



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.

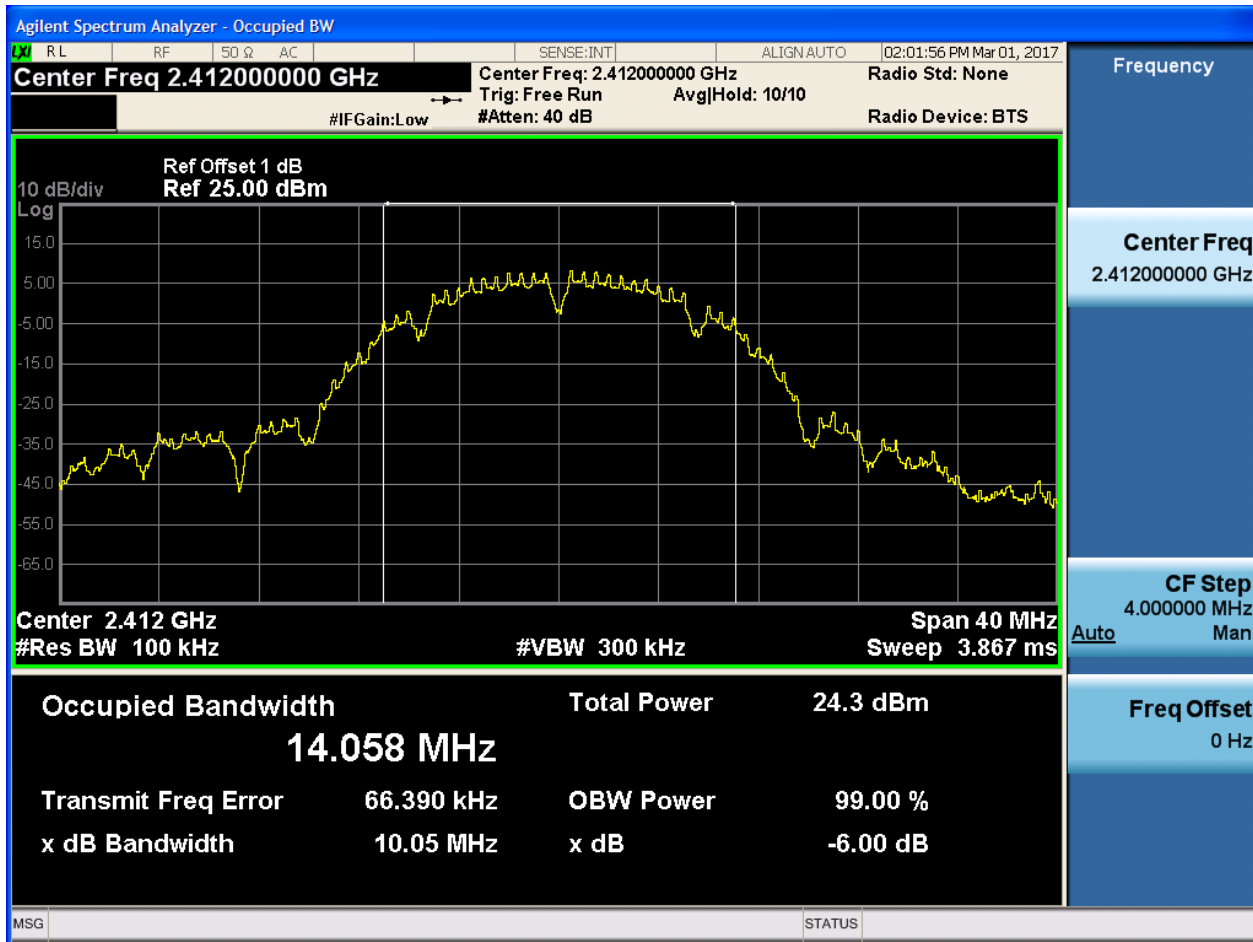
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	DTS6dBBW[MHz]	Verdict
11B	L	2412	Ant 1	10.05	pass
11B	M	2437	Ant 1	9.59	pass
11B	H	2462	Ant 1	9.10	pass
11G	L	2412	Ant 1	16.41	pass
11G	M	2437	Ant 1	16.38	pass
11G	H	2462	Ant 1	16.39	pass
11N20	L	2412	Ant 1	17.65	pass
11N20	M	2437	Ant 1	17.37	pass
11N20	H	2462	Ant 1	17.58	pass
11N40	L	2422	Ant 1	35.35	pass
11N40	M	2437	Ant 1	35.59	pass
11N40	H	2452	Ant 1	35.20	pass



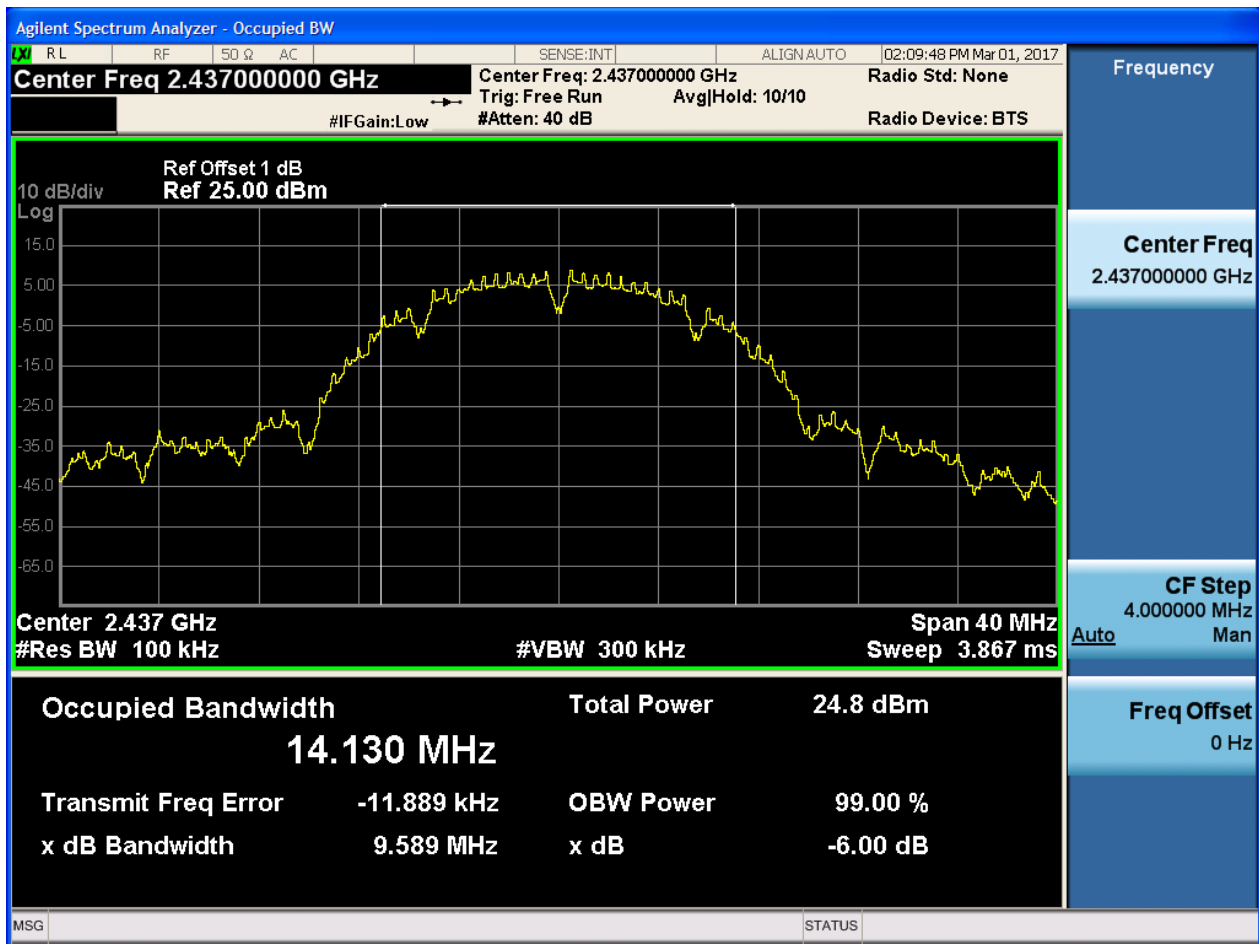
Part II - Test Plots

2.1 11B_L@Ant 1





2.2 11B_M@Ant 1



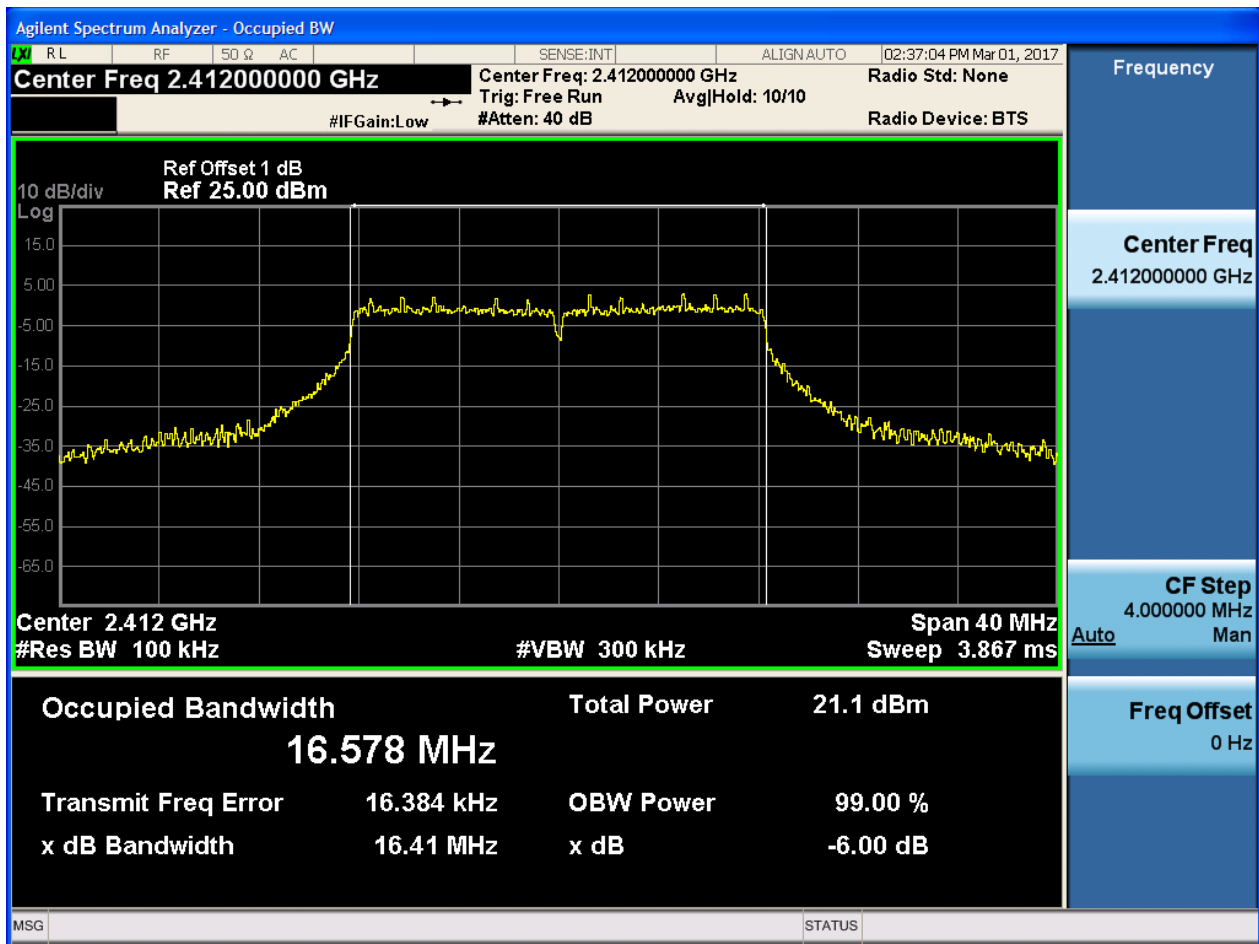


2.3 11B_H@Ant 1



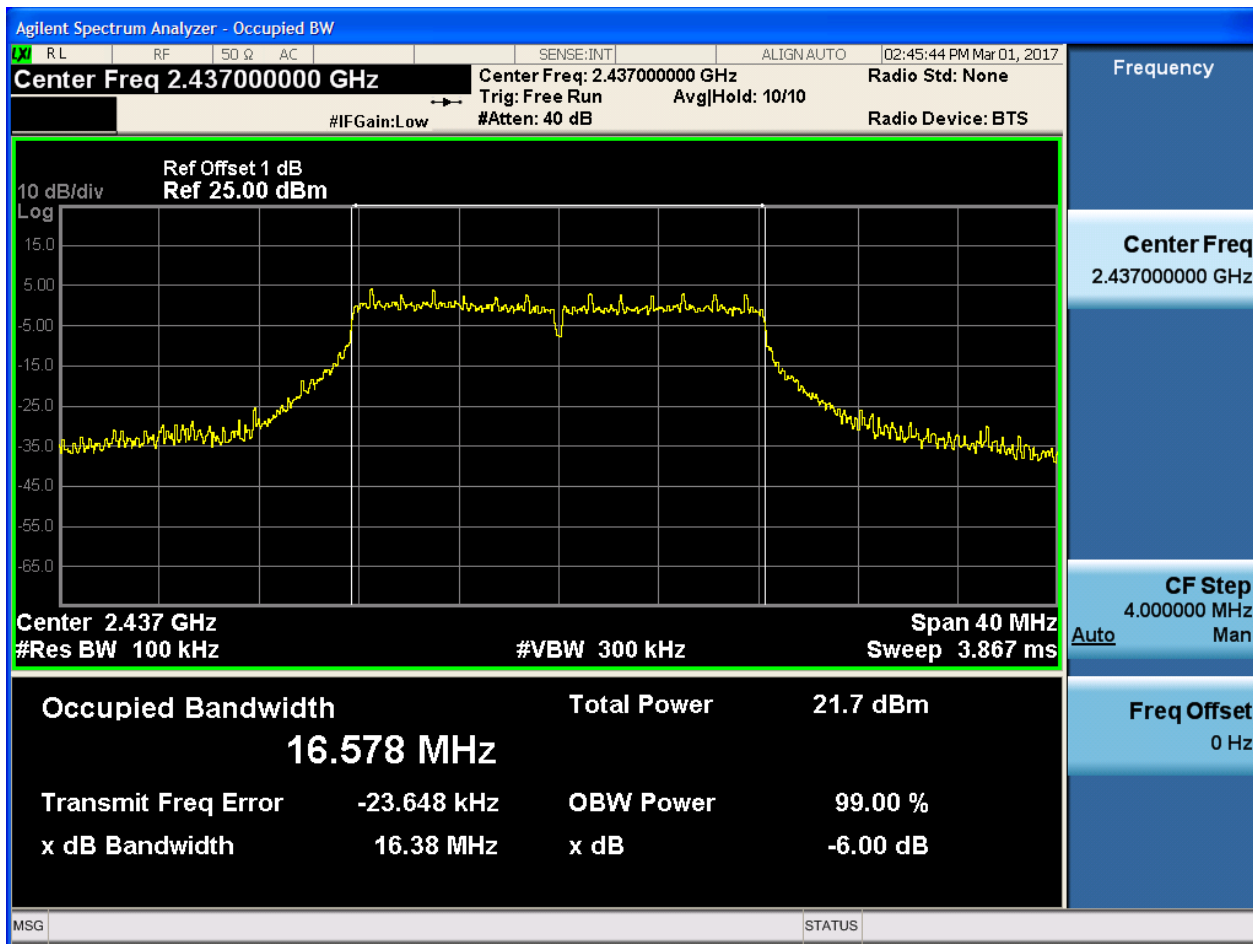


2.4 11G_L@Ant 1



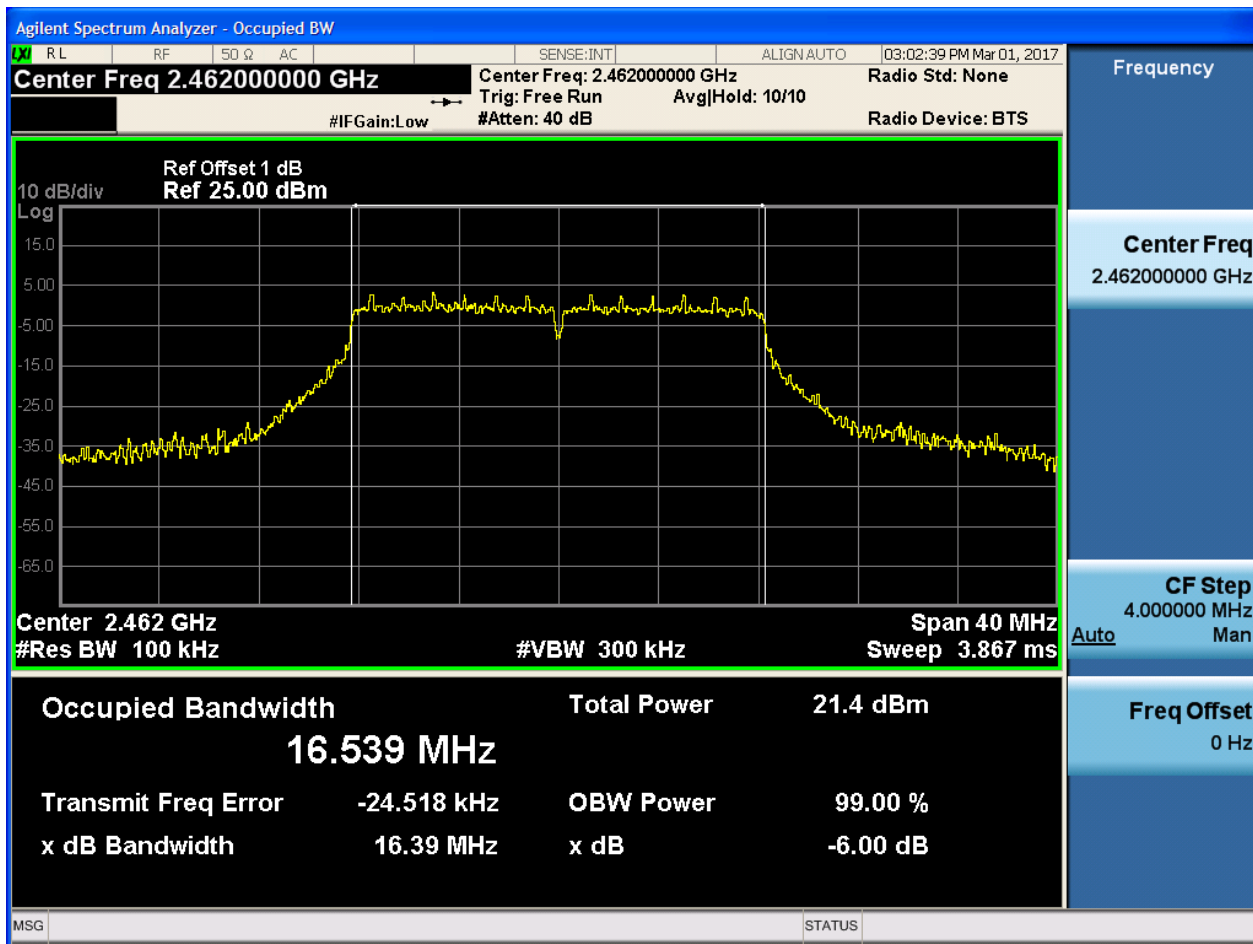


2.5 11G_M@Ant 1



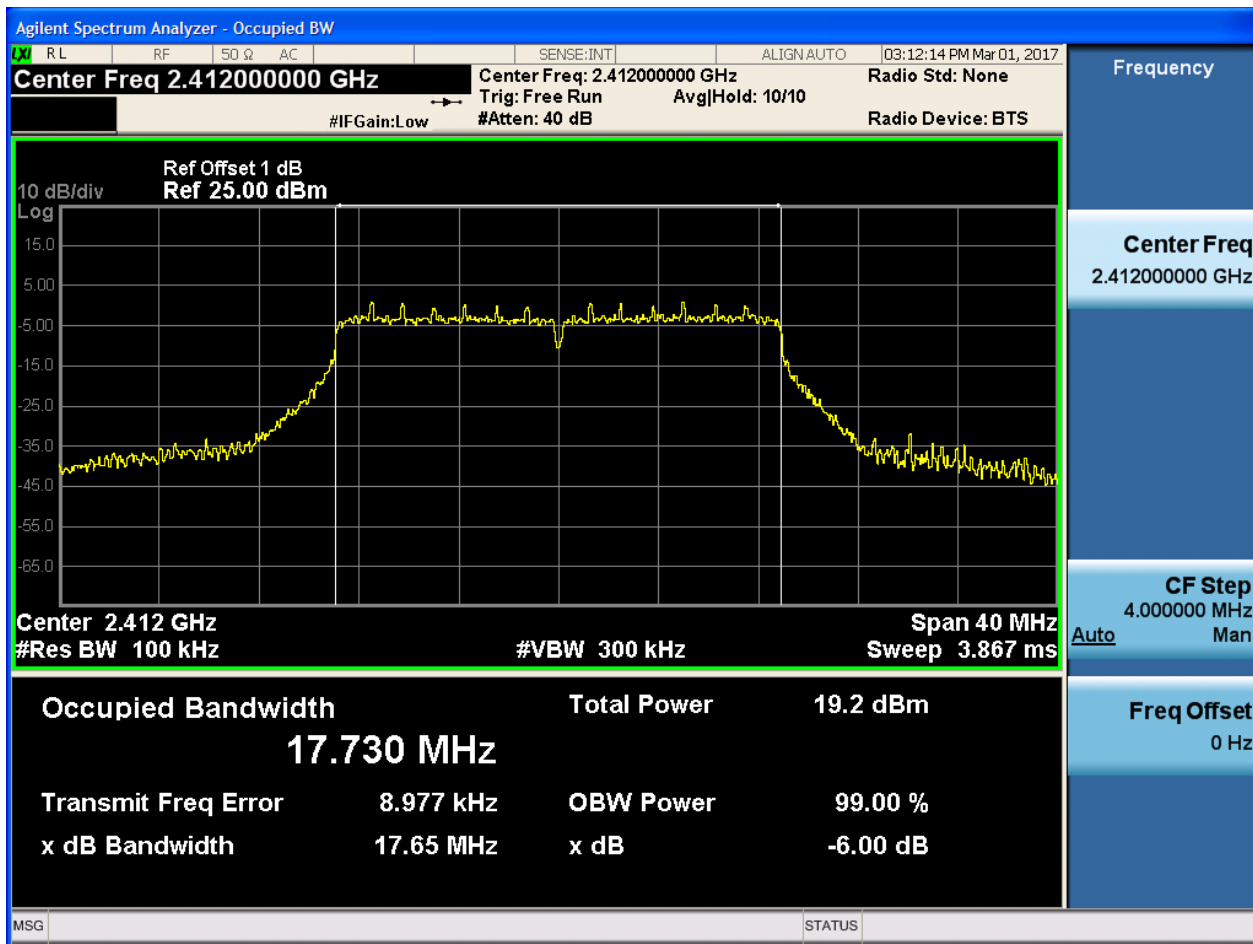


2.6 11G_H@Ant 1



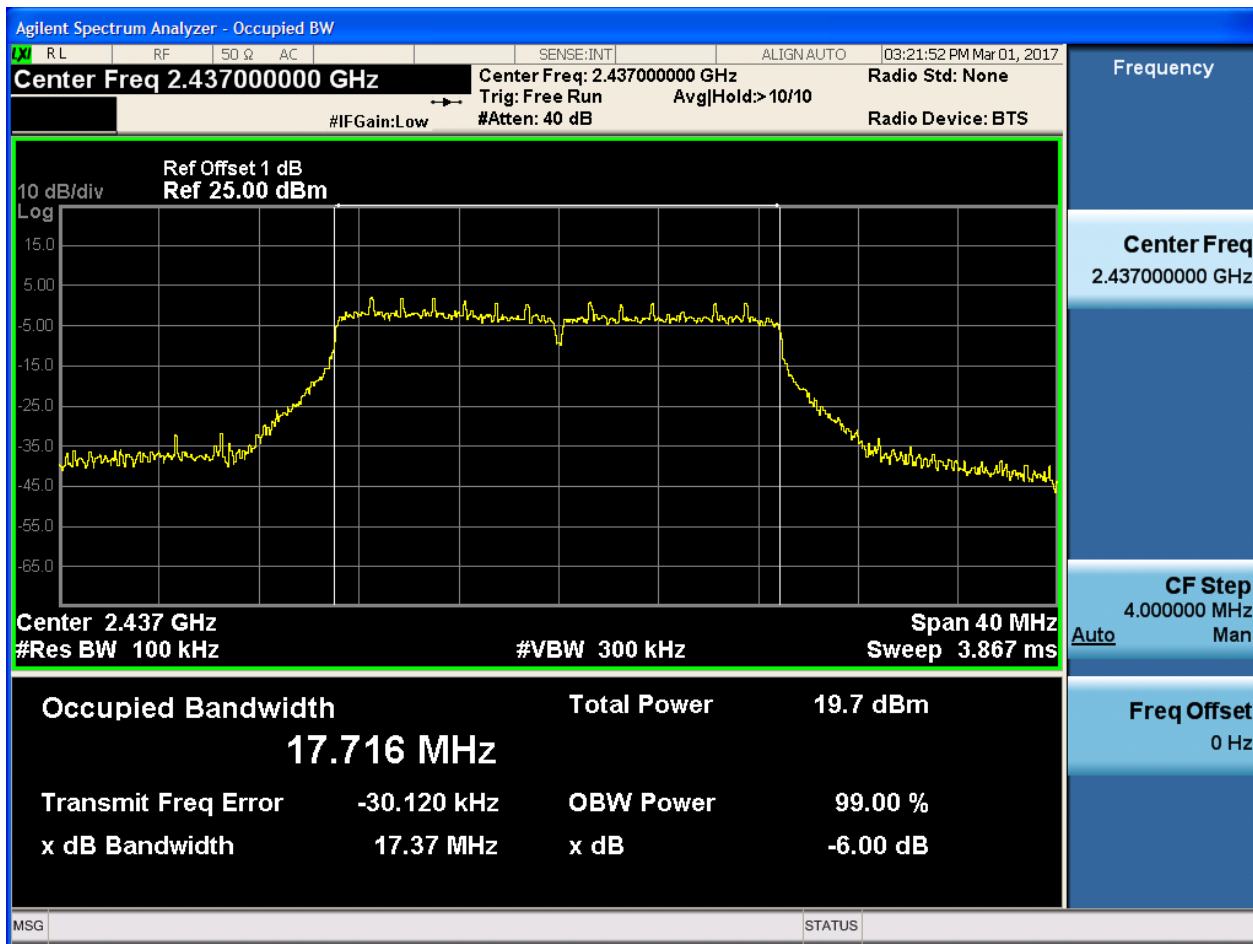


2.7 11N20_L@Ant 1



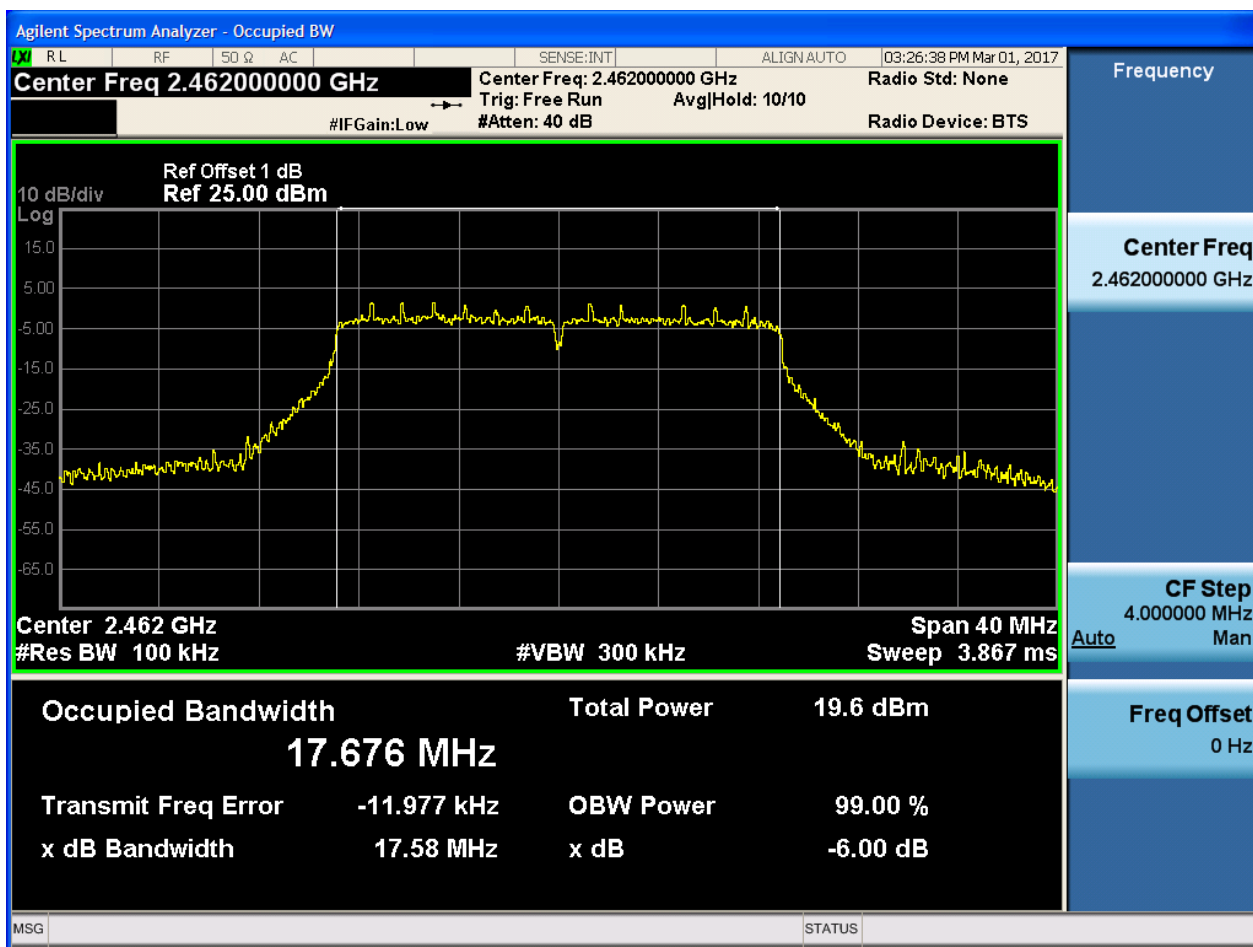


2.8 11N20_M@Ant 1



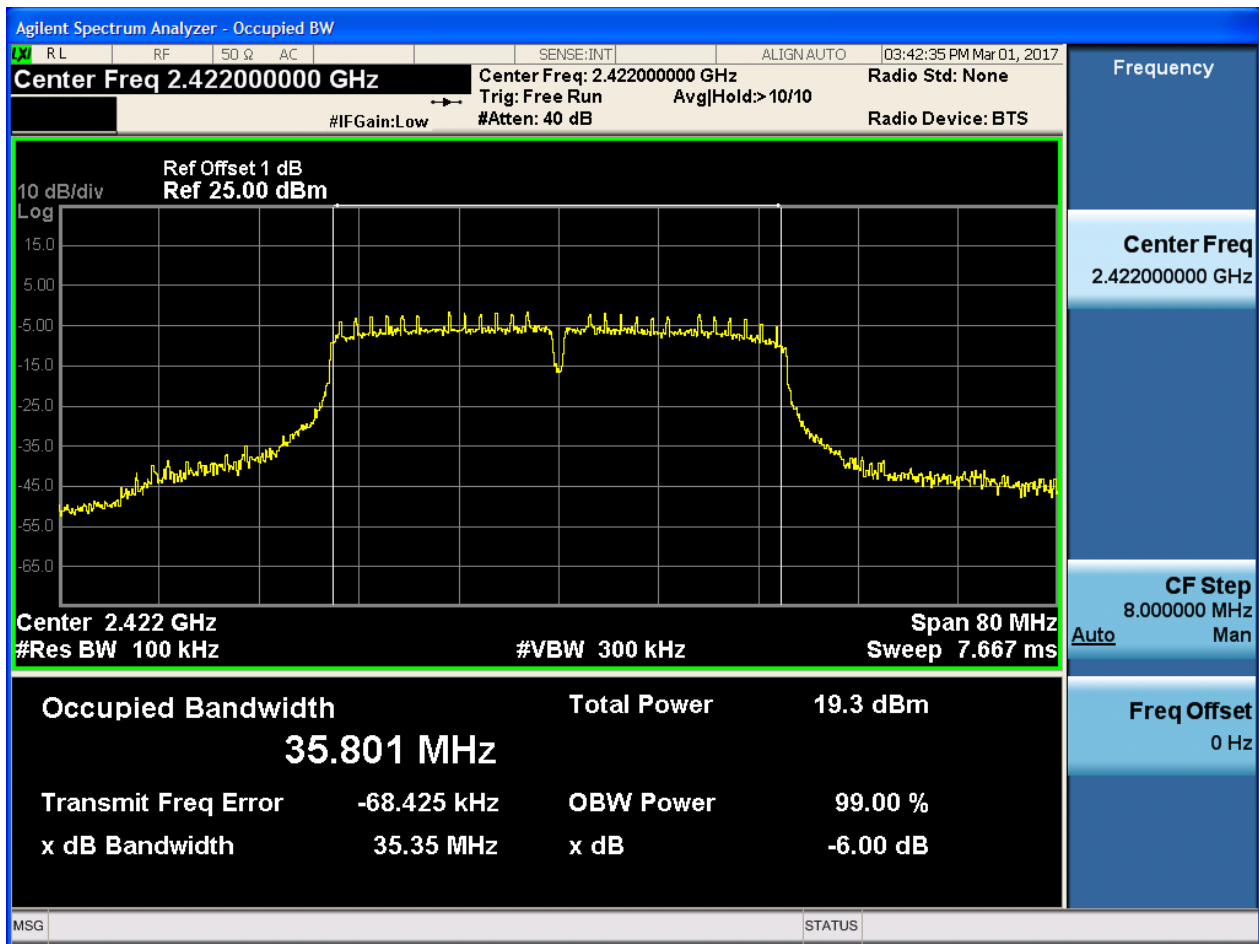


2.9 11N20_H@Ant 1



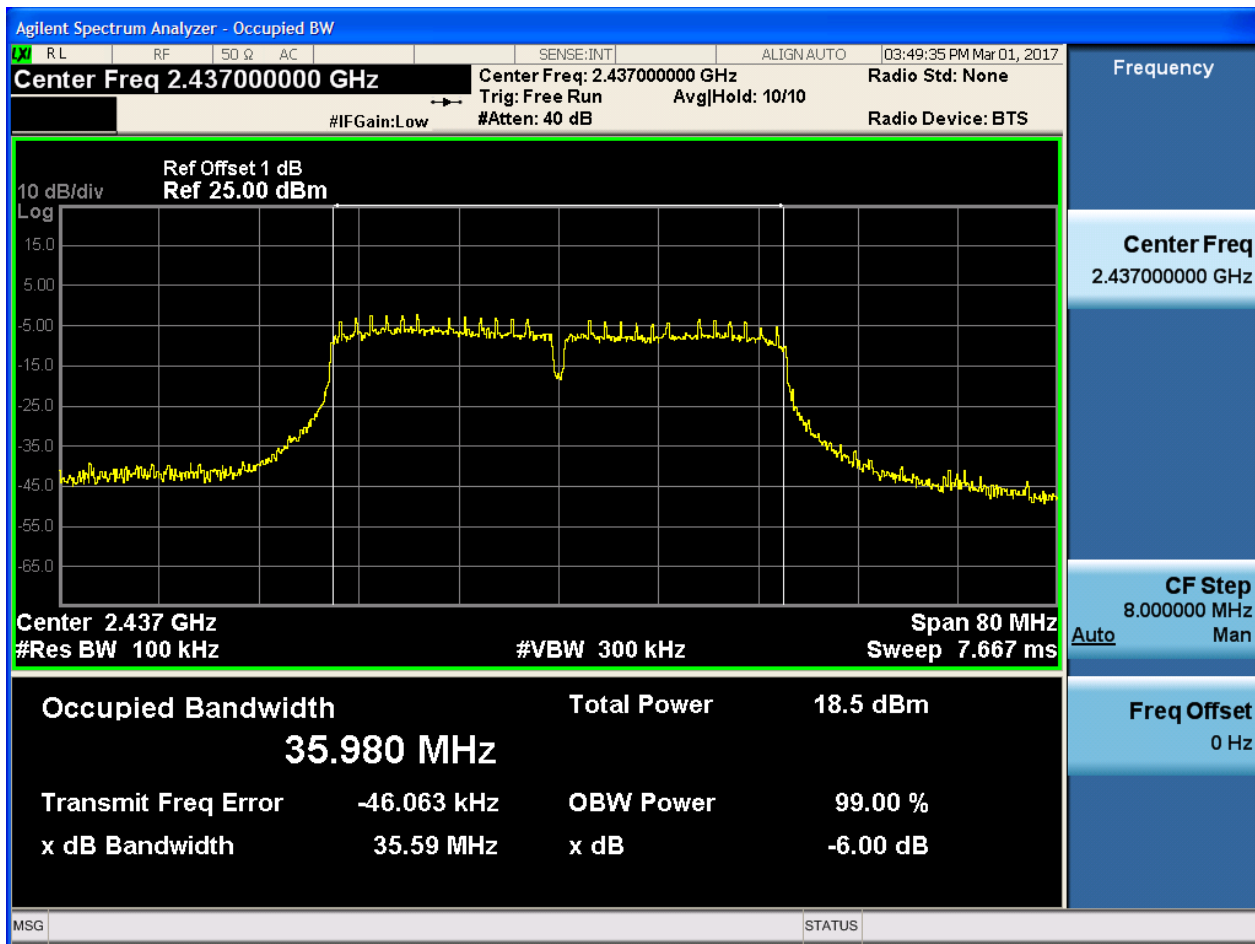


2.10 11N40_L@Ant 1



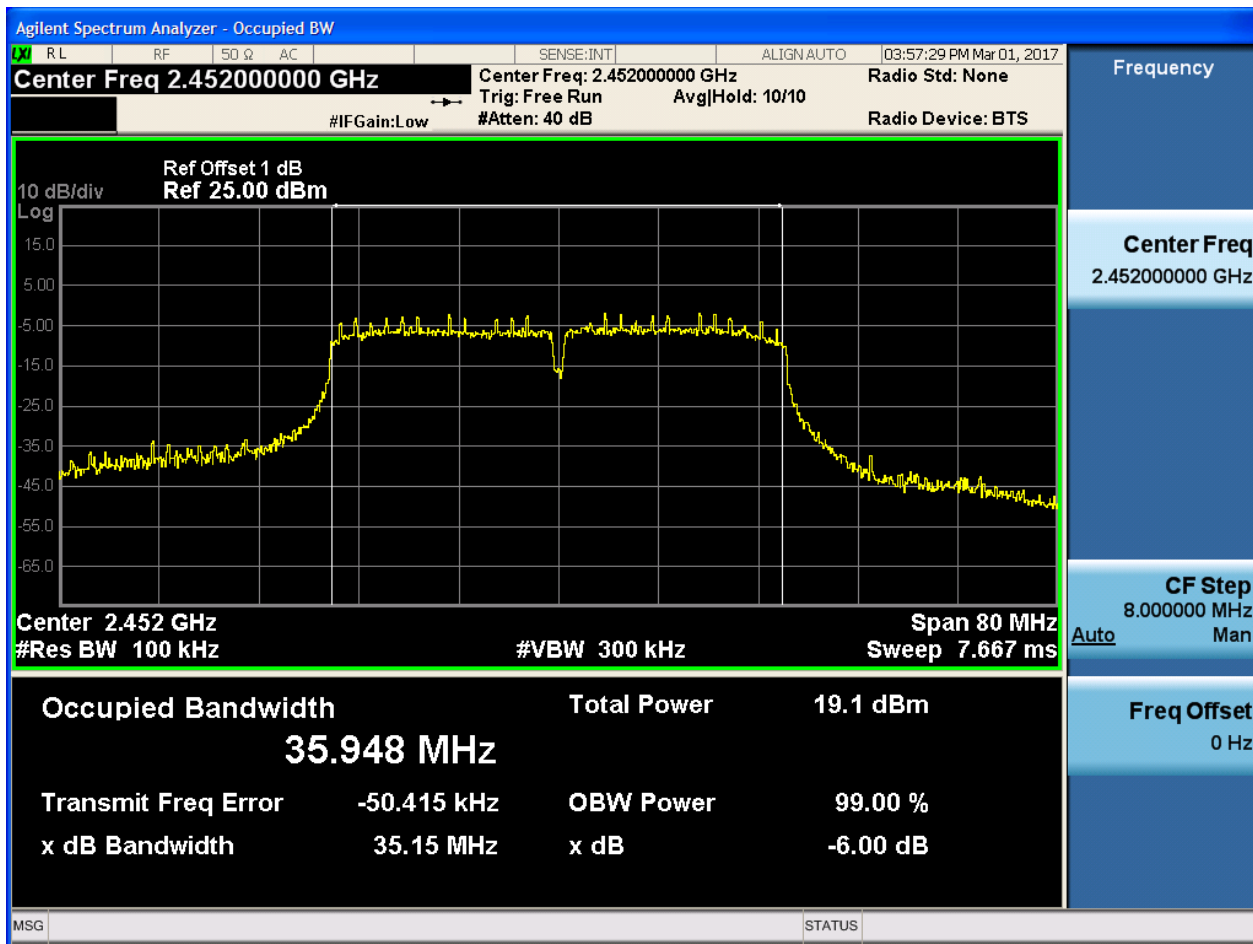


2.11 11N40_M@Ant 1





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.

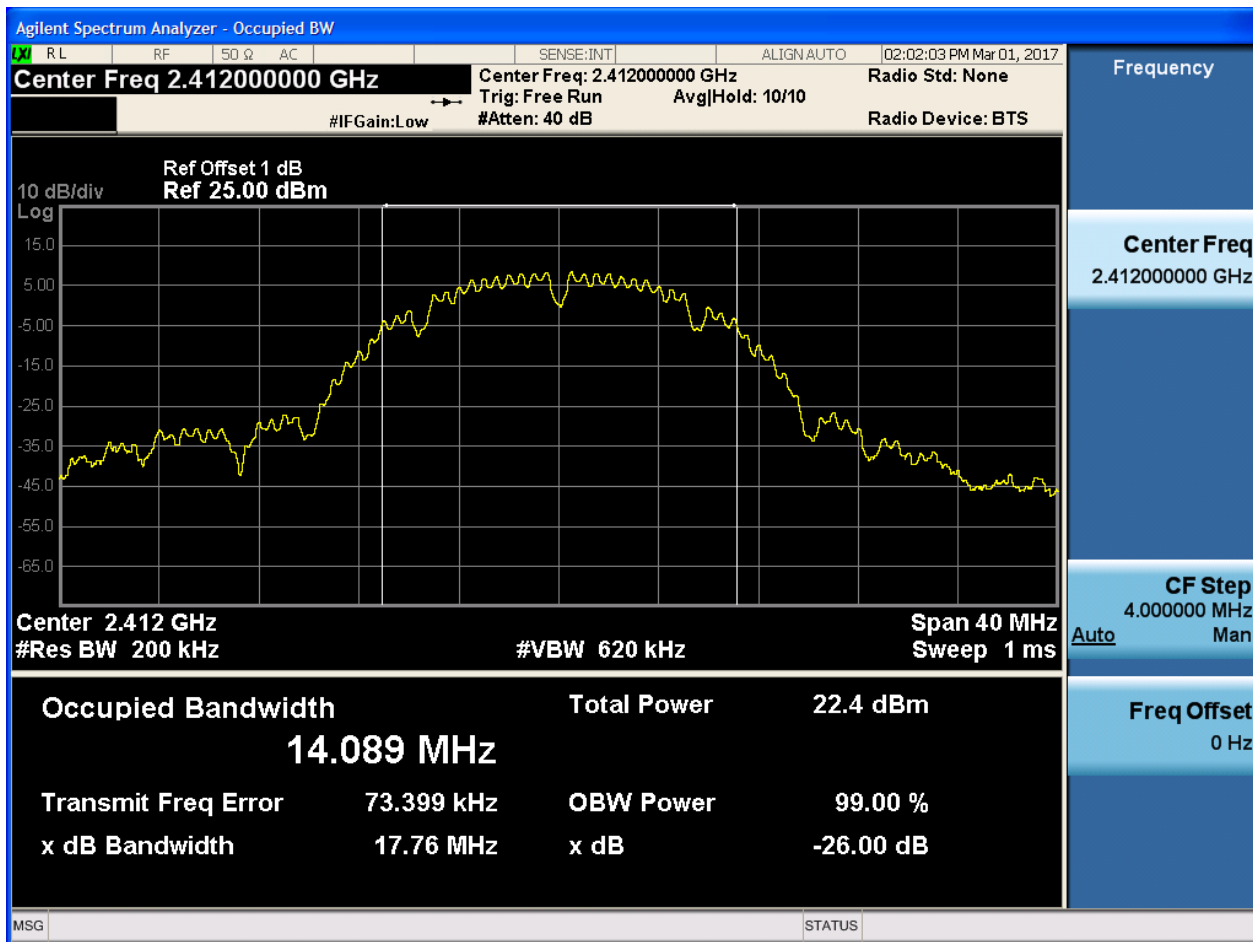
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Occupied Bandwidth [MHz]	Verdict
11B	L	2412	Ant 1	14.09	pass
11B	M	2437	Ant 1	14.15	pass
11B	H	2462	Ant 1	14.05	pass
11G	L	2412	Ant 1	16.87	pass
11G	M	2437	Ant 1	16.90	pass
11G	H	2462	Ant 1	16.76	pass
11N20	L	2412	Ant 1	17.89	pass
11N20	M	2437	Ant 1	17.92	pass
11N20	H	2462	Ant 1	17.82	pass
11N40	L	2422	Ant 1	36.04	pass
11N40	M	2437	Ant 1	36.22	pass
11N40	H	2452	Ant 1	36.15	pass



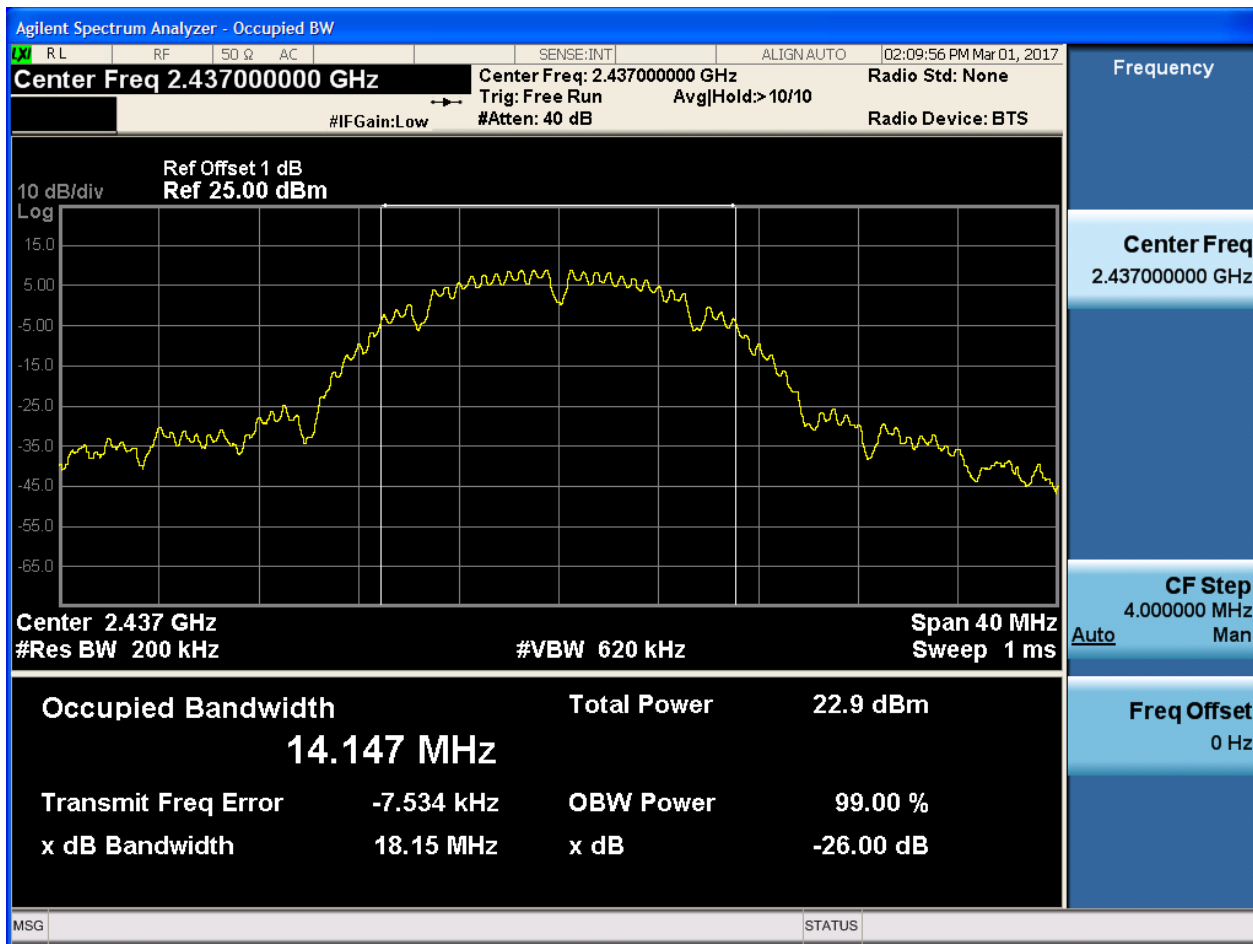
Part II - Test Plots

2.1 11B_L@Ant 1



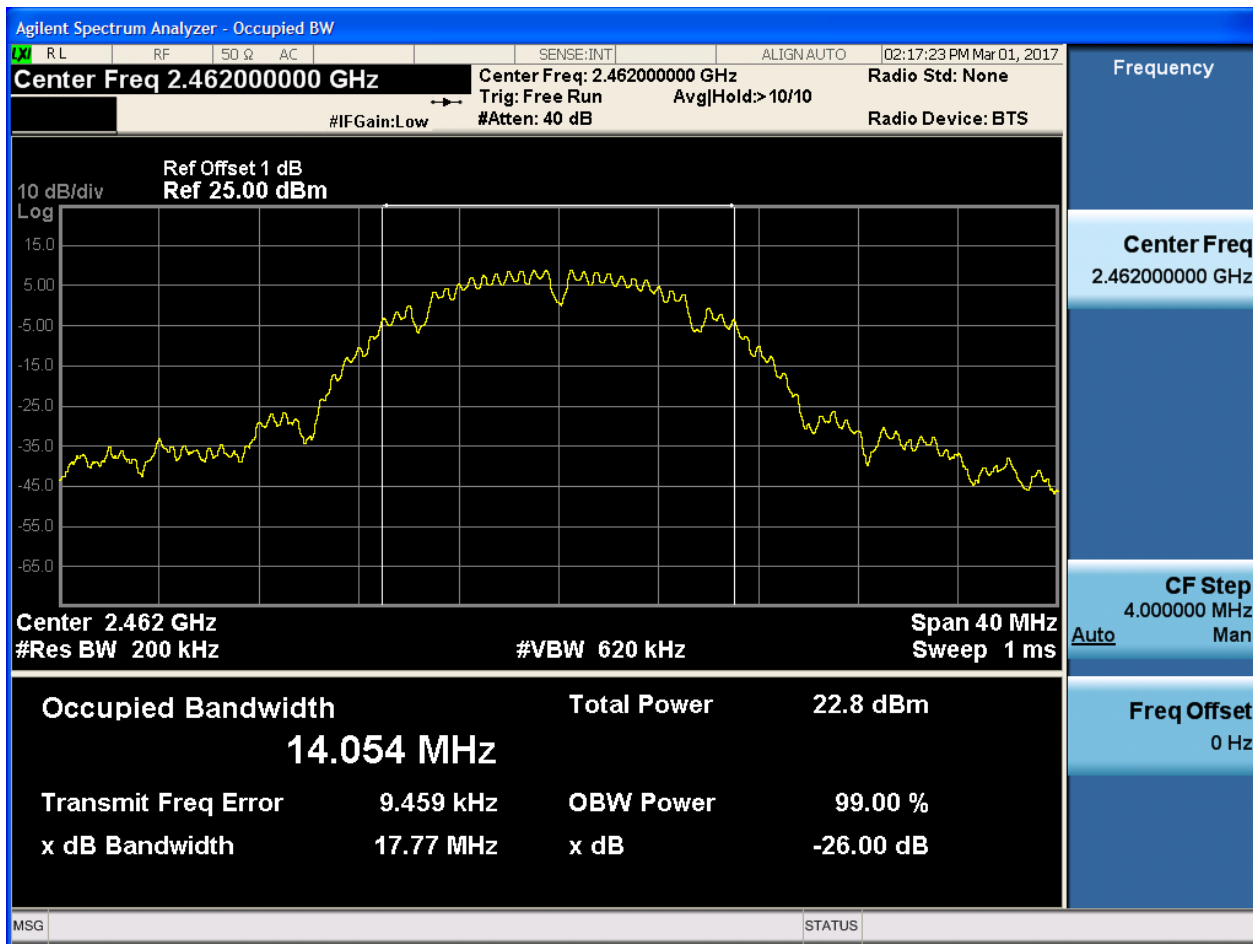


2.2 11B_M@Ant 1



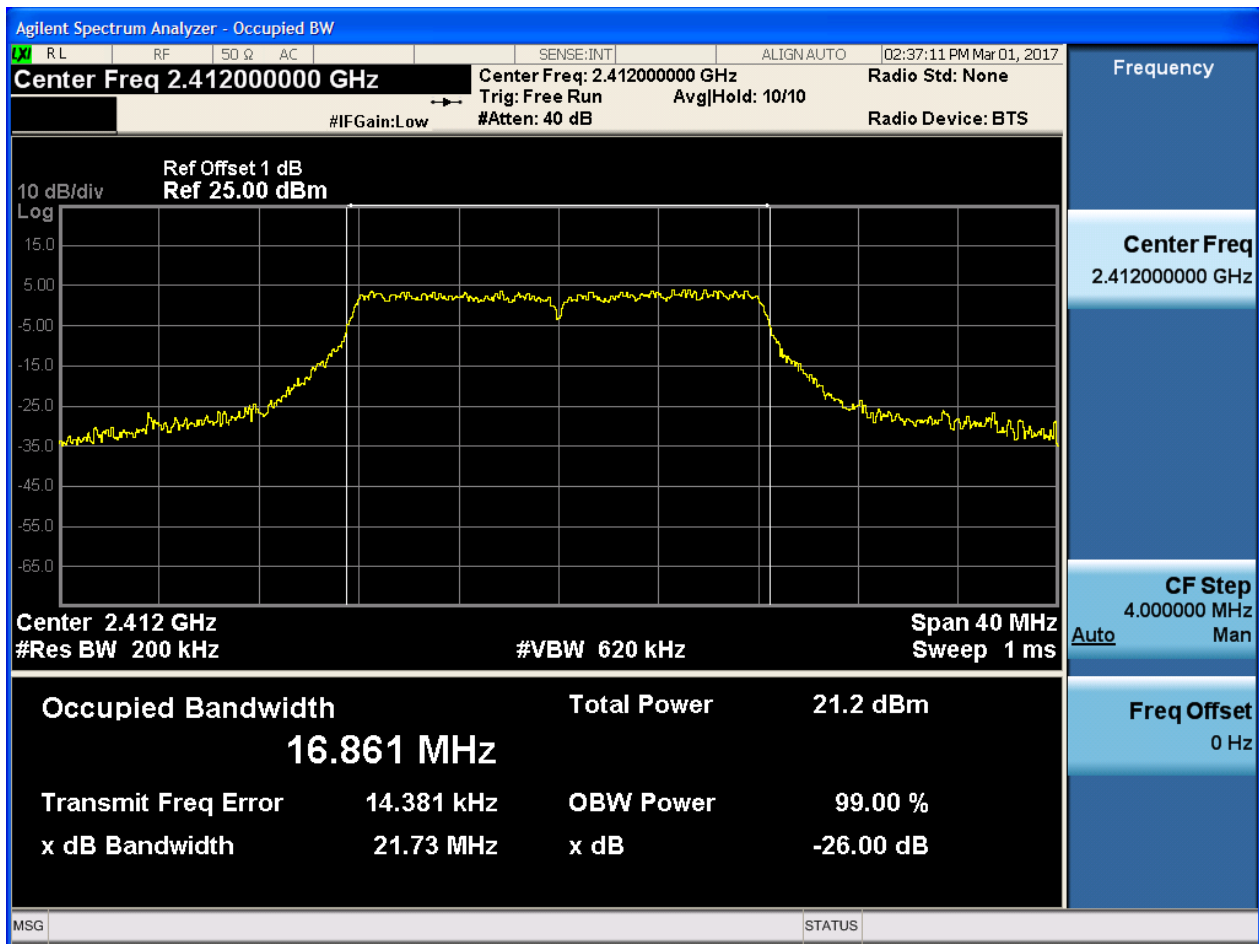


2.3 11B_H@Ant 1



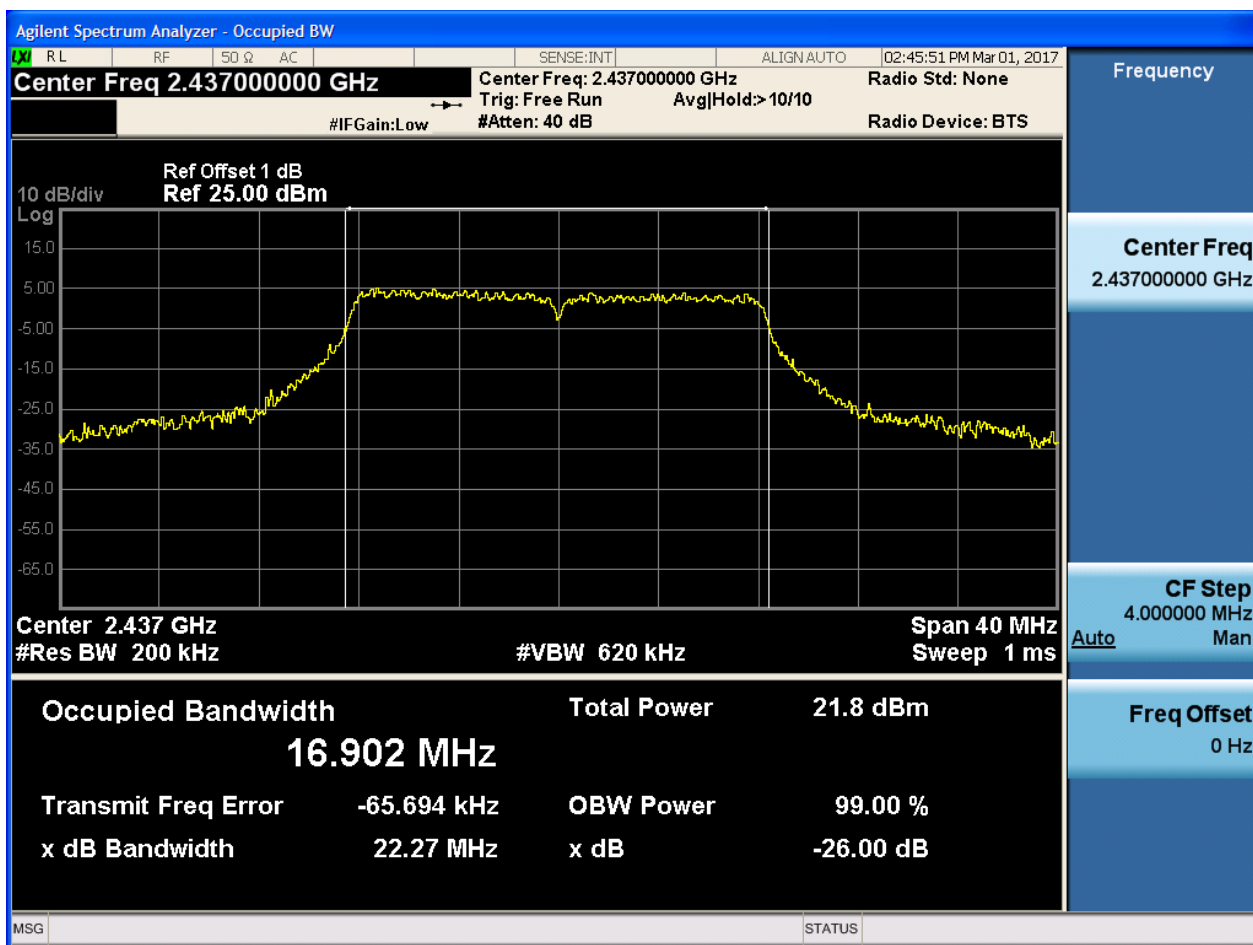


2.4 11G_L@Ant 1



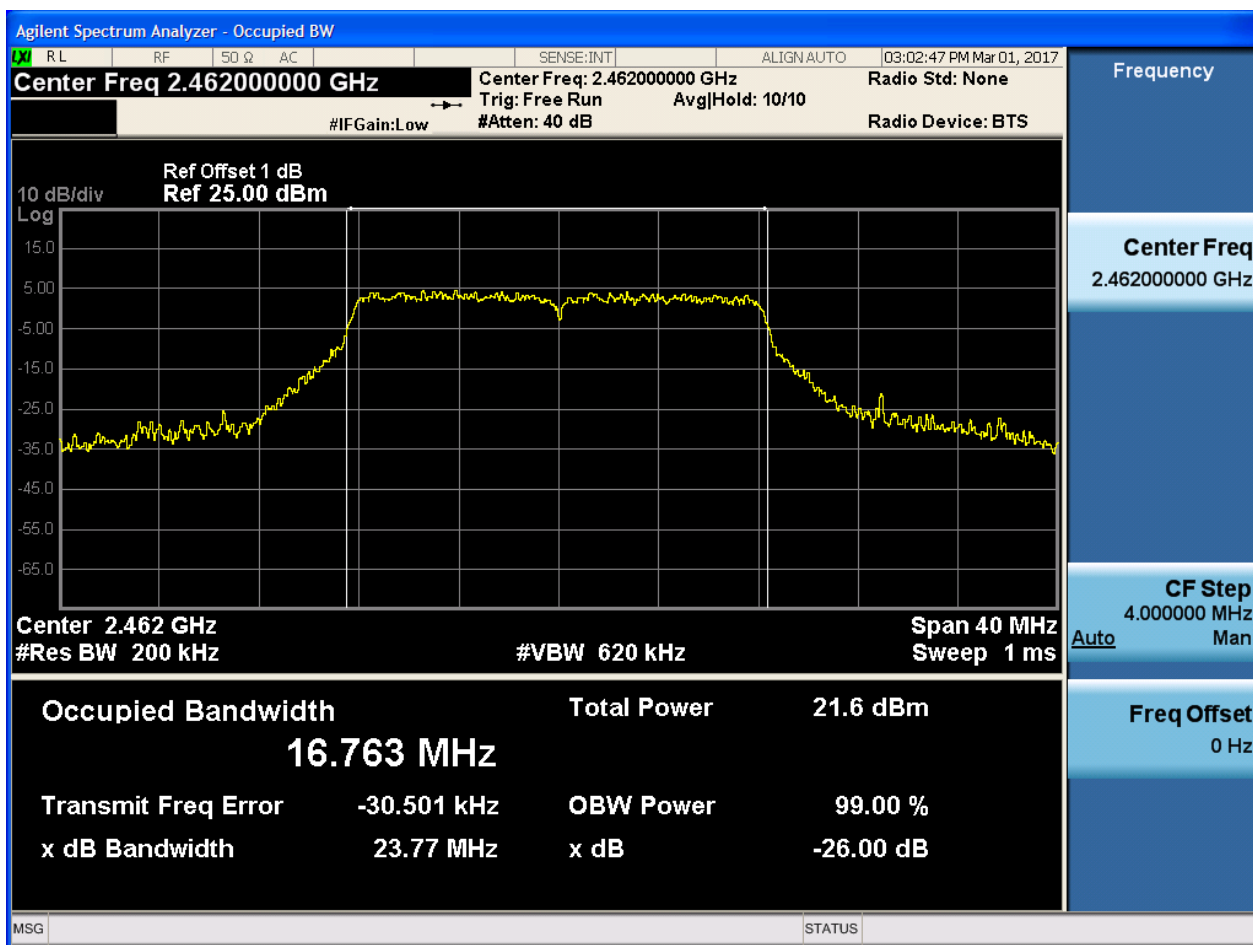


2.5 11G_M@Ant 1



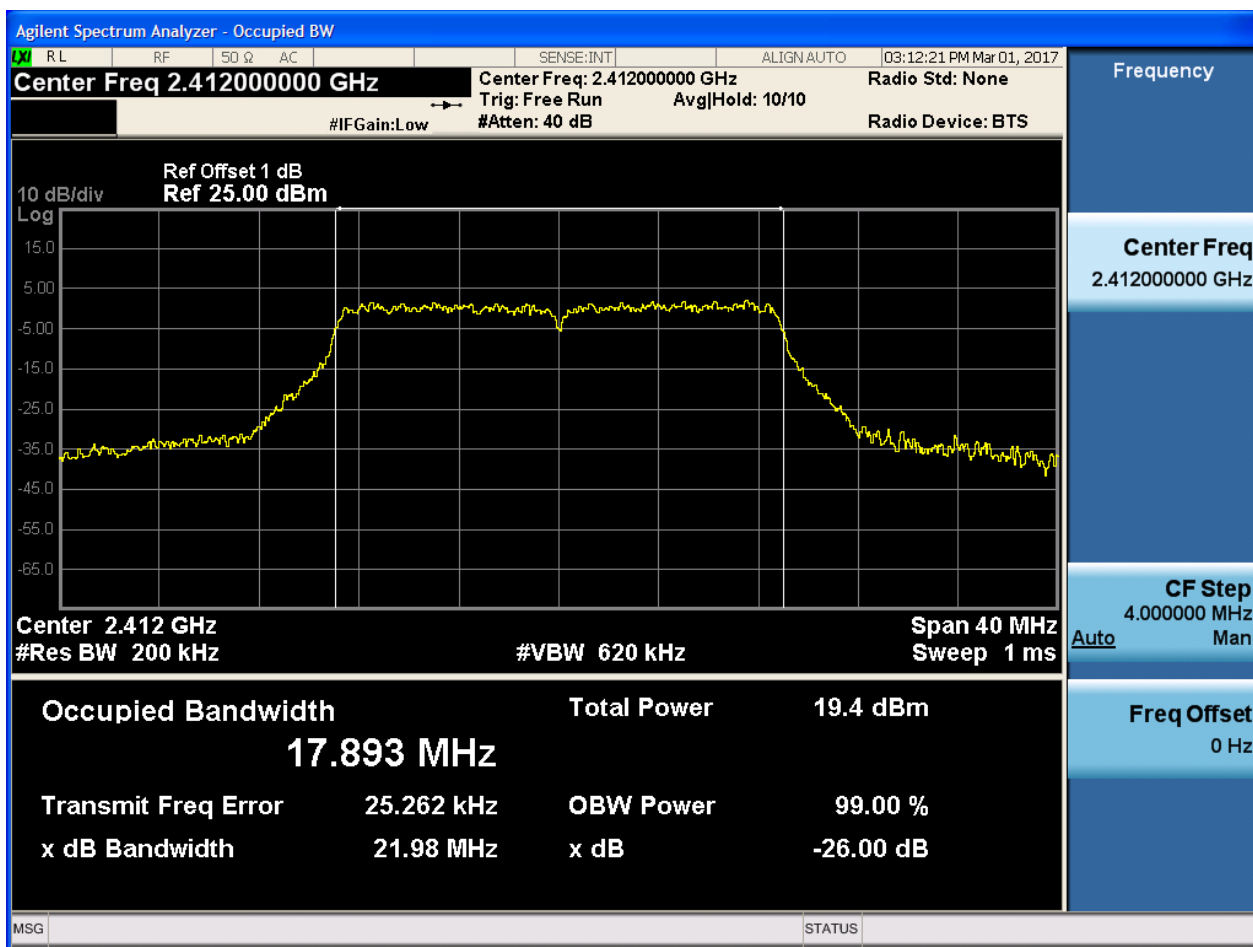


2.6 11G_H@Ant 1



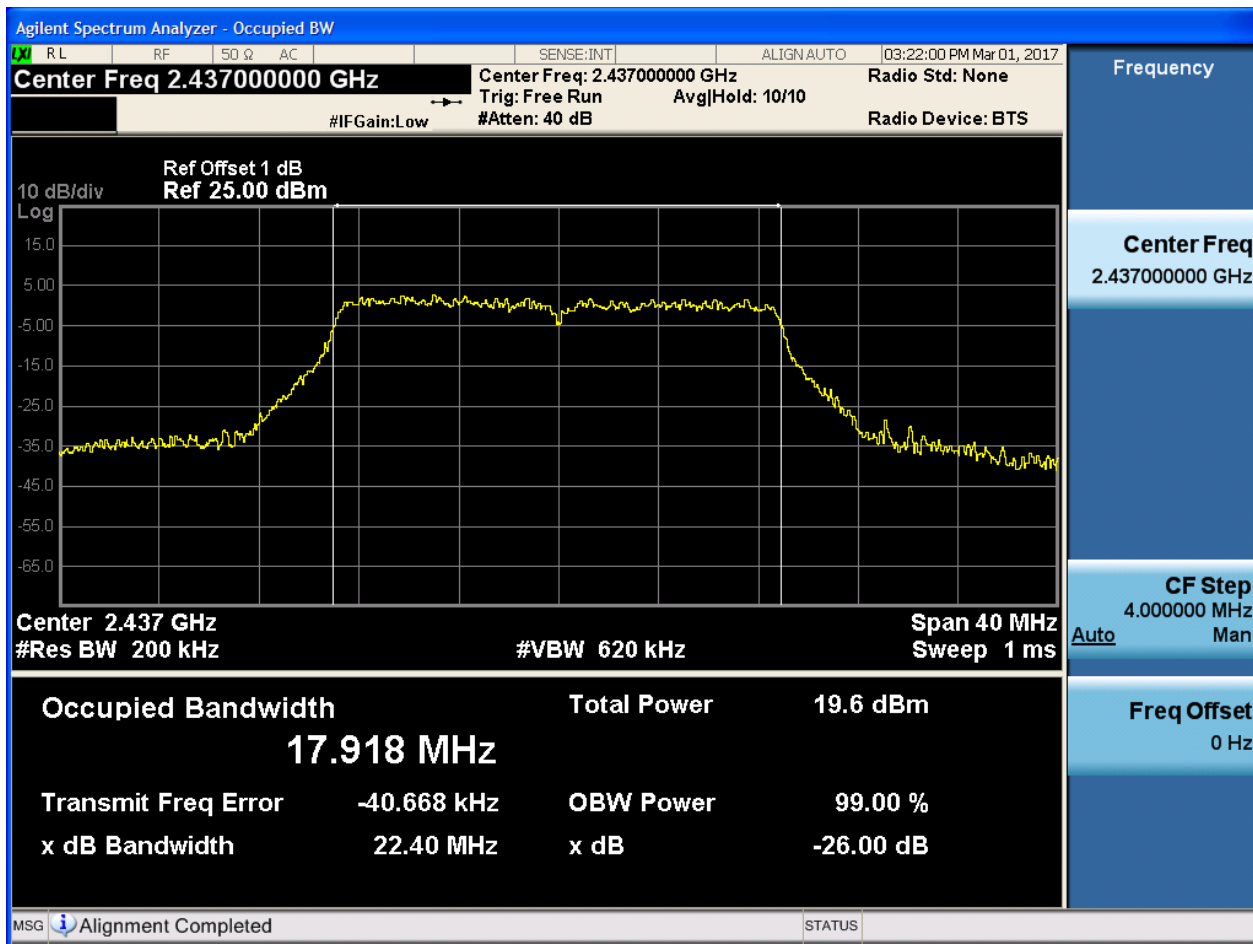


2.7 11N20_L@Ant 1



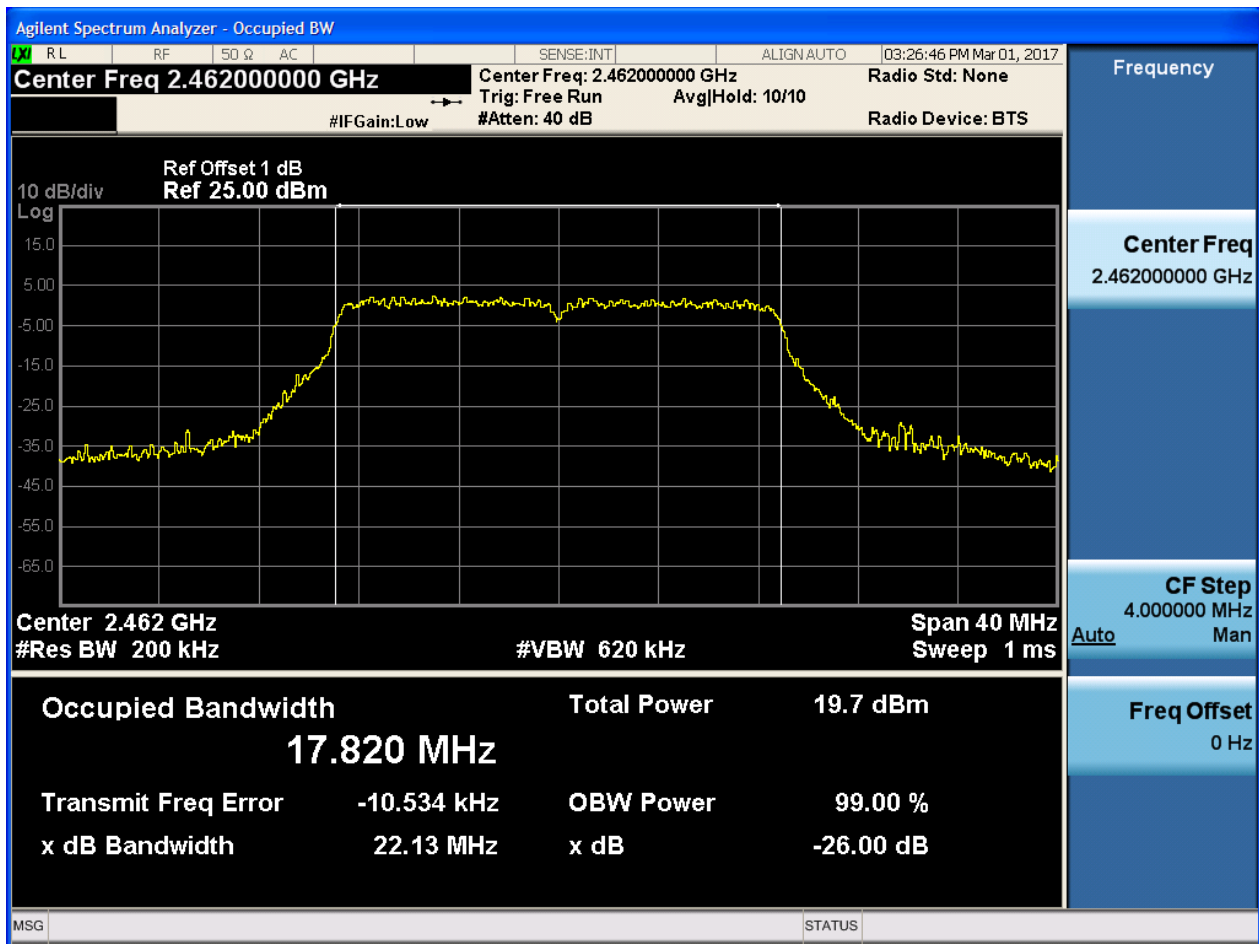


2.8 11N20_M@Ant 1



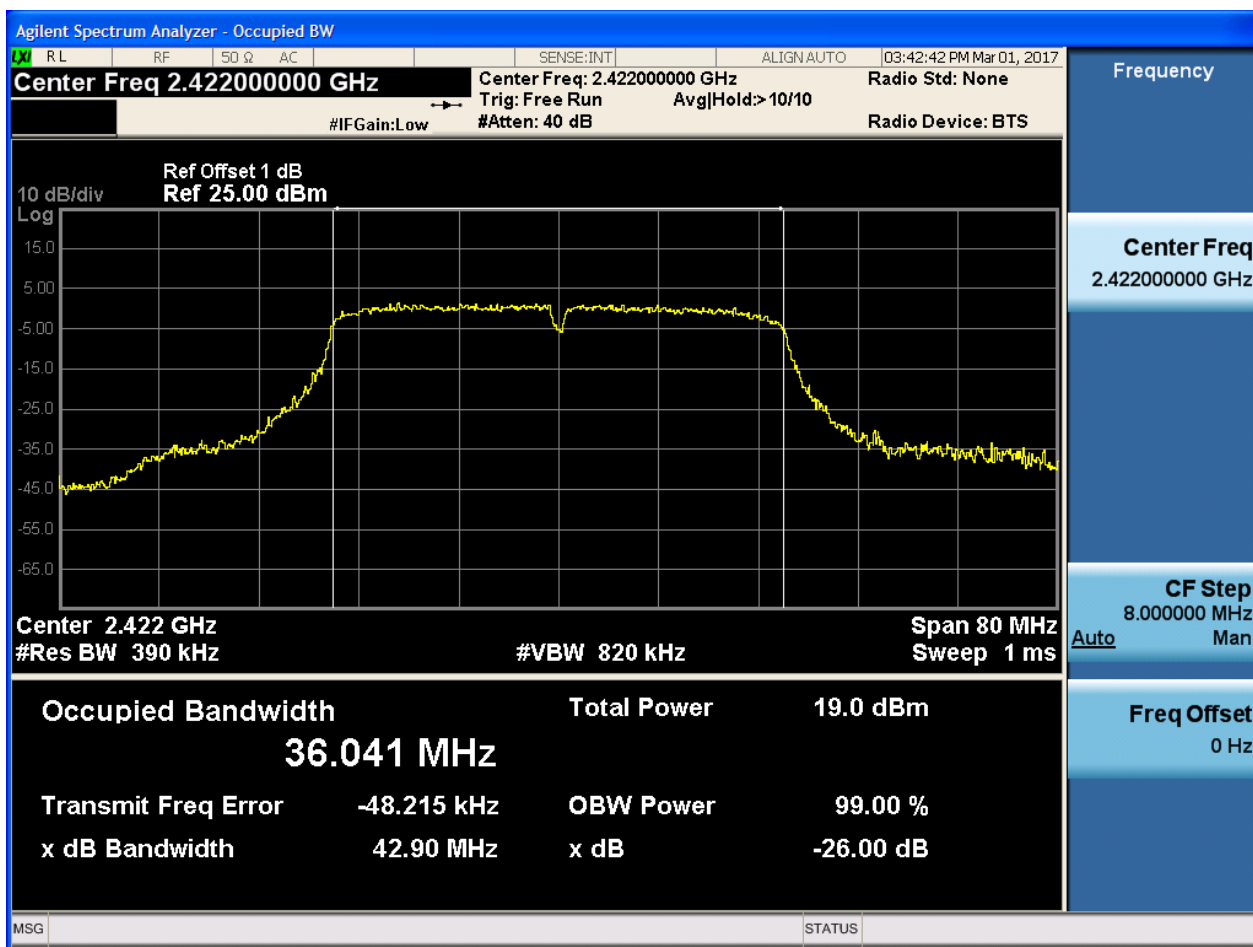


2.9 11N20_H@Ant 1



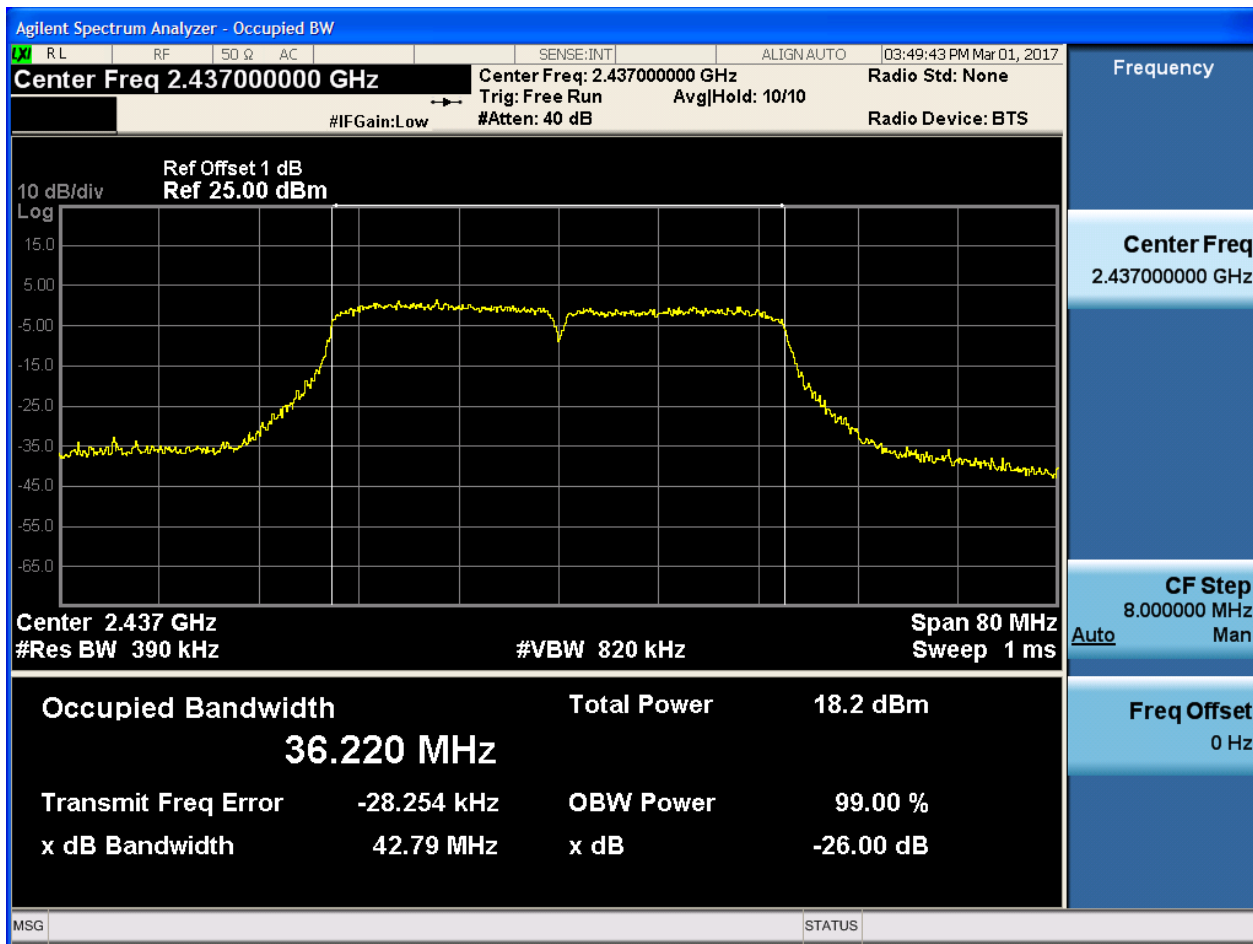


2.10 11N40_L@Ant 1



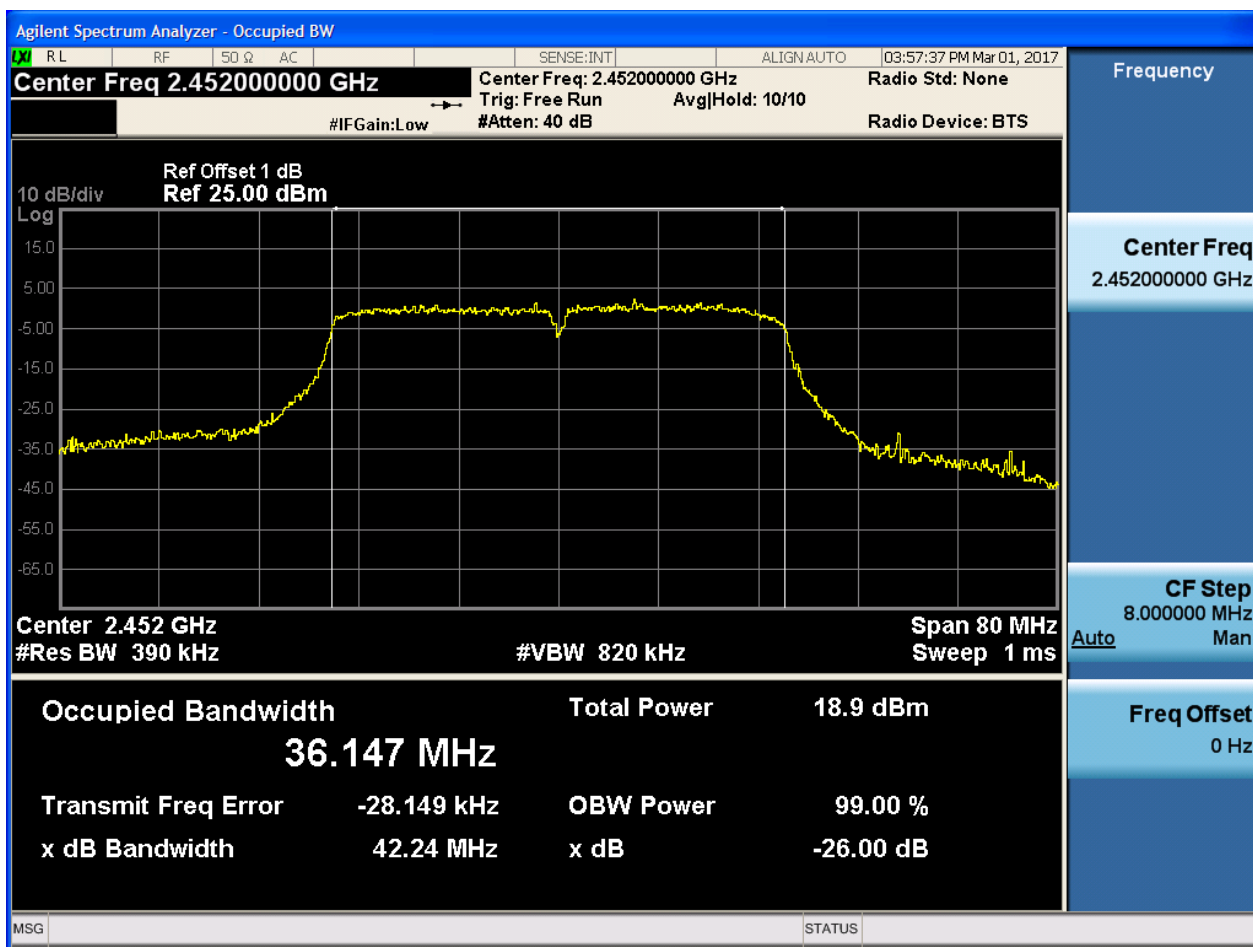


2.11 11N40_M@Ant 1





2.12 11N40_H@Ant 1



Appendix C: Duty Cycle

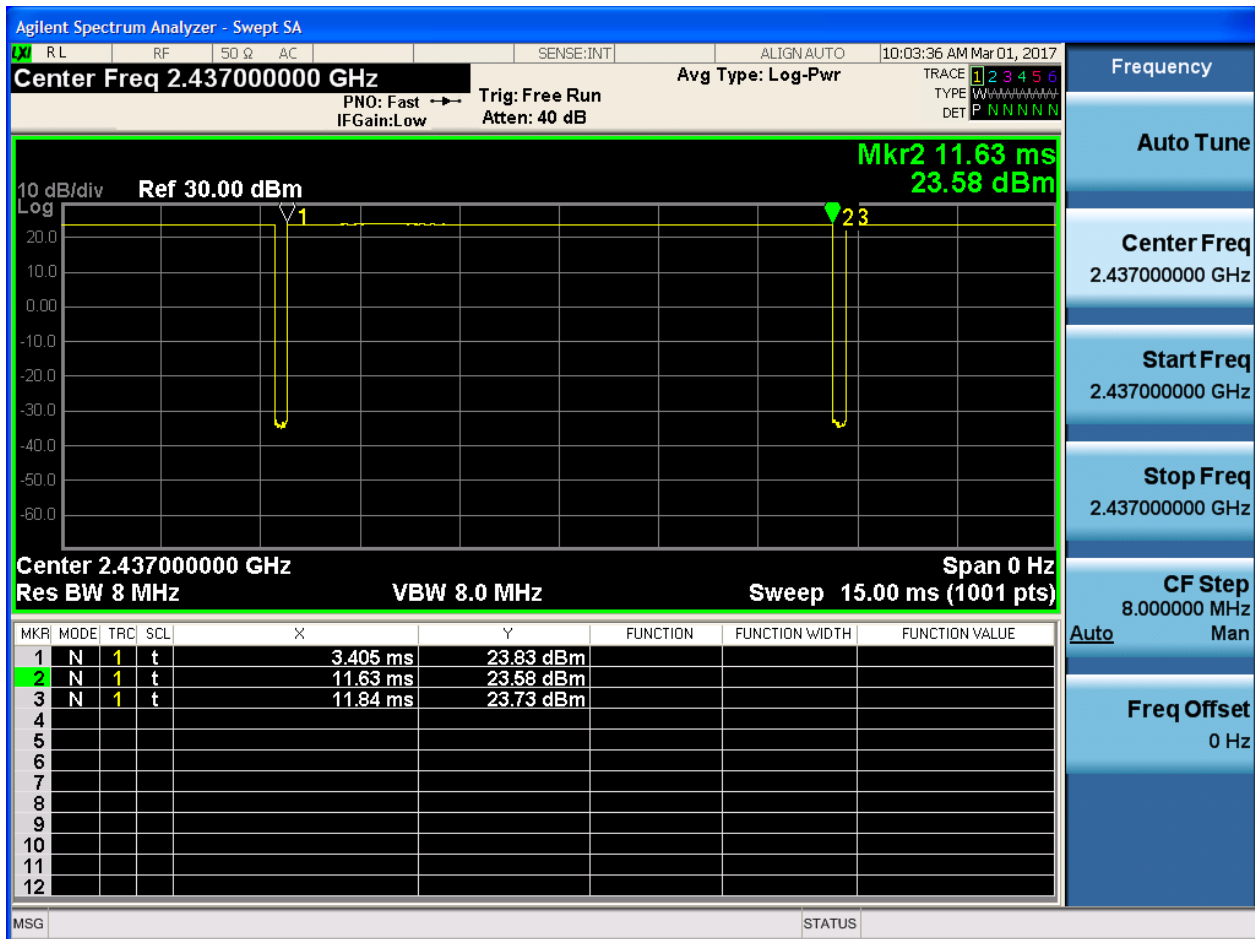
Part I - Test Results

Test Mode	TX Freq. [MHz]	Duty cycle [%]
11B	Ant 1: CH1,CH6,CH11	98
11G	Ant 1: CH1,CH6,CH11	87
11N_20M_SISO	Ant 1: CH1,CH6,CH11	87
11N_40M_SISO	Ant 1: CH3,CH6,CH9	76



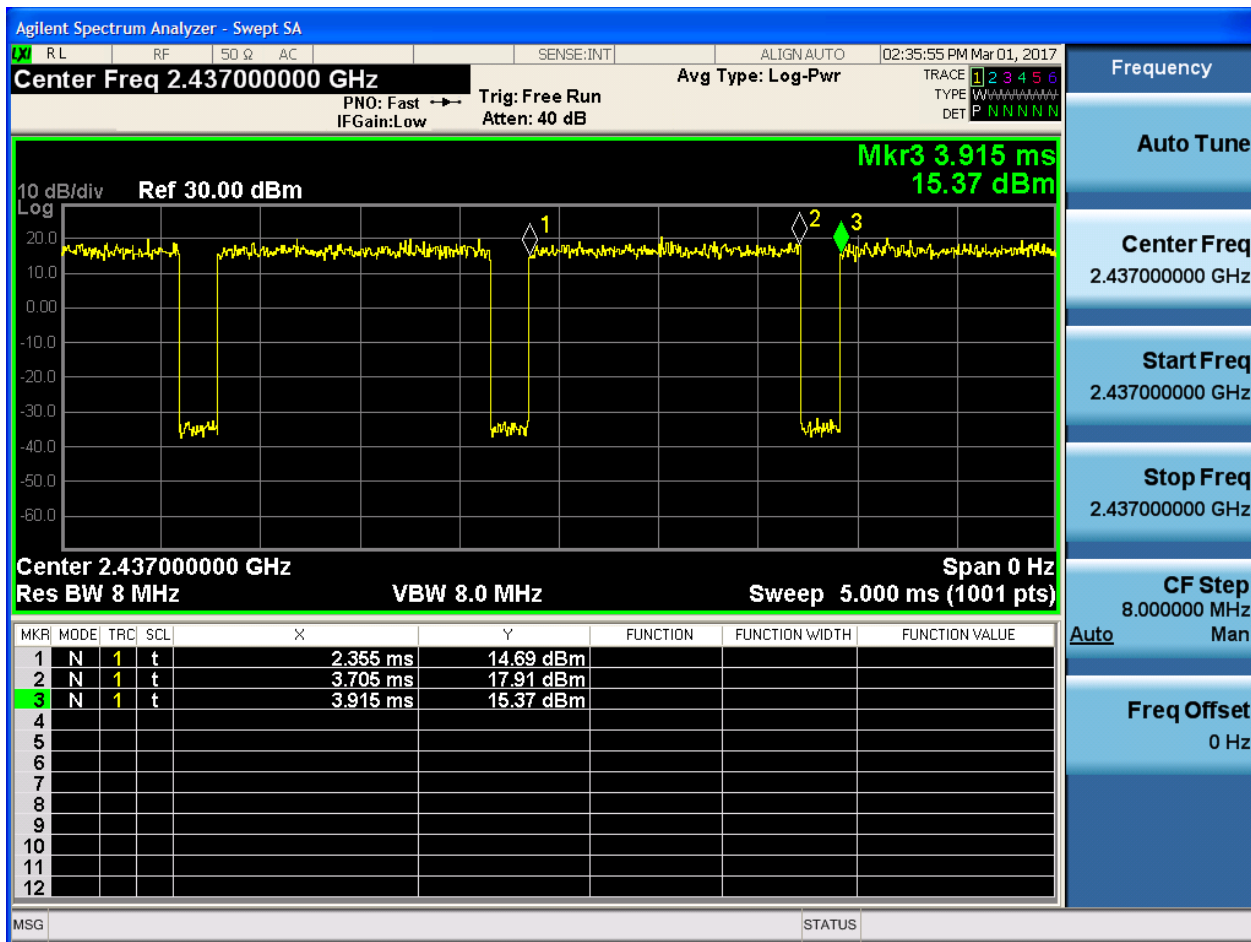
Part II - Test Plots

2.1 11B

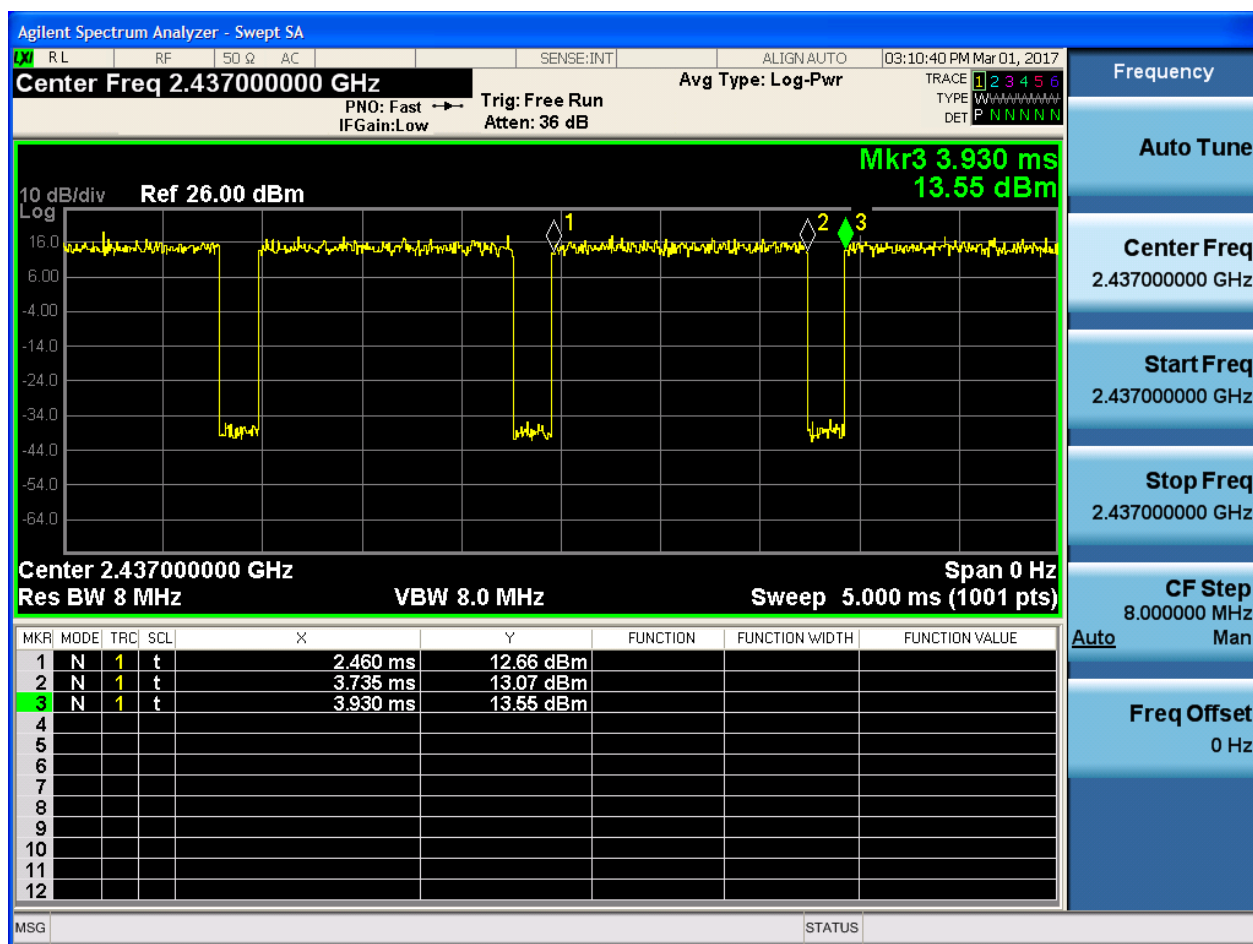




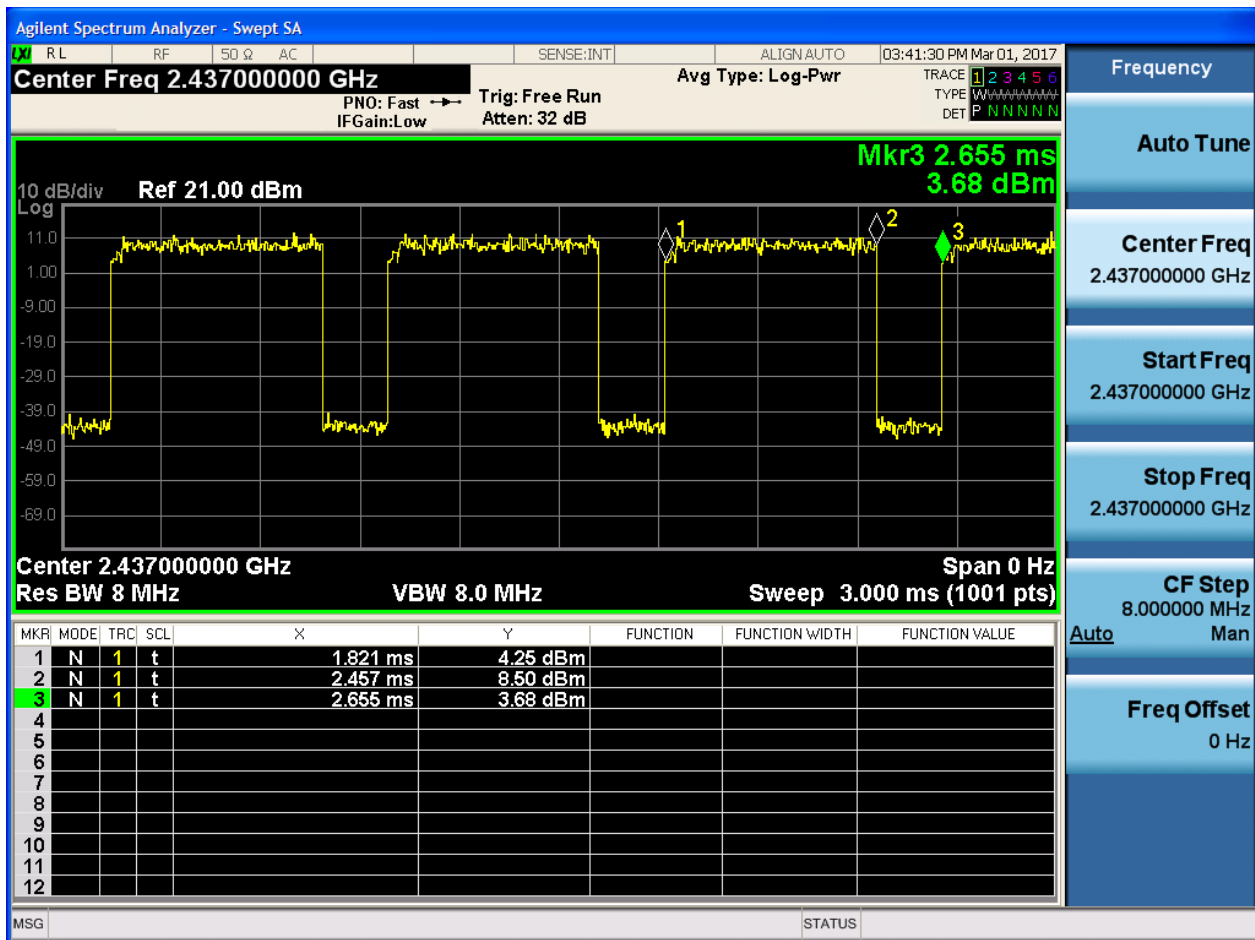
2.2 11G



2.3 11N20



2.4 11N40



Appendix D: Maximum Conducted Average Output Power

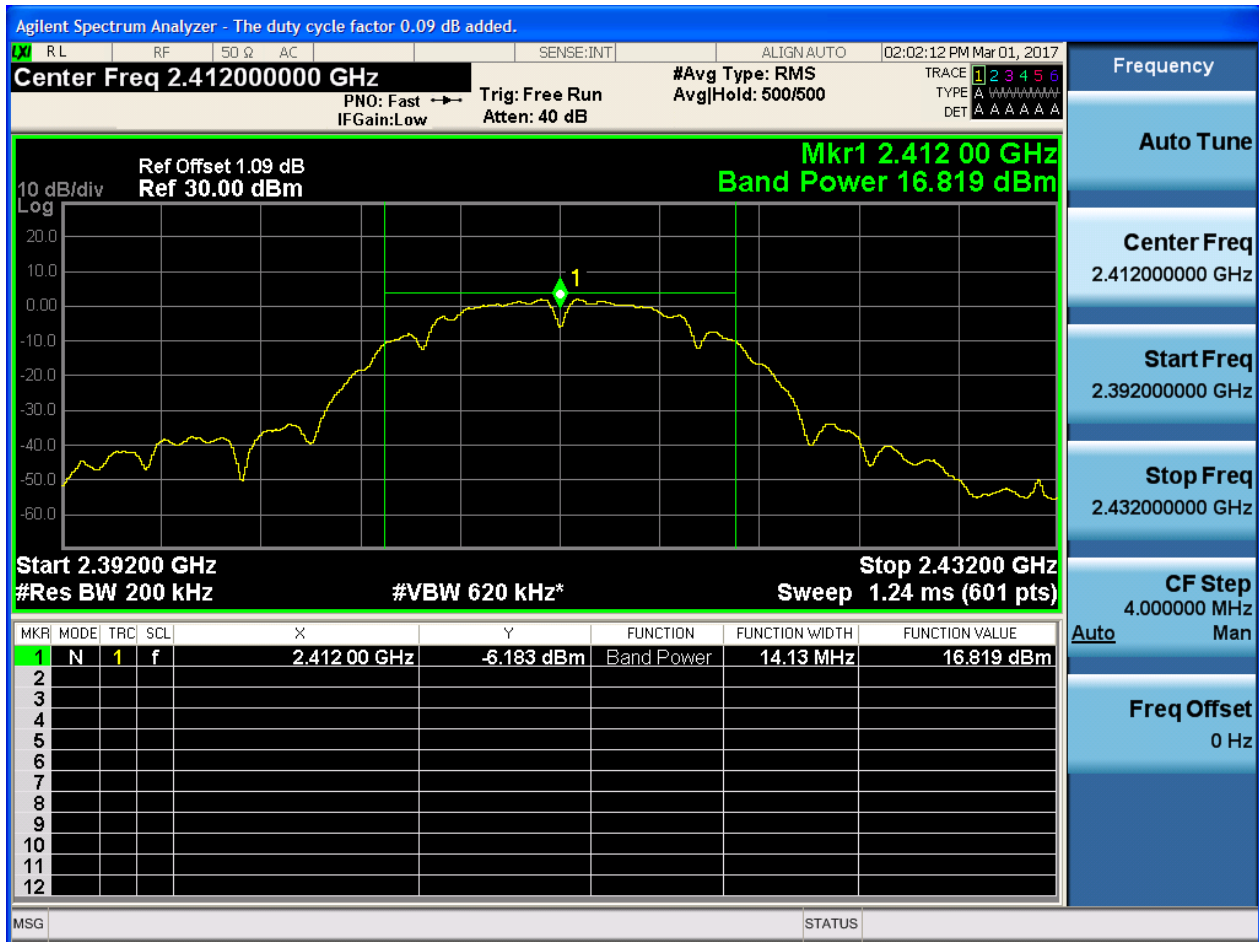
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Duty Cycle [%]	Power[dBm]	Verdict
11B	L	2412	Ant 1	98	16.82	pass
11B	M	2437	Ant 1	98	17.39	pass
11B	H	2462	Ant 1	98	17.29	pass
11G	L	2412	Ant 1	87	14.13	pass
11G	M	2437	Ant 1	87	14.67	pass
11G	H	2462	Ant 1	87	14.30	pass
11N20	L	2412	Ant 1	87	12.06	pass
11N20	M	2437	Ant 1	87	12.66	pass
11N20	H	2462	Ant 1	87	12.57	pass
11N40	L	2422	Ant 1	76	11.89	pass
11N40	M	2437	Ant 1	76	11.03	pass
11N40	H	2452	Ant 1	76	11.82	pass



Part II - Test Plots

2.1 11B_L@Ant 1



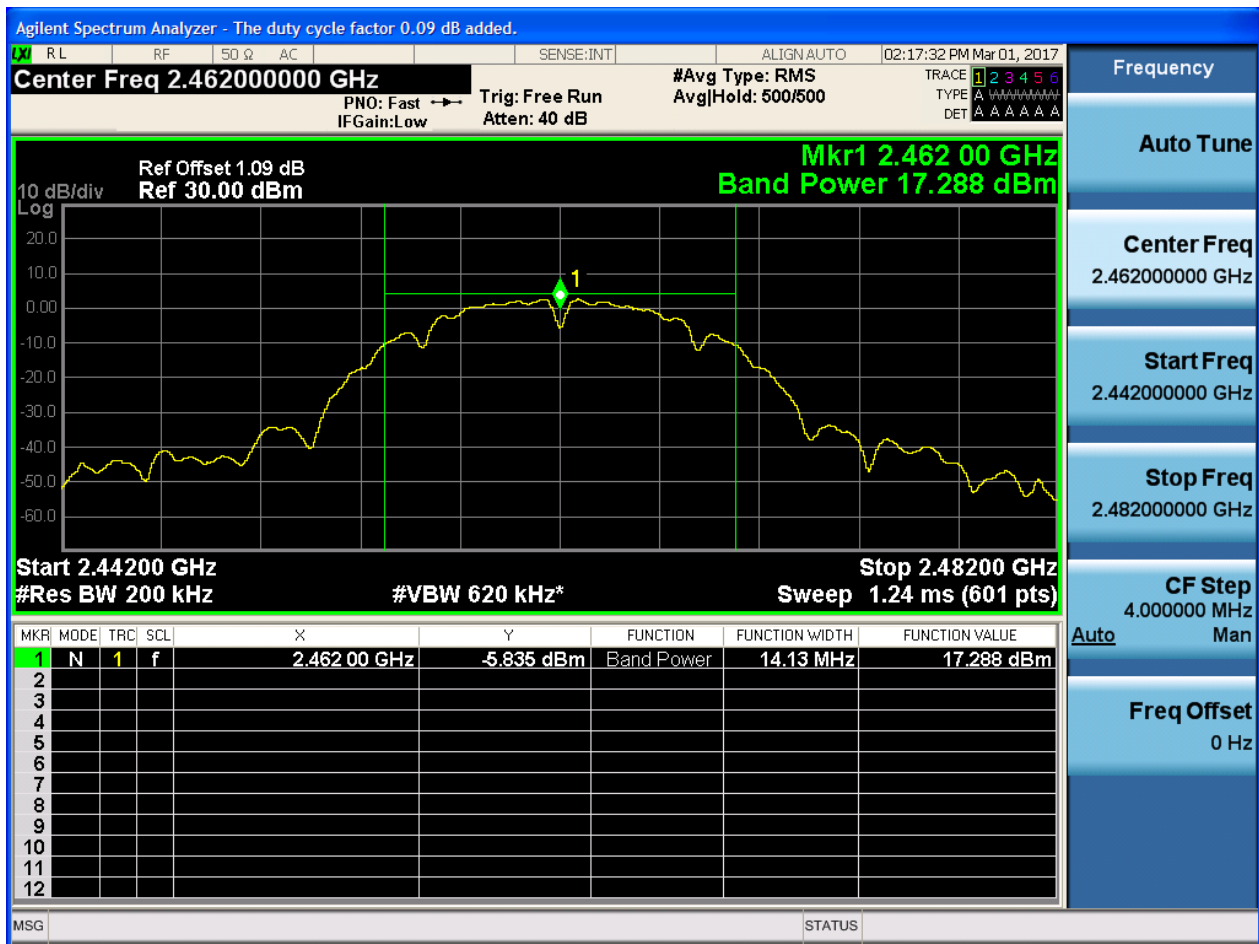


2.2 11B_M@Ant 1



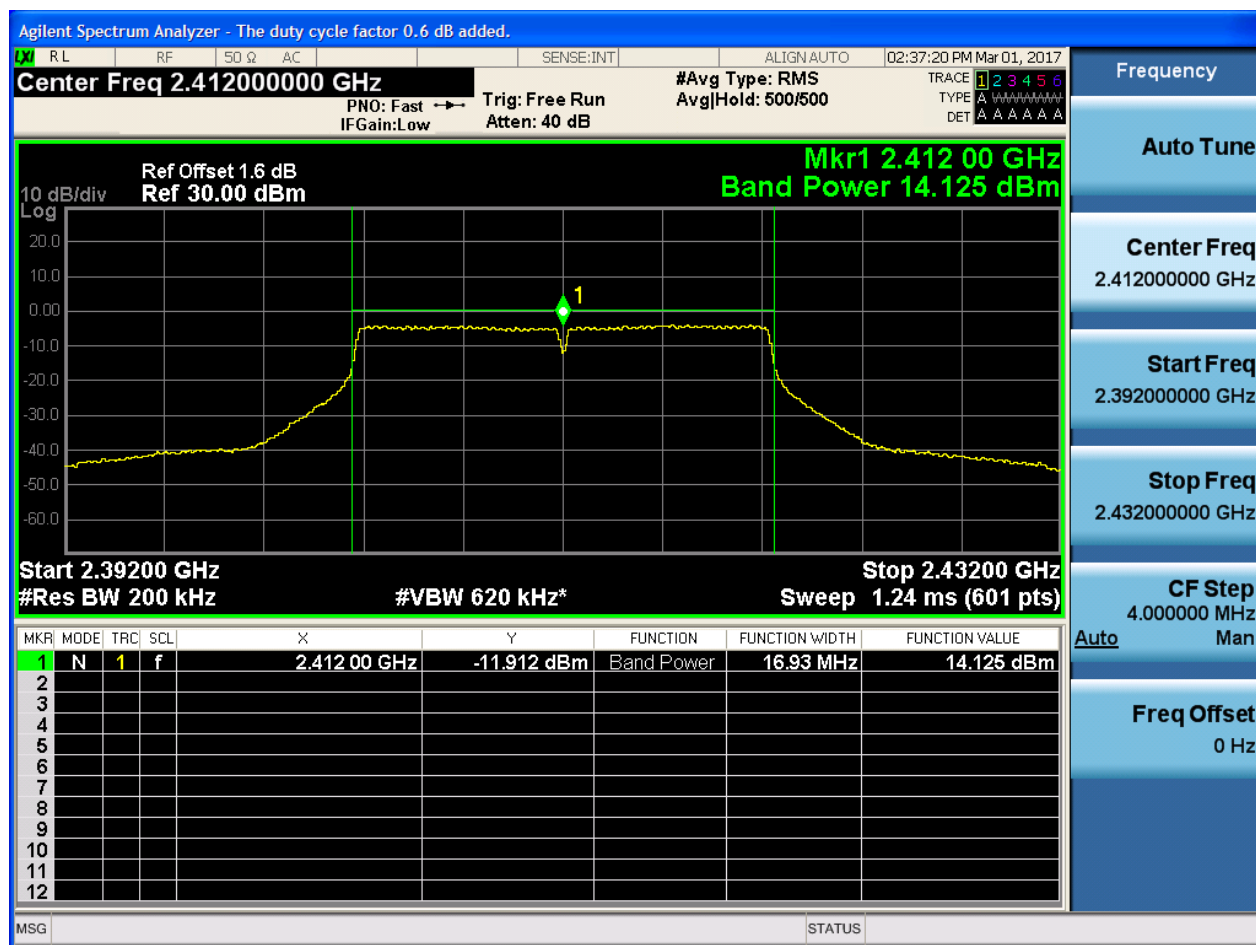


2.3 11B_H@Ant 1



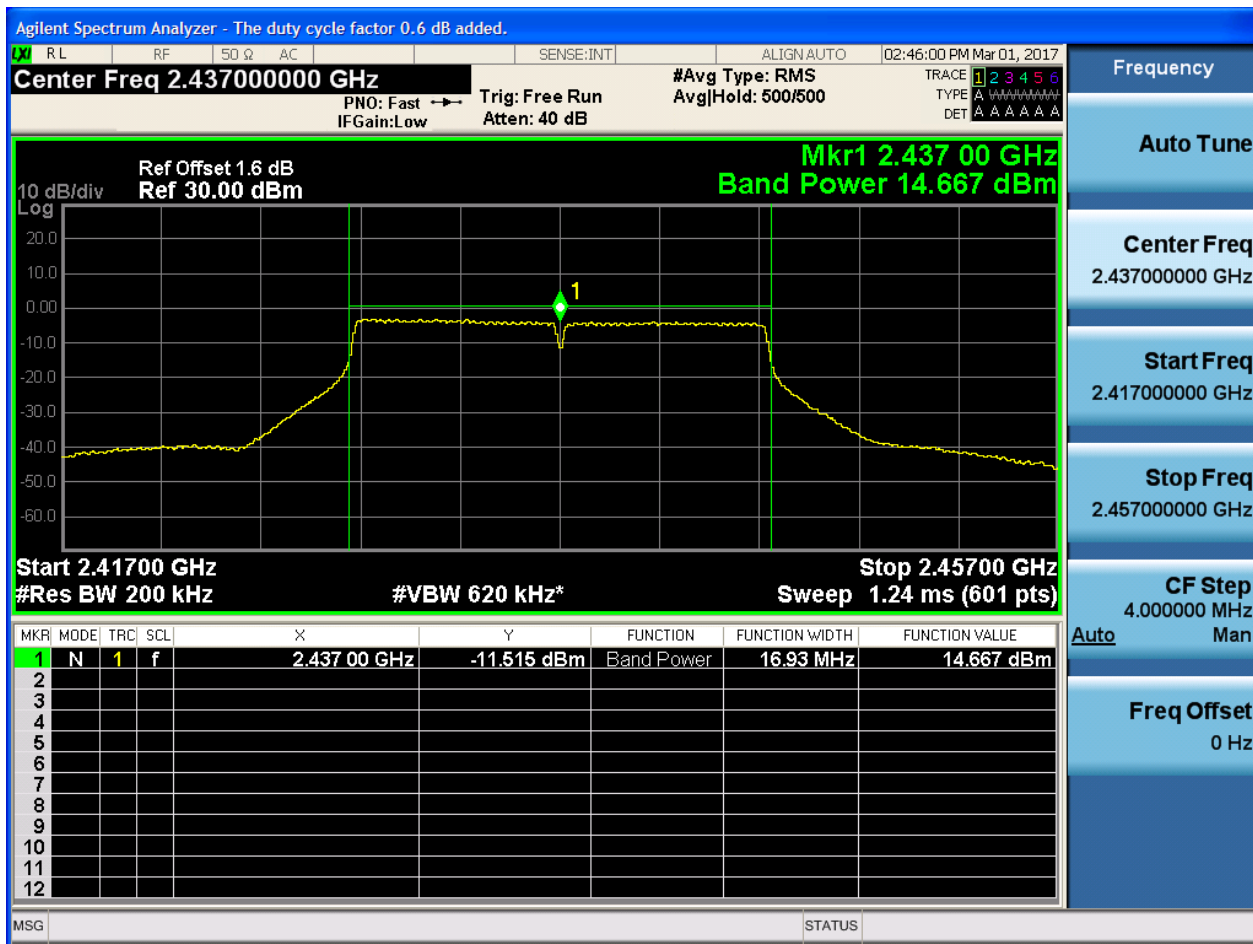


2.4 11G_L@Ant 1



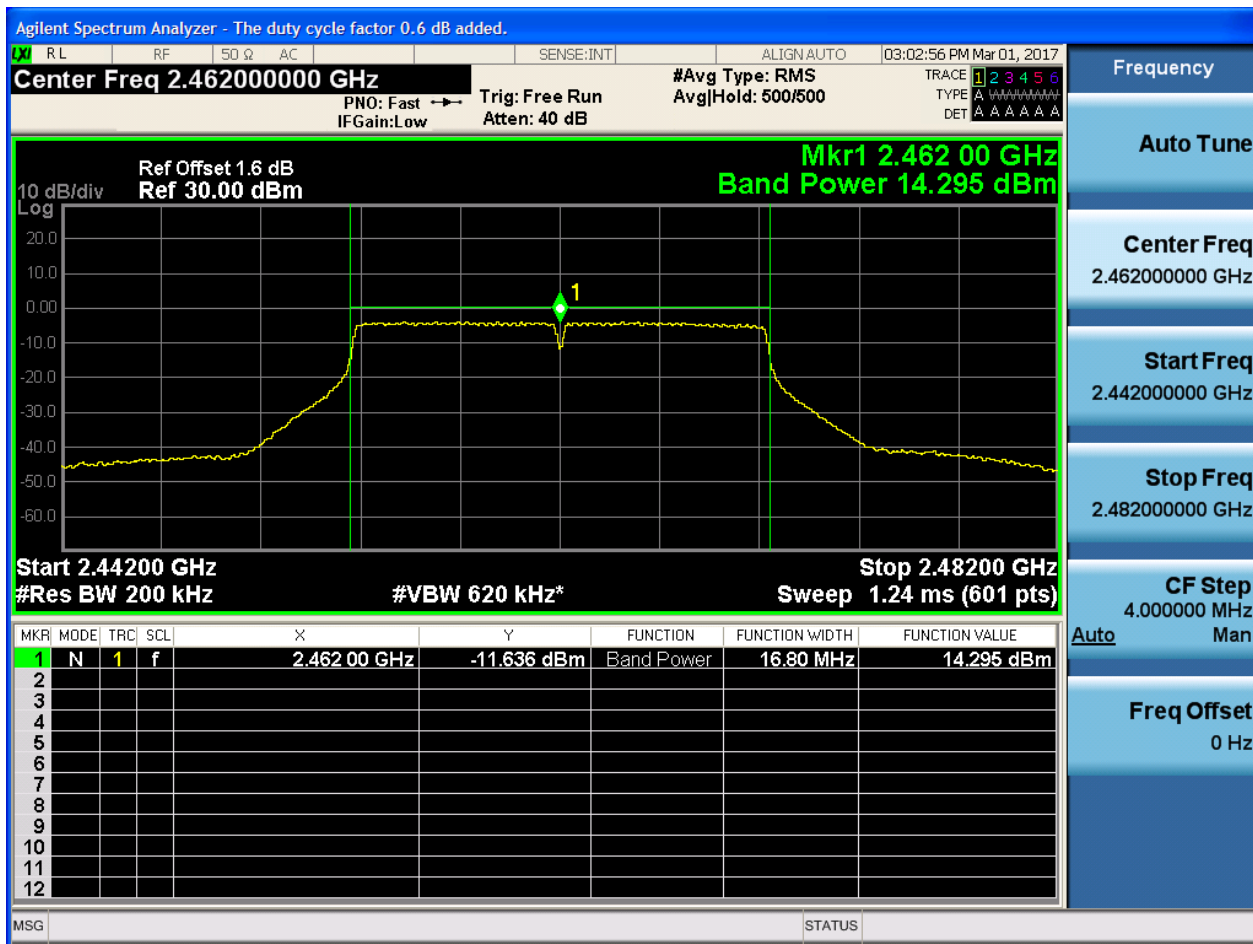


2.5 11G_M@Ant 1





2.6 11G_H@Ant 1





Agilent Spectrum Analyzer - The duty cycle factor 0.6 dB added.

Center Freq 2.41200000 GHz #Avg Type: RMS AvgHold: 500/500

Ref Offset 1.6 dB Ref 30.00 dBm

Mkr1 2.412 00 GHz Band Power 12.057 dBm

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	-14.404 dBm	Band Power	18.00 MHz	12.057 dBm
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

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

MSG STATUS



Agilent Spectrum Analyzer - The duty cycle factor 0.6 dB added.

RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 03:22:09 PM Mar 01, 2017

Center Freq 2.43700000 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
DET A A A A A A

Ref Offset 1.6 dB
Ref 30.00 dBm

Mkr1 2.437 00 GHz
Band Power 12.657 dBm

10 dB/div
Log

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

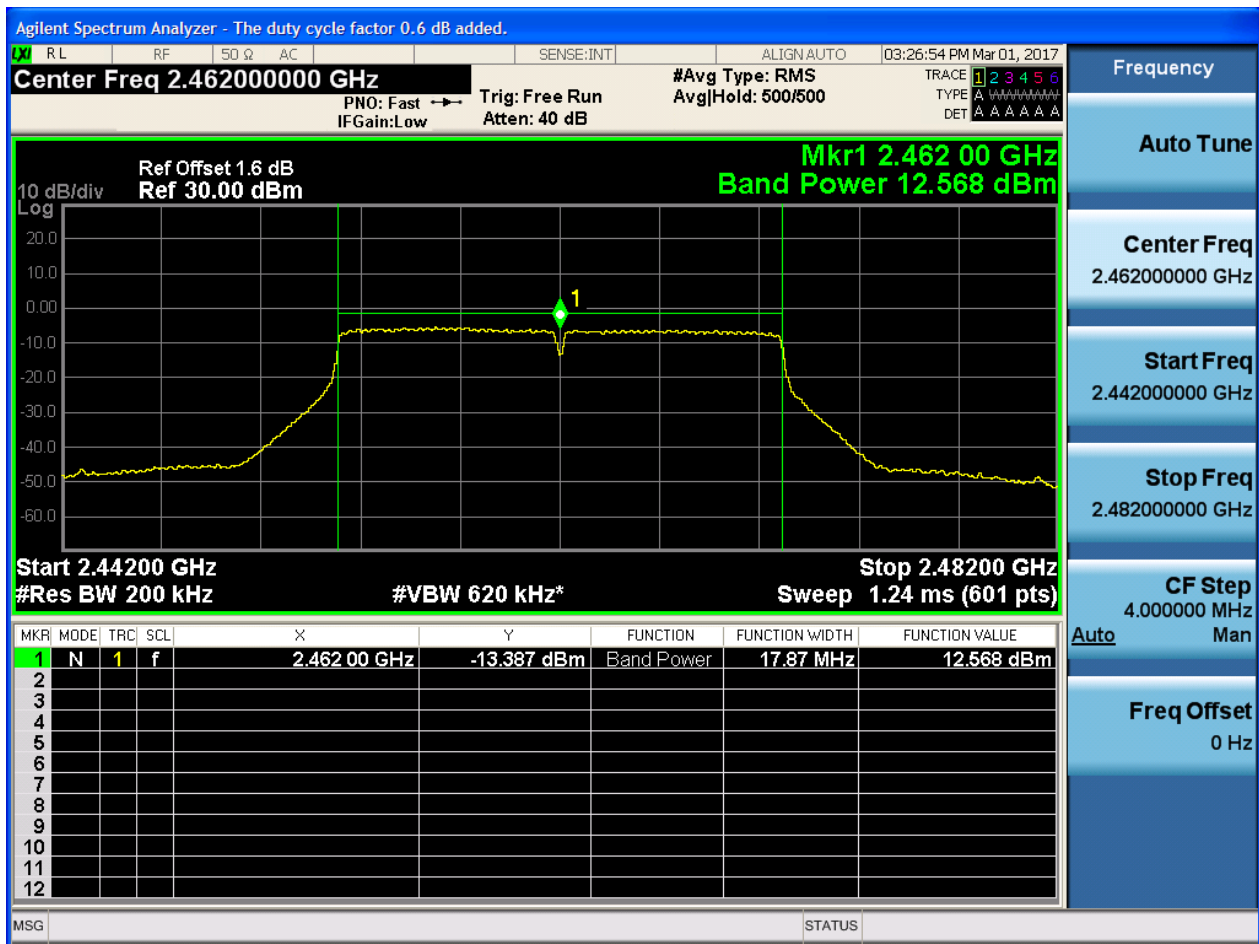
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.437 00 GHz	-14.137 dBm	Band Power	18.00 MHz	12.657 dBm
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

MSG STATUS

Frequency
Auto Tune
Center Freq 2.43700000 GHz
Start Freq 2.41700000 GHz
Stop Freq 2.45700000 GHz
CF Step 4.000000 MHz Man
Auto
Freq Offset 0 Hz



2.9 11N20_H@Ant 1



[illegible]



Agilent Spectrum Analyzer - The duty cycle factor 1.19 dB added.

Center Freq 2.43700000 GHz #Avg Type: RMS AvgHold: 500/500 PNO: Fast Trig: Free Run IFGain:Low Atten: 38 dB

03:49:52 PM Mar 01, 2017

Ref Offset 2.19 dB Ref 30.00 dBm

Mkr1 2.437 00 GHz Band Power 11.025 dBm

Start 2.39700 GHz Stop 2.47700 GHz #Res BW 390 kHz #VBW 1.2 MHz* 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	-19.540 dBm	Band Power	36.27 MHz	11.025 dBm
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Frequency Auto Tune Center Freq 2.43700000 GHz Start Freq 2.39700000 GHz Stop Freq 2.47700000 GHz CF Step 8.000000 MHz Man Freq Offset 0 Hz

MSG STATUS



Agilent Spectrum Analyzer - The duty cycle factor 1.19 dB added.

Center Freq 2.45200000 GHz #Avg Type: RMS
 PNO: Fast Trg: Free Run AvgHold: 500/500
 IFGain:Low Atten: 38 dB

03:57:46 PM Mar 01, 2017
 TRACE 1 2 3 4 5 6
 TYPE A W W W W W W
 DET A A A A A A

Ref Offset 2.19 dB
 Ref 30.00 dBm

Mkr1 2.452 00 GHz
 Band Power 11.819 dBm

10 dB/div
 Log

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

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.452 00 GHz	-18.013 dBm	Band Power	36.27 MHz	11.819 dBm
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Frequency
 Auto Tune
 Center Freq
 2.45200000 GHz
 Start Freq
 2.41200000 GHz
 Stop Freq
 2.49200000 GHz
 CF Step
 8.000000 MHz
 Man
 Freq Offset
 0 Hz

MSG STATUS

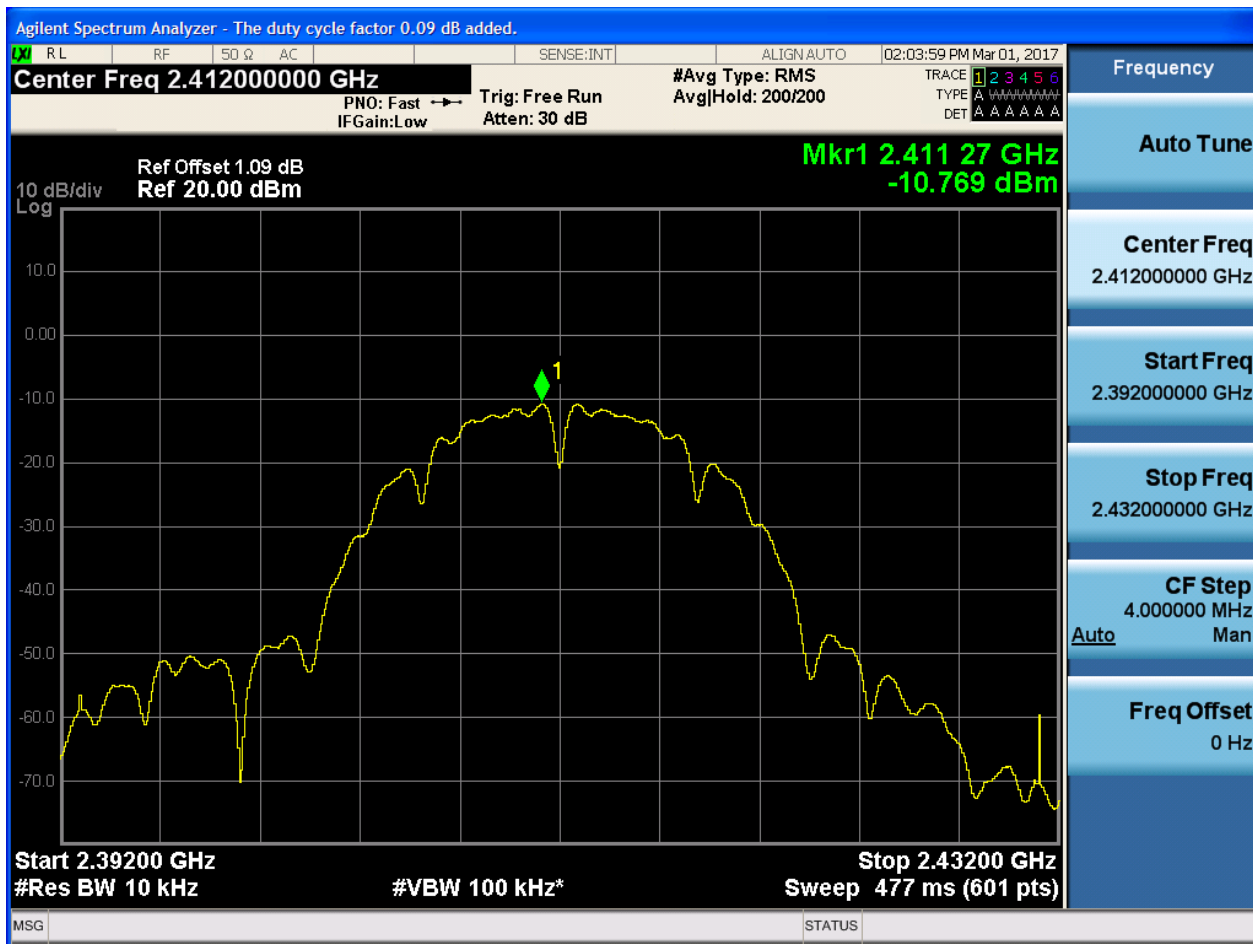
Appendix E: Maximum Power Spectral Density Level

Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Duty Cycle [%]	PD[MHz]	Verdict
11B	L	2412	Ant 1	98	-10.77	pass
11B	M	2437	Ant 1	98	-10.08	pass
11B	H	2462	Ant 1	98	-10.11	pass
11G	L	2412	Ant 1	87	-15.92	pass
11G	M	2437	Ant 1	87	-14.91	pass
11G	H	2462	Ant 1	87	-15.31	pass
11N20	L	2412	Ant 1	87	-17.97	pass
11N20	M	2437	Ant 1	87	-17.27	pass
11N20	H	2462	Ant 1	87	-17.42	pass
11N40	L	2422	Ant 1	76	-21.06	pass
11N40	M	2437	Ant 1	76	-21.65	pass
11N40	H	2452	Ant 1	76	-21.31	pass

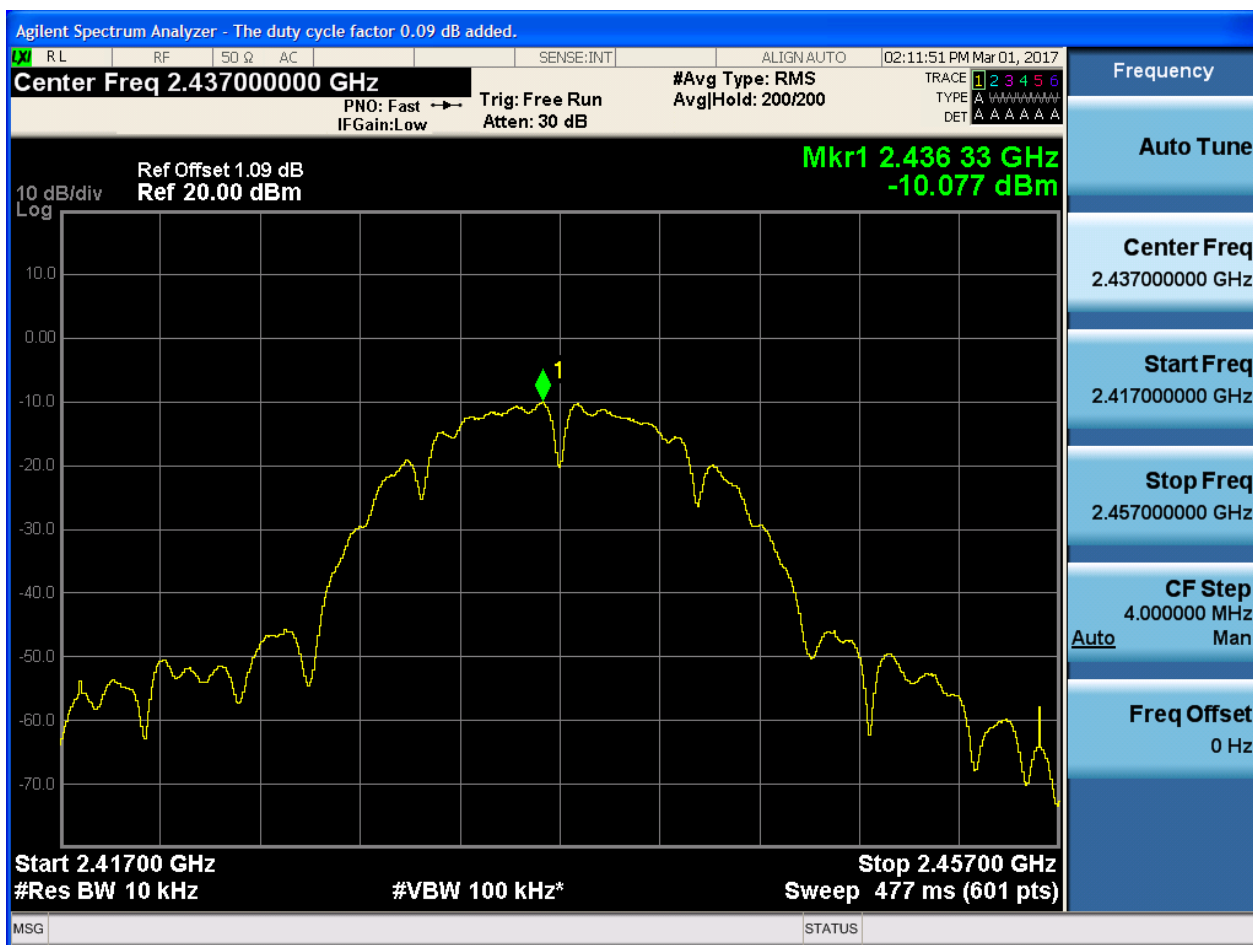
Part II - Test Plots

2.1 11B_L@Ant 1



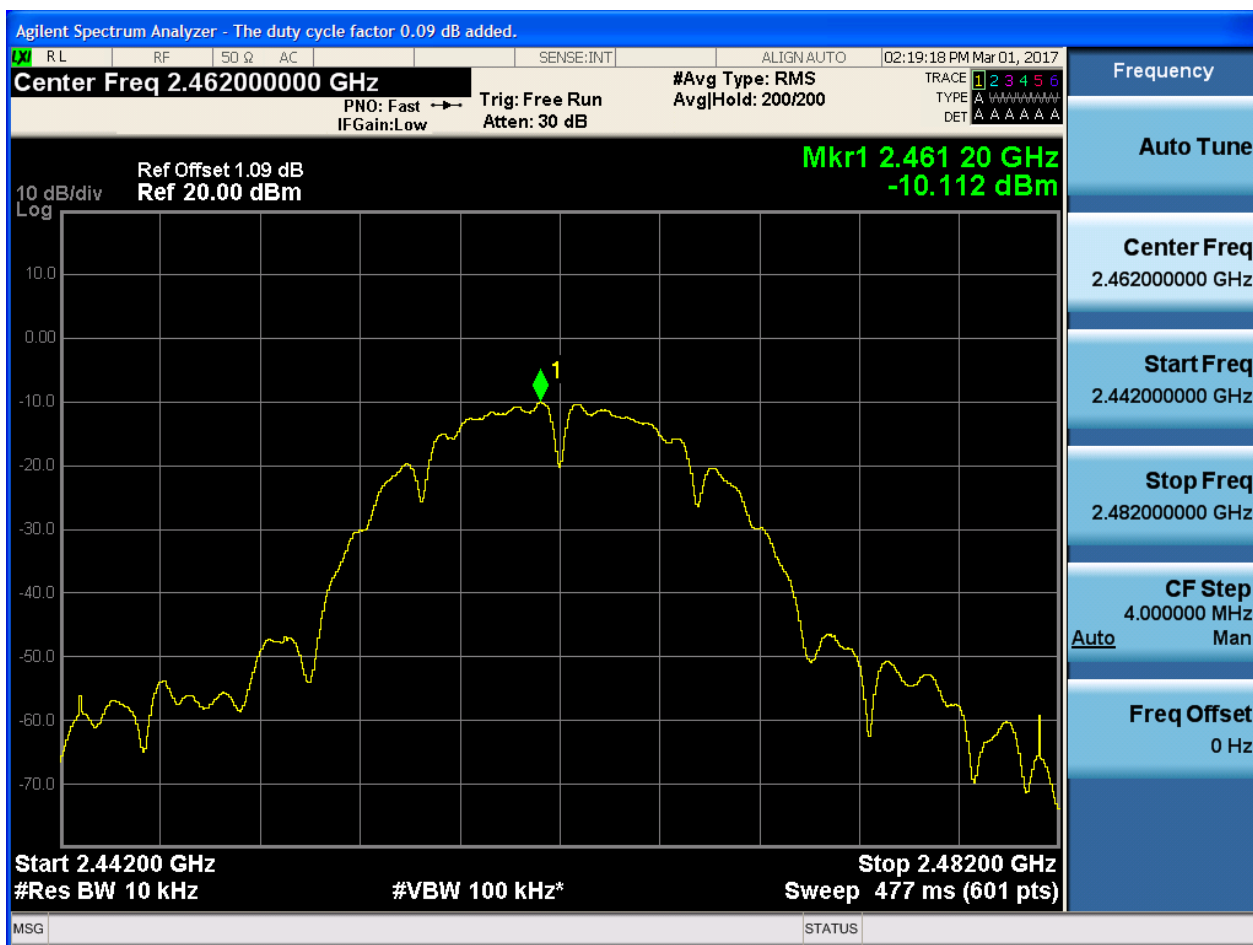


2.2 11B_M@Ant 1



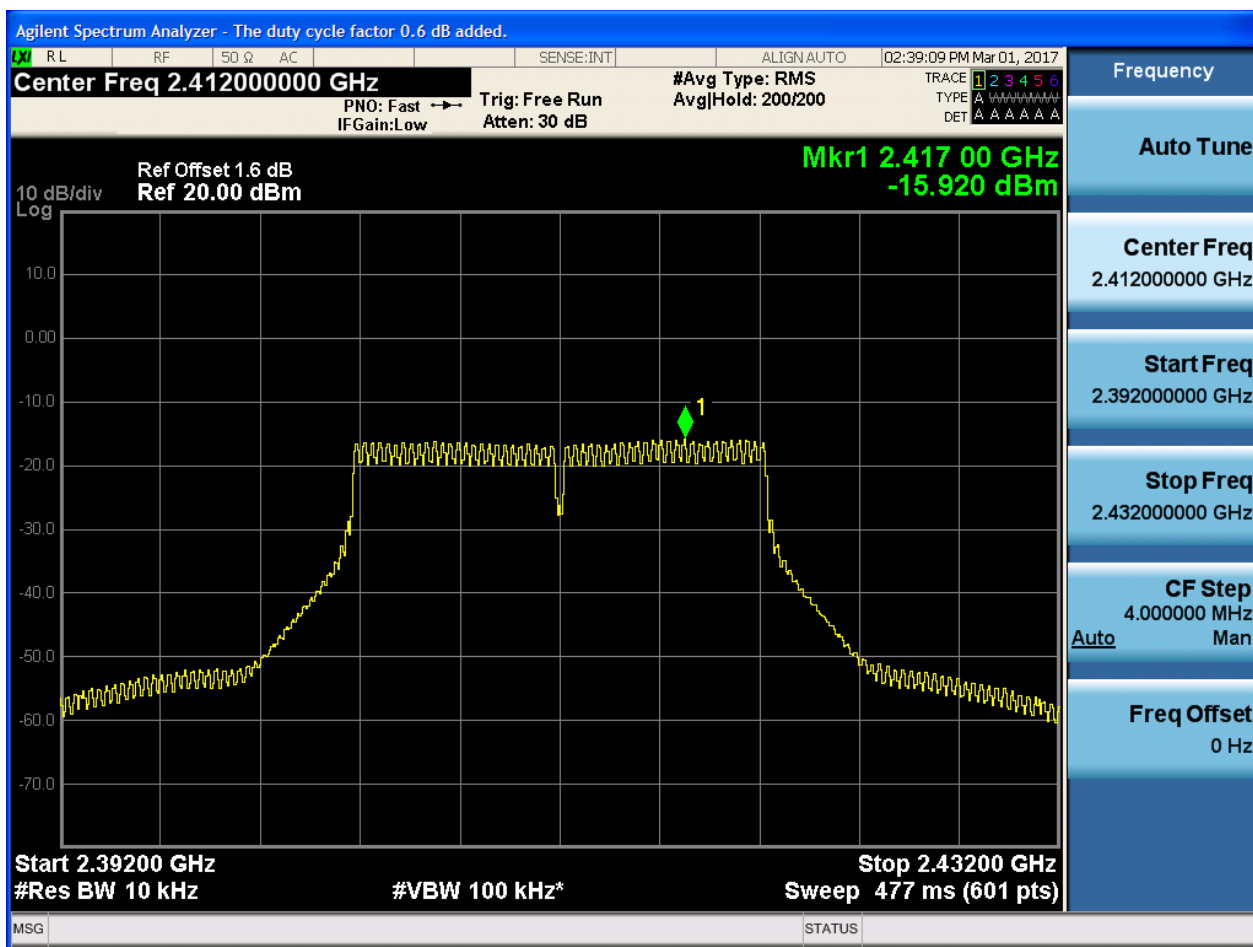


2.3 11B_H@Ant 1



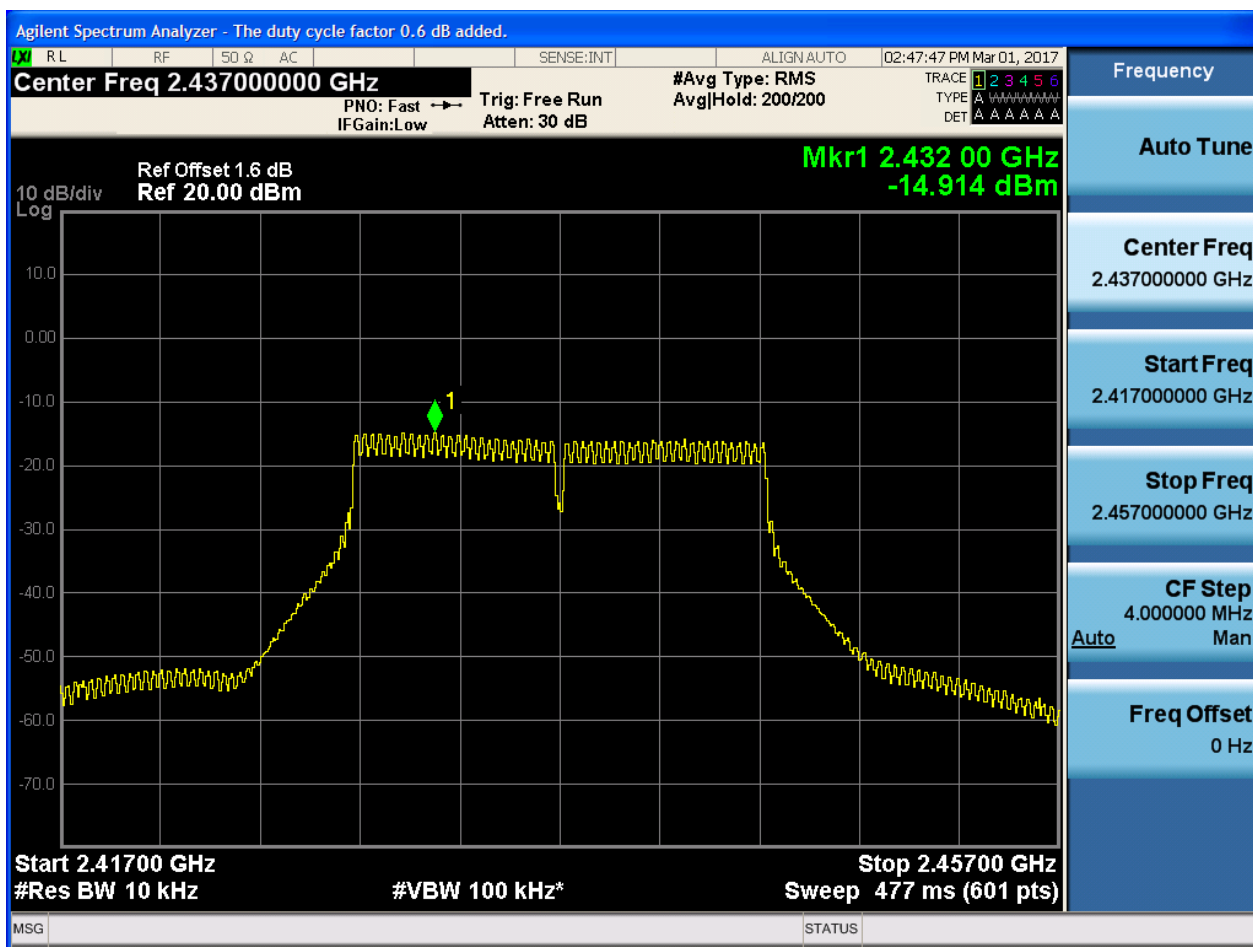


2.4 11G_L@Ant 1



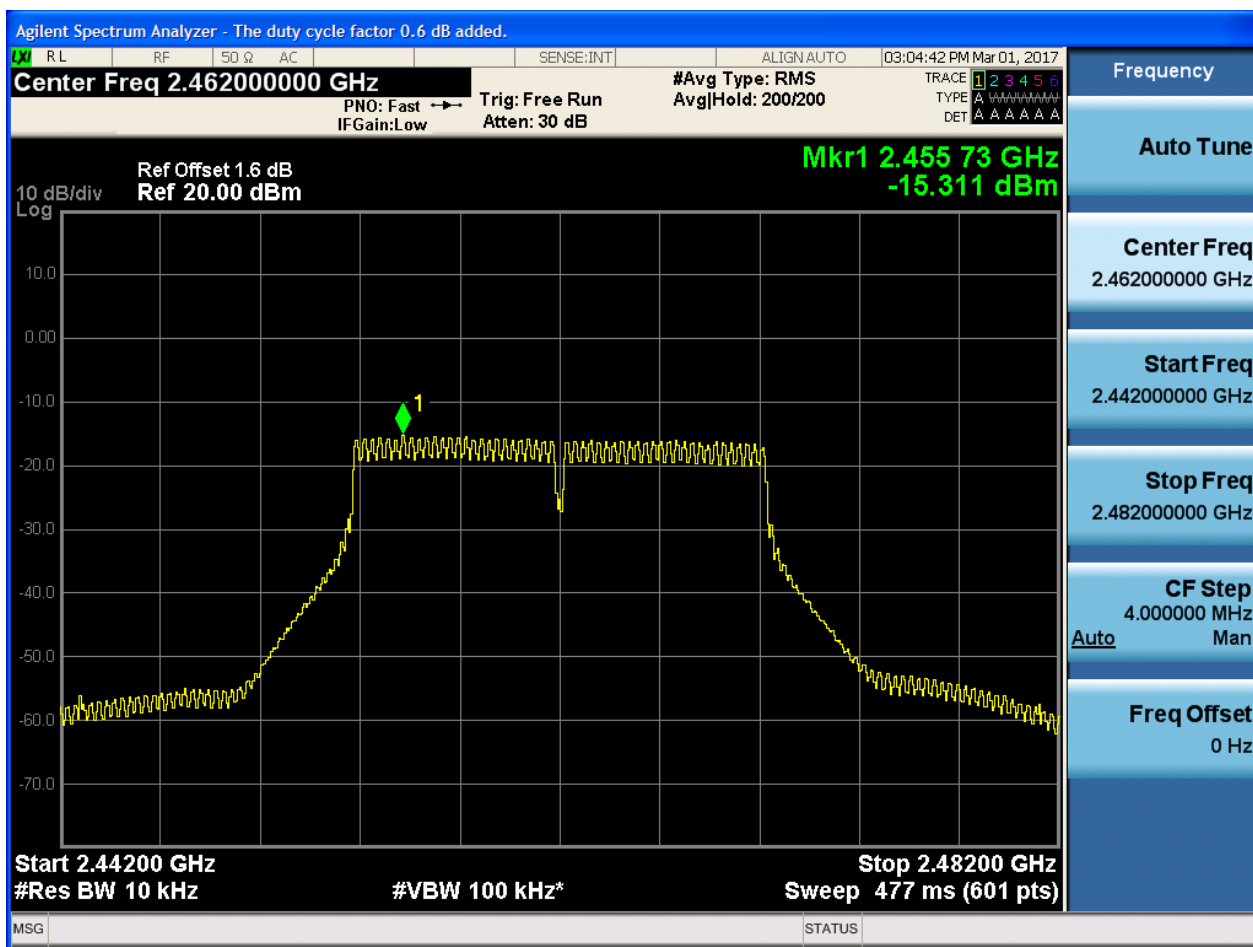


2.5 11G_M@Ant 1



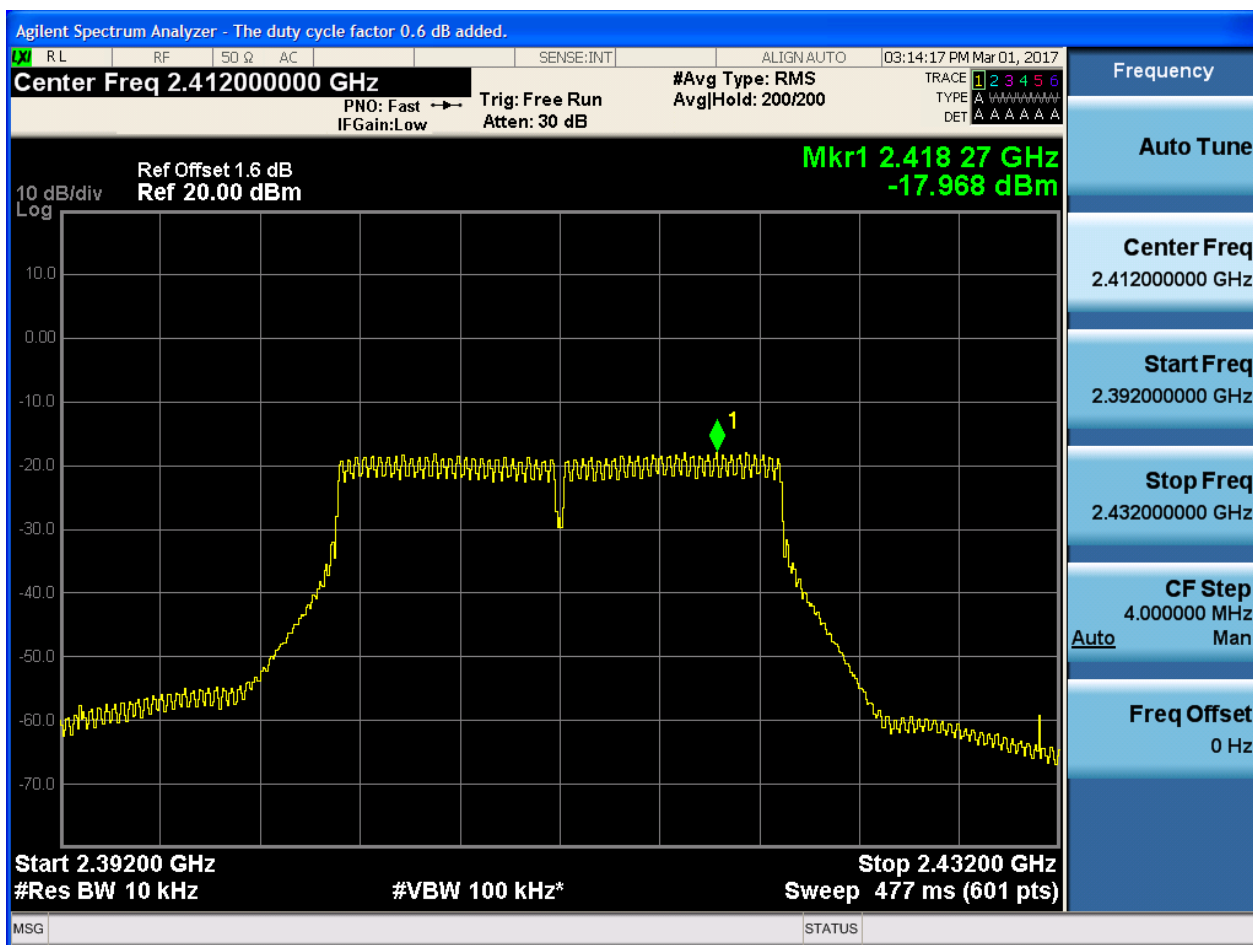


2.6 11G_H@Ant 1



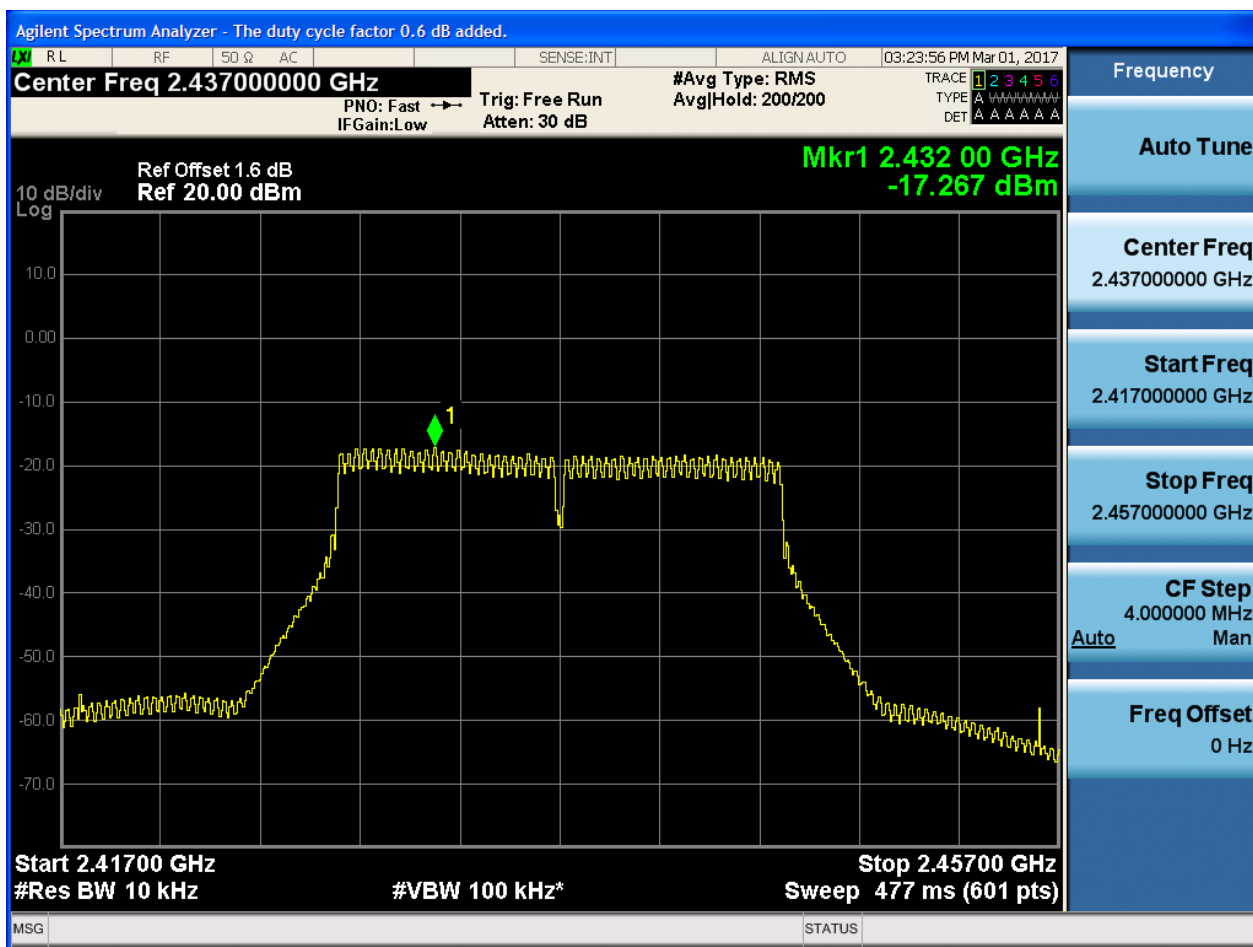


2.7 11N20_L@Ant 1



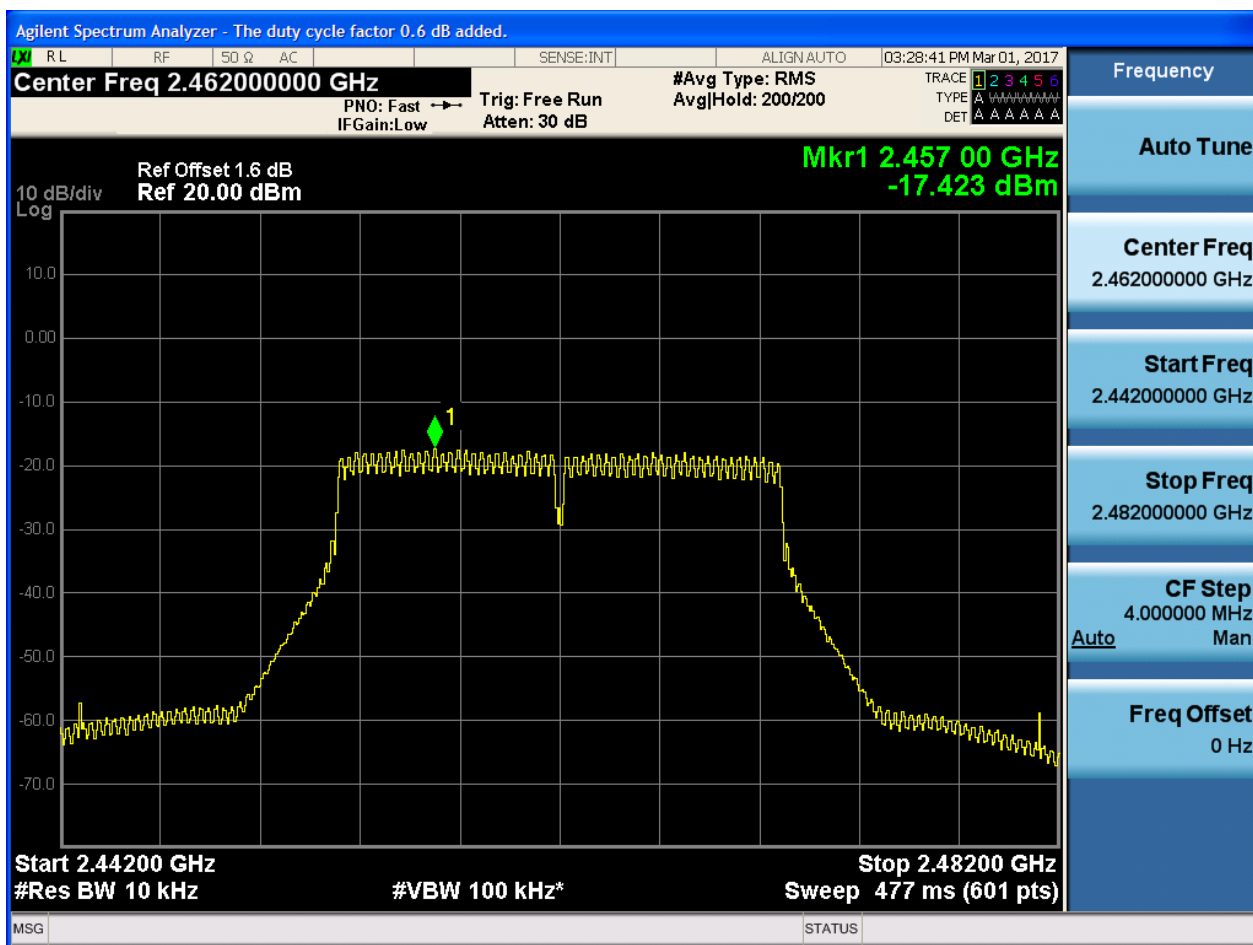


2.8 11N20_M@Ant 1



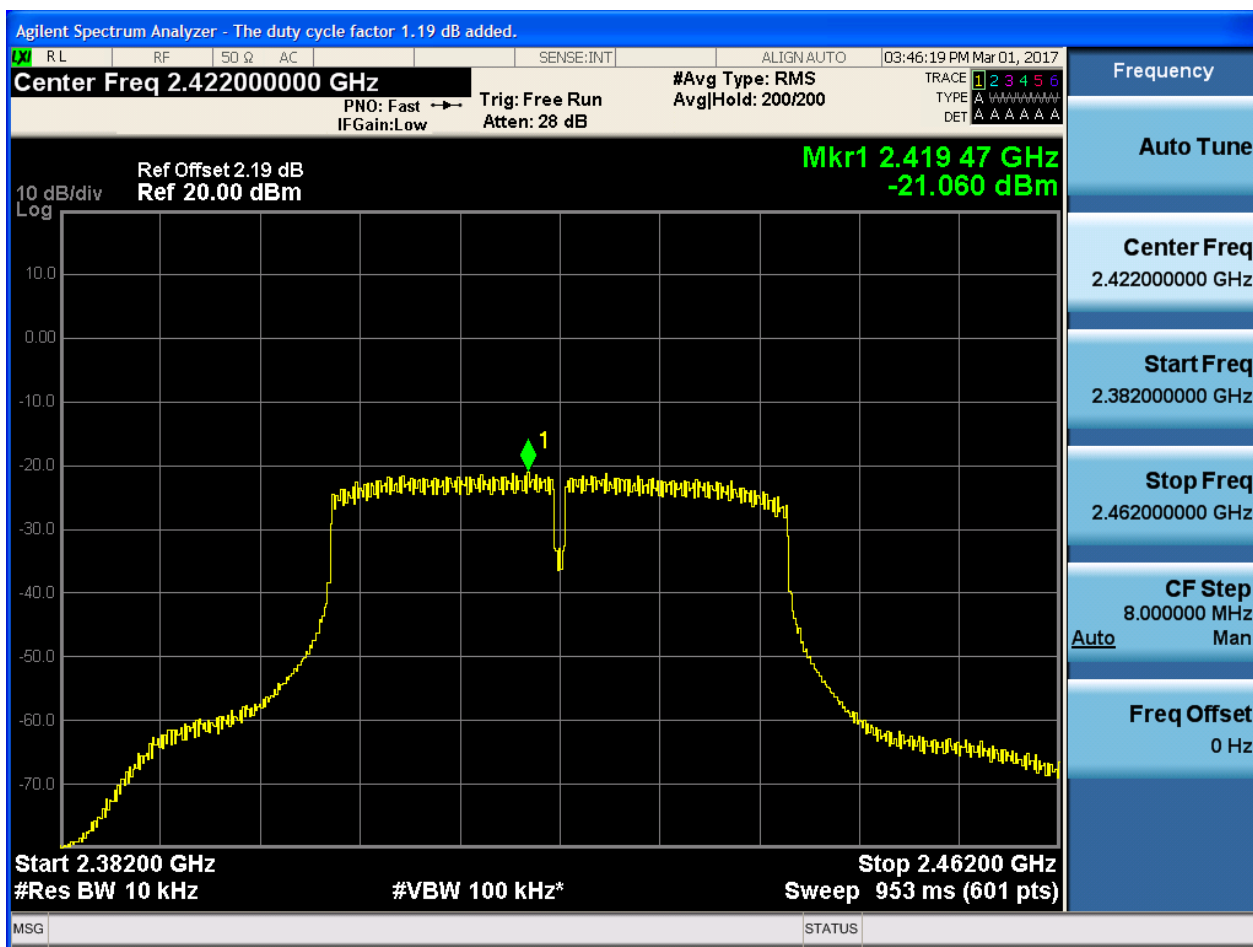


2.9 11N20_H@Ant 1



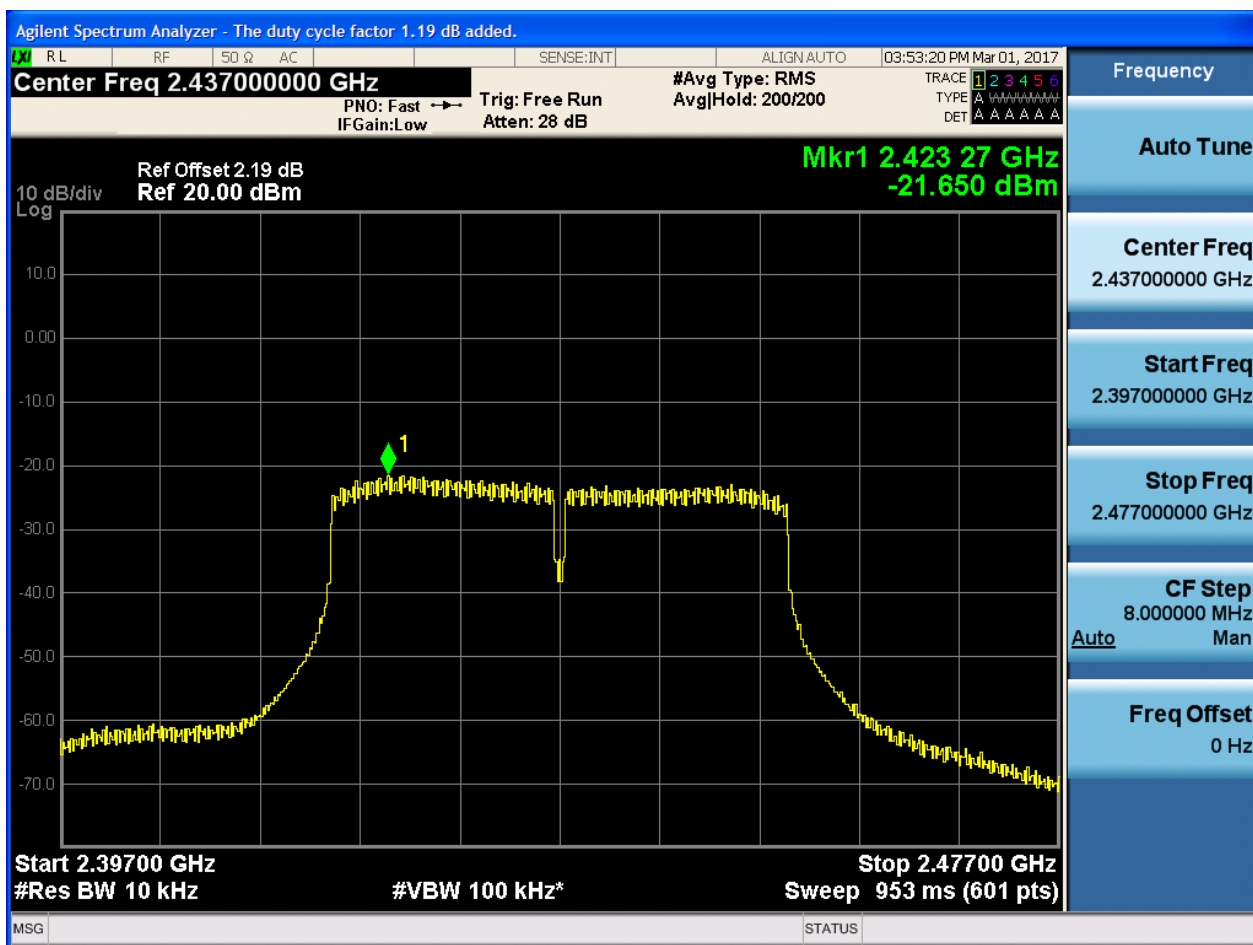


2.10 11N40_L@Ant 1



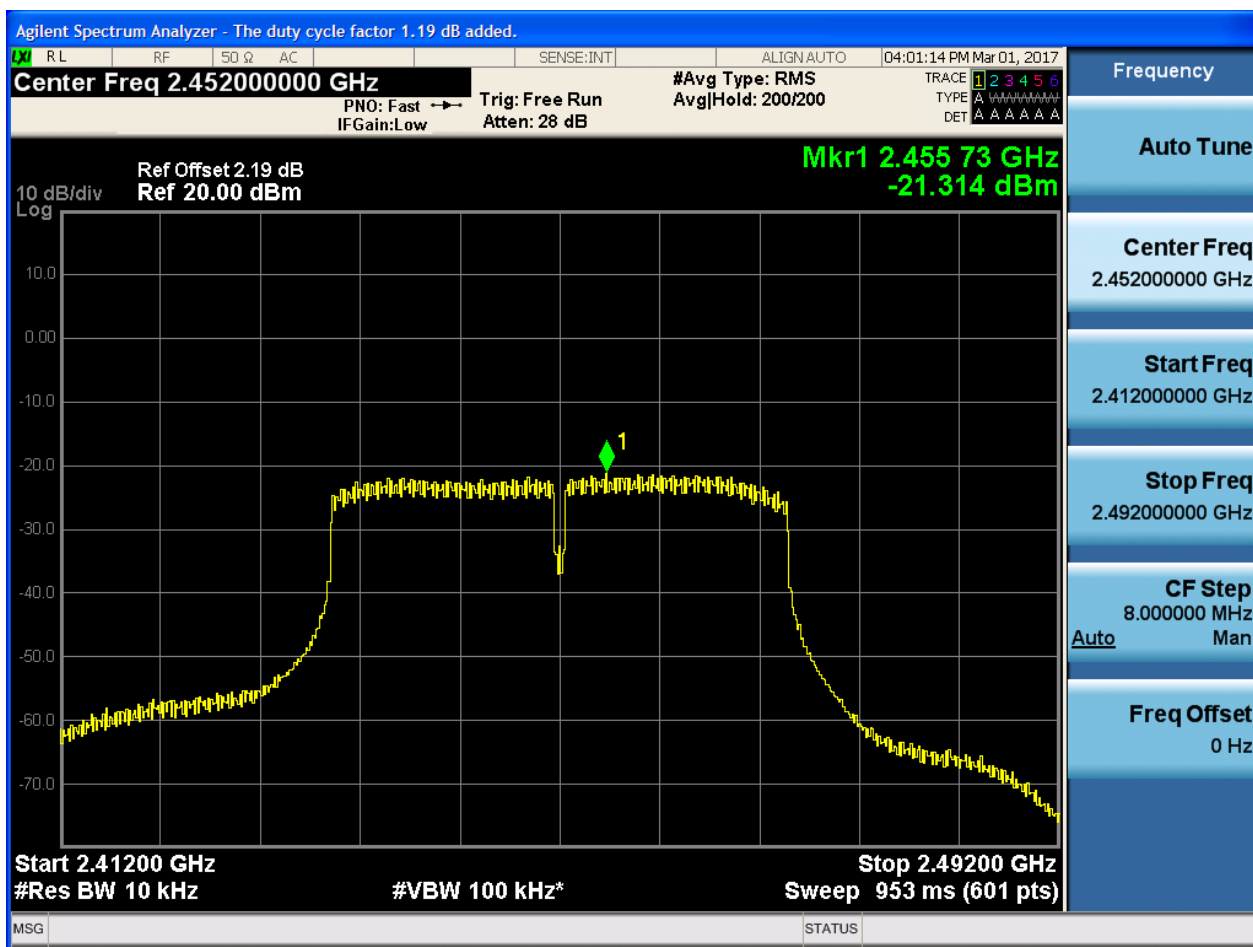


2.11 11N40_M@Ant 1





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	8.14	-47.38	pass
11B	H	2462	Ant 1	8.51	-48.15	pass
11G	L	2412	Ant 1	2.93	-42.68	pass
11G	H	2462	Ant 1	3.23	-39.86	pass
11N20	L	2412	Ant 1	1.07	-44.72	pass
11N20	H	2462	Ant 1	1.46	-44.91	pass
11N40	L	2422	Ant 1	-1.84	-44.11	pass
11N40	H	2452	Ant 1	-2.14	-44.31	pass



Part II - Test Plots

2.1 11B_L@Ant 1



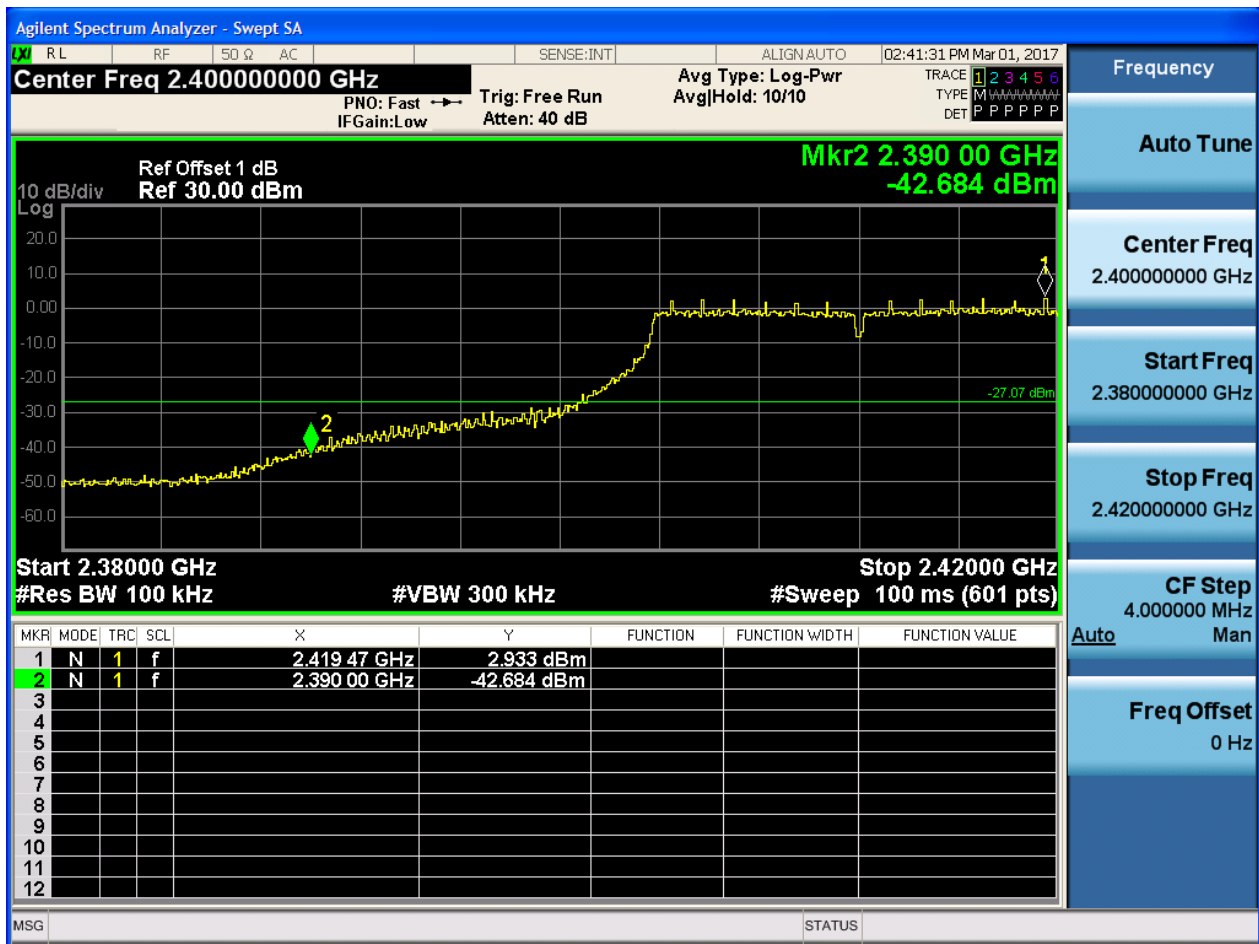


2.2 11B_H@Ant 1





2.3 11G_L@Ant 1





2.4 11G_H@Ant 1





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 03:16:40 PM Mar 01, 2017

