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.

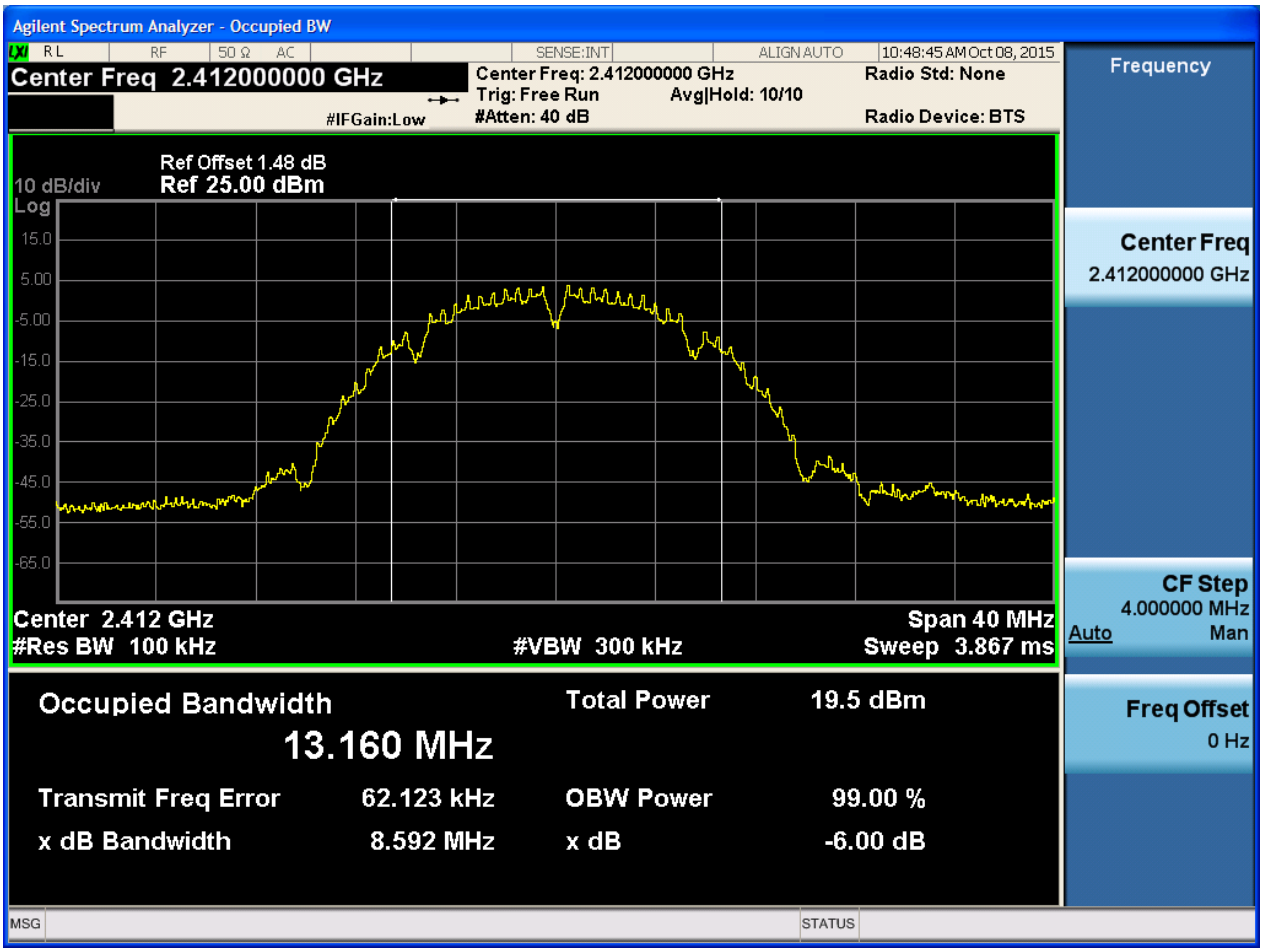
For measurements on smart antenna systems (devices with multiple transmit chains), the test is performed at each chain, and used as respective results for each chain.

Part I - Test Results

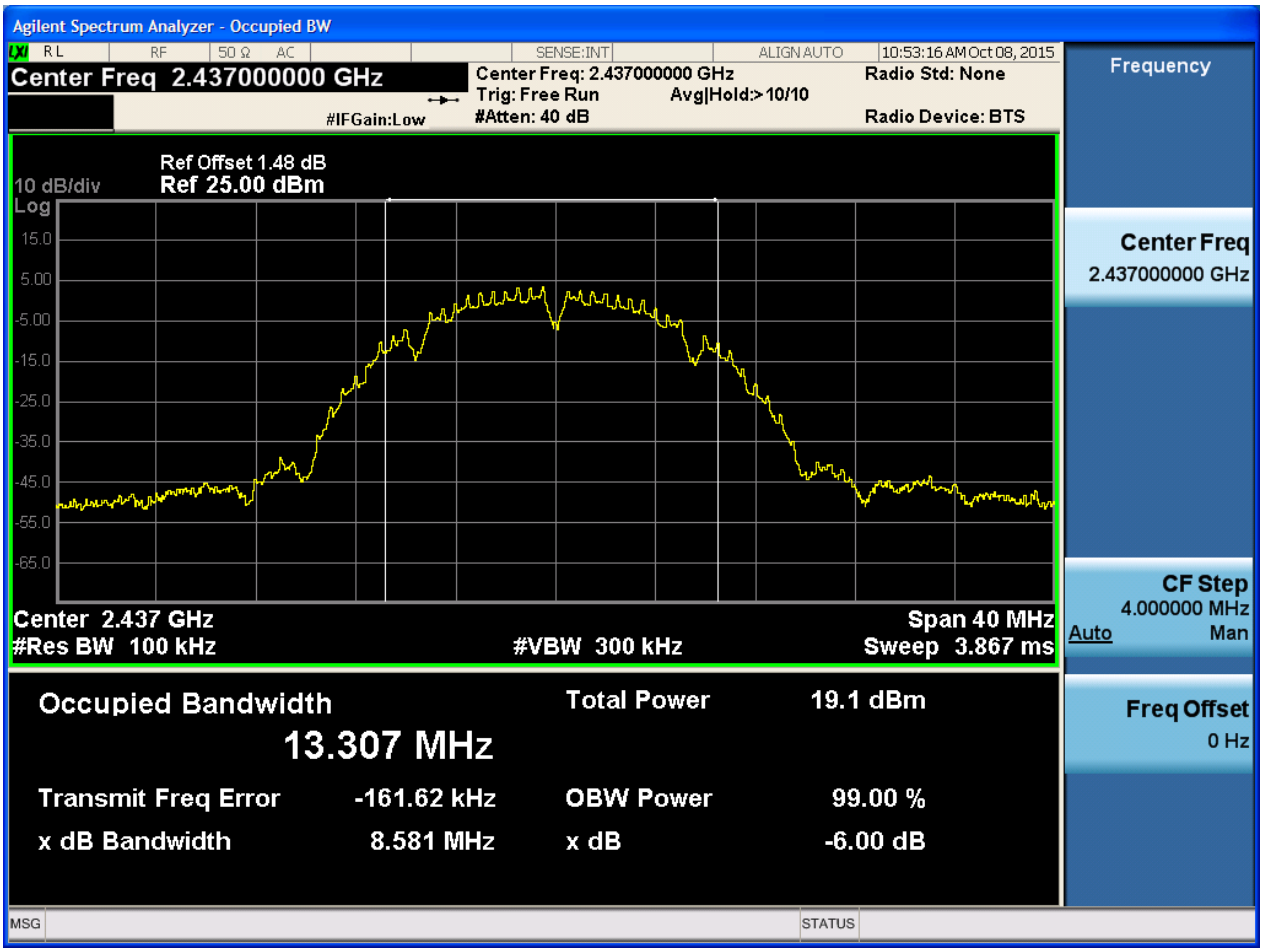
Test Mode	Test Channel	Frequency[MHz]	Ant	DTS6dBBW[MHz]	Verdict
11B	L	2412	Ant 1	8.59	pass
11B	M	2437	Ant 1	8.58	pass
11B	H	2462	Ant 1	8.11	pass
11G	L	2412	Ant 1	16.41	pass
11G	M	2437	Ant 1	16.12	pass
11G	H	2462	Ant 1	15.79	pass
11N20	L	2412	Ant 1	17.63	pass
11N20	M	2437	Ant 1	17.19	pass
11N20	H	2462	Ant 1	16.39	pass

Part II - Test Plots

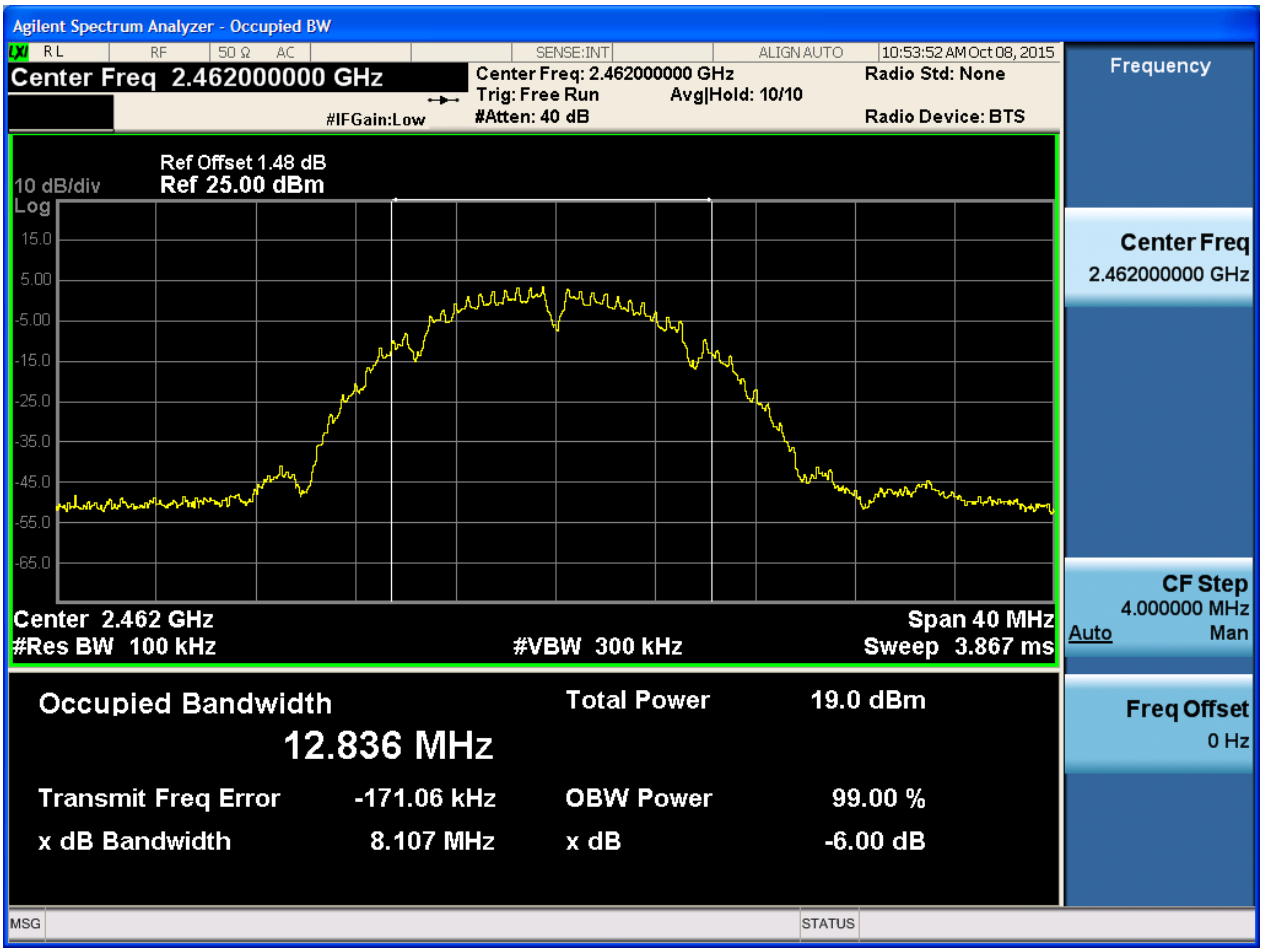
2.1 11B_L@Ant 1



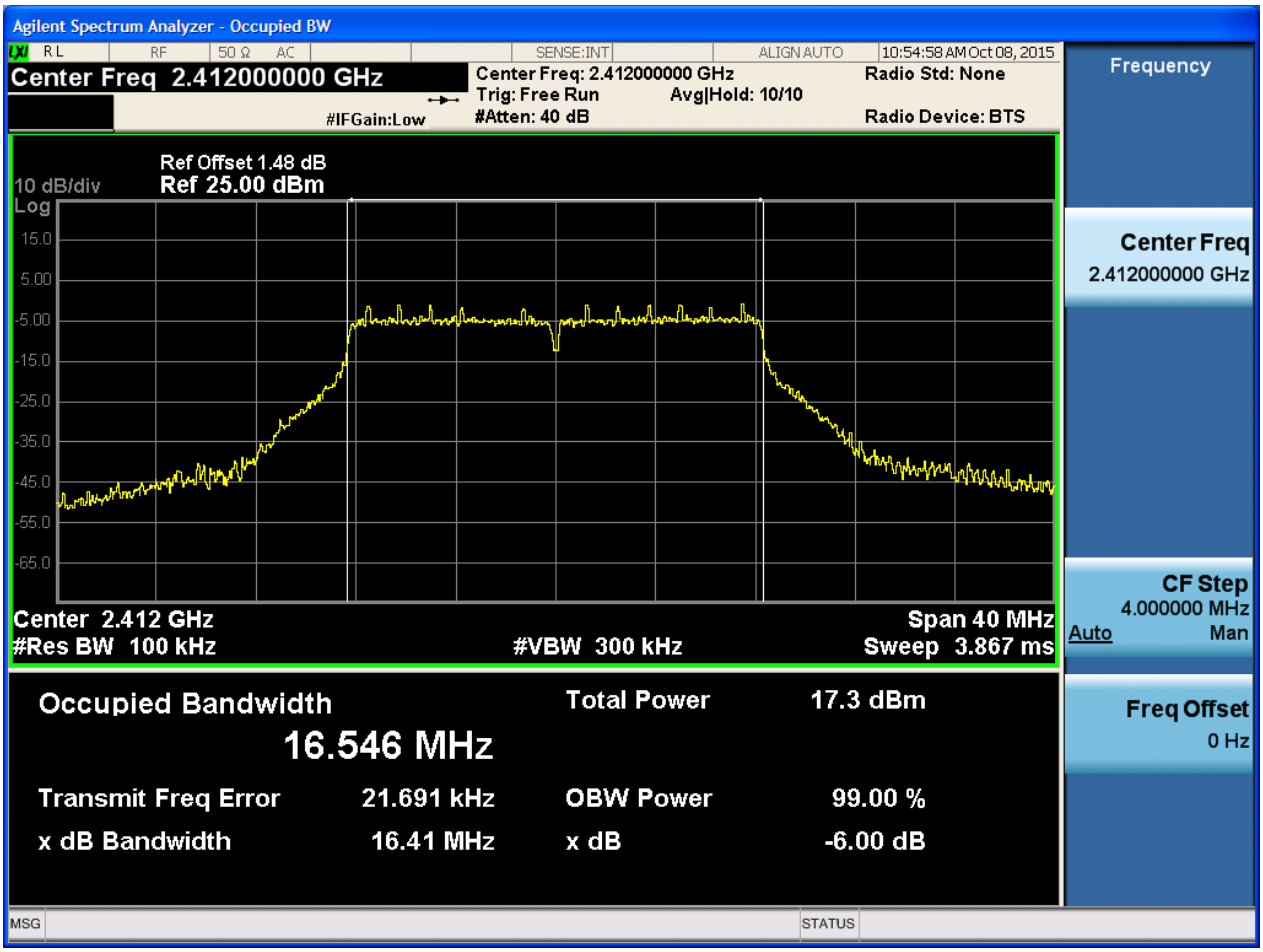
2.3 11B_M@Ant 1



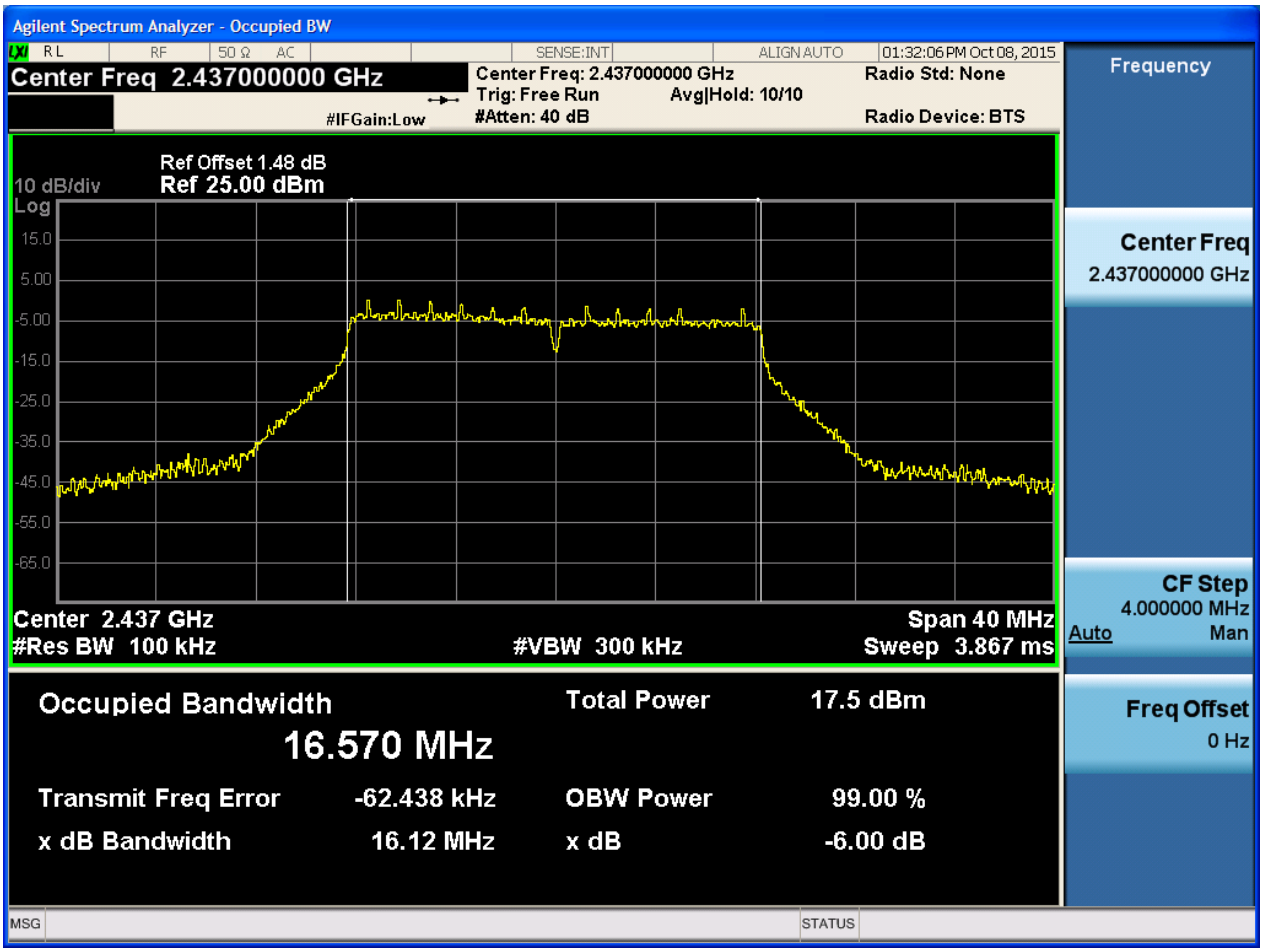
2.5 11B_H@Ant 1



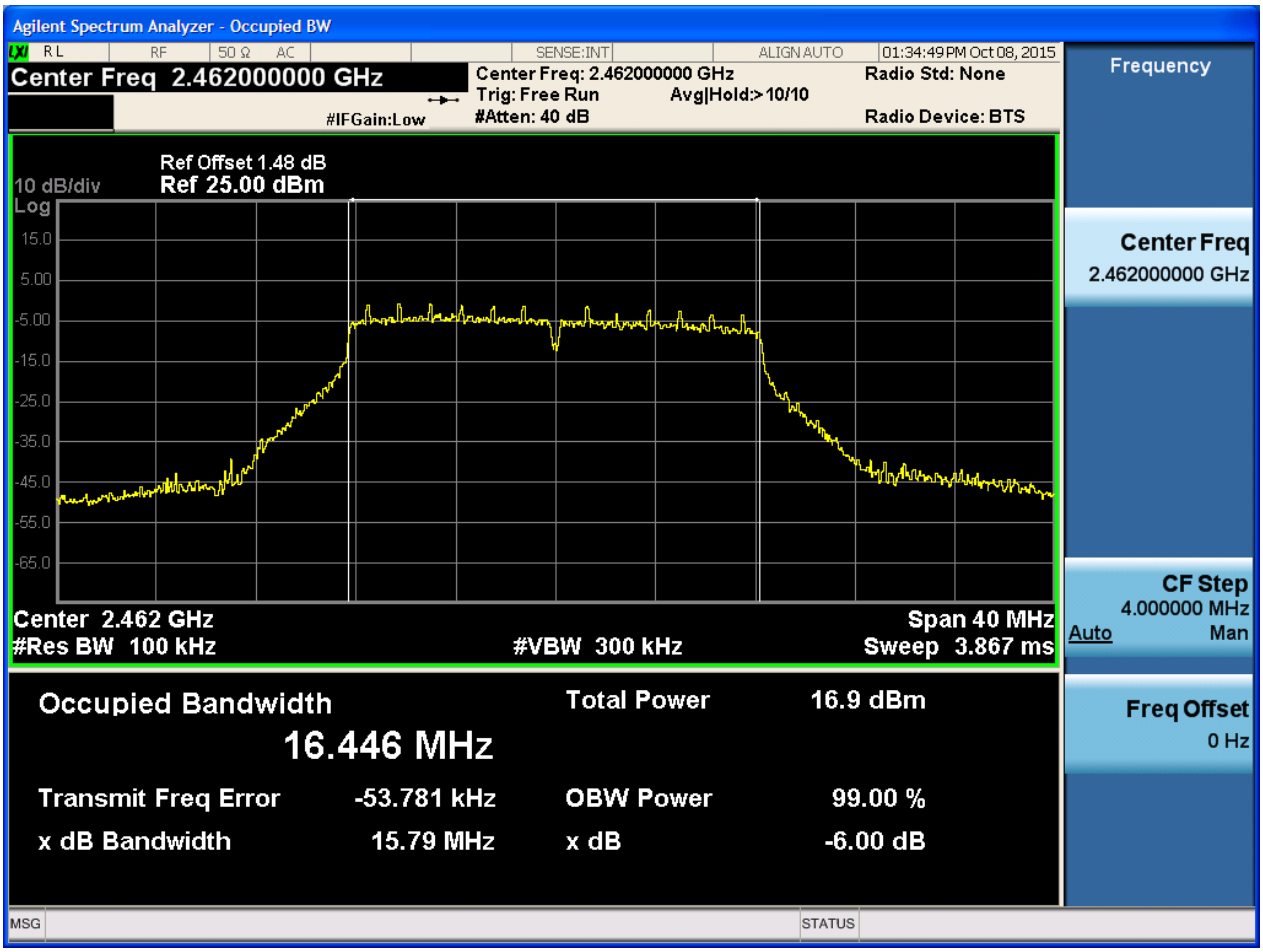
2.7 11G_L@Ant 1



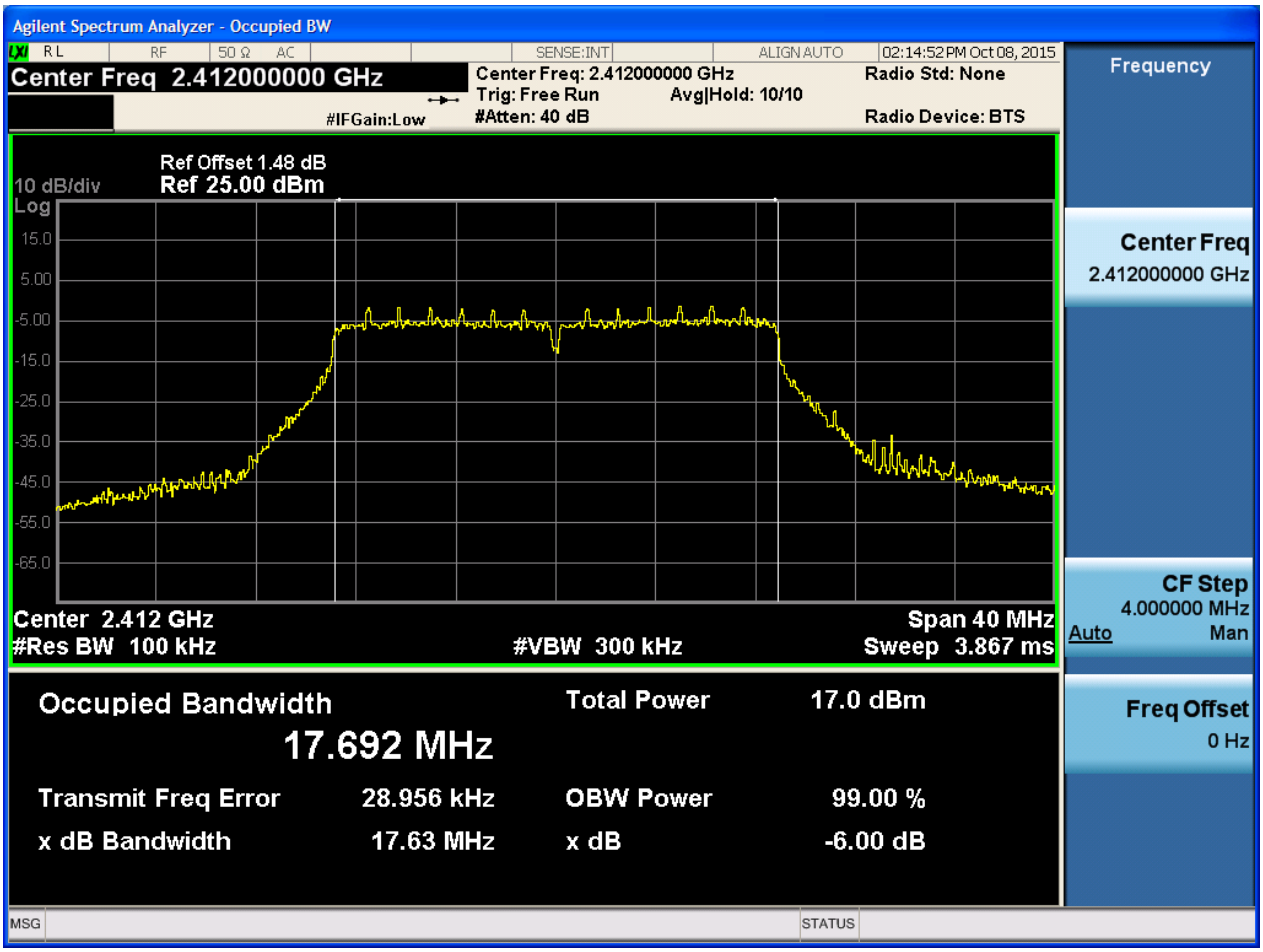
2.9 11G_M@Ant 1



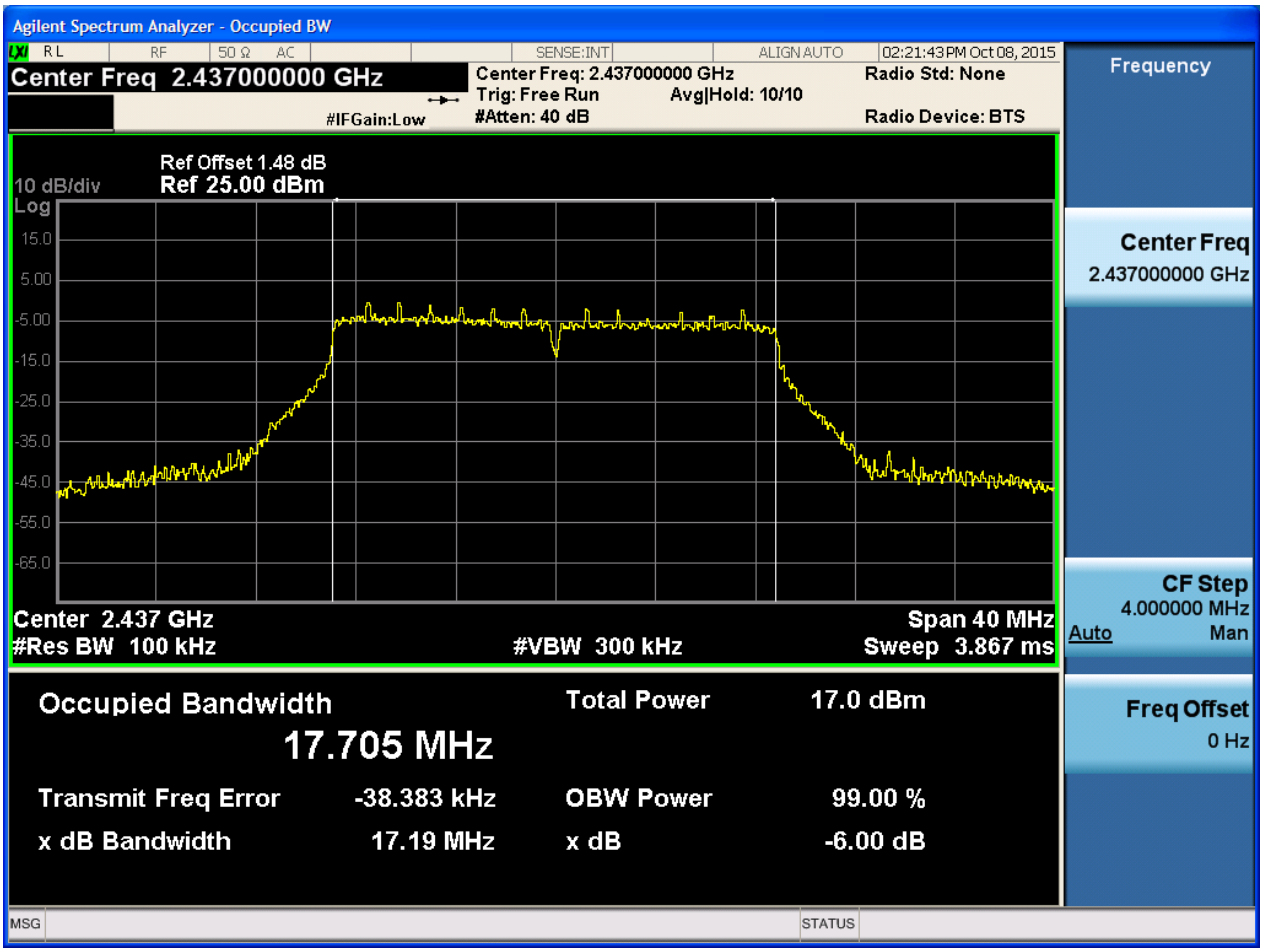
2.11 11G_H@Ant 1



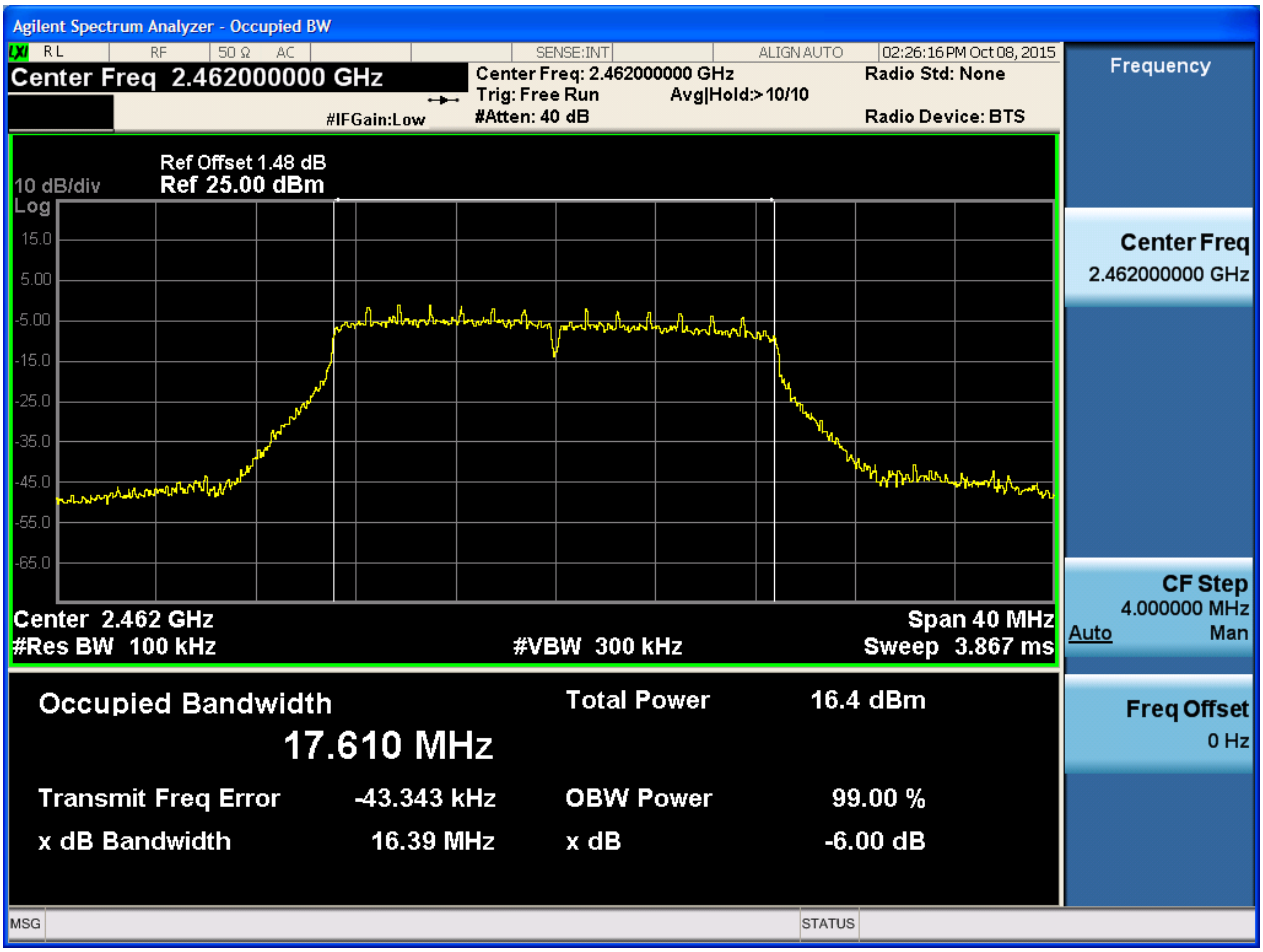
2.13 11N20_L@Ant 1



2.15 11N20_M@Ant 1



2.17 11N20_H@Ant 1



Appendix B: Occupied Bandwidth

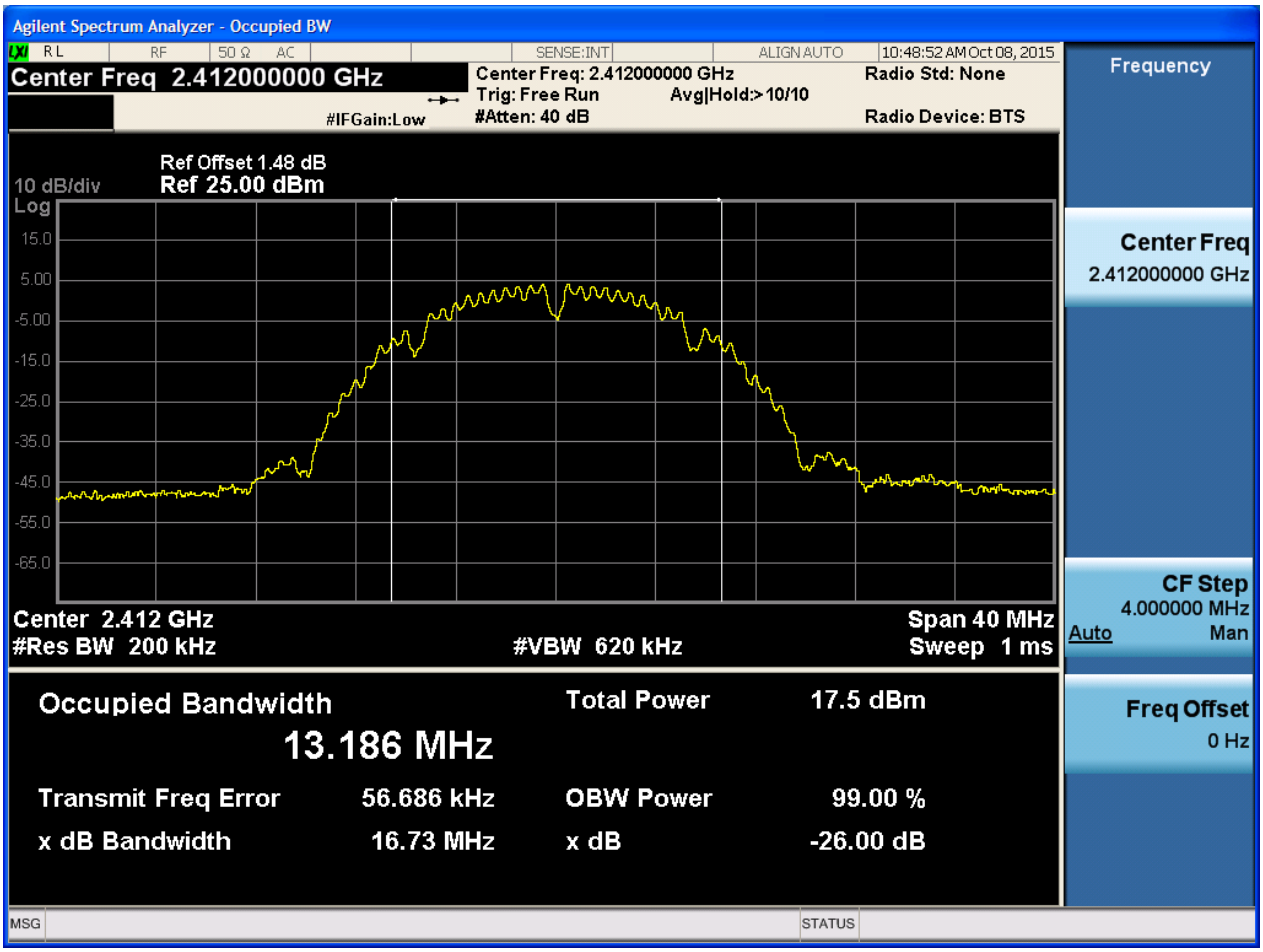
For measurements on smart antenna systems (devices with multiple transmit chains), the test is performed at each chain, and used as respective results for each chain.

Part I - Test Results

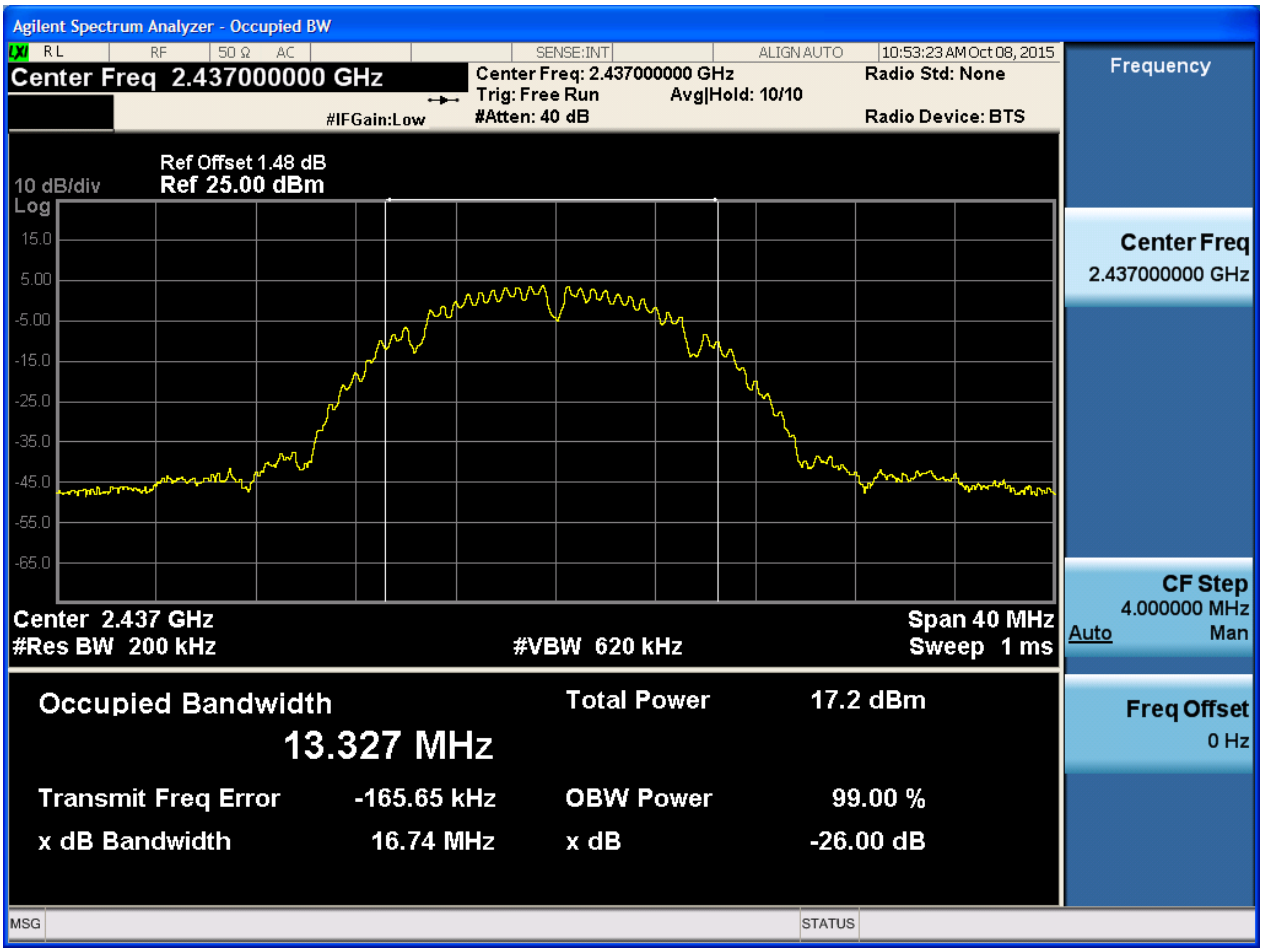
Test Mode	Test Channel	Frequency[MHz]	Ant	Occupied Bandwidth [MHz]	Verdict
11B	L	2412	Ant 1	13.19	pass
11B	M	2437	Ant 1	13.33	pass
11B	H	2462	Ant 1	12.88	pass
11G	L	2412	Ant 1	16.79	pass
11G	M	2437	Ant 1	16.80	pass
11G	H	2462	Ant 1	16.63	pass
11N20	L	2412	Ant 1	17.85	pass
11N20	M	2437	Ant 1	17.86	pass
11N20	H	2462	Ant 1	17.72	pass

Part II - Test Plots

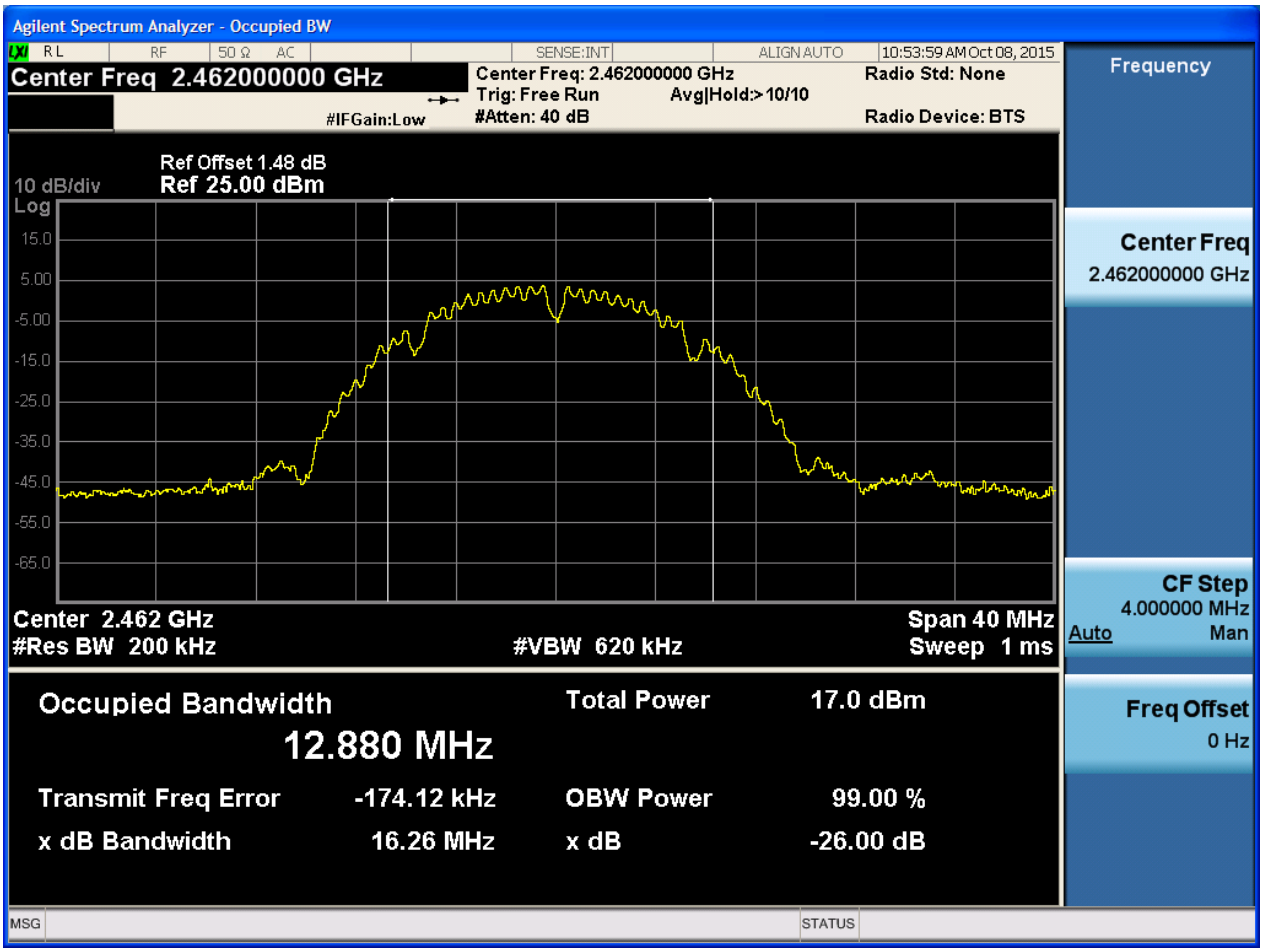
2.1 11B_L@Ant 1



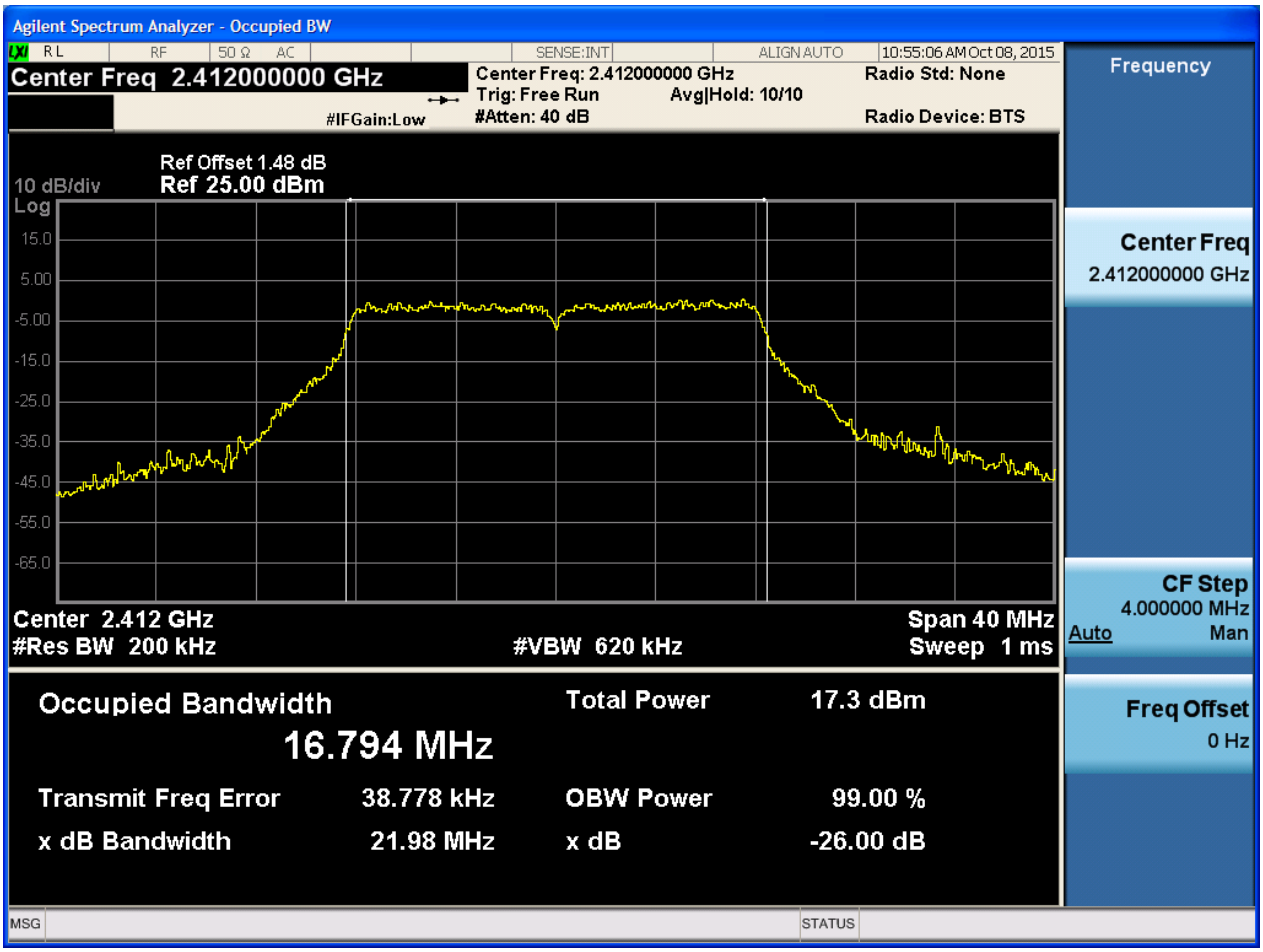
2.3 11B_M@Ant 1



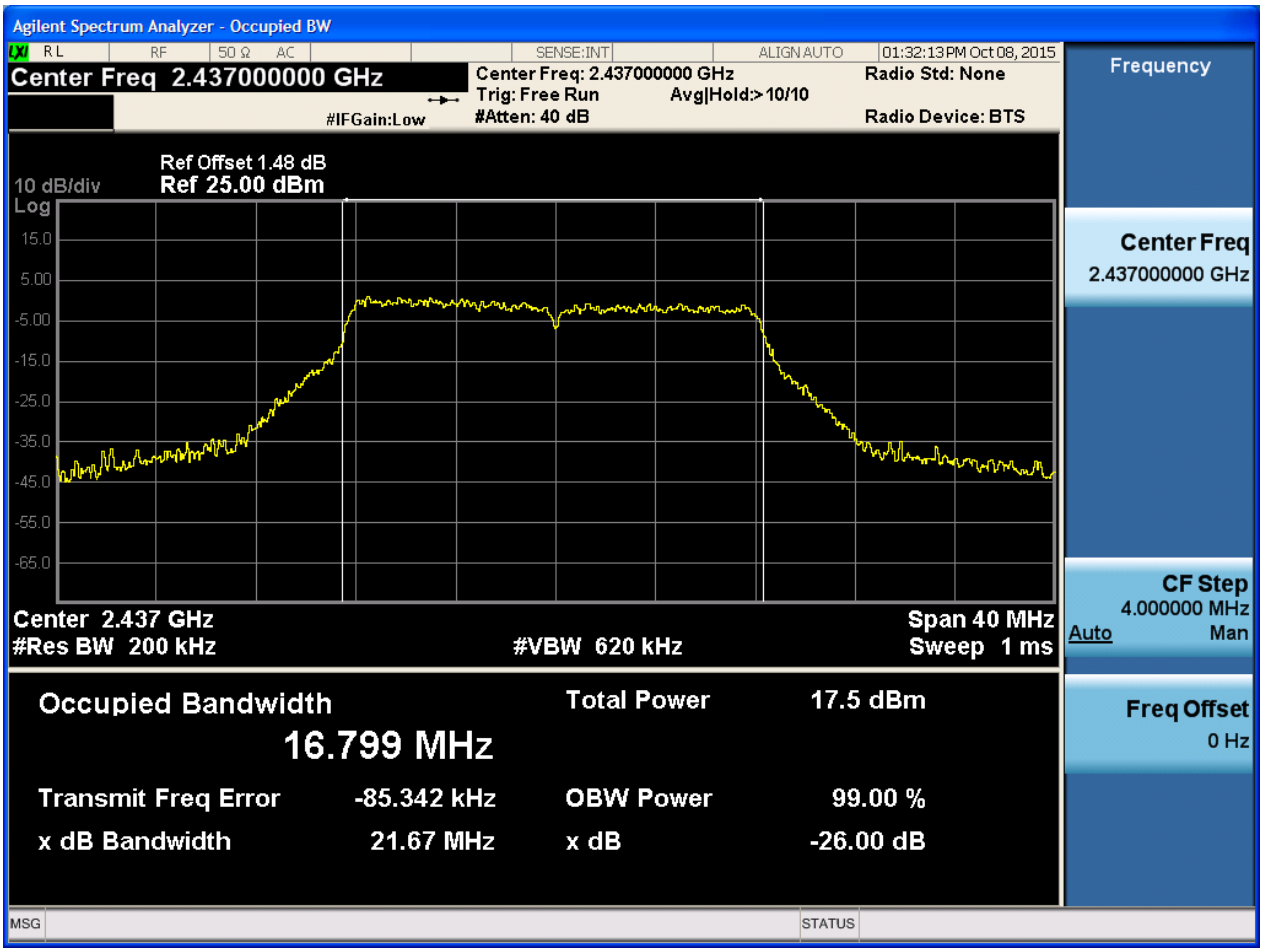
2.5 11B_H@Ant 1



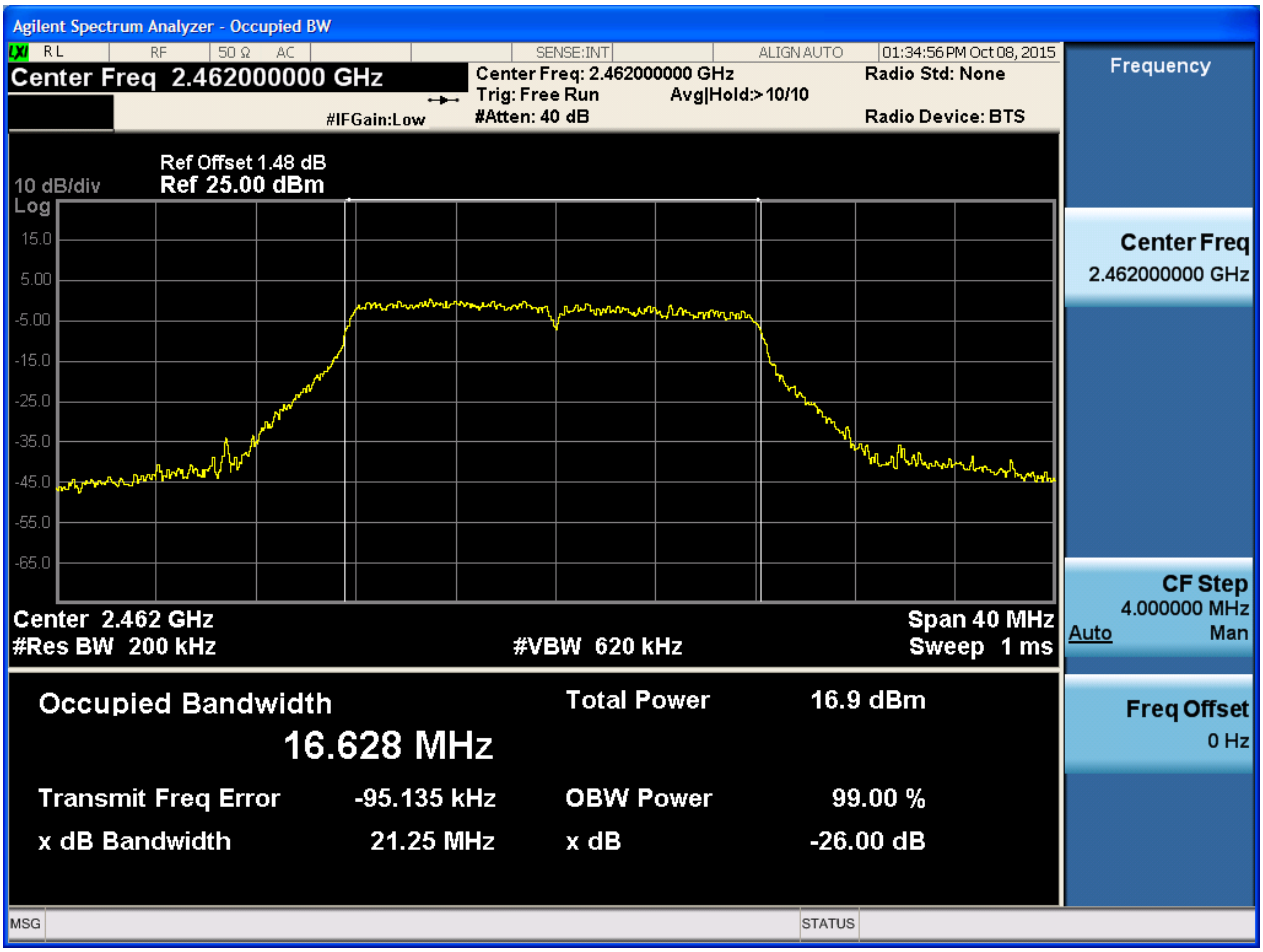
2.7 11G_L@Ant 1



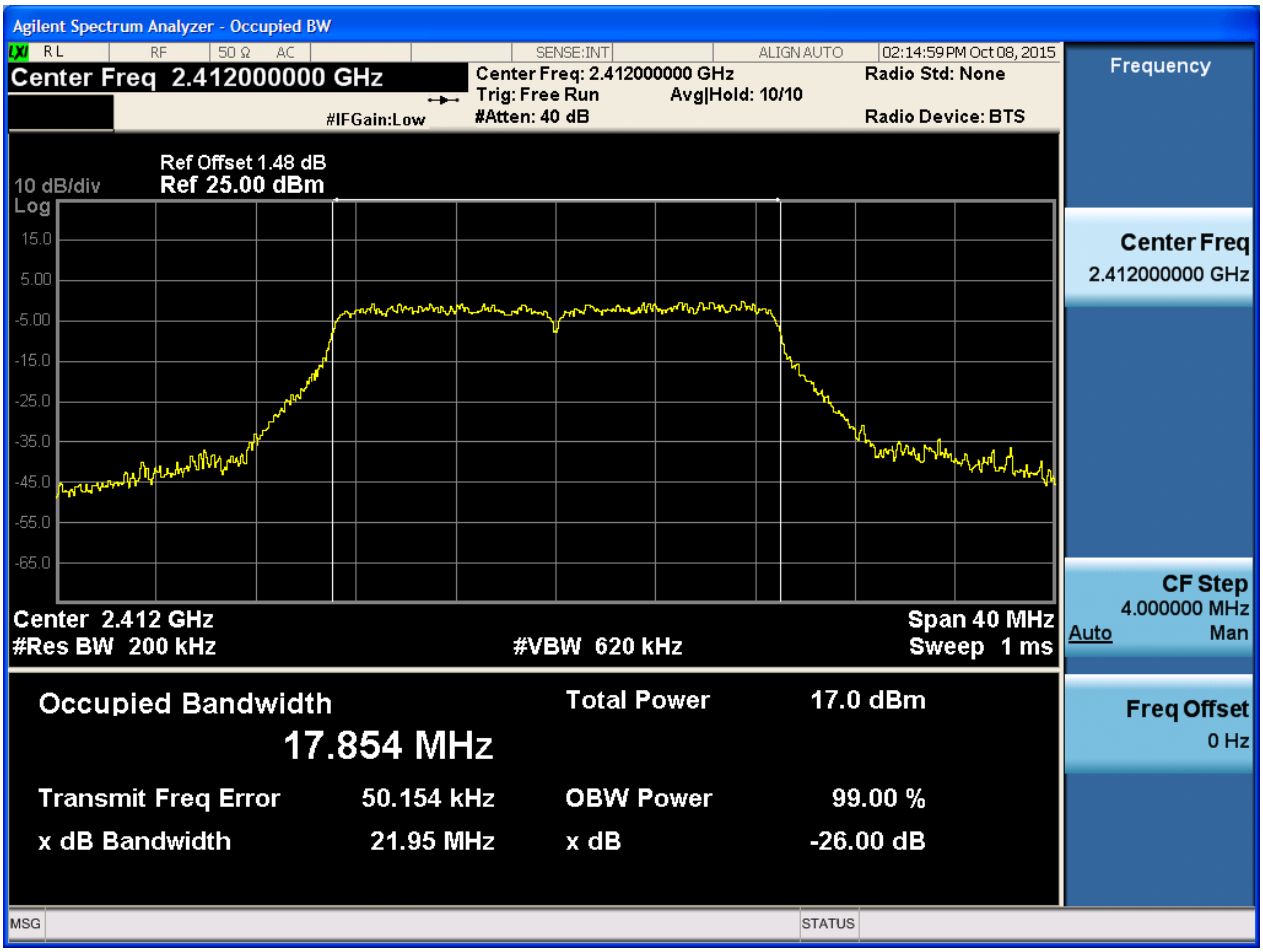
2.9 11G_M@Ant 1



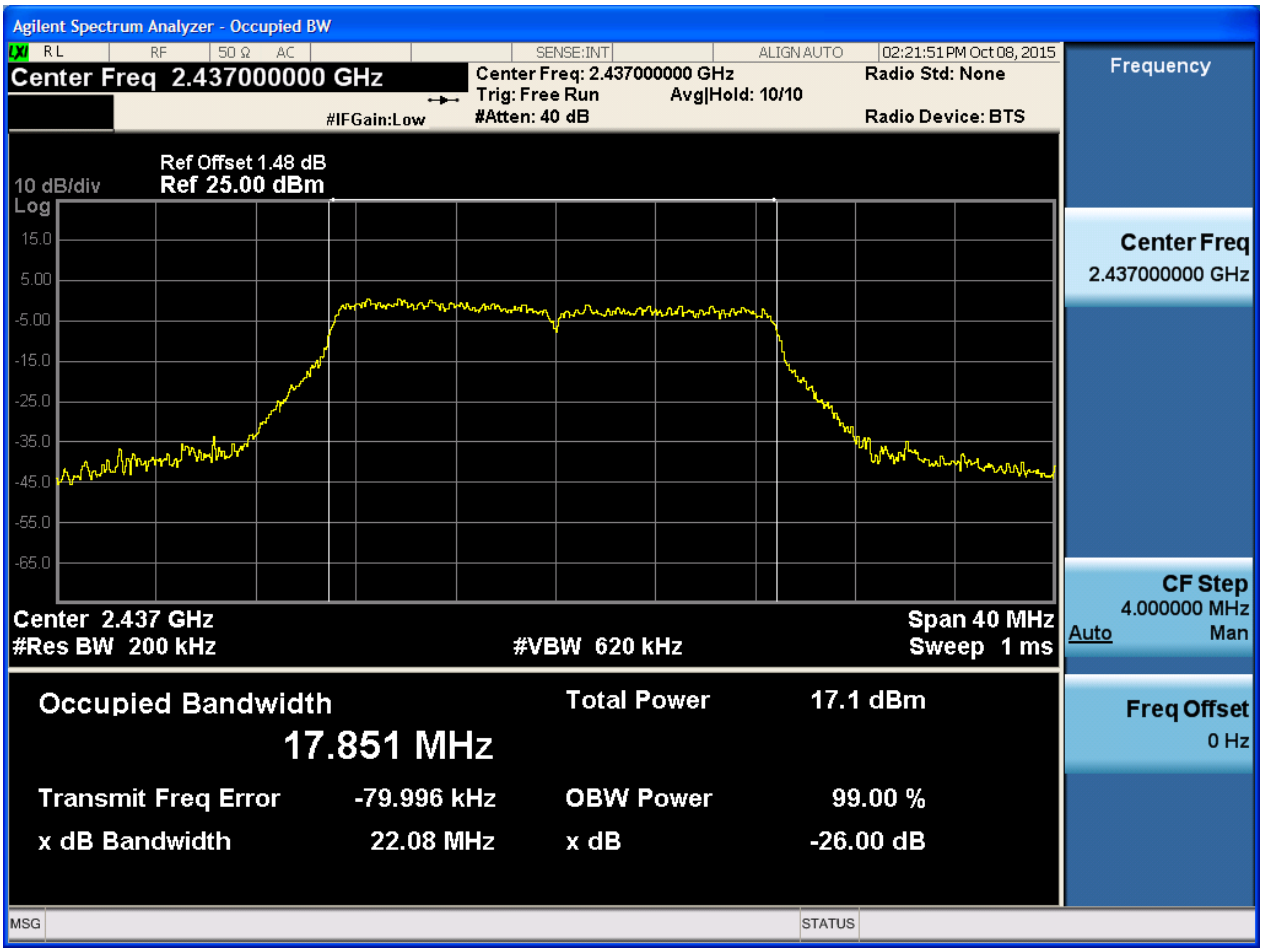
2.11 11G_H@Ant 1



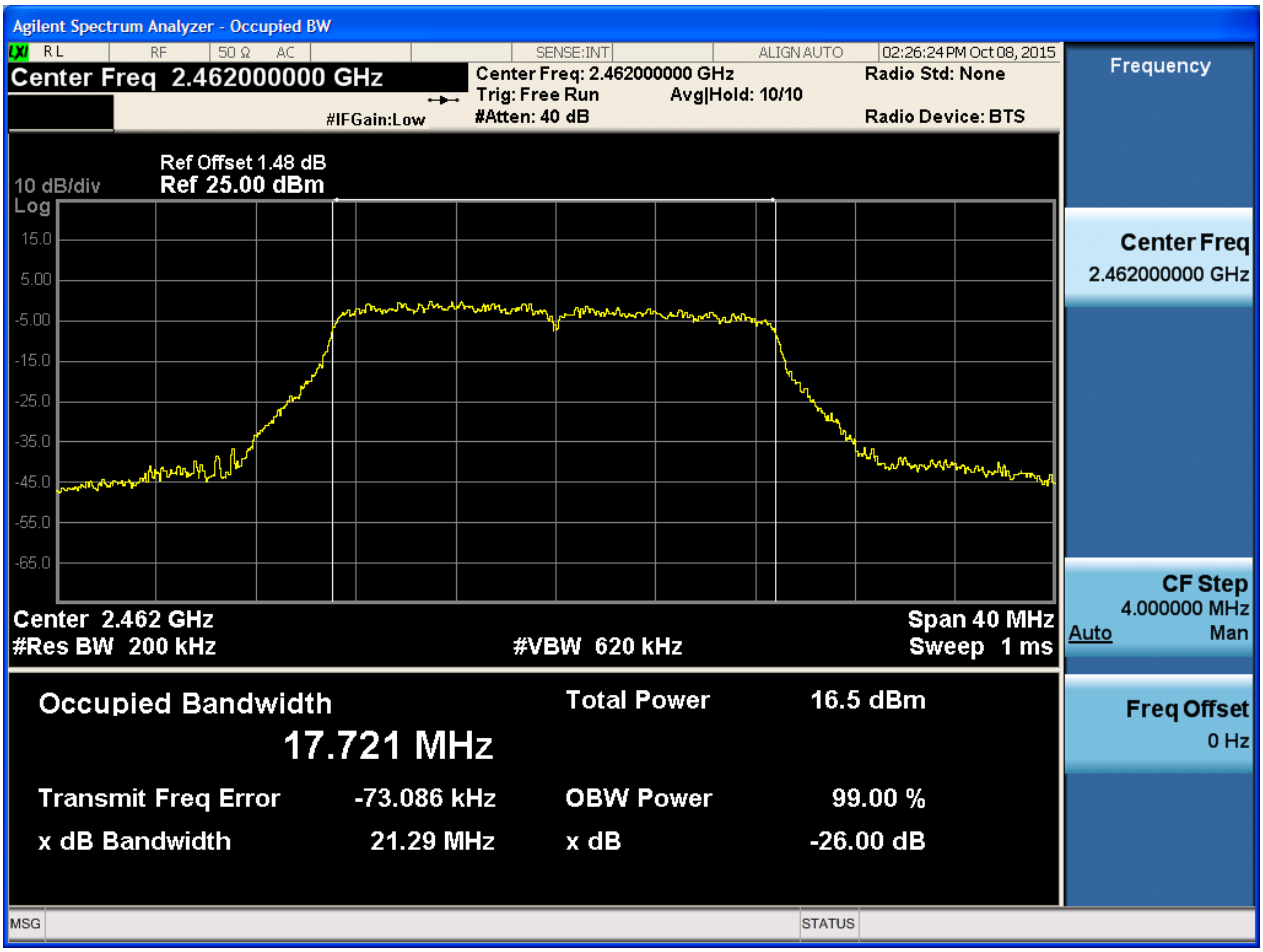
2.13 11N20_L@Ant 1



2.15 11N20_M@Ant 1



2.17 11N20_H@Ant 1



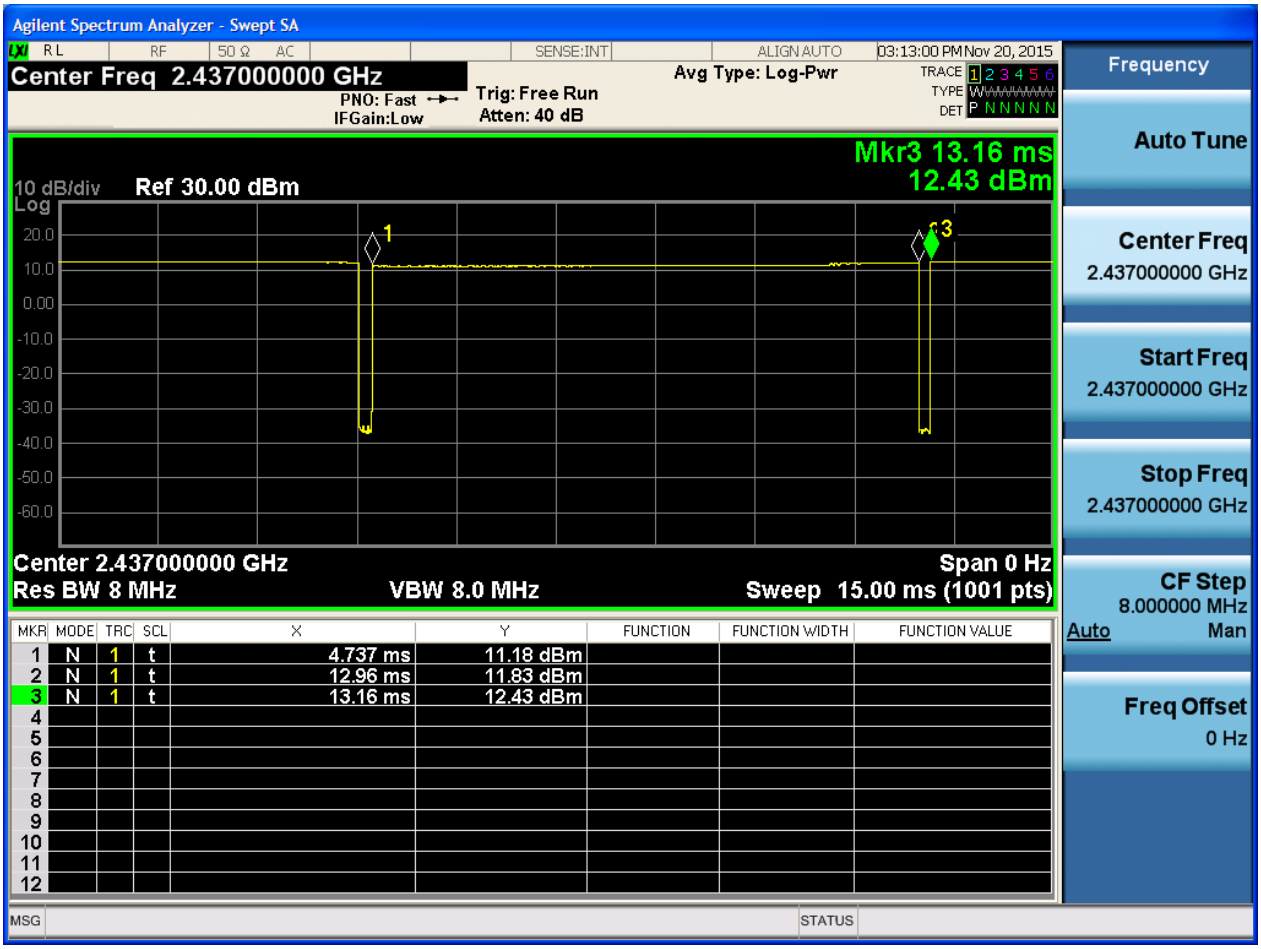
Appendix C: Duty Cycle

Part I - Test Results

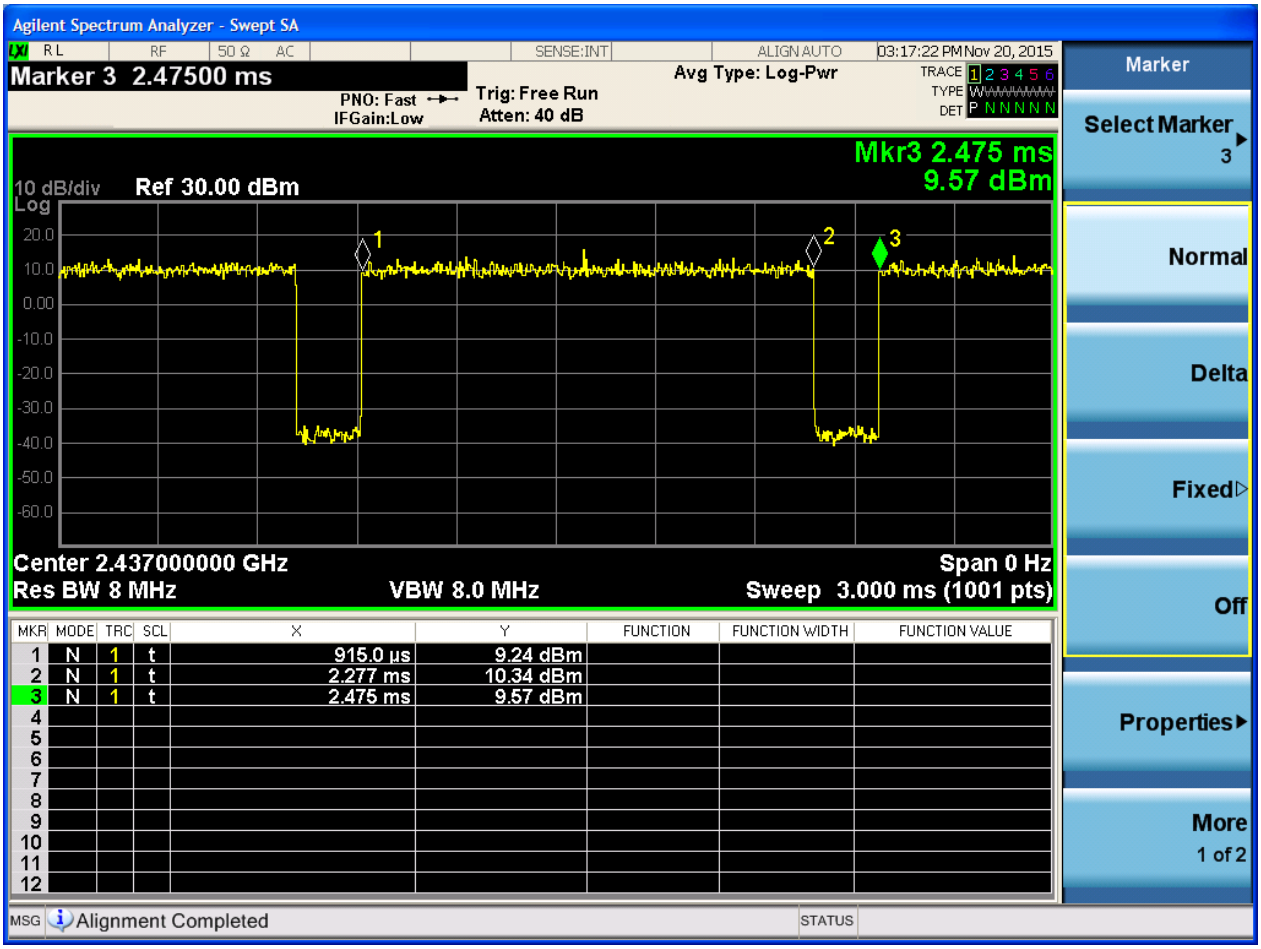
Test Mode	TX Freq. [MHz]	Ant	Duty cycle [%]
11B	CH1,CH6,CH11	Ant 1	98
11G	CH1,CH6,CH11	Ant 1	87
11N20	CH1,CH6,CH11	Ant 1	87

Part II - Test Plots

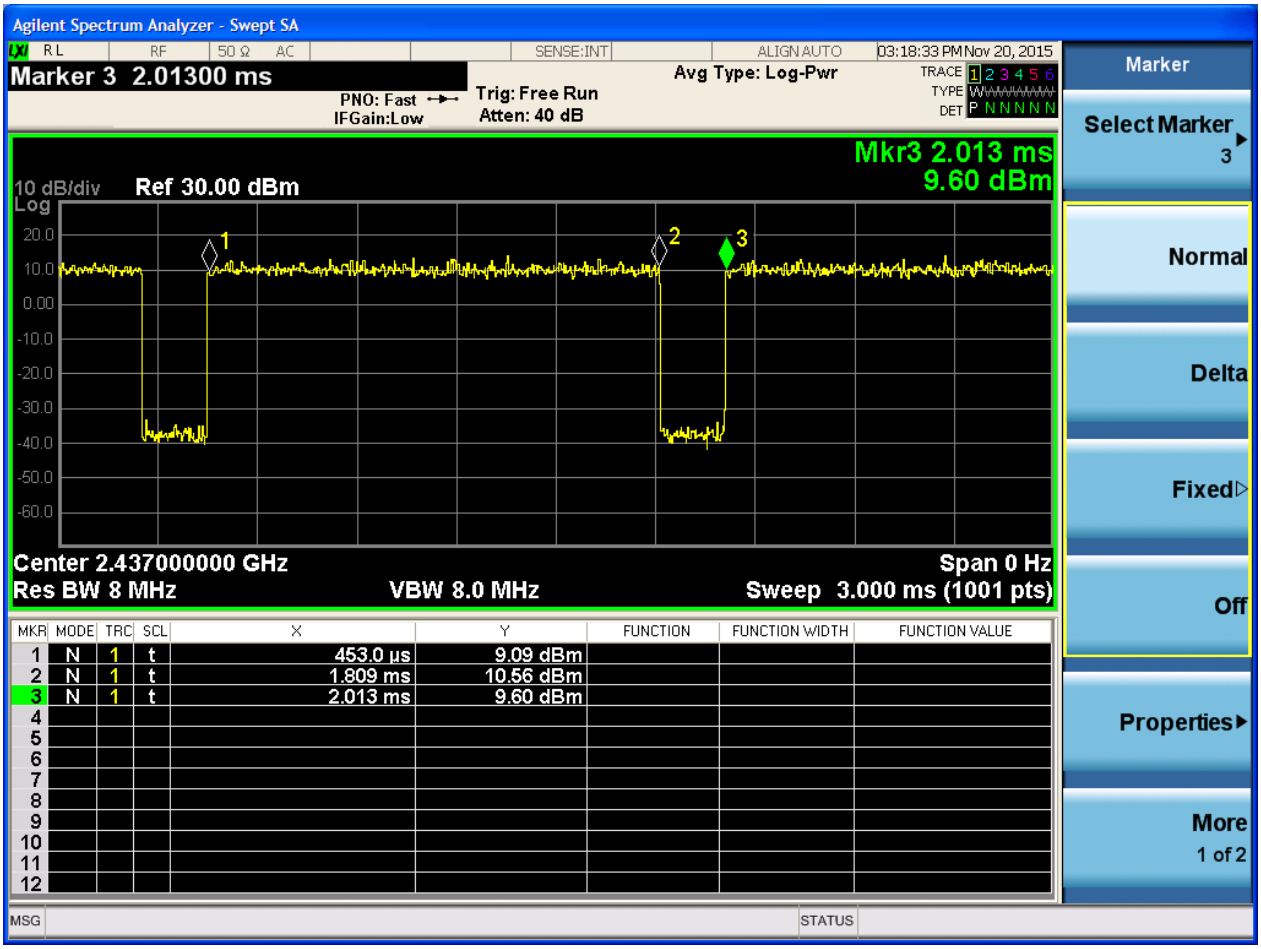
11B_ANT1



11G_ANT1



11N20_ANT1



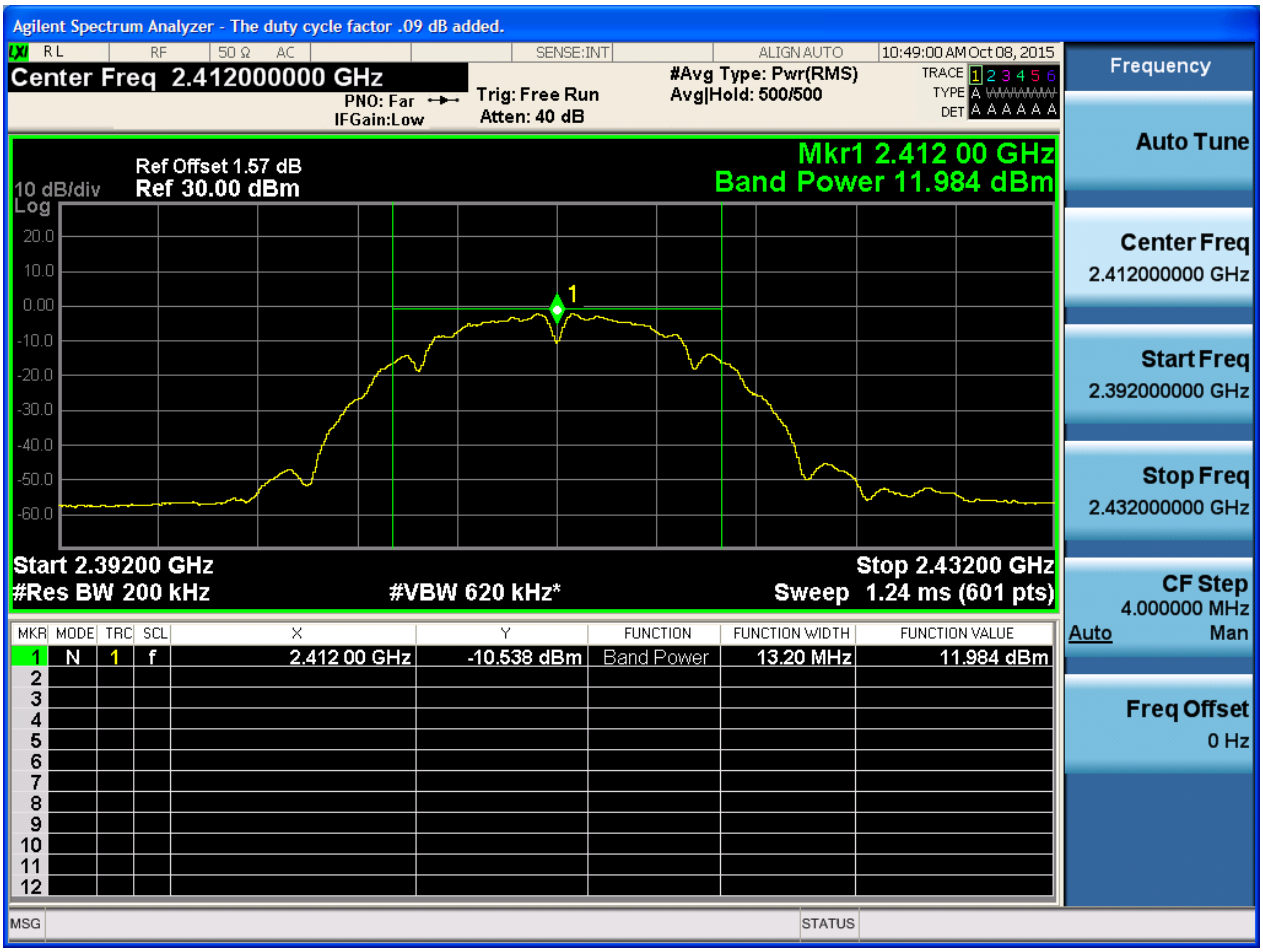
Appendix D: Maximum Conducted Average Output Power

Part I - Test Results

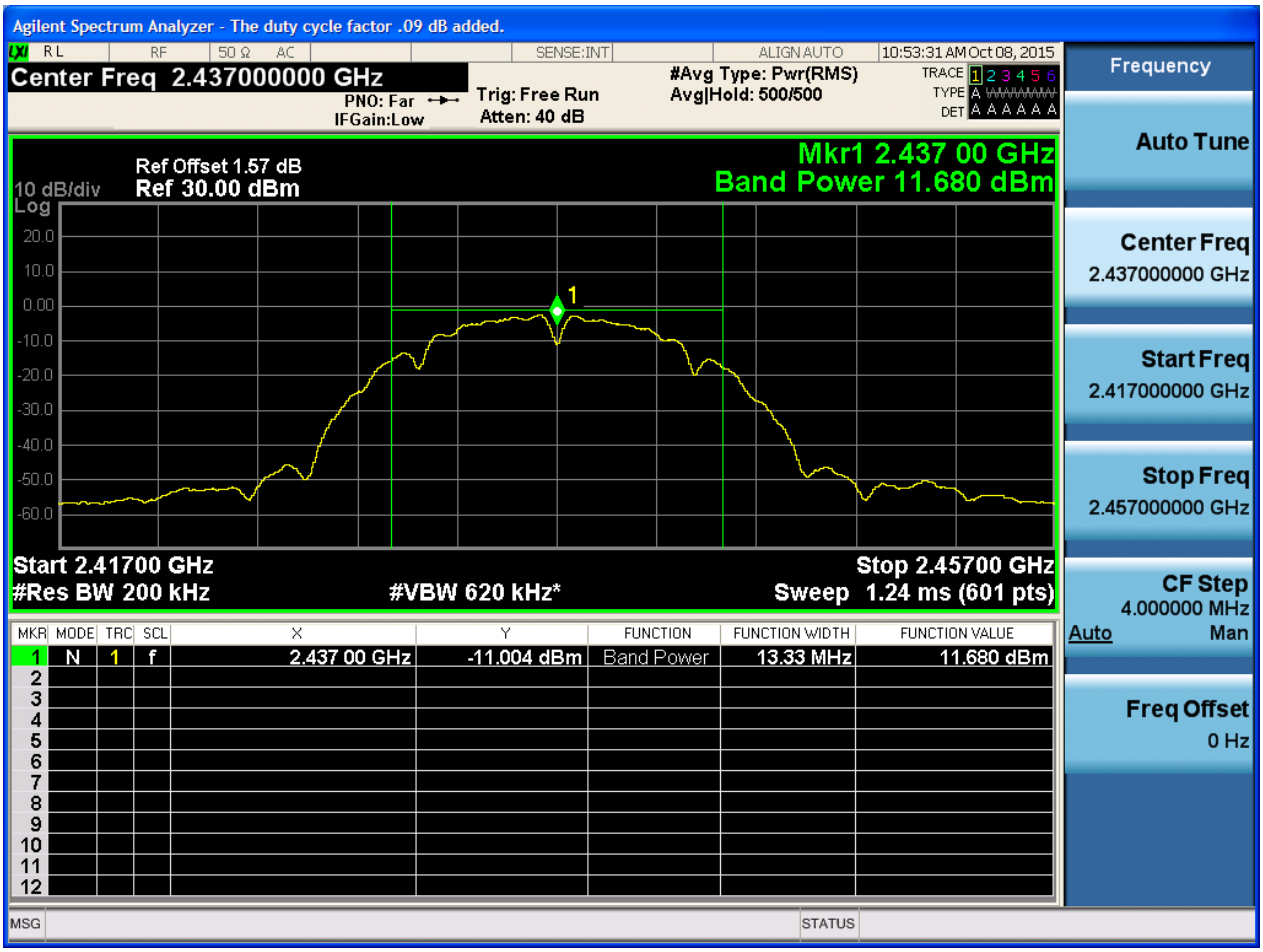
Test Mode	Test Channel	Frequency[MHz]	Ant	Power[dBm]	Verdict
11B	L	2412	Ant 1	11.98	pass
11B	M	2437	Ant 1	11.68	pass
11B	H	2462	Ant 1	11.49	pass
11G	L	2412	Ant 1	10.30	pass
11G	M	2437	Ant 1	10.35	pass
11G	H	2462	Ant 1	9.92	pass
11N20	L	2412	Ant 1	9.76	pass
11N20	M	2437	Ant 1	9.97	pass
11N20	H	2462	Ant 1	9.24	pass

Part II - Test Plots

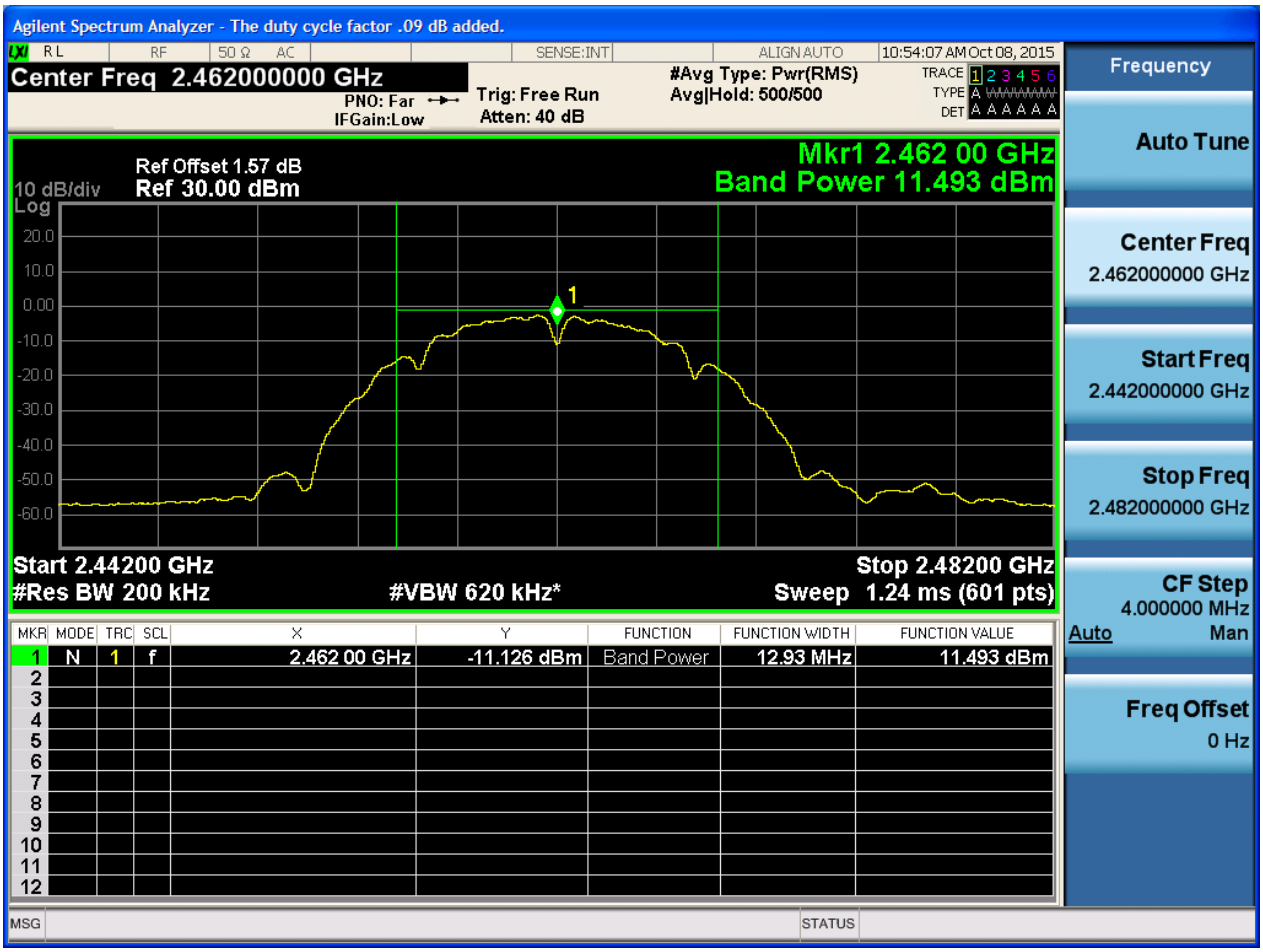
2.1 11B_L@Ant 1



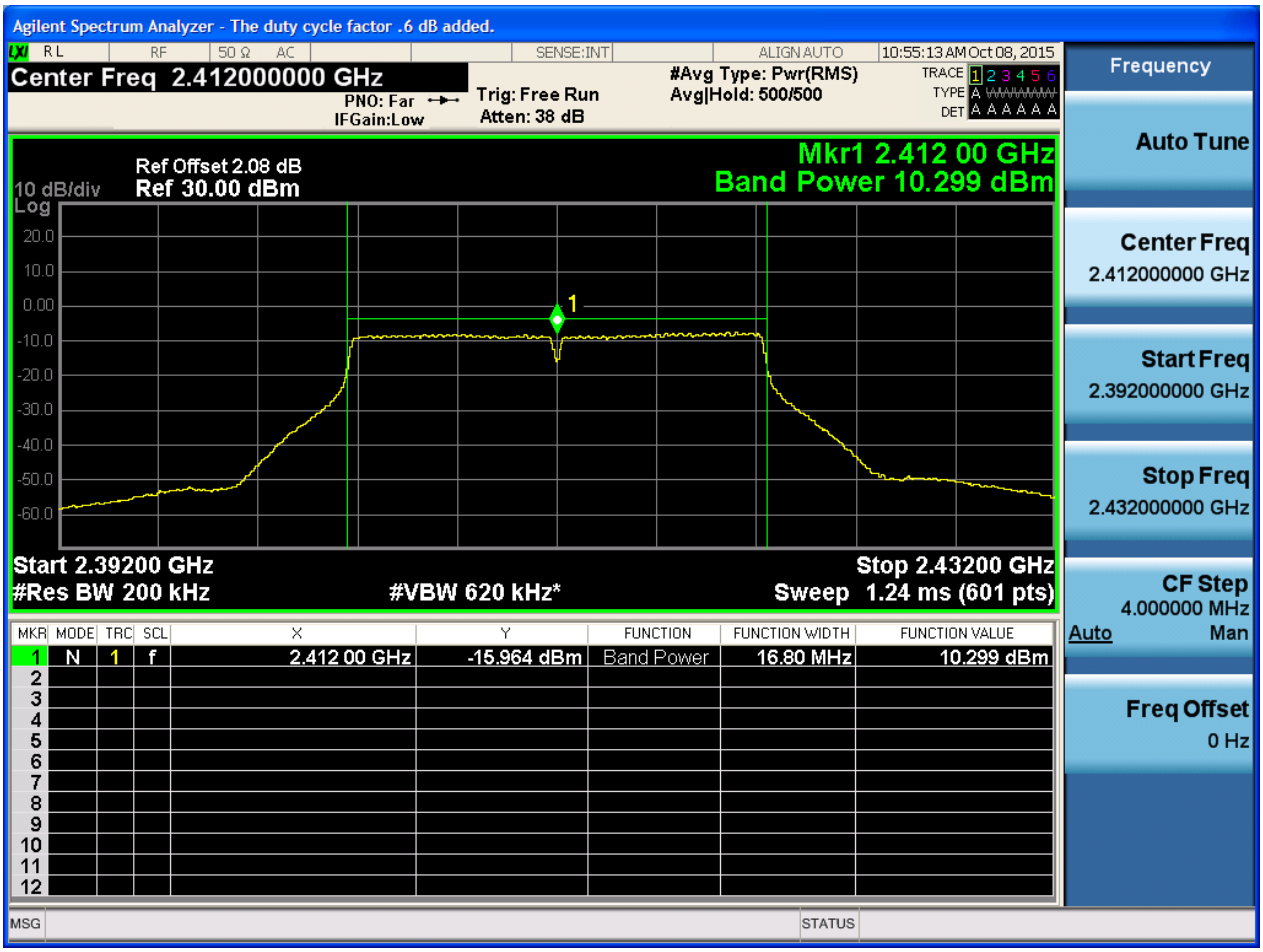
2.3 11B_M@Ant 1



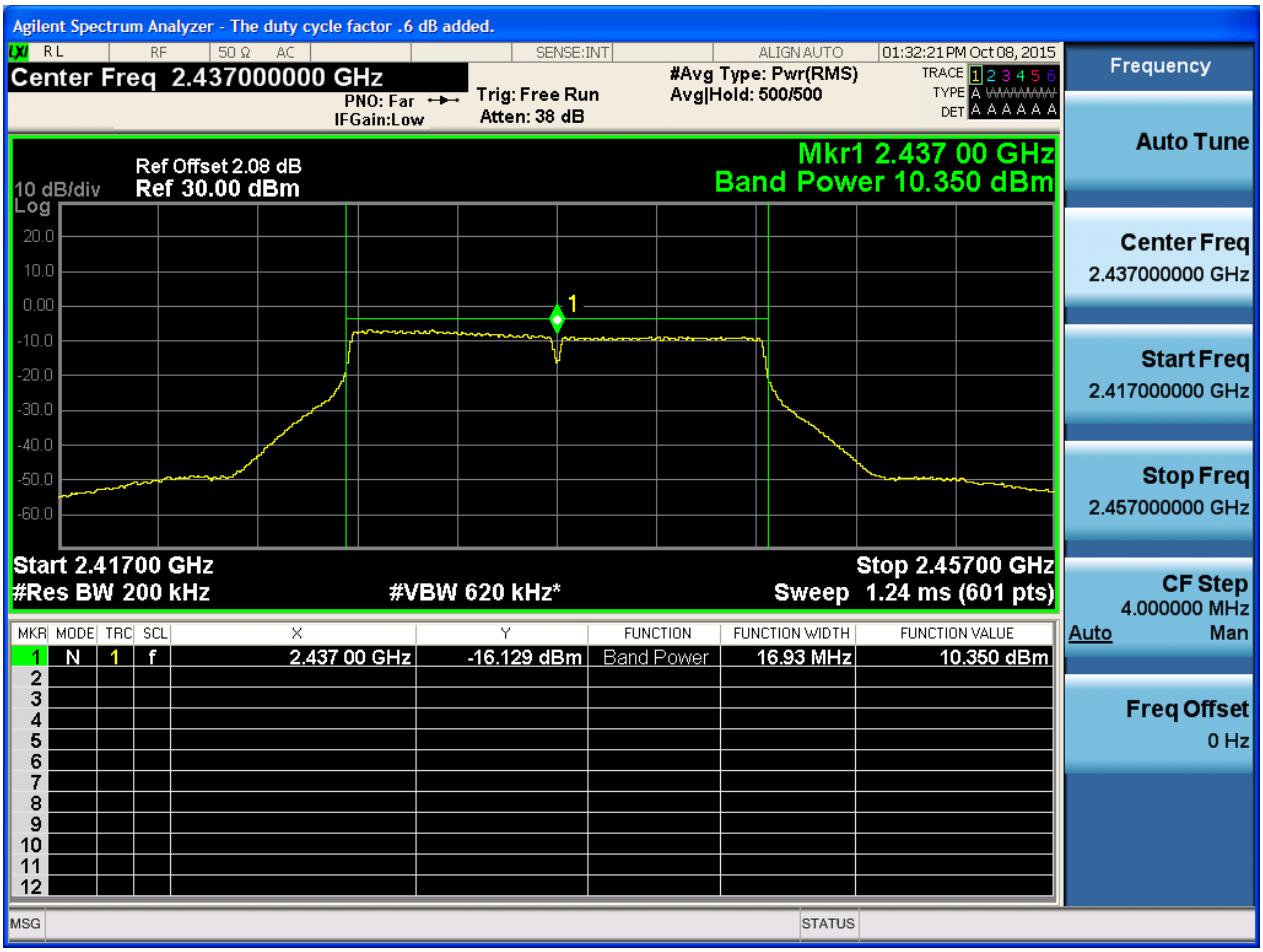
2.5 11B_H@Ant 1



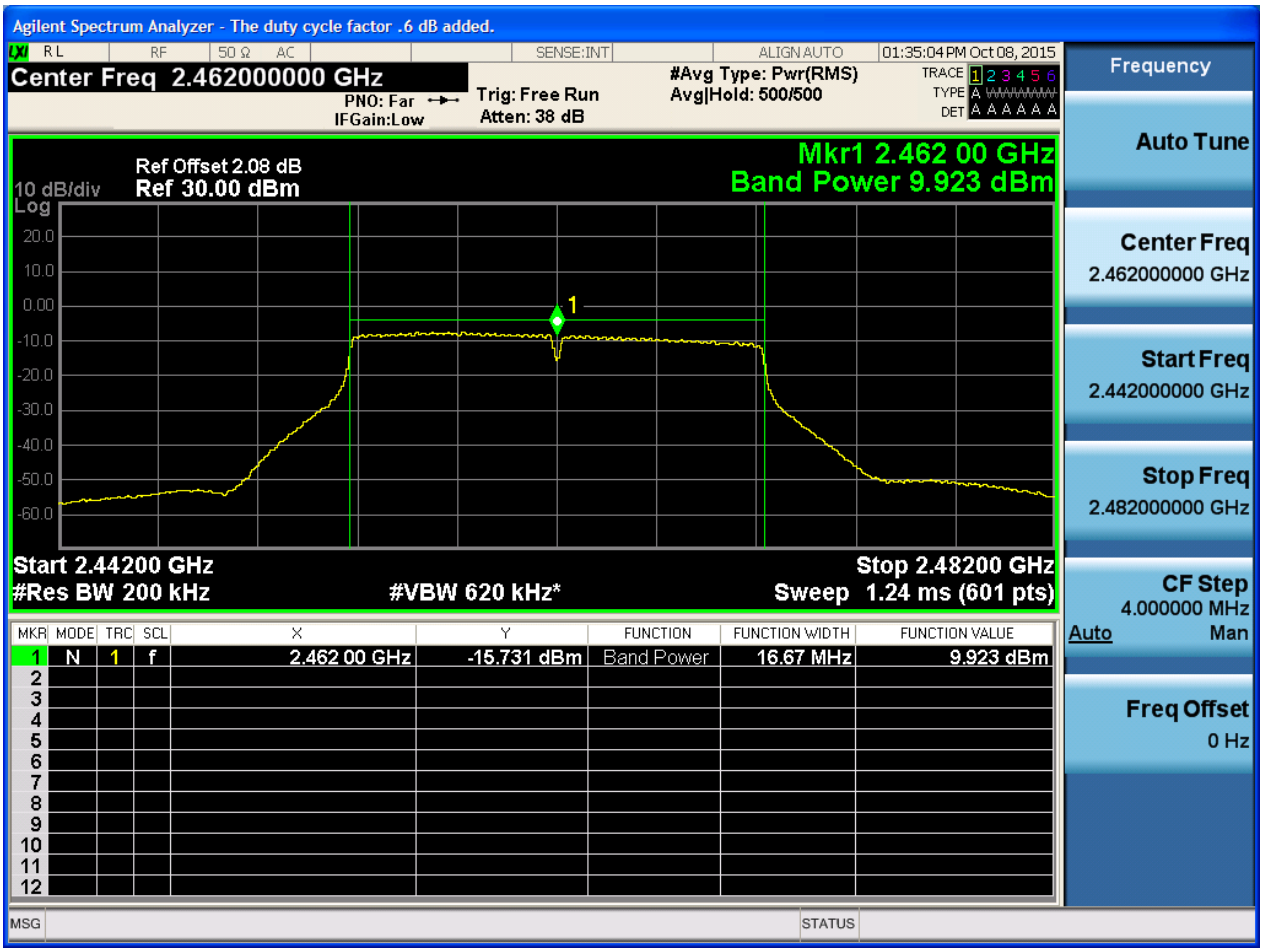
2.7 11G_L@Ant 1



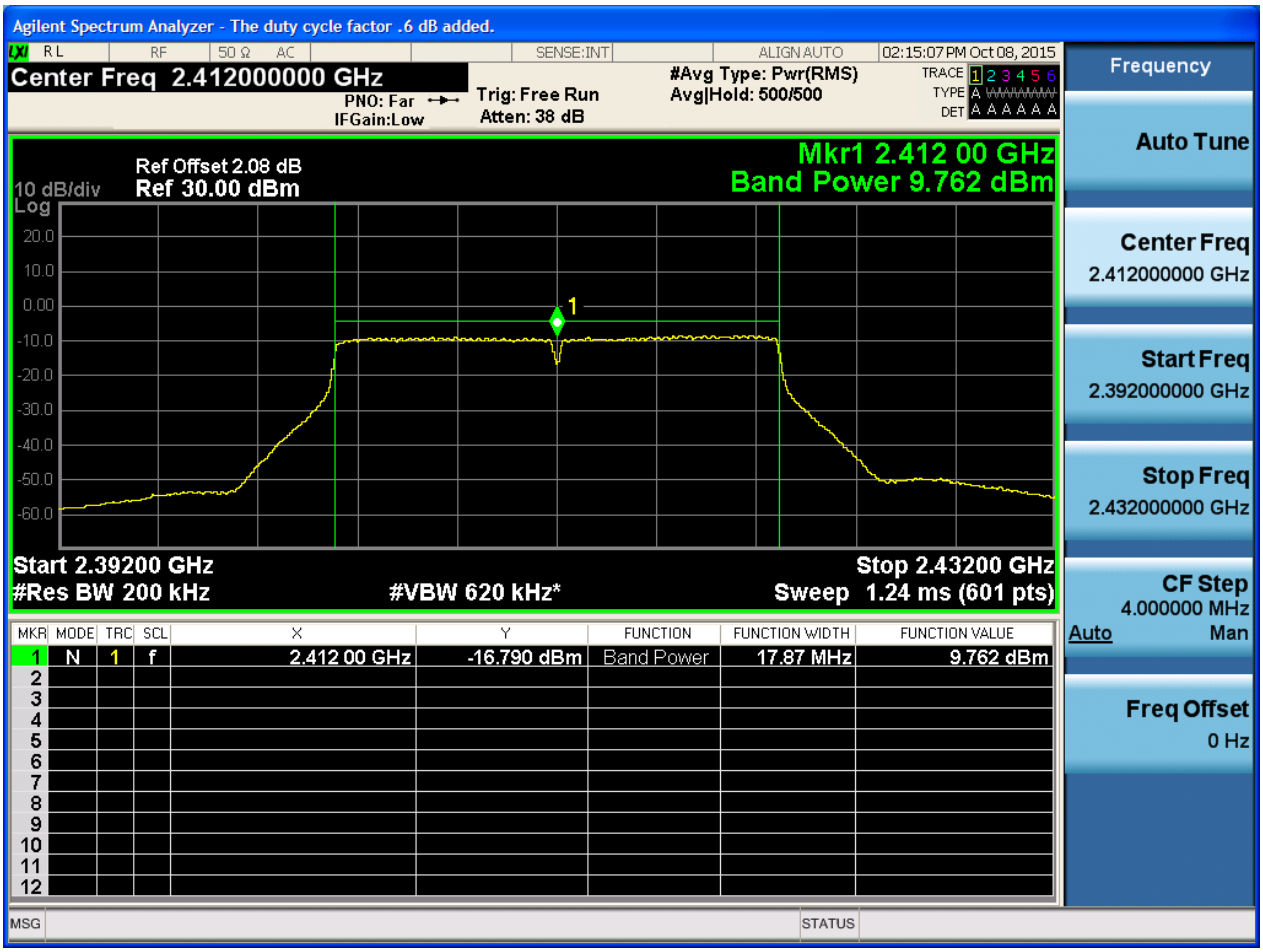
2.9 11G_M@Ant 1



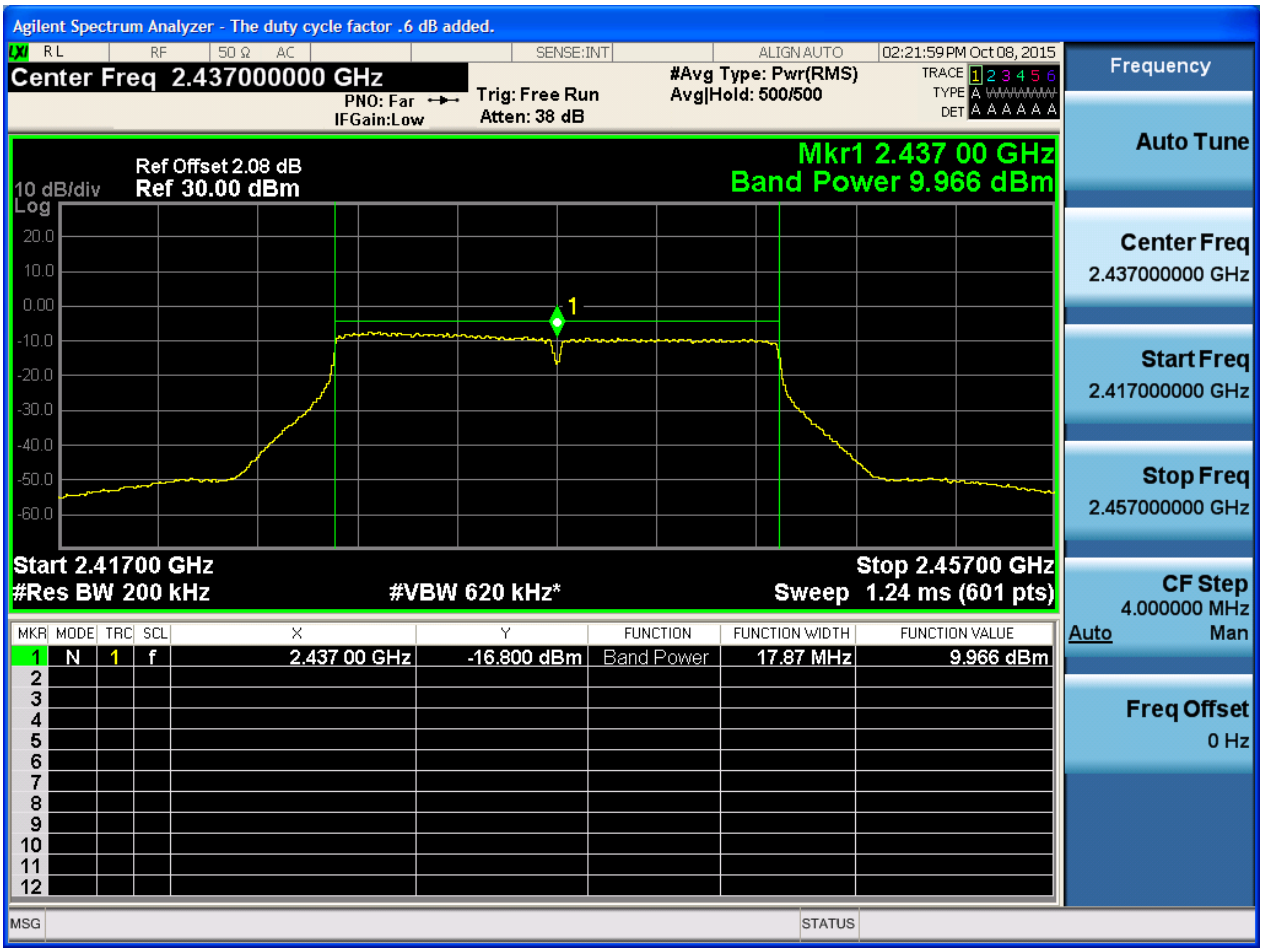
2.11 11G_H@Ant 1



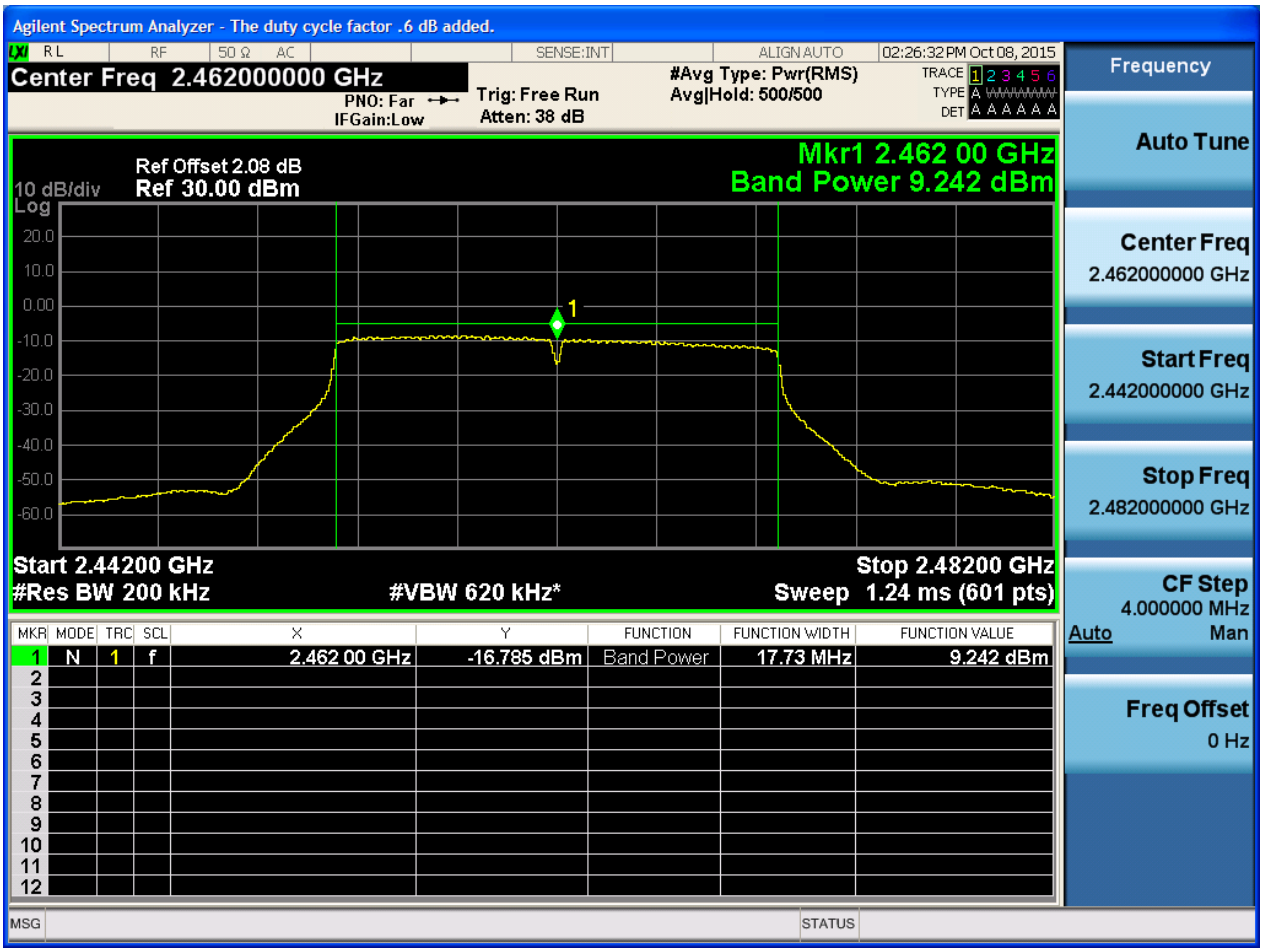
2.13 11N20_L@Ant 1



2.15 11N20_M@Ant 1



2.17 11N20_H@Ant 1



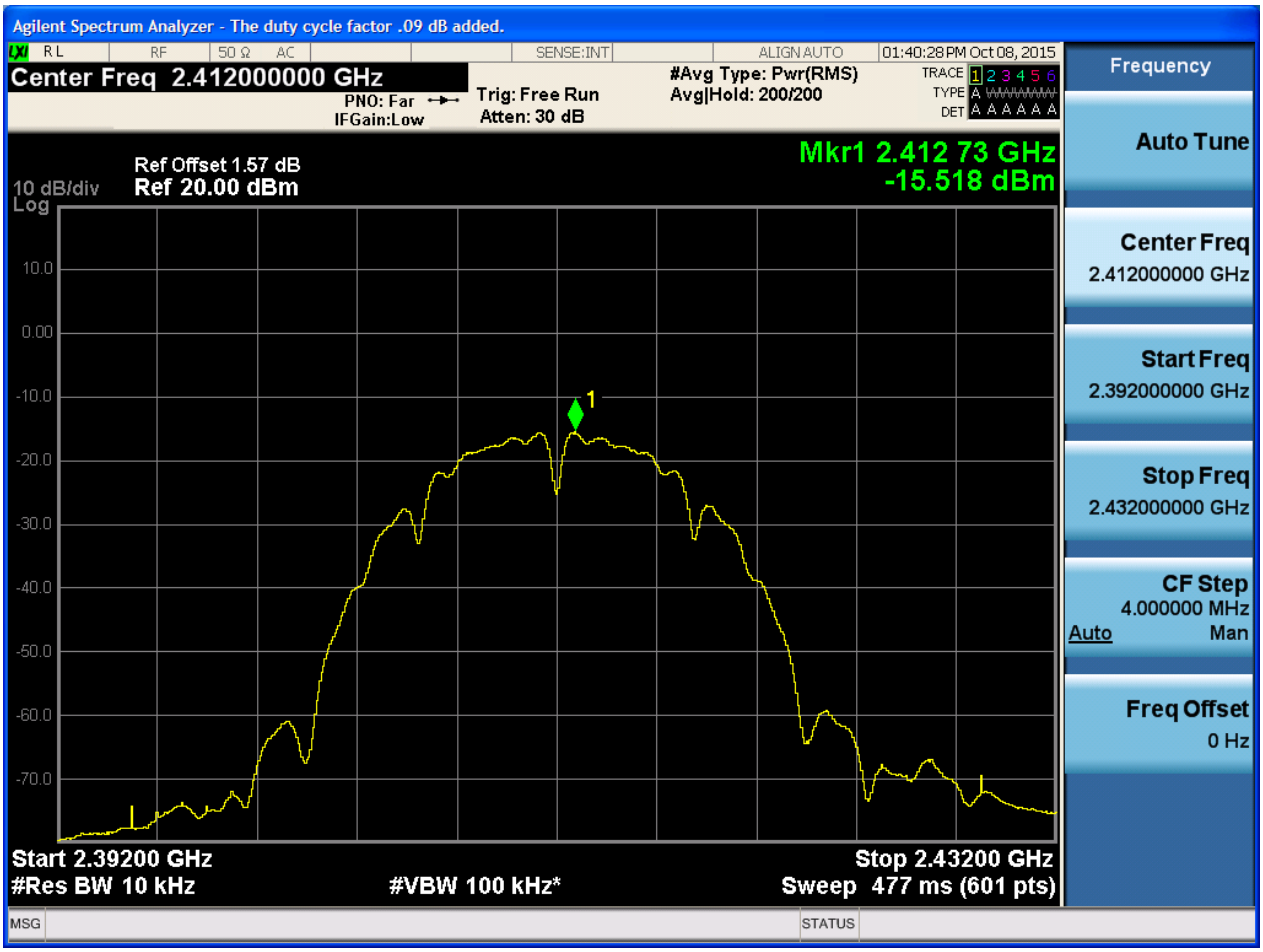
Appendix E: Maximum Power Spectral Density Level

Part I - Test Results

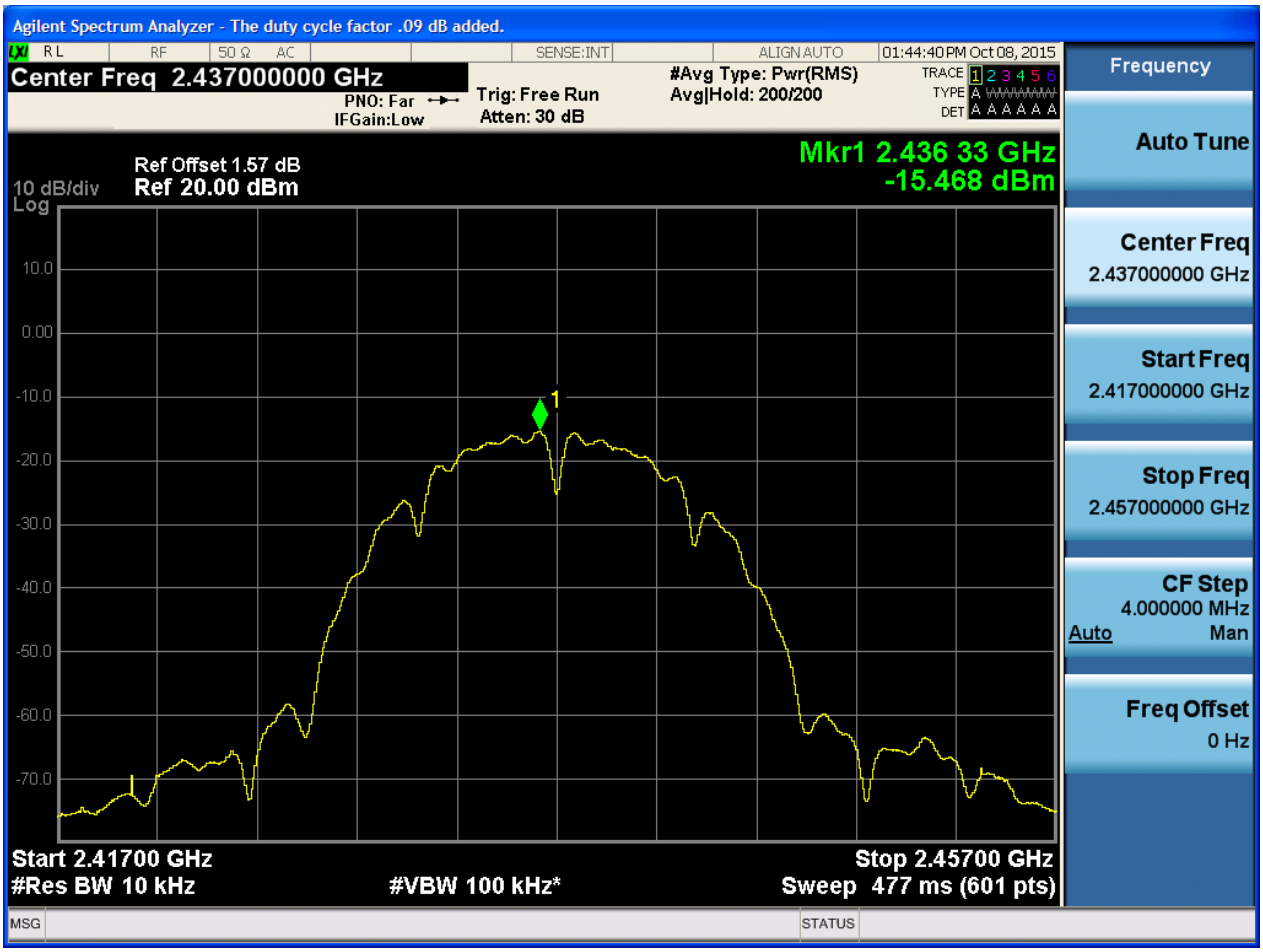
Test Mode	Test Channel	Frequency[MHz]	Ant	PD[MHz]	Verdict
11B	L	2412	Ant 1	-15.52	pass
11B	M	2437	Ant 1	-15.47	pass
11B	H	2462	Ant 1	-15.37	pass
11G	L	2412	Ant 1	-19.65	pass
11G	M	2437	Ant 1	-18.82	pass
11G	H	2462	Ant 1	-19.39	pass
11N20	L	2412	Ant 1	-20.17	pass
11N20	M	2437	Ant 1	-19.61	pass
11N20	H	2462	Ant 1	-20.08	pass

Part II - Test Plots

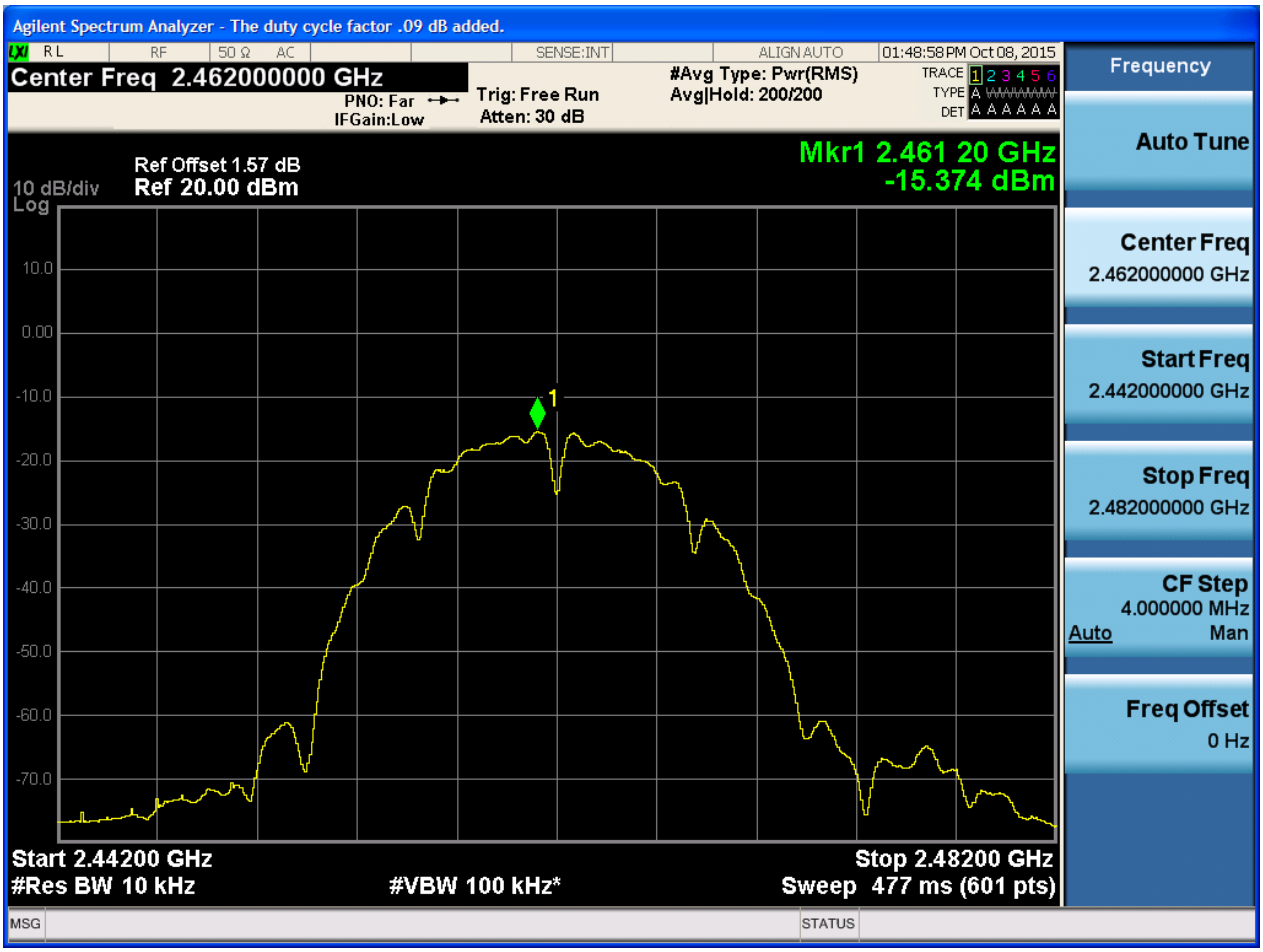
2.1 11B_L@Ant 1



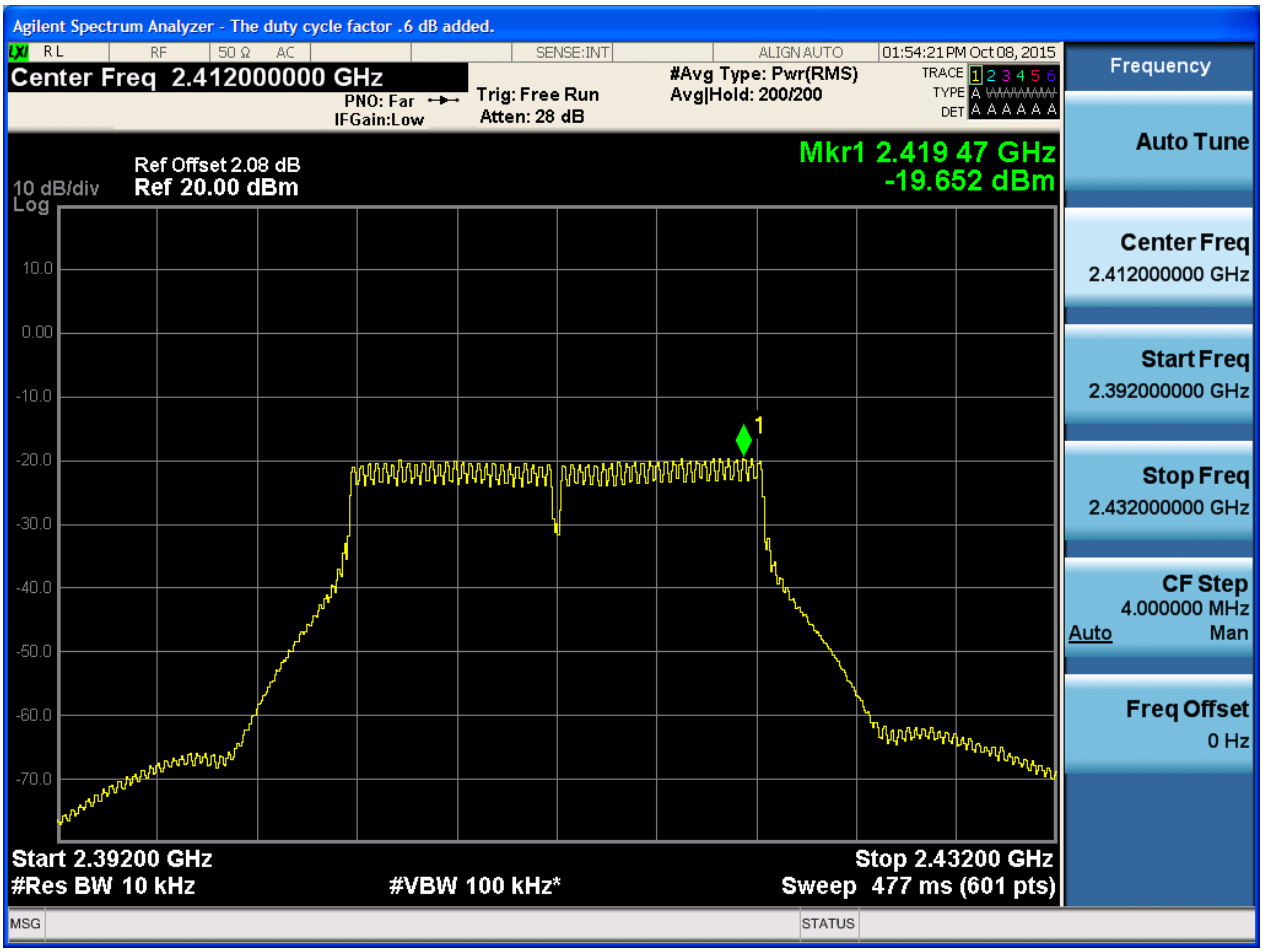
2.3 11B_M@Ant 1



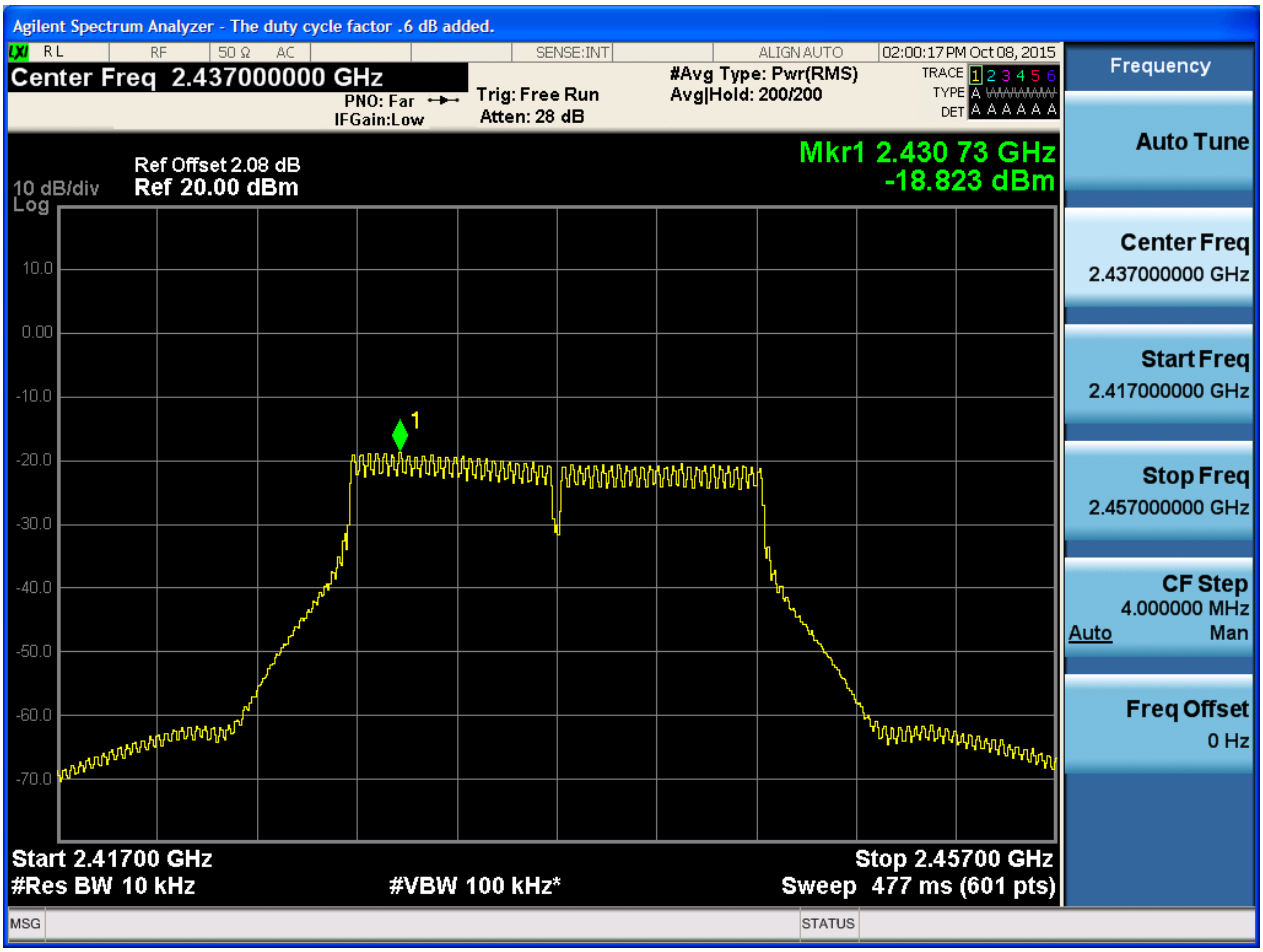
2.5 11B_H@Ant 1



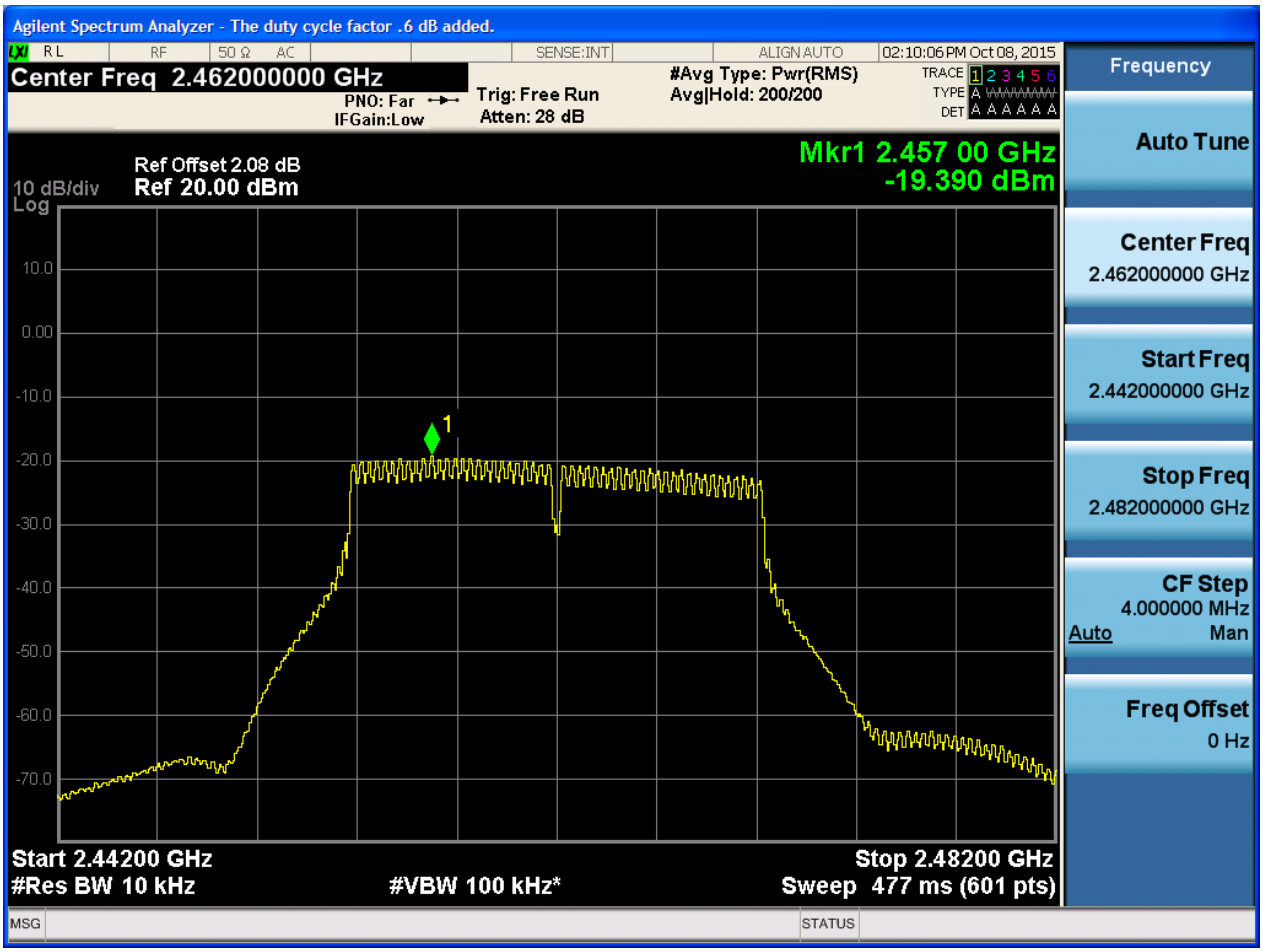
2.7 11G_L@Ant 1



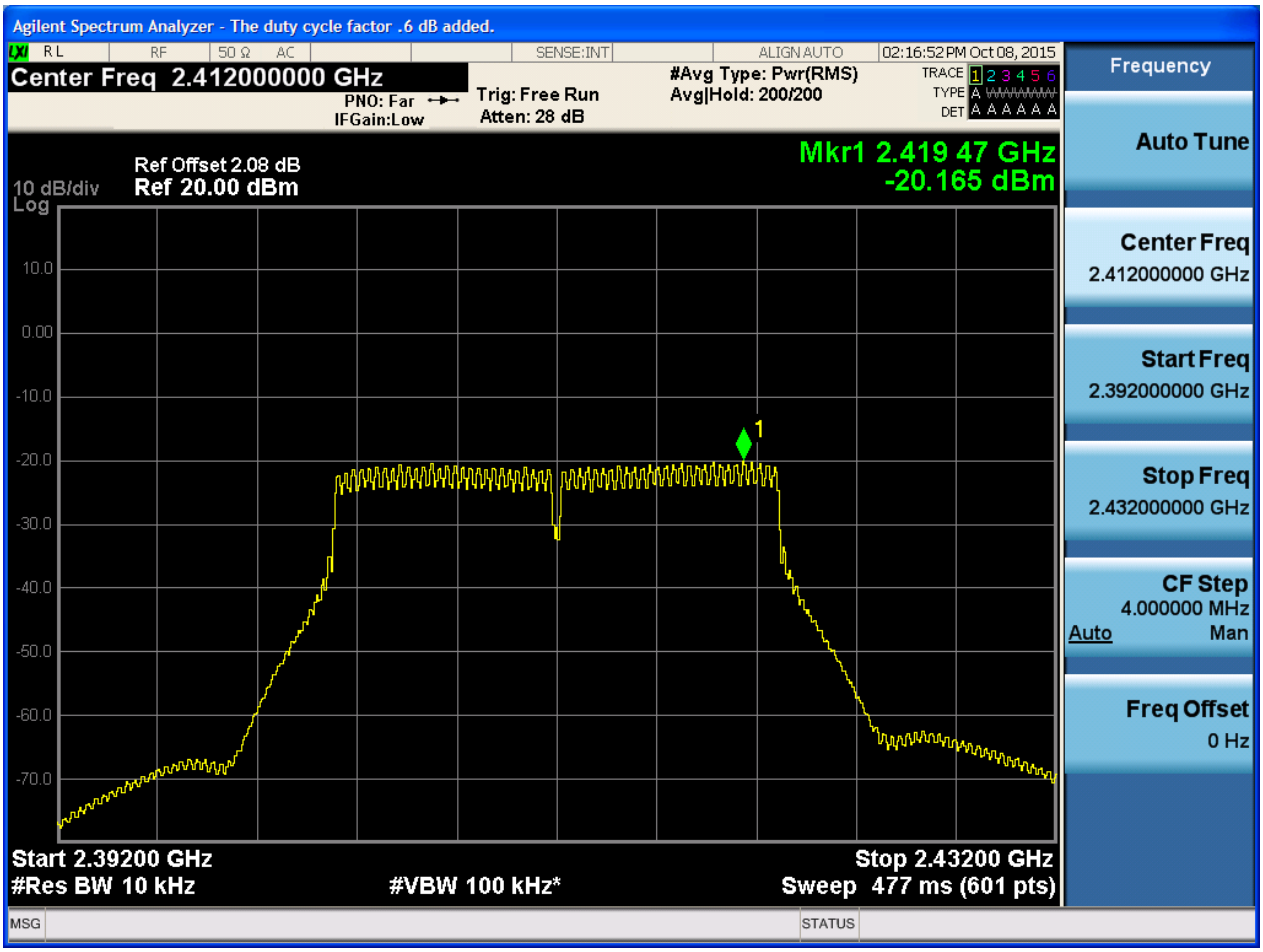
2.9 11G_M@Ant 1



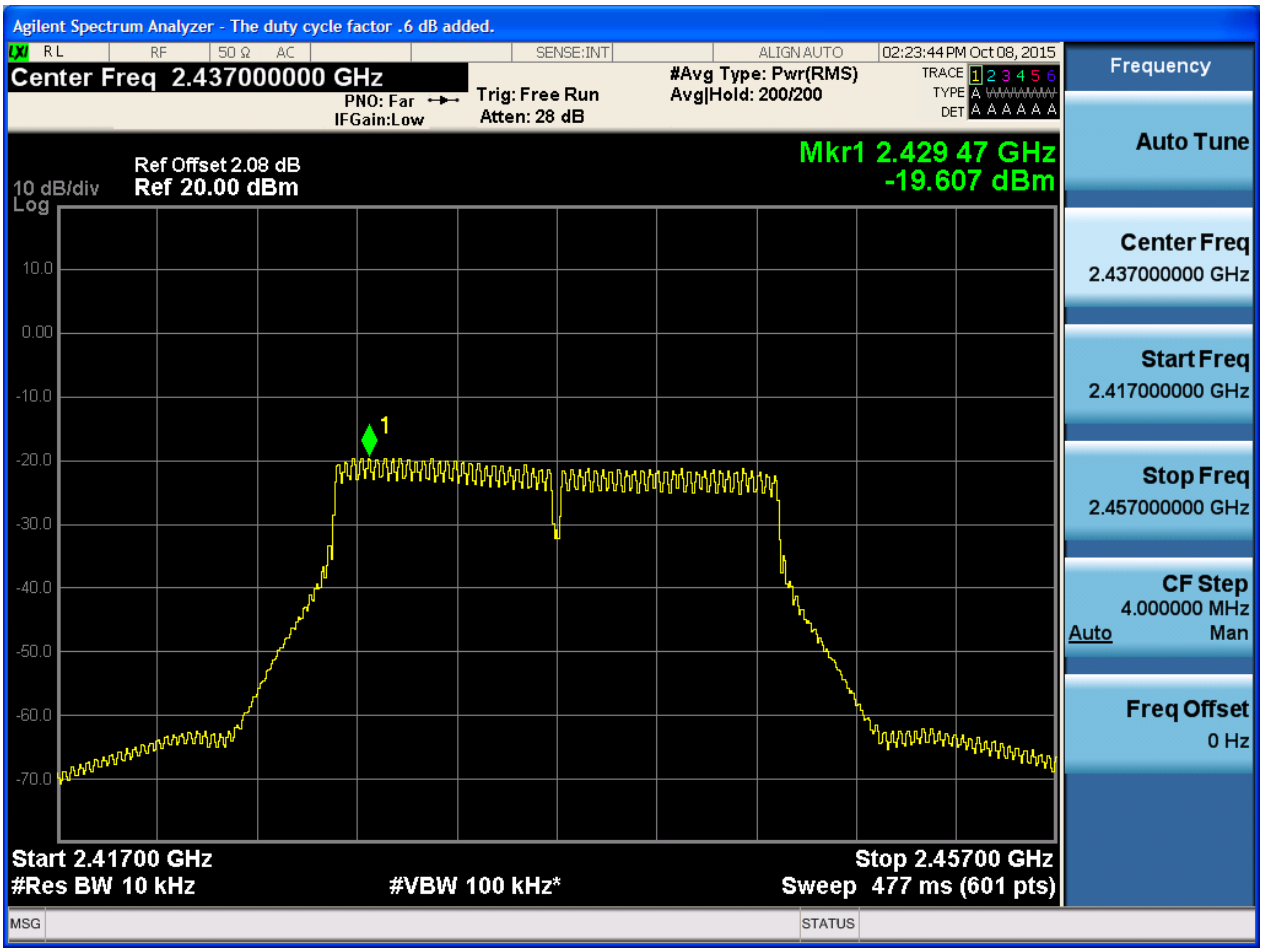
2.11 11G_H@Ant 1



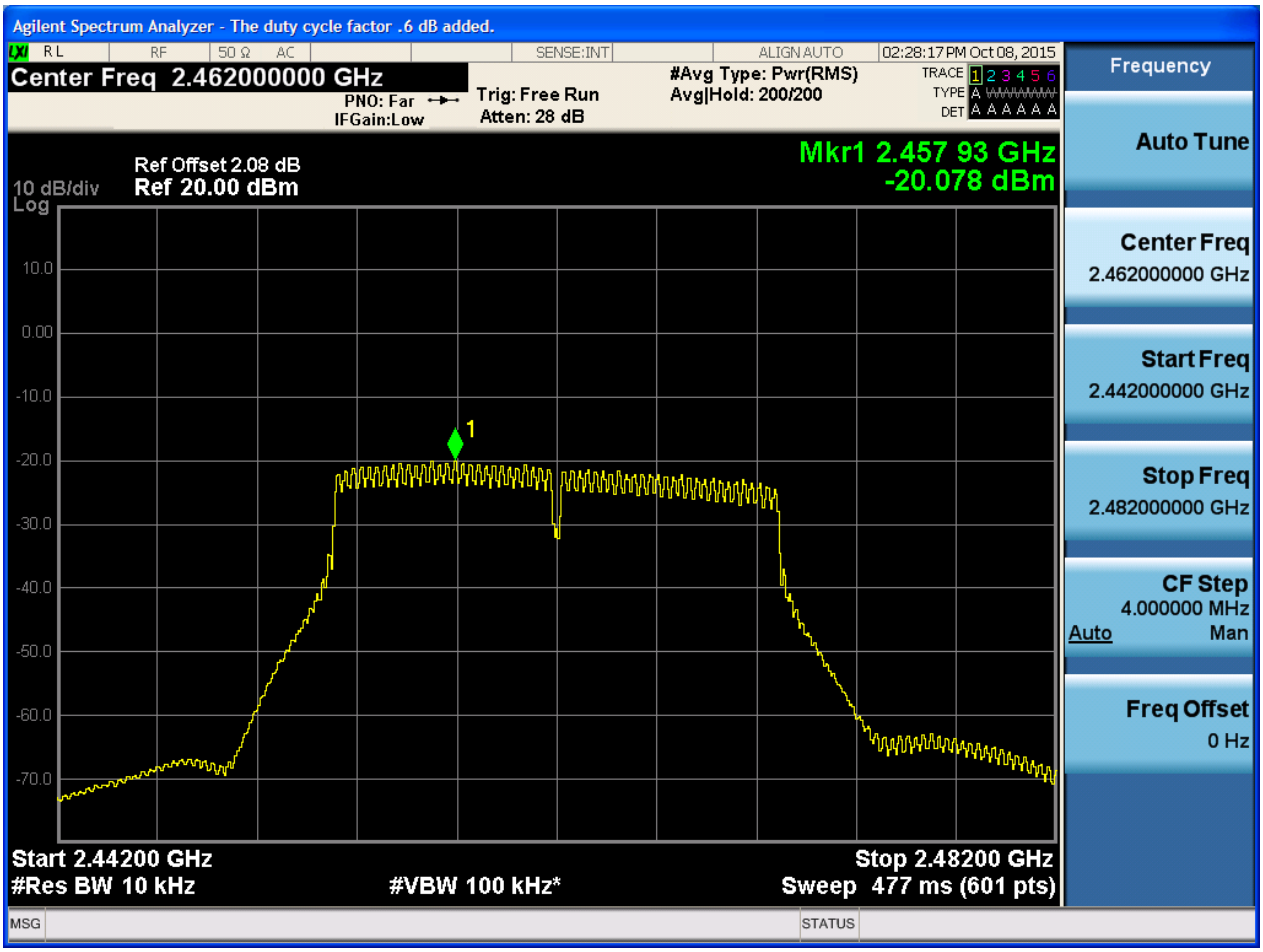
2.13 11N20_L@Ant 1



2.15 11N20_M@Ant 1



2.17 11N20_H@Ant 1



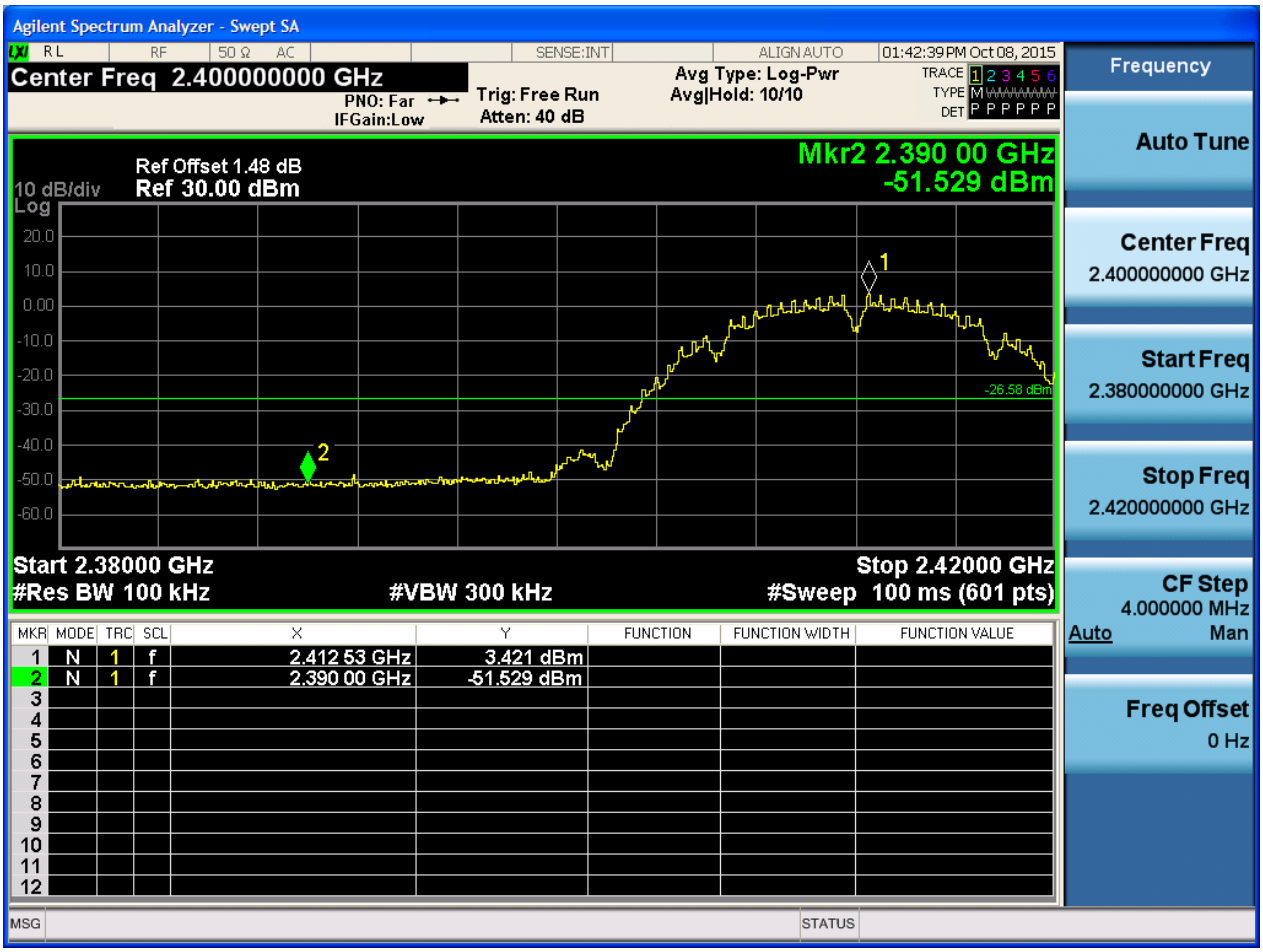
Appendix F: Band Edges Compliance

Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Carrier Power[dBm]	Max.Spurious Level[dBm]	Verdict
11B	L	2412	Ant 1	3.42	-51.53	pass
11B	H	2462	Ant 1	3.32	-50.42	pass
11G	L	2412	Ant 1	-0.78	-51.75	pass
11G	H	2462	Ant 1	-.81	-49.14	pass
11N20	L	2412	Ant 1	-1.23	-50.96	pass
11N20	H	2462	Ant 1	-1.30	-48.54	pass

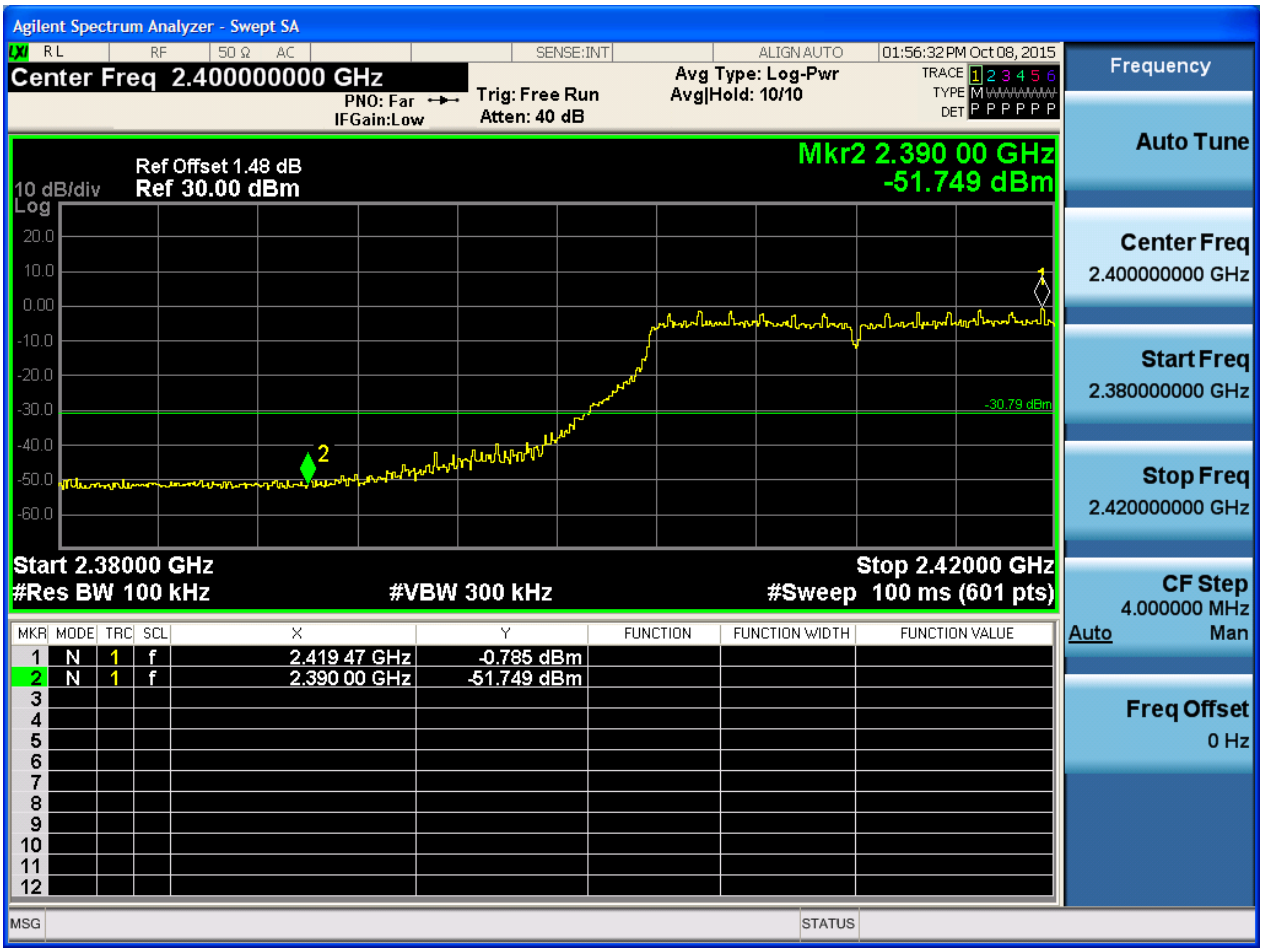
Part II - Test Plots

2.1 11B_L@Ant 1

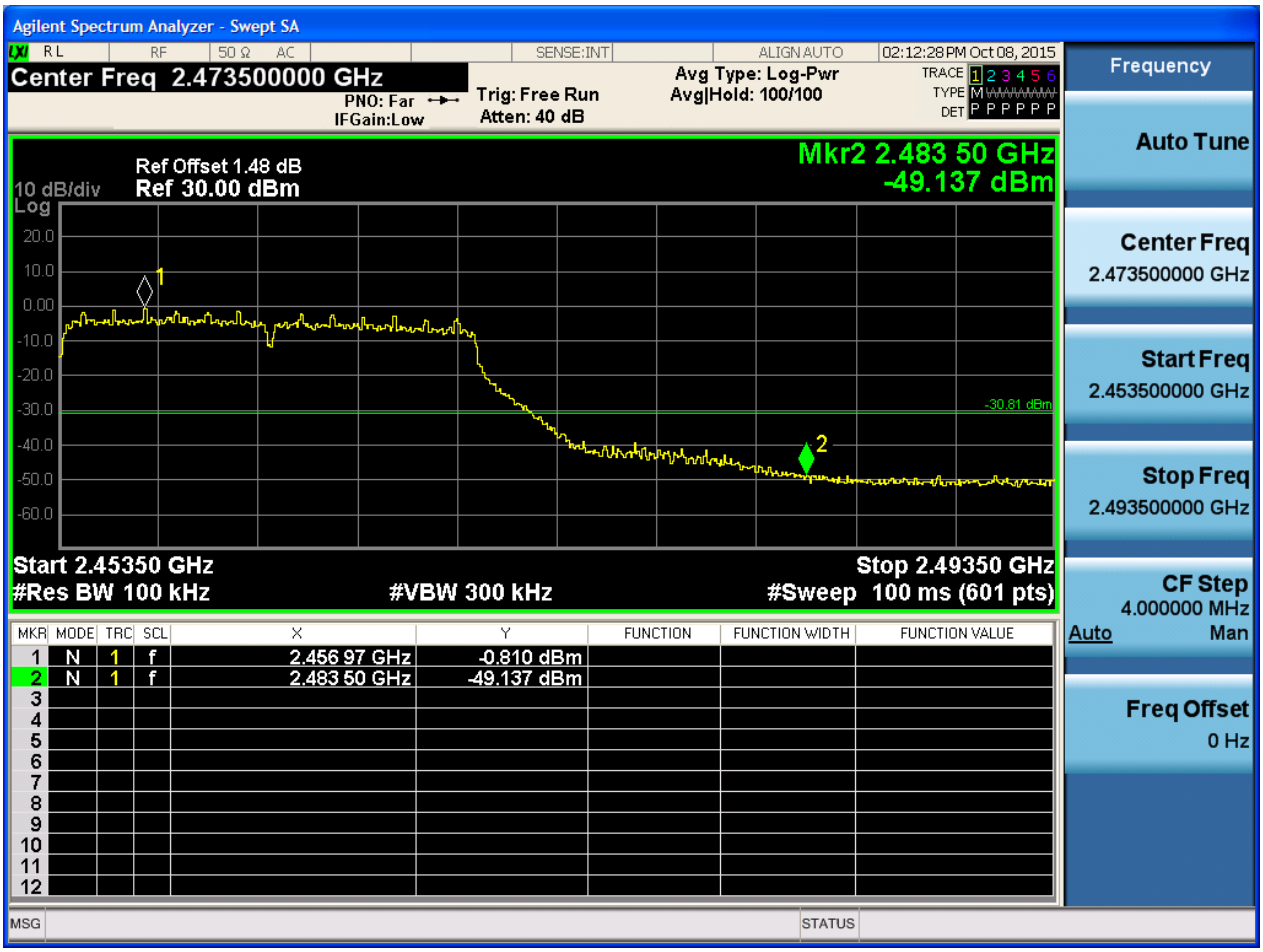


2.3 11B_H@Ant 1

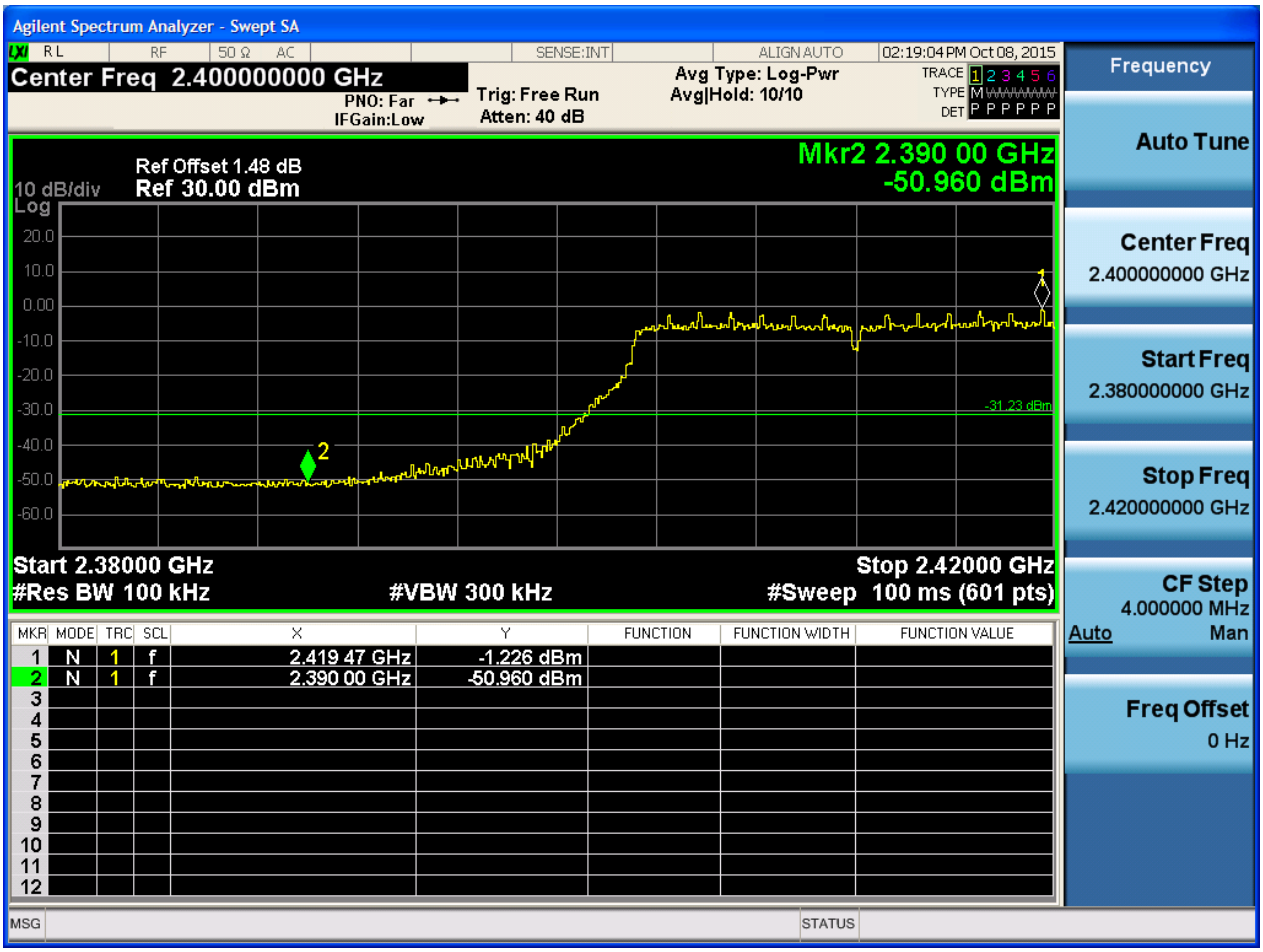
2.5 11G_L@Ant 1



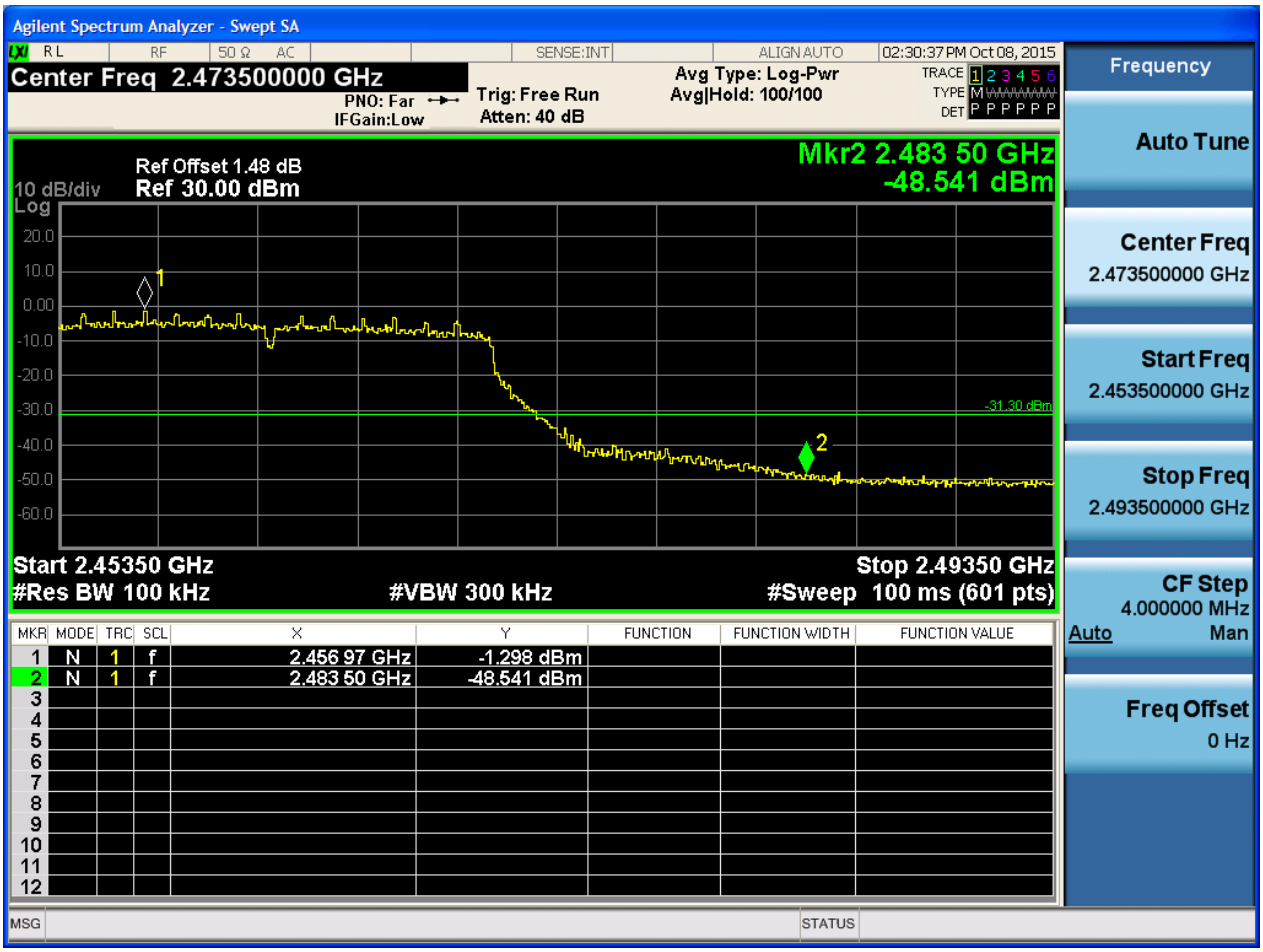
2.7 11G_H@Ant 1



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" referrers 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 x lg(100 [kHz]/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".

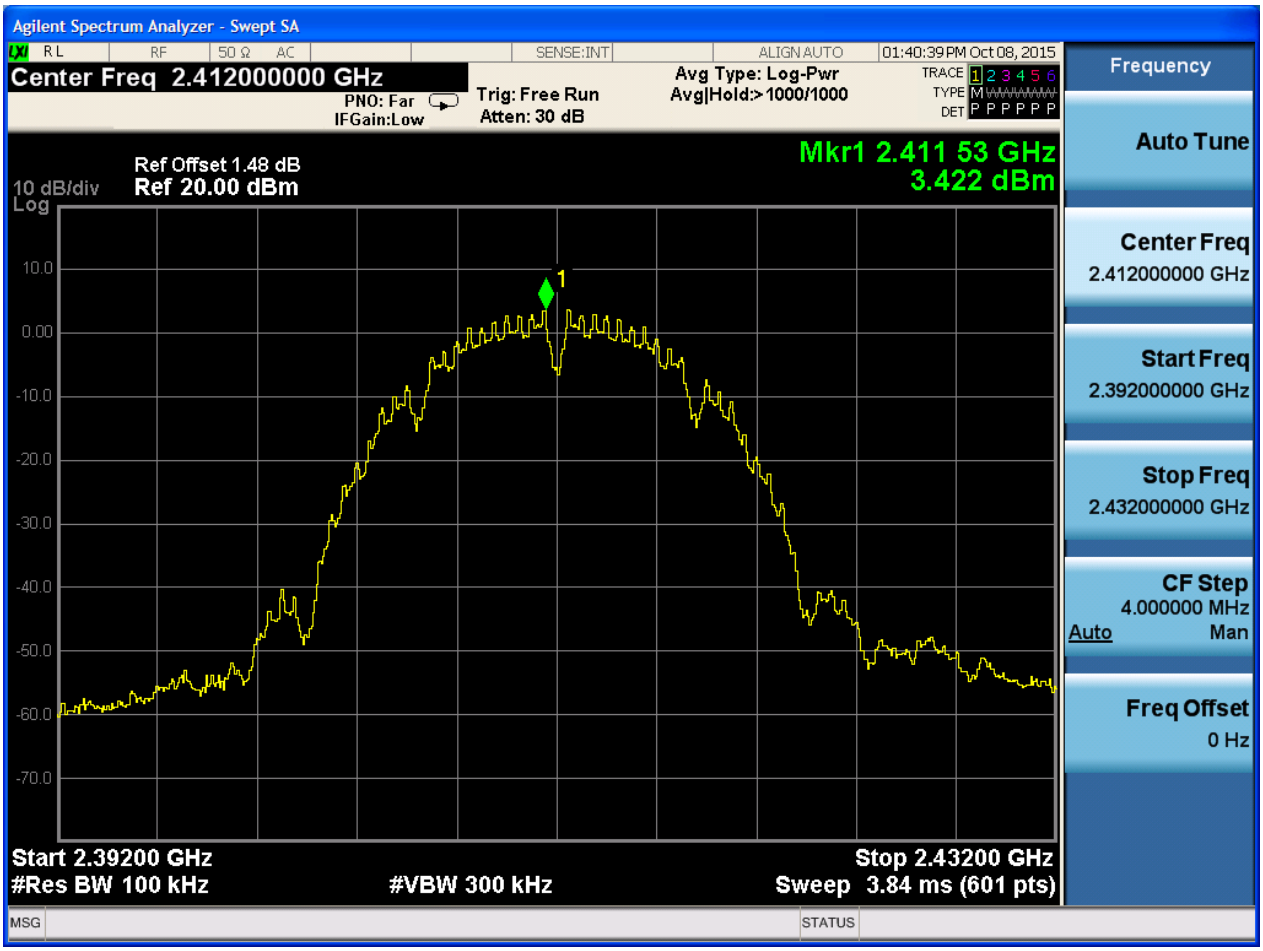
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Pref[dBm]	Puw[dBm]	Verdict
11B	L	2412	Ant 1	3.42	<limit	pass
11B	M	2437	Ant 1	3.44	<limit	pass
11B	H	2462	Ant 1	3.28	<limit	pass
11G	L	2412	Ant 1	-0.73	<limit	pass
11G	M	2437	Ant 1	0.09	<limit	pass
11G	H	2462	Ant 1	-0.69	<limit	pass
11N20	L	2412	Ant 1	-1.15	<limit	pass
11N20	M	2437	Ant 1	-0.35	<limit	pass
11N20	H	2462	Ant 1	-1.16	<limit	pass

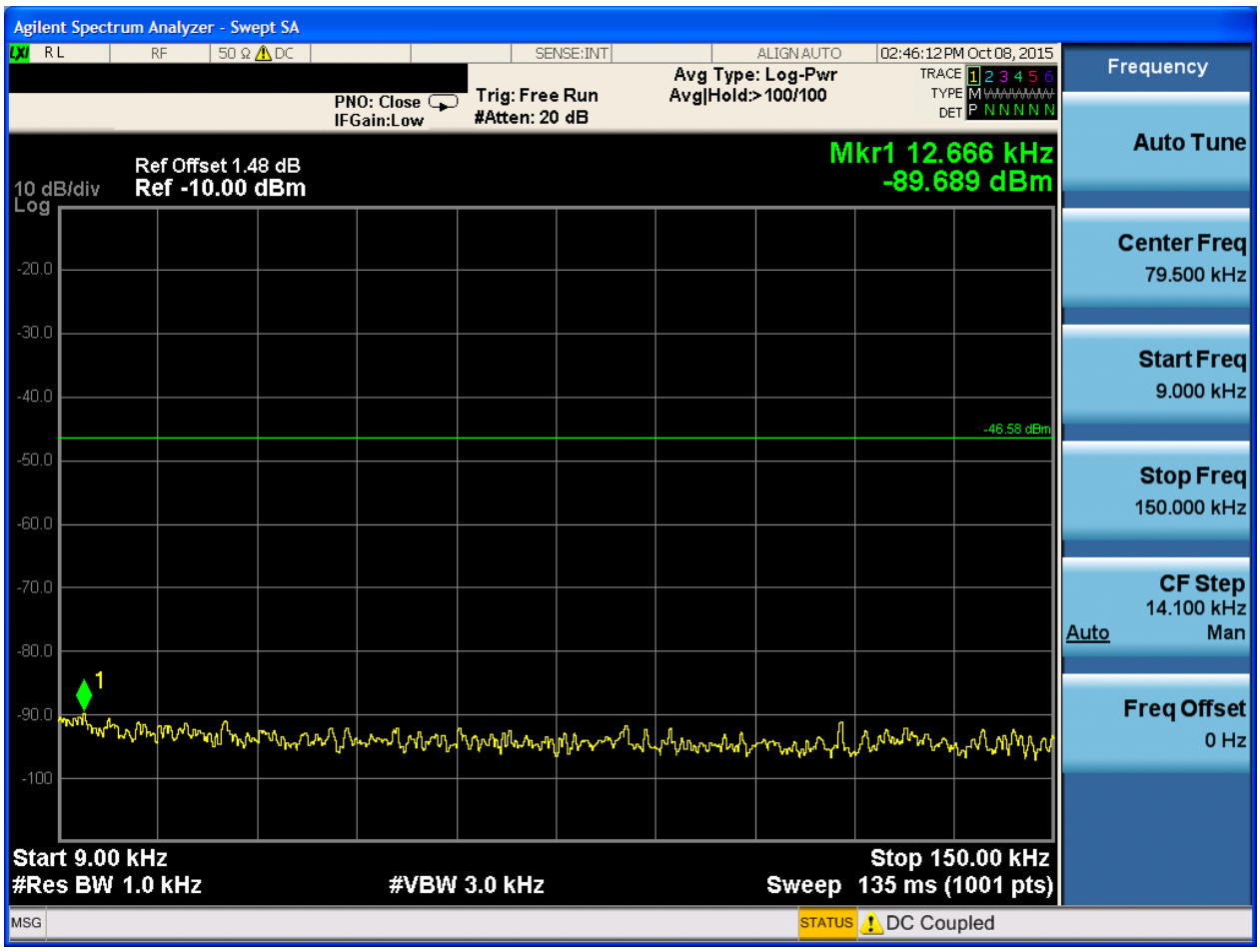
Part II - Test Plots

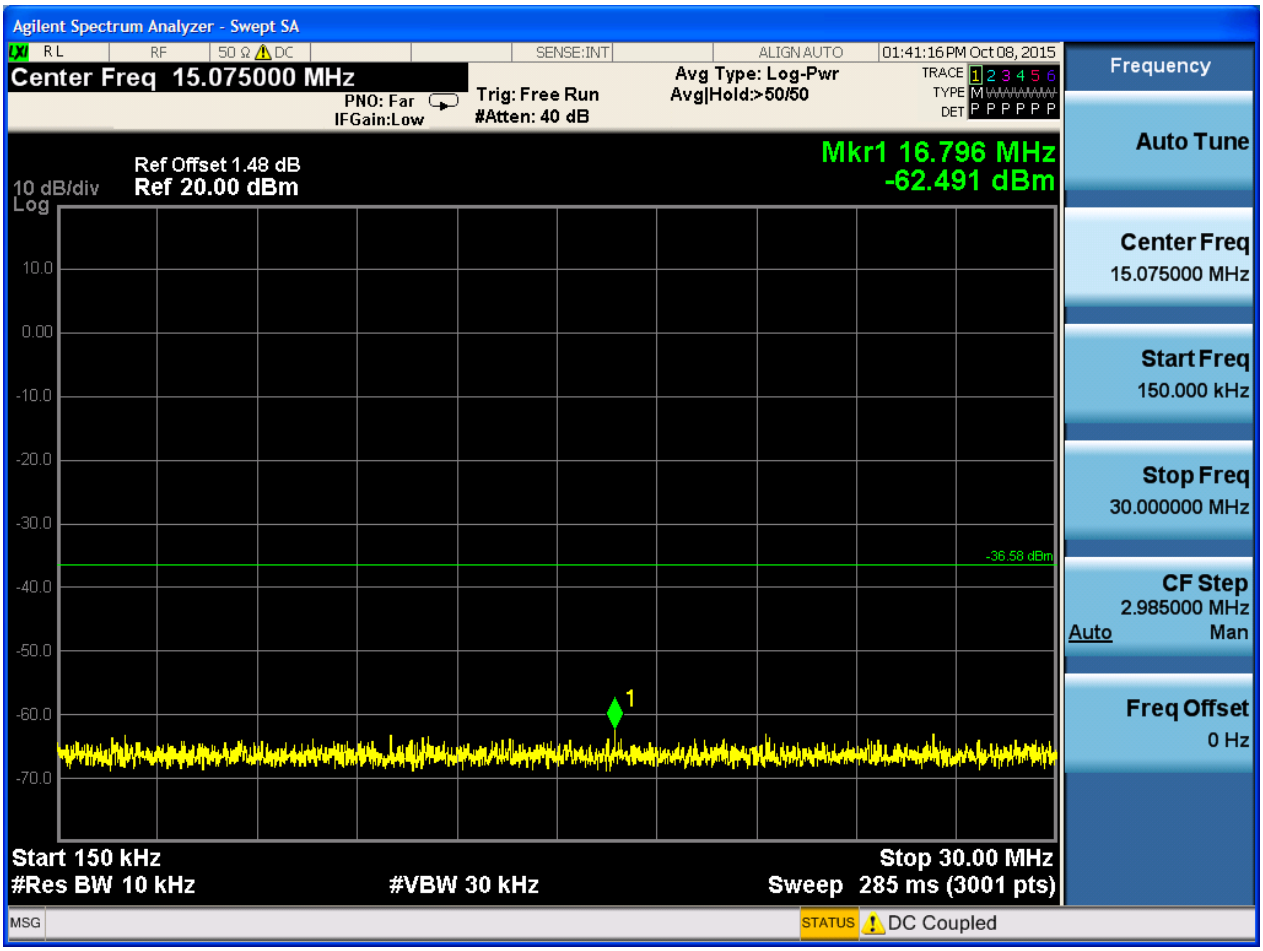
2.1 11B_L@Ant 1

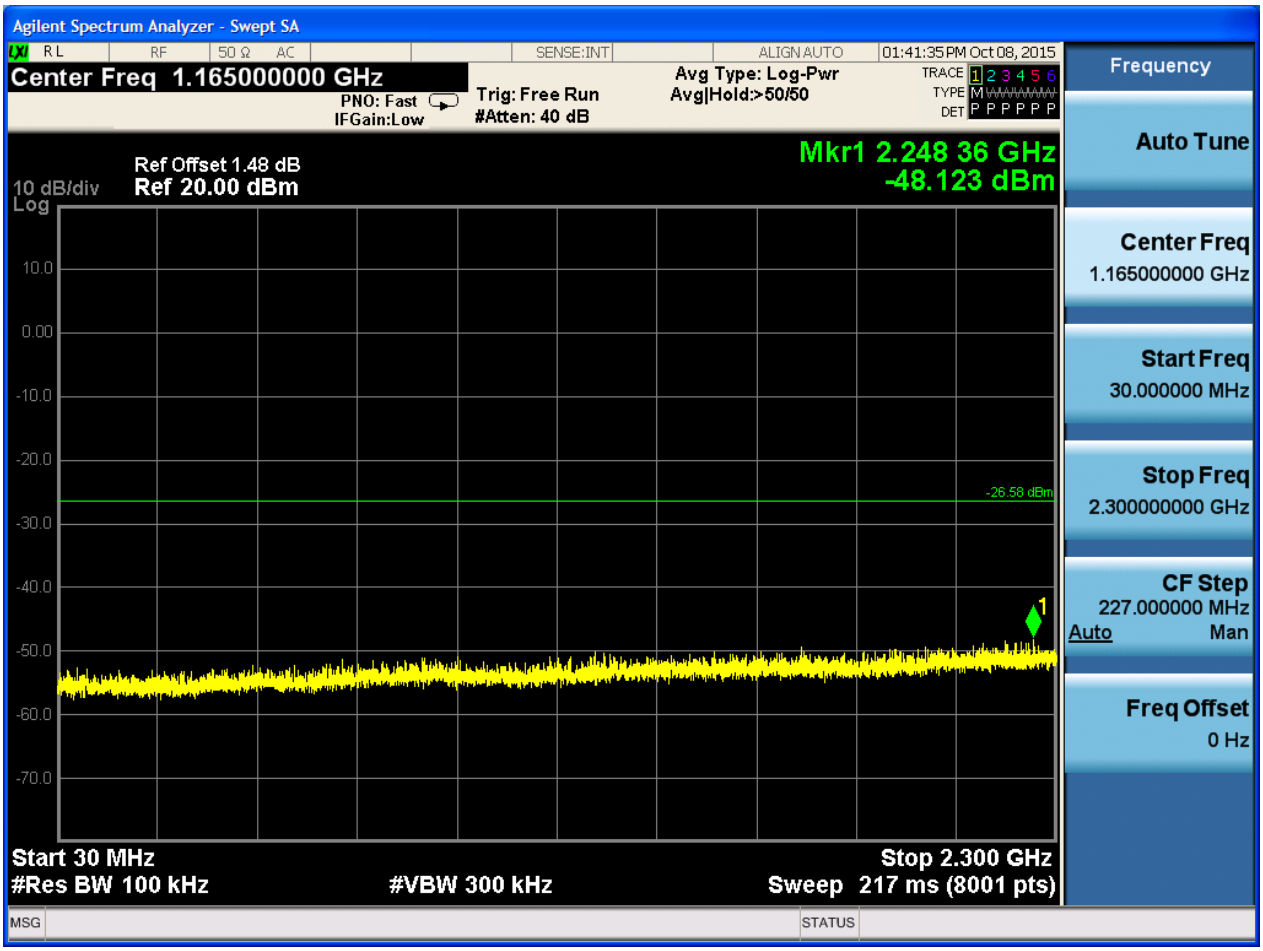
Pref:

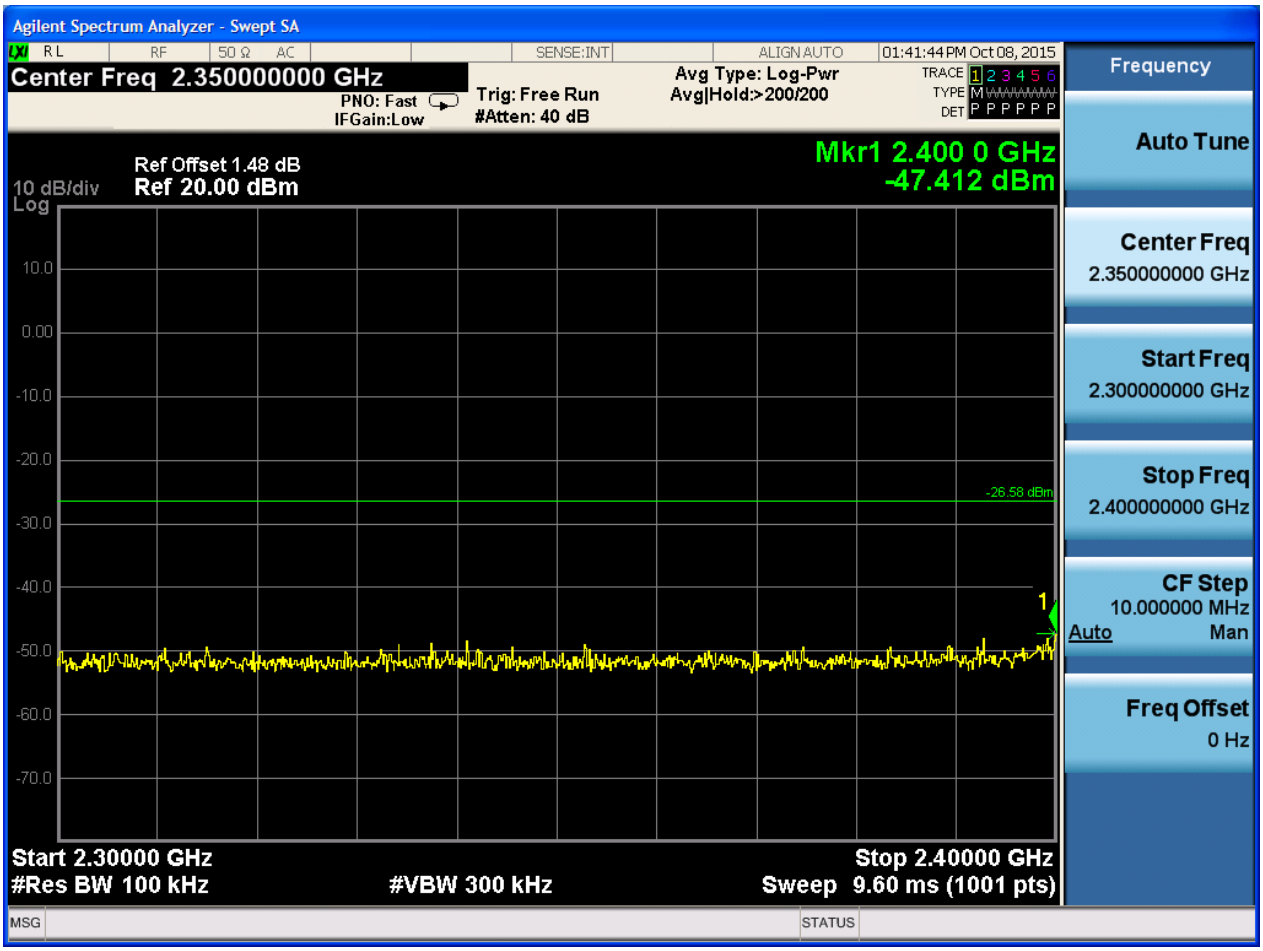


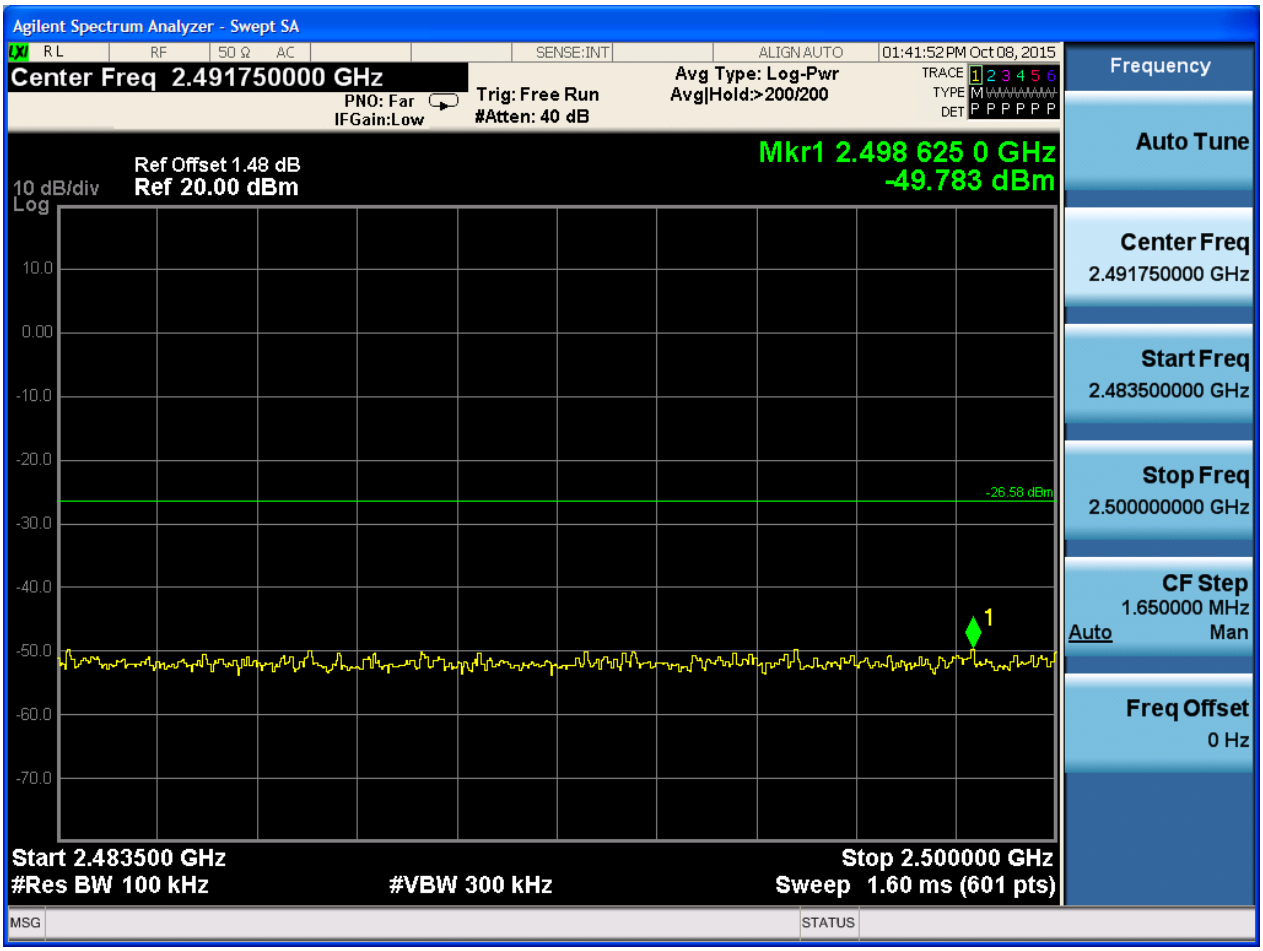
Puw:

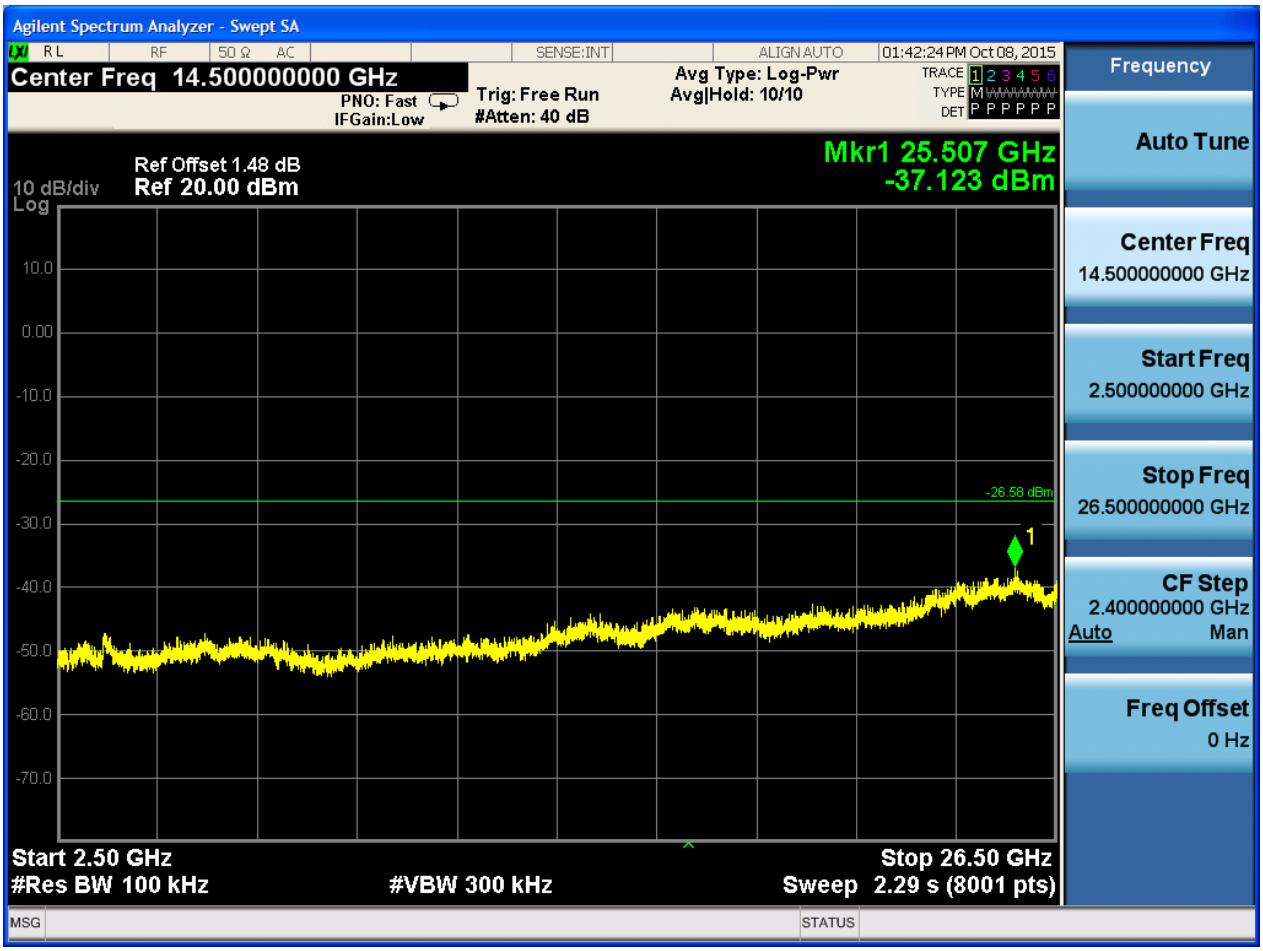












2.3 11B_M@Ant 1

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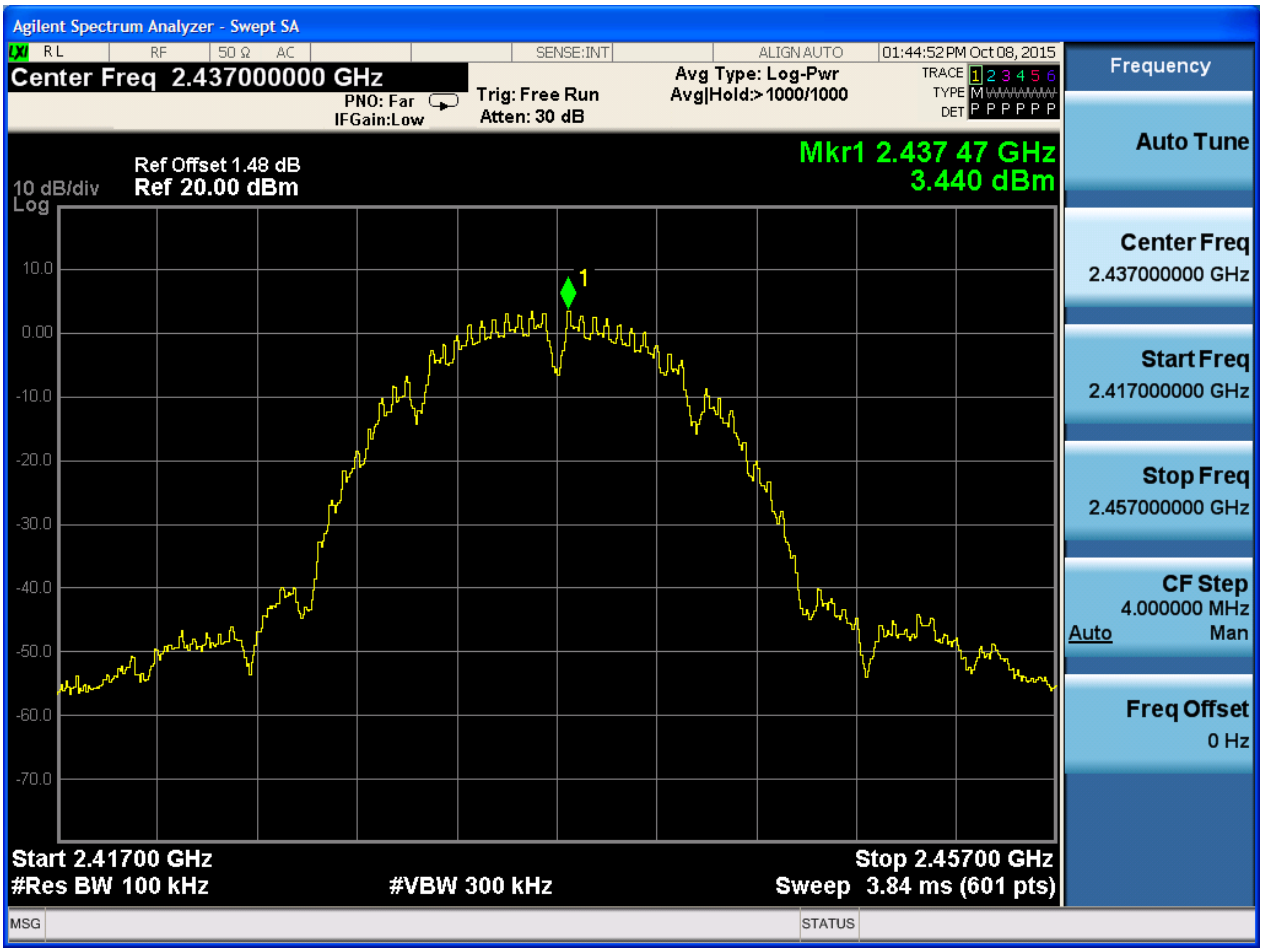

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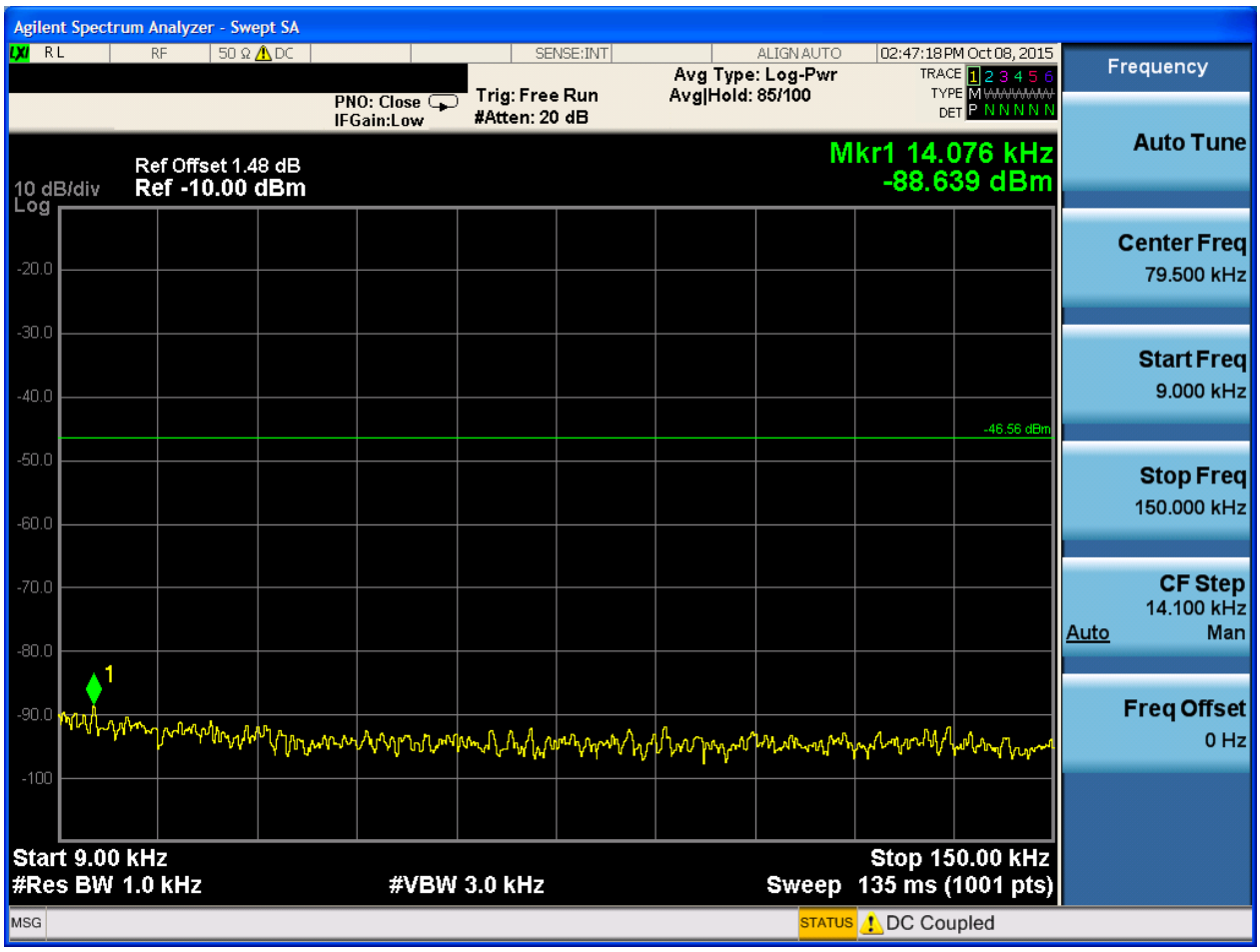

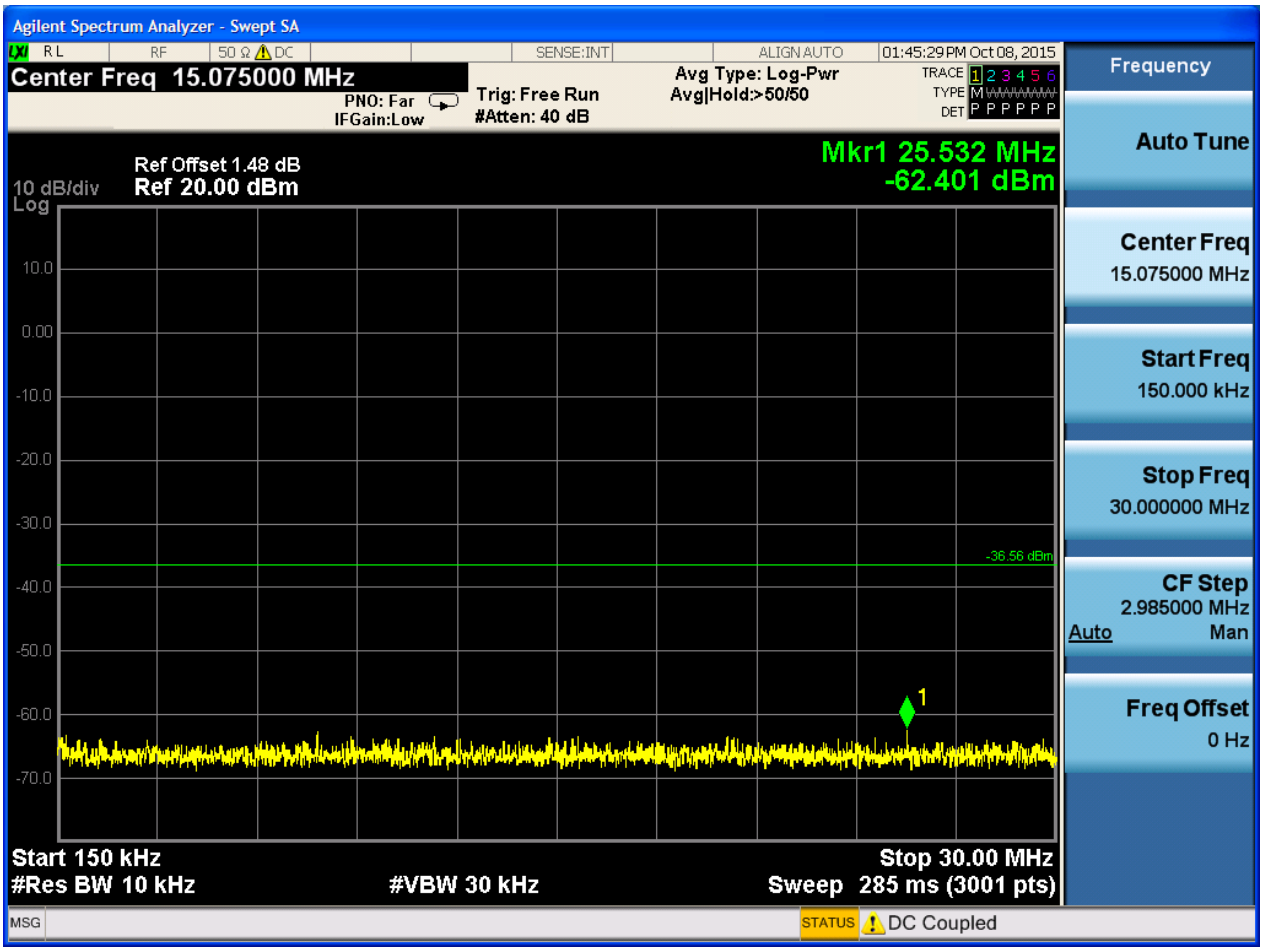

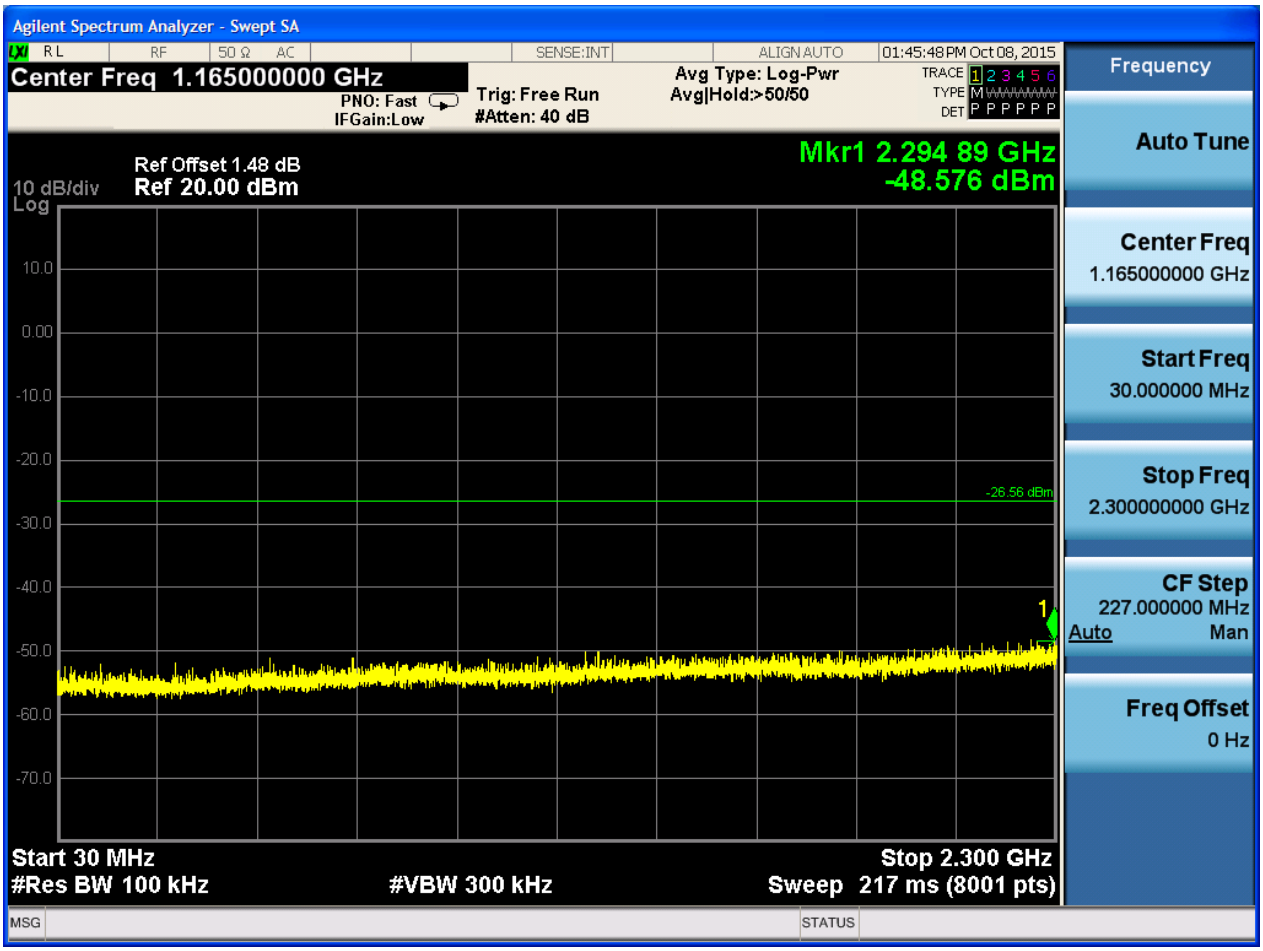

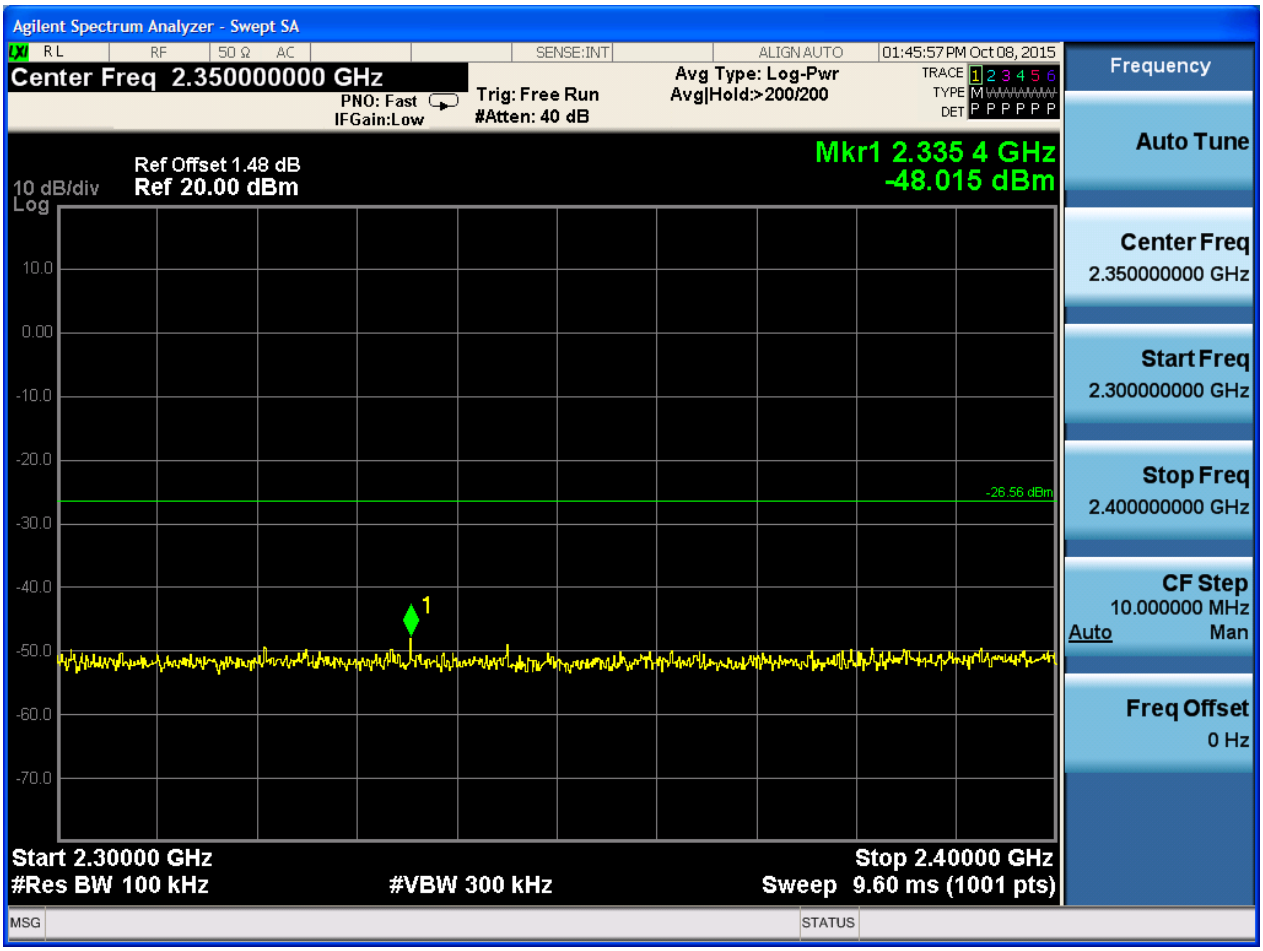

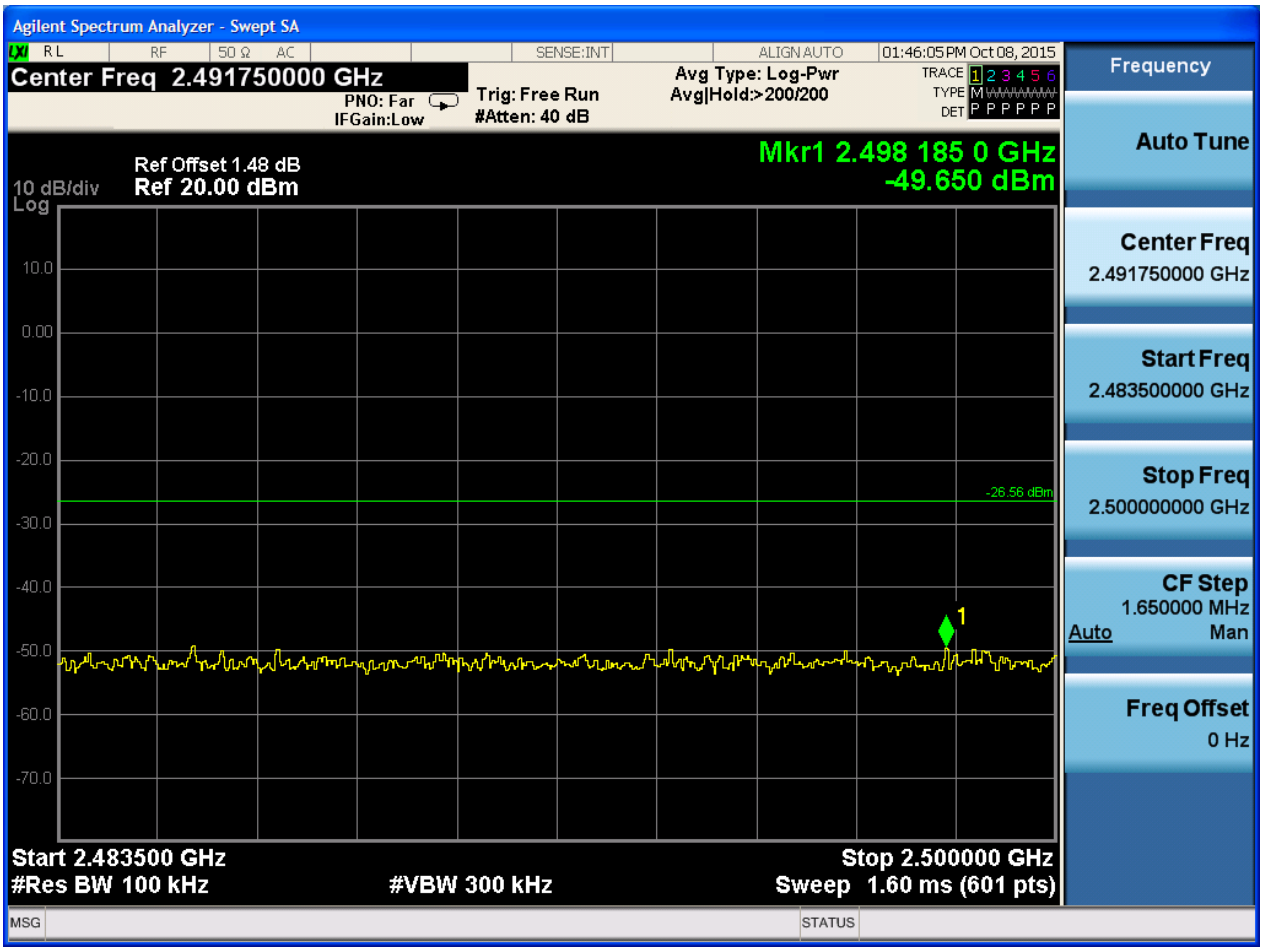

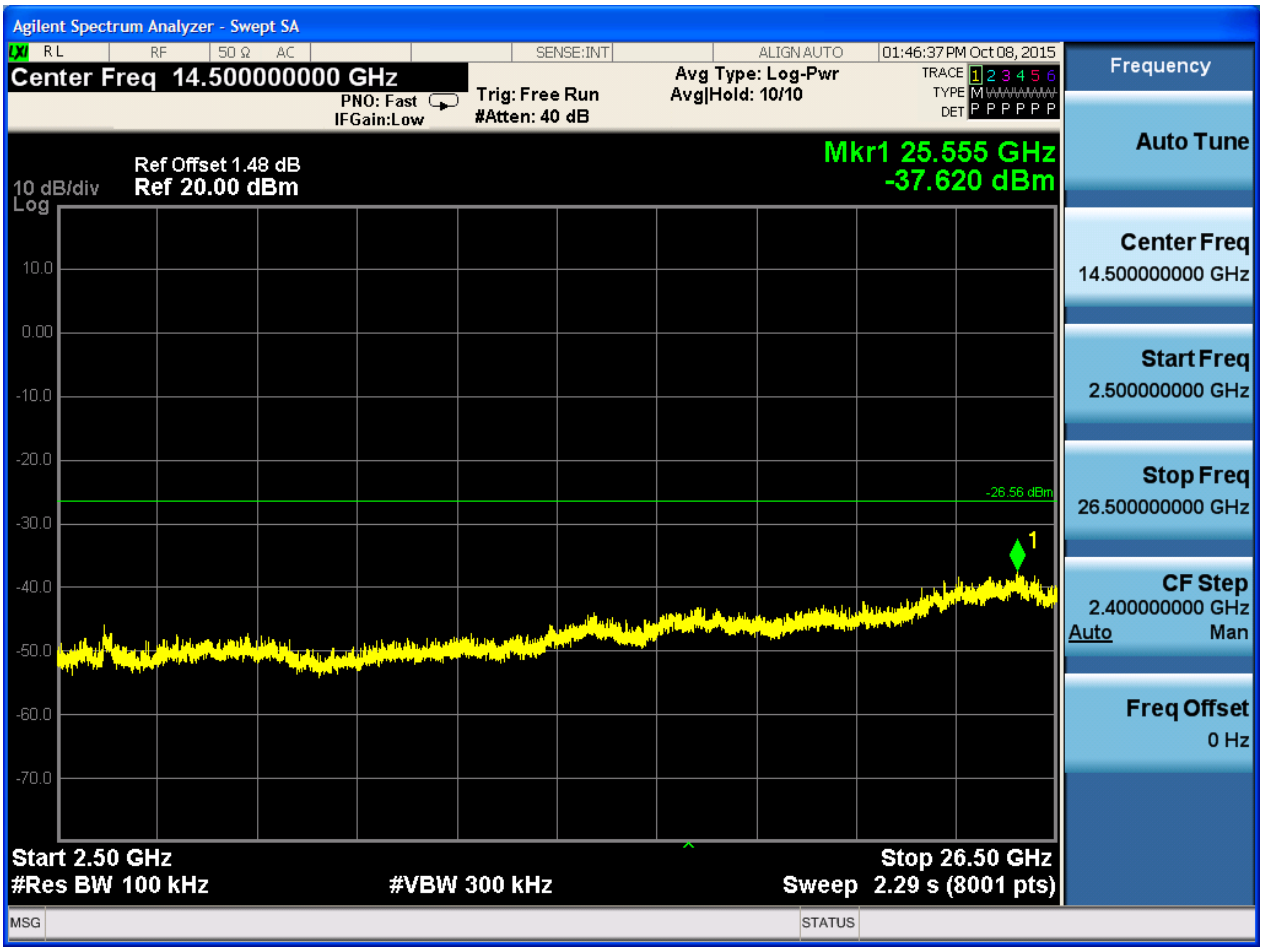

2.5 11B_H@Ant 1

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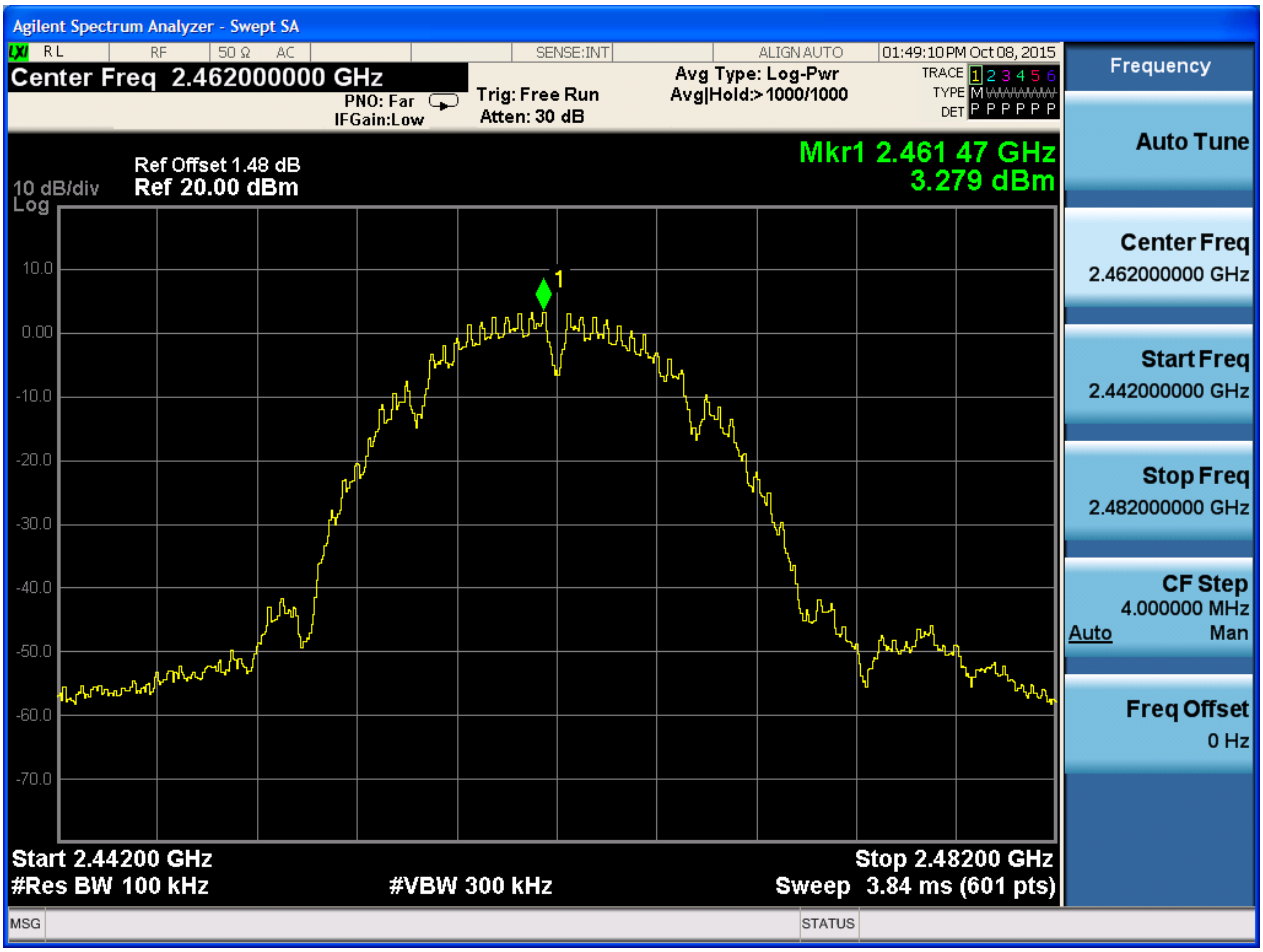

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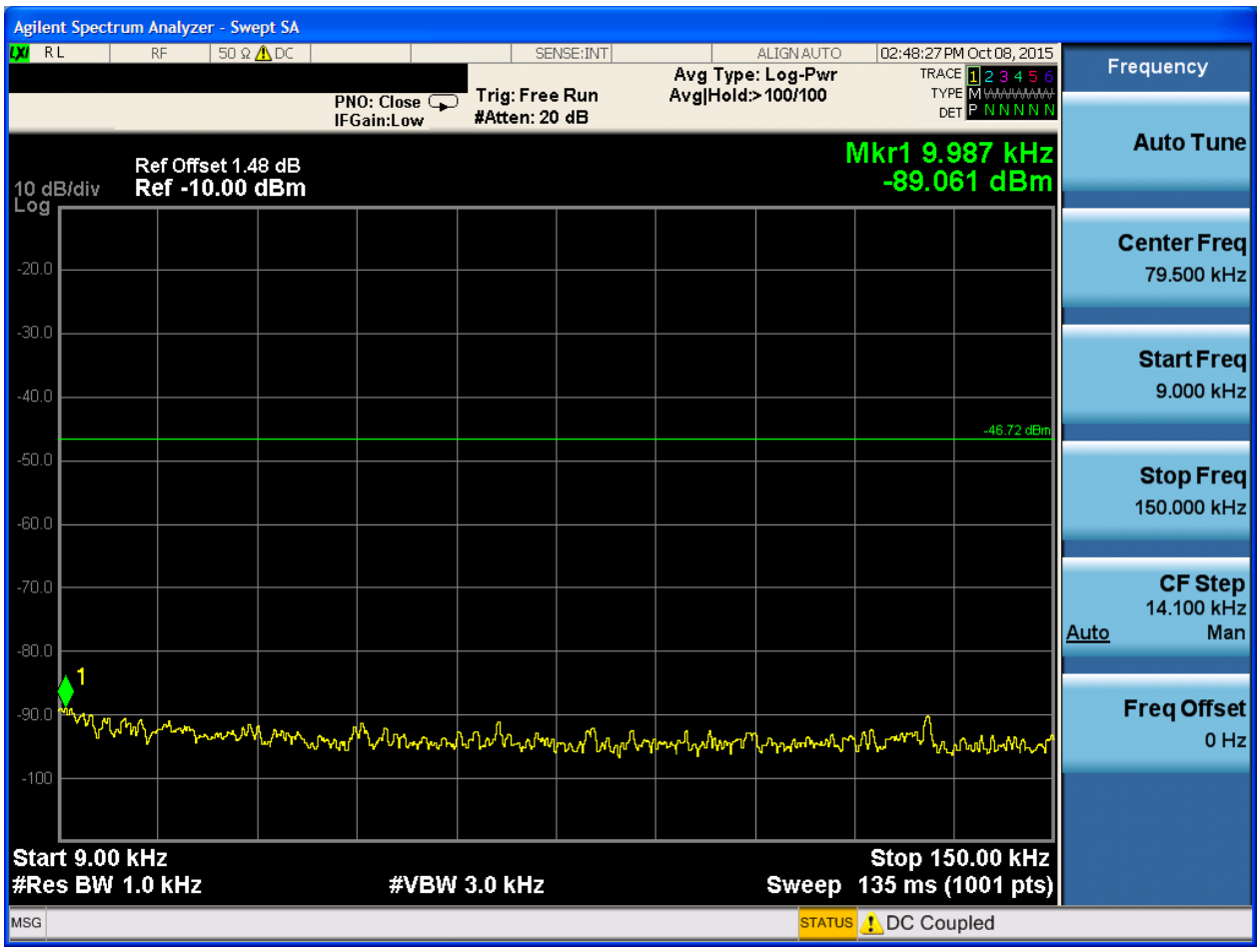

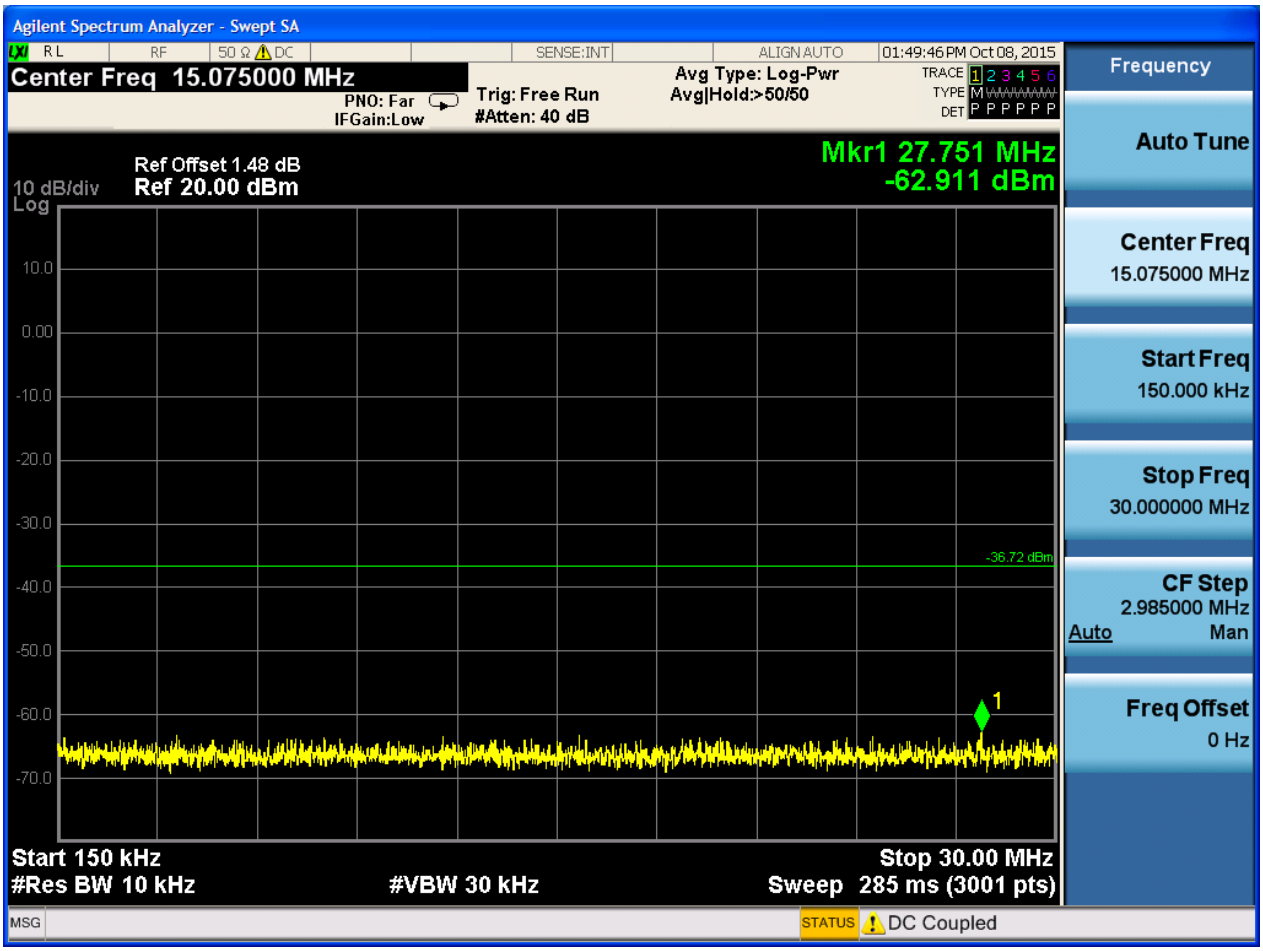

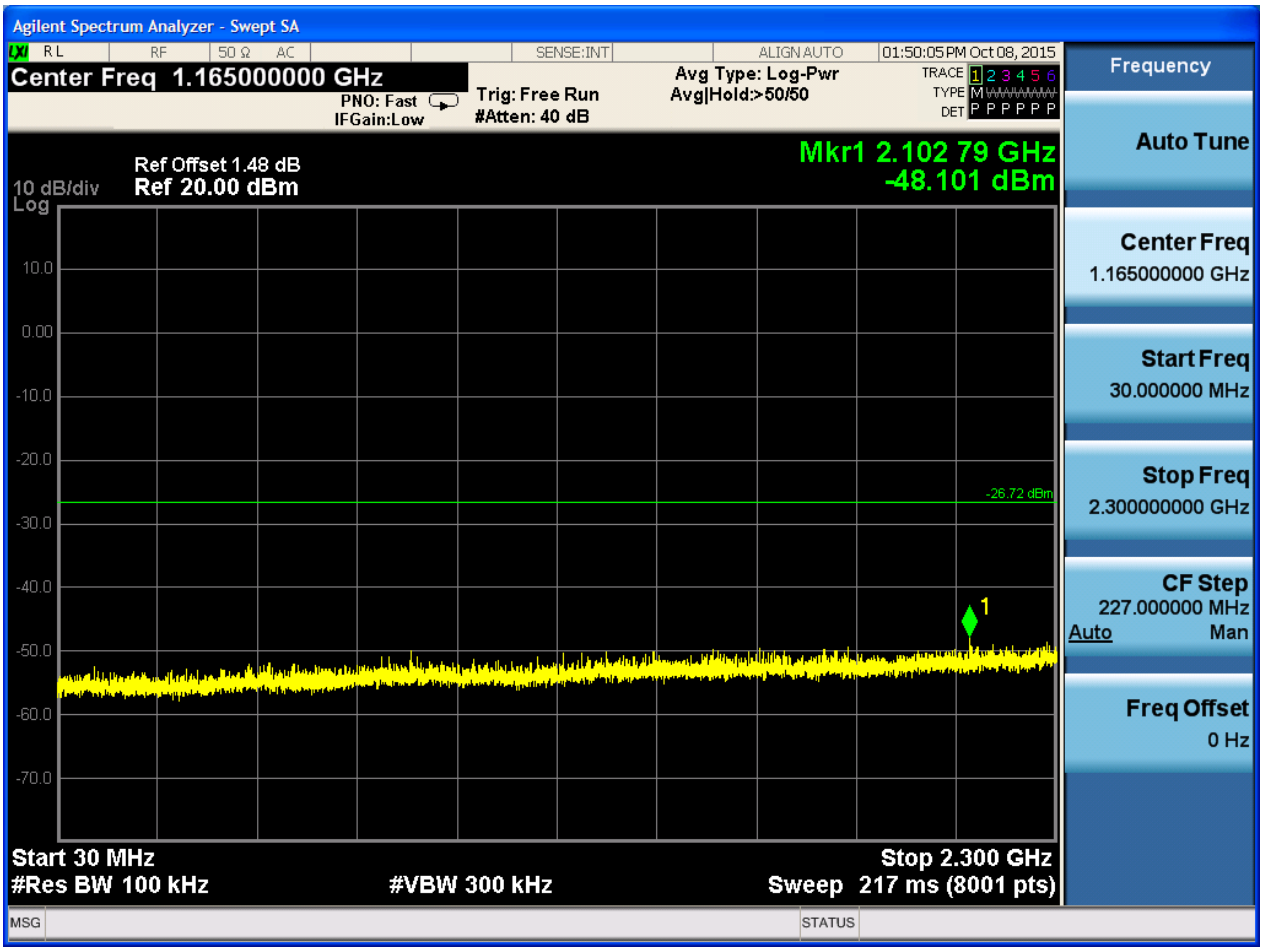

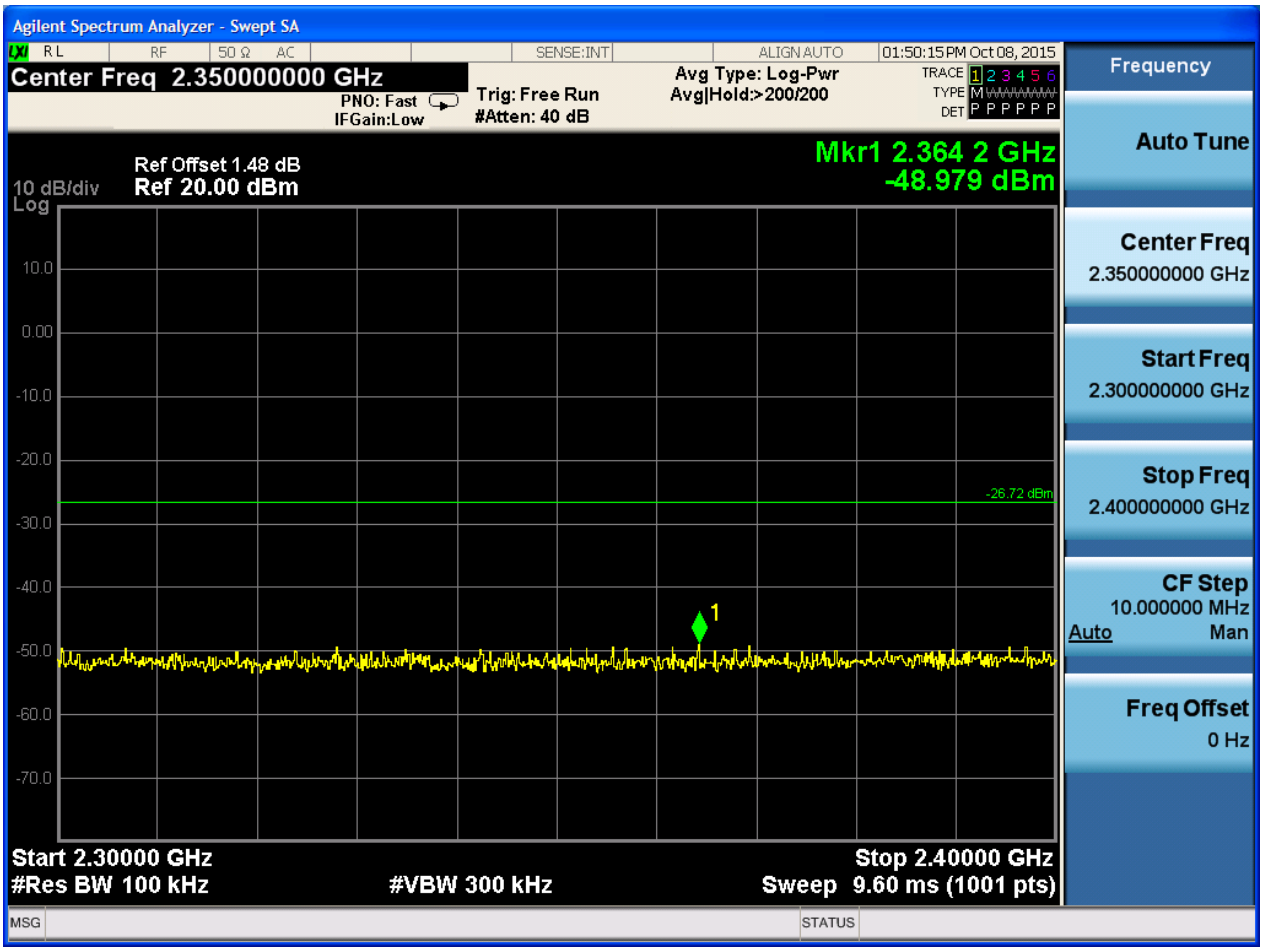

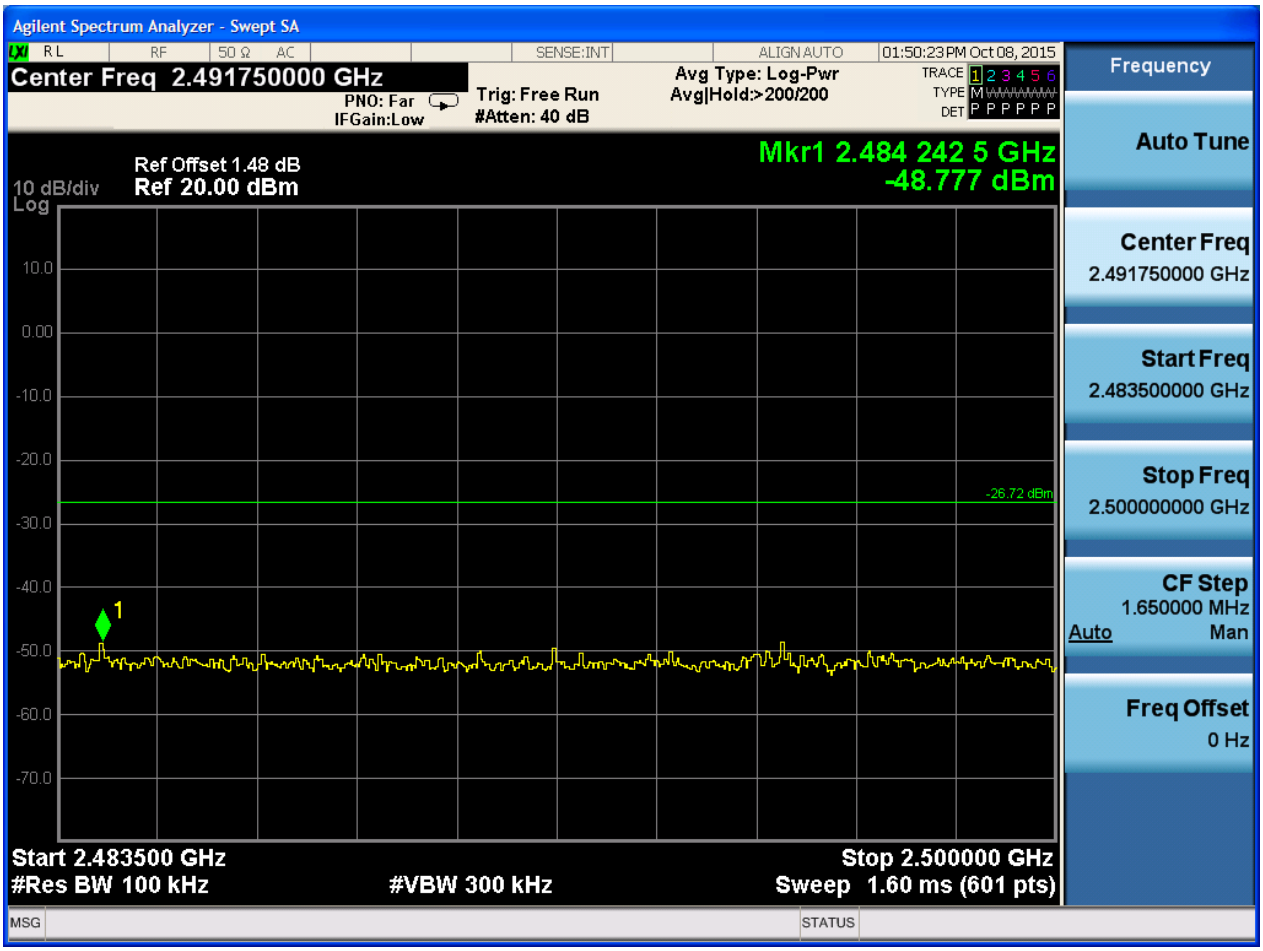

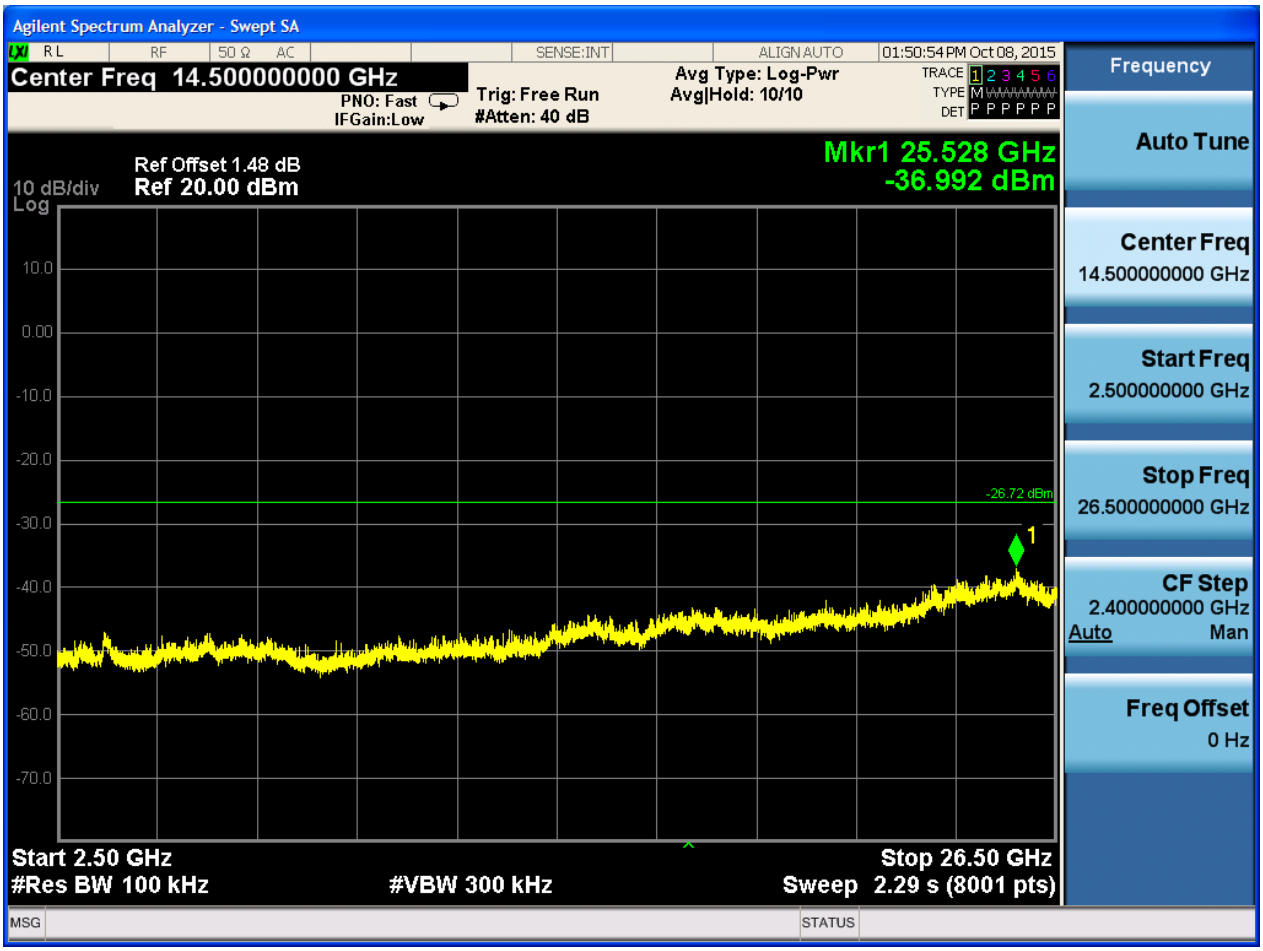

2.7 11G_L@Ant 1

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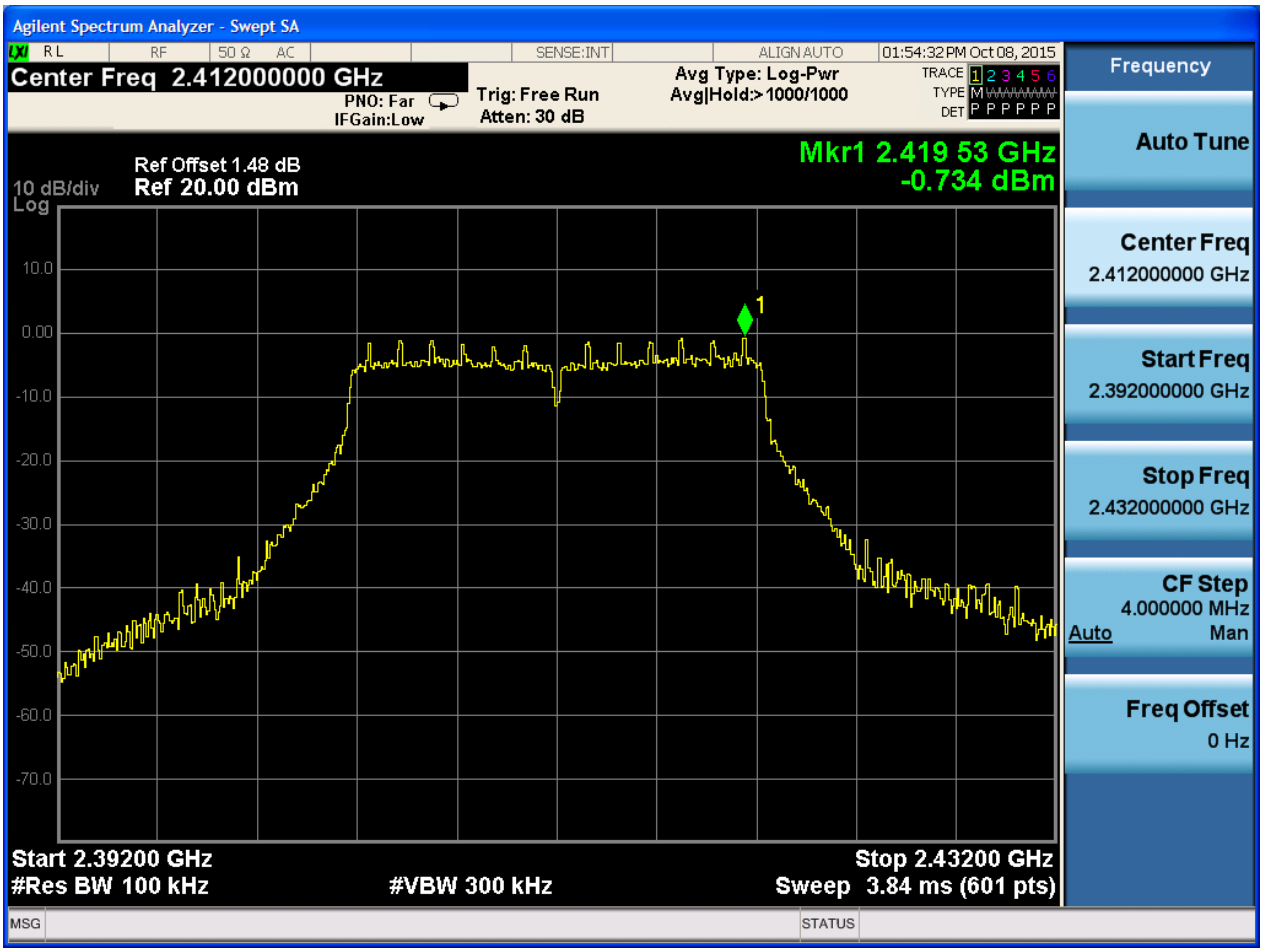

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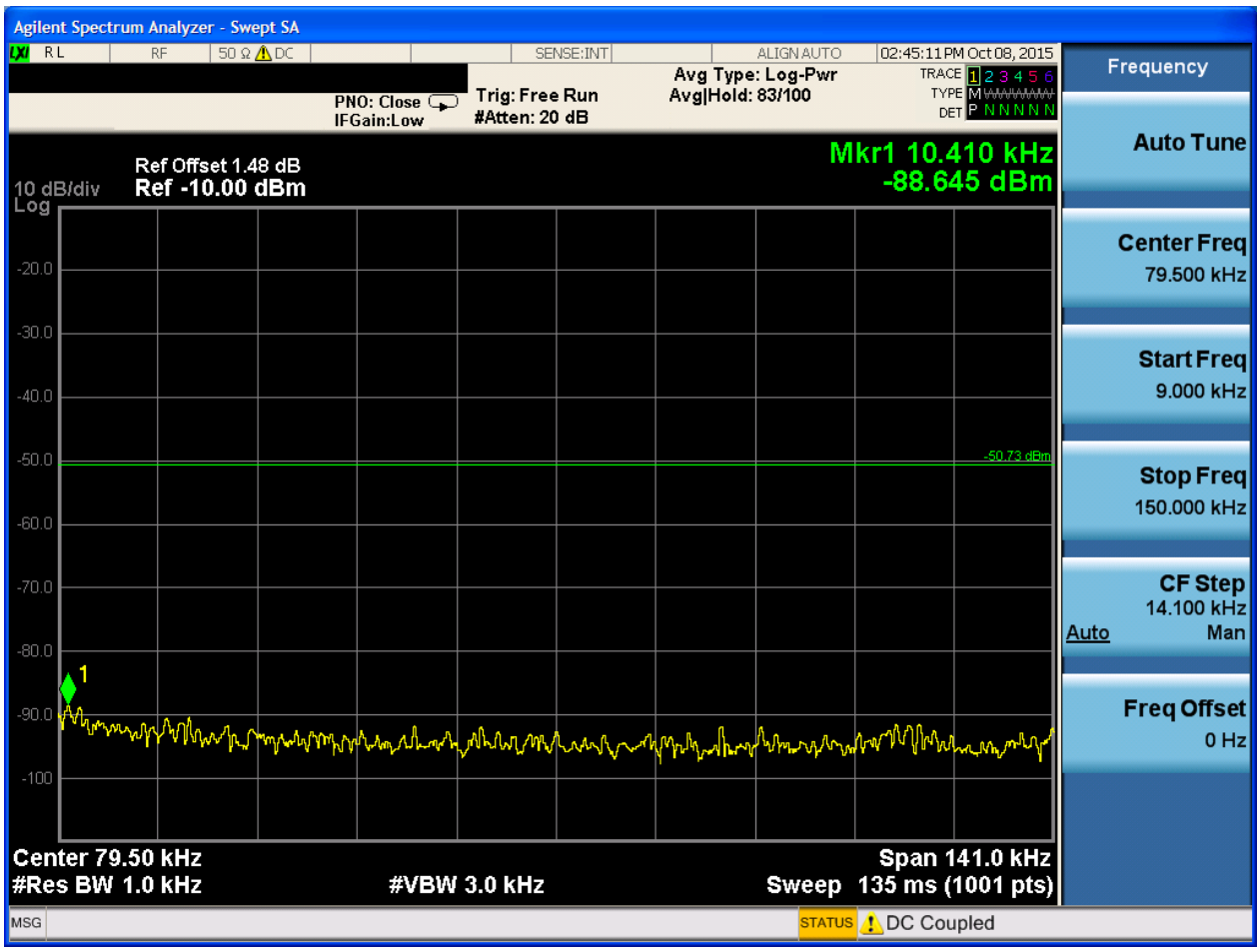

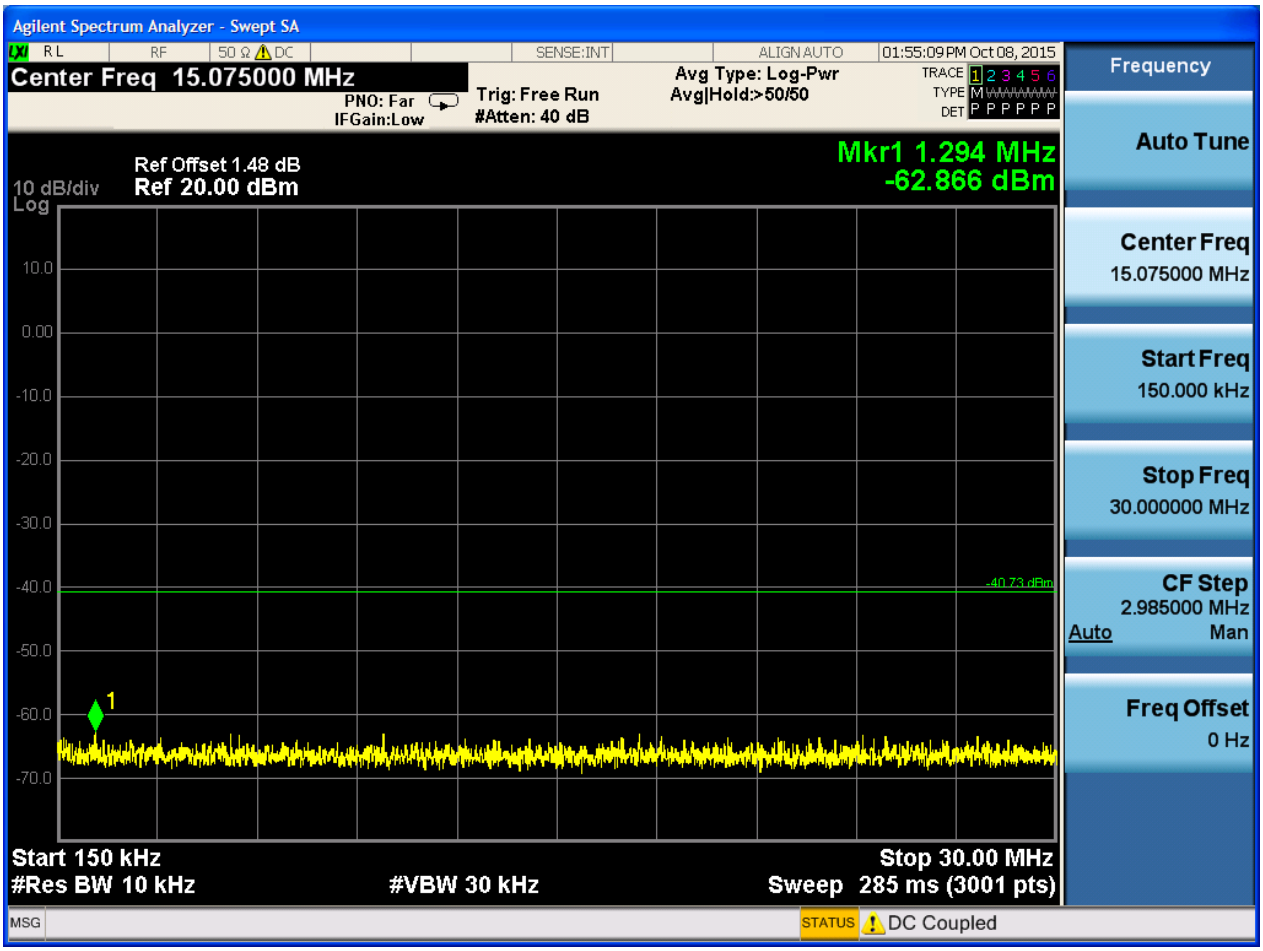

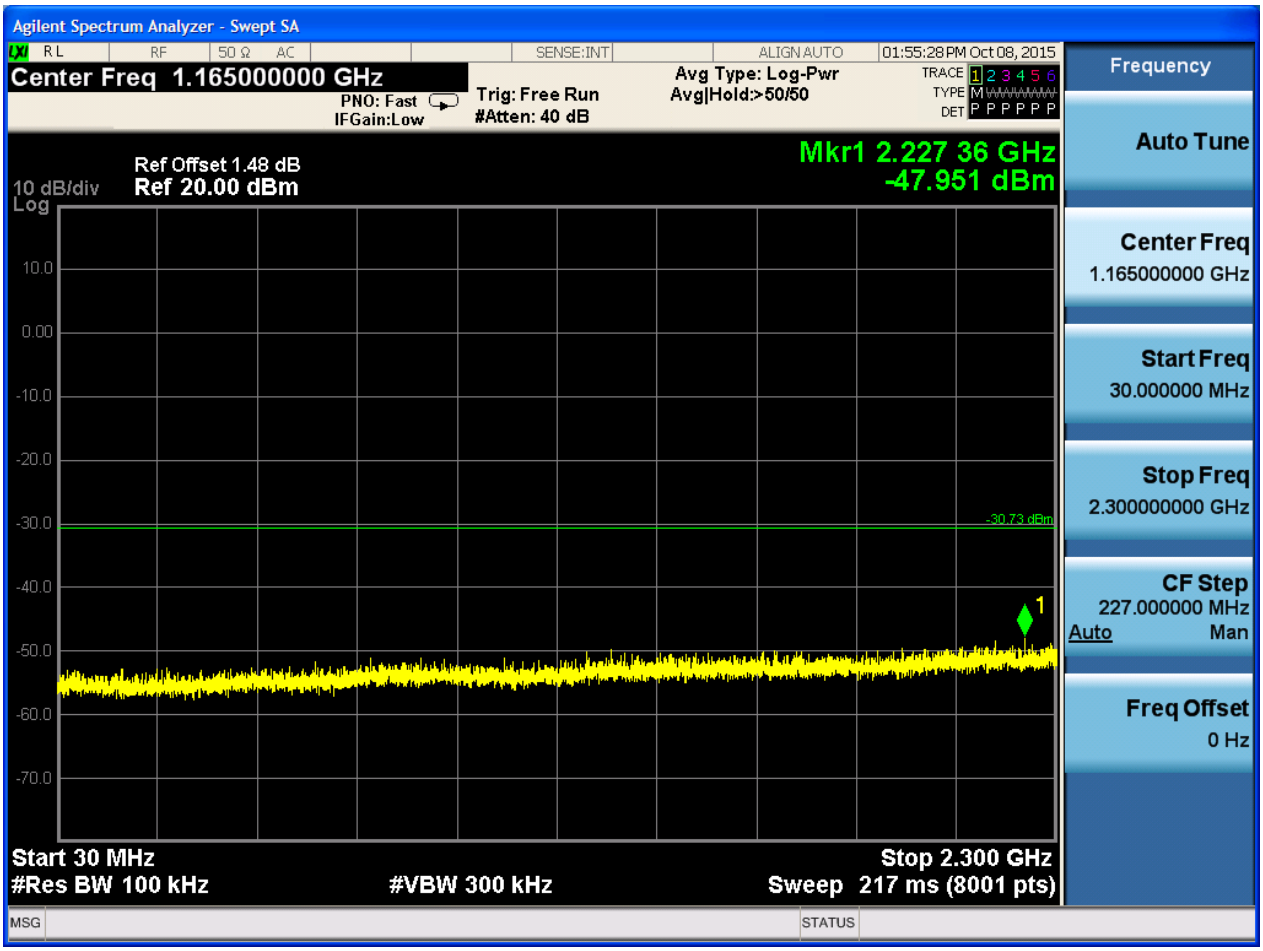

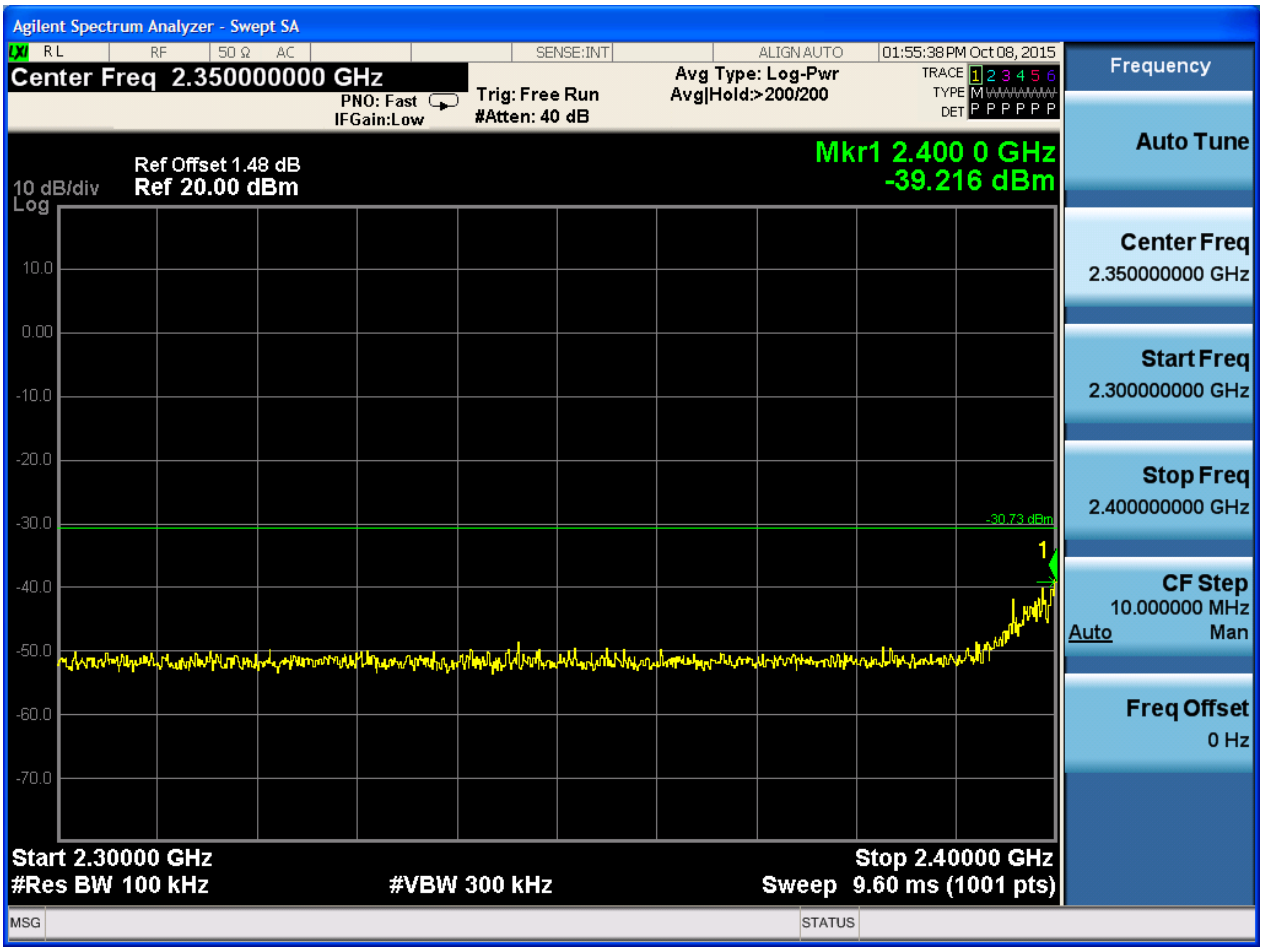

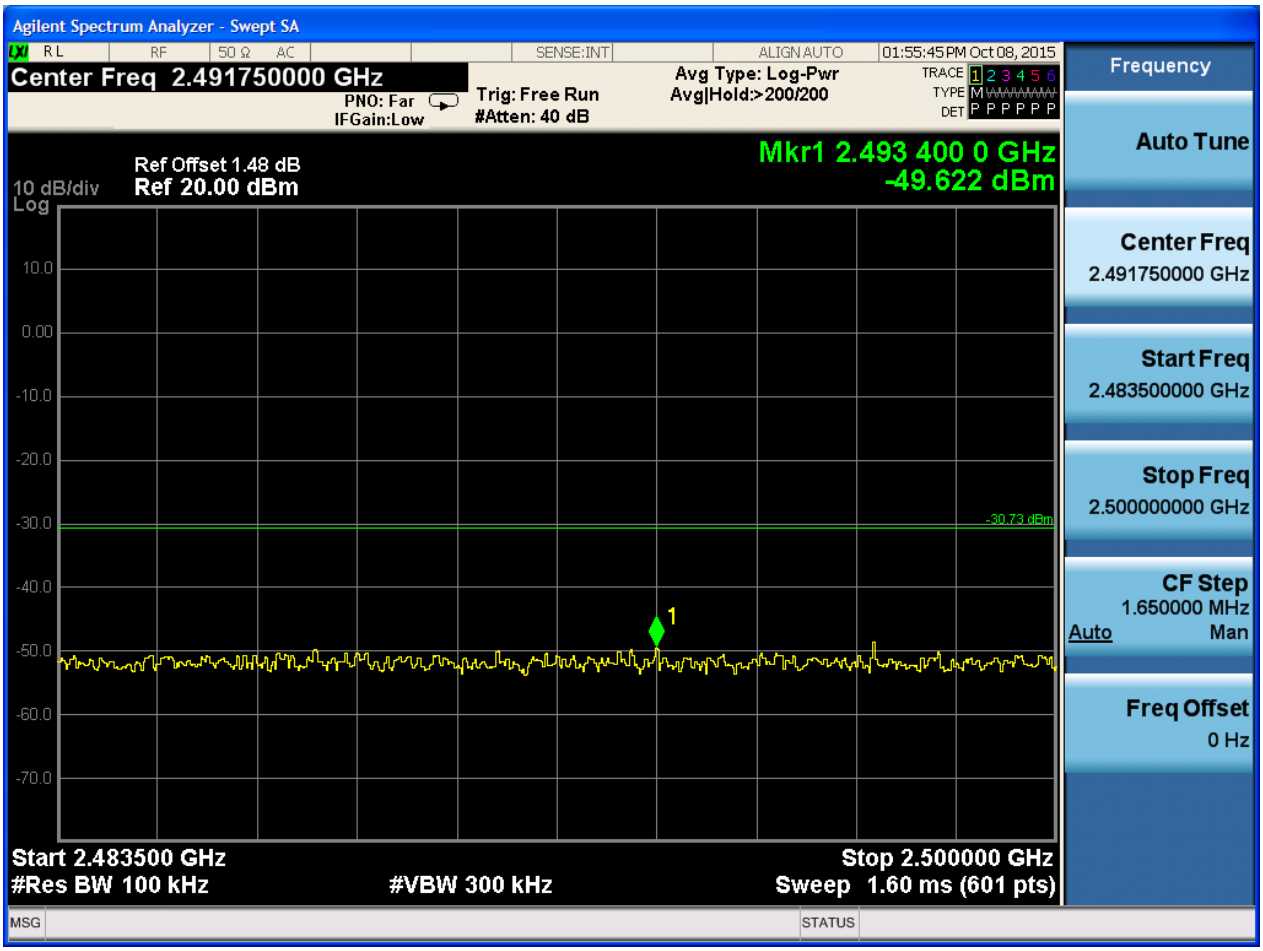

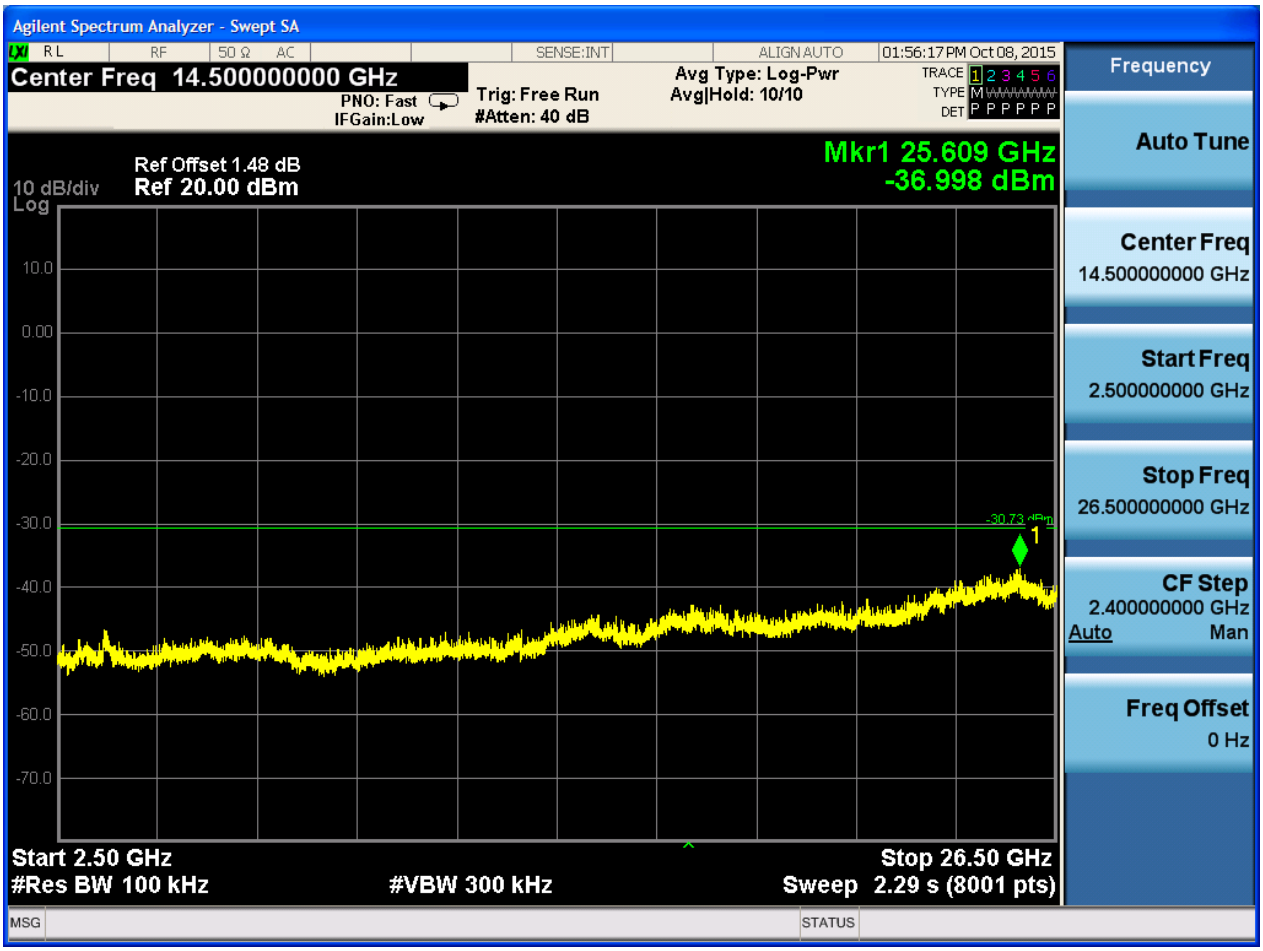

2.9 11G_M@Ant 1

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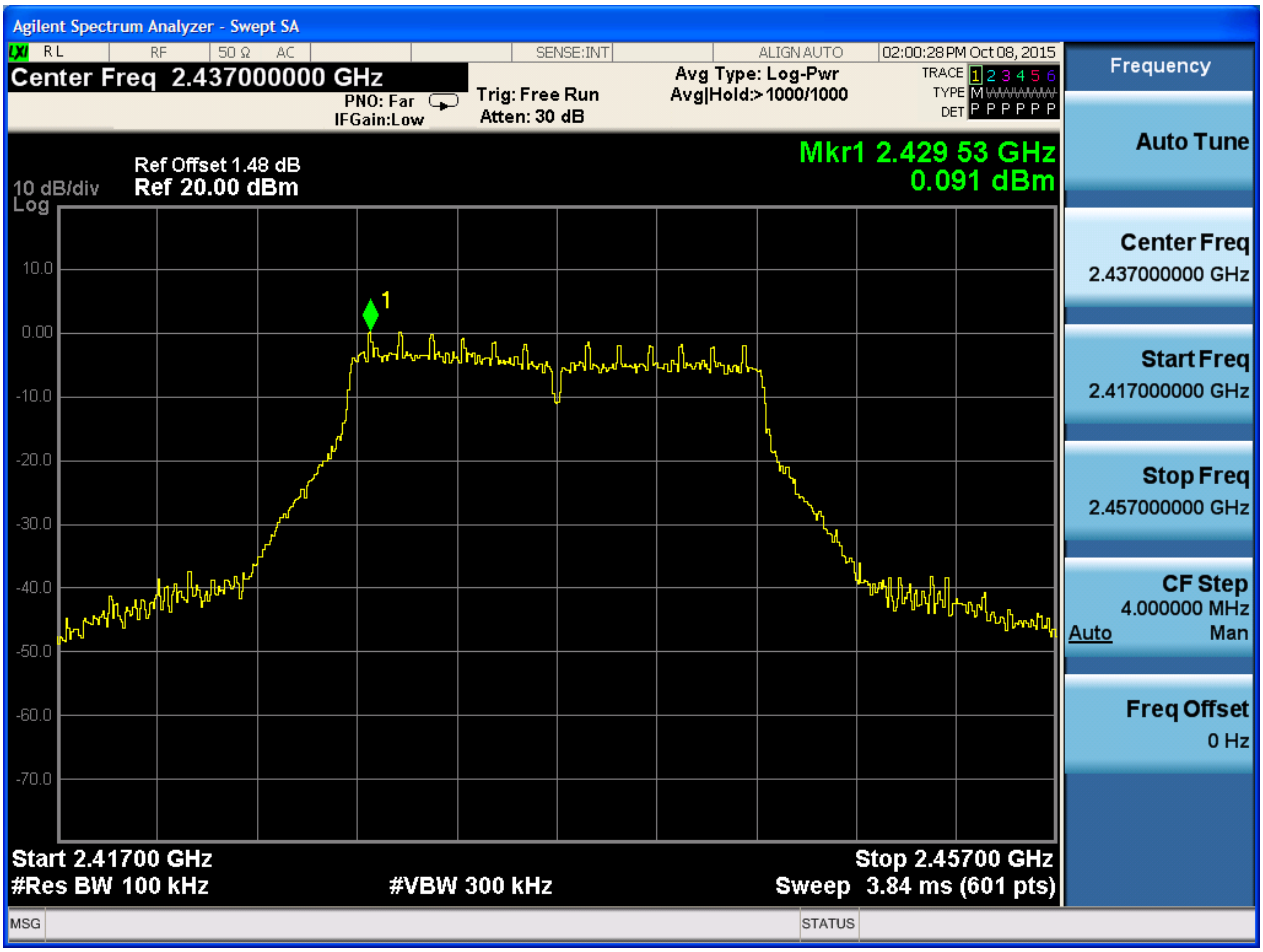

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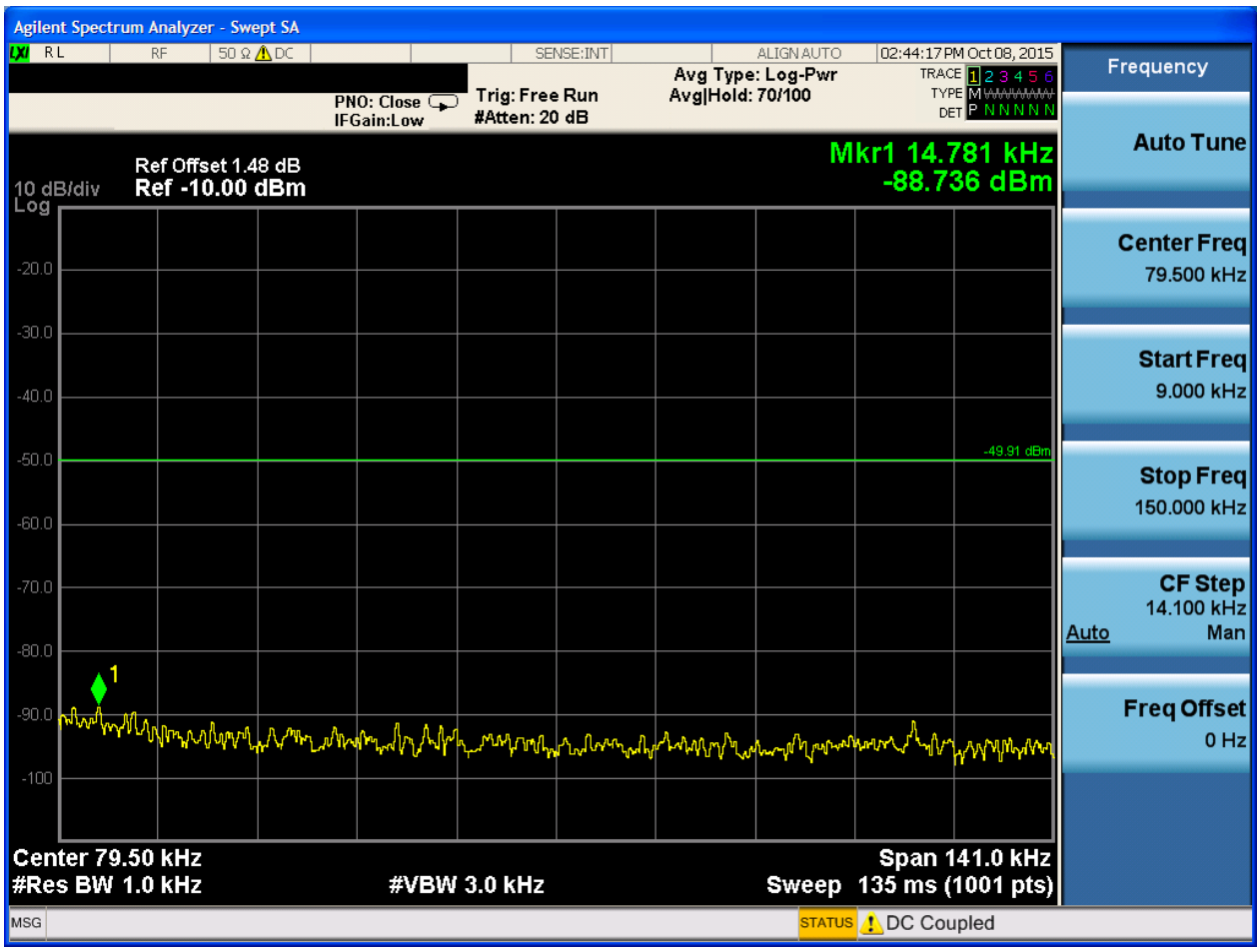

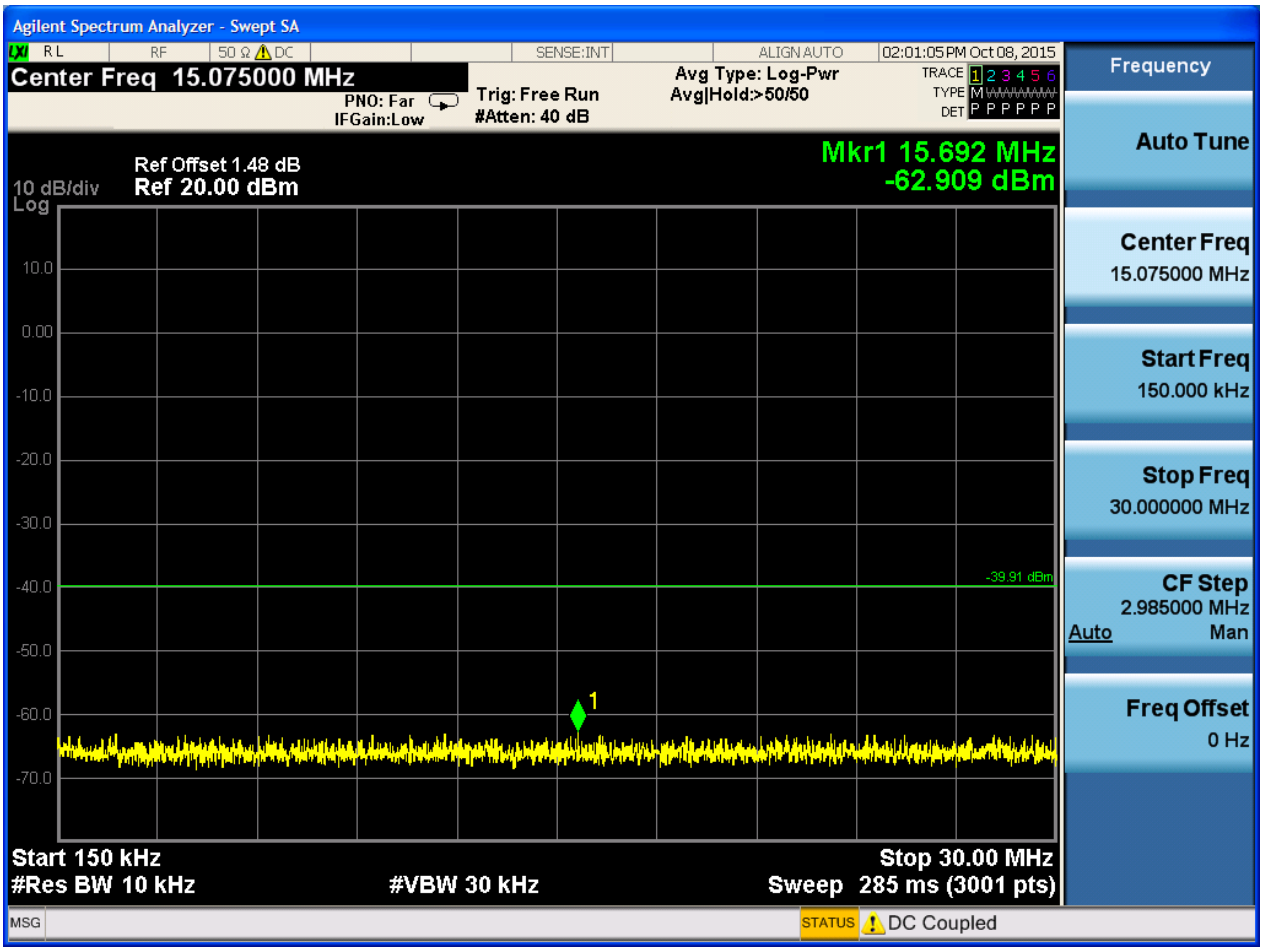

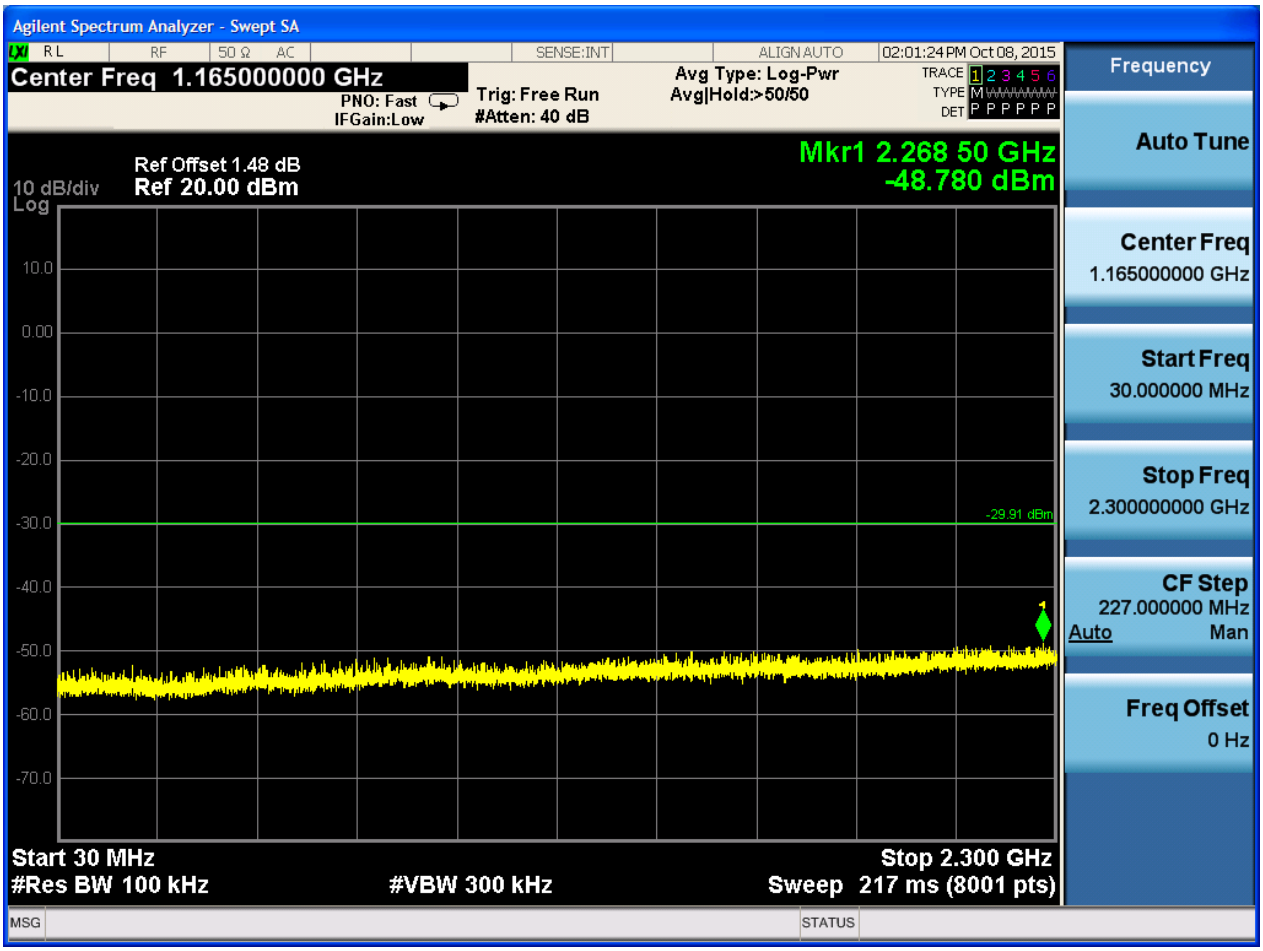

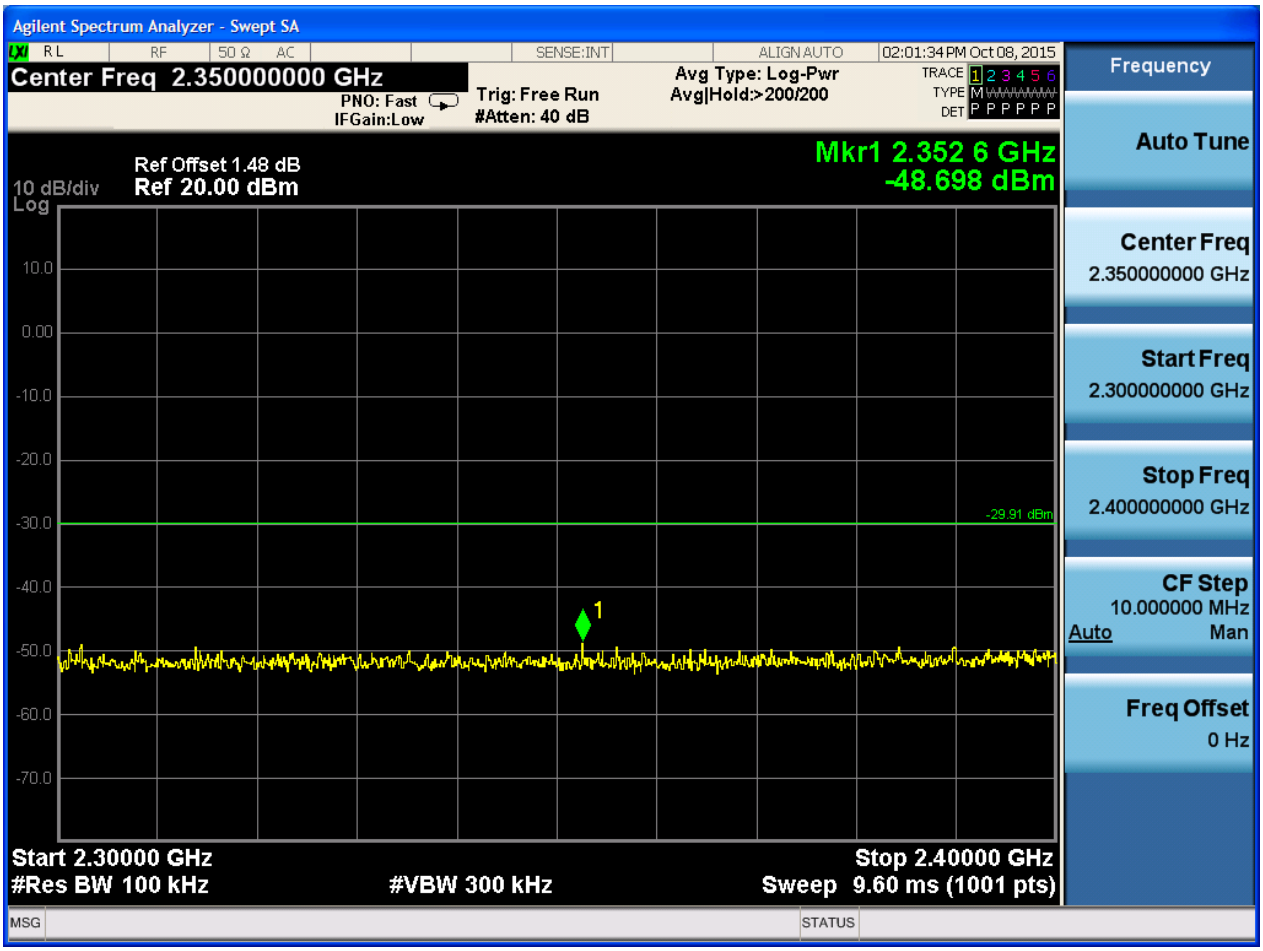

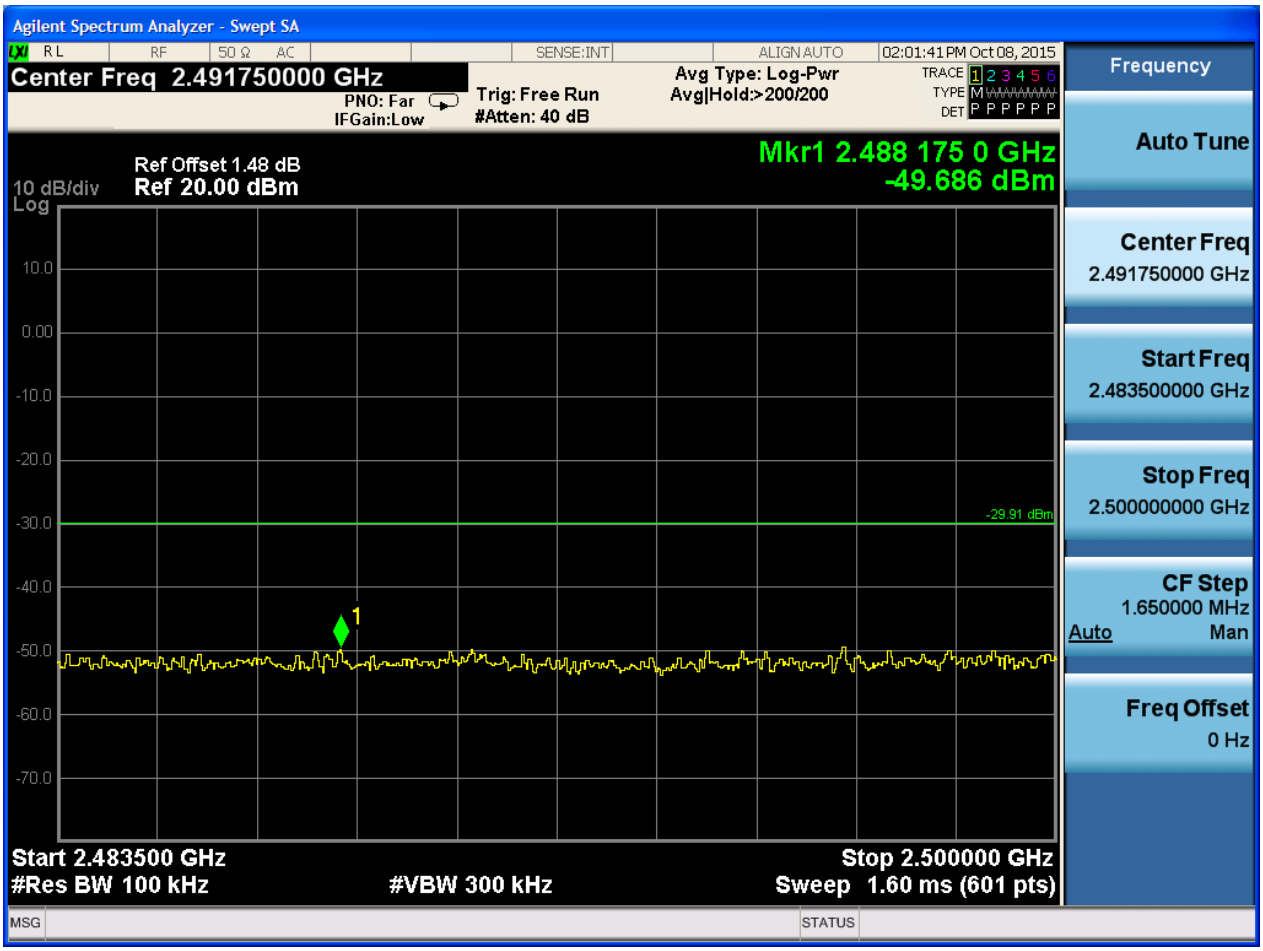

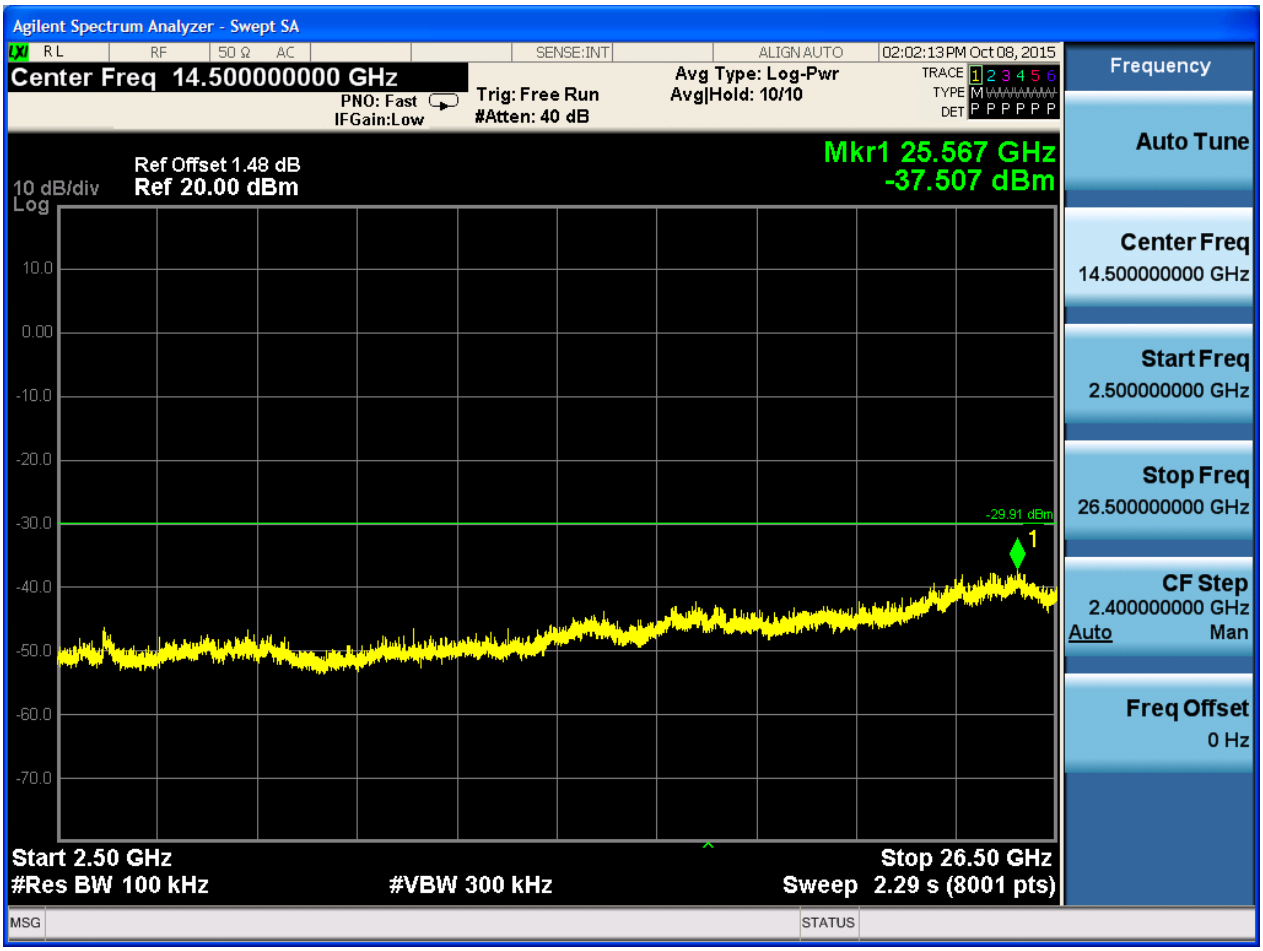

2.11 11G_H@Ant 1

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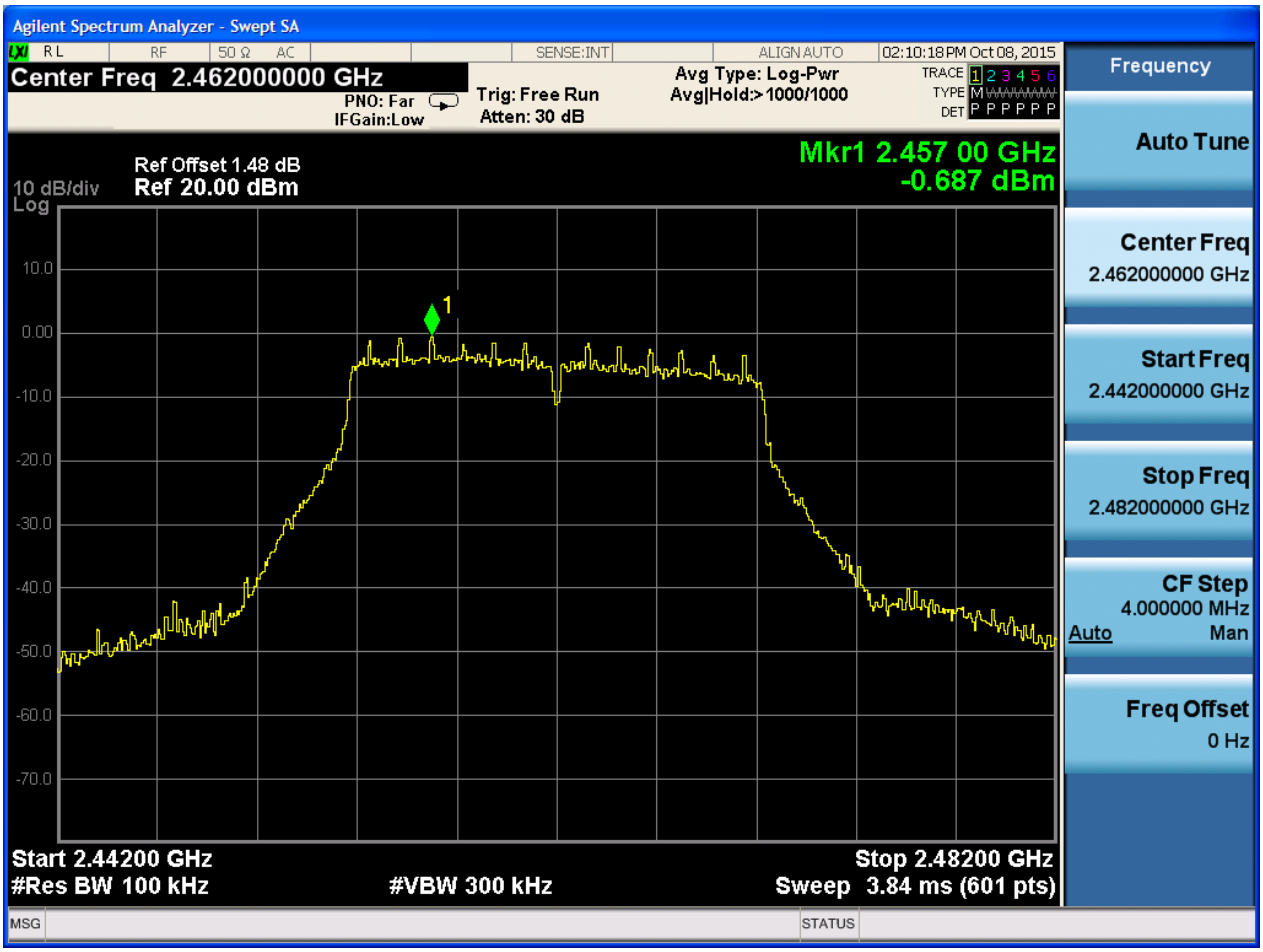

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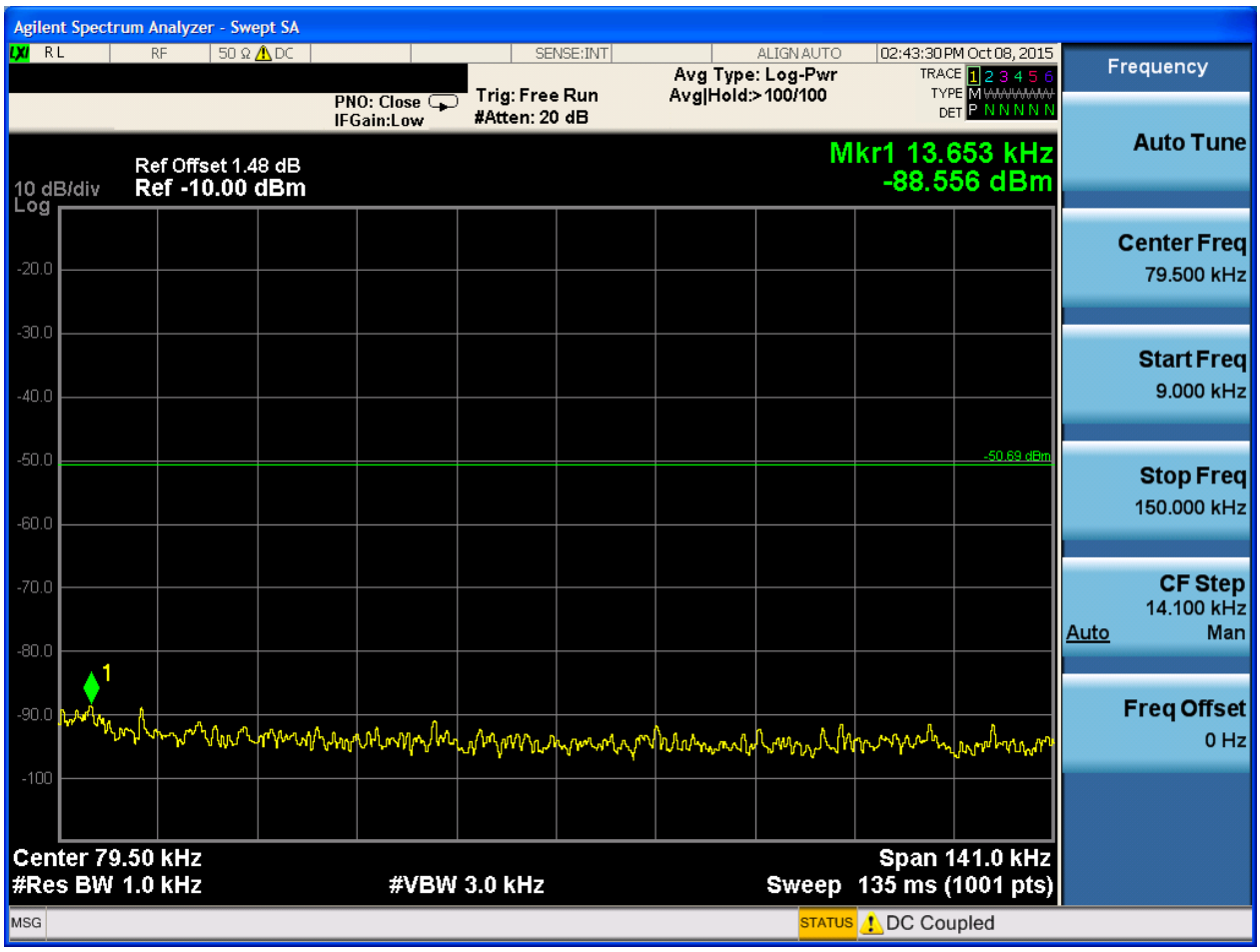

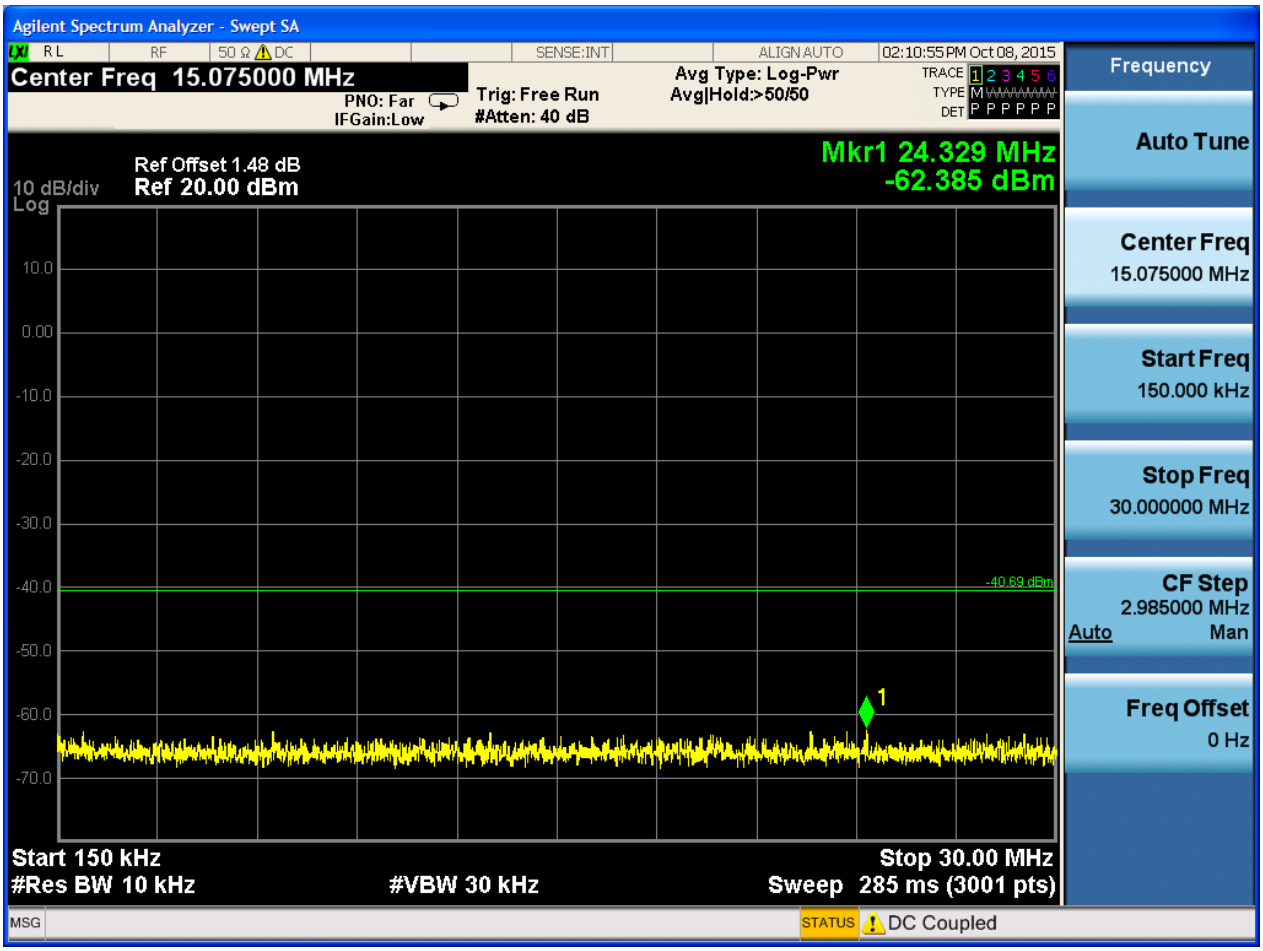

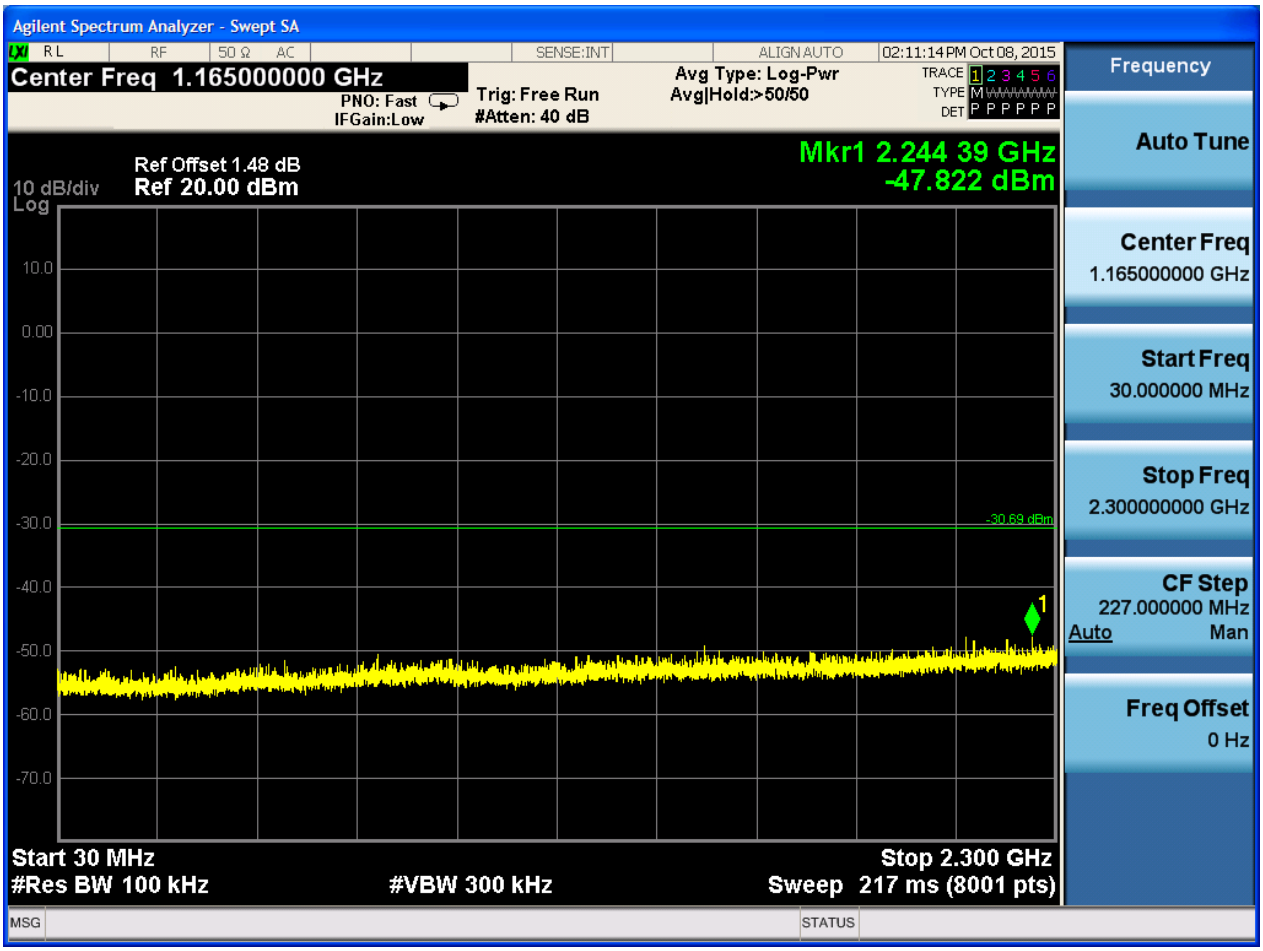

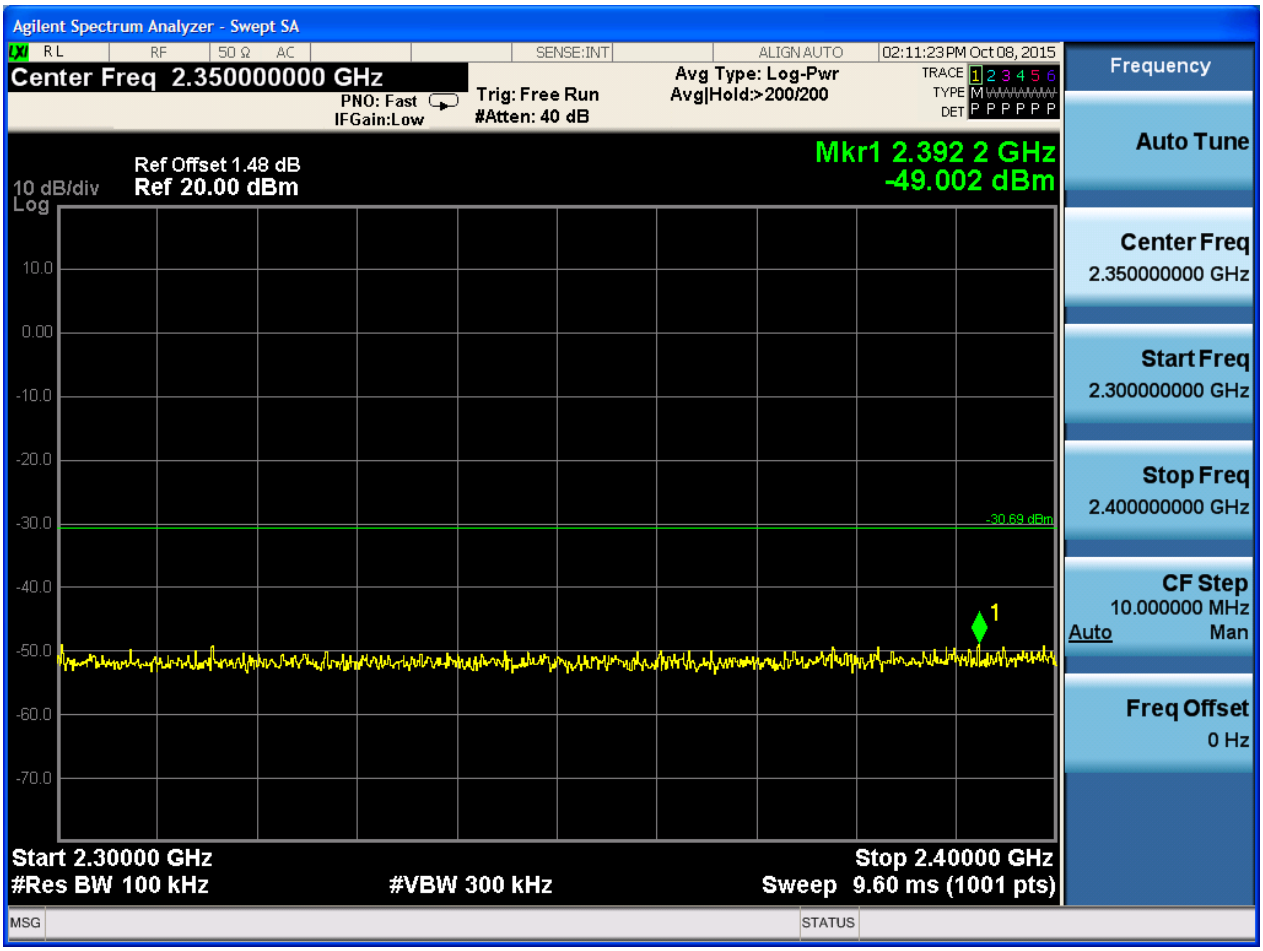

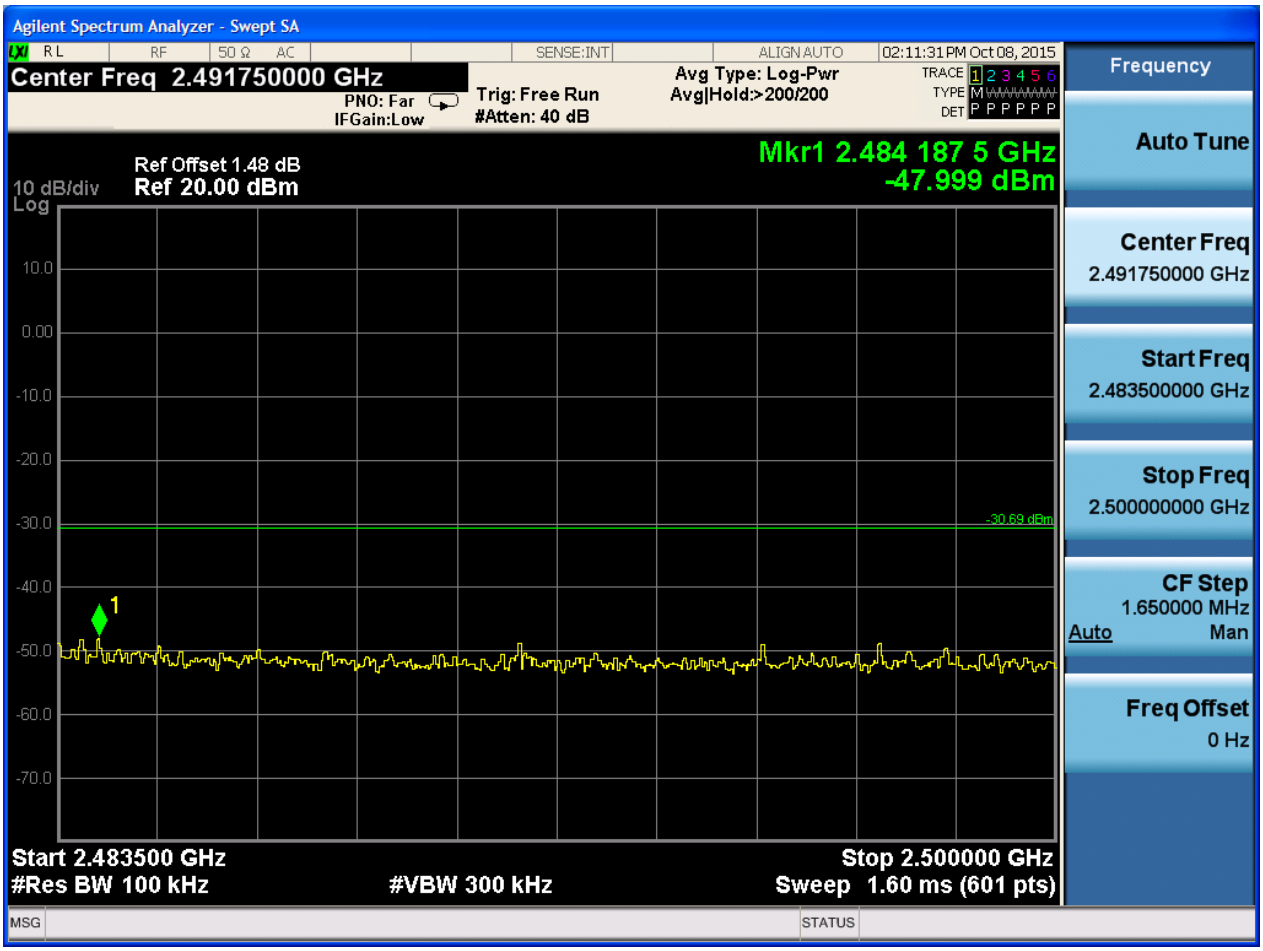

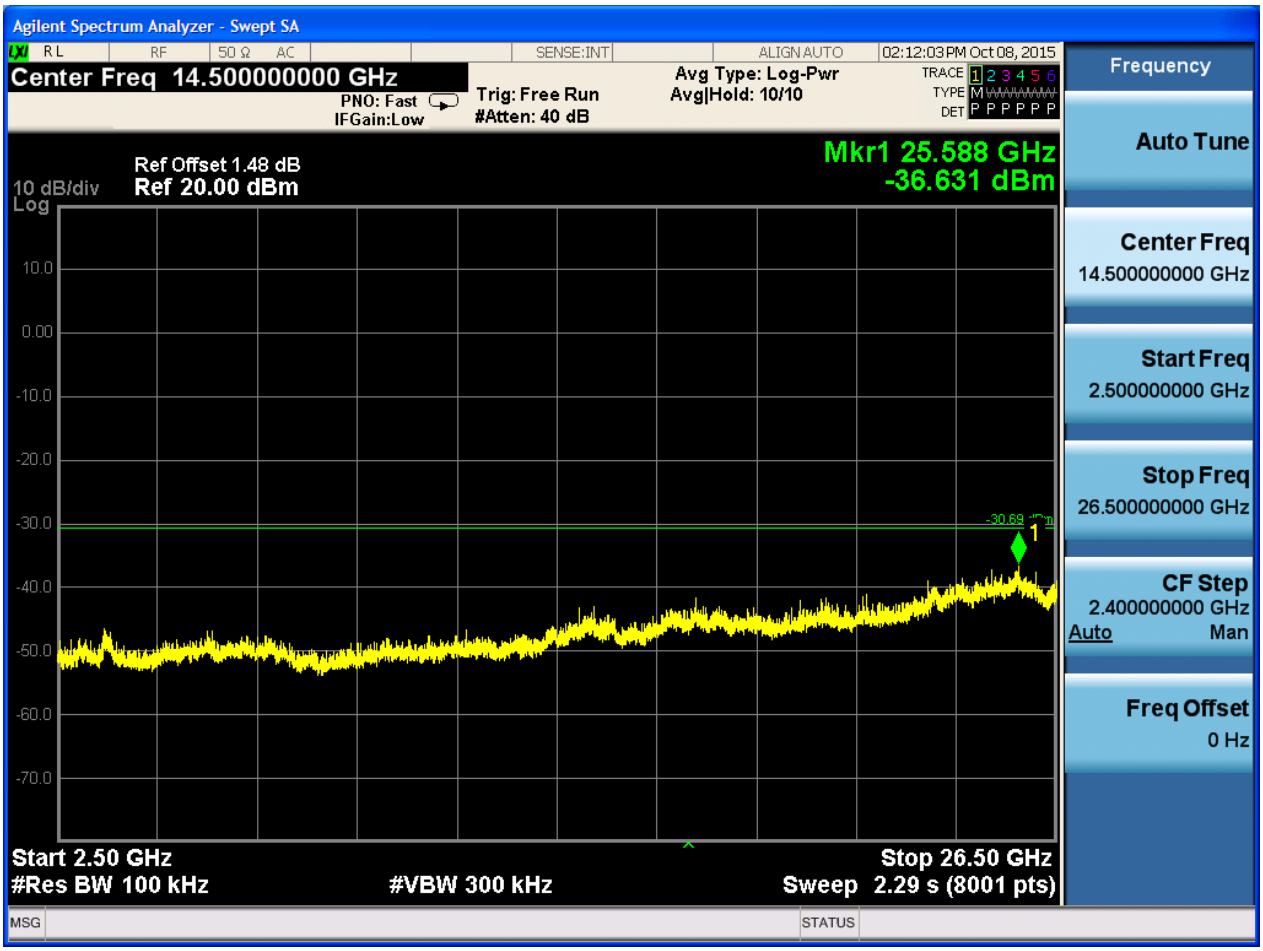

2.13 11N20_L@Ant 1

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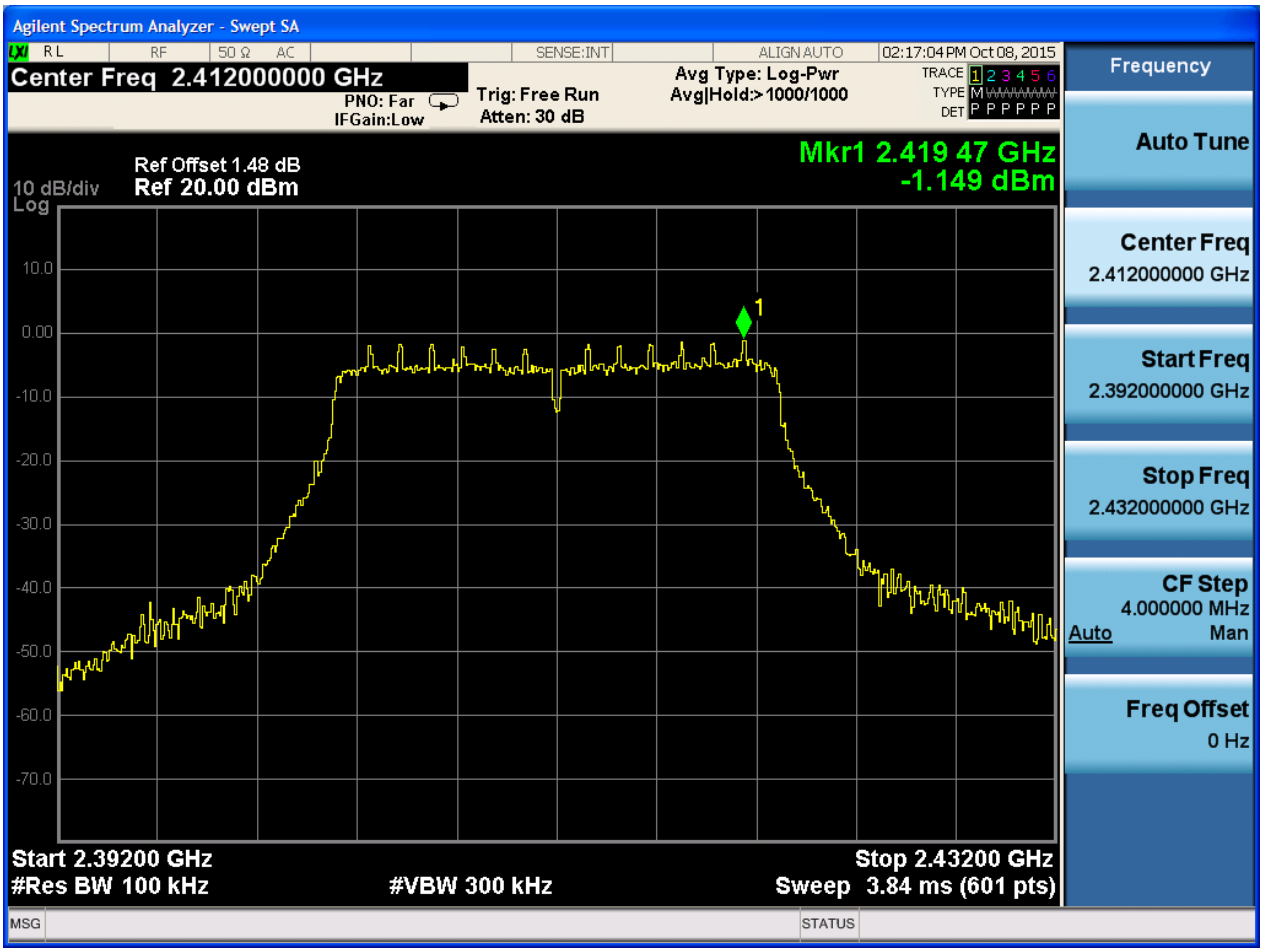

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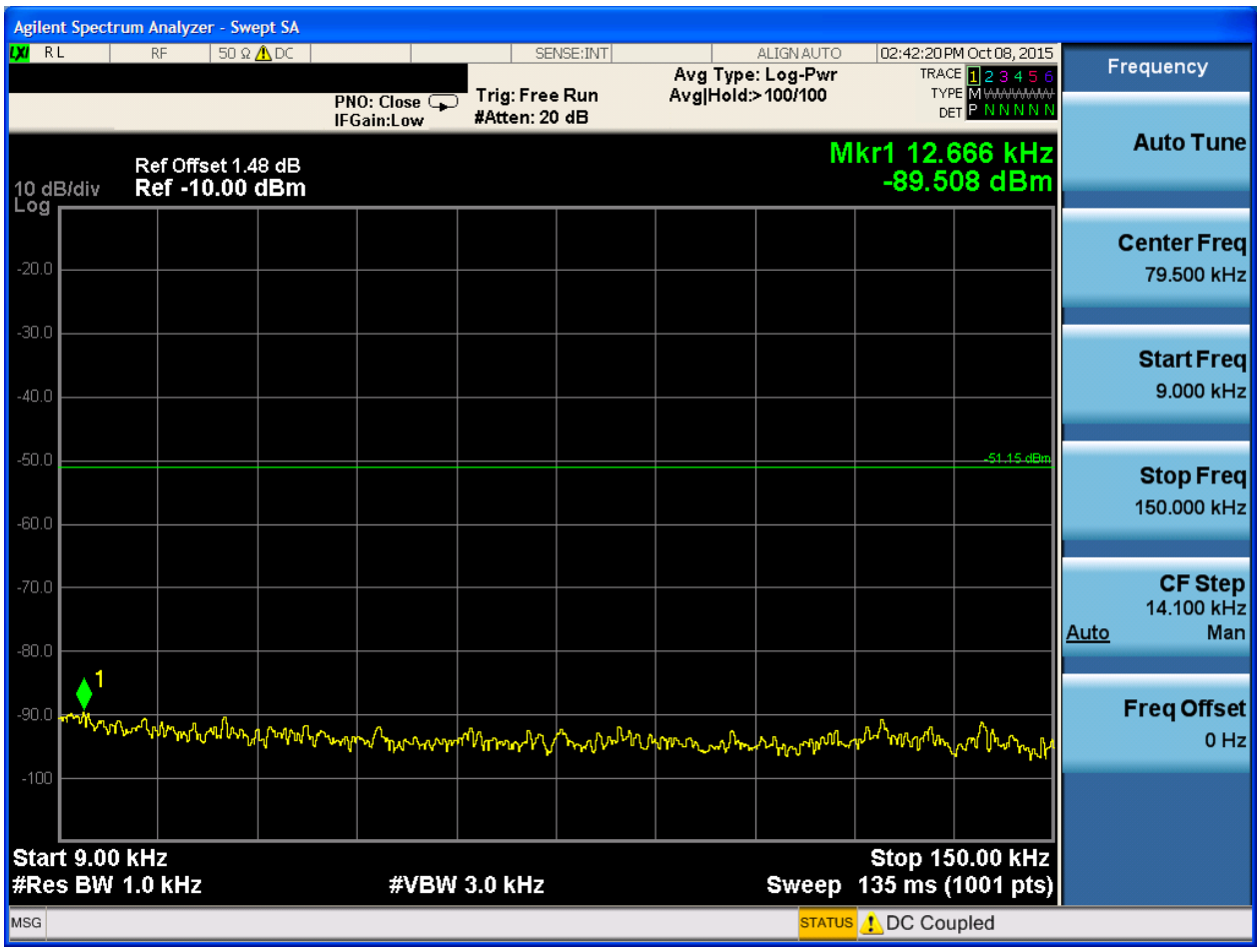

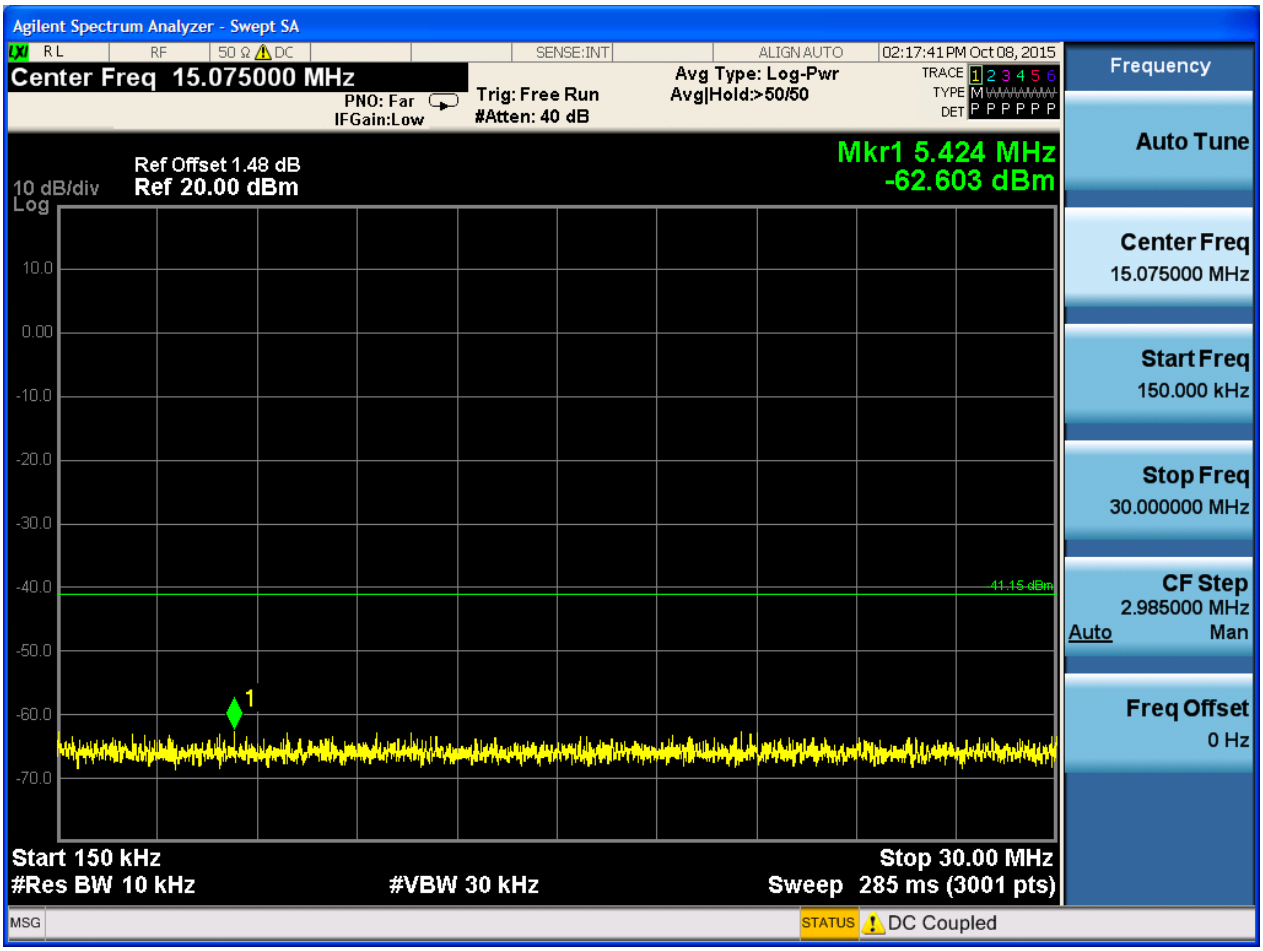

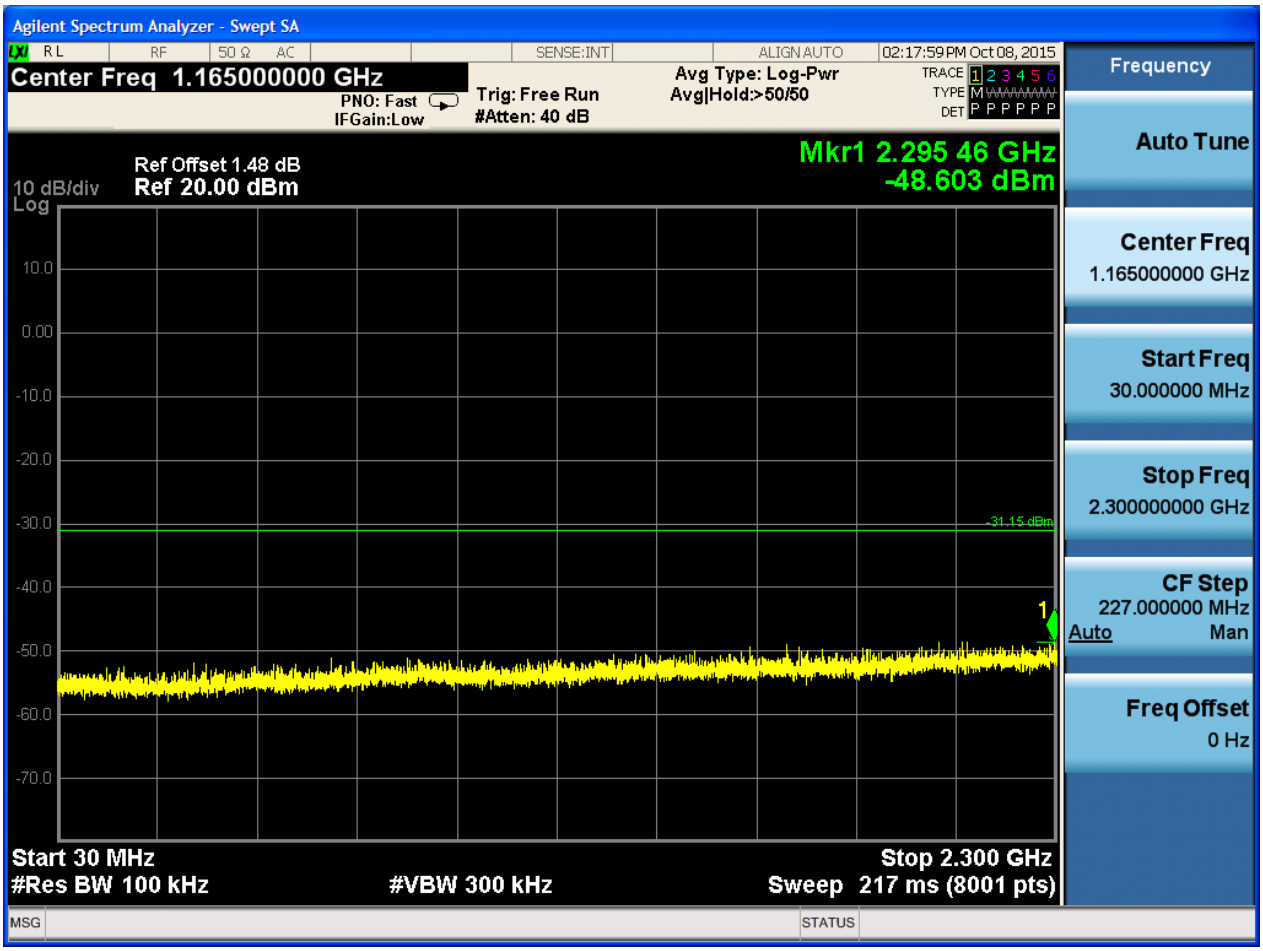

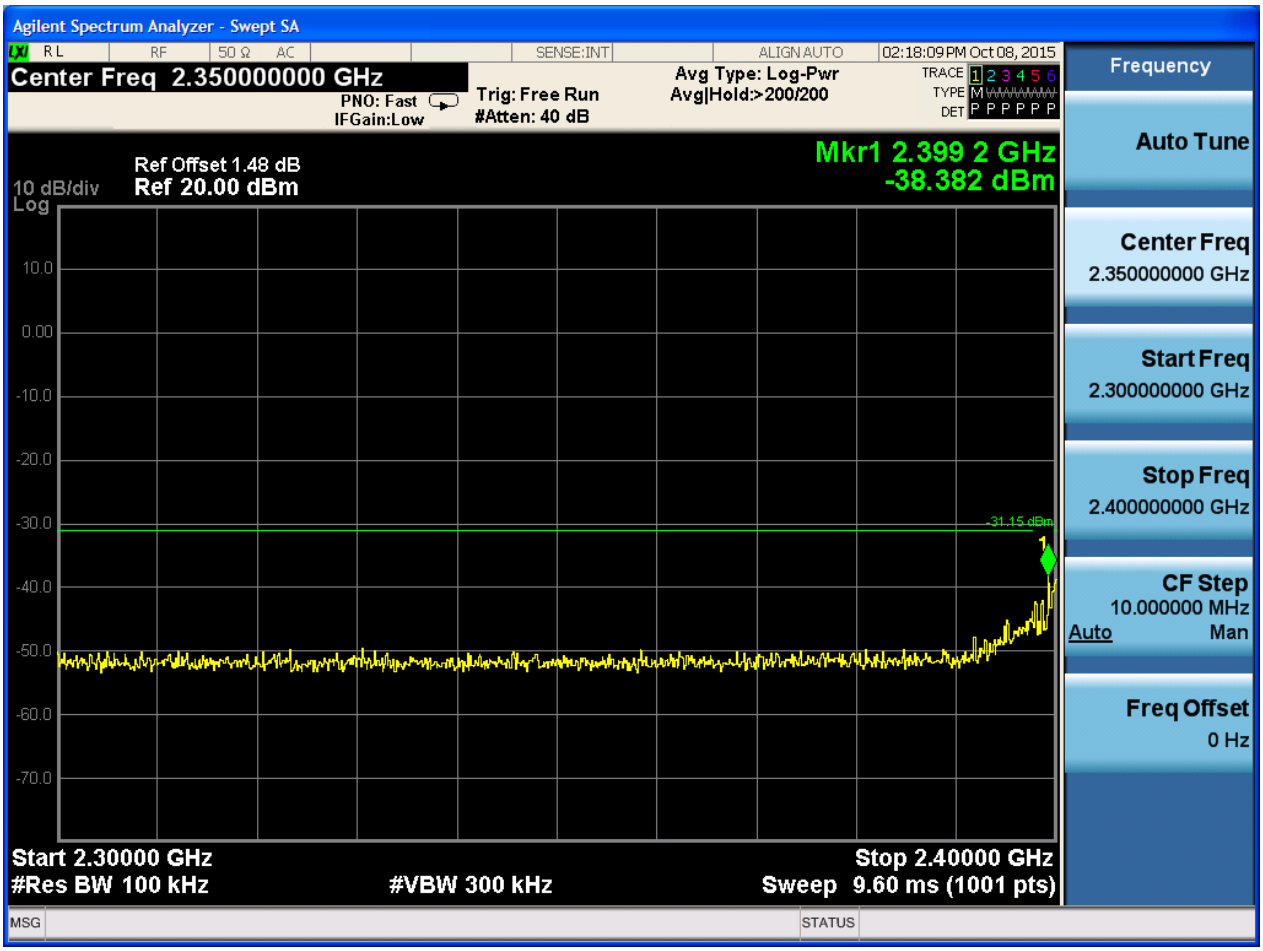

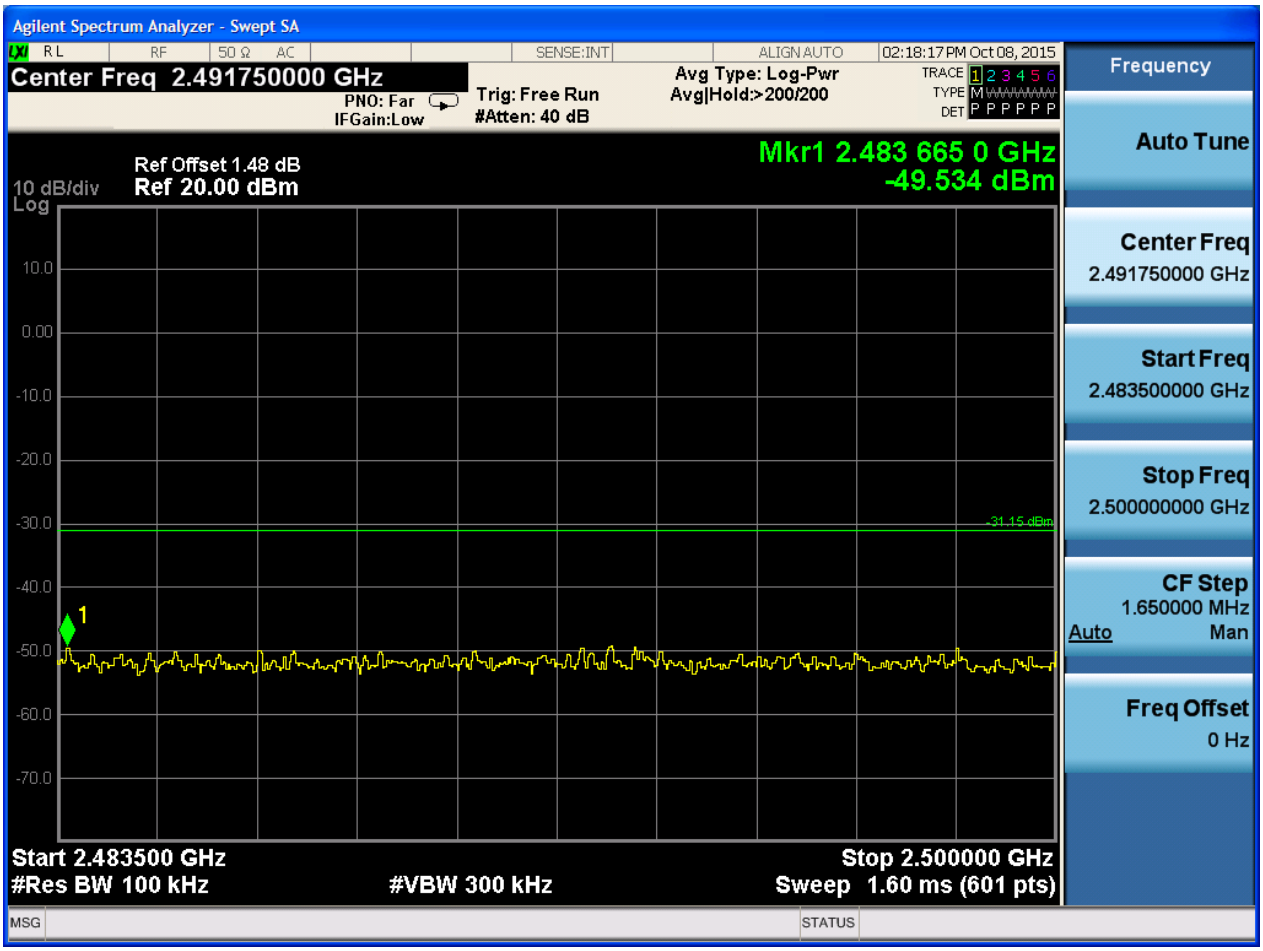

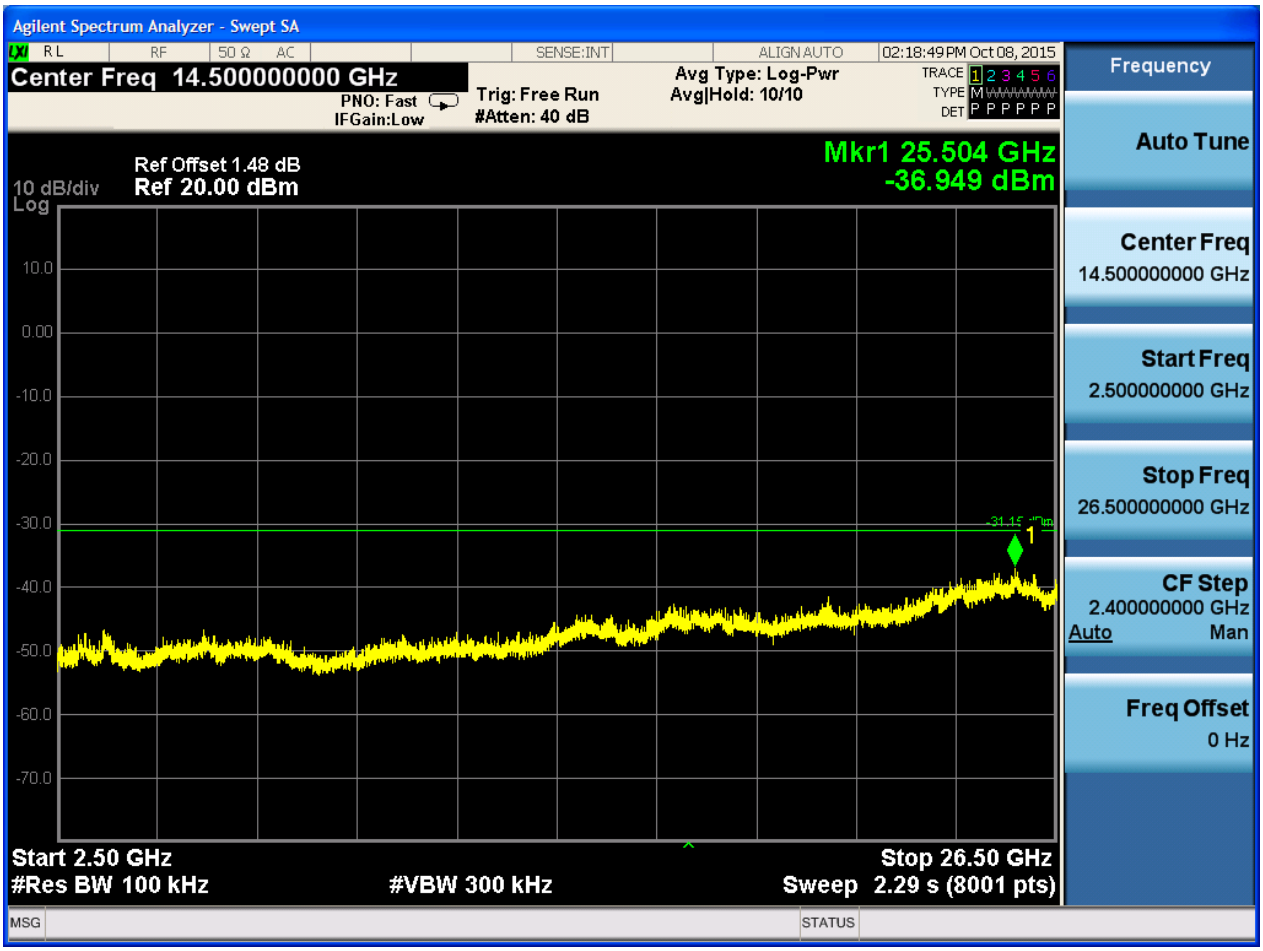

2.15 11N20_M@Ant 1

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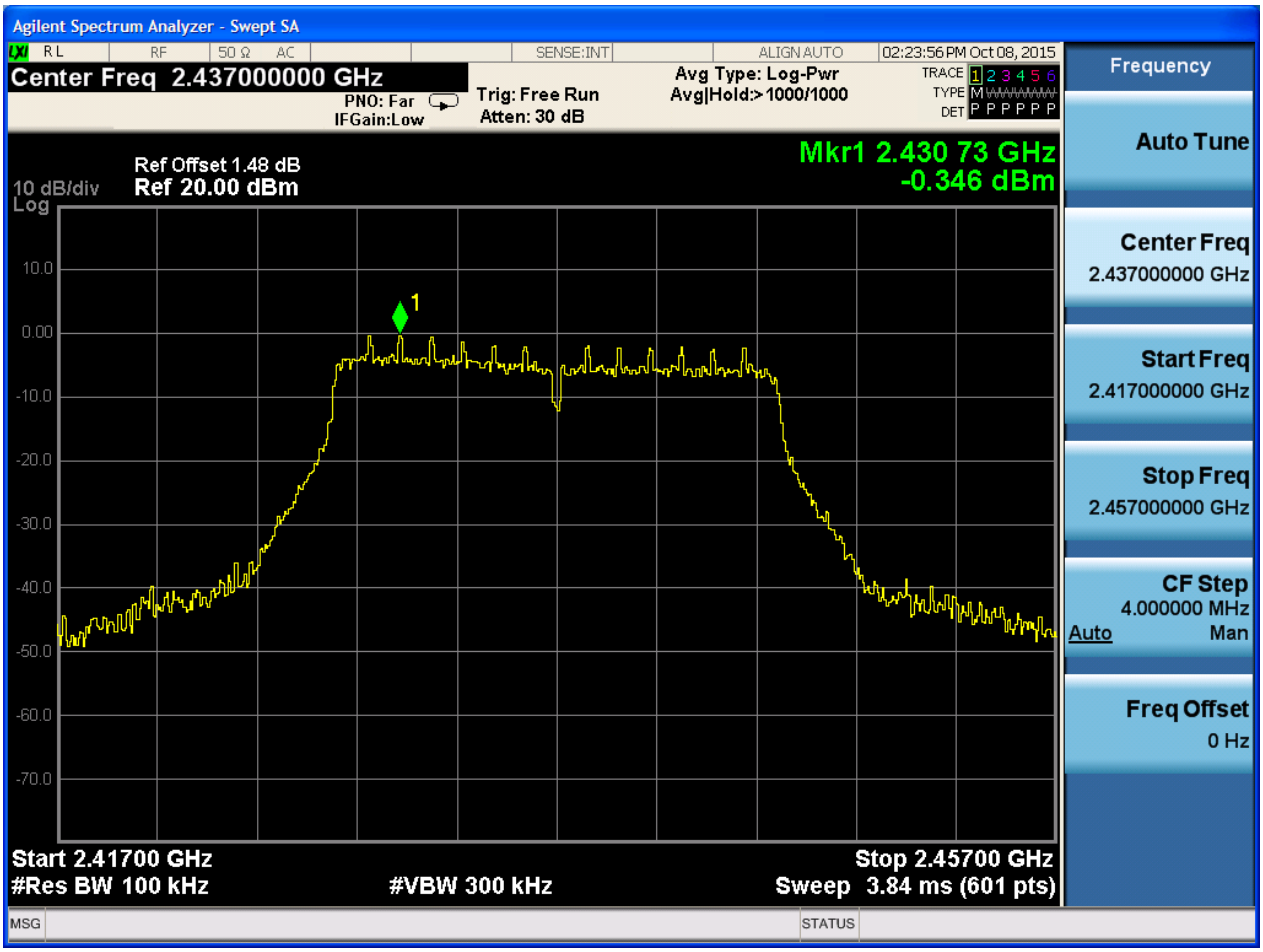

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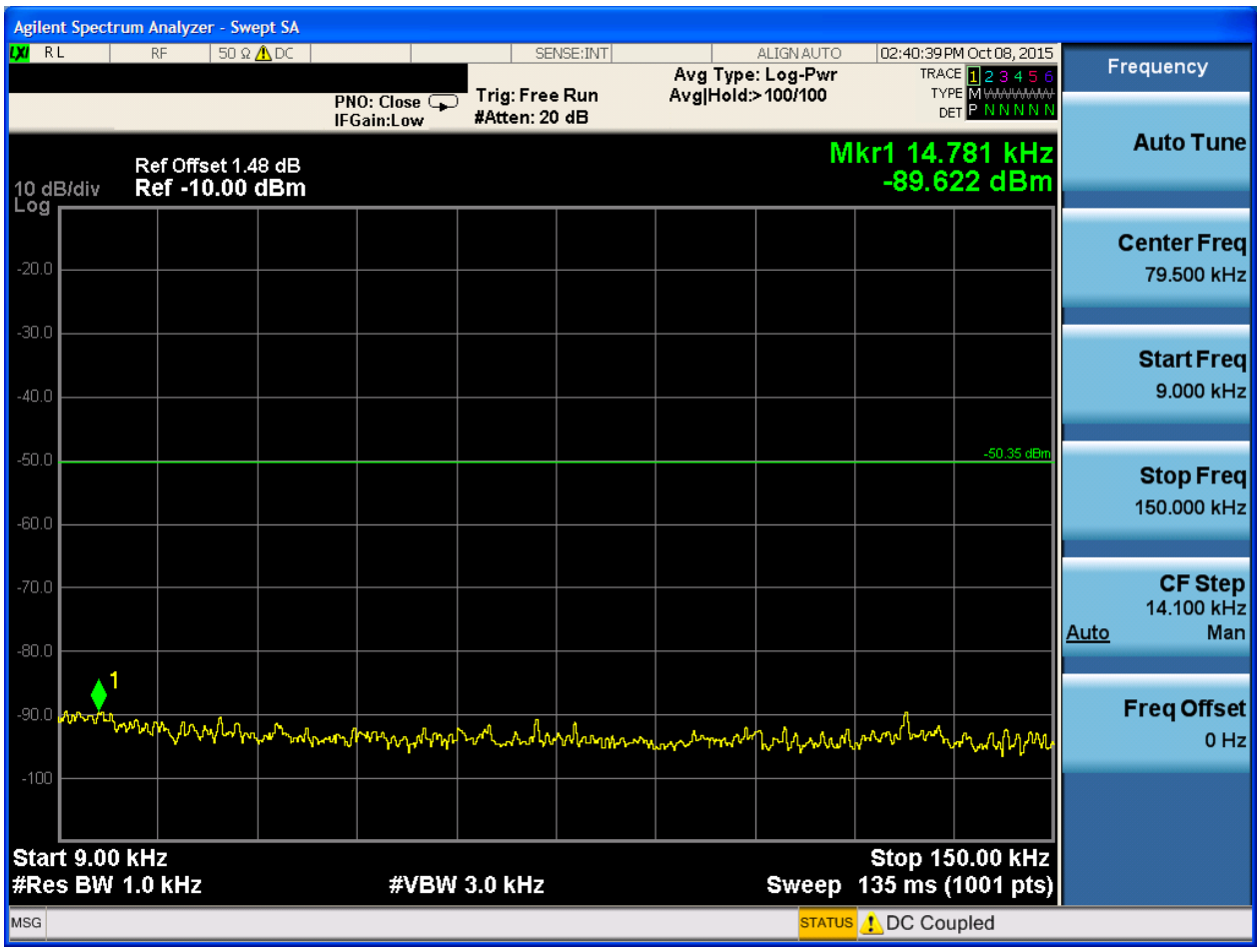
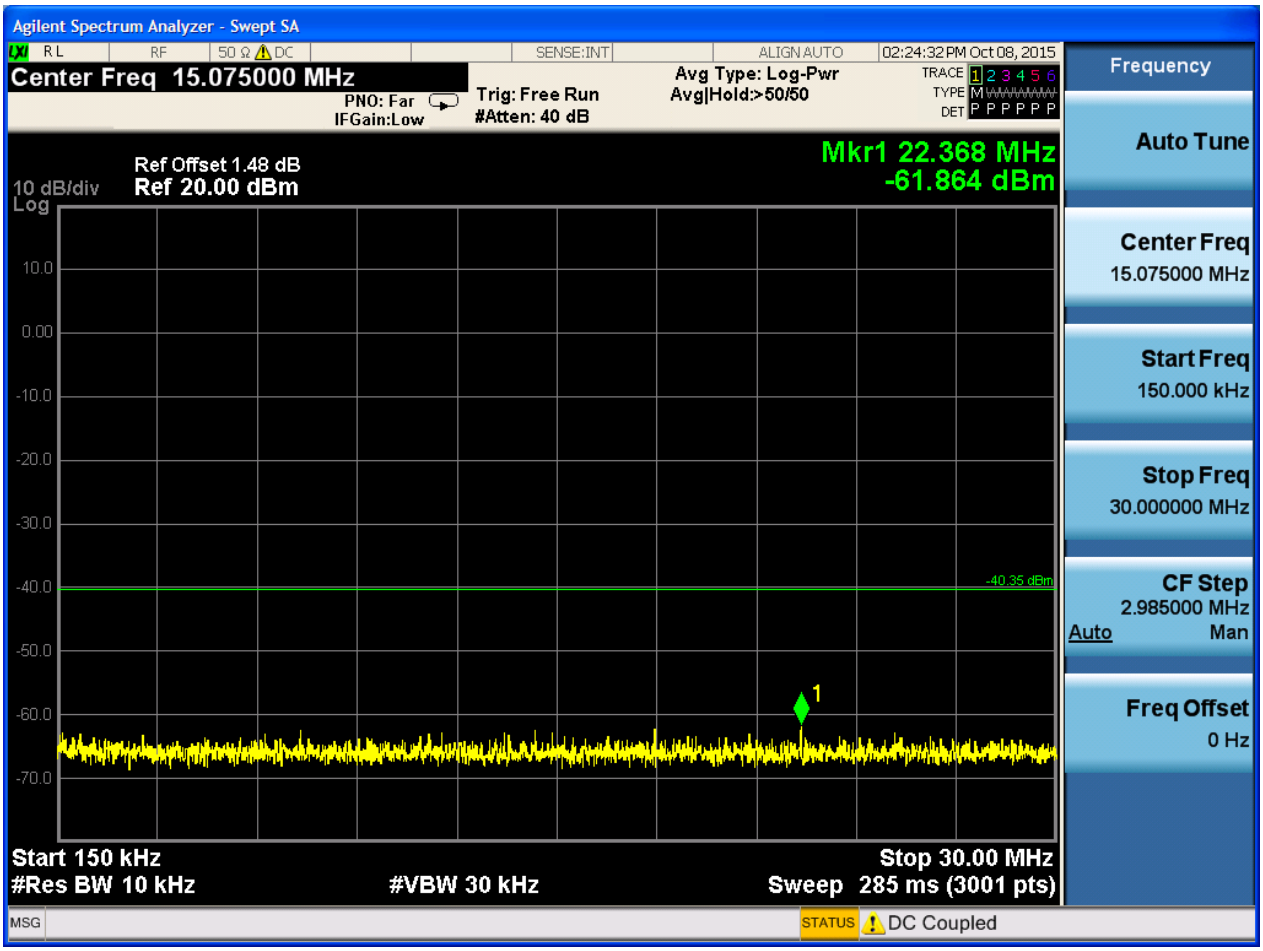
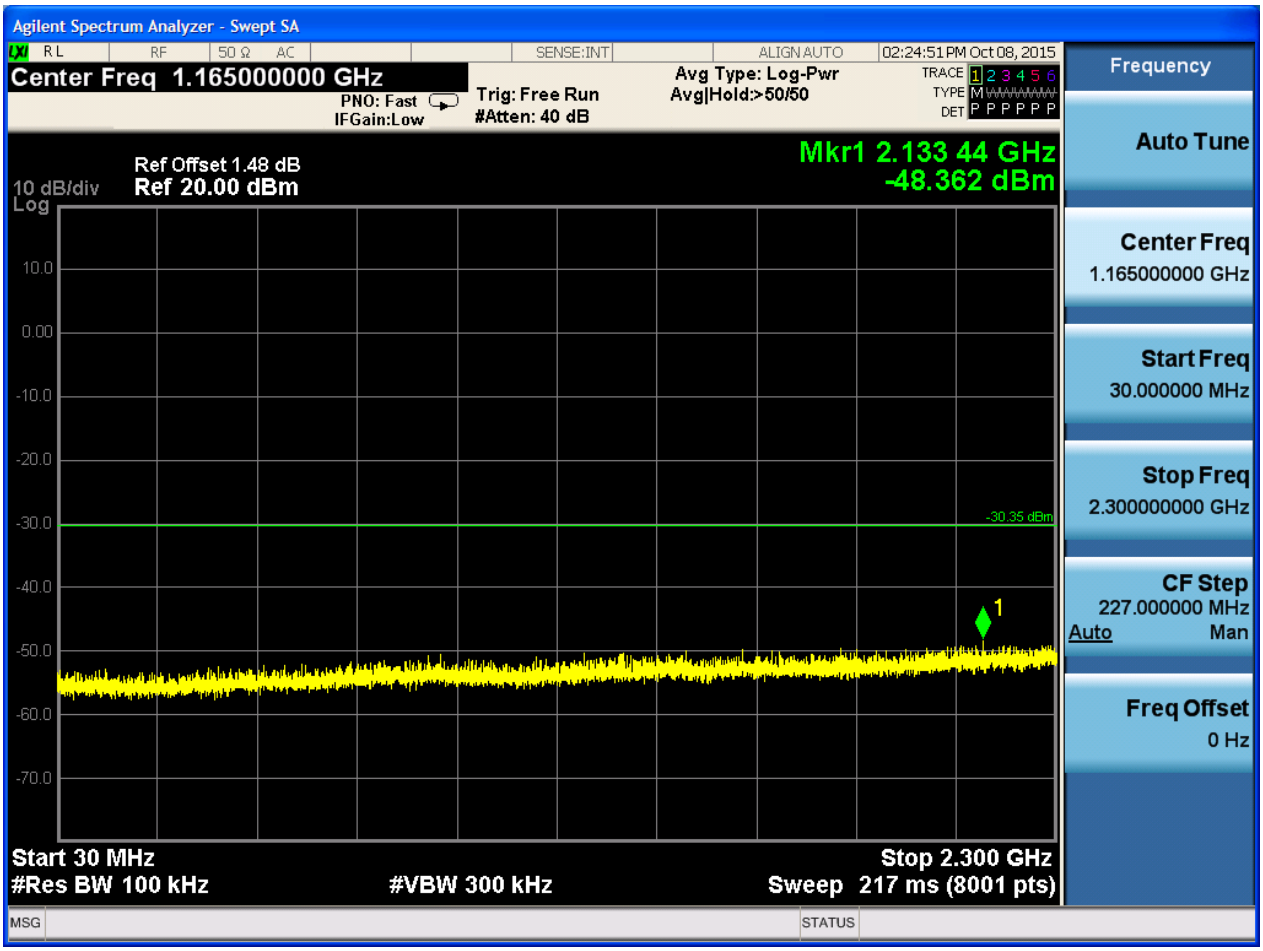
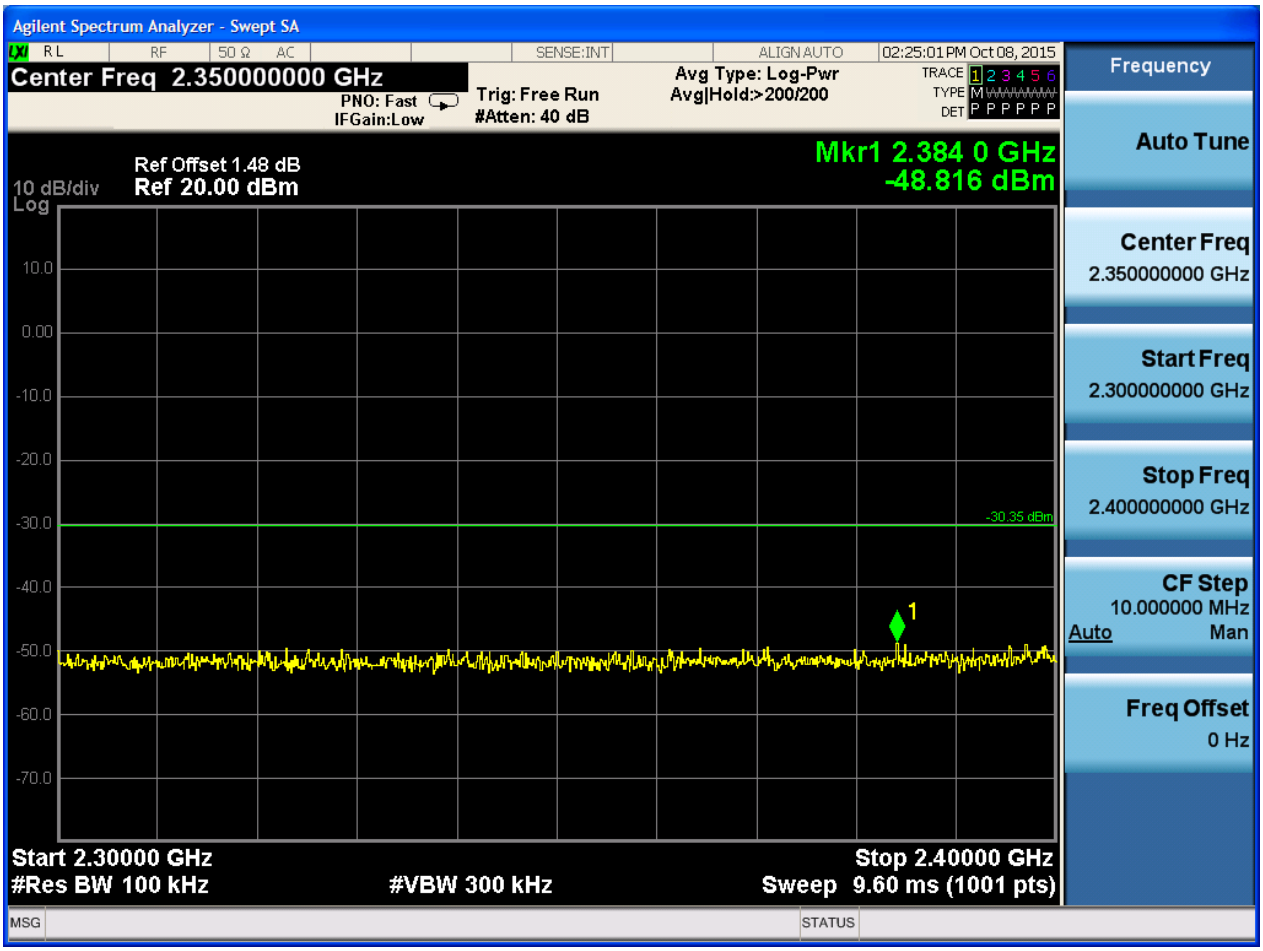
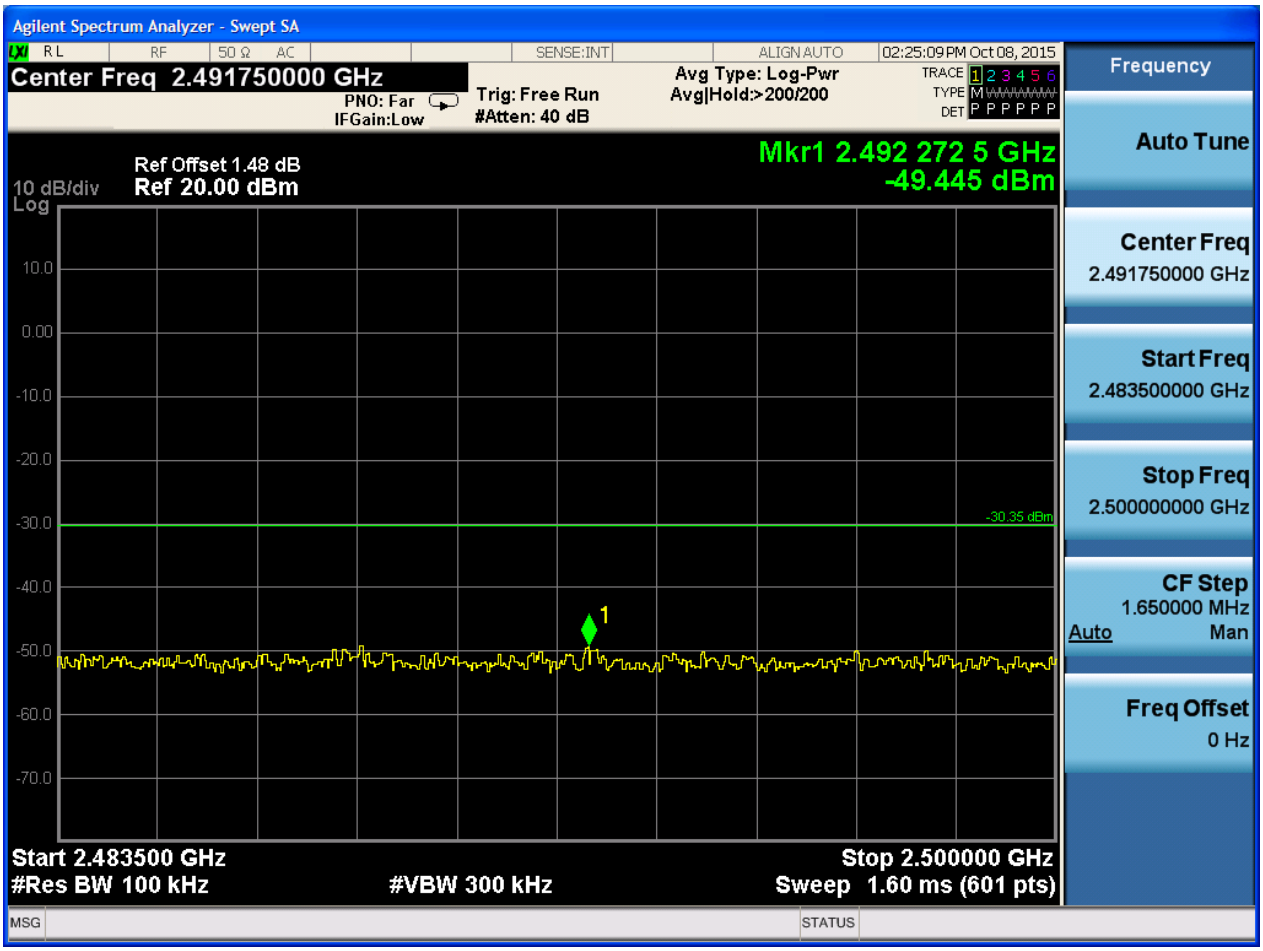




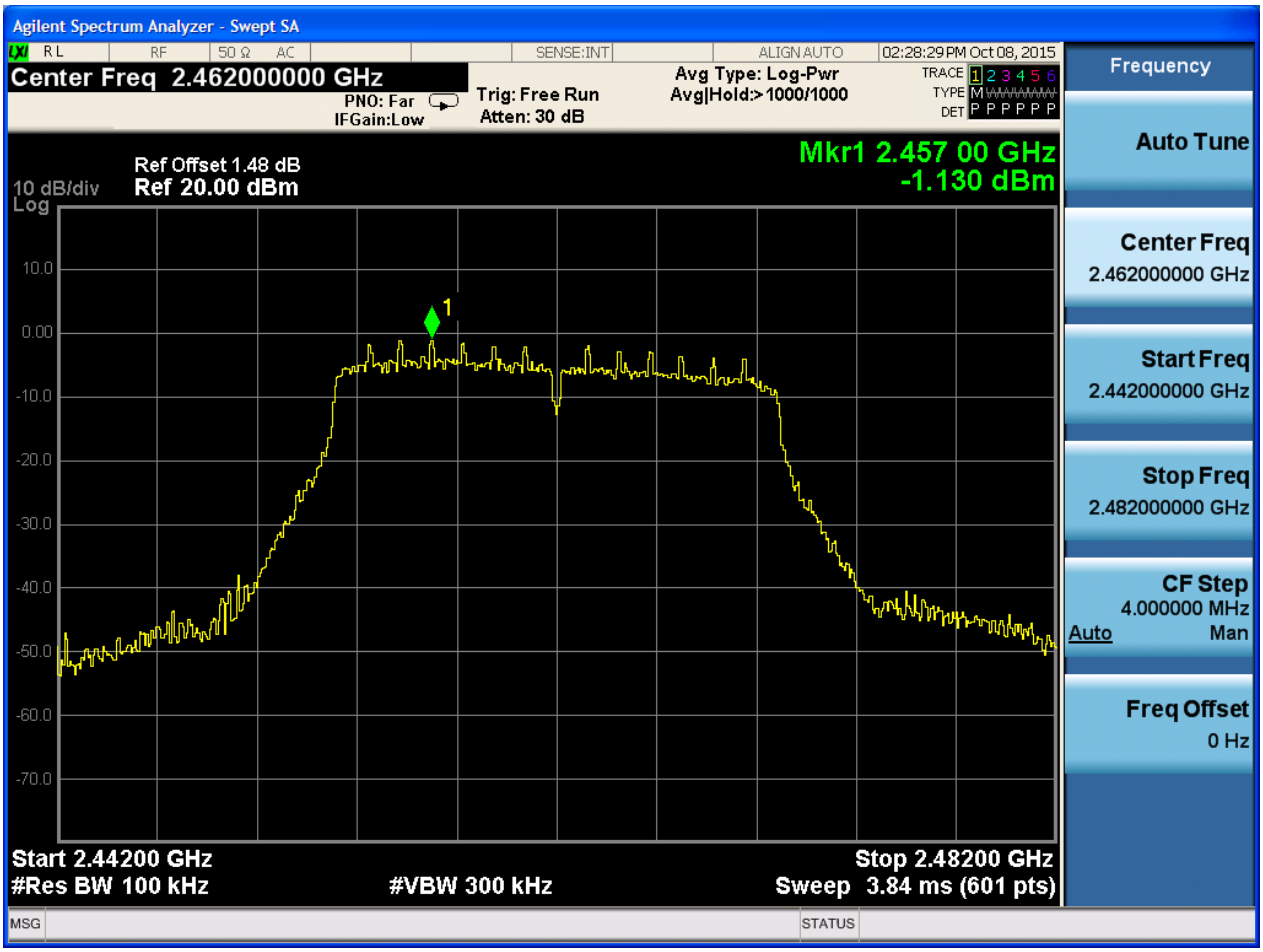






2.17 11N20_H@Ant 1

Pref:



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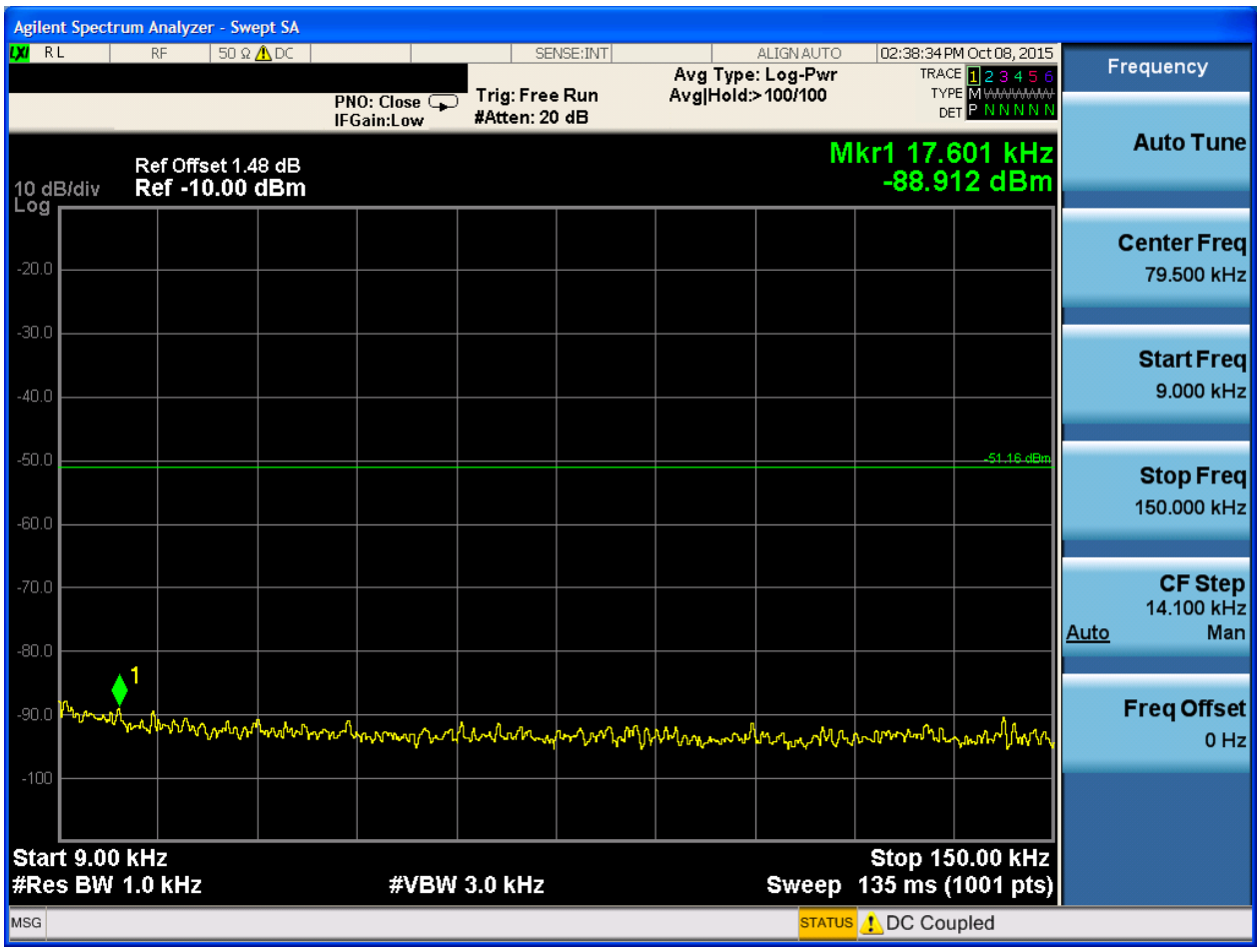
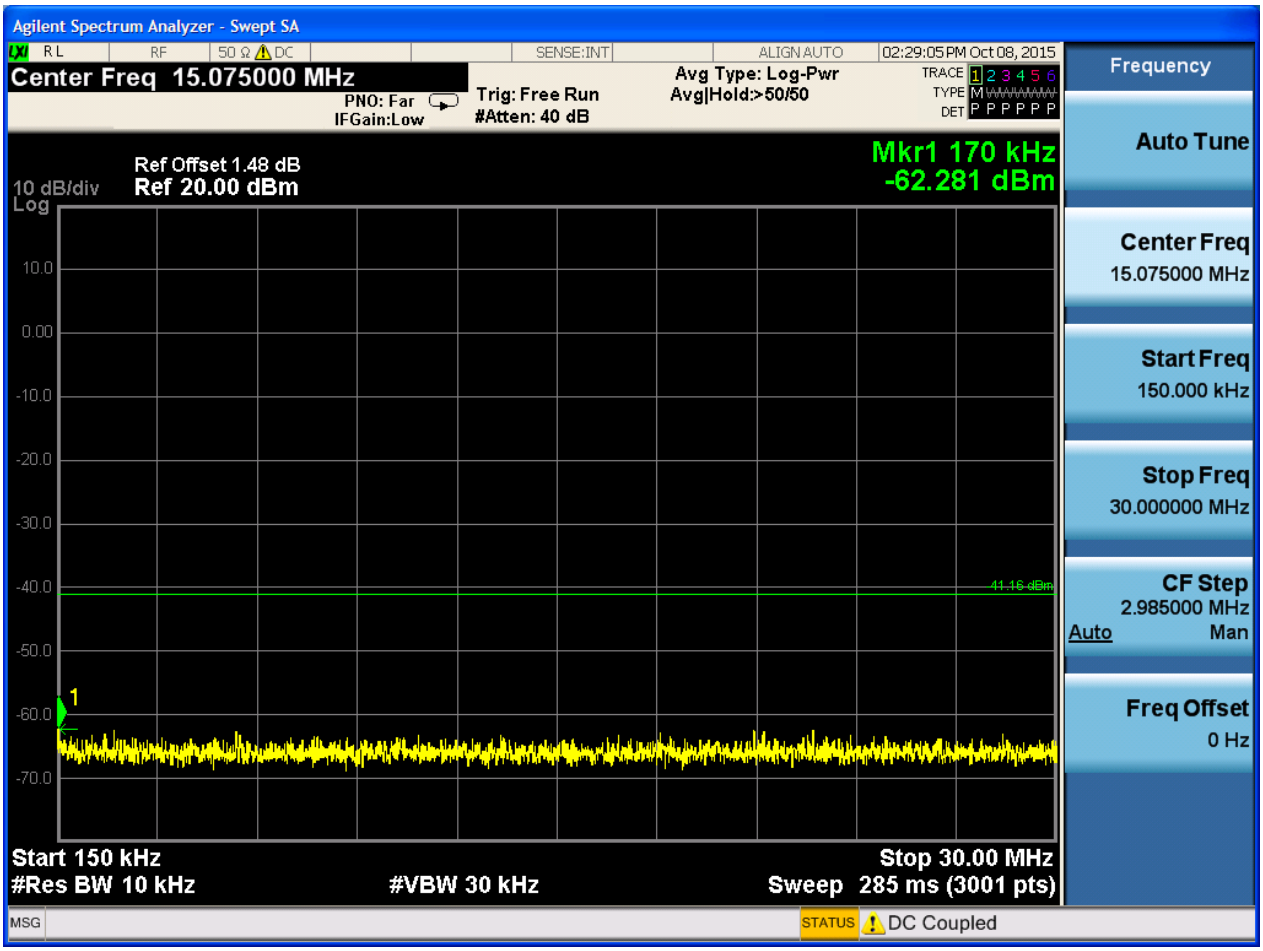
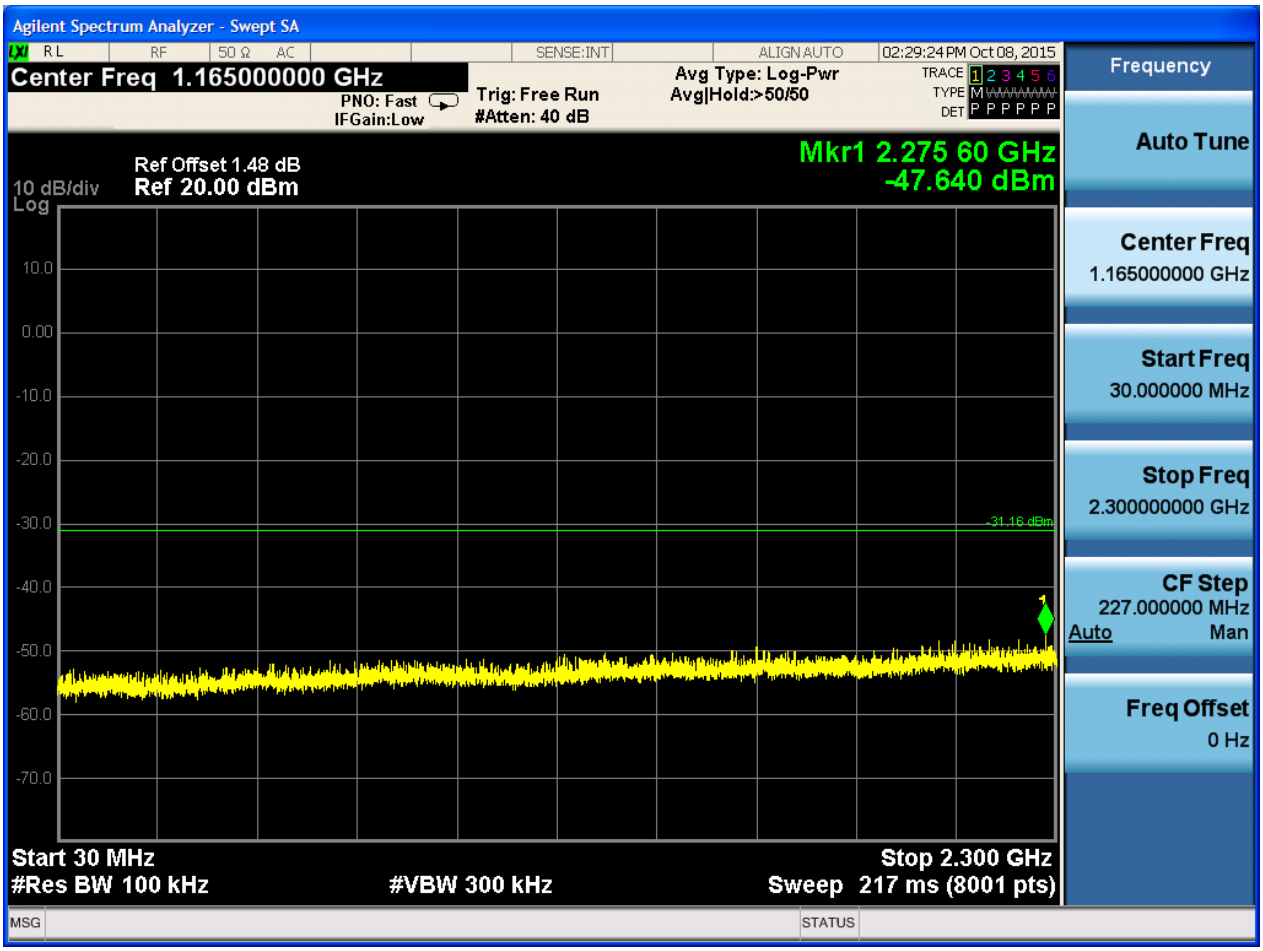
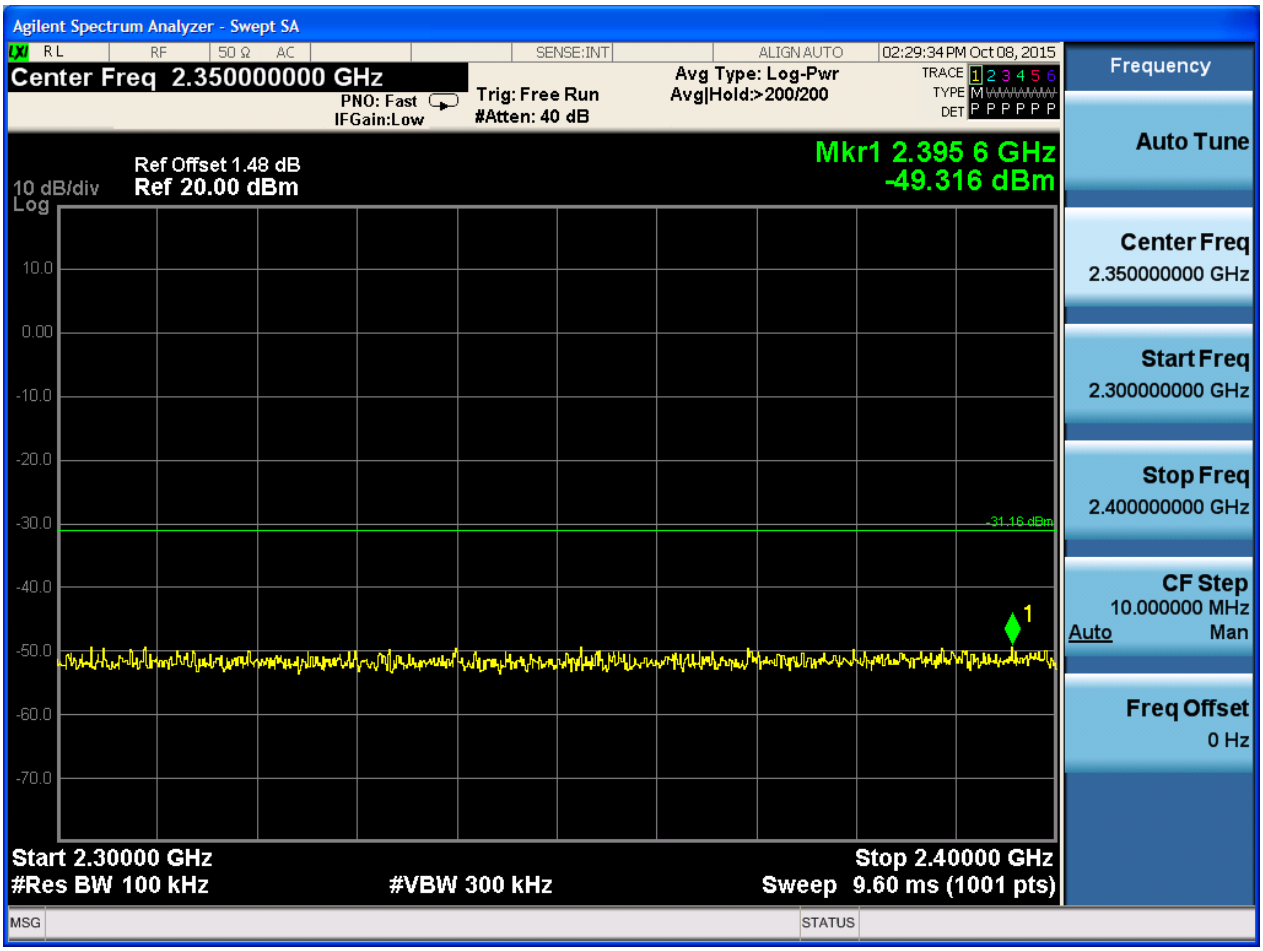
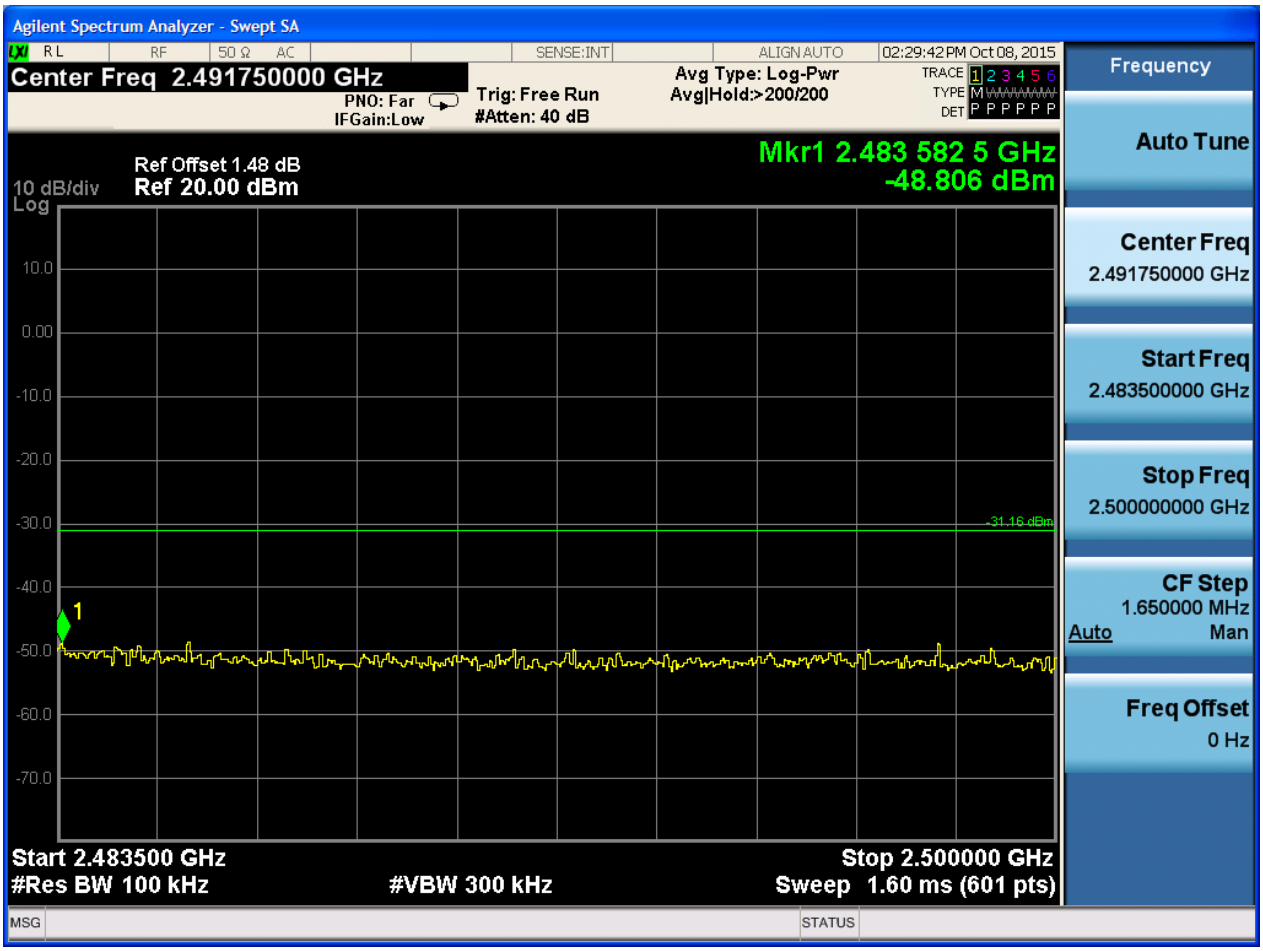
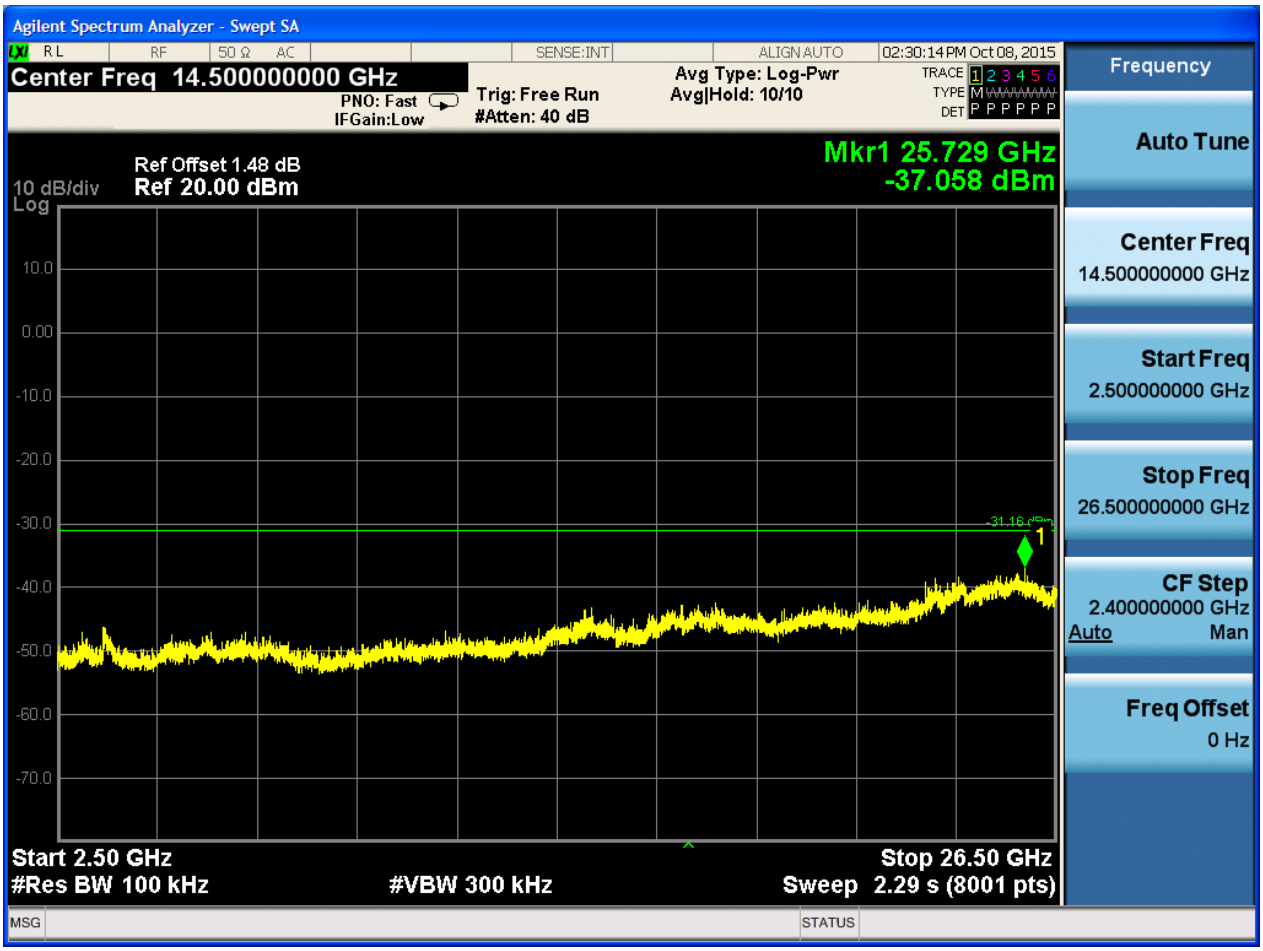

Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω DC
SENSE:INT
ALIGN AUTO
02:38:34 PM Oct 08, 2015
PNO: Close
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 1.48 dB
10 dB/div
Log
Ref -10.00 dBm
Mkr1 17.601 kHz
-88.912 dBm
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
-51.16 dBm
1
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz
Stop 150.00 kHz
Sweep 135 ms (1001 pts)
MSG
STATUS
DC Coupled
Frequency
Auto Tune
Center Freq
79.500 kHz
Start Freq
9.000 kHz
Stop Freq
150.000 kHz
CF Step
14.100 kHz
Auto
Man
Freq Offset
0 Hz











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

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

Part 1: Testing Range of "9 kHz to 30MHz"

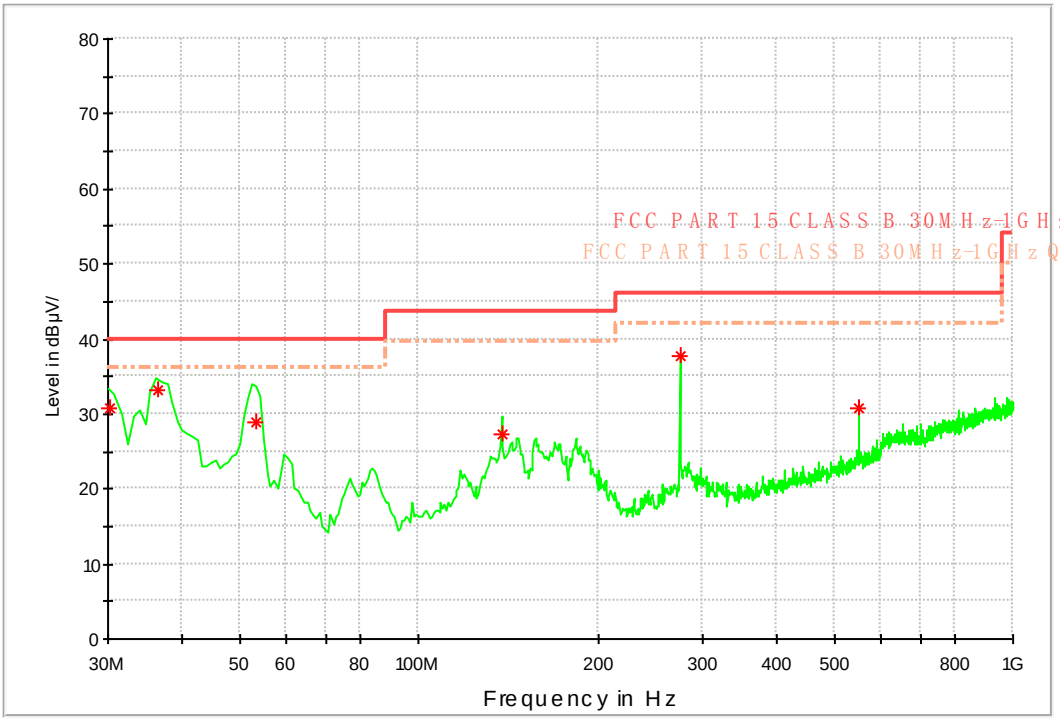
NOTE1: No peak found in the Test Range of "9 kHz to 30MHz"

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)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµ V/m)
30.139110	30.9	120.000	100.0	V	99.0	13.7	14.1	40.0
36.346240	33.2	120.000	100.0	V	40.0	14.8	6.8	40.0
53.099200	28.9	120.000	100.0	V	340.0	14.8	11.1	40.0
137.839040	27.2	120.000	100.0	V	183.0	10.3	16.3	43.5
275.617600	37.8	120.000	124.0	H	303.0	15.1	8.2	46.0
551.212800	30.9	120.000	100.0	V	41.0	21.0	15.1	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"

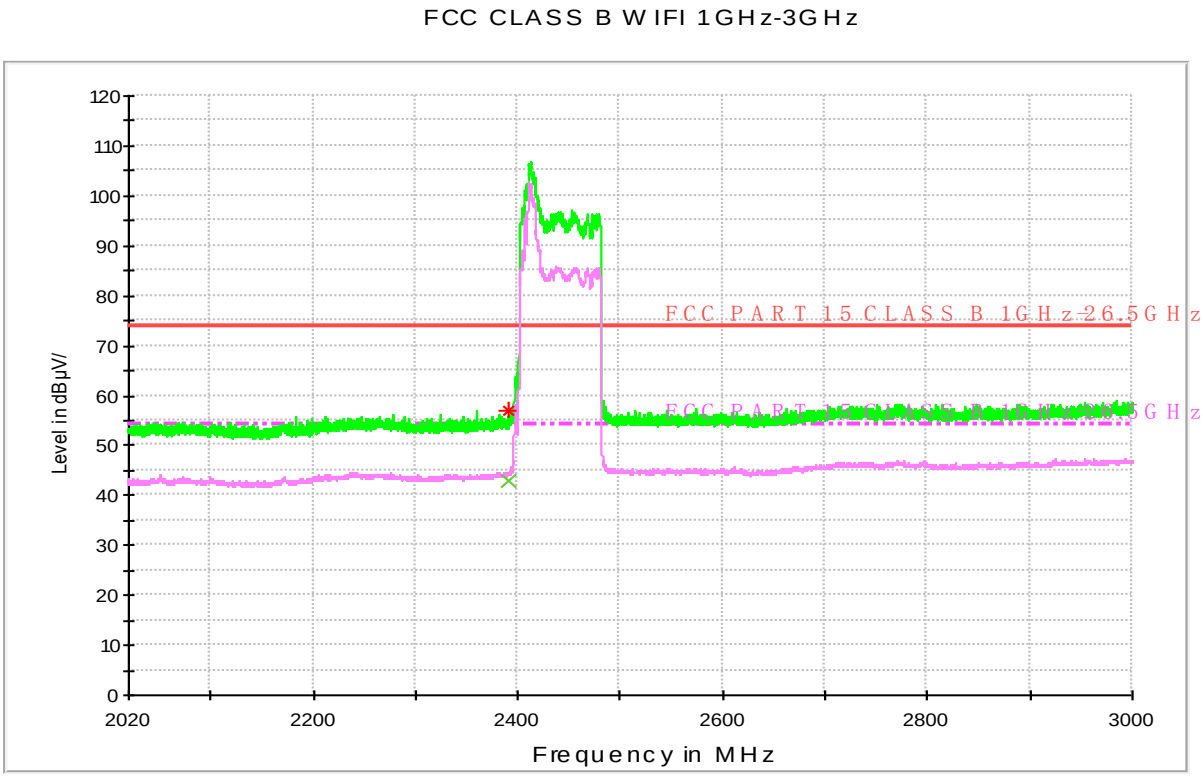
Note 1: The testing range of "2.3 GHz to 2.5 GHz" is for checking radiated emissions located in restricted bands near the EUT operating bands.

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

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

Test Mode: 11b

Channel 1

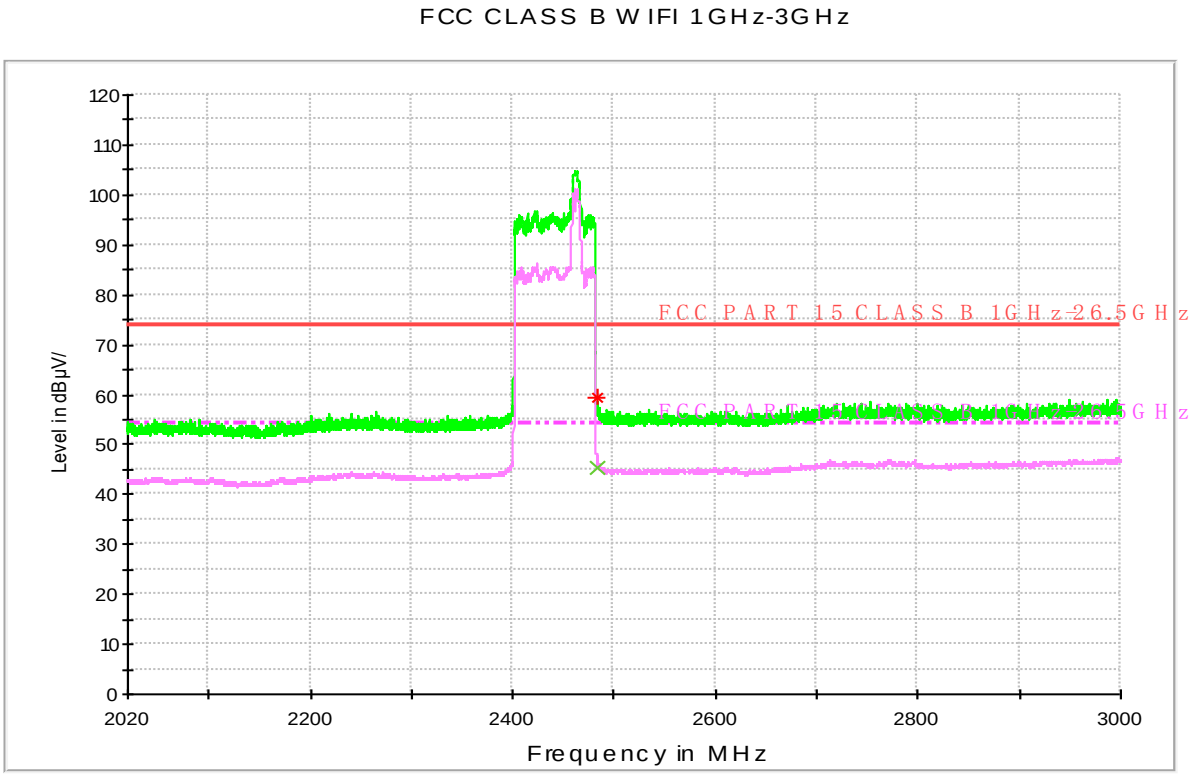


Note: The peak exceeds the limit line is carrier frequency.

MEASUREMENT RESULT: PK/ AV Detector

Frequency (MHz)	MaxPeak (dBμ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)
2390.227700	57.0	15000.0	1000.000	100.0	V	278.0	38.4	17.0
Frequency	Average	Meas.	Bandwidth	Height	Polarization	Azimuth	Corr.	Margin
2390.532000	43.0	15000.0	1000.000	100.0	H	49.0	38.4	11.0

Channel 11



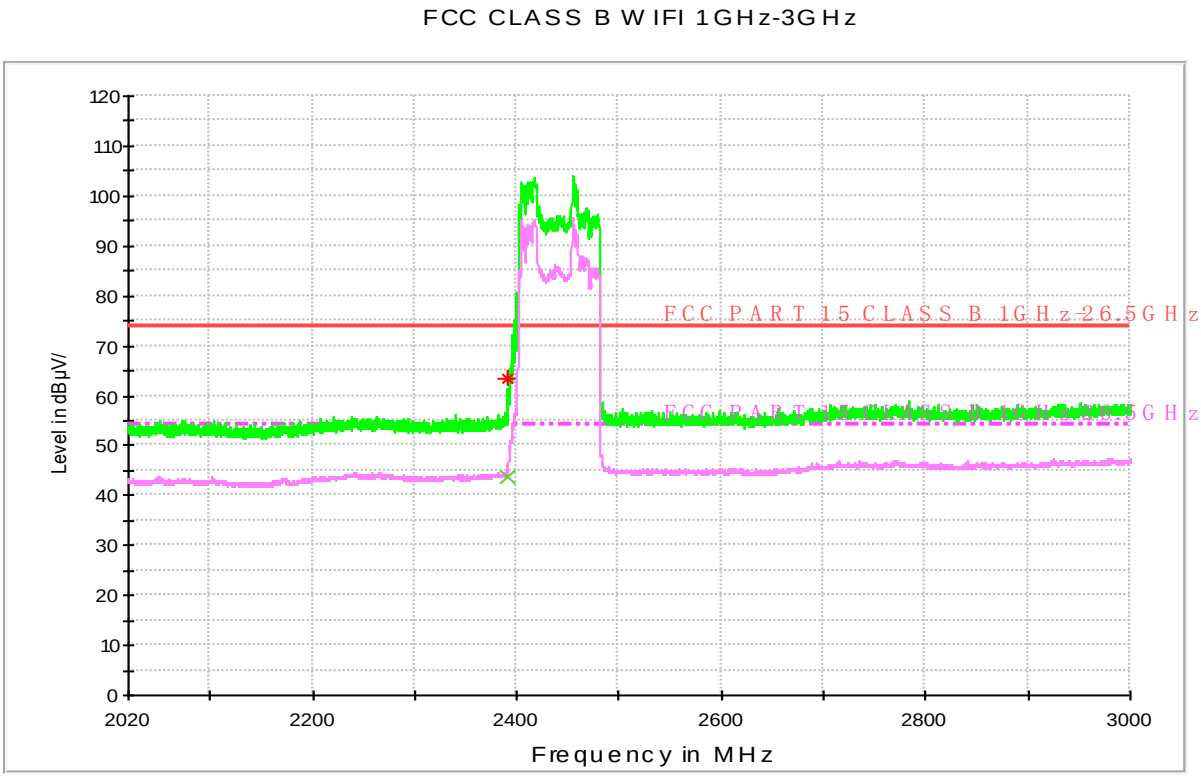
Note: The peak exceeds the limit line is carrier frequency.

MEASUREMENT RESULT: PK/ AV Detector

Frequency (MHz)	MaxPeak (dBµ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)
2483.047600	59.4	15000.0	1000.000	113.0	H	214.0	41.2	14.6
Frequency	Average	Meas.	Bandwidth	Height	Polarization	Azimuth	Corr.	Margin
2483.271800	45.5	15000.0	1000.000	100.0	H	17.0	41.0	8.5

Test Mode: 11g

Channel 1

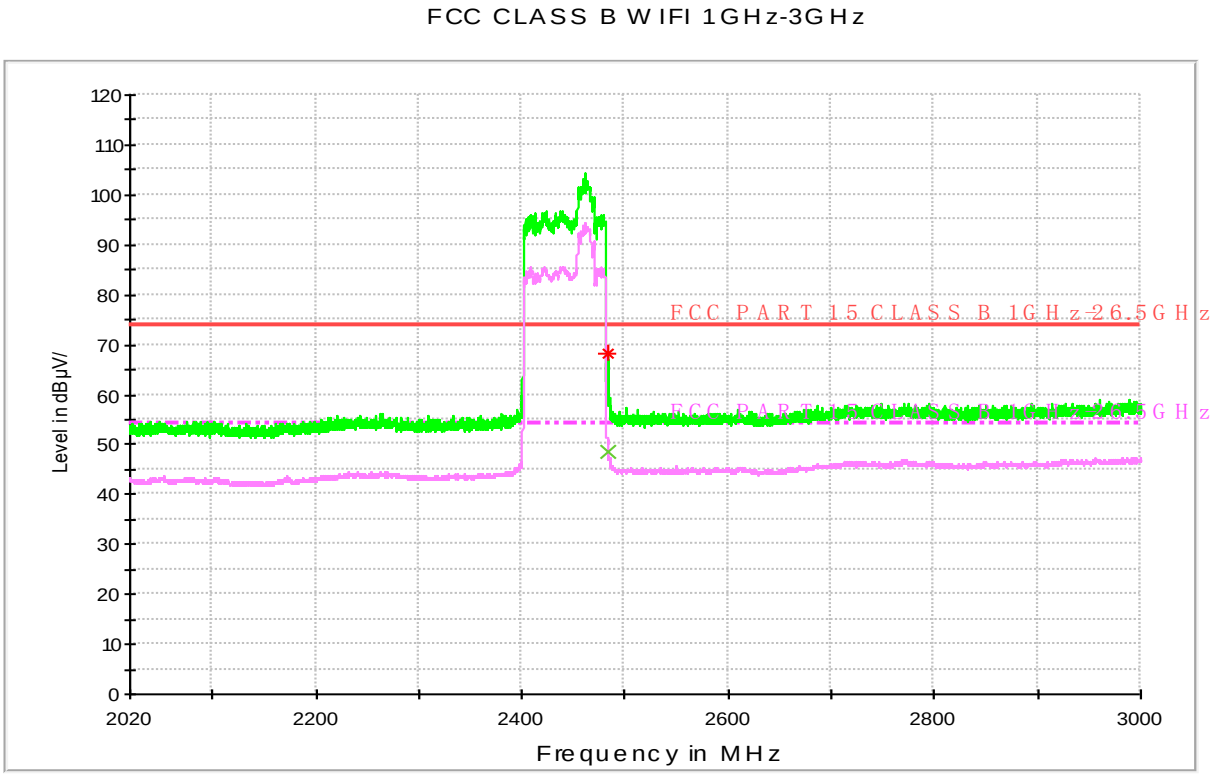


Note: The peak exceeds the limit line is carrier frequency.

MEASUREMENT RESULT: PK/ AV Detector

Frequency (MHz)	MaxPeak (dBµ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)
2390.427300	63.6	15000.0	1000.000	100.0	H	0.0	38.4	10.4
Frequency	Average	Meas.	Bandwidth	Height	Polarization	Azimuth	Corr.	Margin
2390.193200	43.6	15000.0	1000.000	100.0	H	8.0	38.4	10.4

Channel 11



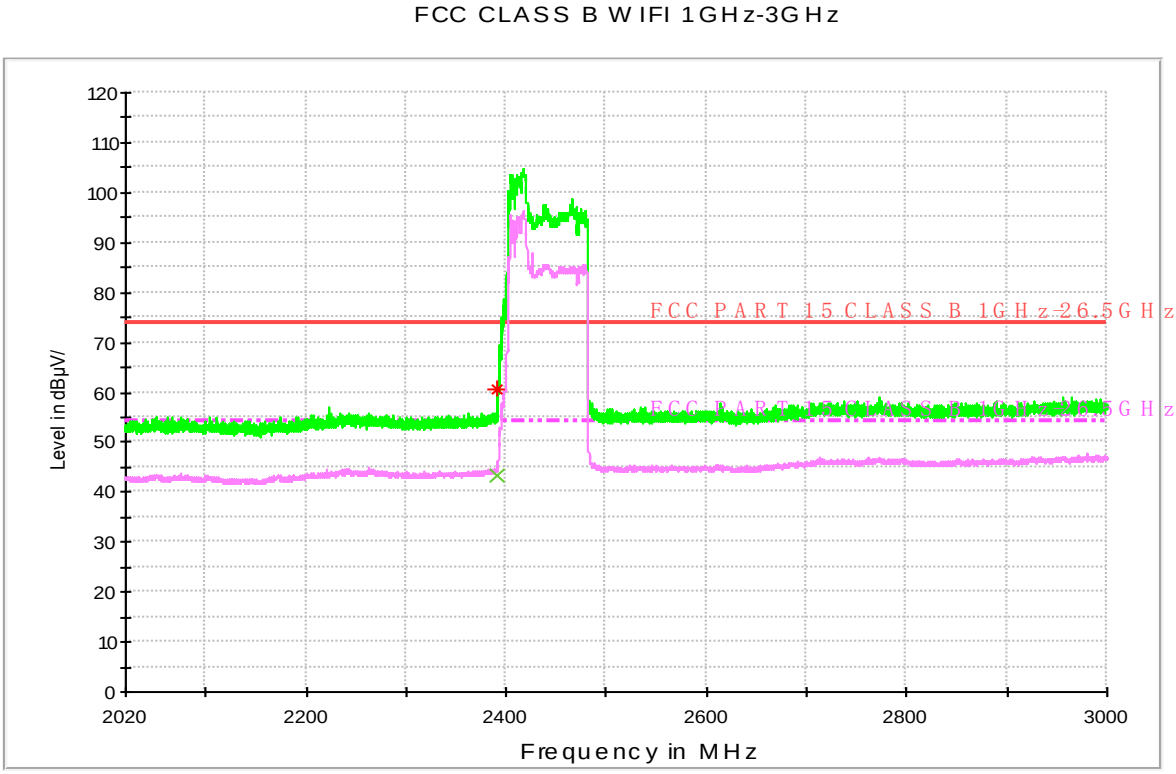
Note: The peak exceeds the limit line is carrier frequency.

MEASUREMENT RESULT: PK/ AV Detector

Frequency (MHz)	MaxPeak (dBµ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)
2483.346600	68.4	15000.0	1000.000	100.0	H	13.0	41.0	5.6
Frequency	Average	Meas.	Bandwidth	Height	Polarization	Azimuth	Corr.	Margin
2483.061600	48.4	15000.0	1000.000	100.0	H	0.0	41.2	5.6

Test Mode: 11N

Channel 1

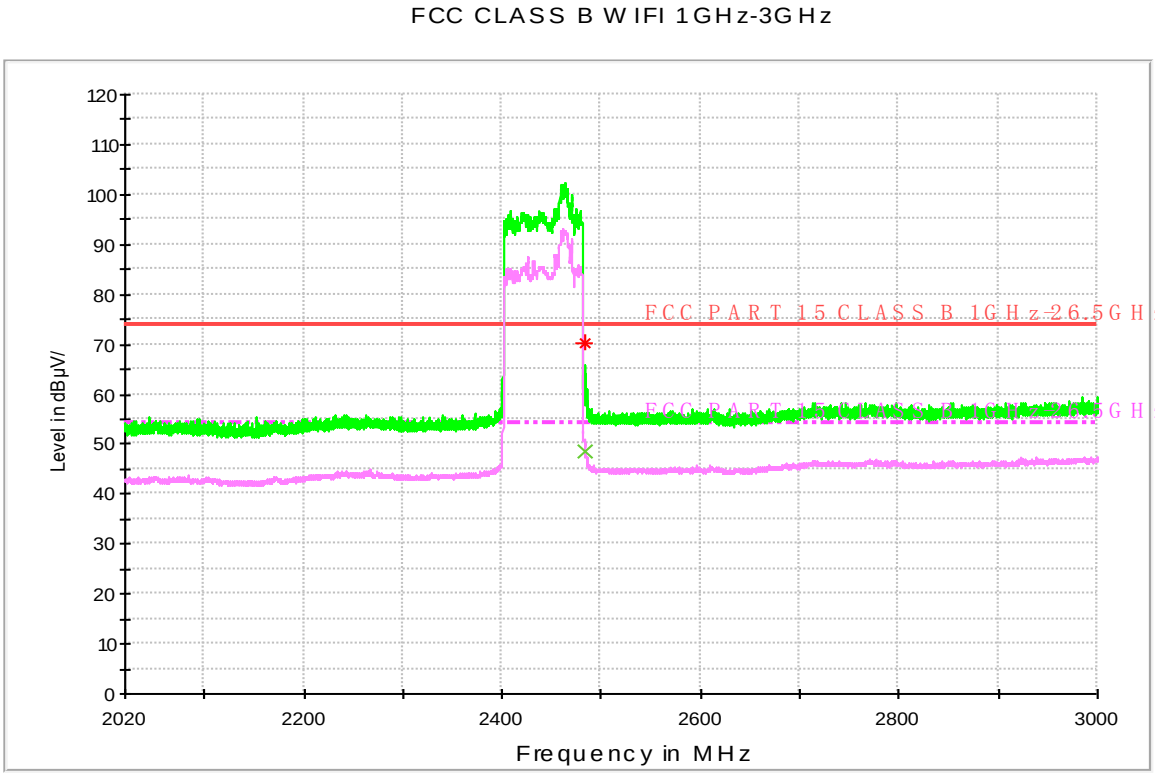


Note: The peak exceeds the limit line is carrier frequency.

MEASUREMENT RESULT: PK/ AV Detector

Frequency (MHz)	MaxPeak (dBµ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)
2390.264500	60.5	15000.0	1000.000	100.0	H	-1.0	38.4	13.5
Frequency	Average	Meas.	Bandwidth	Height	Polarization	Azimuth	Corr.	Margin
2390.109700	43.2	15000.0	1000.000	100.0	H	16.0	38.4	10.8

Channel 11



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

MEASUREMENT RESULT: PK/ AV Detector

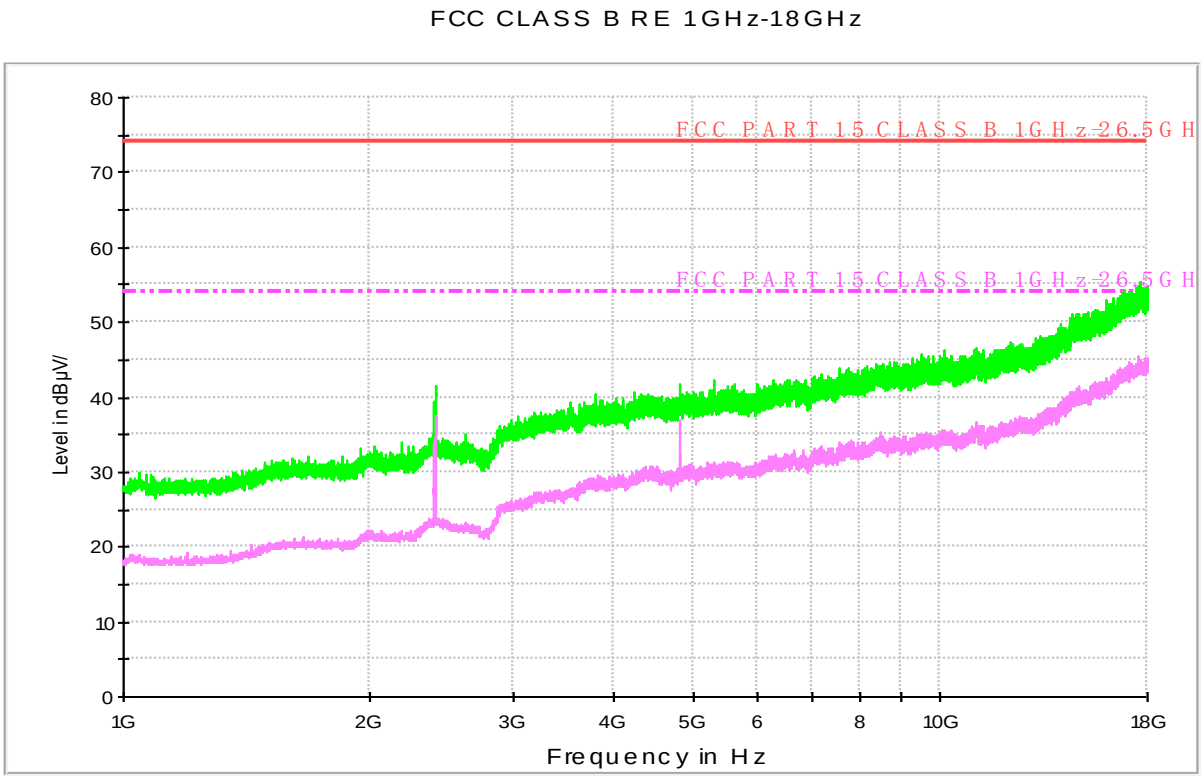
Frequency (MHz)	MaxPeak (dBµ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)
2483.530000	70.2	15000.0	1000.000	100.0	H	10.0	40.8	4.0
Frequency	Average	Meas.	Bandwidth	Height	Polarization	Azimuth	Corr.	Margin
2483.053000	48.4	15000.0	1000.000	100.0	H	2.0	41.2	5.6

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.

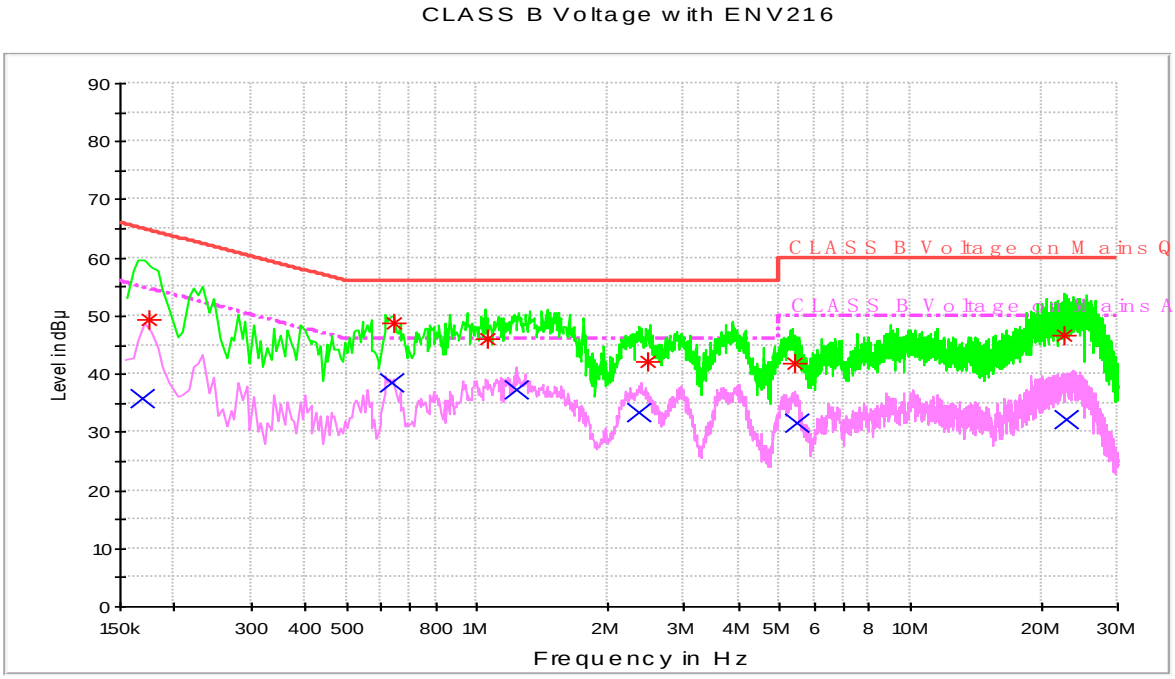
Note 3: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dBμV/m) and Average Limit (54 dBμV/m).



Appendix I: Conducted Emission at Power Port

Note: RBW =9 kHz, VBW = 30 kHz

Channel 6



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174696	49.3	L1	9.8	15.4	64.7
0.639090	48.7	L1	9.8	7.3	56.0
1.049679	46.1	L1	9.8	9.9	56.0
2.463924	42.0	L1	9.8	14.0	56.0
5.379648	42.0	L1	10.0	18.0	60.0
22.564509	46.7	L1	10.2	13.3	60.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.169773	35.9	L1	9.8	19.1	55.0
0.637248	38.5	L1	9.8	7.5	46.0
1.224384	37.5	L1	9.8	8.5	46.0
2.349390	33.5	L1	9.8	12.5	46.0
5.449902	31.7	L1	10.0	18.3	50.0
22.851609	32.3	N	10.2	17.7	50.0

END