



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.

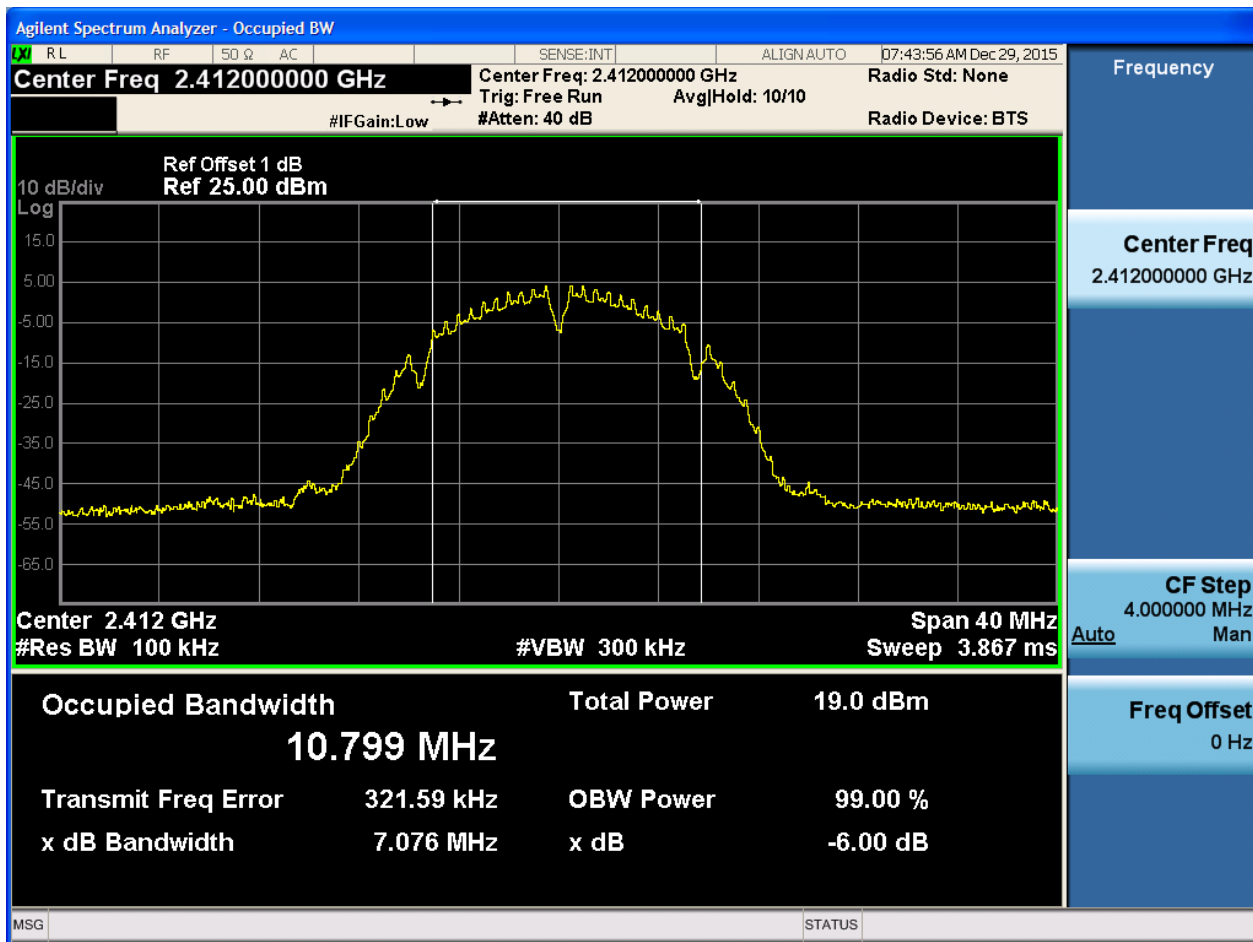
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	DTS6dBBW[MHz]	Verdict
11B	L	2412	Ant 1	7.08	pass
11B	M	2437	Ant 1	7.10	pass
11B	H	2462	Ant 1	7.09	pass
11G	L	2412	Ant 1	16.08	pass
11G	M	2437	Ant 1	16.37	pass
11G	H	2462	Ant 1	16.38	pass
11N20	L	2412	Ant 1	17.23	pass
11N20	M	2437	Ant 1	17.61	pass
11N20	H	2462	Ant 1	17.60	pass



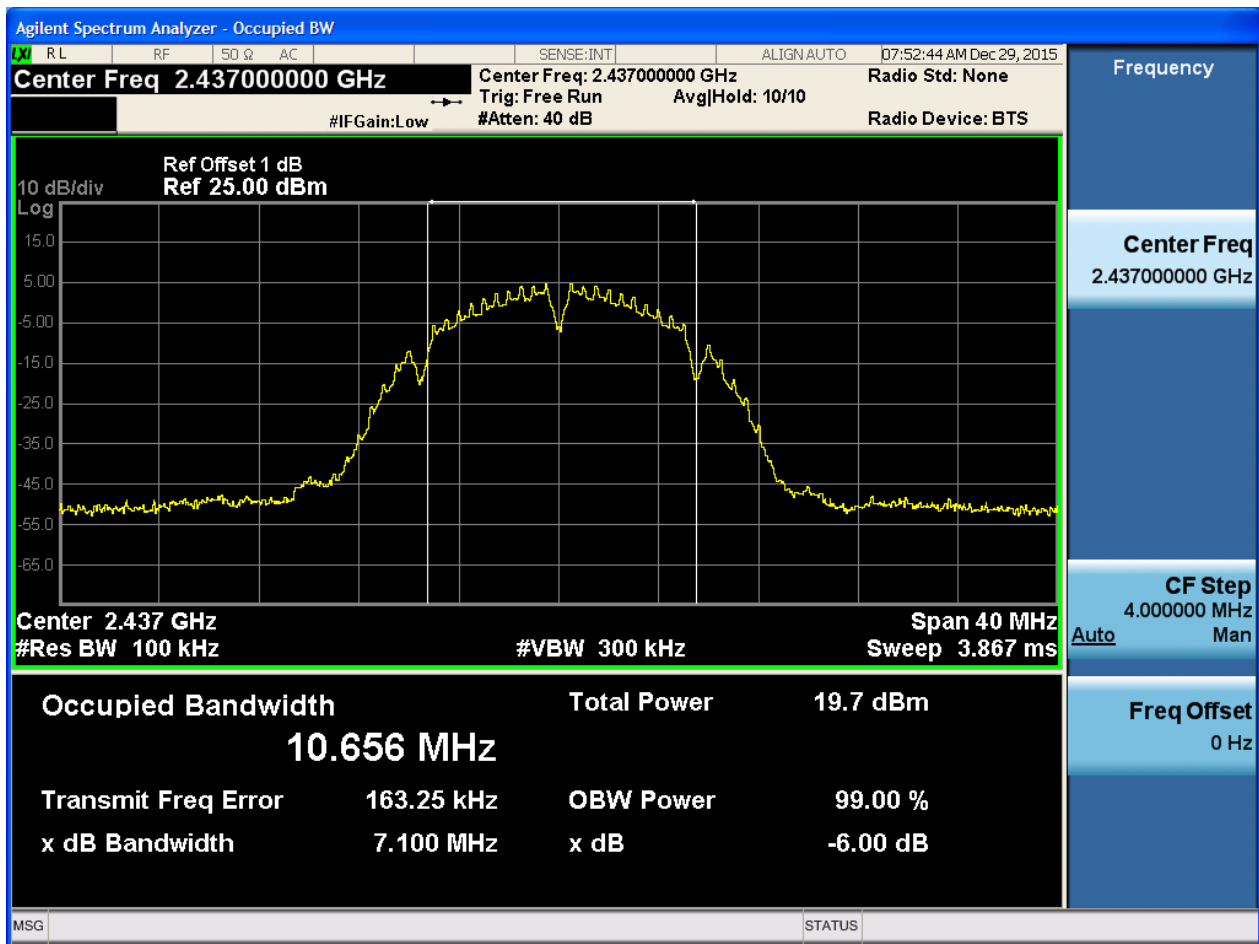
Part II - Test Plots

2.1 11B_L@Ant 1



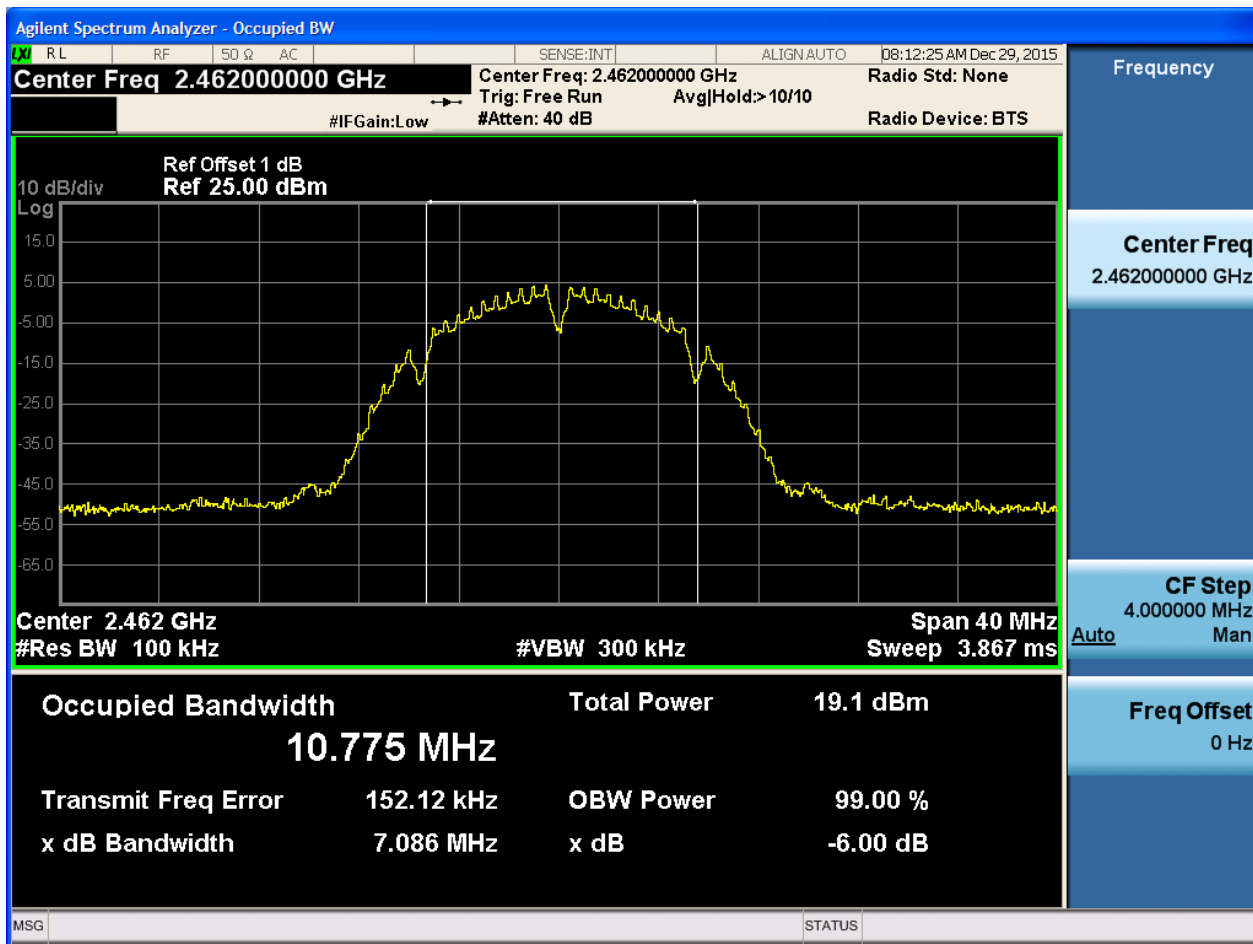


2.3 11B_M@Ant 1



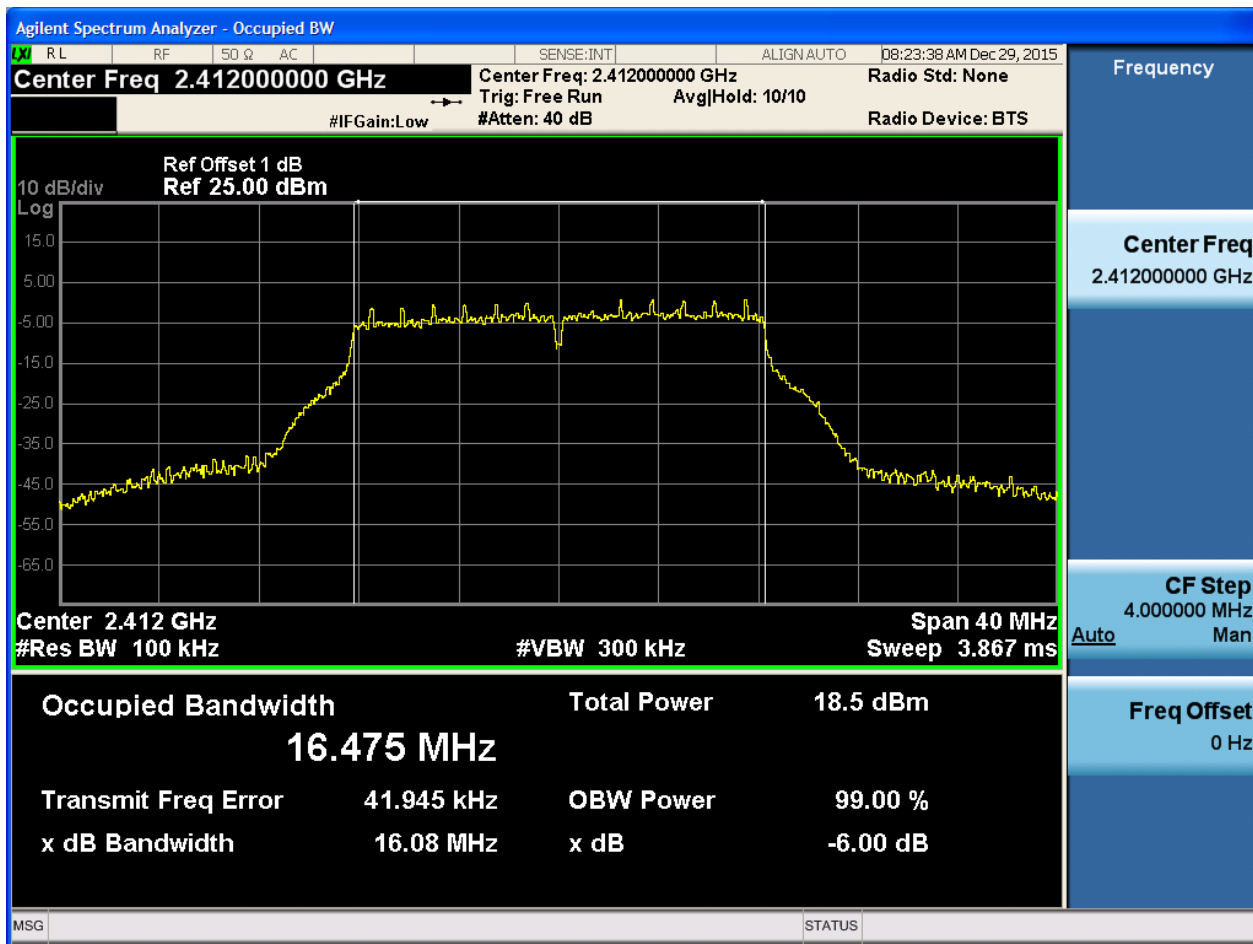


2.5 11B_H@Ant 1



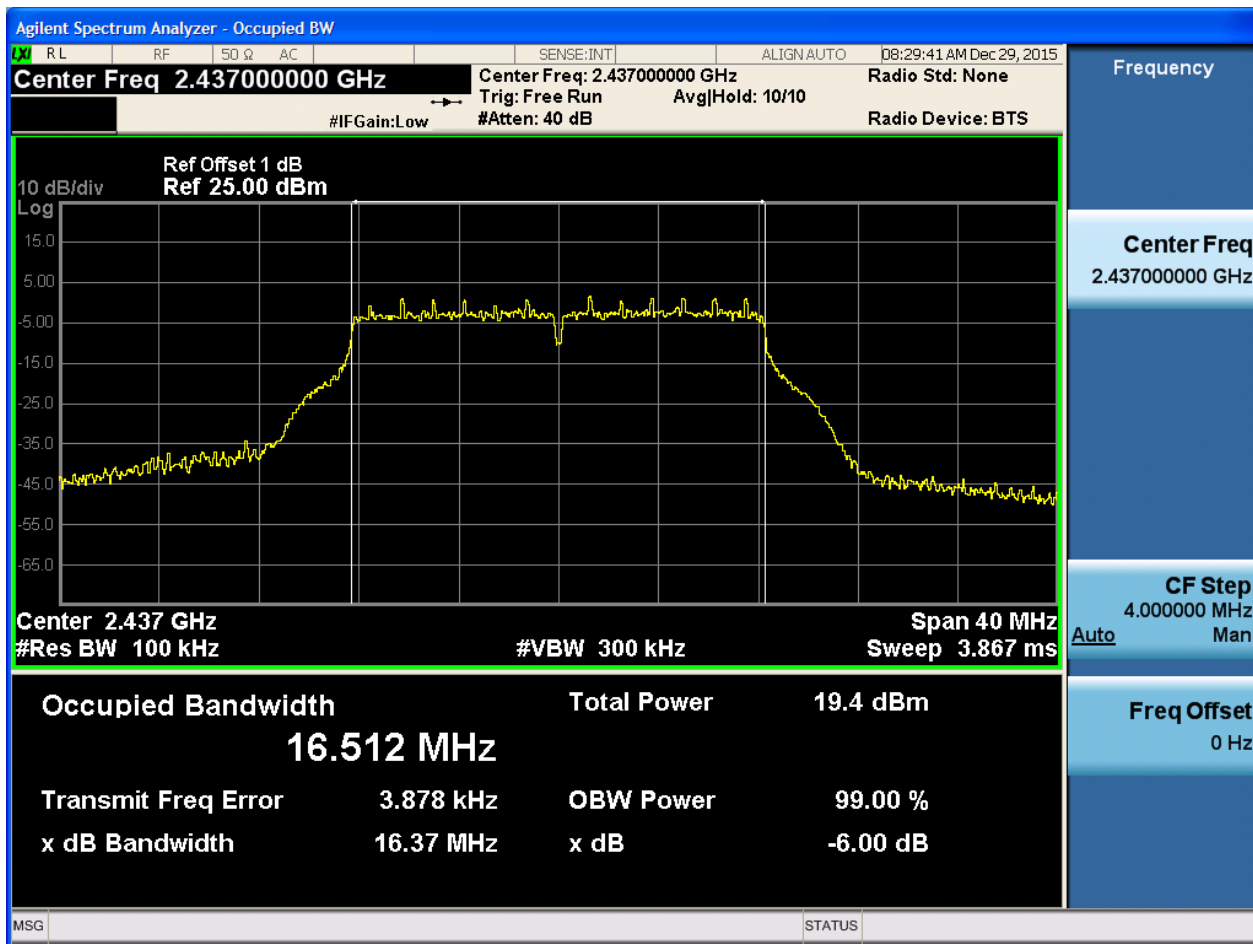


2.7 11G_L@Ant 1



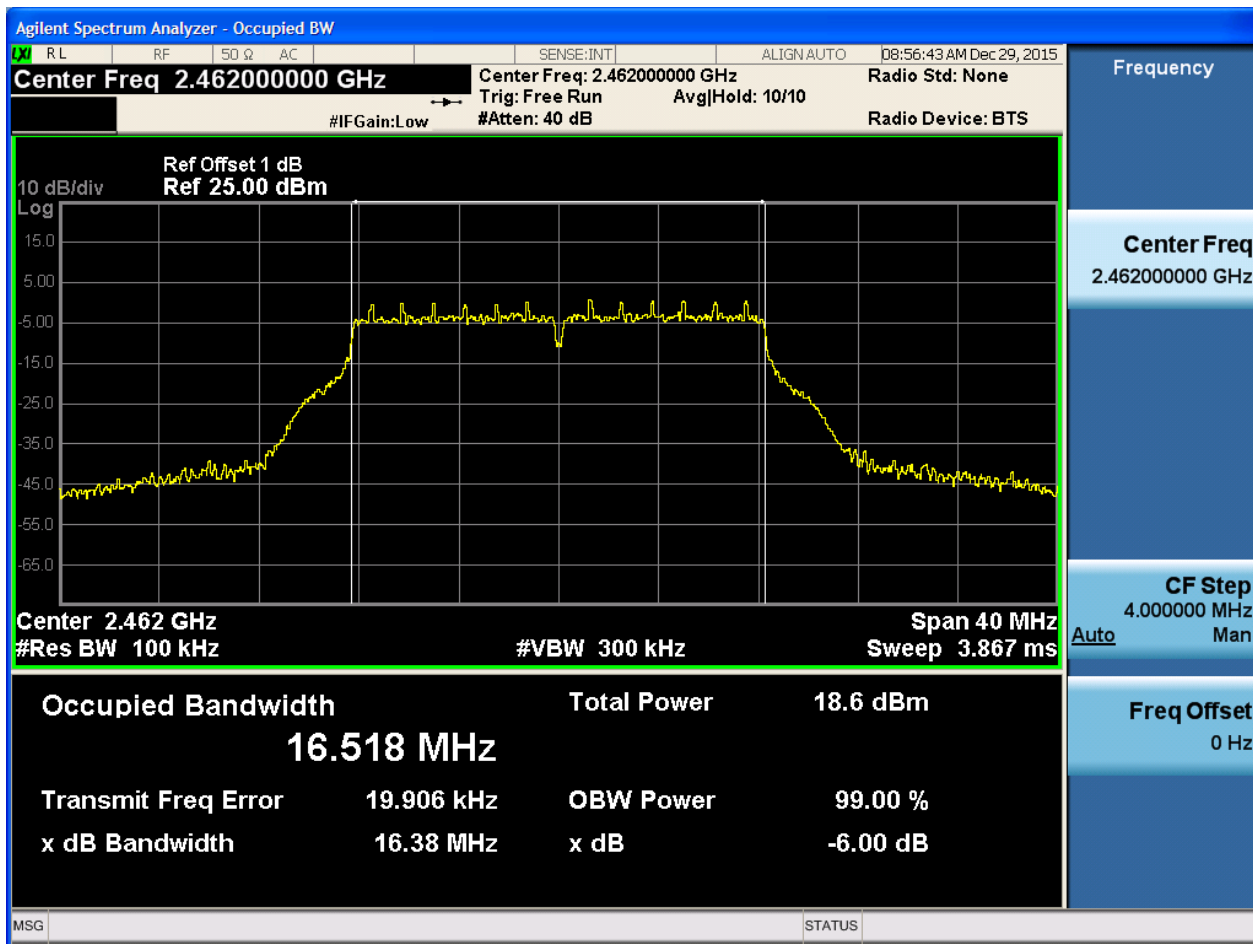


2.9 11G_M@Ant 1



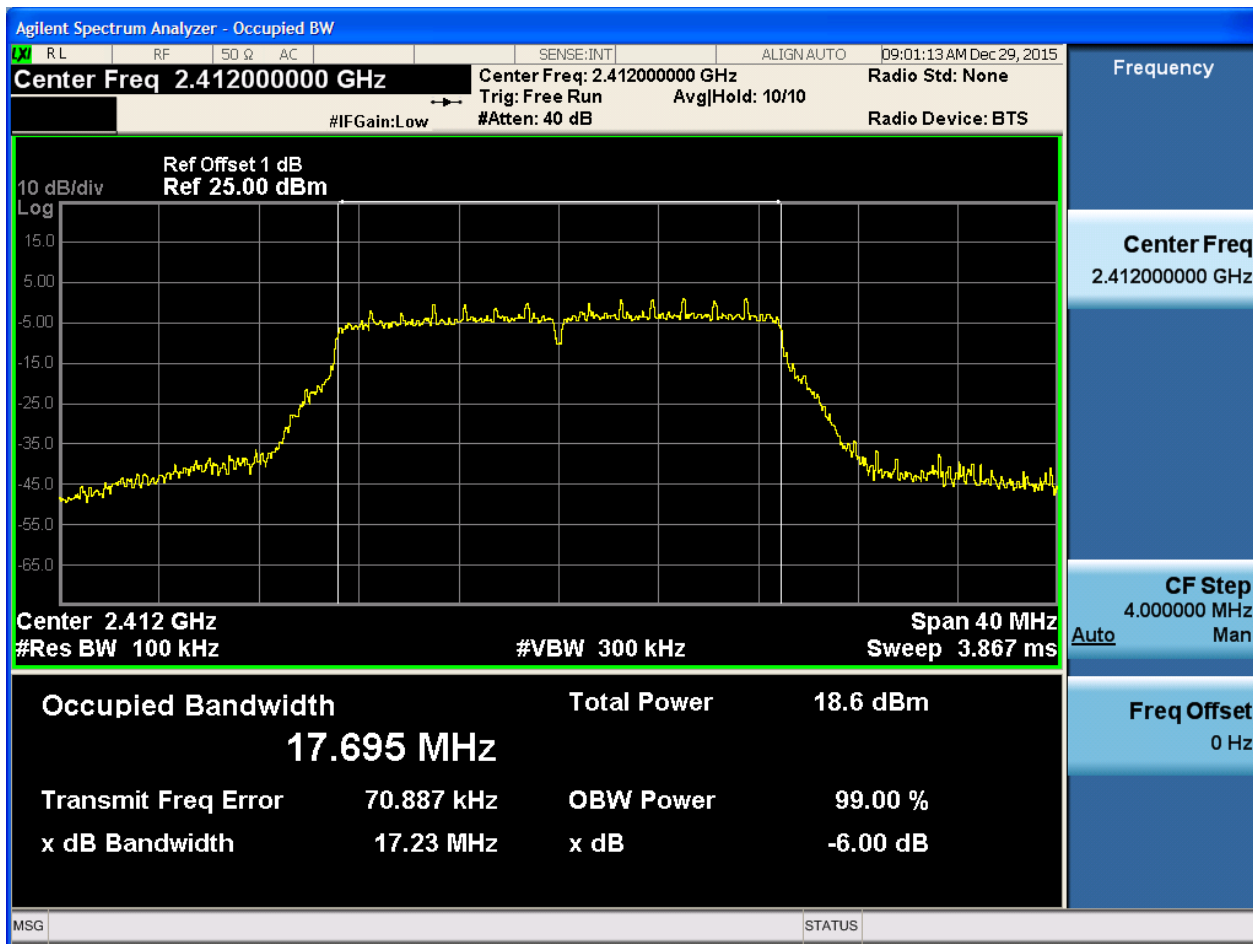


2.11 11G_H@Ant 1



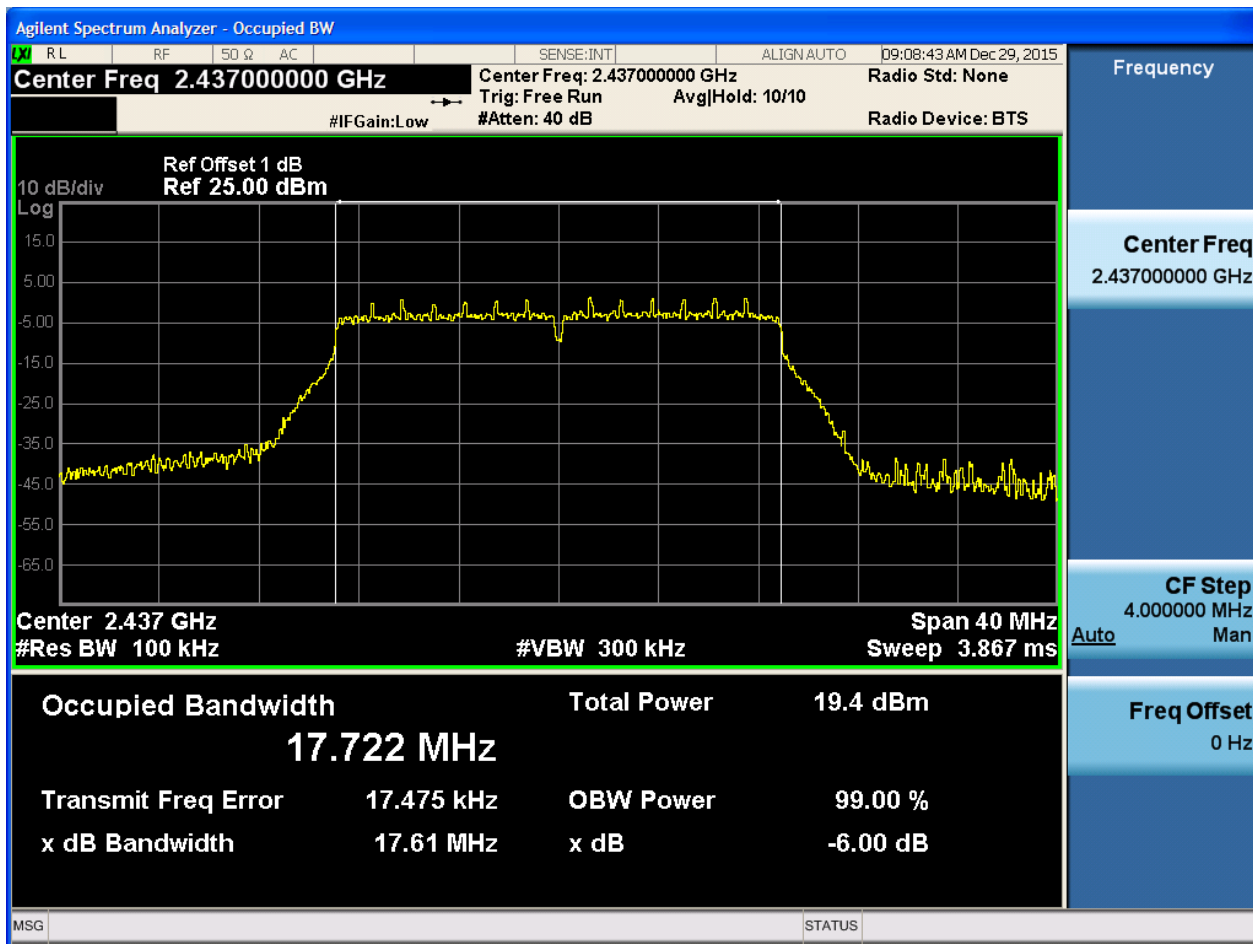


2.13 11N20_L@Ant 1



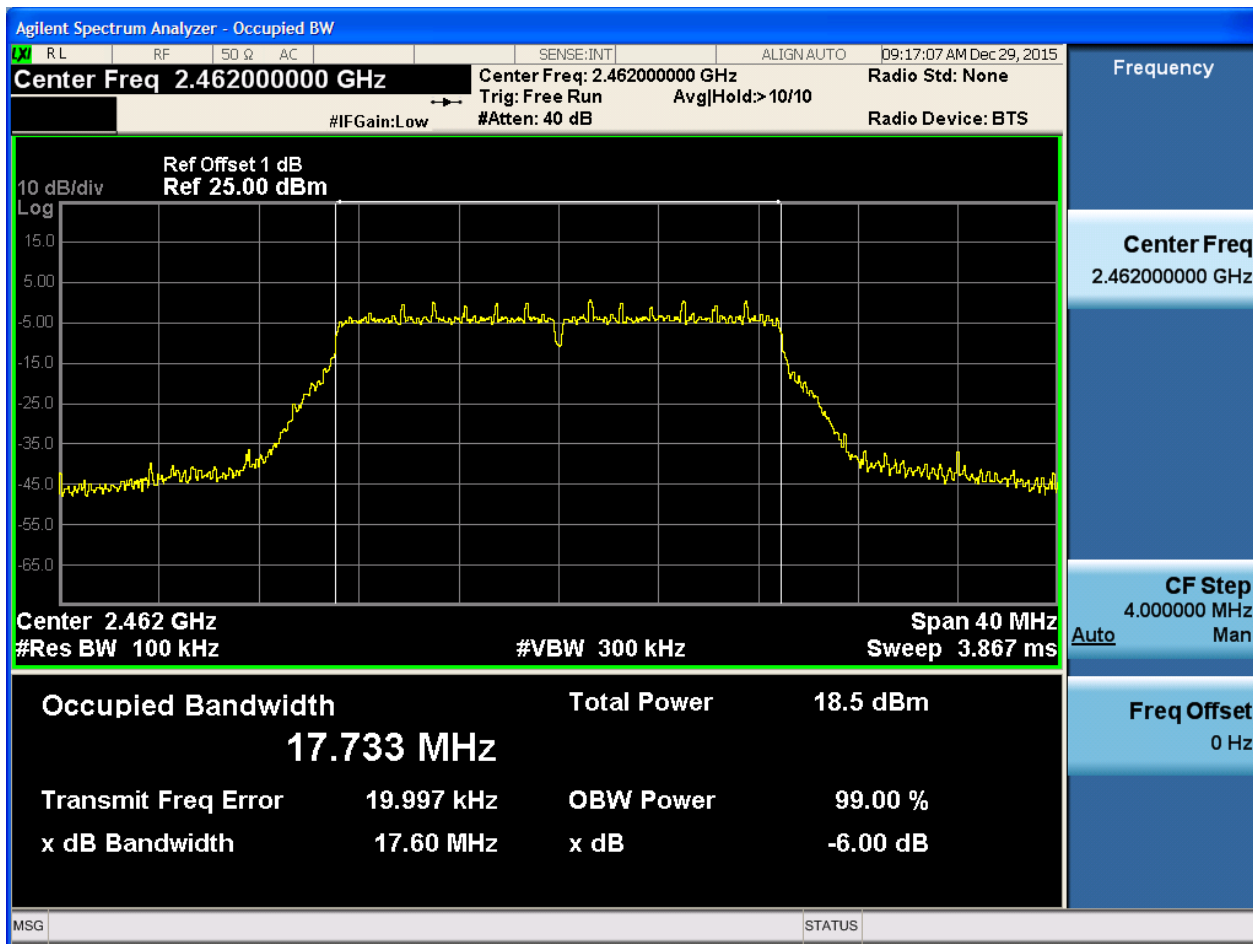


2.15 11N20_M@Ant 1





2.17 11N20_H@Ant 1



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.

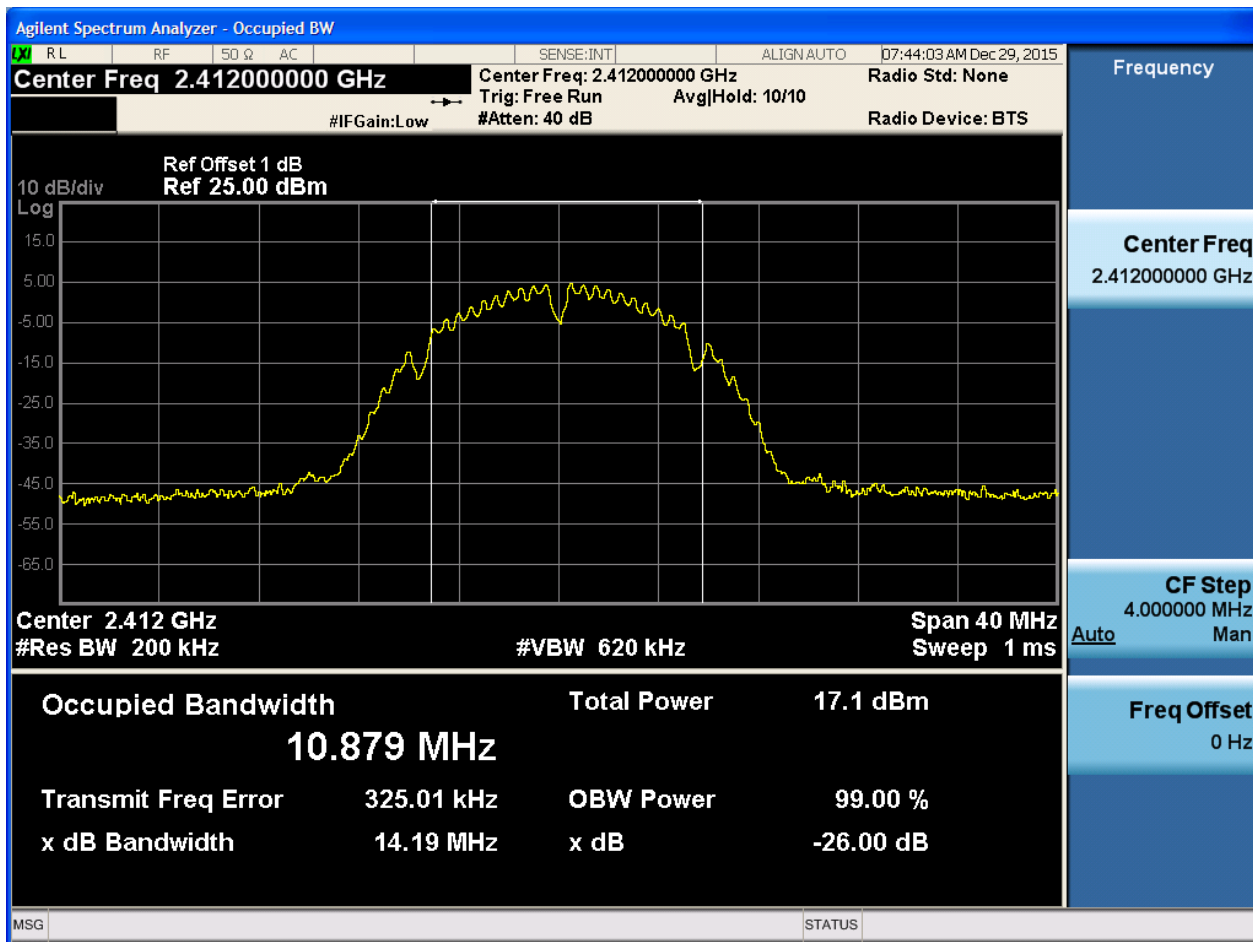
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Occupied Bandwidth [MHz]	Verdict
11B	L	2412	Ant 1	10.88	pass
11B	M	2437	Ant 1	10.81	pass
11B	H	2462	Ant 1	10.89	pass
11G	L	2412	Ant 1	16.67	pass
11G	M	2437	Ant 1	16.70	pass
11G	H	2462	Ant 1	16.76	pass
11N20	L	2412	Ant 1	17.84	pass
11N20	M	2437	Ant 1	17.89	pass
11N20	H	2462	Ant 1	17.90	pass



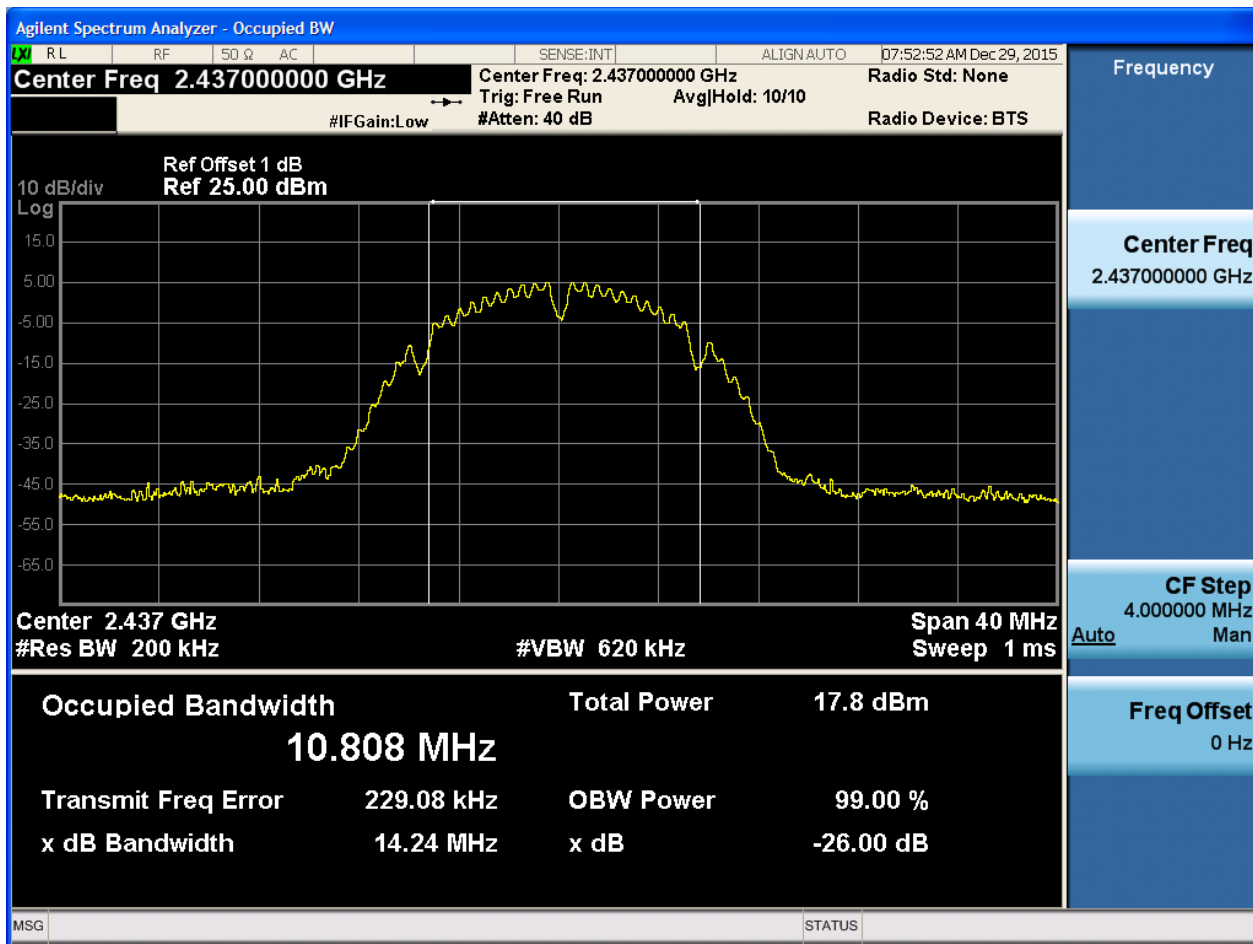
Part II - Test Plots

2.1 11B_L@Ant 1



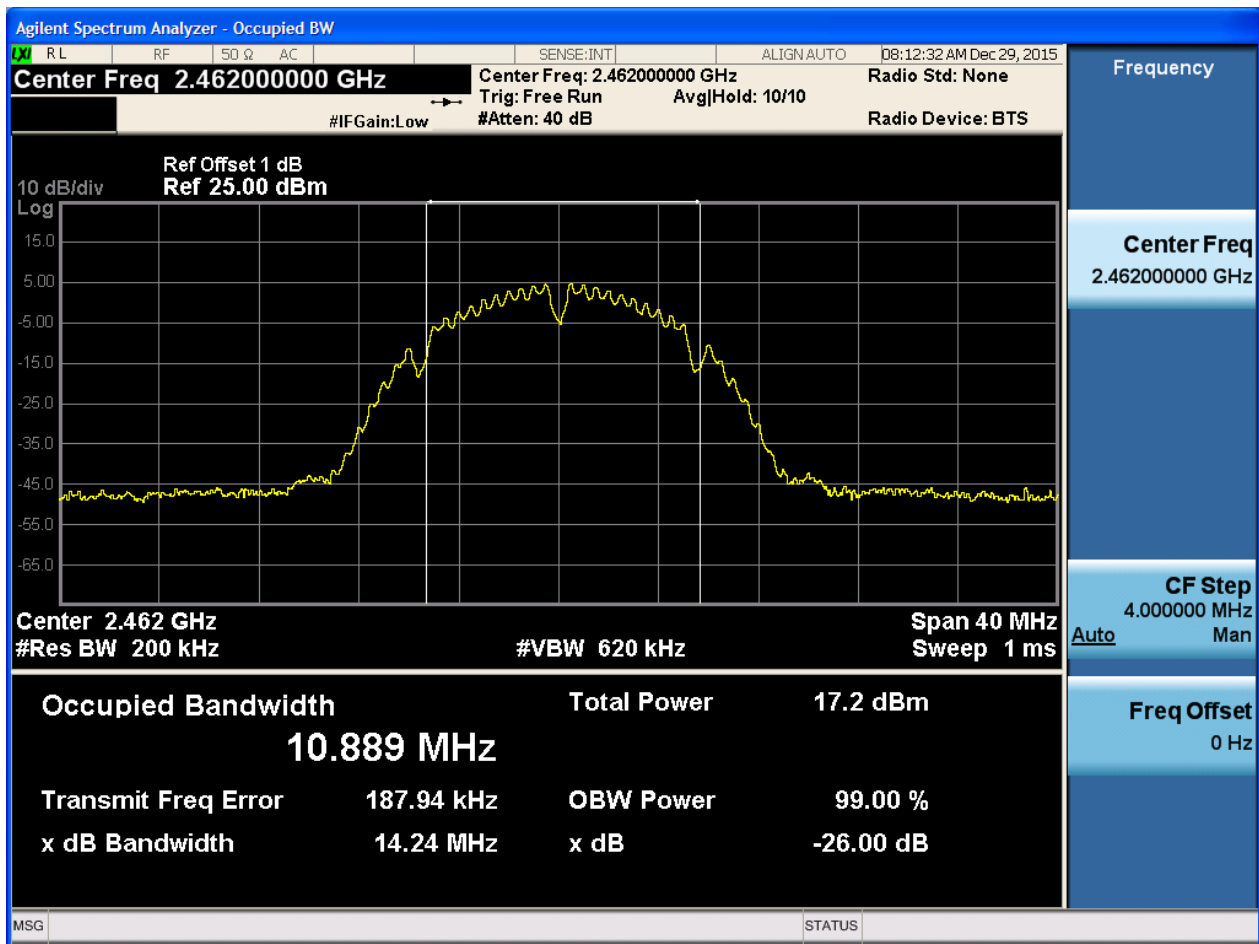


2.3 11B_M@Ant 1



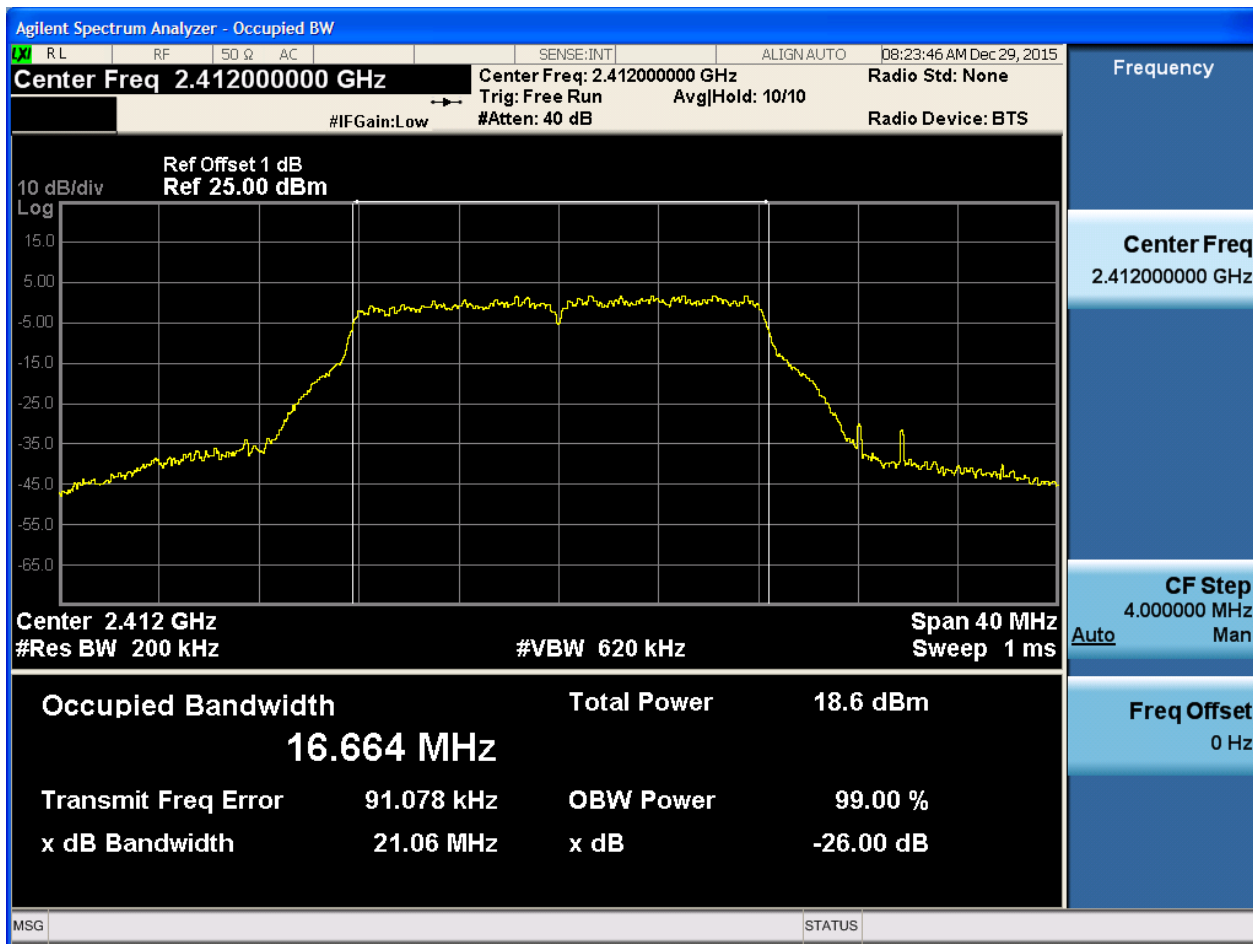


2.5 11B_H@Ant 1



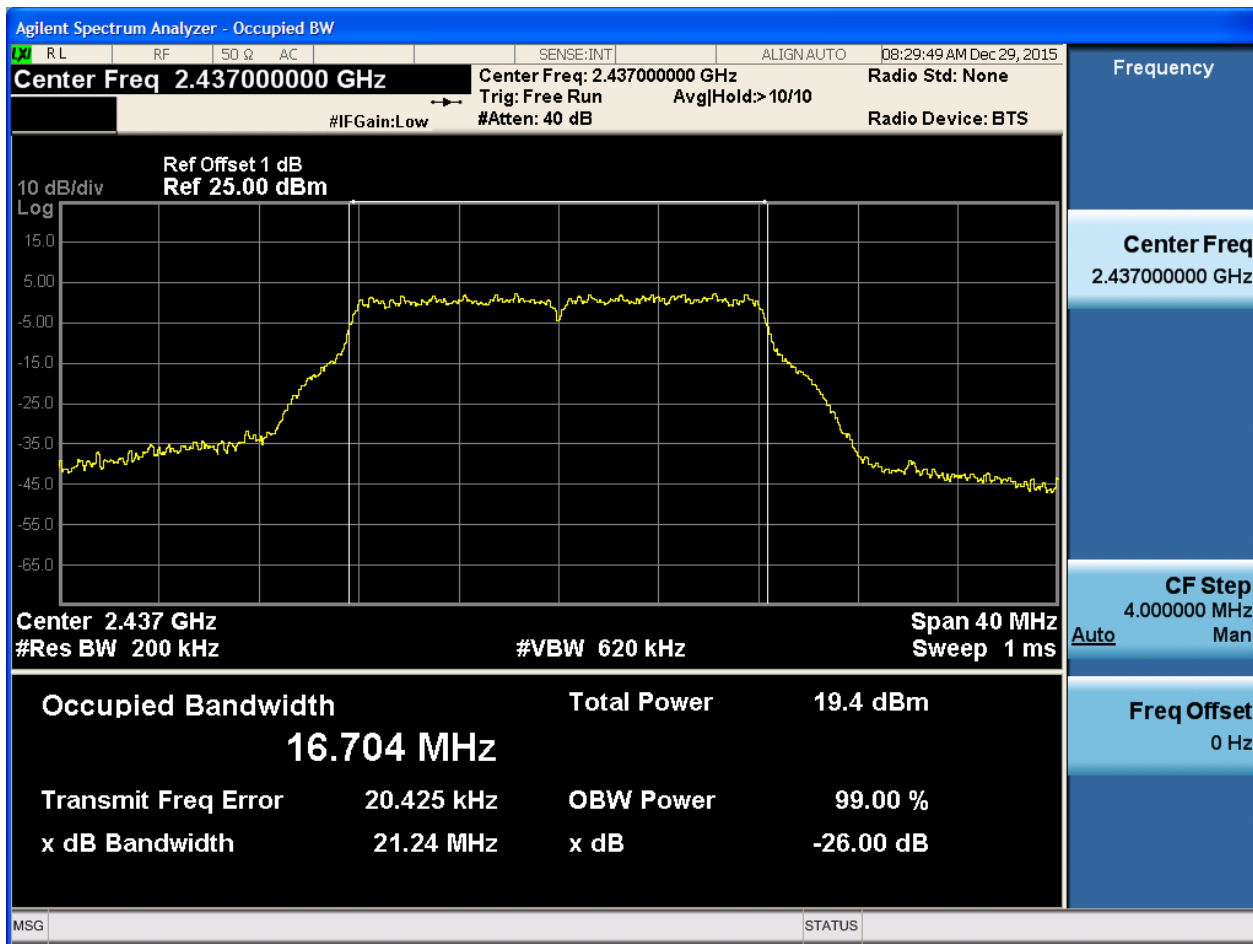


2.7 11G_L@Ant 1



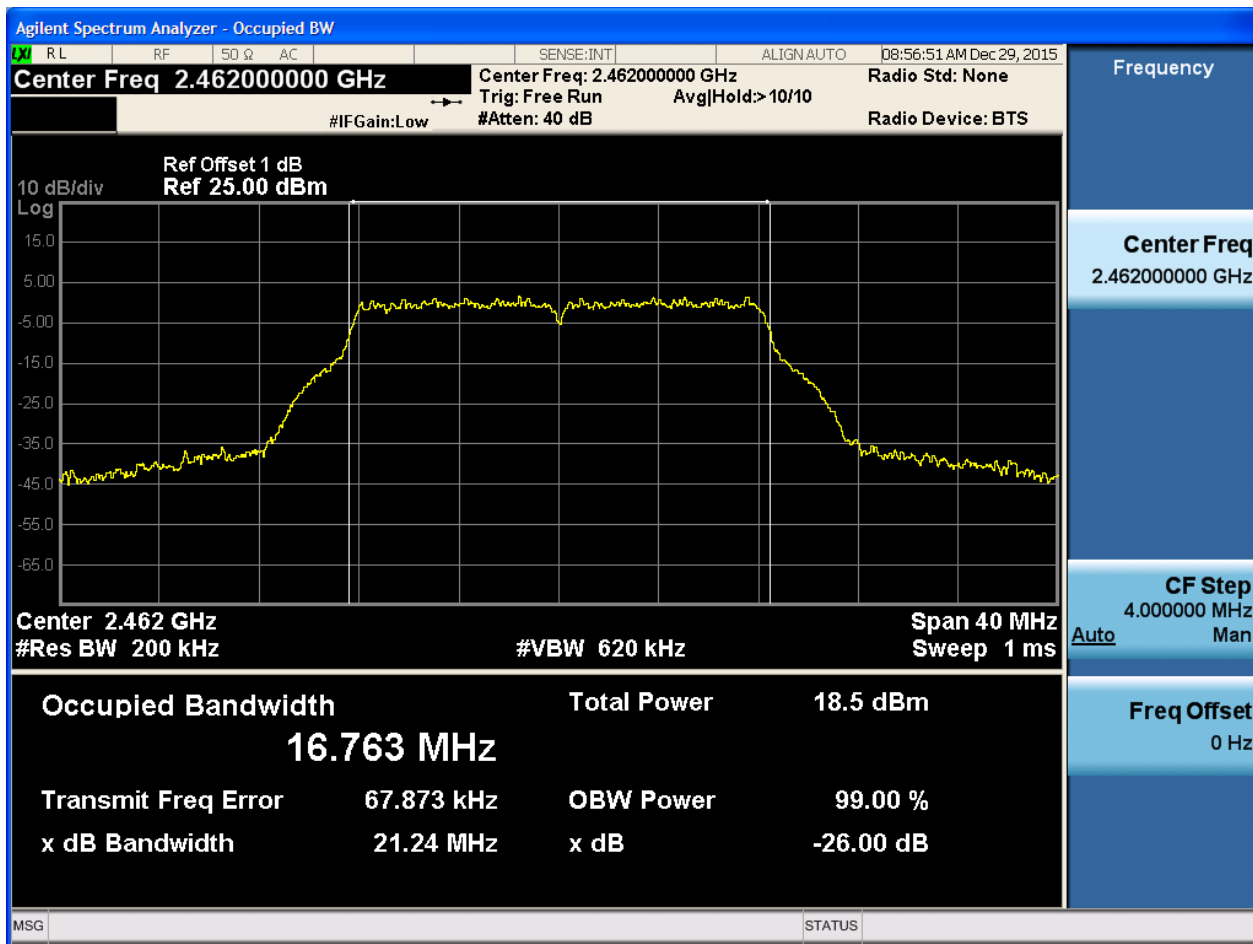


2.9 11G_M@Ant 1



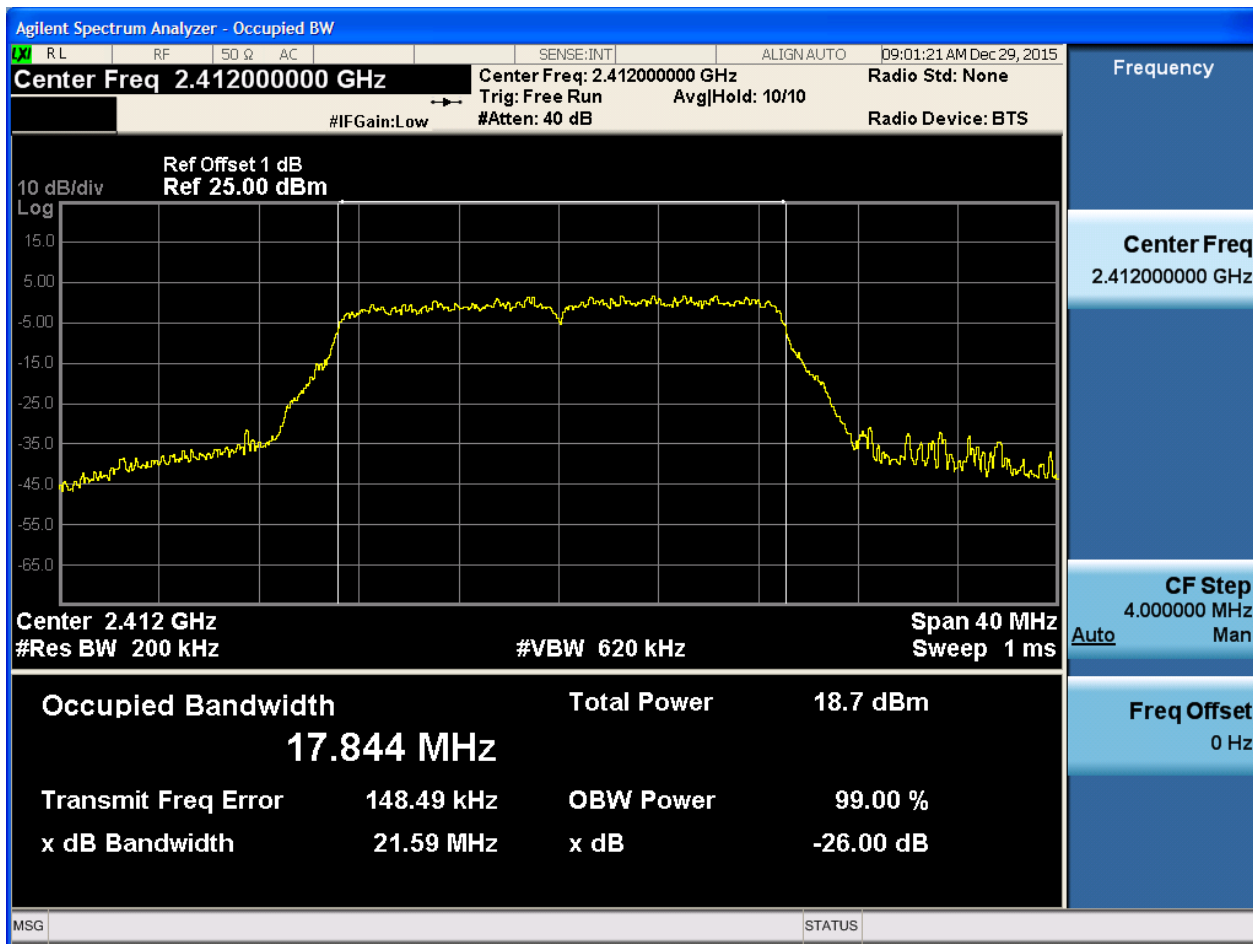


2.11 11G_H@Ant 1



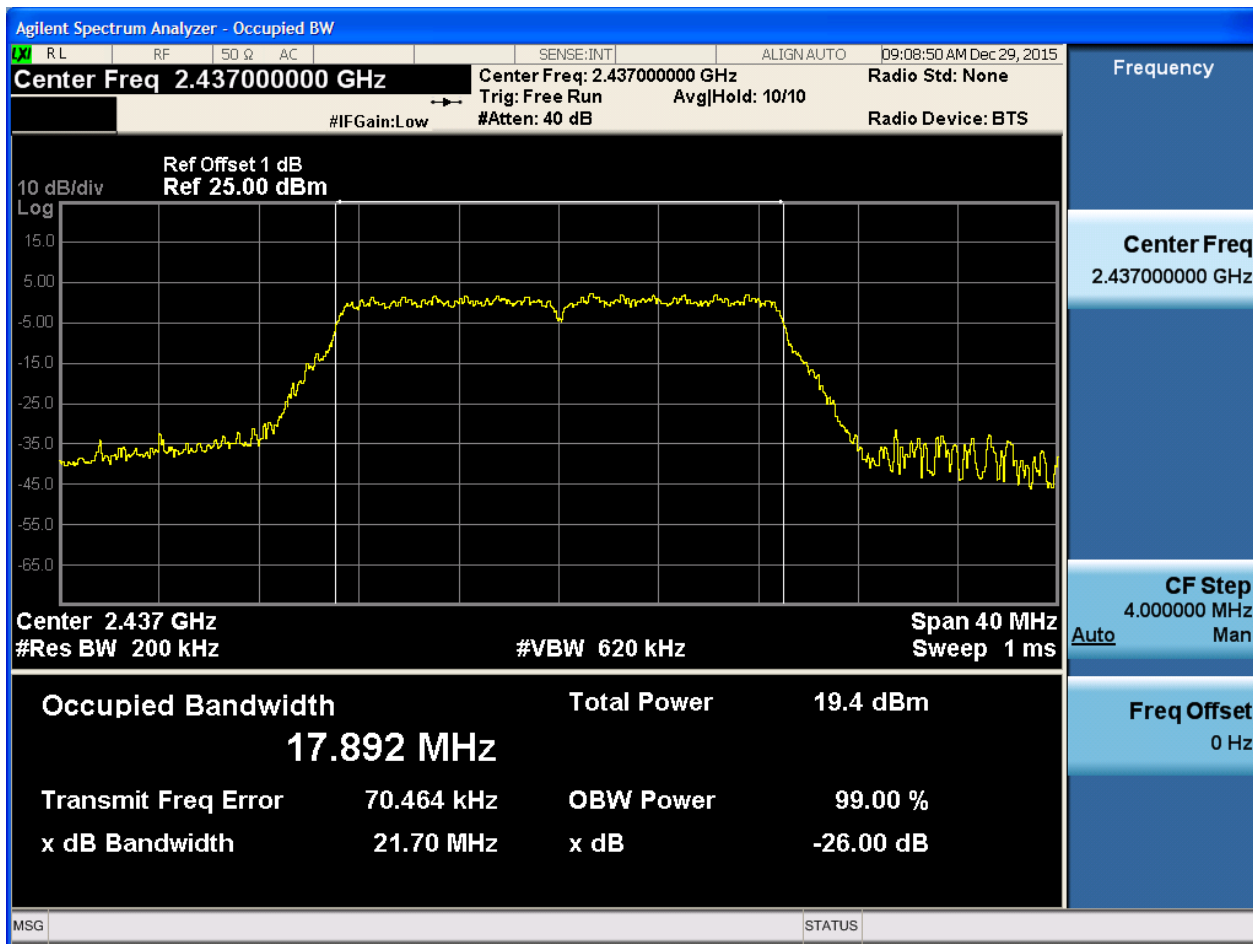


2.13 11N20_L@Ant 1



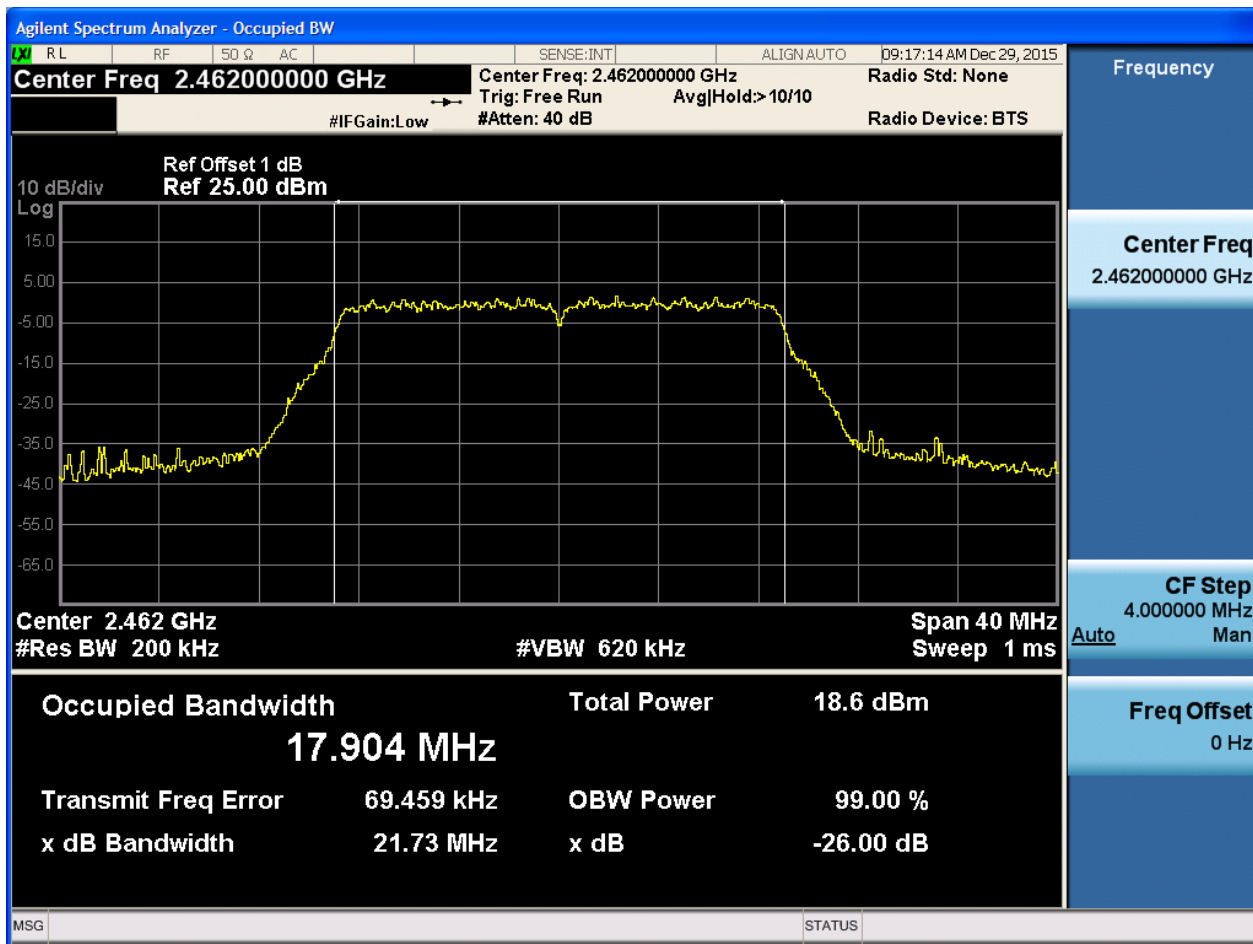


2.15 11N20_M@Ant 1





2.17 11N20_H@Ant 1



Appendix C: Duty cycle

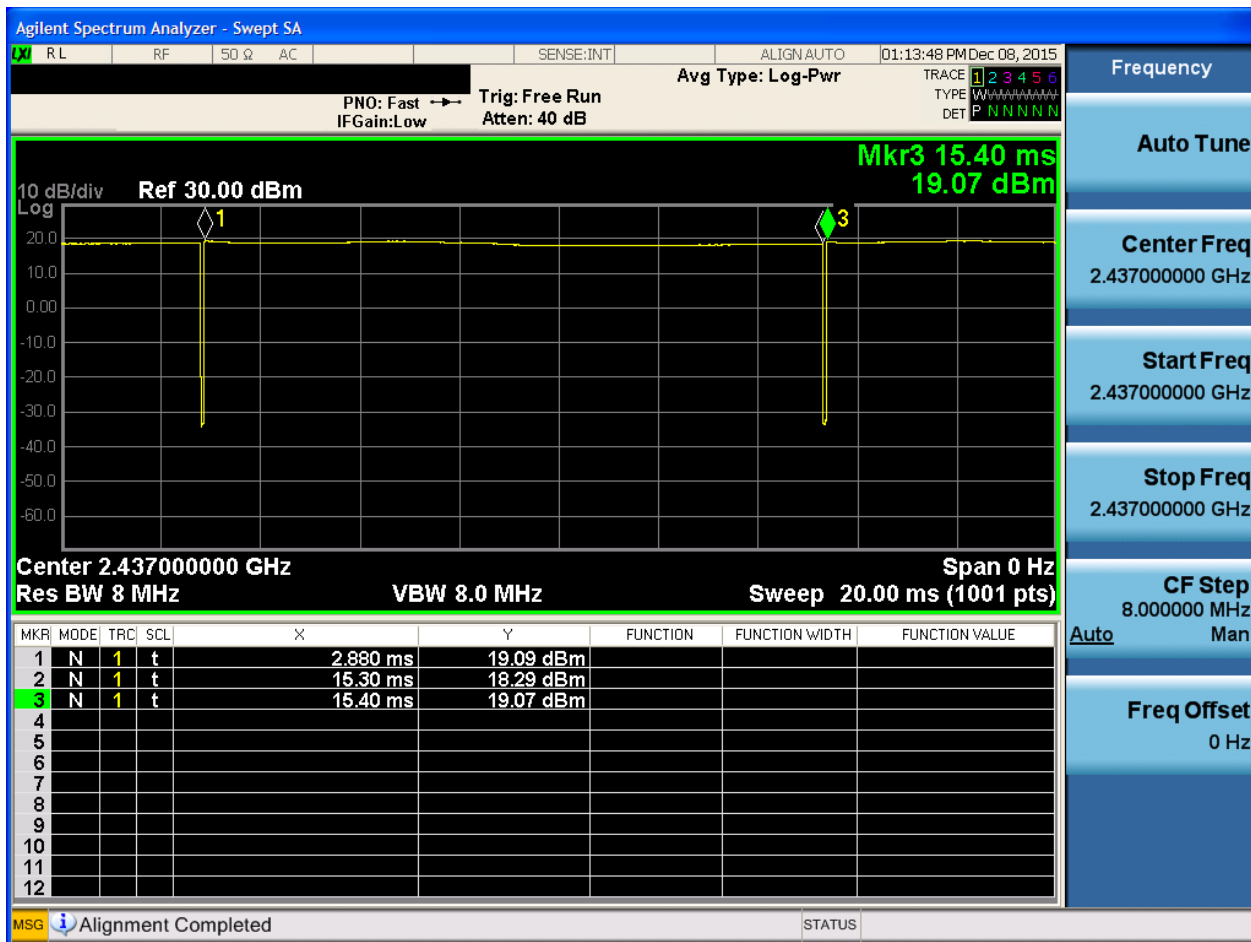
Part I - Test Results

Test Mode	TX Freq. [MHz]	Ant	Duty cycle [%]
11B	CH1,CH6,CH11	Ant 1	99
11G	CH1,CH6,CH11	Ant 1	95
11N20SISO	CH1,CH6,CH11	Ant 1	95



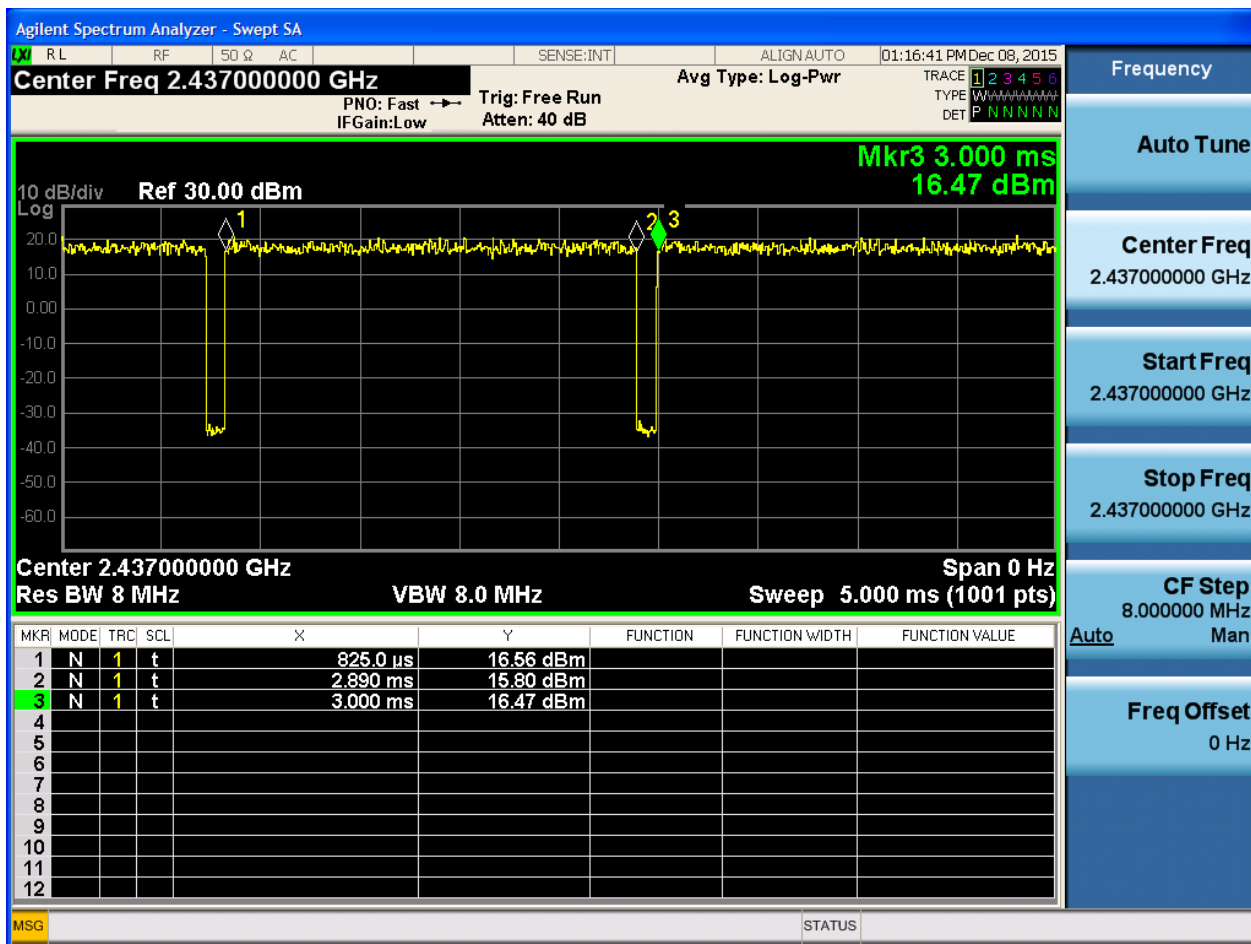
Part II - Test Plots

2.1 11B_Ant 1



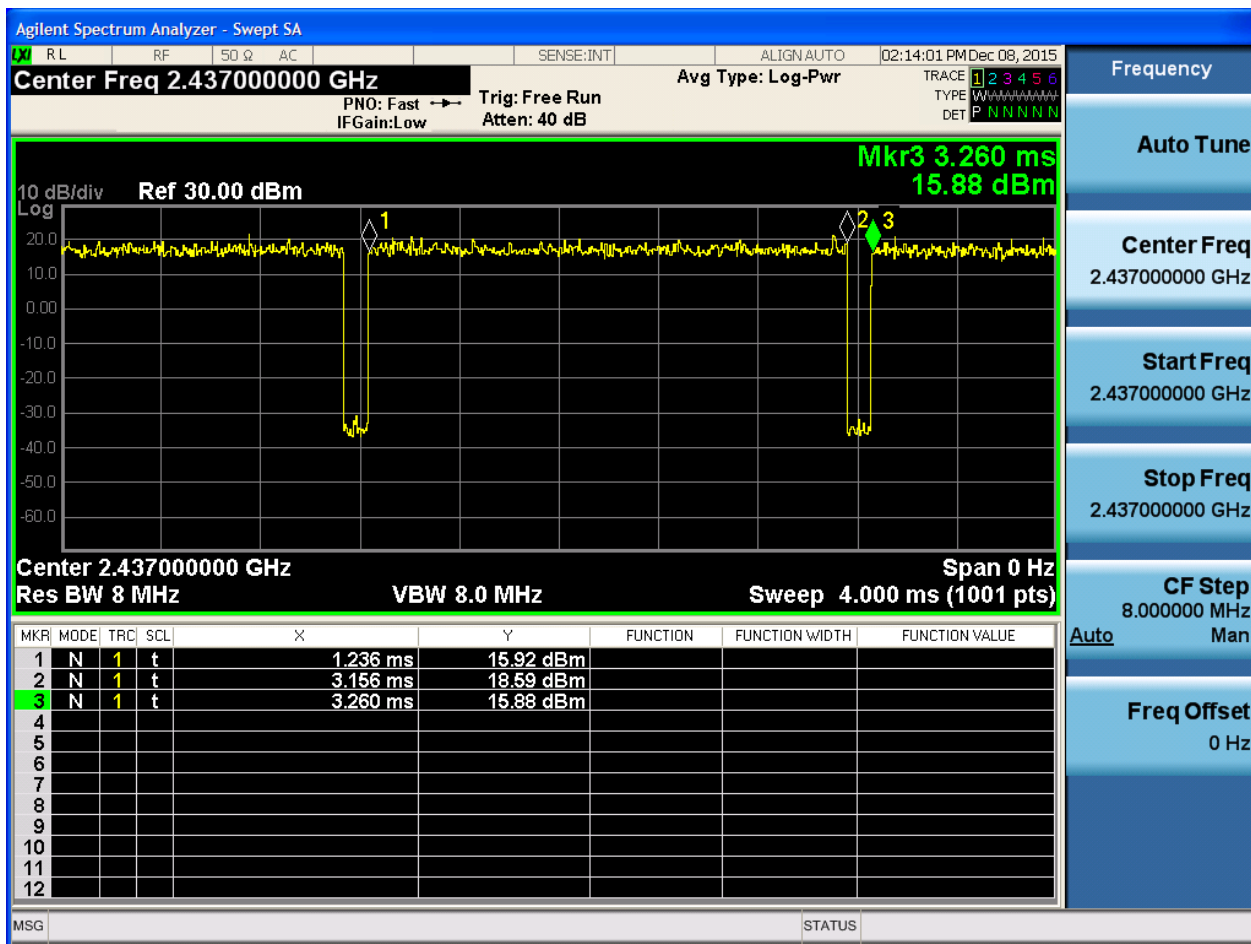


2.2 11G_Ant 1





2.3 11N_ Ant 1



Appendix D: Maximum Conducted Average Output Power

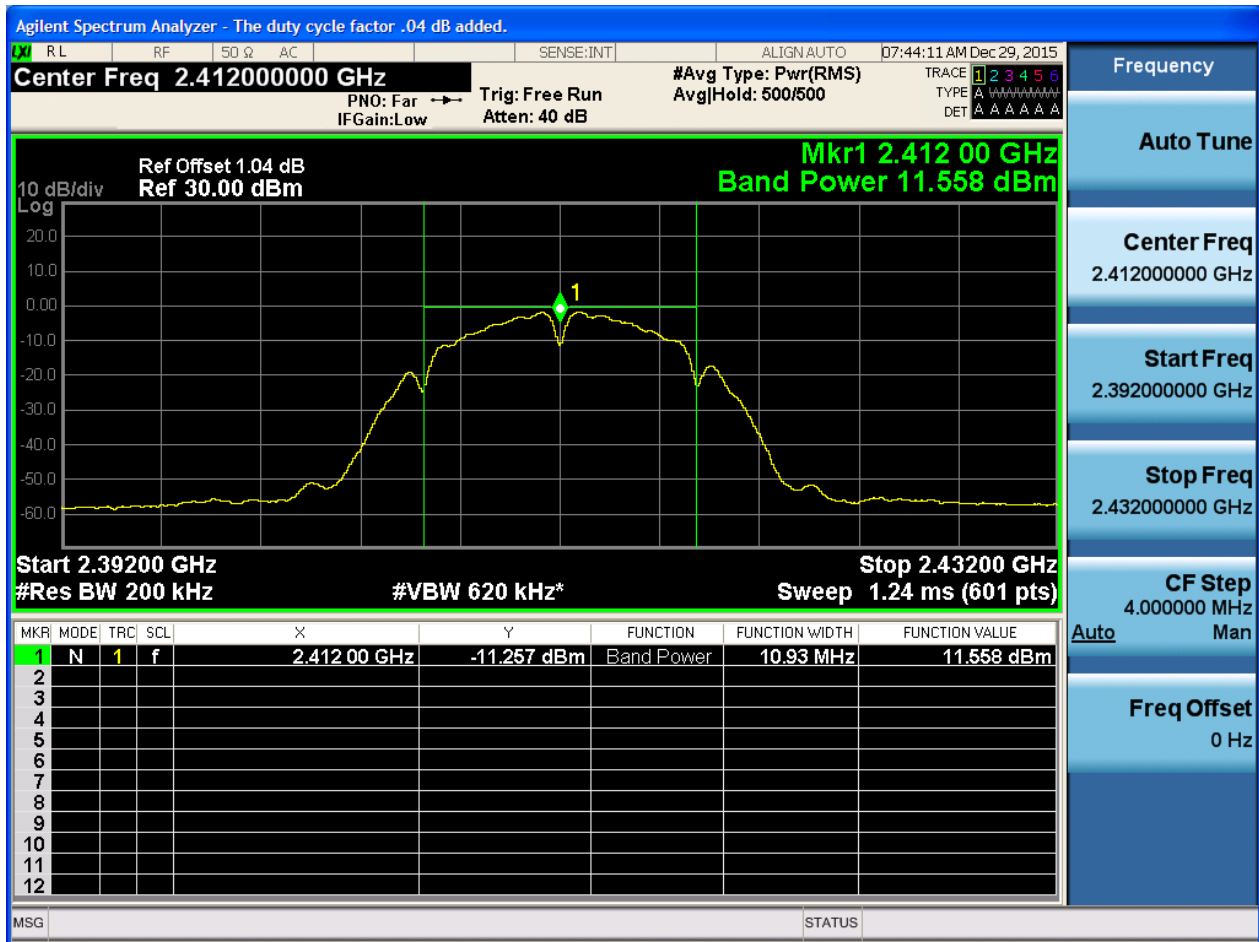
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Power[dBm]	Verdict
11B	L	2412	Ant 1	11.56	pass
11B	M	2437	Ant 1	12.27	pass
11B	H	2462	Ant 1	11.50	pass
11G	L	2412	Ant 1	11.39	pass
11G	M	2437	Ant 1	12.23	pass
11G	H	2462	Ant 1	11.37	pass
11N20	L	2412	Ant 1	11.37	pass
11N20	M	2437	Ant 1	12.10	pass
11N20	H	2462	Ant 1	11.28	pass



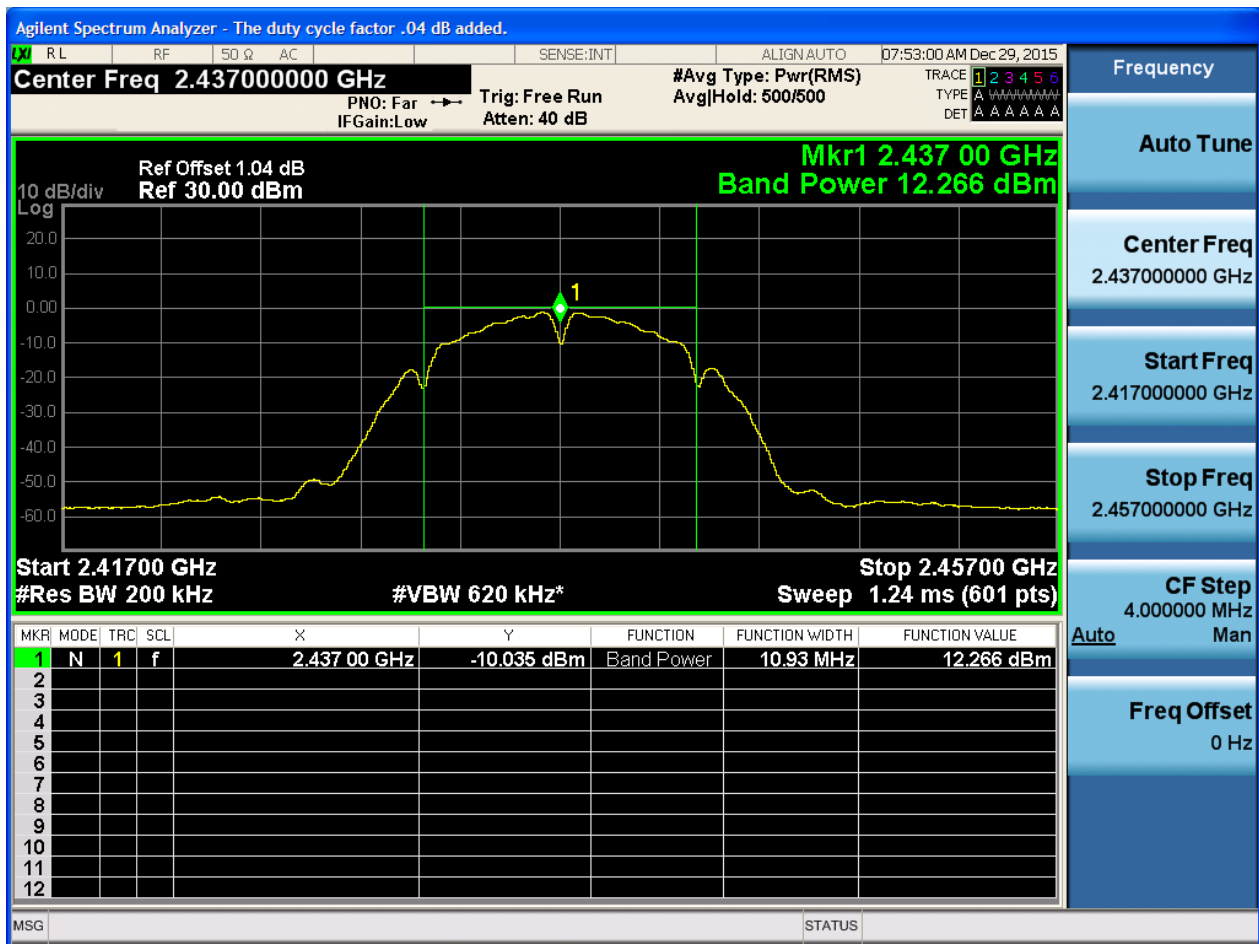
Part II - Test Plots

2.1 11B_L@Ant 1



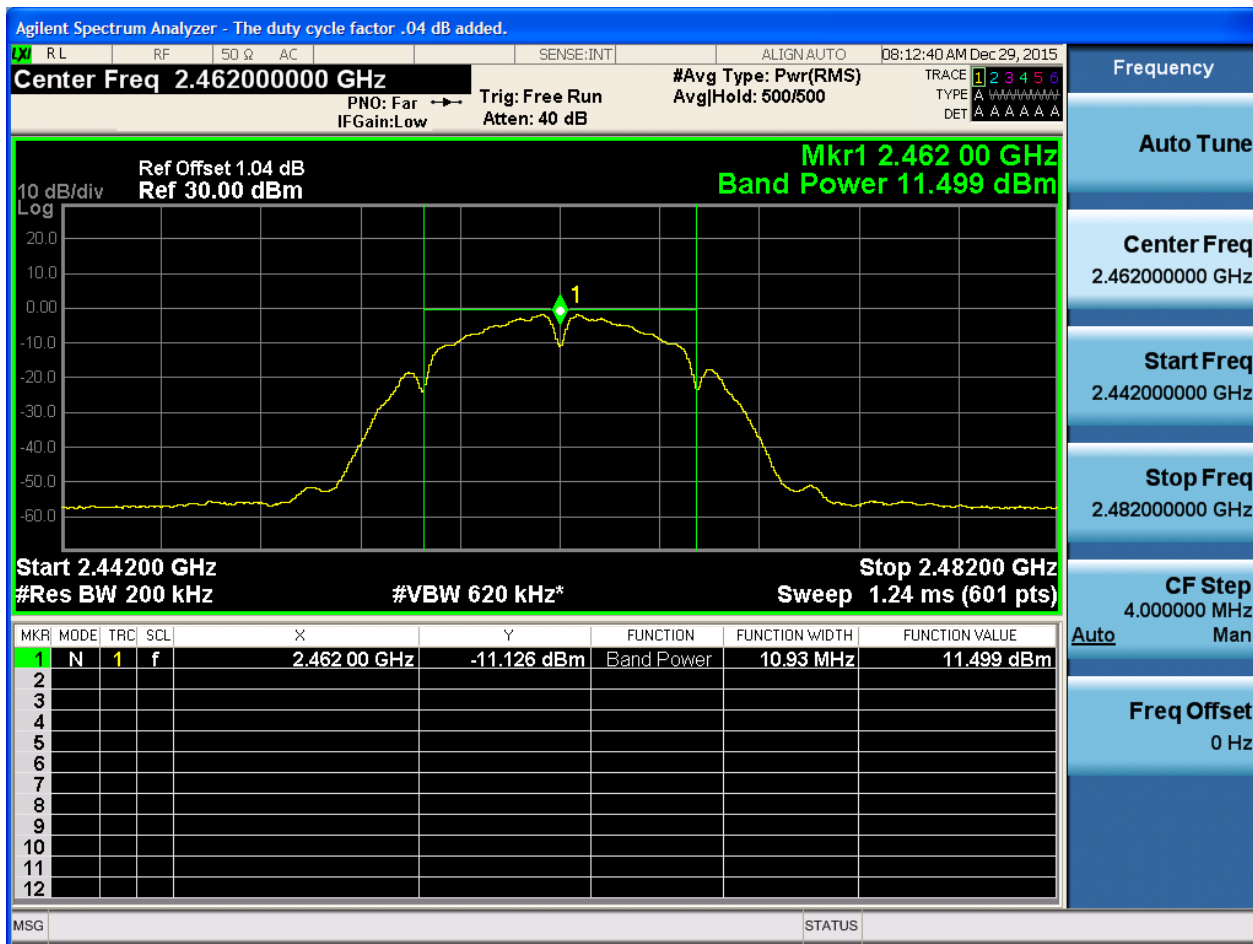


2.3 11B_M@Ant 1



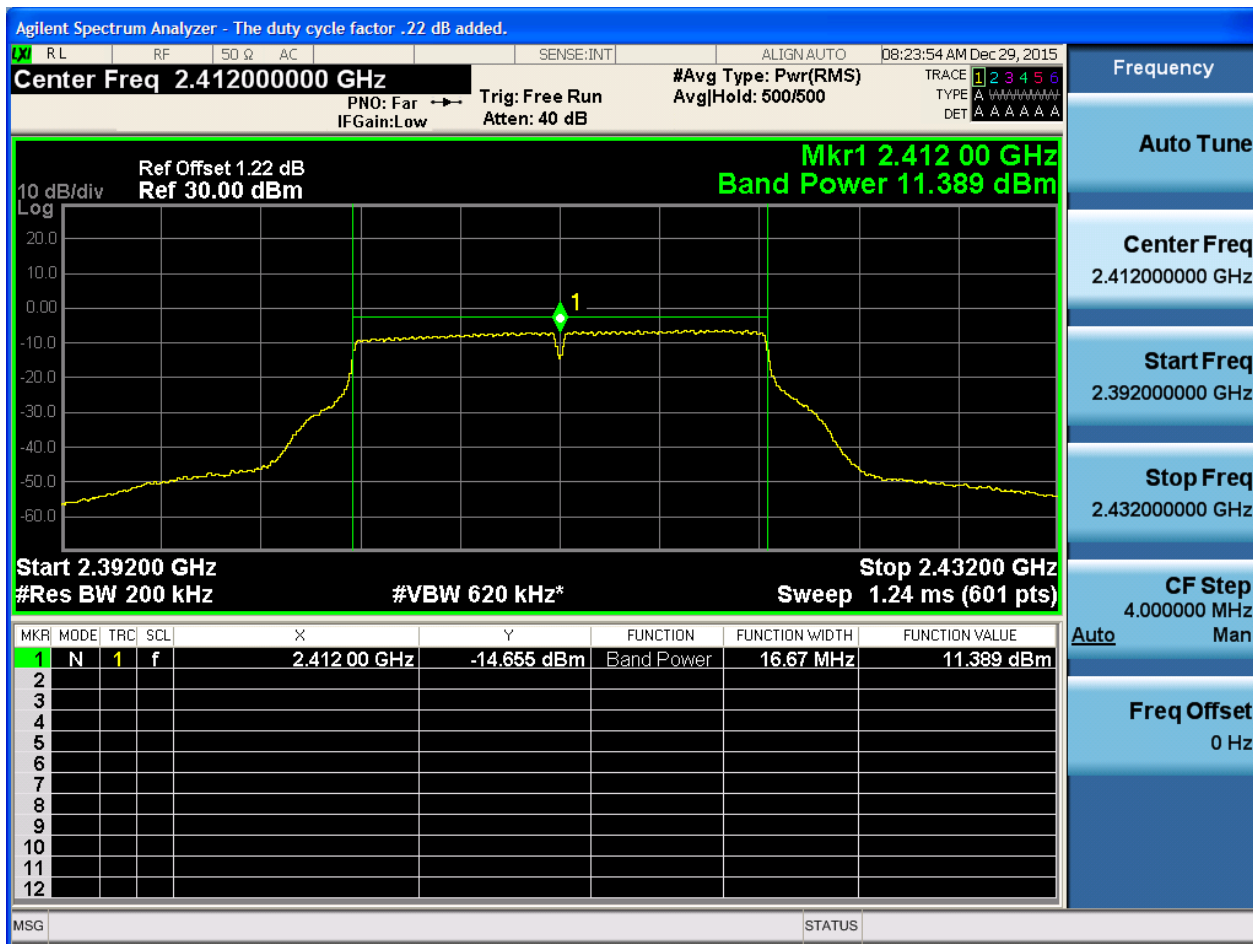


2.5 11B_H@Ant 1



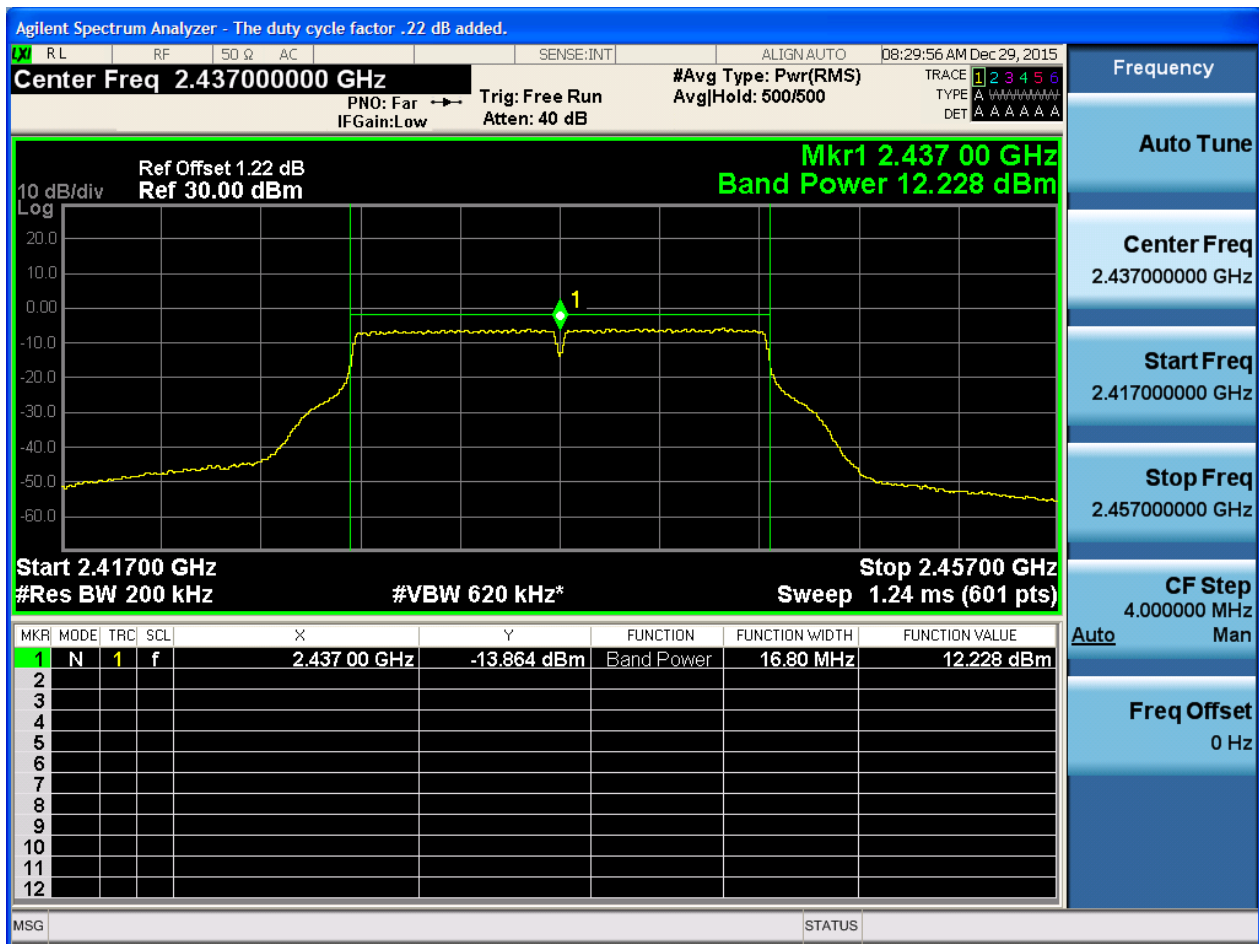


2.7 11G_L@Ant 1



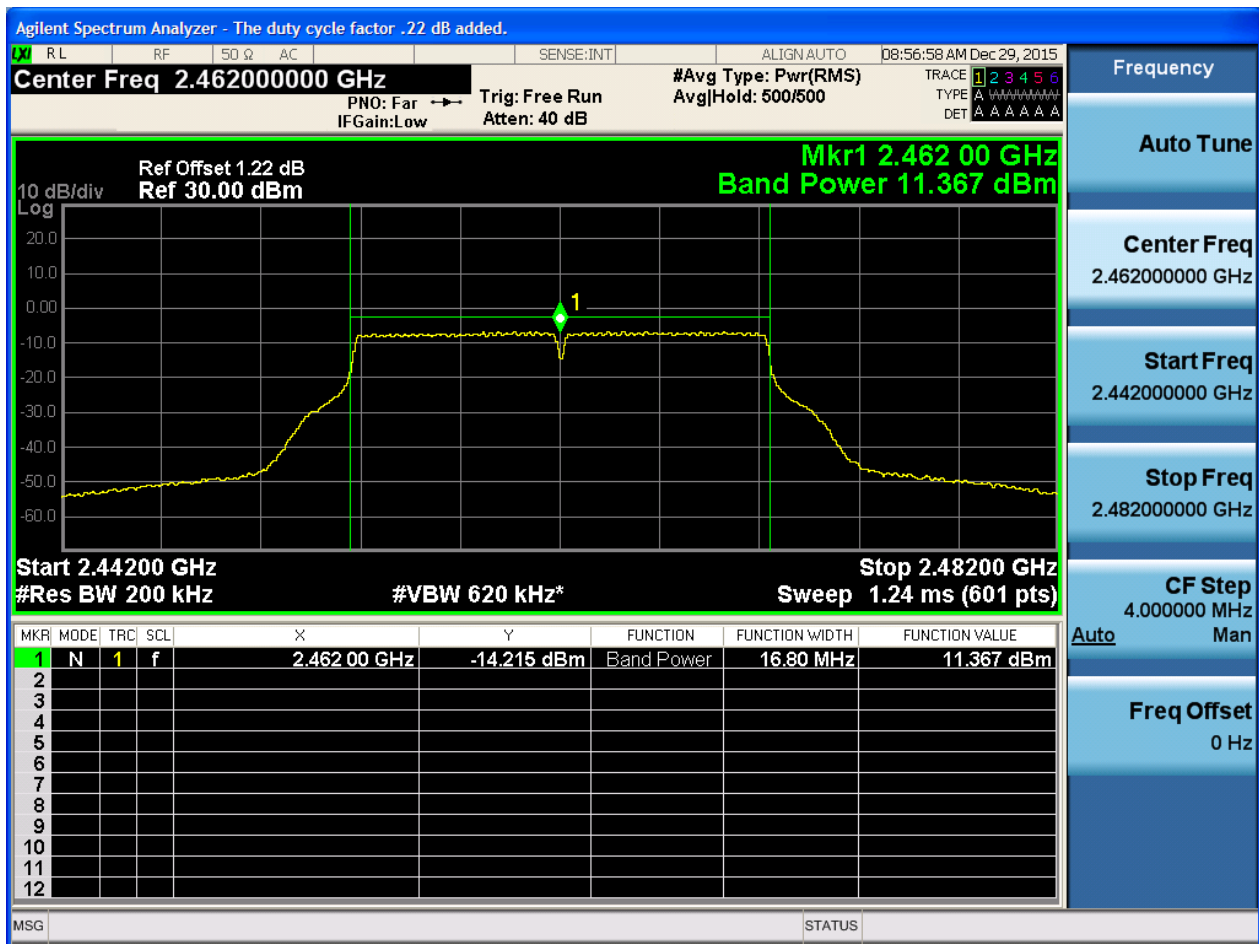


2.9 11G_M@Ant 1



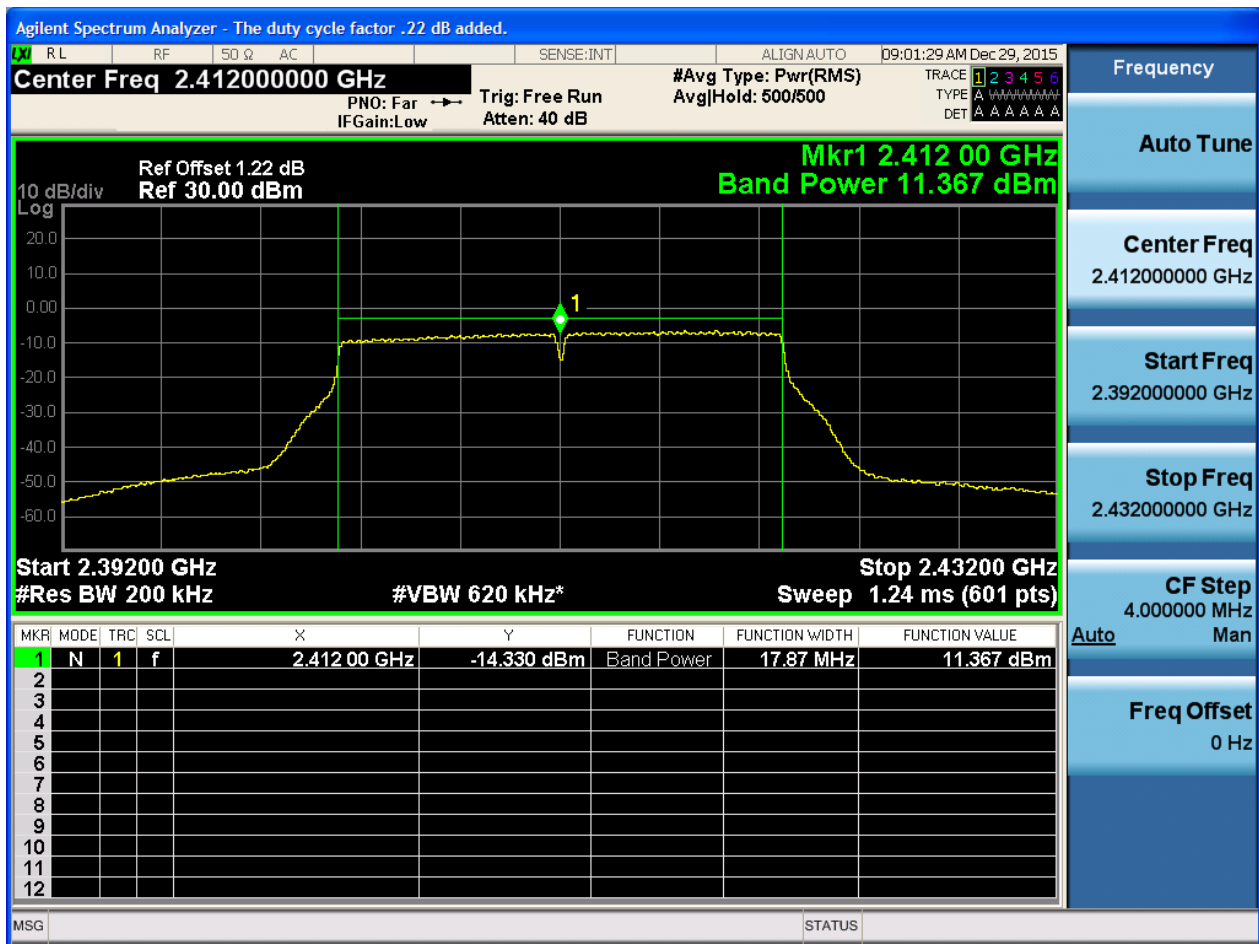


2.11 11G_H@Ant 1



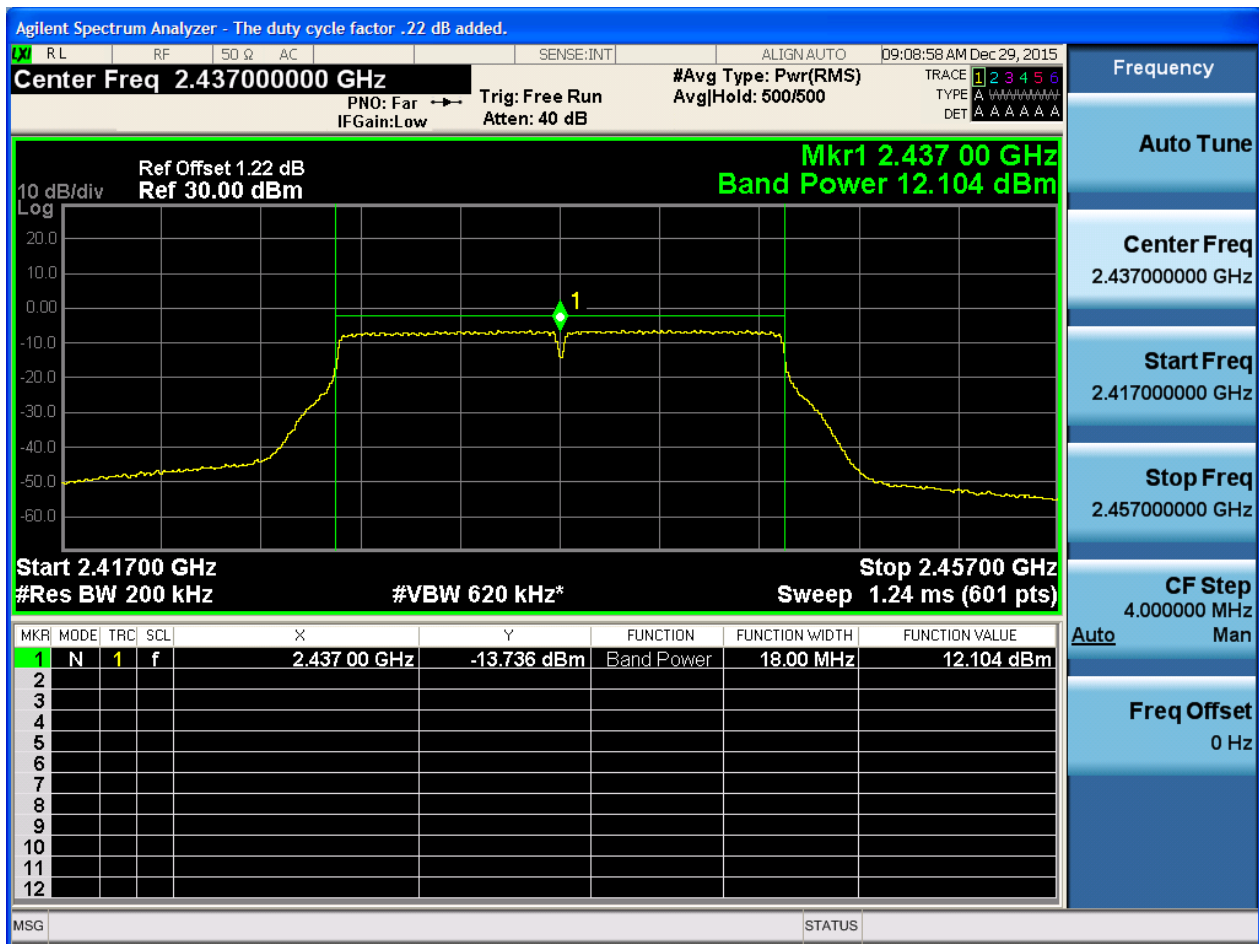


2.13 11N20_L@Ant 1



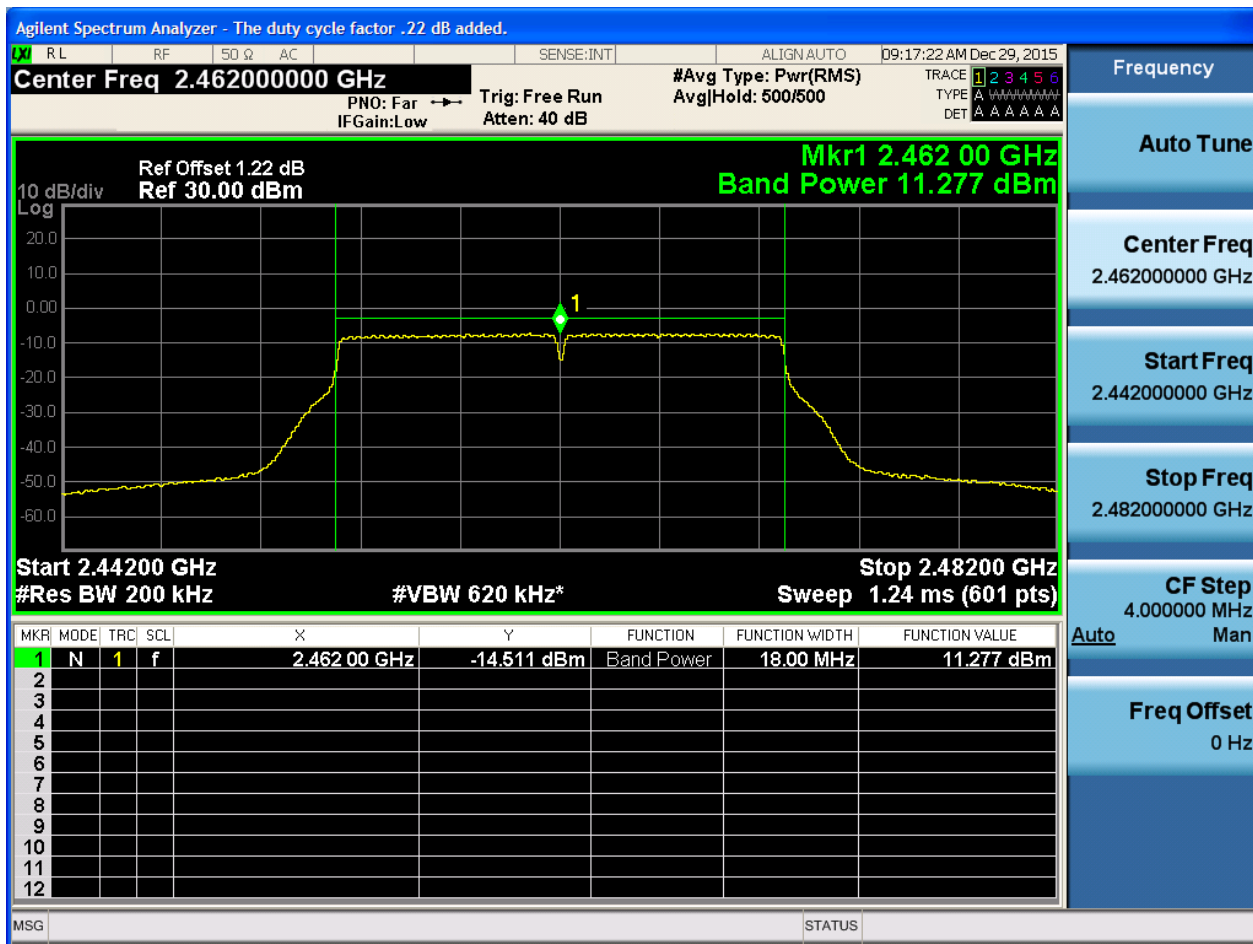


2.15 11N20_M@Ant 1





2.17 11N20_H@Ant 1



Appendix E: Maximum Power Spectral Density Level

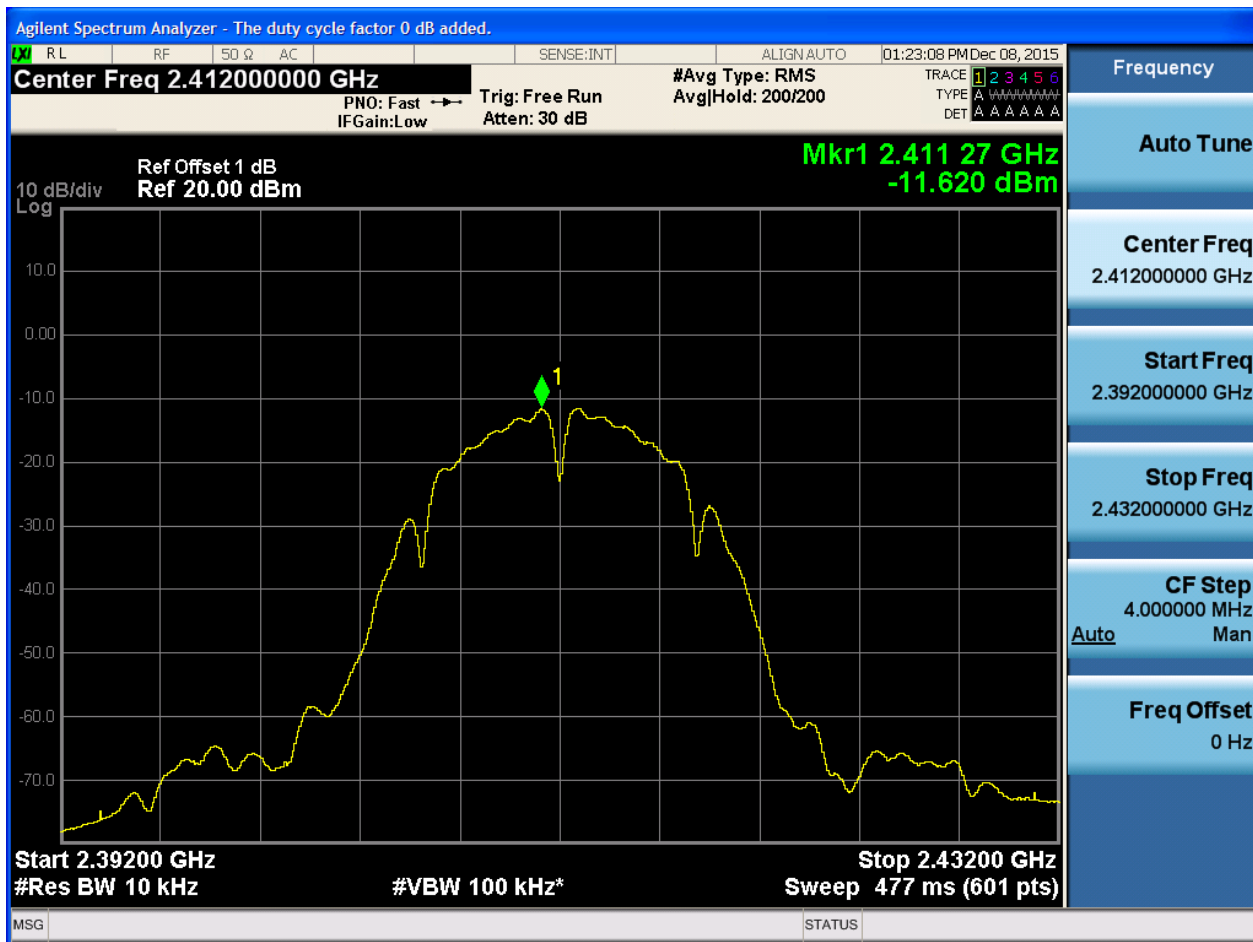
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	PD[MHz]	Verdict
11B	L	2412	Ant 1	-11.62	pass
11B	M	2437	Ant 1	-10.94	pass
11B	H	2462	Ant 1	-12.01	pass
11G	L	2412	Ant 1	-14.59	pass
11G	M	2437	Ant 1	-14.36	pass
11G	H	2462	Ant 1	-15.36	pass
11N20	L	2412	Ant 1	-15.51	pass
11N20	M	2437	Ant 1	-15.00	pass
11N20	H	2462	Ant 1	-16.10	pass



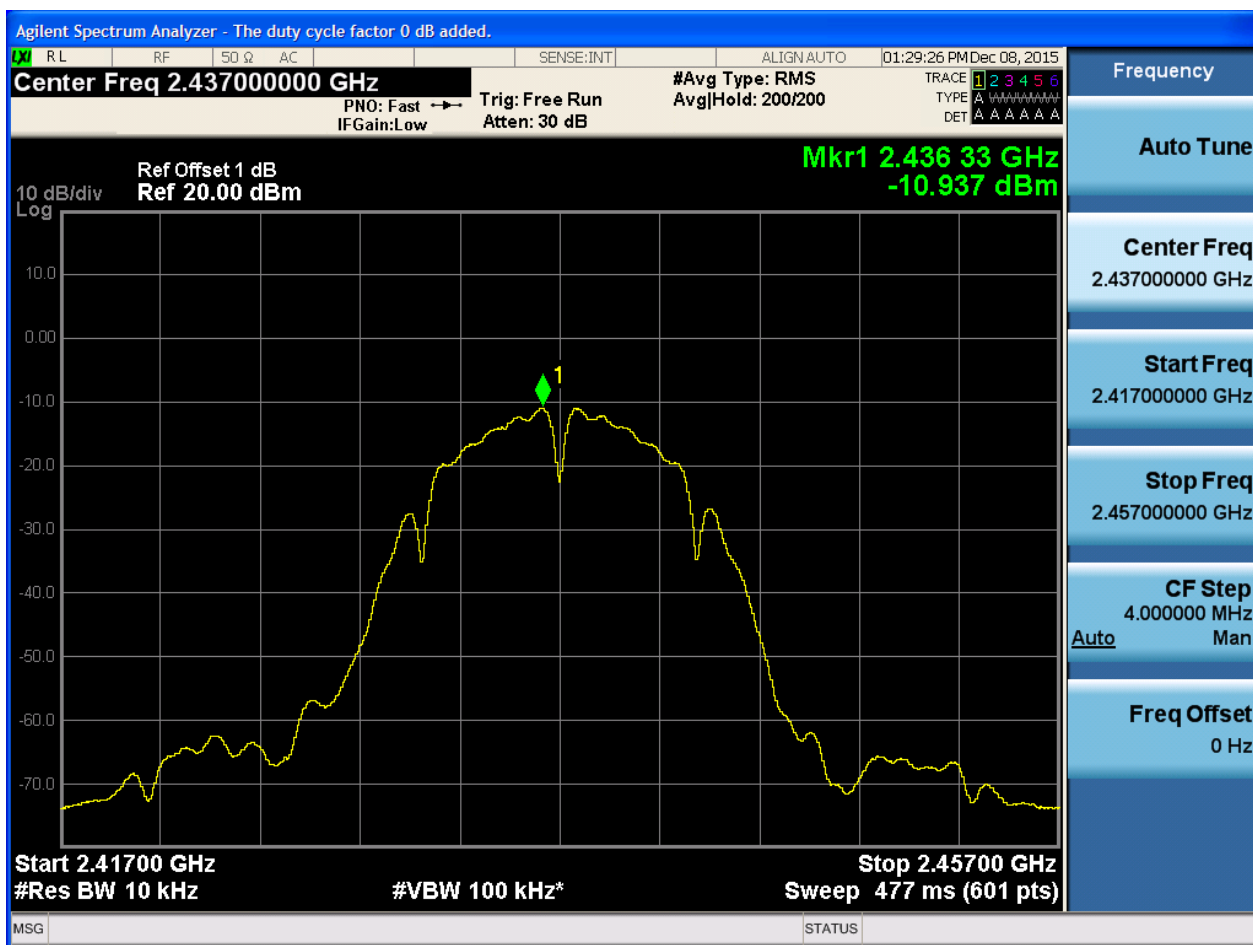
Part II - Test Plots

2.1 11B_L@Ant 1



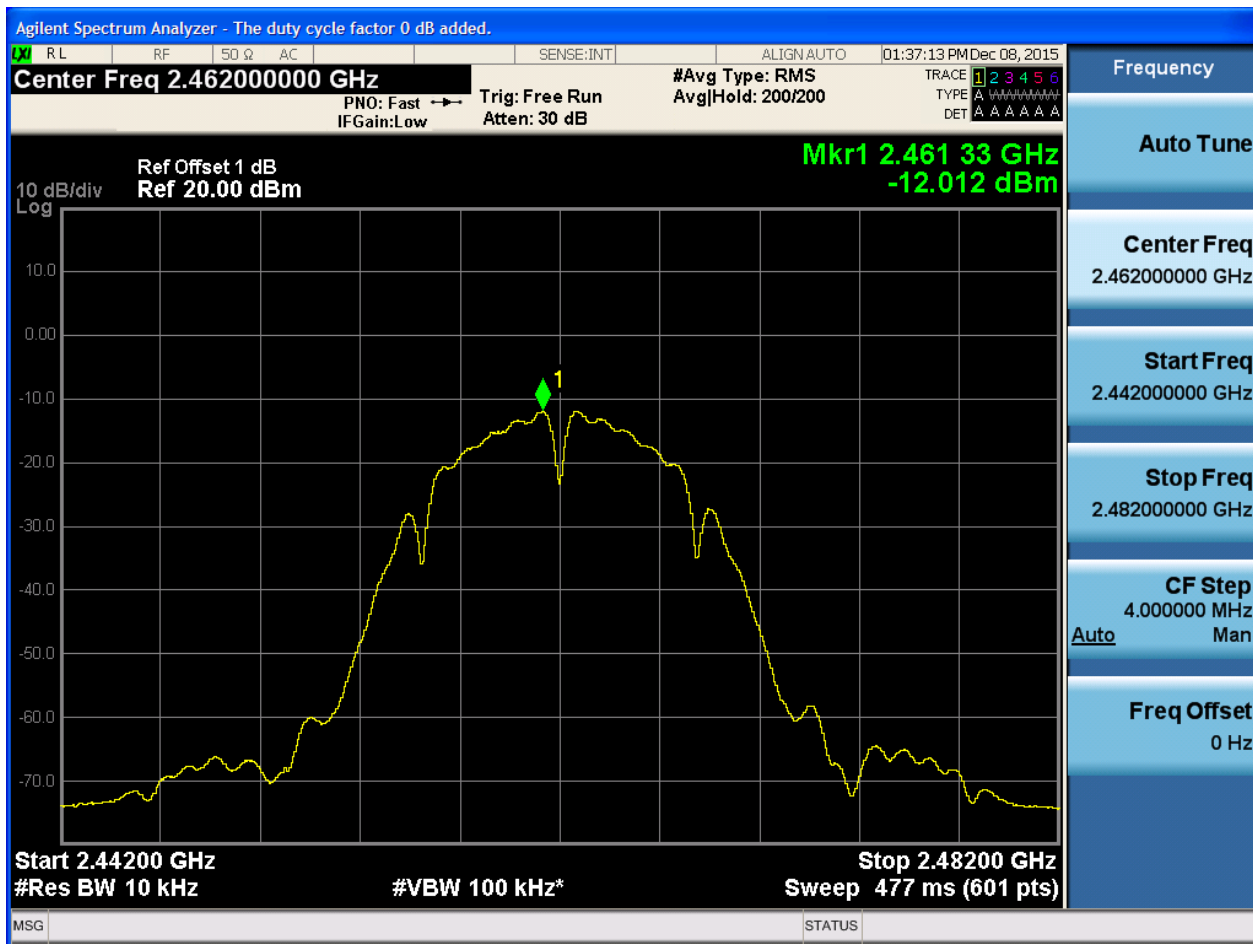


2.3 11B_M@Ant 1



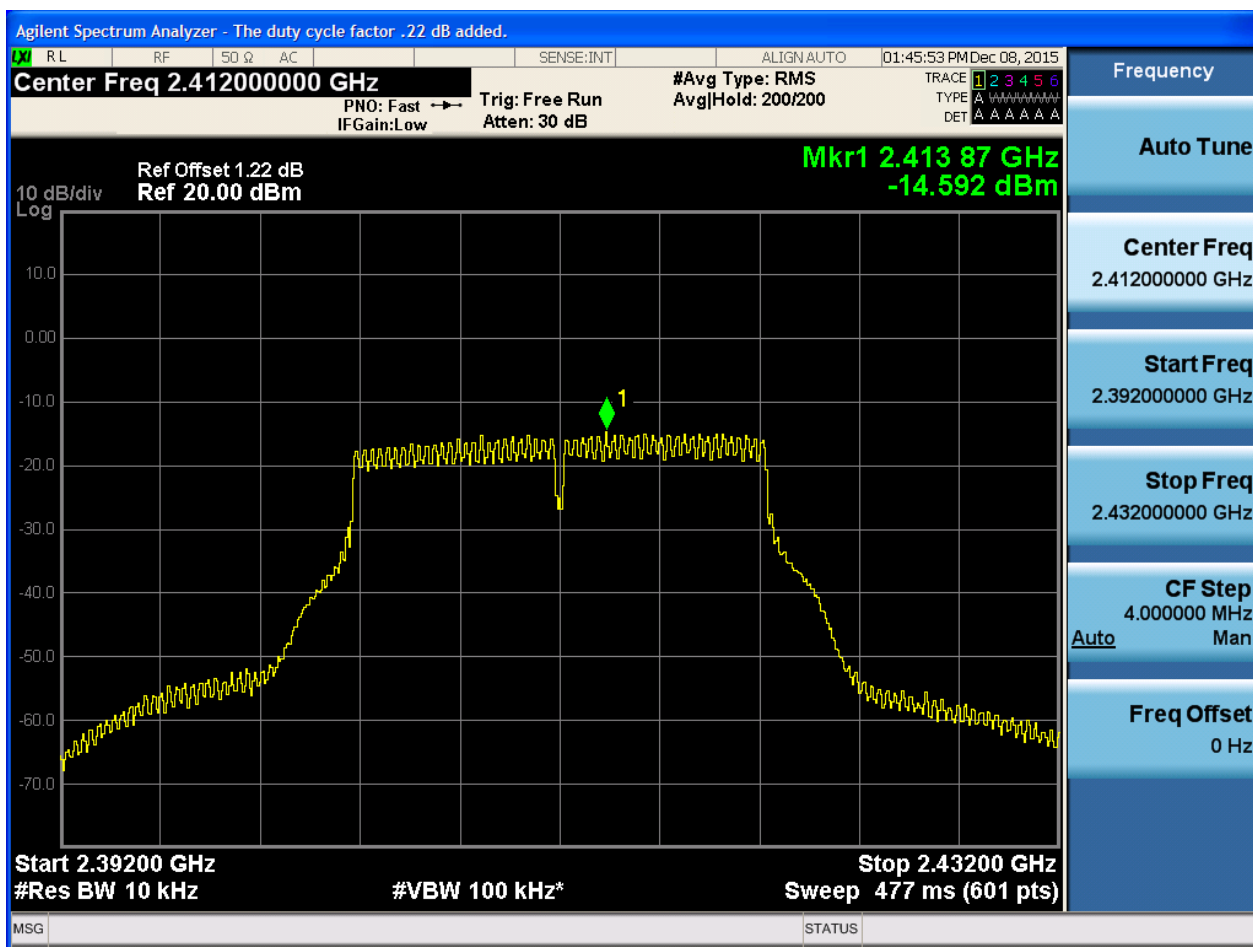


2.5 11B_H@Ant 1



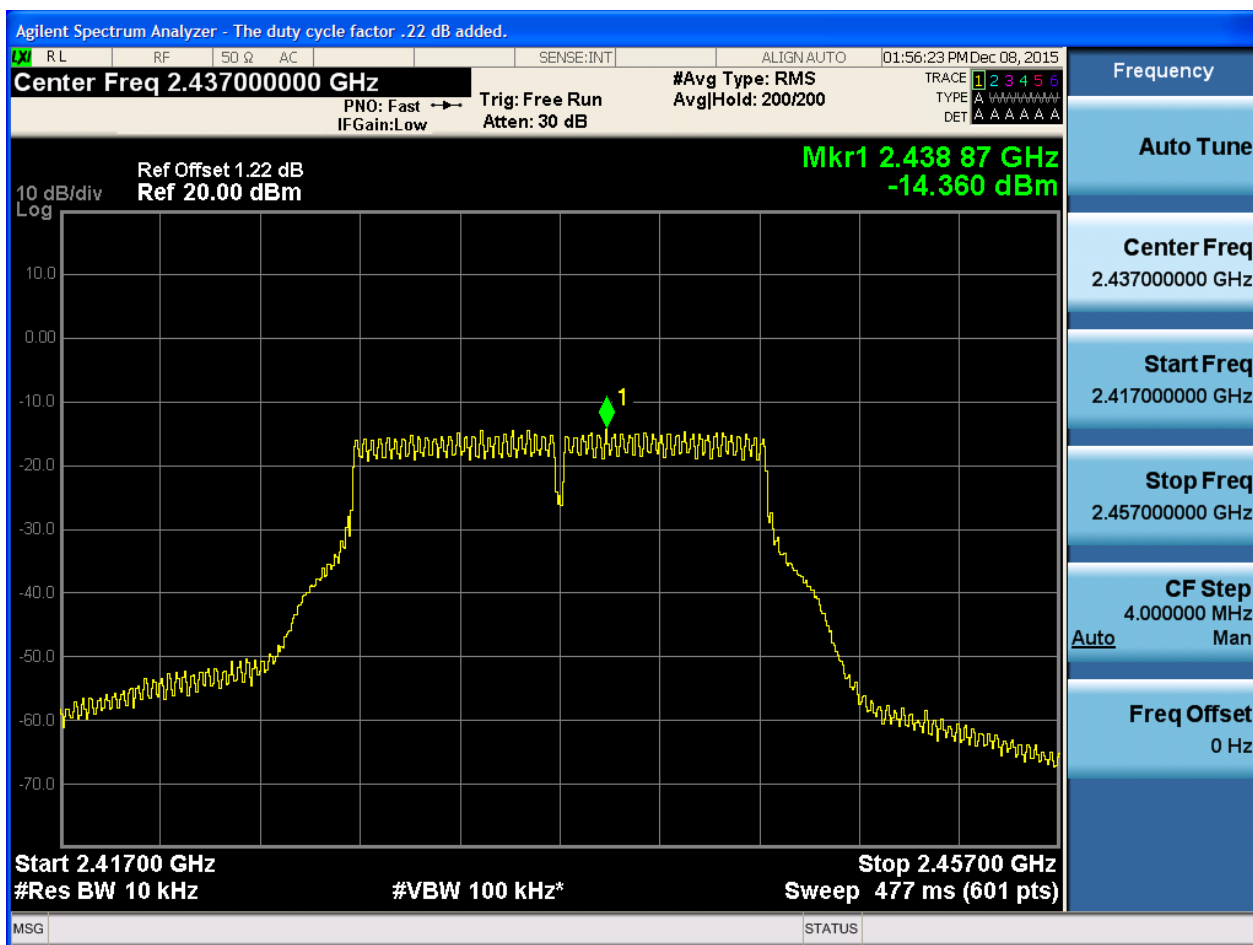


2.7 11G_L@Ant 1



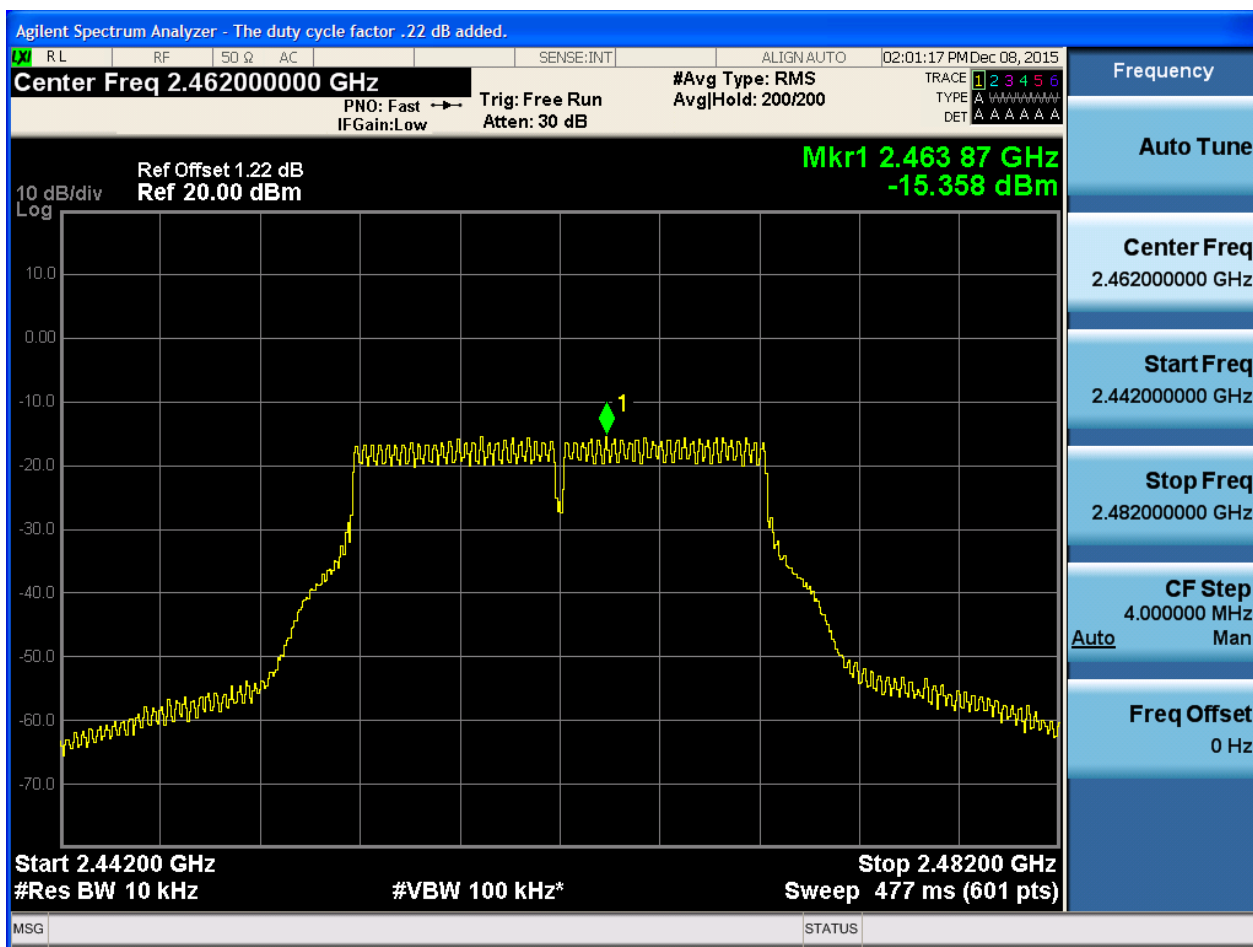


2.9 11G_M@Ant 1



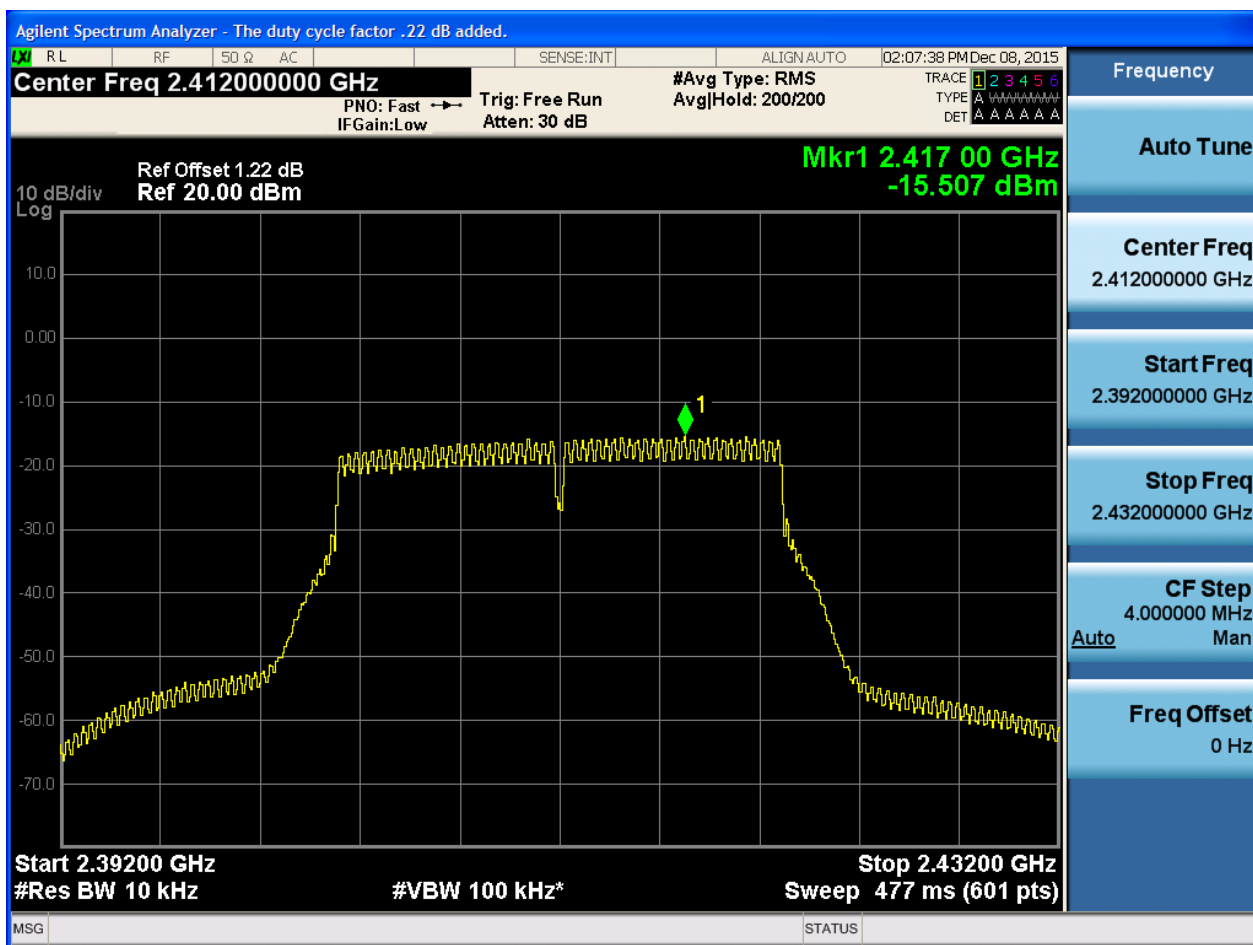


2.11 11G_H@Ant 1



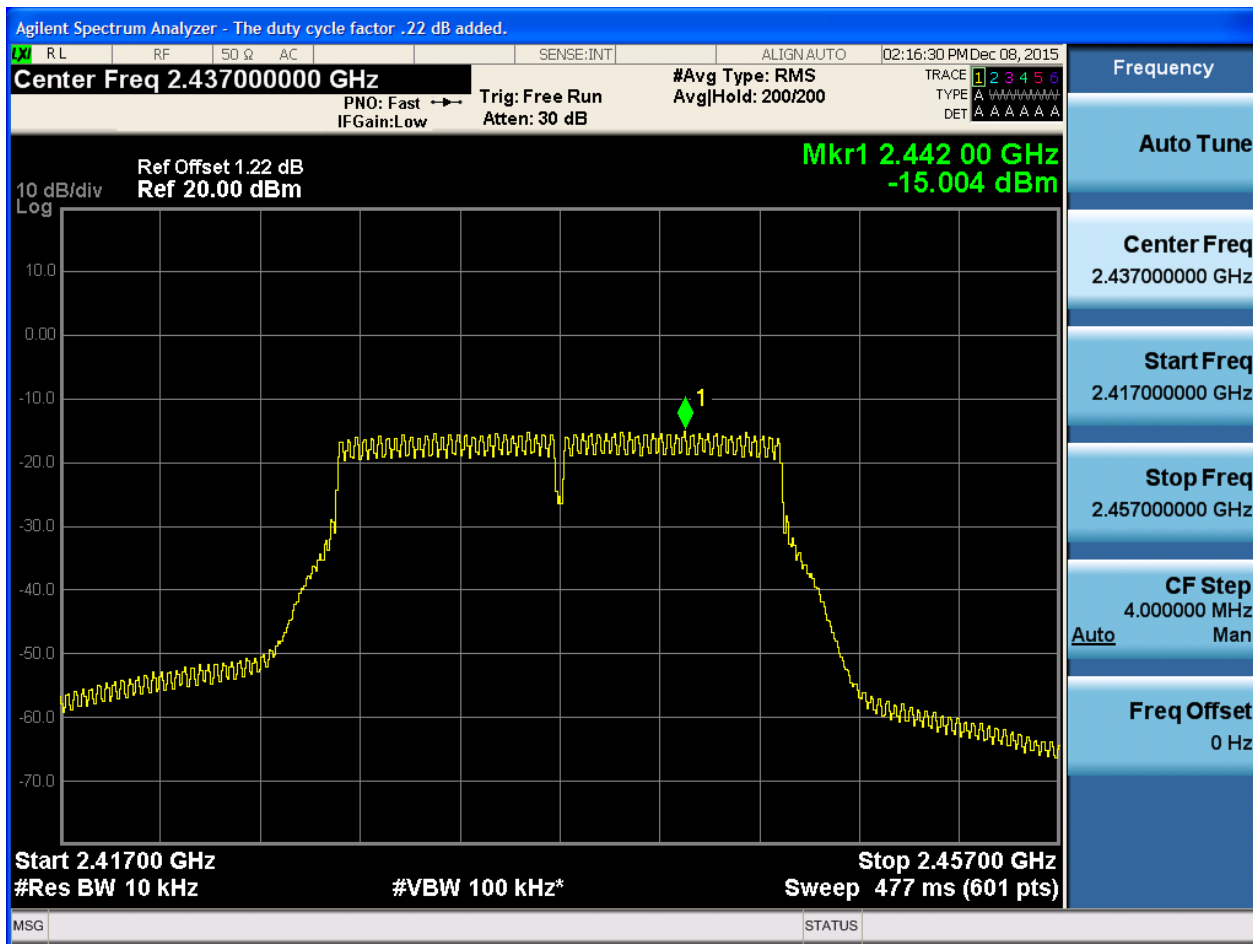


2.13 11N20_L@Ant 1



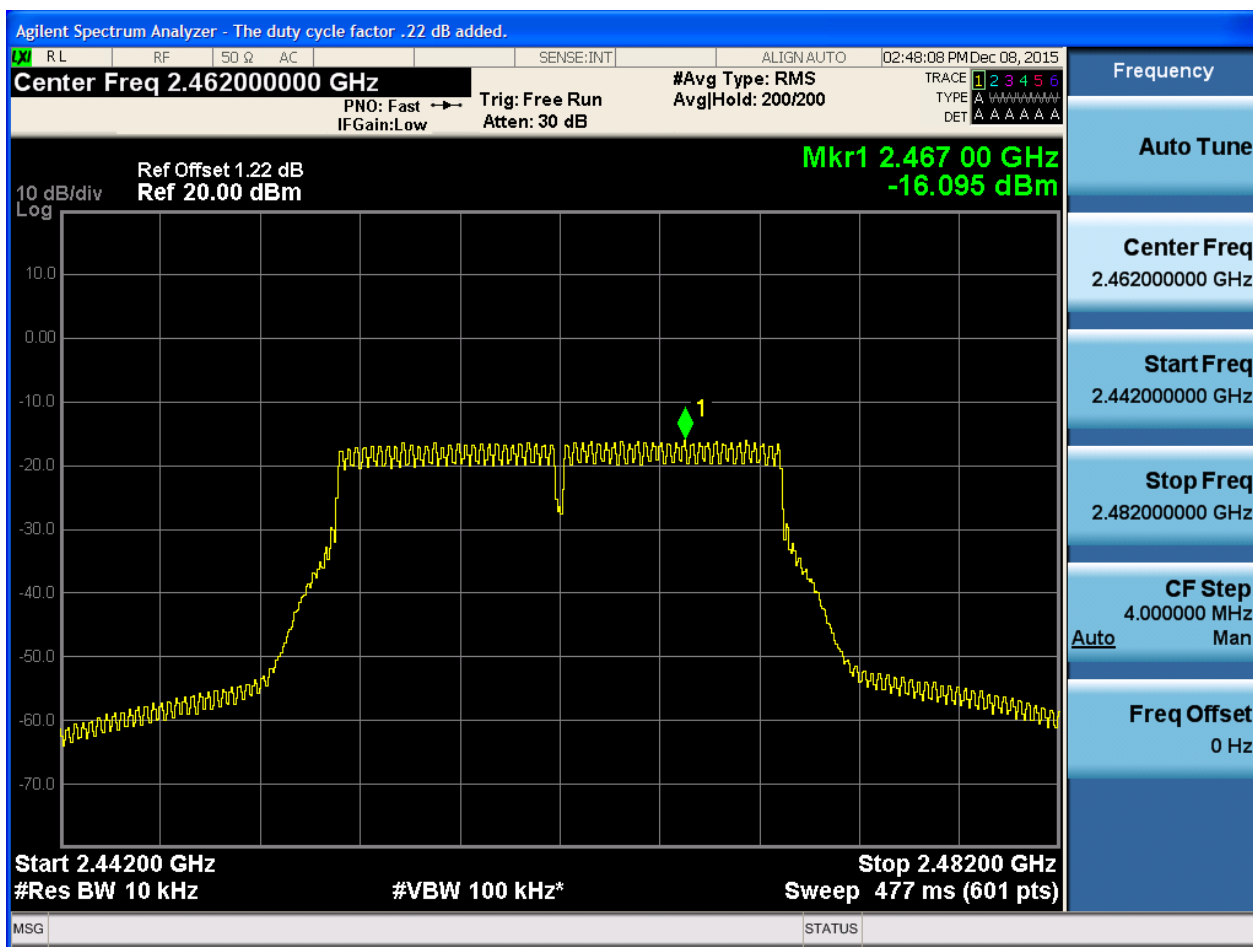


2.15 11N20_M@Ant 1





2.17 11N20_H@Ant 1



Appendix F: Band Edges Compliance

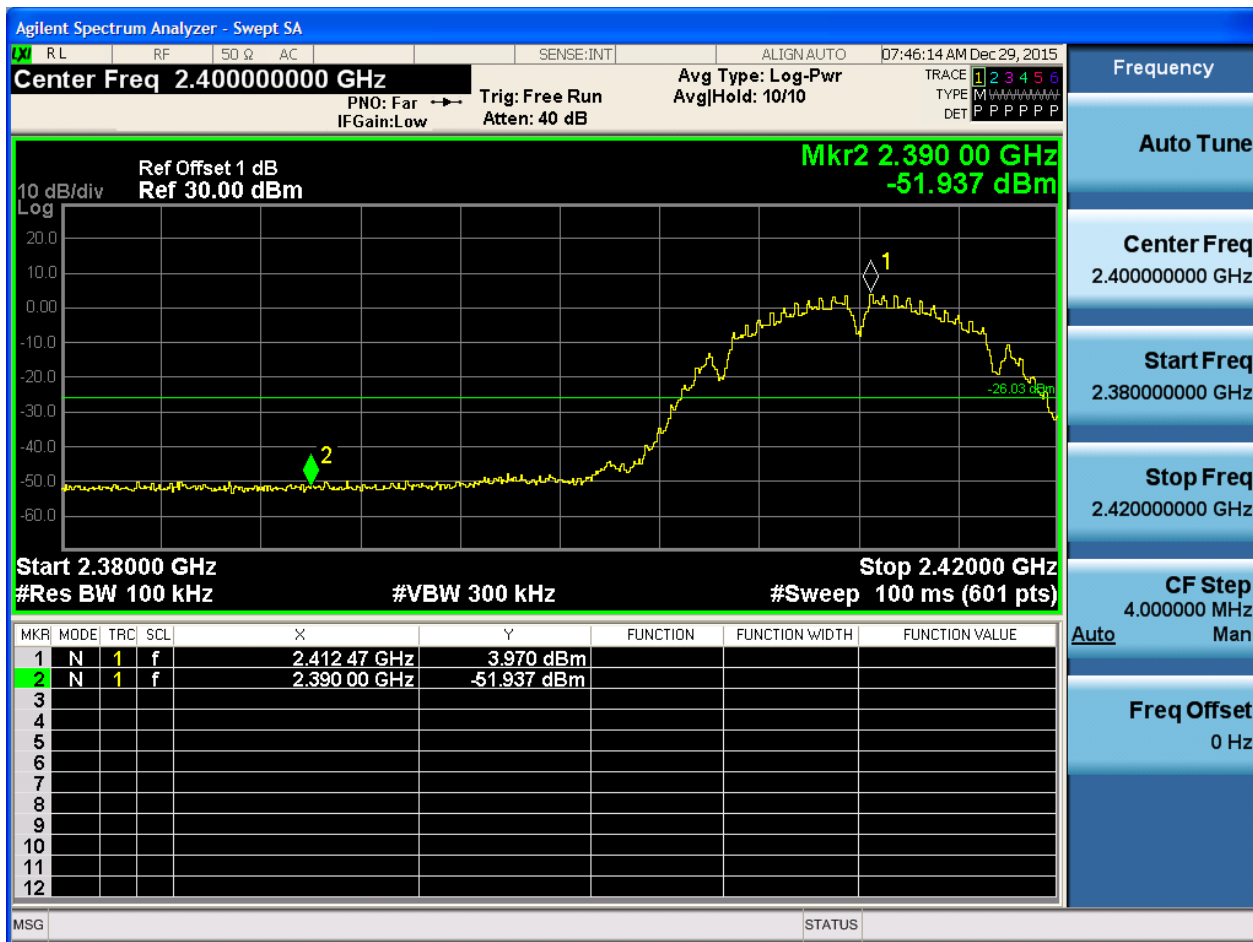
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Carrier Power[dBm]	Max.Spurious Level[dBm]	Verdict
11B	L	2412	Ant 1	3.97	-51.94	pass
11B	H	2462	Ant 1	4.04	-50.91	pass
11G	L	2412	Ant 1	.64	-48.69	pass
11G	H	2462	Ant 1	.22	-47.90	pass
11N20	L	2412	Ant 1	.81	-51.33	pass
11N20	H	2462	Ant 1	.18	-45.95	pass



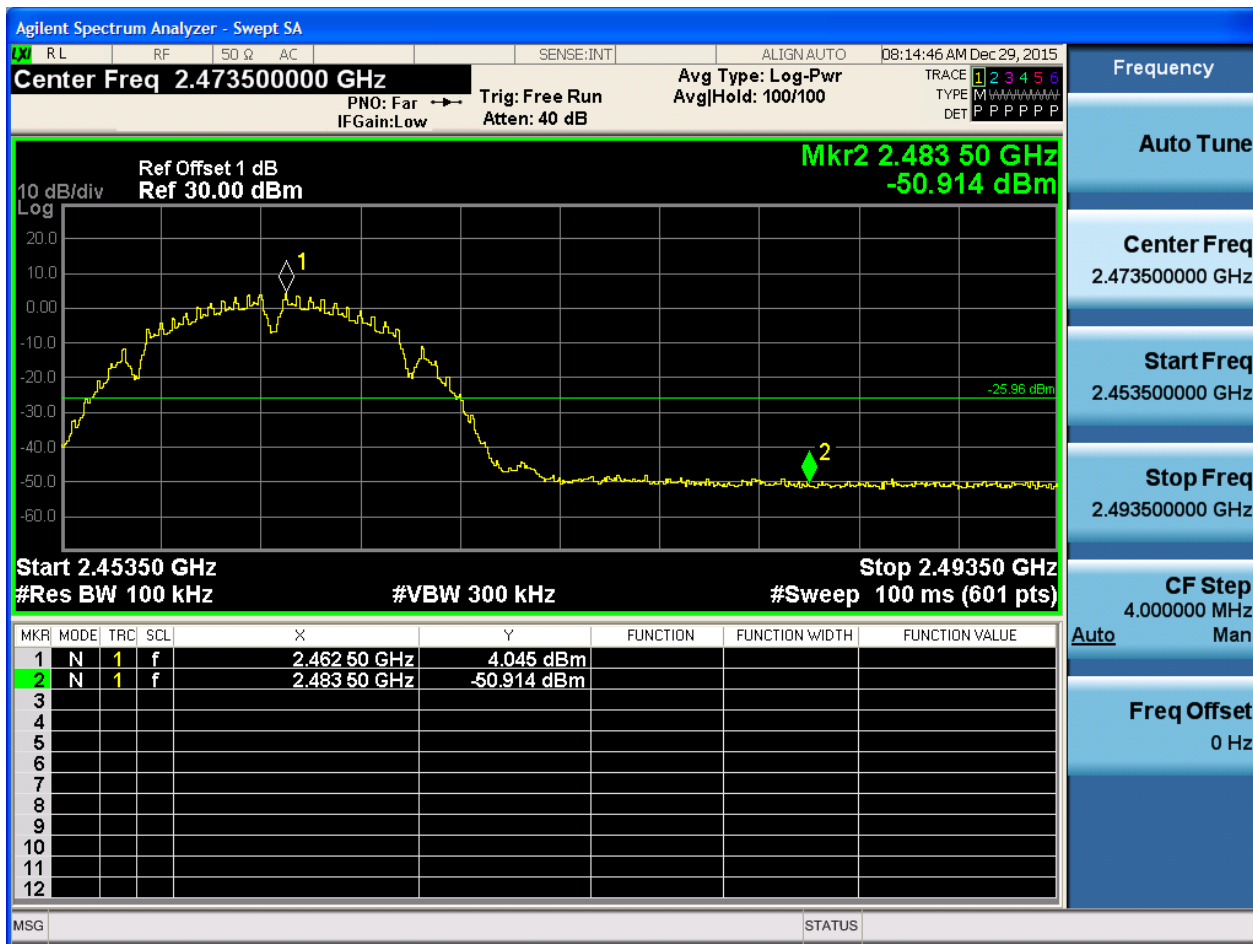
Part II - Test Plots

2.1 11B_L@Ant 1



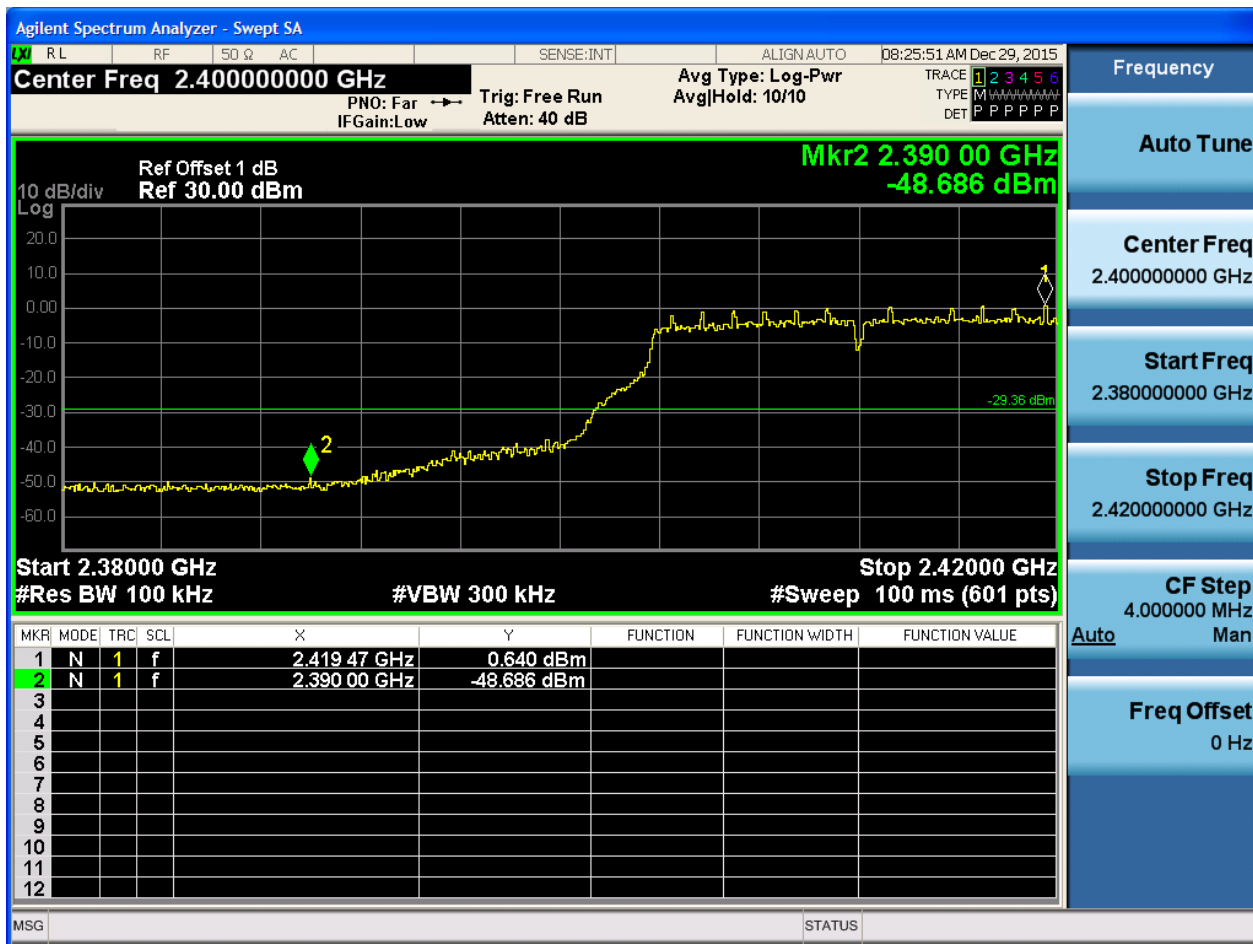


2.3 11B_H@Ant 1



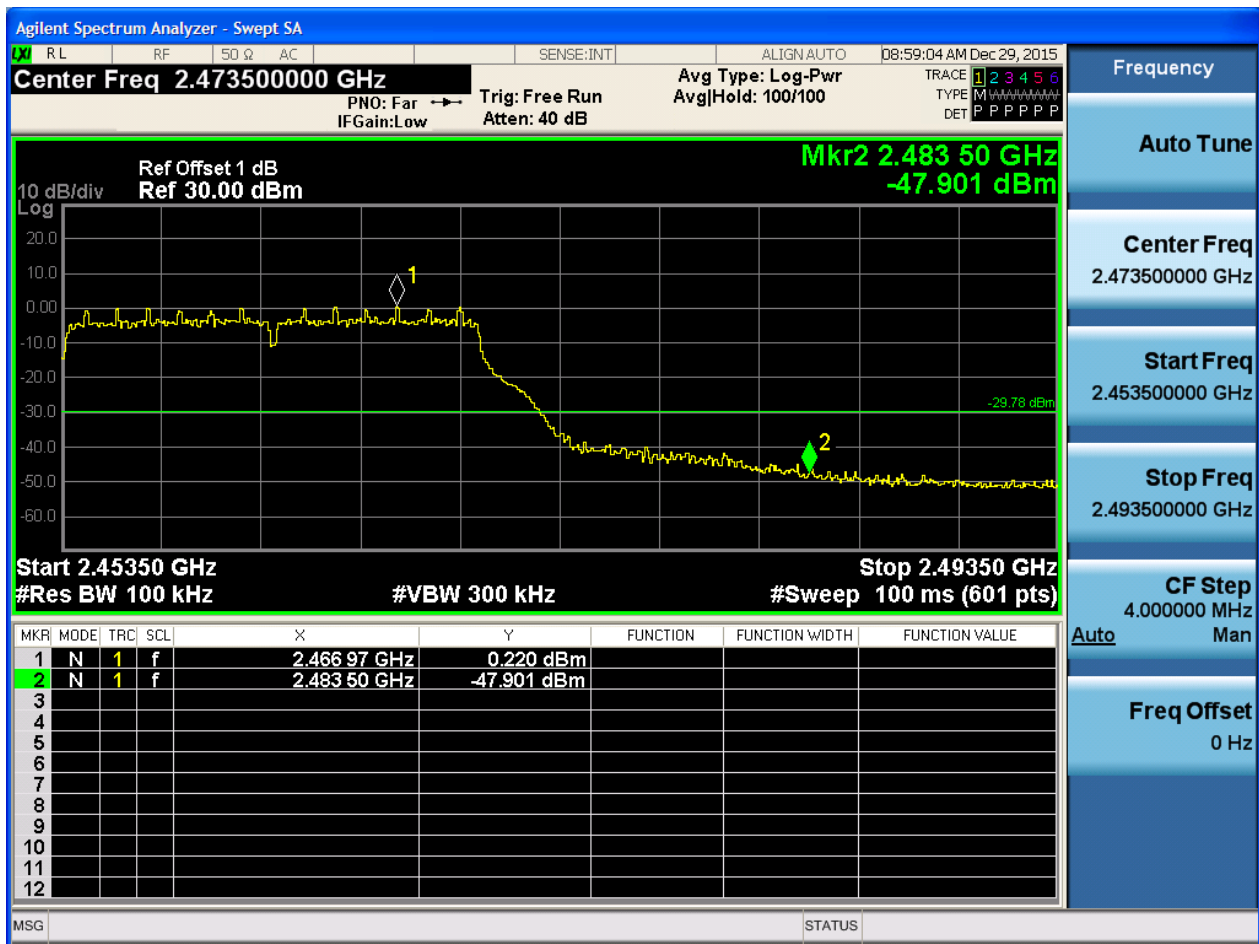


2.5 11G_L@Ant 1



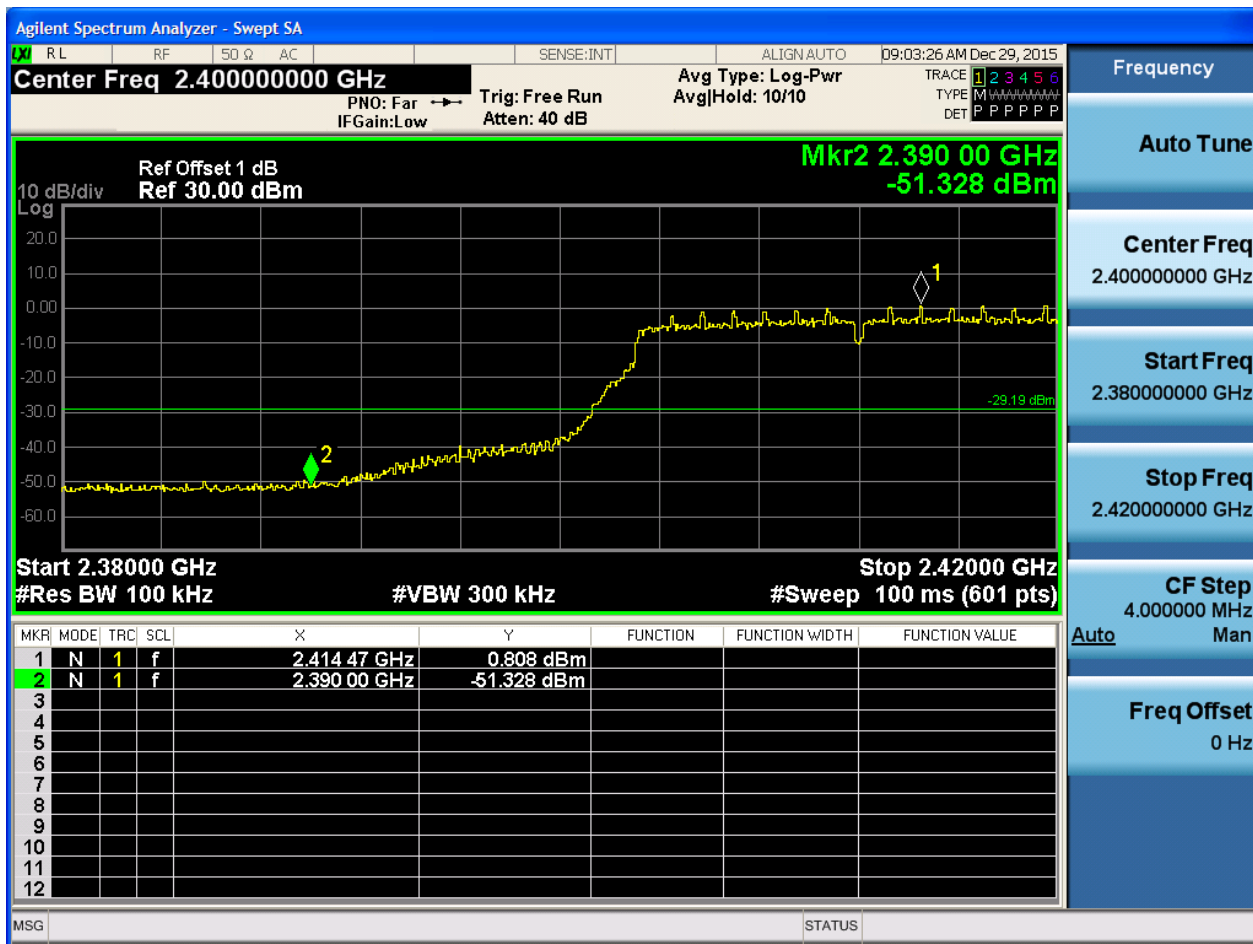


2.7 11G_H@Ant 1





2.9 11N20_L@Ant 1





2.11 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

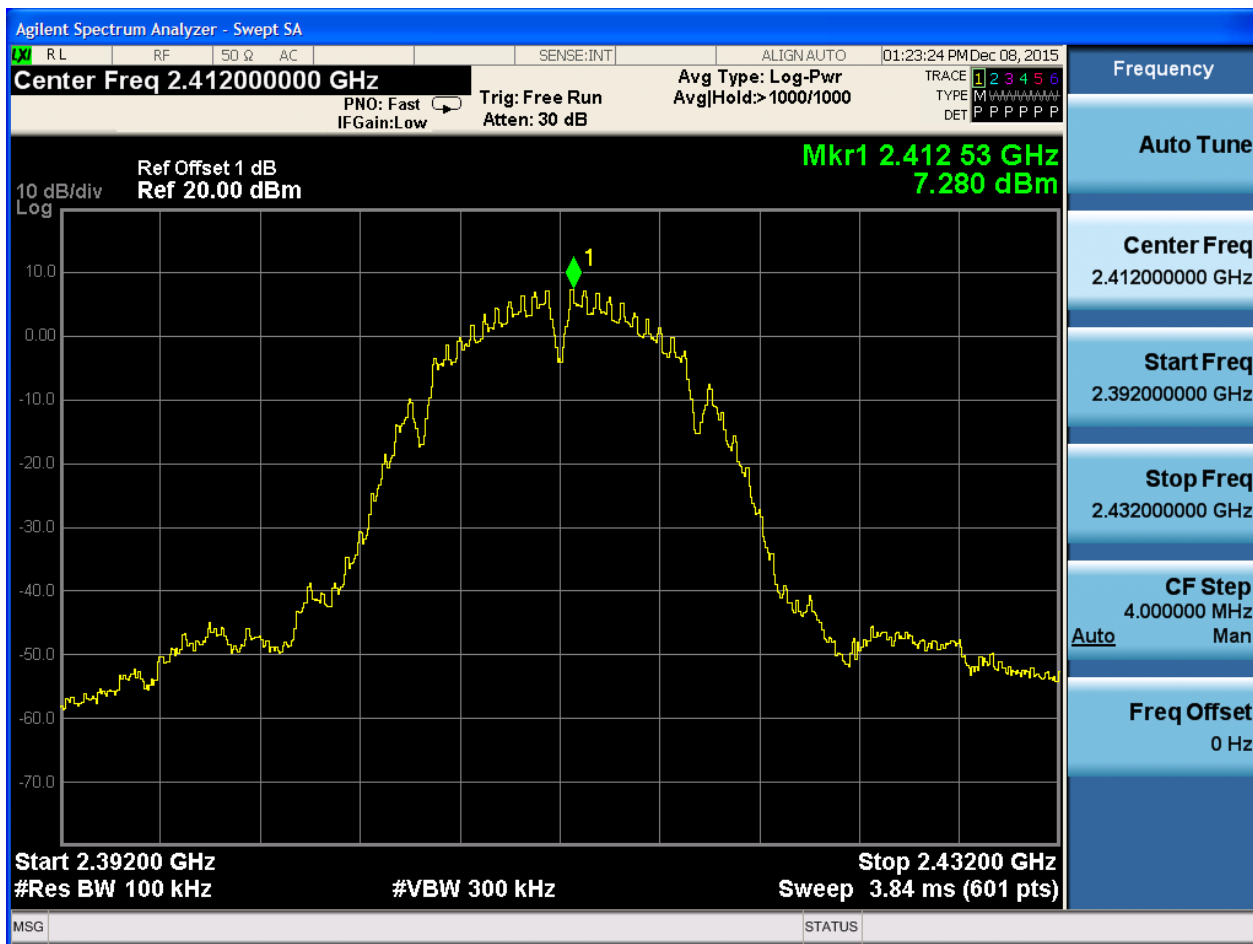
Test Mode	Test Channel	Frequency[MHz]	Ant	Pref[dBm]	Puw[dBm]	Verdict
11B	L	2412	Ant 1	7.28	<limit	pass
11B	M	2437	Ant 1	7.80	<limit	pass
11B	H	2462	Ant 1	6.96	<limit	pass
11G	L	2412	Ant 1	4.03	<limit	pass
11G	M	2437	Ant 1	4.30	<limit	pass
11G	H	2462	Ant 1	3.47	<limit	pass
11N20	L	2412	Ant 1	3.88	<limit	pass
11N20	M	2437	Ant 1	4.24	<limit	pass
11N20	H	2462	Ant 1	3.37	<limit	pass



Part II - Test Plots

2.1 11B_L@Ant 1

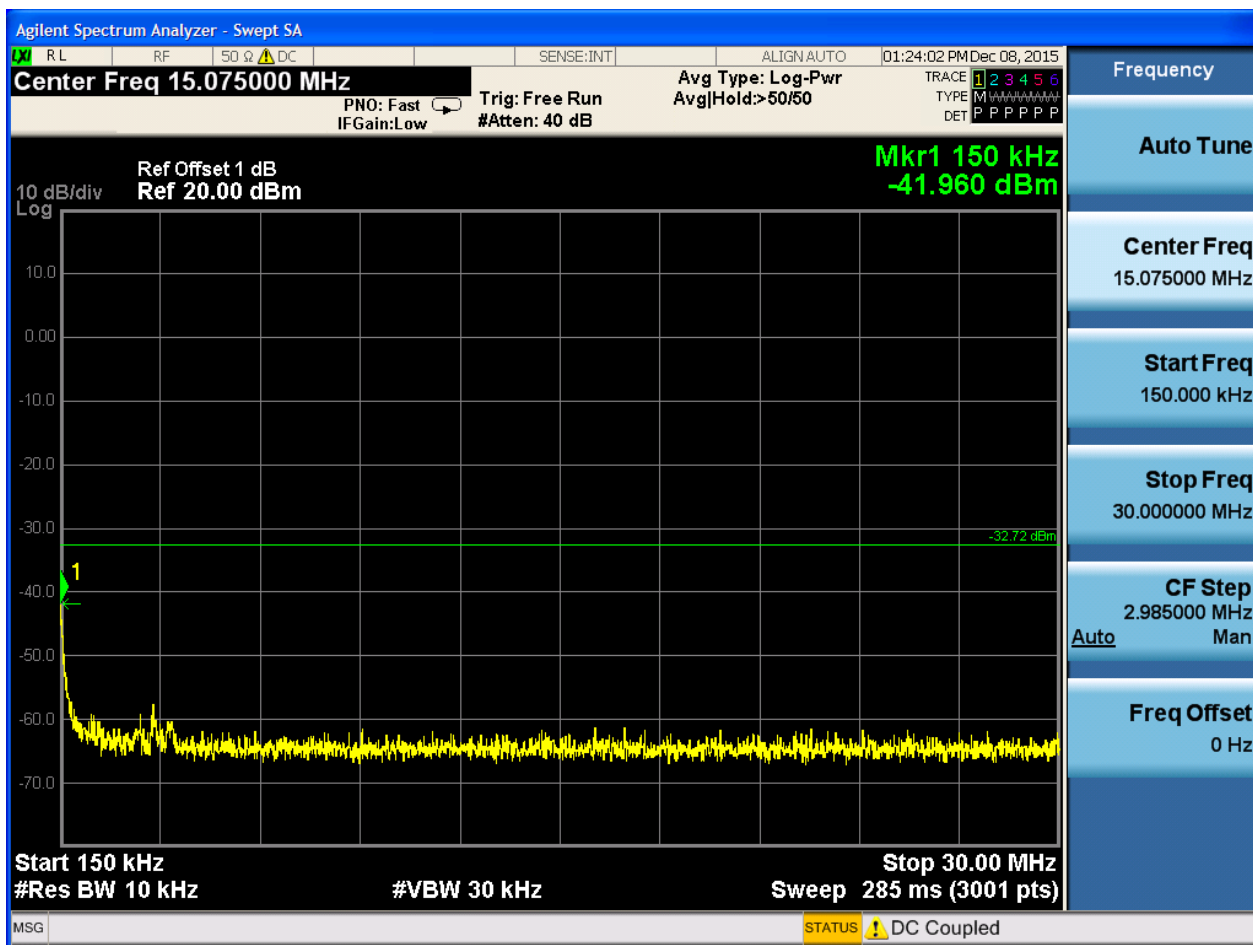
Pref:

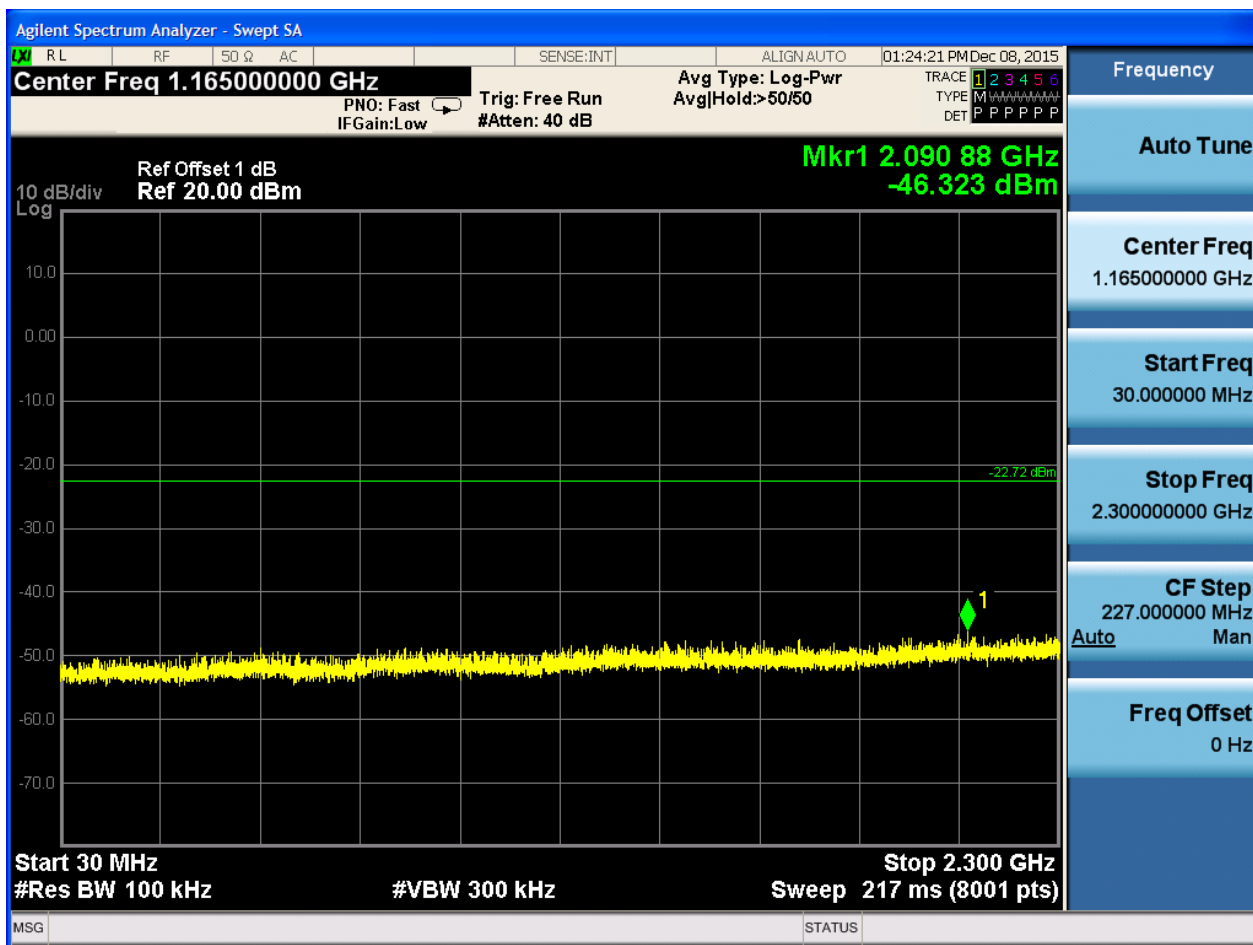


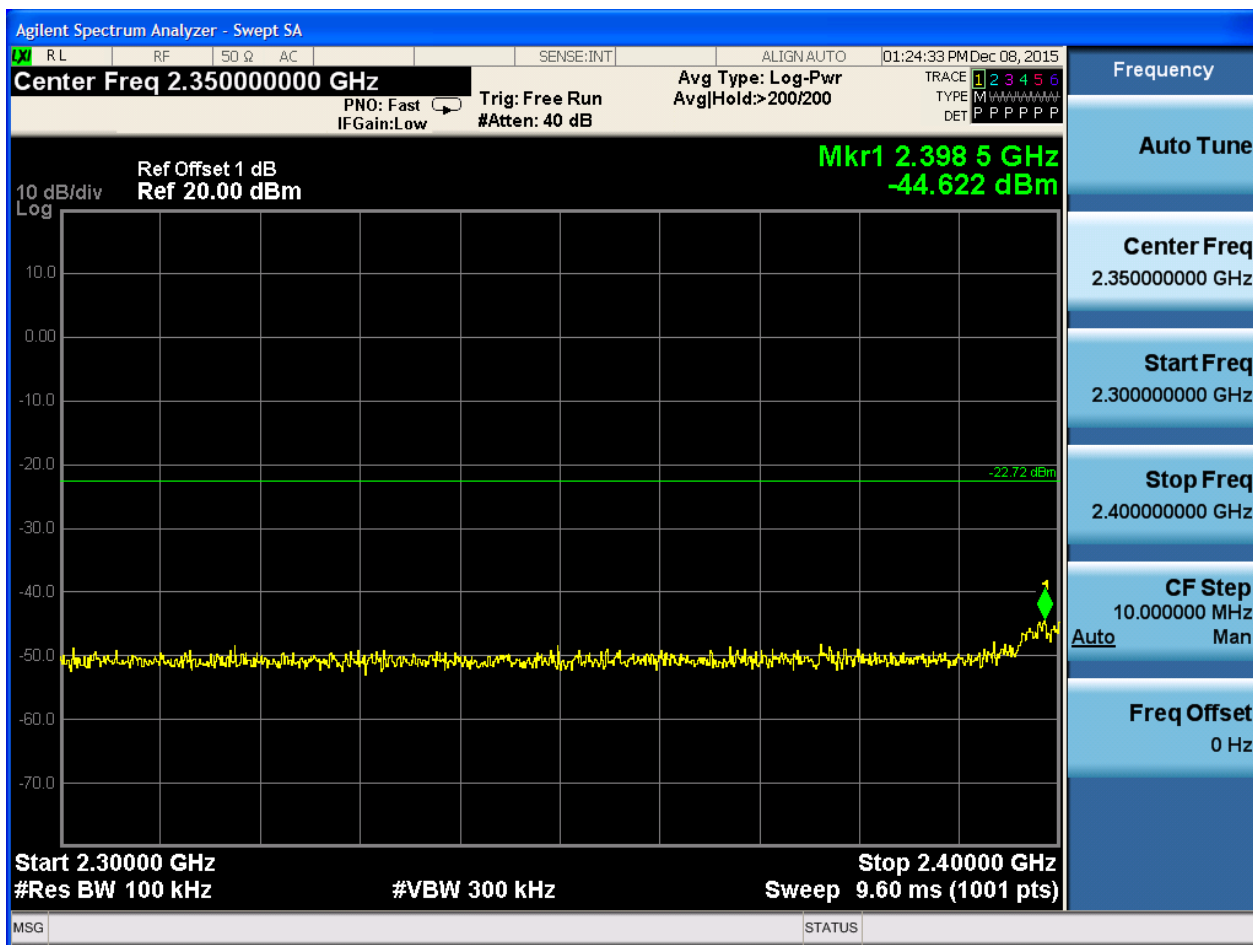


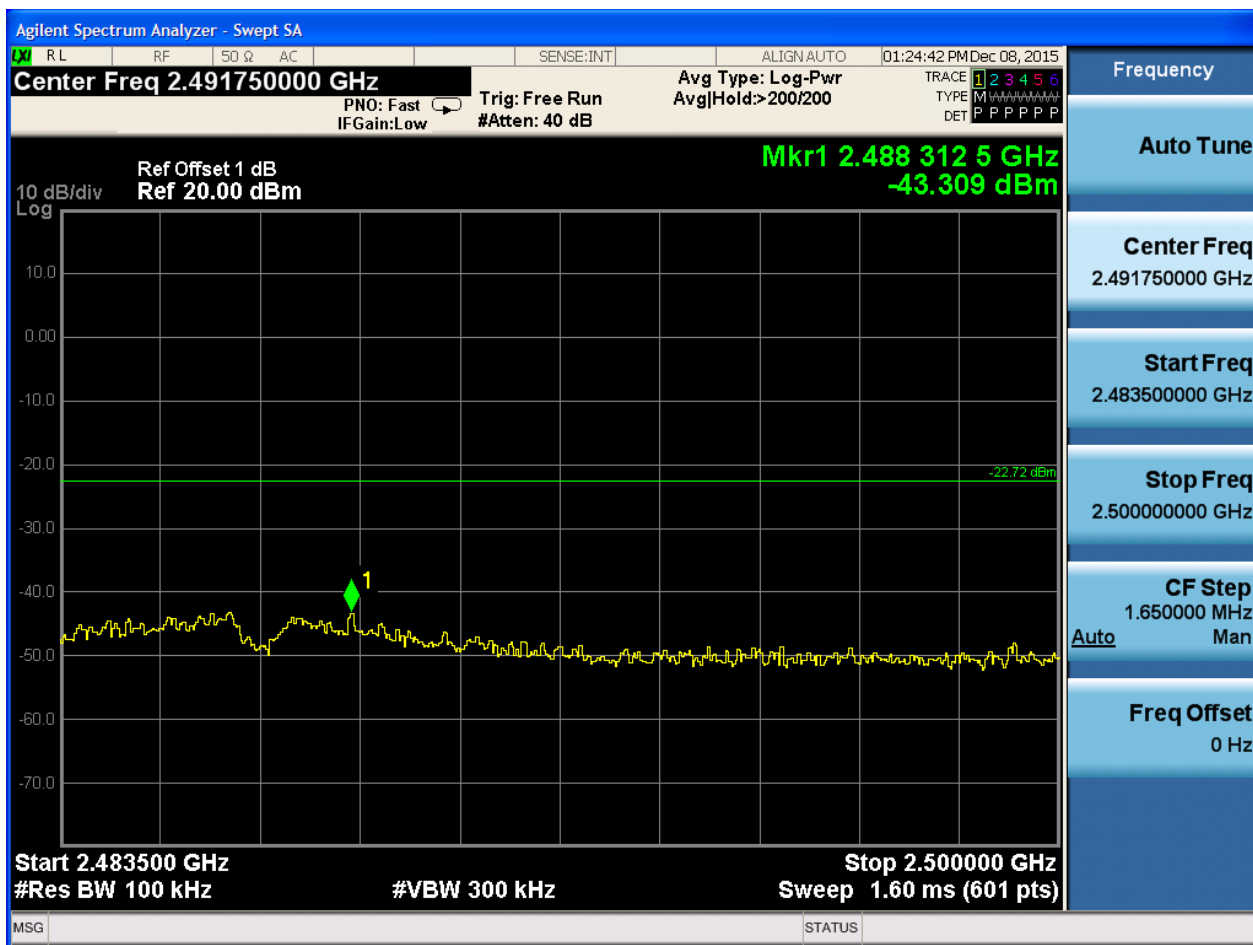
Puw:









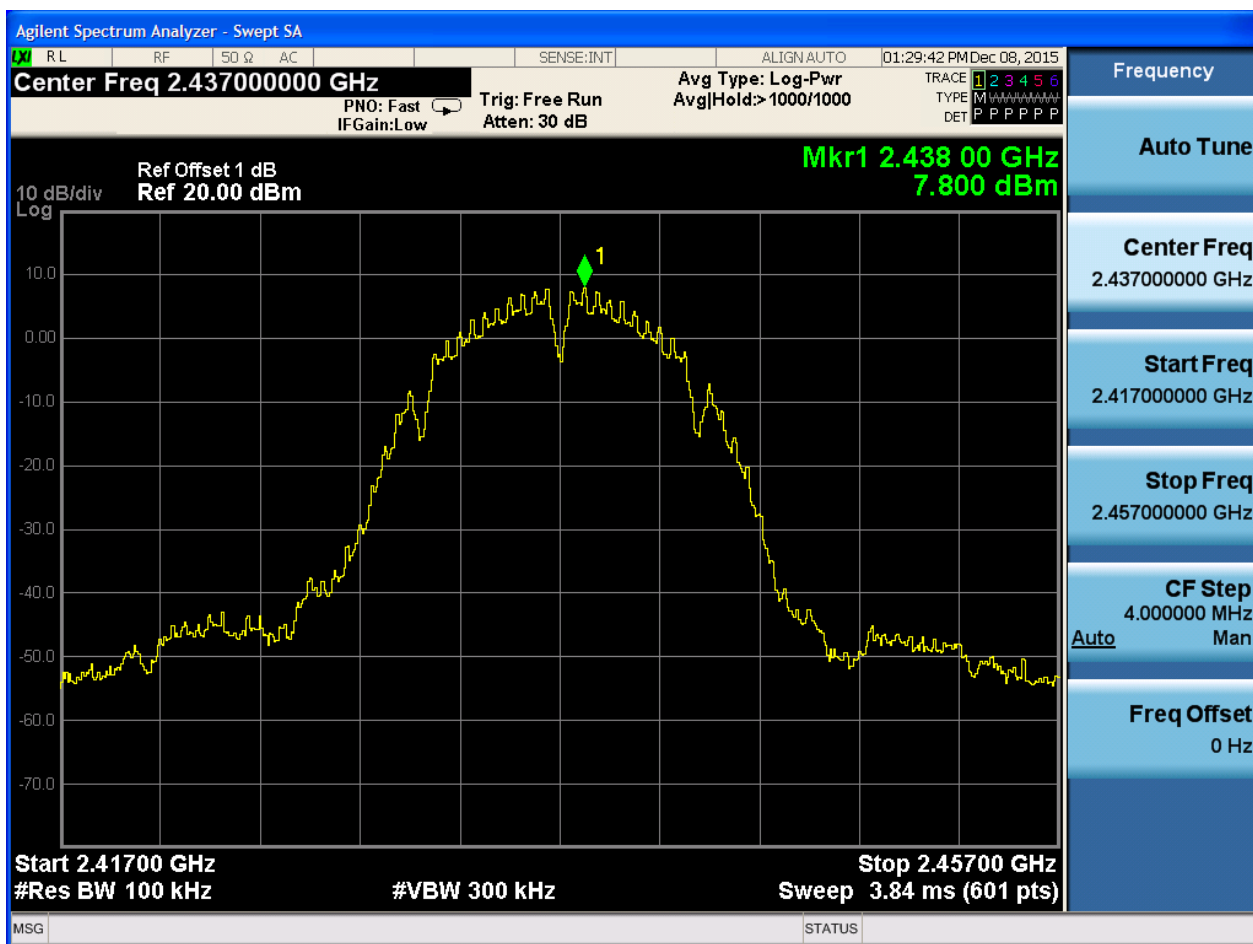






2.3 11B_M@Ant 1

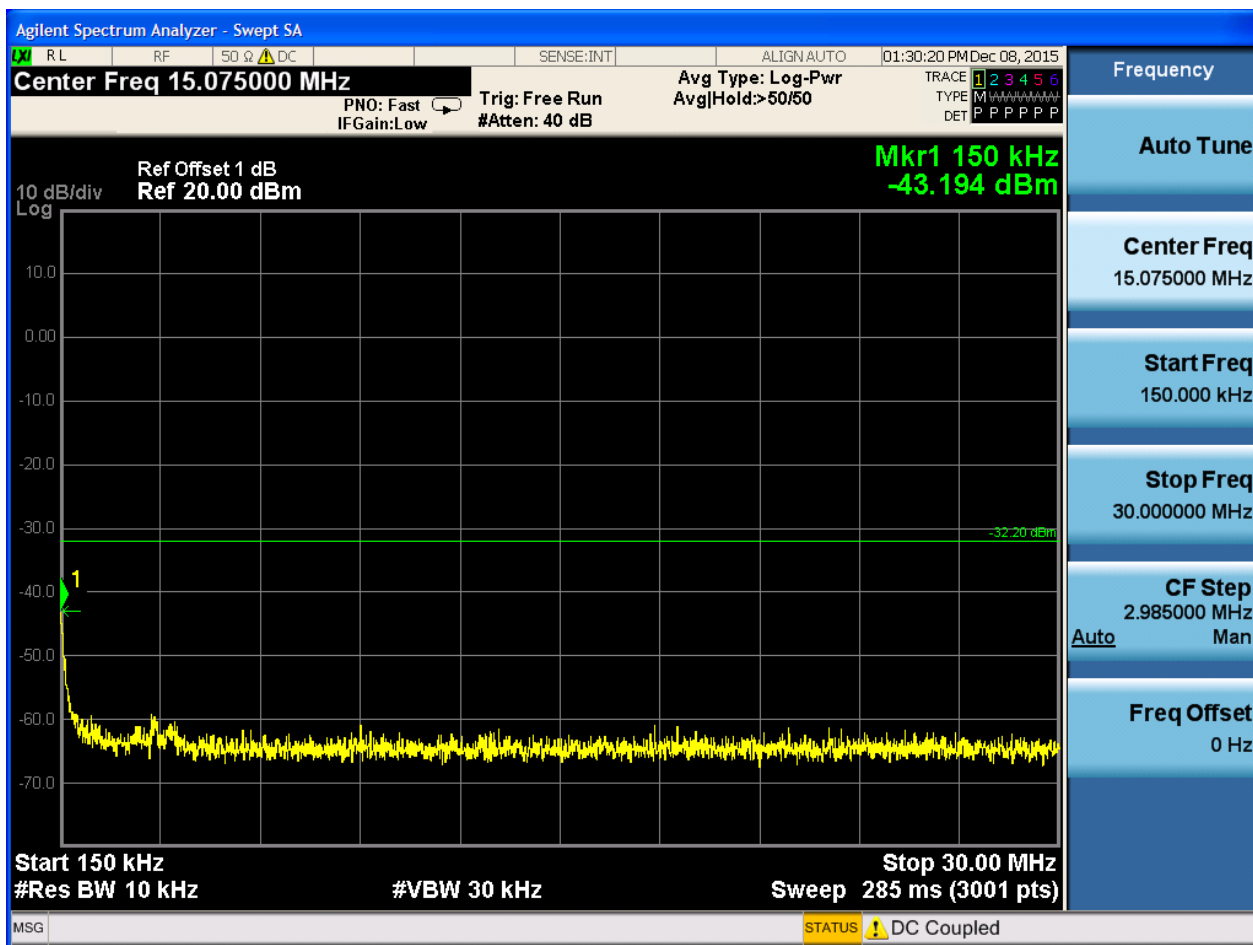
Pref:

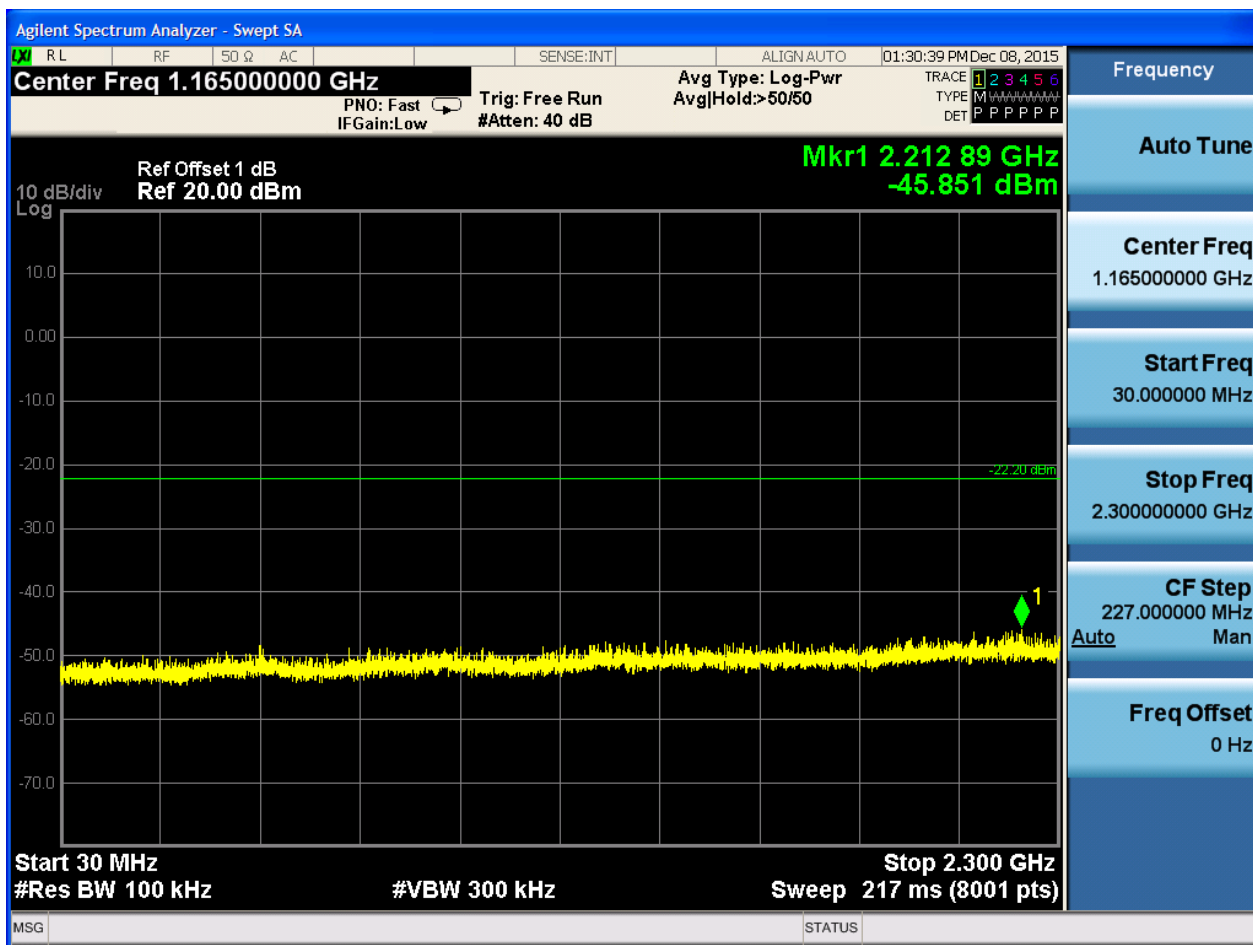


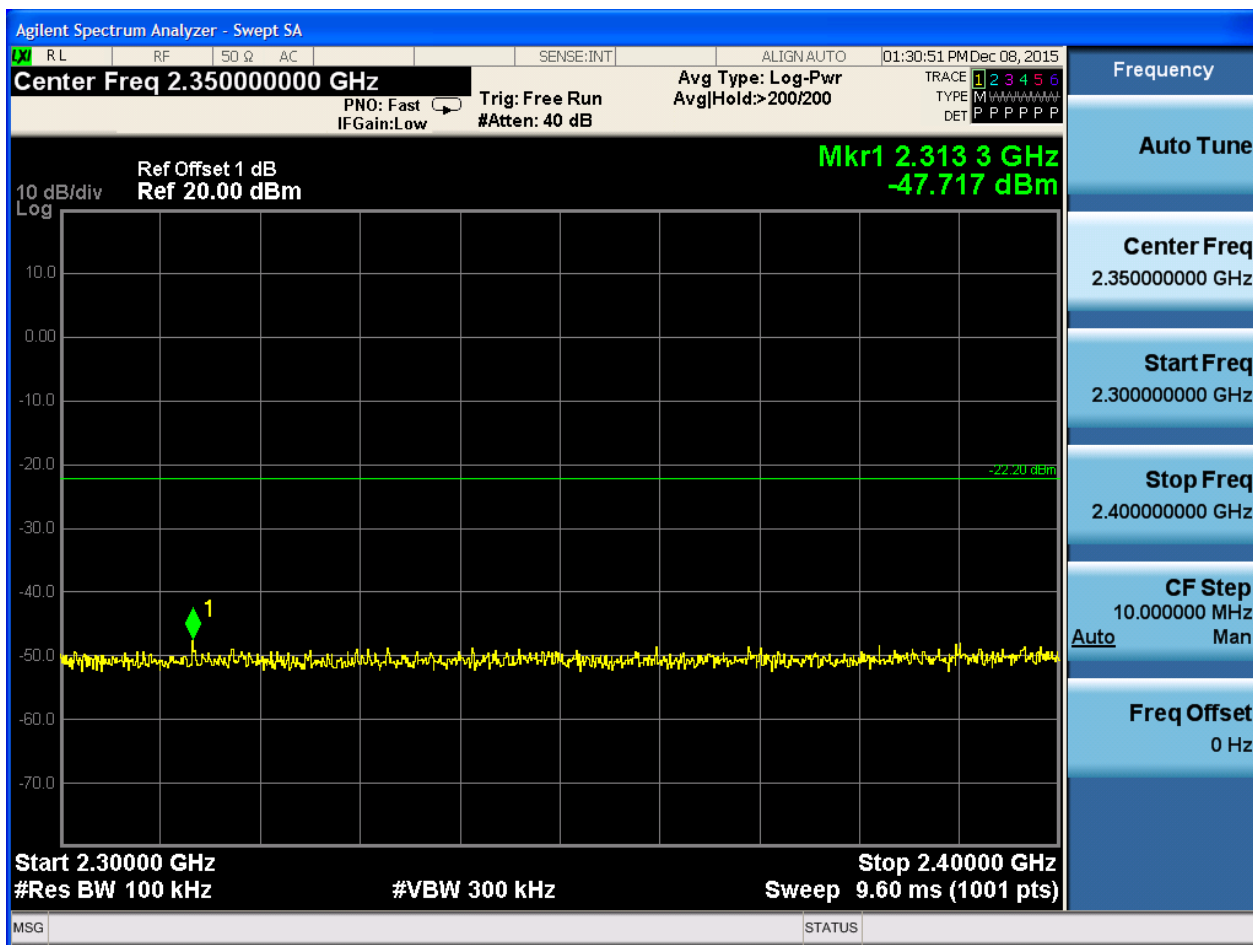


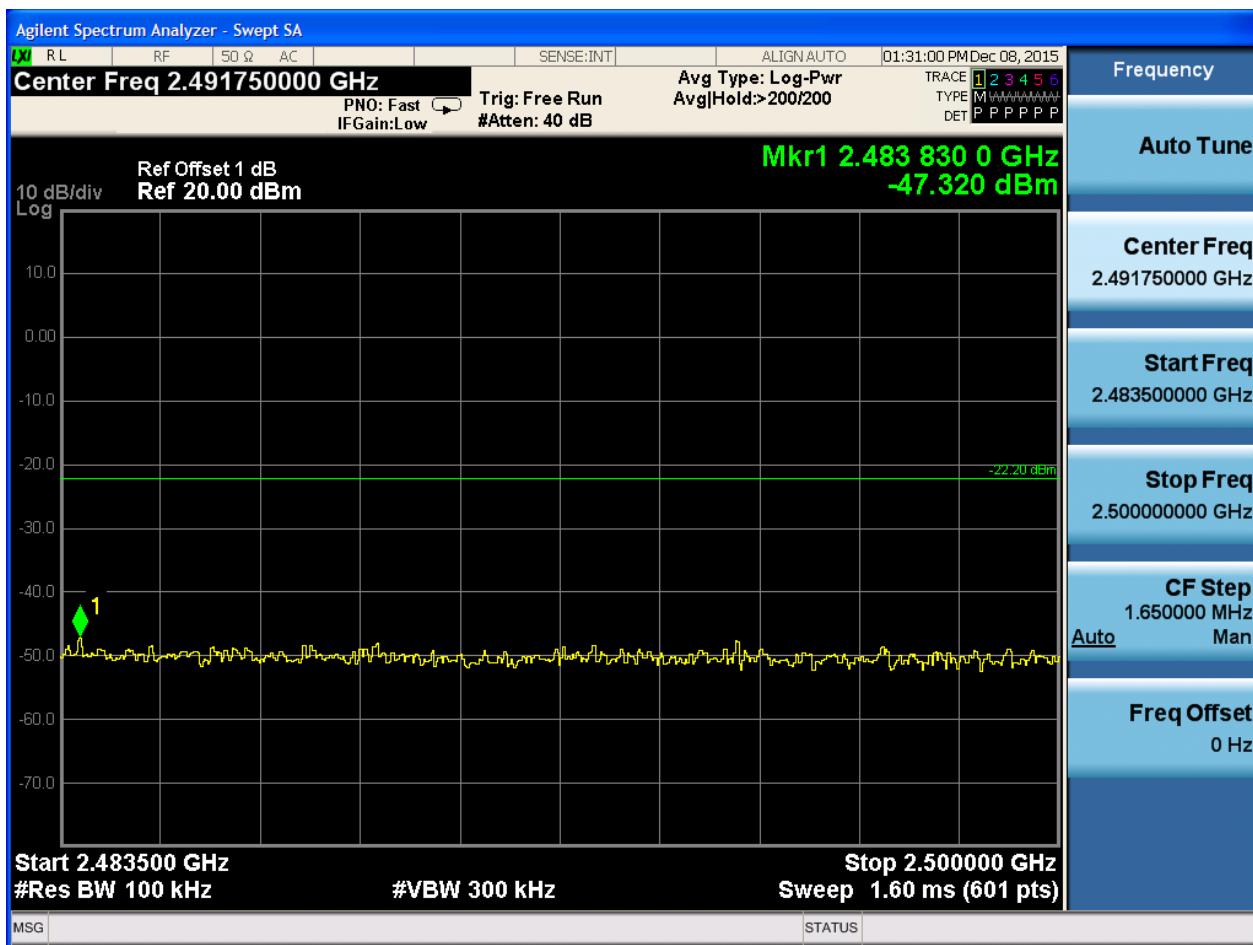
Puw:









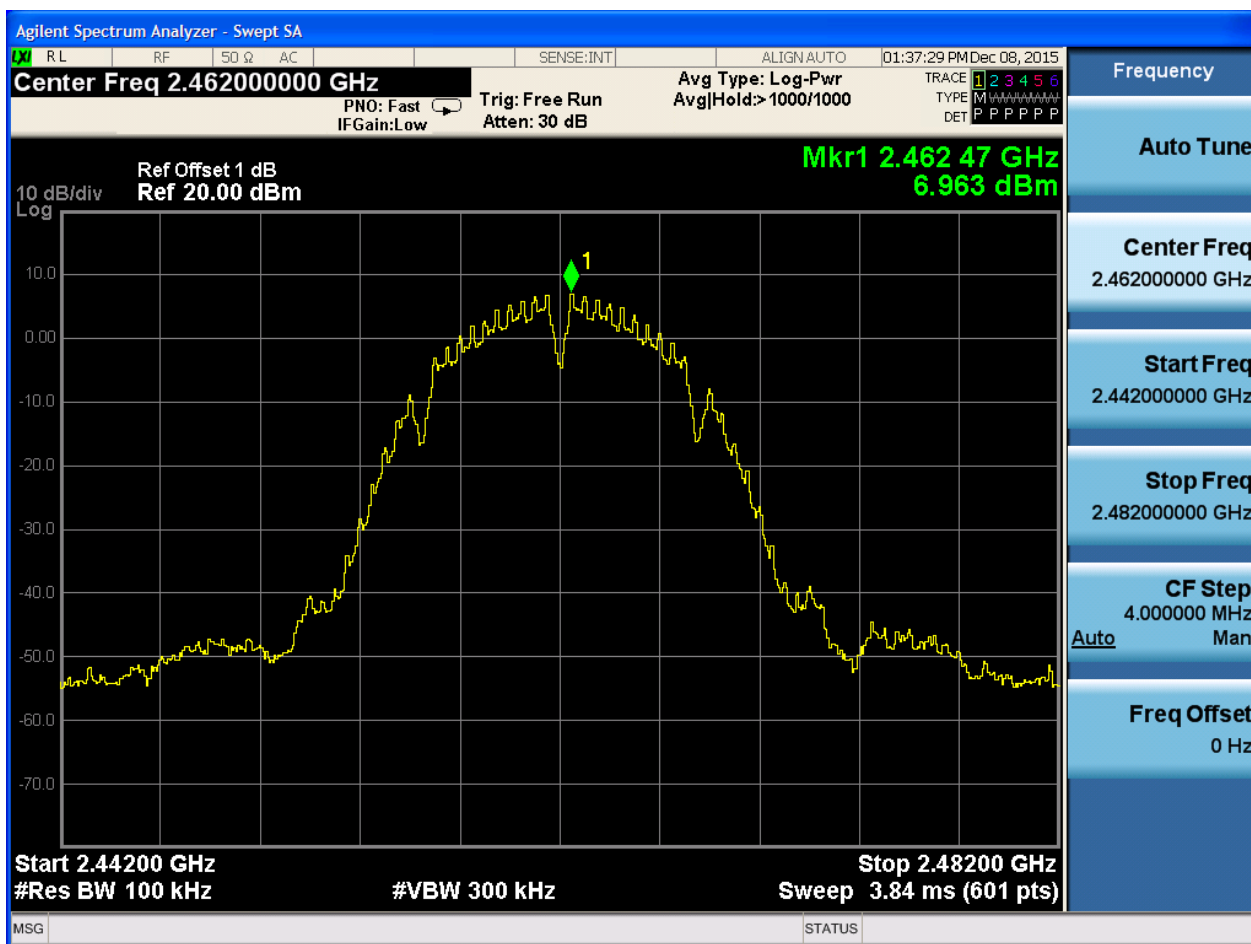






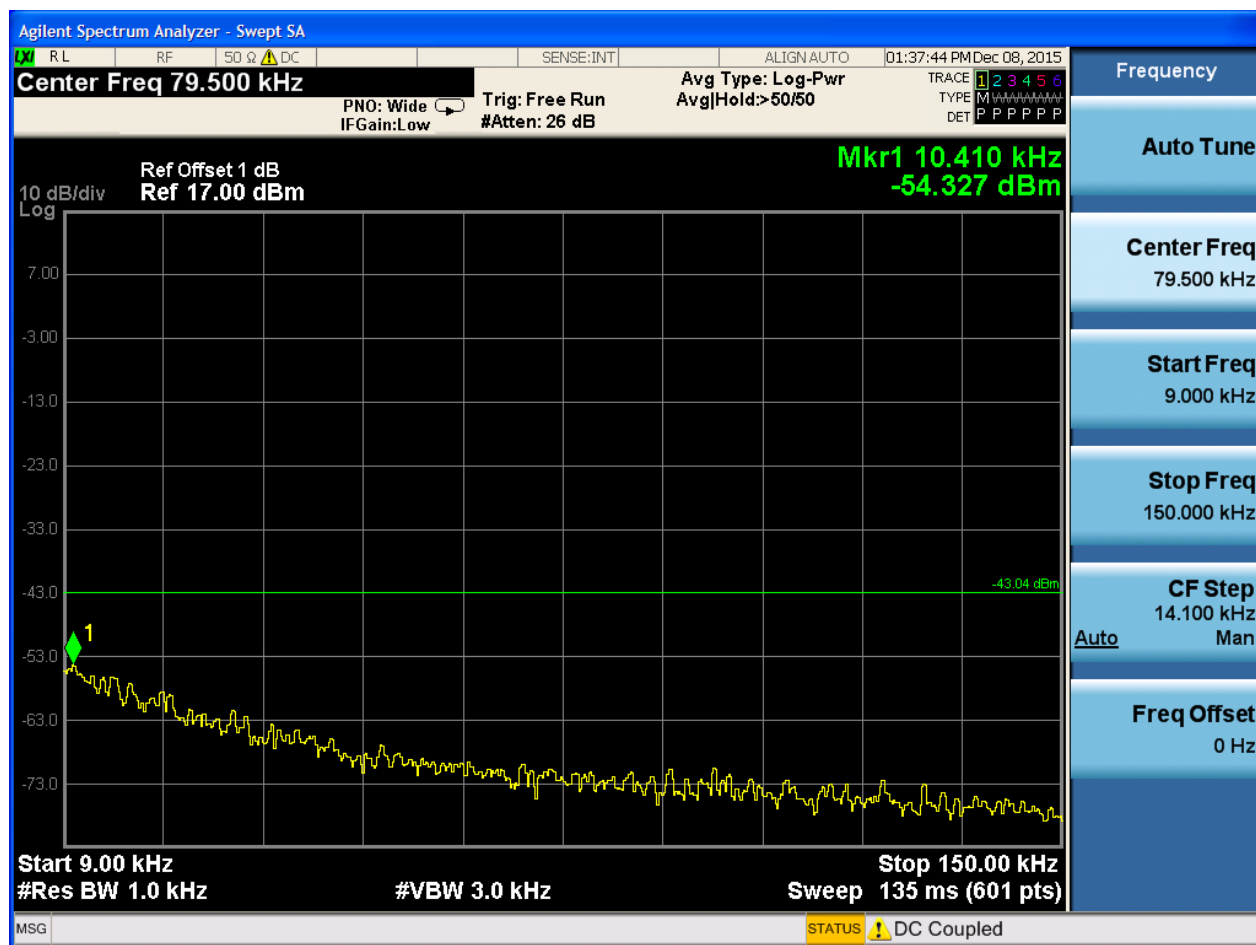
2.5 11B_H@Ant 1

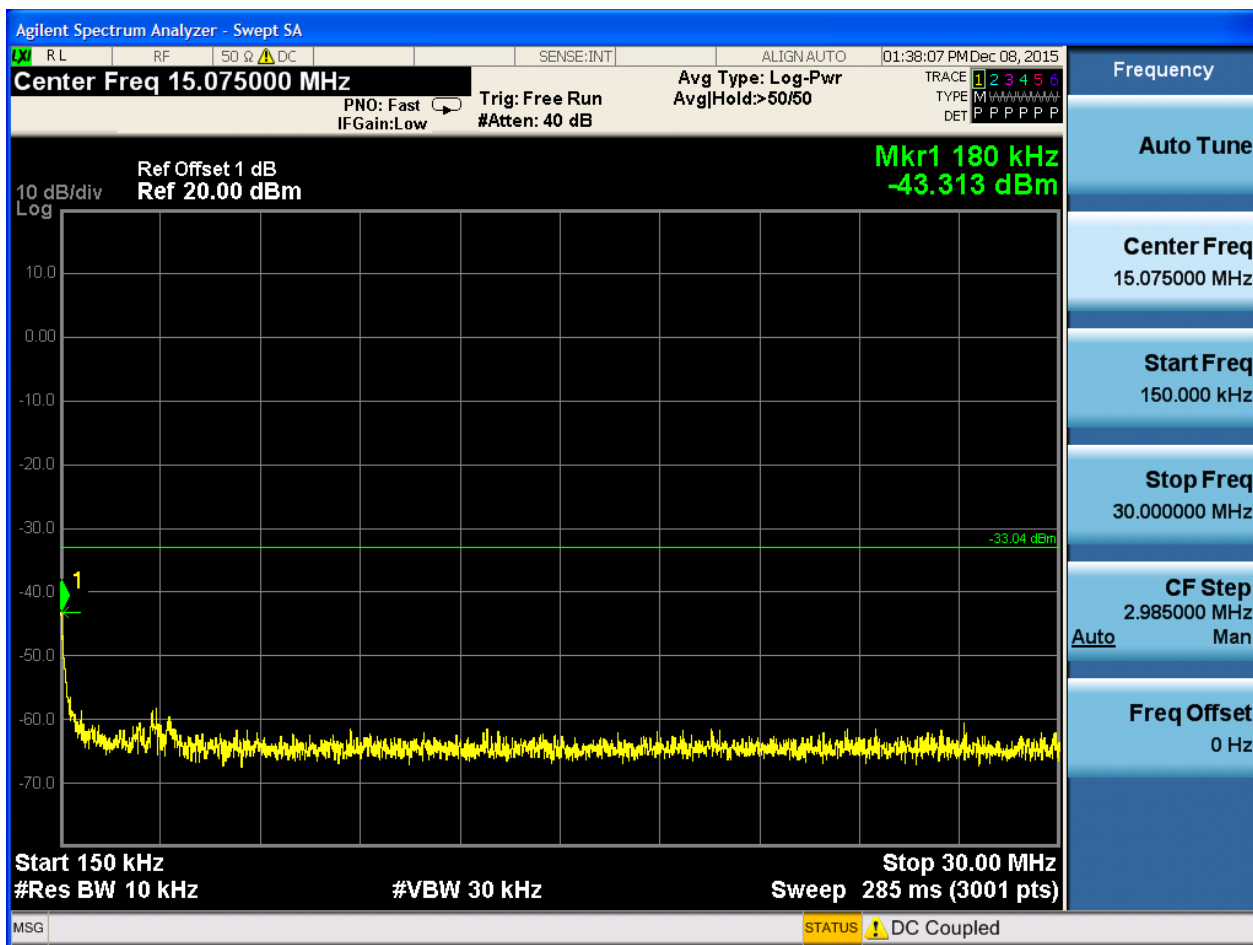
Pref:

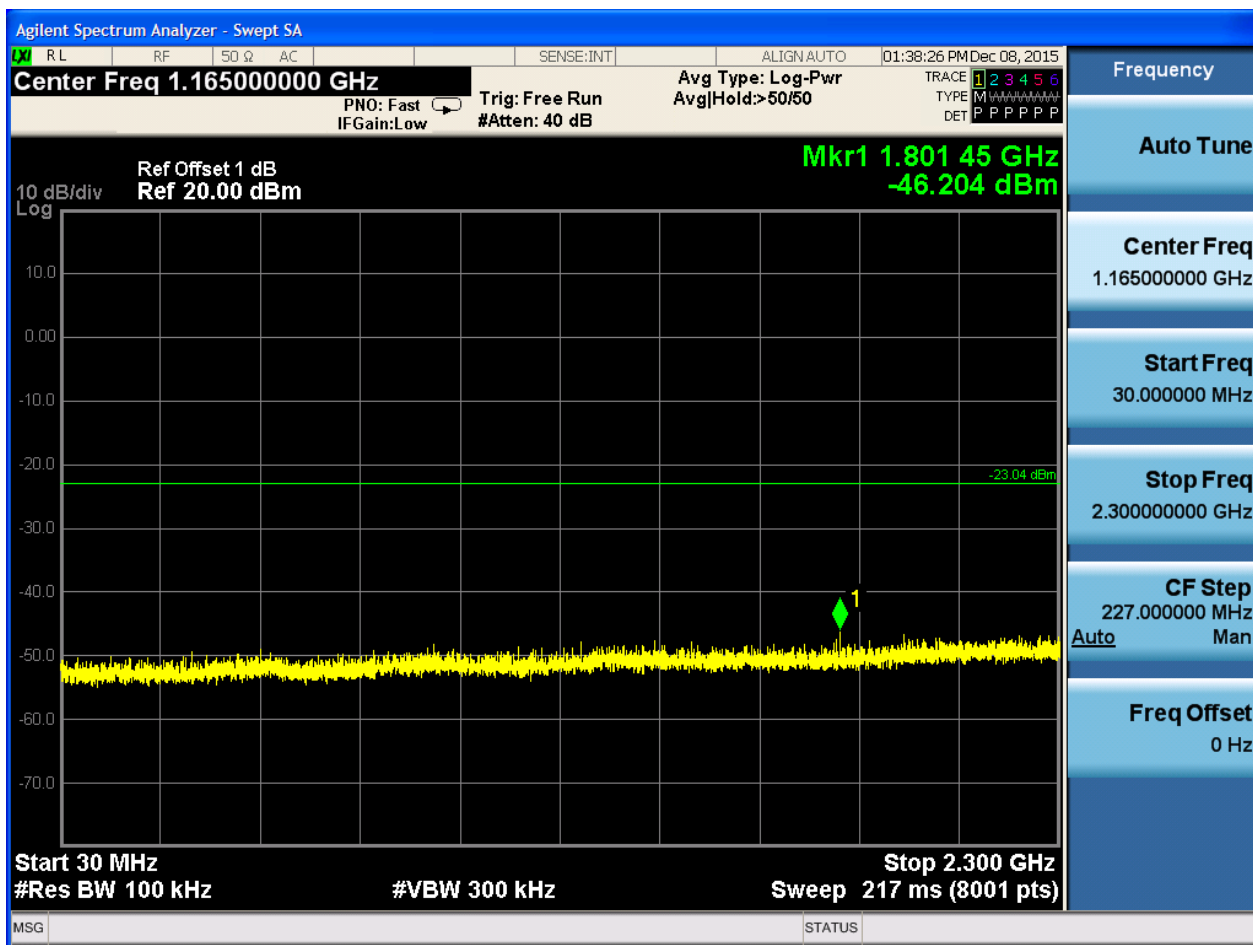


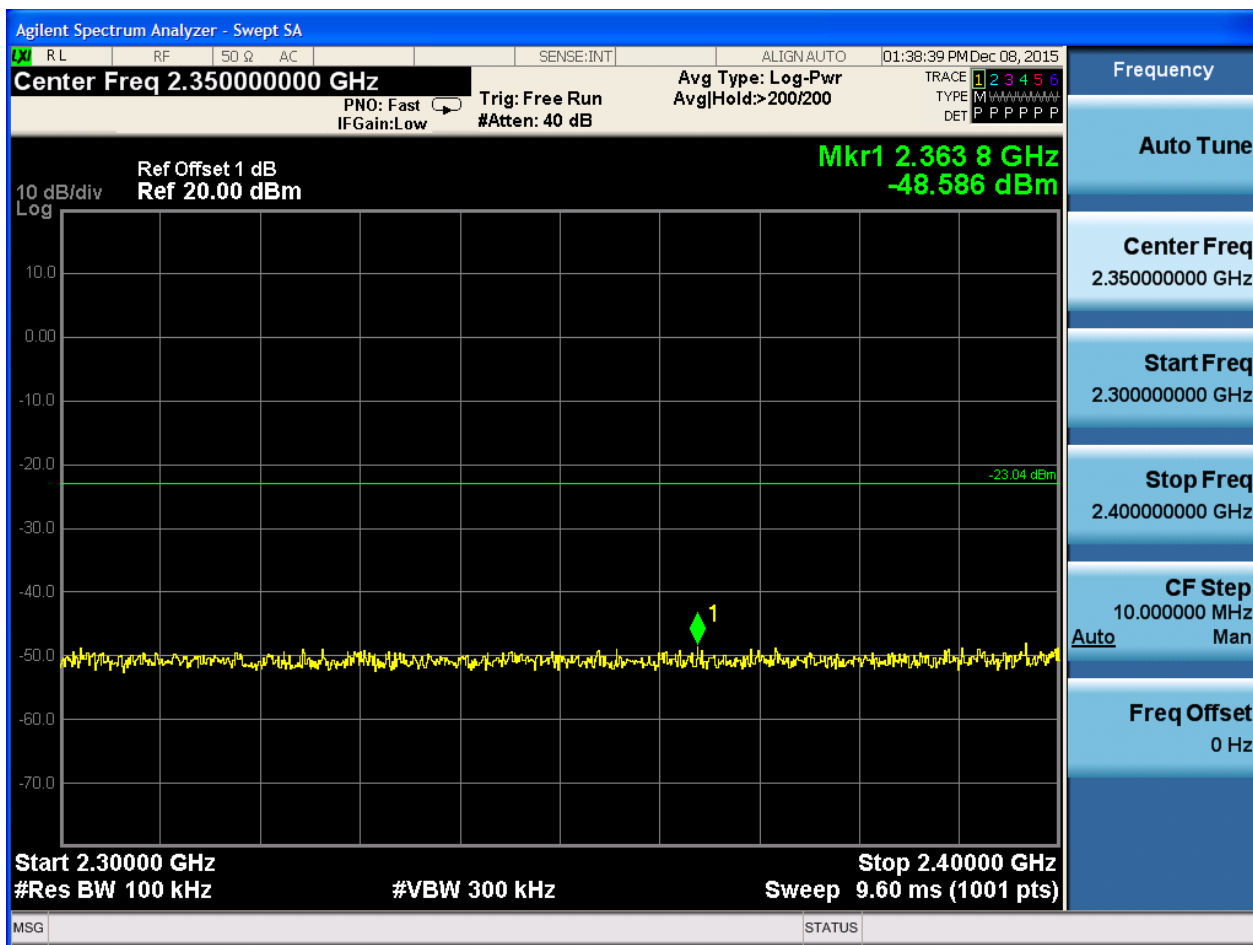


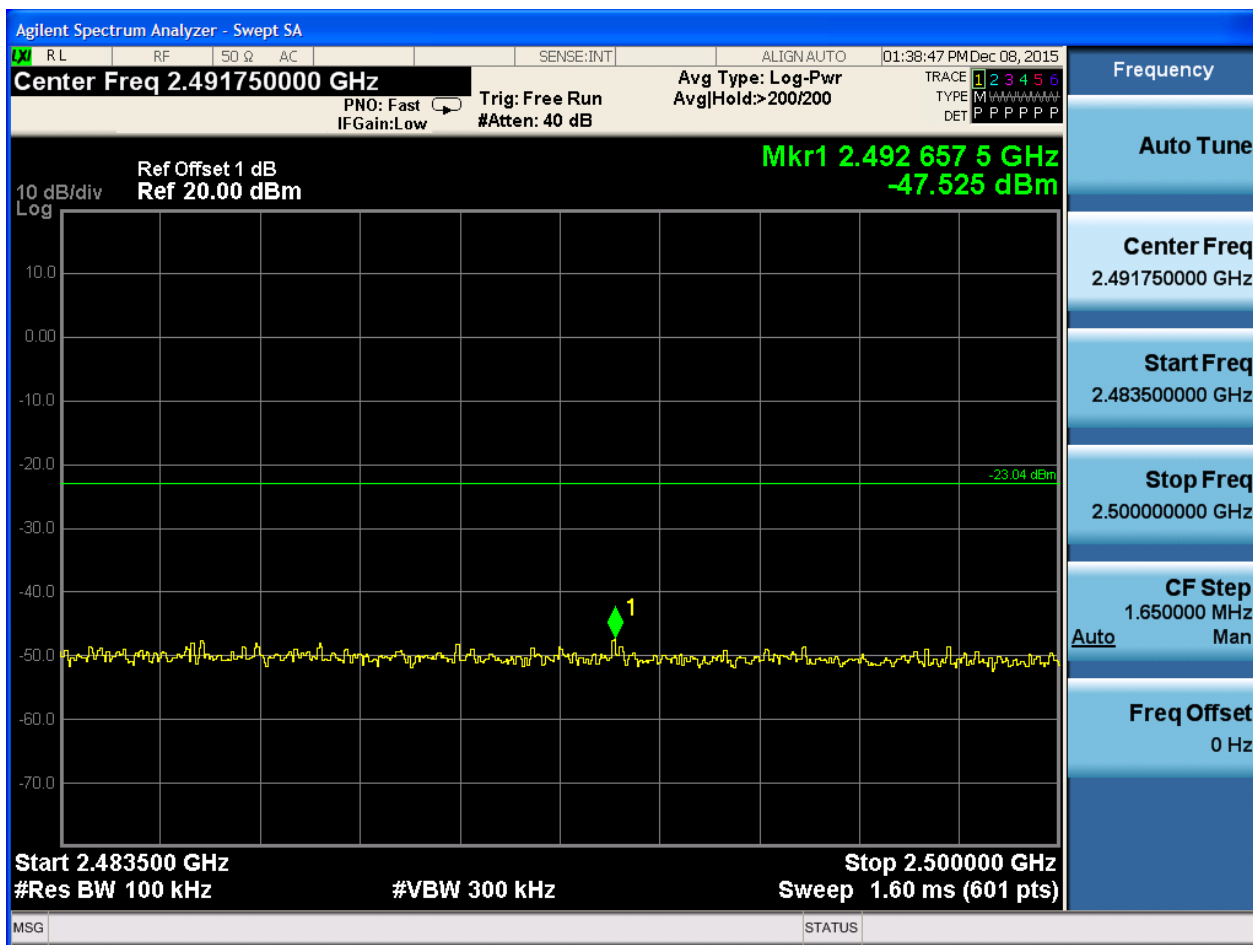
Puw:









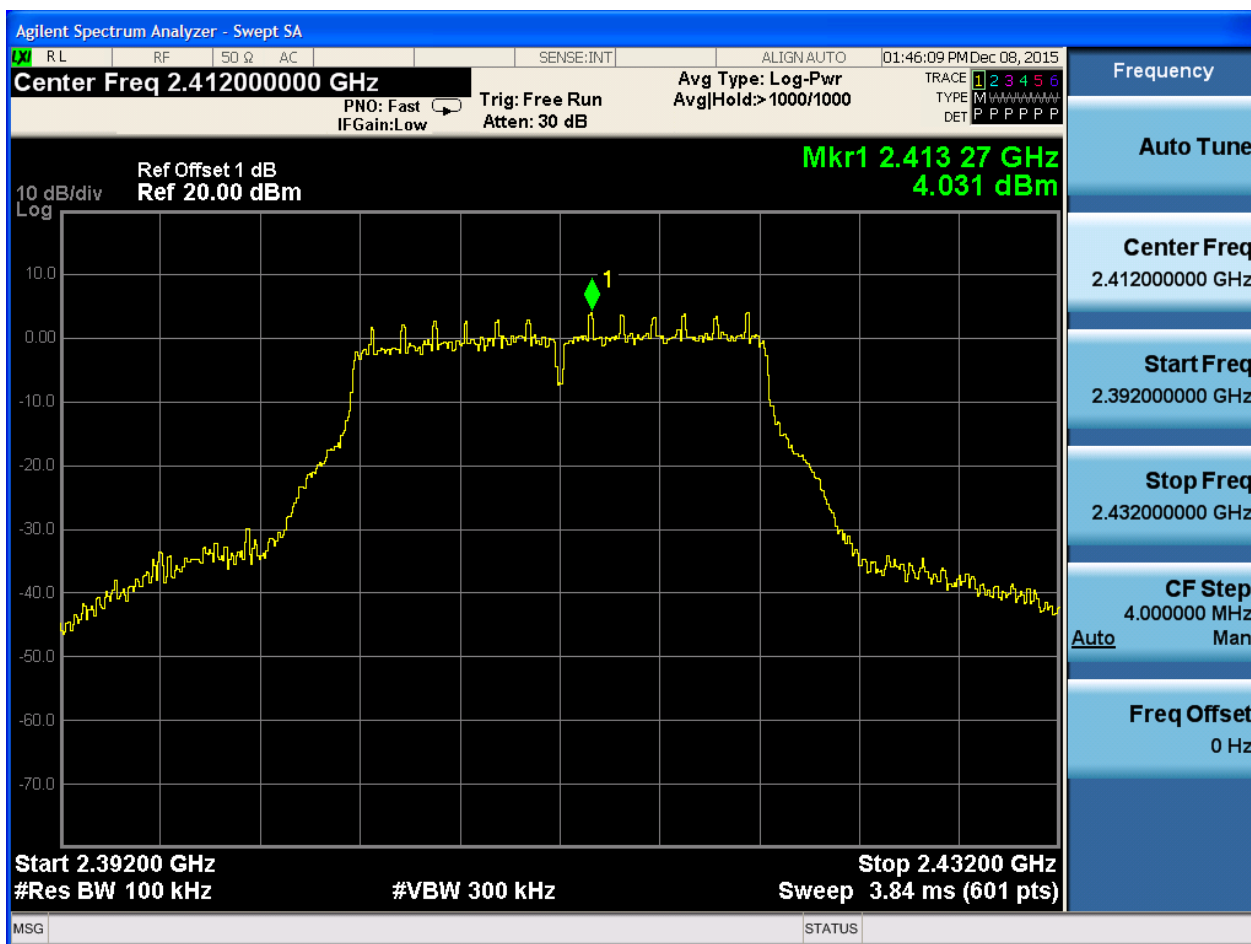






2.7 11G_L@Ant 1

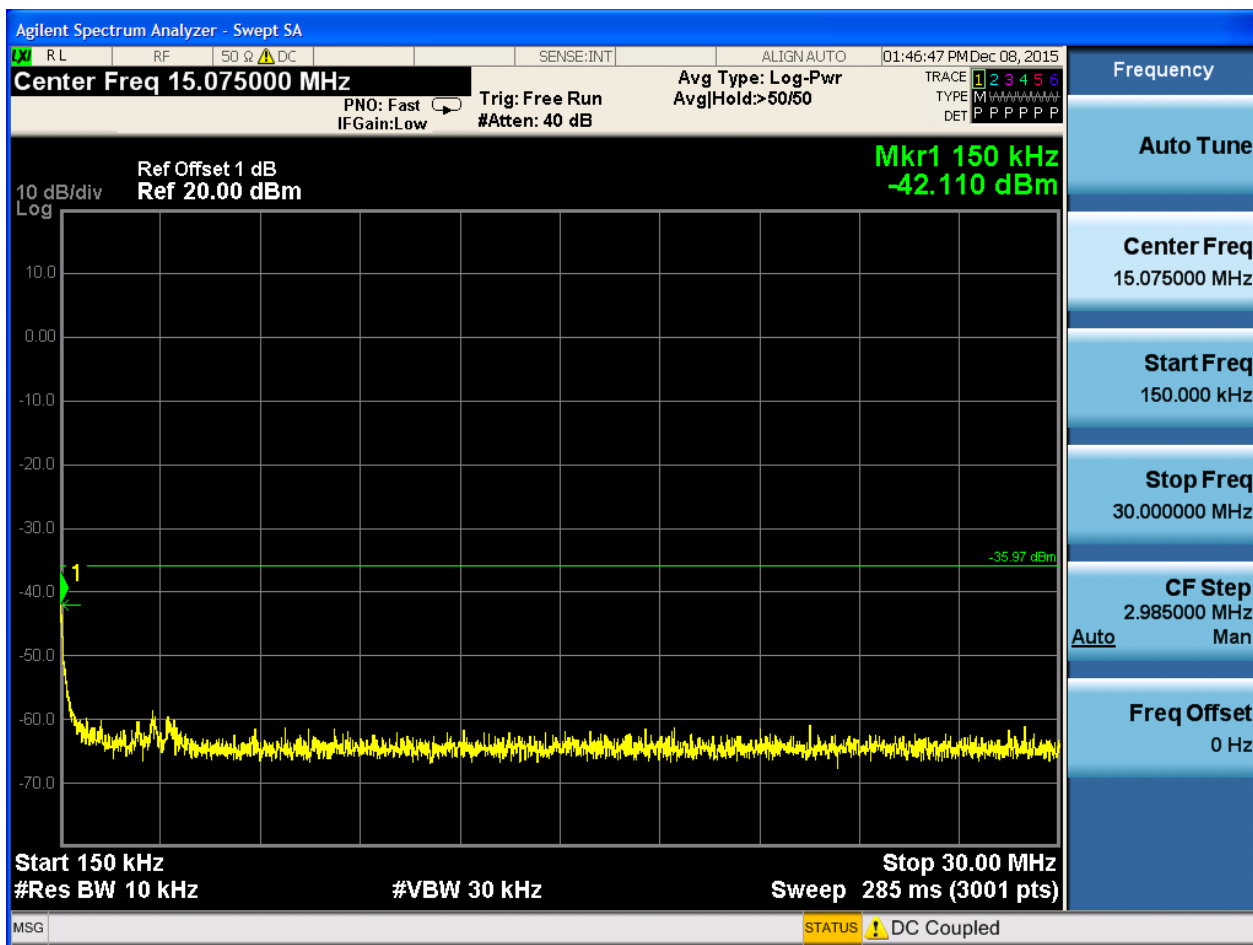
Pref:

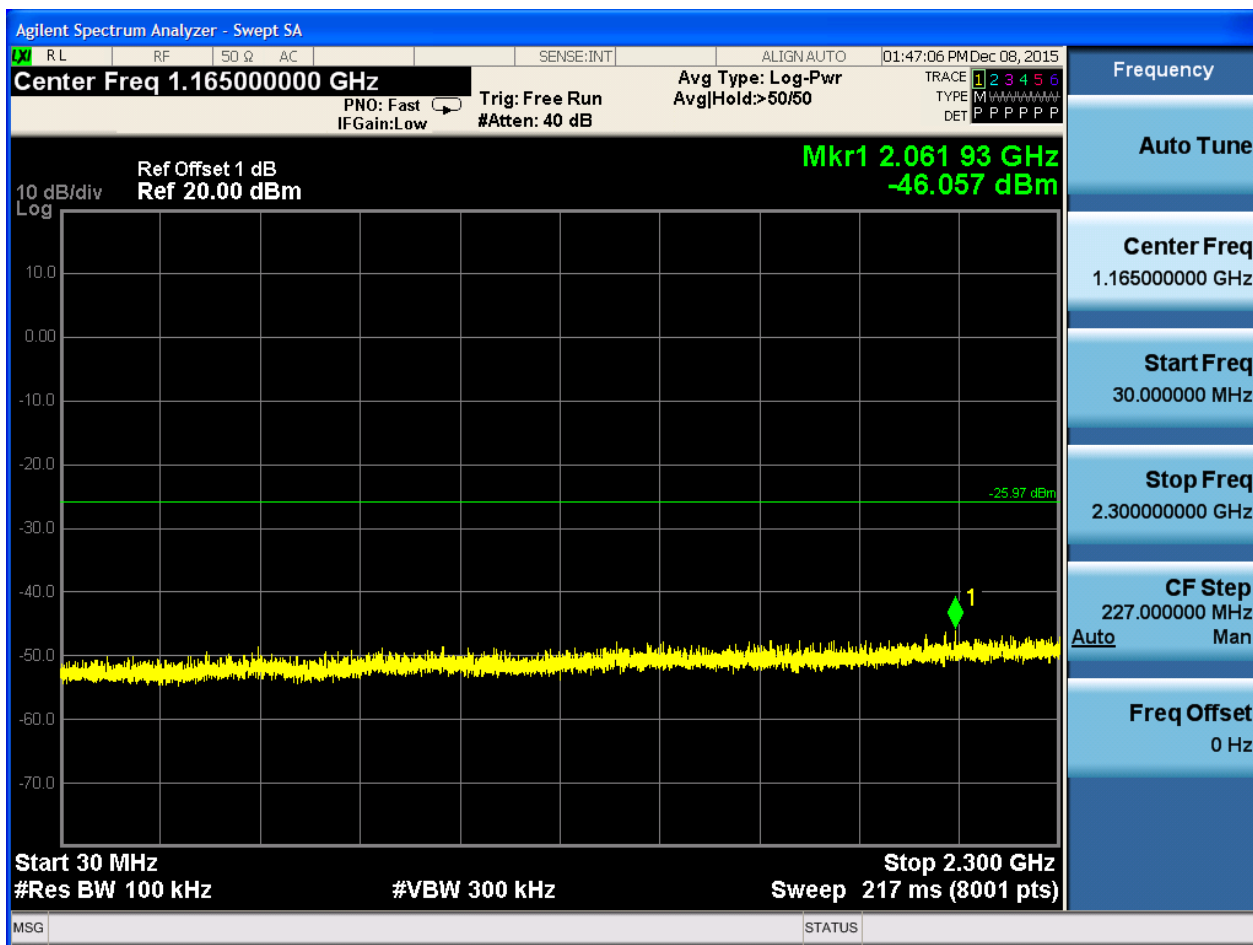


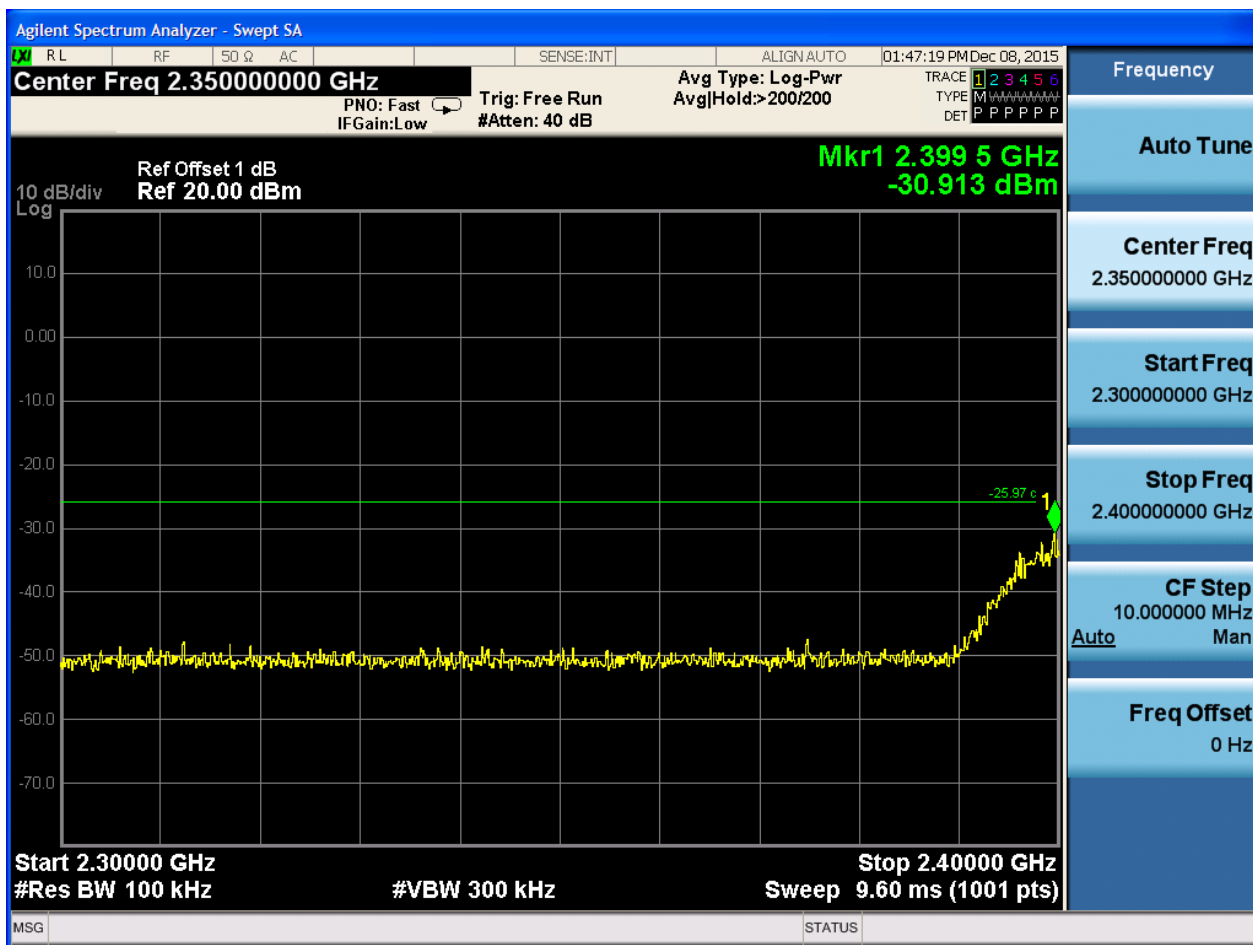


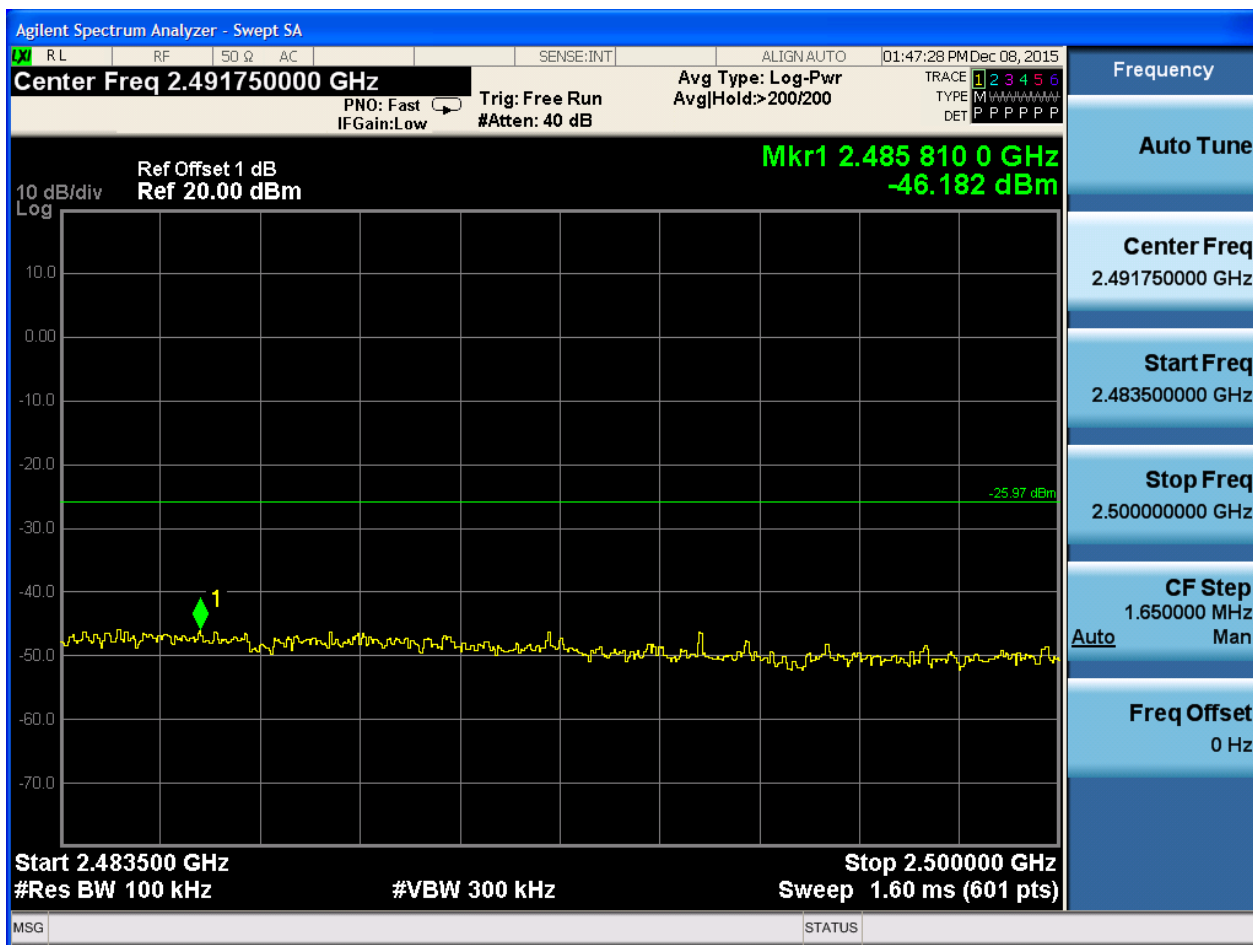
Puw:

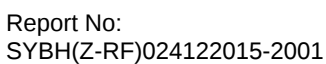








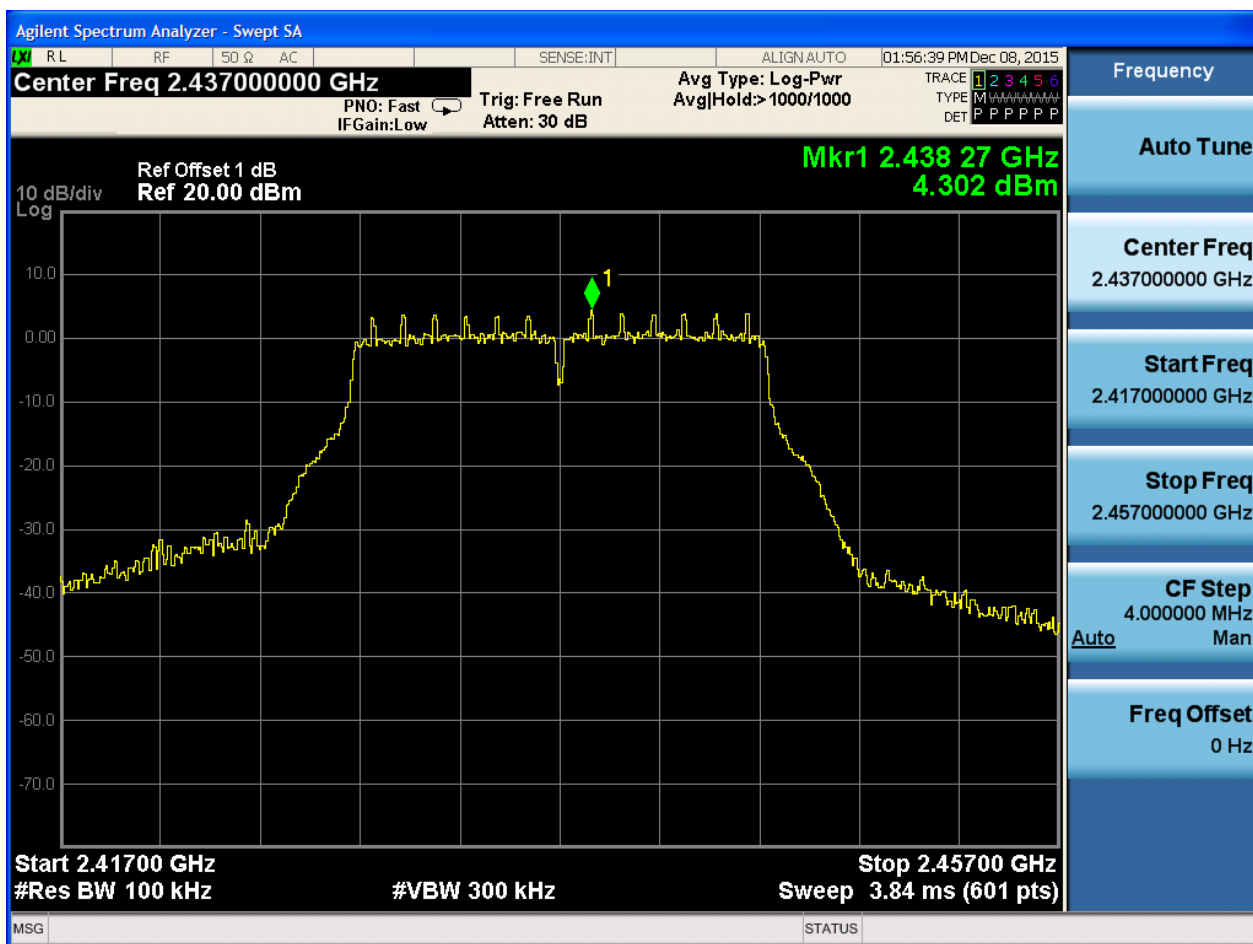






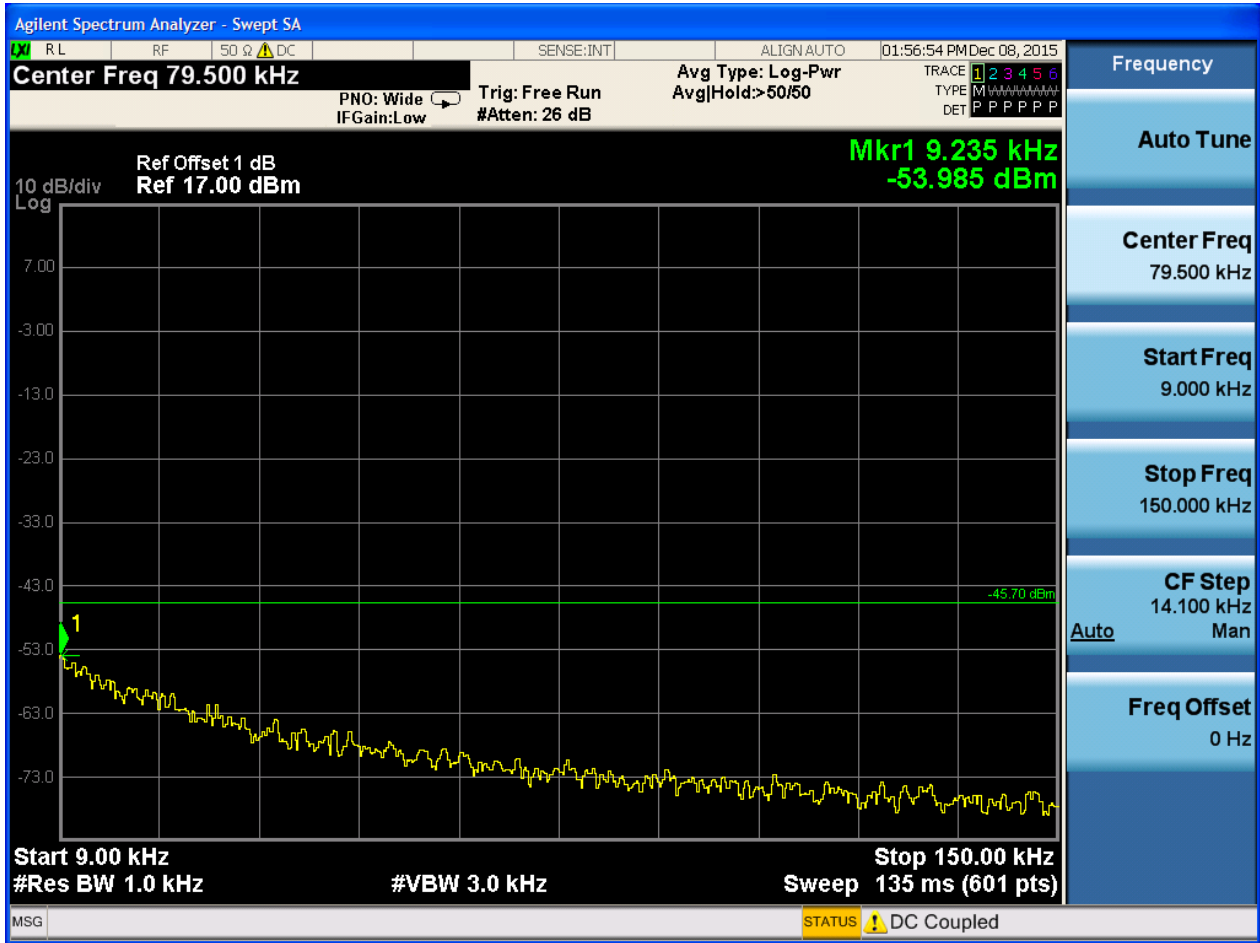
2.9 11G_M@Ant 1

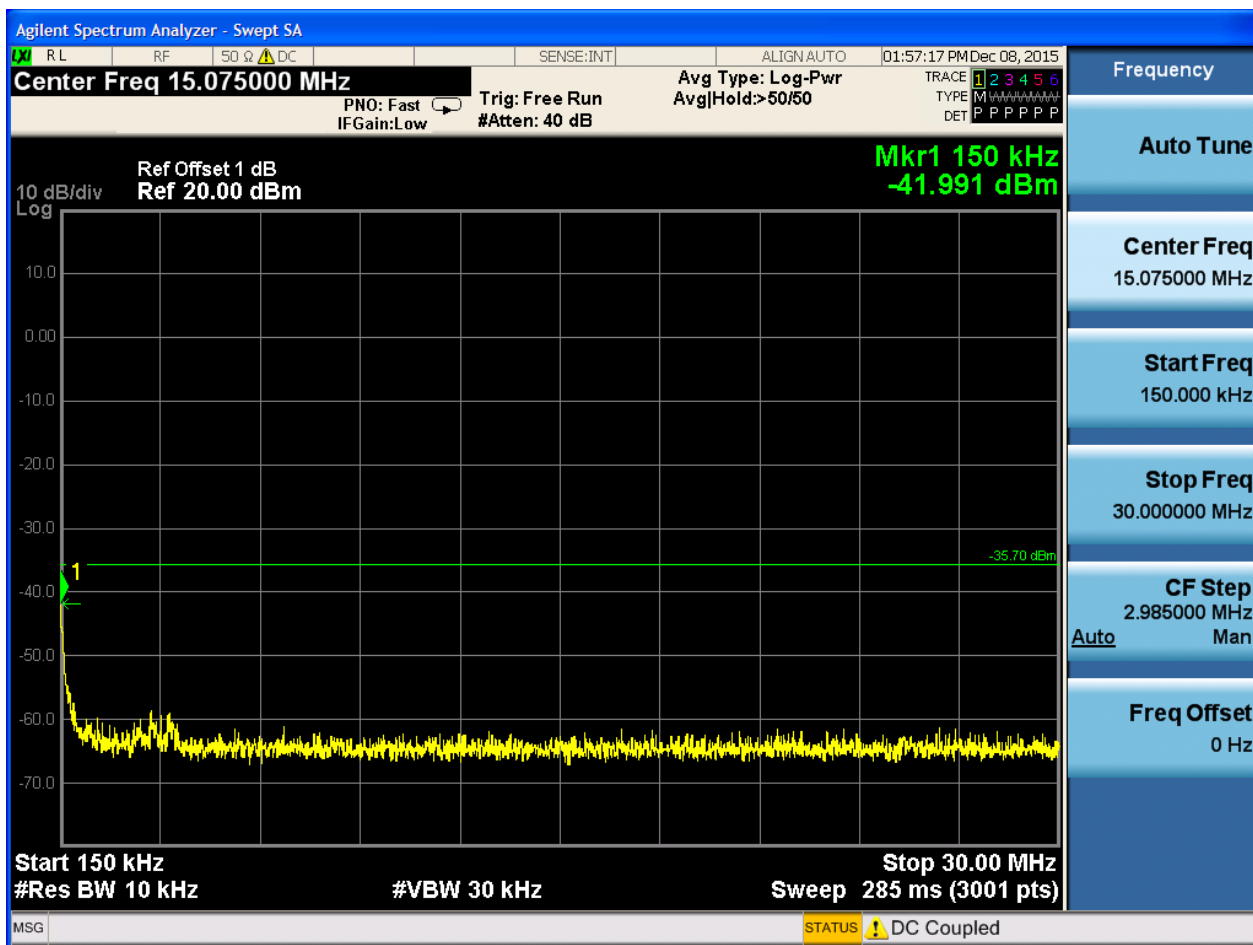
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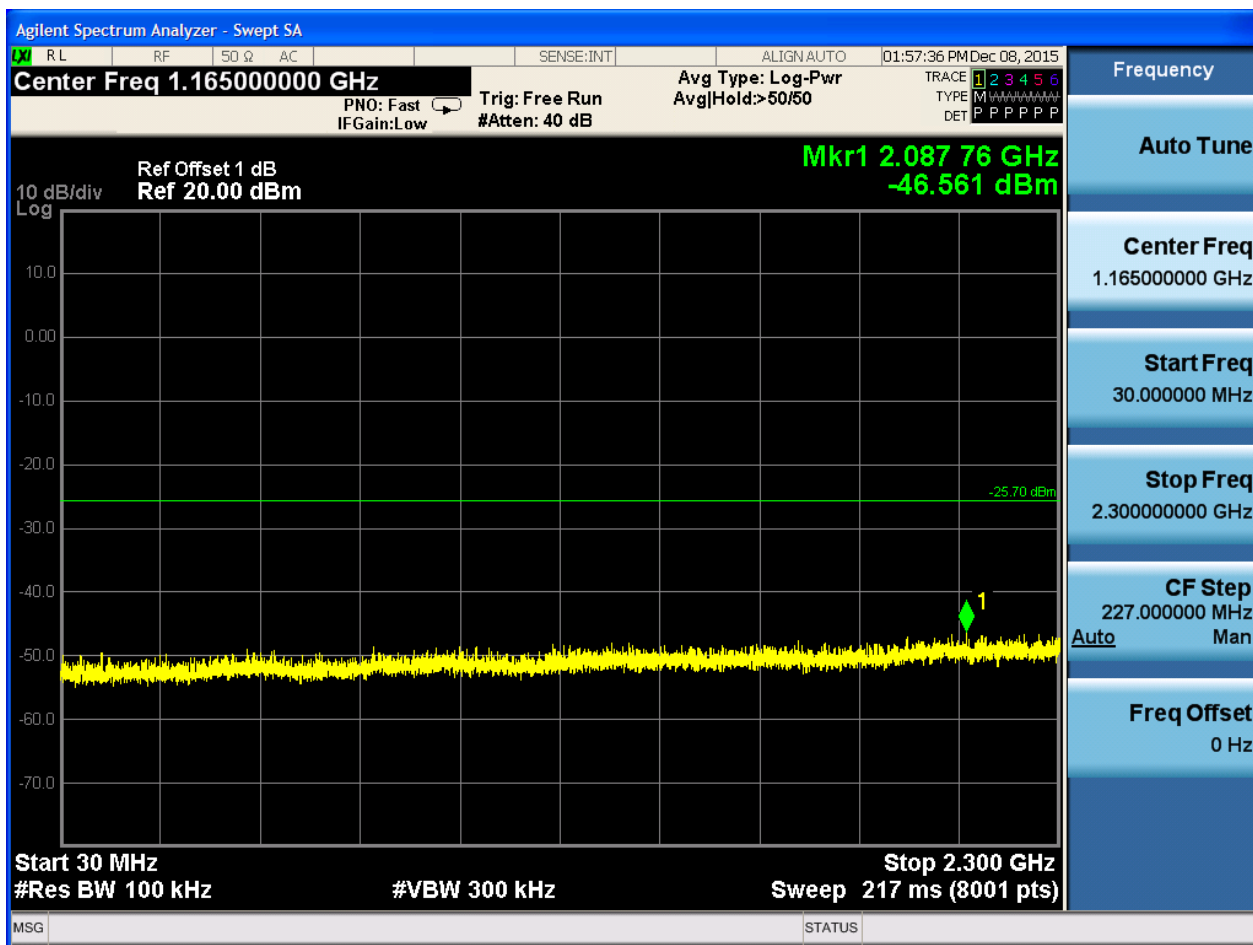


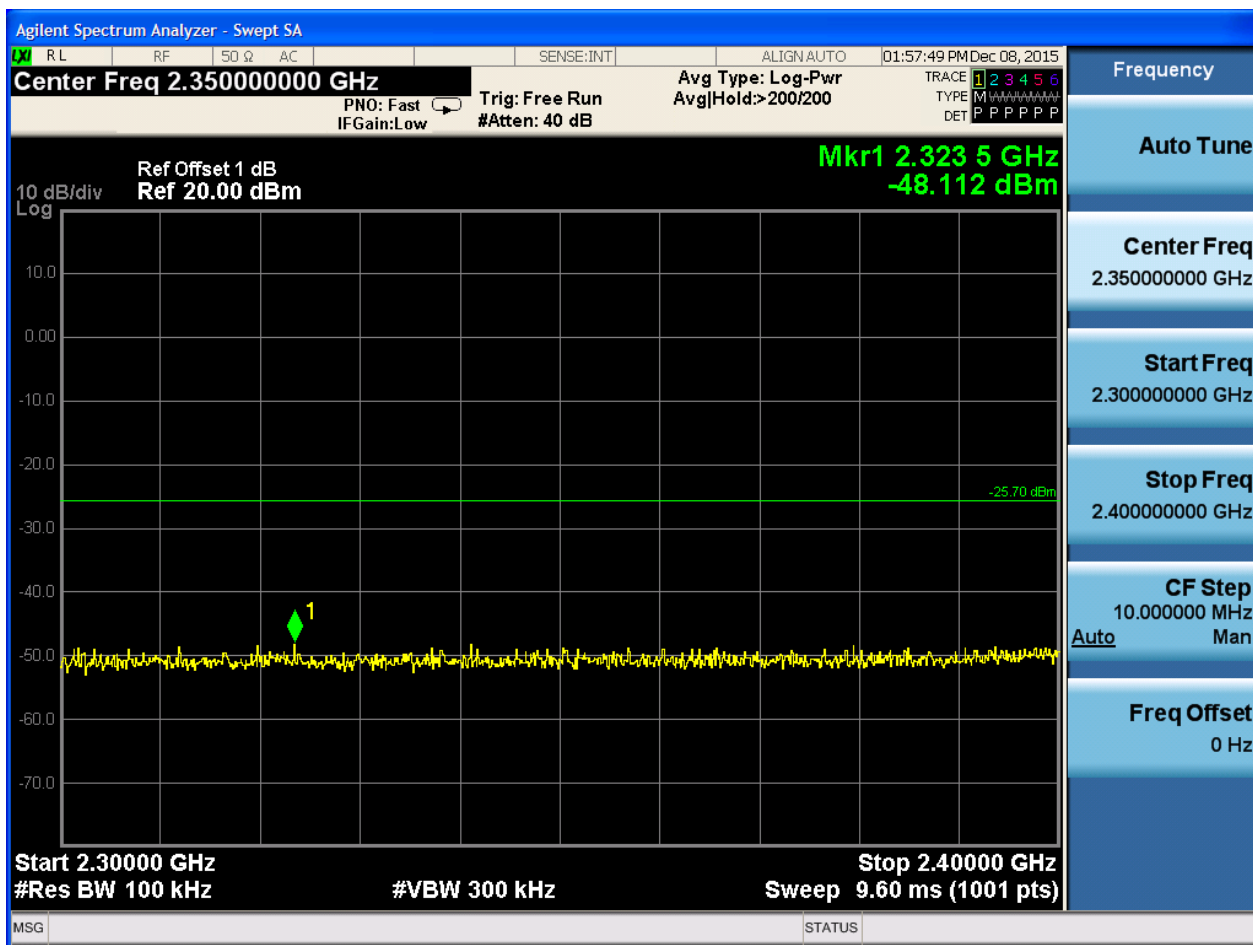


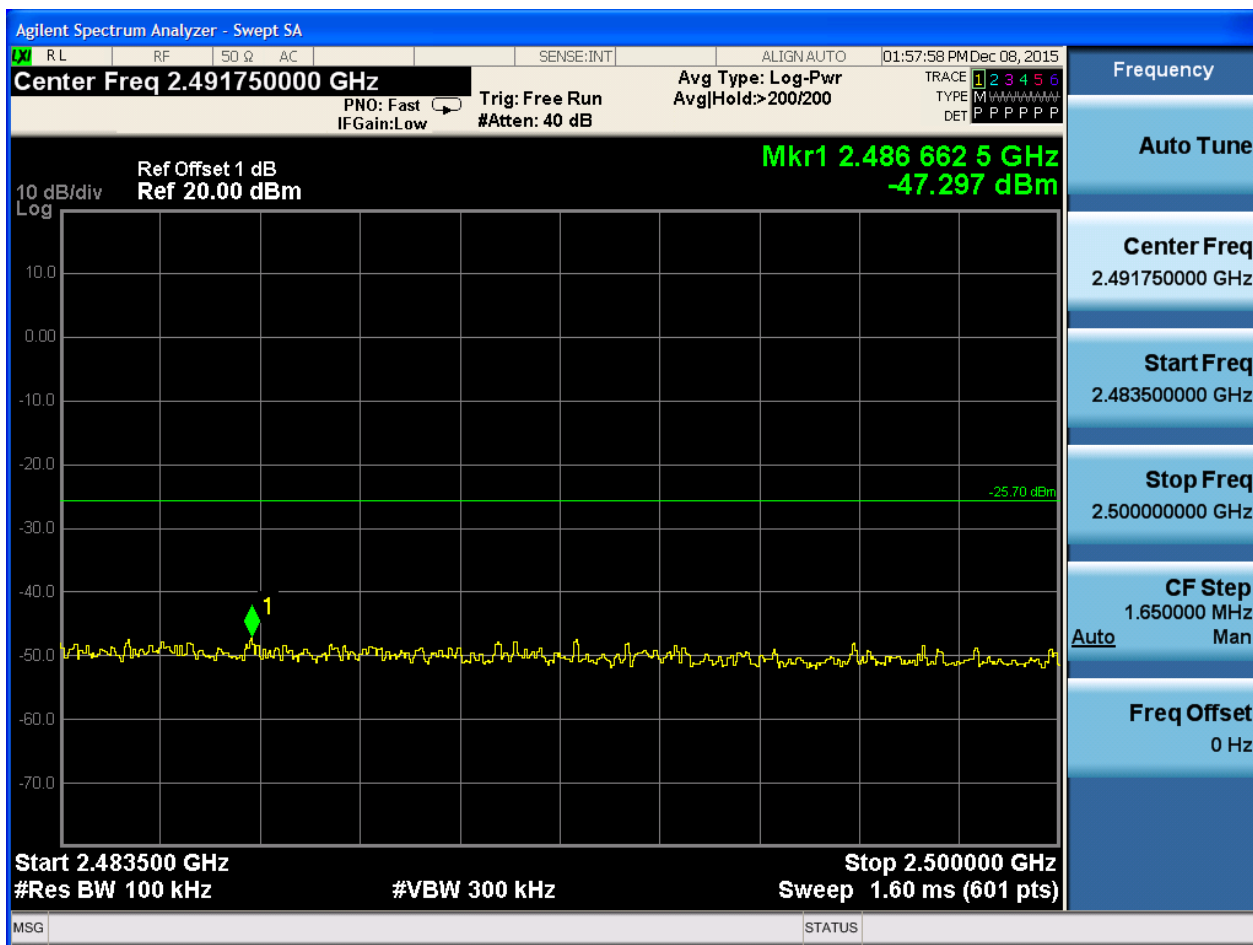
Puw:

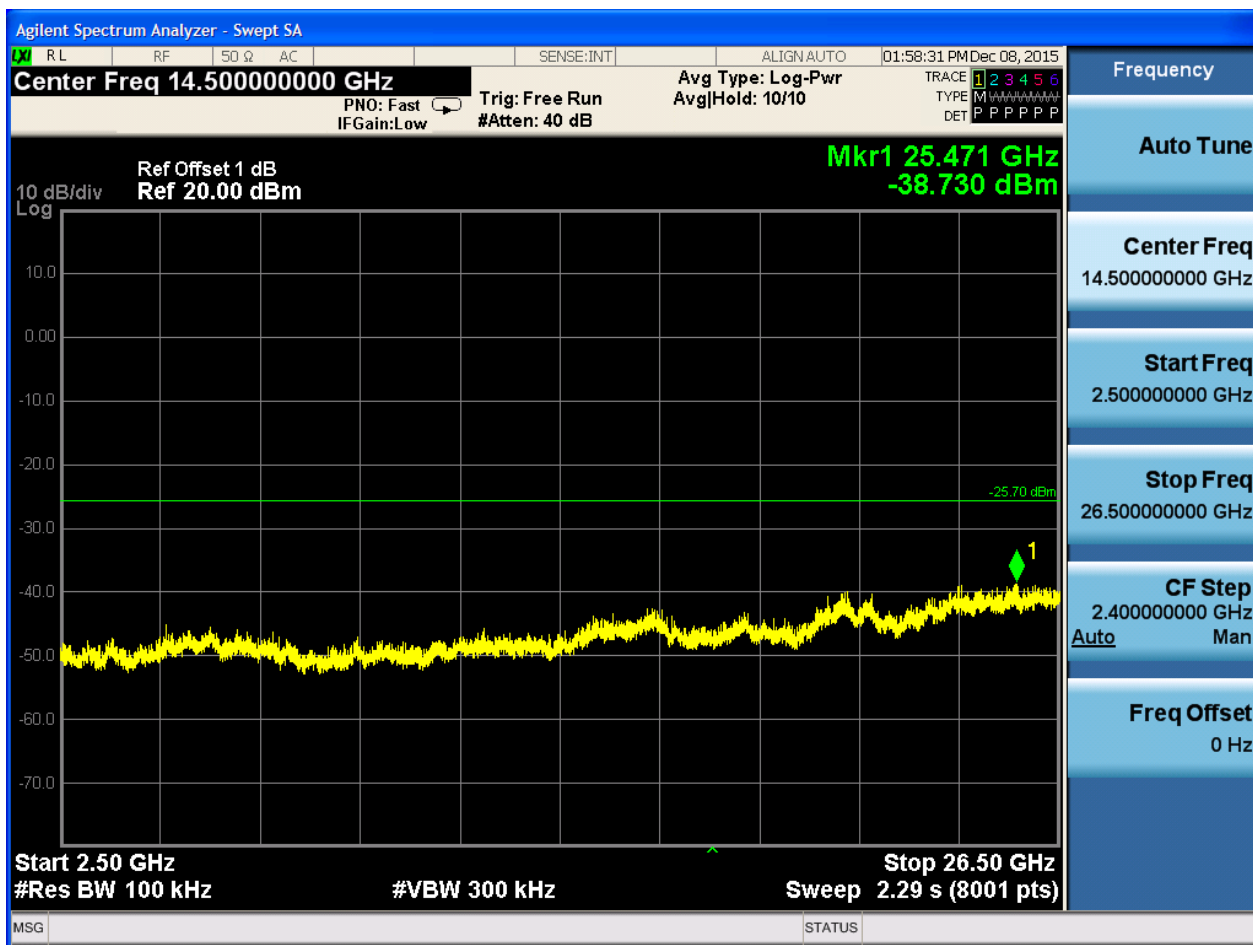








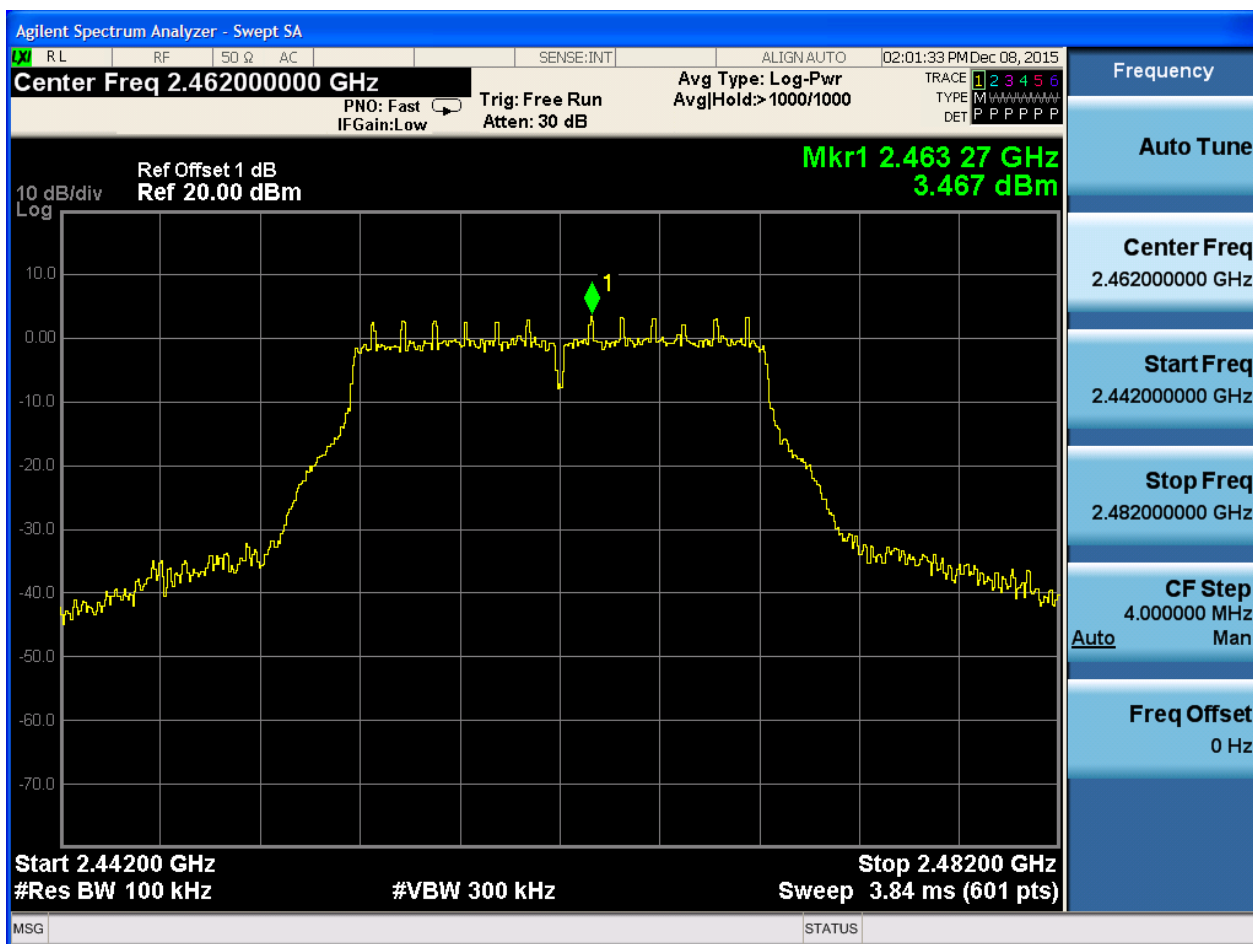






2.11 11G_H@Ant 1

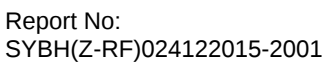
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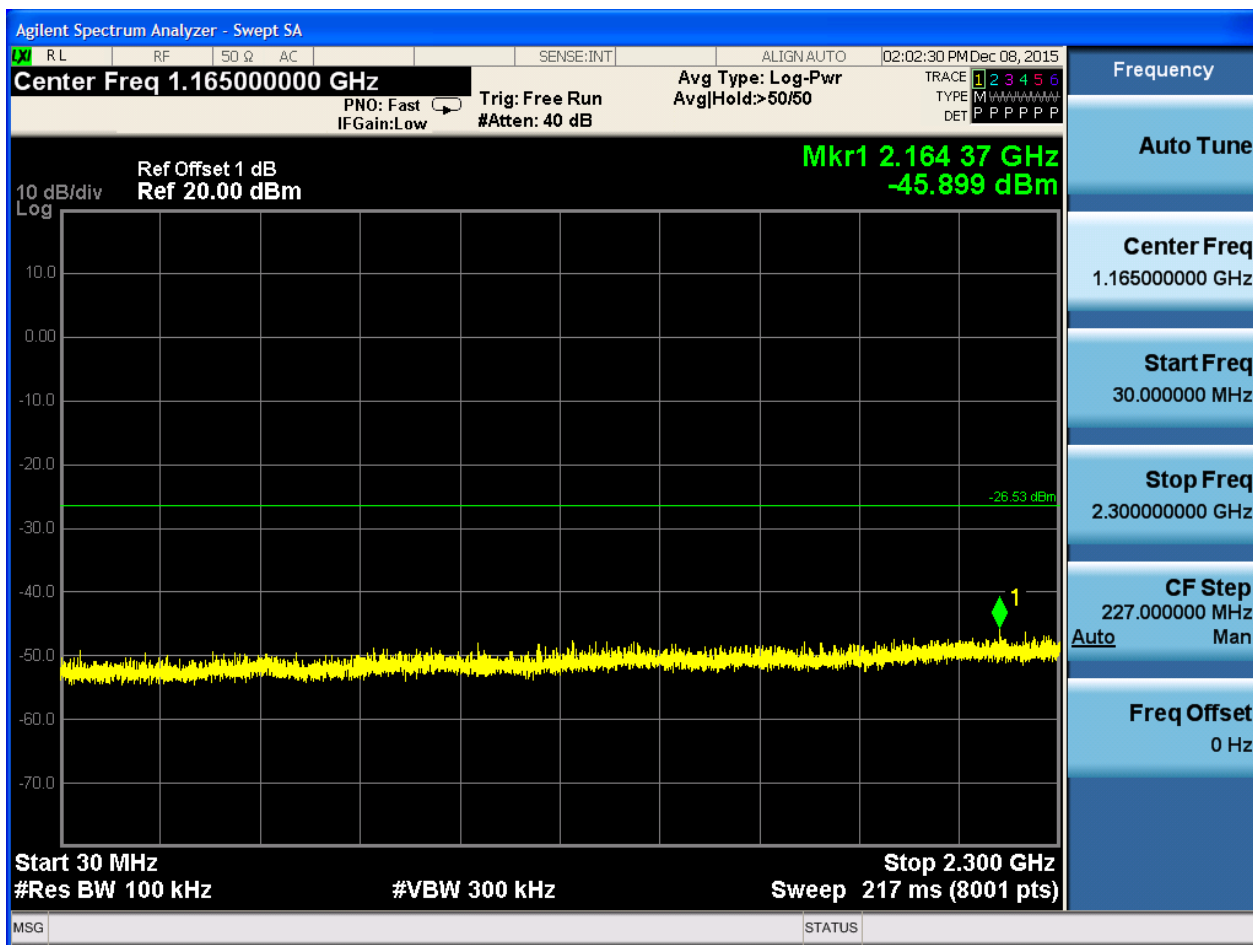


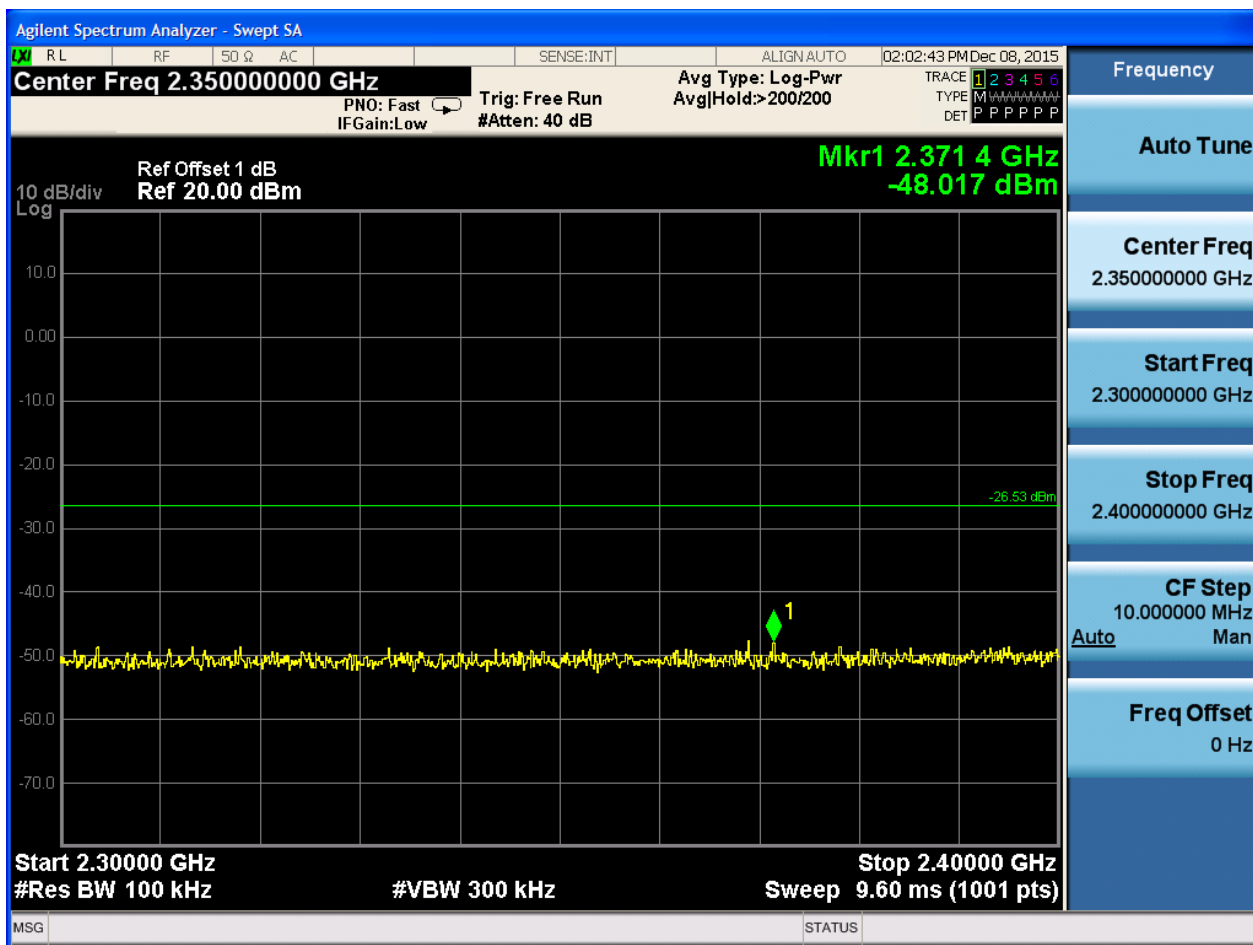


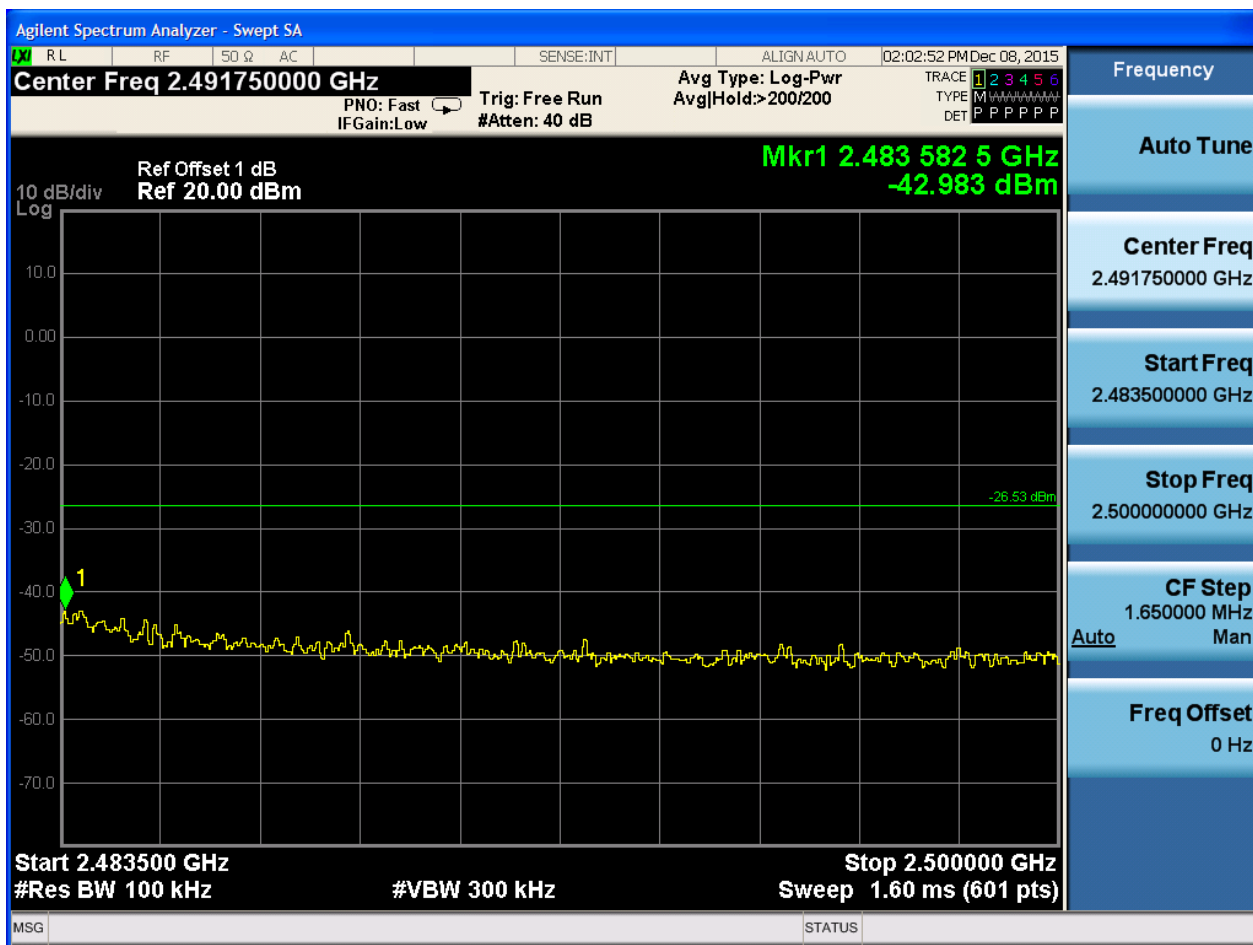
Puw:

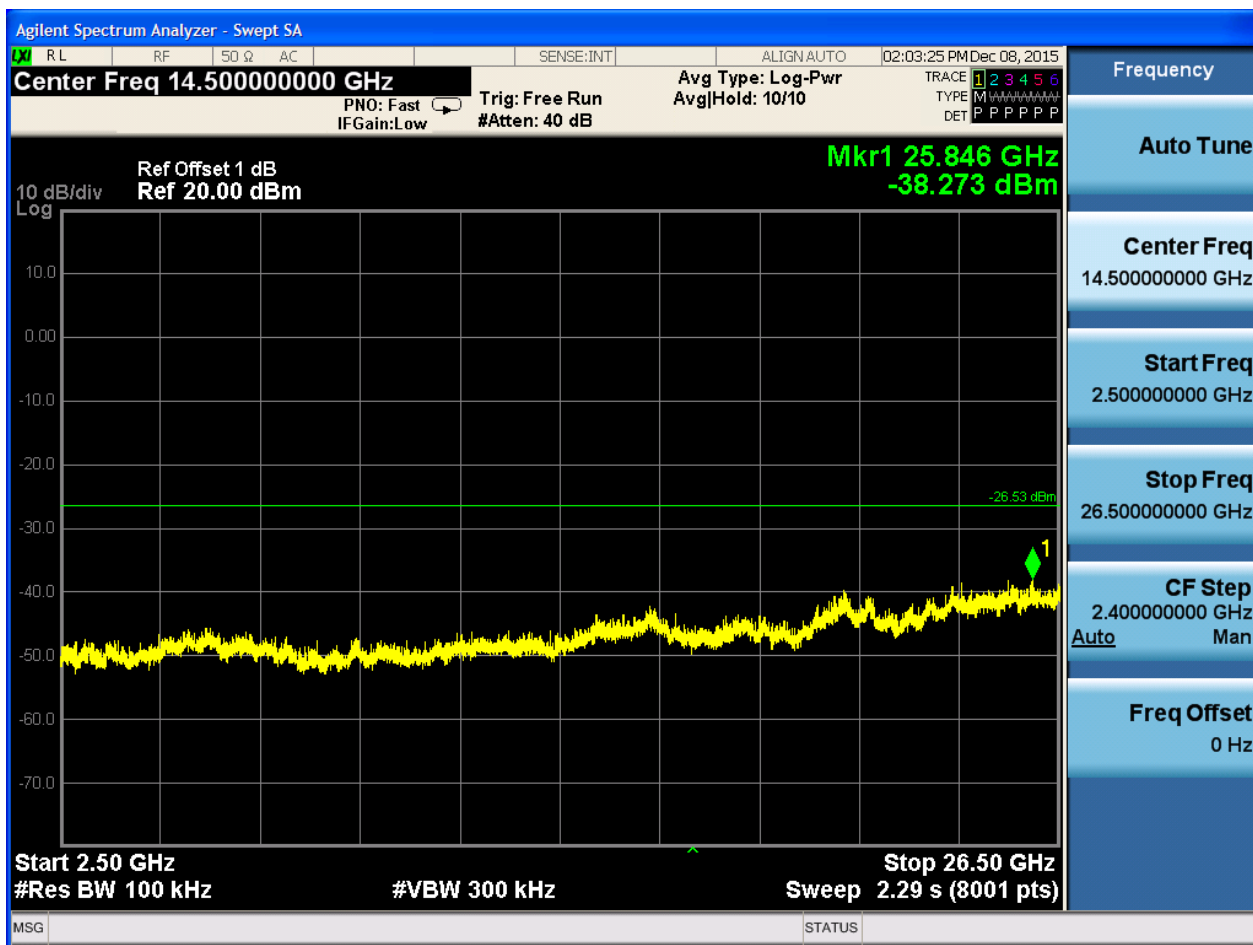








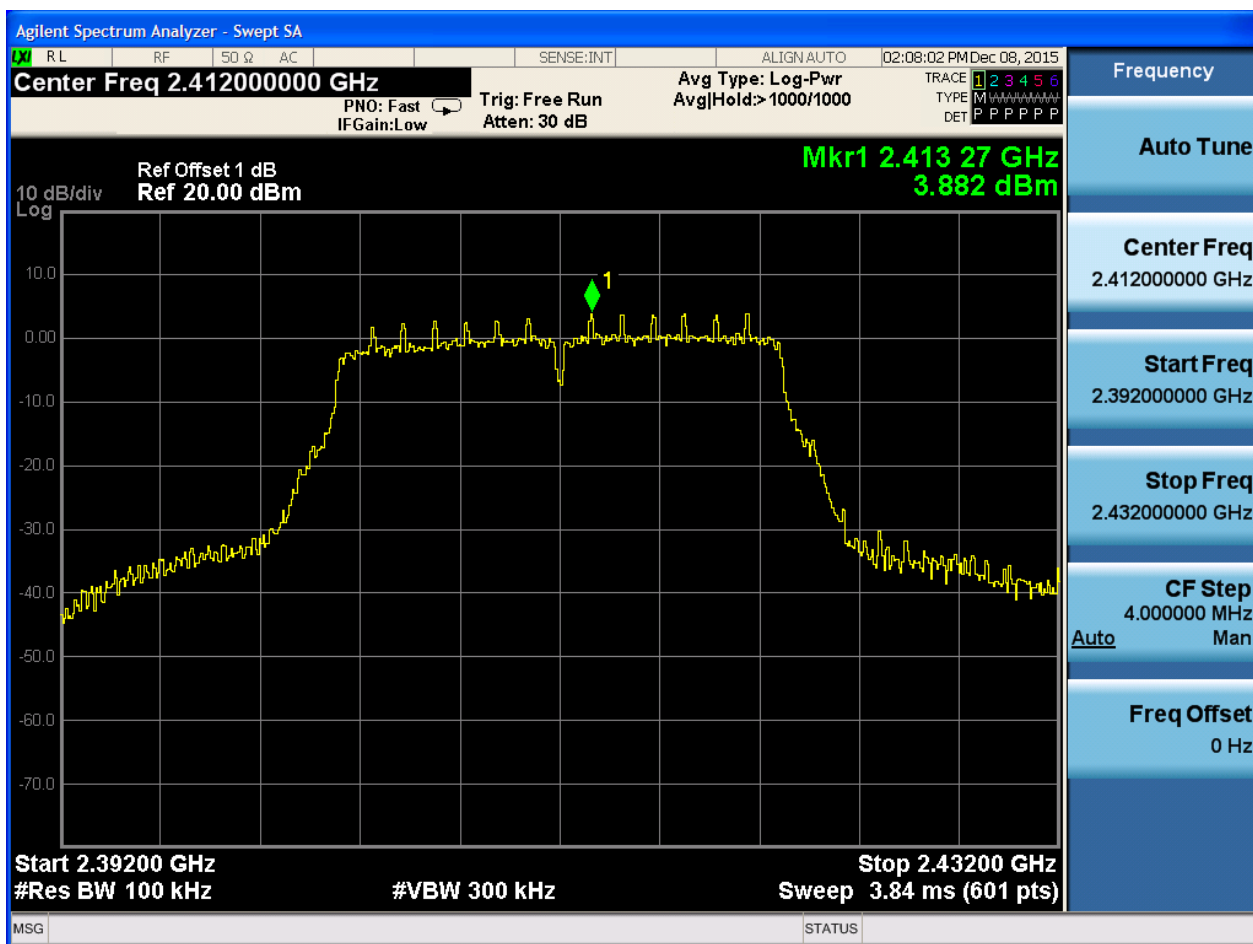






2.13 11N20_L@Ant 1

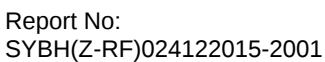
Pref:

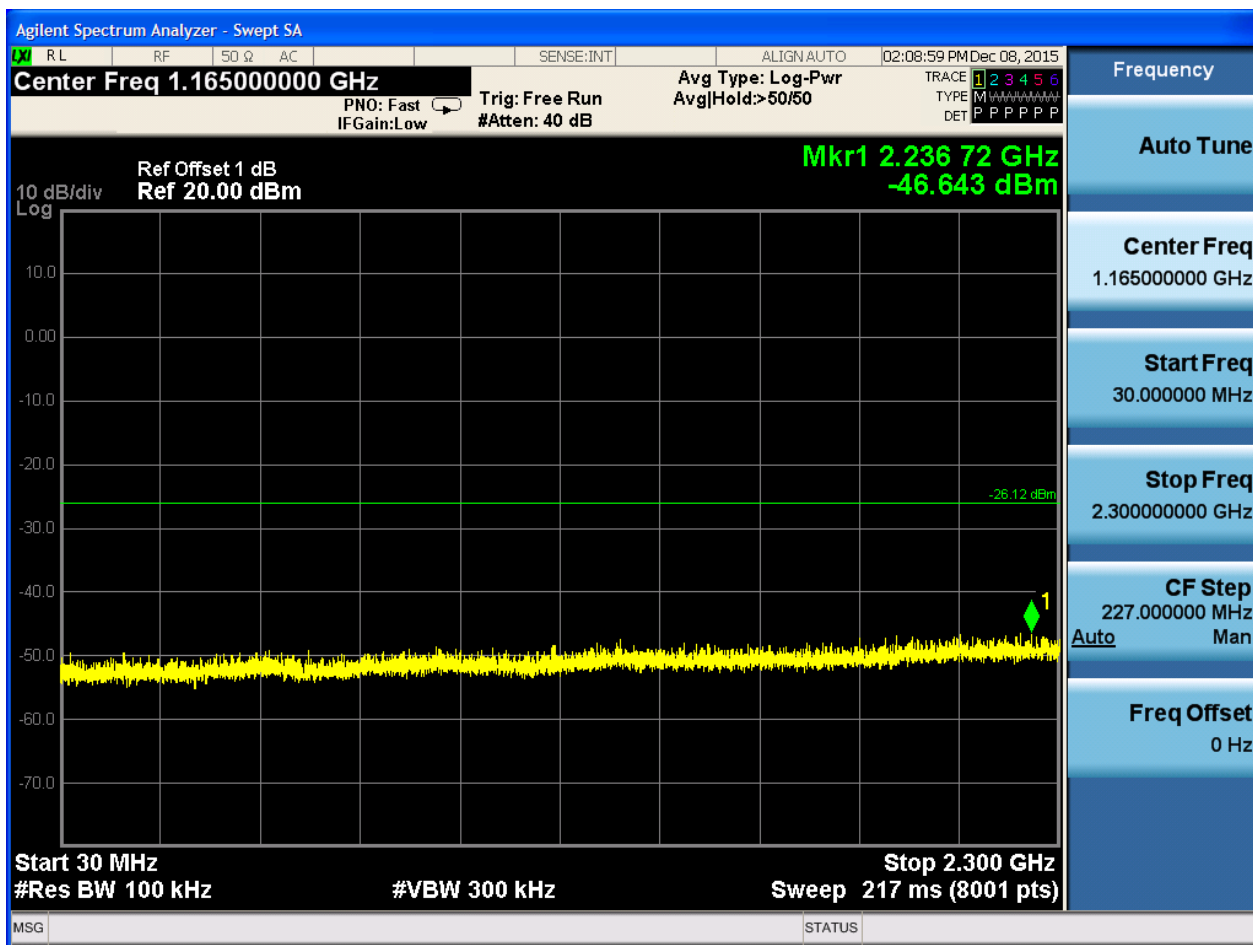


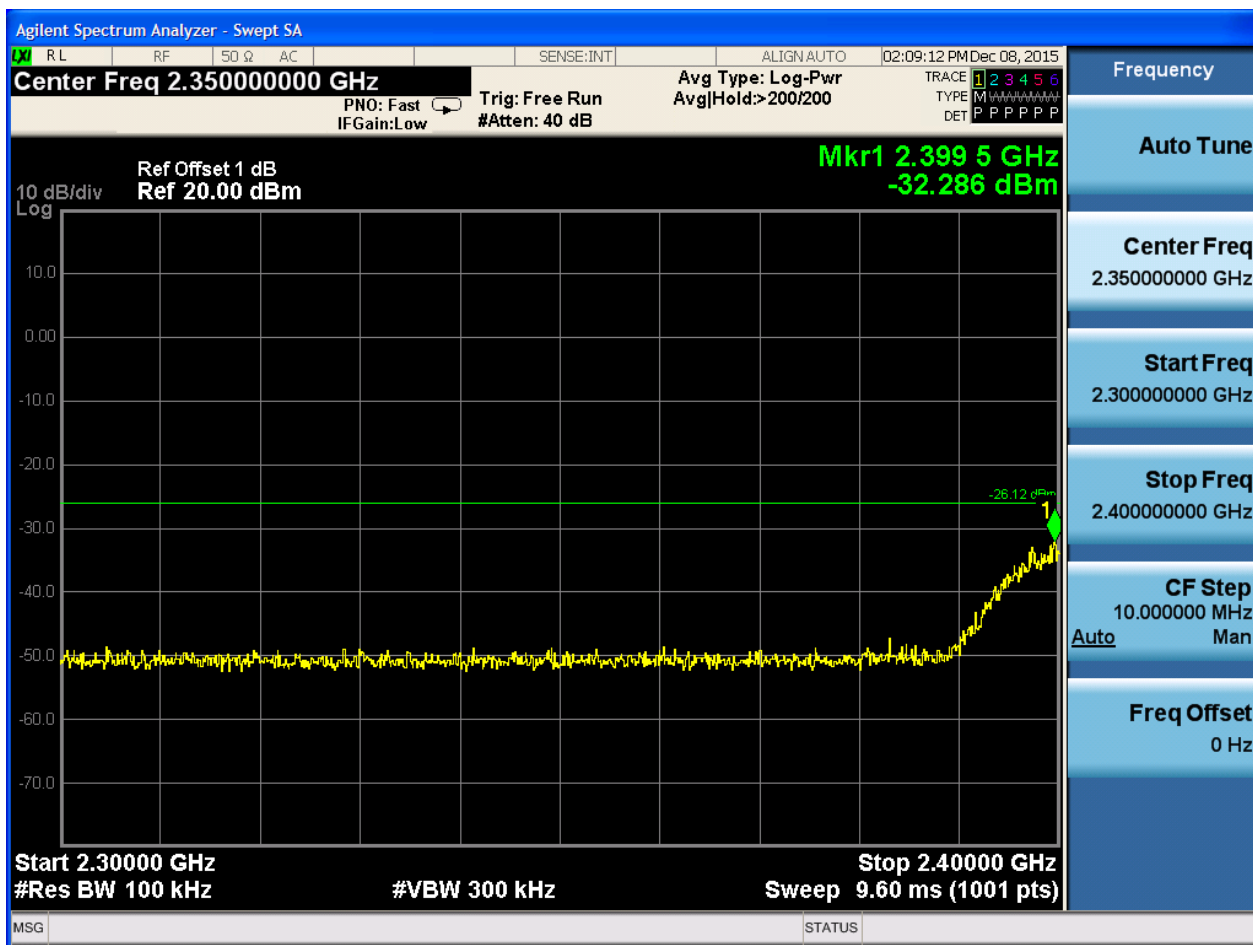


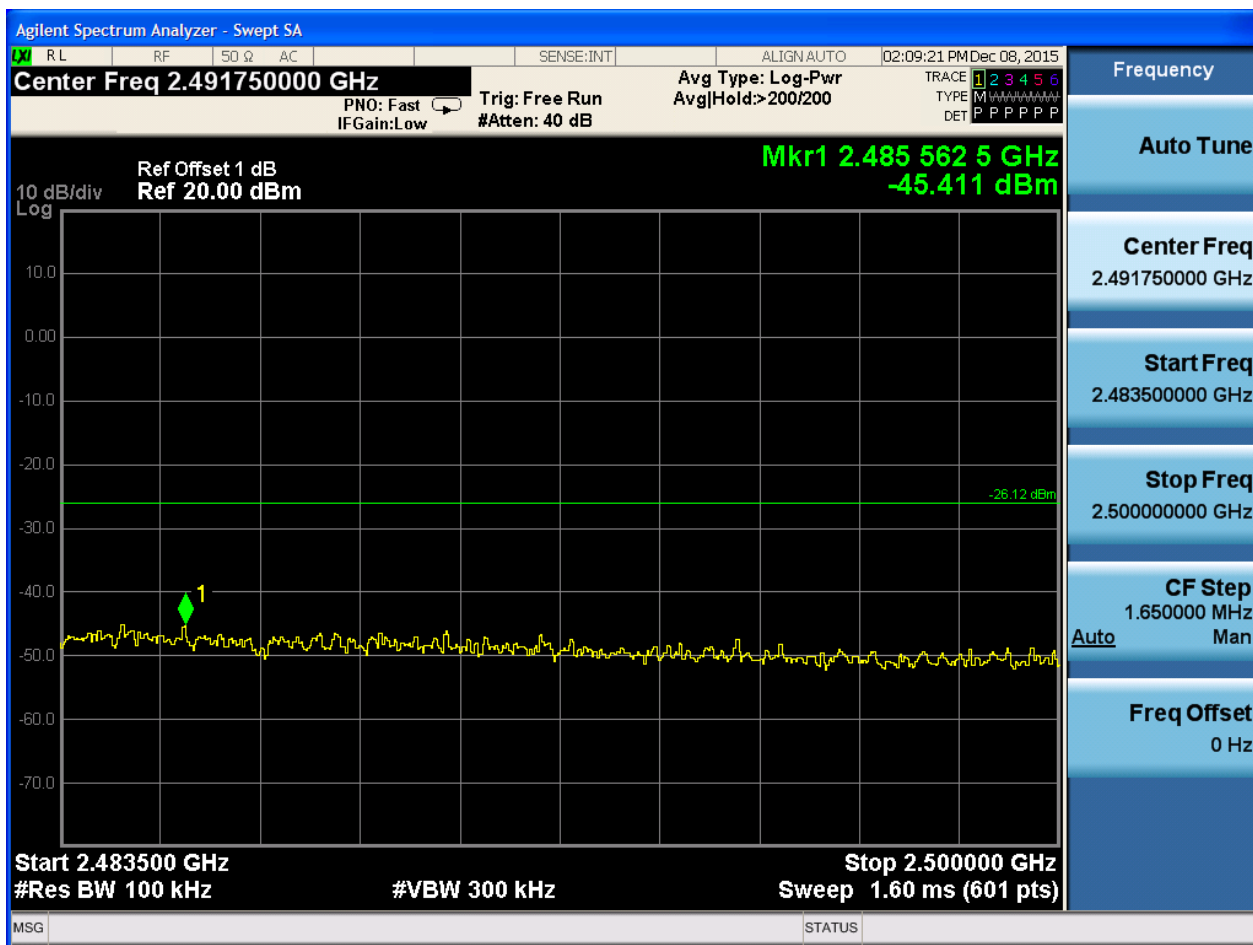
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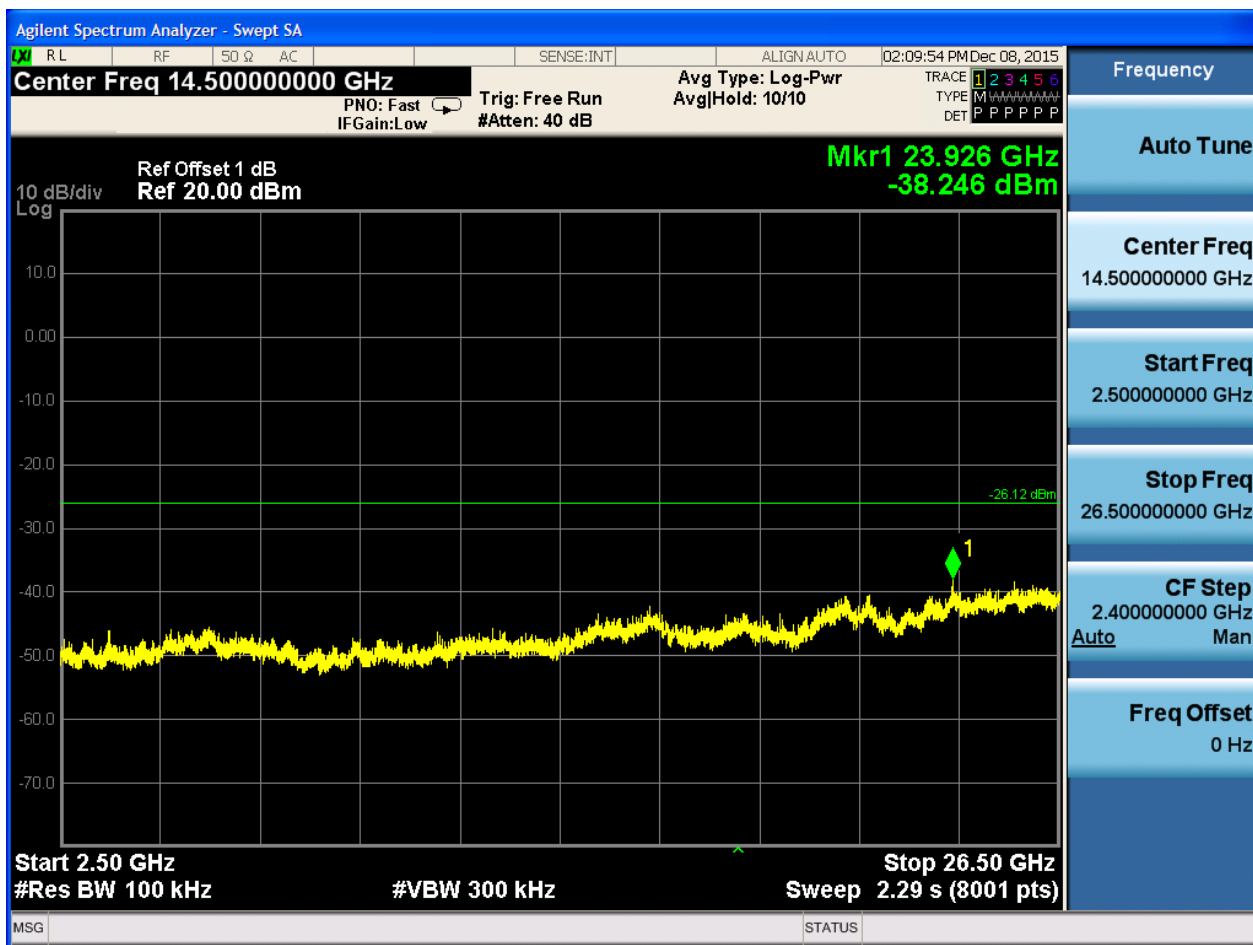








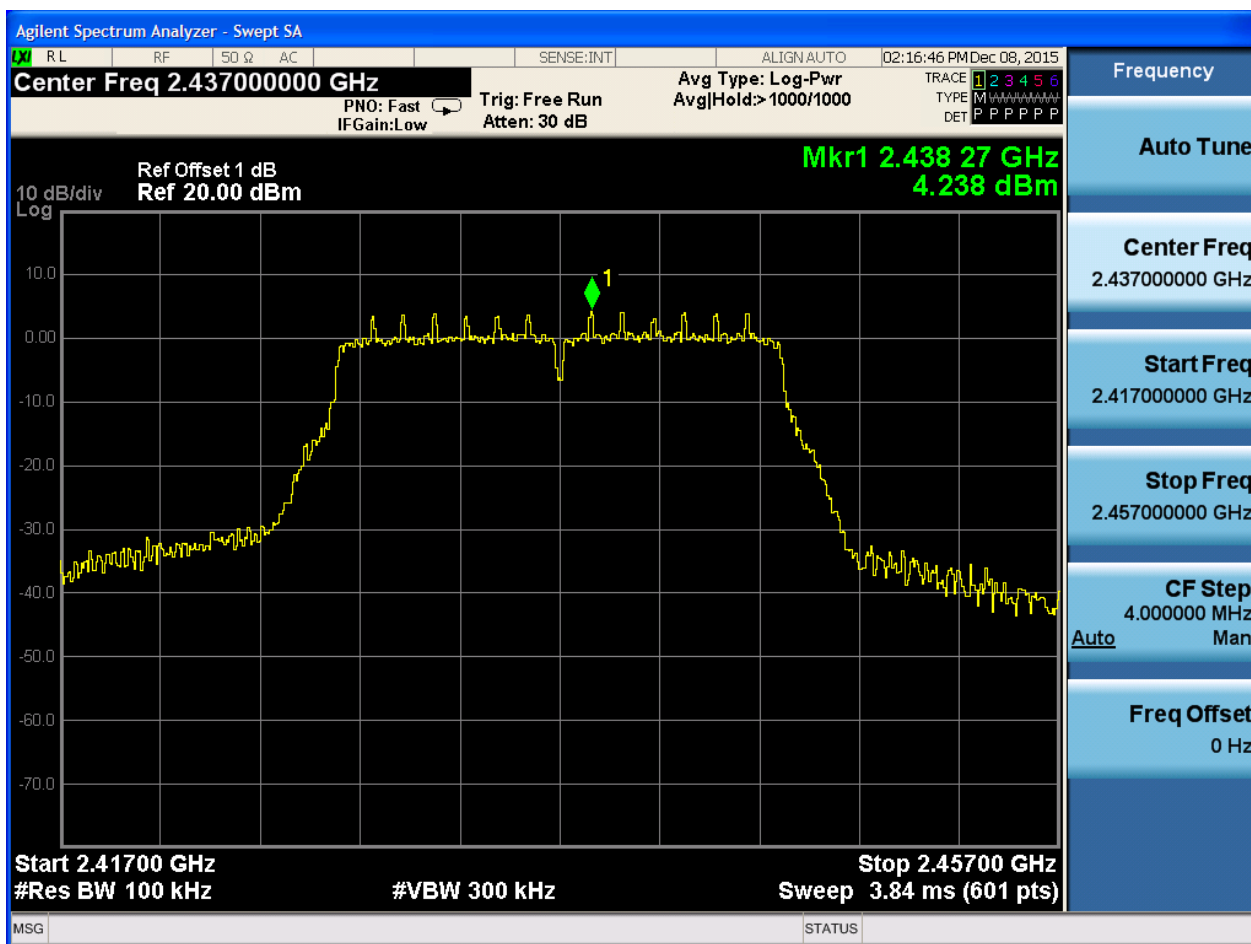


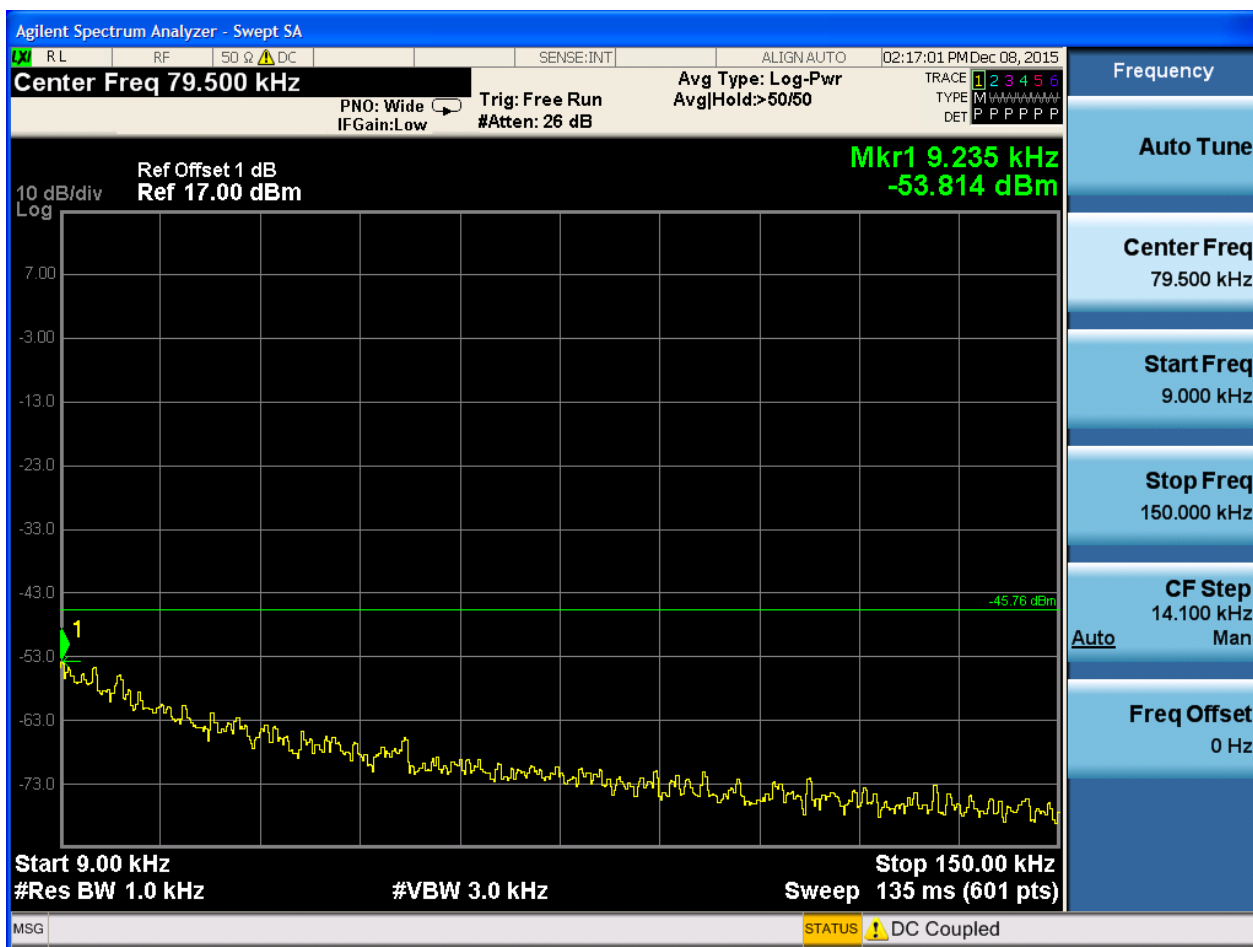


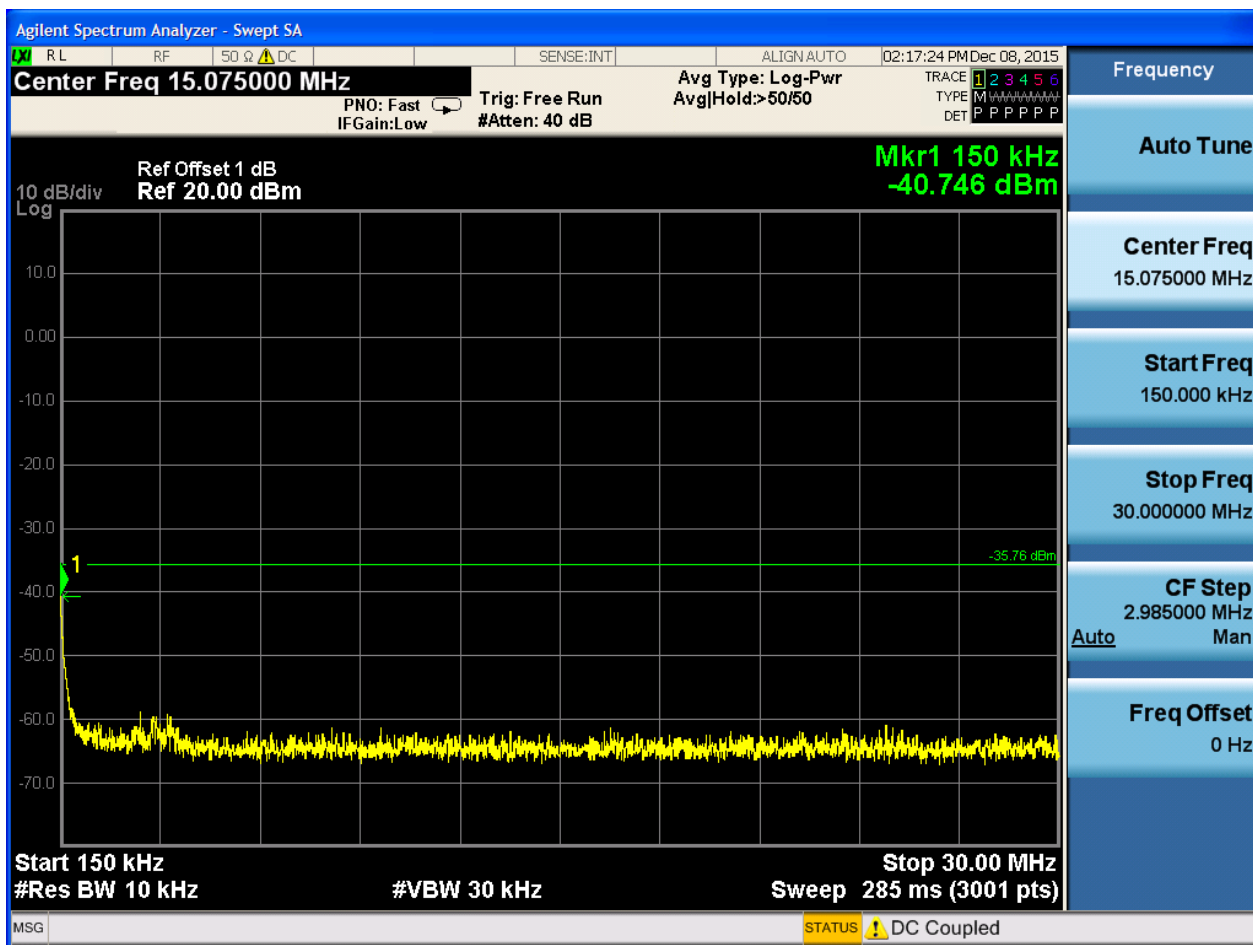


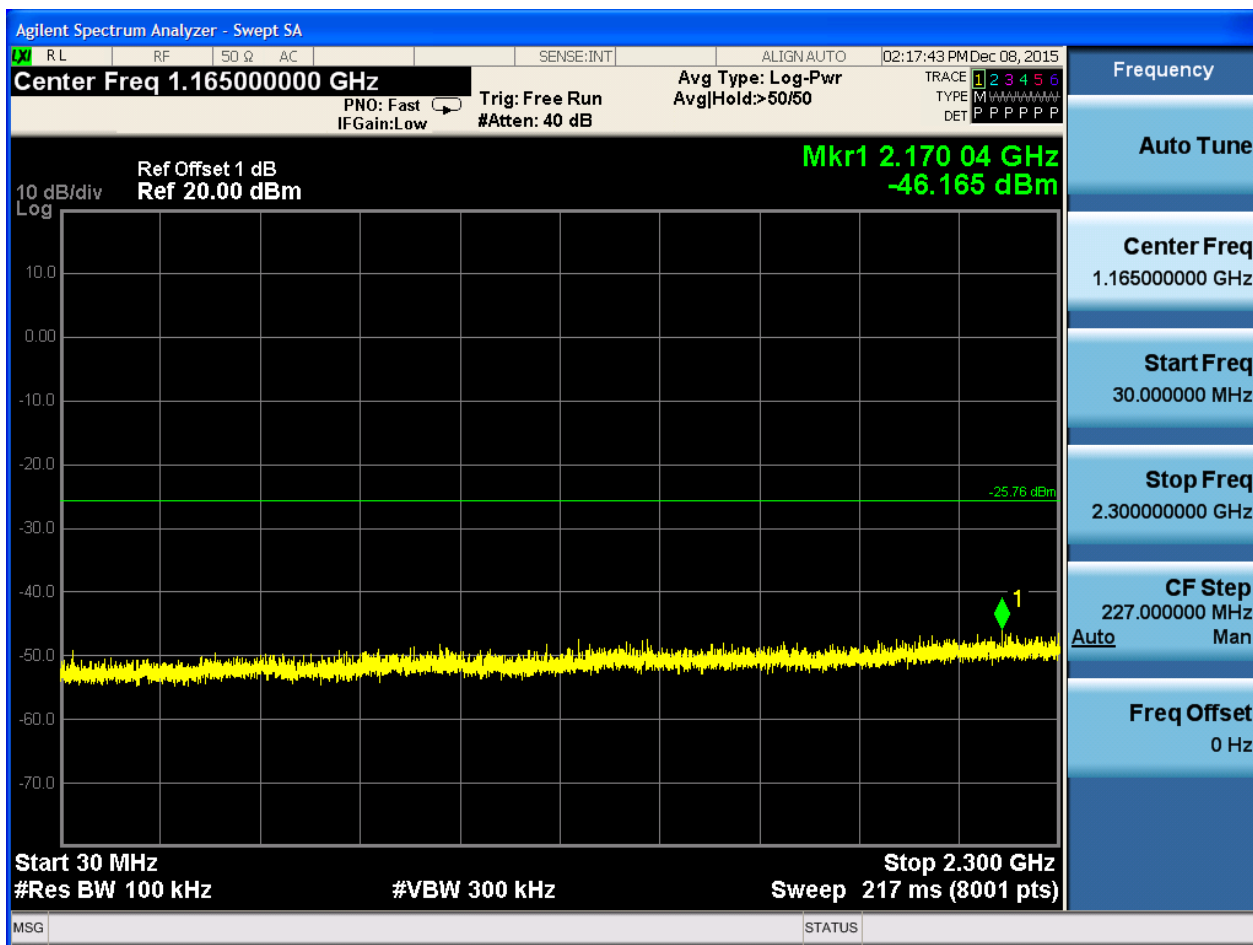
2.15 11N20_M@Ant 1

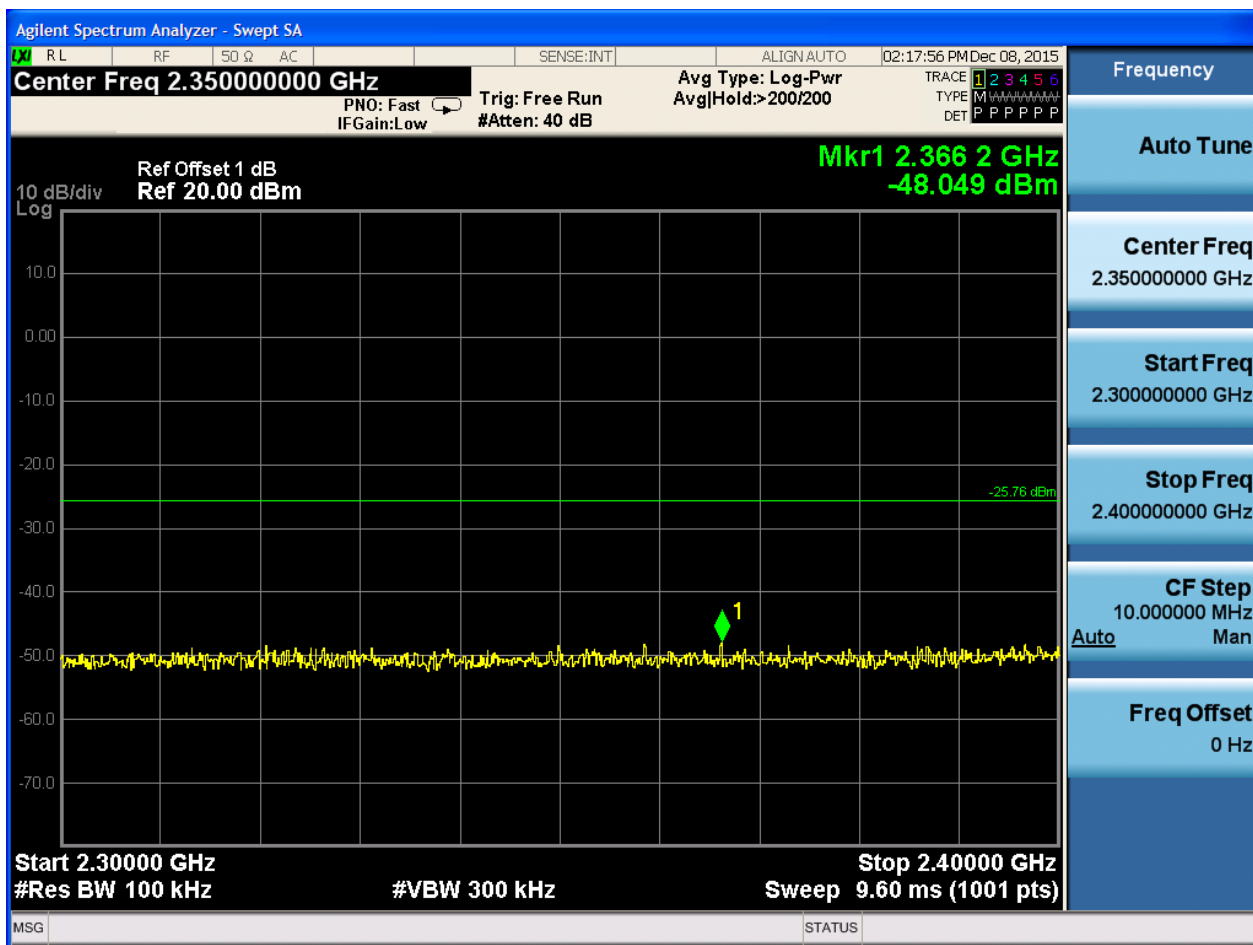
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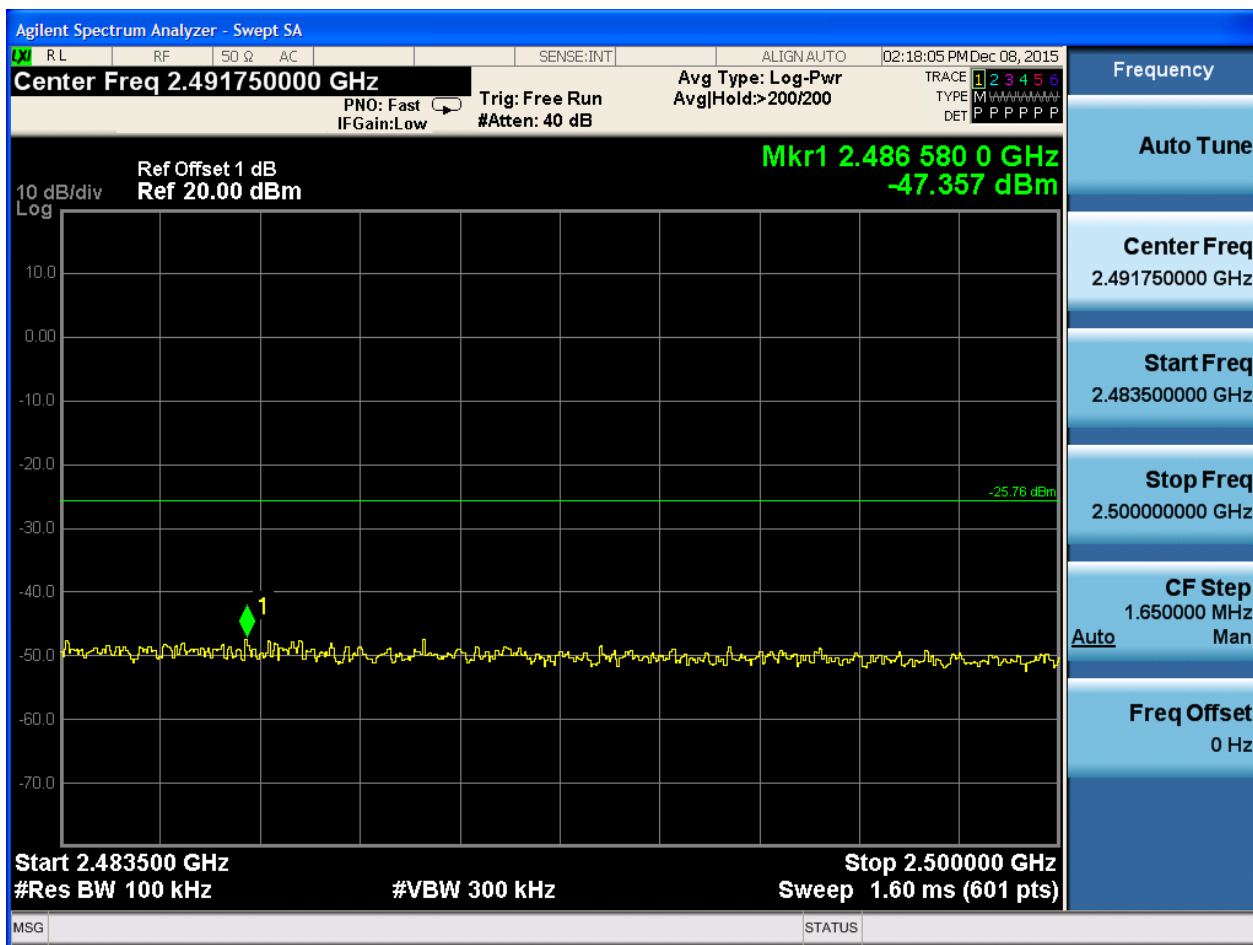


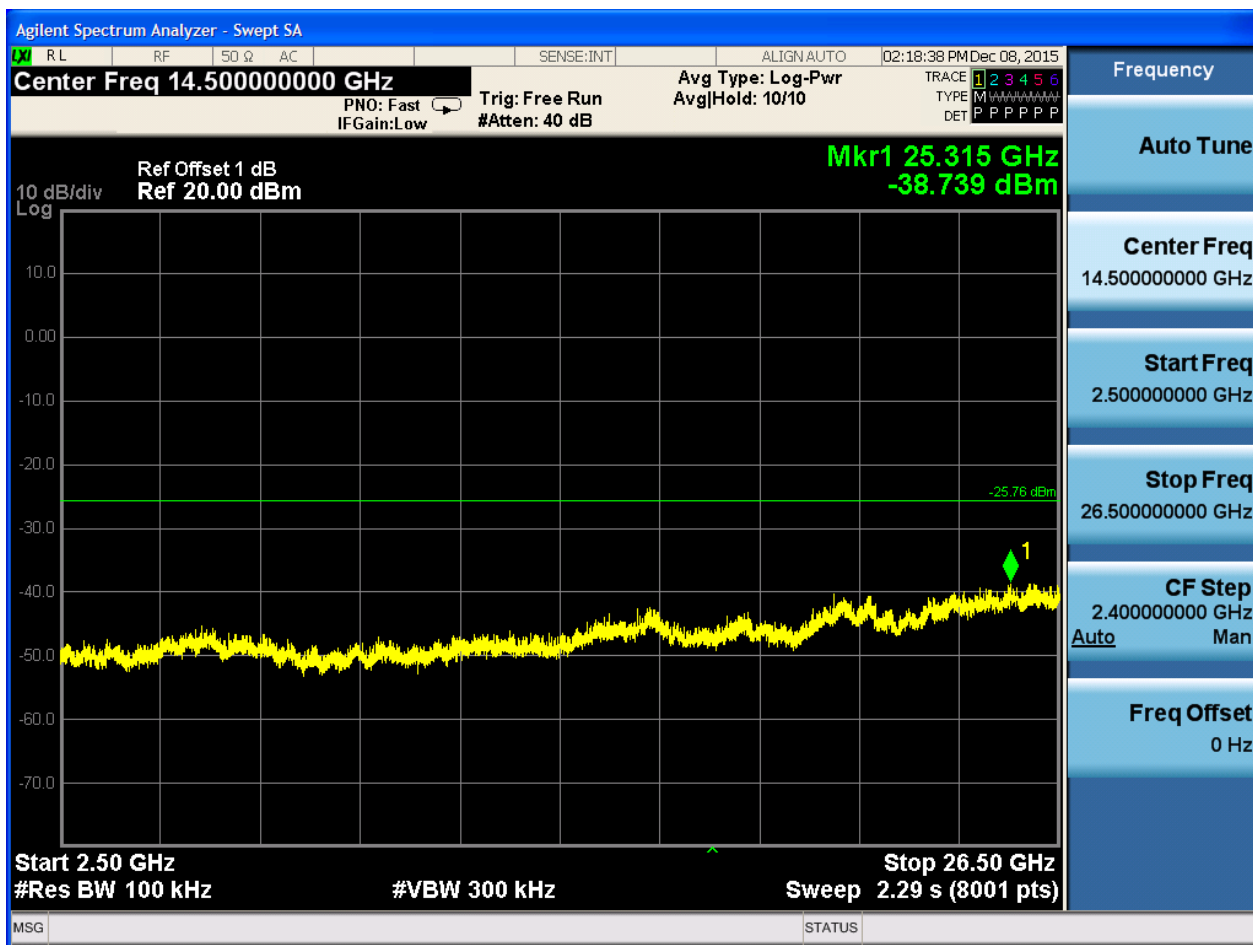
P_{uw}:







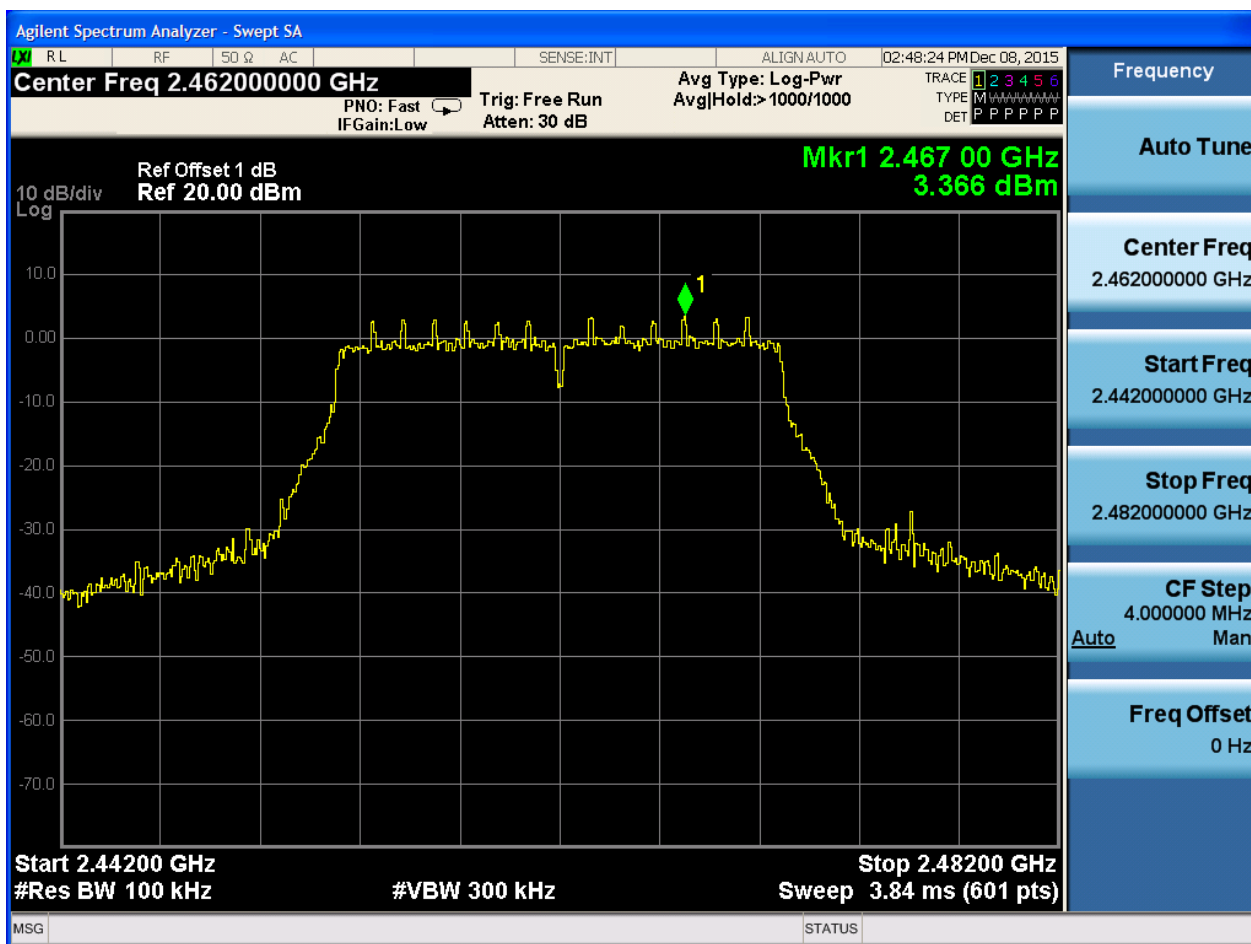






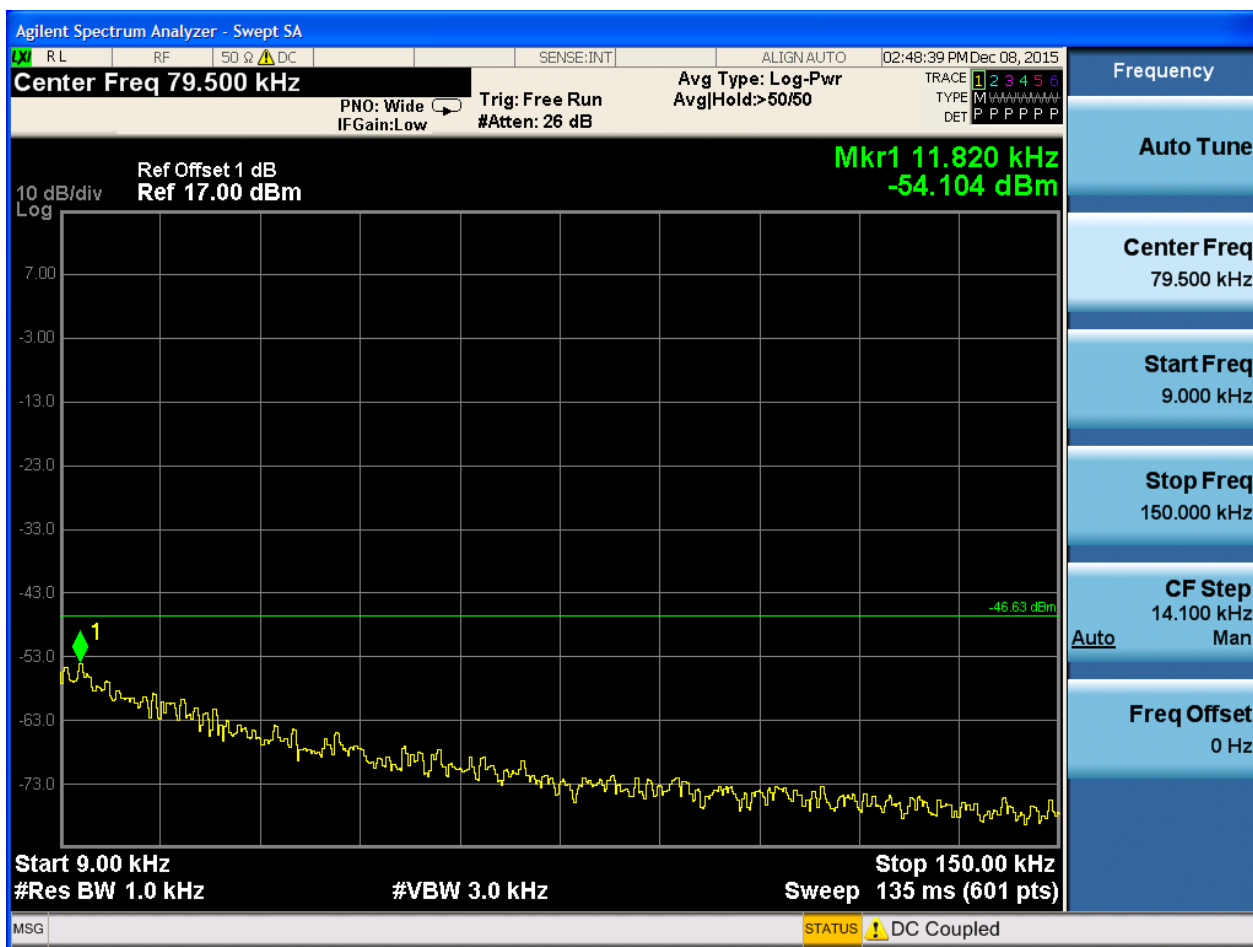
2.17 11N20_H@Ant 1

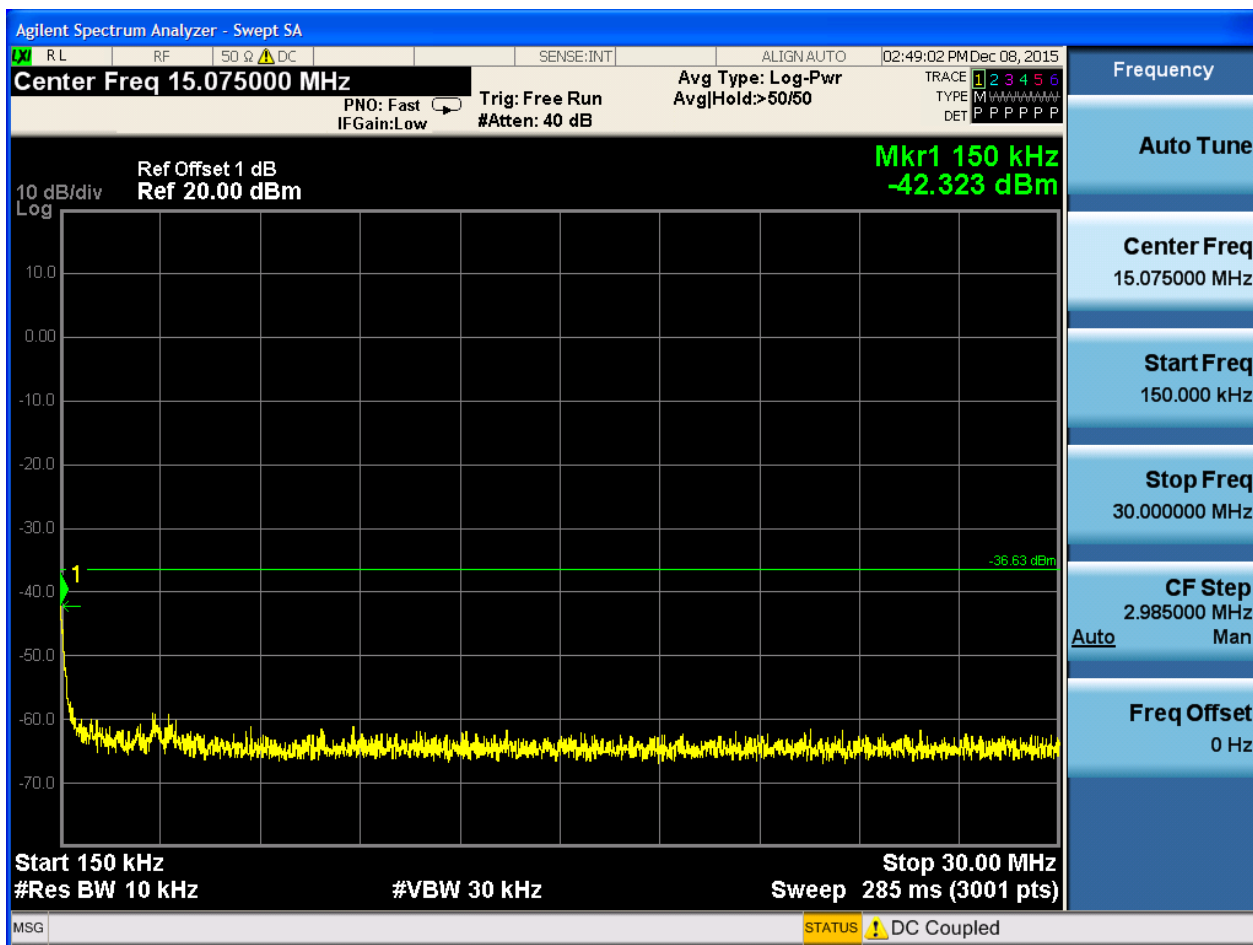
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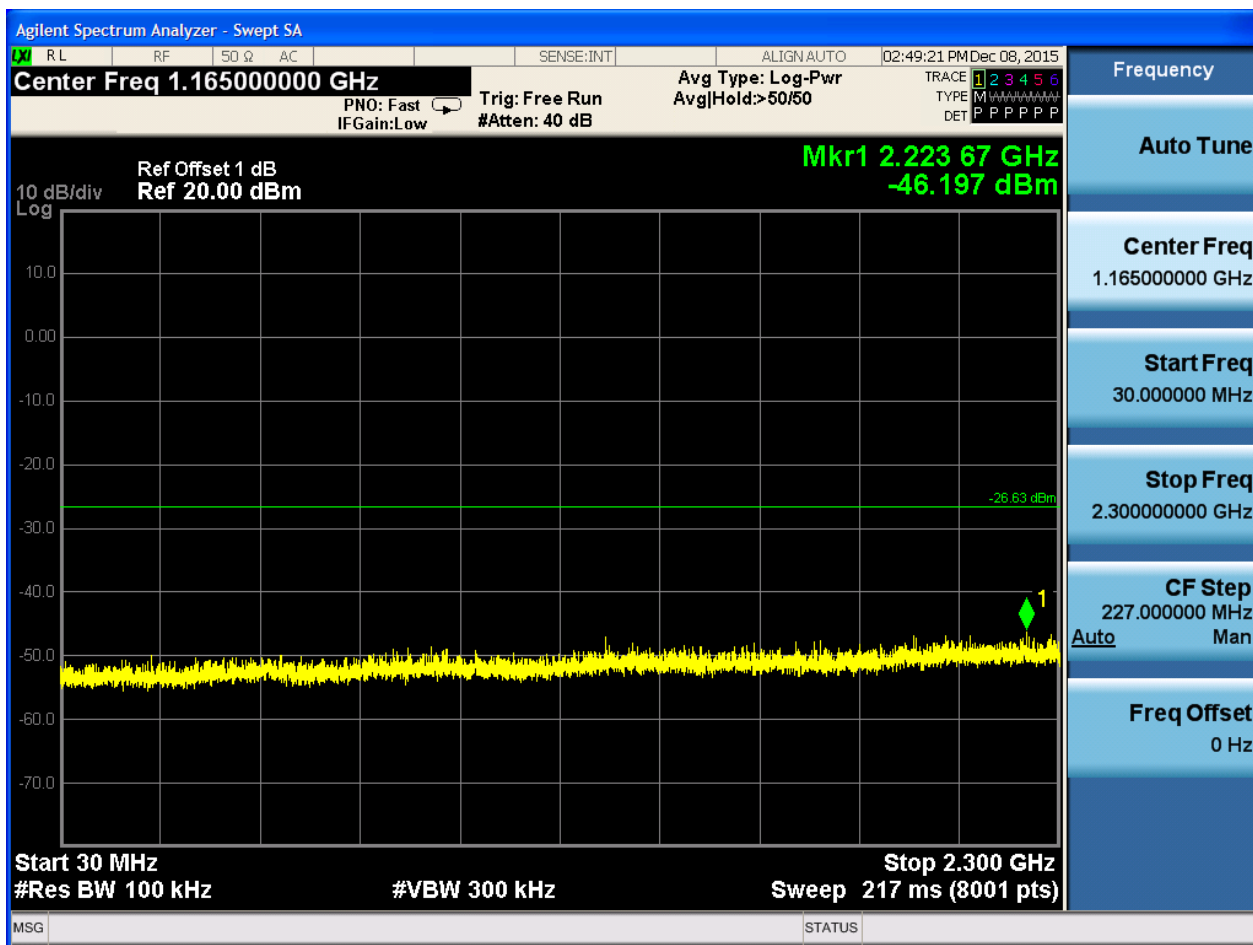


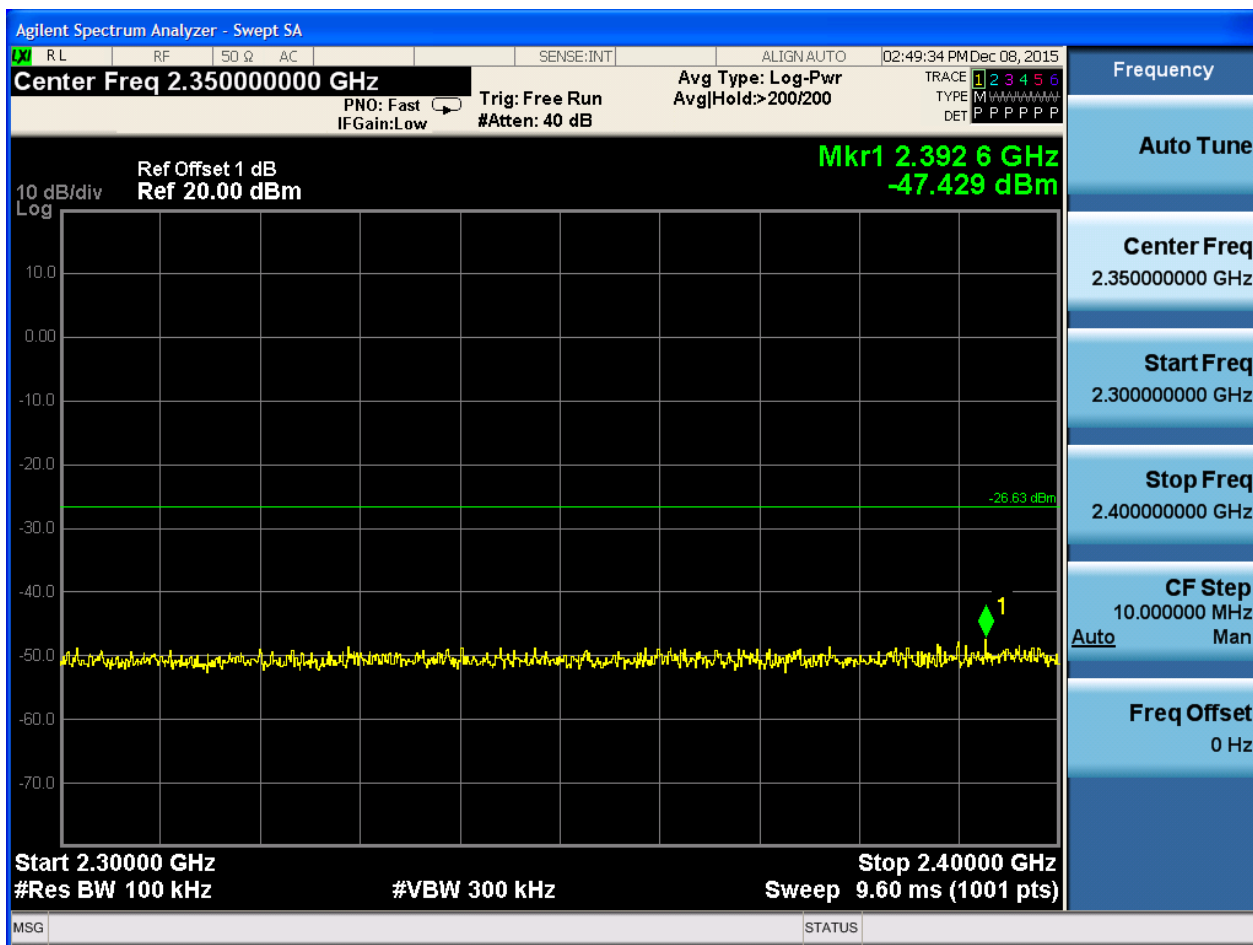


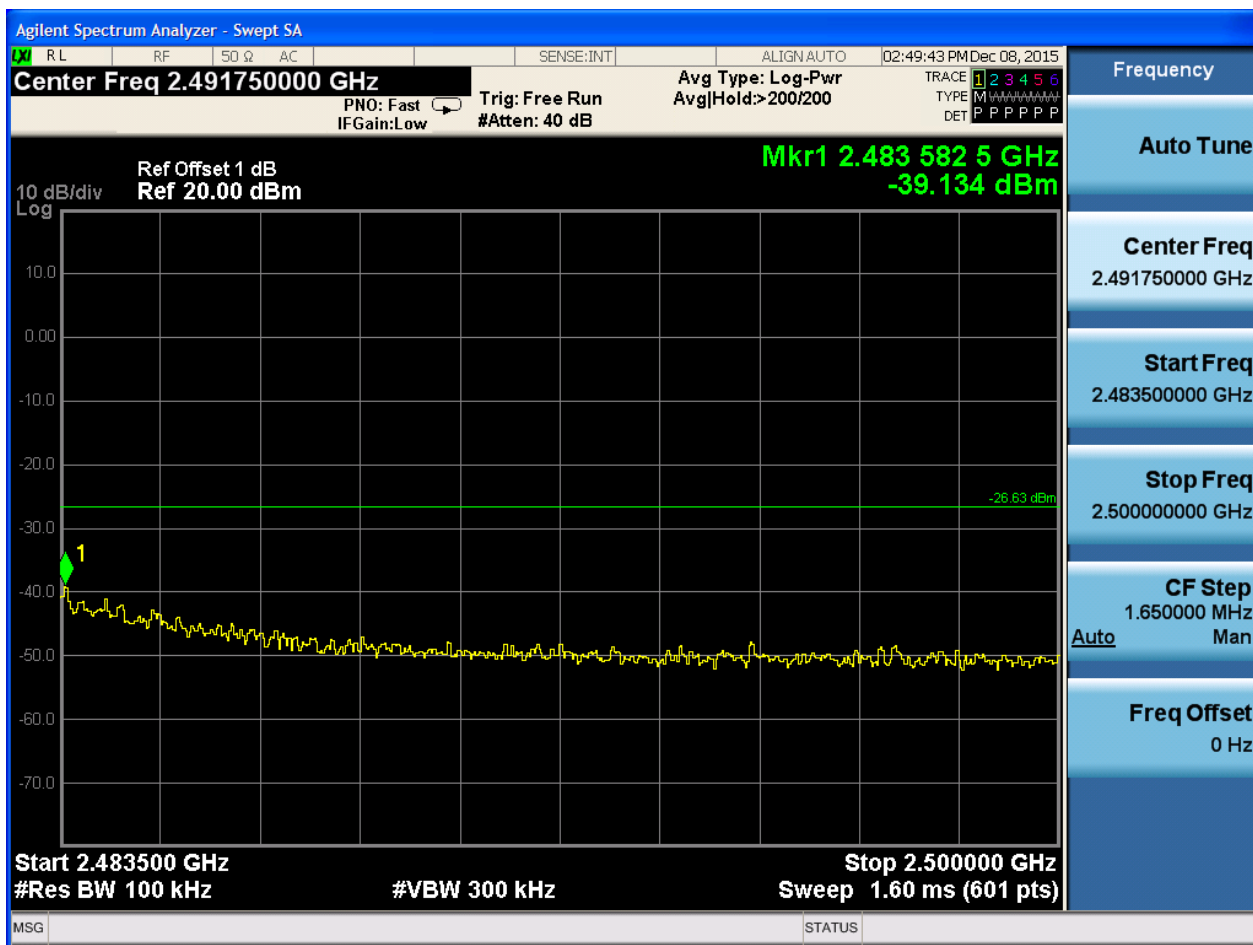
Puw:













Appendix H: Radiated Spurious Emission & Spurious in Restricted Band

Note1: Below 1GHz, RBW = 100 kHz, VBW = 300 kHz.

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

The simultaneous transmission has been considered

Note2: We tested all modes, but the data presented below is the worst case.

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

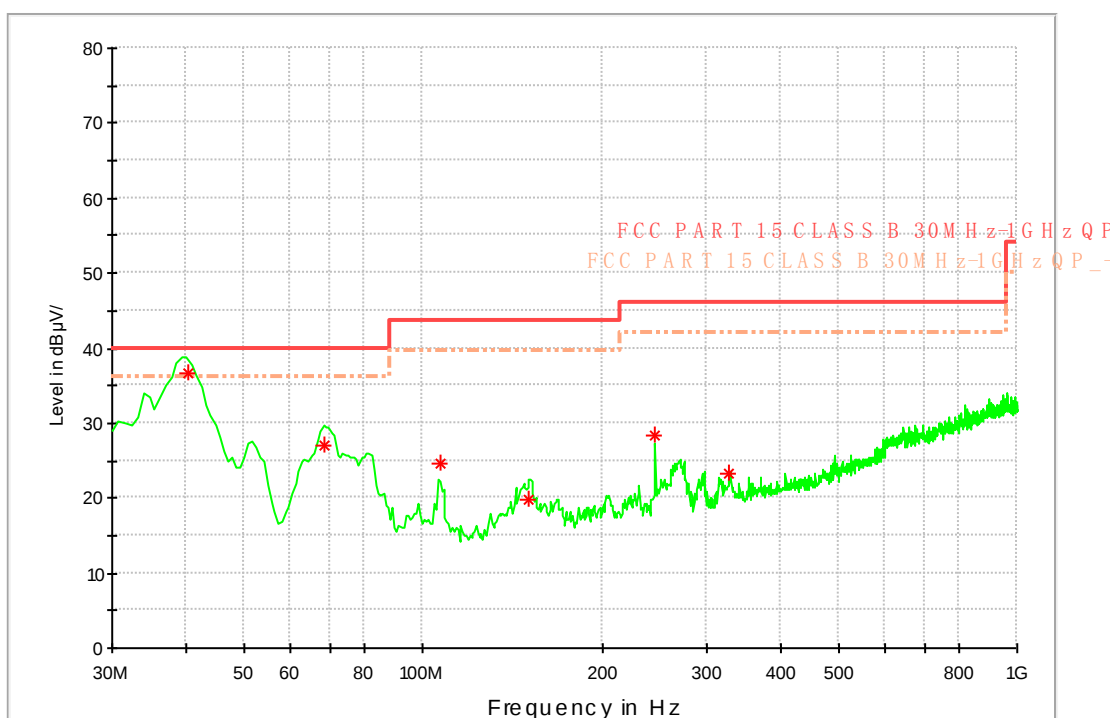
NOTE1: No peak found in the Test Range of “9 kHz to 30MHz”

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).**

FCC CLASS B RE 30MHz-1GHz



Frequency (MHz)	QuasiPeak (dBμ V/m)	Band width	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμ)
40.166400	36.7	120.00	100.0	V	-10.0	15.2	3.3	40.0
68.179520	27.1	120.00	100.0	V	223.0	11.4	12.9	40.0
106.71424	24.6	120.00	287.0	H	42.0	13.4	18.9	43.5
150.87936	19.8	120.00	146.0	V	256.0	10.3	23.7	43.5
246.41184	28.4	120.00	129.0	H	55.0	14.3	17.6	46.0
327.99968	23.2	120.00	113.0	H	272.0	16.4	22.8	46.0



Part 3: Testing Range of “18 GHz to 26.5 GHz”

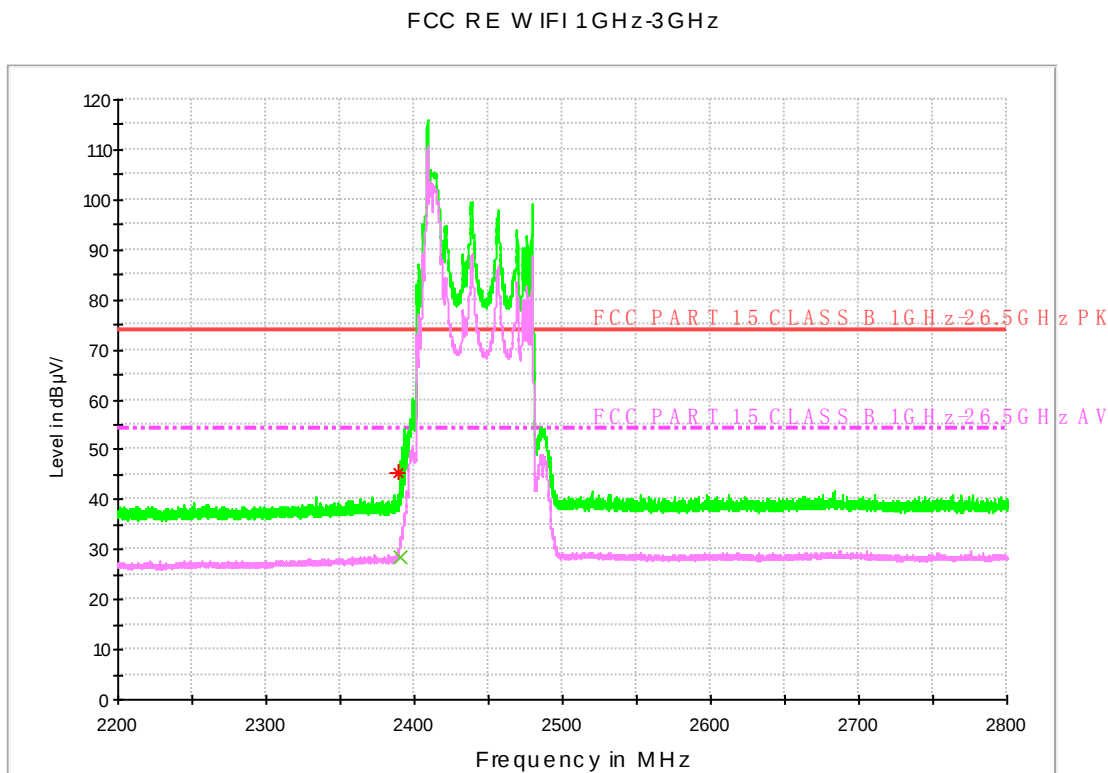
NOTE1: No peak found in the Test Range of “18 GHz to 26.5GHz”

Part 4: Testing Range of “2.3GHz to 2.5GHz”

- Note 1: The testing range of “2.3 GHz to 2.5 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: 11b

Channel 1



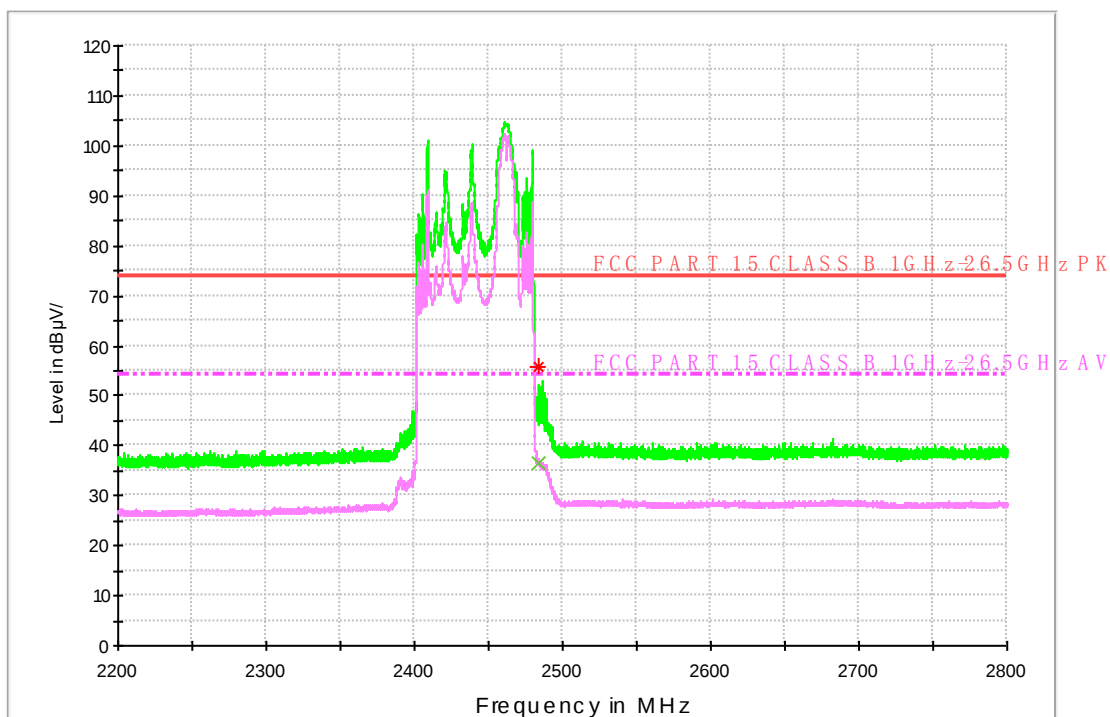
Note: The peak exceeds the limit line is carrier frequency.

MEASUREMENT RESULT: PK/ AV Detector

Frequency (MHz)	MaxPeak (dB μ V/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin
2389.79700	45.2	15000.0	1000.000	100.0	V	0.0	-7.6	28.8
Frequency (MHz)	Average (dB μ V/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin
2390.05120	28.3	15000.0	1000.000	100.0	H	16.0	-7.6	25.7

Channel 11

FCC RE W IFI 1GHz-3GHz



Note: The peak exceeds the limit line is carrier frequency.

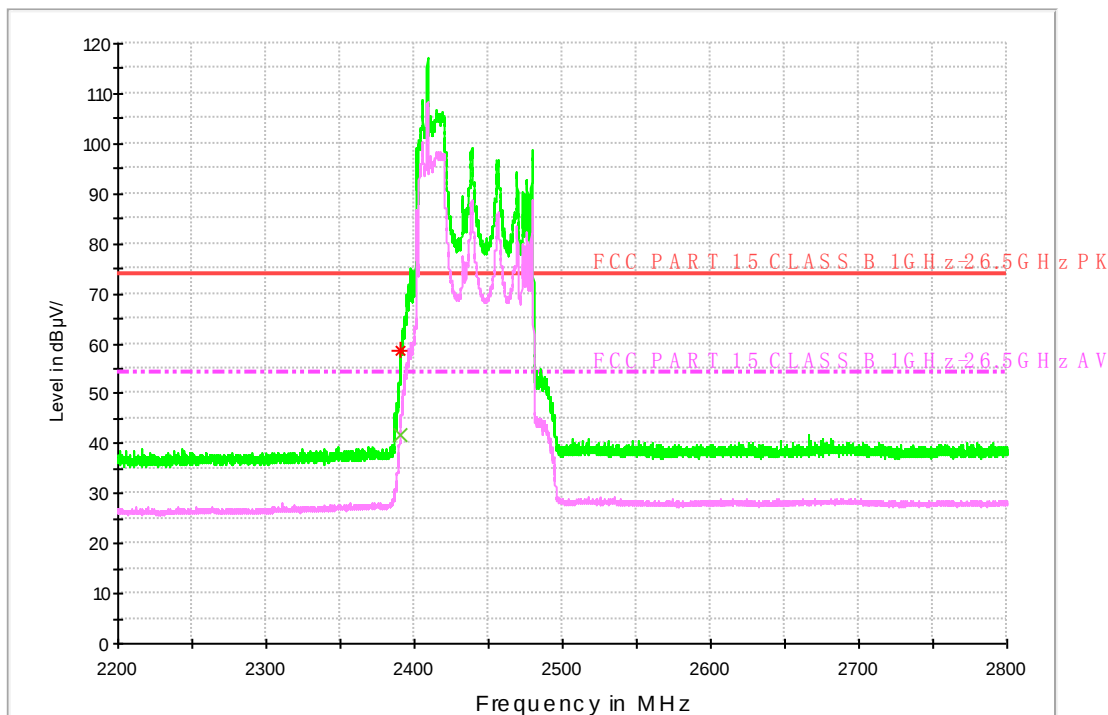
MEASUREMENT RESULT: PK/ AV Detector

Frequency (MHz)	MaxPeak (dBμV/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margi n
2484.43880	55.7	15000.0	1000.000	100.0	H	55.0	-5.9	18.3
Frequency (MHz)	Average (dBμV/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margi n
2483.41300	36.4	15000.0	1000.000	100.0	H	48.0	-5.3	17.6

Test Mode: 11g

Channel 1

FCC RE WIFI 1GHz-3GHz



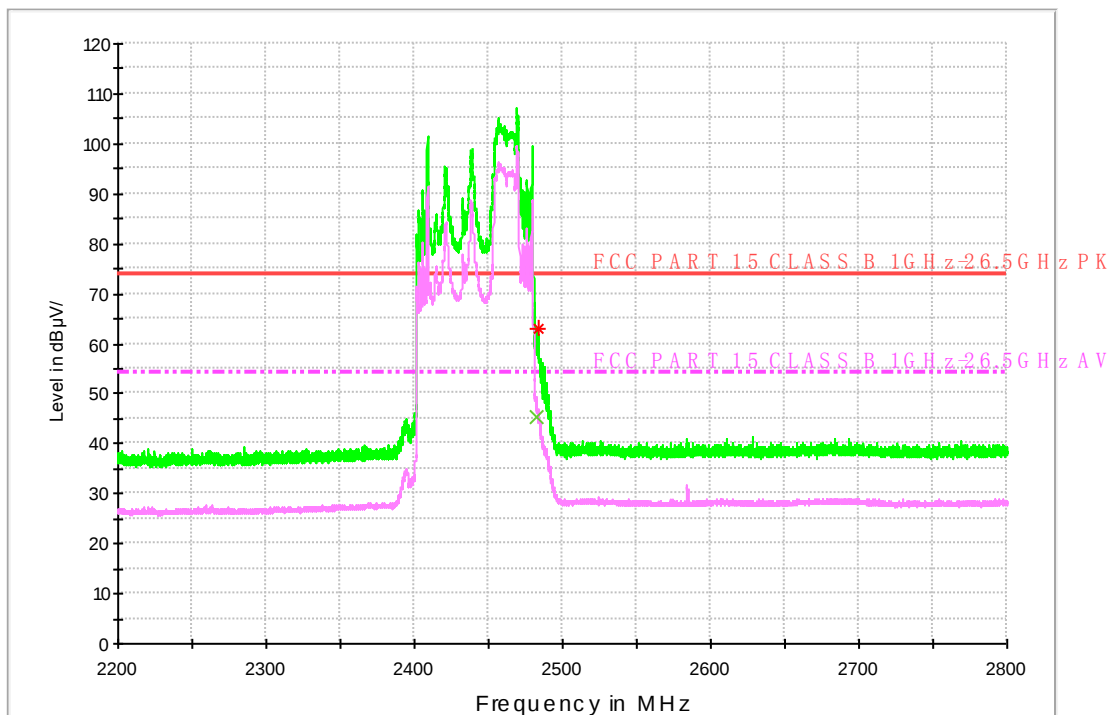
Note: The peak exceeds the limit line is carrier frequency.

MEASUREMENT RESULT: PK/ AV Detector

Frequency (MHz)	MaxPeak (dBμV/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margi n
2390.64220	58.7	15000.0	1000.000	100.0	V	339.0	-7.6	15.3
Frequency (MHz)	Average (dBμV/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margi n
2390.56420	41.9	15000.0	1000.000	100.0	H	51.0	-7.6	12.1

Channel 11

FCC RE W IFI 1GHz-3GHz



Note: The peak exceeds the limit line is carrier frequency.

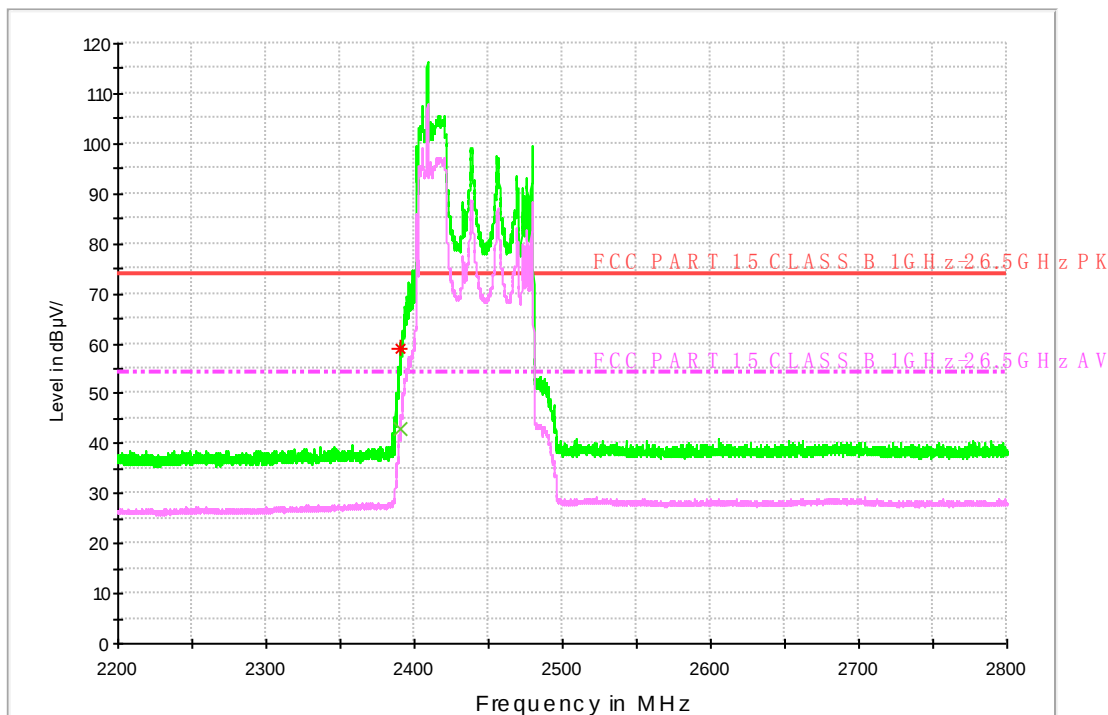
MEASUREMENT RESULT: PK/ AV Detector

Frequency (MHz)	MaxPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)
2483.45480	63.1	15000.0	1000.000	100.0	H	48.0	-5.4	10.9
Frequency (MHz)	Average (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)
2482.74800	45.4	15000.0	1000.000	100.0	H	48.0	-4.5	8.6

Test Mode: 11N

Channel 1

FCC RE WIFI 1GHz-3GHz



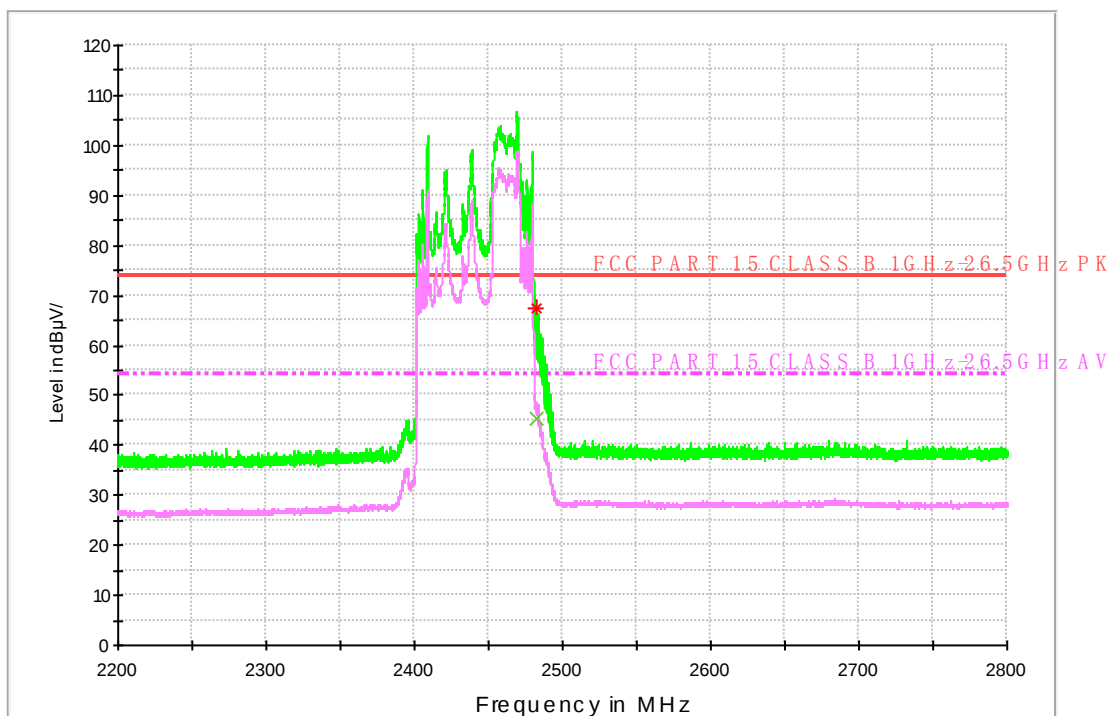
Note: The peak exceeds the limit line is carrier frequency.

MEASUREMENT RESULT: PK/ AV Detector

Frequency (MHz)	MaxPeak (dBμV/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margi n
2390.25080	58.8	15000.0	1000.000	100.0	V	321.0	-7.6	15.2
Frequency (MHz)	Average (dBμV/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margi n
2390.48860	42.8	15000.0	1000.000	100.0	H	305.0	-7.6	11.2

Channel 11

FCC RE W IFI 1GHz-3GHz



Note: The peak exceeds the limit line is carrier frequency.

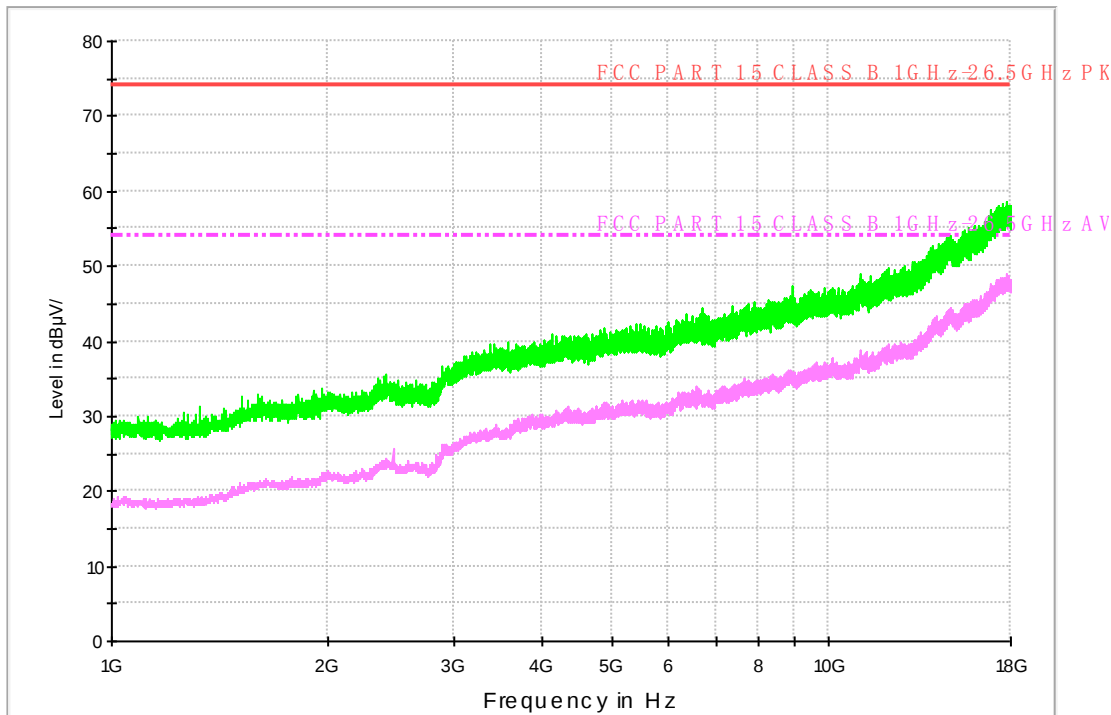
MEASUREMENT RESULT: PK/ AV Detector

Frequency (MHz)	MaxPeak (dBμV/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margi n
2482.70160	67.6	15000.0	1000.000	100.0	H	43.0	-4.4	6.4
Frequency (MHz)	Average (dBμV/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margi n
2483.01560	45.5	15000.0	1000.000	100.0	H	50.0	-4.9	8.5

Part 5: Testing Range of “1 GHz to 18 GHz”

- Note 1: The test results and plot for testing range of “1 GHz to 18 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 testing range of “1 GHz to 18 GHz” is for checking radiated emissions located in restricted bands faraway from the EUT operating bands.
- Note 3: 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).

FCC CLASS B RE 1GHz-18GHz

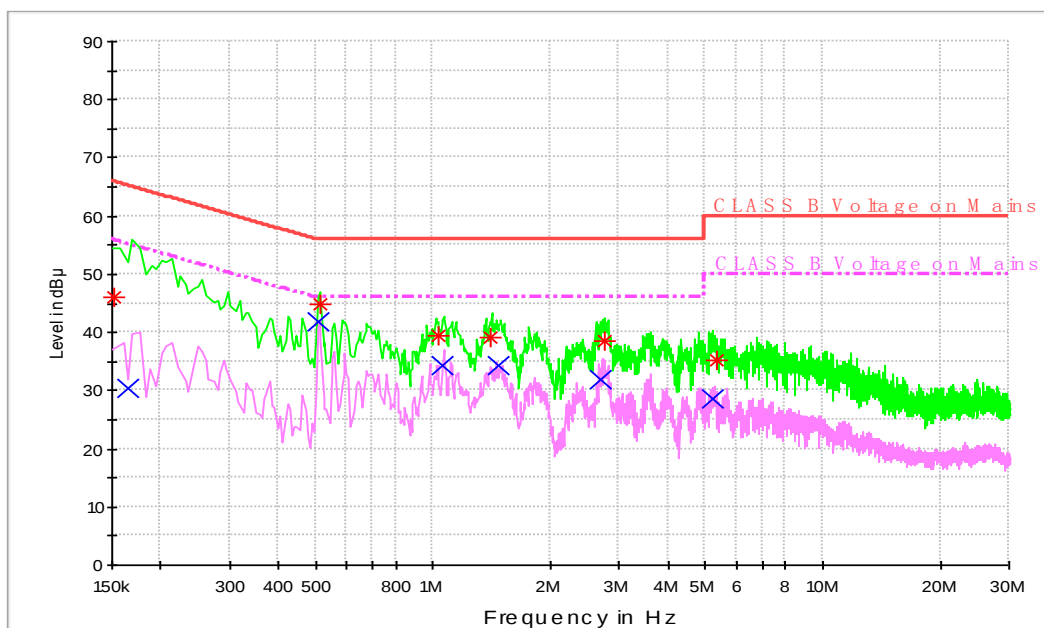


Appendix I: Conducted Emission at Power Port

Note: RBW =9 kHz, VBW = 30 kHz

Channel 6

CLASS B Voltage with ENV216



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.152391	46.2	L1	9.8	19.7	65.9
0.511904	44.8	L1	9.8	11.2	56.0
1.026628	39.5	L1	9.8	16.5	56.0
1.406633	39.1	L1	9.8	16.9	56.0
2.737858	38.5	L1	9.8	17.6	56.0
5.330422	35.1	L1	10.0	24.9	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.164399	30.3	L1	9.8	24.9	55.2
0.508218	41.9	L1	9.8	4.1	46.0
1.059484	34.3	L1	9.8	11.7	46.0
1.462384	34.3	L1	9.8	11.7	46.0
2.693755	32.0	L1	9.8	14.0	46.0
5.224071	28.7	L1	10.0	21.3	50.0