



FCC

RF Test Report

Product Name: UMTS Smart Phone

Model Number: HUAWEI Y301-A1, Y301-A1

Report No: SYBH(Z-RF)029042013-2003

FCC ID:QISY301-A1

Reliability Laboratory of Huawei Technologies Co., Ltd.

Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District,
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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 laboratory has been listed by the VCCI to perform EMC measurements. The accreditation numbers of test site No.1 are R-2364, G-415, C-2583, and T-256, and the accreditation numbers of test site No.2 are R-3760, G-485, C-4210 and T-1237.
6. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
7. The test report is invalid if there is any evidence of erasure and/or falsification.
8. The test report is only valid for the test samples.
9. 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: 2013-04-25
Start Date of Test: 2013-04-25
End Date of Test: 2013-05-15

Test Result: Pass

Approved by Senior Engineer:	2013-05-16	Dai Linjun	
	Date	Name	Signature

Prepared by:	2013-05-16	Feng Nianwei	
	Date	Name	Signature



Modification Record

No.	Last Report No.	Modification Description
		First Report



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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
FCC KDB 662911 D01 Multiple Transmitter Output v01r2

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
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 dBm/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 (Conducted)	15.247(d) 15.209	FCC Part 15.209 field strength limit;	Appendix F	Pass
Unwanted Emissions into Restricted Frequency Bands (Radiated)				Pass
AC Power Line Conducted Emissions	15.207	FCC Part 15.207 conducted limit;	Appendix H	Pass

3 Description of the Equipment under Test (EUT)

3.1 General Description

HUAWEI Y301A1, Y301-A1 is subscriber equipment in the WCDMA/GSM system. The HSPA/UMTS frequency band is Band II and Band IV and Band V. The GSM/GPRS/EDGE frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900. The Mobile Phone implements such functions as RF signal receiving/transmitting, HSPA/UMTS and GSM/GPRS/EDGE protocol processing, voice, video MMS service, GPS, AGPS and WIFI etc. Externally it provides micro SD card interface, earphone port (to provide voice service) and Micro-SIM Card interface. 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.

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		
Serial Number	Hardware Version	Description
D2H01A9331900114	HD1Y301A1M	Main Board

3.2.2 Adapter

AC/DCAdapter Model	HW-050100U2W
Manufacturer	Huawei Technologies Co., Ltd.
Input Voltage	~100-240V 50/60Hz 0.2A
Output Voltage	5V  1A
Rated Power	5W

3.2.3 Battery

Name	Qty.	Manufacture	Description
Rechargeable Li-ion	1	Huawei Technologies Co., Ltd.	Battery Model: HB4W1H Rated capacity: 1750mAh Nominal Voltage:  +3.7V Charging Voltage:  +4.2V

3.3 Technical Description

Characteristics	Description		
IEEE 802.11 WLAN Mode Supported	<input checked="" type="checkbox"/> 802.11b (20 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11g (20 MHz channel bandwidth) <input checked="" type="checkbox"/> 802.11n (20 MHz channel bandwidth)		
TX/RX Operating Range	2412-2462 MHz band	$f_c = 2407 \text{ MHz} + N * 5 \text{ MHz}$, where: - f_c = "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	7M9G1D (for 802.11b mode), 16M3G7D (for 802.11g mod), 16M7G7D (for 802.11n mode)		
TX Power Control	<input checked="" type="checkbox"/> Supported, <input type="checkbox"/> Not Supported		
Standby Mode	<input type="checkbox"/> Supported, <input checked="" type="checkbox"/> Not Supported		
Equipment Type	<input type="checkbox"/> Stand-alone equipment, <input type="checkbox"/> Plug-in radio device, <input checked="" type="checkbox"/> Combined equipment		
Antenna	Description	Isotropic Antenna	
	Type	<input type="checkbox"/> External, <input checked="" type="checkbox"/> Integrated	
	Ports	<input checked="" type="checkbox"/> Ant 1, <input type="checkbox"/> Ant 2, <input type="checkbox"/> Ant 3	
	Smart System	<input checked="" type="checkbox"/> SISO (for 802.11b/g/n), <input type="checkbox"/> MIMO (for 802.11n): 2 Tx & 2 Rx, <input type="checkbox"/> Diversity (for 802.11b/g) : Tx & Rx	
	Gain	1 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	<input checked="" type="checkbox"/> AC/DC Adapter	<input type="checkbox"/> PoE: <input type="checkbox"/> Other:

4 General Test Conditions / Configurations

4.1 Test Modes

NOTE: Typical working modes for each IEEE 802.11 mode are selected to perform tests.

Test Mode	Test Modes Description
11B	IEEE 802.11b with data rate of 1 Mbps using SISO mode.
11G	IEEE 802.11g with data rate of 6 Mbps using SISO mode.
11N20	IEEE 802.11n with data rate of MCS0 and bandwidth of 20 MHz using SISO mode.
11N40	IEEE 802.11n with data rate of MCS0 and bandwidth of 40 MHz using SISO mode.

4.2 EUT Configurations

4.2.1 General Configurations

Configuration	Description
Test Antenna Ports	Until otherwise specified, <ul style="list-style-type: none"> - 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	20
11B	M	Ant 1	Ch No. 6 / 2437 MHz	---	20	20
11B	H	Ant 1	Ch No. 11 / 2462 MHz	---	20	20
11G	L	Ant 1	Ch No. 1 / 2412 MHz	---	20	19
11G	M	Ant 1	Ch No. 6 / 2437 MHz	---	20	19
11G	H	Ant 1	Ch No. 11 / 2462 MHz	---	20	19
11N20	L	Ant 1	Ch No. 1 / 2412 MHz	---	20	17
11N20	M	Ant 1	Ch No. 6 / 2437 MHz	---	20	17
11N20	H	Ant 1	Ch No. 11 / 2462 MHz	---	20	17

4.3 Test Environments

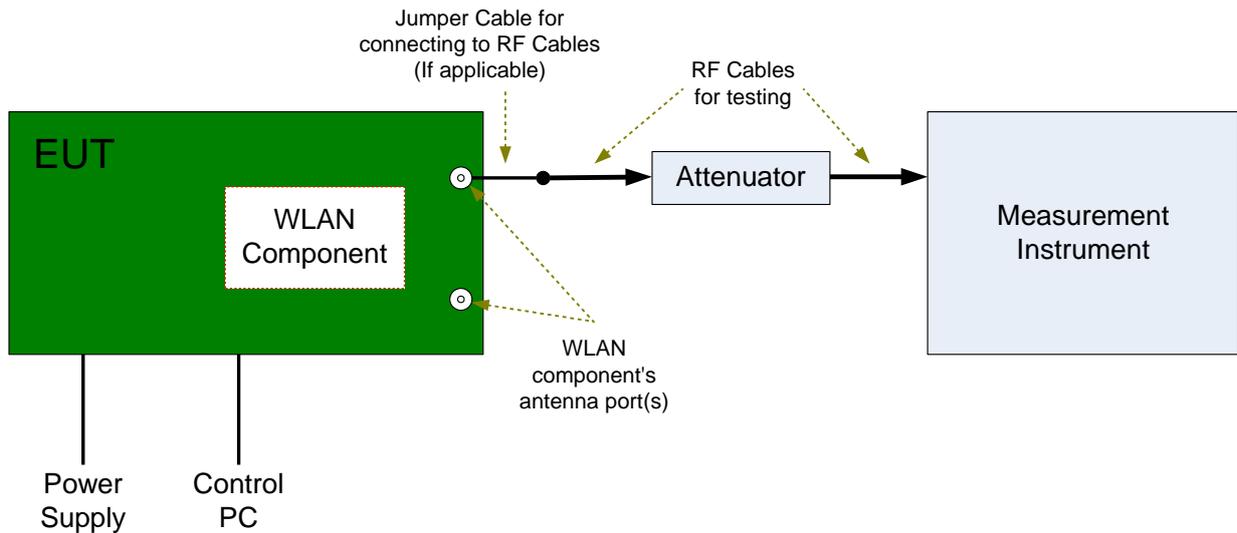
NOTE: The values used in the test report may be stringent than the declared.

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

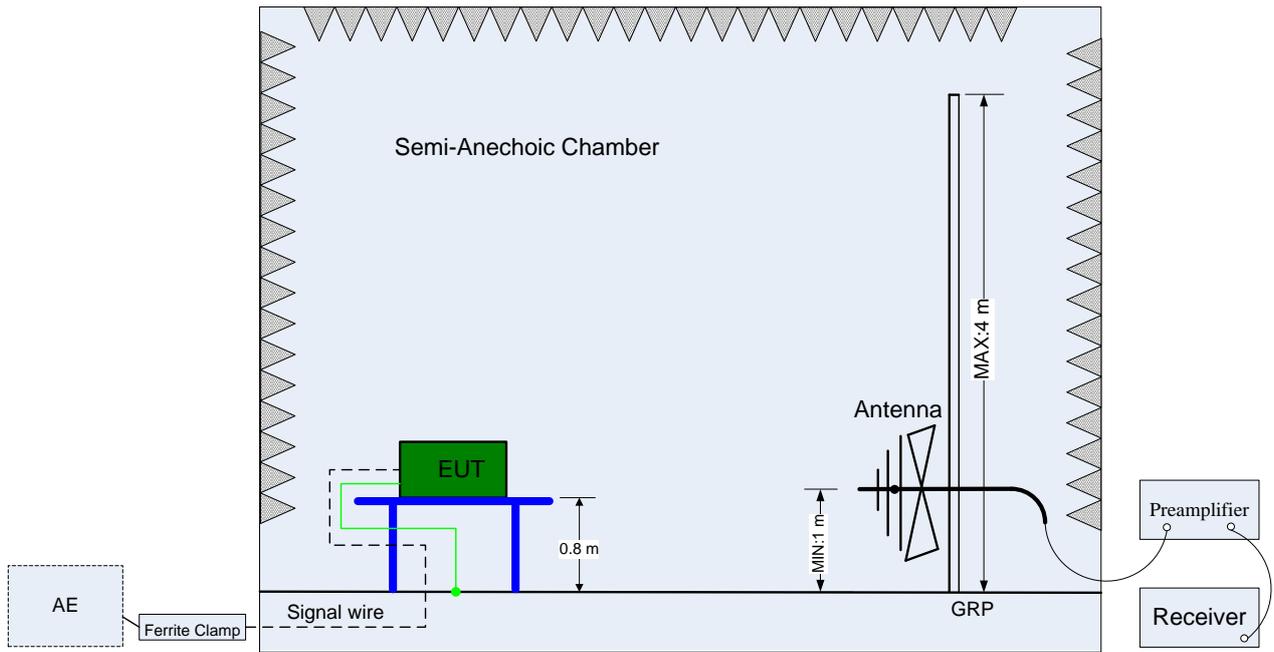
The WLAN component's antenna port(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



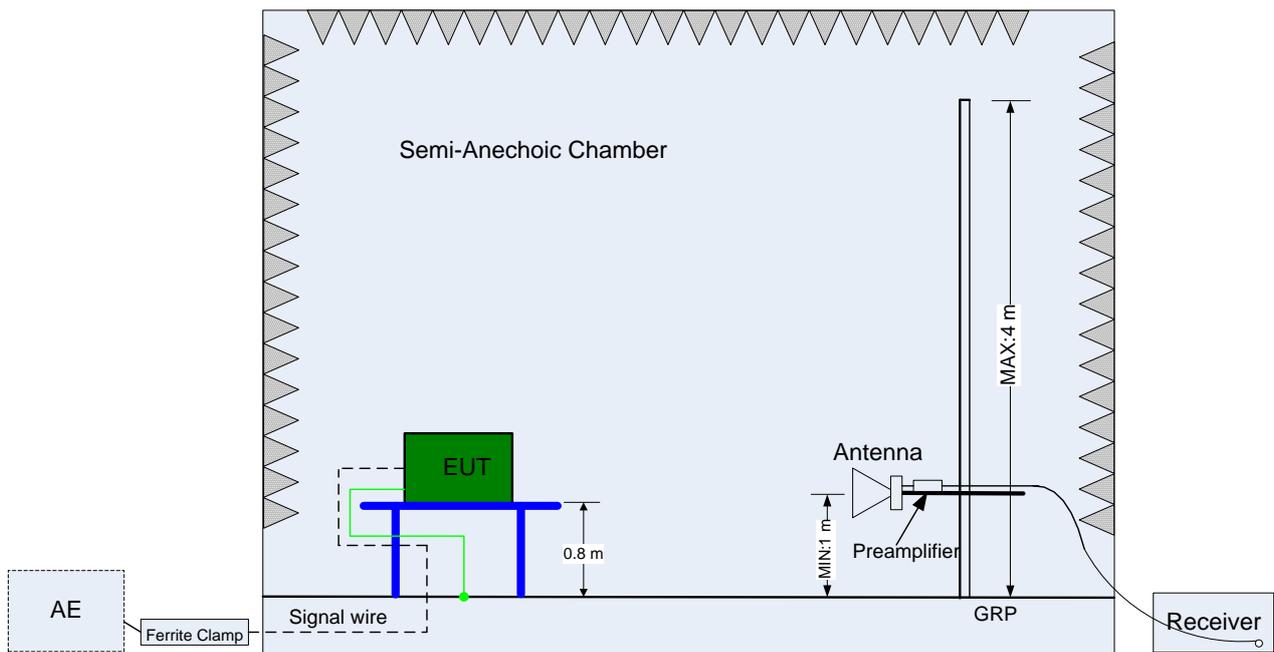
4.4.2 Test Setup 2

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)

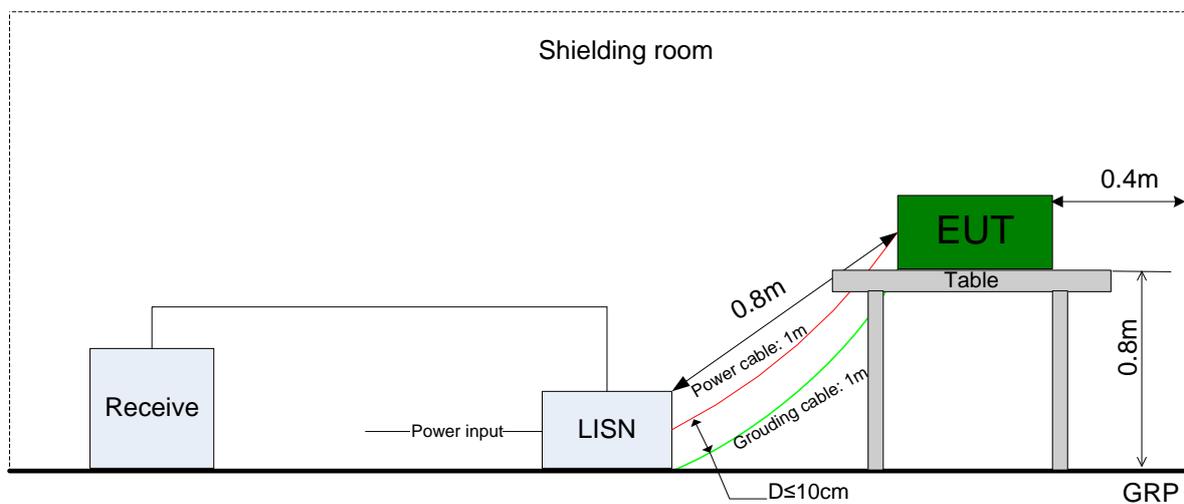


(Above 1 GHz)

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
Occupied Bandwidth (Only for IC requirement)	Measurement Method	RSS-Gen, 4.6.1.
	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	Measurement Method	FCC KDB 558074 §12.2, Conducted (antenna-port).
	Test Environment	NTNV

Test Case	Test Conditions	
	Configuration	Description
Restricted Frequency Bands (Conducted)	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	<input checked="" type="checkbox"/> Flatwise, <input checked="" type="checkbox"/> Upright, <input type="checkbox"/> Hung
	EUT Configuration	(1) 30 MHz to 1 GHz: 11B_L (Worst Conf.). (2) 1 GHz to 3 GHz: 11B_L, 11B_H 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
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
Double-Ridged Waveguide Horn Antenna (1G~18GHz)	R&S	HF907	100391	2011-10-12	2013-10-11
Trilog Broadband Antenna (30M~3GHz)	SCHWARZB ECK	VULB 9163	9163-521	2011-12-09	2013-12-08
Pyramidal Horn Antenna(26GHz-40GHz)	ETS-Lindgre n	3160-10	00123940	2013-02-27	2014-02-27
Pyramidal Horn Antenna(18GHz-26-5GH z)	ETS-Lindgre n	3160-09	00091989	2011-10-20	2013-10-19

END



Appendix for Testreport



Appendix A: DTS (6 dB) Bandwidth

In this document, the "DTS6dBBW" refers to the measured "DTS (6 dB) Bandwidth" value. In this Appendix, the "fc(DTS6dBBW)" refers to the centre of the measured "DTS6dBBW". The introduction of the "fc(DTS6dBBW)" is due to that other measurements use it as the spectrum analyzer setting.

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

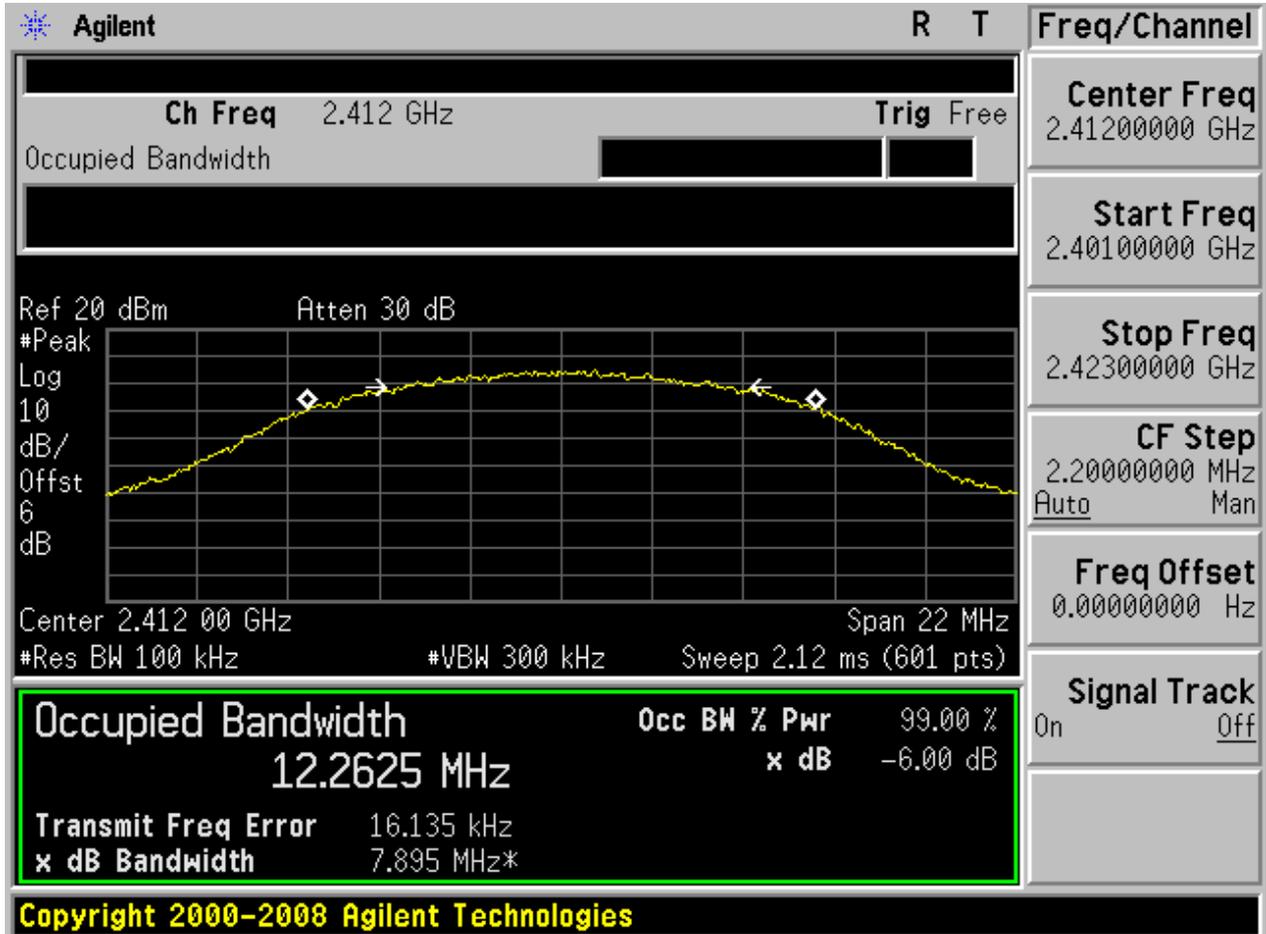
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	DTS6dBBW[MHz]	Verdict
11B	L	2412	7.90	pass
11B	M	2437	7.80	pass
11B	H	2462	7.77	pass
11G	L	2412	16.28	pass
11G	M	2437	15.96	pass
11G	H	2462	13.46	pass
11N20	L	2412	16.64	pass
11N20	M	2437	16.69	pass
11N20	H	2462	15.70	pass

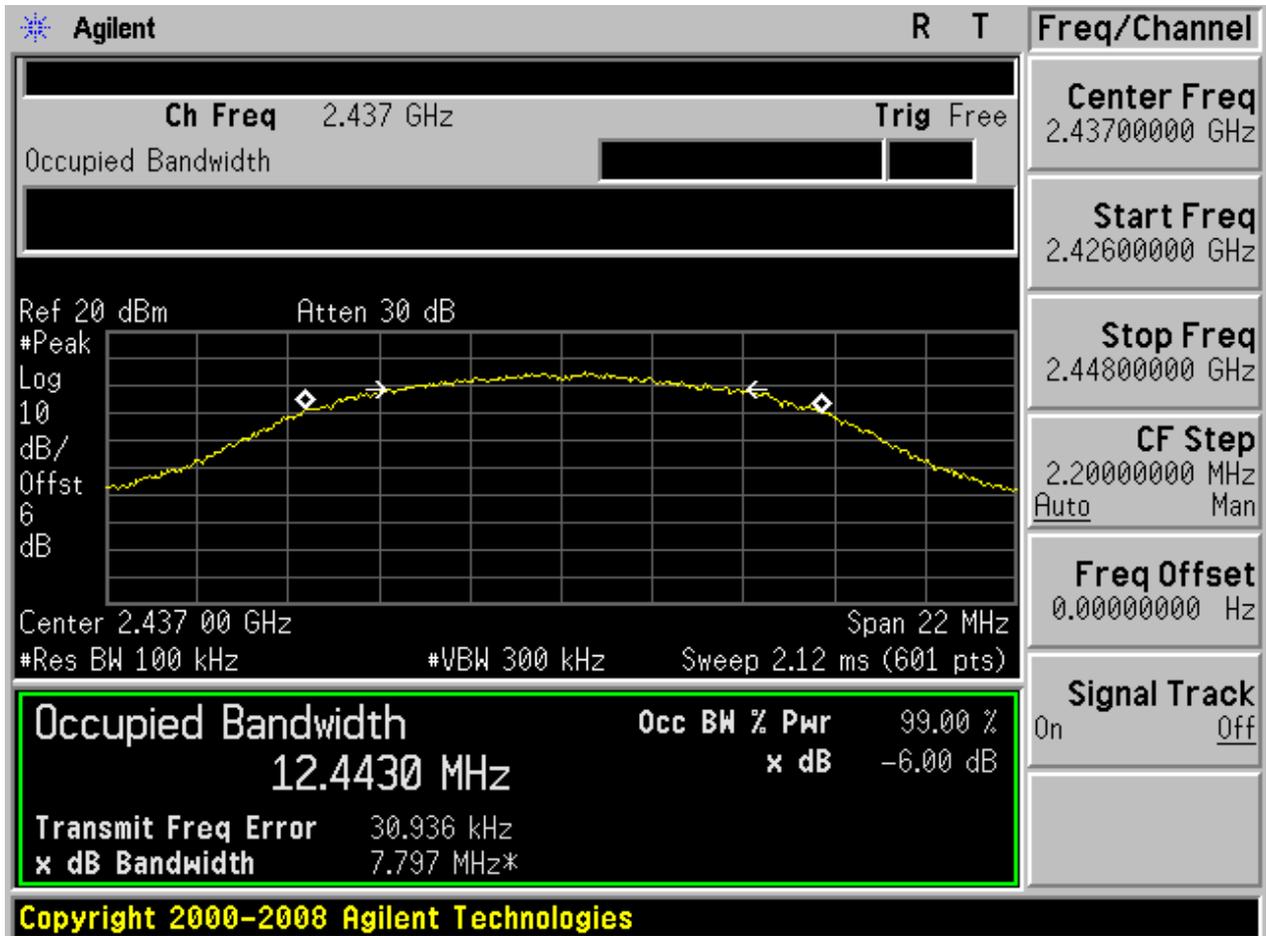


Part II - Test Plots

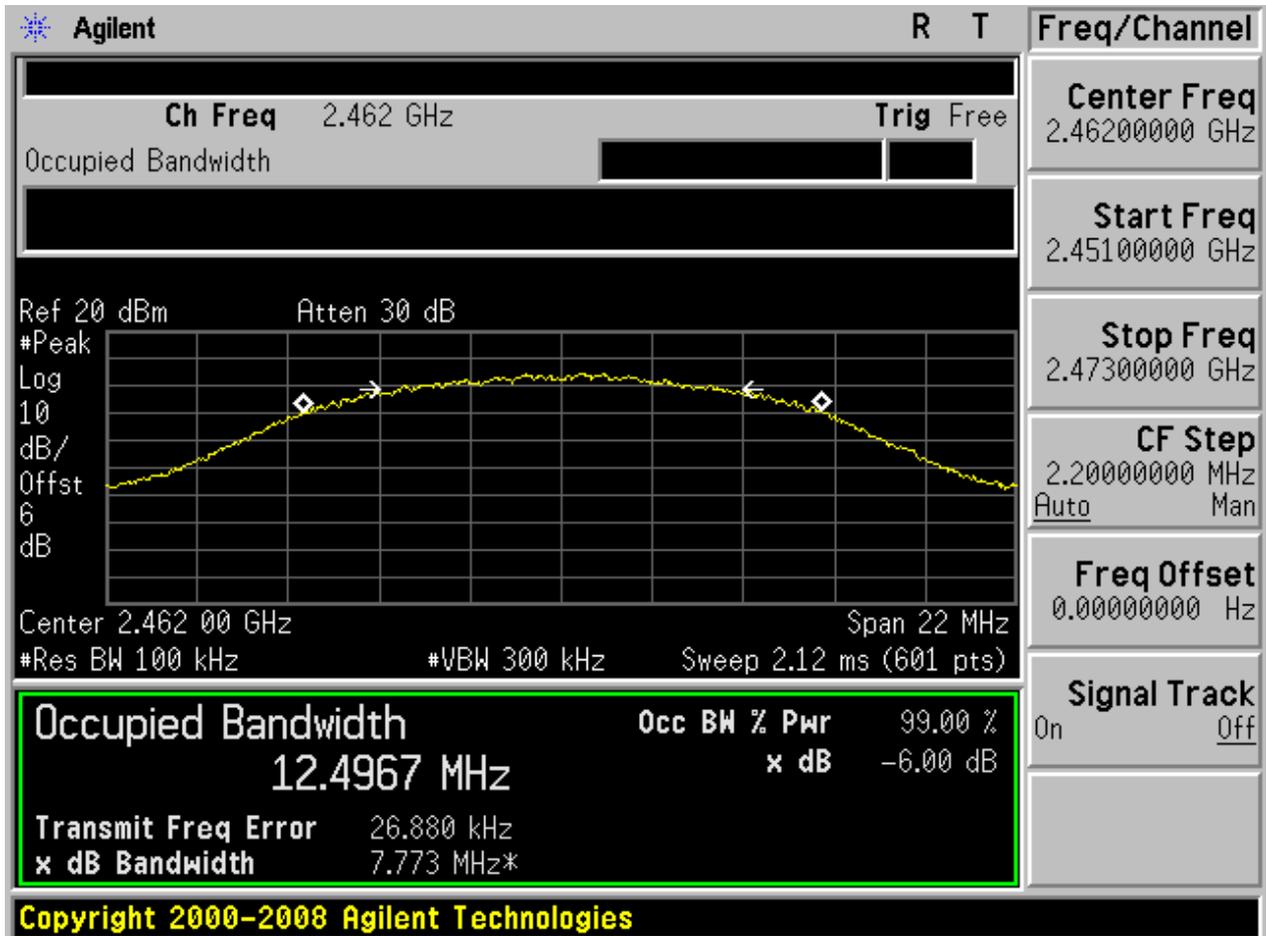
2.1 11B_L



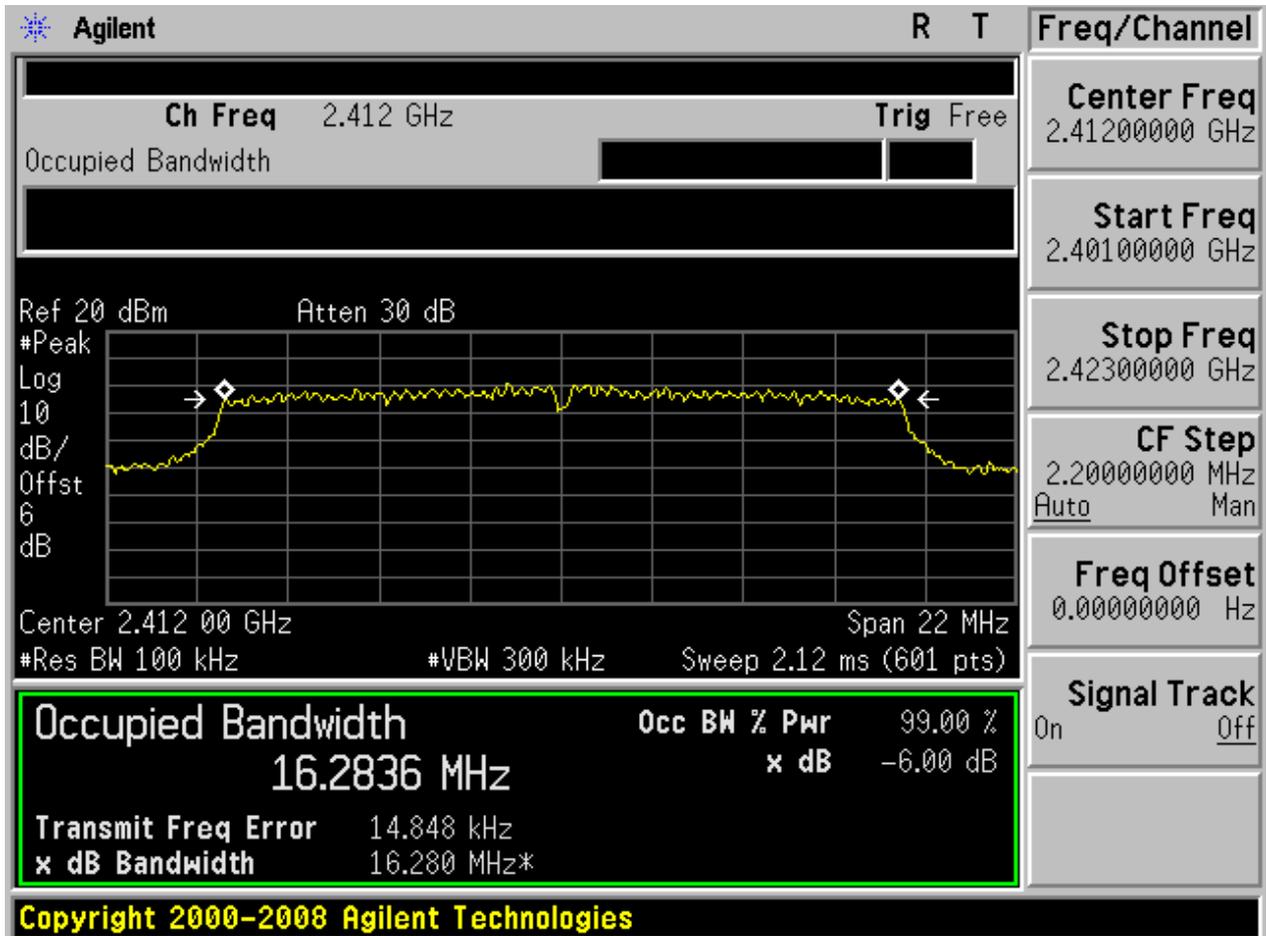
2.2 11B_M



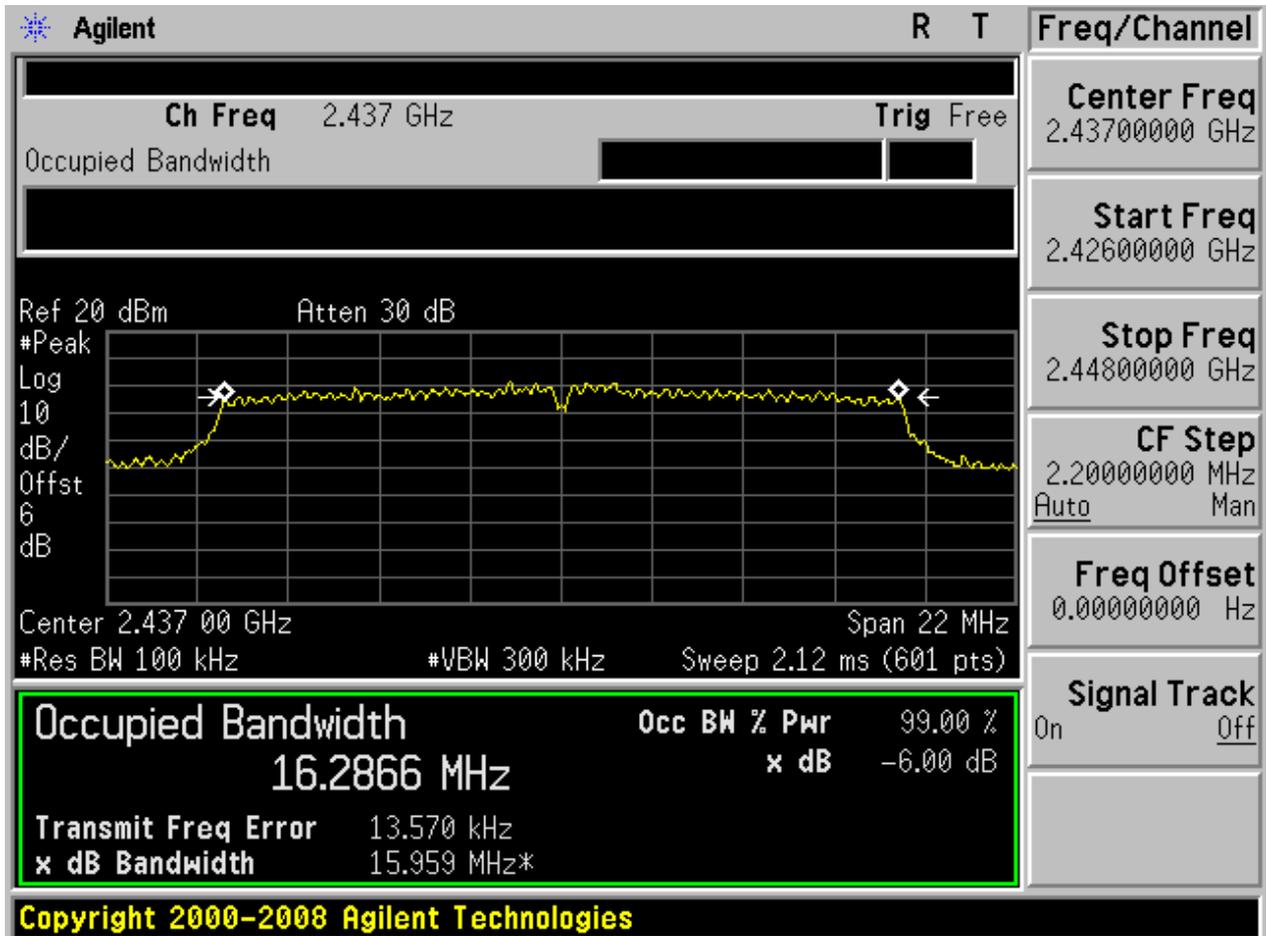
2.3 11B_H



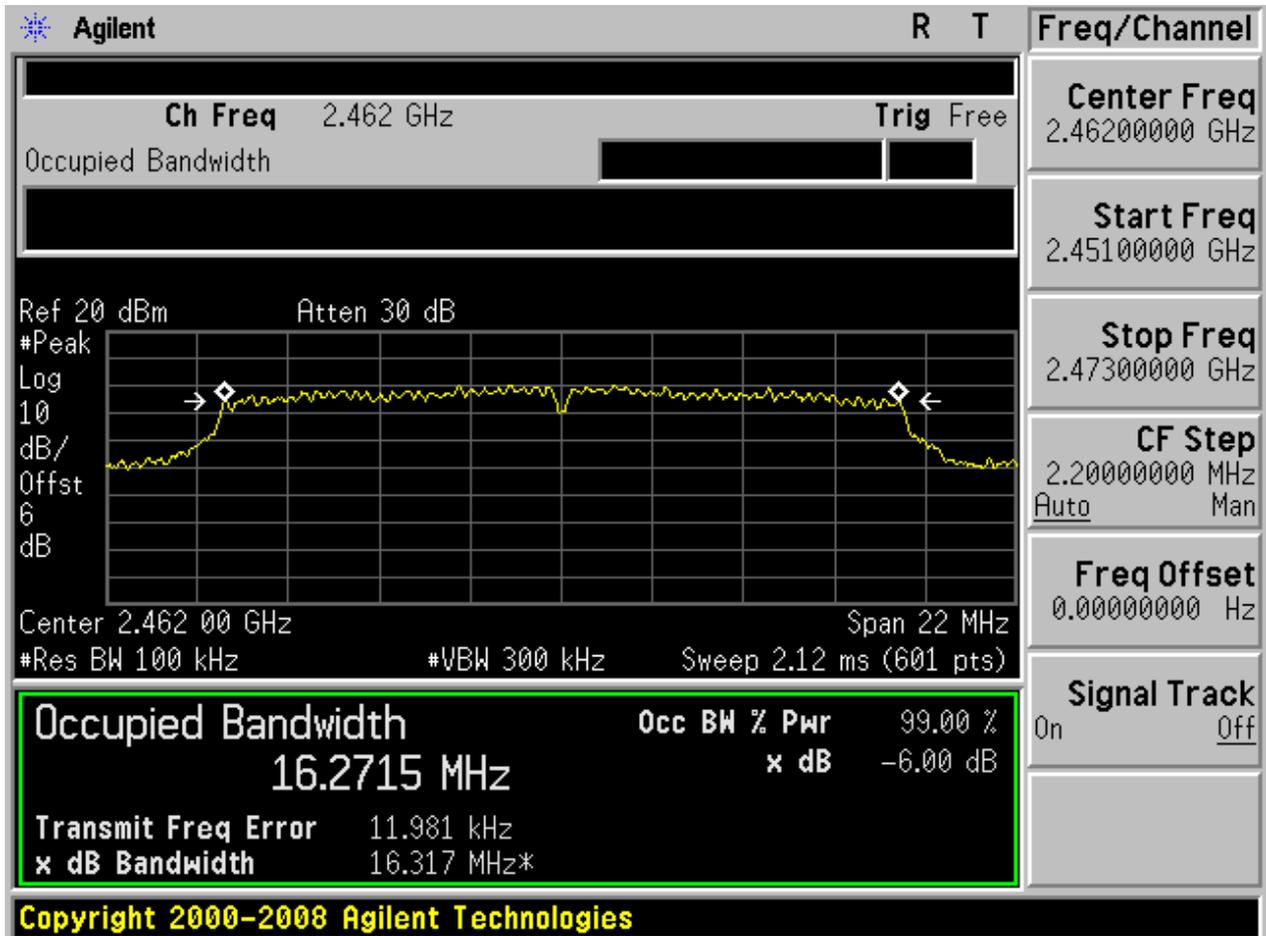
2.4 11G_L



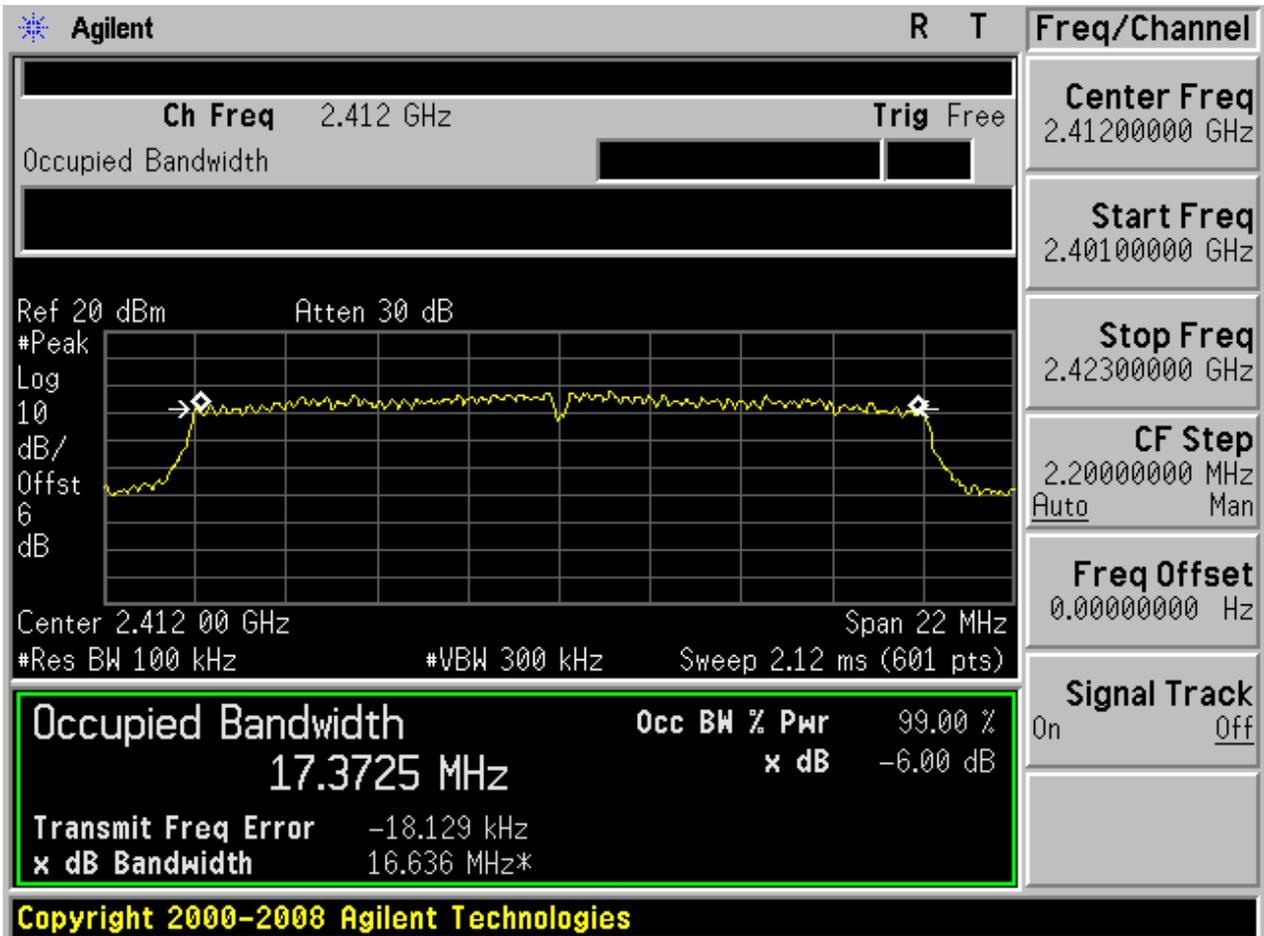
2.5 11G_M



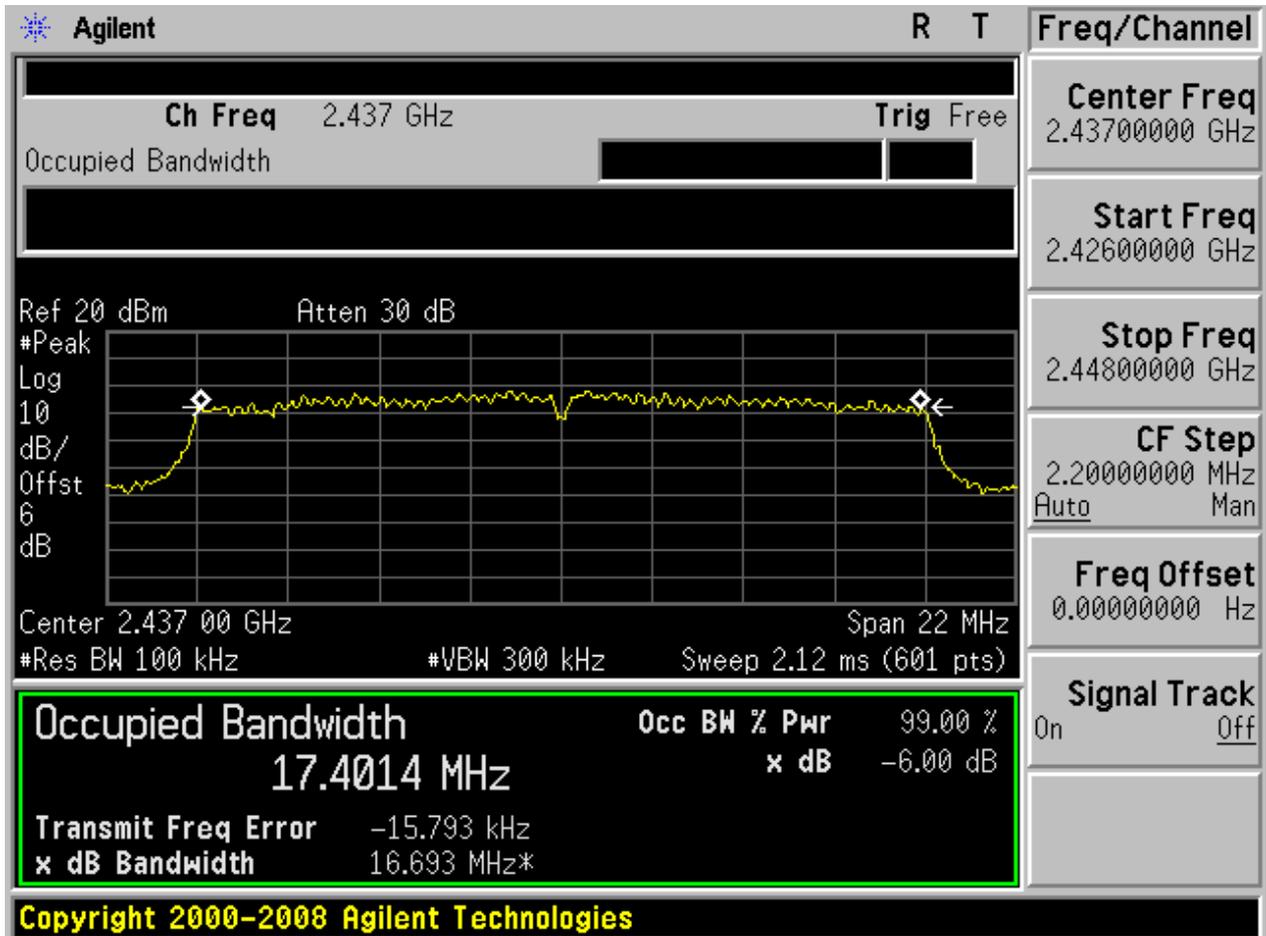
2.6 11G_H



2.7 11N20_L

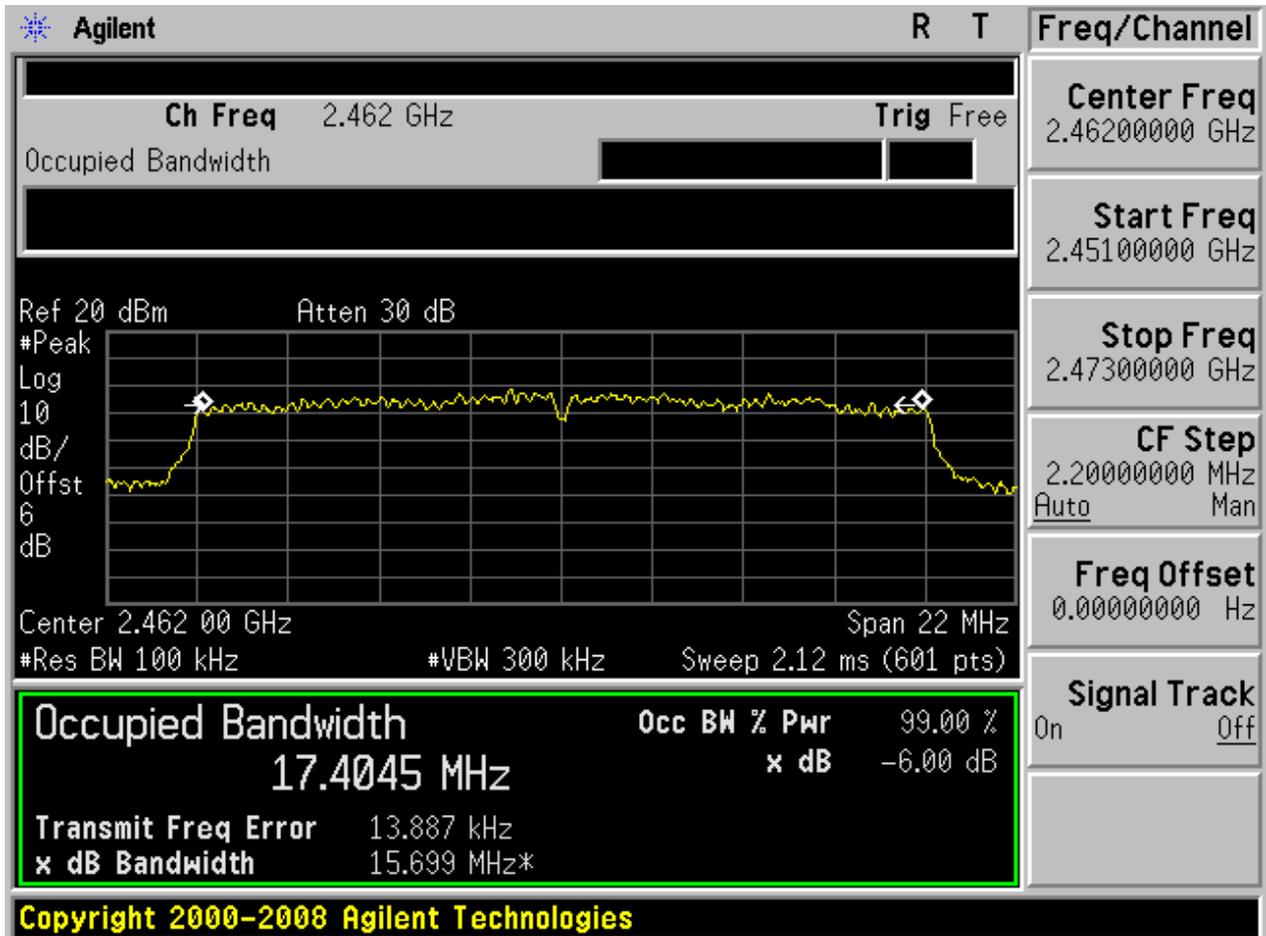


2.8 11N20_M





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	27.22	pass
11B	M	2437	27.35	pass
11B	H	2462	27.01	pass
11G	L	2412	28.32	pass
11G	M	2437	28.21	pass
11G	H	2462	28.02	pass
11N20	L	2412	25.68	pass
11N20	M	2437	25.82	pass
11N20	H	2462	25.54	pass

Appendix C: Maximum Power Spectral Density Level

In this Appendix, the "PD" refers to the measured "Maximum Power Spectral Density" value with 100 kHz RBW. The final result "PD" within 3 kHz bandwidth, which is used to compare with the limit requirements, should be adjusted according to: $PD[\text{dBm}/3\text{ kHz}] = PD * [\text{dBm}/100\text{ kHz}] - 15.2[\text{dB}]$.

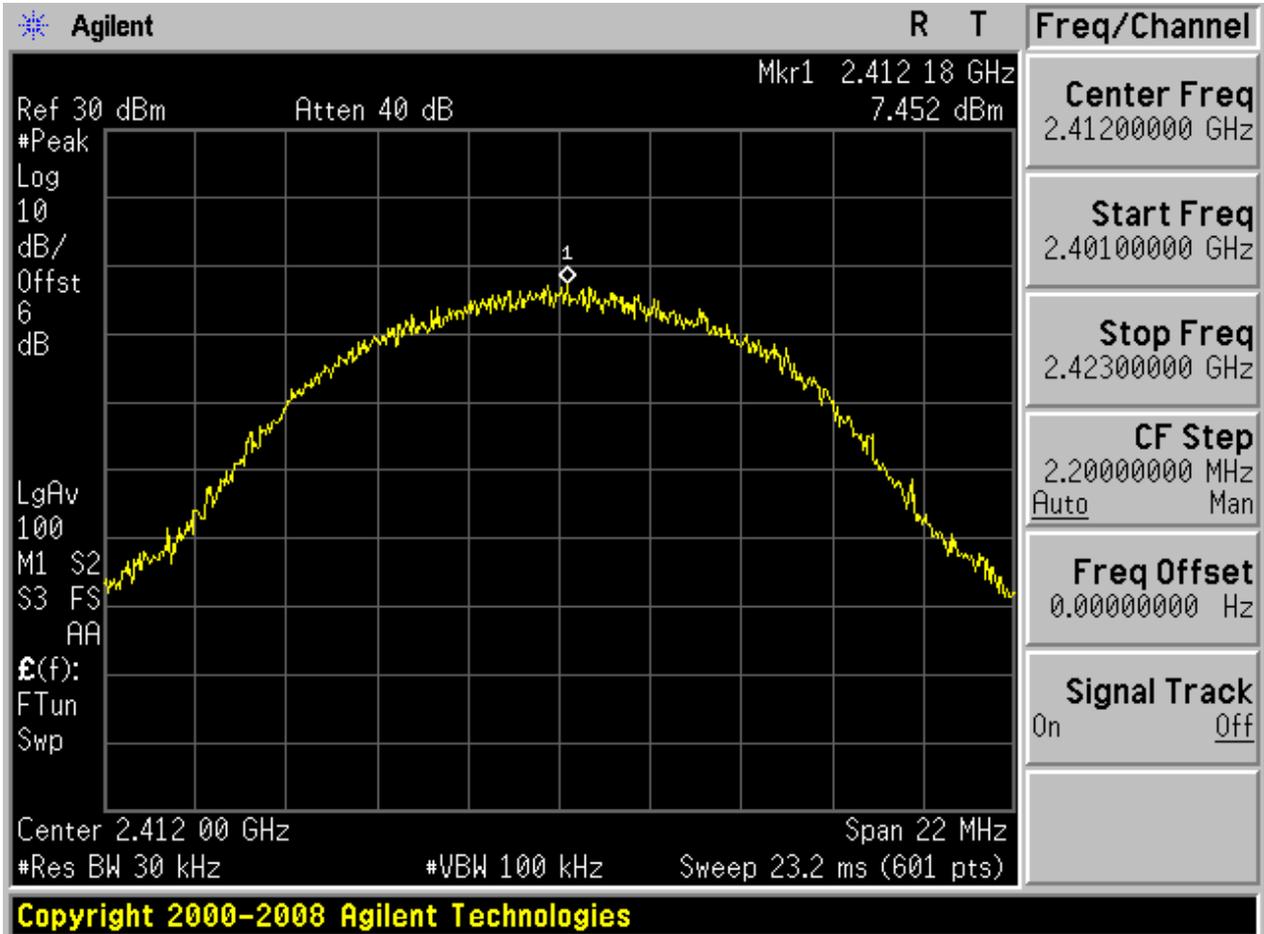
For measurements on smart antenna systems (devices with multiple transmit chains), the test is performed at each chain as "PD@i [dBm]", and then combined into the final result "PD [dBm]" to compare with the limit according to: $PD[\text{dBm}] = 10 \times \lg(10^{(PD@1[\text{dBm}]/10)} + \dots + 10^{(PD@N[\text{dBm}]/10)})$ (the N denotes the antenna chains used by smart antenna systems). NOTE that the method is a stringent but convenient consideration, because each "PD@i [dBm]" may be located at different frequency occurrence. For the final judgment, the combination of the final result "PD [dBm]" (Trace#sum) should be performed frequency-by-frequency on the measured spectrum trace for each antenna chain (Trace#i). Unless otherwise specified, the method for final judgment will not be used.

Part I - Test Results

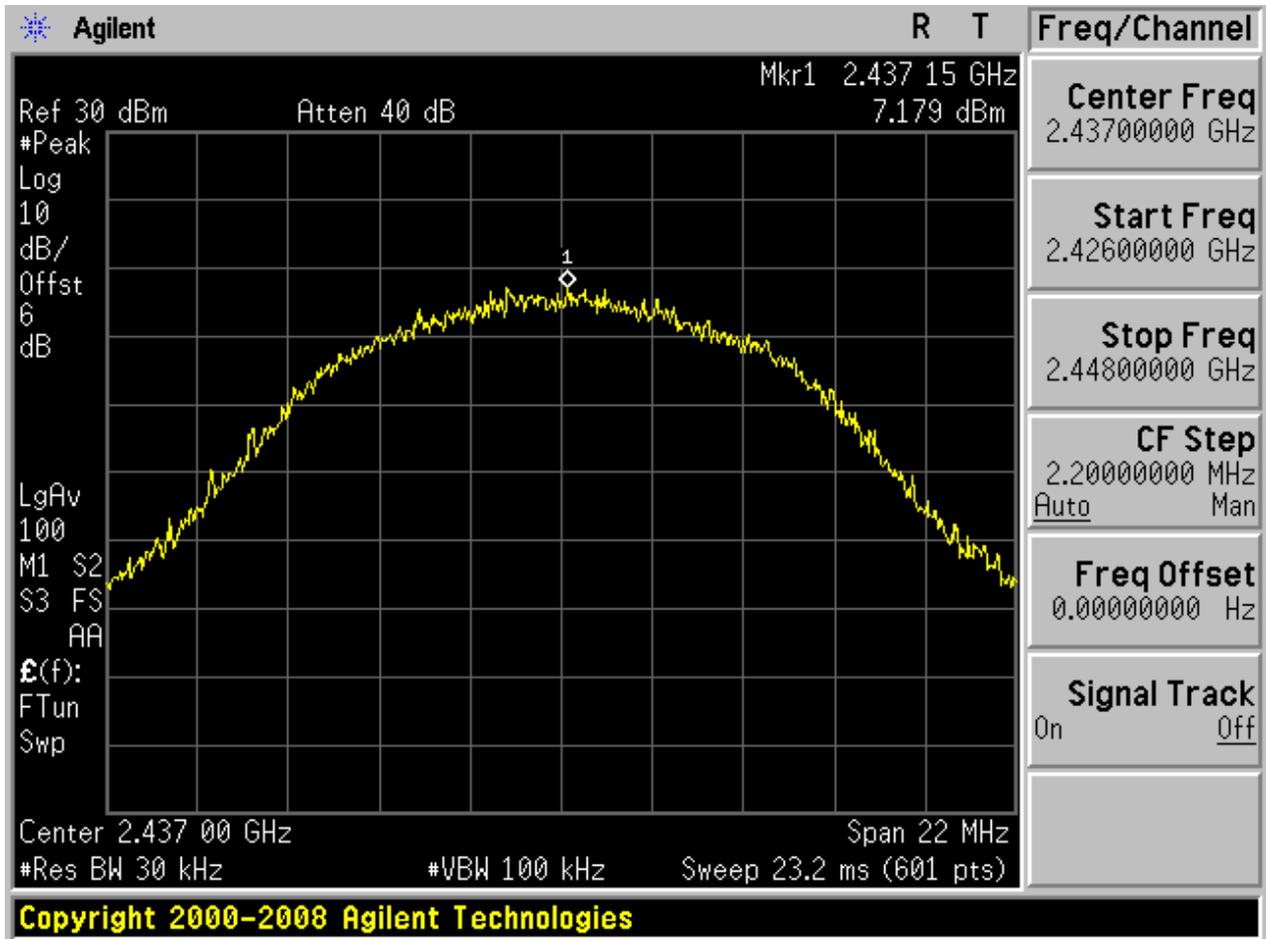
Test Mode	Test Channel	Frequency[MHz]	PD[MHz]	Verdict
11B	L	2412	7.45	pass
11B	M	2437	7.18	pass
11B	H	2462	7.85	pass
11G	L	2412	3.38	pass
11G	M	2437	3.69	pass
11G	H	2462	4.26	pass
11N20	L	2412	1.37	pass
11N20	M	2437	1.61	pass
11N20	H	2462	1.27	pass

Part II - Test Plots

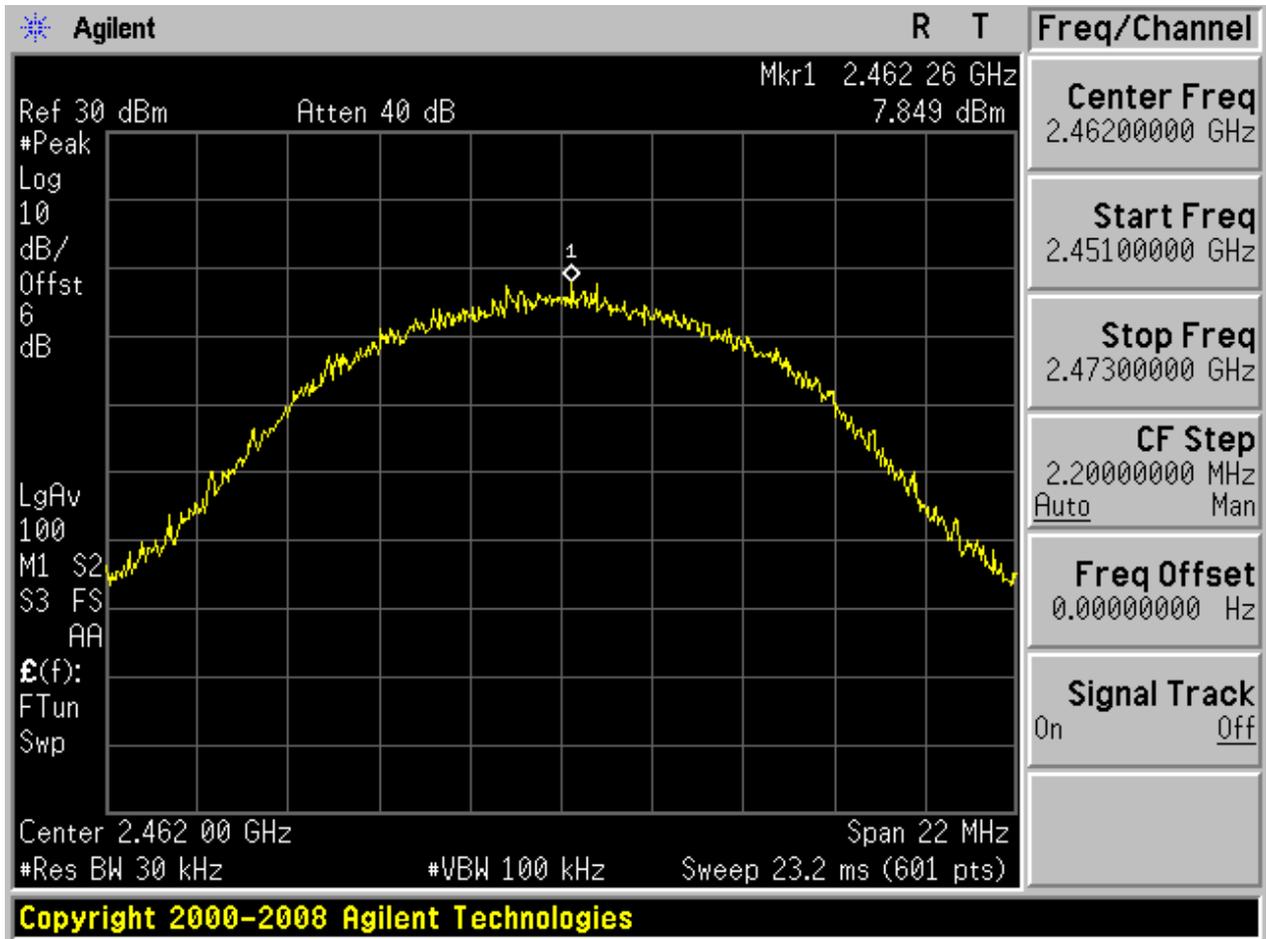
2.1 11B_L



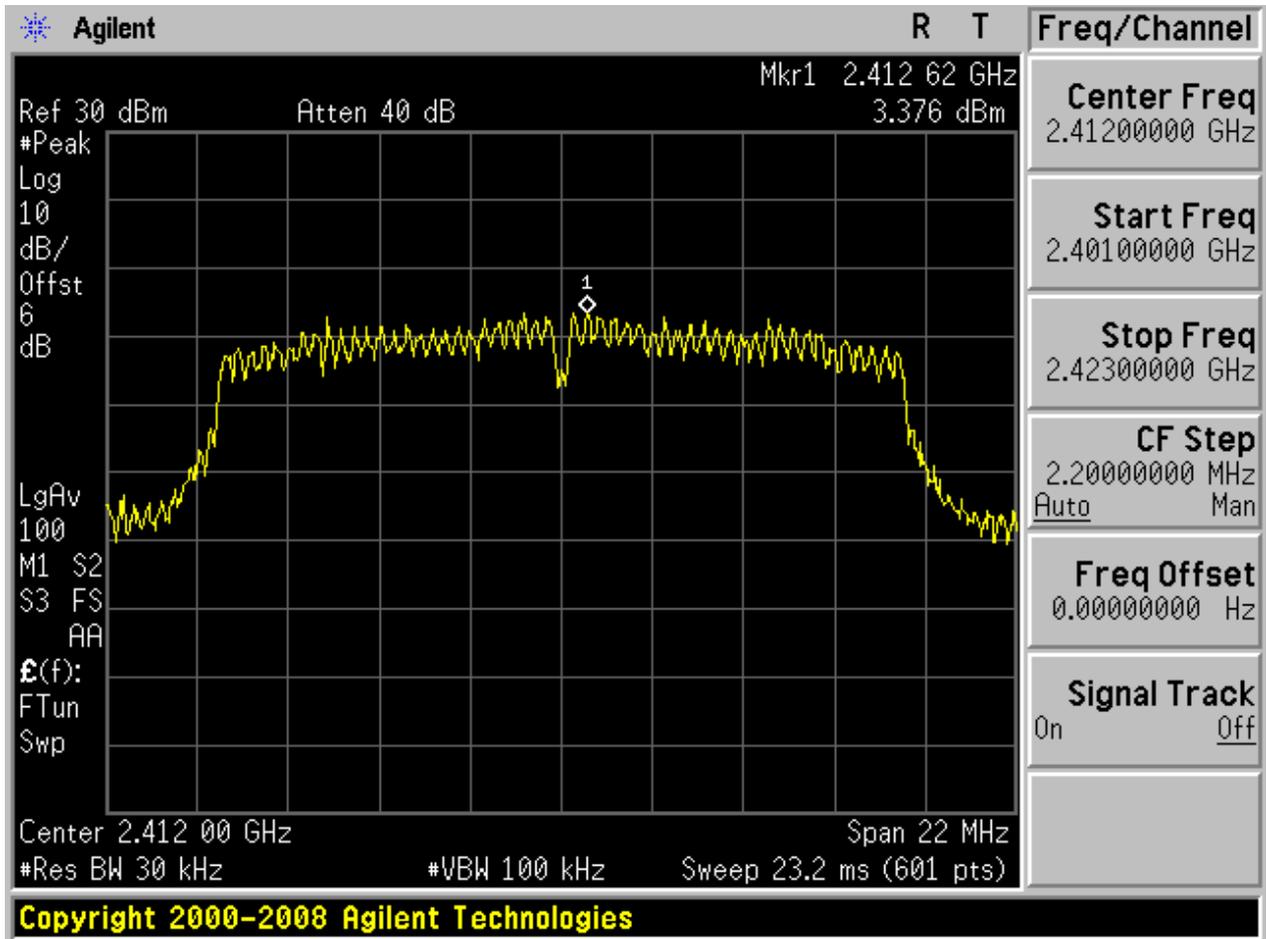
2.2 11B_M



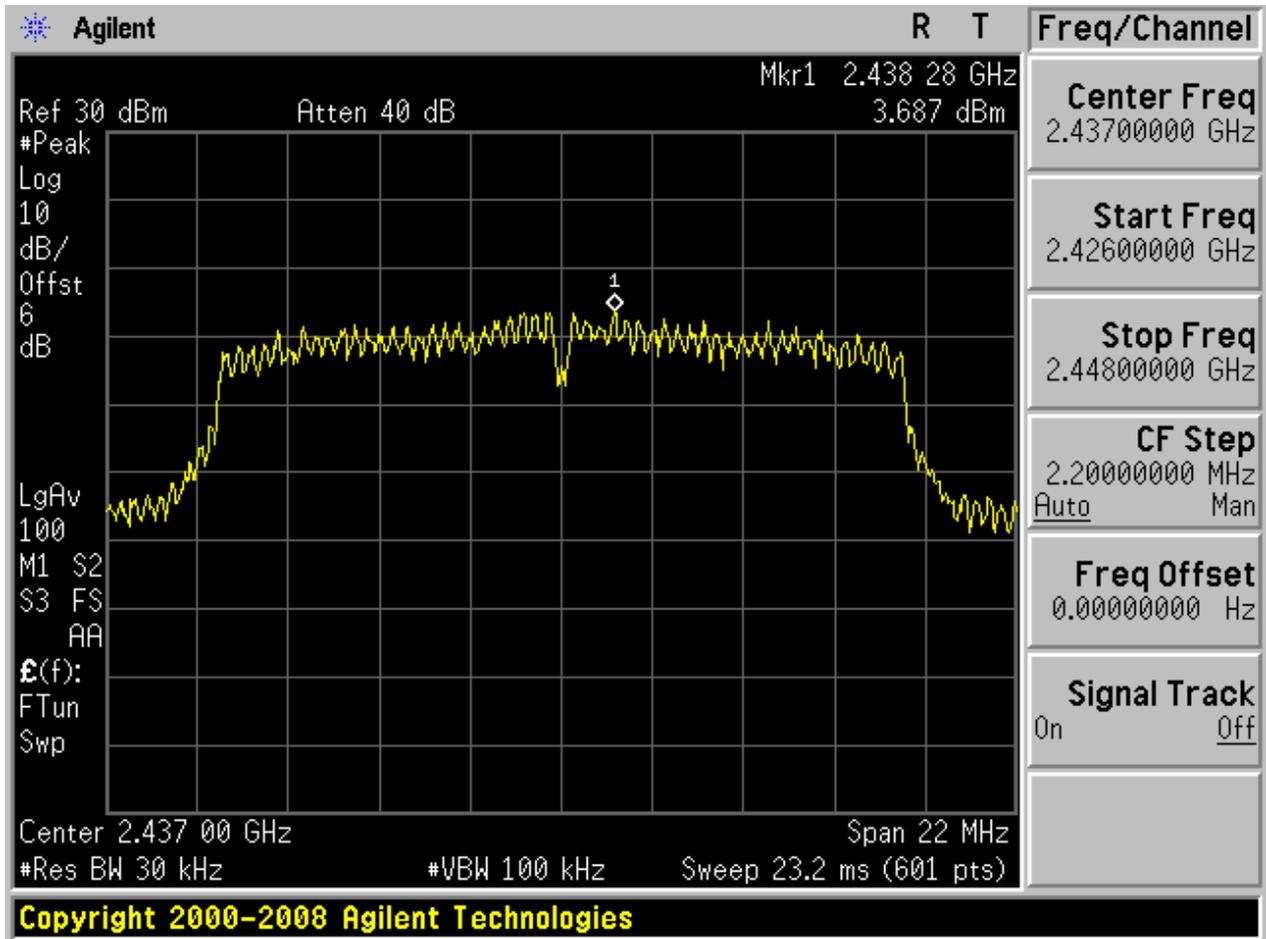
2.3 11B_H



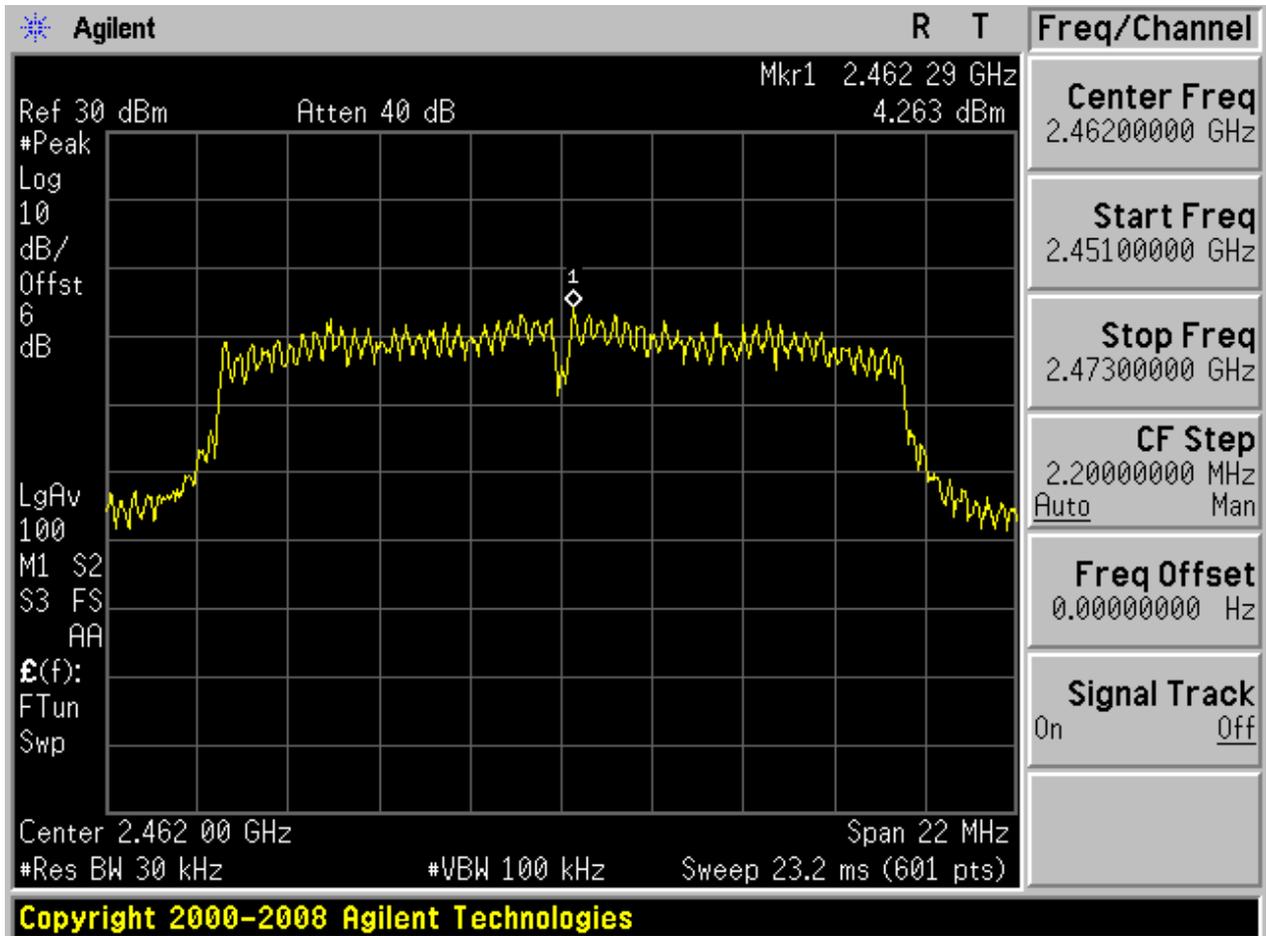
2.4 11G_L



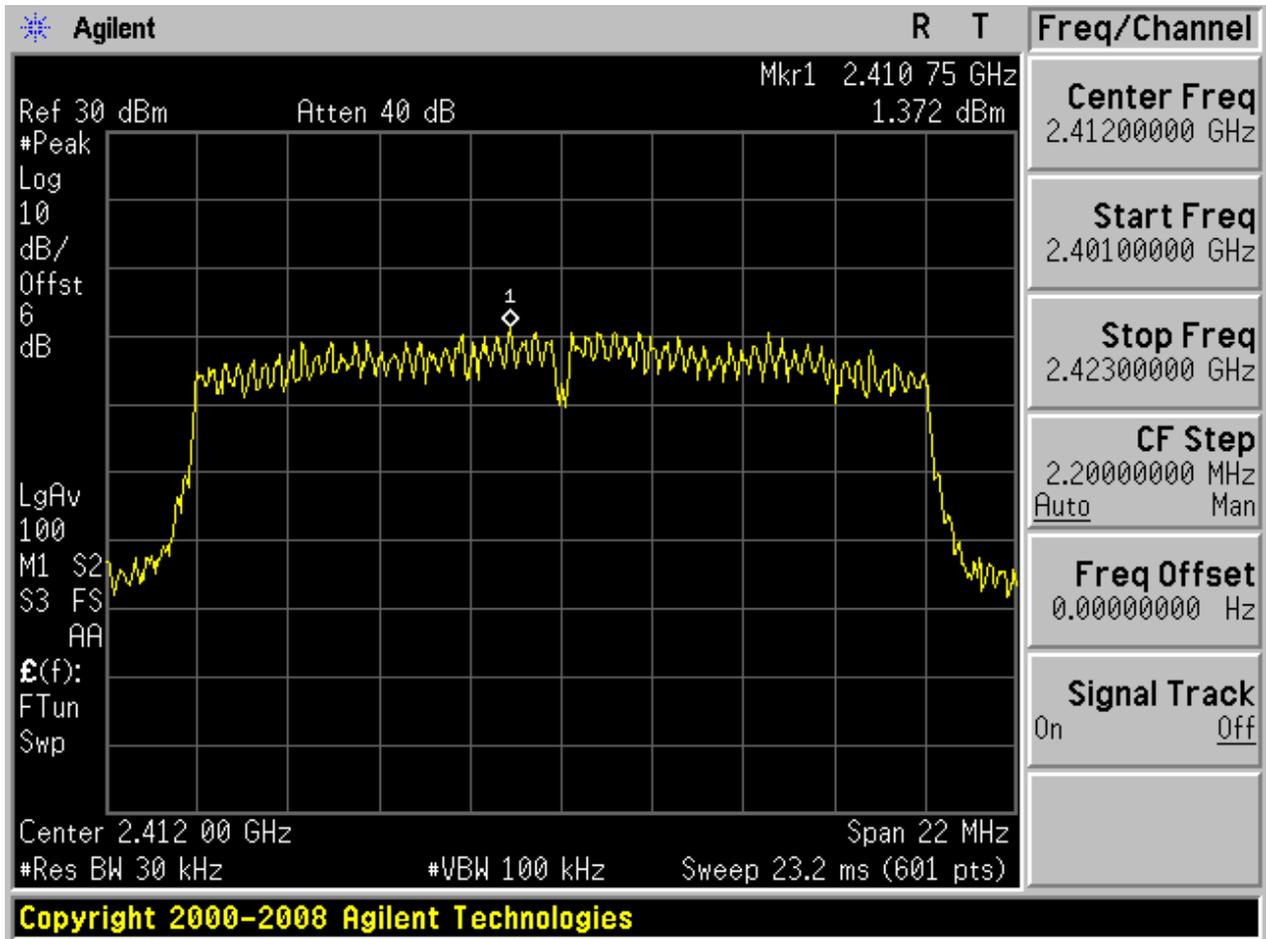
2.5 11G_M



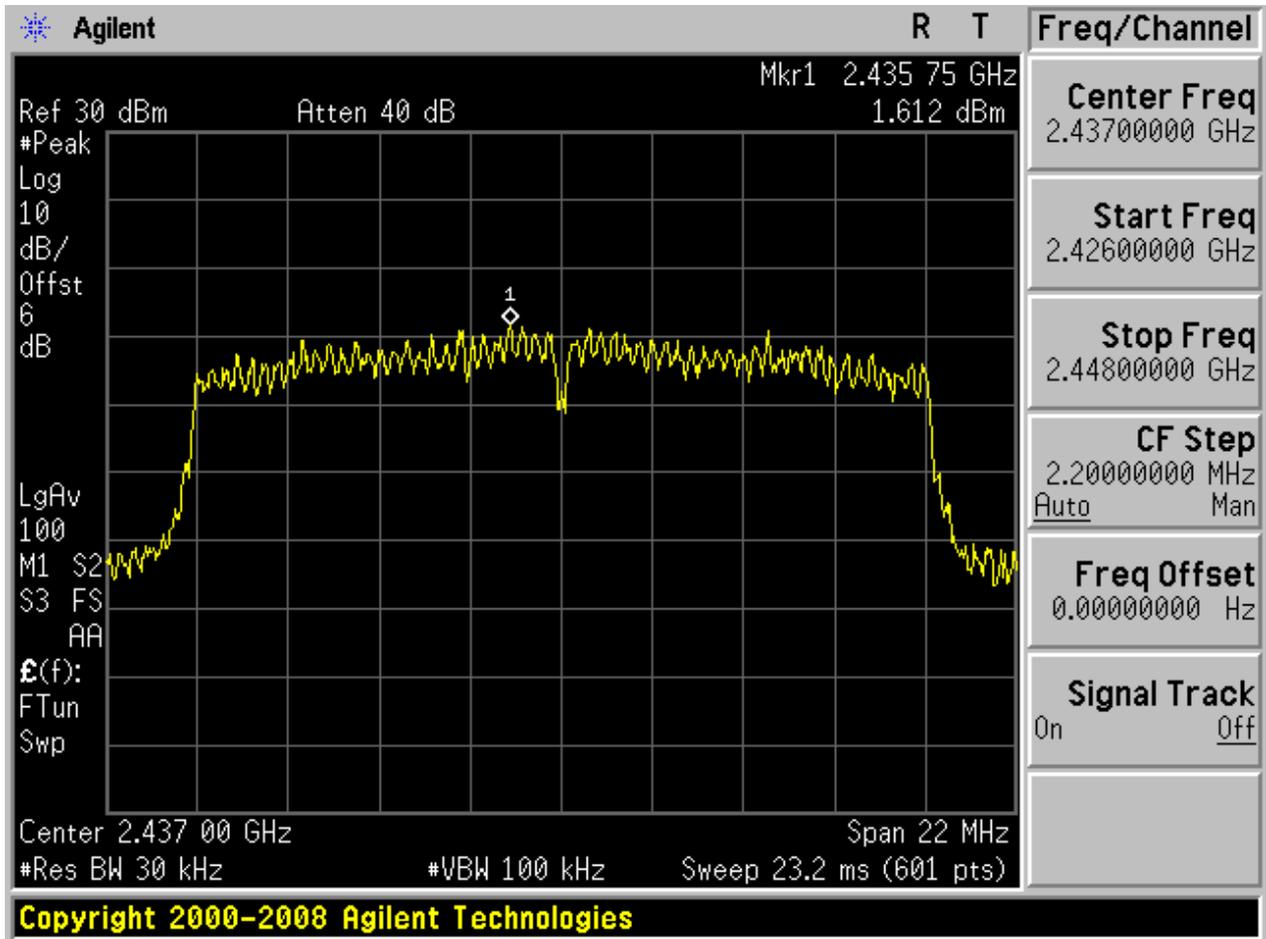
2.6 11G_H



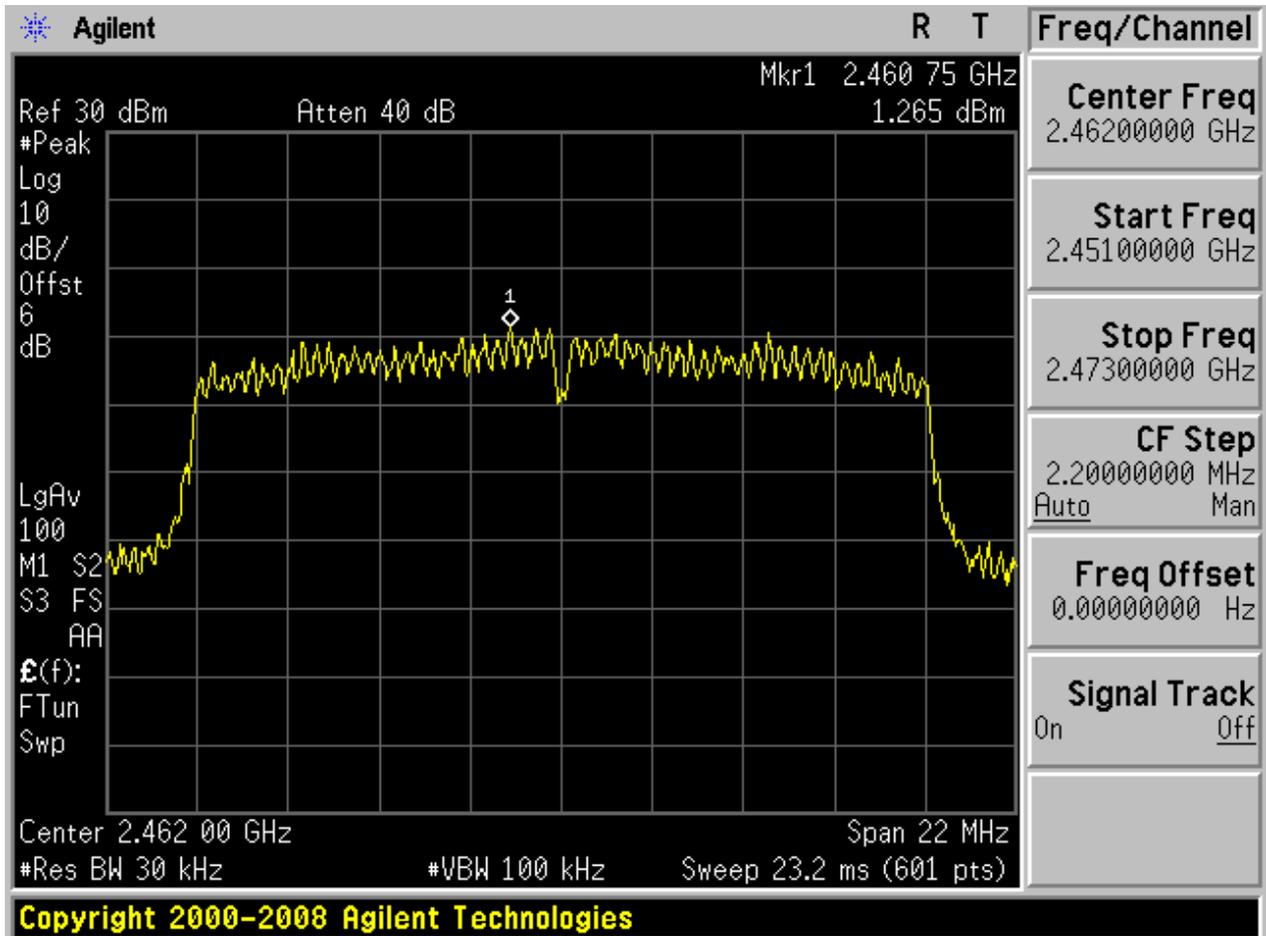
2.7 11N20_L



2.8 11N20_M



2.9 11N20_H



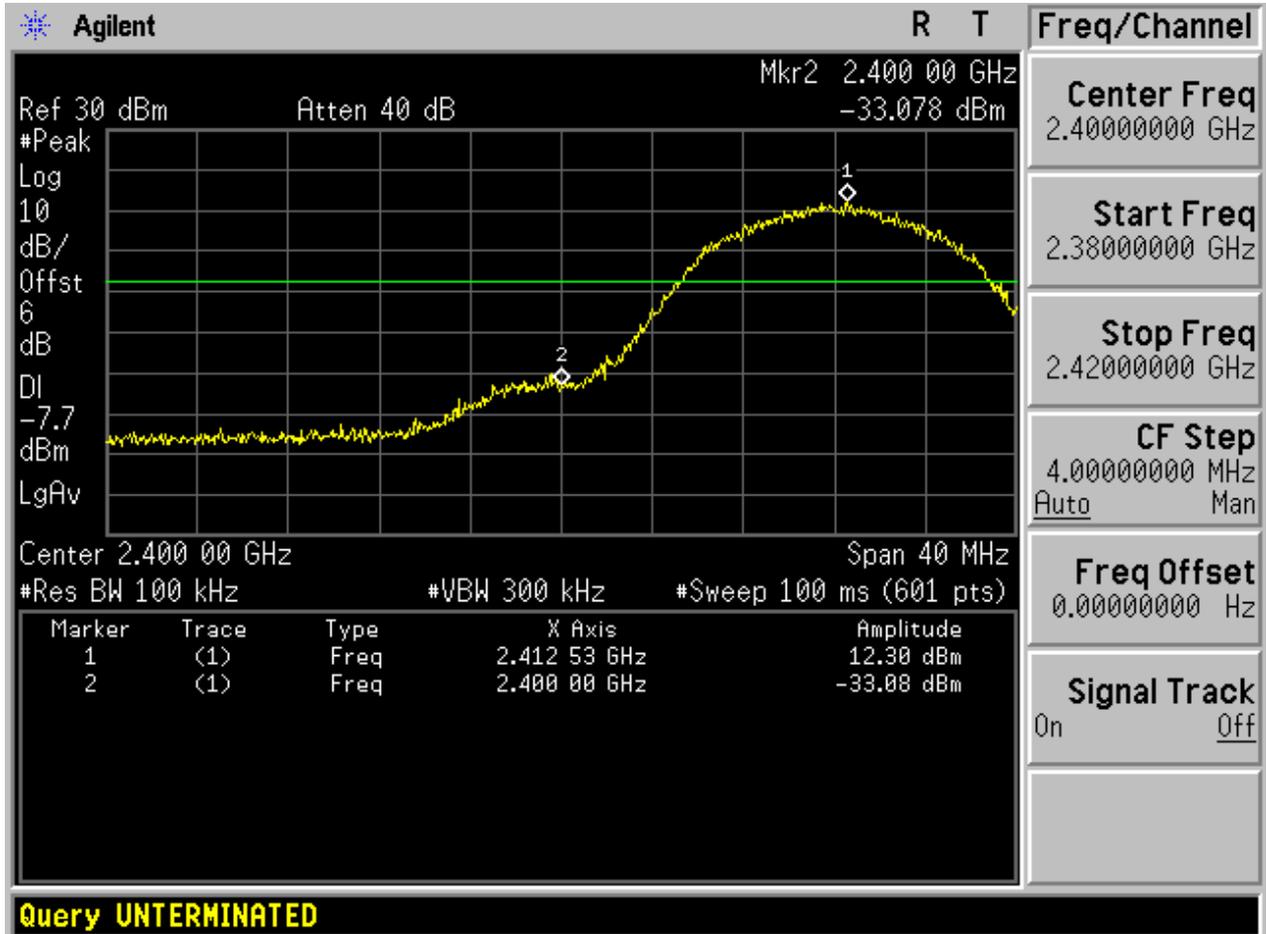
Appendix D: Band Edges Compliance

Part I - Test Results

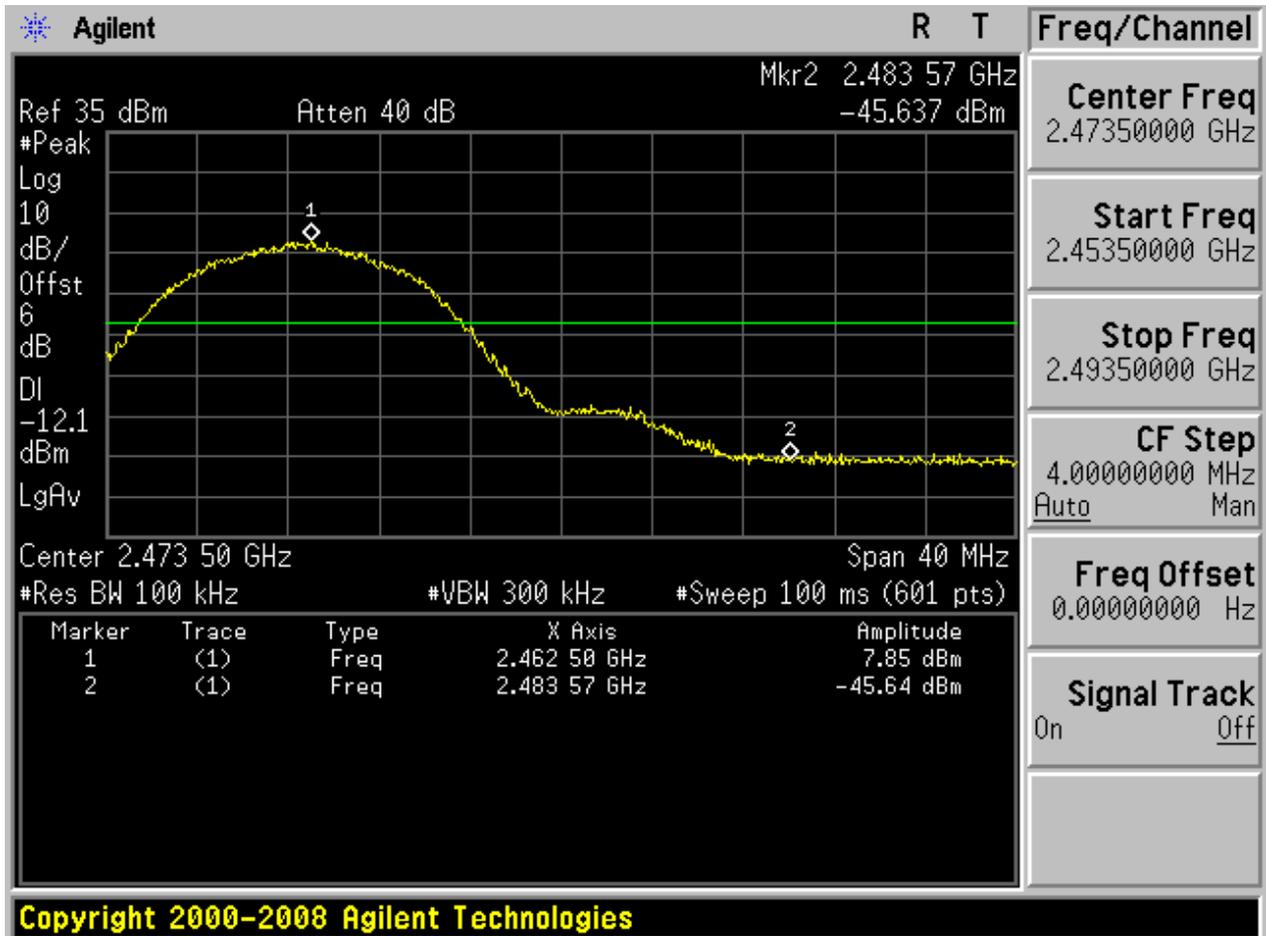
Test Mode	Test Channel	Frequency[MHz]	Carrier Power[dBm]	Max.Spurious Level[dBm]
11B	L	2412	12.30	-33.08
11B	H	2462	7.85	-45.64
11G	L	2412	8.18	-24.95
11G	H	2462	4.26	-36.42
11N20	L	2412	5.82	-31.49
11N20	H	2462	1.68	-42.02

Part II - Test Plots

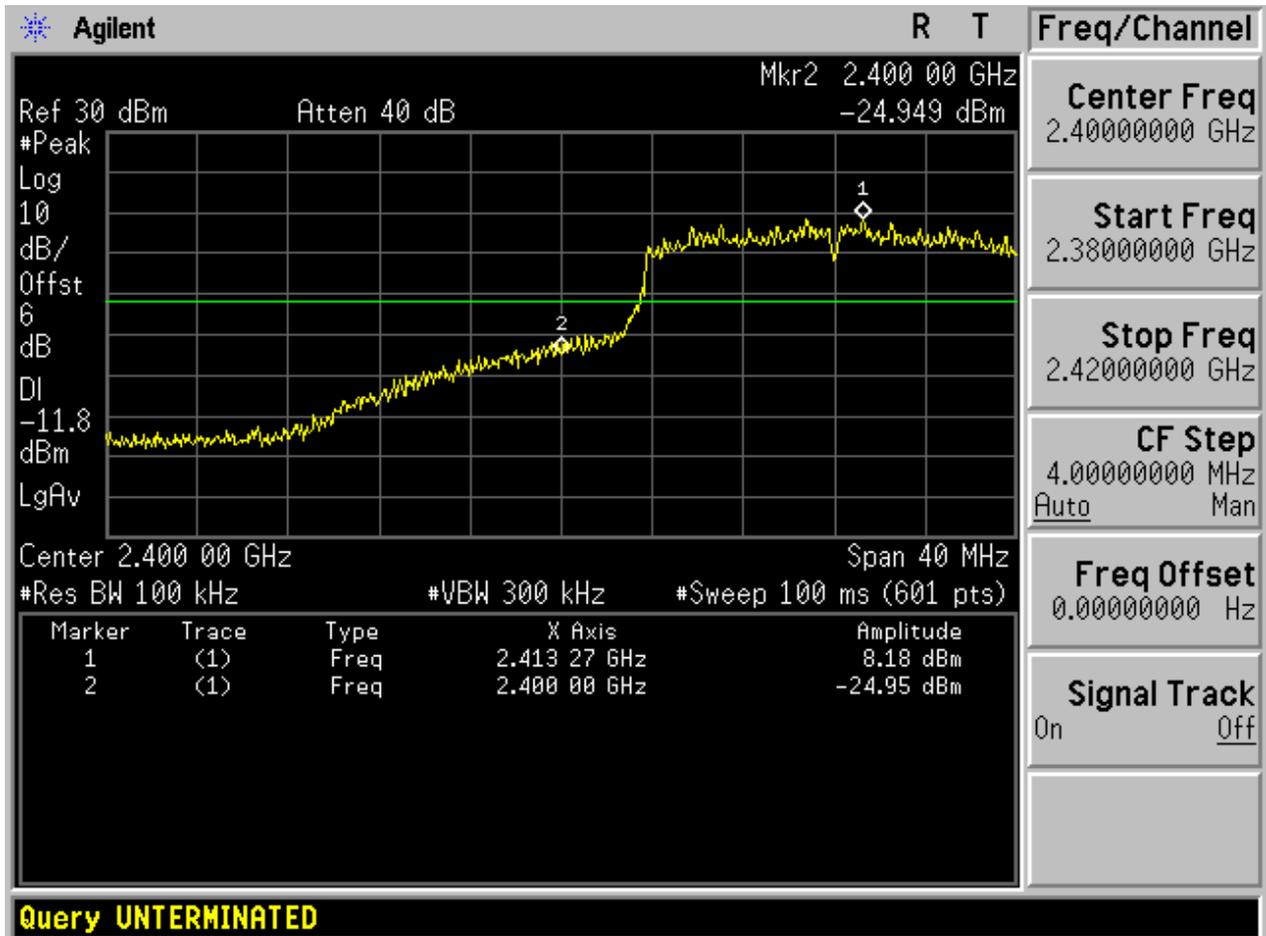
2.1 11B_L



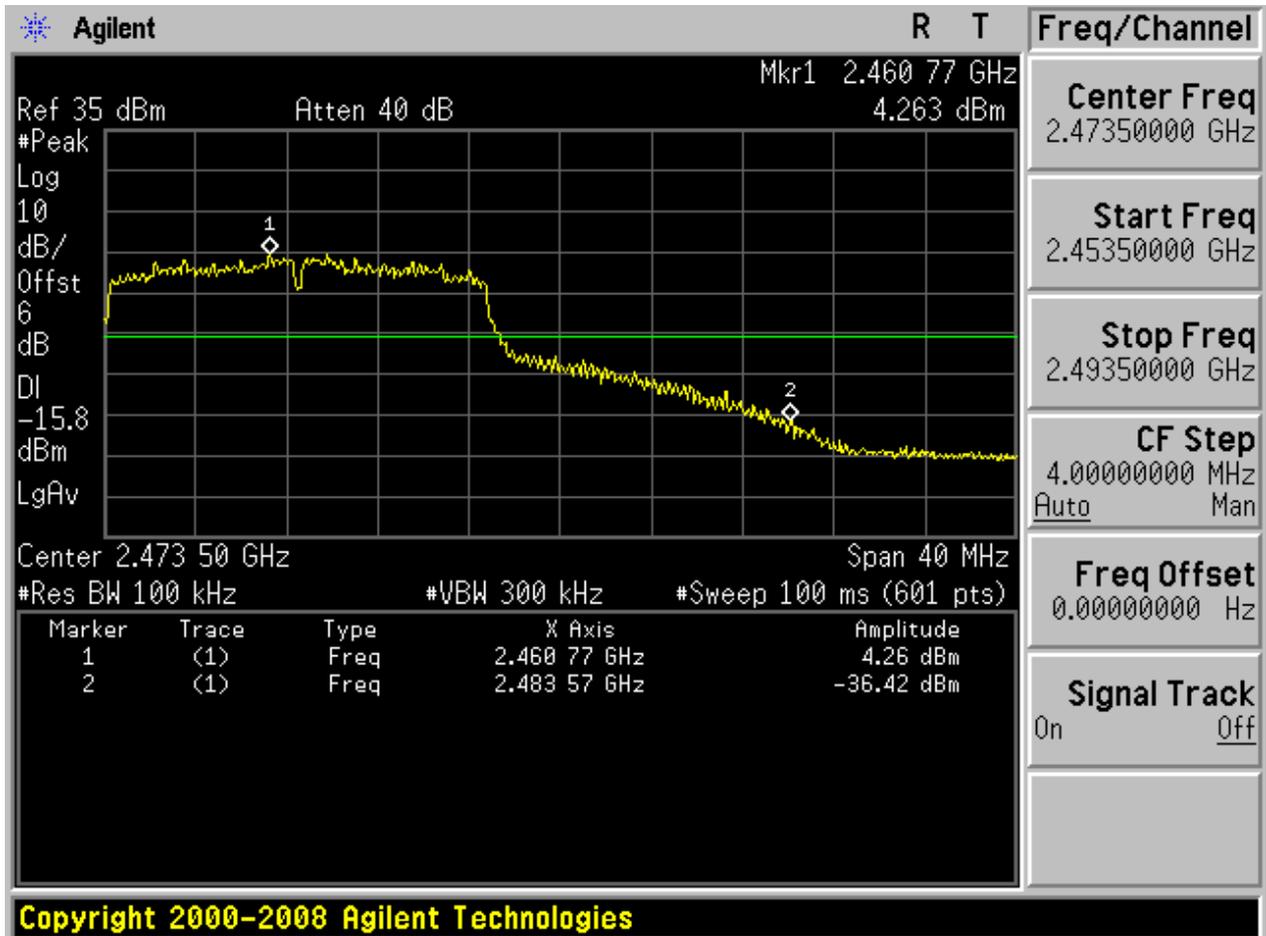
2.2 11B_H



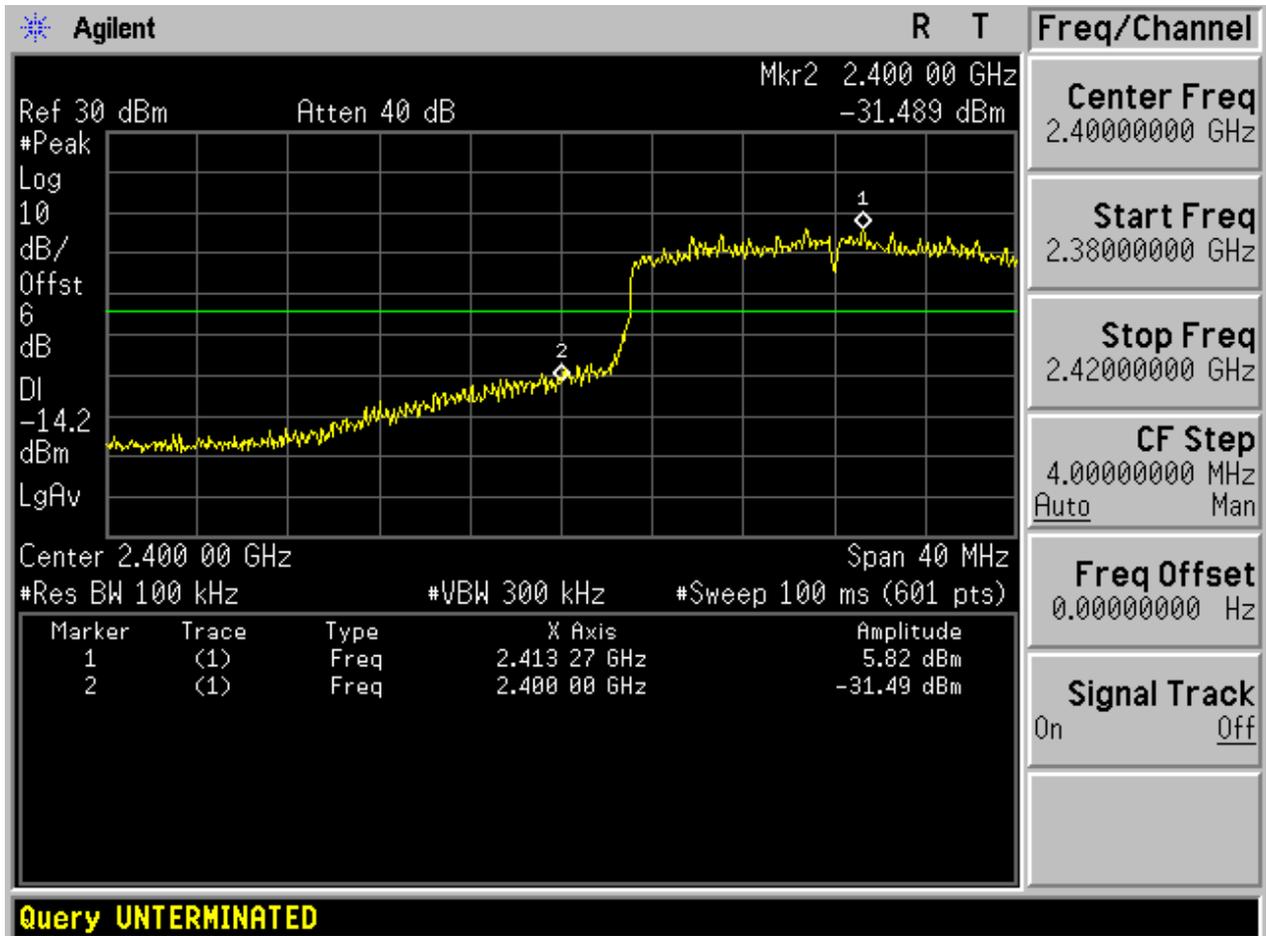
2.3 11G_L



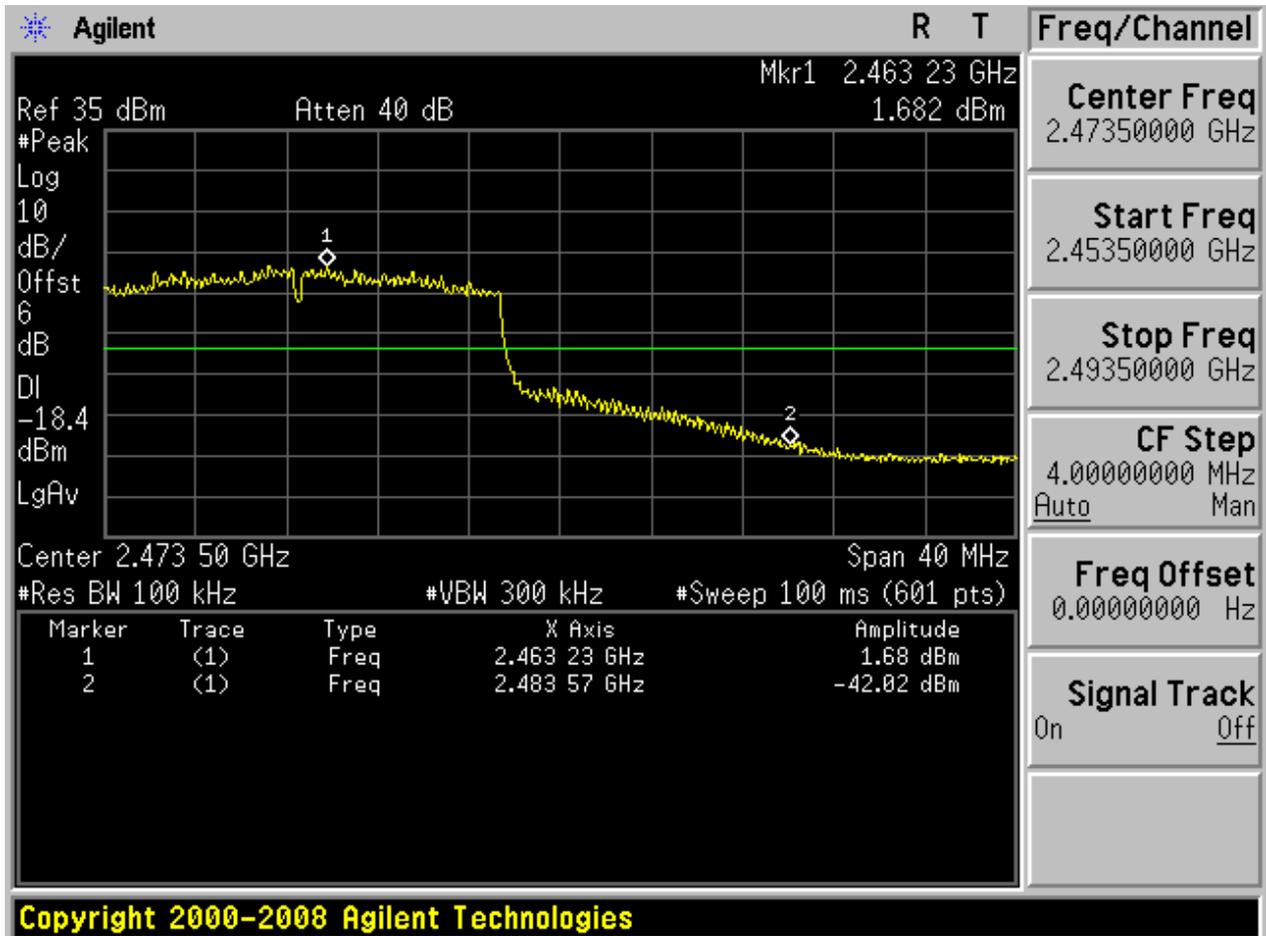
2.4 11G_H



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" 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".

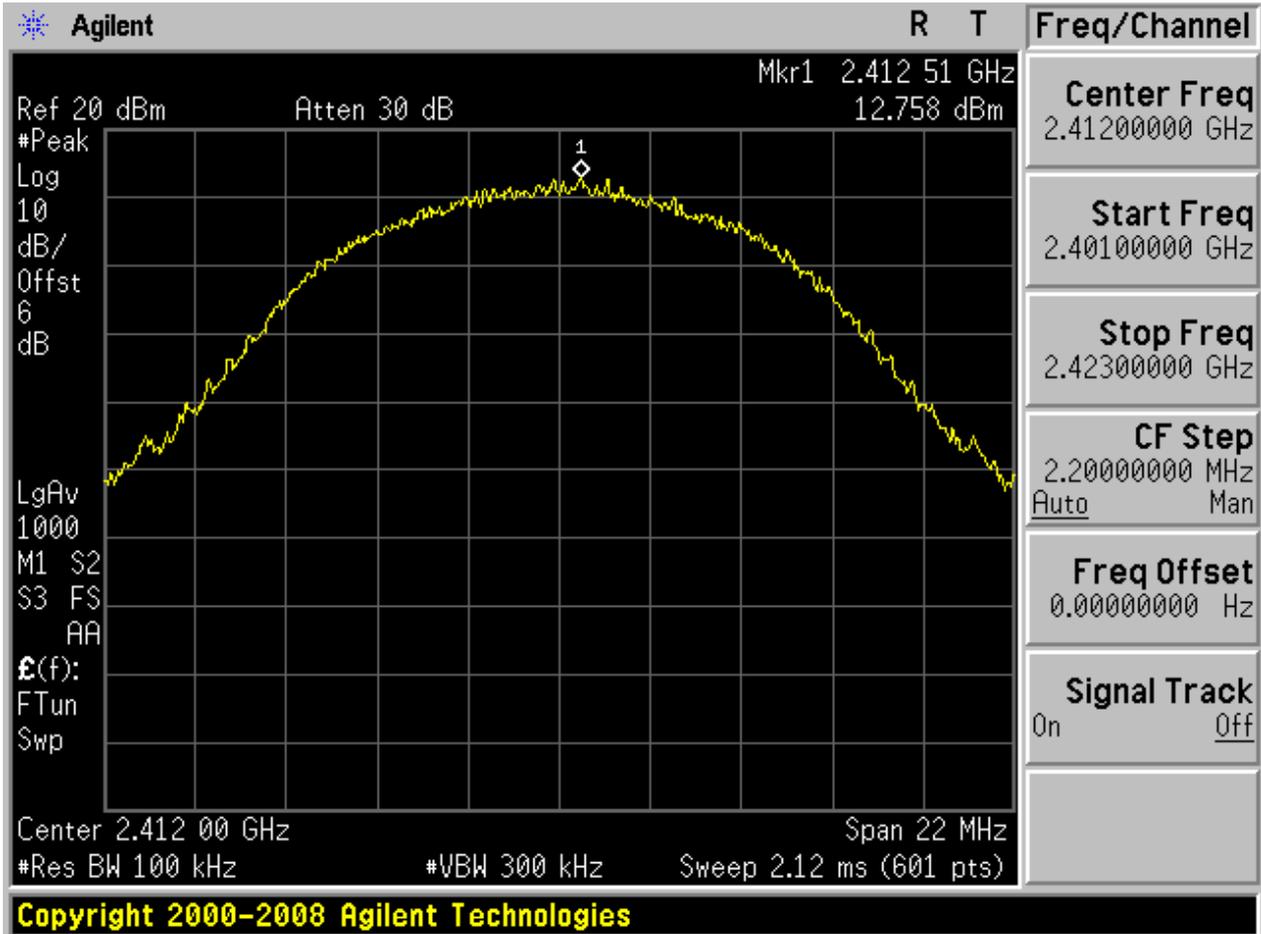
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Pref[dBm]	Puw[dBm]
11B	L	2412	12.76	<limit
11B	M	2437	13.00	<limit
11B	H	2462	12.57	<limit
11G	L	2412	8.98	<limit
11G	M	2437	9.04	<limit
11G	H	2462	8.68	<limit
11N20	L	2412	6.40	<limit
11N20	M	2437	6.64	<limit
11N20	H	2462	6.27	<limit

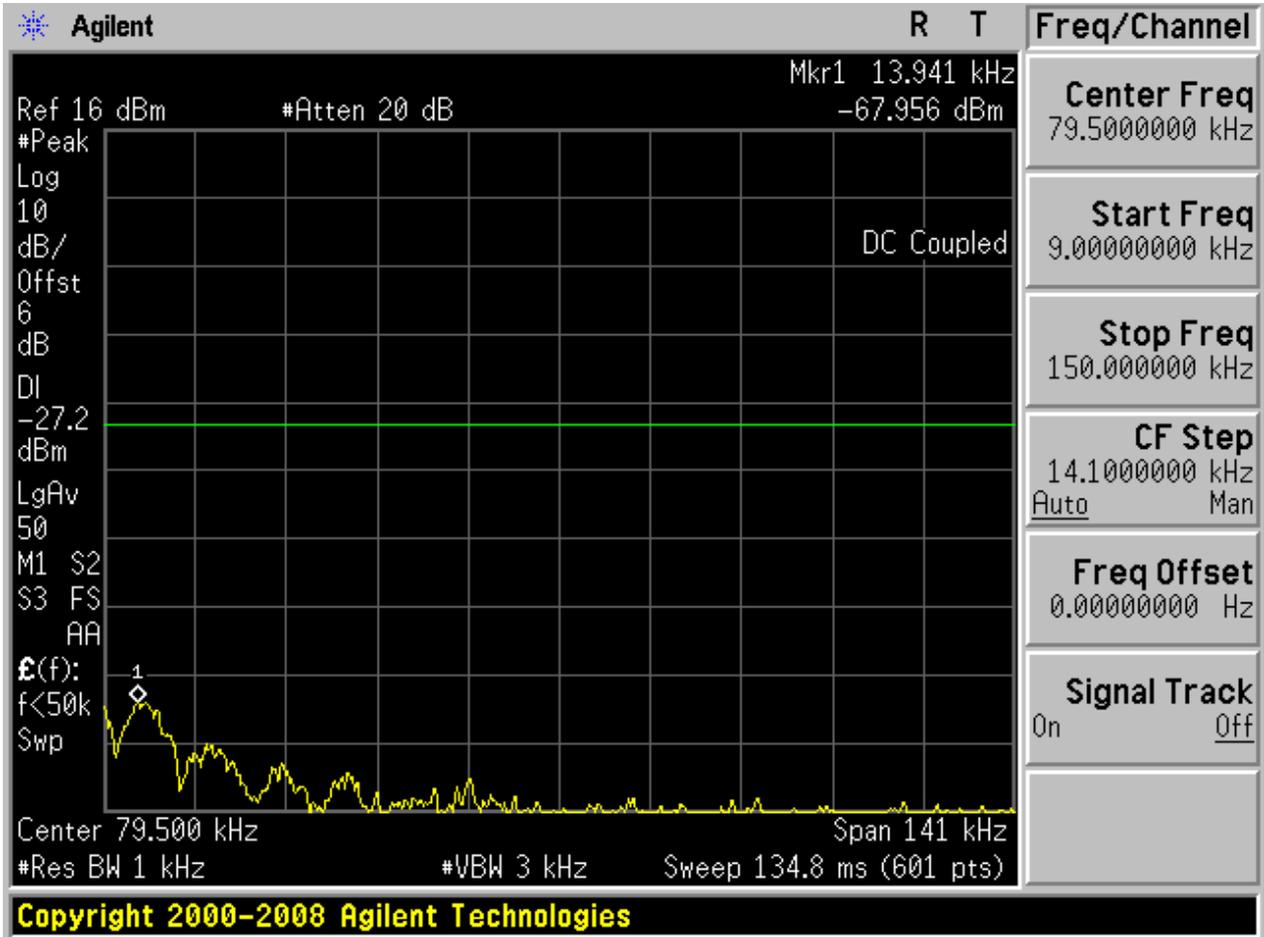
Part II - Test Plots

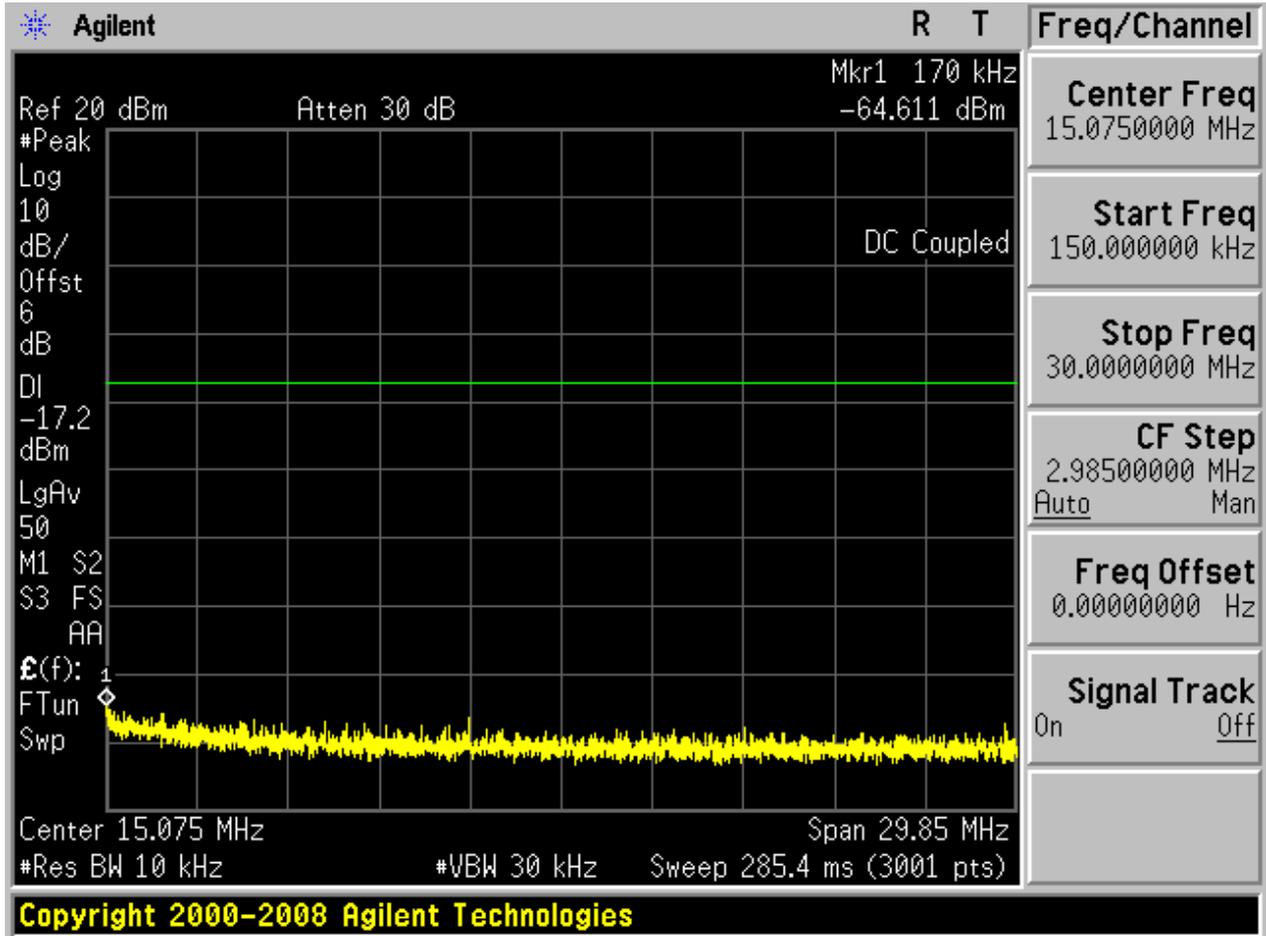
2.1 11B_L

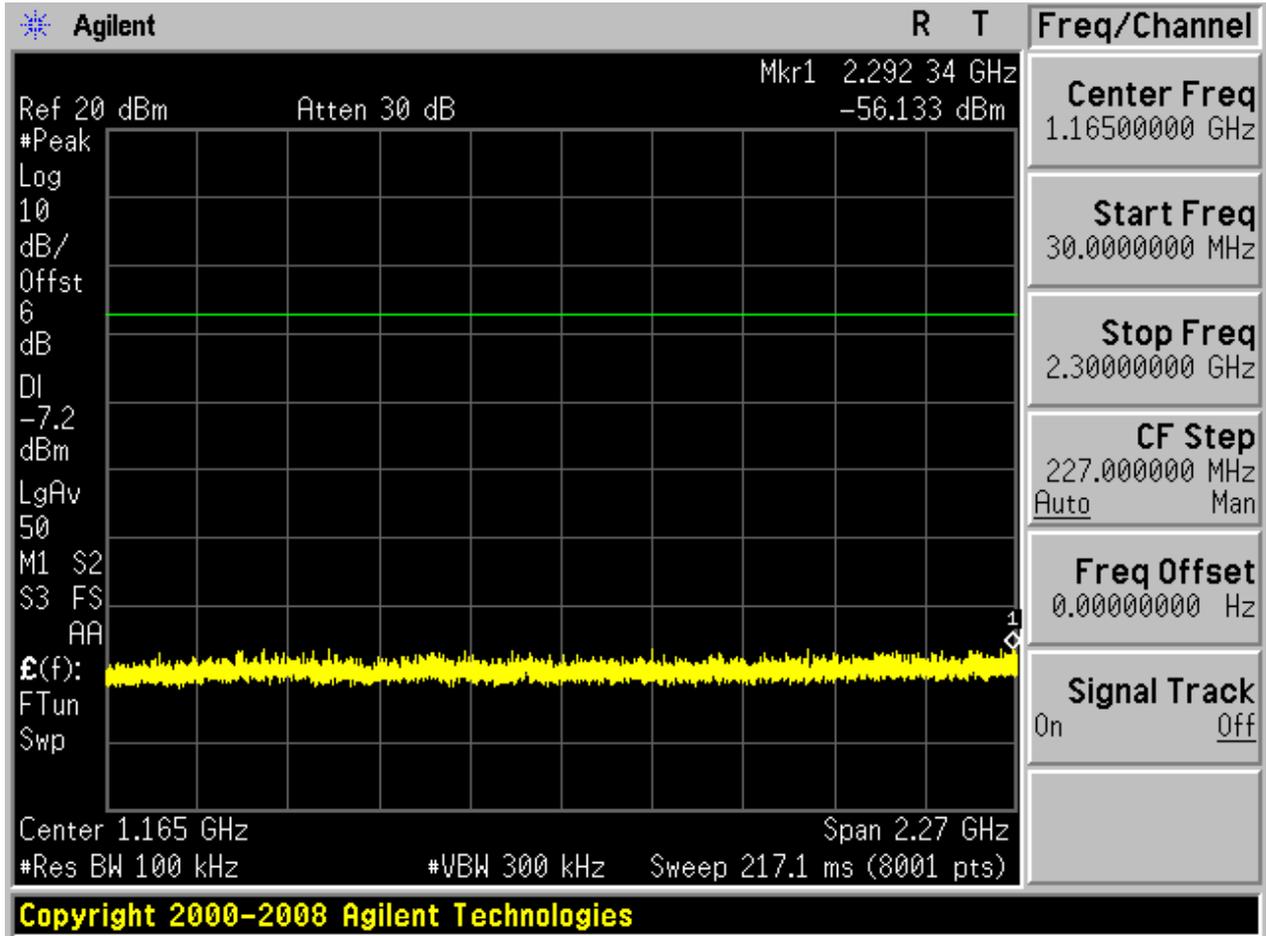
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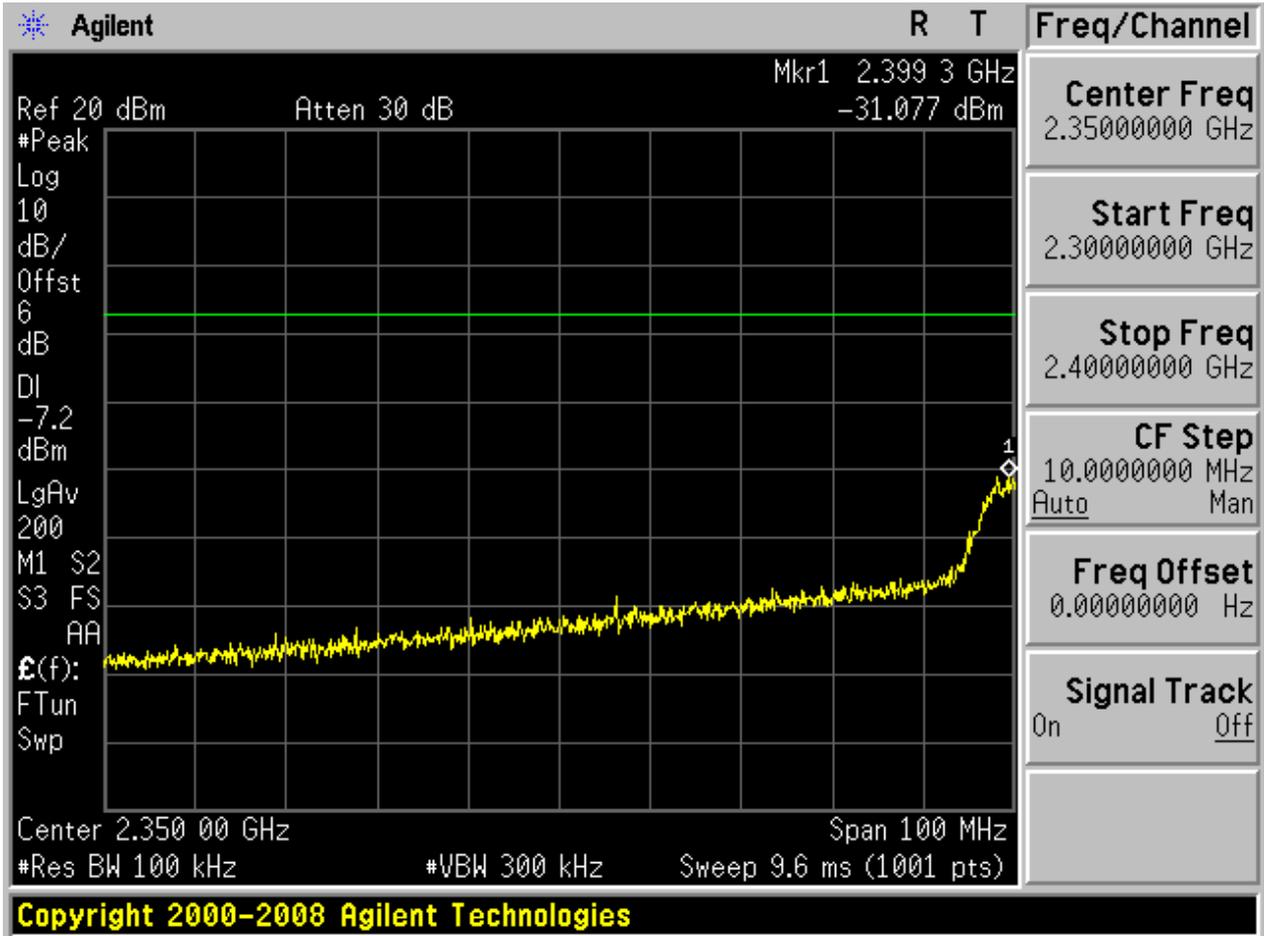


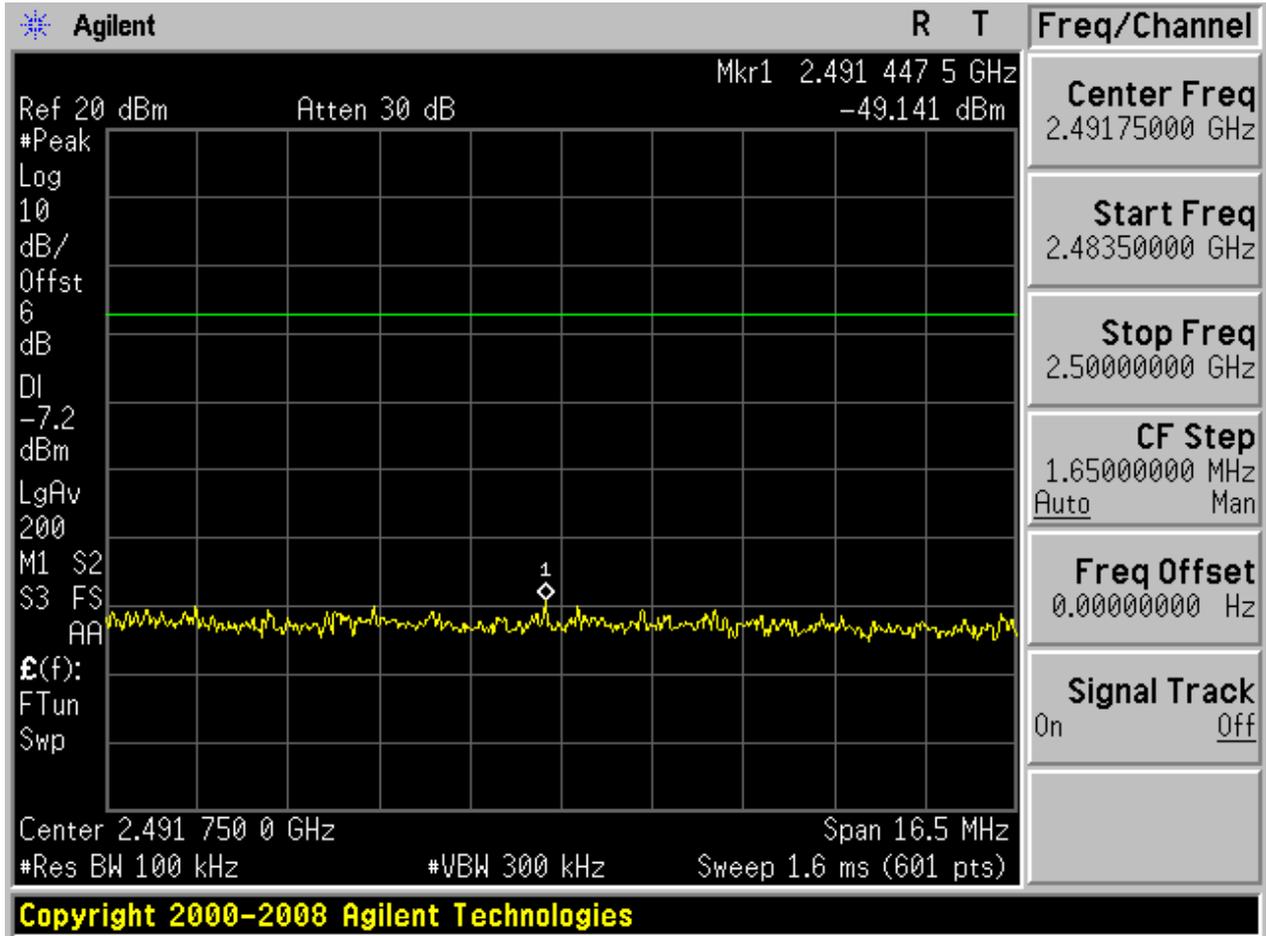
Puw:

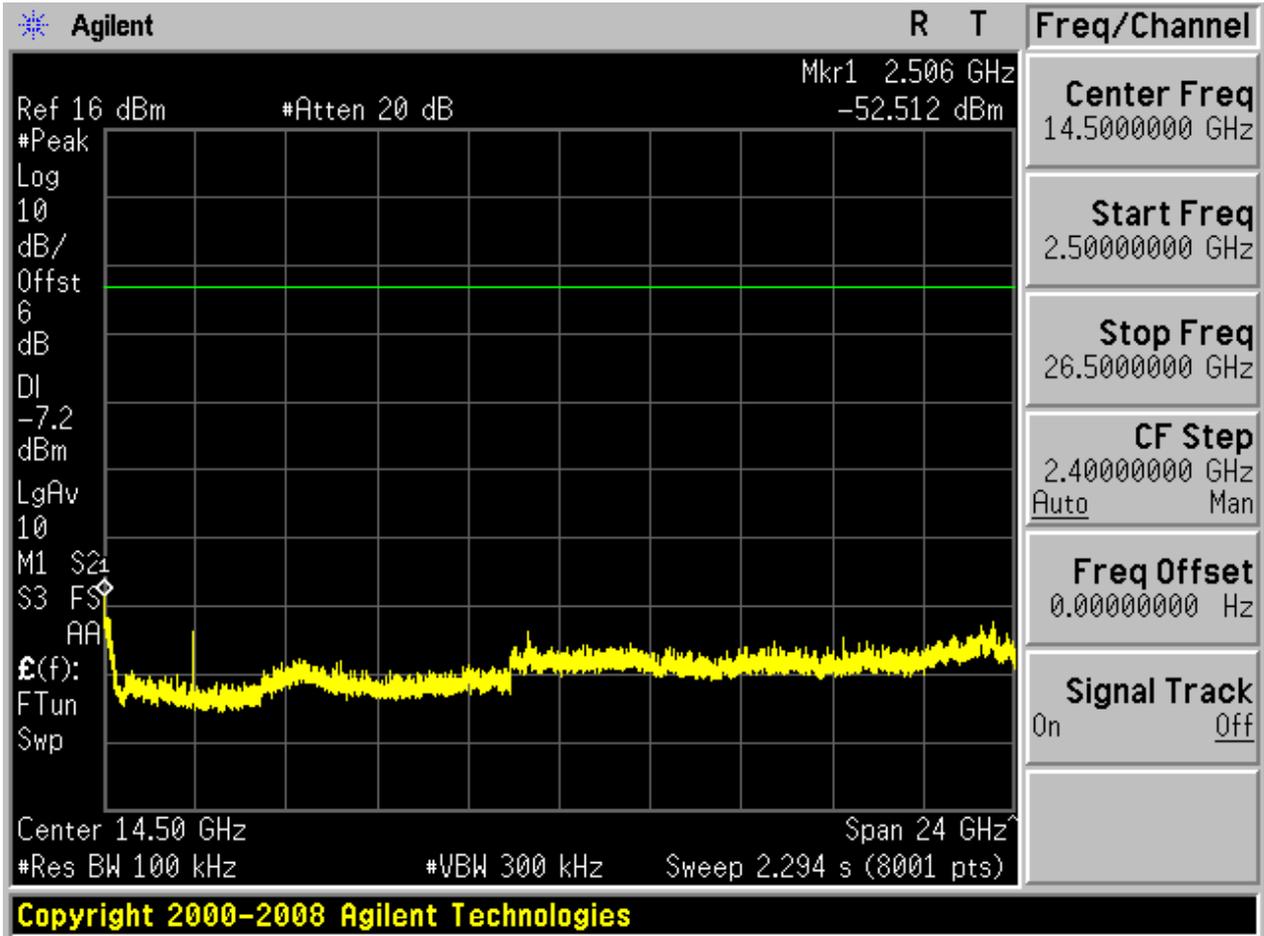






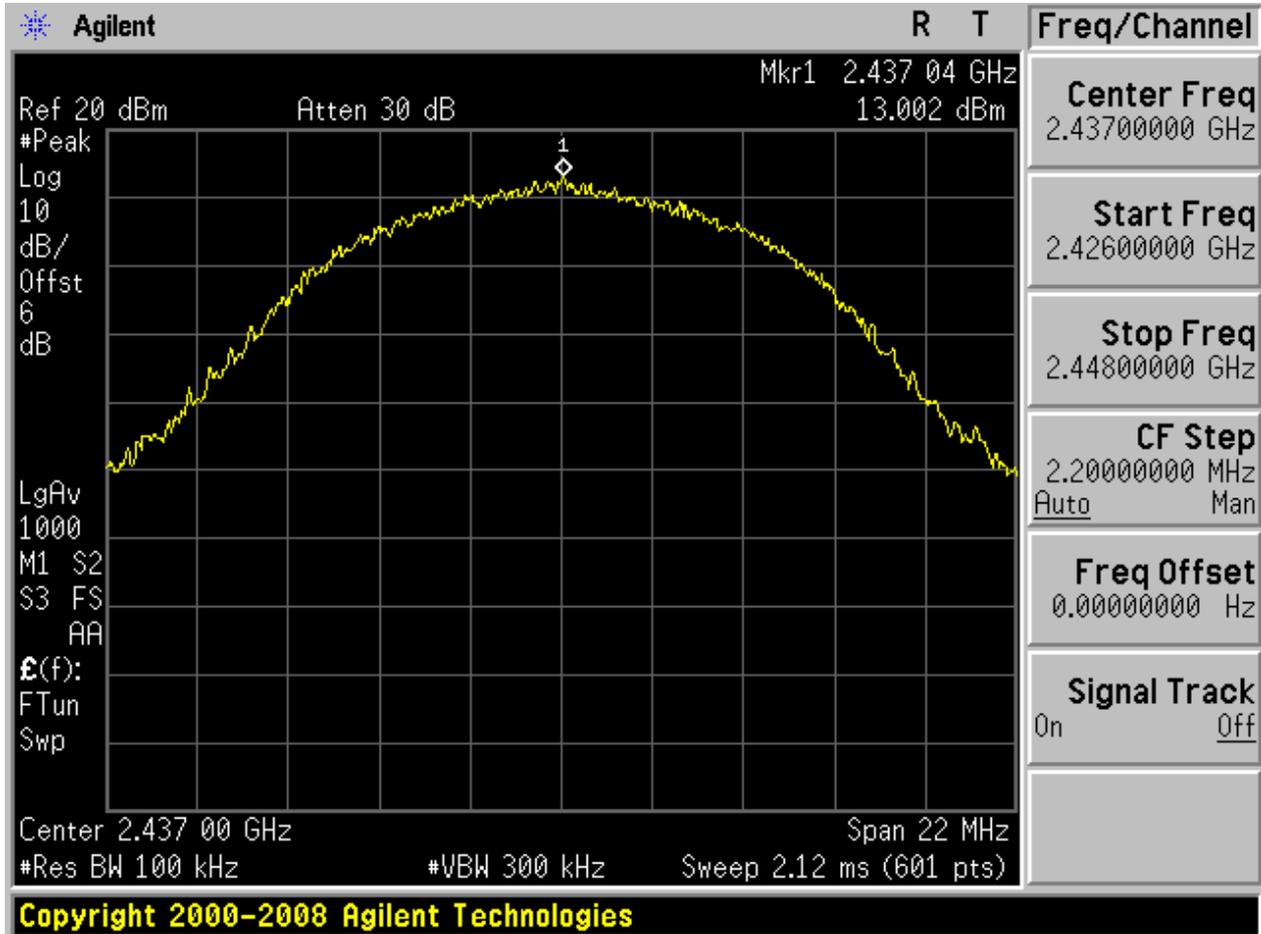




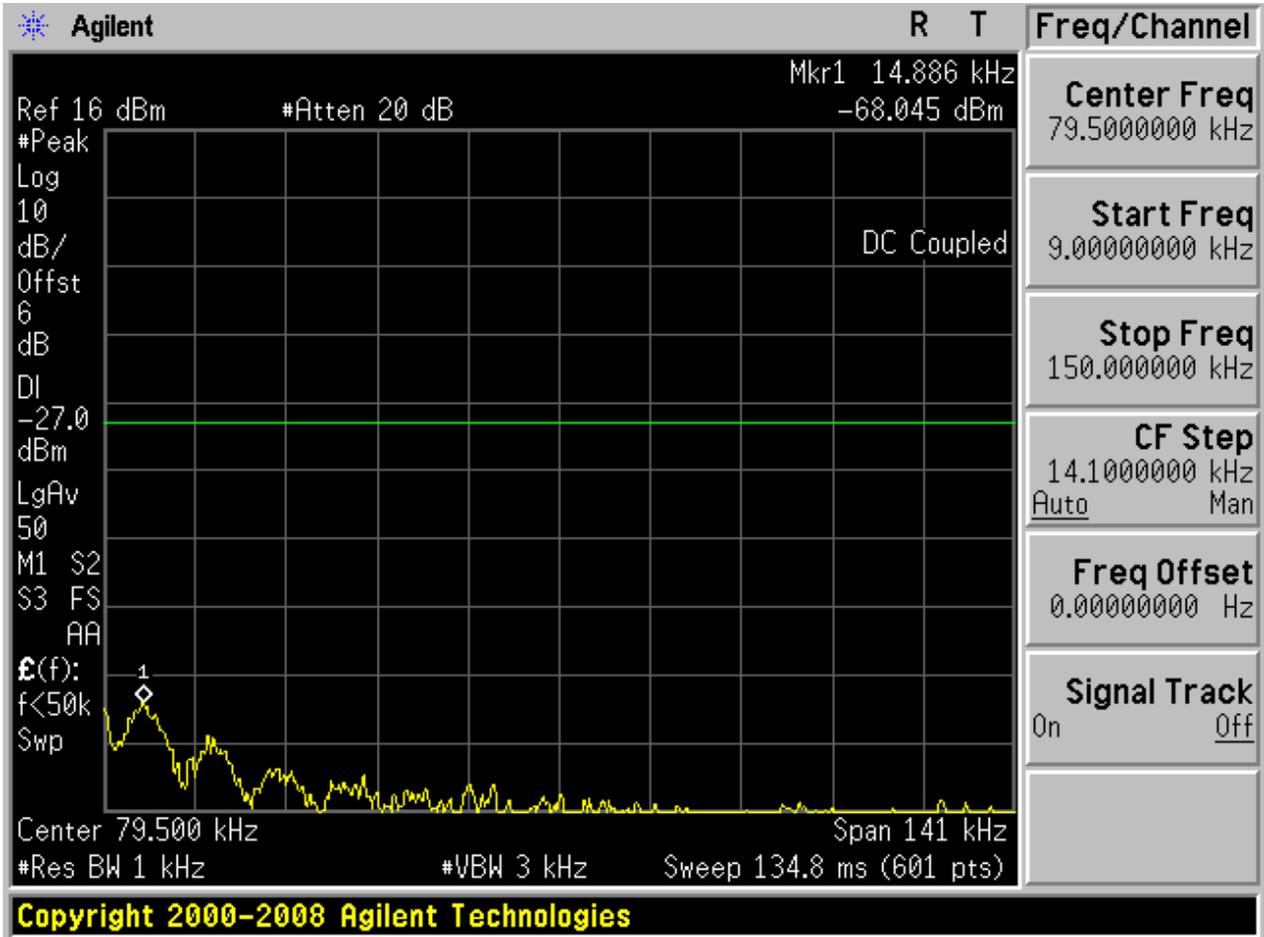


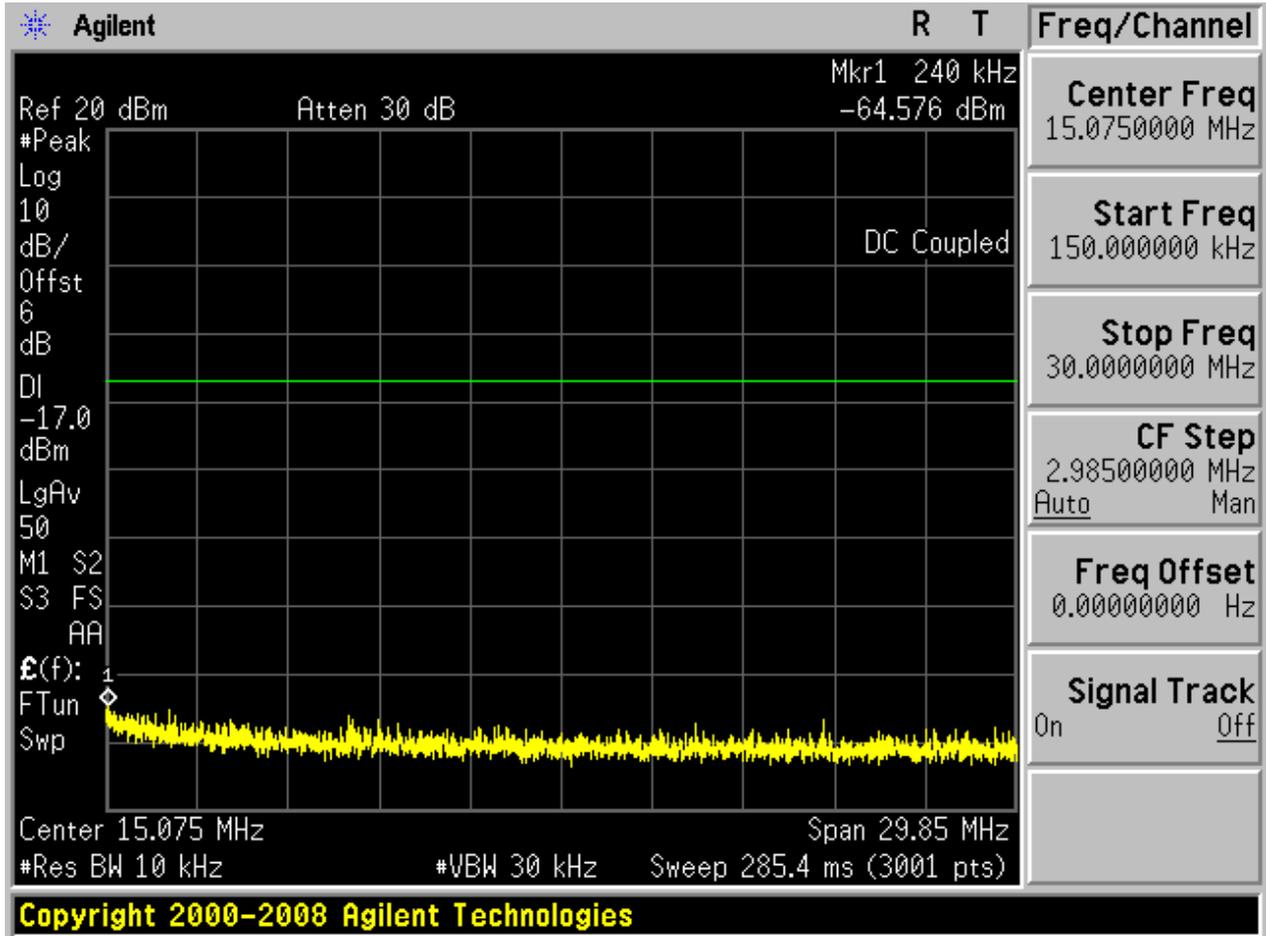
2.2 11B_M

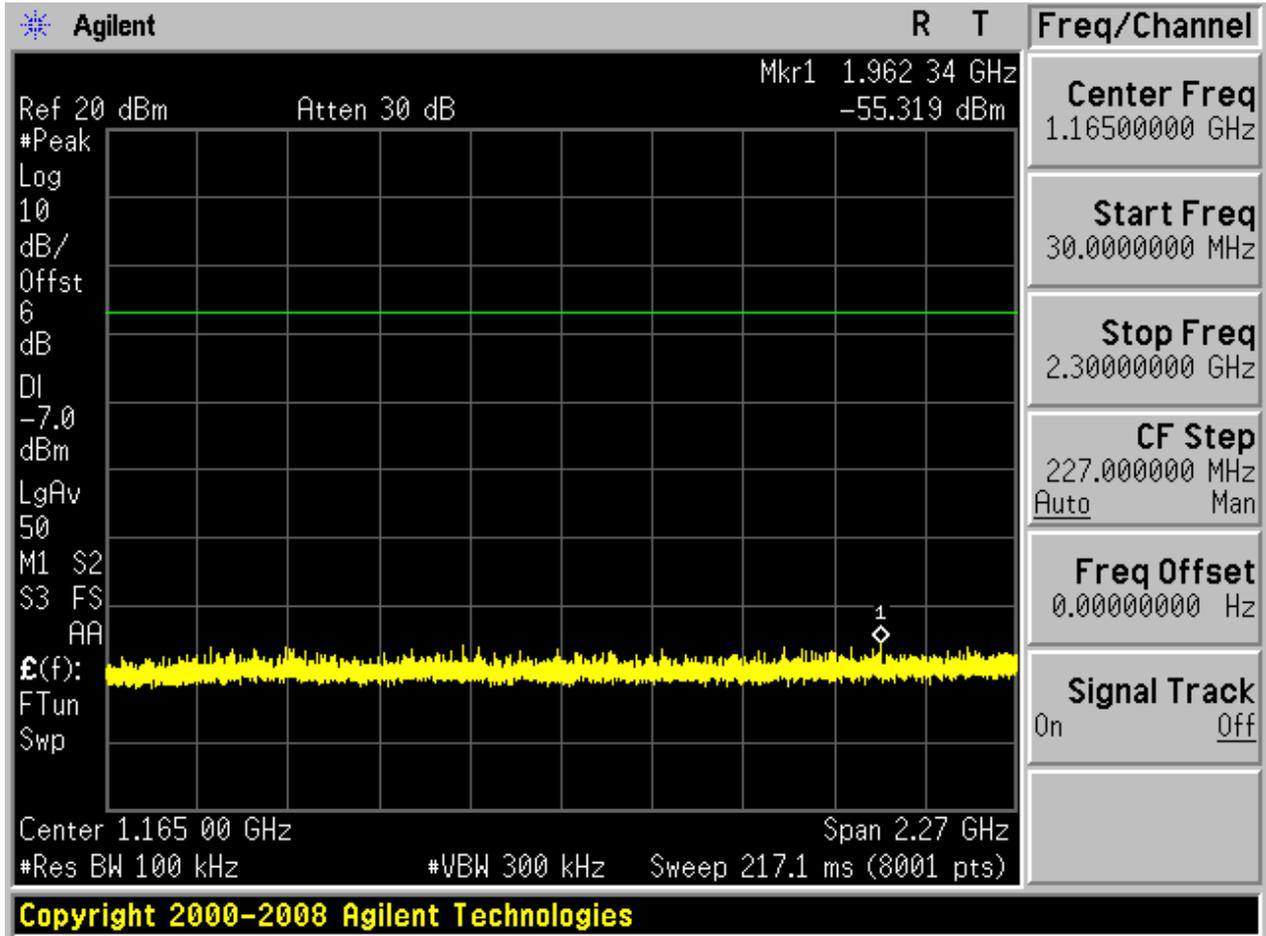
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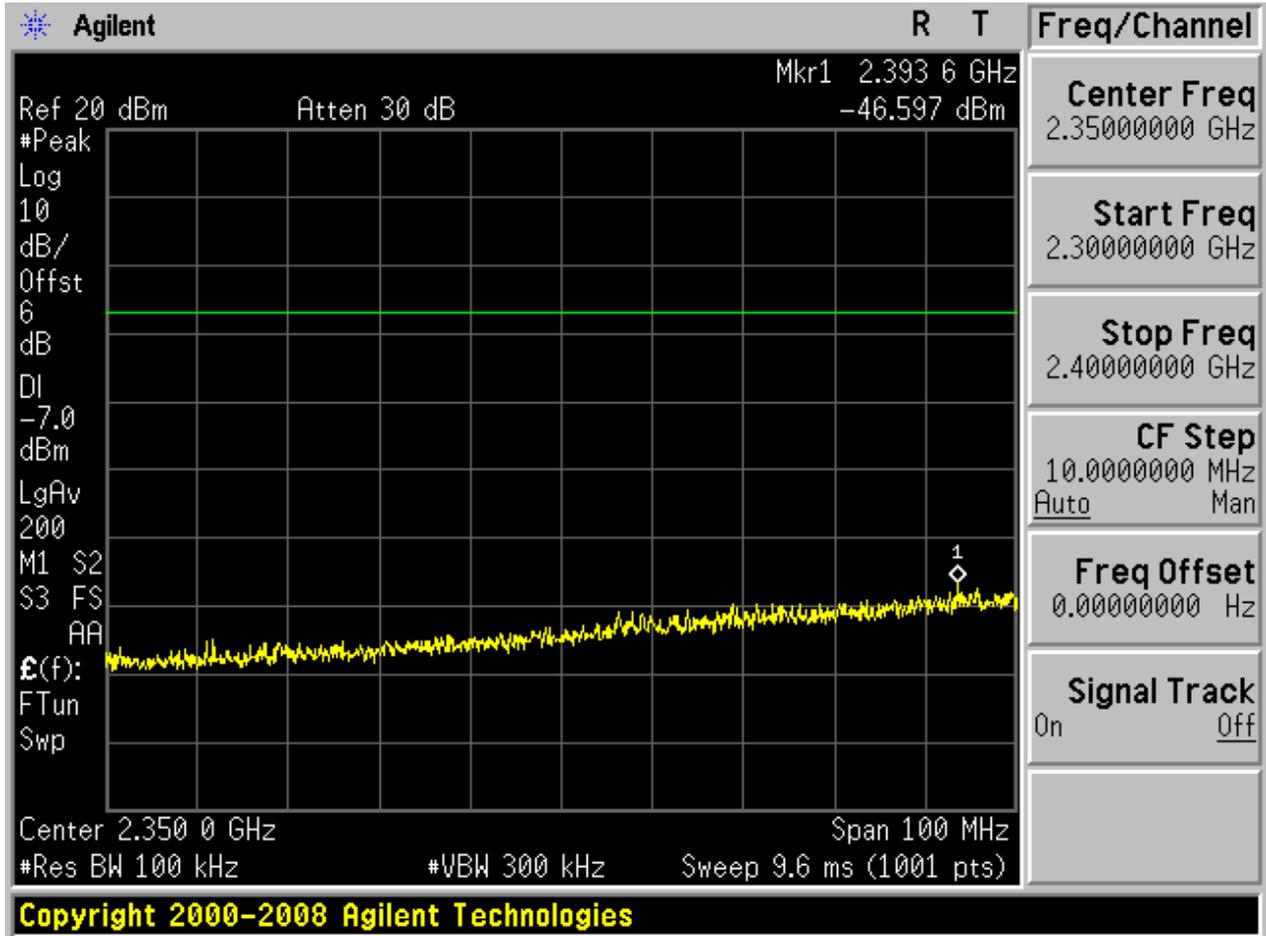


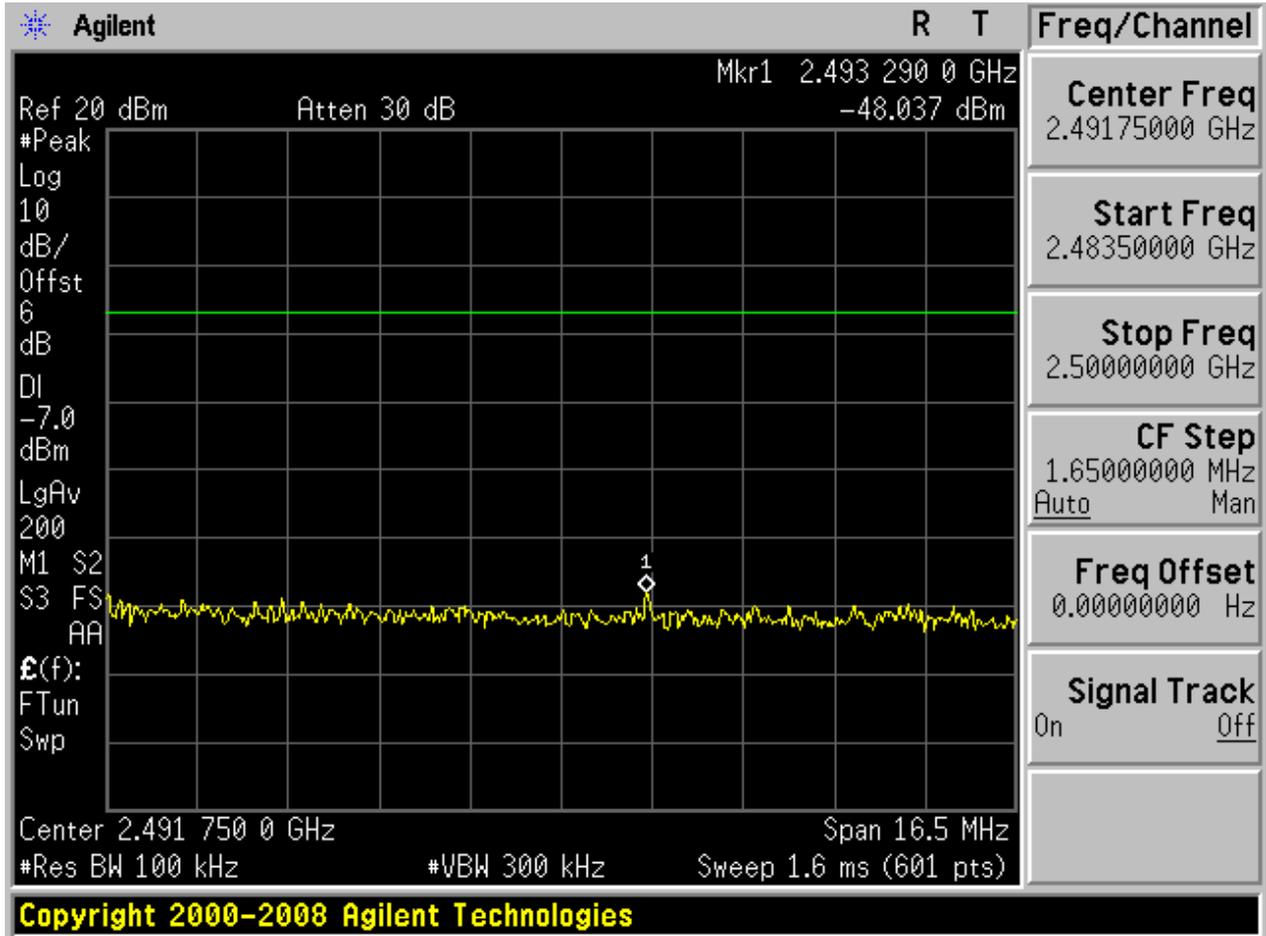
Puw:

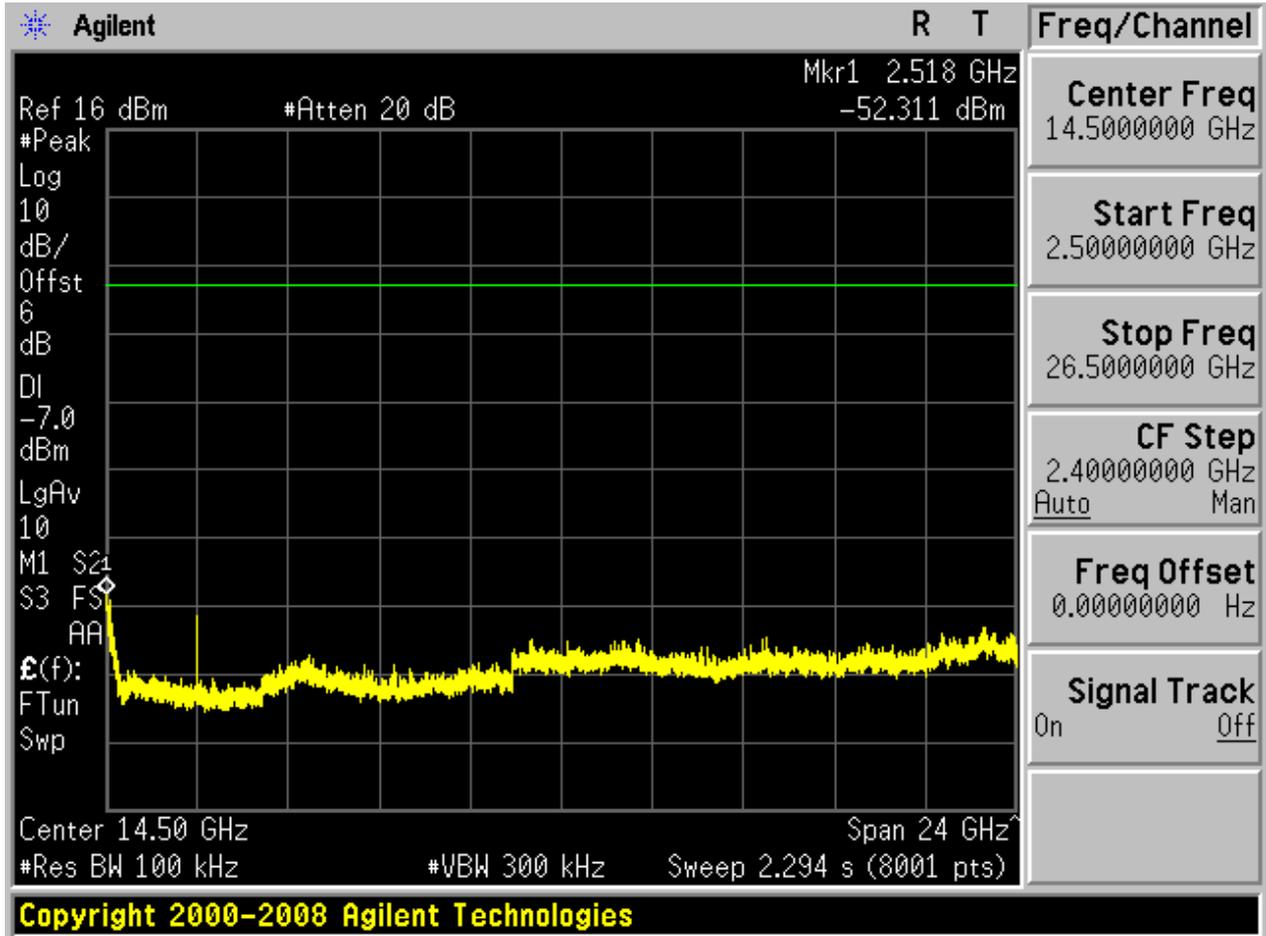






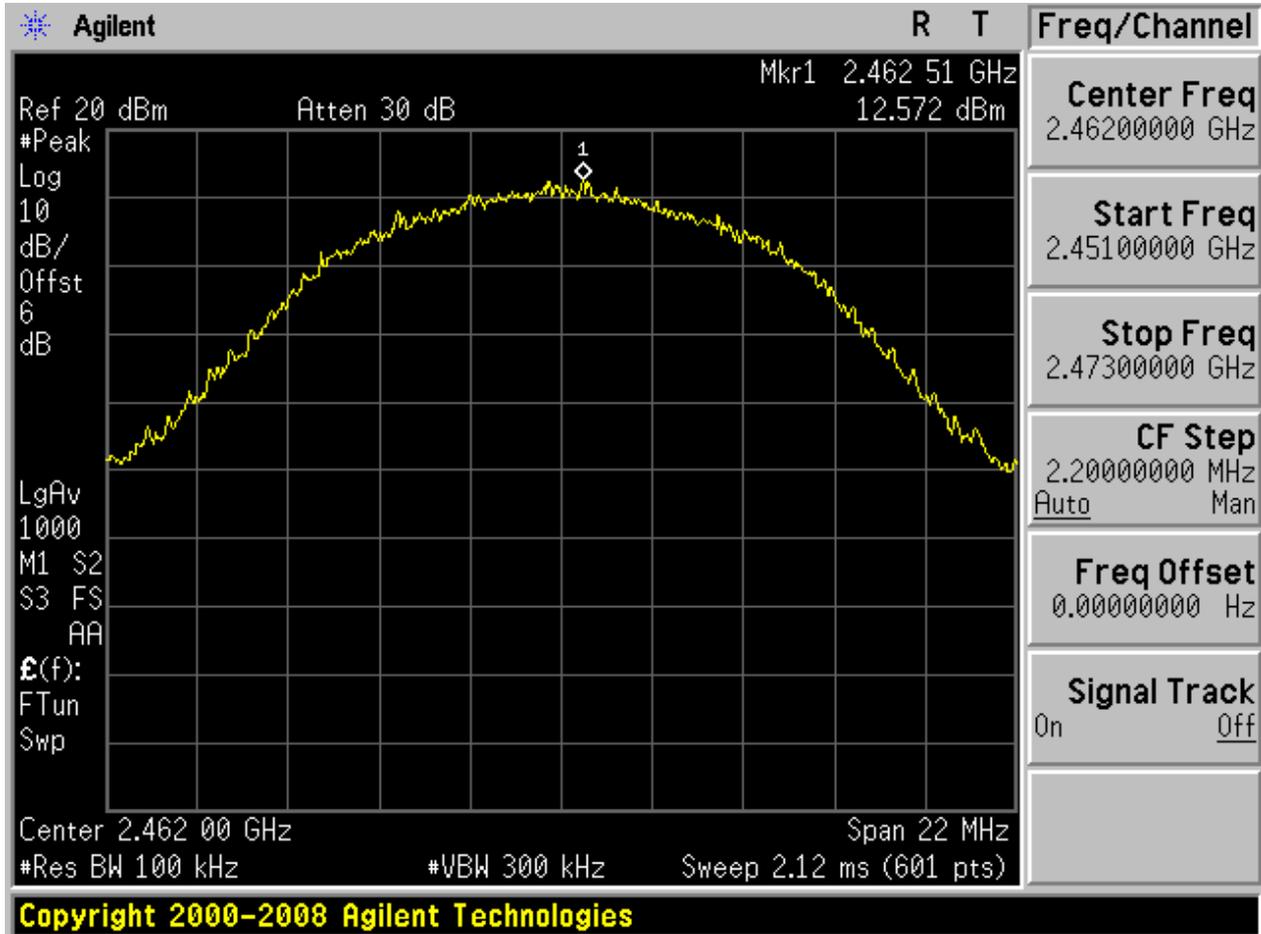




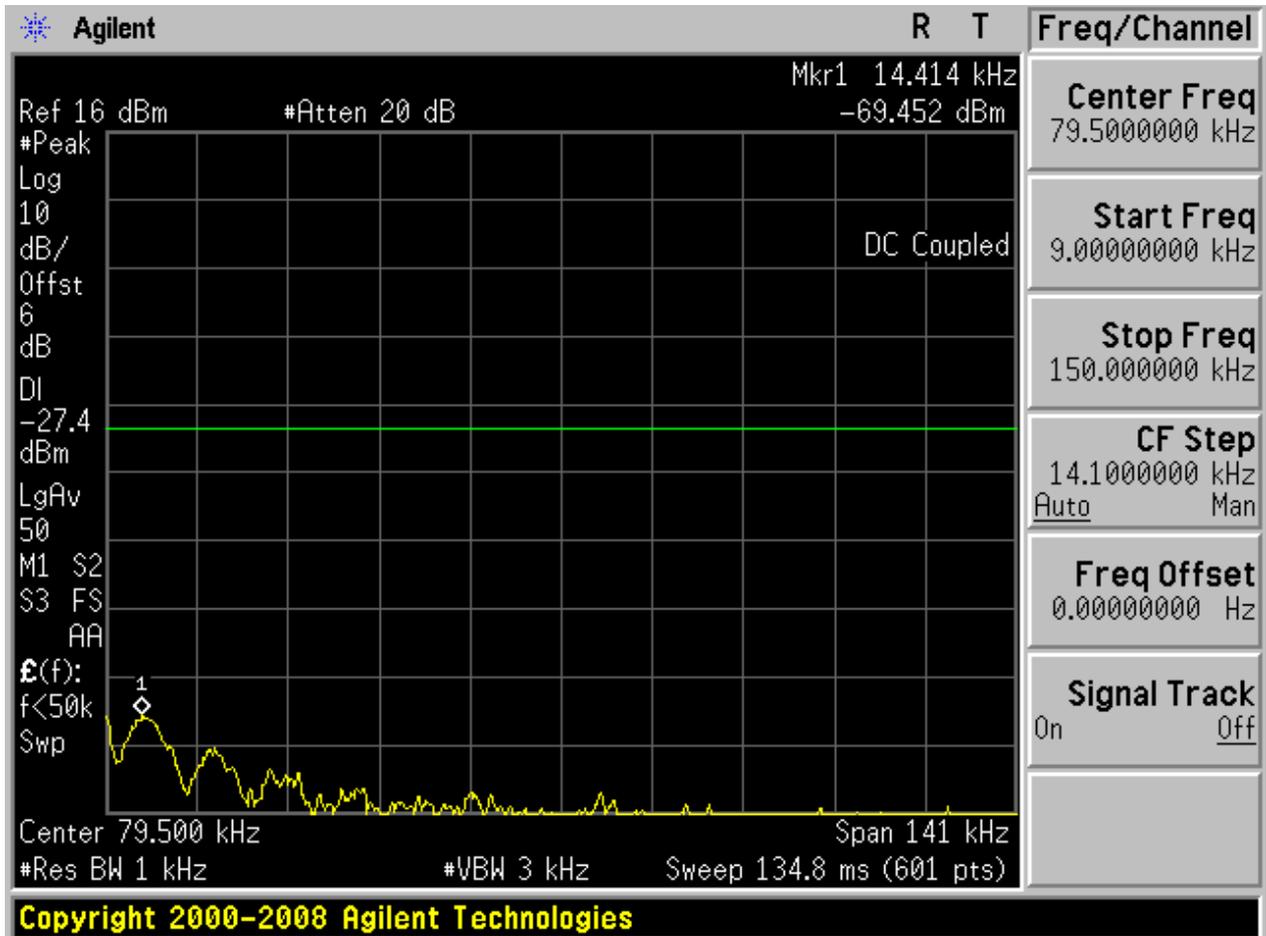


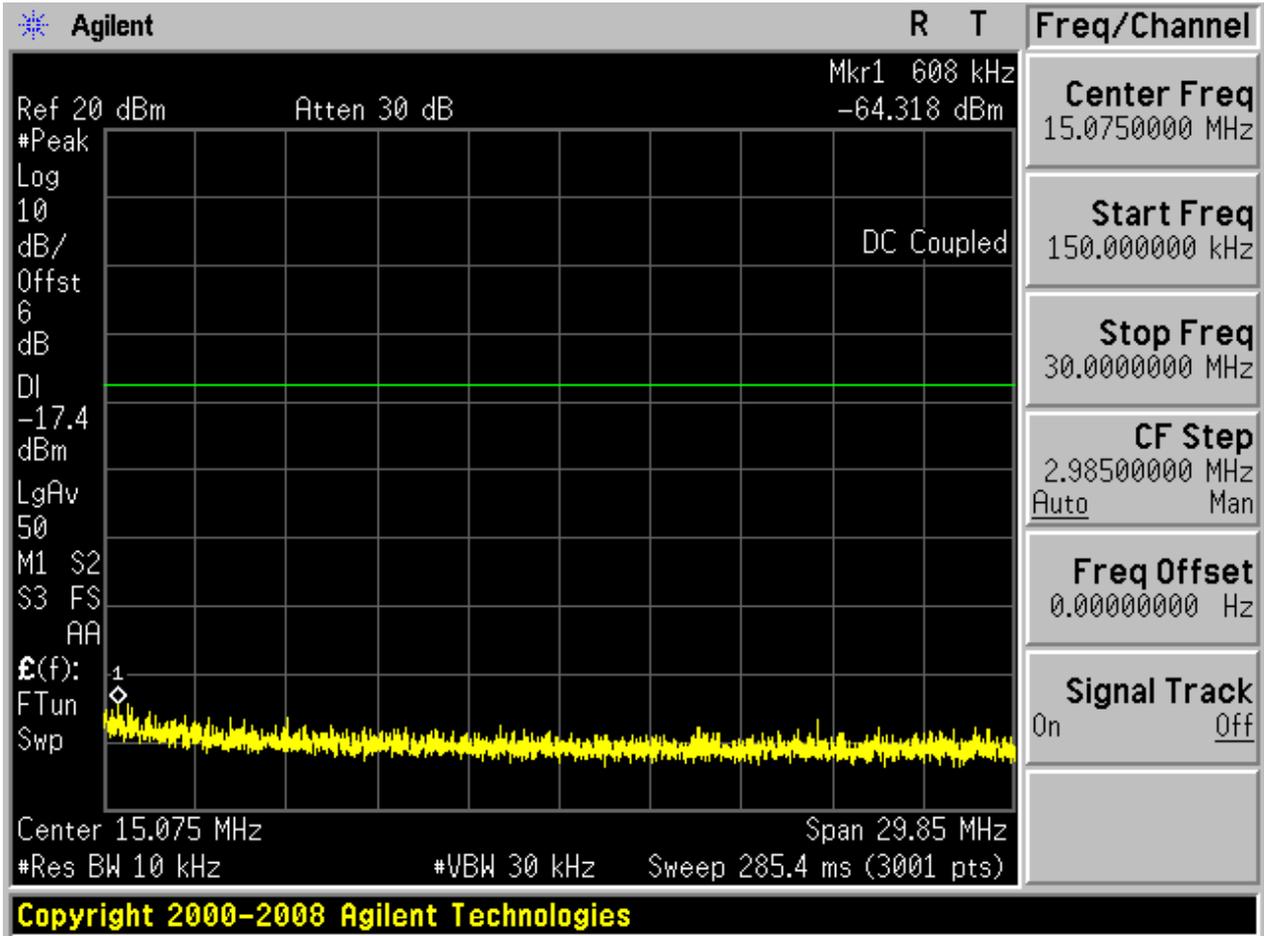
2.3 11B_H

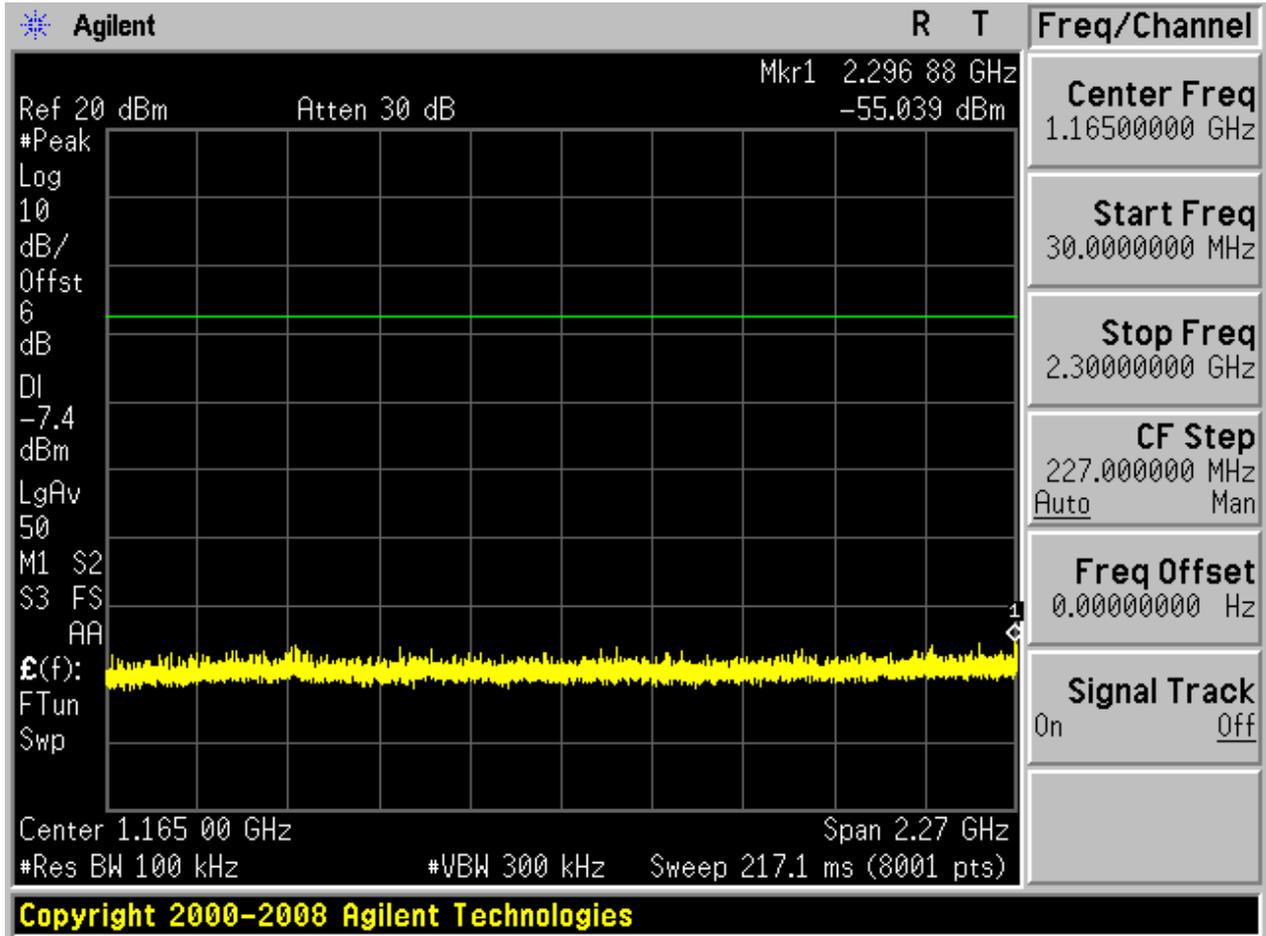
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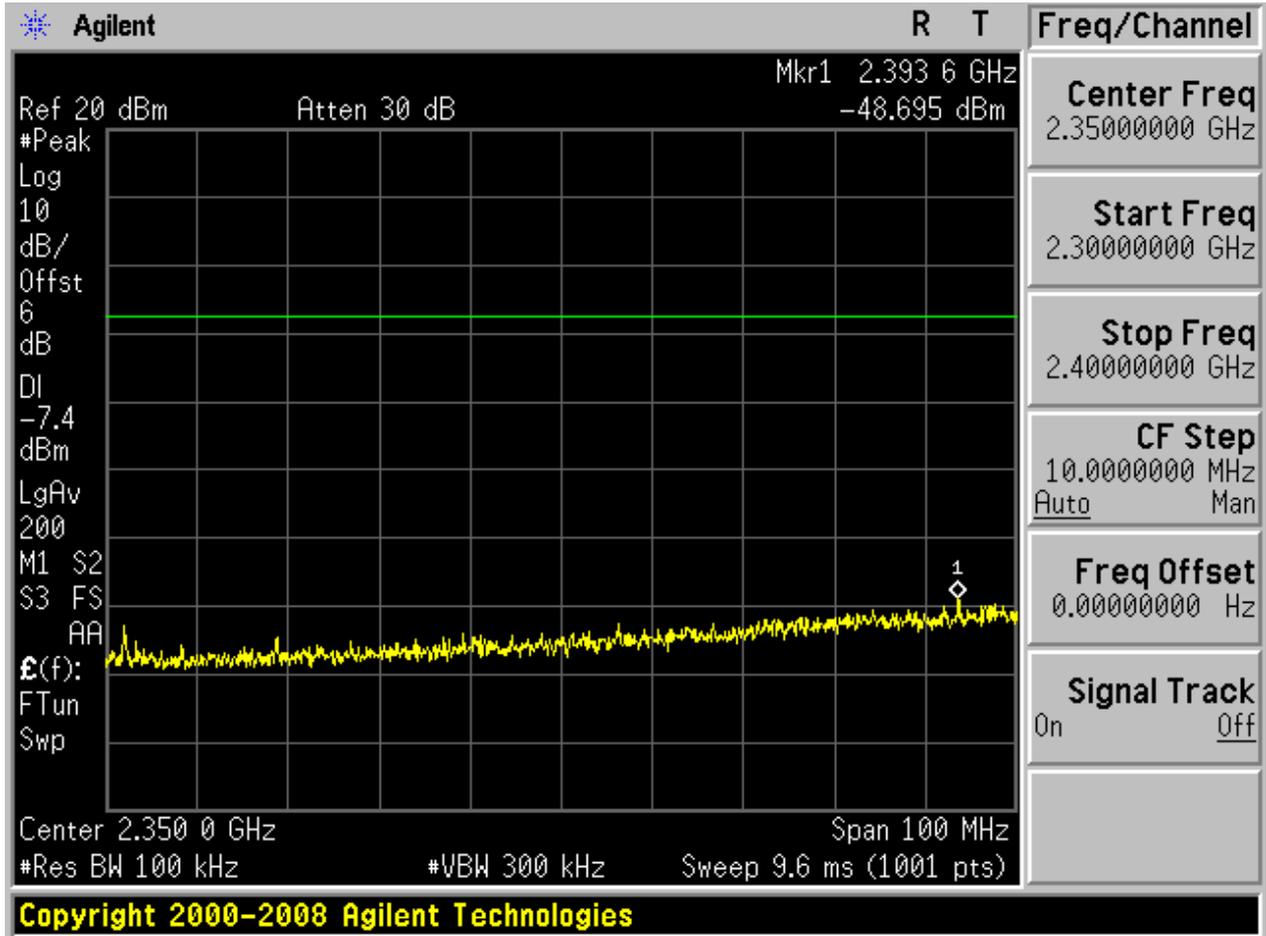


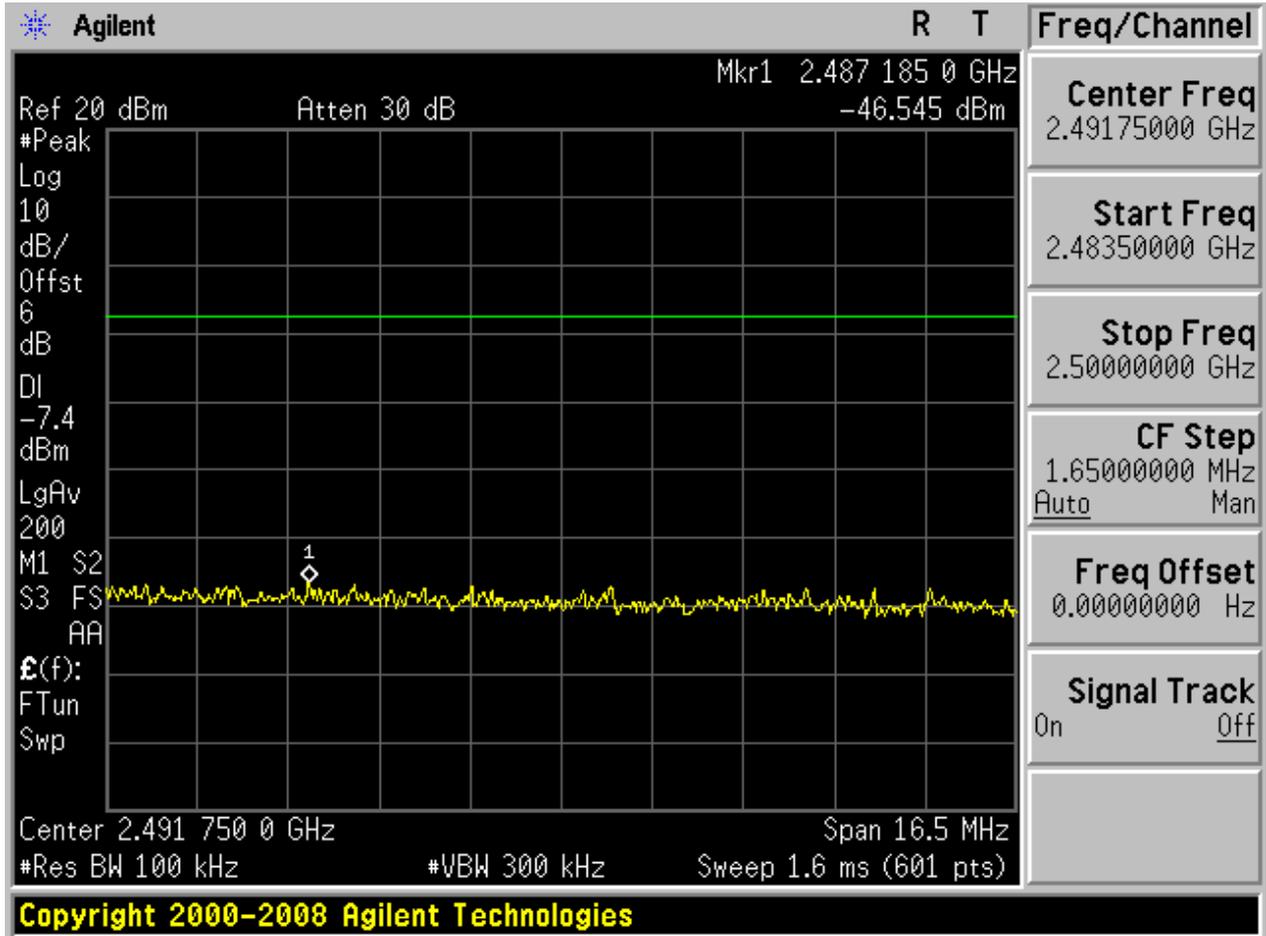
Puw:

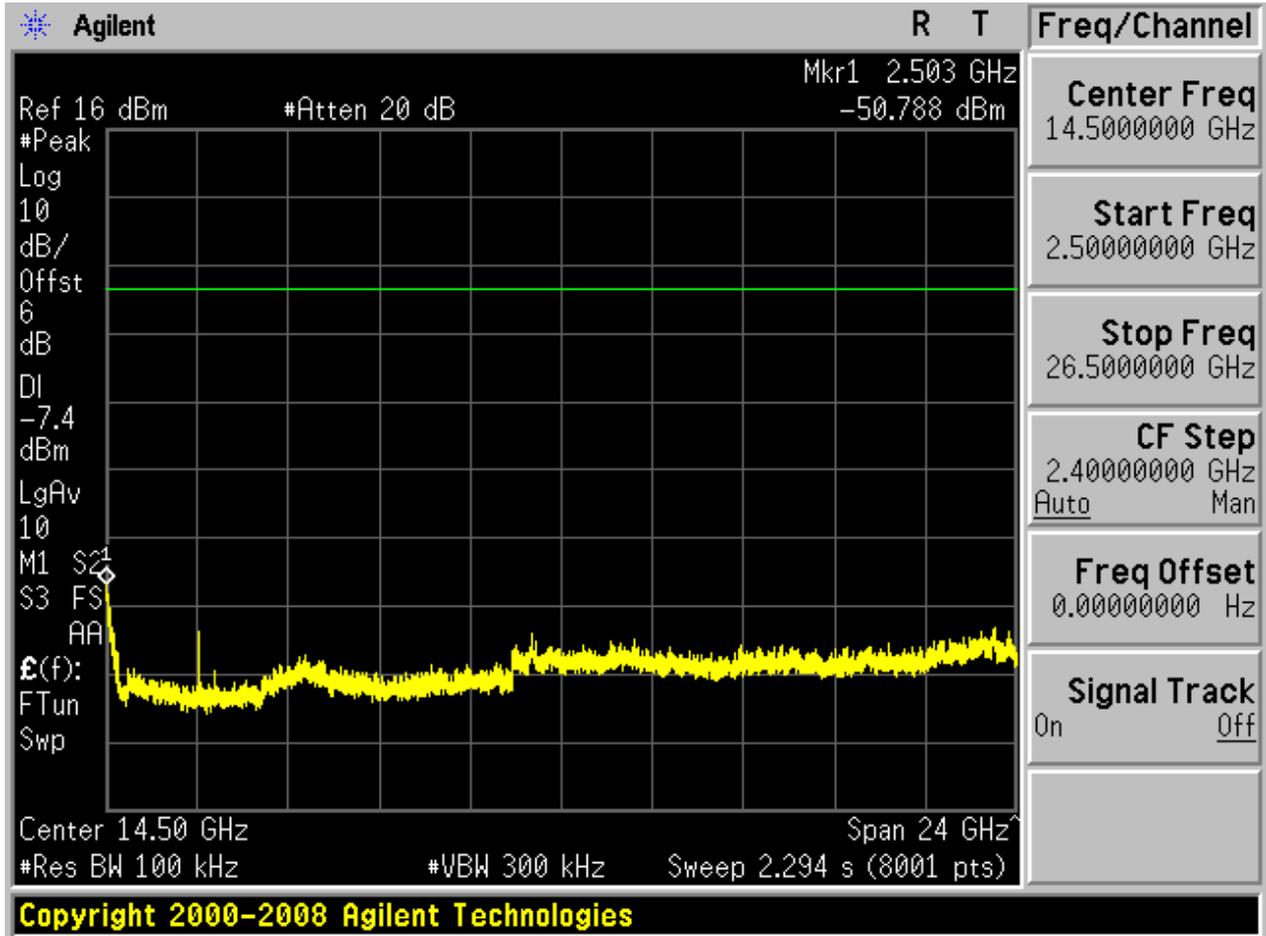






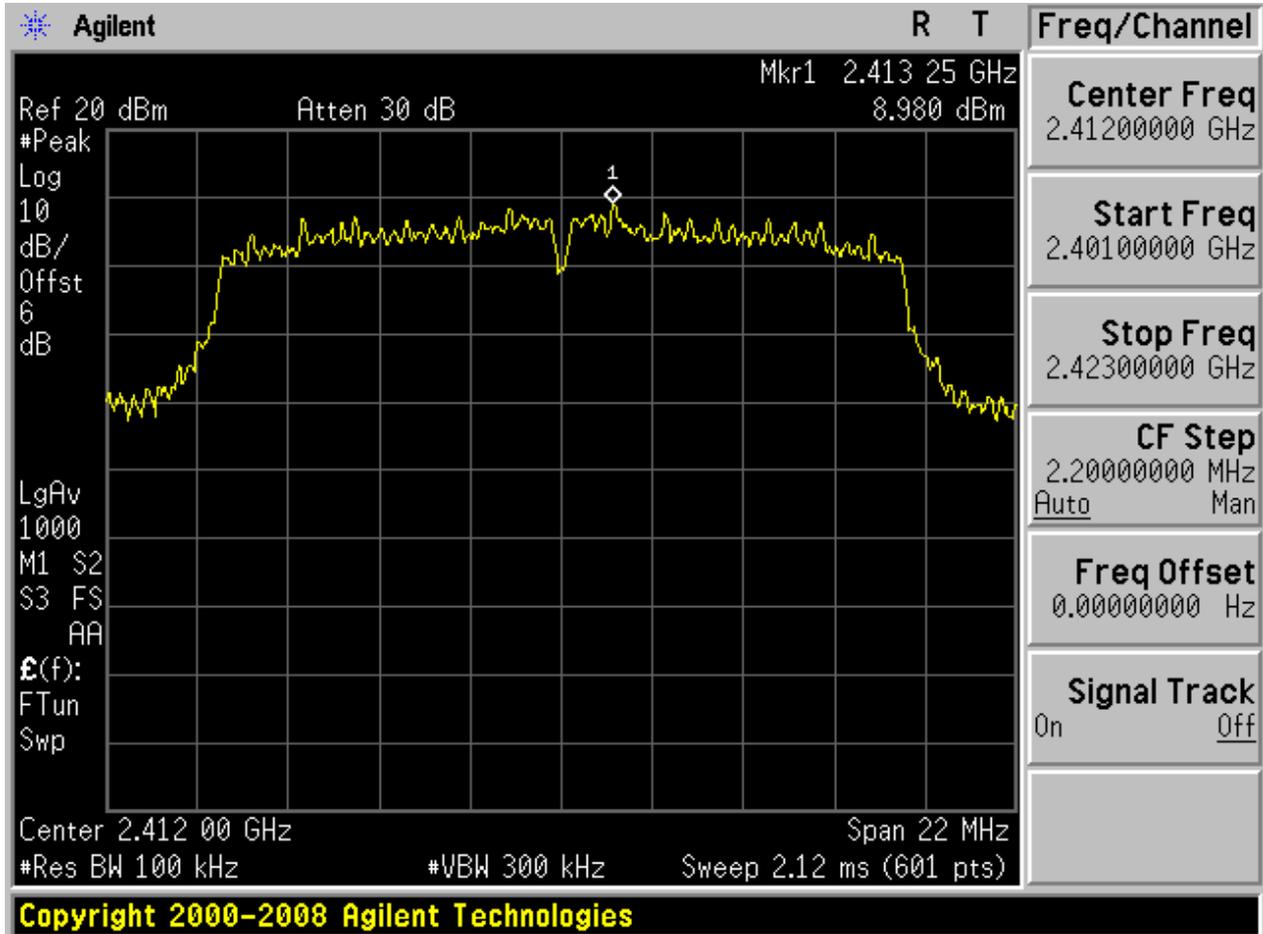




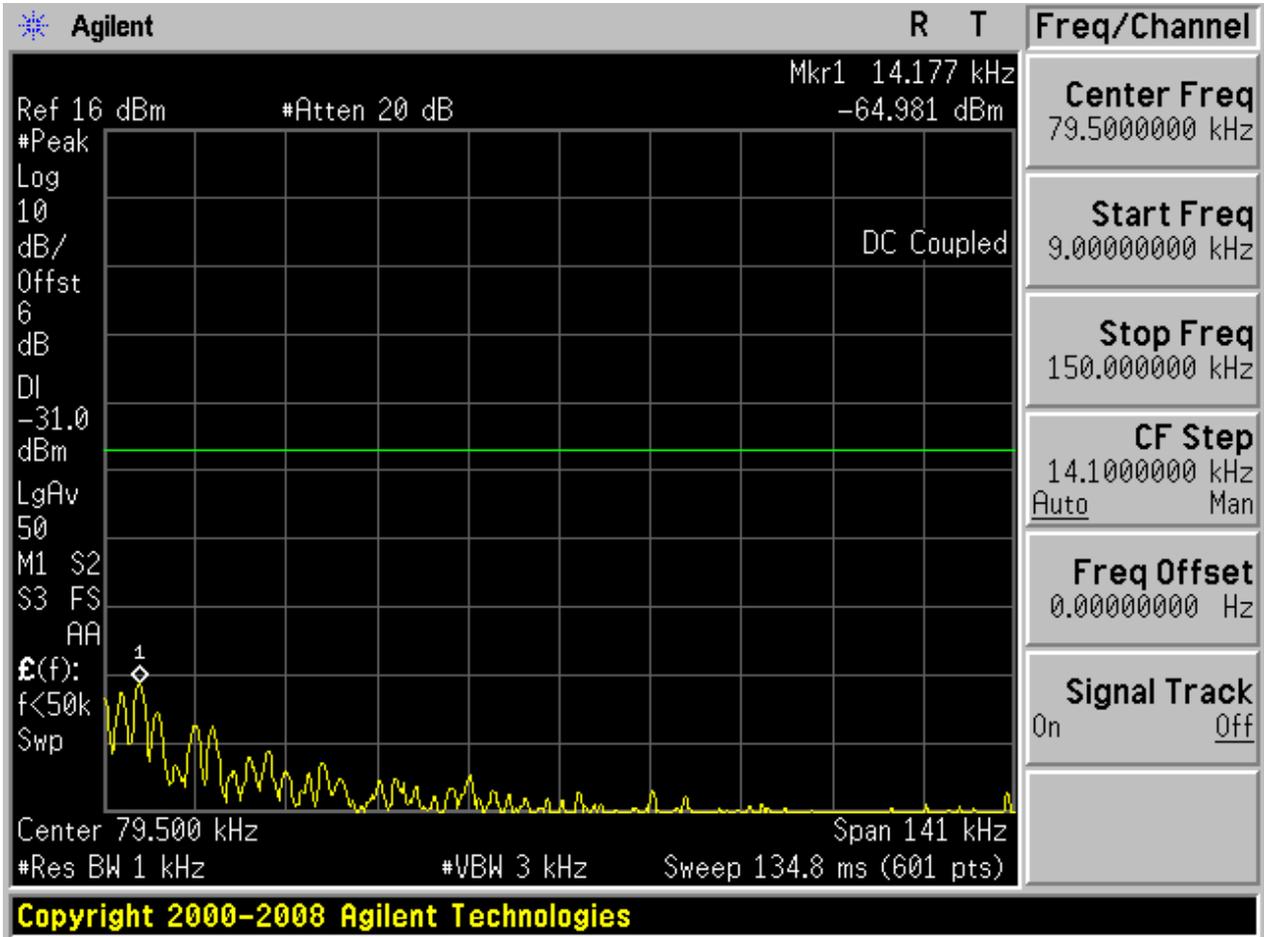


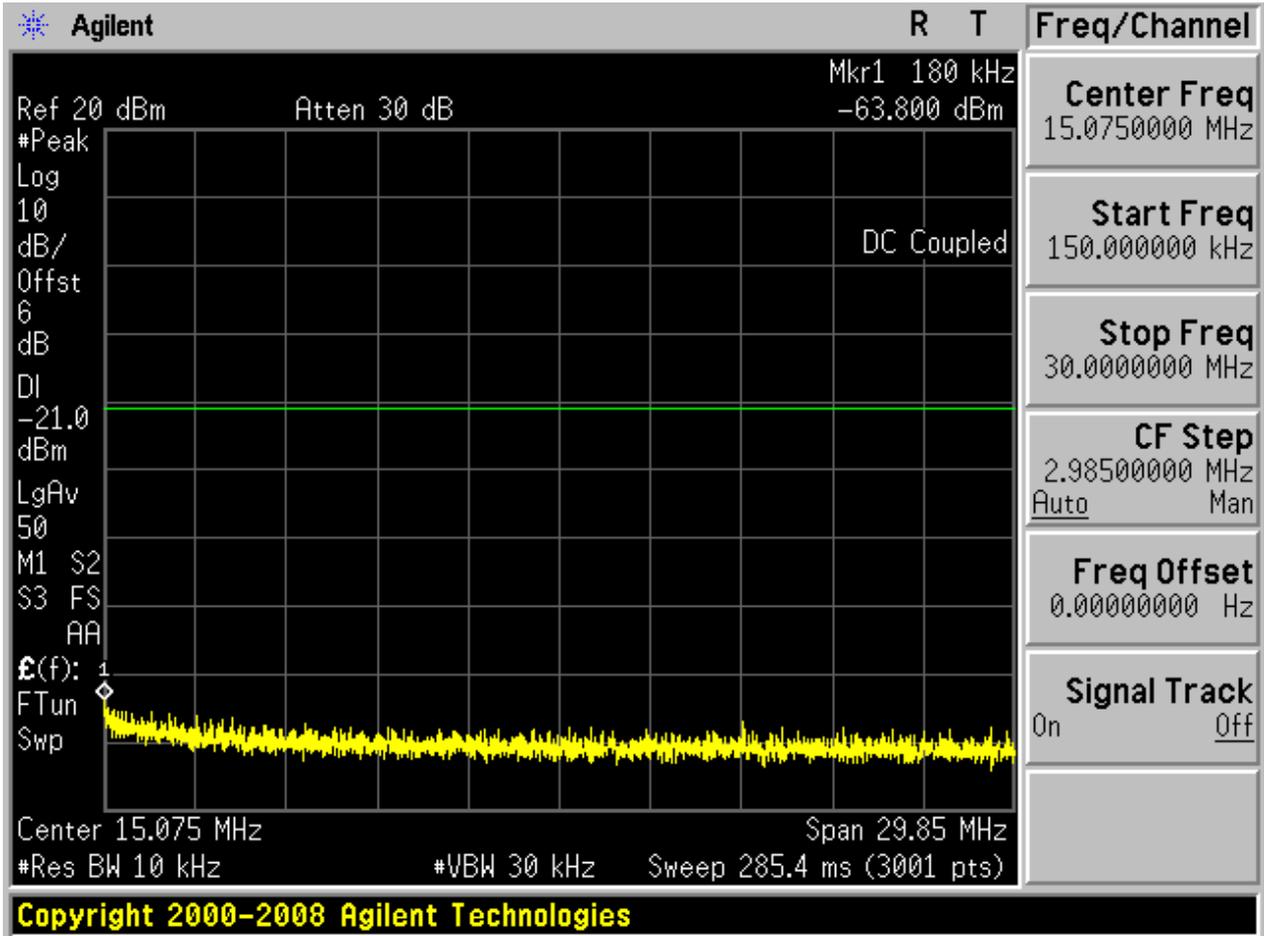
2.4 11G_L

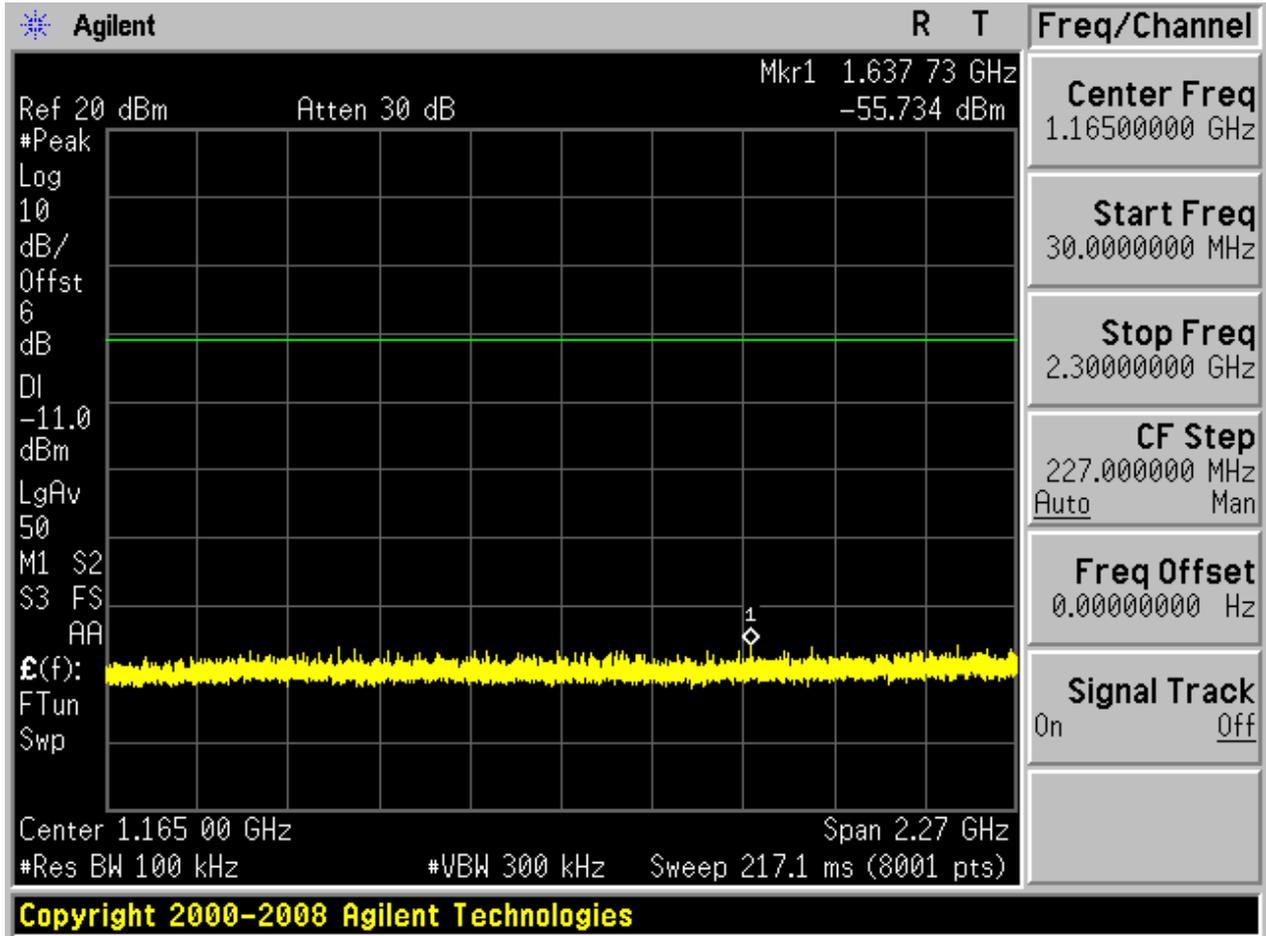
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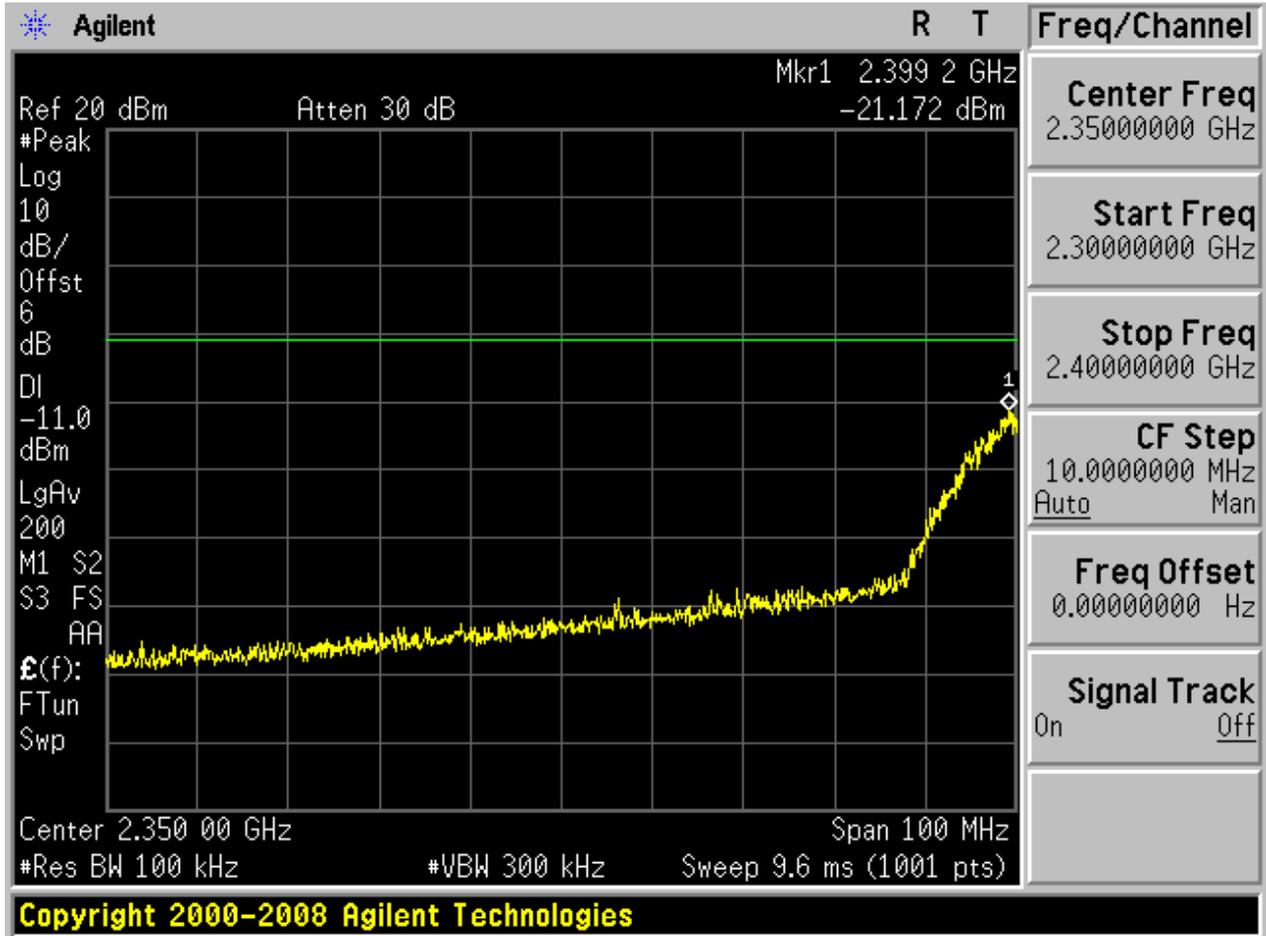


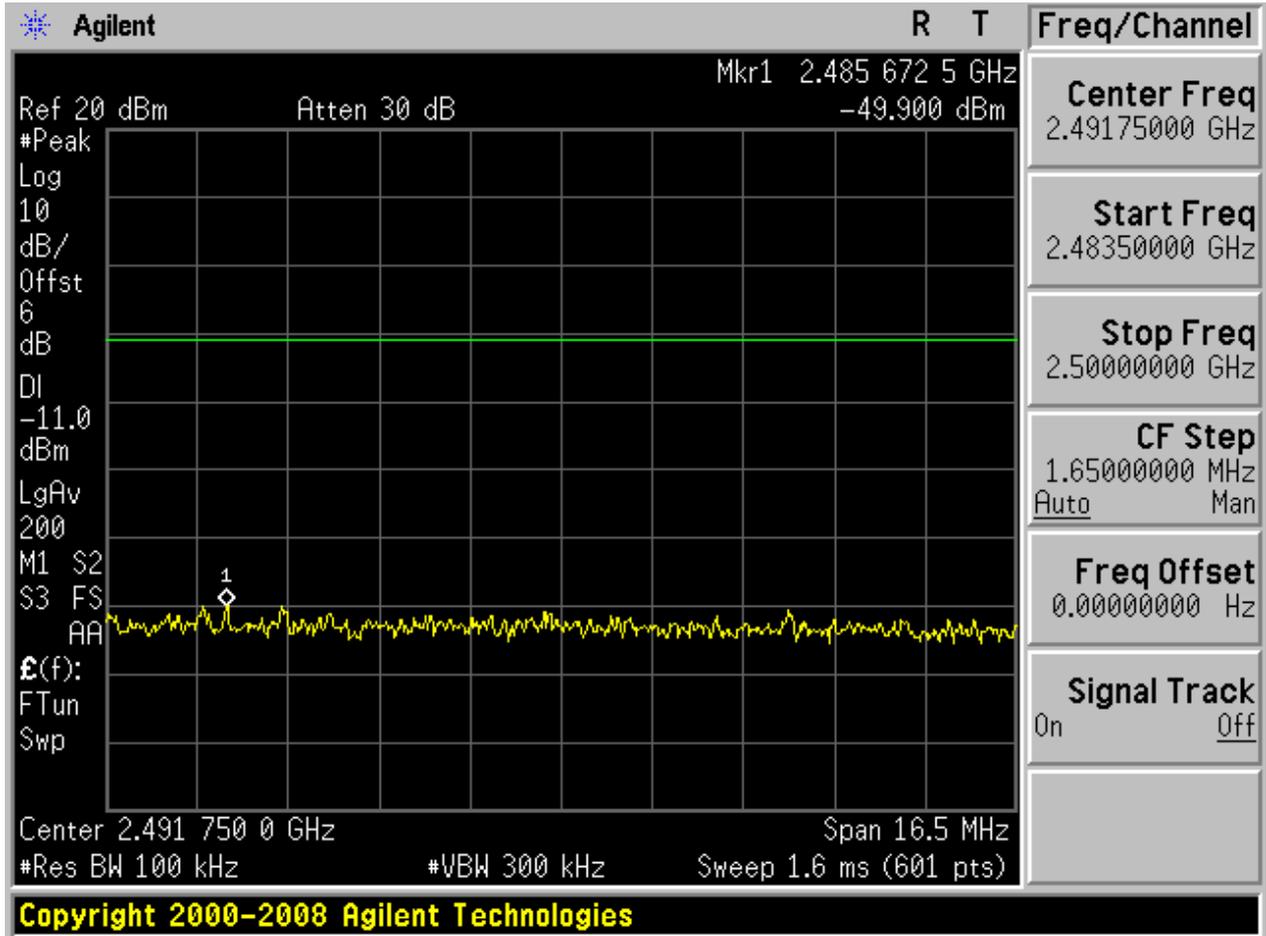
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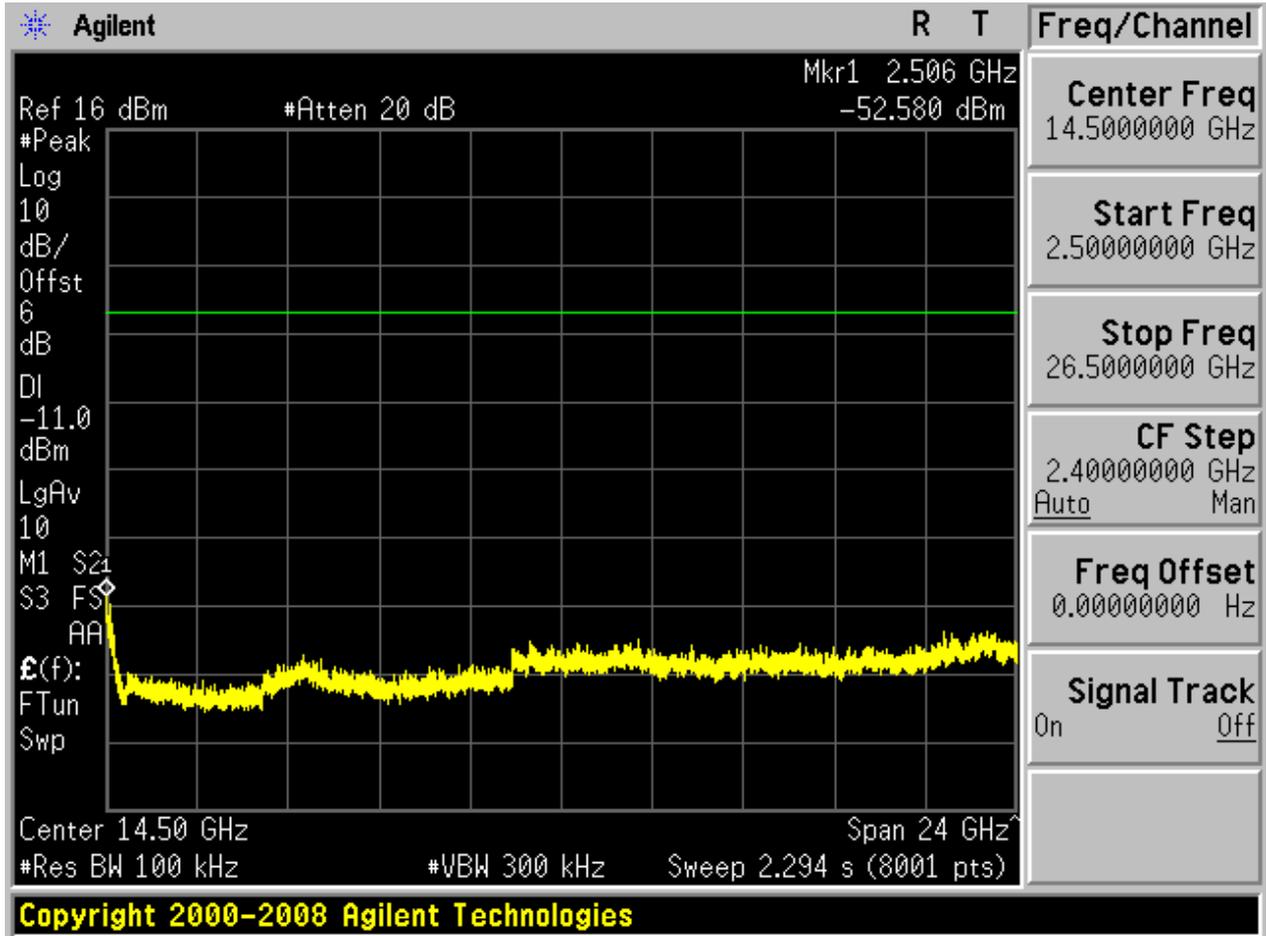






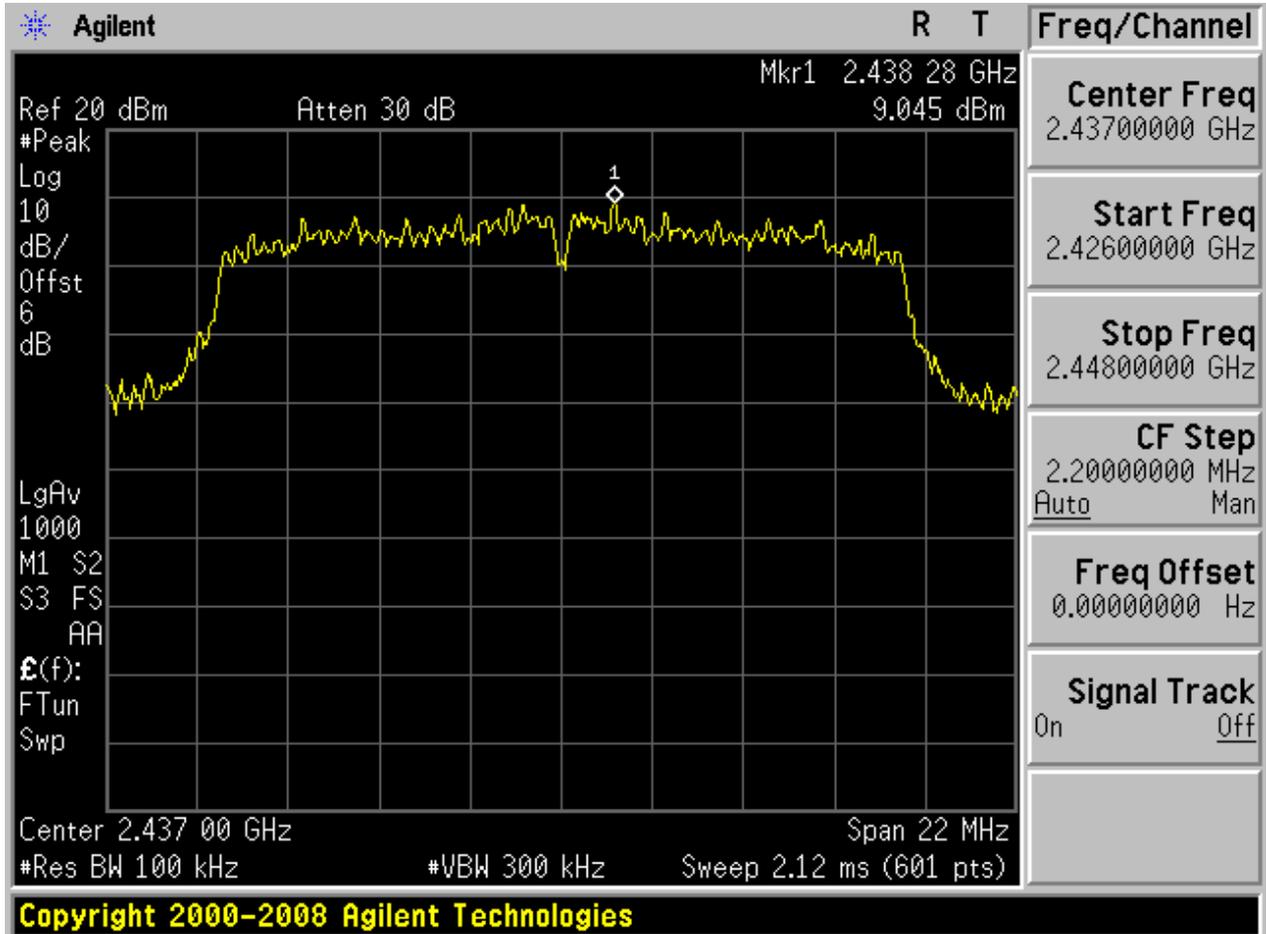




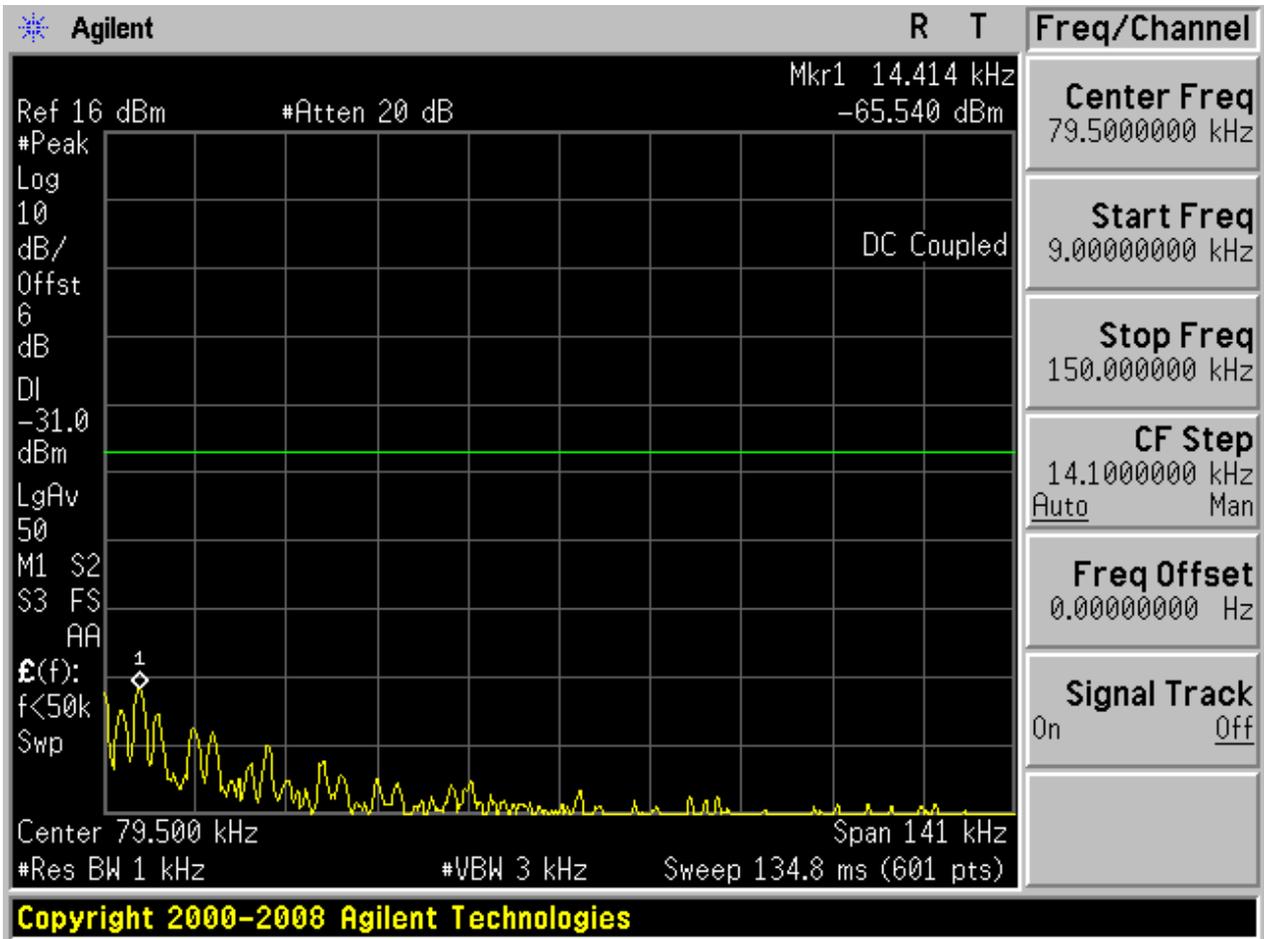


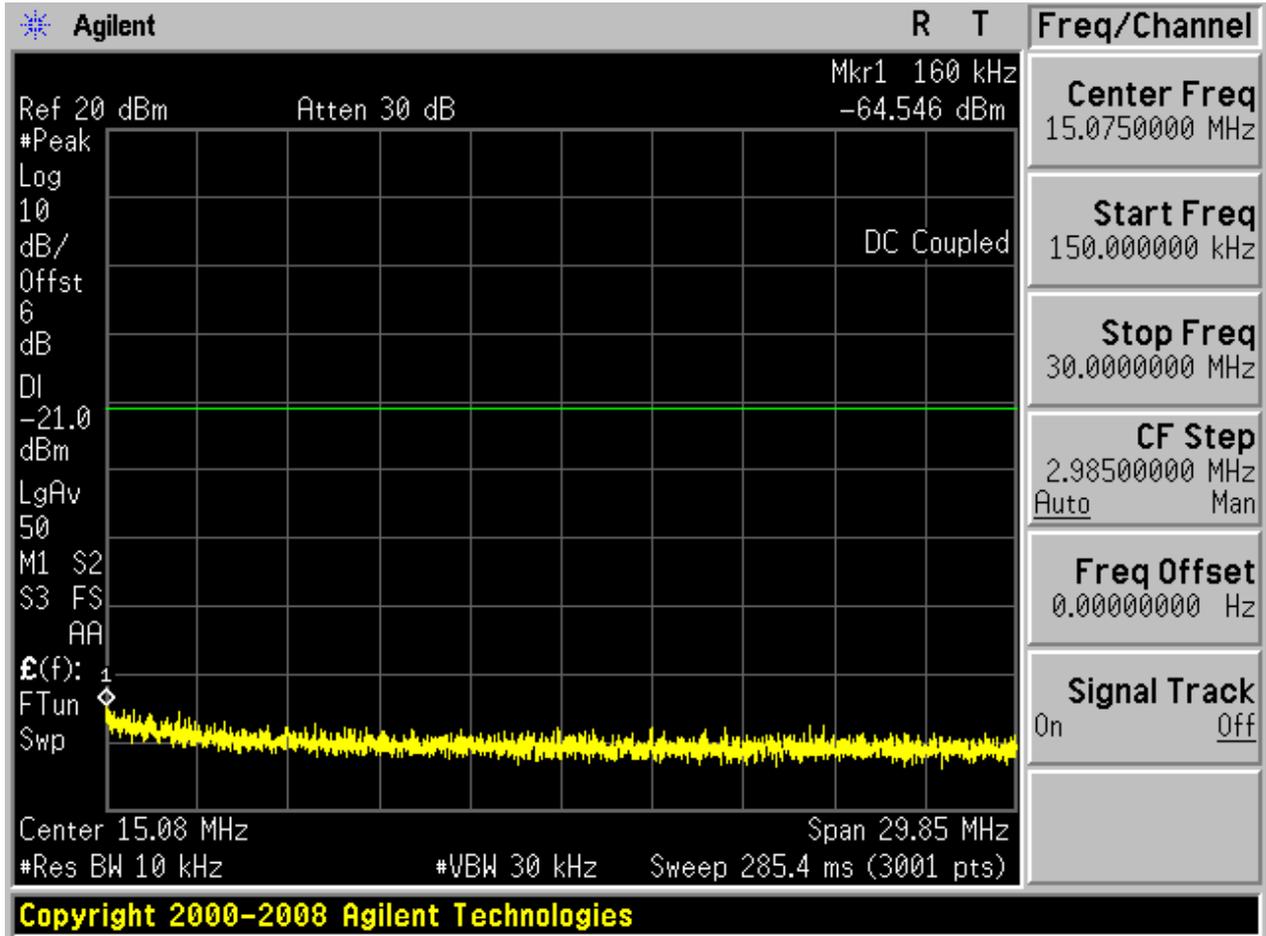
2.5 11G_M

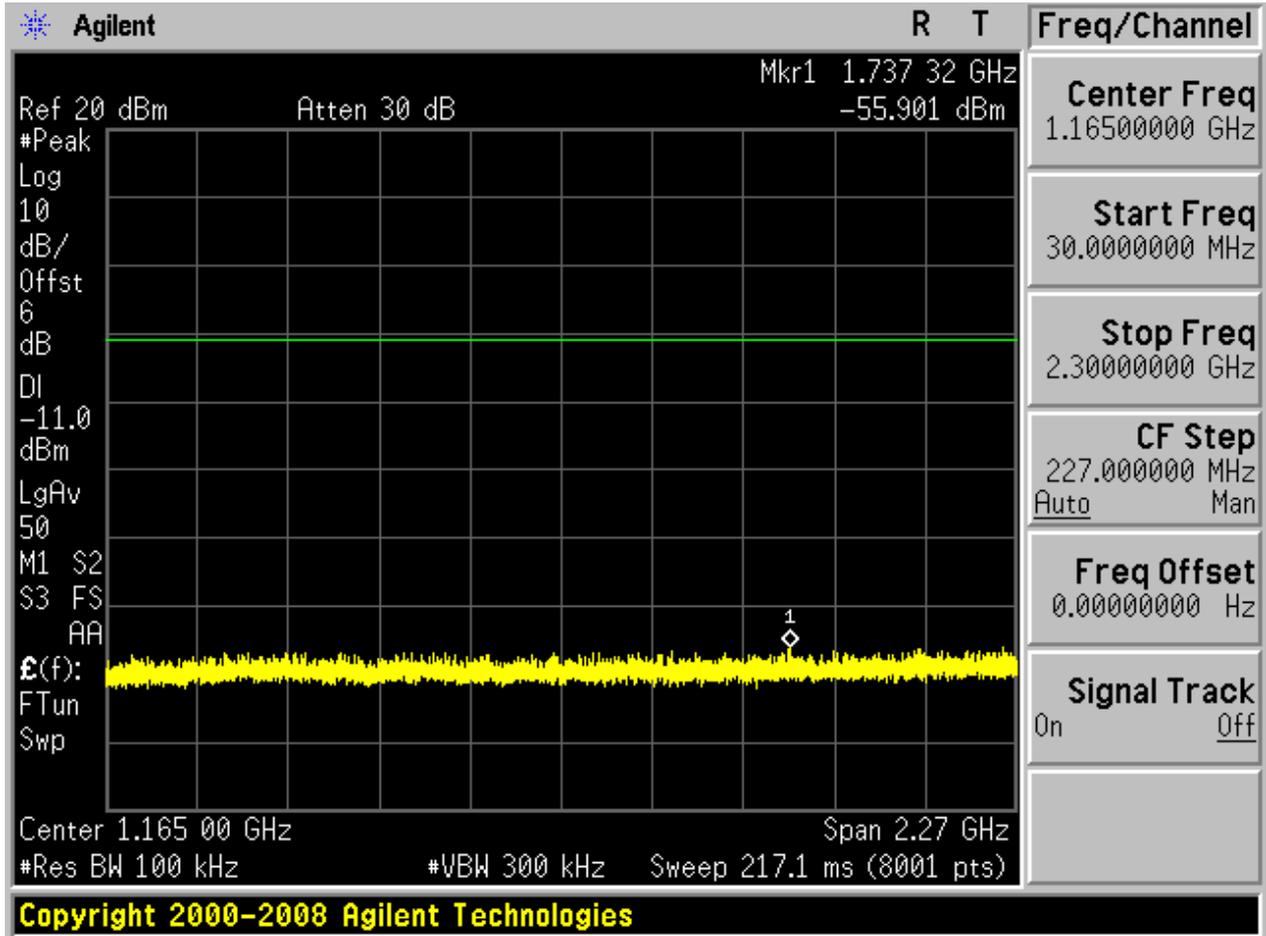
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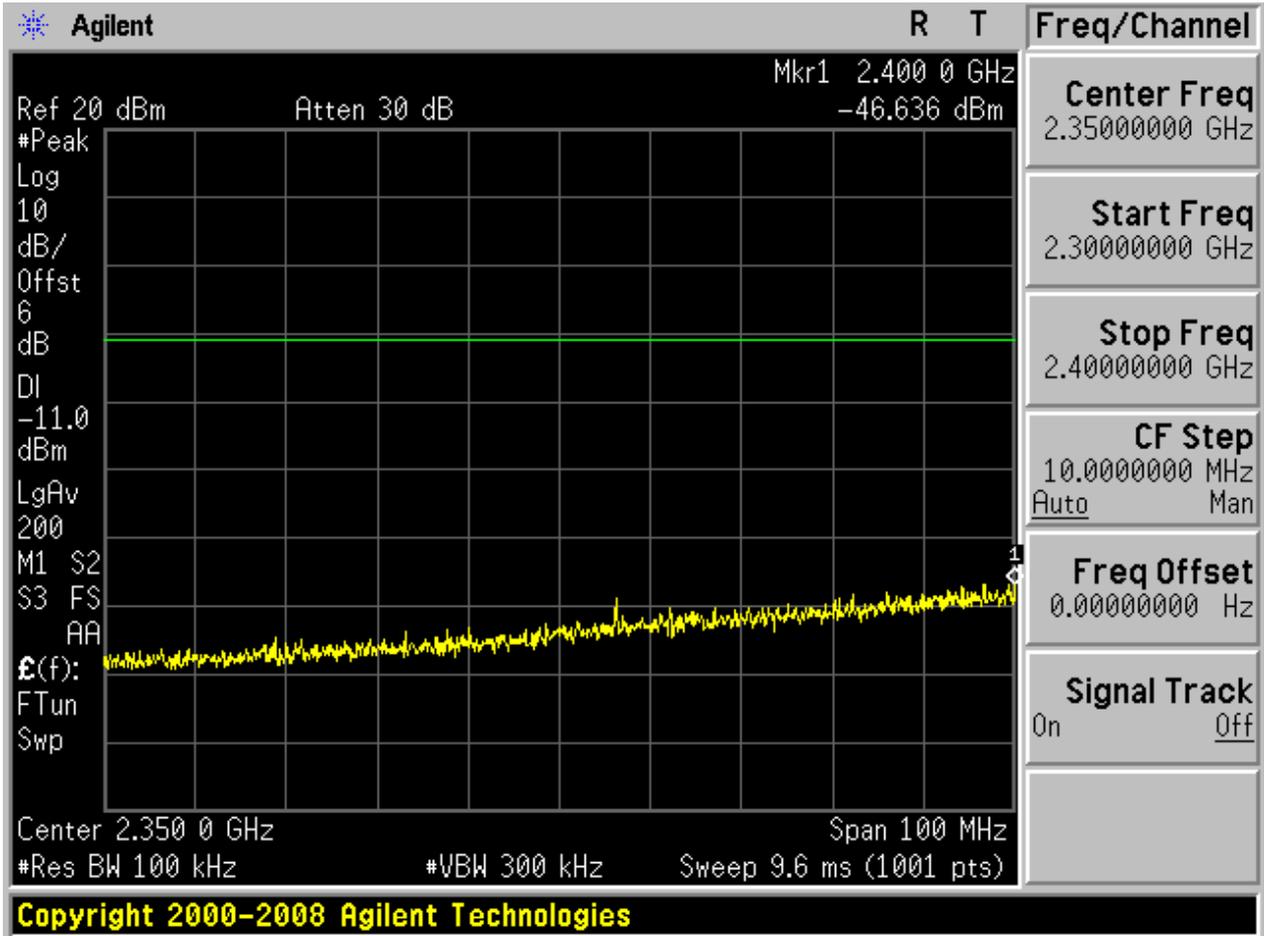


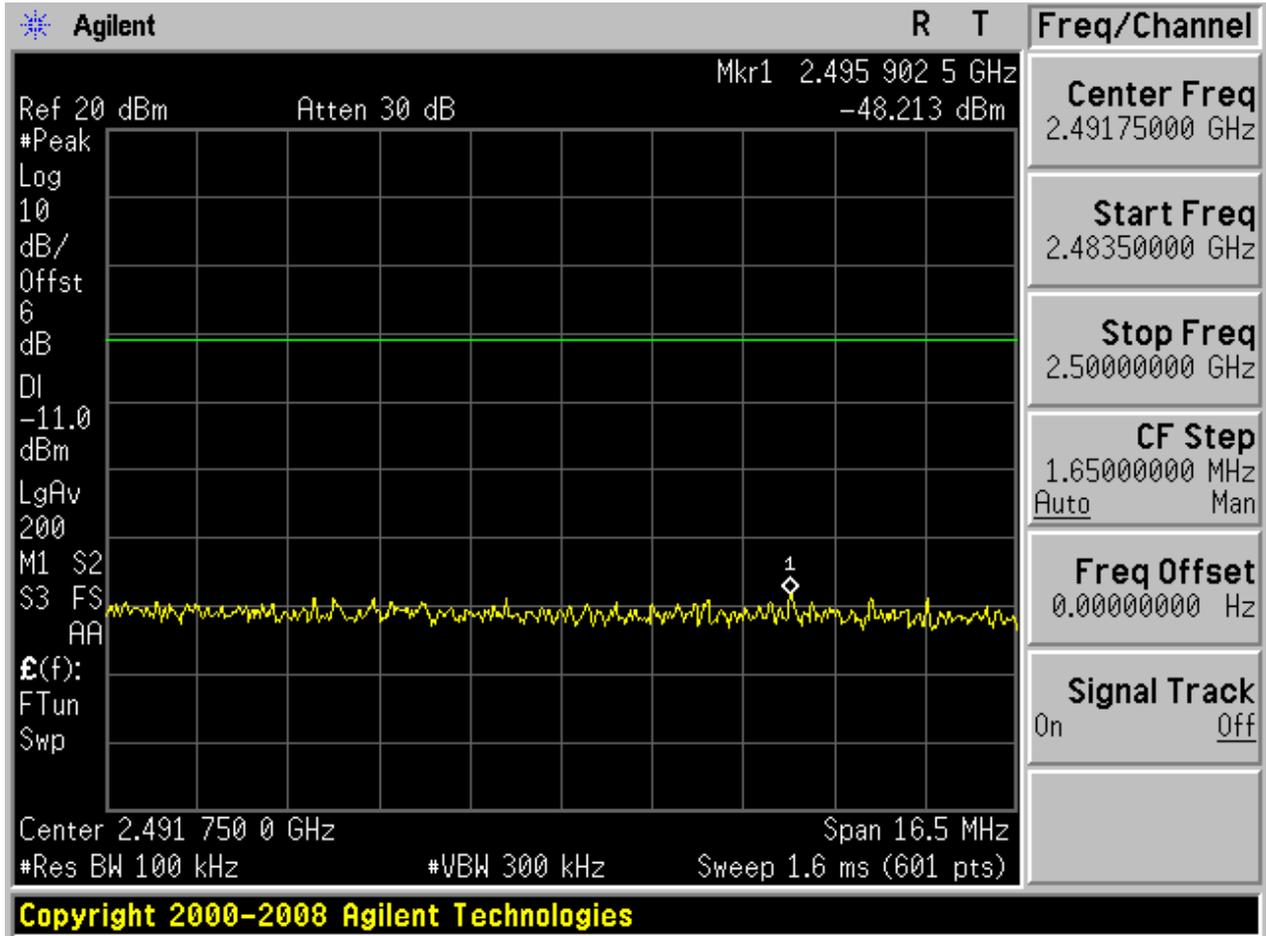
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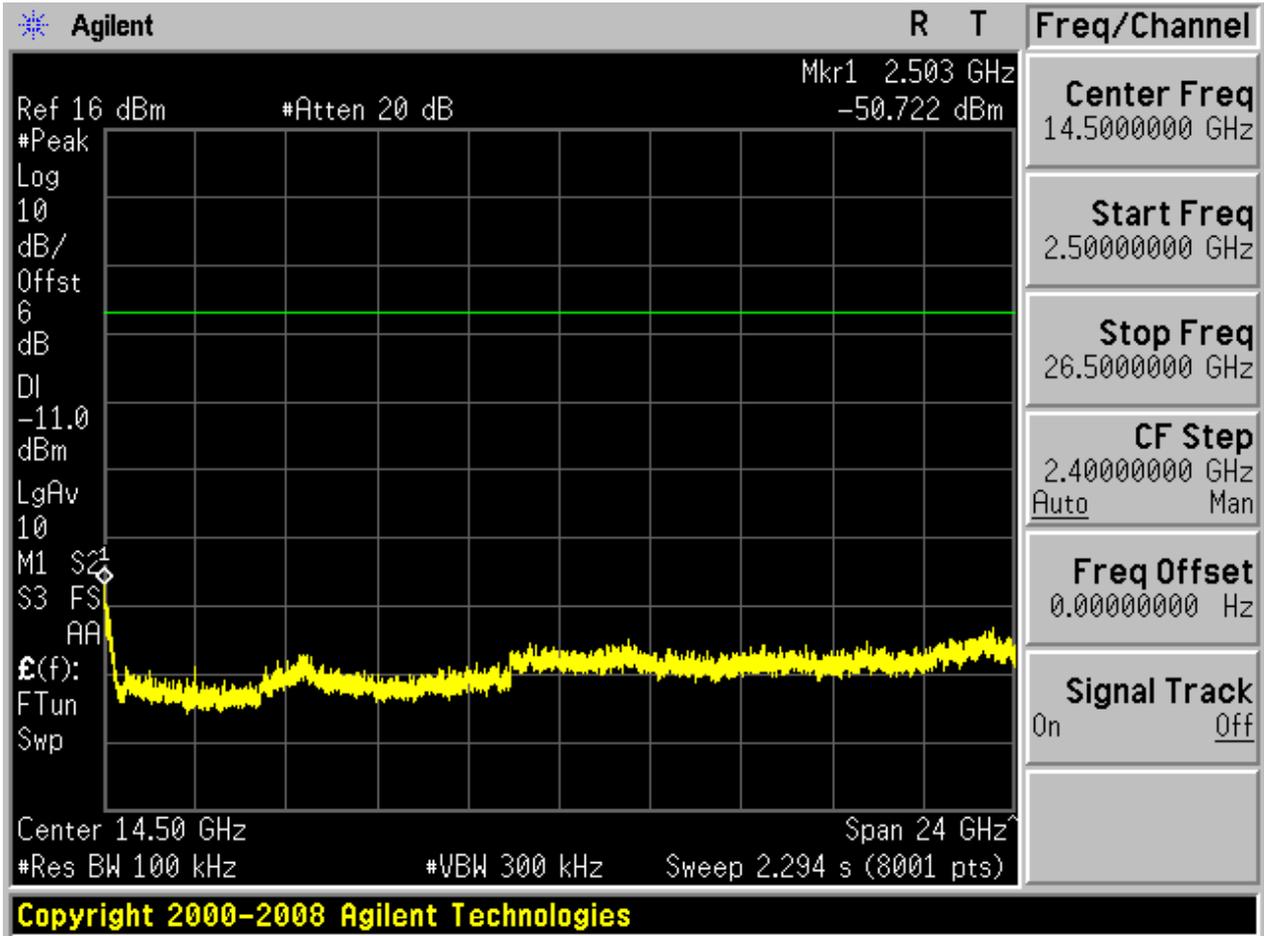






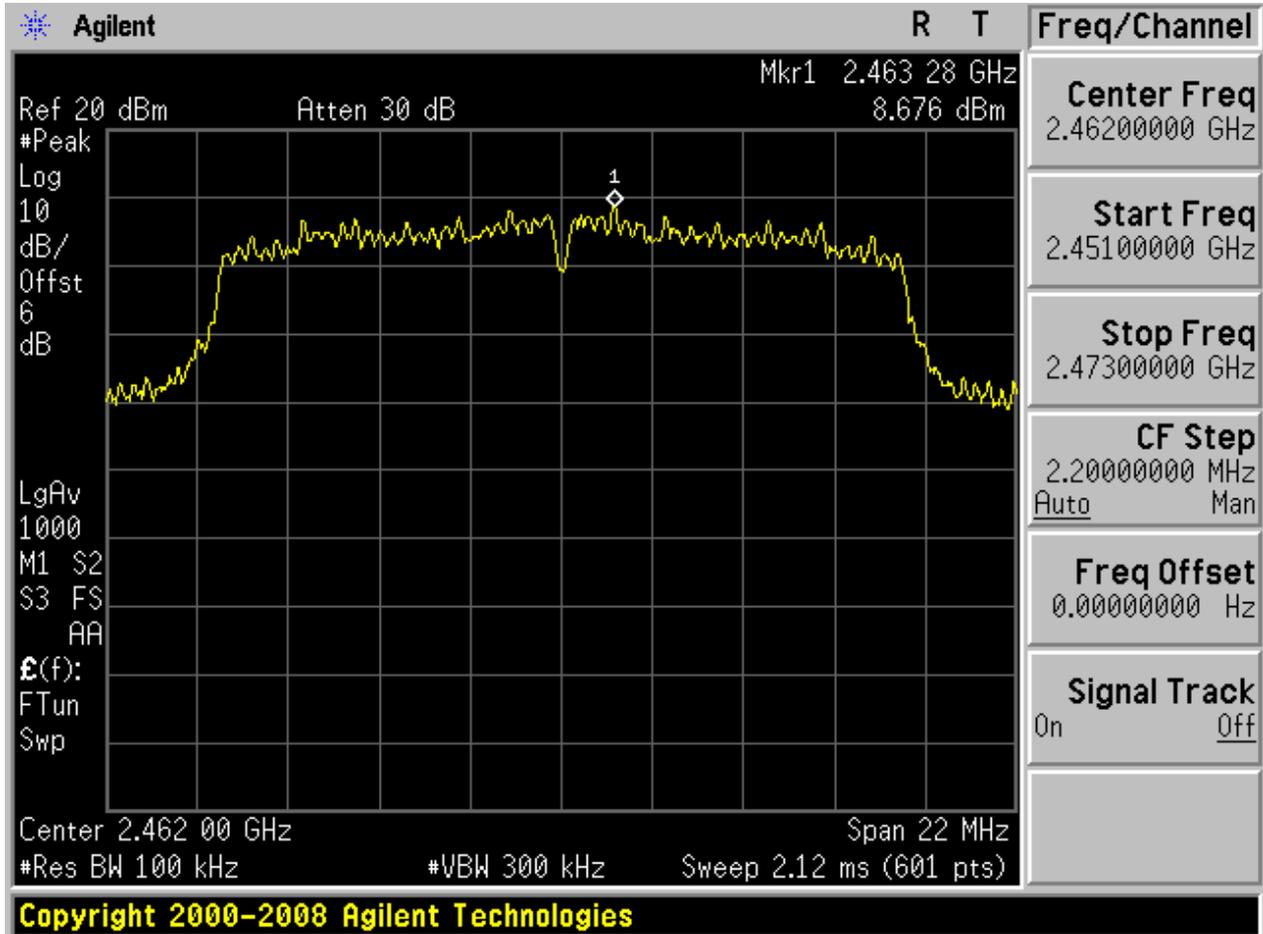




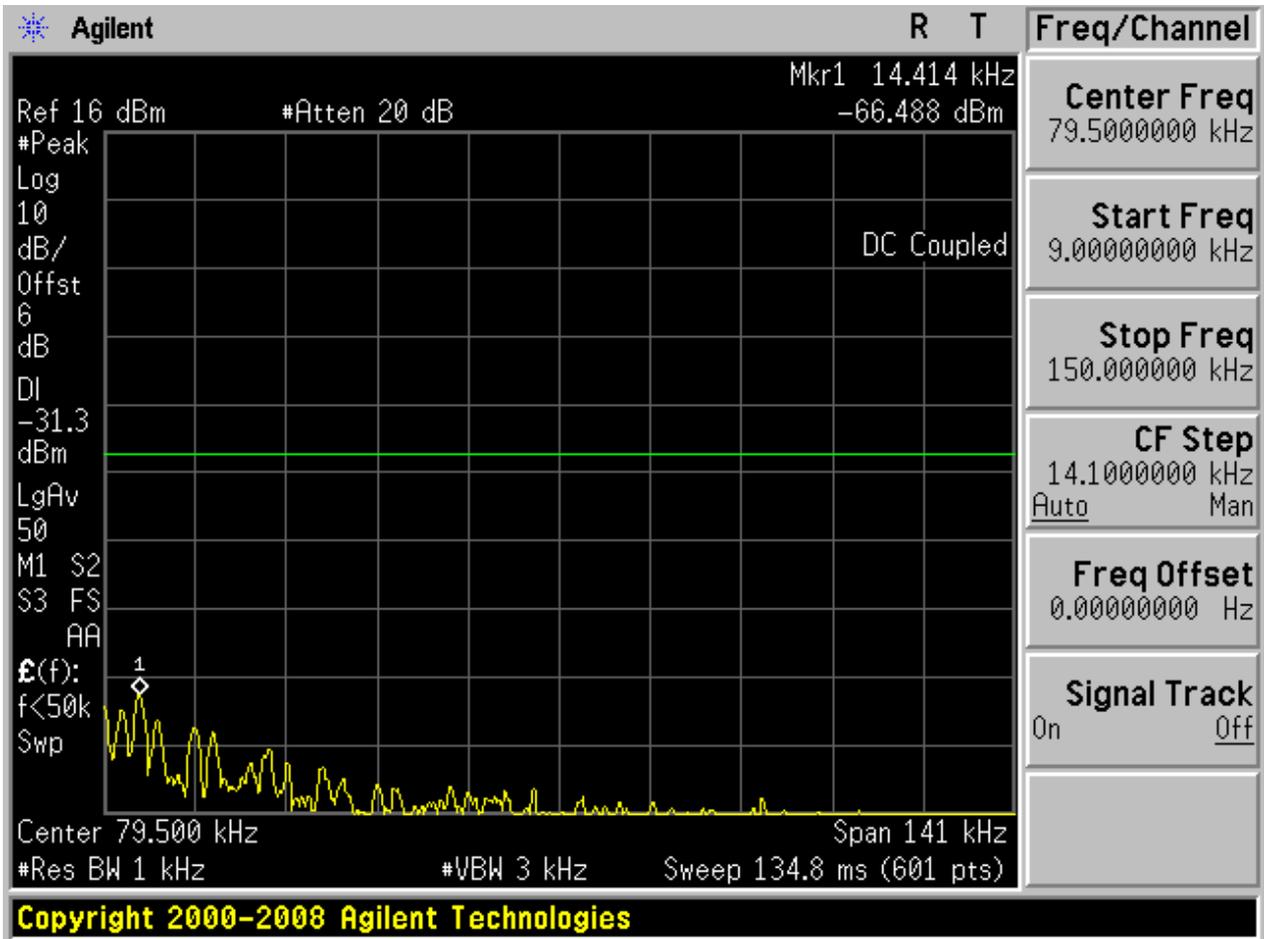


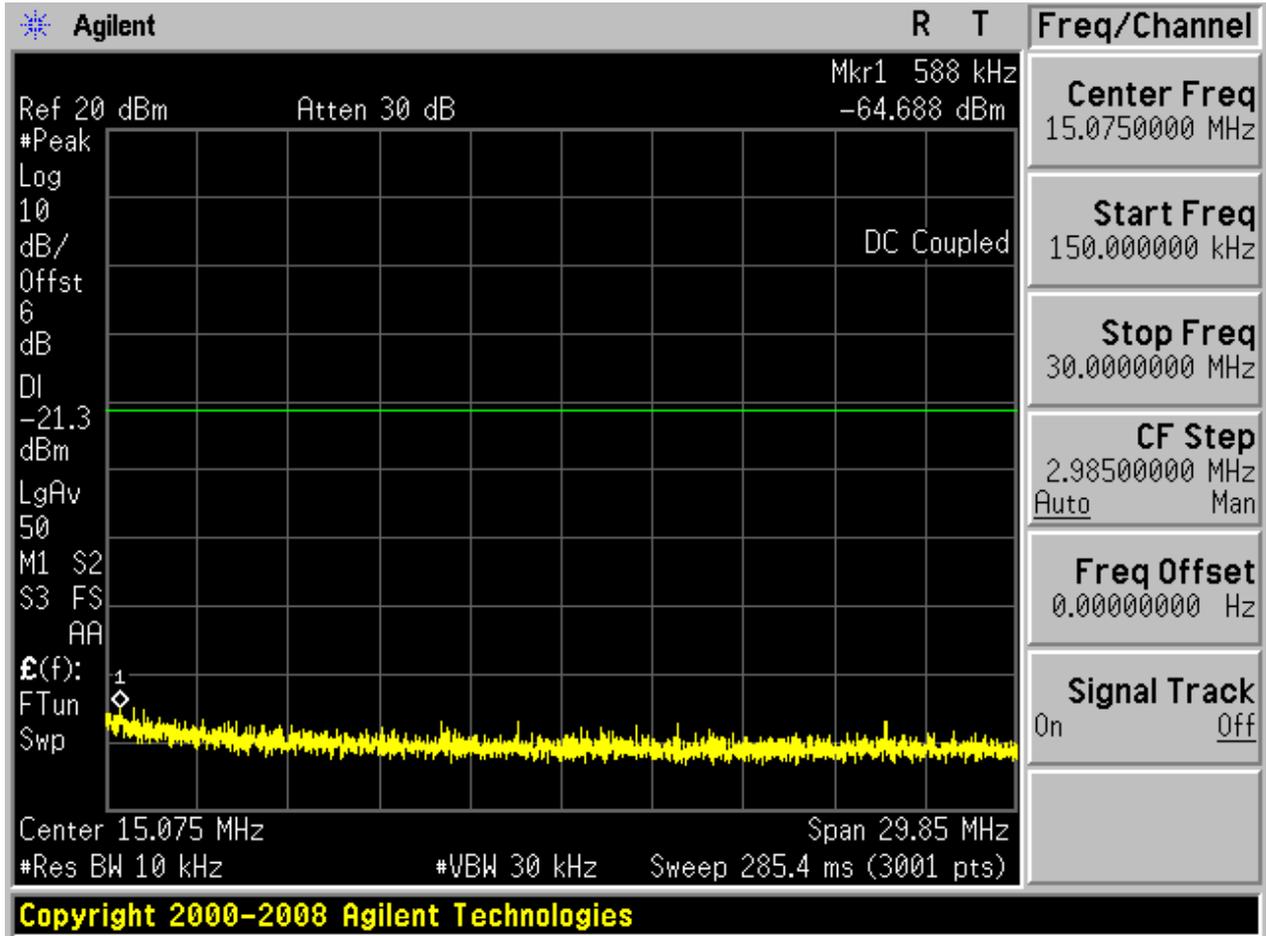
2.6 11G_H

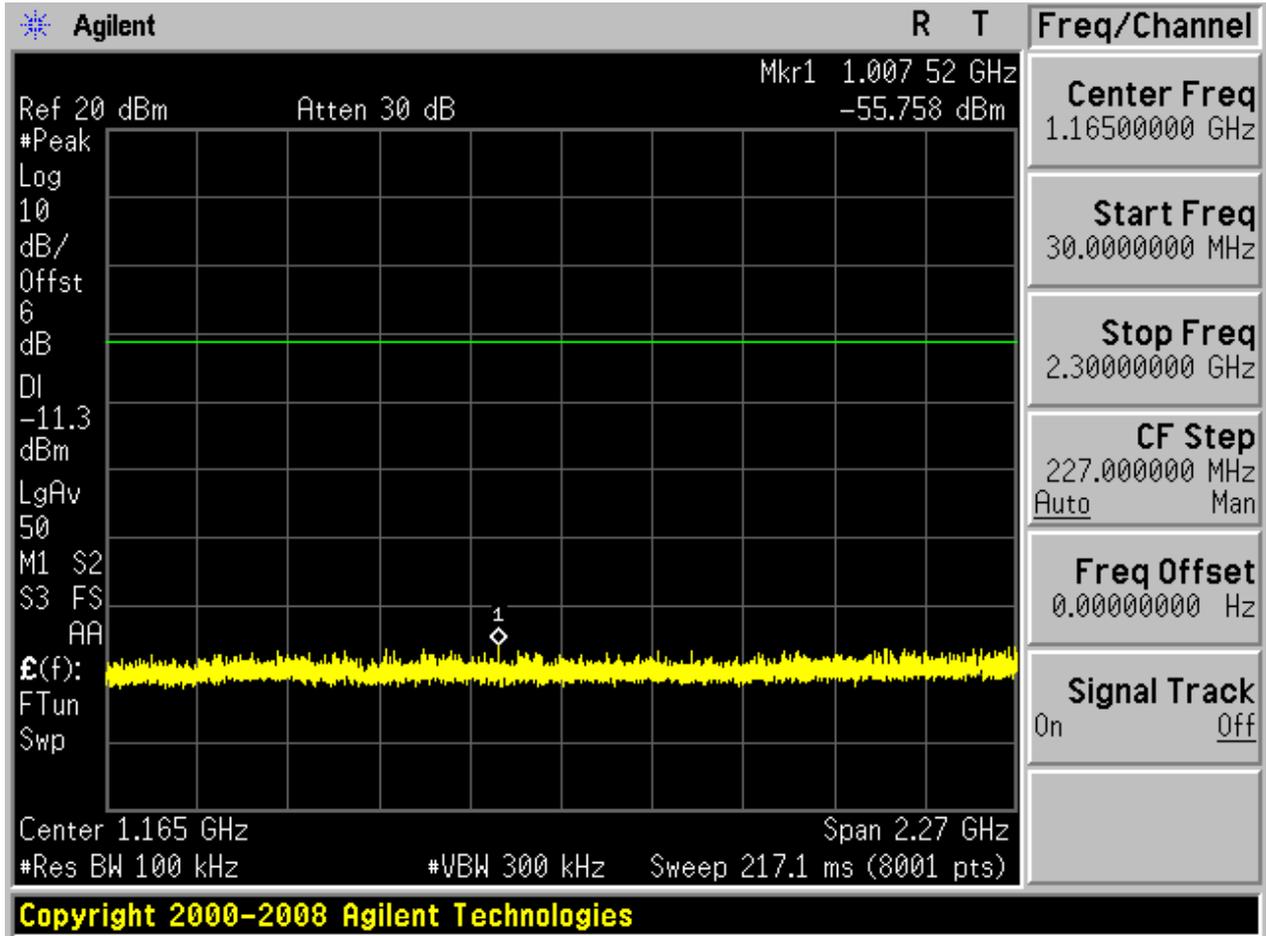
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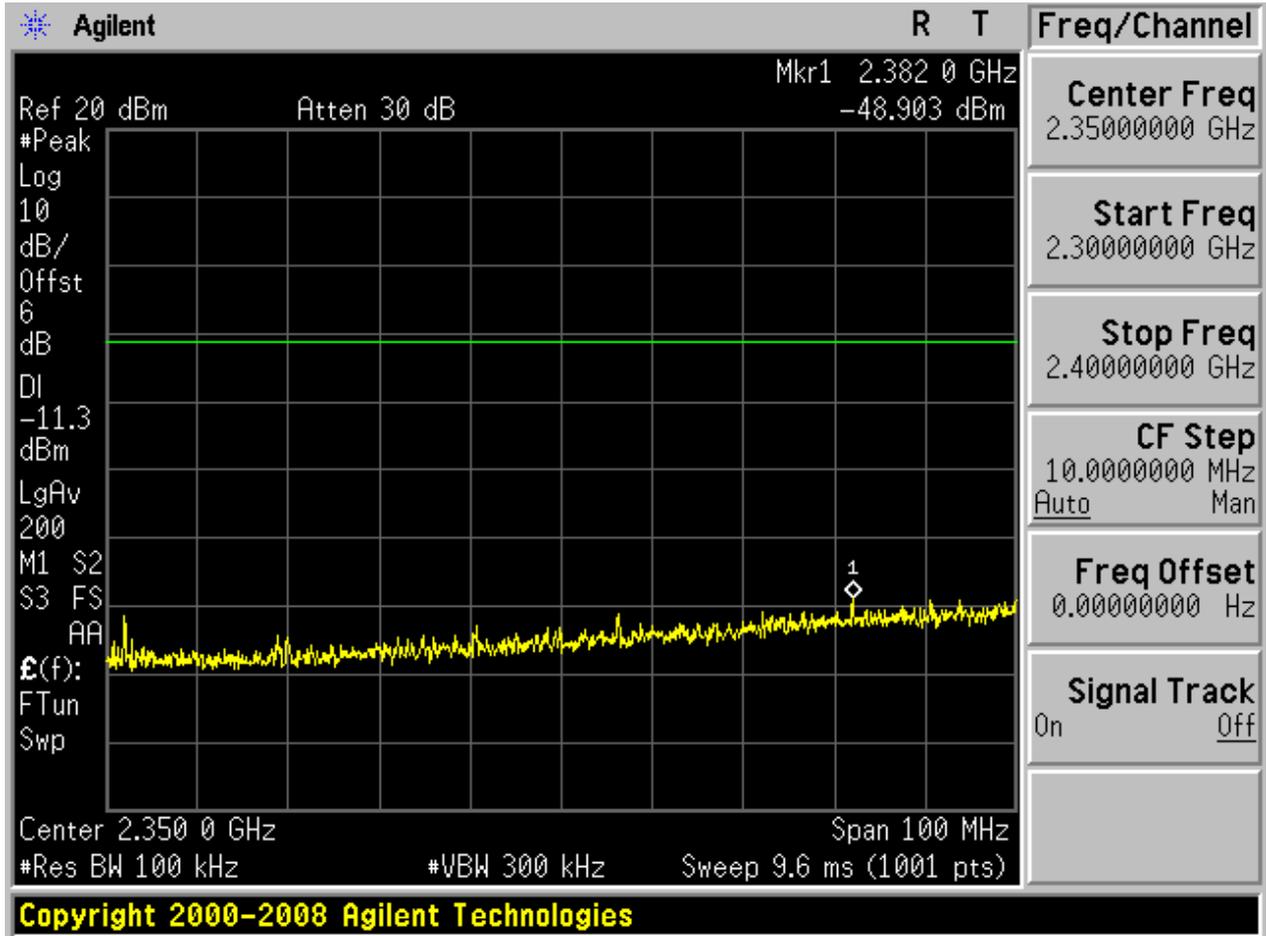


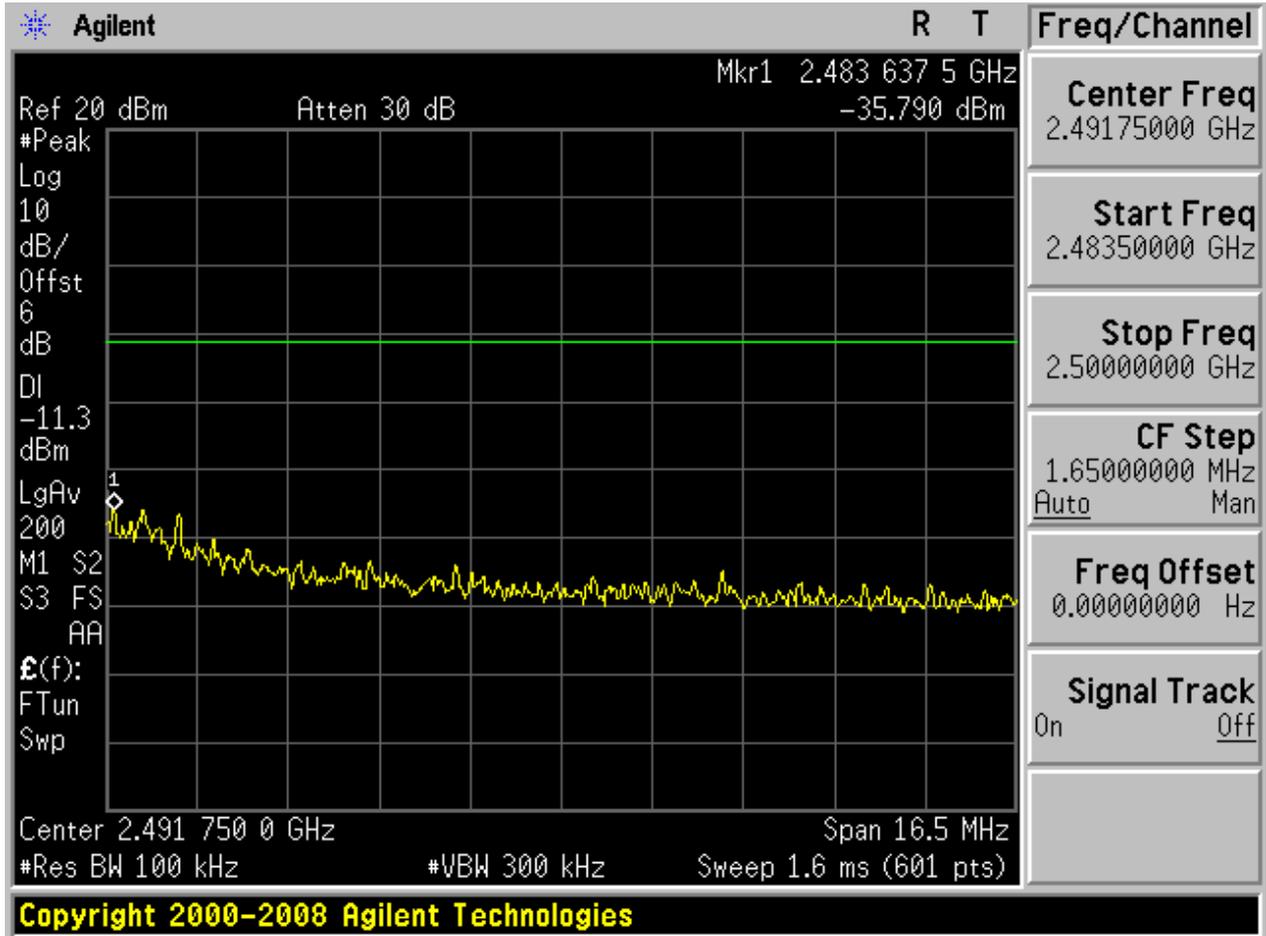
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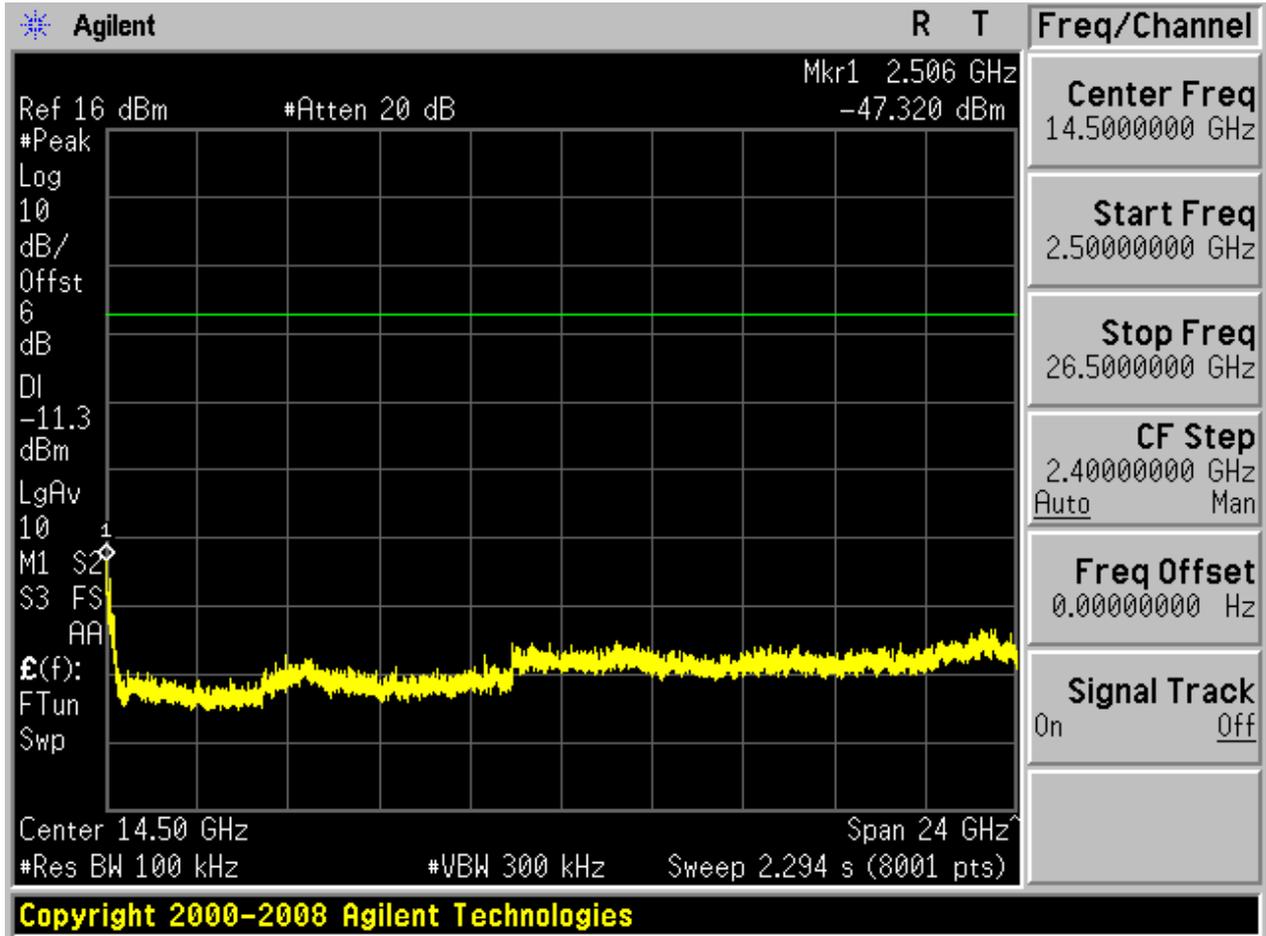






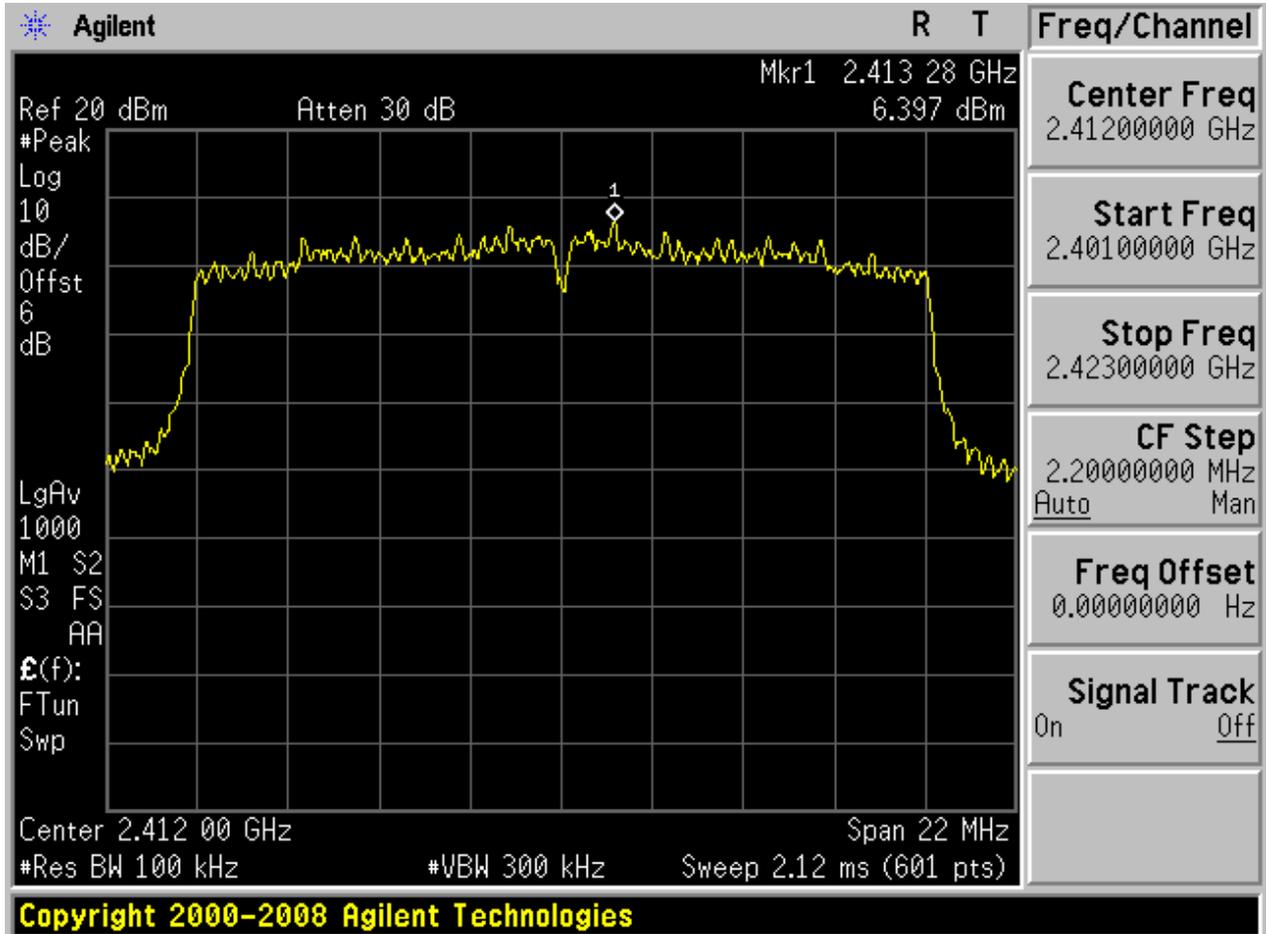




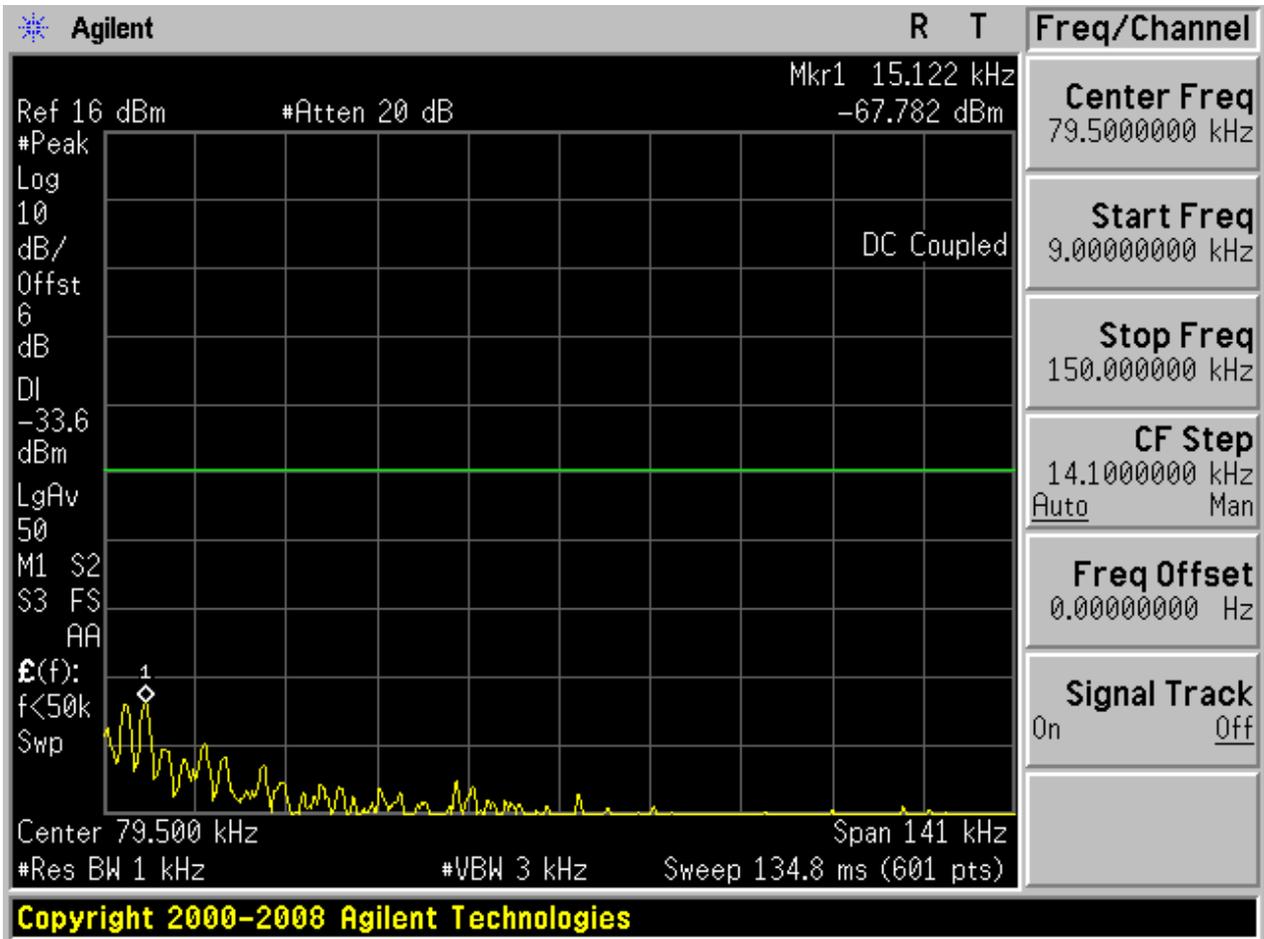


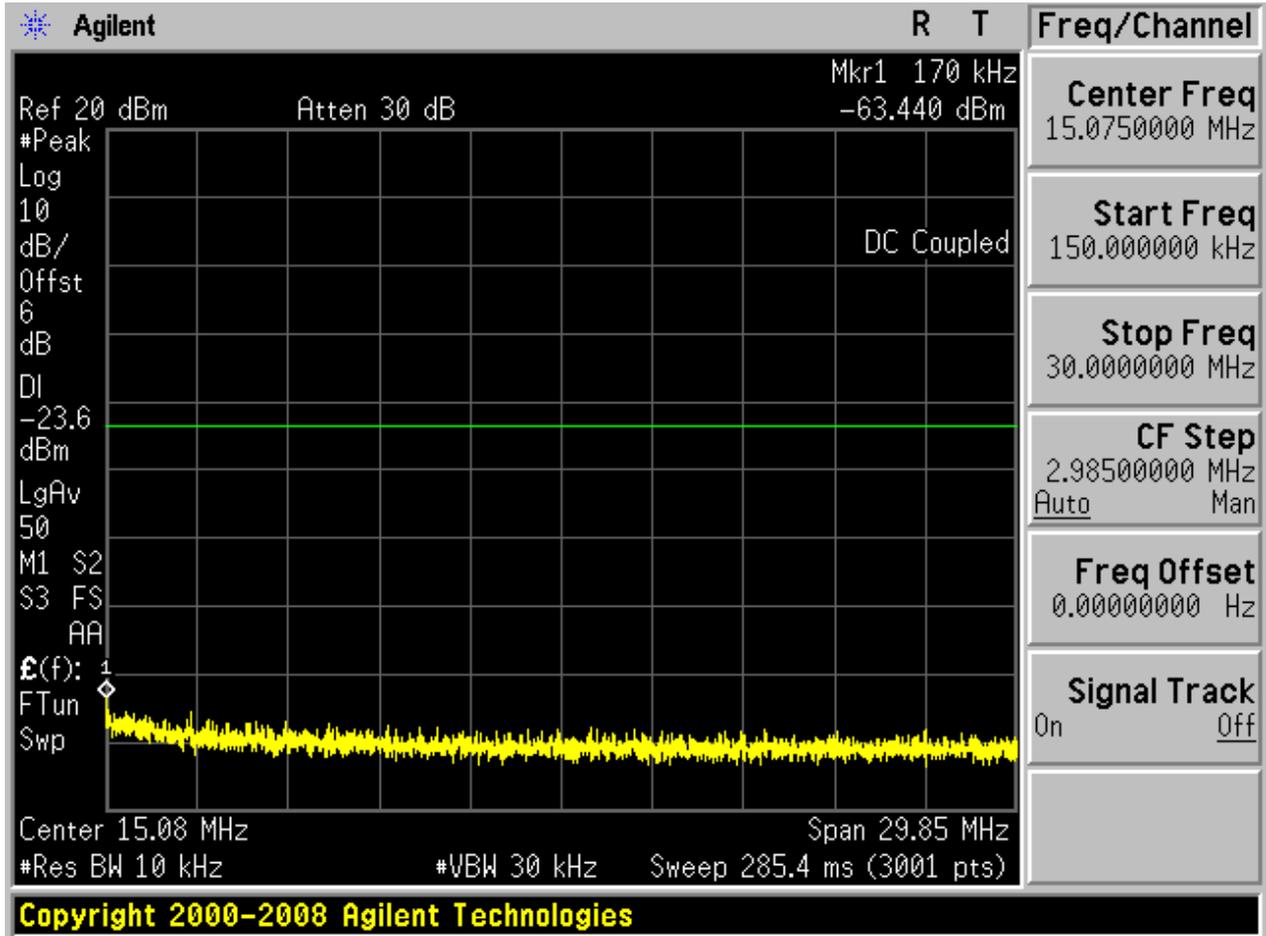
2.7 11N20_L

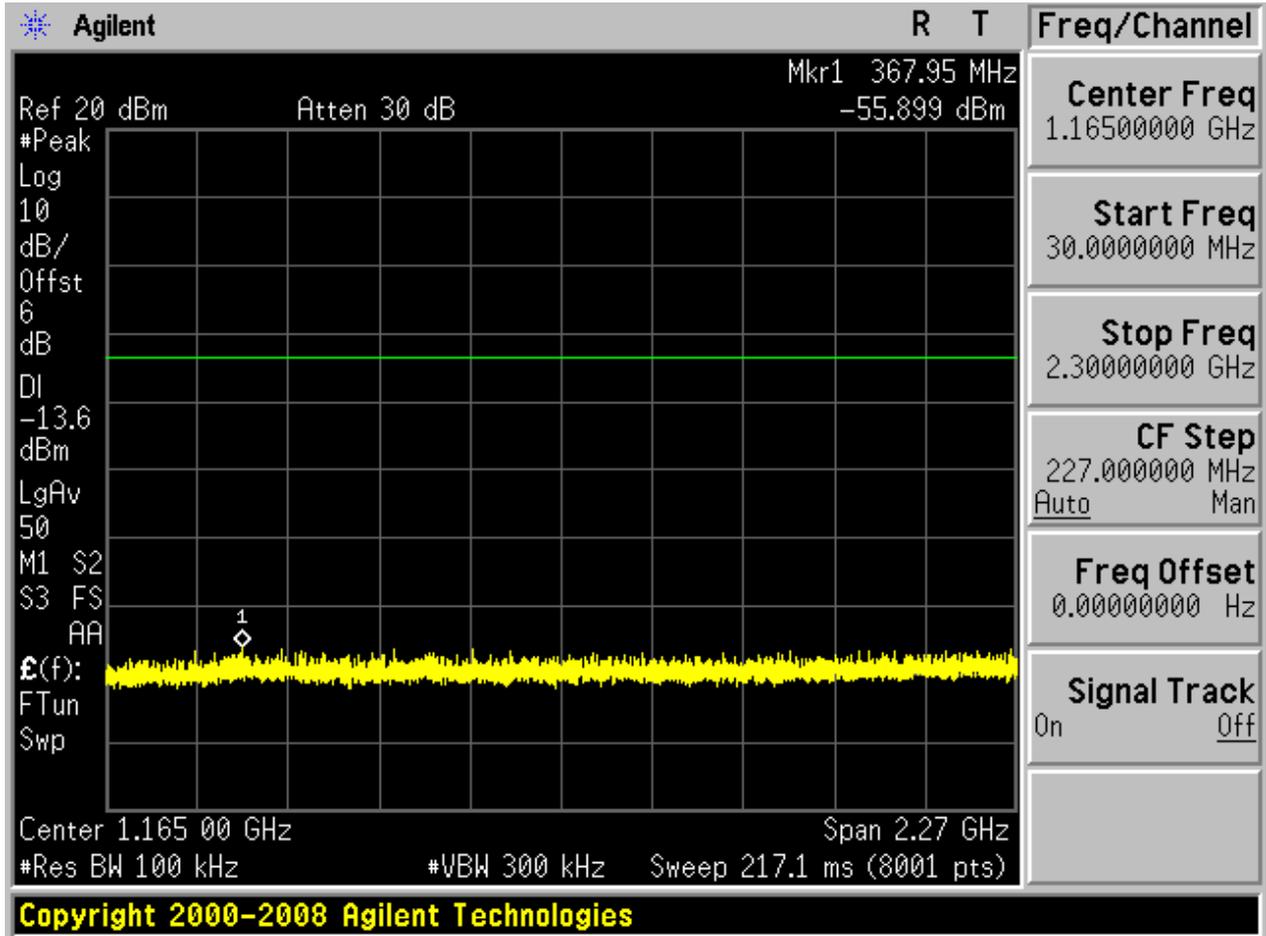
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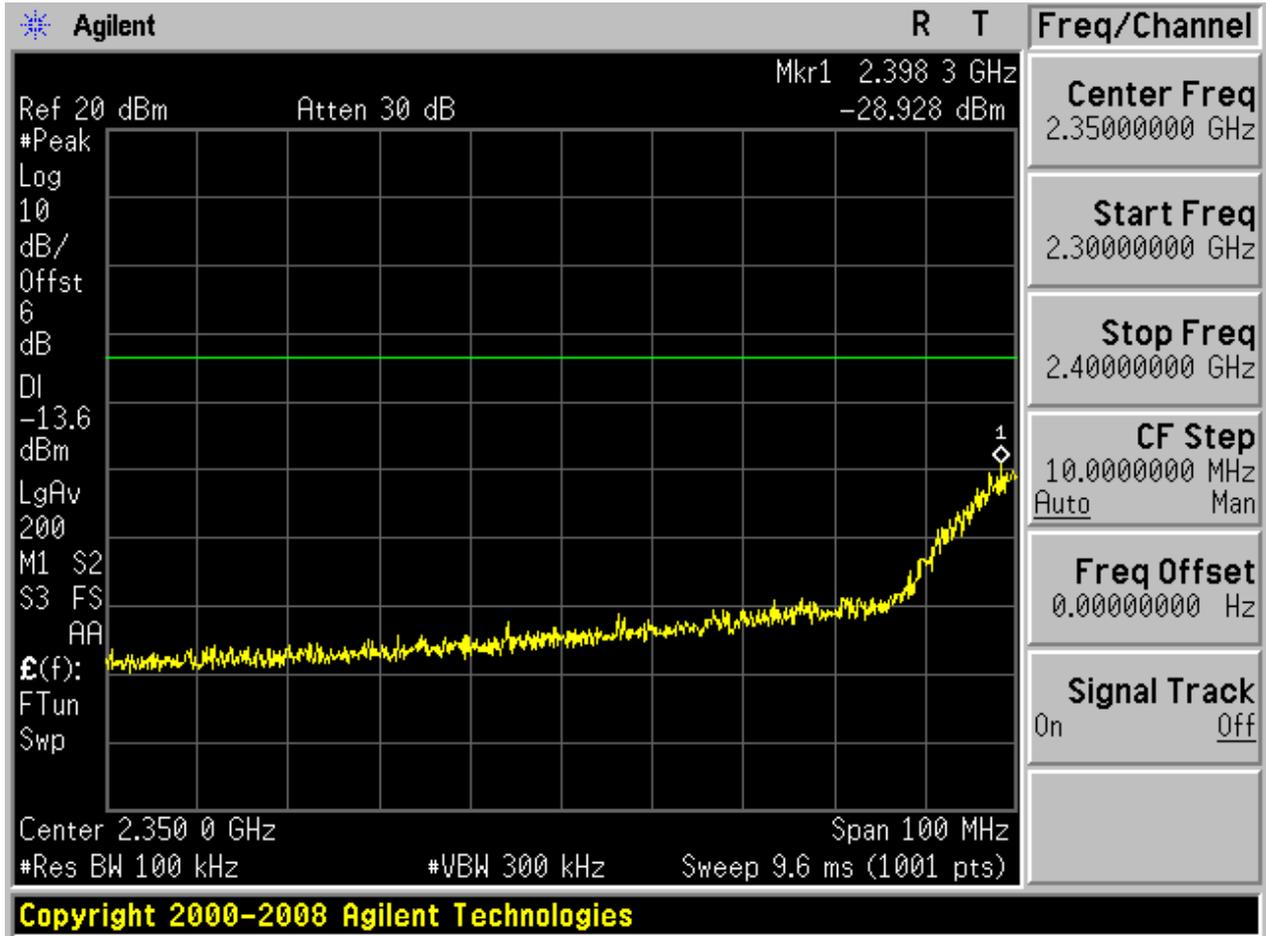


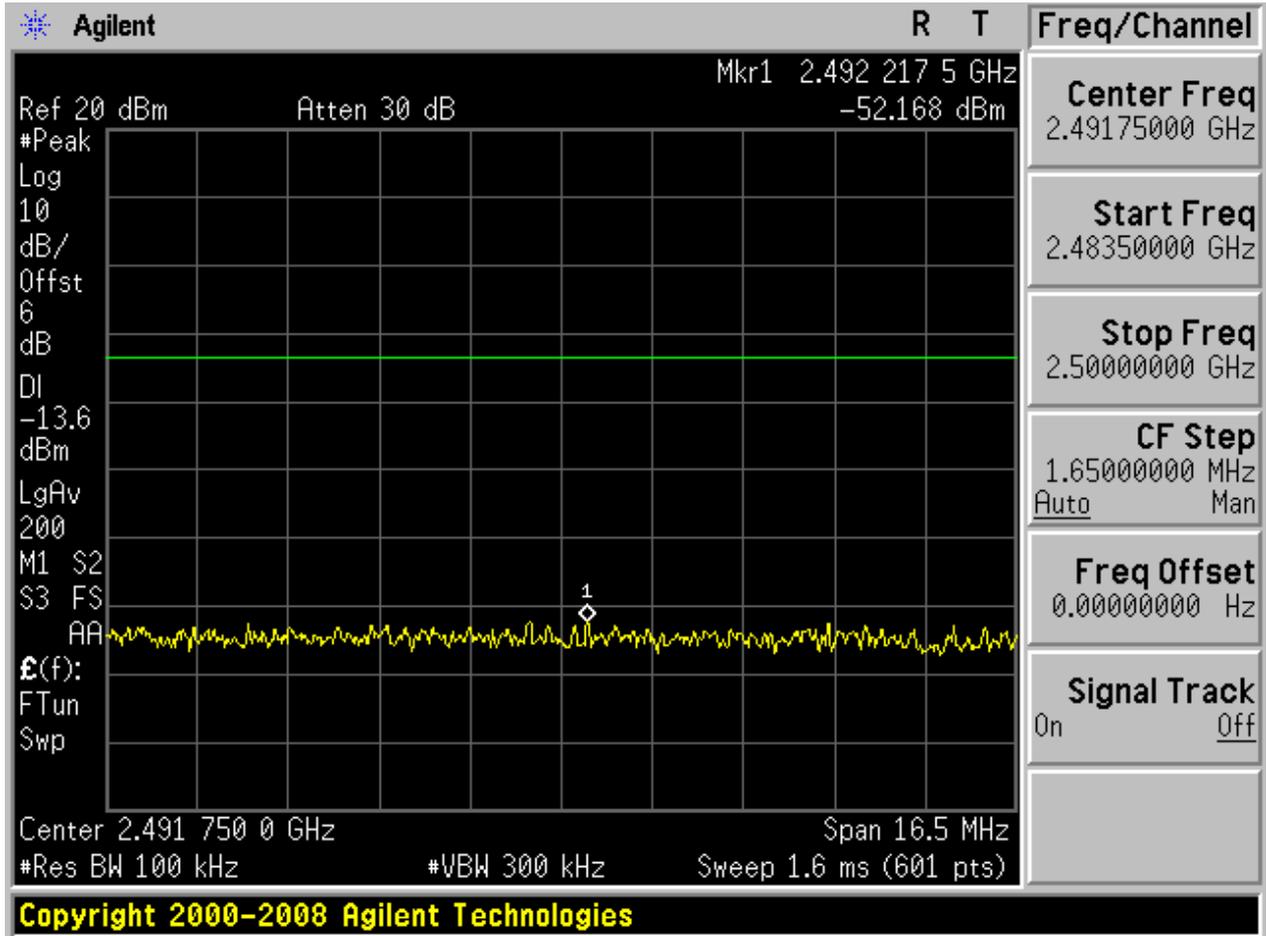
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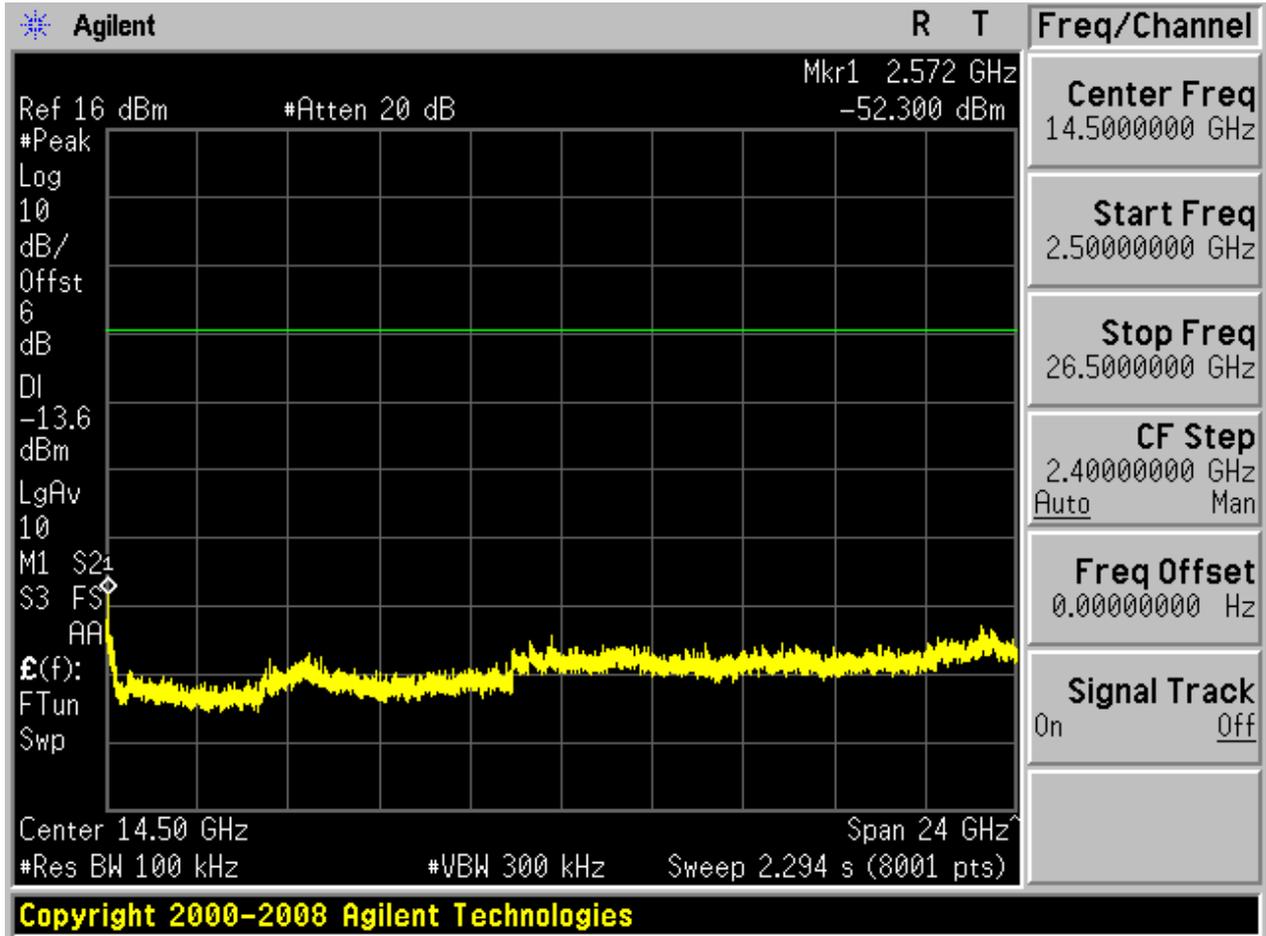






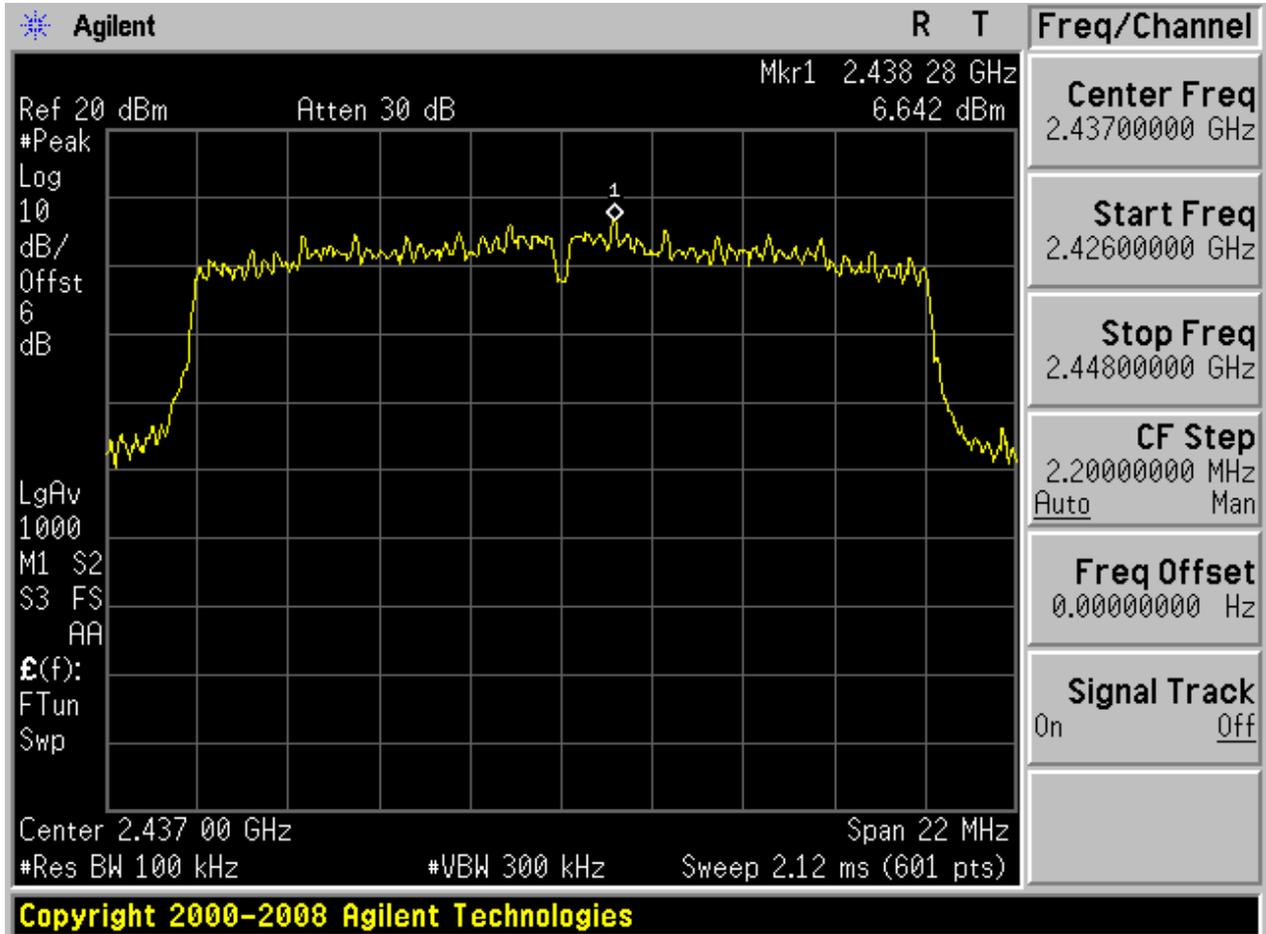






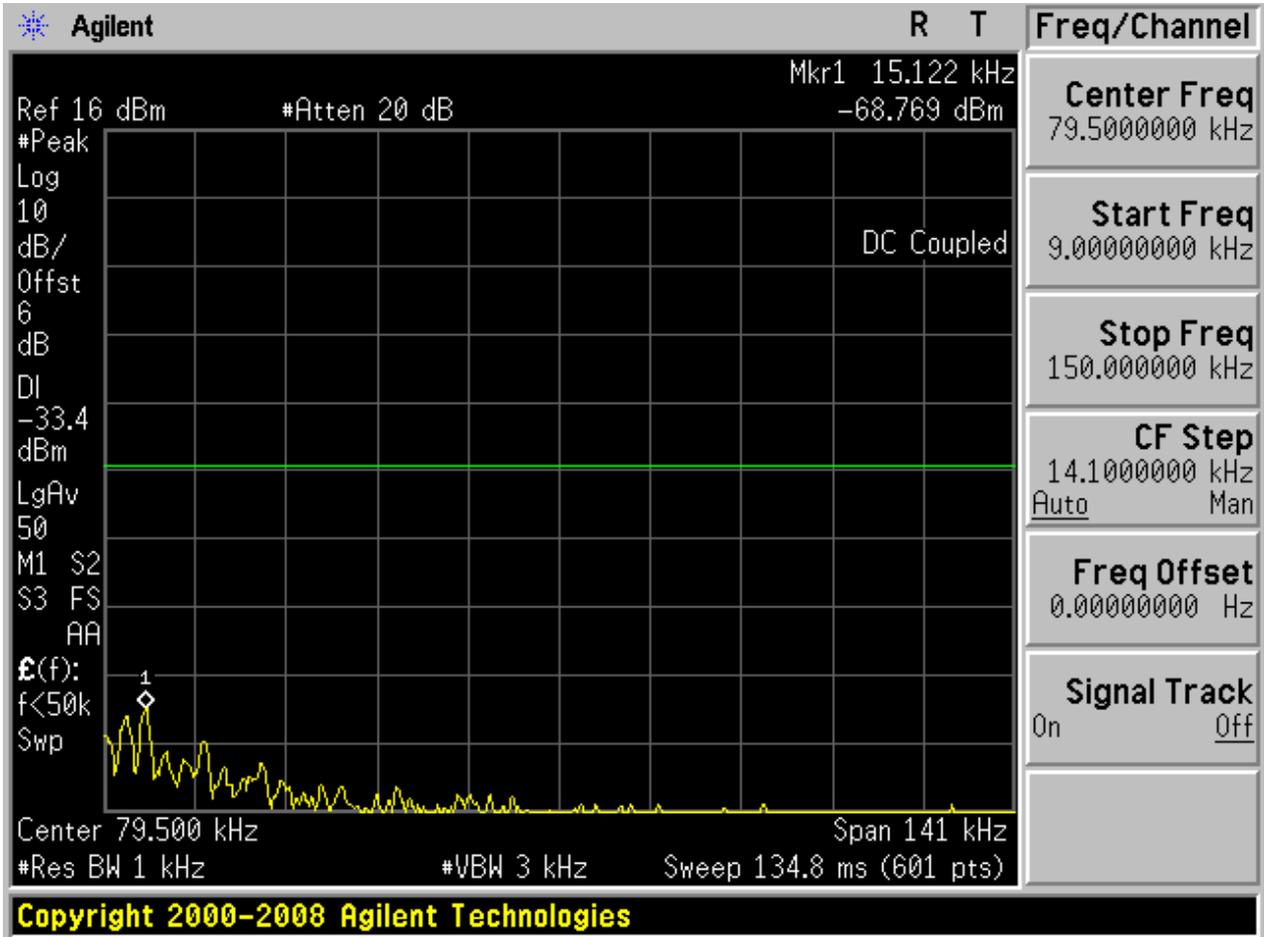
2.8 11N20_M

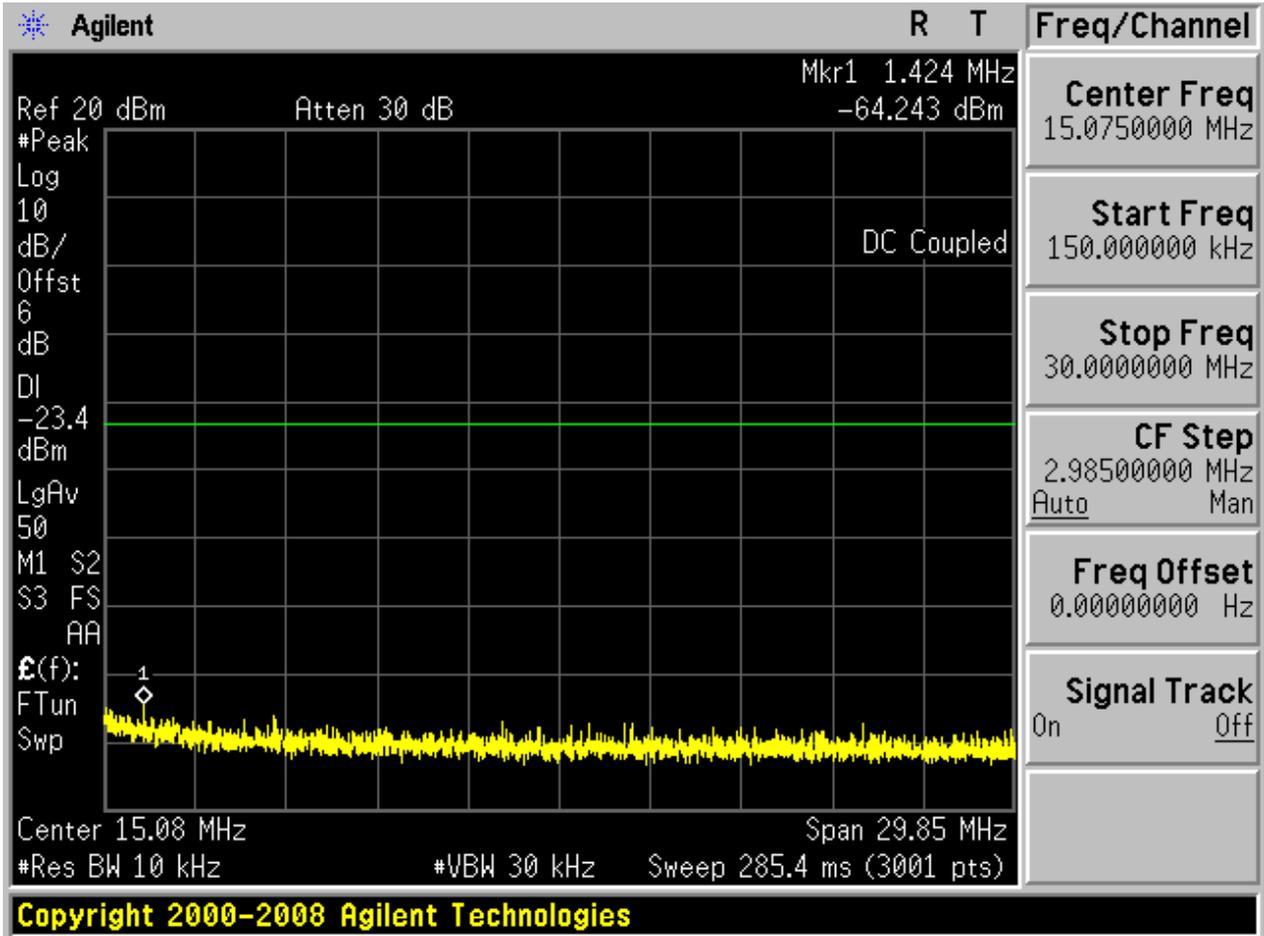
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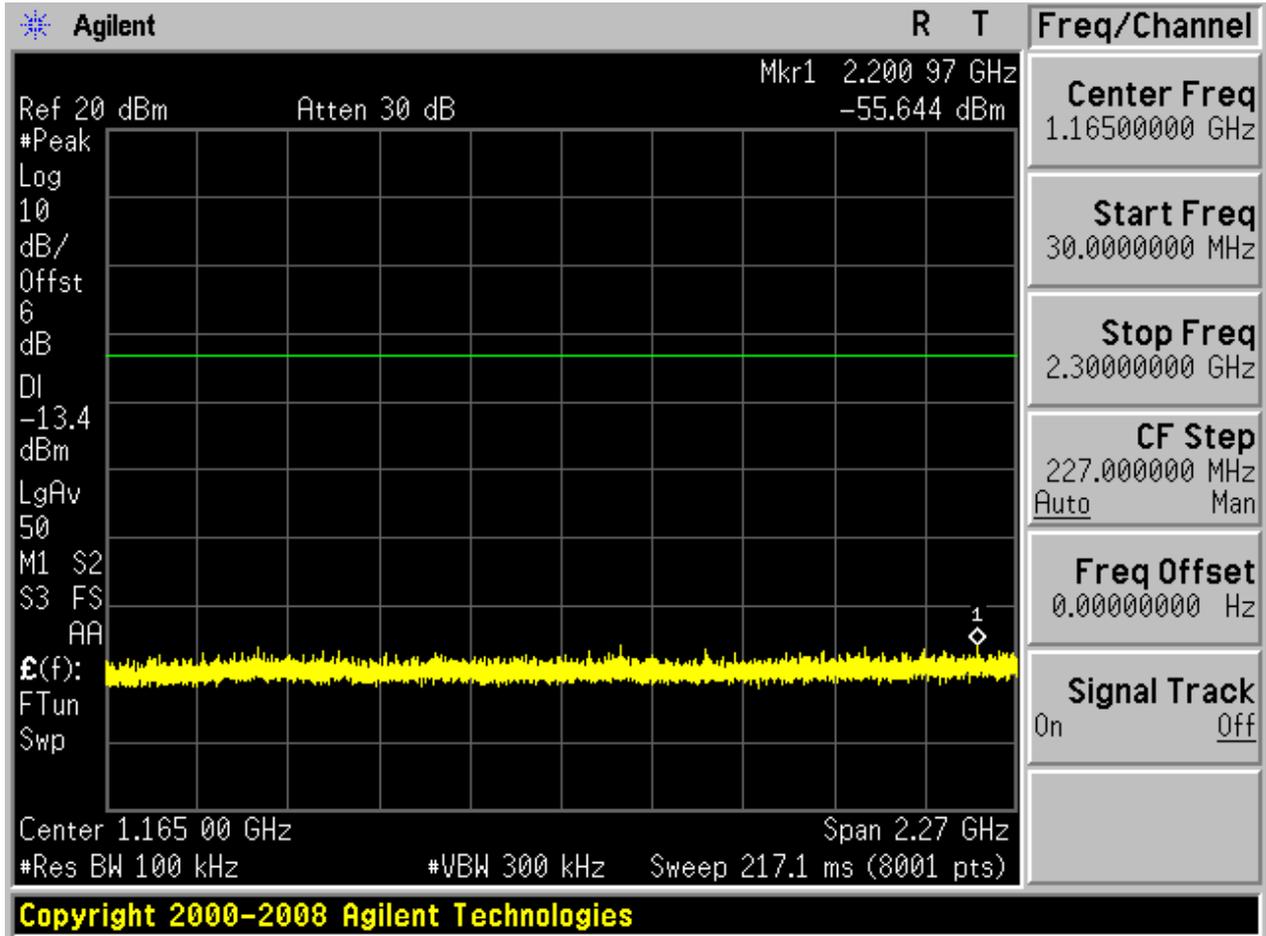


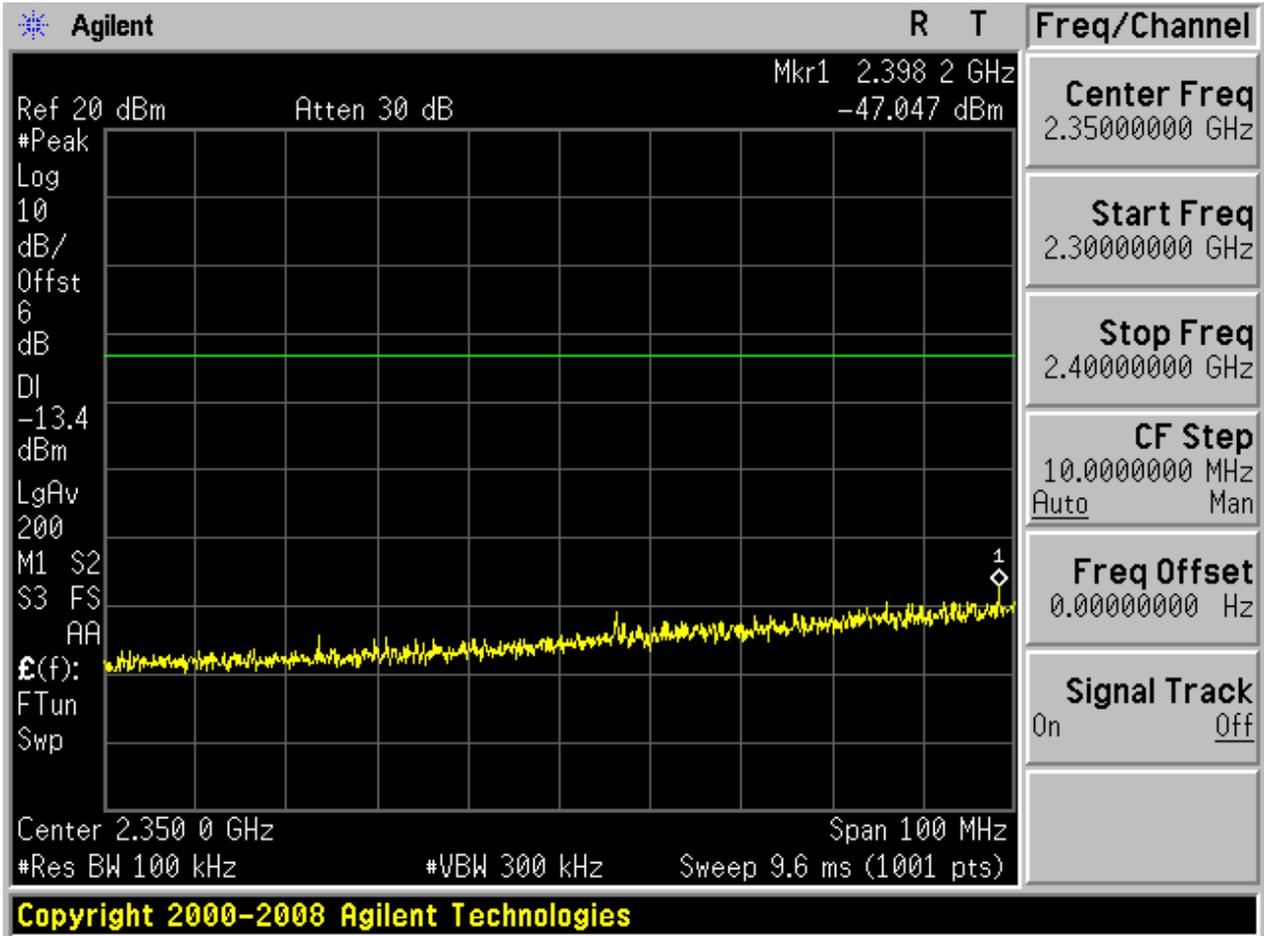


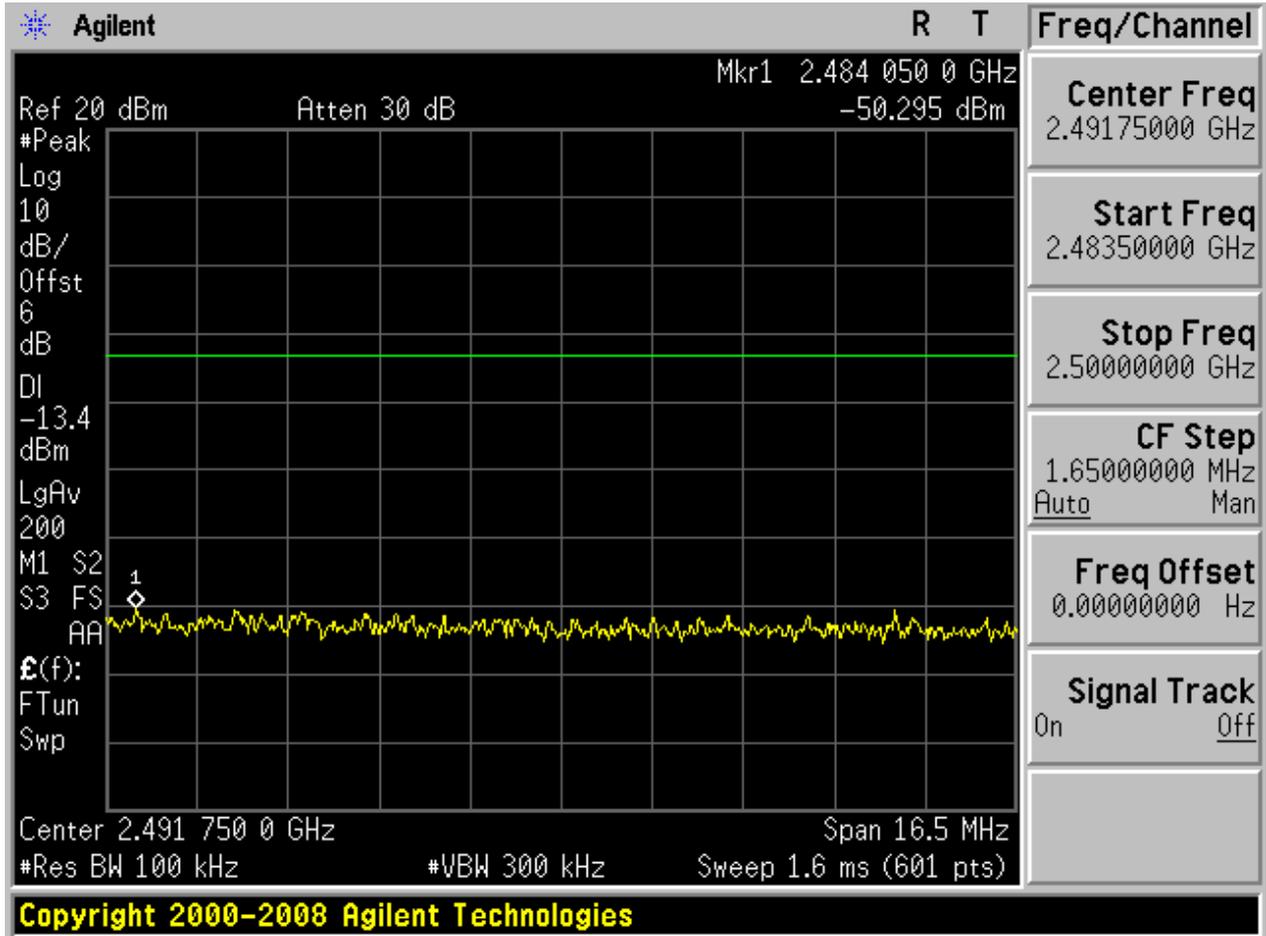
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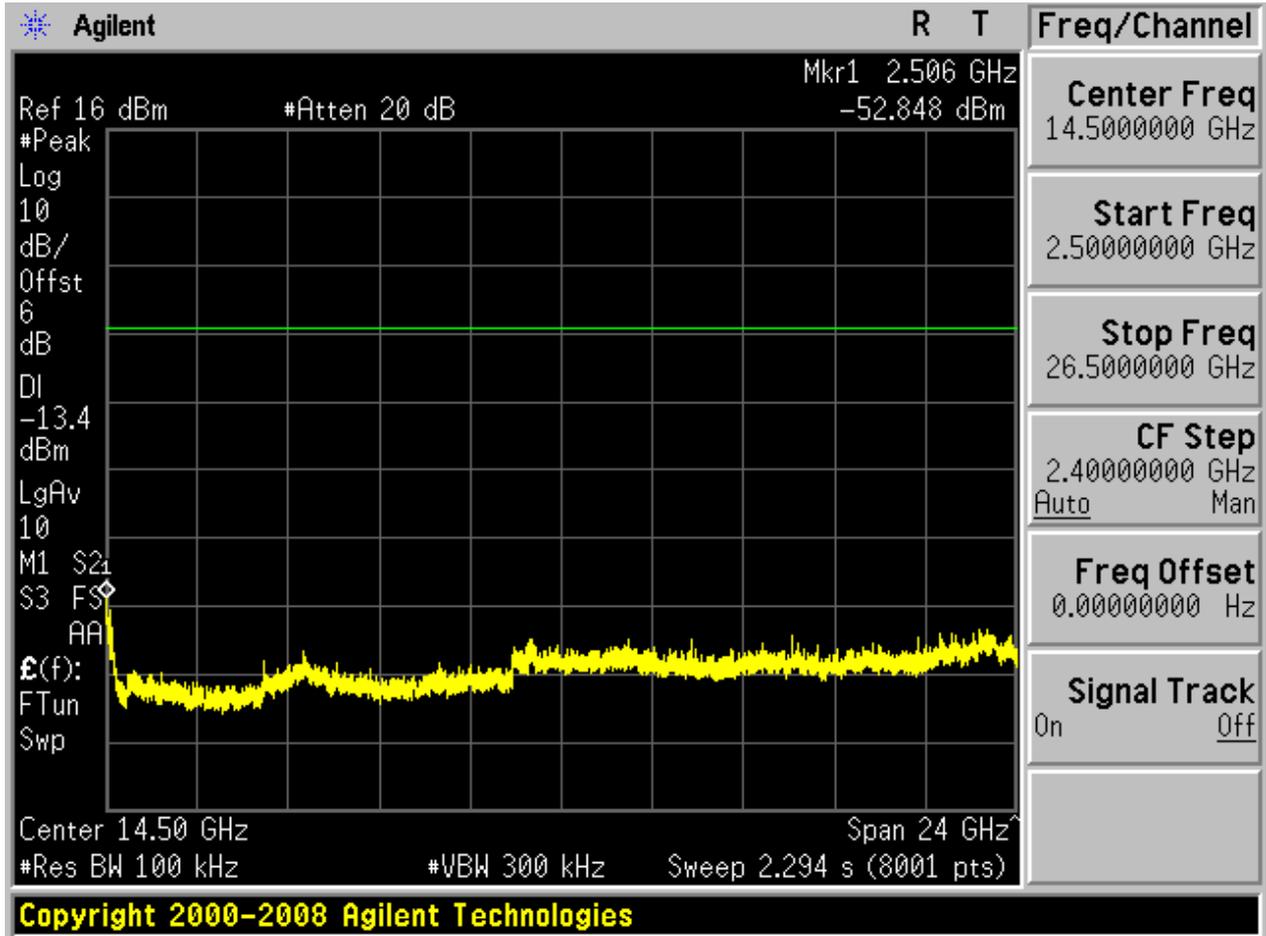






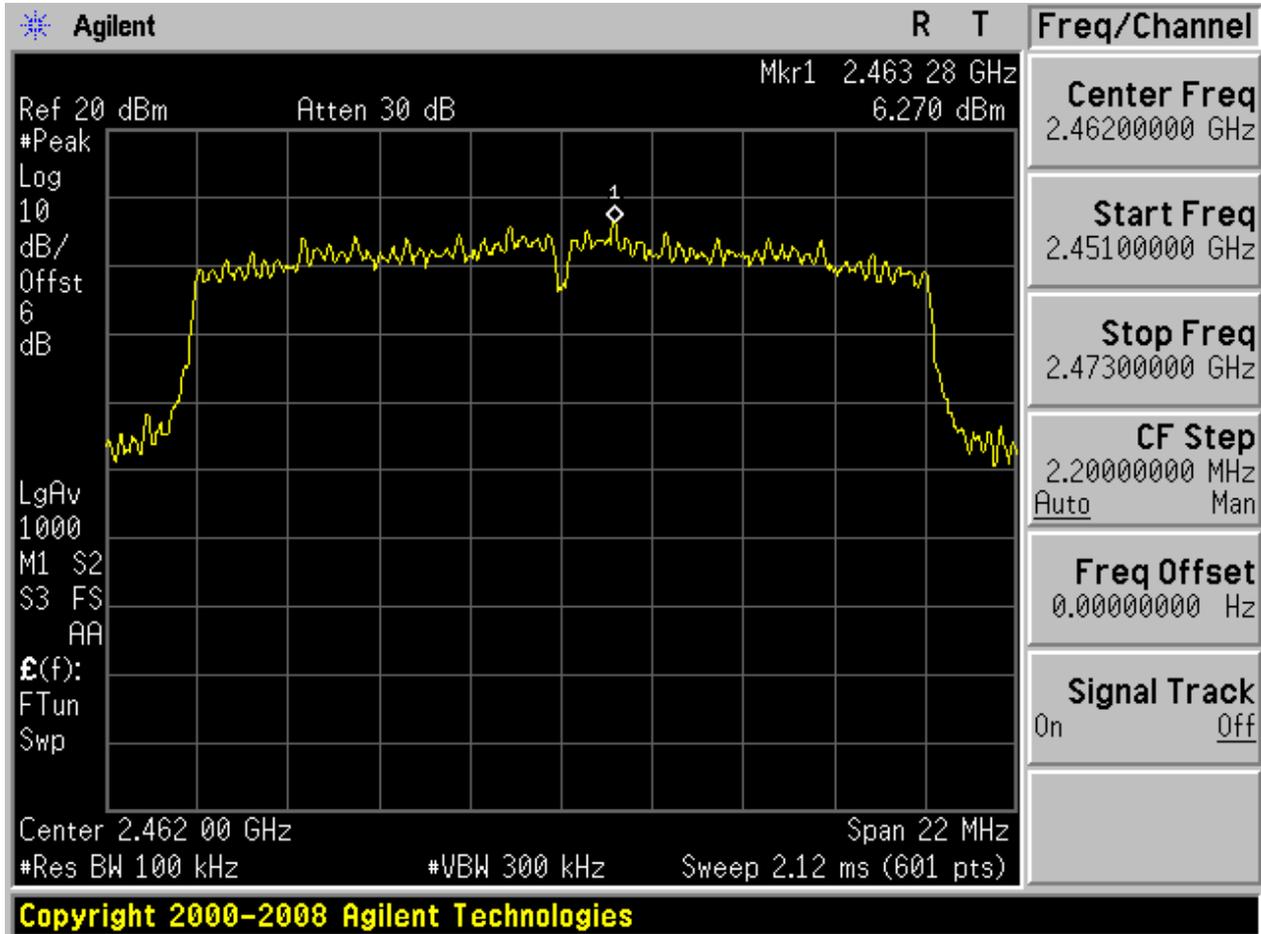




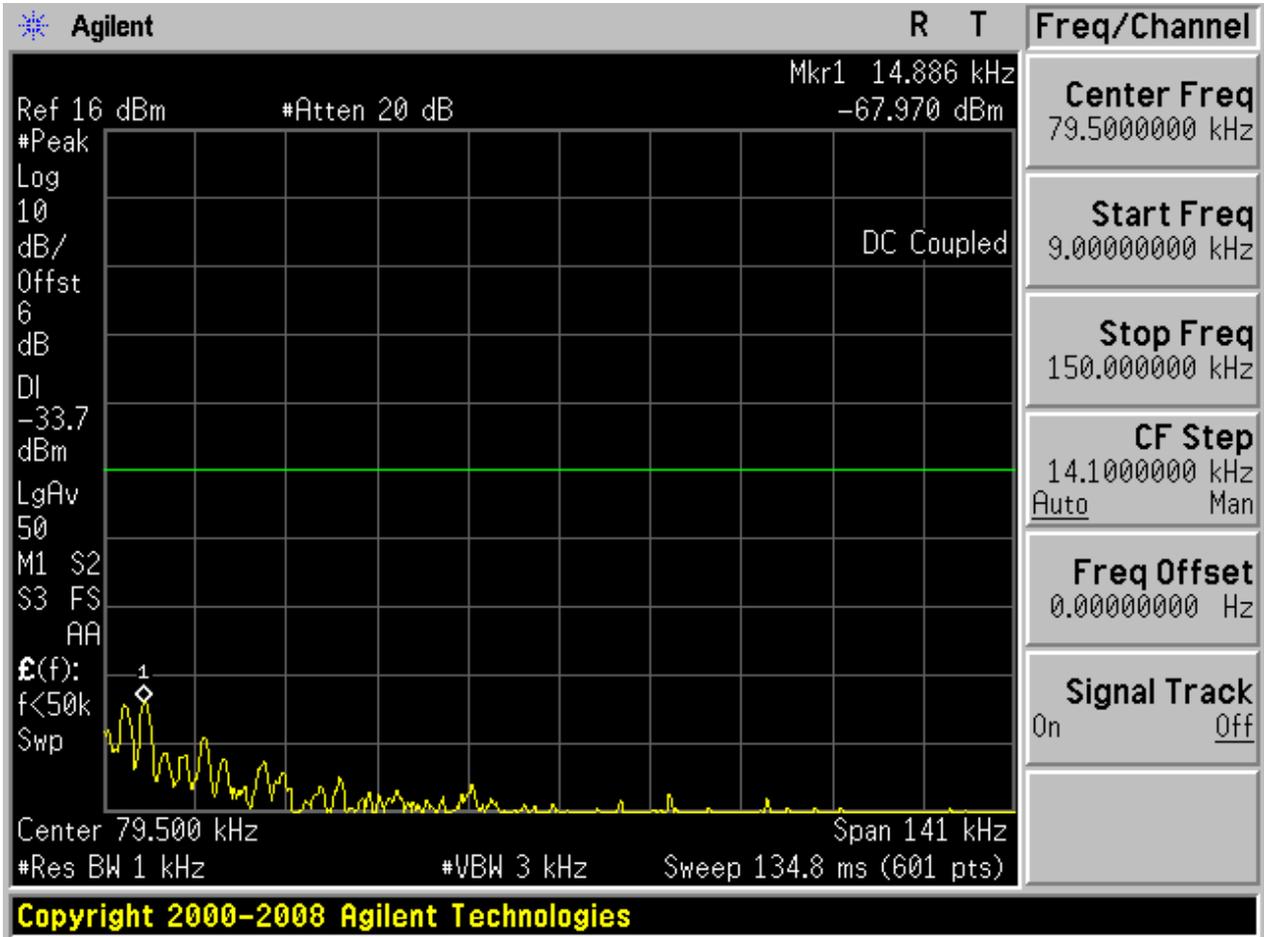


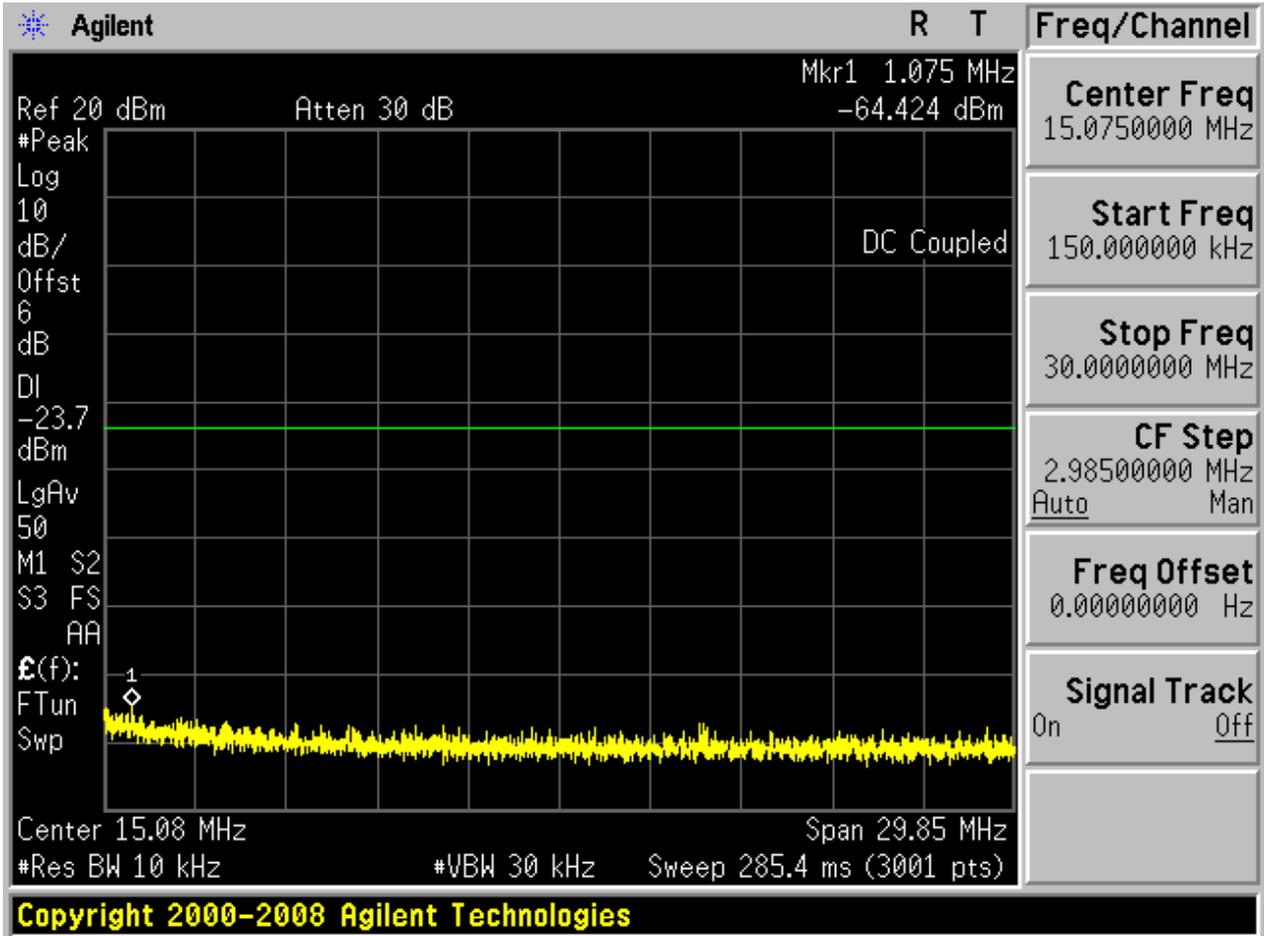
2.9 11N20_H

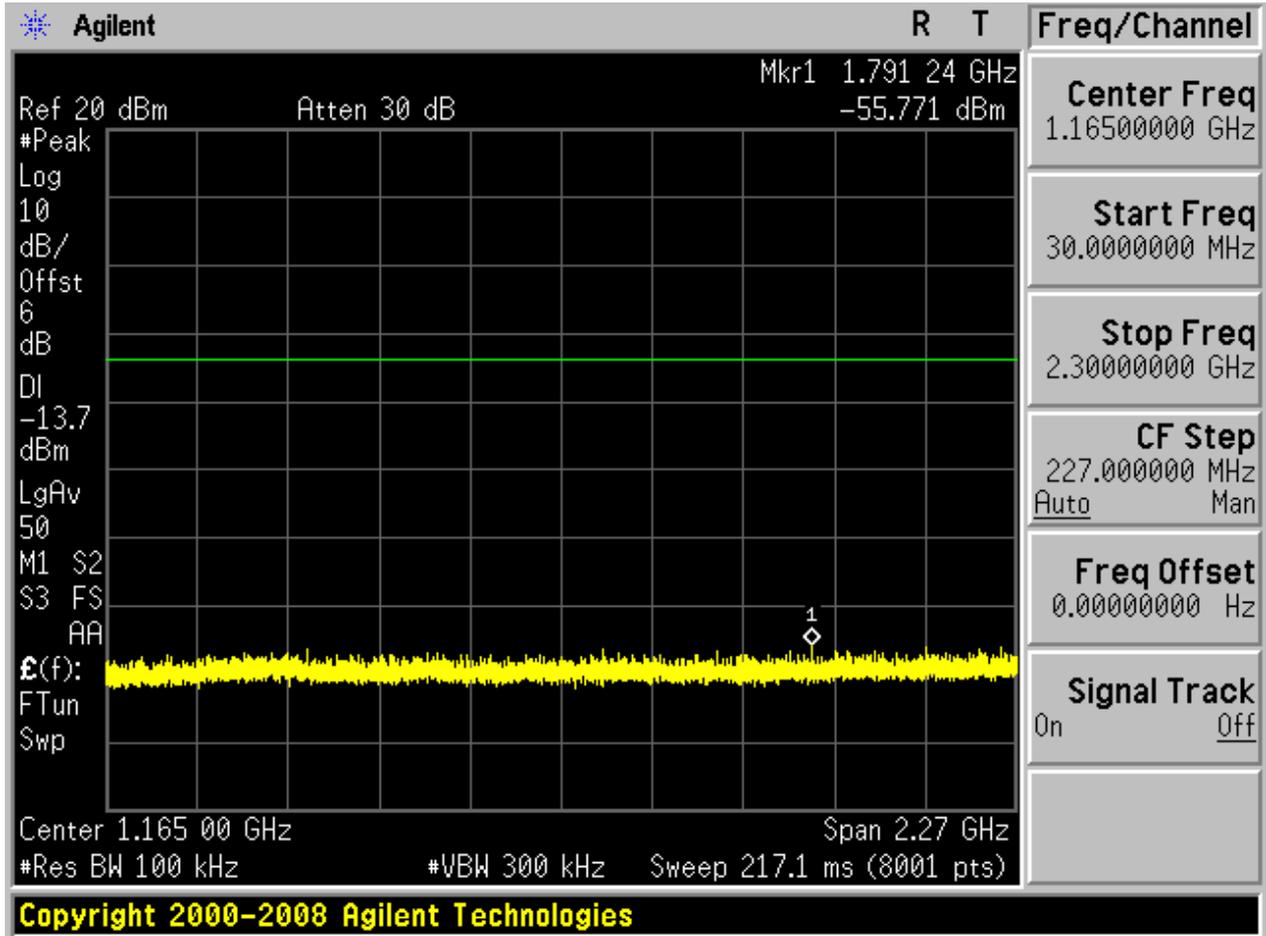
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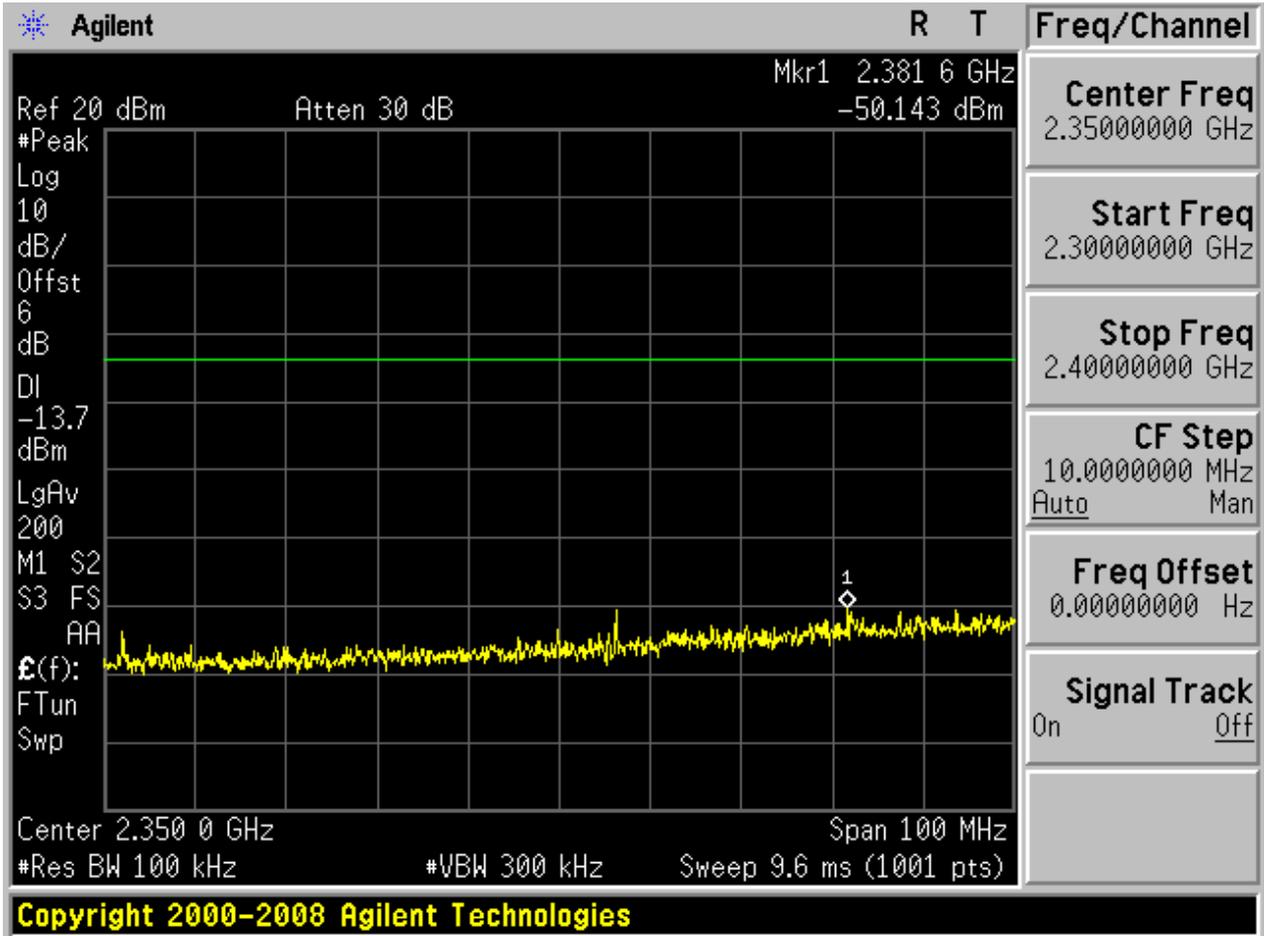


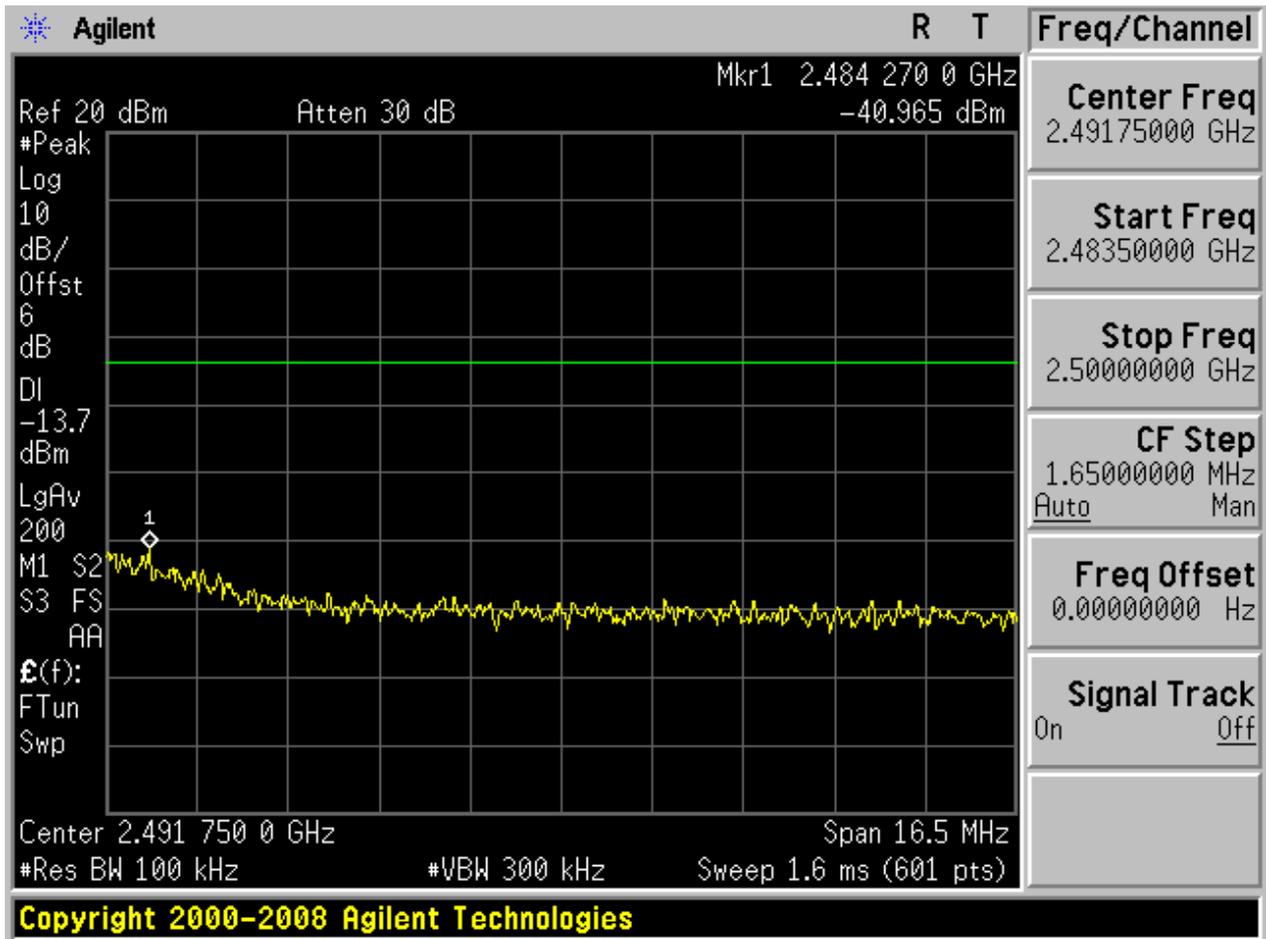
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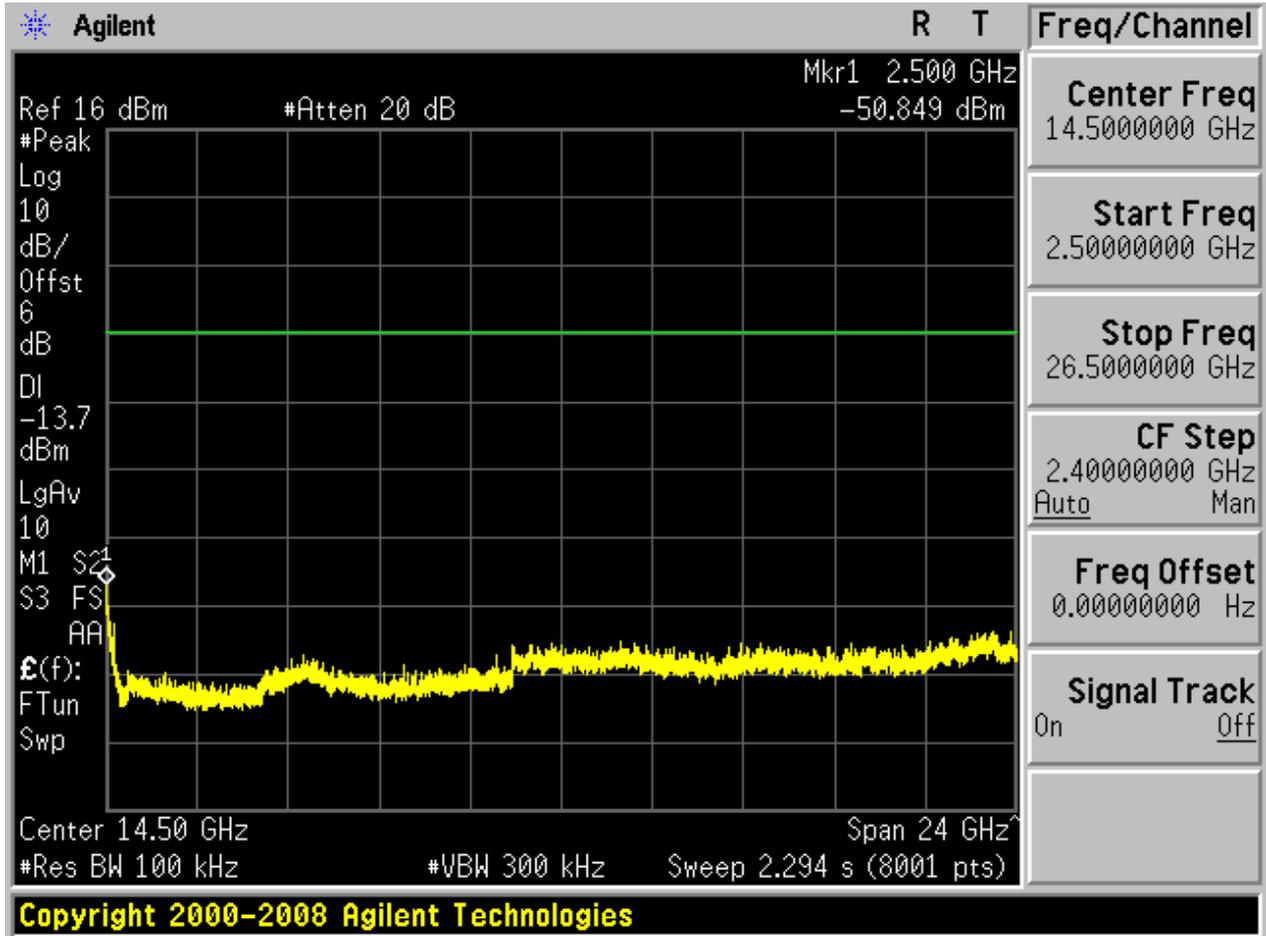








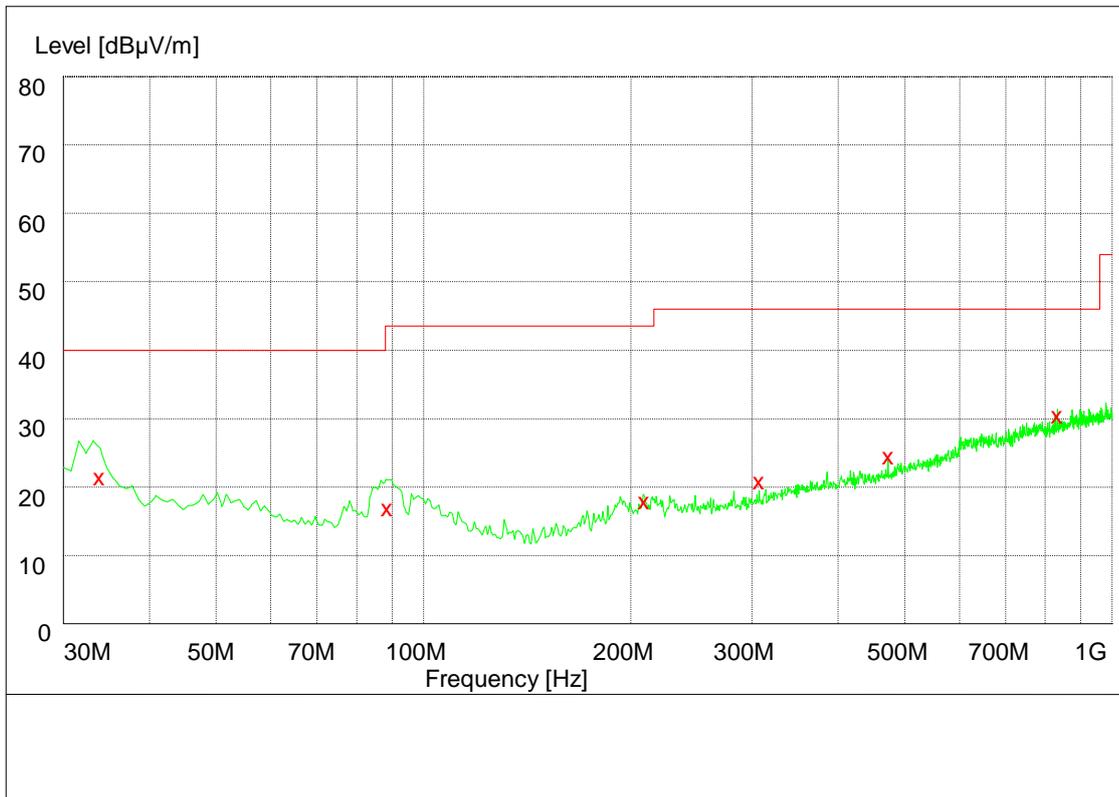




Appendix F: Radiated Spurious Emission & Spurious in Restricted Band

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).

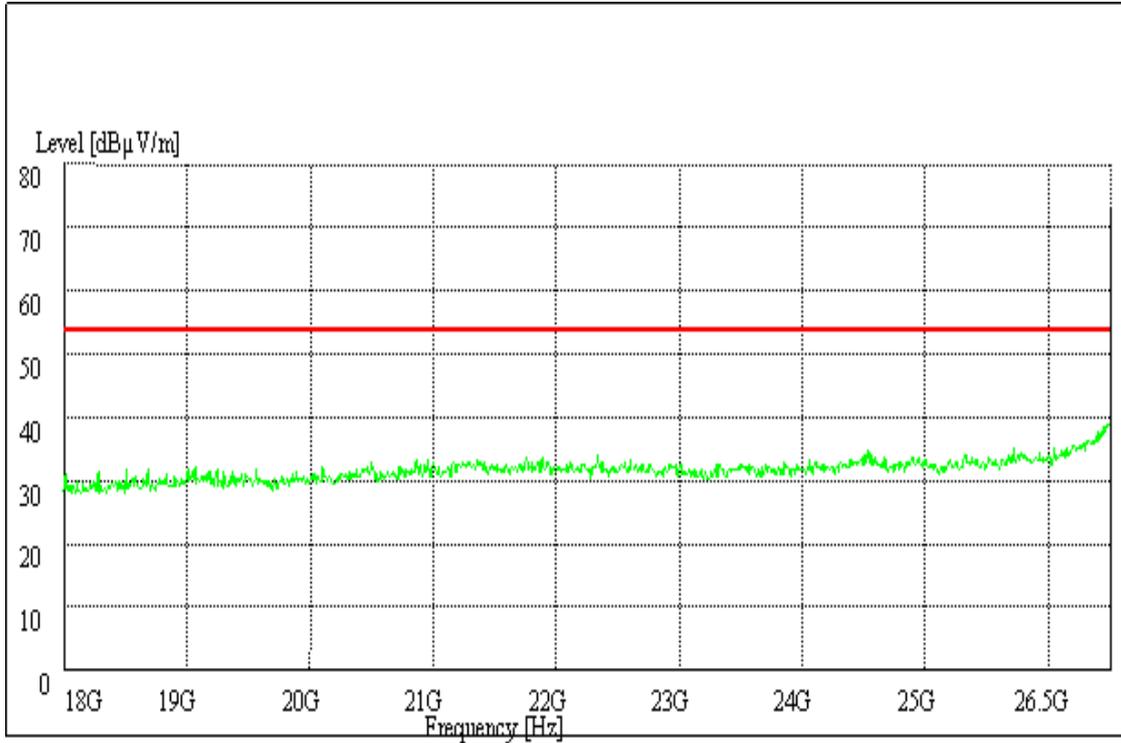


MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height deg	Azimuth	Polarization
33.900000	23.10	14.9	40.0	16.9	100.0	182.00	VERTICAL
88.740000	18.40	11.7	43.5	25.1	100.0	156.00	VERTICAL
209.280000	19.60	12.5	43.5	23.9	100.0	357.00	VERTICAL
307.380000	22.50	15.3	46.0	23.5	100.0	116.00	VERTICAL

473.940000	25.90	18.7	46.0	20.1	100.0	137.00	HORIZONTAL
831.540000	32.00	24.1	46.0	14.0	100.0	13.00	HORIZONTAL

Part 2: Testing Range of “18 GHz to 26.5 GHz”



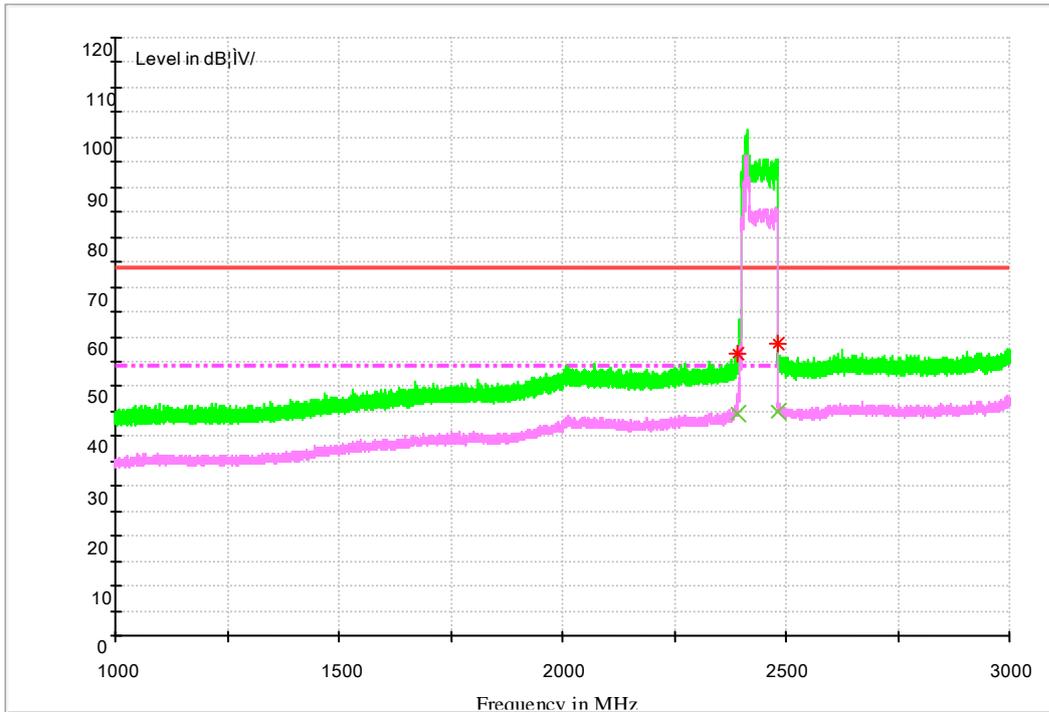
Note: No peak found in pre- test.

Part 3: Testing Range of “1GHz to 3GHz”

- 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: 11B

Channel L



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

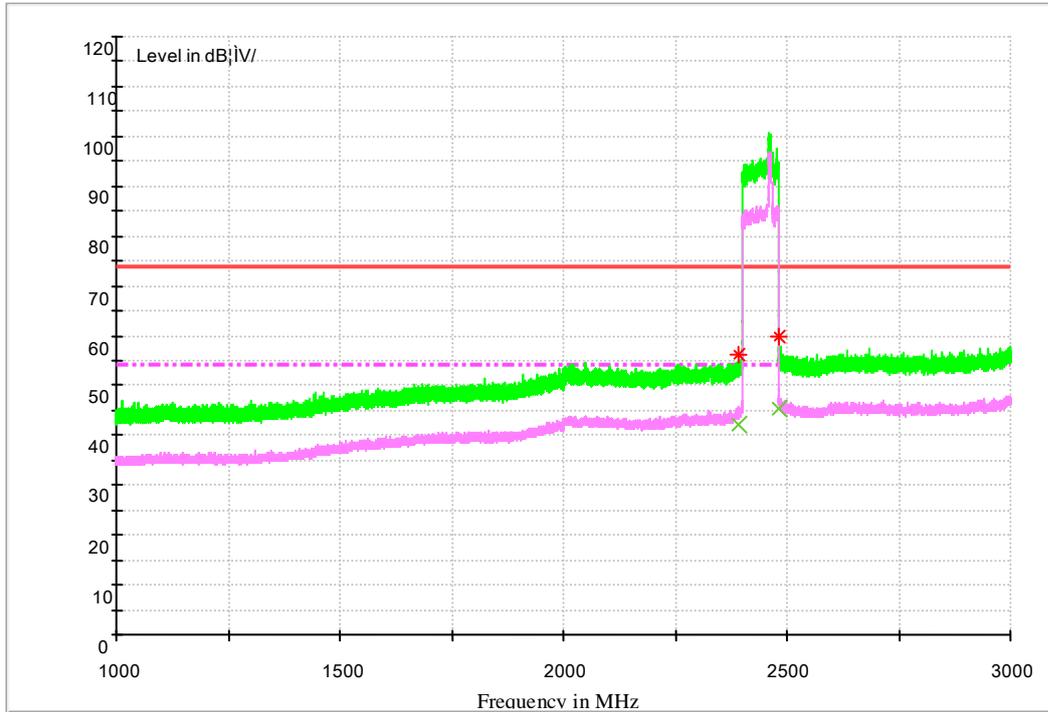
MEASUREMENT RESULT: PK Detector

Frequency MHz	Level dB μ V/m	Transd dB	Limit dB μ V/m	Margin dB	Height deg	Azimuth	Polarization
2390.000000	56.7	38.3	74.0	17.3	113.0	336.0	VERTICAL
2483.500000	58.7	40.7	74.0	15.3	100.0	294.0	VERTICAL

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dB μ V/m	Transd dB	Limit dB μ V/m	Margin dB	Height deg	Azimuth	Polarization
2390.000000	44.4	38.3	54.0	9.6	100.0	266.0	HORIZONTAL
2483.500000	44.8	40.7	54.0	9.2	100.0	253.0	VERTICAL

Channel H



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

MEASUREMENT RESULT: PK Detector

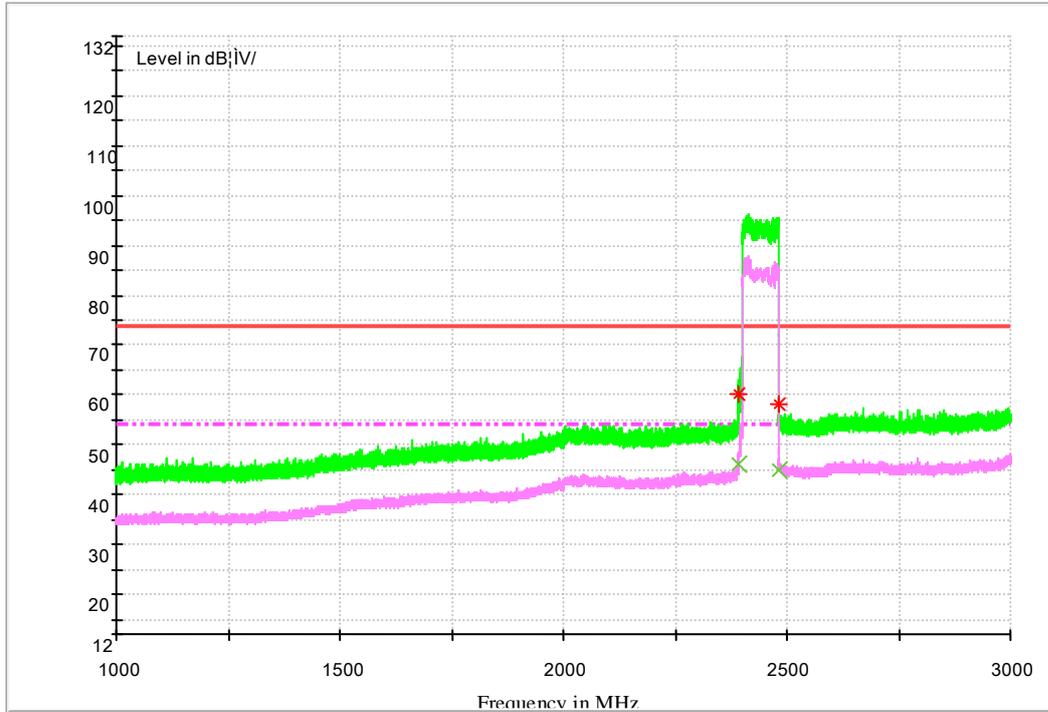
Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height deg	Azimuth	Polarization
2390.000000	56.2	38.3	74.0	17.8	100.0	265.0	HORIZONTAL
2483.500000	59.8	40.7	74.0	14.2	113.0	120.0	VERTICAL

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height deg	Azimuth	Polarization
2390.000000	42.3	38.3	54.0	11.7	100.0	284.0	VERTICAL
2483.500000	45.2	40.7	54.0	8.8	100.0	234.0	HORIZONTAL

Test Mode: 11G

Channel L



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

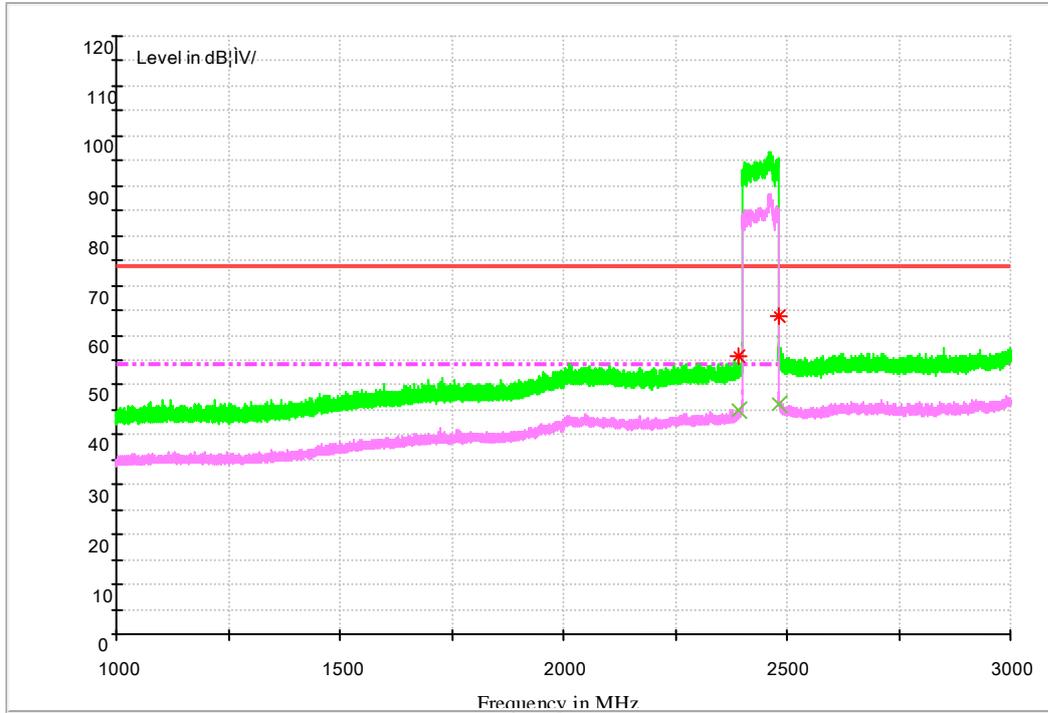
MEASUREMENT RESULT: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height deg	Azimuth	Polarization
2390.000000	60.2	38.3	74.0	13.8	100.0	12.0	VERTICAL
2483.500000	58.0	40.7	74.0	16.0	114.0	124.0	VERTICAL

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height deg	Azimuth	Polarization
2390.000000	42.3	38.3	54.0	7.8	100.0	86.0	HORIZONTAL
2483.500000	45.2	40.7	54.0	9.2	100.0	86.0	HORIZONTAL

Channel H



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

MEASUREMENT RESULT: PK Detector

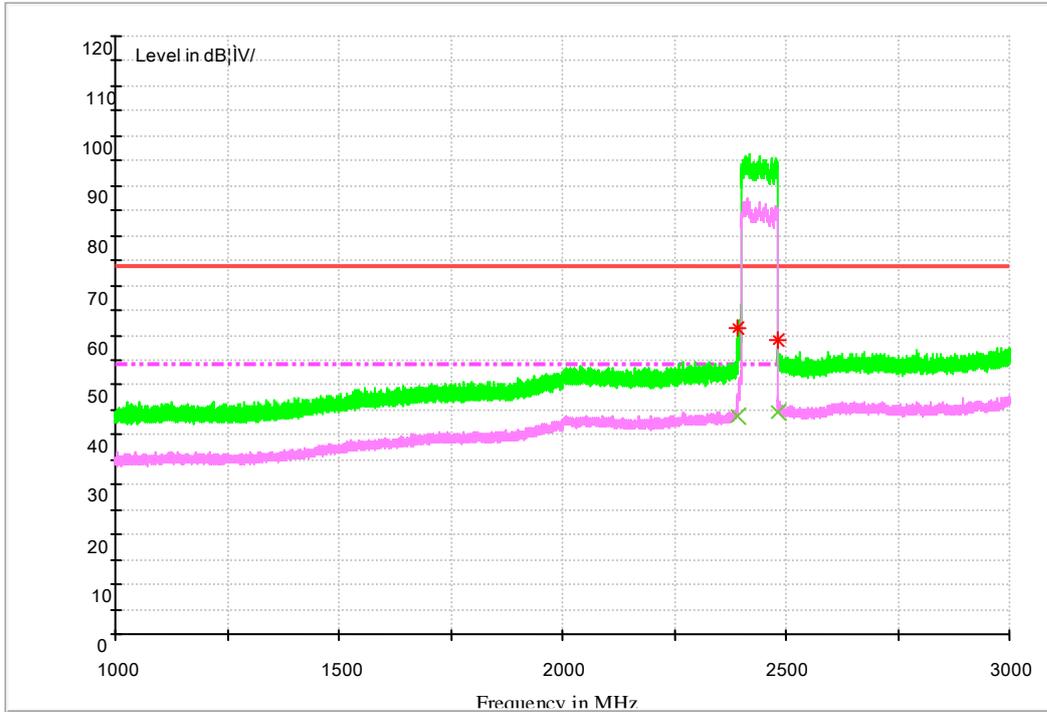
Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height deg	Azimuth	Polarization
2390.000000	55.6	38.3	74.0	18.4	128.0	128.0	VERTICAL
2483.500000	63.8	40.7	74.0	10.2	100.0	100.0	VERTICAL

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height deg	Azimuth	Polarization
2390.000000	45.1	38.3	54.0	8.9	100.0	73.0	VERTICAL
2483.500000	46.3	40.7	54.0	7.7	100.0	0.0	VERTICAL

Test Mode: 11N

Channel L



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

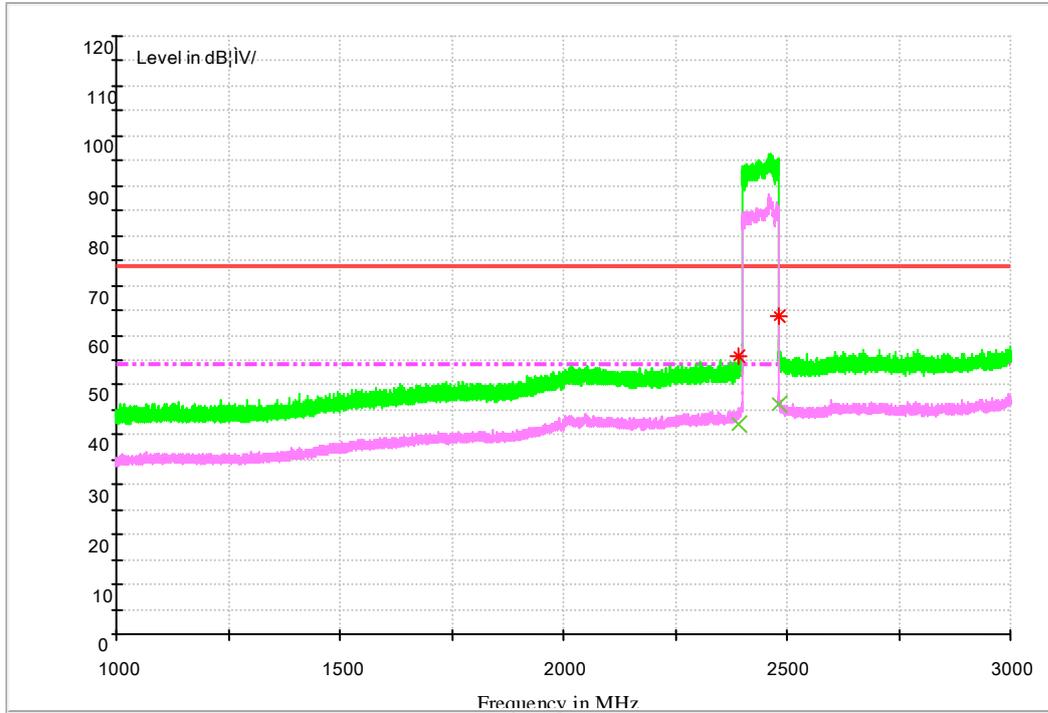
MEASUREMENT RESULT: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height deg	Azimuth	Polarization
2390.000000	61.2	38.3	74.0	12.8	121.0	187.0	VERTICAL
2483.500000	58.8	40.7	74.0	15.2	100.0	26.0	HORIZONTAL

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height deg	Azimuth	Polarization
2390.000000	43.6	38.3	54.0	10.4	100.0	0.0	VERTICAL
2483.500000	44.7	40.7	54.0	9.3	100.0	71.0	HORIZONTAL

Channel H



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

MEASUREMENT RESULT: PK Detector

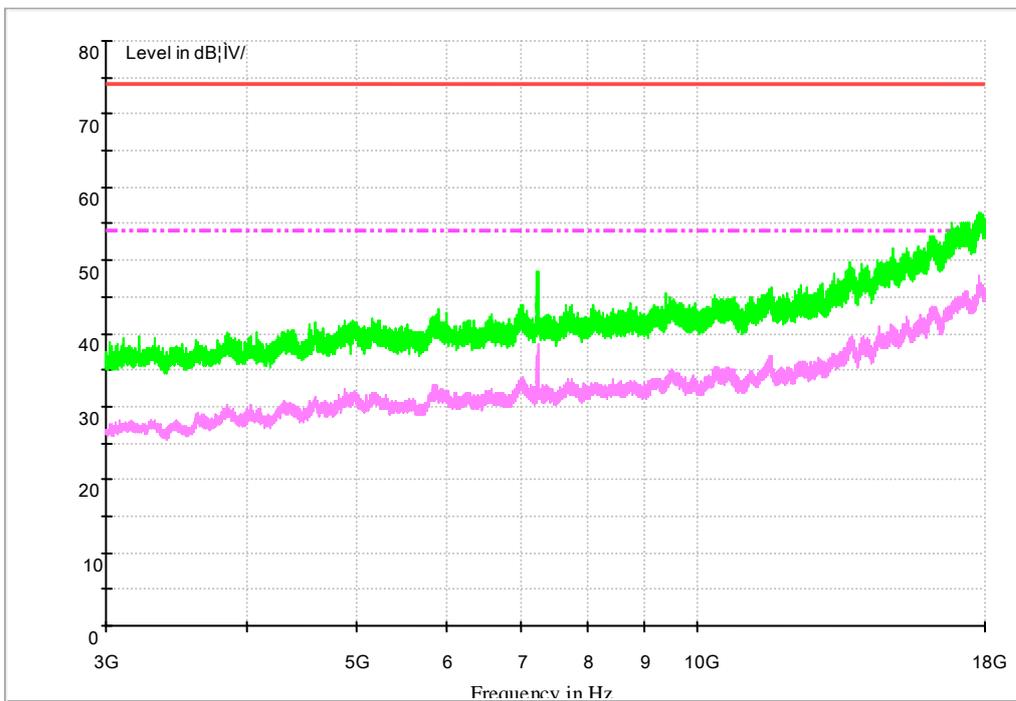
Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height deg	Azimuth	Polarization
2390.000000	55.9	38.3	74.0	18.1	100.0	352.0	VERTICAL
2483.500000	63.7	40.7	74.0	10.3	100.0	1.0	VERTICAL

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height deg	Azimuth	Polarization
2390.000000	42.1	38.3	54.0	11.9	100.0	0.0	HORIZONTAL
2483.500000	46.0	40.7	54.0	8.0	100.0	353.0	VERTICAL

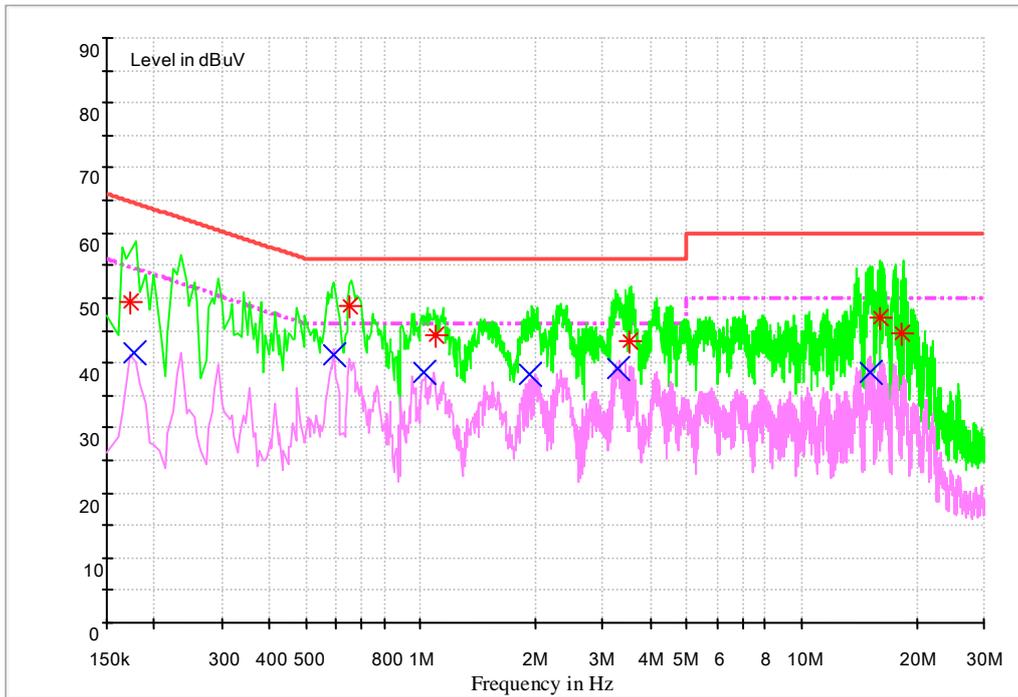
Part 4: Testing Range of “3 GHz to 18 GHz”

- Note 1: The test results and plot for testing range of “1 GHz to 18 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.
- Note 2: The testing range of “1 GHz to 18 GHz” is for checking radiated emissions located in restricted bands faraway from the EUT operating bands.
- Note 3: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB μ V/m) and Average Limit (54 dB μ V/m).



Appendix G: Conducted Emission at Power Port

Channel 6



MEASUREMENT RESULT: QP Detector

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	PE
0.171933	49.3	N	9.7	15.6	64.9	FLO
0.651236	48.9	N	9.7	7.1	56.0	FLO
1.088100	44.1	N	9.7	11.9	56.0	FLO
3.523942	43.3	N	9.7	12.7	56.0	FLO
16.044202	47.0	N	10.1	13.0	60.0	FLO
18.330968	44.5	N	10.1	15.5	60.0	FLO



MEASUREMENT RESULT: AV Detector

Frequency (MHz)	CAverage (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	PE
0.177942	41.5	N	9.7	13.1	54.6	FLO
0.591296	41.2	N	9.7	4.8	46.0	FLO
1.016606	38.6	N	9.7	7.4	46.0	FLO
1.926214	38.1	N	9.7	7.9	46.0	FLO
3.290843	39.0	N	9.7	7.0	46.0	FLO
15.073335	38.6	N	10.1	11.4	50.0	FLO

END