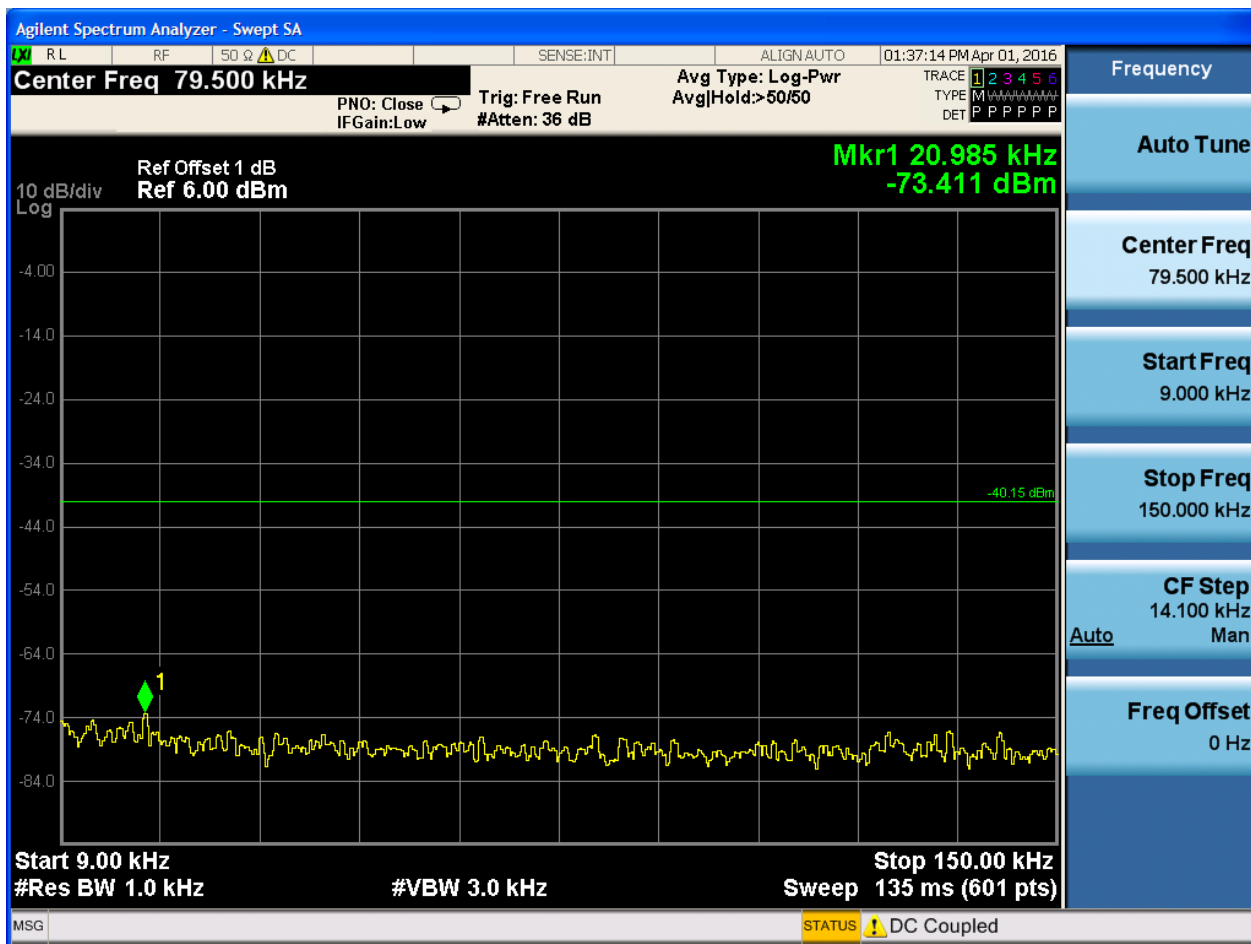
2.2 11B_M@Ant 1

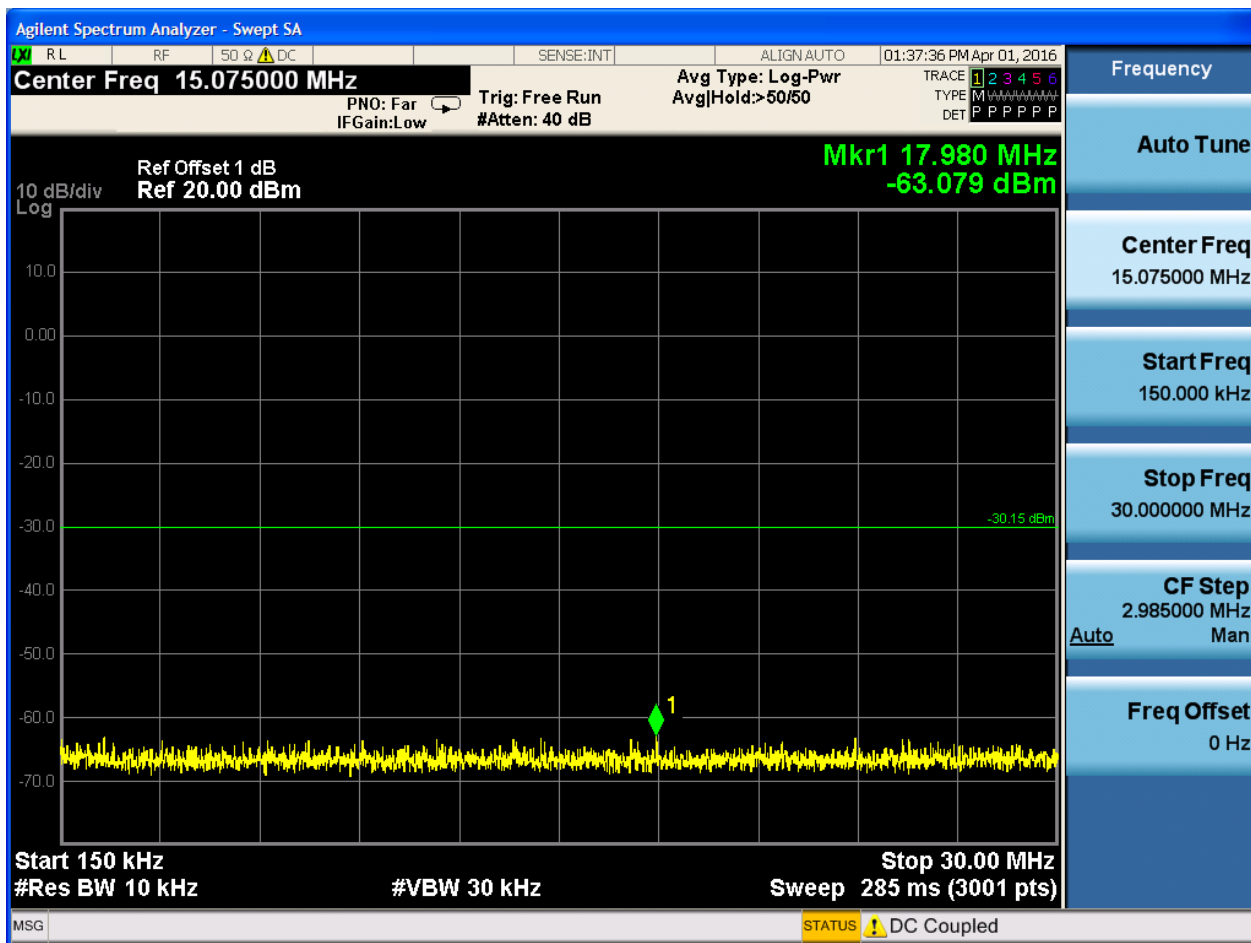
Pref:

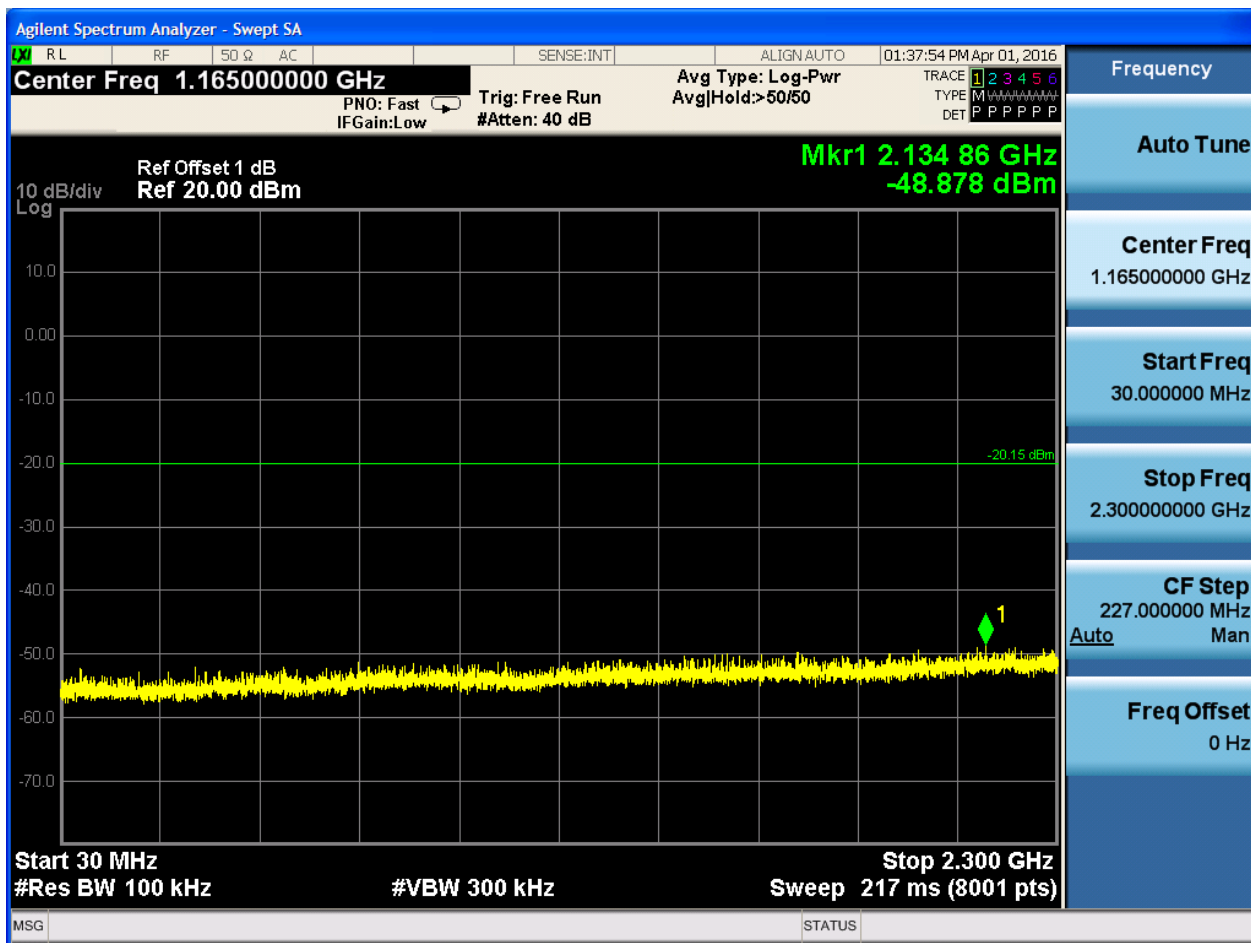


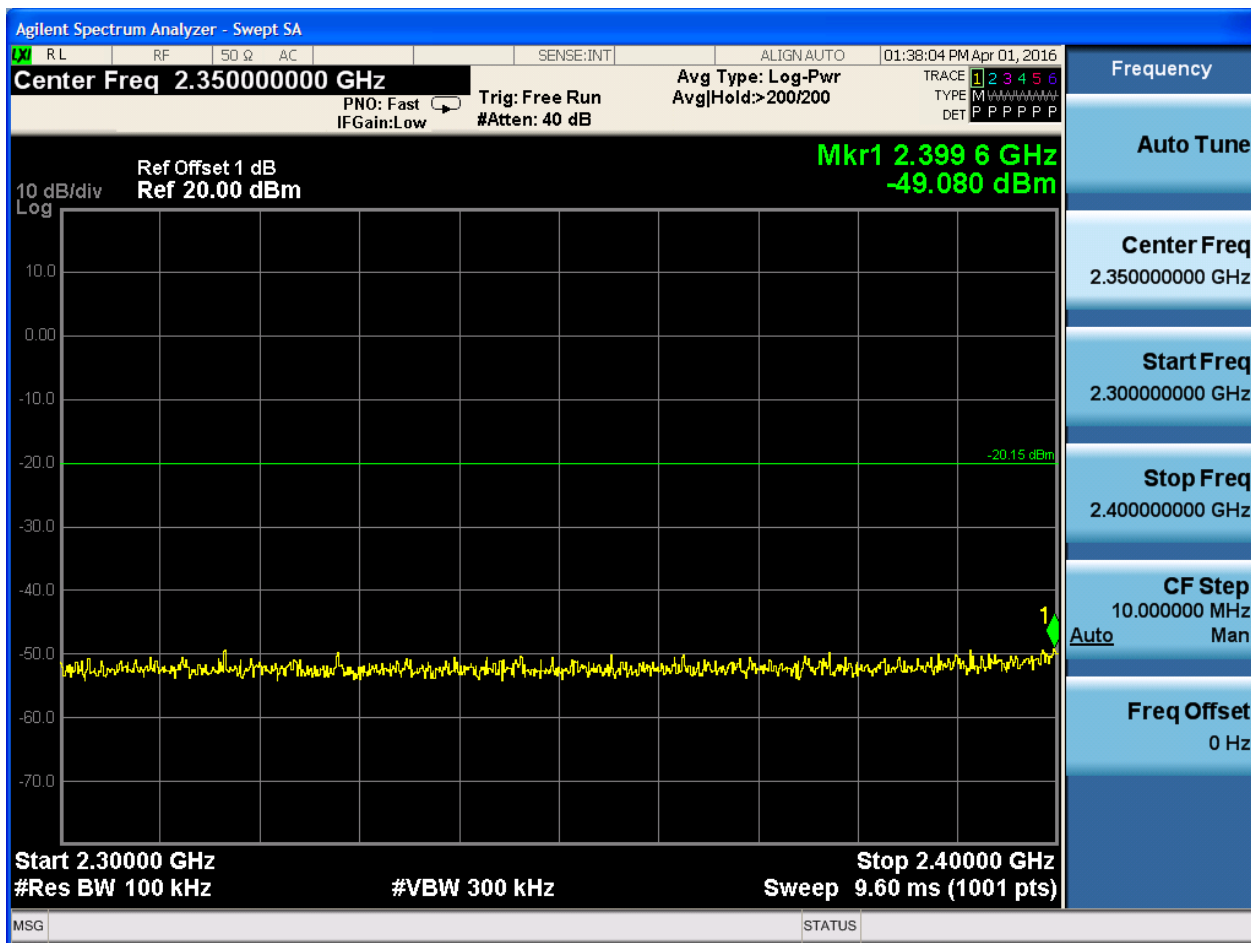


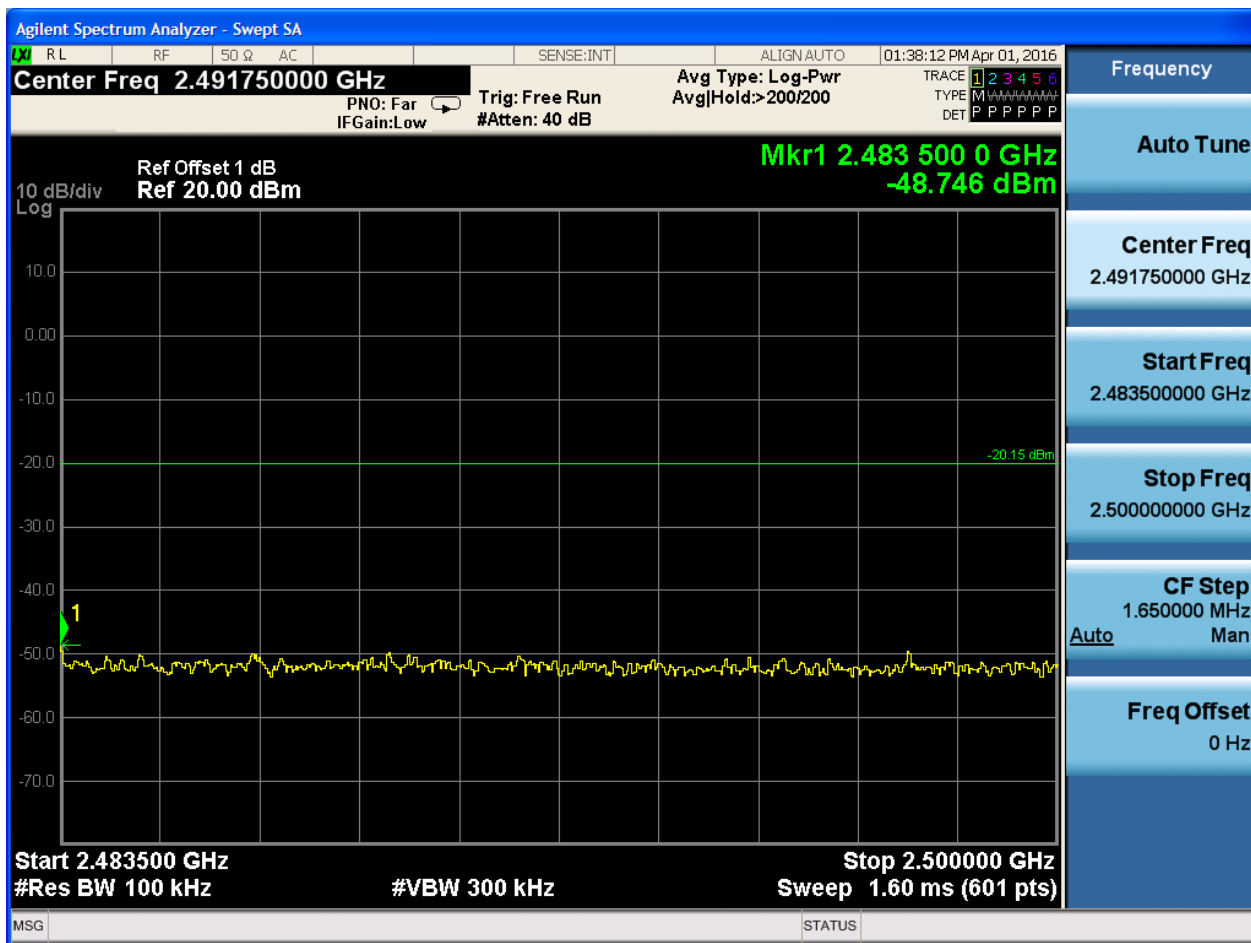
PuW:













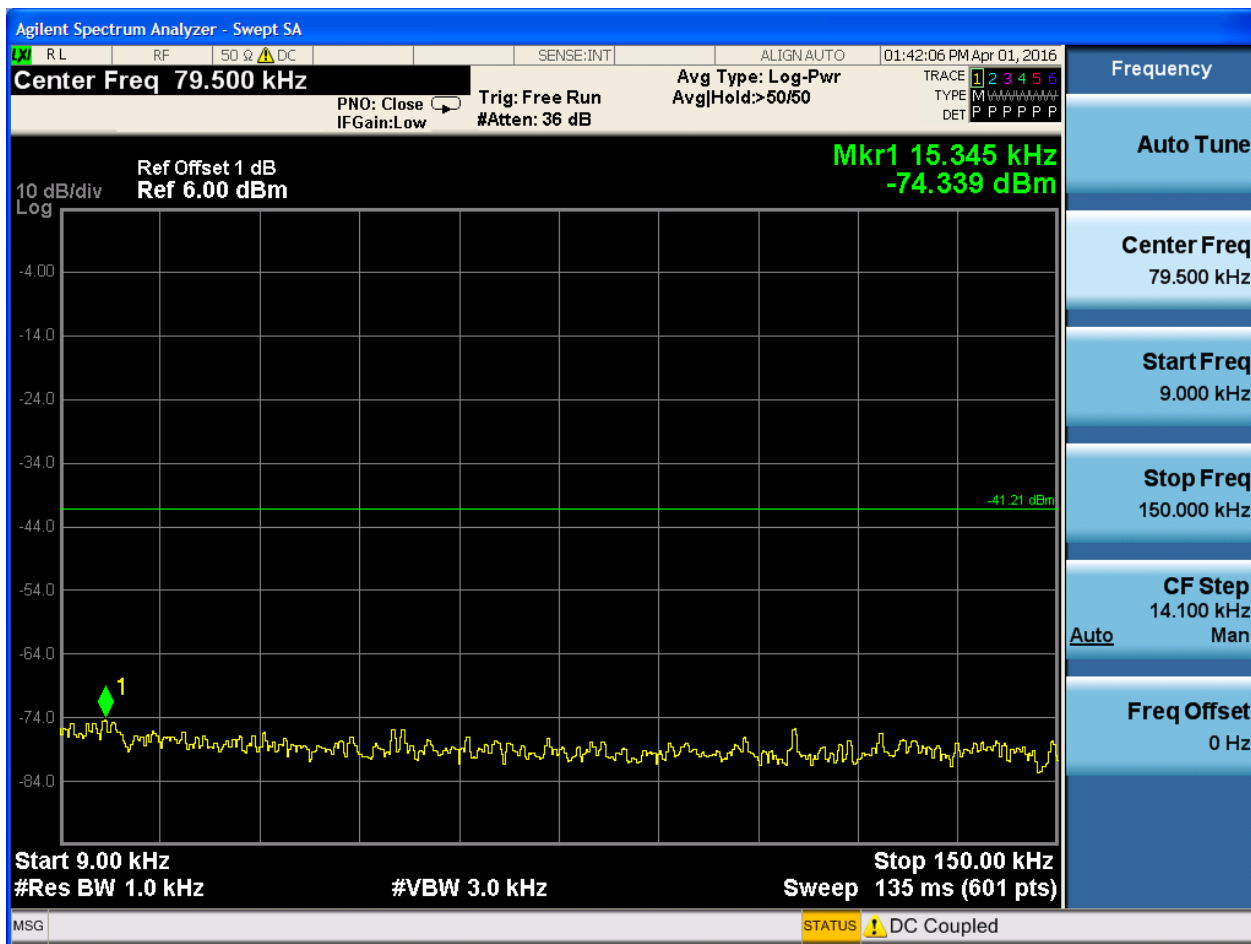
2.3 11B_H@Ant 1

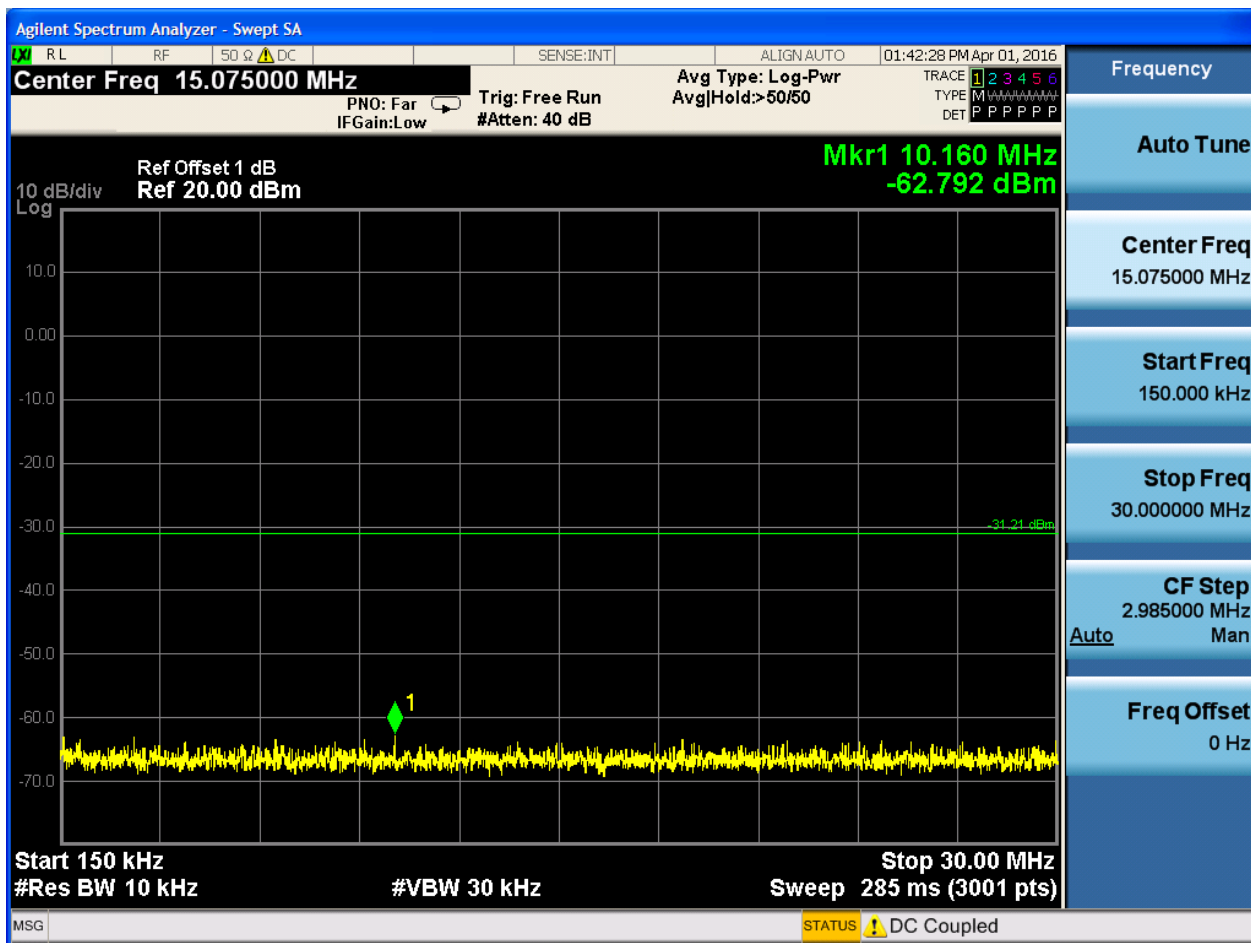
Pref:

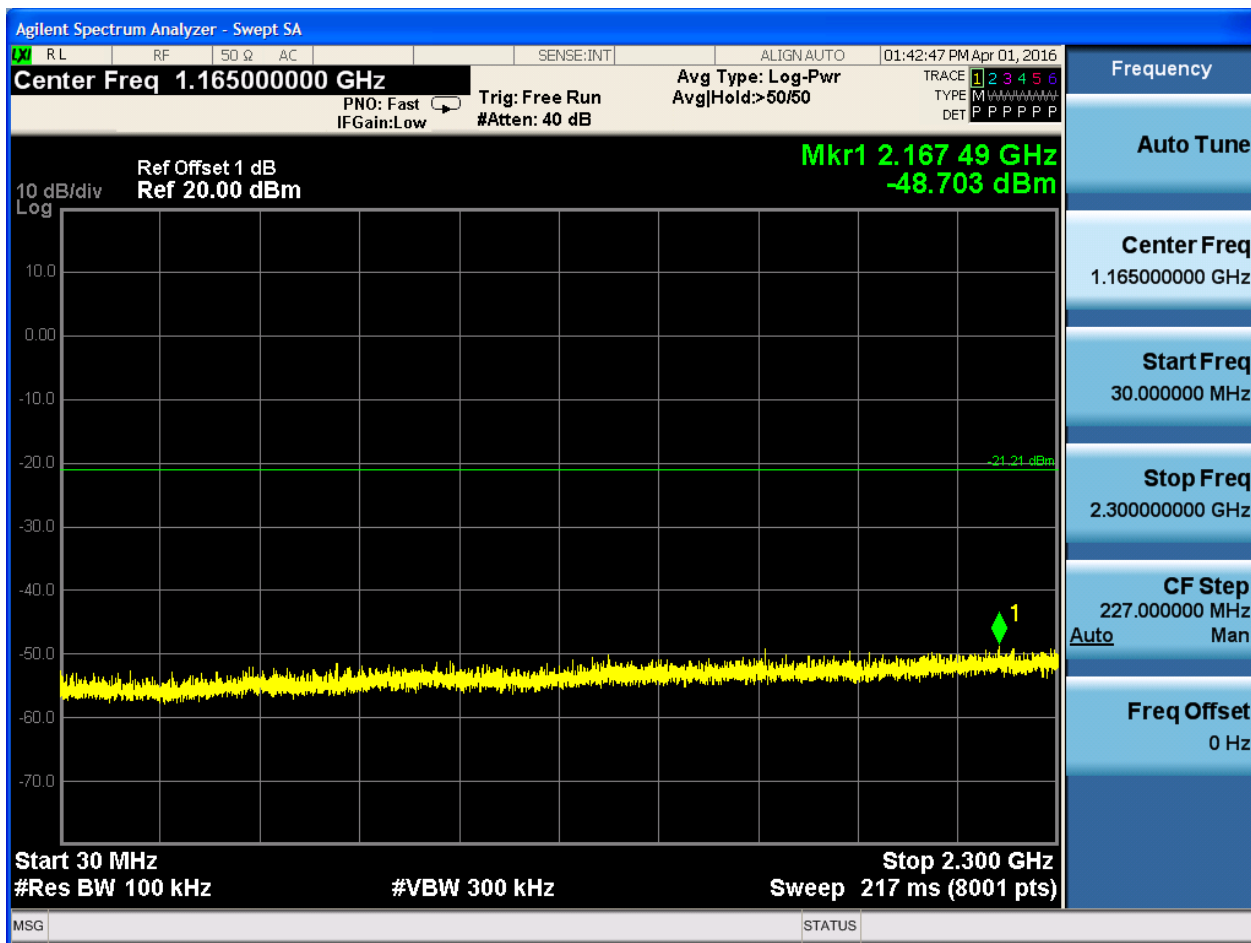


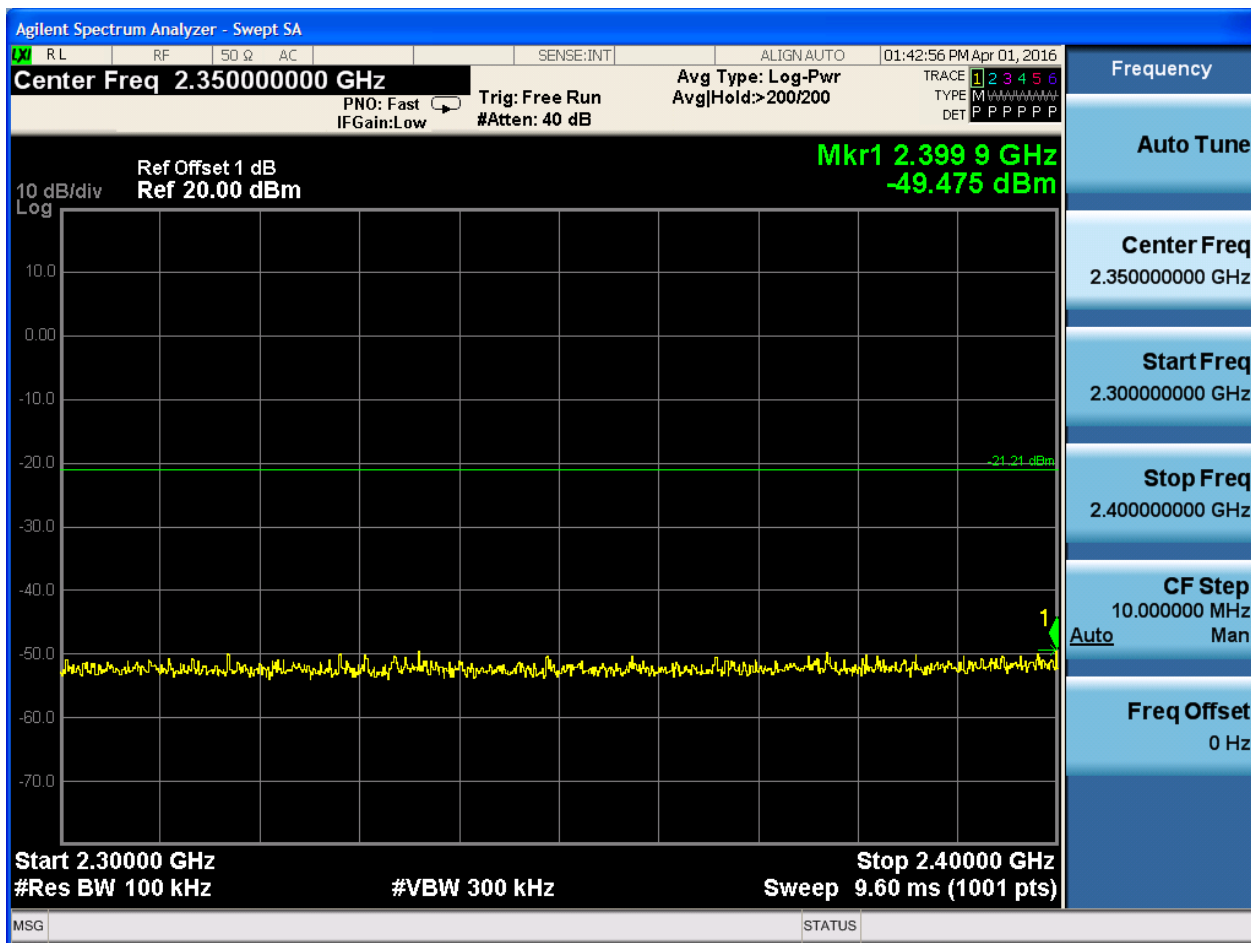


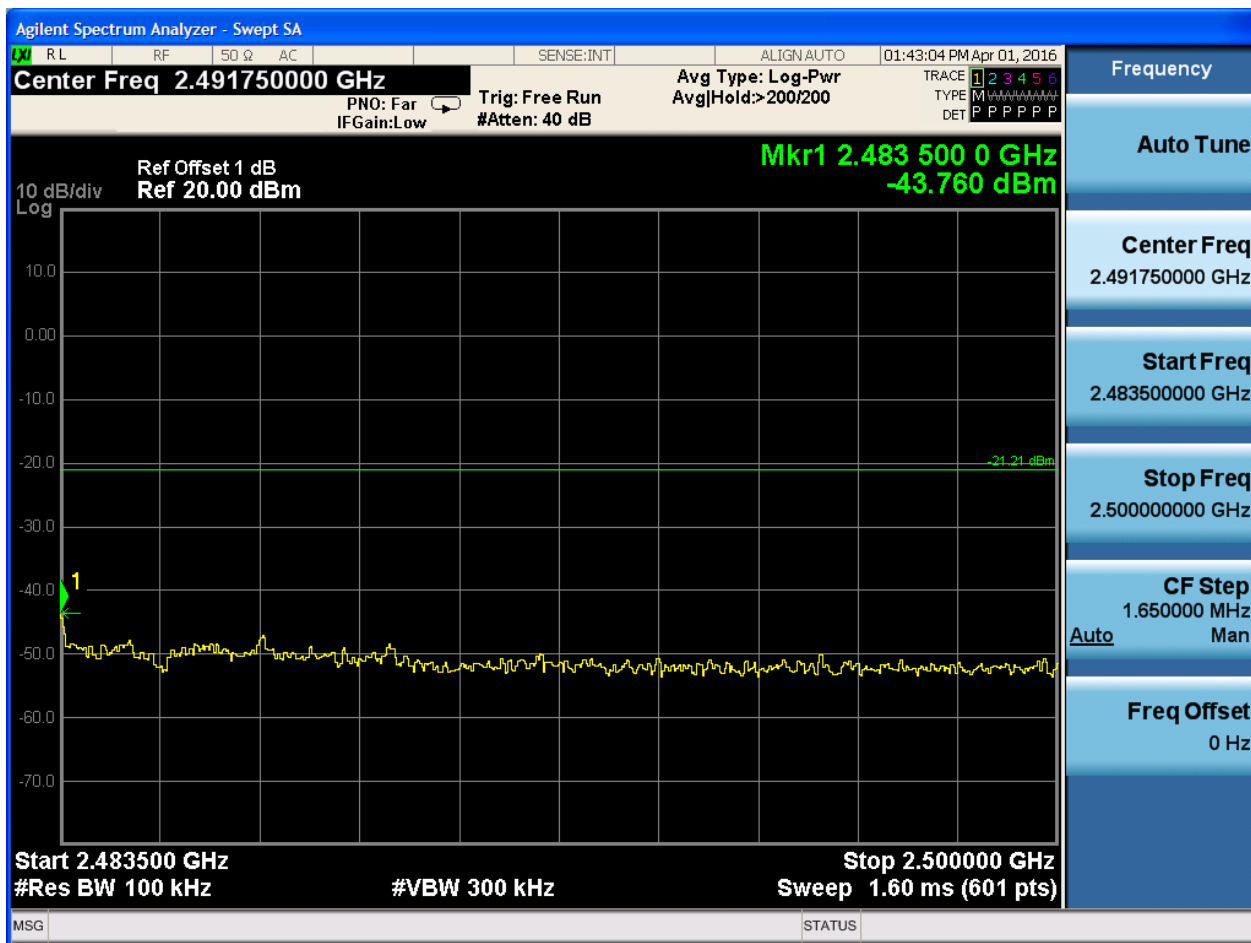
Puw:









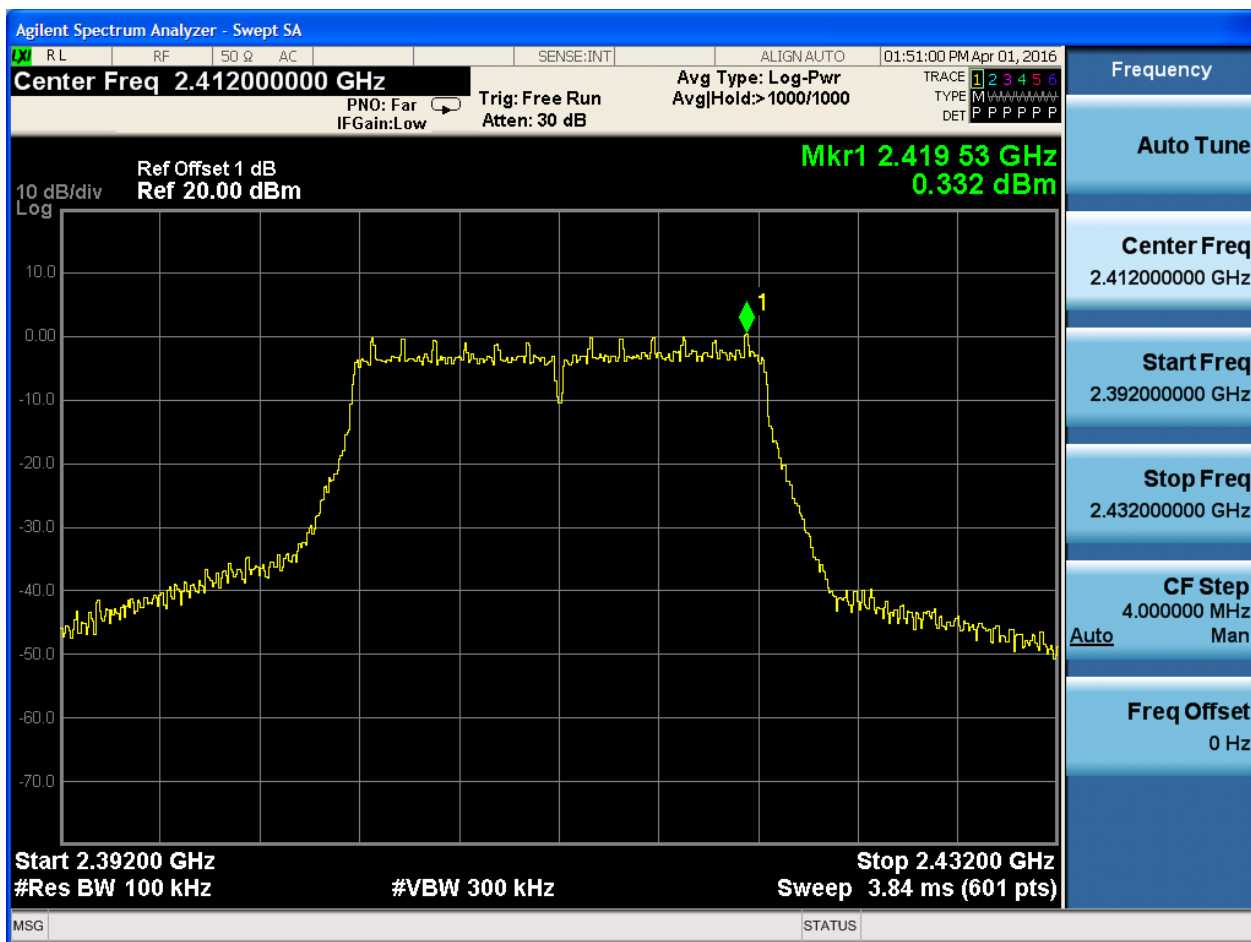


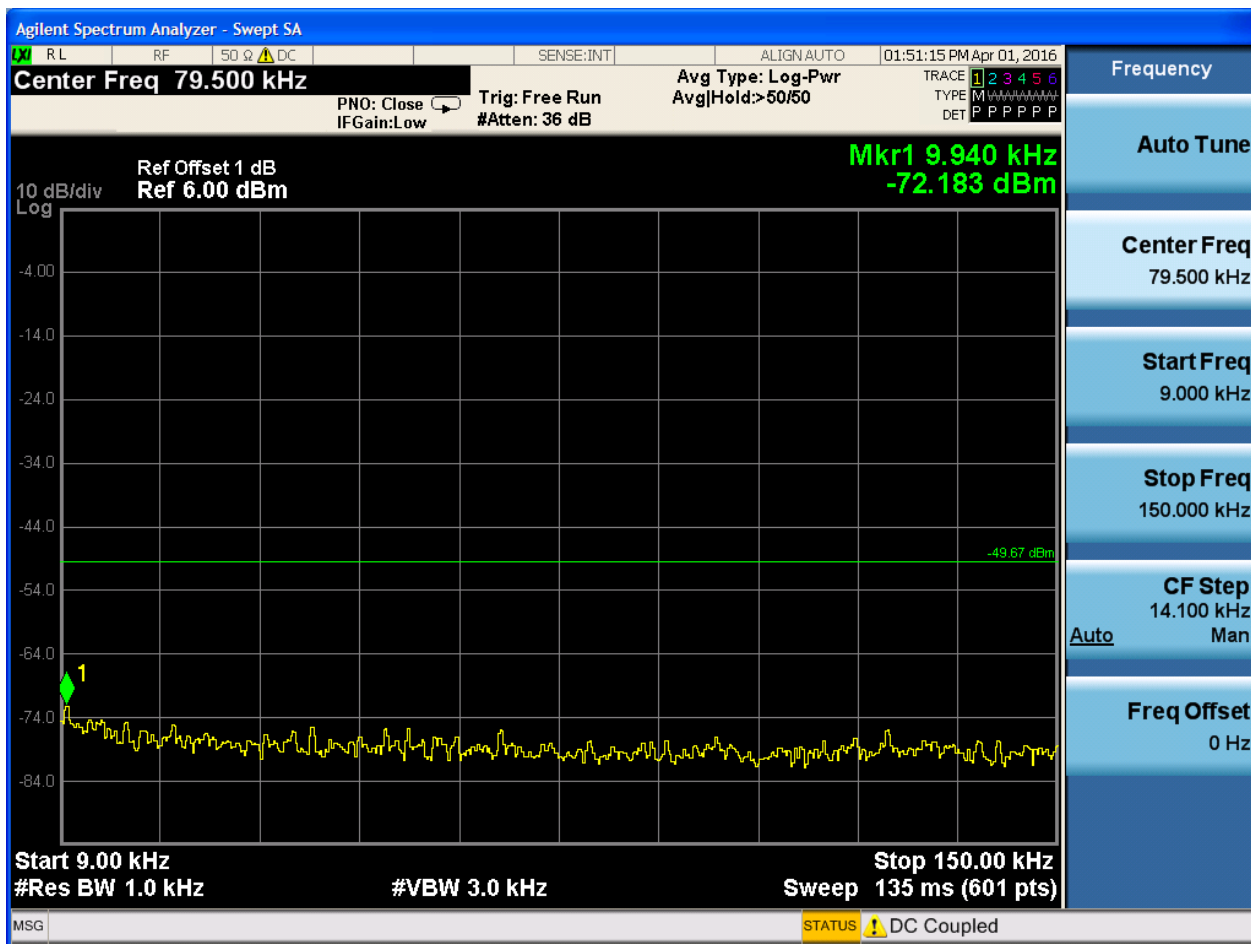


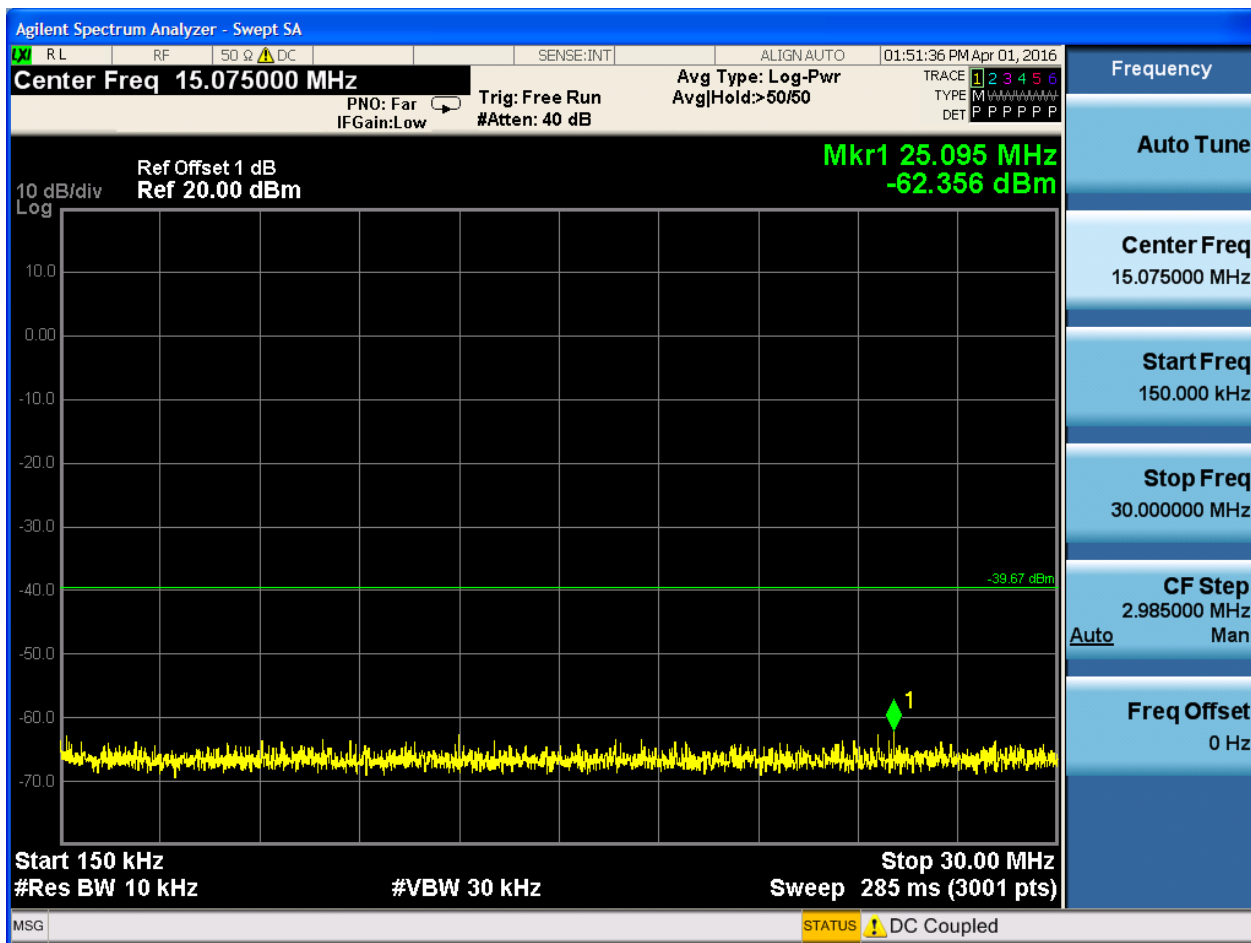


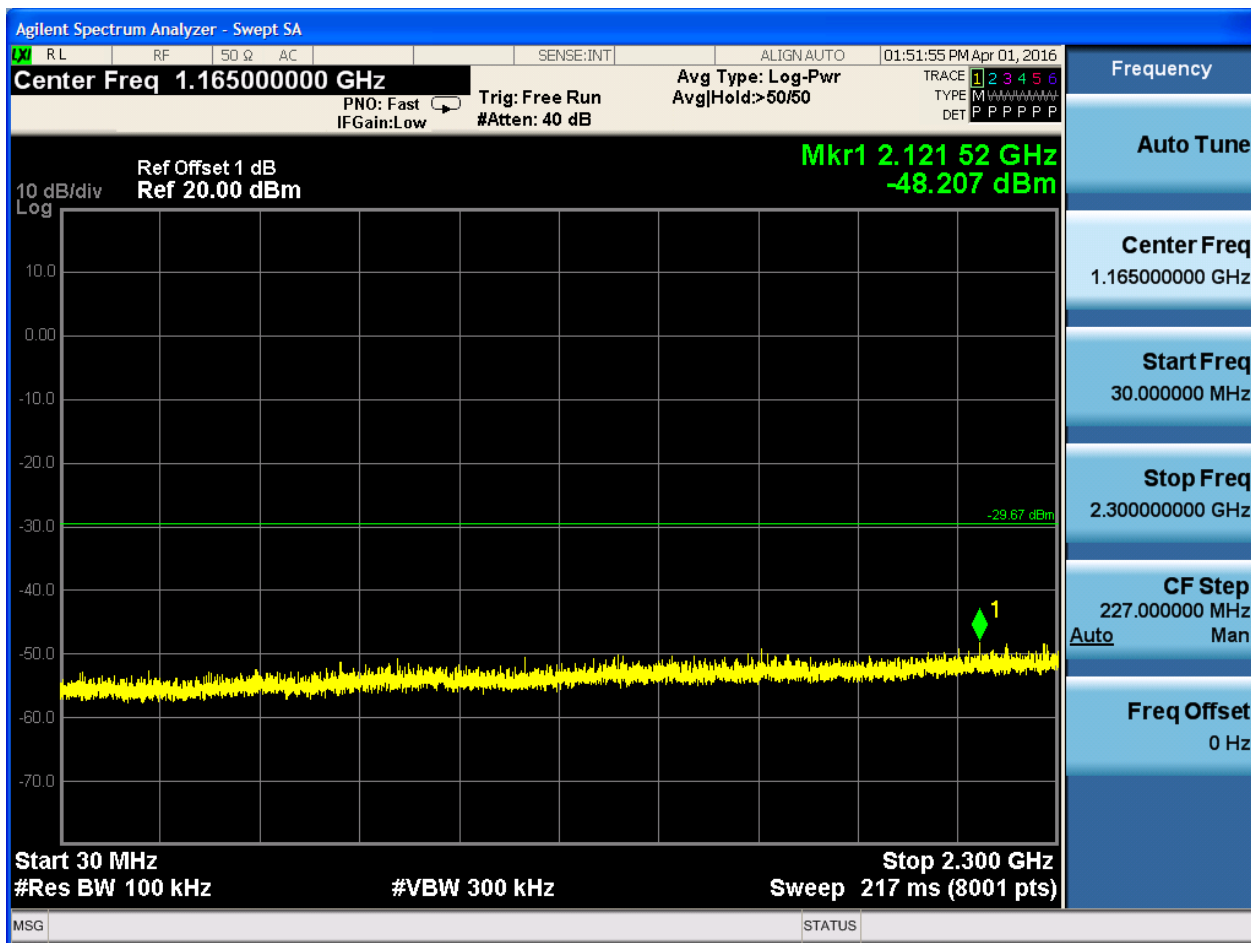
2.4 11G_L@Ant 1

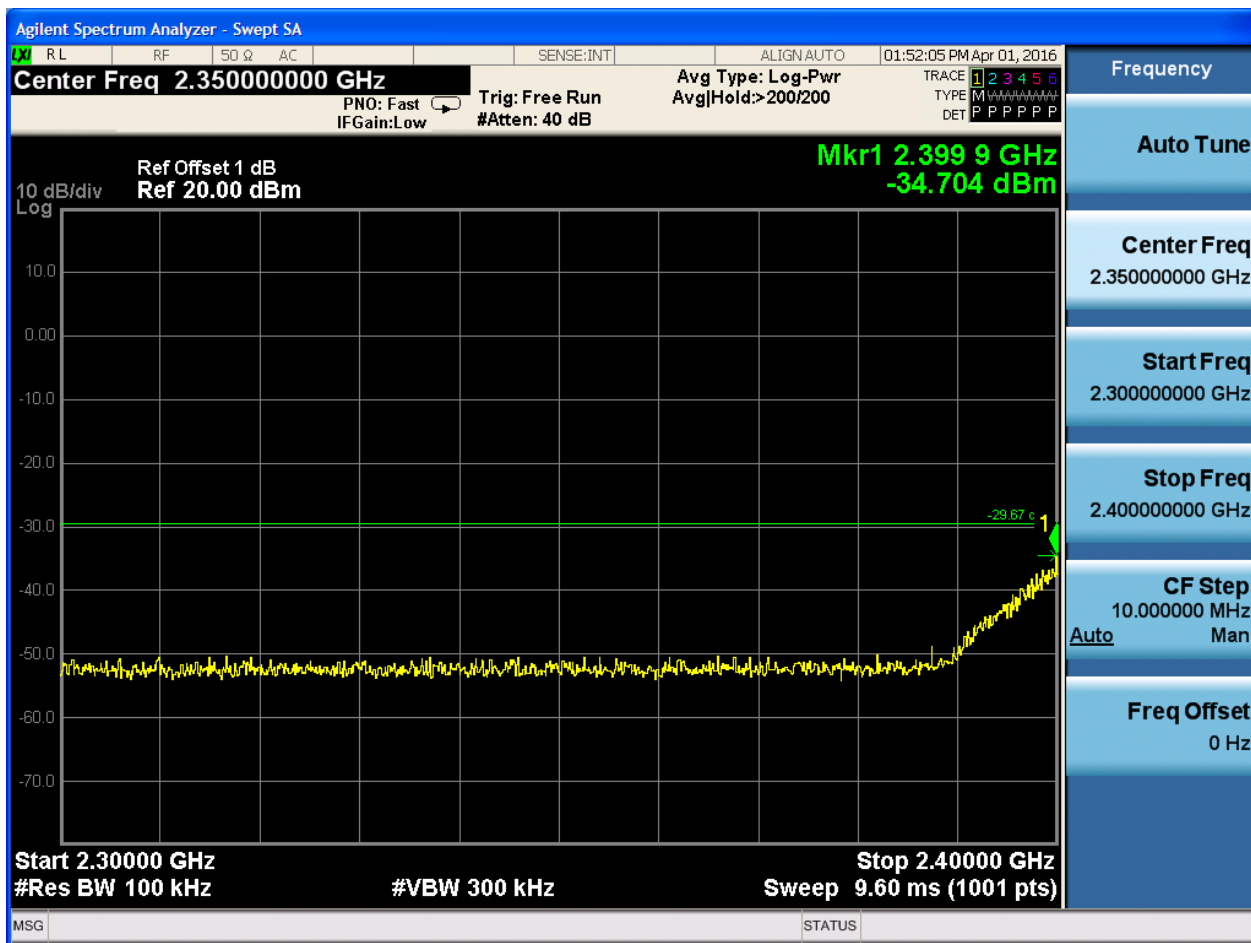
Pref:

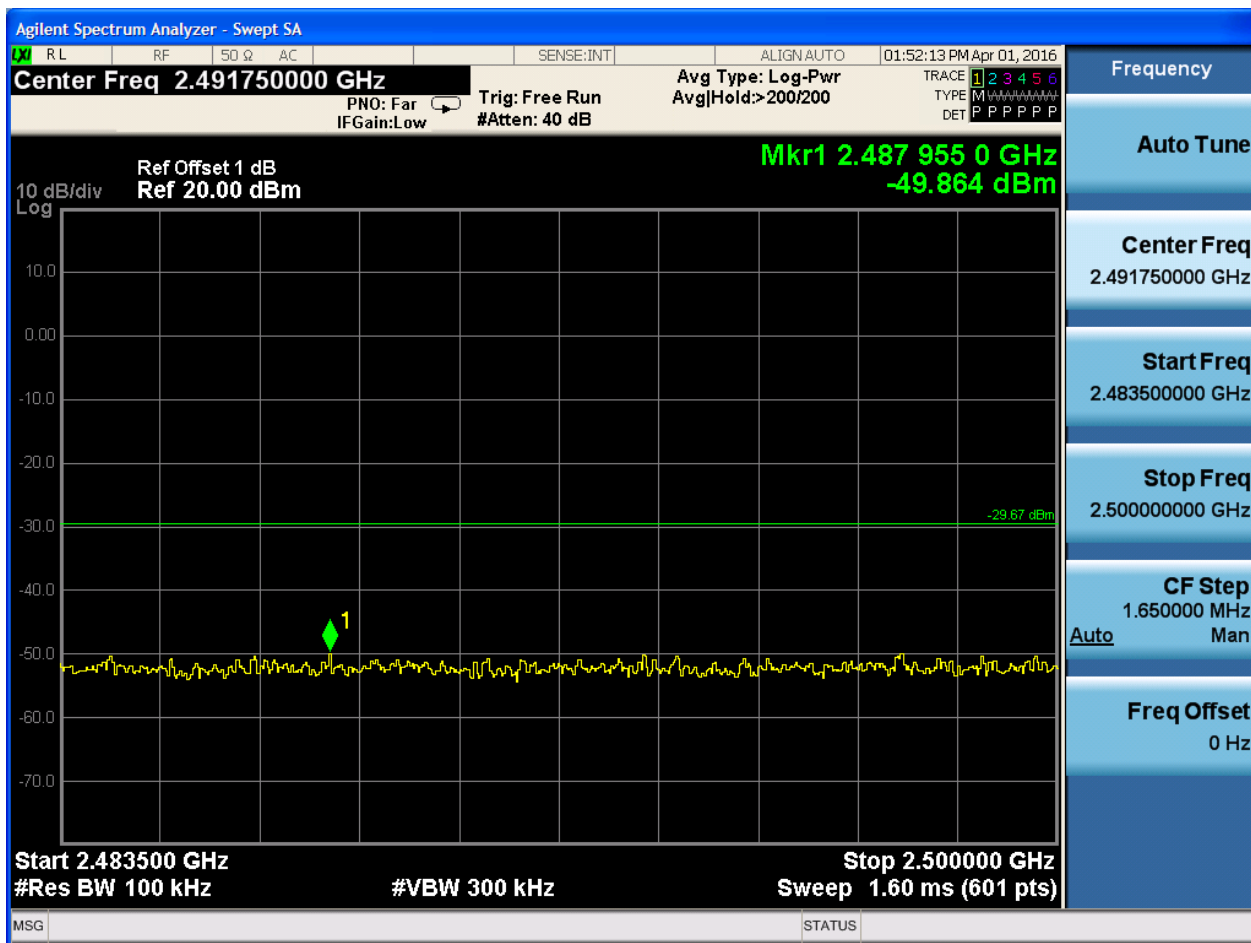


P_uw:







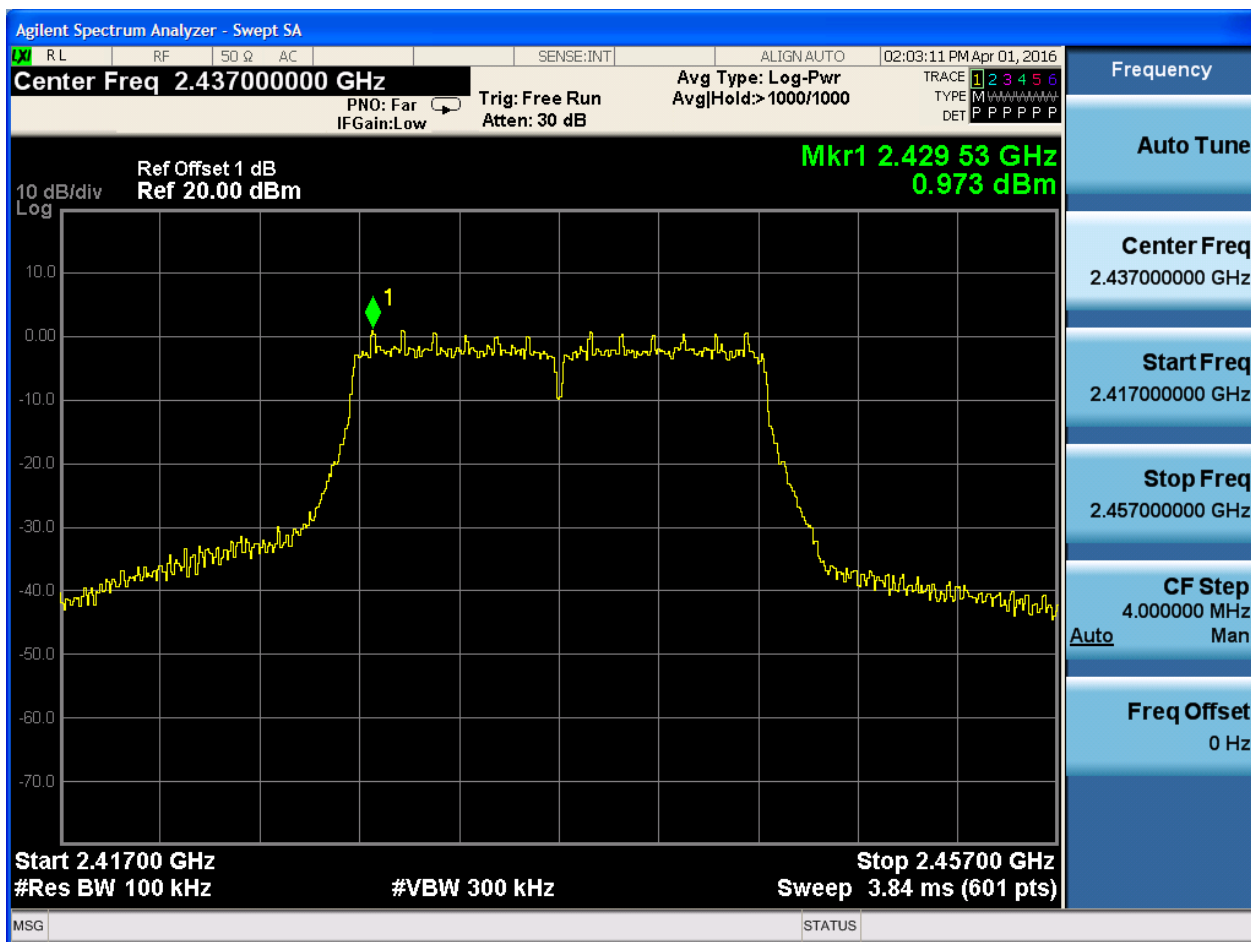






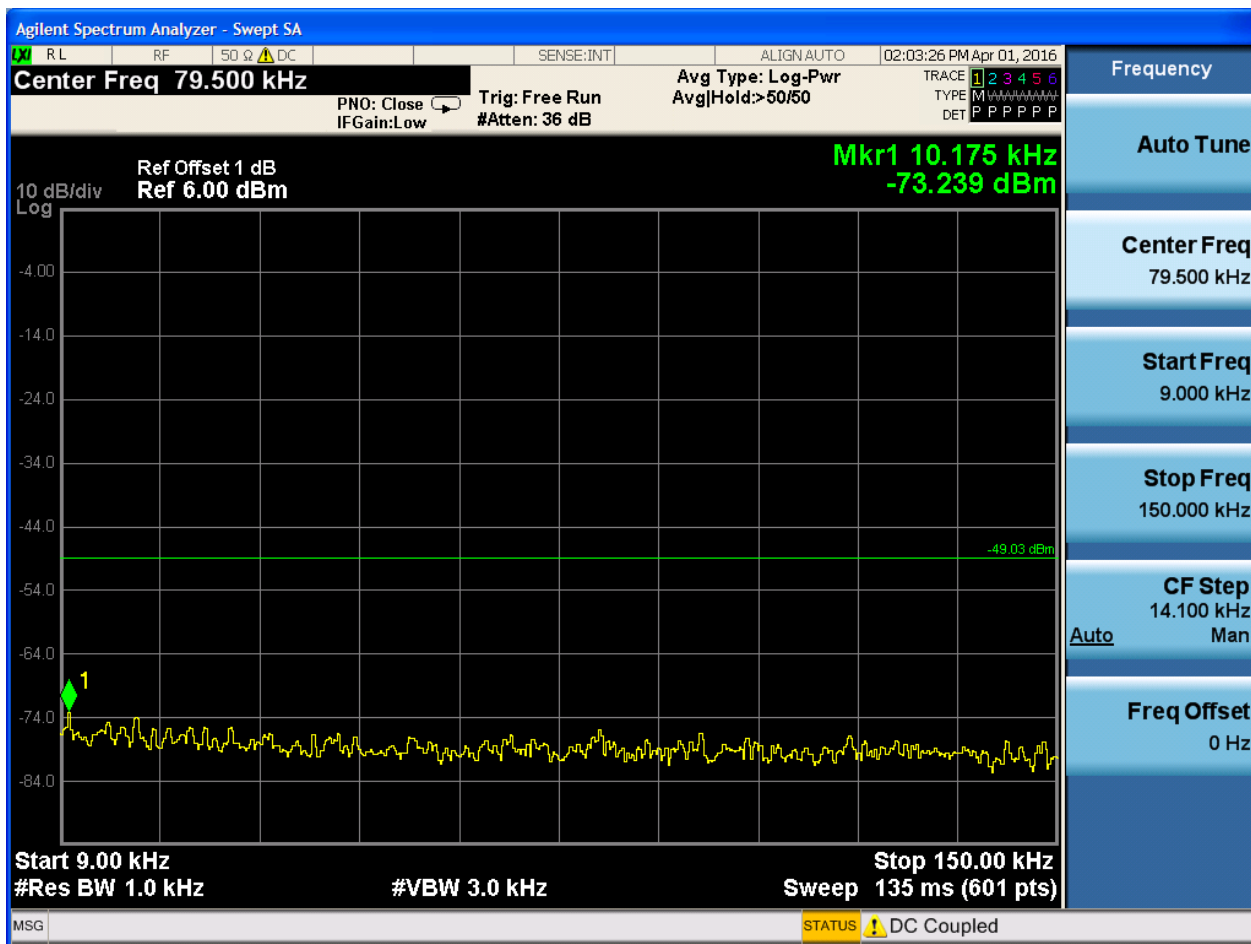
2.5 11G_M@Ant 1

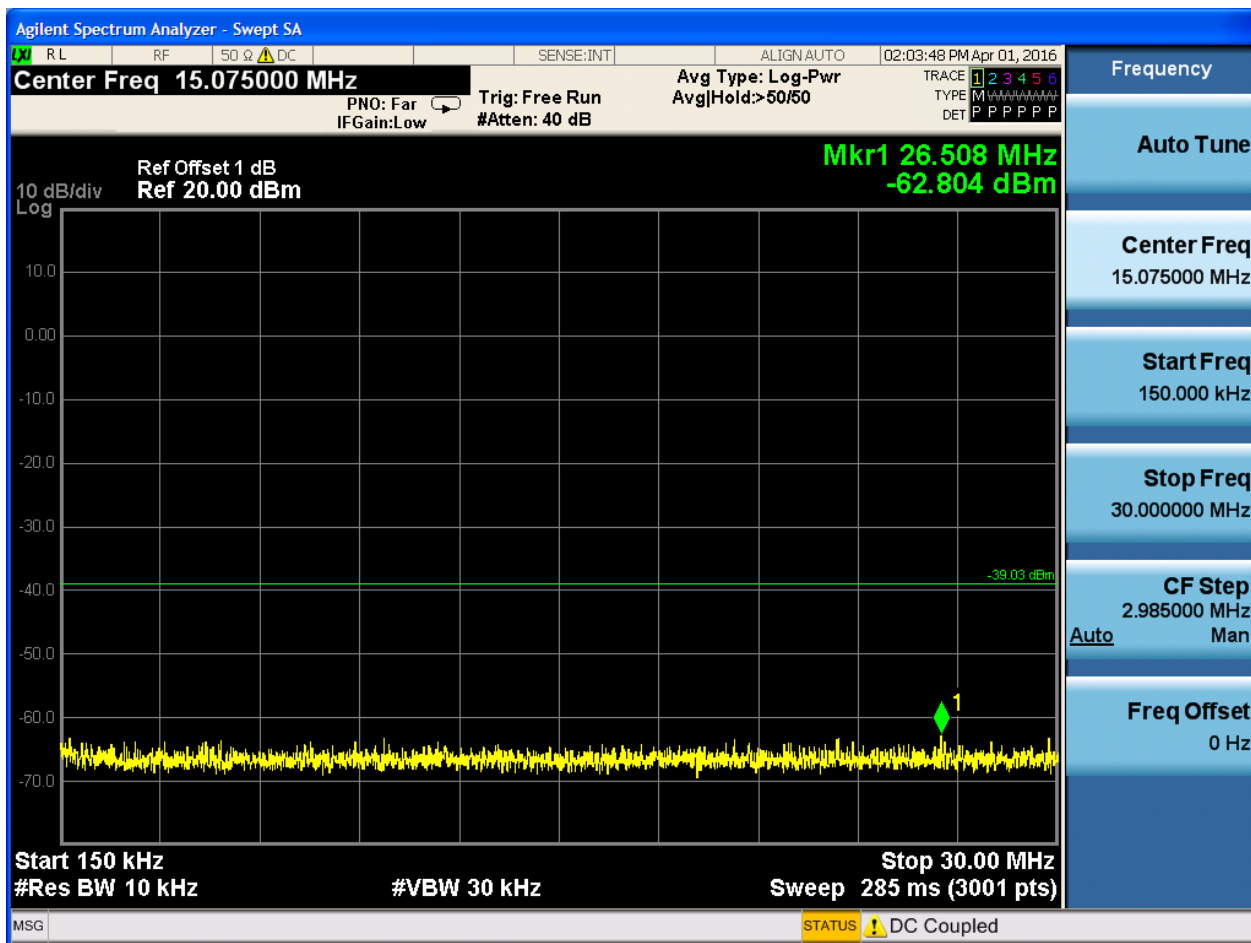
Pref:

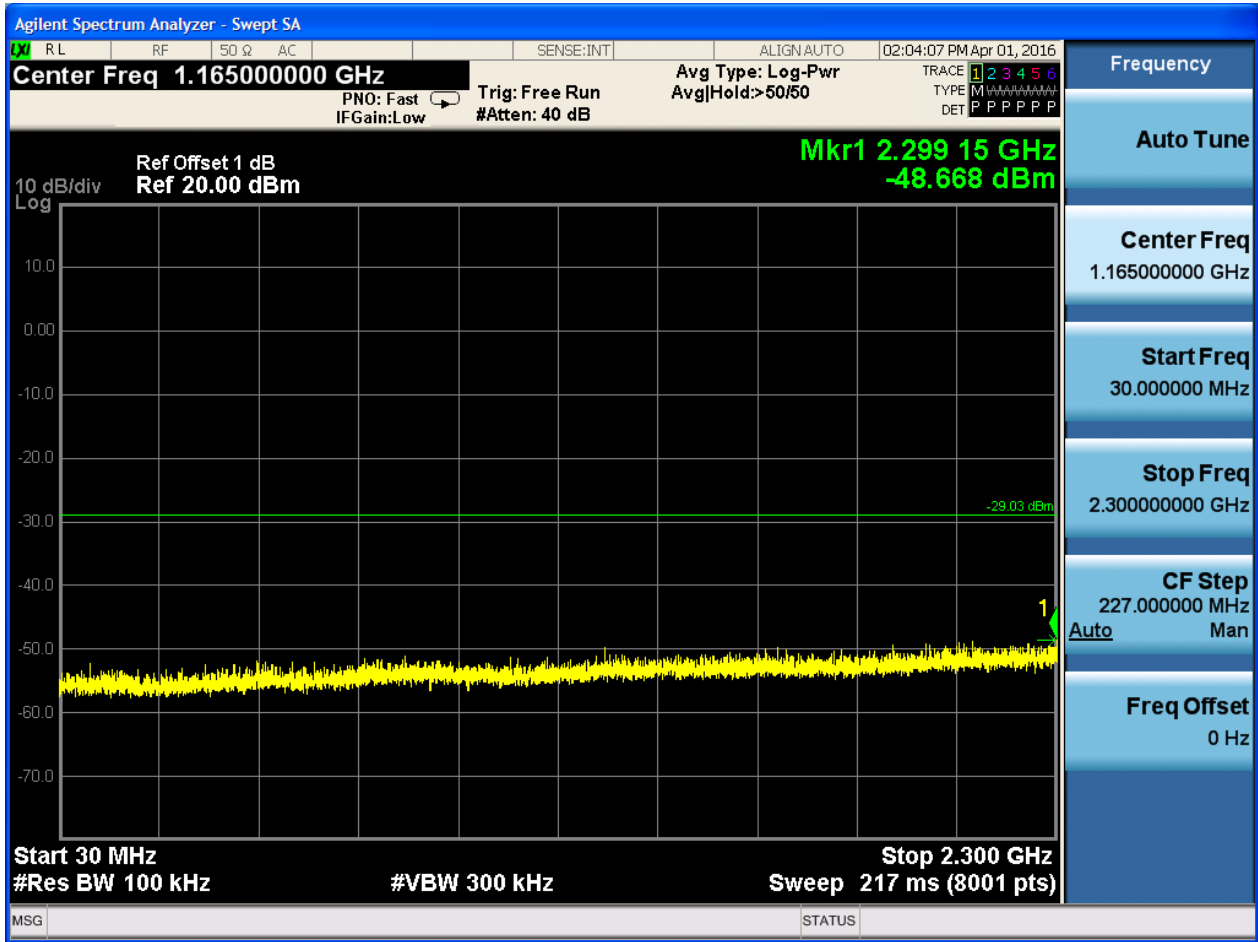


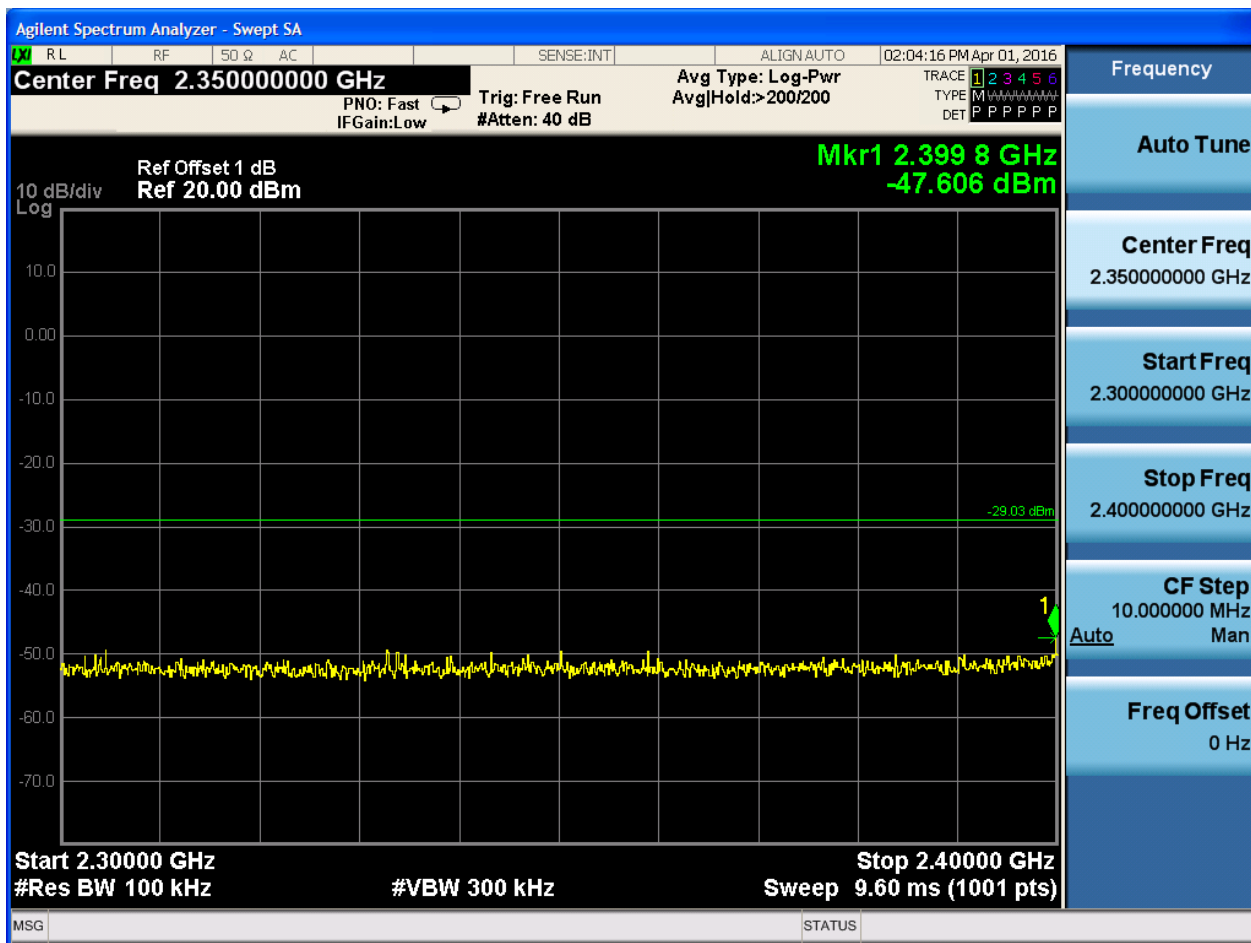


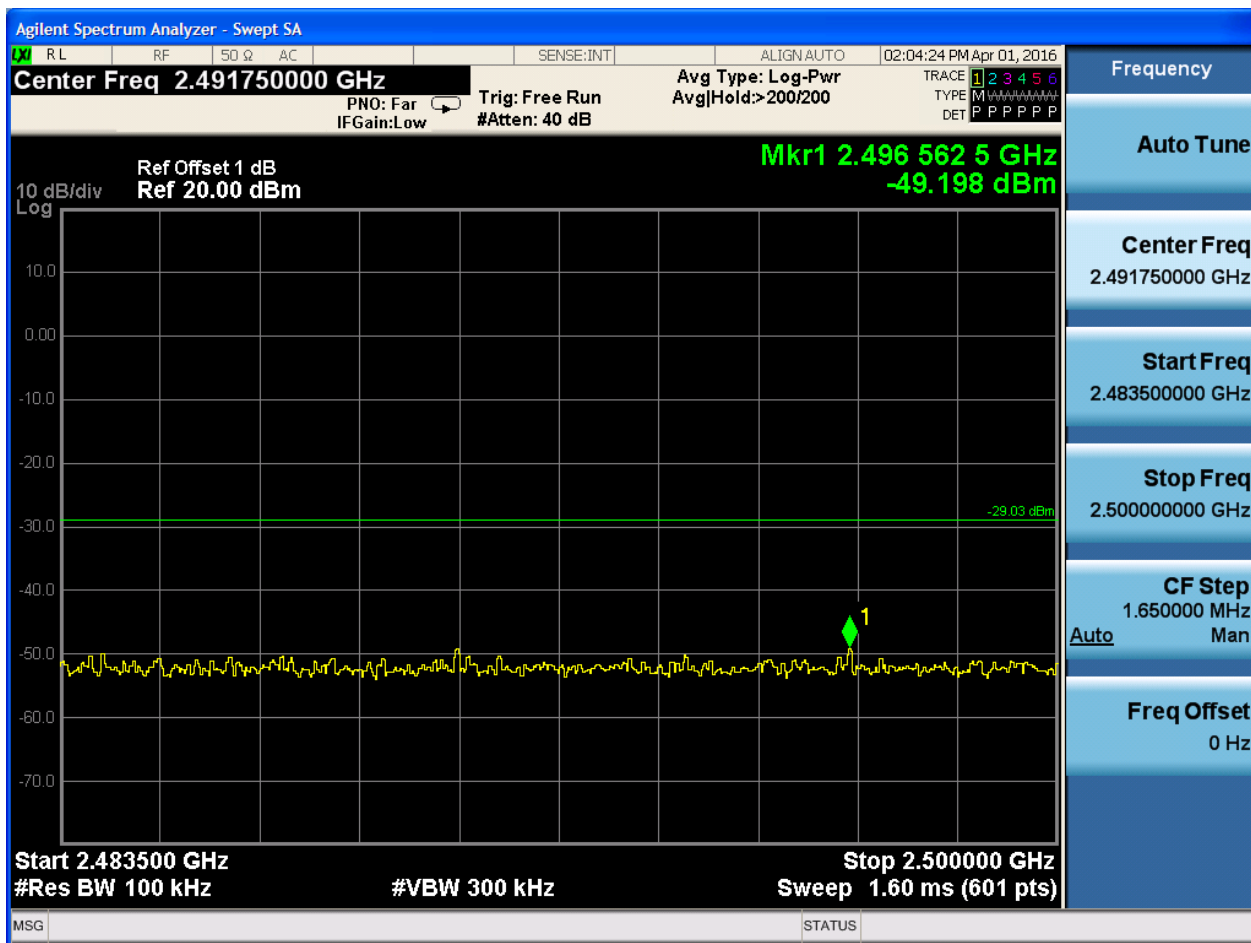
Puw:









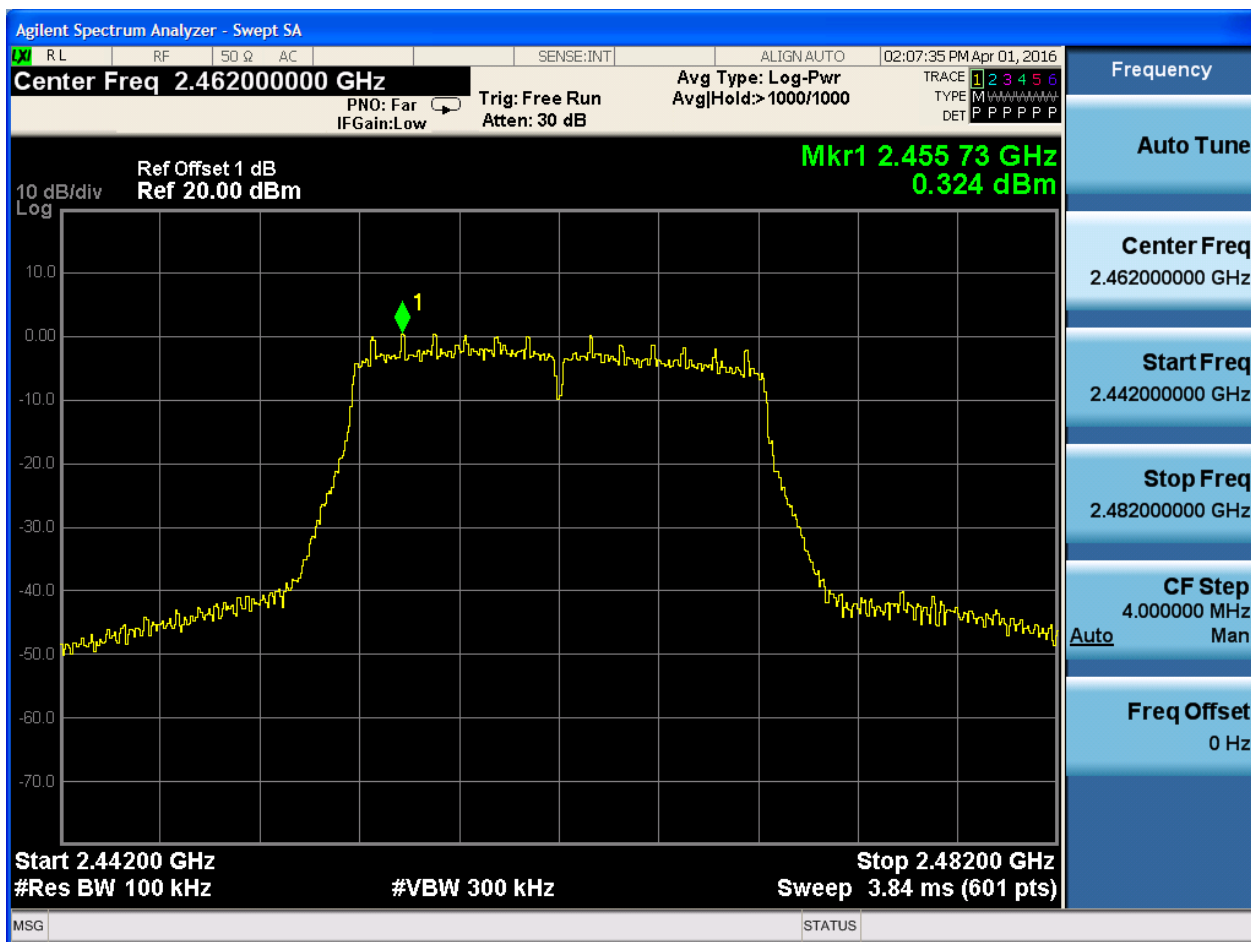






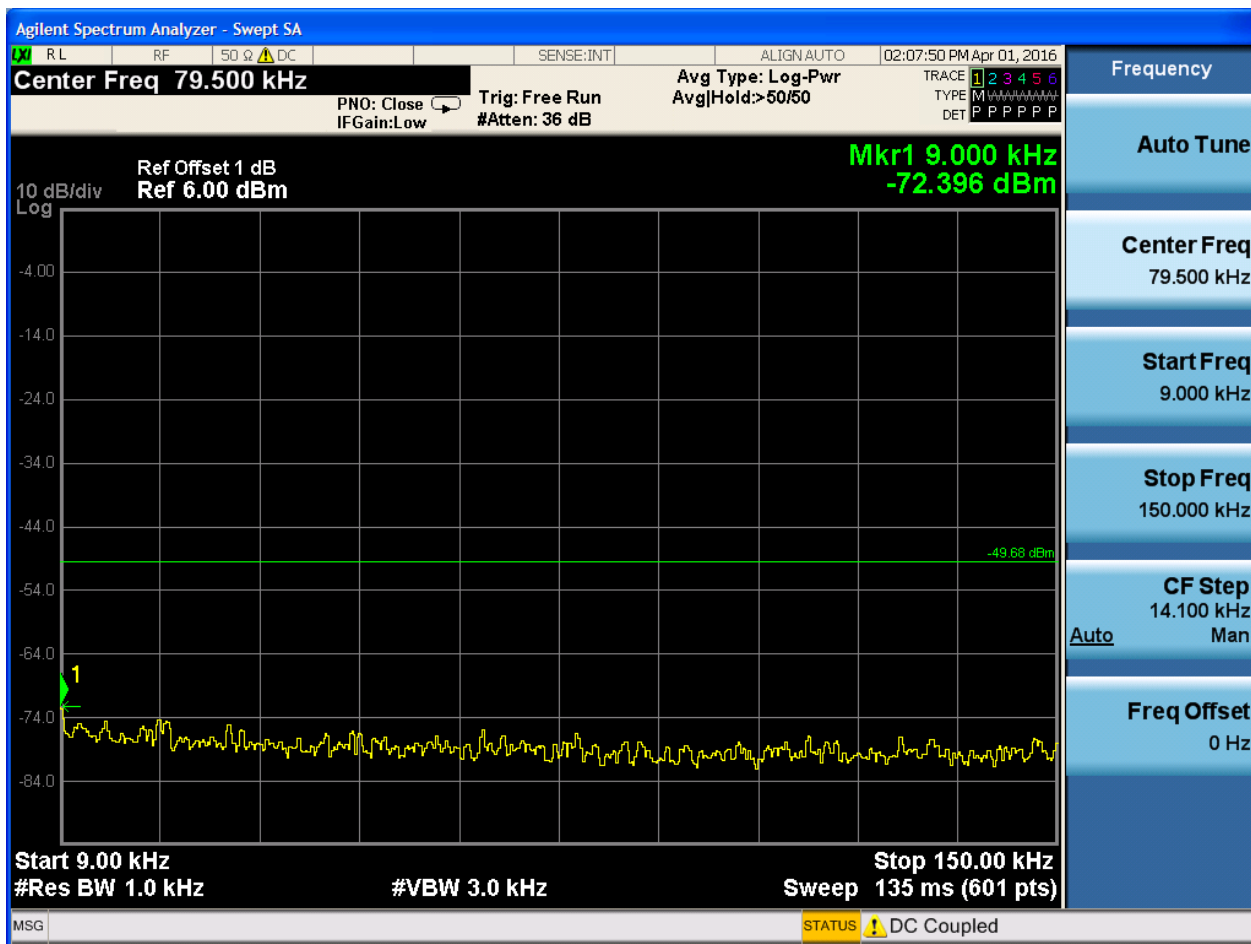
2.6 11G_H@Ant 1

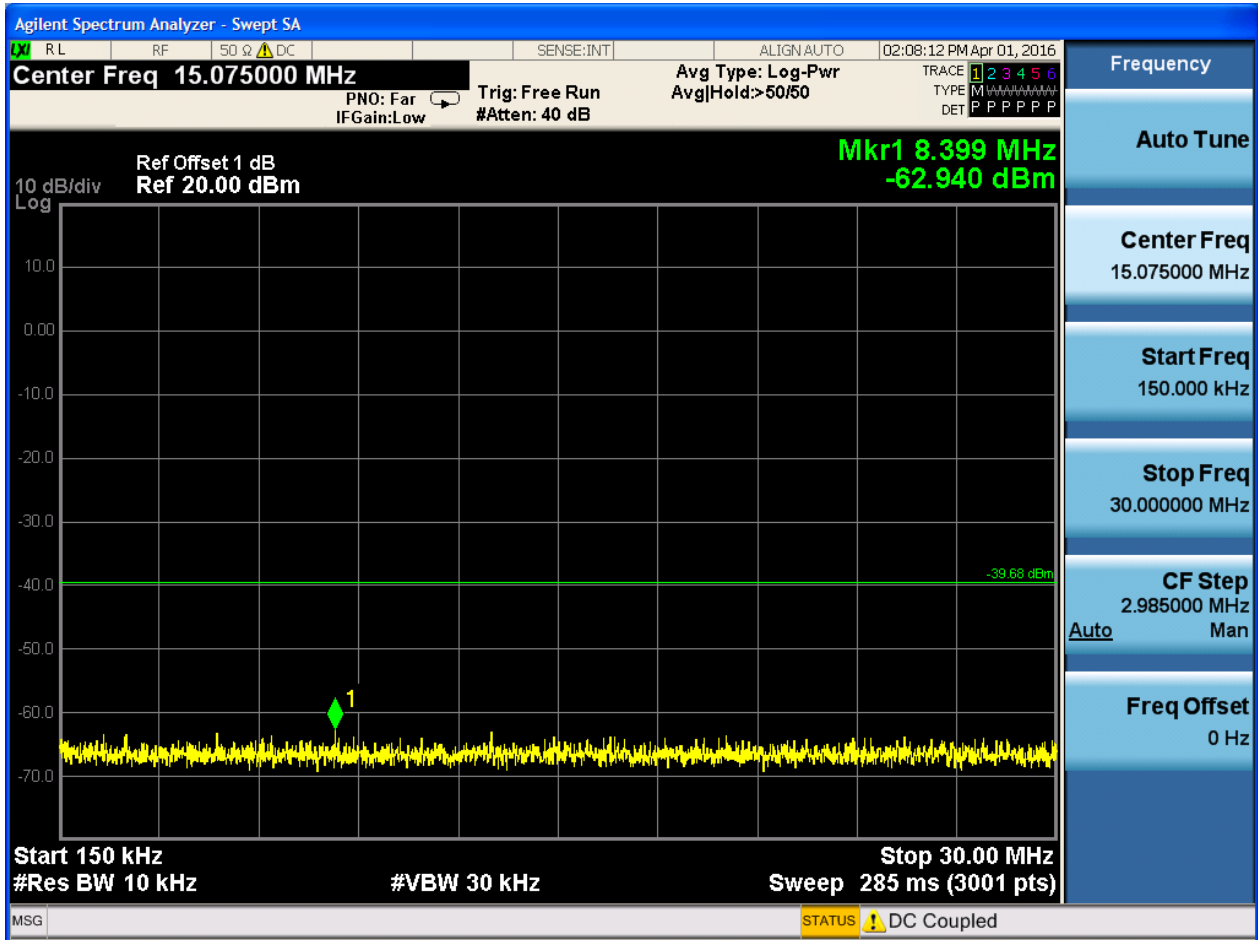
Pref:

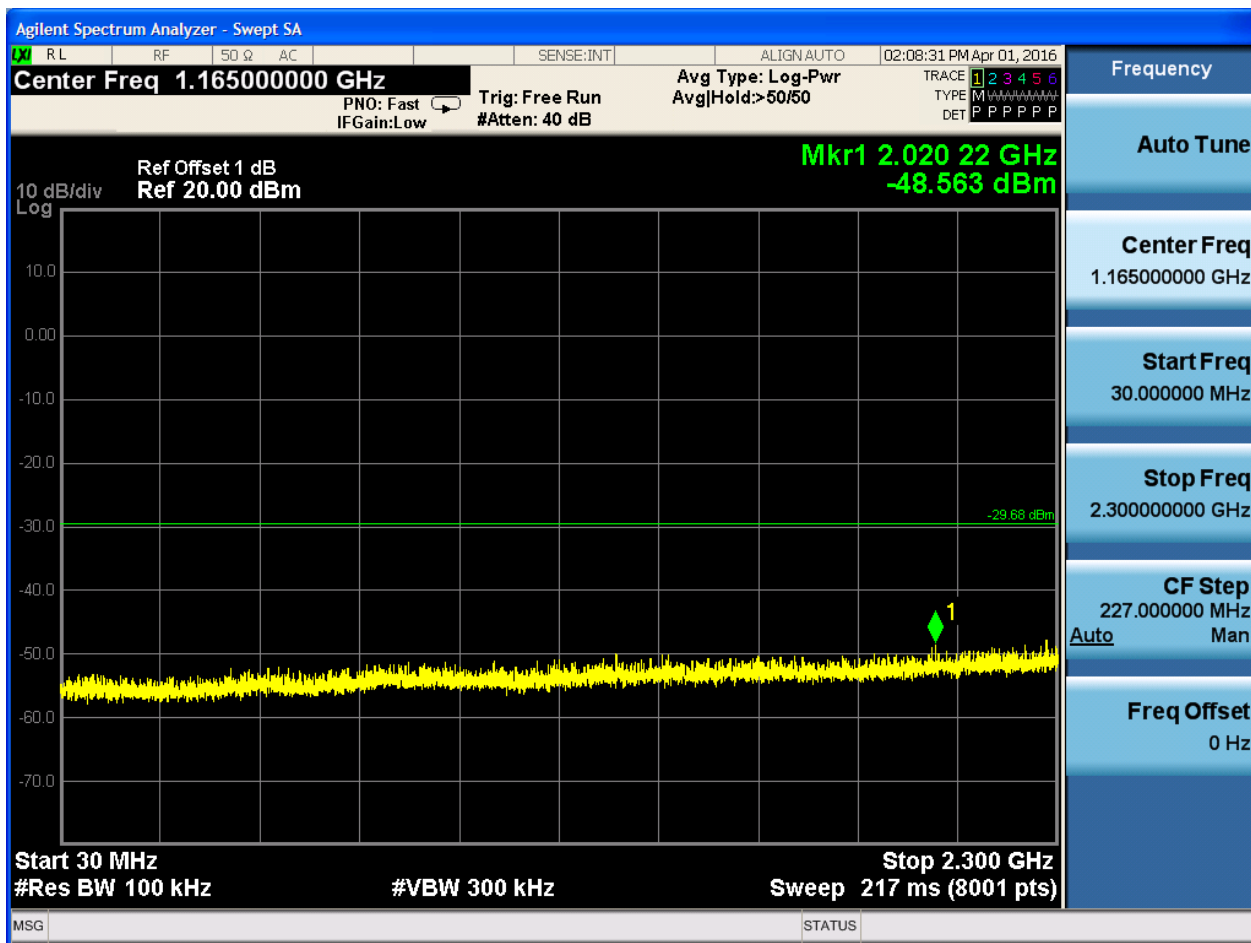


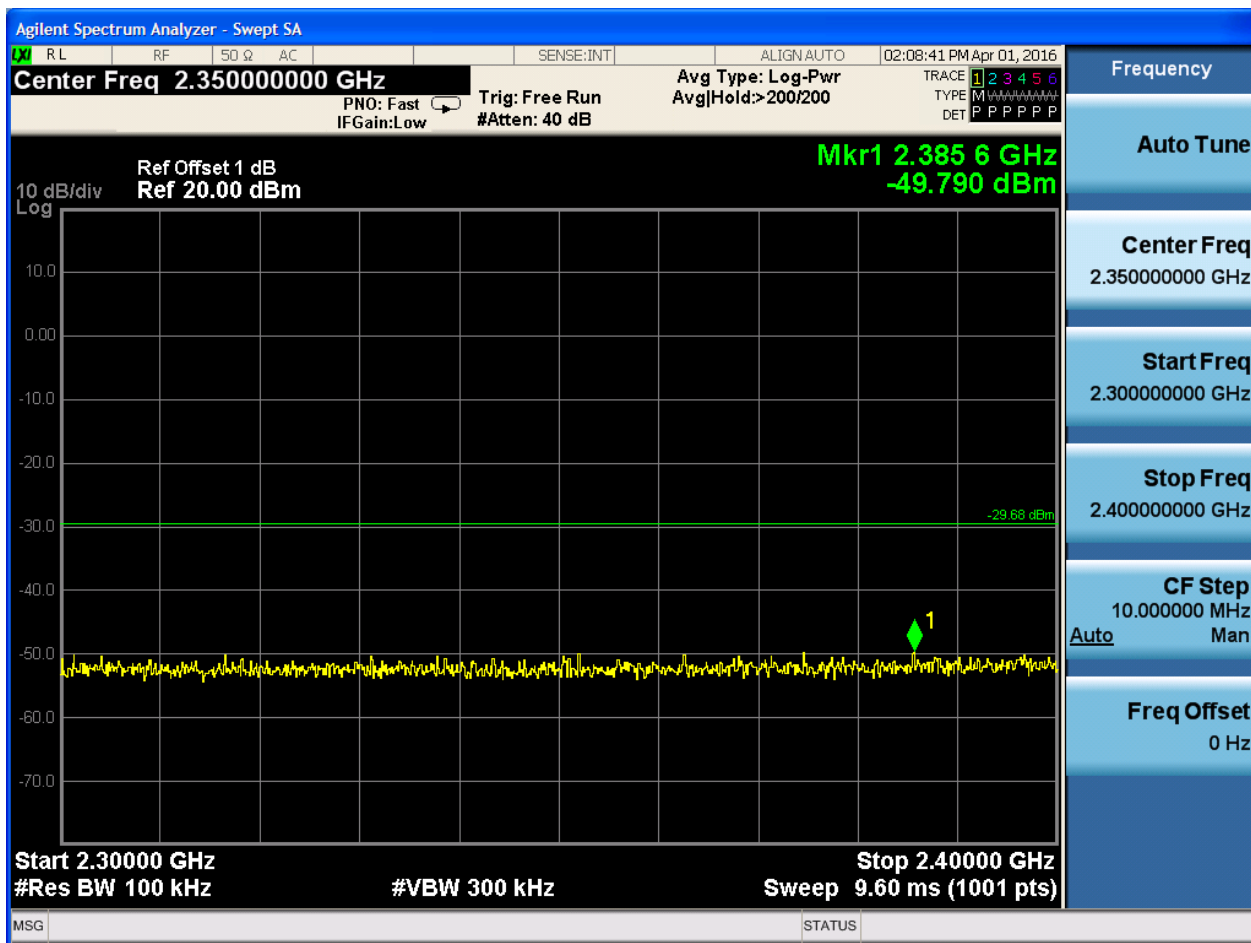


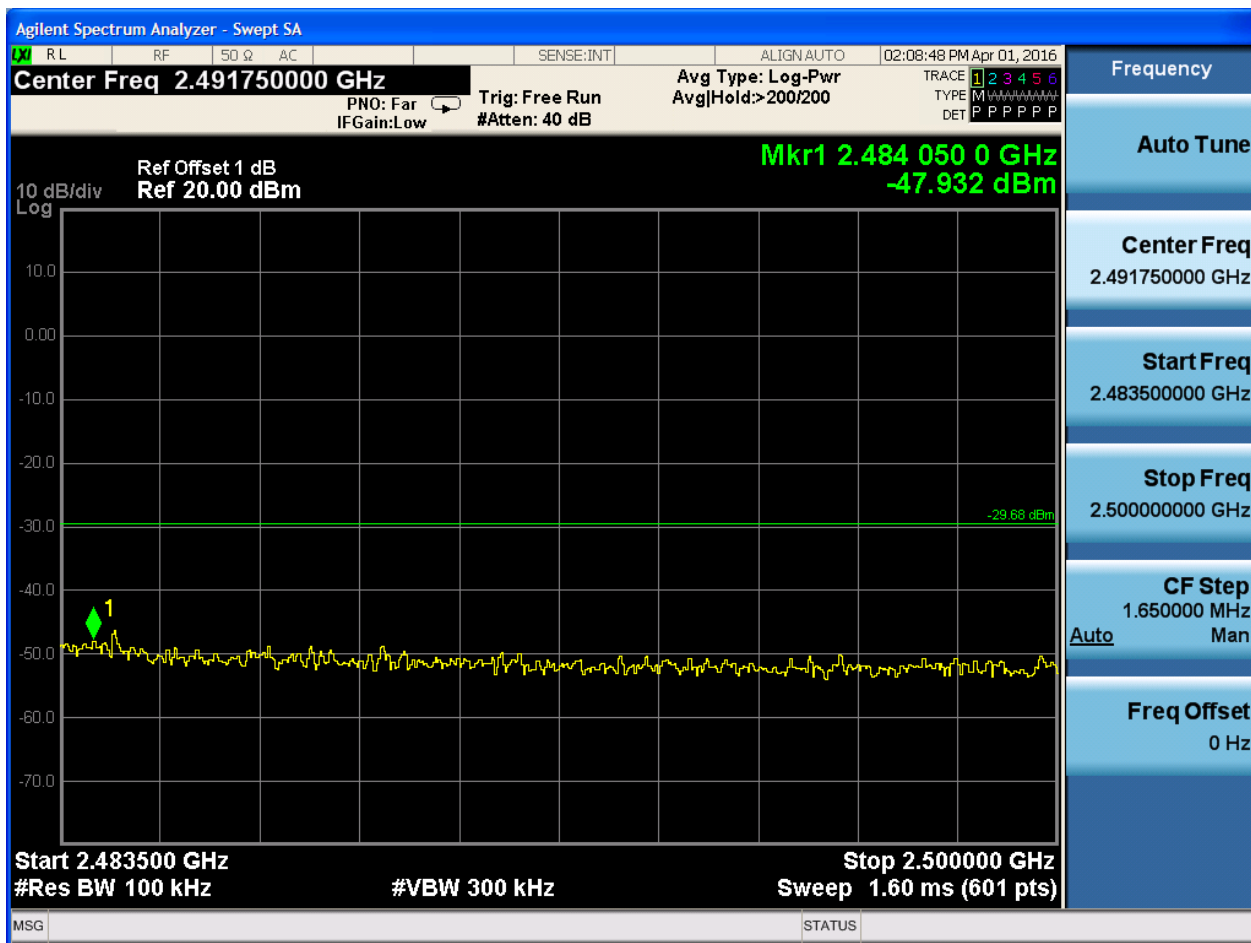
Puw:









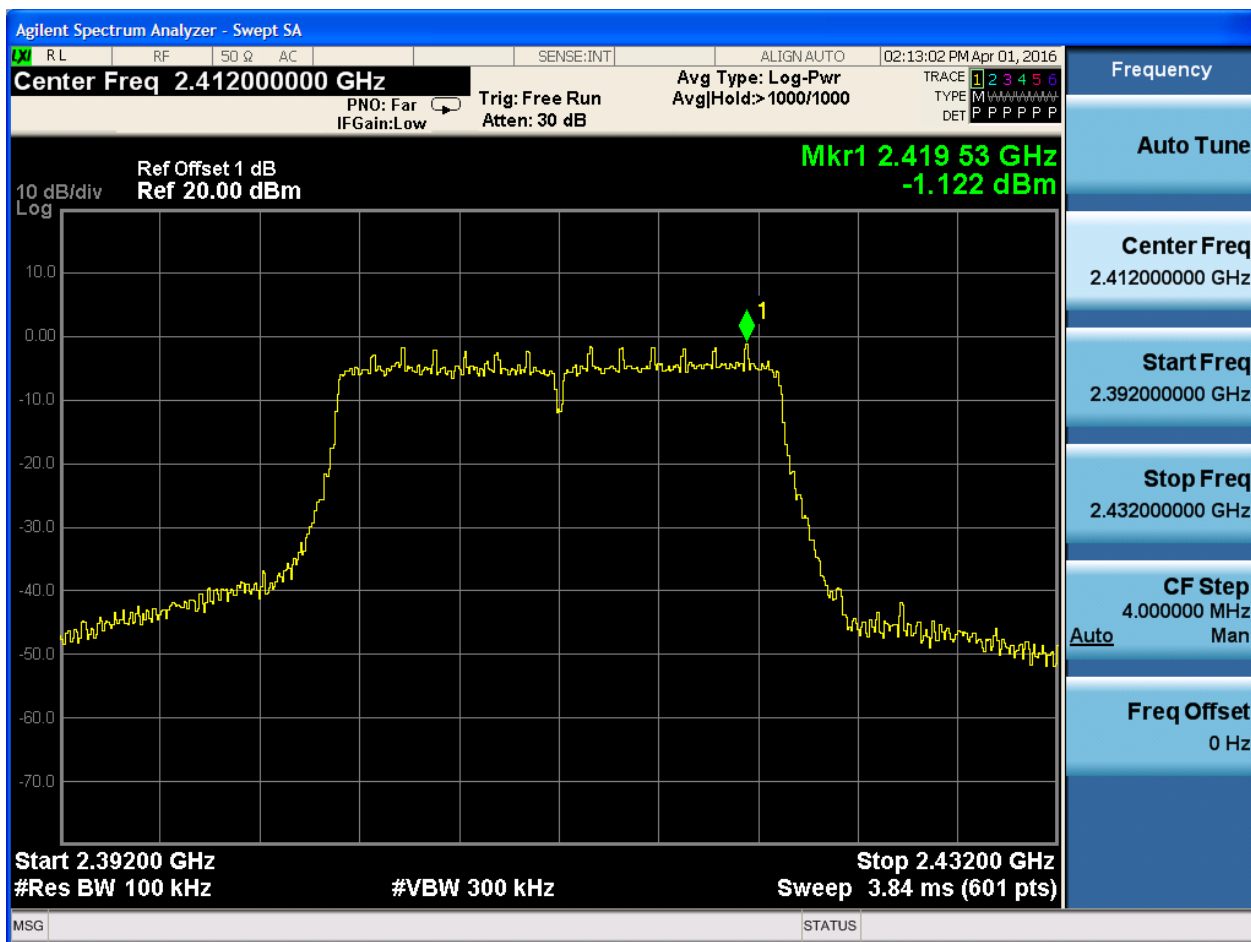






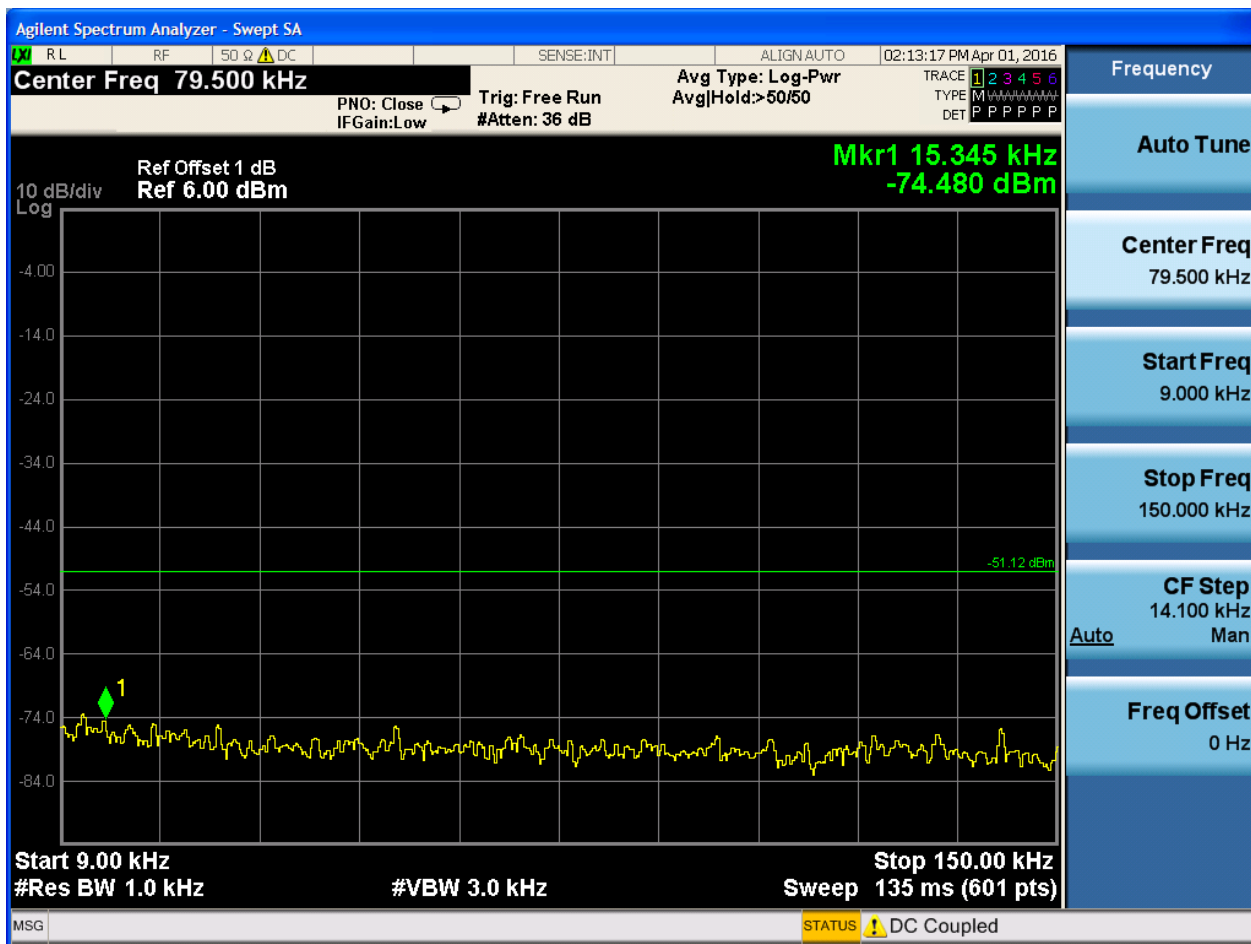
2.7 11N20_L@Ant 1

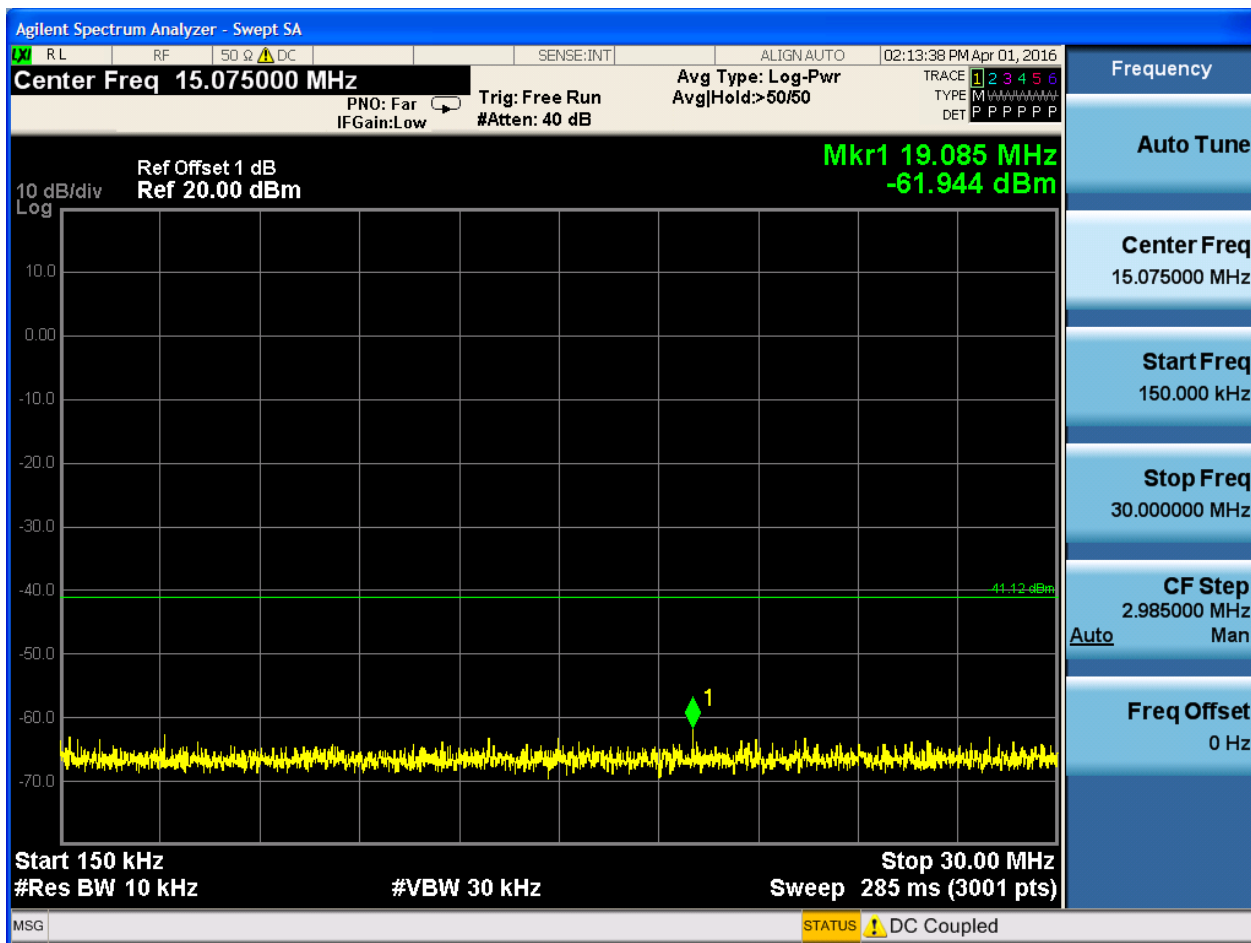
Pref:



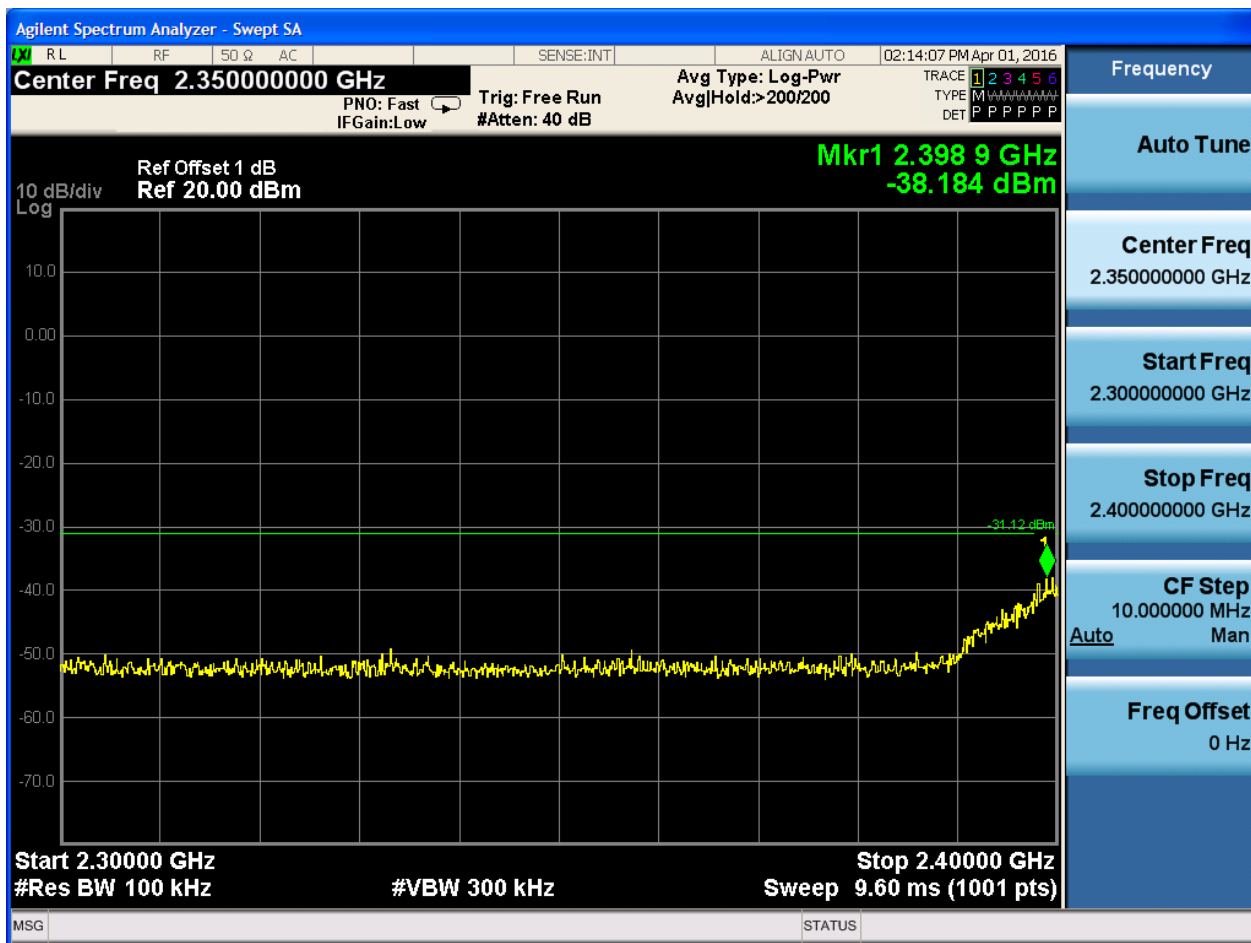


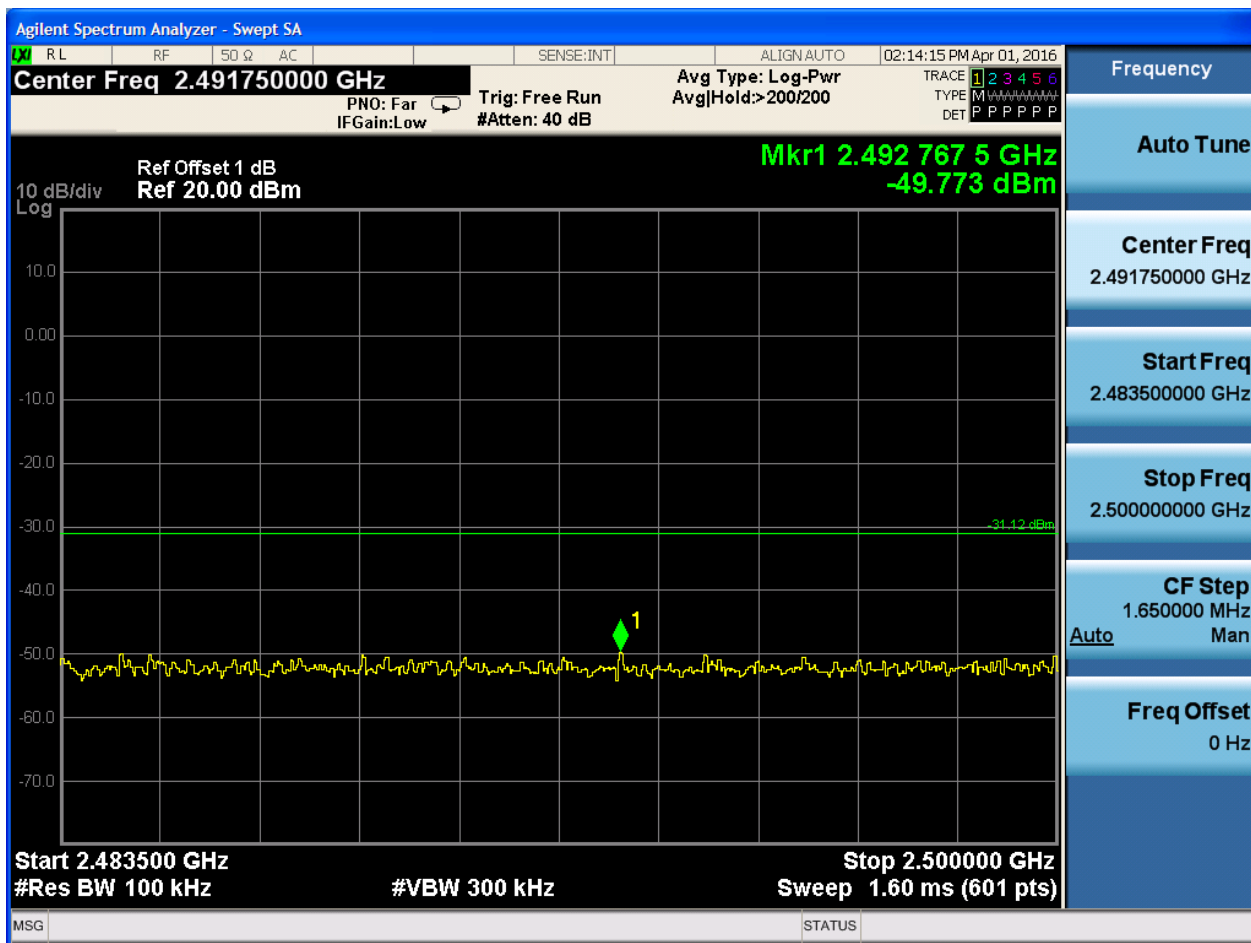
Puw:









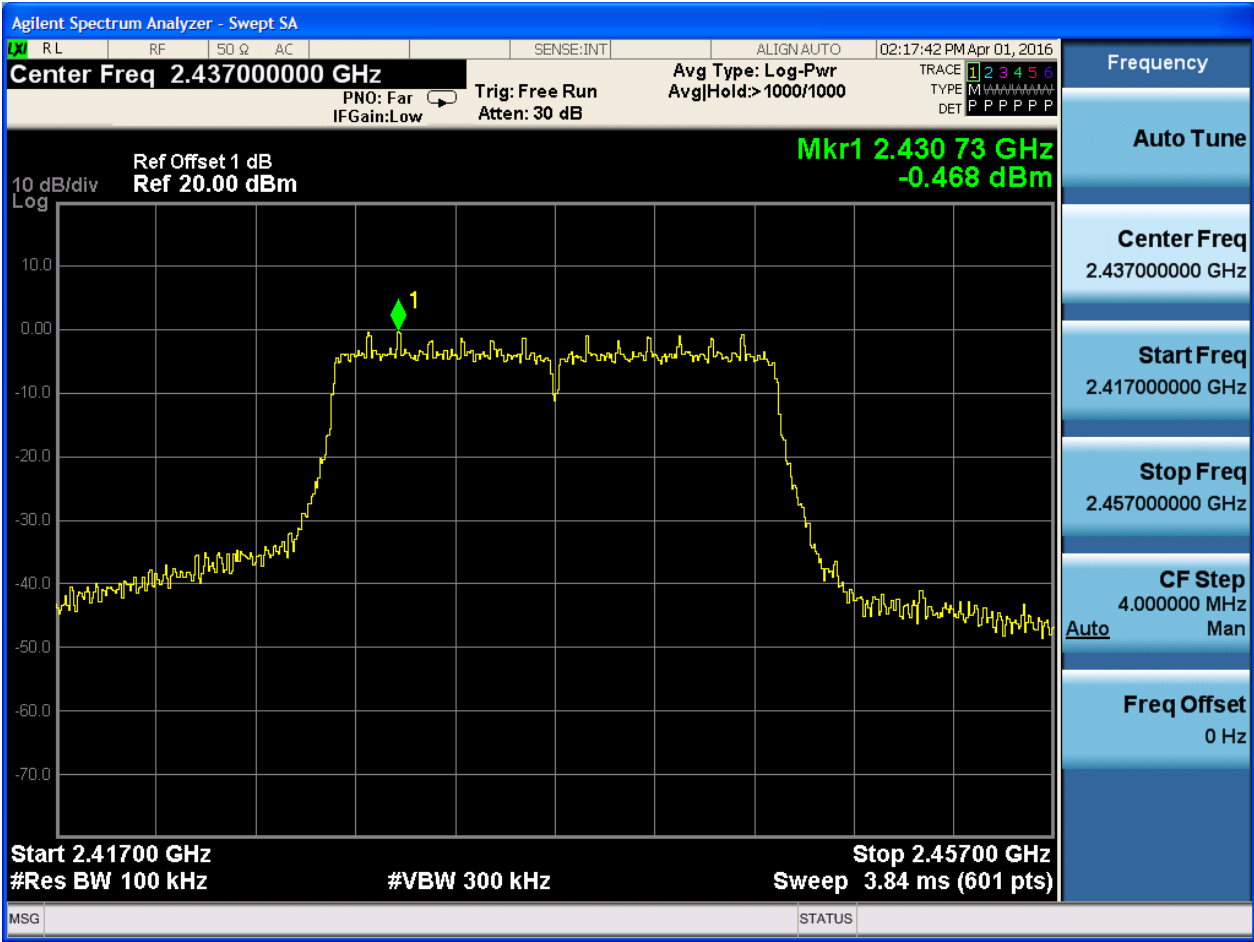






2.8 11N20_M@Ant 1

Pref:





Puw:

