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A				12.06.2012	M. Reuben	S. Cohen

EMC Laboratory

WipAir X000-4.9 GHz Part 3

Manufactured by WaveIP LTD.

FCC ID: QQ2-WA6049

EMC Test Report

According to FCC CFR 47 Part 90 subpart Y and RSS-111 Issue 3

	Fonction/Title	Name	Signature	Date
Prepared by:	Technical Writer	M. Reuben		12.02 2012
Checked by:	Test Engineer	I. Arbitman		20.03.2012
Approved By:	EMC Lab. Manager	S. Cohen		23.04 2012

TABLE OF CONTENTS

Para No.	Title	Page. No.
1.	ADMINISTRATIVE DATA	5
2.	GENERAL INFORMATION	5
3.	TEST SUMMARY AND SIGNATURES.	6
4.	E.U.T INFORMATION	7
.5	CONDUCTED SPURIOUS EMISSIONS	9
6.	RECEIVER SPURIOUS EMISSIONS	29
7.	FREQUENCY STABILITY TEST	33
8.	PEAK EXCURSION RATIO TEST	37

List of Figures

Figure No.	Title	Page. No.
Figure 3: Test Setup for Spurious Emission Test – Individual TX Chains Measurements		10
Figure 4: Test Setup for Spurious Emission Test – Combined TX Chains Measurements		10
Plot Conducted Spurious Emissions/ 1		11
Plot Conducted Spurious Emissions/ 2		11
Plot Conducted Spurious Emissions/ 3		12
Plot Conducted Spurious Emissions/ 4		12
Plot Conducted Spurious Emissions/ 5		13
Plot Conducted Spurious Emissions/ 6		13
Plot Conducted Spurious Emissions/ 7		14
Plot Conducted Spurious Emissions/ 8		14
Plot Conducted Spurious Emissions/ 9		15
Plot Conducted Spurious Emissions/ 10		15
Plot Conducted Spurious Emissions/ 11		16
Plot Conducted Spurious Emissions/ 12		16
Plot Conducted Spurious Emissions/ 13		17
Plot Conducted Spurious Emissions/ 14		17
Plot Conducted Spurious Emissions/ 15		18
Plot Conducted Spurious Emissions/ 16		18
Plot Conducted Spurious Emissions/ 17		19
Plot Conducted Spurious Emissions/ 18		19
Plot Conducted Spurious Emissions/ 19		20
Plot Conducted Spurious Emissions/ 20		20
Plot Conducted Spurious Emissions/ 21		21
Plot Conducted Spurious Emissions/ 22		21
Plot Conducted Spurious Emissions/ 23		22
Plot Conducted Spurious Emissions/ 24		22
Plot Conducted Spurious Emissions/ 25		23
Plot Conducted Spurious Emissions/ 26		23
Plot Conducted Spurious Emissions/ 27		24

Plot Conducted Spurious Emissions/ 28 24
Plot Conducted Spurious Emissions/ 29 25
Plot Conducted Spurious Emissions/ 30 25
Plot Conducted Spurious Emissions/ 31 26
Plot Conducted Spurious Emissions/ 32 26
Plot Conducted Spurious Emissions/ 33 27
Plot Conducted Spurious Emissions/ 34 27
Plot Conducted Spurious Emissions/ 35 28
Plot Conducted Spurious Emissions/ 36 28
Figure 5: Test Setup for Receiver Spurious Emission Measurements 30
Plot Receiver Spurious Emission for Port A/ 1 31
Plot Receiver Spurious Emission for Port A/ 2 31
Plot Receiver Spurious Emission for Port B/ 3 32
Plot Receiver Spurious Emission for Port B/ 4 32
Photograph for Frequency Stability Test Setup/ 1 36
Photograph for Frequency Stability Test Setup/ 2 36
Plot Peak Excursion Ratio for 5 MHz/ 1 39
Plot Peak Excursion Ratio for 5 MHz/ 2 39
Plot Peak Excursion Ratio for 5 MHz/ 3 40
Plot Peak Excursion Ratio for 5 MHz/ 4 40
Plot Peak Excursion Ratio for 5 MHz/ 5 41
Plot Peak Excursion Ratio for 5 MHz/ 6 41
Plot Peak Excursion Ratio for 10 MHz/ 7 42
Plot Peak Excursion Ratio for 10 MHz/ 8 42
Plot Peak Excursion Ratio for 10 MHz/ 9 43
Plot Peak Excursion Ratio for 10 MHz/ 10 43
Plot Peak Excursion Ratio for 10 MHz/ 11 44
Plot Peak Excursion Ratio for 10 MHz/ 12 44
Plot Peak Excursion Ratio for 20 MHz/ 13 45
Plot Peak Excursion Ratio for 20 MHz/ 14 45
Plot Peak Excursion Ratio for 20 MHz/ 15 46
Plot Peak Excursion Ratio for 20 MHz/ 16 46
Plot Peak Excursion Ratio for 20 MHz/ 17 47
Plot Peak Excursion Ratio for 20 MHz/ 18 47

List of Tables

Table No.	Title	Page. No.

Table 1: Limits for Receiver Spurious Emission as per FCC Part 15 Para 90.210 9
Table 2: Test Instrumentation and Equipment 9
Table 3: Test Results for Individual TX Chain 10
Table 4: Test Results for Combined TX Chain 10
Table 5: Limits for Receiver Spurious Emission as per RSS-111 section 5.5 29
Table 6: Test Instrumentation and Equipment 29
Table 7: Port A Test Results 30
Table 8: Port B Test Results 30
Table 9: Frequency Stability Limits 33
Table 10: Frequency Stability Test Results 34
Table 11: 5 MHz BW Test Results for Port A 37
Table 12: 5 MHz BW Test Results for Port B 37

Table 13: 10 MHz BW Test Results for Port A 37
Table 14: 10 MHz BW Test Results for Port B 37
Table 15: 20 MHz BW Test Results for Port A 38
Table 16: 20 MHz BW Test Results for Port B 38

1. ADMINISTRATIVE DATA

1.1. Scope

This document describes the measurement procedures and tests for Radiated and conducted emission testing of the WipAir-X000 4.9 GHz manufactured by WaveIP Ltd.

2. GENERAL INFORMATION

2.1. Description of equipment Under Test

Equipment Under Test	WipAir X 000-4.9 GHz
FCCID	QQ2-WA6049
Manufacturer	WaveIP Ltd.
Serial Numbers	0050C2AC7CAC
Mode of Operation	Tranceiver MODE
Receiver operating frequency	4949 MHz – 4990 MHz
Year of Manufacture	2012

2.2. Applicant Information:

Applicant	WaveIP Ltd
Applicant Address	Teradion Indistrial park, Misgav 20179, Israel
Telephone	+972-4-9027000
FAX	+972-4-9990324
The testing was observed by	AMIT ARAZI

2.3. Test Performance:

Dates of testing	Febuary 2012
Test Laboratory Location	Elbit Systems Land and C^4I Ltd., EMC LAB, Hashoftim 26 Holon 58102 ISRAEL Tel: 972-3-5574476 Fax: 972-3-5575320
Applicable EMC Specification	Federal Communication Commission (FCC), FCC CFR Part 90 subpart Y and RSS-111 Issue 3

3. TEST SUMMARY AND SIGNATURES.

Elbit Systems Land and C^{4}I Ltd., EMC Laboratory has completed testing of E.U.T in accordance with the requirements of the FCC sections 90.205, 90.1215, RSS-111 section 5.3.

The E.U.T was found to comply with the requirements of the FCC Part 15 Regulations given below

Test	Test Description	Section	Pass/Fail
1	Occupied bandwidth	FCC sections 90.209, RSS-Gen section 4.6.1	Pass
2	Maximum output power and Peak power spectral density	FCC sections 90.205, 90.1215, RSS-111 section 5.3,Part 15	Pass
3	Emission mask	FCC sections 90.210(m), RSS-111 section 5.4	Pass
4	Conducted spurious emissions	FCC sections 90.210, RSS-111 section 5.4	Pass
5	Receiver spurious emissions	RSS-111 section 5.5	Pass
6	Radiated spurious emissions	FCC sections 90.210, RSS-111 section 5.4	Pass

3.1. Test performed by:

I. Arbitman

3.2. Test Report prepared by:

M. Reuben

3.3. Test Report Approved by:

Mr. Samuel Cohen EMC Lab. Manager

4. E.U.T INFORMATION

4.1. E.U.T description

WipAir X 000-4.9 GHz is WaveIP's wireless point-to-point and point to multi point broadband wireless communication system. The system uses dual or single radio channels, (defined by software) in the 5GHz bands, utilizing 5, 10, 20 MHz channels, OFDM modulation, and TDD Spectrum Management.

The total conducted output power is up to 1Watt (sum of both channels), with dynamic range of ~ 45 dB.

WipAir-3000 uses single RF channel (SISO)

WipAir-6000 uses two RF ports (MIMO), hence WipAir-6000 was tested.

EUT Technical characteristics

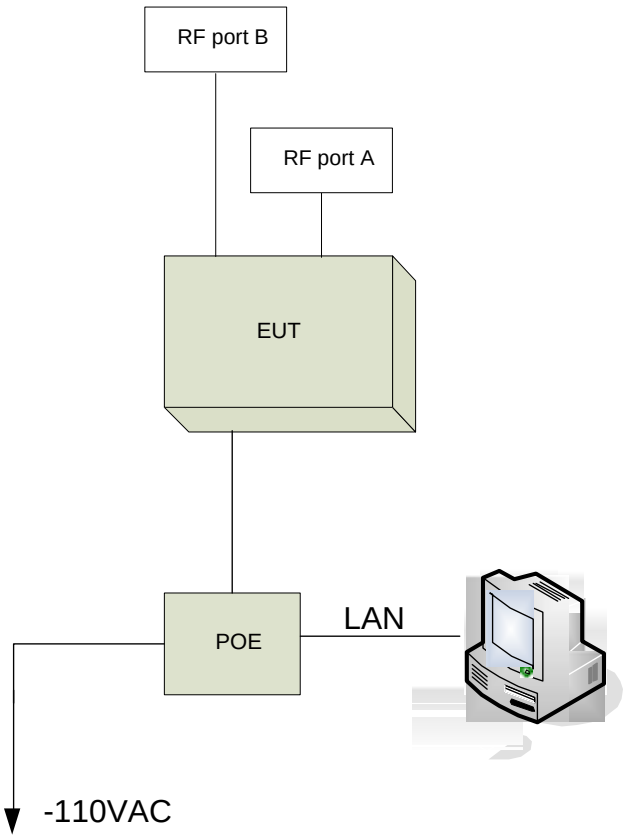
Transmitter characteristics		Notes
Assigned frequency	4940-4990MHZ	
Operating Frequency range	4942.5-4987.5MHZ	5MHz Channel
	4945-4985MHZ	10MHz Channel
	4950-4980MHZ	20MHz Channel
Antenna Ports	TNC	For detached option only
Modulations type	QPSK, 4QAM, 16QAM, 64QAM	
Multiplexing type	OFDM	
Modulating Test Signal	PRBS	

Antenna type

Antenna Type	Model	Gain 4.9 GHz (dBi)	Beam Width	Dimension
Flat panel	DP-5X-230D-010	22	10˚ x 10˚	305*305*15
Dish	DP-5X-285D-005	27	5˚ X 5˚	2ft

4.2. E.U.T Test Configuration

E.UT. test configuration is shown in figure below:



4.3. E.U.T Mode of Operation description

4940 MHz – 4990 MHz TRANCEIVER

5. CONDUCTED SPURIOUS EMISSIONS

Equipment Under Test	WipAir X 000-4.9 GHz
Test Method	FCC sections 90.210, RSS-111 section 5.4
Date	08.02.2012
Relative Humidity	40%
Ambient Temperature	25^0 C
Air Pressure	1010 hPa
Test Setup	Figure 2

Testing Engineer: I. Arbitman Date : 08.02.2012

5.1. Test Results Summary & Conclusions

The E.U.T was found in compliance with 90.210 Conducted Spurious Emissions test requirements

5.2. Limits of Conducted Emission at Antenna Terminals

The test unit shall meet the limits of Table 25 for 90.210.

Table 1: Limits for Receiver Spurious Emission as per FCC Part 15 Para 90.210

Frequency (MHz)	Attenuation below carrier (dBc)	ERP of Spurious** (dBm)	
0.009 – 10th harmonic*	50 (mask M) 55+10logP (W)	Low carrier frequency	-25
		Mid carrier frequency y	-25
		High carrier frequency	-25

* Spurious emission limits do not apply to the band emission within ± 150% of the authorized bandwidth from the carrier, investigated in the course of emission mask testing.

**-ERP of spurious = P (dBm) – {55 + 10 log P (W)} = -25 dBm

5.3. Test Instrumentation and Equipment

Table 2: Test Instrumentation and Equipment

Item	Model	Manufacturer	Next Date Calibration
Spectrum Analyzer	E7405A	Agilent	11.05.2012
10db attenuator	771-20	Narda	15.05.2012
10db attenuator	771-20	Narda	15.05.2012
10db attenuator	771-20	Narda	15.05.2012
Splitter	11667A	Agilent	22.10.2012

5.4. Test Procedure

As per 47 CFR, Sections 2.1051 and 90.210(m), TIA/EIA-603-C, Section 2.2.13

5.4.1. Test Procedure for individual chain testing

The EUT was started and set in receive mode. Sufficient time for stabilization was allowed.

The EUT was adjusted to produce maximum available to end user RF output power and the highest emission level within the authorized band was measured.

Measurements were done for top, middle and bottom frequencies, for worst case highest output power utilizing 20 MHz channel band width using Spectrum Analyzer.

The test set up is shown in Figure 4 below.

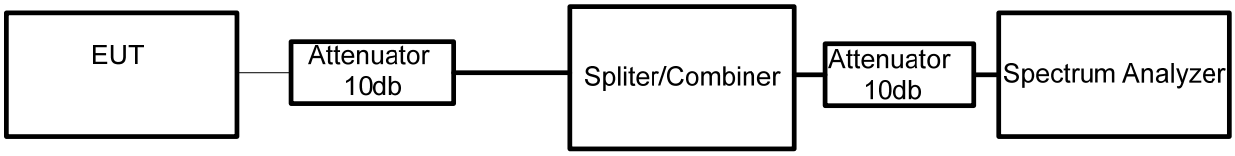


Figure 3: Test Setup for Spurious Emission Test – Individual TX Chains Measurements

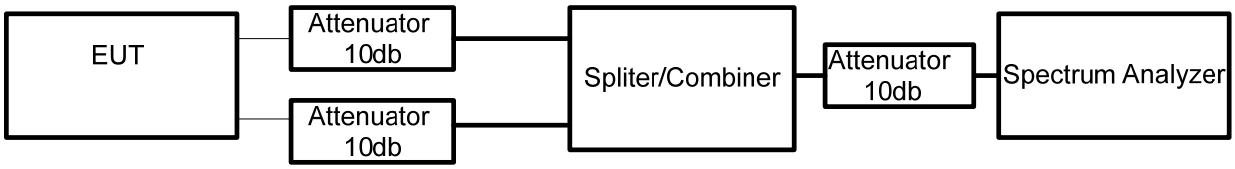


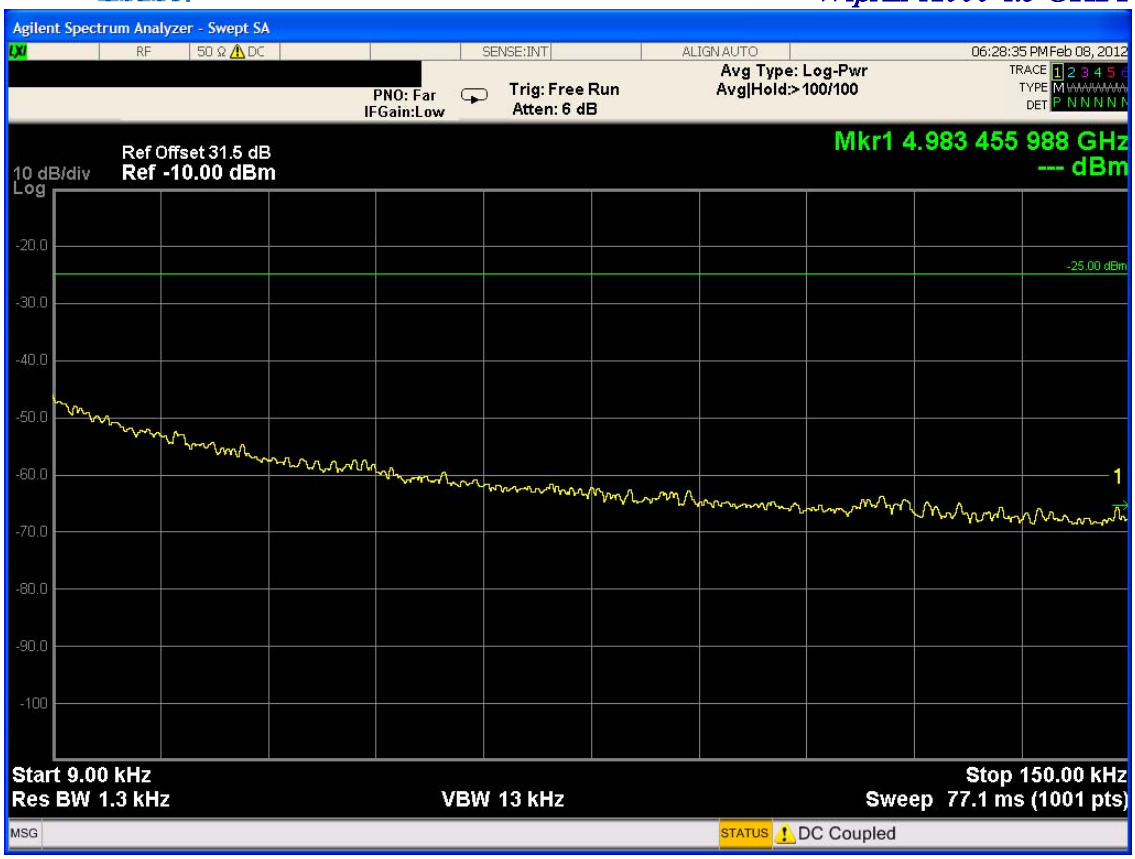
Figure 1: Test Setup for Spurious Emission Test – Combined TX Chains Measurements

Table 3: Test Results for Individual TX Chain

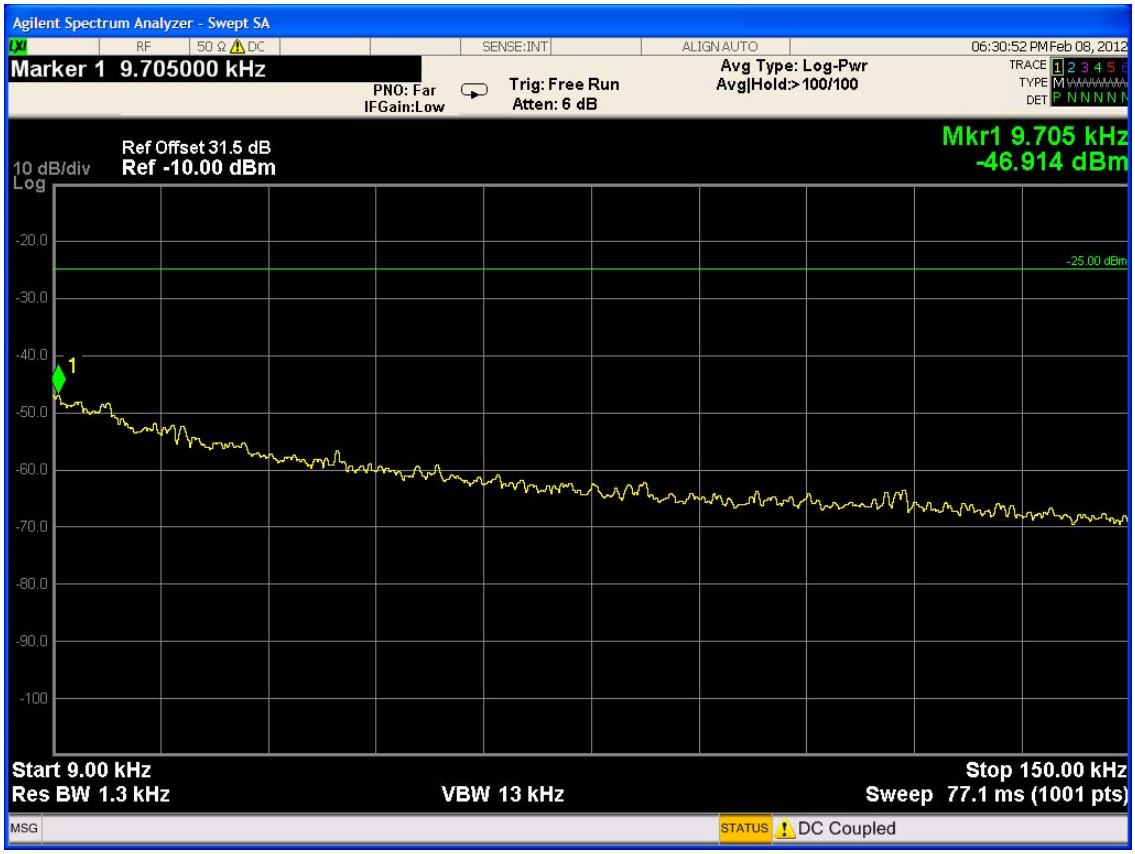
Frequency Range (MHz)	Spurious Emission (dBm)	Margin (dB)	Plot Reference	Pass/ Fail
0.009 – 0.15	No emissions noted		*1, 2, 3*	Pass
0.15 - 30			*4, 5, 6*	Pass
30 - 1000			*7, 8, 9*	Pass
1000 - 18000			*10, 11, 12*	Pass
18000 - 26500			*13, 14, 15*	Pass
26500 - 40000			*16, 17, 18*	Pass

Table 4: Test Results for Combined TX Chain

Frequency Range (MHz)	Spurious Emission (dBm)	Margin (dB)	Plot Reference	Pass/ Fail
0.009 – 0.15	No emissions noted		*19, 20, 21*	Pass
0.15 - 30			*22, 23, 24*	Pass
30 - 1000			*25, 26, 27*	Pass
1000 - 18000			*28, 29, 30*	Pass
18000 - 26500			*31, 32, 33*	Pass
26500 - 40000			*34, 35, 36*	Pass



Plot Conducted Spurious Emissions/ 1



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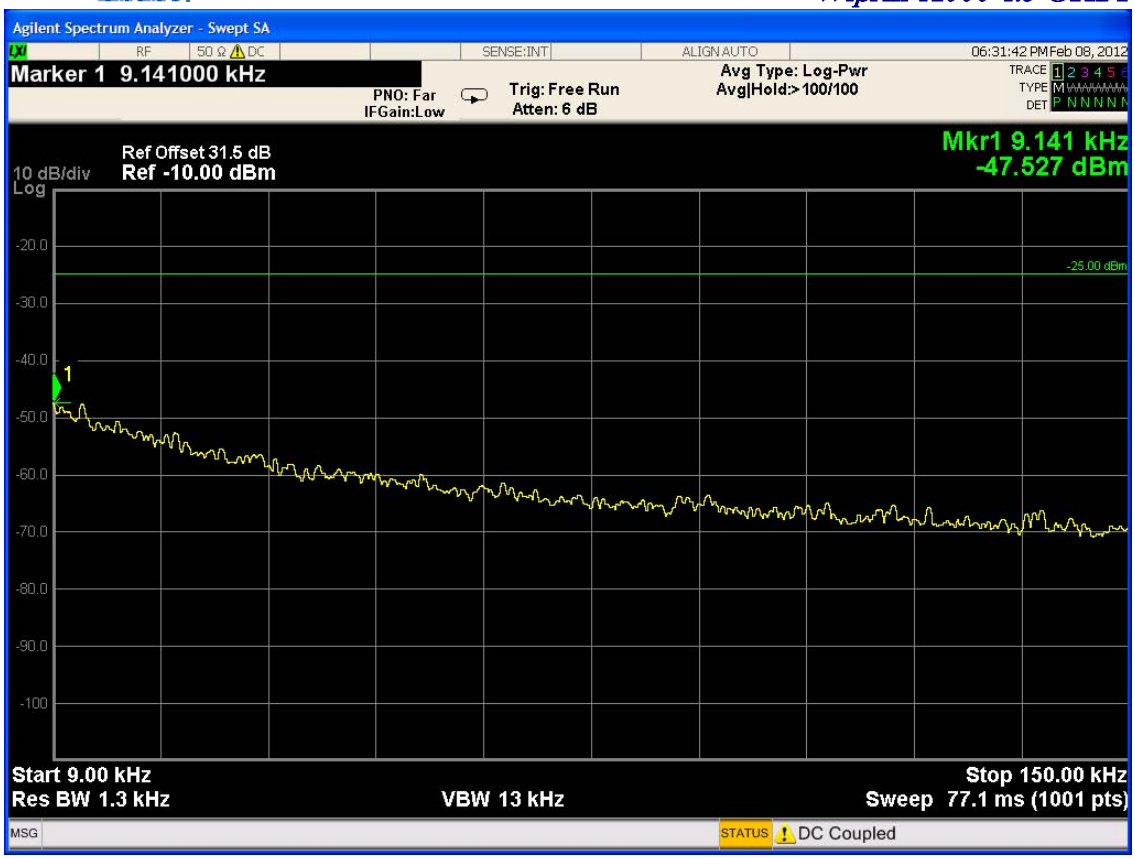

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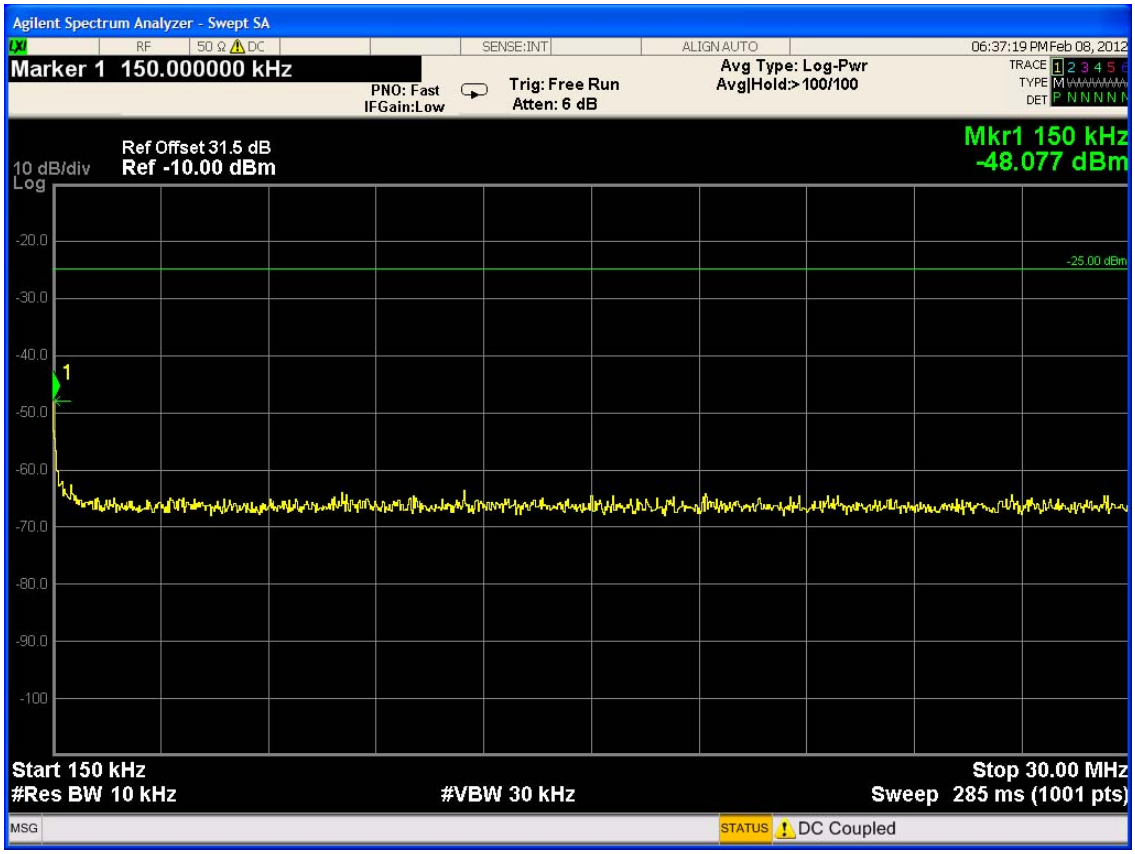

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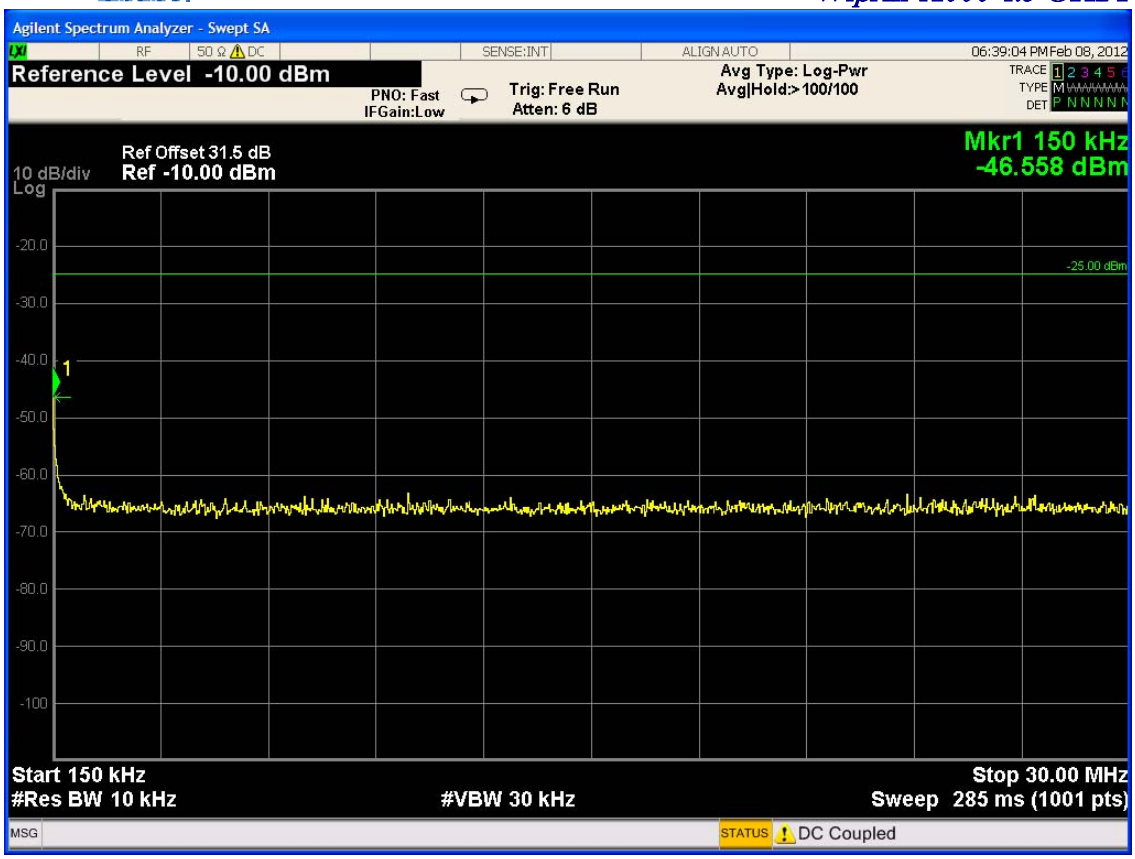
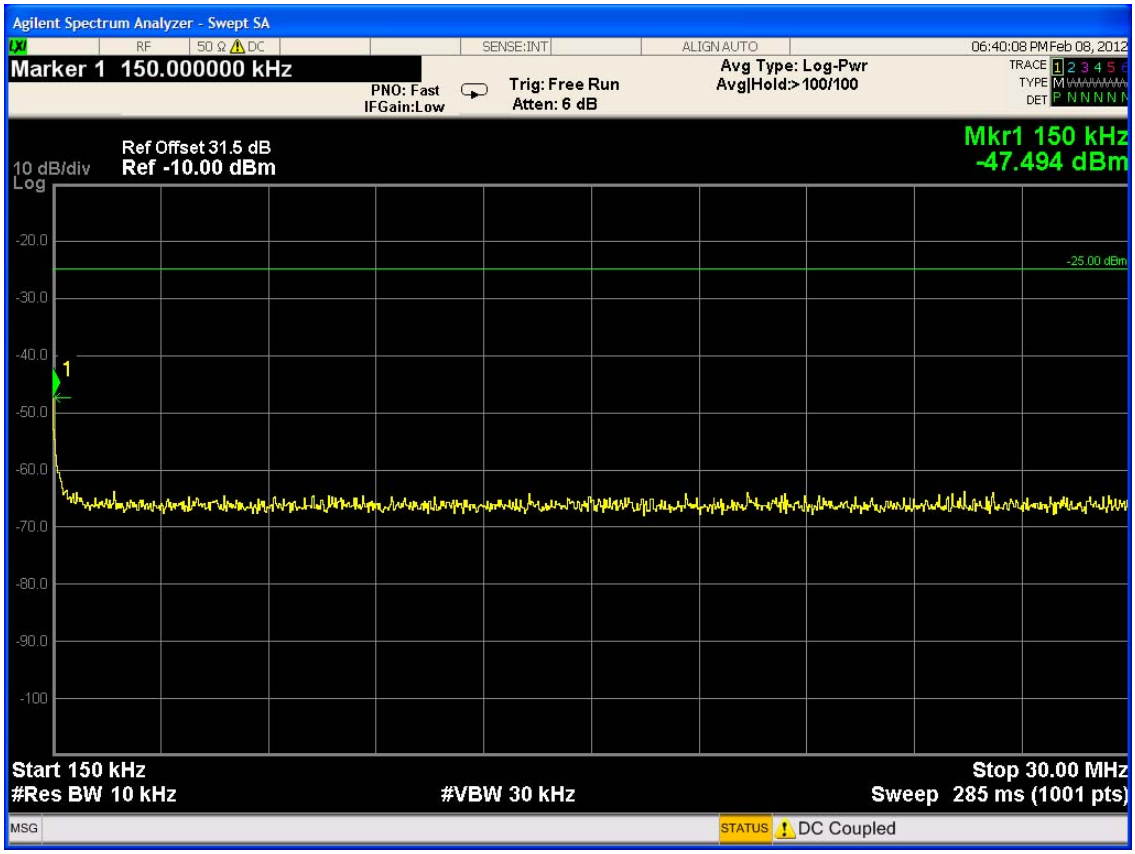
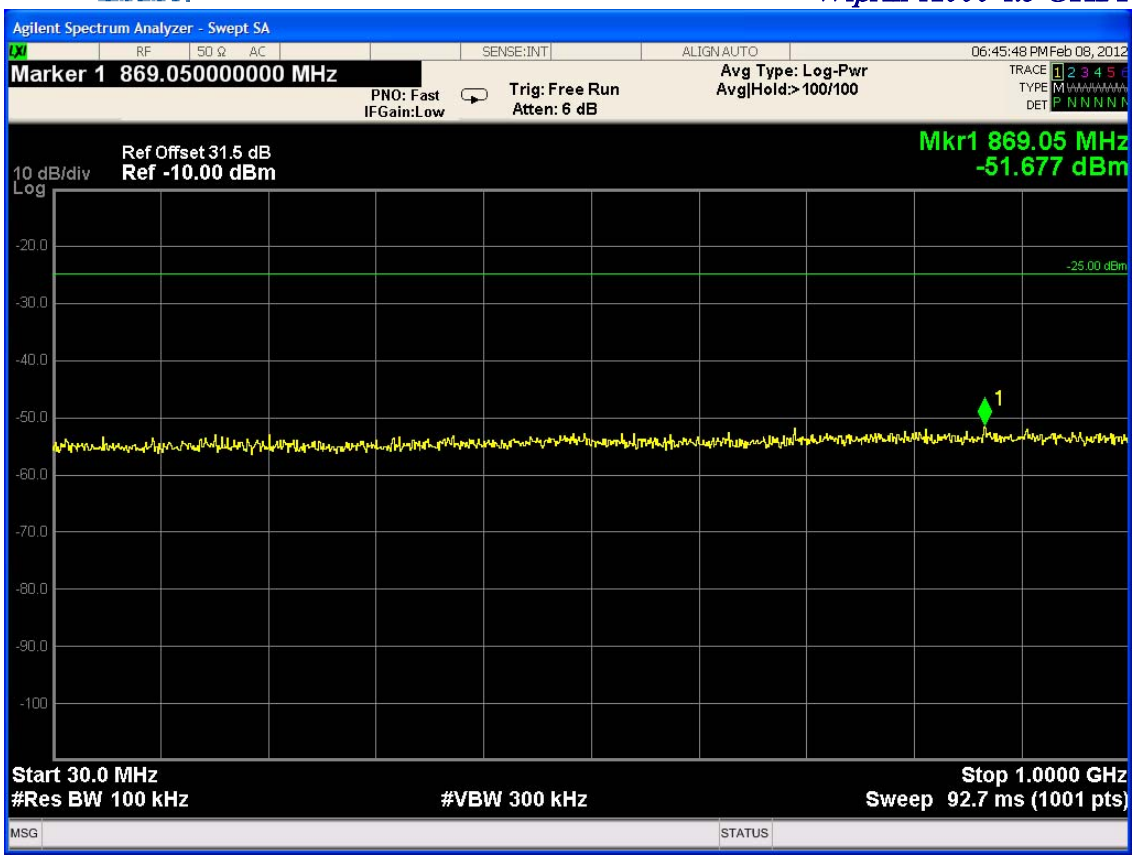


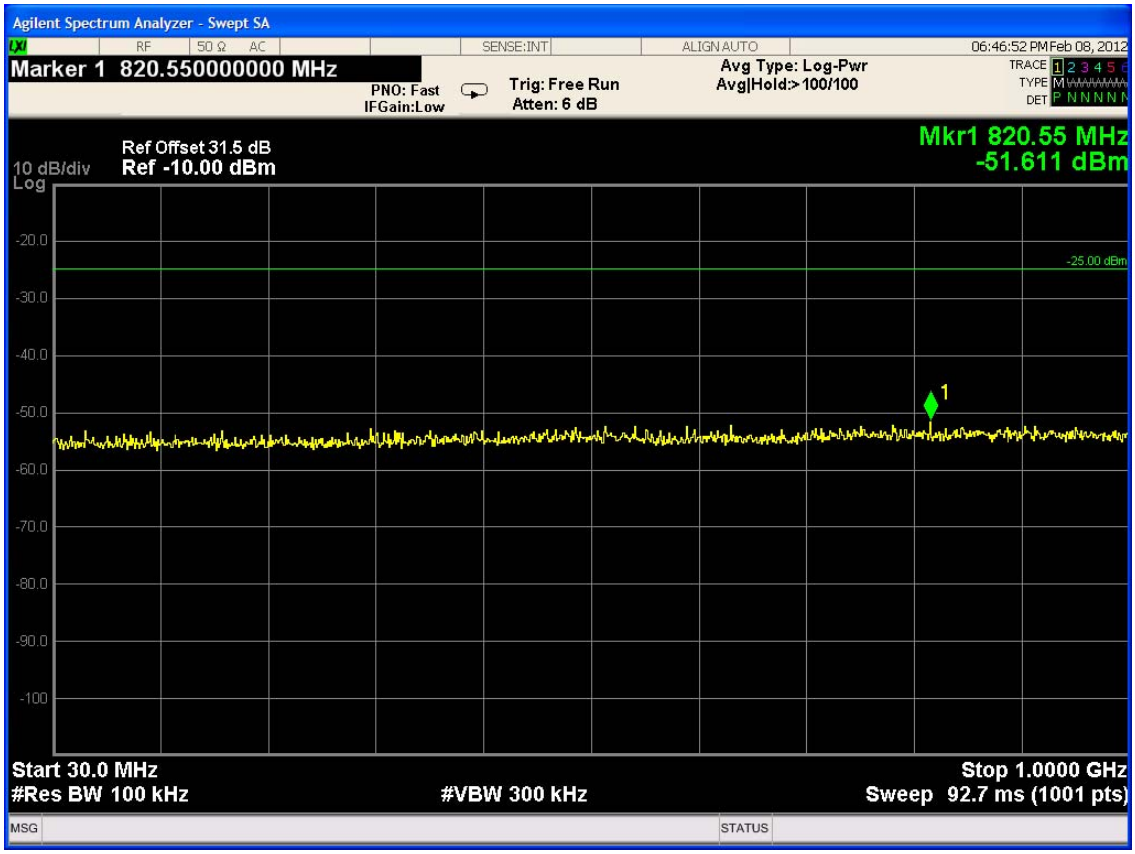
Plot Conducted Spurious Emissions/ 5



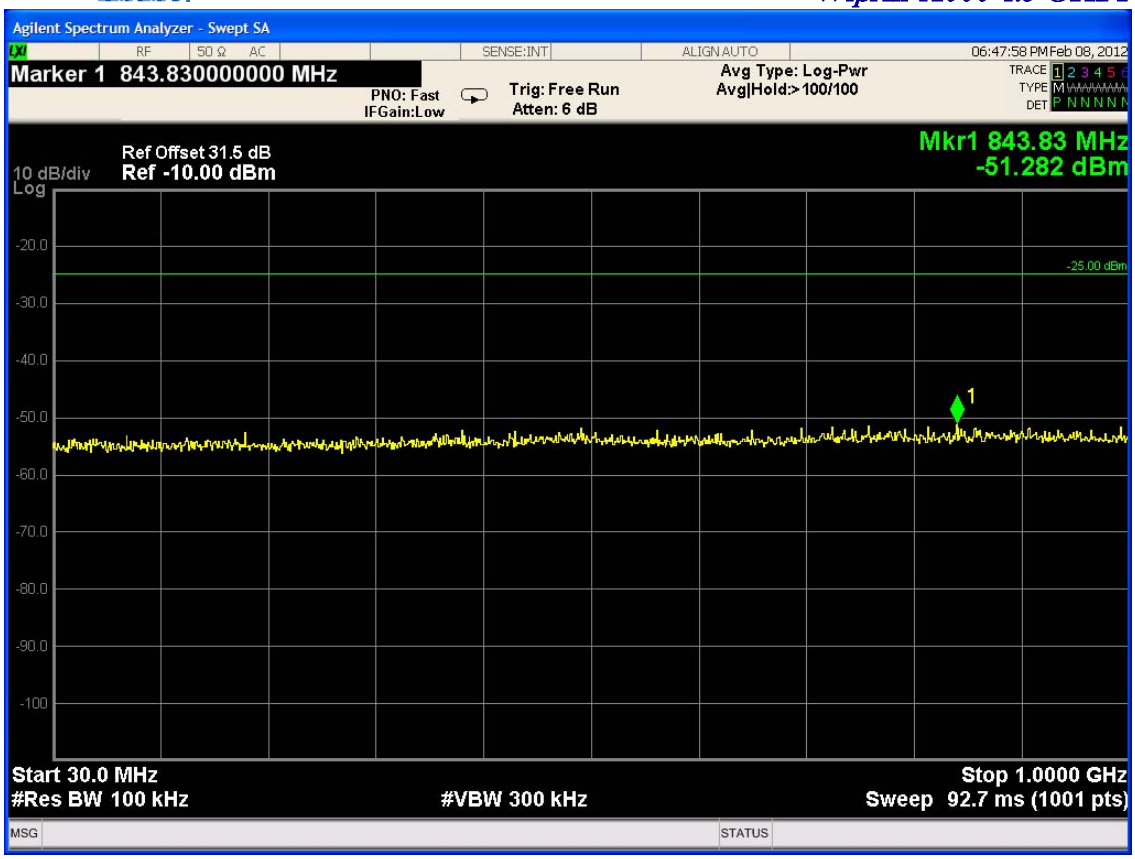
Plot Conducted Spurious Emissions/ 6



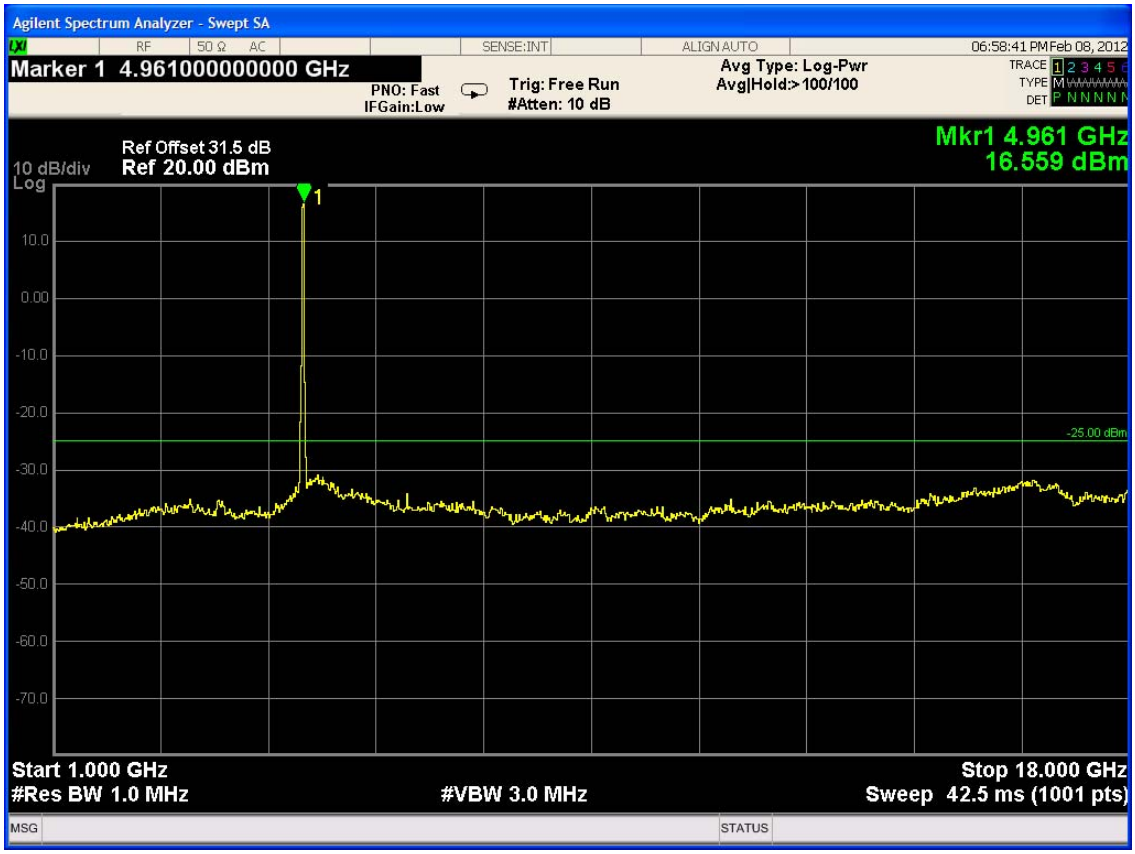
Plot Conducted Spurious Emissions/ 7



Plot Conducted Spurious Emissions/ 8

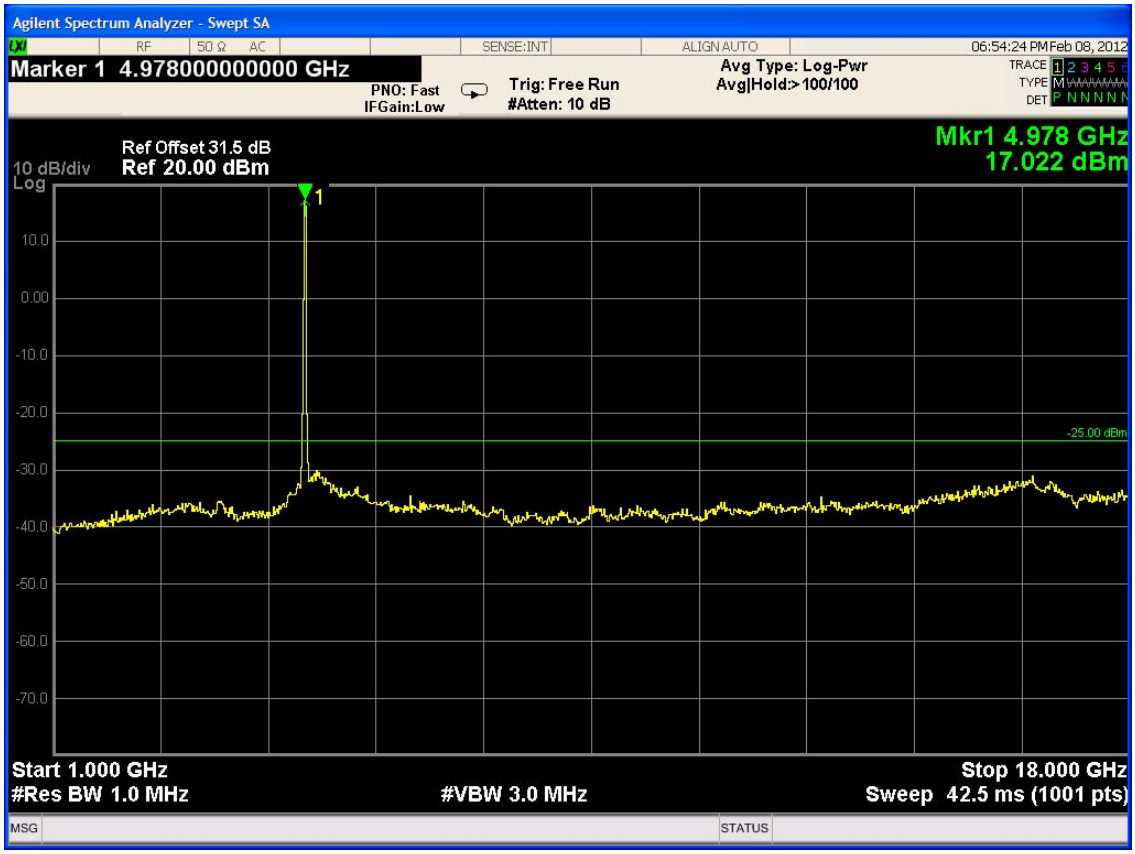


Plot Conducted Spurious Emissions/ 9

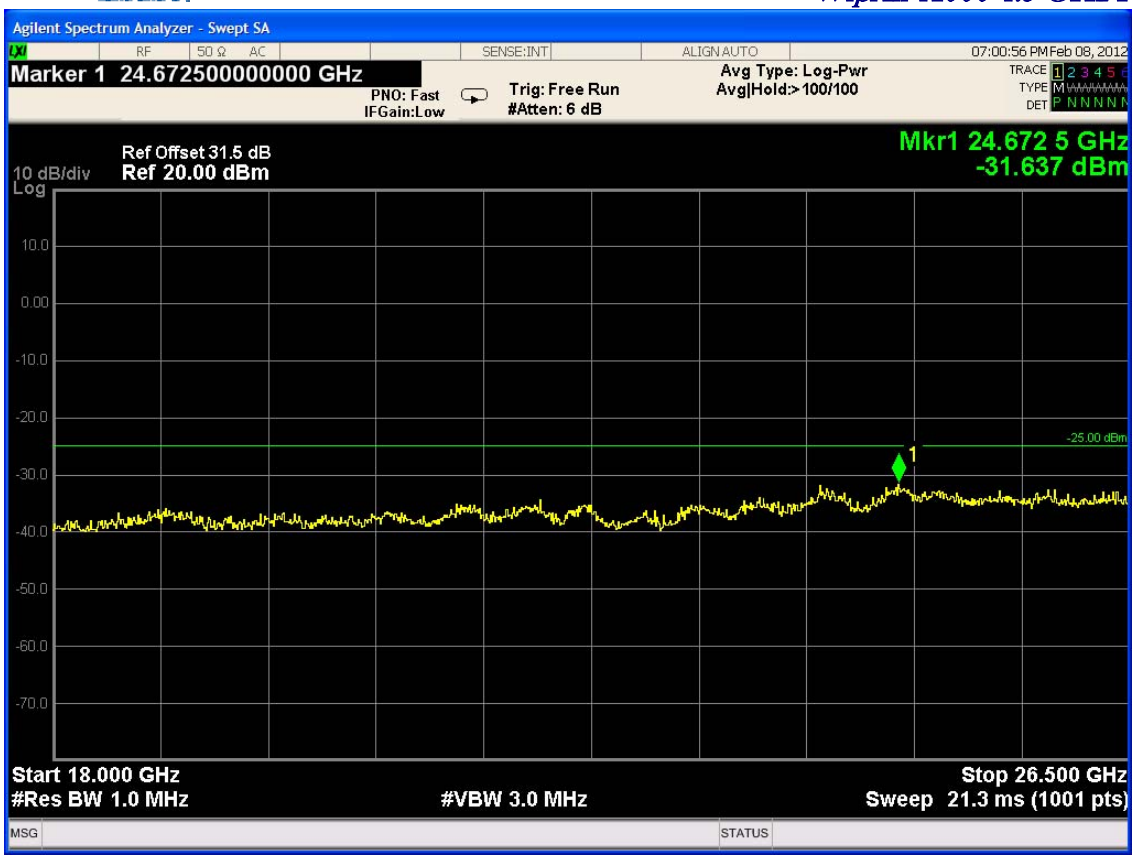


Plot Conducted Spurious Emissions/ 10

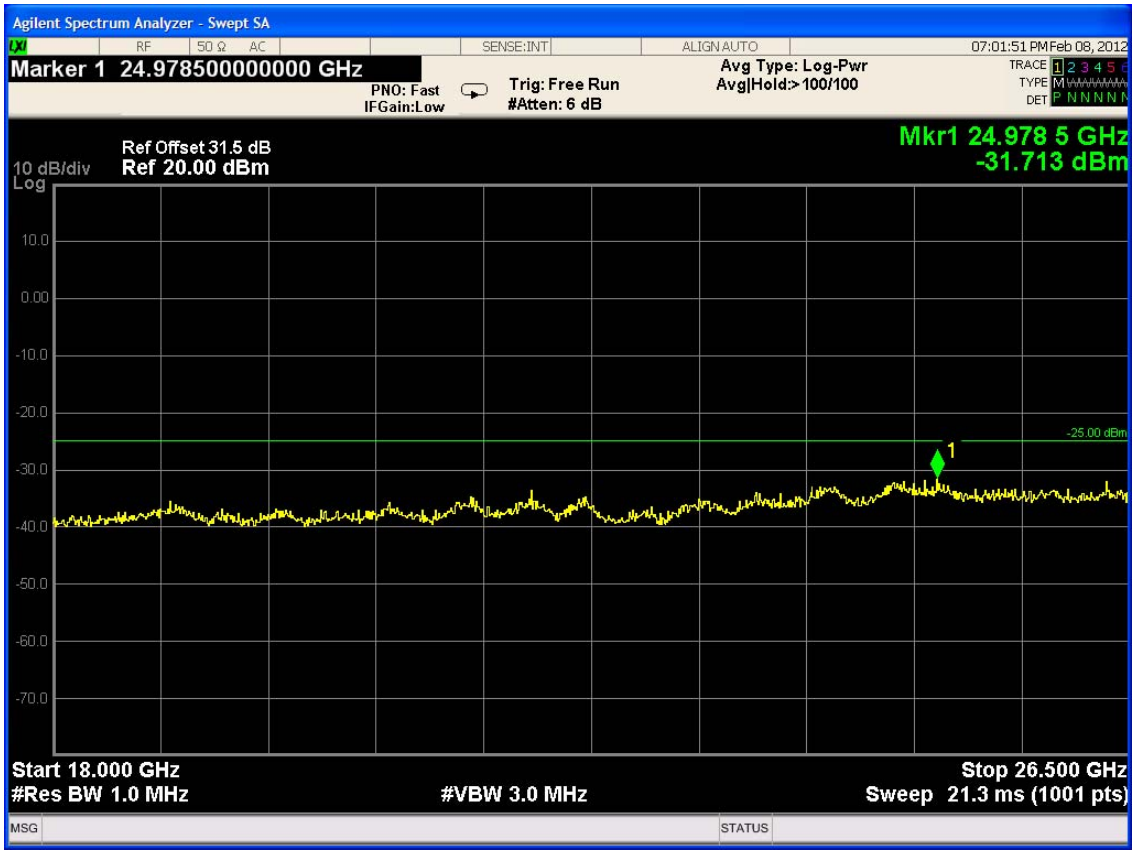
Plot Conducted Spurious Emissions/ 11



Plot Conducted Spurious Emissions/ 12



Plot Conducted Spurious Emissions/ 13



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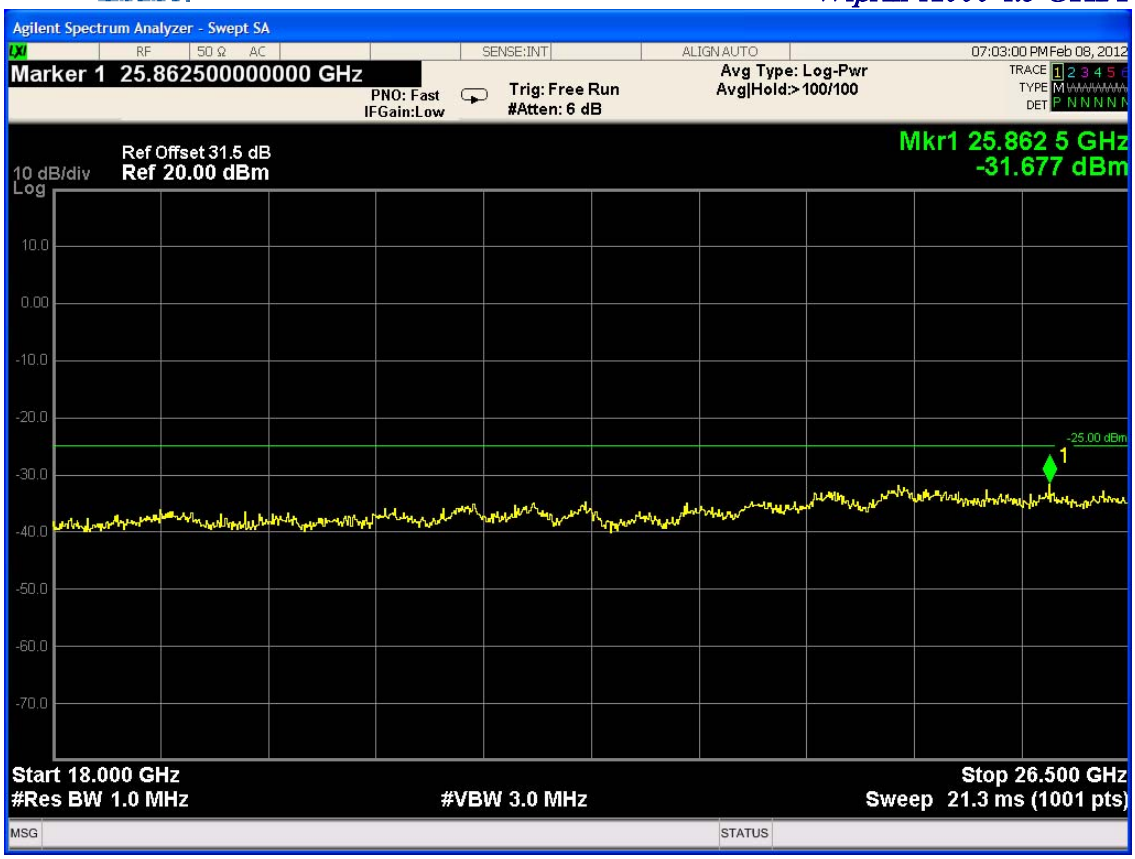
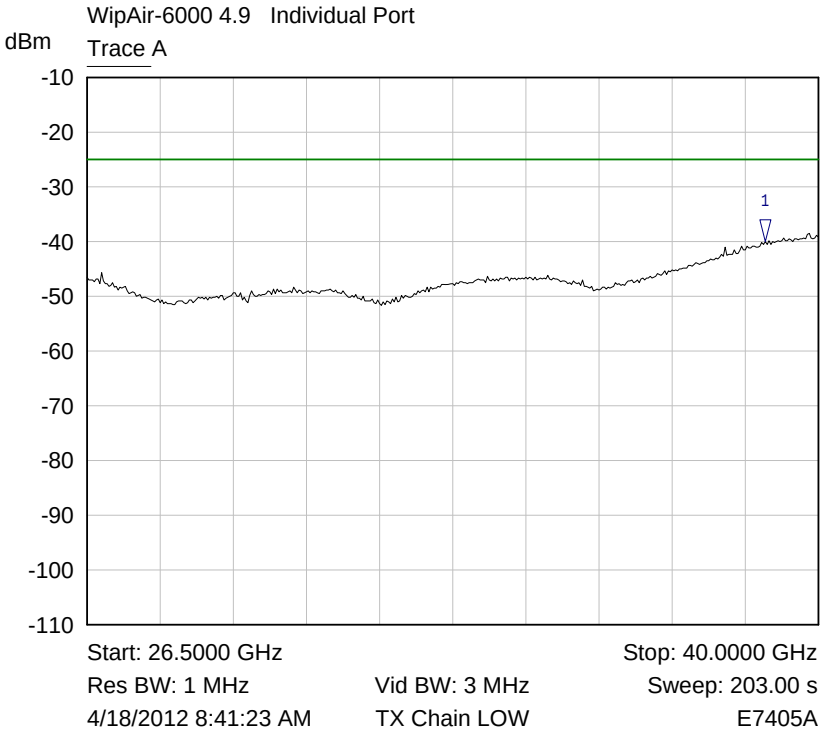
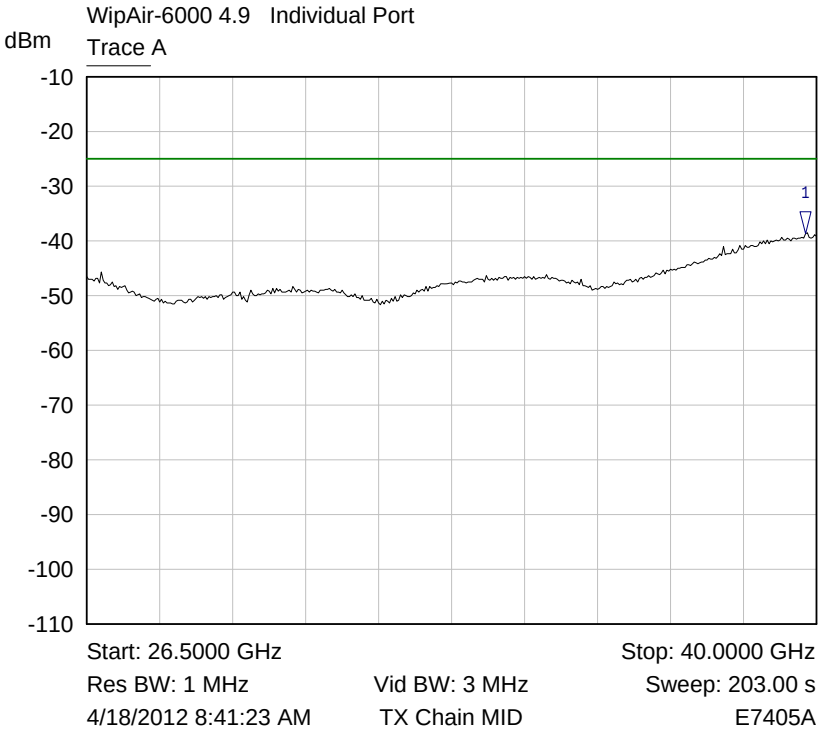


Plot Conducted Spurious Emissions/ 15



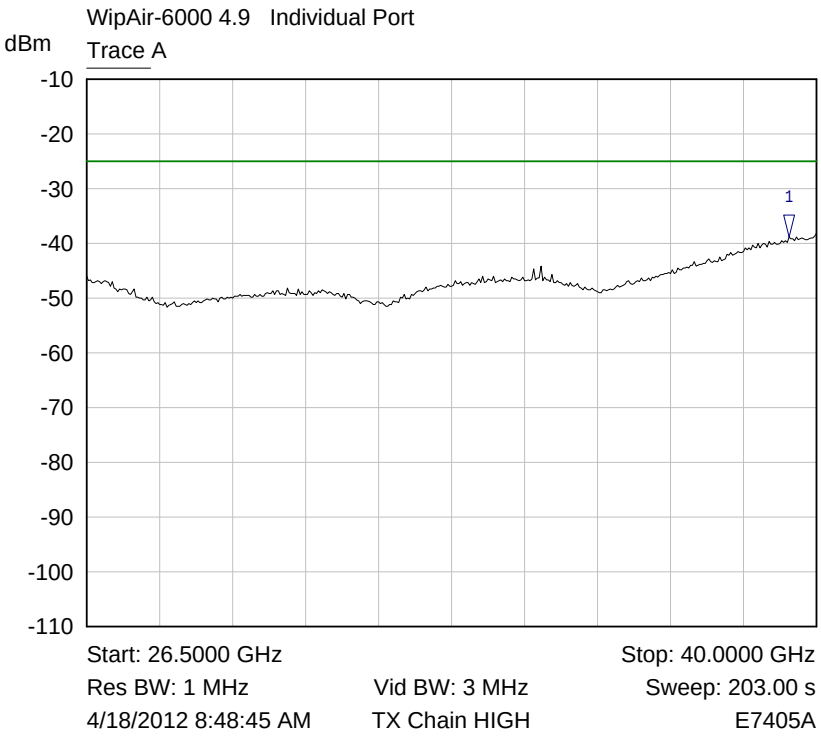
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	39.0213 GHz	-40.04 dBm	

Plot Conducted Spurious Emissions/ 16



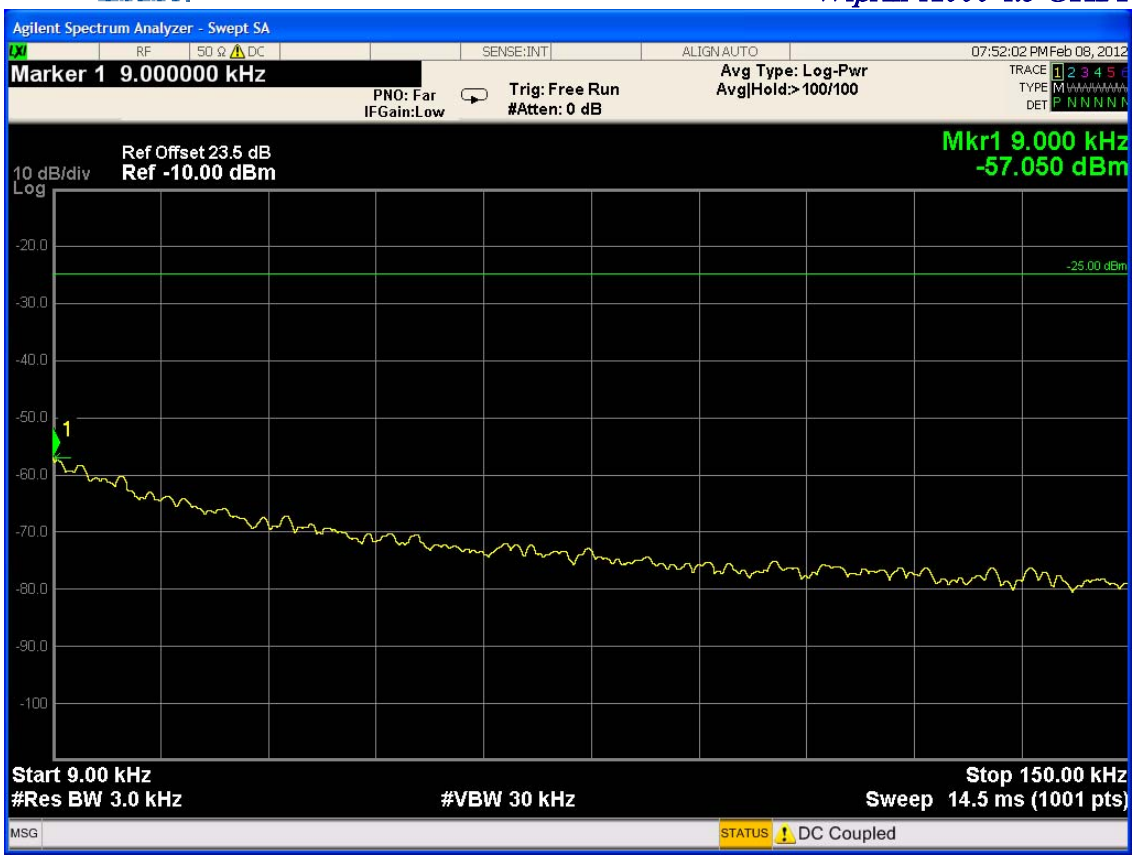
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	39.7975 GHz	-38.74 dBm	

Plot Conducted Spurious Emissions/ 17

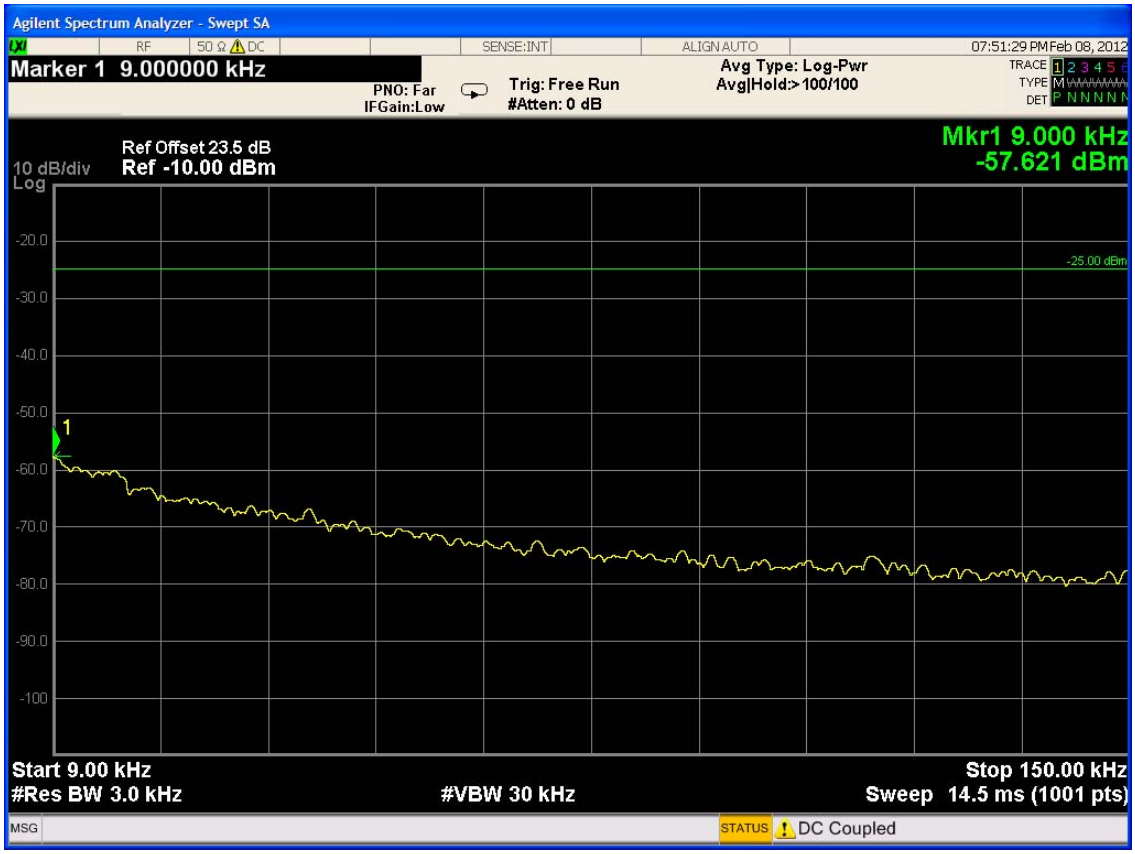


Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	39.4938 GHz	-38.91 dBm	

Plot Conducted Spurious Emissions/ 18



Plot Conducted Spurious Emissions/ 19



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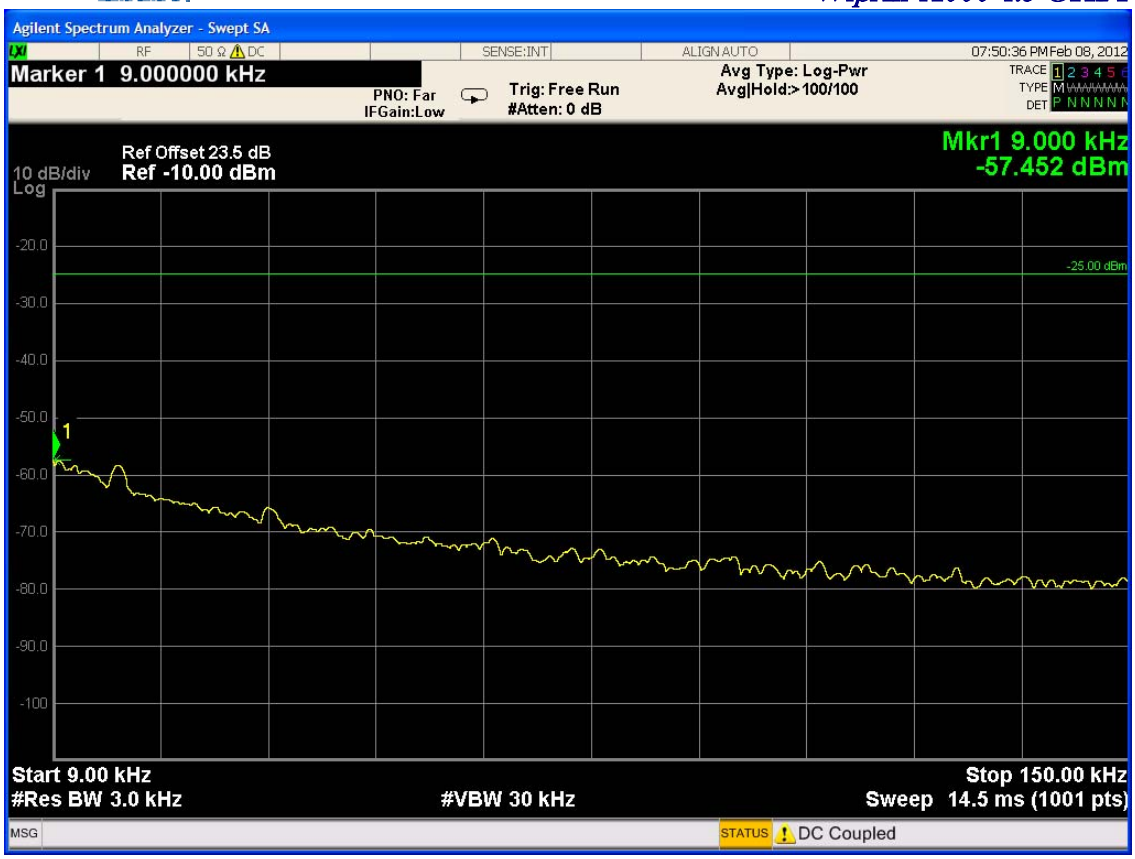

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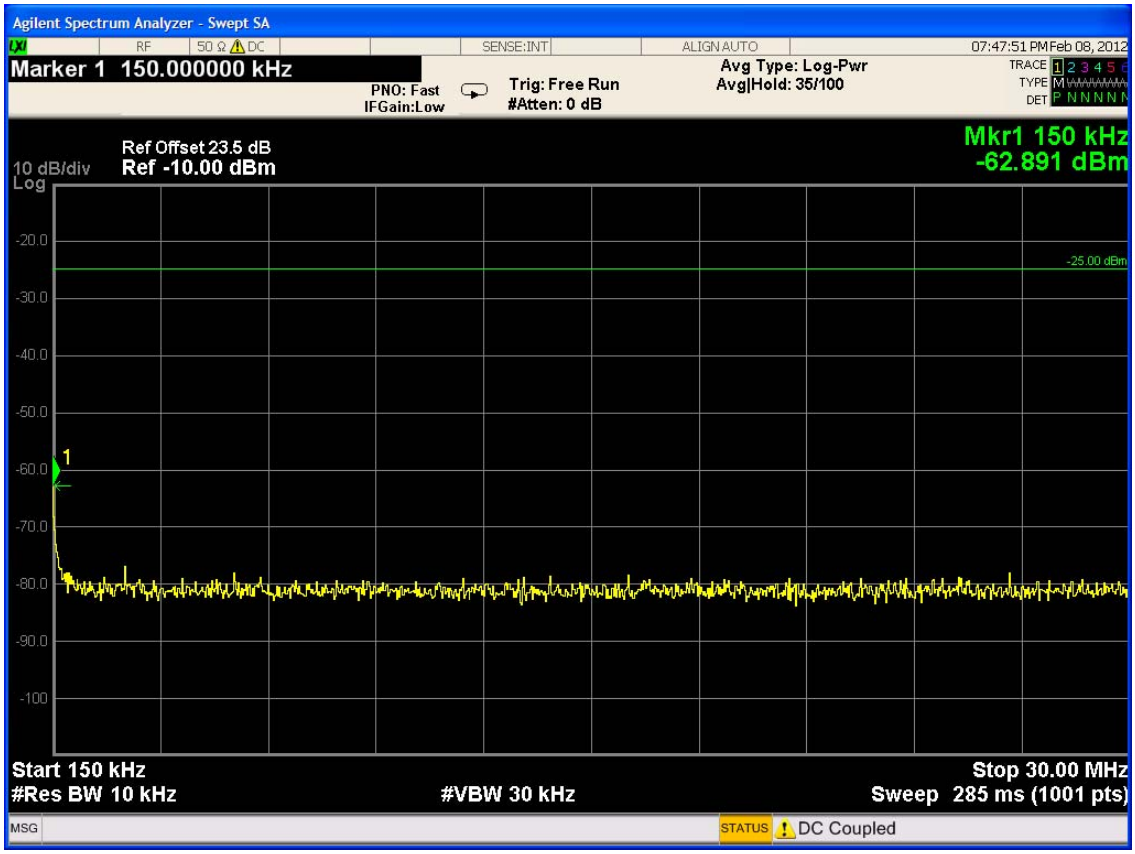

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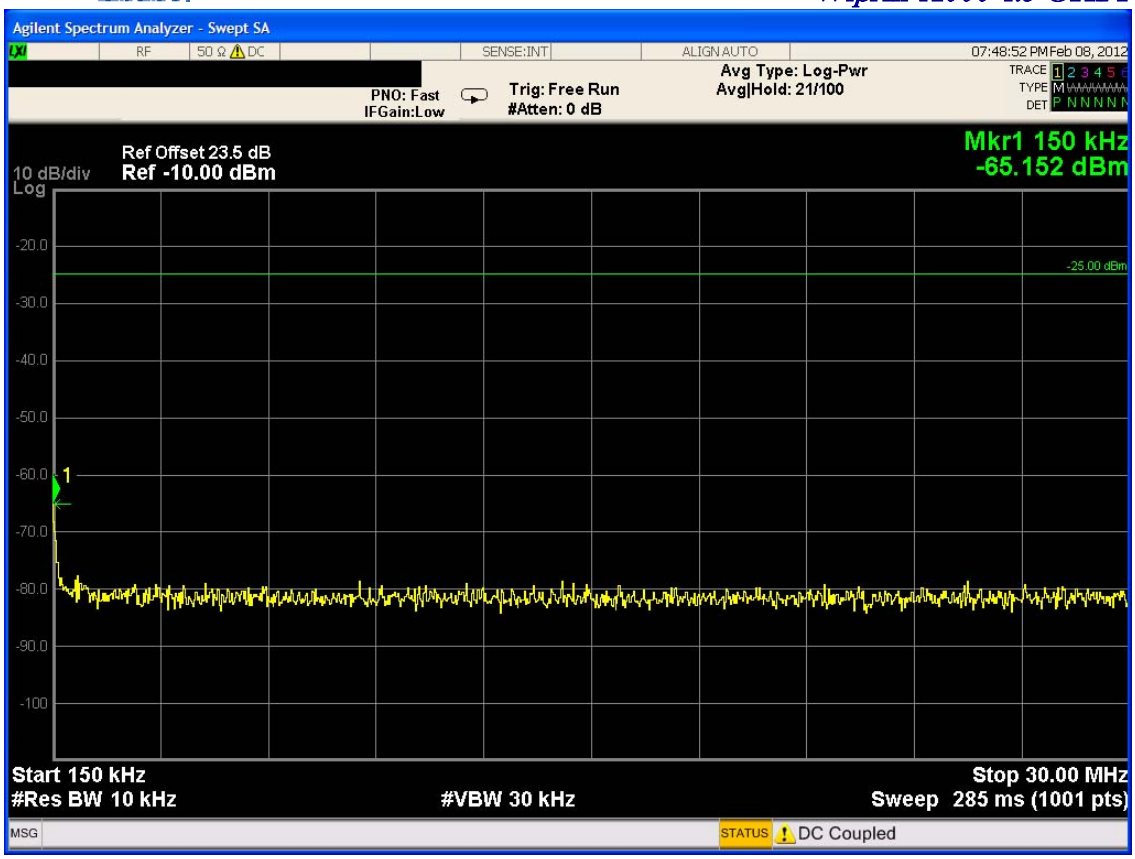
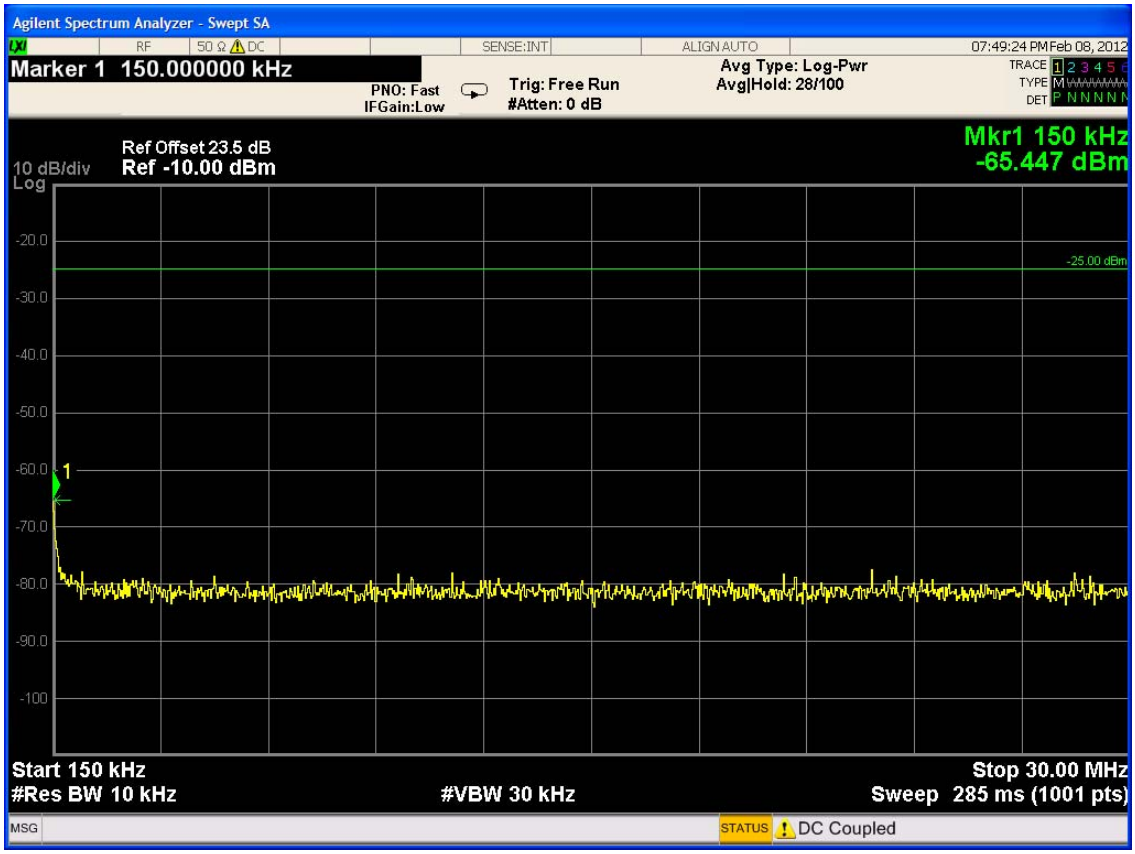


Plot Conducted Spurious Emissions/ 23



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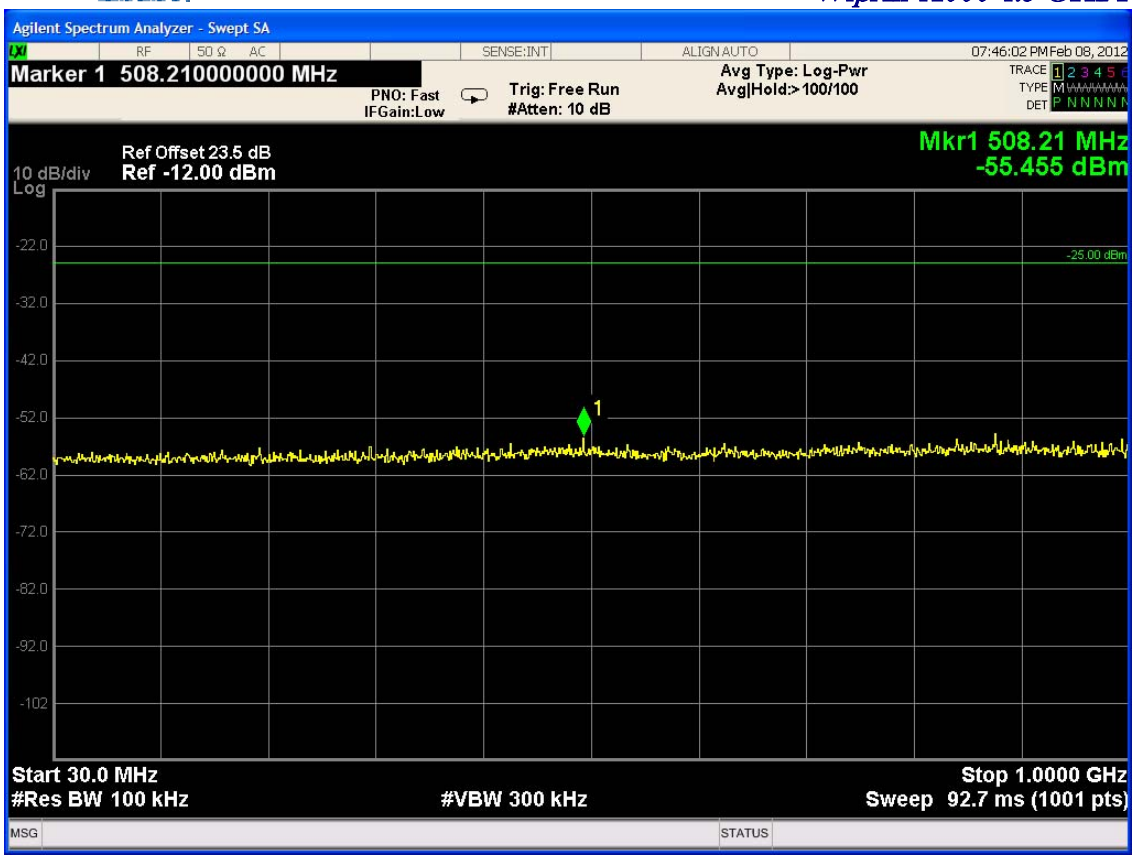

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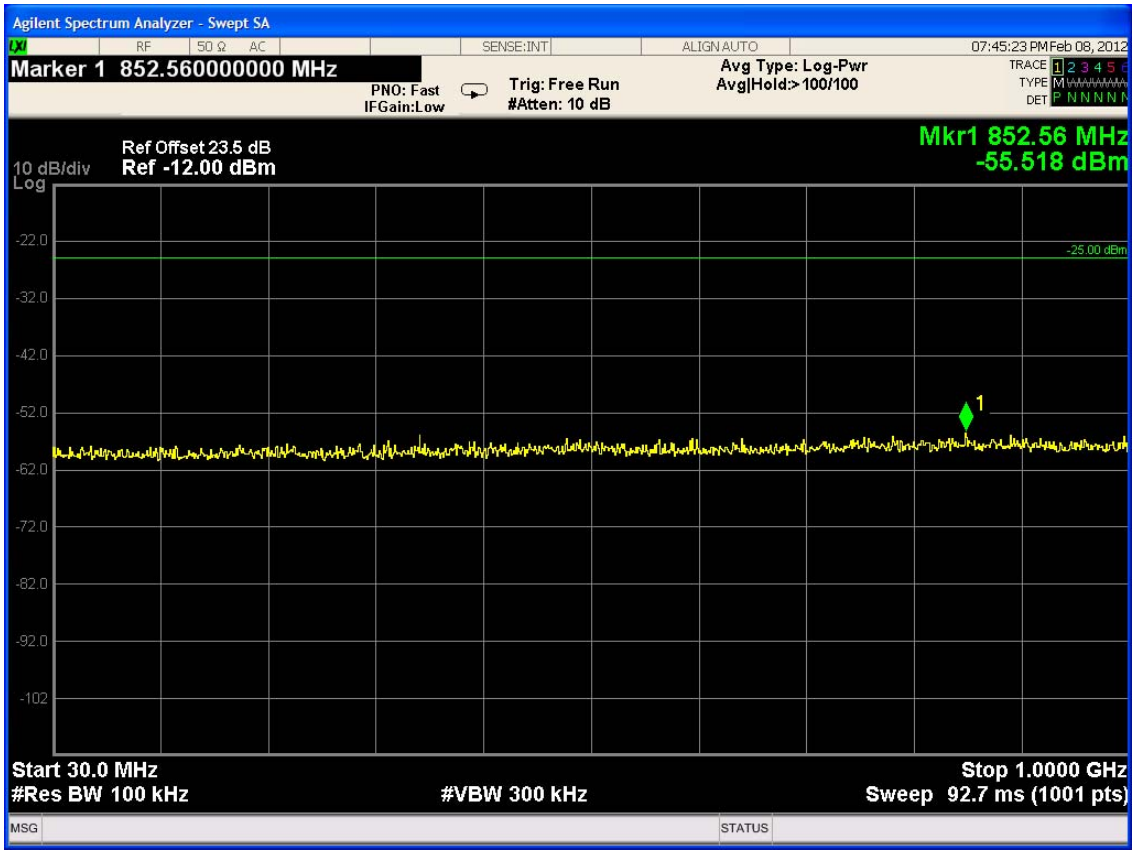

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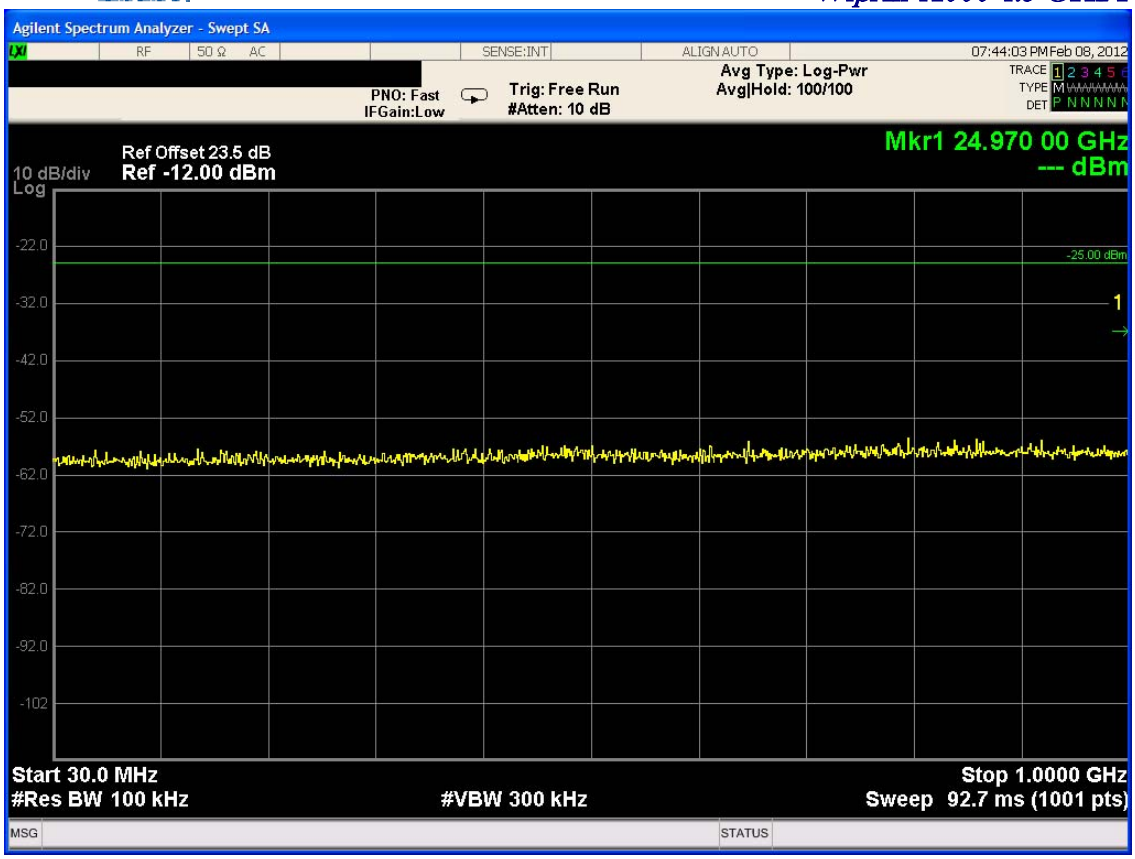
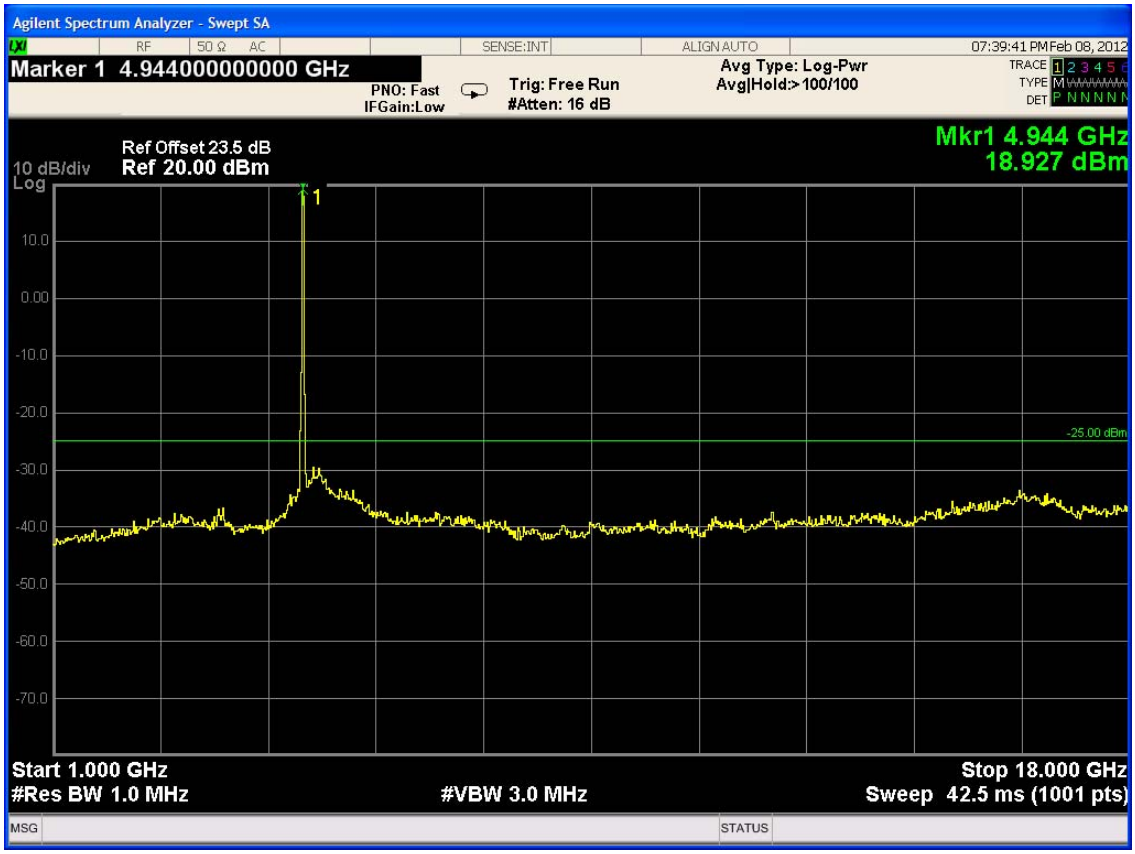


Plot Conducted Spurious Emissions/ 27



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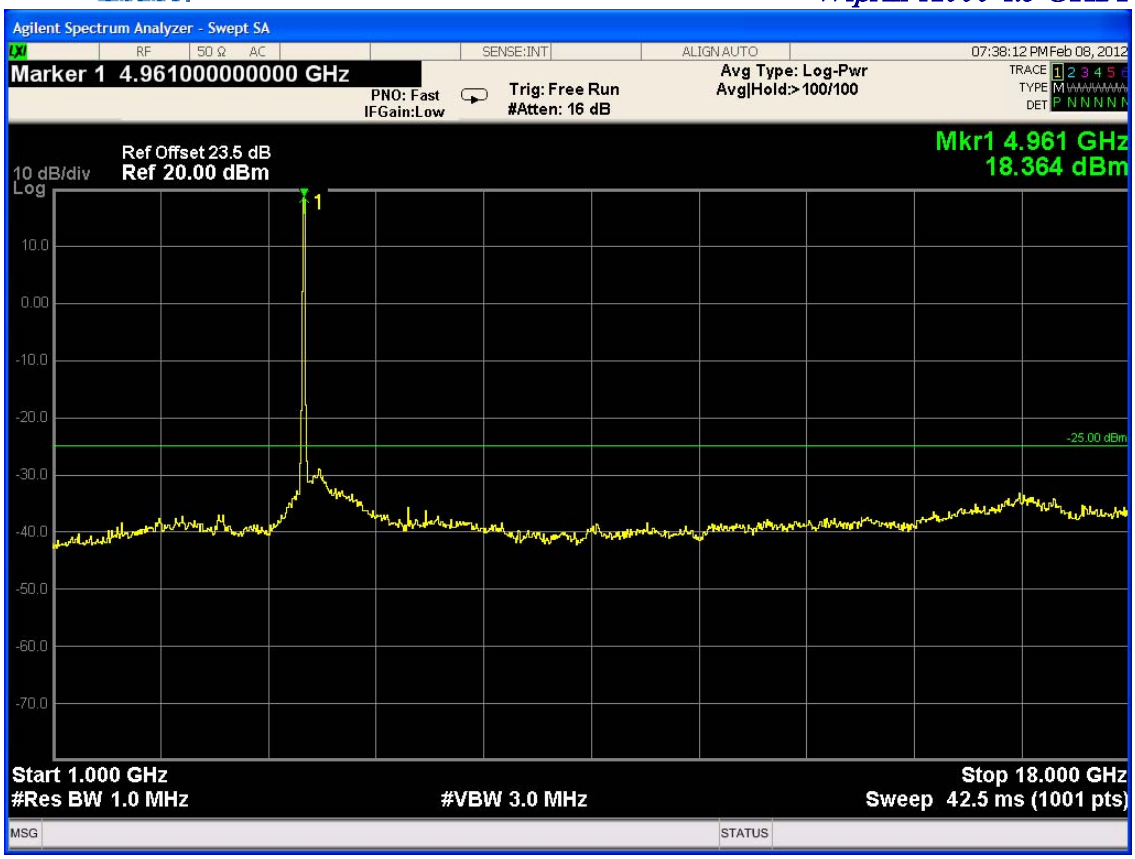
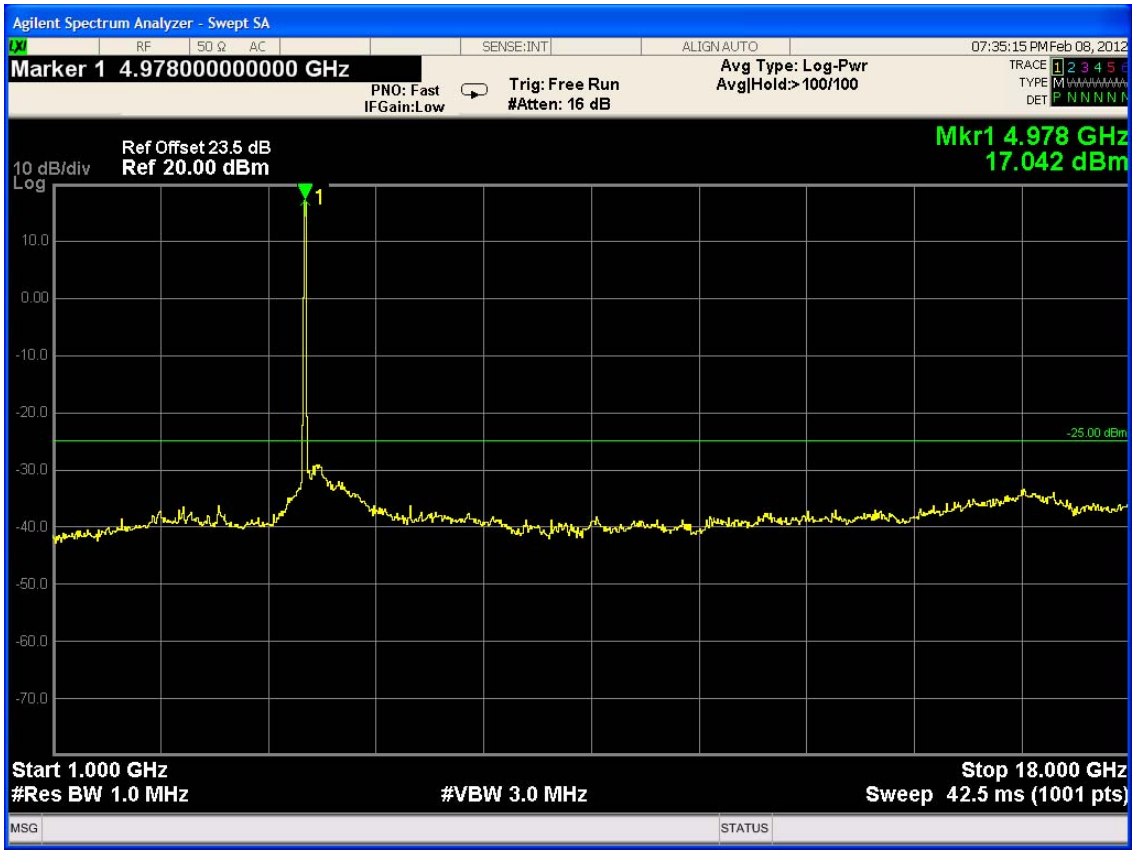


Plot Conducted Spurious Emissions/ 29

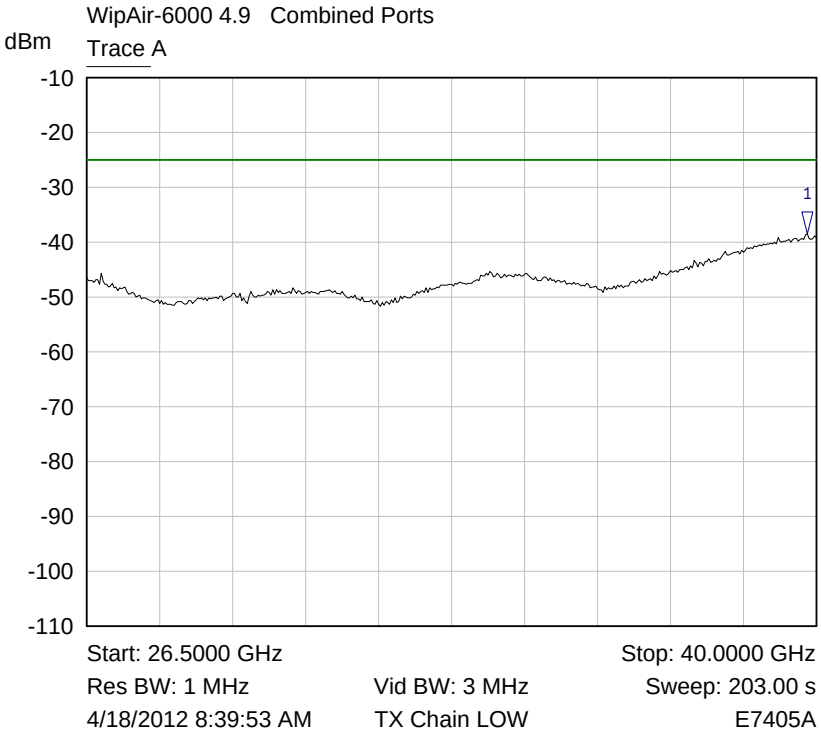


Plot Conducted Spurious Emissions/ 30

Plot Conducted Spurious Emissions/ 31

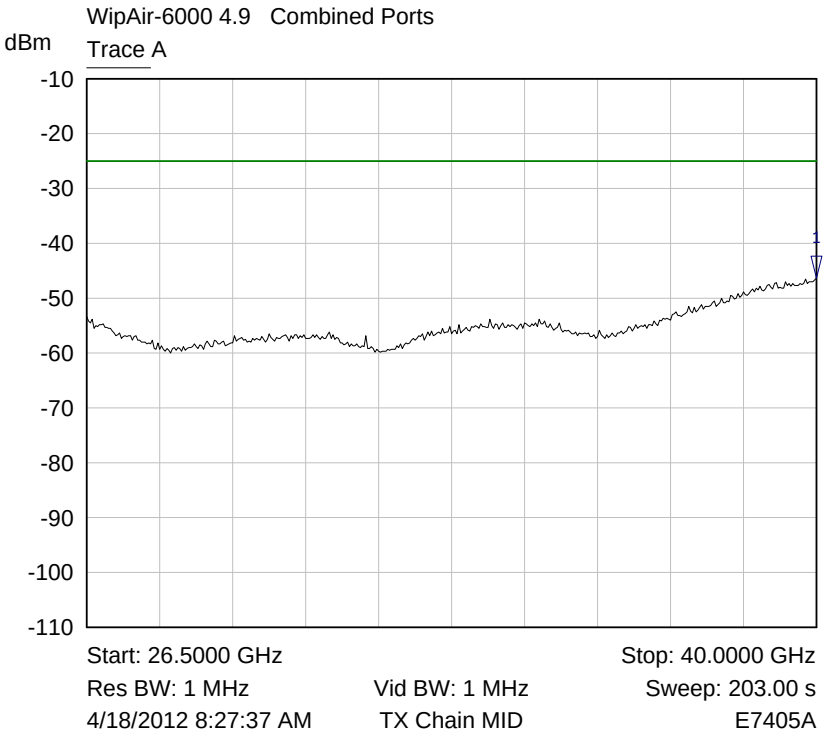
Plot Conducted Spurious Emissions/ 32

Plot Conducted Spurious Emissions/ 33



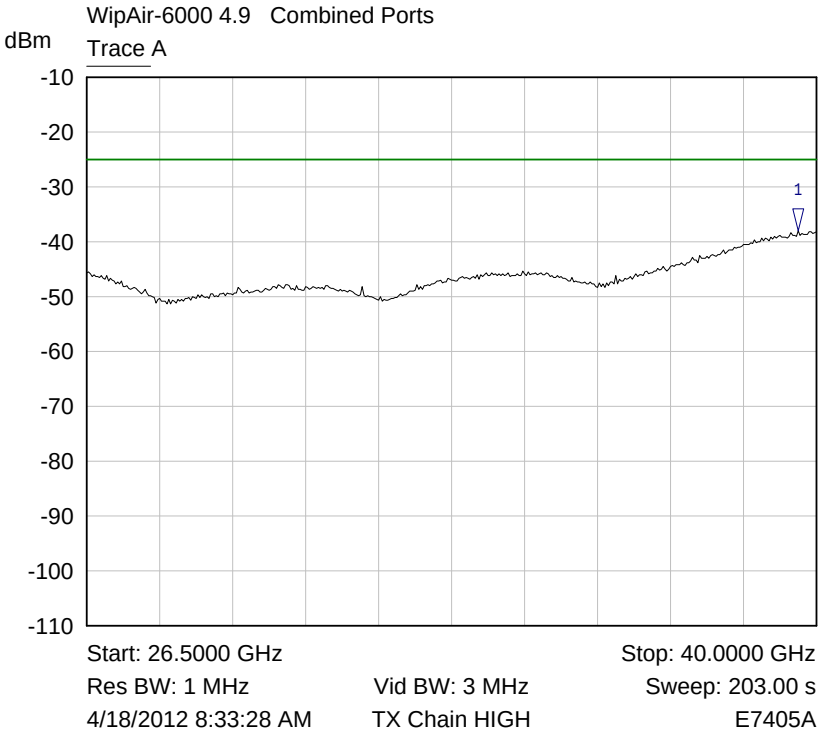
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	39.8313 GHz	-38.50 dBm	

Plot Conducted Spurious Emissions/ 34



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	40.0000 GHz	-46.34 dBm	

Plot Conducted Spurious Emissions/ 35



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	39.6625 GHz	-38.05 dBm	

Plot Conducted Spurious Emissions/ 36

6. RECEIVER SPURIOUS EMISSIONS

Equipment Under Test	WipAir X 000-4.9 GHz
Test Method	RSS-111 section 5.5
Date	08.02.2012
Relative Humidity	40%
Ambient Temperature	25^0 C
Air Pressure	1010 hPa
Test Setup	Figure 2

Testing Engineer: I. Arbitman  Date : 08.02.2012

6.1. Test Results Summary & Conclusions

The E.U.T was found in compliance with RSS-111 section 5.5 Receiver Spurious Emissions requirements

6.2. Limits of Conducted Emission at Antenna Terminals

The test unit shall meet the limits of Table 34 for RSS-111 section 5.5.

Table 5: Limits for Receiver Spurious Emission as per RSS-111 section 5.5

Frequency Range (MHz)	Maximum ERP (nW)	Maximum ERP (dBm)	Measurement Bandwidth, (min) (kHz)
30 – 1000	2	-57	4
1000 - 15000	5	-53	4

6.3. Test Instrumentation and Equipment

Table 6: Test Instrumentation and Equipment

Item	Model	Manufacturer	Next Date Calibration
Spectrum Analyzer	E7405A	Agilent	11.05.2012
10db attenuator	771-20	Narda	15.05.2012
10db attenuator	771-20	Narda	15.05.2012
10db attenuator	771-20	Narda	15.05.2012
Splitter	11667A	Agilent	22.10.2012

6.4. Test Procedure

As per 47 CFR, Section 2.1051, and 90.210(m); TIA/EIA-C, Section 2.2.13

The EUT was started and set in receive mode. Sufficient time for stabilization was allowed.

Measurements were done for top, middle and bottom frequencies, for each channel BW 5, 10, and 20 MHz using Spectrum Analyzer.

The test set up is shown in Figure 5 below.

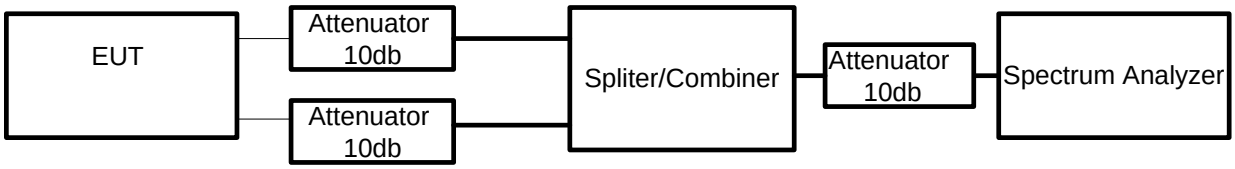


Figure 2: Test Setup for Receiver Spurious Emission Measurements

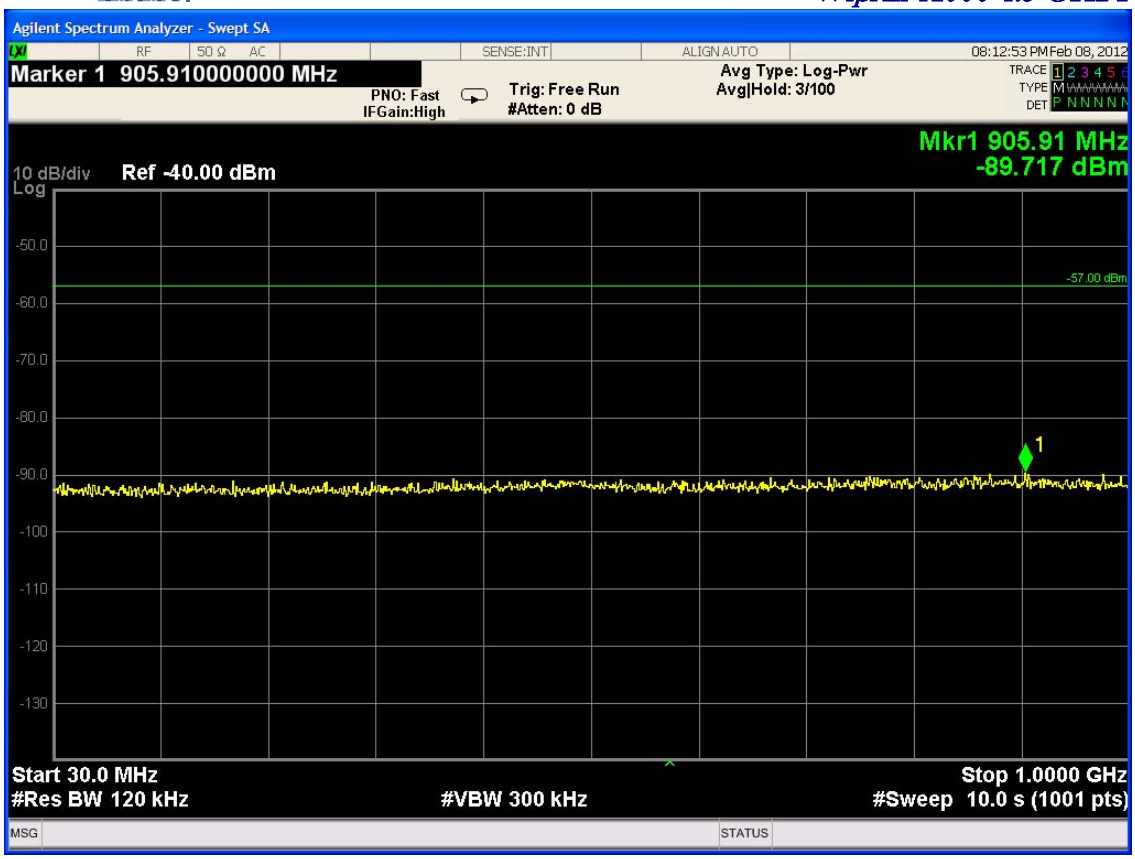
6.5. Test Results

Table 7: Port A Test Results

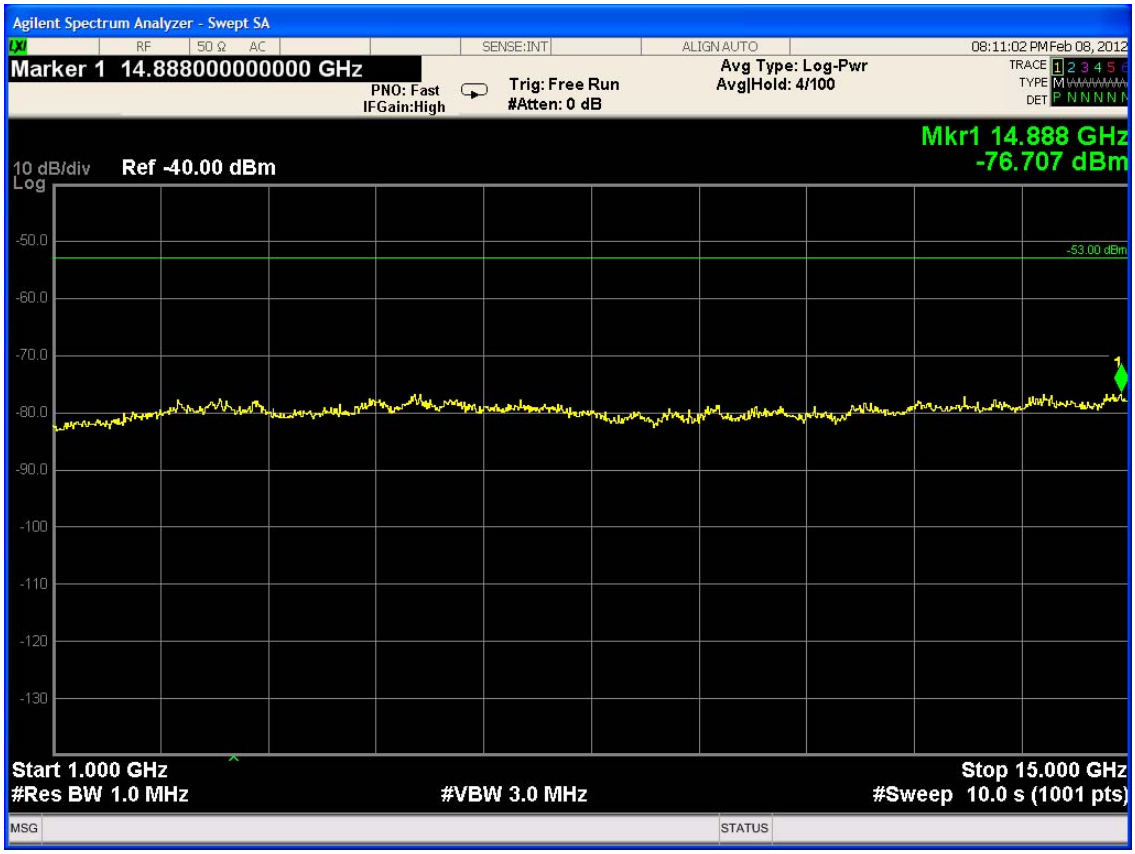
Frequency Range (MHz)	Spurious Emission (dBm)	Margin (dB)	Plot Reference	Pass/ Fail
30 - 1000	No emissions noted	-	*1*	Pass
1000 - 15000	No emissions noted	-	*2*	Pass

Table 8: Port B Test Results

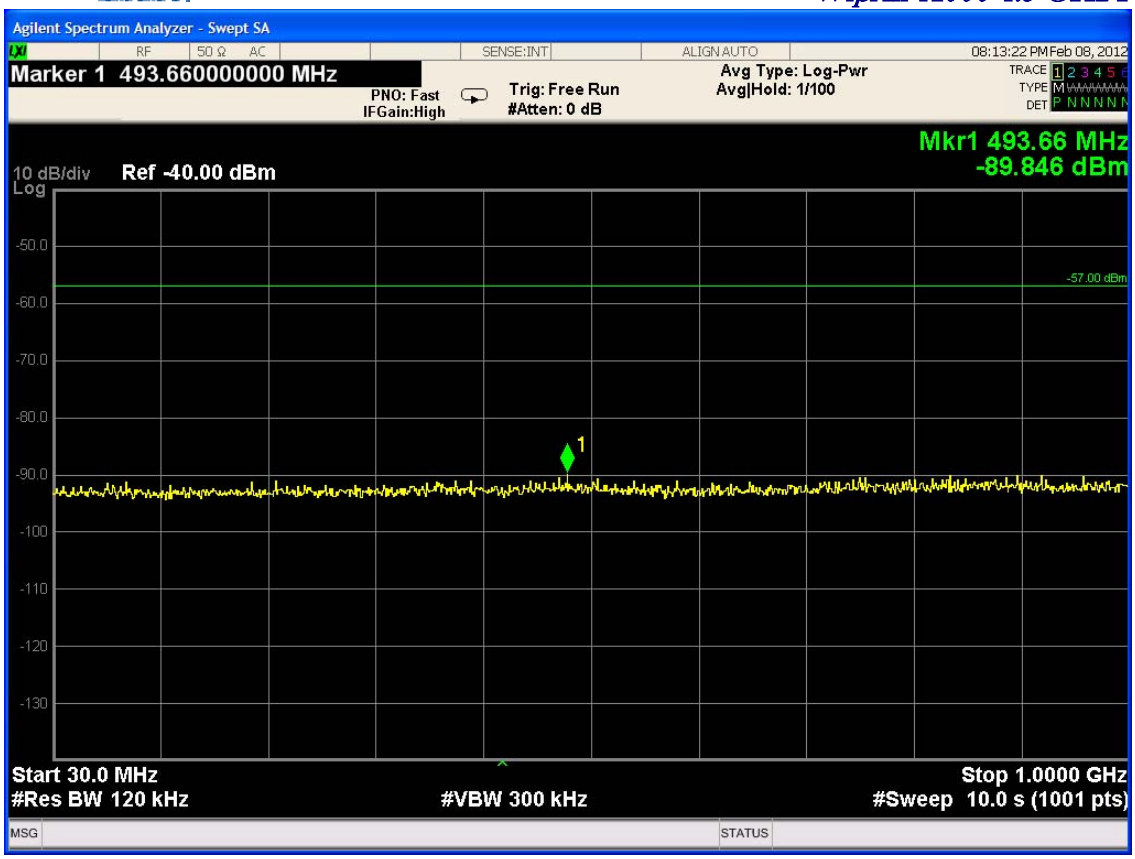
Frequency Range (MHz)	Spurious Emission (dBm)	Margin (dB)	Plot Reference	Pass/ Fail
30 - 1000	No emissions noted	-	*3*	Pass
1000 - 15000	No emissions noted	-	*4*	Pass



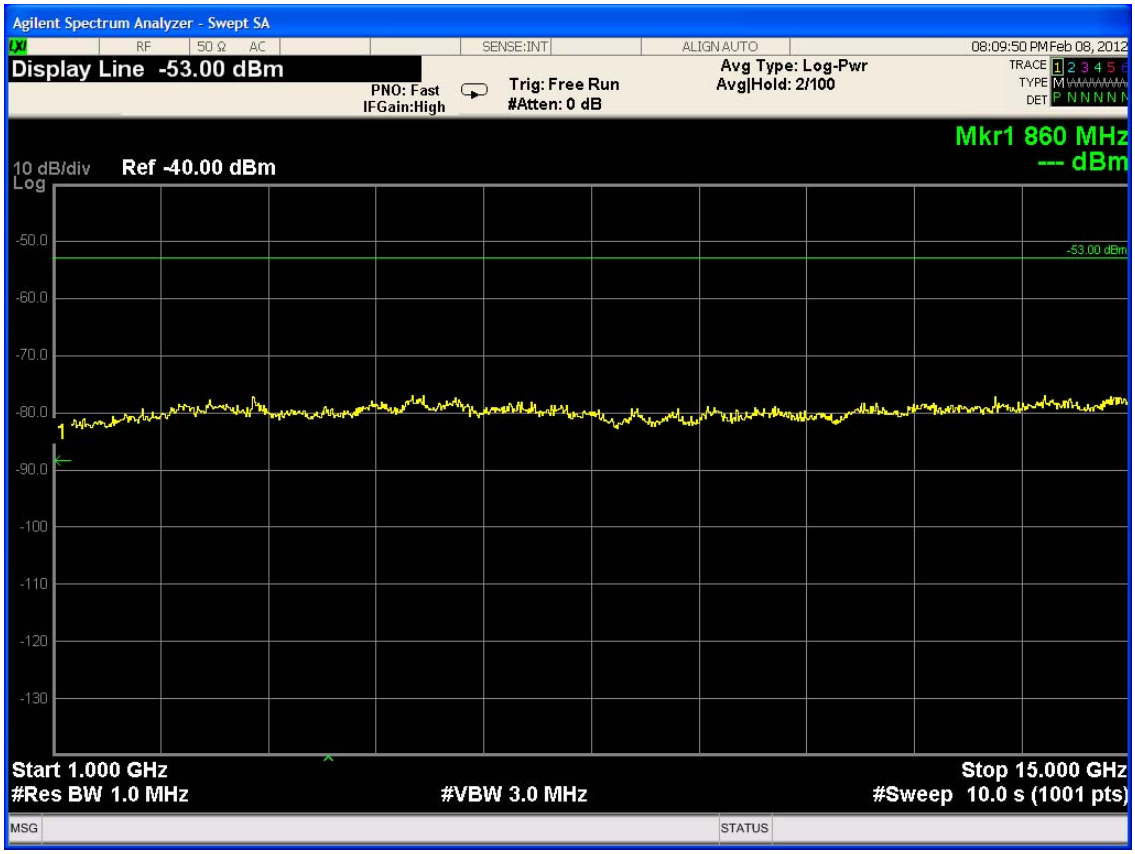
Plot Receiver Spurious Emission for Port A/ 1



Plot Receiver Spurious Emission for Port A/ 2



Plot Receiver Spurious Emission for Port B/ 3



Plot Receiver Spurious Emission for Port B/ 4

7. FREQUENCY STABILITY TEST

Equipment Under Test	WipAir X 000-4.9 GHz
Test Method	FCC sections 90.213, RSS-111 section 5.2
Date	07.06.2012
Relative Humidity	40%
Ambient Temperature	25^0 C
Air Pressure	1010 hPa
Test Setup	Figure 6

Testing Engineer: I. Arbitman **Date** 07.06.2012

7.1. Test Results Summary & Conclusions

The E.U.T was found in compliance with the Frequency Stability Test.

7.2. Limits of Frequency Stability Test

The test shall meet the limits of Table 61

Table 9: Frequency Stability Limits

Assigned Frequency (MHz)	Maximum Allowed Frequency Displacement	
	ppm	Hz
4940 - 4990	NA	NA

7.3. Test Procedure

As per 47 CFR, Section 2.1055 TIA/EIA-603-C, Section 2.2.2

The test setup is shown in Figure 6 below.

The EUR was turned off. The temperature within the test chamber was set to +30˚C and sufficient time for stabilization was allowed.

The EUT was powered on and the carrier frequency was measured at the start up and every minute until frequency had stabilized or 10 minutes elapsed whichever was more. The EUT was then shut off.

This procedure was repeated at 0˚C and the lowest test temperature.

The EUT was turned on carrier frequency was measured at start up and end of stabilization at the rest of test temperatures and voltages. The EUT was then shut off.

Frequency displacement was calculated.

Figure 3: Frequency Stability Test Setup

Table 10: Frequency Stability Test Results

Test conditions		Nominal Frequency MHz	Channel BW	Measured Frequency MHZ	Frequency Variation KHZ	Frequency Variation PPM
Test Temp C°)	Test Voltage					
-30	Vnominal-(120V)	4943	5	4943.014022	14.022	2.84
-30	Vnominal-(120V)	4963	5	4963.018022	18.022	3.63
-30	Vnominal-(120V)	4987	5	4987.018213	18.213	3.65
-30	Vnominal-(120V)	4945	10	4945.015454	15.454	3.13
-30	Vnominal-(120V)	4963	10	4963.017958	17.958	3.62
-30	Vnominal-(120V)	4985	10	4985.012945	12.945	2.60
-30	Vnominal-(120V)	4950	20	4950.018366	18.366	3.71
-30	Vnominal-(120V)	4963	20	4963.016045	16.045	3.23
-30	Vnominal-(120V)	4980	20	4980.009285	9.285	1.86
-20	Vnominal-(120V)	4943	5	4943.018098	18.098	3.66
-20	Vnominal-(120V)	4963	5	4963.012658	12.658	2.55
-20	Vnominal-(120V)	4987	5	4987.013825	13.825	2.77
-20	Vnominal-(120V)	4945	10	4945.016255	16.255	3.29
-20	Vnominal-(120V)	4963	10	4963.008799	8.799	1.77
-20	Vnominal-(120V)	4985	10	4985.006984	6.984	1.40
-20	Vnominal-(120V)	4950	20	4950.011897	11.897	2.40
-20	Vnominal-(120V)	4963	20	4963.012107	12.107	2.44
-20	Vnominal-(120V)	4980	20	4980.007605	7.605	1.53
-10	Vnominal-(120V)	4943	5	4943.003611	3.611	0.73
-10	Vnominal-(120V)	4963	5	4963.005755	5.755	1.16
-10	Vnominal-(120V)	4987	5	4987.000122	0.122	0.02
-10	Vnominal-(120V)	4945	10	4945.000979	0.979	0.20
-10	Vnominal-(120V)	4963	10	4963.002609	2.609	0.53
-10	Vnominal-(120V)	4985	10	4985.002667	2.667	0.54
-10	Vnominal-(120V)	4950	20	4950.001026	1.026	0.21
-10	Vnominal-(120V)	4963	20	4963.001137	1.137	0.23
-10	Vnominal-(120V)	4980	20	4979.994075	-5.925	-1.19
0	Vnominal-(120V)	4943	5	4942.99727	-2.73	-0.55
0	Vnominal-(120V)	4963	5	4962.992978	-7.022	-1.41
0	Vnominal-(120V)	4987	5	4986.992567	-7.433	-1.49
0	Vnominal-(120V)	4945	10	4944.99098	-9.02	-1.82
0	Vnominal-(120V)	4963	10	4962.989383	-10.617	-2.14
0	Vnominal-(120V)	4985	10	4984.985397	-14.603	-2.93
0	Vnominal-(120V)	4950	20	4949.990456	-9.544	-1.93
0	Vnominal-(120V)	4963	20	4962.987473	-12.527	-2.52
0	Vnominal-(120V)	4980	20	4979.985689	-14.311	-2.87
10	Vnominal-(120V)	4943	5	4942.984818	-15.182	-3.07
10	Vnominal-(120V)	4963	5	4962.978948	-21.052	-4.24
10	Vnominal-(120V)	4987	5	4986.973455	-26.545	-5.32
10	Vnominal-(120V)	4945	10	4944.975257	-24.743	-5.00
10	Vnominal-(120V)	4963	10	4962.973258	-26.742	-5.39
10	Vnominal-(120V)	4985	10	4984.974985	-25.015	-5.02
10	Vnominal-(120V)	4950	20	4949.974498	-25.502	-5.15
10	Vnominal-(120V)	4963	20	4962.970025	-29.975	-6.04
10	Vnominal-(120V)	4980	20	4979.967183	-32.817	-6.59
20	Vnominal-(120V)	4943	5	4942.96686	-33.14	-6.70

20	Vnominal-(120V)	4963	5	4962.96596	-34.04	-6.86
20	Vnominal-(120V)	4987	5	4986.964483	-35.517	-7.12
20	Vnominal-(120V)	4945	10	4944.966848	-33.152	-6.70
20	Vnominal-(120V)	4963	10	4962.963561	-36.439	-7.34
20	Vnominal-(120V)	4985	10	4984.963405	-36.595	-7.34
20	Vnominal-(120V)	4950	20	4949.966516	-33.484	-6.76
20	Vnominal-(120V)	4963	20	4962.963972	-36.028	-7.26
20	Vnominal-(120V)	4980	20	4979.962759	-37.241	-7.48
20	Vmin- (102V)	4980	20	4980.036577	36.577	7.34
20	Vmax- (138V)	4980	20	4980.037726	37.726	7.58
30	Vnominal-(120V)	4943	5	4942.963387	-36.613	-7.41
30	Vnominal-(120V)	4963	5	4962.964124	-35.876	-7.23
30	Vnominal-(120V)	4987	5	4986.958673	-41.327	-8.29
30	Vnominal-(120V)	4945	10	4944.960391	-39.609	-8.01
30	Vnominal-(120V)	4963	10	4962.957363	-42.637	-8.59
30	Vnominal-(120V)	4985	10	4984.955797	-44.203	-8.87
30	Vnominal-(120V)	4950	20	4949.960851	-39.149	-7.91
30	Vnominal-(120V)	4963	20	4962.957853	-42.147	-8.49
30	Vnominal-(120V)	4980	20	4979.955092	-44.908	-9.02
40	Vnominal-(120V)	4943	5	4942.959661	-40.339	-8.16
40	Vnominal-(120V)	4963	5	4962.958371	-41.629	-8.39
40	Vnominal-(120V)	4987	5	4986.95985	-40.15	-8.05
40	Vnominal-(120V)	4945	10	4944.959851	-40.149	-8.12
40	Vnominal-(120V)	4963	10	4962.958963	-41.037	-8.27
40	Vnominal-(120V)	4985	10	4984.958517	-41.483	-8.32
40	Vnominal-(120V)	4950	20	4949.966613	-33.387	-6.74
40	Vnominal-(120V)	4963	20	4962.963579	-36.421	-7.34
40	Vnominal-(120V)	4980	20	4979.963441	-36.559	-7.34
50	Vnominal-(120V)	4943	5	4942.966051	-33.949	-6.87
50	Vnominal-(120V)	4963	5	4962.964173	-35.827	-7.22
50	Vnominal-(120V)	4987	5	4986.967487	-32.513	-6.52
50	Vnominal-(120V)	4945	10	4944.971826	-28.174	-5.70
50	Vnominal-(120V)	4963	10	4962.970301	-29.699	-5.98
50	Vnominal-(120V)	4985	10	4984.972478	-27.522	-5.52
50	Vnominal-(120V)	4950	20	4949.978419	-21.581	-4.36
50	Vnominal-(120V)	4963	20	4962.975878	-24.122	-4.86
50	Vnominal-(120V)	4980	20	4979.973486	-26.514	-5.32

Photograph for Frequency Stability Test Setup/ 1

Photograph for Frequency Stability Test Setup/ 2

8. PEAK EXCURSION RATIO TEST

Equipment Under Test	WipAir X 000-4.9 GHz
Test Method	FCC sections 90.1215 (e)
Date	07.06.2012
Relative Humidity	40%
Ambient Temperature	25^0 C
Air Pressure	1010 hPa
Test Setup	

Testing Engineer: I. Arbitman **Date** 07.06.2012

8.1. Test Results Summary & Conclusions

The E.U.T was found in compliance with the Peak Excursion Ratio Test.

8.2. Limits of Peak Excursion Ratio Test

The peak excursion of the modulation envelope to the peak transmit power shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

8.3. Test Results

Table 11: 5 MHz BW Test Results for Port A

Frequency (MHz)	Measured Ratio (dB)	Limit of the ratio (dB)	Plot
4943	10.843	13.0	*1*
4963	7.758	13.0	*2*
4987	7.628	13.0	*3*

Table 12: 5 MHz BW Test Results for Port B

Frequency (MHz)	Measured Ratio (dB)	Limit of the ratio (dB)	Plot
4943	7.502	13.0	*4*
4963	8.003	13.0	*5*
4987	10.749	13.0	*6*

Table 13: 10 MHz BW Test Results for Port A

Frequency (MHz)	Measured Ratio (dB)	Limit of the ratio (dB)	Plot
4945	8.808	13.0	*7*
4963	10.136	13.0	*8*
4985	6.463	13.0	*9*

Table 14: 10 MHz BW Test Results for Port B

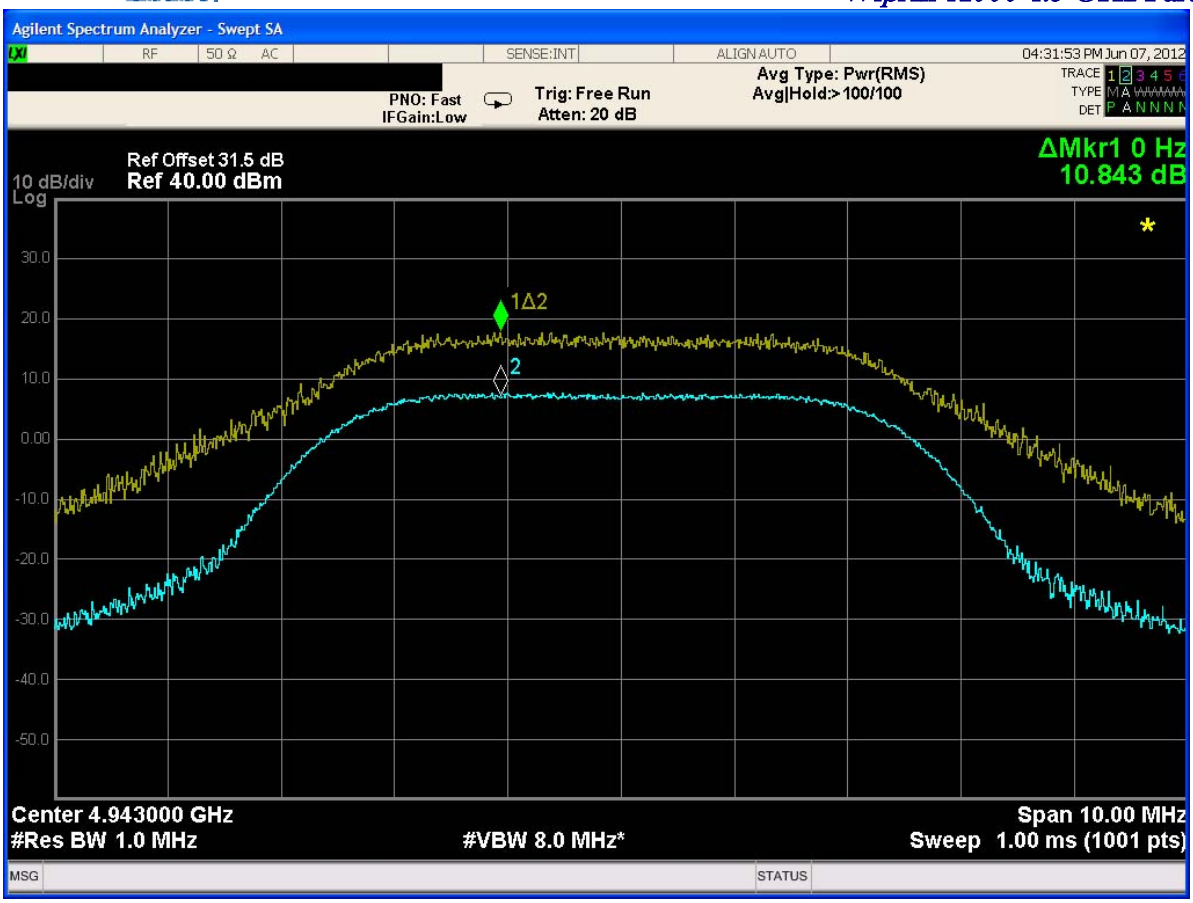
Frequency (MHz)	Measured Ratio (dB)	Limit of the ratio (dB)	Plot
4945	7.866	13.0	*10*
4963	7.791	13.0	*11*
4985	7.636	13.0	*12*

Table 15: 20 MHz BW Test Results for Port A

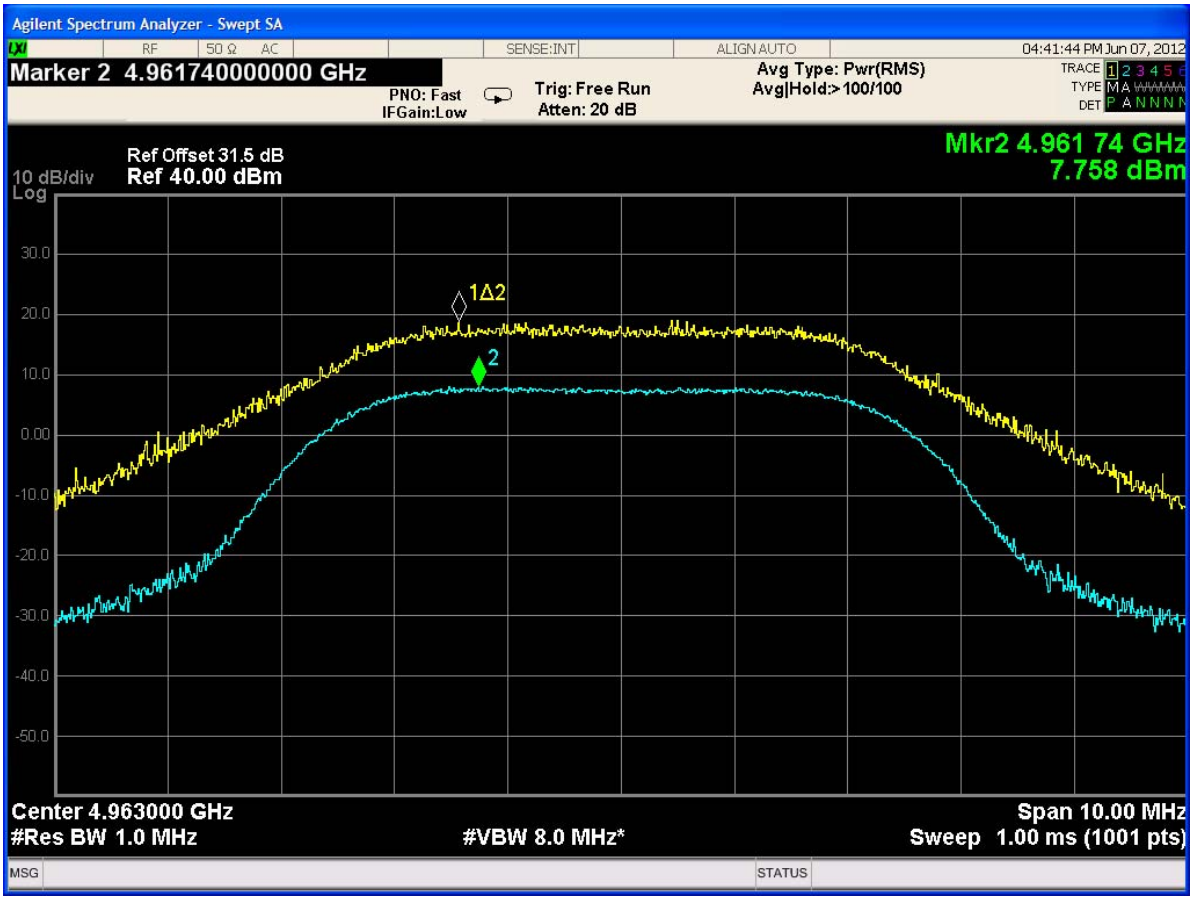
Frequency (MHz)	Measured Ratio (dB)	Limit of the ratio (dB)	Plot
4945	8.011	13.0	*13*
4963	6.108	13.0	*14*
4985	6.177	13.0	*15*

Table 16: 20 MHz BW Test Results for Port B

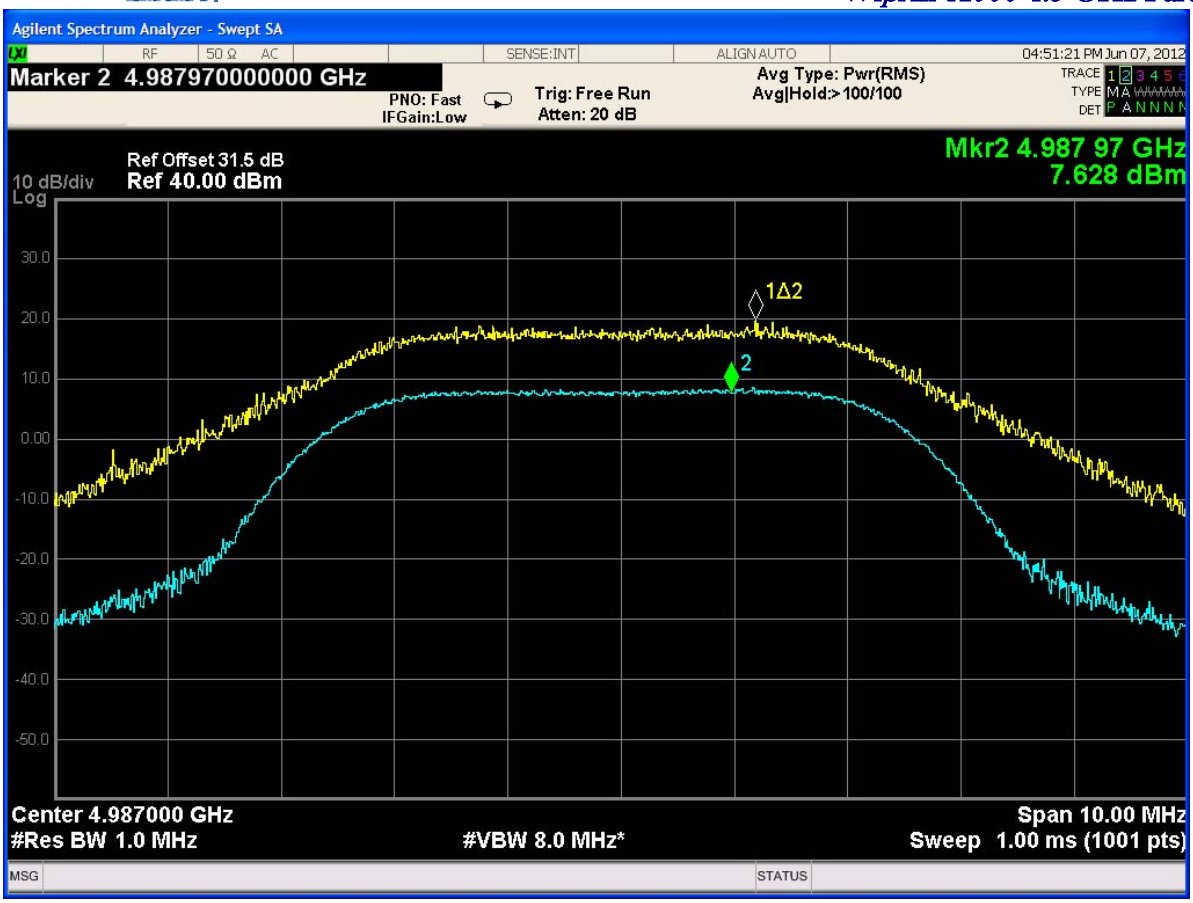
Frequency (MHz)	Measured Ratio (dB)	Limit of the ratio (dB)	Plot
4945	6.005	13.0	*16*
4963	7.332	13.0	*17*
4985	7.219	13.0	*18*



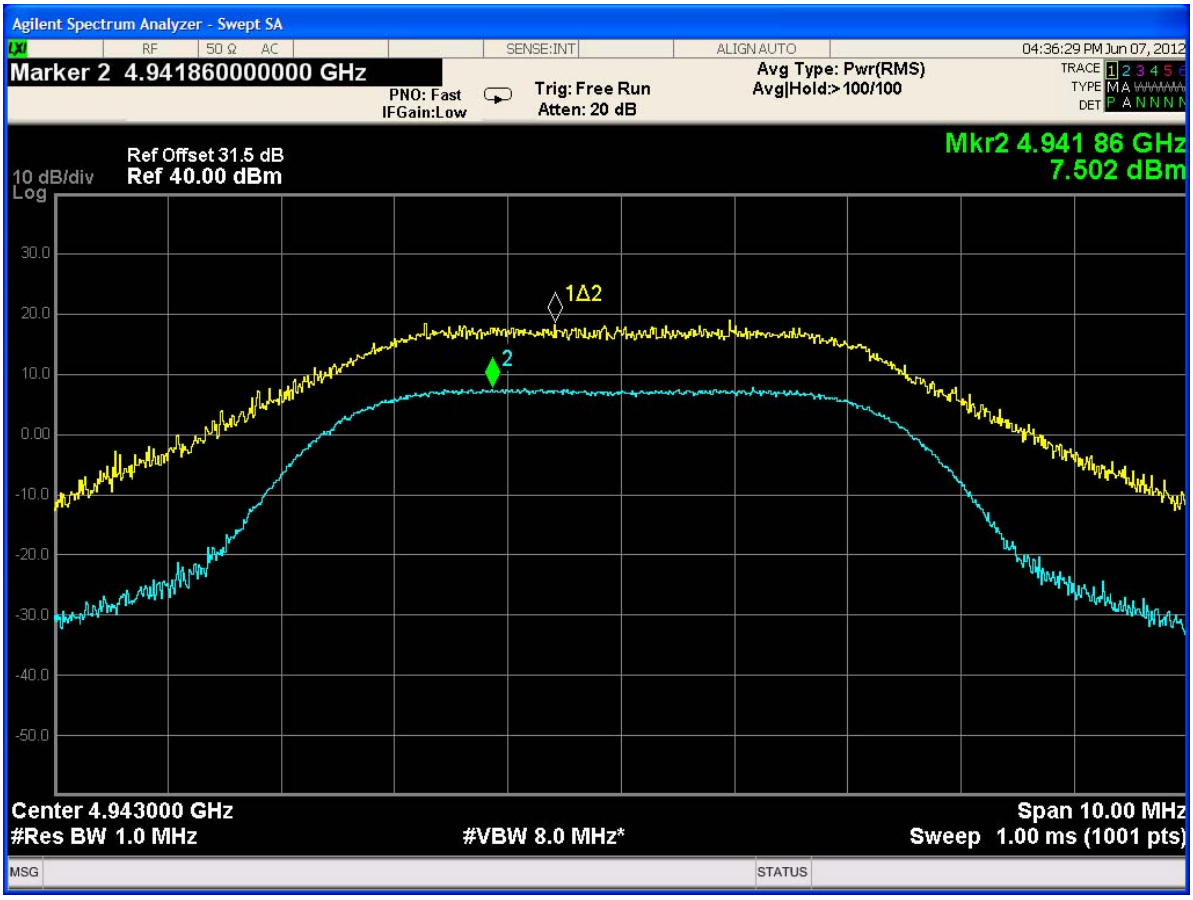
Plot Peak Excursion Ratio for 5 MHz/ 1



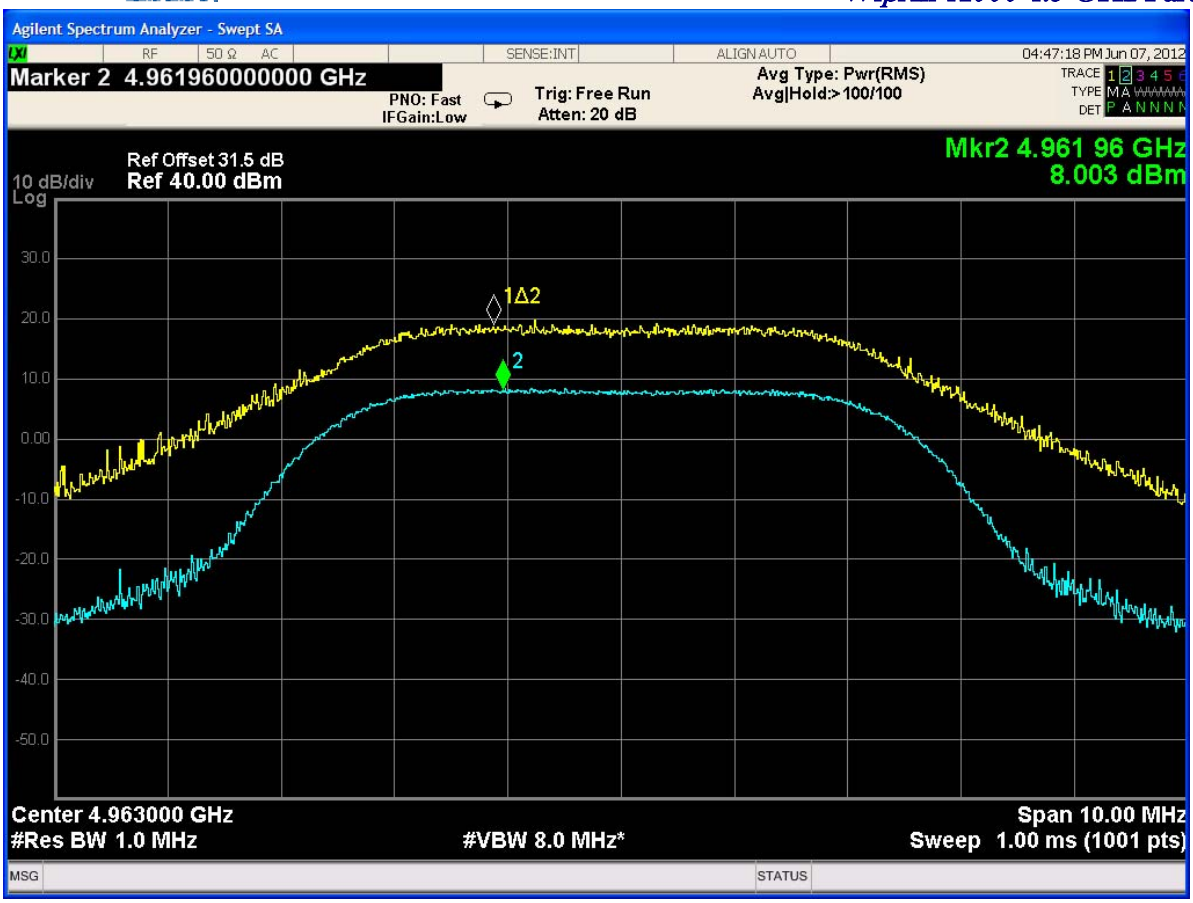
Plot Peak Excursion Ratio for 5 MHz/ 2



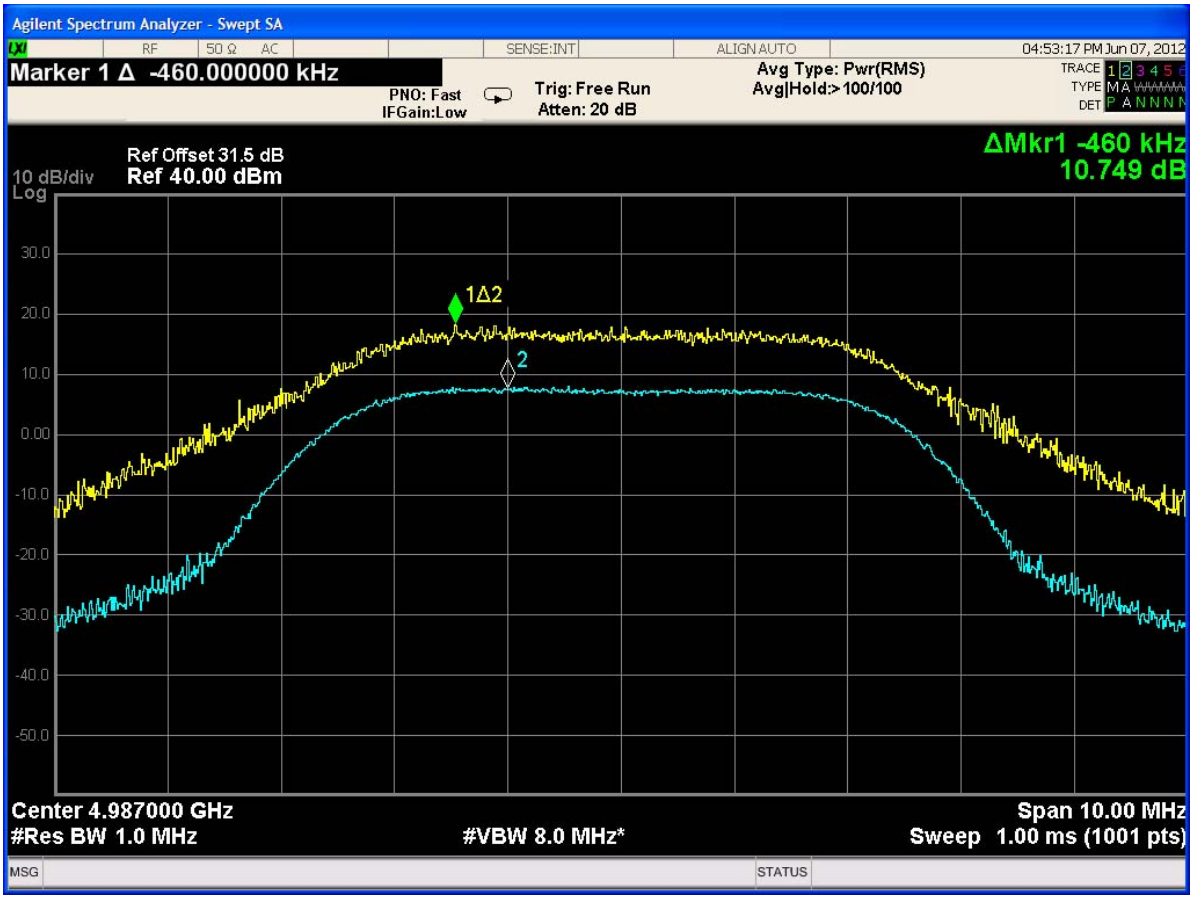
Plot Peak Excursion Ratio for 5 MHz/ 3



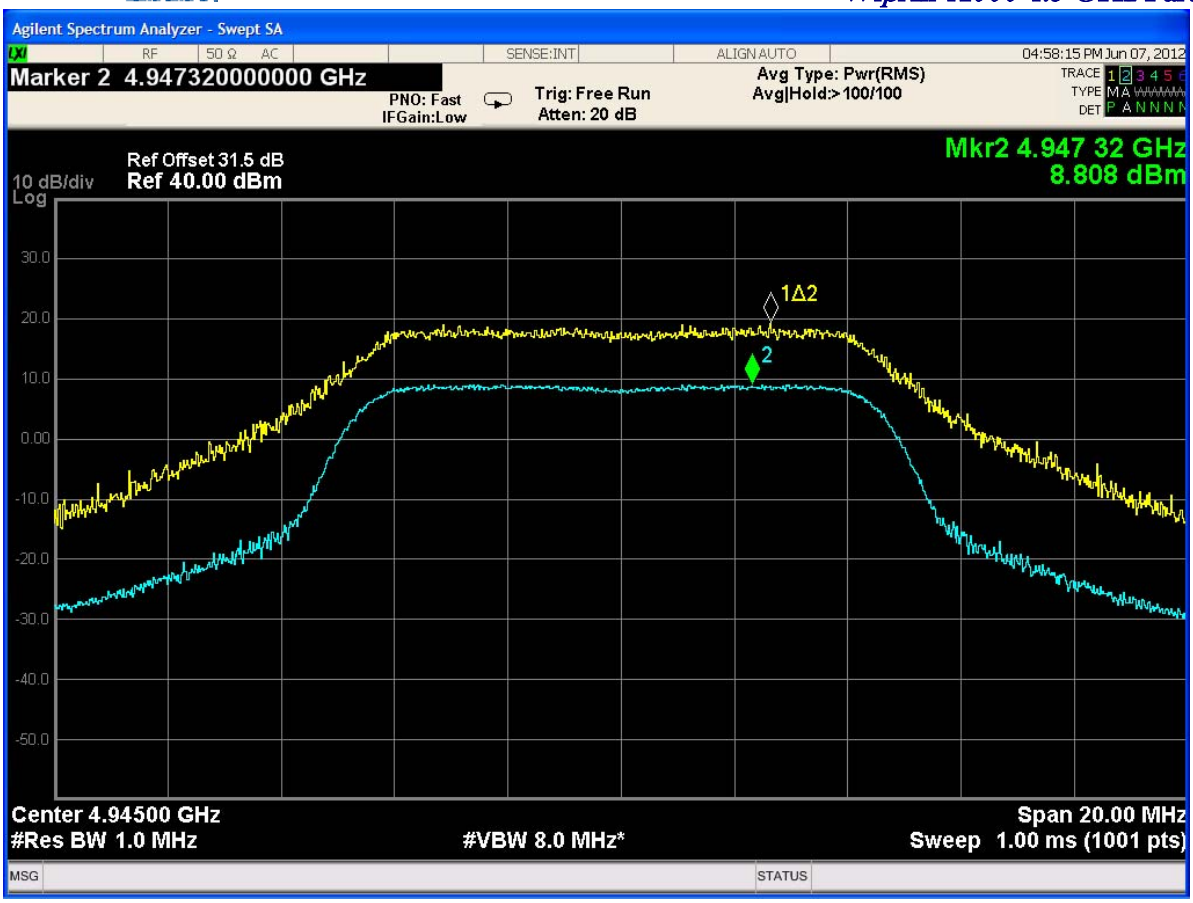
Plot Peak Excursion Ratio for 5 MHz/ 4



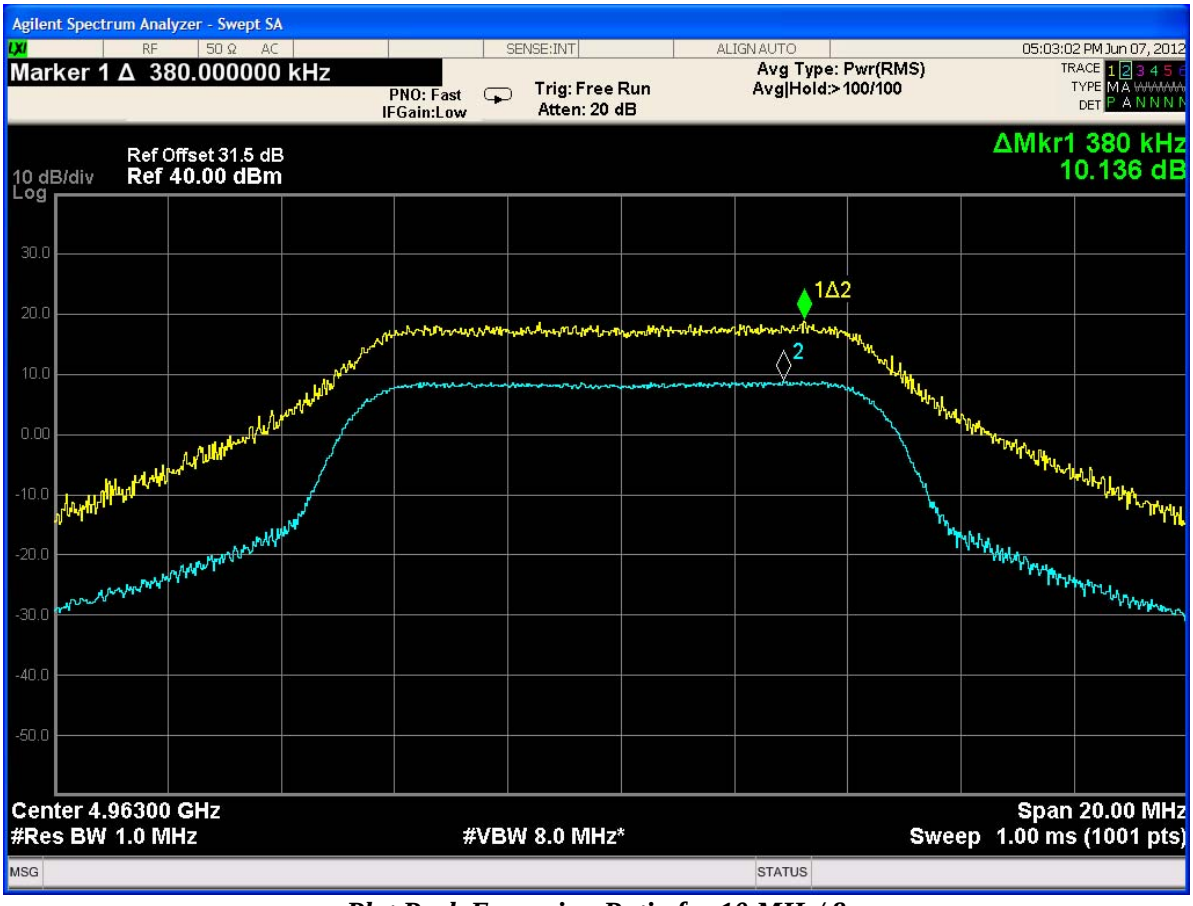
Plot Peak Excursion Ratio for 5 MHz/ 5



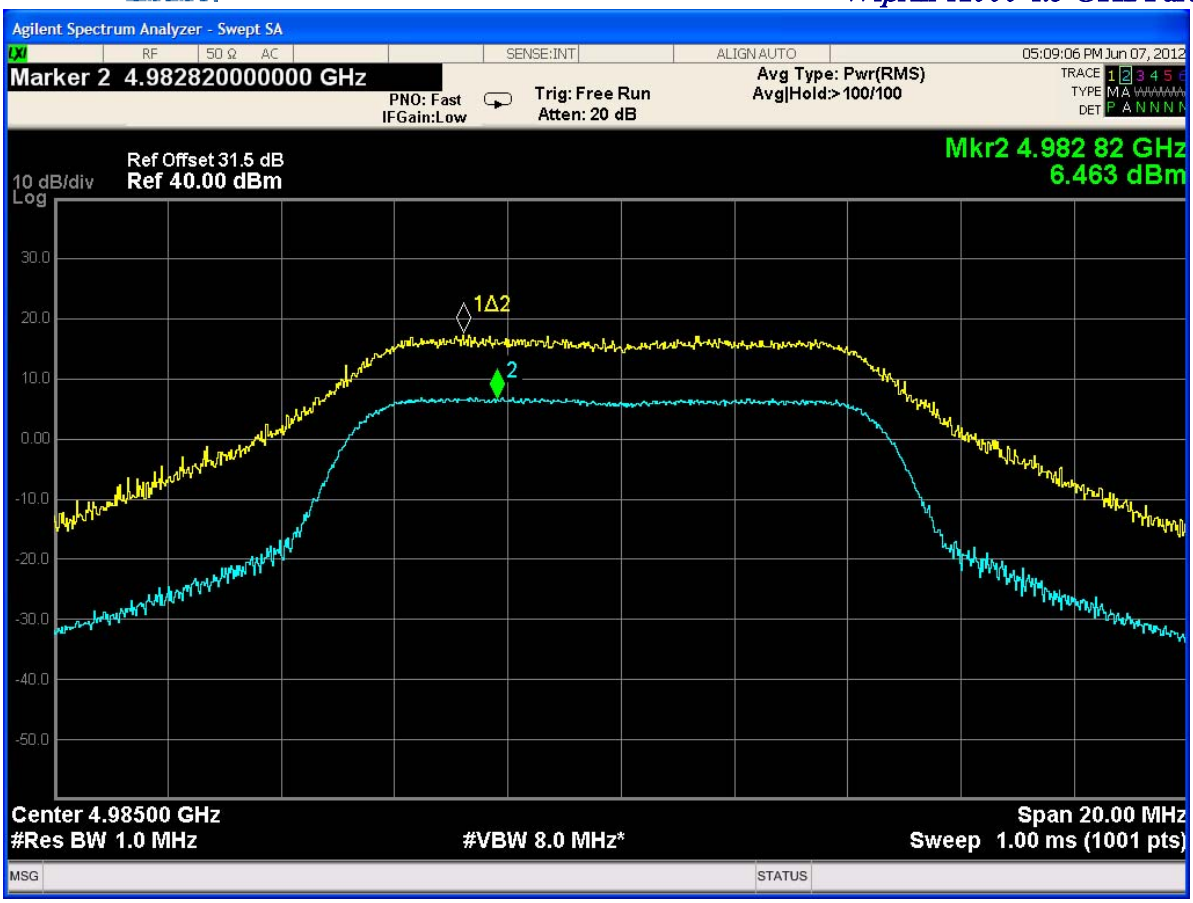
Plot Peak Excursion Ratio for 5 MHz/ 6



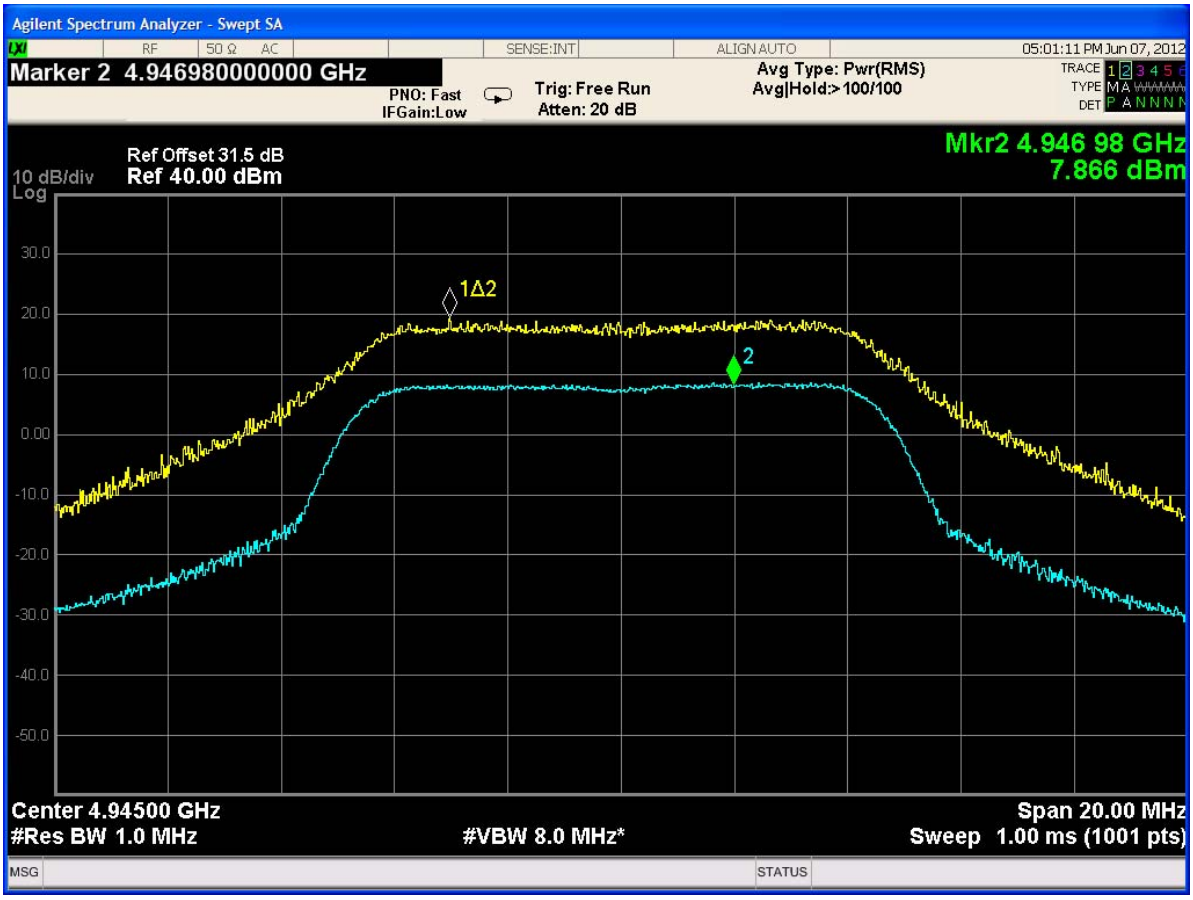
Plot Peak Excursion Ratio for 10 MHz/ 7



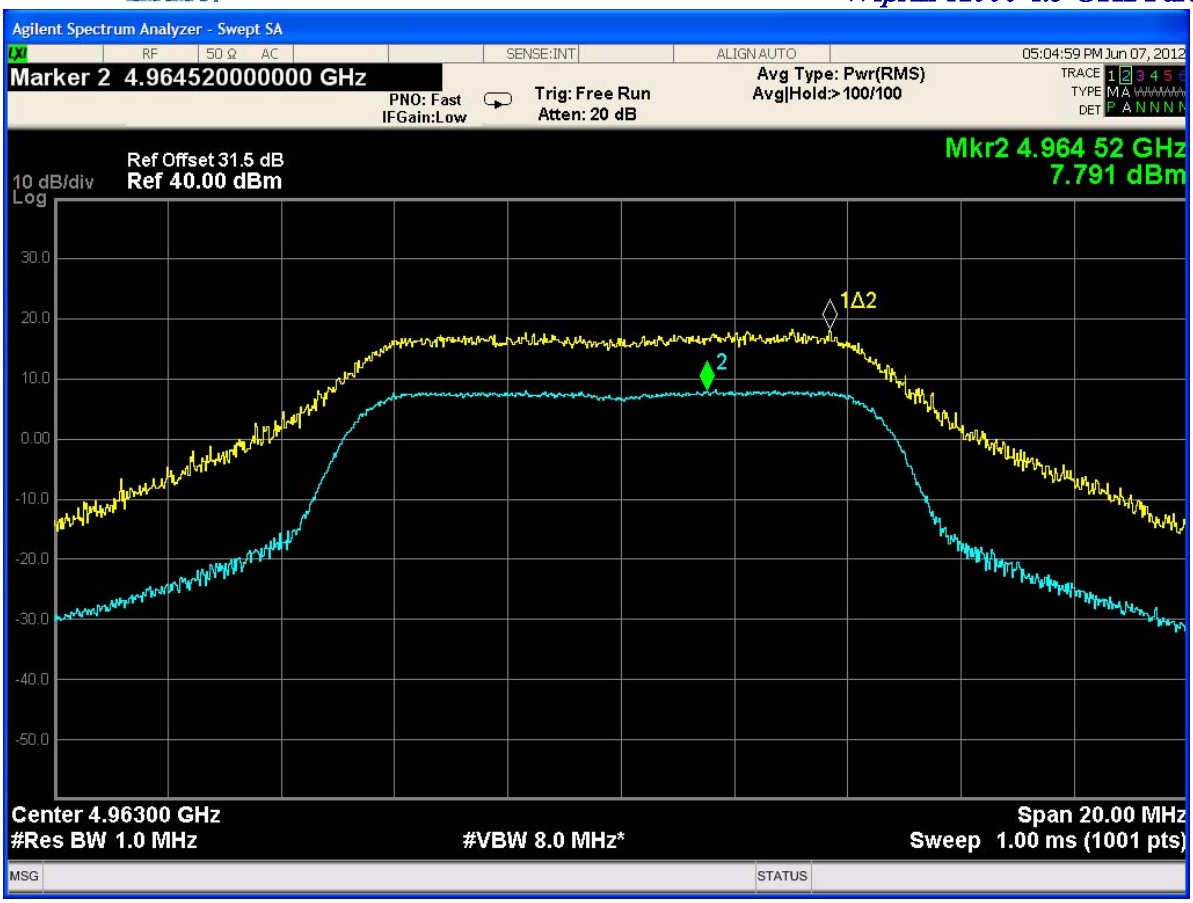
Plot Peak Excursion Ratio for 10 MHz/ 8



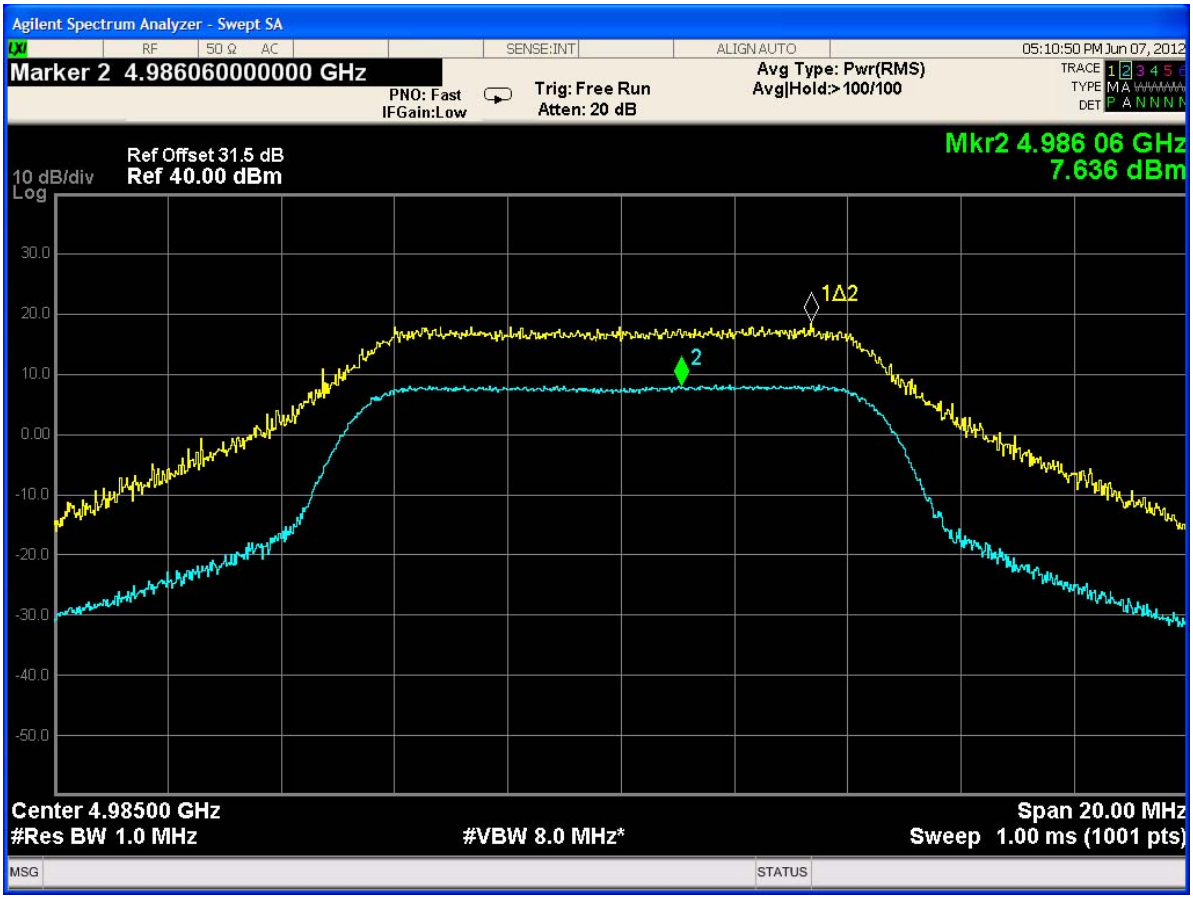
Plot Peak Excursion Ratio for 10 MHz/ 9



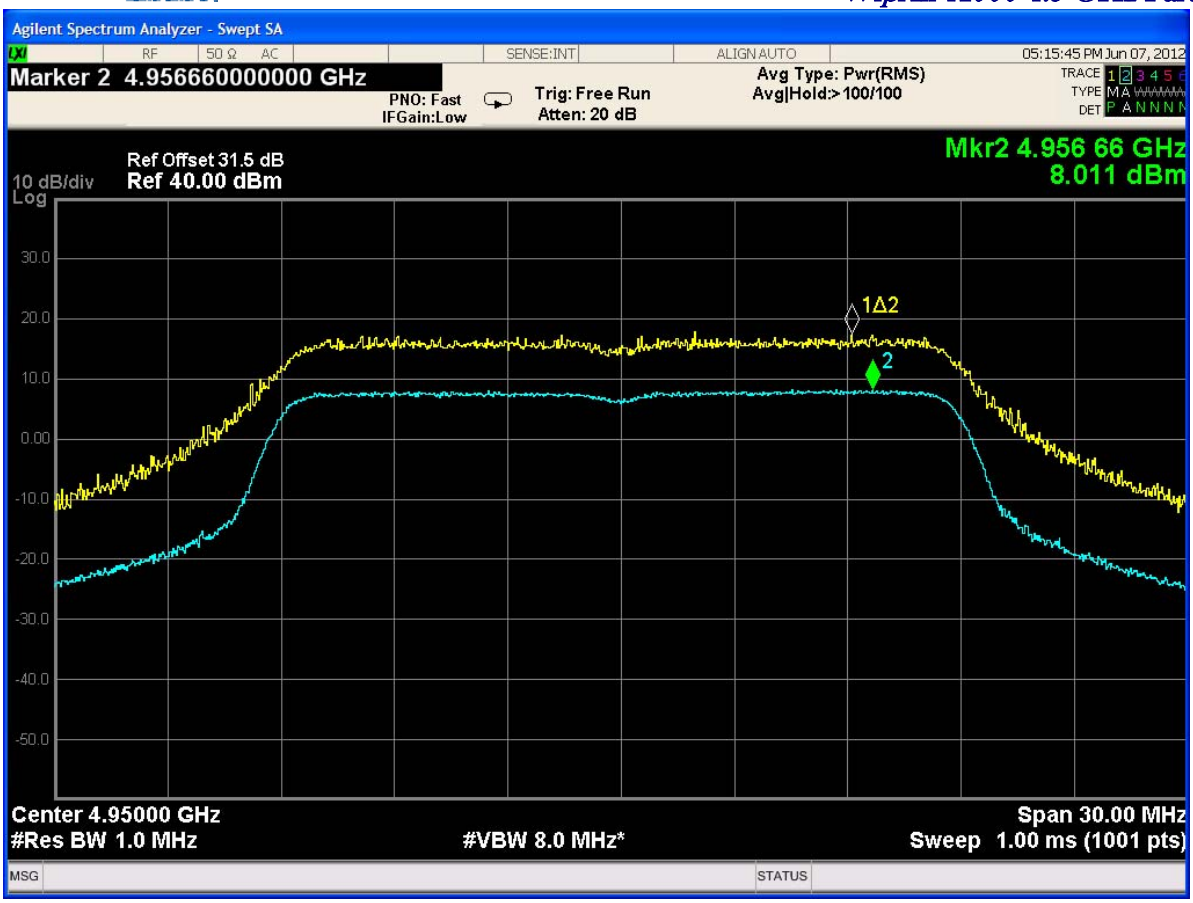
Plot Peak Excursion Ratio for 10 MHz/ 10



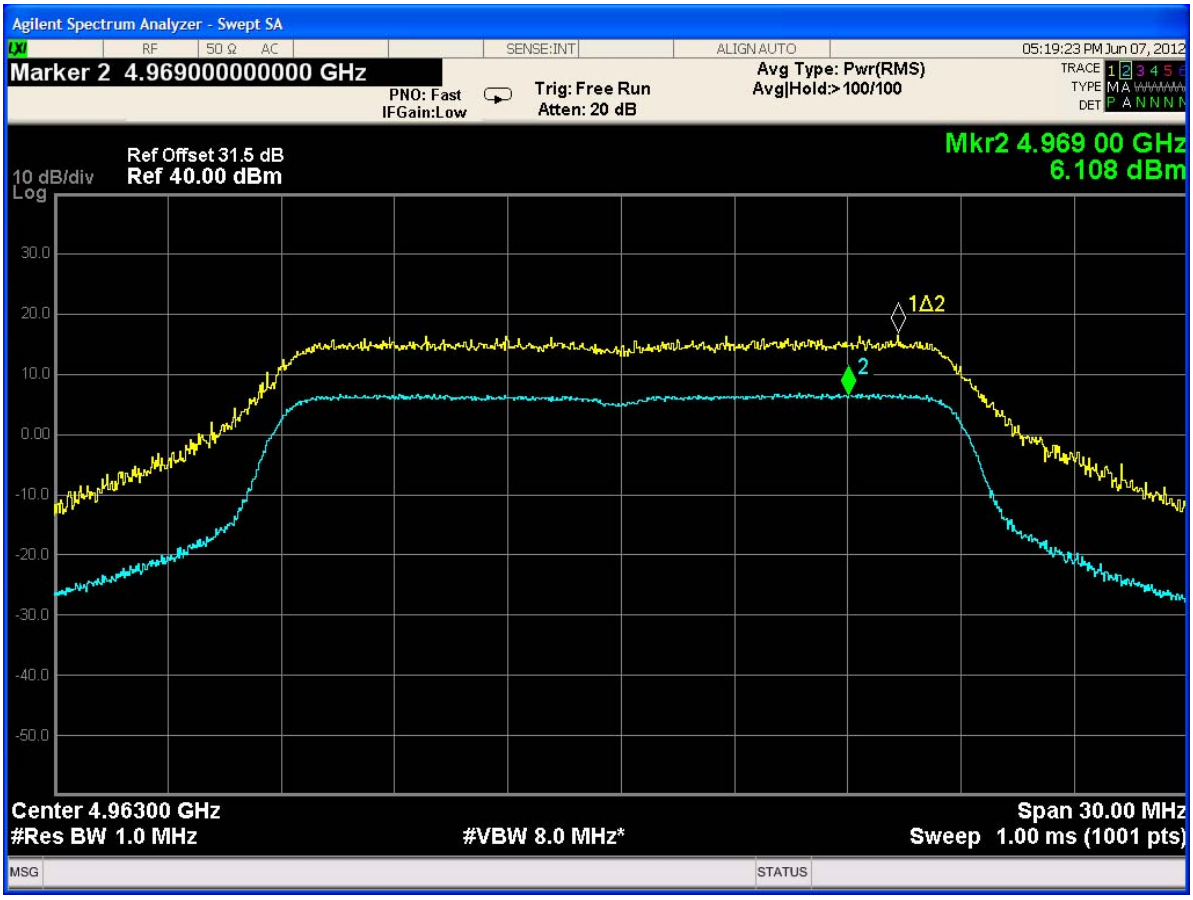
Plot Peak Excursion Ratio for 10 MHz/ 11



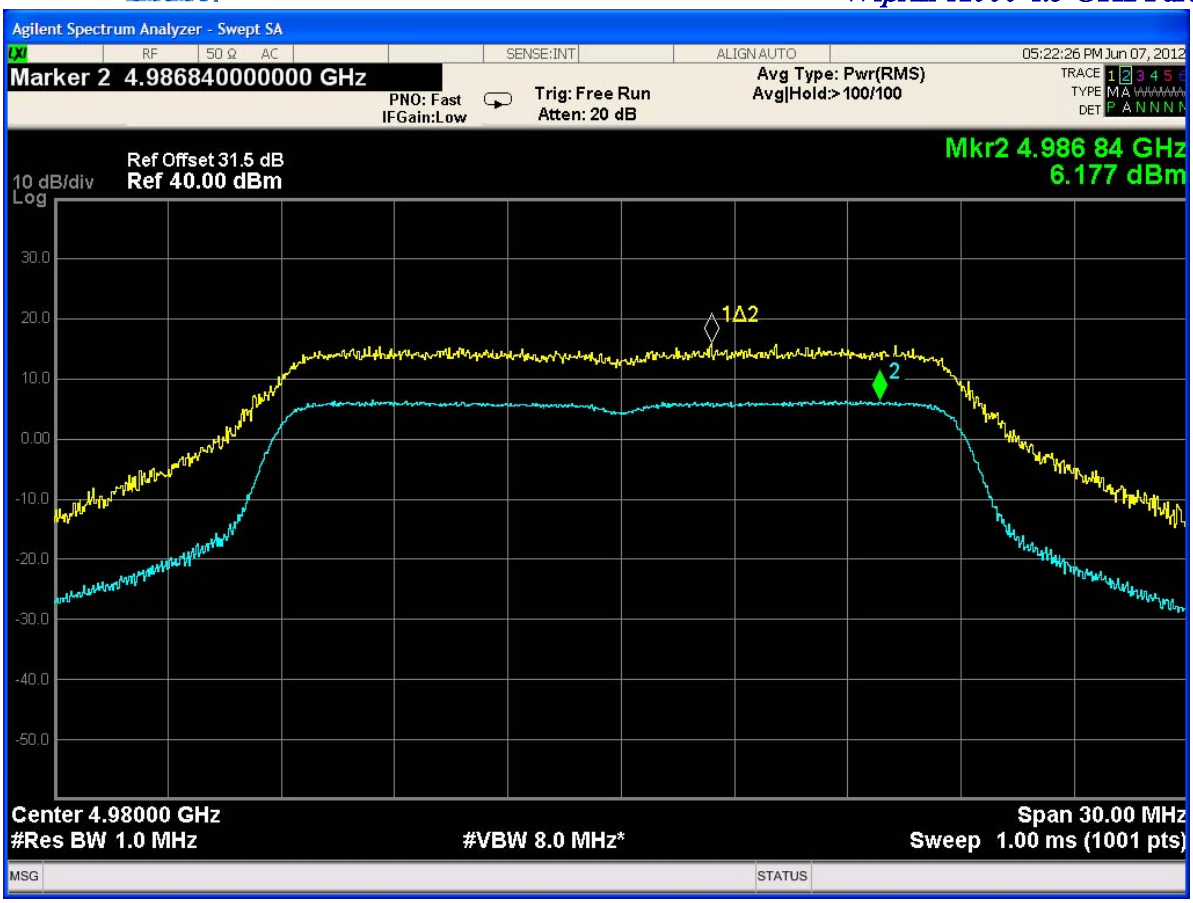
Plot Peak Excursion Ratio for 10 MHz/ 12



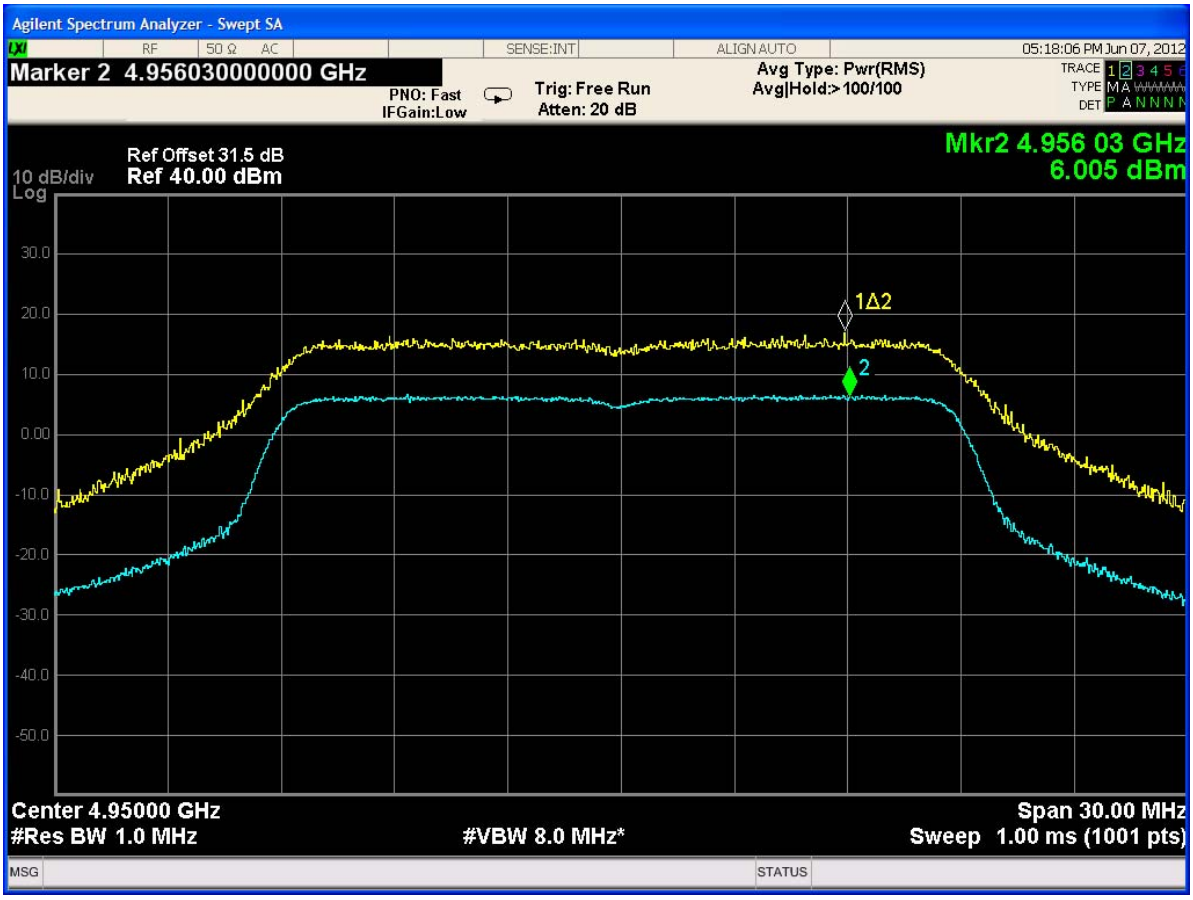
Plot Peak Excursion Ratio for 20 MHz/ 13



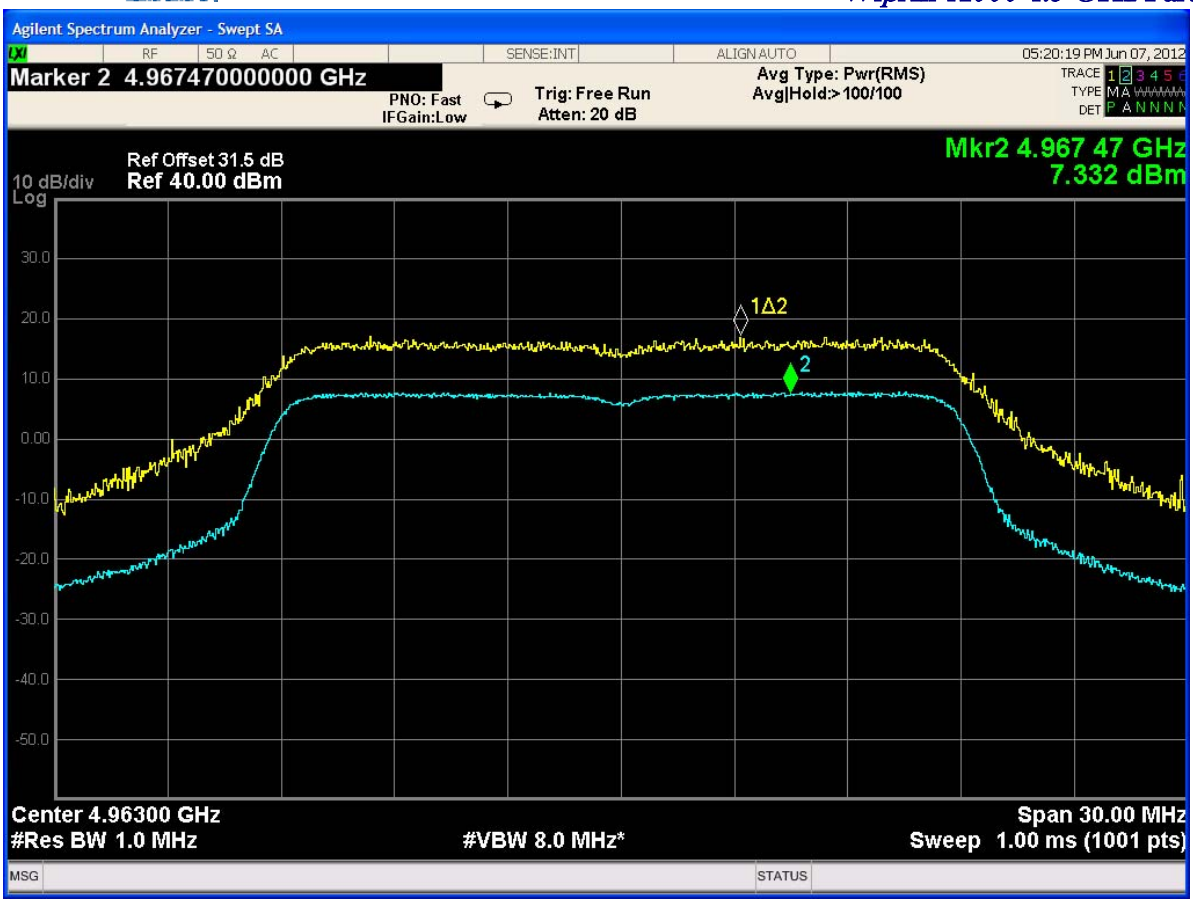
Plot Peak Excursion Ratio for 20 MHz/ 14



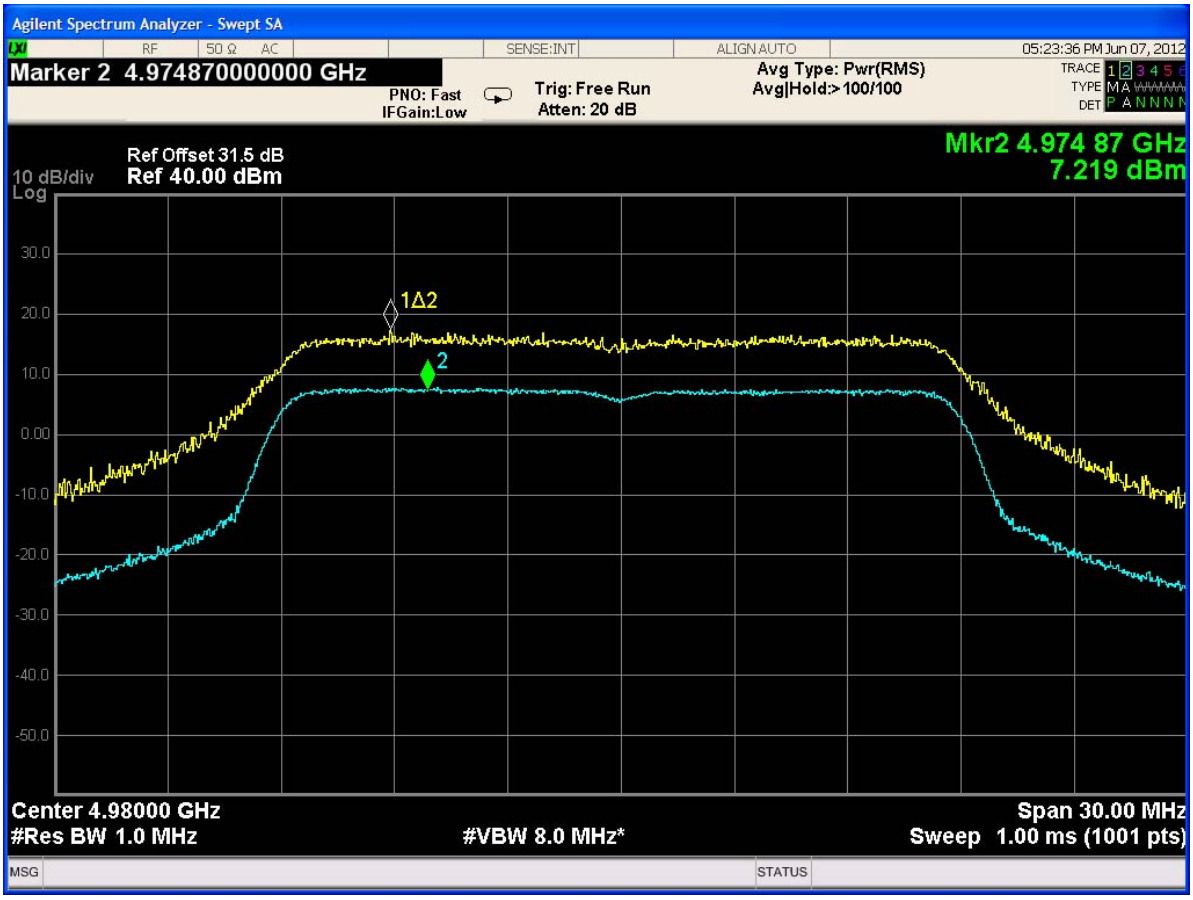
Plot Peak Excursion Ratio for 20 MHz/ 15



Plot Peak Excursion Ratio for 20 MHz/ 16



Plot Peak Excursion Ratio for 20 MHz/ 17



Plot Peak Excursion Ratio for 20 MHz/ 18