



Appendix for Testreport

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.

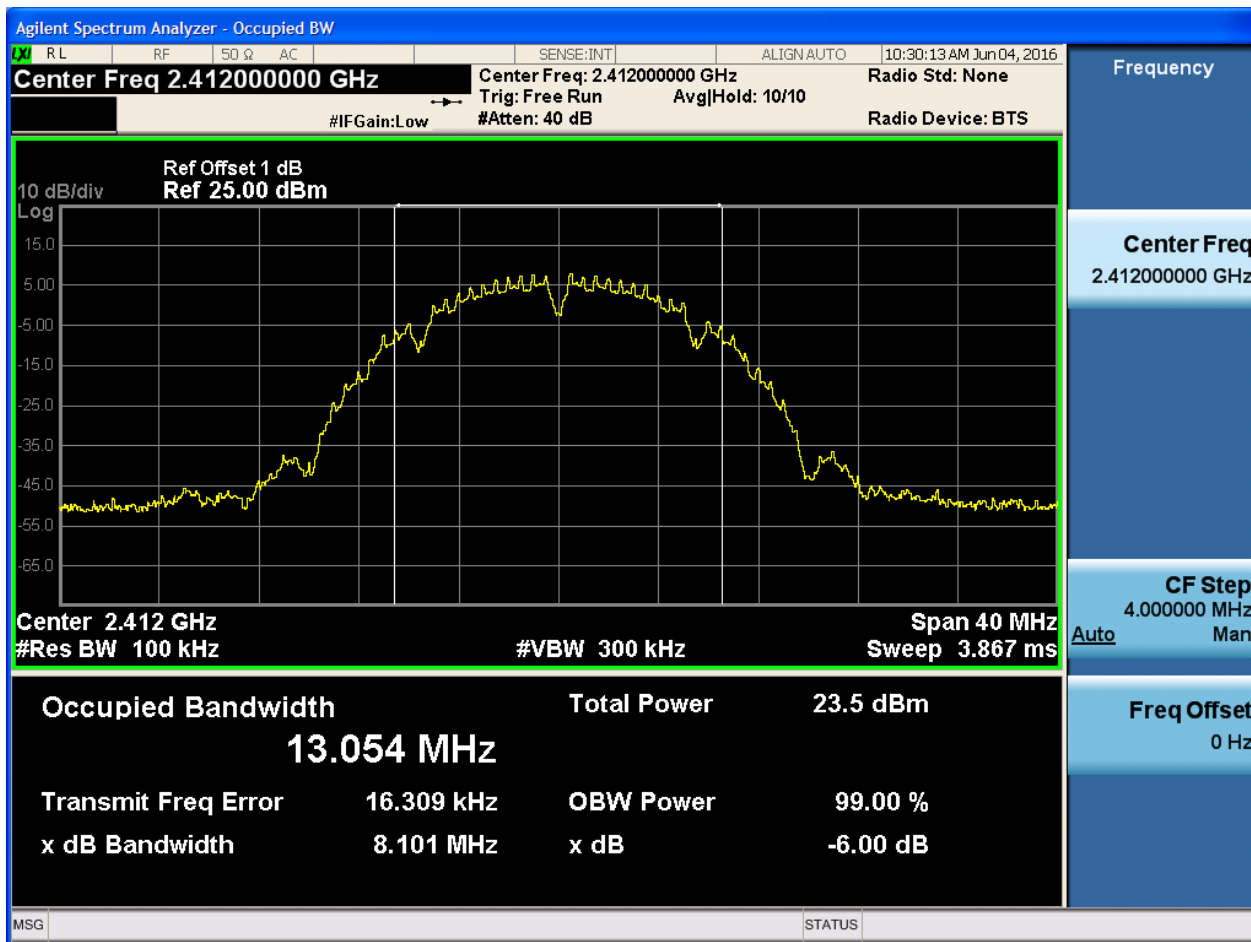
For measurements on smart antenna systems (devices with multiple transmit chains), the test is performed at each chain, and used as respective results for each chain.

Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	DTS6dBBW[MHz]	Verdict
11B	L	2412	Ant 1	8.10	pass
11B	M	2437	Ant 1	8.58	pass
11B	H	2462	Ant 1	8.56	pass
11G	L	2412	Ant 1	16.37	pass
11G	M	2437	Ant 1	16.38	pass
11G	H	2462	Ant 1	16.41	pass
11N20	L	2412	Ant 1	17.60	pass
11N20	M	2437	Ant 1	17.60	pass
11N20	H	2462	Ant 1	17.60	pass
11N40	L	2422	Ant 1	35.12	pass
11N40	M	2437	Ant 1	35.24	pass
11N40	H	2452	Ant 1	35.23	pass

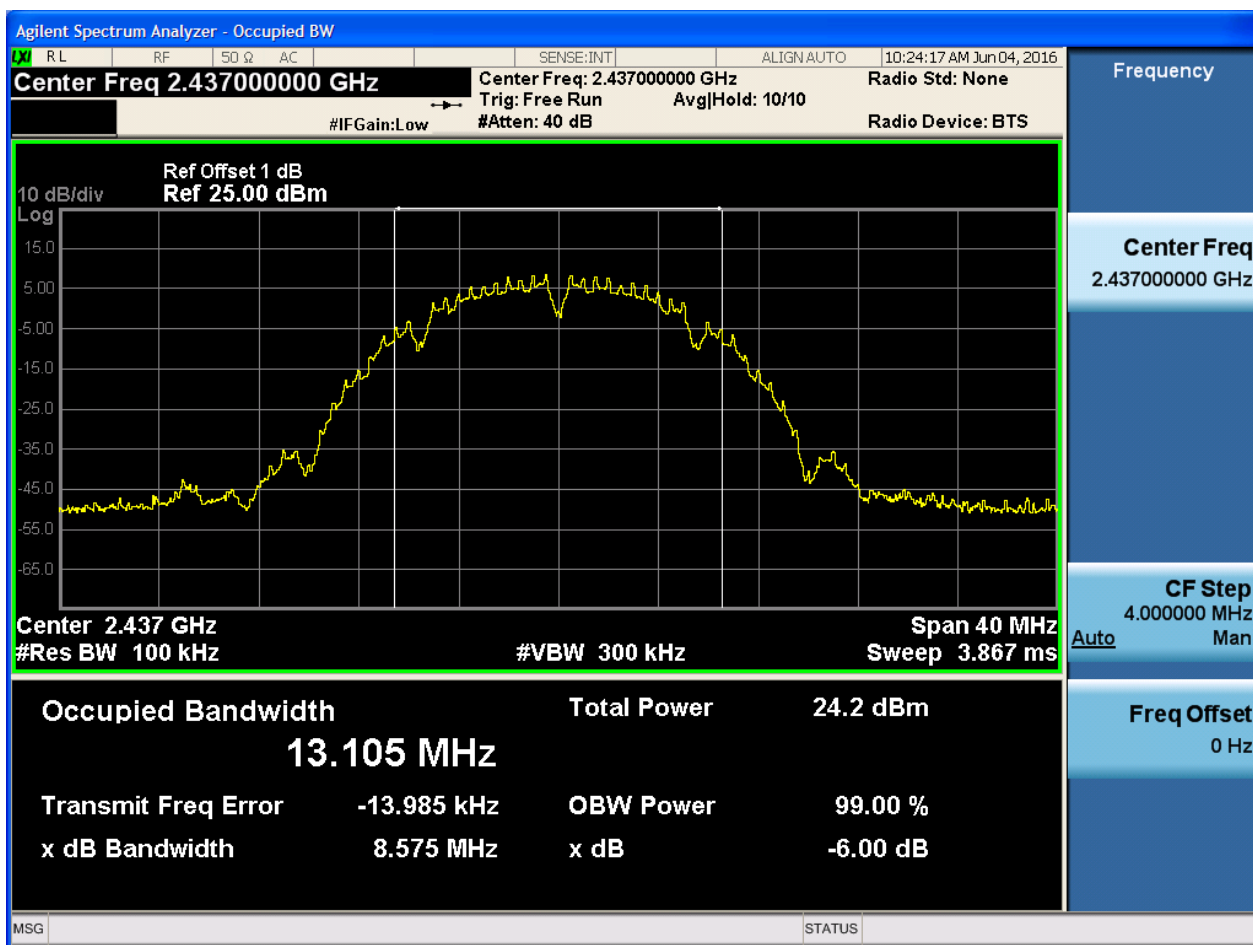
Part II - Test Plots

2.1 11B_L@Ant 1



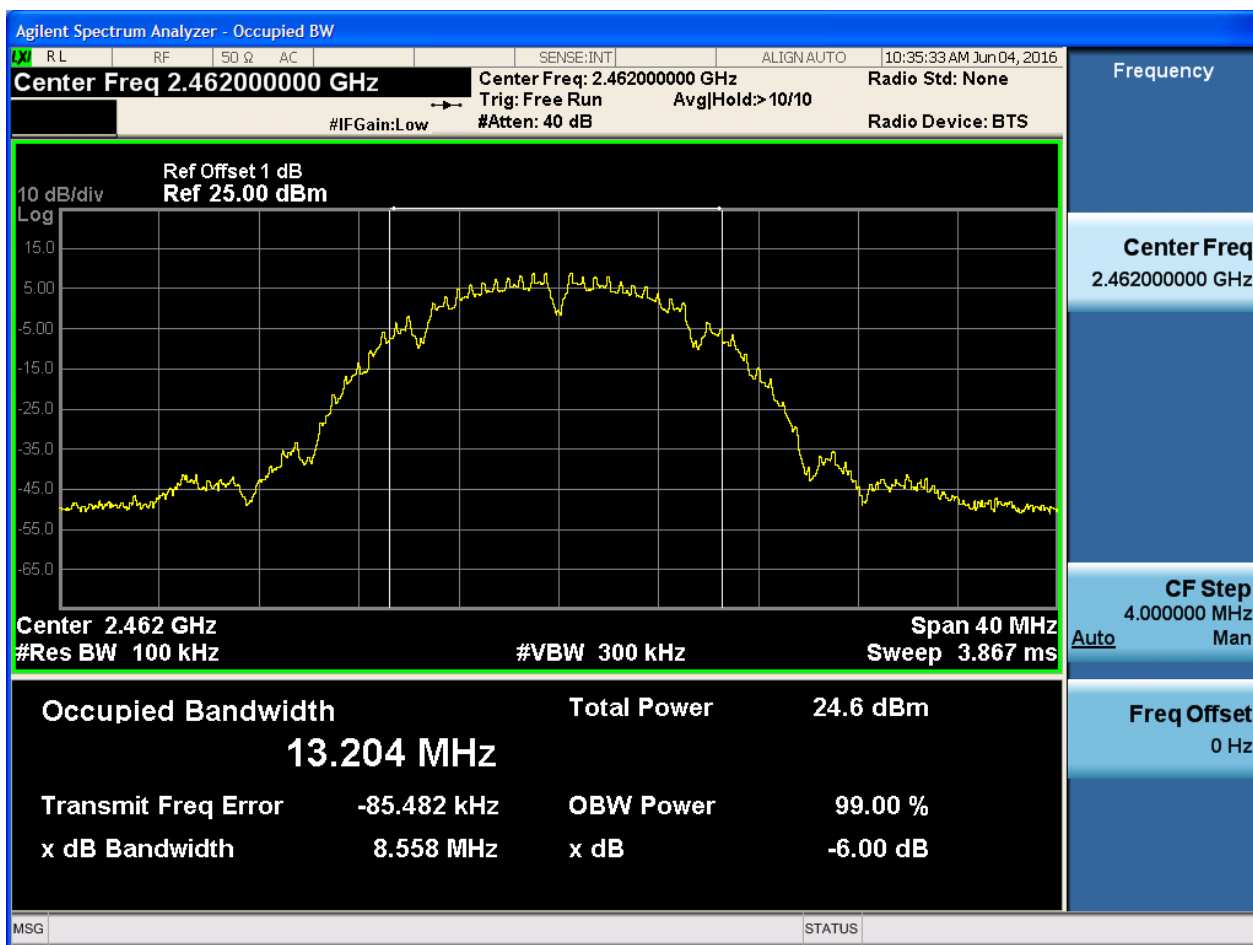


2.3 11B_M@Ant 1



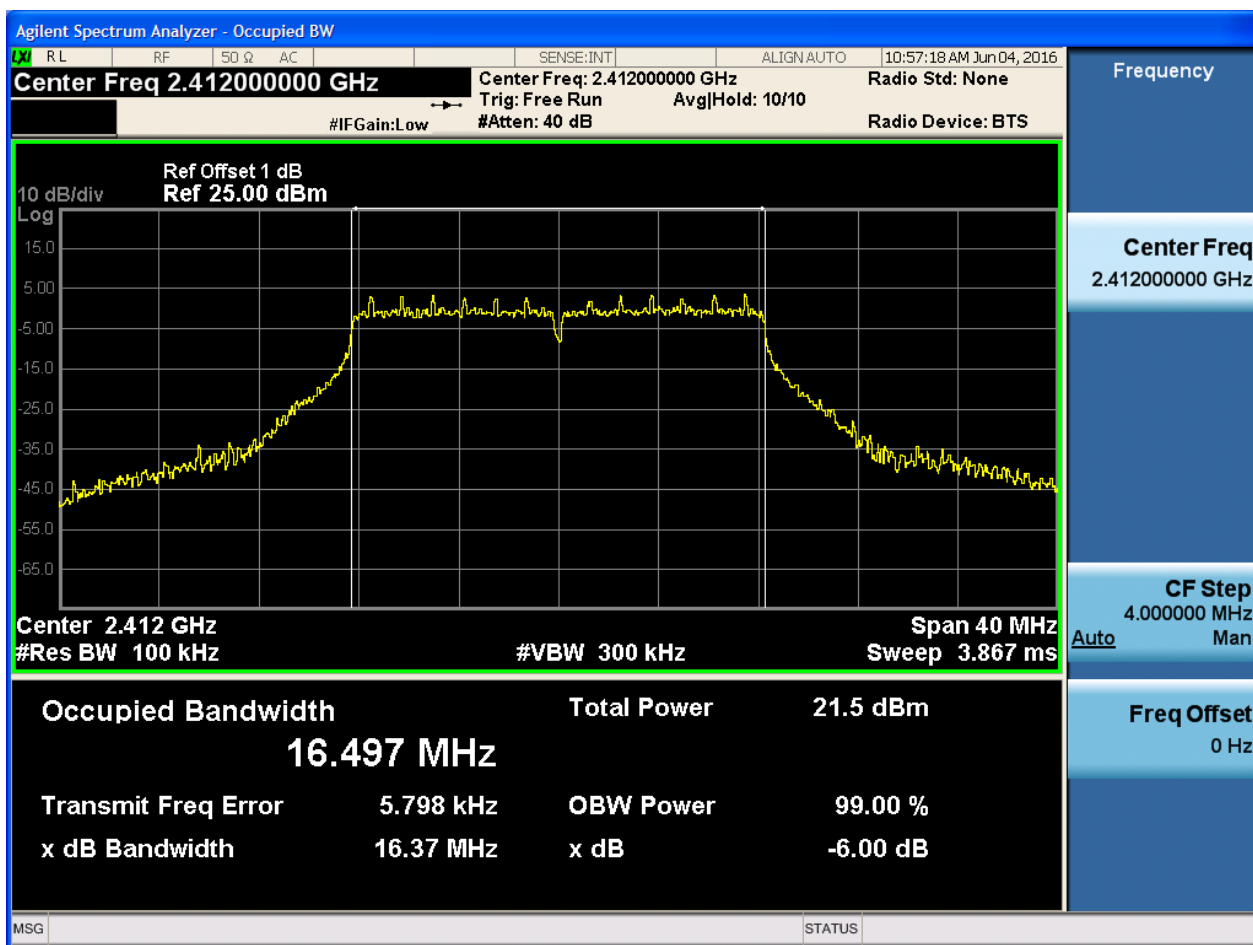


2.5 11B_H@Ant 1



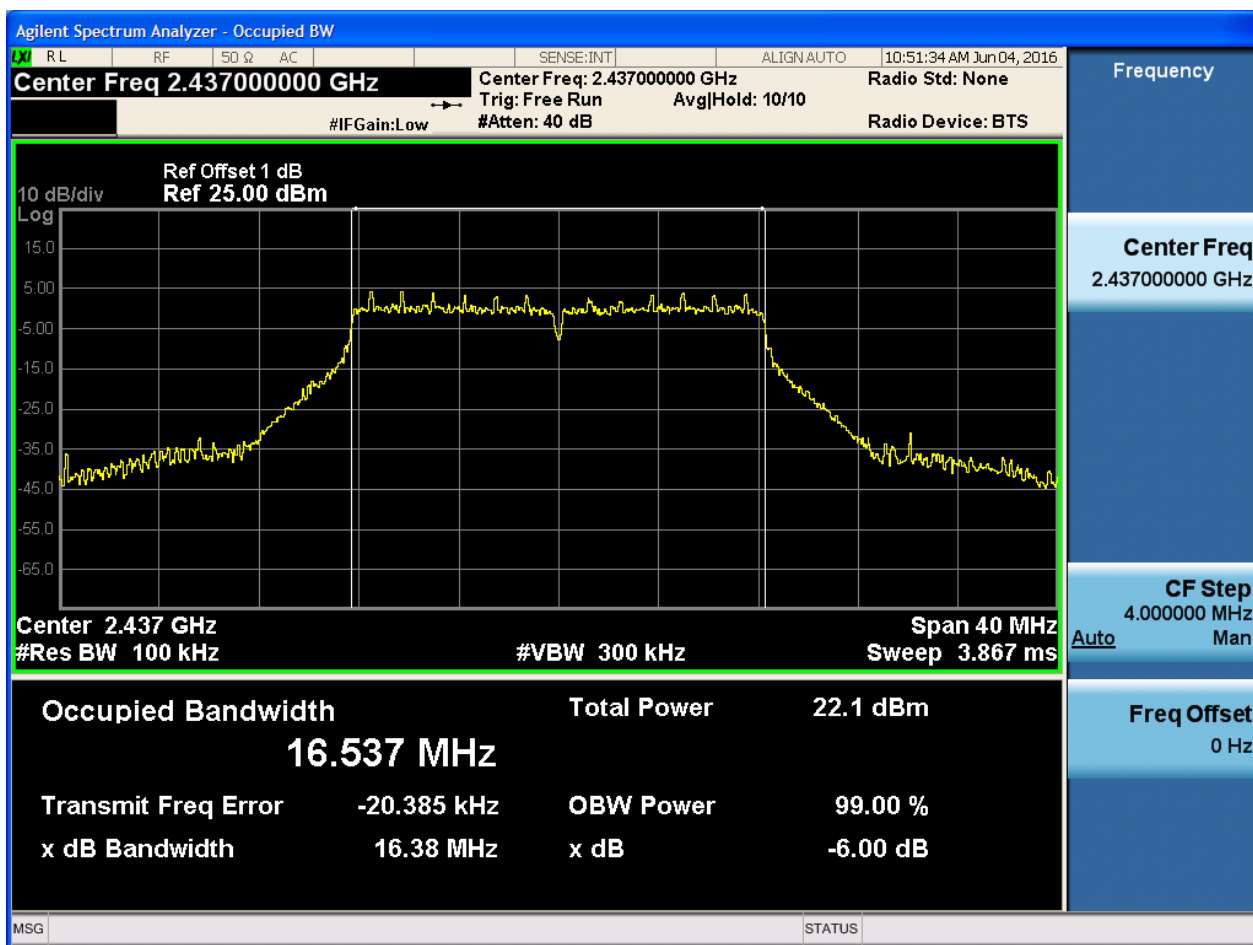


2.7 11G_L@Ant 1



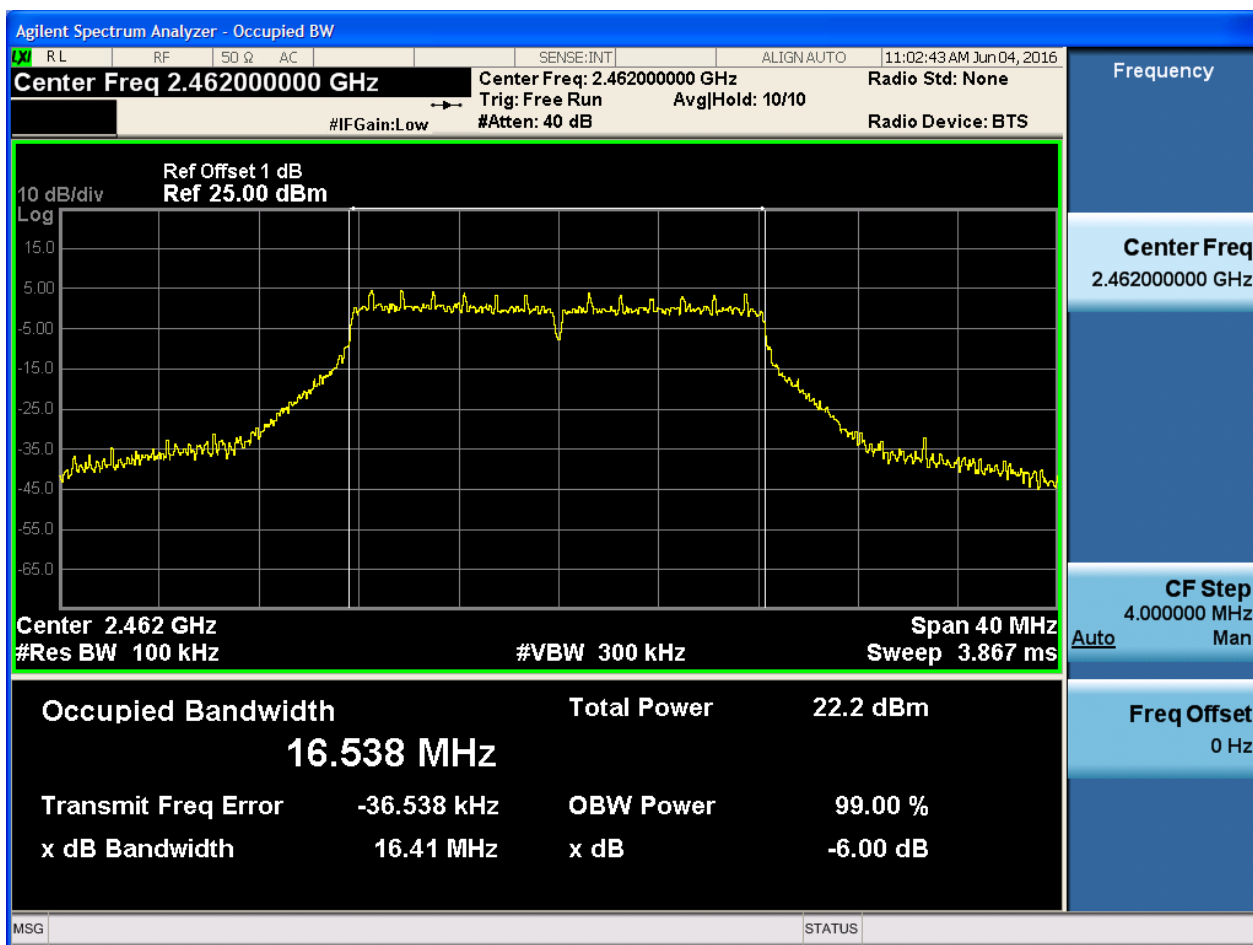


2.9 11G_M@Ant 1



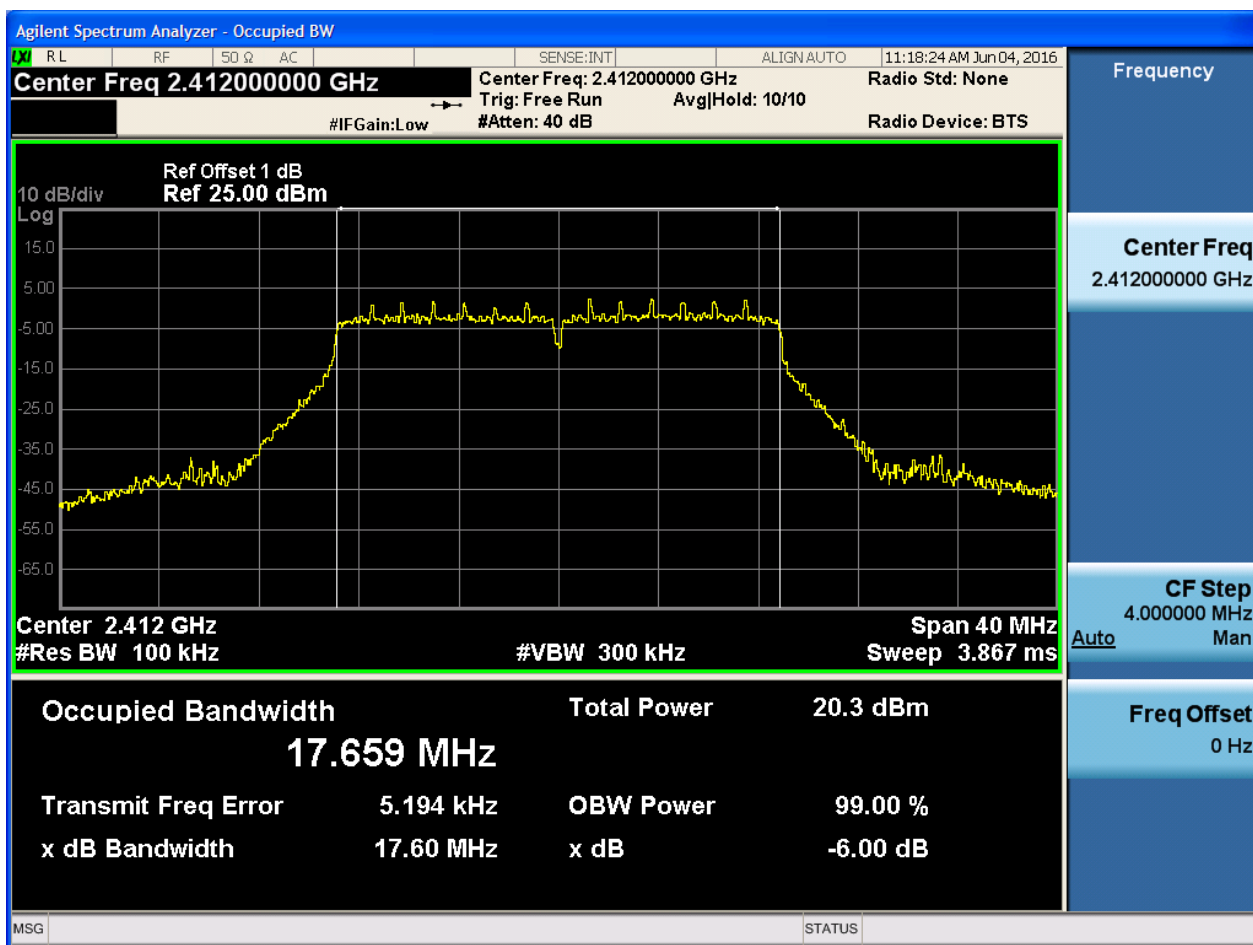


2.11 11G_H@Ant 1



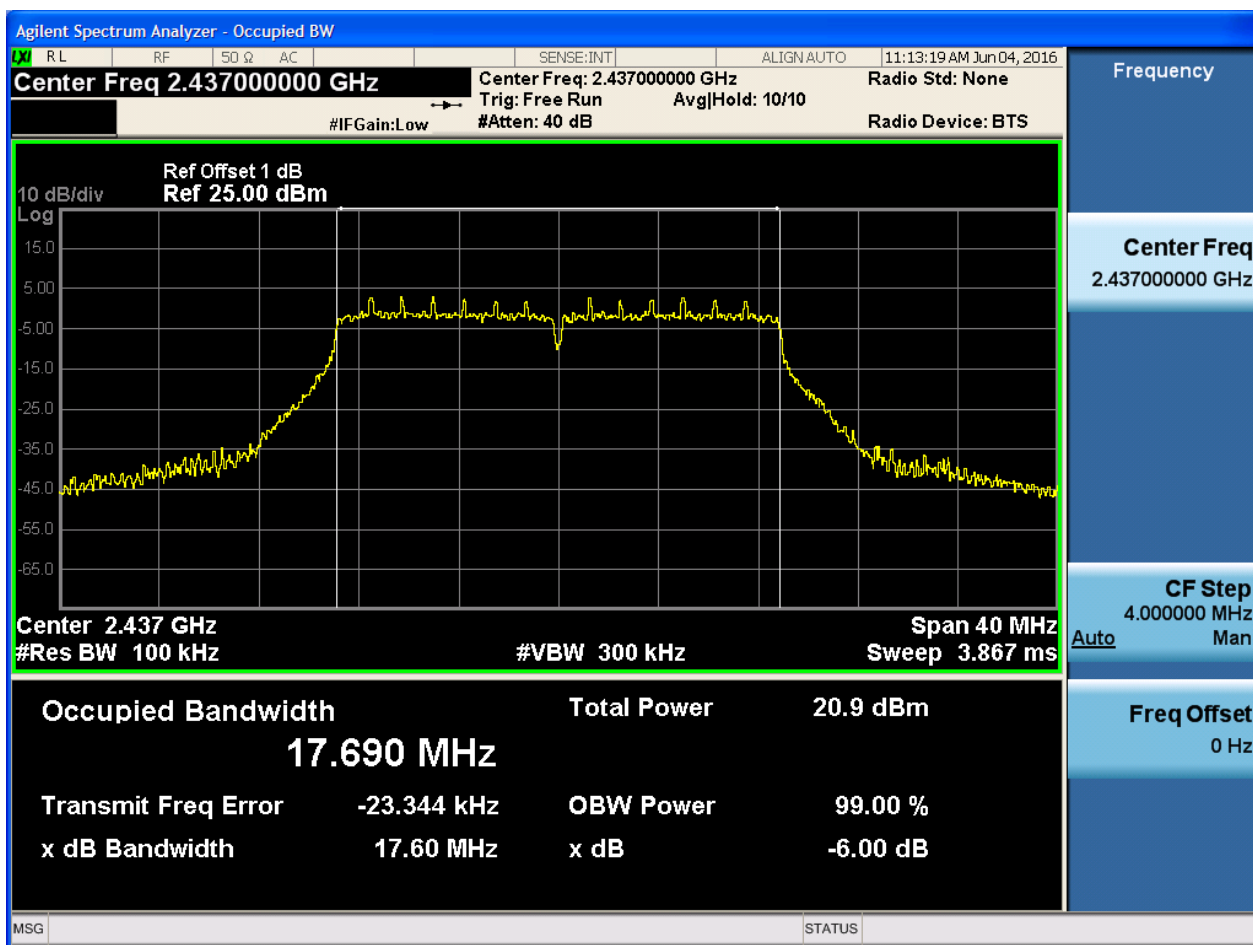


2.13 11N20_L@Ant 1



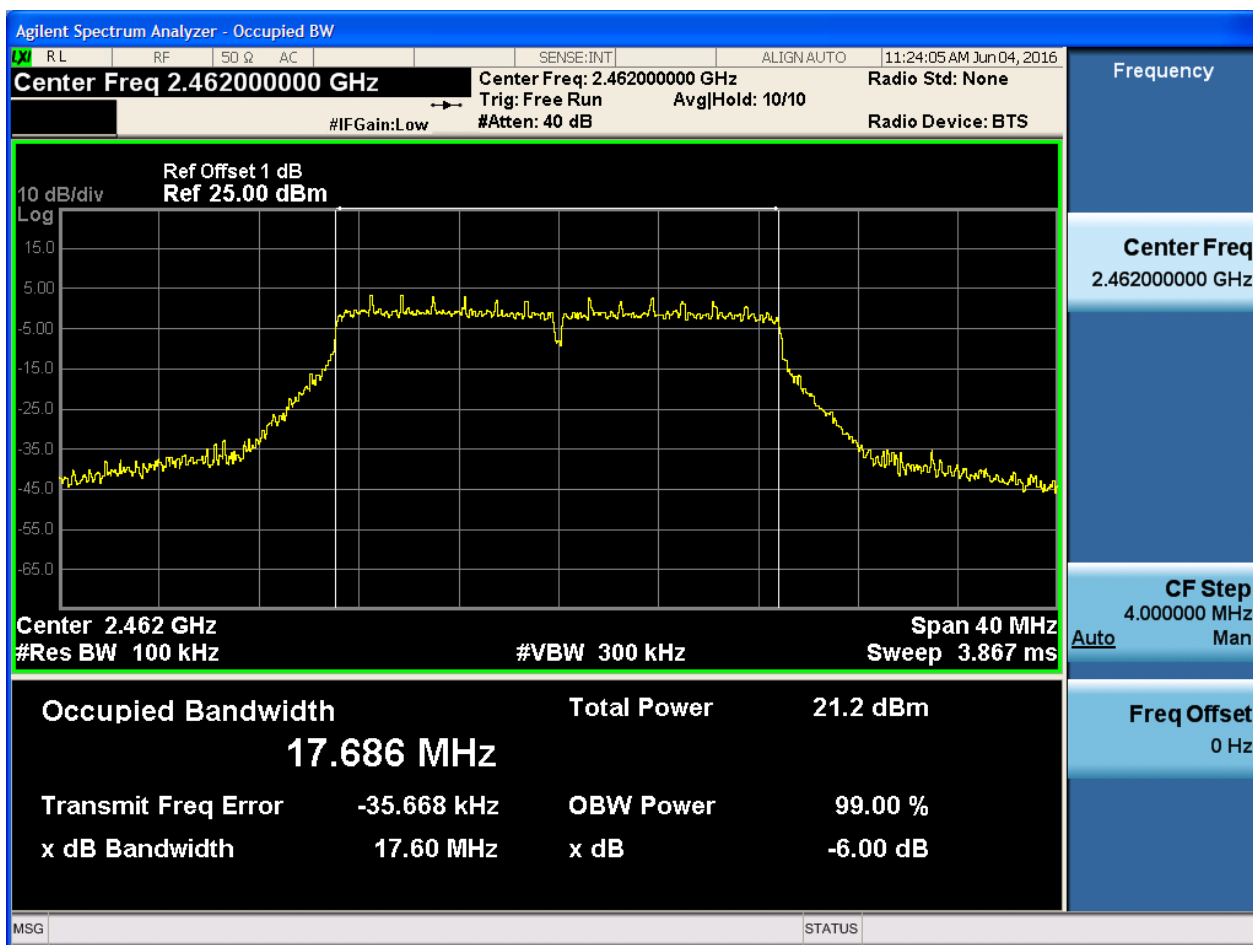


2.15 11N20_M@Ant 1



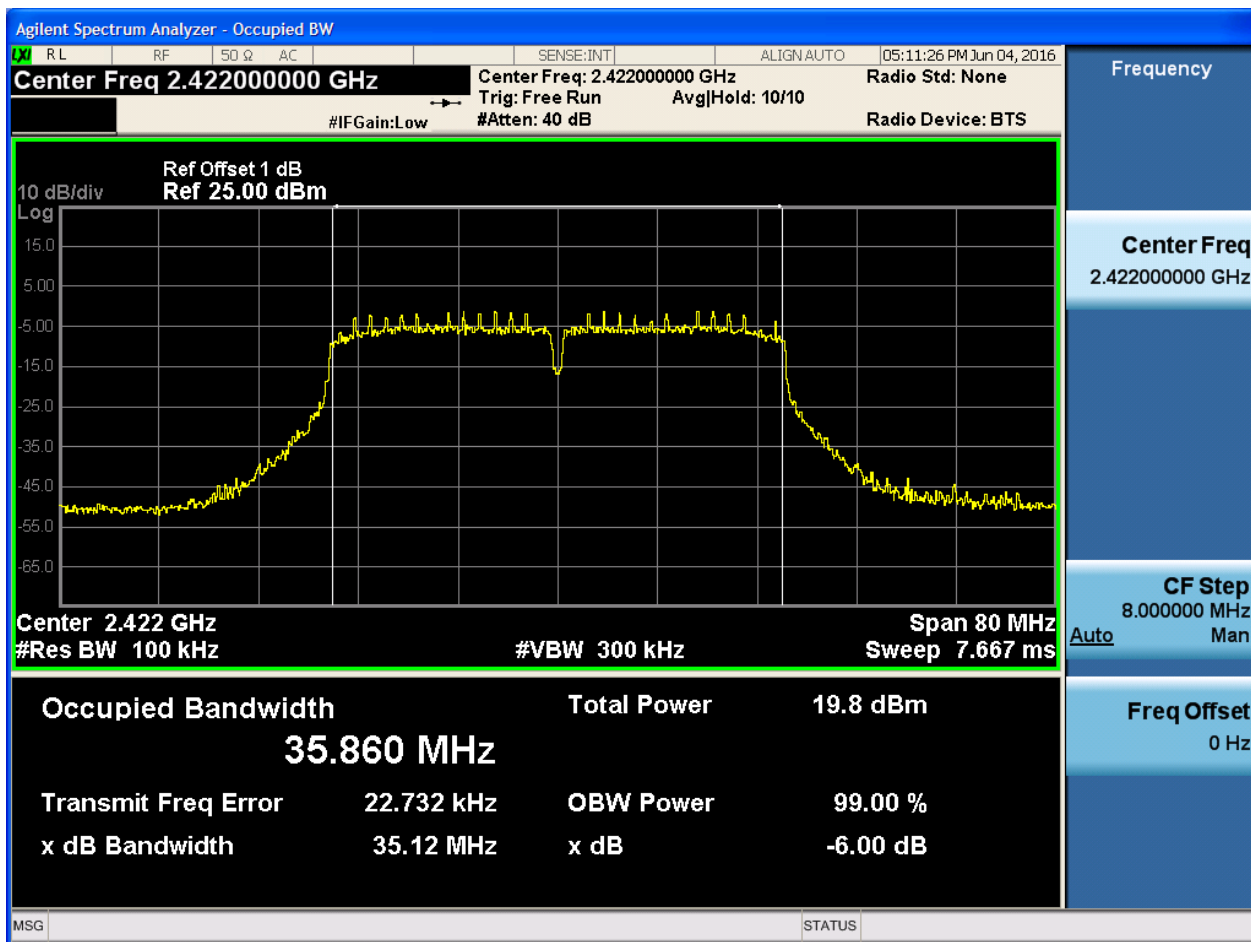


2.17 11N20_H@Ant 1



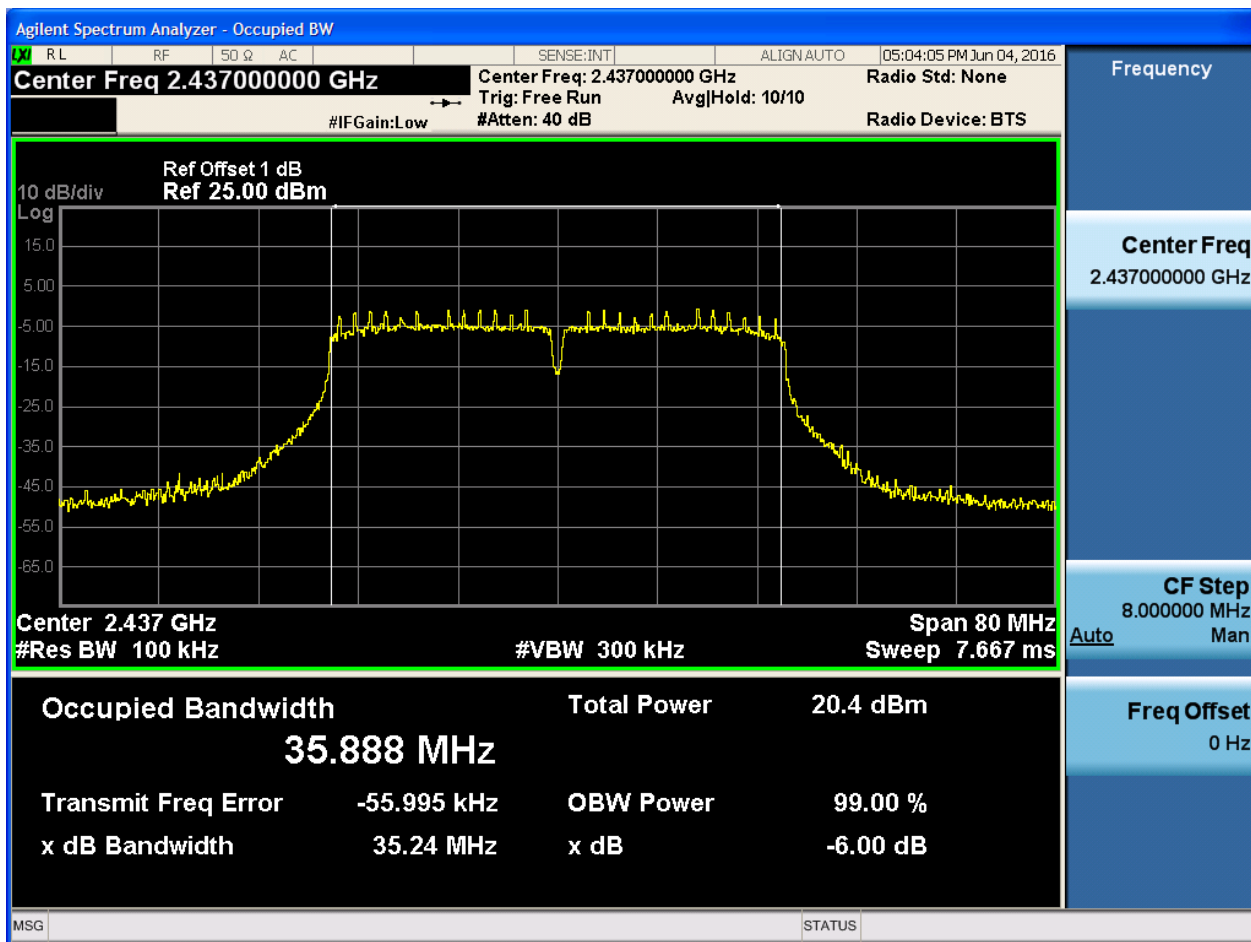


2.19 11N40_L@Ant 1



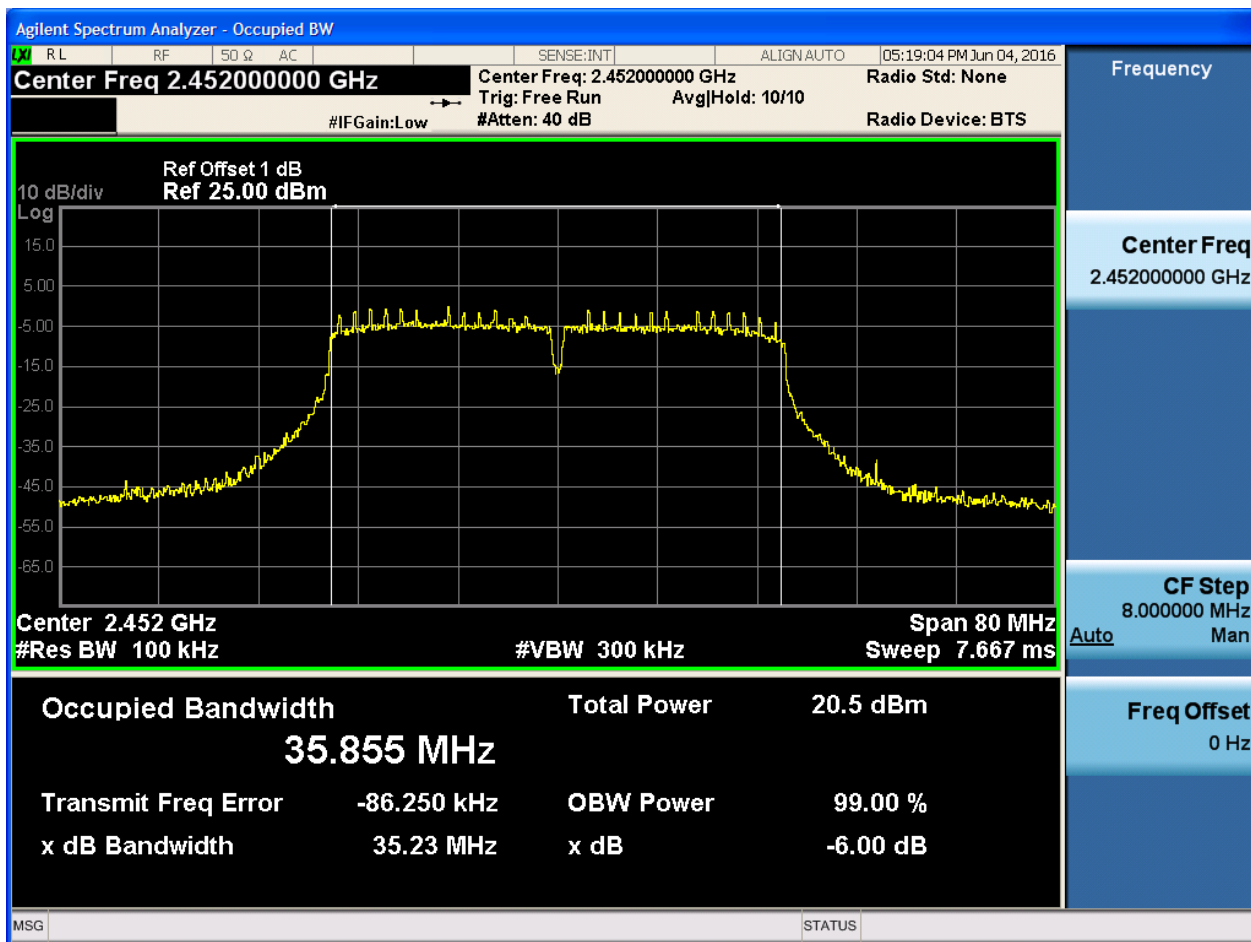


2.21 11N40_M@Ant 1





2.23 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.

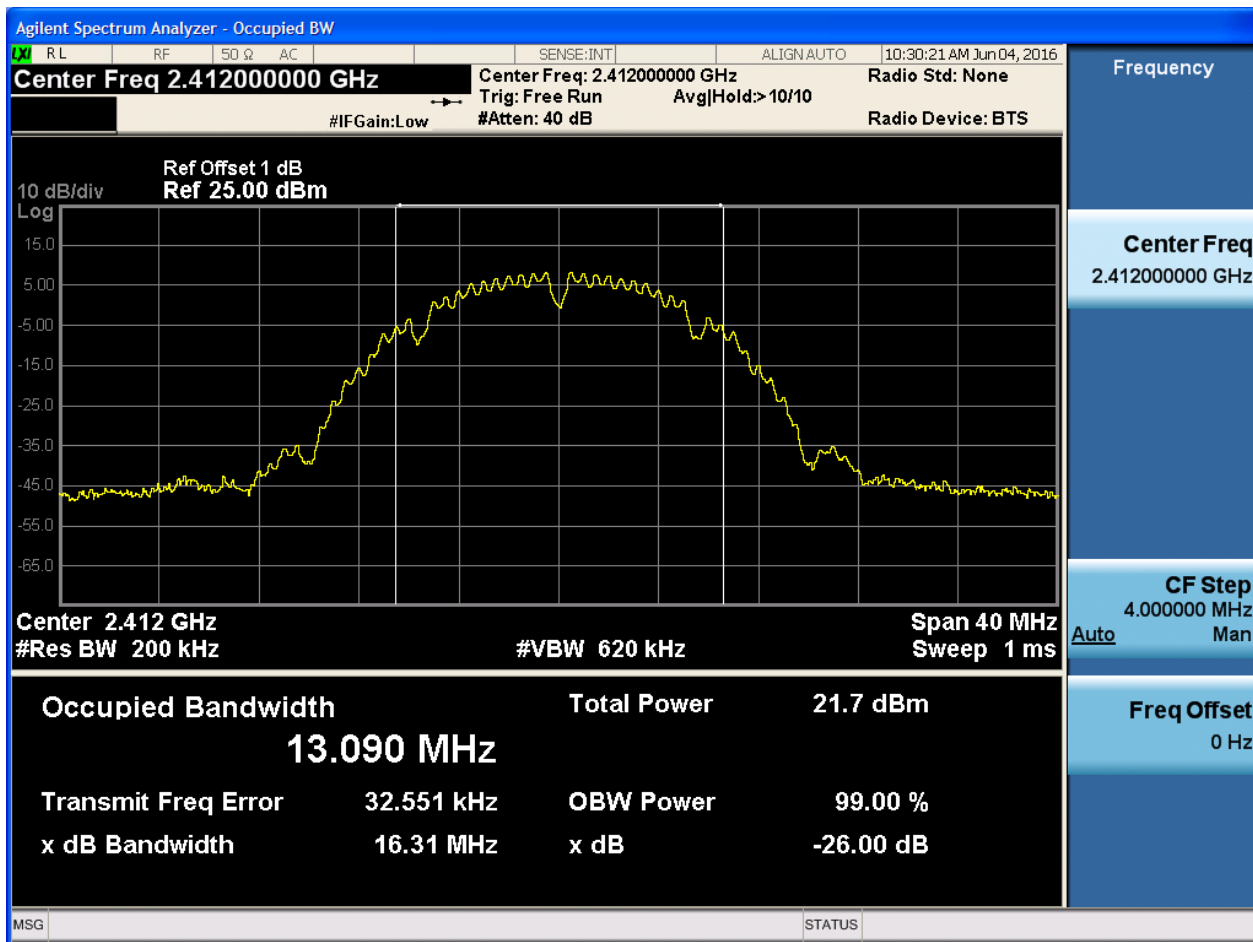
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Occupied Bandwidth [MHz]	Verdict
11B	L	2412	Ant 1	13.09	pass
11B	M	2437	Ant 1	13.14	pass
11B	H	2462	Ant 1	13.21	pass
11G	L	2412	Ant 1	16.74	pass
11G	M	2437	Ant 1	16.75	pass
11G	H	2462	Ant 1	16.76	pass
11N20	L	2412	Ant 1	17.79	pass
11N20	M	2437	Ant 1	17.85	pass
11N20	H	2462	Ant 1	17.84	pass
11N40	L	2422	Ant 1	36.05	pass
11N40	M	2437	Ant 1	36.11	pass
11N40	H	2452	Ant 1	36.11	pass



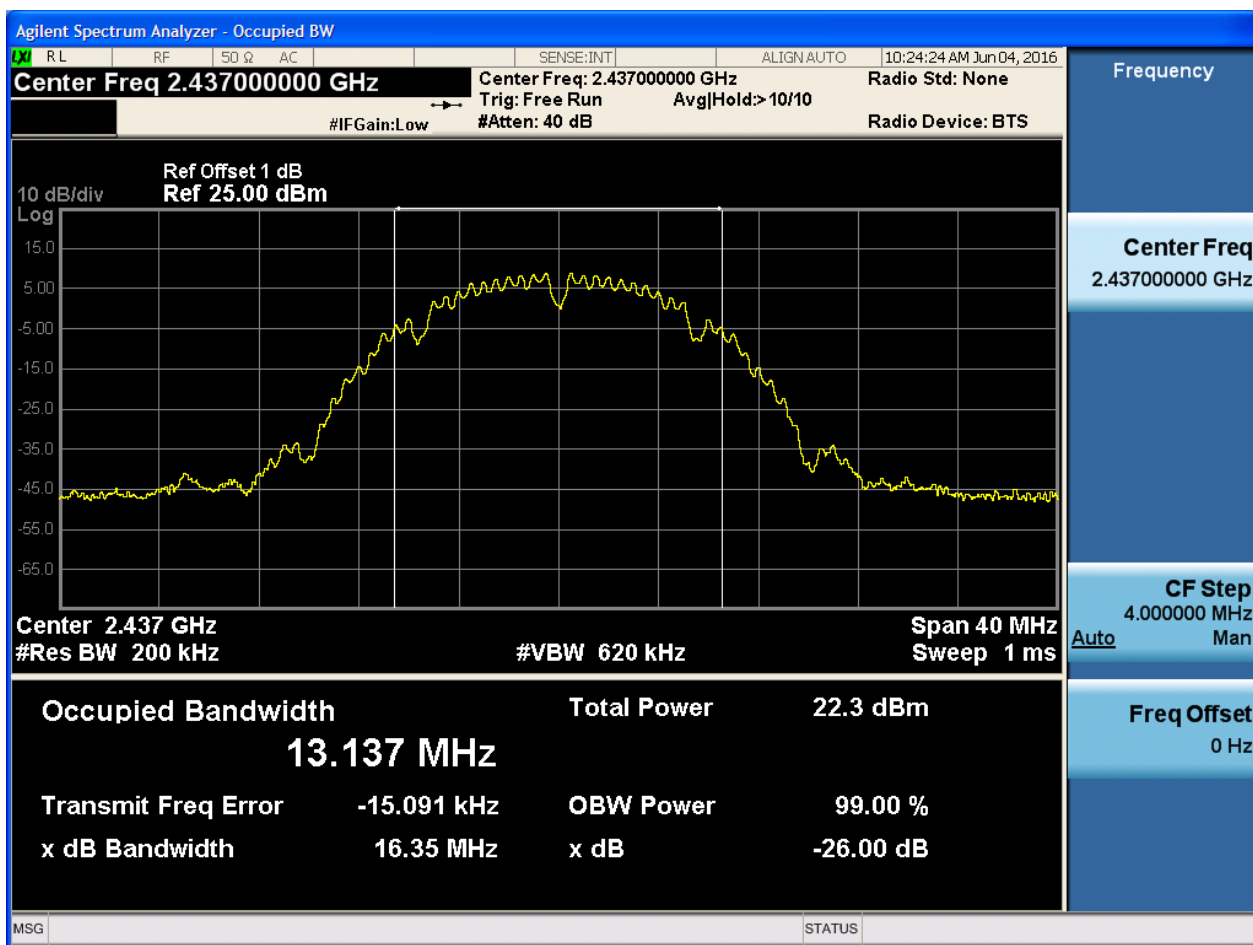
Part II - Test Plots

2.1 11B_L@Ant 1



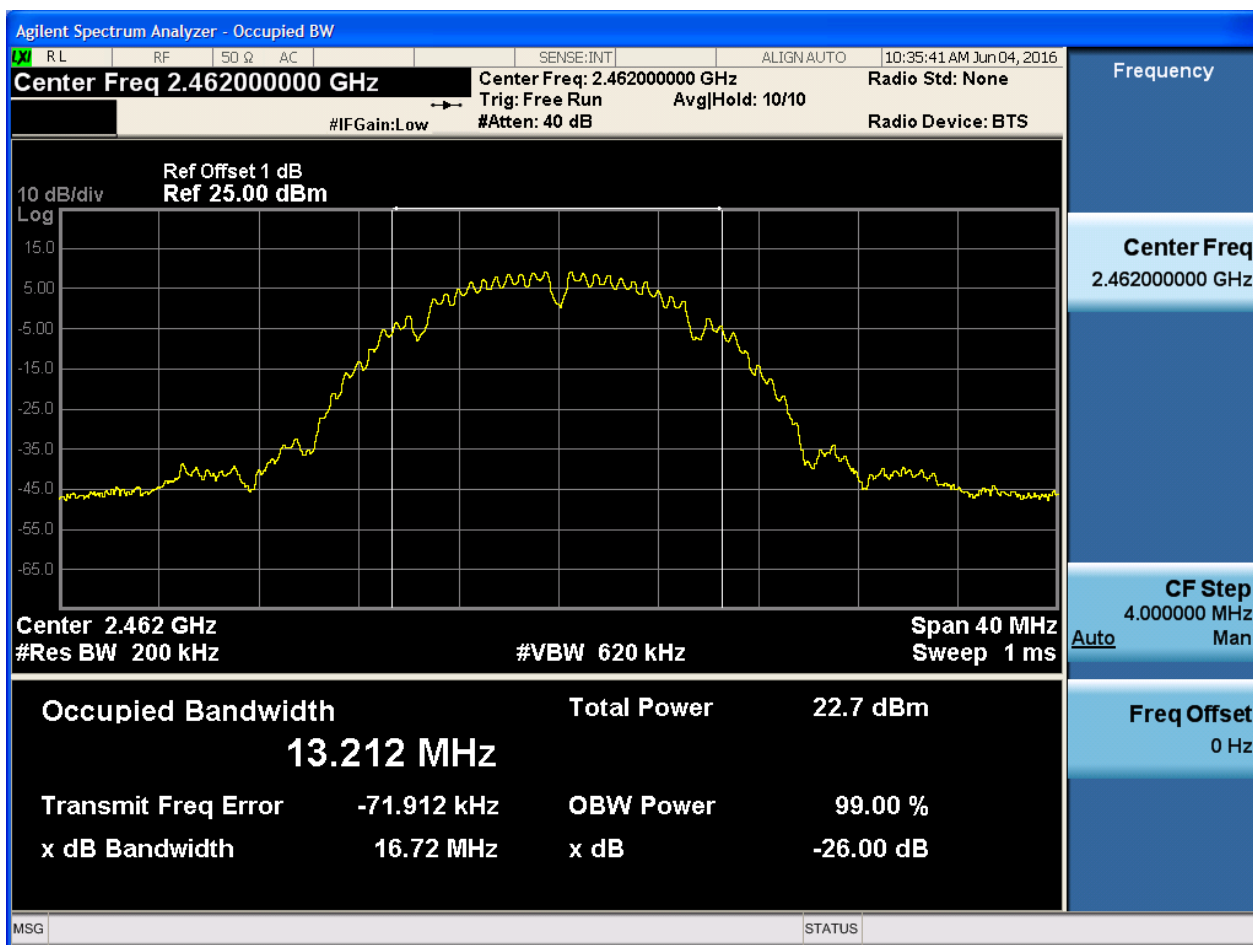


2.3 11B_M@Ant 1



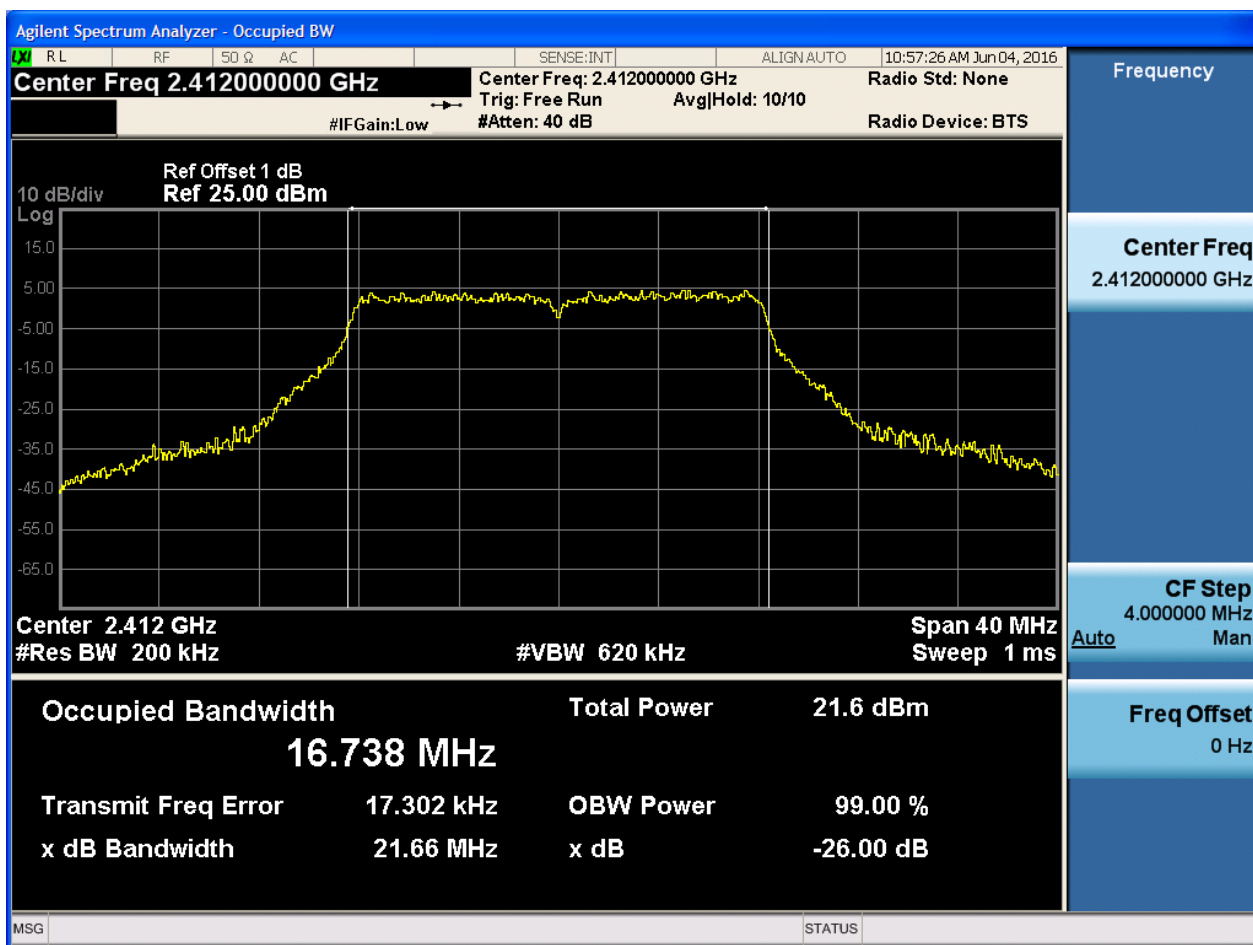


2.5 11B_H@Ant 1



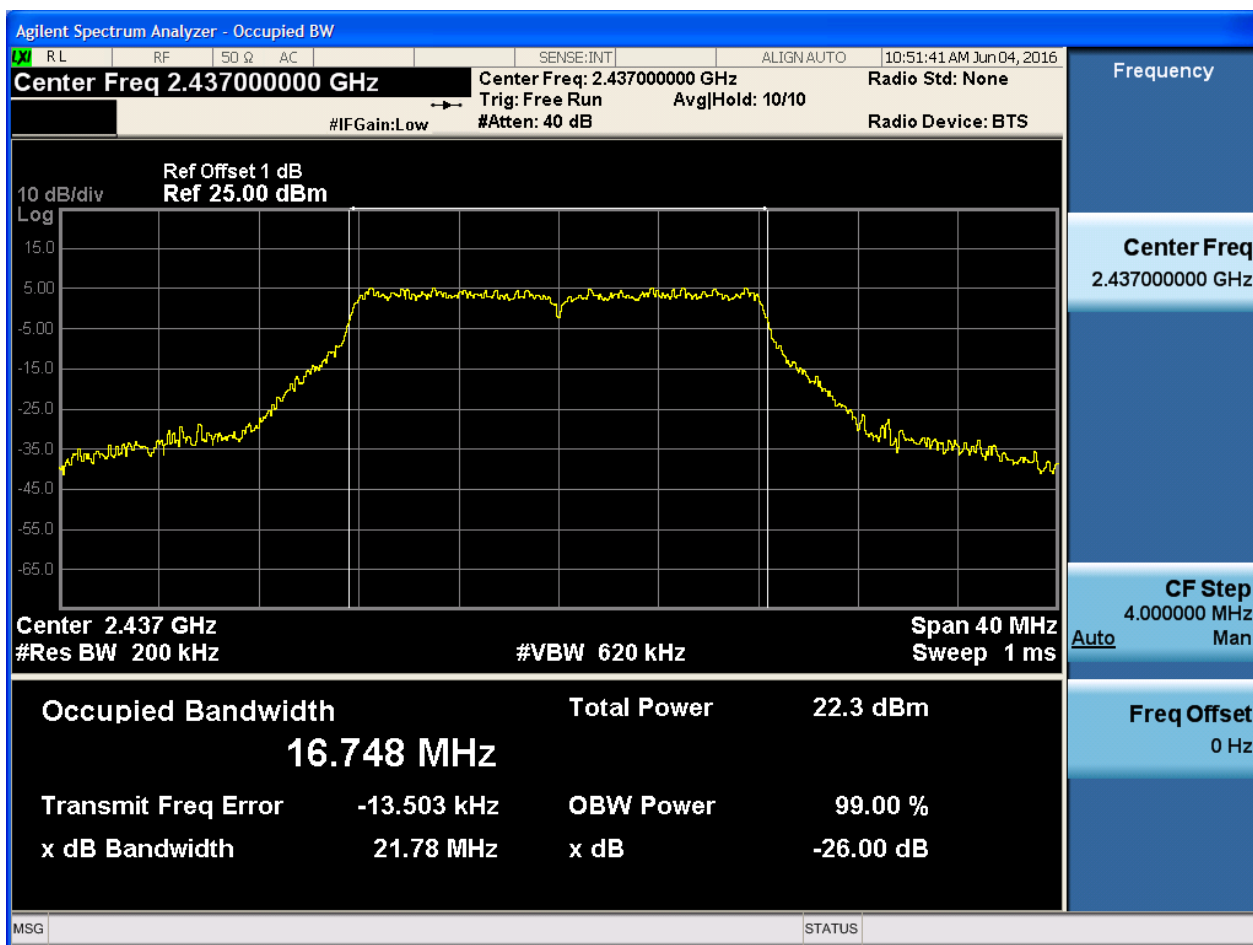


2.7 11G_L@Ant 1



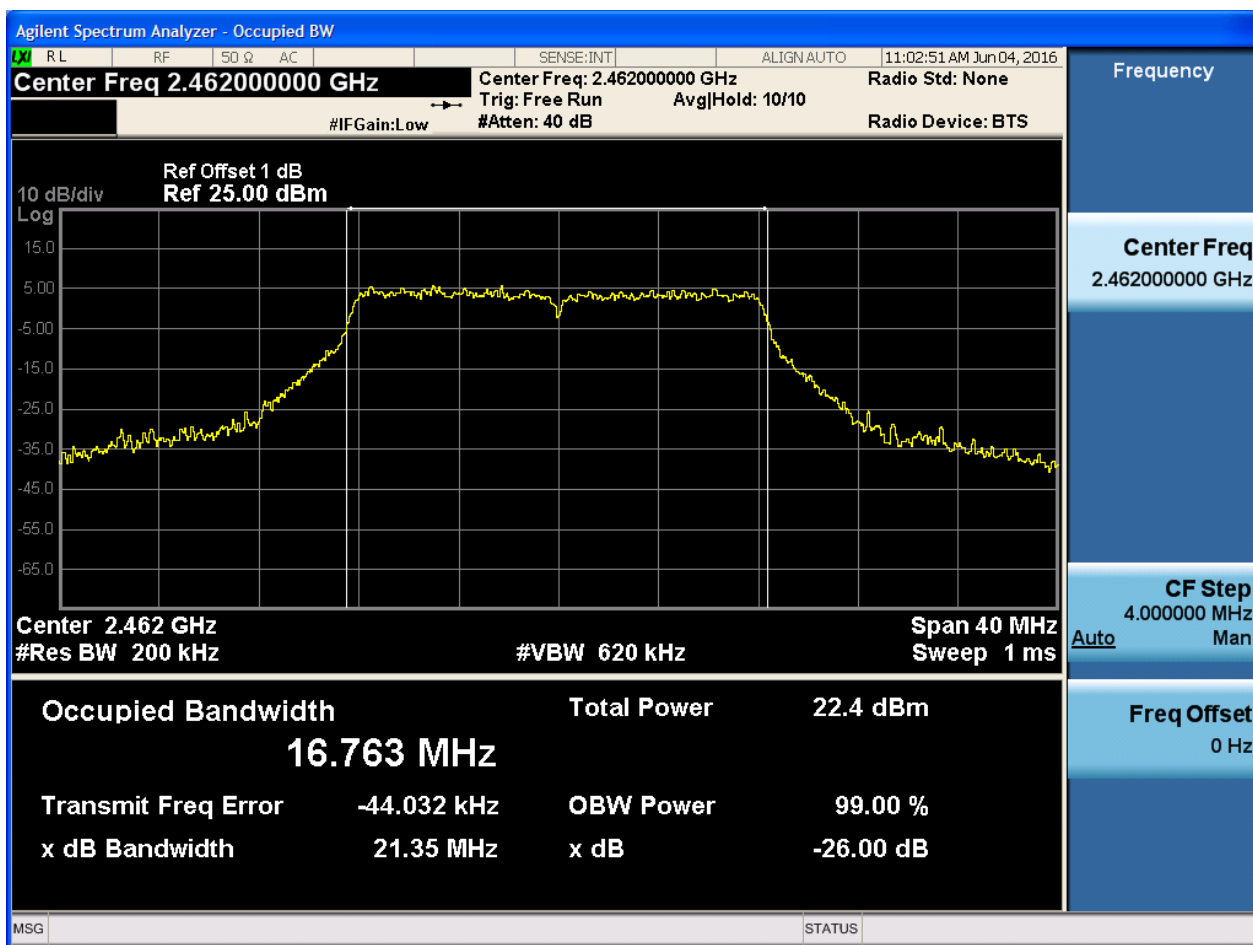


2.9 11G_M@Ant 1



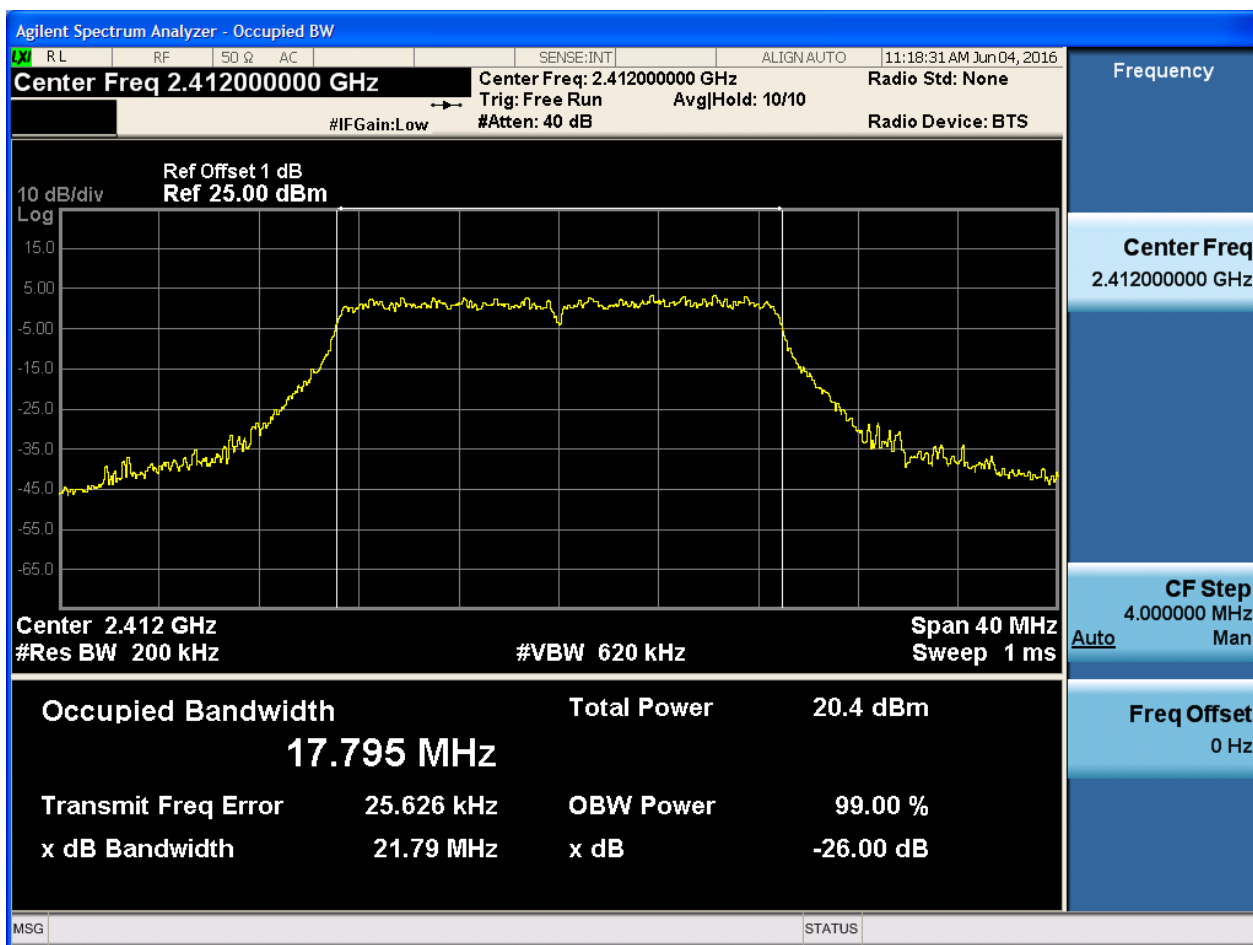


2.11 11G_H@Ant 1



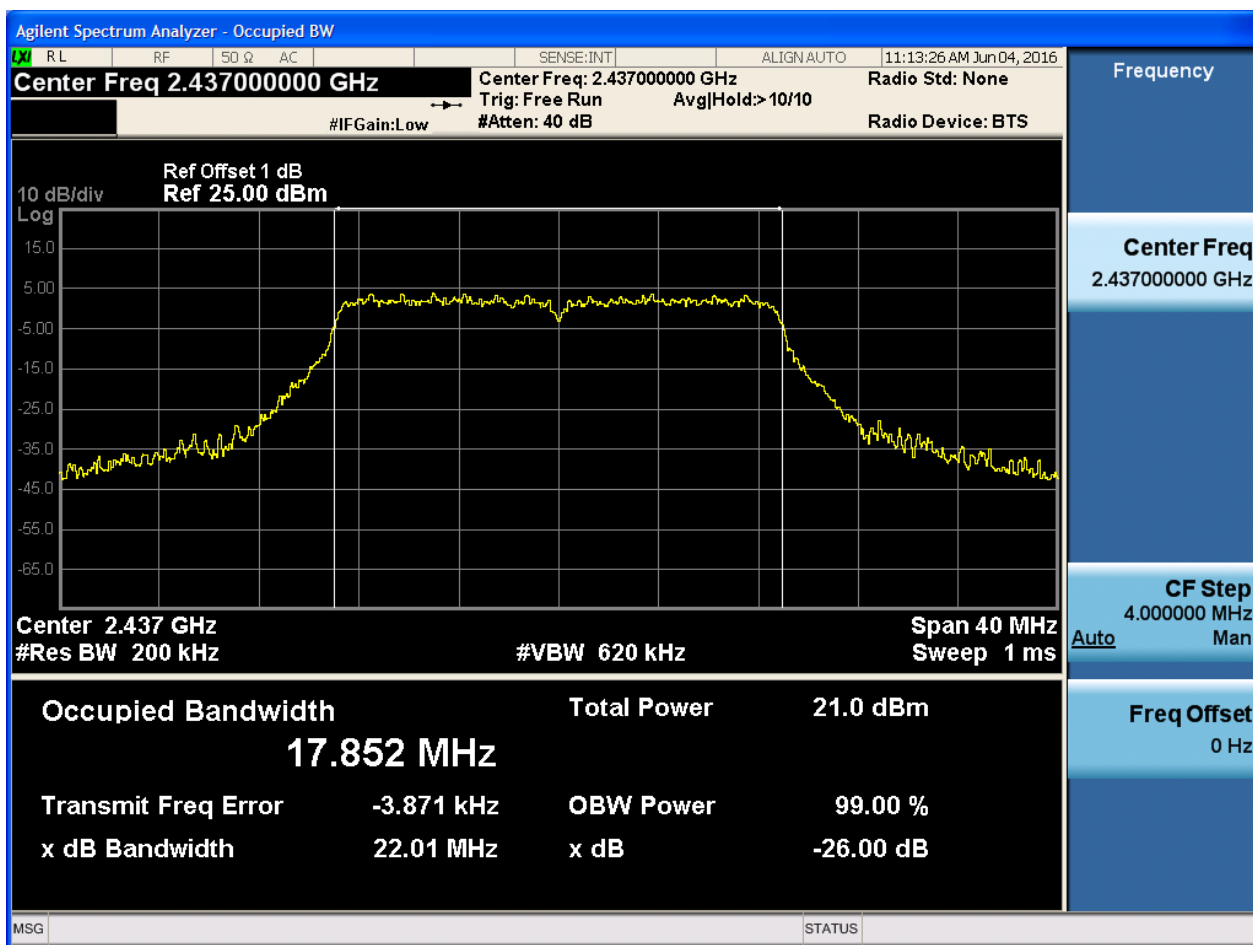


2.13 11N20_L@Ant 1



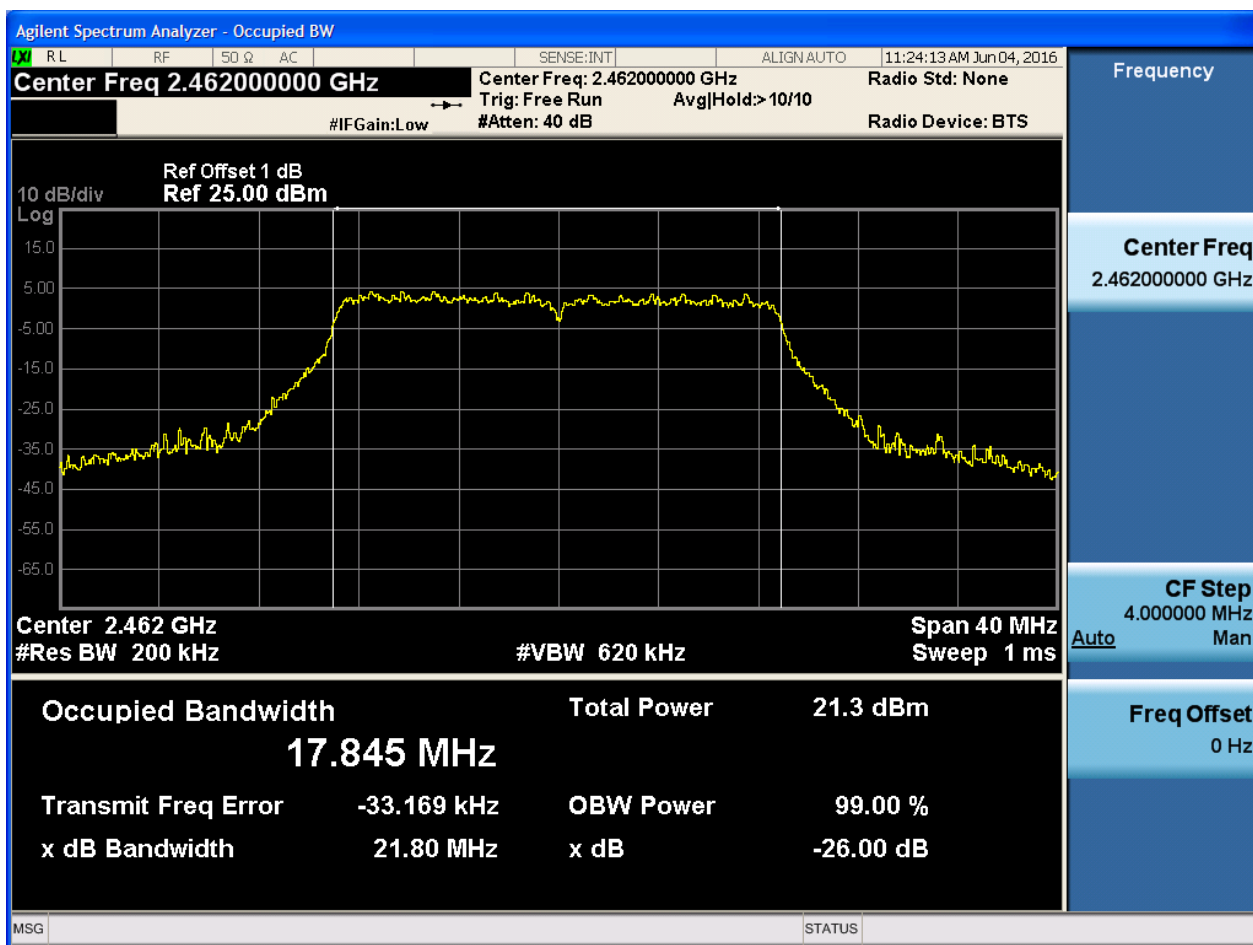


2.15 11N20_M@Ant 1



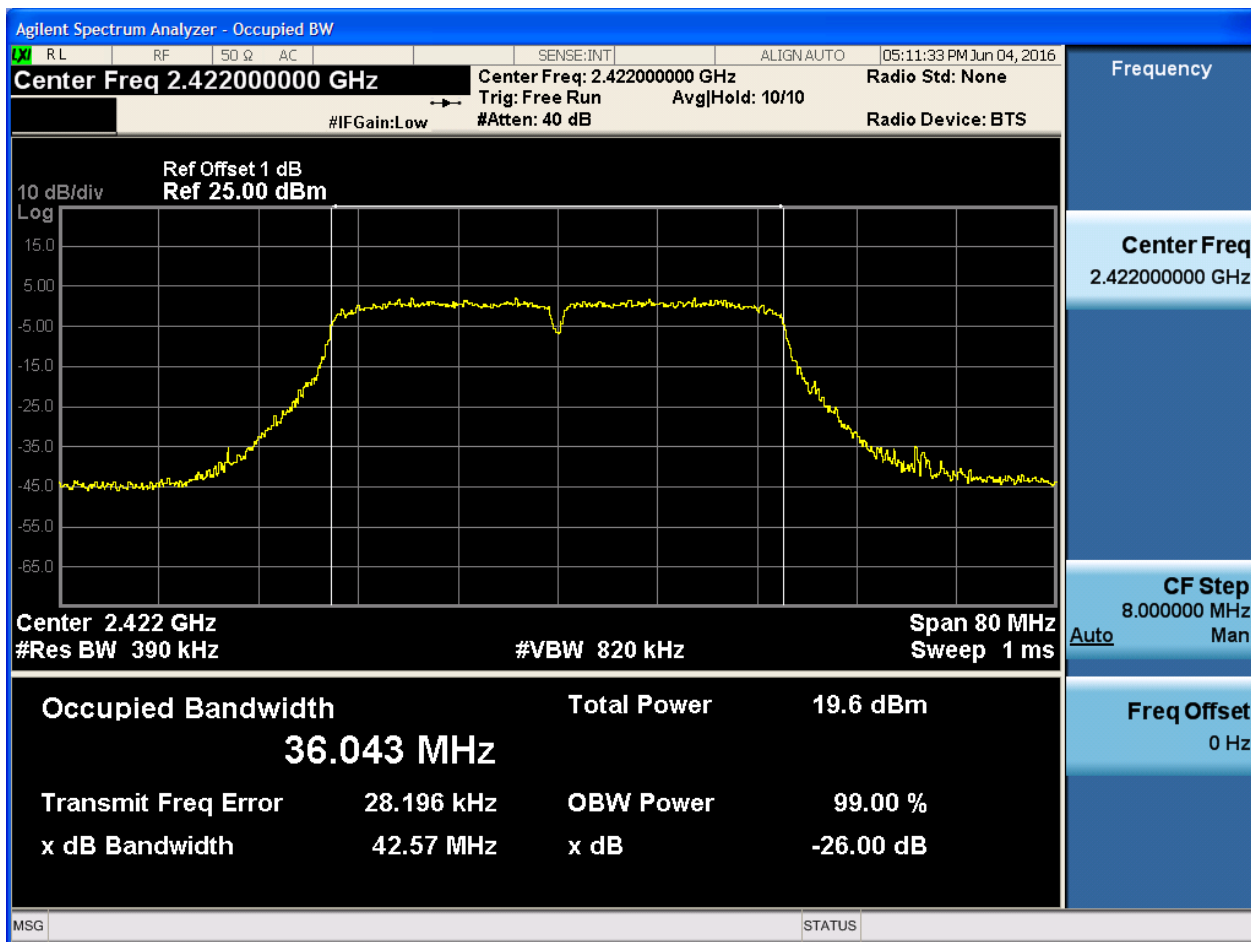


2.17 11N20_H@Ant 1



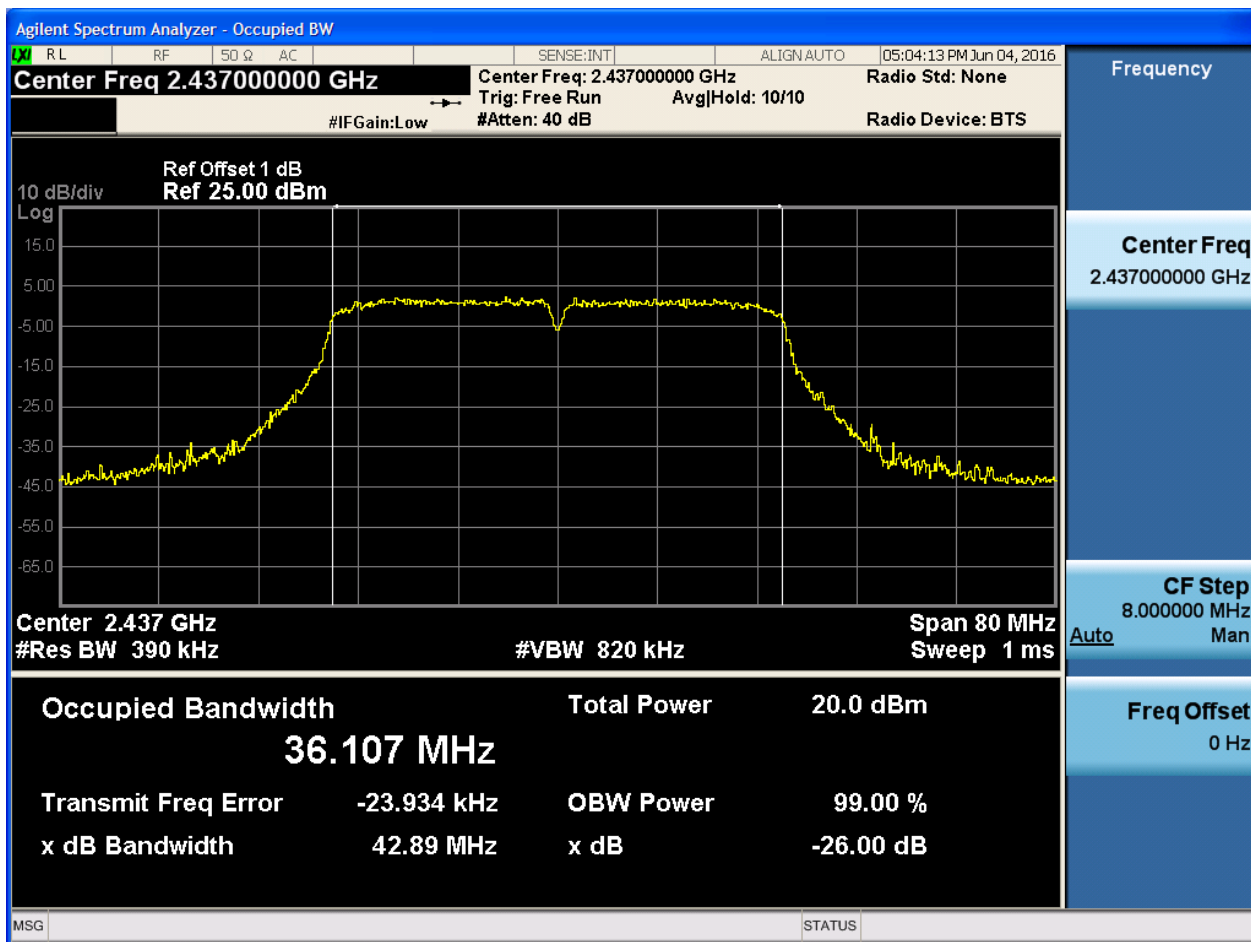


2.19 11N40_L@Ant 1



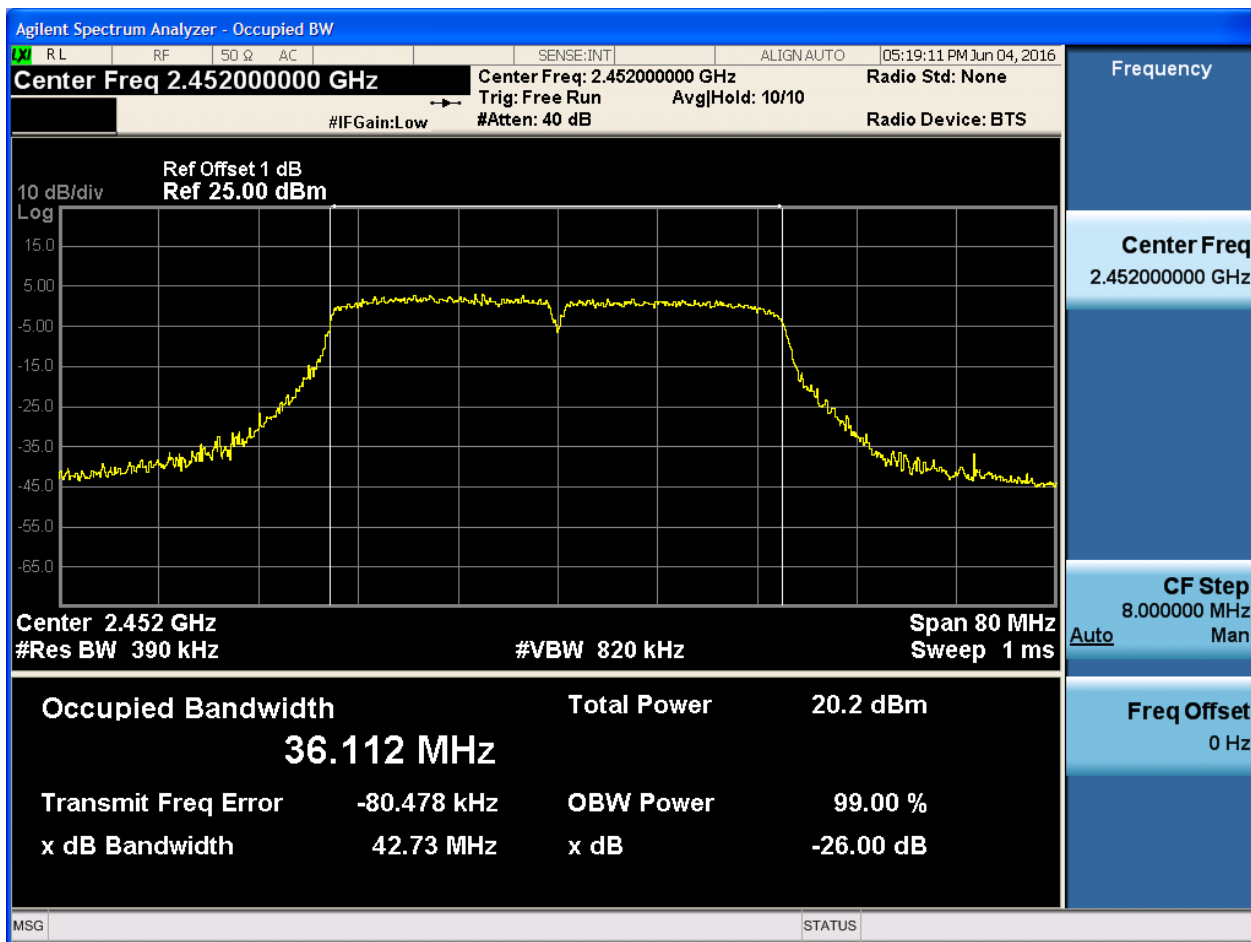


2.21 11N40_M@Ant 1





2.23 11N40_H@Ant 1



Appendix C: Duty cycle

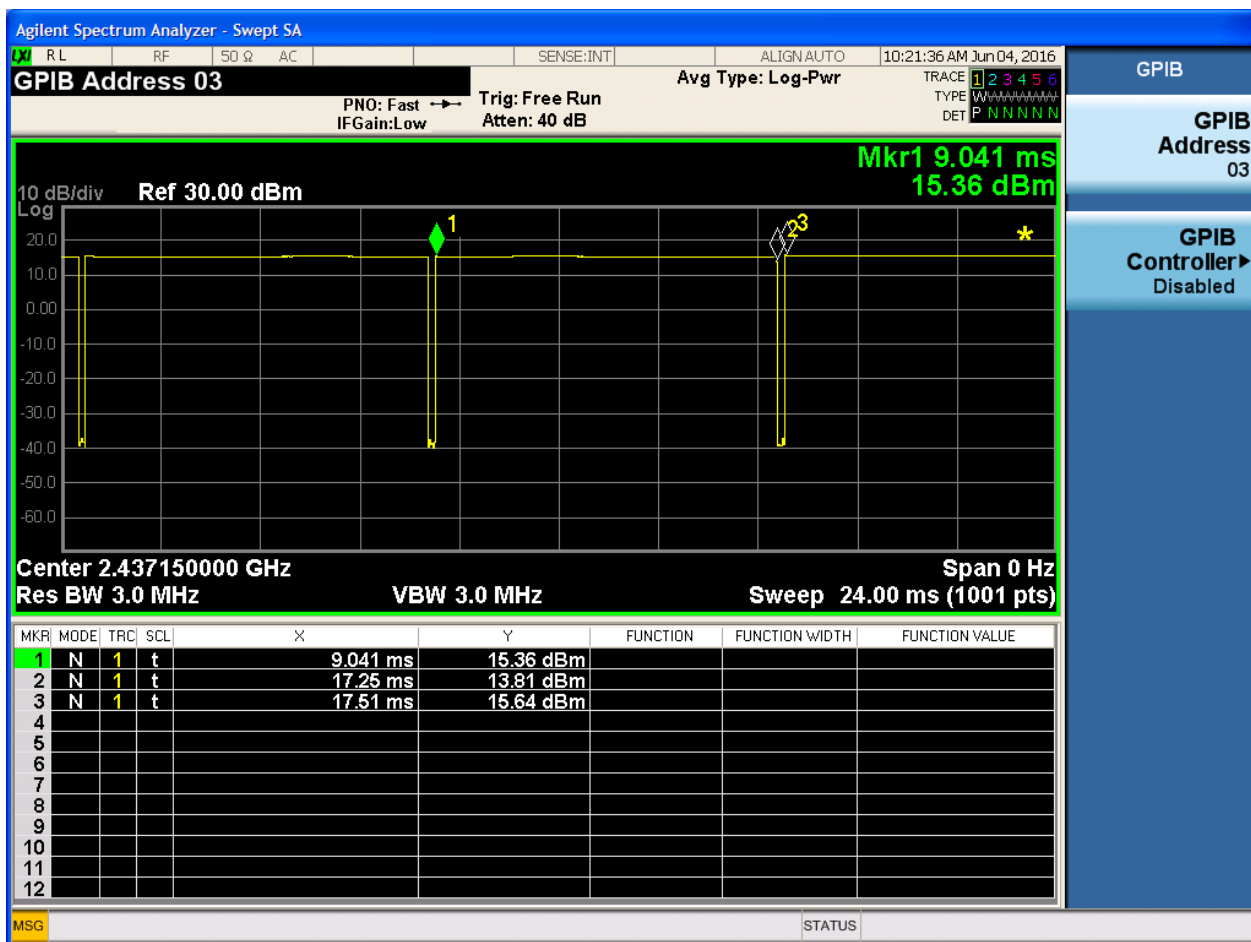
Part I - Test Results

Test Mode	TX Freq. [MHz]	Ant	Duty cycle [%]
11B	CH1,CH6,CH11	Ant 1	97
11G	CH1,CH6,CH11	Ant 1	87
11N20SISO	CH1,CH6,CH11	Ant 1	86
11N40SISO	CH3,CH6,CH9	Ant 1	74



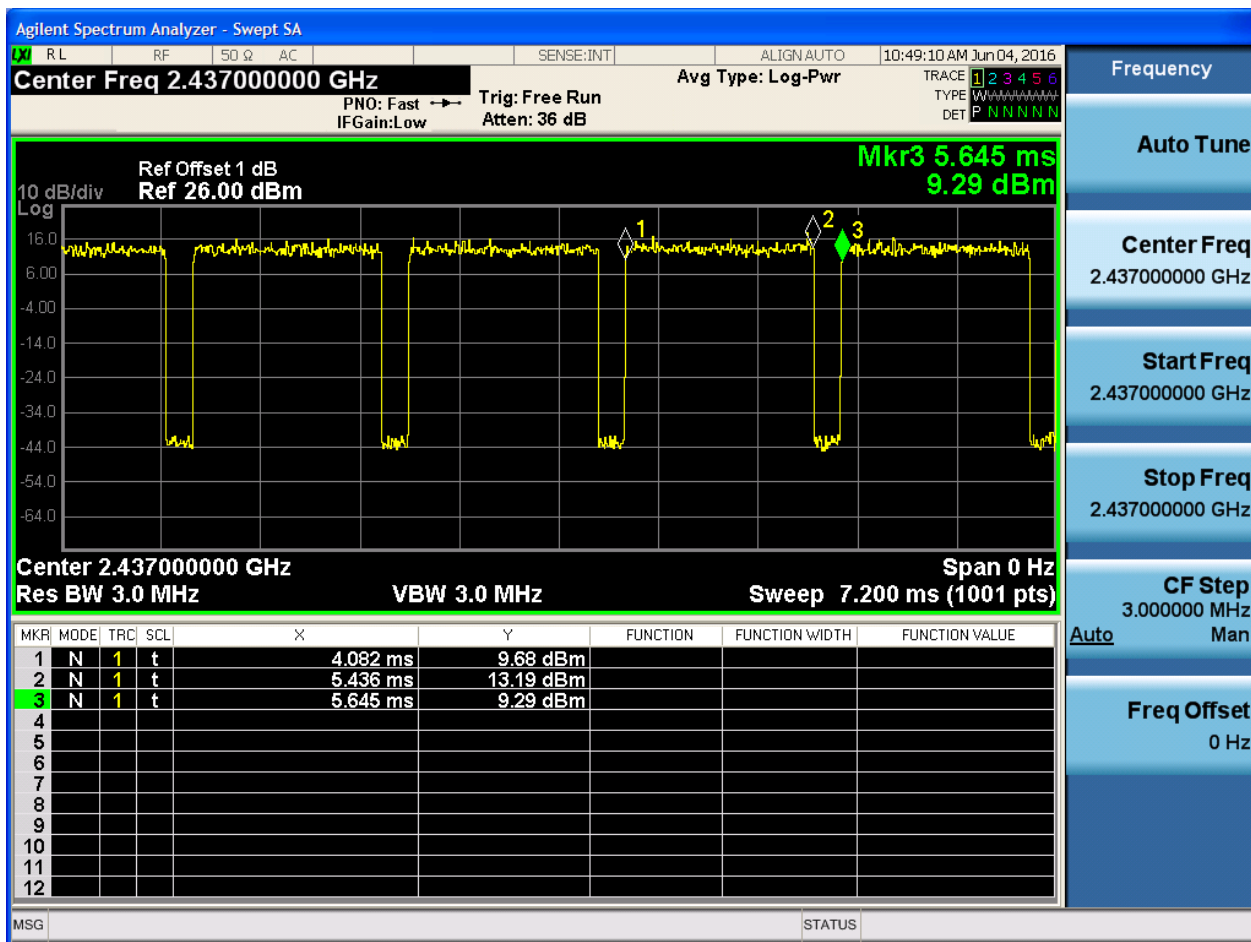
Part II - Test Plots

2.1 11B_M@Ant 1



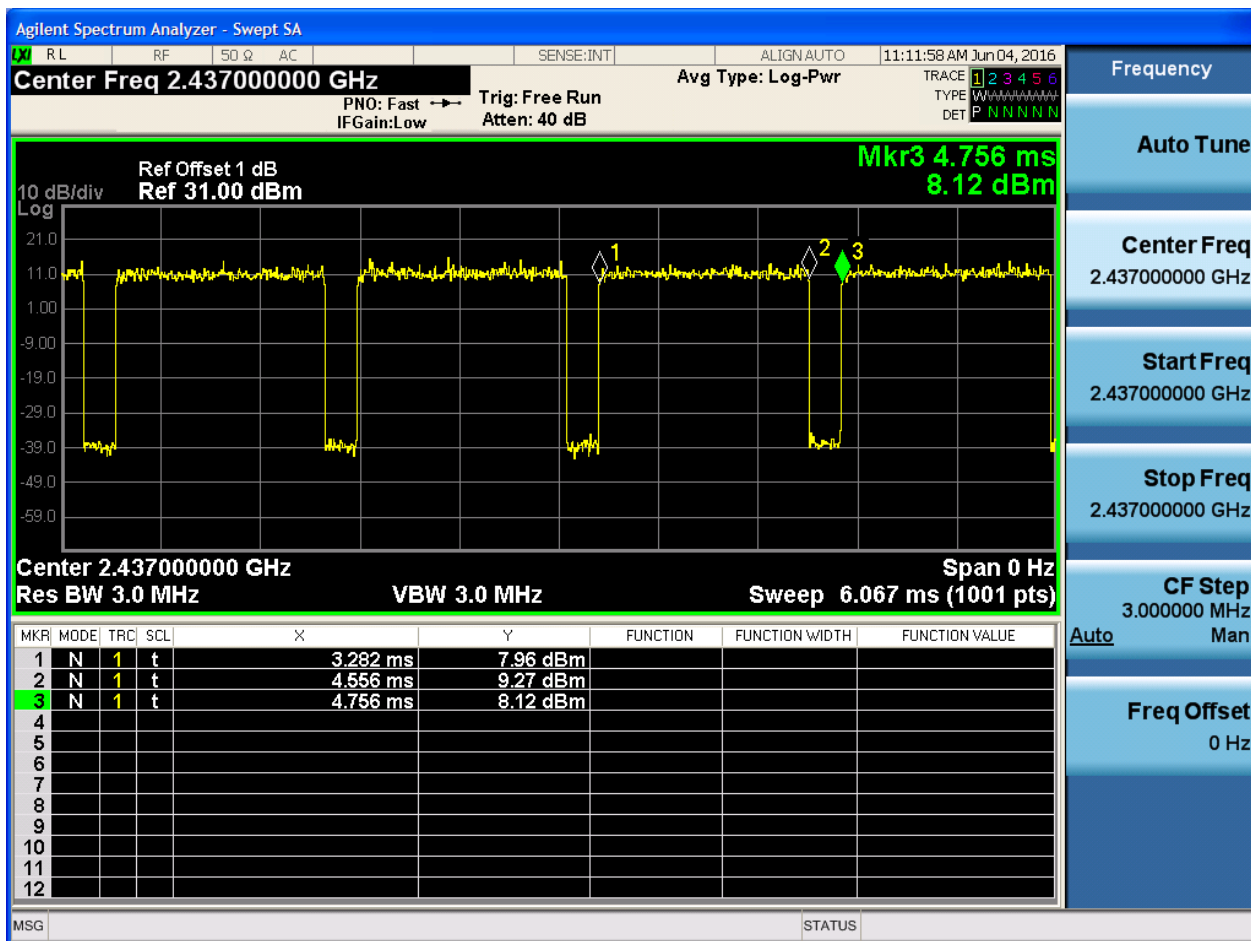


2.2 11G_M@Ant 1

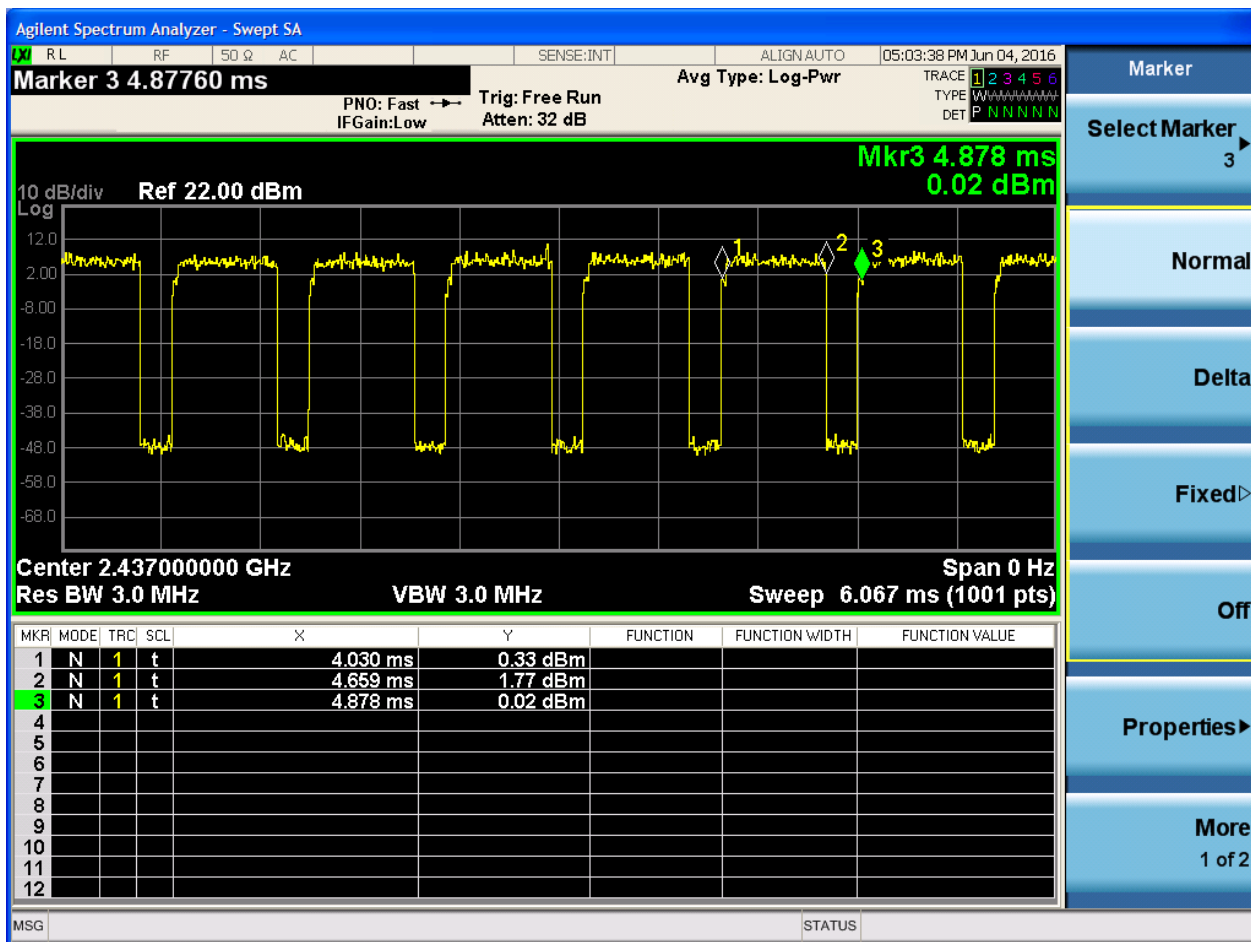




2.3 11N20SISO_M@Ant 1



2.4 11N40SISO_M@Ant 1



Appendix D: Maximum Conducted Average Output Power

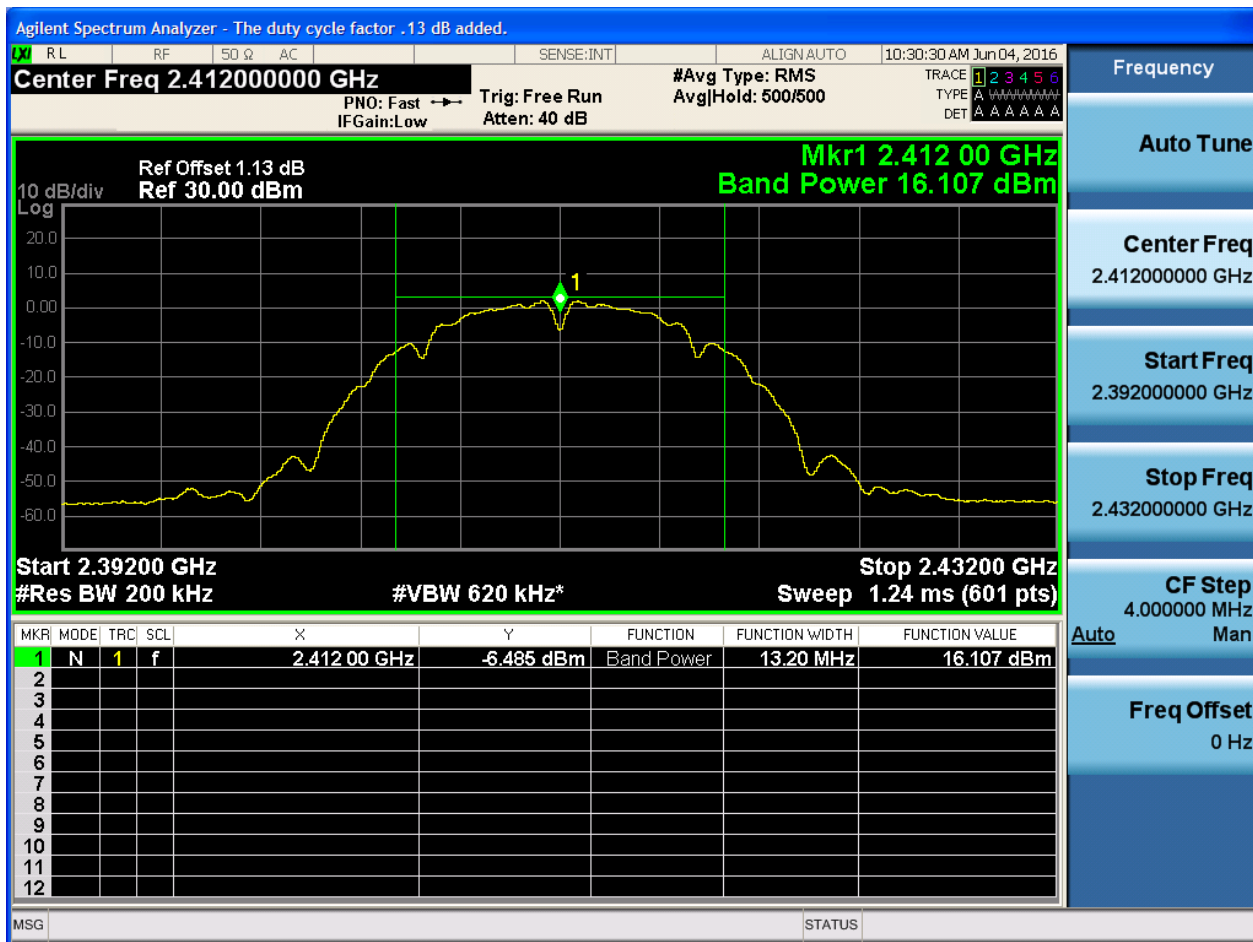
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Power[dBm]	Verdict
11B	L	2412	Ant 1	16.11	pass
11B	M	2437	Ant 1	16.74	pass
11B	H	2462	Ant 1	17.17	pass
11G	L	2412	Ant 1	14.38	pass
11G	M	2437	Ant 1	14.99	pass
11G	H	2462	Ant 1	15.03	pass
11N20	L	2412	Ant 1	13.06	pass
11N20	M	2437	Ant 1	13.73	pass
11N20	H	2462	Ant 1	13.98	pass
11N40	L	2422	Ant 1	12.52	pass
11N40	M	2437	Ant 1	12.93	pass
11N40	H	2452	Ant 1	13.10	pass



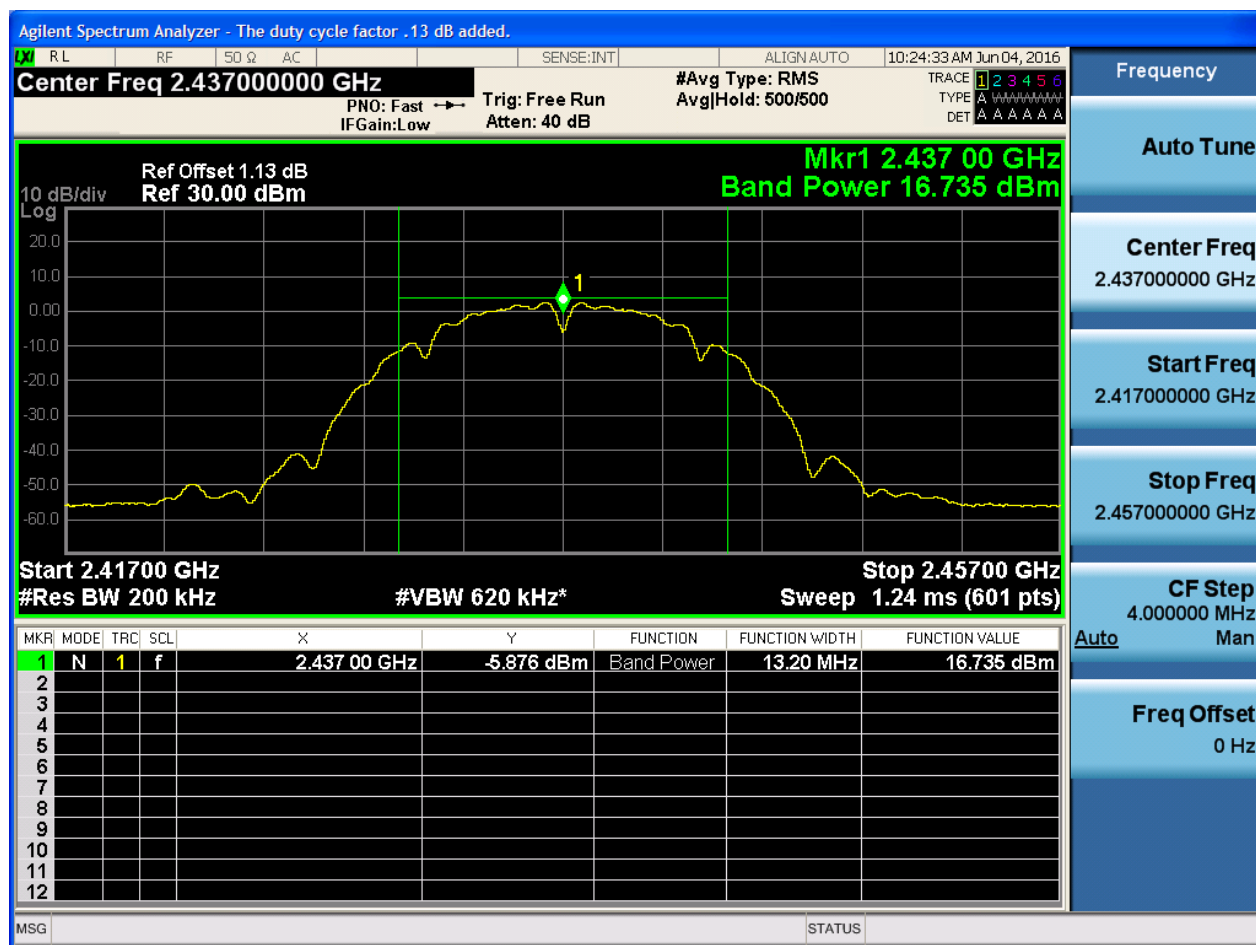
Part II - Test Plots

2.1 11B_L@Ant 1



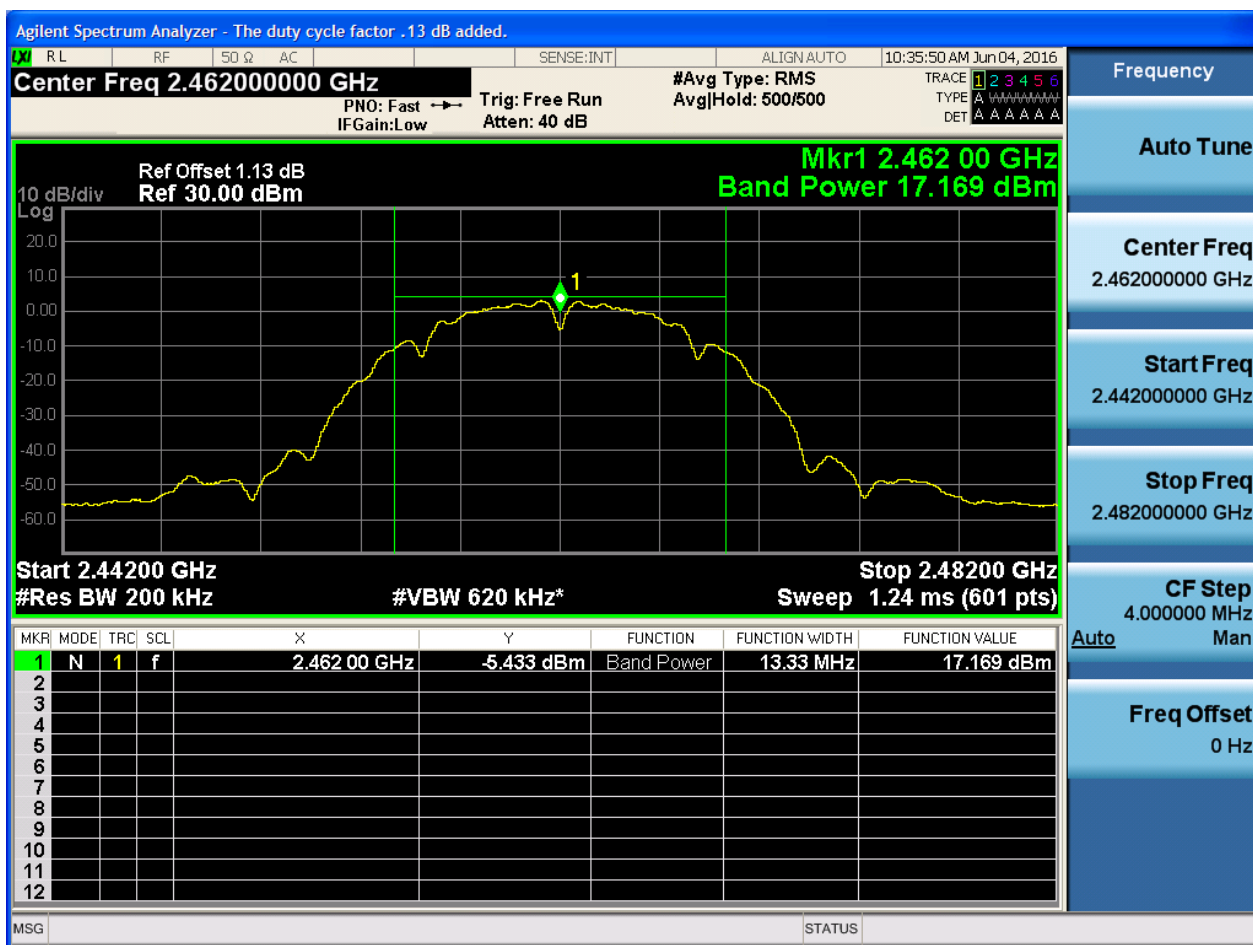


2.3 11B_M@Ant 1



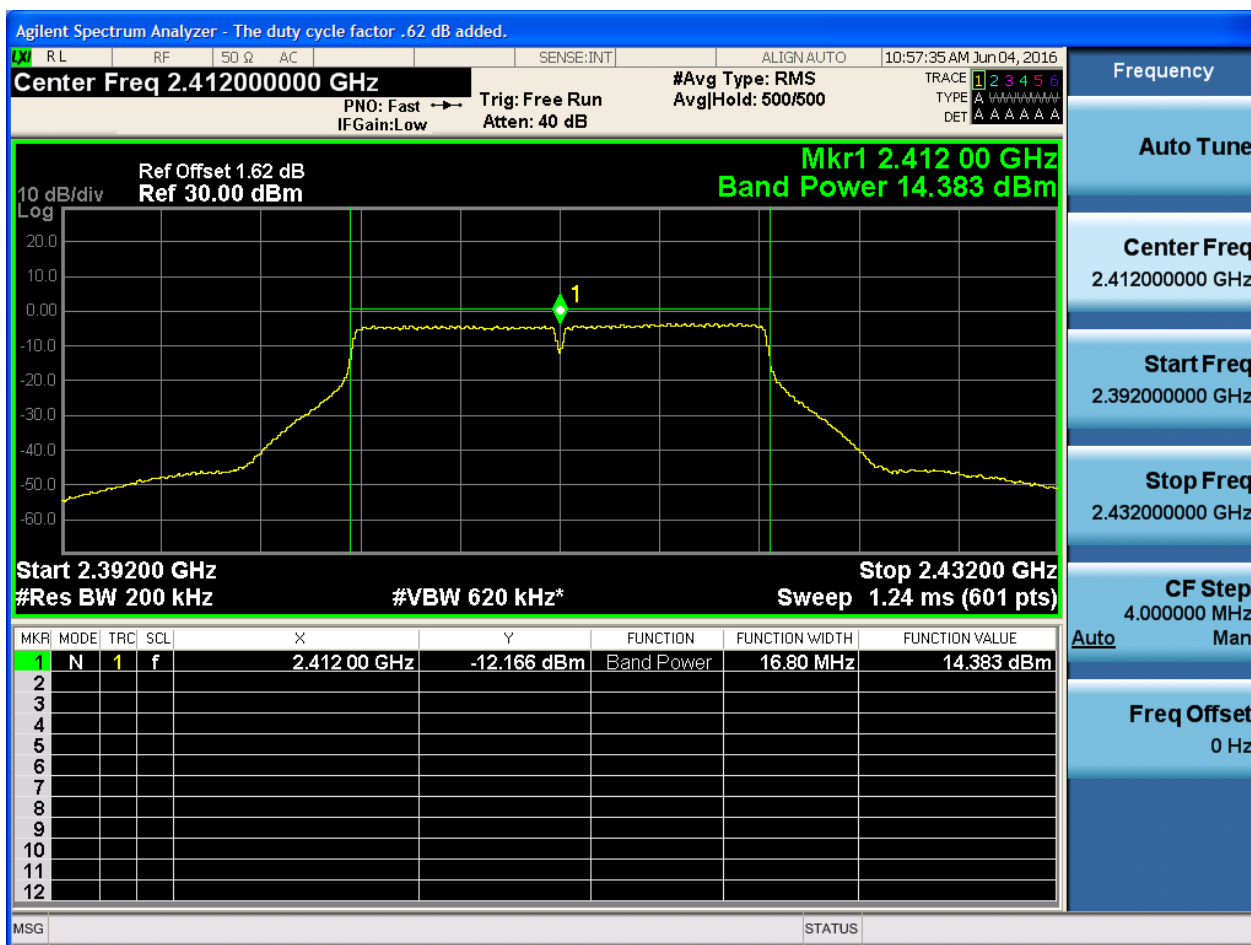


2.5 11B_H@Ant 1



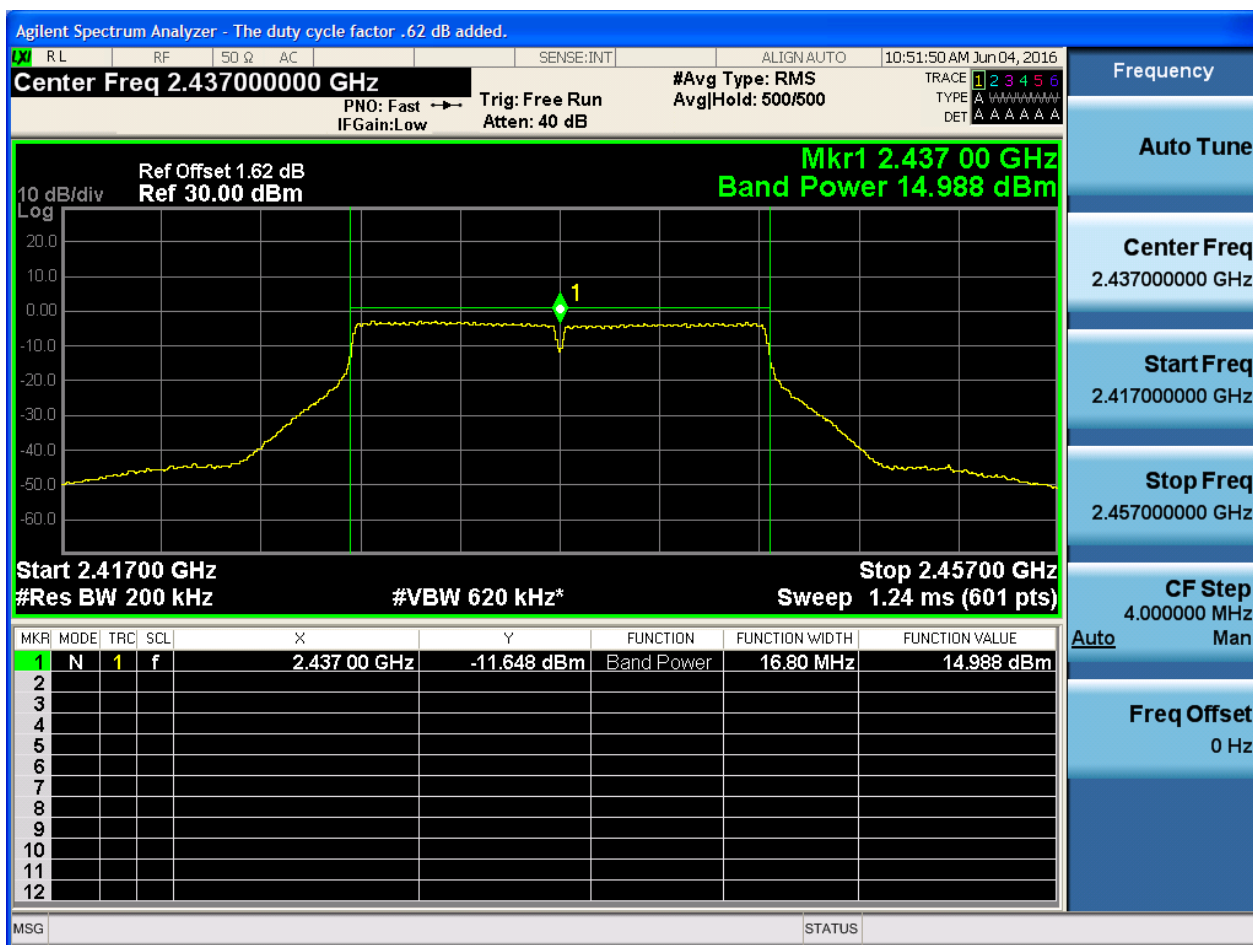


2.7 11G_L@Ant 1



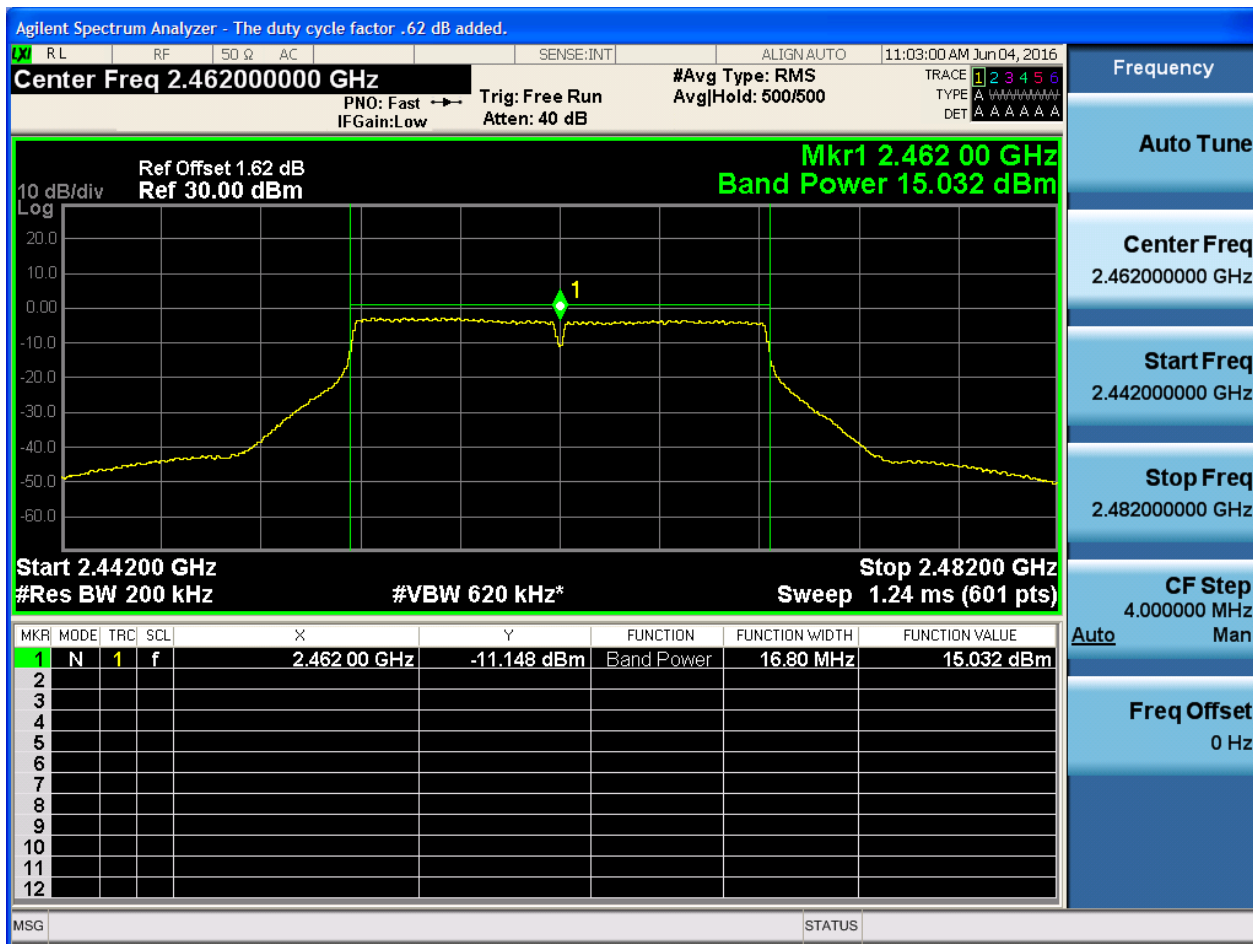


2.9 11G_M@Ant 1





2.11 11G_H@Ant 1





Agilent Spectrum Analyzer - The duty cycle factor .63 dB added.

RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 11:18:40 AM Jun 04, 2016

Center Freq 2.41200000 GHz #Avg Type: RMS Avg|Hold: 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 1.63 dB
 Ref 30.00 dBm

**Mkr1 2.412 00 GHz
 Band Power 13.063 dBm**

10 dB/div Log

Start 2.39200 GHz #Res BW 200 kHz #VBW 620 kHz* Stop 2.43200 GHz Sweep 1.24 ms (601 pts)

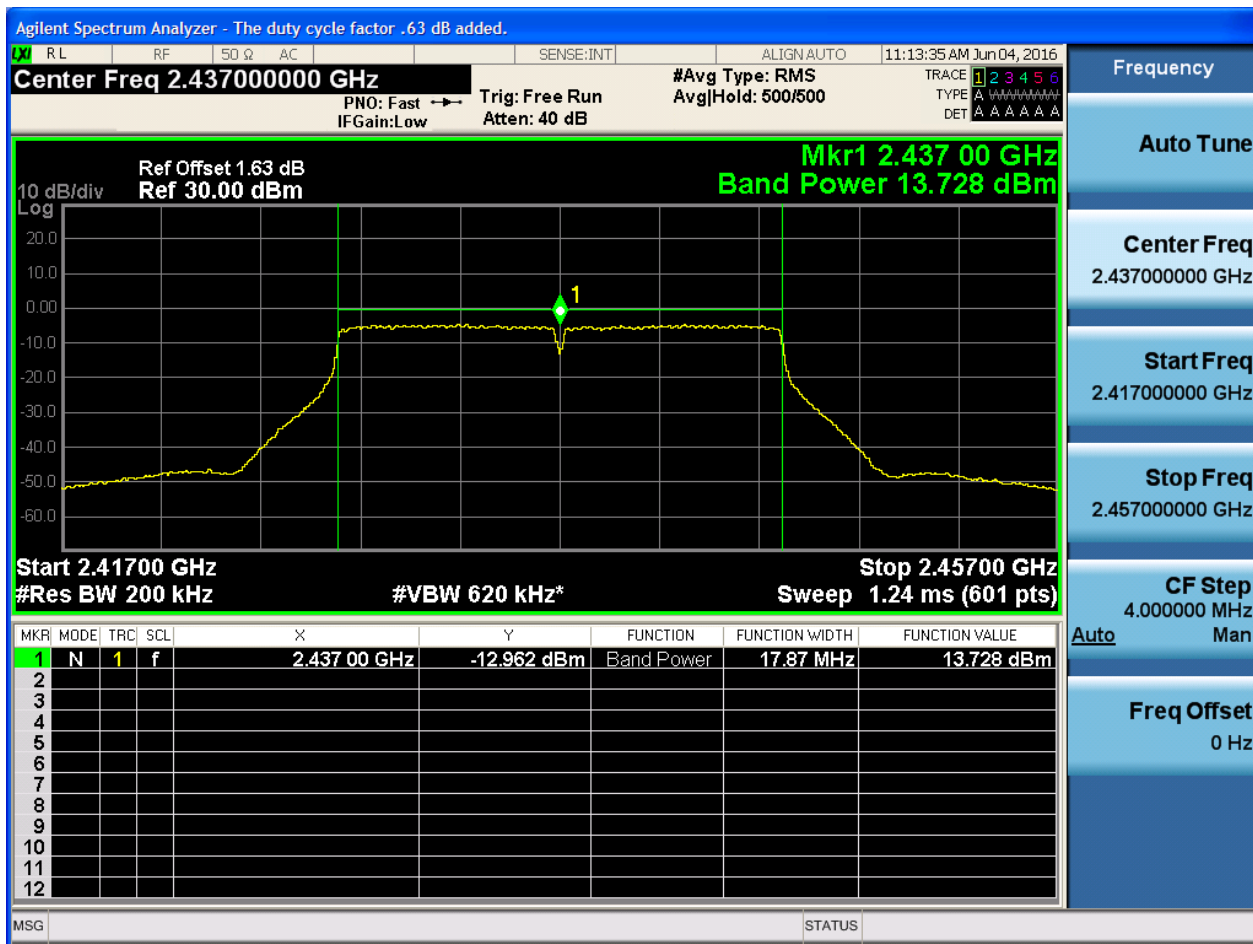
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.412 00 GHz	-13.017 dBm	Band Power	17.87 MHz	13.063 dBm
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

MSG STATUS

Frequency
 Auto Tune
 Center Freq 2.41200000 GHz
 Start Freq 2.39200000 GHz
 Stop Freq 2.43200000 GHz
 CF Step 4.000000 MHz Man
 Freq Offset 0 Hz

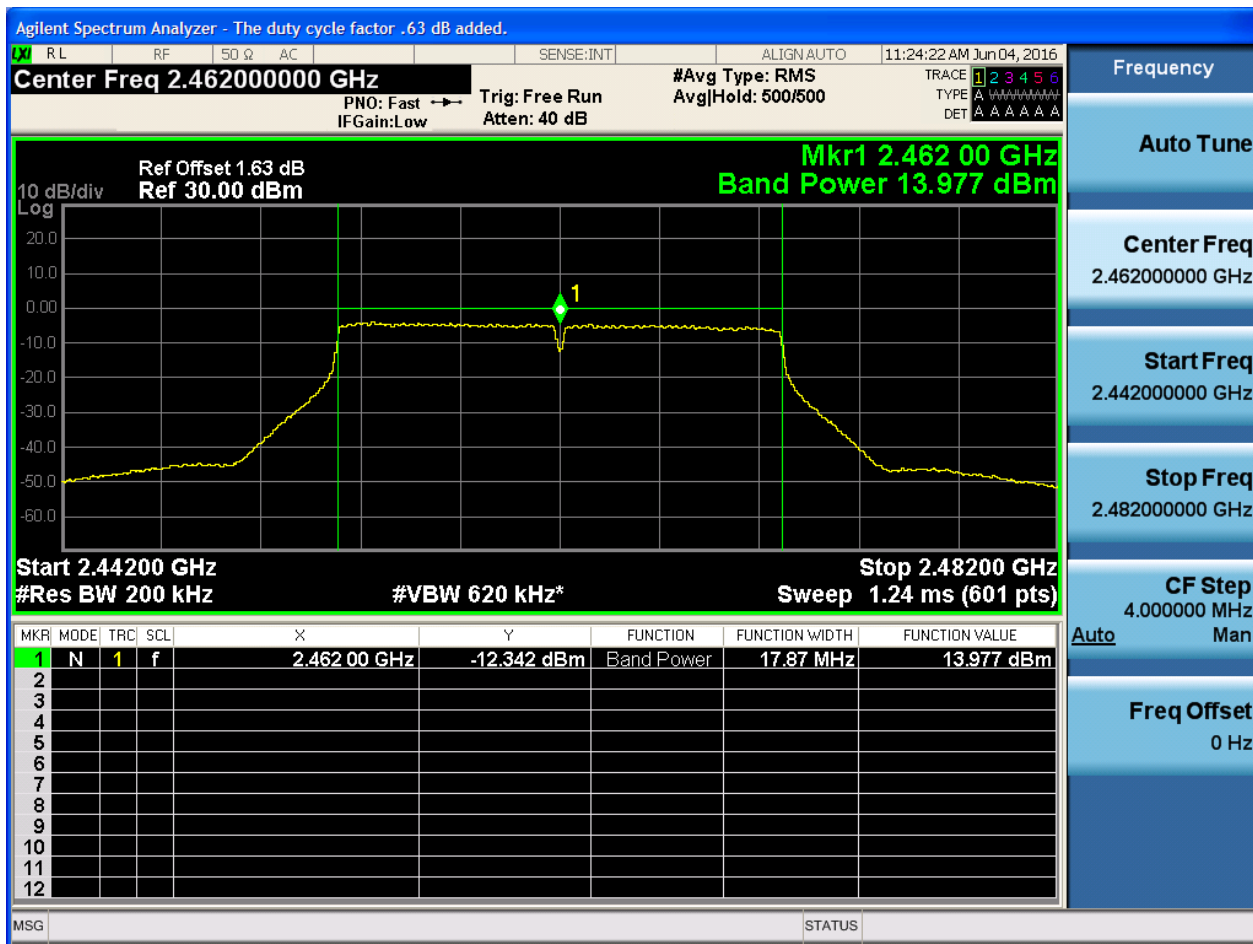


2.15 11N20_M@Ant 1



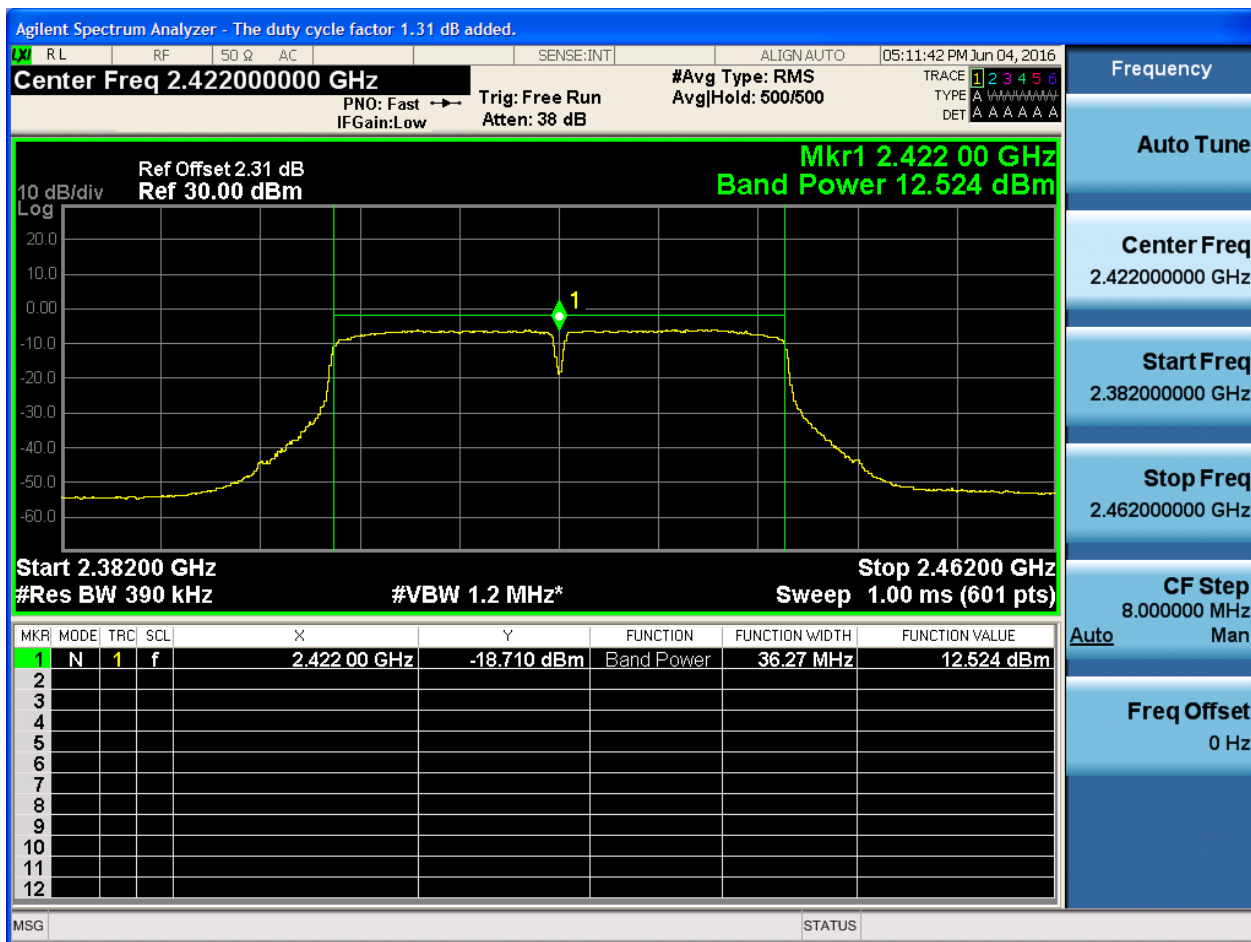


2.17 11N20_H@Ant 1



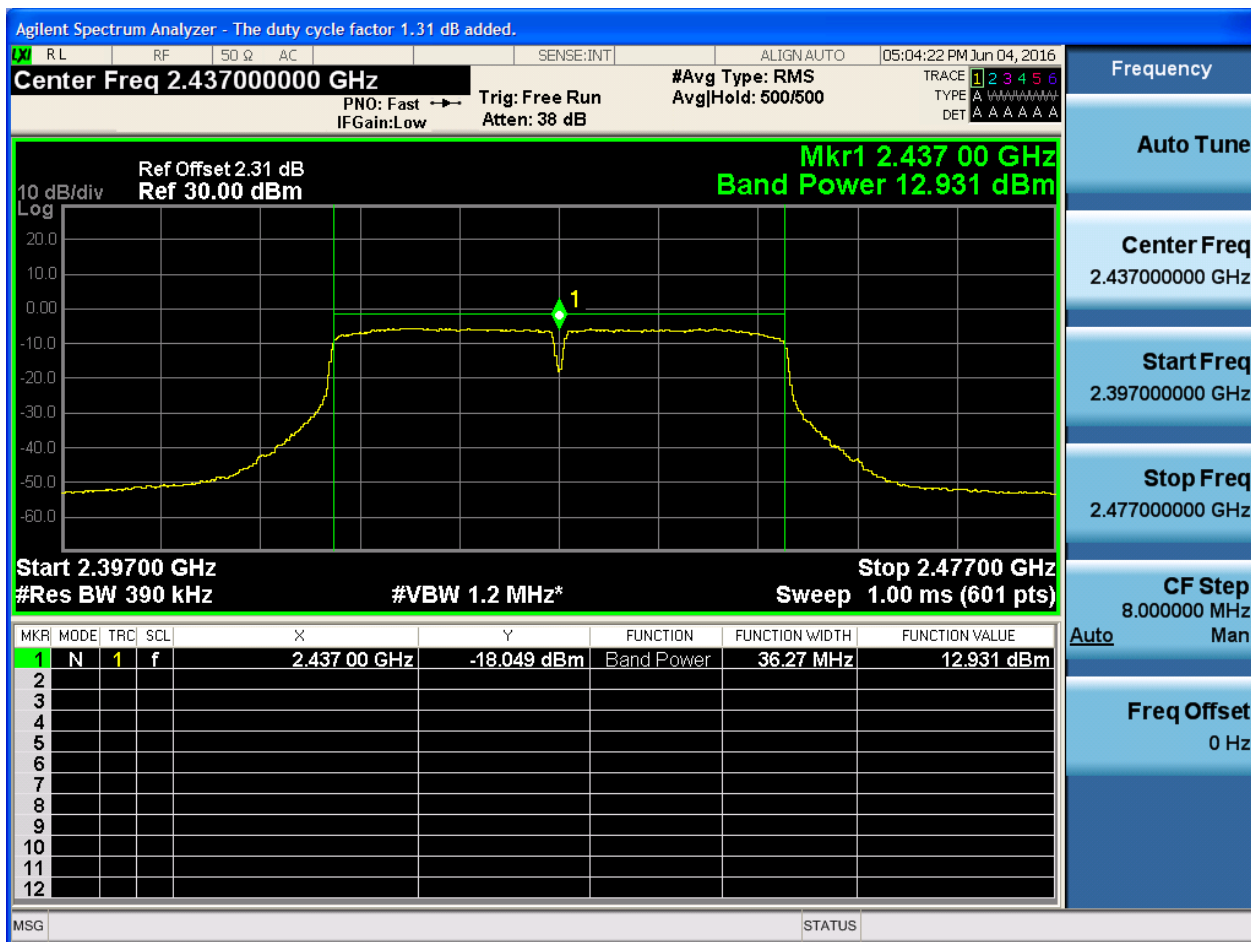


2.19 11N40_L@Ant 1



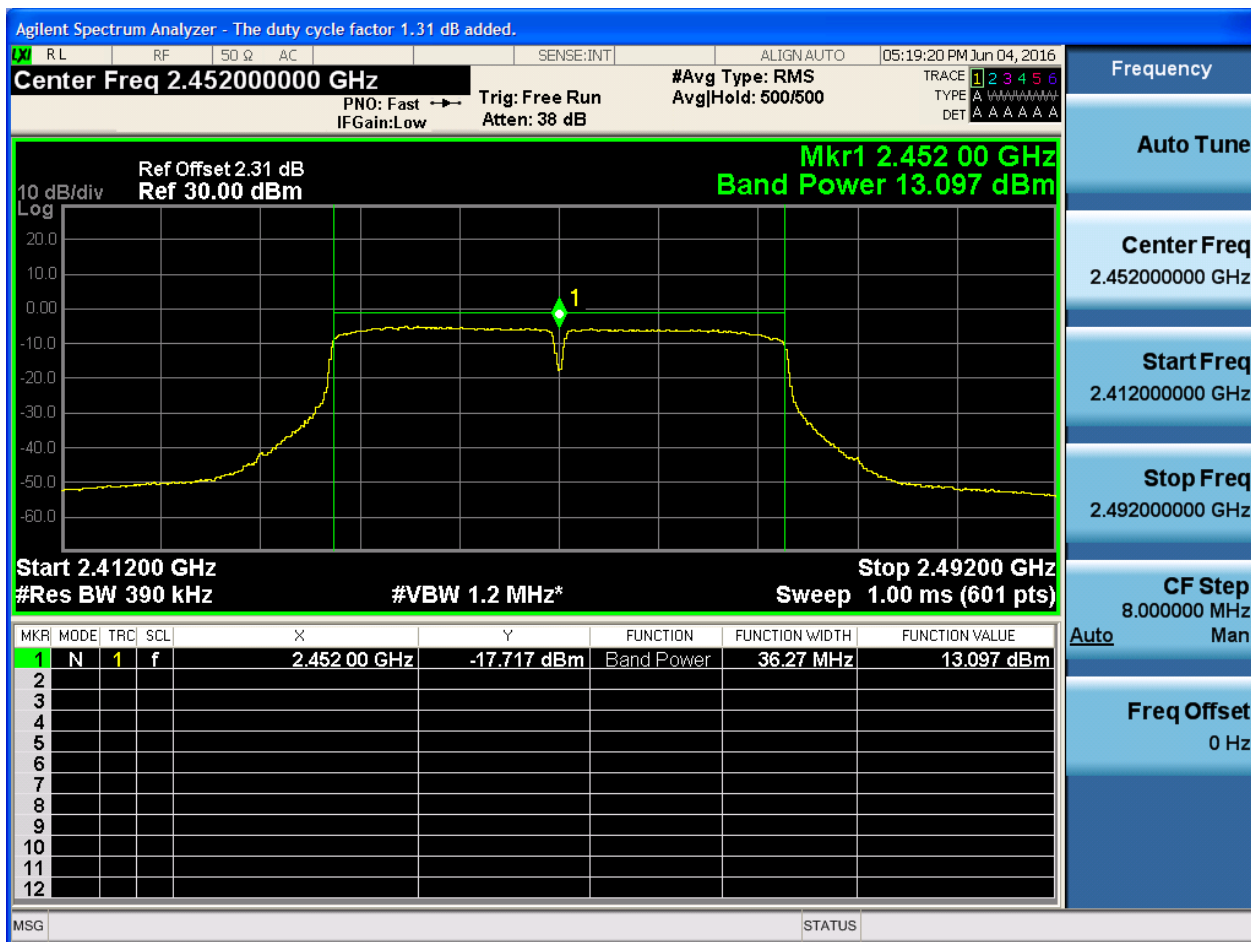


2.21 11N40_M@Ant 1





2.23 11N40_H@Ant 1



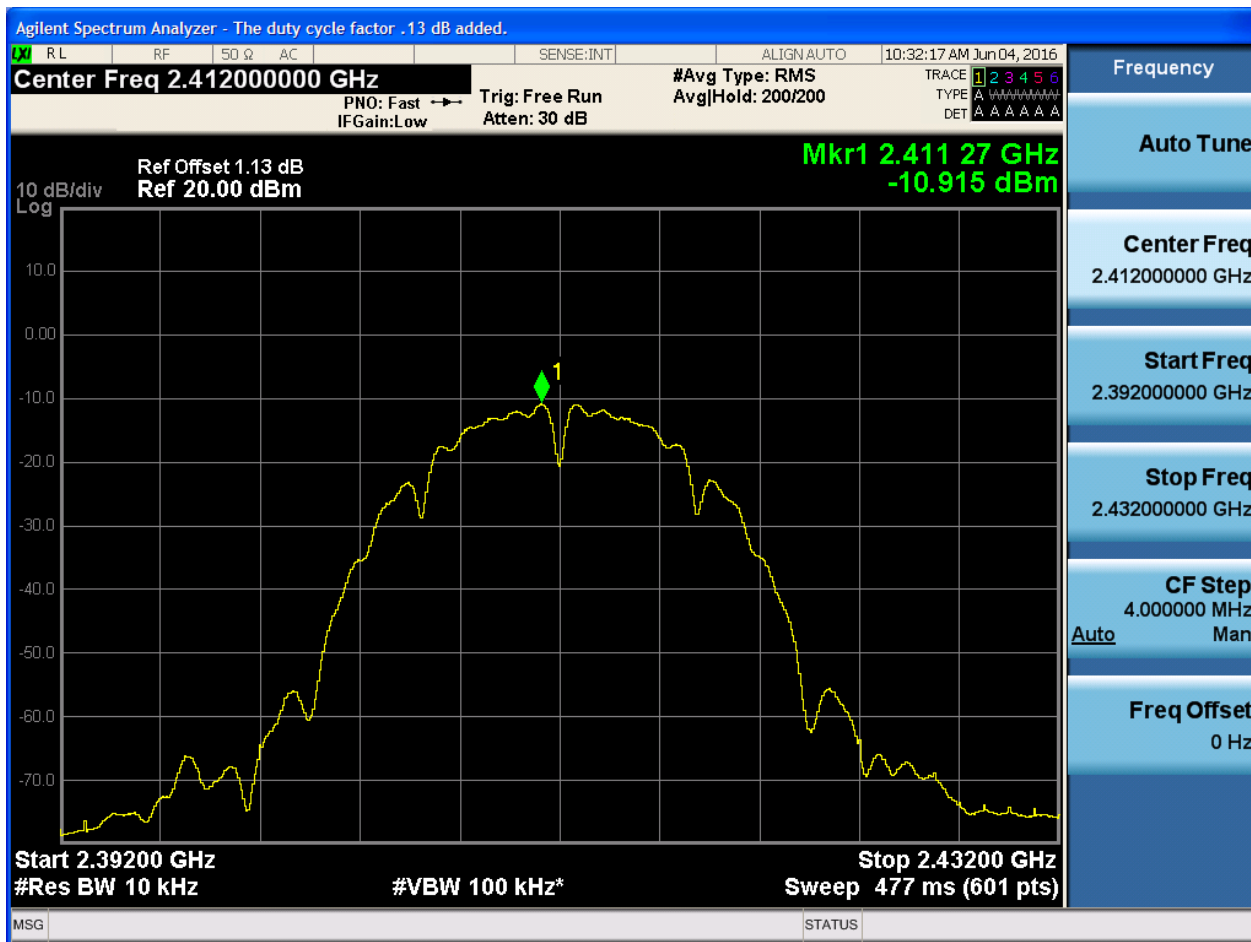
Appendix E: Maximum Power Spectral Density Level

Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	PD[MHz]	Verdict
11B	L	2412	Ant 1	-10.92	pass
11B	M	2437	Ant 1	-10.38	pass
11B	H	2462	Ant 1	-9.85	pass
11G	L	2412	Ant 1	-15.67	pass
11G	M	2437	Ant 1	-15.17	pass
11G	H	2462	Ant 1	-14.66	pass
11N20	L	2412	Ant 1	-16.94	pass
11N20	M	2437	Ant 1	-16.39	pass
11N20	H	2462	Ant 1	-15.78	pass
11N40	L	2422	Ant 1	-20.94	pass
11N40	M	2437	Ant 1	-20.29	pass
11N40	H	2452	Ant 1	-19.67	pass

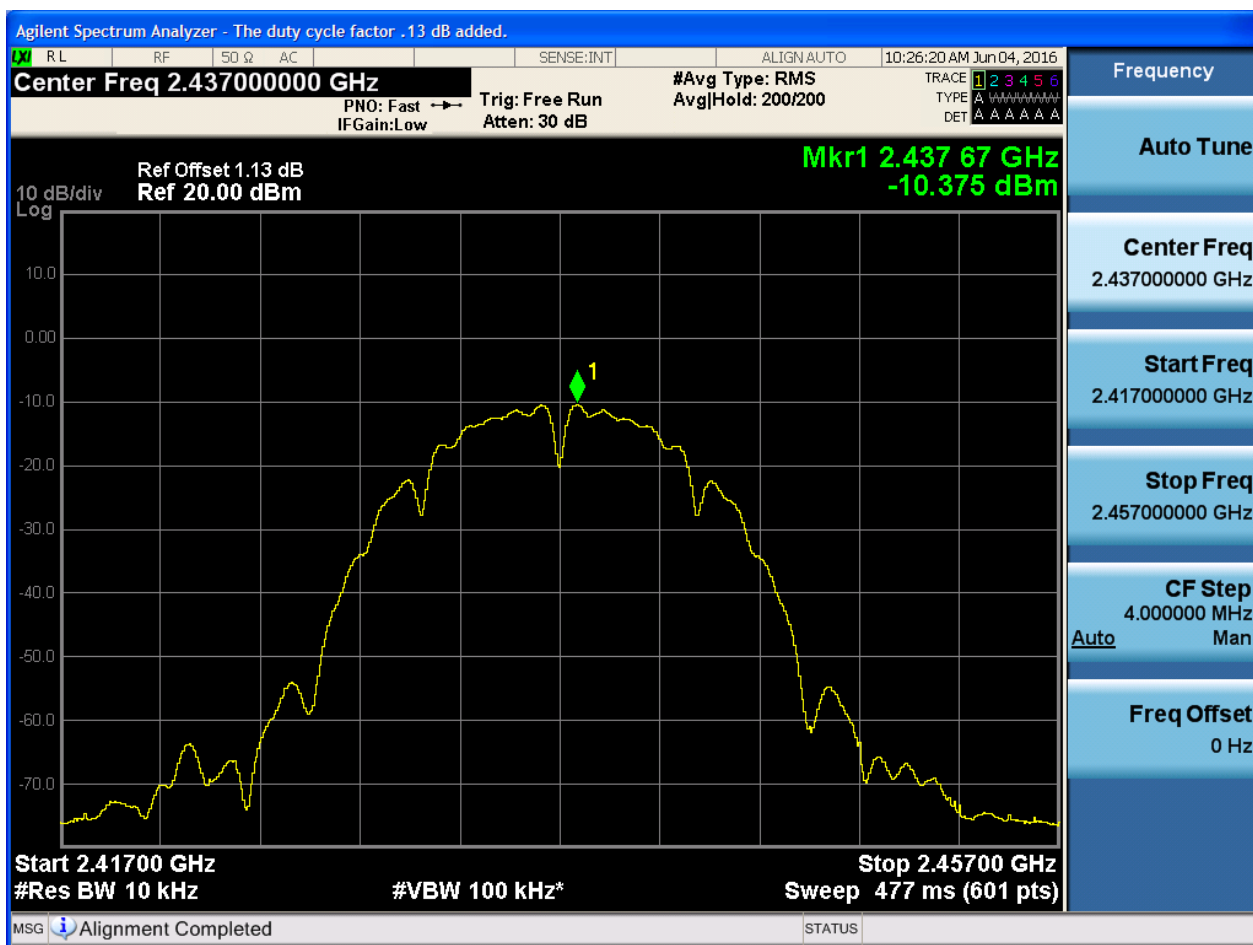
Part II - Test Plots

2.1 11B_L@Ant 1



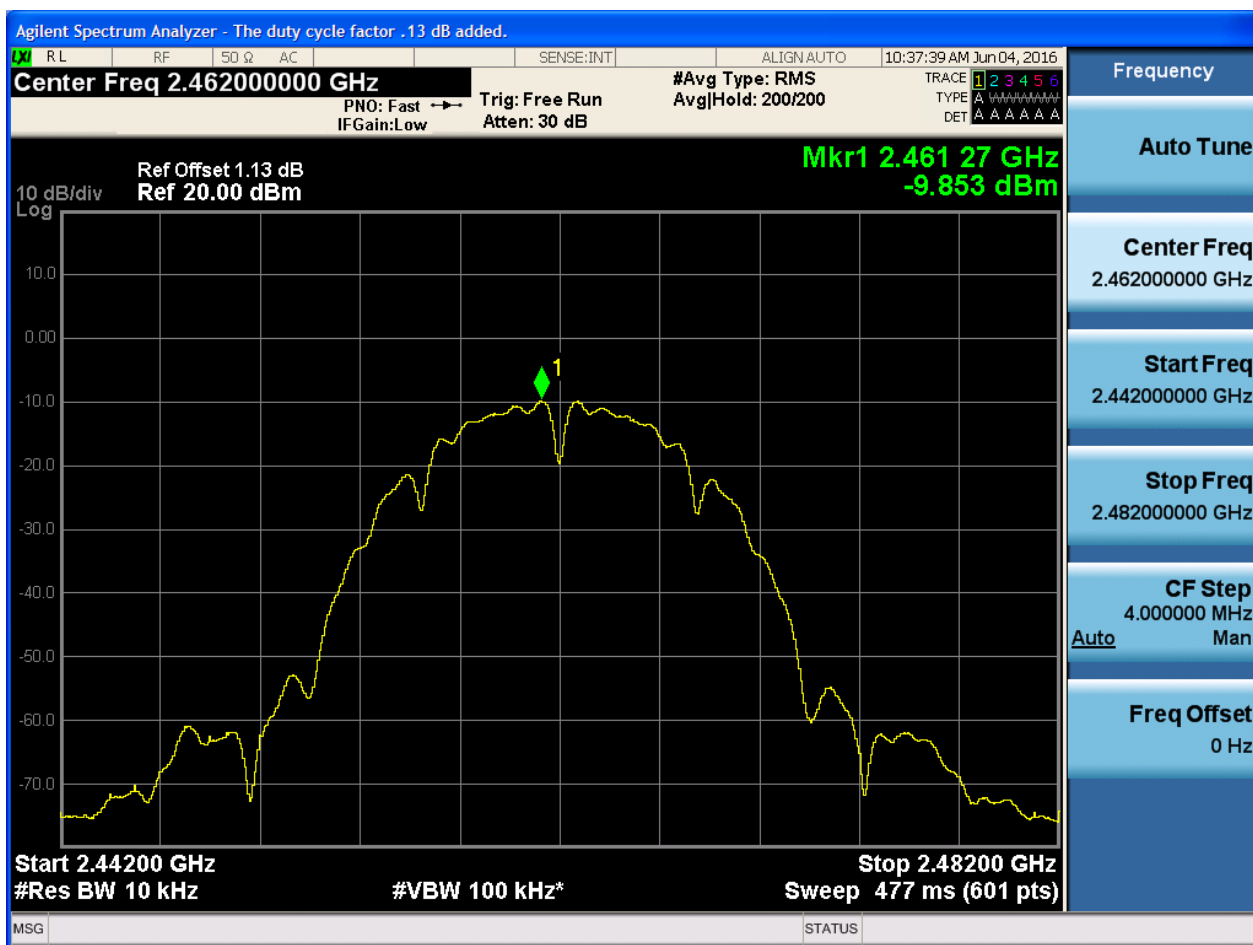


2.3 11B_M@Ant 1



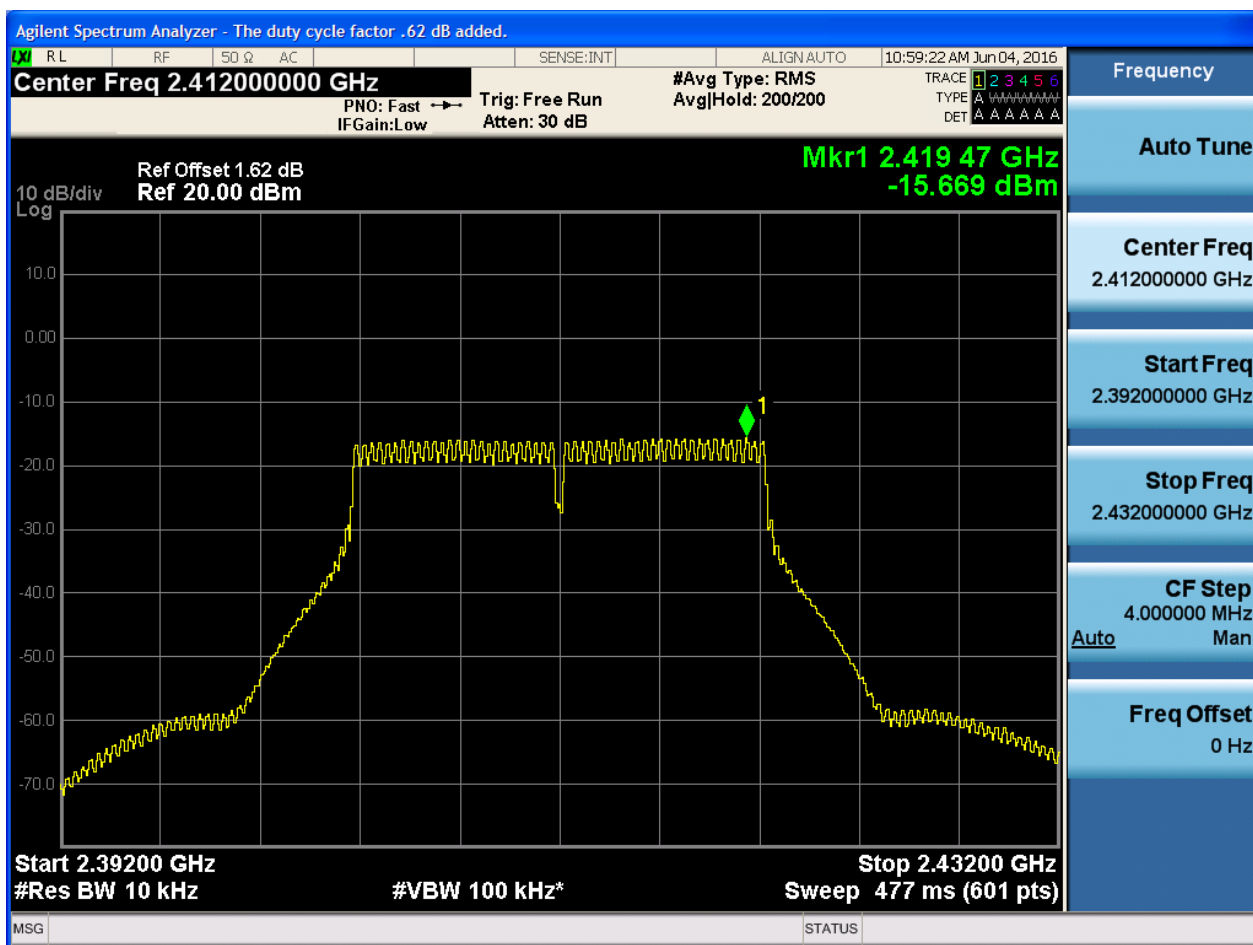


2.5 11B_H@Ant 1



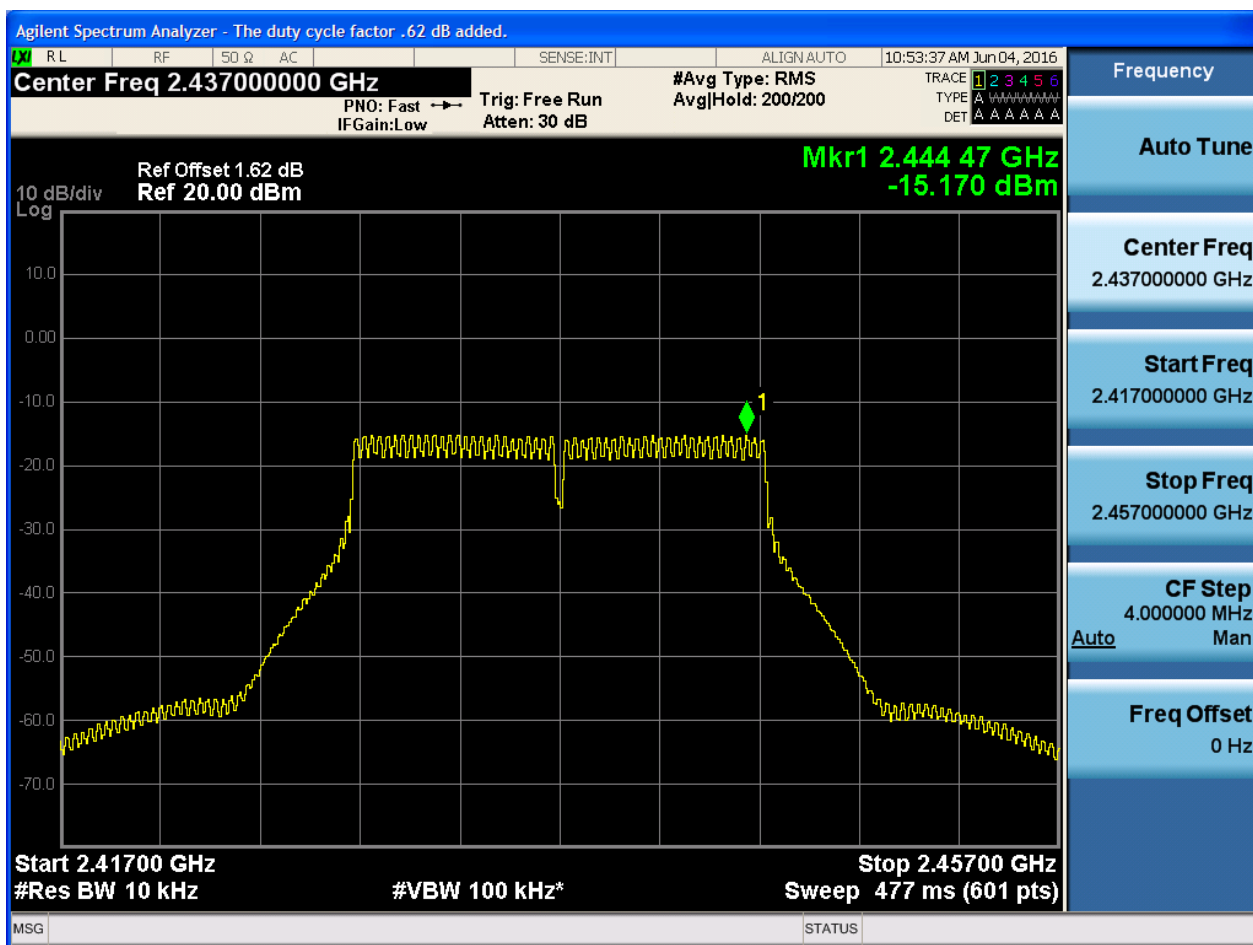


2.7 11G_L@Ant 1



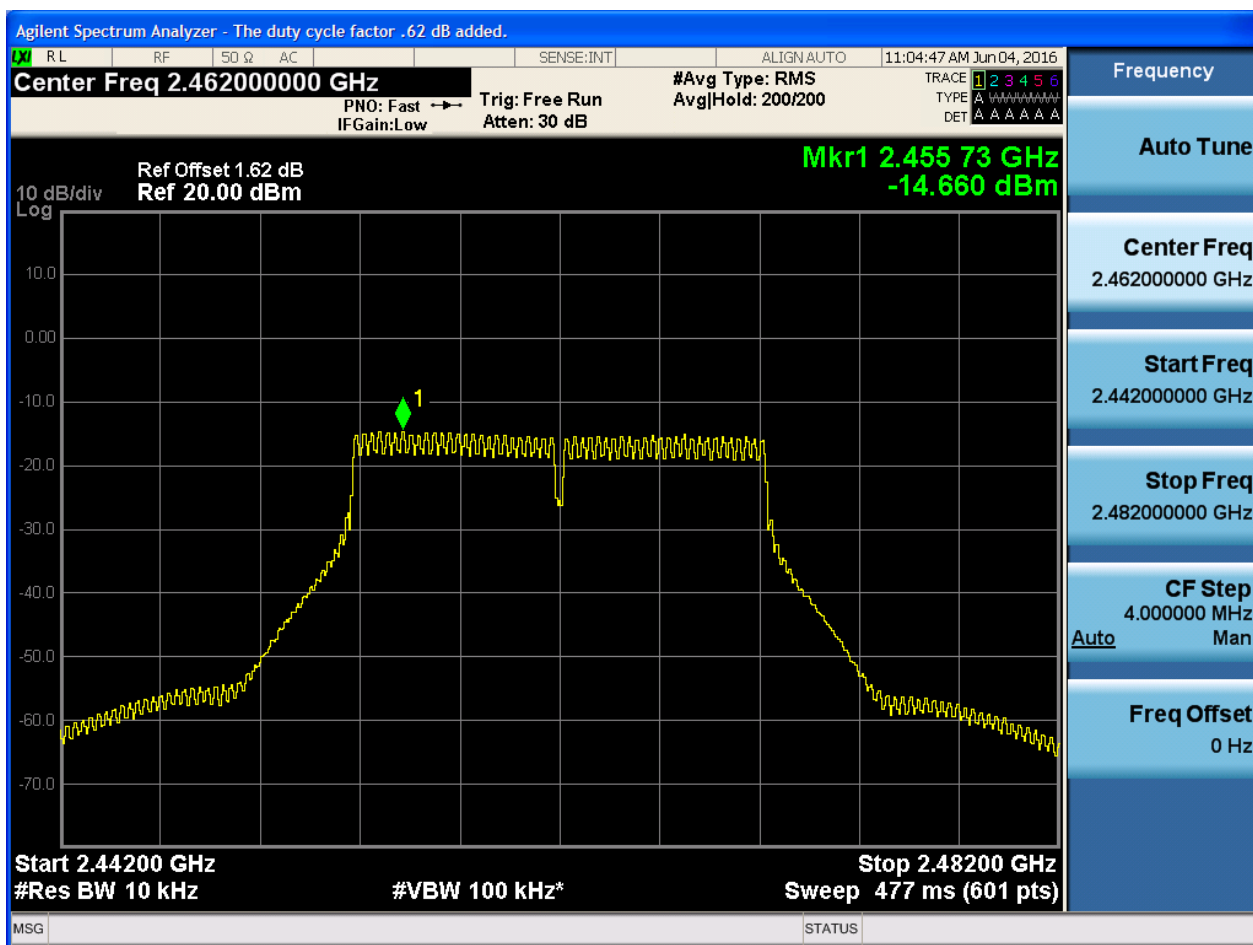


2.9 11G_M@Ant 1



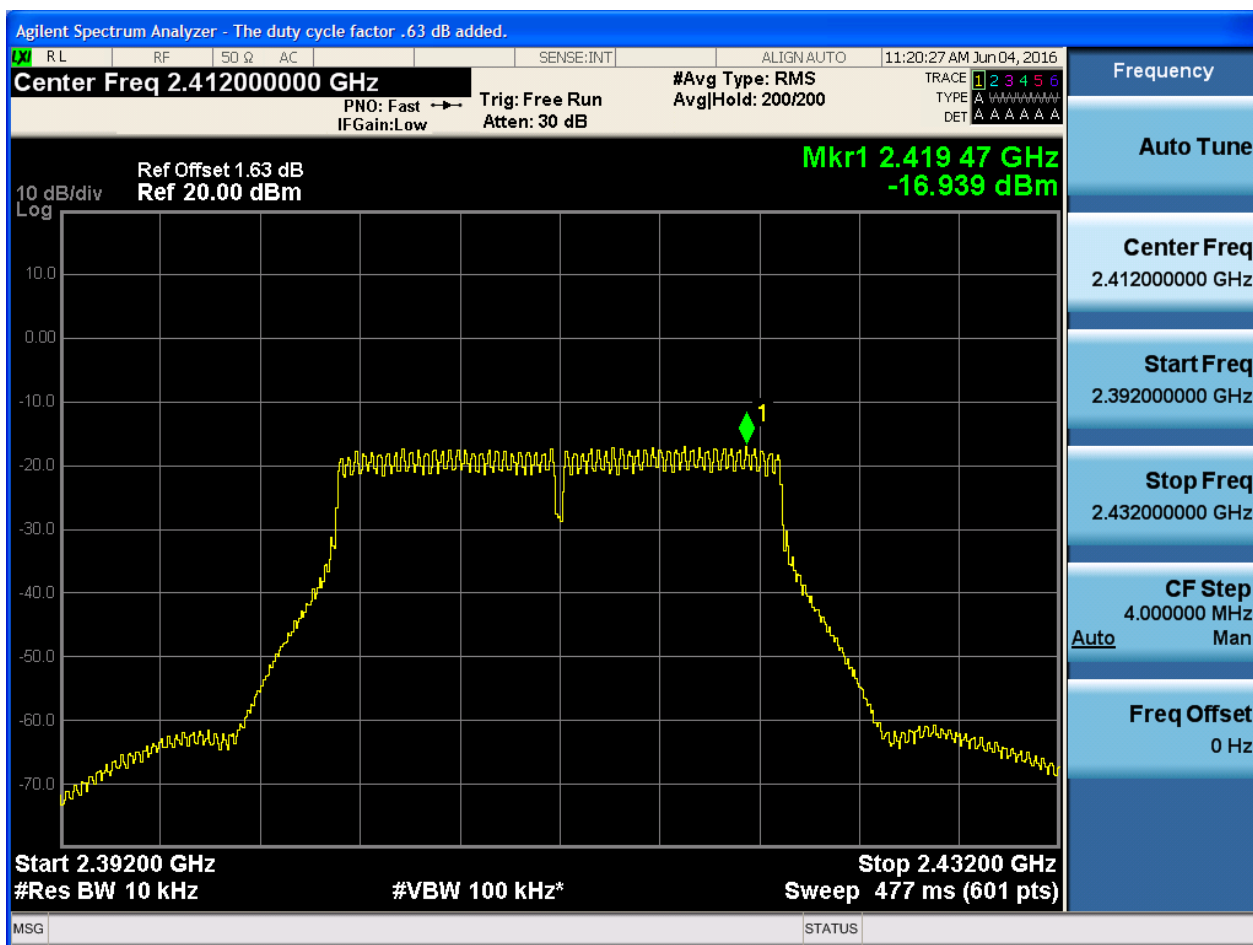


2.11 11G_H@Ant 1



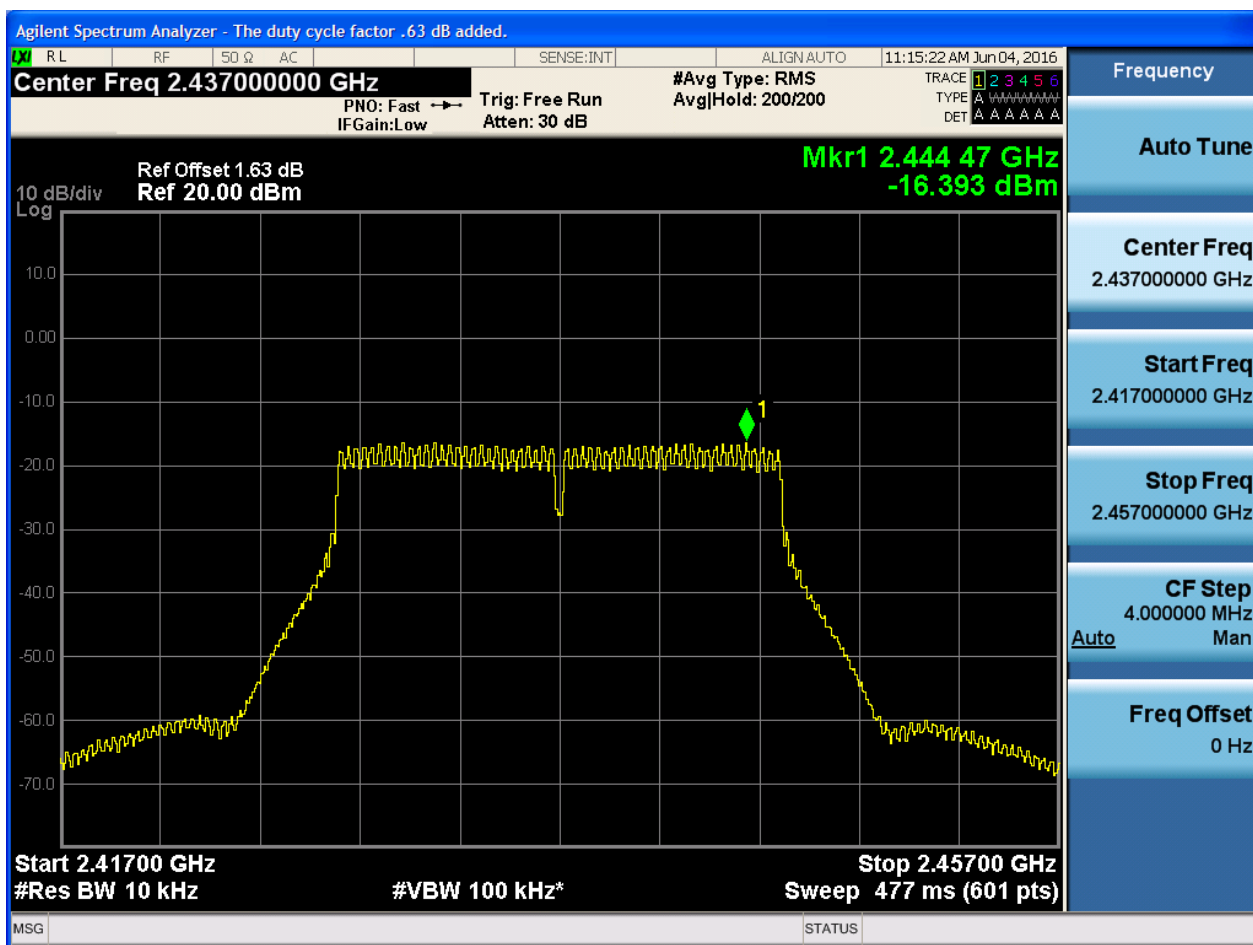


2.13 11N20_L@Ant 1



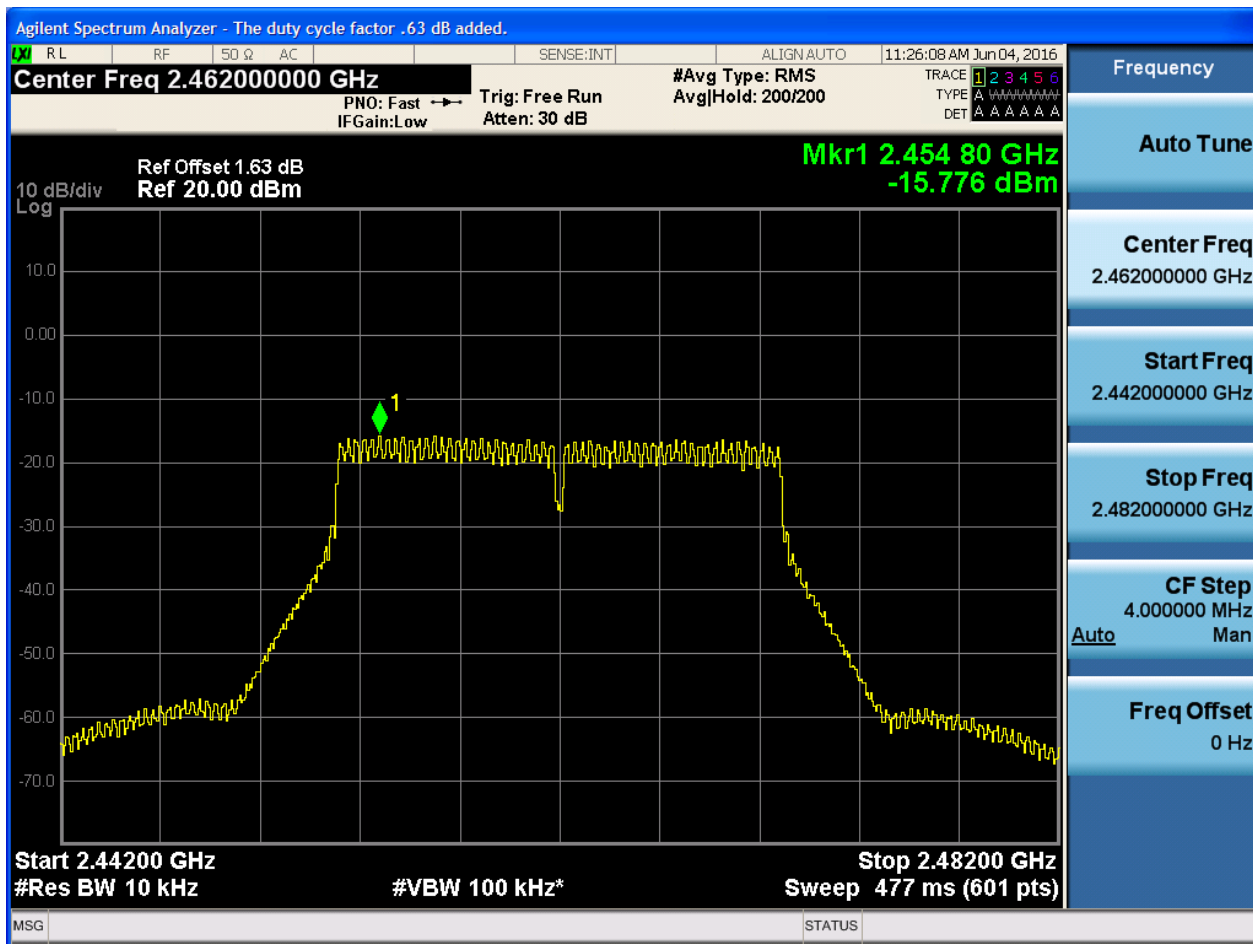


2.15 11N20_M@Ant 1



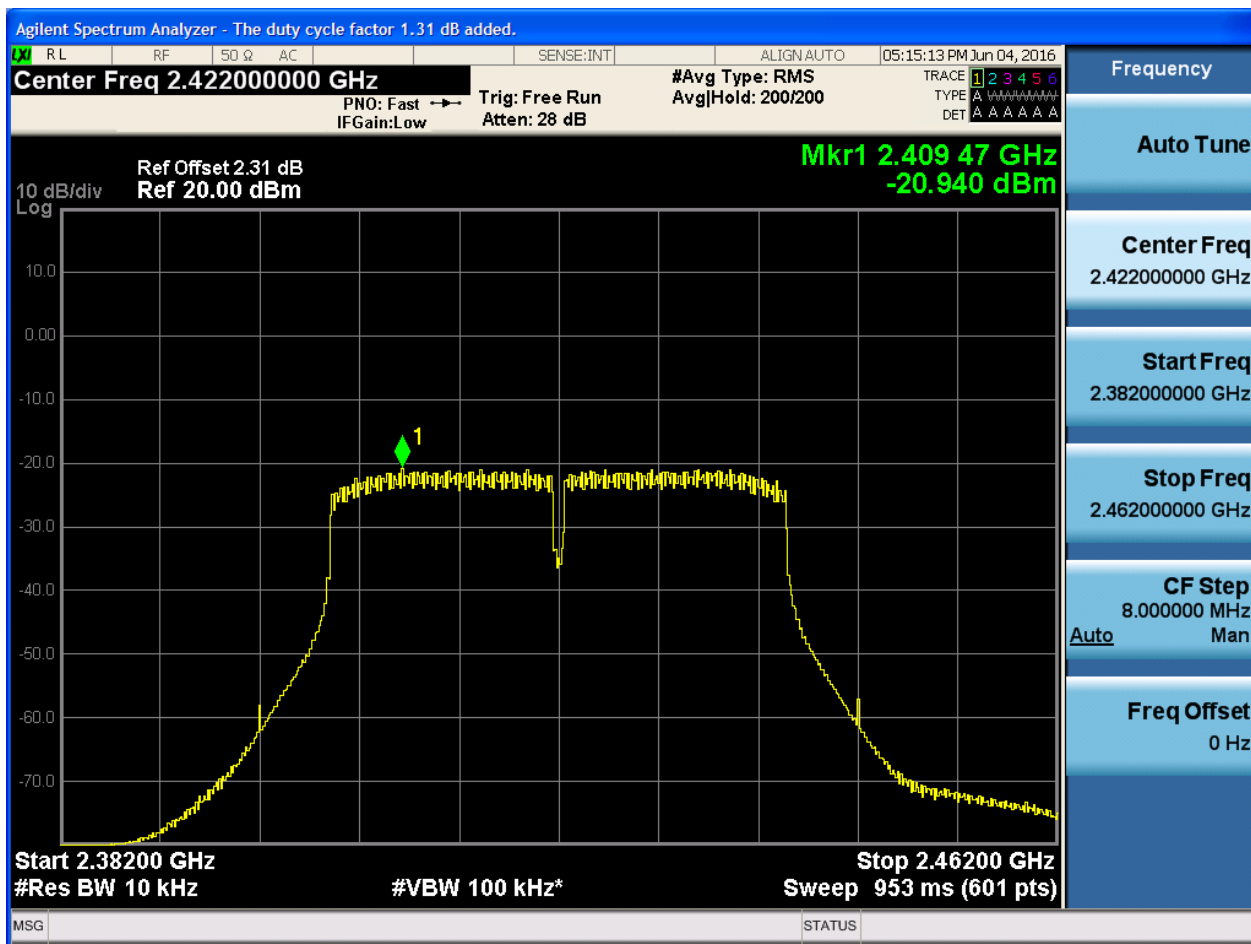


2.17 11N20_H@Ant 1



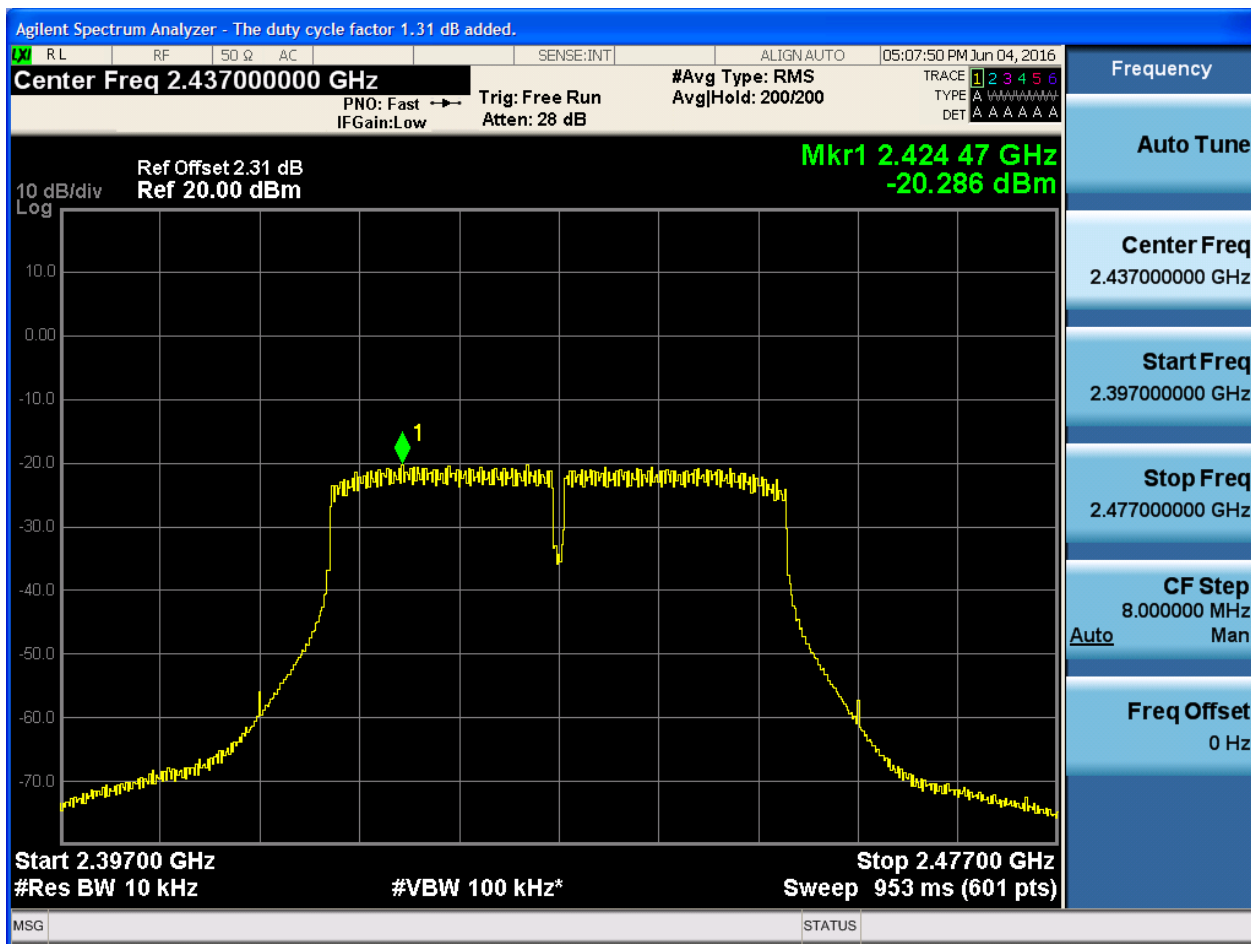


2.19 11N40_L@Ant 1



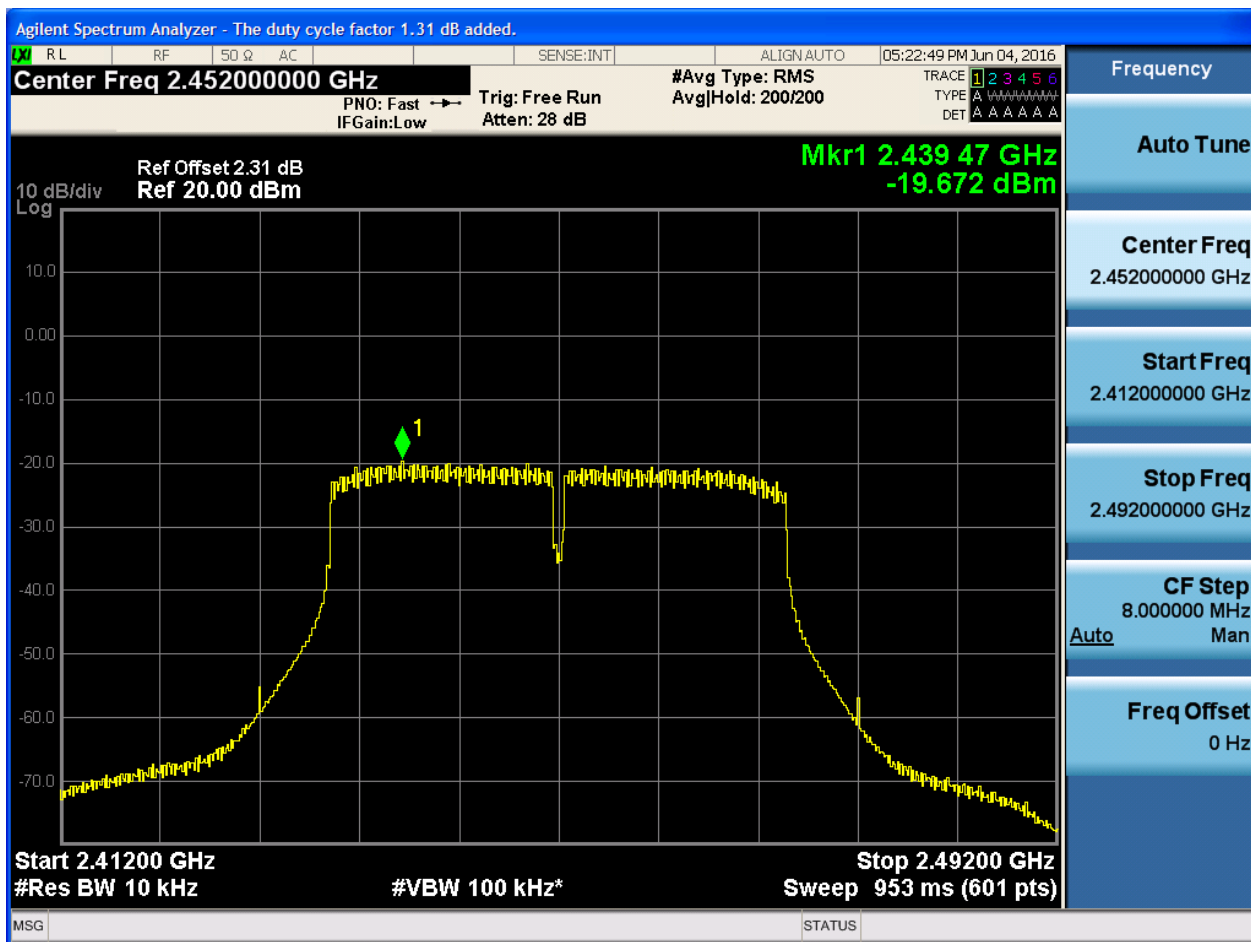


2.21 11N40_M@Ant 1





2.23 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	7.66	-50.72	pass
11B	H	2462	Ant 1	8.90	-50.09	pass
11G	L	2412	Ant 1	3.02	-50.52	pass
11G	H	2462	Ant 1	4.59	-45.94	pass
11N20	L	2412	Ant 1	2.41	-50.41	pass
11N20	H	2462	Ant 1	3.30	-46.68	pass
11N40	L	2422	Ant 1	-1.54	-51.14	pass
11N40	H	2452	Ant 1	-0.96	-45.86	pass



Part II - Test Plots

2.1 11B_L@Ant 1





2.3 11B_H@Ant 1





Agilent Spectrum Analyzer - Swept SA

Center Freq 2.40000000 GHz

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

Avg Type: Log-Pwr AvgHold: 10/10

TRACE 1 2 3 4 5 6
TYPE M W W W W W W W
DET P P P P P P

11:01:44 AM Jun 04, 2016

Ref Offset 1 dB
Ref 30.0 dBm

Mkr2 2.390 00 GHz
-50.519 dBm

10 dB/div
Log

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

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.419 47 GHz	3.023 dBm			
2	N	1	f	2.390 00 GHz	-50.519 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Auto Tune

Center Freq 2.40000000 GHz

Start Freq 2.38000000 GHz

Stop Freq 2.42000000 GHz

CF Step 4.000000 MHz Man

Freq Offset 0 Hz

MSG STATUS

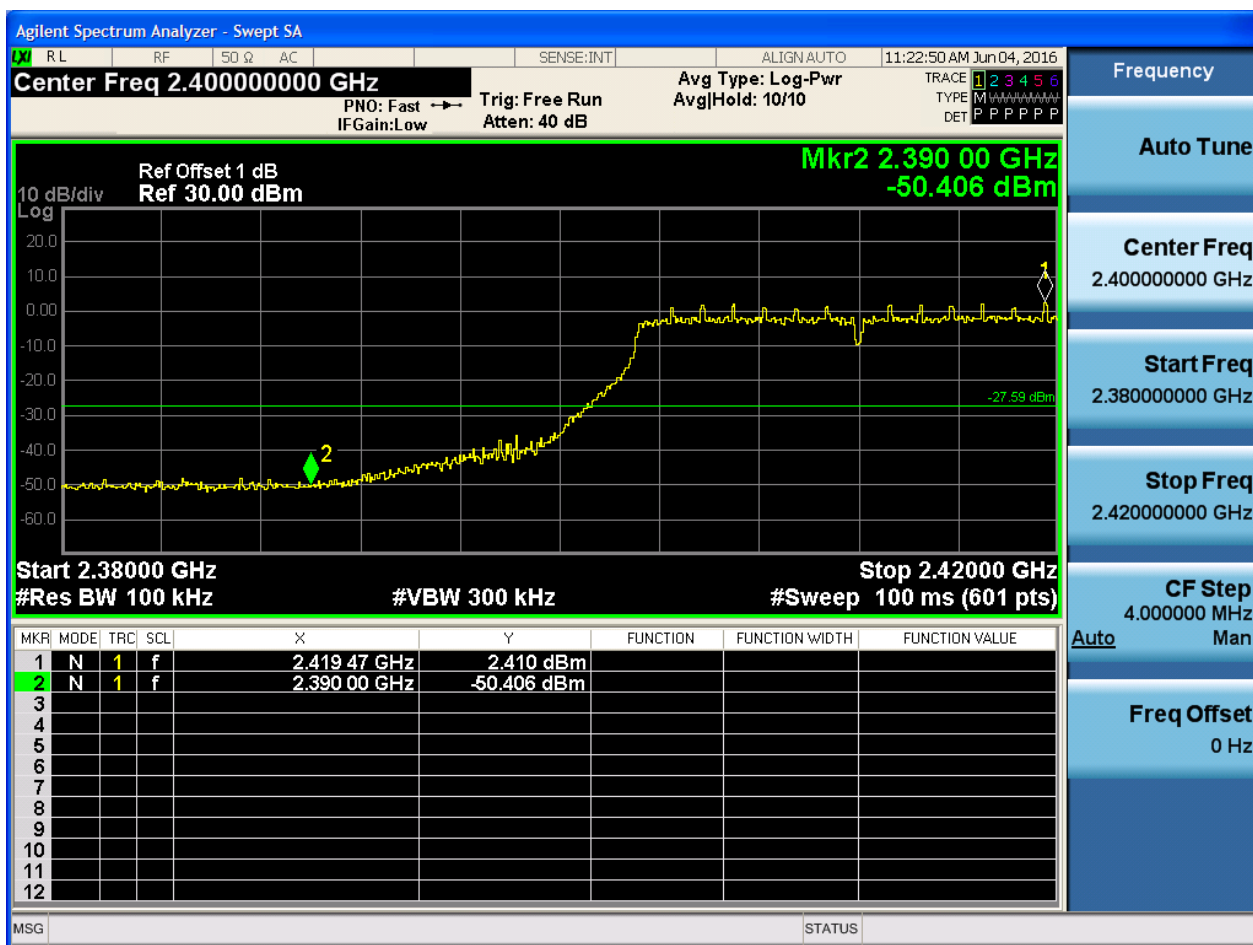


2.7 11G_H@Ant 1





2.9 11N20_L@Ant 1





2.11 11N20_H@Ant 1





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 05:17:44 PM Jun 04, 2016

Center Freq 2.400000000 GHz Avg Type: Log-Pwr Avg/Hold: 10/10

PNO: Fast Trg: Free Run IF Gain: Low Atten: 40 dB

TRACE 1 2 3 4 5 6
TYPE M W W W W W W W W W
DET P P P P P P

Ref Offset 1 dB
Ref 30.00 dBm

**Mkr2 2.390 00 GHz
-51.139 dBm**

10 dB/div
Log

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

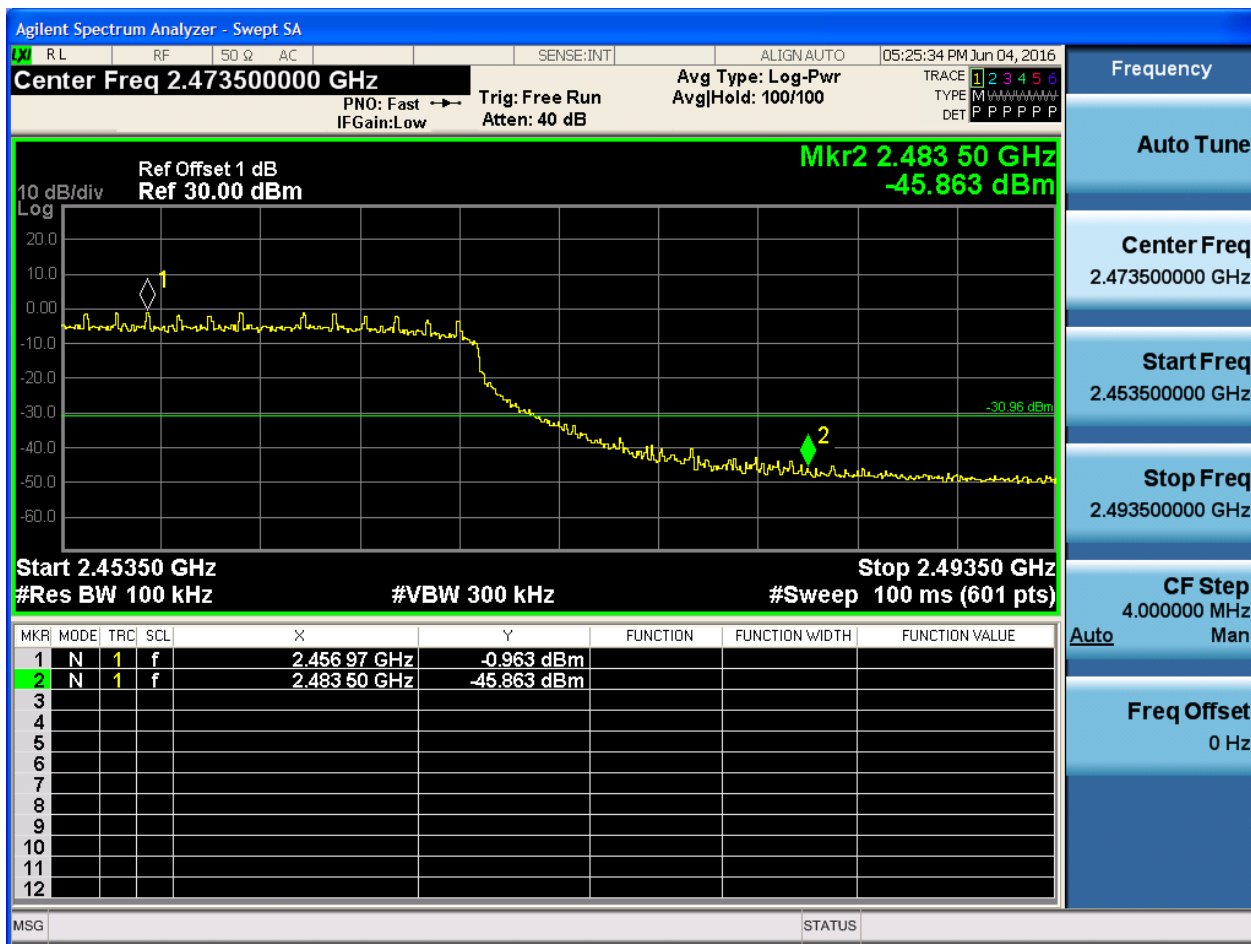
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.417 00 GHz	-15.45 dBm			
2	N	1	f	2.390 00 GHz	-51.139 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

MSG STATUS

Frequency
Auto Tune
Center Freq 2.400000000 GHz
Start Freq 2.380000000 GHz
Stop Freq 2.420000000 GHz
CF Step 4.000000 MHz Man
Freq Offset 0 Hz



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

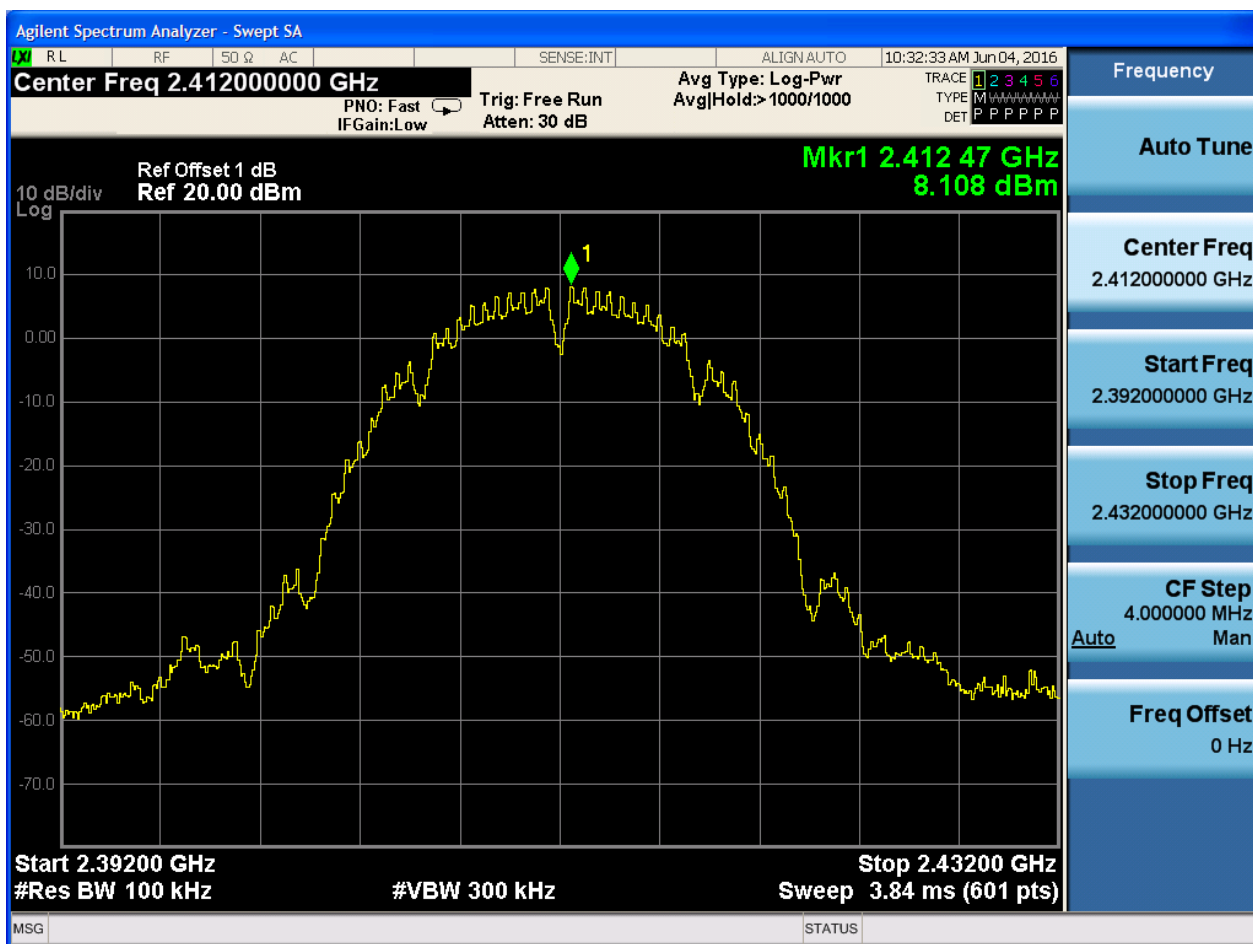
Test Mode	Test Channel	Frequency[MHz]	Ant	Pref[dBm]	Puw[dBm]	Verdict
11B	L	2412	Ant 1	8.11	<limit	pass
11B	M	2437	Ant 1	8.66	<limit	pass
11B	H	2462	Ant 1	8.96	<limit	pass
11G	L	2412	Ant 1	3.53	<limit	pass
11G	M	2437	Ant 1	4.12	<limit	pass
11G	H	2462	Ant 1	4.61	<limit	pass
11N20	L	2412	Ant 1	2.18	<limit	pass
11N20	M	2437	Ant 1	2.85	<limit	pass
11N20	H	2462	Ant 1	3.44	<limit	pass
11N40	L	2422	Ant 1	-0.84	<limit	pass
11N40	M	2437	Ant 1	-0.35	<limit	pass
11N40	H	2452	Ant 1	-0.24	<limit	pass



Part II - Test Plots

2.1 11B_L@Ant 1

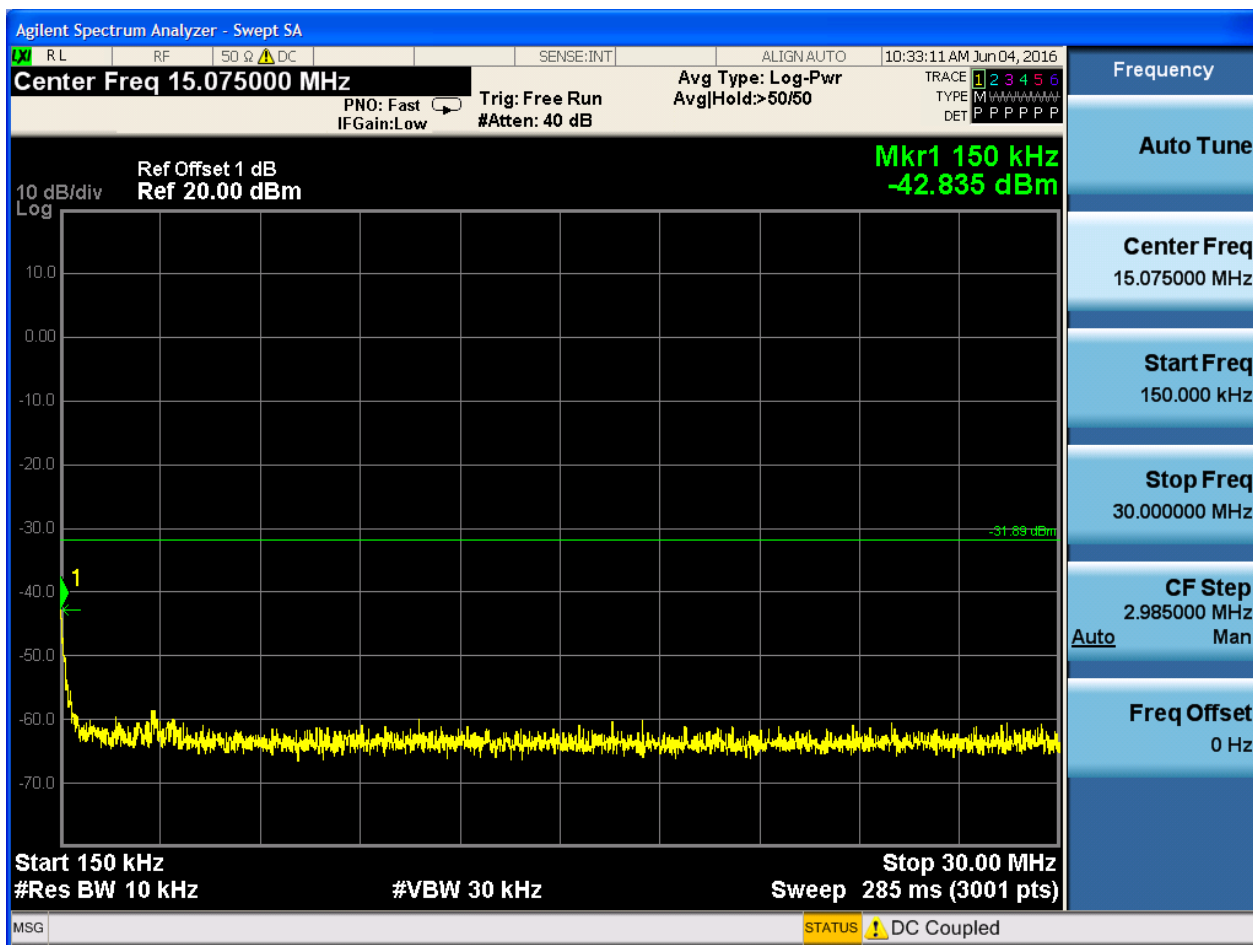
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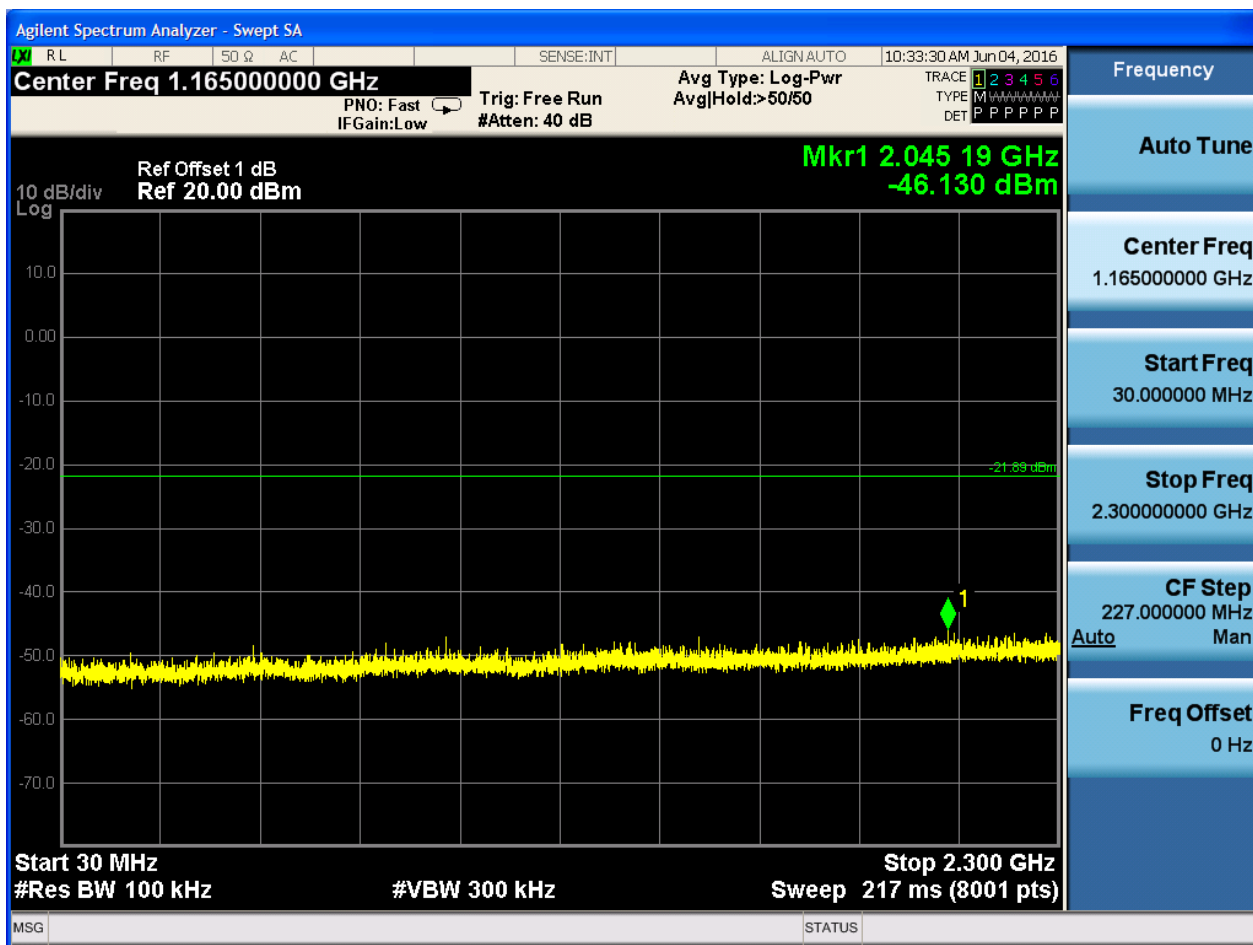


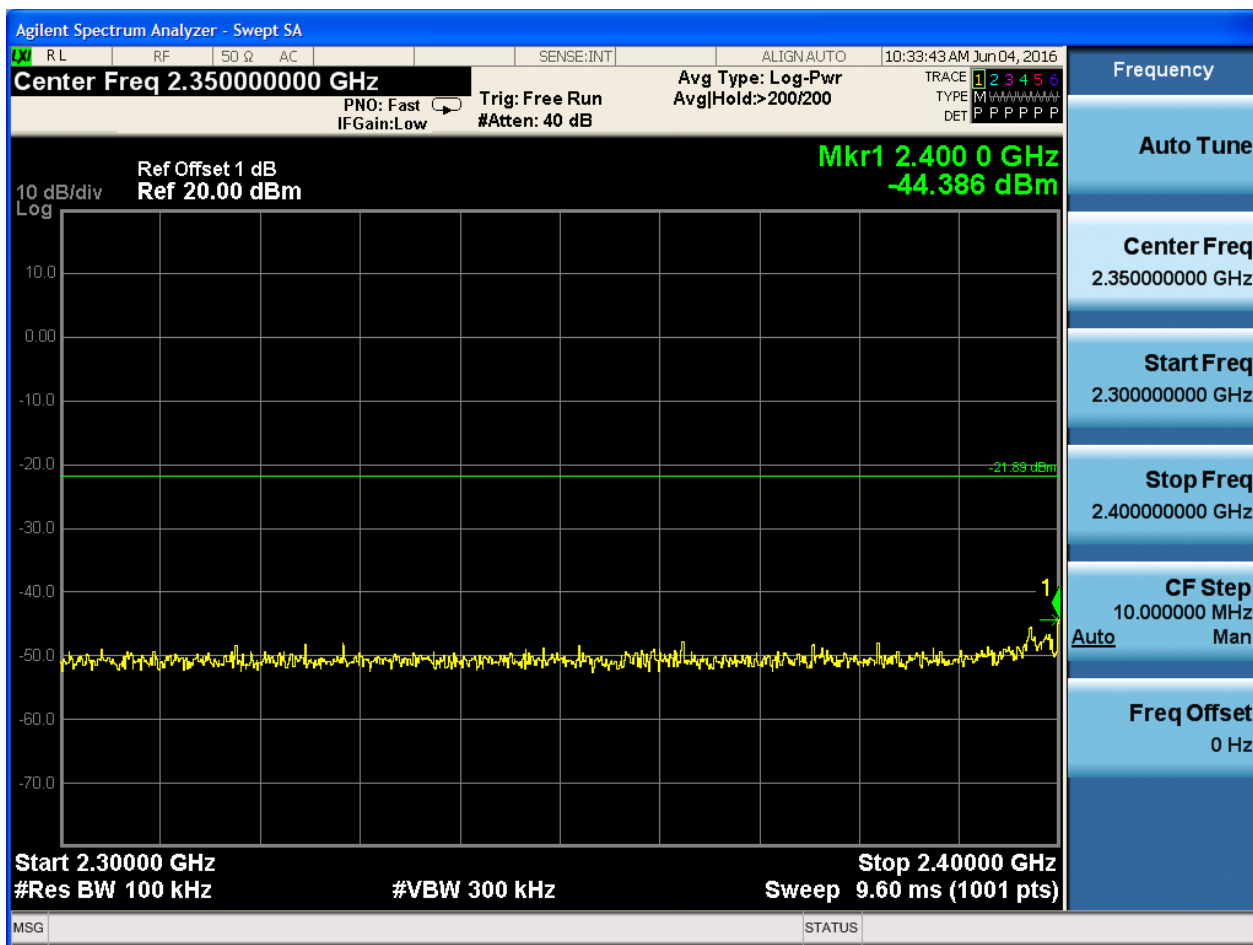


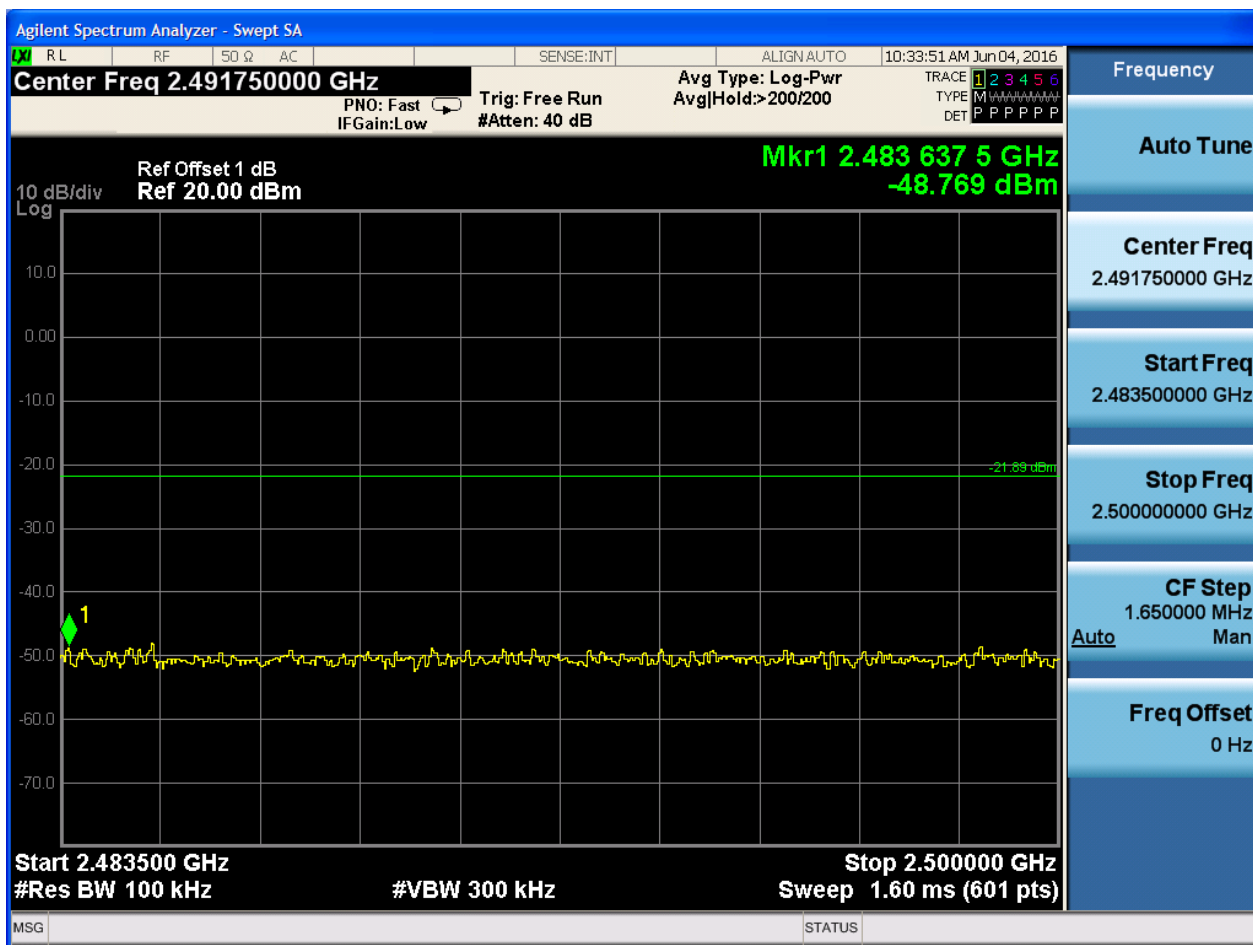
Puw:

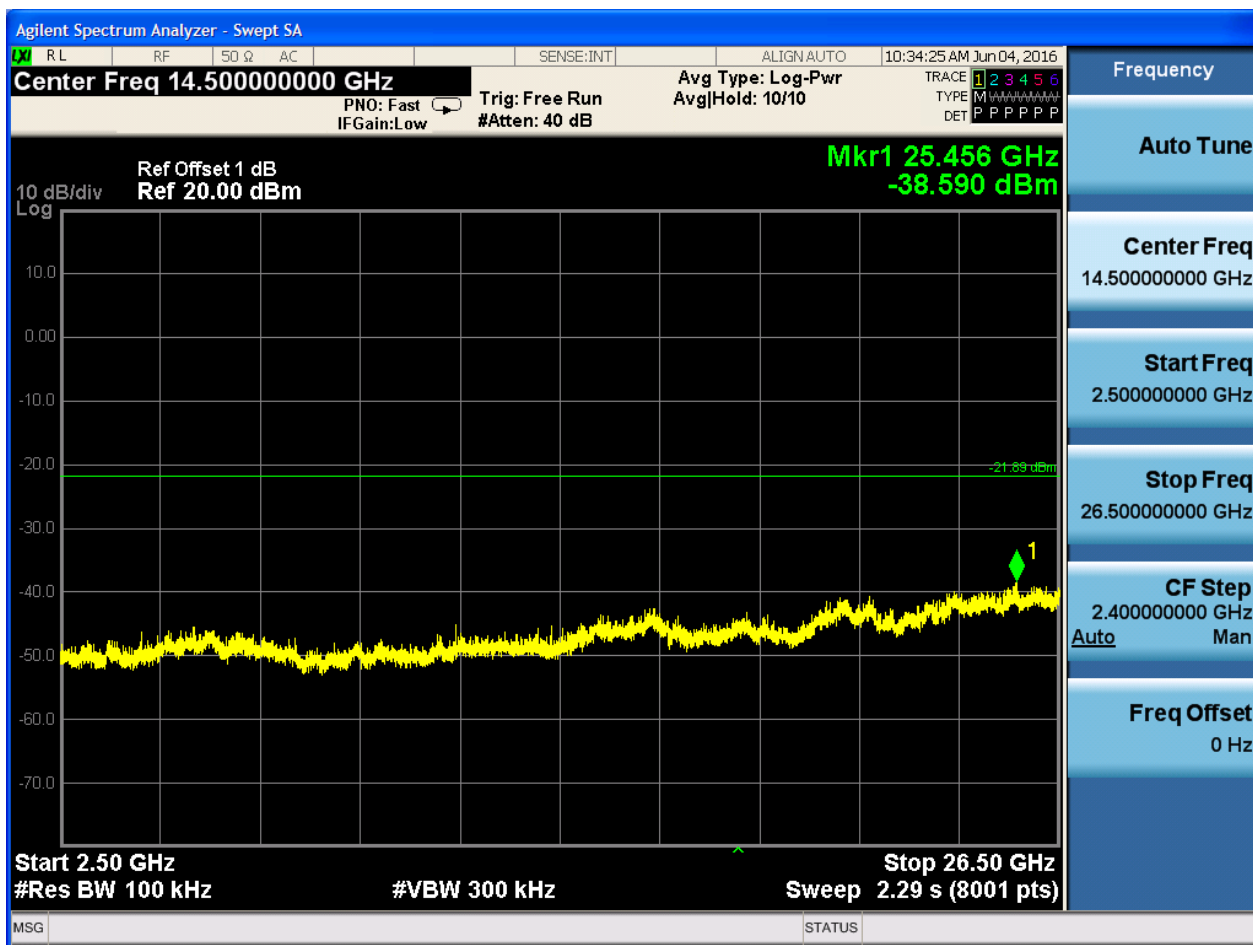








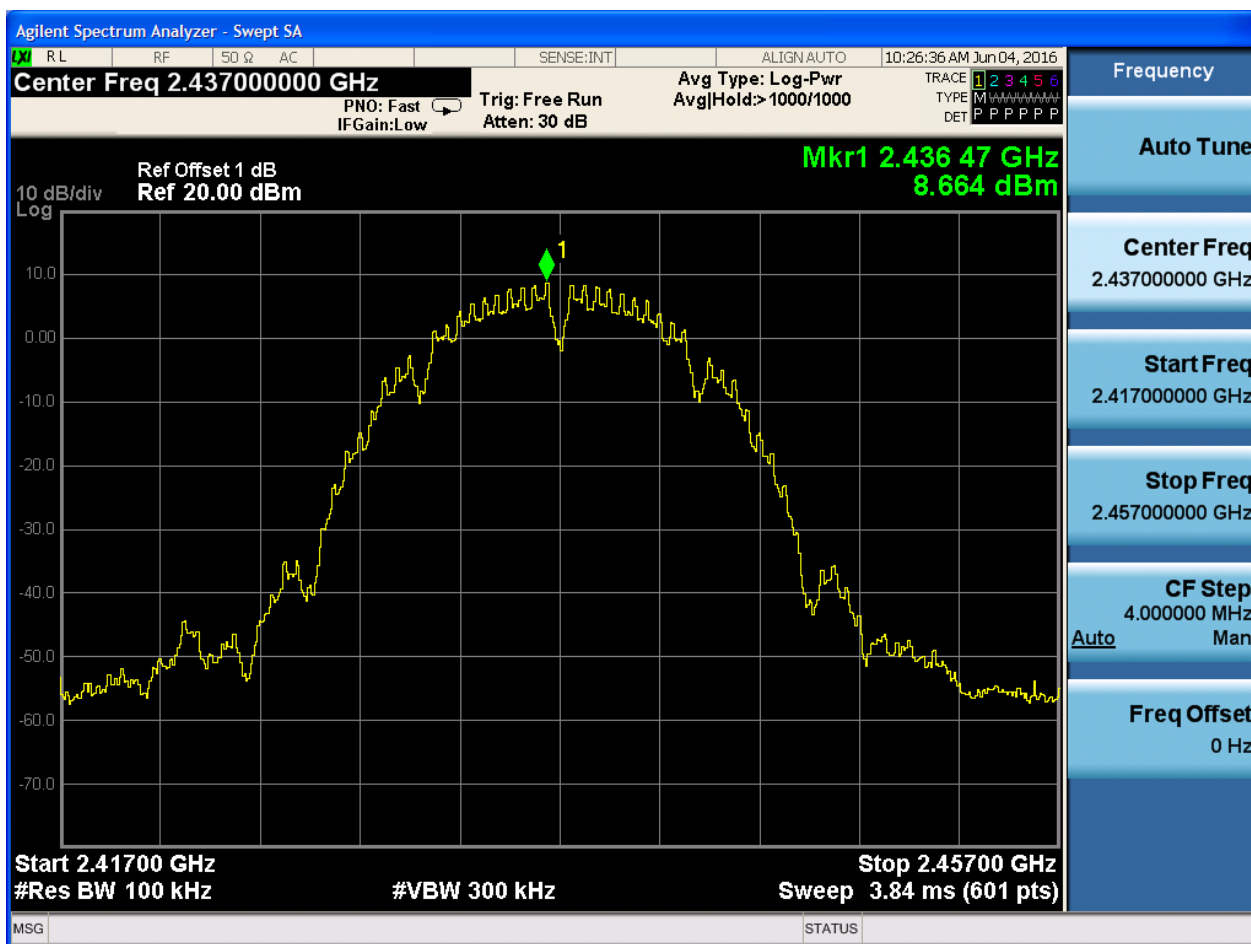






2.3 11B_M@Ant 1

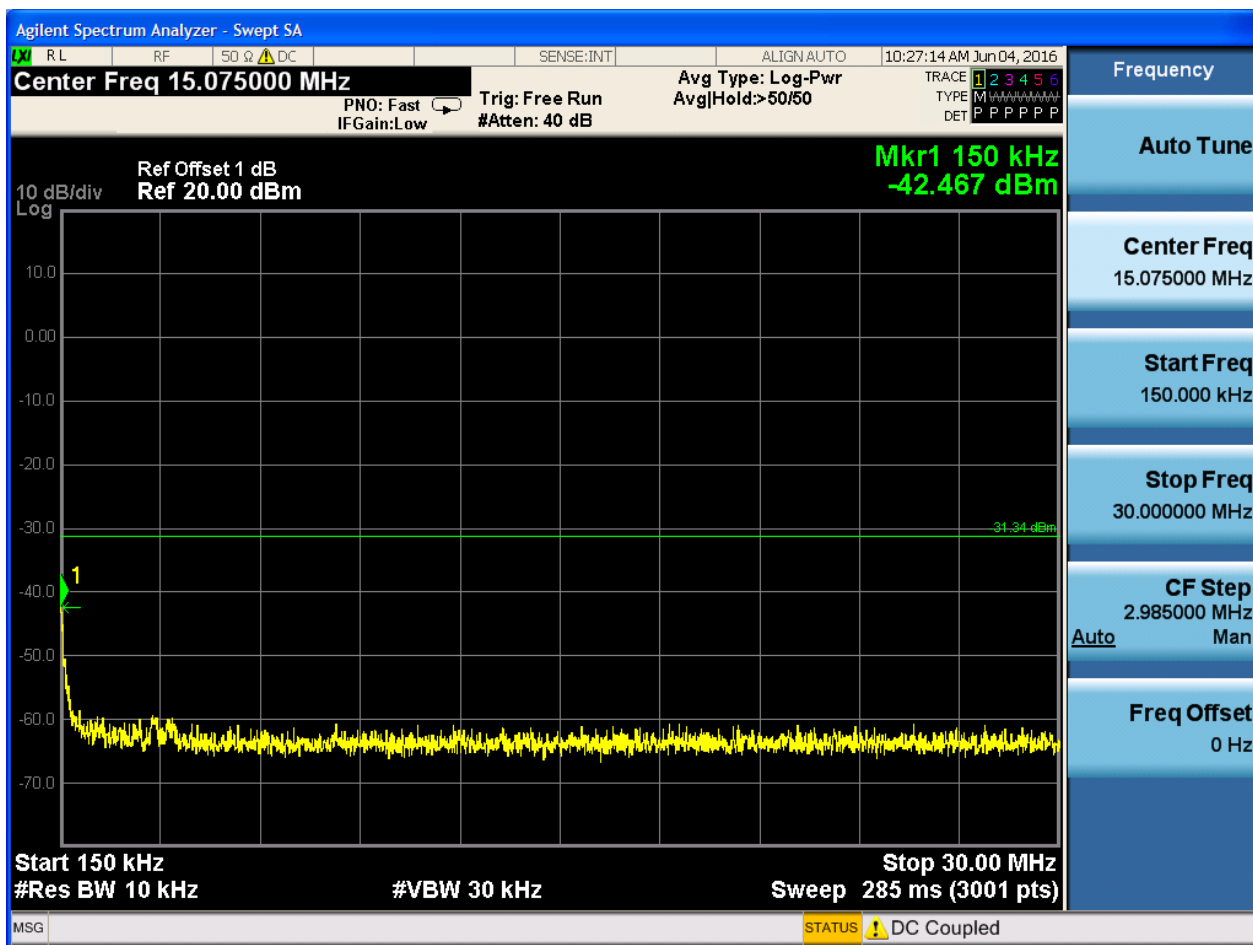
Pref:

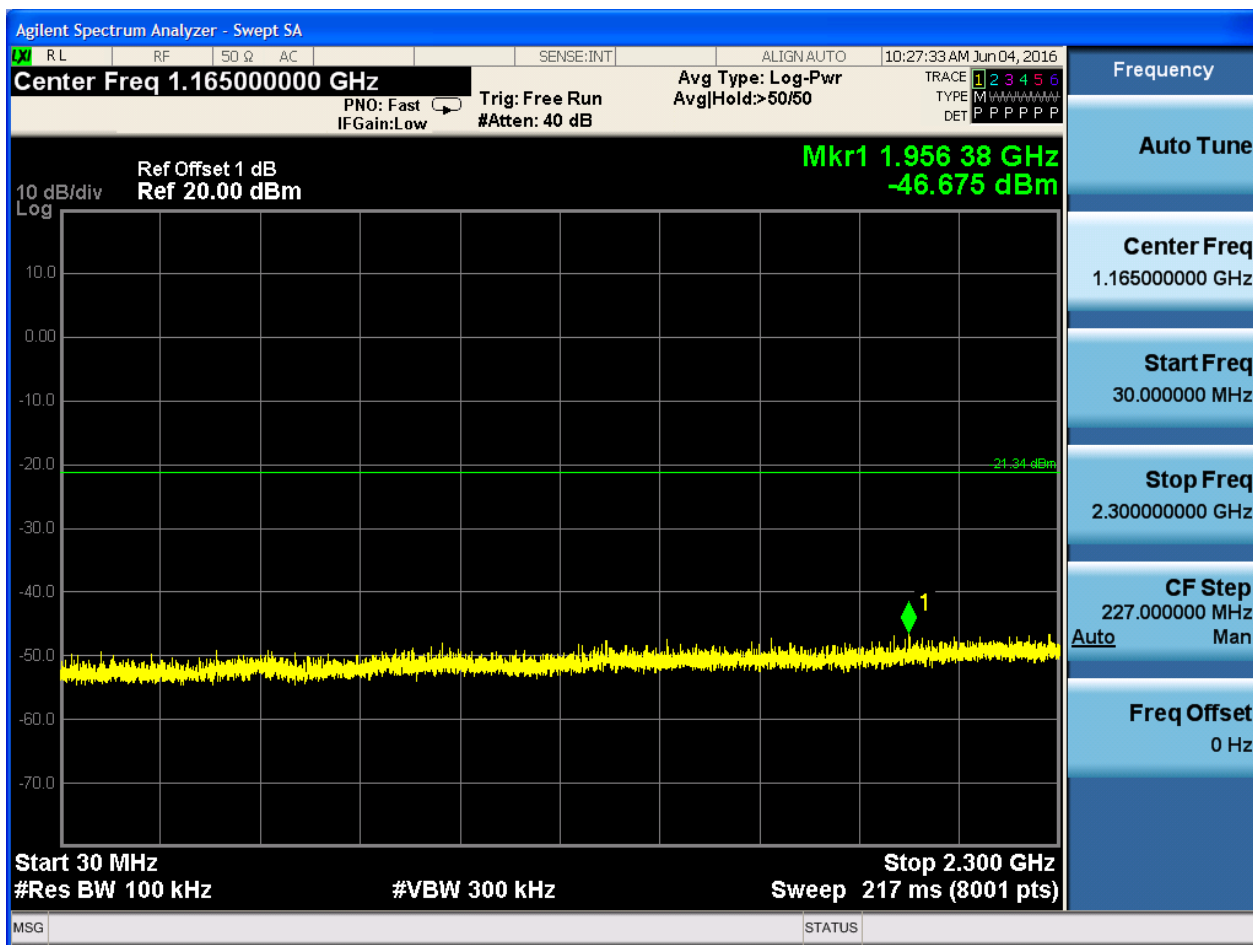


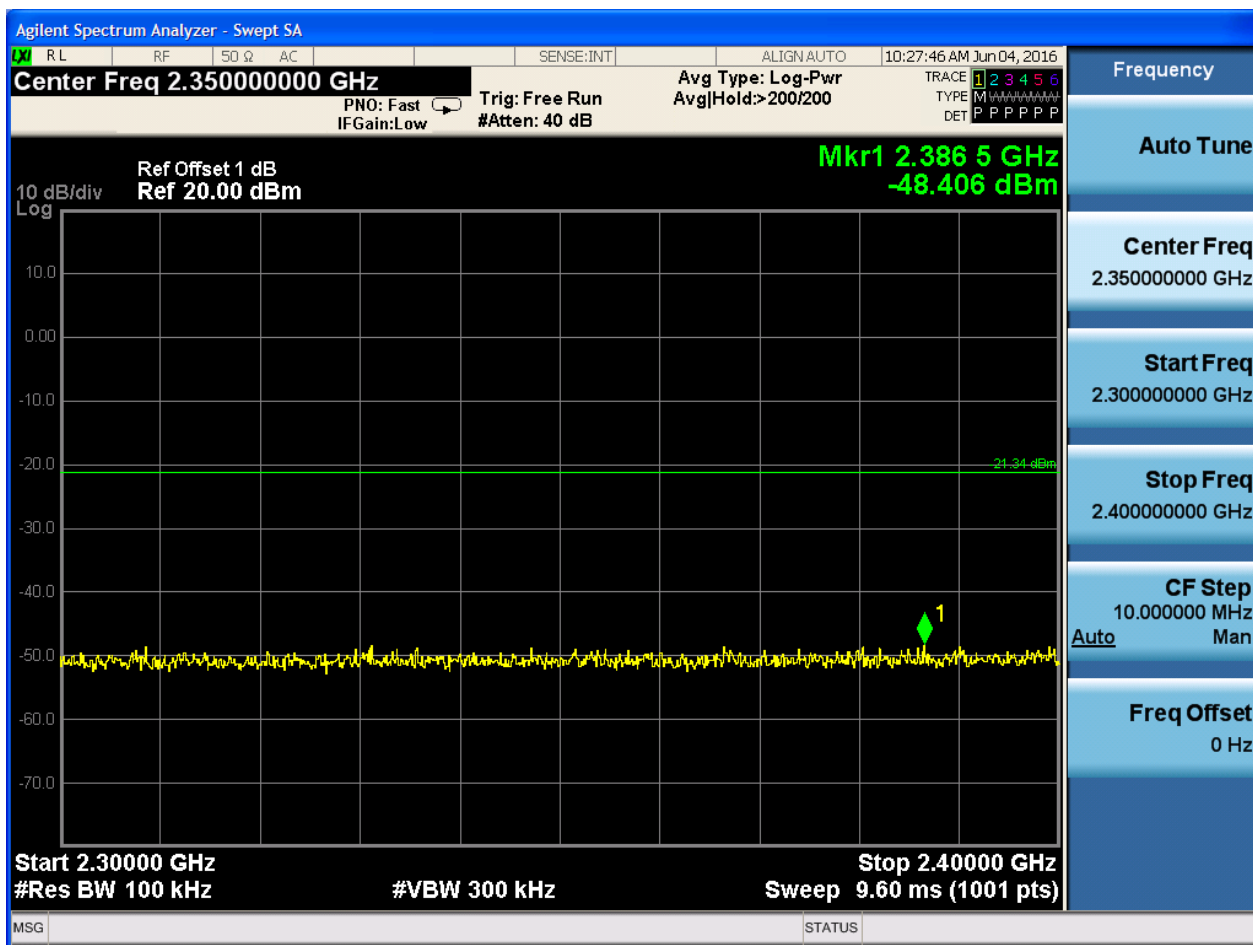


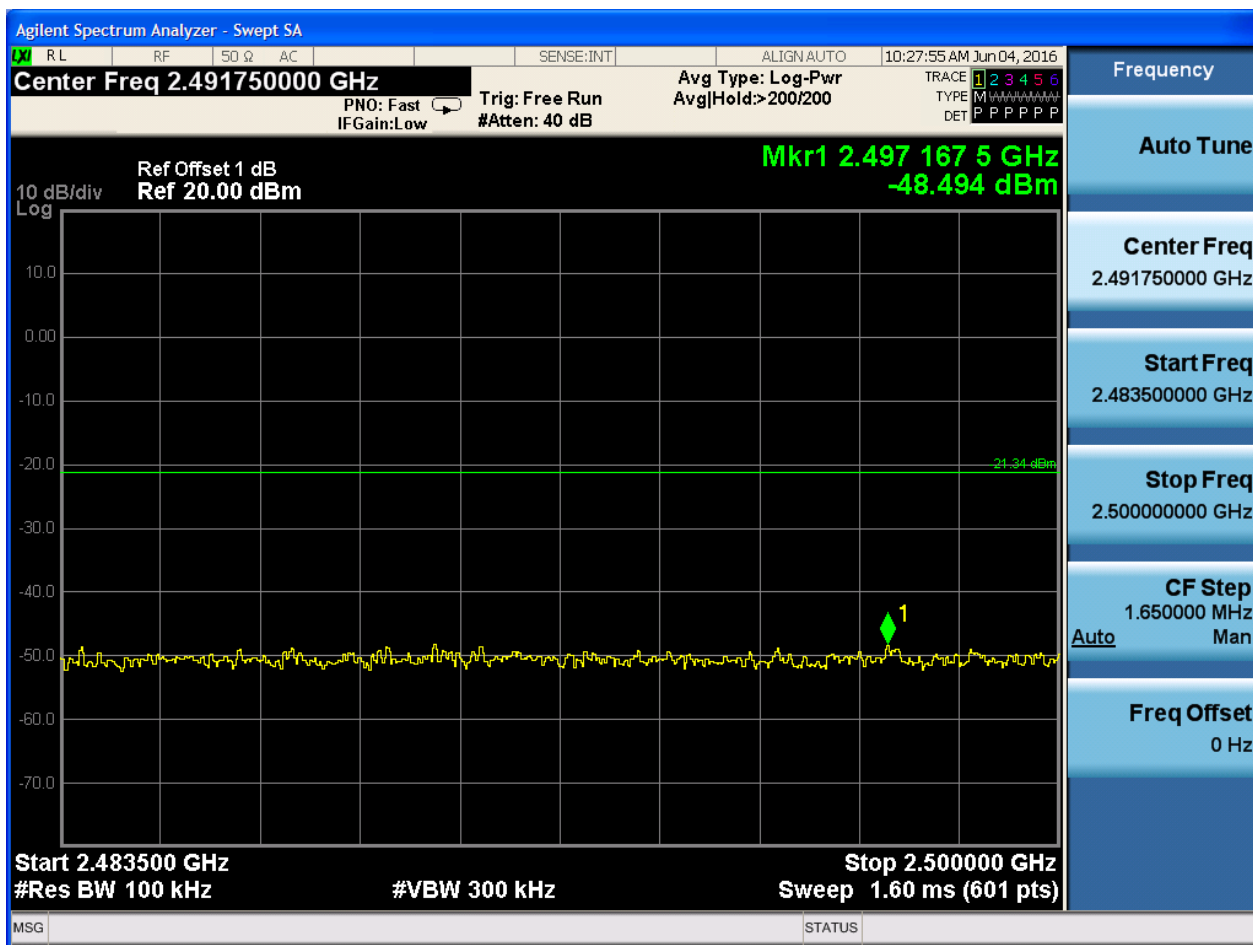
Puw:

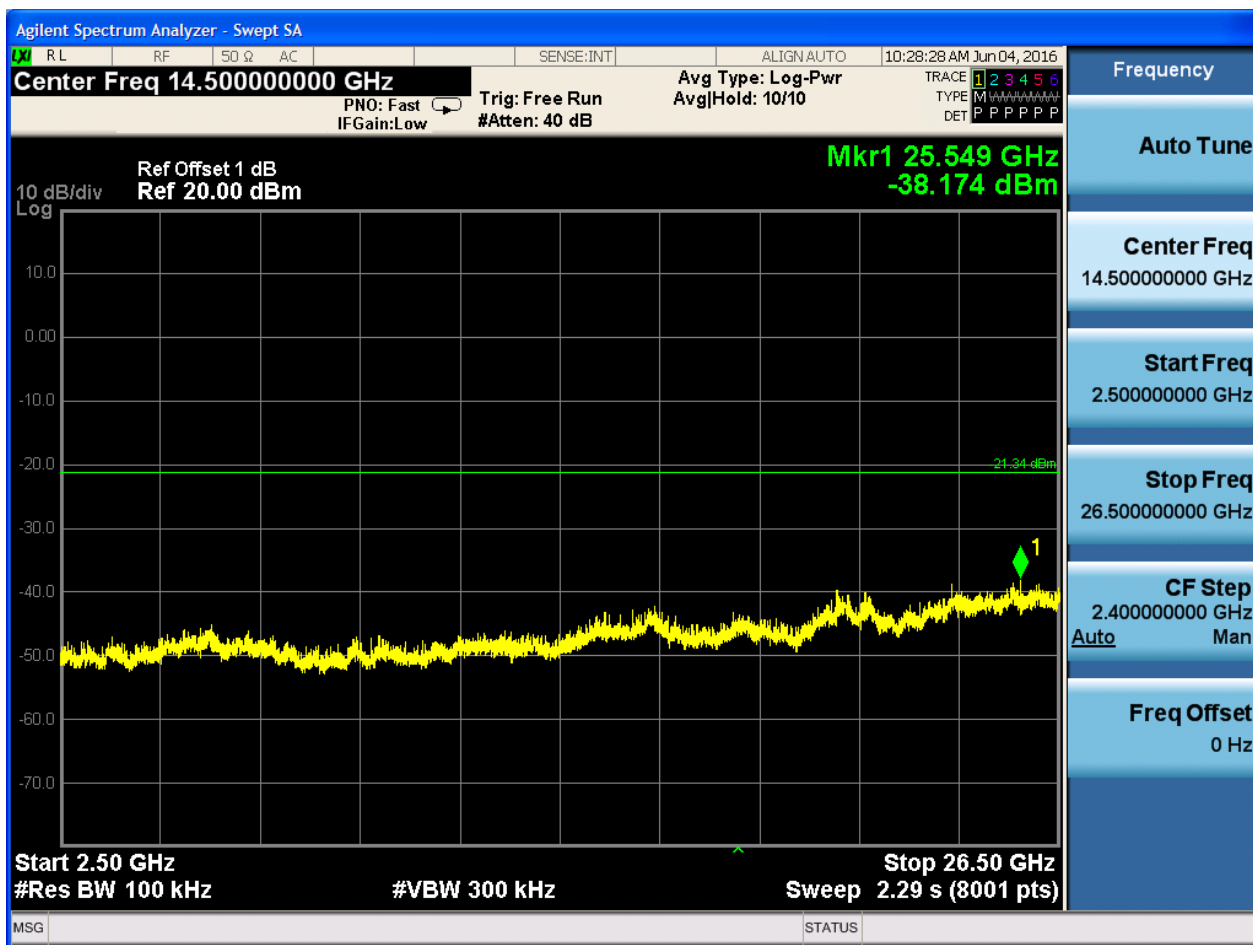








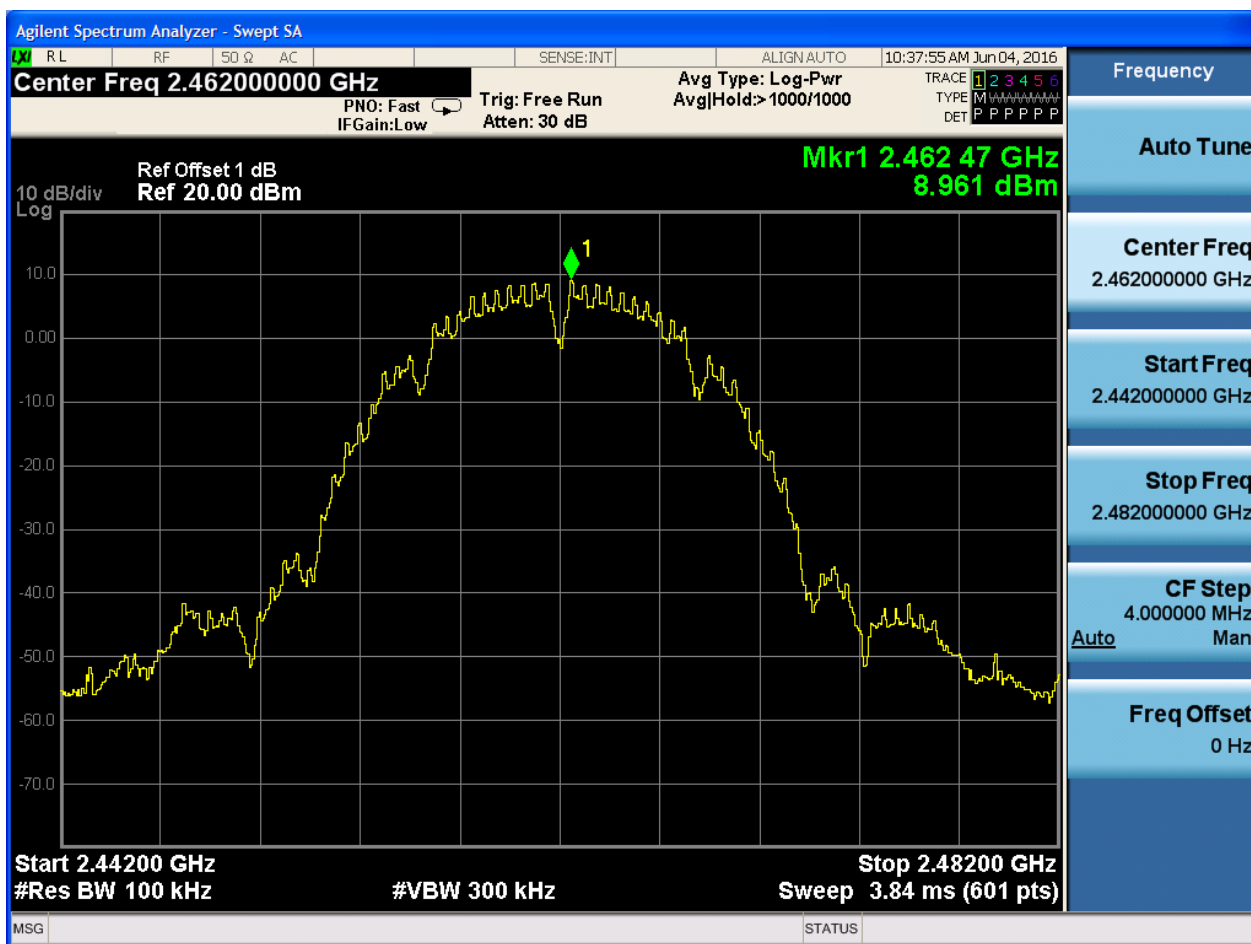






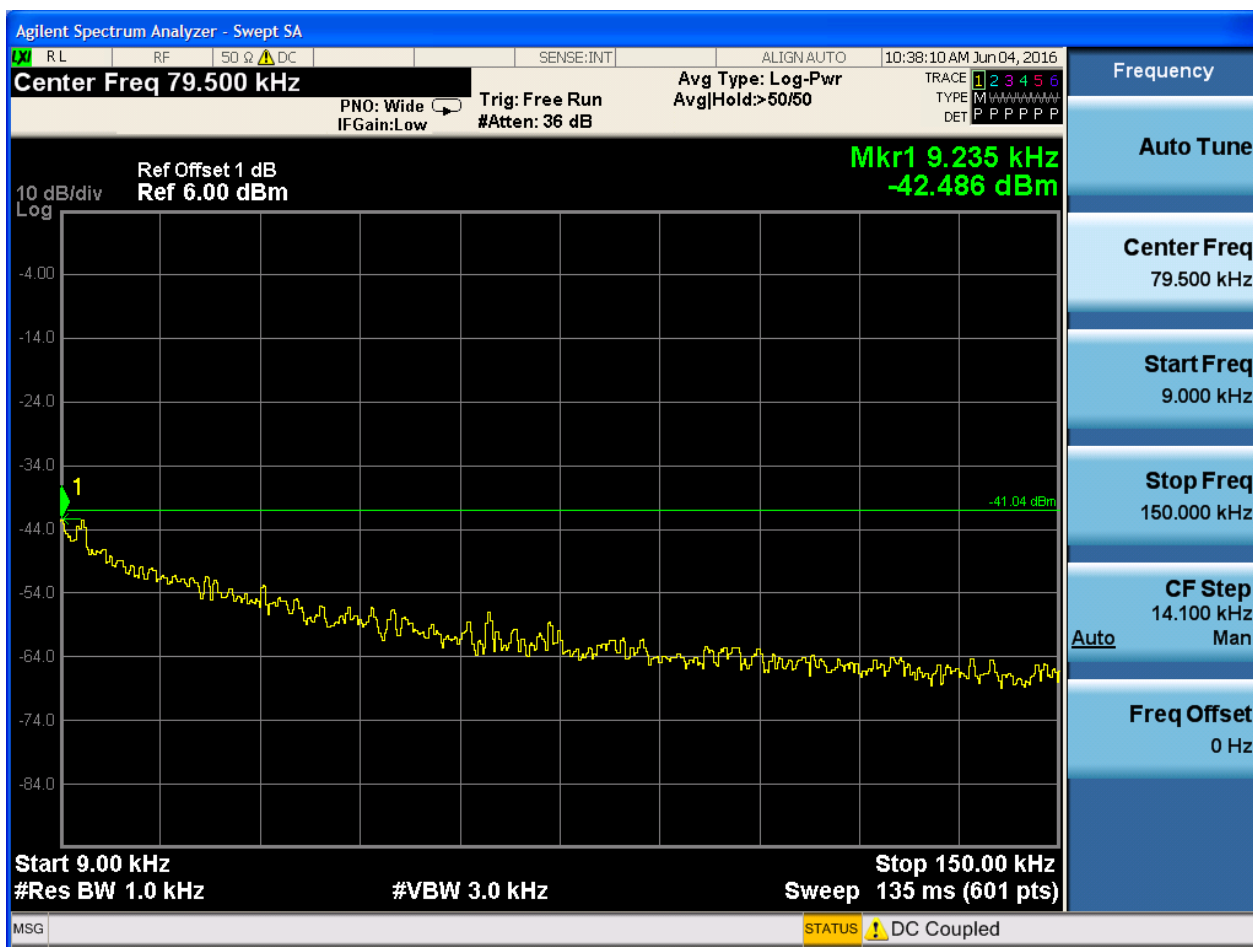
2.5 11B_H@Ant 1

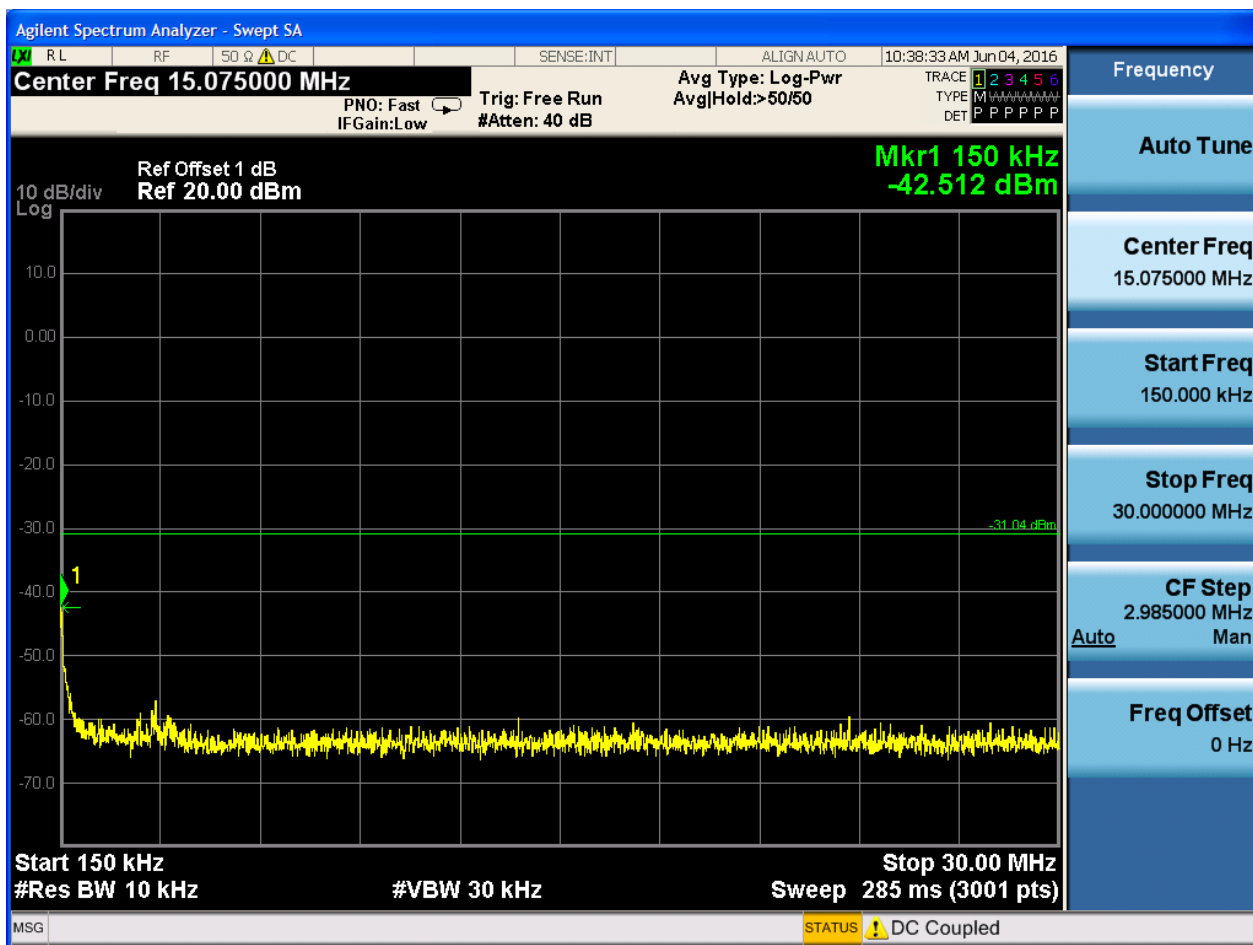
Pref:

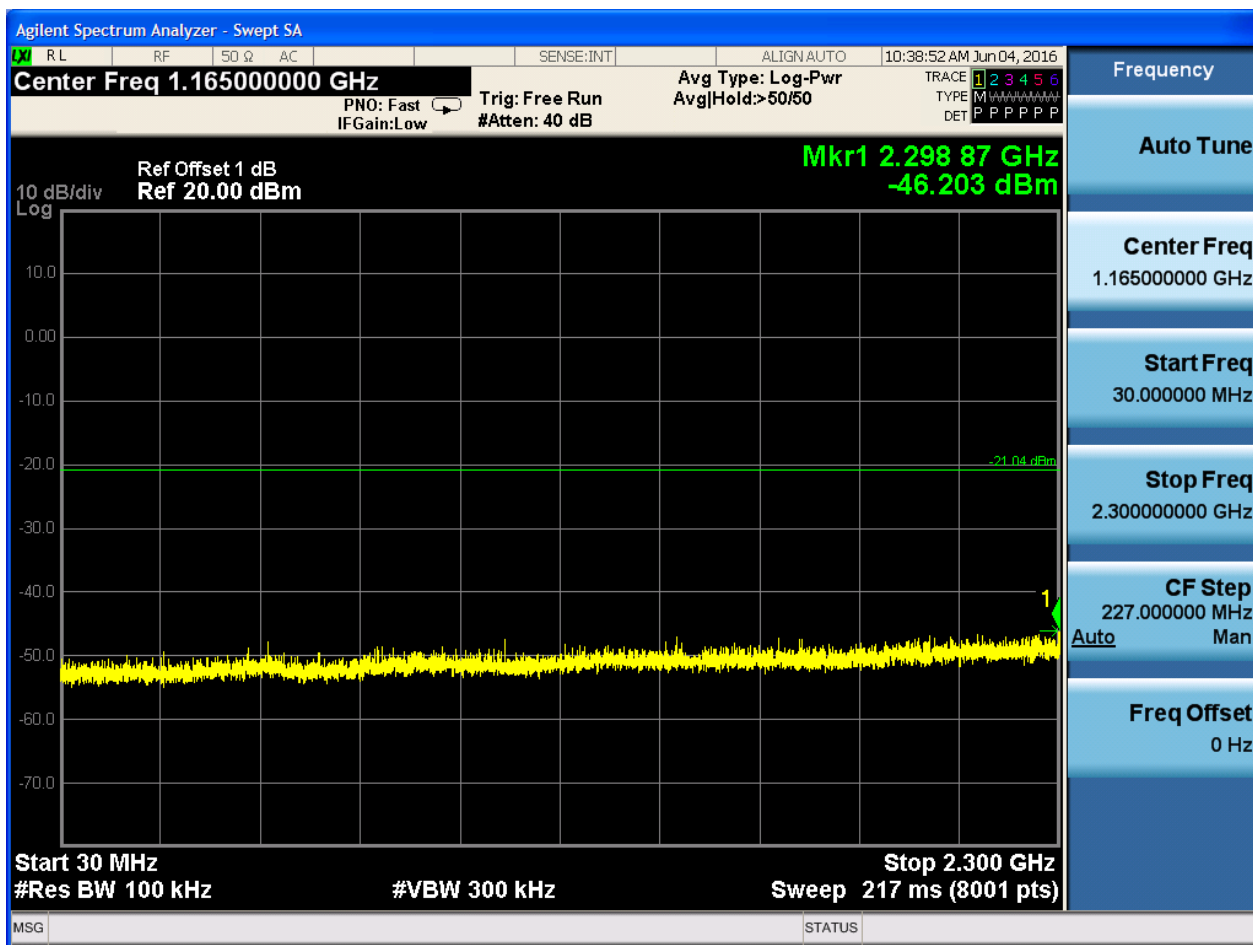


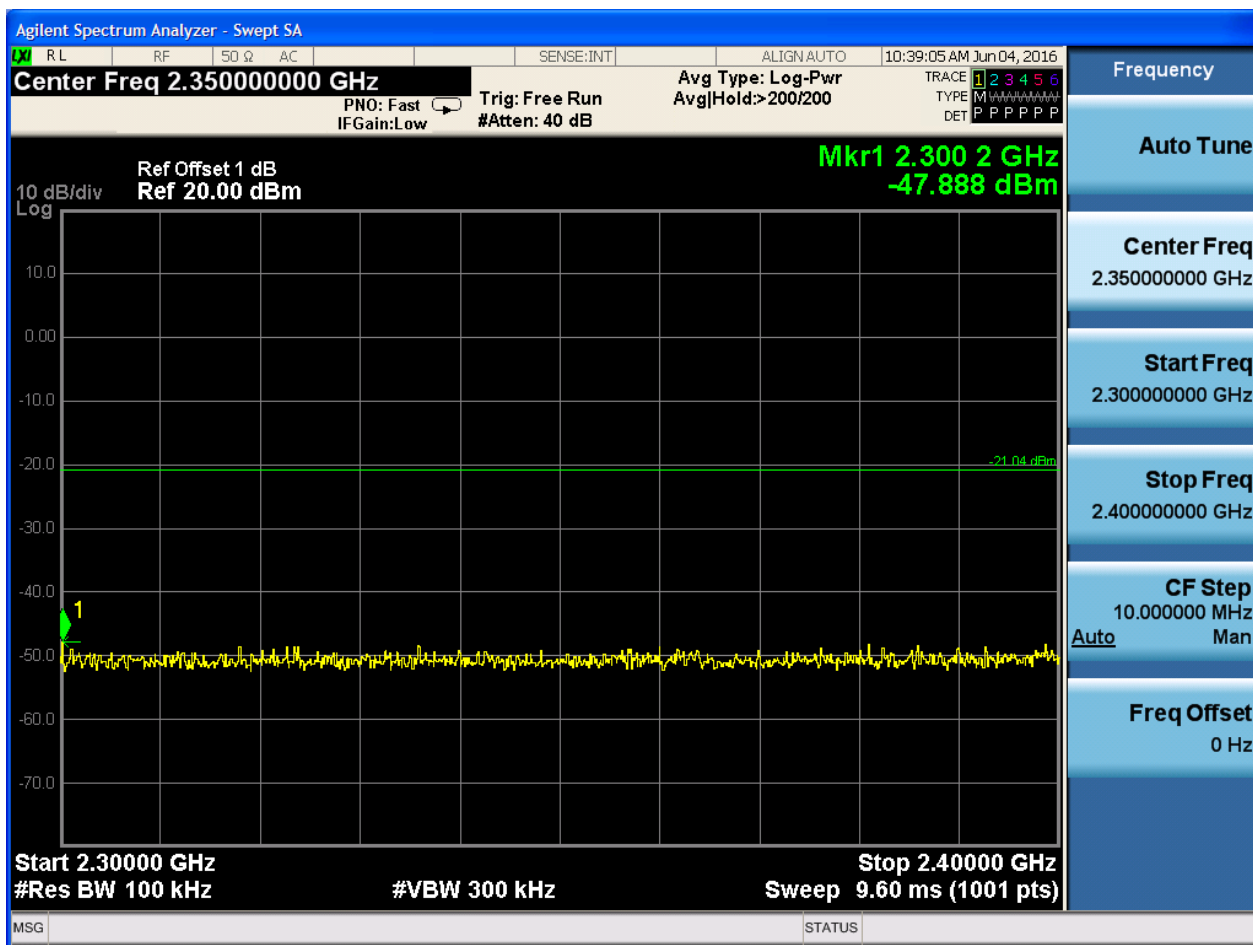


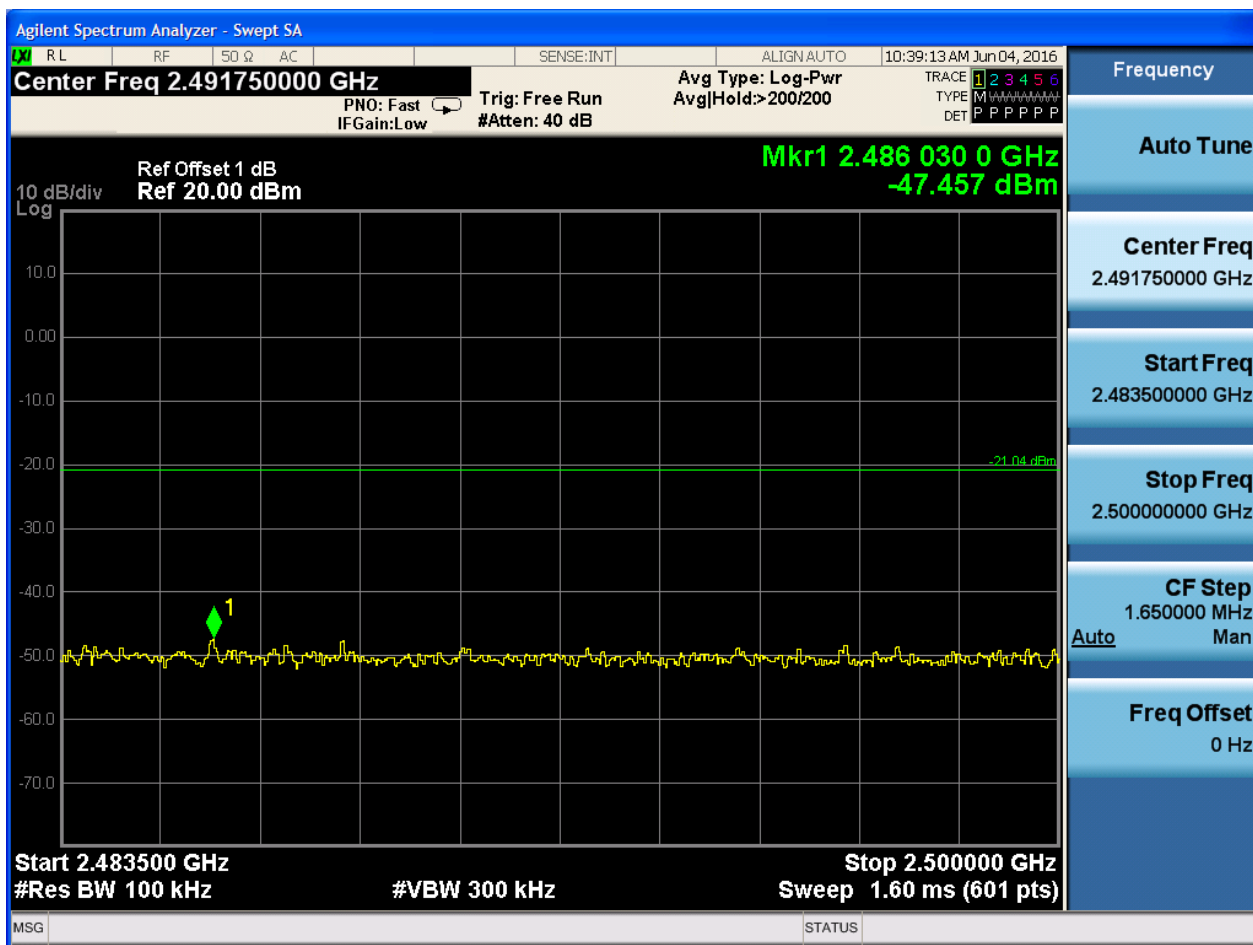
Puw:









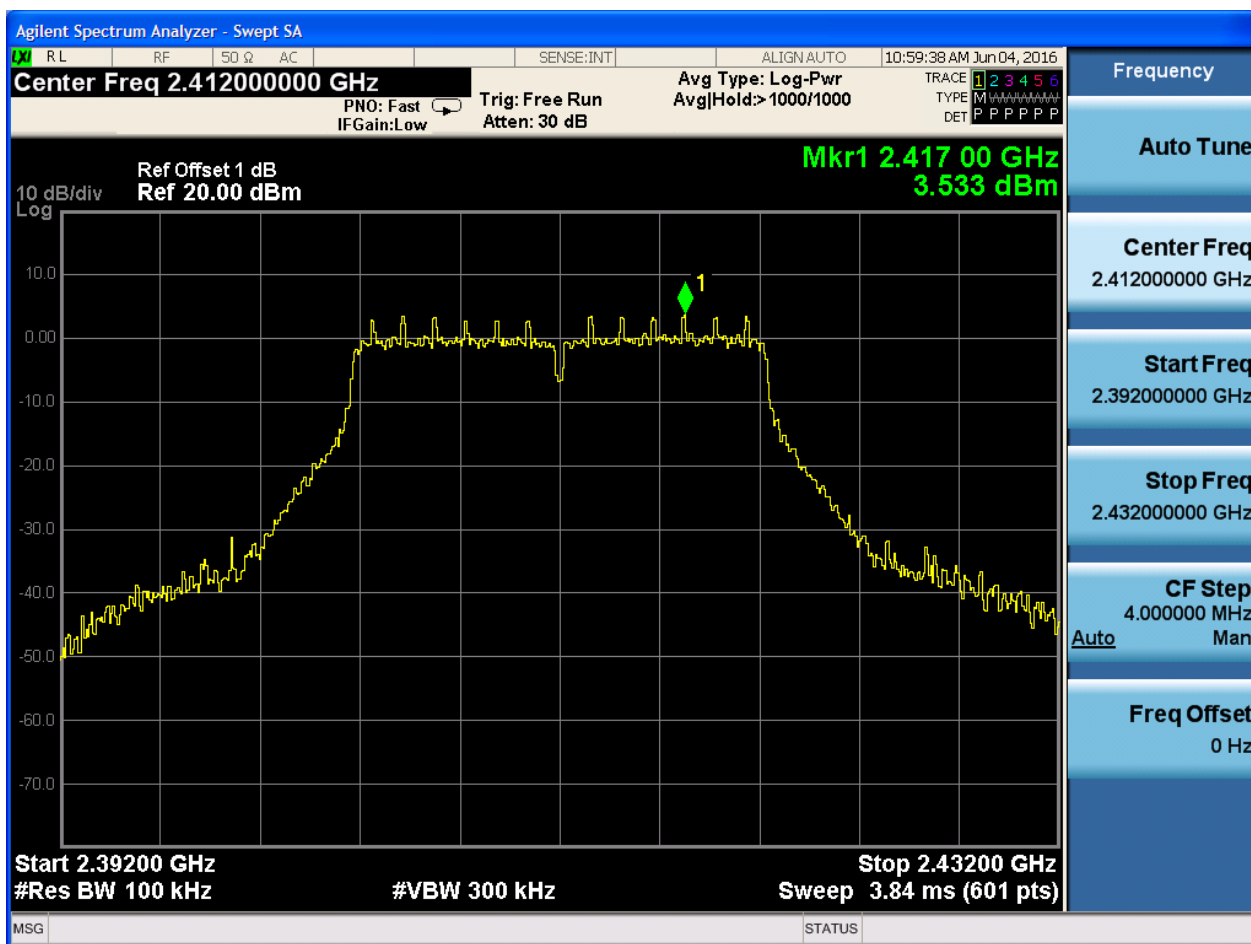




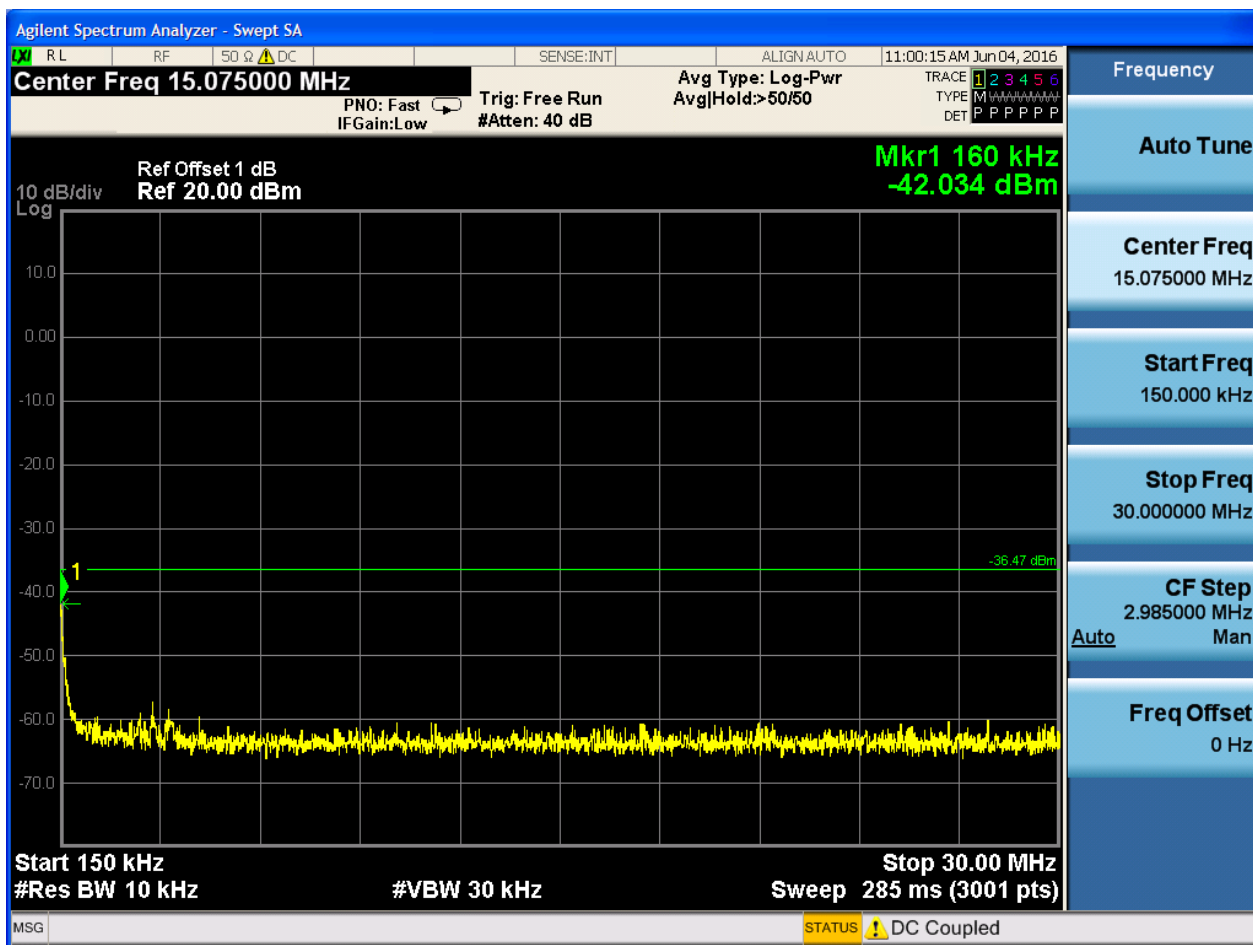


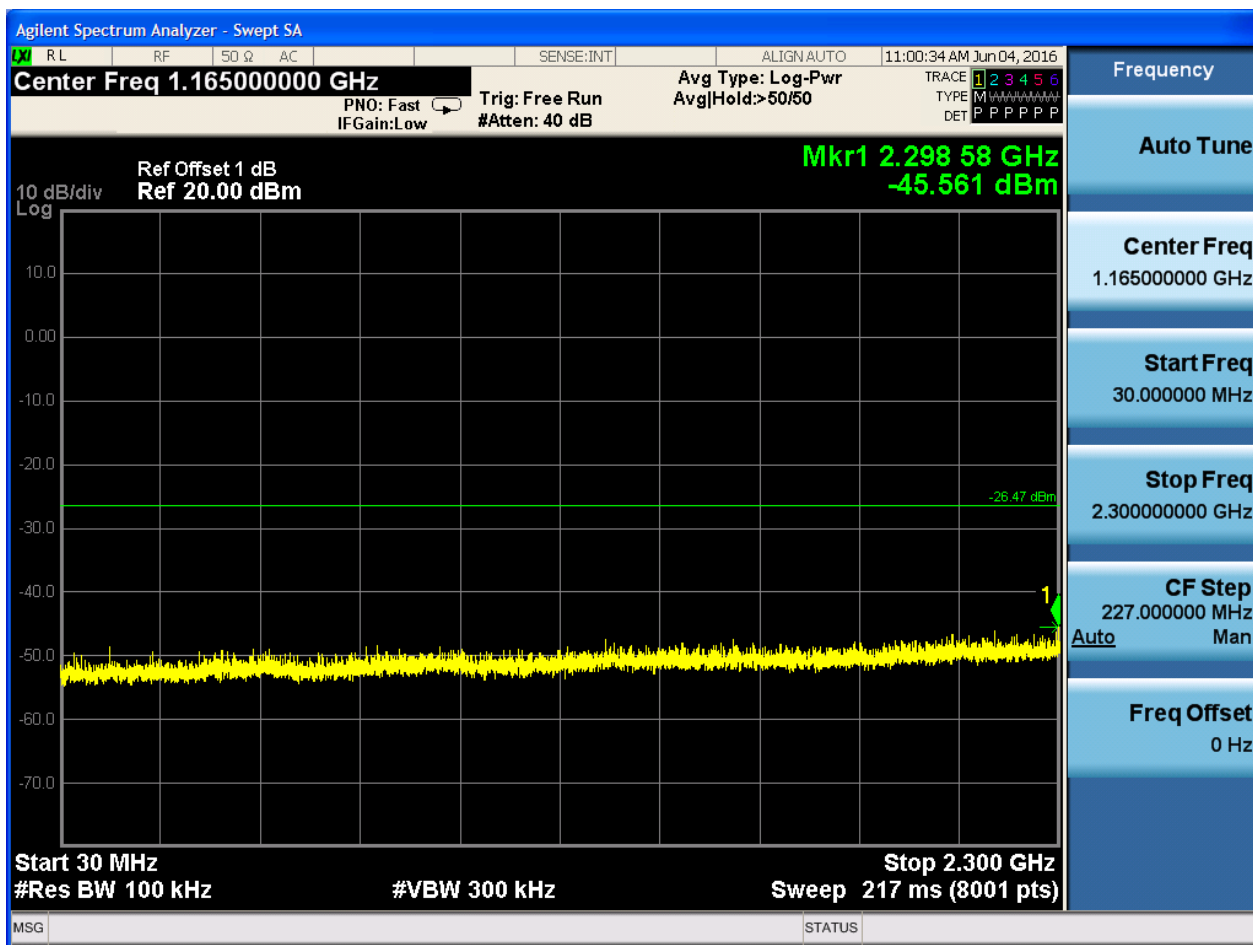
2.7 11G_L@Ant 1

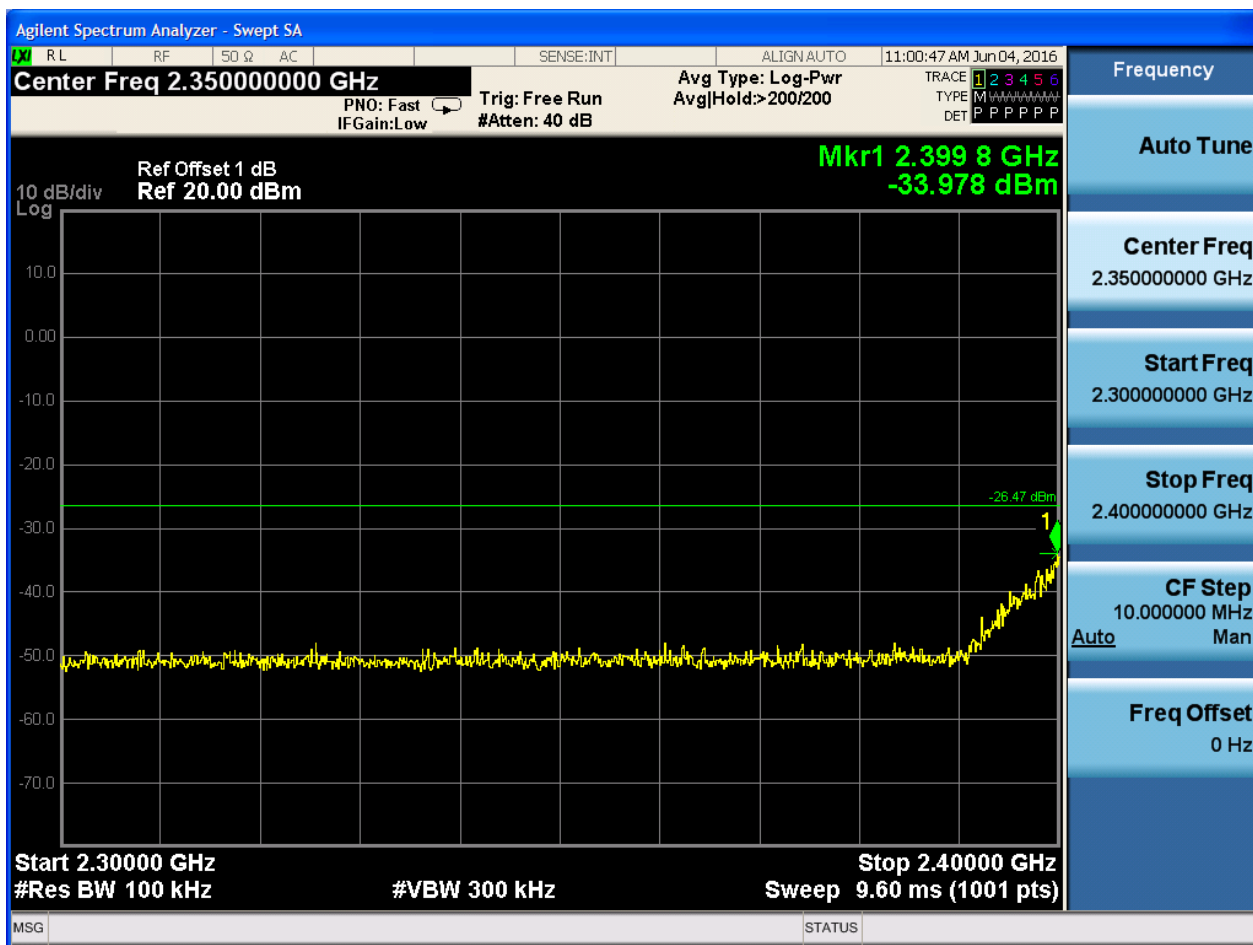
Pref:

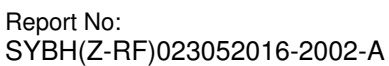


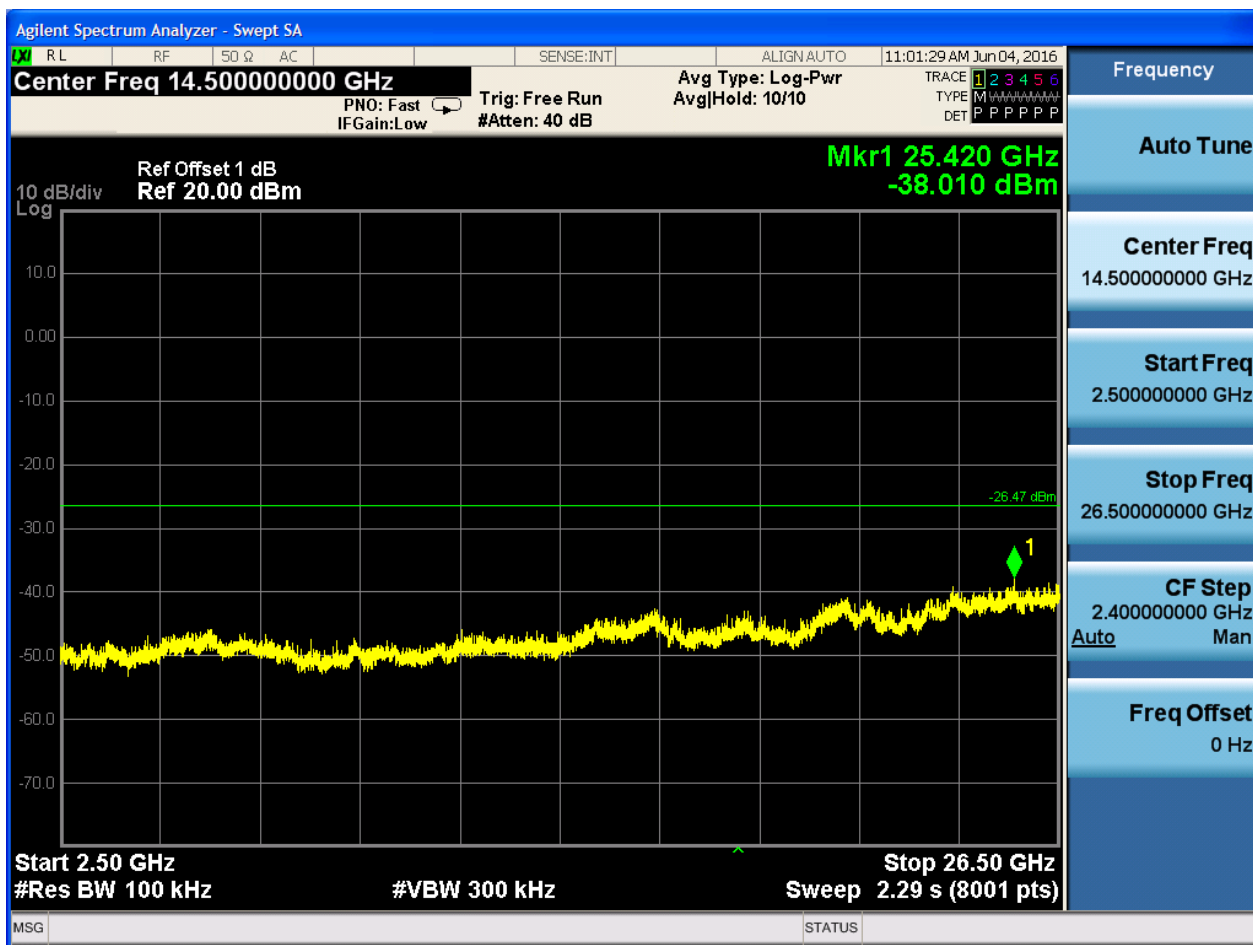
P_uw:







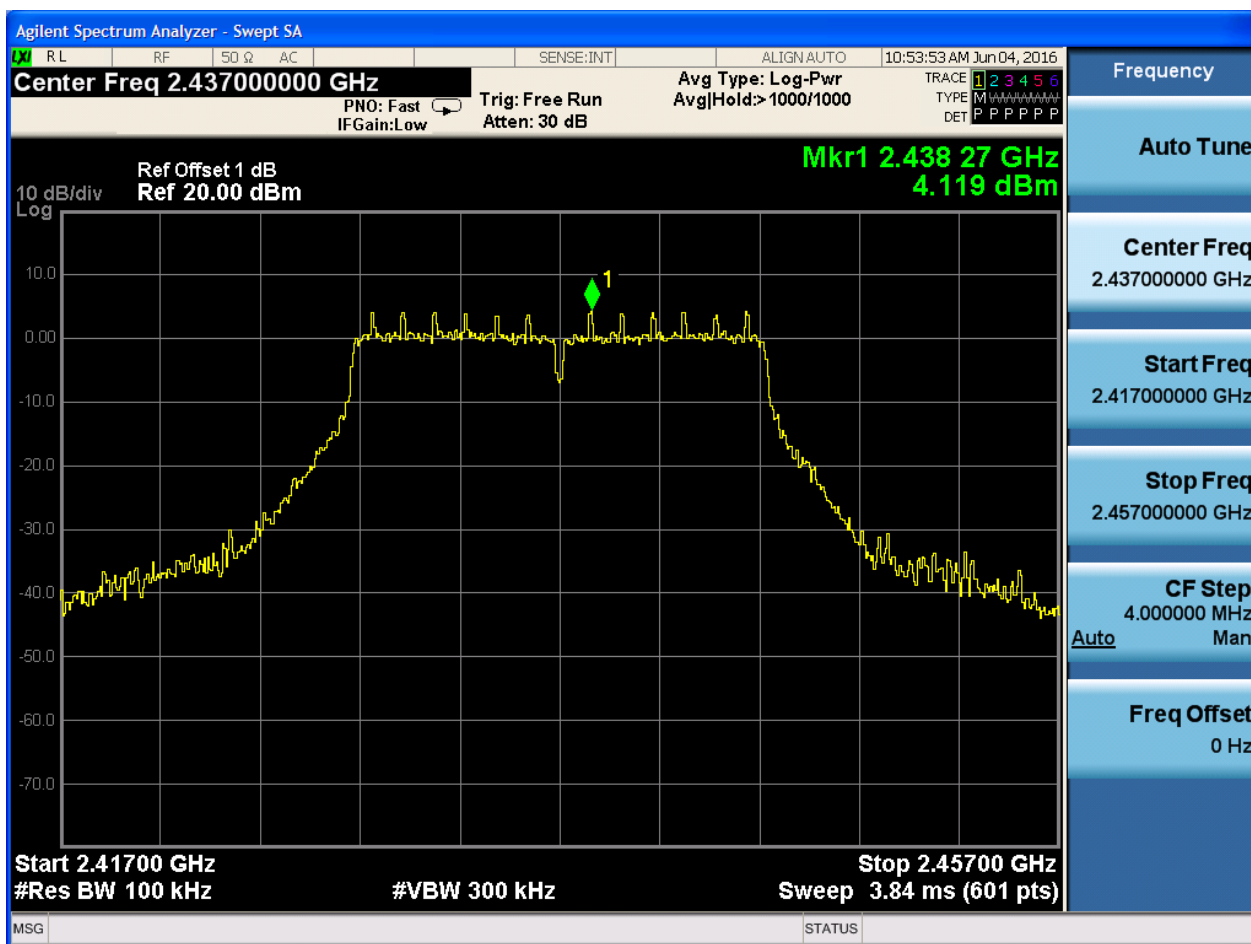






2.9 11G_M@Ant 1

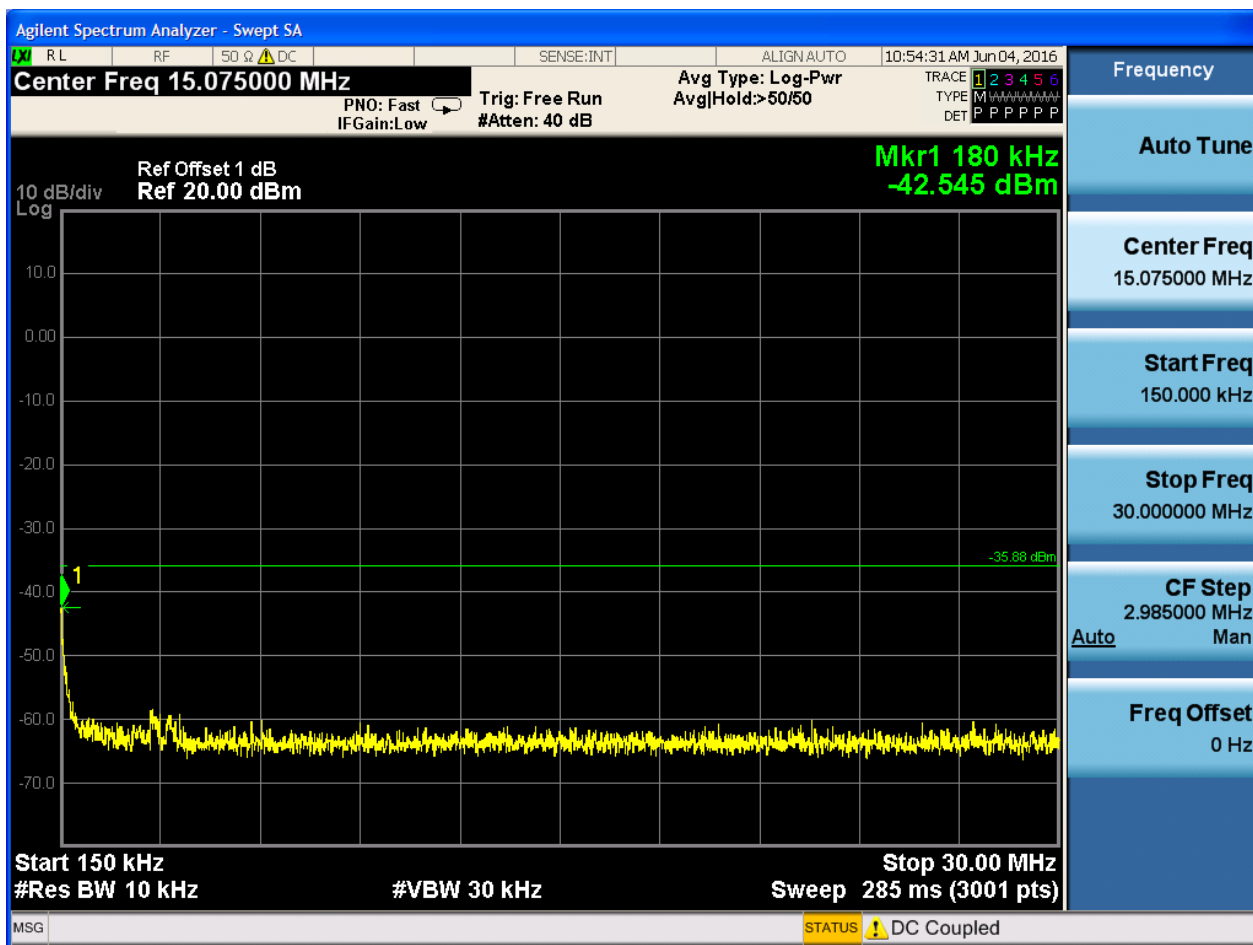
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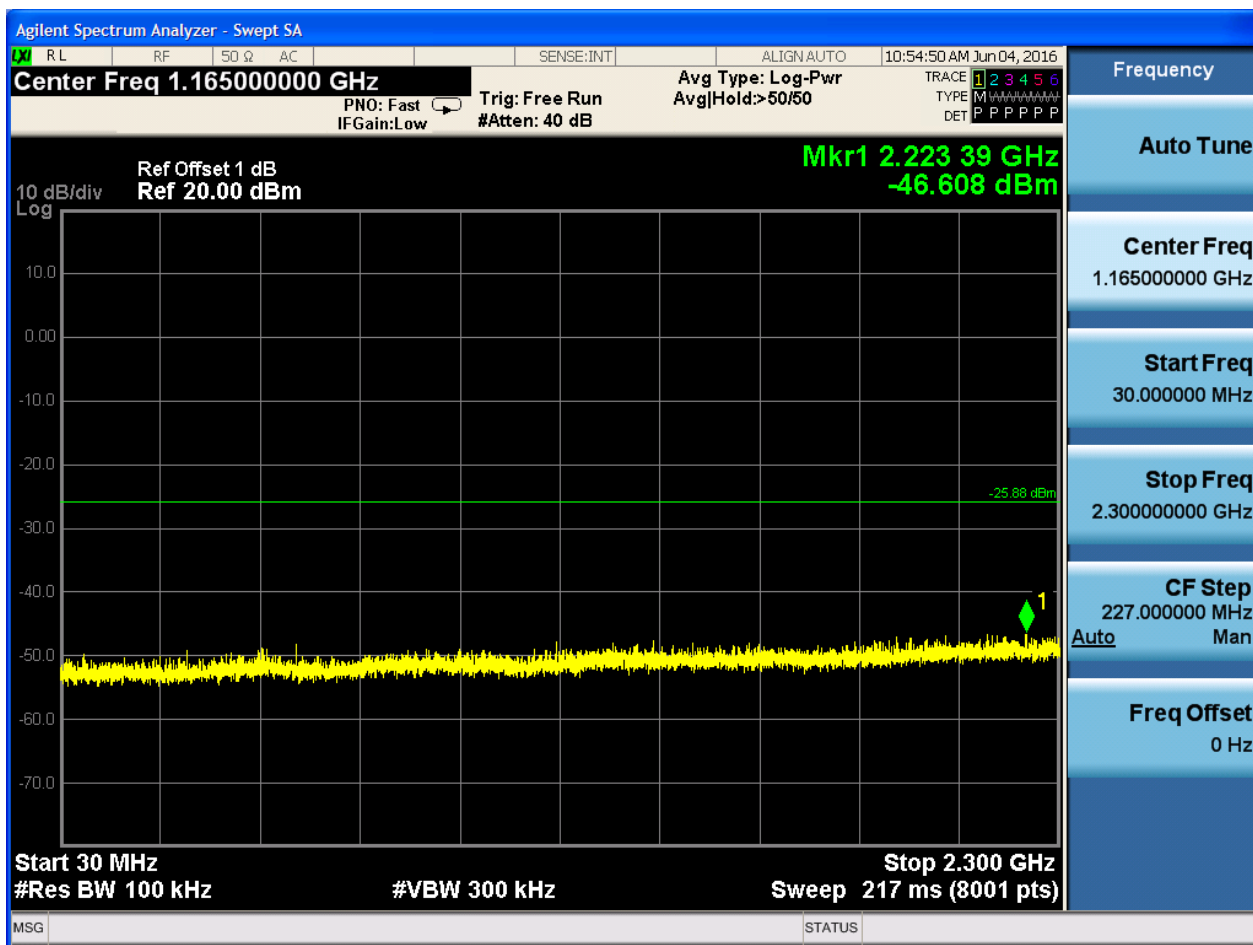


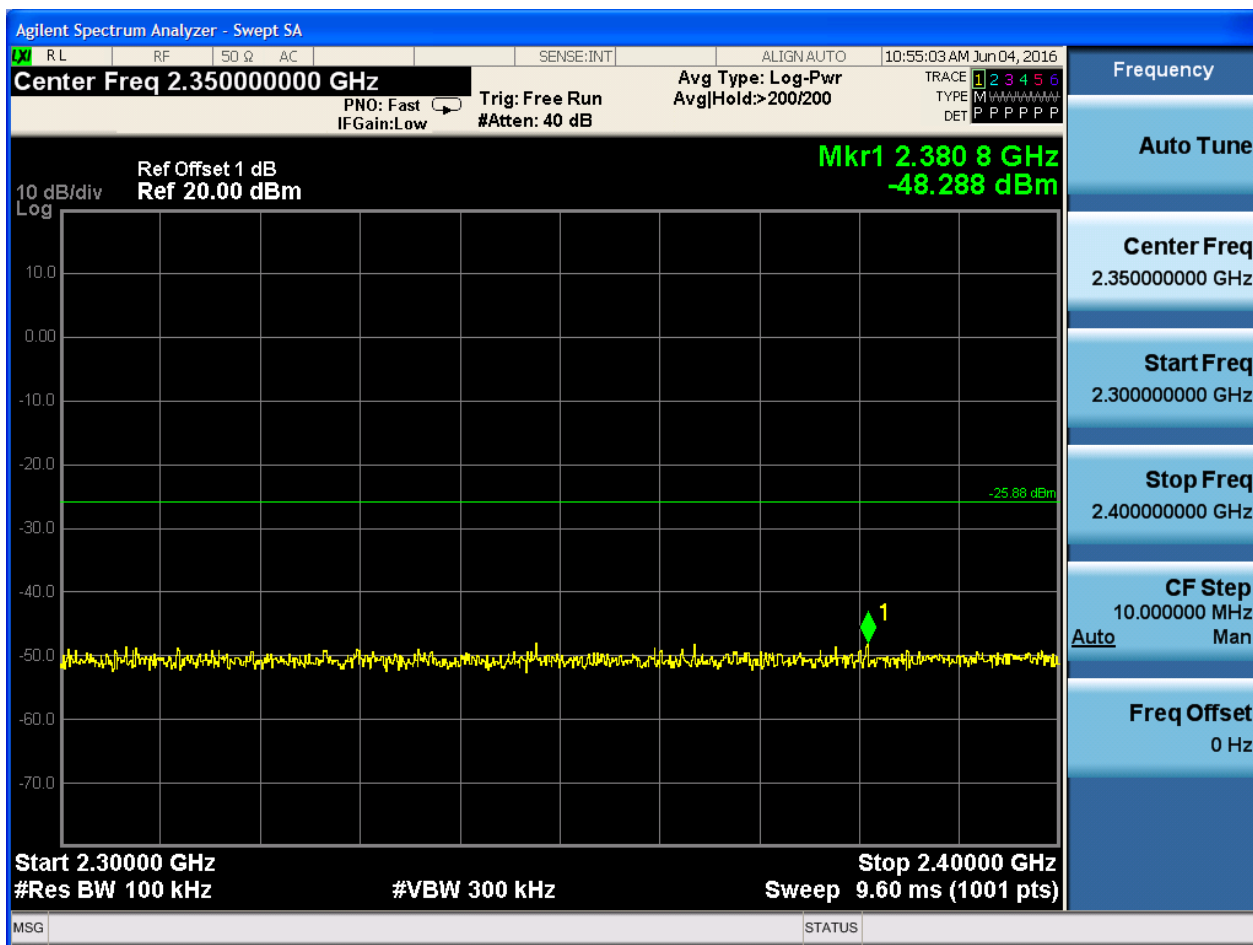


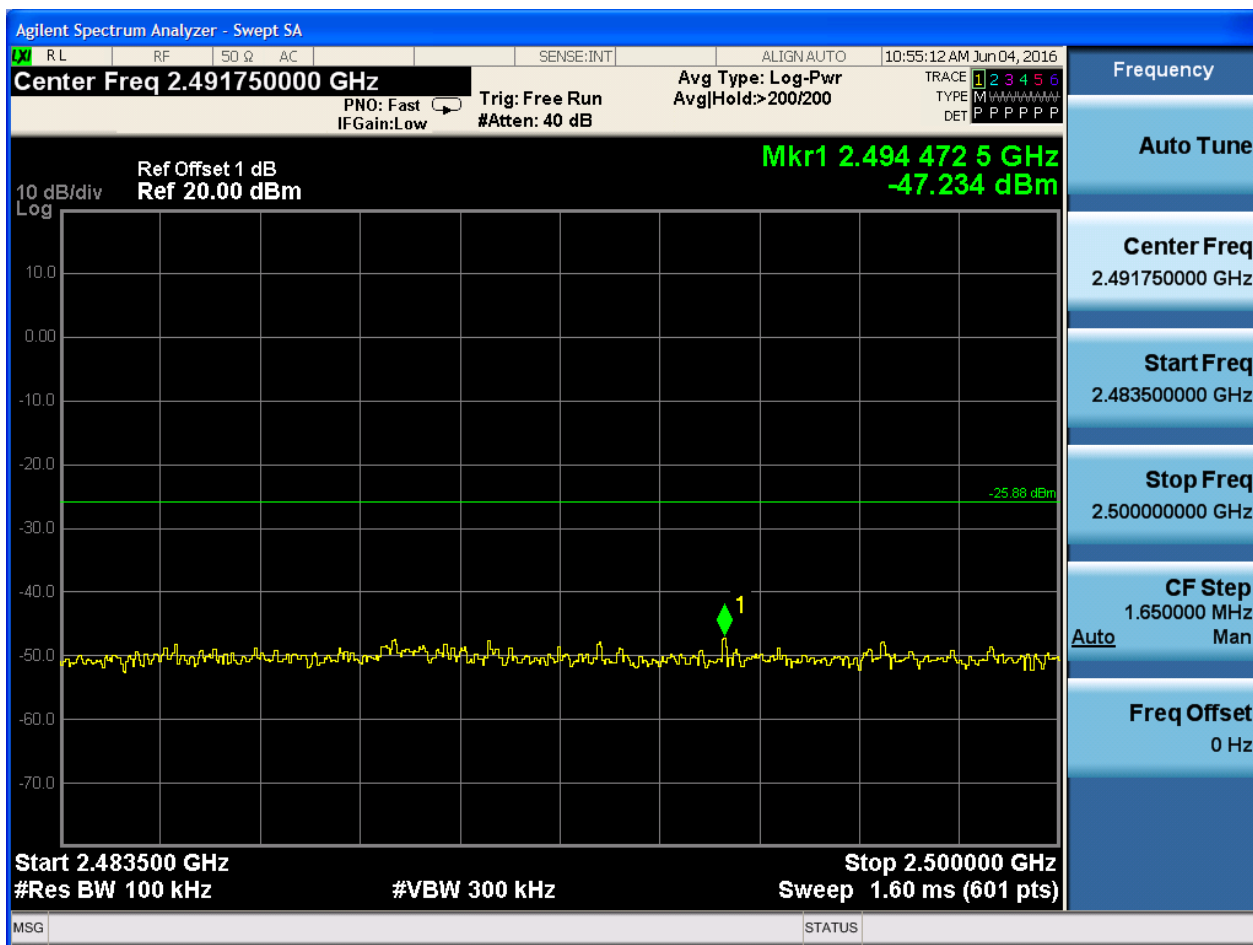
Puw:

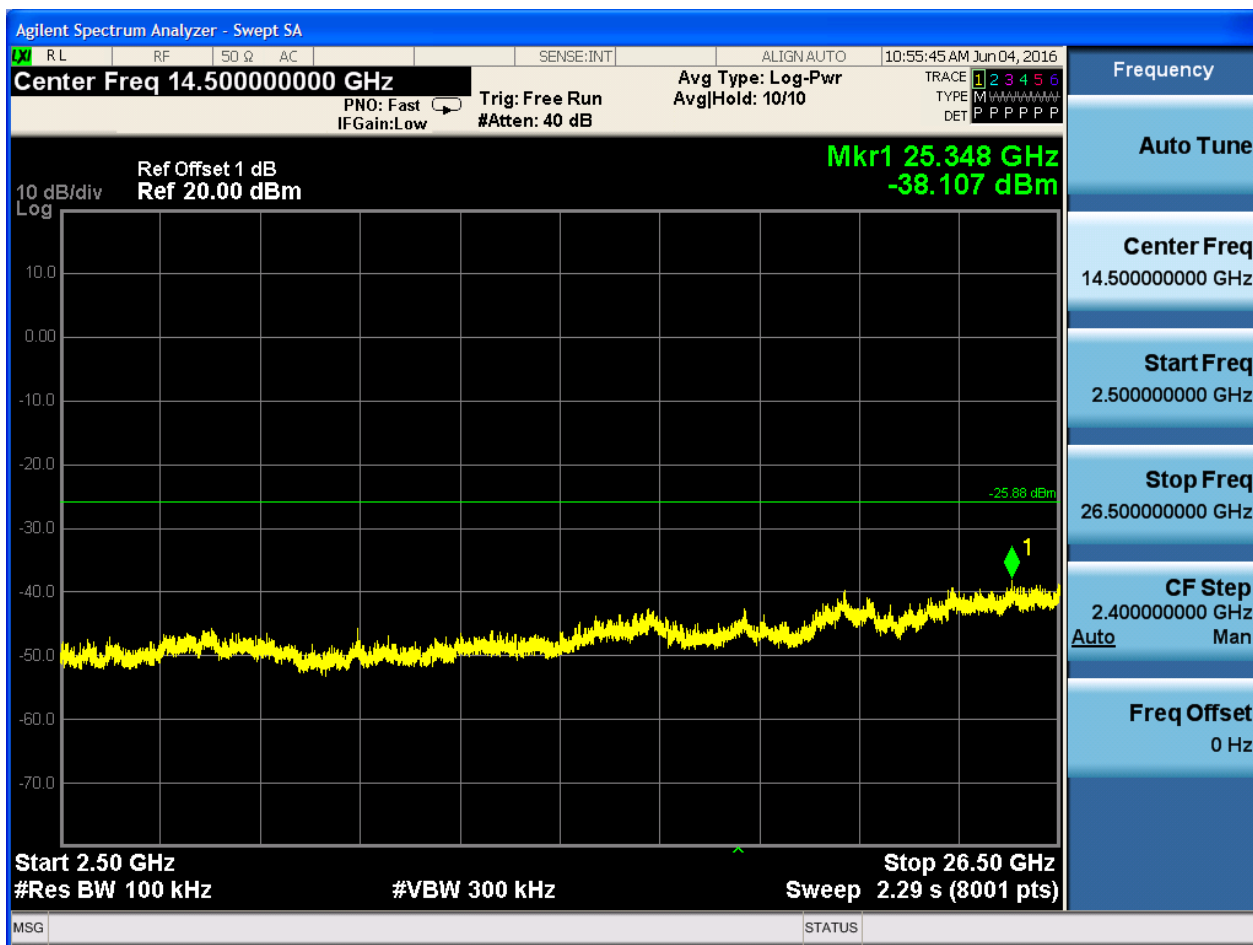








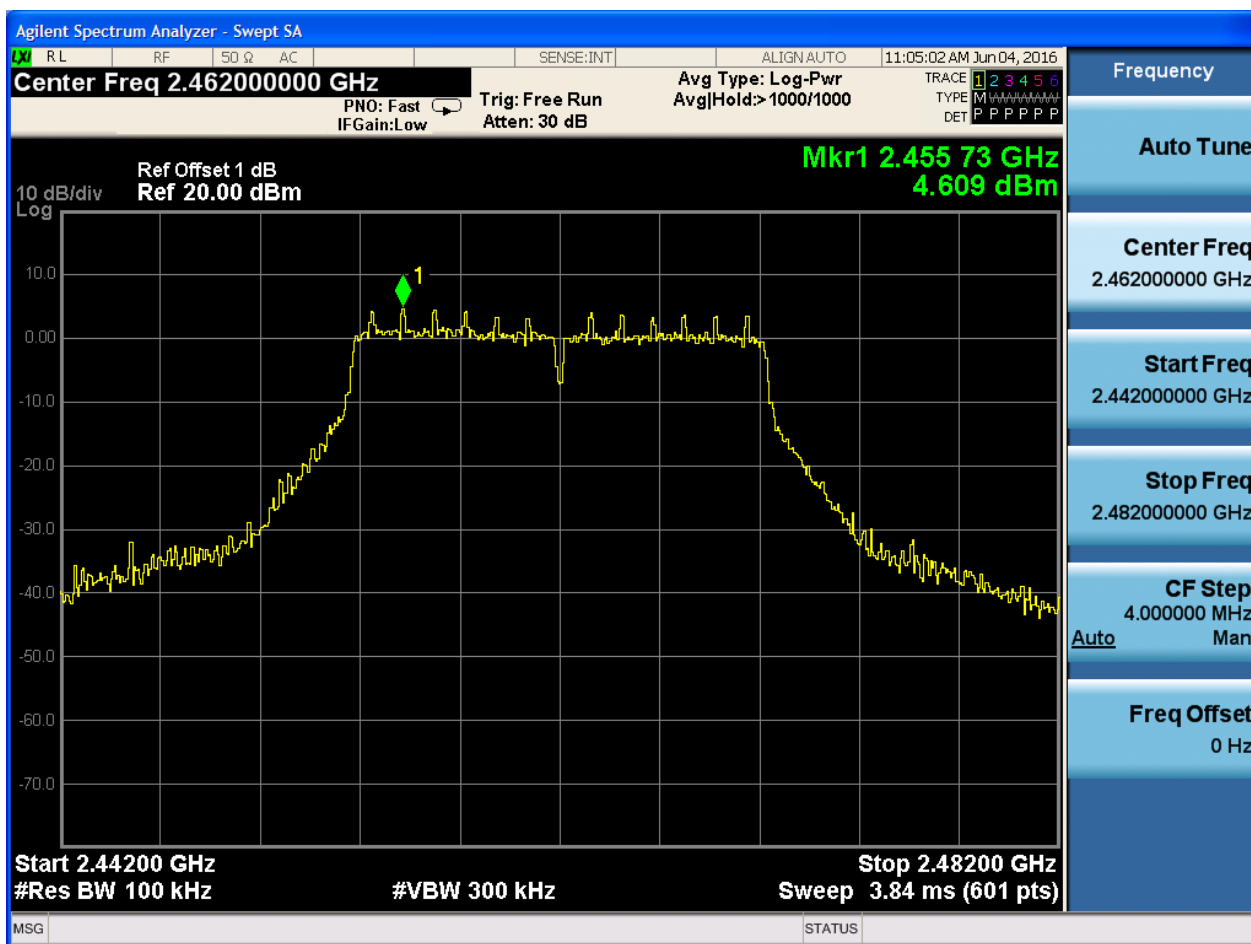




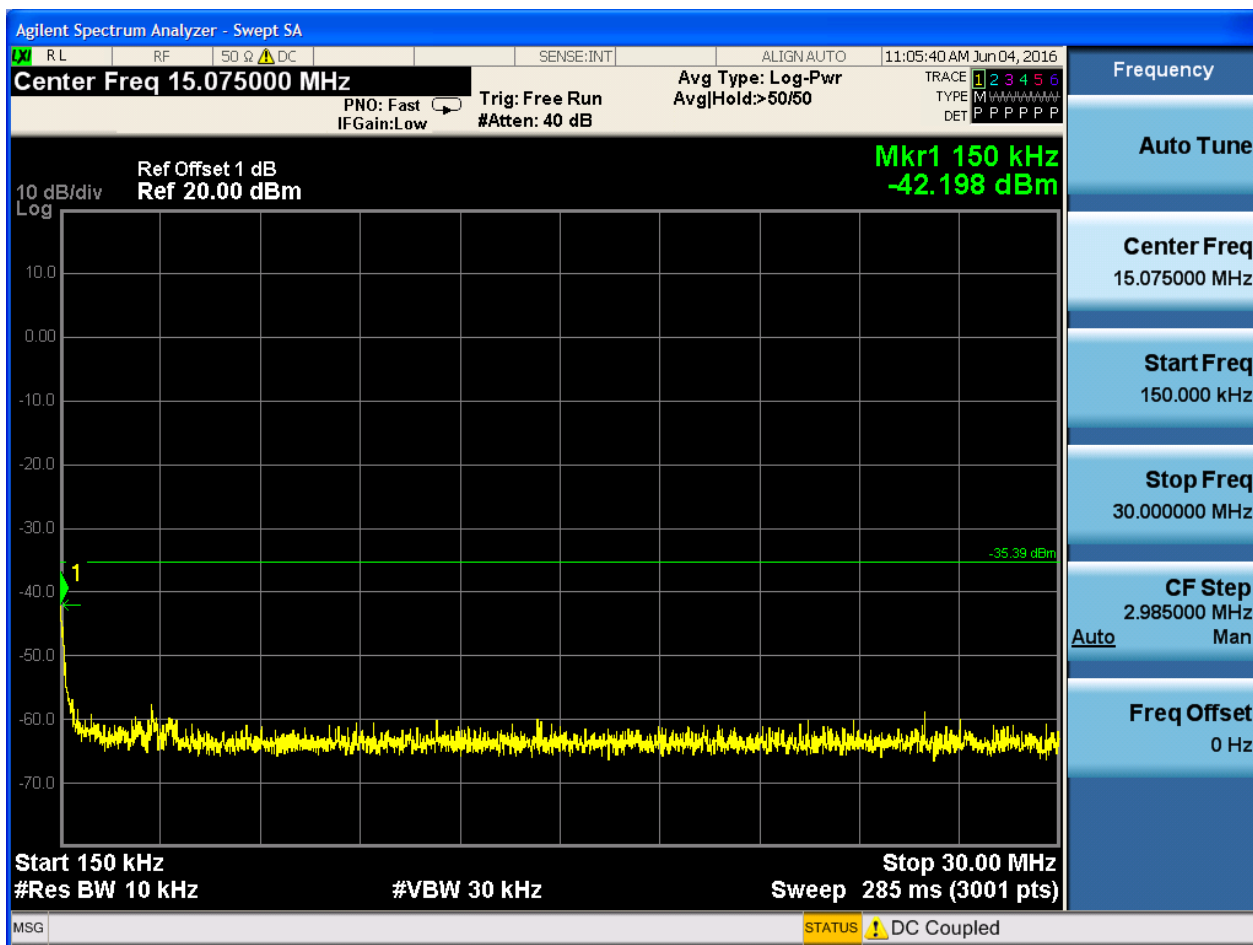


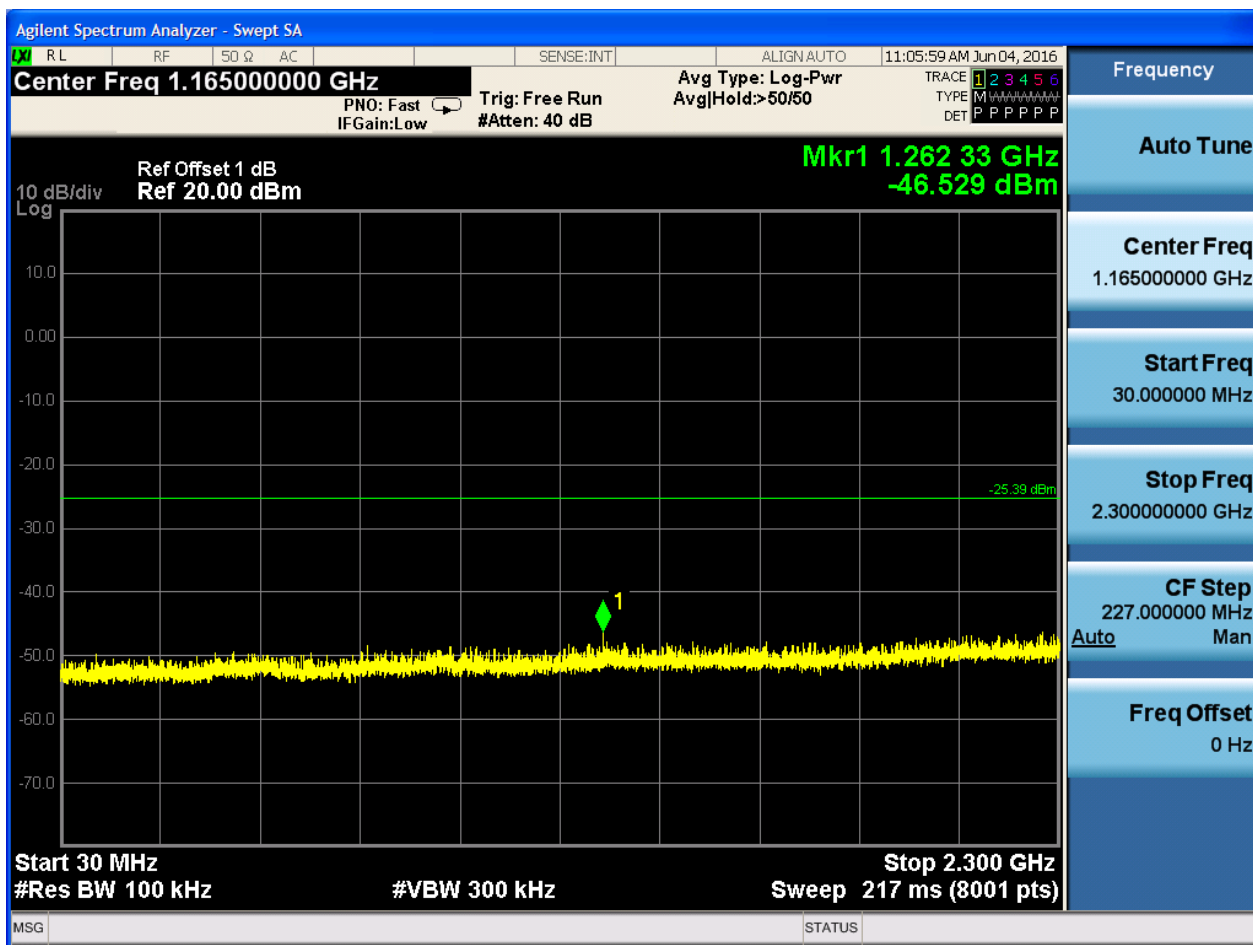
2.11 11G_H@Ant 1

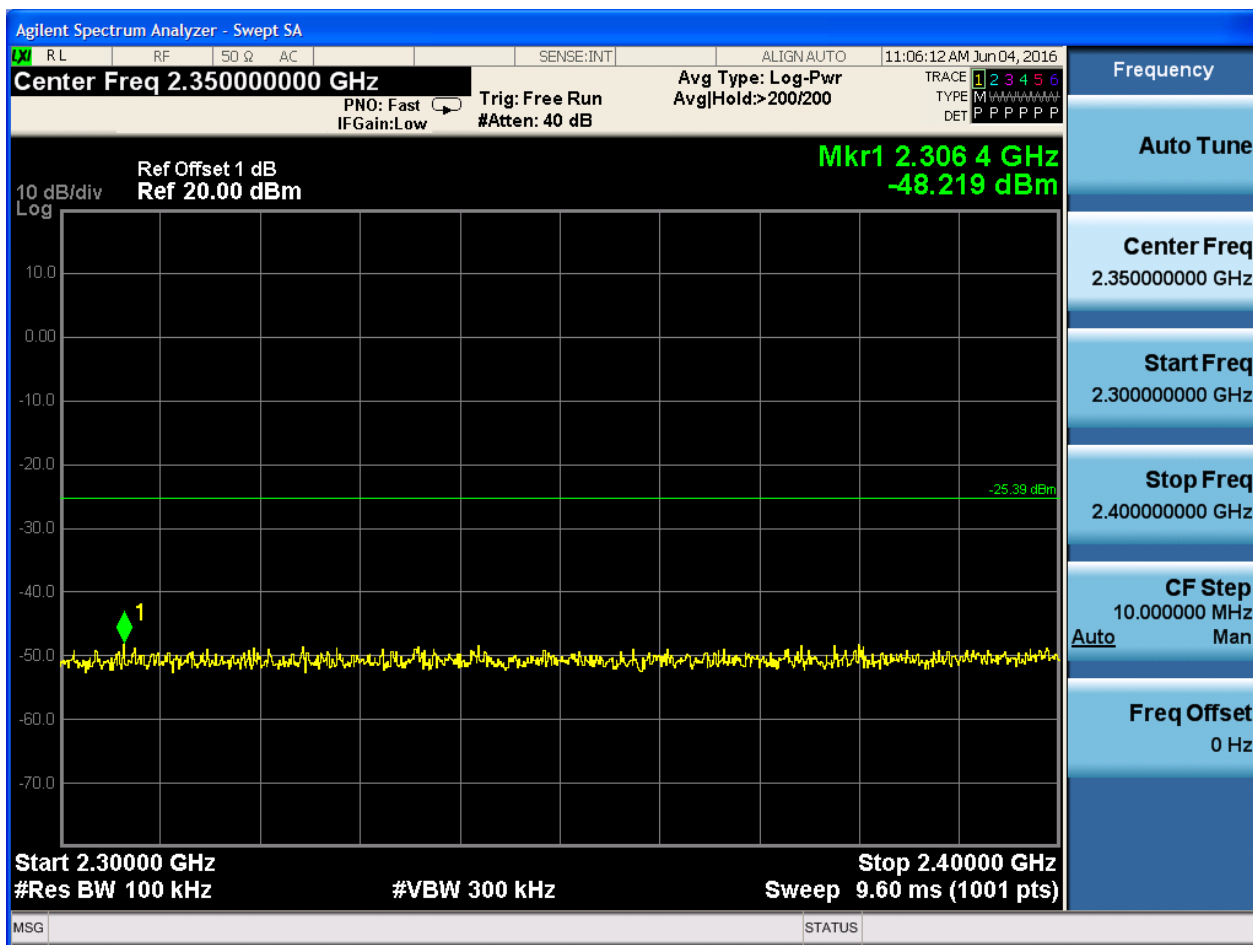
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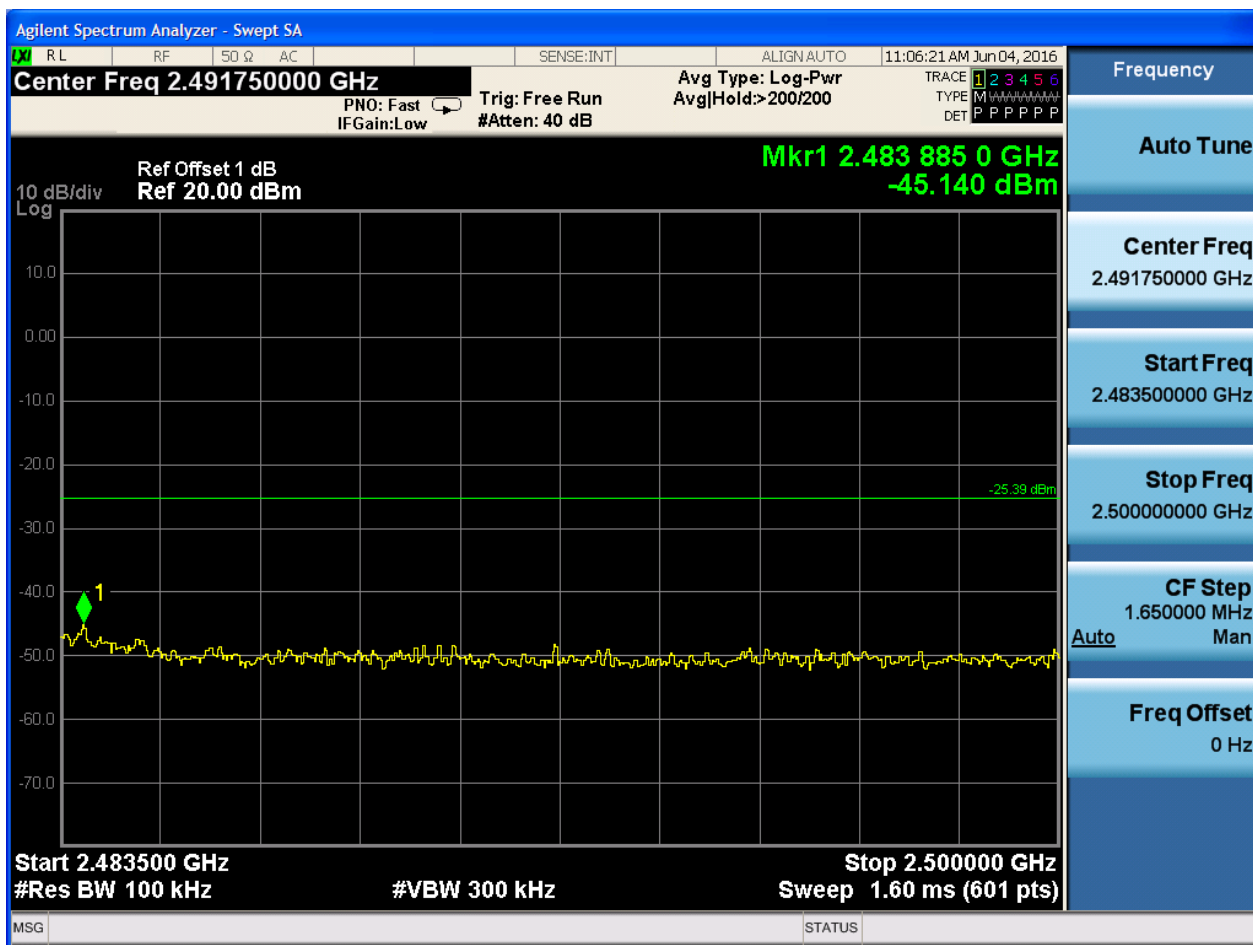


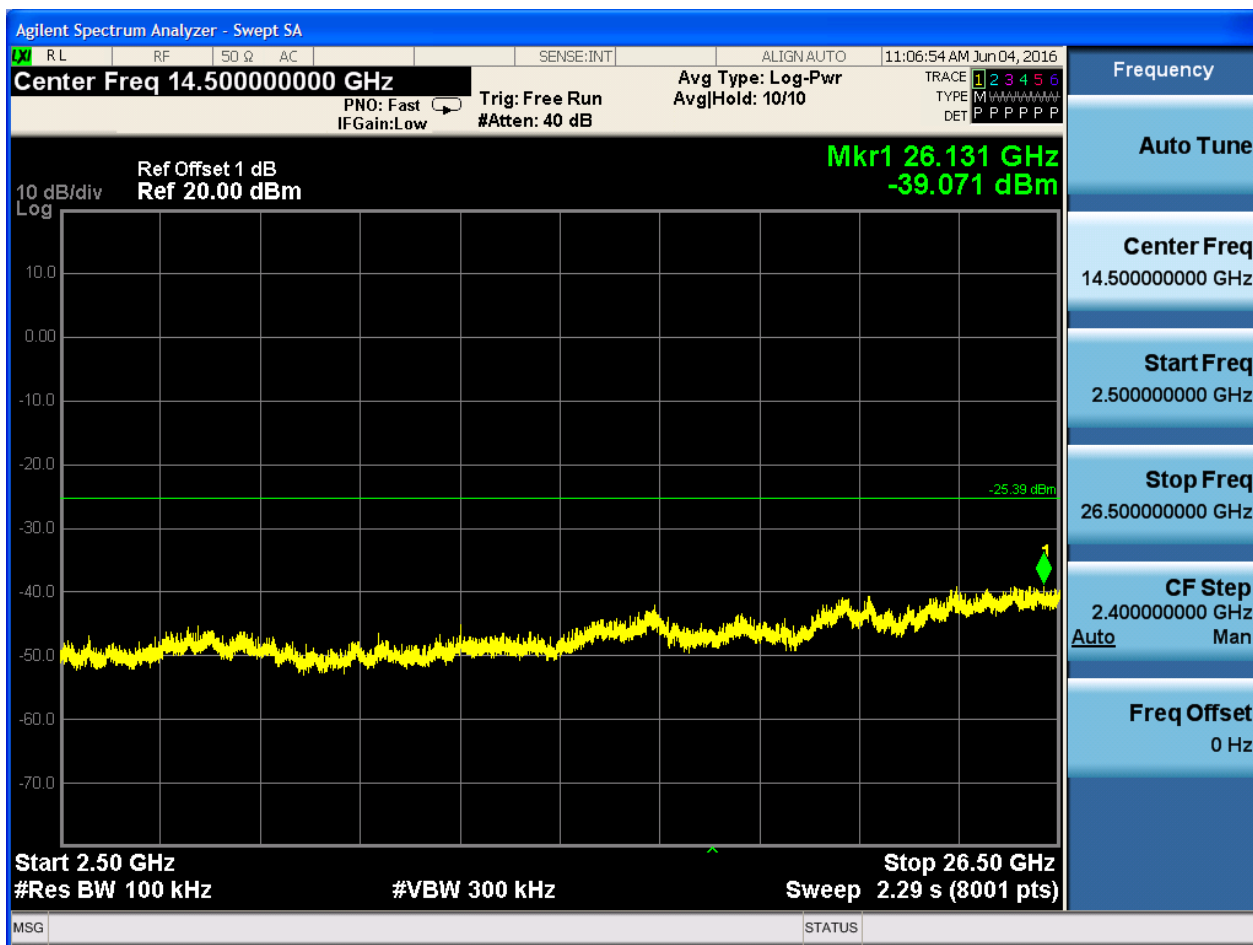
P_uw:







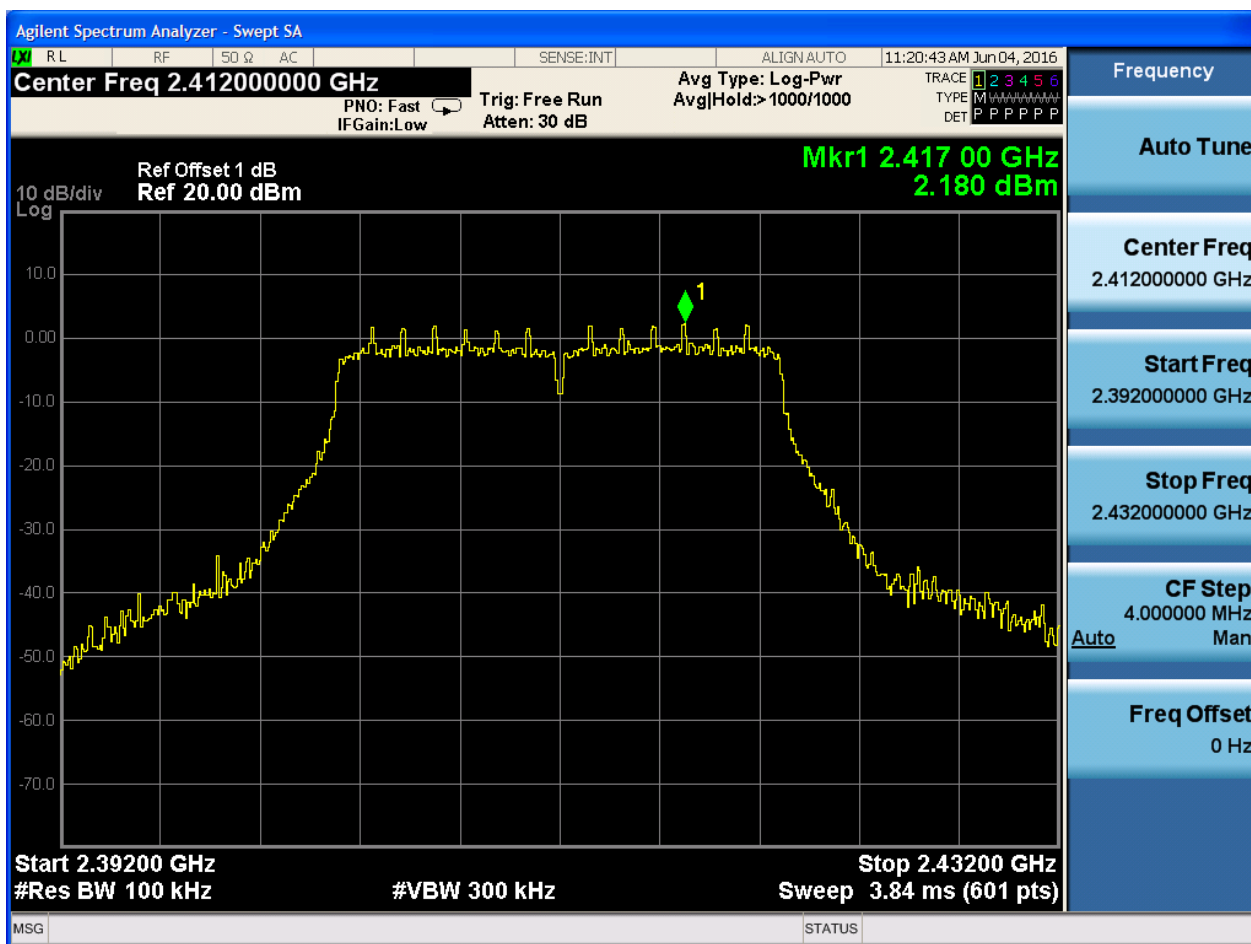




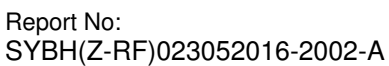


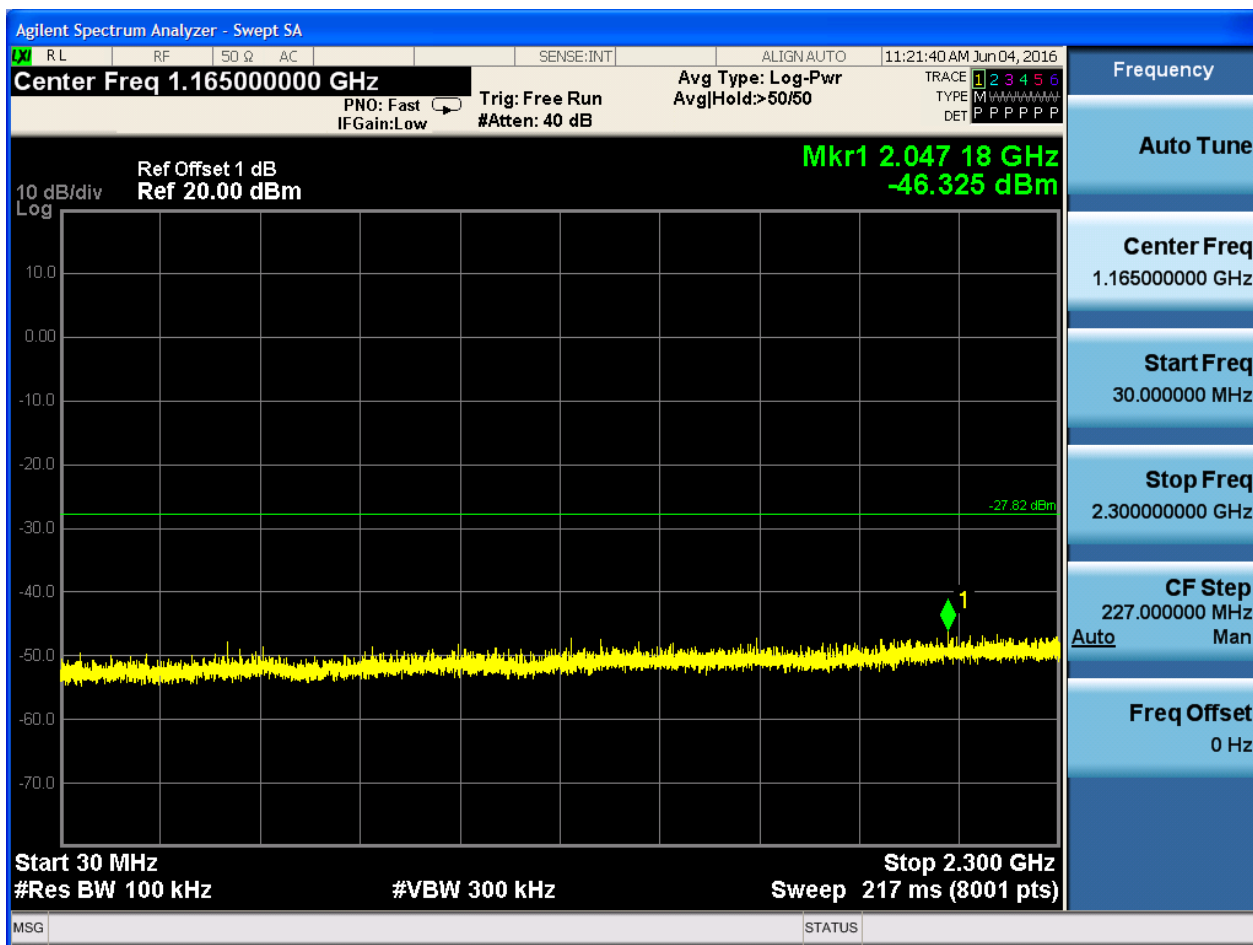
2.13 11N20_L@Ant 1

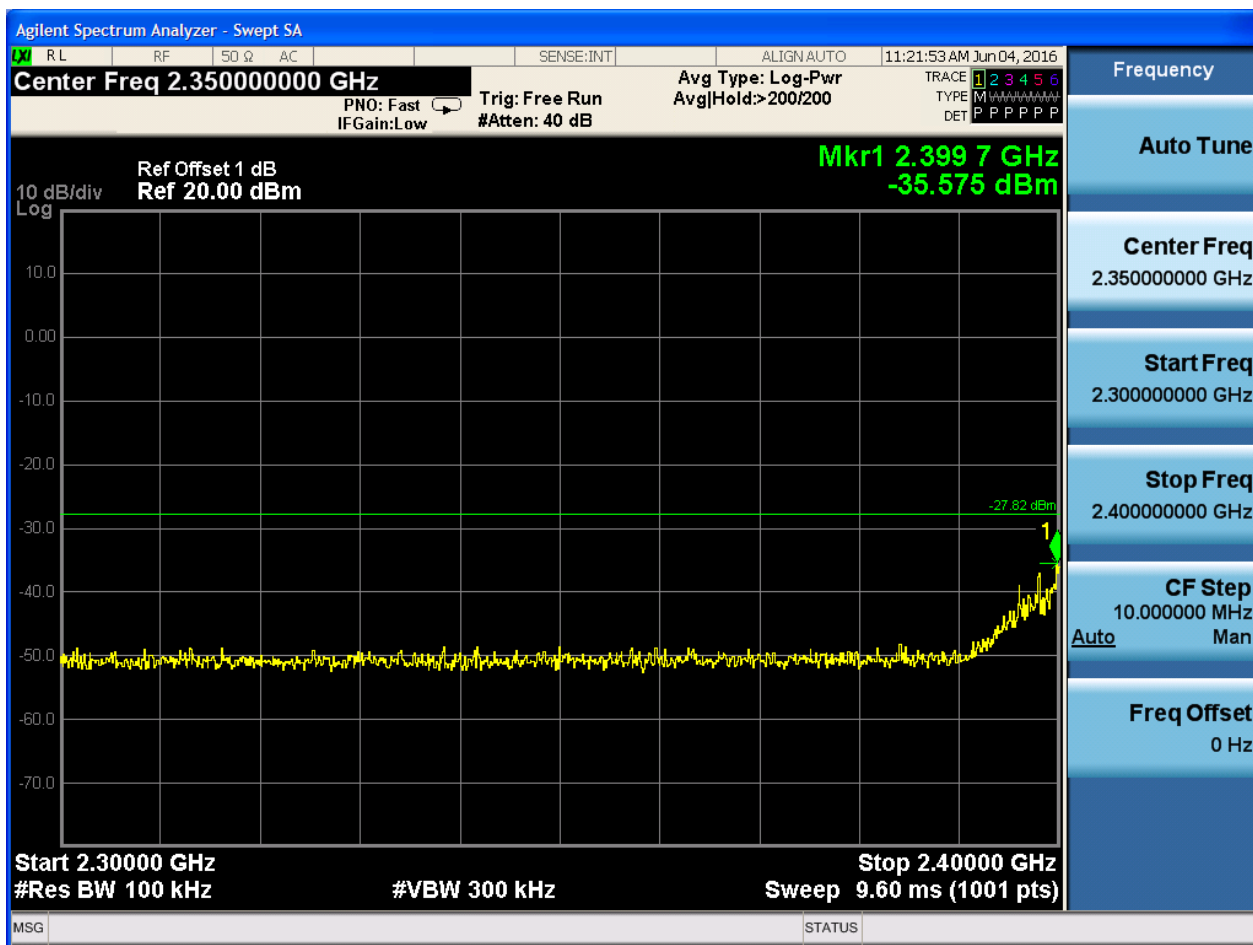
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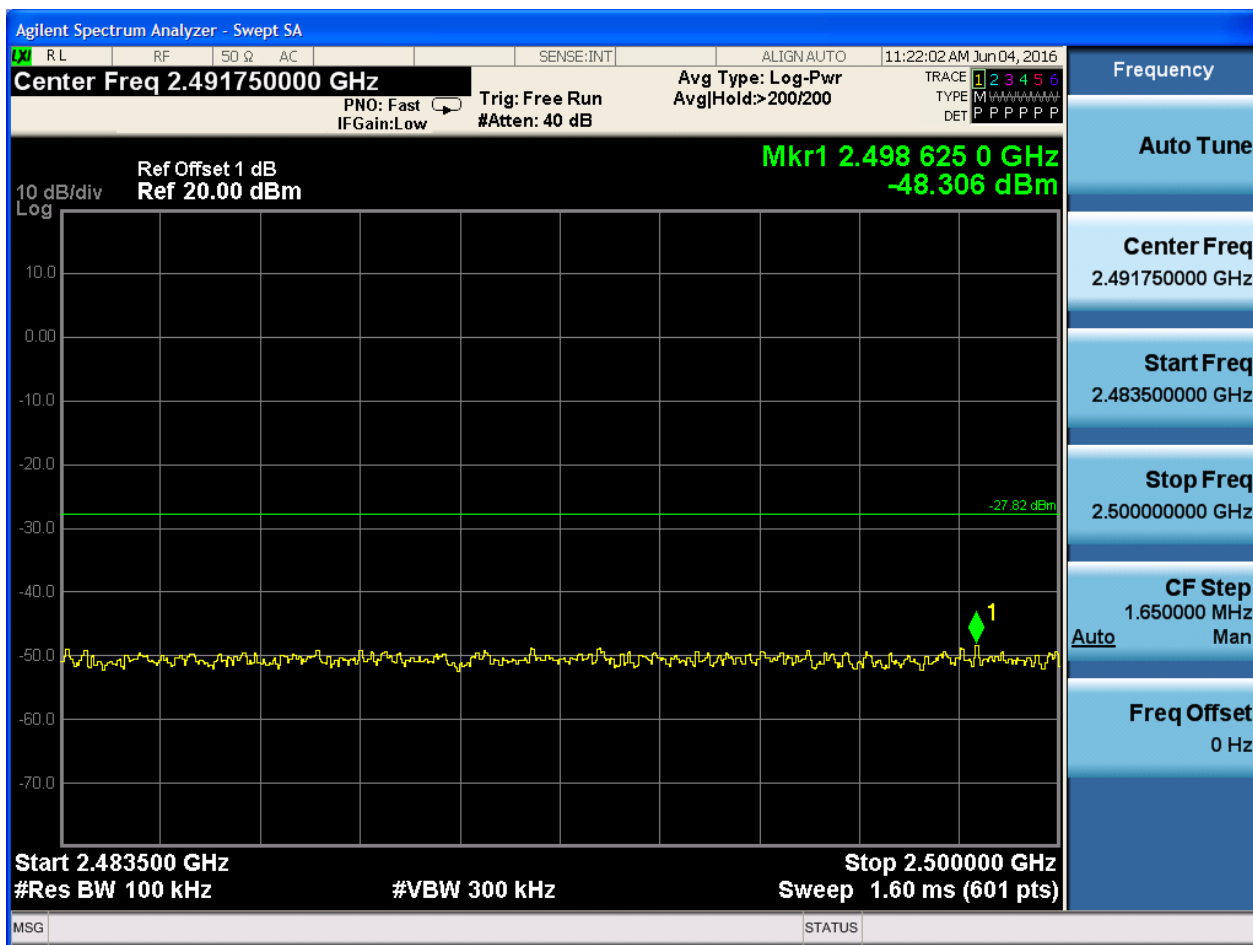


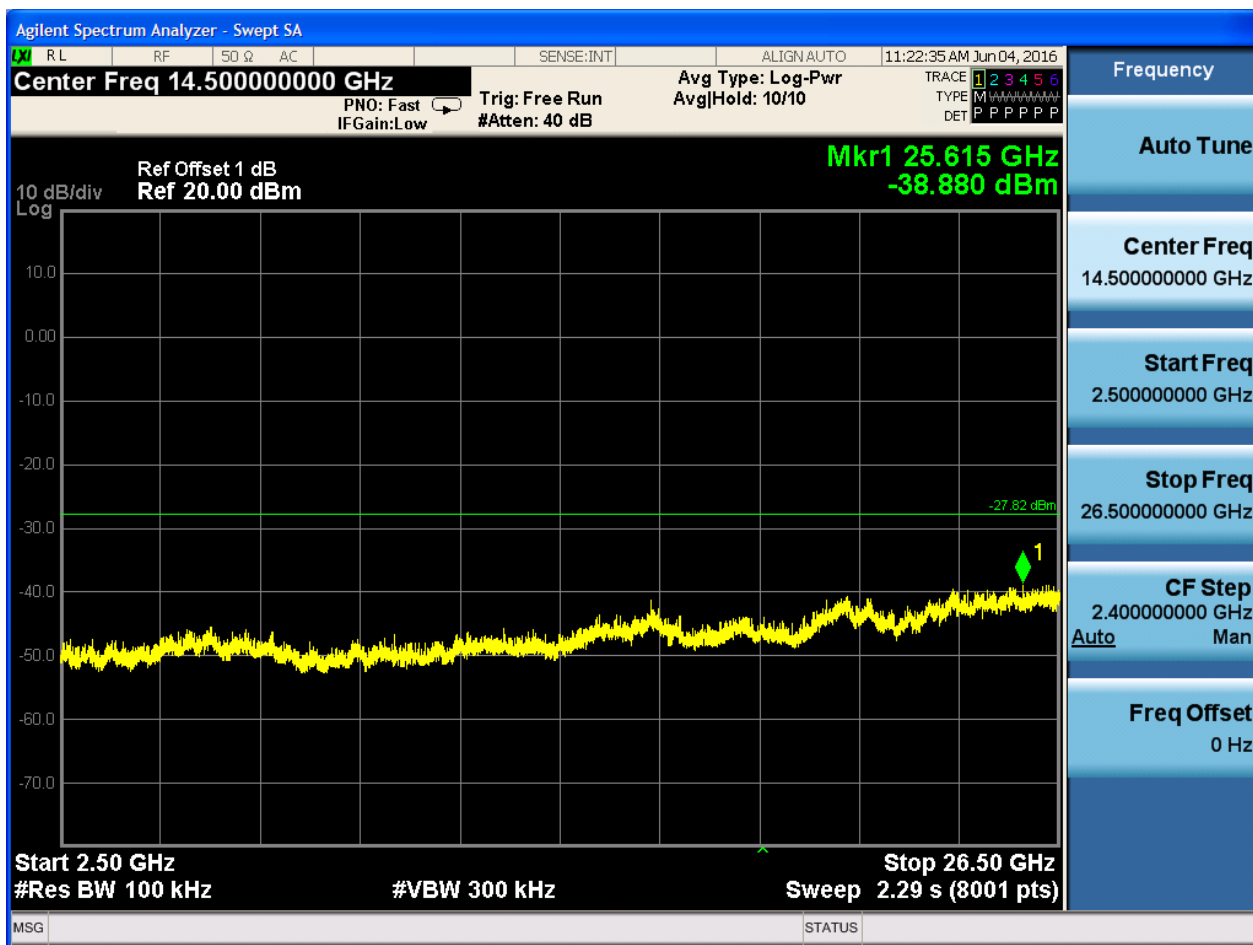
P_uw:







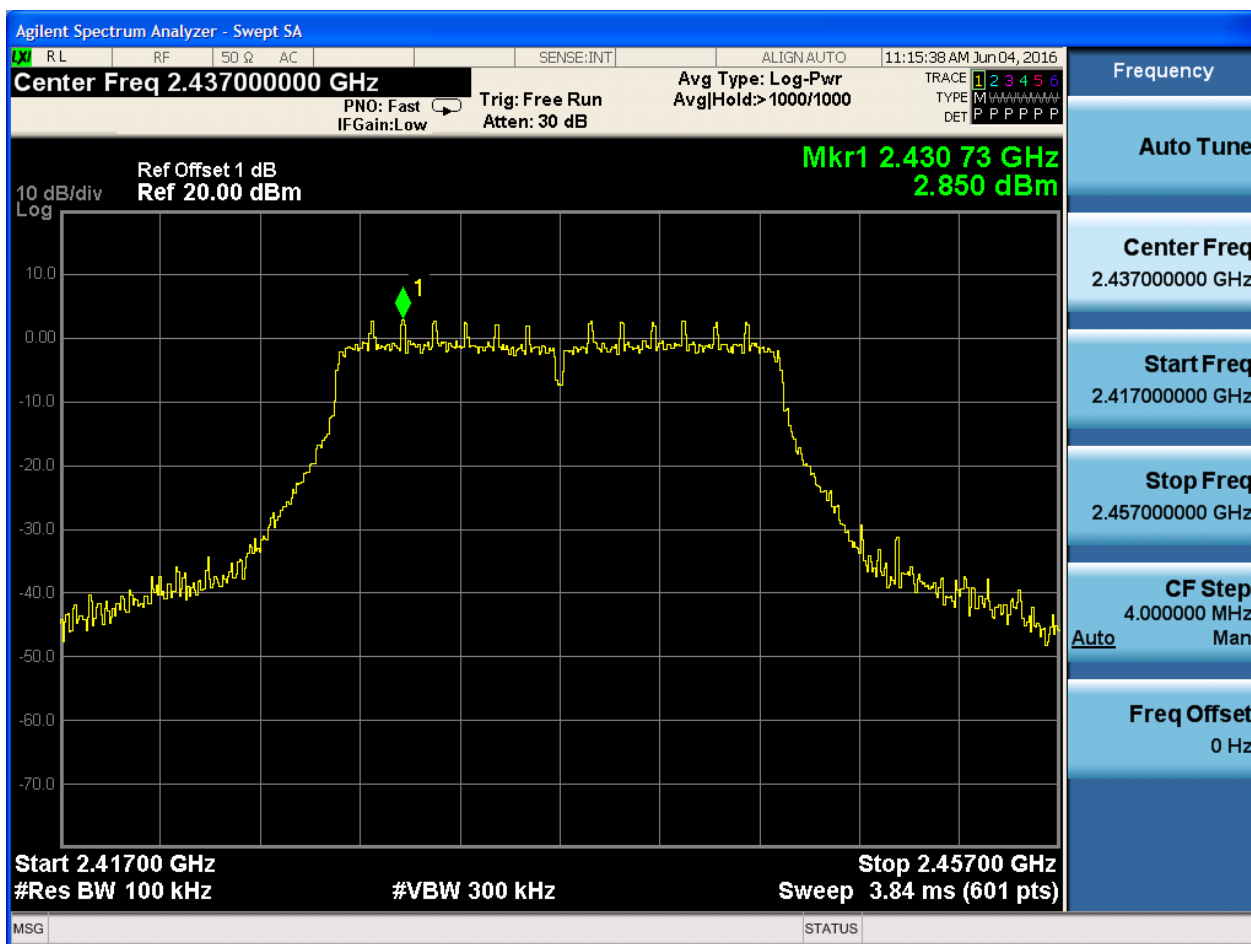






2.15 11N20_M@Ant 1

Pref:





Puw:

