



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.

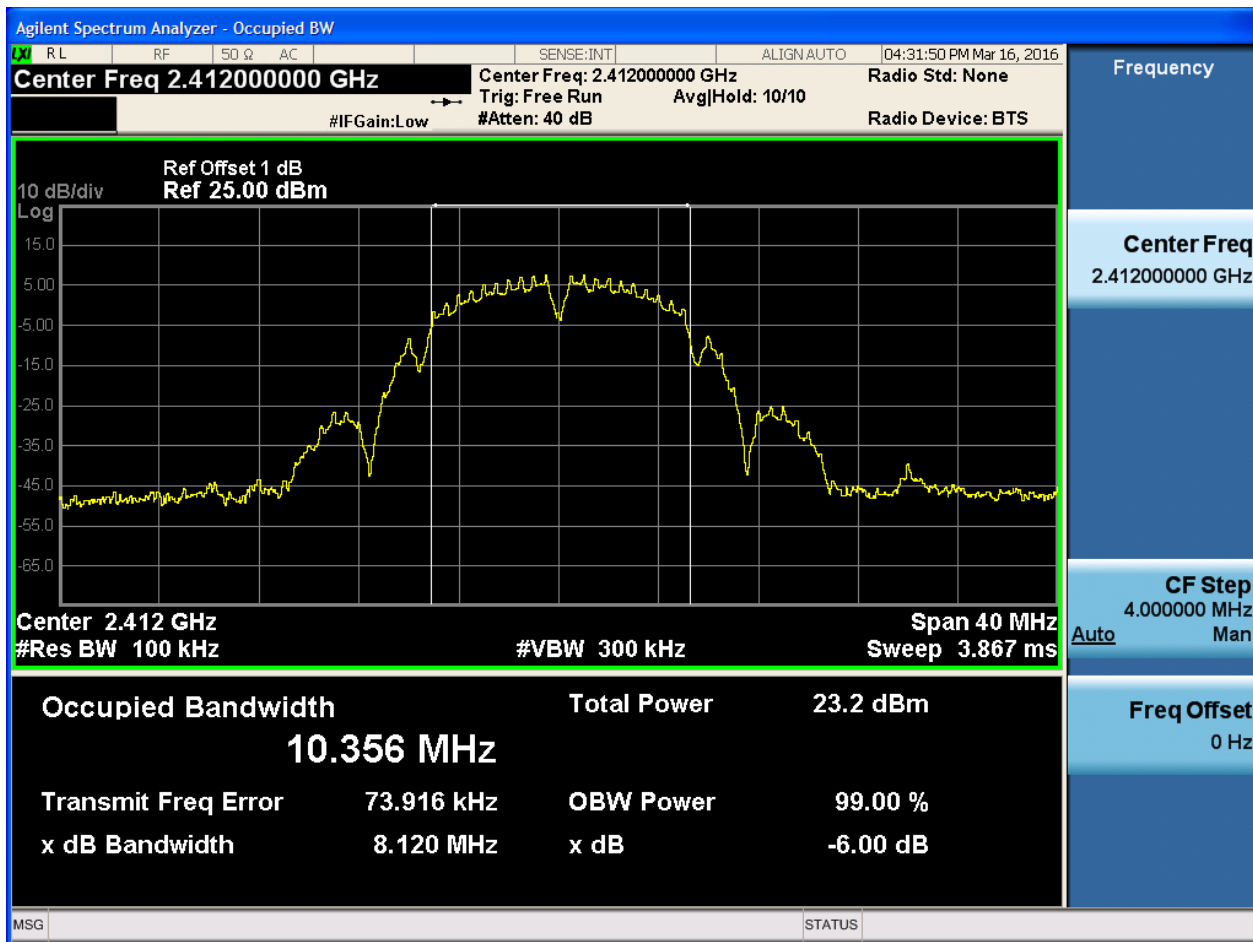
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	DTS6dBBW[MHz]	Verdict
11B	L	2412	Ant 1	8.12	pass
11B	M	2437	Ant 1	8.12	pass
11B	H	2462	Ant 1	8.12	pass
11G	L	2412	Ant 1	16.08	pass
11G	M	2437	Ant 1	16.37	pass
11G	H	2462	Ant 1	16.08	pass
11N20	L	2412	Ant 1	16.76	pass
11N20	M	2437	Ant 1	17.16	pass
11N20	H	2462	Ant 1	16.86	pass



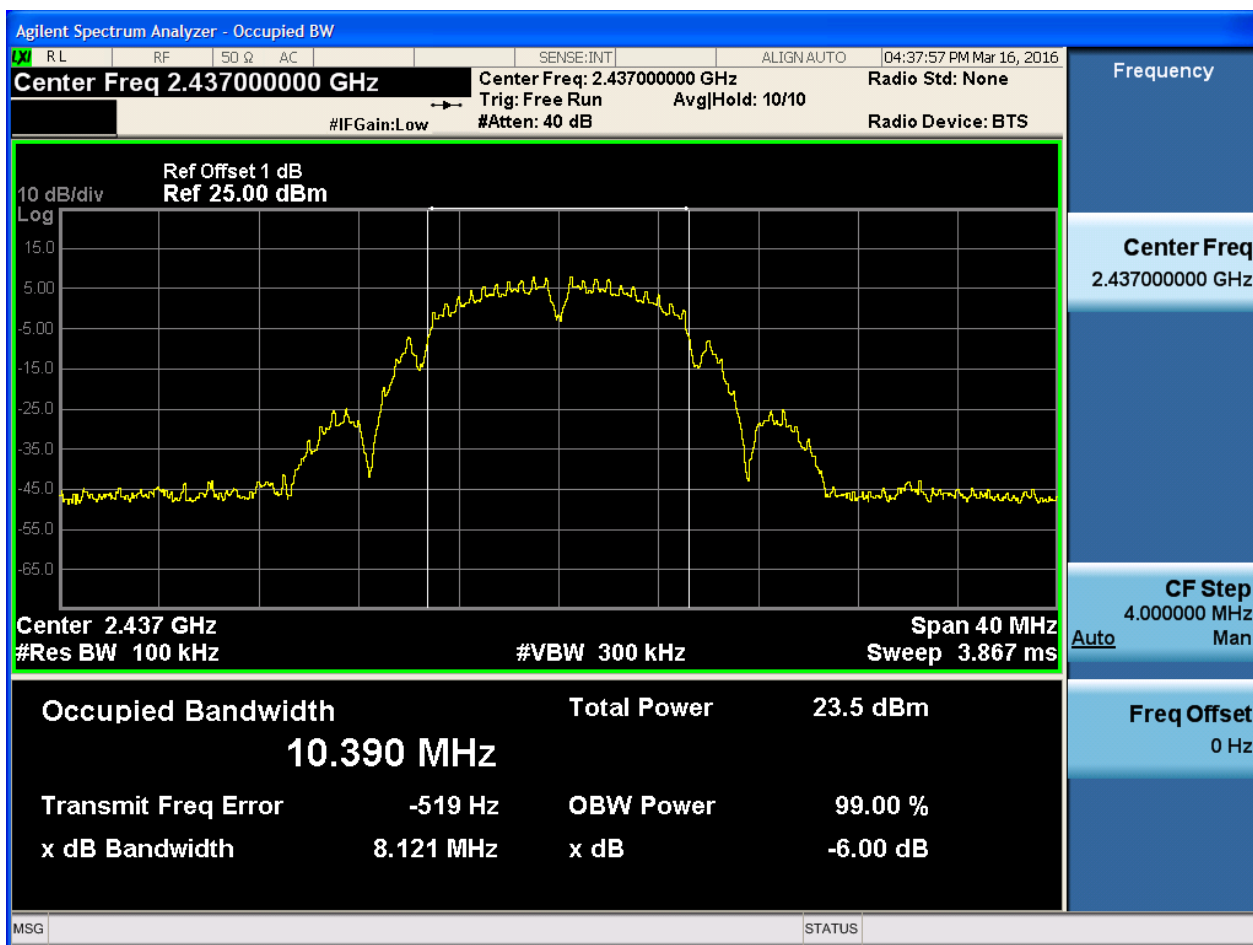
Part II - Test Plots

2.1 11B_L@Ant 1



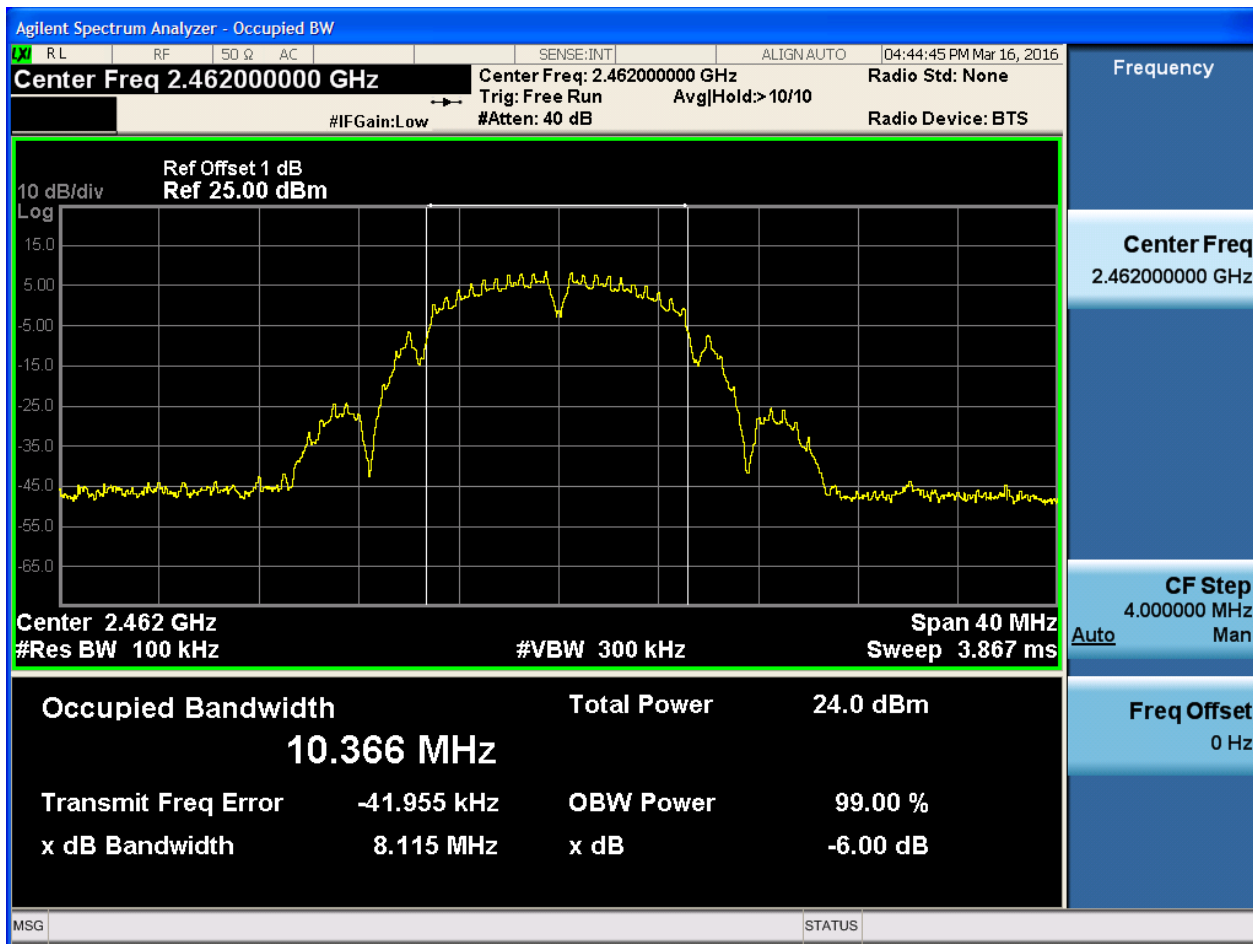


2.2 11B_M@Ant 1



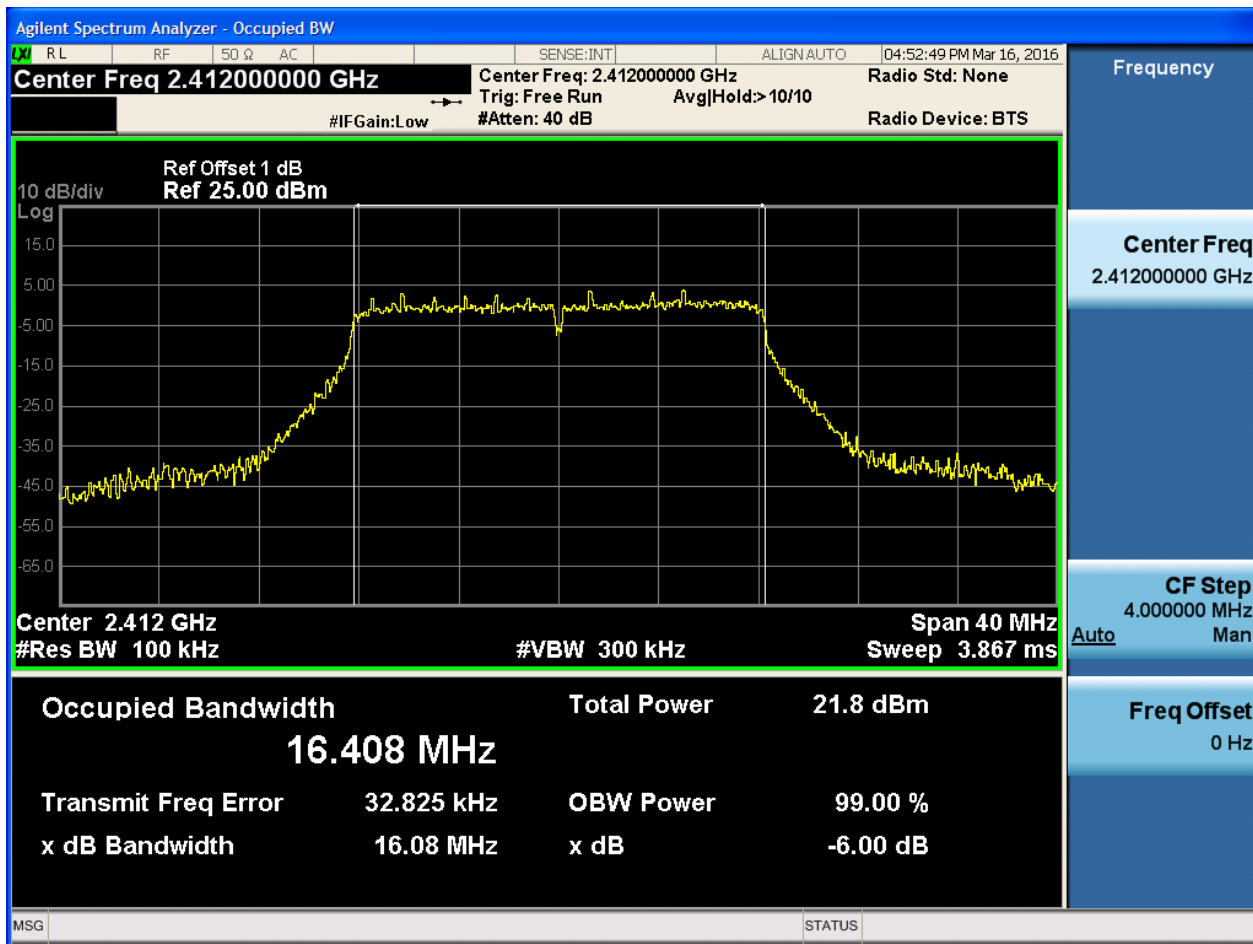


2.3 11B_H@Ant 1



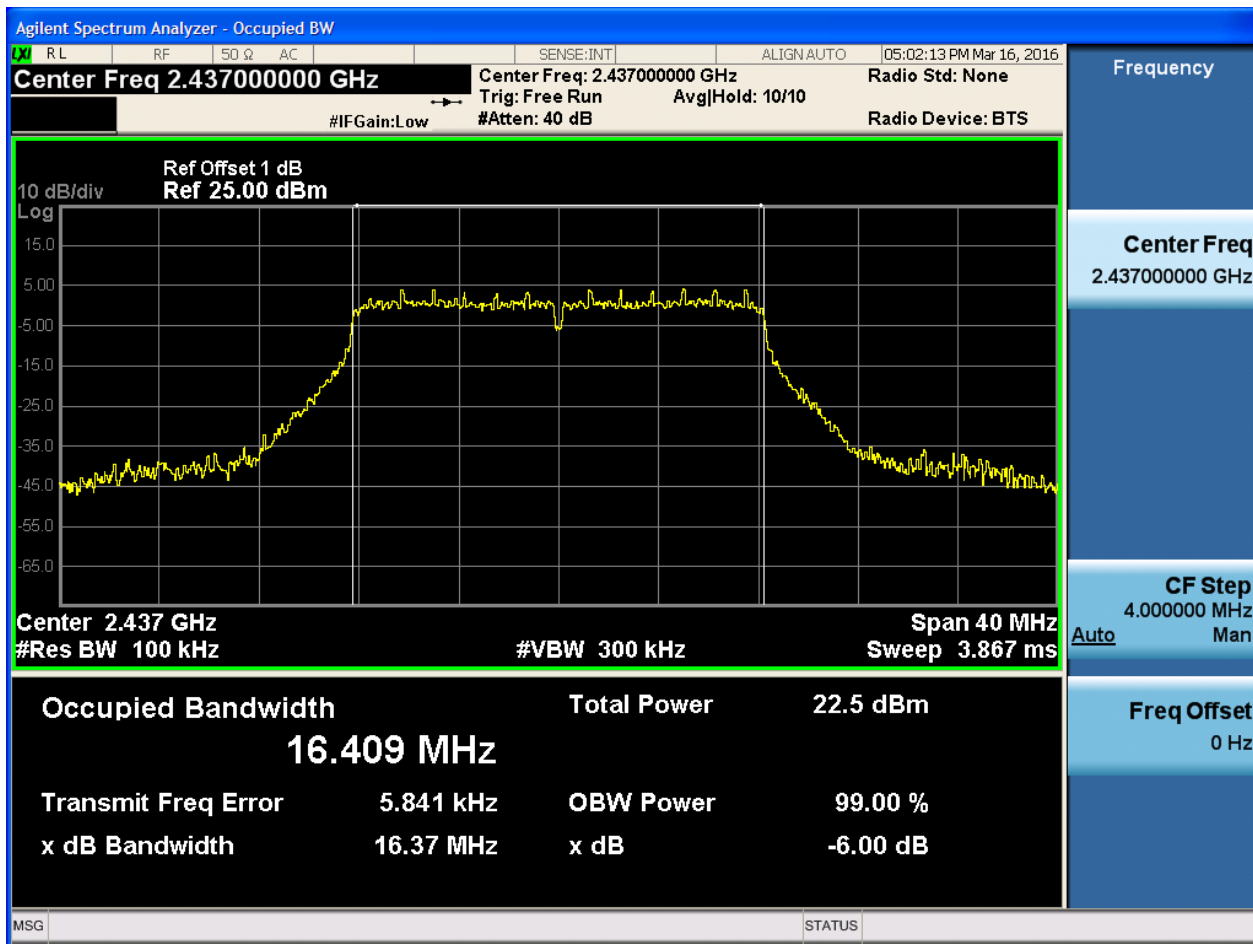


2.4 11G_L@Ant 1



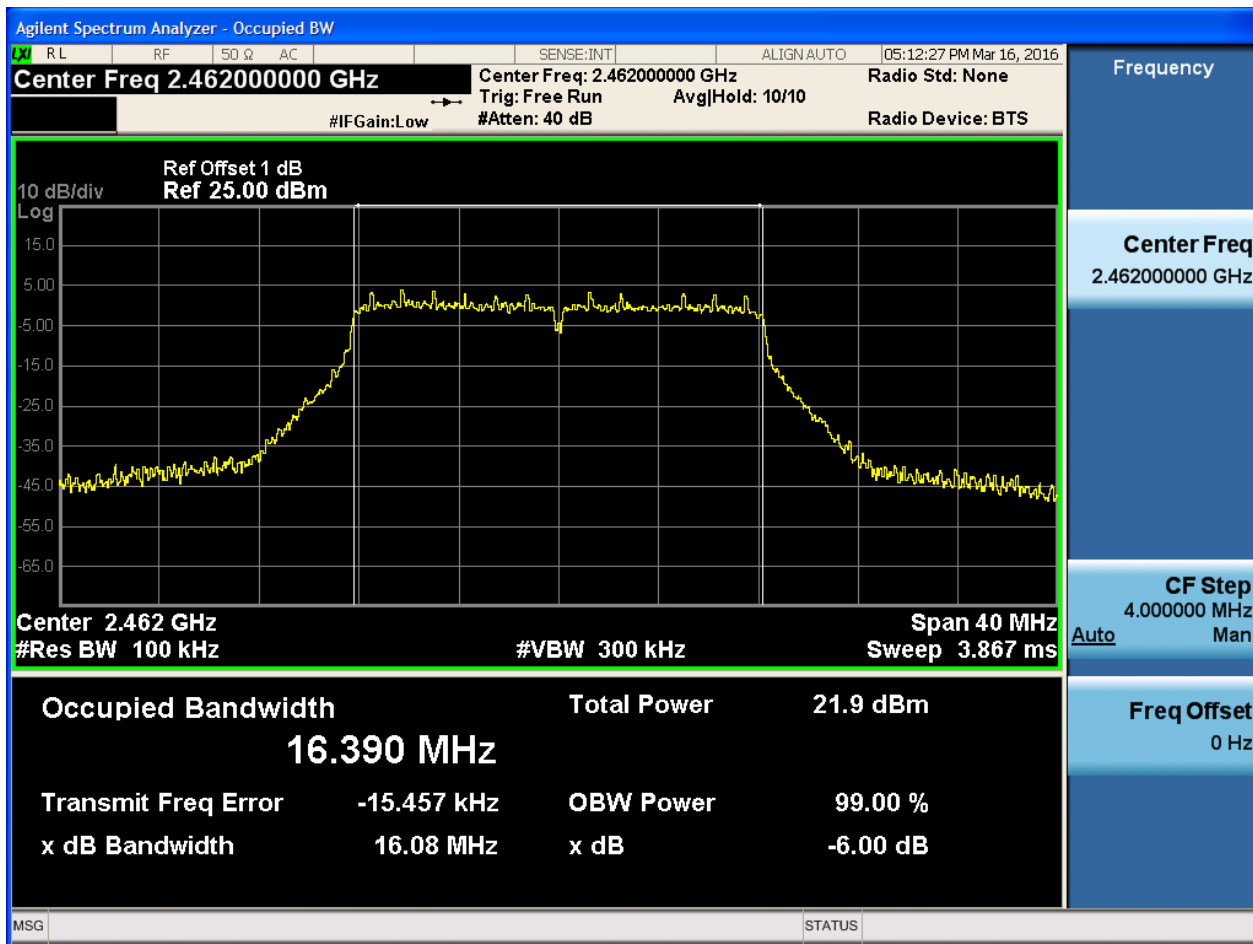


2.5 11G_M@Ant 1



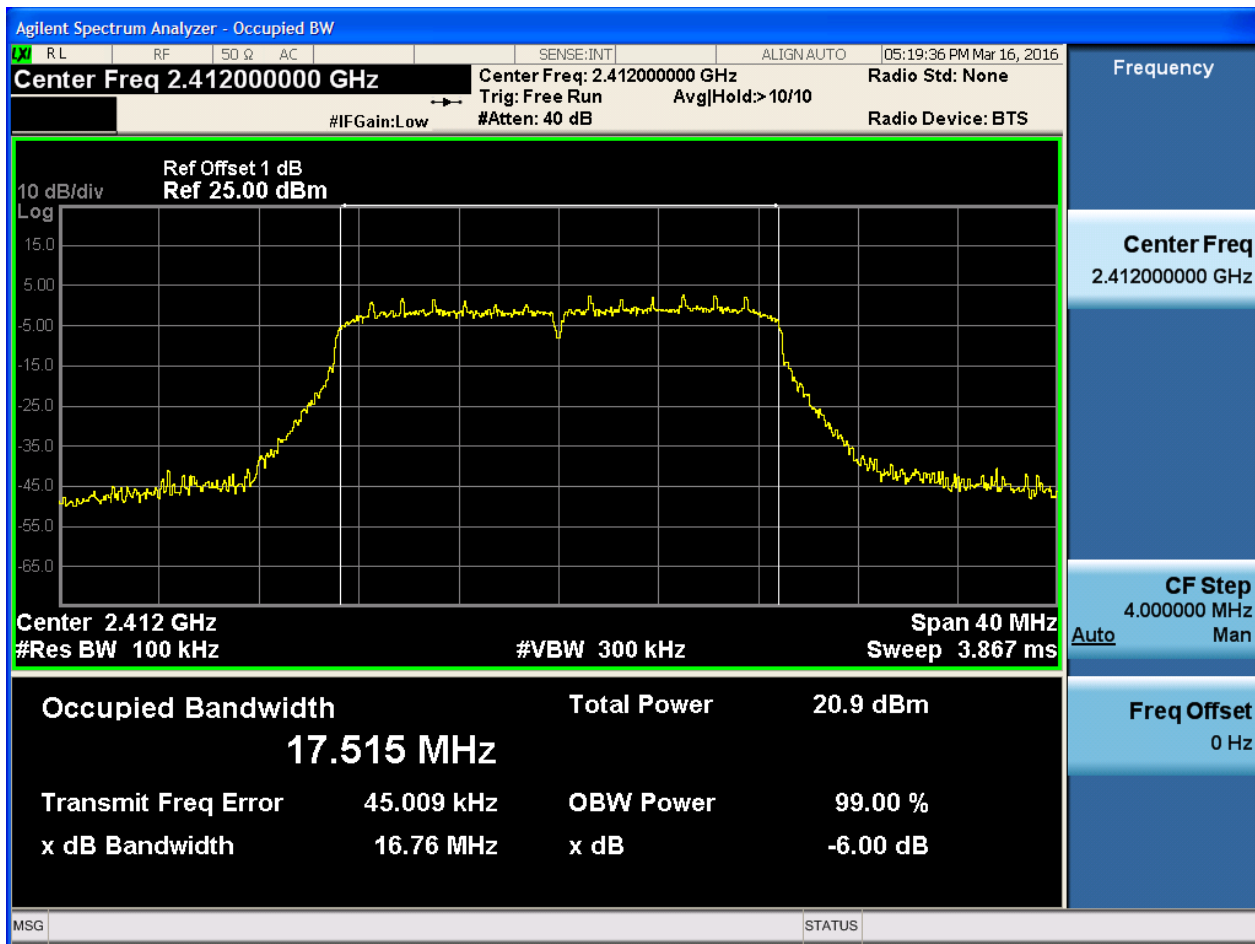


2.6 11G_H@Ant 1



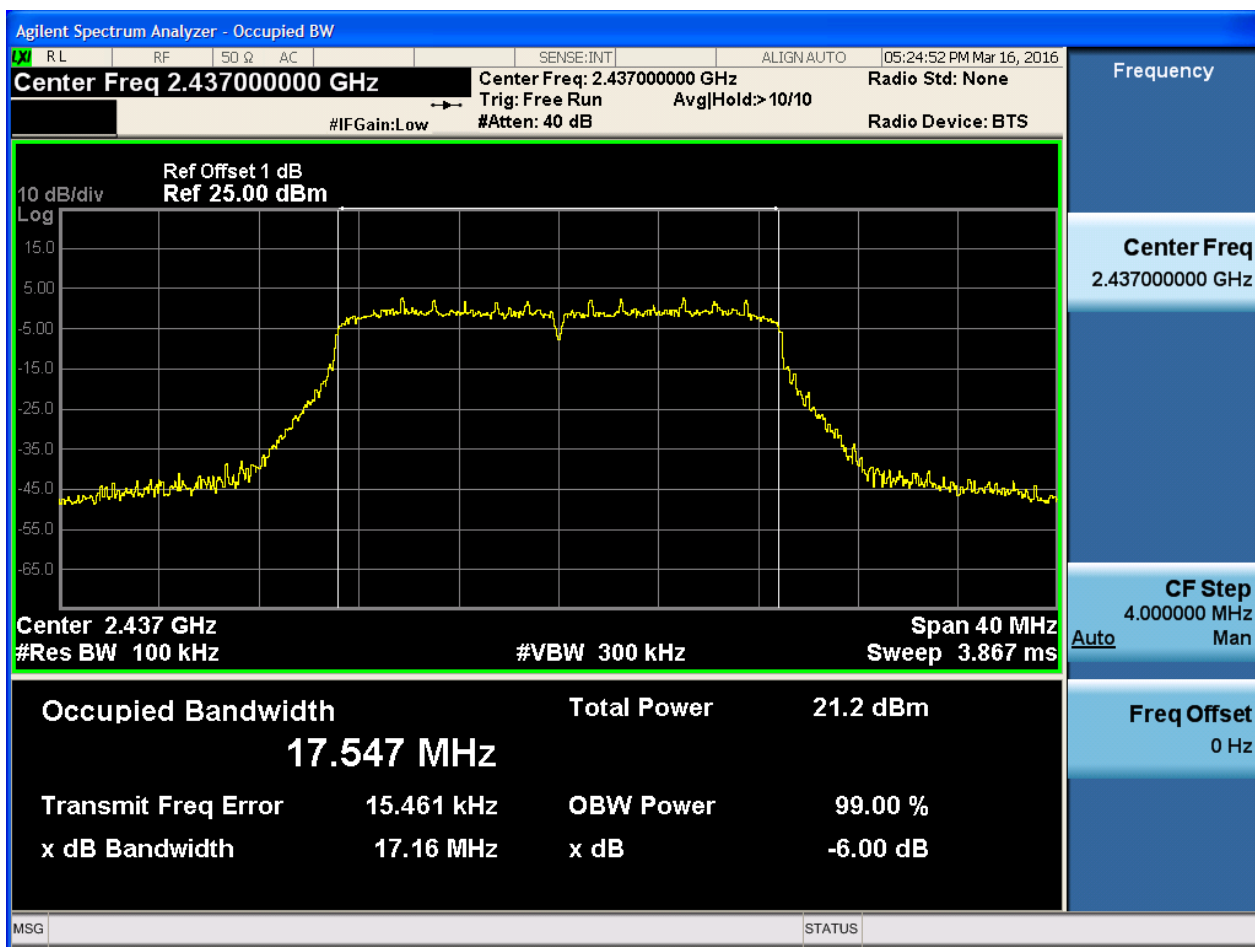


2.7 11N20_L@Ant 1



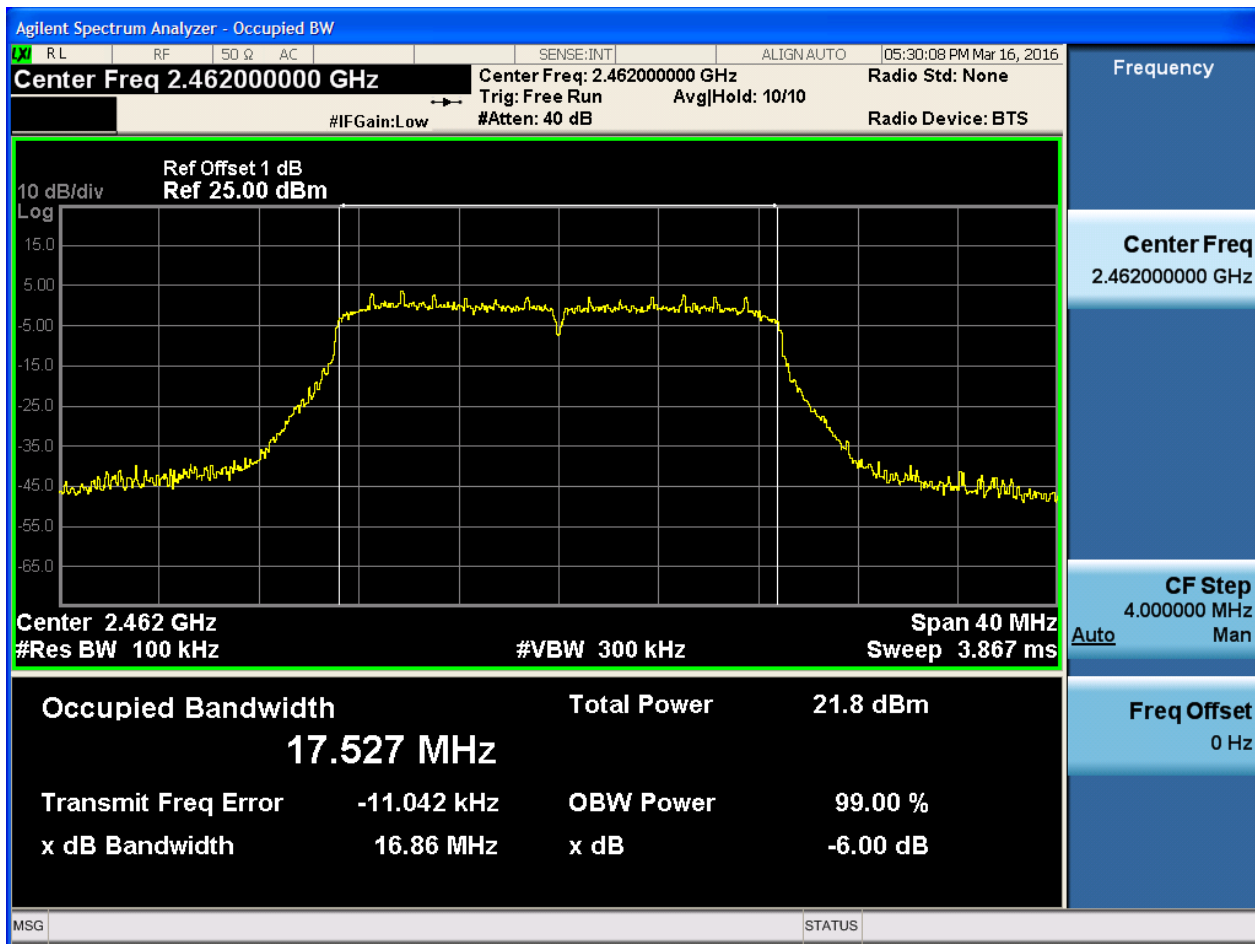


2.8 11N20_M@Ant 1





2.9 11N20_H@Ant 1



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.

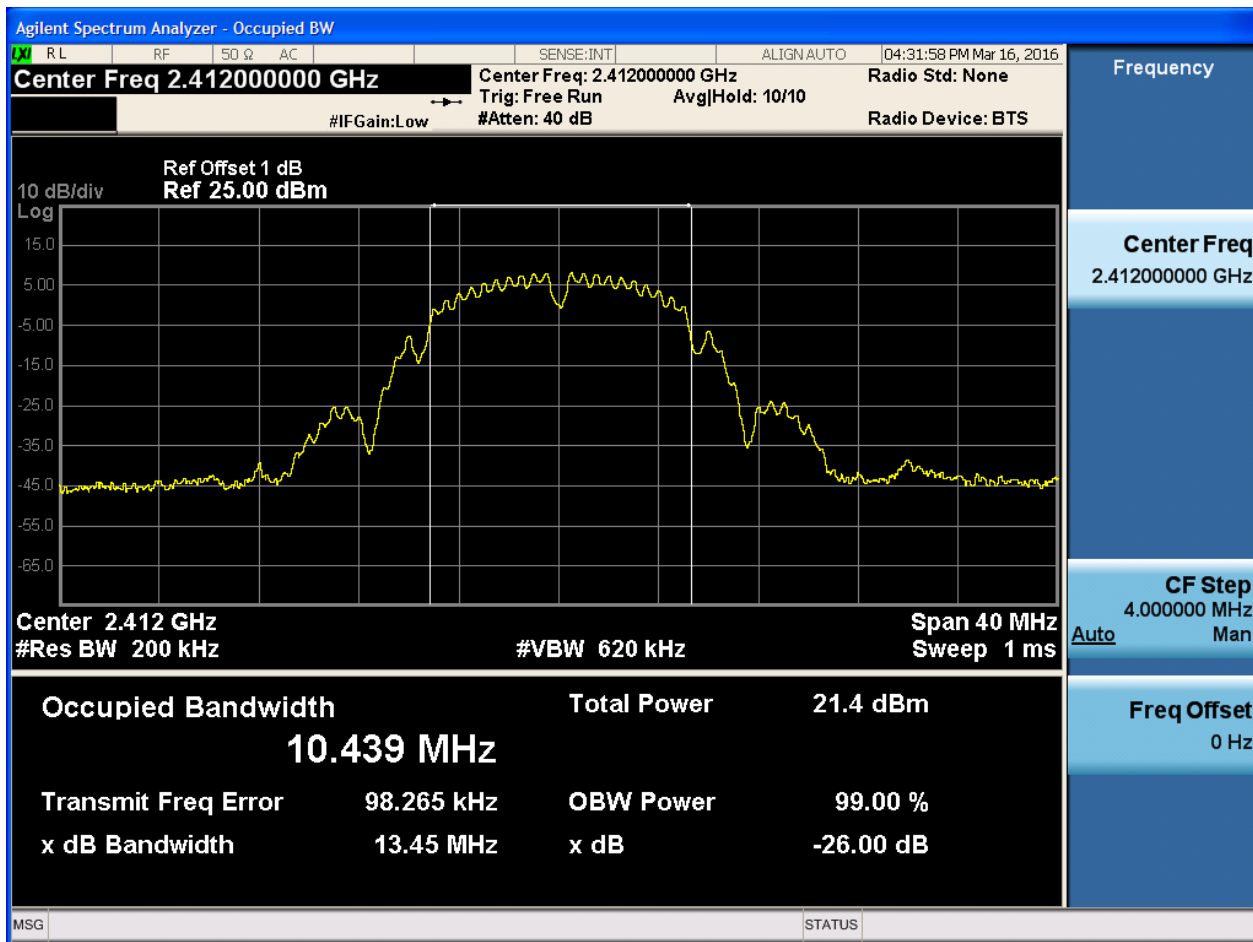
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Occupied Bandwidth [MHz]	Verdict
11B	L	2412	Ant 1	10.44	pass
11B	M	2437	Ant 1	10.45	pass
11B	H	2462	Ant 1	10.43	pass
11G	L	2412	Ant 1	16.50	pass
11G	M	2437	Ant 1	16.53	pass
11G	H	2462	Ant 1	16.49	pass
11N20	L	2412	Ant 1	17.56	pass
11N20	M	2437	Ant 1	17.58	pass
11N20	H	2462	Ant 1	17.60	pass



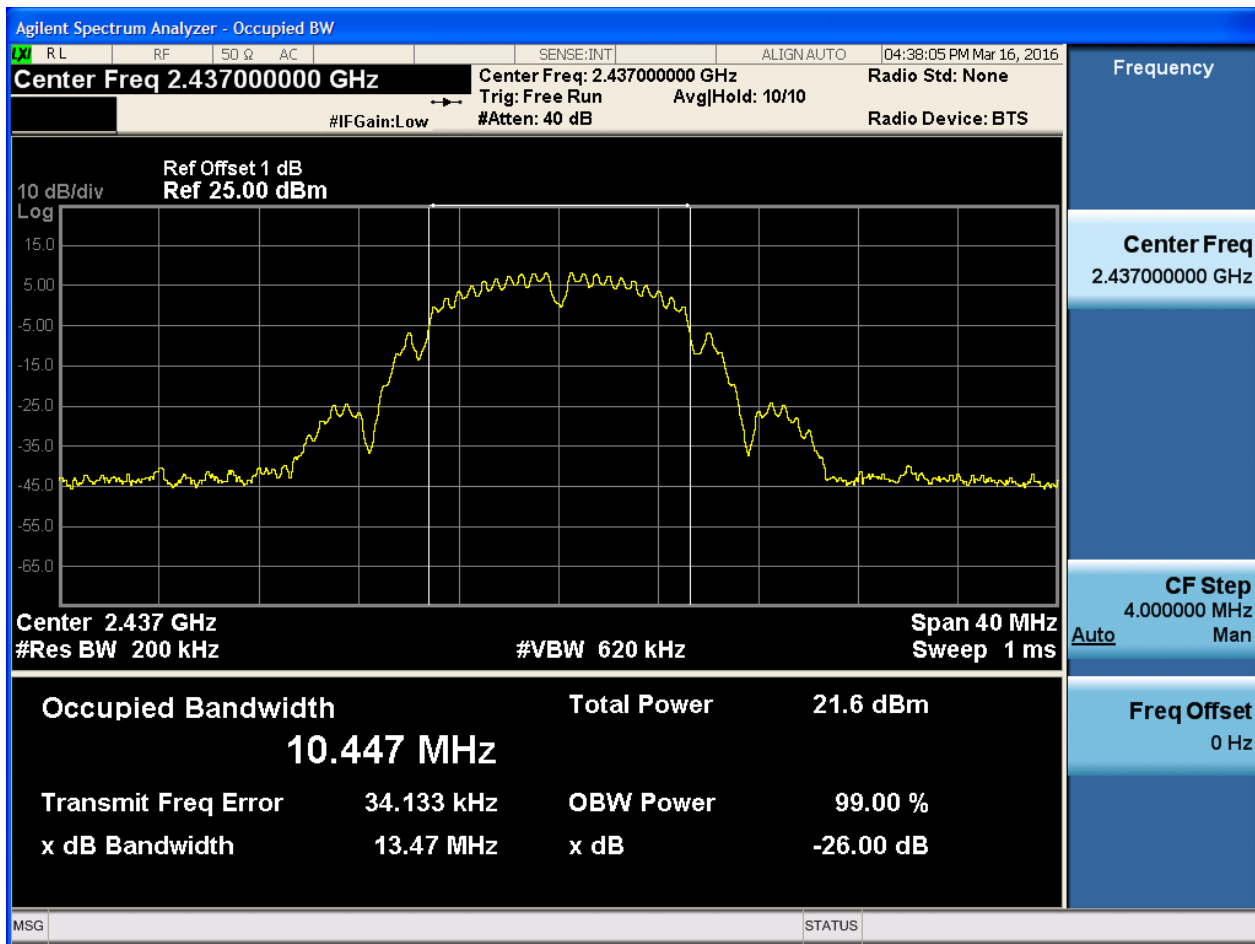
Part II - Test Plots

2.1 11B_L@Ant 1



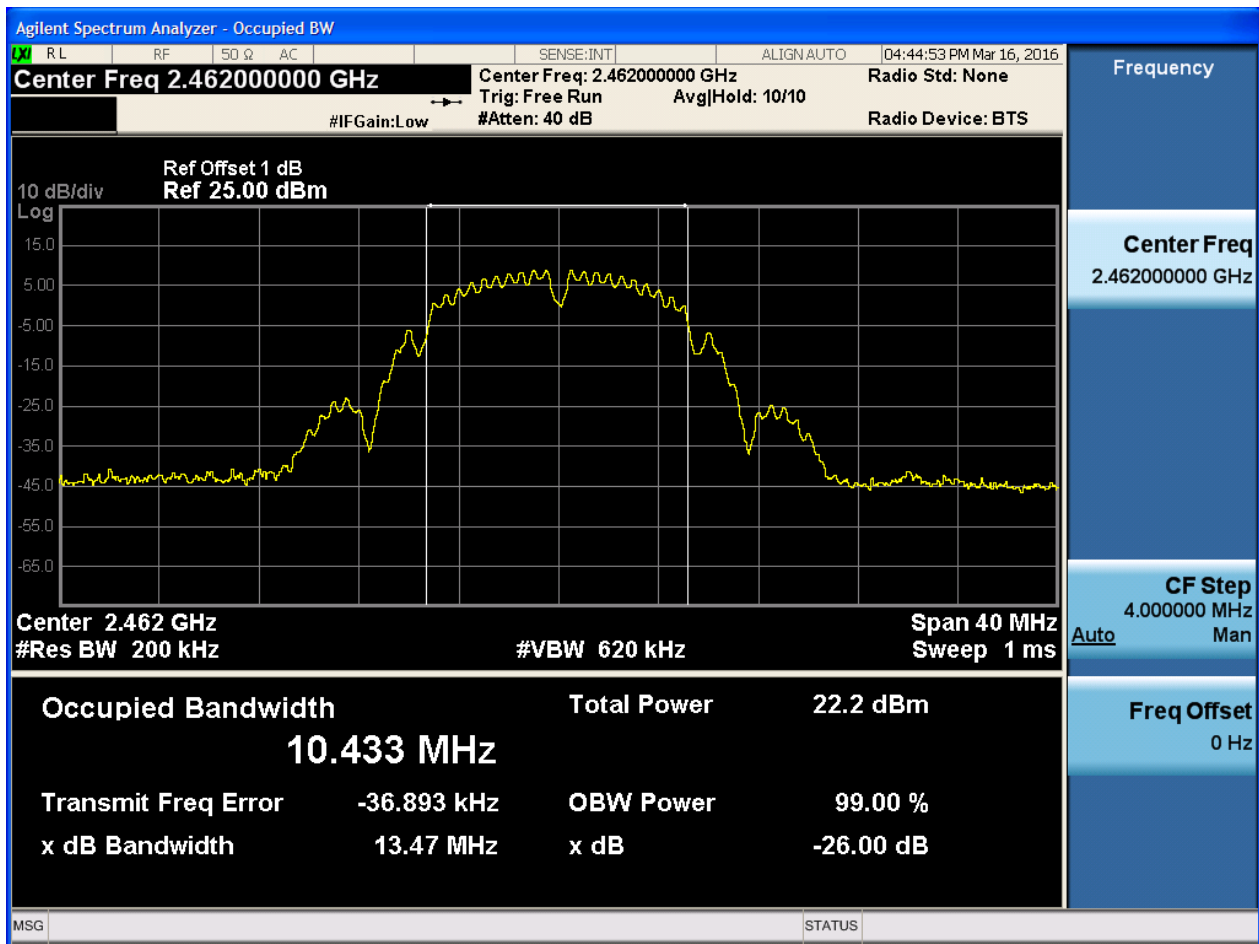


2.2 11B_M@Ant 1



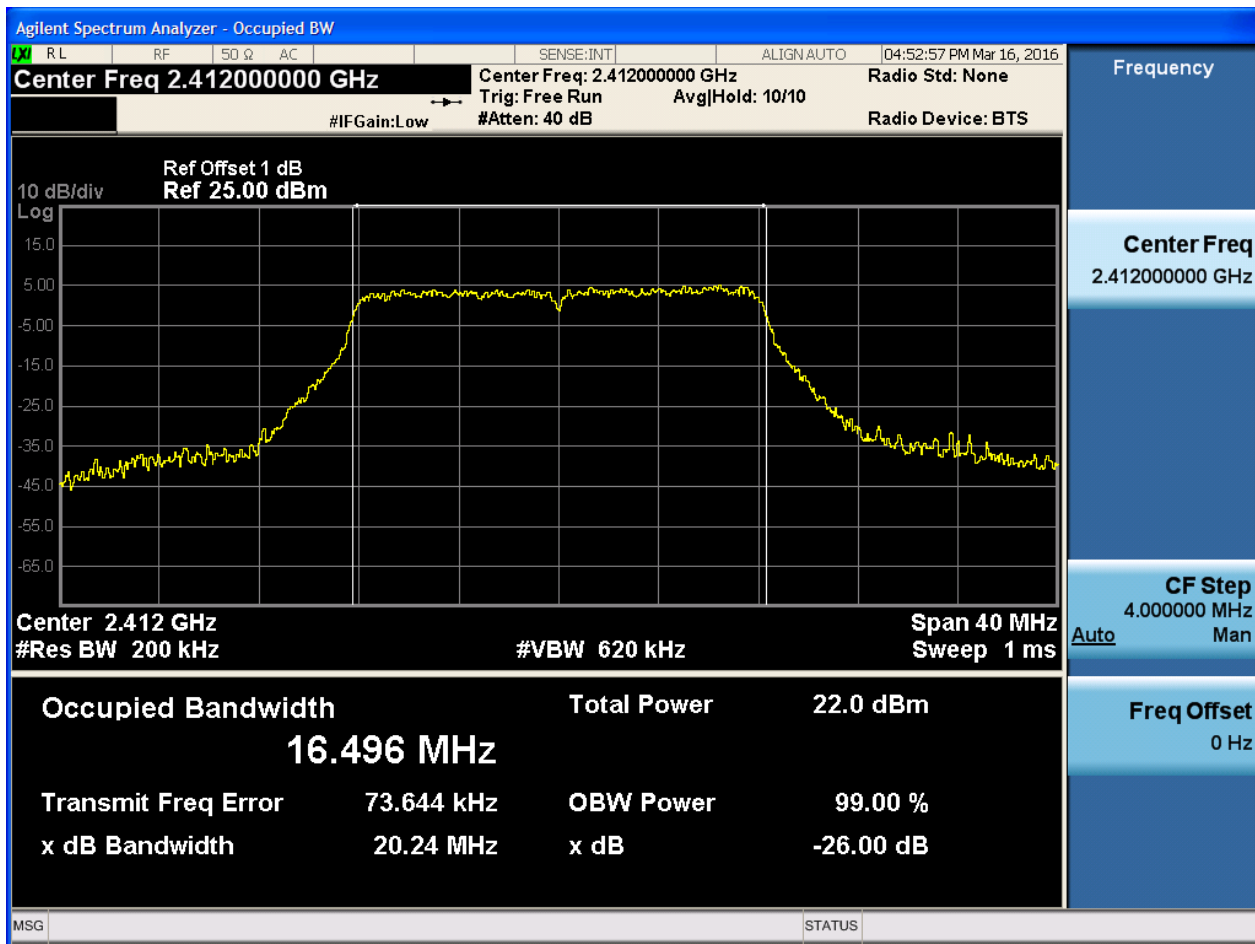


2.3 11B_H@Ant 1



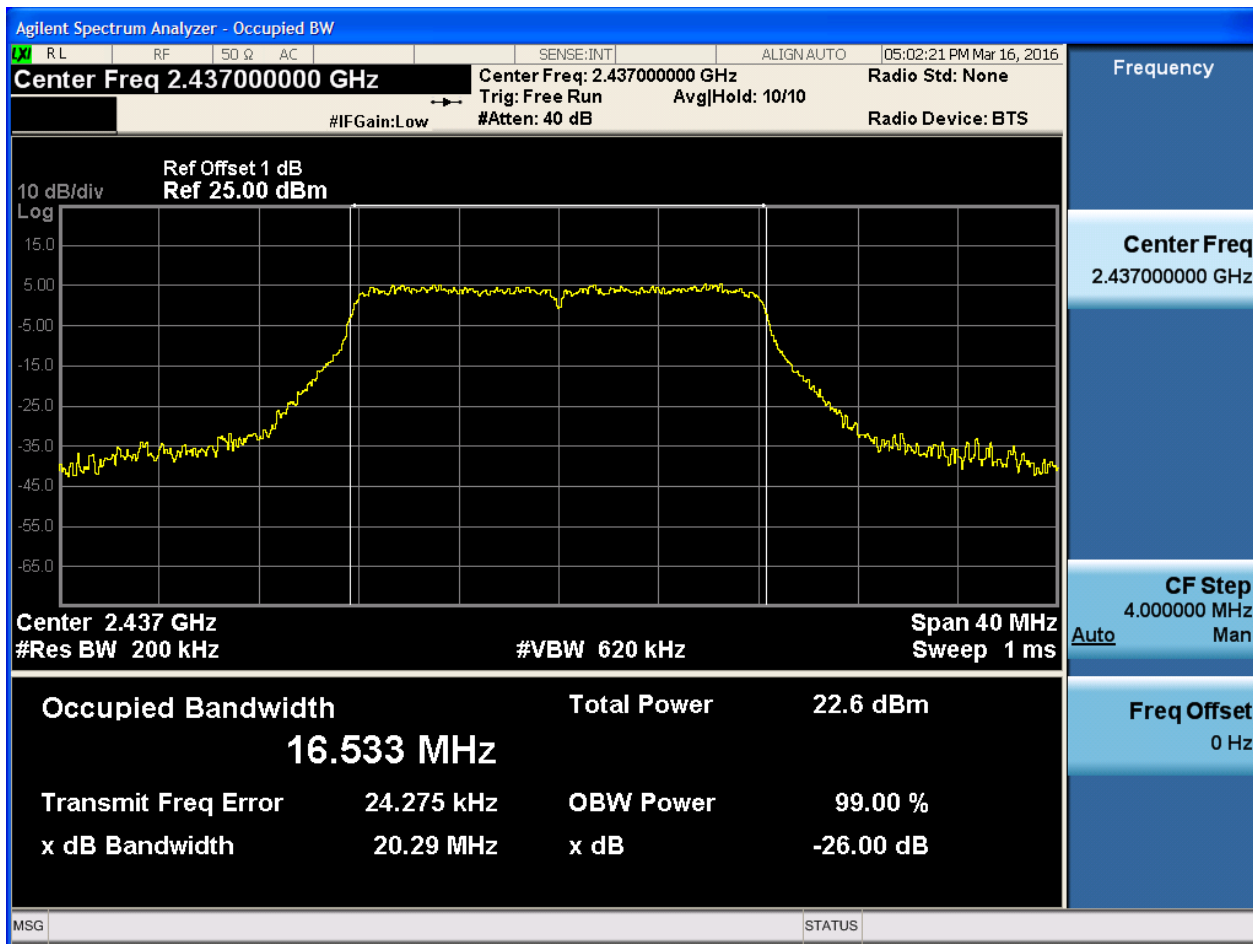


2.4 11G_L@Ant 1



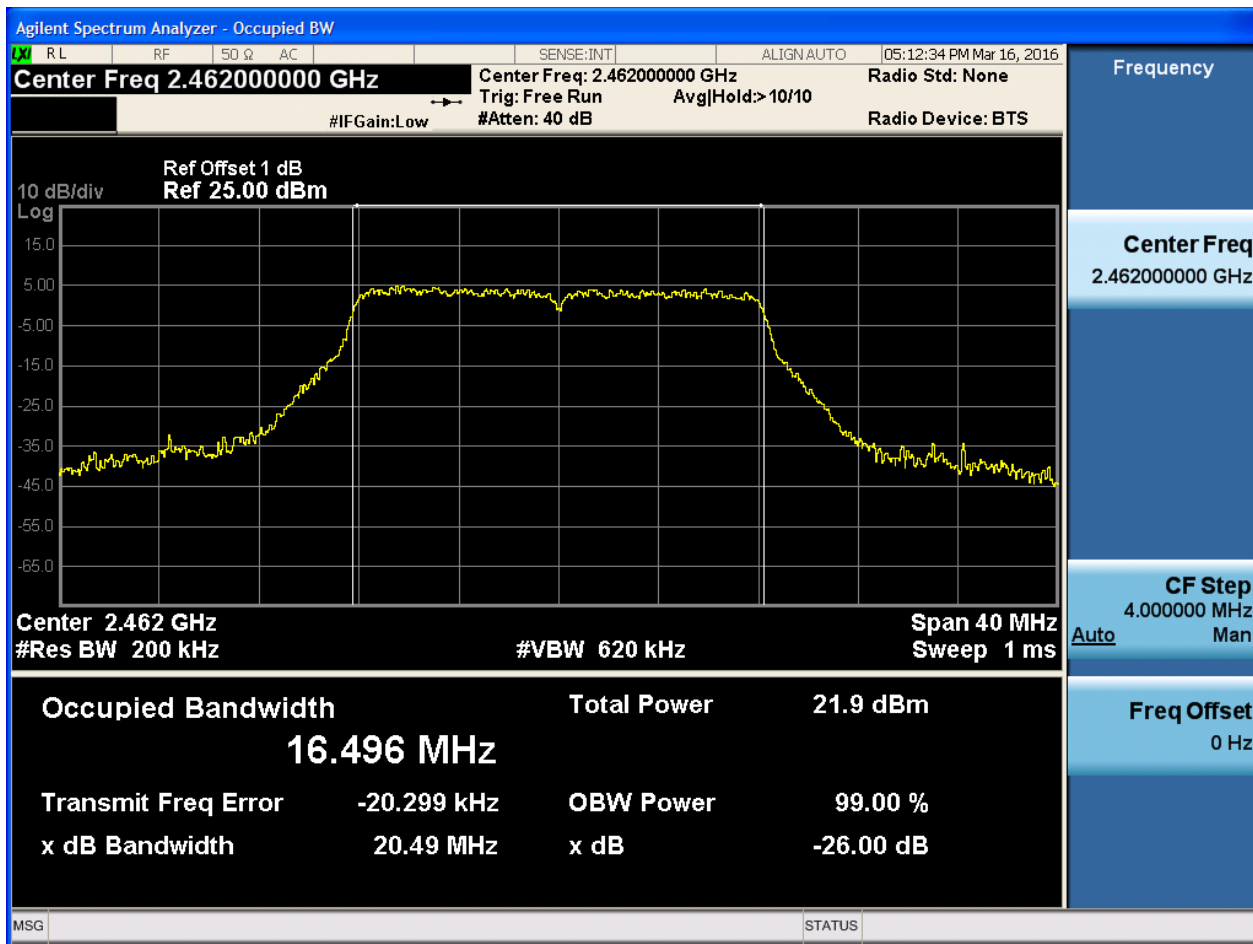


2.5 11G_M@Ant 1



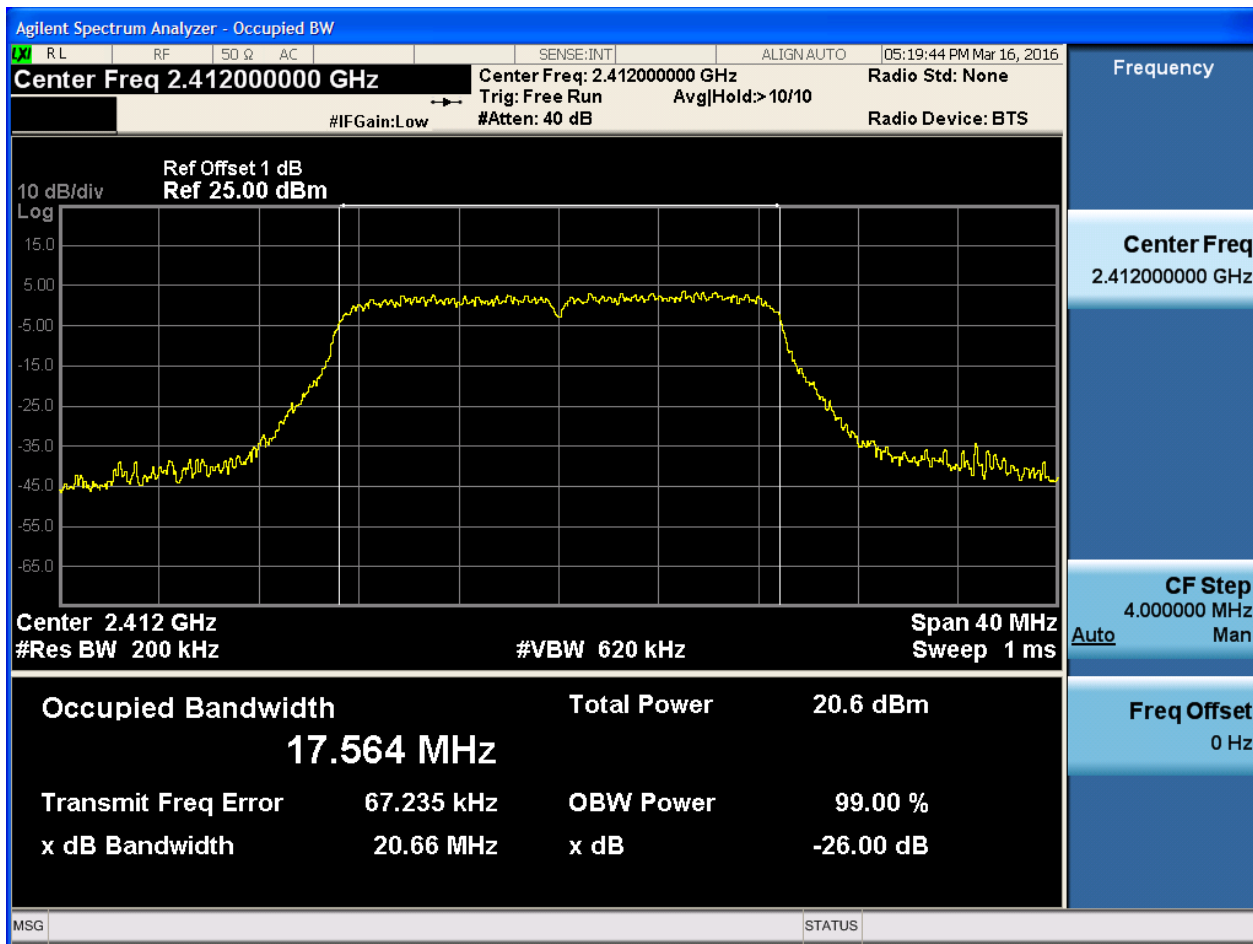


2.6 11G_H@Ant 1



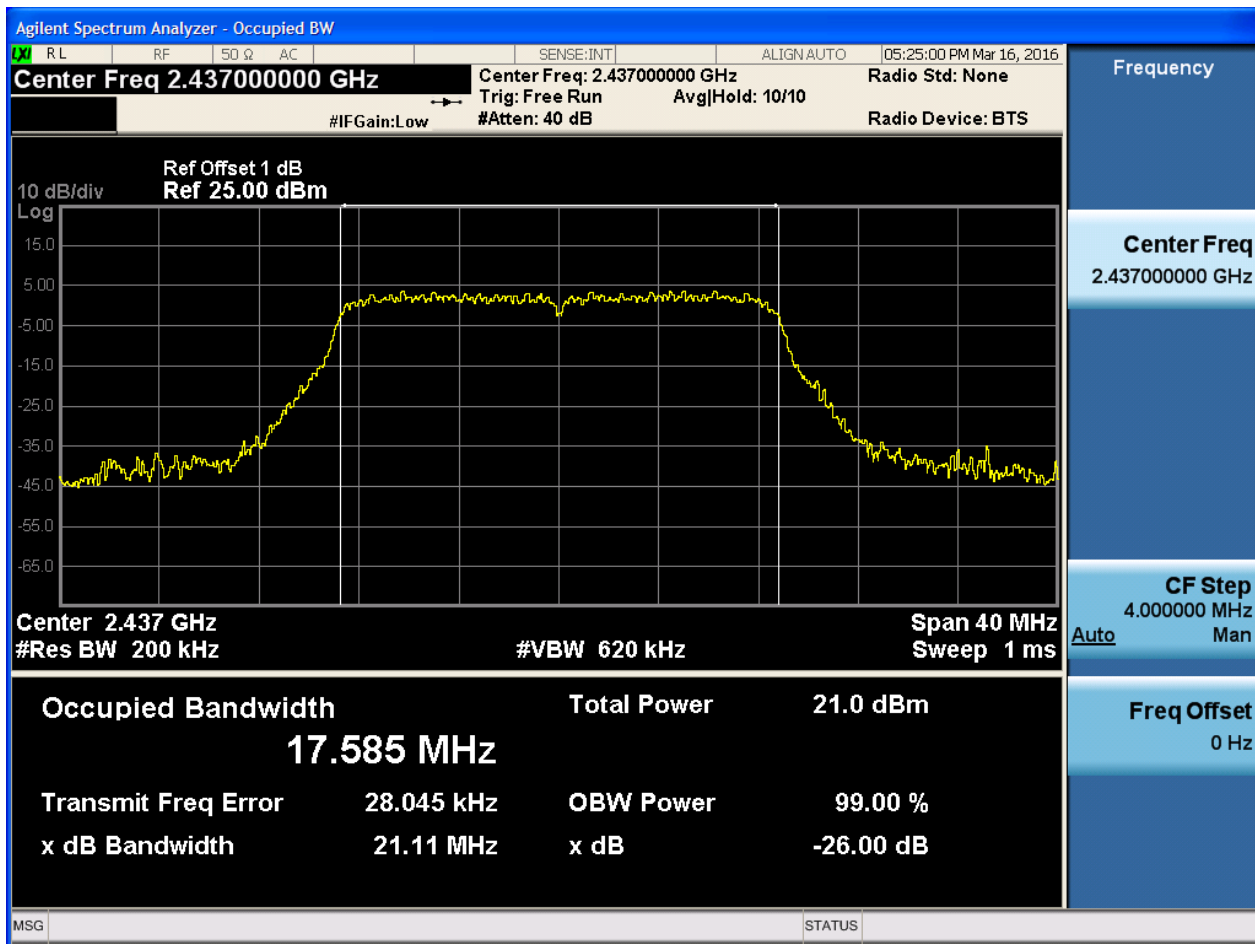


2.7 11N20_L@Ant 1



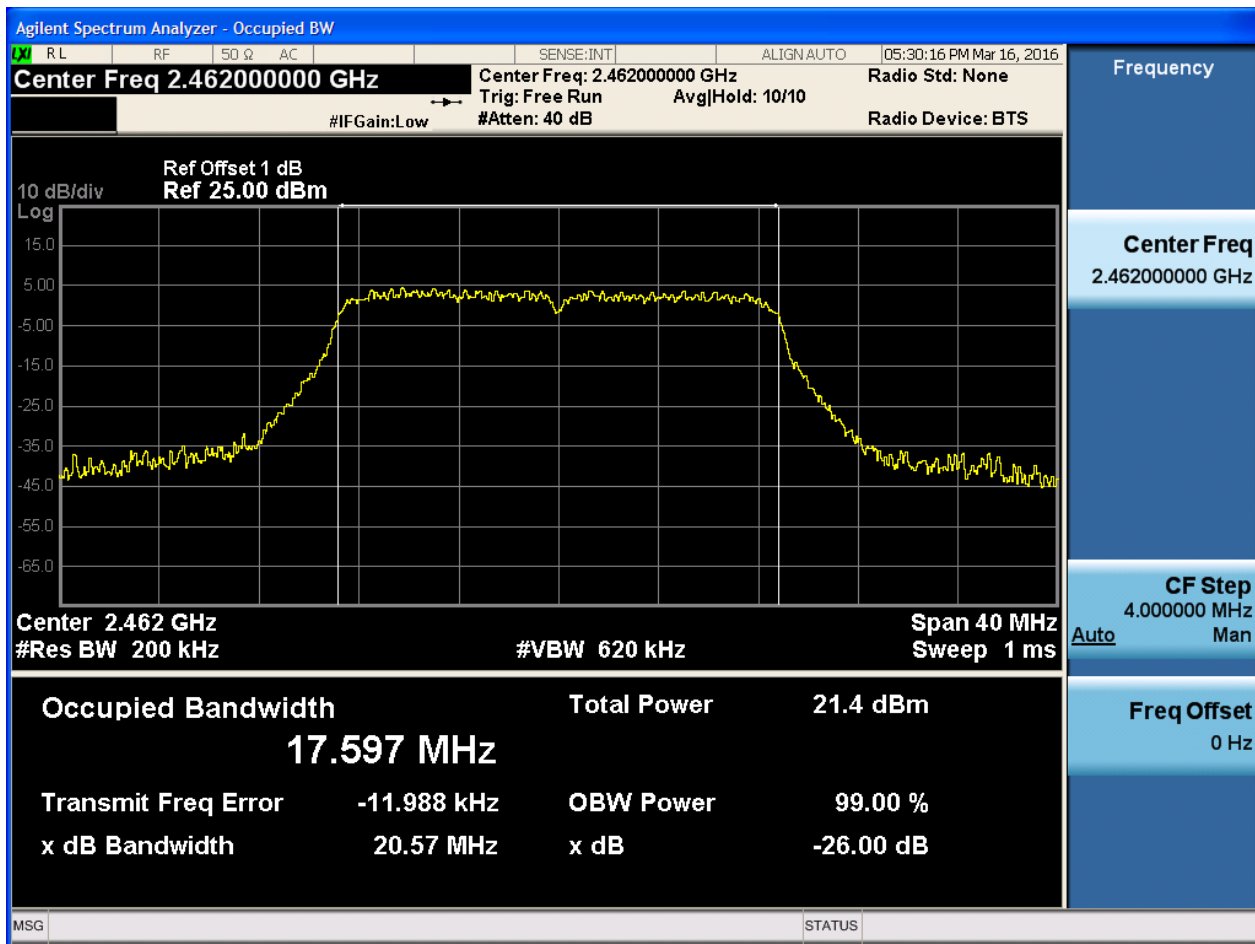


2.8 11N20_M@Ant 1





2.9 11N20_H@Ant 1



Appendix C: Duty Cycle

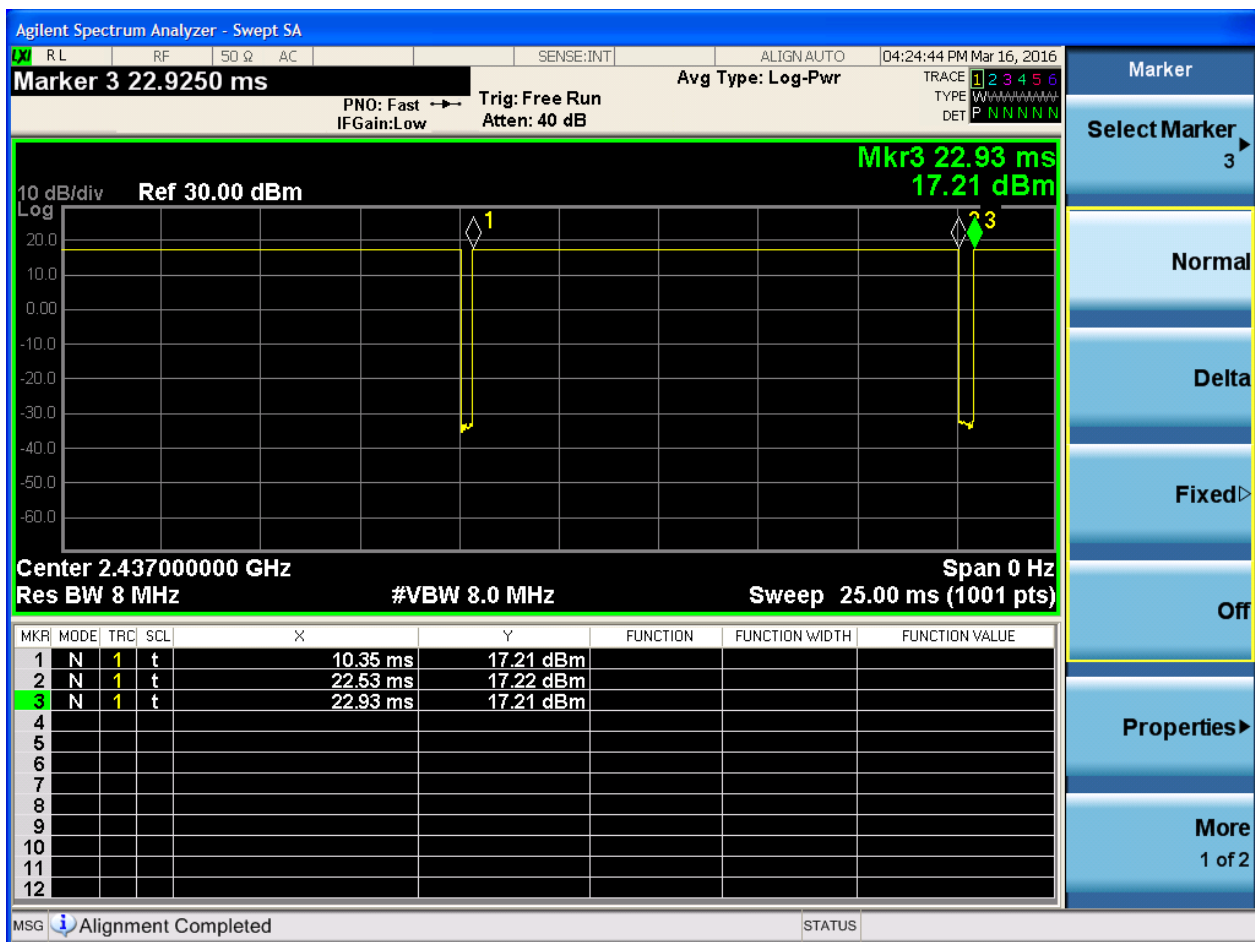
Part I - Test Results

Test Mode	TX Freq. [MHz]	Ant	Duty cycle [%]
11B	CH1,CH6,CH11	Ant 1	97
11G	CH1,CH6,CH11	Ant 1	96
11N20	CH1,CH6,CH11	Ant 1	93



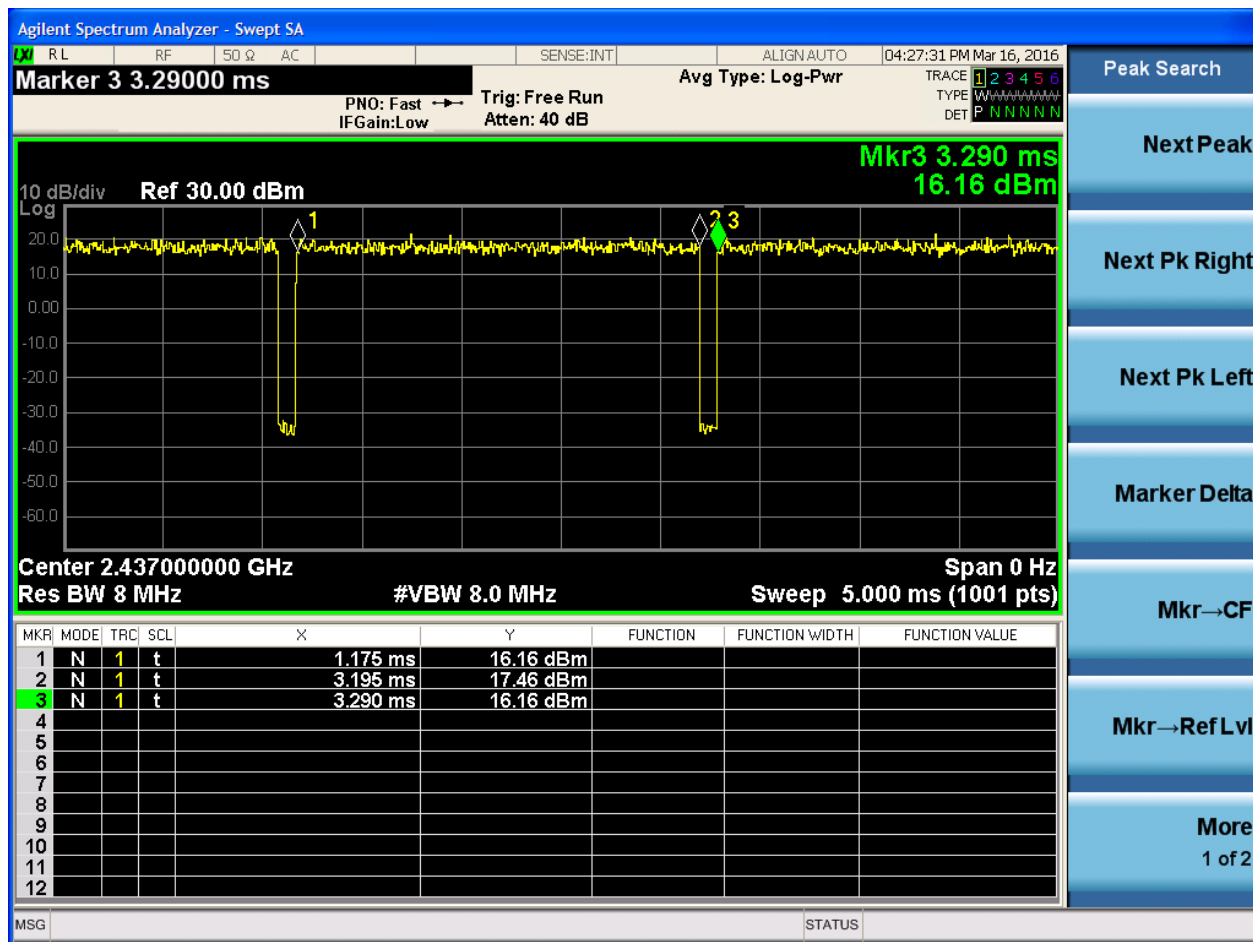
Part II - Test Plots

11B_ANT1



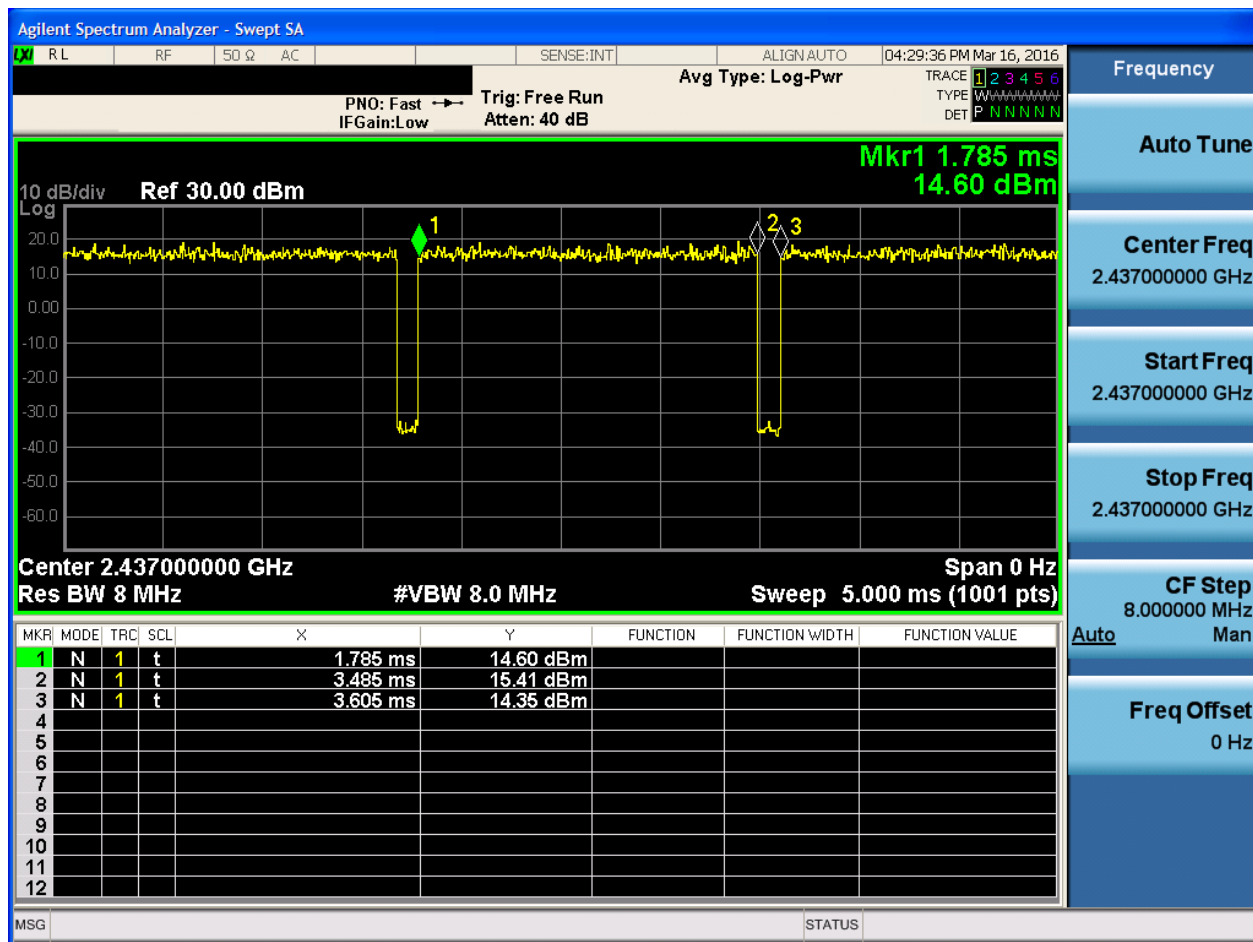


11G_ANT1





11N20_ANT1



Appendix D: Maximum Conducted Average Output Power

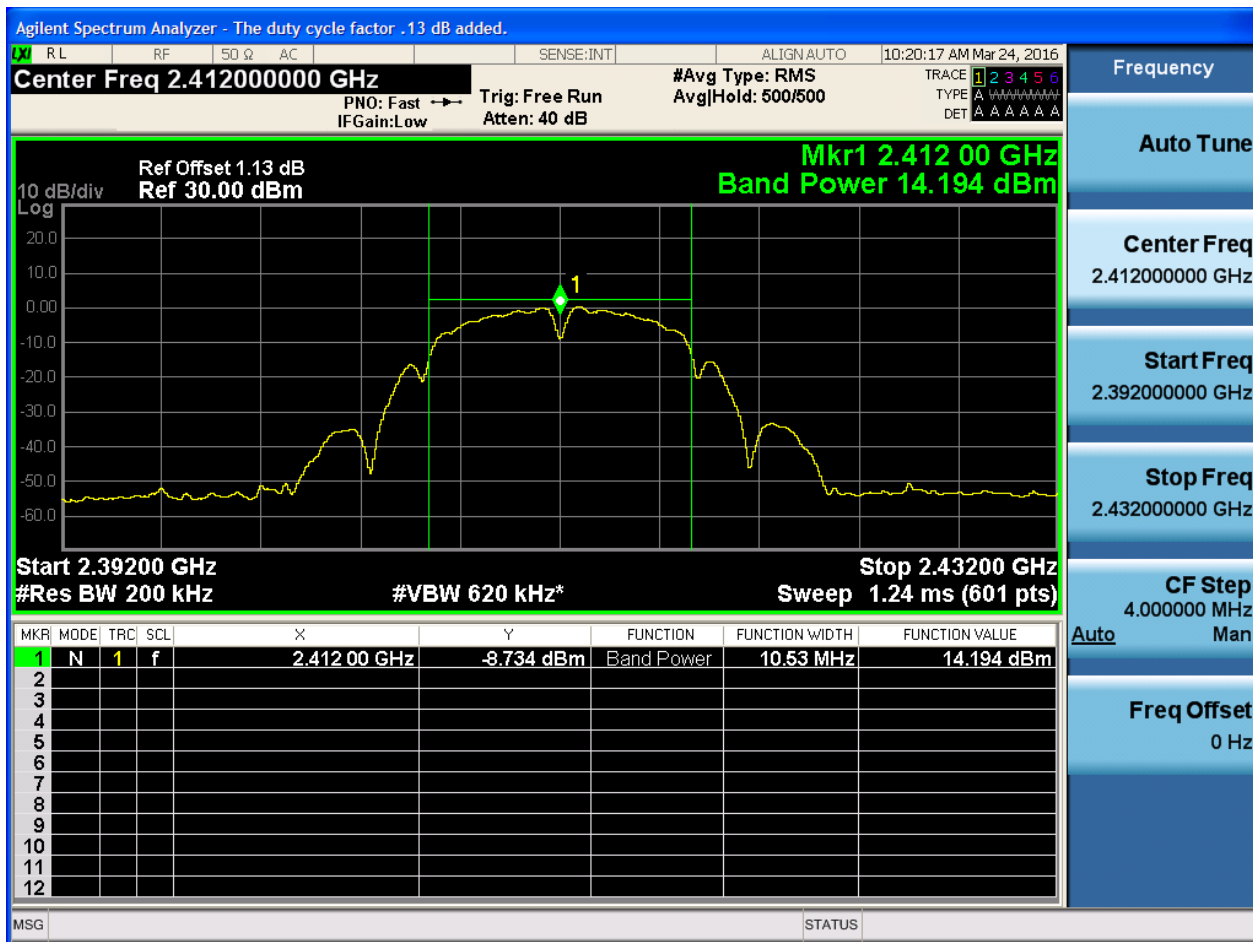
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Power[dBm]	Verdict
11B	L	2412	Ant 1	14.19	pass
11B	M	2437	Ant 1	14.62	pass
11B	H	2462	Ant 1	14.85	pass
11G	L	2412	Ant 1	14.00	pass
11G	M	2437	Ant 1	14.37	pass
11G	H	2462	Ant 1	13.67	pass
11N20	L	2412	Ant 1	13.37	pass
11N20	M	2437	Ant 1	13.70	pass
11N20	H	2462	Ant 1	14.13	pass



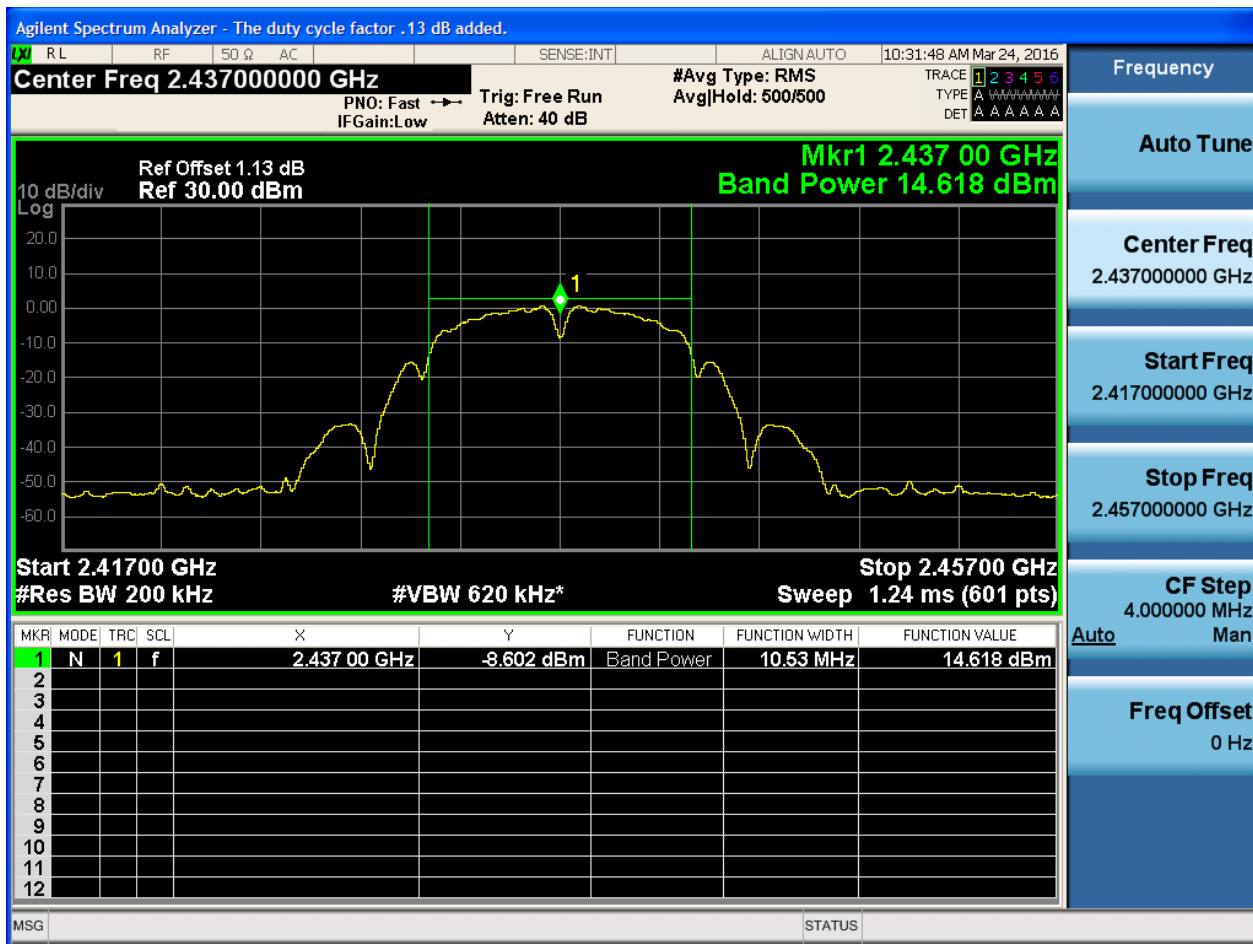
Part II - Test Plots

2.1 11B_L@Ant 1



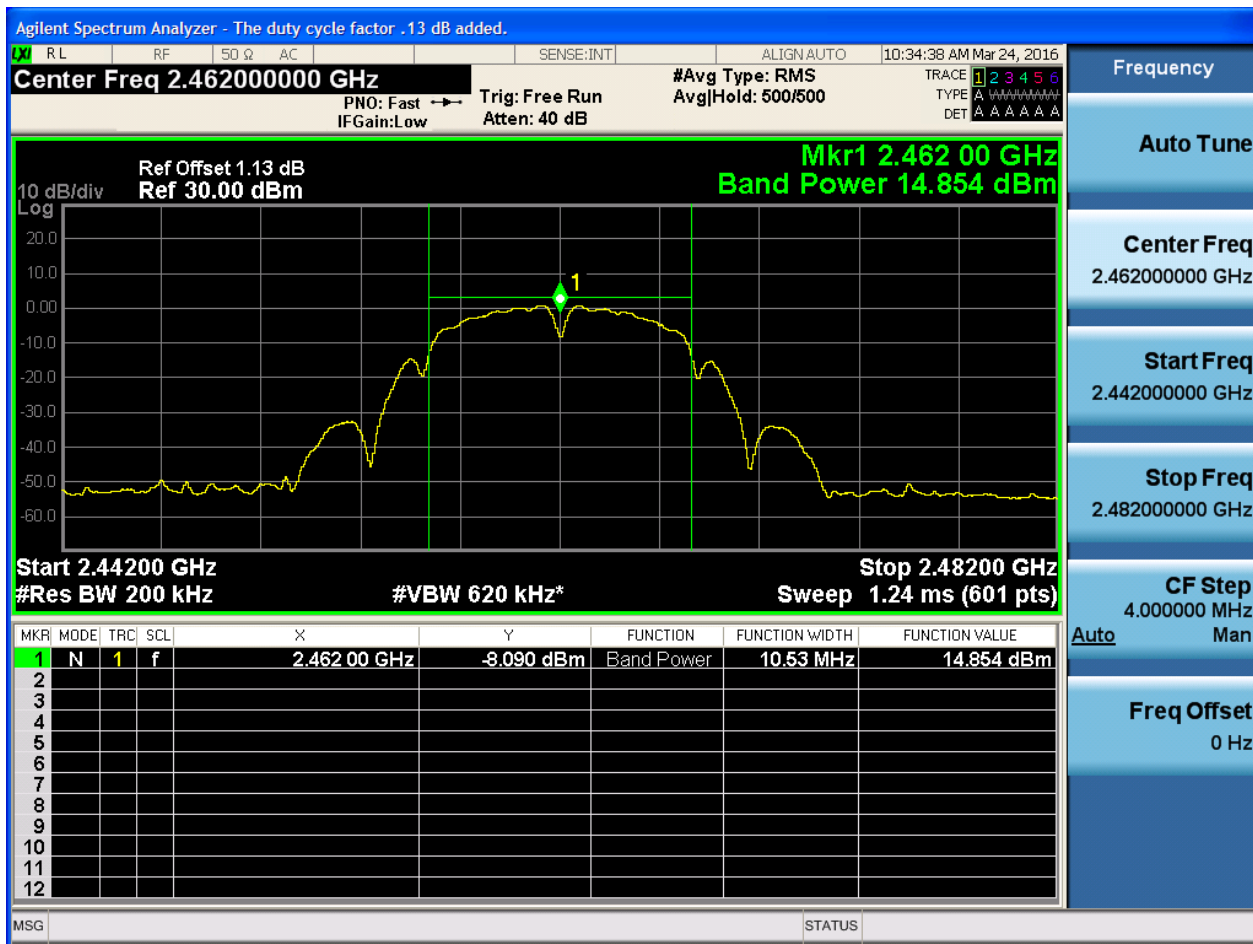


2.2 11B_M@Ant 1



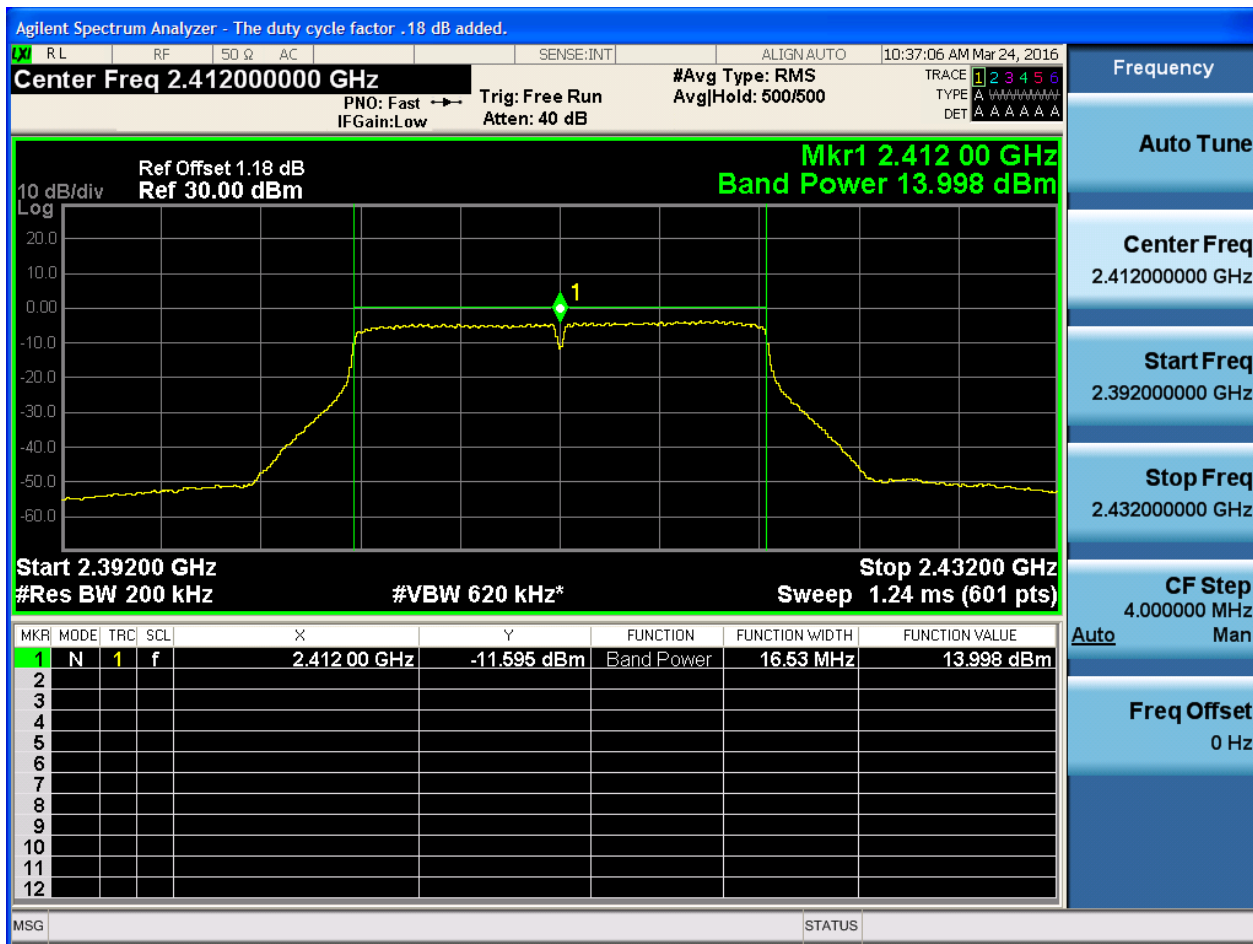


2.3 11B_H@Ant 1



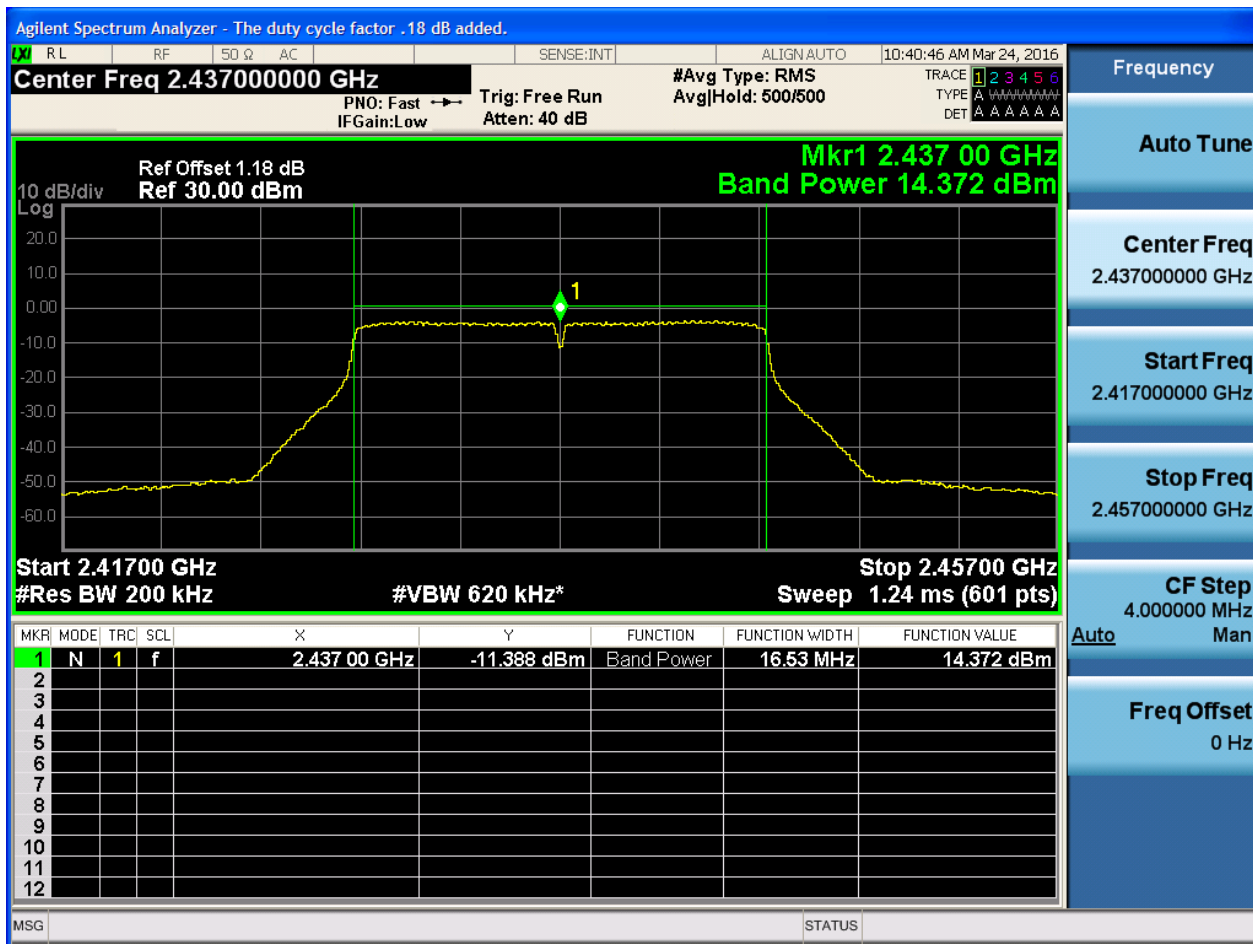


2.4 11G_L@Ant 1



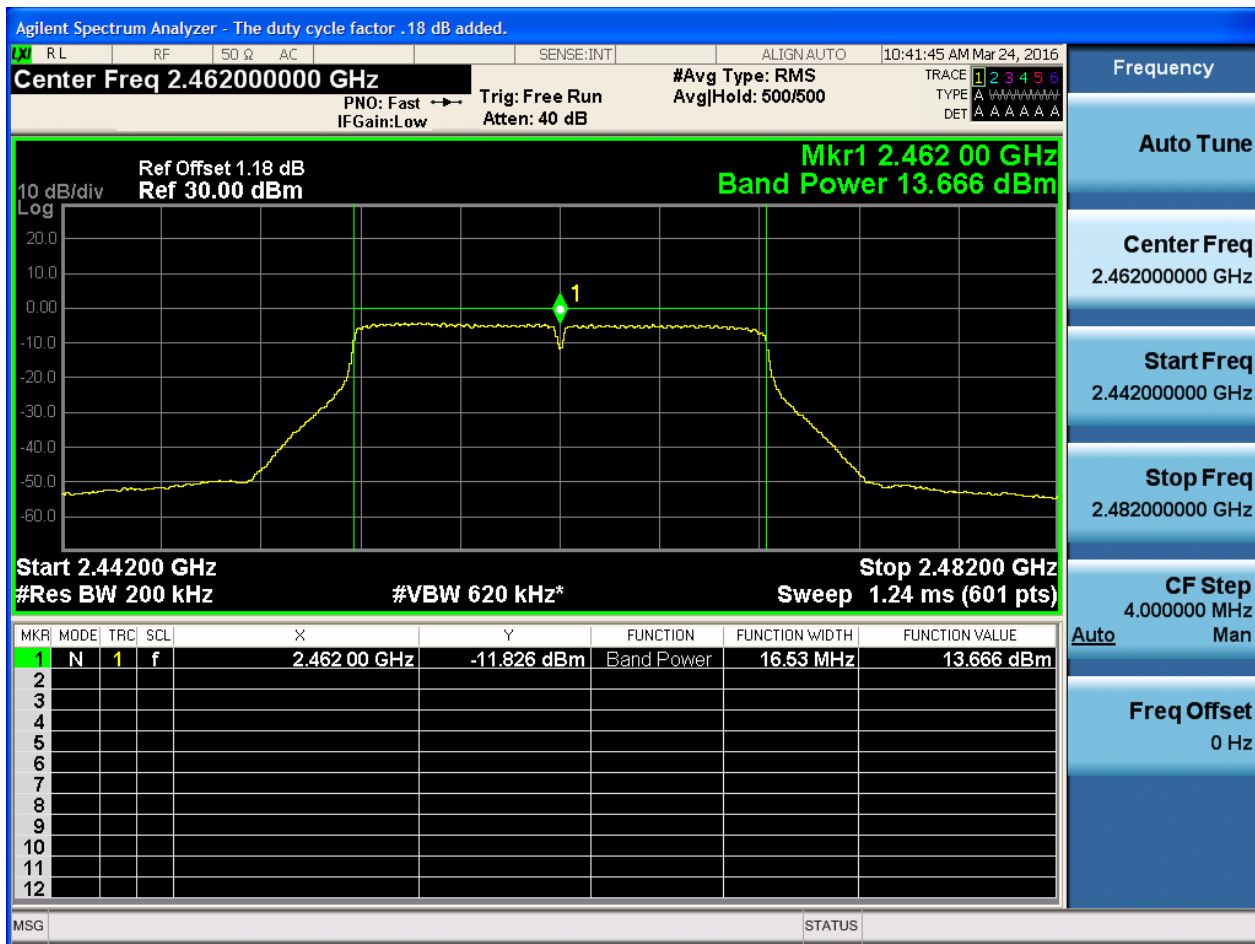


2.5 11G_M@Ant 1





2.6 11G_H@Ant 1





Agilent Spectrum Analyzer - The duty cycle factor .32 dB added.

Center Freq 2.41200000 GHz

#Avg Type: RMS
AvgHold: 500/500

10:46:40 AM Mar 24, 2016

TRC 1 2 3 4 5 6
TYPE A
DET A A A A A A

PNO: Fast
IFGain:Low

Trig: Free Run
Atten: 40 dB

Ref Offset 1.32 dB
Ref 30.00 dBm

Mkr1 2.412 00 GHz
Band Power 13.374 dBm

Start 2.39200 GHz
#Res BW 200 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	-12.246 dBm	Band Power	17.60 MHz	13.374 dBm
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

MSG

STATUS

Frequency

Auto Tune

Center Freq
2.41200000 GHz

Start Freq
2.392000000 GHz

Stop Freq
2.432000000 GHz

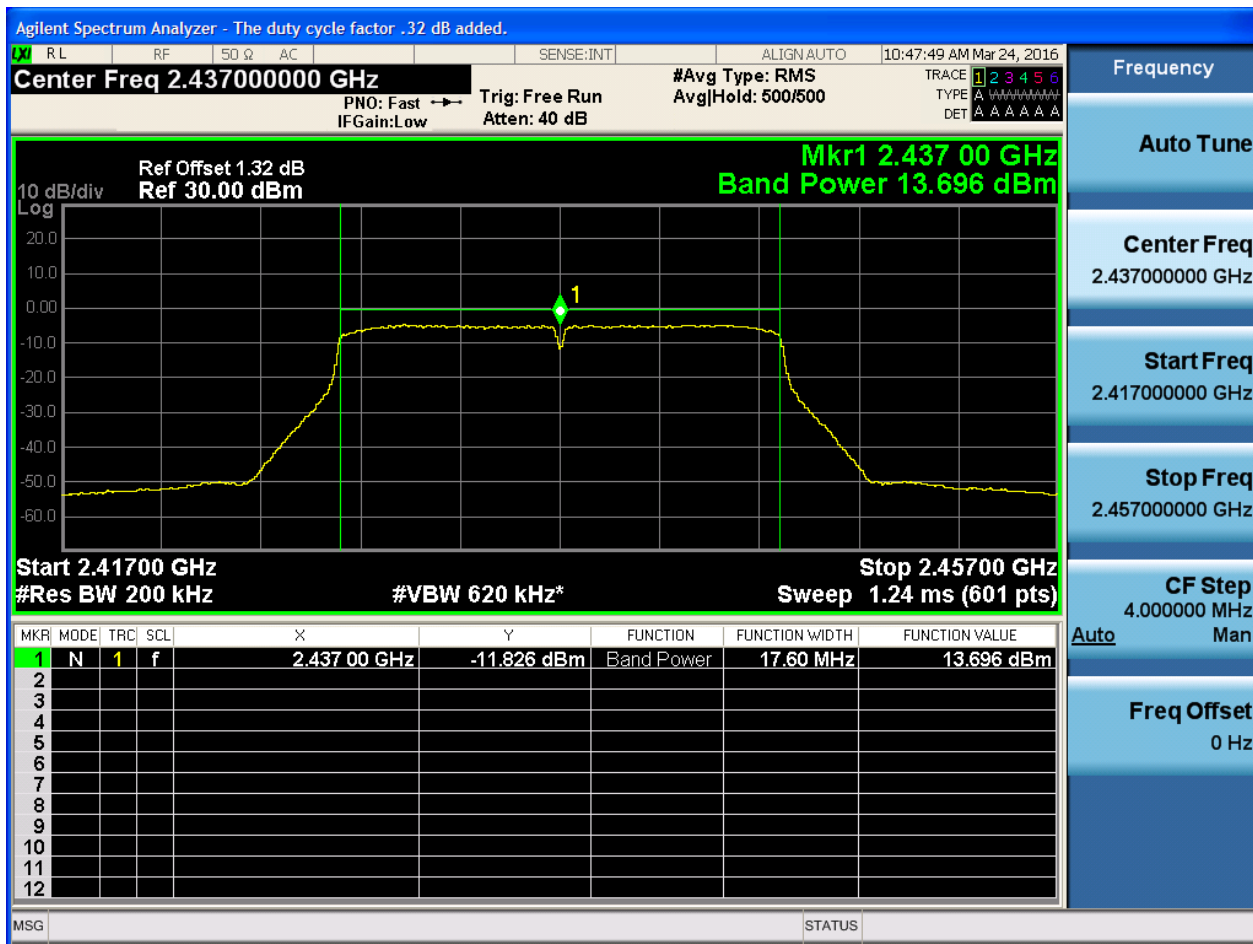
CF Step
4.000000 MHz
Man

Freq Offset
0 Hz

Auto

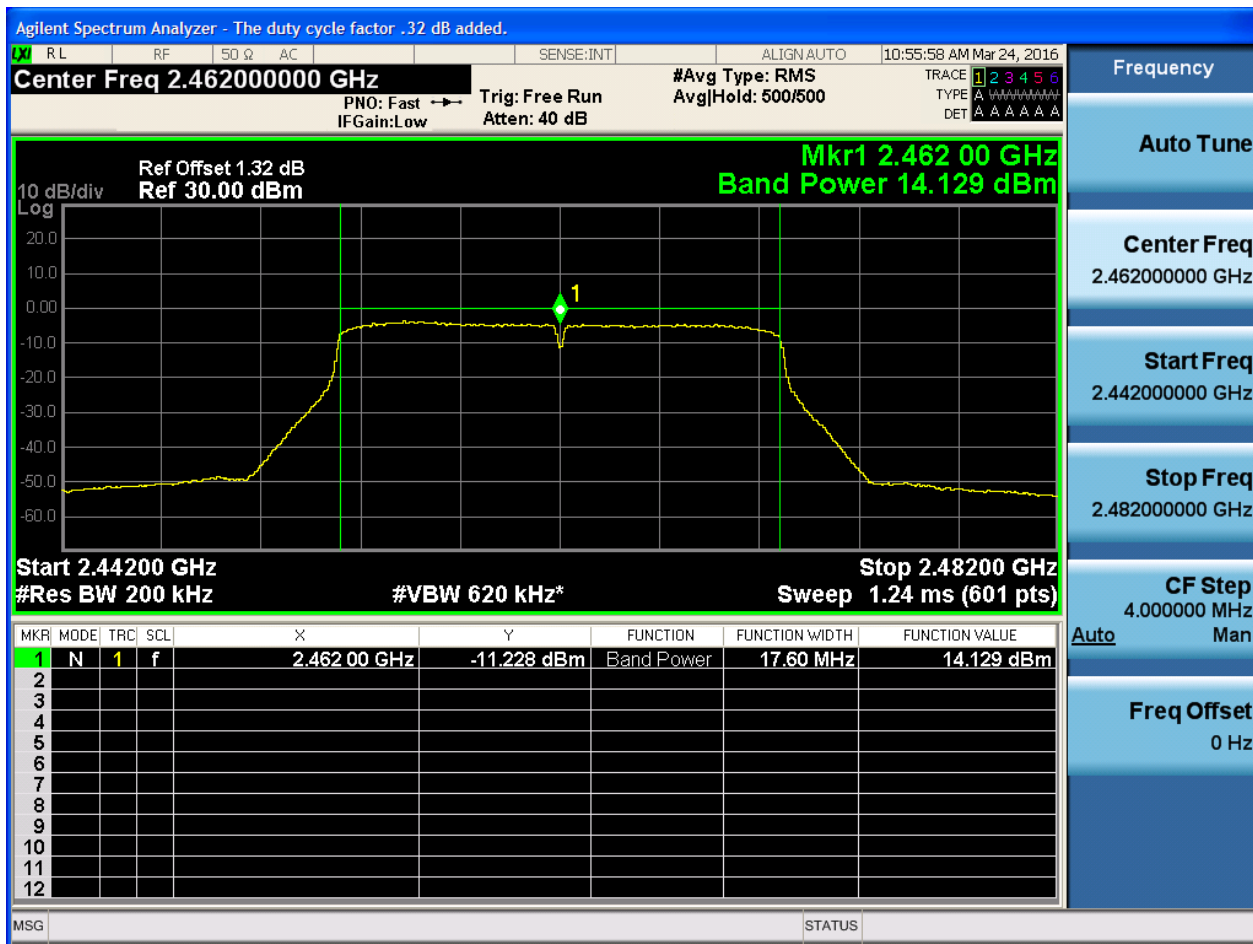


2.8 11N20_M@Ant 1





2.9 11N20_H@Ant 1



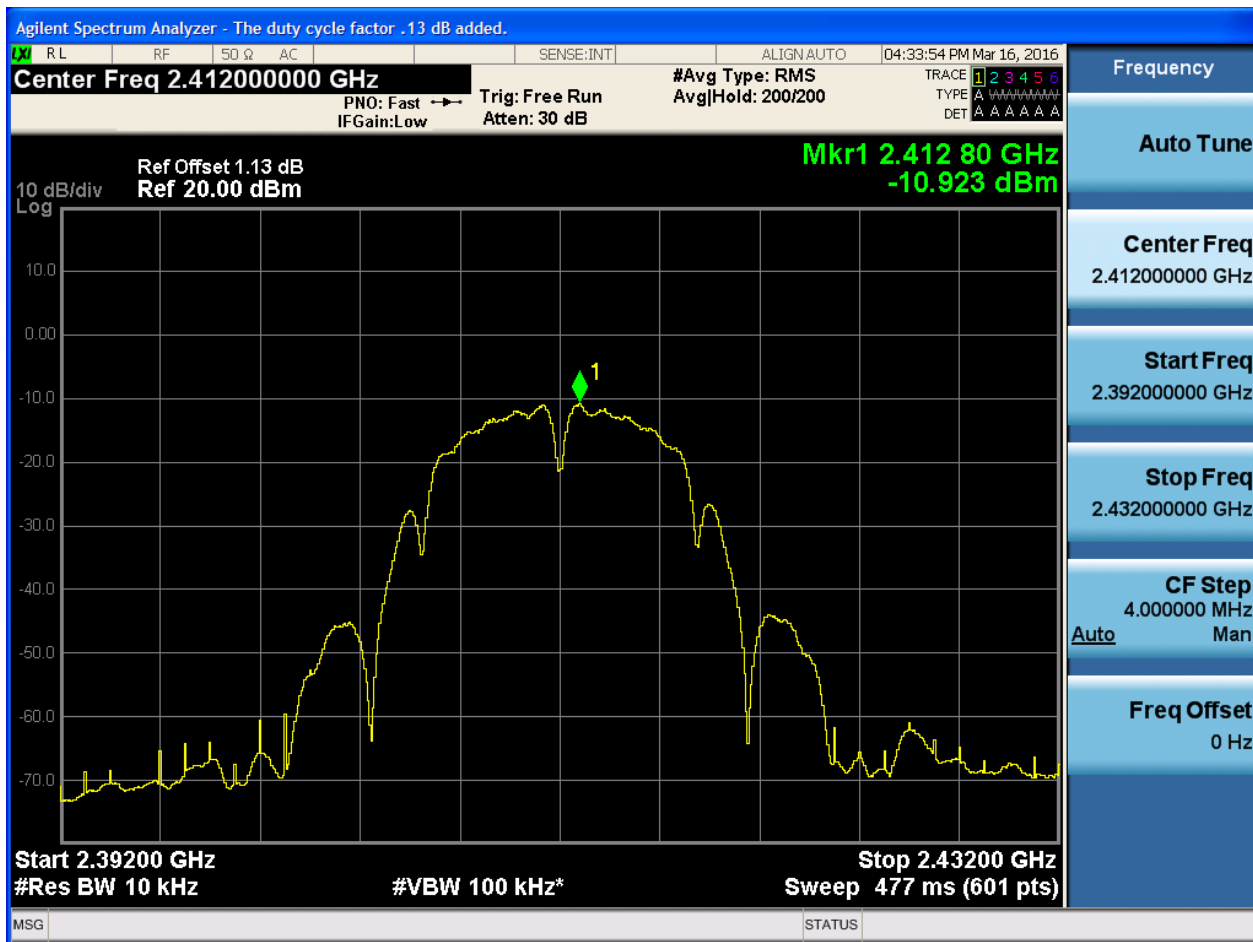
Appendix E: Maximum Power Spectral Density Level

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	-10.67	pass
11B	H	2462	Ant 1	-10.30	pass
11G	L	2412	Ant 1	-14.61	pass
11G	M	2437	Ant 1	-14.45	pass
11G	H	2462	Ant 1	-14.84	pass
11N20	L	2412	Ant 1	-16.85	pass
11N20	M	2437	Ant 1	-16.80	pass
11N20	H	2462	Ant 1	-15.73	pass

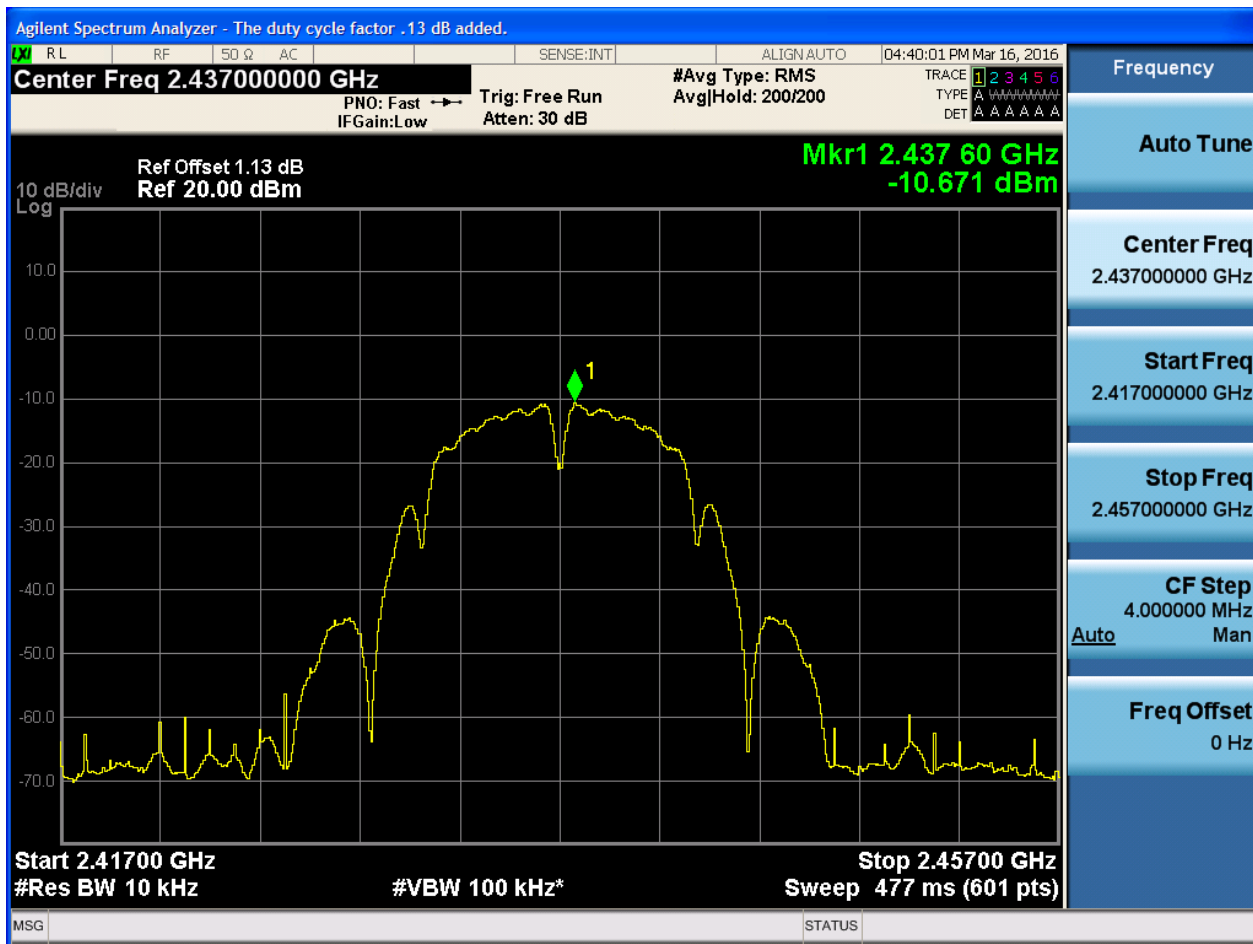
Part II - Test Plots

2.1 11B_L@Ant 1



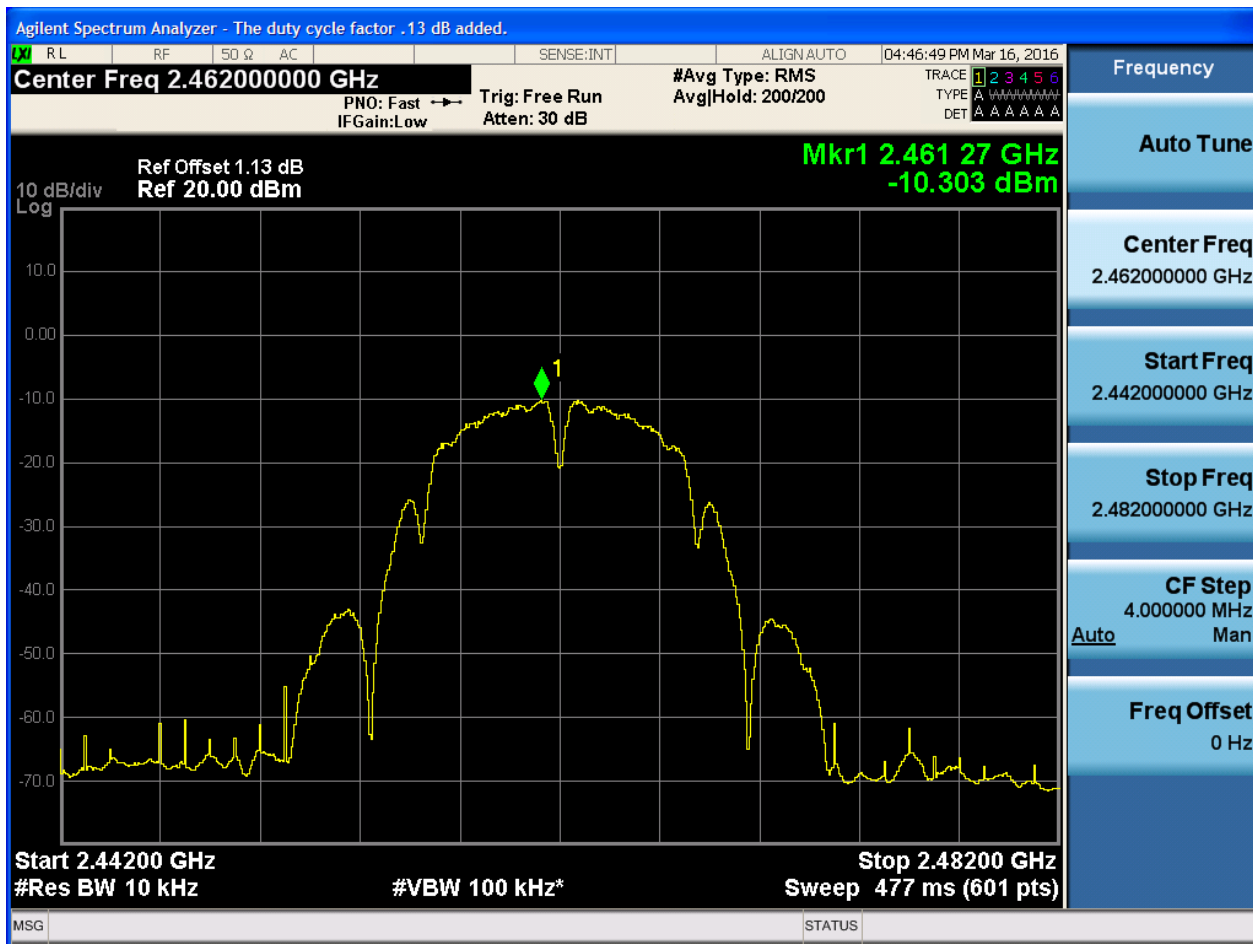


2.2 11B_M@Ant 1



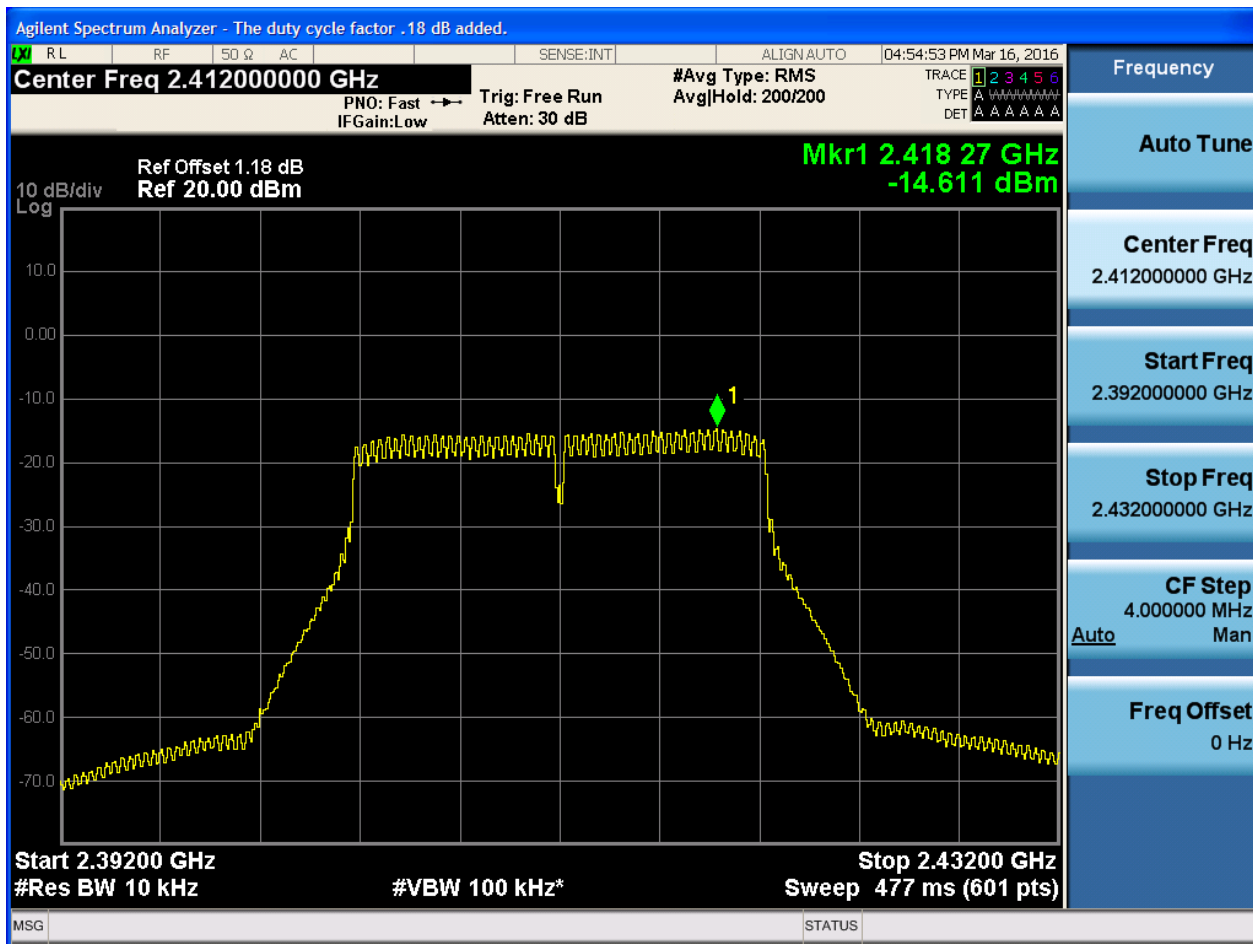


2.3 11B_H@Ant 1



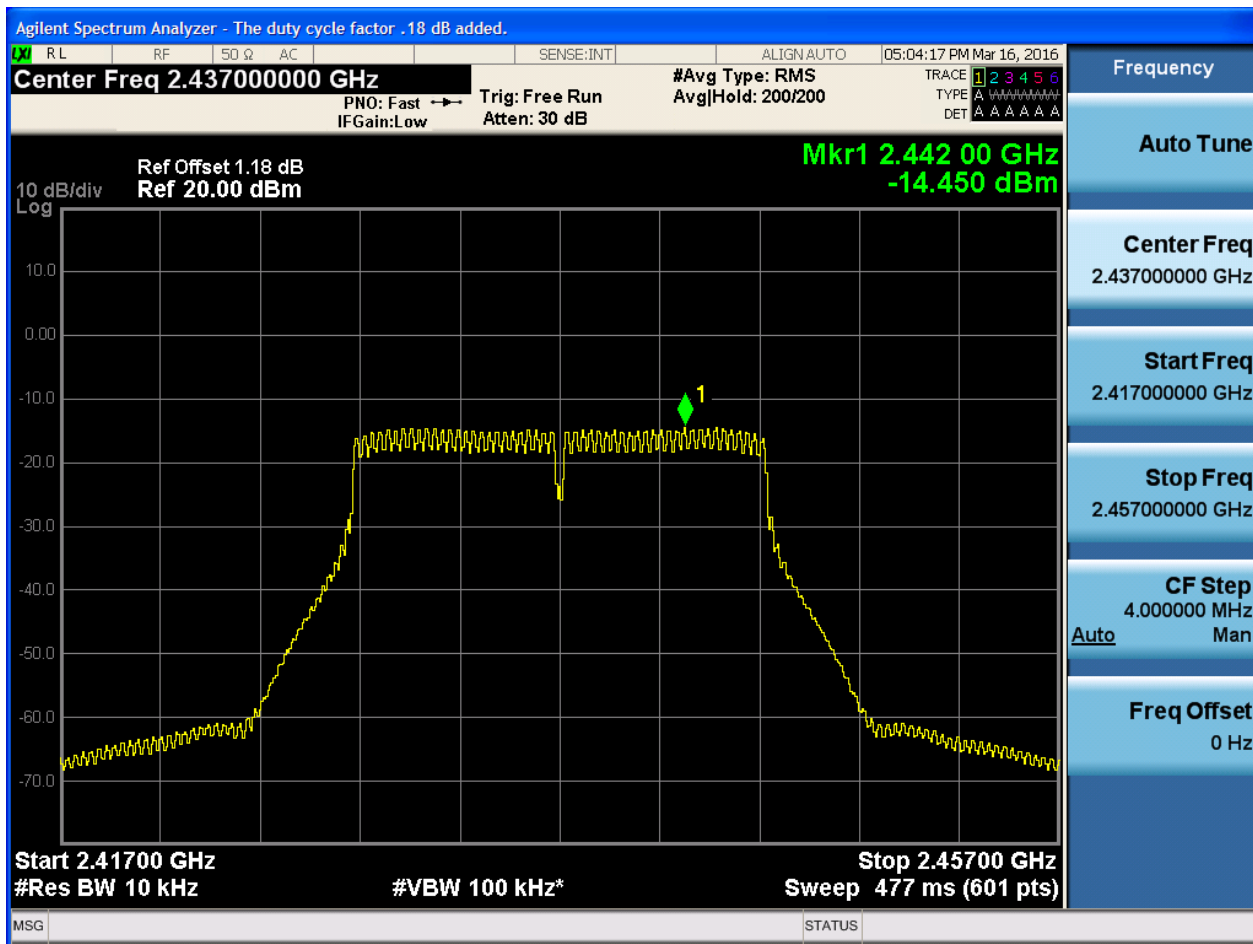


2.4 11G_L@Ant 1



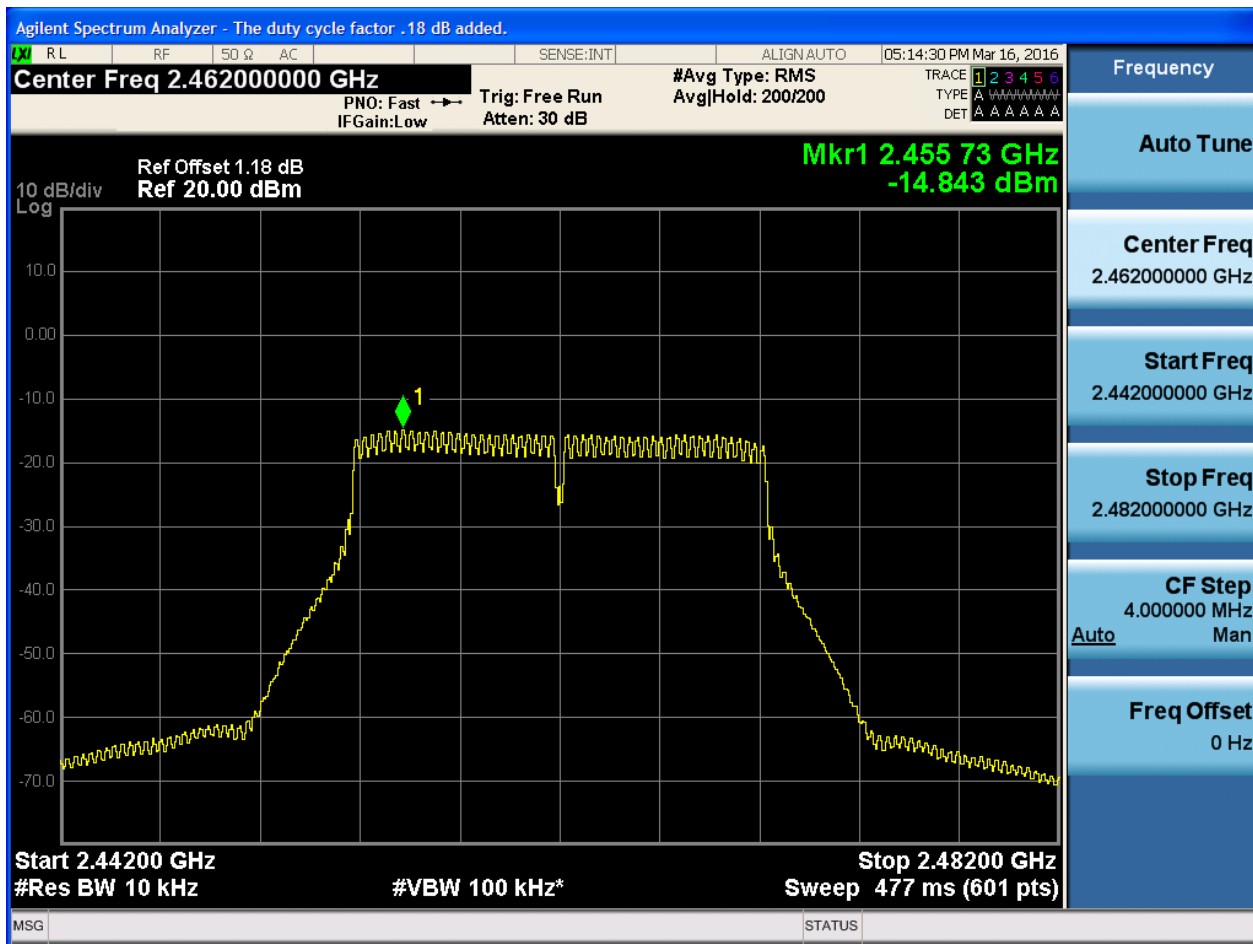


2.5 11G_M@Ant 1



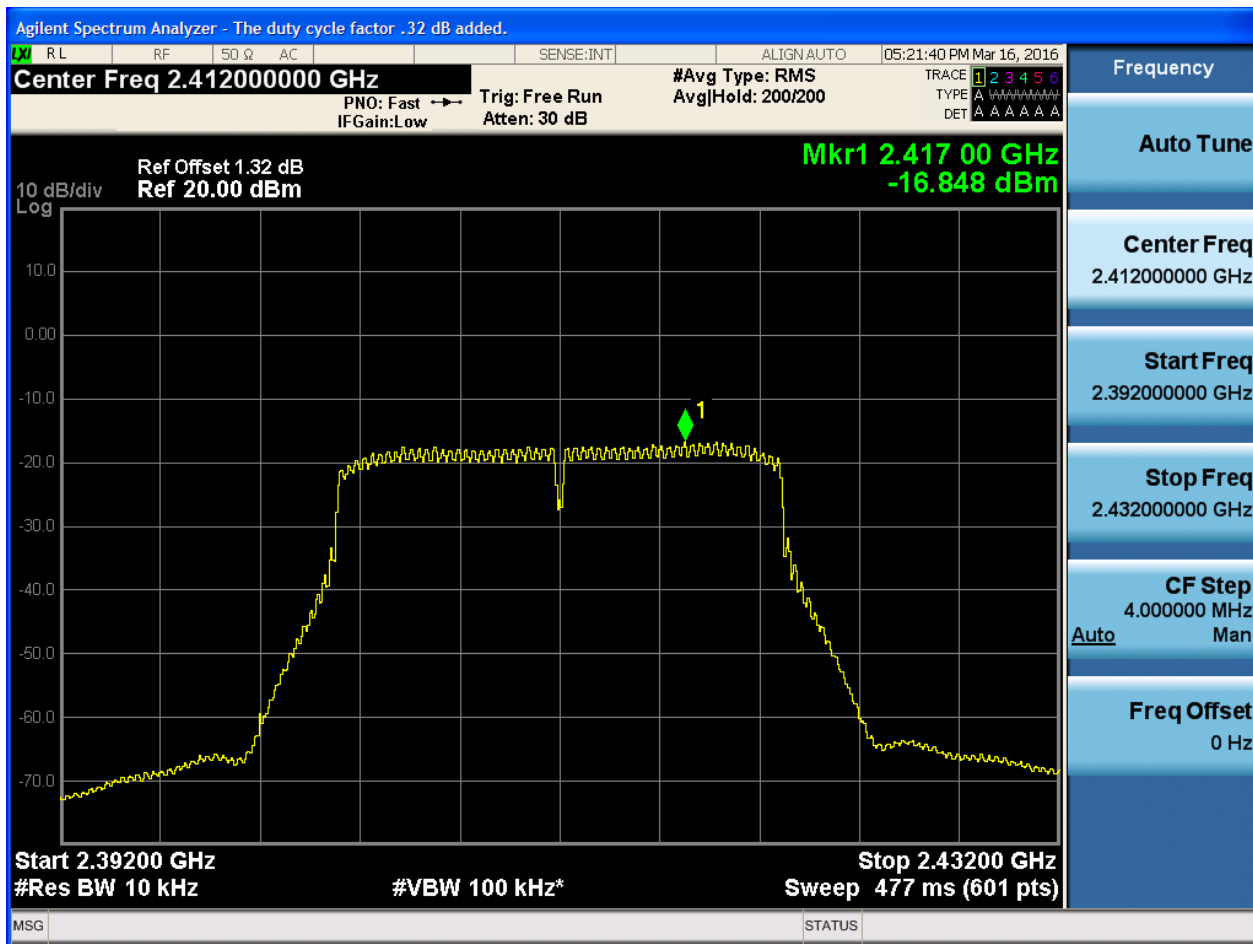


2.6 11G_H@Ant 1



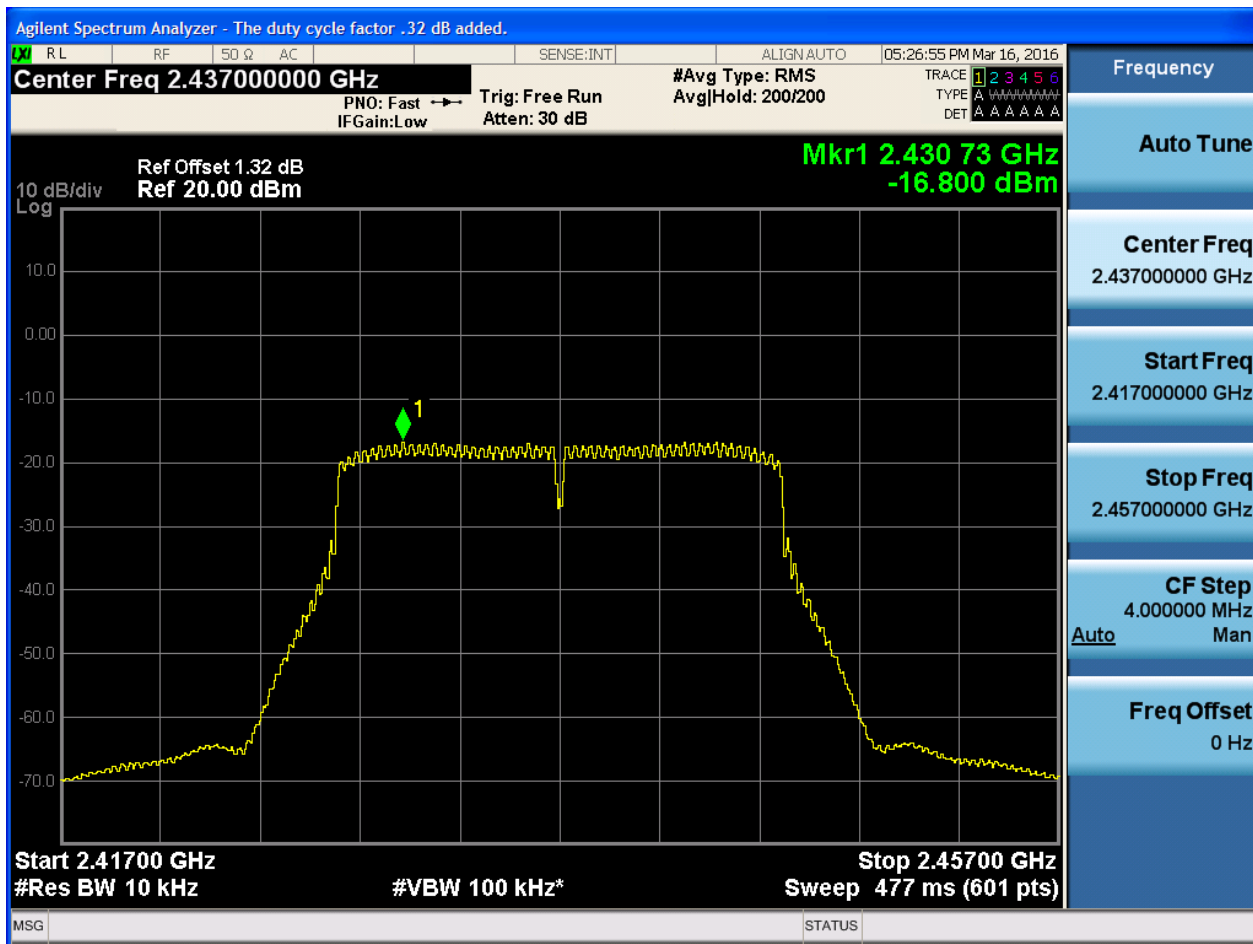


2.7 11N20_L@Ant 1



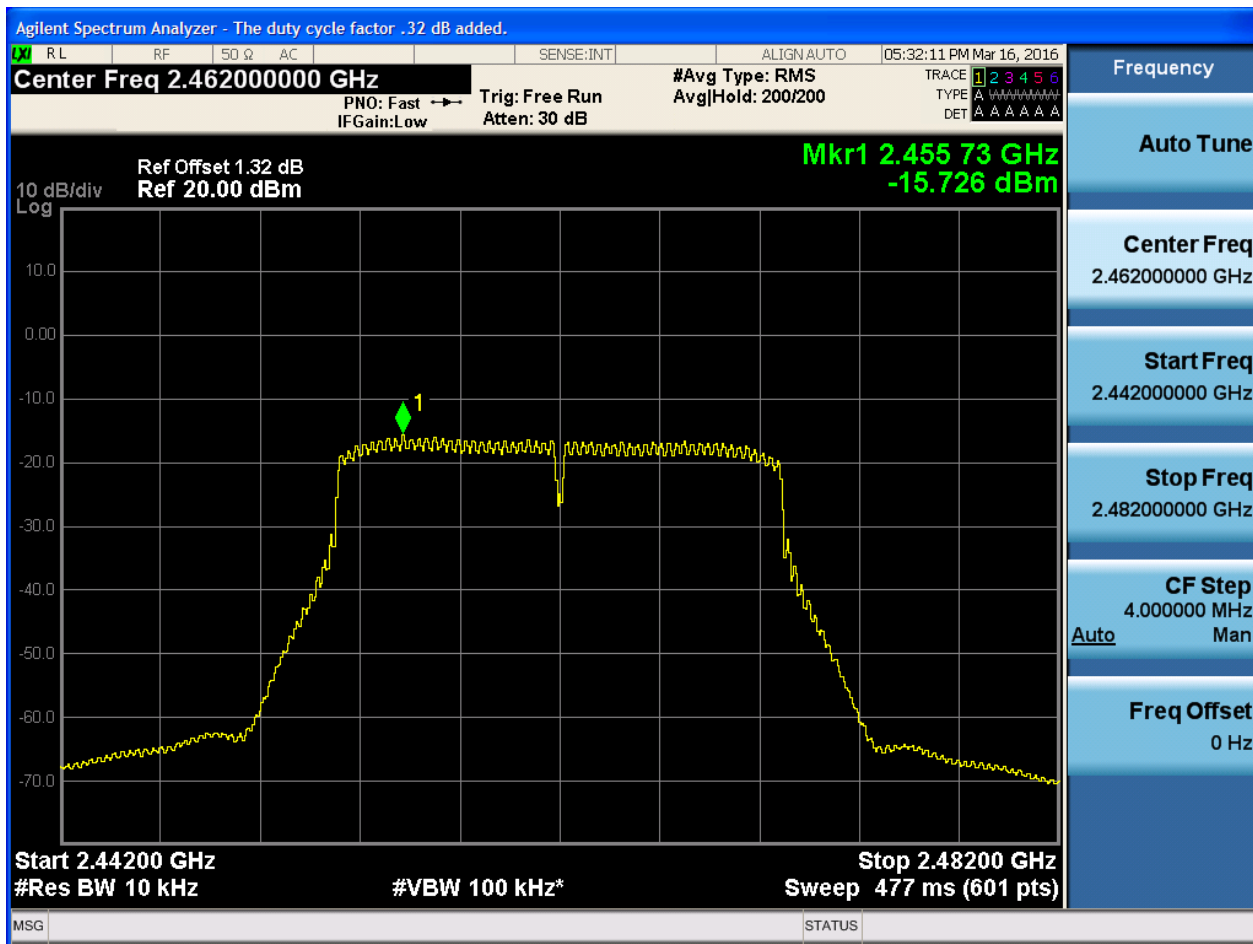


2.8 11N20_M@Ant 1





2.9 11N20_H@Ant 1



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	7.49	-49.08	pass
11B	H	2462	Ant 1	8.47	-48.20	pass
11G	L	2412	Ant 1	3.88	-49.73	pass
11G	H	2462	Ant 1	4.05	-48.48	pass
11N20	L	2412	Ant 1	2.47	-49.70	pass
11N20	H	2462	Ant 1	3.61	-48.16	pass



Part II - Test Plots

2.1 11B_L@Ant 1



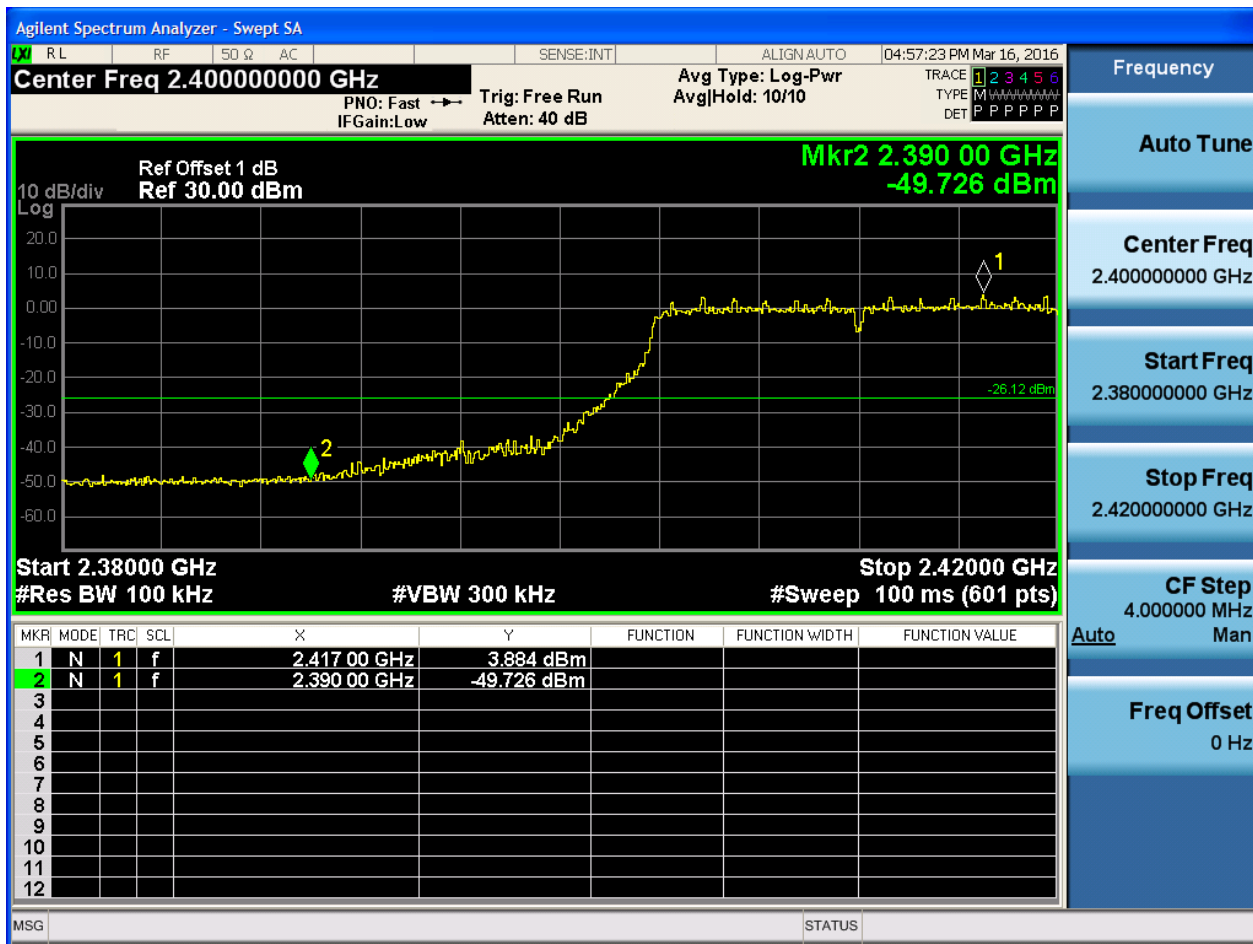


2.2 11B_H@Ant 1



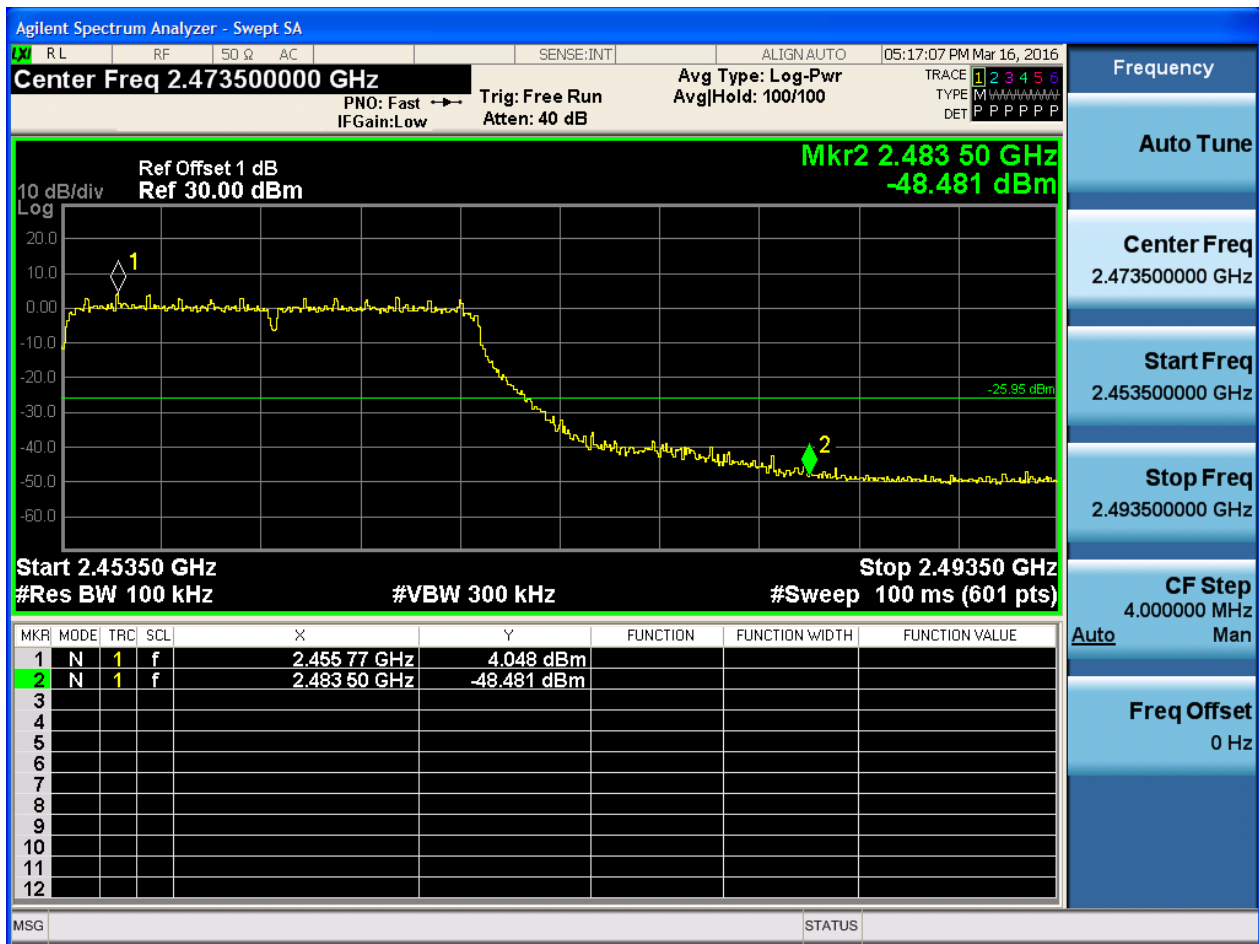


2.3 11G_L@Ant 1





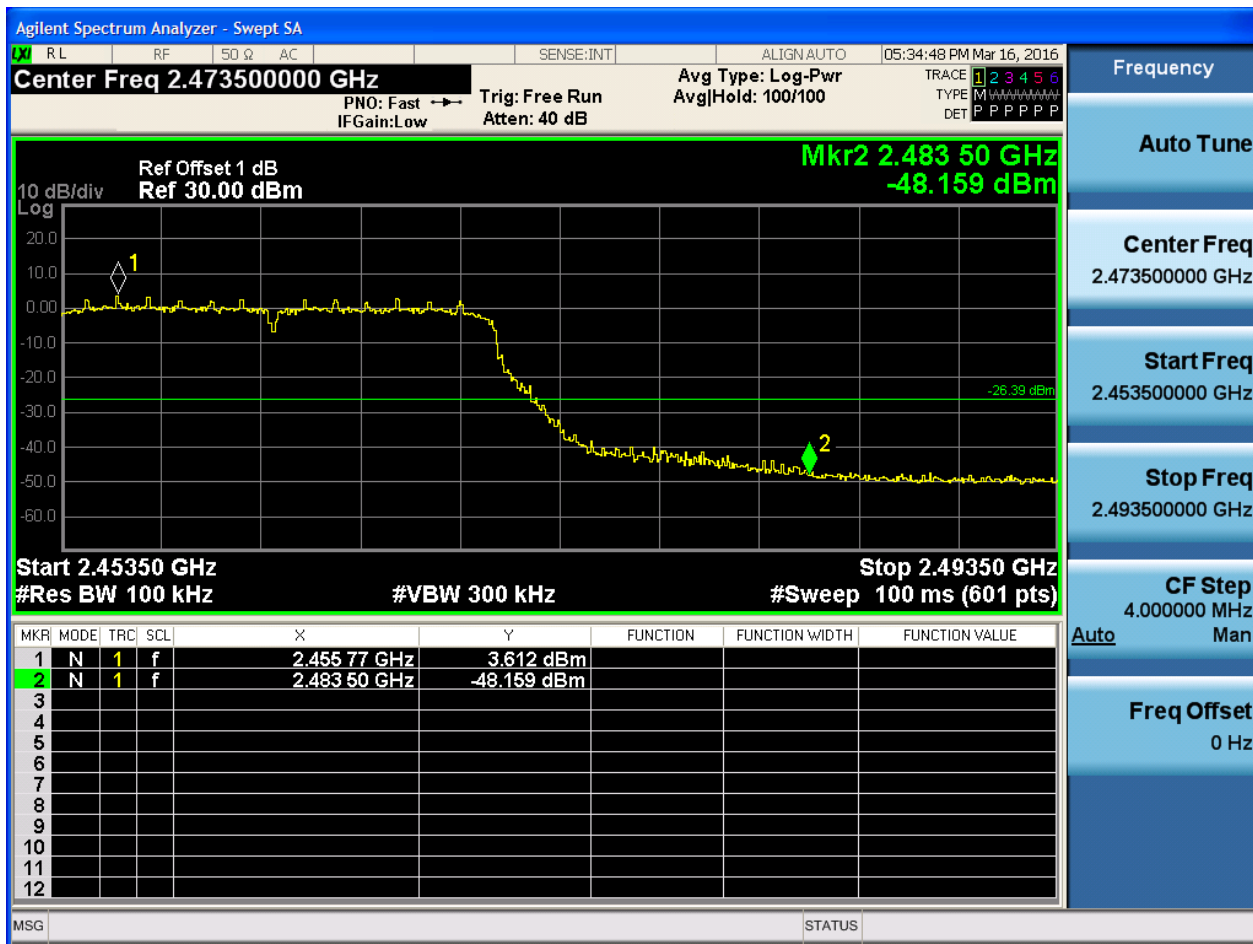
2.4 11G_H@Ant 1



[illegible]



2.6 11N20_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".

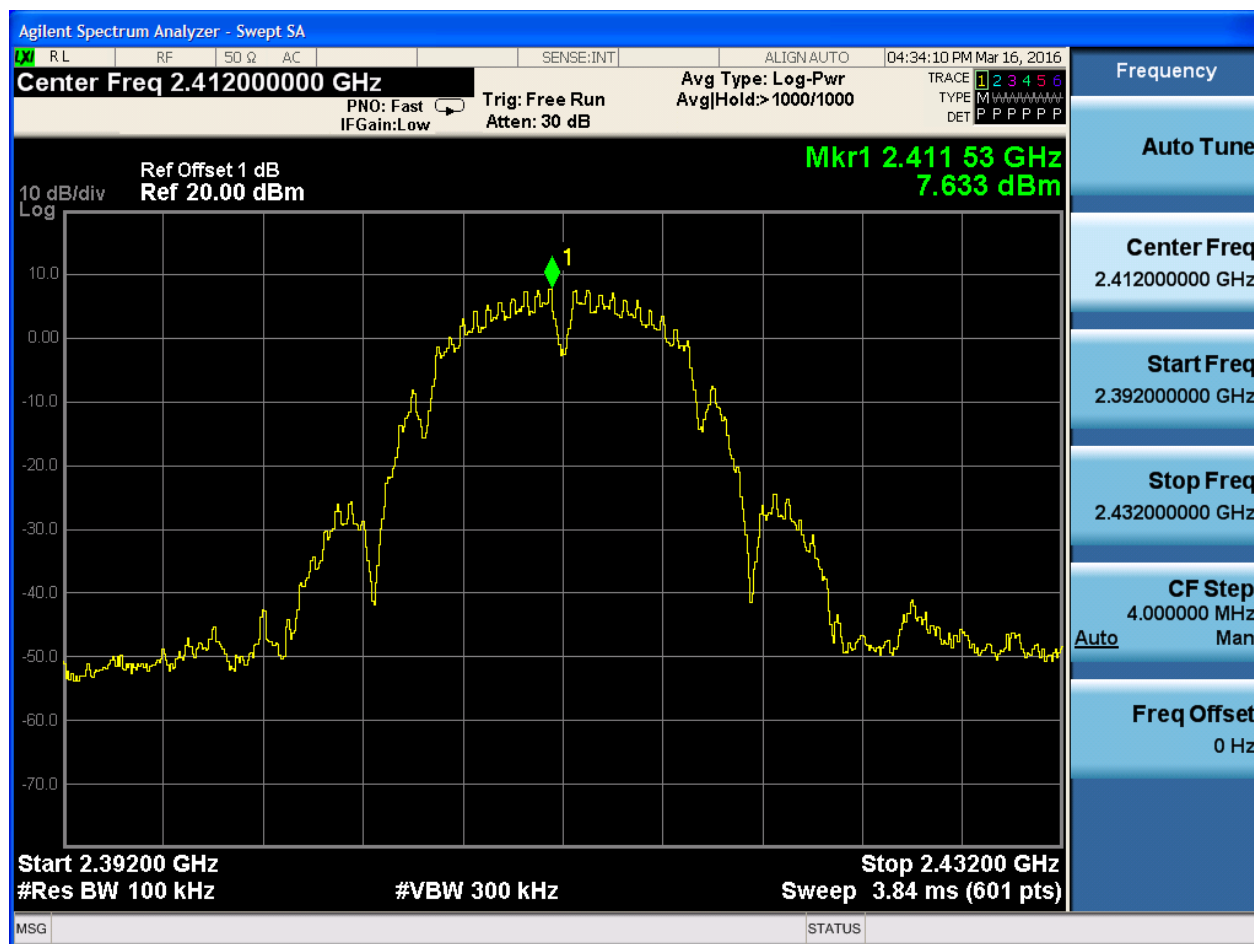
Part I - Test Results

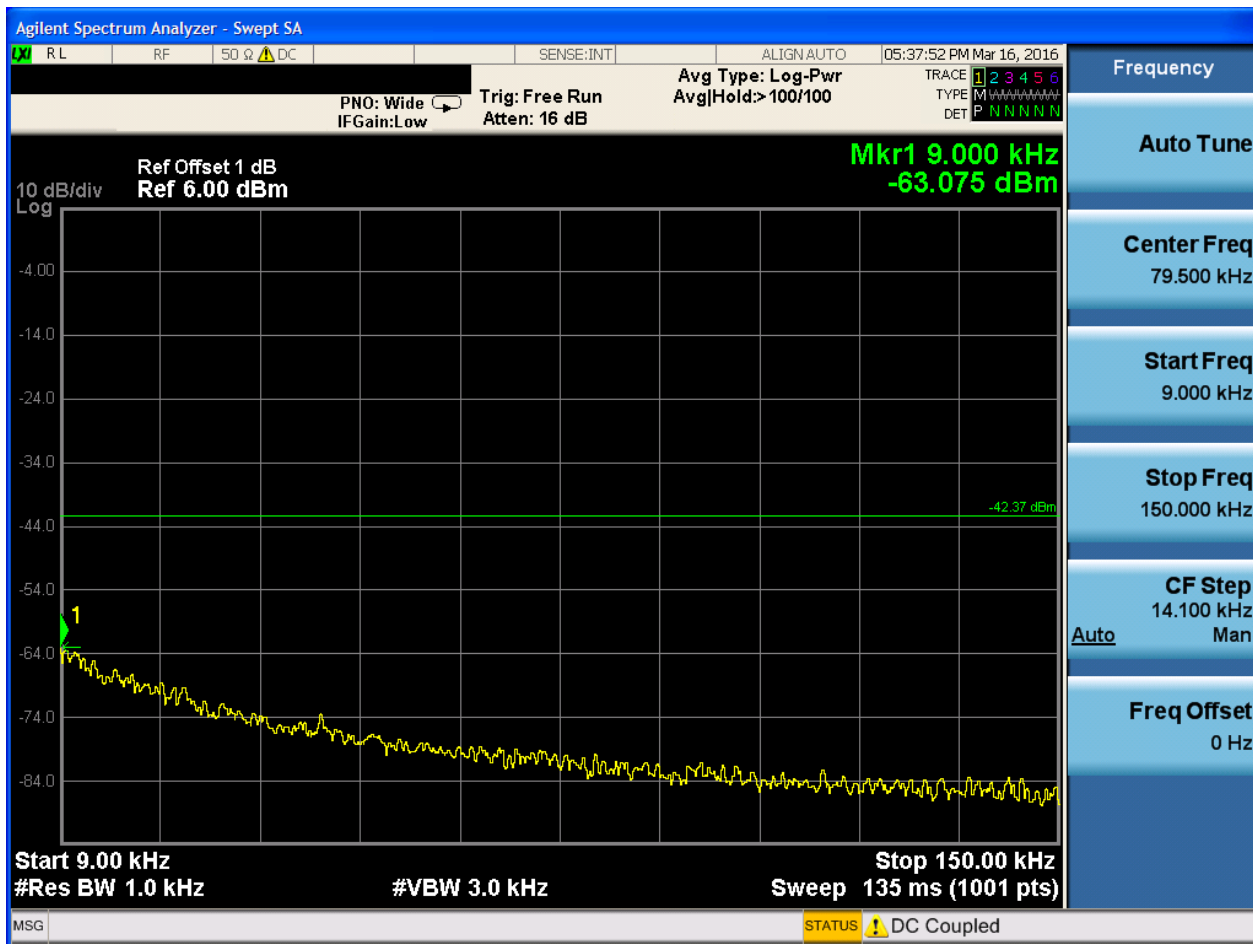
Test Mode	Test Channel	Frequency[MHz]	Ant	Pref[dBm]	Puw[dBm]	Verdict
11B	L	2412	Ant 1	7.63	<limit	pass
11B	M	2437	Ant 1	8.01	<limit	pass
11B	H	2462	Ant 1	8.61	<limit	pass
11G	L	2412	Ant 1	4.03	<limit	pass
11G	M	2437	Ant 1	4.33	<limit	pass
11G	H	2462	Ant 1	4.17	<limit	pass
11N20	L	2412	Ant 1	2.69	<limit	pass
11N20	M	2437	Ant 1	2.45	<limit	pass
11N20	H	2462	Ant 1	3.74	<limit	pass

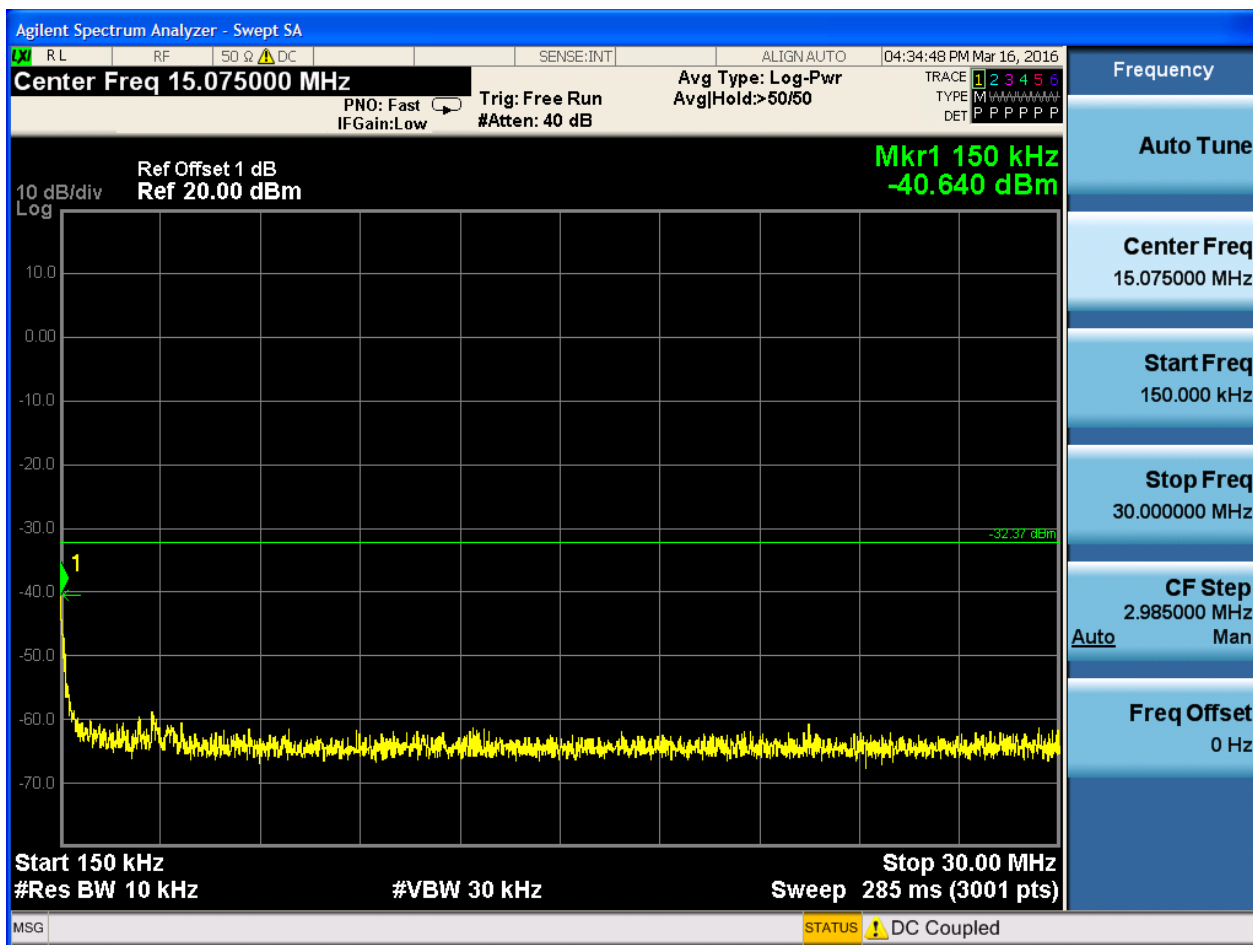
Part II - Test Plots

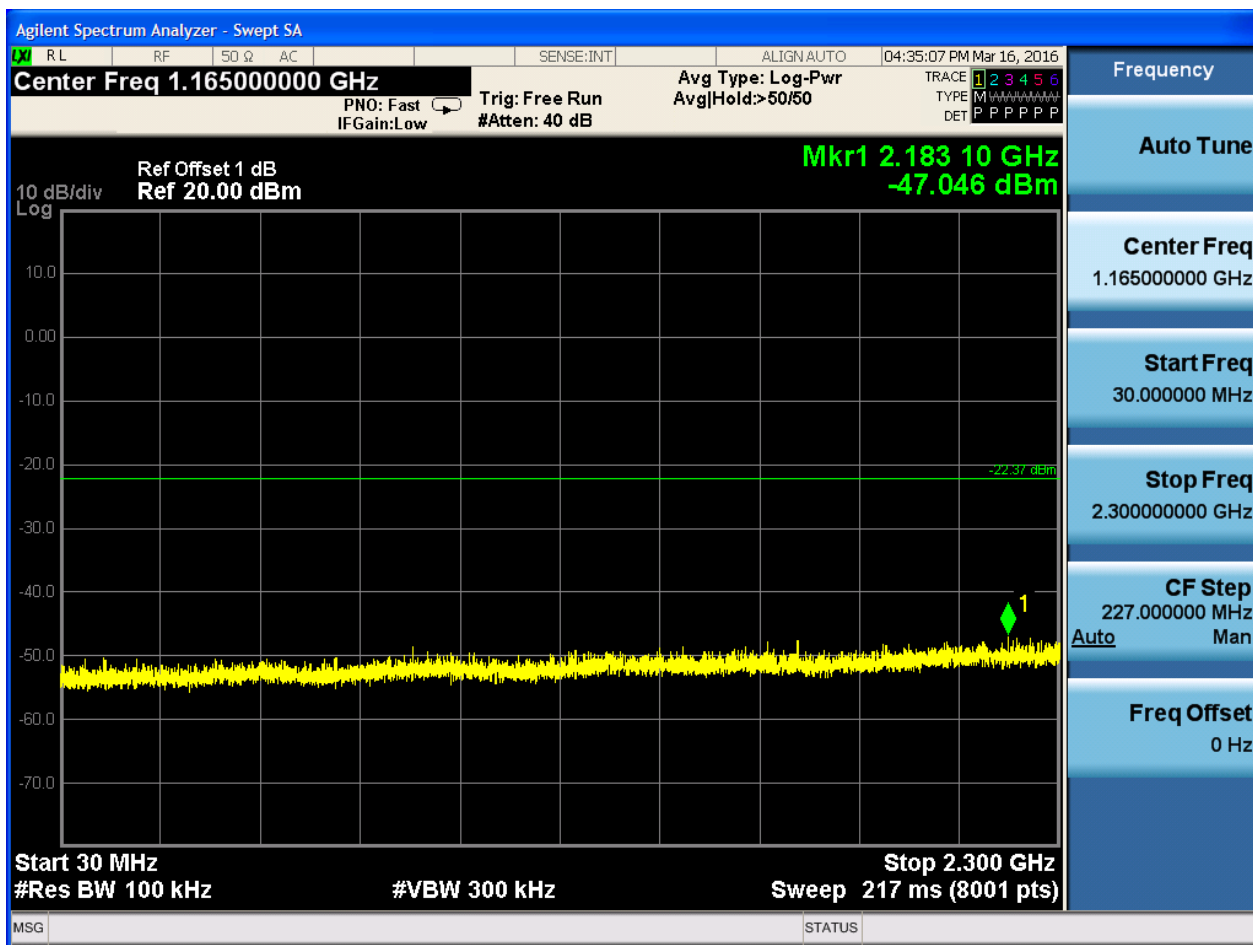
2.1 11B_L@Ant 1

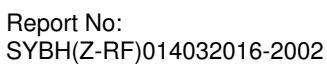
Pref:

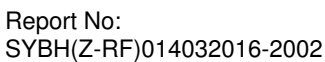


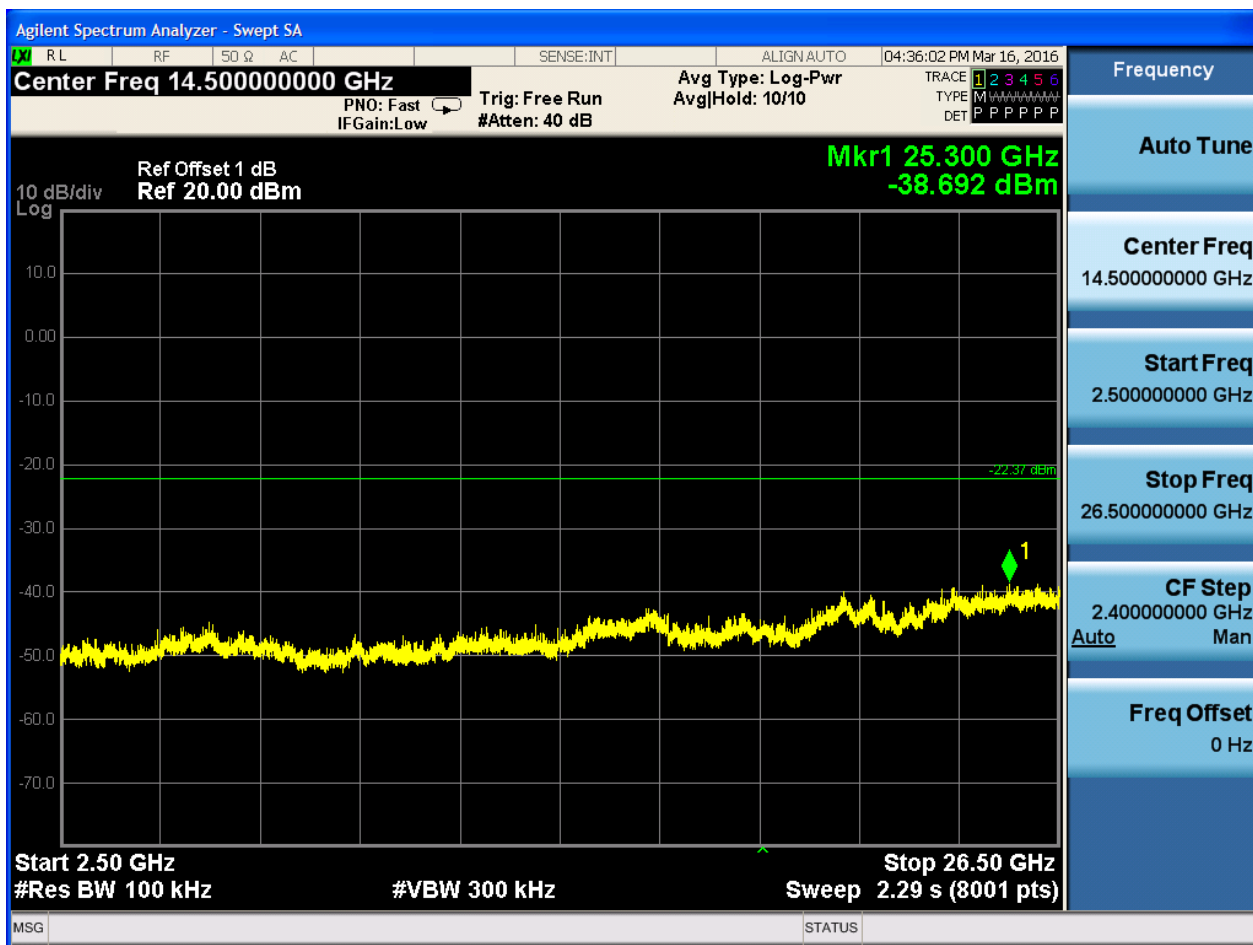
P_uw:





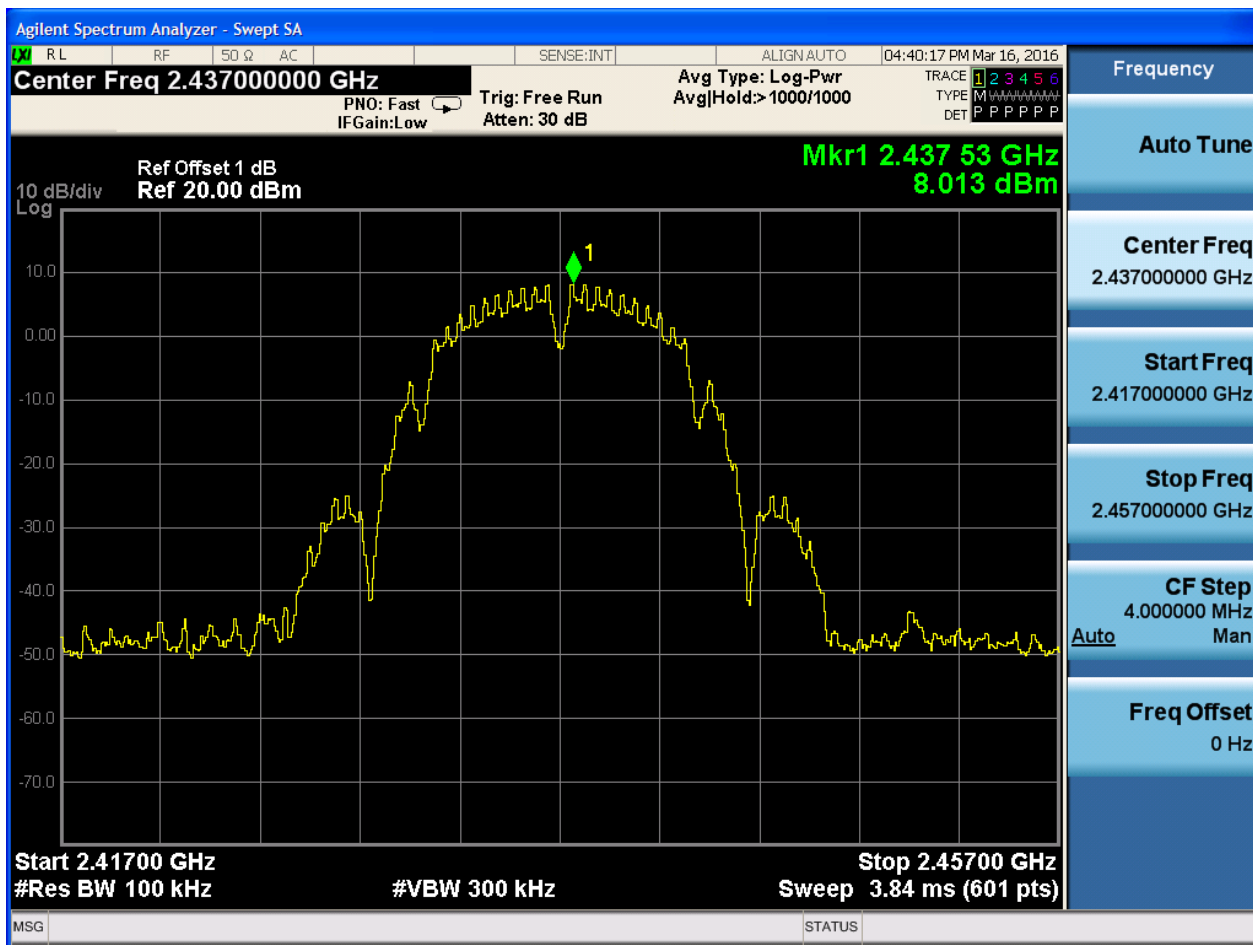


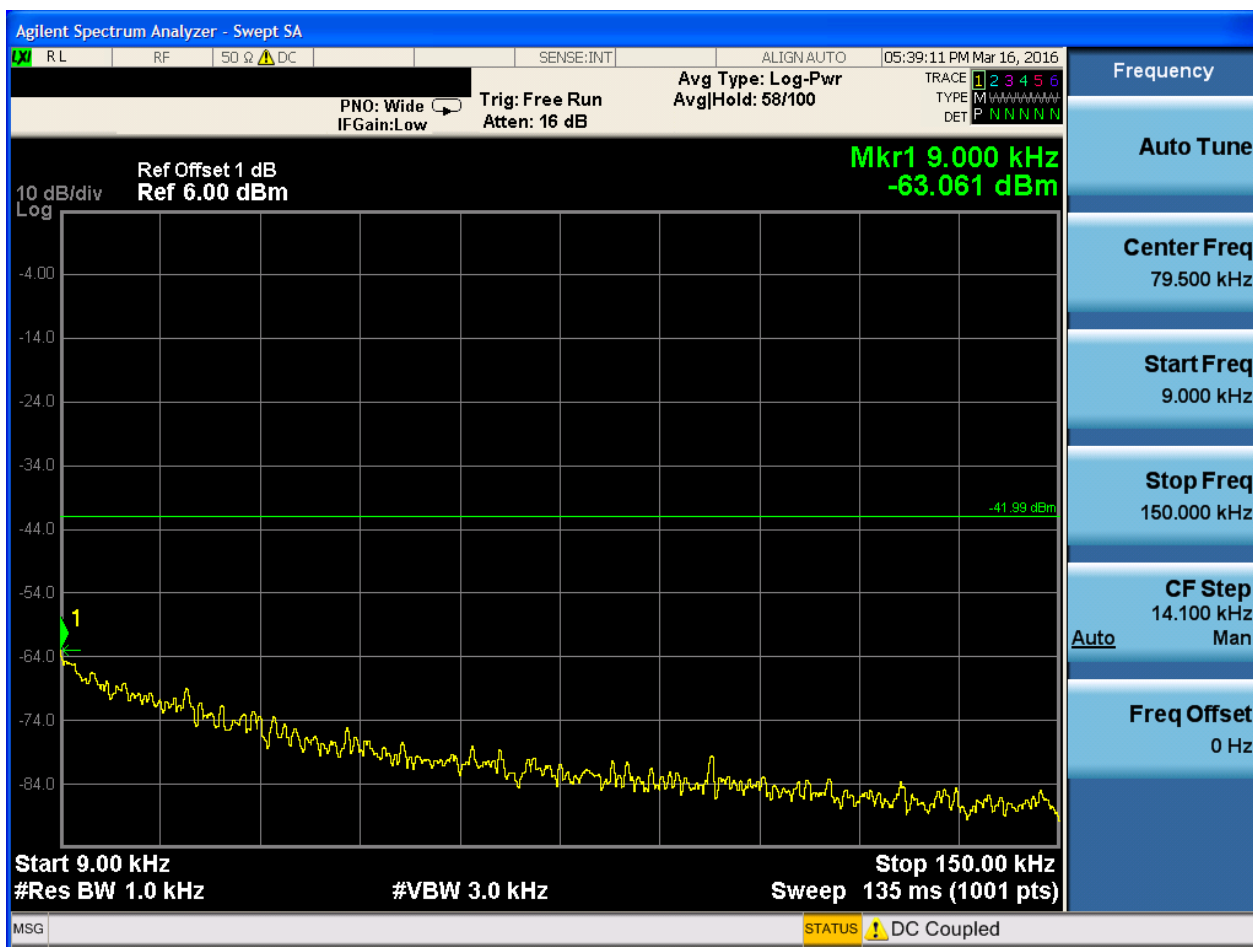


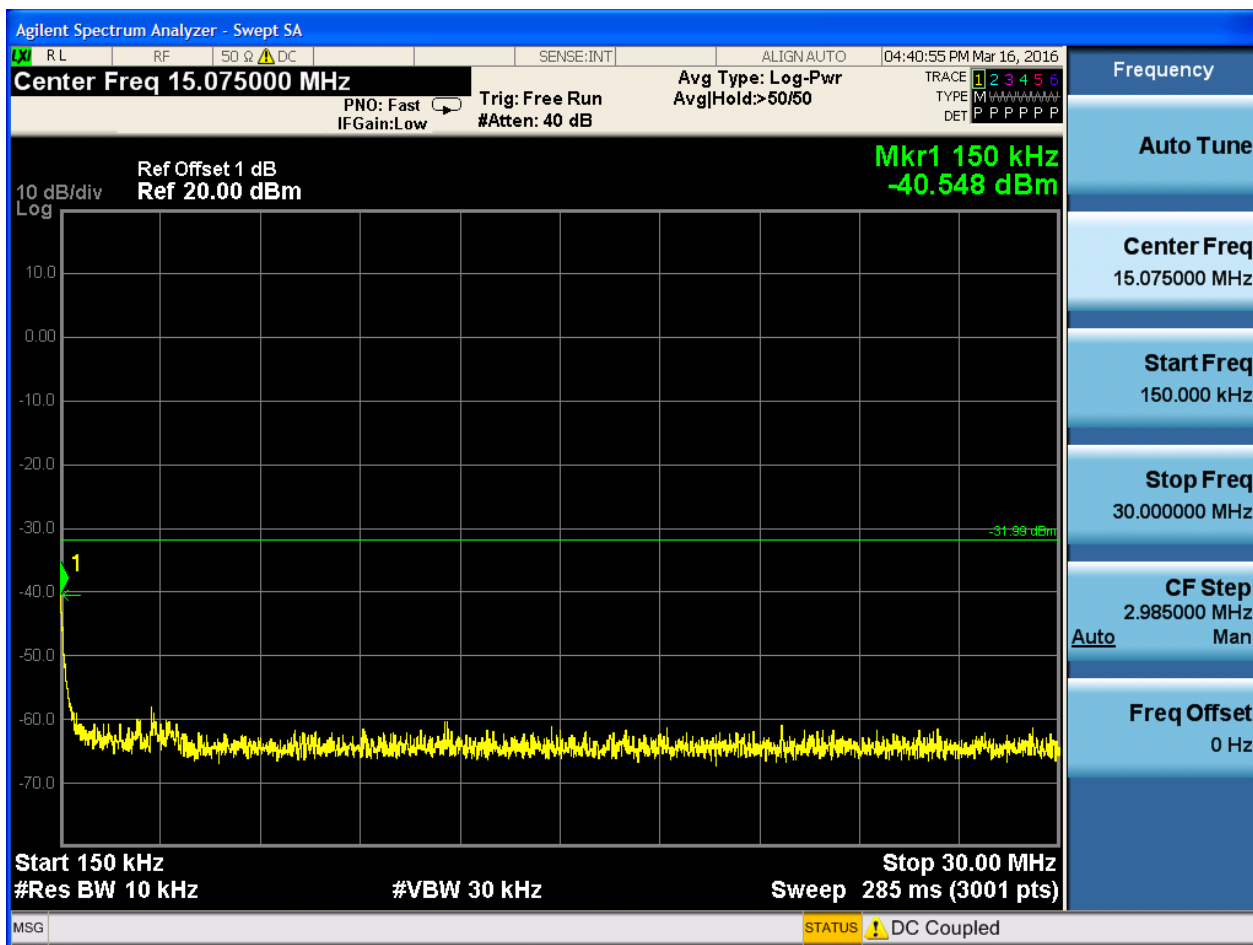


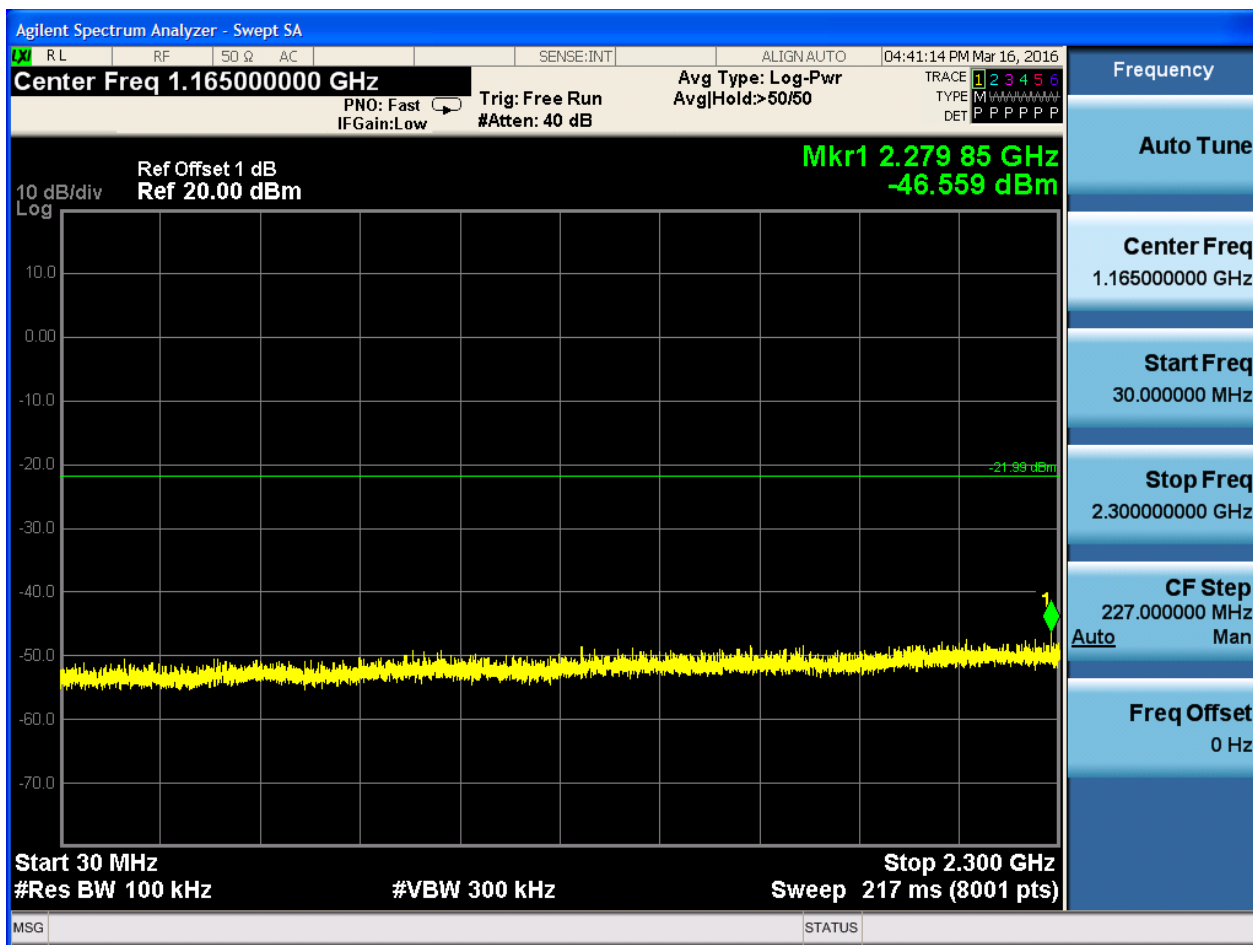
2.2 11B_M@Ant 1

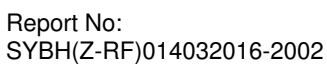
Pref:

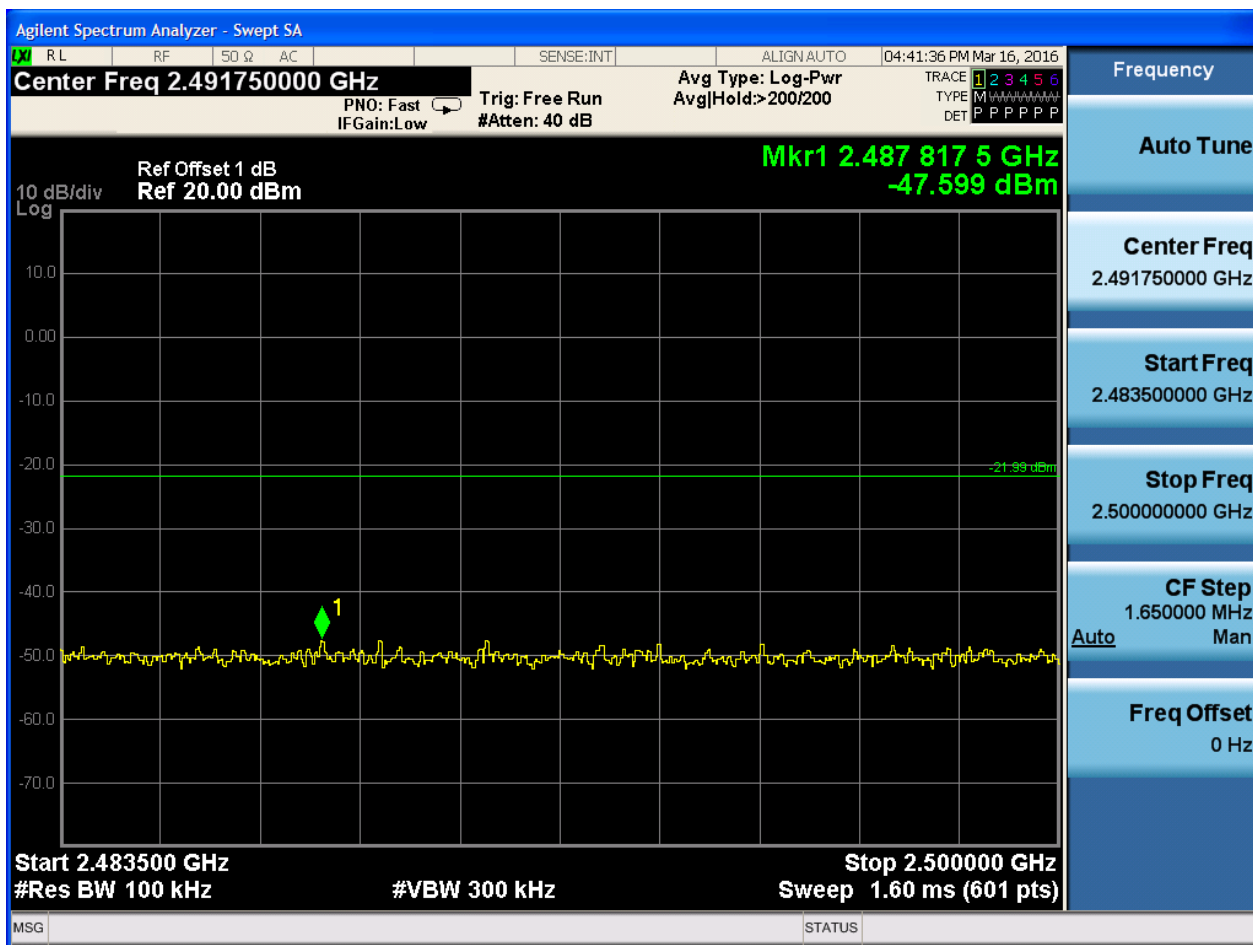


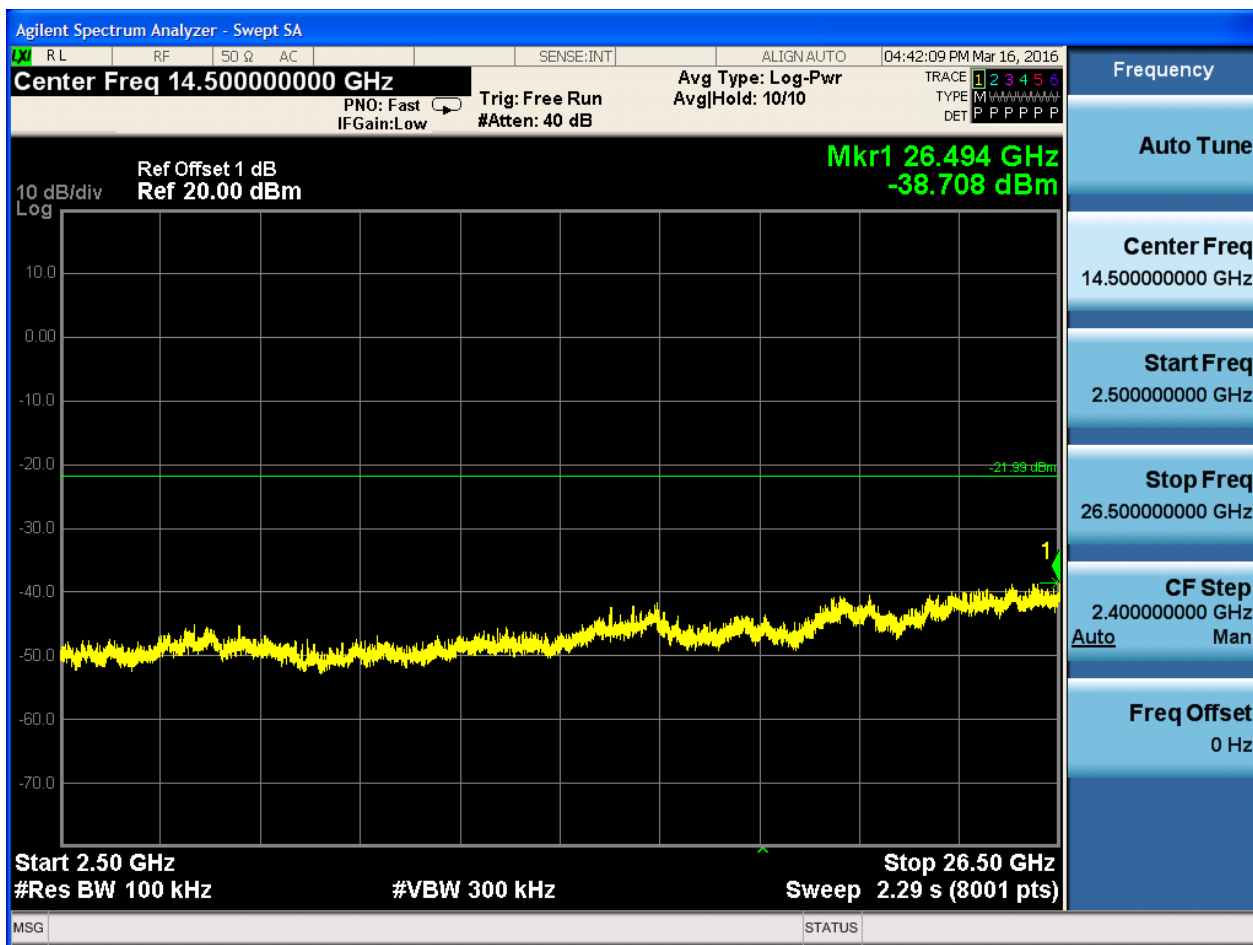
P_uw:







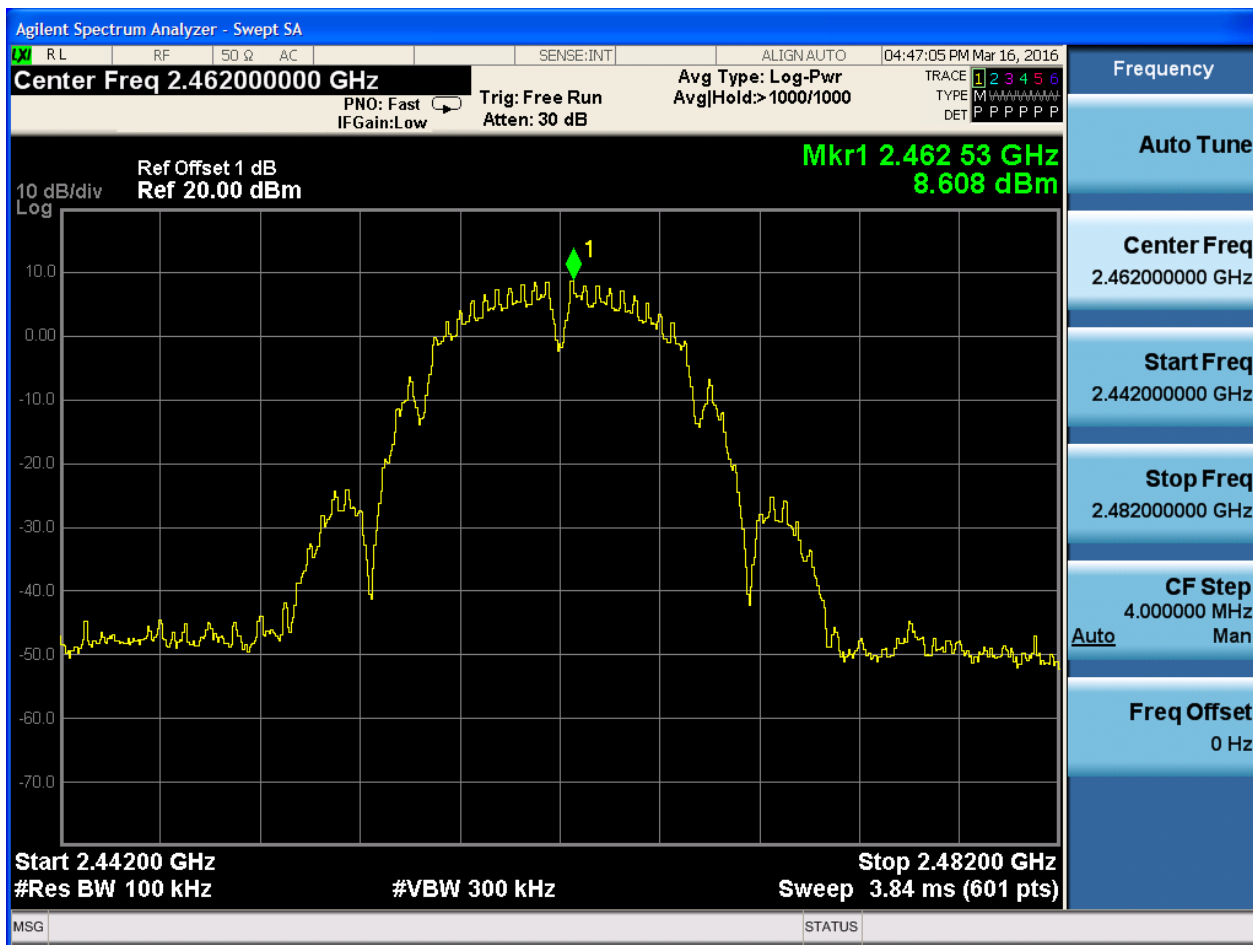






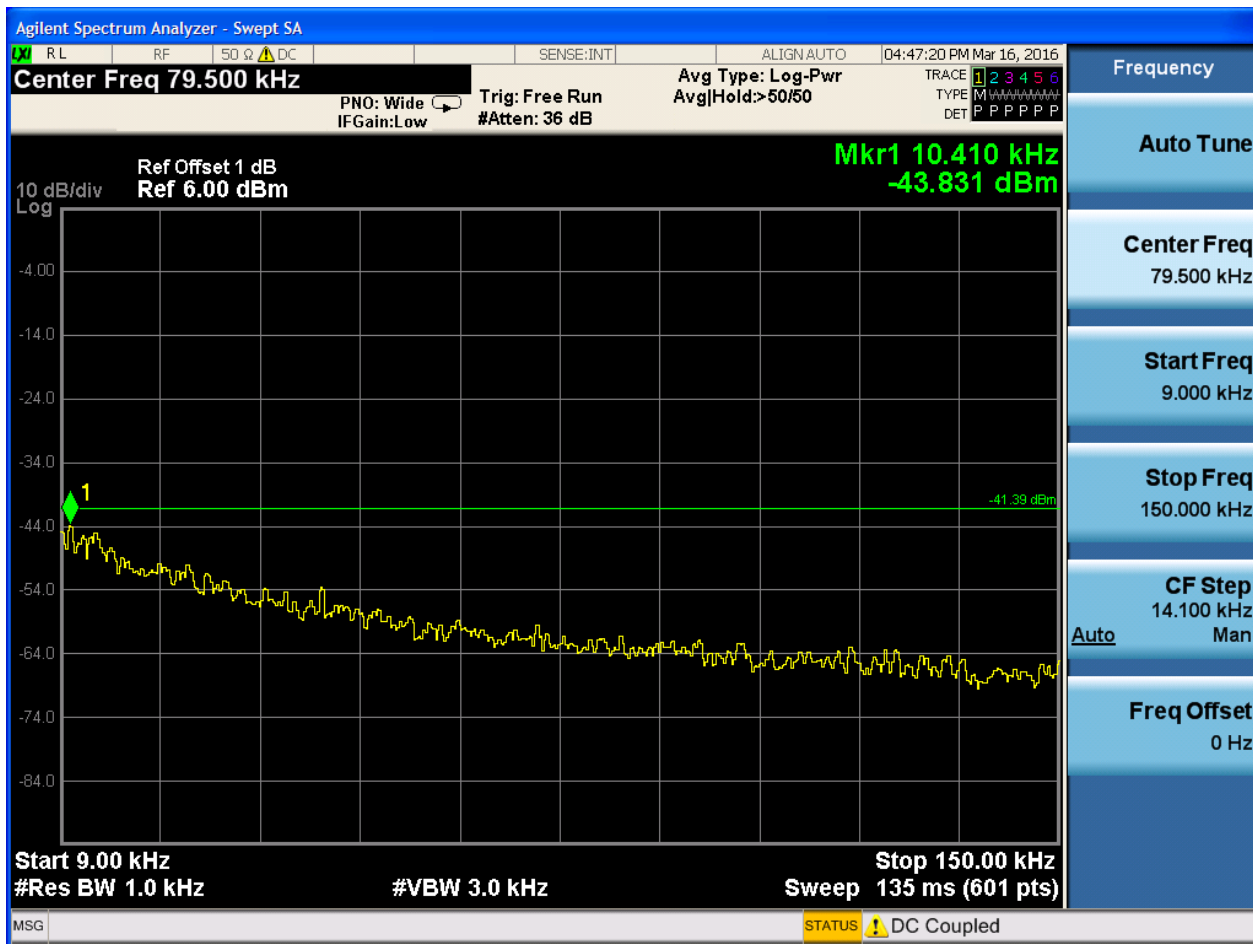
2.3 11B_H@Ant 1

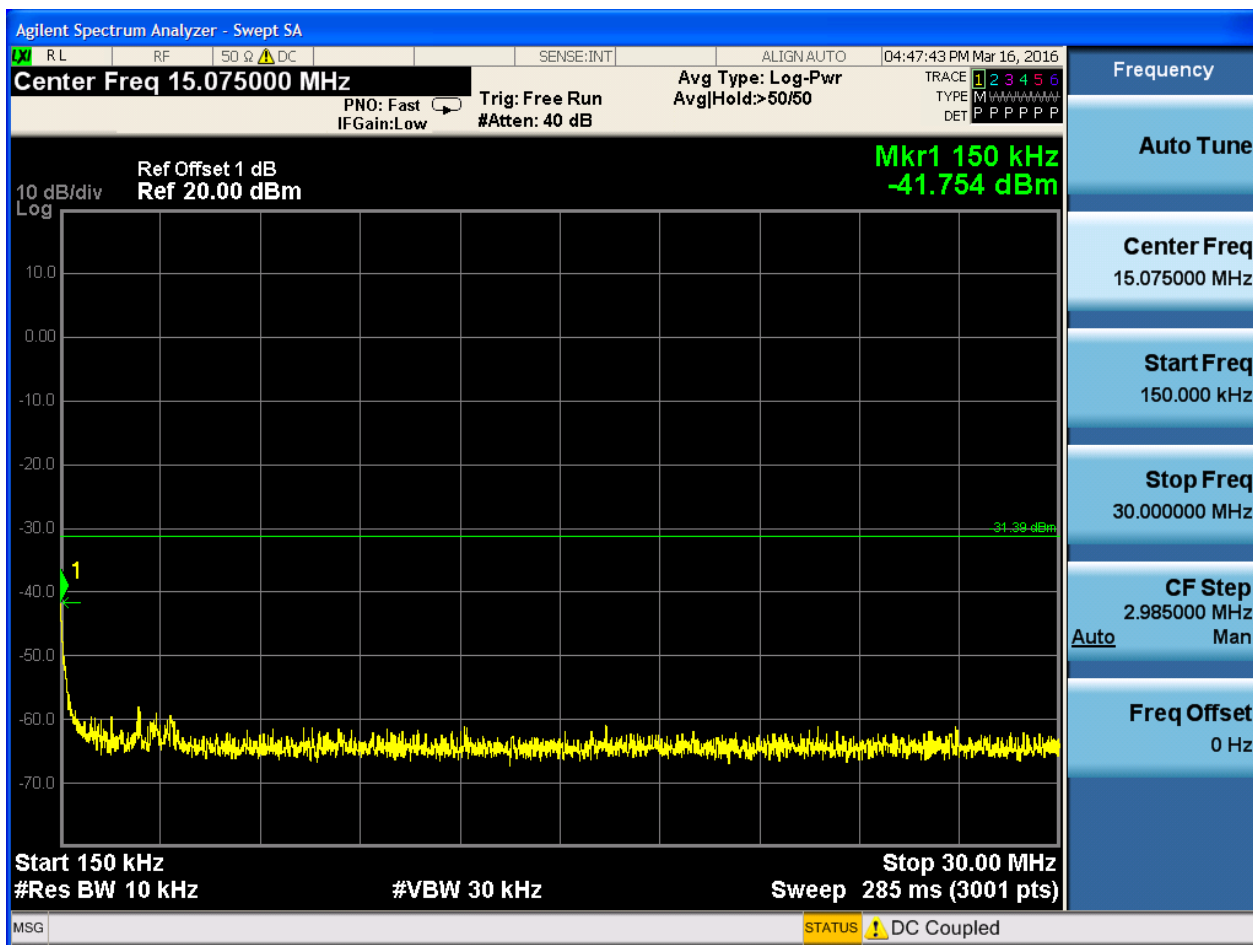
Pref:

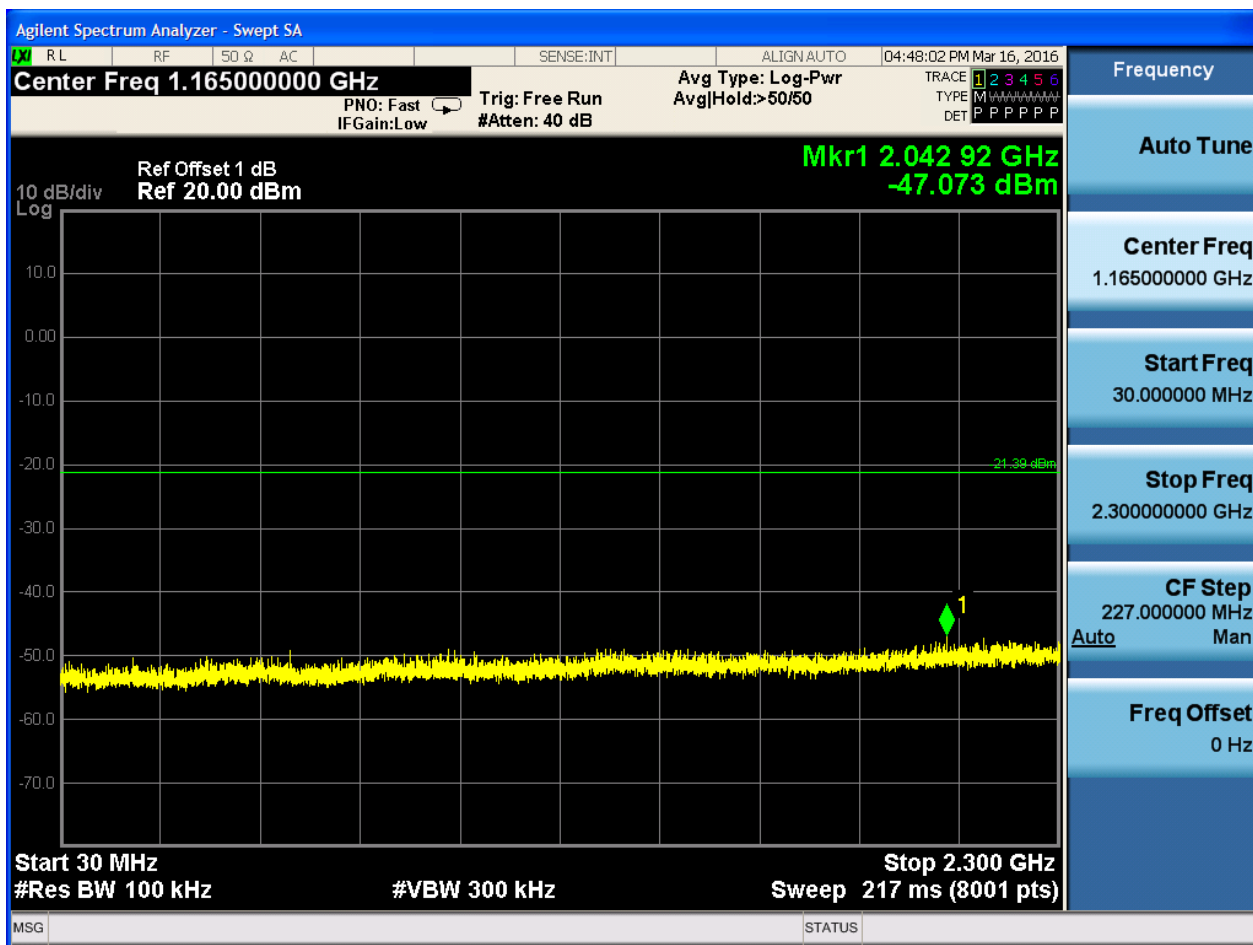


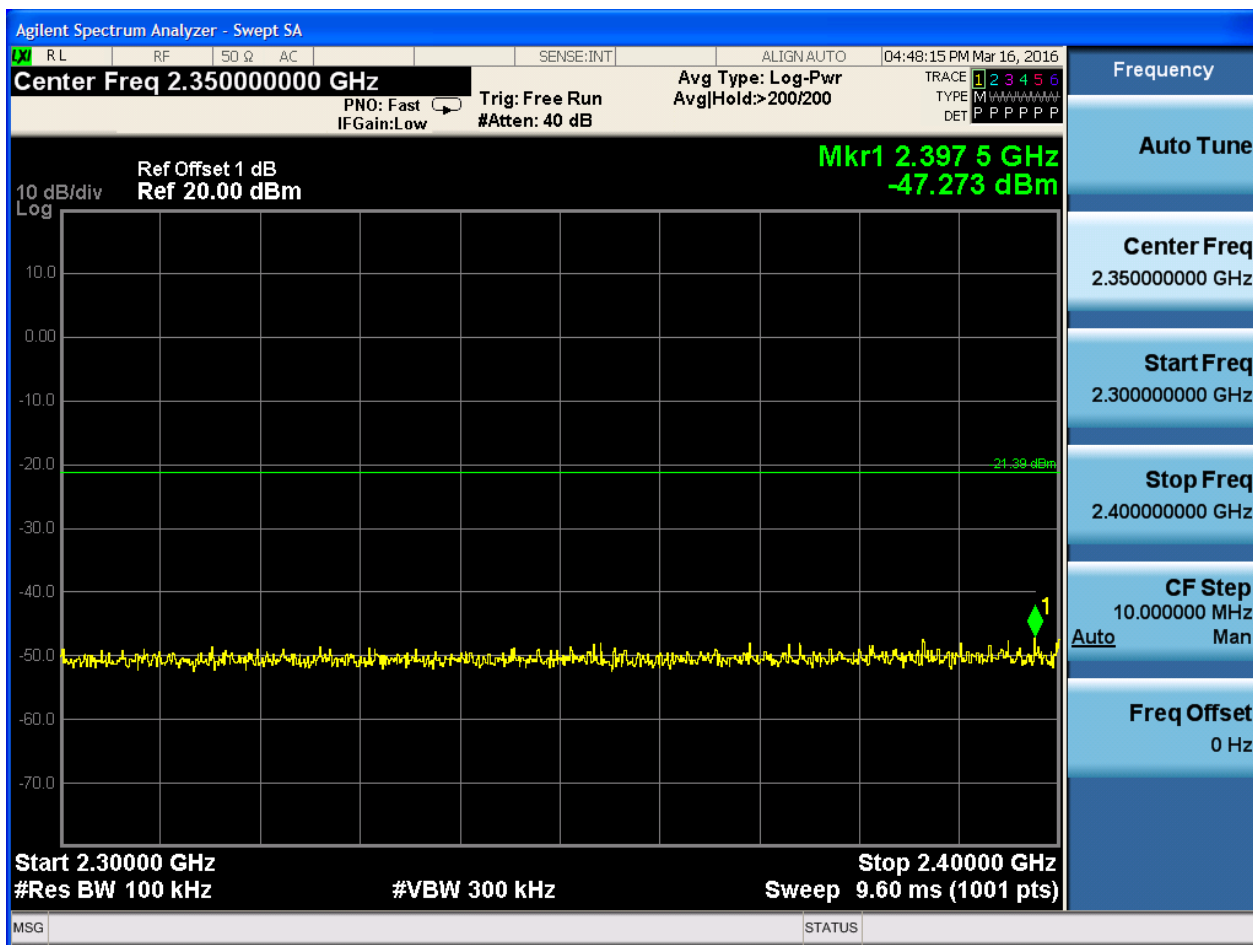


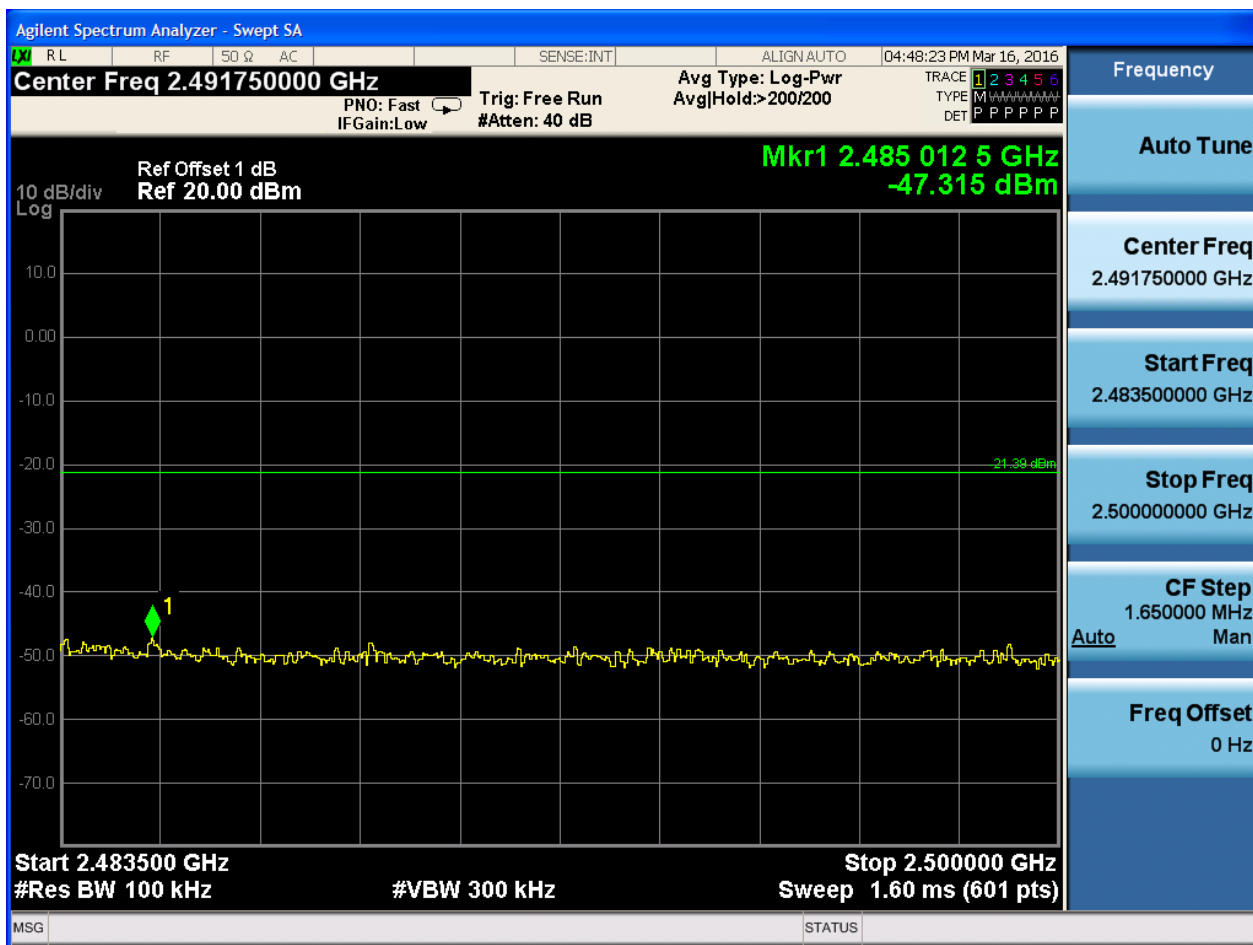
Puw:

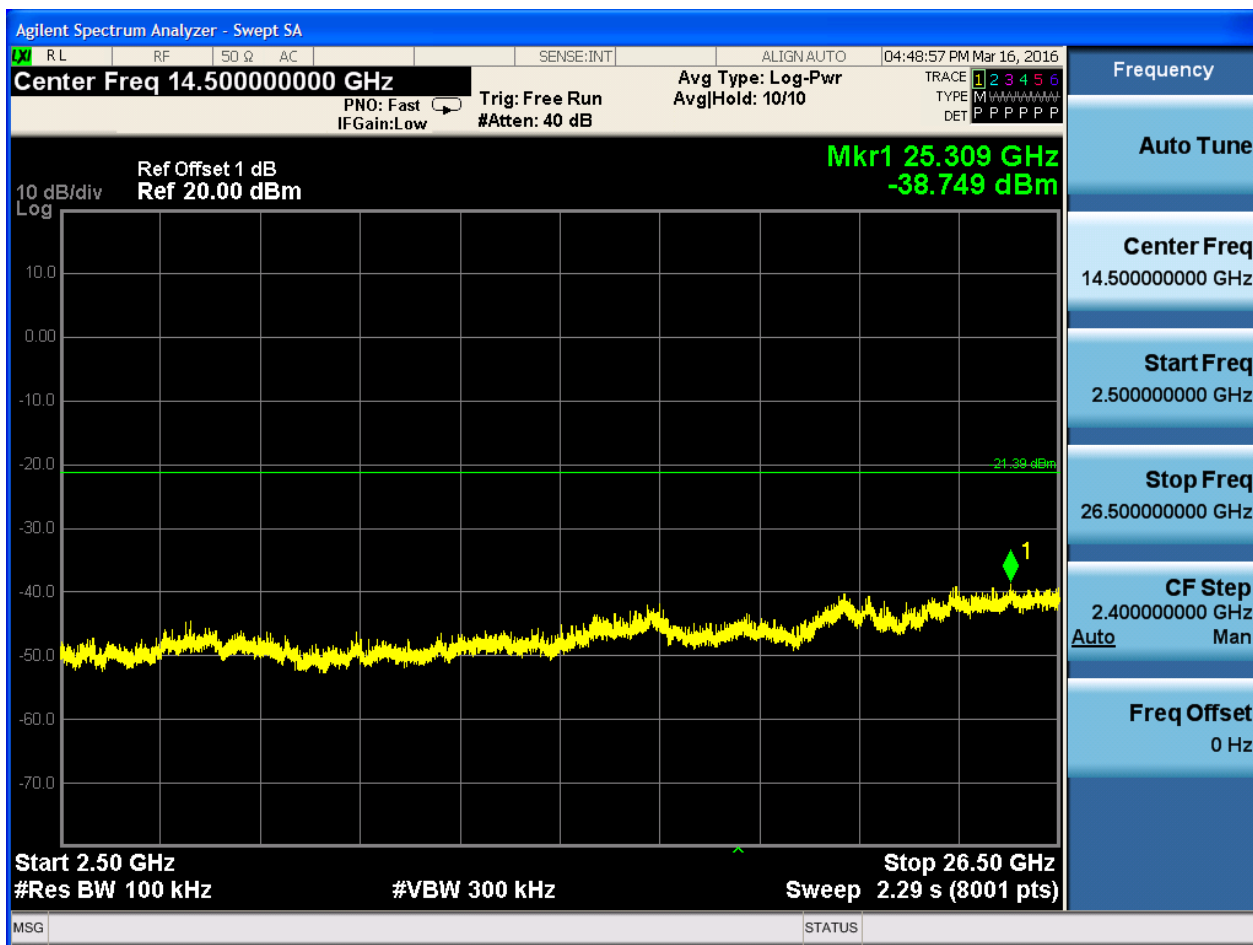








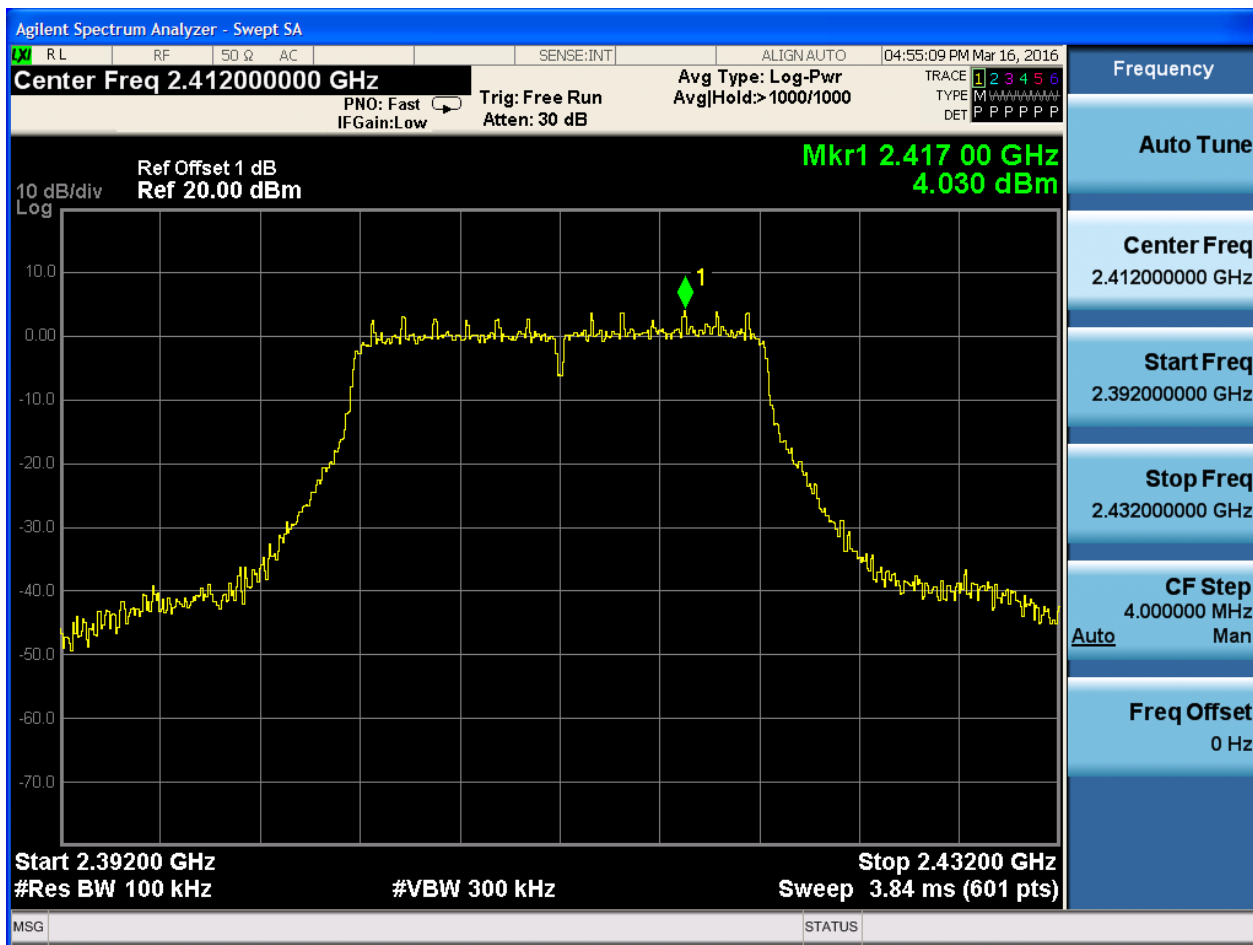


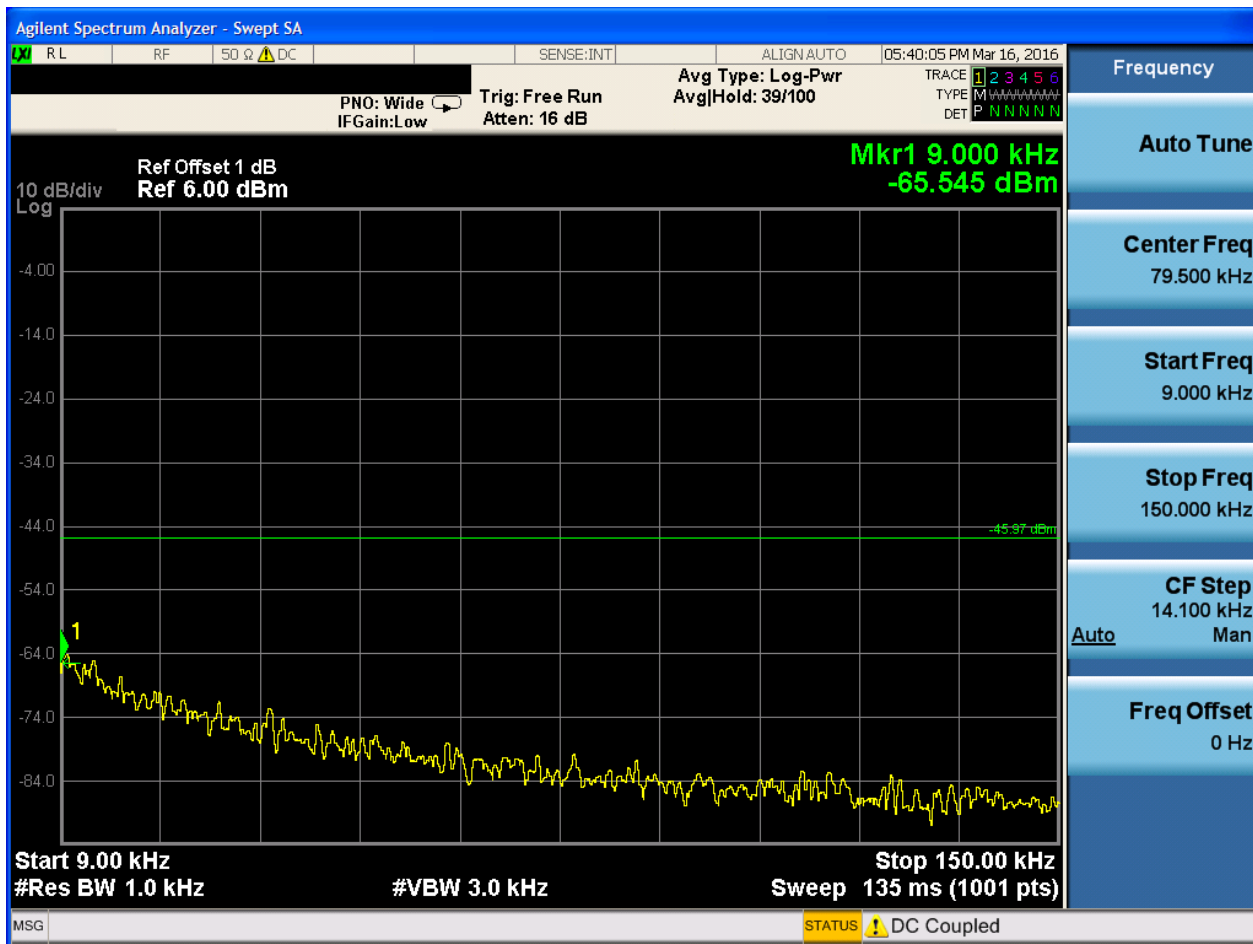


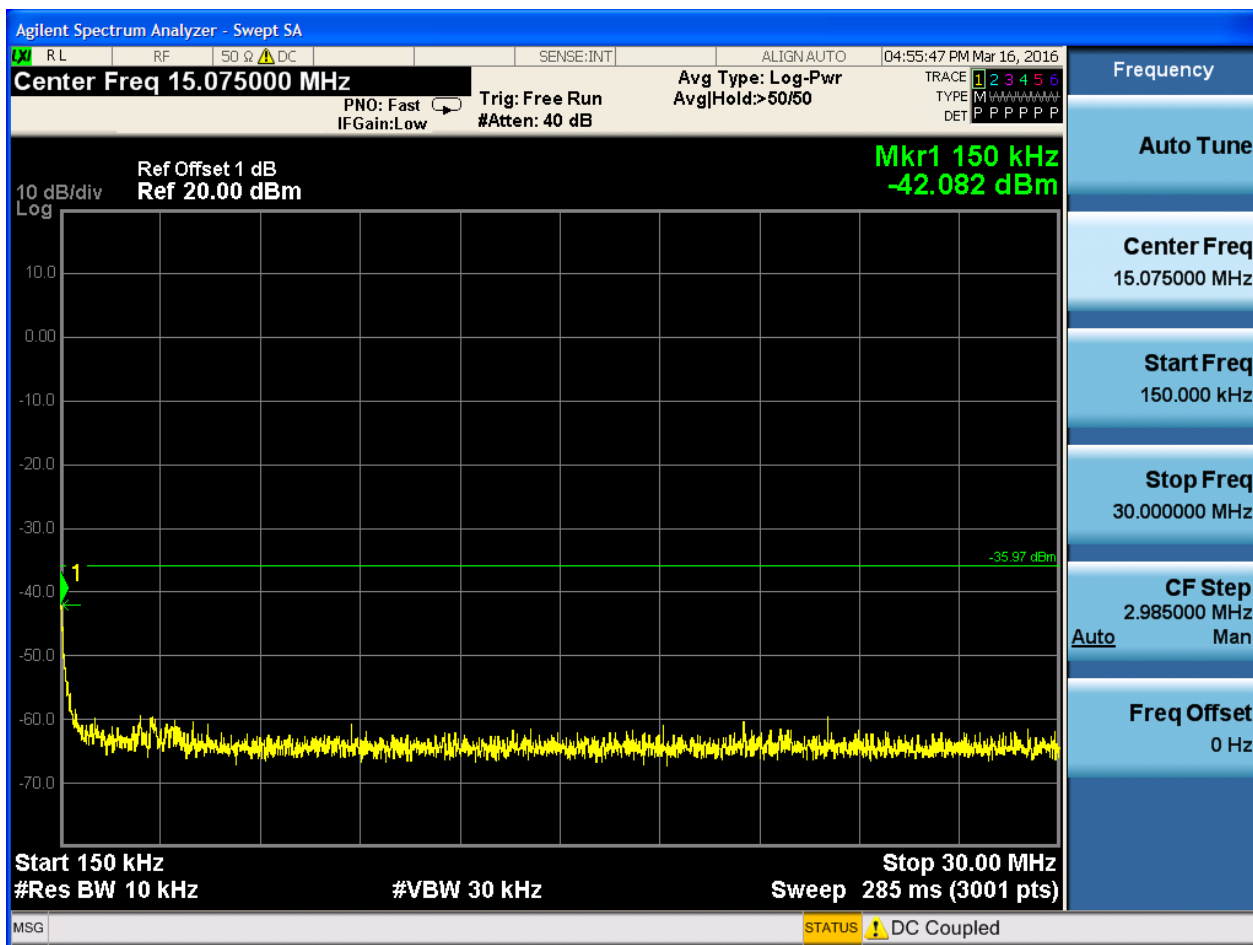


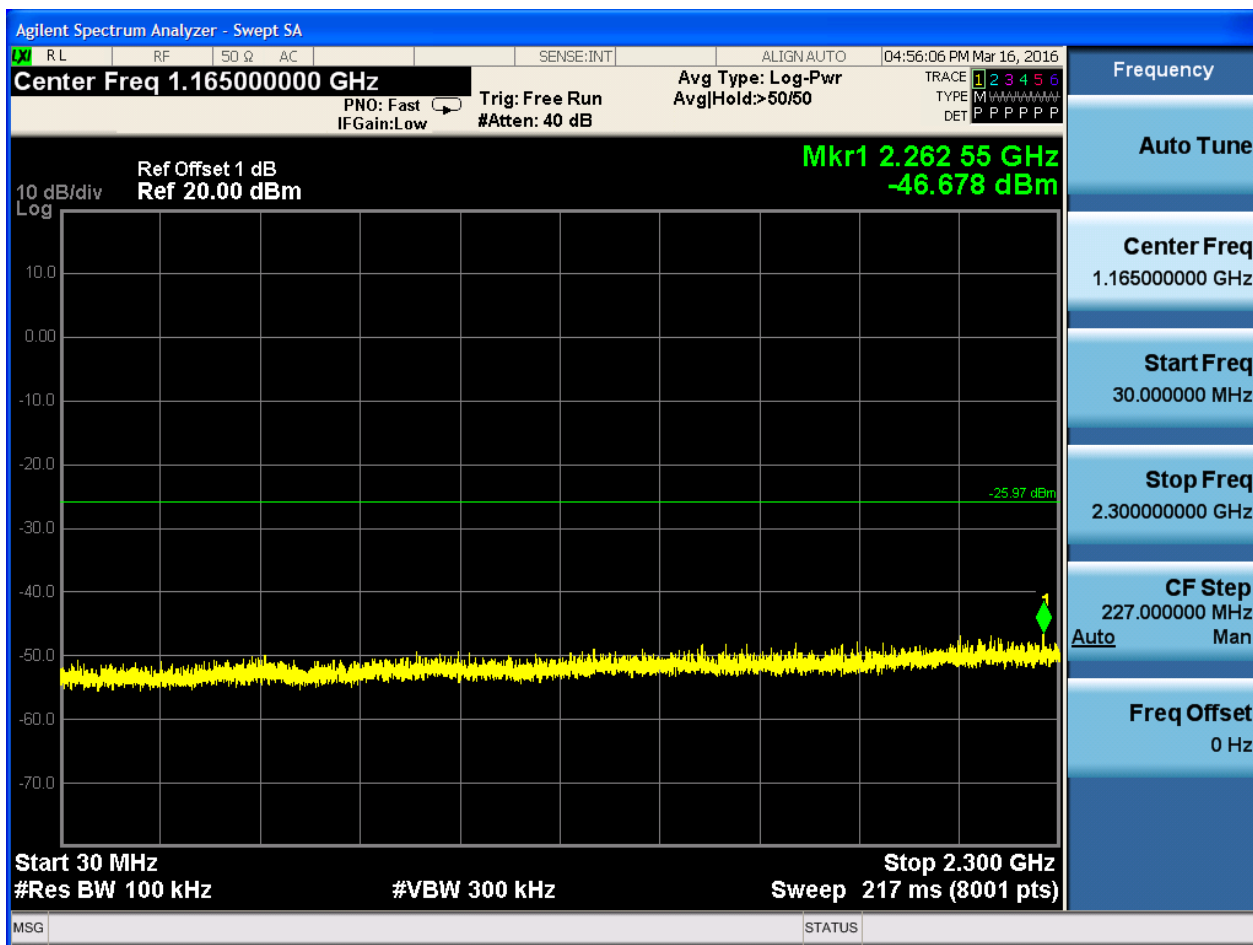
2.4 11G_L@Ant 1

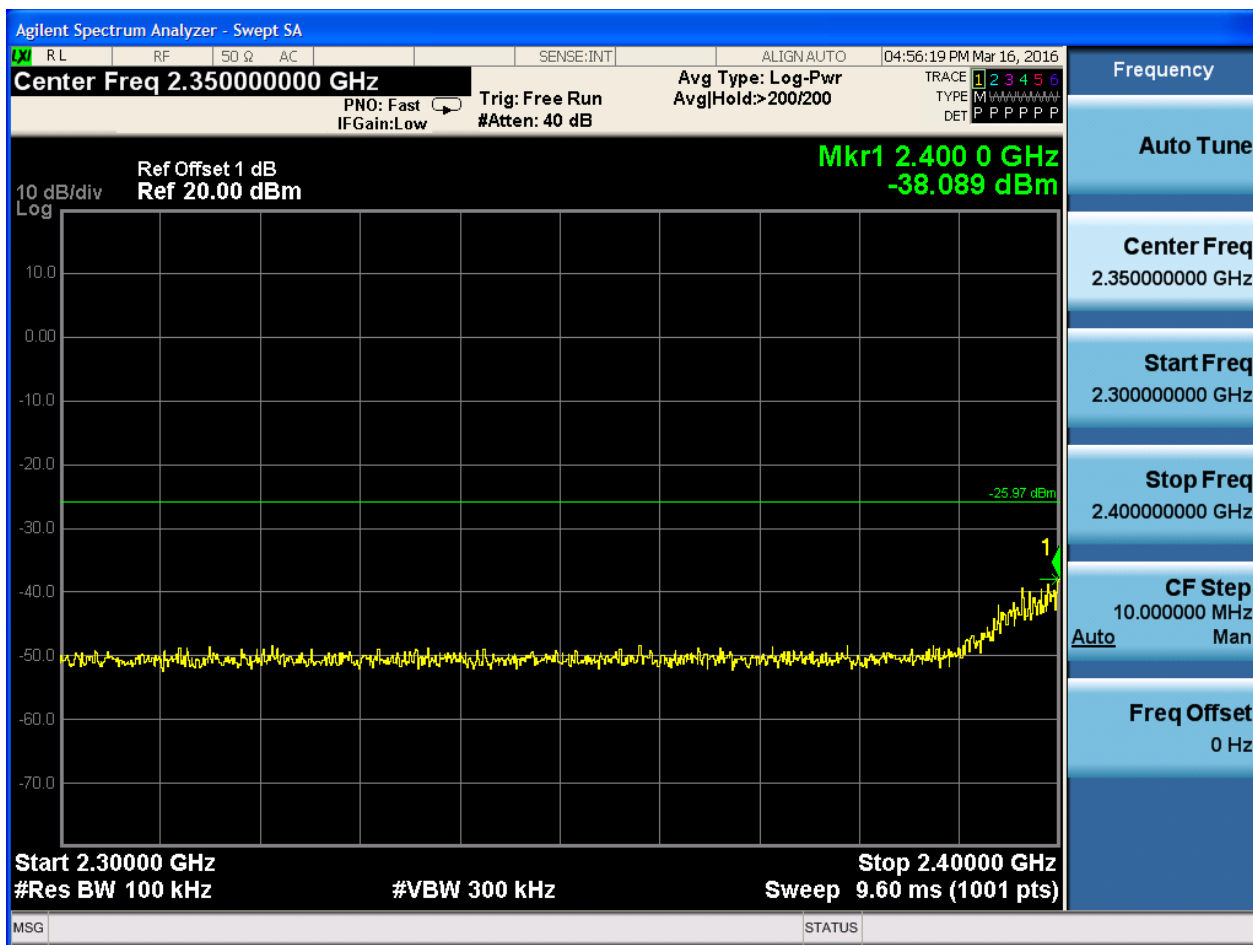
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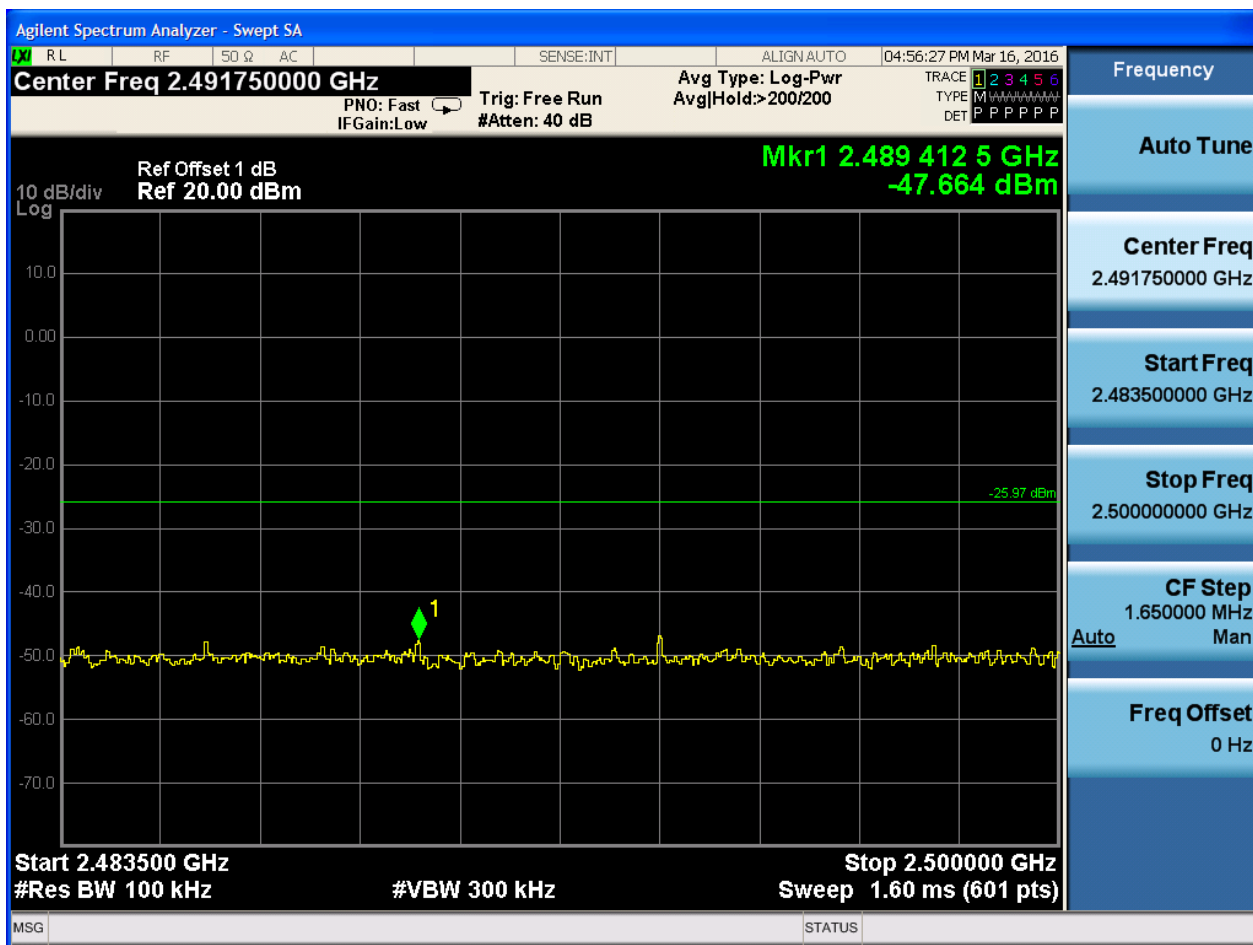


P_uw:







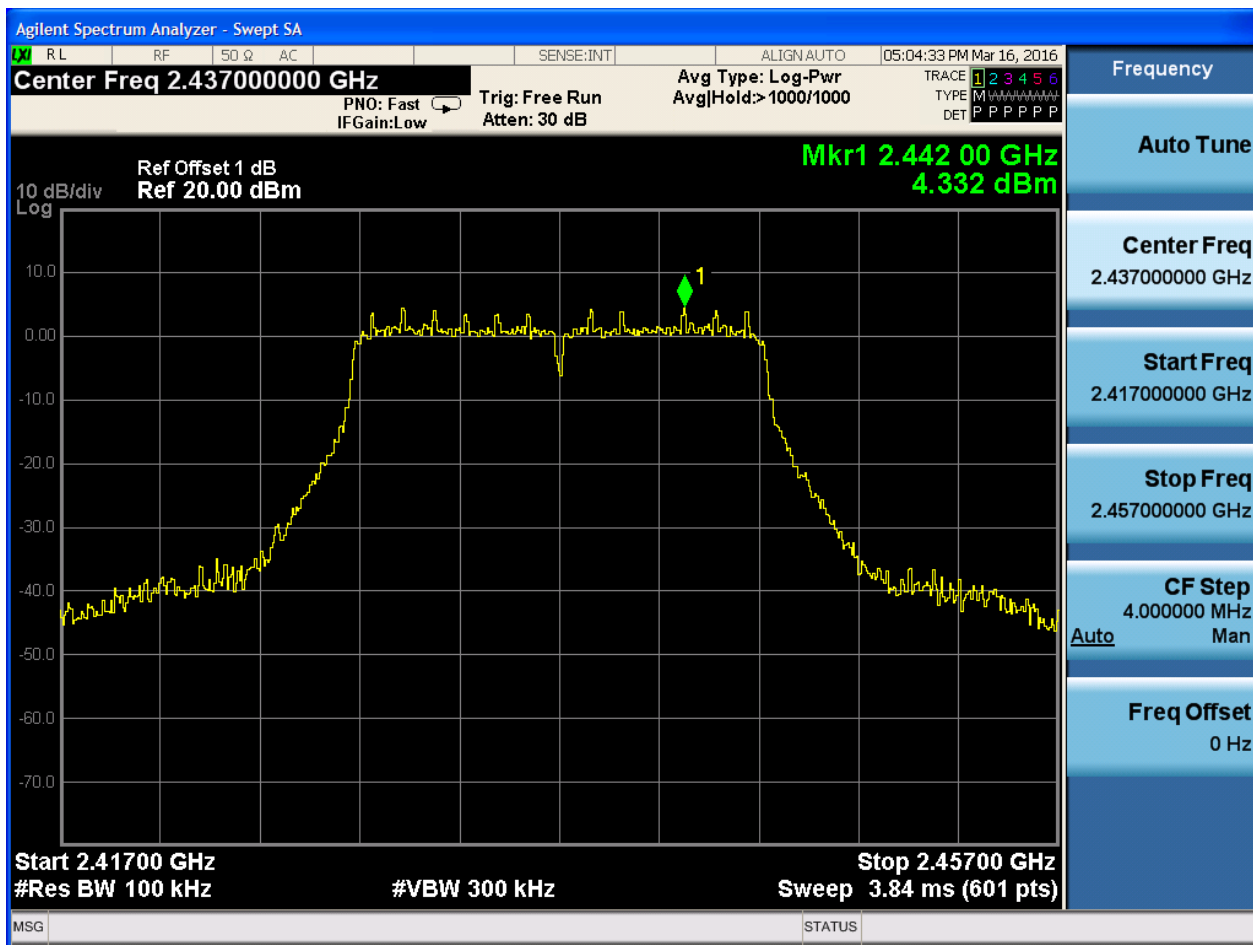






2.5 11G_M@Ant 1

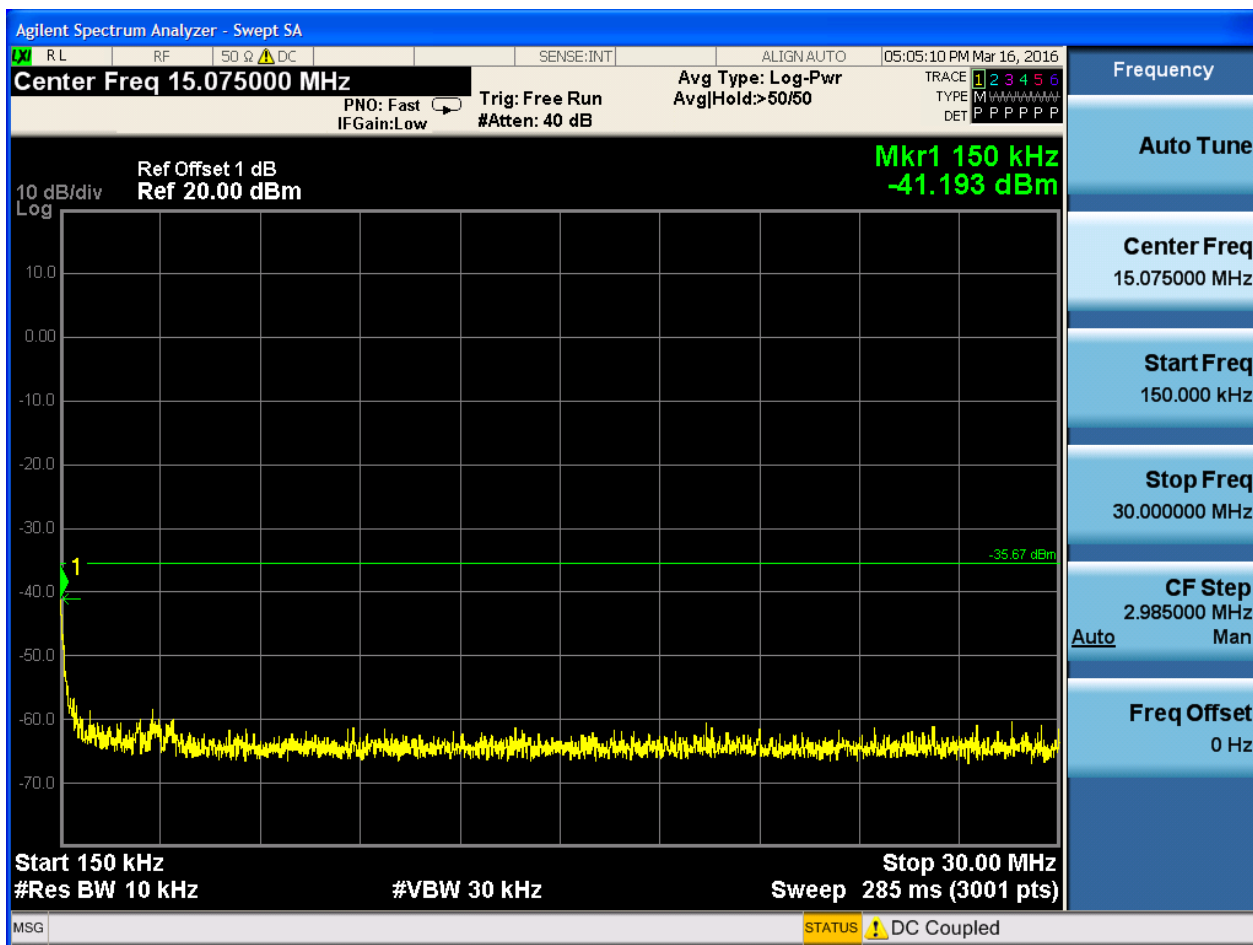
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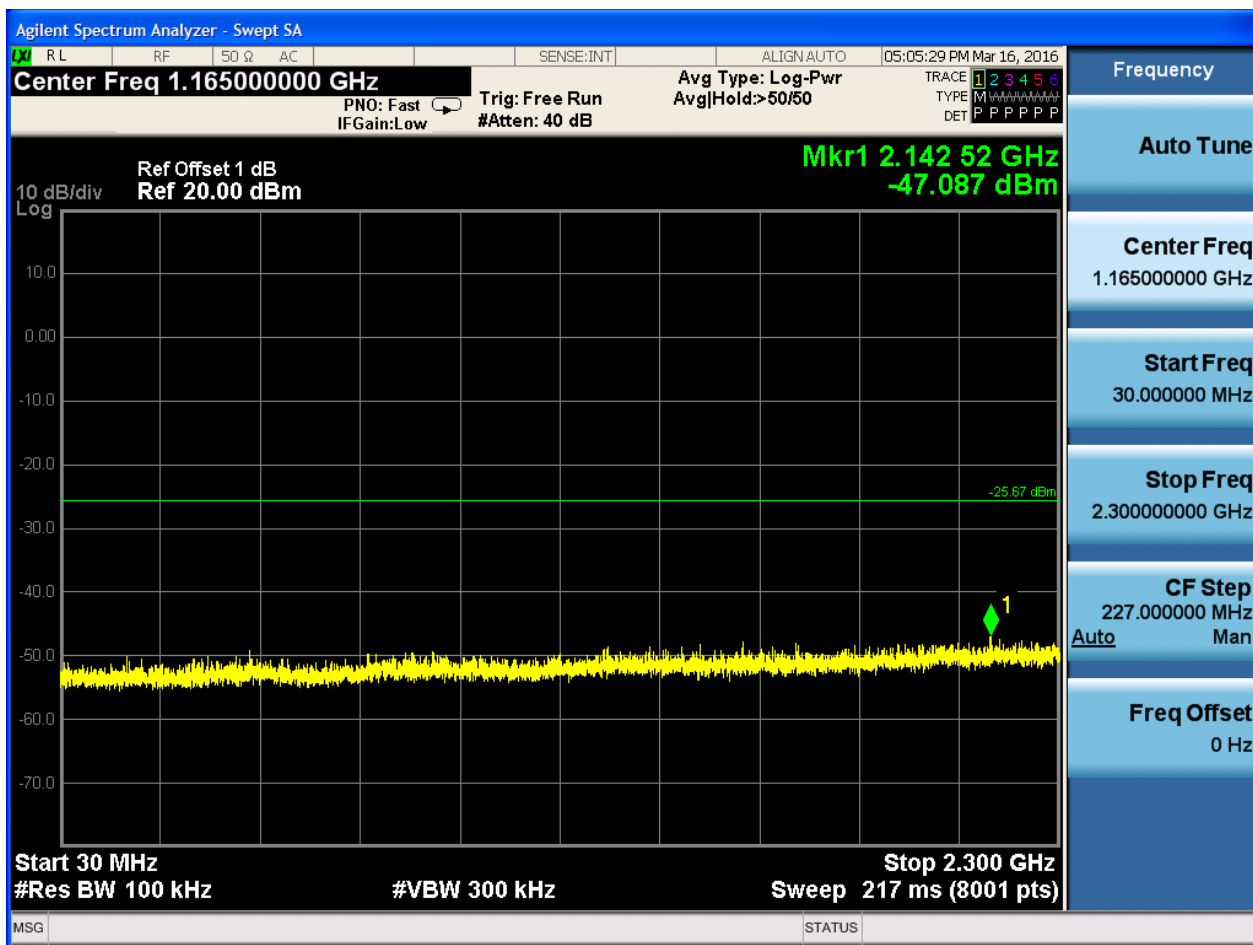


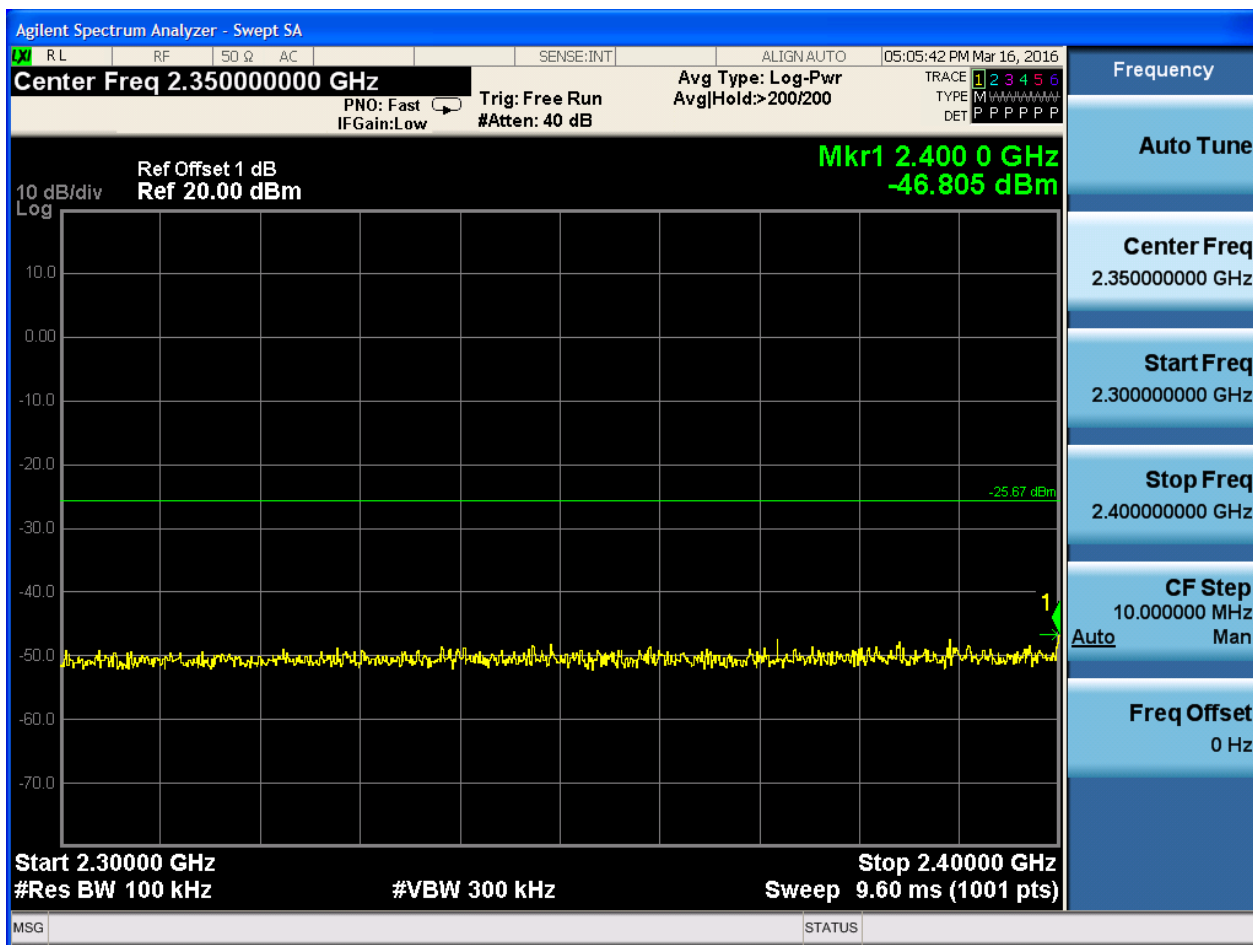


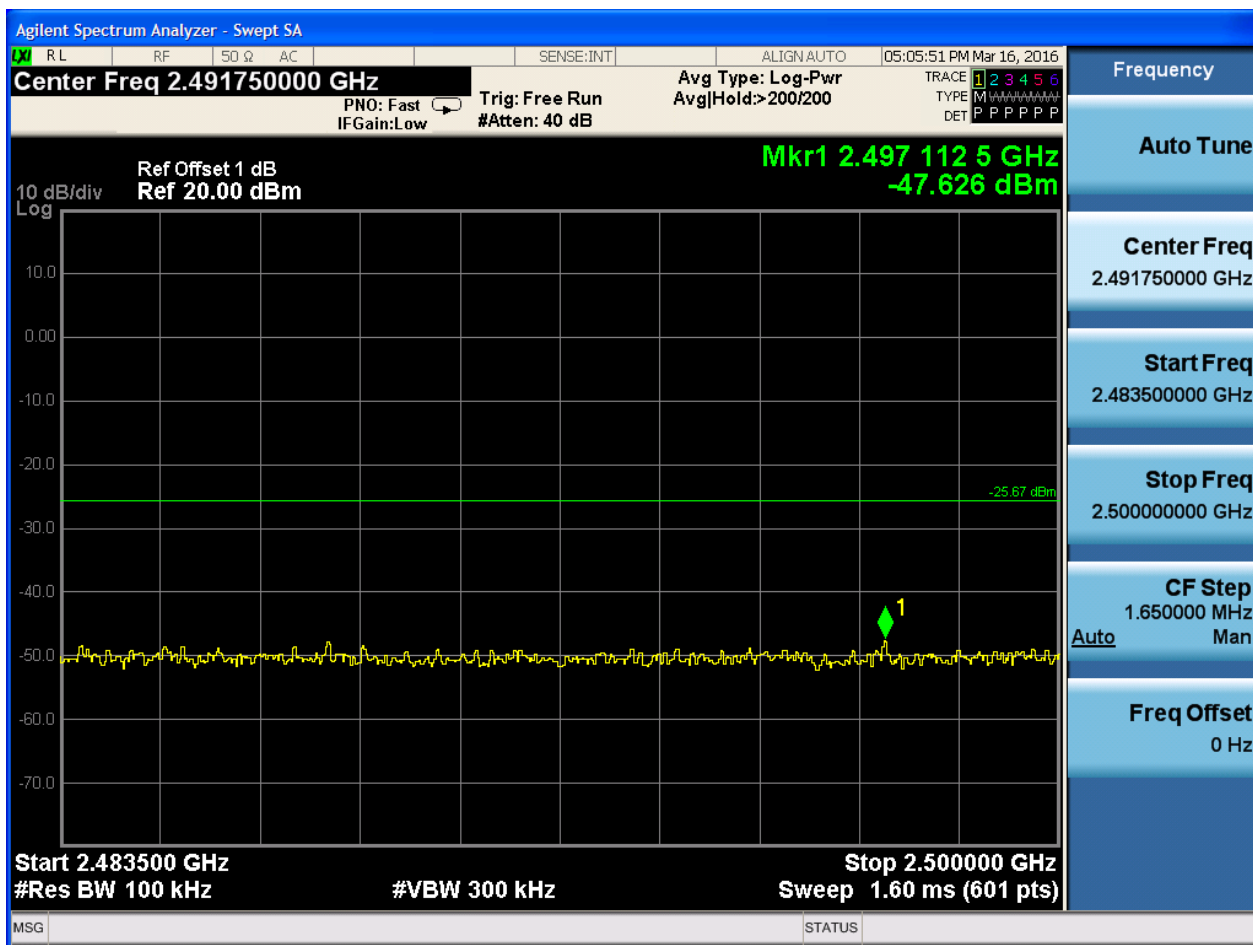
Puw:

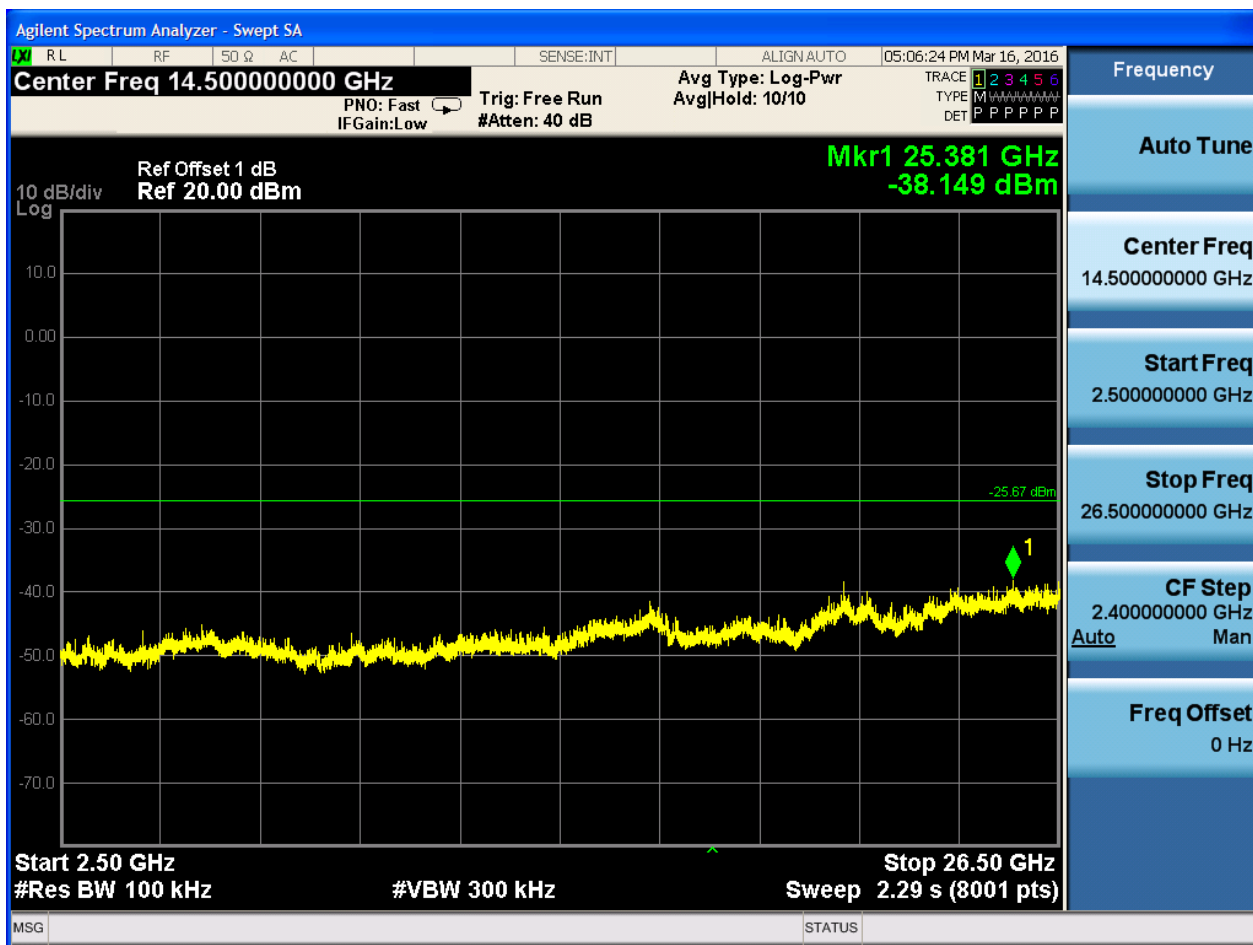








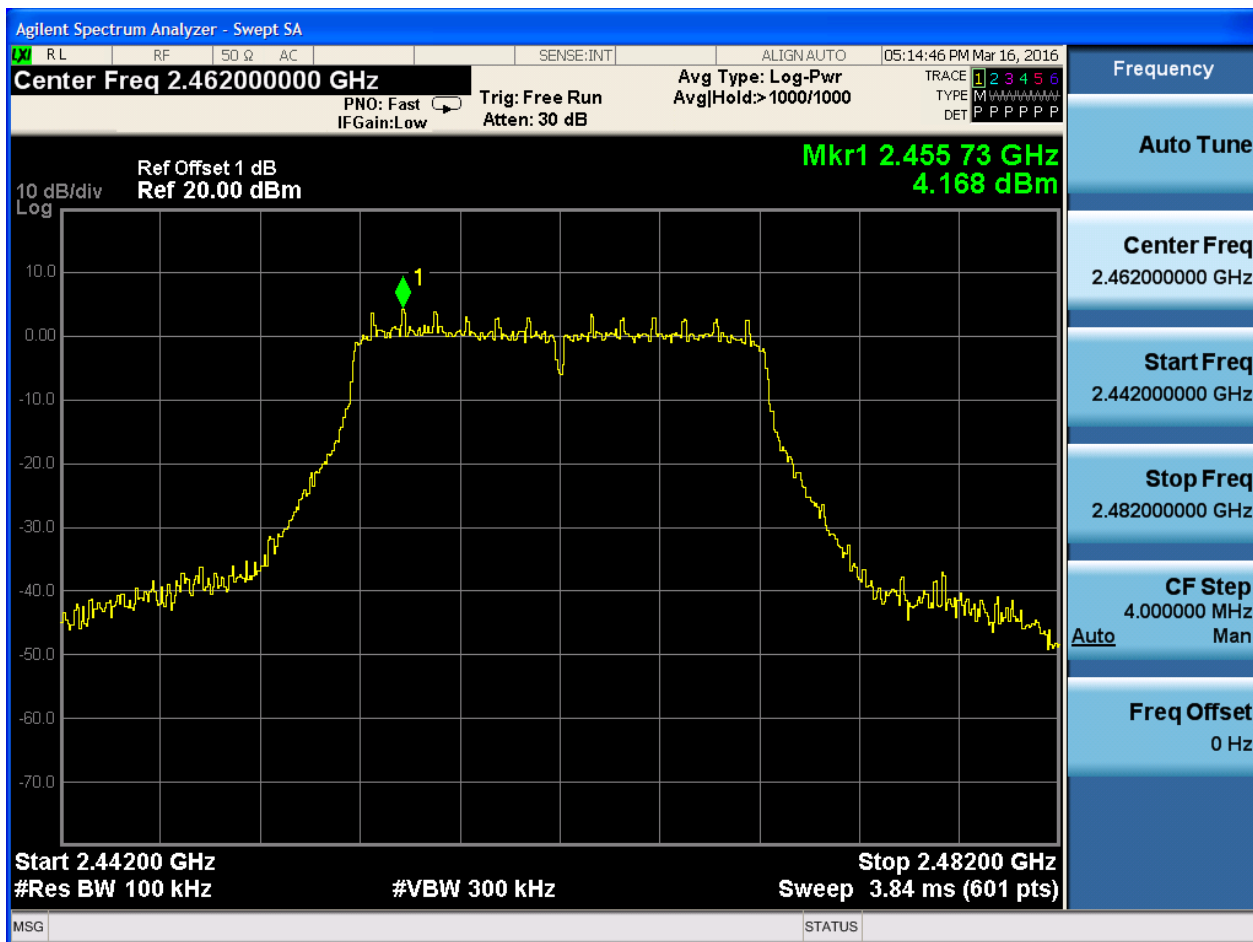


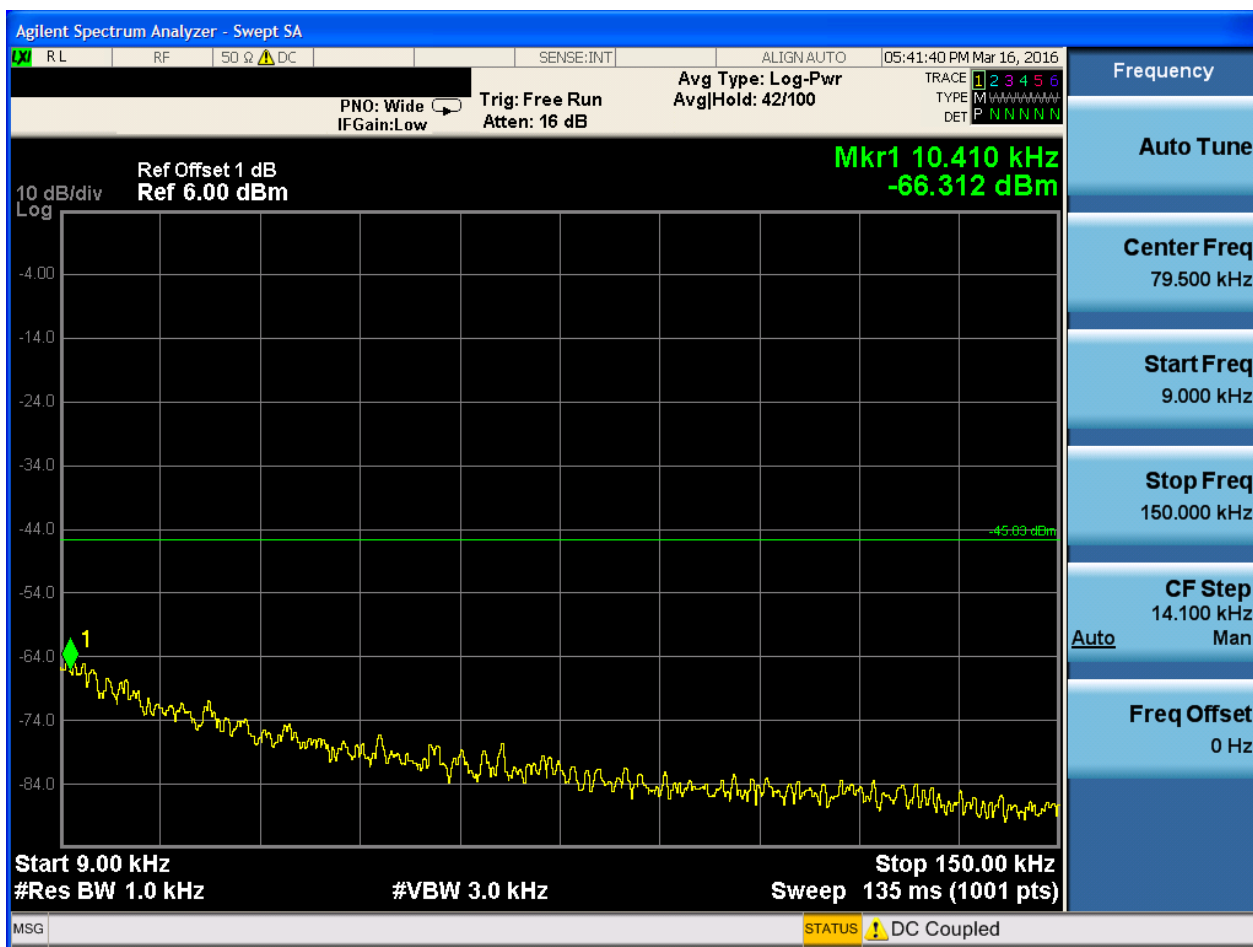


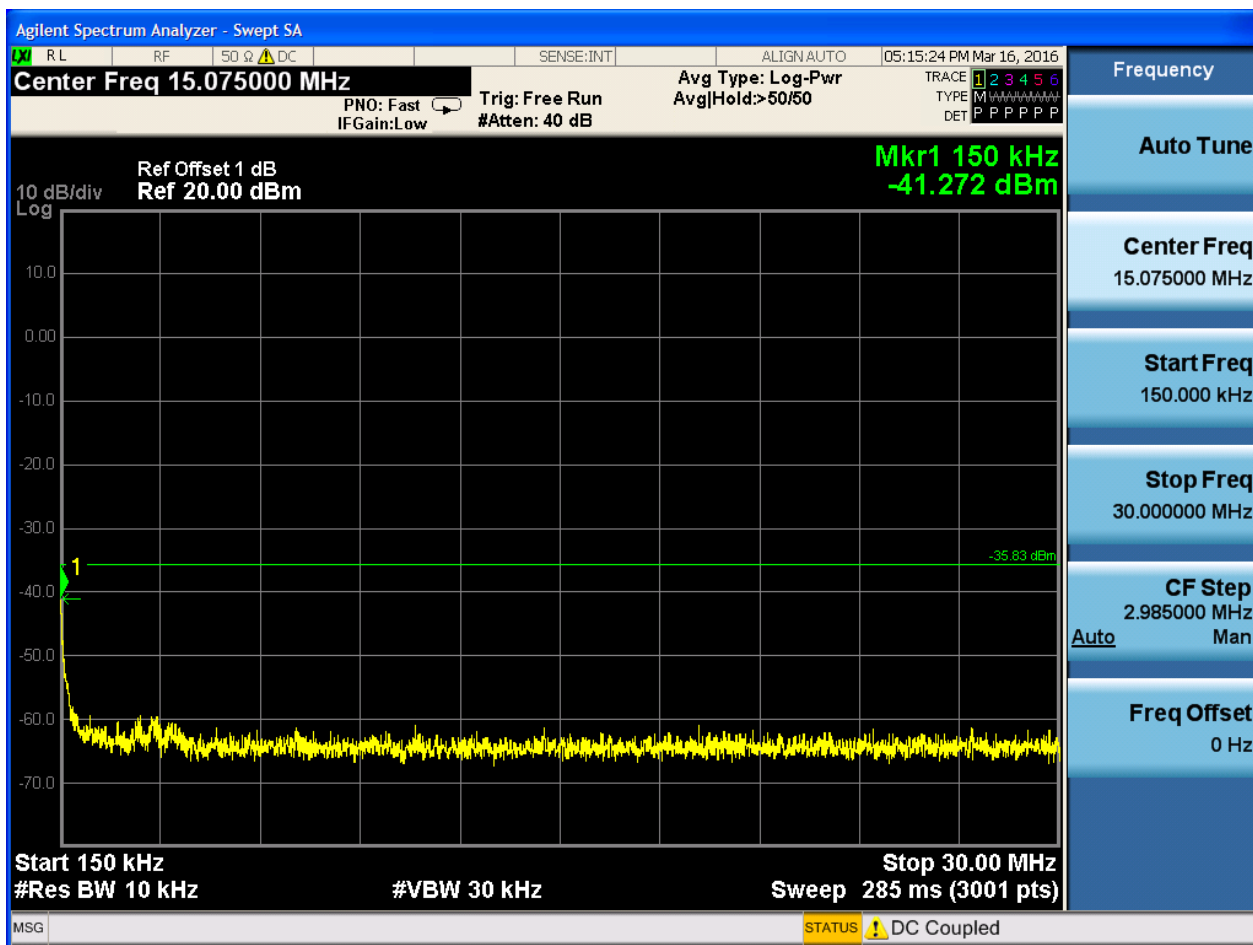


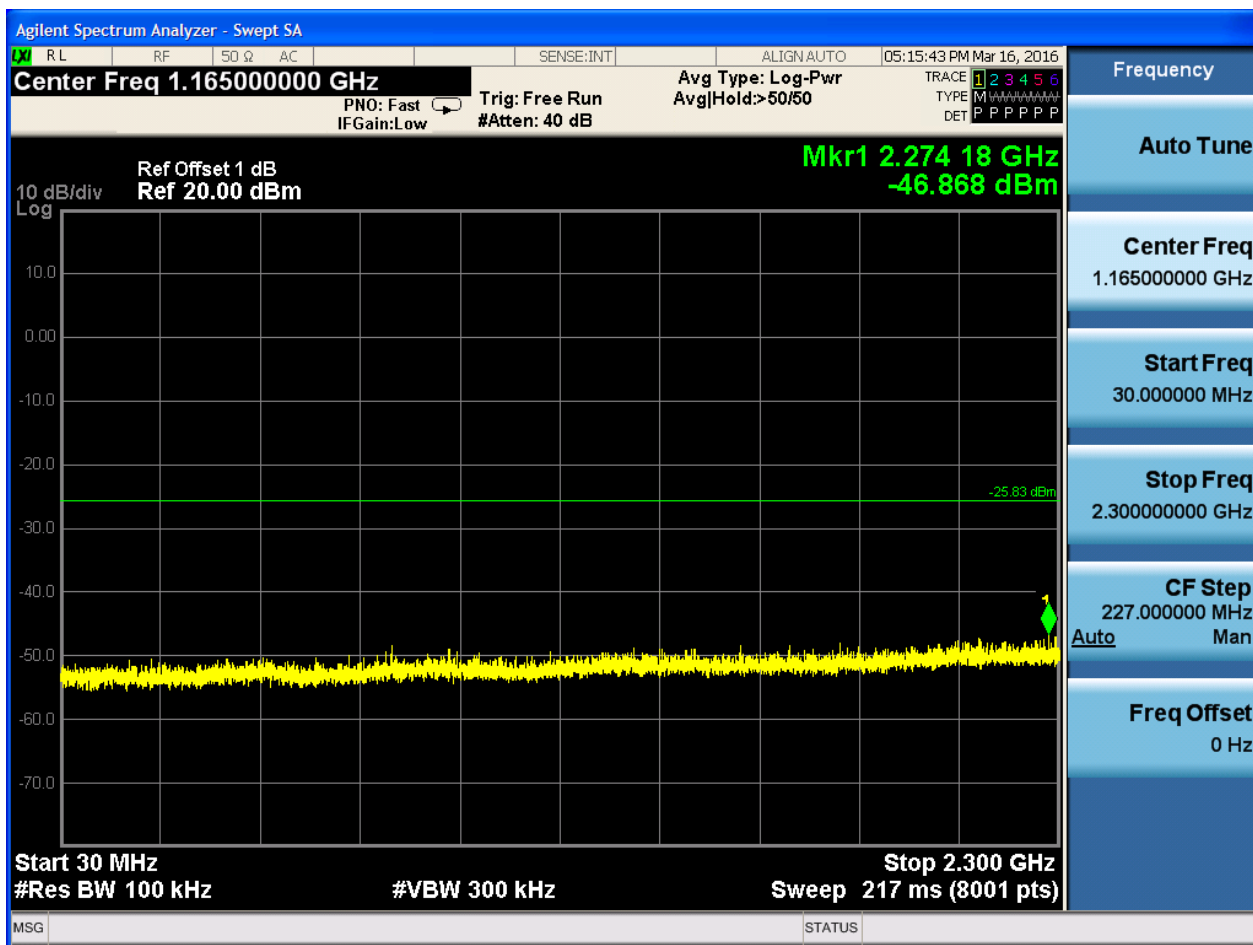
2.6 11G_H@Ant 1

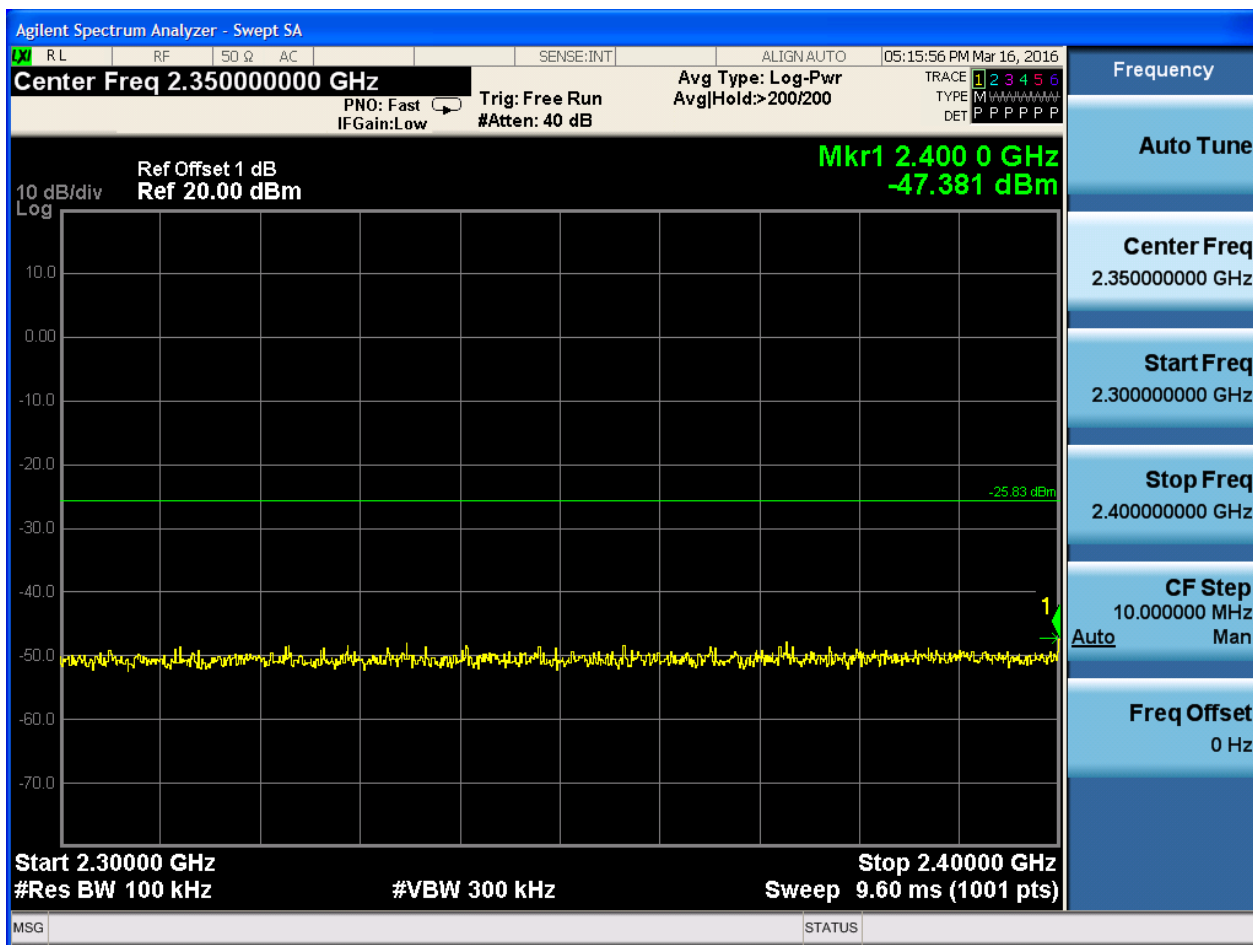
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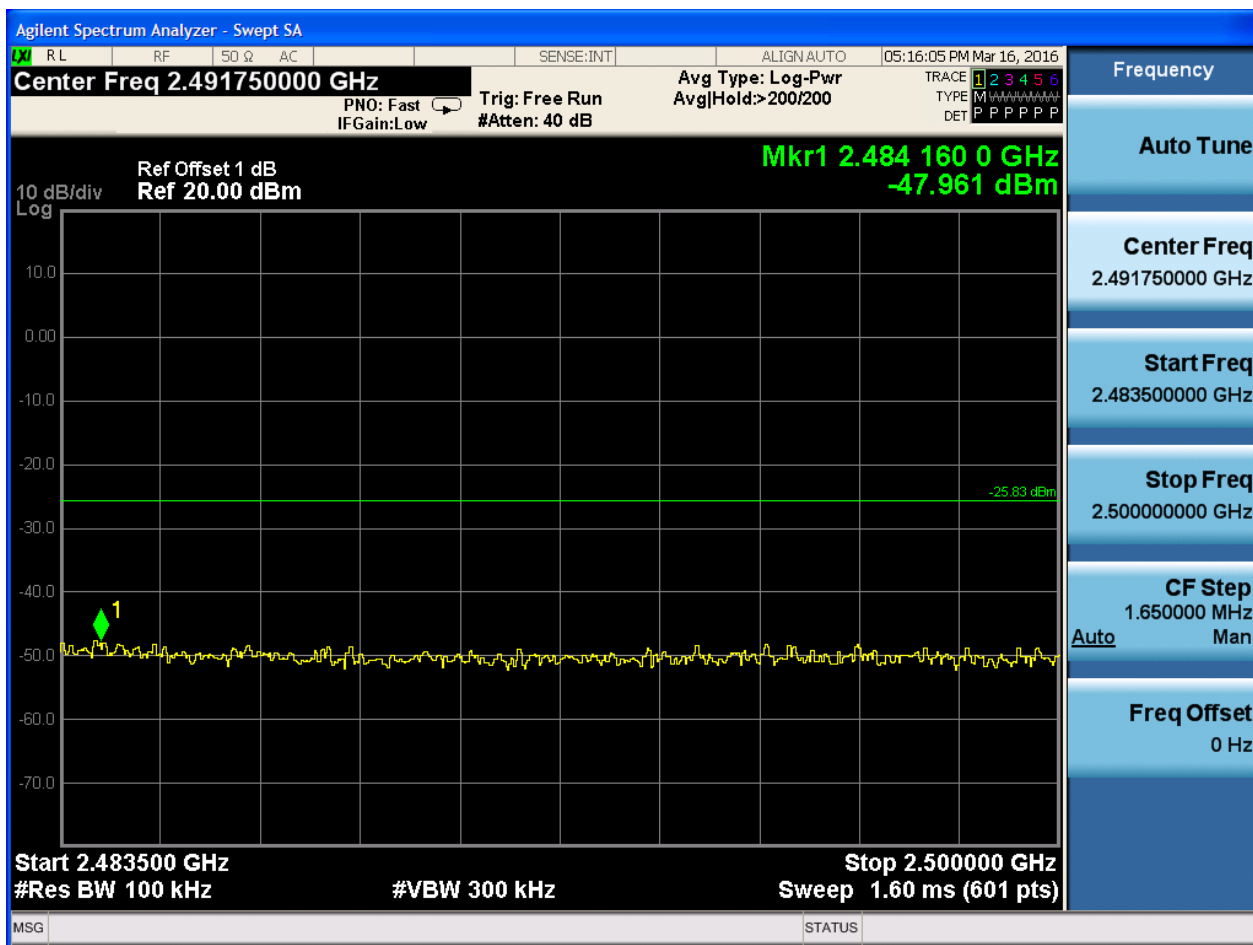


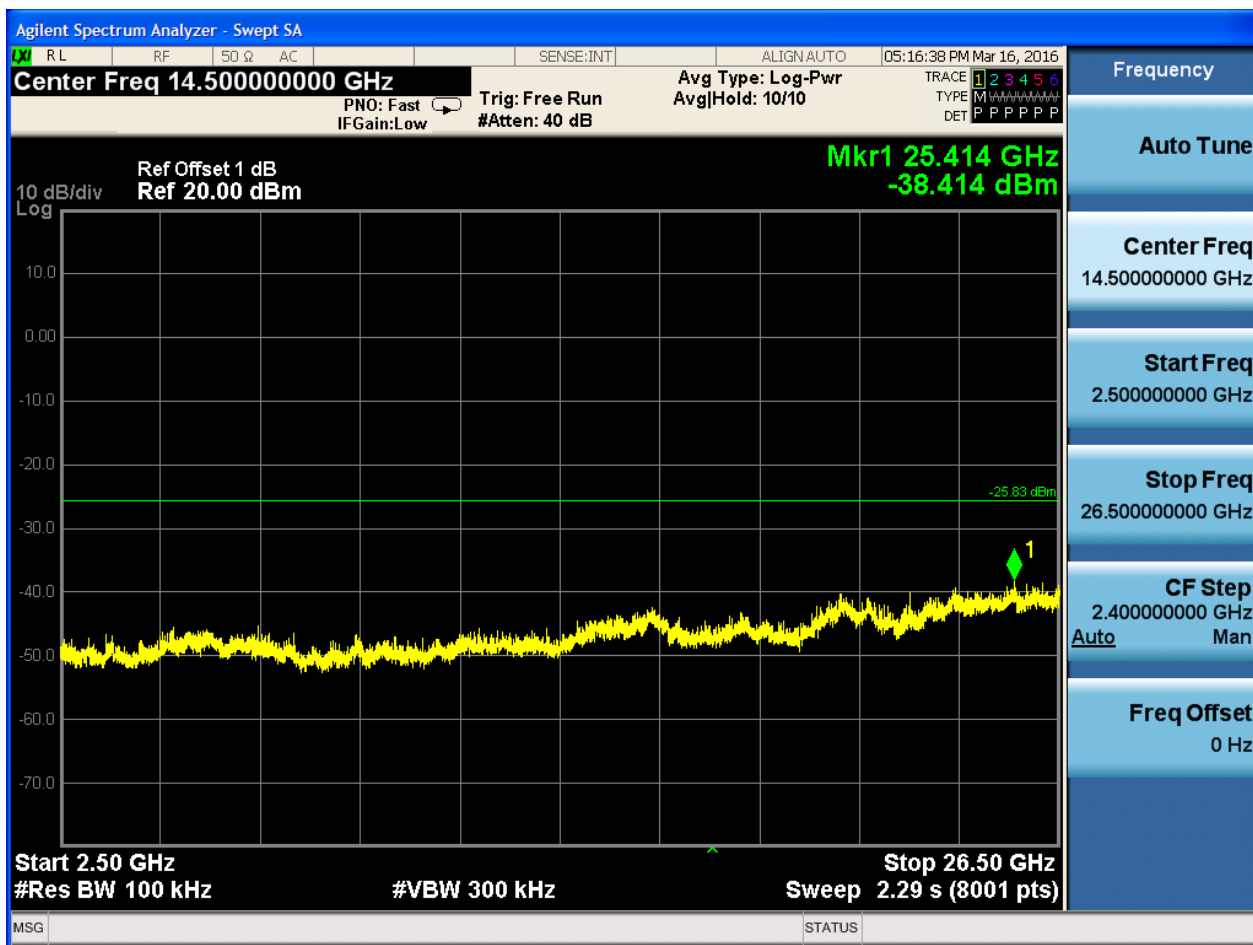
P_uw:





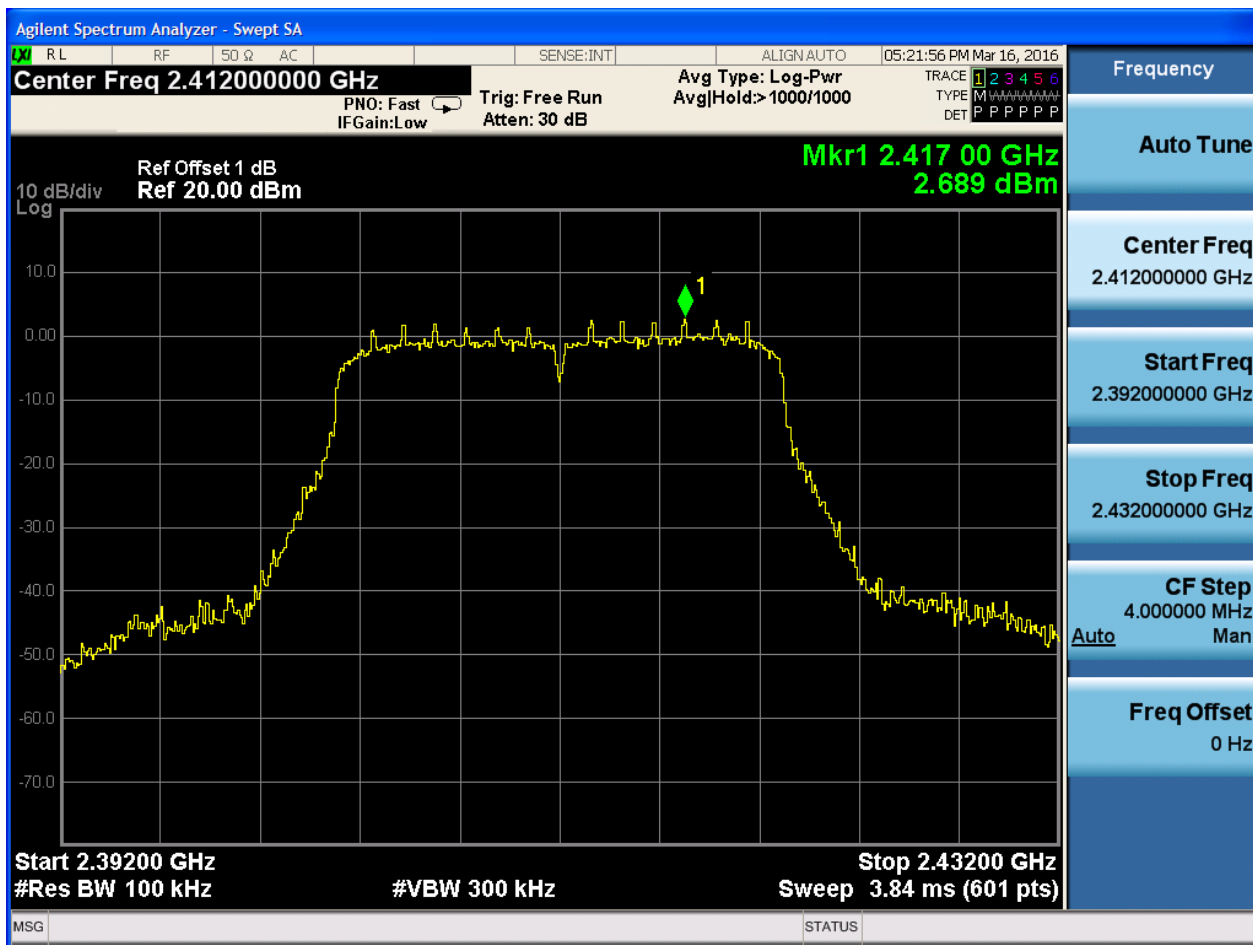


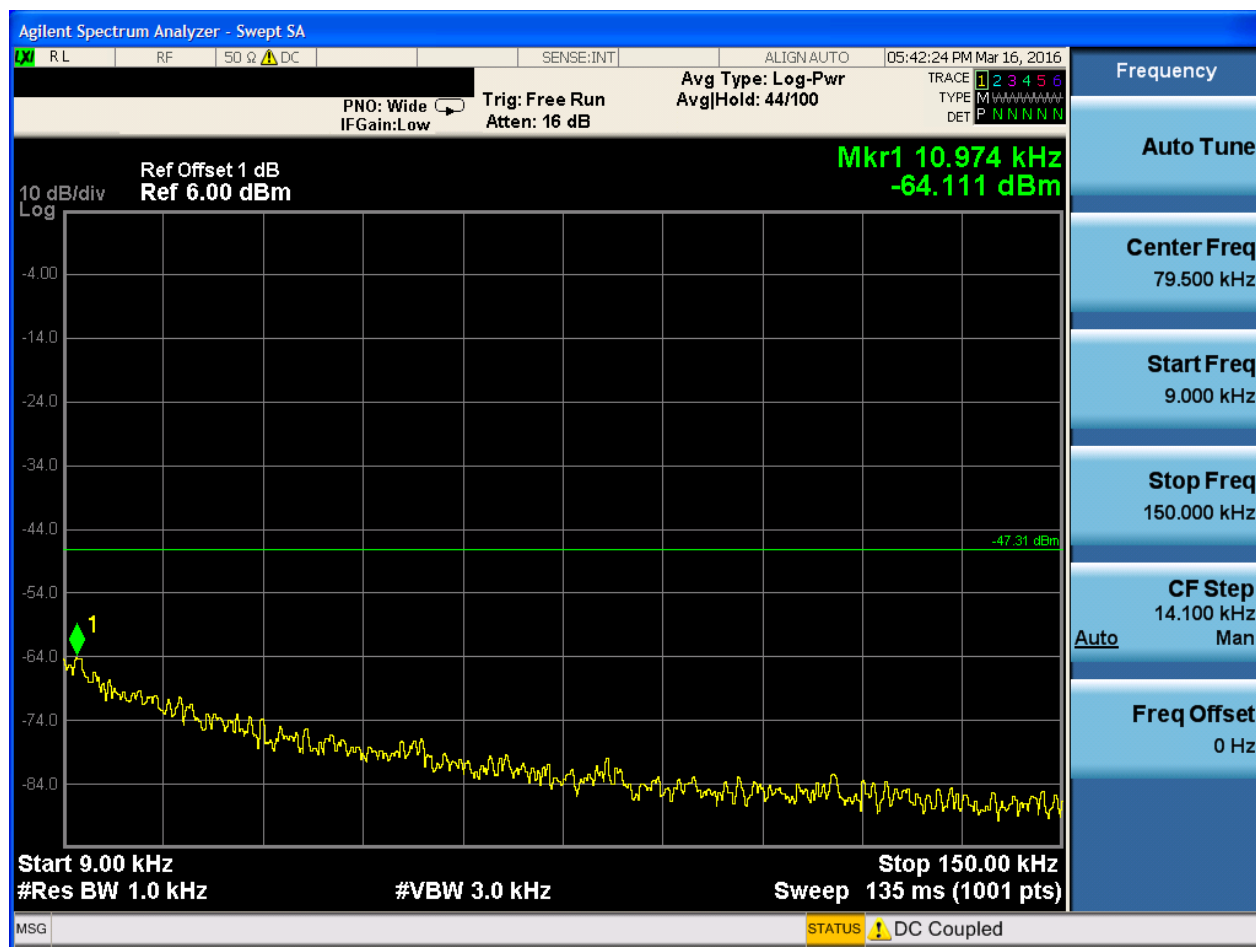


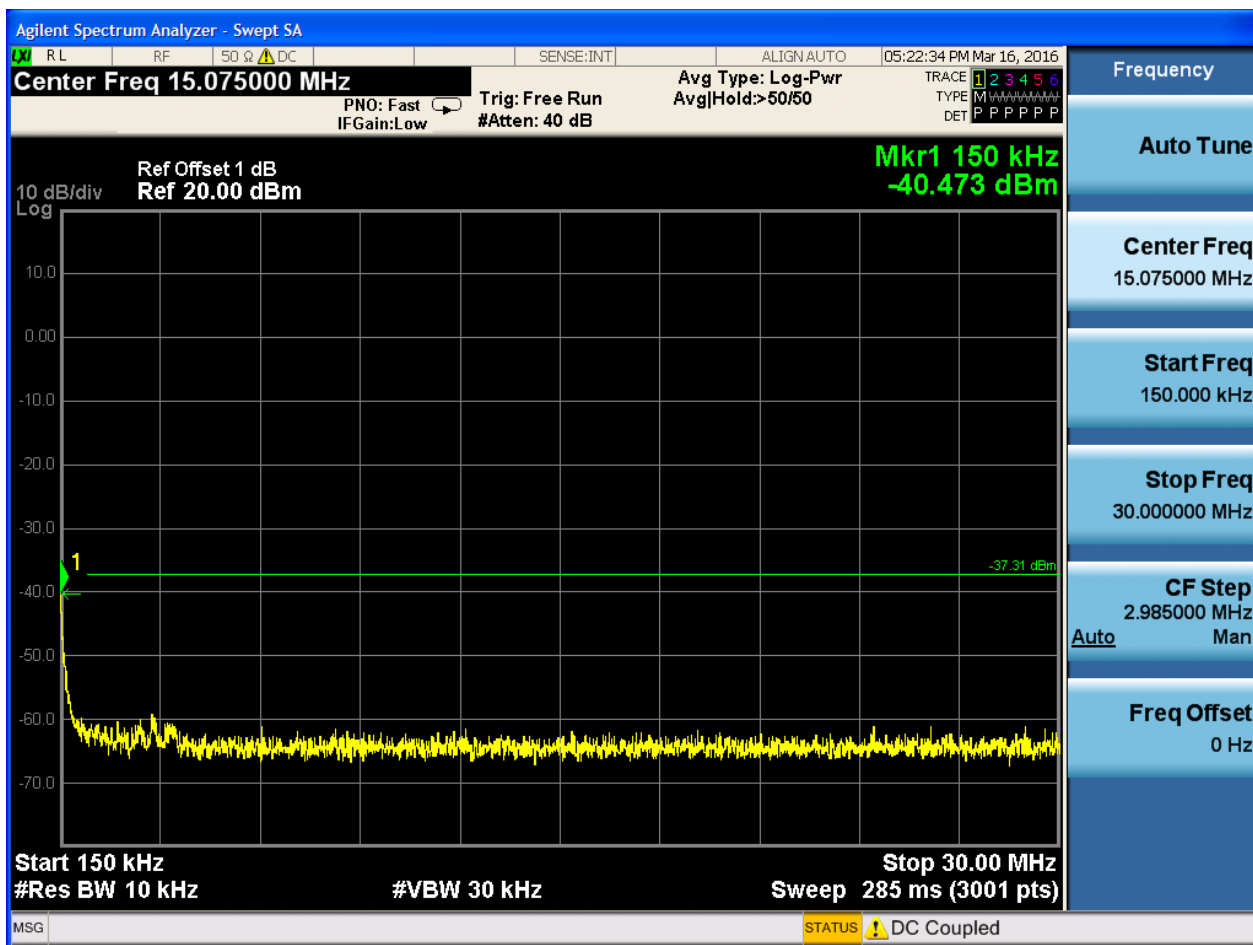


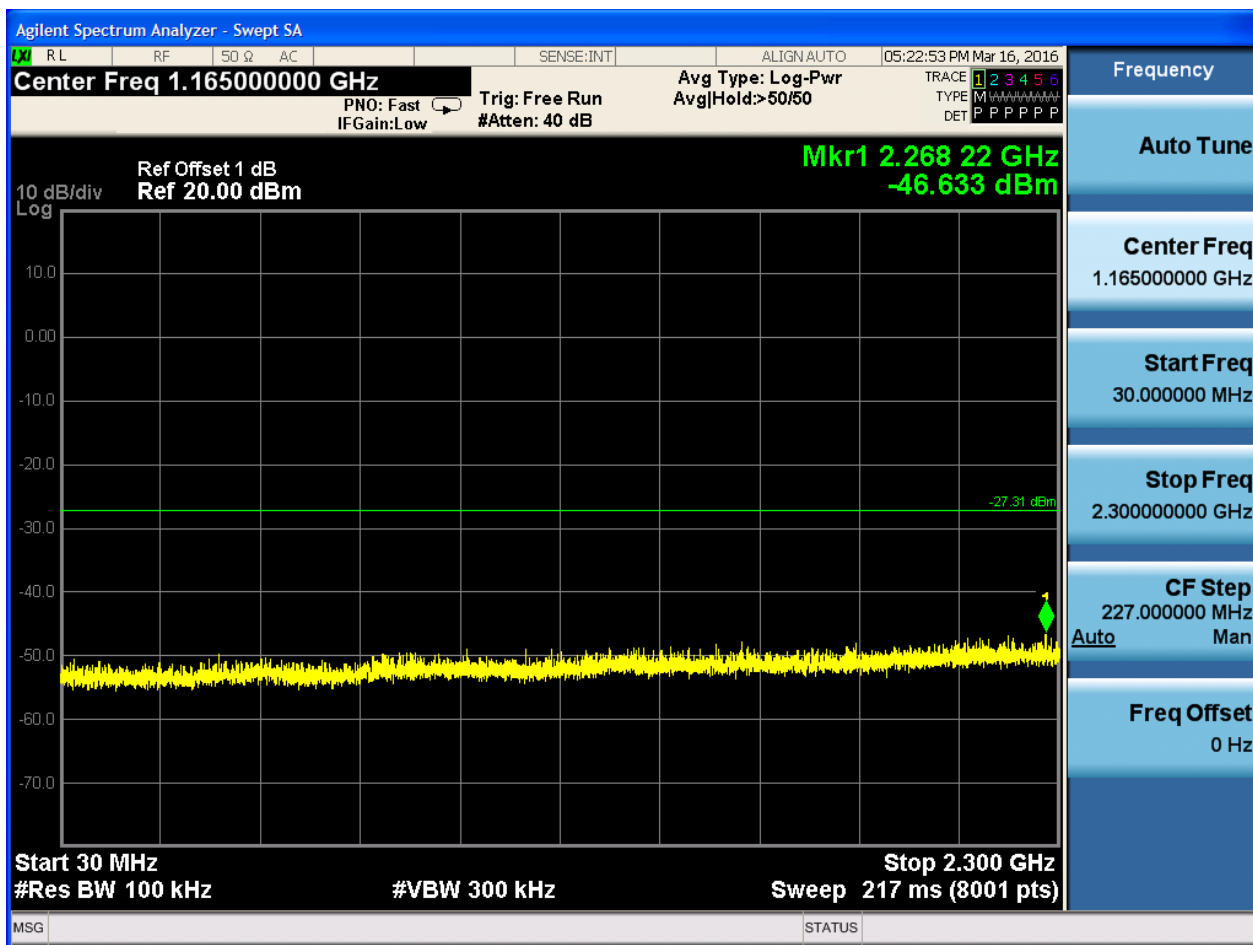
2.7 11N20_L@Ant 1

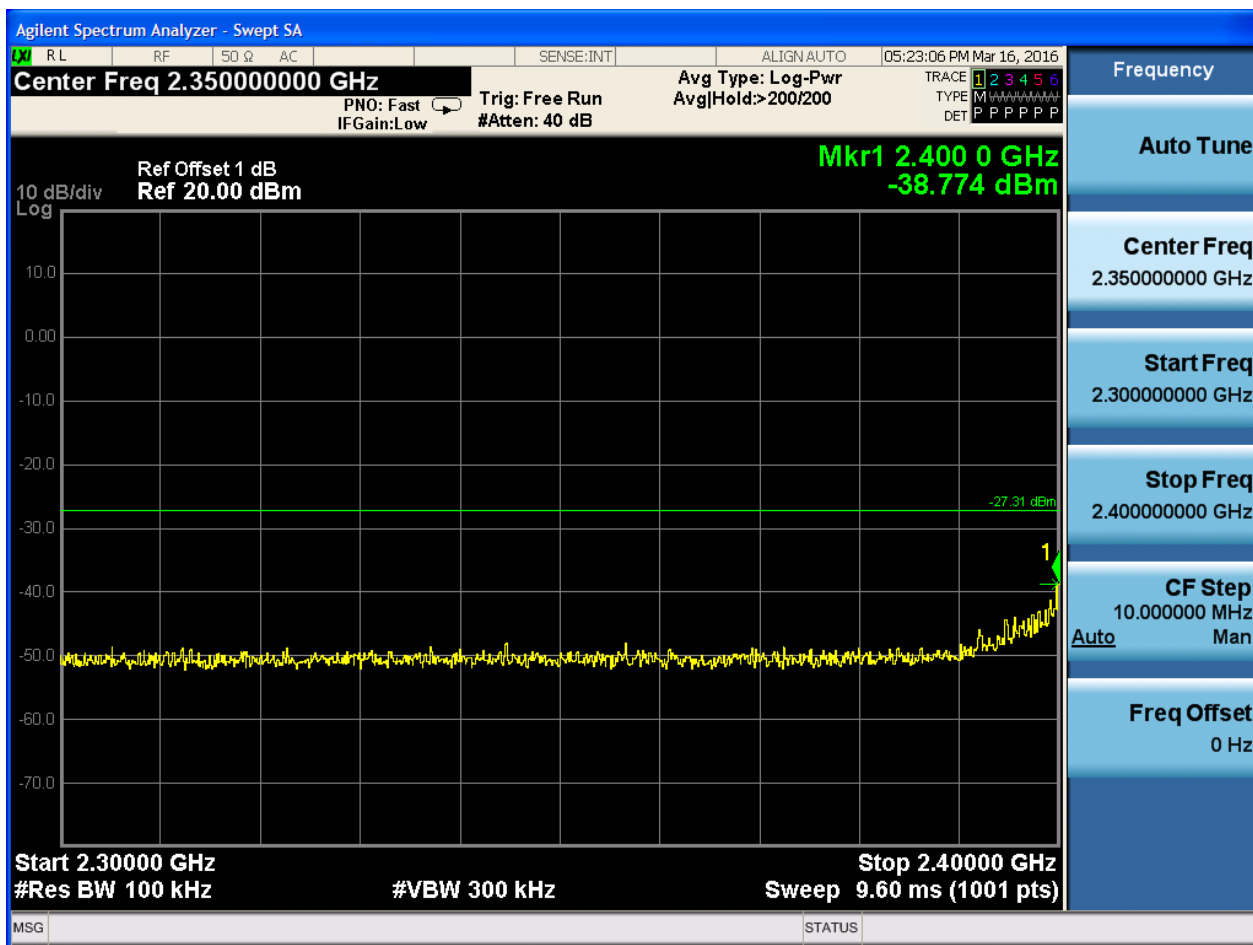
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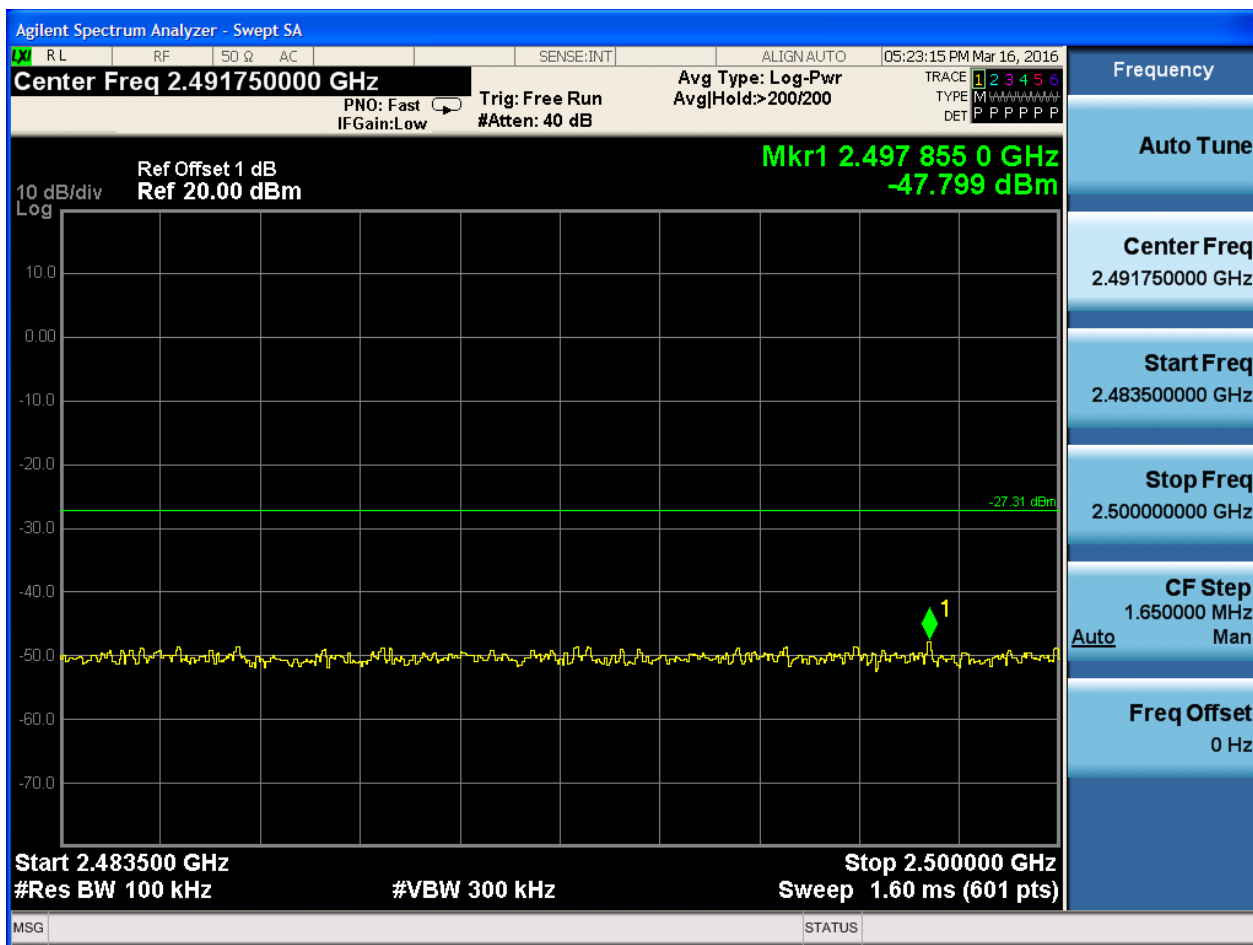


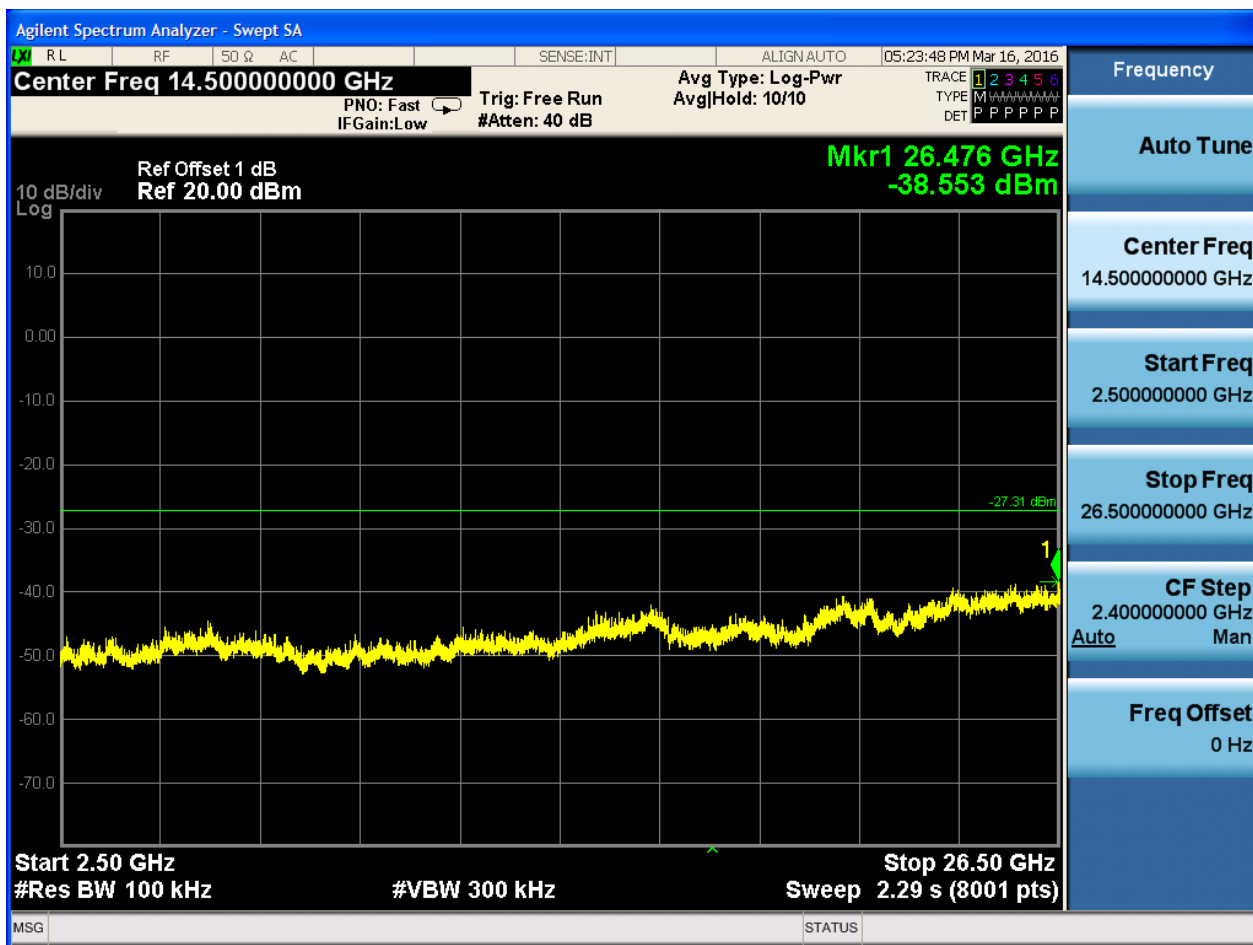
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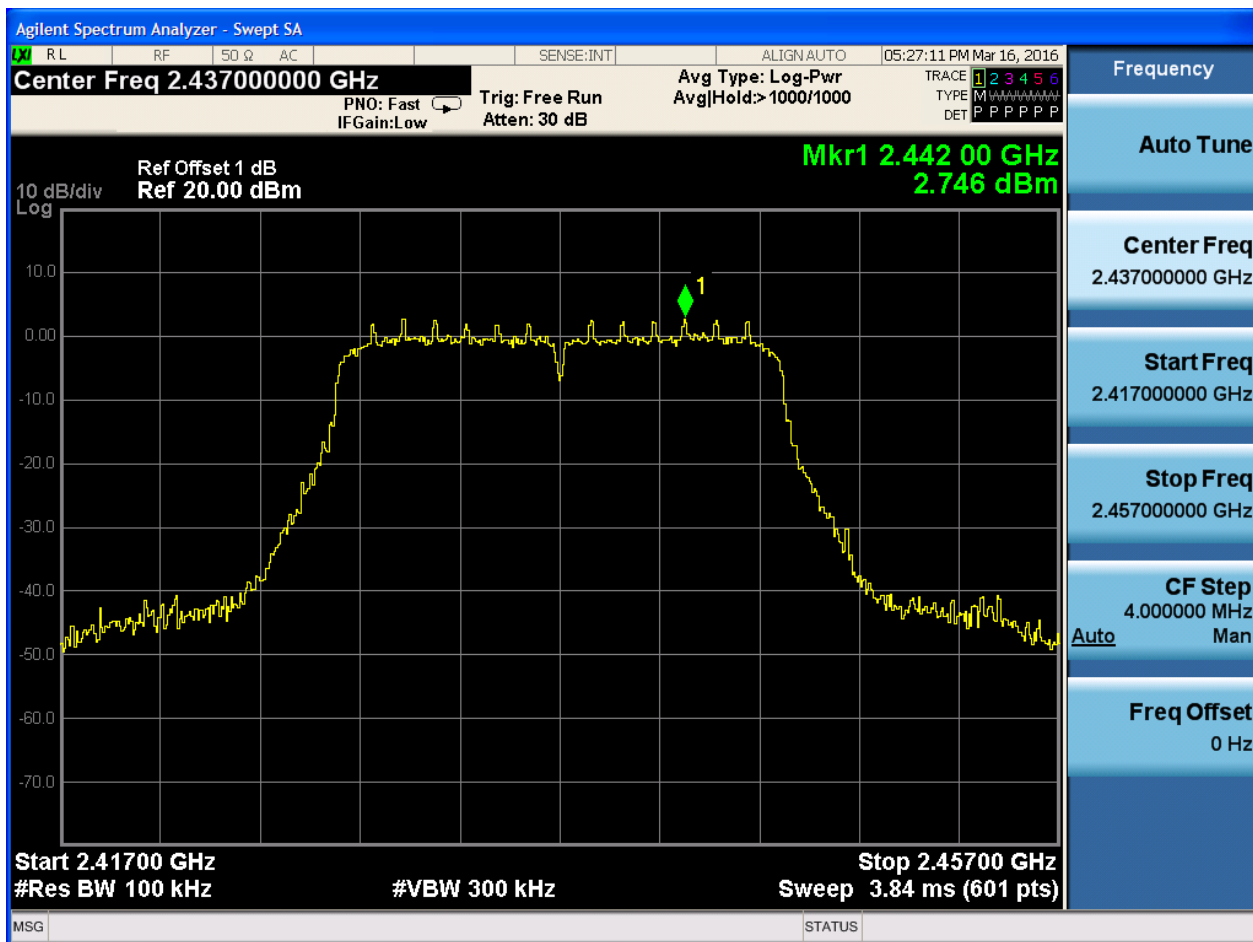


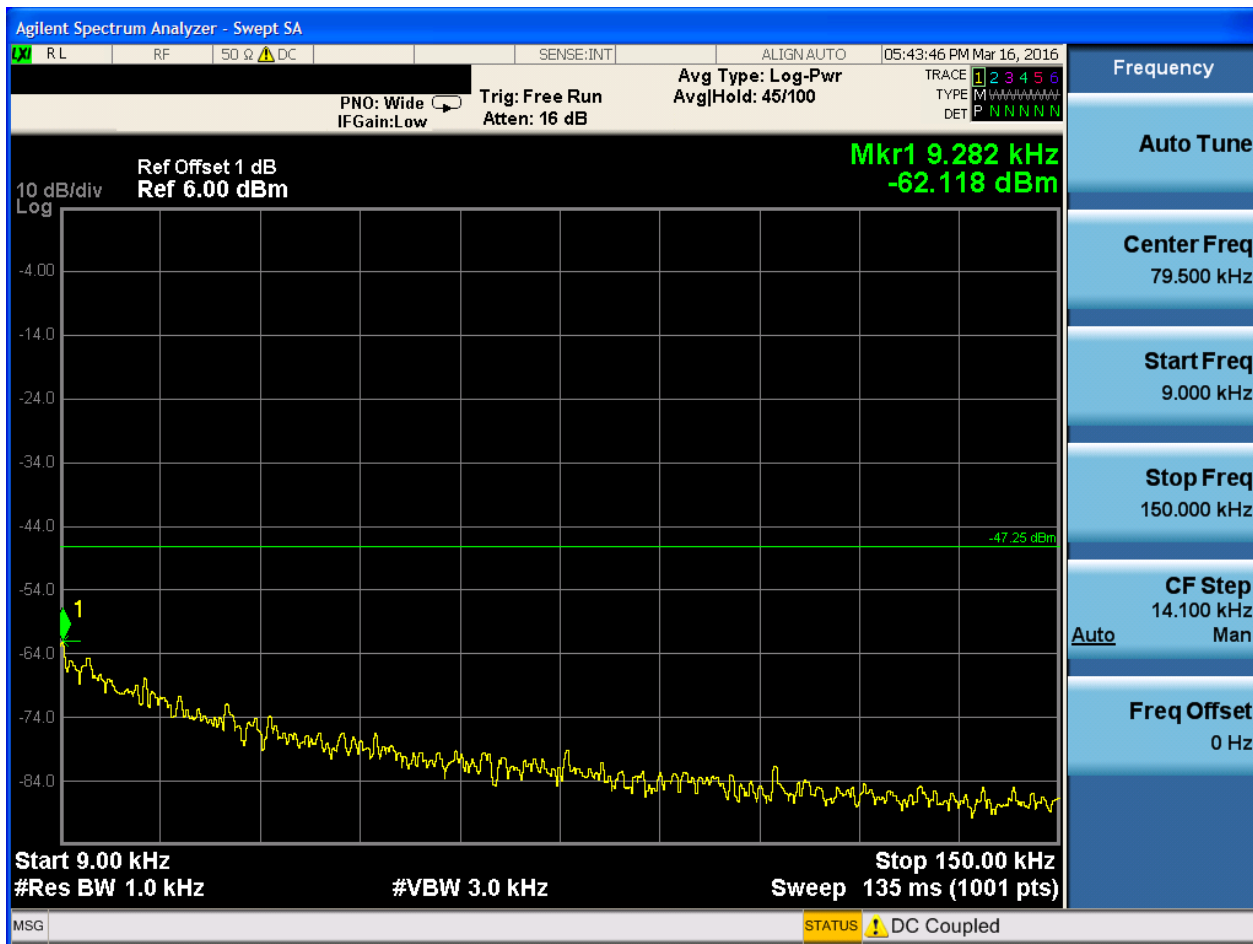


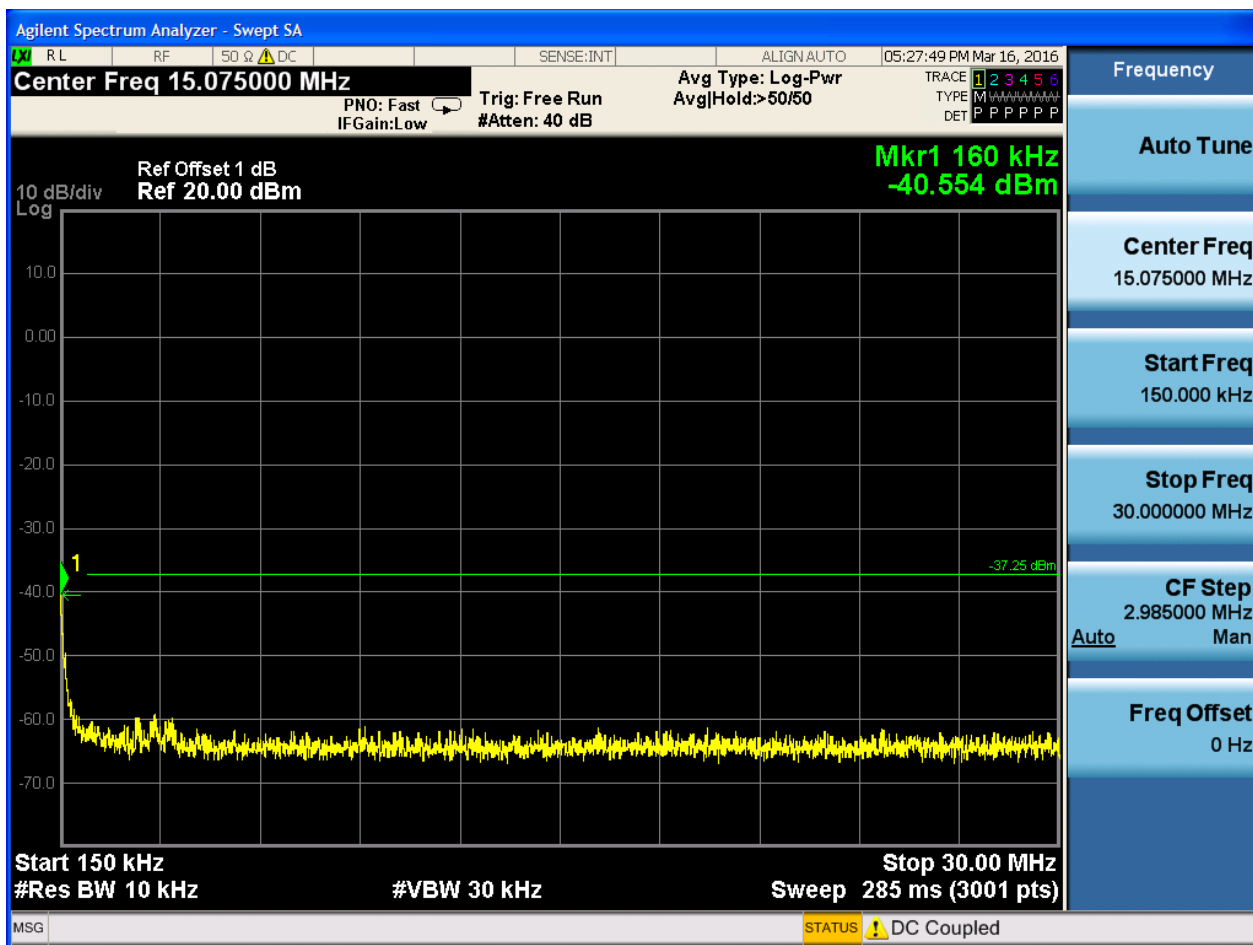


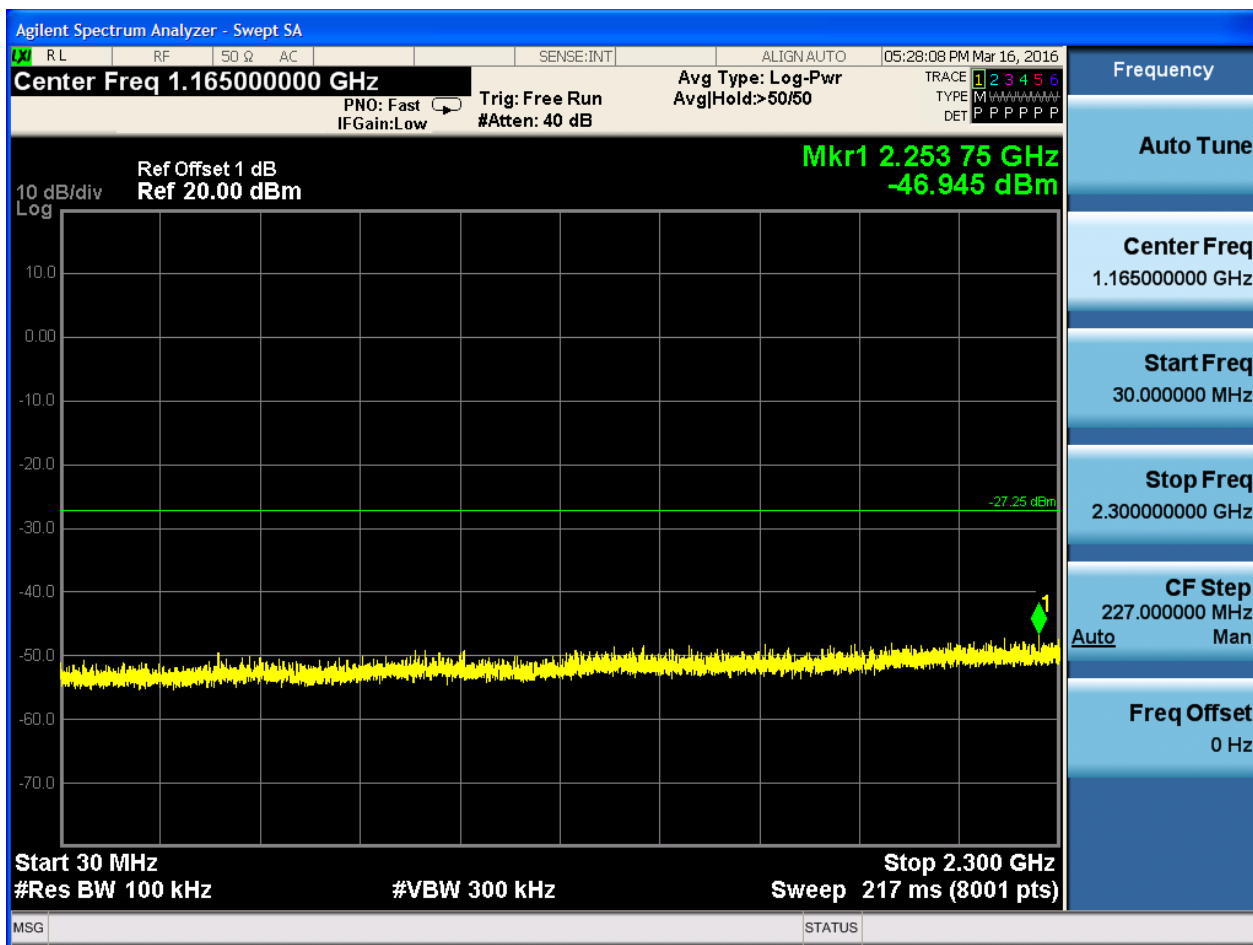
2.8 11N20_M@Ant 1

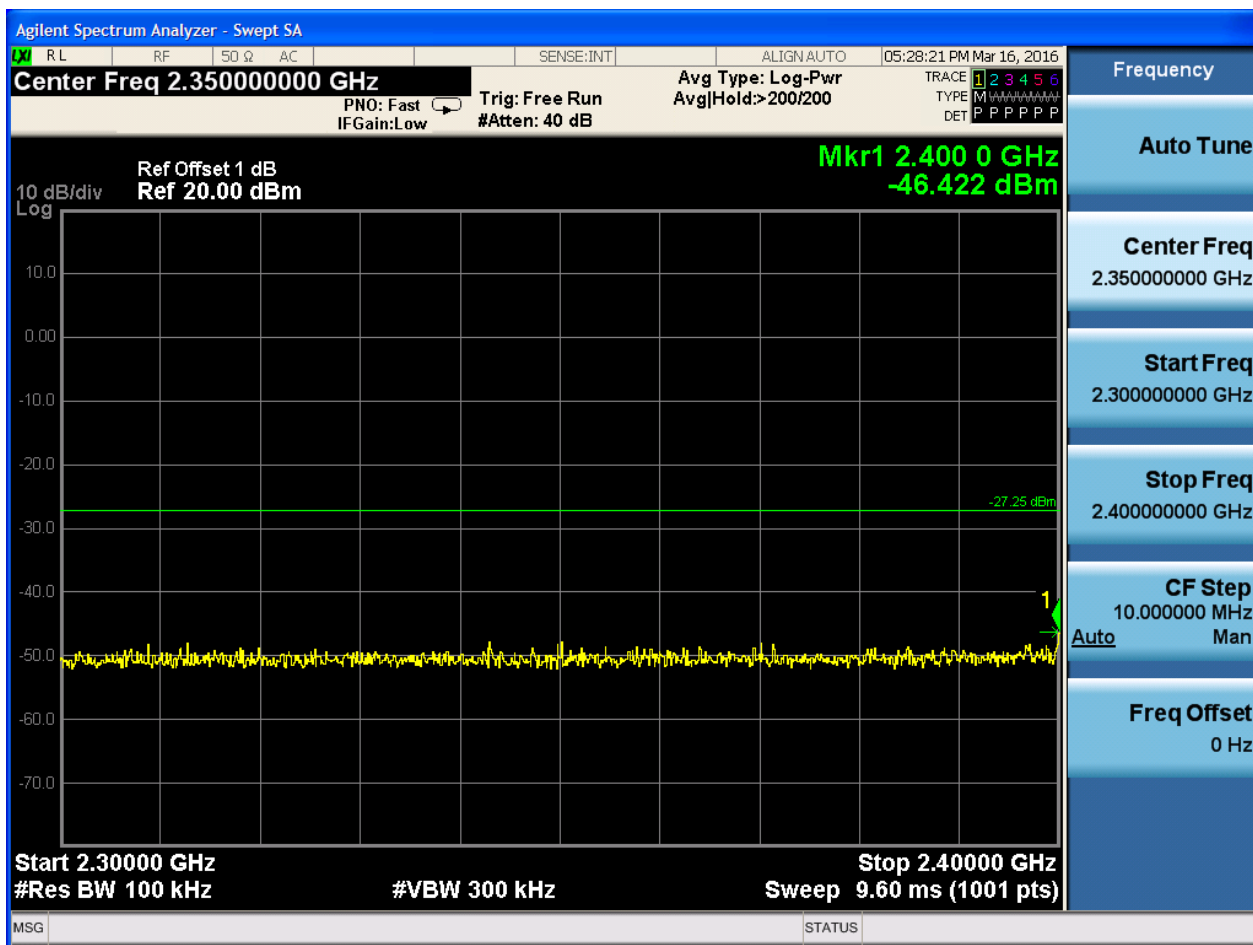
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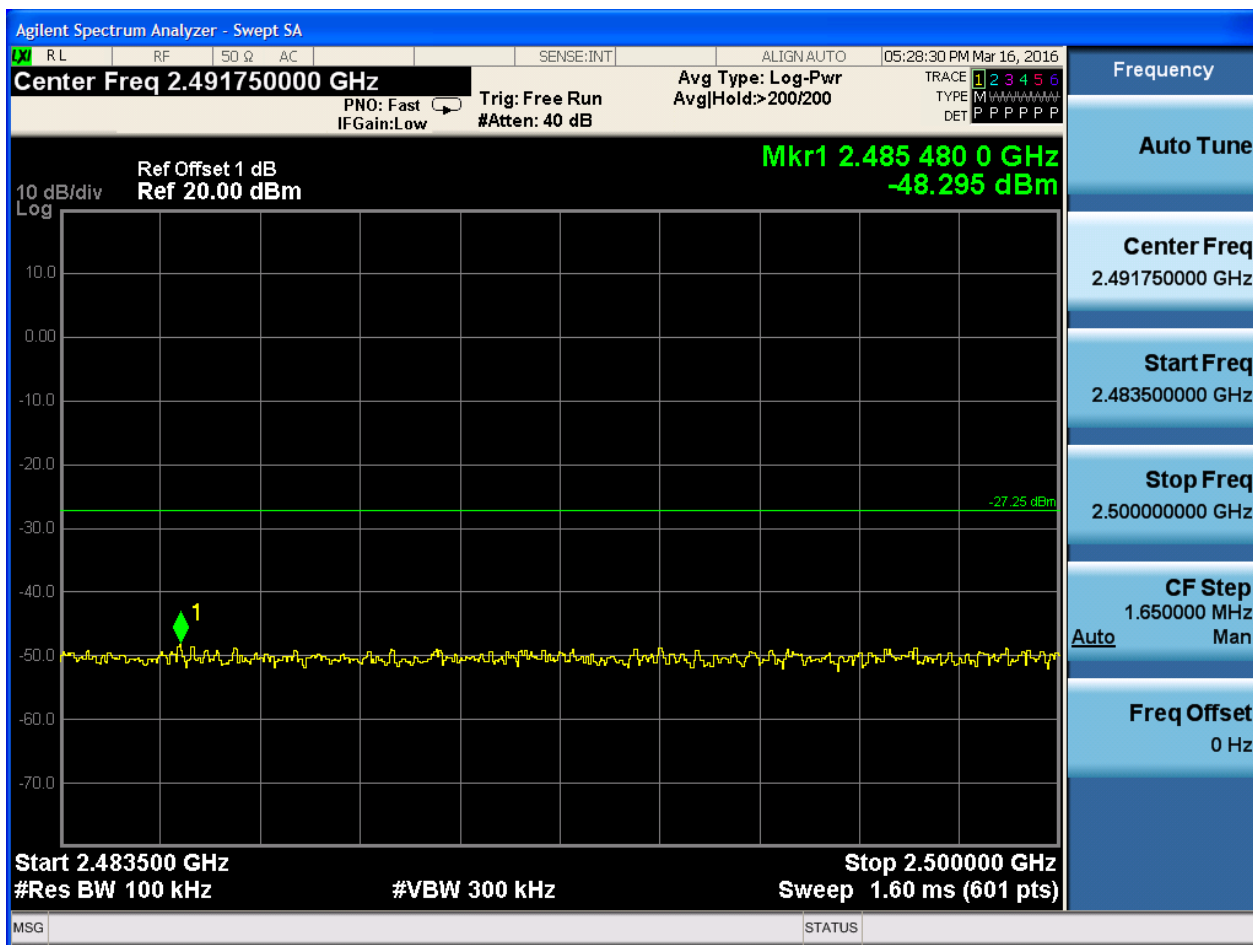


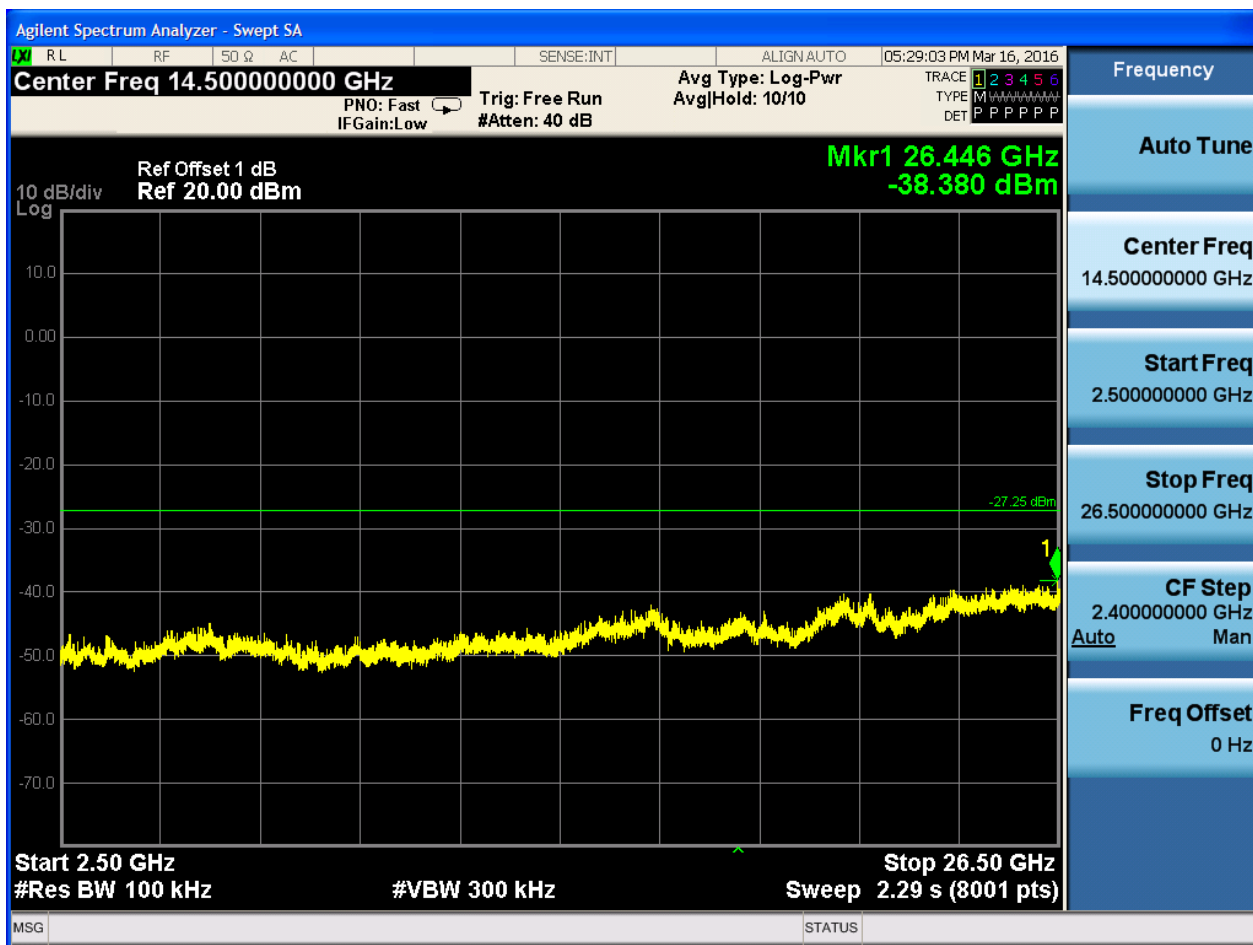
P_uw:







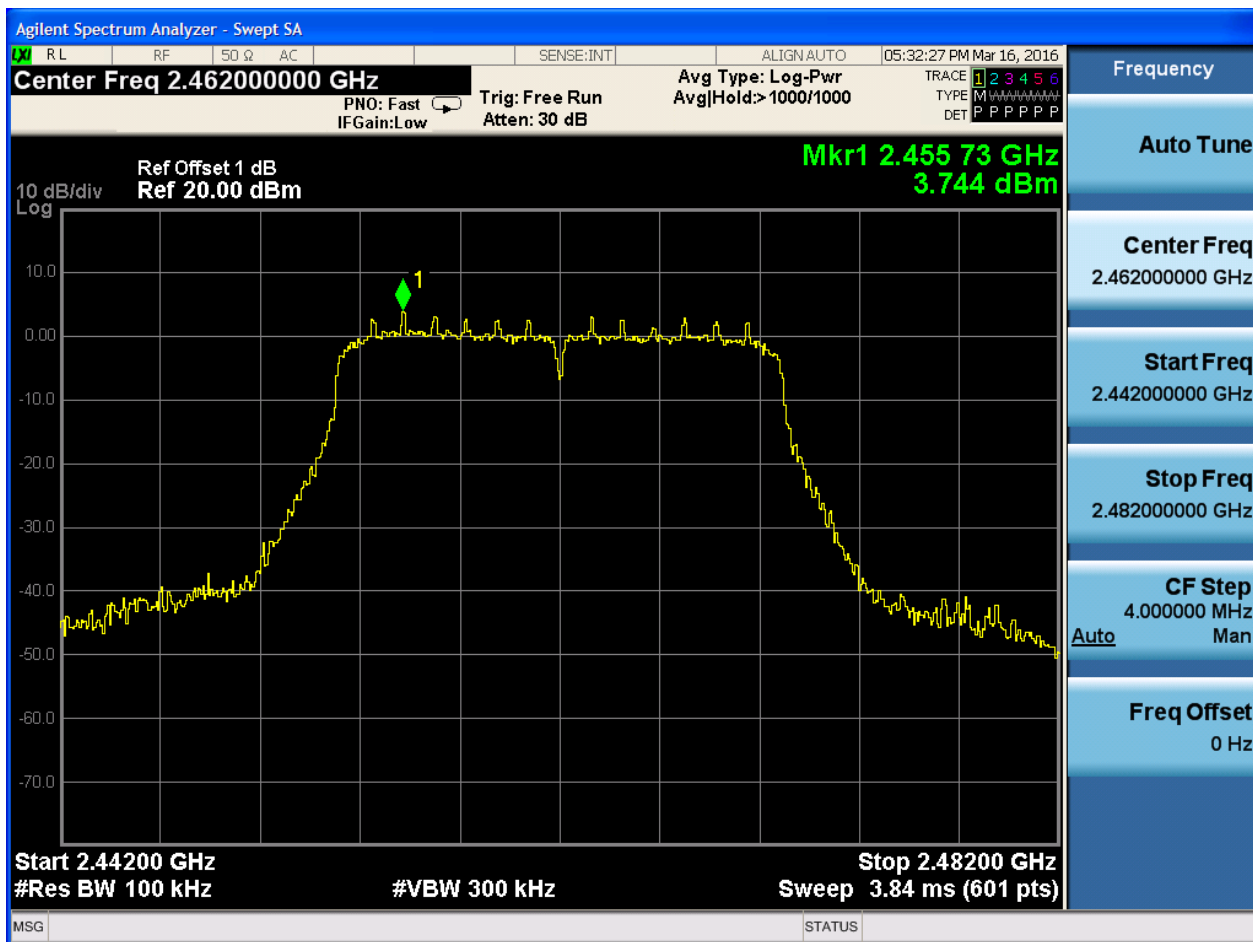


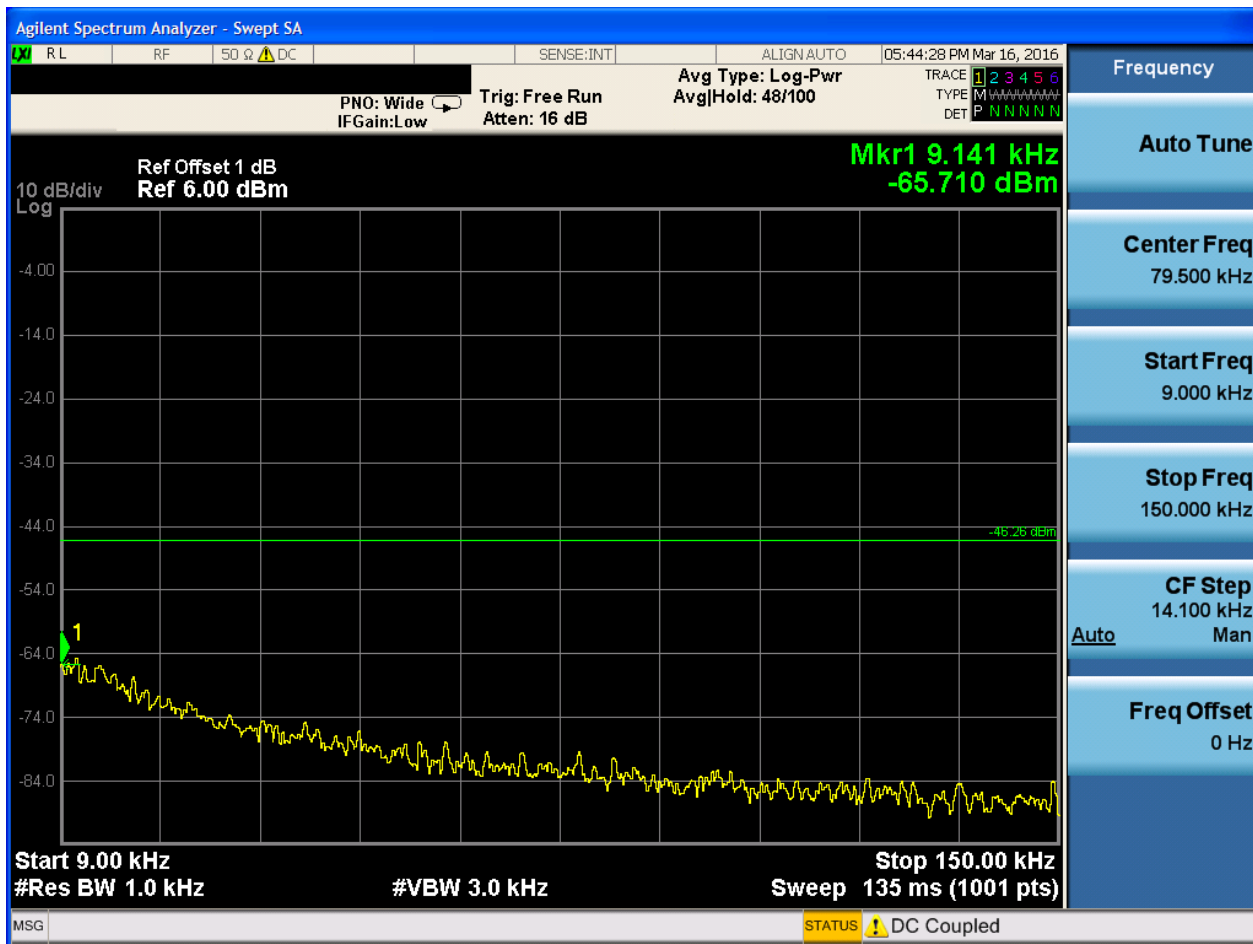


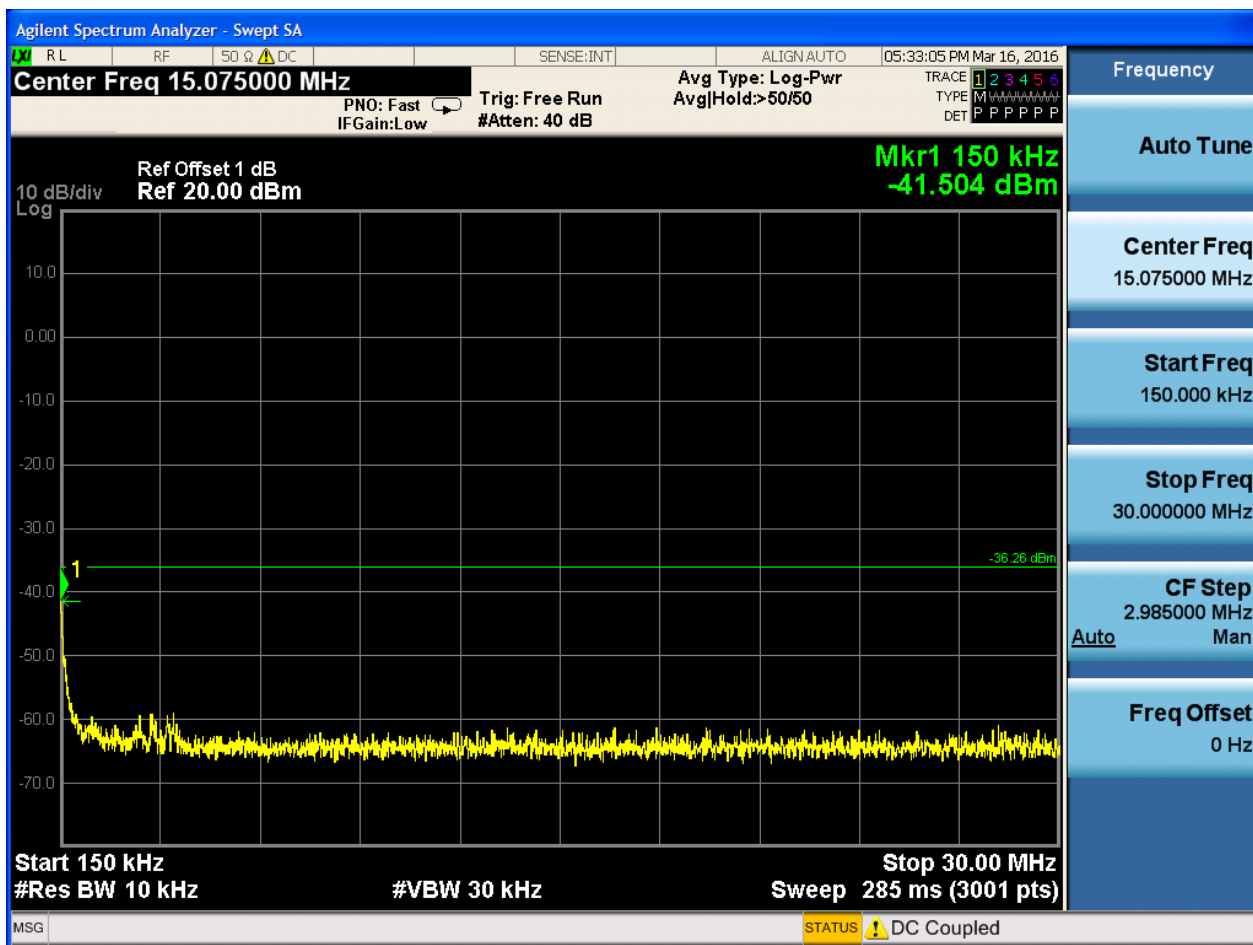


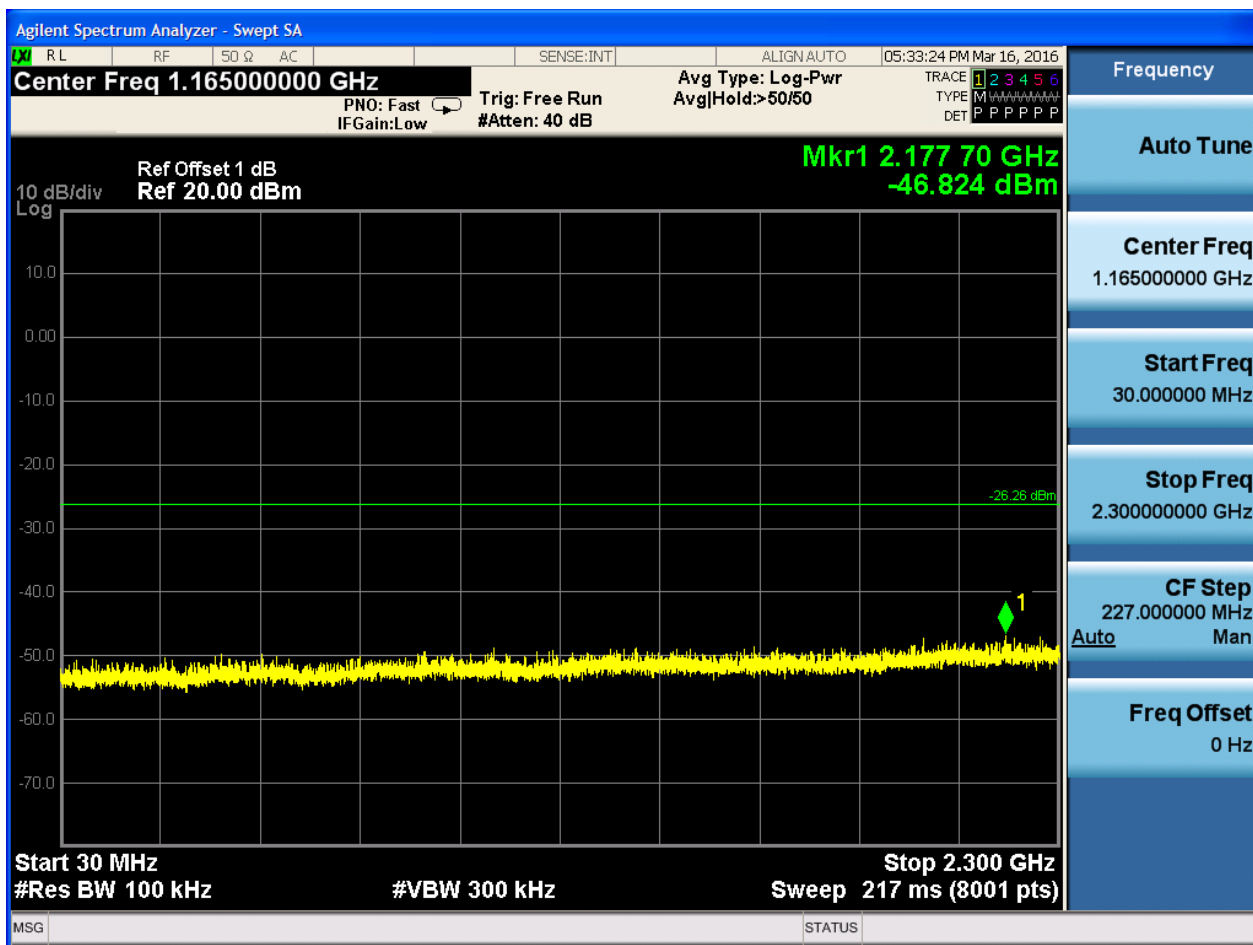
2.9 11N20_H@Ant 1

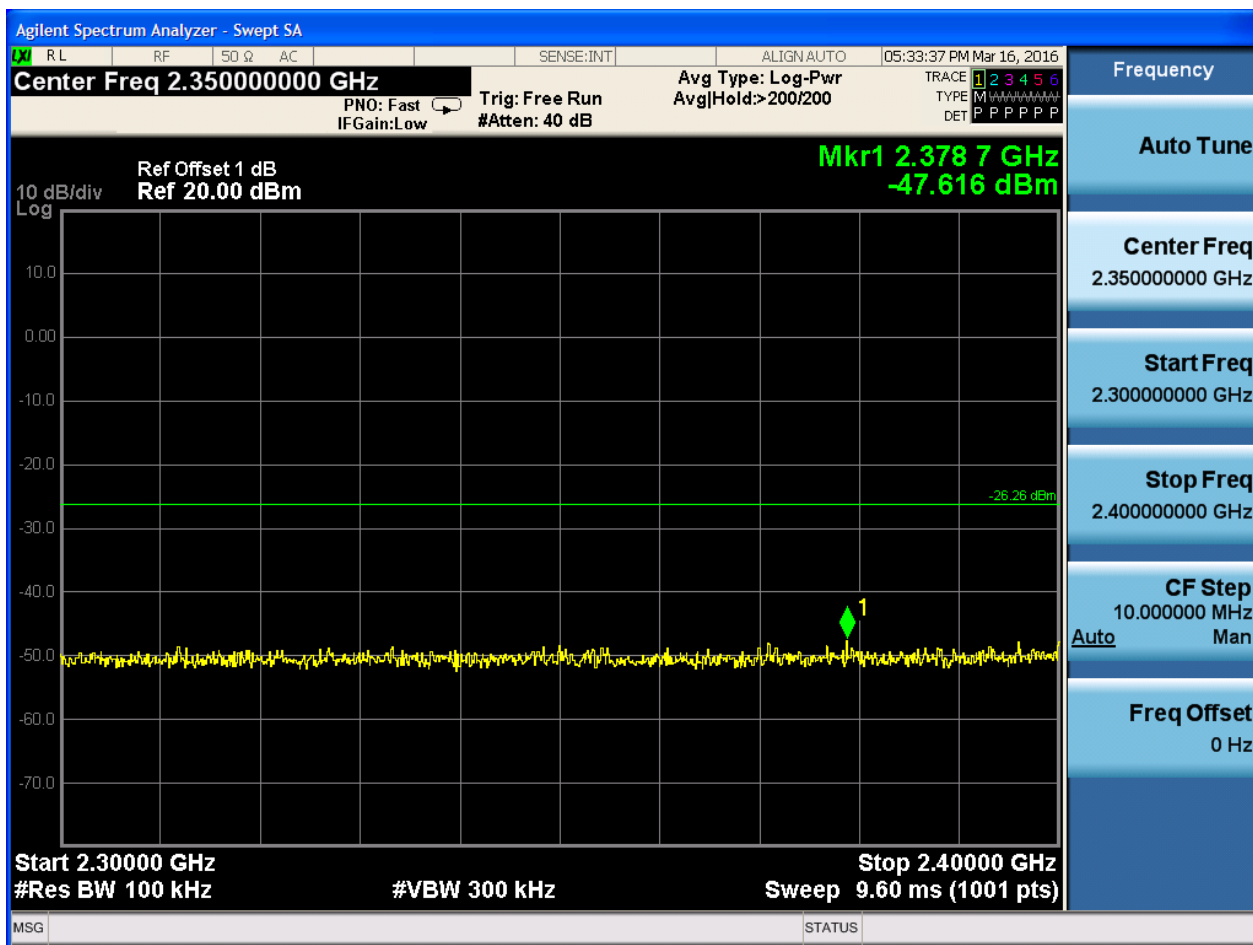
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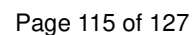


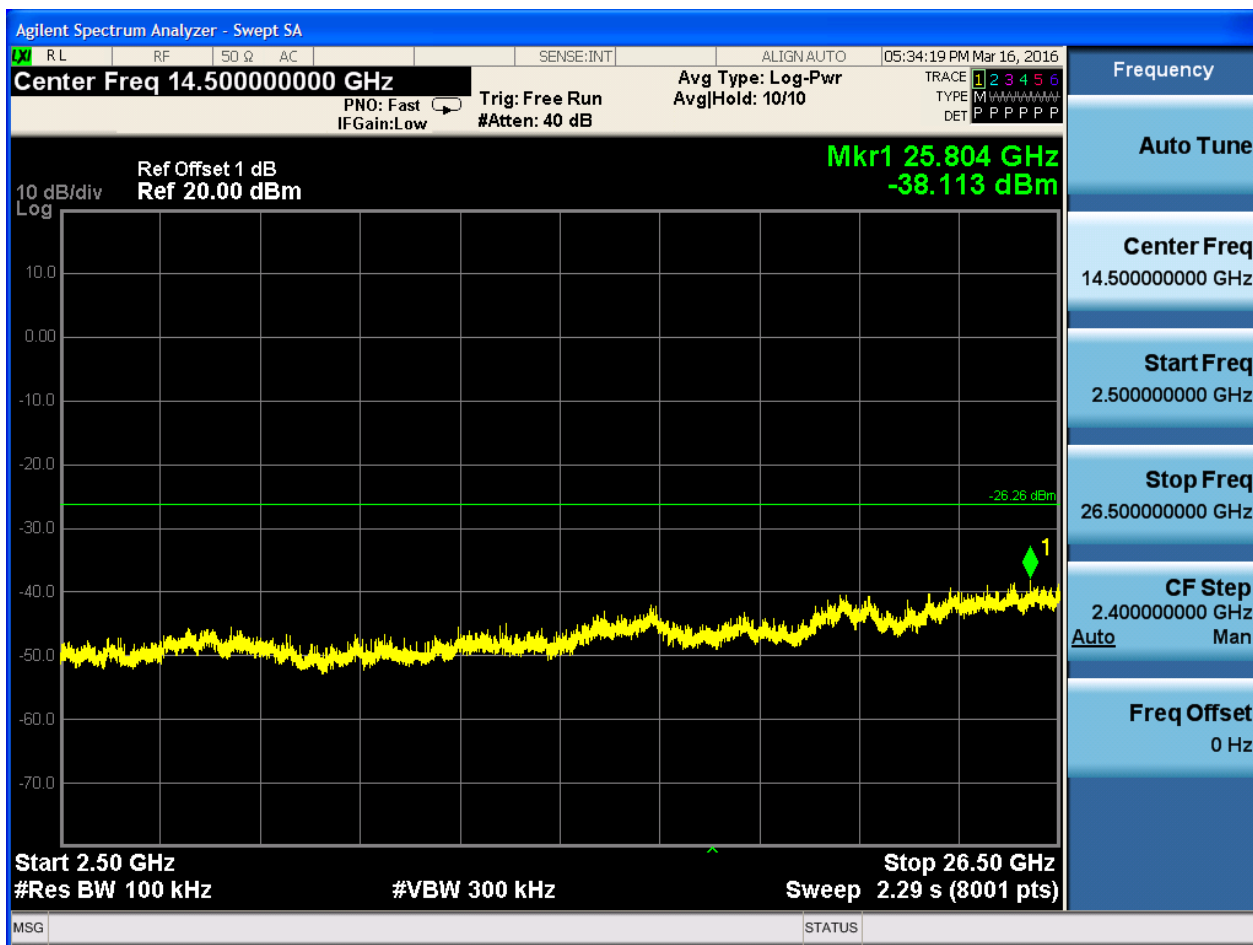
P_uw:











Appendix H: Radiated Spurious Emission & Spurious in Restricted Band

Note: We tested all modes, but the data presented below is the worst case.

Below 1GHz, RBW = 100 kHz, VBW = 300 kHz.

Above 1GHz, RBW = 1 MHz, VBW = 3 MHz.

The simultaneous transmission has been considered

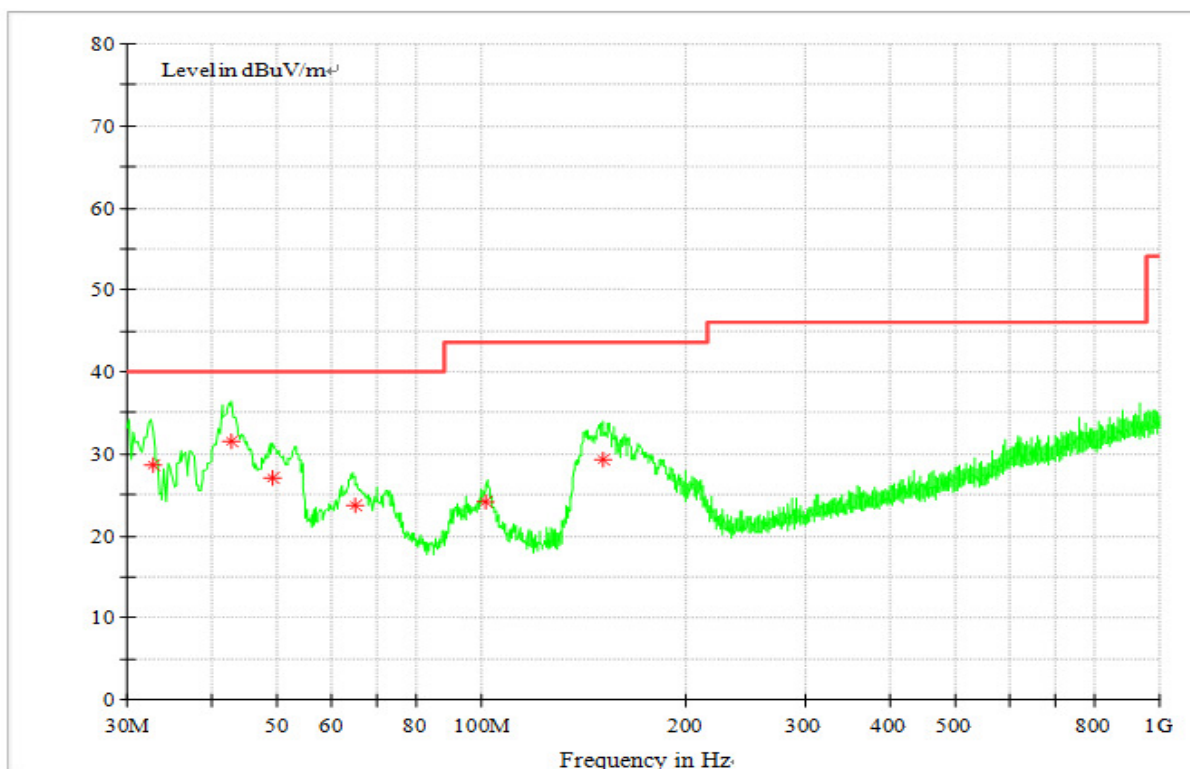
7.1 Part 1: Testing Range of “9 kHz to 30MHz”

NOTE1: No peak found in the Test Range of “9 kHz to 30MHz”

7.2 Part 2: Testing Range of “30 MHz to 1 GHz”

Note 1: The test results and plot for testing range of “30 MHz to 1 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

Note 2: The emissions in this range are mainly from the Platform Device (Notepad PC and its ancillary components).



Frequency (MHz)	Level (dBu V/m)	Limit (dBu V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Transd. (dB)
32.755680	28.55	40.00	11.45	100.0	V	7.0	14.9
42.681600	31.48	40.00	8.52	106.0	V	267.0	15.2
49.215920	27.11	40.00	12.89	107.0	V	116.0	14.8
65.028240	23.74	40.00	16.26	200.0	V	287.0	11.6
101.749760	24.23	43.50	19.27	142.0	V	313.0	13.5
150.781920	29.27	43.50	14.23	100.0	V	205.0	9.9

Note:

Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

7.3 Part 3: Testing Range of “1 GHz to 3 GHz”

Note 1: The testing range of “1 GHz to 3 GHz” is for checking radiated emissions located in restricted bands near the EUT operating bands.

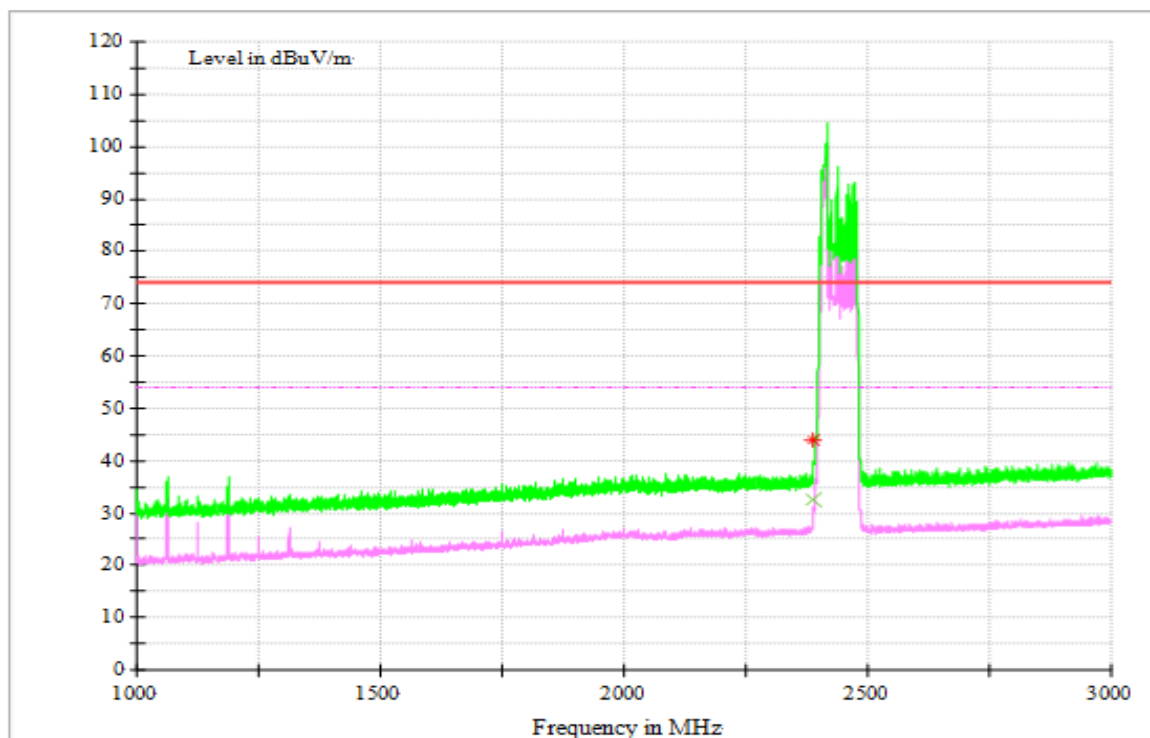
Note 2: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB μ V/m) and Average Limit (54 dB μ V/m).

Note 3: The peak spike exceeds the limit line is EUT’s operating frequency.

Test Mode:

7.4.1 Test Mode: 11B

7.4.1.1 Channel 1 @Ant 1



MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h	Transd. (dB)
2389.000000	32.52	54.00	21.48	113.0	H	173.0	-7.8

MEASUREMENT RESULT: PK Detector

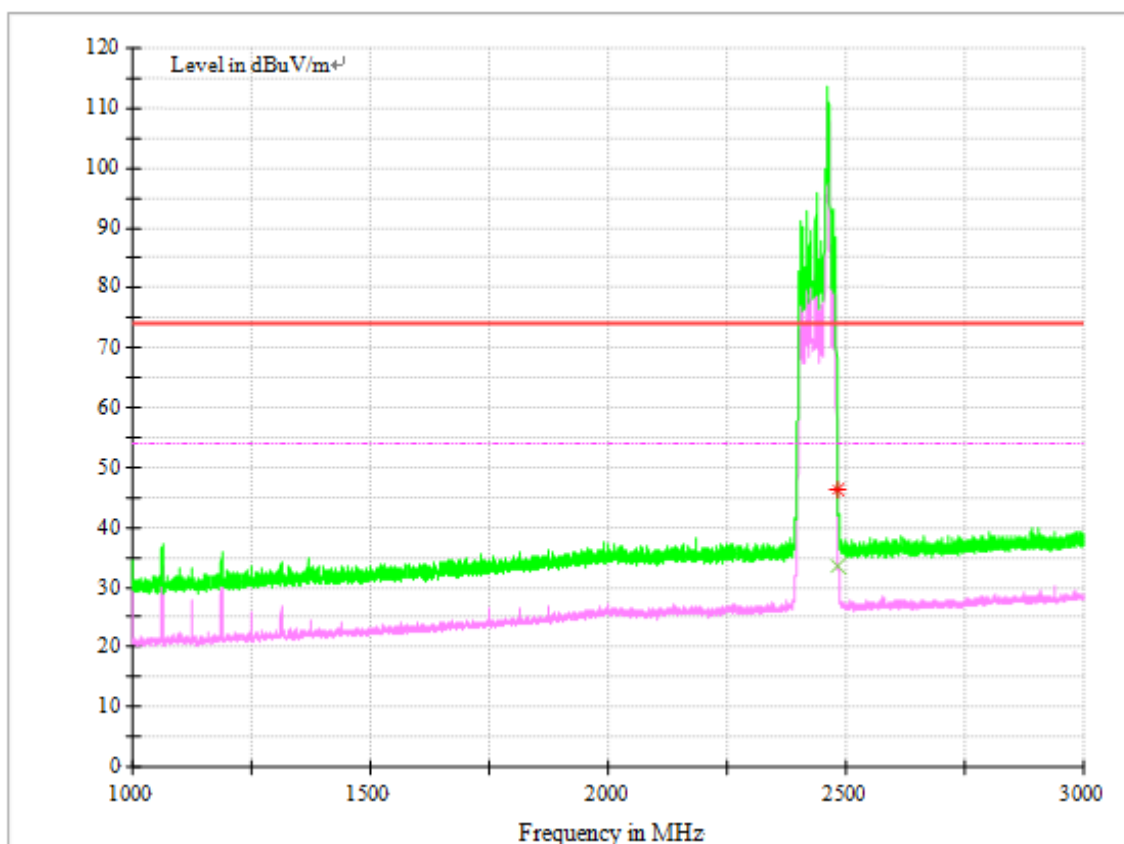
Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2389.000000	44.07	74.00	29.93	200.0	H	175.0	-7.9

Note2:

Level = Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

7.4.1.2 Channel 11@Ant 1



MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h	Transd. (dB)
2483.500000	33.68	54.00	20.32	100.0	V	186.0	-0.8

MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2483.500000	46.34	74.00	27.66	136.0	V	175.0	-1.2

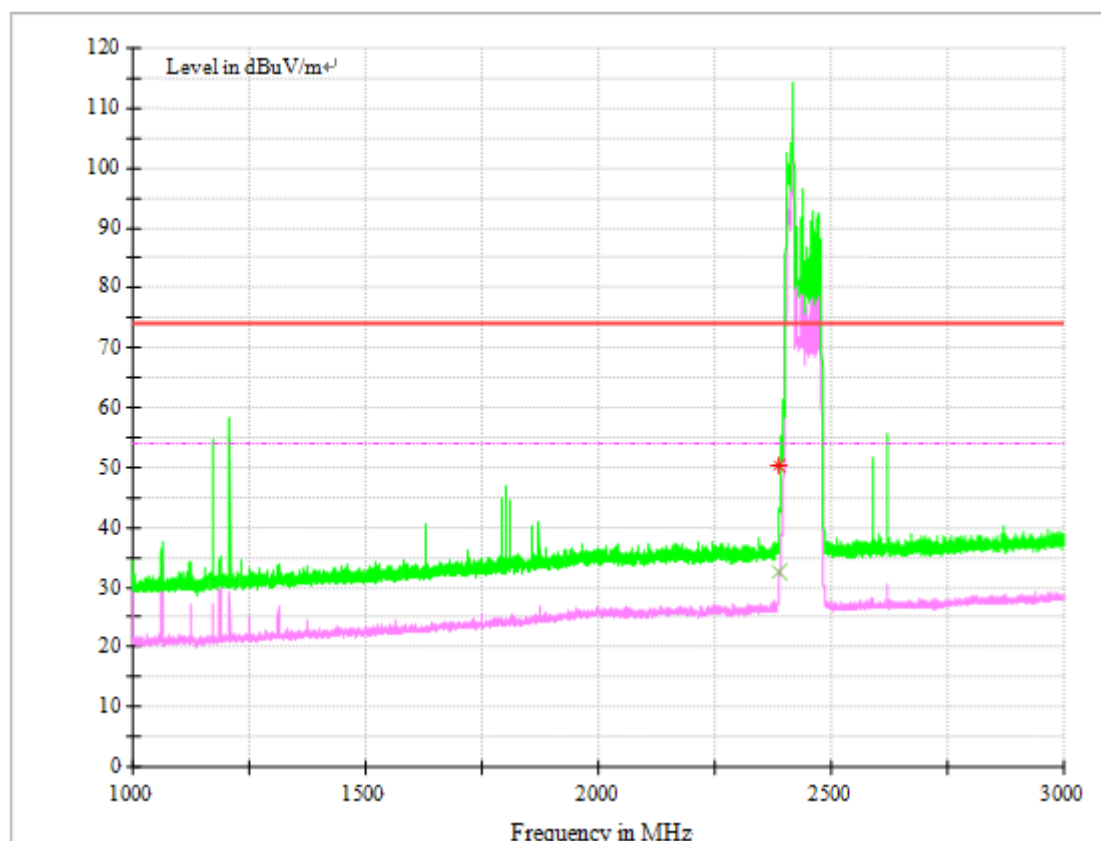
Note2:

Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

7.4.2 Test Mode: 11G

7.4.2.1 Channel 1 @Ant 1



MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h	Transd. (dB)
2389.000000	32.66	54.00	21.34	154.0	H	167.0	-7.8

MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2389.000000	50.16	74.00	23.84	197.0	H	178.0	-8.1

Note2:

Level = Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.