



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.

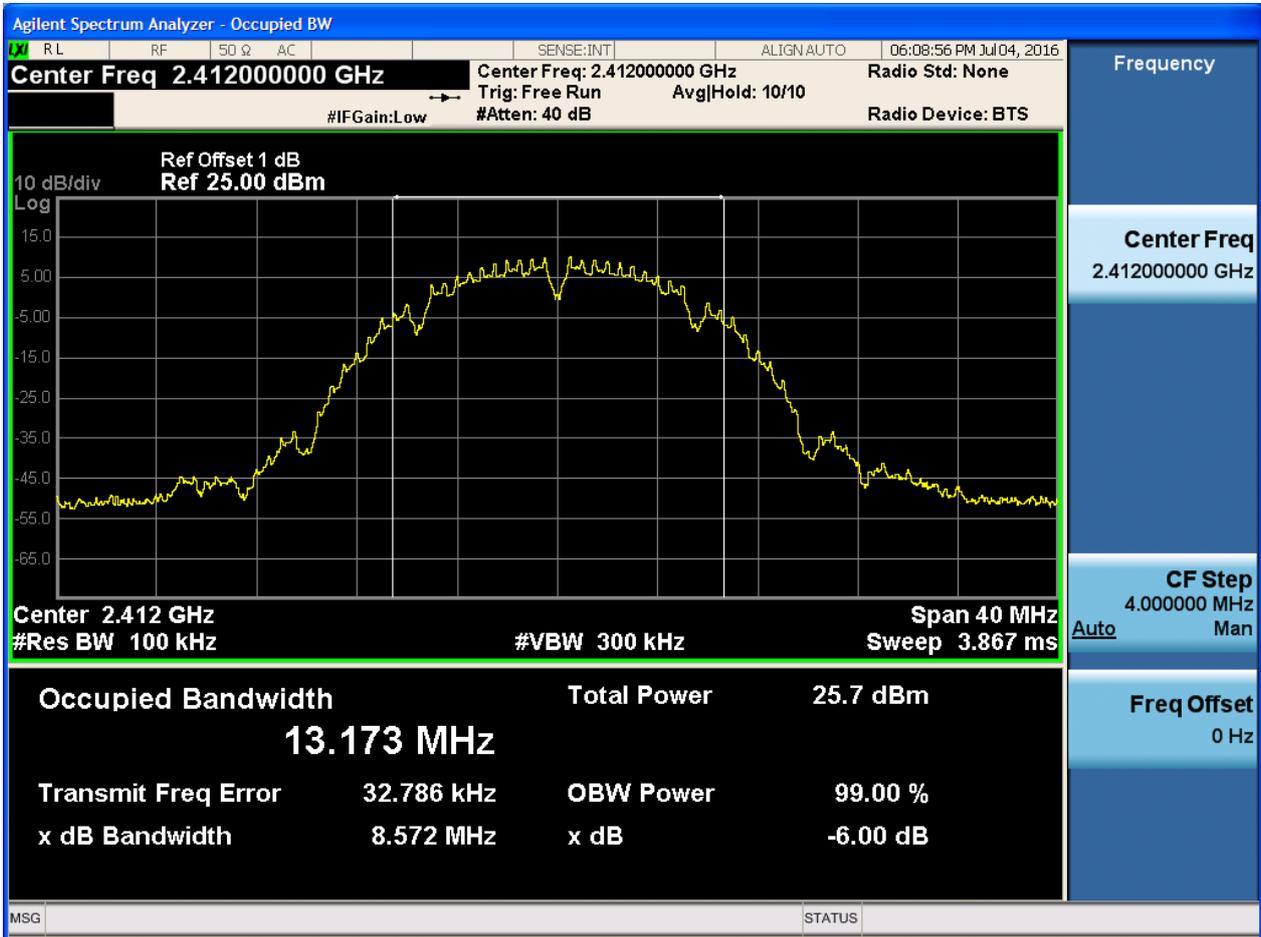
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	DTS6dBBW[MHz]	Verdict
11B	L	2412	Ant 1	8.57	pass
11B	M	2437	Ant 1	8.59	pass
11B	H	2462	Ant 1	8.61	pass
11G	L	2412	Ant 1	16.42	pass
11G	M	2437	Ant 1	16.43	pass
11G	H	2462	Ant 1	16.39	pass
11N20	L	2412	Ant 1	17.64	pass
11N20	M	2437	Ant 1	17.62	pass
11N20	H	2462	Ant 1	17.62	pass



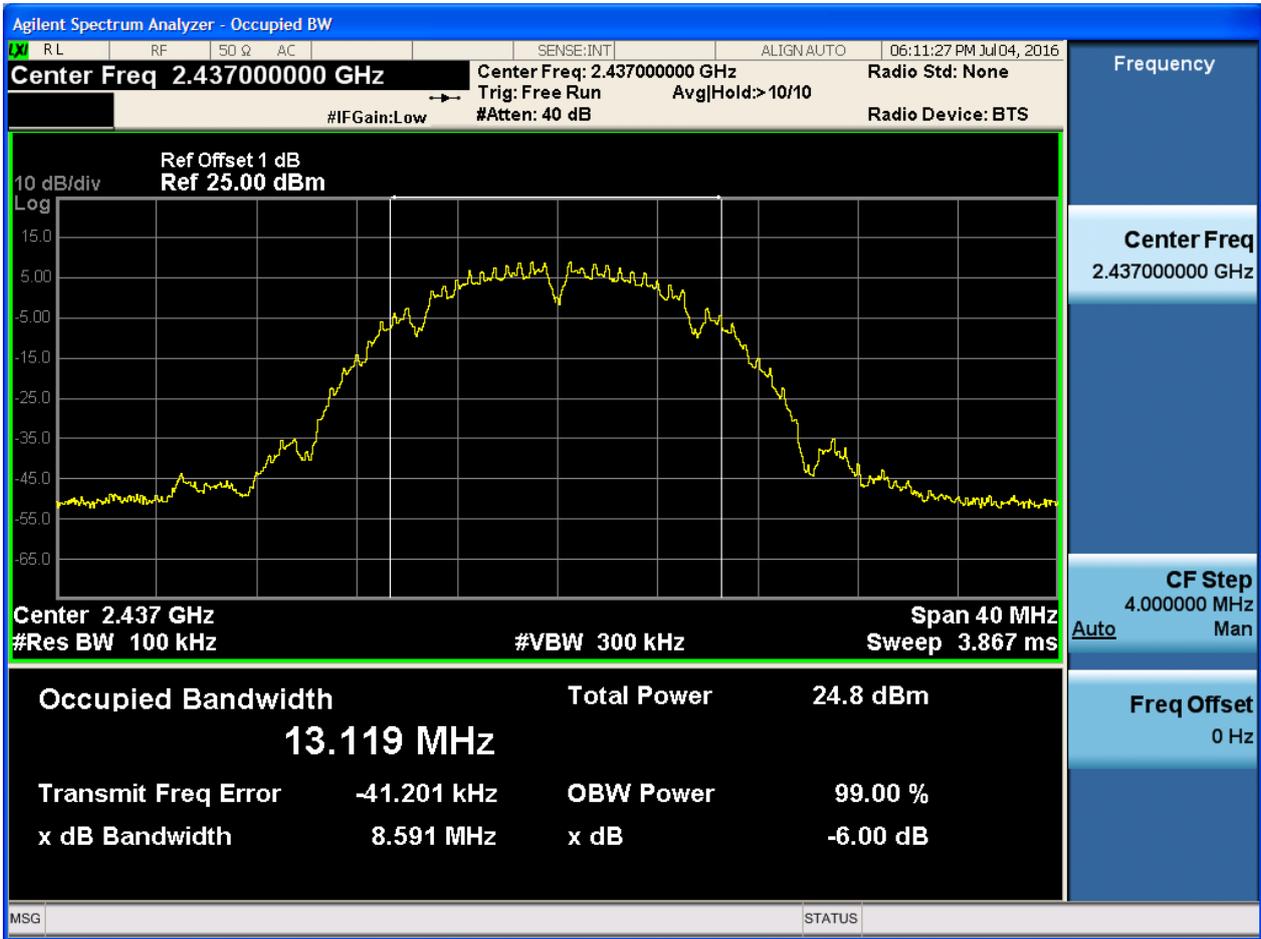
Part II - Test Plots

2.1 11B_L@Ant 1



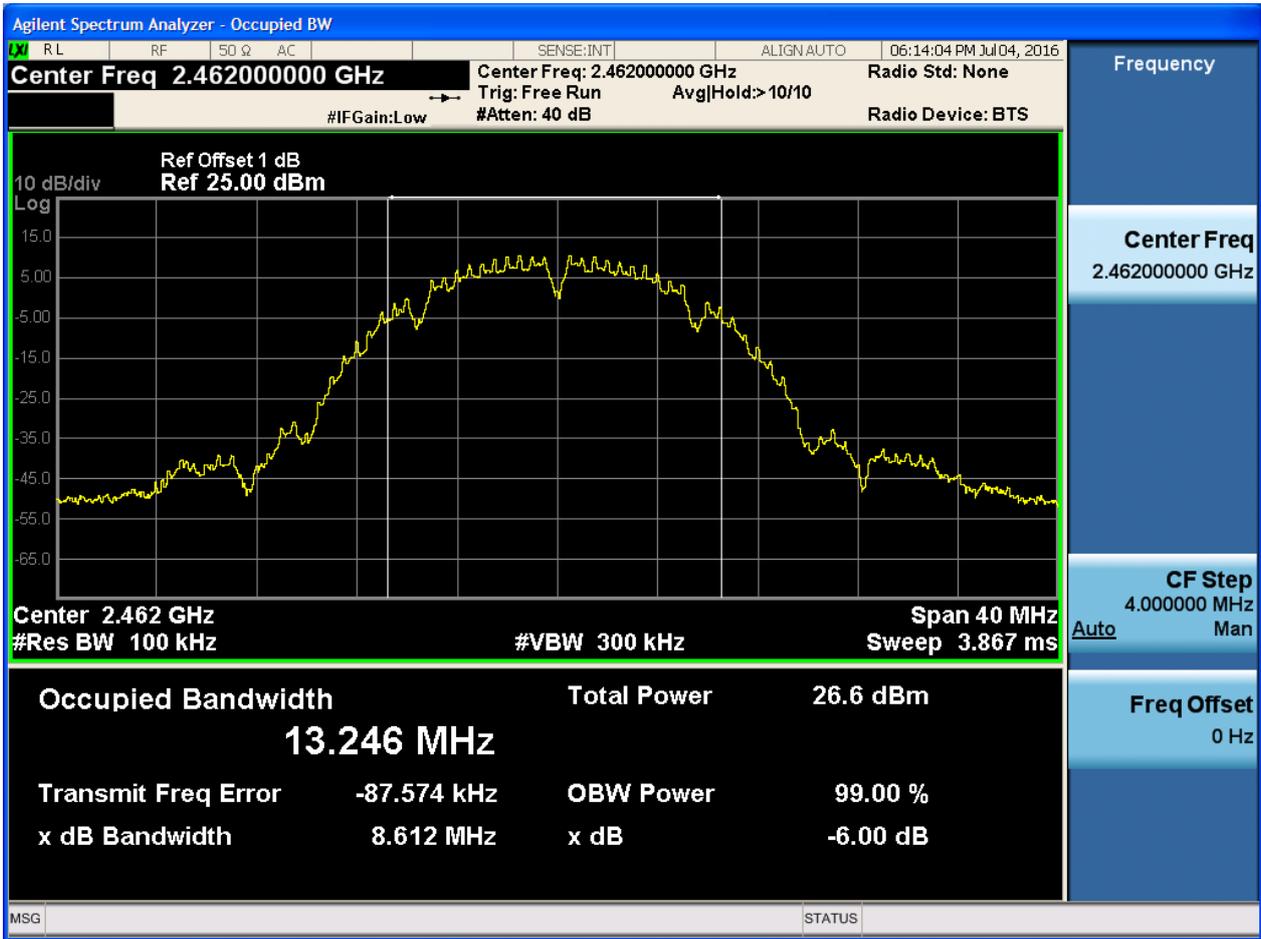


2.2 11B_M@Ant 1



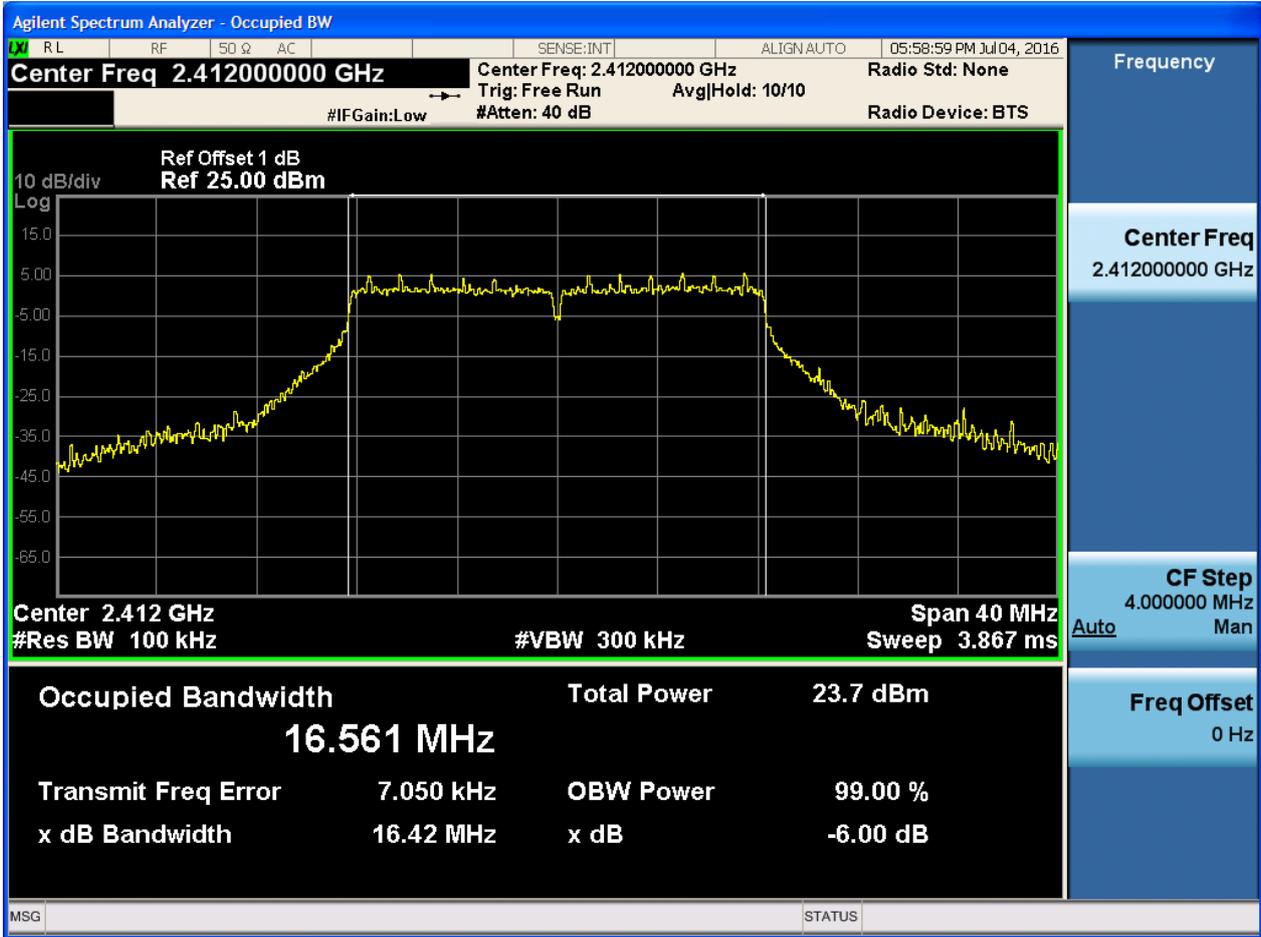


2.3 11B_H@Ant 1



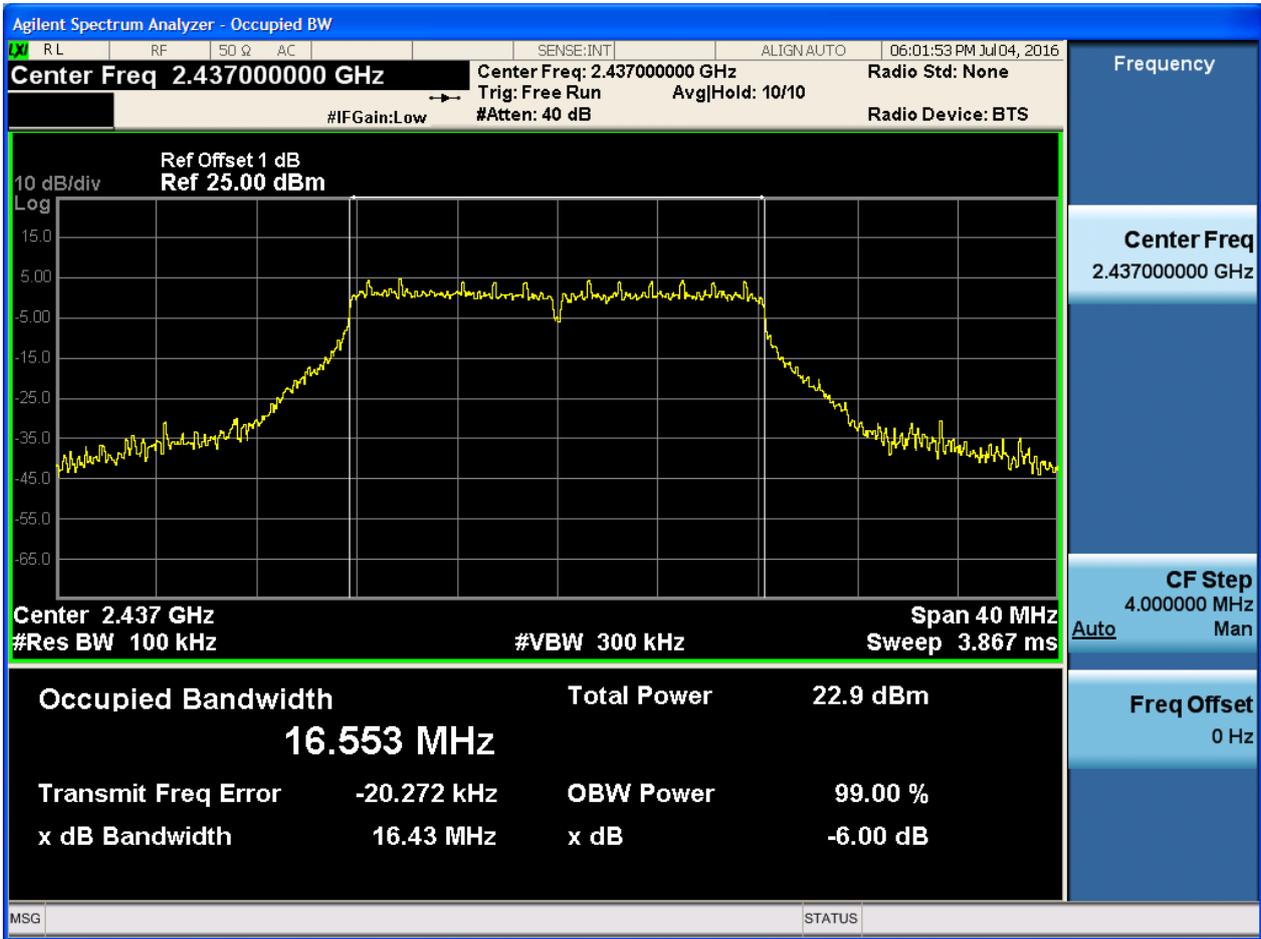


2.4 11G_L@Ant 1



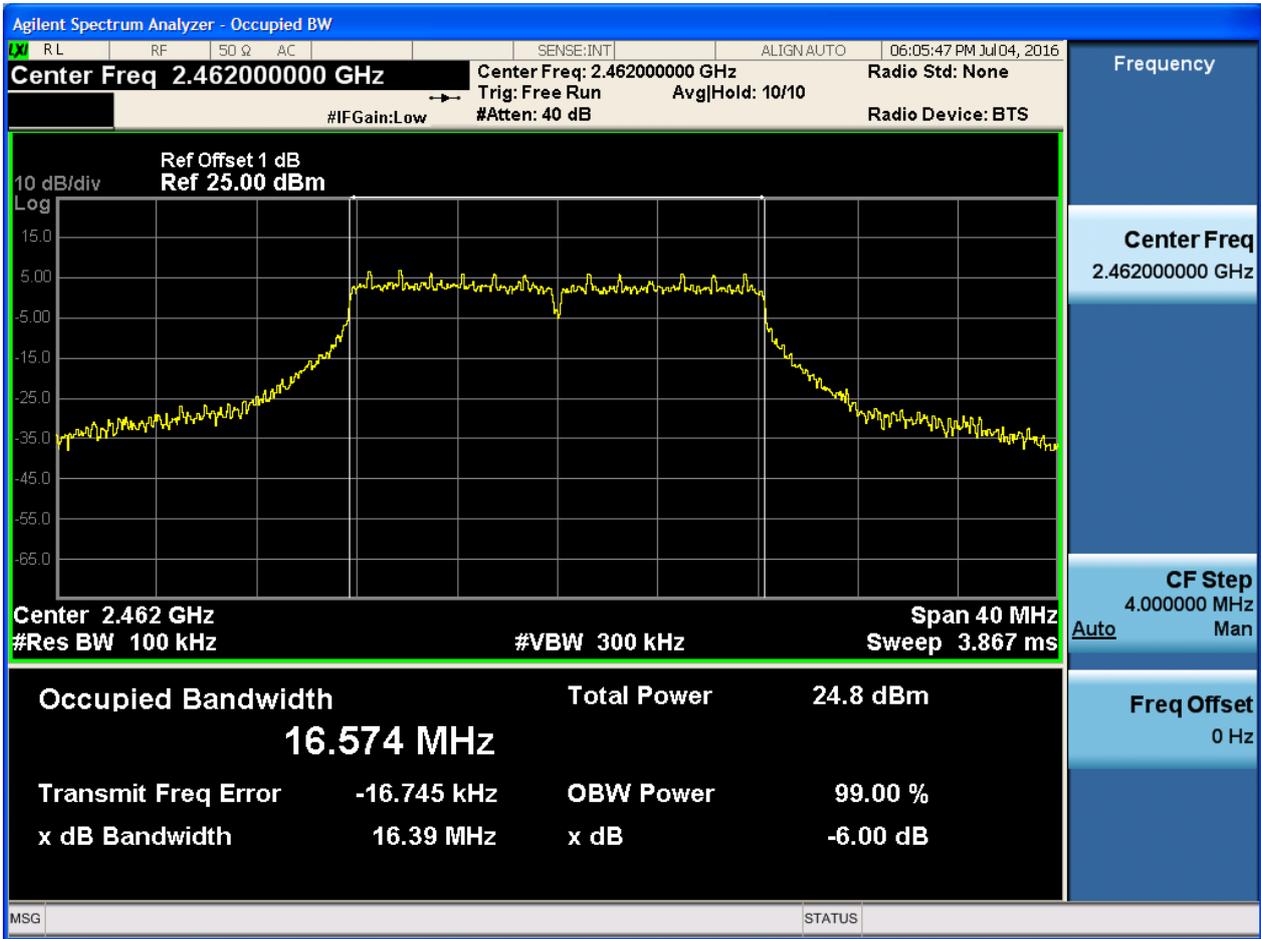


2.5 11G_M@Ant 1



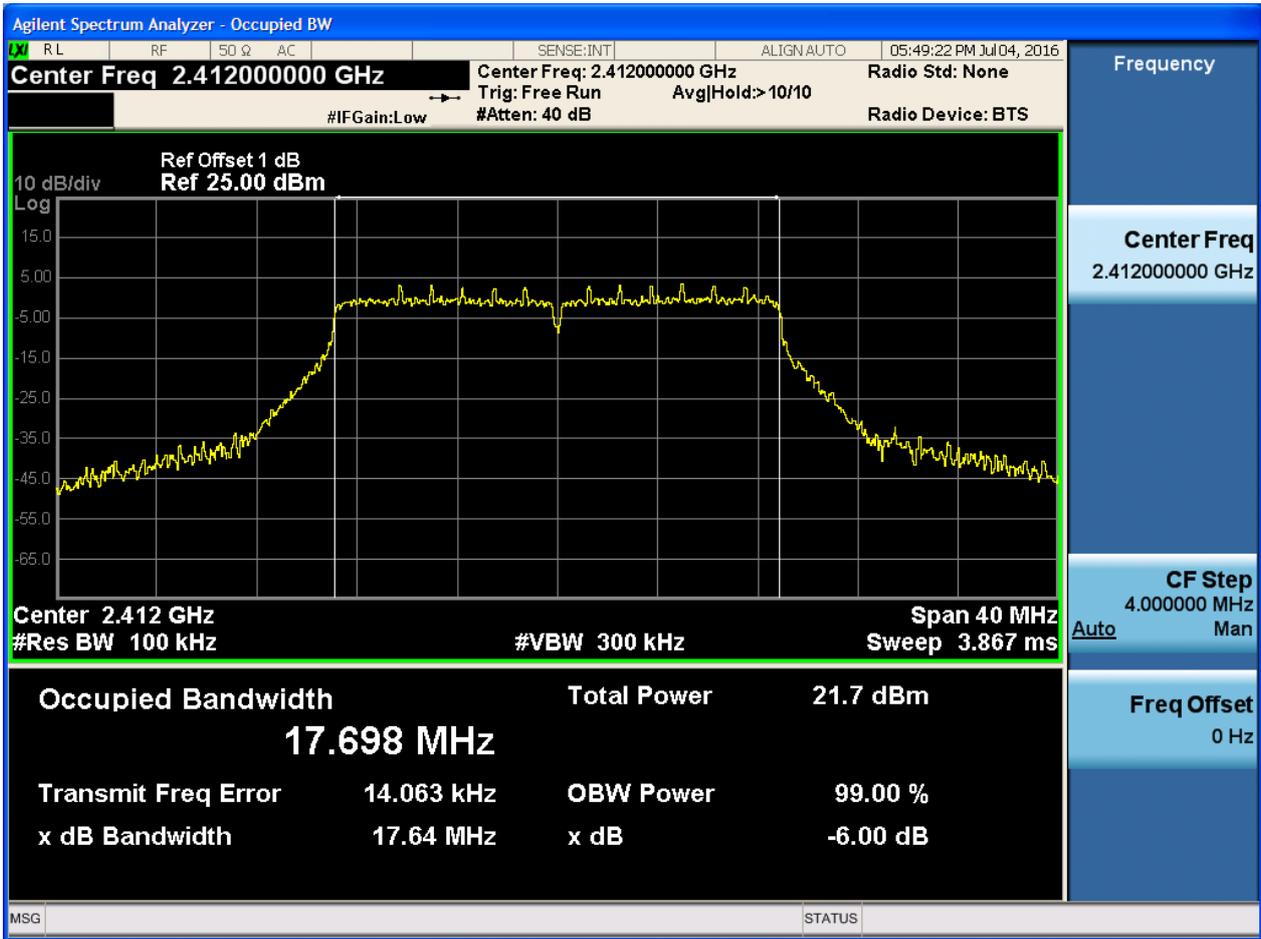


2.6 11G_H@Ant 1



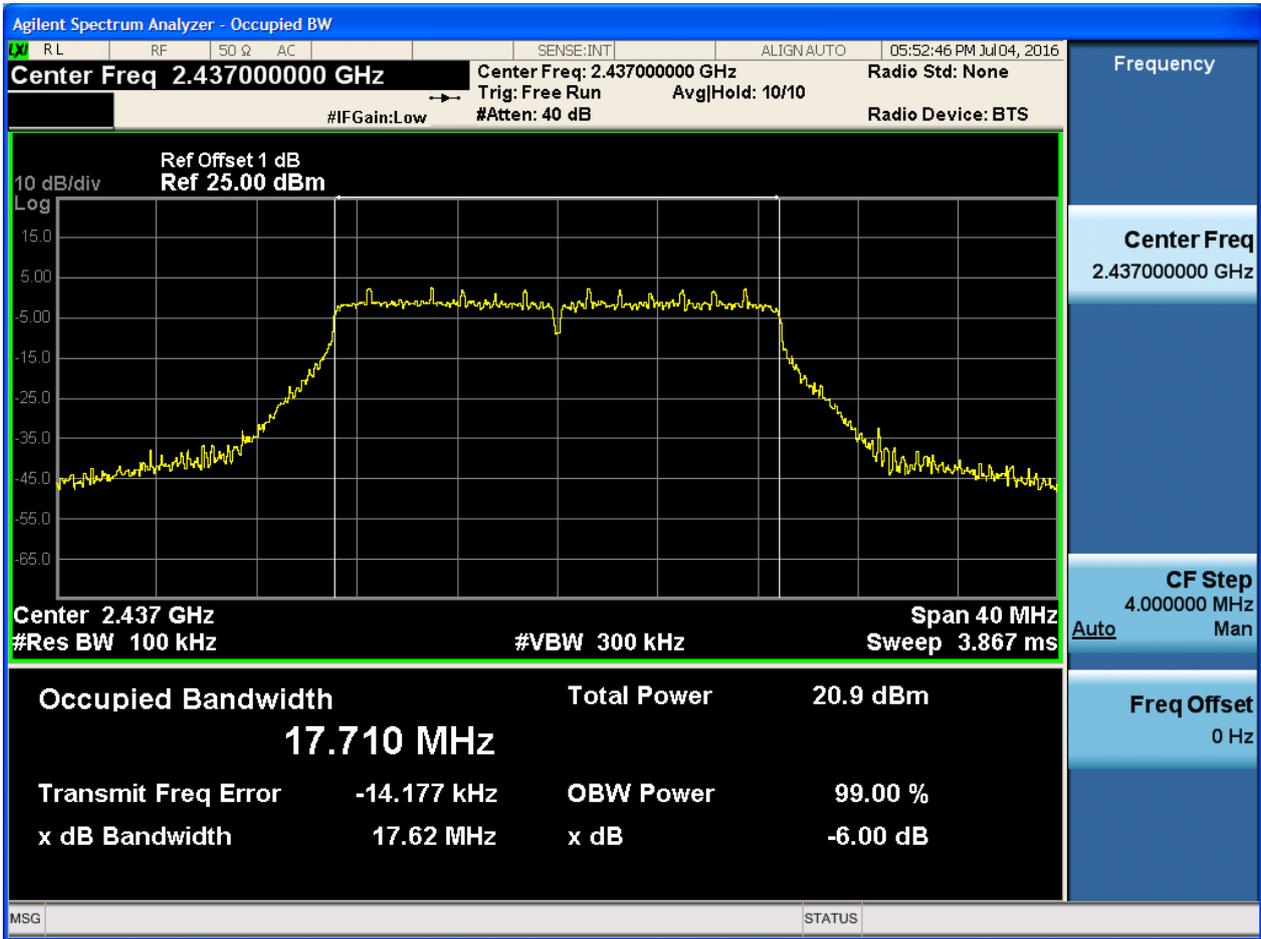


2.7 11N20_L@Ant 1



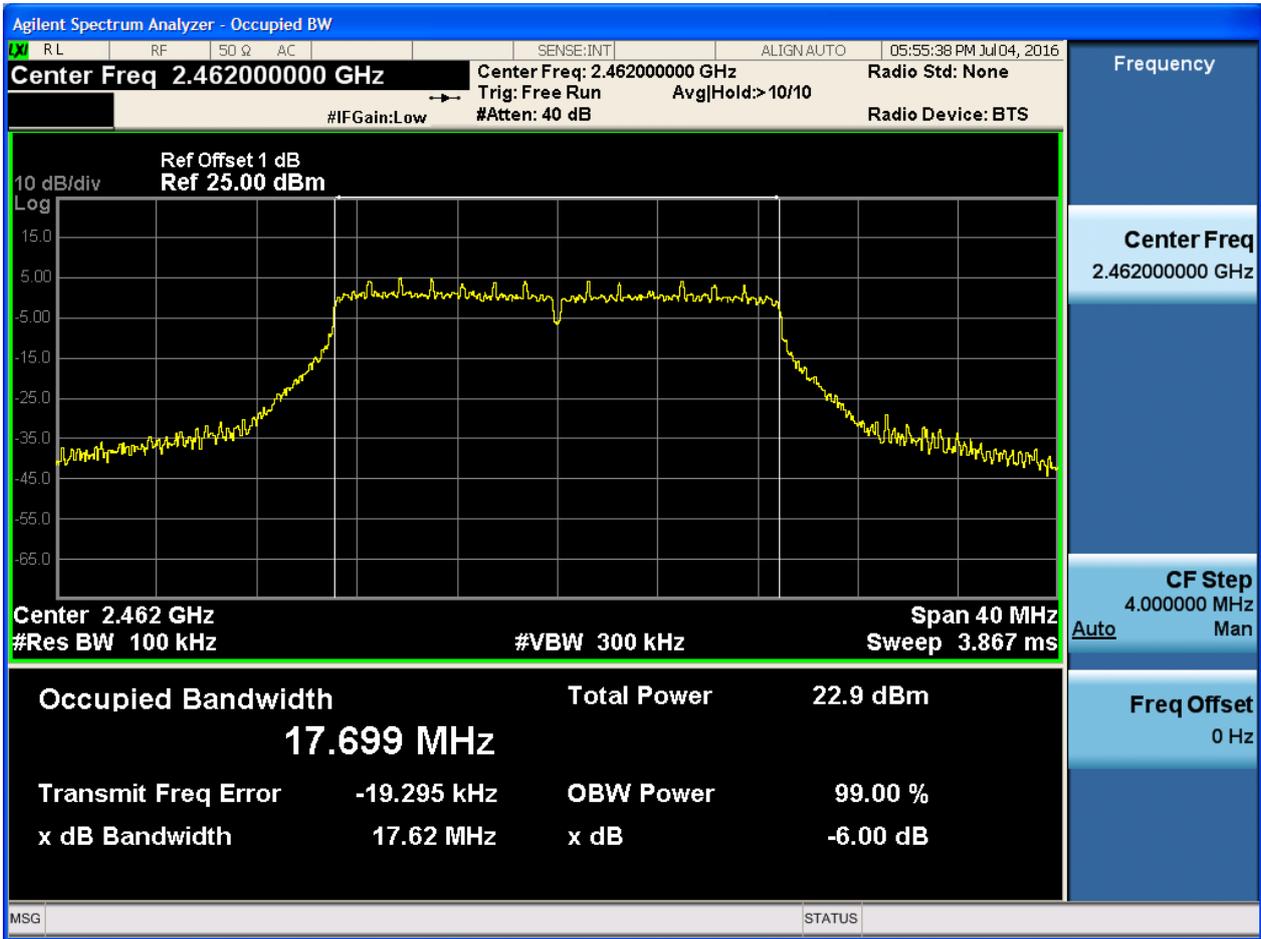


2.8 11N20_M@Ant 1





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.

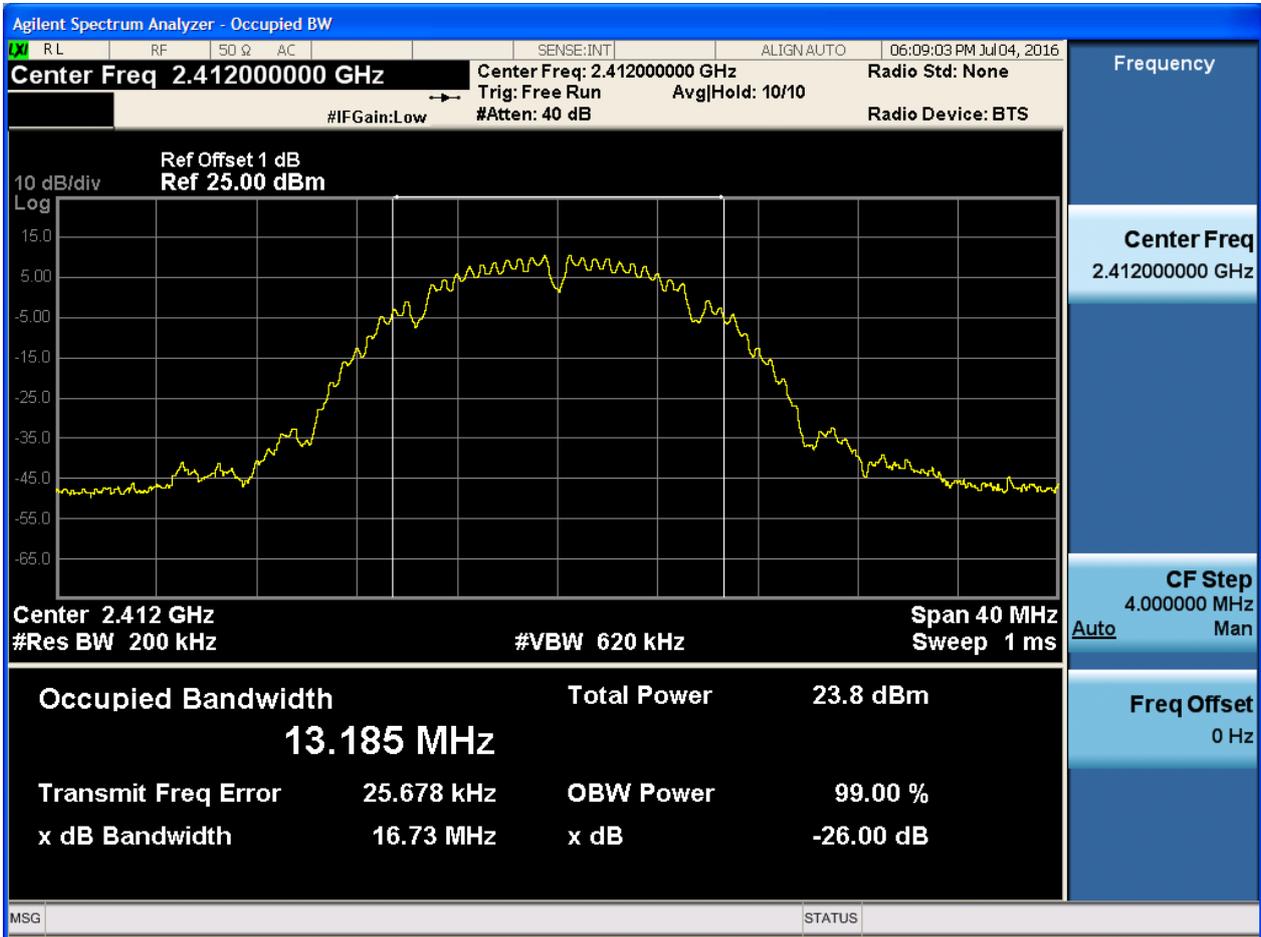
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Occupied Bandwidth [MHz]	Verdict
11B	L	2412	Ant 1	13.19	pass
11B	M	2437	Ant 1	13.15	pass
11B	H	2462	Ant 1	13.25	pass
11G	L	2412	Ant 1	16.81	pass
11G	M	2437	Ant 1	16.77	pass
11G	H	2462	Ant 1	16.79	pass
11N20	L	2412	Ant 1	17.85	pass
11N20	M	2437	Ant 1	17.85	pass
11N20	H	2462	Ant 1	17.84	pass



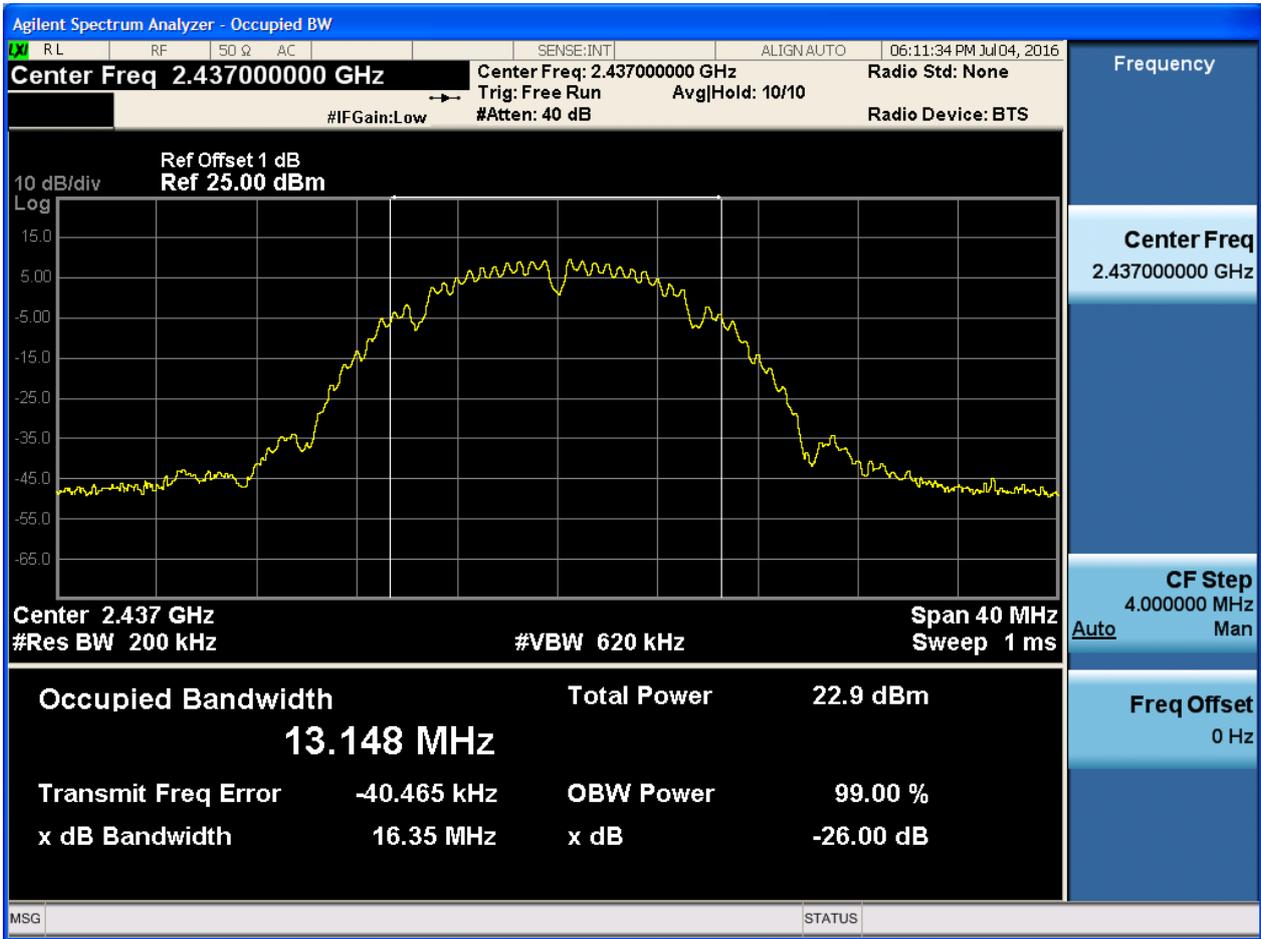
Part II - Test Plots

2.1 11B_L@Ant 1



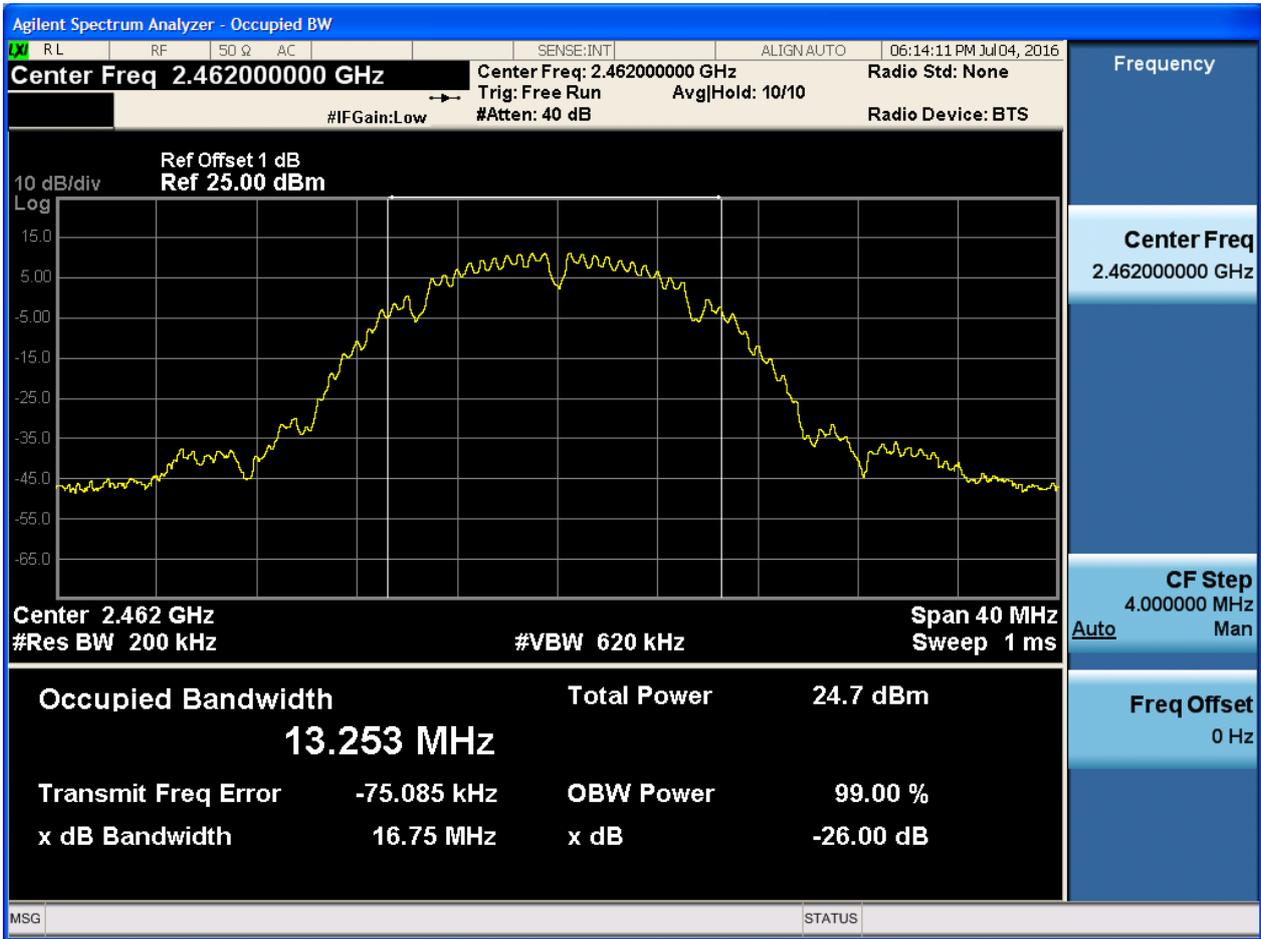


2.2 11B_M@Ant 1



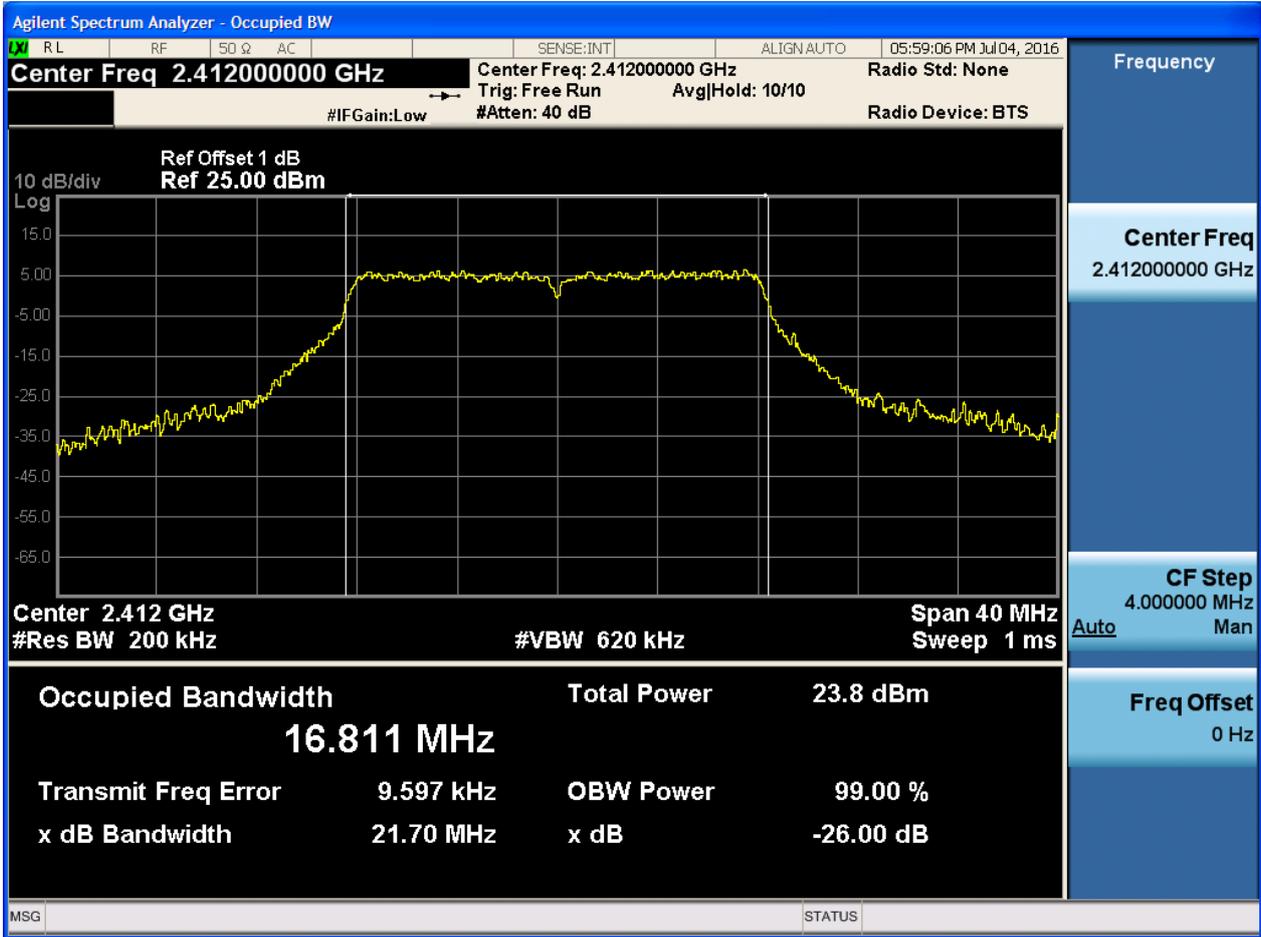


2.3 11B_H@Ant 1



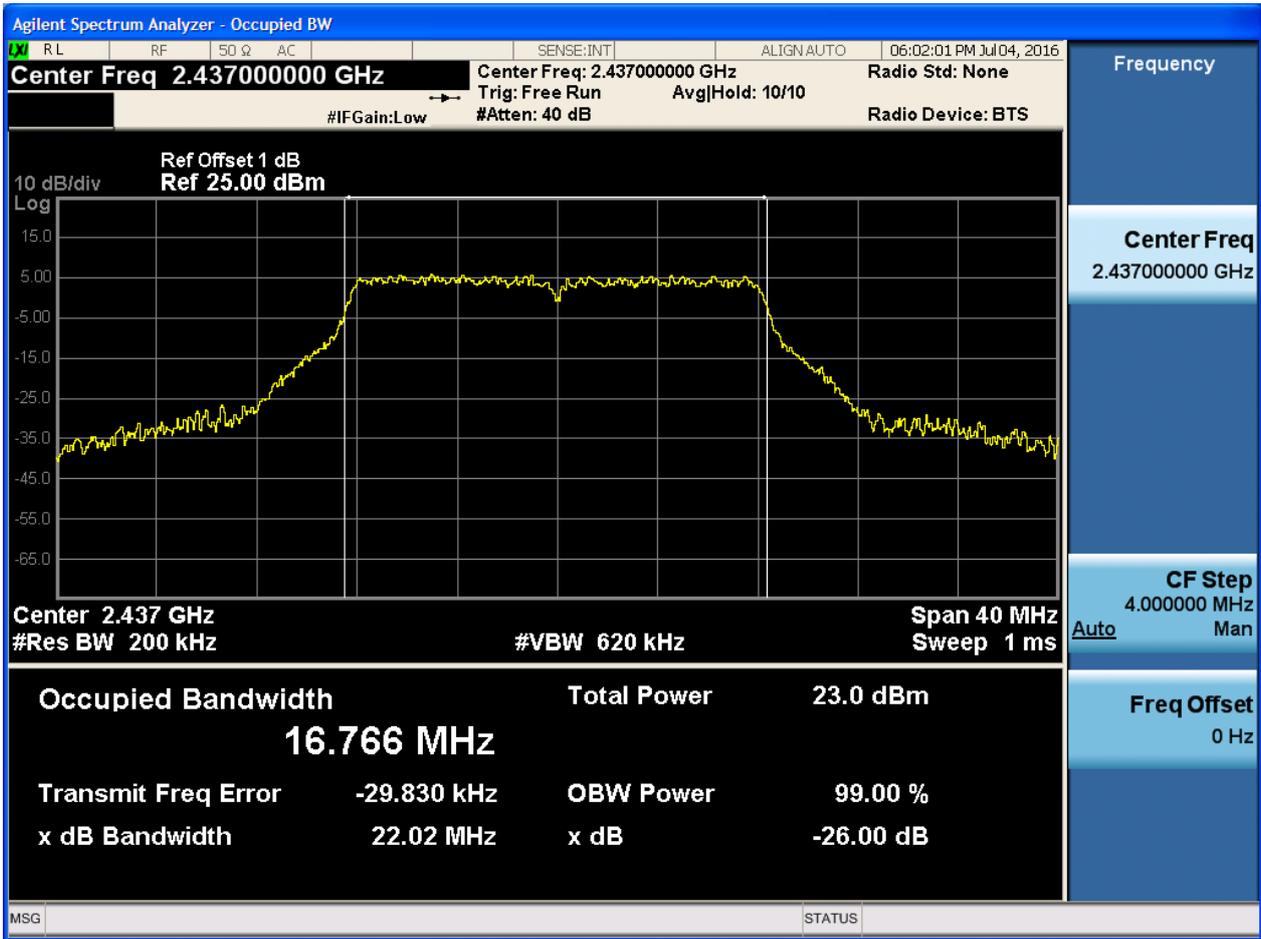


2.4 11G_L@Ant 1



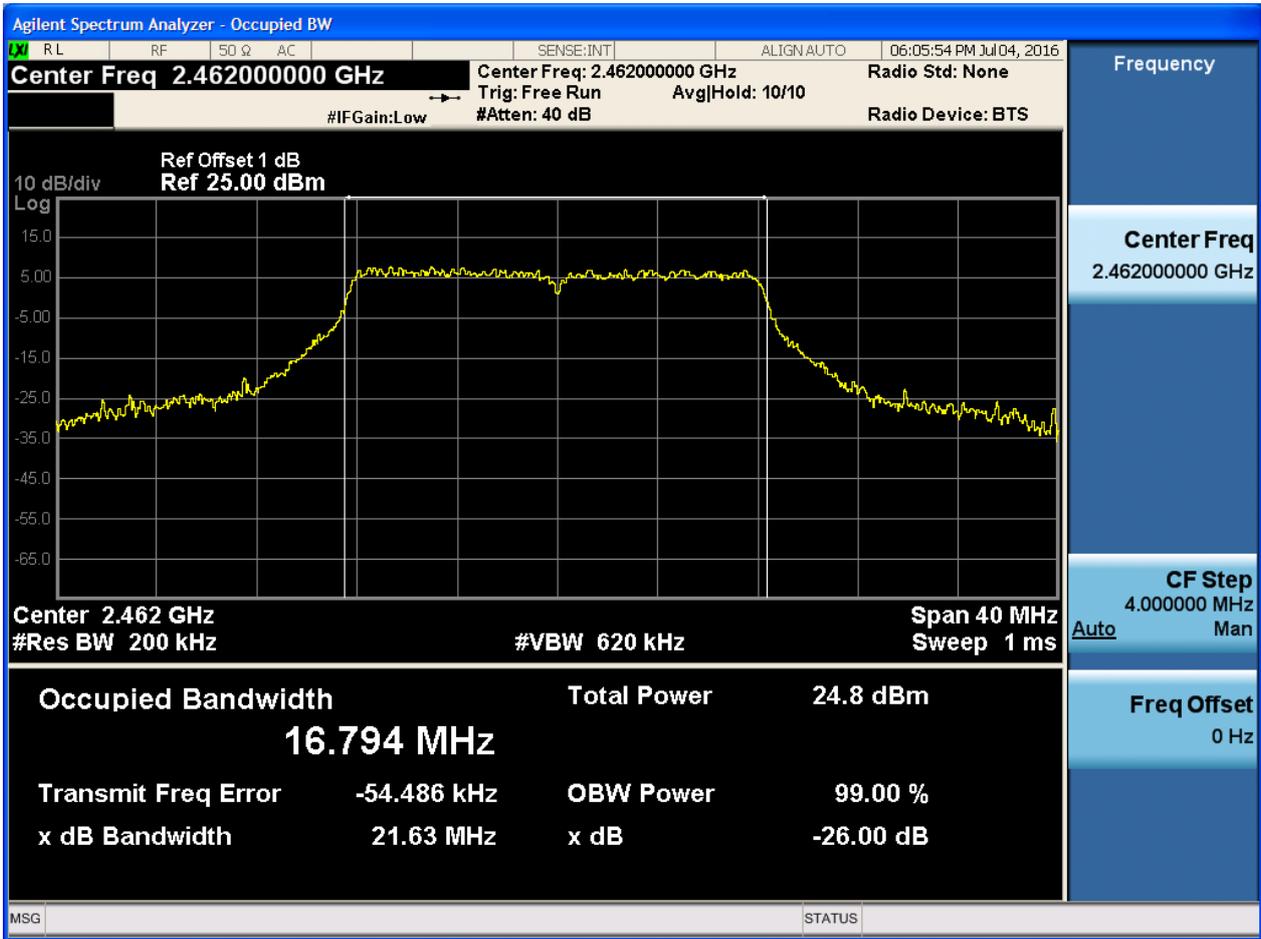


2.5 11G_M@Ant 1



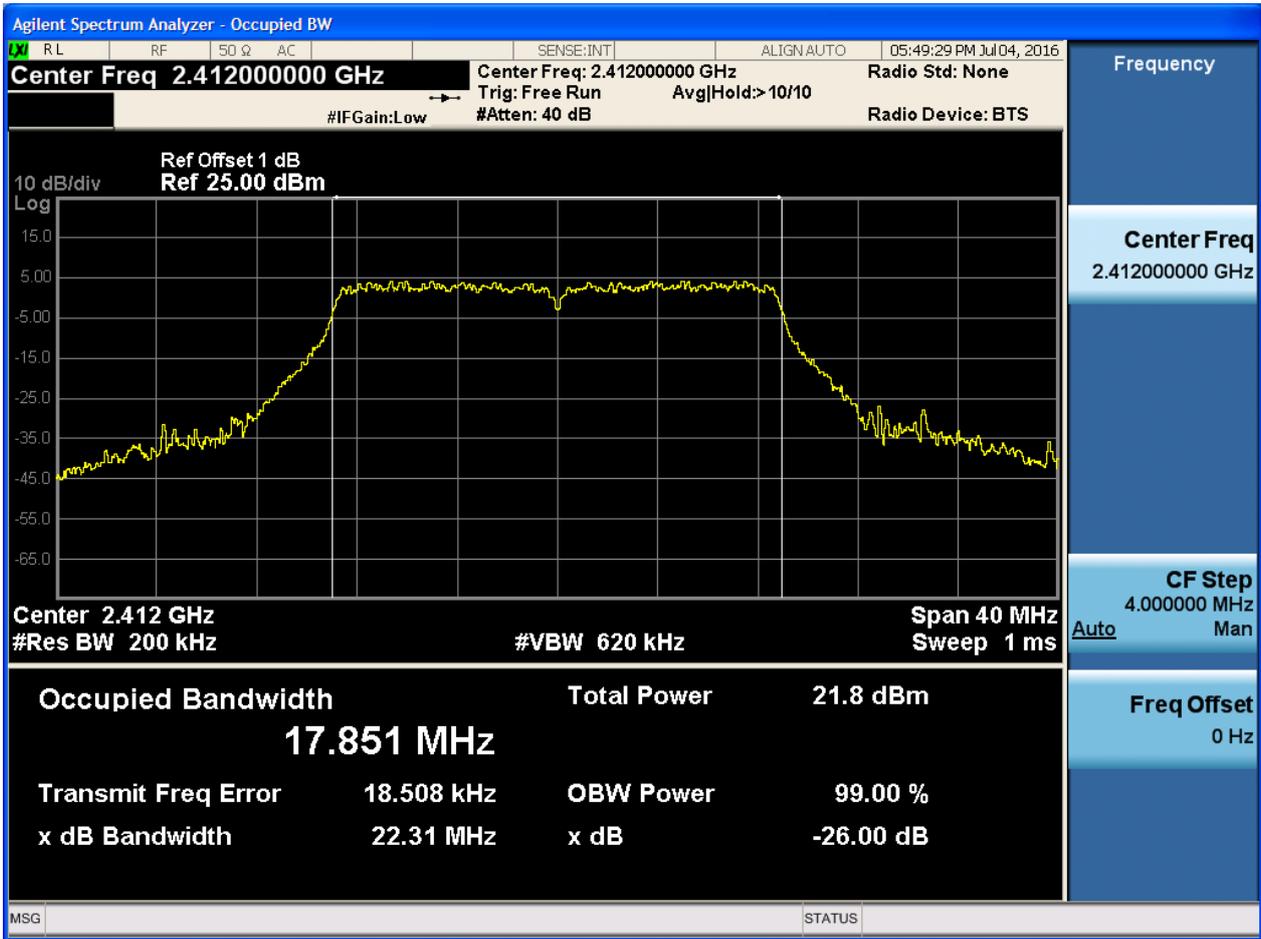


2.6 11G_H@Ant 1



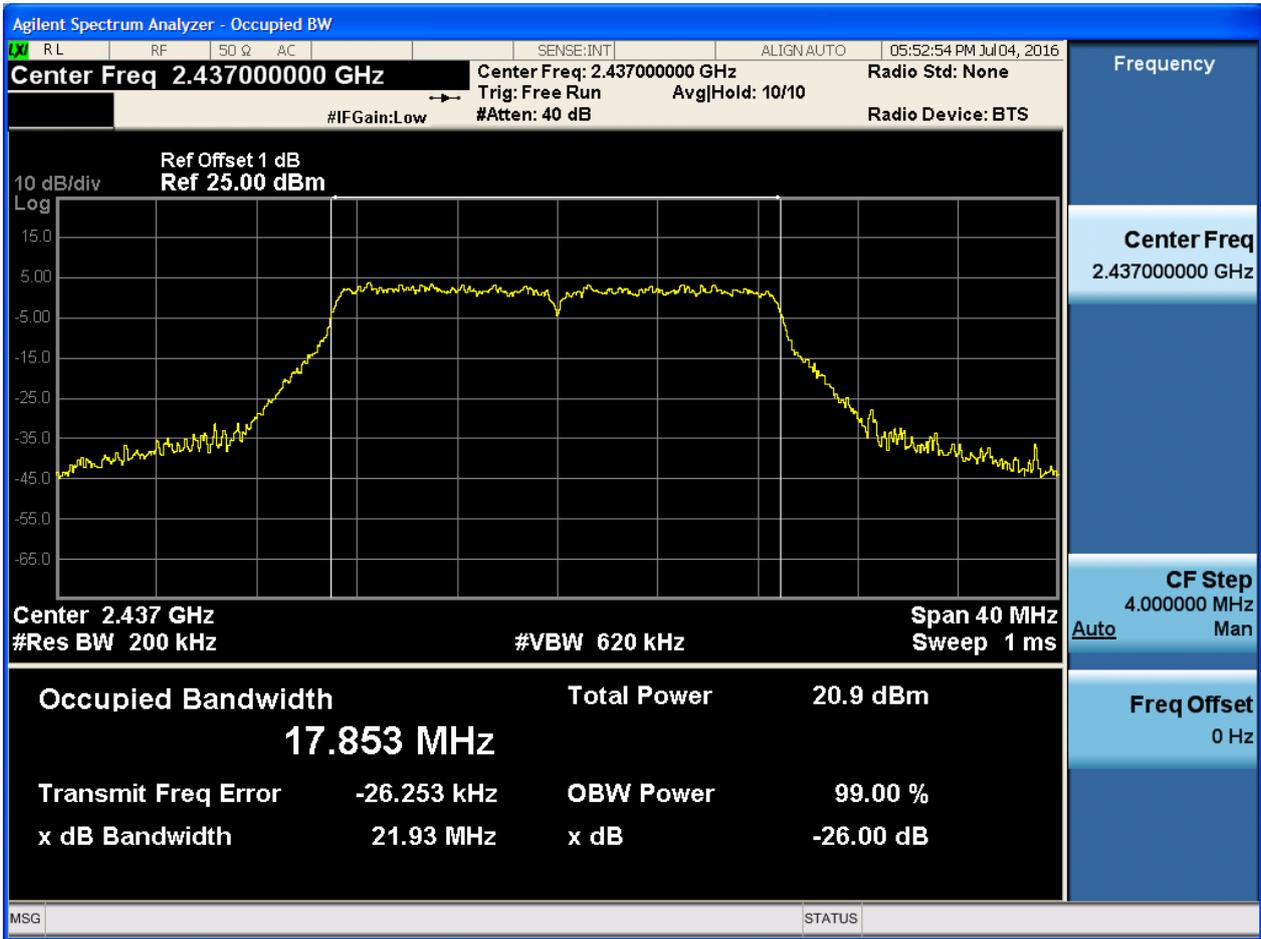


2.7 11N20_L@Ant 1



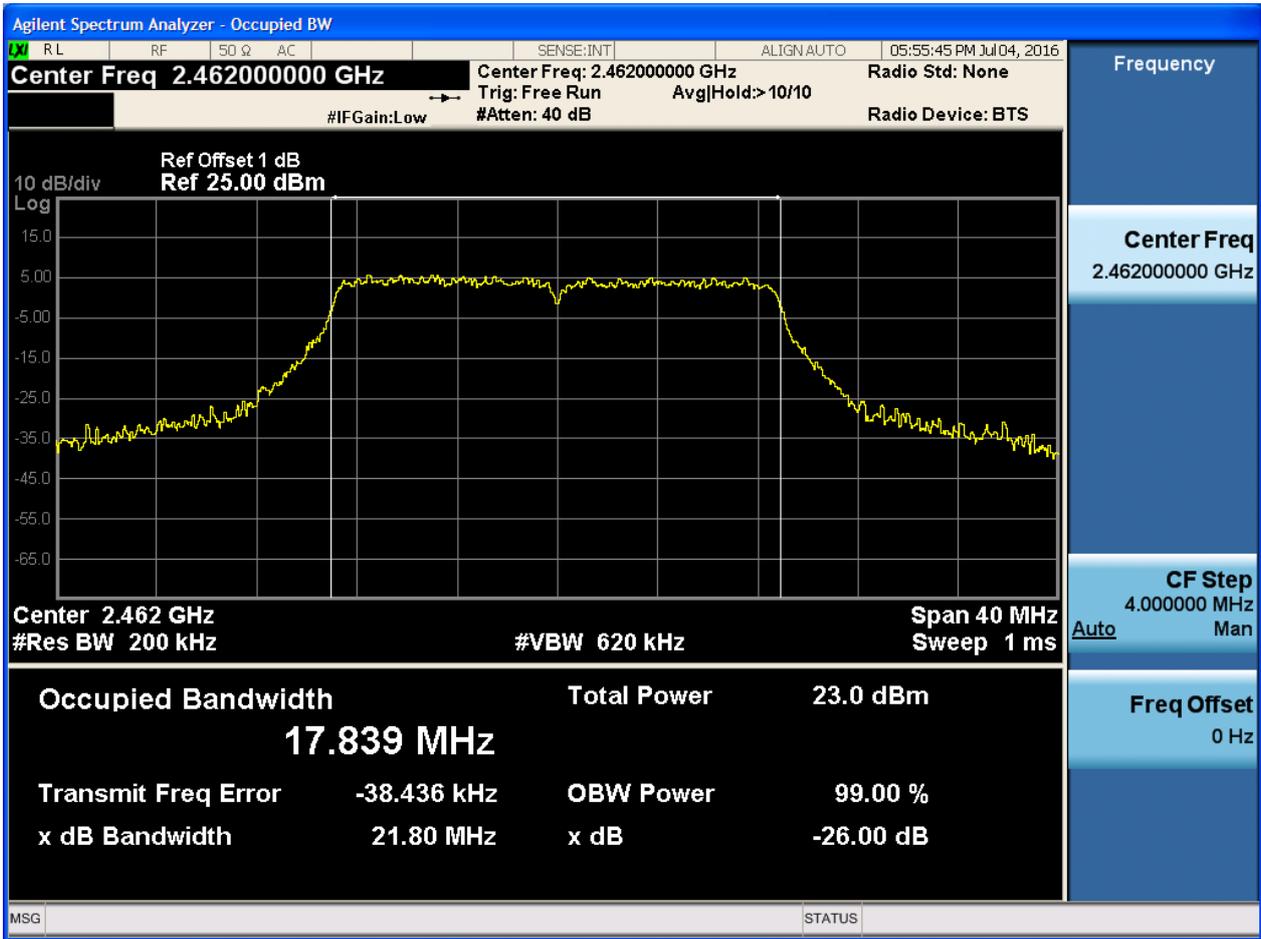


2.8 11N20_M@Ant 1





2.9 11N20_H@Ant 1





Appendix C: Duty cycle

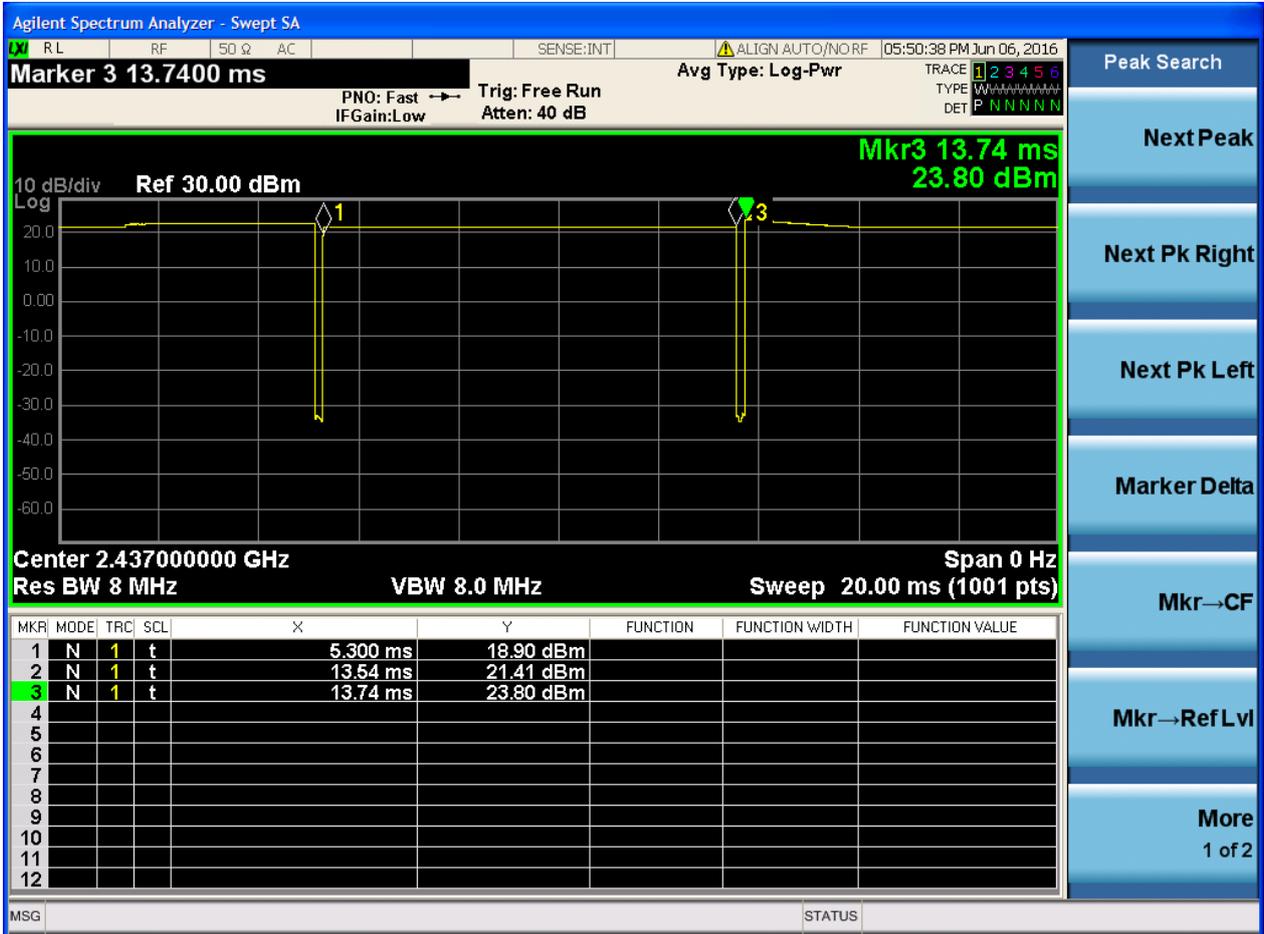
Part I - Test Results

Test Mode	TX Freq. [MHz]	Ant	Duty cycle [%]
11B	CH1,CH6,CH11	Ant 1	97.6
11G	CH1,CH6,CH11	Ant 1	87.2
11N20SISO	CH1,CH6,CH11	Ant 1	86.5



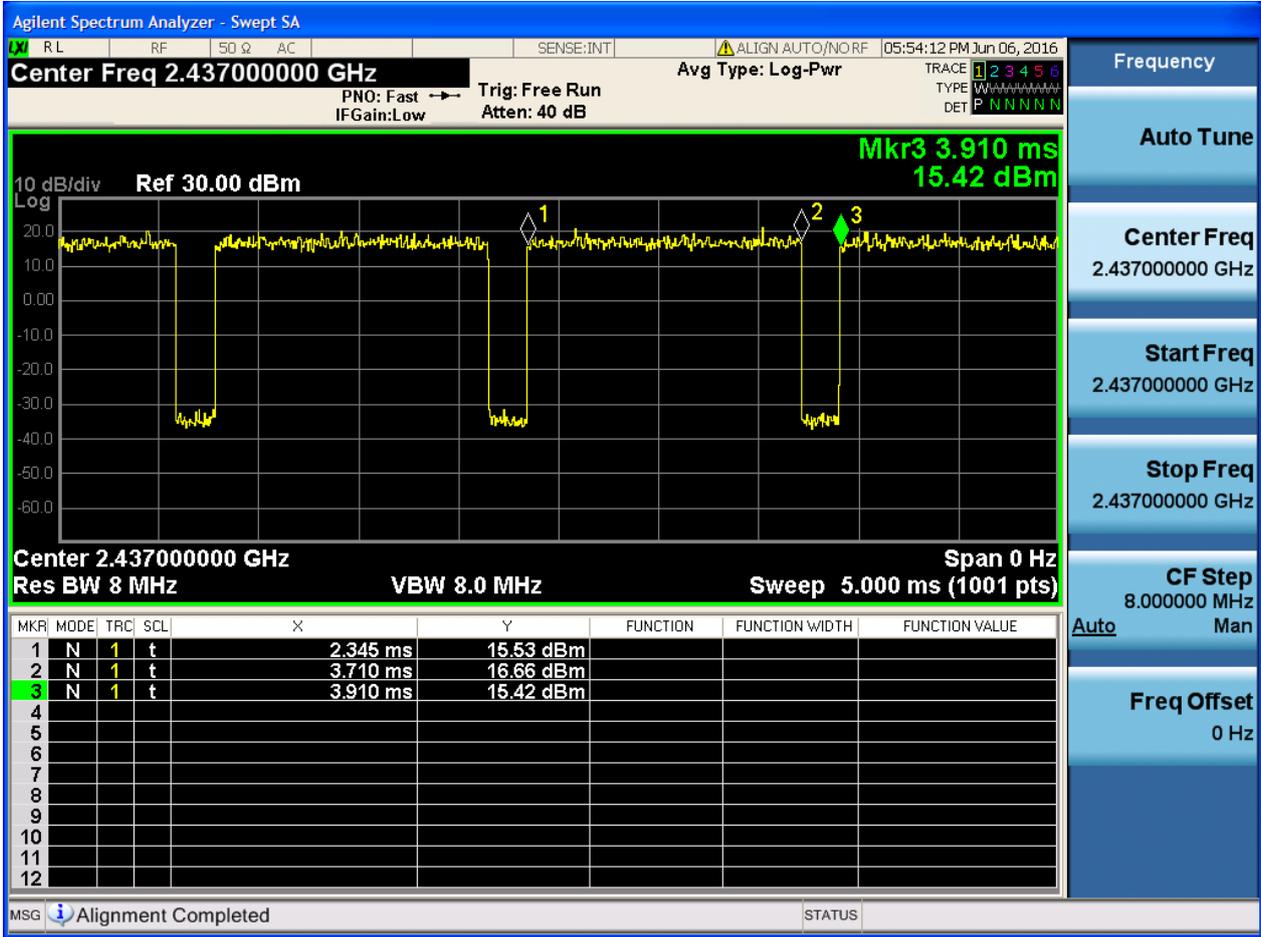
Part II - Test Plots

2.1 11B_M@Ant 1



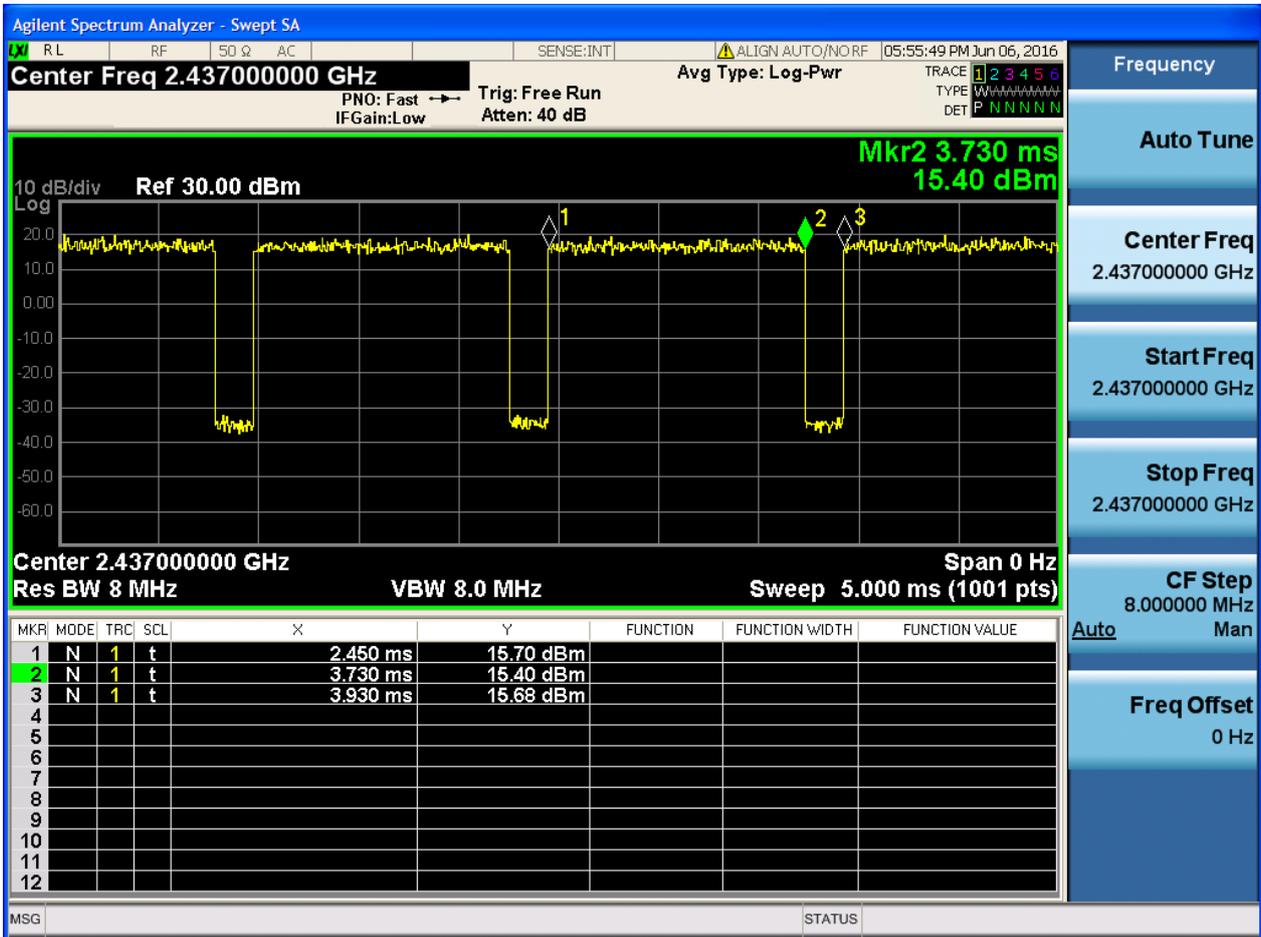


2.2 11G_M@Ant 1





2.2 11N20SISO_M@Ant 1





Appendix D: Maximum Conducted Average Output Power

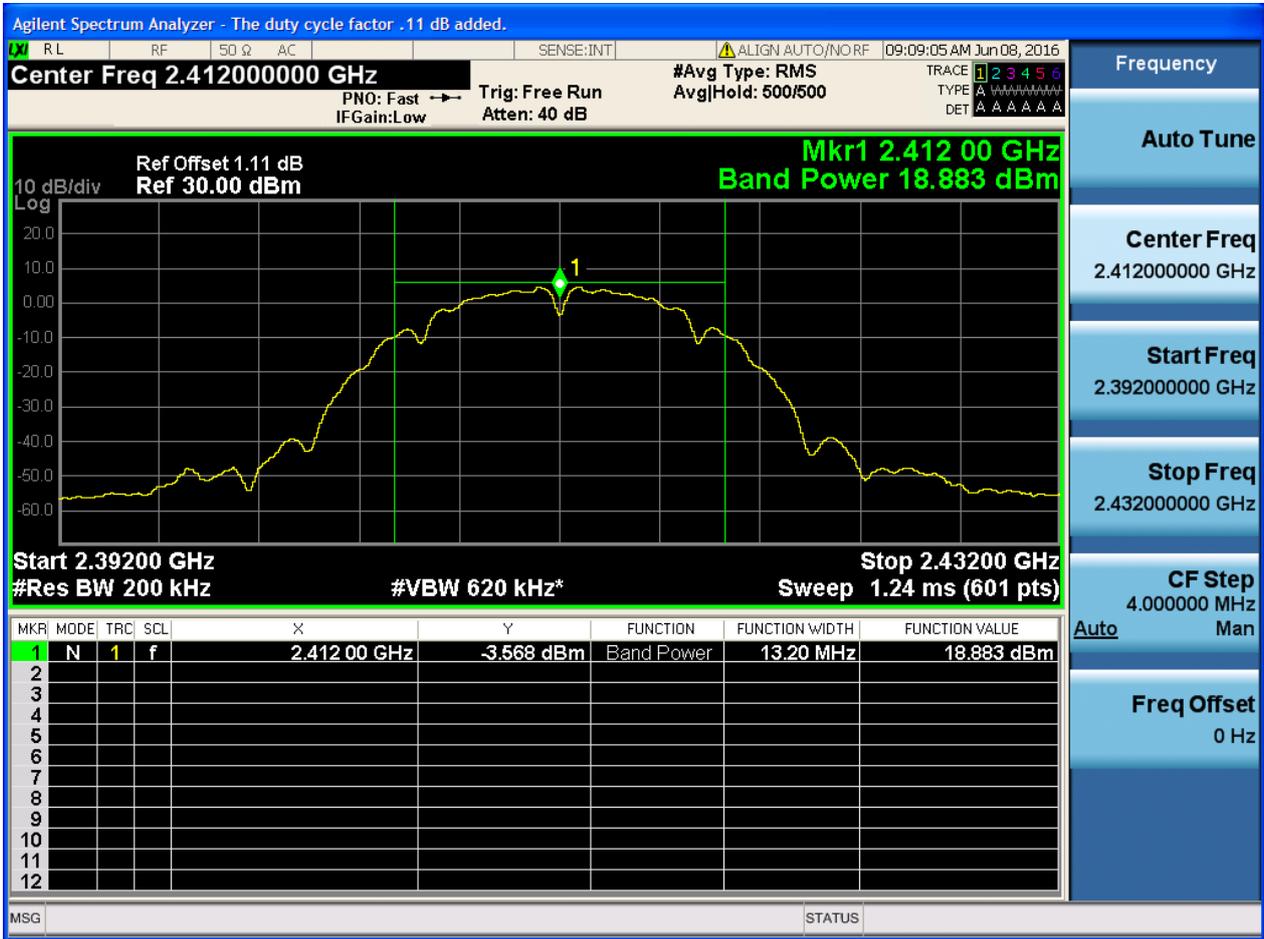
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Power[dBm]	Verdict
11B	L	2412	Ant 1	18.88	pass
11B	M	2437	Ant 1	19.04	pass
11B	H	2462	Ant 1	18.77	pass
11G	L	2412	Ant 1	17.14	pass
11G	M	2437	Ant 1	17.15	pass
11G	H	2462	Ant 1	17.38	pass
11N20	L	2412	Ant 1	15.05	pass
11N20	M	2437	Ant 1	15.01	pass
11N20	H	2462	Ant 1	15.47	pass



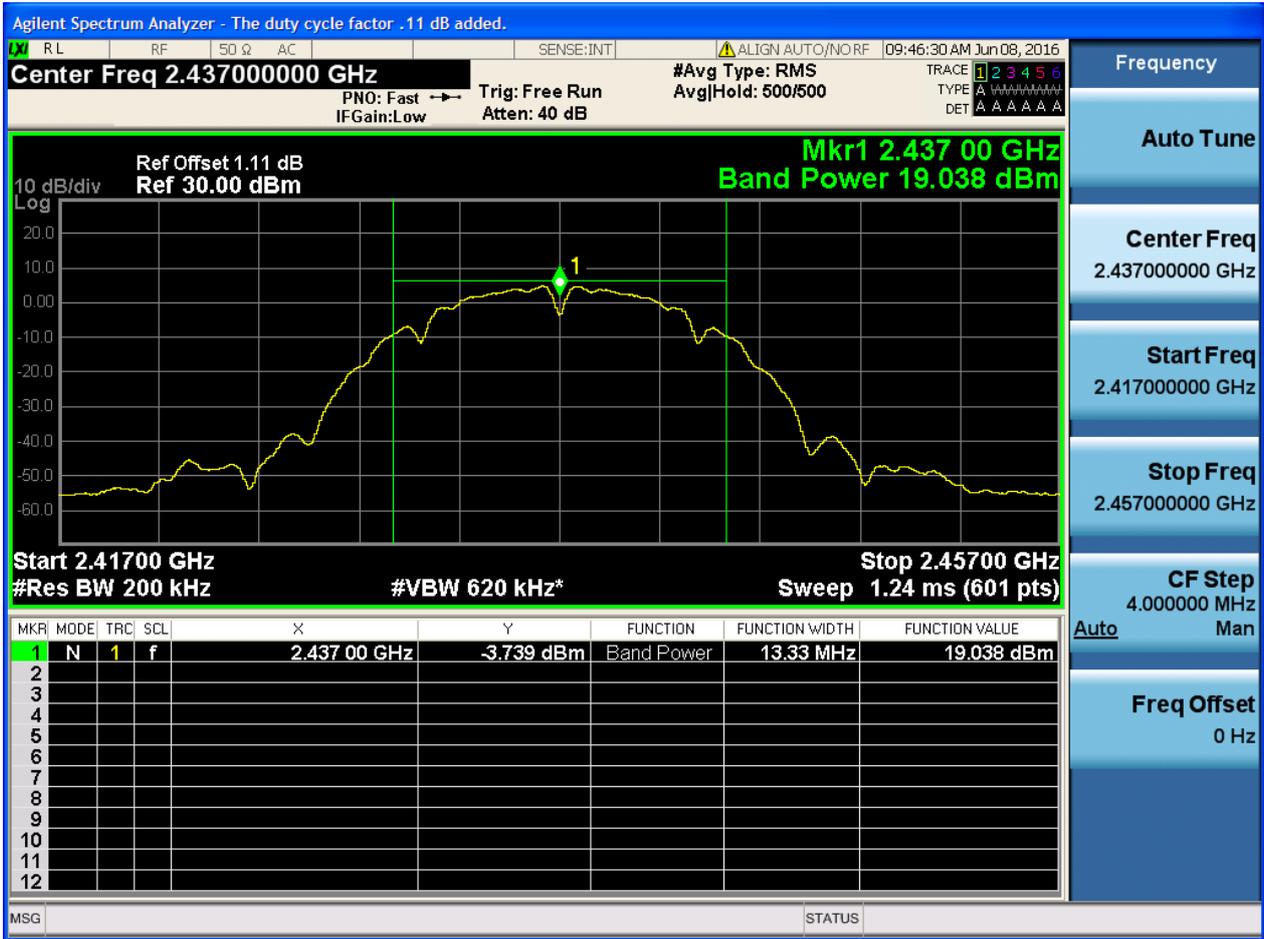
Part II - Test Plots

2.1 11B_L@Ant 1



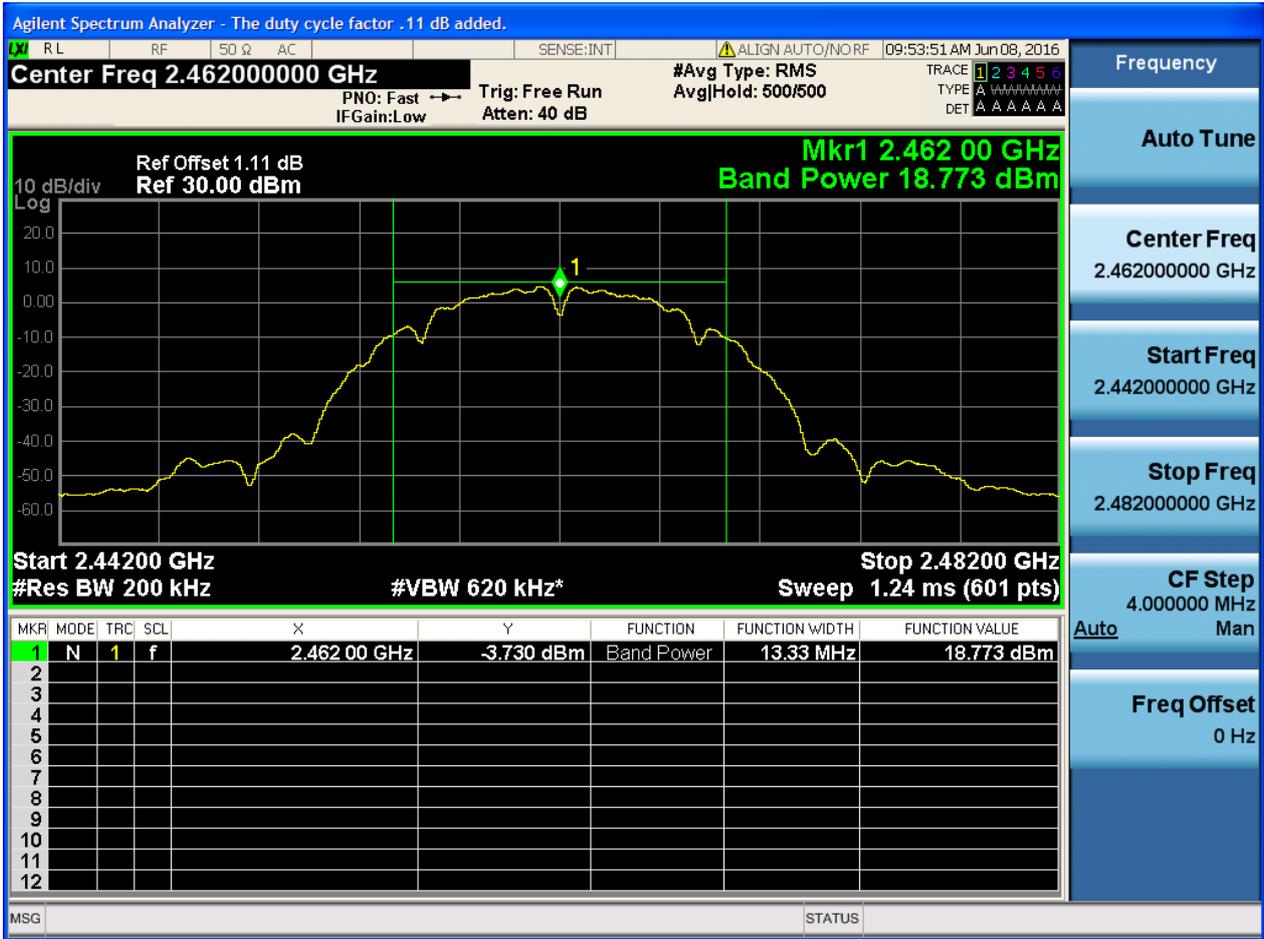


2.2 11B_M@Ant 1



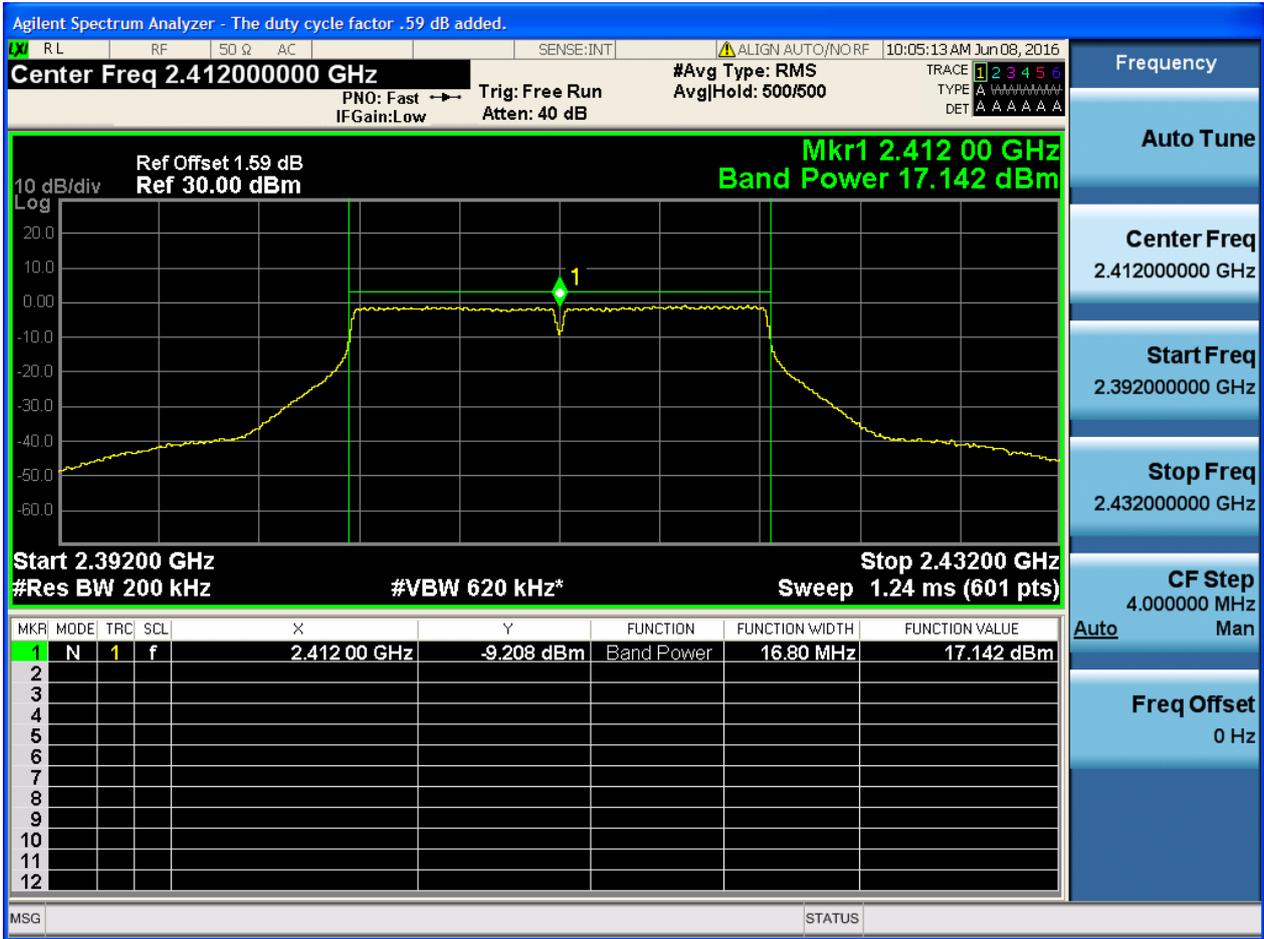


2.3 11B_H@Ant 1



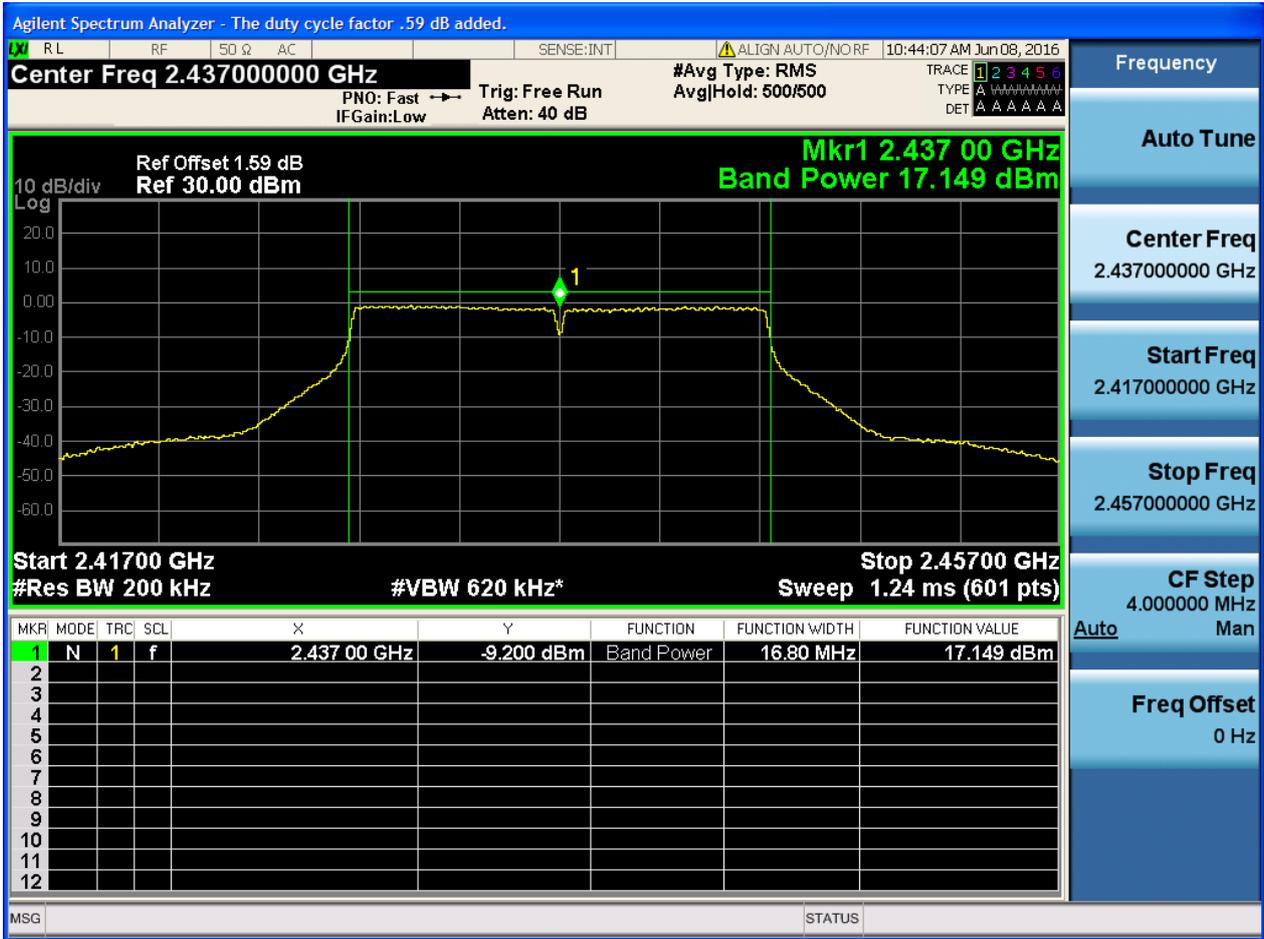


2.4 11G_L@Ant 1



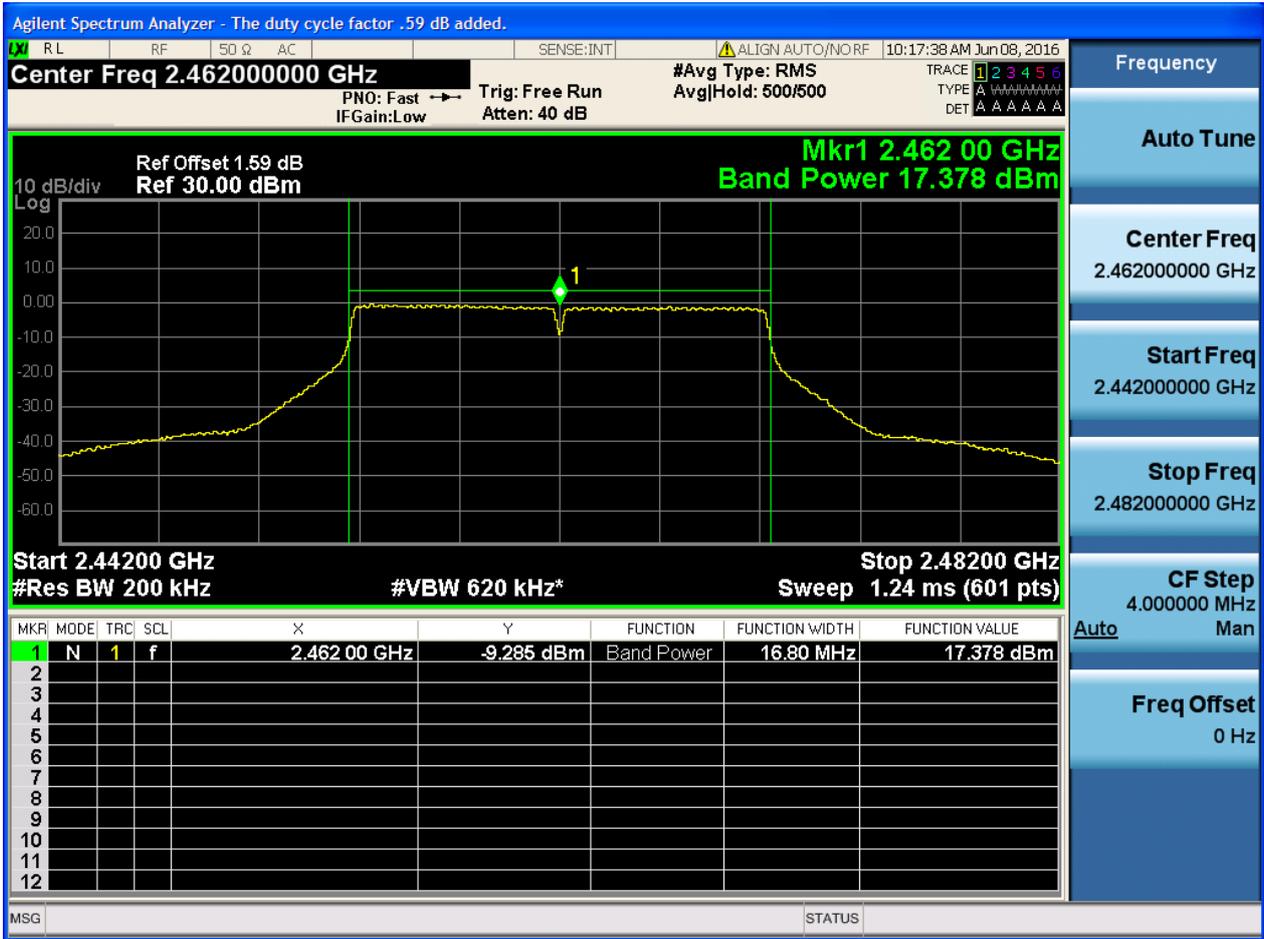


2.5 11G_M@Ant 1



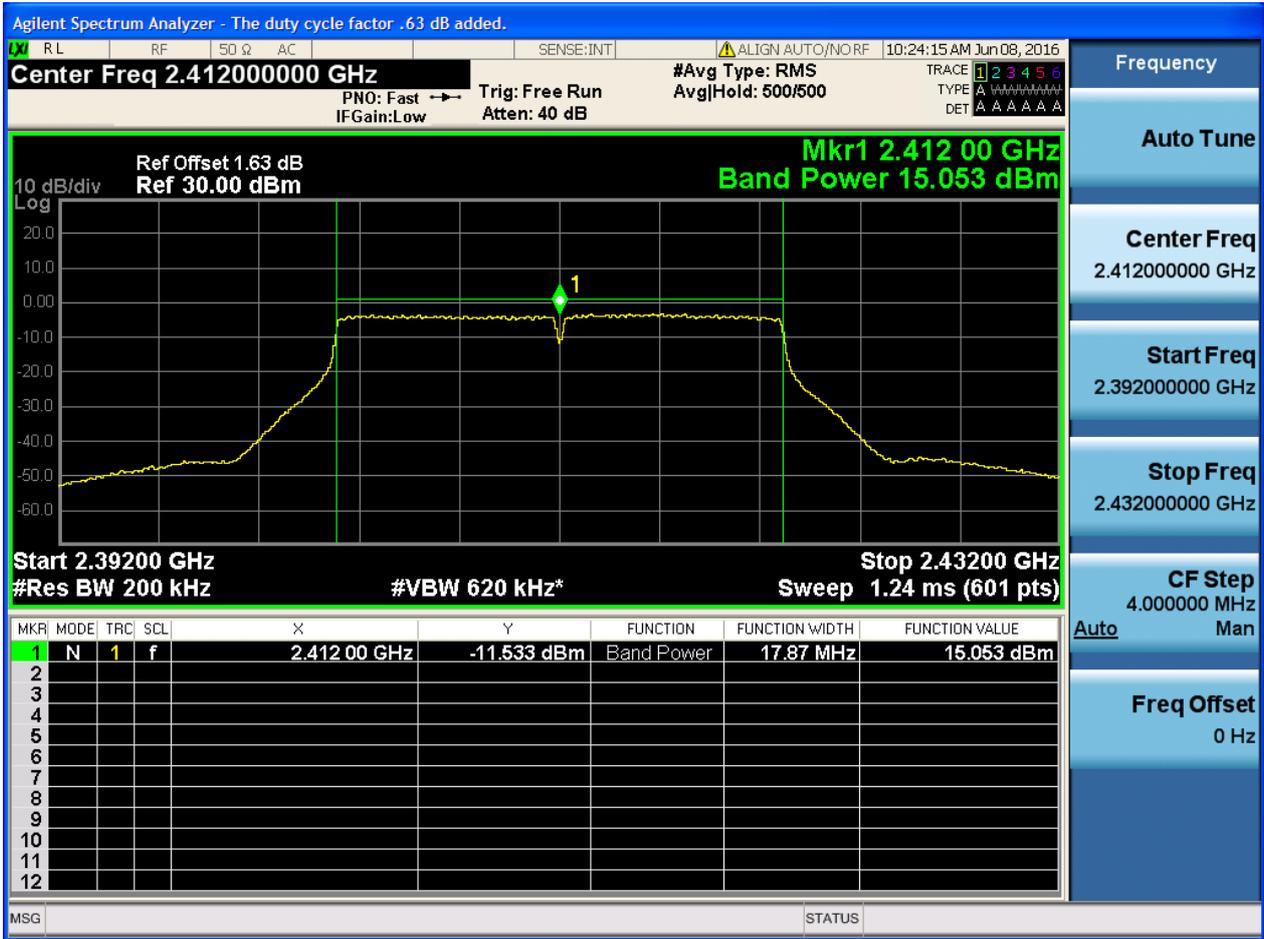


2.6 11G_H@Ant 1



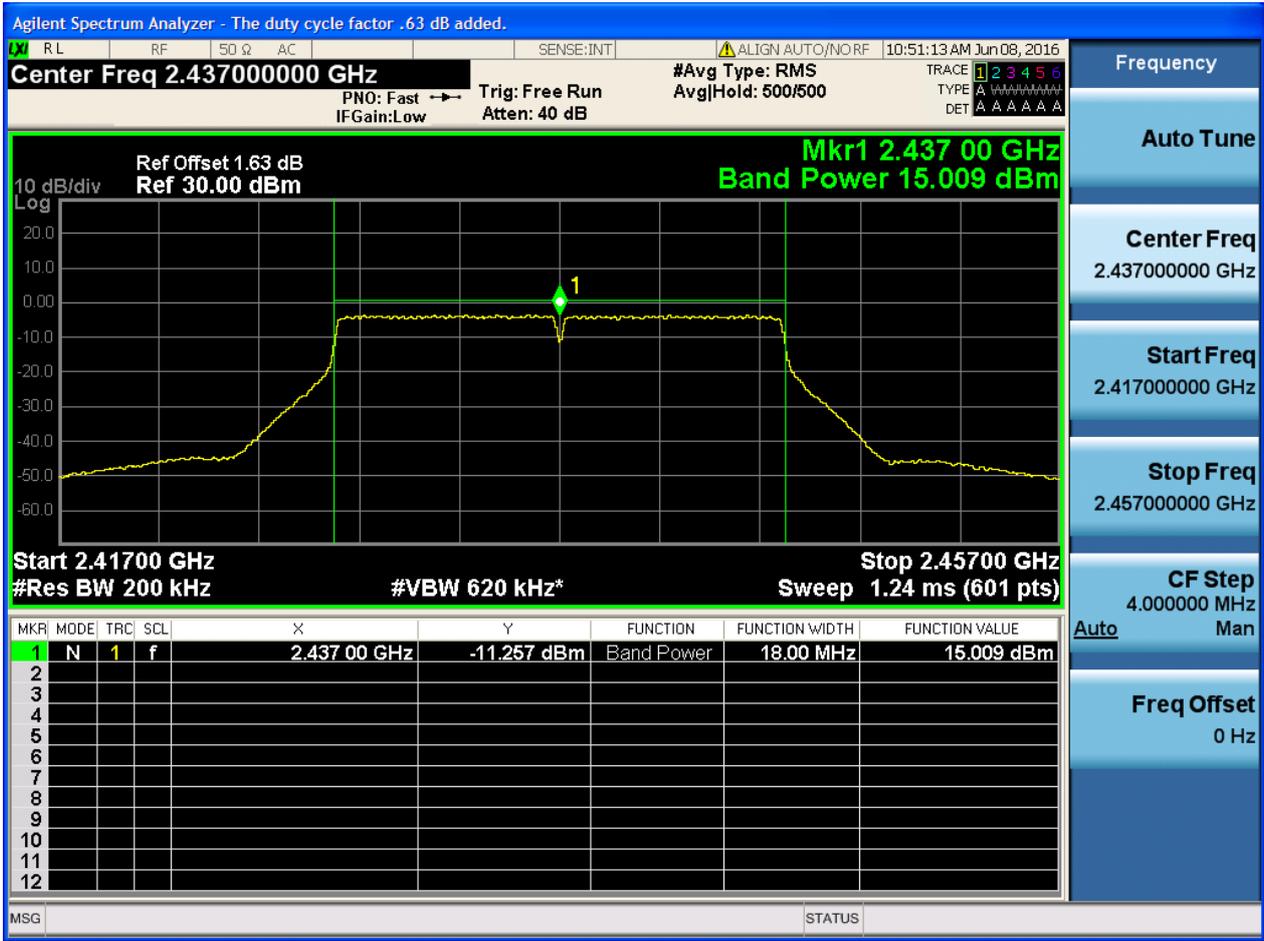


2.7 11N20_L@Ant 1



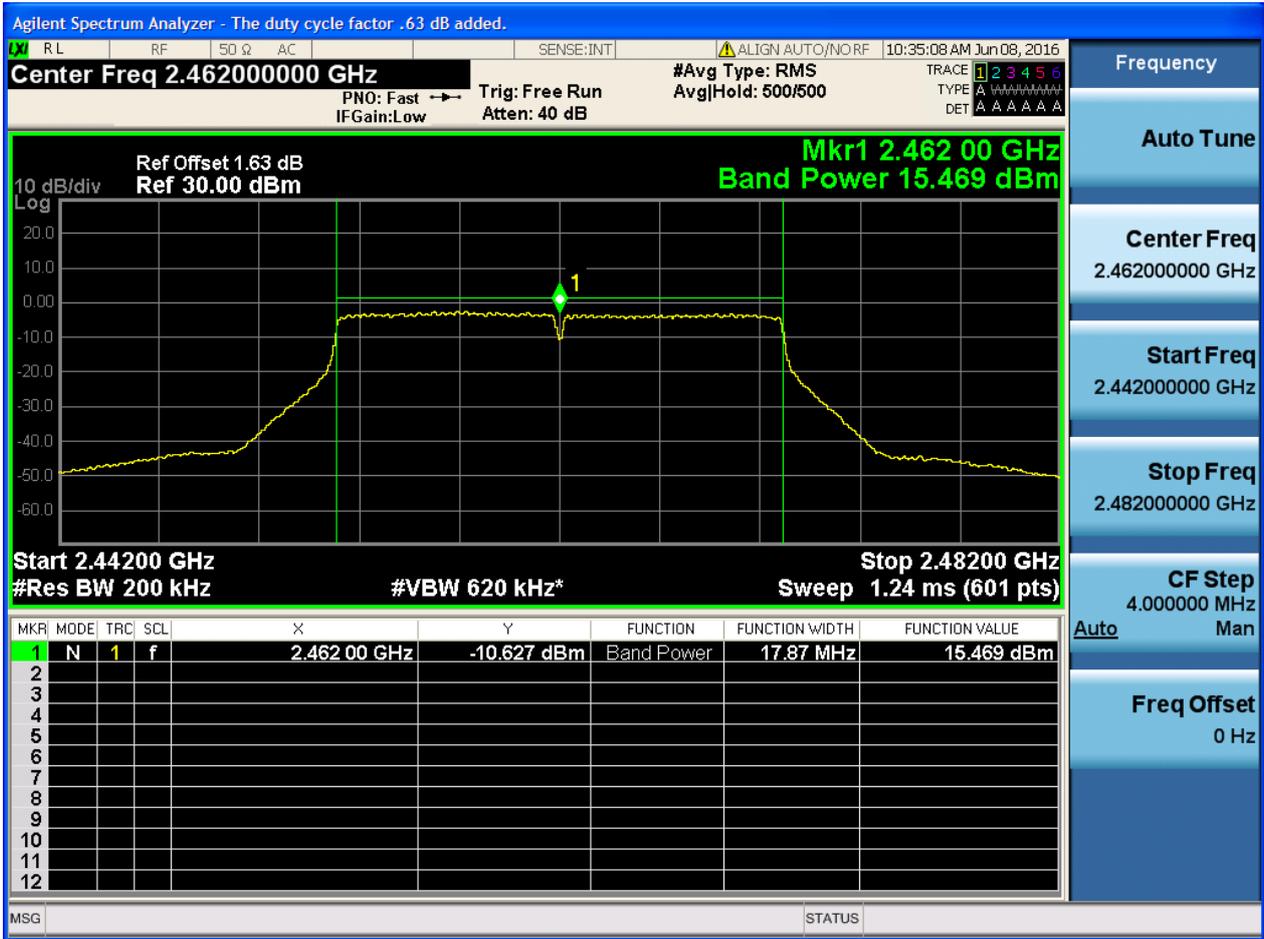


2.8 11N20_M@Ant 1





2.9 11N20_H@Ant 1





Appendix 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	-8.94	pass
11B	M	2437	Ant 1	-9.72	pass
11B	H	2462	Ant 1	-8.06	pass
11G	L	2412	Ant 1	-13.44	pass
11G	M	2437	Ant 1	-14.06	pass
11G	H	2462	Ant 1	-12.08	pass
11N20	L	2412	Ant 1	-15.61	pass
11N20	M	2437	Ant 1	-16.40	pass
11N20	H	2462	Ant 1	-14.26	pass



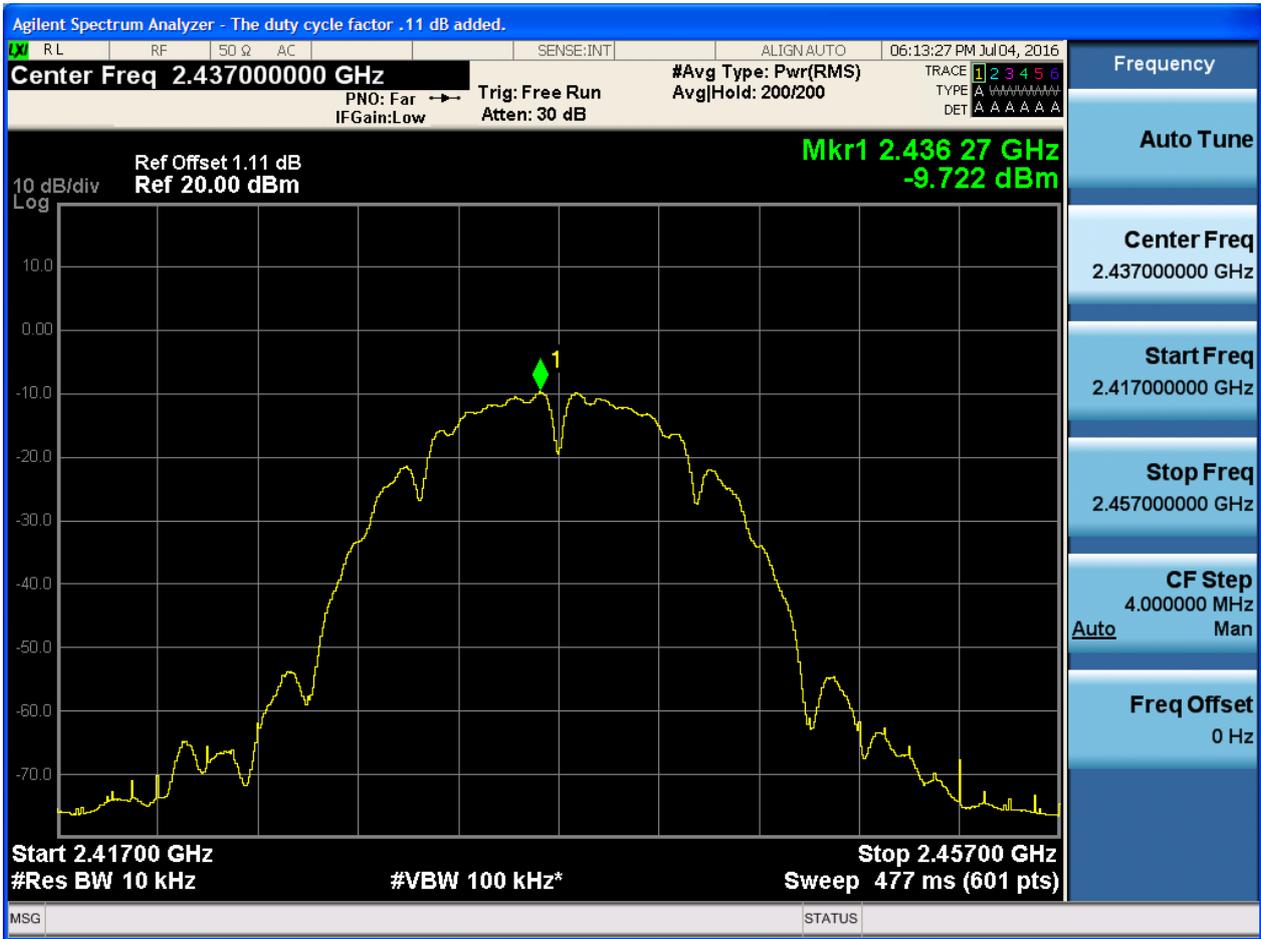
Part II - Test Plots

2.1 11B_L@Ant 1



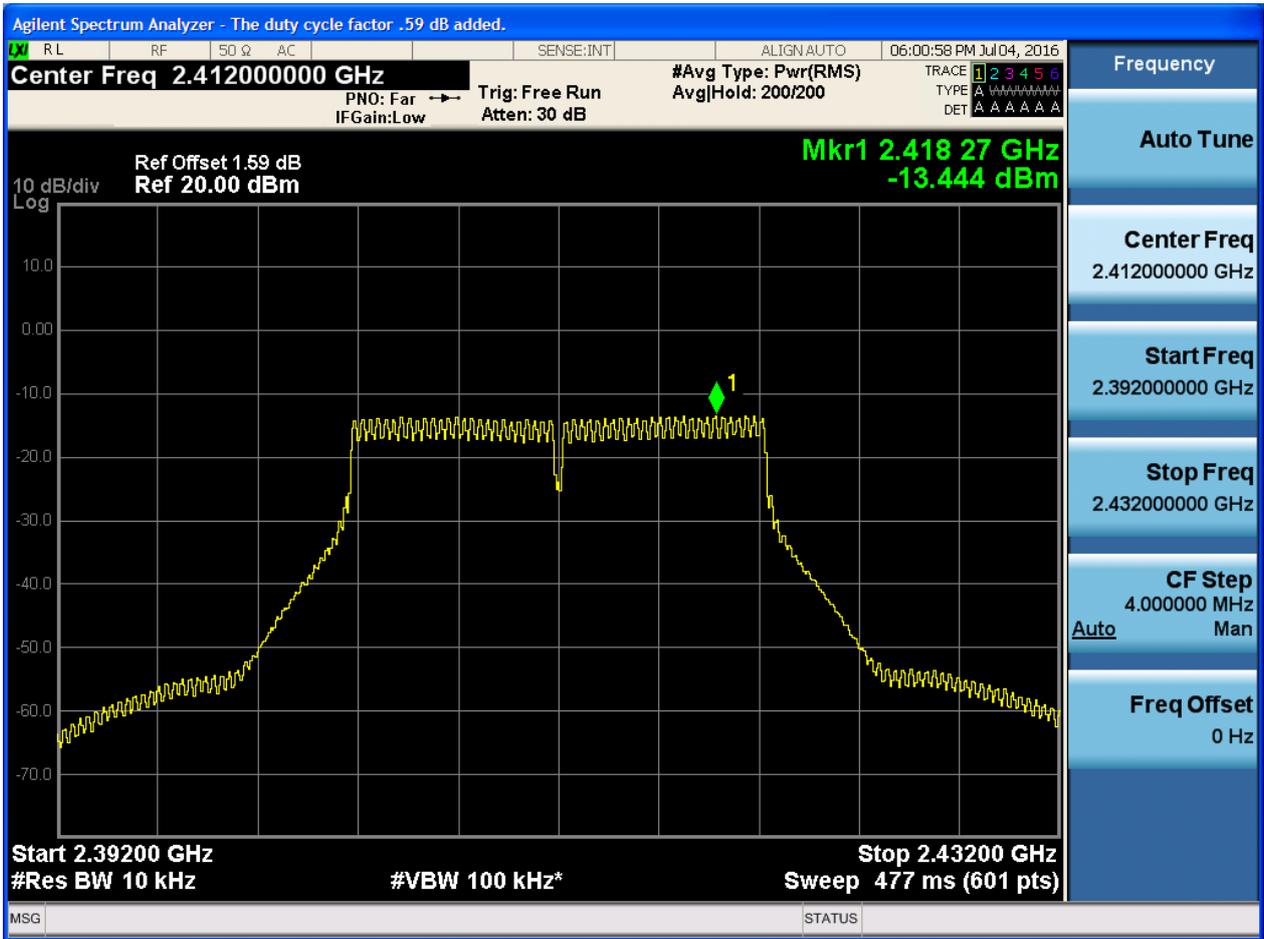


2.2 11B_M@Ant 1



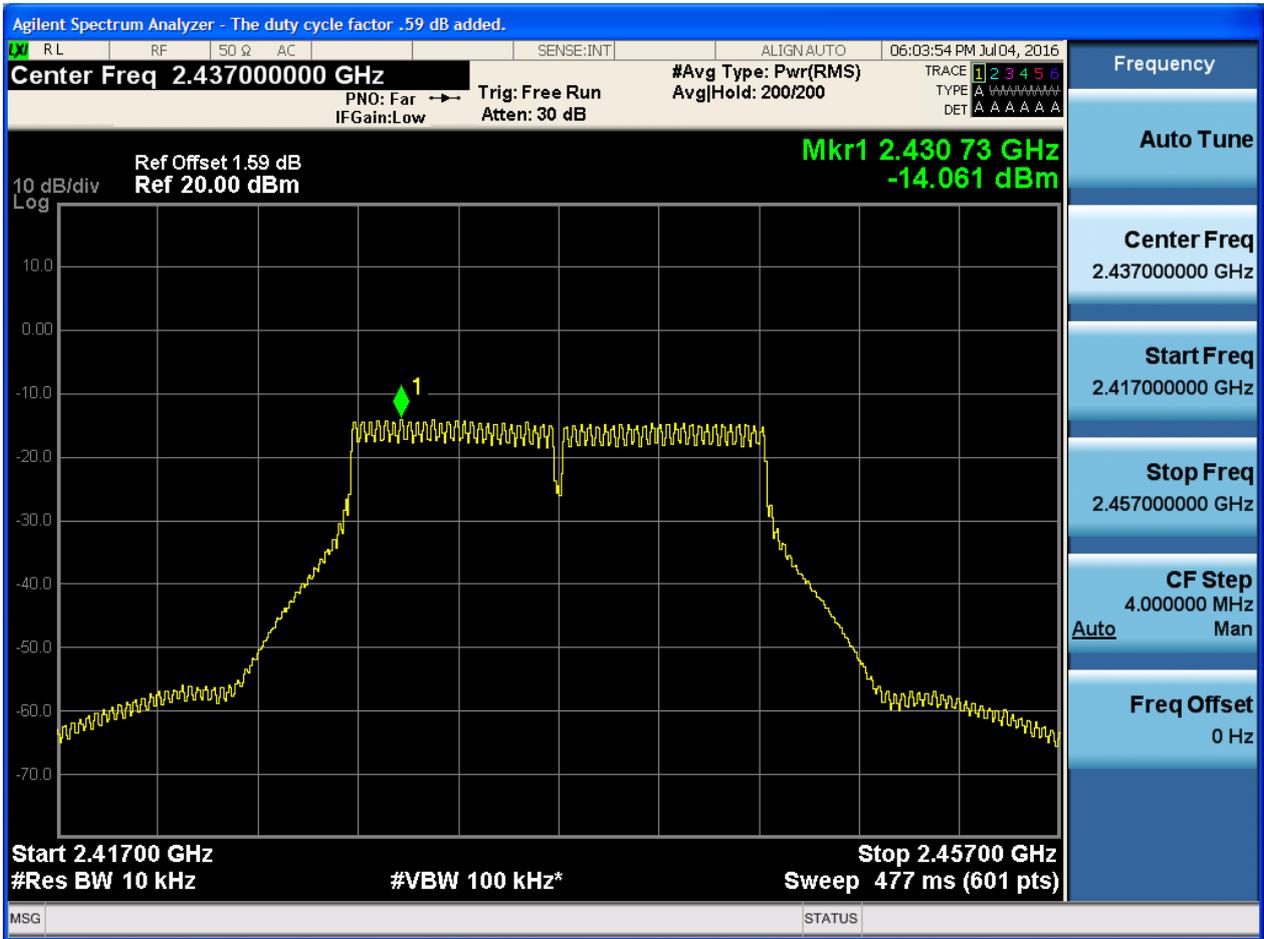


2.4 11G_L@Ant 1



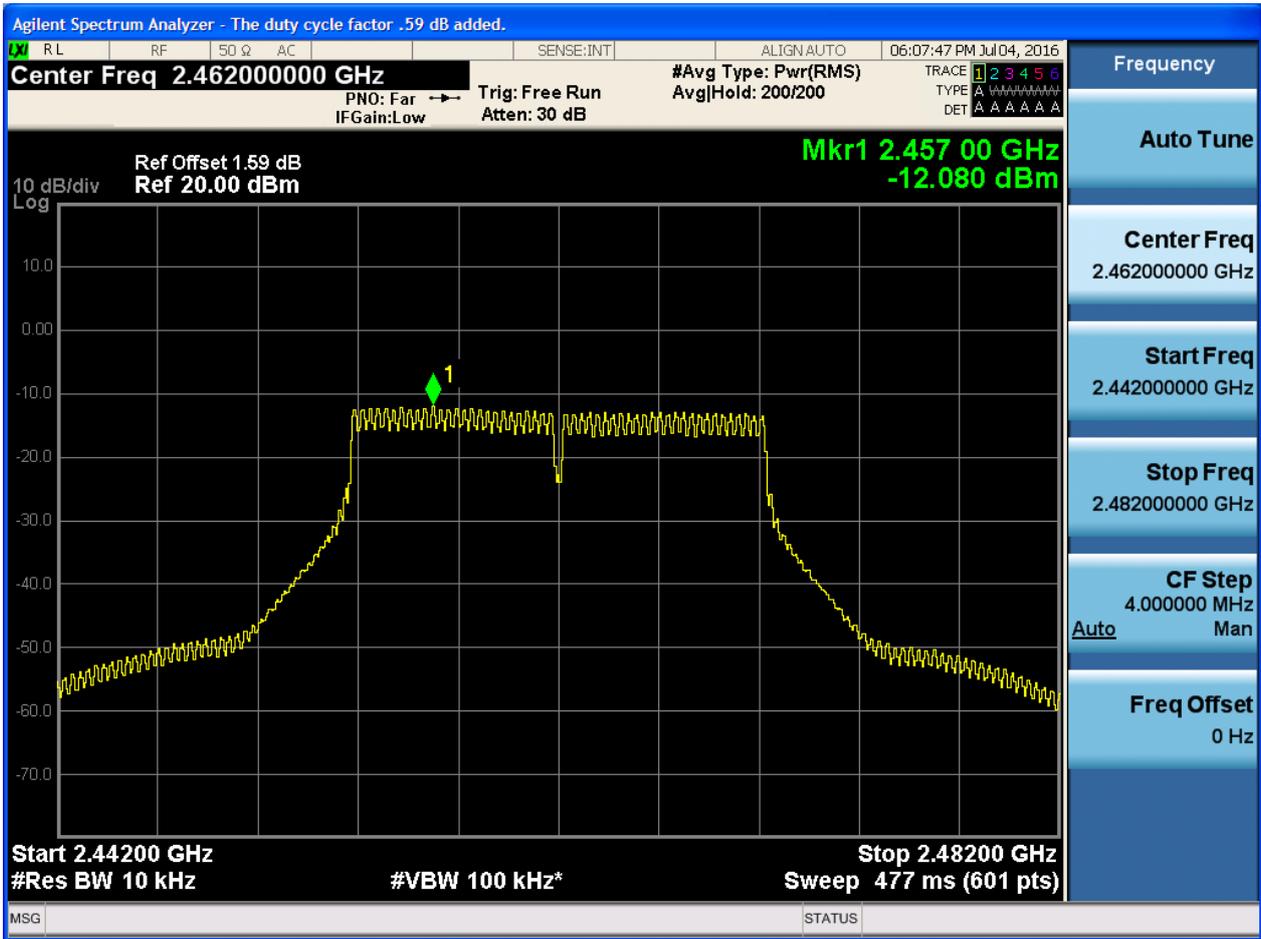


2.5 11G_M@Ant 1



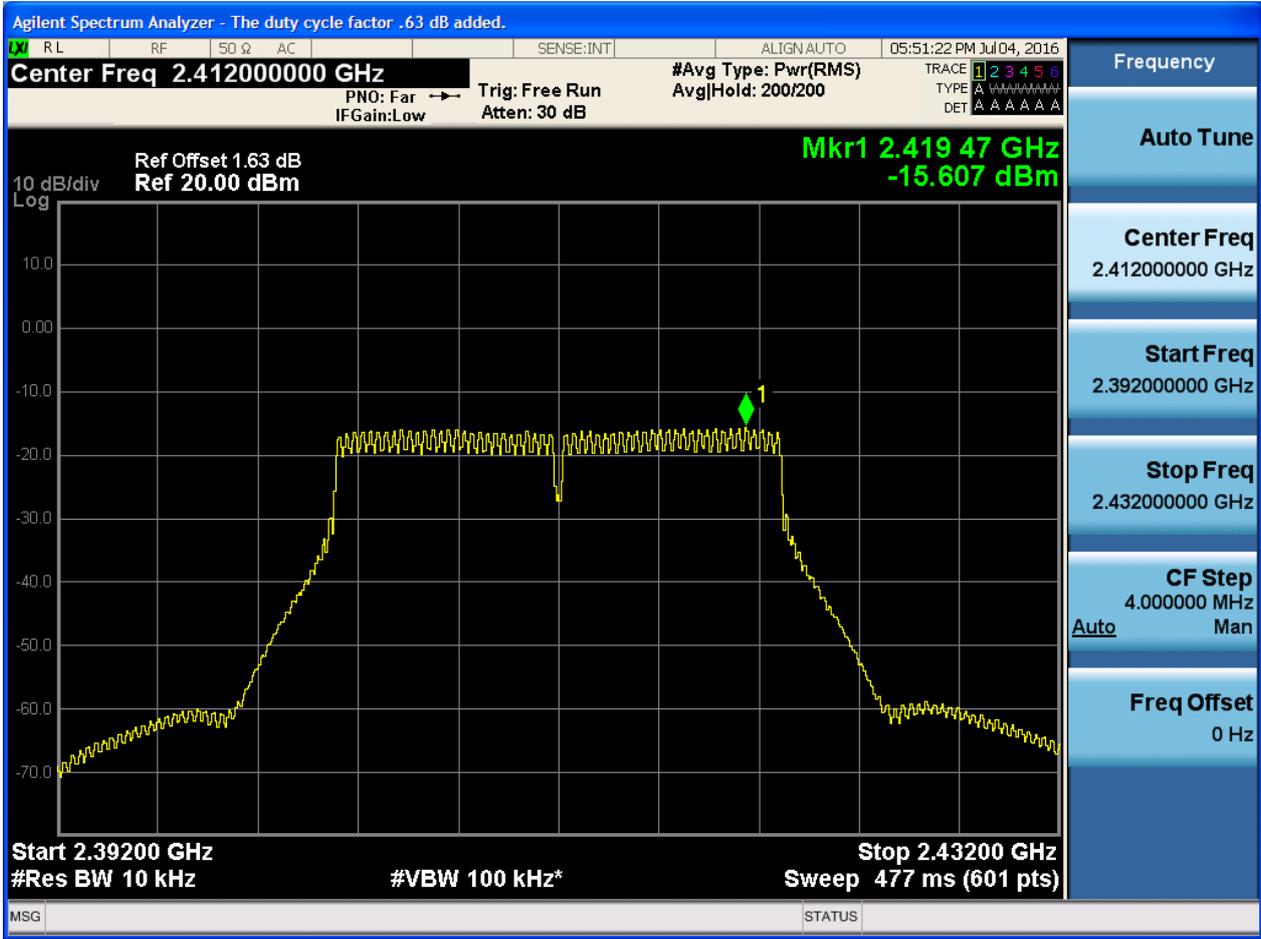


2.6 11G_H@Ant 1



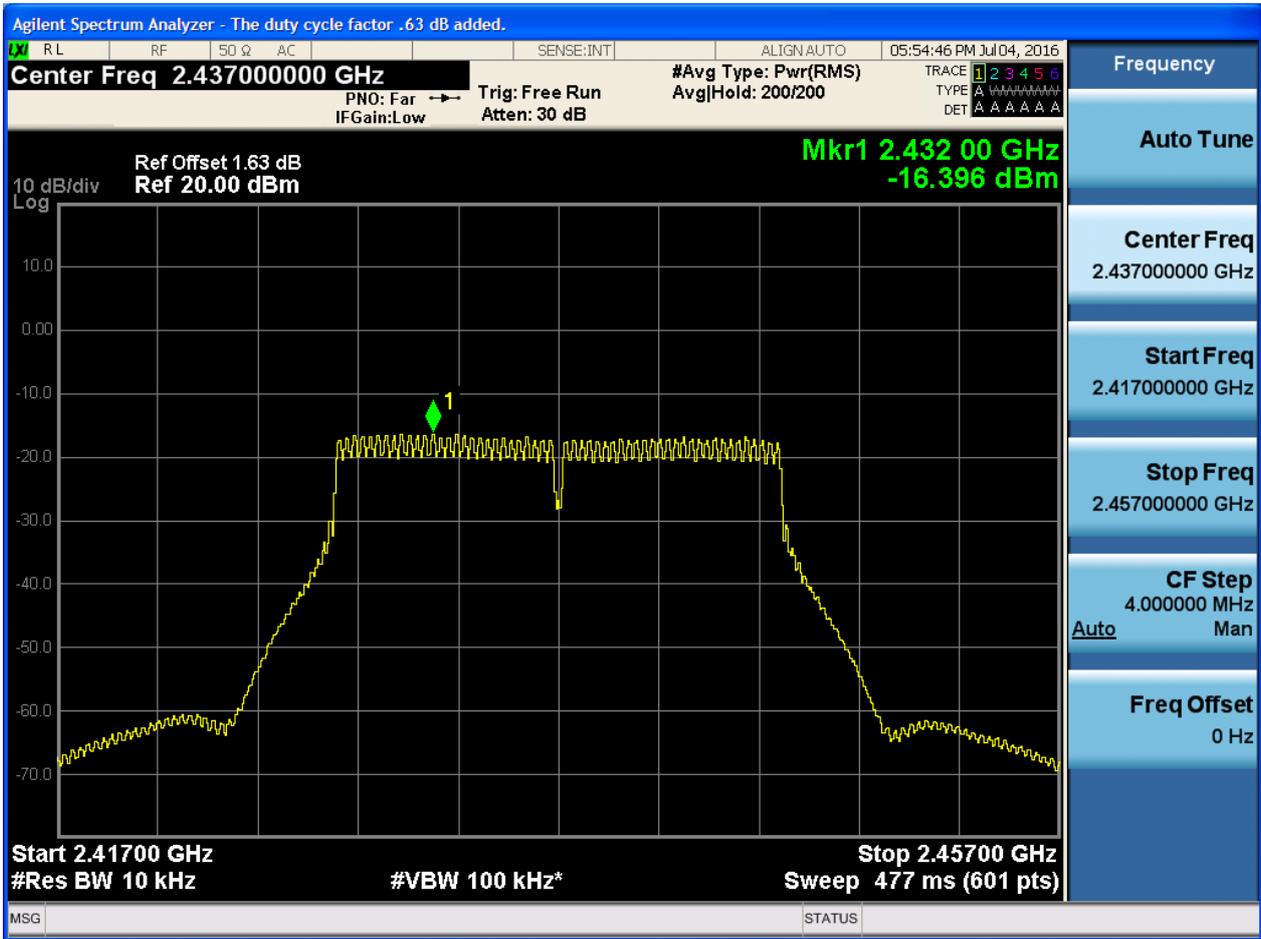


2.7 11N20_L@Ant 1



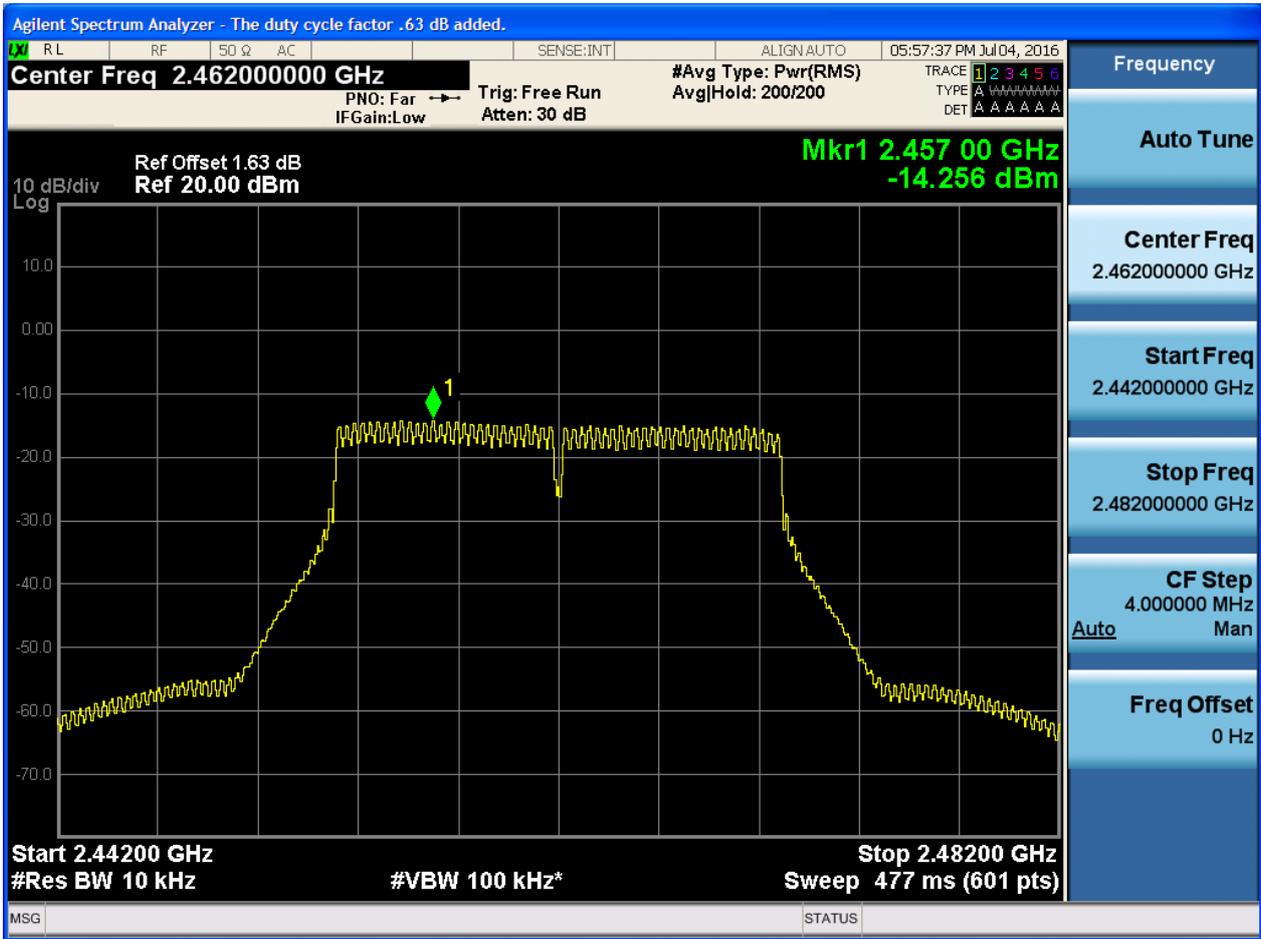


2.8 11N20_M@Ant 1





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	10.39	-49.57	pass
11B	H	2462	Ant 1	10.46	-48.19	pass
11G	L	2412	Ant 1	5.77	-46.68	pass
11G	H	2462	Ant 1	6.30	-38.65	pass
11N20	L	2412	Ant 1	3.59	-48.97	pass
11N20	H	2462	Ant 1	4.23	-42.40	pass



Part II - Test Plots

2.1 11B_L@Ant 1





2.2 11B_H@Ant 1





2.3 11G_L@Ant 1



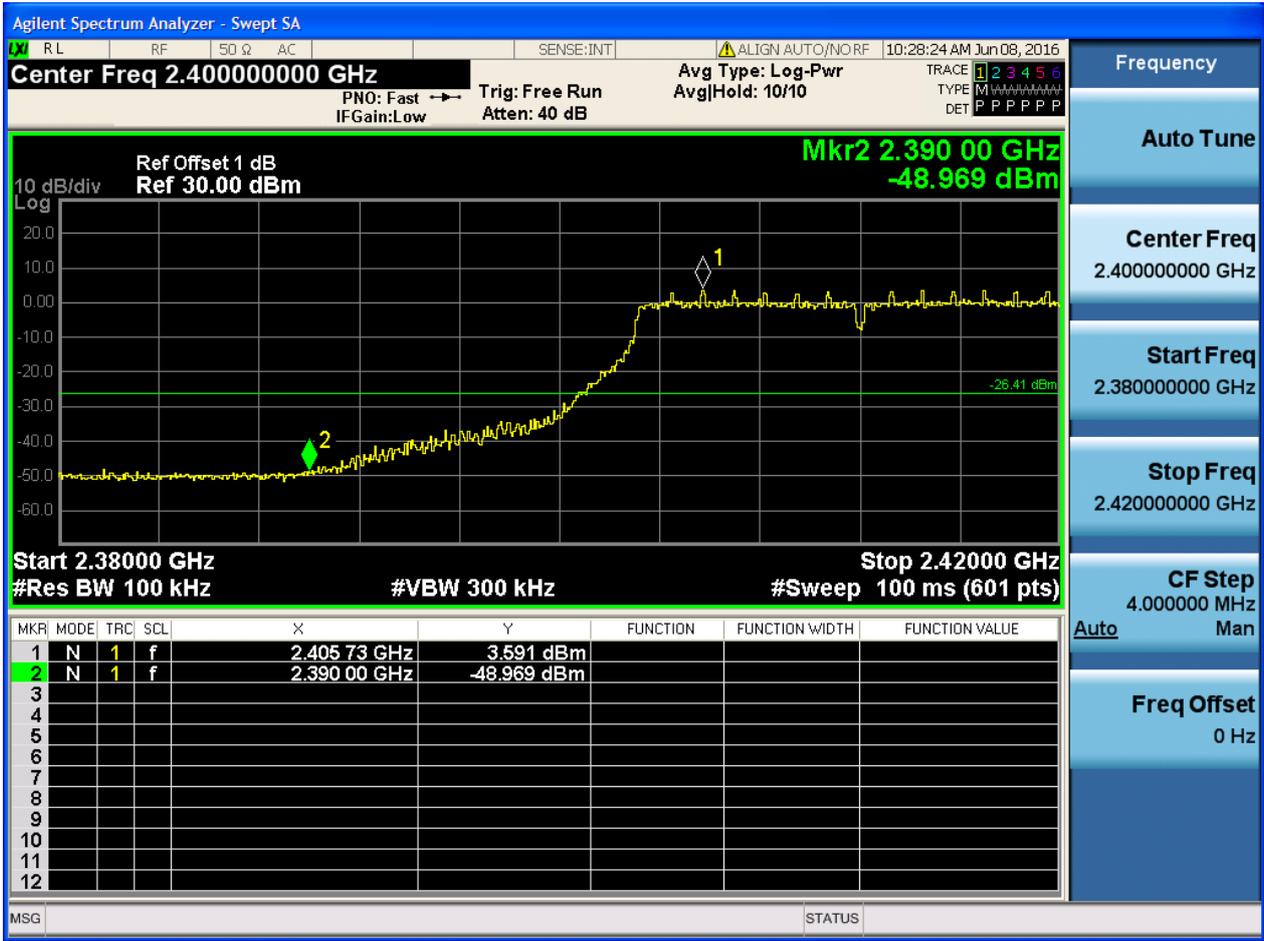


2.4 11G_H@Ant 1



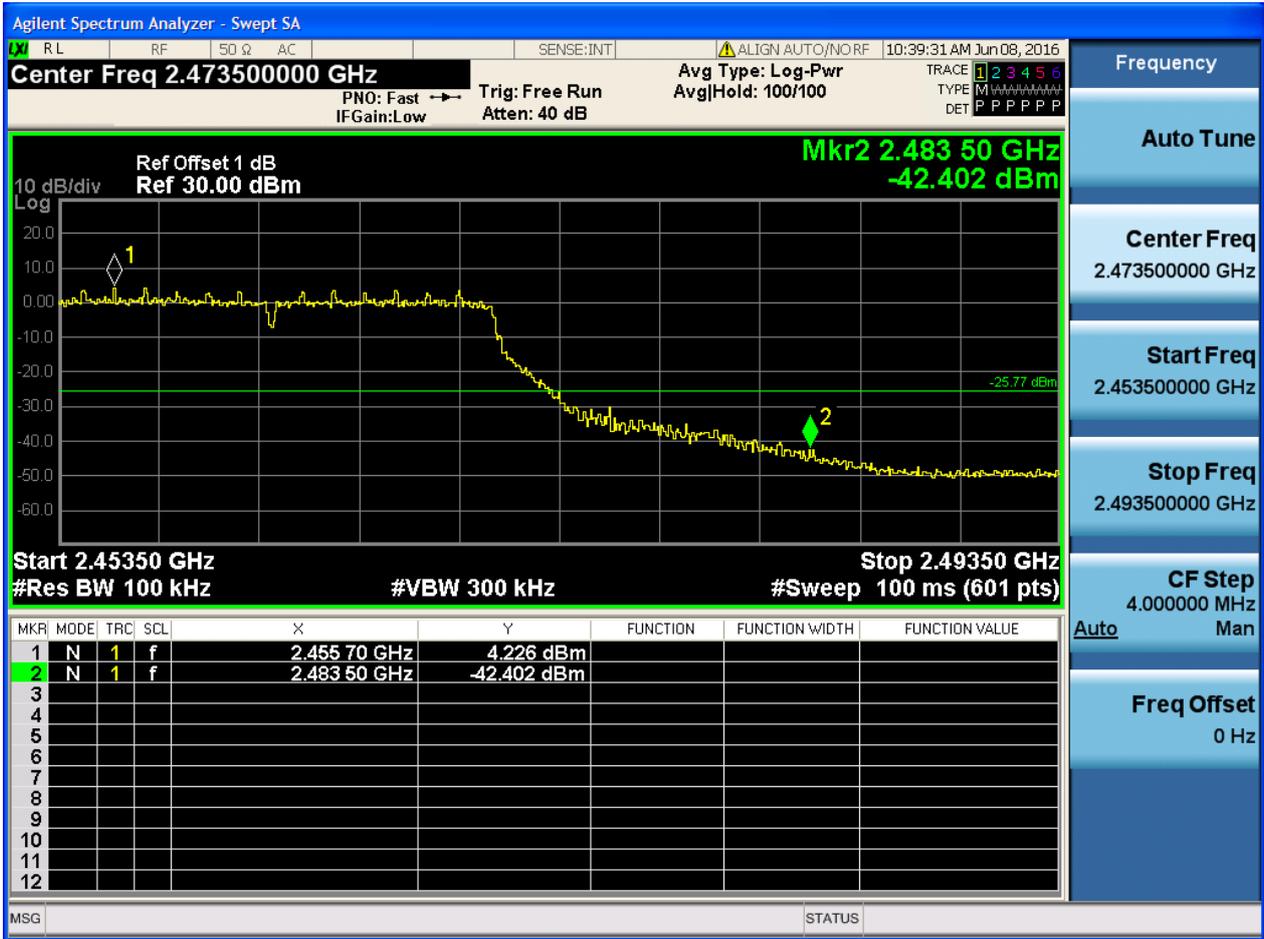


2.5 11N20_L@Ant 1





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]-20[dBm], see test plots for detailed".

Part I - Test Results

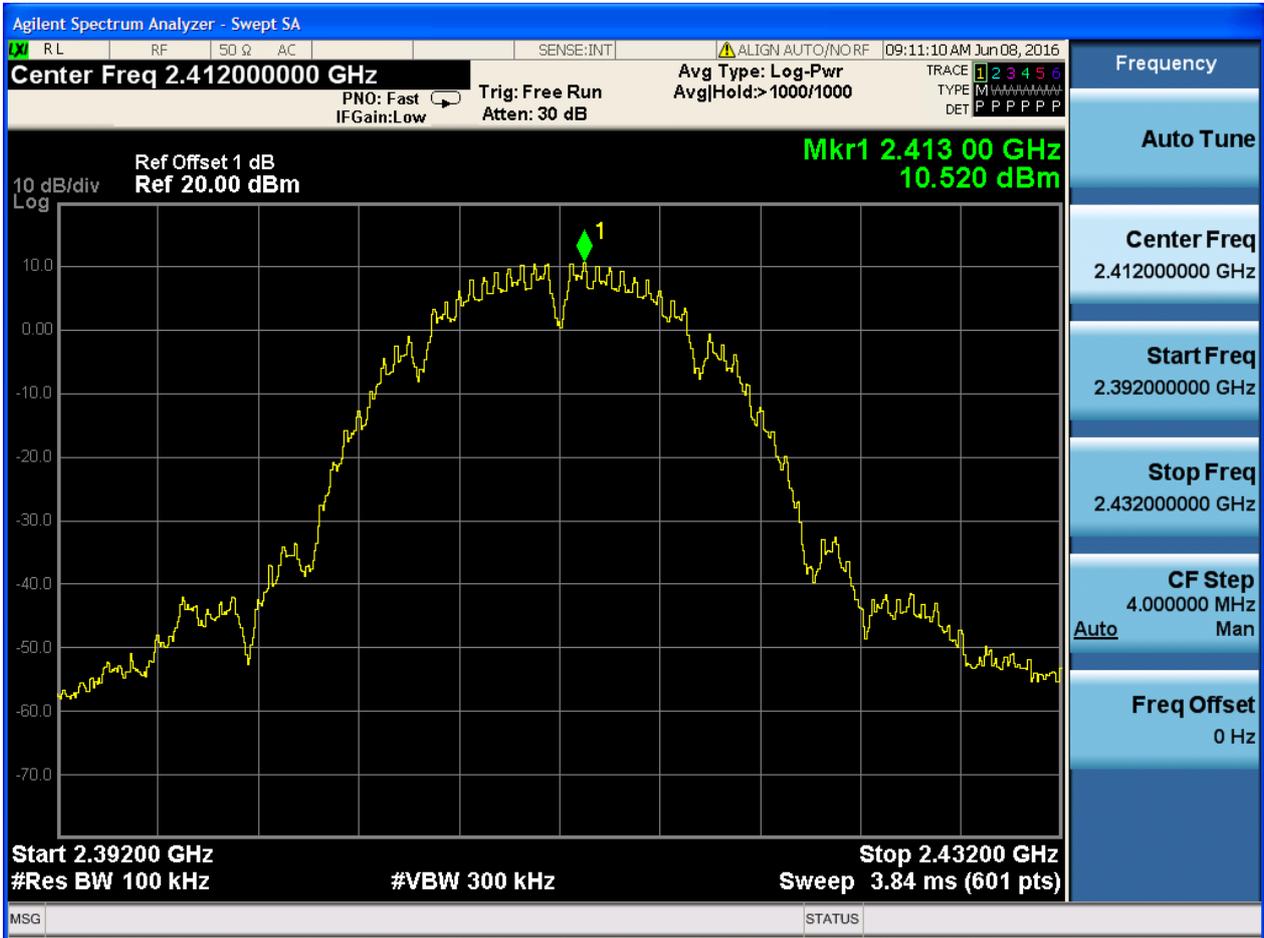
Test Mode	Test Channel	Frequency[MHz]	Ant	Pref[dBm]	Puw[dBm]	Verdict
11B	L	2412	Ant 1	10.52	<limit	pass
11B	M	2437	Ant 1	10.83	<limit	pass
11B	H	2462	Ant 1	10.72	<limit	pass
11G	L	2412	Ant 1	6.01	<limit	pass
11G	M	2437	Ant 1	6.40	<limit	pass
11G	H	2462	Ant 1	6.69	<limit	pass
11N20	L	2412	Ant 1	4.13	<limit	pass
11N20	M	2437	Ant 1	4.07	<limit	pass
11N20	H	2462	Ant 1	4.52	<limit	pass



Part II - Test Plots

2.1 11B_L@Ant 1

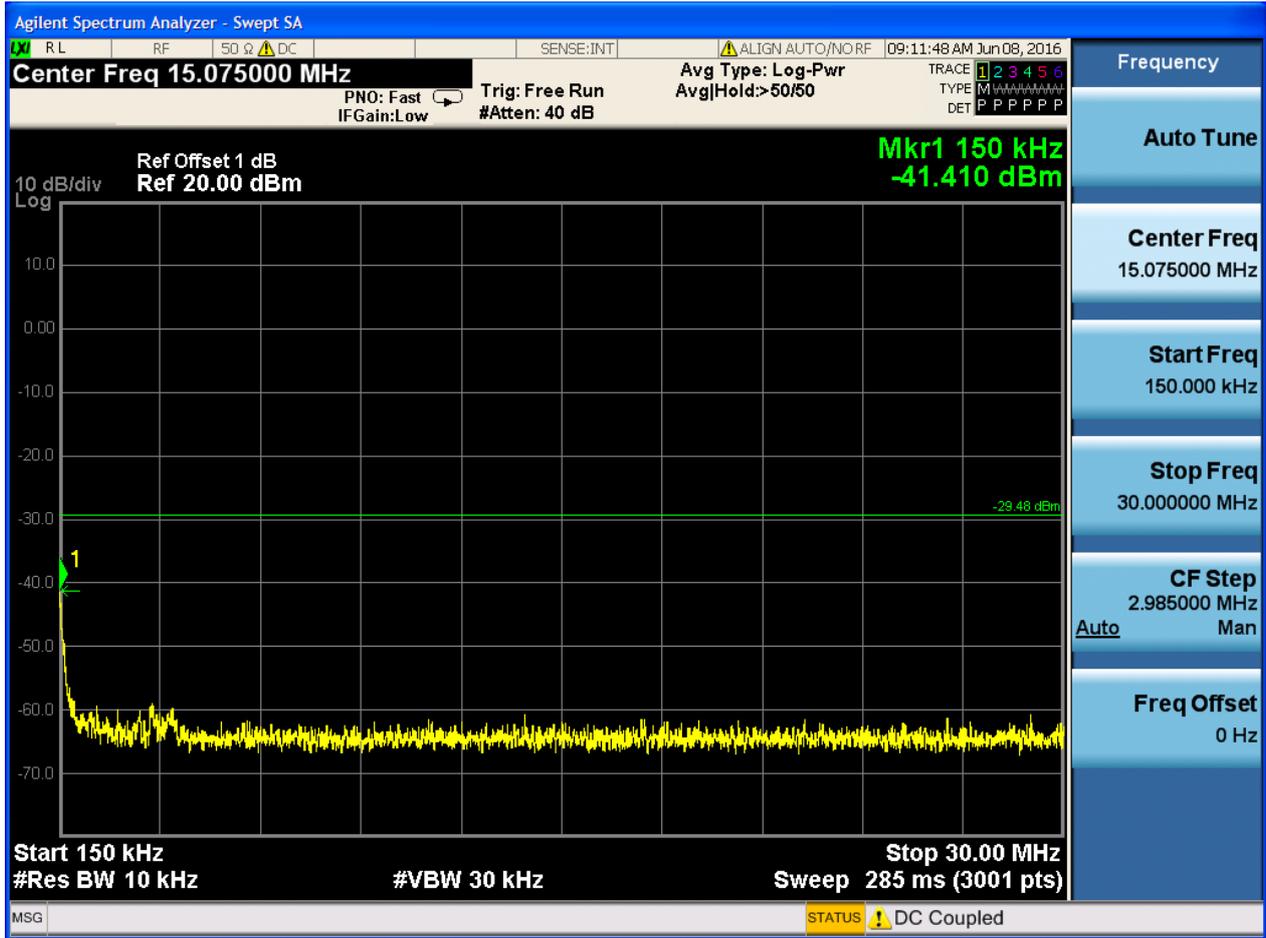
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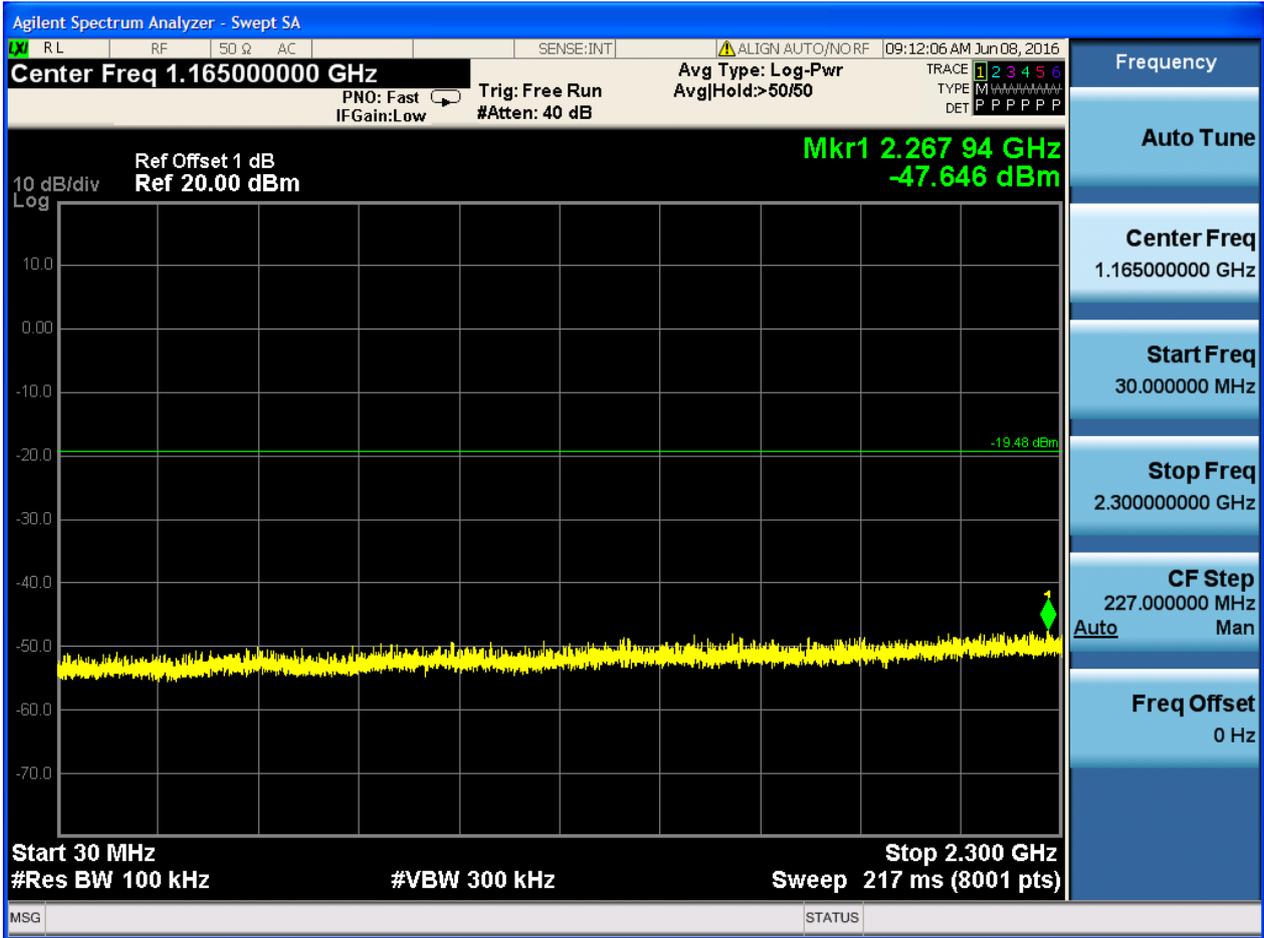


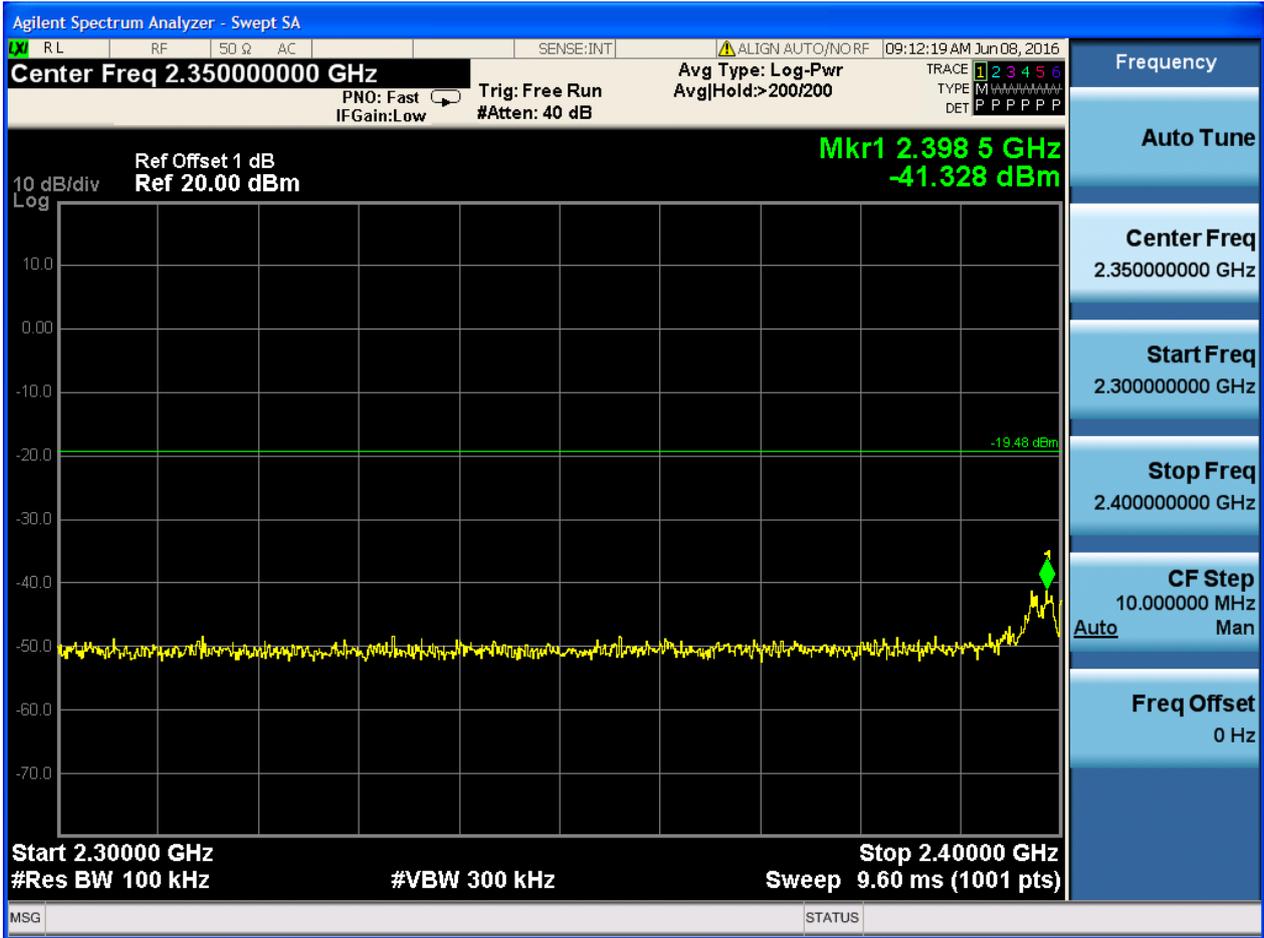


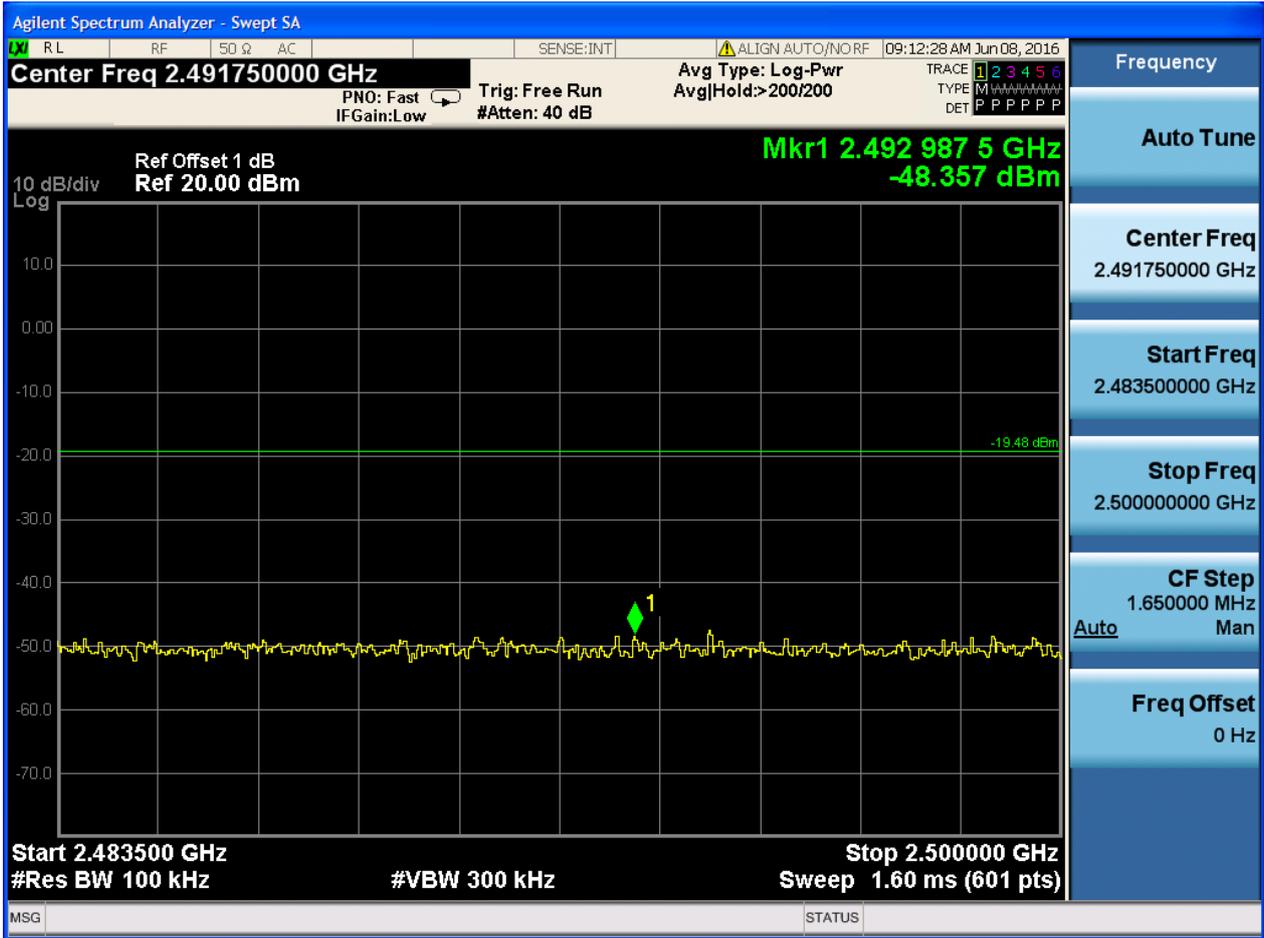
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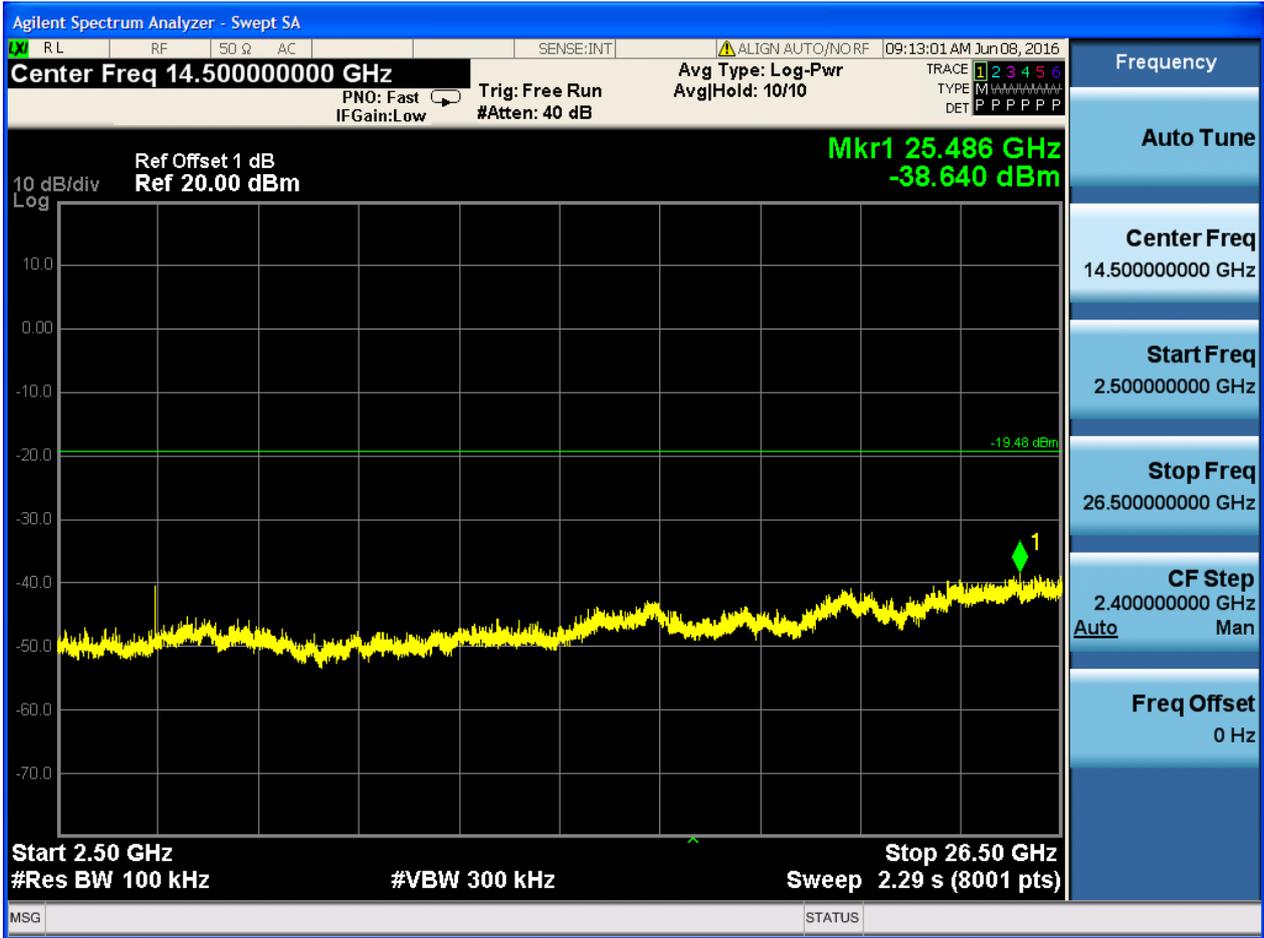














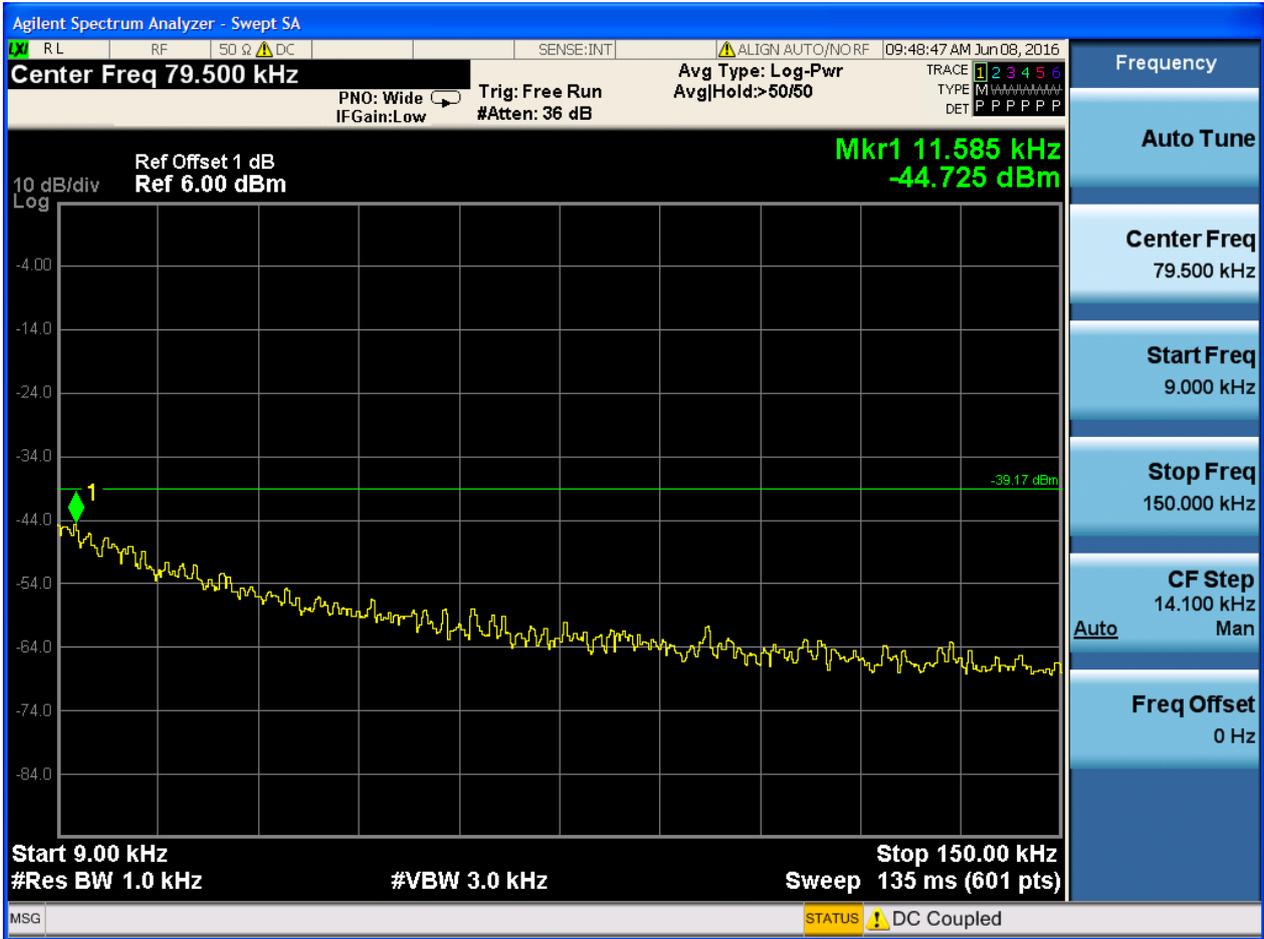
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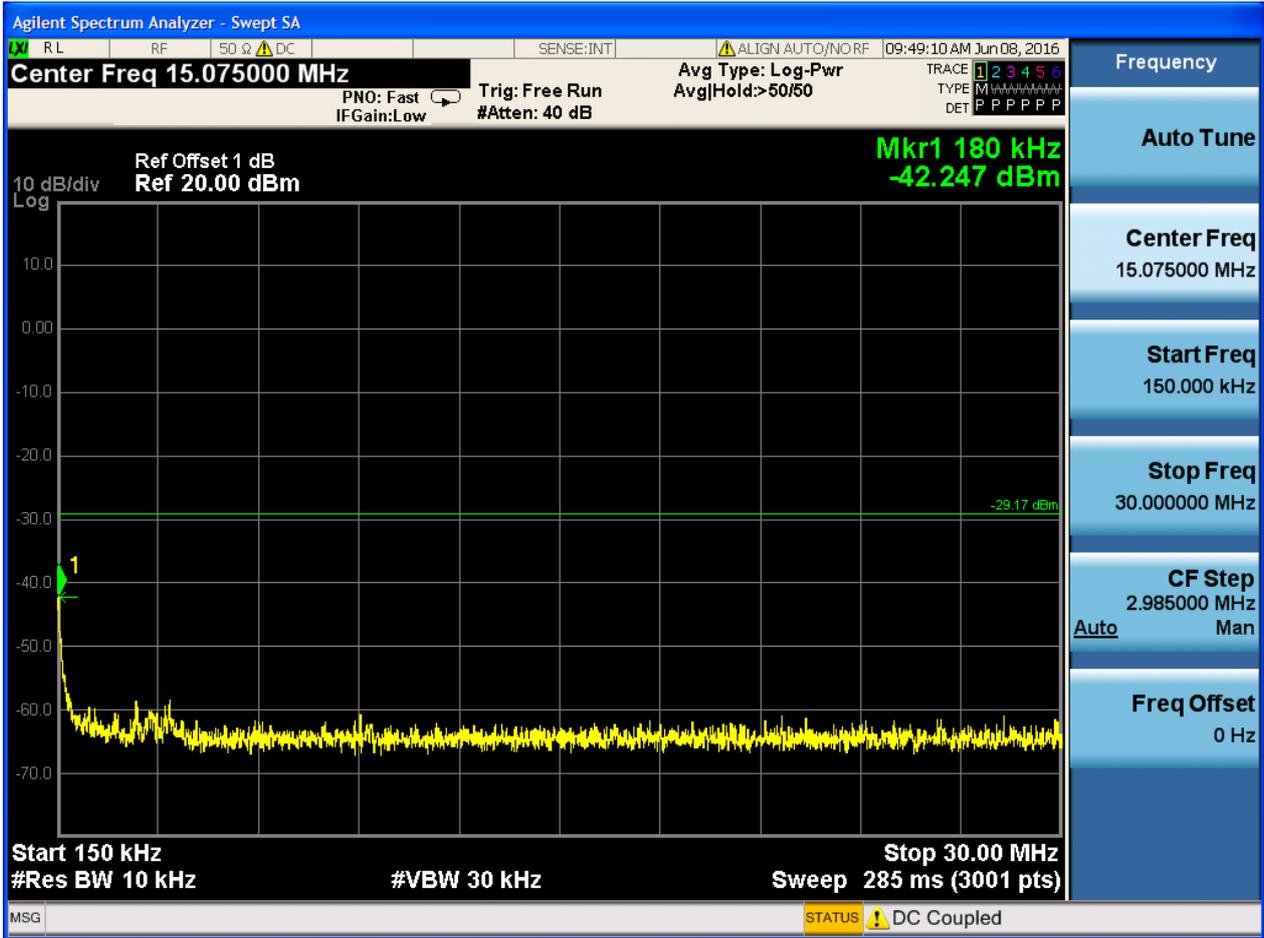
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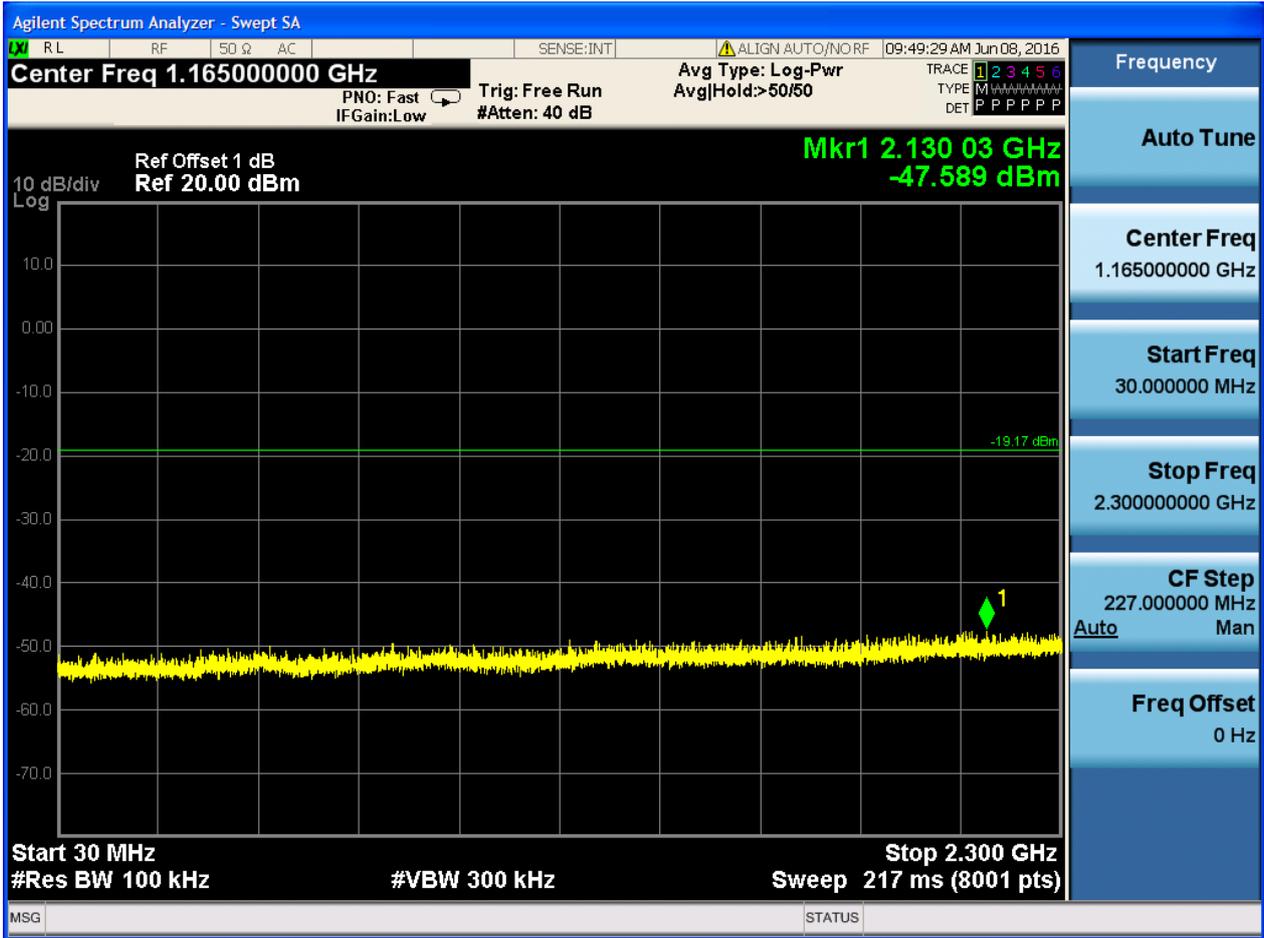


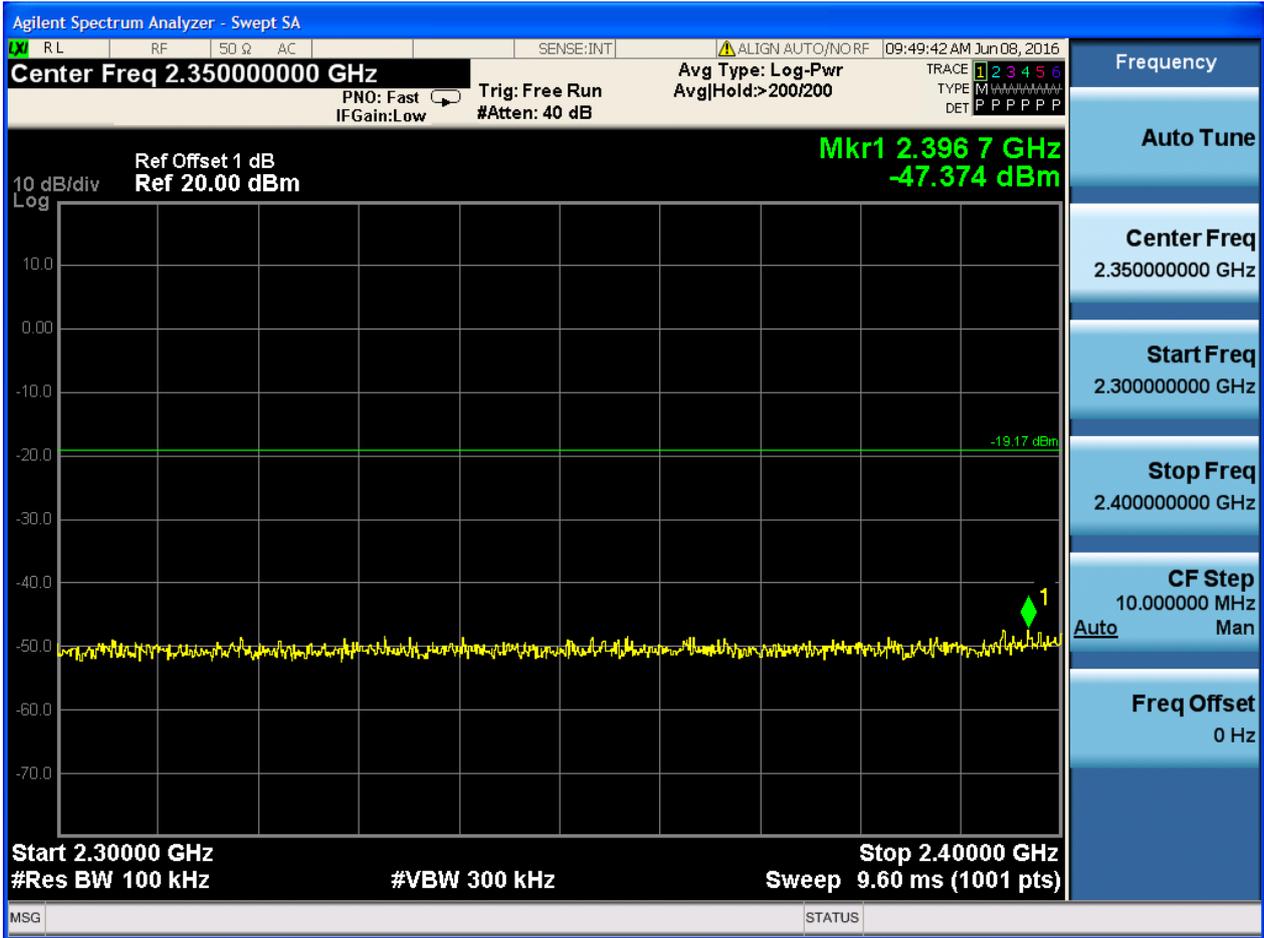


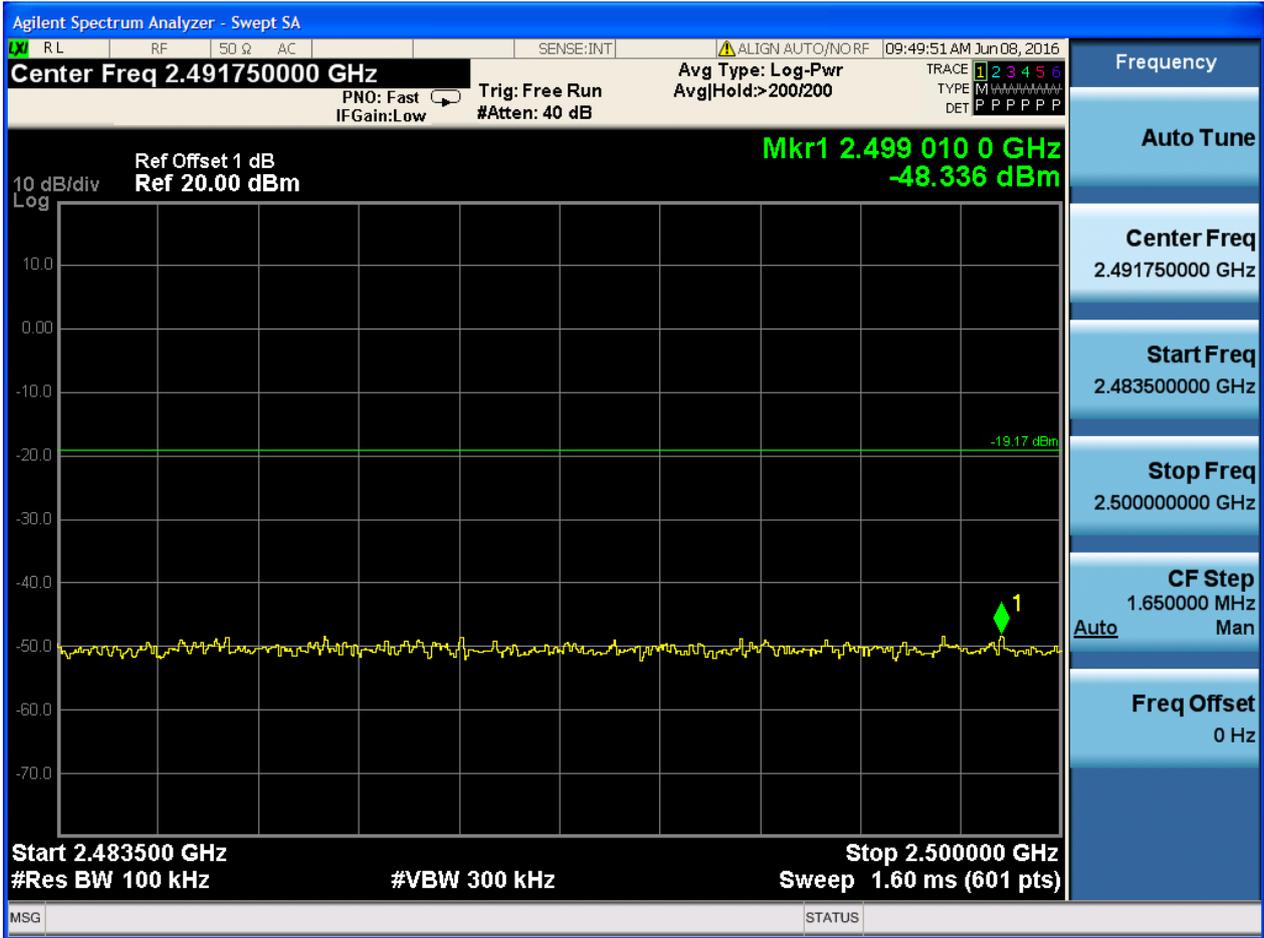
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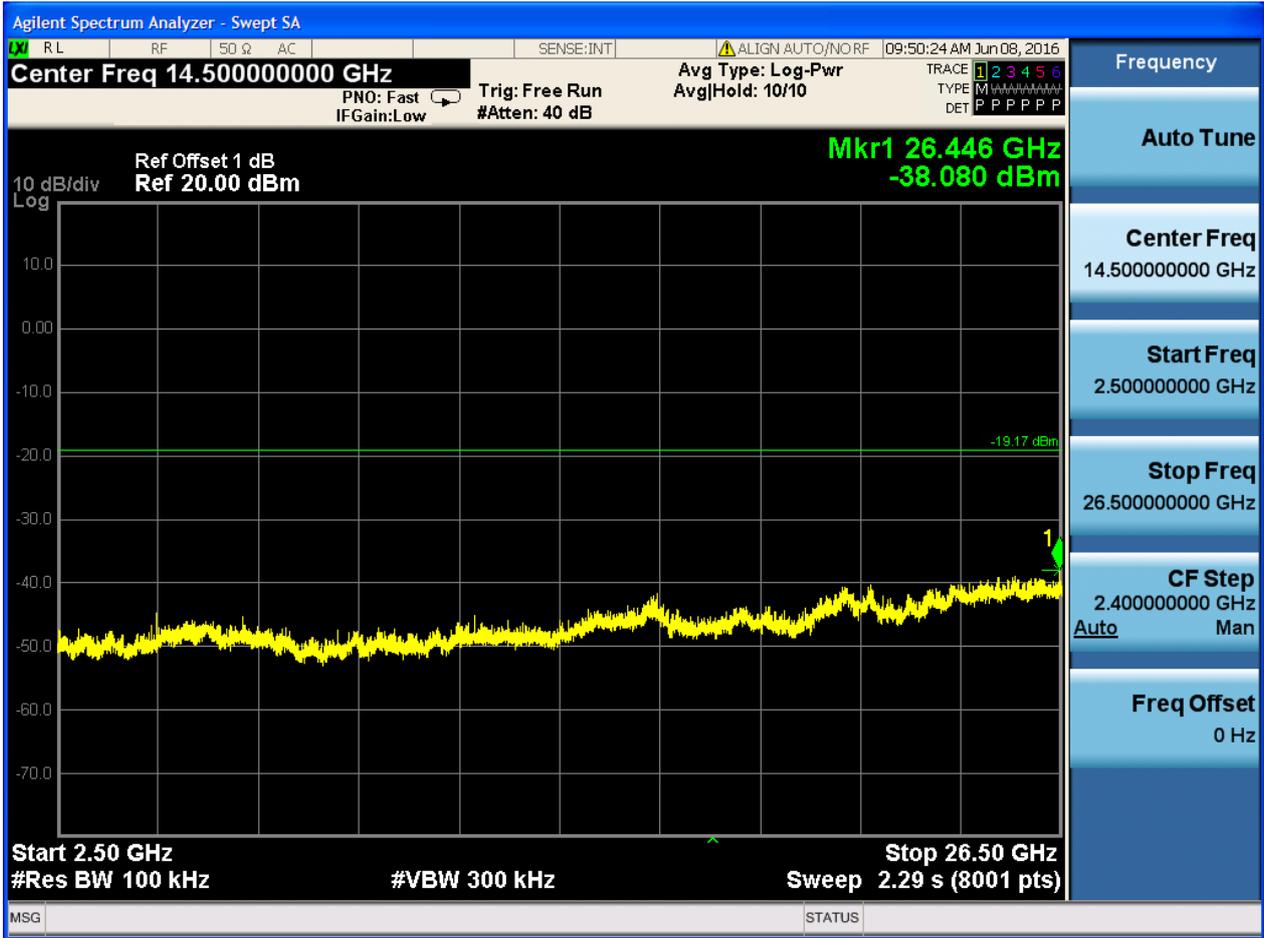














2.3 11B_H@Ant 1

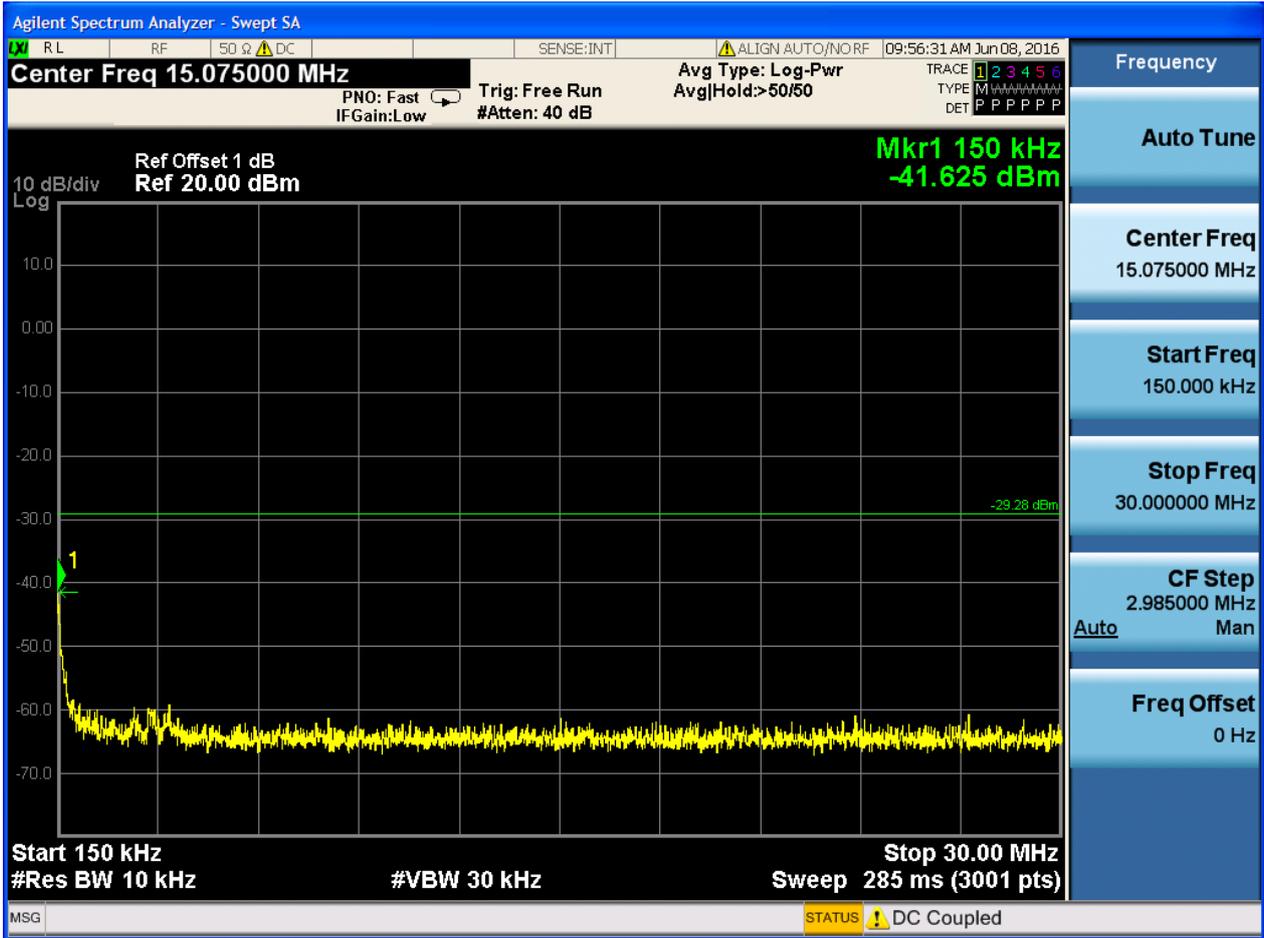
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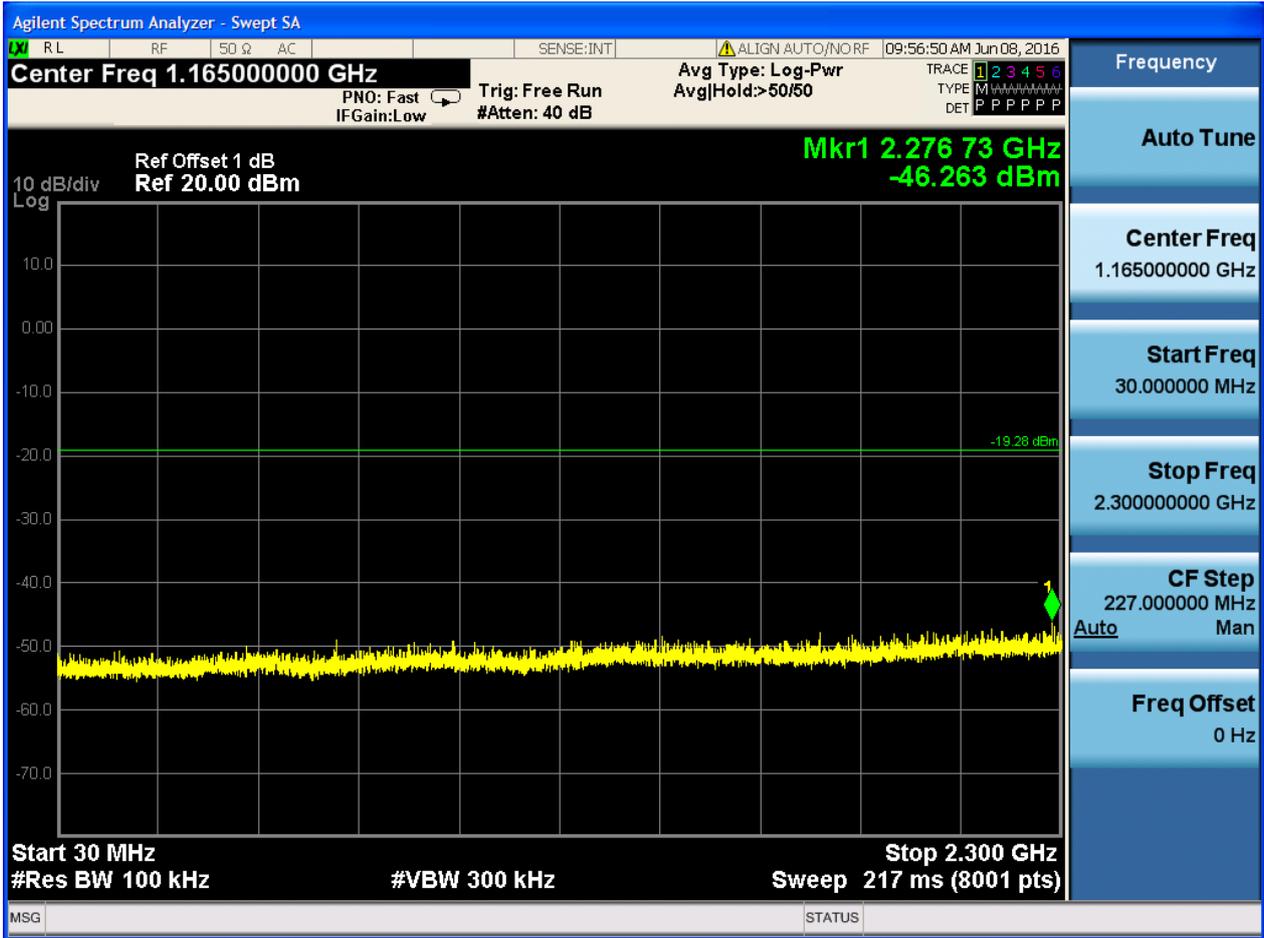


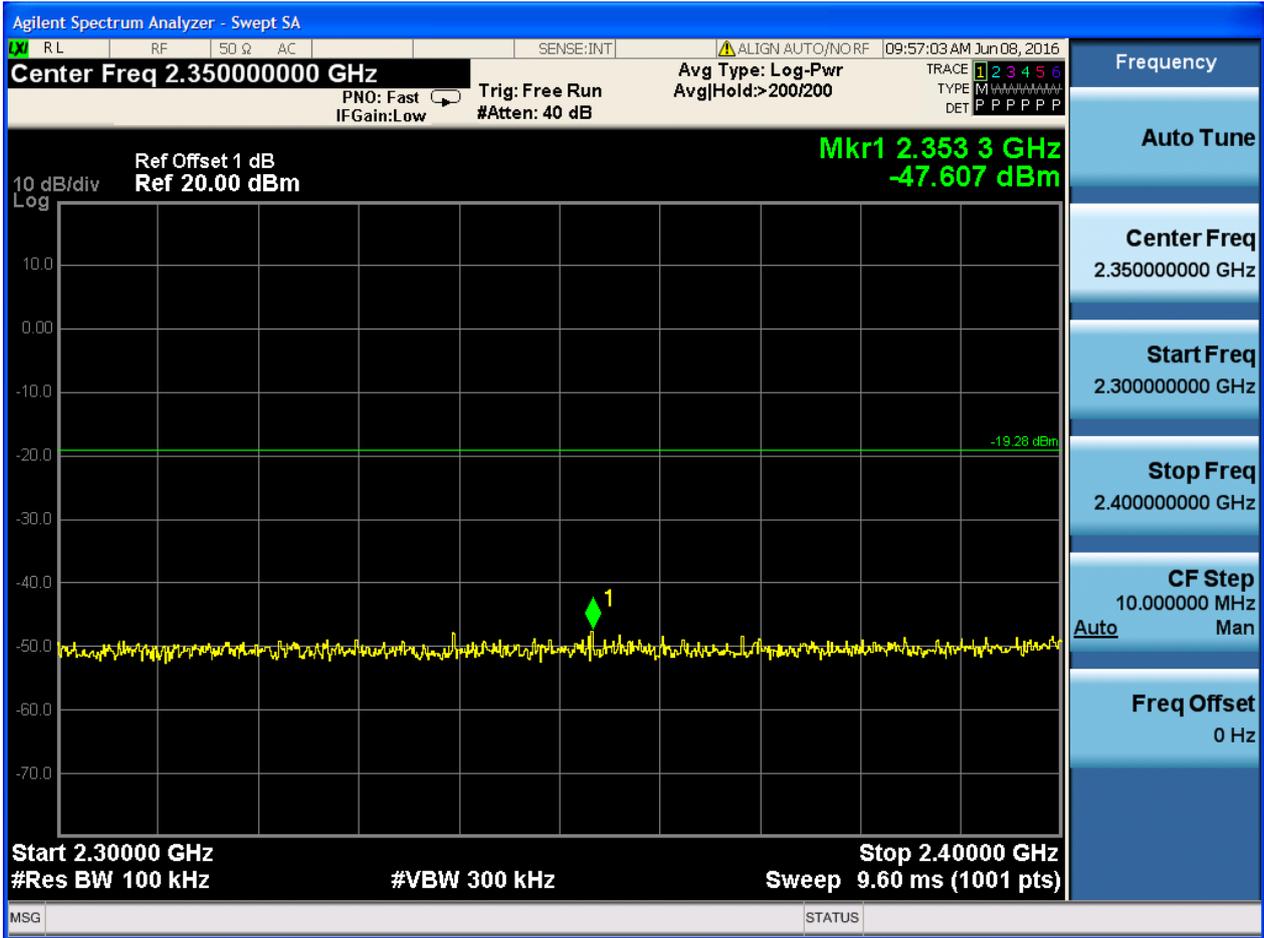


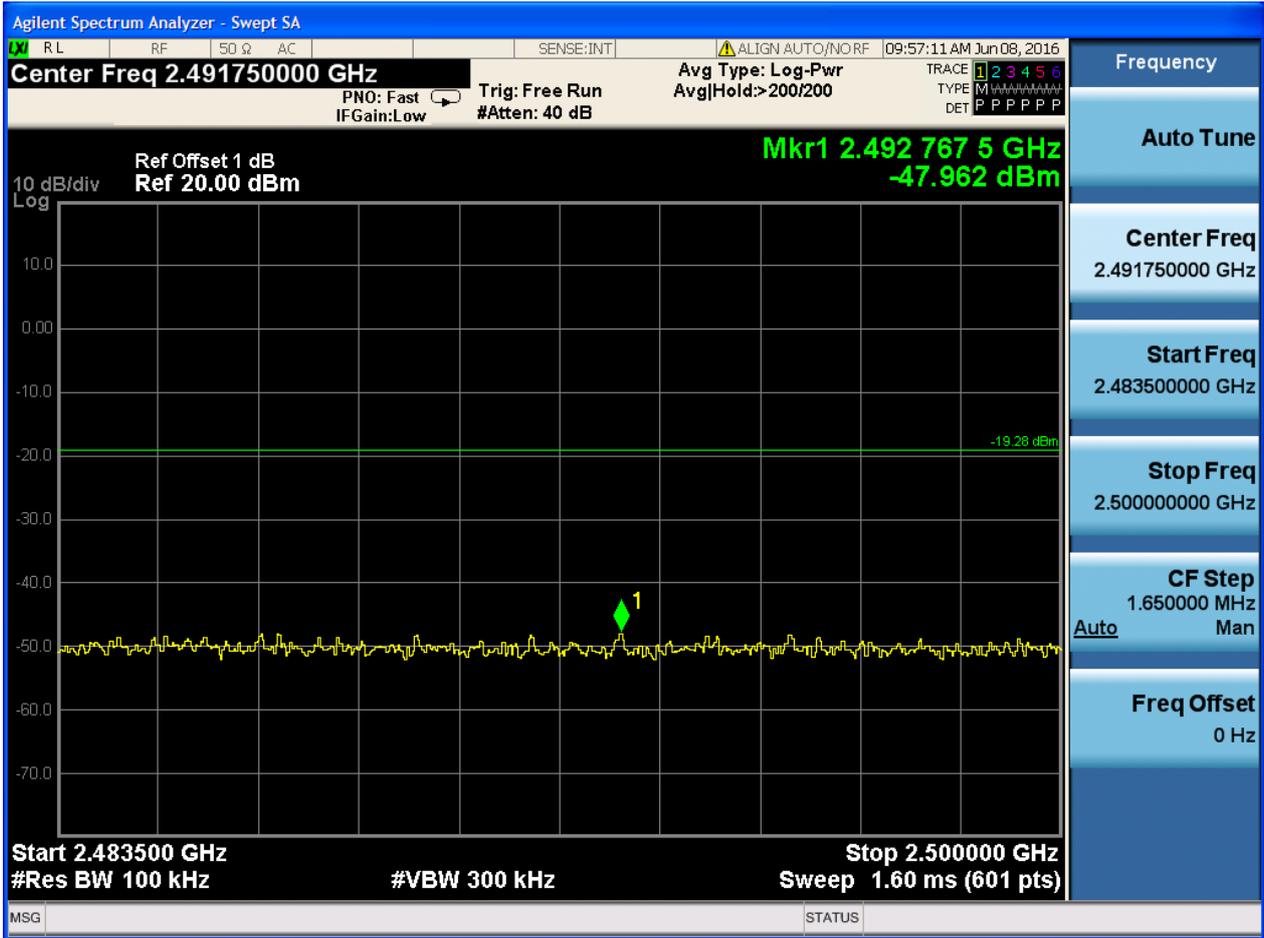
Puw:

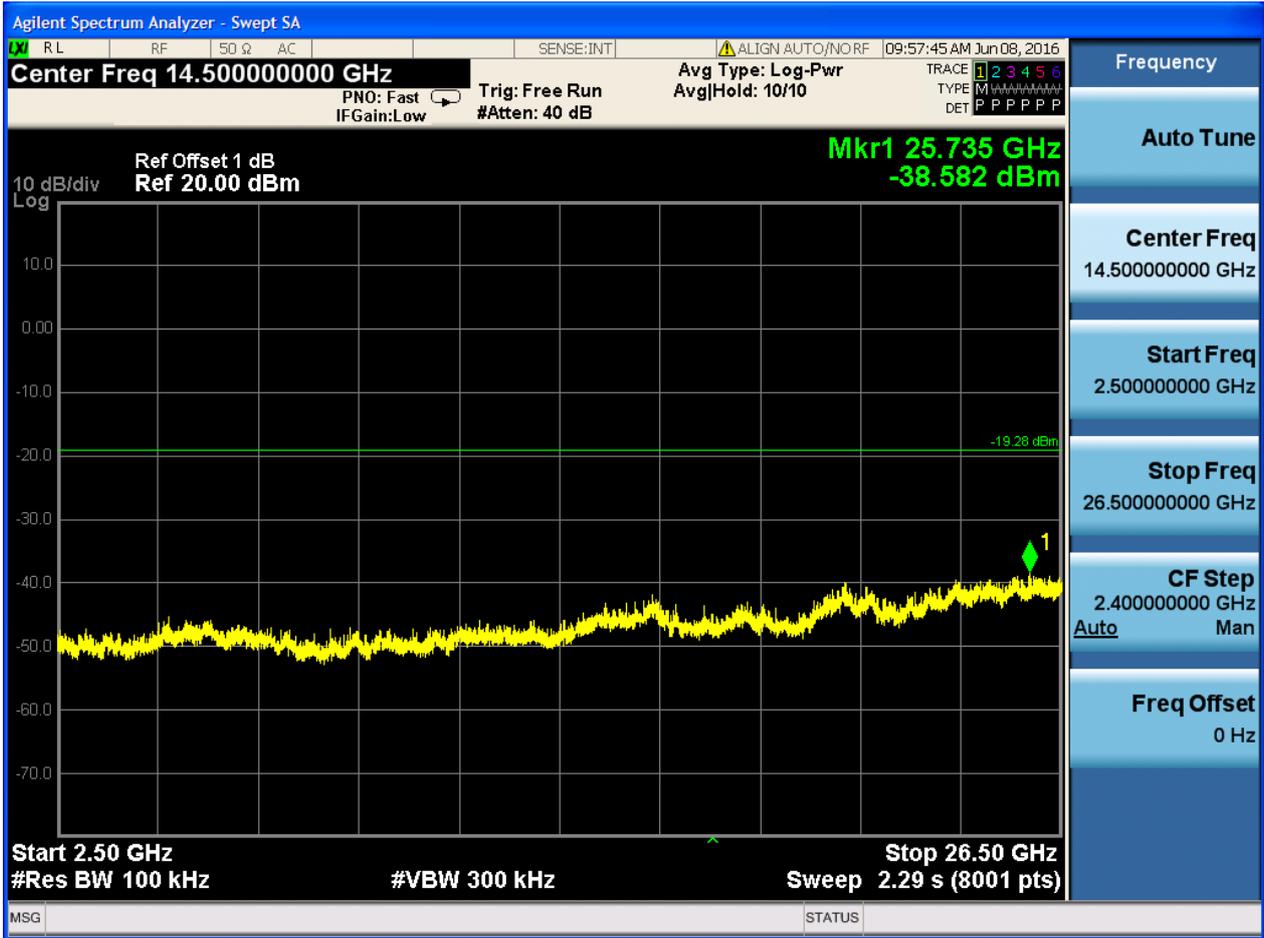








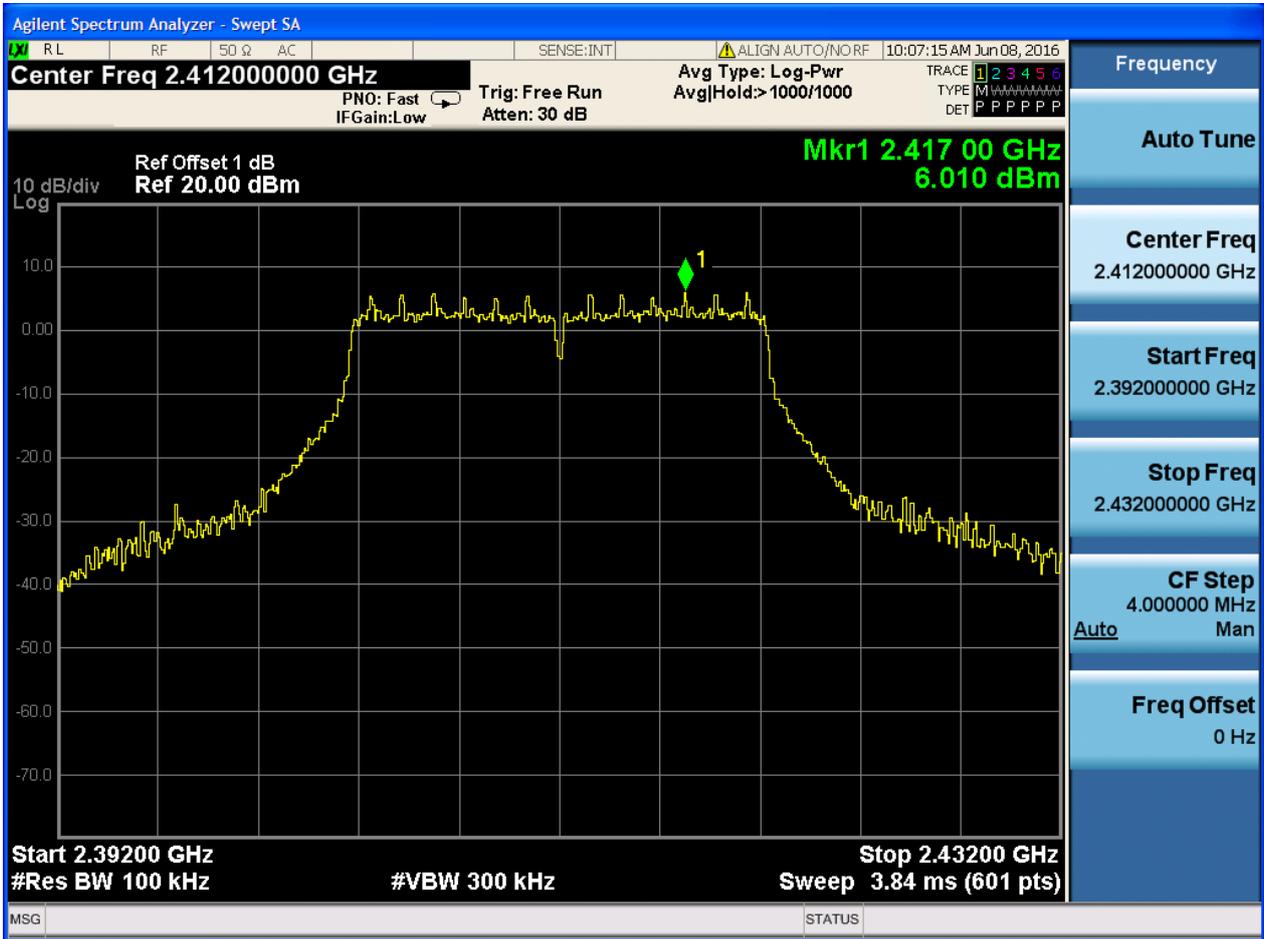






2.4 11G_L@Ant 1

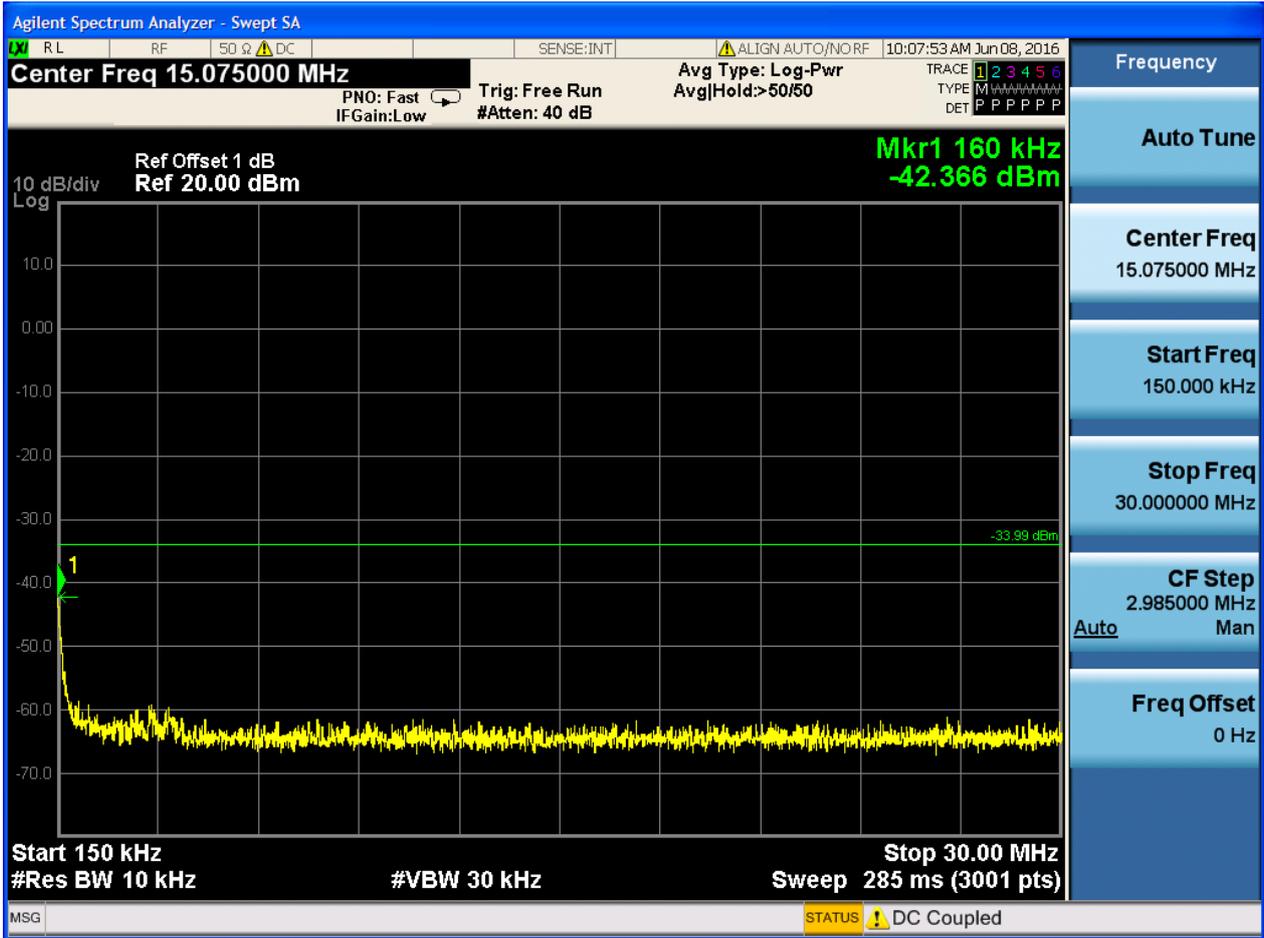
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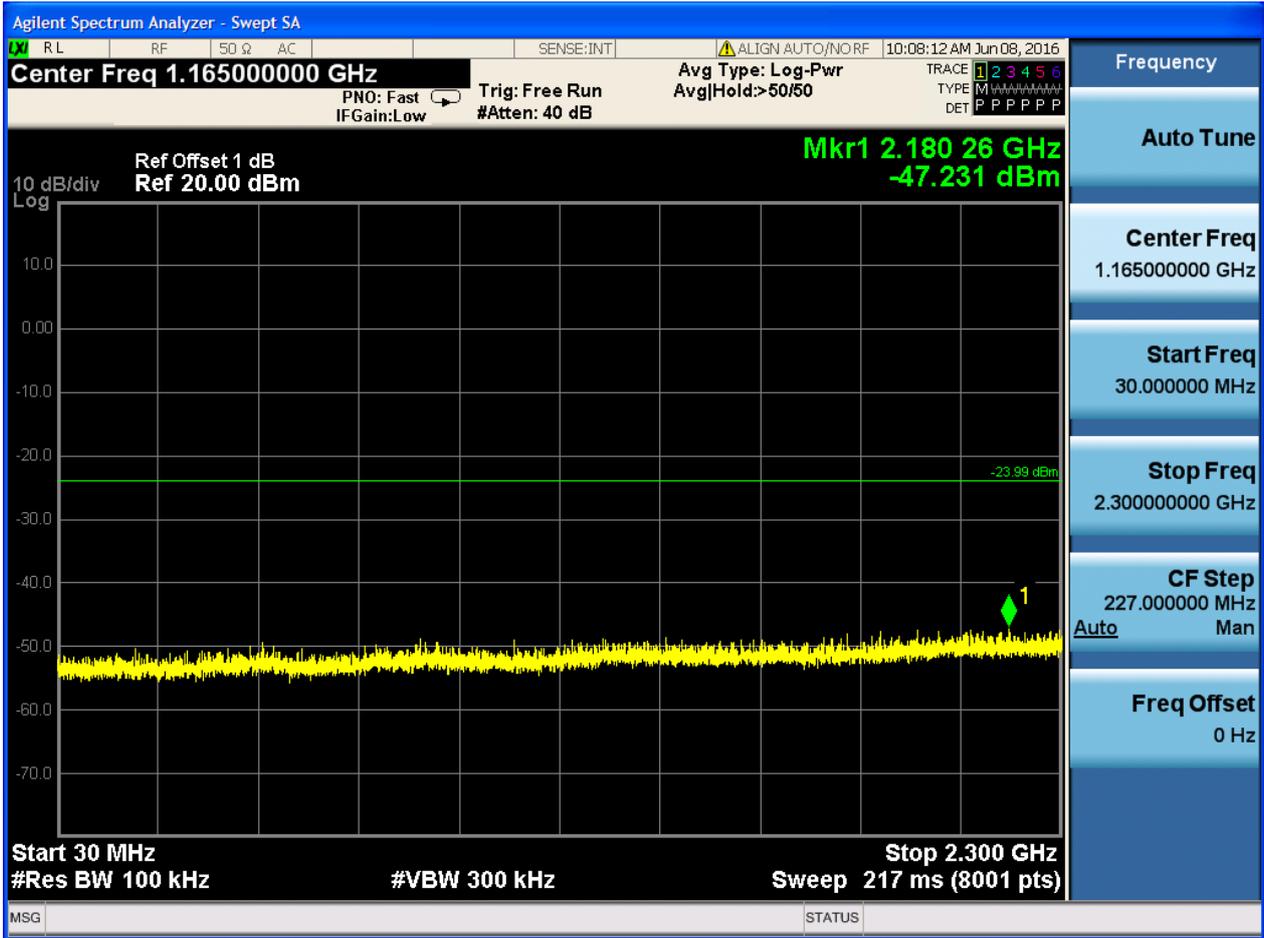


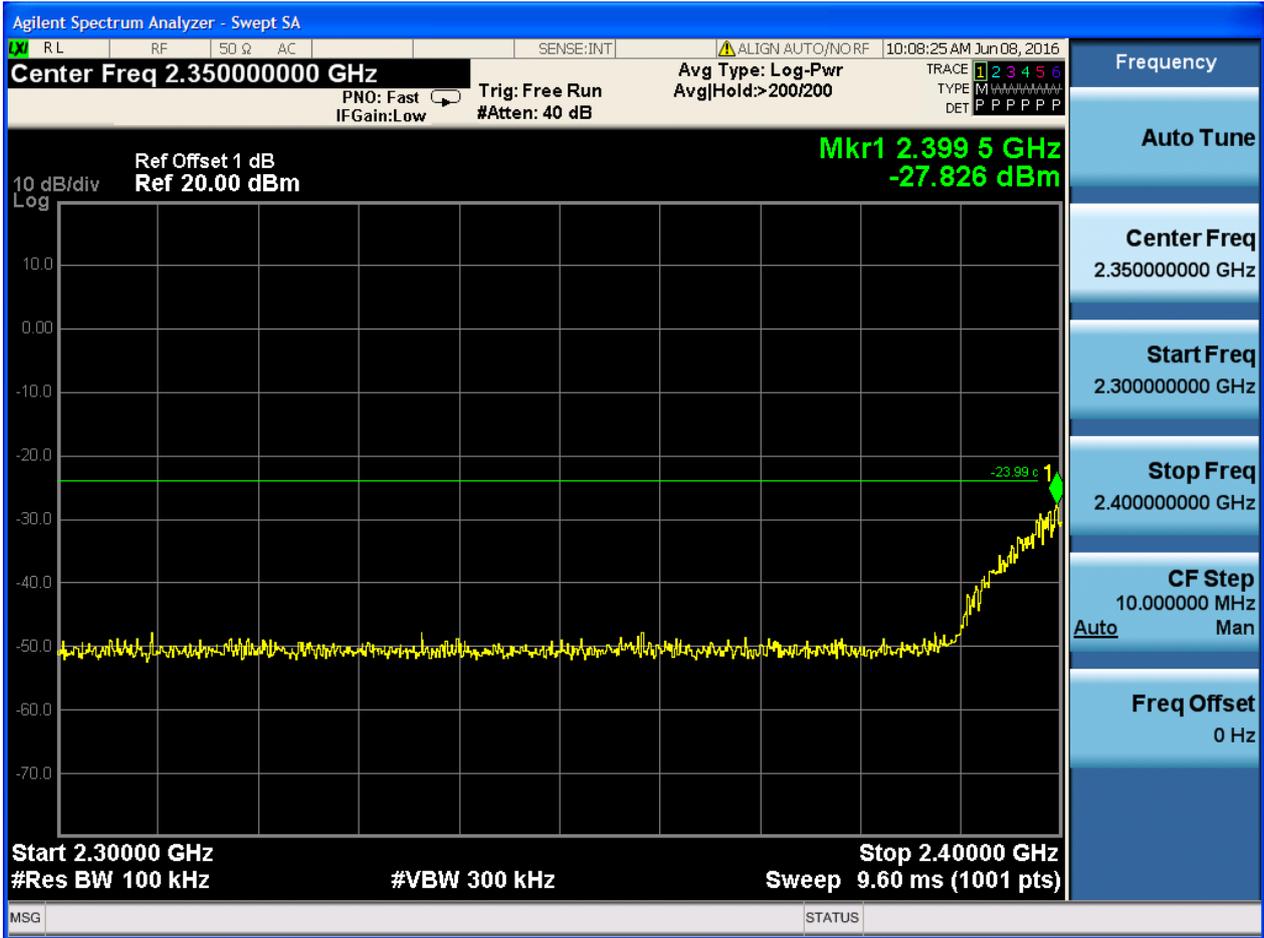


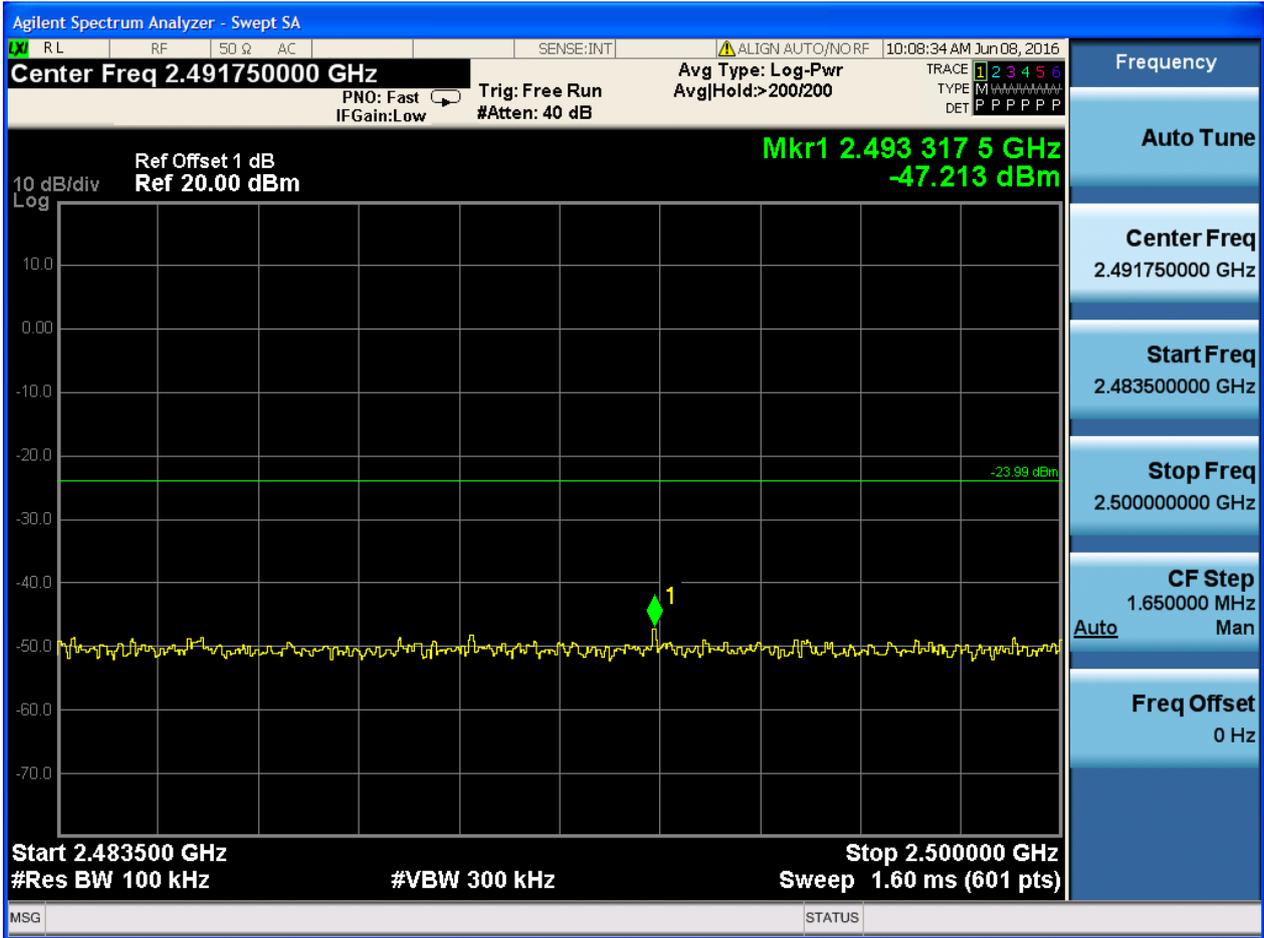
Puw:

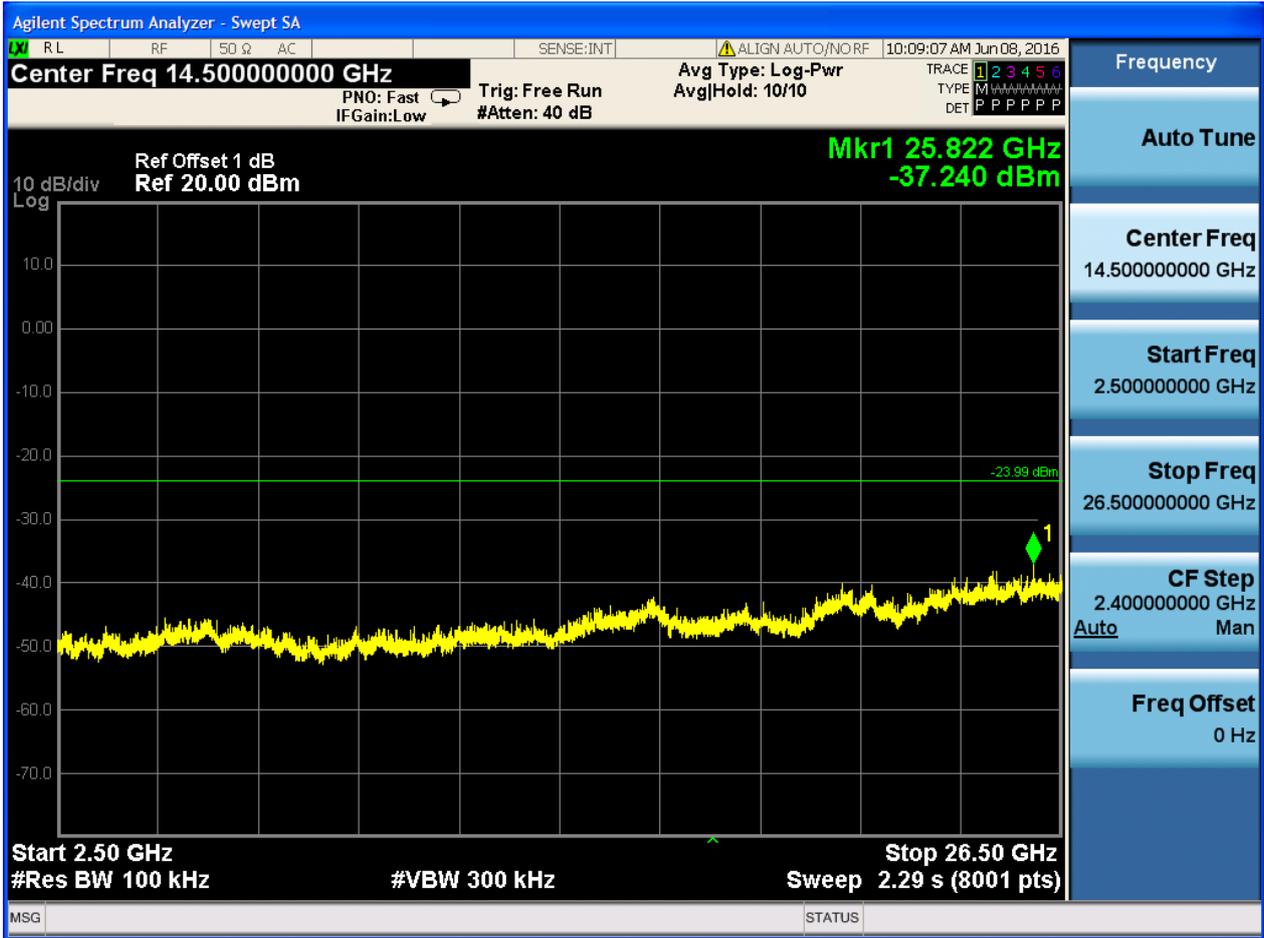














2.5 11G_M@Ant 1

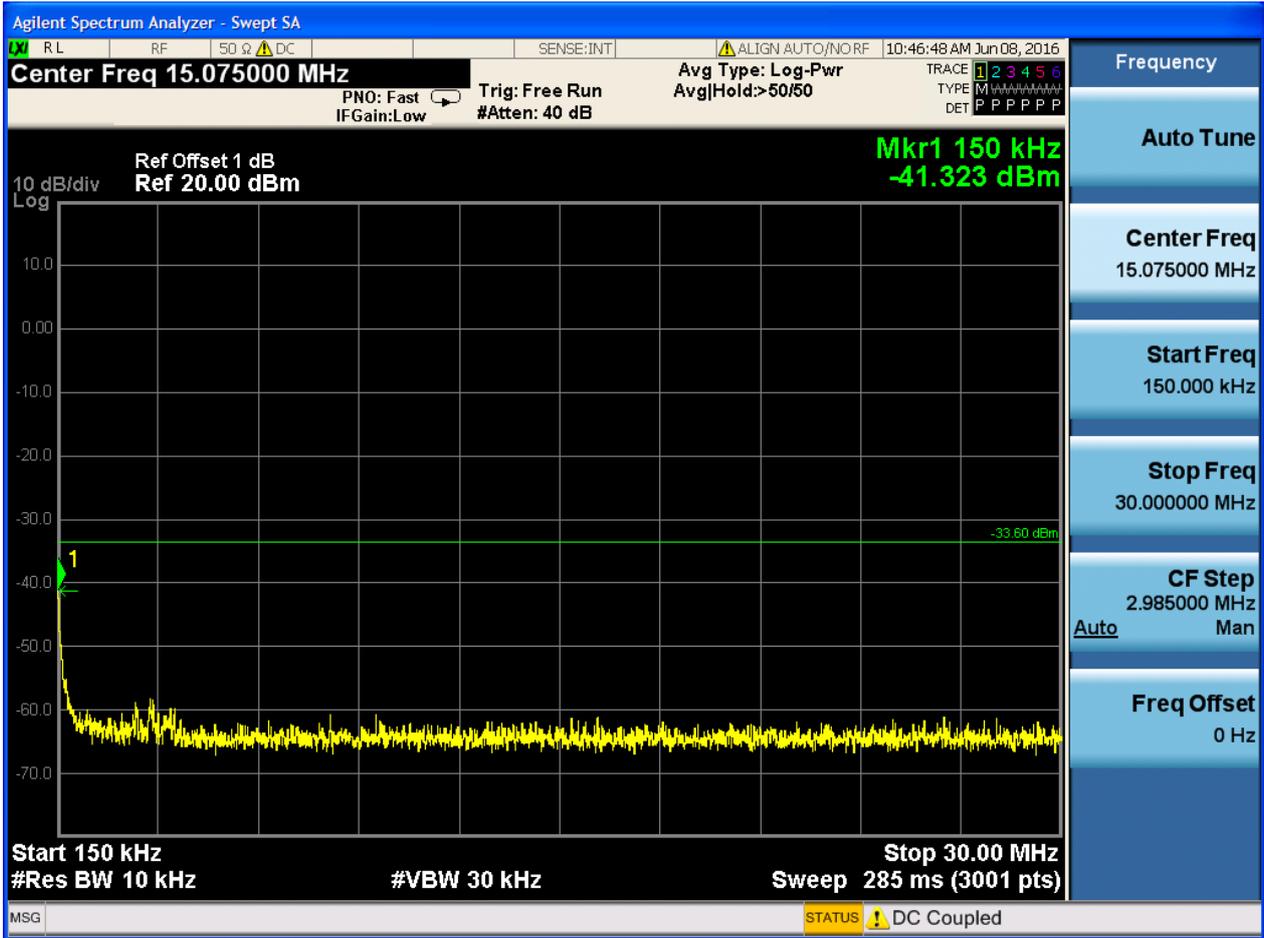
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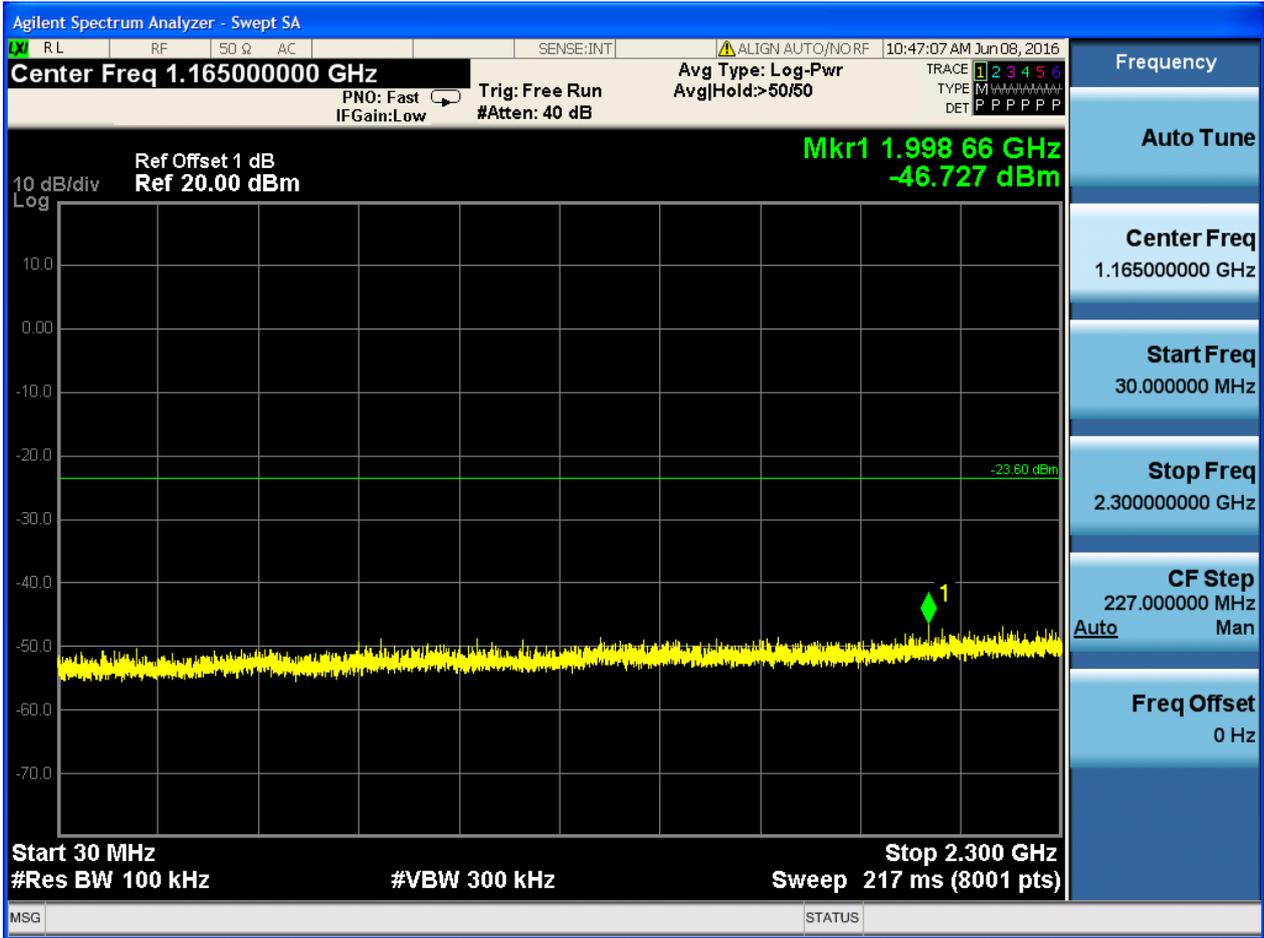


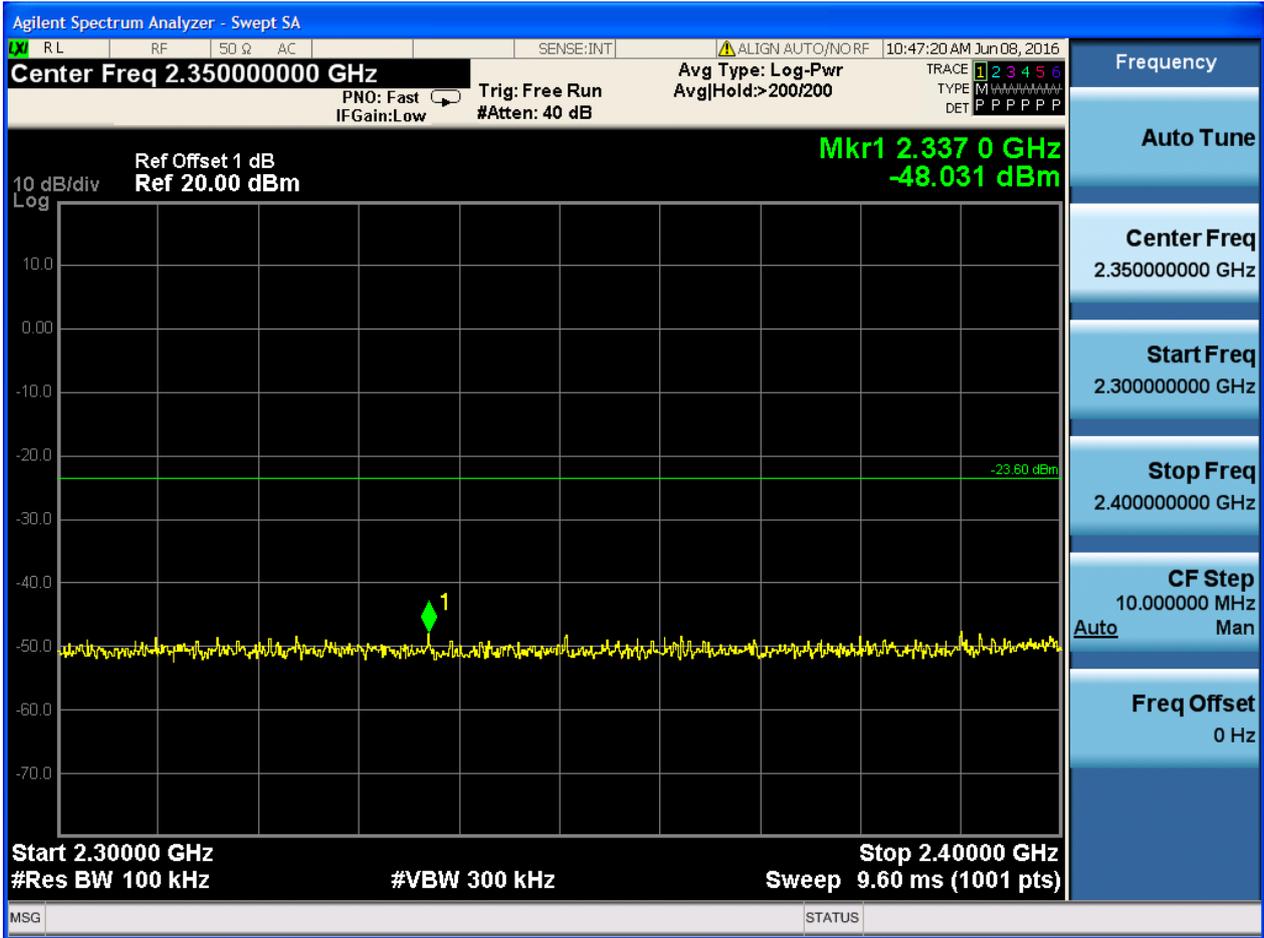


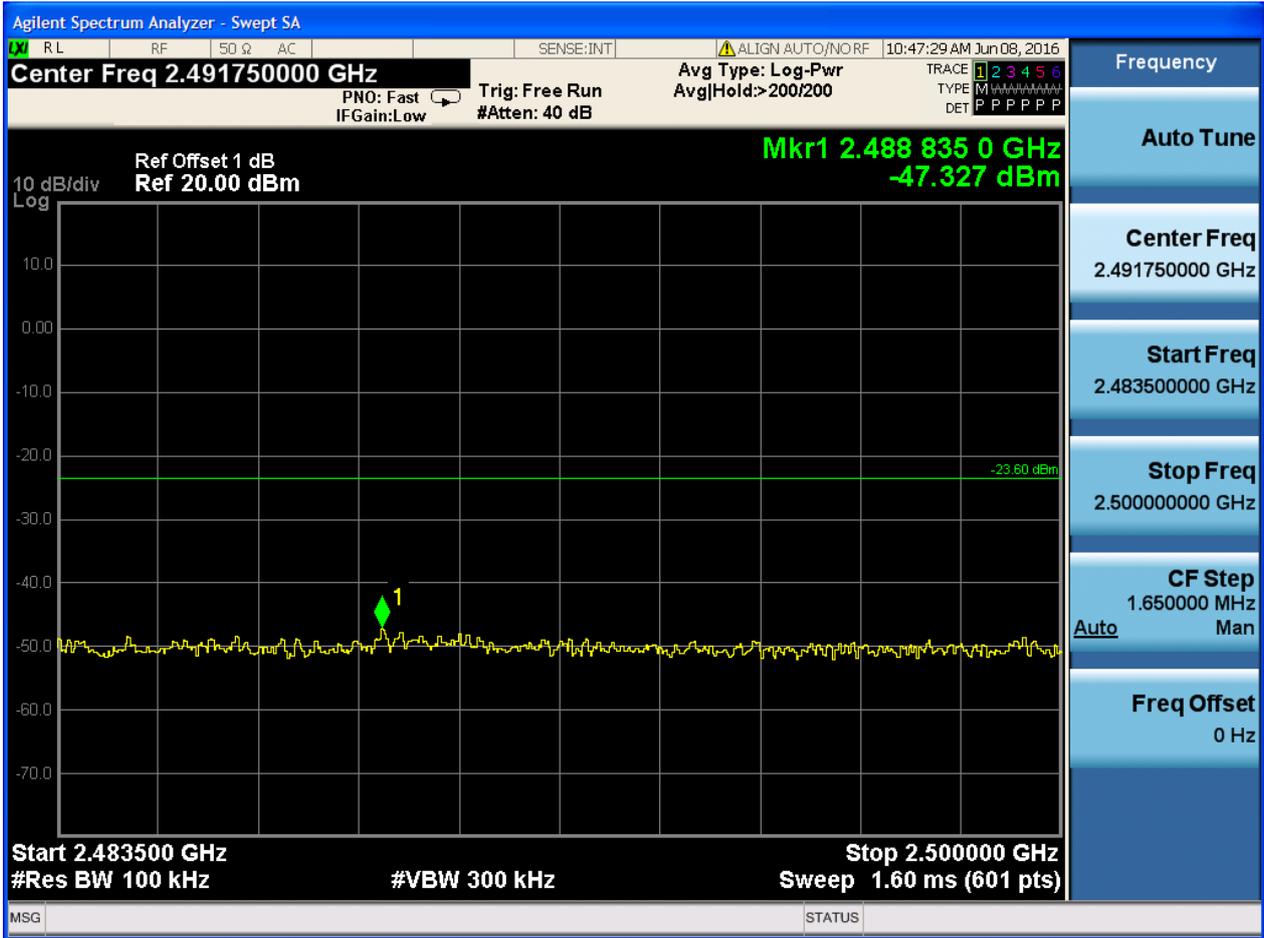
Puw:









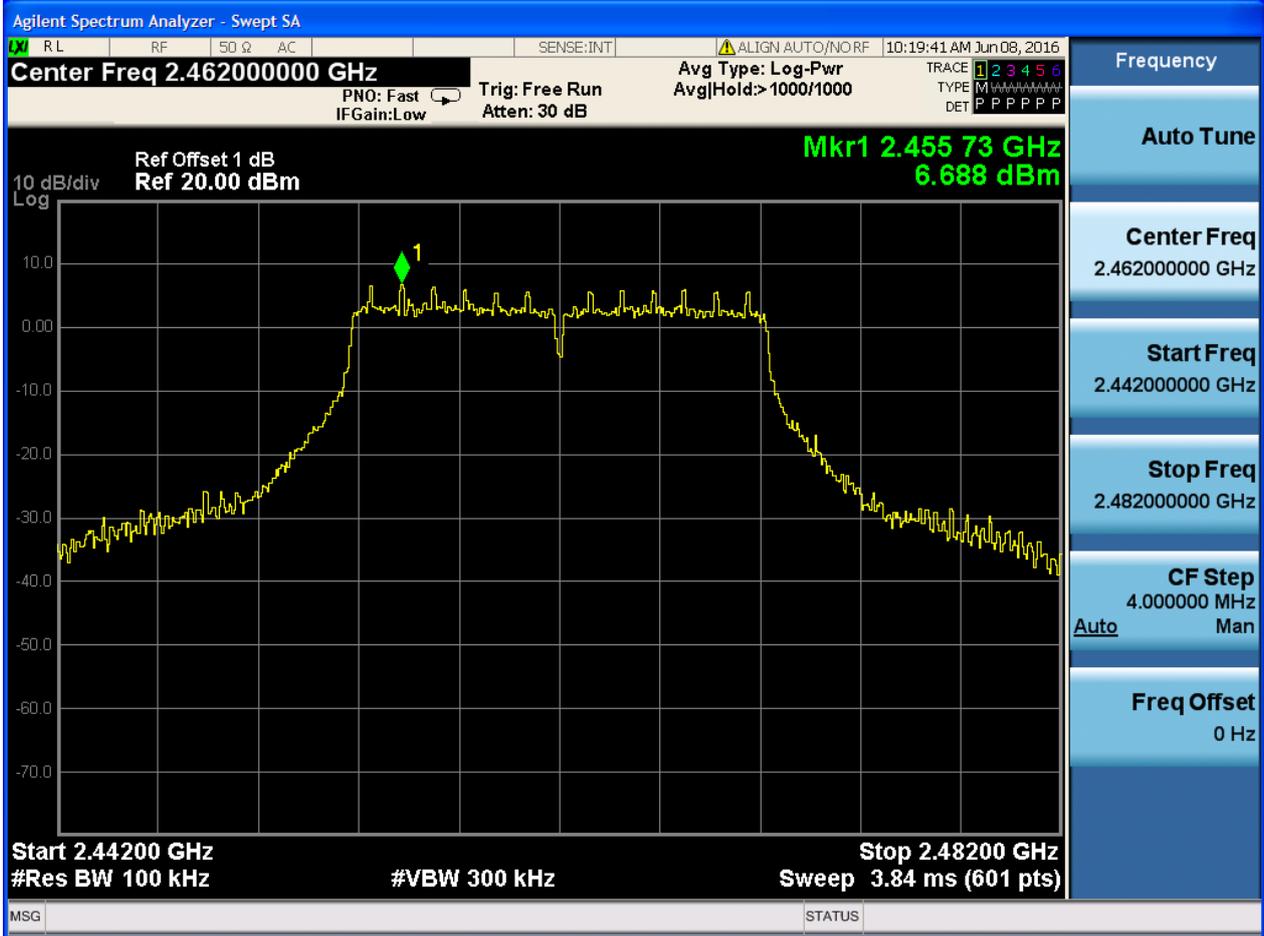






2.6 11G_H@Ant 1

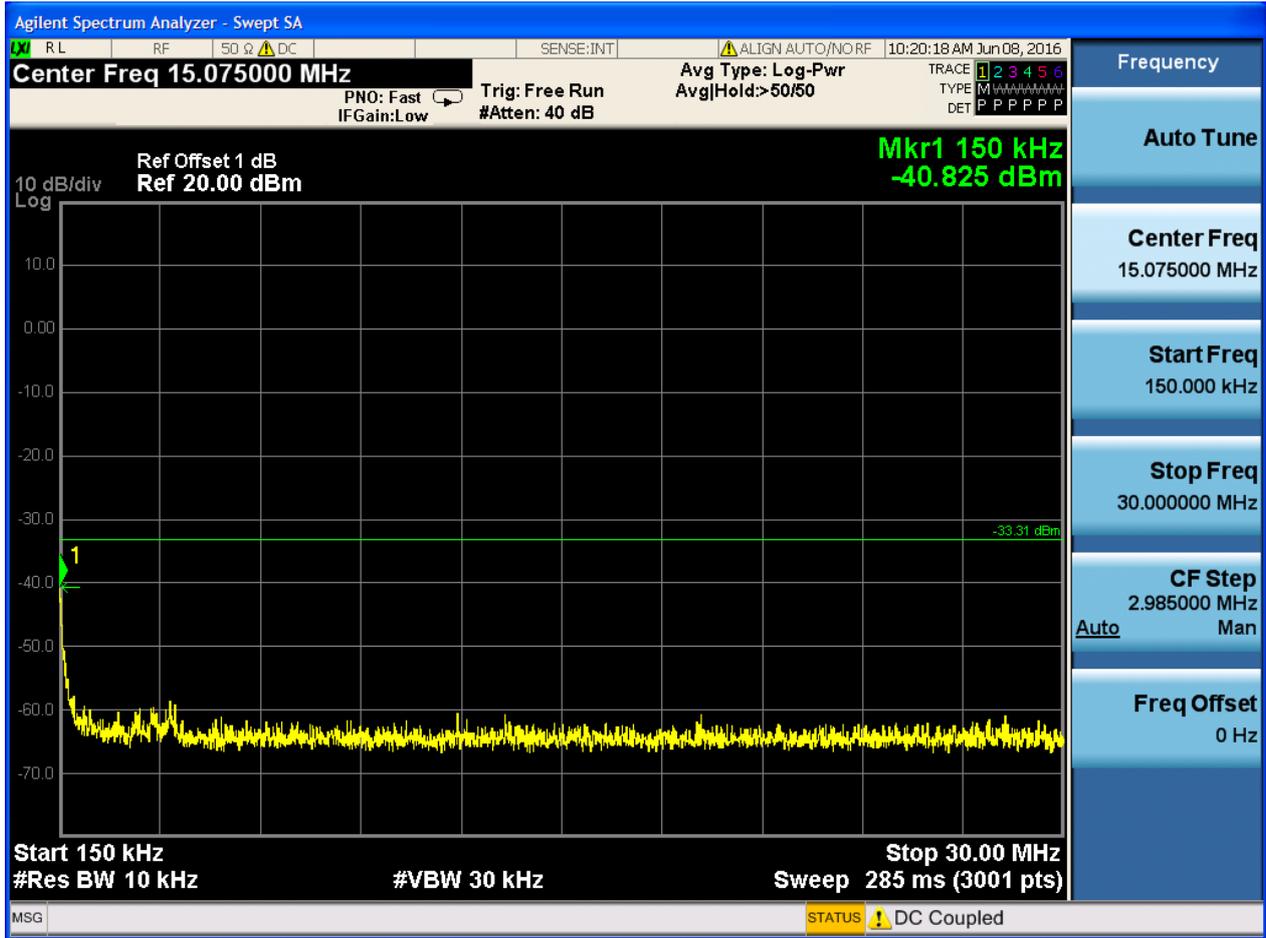
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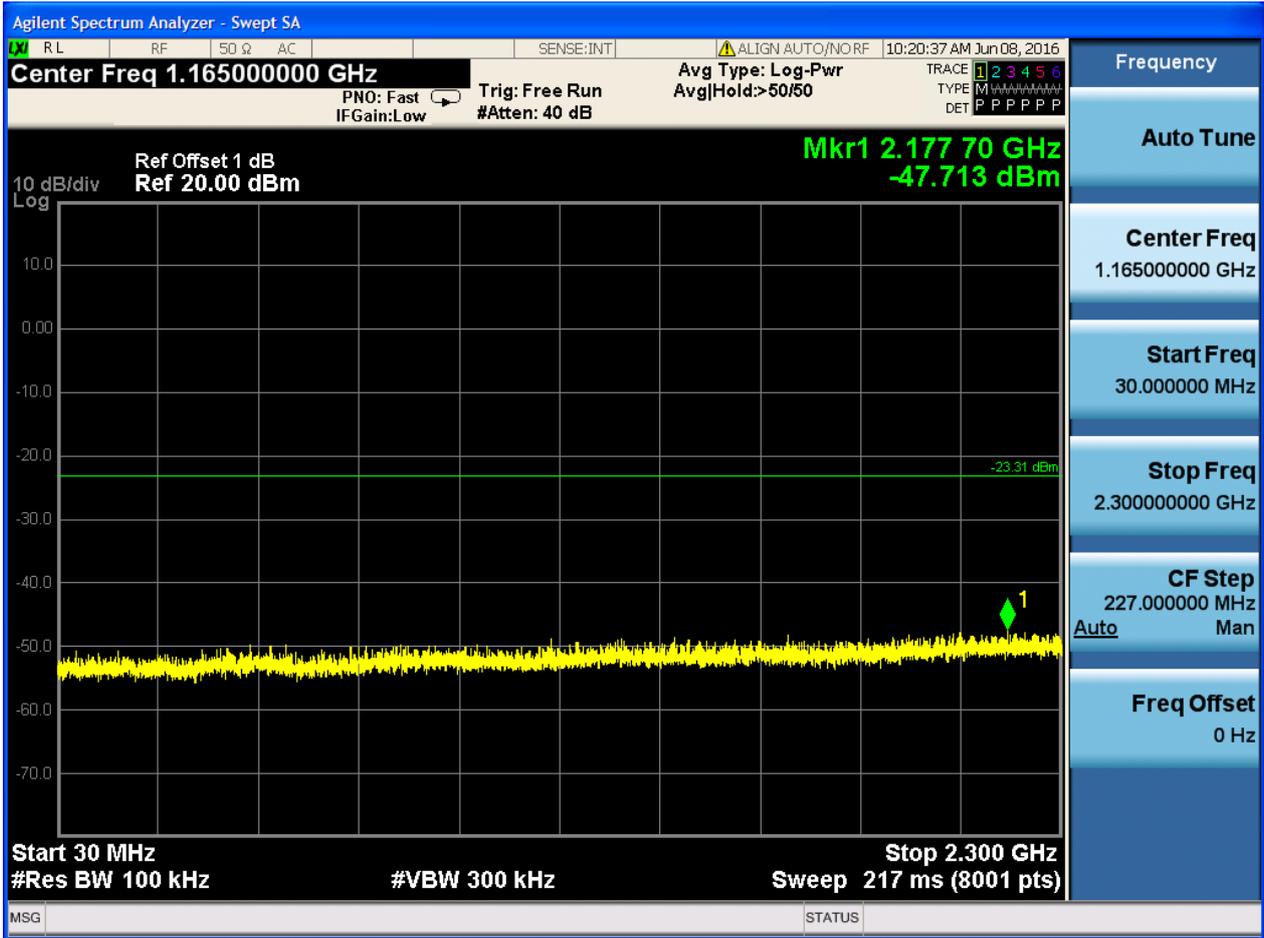


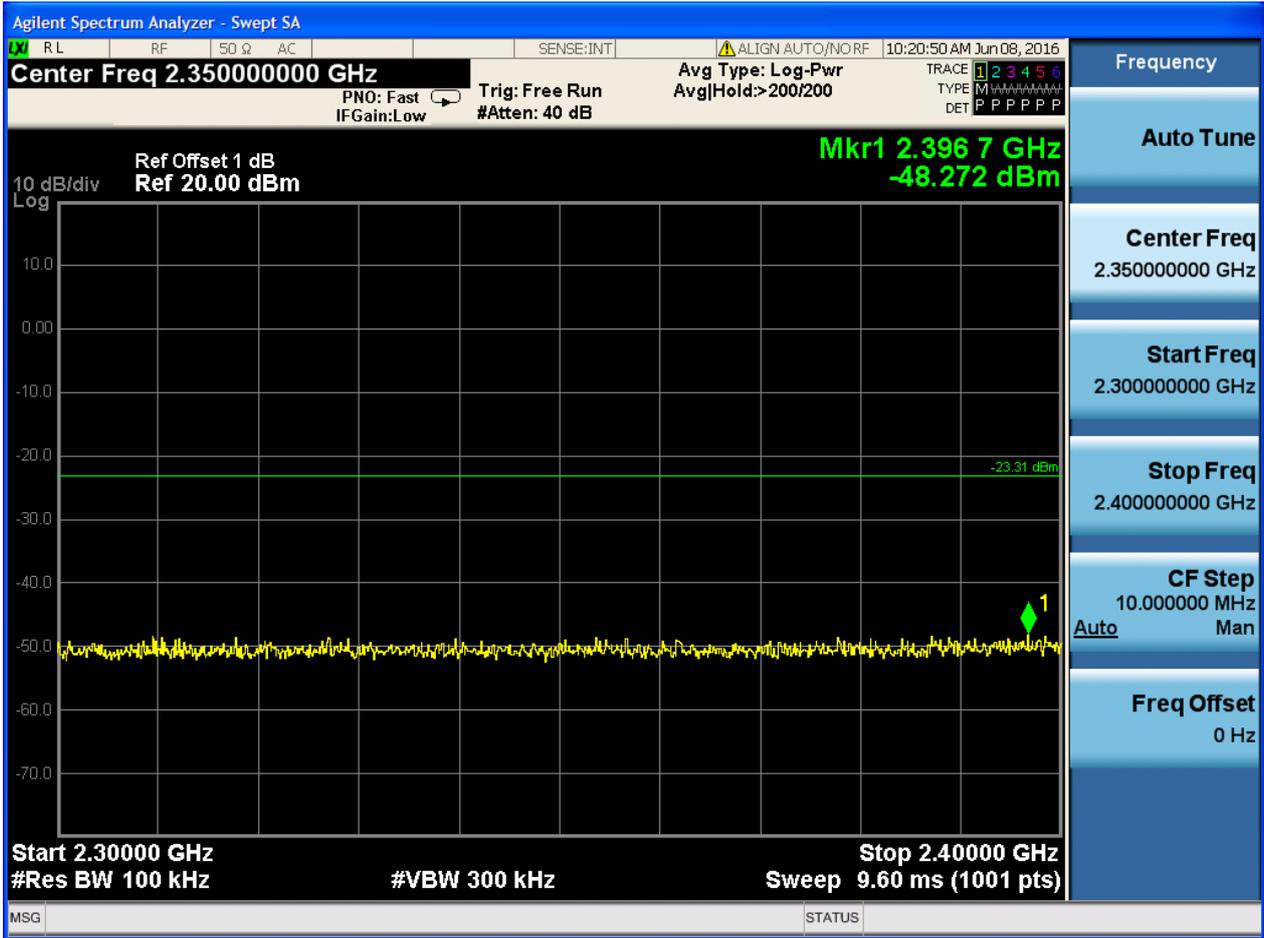


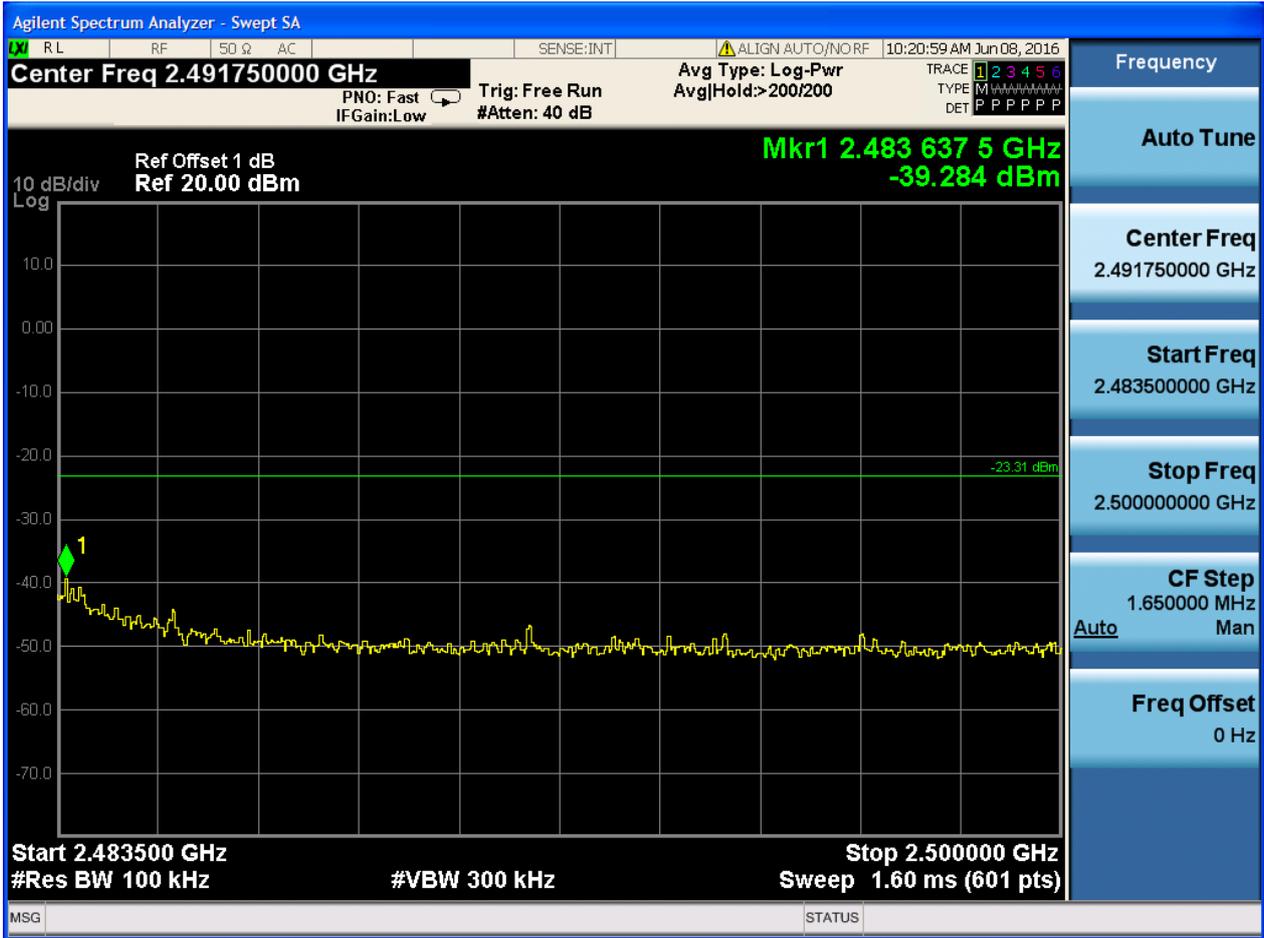
Puw:







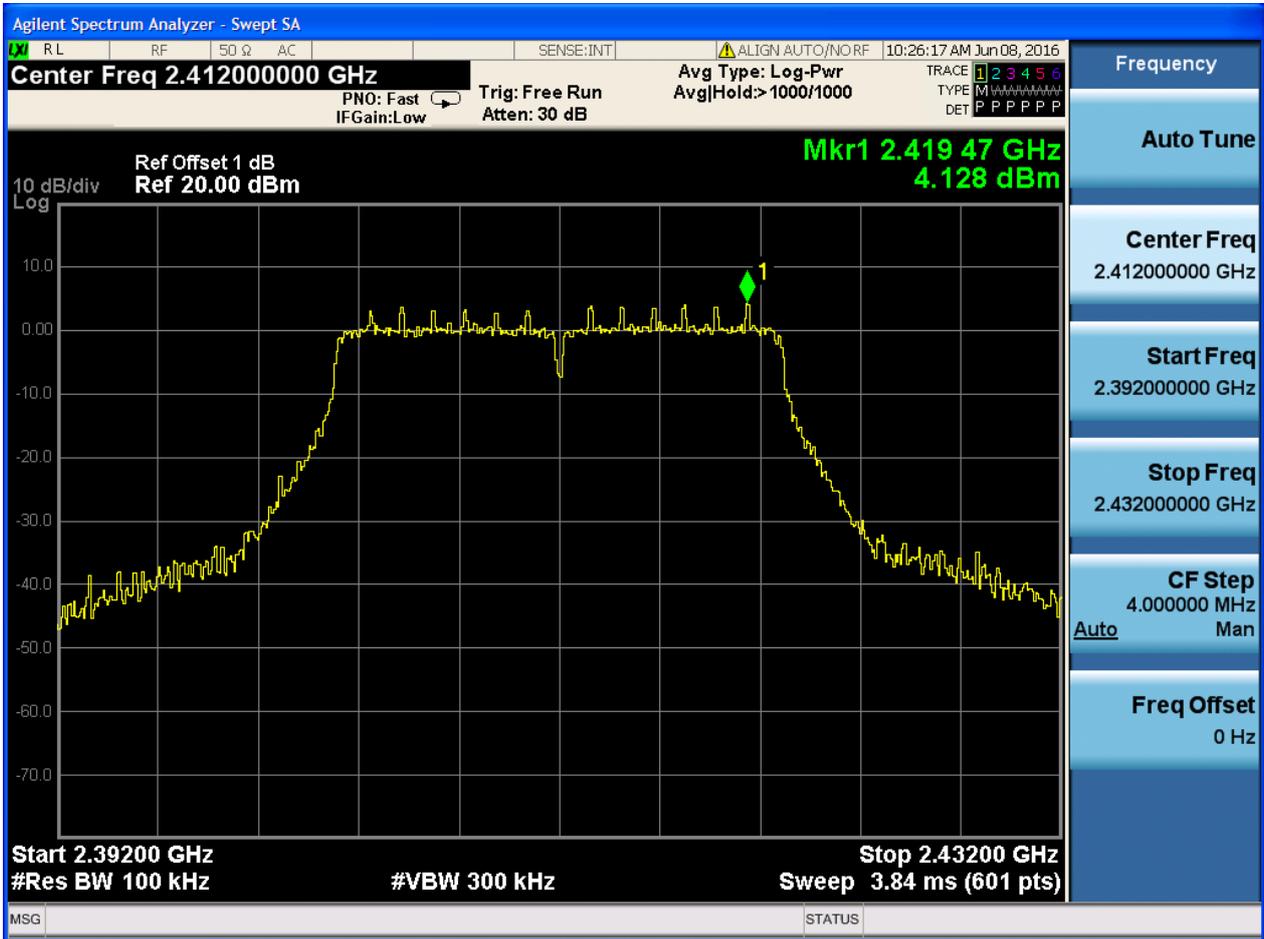






2.7 11N20_L@Ant 1

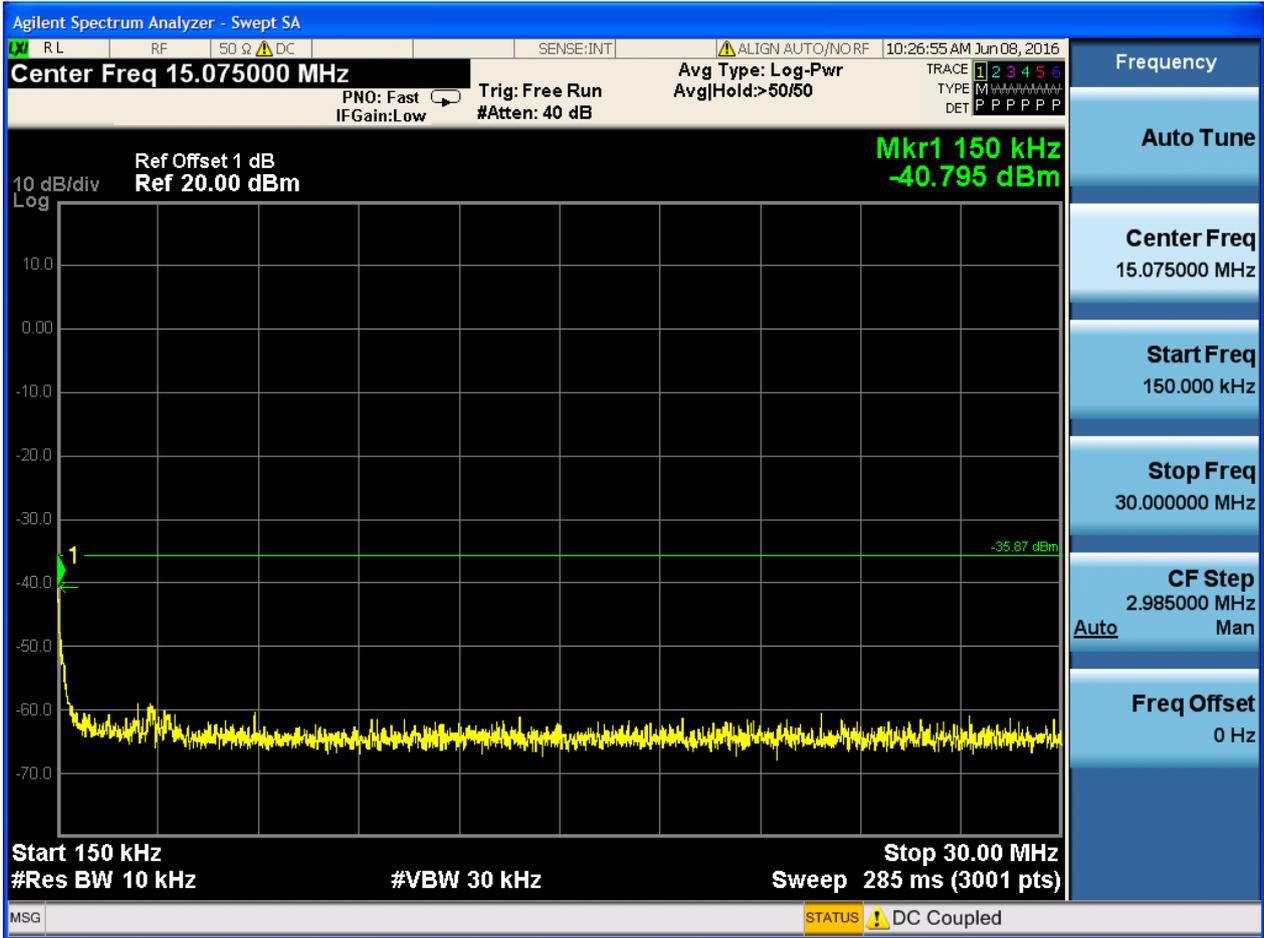
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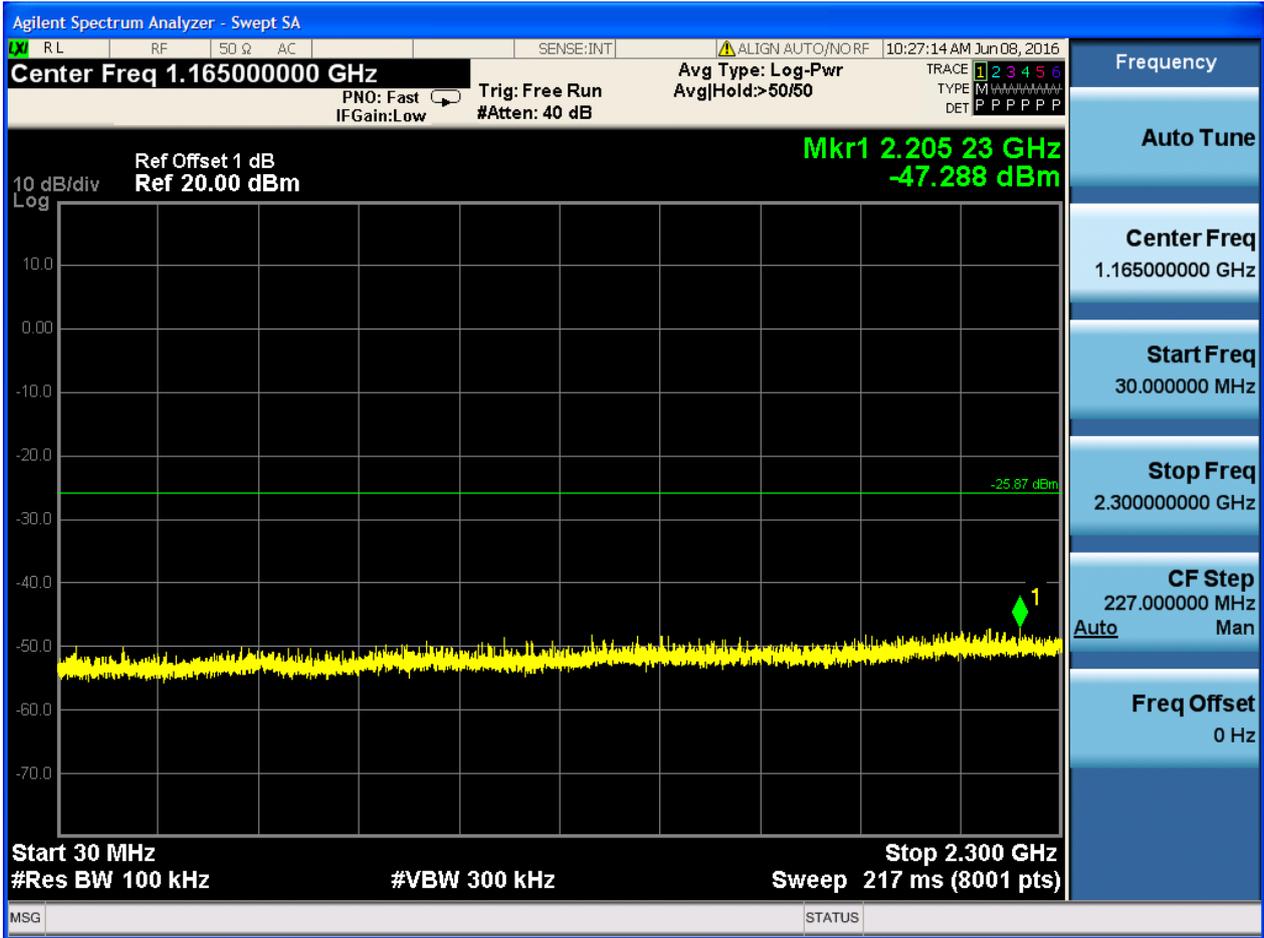


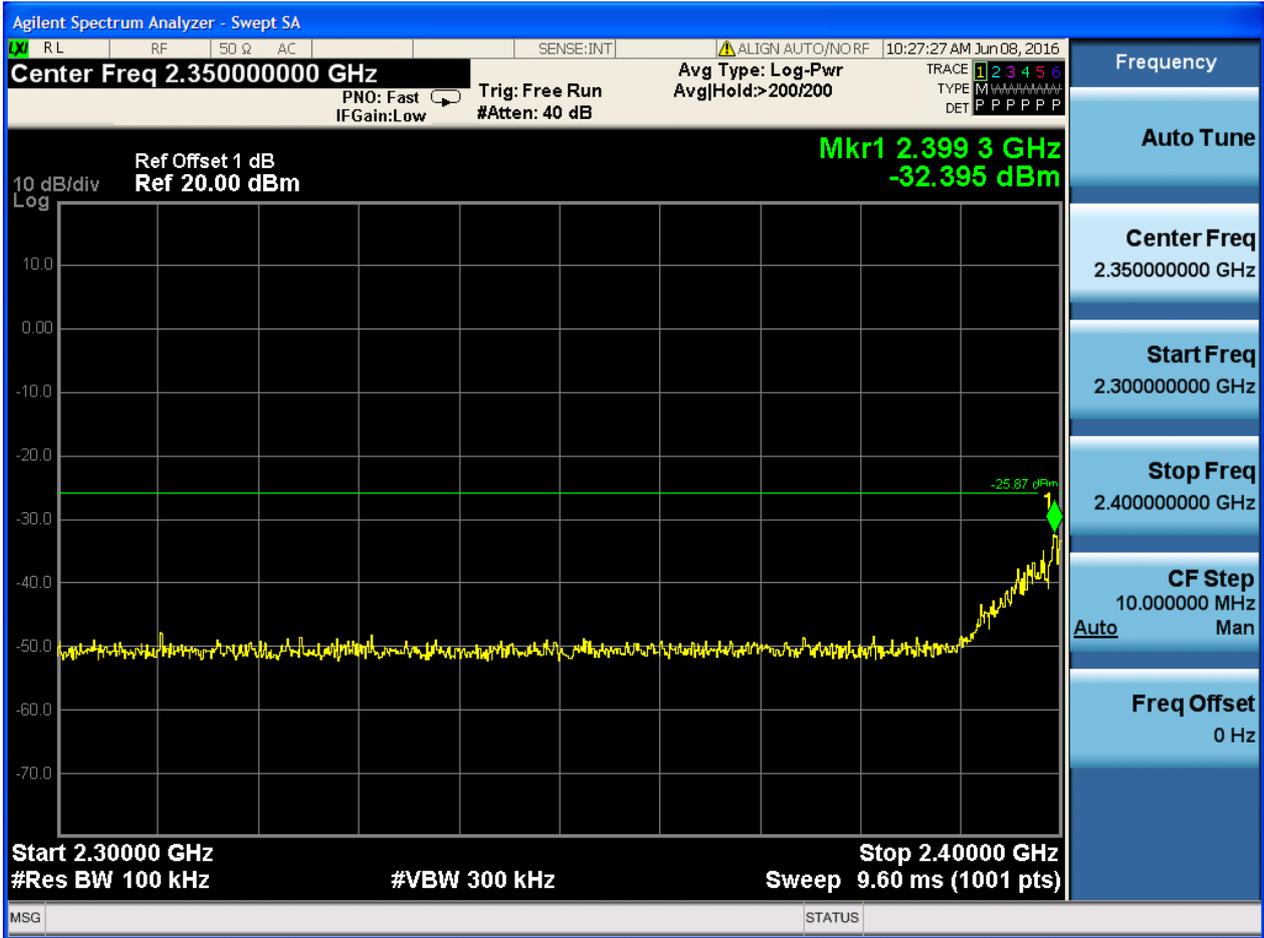


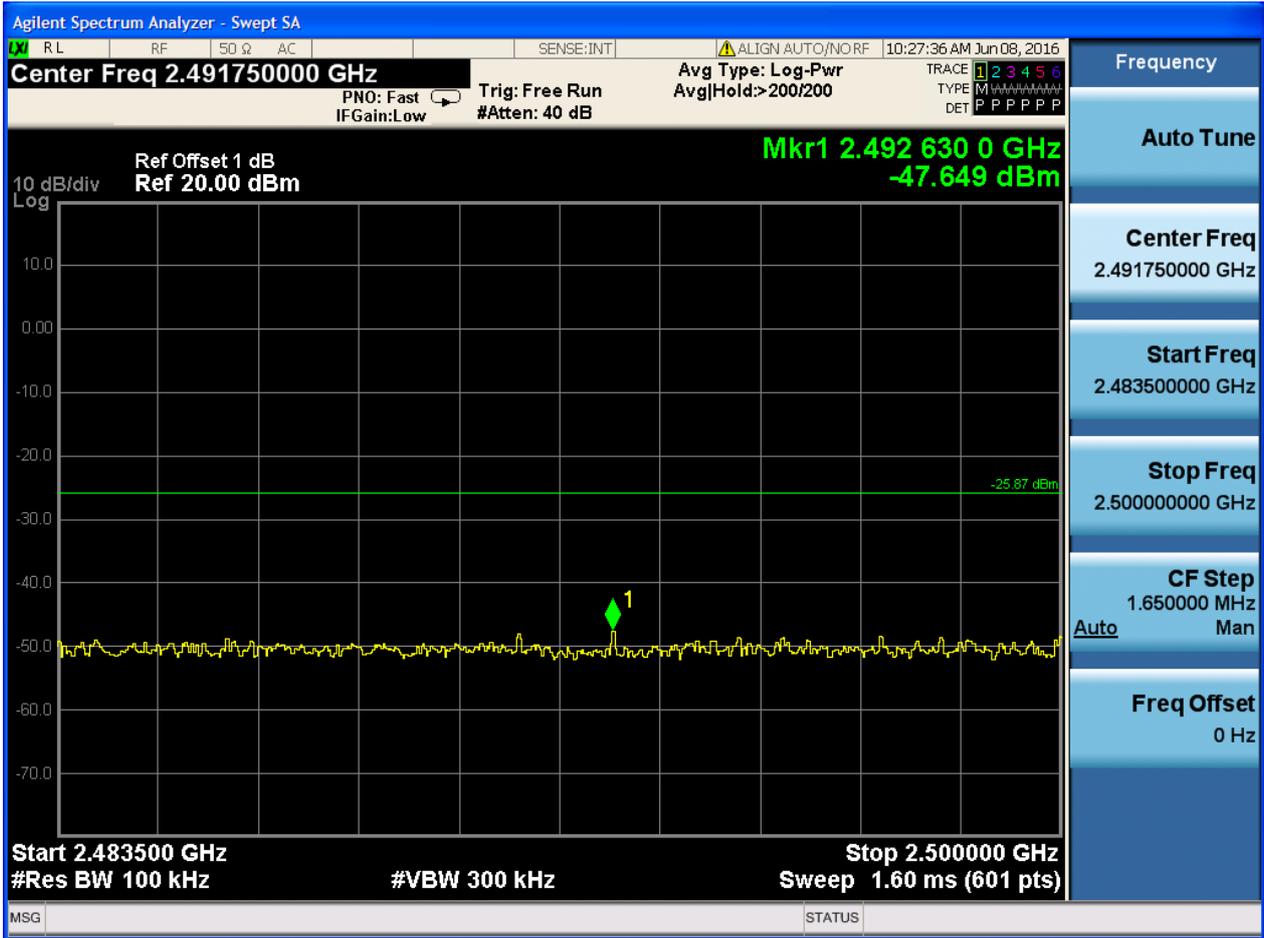
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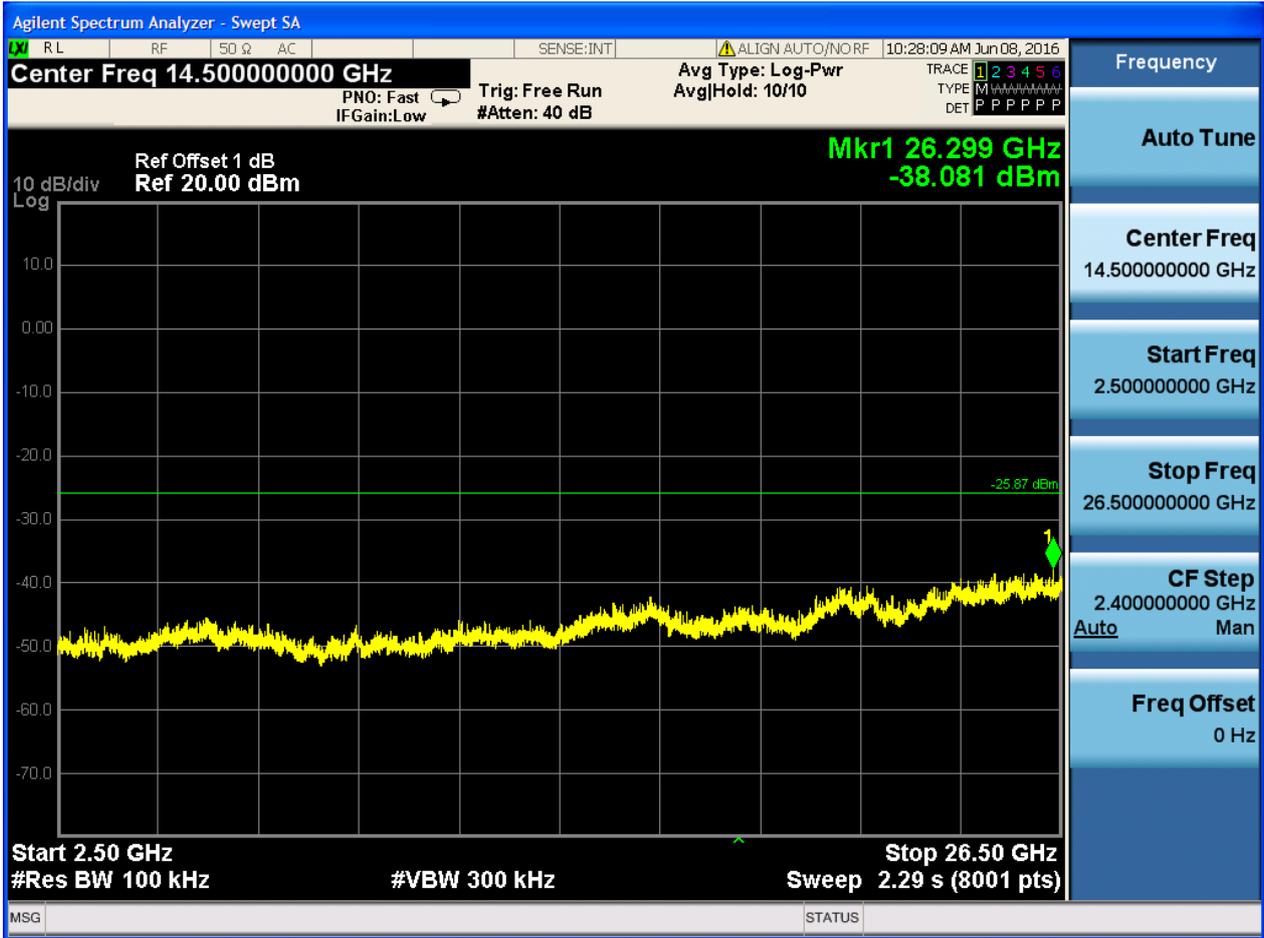








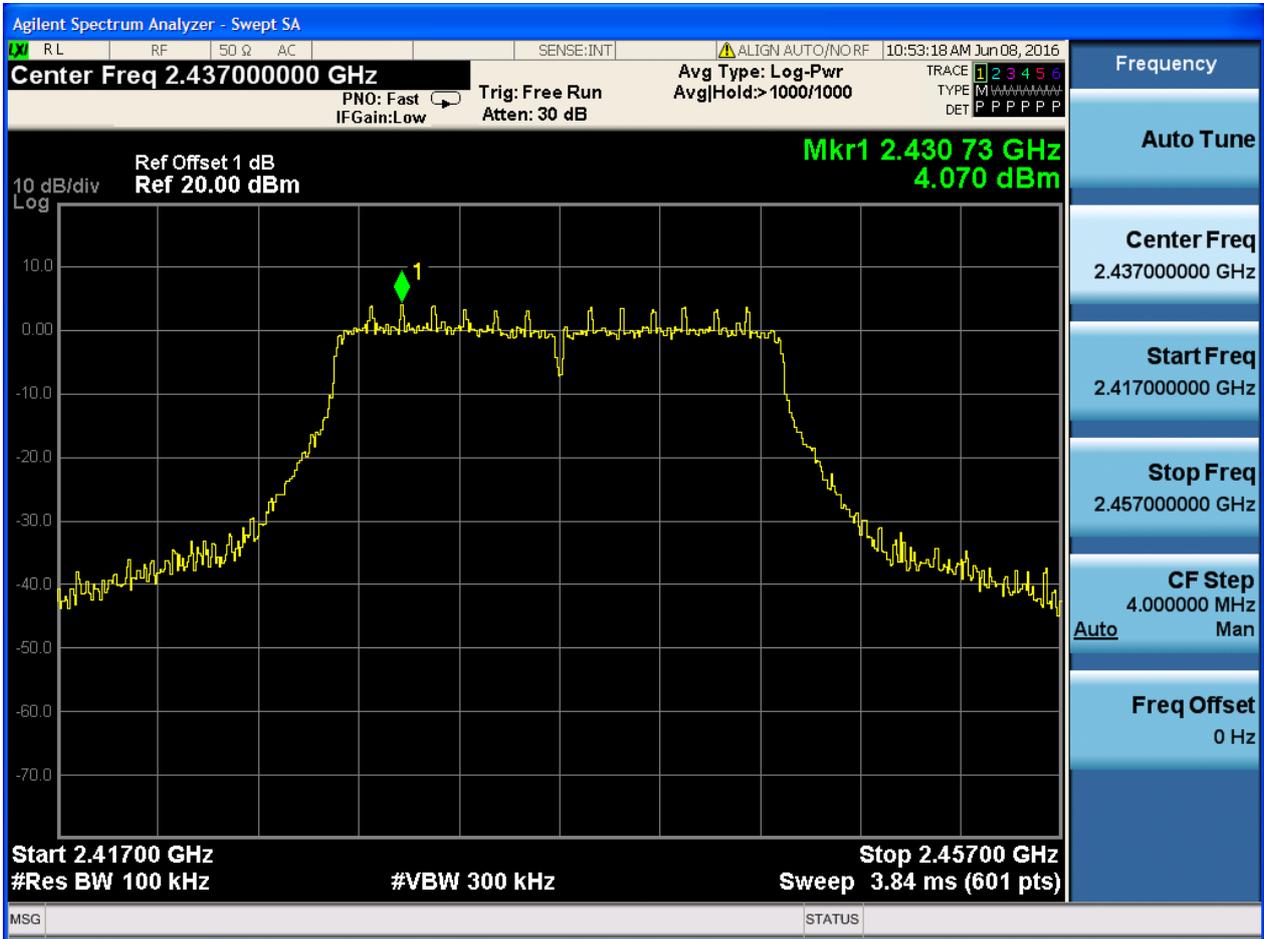


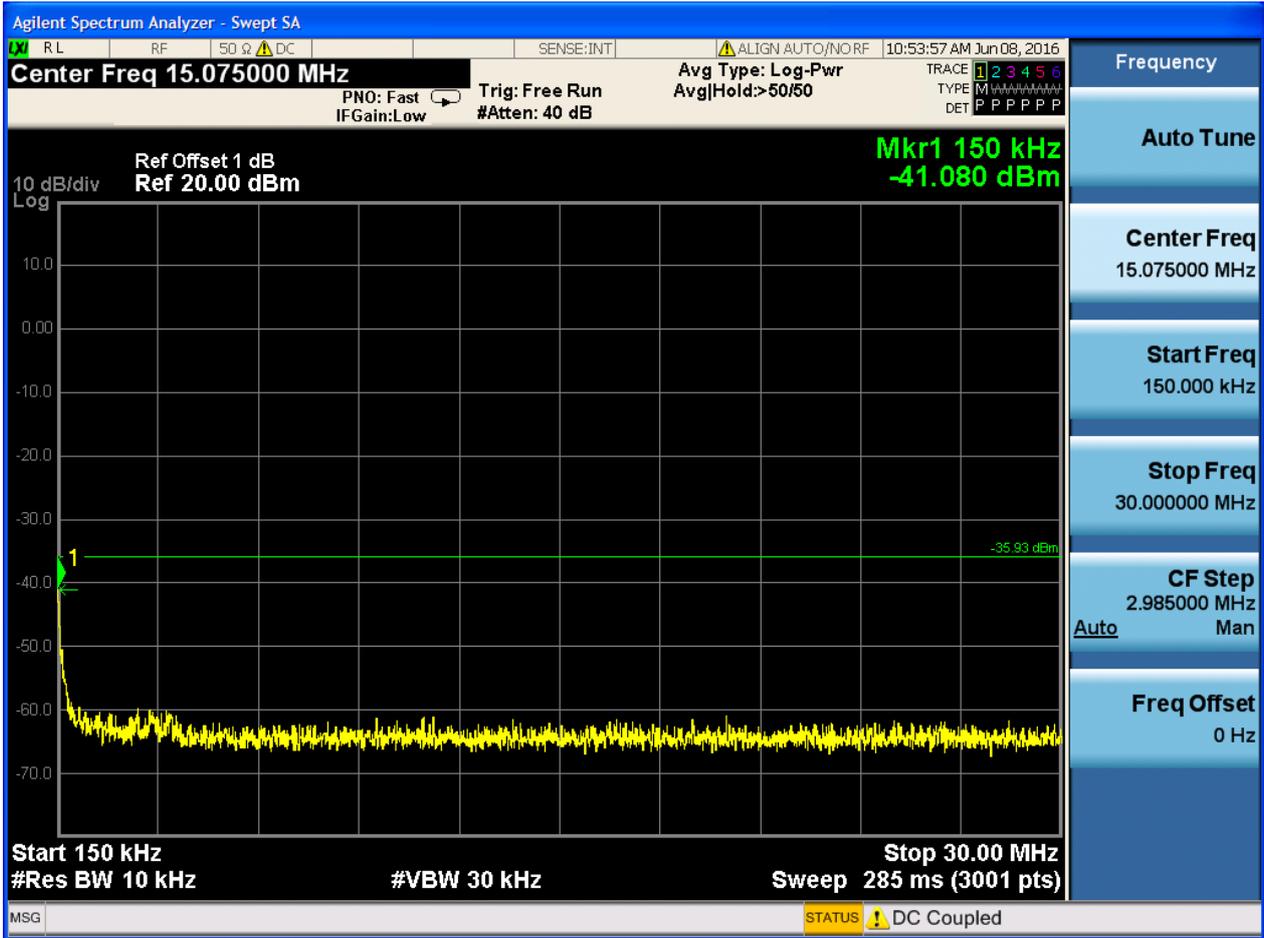


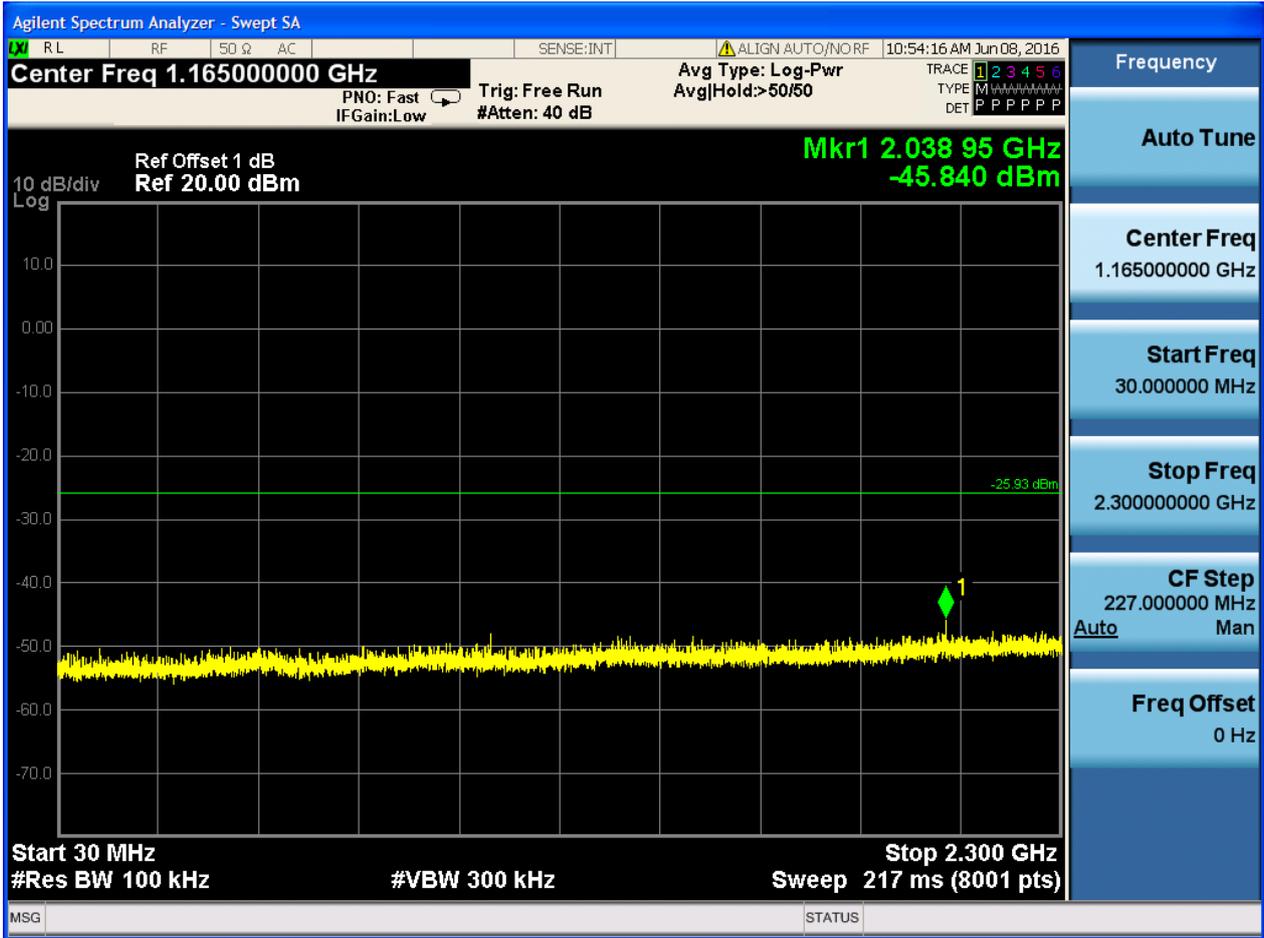


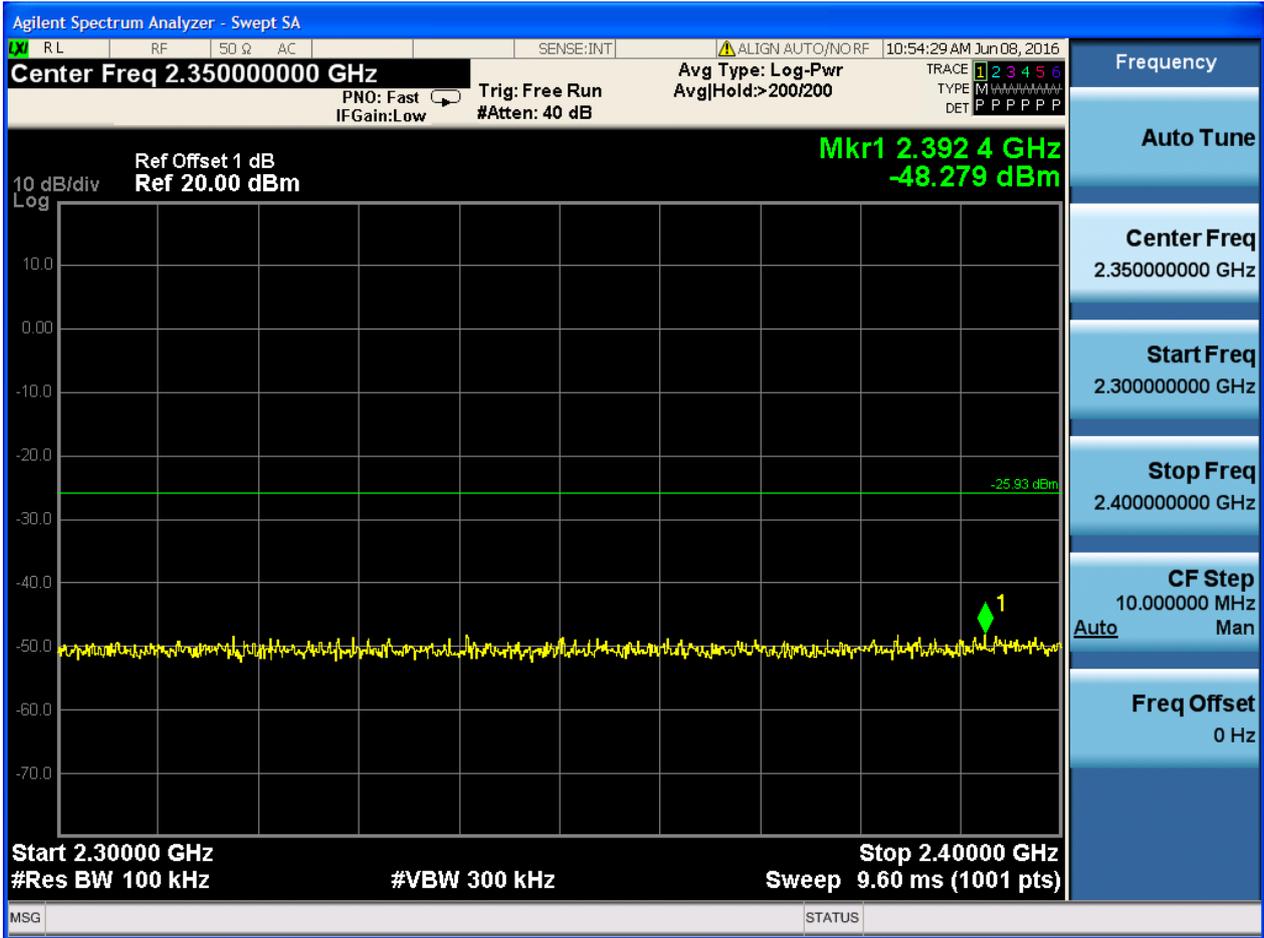
2.8 11N20_M@Ant 1

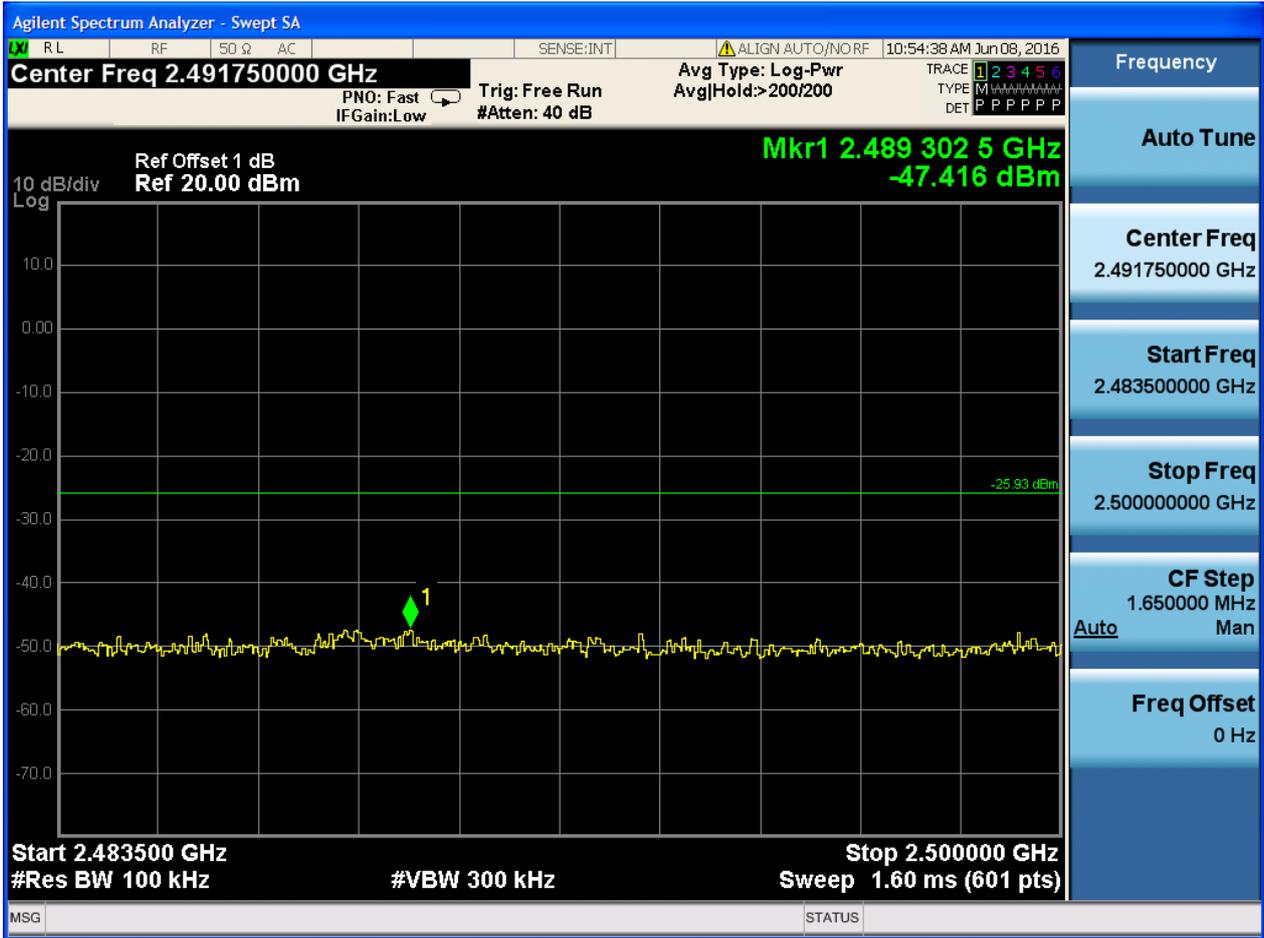
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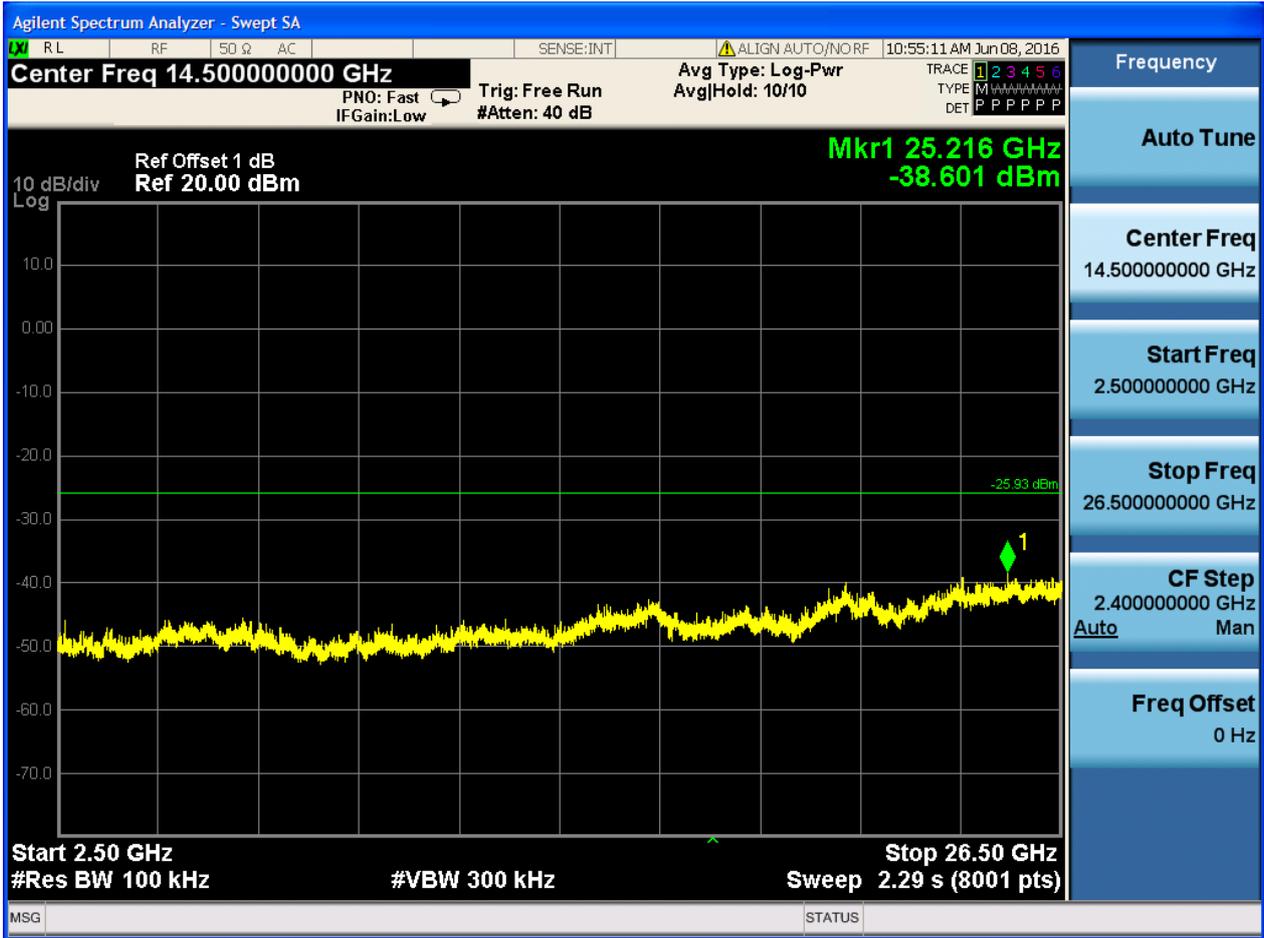








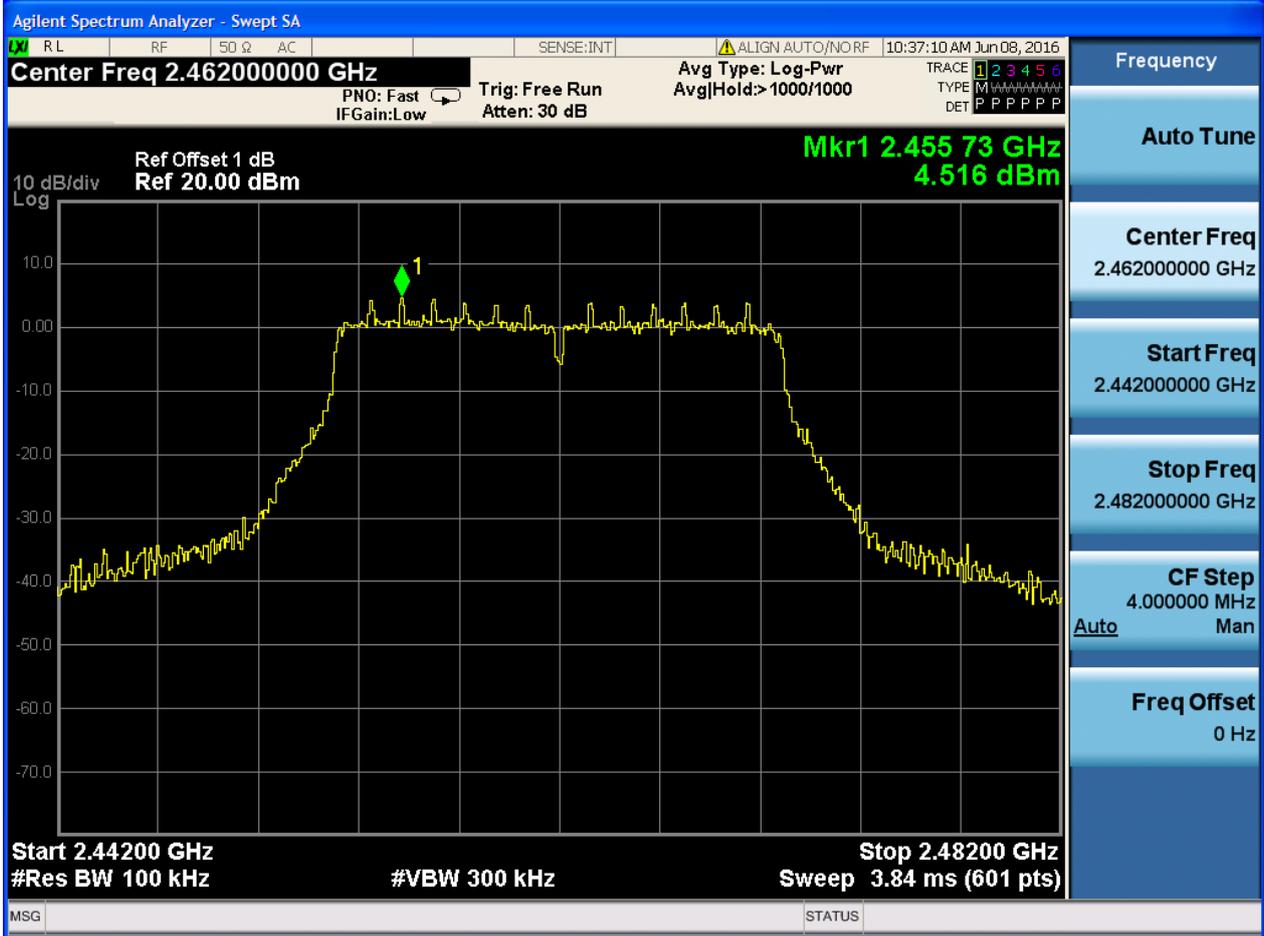






2.9 11N20_H@Ant 1

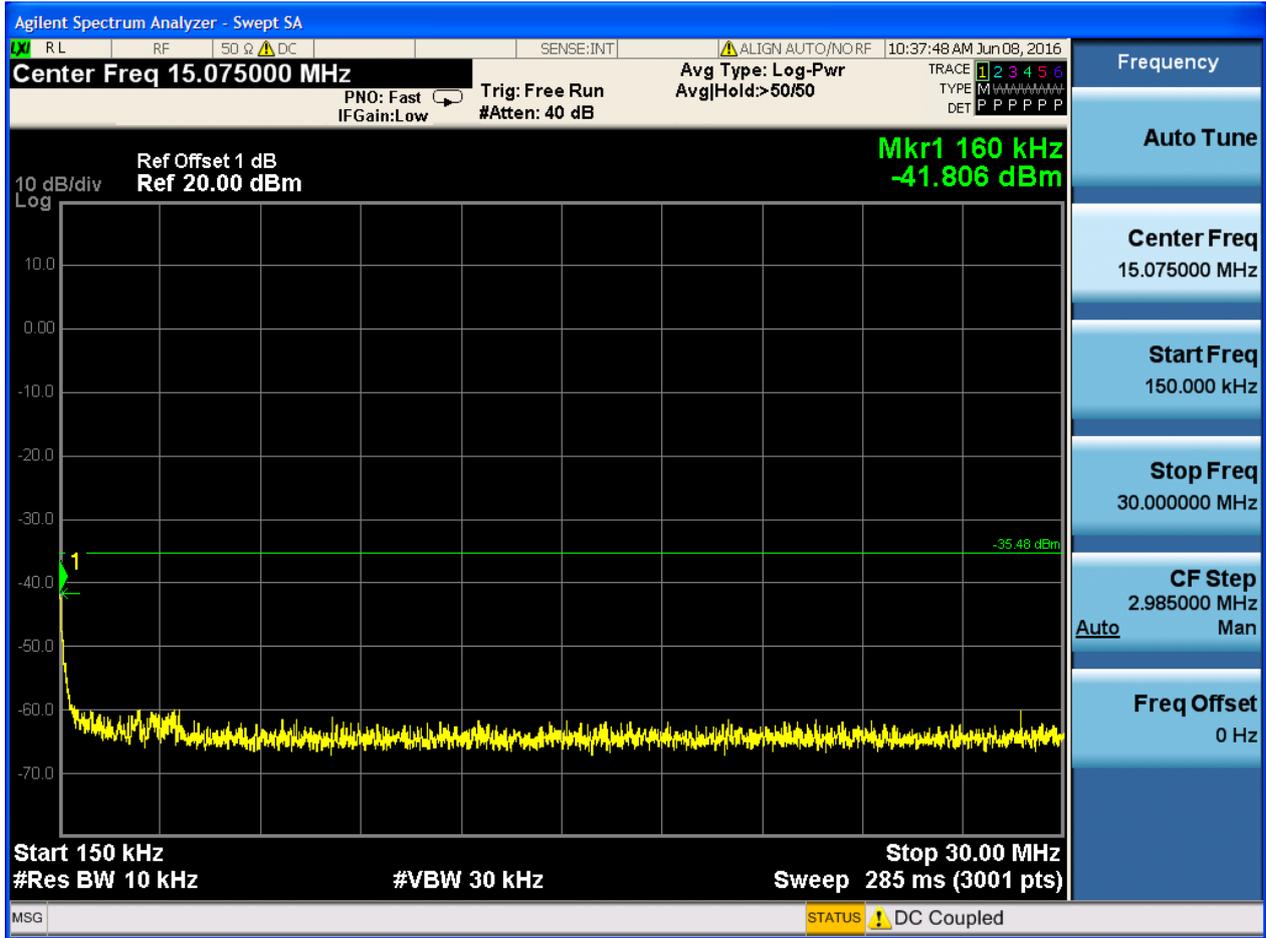
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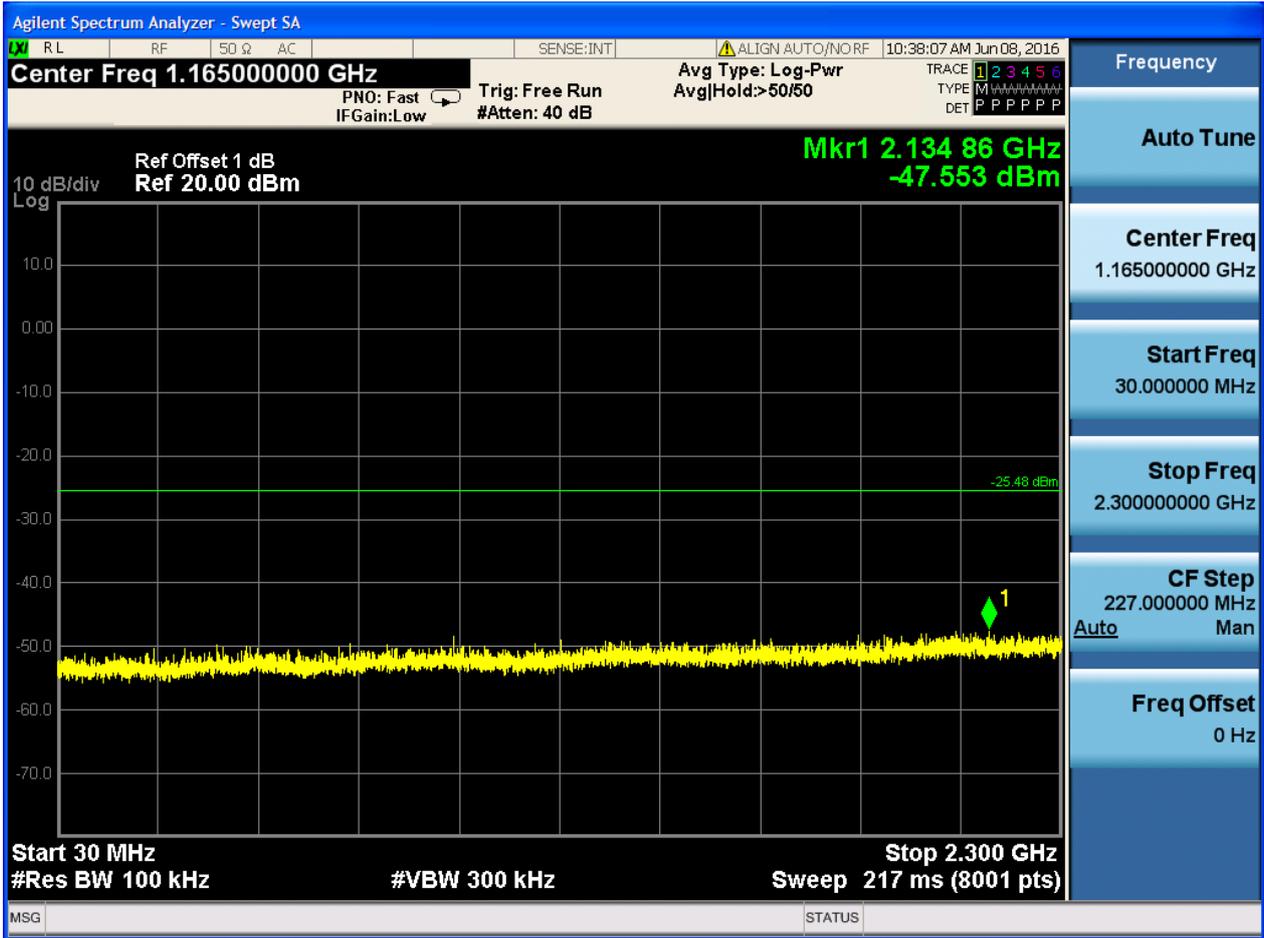


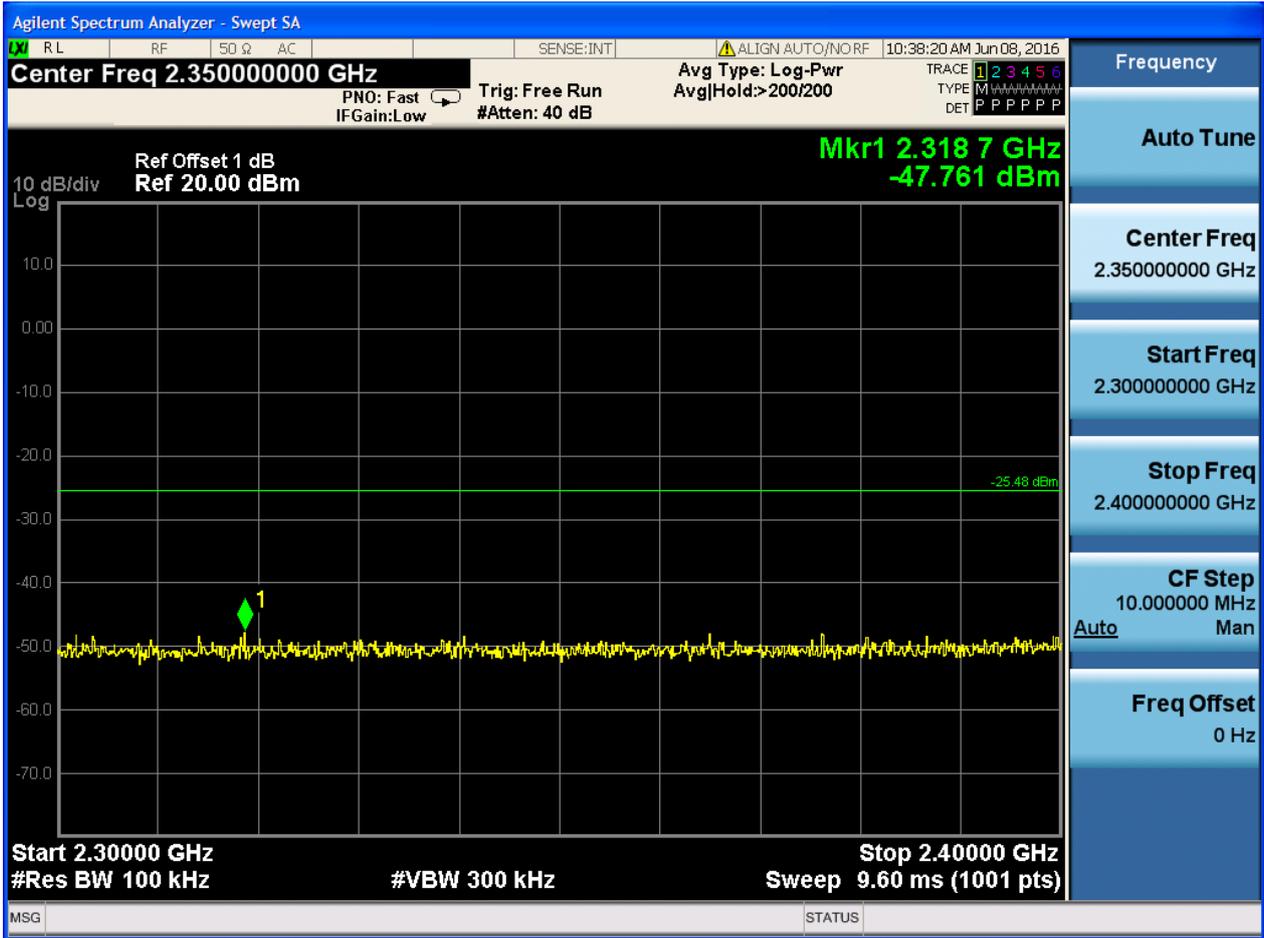


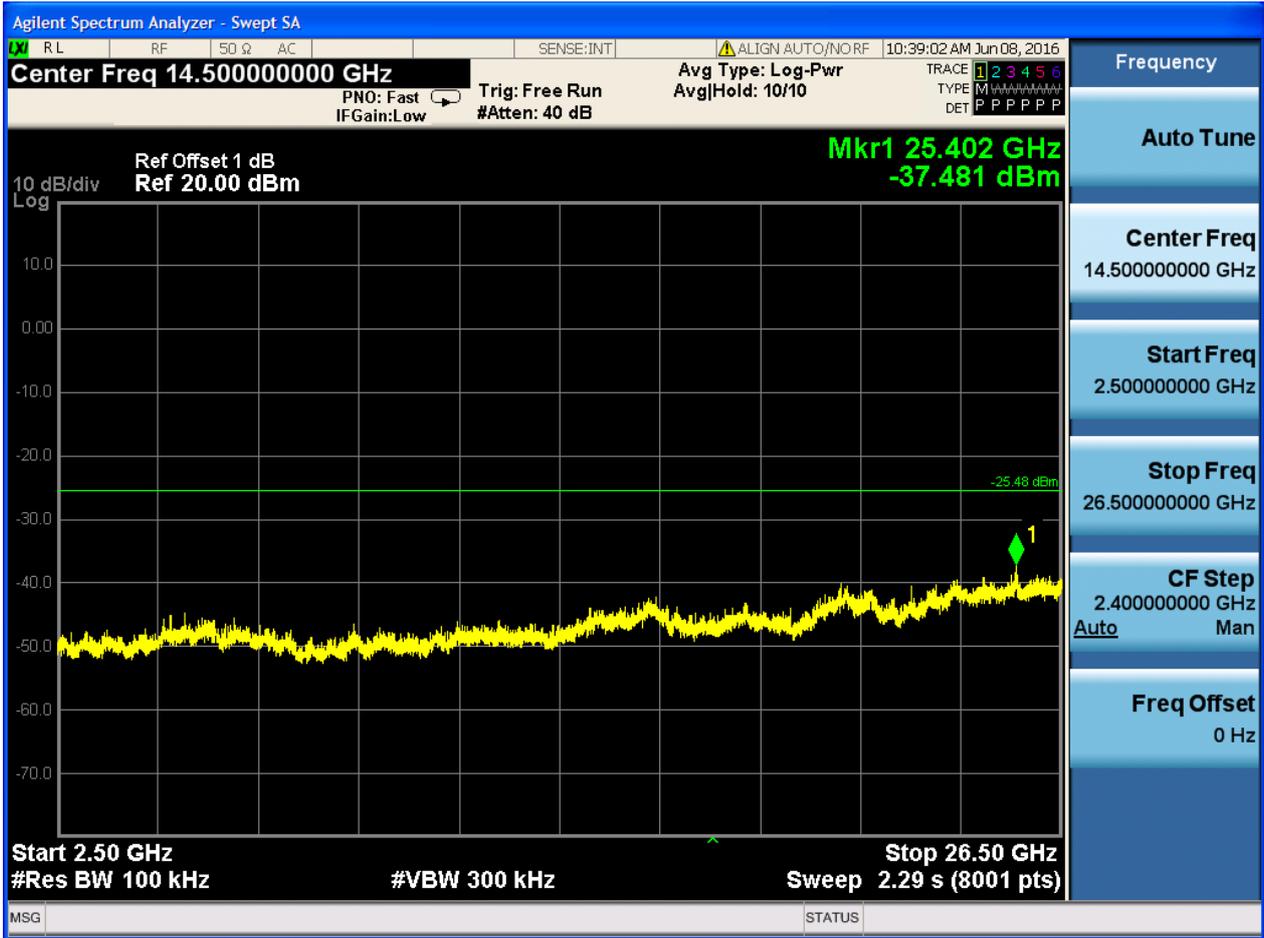
Puw:













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

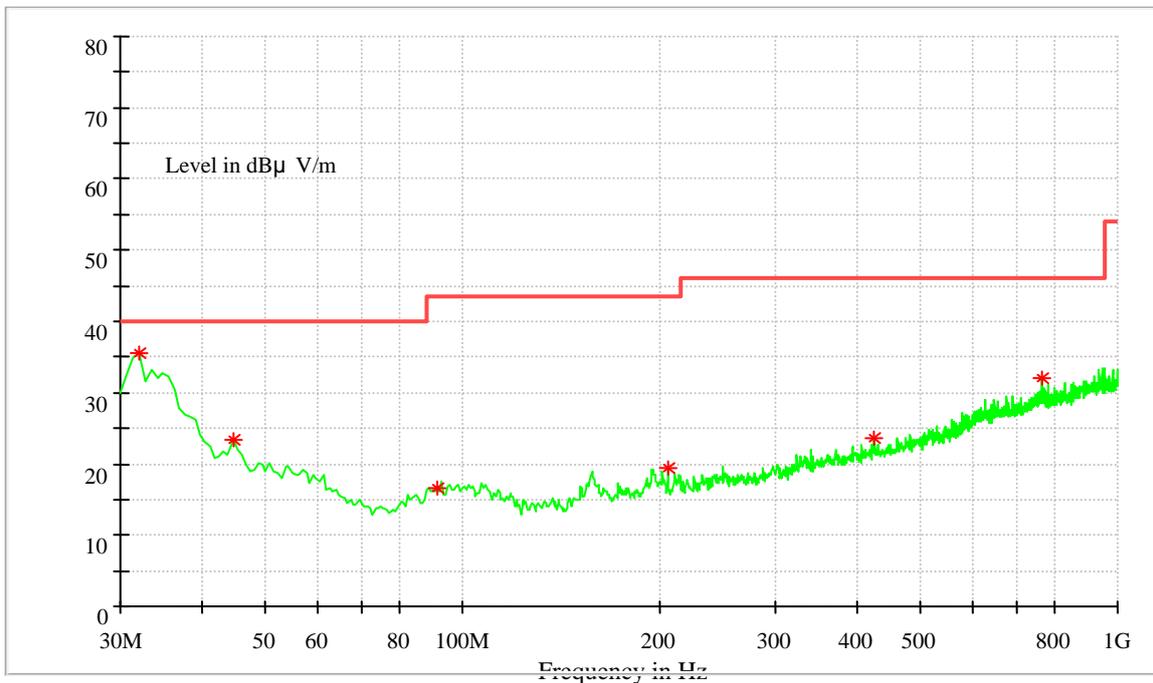
1.1 Part 1: Testing Range of “9 kHz to 30MHz”

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

1.2 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 (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Transd. (dB)
32.078571	35.47	40	4.53	100	V	172	14.1
44.55	23.39	40	16.61	100	V	0	15.3
91.664286	16.63	43.5	26.87	100	V	187	12.2
205.985714	19.43	43.5	24.07	100	V	307	12.6
425.621429	23.61	46	22.39	100	H	4	18.2
765.121429	32.09	46	13.91	100	H	193	23.6

Note:

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

Margin = Limit - Level. The reading level is calculated by software which is not shown in the sheet.

1.3Part 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.

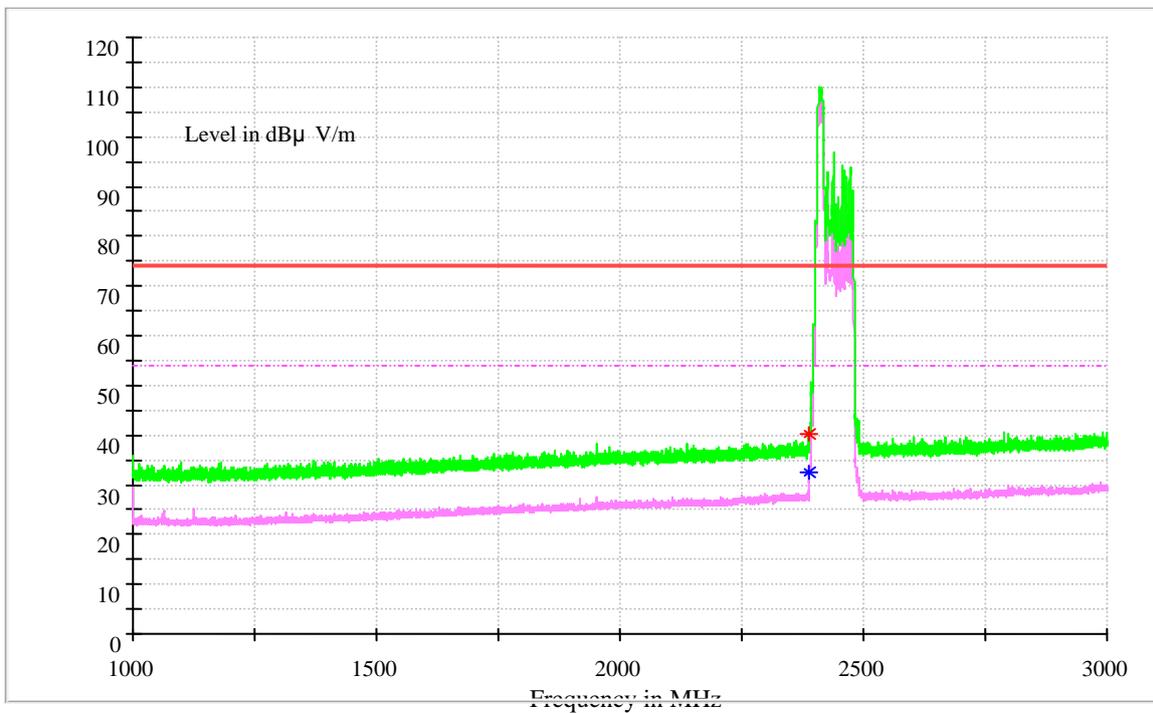
Note 2: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB μ V/m) and Average Limit (54 dB μ V/m).

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

Test Mode:

1.4.1Test Mode: 11B

1.4.1.1 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)
2390	32.52	54	21.48	100	H	146	-7.9

MEASUREMENT RESULT: PK Detector

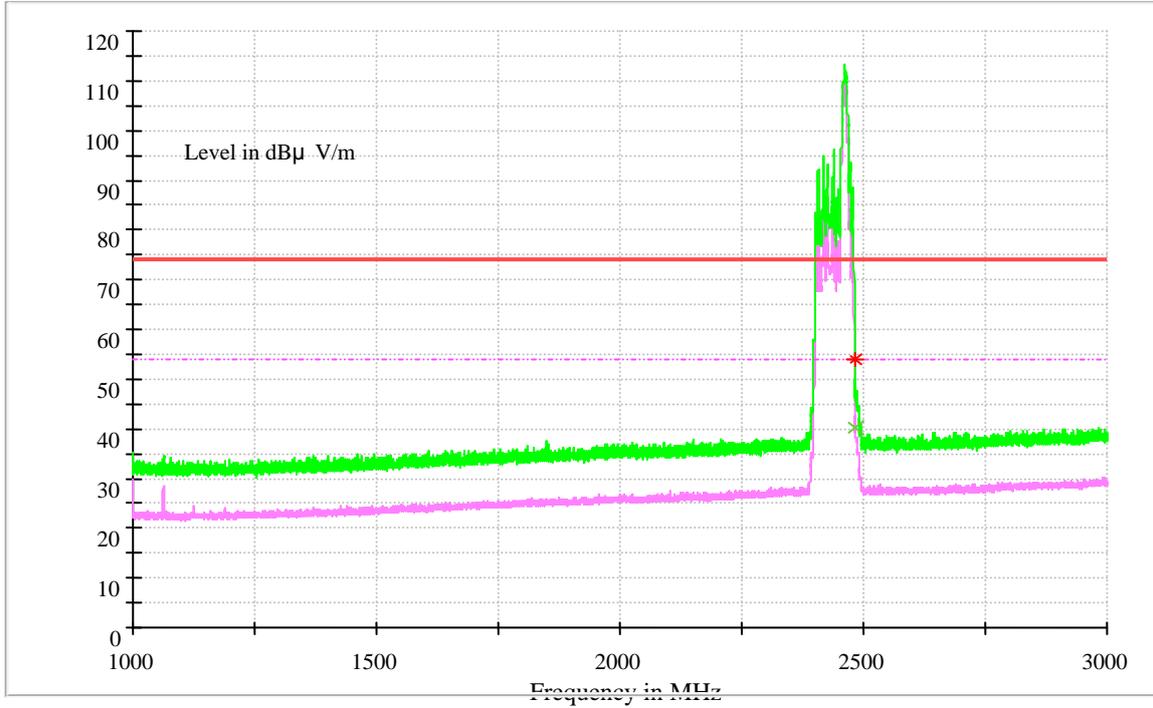
Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2390	40.16	74	33.85	100	H	214	-7.9

Note2:

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

Margin=Limit-Level. The reading level is calculated by software which is not shown in the sheet.

1.4.1.2 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)
2483.5	40.28	54	13.72	100	H	196	2

MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2483.5	53.87	74	20.13	117	H	191	2

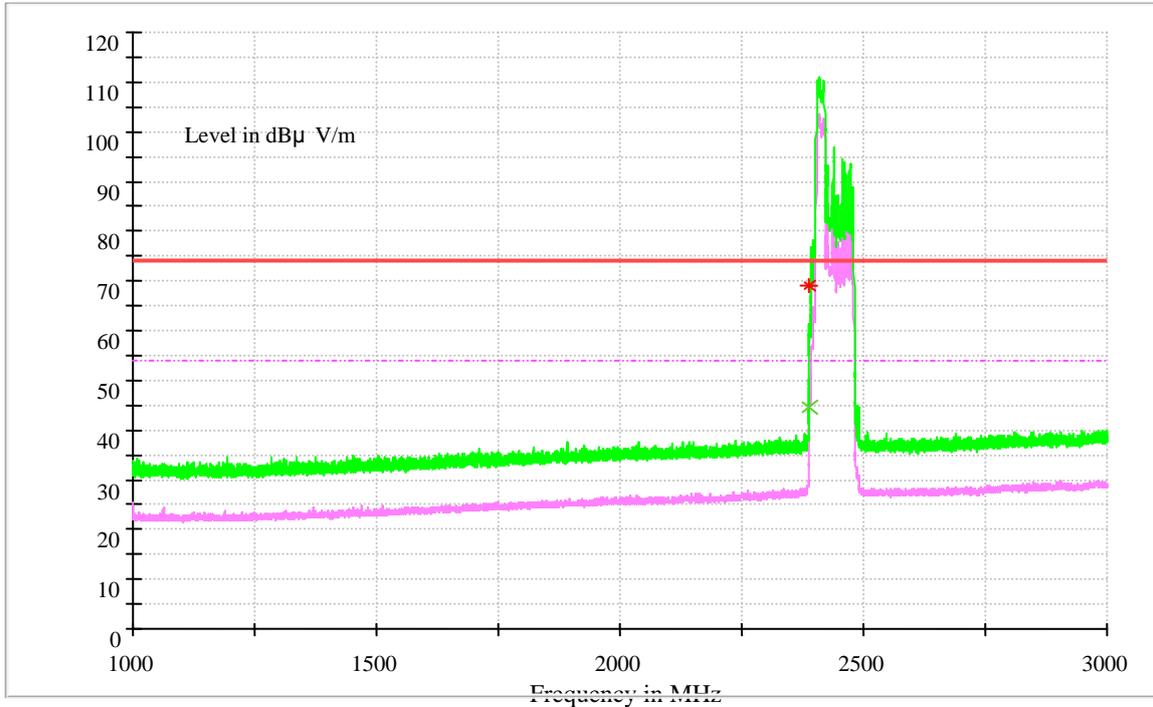
Note2:

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

Margin=Limit-Level. The reading level is calculated by software which is not shown in the sheet.

1.4.2 Test Mode: 11G

1.4.2.1 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)
2390	44.59	54	9.41	117	H	194	-7.9

MEASUREMENT RESULT: PK Detector

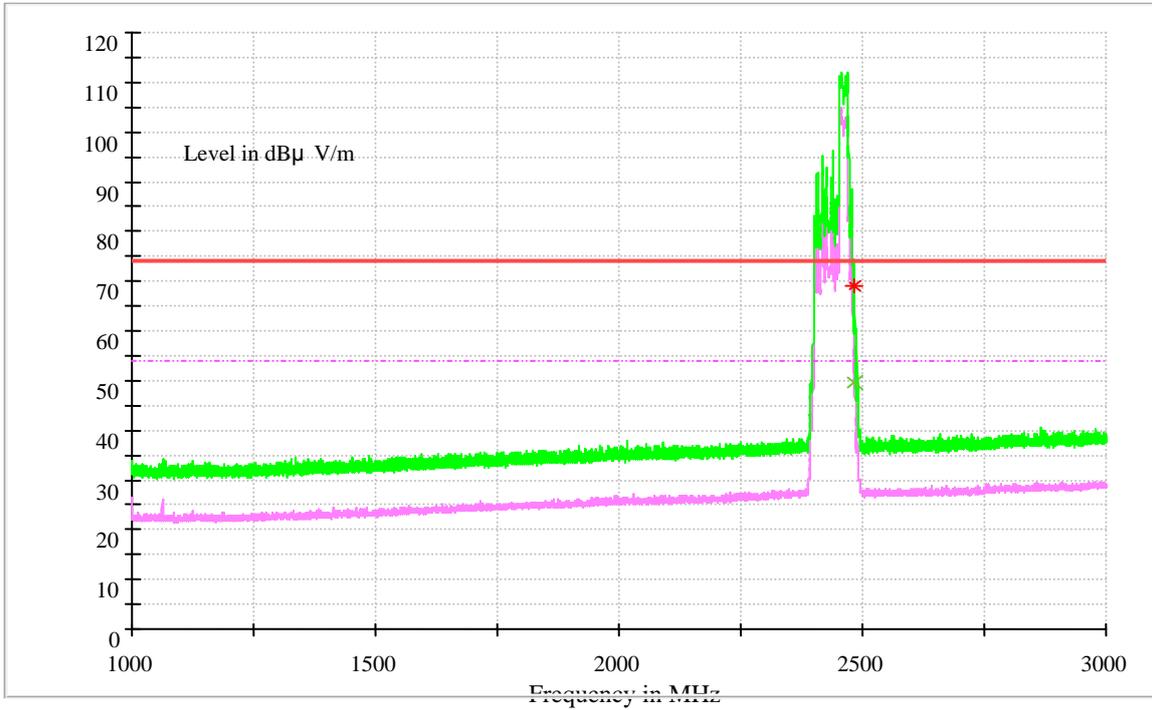
Frequency (MHz)	Level (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2390	69.16	74	4.84	124	H	142	-7.9

Note2:

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

Margin = Limit - Level. The reading level is calculated by software which is not shown in the sheet.

1.4.2.2 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)
2483.5	49.46	54	4.54	100	H	205	2

MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2483.5	69.14	74	4.86	100	H	194	2

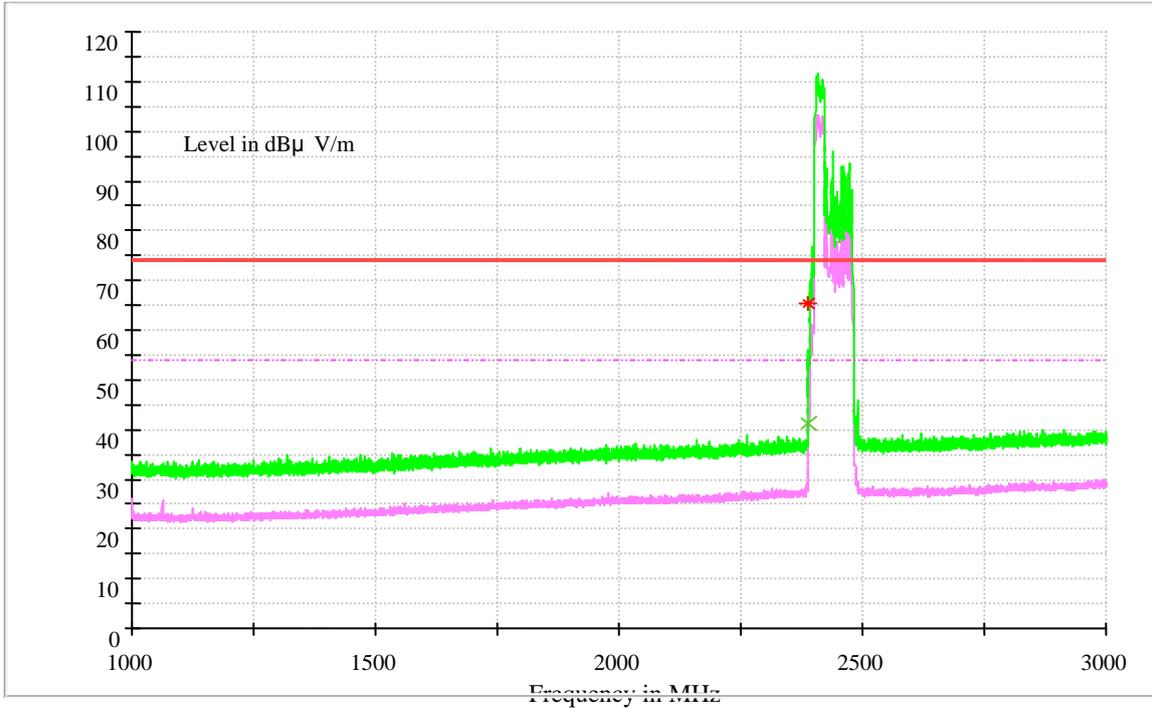
Note2:

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

Margin = Limit - Level. The reading level is calculated by software which is not shown in the sheet.

1.4.3 Test Mode: 11N20

1.4.3.1 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)
2390	41.23	54	12.77	100	H	196	-7.9

MEASUREMENT RESULT: PK Detector

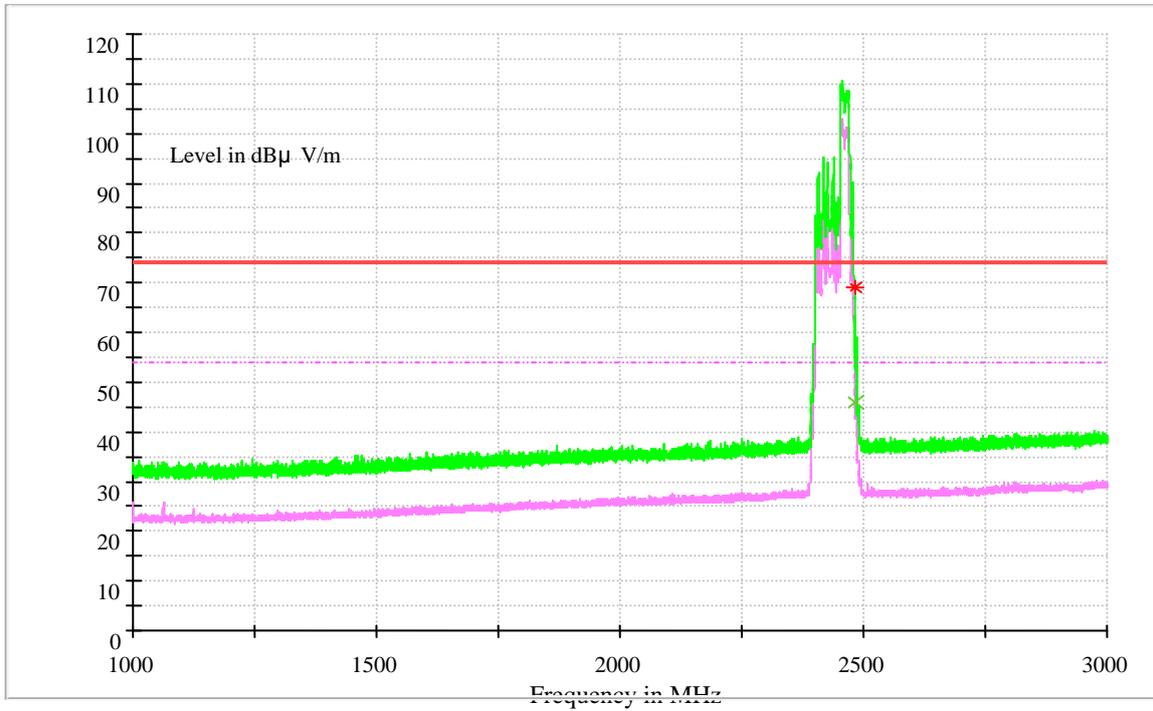
Frequency (MHz)	Level (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2390	65.36	74	8.64	154	H	134	-7.9

Note2:

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

Margin = Limit - Level. The reading level is calculated by software which is not shown in the sheet.

1.4.3.2 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)
2483.5	45.99	54	8.01	100	H	200	2

MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2483.5	69	74	5	113	H	203	2

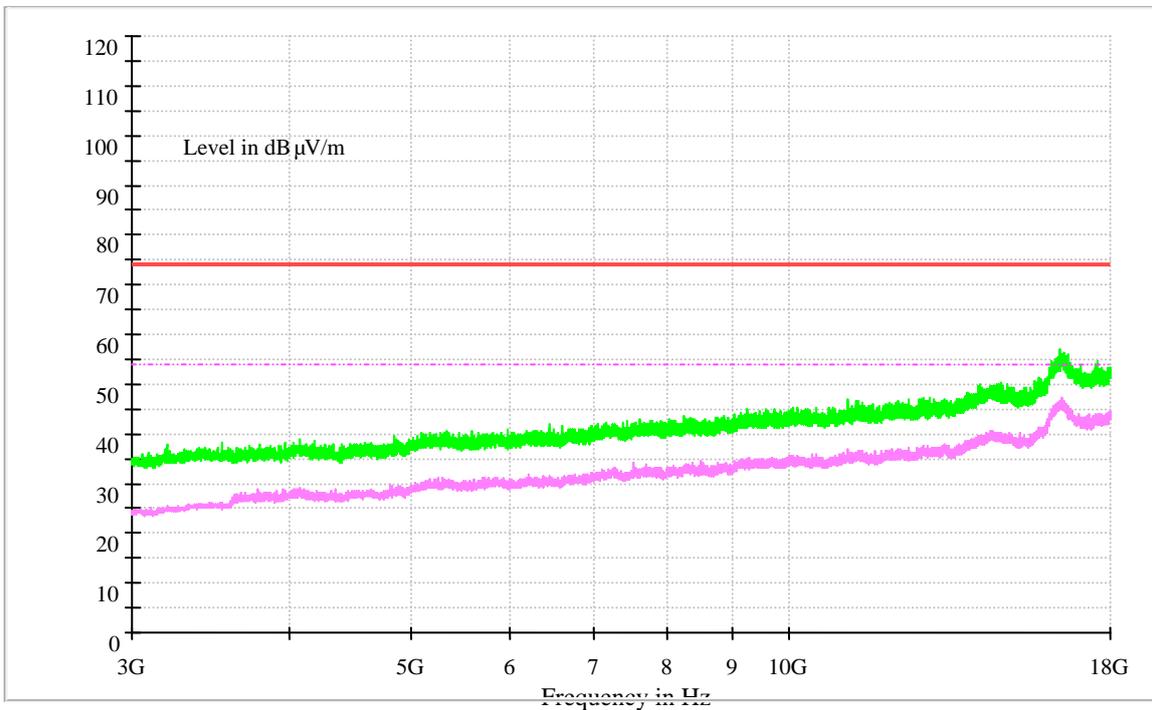
Note2:

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

Margin = Limit - Level. The reading level is calculated by software which is not shown in the sheet.

1.4 Part 4: Testing Range of “3 GHz to 18 GHz”

- Note 1: The test results and plot for testing range of “3 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 “3 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).

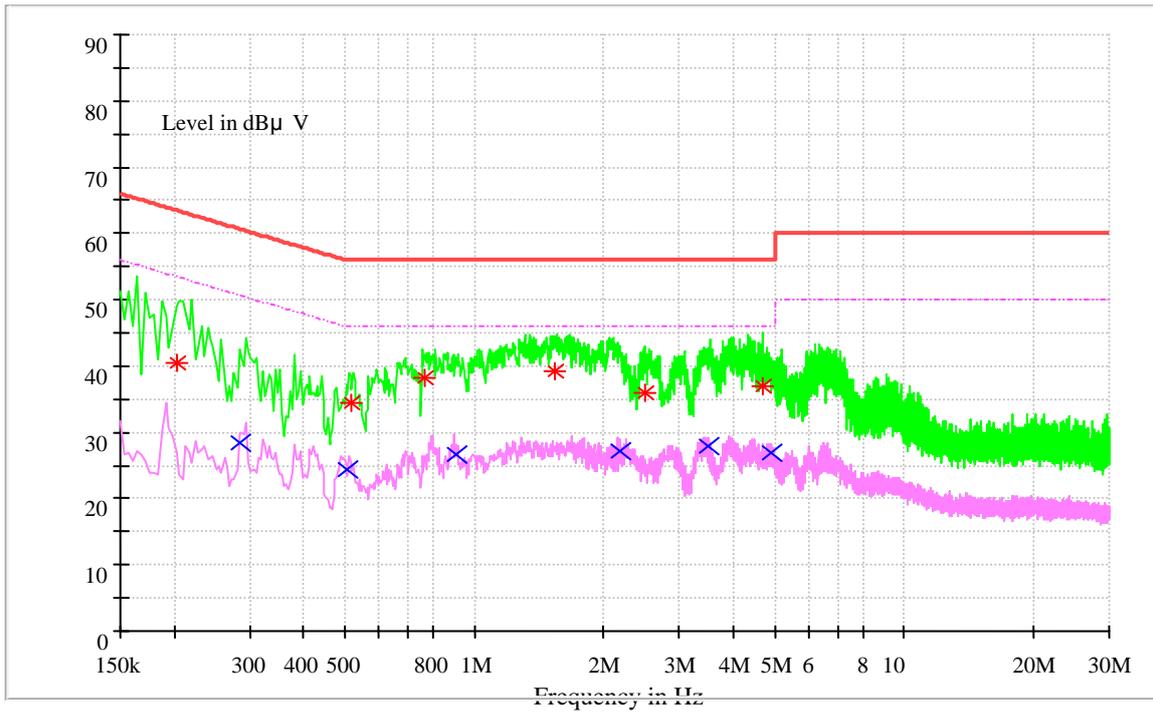


1.5 Part 5: Testing Range of “18 GHz to 26.5 GHz”

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

Appendix I: Conducted Emission at Power Port

Note: RBW =9 kHz, VBW = 30 kHz





MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dB μ V)	Limit (dB μ V)	Transd. (dB)	Margin (dB)	Line	PE
0.28482	28.4	50.67	9.7	22.28	N	FLO
0.50446	24.43	46	9.7	21.57	N	FLO
0.90499	26.61	46	9.7	19.39	N	FLO
2.1704	27.11	46	9.7	18.89	N	FLO
3.50275	27.85	46	9.8	18.15	N	FLO
4.89968	26.94	46	9.8	19.06	N	FLO

MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dB μ V)	Limit (dB μ V)	Transd. (dB)	Margin (dB)	Line	PE
0.20358	40.5	63.46	9.7	22.96	L1	FLO
1.54409	39.32	56	9.7	16.68	N	FLO
0.7631	38.31	56	9.7	17.69	N	FLO
4.68478	37.07	56	9.8	18.93	L1	FLO
2.50203	35.94	56	9.7	20.06	N	FLO
0.51887	34.49	56	9.7	21.51	N	FLO

Note2:

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

Margin=Limit-Level. The reading level is calculated by software which is not shown in the sheet.

END