Center Freq 2.40000000 GHz Avg Type: Log-Pwr
 PNO: Fast Trig: Free Run
 IFGain: Low Atten: 40 dB

TRACE 1 2 3 4 5 6
 TYPE M 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
-44.724 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	2.419 53 GHz	1.074 dBm			
2	N	1	f	2.390 00 GHz	-44.724 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

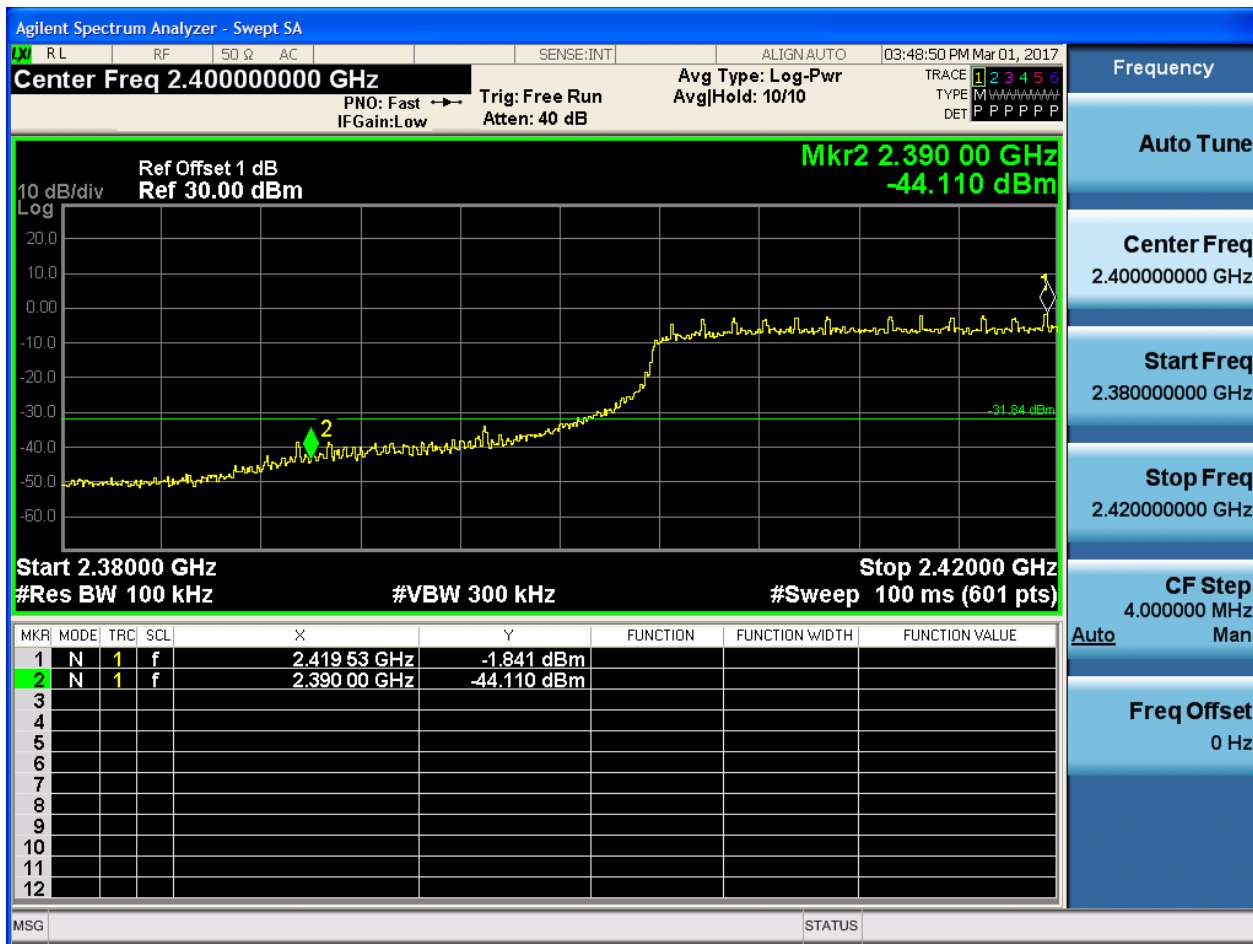


2.6 11N20_H@Ant 1



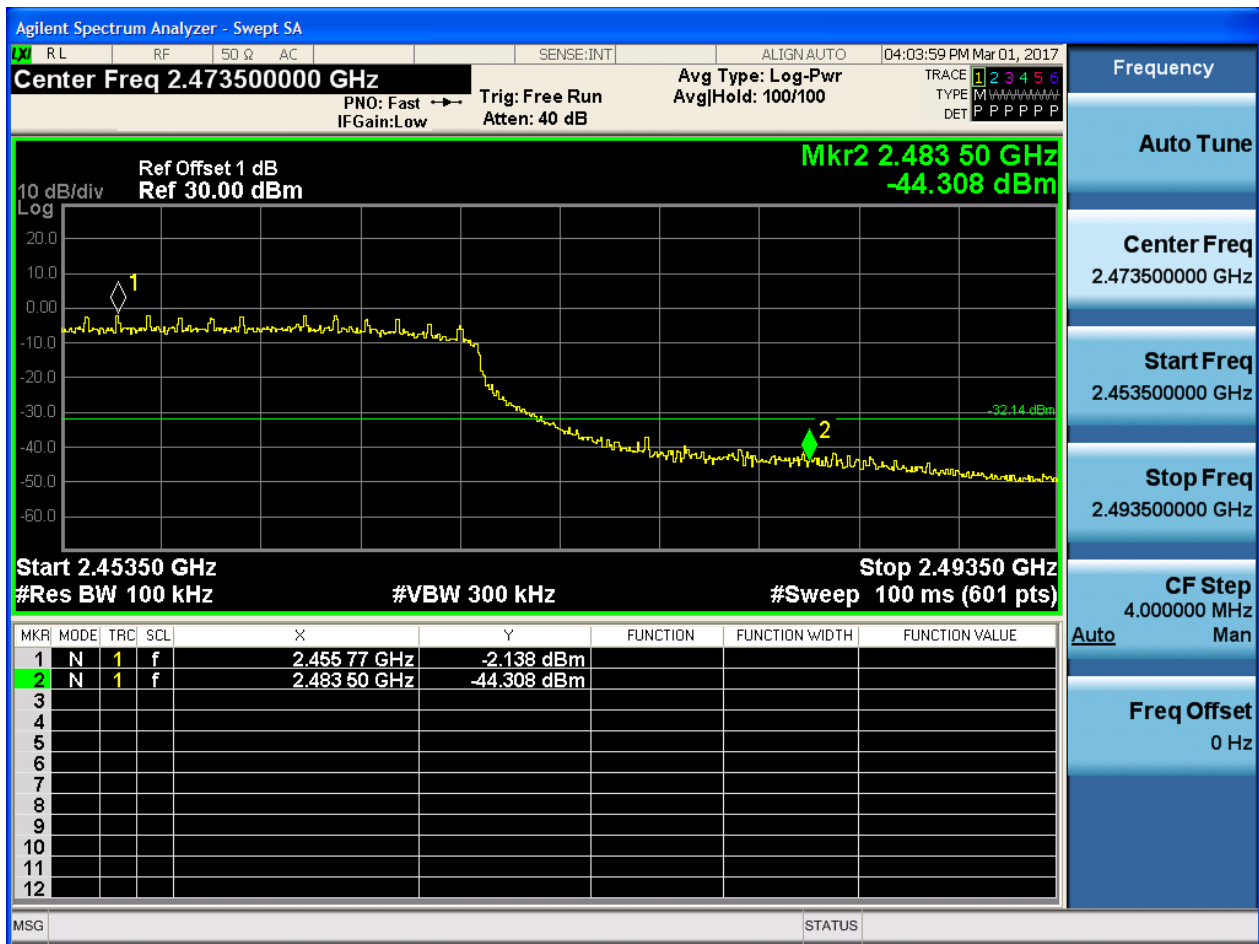


2.7 11N40_L@Ant 1





2.8 11N40_H@Ant 1



Appendix 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".

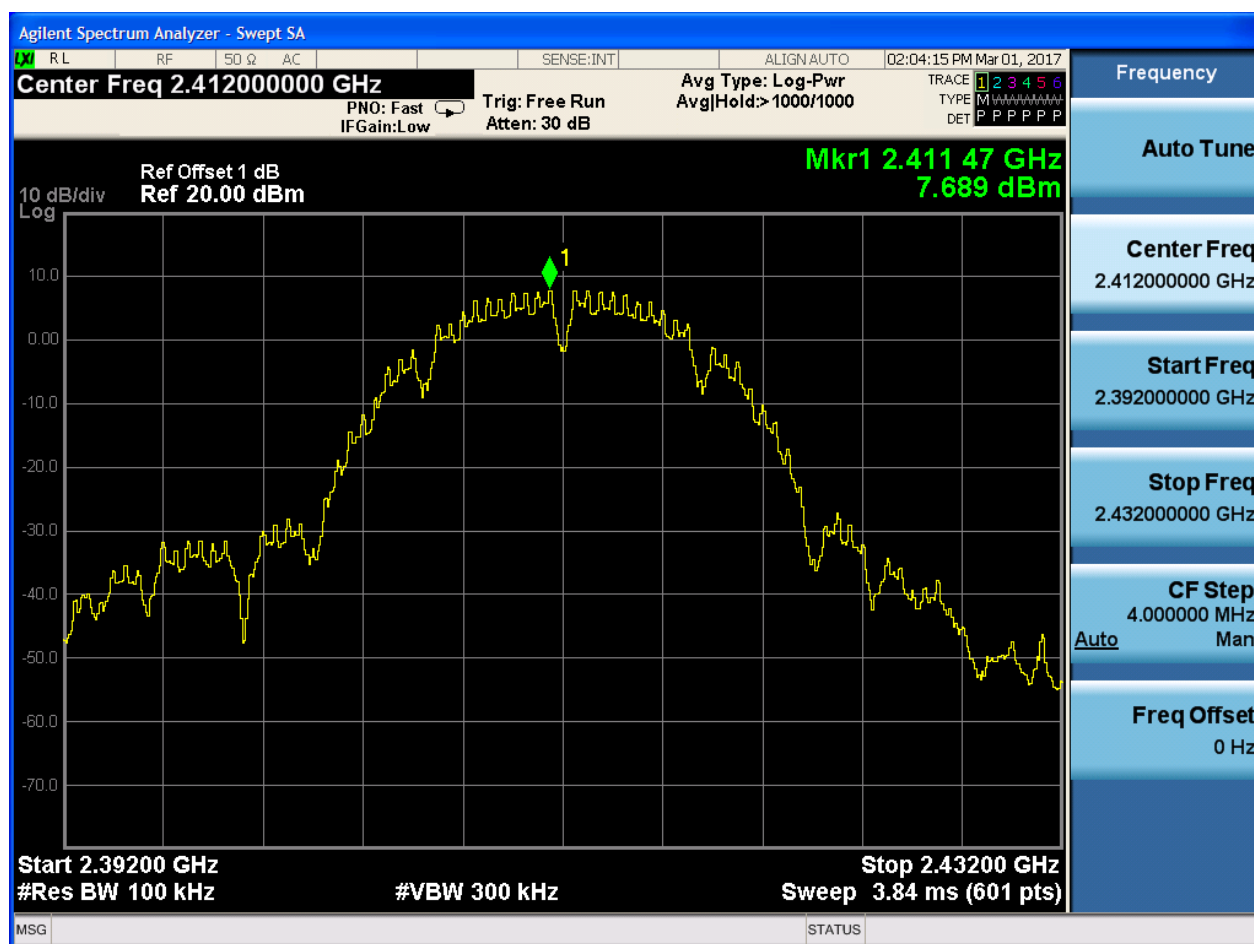
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Pref[dBm]	Puw[dBm]	Verdict
11B	L	2412	Ant 1	7.69	<limit	pass
11B	M	2437	Ant 1	8.61	<limit	pass
11B	H	2462	Ant 1	8.66	<limit	pass
11G	L	2412	Ant 1	3.03	<limit	pass
11G	M	2437	Ant 1	4.10	<limit	pass
11G	H	2462	Ant 1	3.30	<limit	pass
11N20	L	2412	Ant 1	1.16	<limit	pass
11N20	M	2437	Ant 1	1.96	<limit	pass
11N20	H	2462	Ant 1	1.42	<limit	pass
11N40	L	2422	Ant 1	-1.77	<limit	pass
11N40	M	2437	Ant 1	-2.22	<limit	pass
11N40	H	2452	Ant 1	-1.68	<limit	pass

Part II - Test Plots

2.1 11B_L@Ant 1

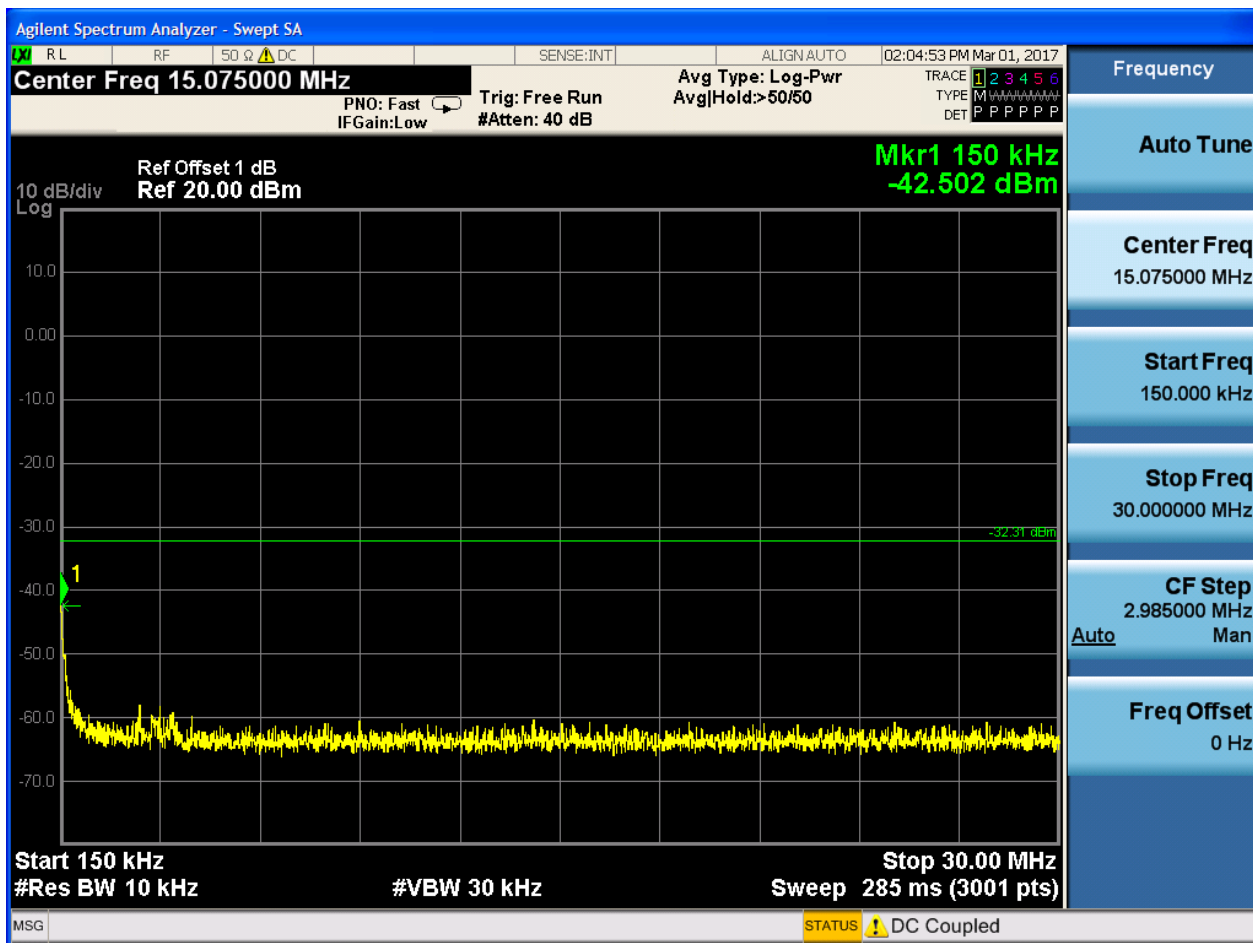
Pref:

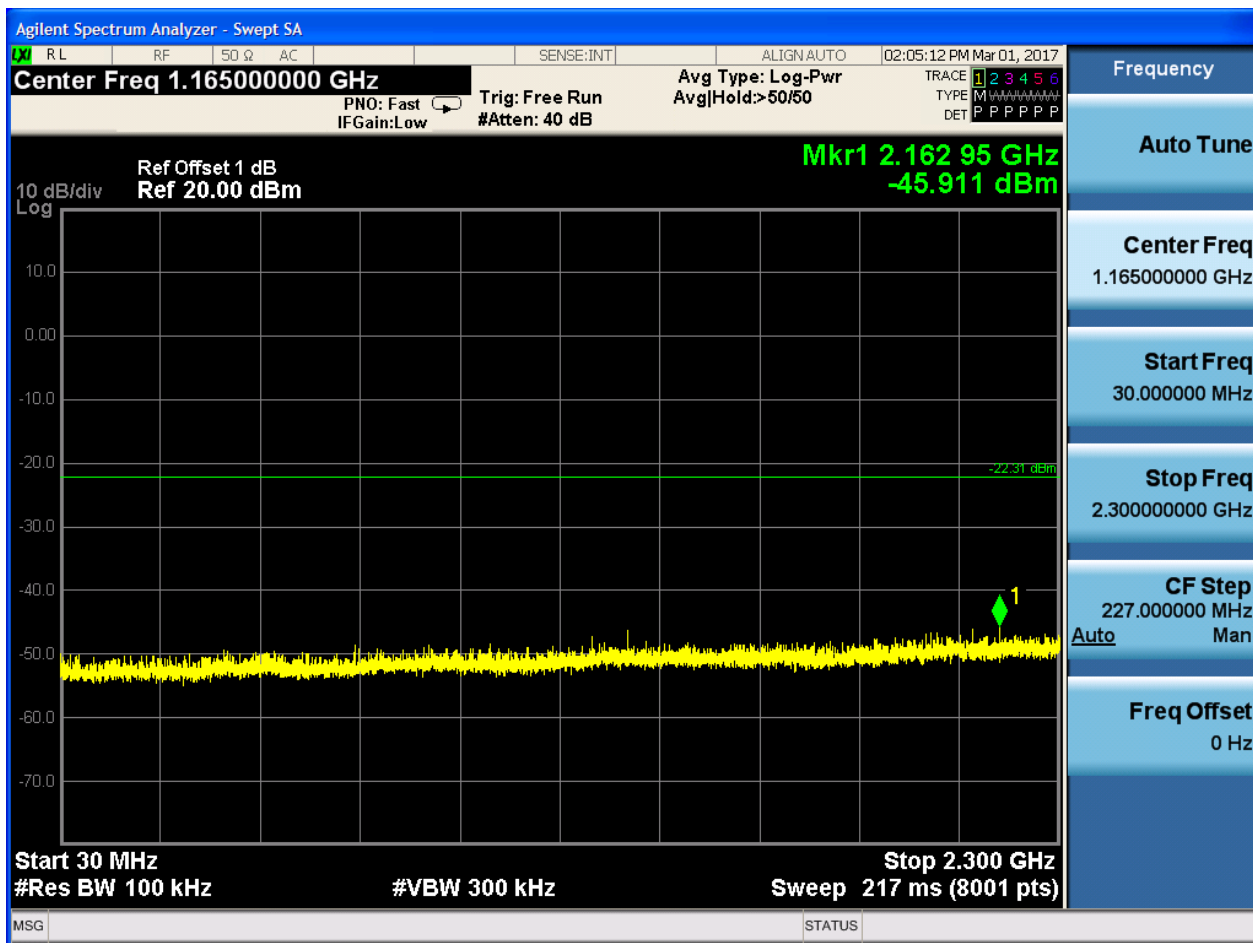


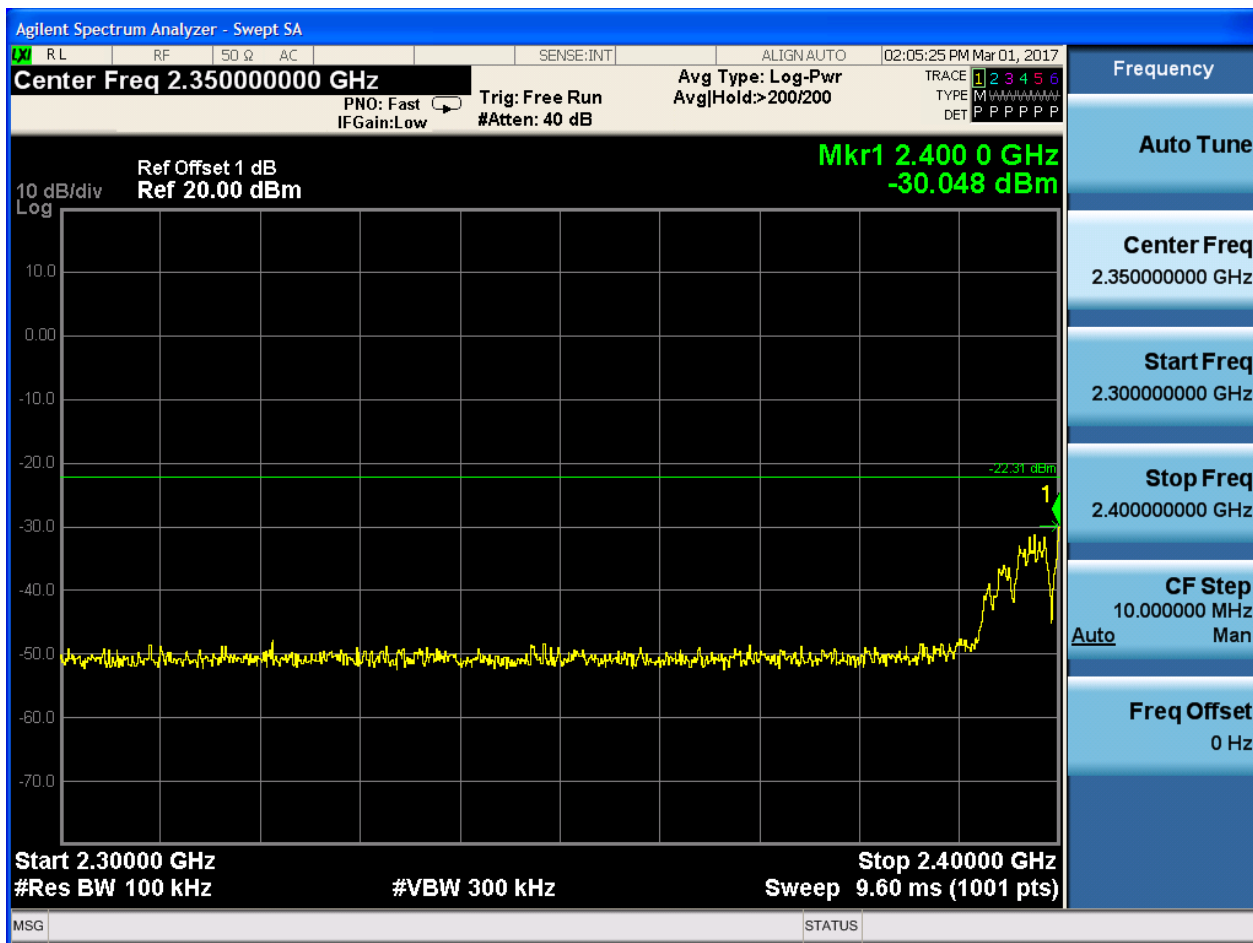


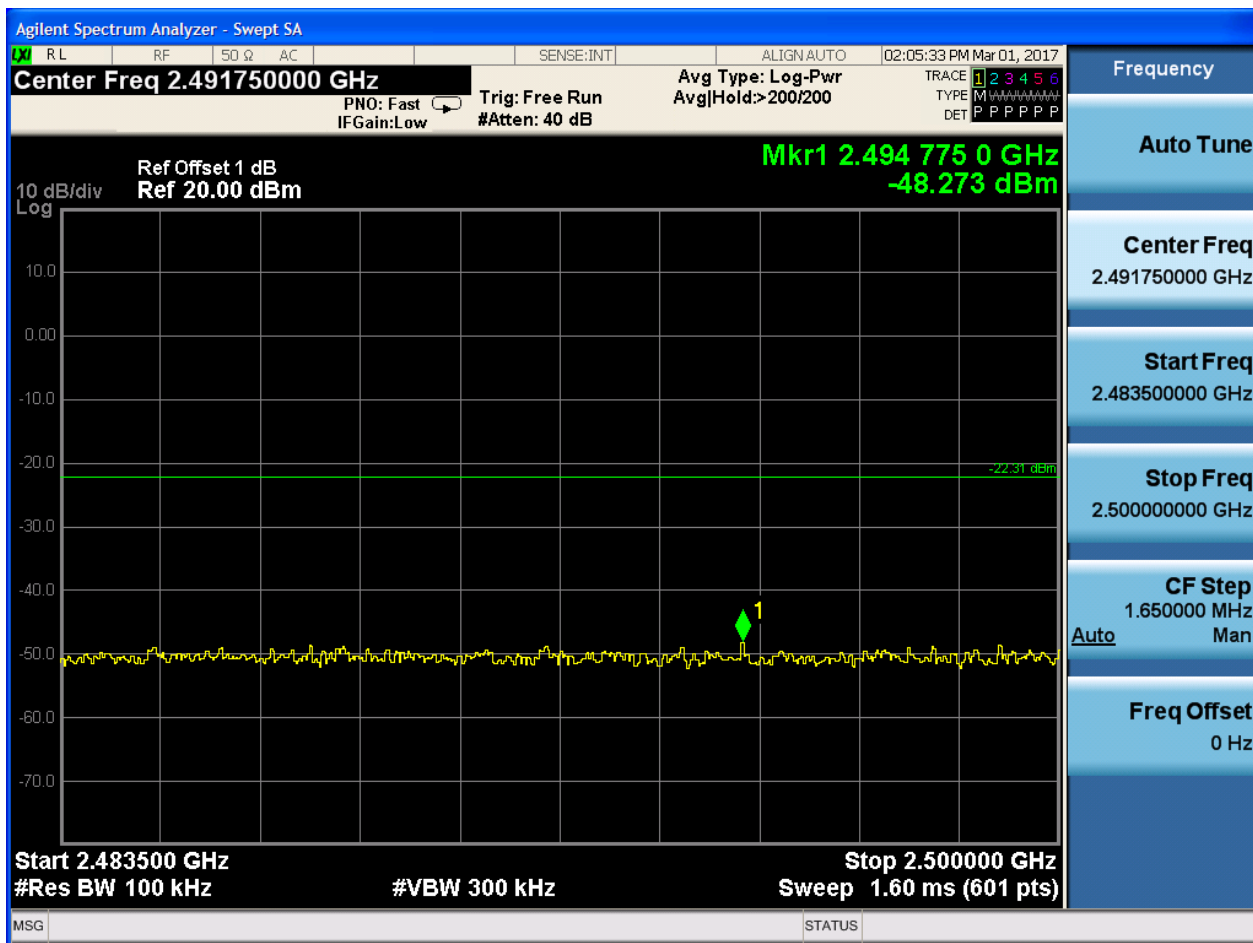
Puw:









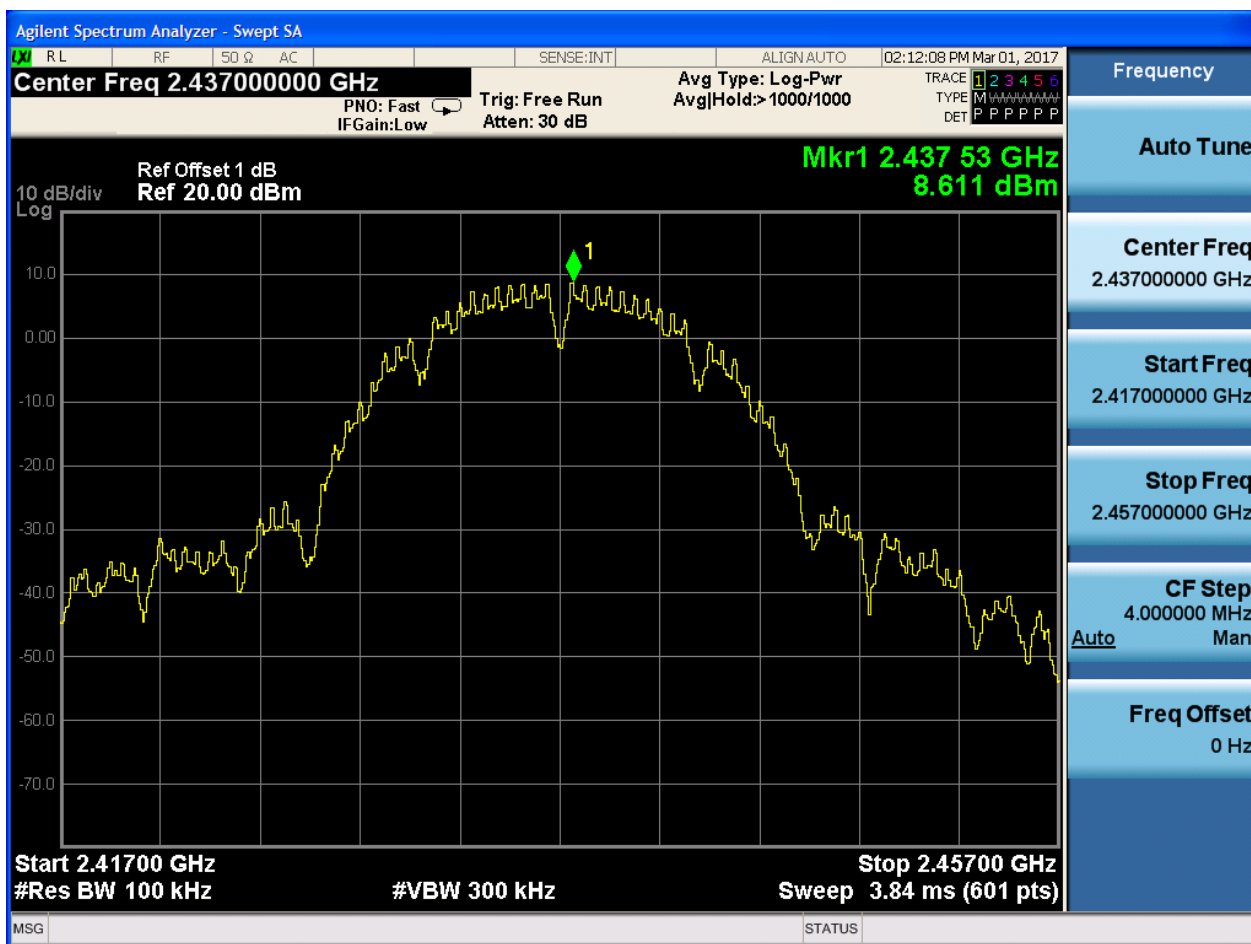






2.2 11B_M@Ant 1

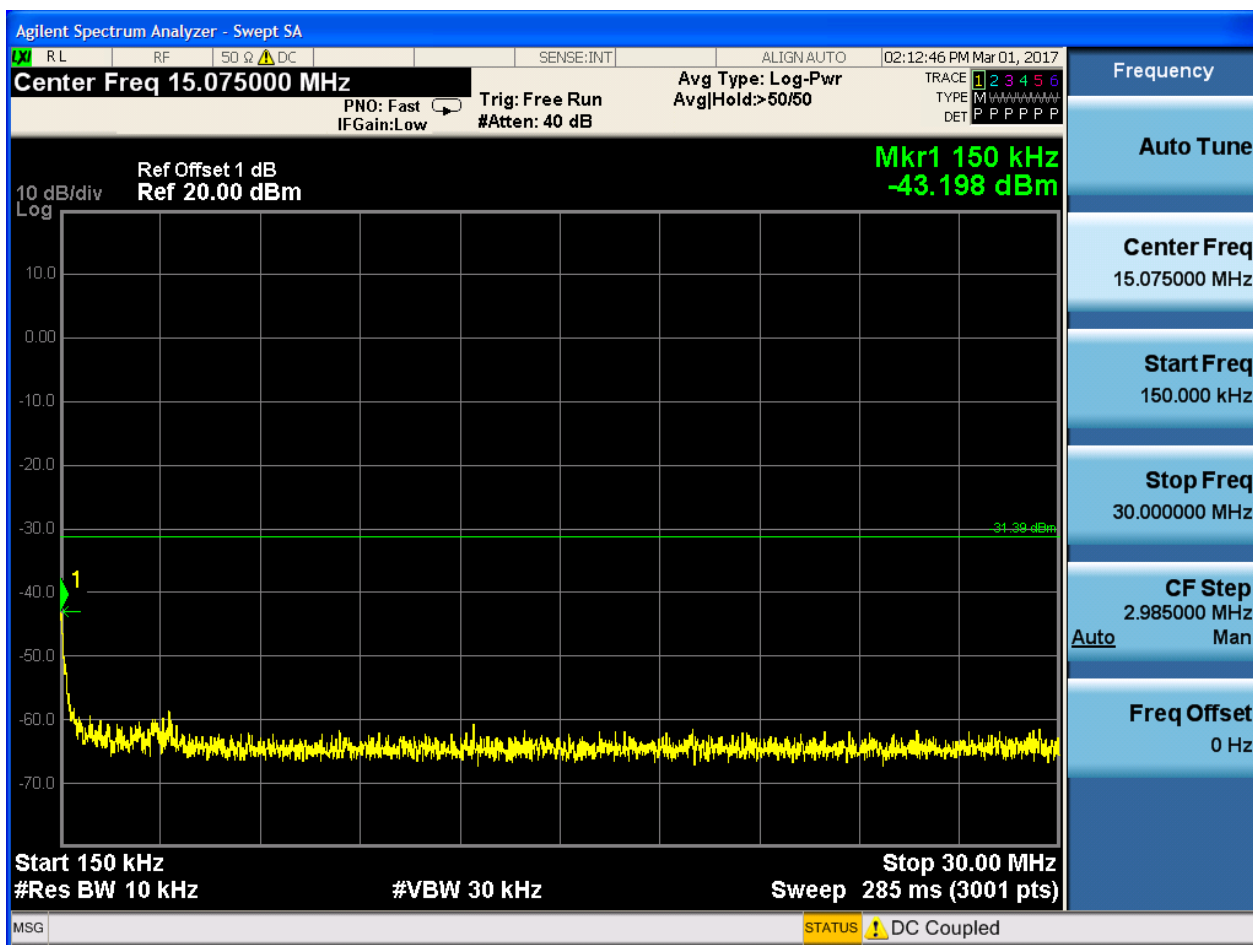
Pref:

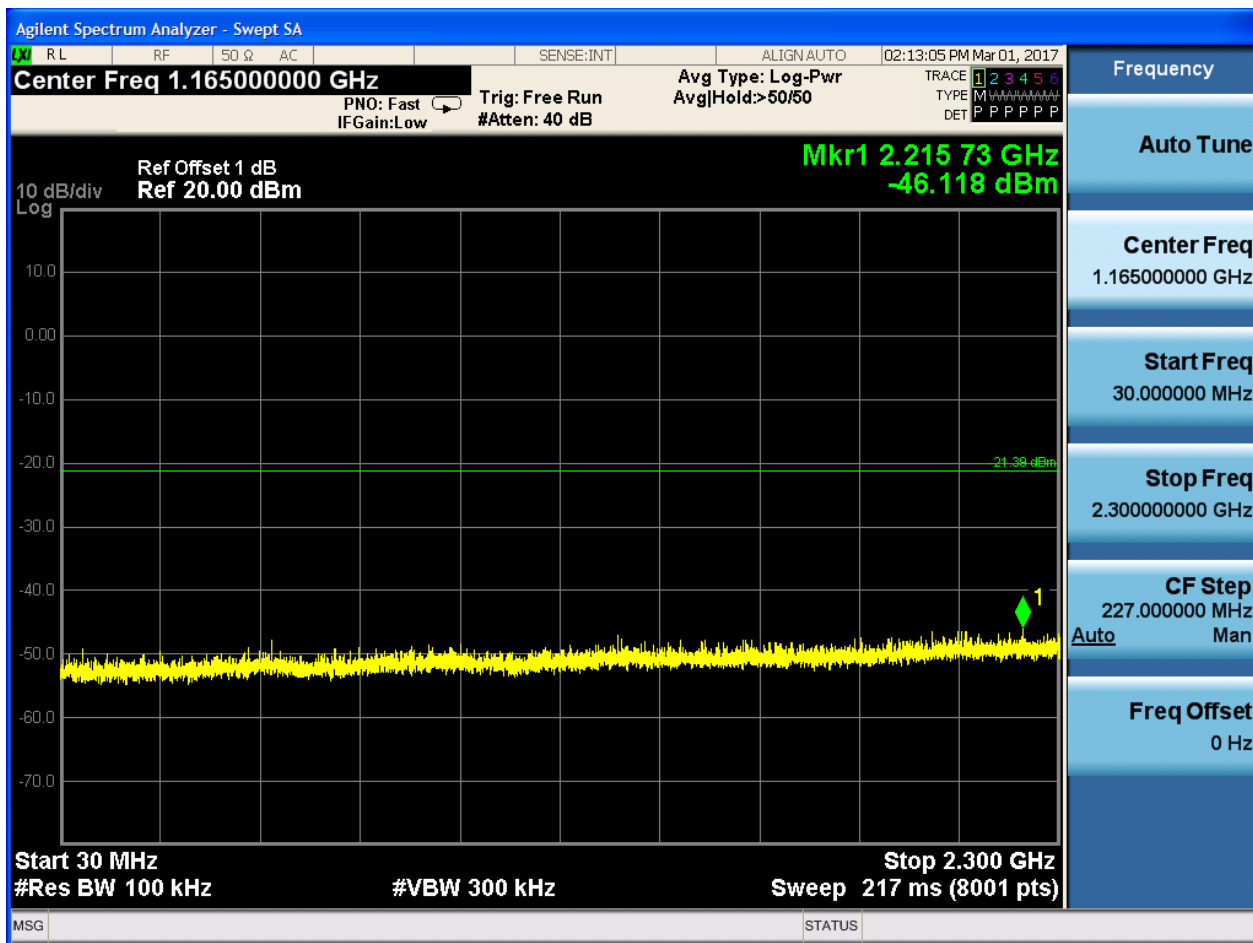


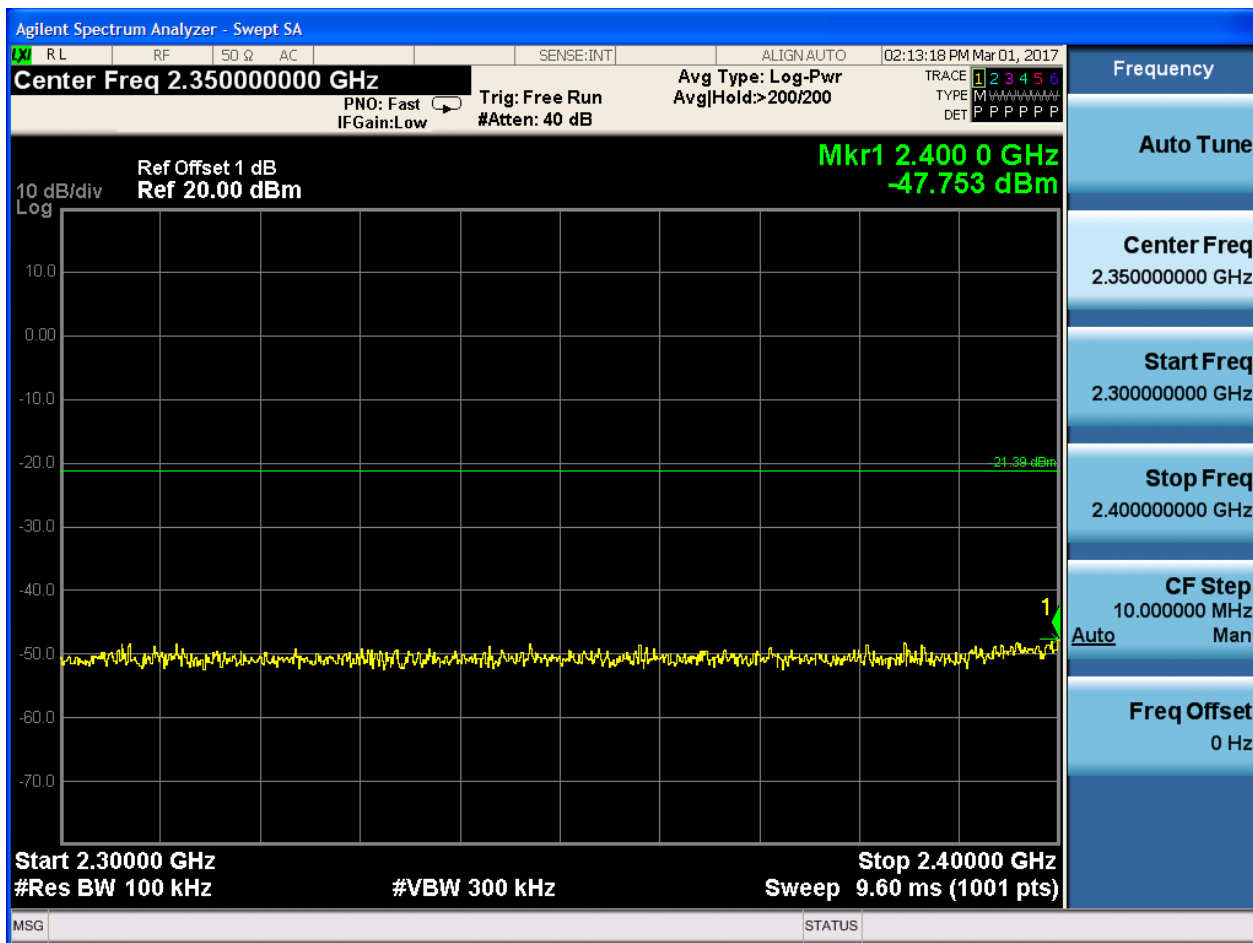


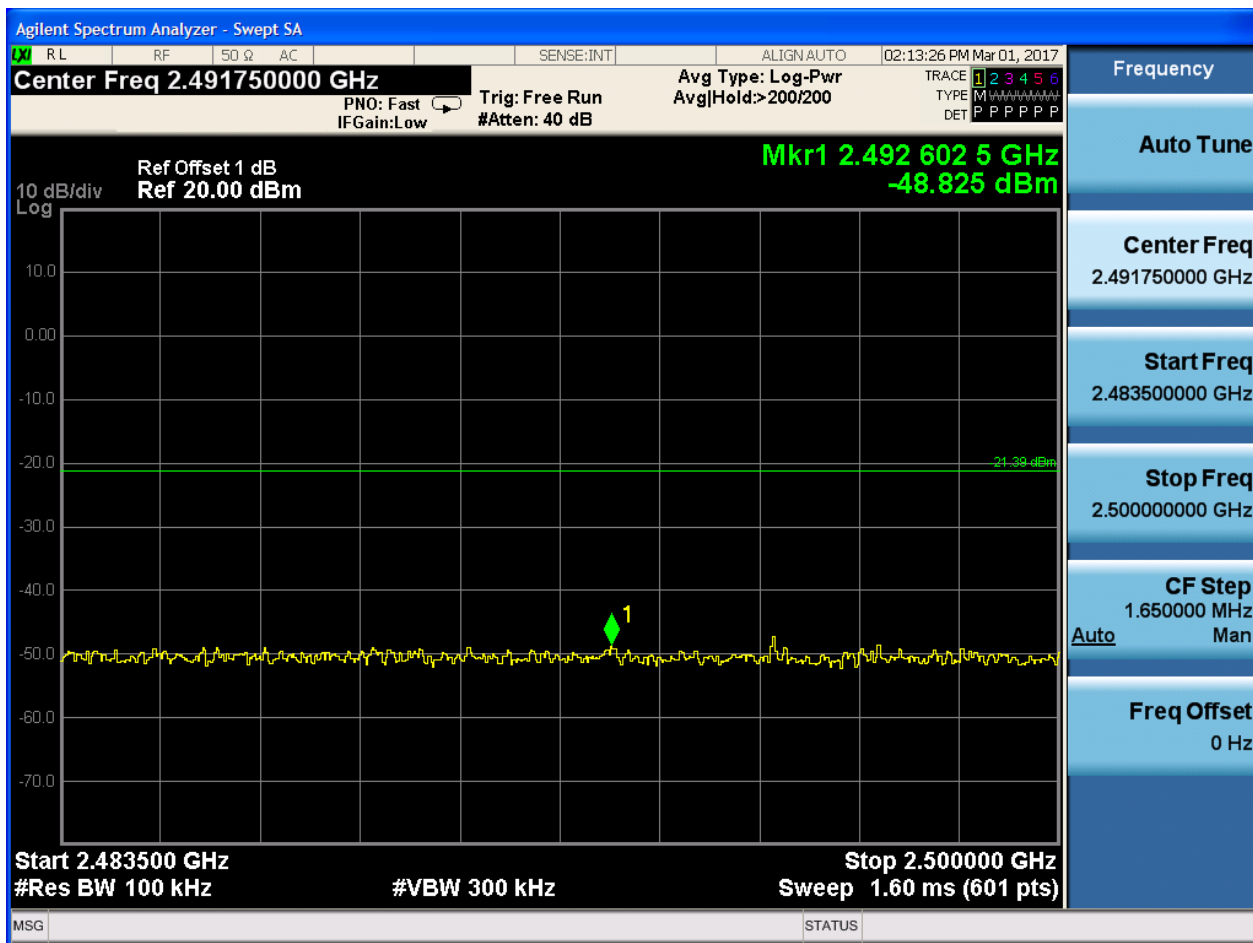
Puw:















2.3 11B_H@Ant 1

Pref:





Puw:



