FCC RF Test Report

Product Name: cdma2000 Digital Mobile Phone; Evolution III

Product Model: HUAWEI CM990, CM990

Report Number: SYBH(Z-RF)015072013-2002

FCC ID: QISCM990

Reliability Laboratory of Huawei Technologies Co., Ltd.

Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

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Notice

1. The laboratory has Passed the accreditation by China National Accreditation Service for Conformity Assessment (CNAS). The accreditation number is L0310.

2. The laboratory has Passed the accreditation by The American Association for Laboratory Accreditation (A2LA). The accreditation number is 2174.01.

3. The laboratory has been listed by the US Federal Communications Commission to perform electromagnetic emission measurements. The site recognition number is 97456.

4. The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 6369A-1 and 6369A-3.

5. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.

6. The test report is invalid if there is any evidence of erasure and/or falsification.

7. The test report is only valid for the test samples.

8. Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

Applicant:	Huawei Technologies Co., Ltd.
Address:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

Date of Receipt Sample:	2013-07-18
Start Date of Test:	2013-07-18
End Date of Test:	2013-07-24

Test Result: Pass

Approved by Senior Engineer:	2013-07-25	Dai Linjun	
	Date	Name	Signature

Prepared by:	2013-07-25	Zhu Mingjing	
	Date	Name	Signature

Modification Record

No.	Last Report No.	Modification Description
1		First Report

CONTENT

1 General Information

1.1 Applied Standard

Applied Rules:	47 CFR FCC Part 2, Subpart J 2012 47 CFR FCC Part 15, Subpart C 2012
Test Method:	FCC KDB 558074 D01 DTS Meas Guidance v03r01 ANSI C63.10-2009, American National Standard for Testing Unlicensed Wireless Devices.

1.2 Test Location

Test Location 1:	Reliability Laboratory of Huawei Technologies Co., Ltd.
Address:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

1.3 Test Environment Condition

Ambient Temperature:	19.5to 25 °C
Ambient Relative Humidity:	40 to 55 %
Atmospheric Pressure:	Not applicable

2 Test Summary

Test Item	FCC Part No.	Requirements	Test Result	Verdict (NOTE 2)
DTS (6 dB) Bandwidth	15.247(a)(2)	≥ 500 kHz.	Appendix A	Pass
Maximum Peak Conducted Output Power	15.247(b)(3)	For directional gain: < 30 dBm – (G[dBi] – 6 [dB]), peak; Otherwise: < 30 dBm, peak.	Appendix B	Pass
Maximum Power Spectral Density Level	15.247(e)	For directional gain: < 8 dBm/3 kHz – (G[dBi] – 6 [dB]), peak. Otherwise: < 8 dBm/3 kHz, peak.	Appendix C	Pass
Band Edges Compliance	15.247(d)	< -20 dBr/100 kHz if total peak power ≤ power limit.	Appendix D	Pass
Unwanted Emissions into Non-Restricted Frequency Bands			Appendix E	Pass
Unwanted Emissions into Restricted Frequency Bands (Radiated)	15.247(d) 15.209 (NOTE 1)	FCC Part 15.209 field strength limit;	Appendix F	Pass
AC Power Line Conducted Emissions	15.207	FCC Part 15.207 conducted limit;	Appendix G	Pass
NOTE 1: According to KDB 558074, antenna-port conducted measurements are acceptable as an alternative to radiated measurements for demonstrating compliance to the limits in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case emissions will also be required.				

3 Description of the Equipment under Test (EUT)

3.1 General Description

cdma2000 Digital Mobile Phone- HUAWEI CM990, CM990 is subscriber equipment in the CDMA/EVDO system. The frequency band is BC0. The Mobile Phone implements such functions as RF signal receiving/transmitting, CDMA2000 1x and 1XEV-DO protocol processing, voice, MMS service, GPS, AGPS and WIFI etc. Externally it provides micro SD card interface, earphone port (to provide voice service). It also provides Bluetooth module to synchronize data between a PC and the phone, or to use the built-in modem of the phone to access the Internet with a PC, or to exchange data with other Bluetooth devices.

Note: Only WIFI test data in this report.

3.2 EUT Identity

NOTE: Unless otherwise noted in the report, the functional boards installed in the units shall be selected from the below list, but not means all the functional boards listed below shall be installed in one unit.

3.2.1 Board

Board		
Description	Hardware Version	Software Version
Main board of Mobile Phone	HC1CM990M	V100R001C32B170

3.2.2 Sub-Assembly

Sub-Assembly			
Sub-Assembly Name	Model	Manufacturer	Description
Adapter	HW-050100U2W	Huawei Technologies Co., Ltd.	Input voltage: ~100-240V 50/60Hz 0.2A Output voltage: 5V ⎓ 550mA Rated Power: 2.75W
Adapter	HW-050100U1W	Huawei Technologies Co., Ltd.	Input voltage: ~100-240V 50/60Hz 0.2A Output voltage:5V ⎓ 550 mA Rated Power: 2.75W
Rechargeable Li-ion	HB4W1	Huawei Technologies Co., Ltd.	Rated capacity: 1700 mAh Nominal Voltage: ⎓ +3.7V Charging Voltage: ⎓ +4.2V

3.3 Technical Description

Characteristics	Description			
IEEE 802.11 WLAN Mode Supported	☒ 802.11b (20 MHz channel bandwidth), ☒ 802.11g (20 MHz channel bandwidth) ☒ 802.11n (20 MHz channel bandwidth), ☐ 802.11n (40 MHz channel bandwidth)			
TX/RX Operating Range	2412-2462 MHz band	fc = 2407 MHz + N * 5 MHz, where: - fc = "Operating Frequency" in MHz, - N = "Channel Number" with the range from 1 to 11 for the 20 MHz channel bandwidth		
Data Rate	802.11b	1 Mbps, 2 Mbps, 5.5 Mbps, 11 Mbps		
	802.11g	6 Mbps, 9 Mbps, 12 Mbps, 18 Mbps, 24 Mbps, 36 Mbps, 48 Mbps, 54 Mbps		
	802.11n (SISO)	MCS 0 to MCS 7		
Modulation Type	DBPSK/DQPSK/CCK (DSSS), BPSK/QPSK/16QAM/64QAM (OFDM).			
Emission Designator	10M6G1D (for 802.11b mode), 16M5G7D (for 802.11g mod), 17M7G7D (for 802.11n mode)			
TX Power Control	☒ Supported, ☐ Not Supported			
Standby Mode	☐ Supported, ☒ Not Supported			
Equipment Type	☐ Stand-alone equipment, ☐ Plug-in radio device, ☒ Combined equipment			
Antenna	Description	Isotropic Antenna		
	Type	☐ External, ☒ Internal		
	Ports	☒ Ant 1, ☐ Ant 2, ☐ Ant 3		
	Smart System	☒ SISO (for 802.11b/g/n), ☐ MIMO (for 802.11n): 2 Tx & 2 Rx, ☐ Diversity (for 802.11b/g) : Tx & Rx		
	Gain	-1.2 dBi (per antenna port, max.)		
	Remark	When the EUT is put into service, the practical maximum antenna gain should NOT exceed the value as described above.		
Power Supply	Type	☒ AC/DC Adapter	☐ PoE:	☐ Other:

4 General Test Conditions / Configurations

4.1 Test Modes

NOTE: Worst cases for each IEEE 802.11 mode are selected to perform tests.

Test Mode	Test Modes Description
11B	IEEE 802.11b with data rate of 11 Mbps using SISO mode.
11G	IEEE 802.11g with data rate of 54 Mbps using SISO mode.
11N20	IEEE 802.11n with data date of MCS7 and bandwidth of 20 MHz using SISO mode.

4.2 EUT Configurations

4.2.1 General Configurations

Configuration	Description
Test Antenna Ports	Until otherwise specified, - All TX tests are performed at all TX antenna ports of the EUT, and - All RX tests are performed at all RX antenna ports of the EUT.
Multiple RF Sources	Other than the tested RF source of the EUT, other RF source(s) are disabled or shutdown during measurements.

4.2.2 Customized Configurations

Test Mode	RF Ch.	Antenna Port	TX Freq. [MHz]	RX Freq. [MHz]	Ch. BW [MHz]	Power Conf., per Port
11B	L	Ant 1	Ch No. 1 / 2412 MHz	---	20	15
11B	M	Ant 1	Ch No. 6 / 2437 MHz	---	20	15
11B	H	Ant 1	Ch No. 11 / 2462 MHz	---	20	15
11G	L	Ant 1	Ch No. 1 / 2412 MHz	---	20	12
11G	M	Ant 1	Ch No. 6 / 2437 MHz	---	20	12
11G	H	Ant 1	Ch No. 11 / 2462 MHz	---	20	12
11N20	L	Ant 1	Ch No. 1 / 2412 MHz	---	20	9
11N20	M	Ant 1	Ch No. 6 / 2437 MHz	---	20	9
11N20	H	Ant 1	Ch No. 11 / 2462 MHz	---	20	9

4.3 Test Environments

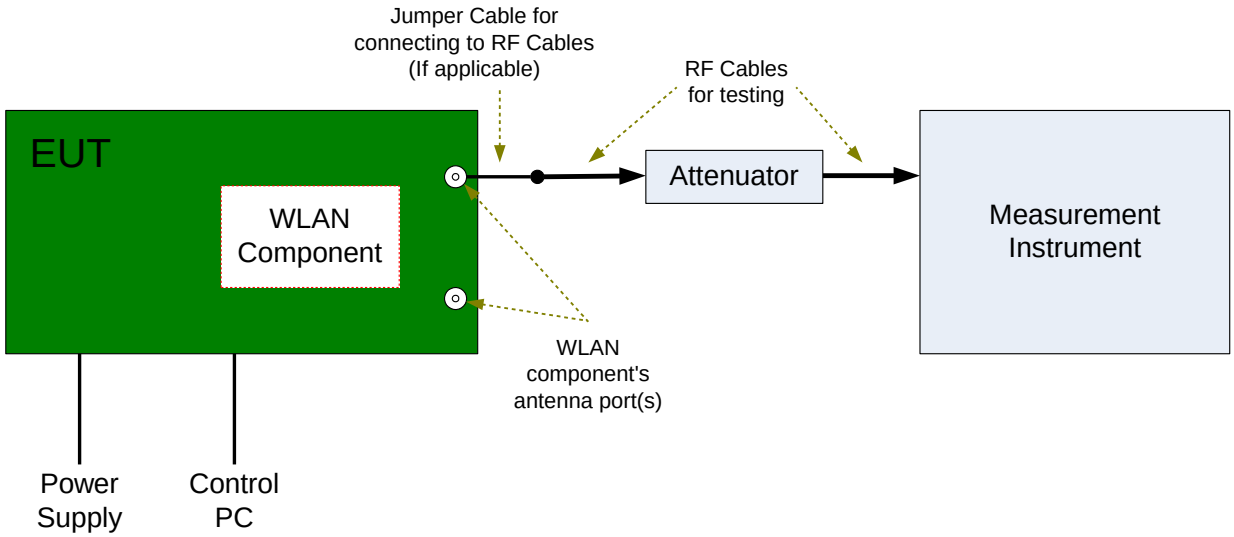
NOTE: The values used in the test report may be stringent than the declared.

Environment Parameter	Selected Values During Tests		
	Temperature	Voltage	Relative Humidity
NTNV	Ambient	3.7 VDC	Ambient

4.4 Test Setups

4.4.1 Test Setup 1

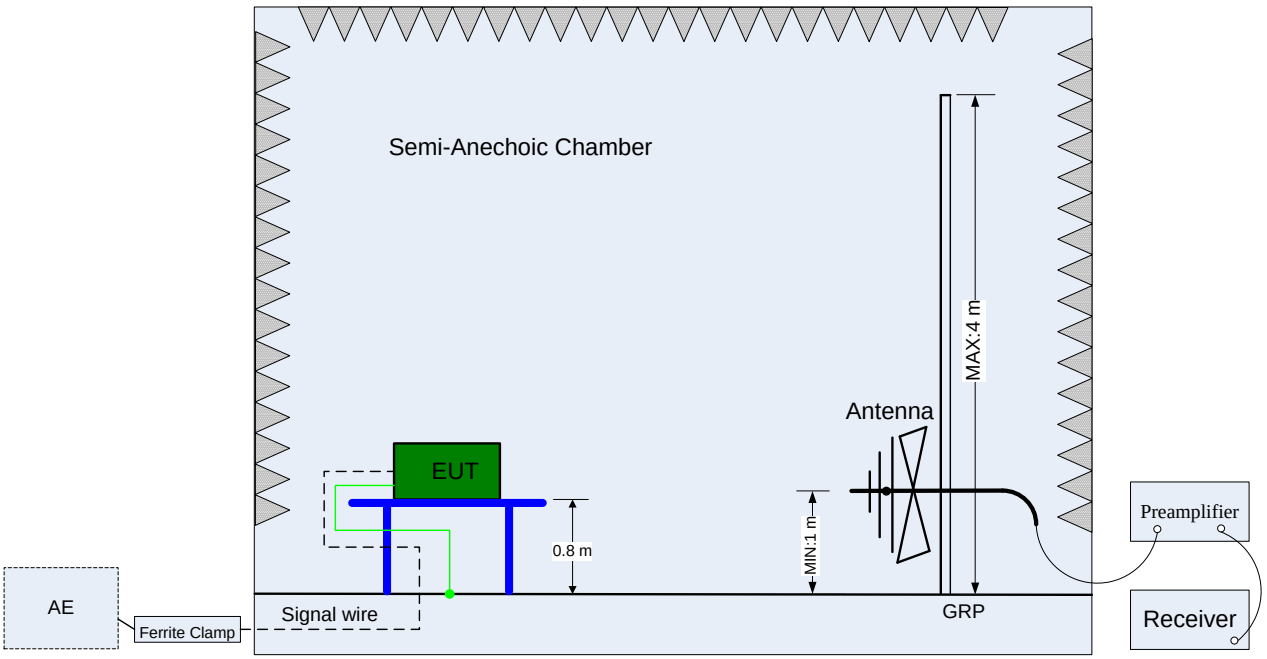
The WLAN component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



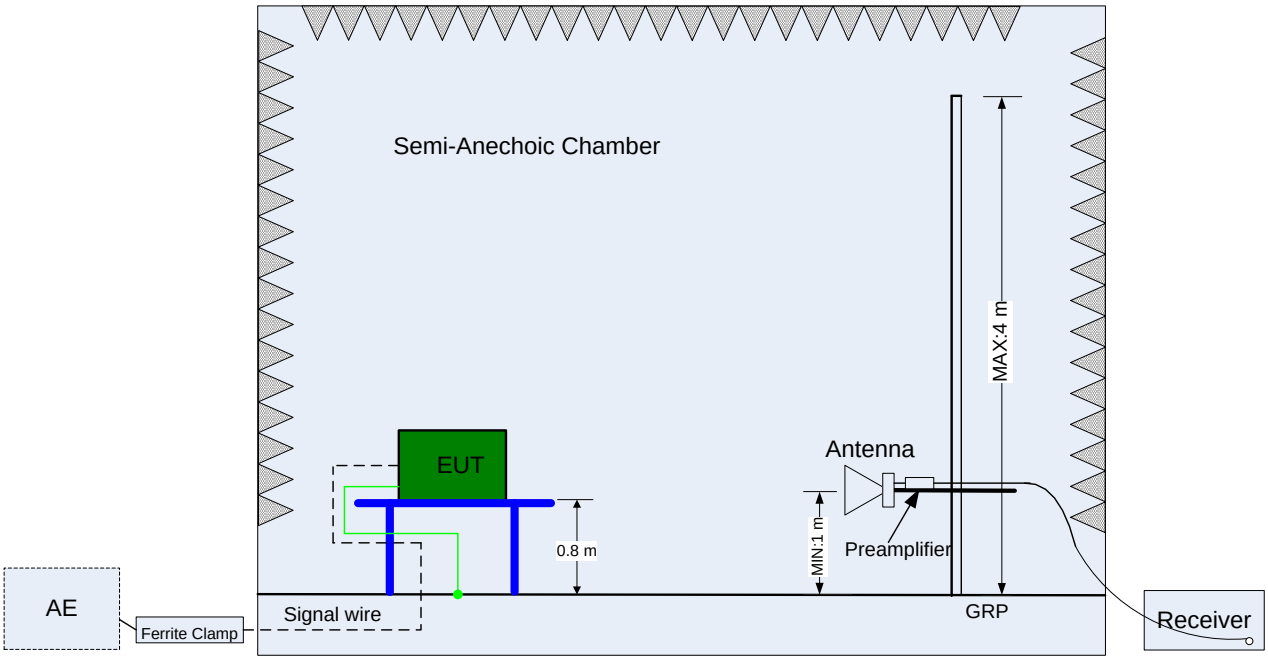
4.4.2 Test Setup 2

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.4. The test distance is 3m.The setup is according to ANSI C63.4 and CAN/CSA-CEI/IEC CISPR 22.

The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).



(Below 1 GHz)

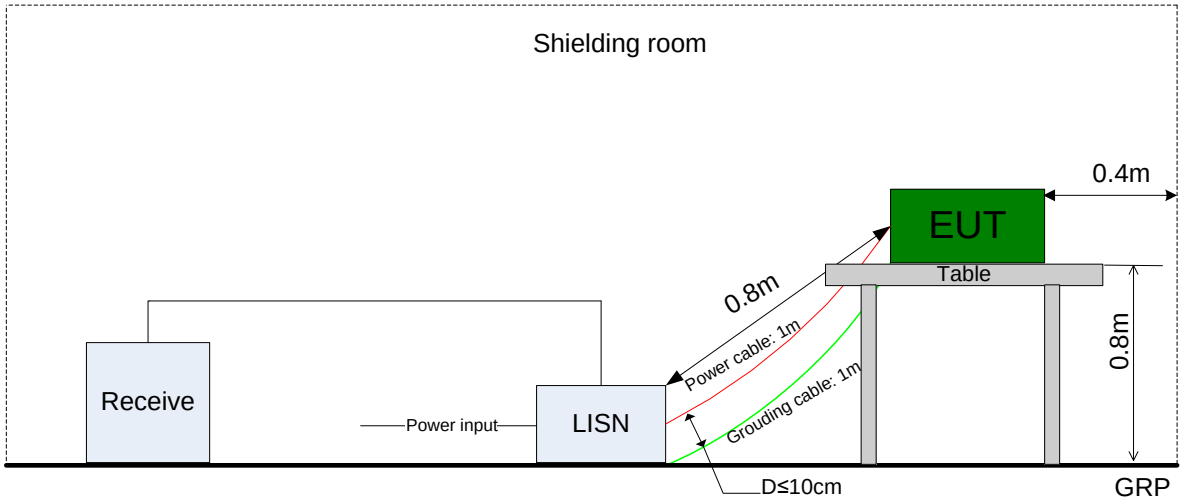


(Above 1 GHz)

4.4.3 Test Setup 3

The mains cable of the EUT (maybe per AC/DC Adapter) must be connected to LISN. The LISN shall be placed 0.8 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8m from the LISN.

Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.1 m.



4.5 Test Conditions

Test Case	Test Conditions	
	Configuration	Description
DTS (6 dB) Bandwidth	Measurement Method	FCC KDB 558074 §8.2 Option 2.
	Test Environment	NTNV
	Test Setup	Test Setup 1
	EUT Configuration	11B_L, 11B_M, 11B_H 11G_L, 11G_M, 11G_H 11N20_L, 11 N20_M, 11 N20_H
Maximum Peak Conducted Output Power	Measurement Method	FCC KDB 558074 §9.1 .2 (integrated band power method).
	Test Environment	NTNV
	Test Setup	Test Setup 1
	EUT Configuration	11B_L, 11B_M, 11B_H 11G_L, 11G_M, 11G_H 11N20_L, 11 N20_M, 11 N20_H
Maximum Power Spectral Density Level	Measurement Method	FCC KDB 558074 §10.2 (peak PSD).
	Test Environment	NTNV
	Test Setup	Test Setup 1
	EUT Configuration	11B_L, 11B_M, 11B_H 11G_L, 11G_M, 11G_H 11N20_L, 11 N20_M, 11 N20_H
Band Edges Compliance	Measurement Method	FCC KDB 558074 §13.0.
	Test Environment	NTNV
	Test Setup	Test Setup 1
	EUT Configuration	11B_L, 11B_H 11G_L, 11G_H 11N20_L, 11 N20_H
Unwanted Emissions into Non-Restricted Frequency Bands	Measurement Method	FCC KDB 558074 §11.0
	Test Environment	NTNV
	Test Setup	Test Setup 1
	EUT Configuration	11B_L, 11B_M, 11B_H 11G_L, 11G_M, 11G_H 11N20_L, 11 N20_M, 11 N20_H
Unwanted Emissions into Restricted Frequency Bands (Radiated)	Measurement Method	ANSI C63.10; FCC KDB 558074 §12.1, Radiated
	Test Environment	NTNV
	Test Setup	Test Setup 2
	EUT Placement	☒ Flatwise, ☒ Upright, ☒ Hung
	EUT Configuration	(1) 30 MHz to 1 GHz: 11B_L (Worst Conf.). (2) 1 GHz to 3 GHz: 11B_L, 11B_H

Test Case	Test Conditions	
	Configuration	Description
		11G_L, 11G_H 11N20_L, 11 N20_H (3) 3 GHz to 18 GHz: 11B_L (Worse Conf.), 11B_H (Worse Conf.). (4) 18 GHz to 26.5 GHz: 11B_L (Worse Conf.), 11B_H (Worse Conf.).
AC Power Line Conducted Emissions	Measurement Method	AC mains conducted.
	Test Environment	NTNV
	Test Setup	Test Setup 3
	EUT Configuration	11B_L(Worst Conf.).

5 Main Test Instruments

Equipment Name	Manufacturer	Model	Serial Number	Cal Date	Cal- Due
Power supply	KEITHLEY	2303	1288003	2012-11-19	2014-11-18
Spectrum Analyzer	Agilent	E4440A	MY48250119	2012-08-20	2013-08-19
Signal Analyzer	R&S	FSQ31	200021	2012-11-09	2013-11-08
Spectrum Analyzer	Agilent	N9030A	MY49431698	2012-11-09	2013-11-08
Temperature Chamber	WEISS	WKL64	56246002940010	2013-01-29	2014-01-28
Signal generator	Agilent	E8257D	MY49281095	2012-09-14	2013-09-13
Spectrum analyzer	R&S	FSU3	200474	2013-01-29	2014-01-28
Test receiver	R&S	ESU26	100150	2013-05-15	2014-05-14
Spectrum analyzer	R&S	FSU43	100144	2013-01-29	2014-01-28
Double-Ridged Waveguide Horn Antenna (1G~18GHz)	R&S	HF907	100304	2013-02-02	2014-02-01
Trilog Broadband Antenna (30M~3GHz)	SCHWARZBECK	VULB 9163	9163-521	2011-12-09	2013-12-08
Pyramidal Horn Antenna(18GHz-26-5GHz)	ETS-Lindgren	3160-09	00091989	2011-10-20	2013-10-19

END

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.

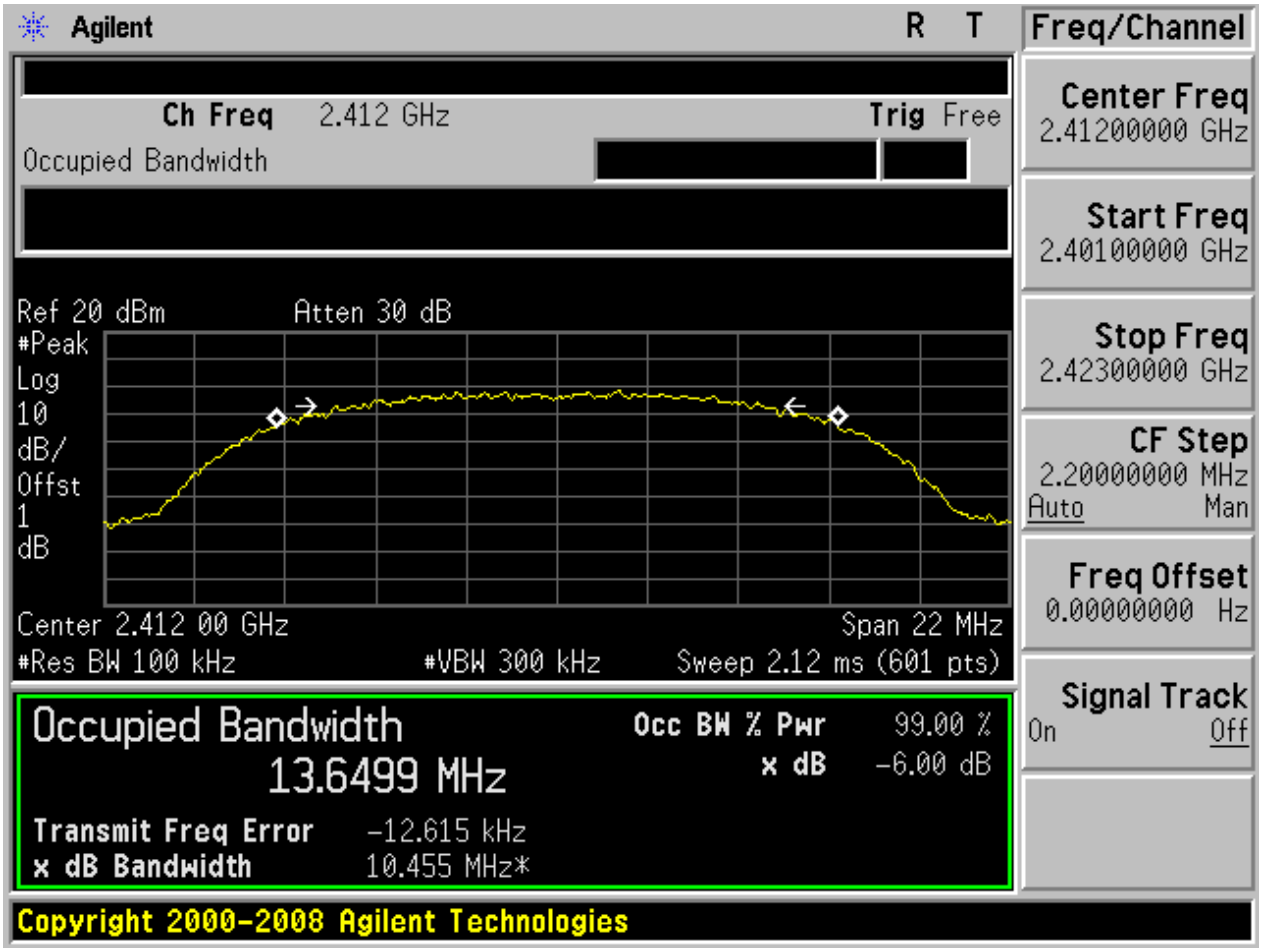
For measurements on smart antenna systems (devices with multiple transmit chains), the test is performed at each chain, and used as respective results for each chain.

Part I - Test Results

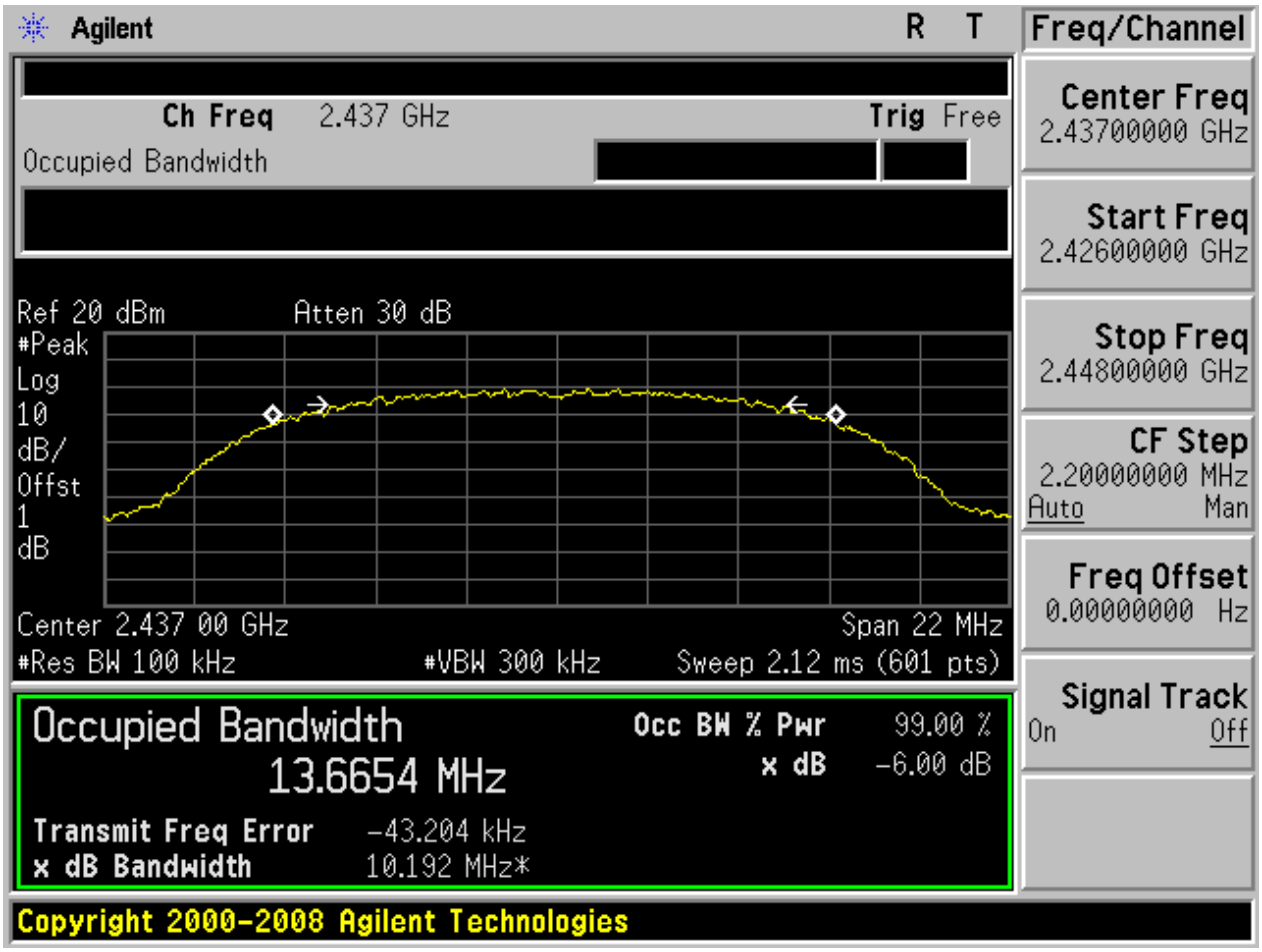
Test Mode	Test Channel	Frequency[MHz]	DTS6dBBW[MHz]	Verdict
11B	L	2412	10.45	pass
11B	M	2437	10.19	pass
11B	H	2462	10.55	pass
11G	L	2412	16.53	pass
11G	M	2437	16.51	pass
11G	H	2462	16.53	pass
11N20	L	2412	17.70	pass
11N20	M	2437	17.67	pass
11N20	H	2462	17.69	pass

Part II - Test Plots

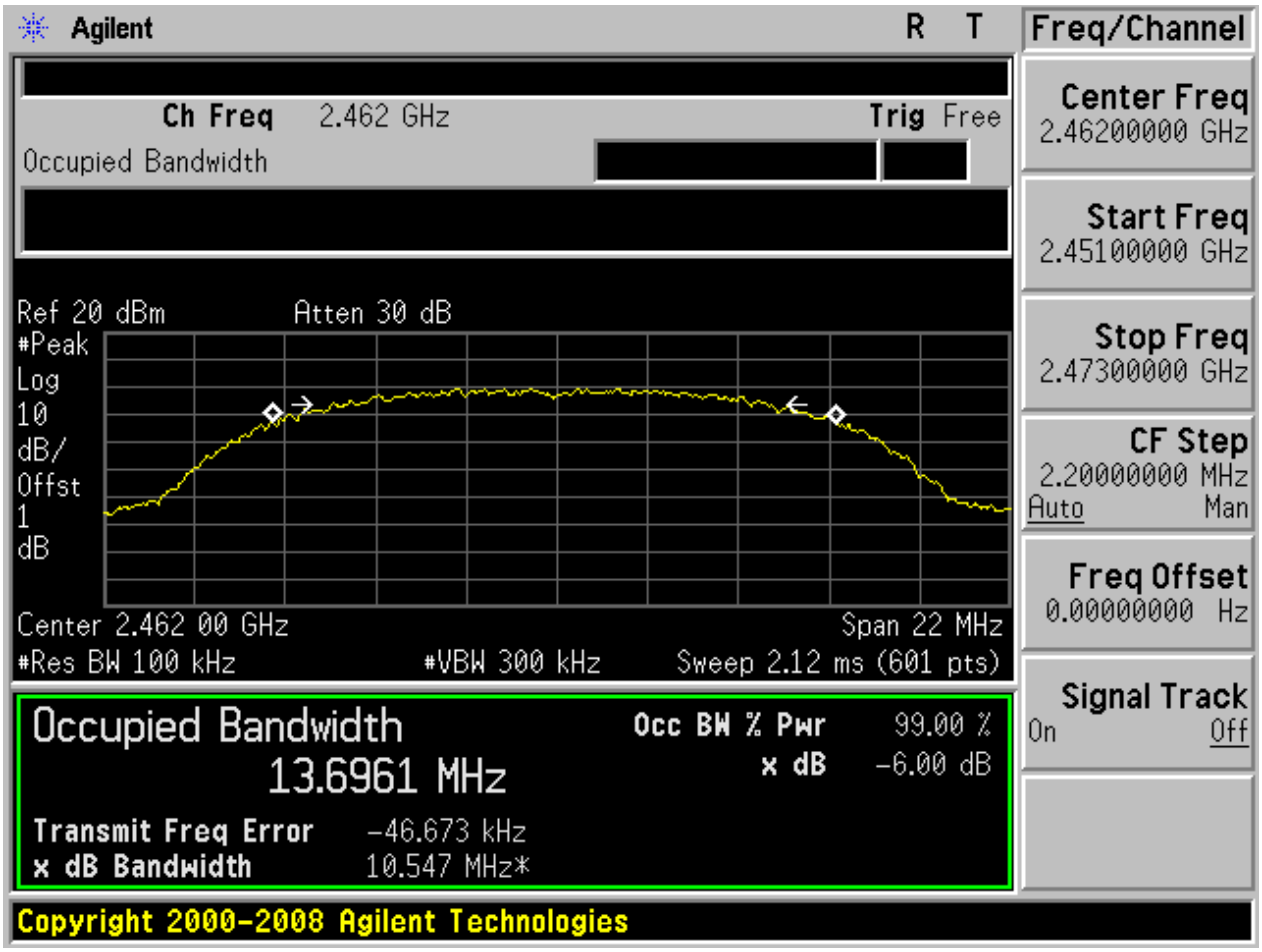
2.1 11B_L



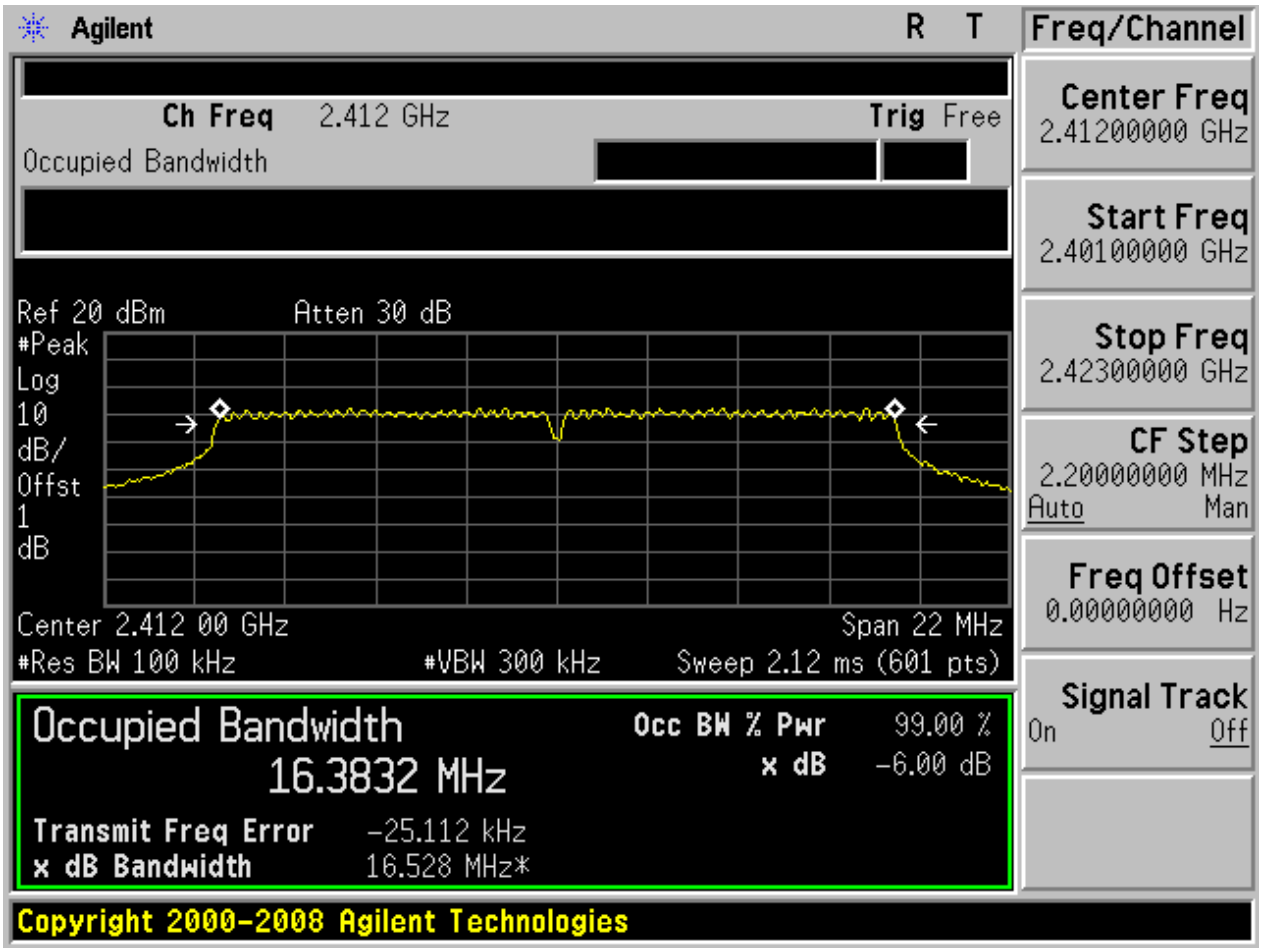
2.2 11B_M



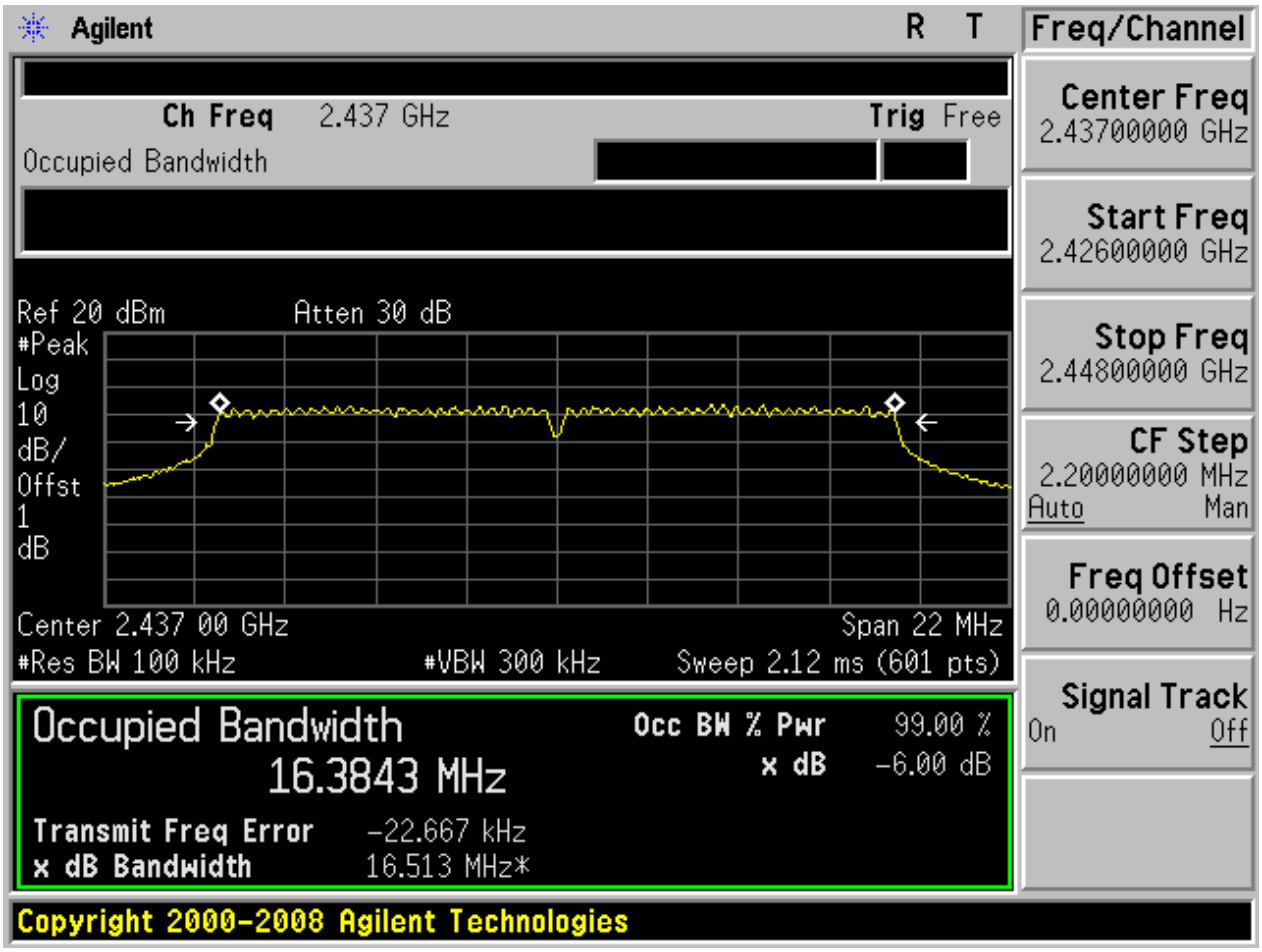
2.3 11B_H



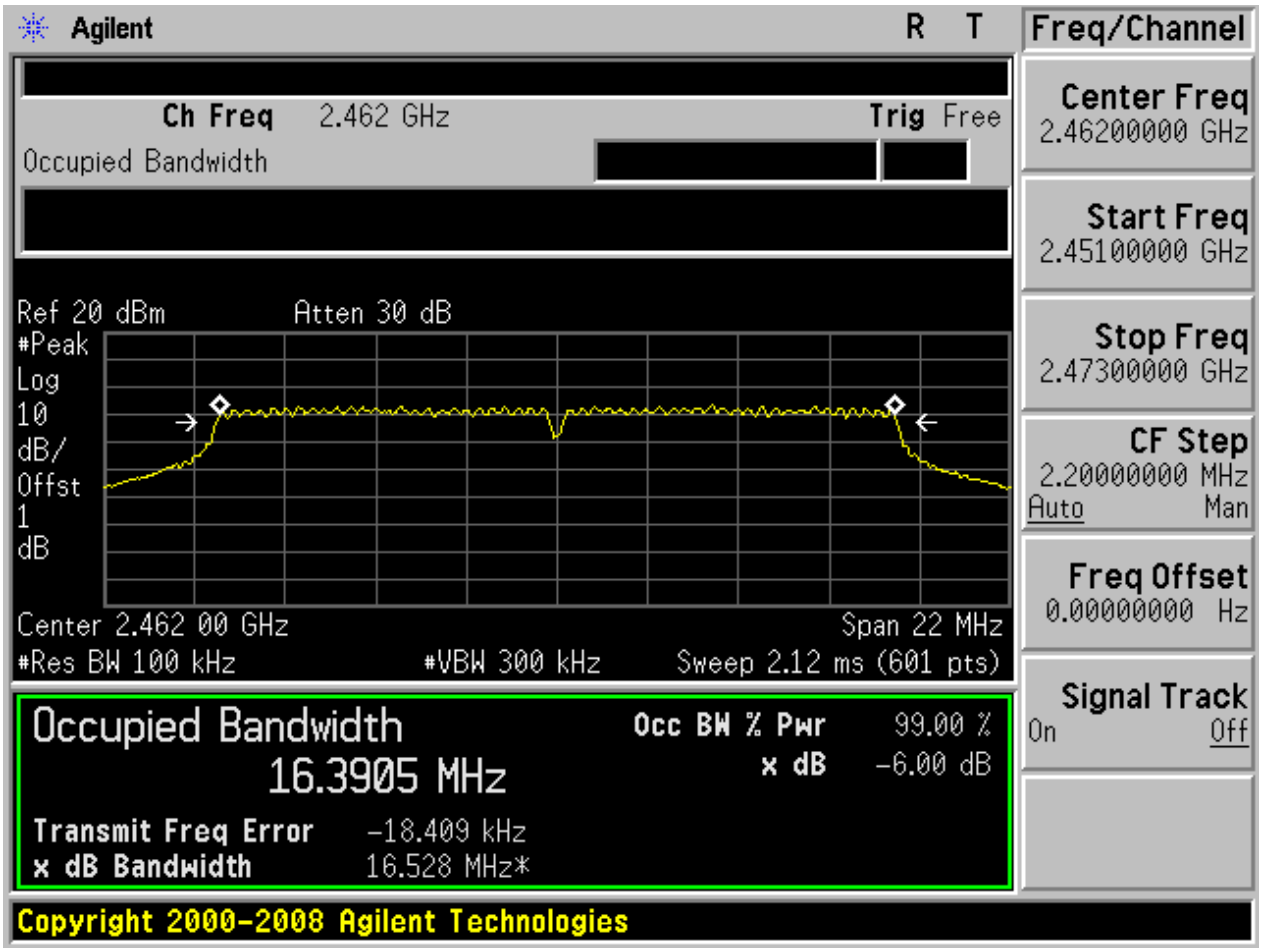
2.4 11G_L



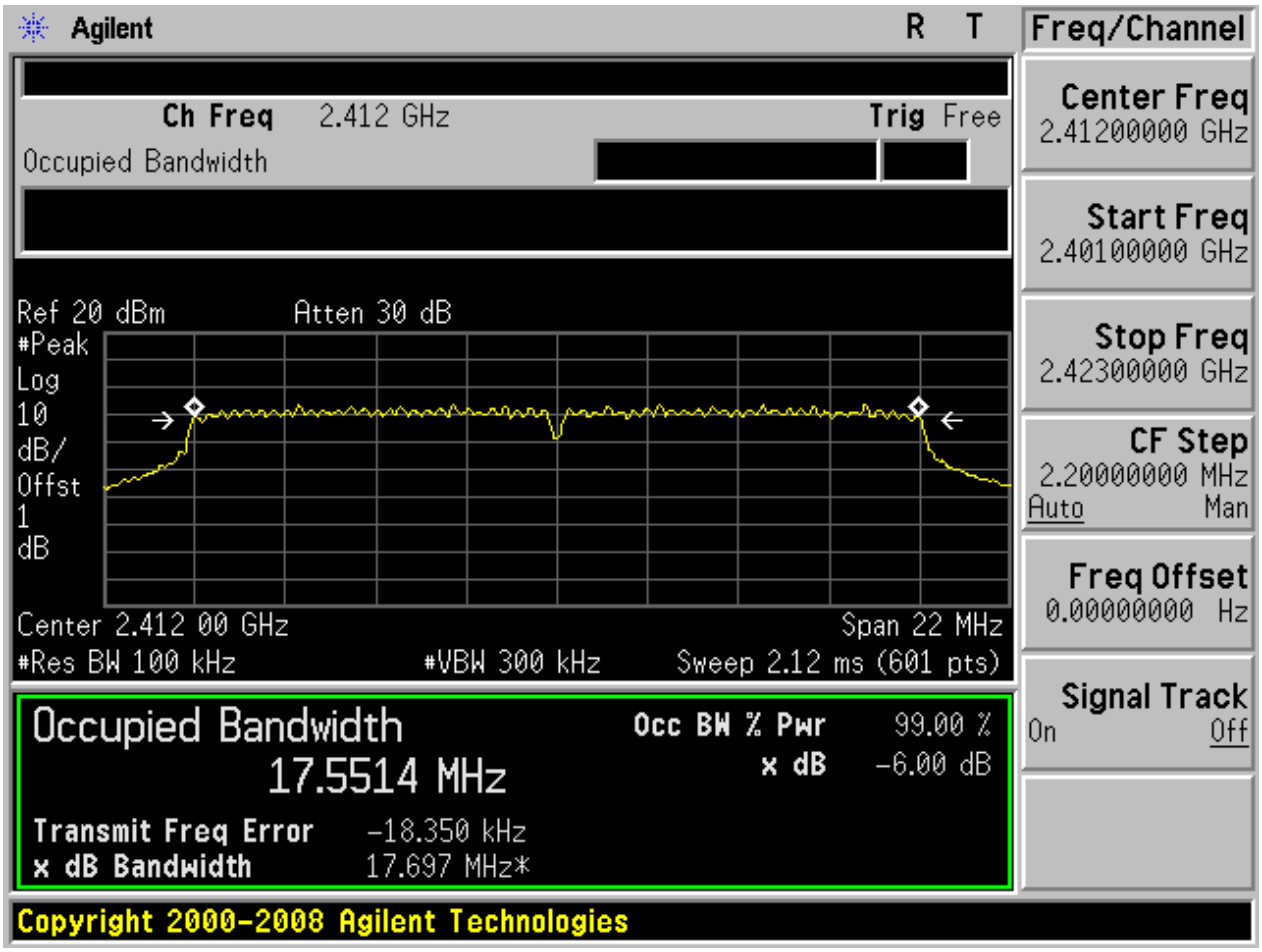
2.5 11G_M



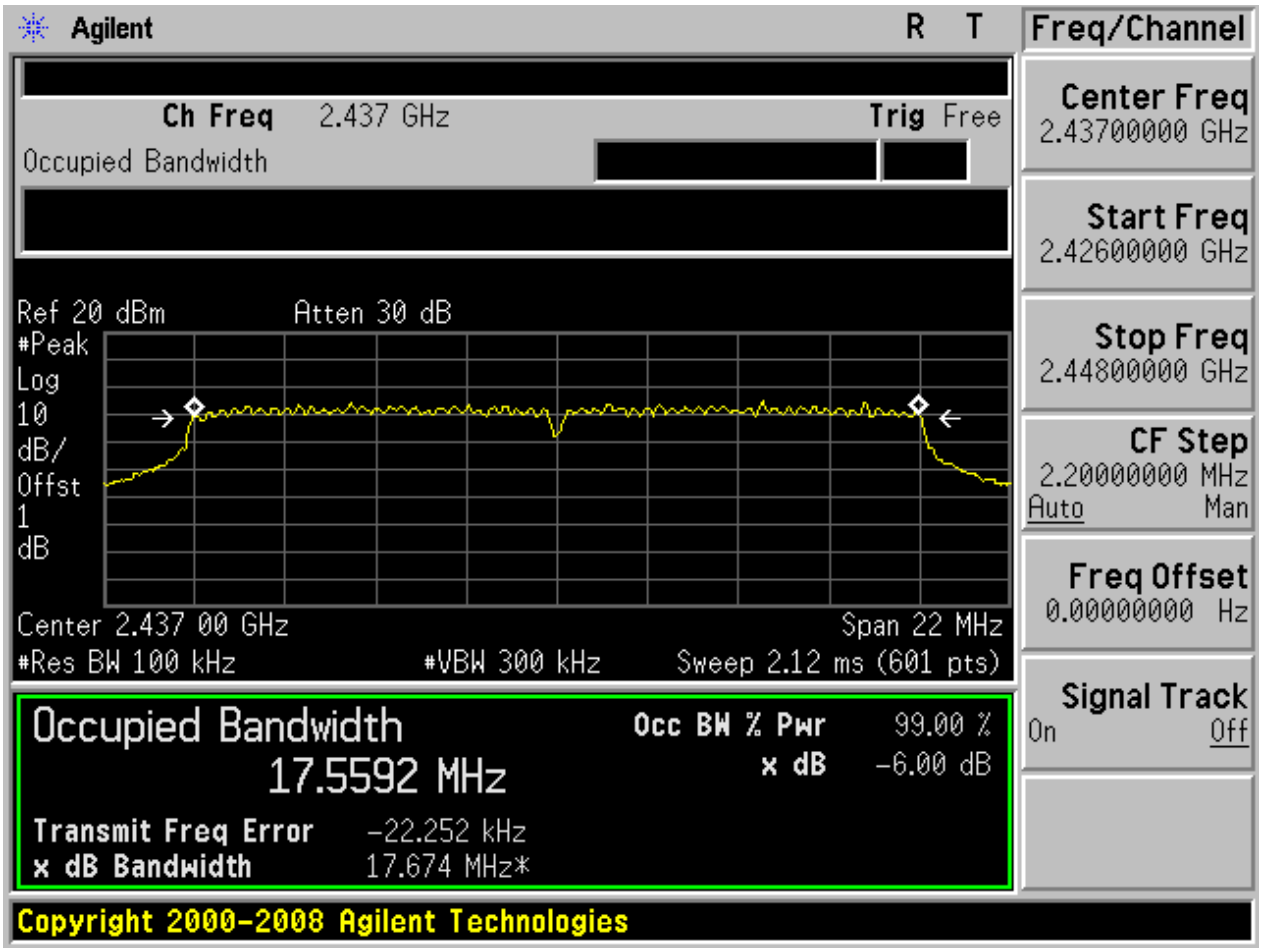
2.6 11G_H



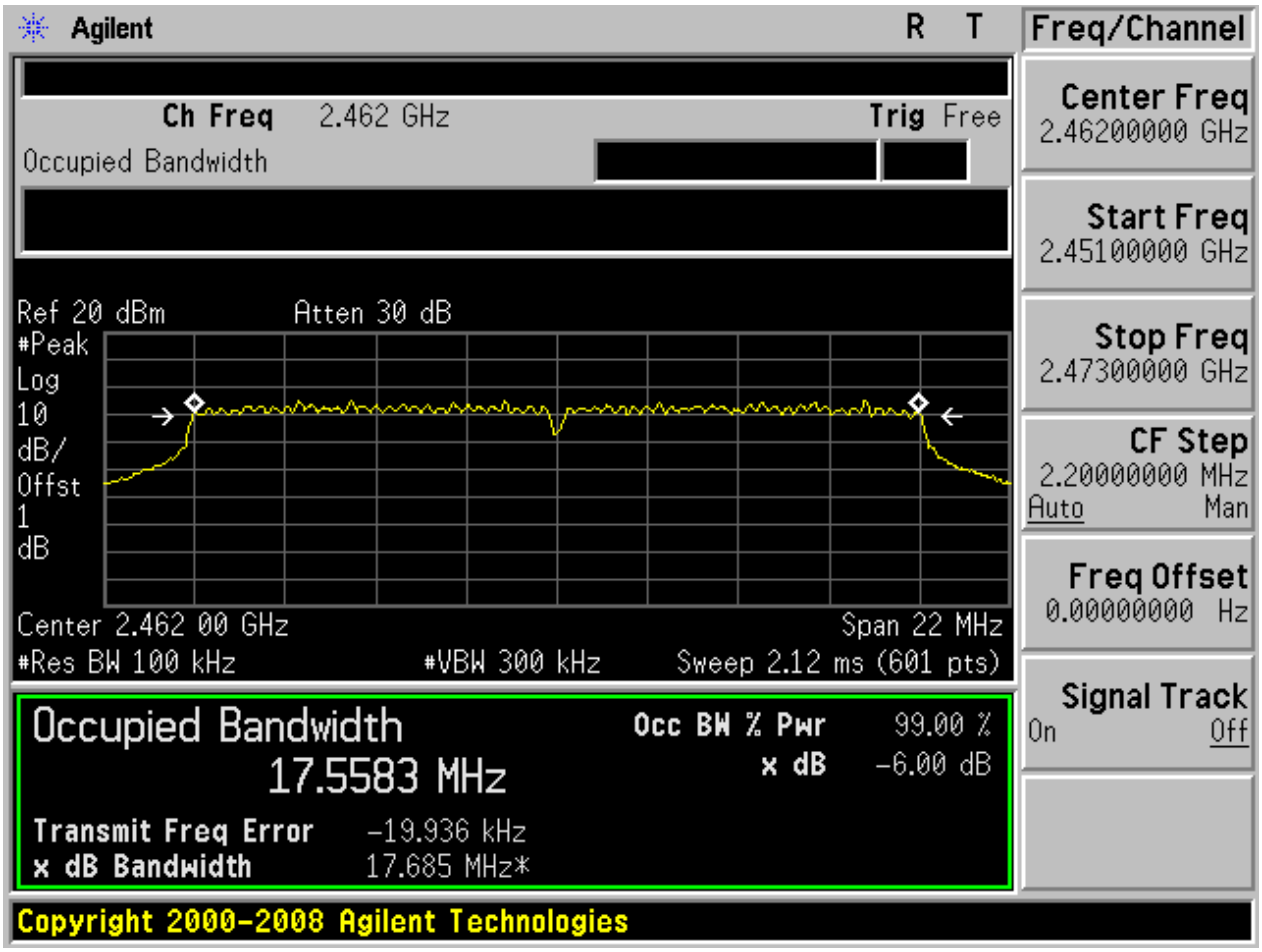
2.7 11N20_L



2.8 11N20_M



2.9 11N20_H



Appendix B: Maximum Peak Conducted Output Power

Test Mode	Test Channel	Frequency[MHz]	Meas. Level (Cond.) [dBm]	Verdict
11B	L	2412	19.65	pass
11B	M	2437	20.71	pass
11B	H	2462	20.81	pass
11G	L	2412	18.82	pass
11G	M	2437	19.43	pass
11G	H	2462	19.66	pass
11N20	L	2412	19.17	pass
11N20	M	2437	20.02	pass
11N20	H	2462	20.51	pass

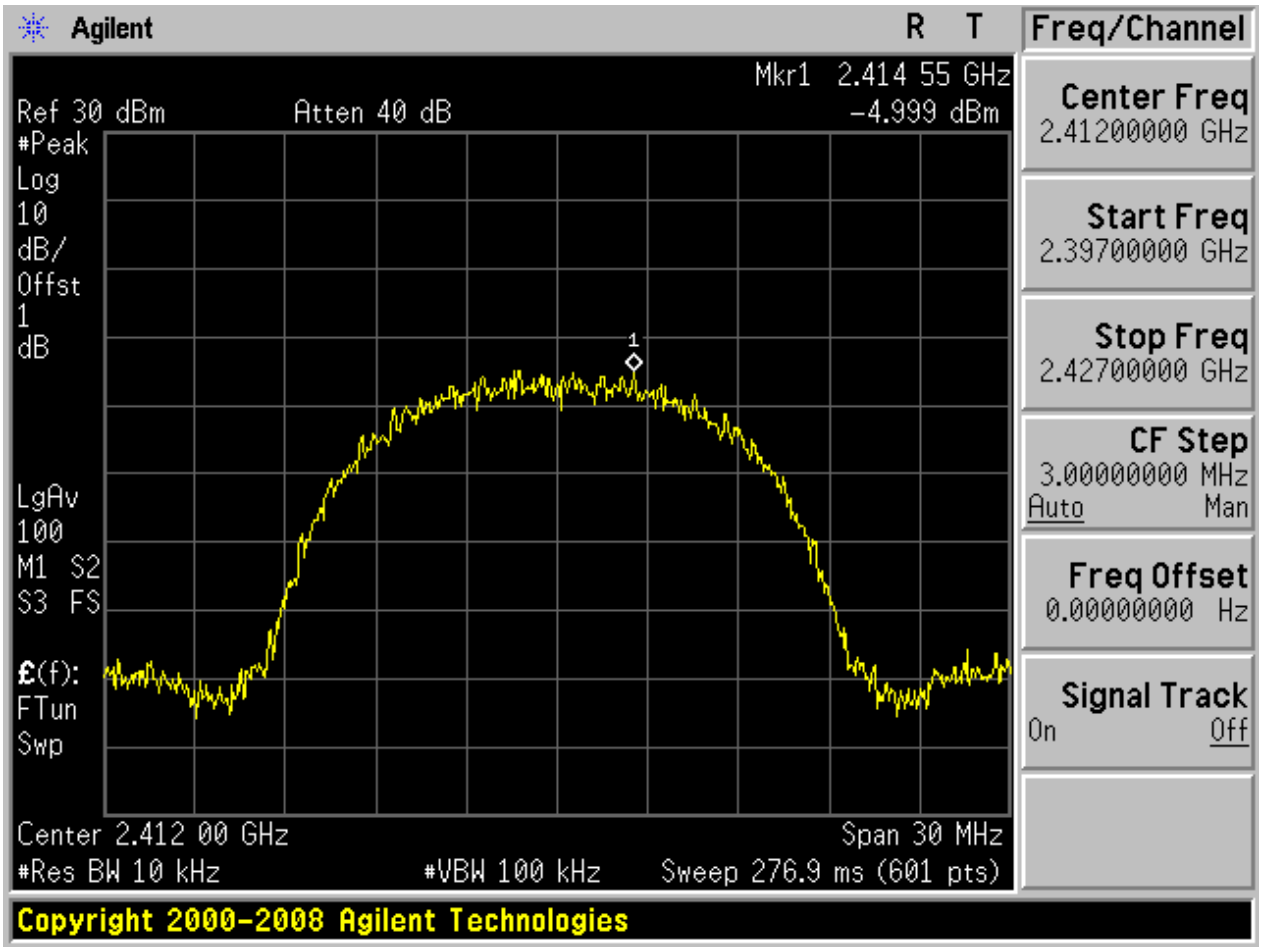
Appendix C: Maximum Power Spectral Density Level

Part I - Test Results

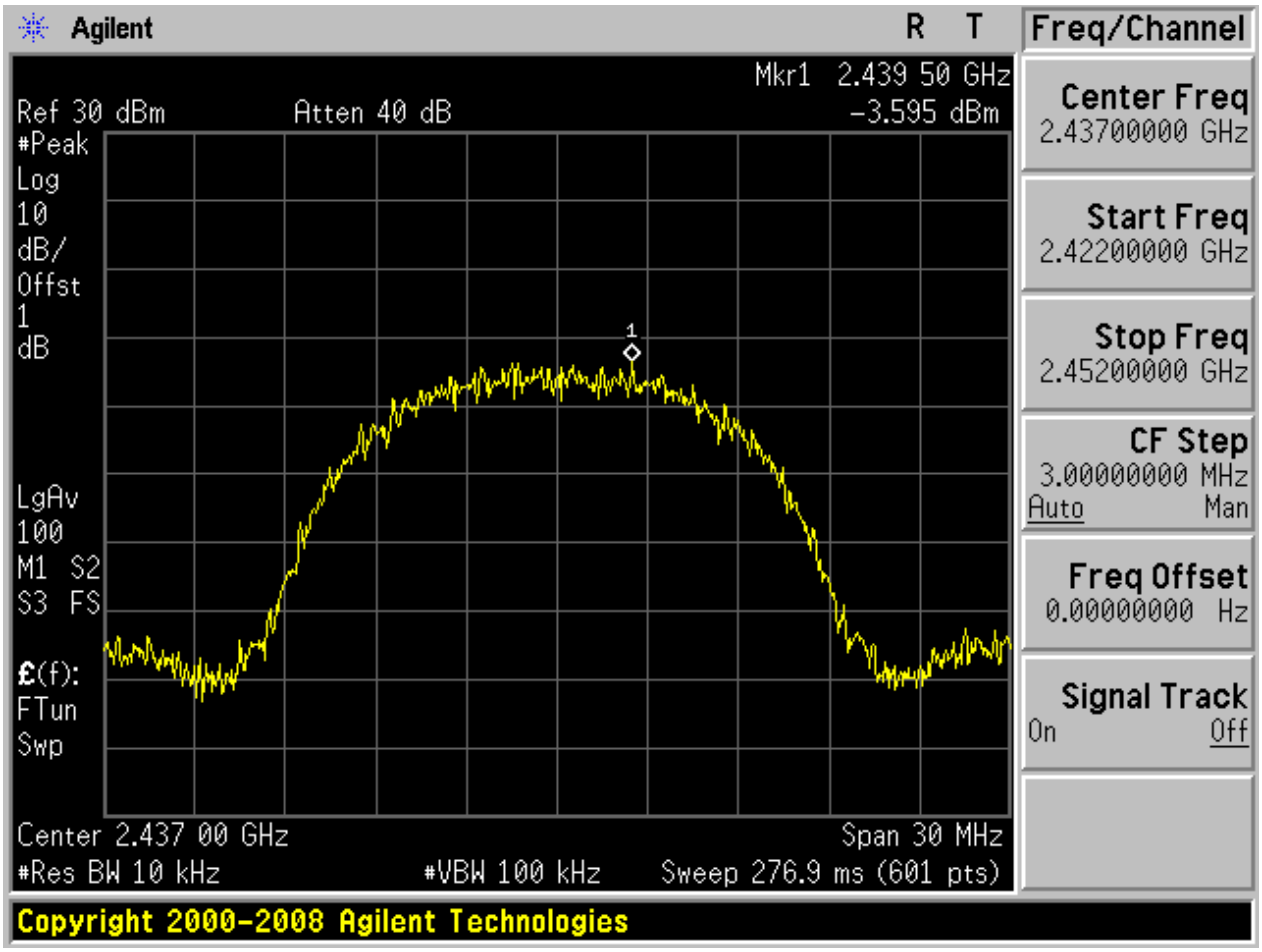
Test Mode	Test Channel	Frequency[MHz]	PD[MHz]	Verdict
11B	L	2412	-5.00	pass
11B	M	2437	-3.60	pass
11B	H	2462	-3.57	pass
11G	L	2412	-9.13	pass
11G	M	2437	-8.51	pass
11G	H	2462	-8.64	pass
11N20	L	2412	-6.56	pass
11N20	M	2437	-5.99	pass
11N20	H	2462	-6.01	pass

Part II - Test Plots

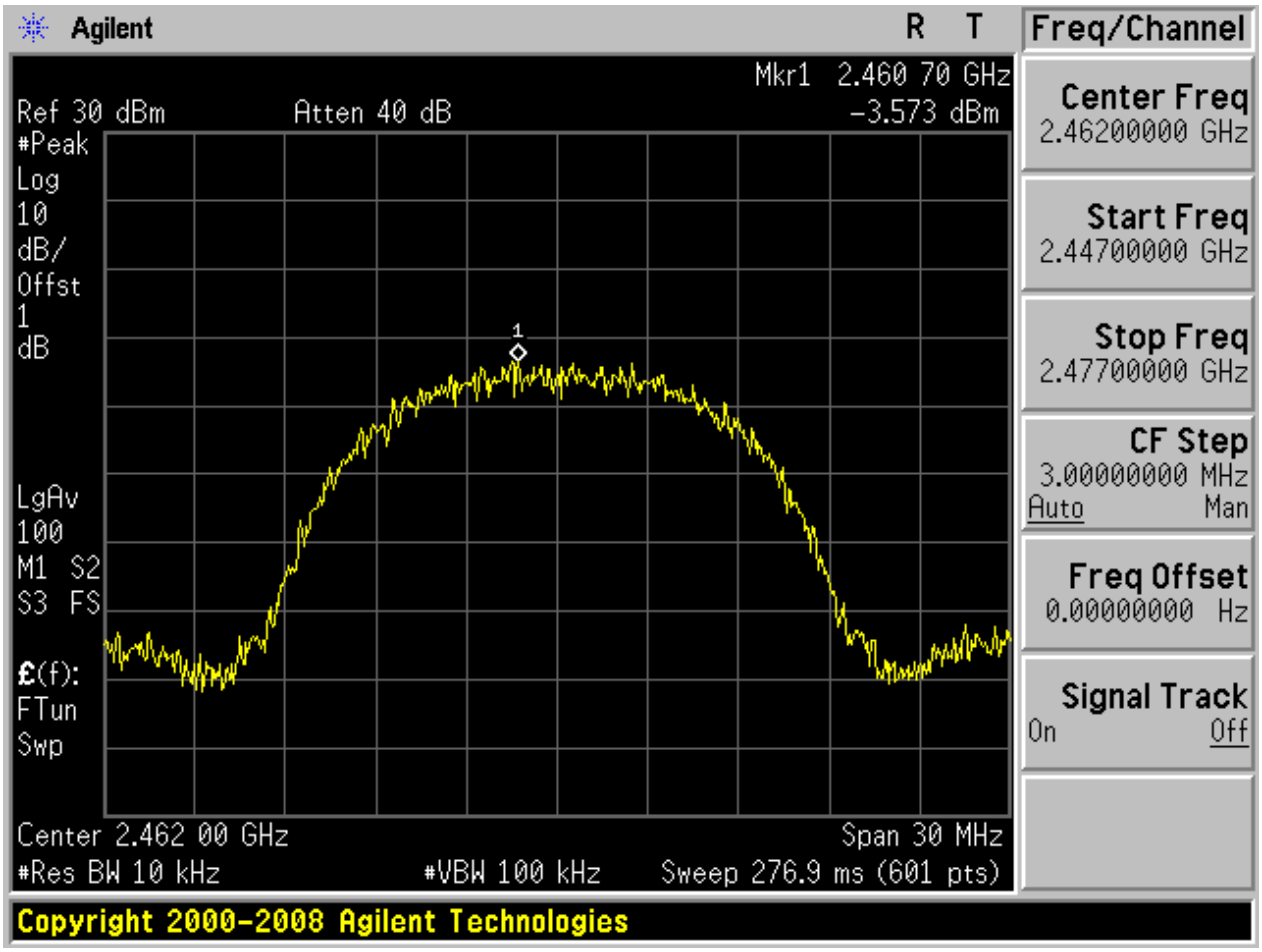
2.1 11B_L



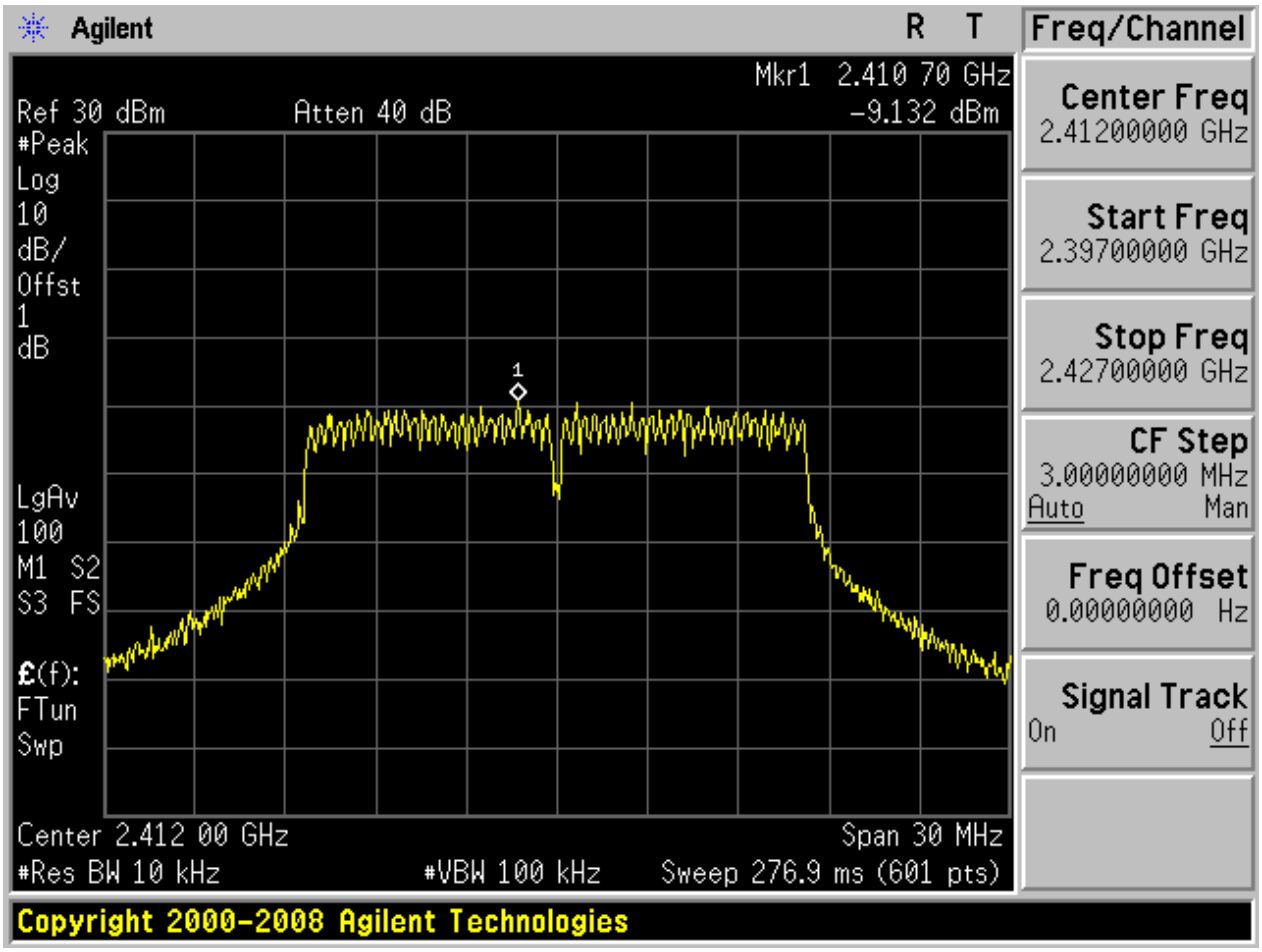
2.2 11B_M



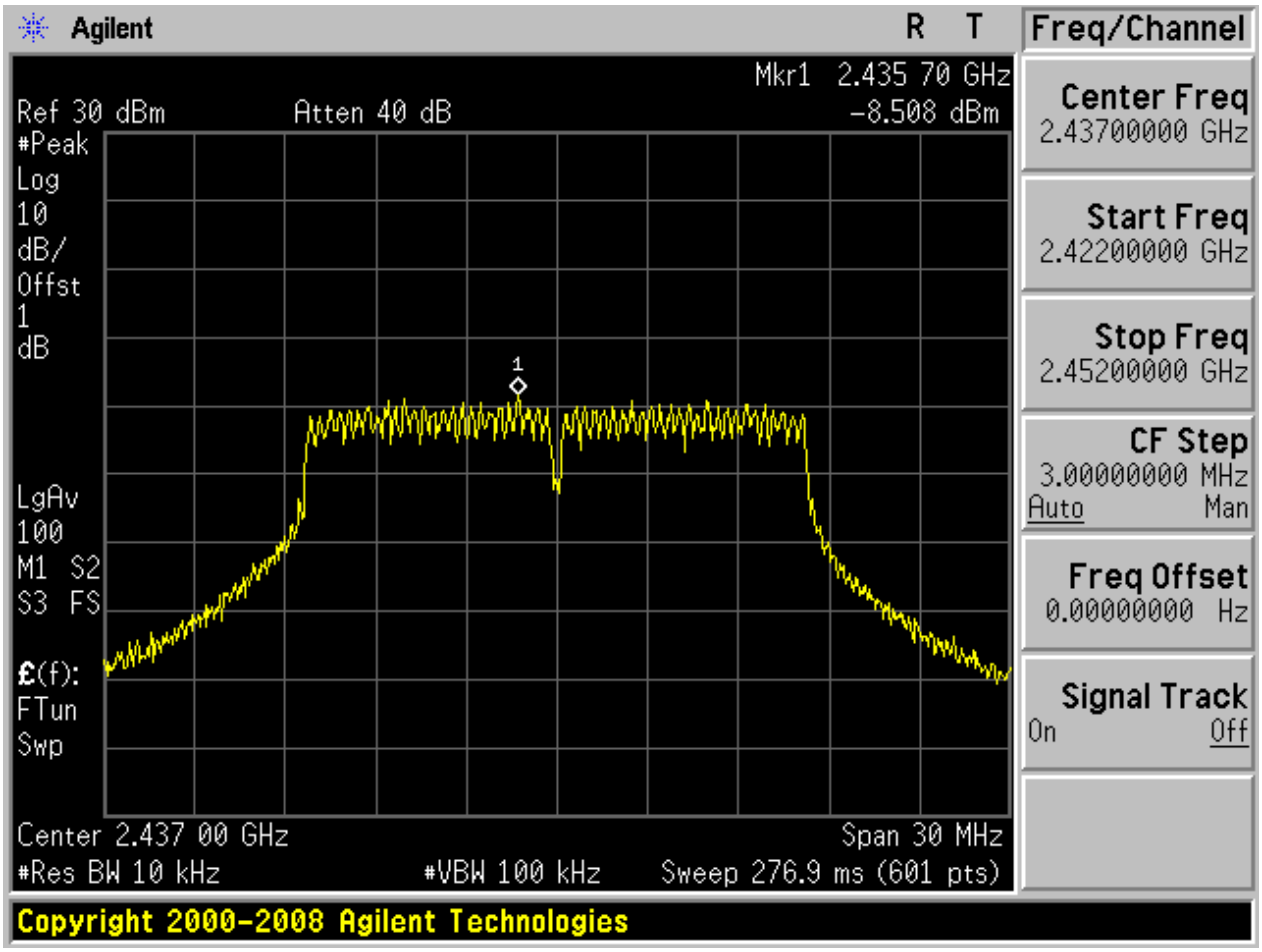
2.3 11B_H



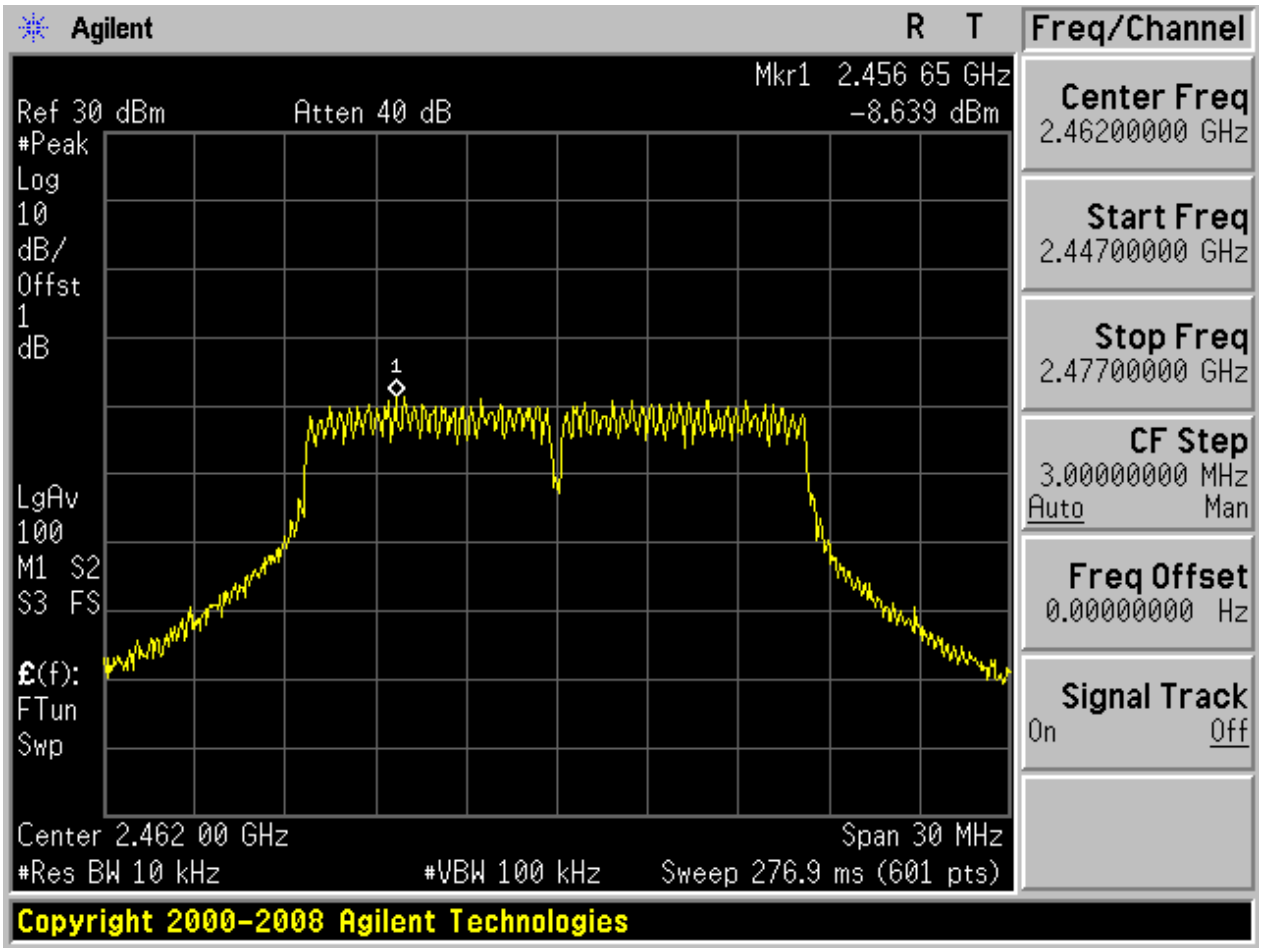
2.4 11G_L



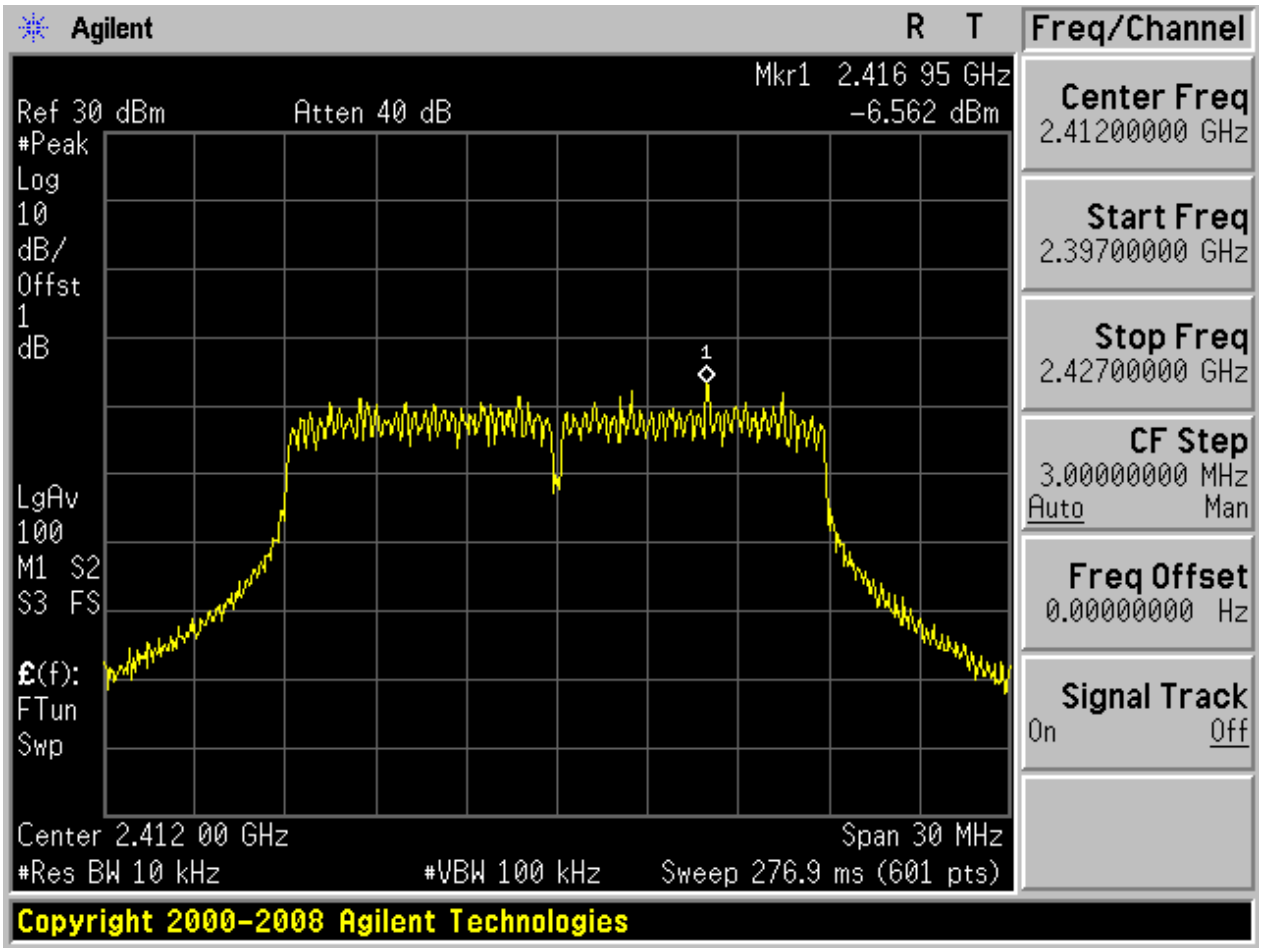
2.5 11G_M



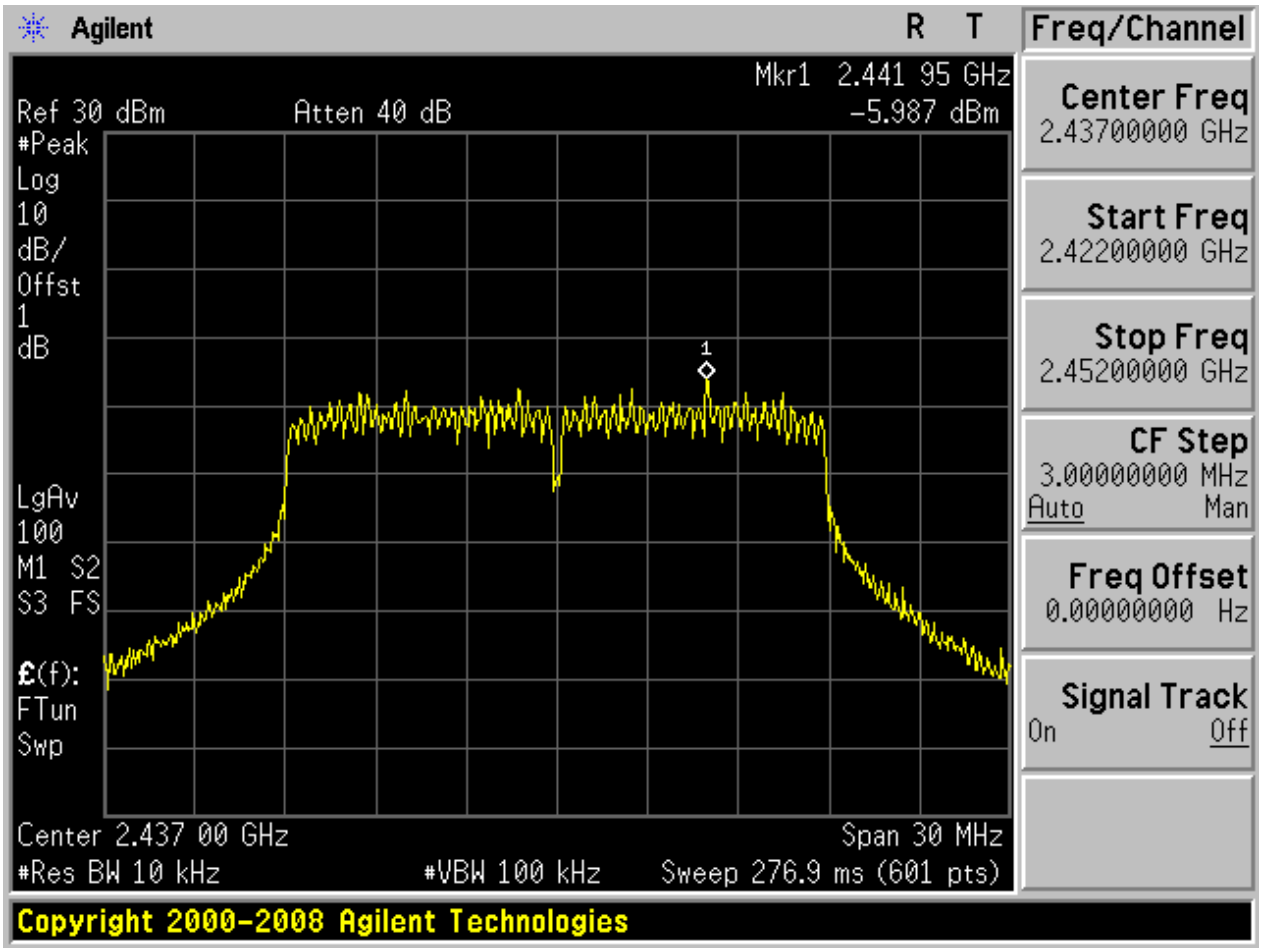
2.6 11G_H



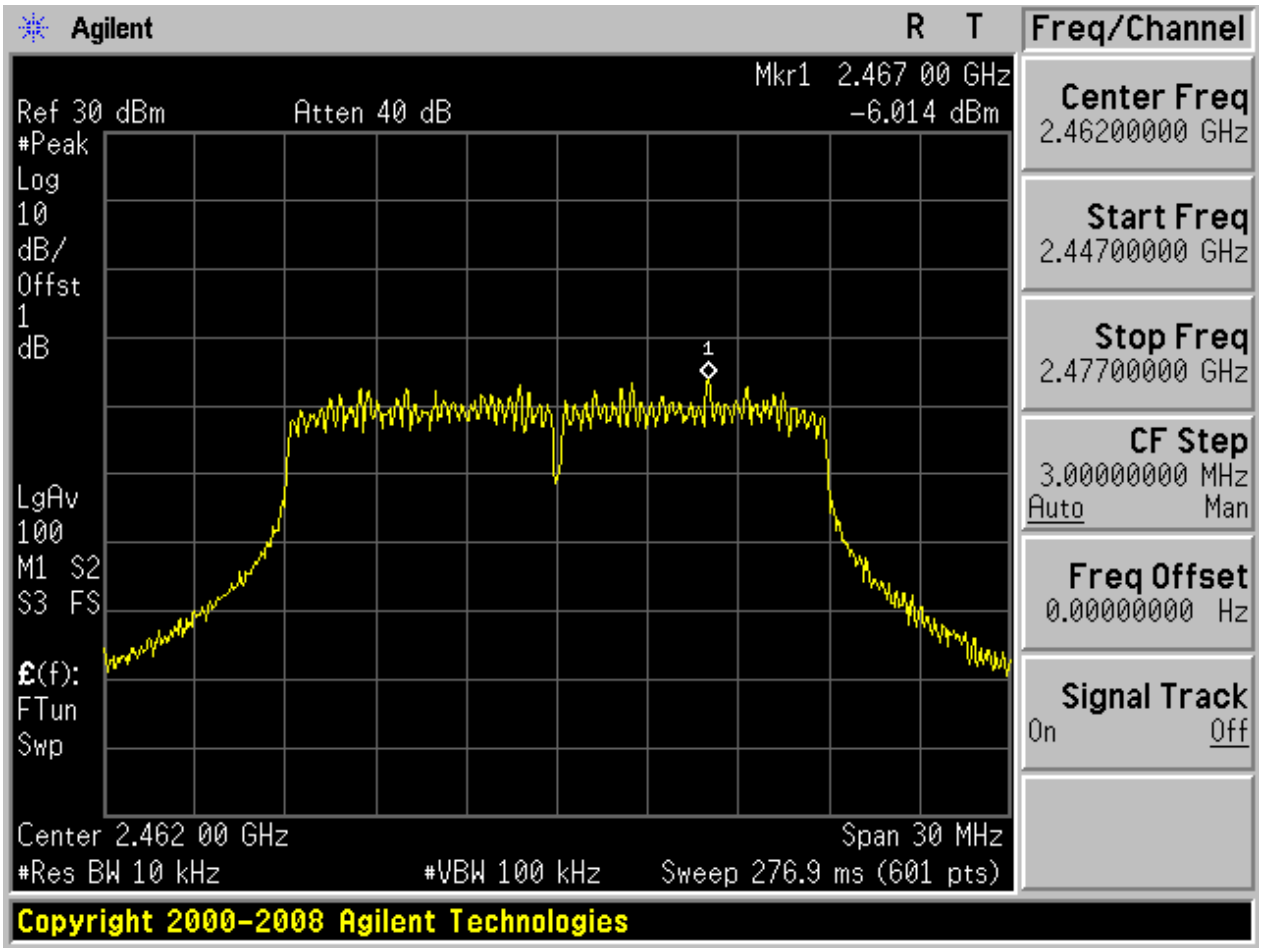
2.7 11N20_L



2.8 11N20_M



2.9 11N20_H



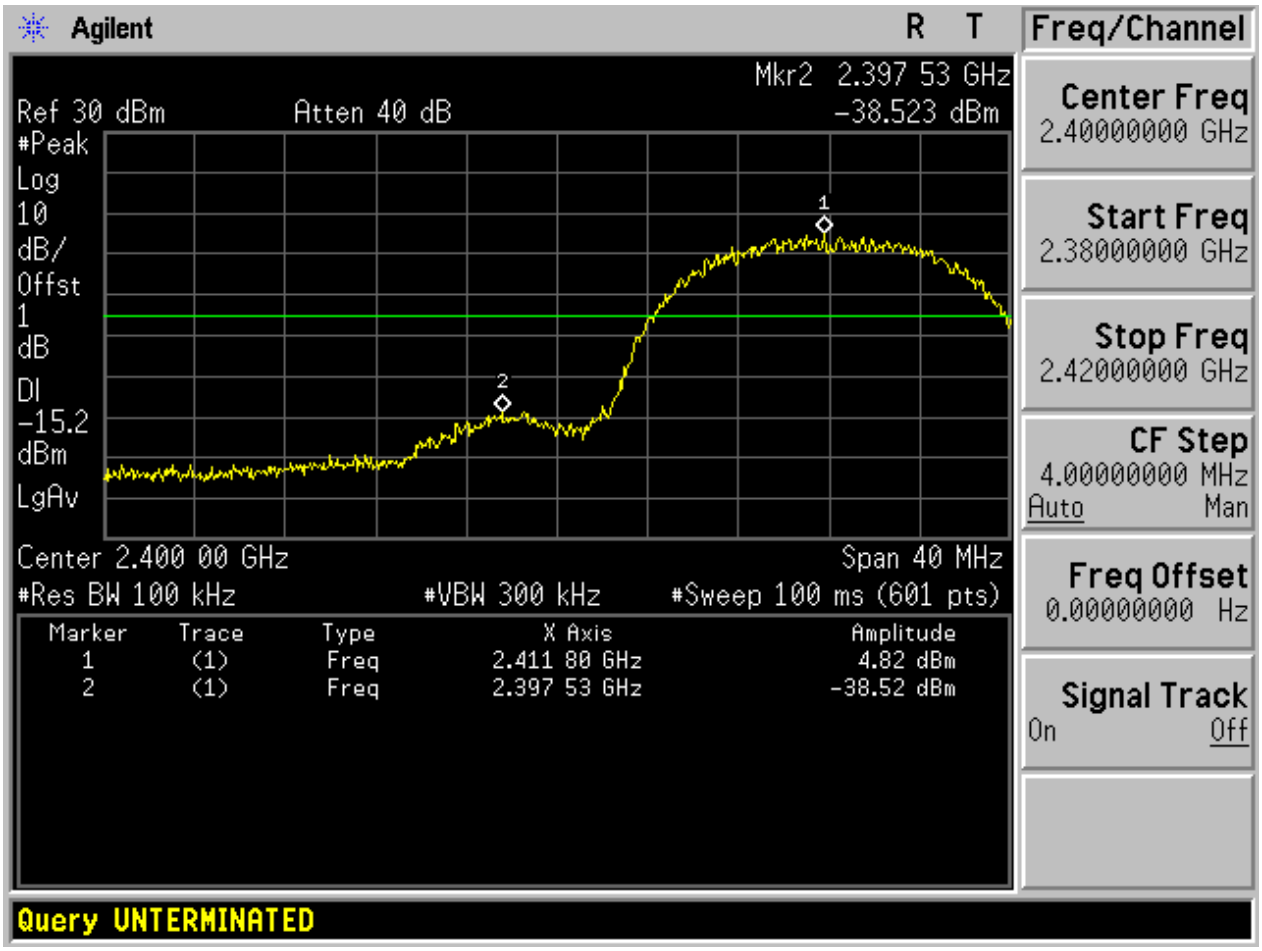
Appendix D: Band Edges Compliance

Part I - Test Results

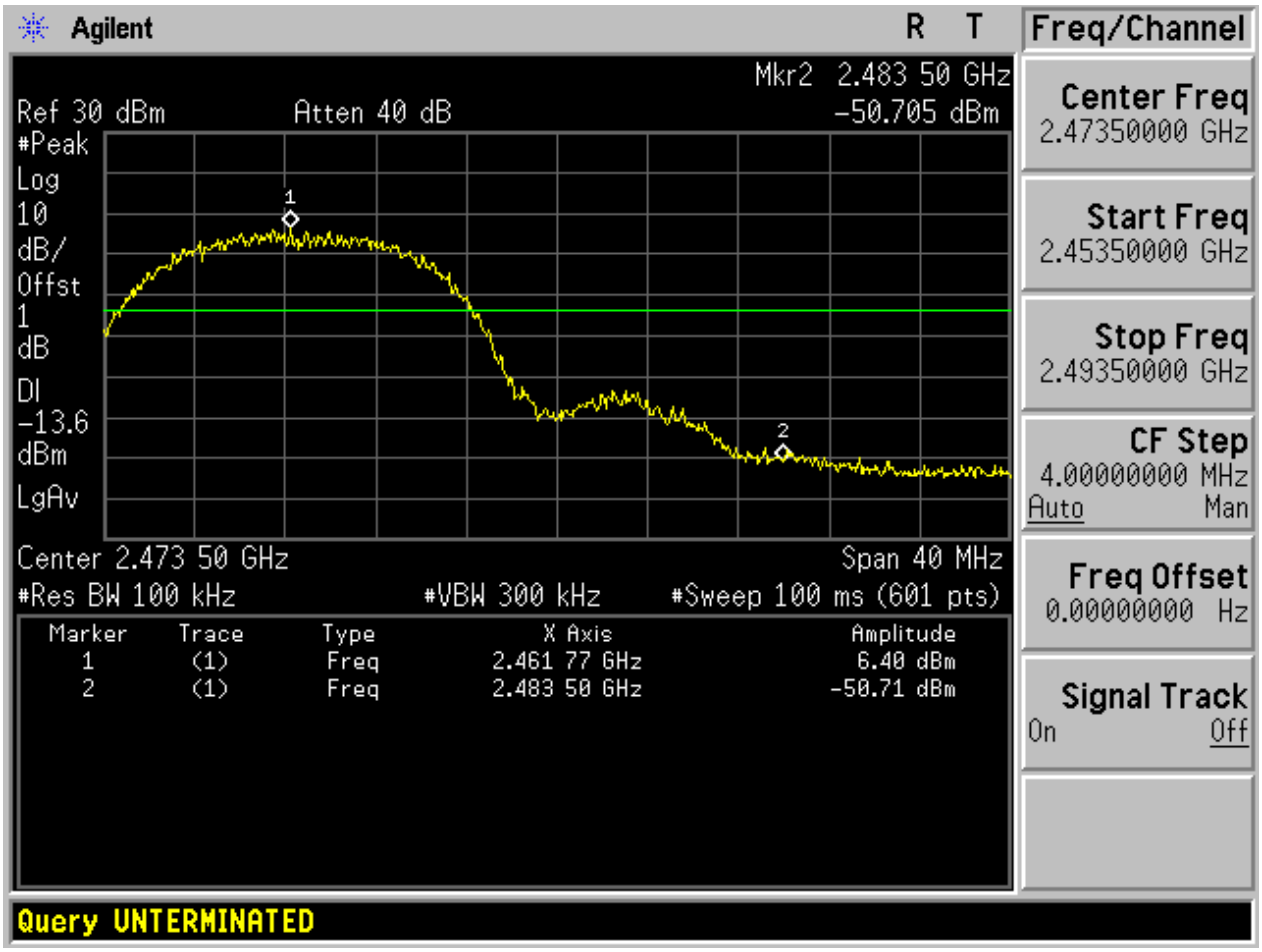
Test Mode	Test Channel	Frequency[MHz]	Carrier Power[dBm]	Max.Spurious Level[dBm]	Verdict
11B	L	2412	4.82	-38.52	pass
11B	H	2462	6.40	-50.70	pass
11G	L	2412	-.34	-32.83	pass
11G	H	2462	.56	-47.89	pass
11N20	L	2412	.36	-33.04	pass
11N20	H	2462	1.64	-43.82	pass

Part II - Test Plots

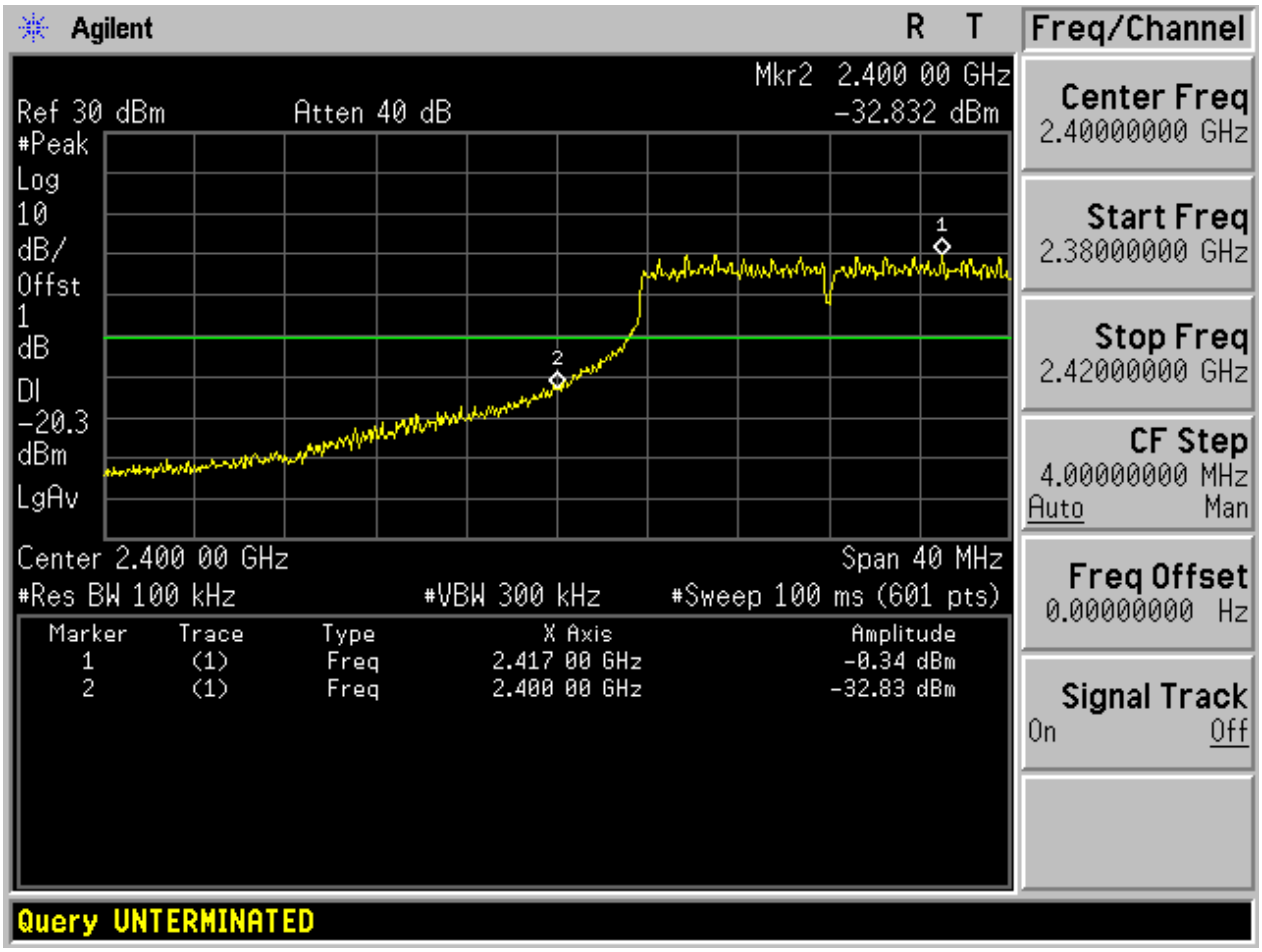
2.1 11B_L



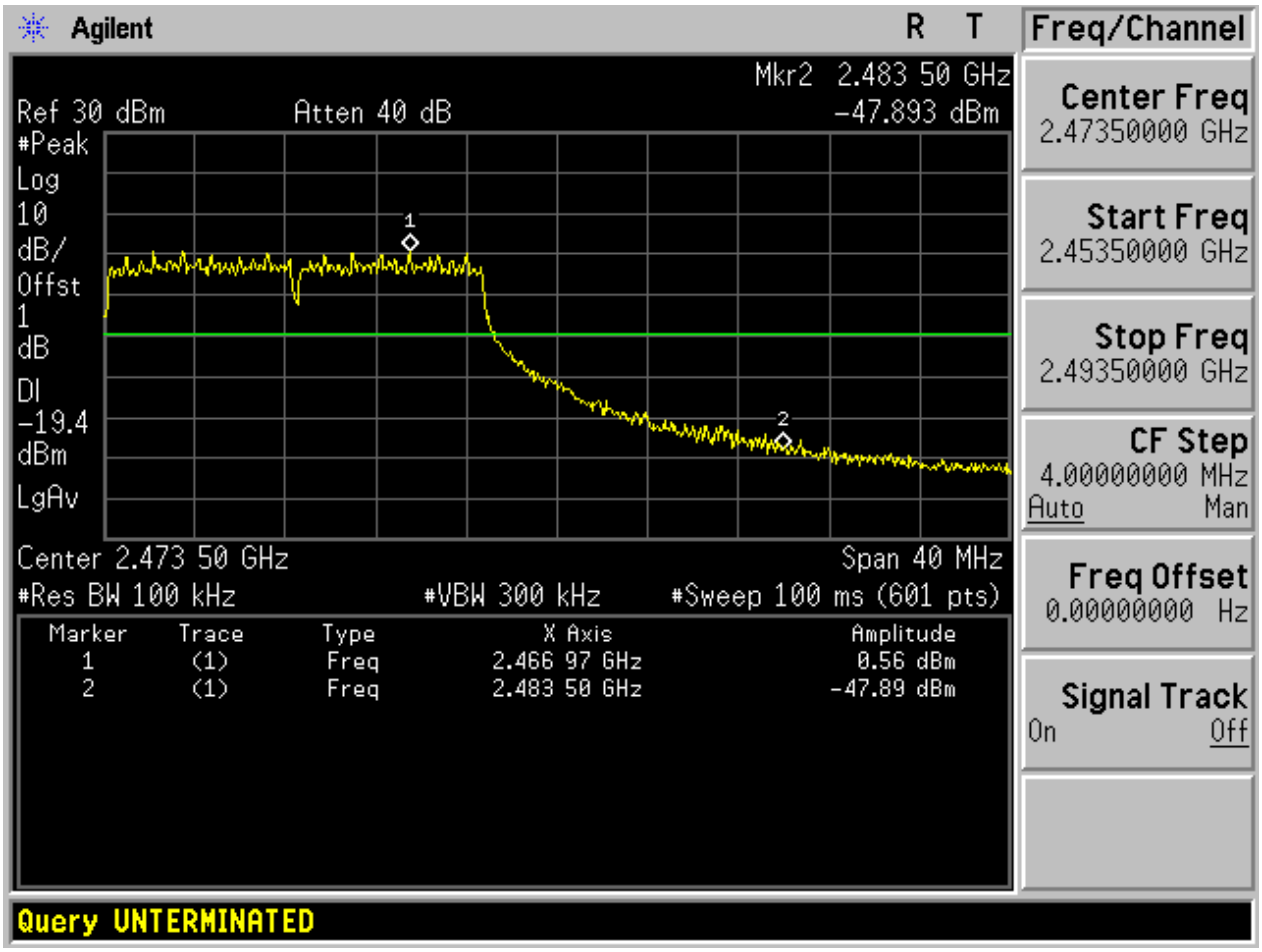
2.2 11B_H



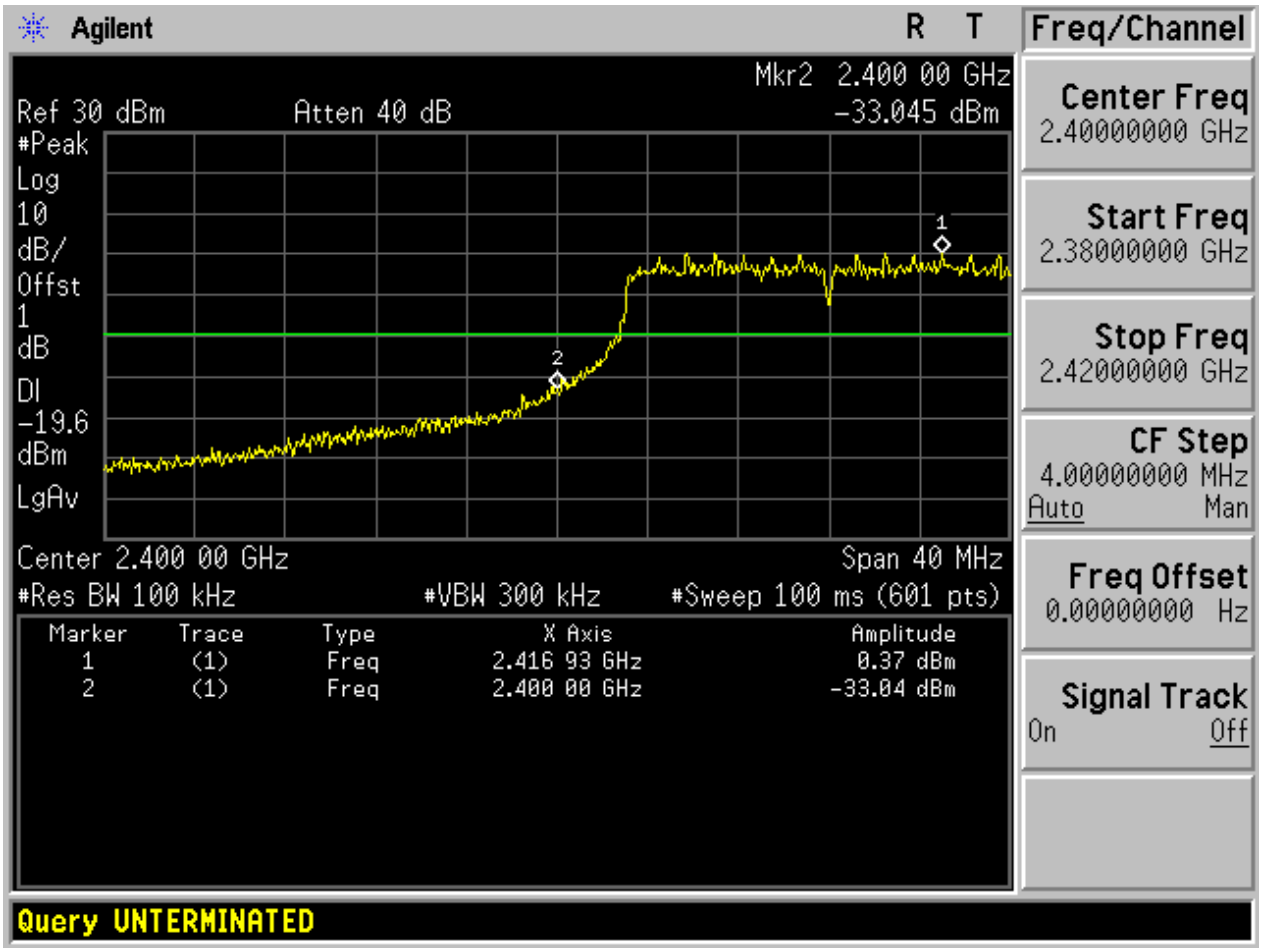
2.3 11G_L



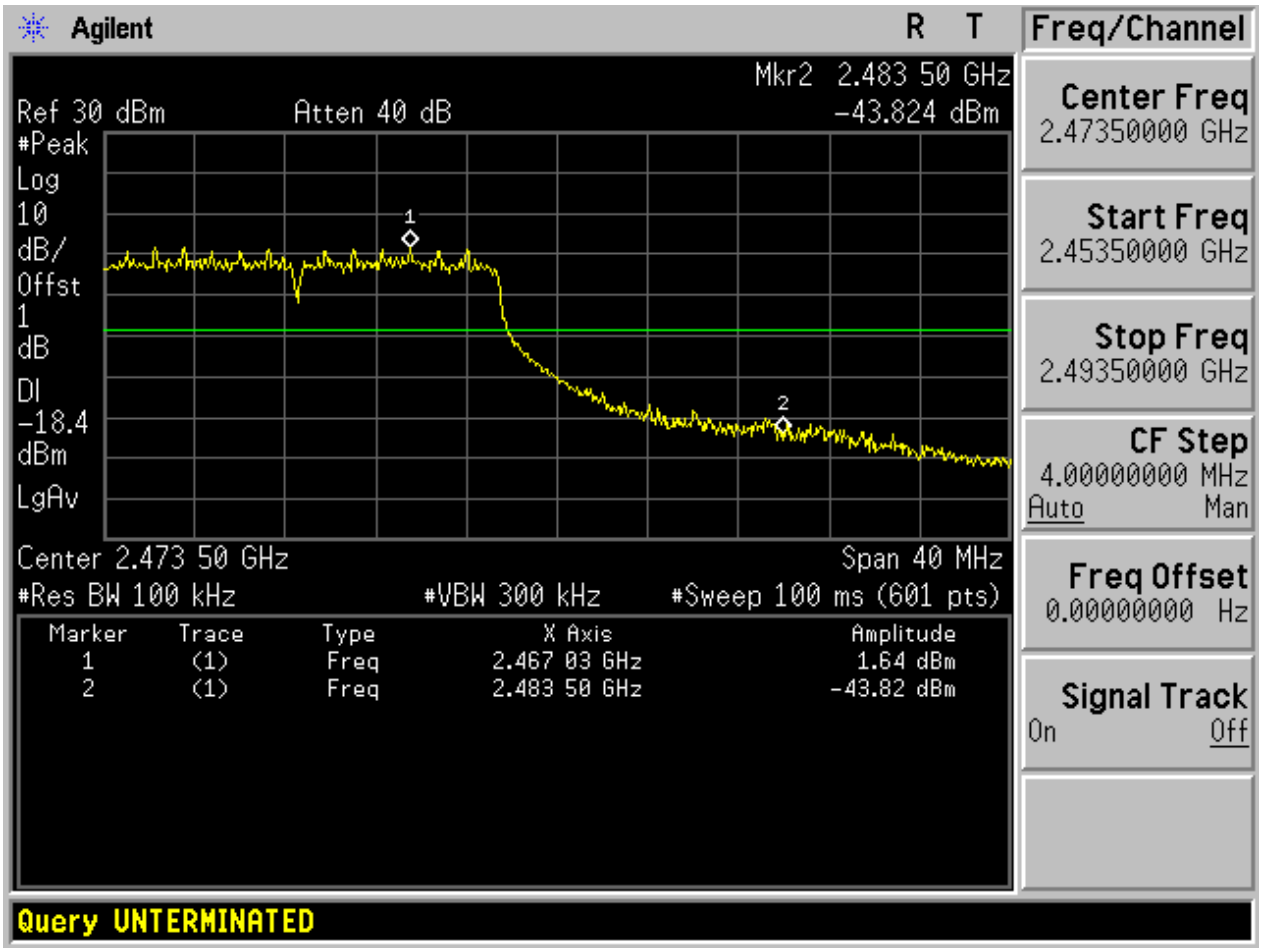
2.4 11G_H



2.5 11N20_L



2.6 11N20_H



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

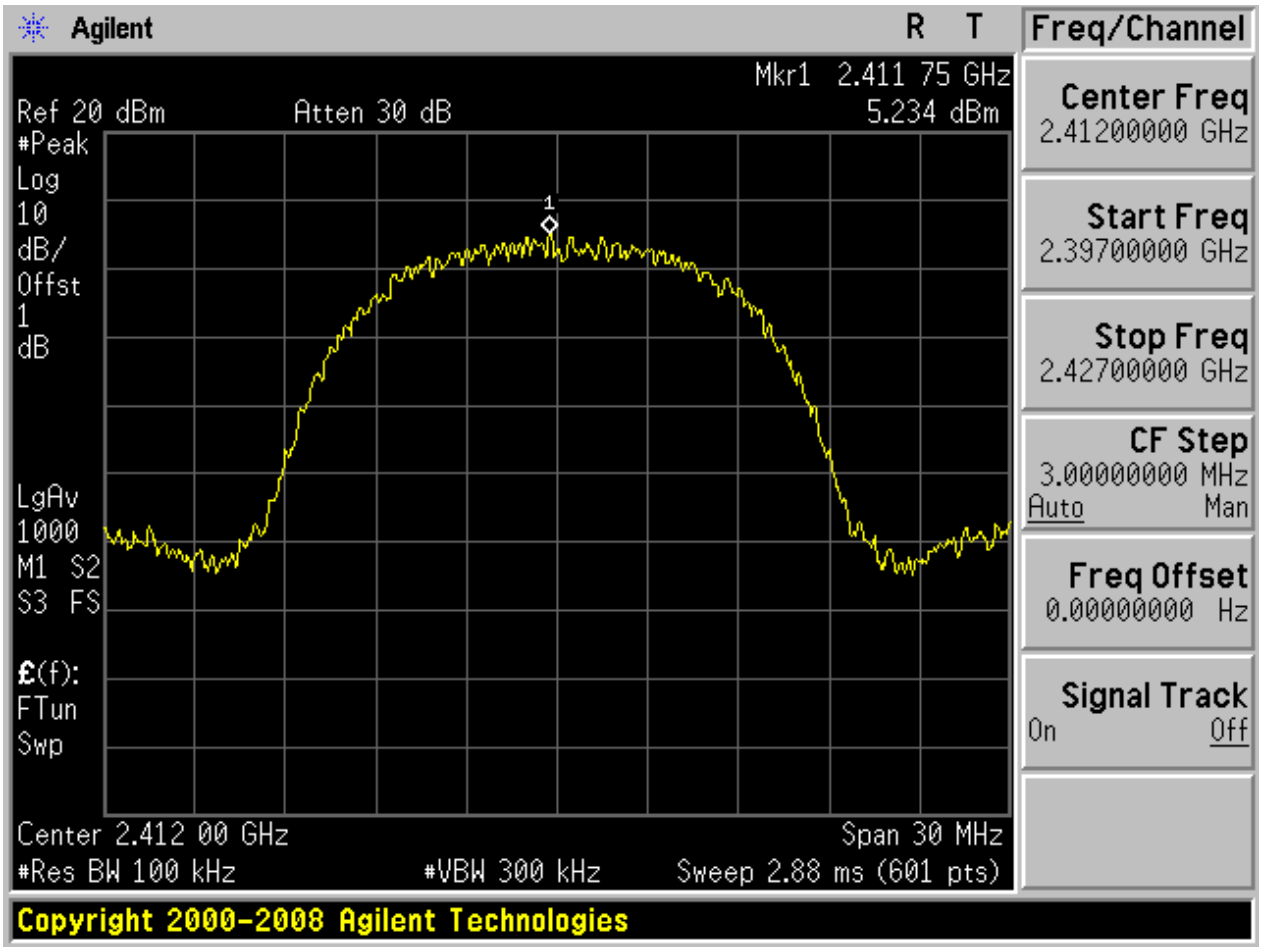
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Pref[dBm]	Puw[dBm]	Verdict
11B	L	2412	5.23	<limit	pass
11B	M	2437	6.62	<limit	pass
11B	H	2462	6.73	<limit	pass
11G	L	2412	-.10	<limit	pass
11G	M	2437	.64	<limit	pass
11G	H	2462	.70	<limit	pass
11N20	L	2412	.52	<limit	pass
11N20	M	2437	1.26	<limit	pass
11N20	H	2462	1.82	<limit	pass

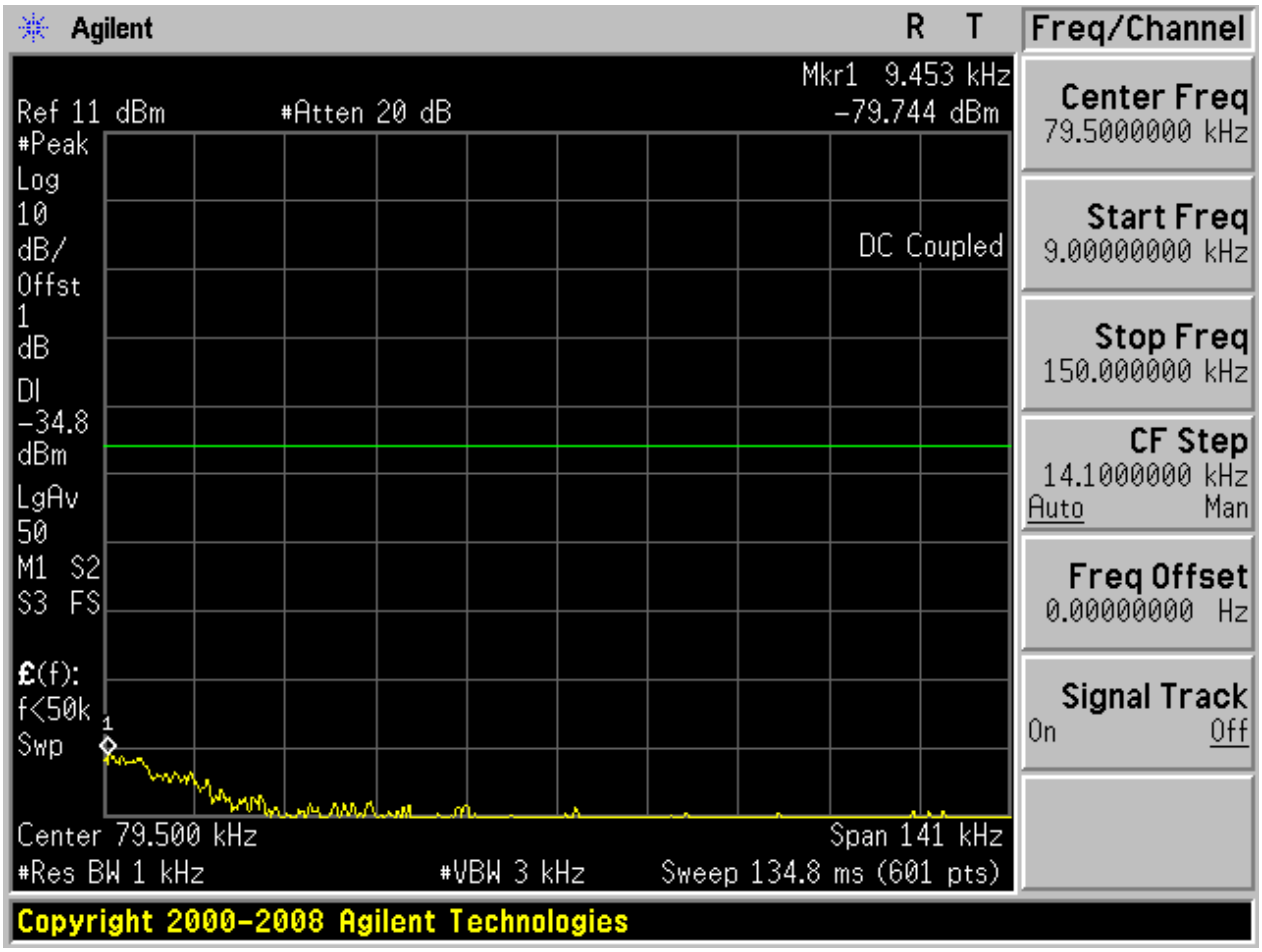
Part II - Test Plots

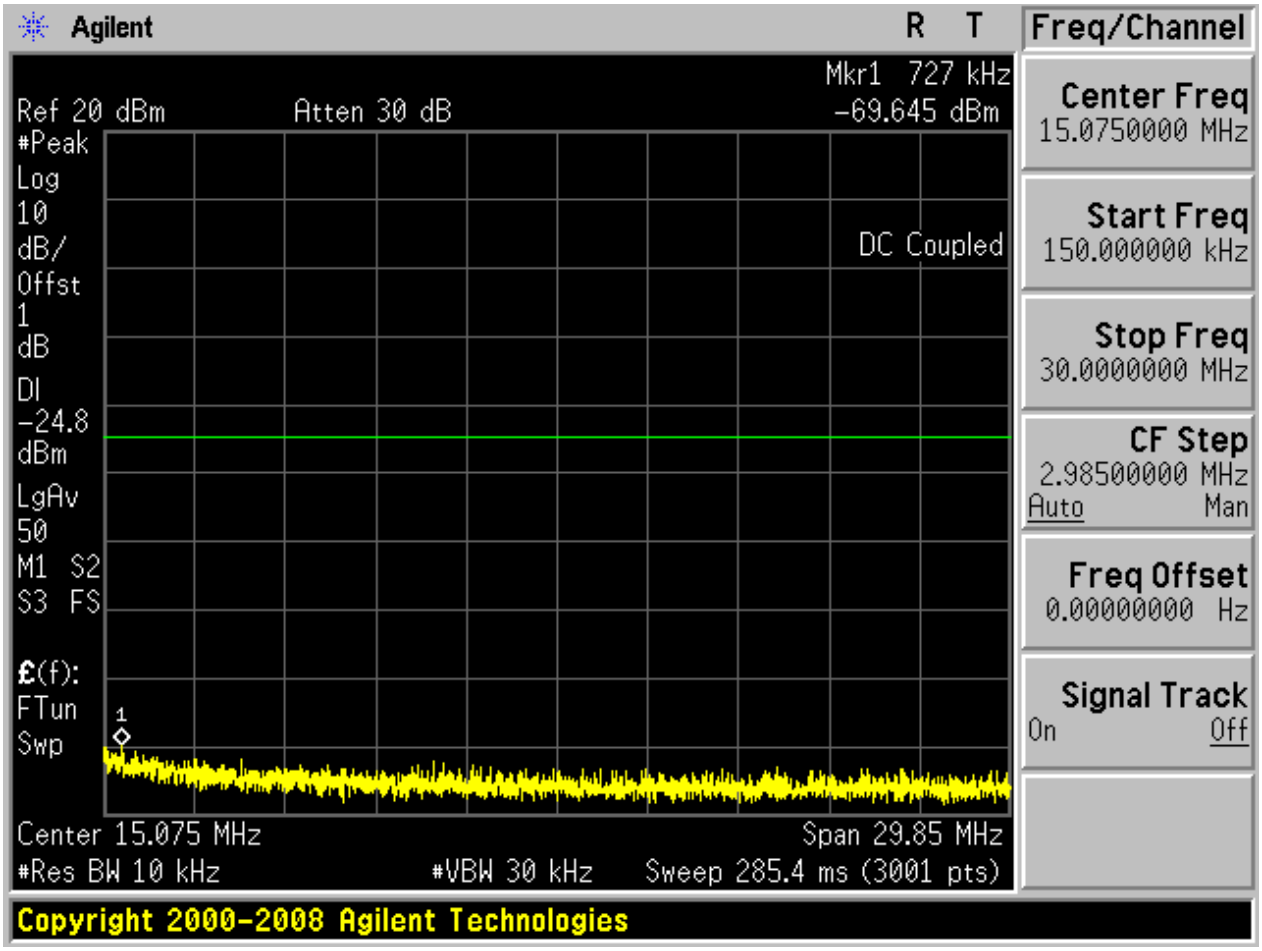
2.1 11B_L

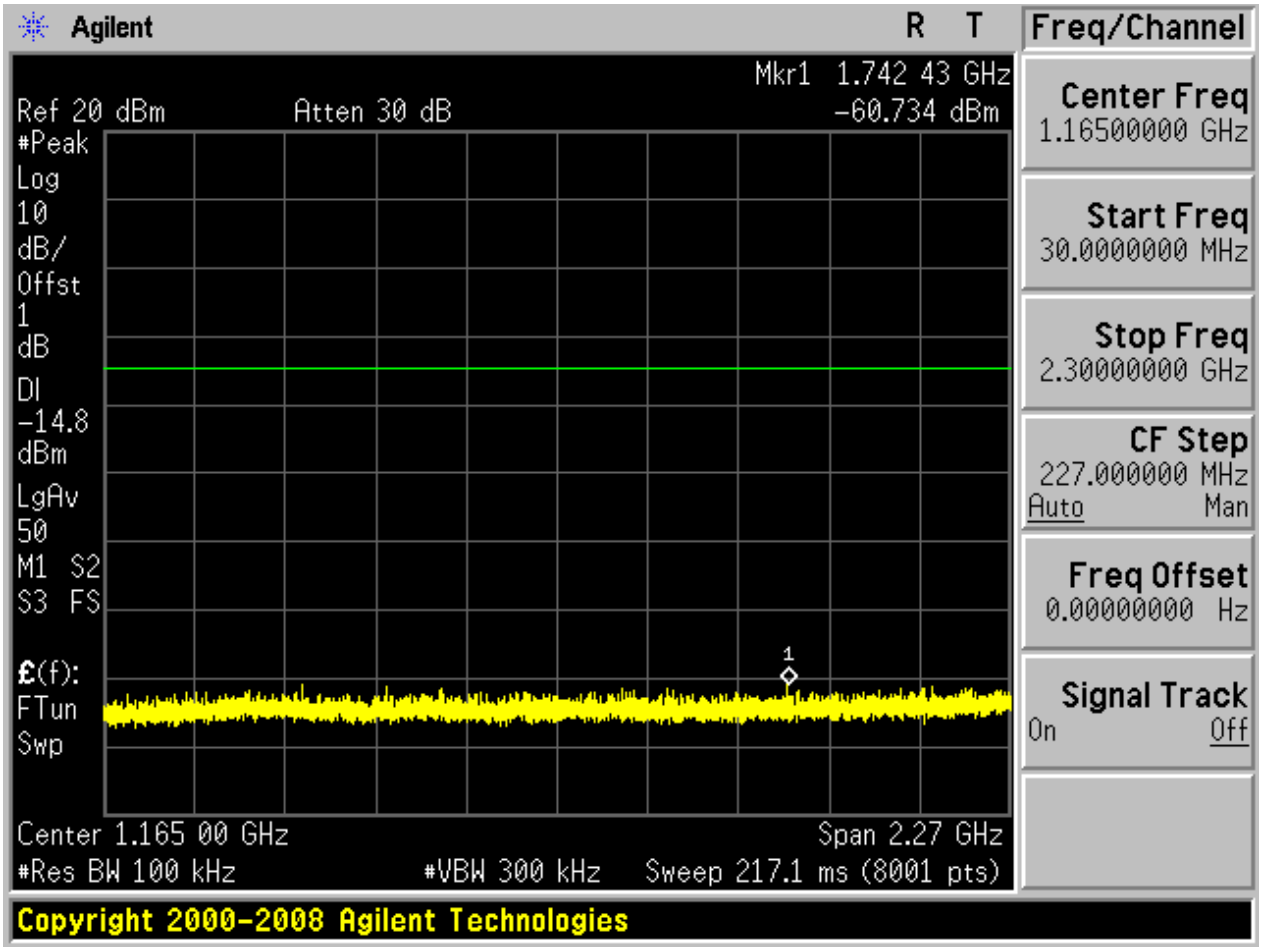
Pref:

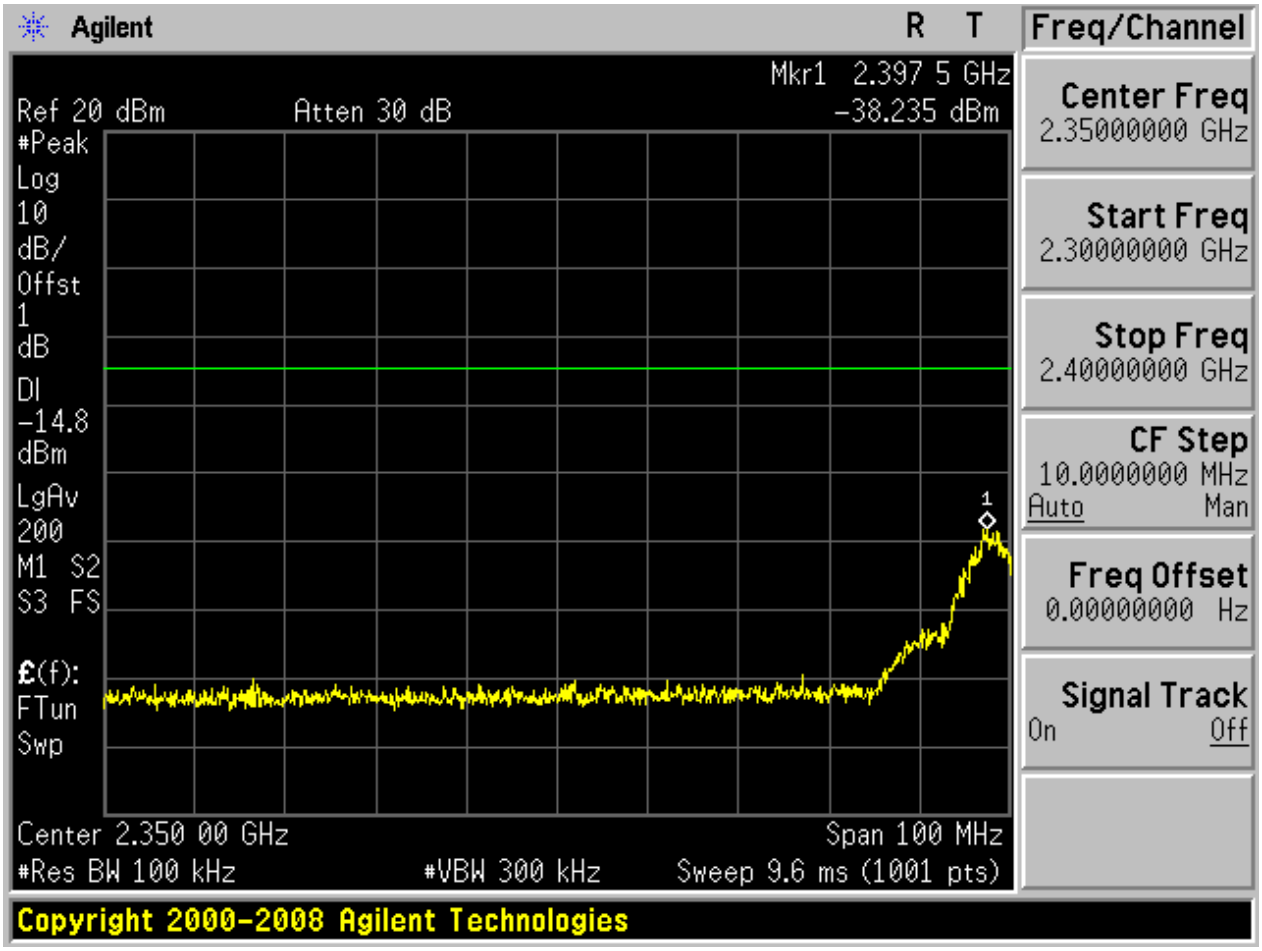


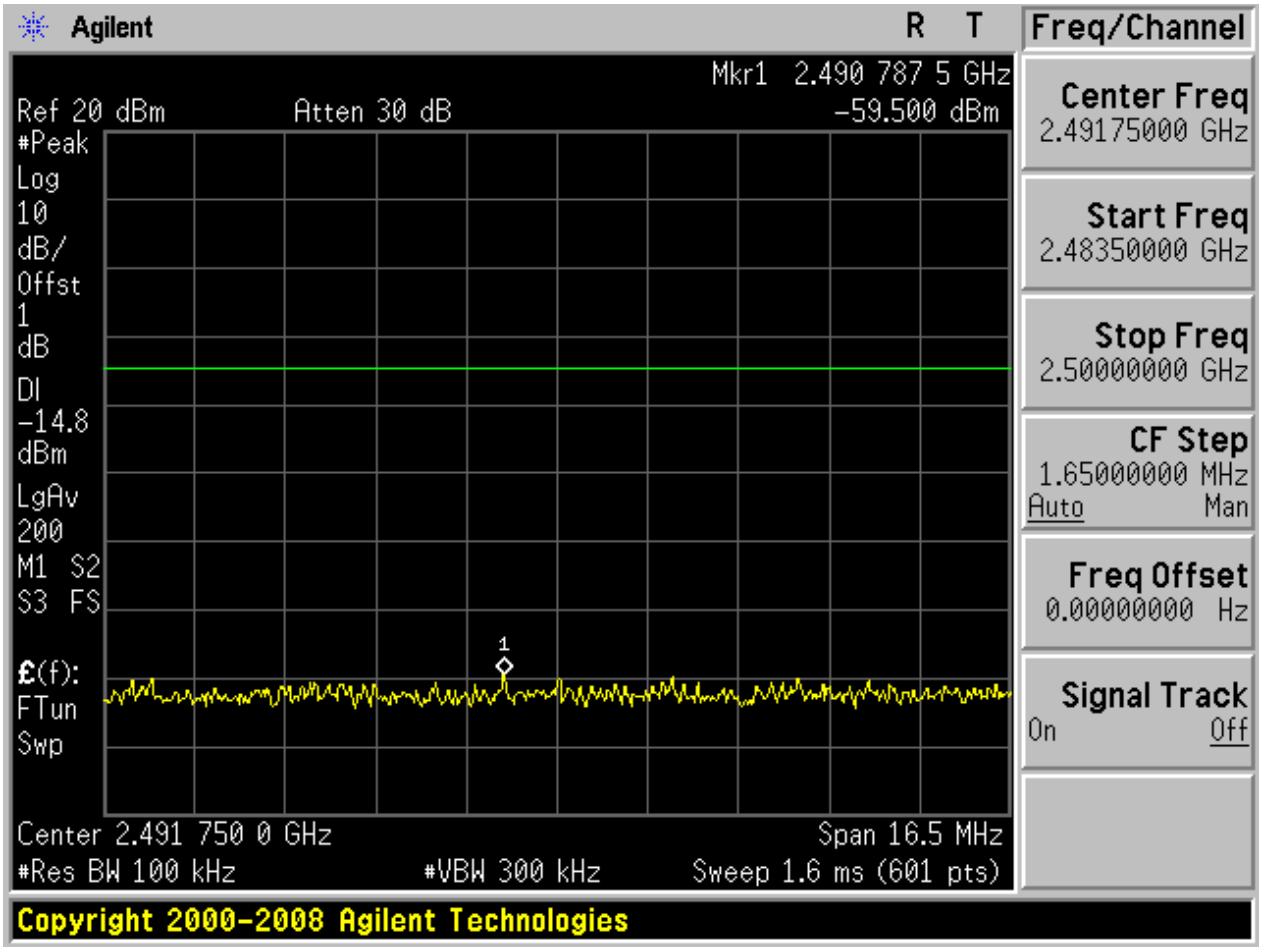
Puw:

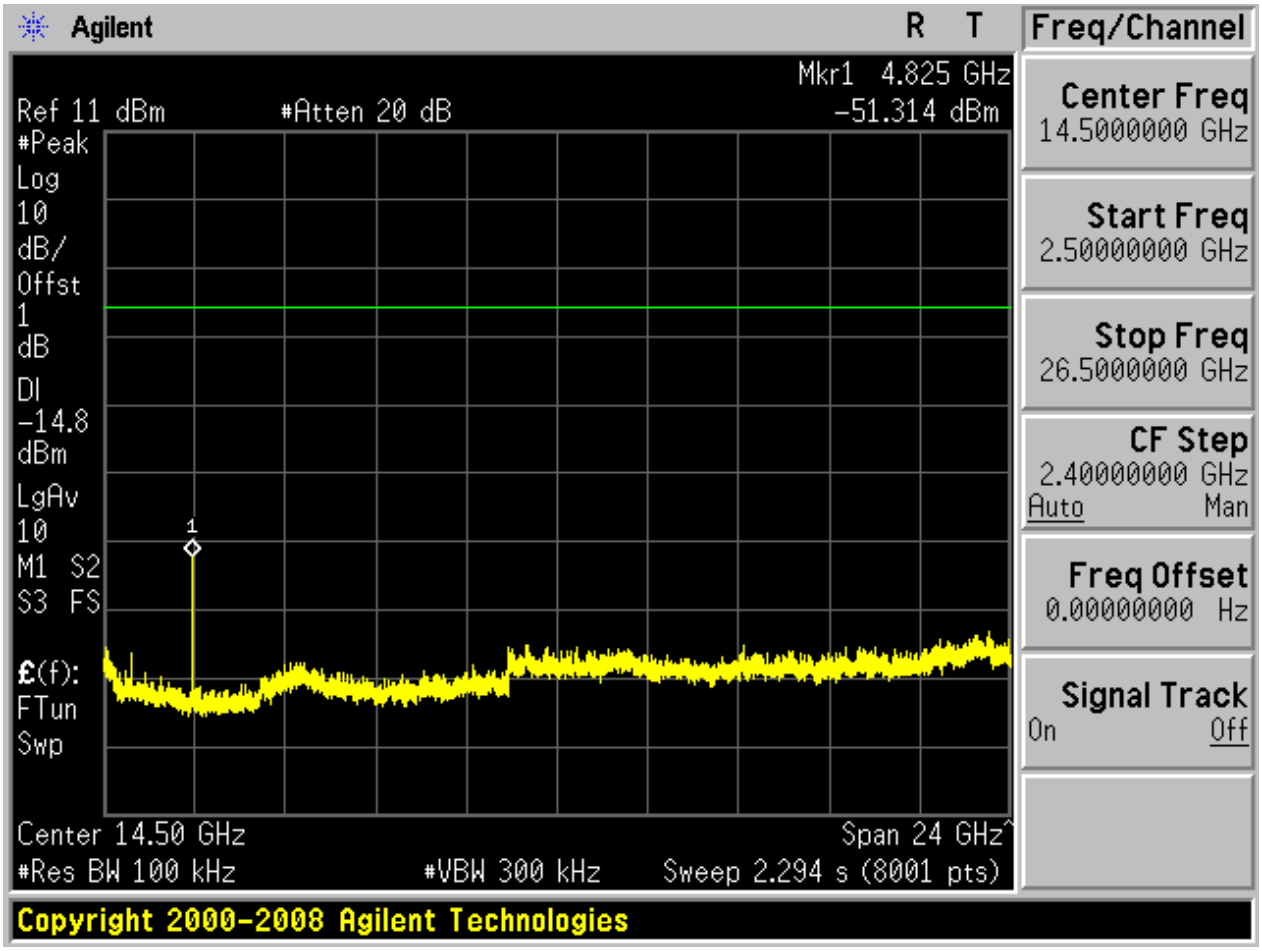






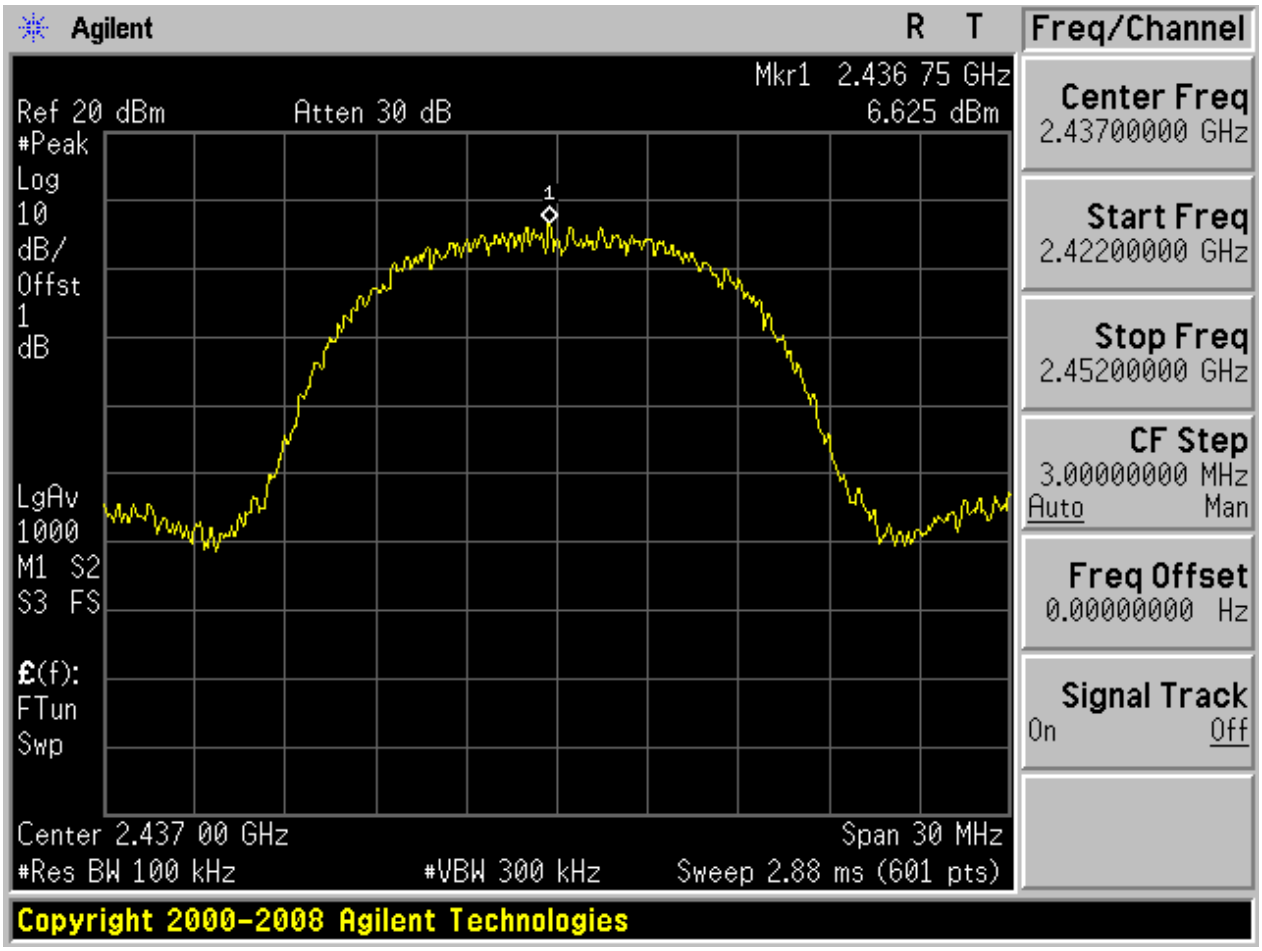




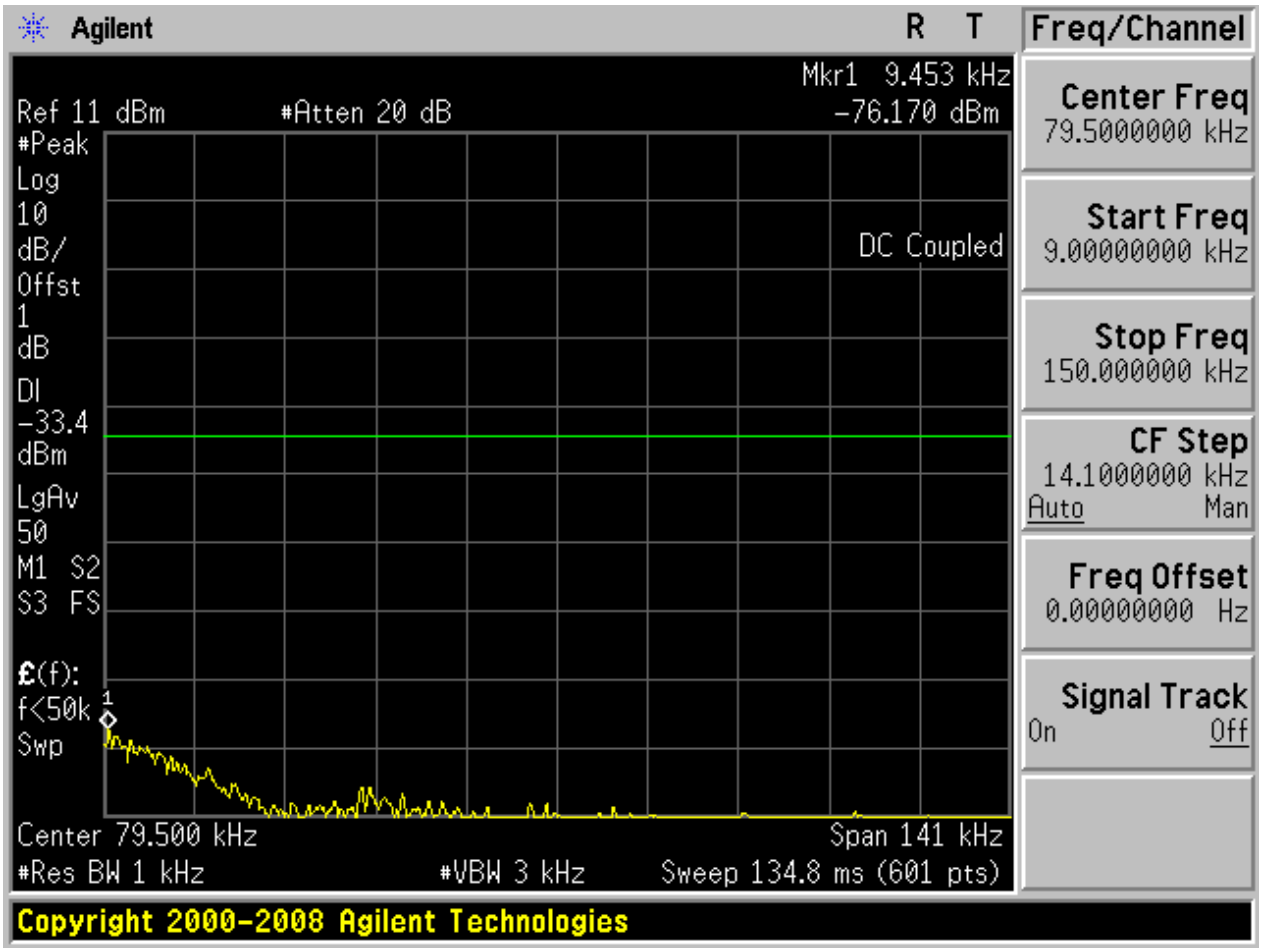


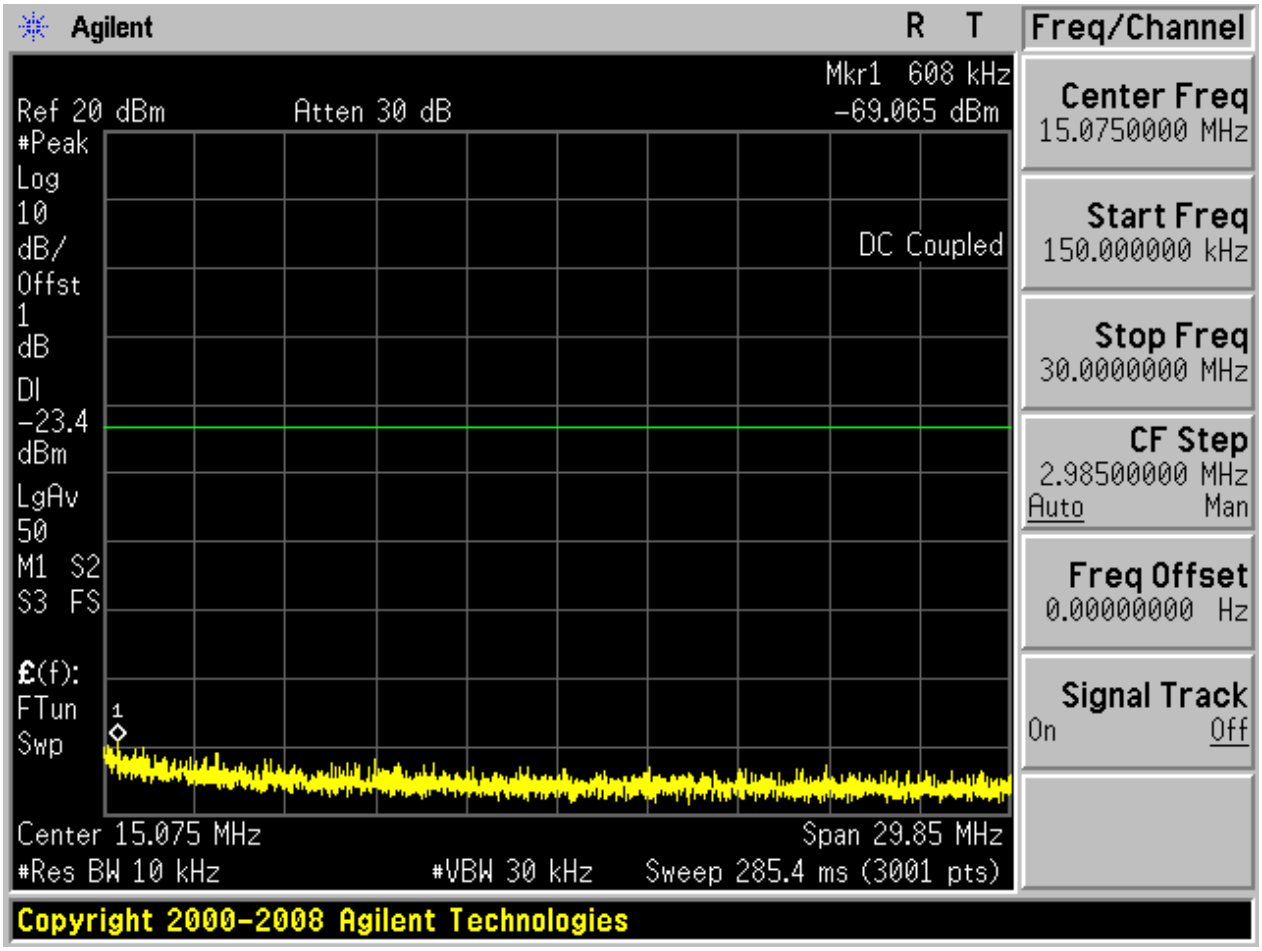
2.2 11B_M

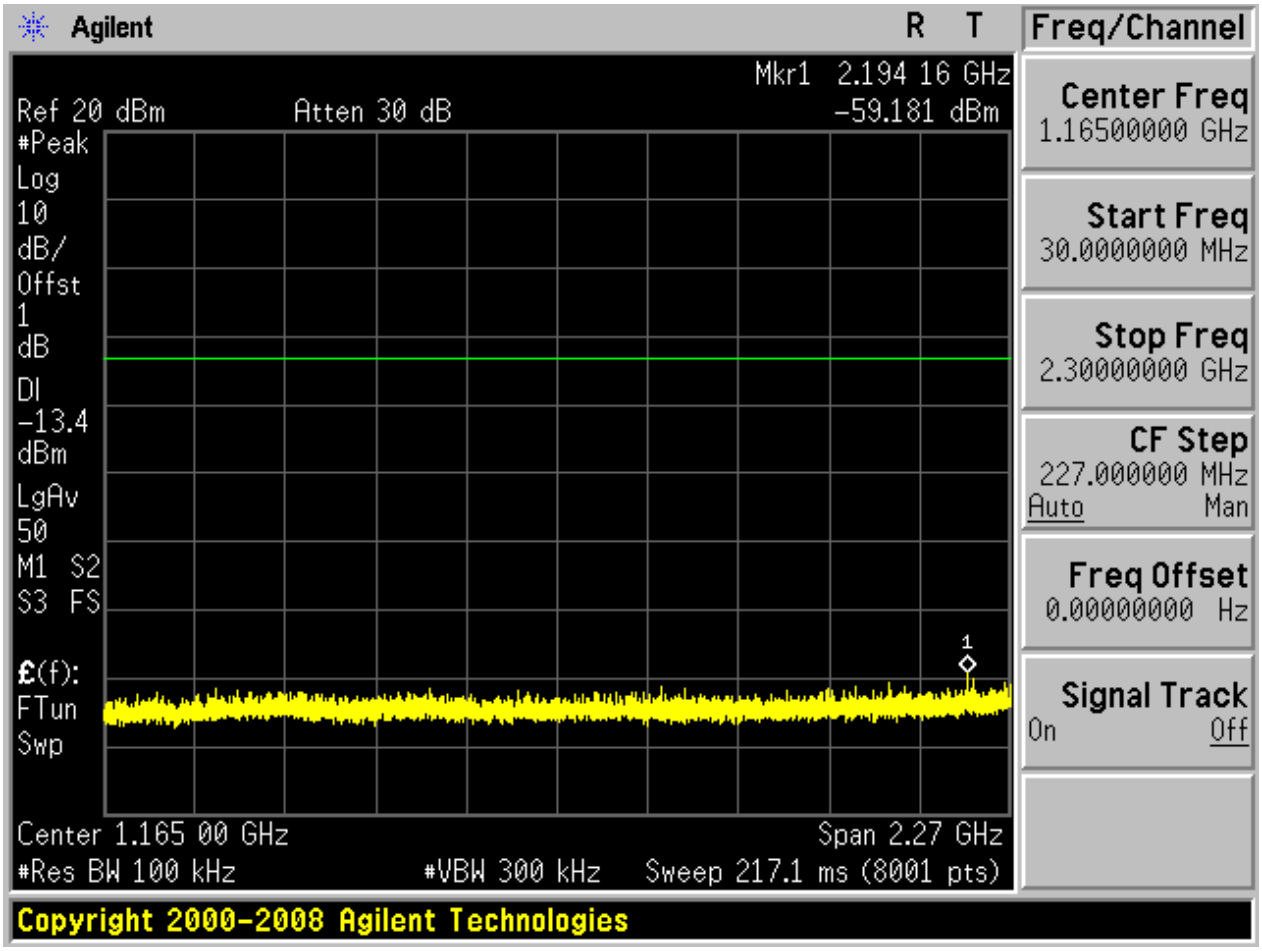
Pref:

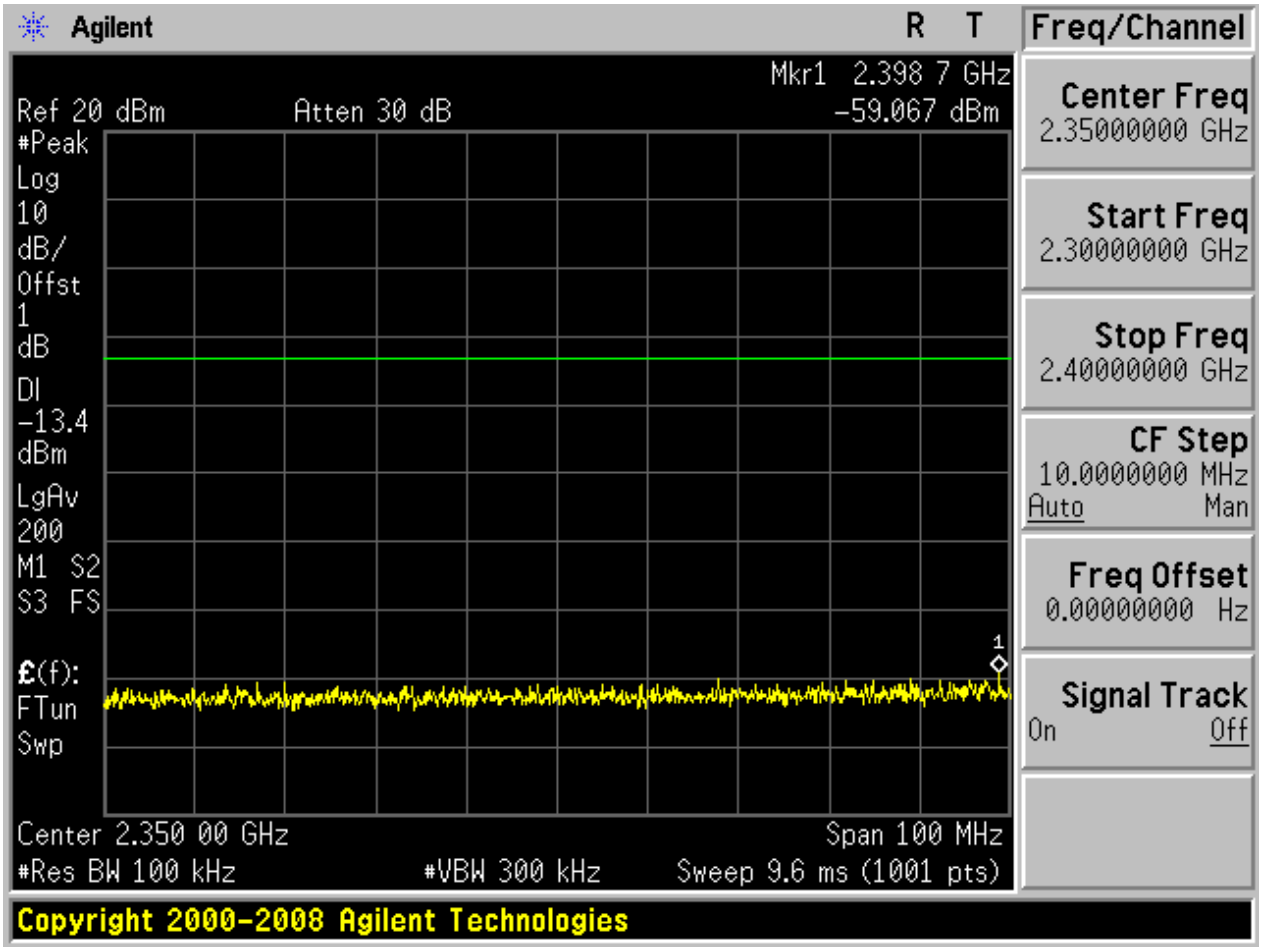


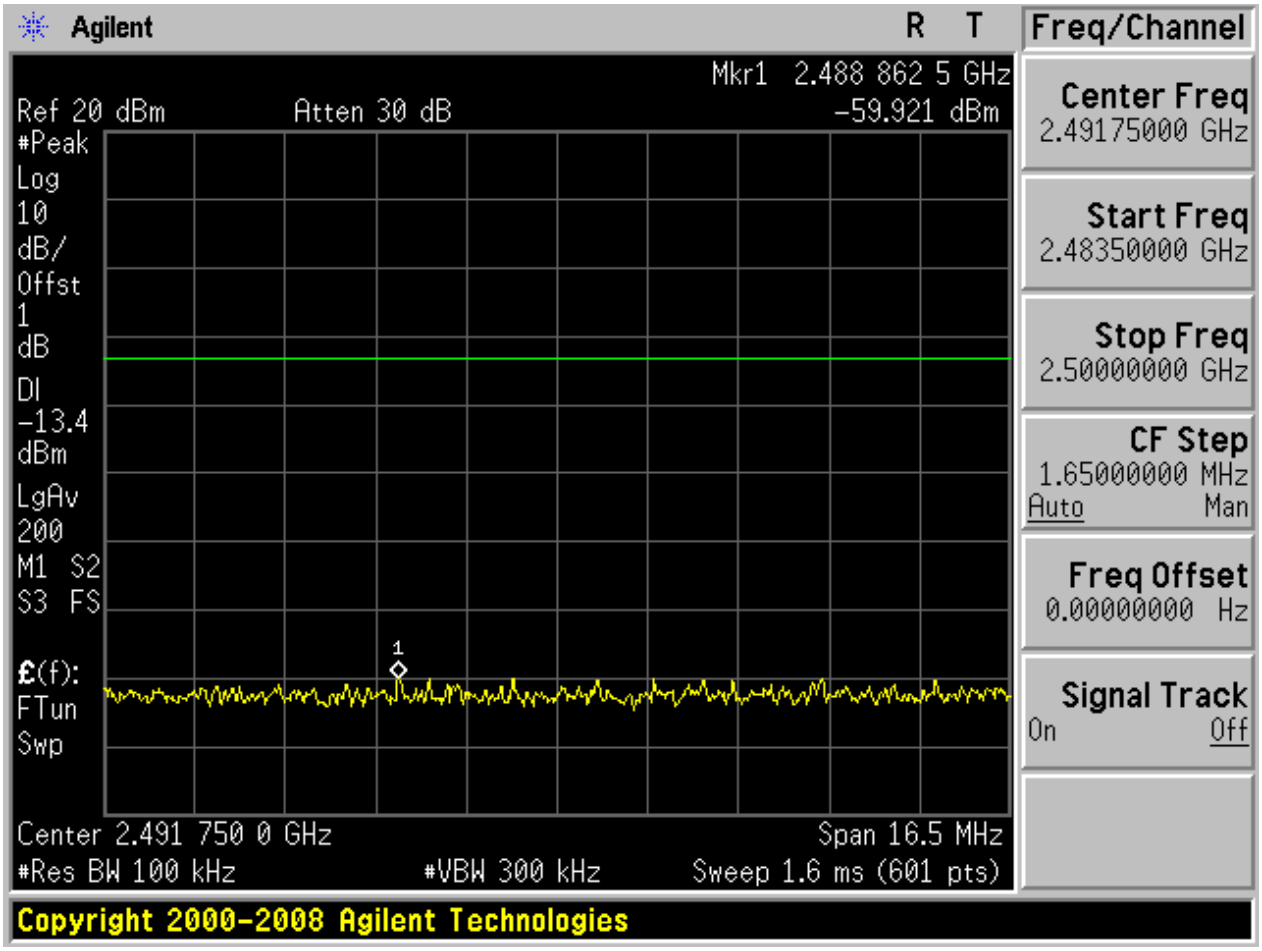
Puw:

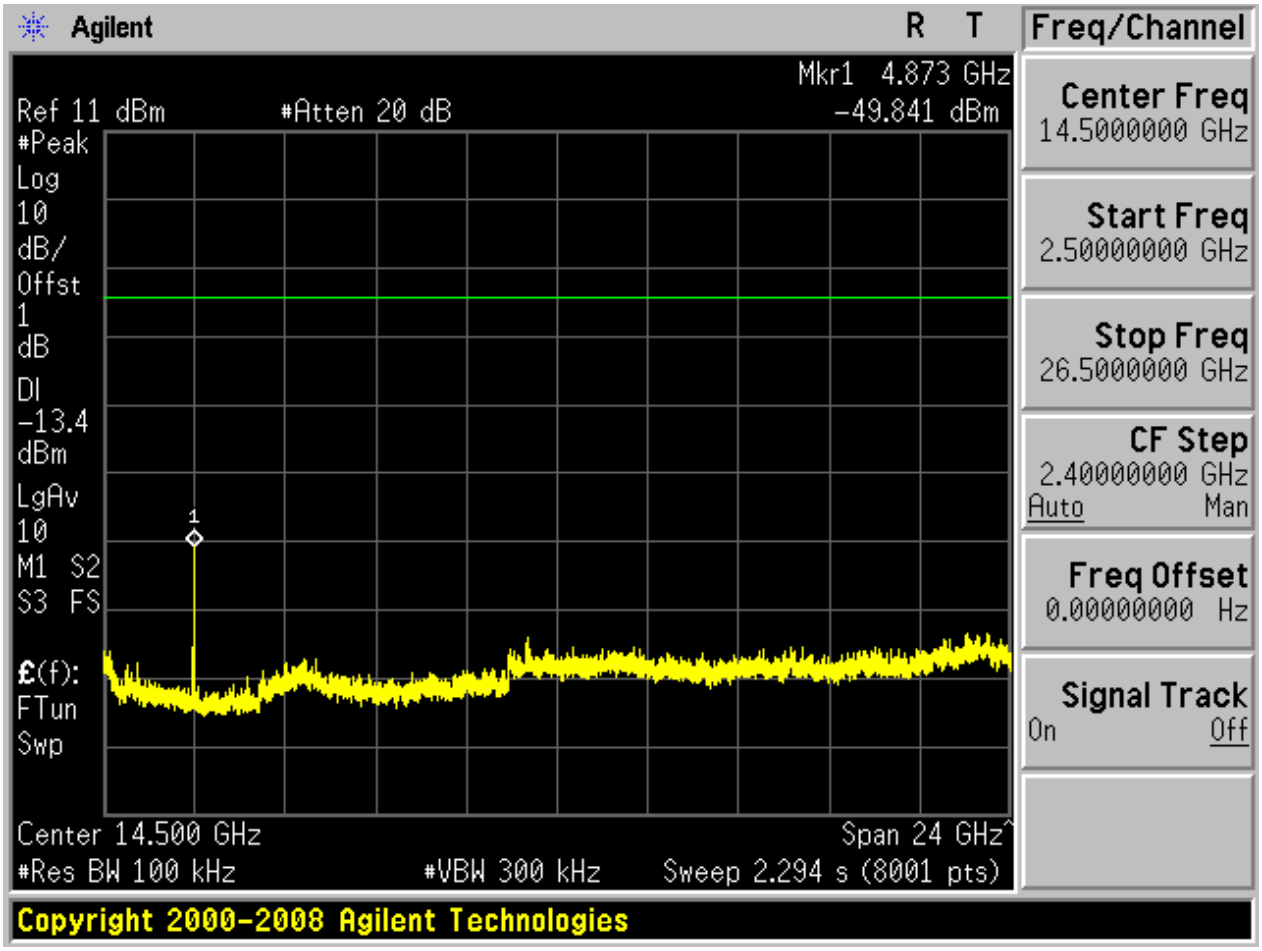






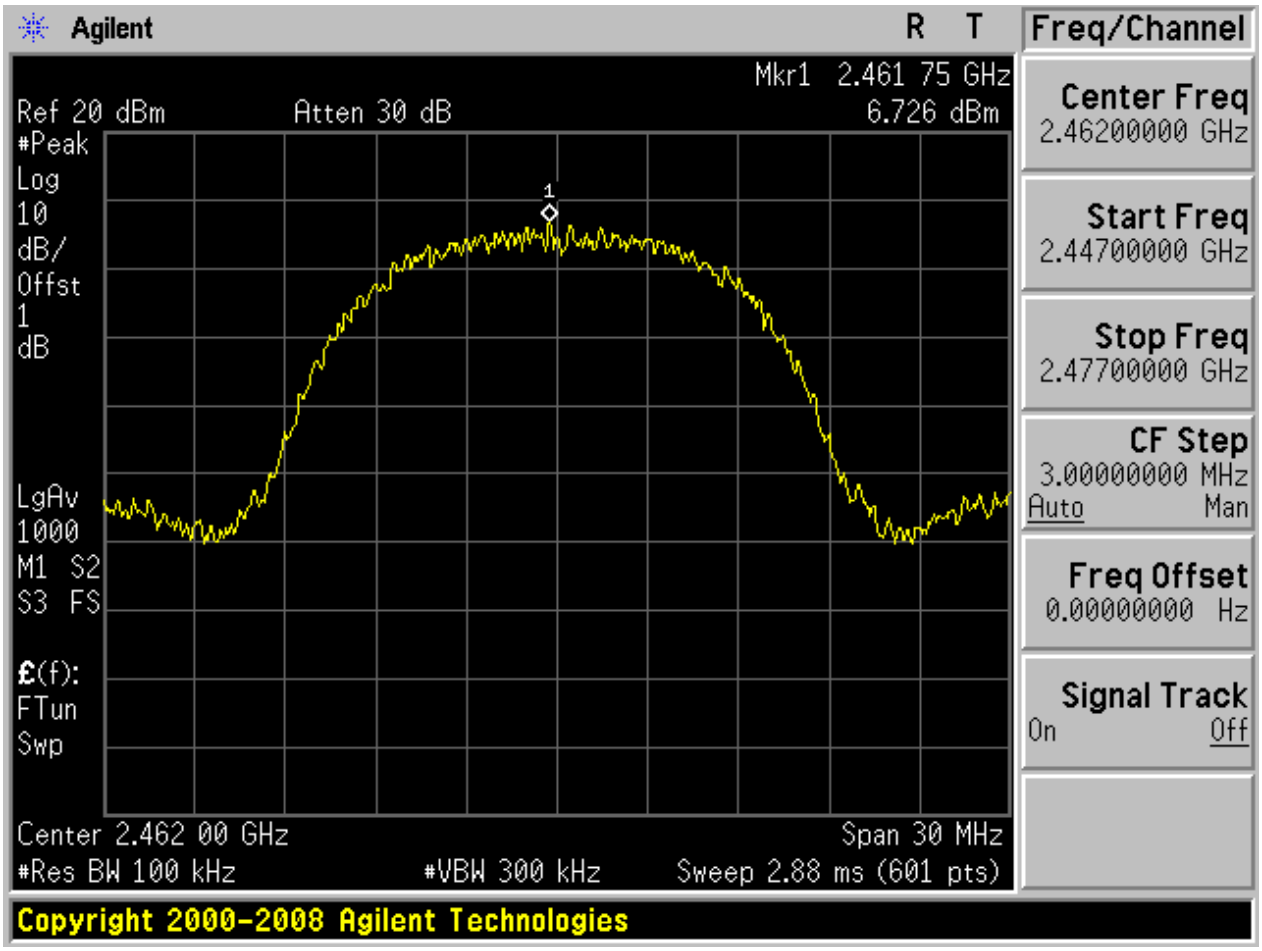




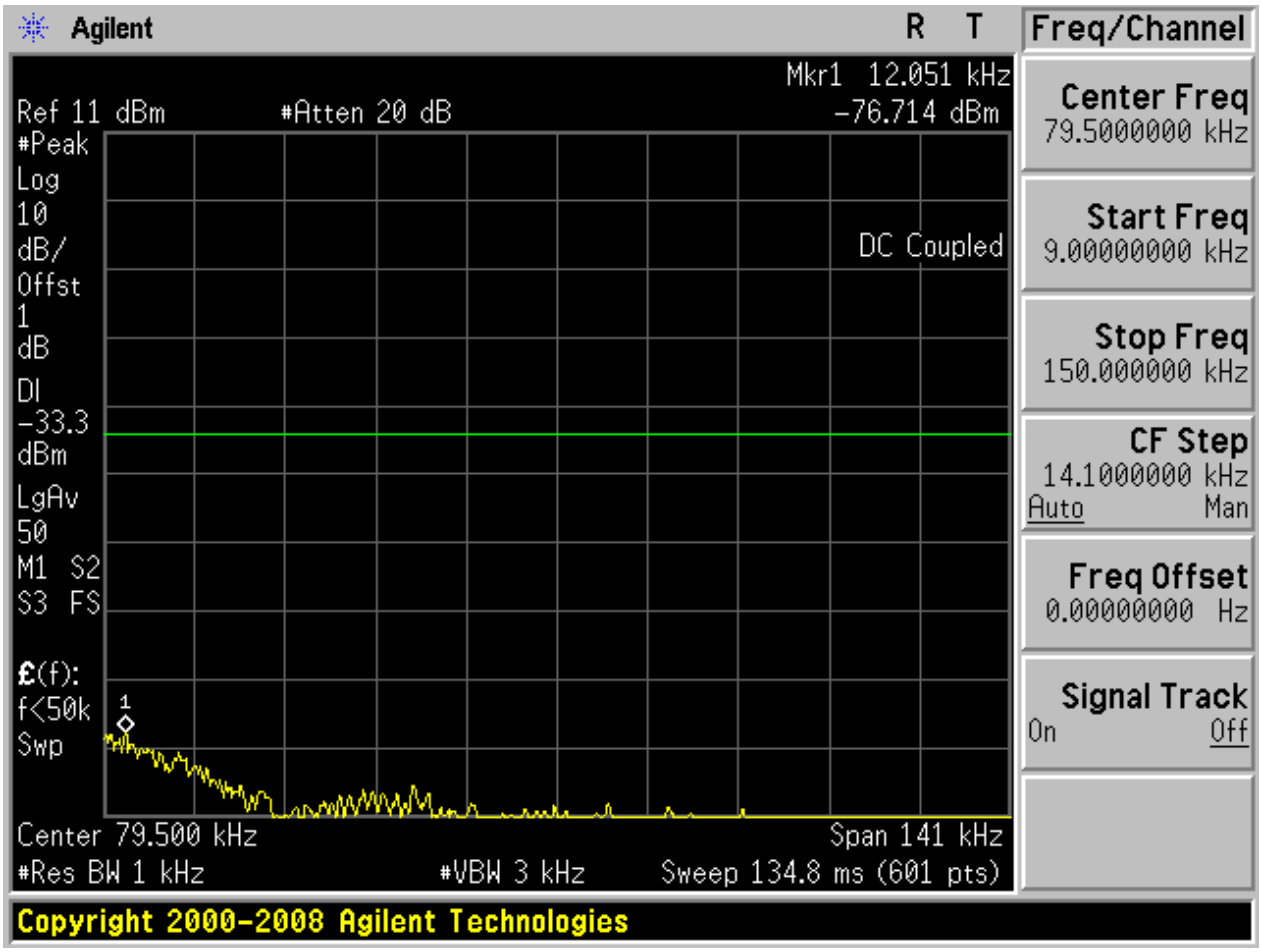


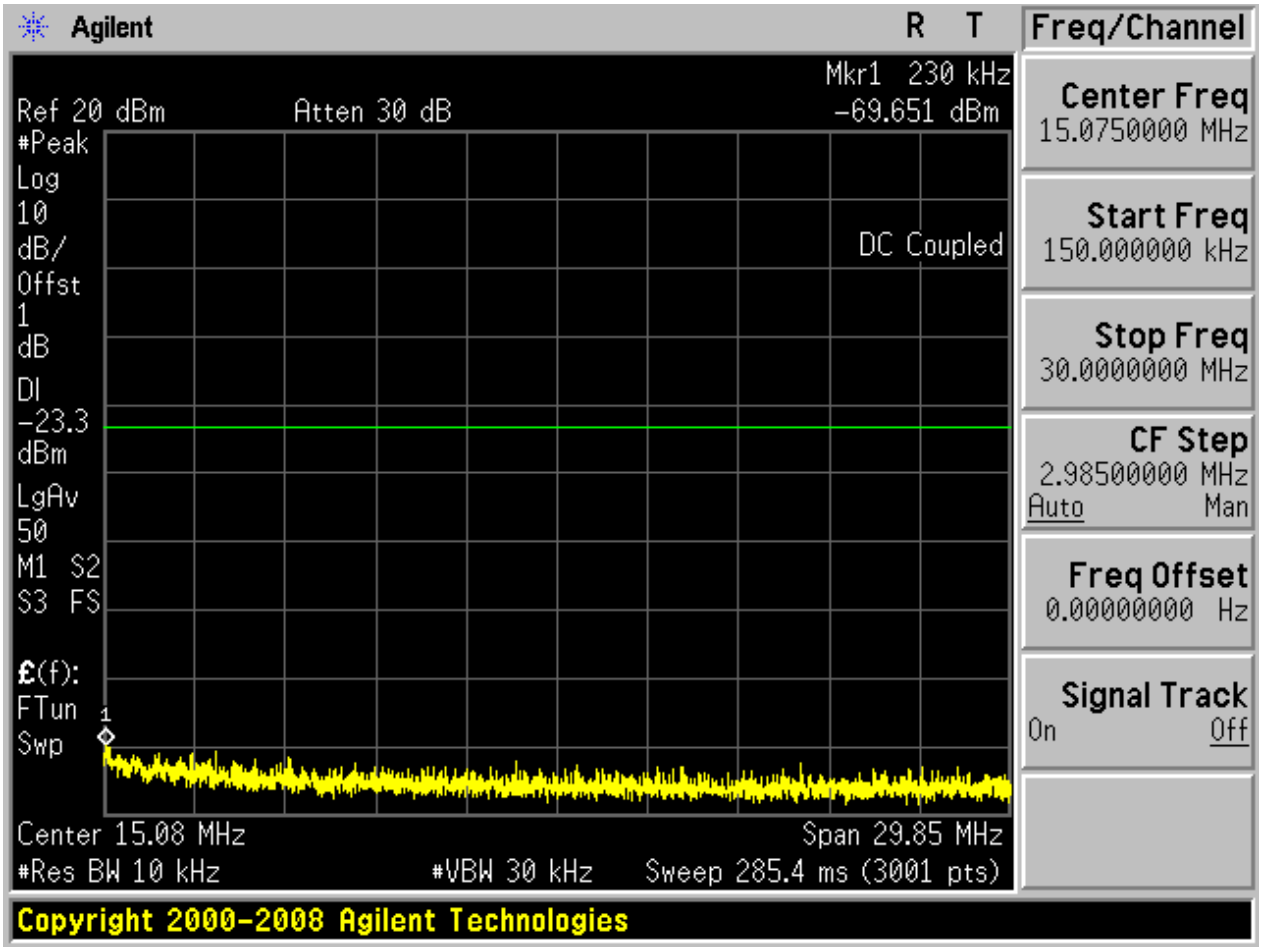
2.3 11B_H

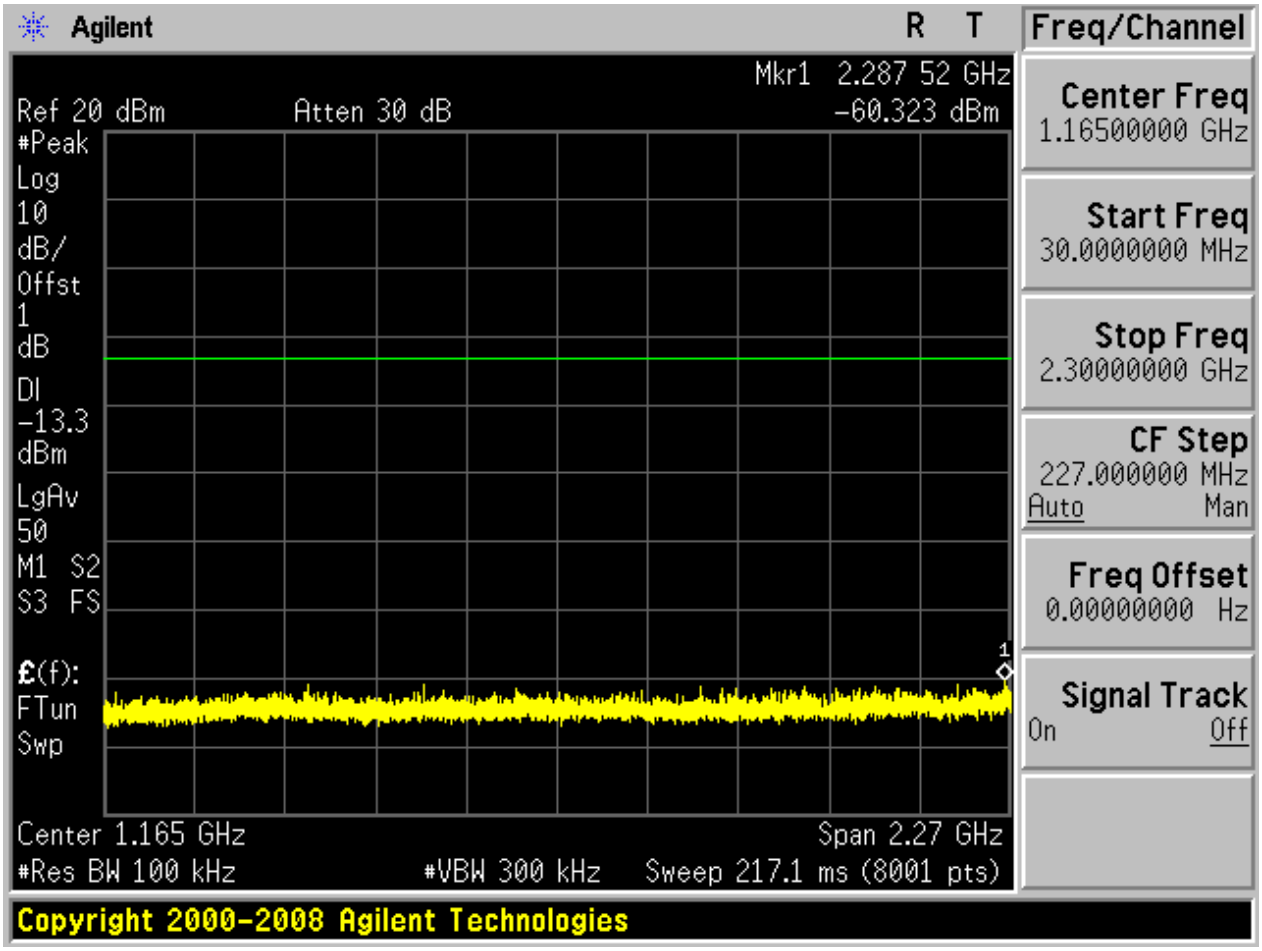
Pref:

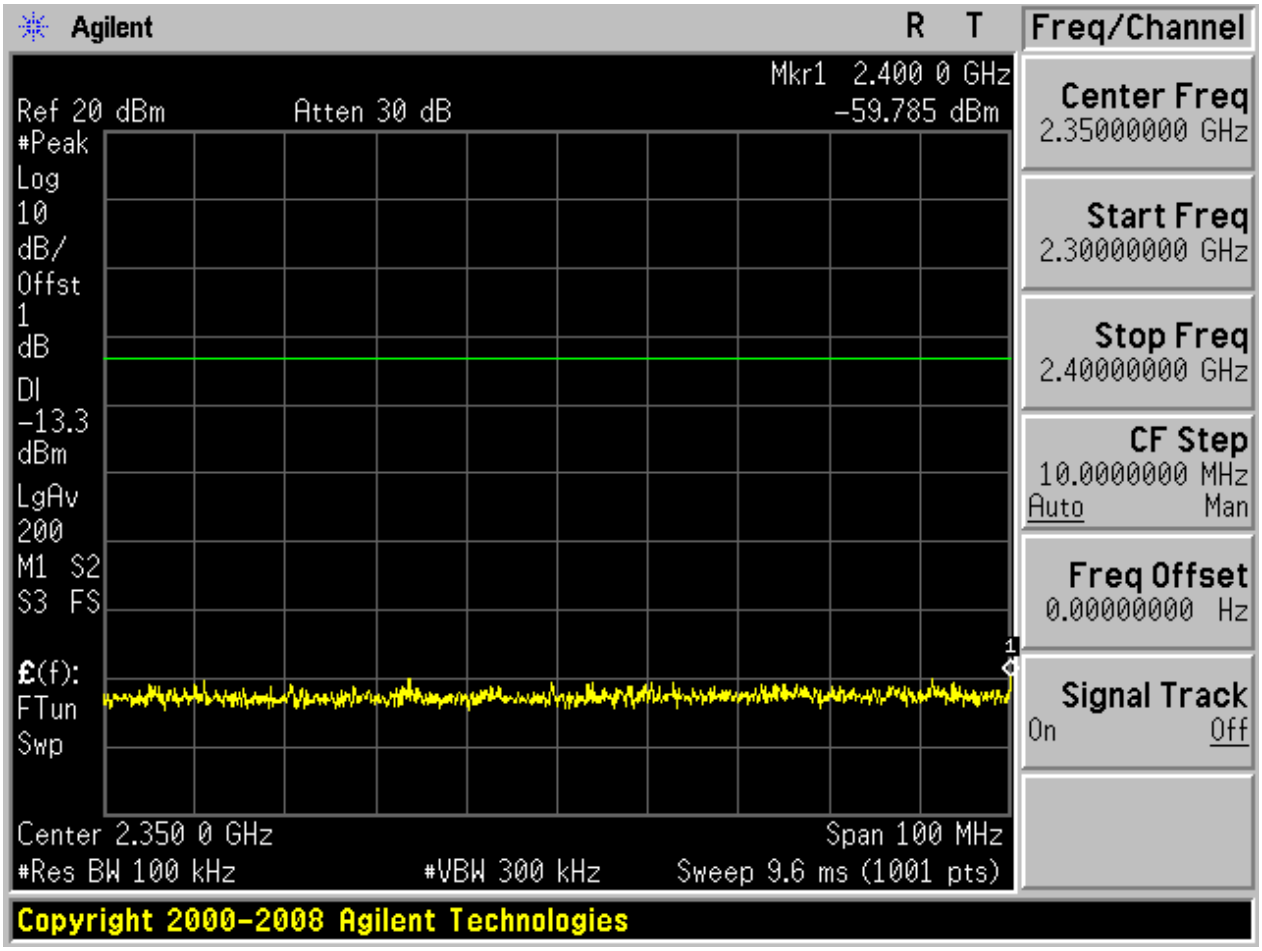


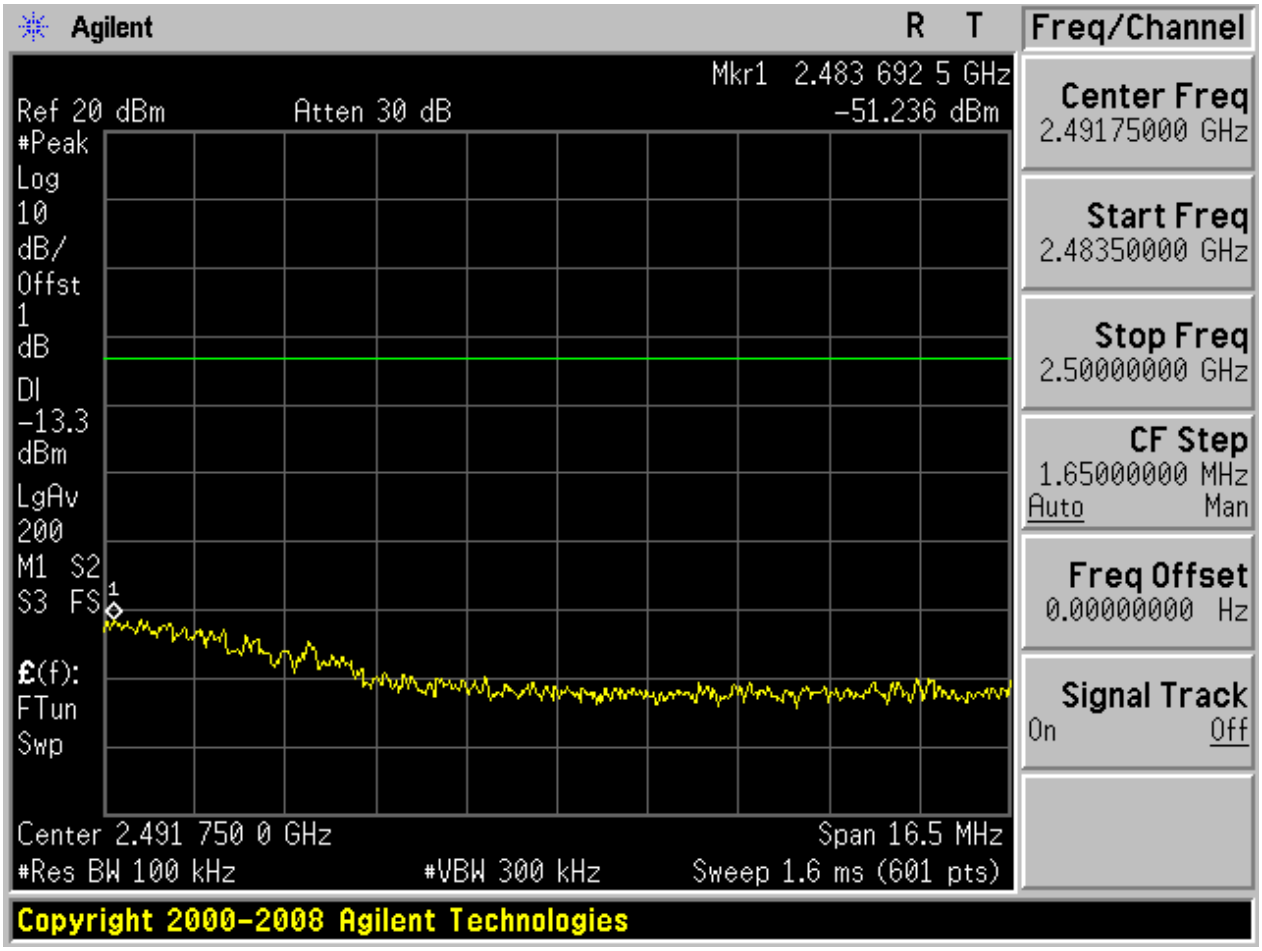
Puw:

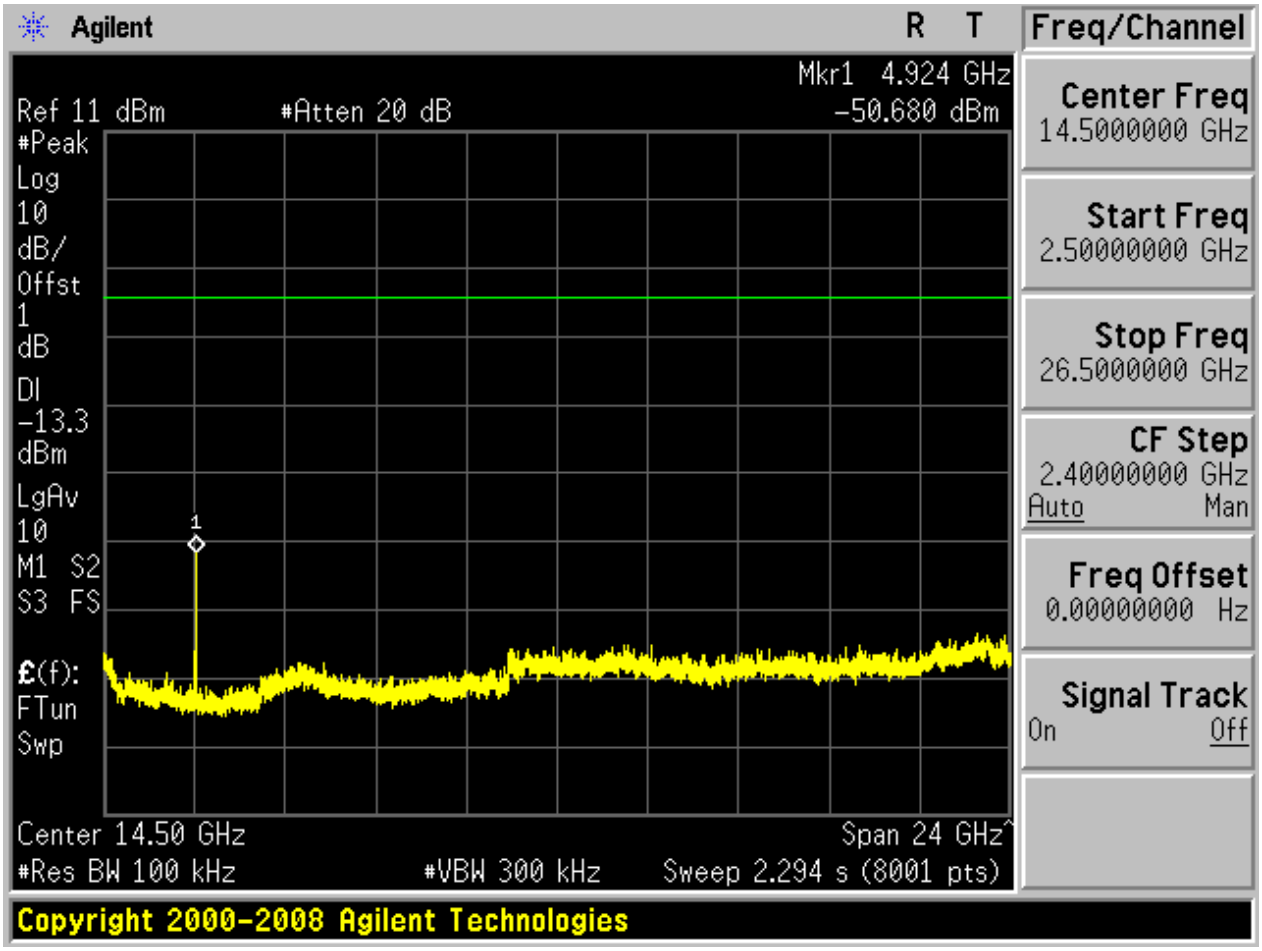






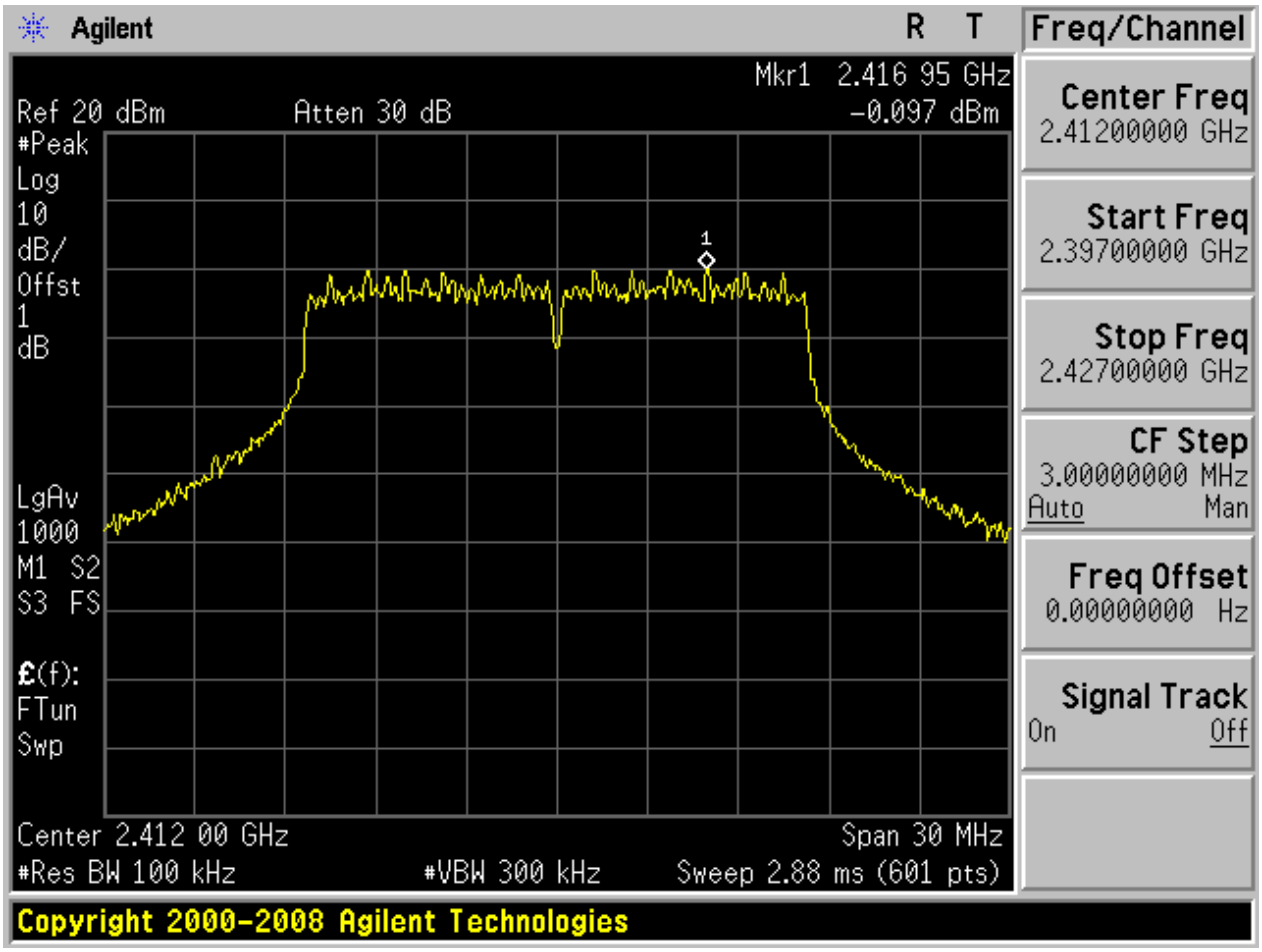






2.4 11G_L

Pref:



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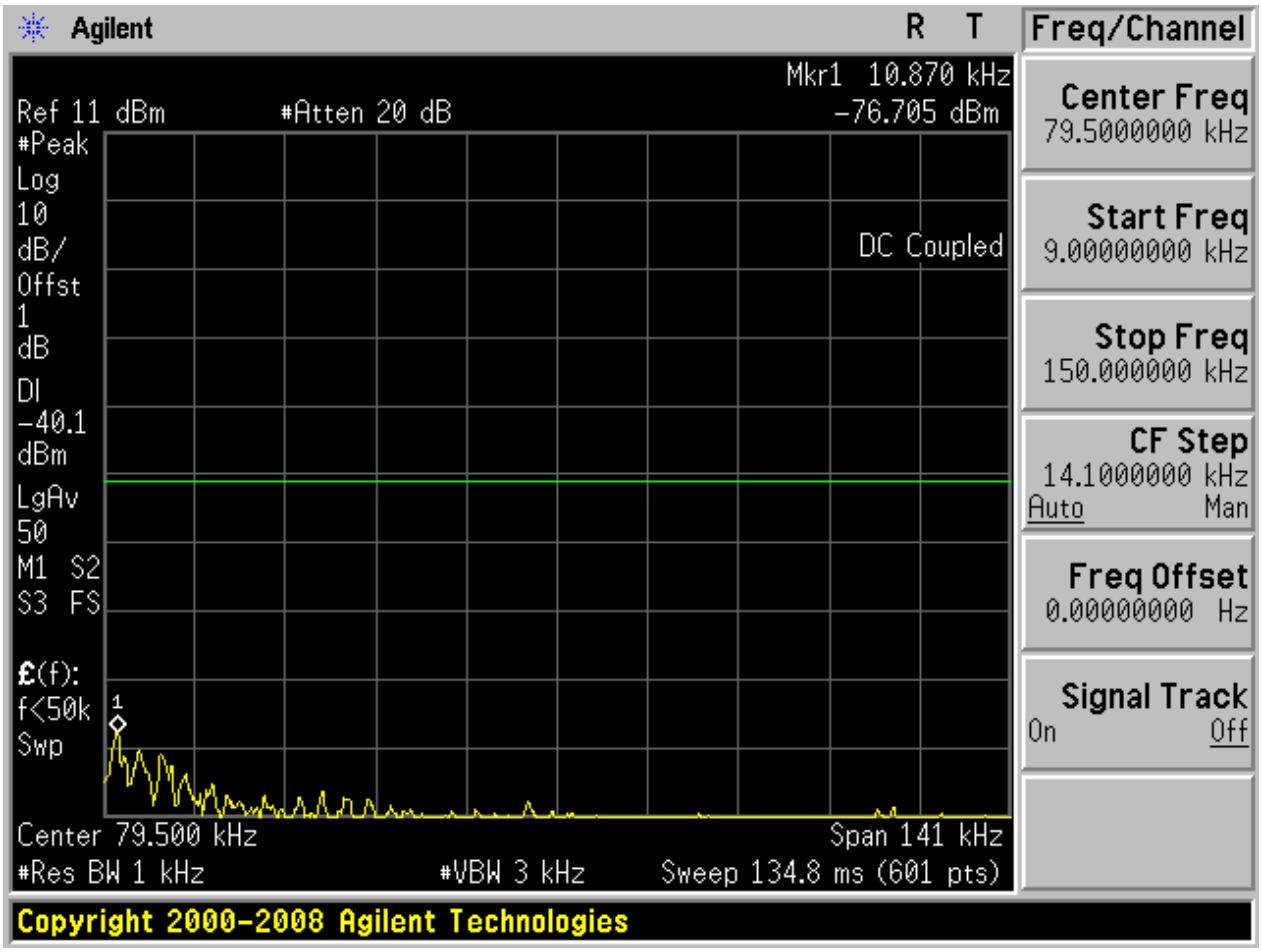

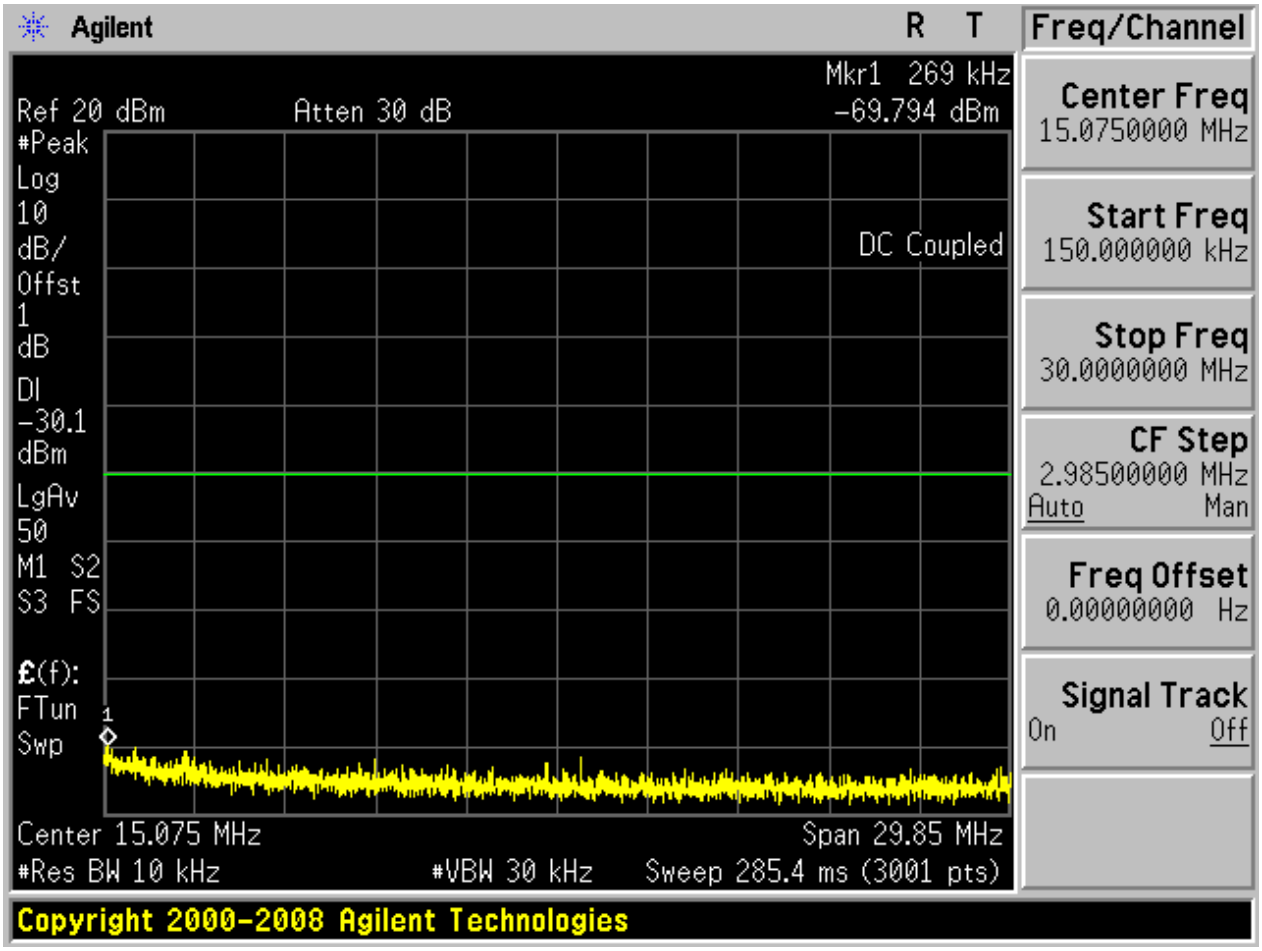

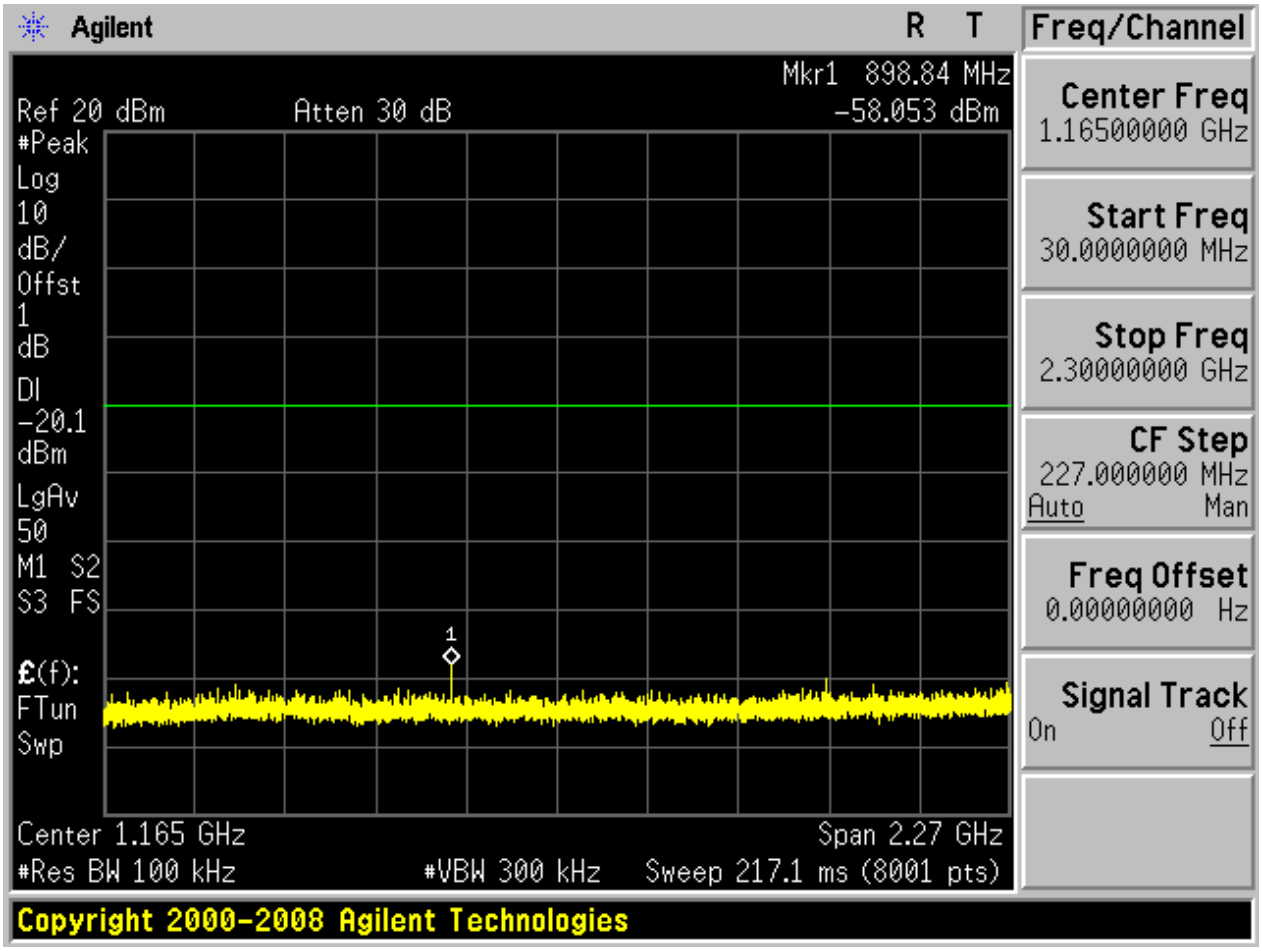

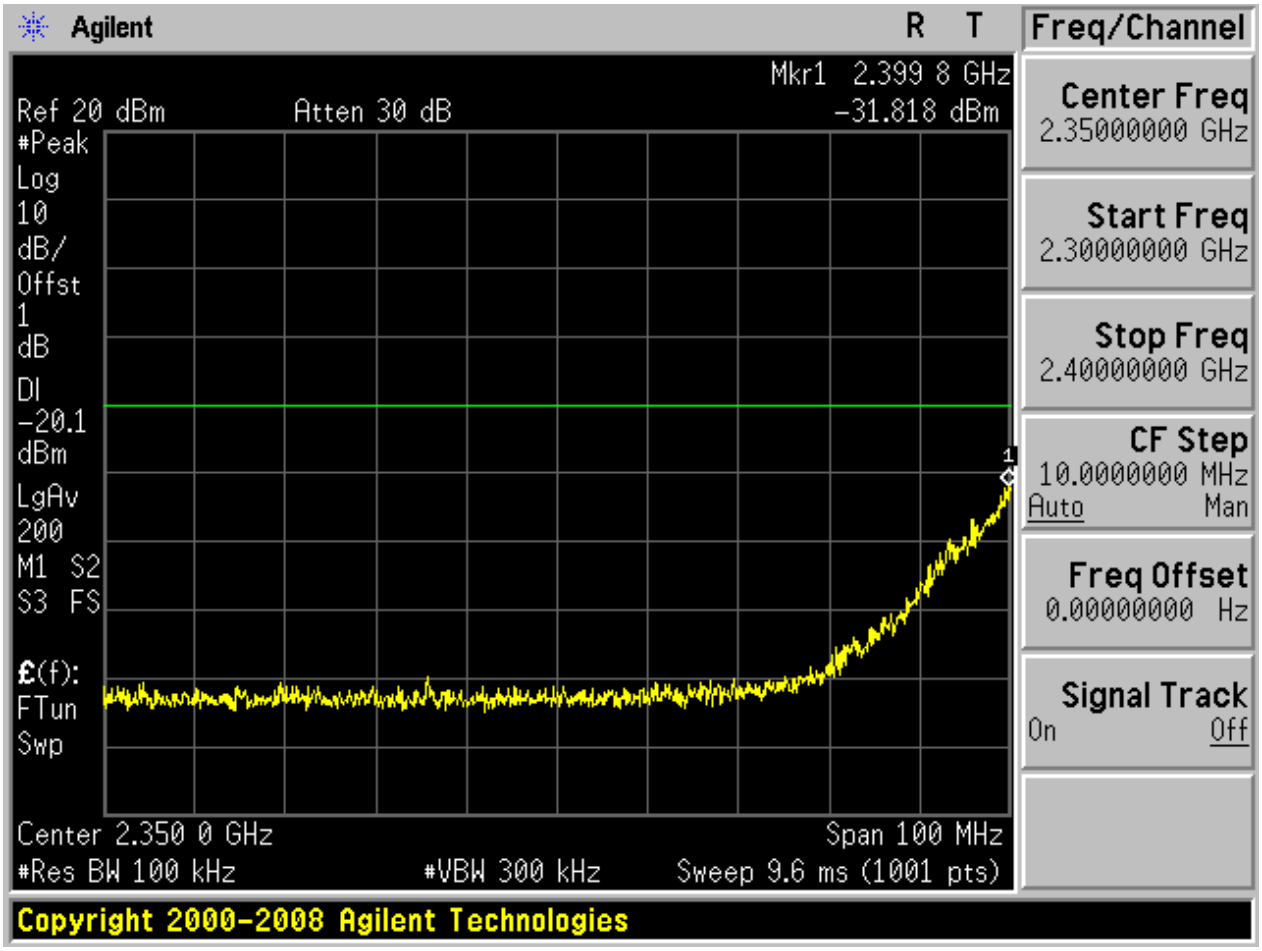

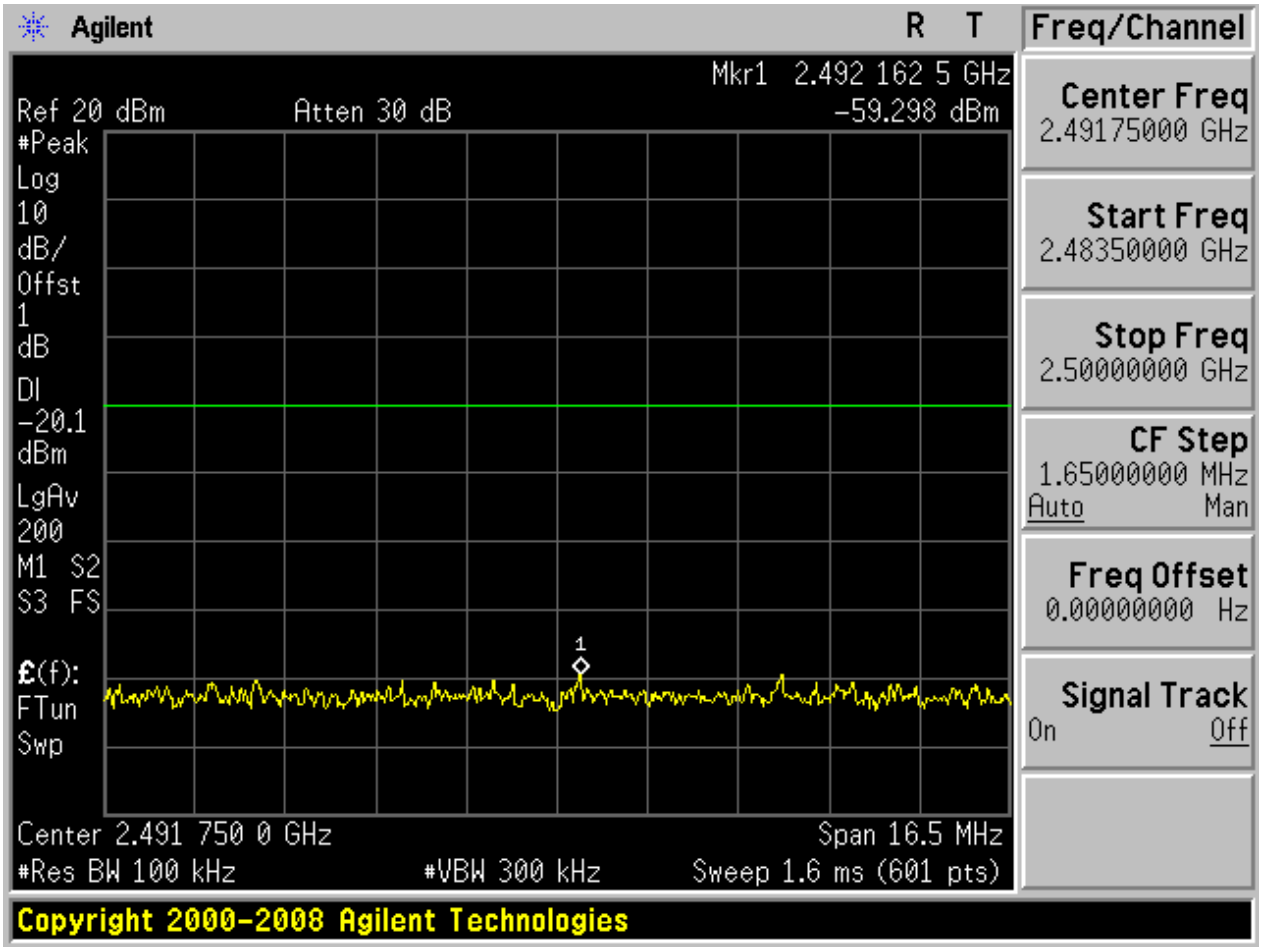

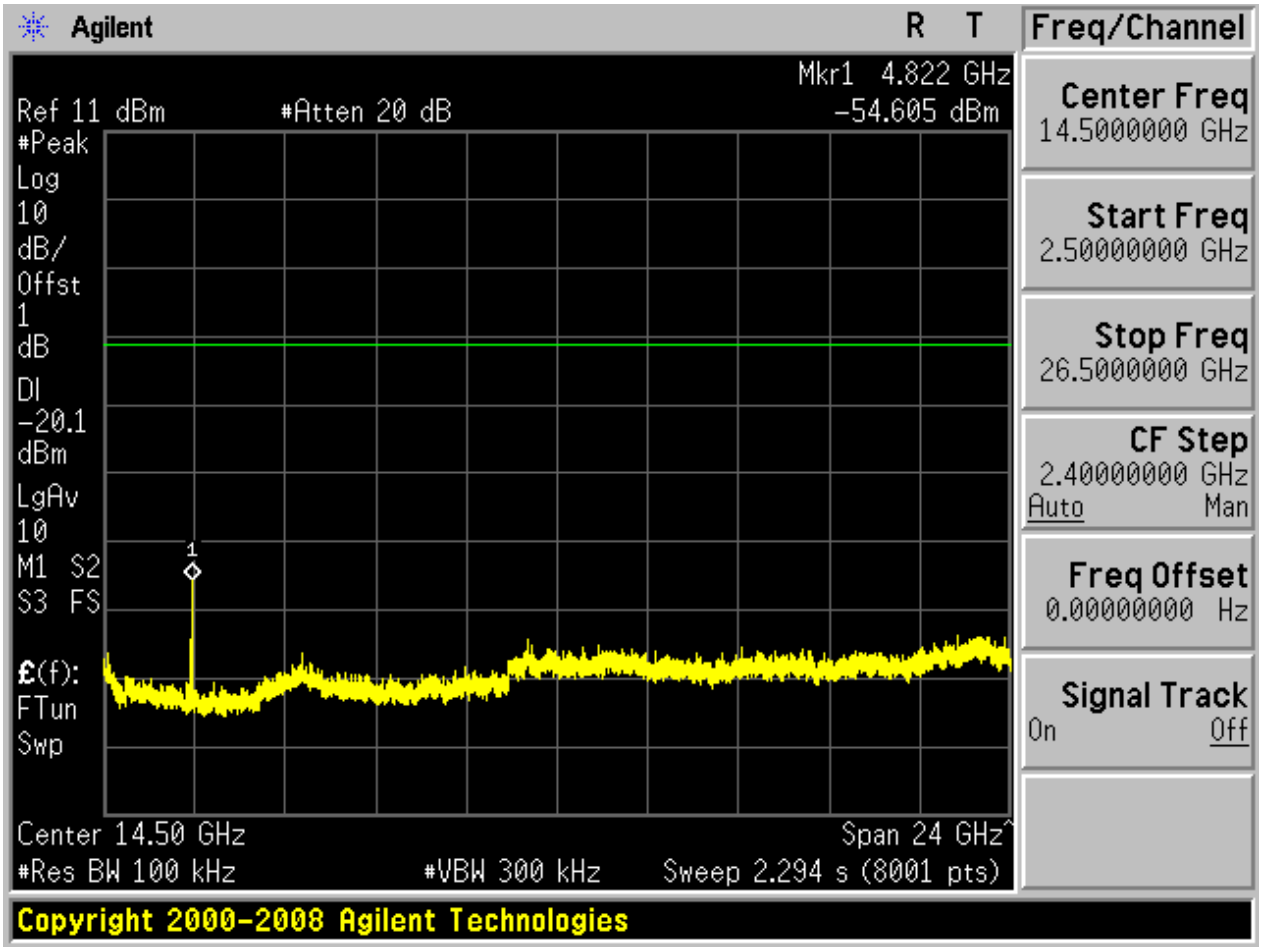

2.5 11G_M

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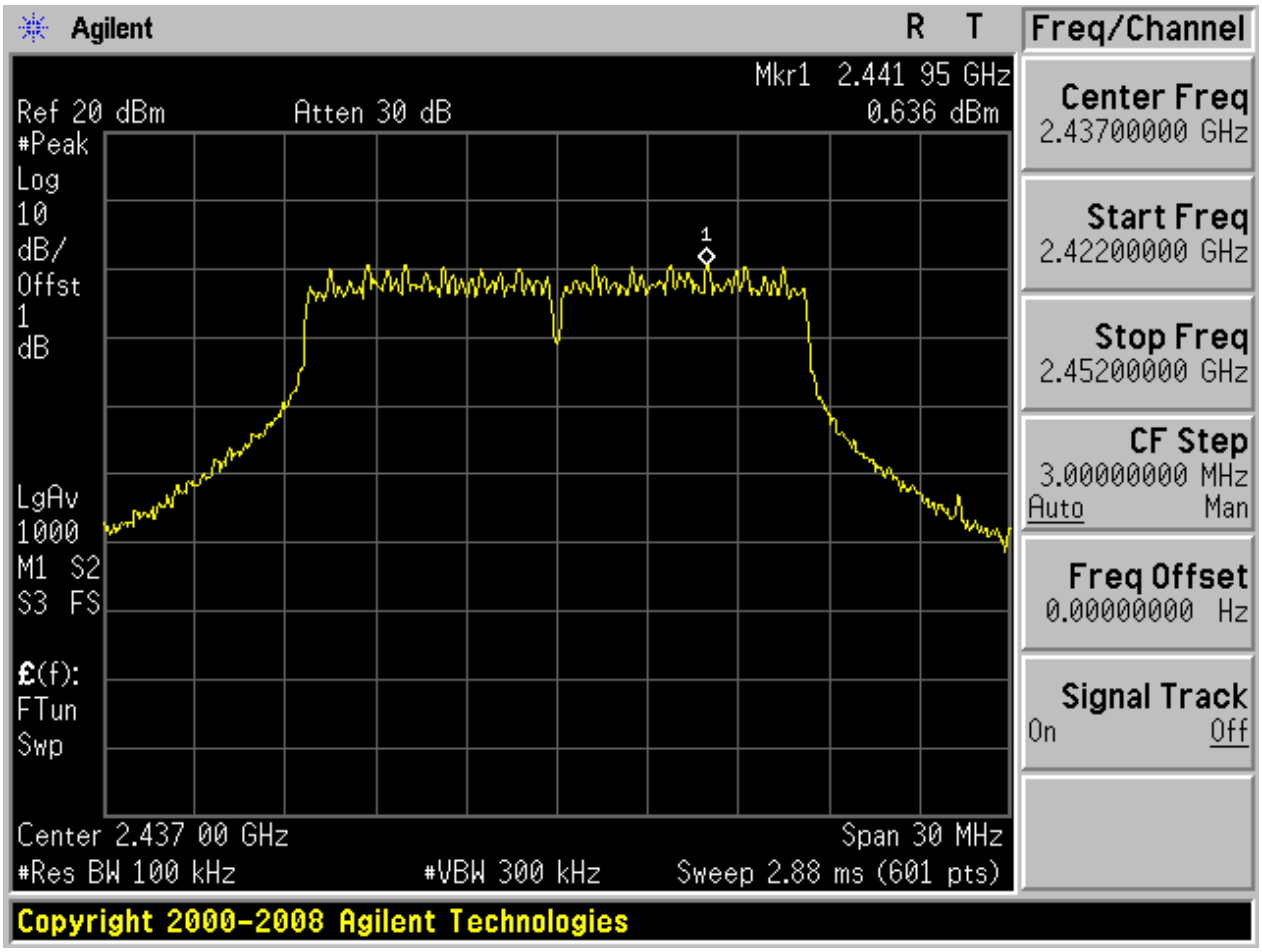

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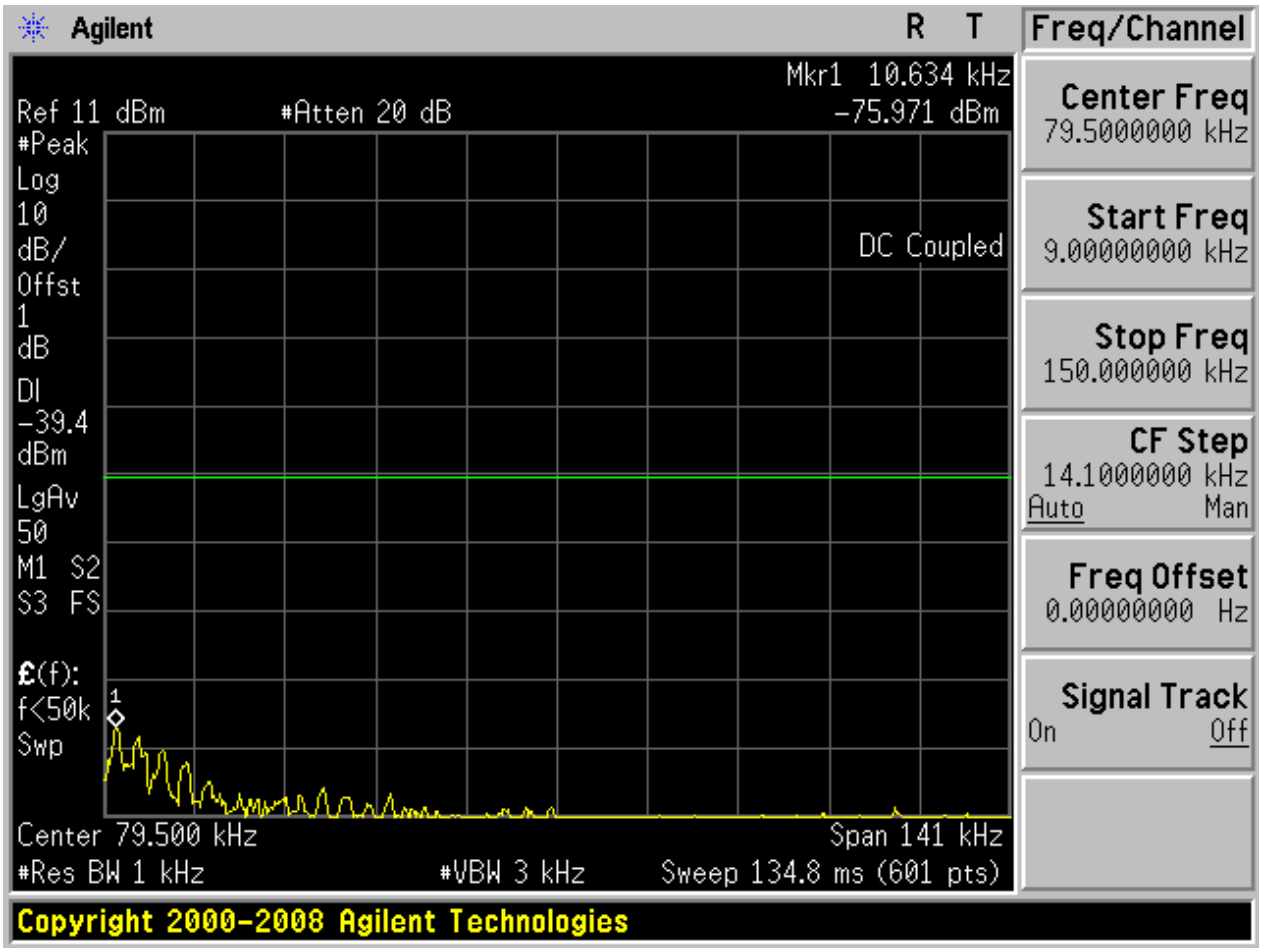
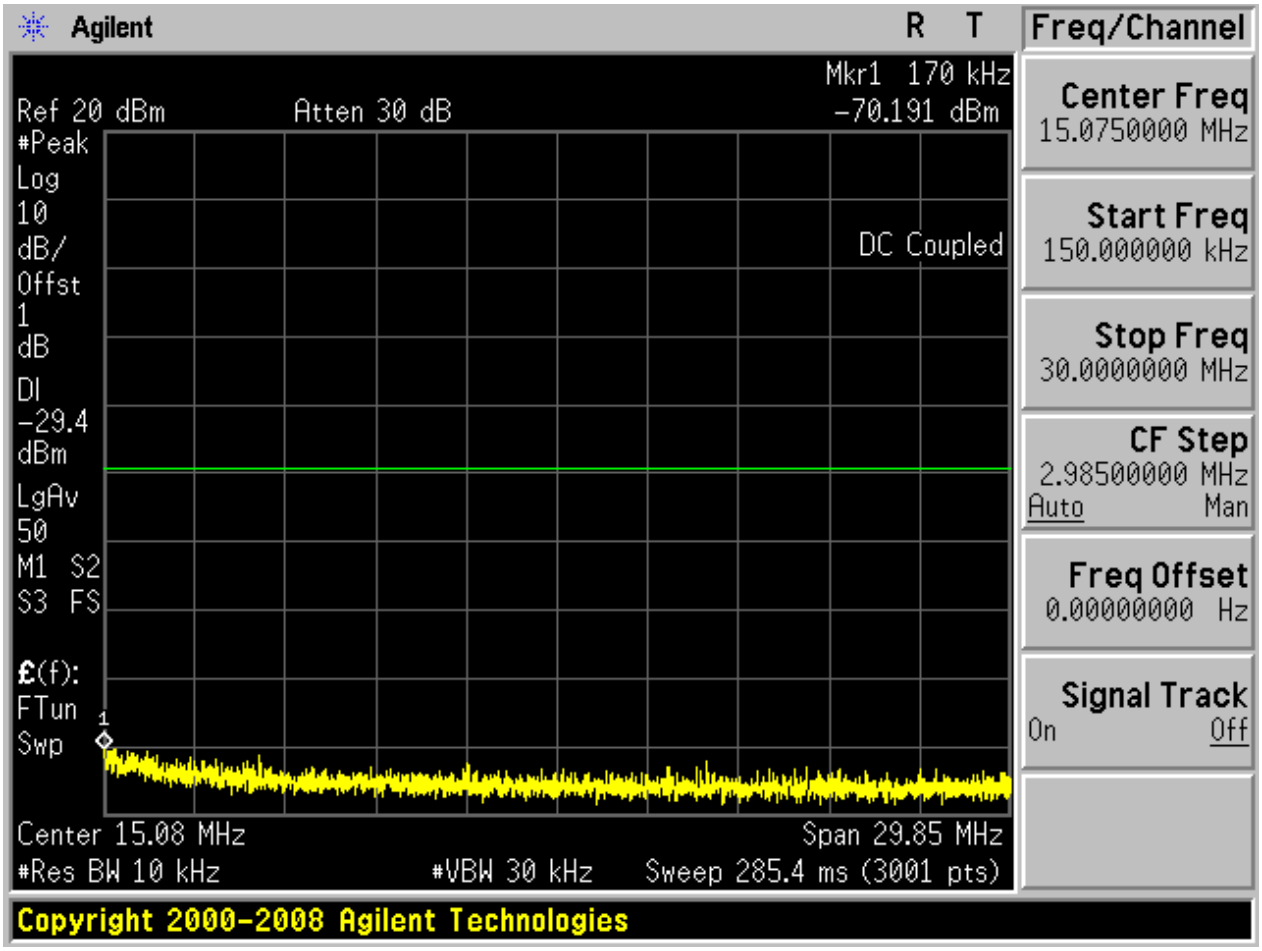
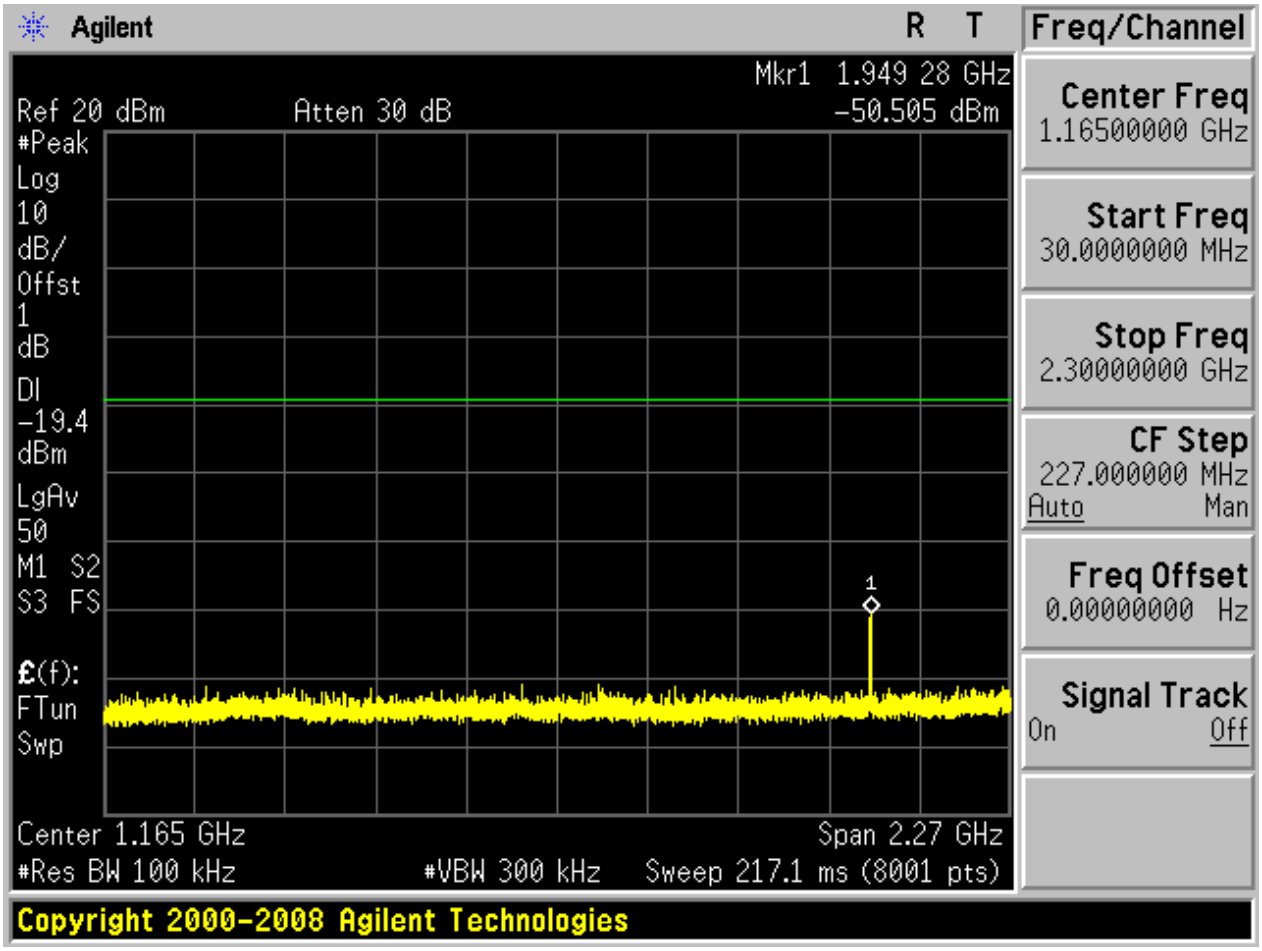
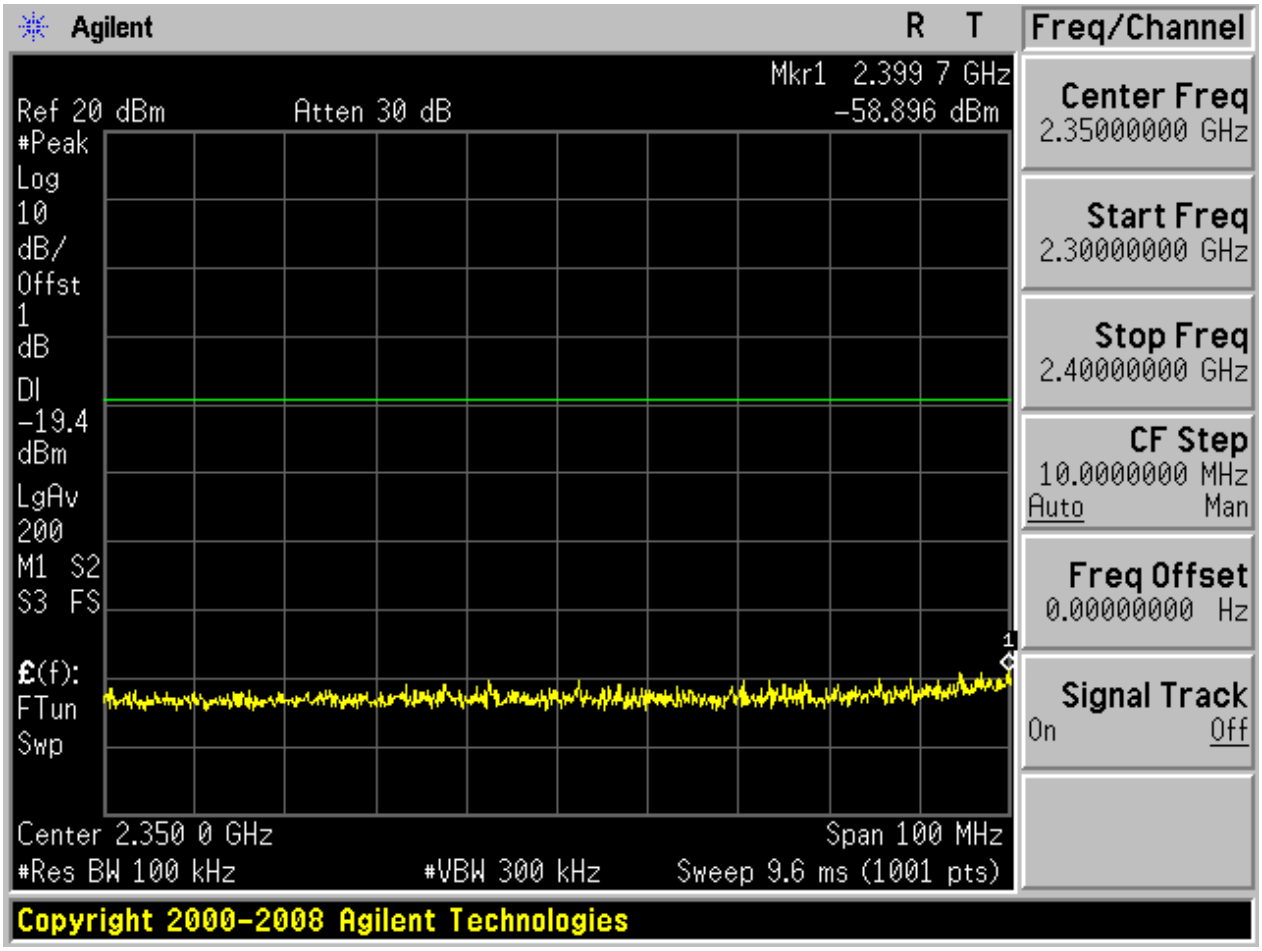
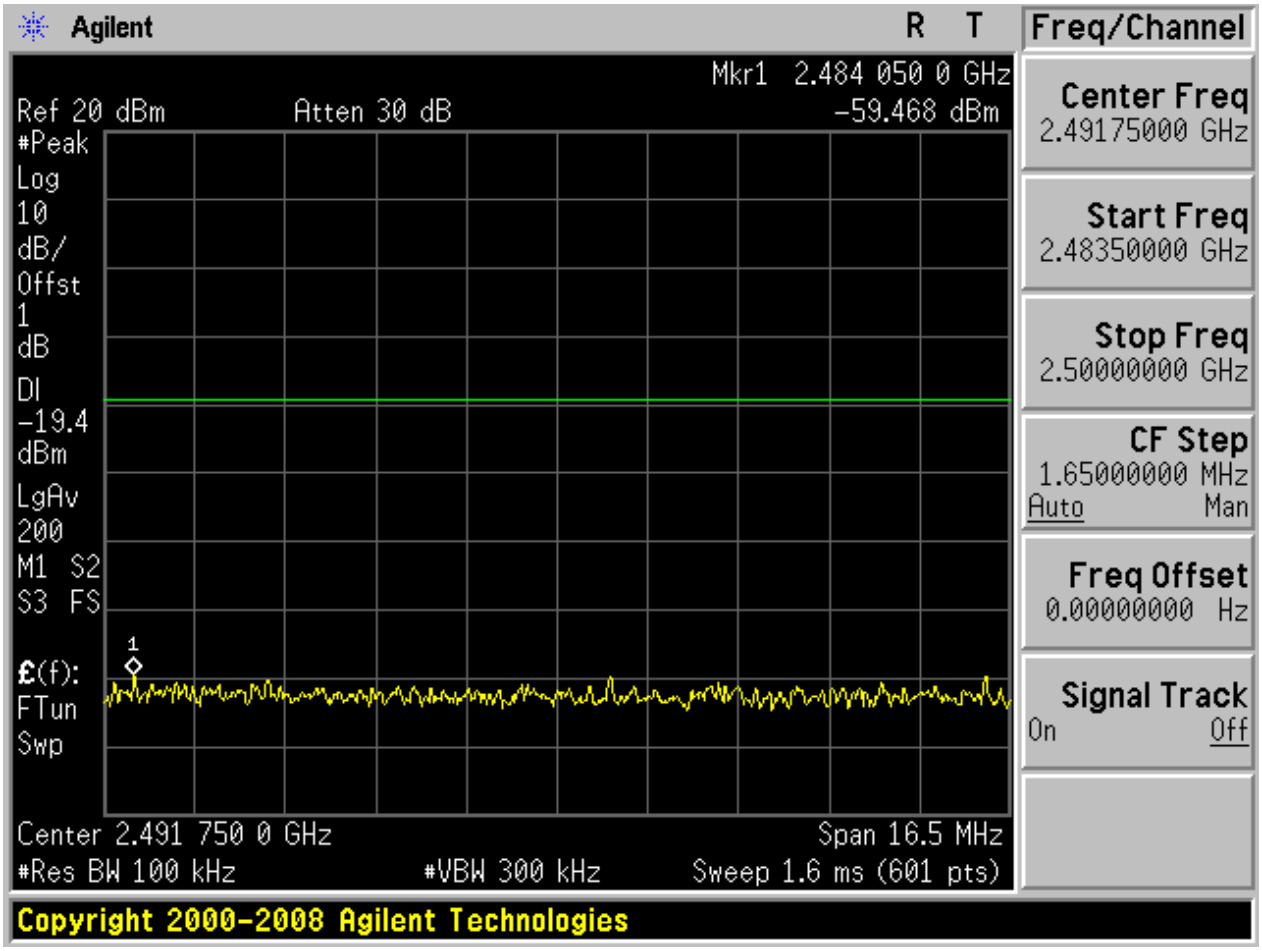
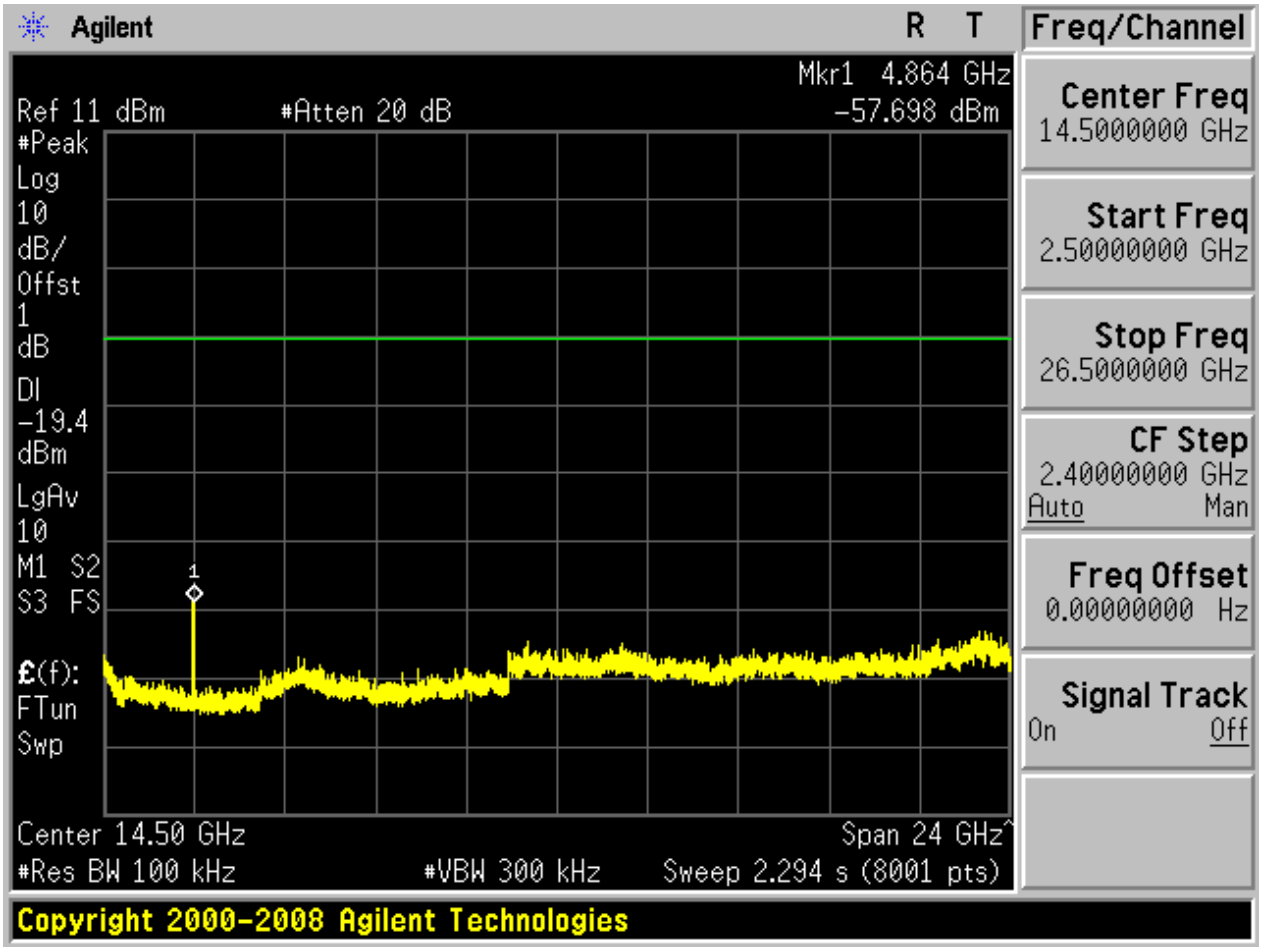






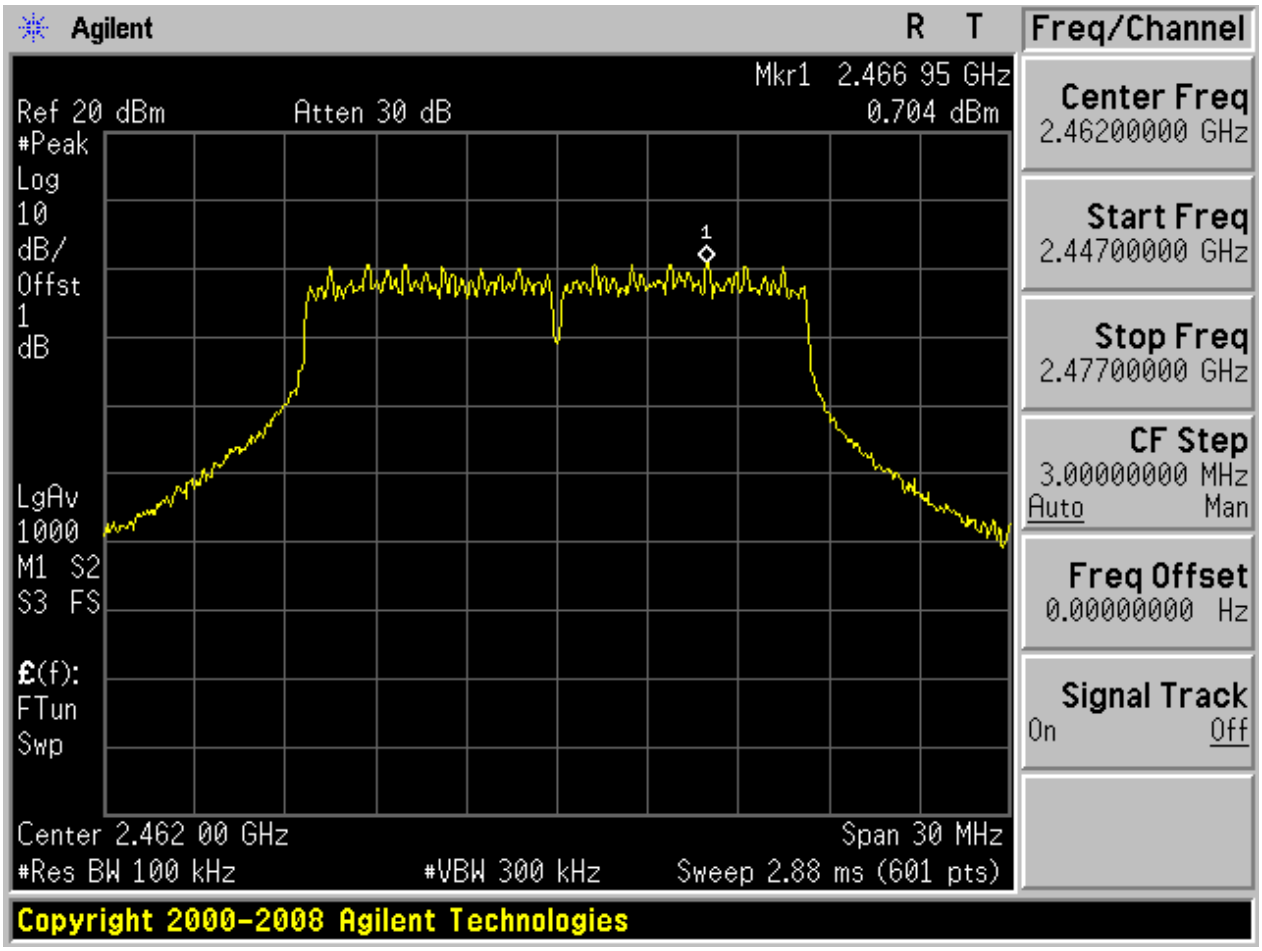




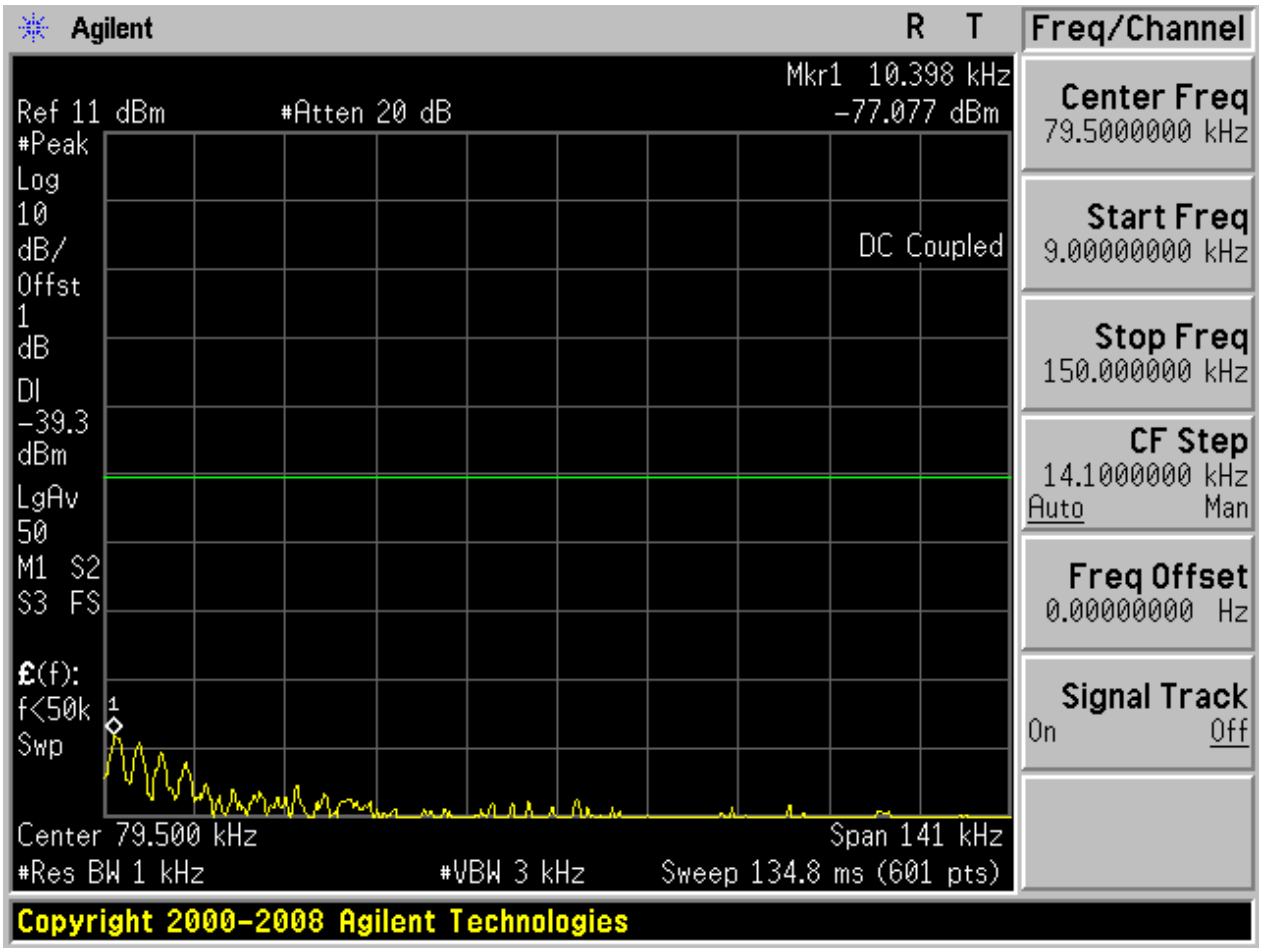


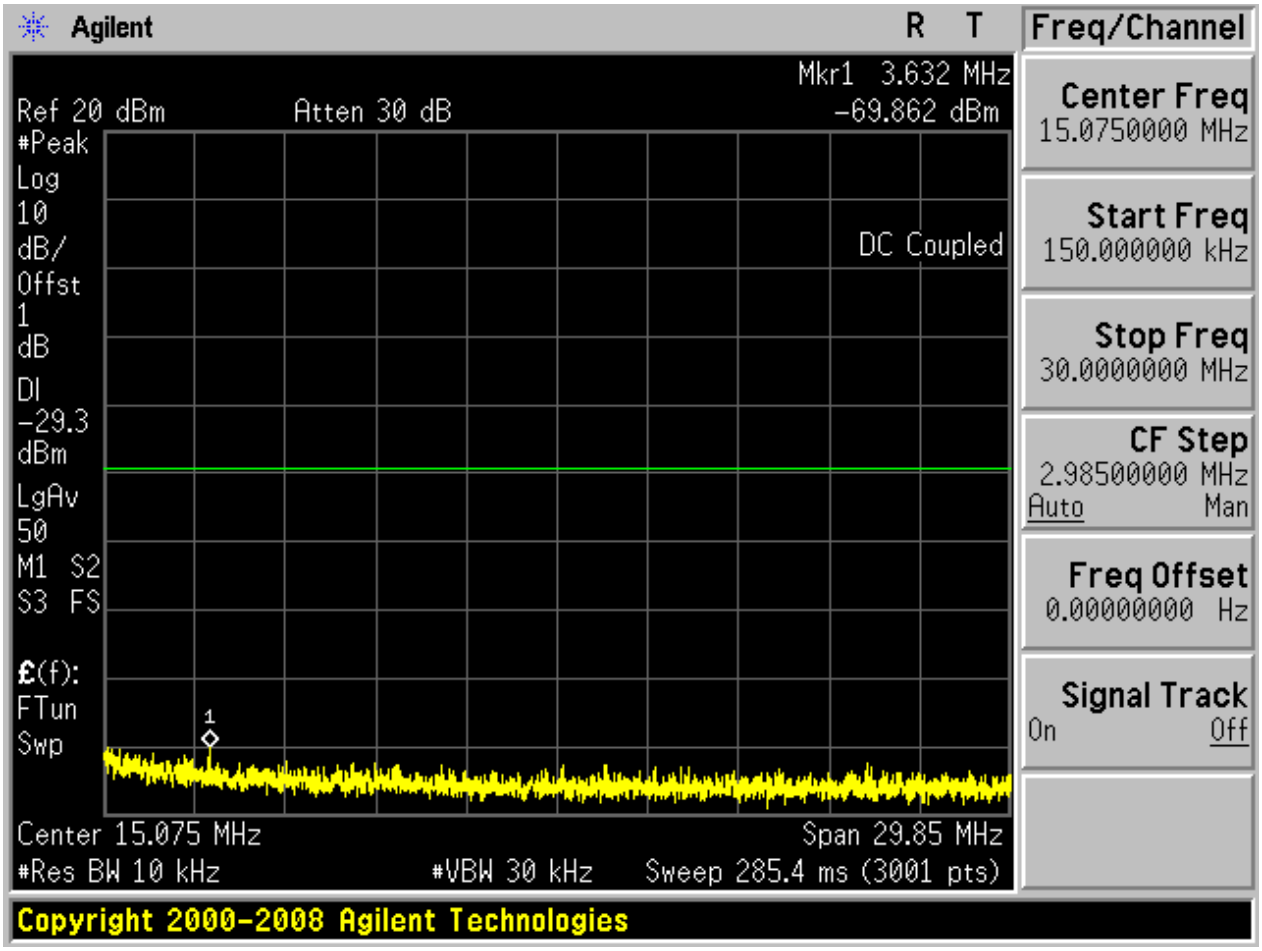
2.6 11G_H

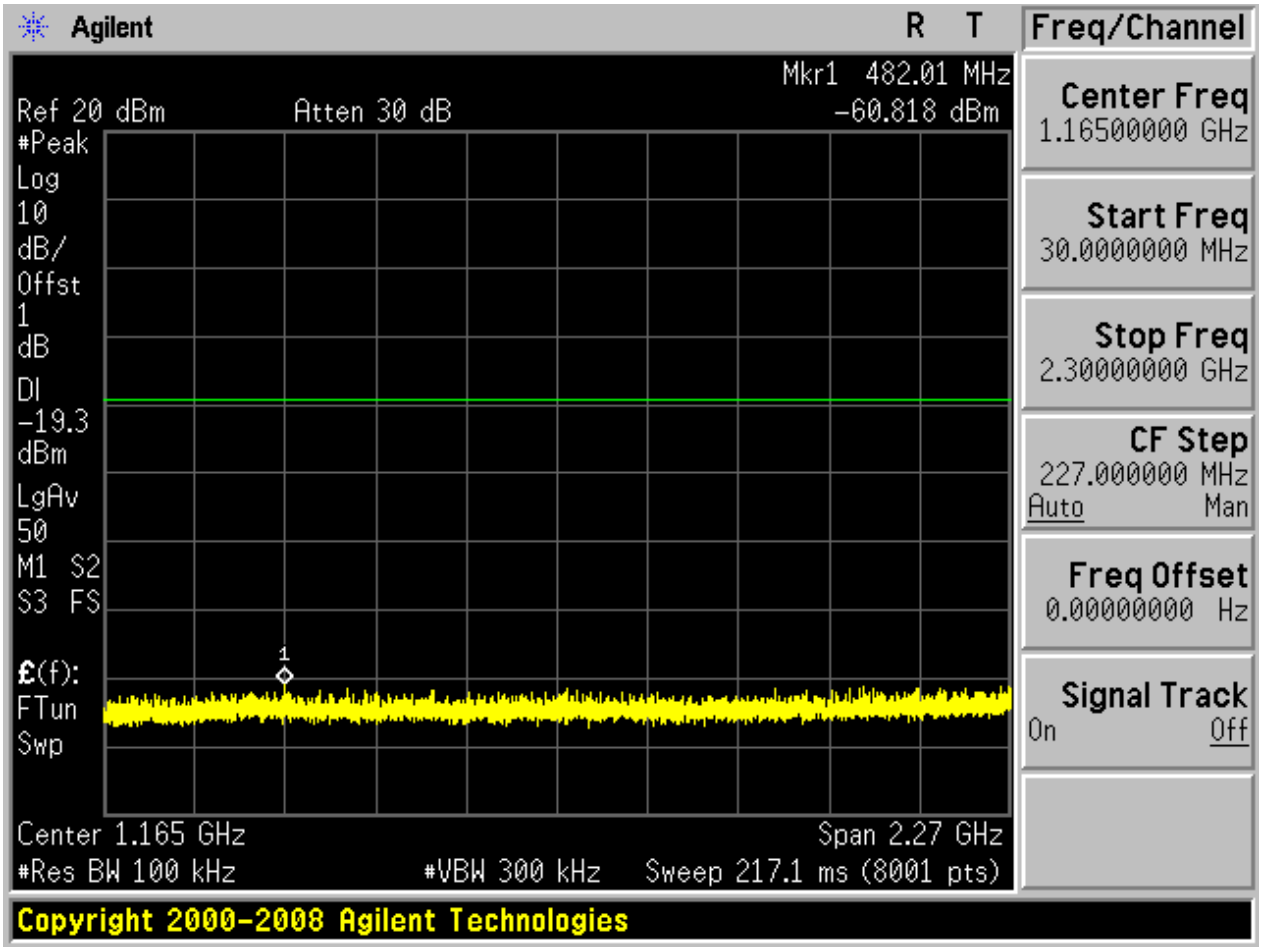
Pref:

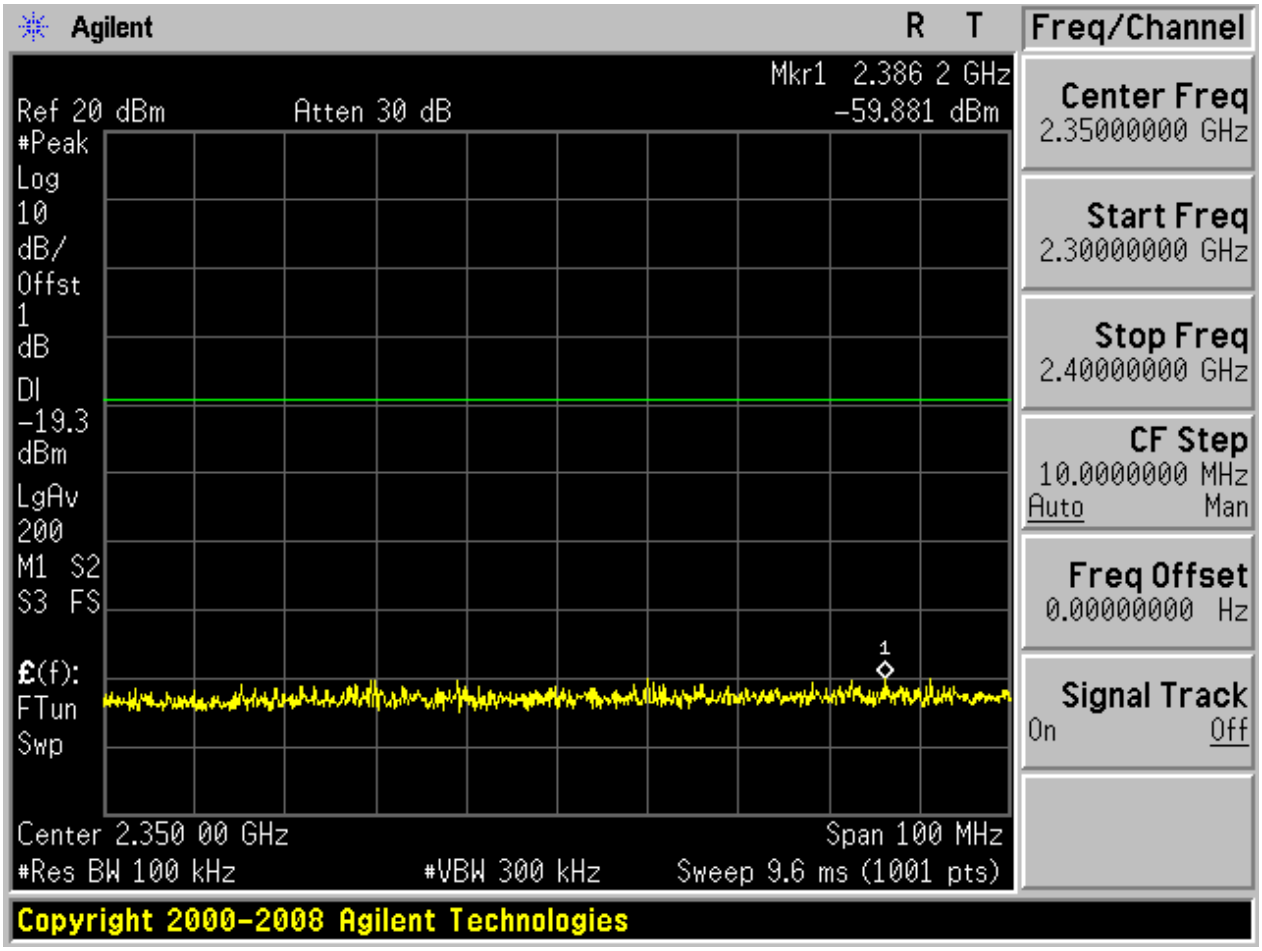


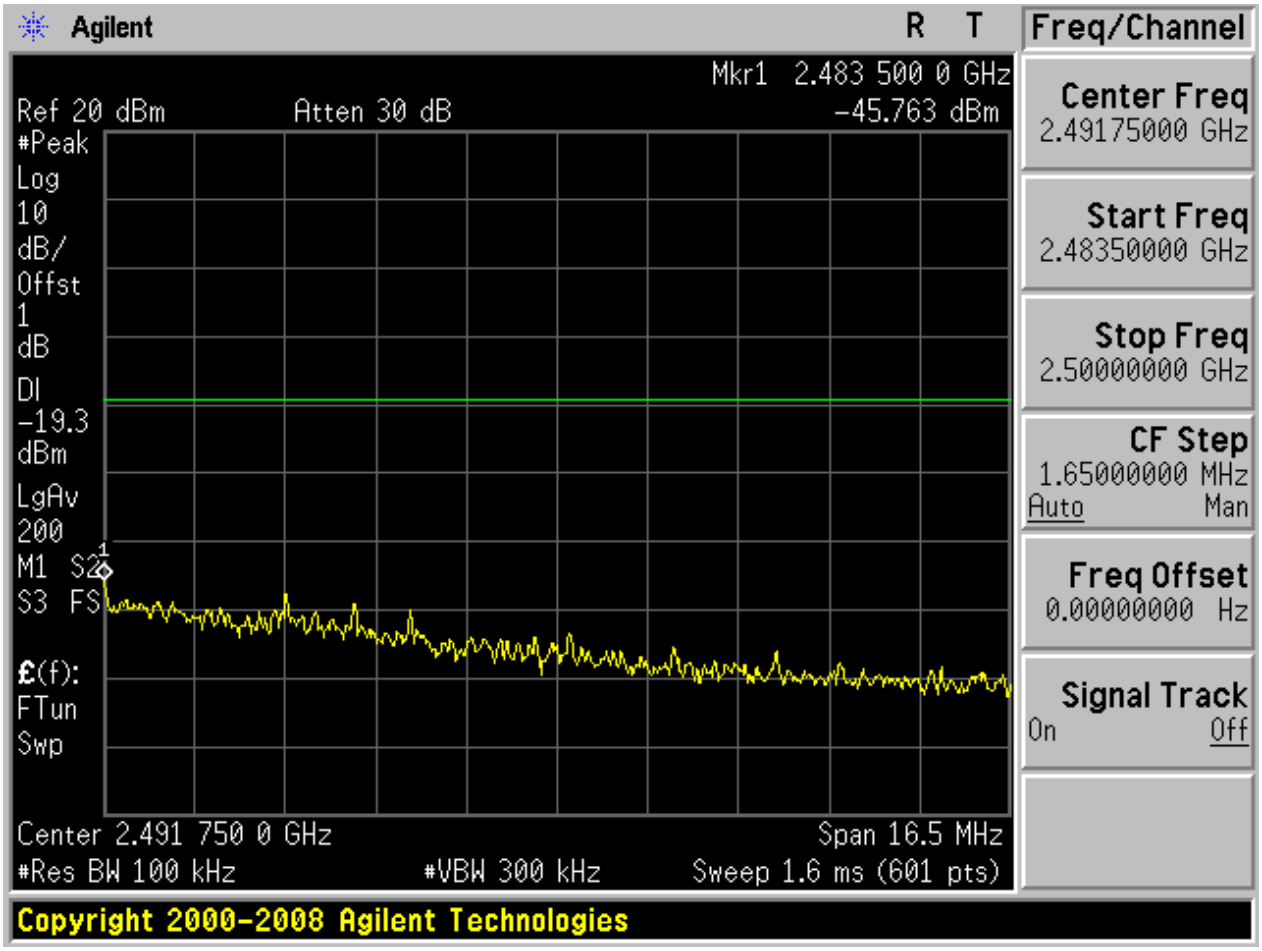
Puw:

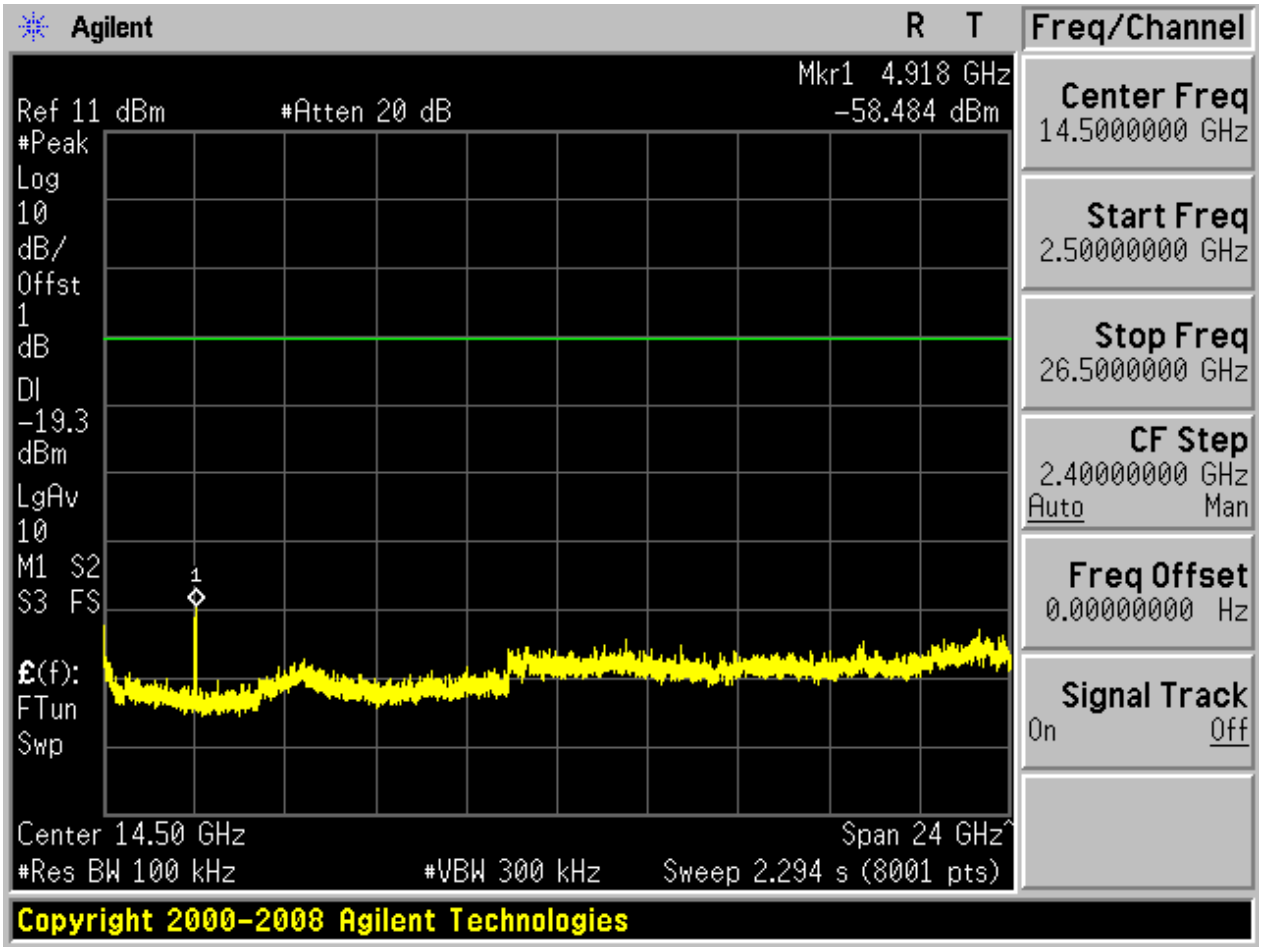






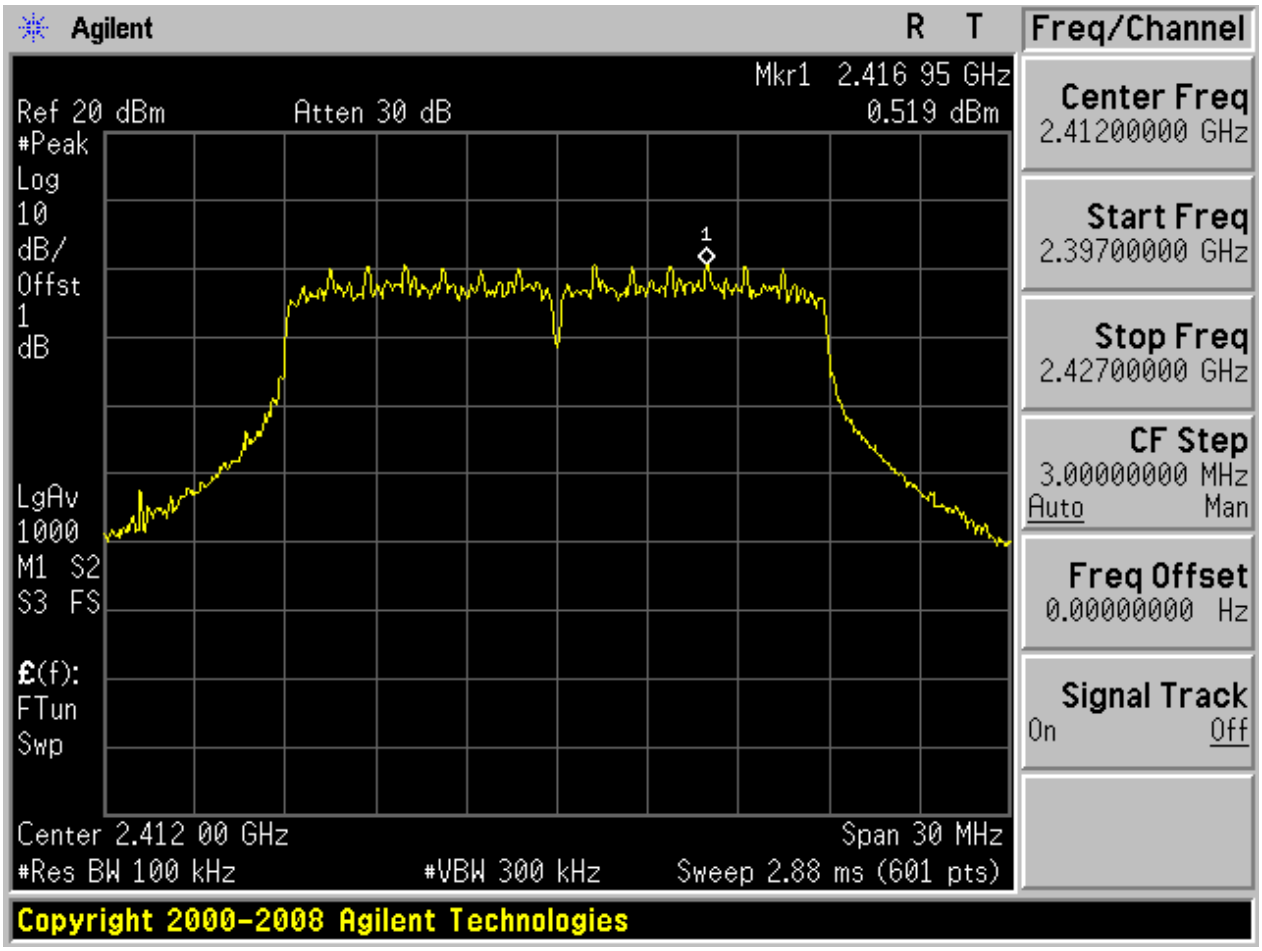




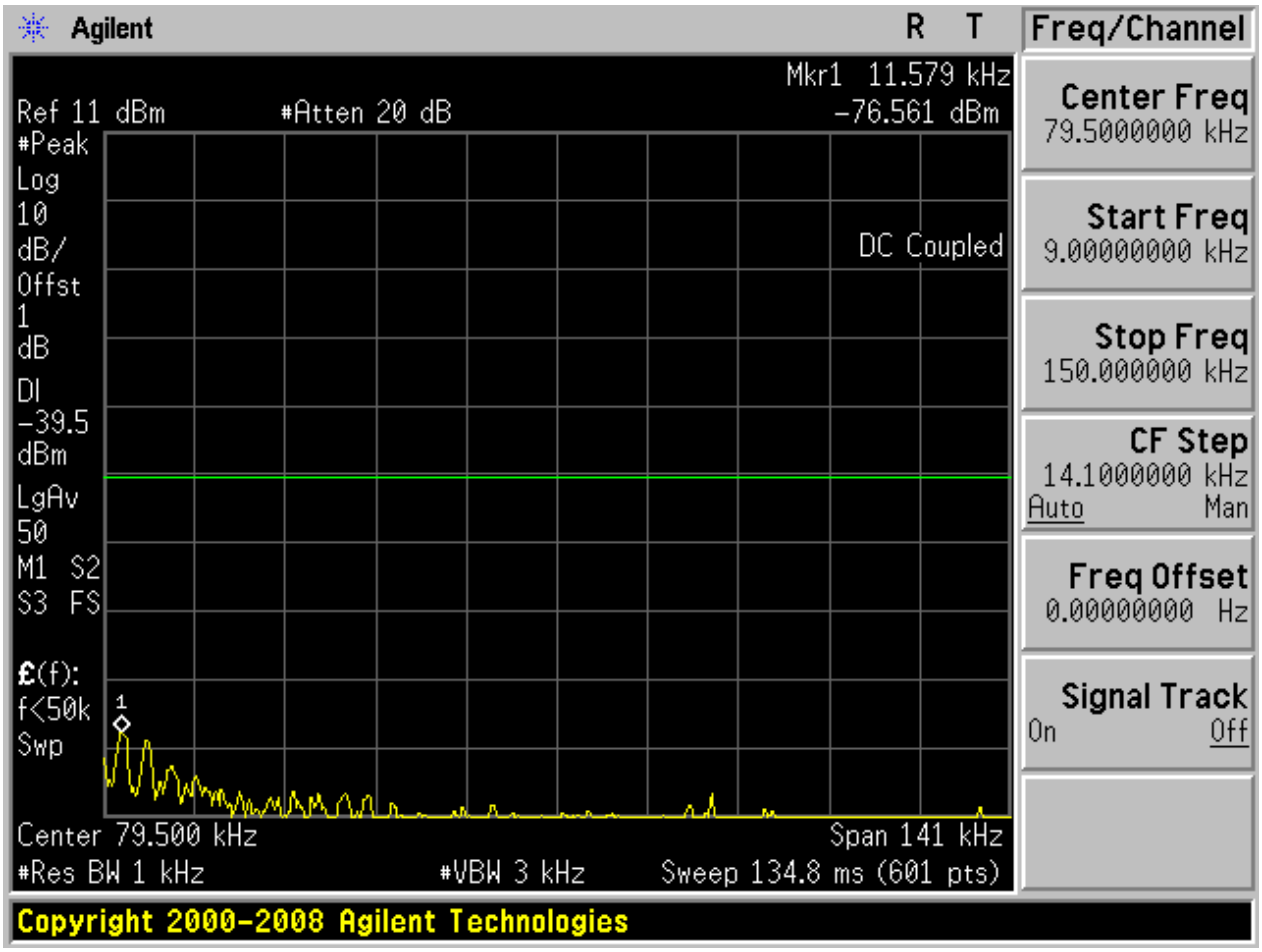


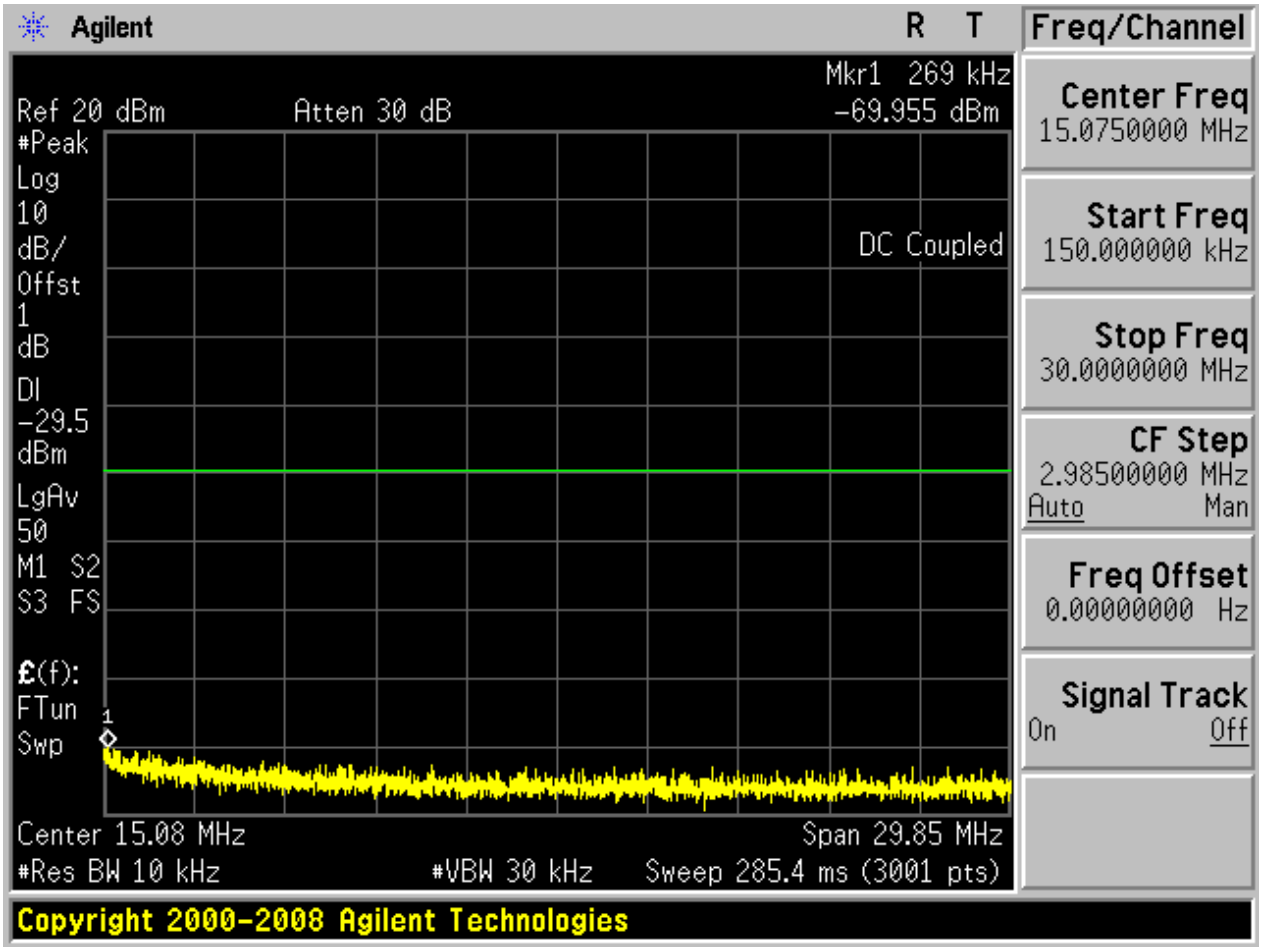
2.7 11N20_L

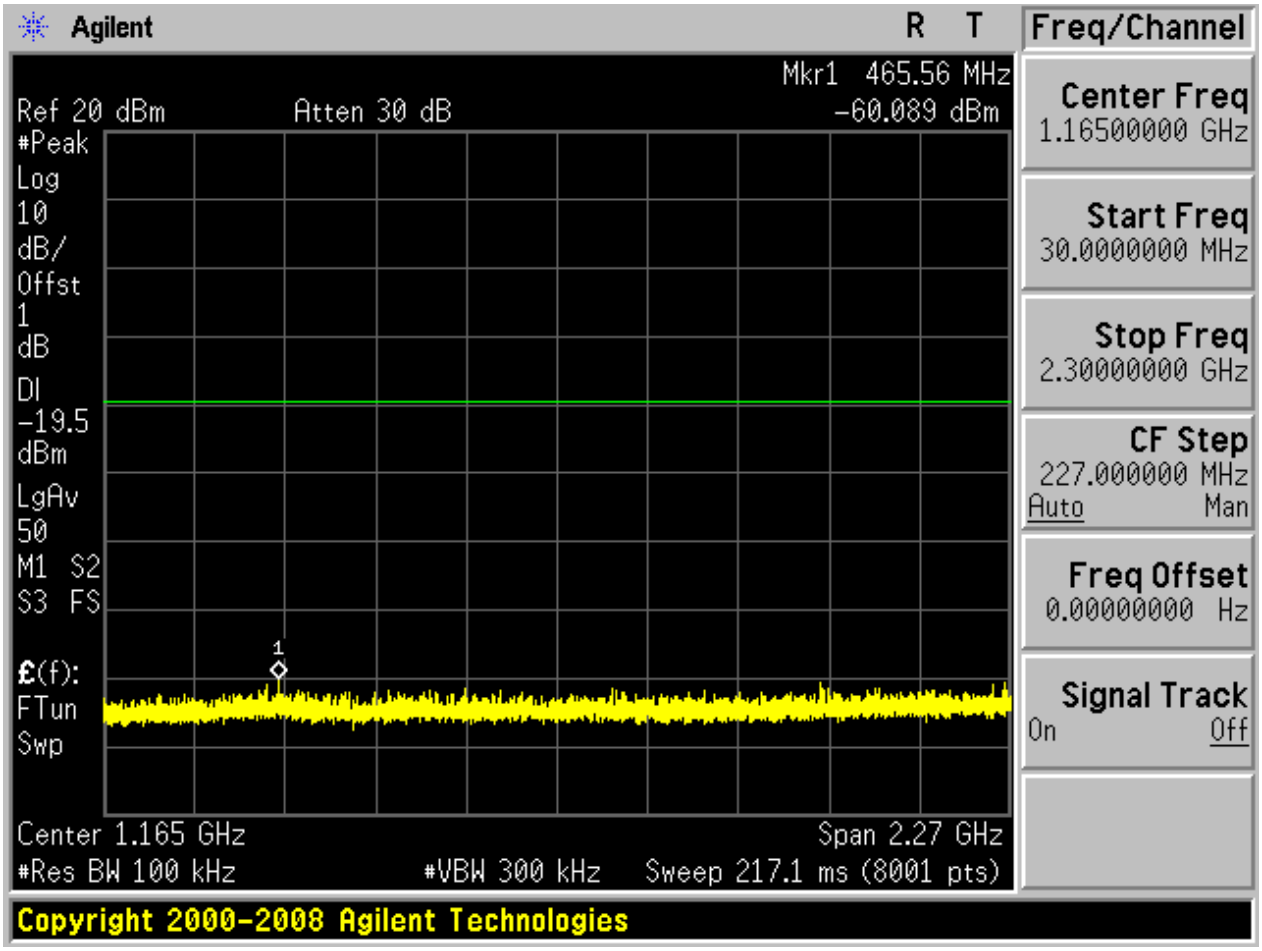
Pref:

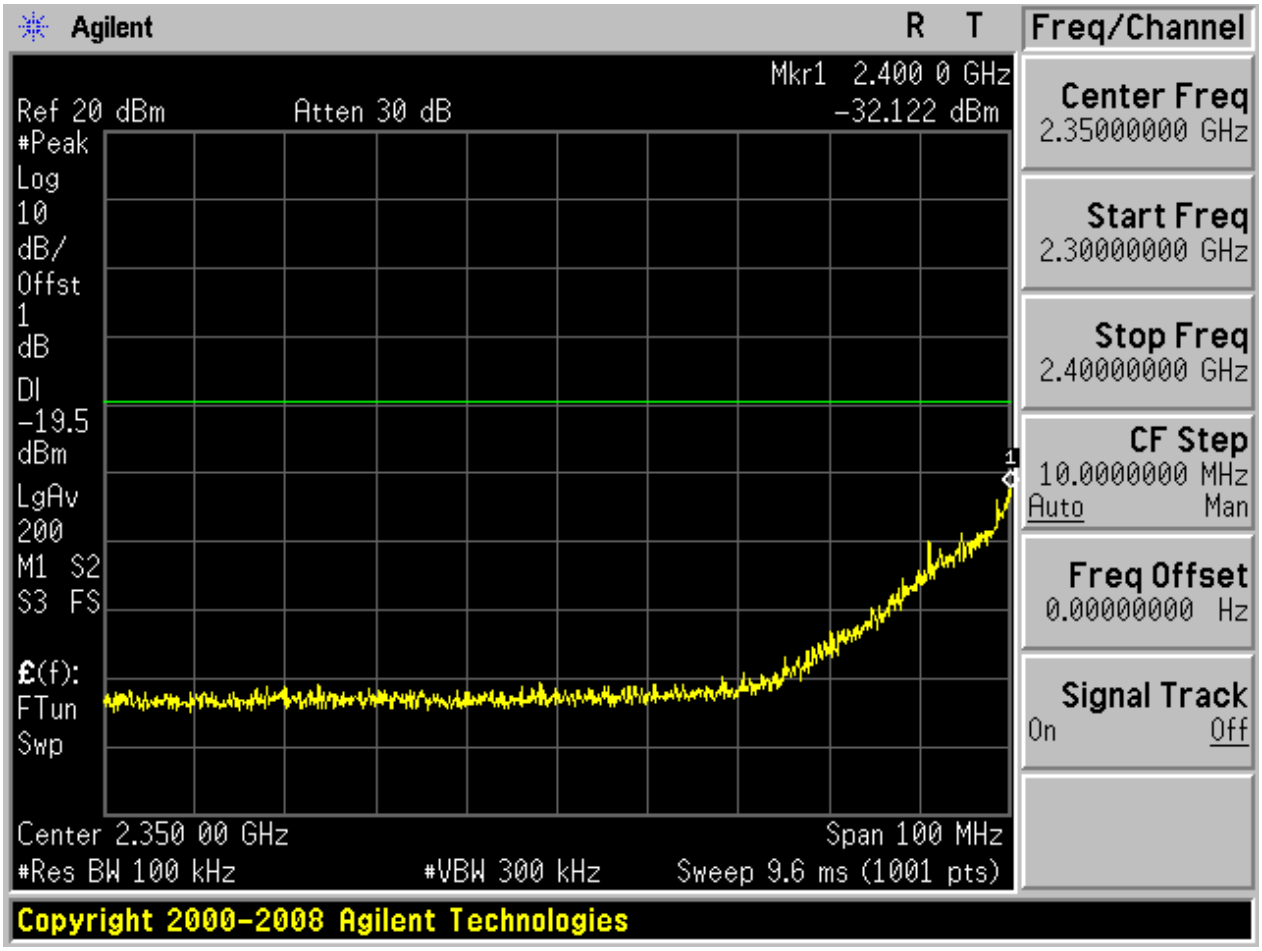


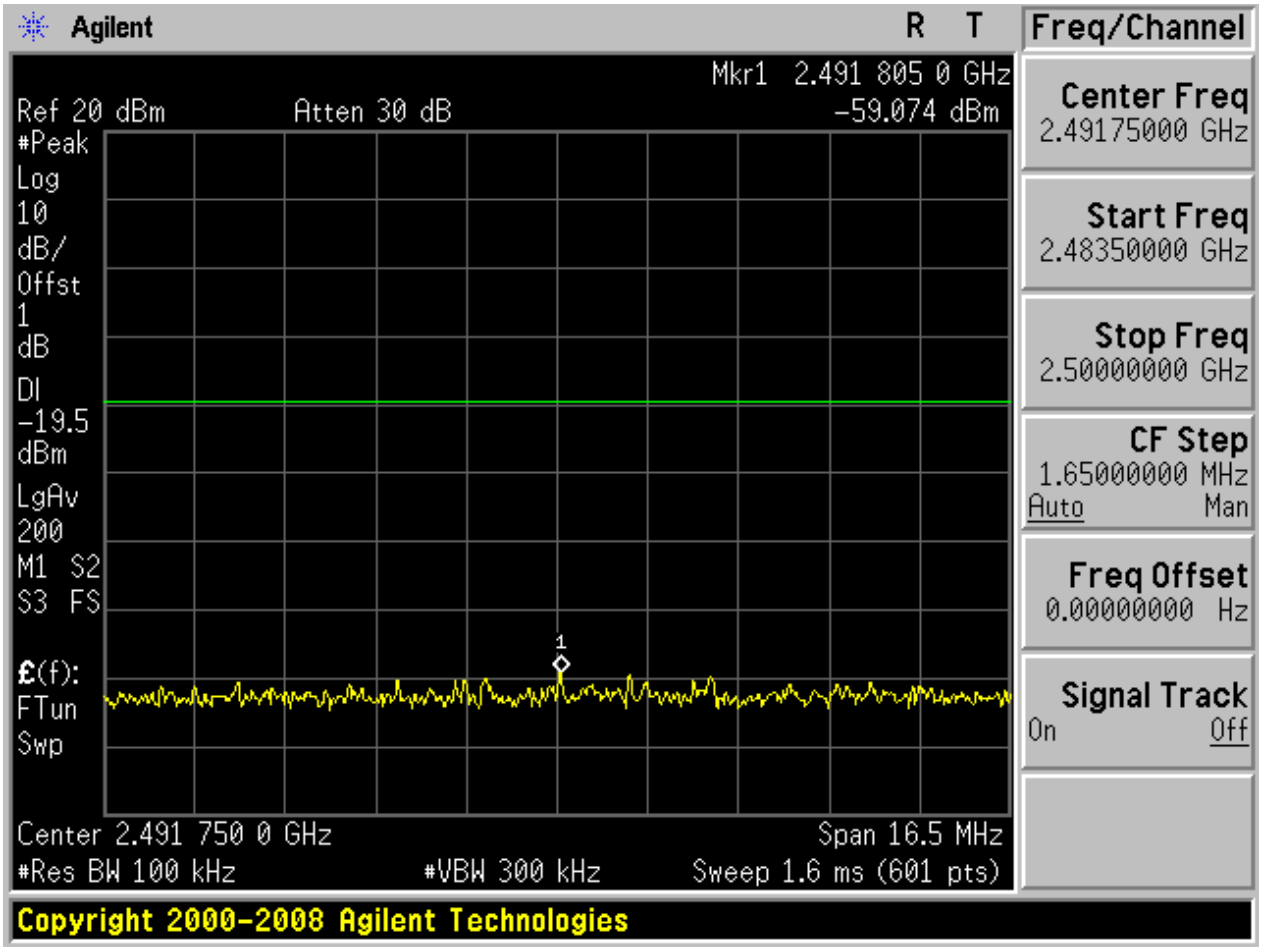
Puw:

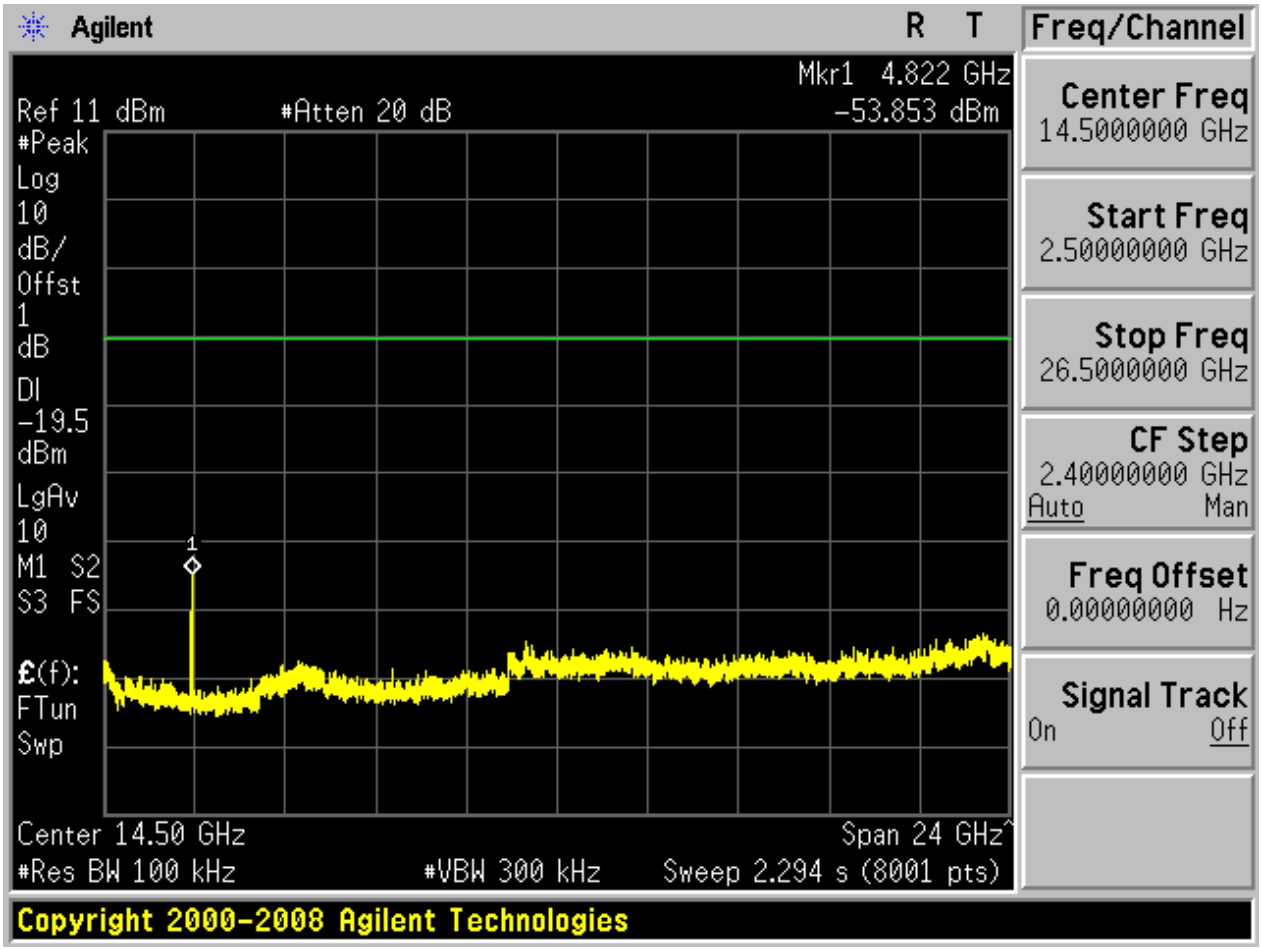






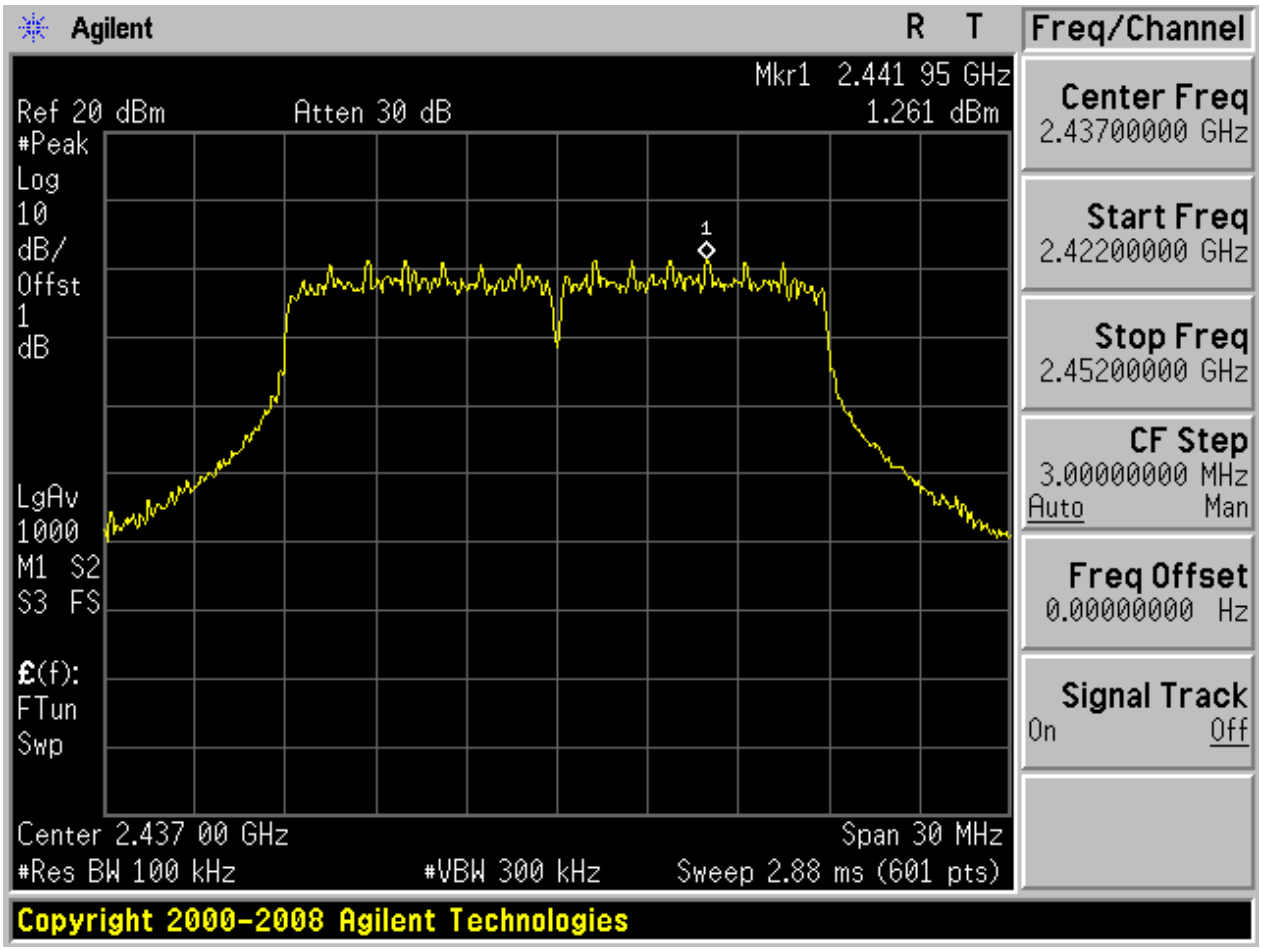




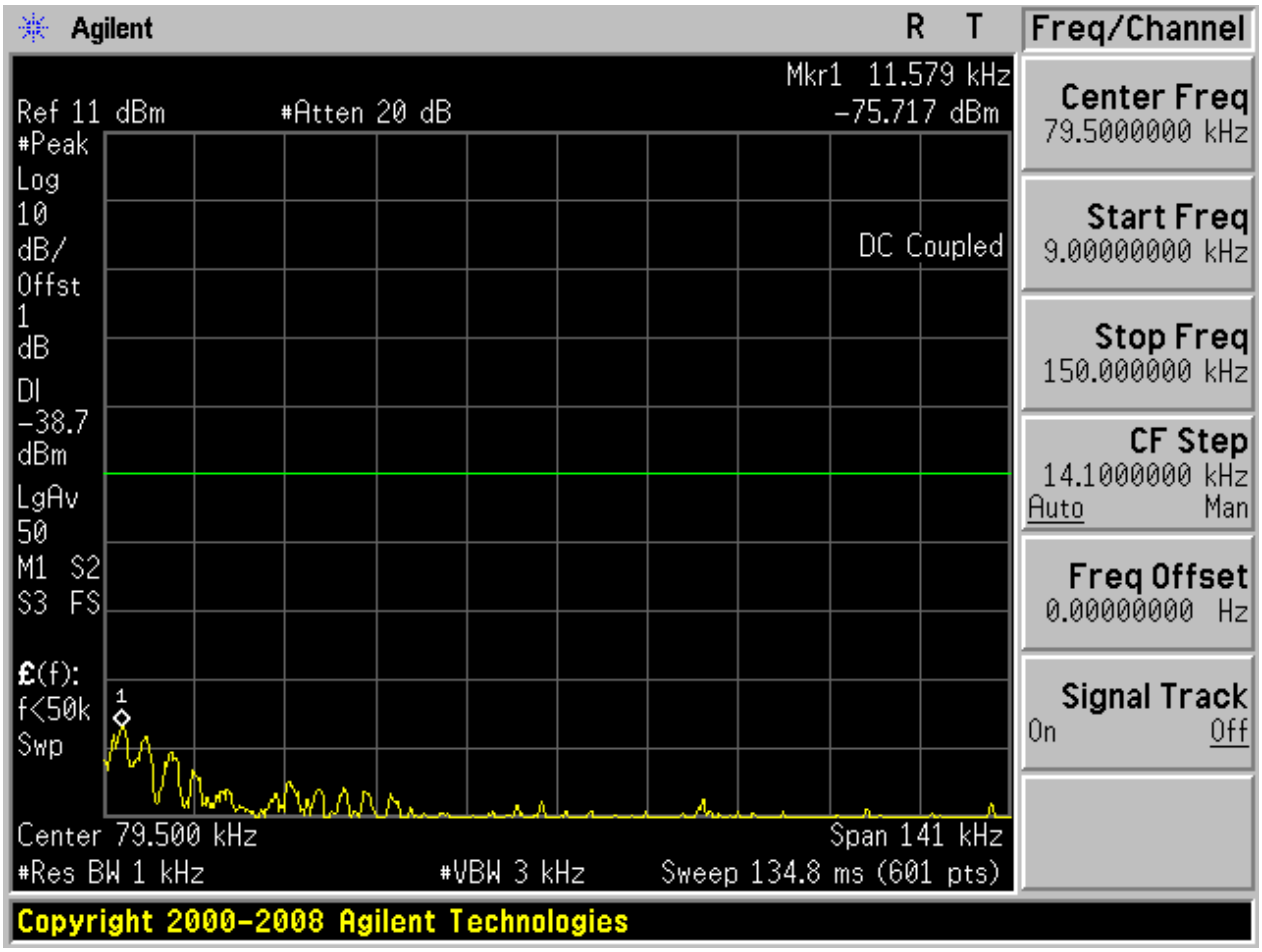


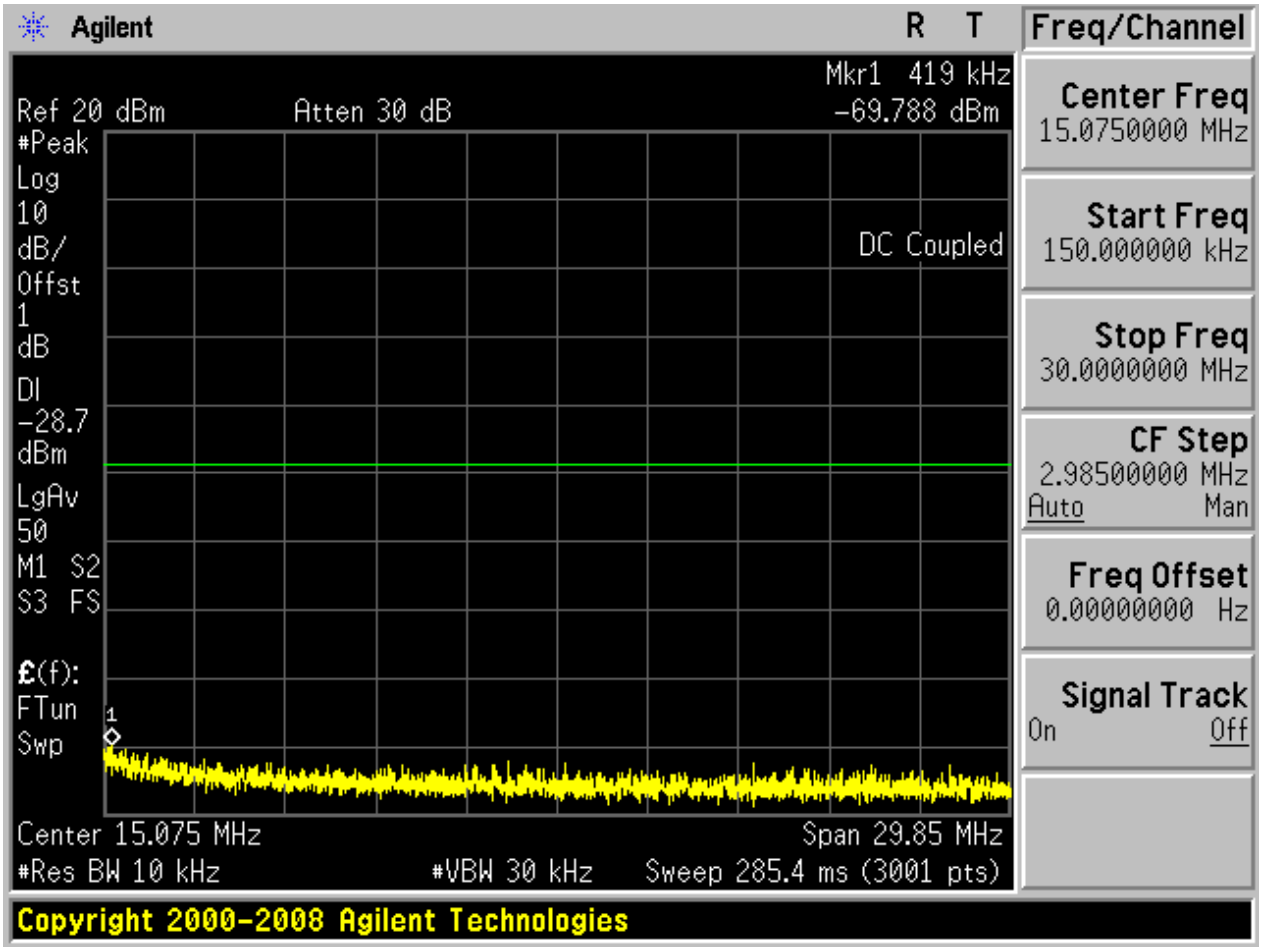
2.8 11N20_M

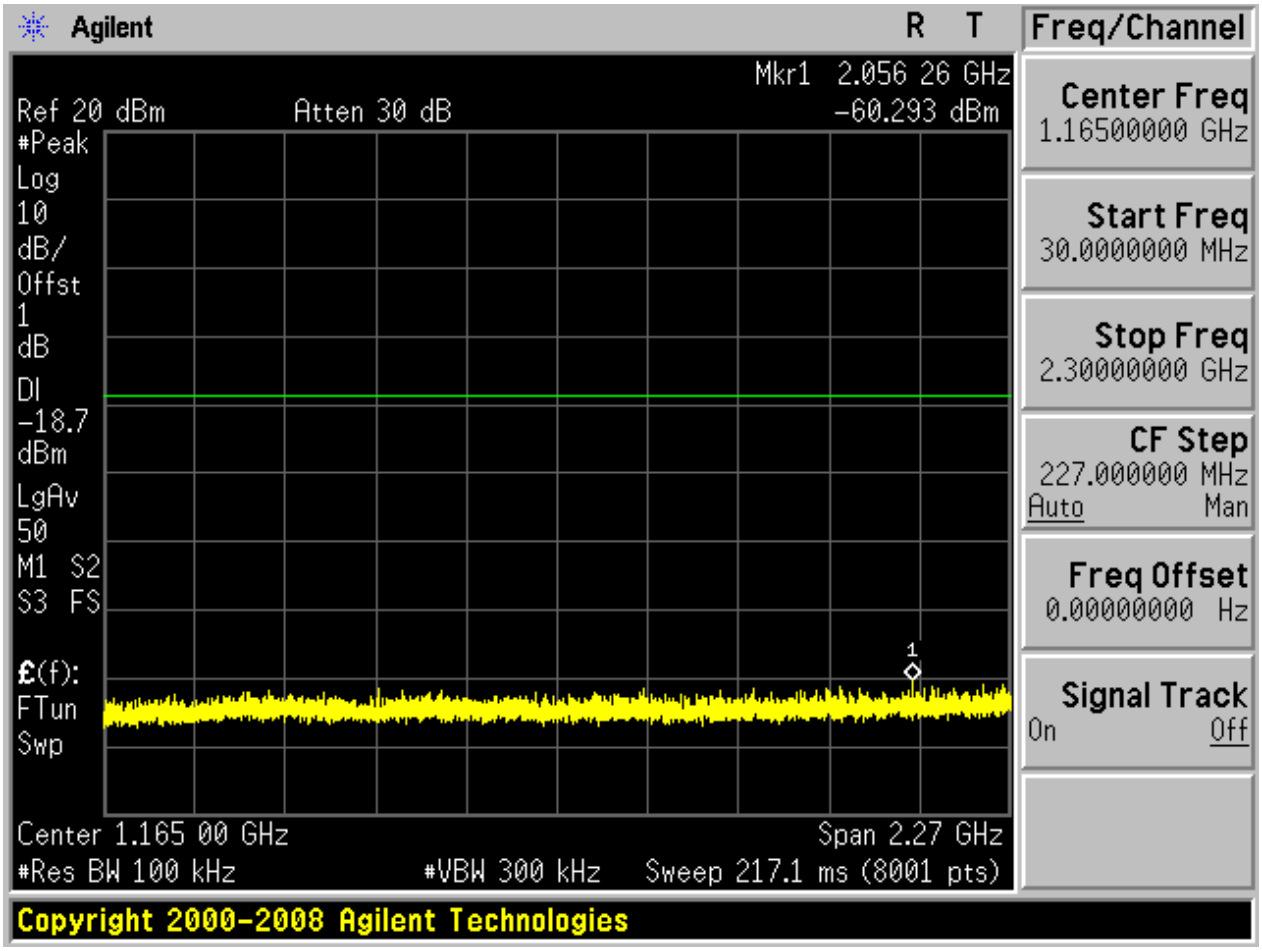
Pref:

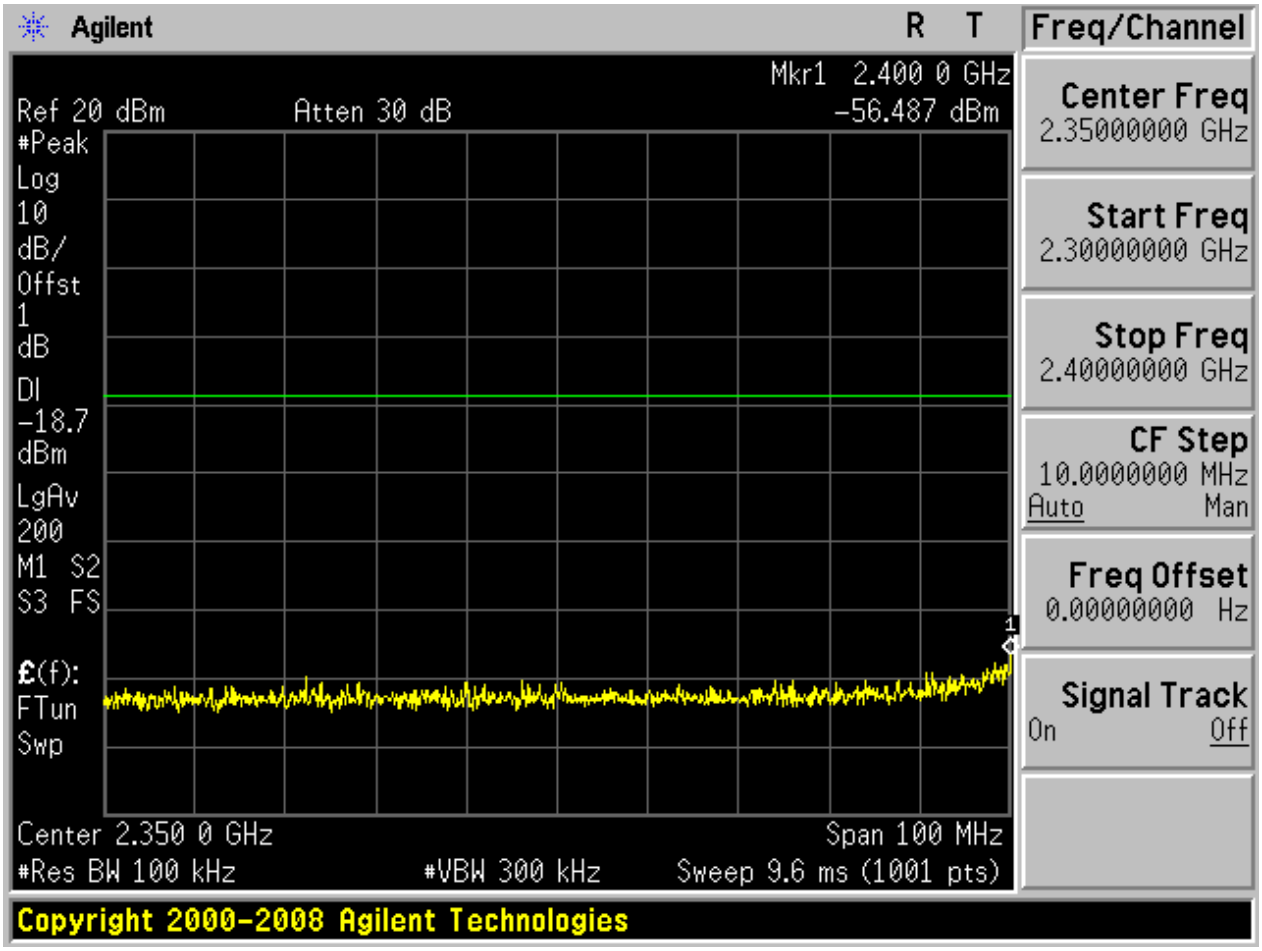


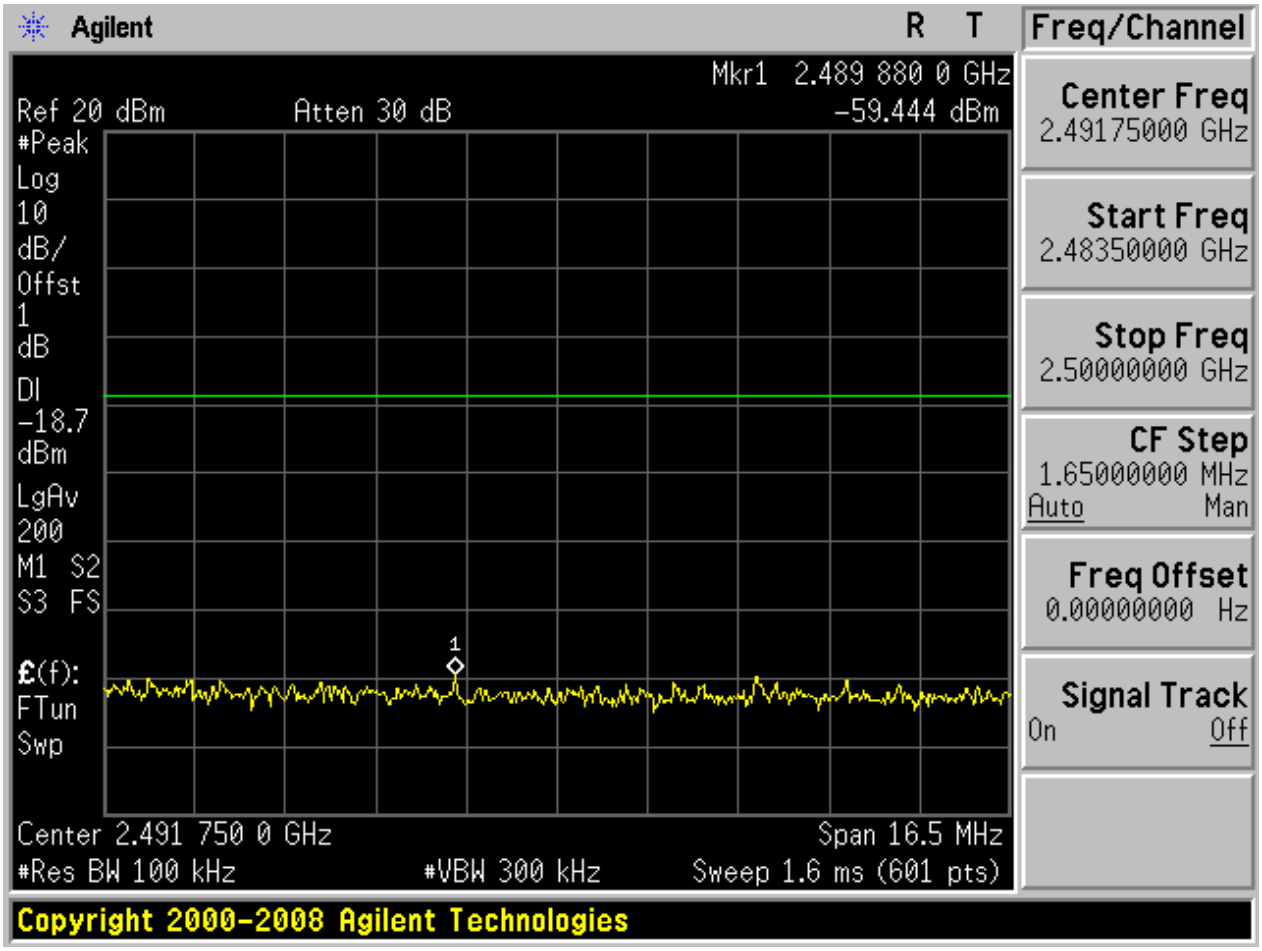
Puw:

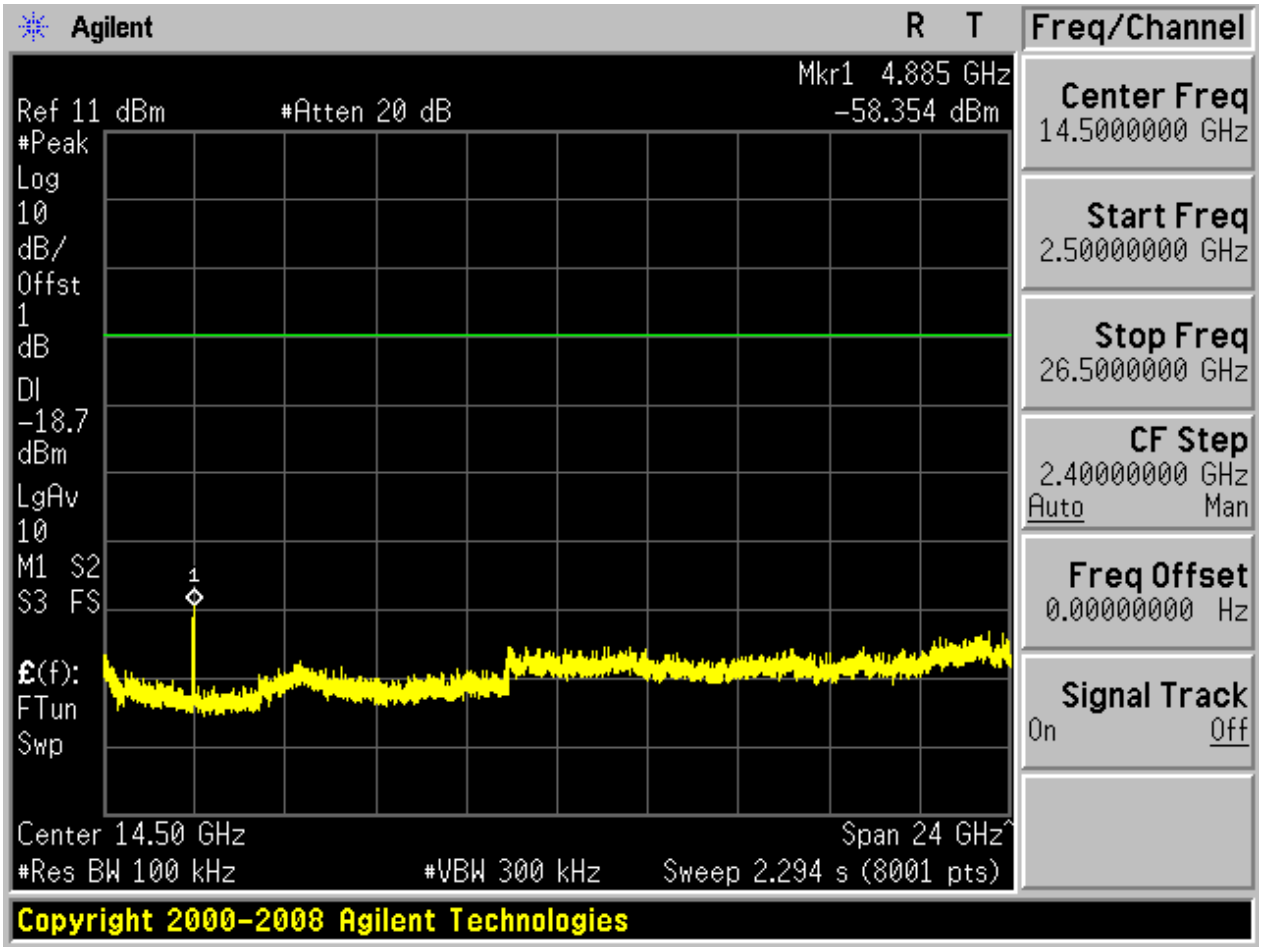






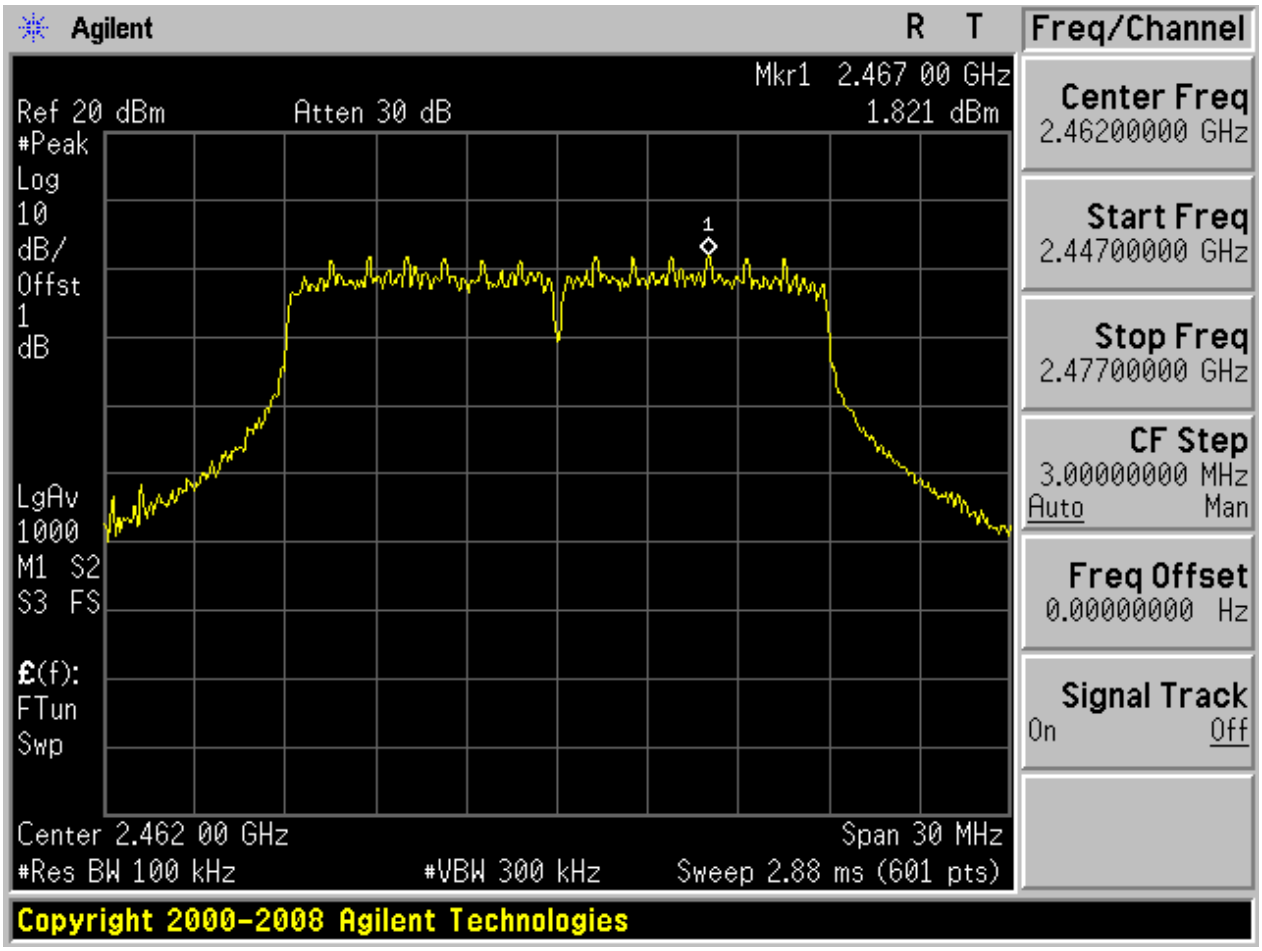




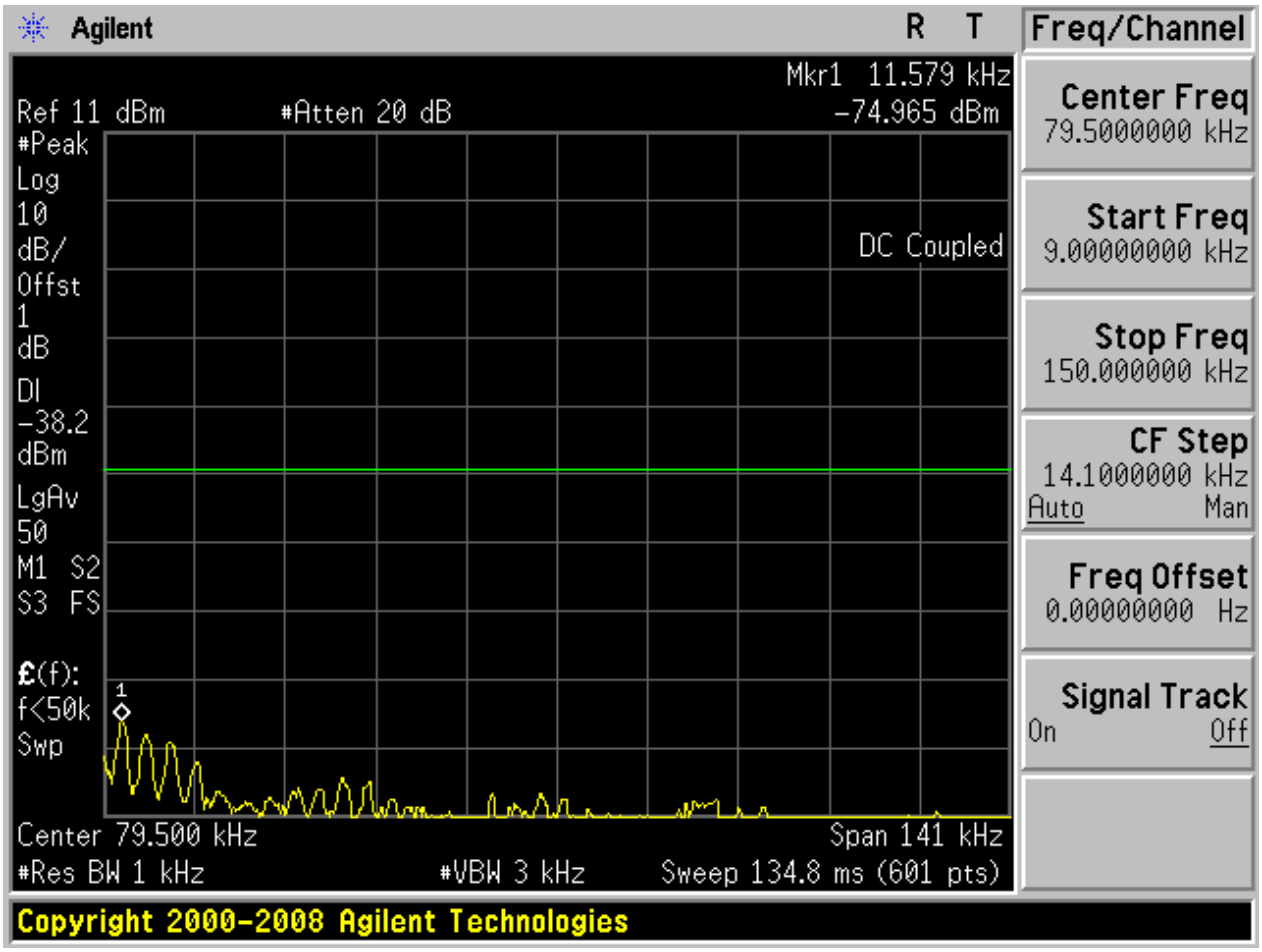


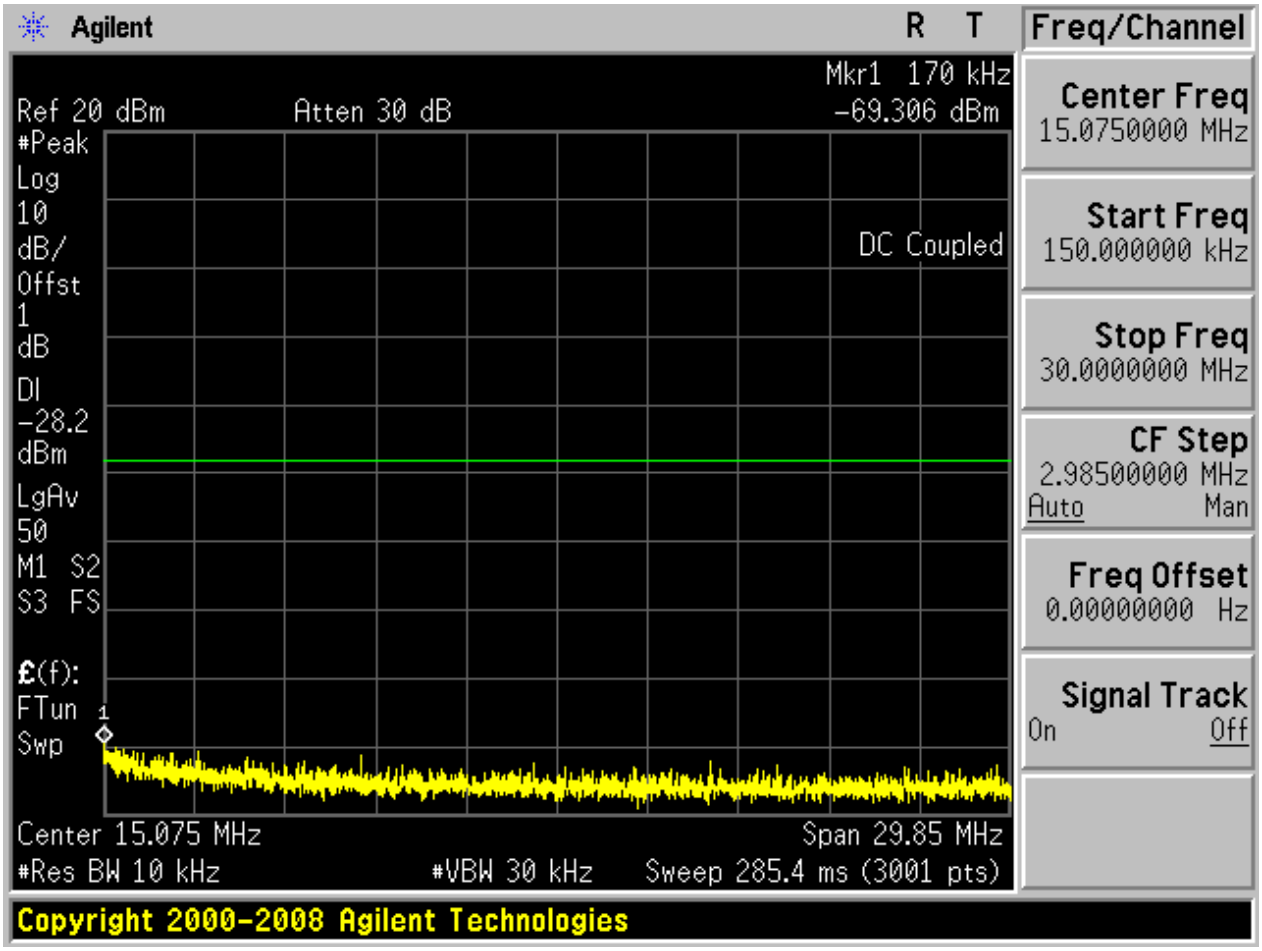
2.9 11N20_H

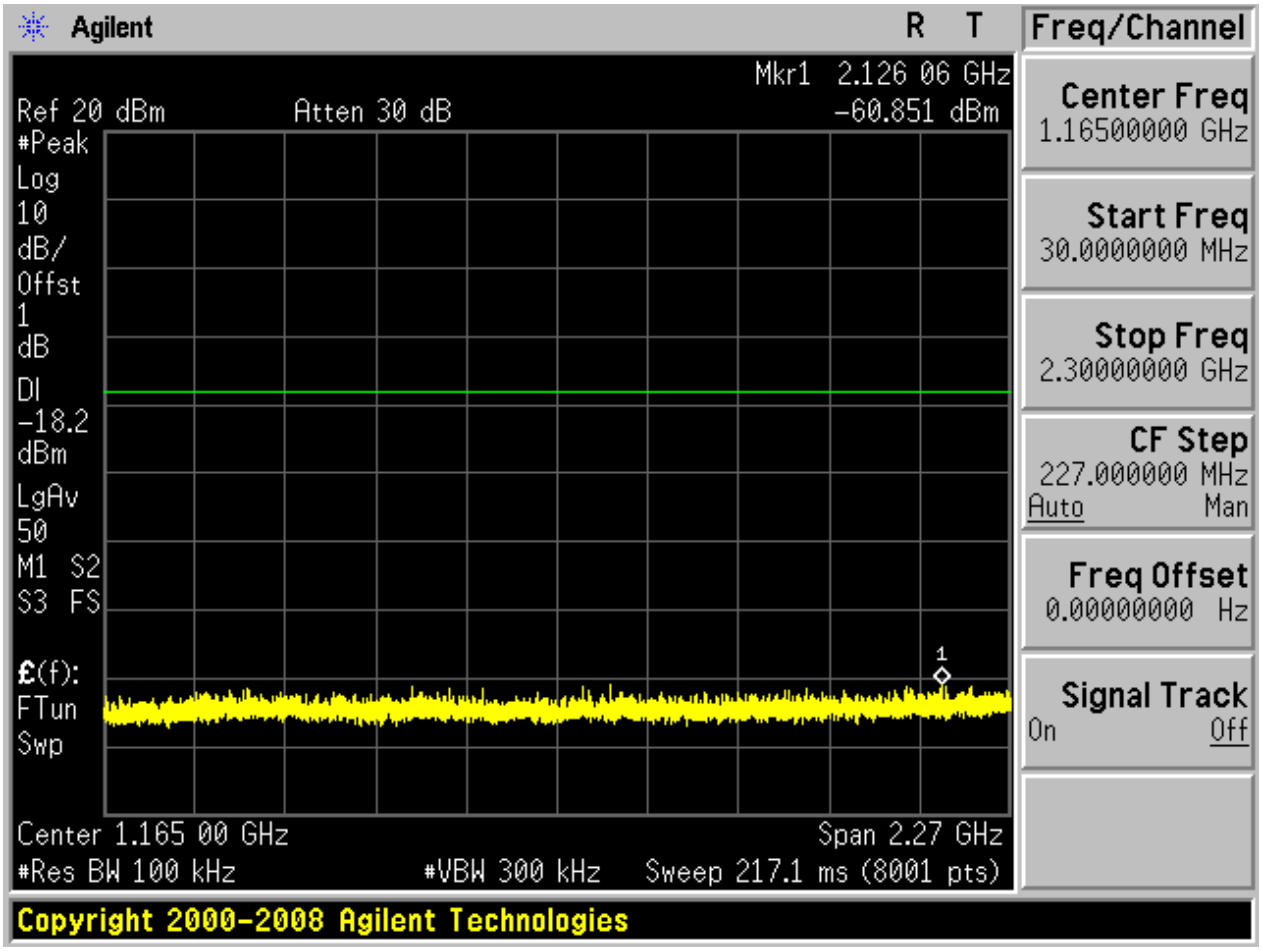
Pref:

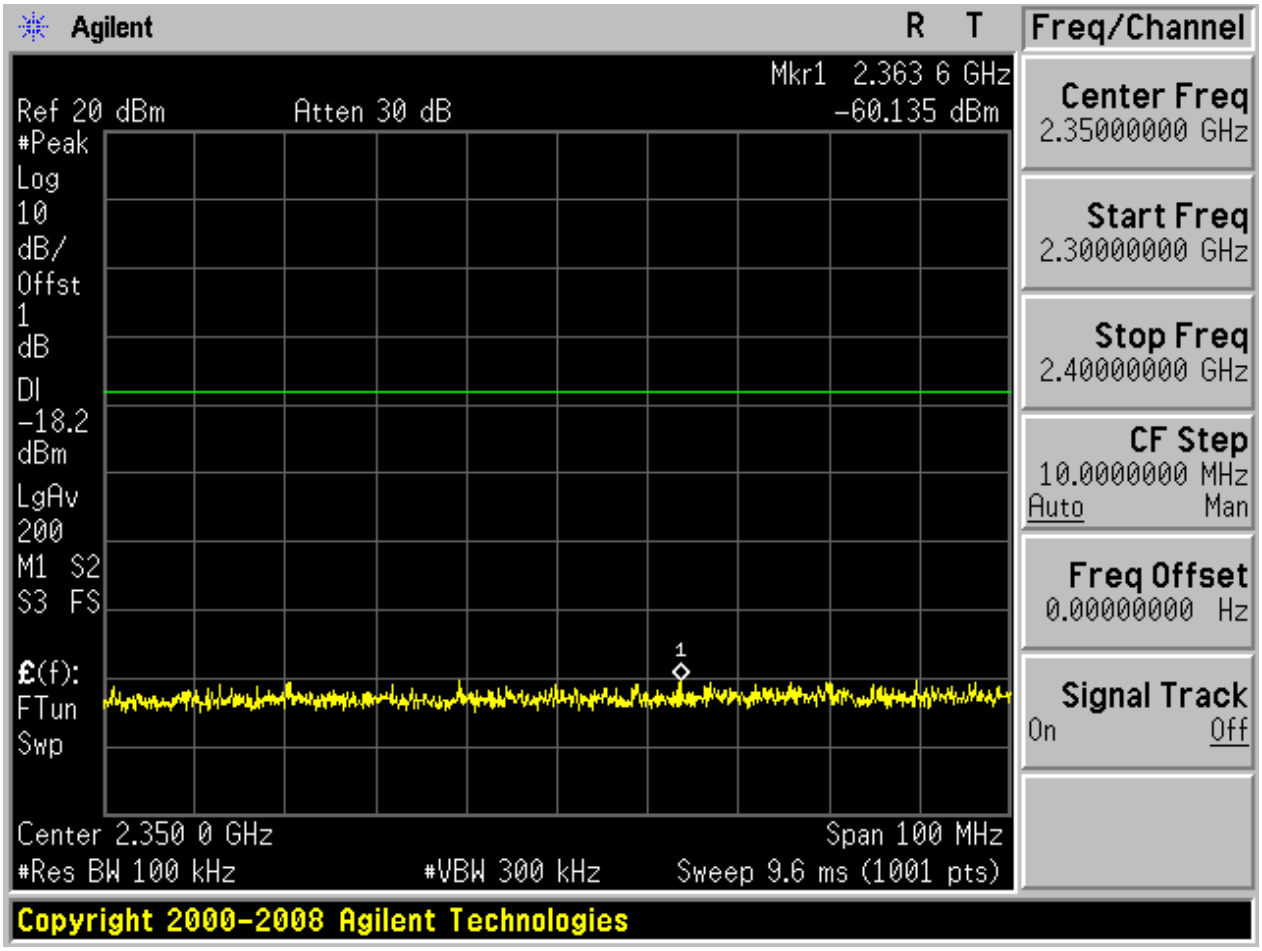


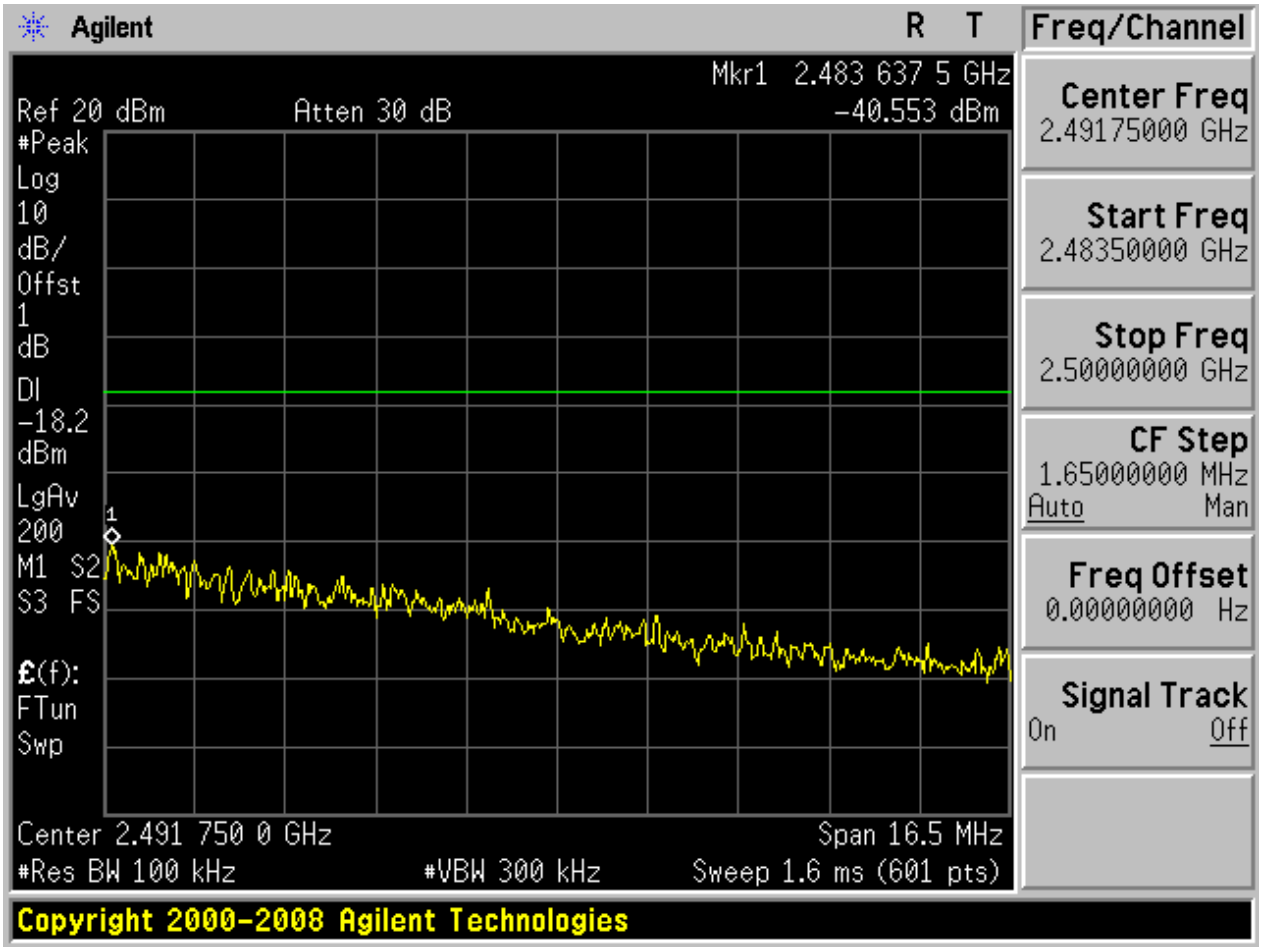
Puw:

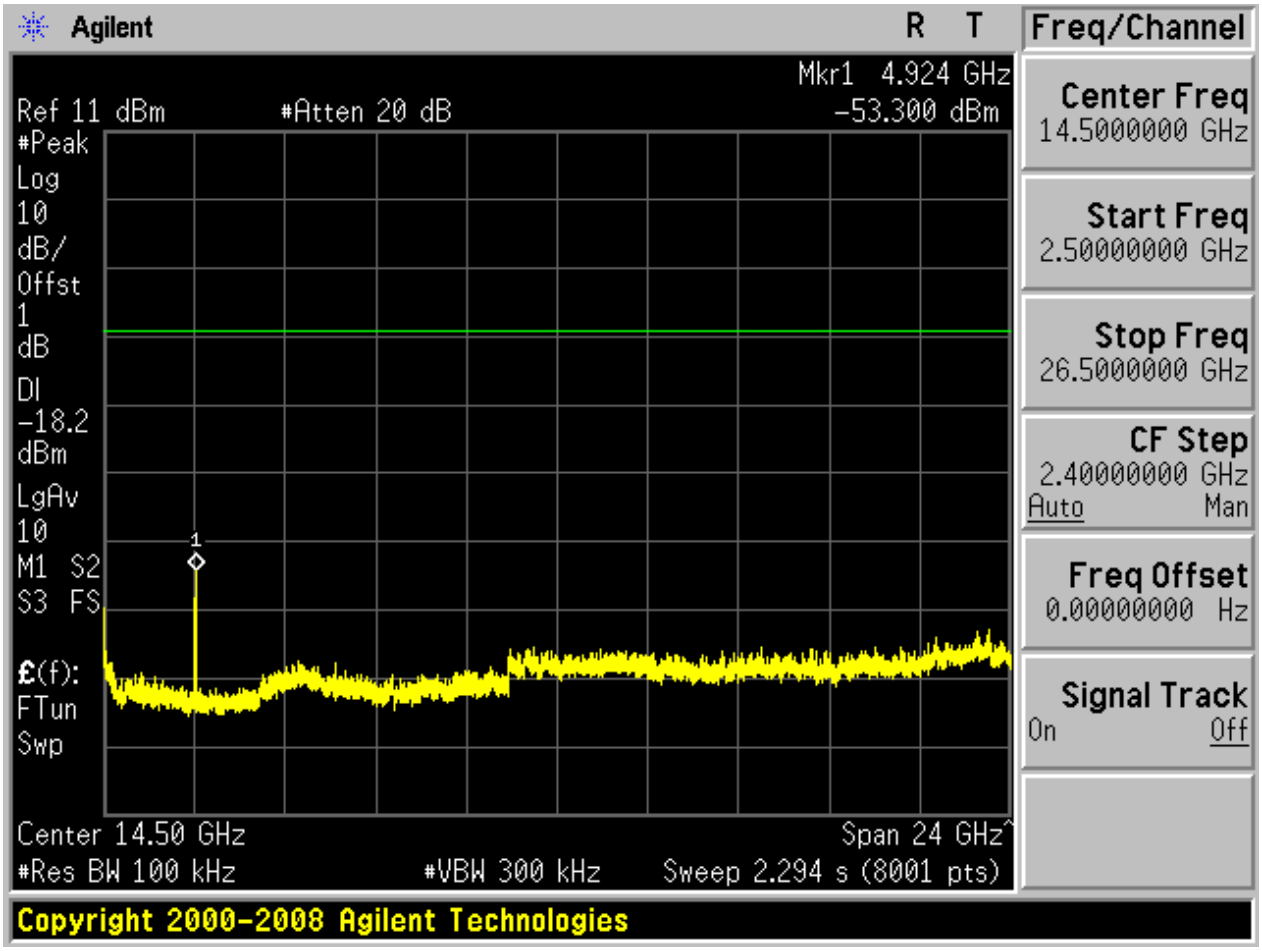












Appendix F: Radiated Spurious Emission & Spurious in Restricted Band

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

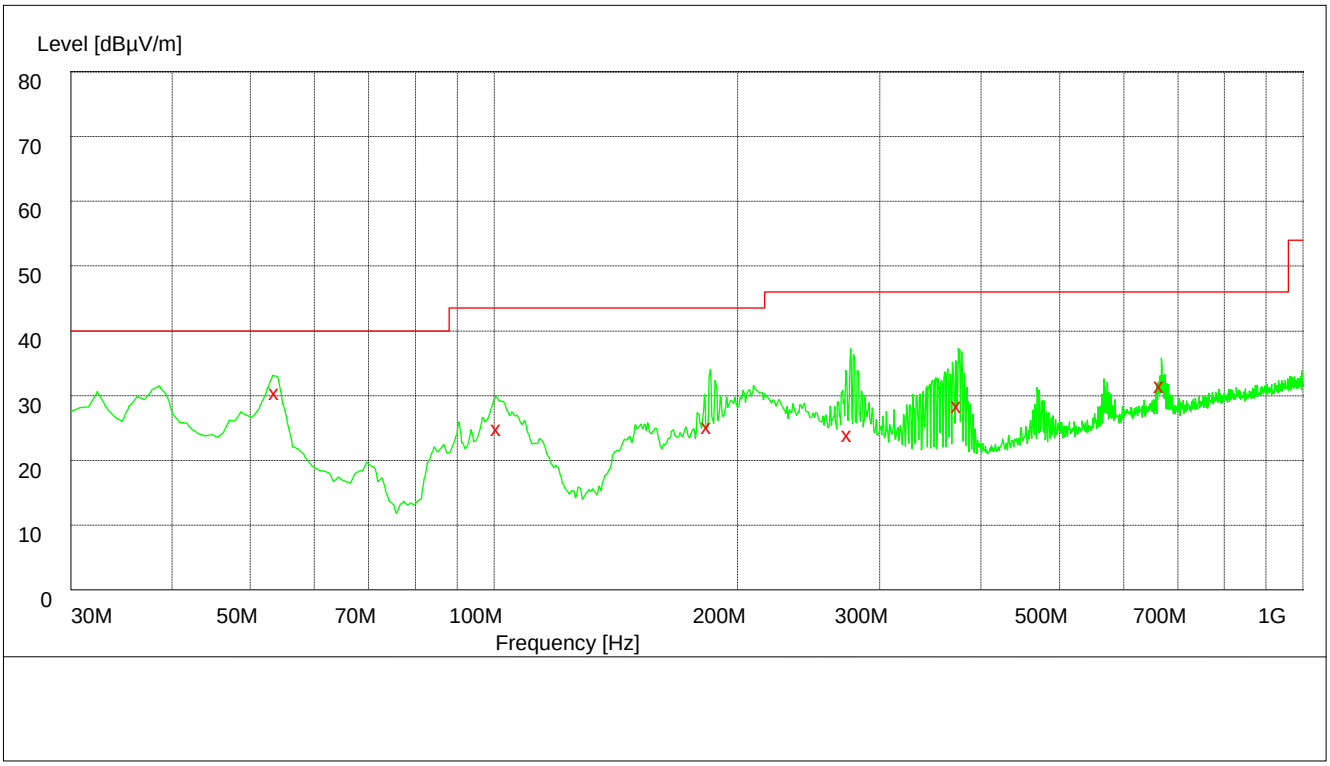
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz.

The simultaneous transmission has been considered

Part 1: 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.

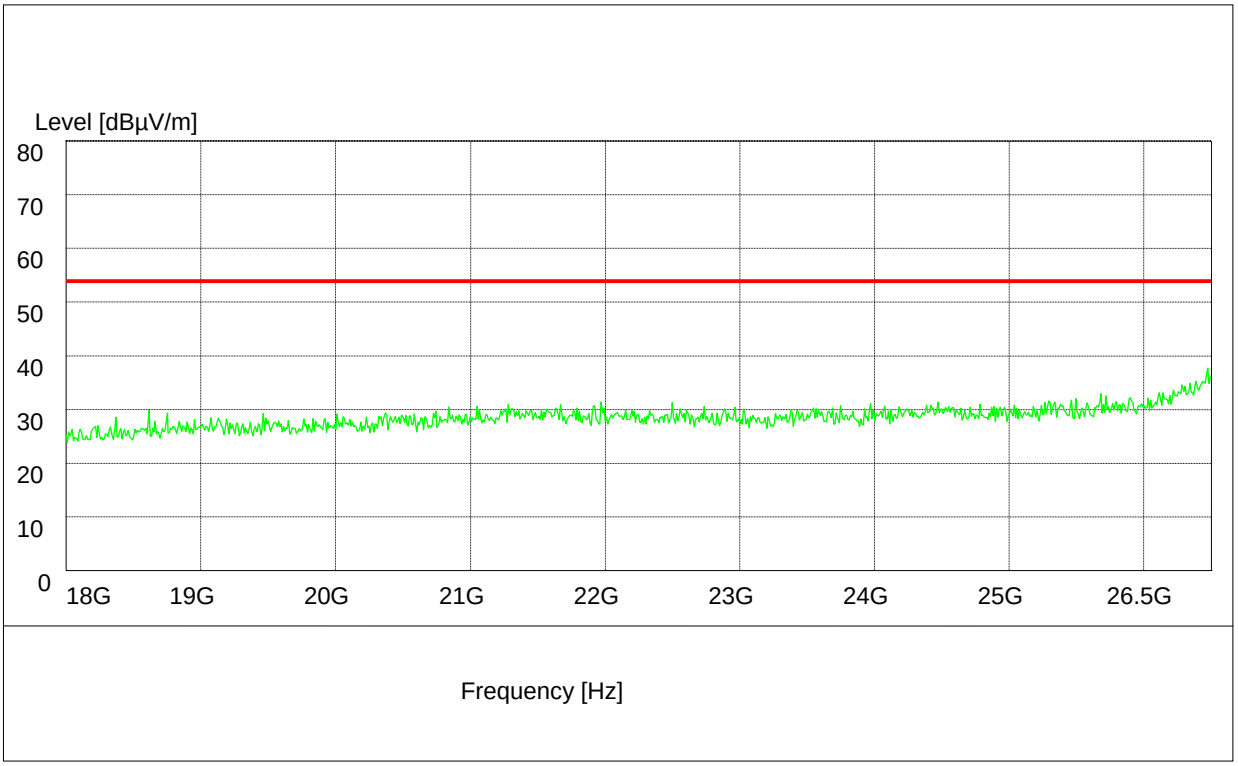
Note 2: **The emissions in this range are mainly from the Platform Device (Notepad PC and its ancillary components).**



Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Plarization
53.880000	31.20	12.7	40.0	8.8	100.0	257.00	VERTICAL
101.460000	25.60	13.0	43.5	17.9	158.0	0.00	VERTICAL
184.560000	25.90	11.4	43.5	17.6	155.0	359.00	HORIZONTAL
275.160000	24.70	14.9	46.0	21.3	100.0	223.00	HORIZONTAL
375.660000	29.20	17.6	46.0	16.8	100.0	276.00	HORIZONTAL
667.980000	32.20	23.1	46.0	13.8	111.0	286.00	HORIZONTAL

Part 2: Testing Range of "18 GHz to 26.5 GHz"

Note: No peak found in pre- test.



Part 3: Testing Range of “2.3GHz to 2.5GHz”

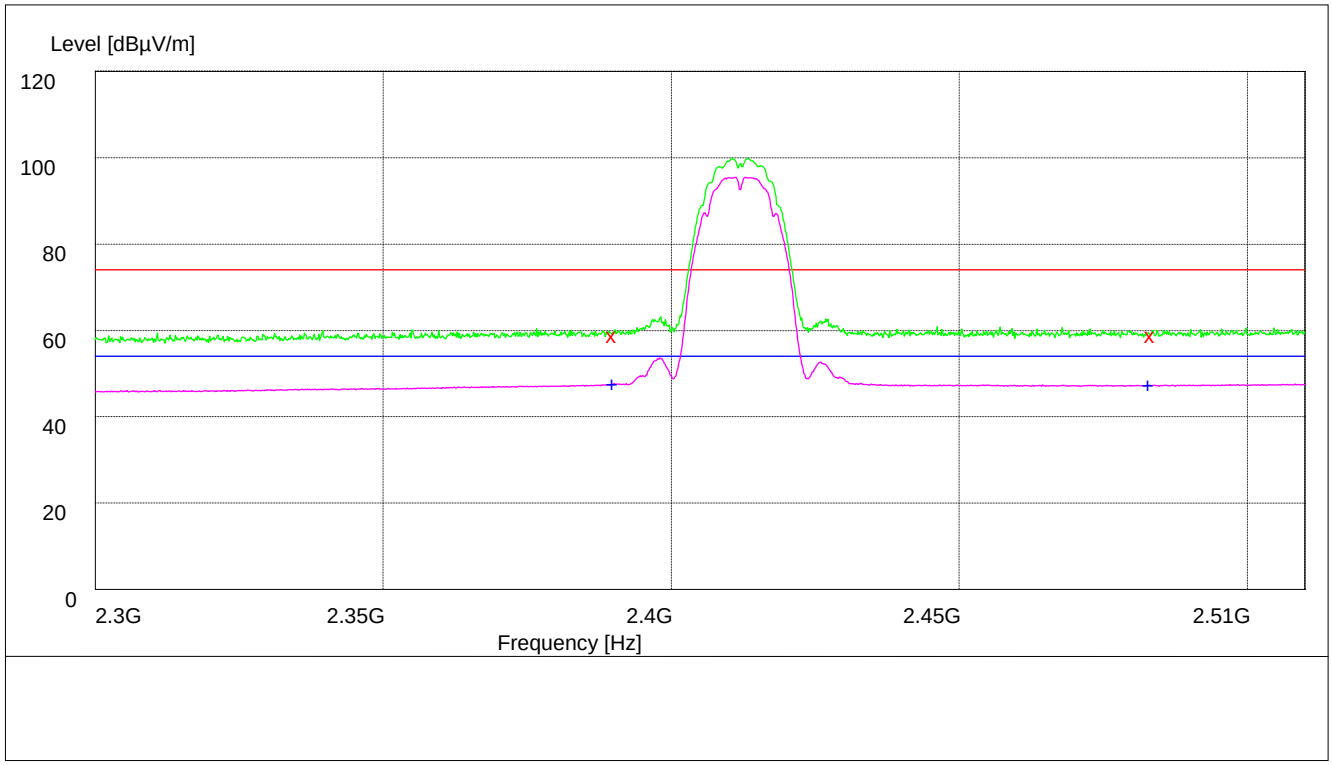
Note 1: The testing range of “2.3 GHz to 2.5 GHz” is for checking radiated emissions located in restricted bands near the EUT operating bands.

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 01



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

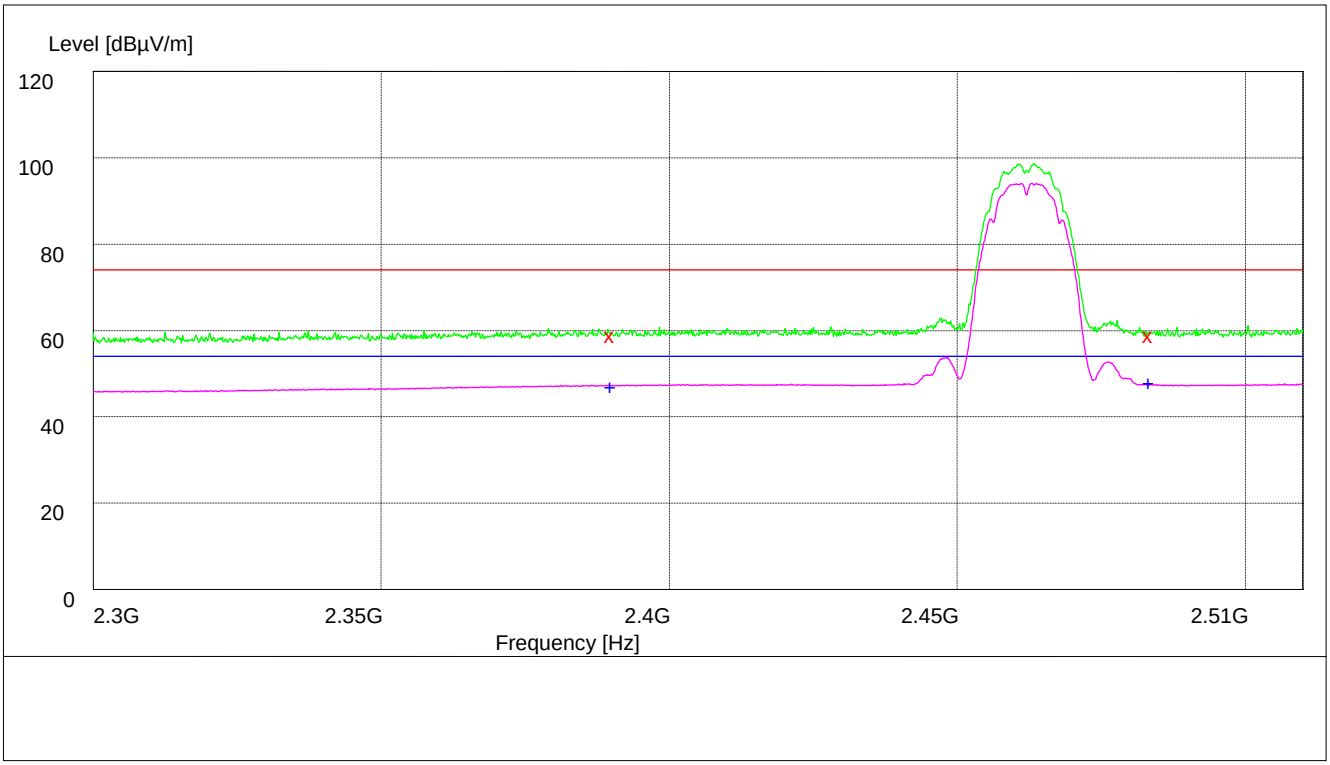
MEASUREMENT RESULT: PK Detector

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Height cm	Azimuth deg	Polarization
2390.000000	58.40	34.8	74.0	15.6	115.0	36.00	HORIZONTAL
2483.500000	58.50	35.1	74.0	15.5	100.0	353.00	HORIZONTAL

MEASUREMENT RESULT: AVDetector

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Height cm	Azimuth deg	Polarization
2390.000000	47.20	34.8	54.0	6.8	100.0	126.00	HORIZONTAL
2483.500000	46.80	35.1	54.0	7.2	112.0	360.00	HORIZONTAL

Channel 11



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

MEASUREMENT RESULT: PK Detector

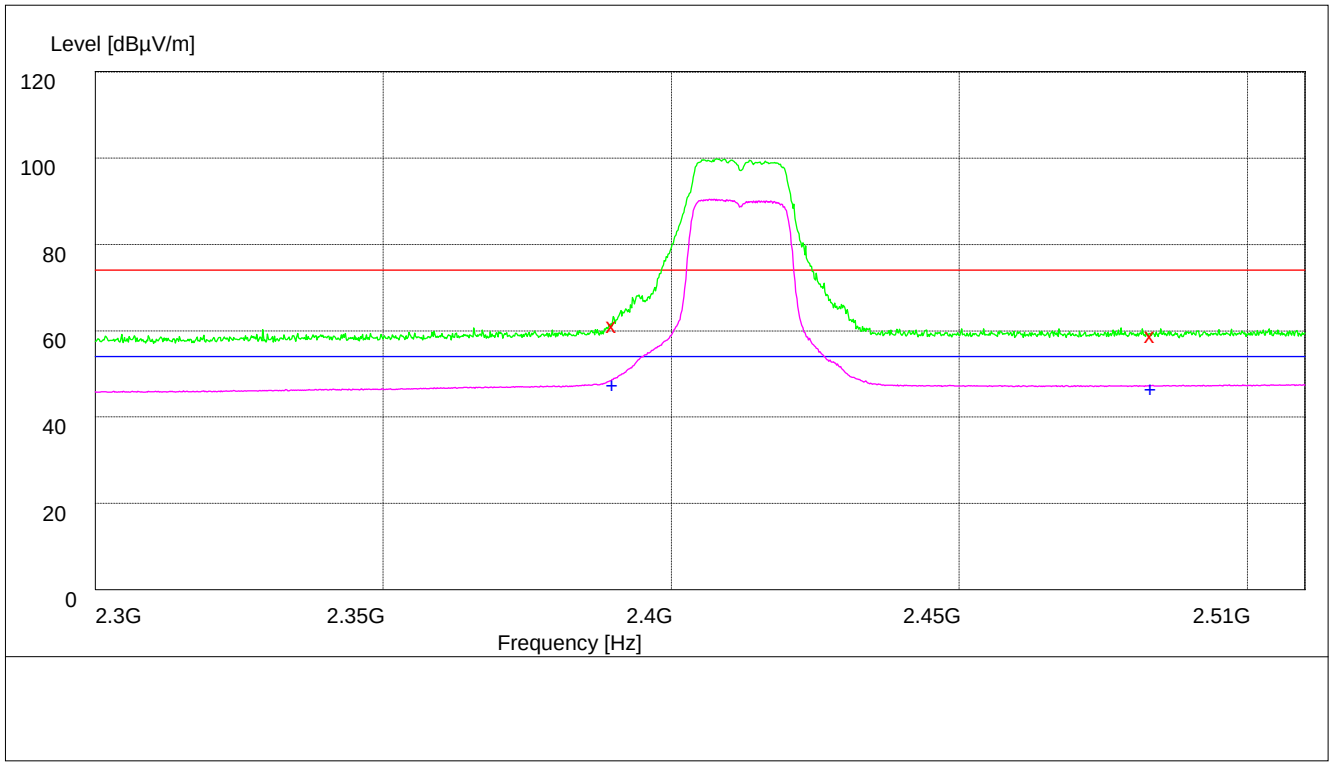
Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarization
2390.000000	58.80	34.8	74.0	15.2	141.0	248.00	VERTICAL
2483.500000	58.90	35.1	74.0	15.1	112.0	0.00	VERTICAL

MEASUREMENT RESULT: AVDetector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarization
2390.000000	46.90	34.8	54.0	7.1	100.0	0.00	HORIZONTAL
2483.500000	47.90	35.1	54.0	6.1	100.0	231.00	HORIZONTAL

Test Mode: 11g

Channel 01



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

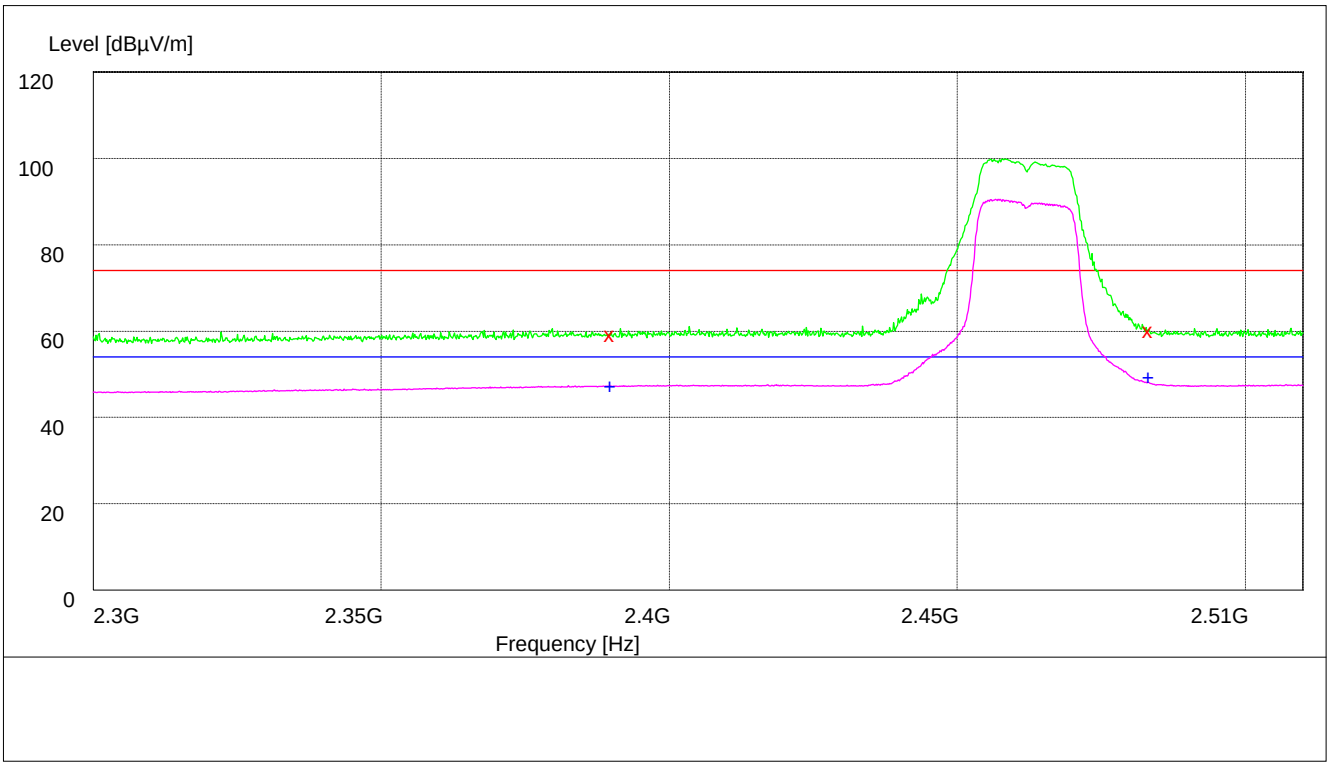
MEASUREMENT RESULT: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarization
2390.000000	60.40	34.8	74.0	13.6	147.0	359.00	VERTICAL
2483.500000	58.10	35.1	74.0	14.9	105.0	161.00	VERTICAL

MEASUREMENT RESULT: AVDetector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarization
2390.000000	46.60	34.8	54.0	7.4	122.0	31.00	HORIZONTAL
2483.500000	45.70	35.1	54.0	8.3	100.0	0.00	HORIZONTAL

Channel 11



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

MEASUREMENT RESULT: PK Detector

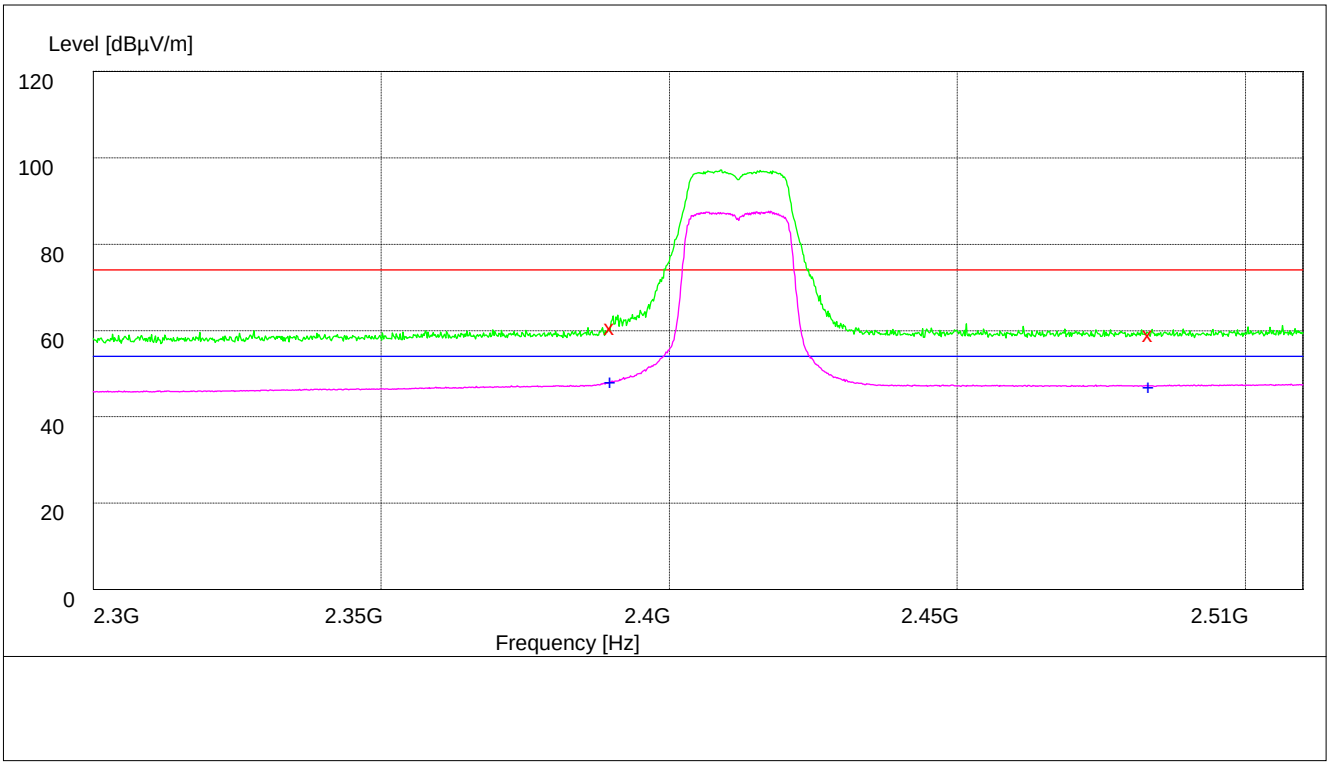
Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarization
2390.000000	58.80	34.8	74.0	15.2	150.0	260.00	VERTICAL
2483.500000	59.70	35.1	74.0	14.3	100.0	169.00	HORIZONTAL

MEASUREMENT RESULT: AVDetector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarization
2390.000000	46.90	34.8	54.0	7.1	118.0	360.00	HORIZONTAL
2483.500000	48.90	35.1	54.0	5.1	102.0	346.00	VERTICAL

Test Mode: 11n

Channel 01



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

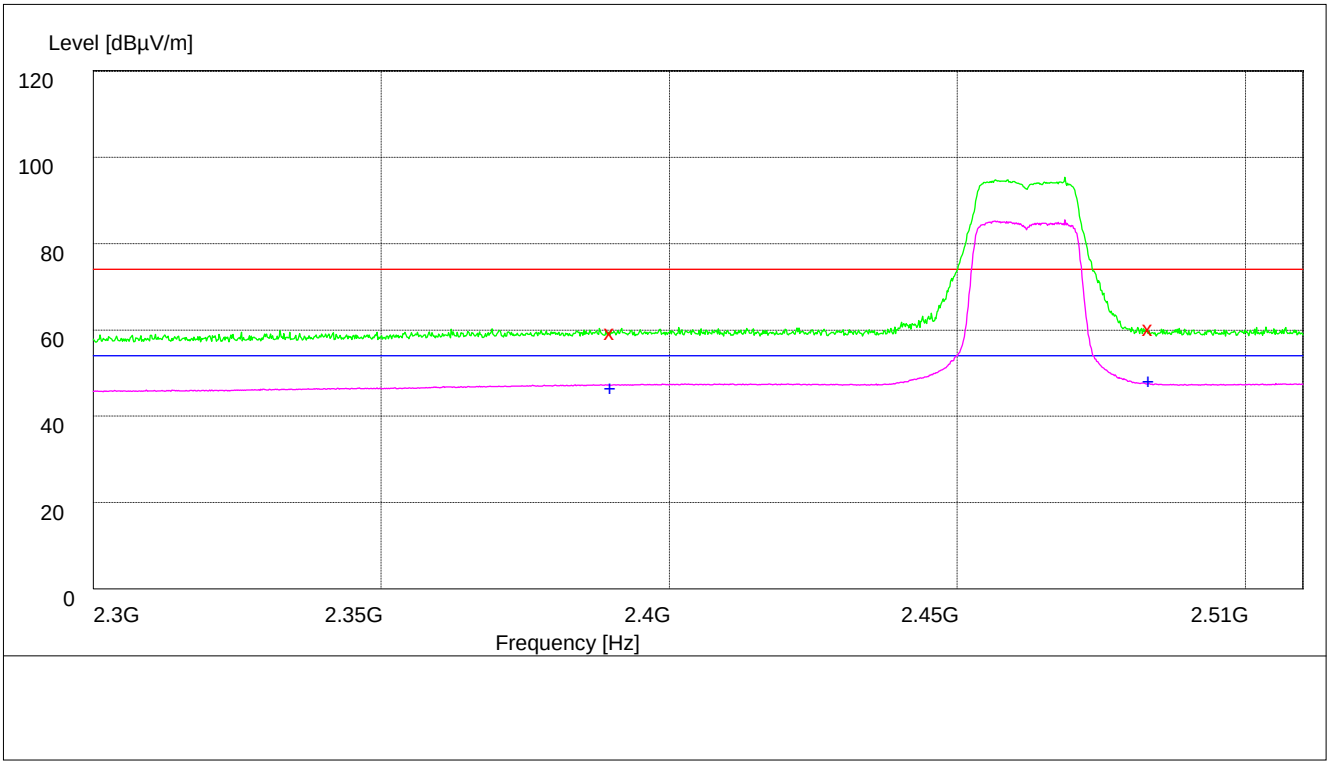
MEASUREMENT RESULT: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarization
2390.000000	61.30	34.8	74.0	12.7	102.0	107.00	HORIZONTAL
2483.500000	59.50	35.1	74.0	14.5	102.0	52.00	VERTICAL

MEASUREMENT RESULT: AVDetector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarization
2390.000000	48.00	34.8	54.0	6.0	100.0	104.00	HORIZONTAL
2483.500000	47.60	35.1	54.0	6.4	135.0	315.00	HORIZONTAL

Channel 11



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

MEASUREMENT RESULT: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarization
2390.000000	59.50	34.8	74.0	14.5	100.0	227.00	HORIZONTAL
2483.500000	60.80	35.1	74.0	13.2	100.0	111.00	HORIZONTAL

MEASUREMENT RESULT: AVDetector

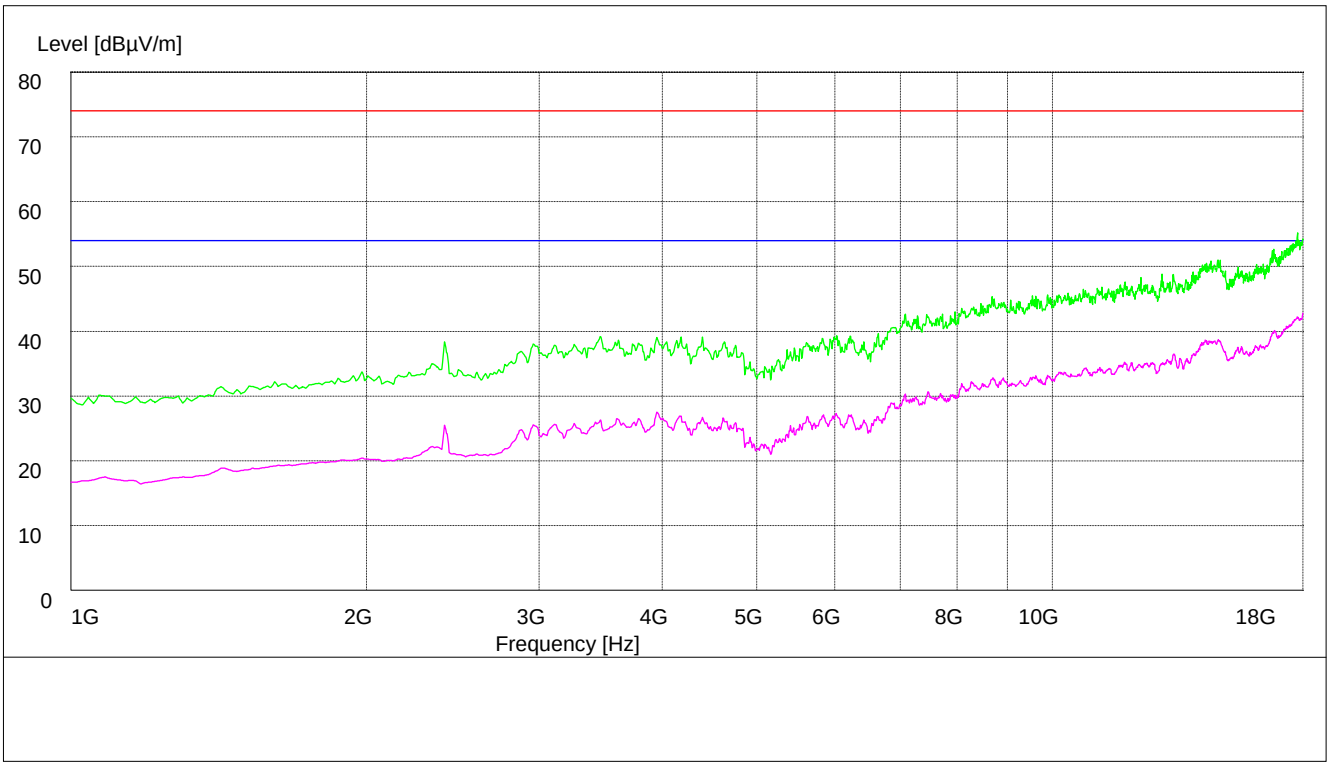
Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarization
2390.000000	47.20	34.8	54.0	6.8	114.0	14.00	HORIZONTAL
2483.500000	47.70	35.1	54.0	6.3	100.0	105.00	HORIZONTAL

Part 4: 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.

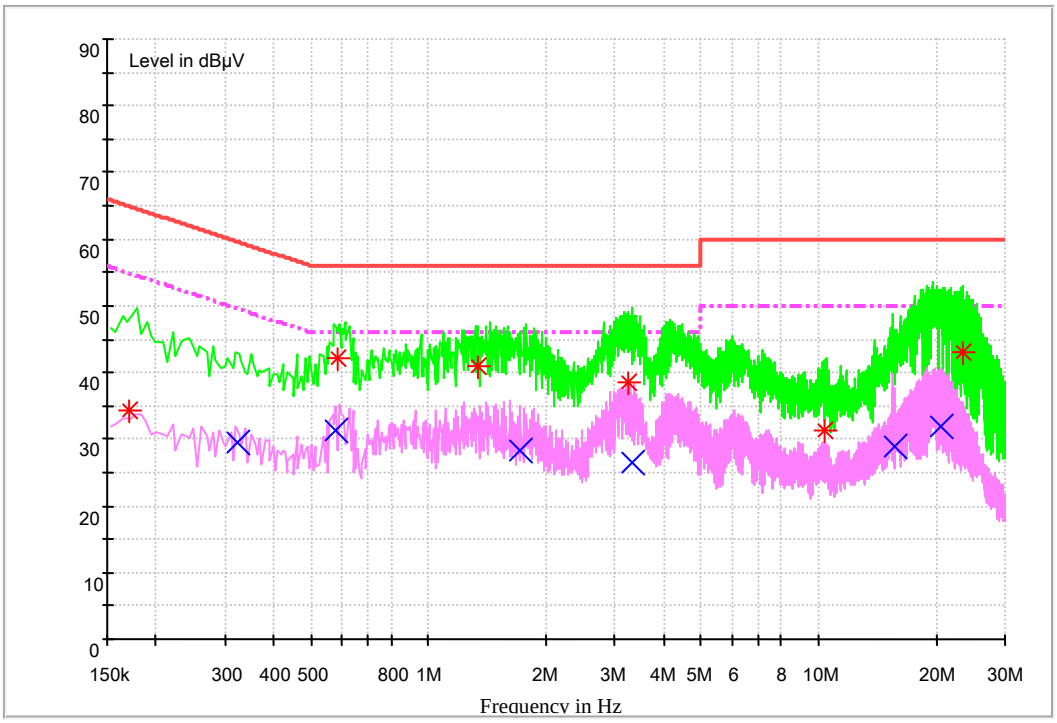
Note 2: The testing range of “1 GHz to 18 GHz” is for checking radiated emissions located in restricted bands faraway from the EUT operating bands.

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 G: Conducted Emission at Power Port

Note: RBW =9 kHz, VBW = 30 kHz



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.170629	34.4	9.7	64.9	30.5	L1	FLO
0.585540	42.1	9.7	56.0	13.9	N	FLO
1.339998	40.9	9.7	56.0	15.1	N	FLO
3.263576	38.6	9.7	56.0	17.4	N	FLO
10.338094	31.4	9.9	60.0	28.6	N	FLO
23.388705	43.1	10.2	60.0	16.9	N	FLO

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.322486	29.6	9.7	49.6	20.0	N	FLO
0.575580	31.2	9.7	46.0	14.8	N	FLO
1.705680	28.3	9.7	46.0	17.7	N	FLO
3.310260	26.5	9.7	46.0	19.5	N	FLO
15.600570	28.8	10.1	50.0	21.2	N	FLO
20.462711	32.0	10.1	50.0	18.0	N	FLO

END