Appendix for Test report

Appendix A: DTS (6 dB) Bandwidth

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

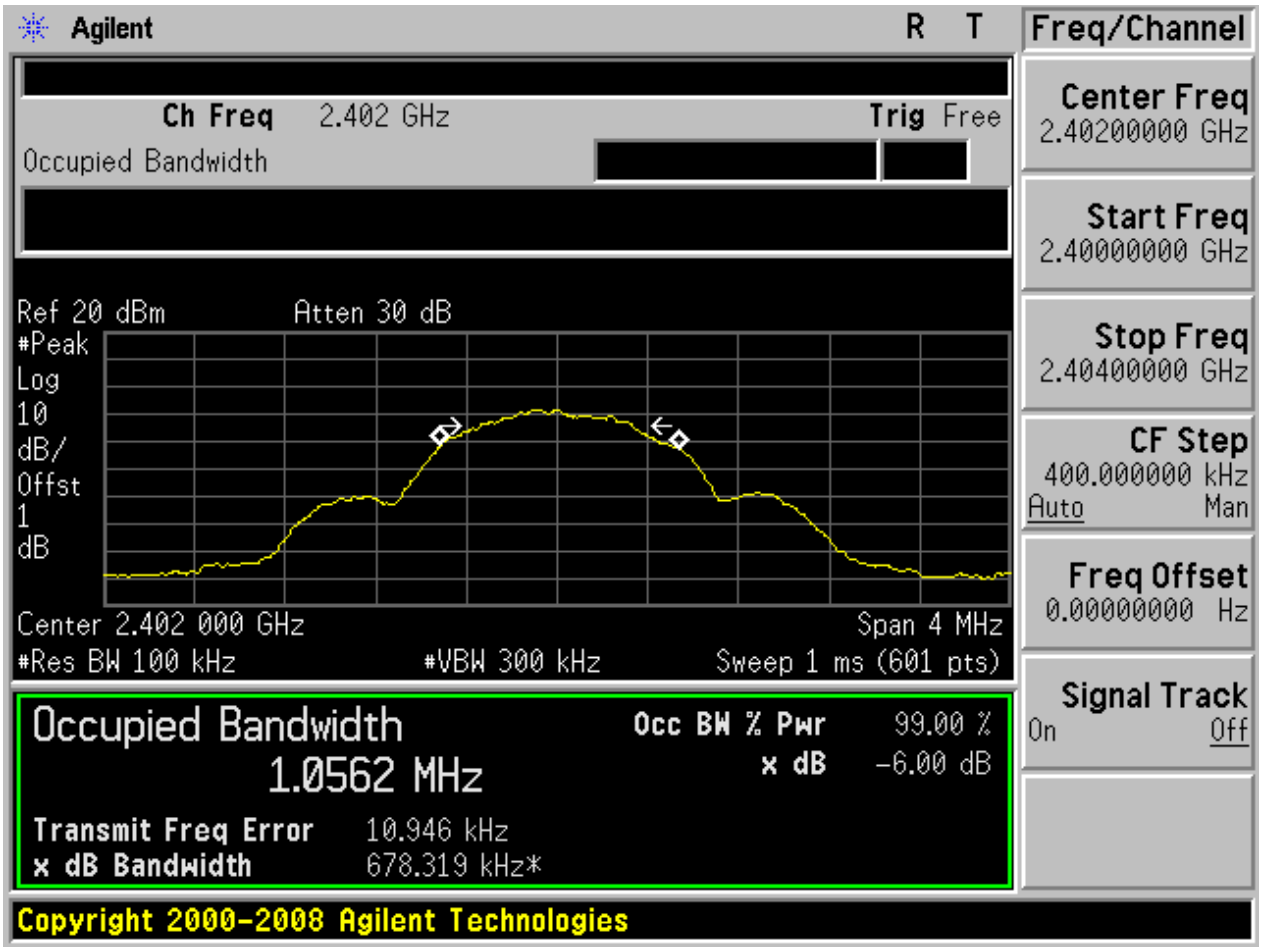
For measurements on smart antenna systems (devices with multiple transmit chains), the test is performed at each chain, and used as respective results for each chain.

Part I - Test Results

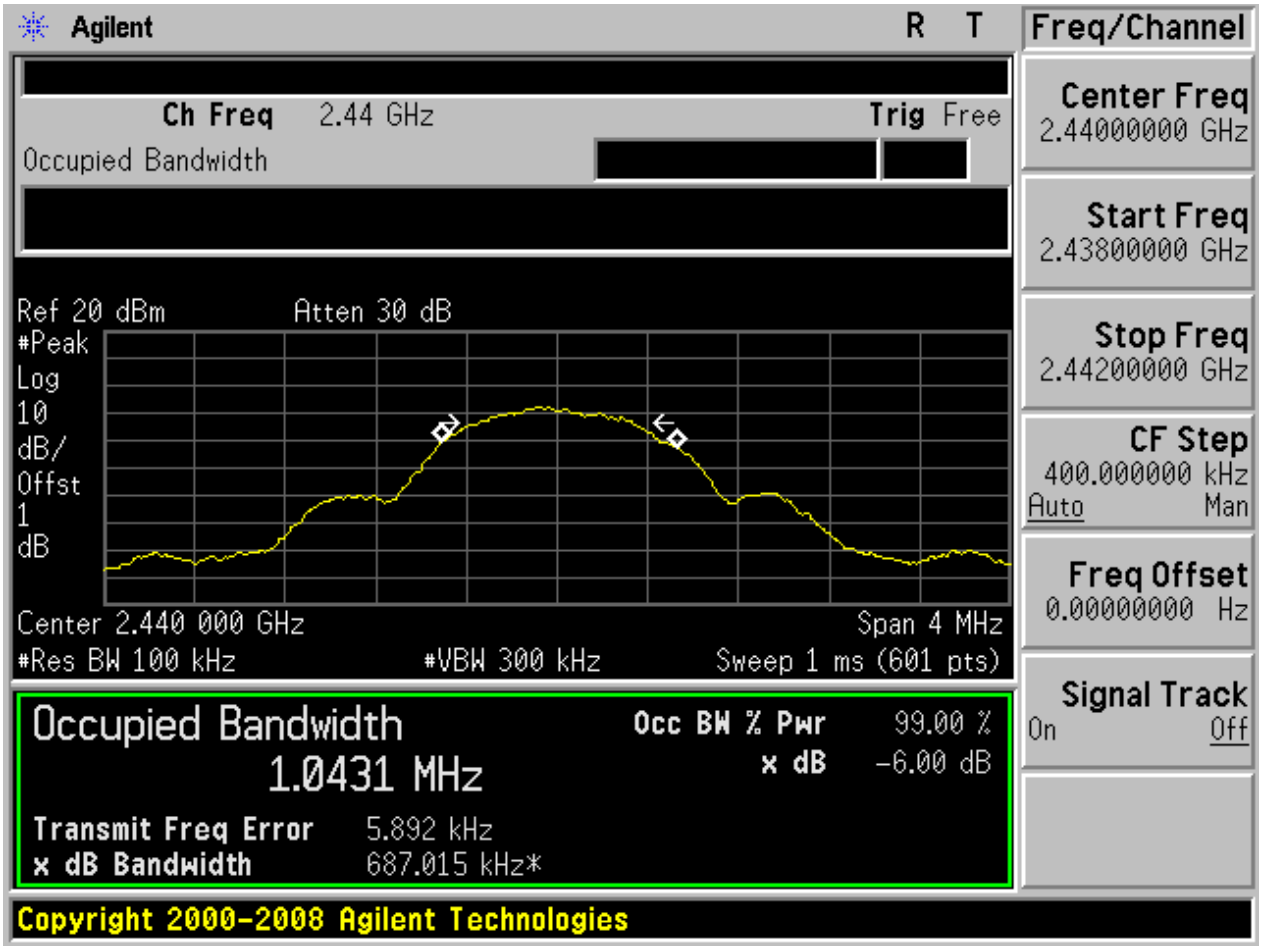
Test Mode	Test Channel	Frequency[MHz]	Ant	DTS6dBBW[MHz]	Verdict
BLE	L	2402	Ant 1	0.68	pass
	M	2440	Ant 1	0.69	pass
	H	2480	Ant 1	0.67	pass

Part II - Test Plots

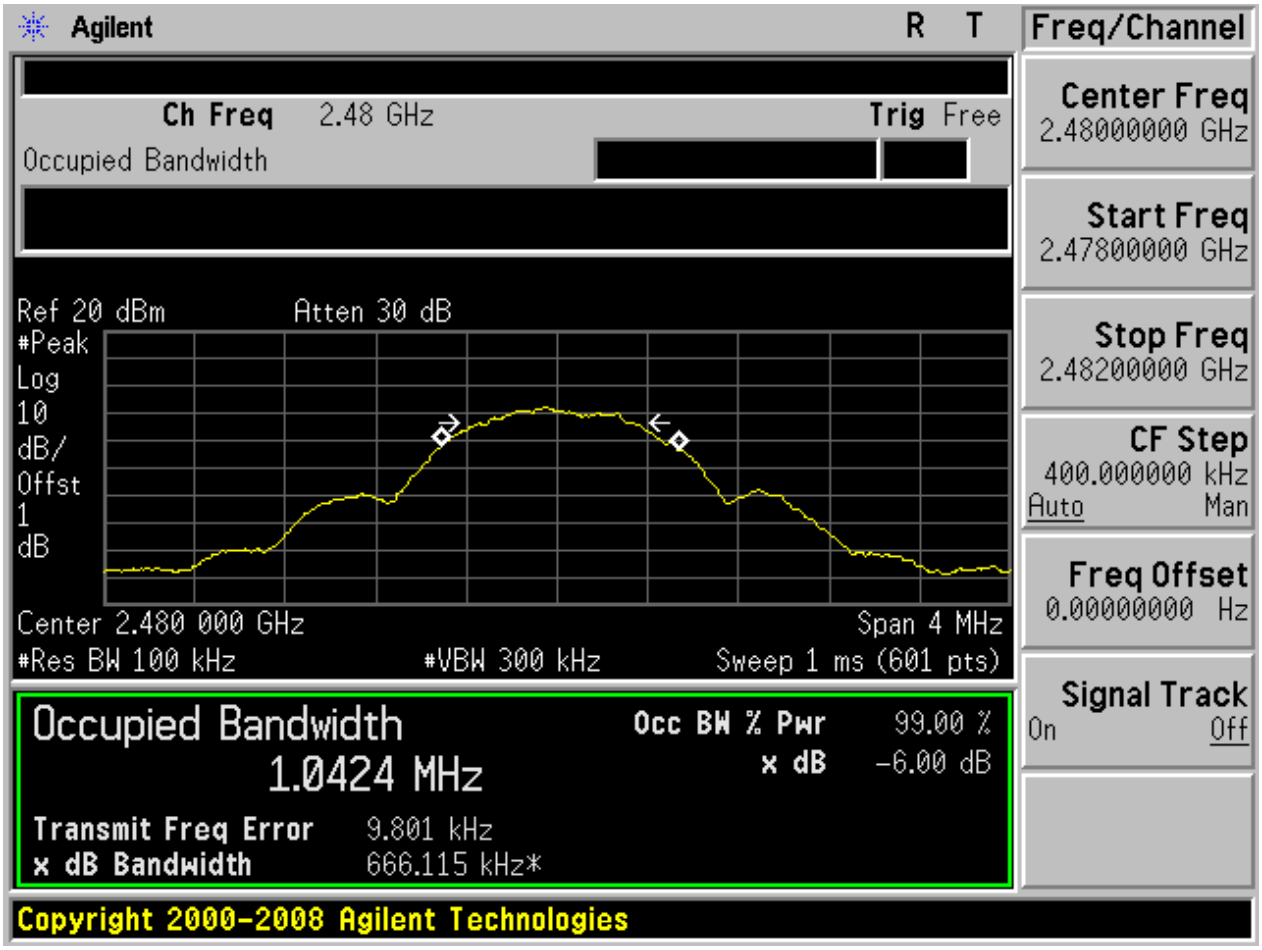
2.1 TM1_Ch0



2.3 TM1_Ch19



2.5 TM1_Ch39



Appendix B: Occupied Bandwidth

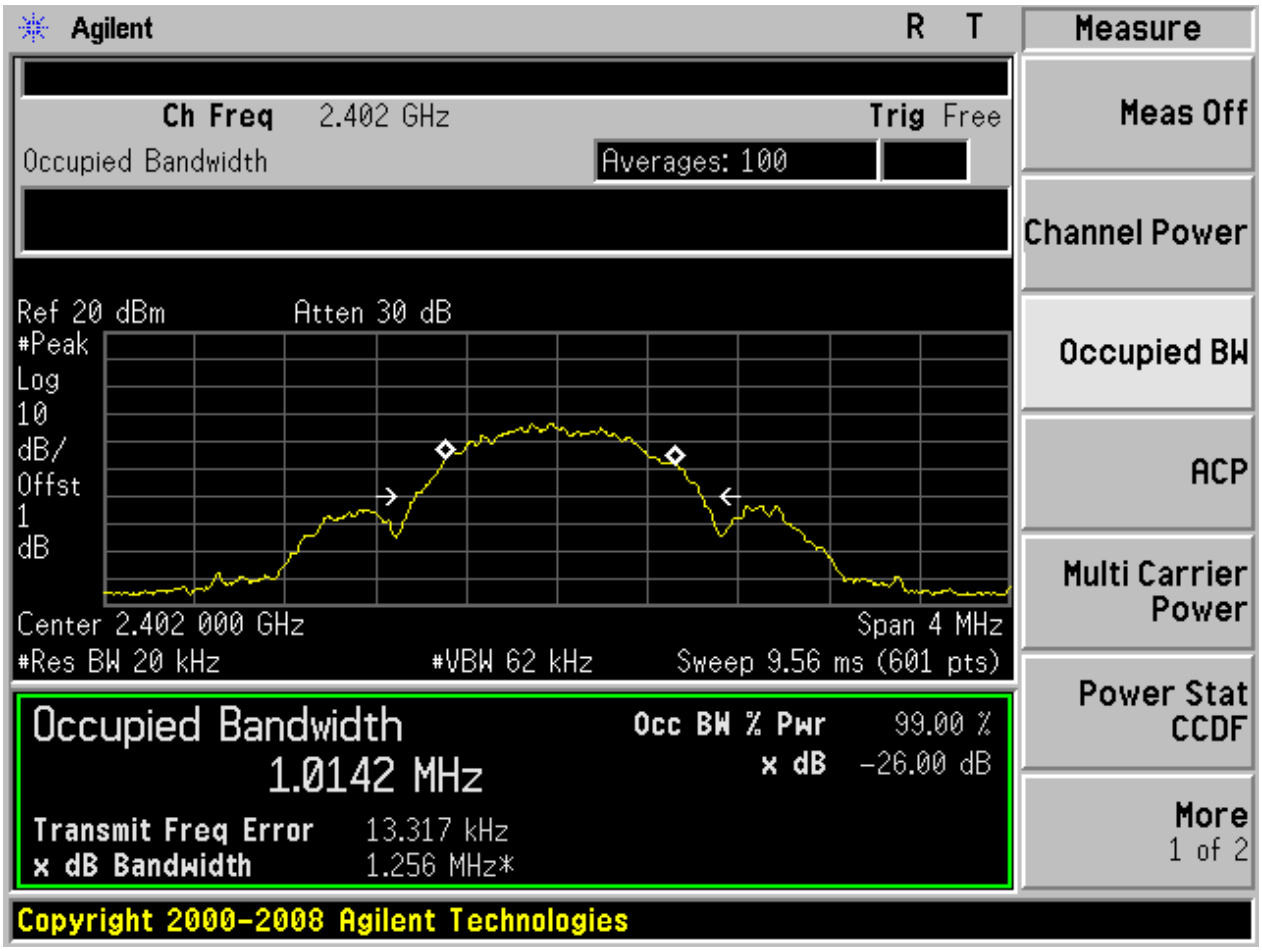
For measurements on smart antenna systems (devices with multiple transmit chains), the test is performed at each chain, and used as respective results for each chain.

Part I - Test Results

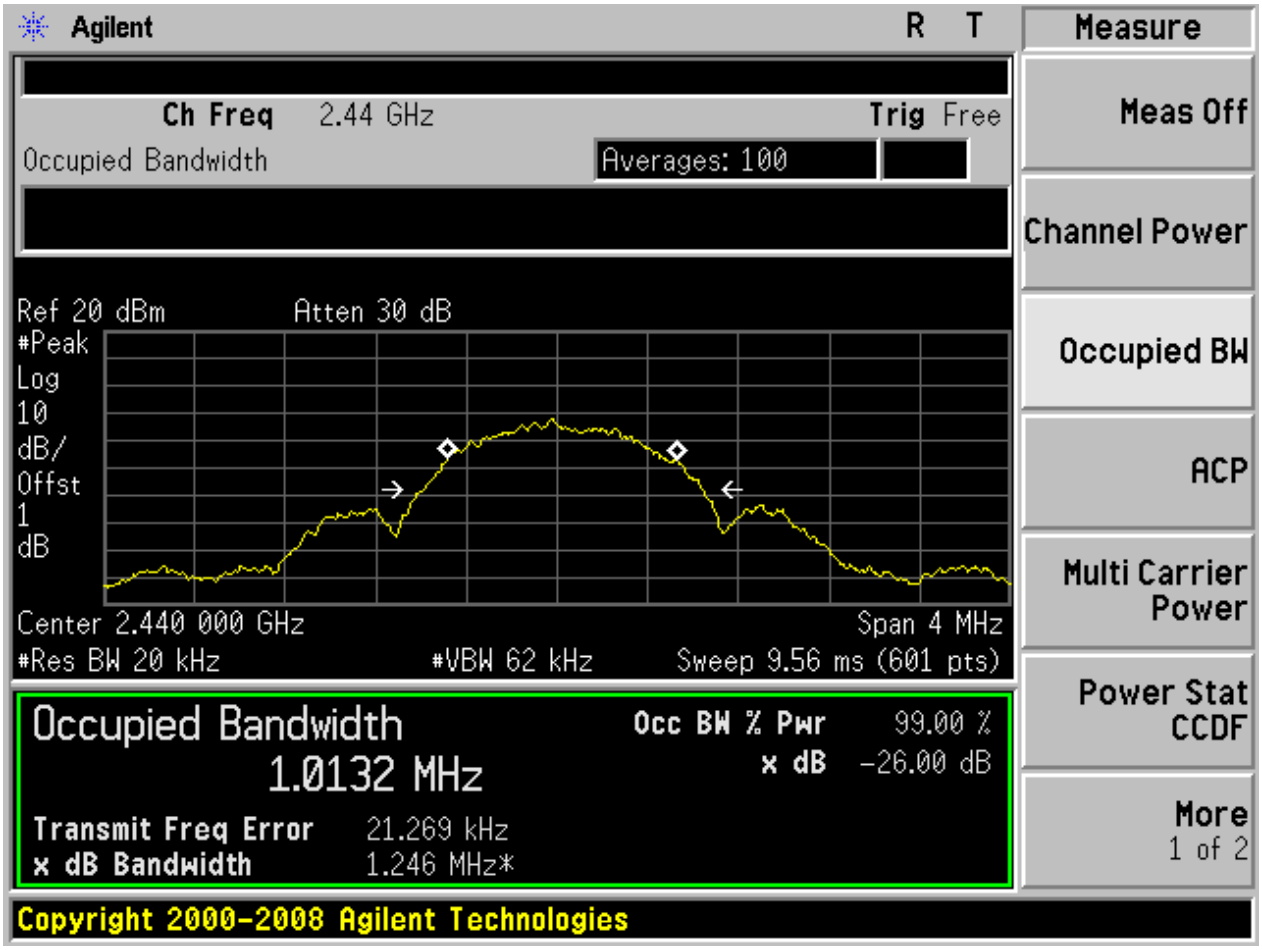
Test Mode	Test Channel	Frequency[MHz]	Ant	Occupied Bandwidth [MHz]	Verdict
BLE	L	2402	Ant 1	1.01	pass
	M	2440	Ant 1	1.01	pass
	H	2480	Ant 1	1.02	pass

Part II - Test Plots

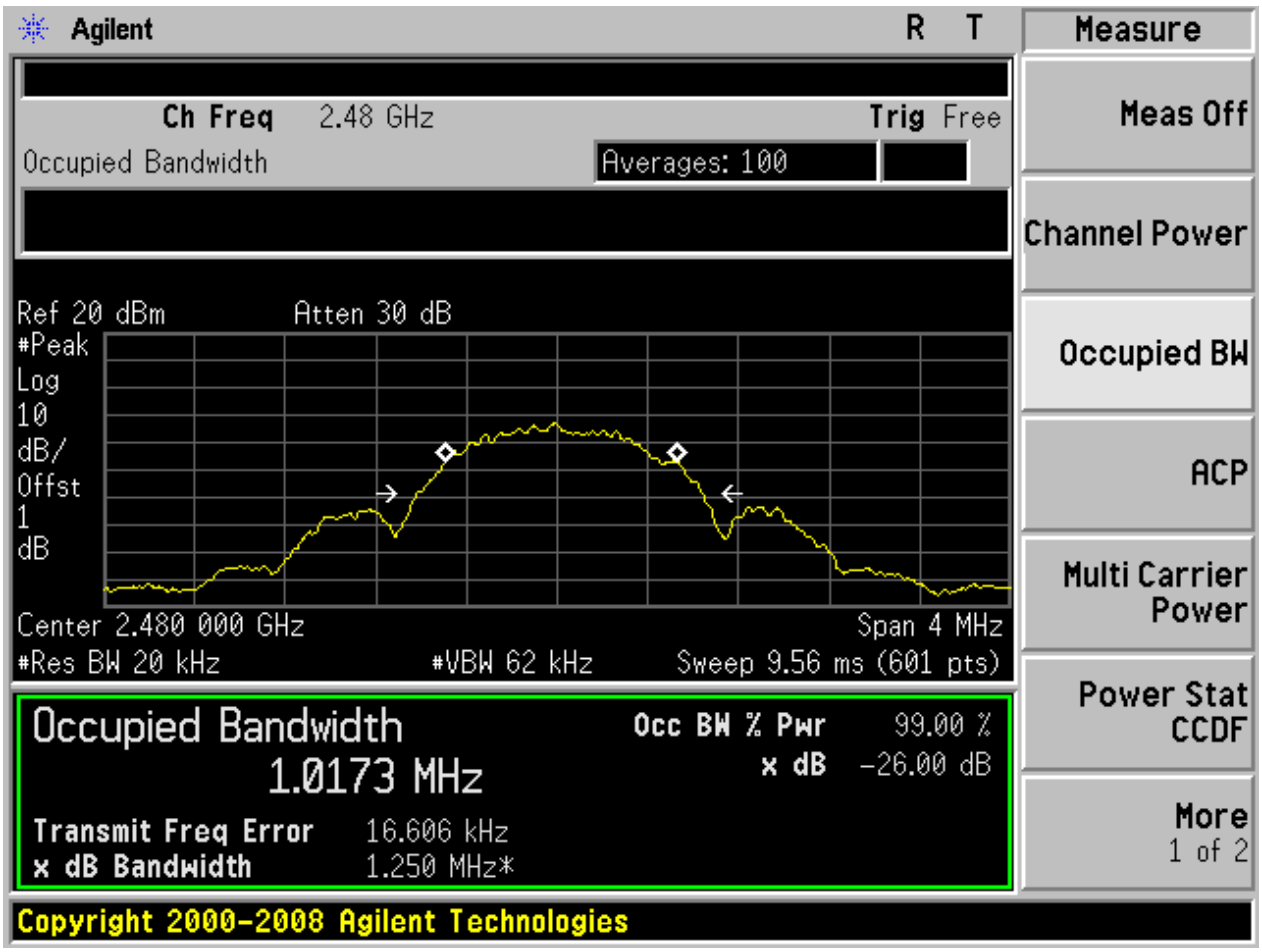
2.1 TM1_Ch0



2.1 TM1_Ch19



2.1 TM1_Ch39



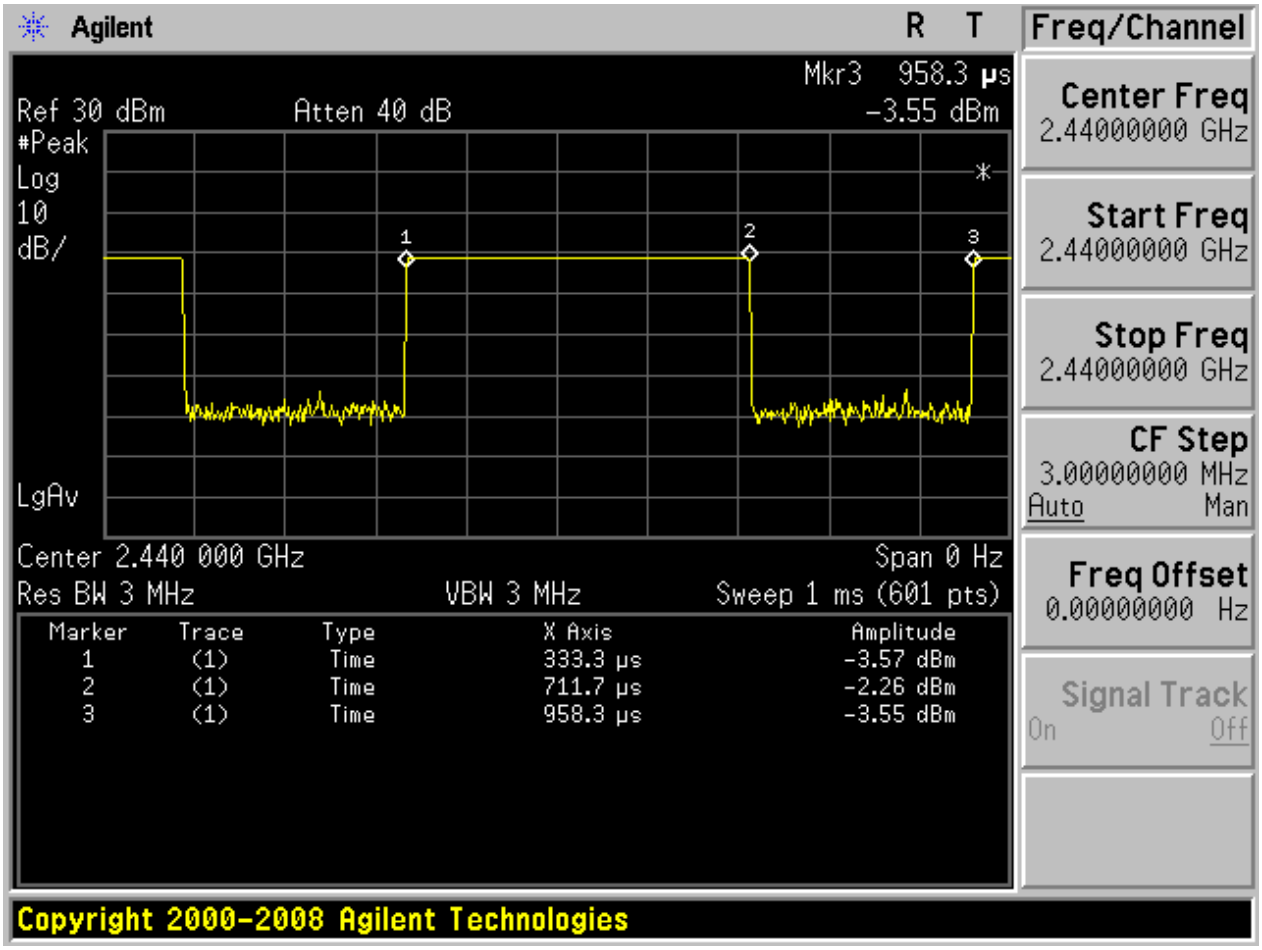
Appendix C: Duty cycle

Part I - Test Results

Test Mode	TX Freq. [MHz]	Ant	Duty cycle [%]
BLE	2402,2440,2480	Ant 1	60.5

Part II - Test Plots

2.1 BLE_M@Ant 1



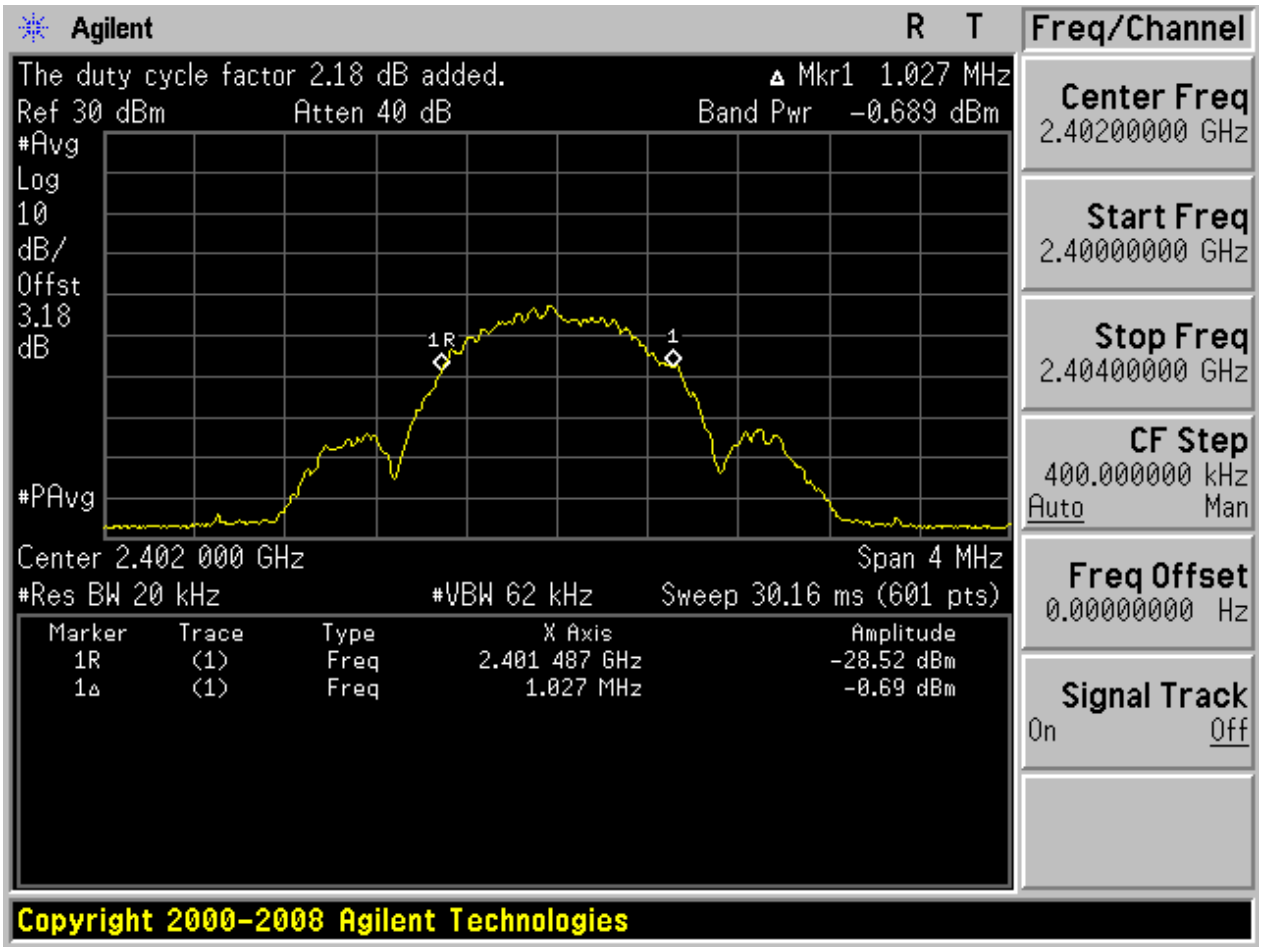
Appendix D: Maximum Conducted Average Output Power

Part I - Test Results

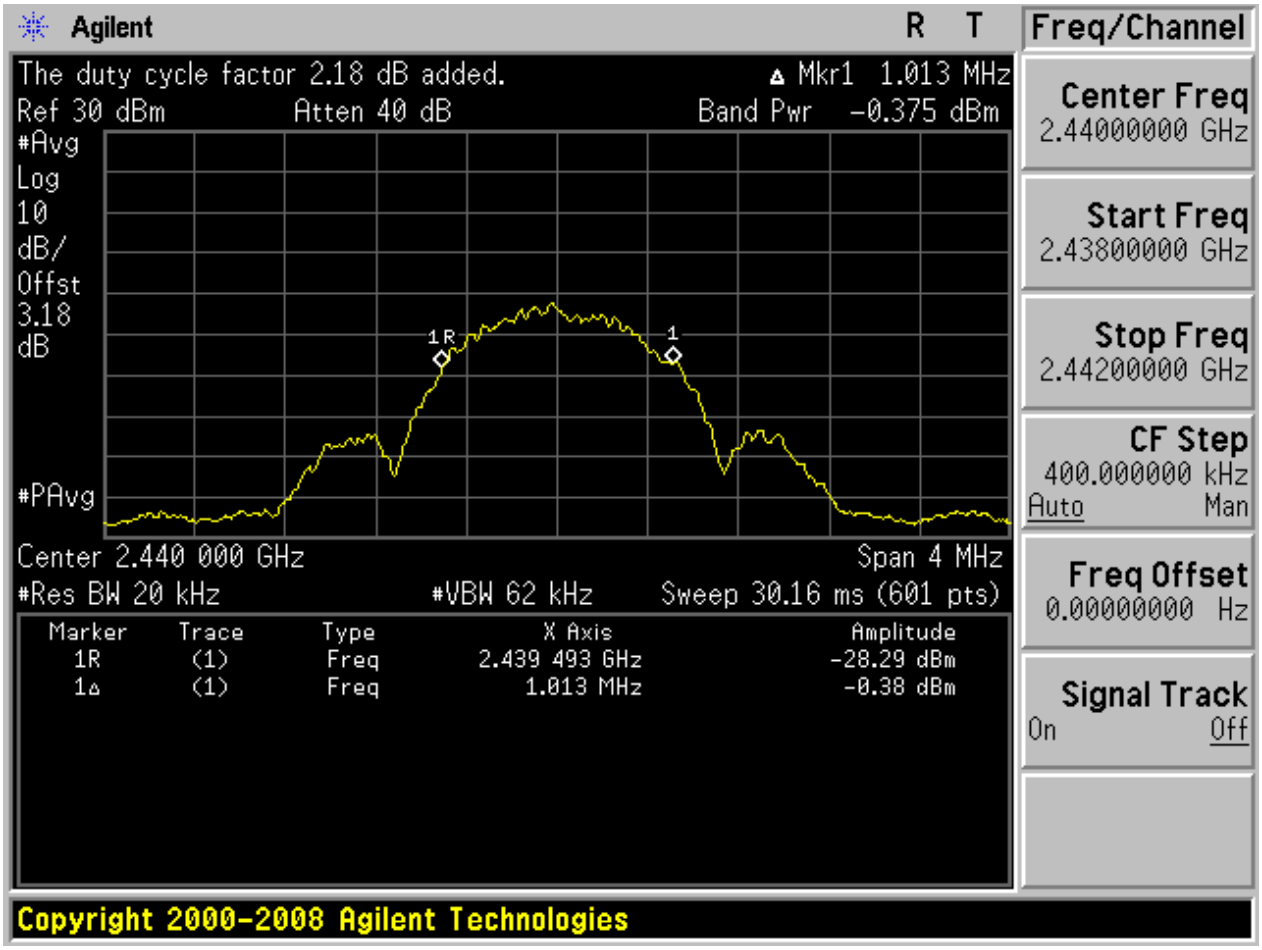
Test Mode	Test Channel	Frequency[MHz]	Ant	Power[dBm]	Verdict
BLE	L	2402	Ant 1	-0.69	pass
	M	2440	Ant 1	-0.38	pass
	H	2480	Ant 1	-0.44	pass

Part II - Test Plots

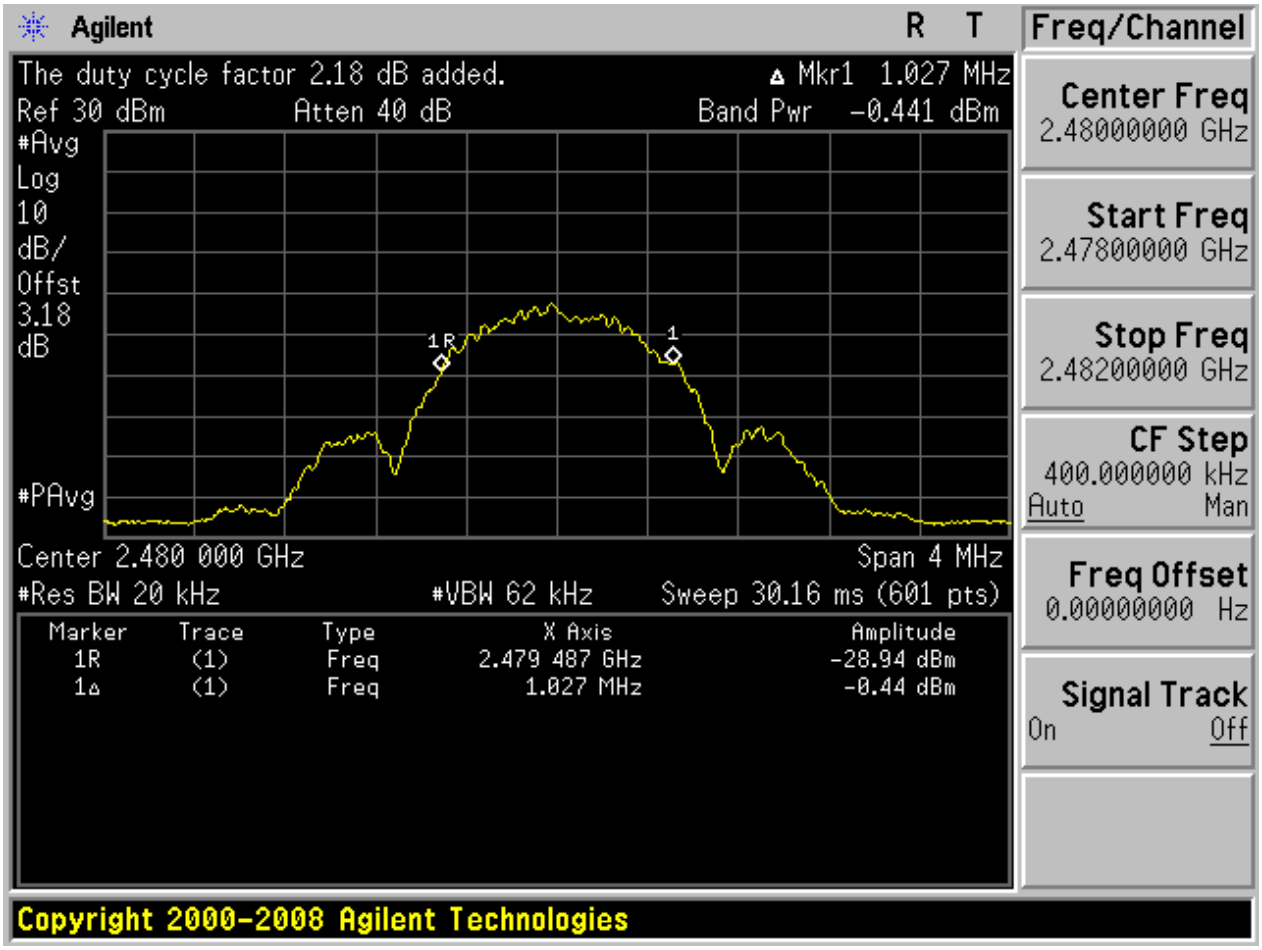
2.1 TM1_Ch0



2.3 TM1_Ch19



2.5 TM1_Ch39



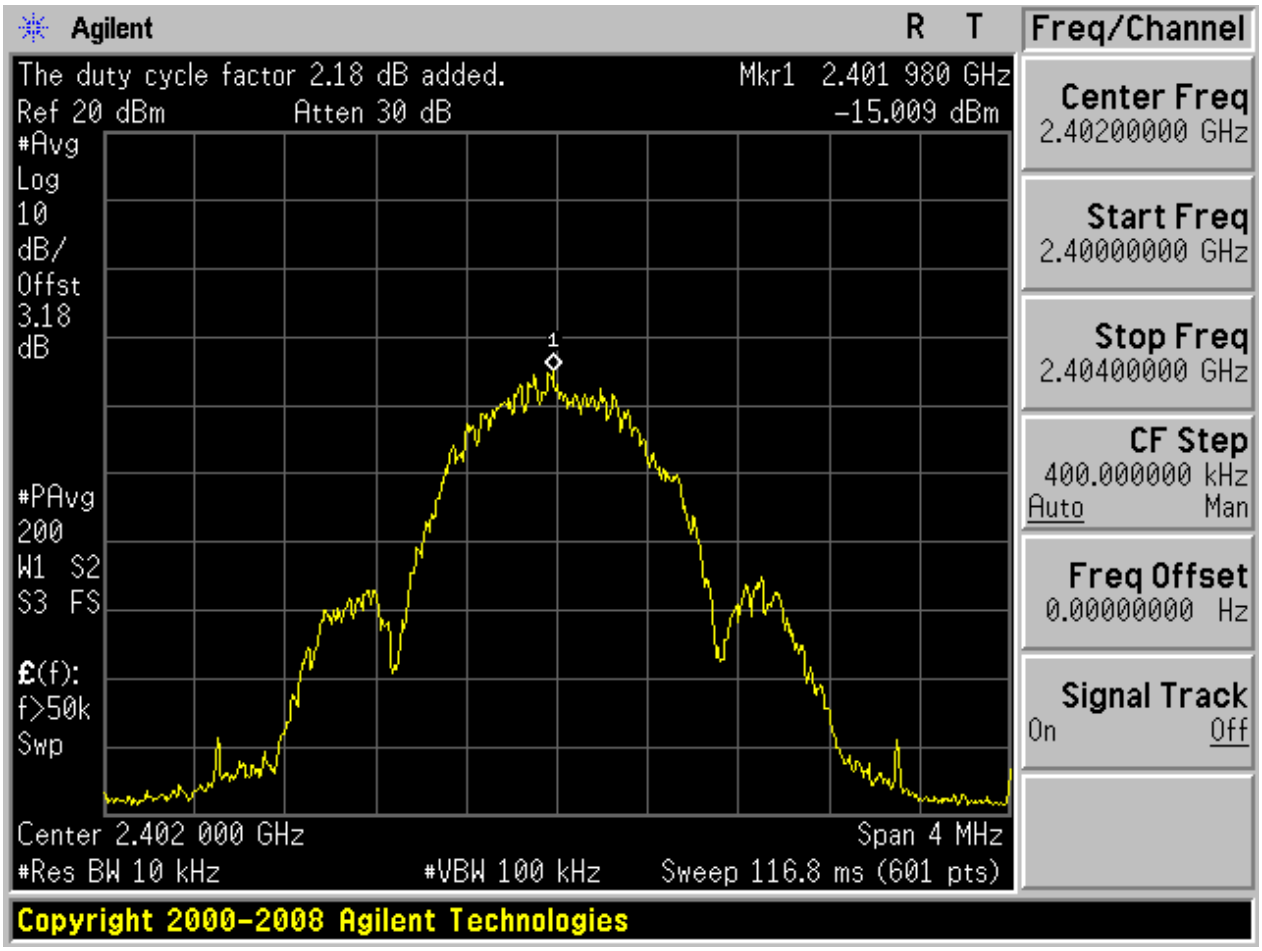
Appendix E: Maximum Power Spectral Density Level

Part I - Test Results

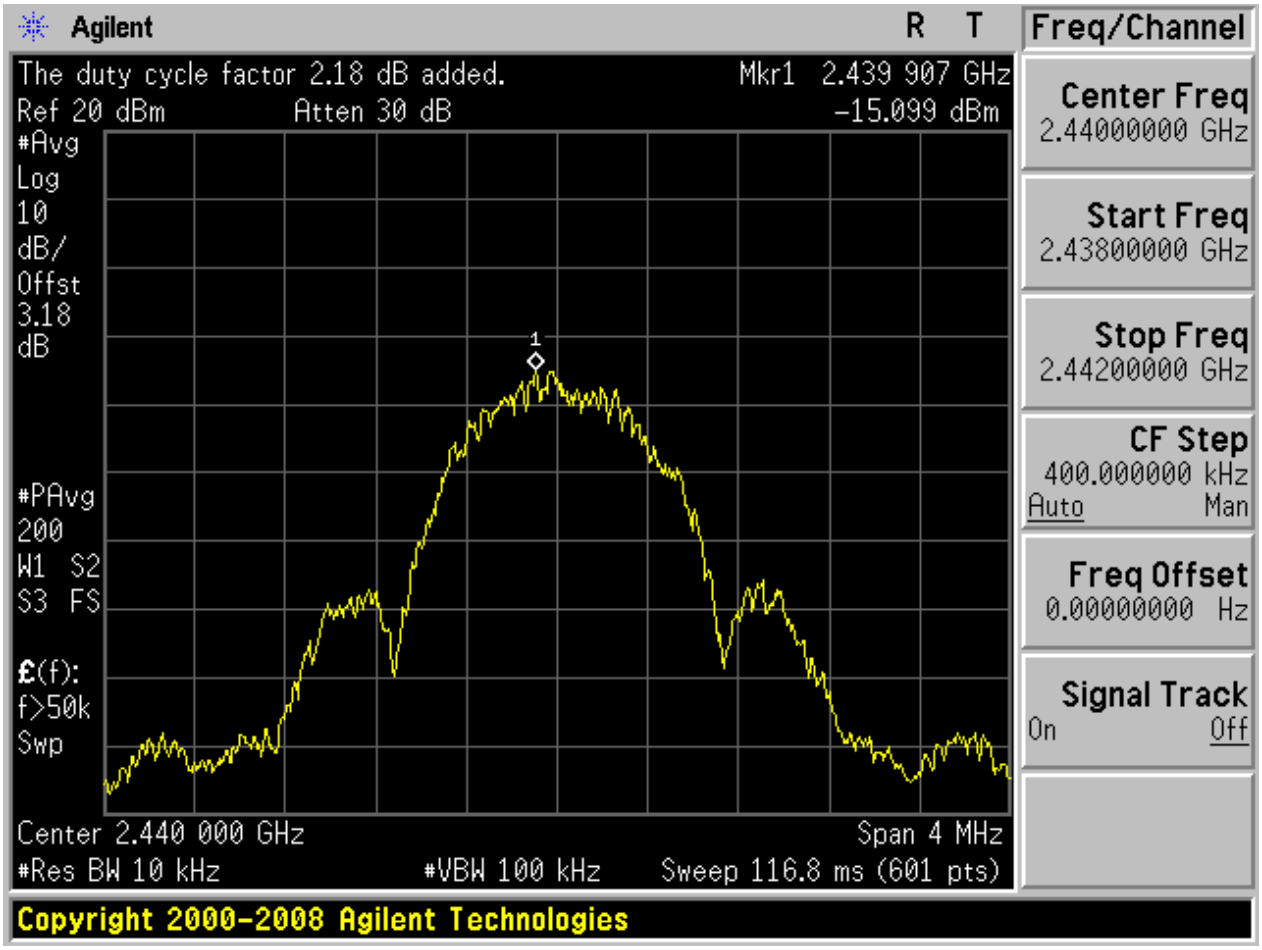
Test Mode	Test Channel	Frequency[MHz]	Ant	PD[MHz]	Verdict
BLE	L	2402	Ant 1	-15.01	pass
	M	2440	Ant 1	-15.10	pass
	H	2480	Ant 1	-15.07	pass

Part II - Test Plots

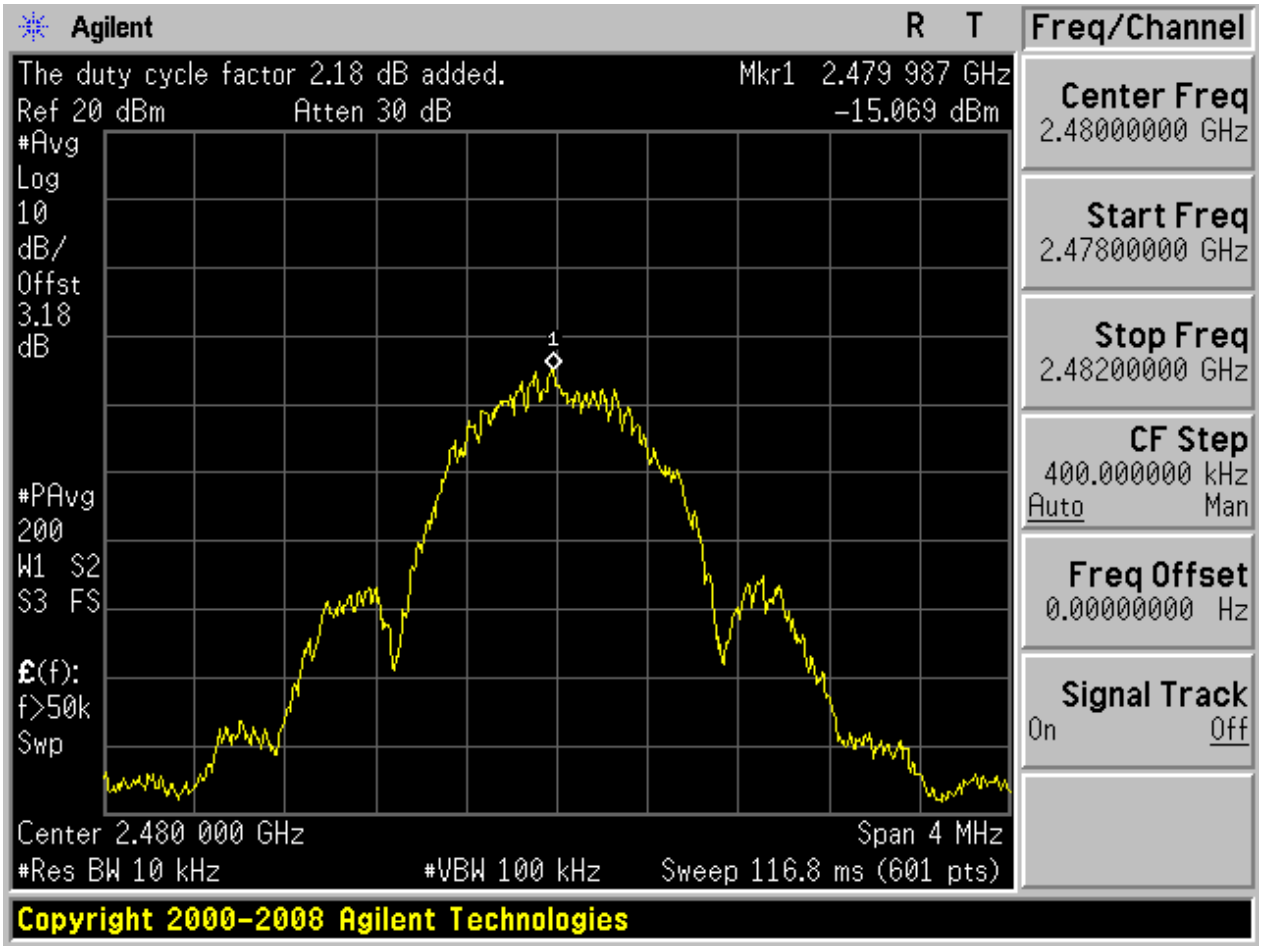
2.1 TM1_Ch0



2.3 TM1_Ch19



2.5 TM1_Ch39



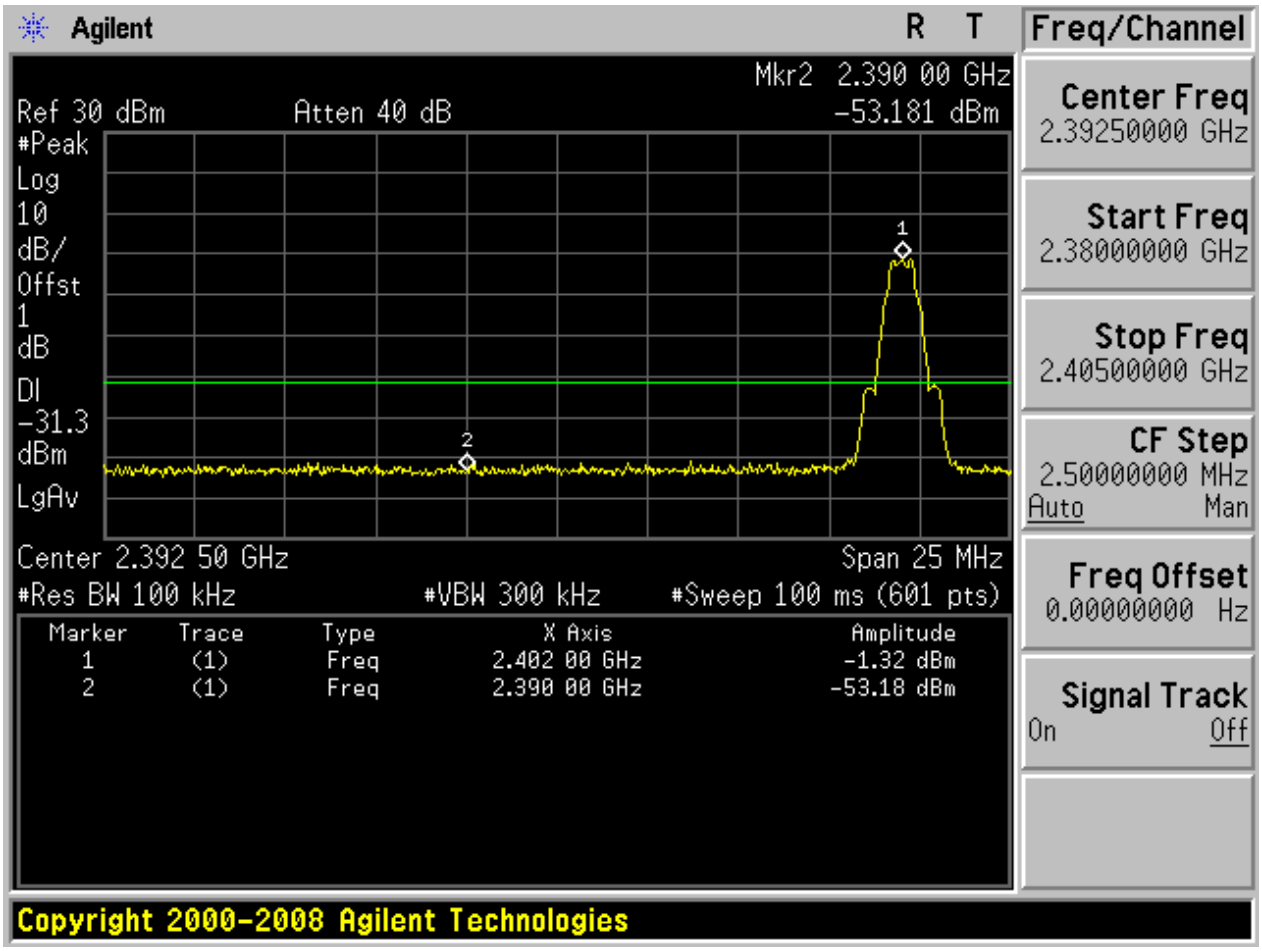
Appendix F: Band Edges Compliance

Part I - Test Results

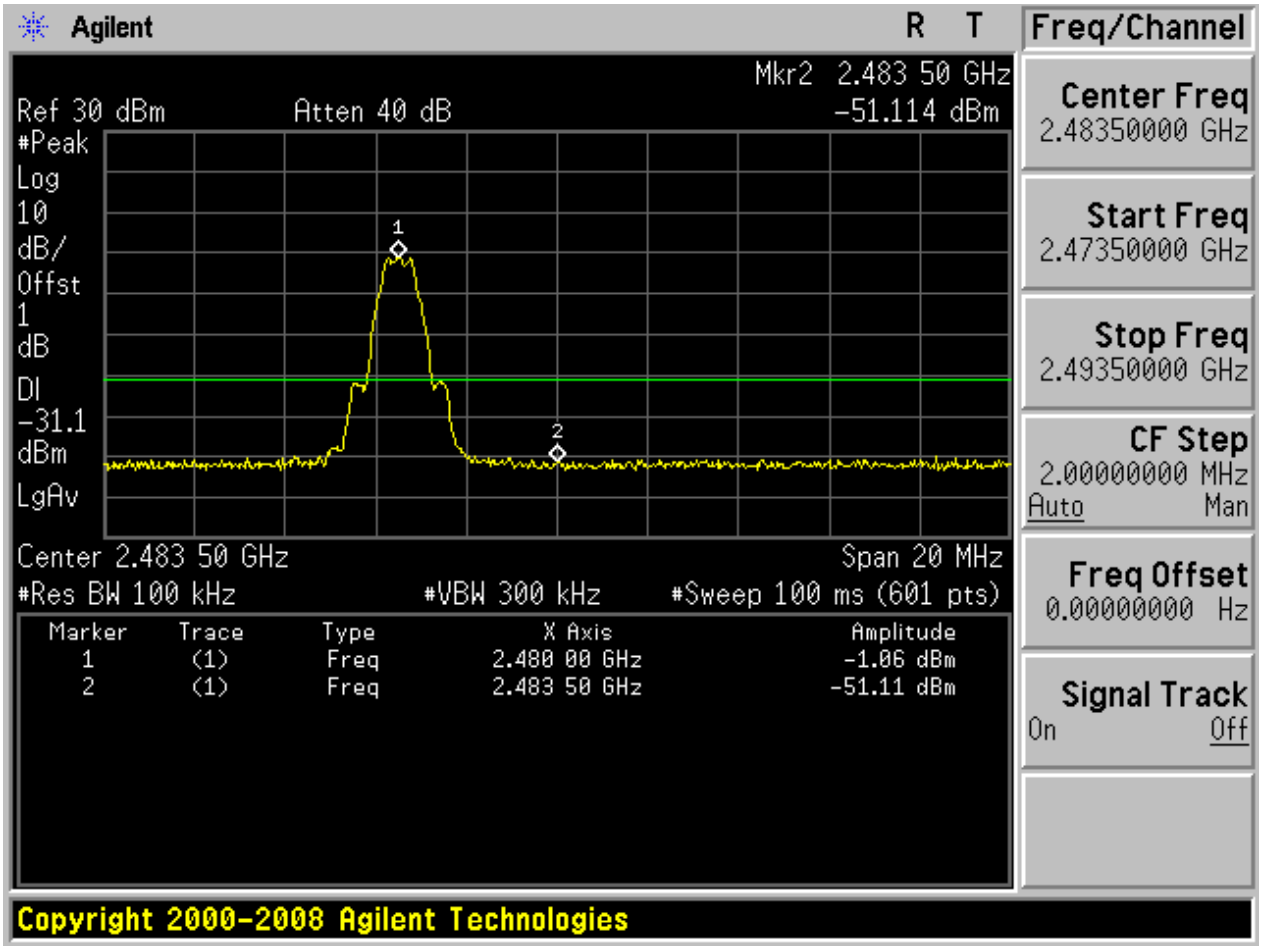
Test Mode	Test Channel	Frequency[MHz]	Ant	Carrier Power[dBm]	Max.Spurious Level[dBm]	Verdict
BLE	L	2402	Ant 1	-1.32	-53.18	pass
	H	2480	Ant 1	-1.06	-51.11	pass

Part II - Test Plots

2.1 TM1_Ch0



2.3 TM1_Ch39



Appendix G: Unwanted Emissions into Non-Restricted Frequency Bands

In this Appendix, the "Pref", which is used as the reference level, refers to the peak power level in any 100 kHz bandwidth within the fundamental emission, the "Puw" referrers to the maximum emission power in 100 kHz band segments outside of the authorized frequency band.

Considering that the higher ratio of RBW to the span for the frequency ranges below 30 MHz makes the results determination be complicated,a narrower RBW other than 100 kHz is used for these ranges. The measured value should add a RBW correction factor (RBWCF) where RBWCF [dB] = 10 x lg(100 [kHz]/narrower RBW [kHz]). As to this Appendix, the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

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

In the result table, the "< Limit" denotes that "The Puw [dBm] is less than Pref[dBm]-30[dBm],see test plots for detailed".

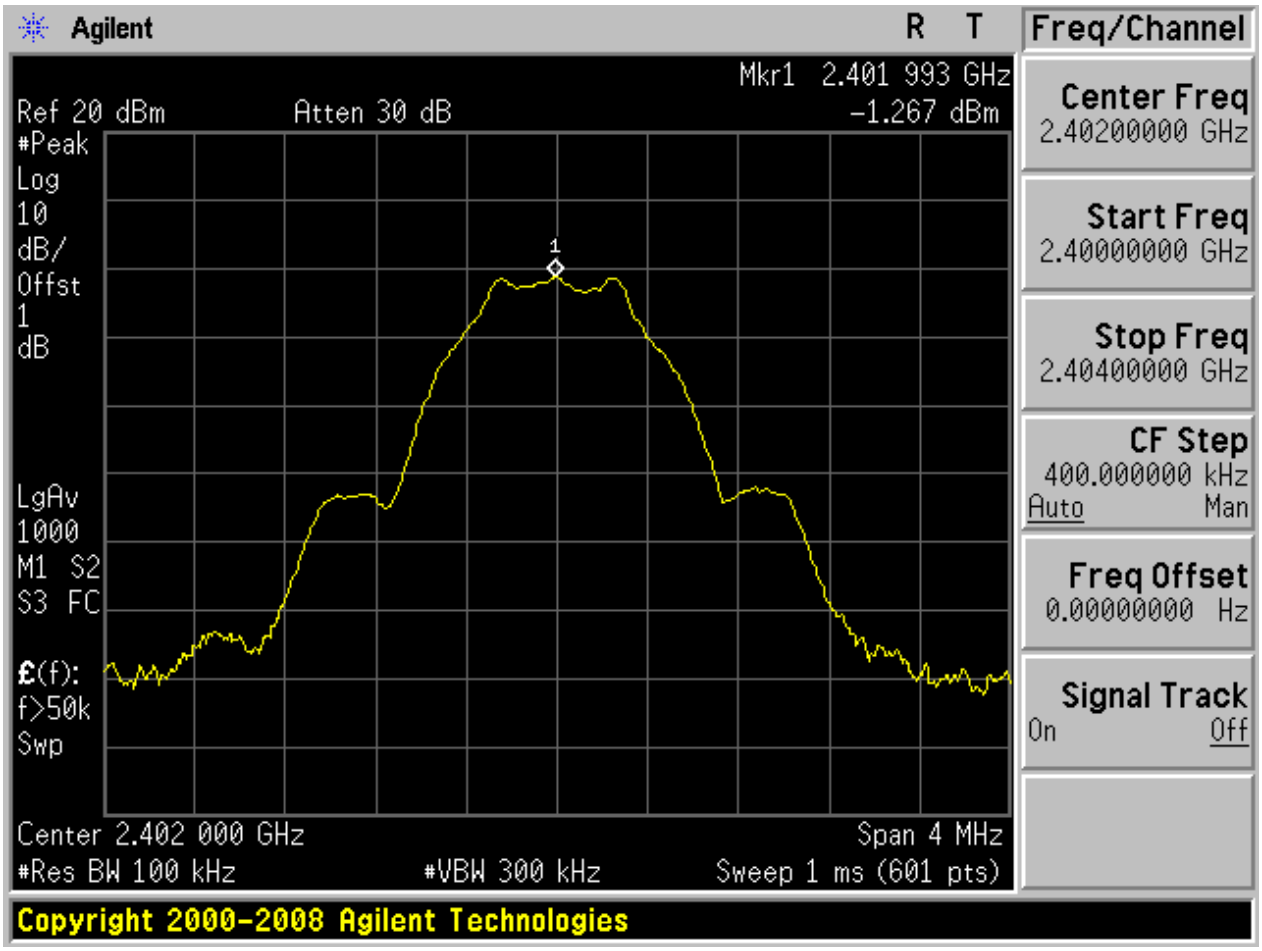
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Pref[dBm]	Puw[dBm]	Verdict
BLE	L	2402	Ant 1	-1.27	<limit	pass
	M	2440	Ant 1	-0.90	<limit	pass
	H	2480	Ant 1	-1.08	<limit	pass

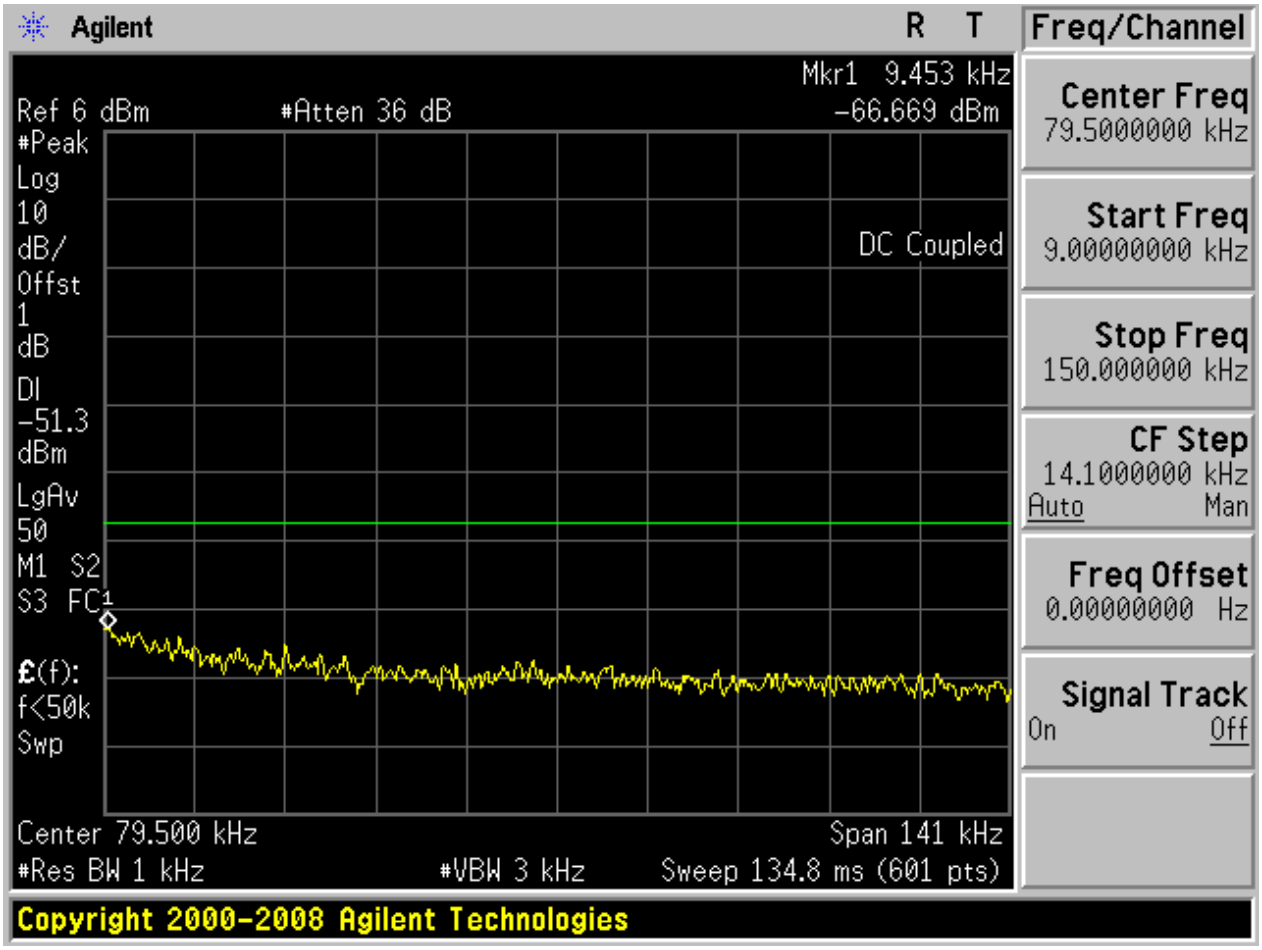
Part II - Test Plots

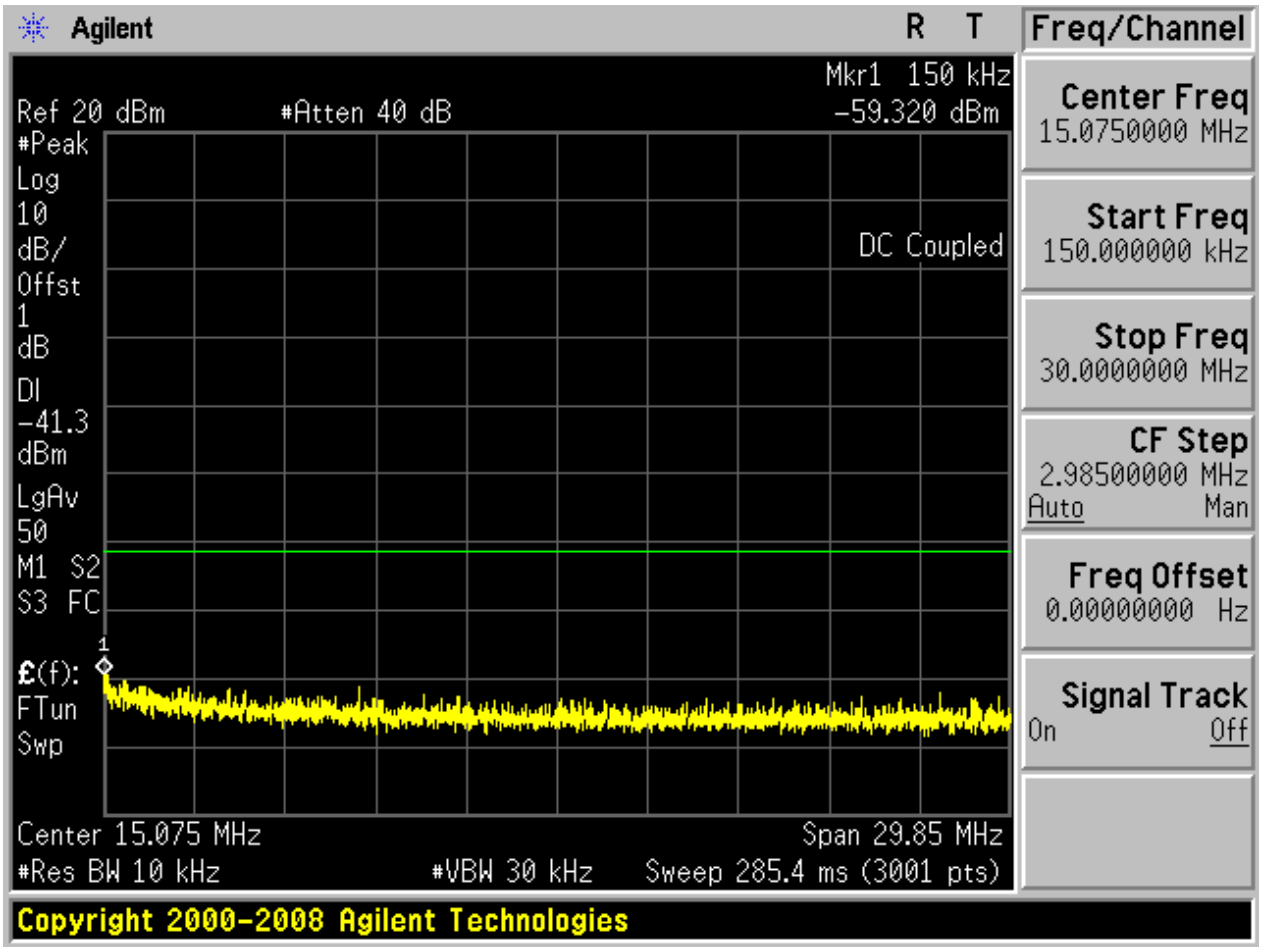
2.1 TM1_Ch0

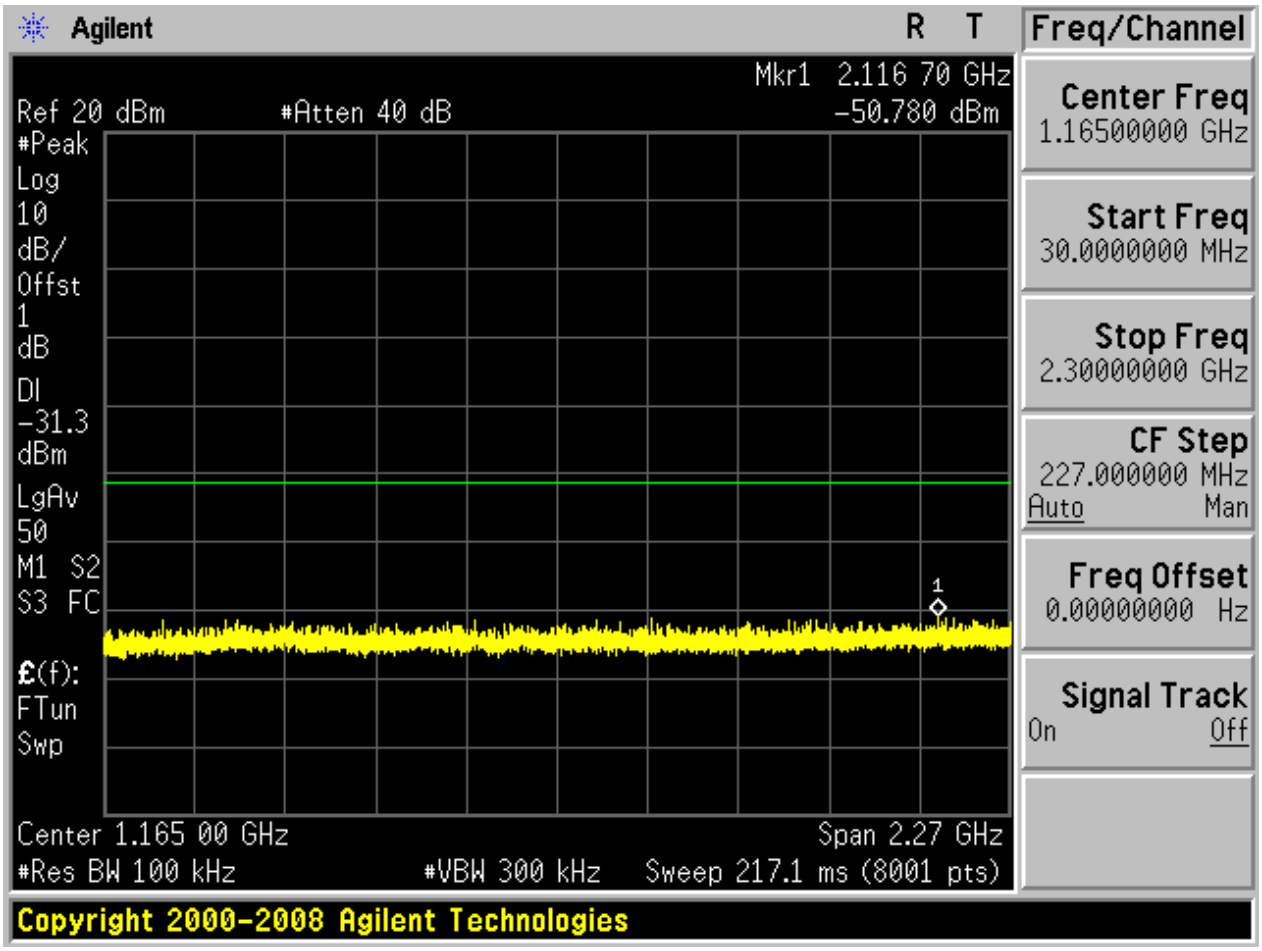
Pref:

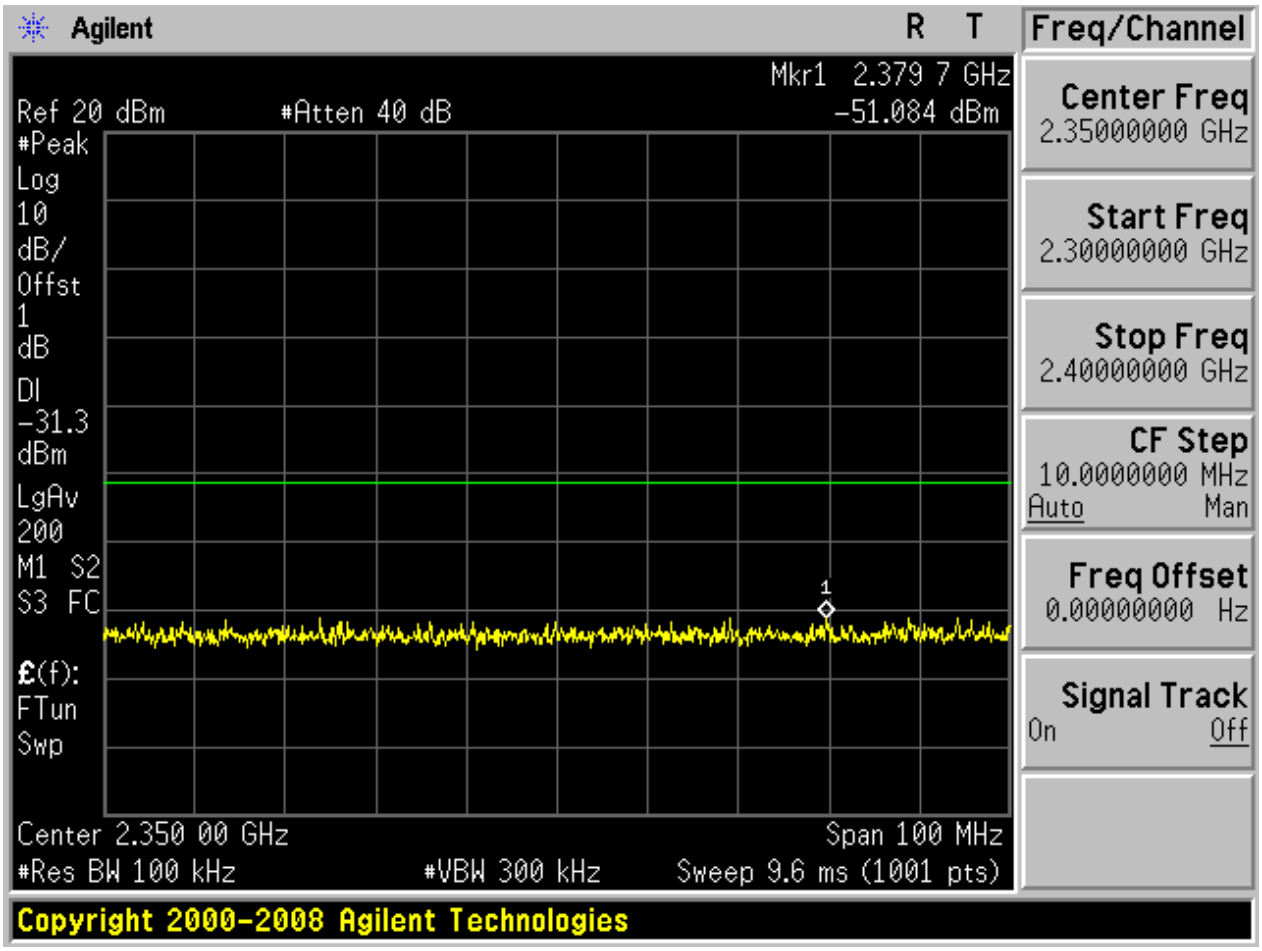


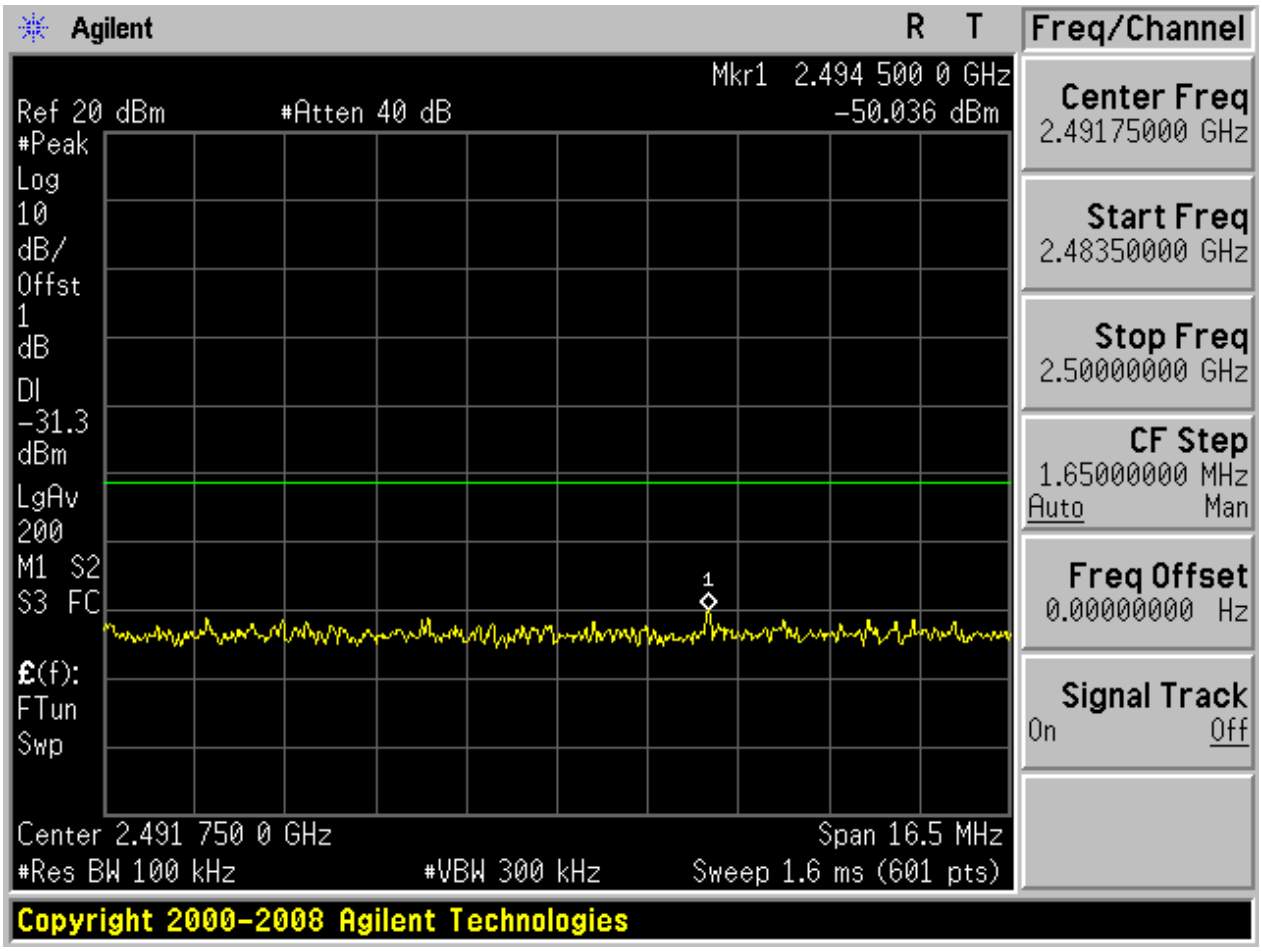
Puw:

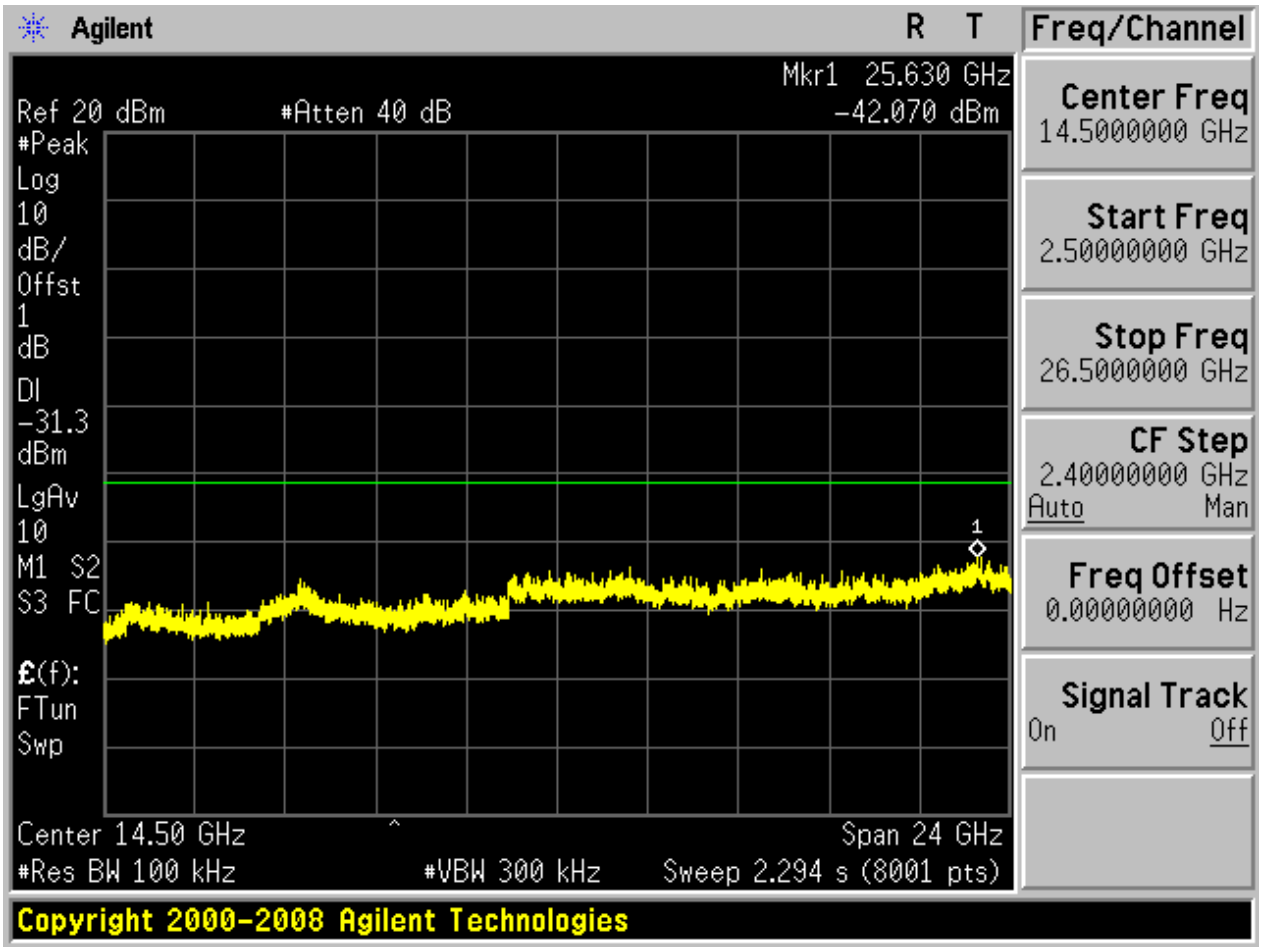






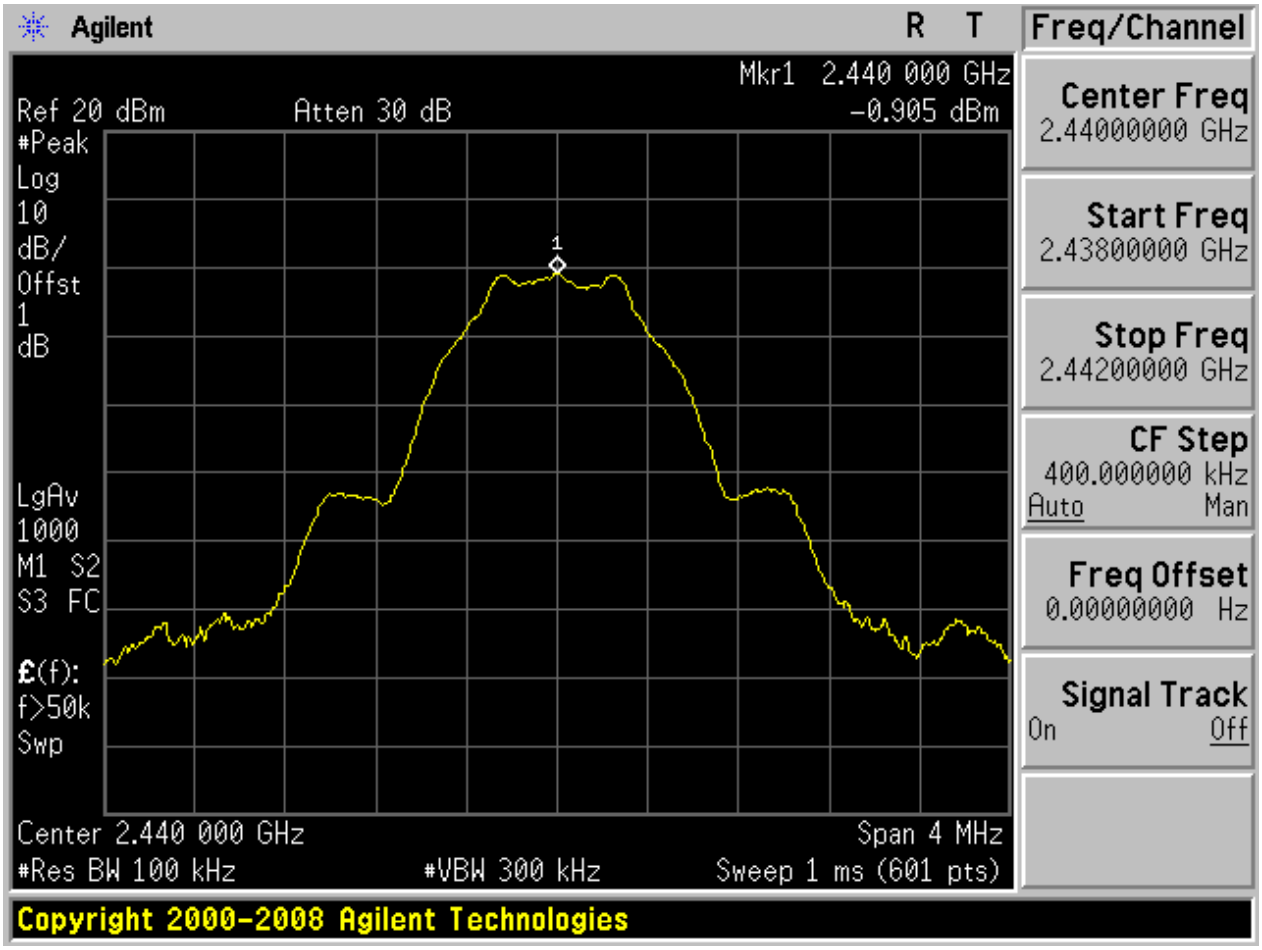




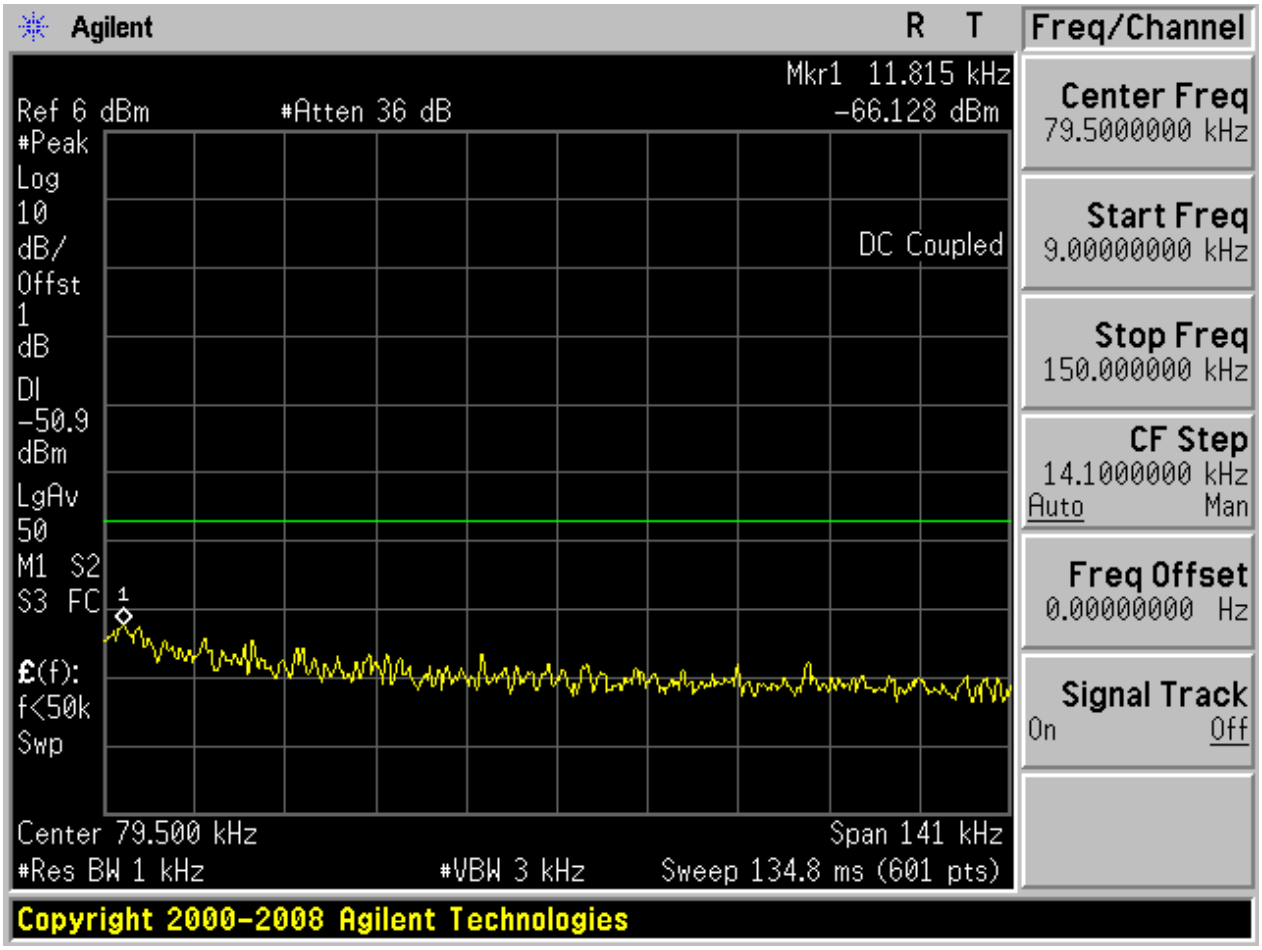


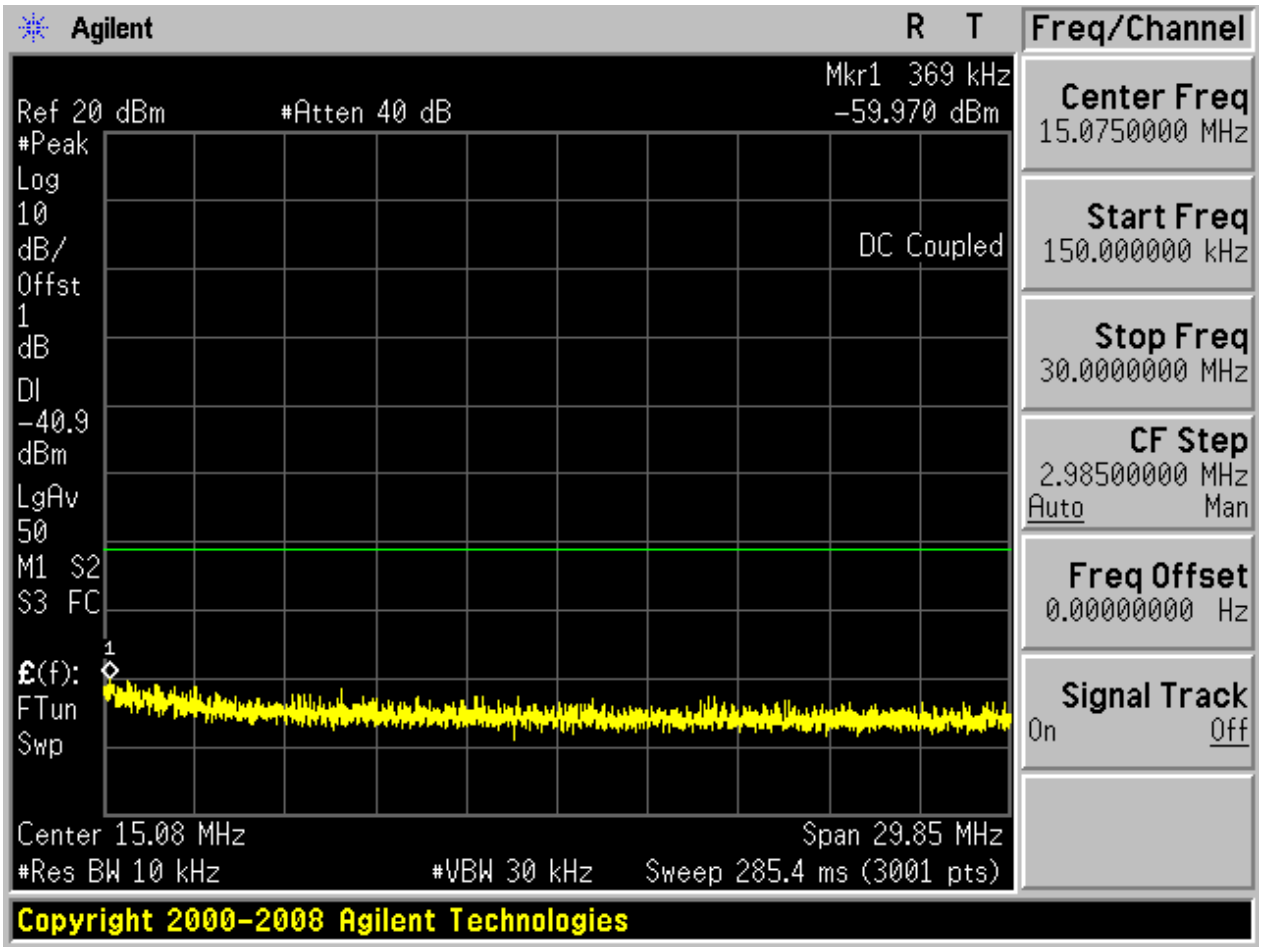
2.3 TM1_Ch19

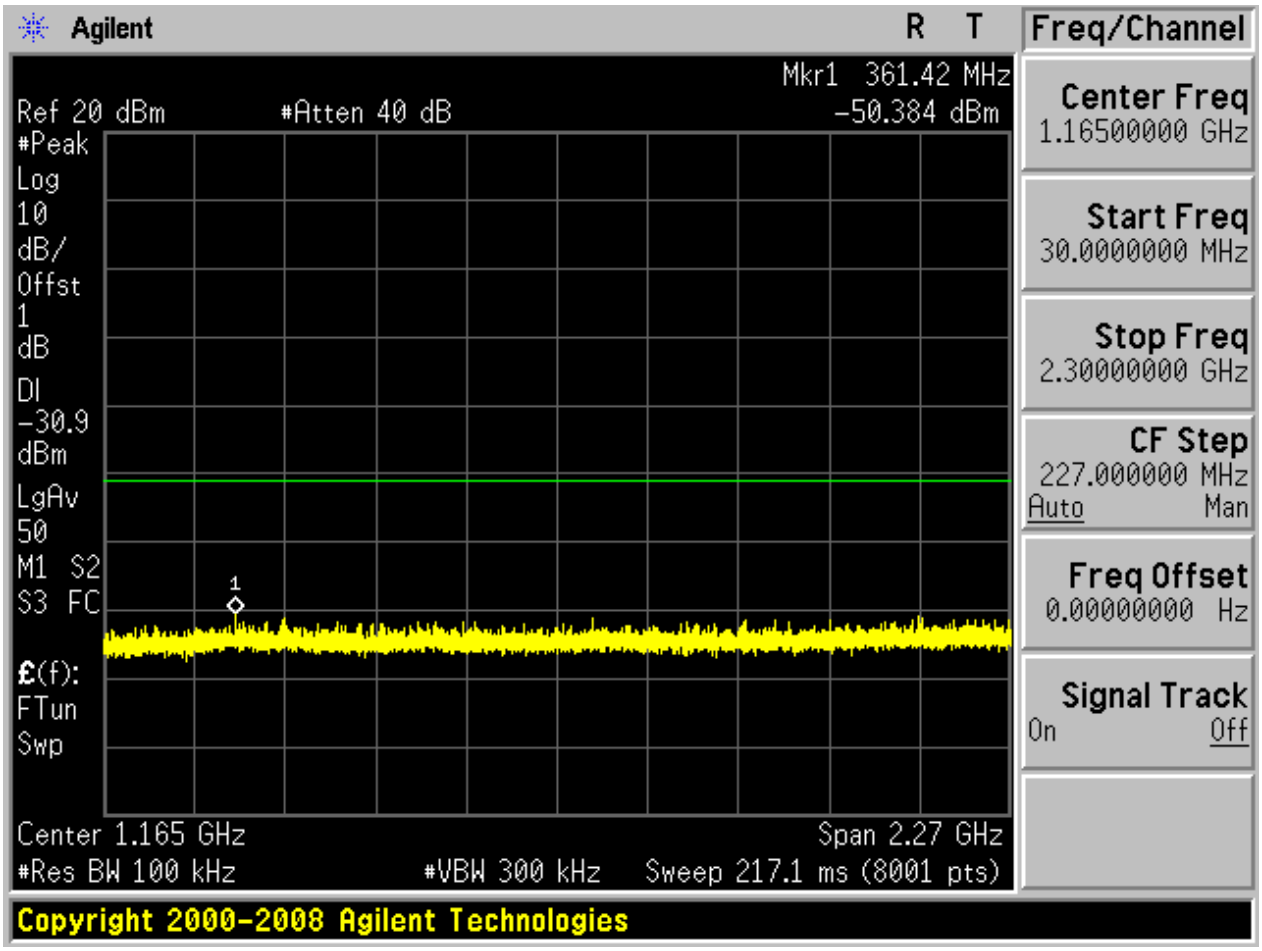
Pref:

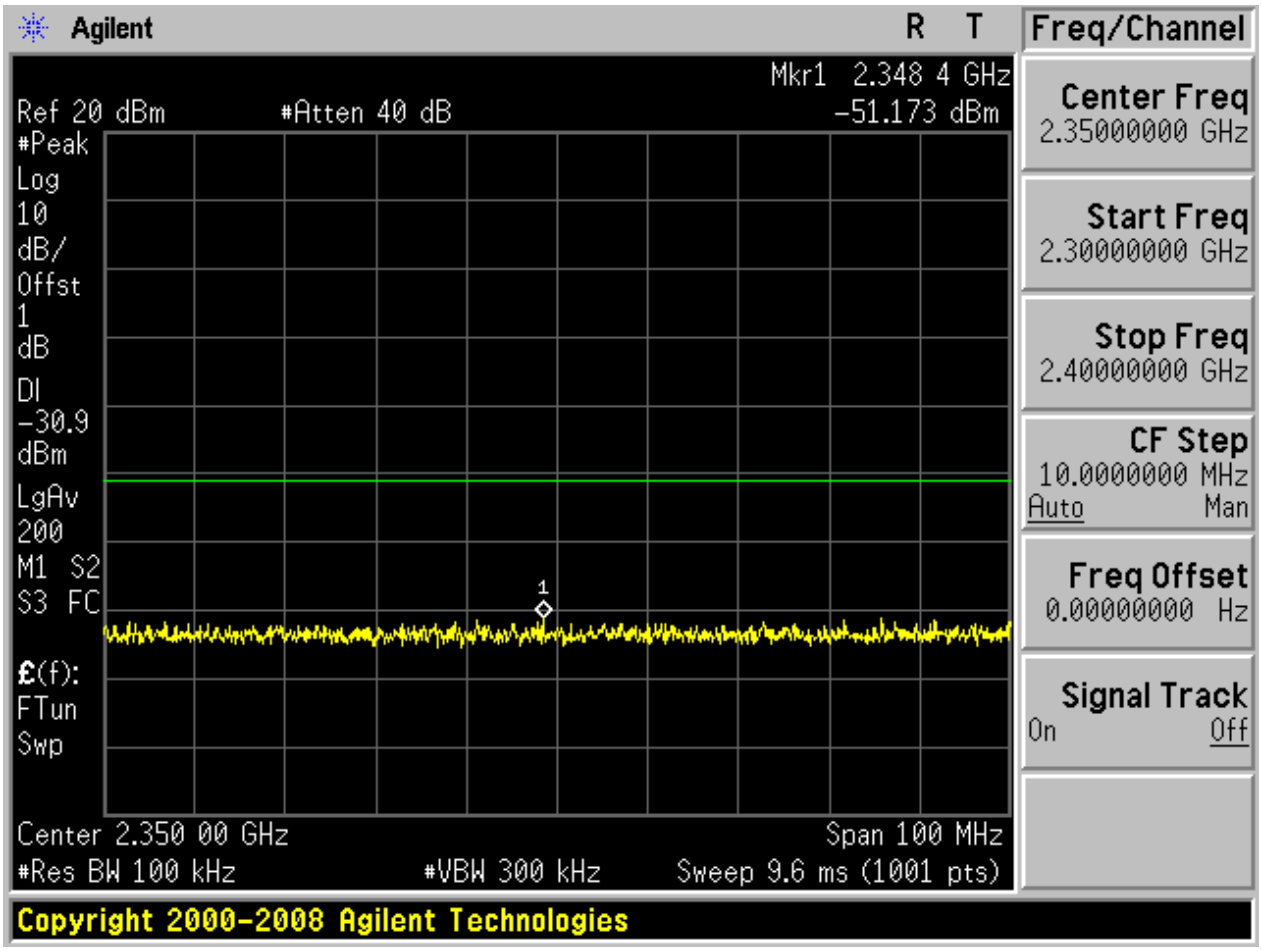


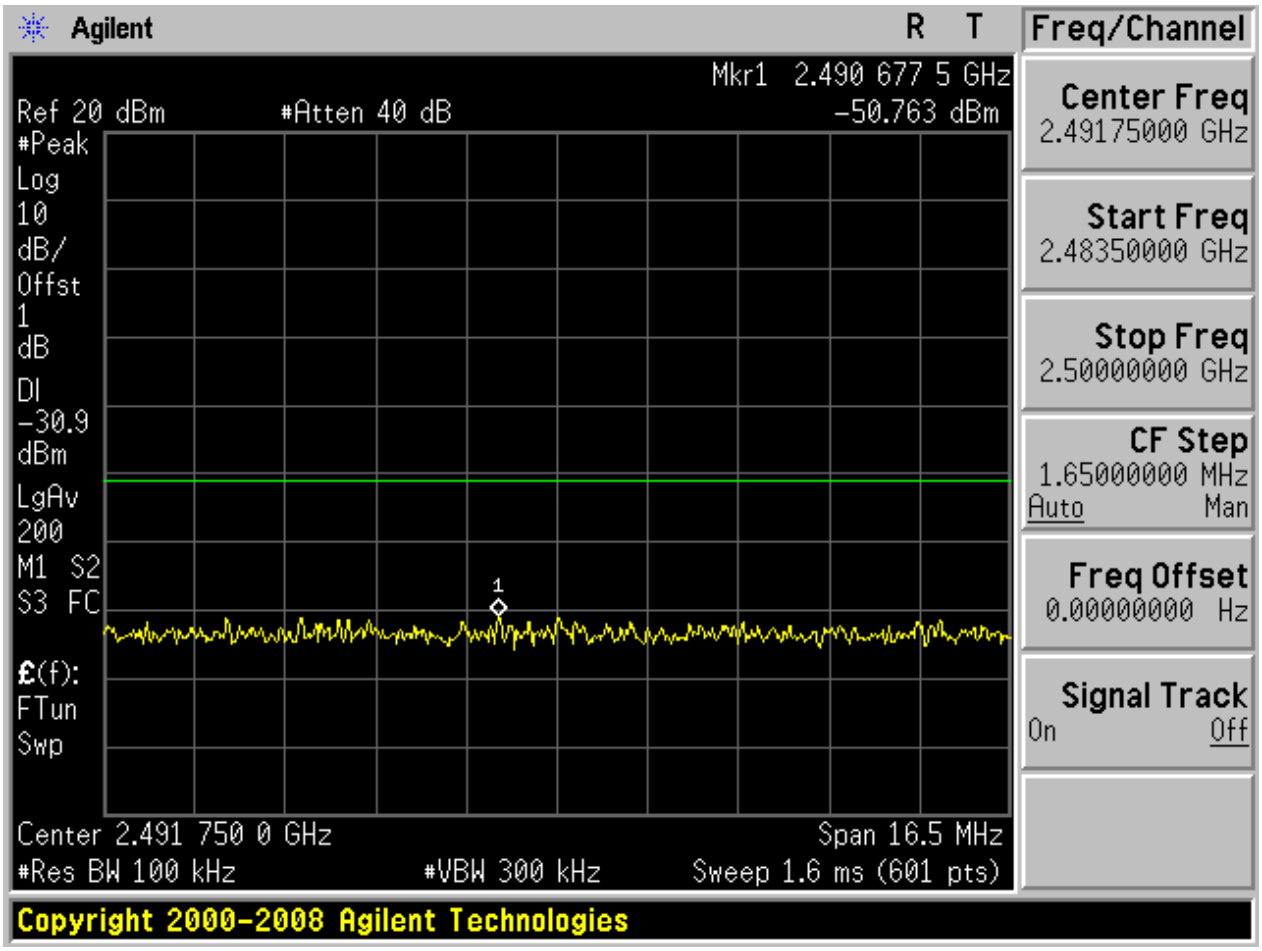
Puw:

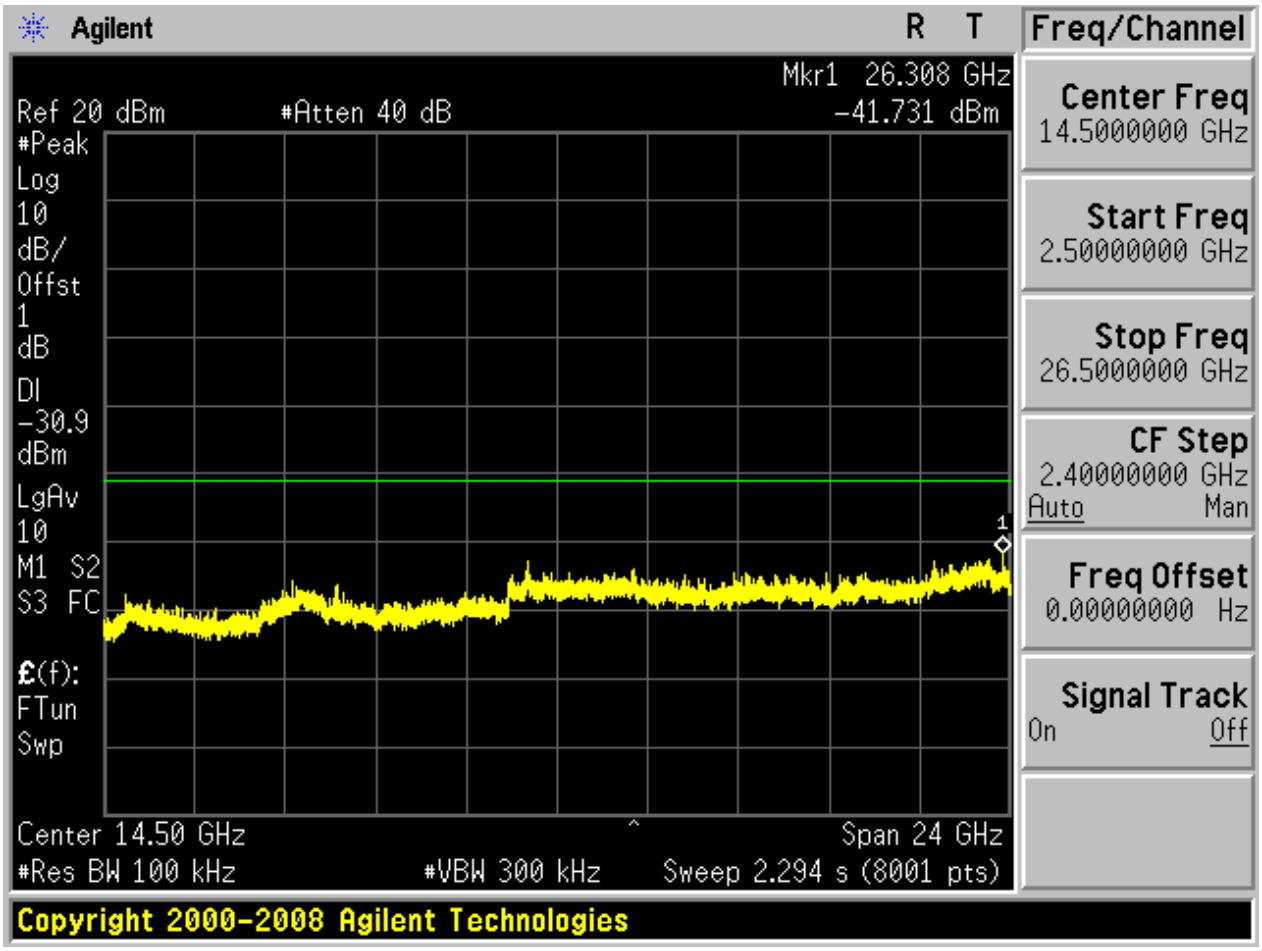

Agilent
R T
Freq/Channel
Mkr1 11.815 kHz
Ref 6 dBm
#Atten 36 dB
-66.128 dBm
#Peak
Log
10
dB/
Offst
1
dB
Dl
-50.9
dBm
LgAv
50
M1 S2
S3 FC
£(f):
f<50k
Swp
DC Coupled
Center Freq
79.5000000 kHz
Start Freq
9.00000000 kHz
Stop Freq
150.000000 kHz
CF Step
14.1000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 79.500 kHz
Span 141 kHz
#Res BW 1 kHz
#VBW 3 kHz
Sweep 134.8 ms (601 pts)
Copyright 2000-2008 Agilent Technologies





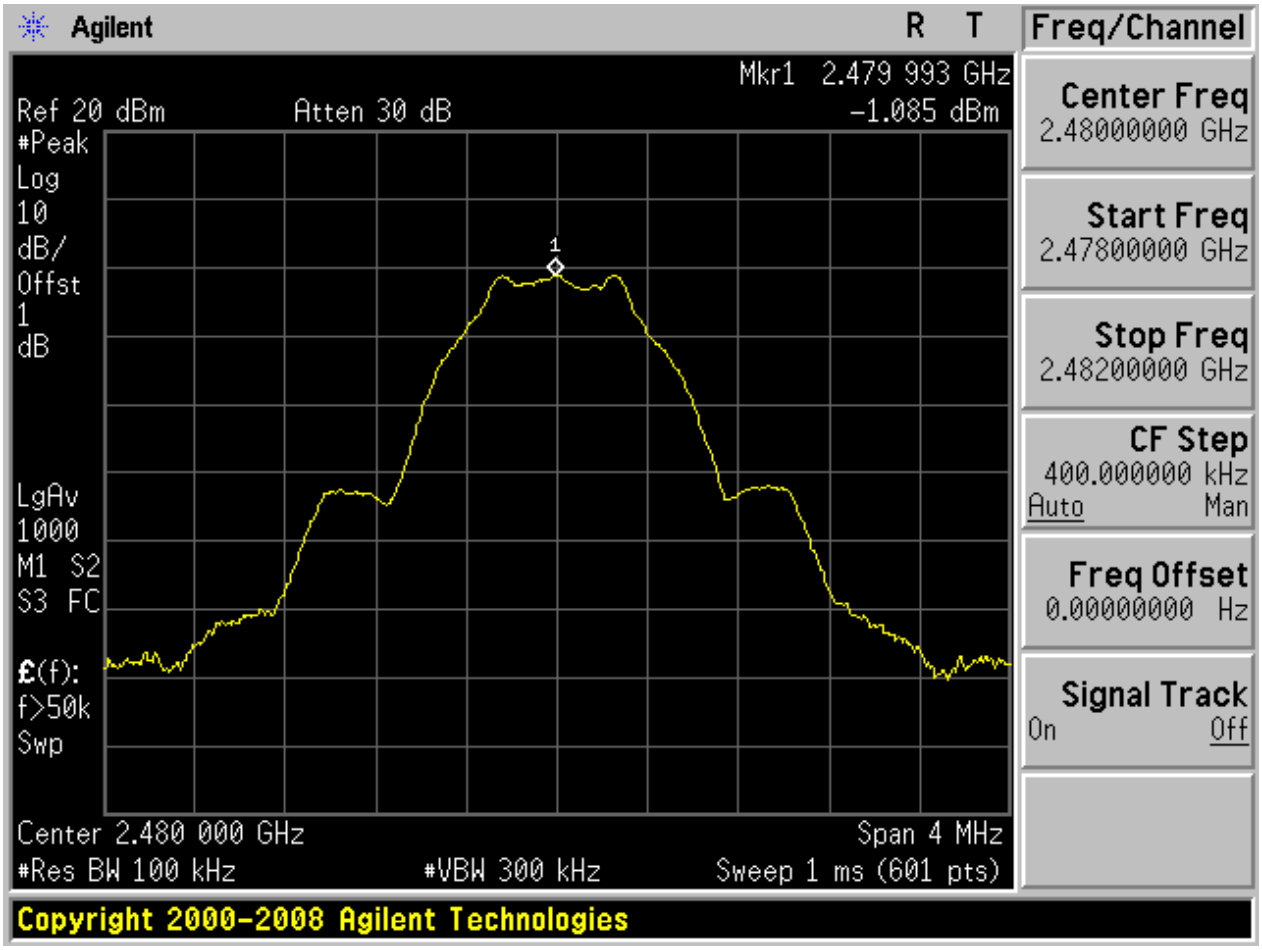




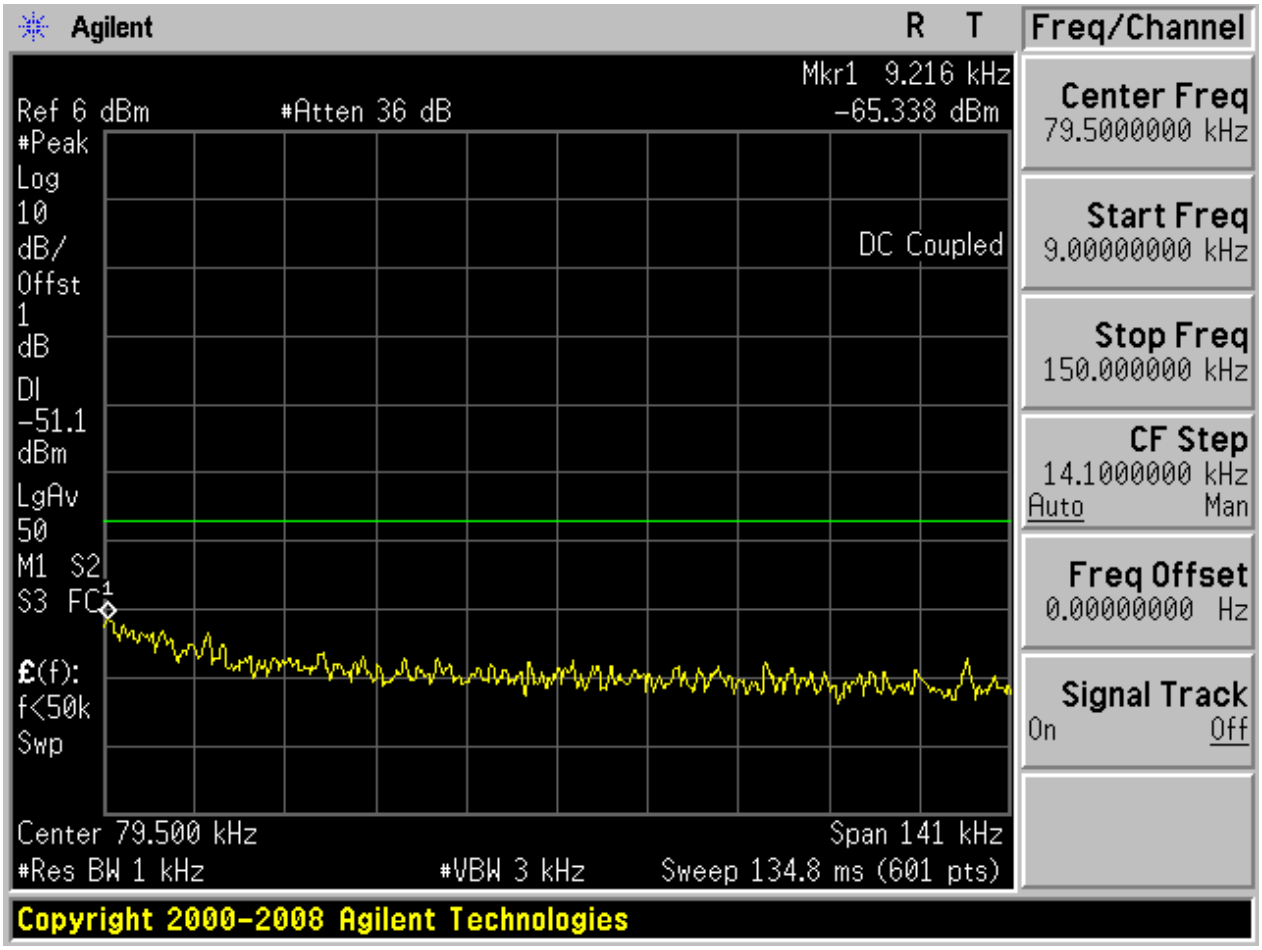


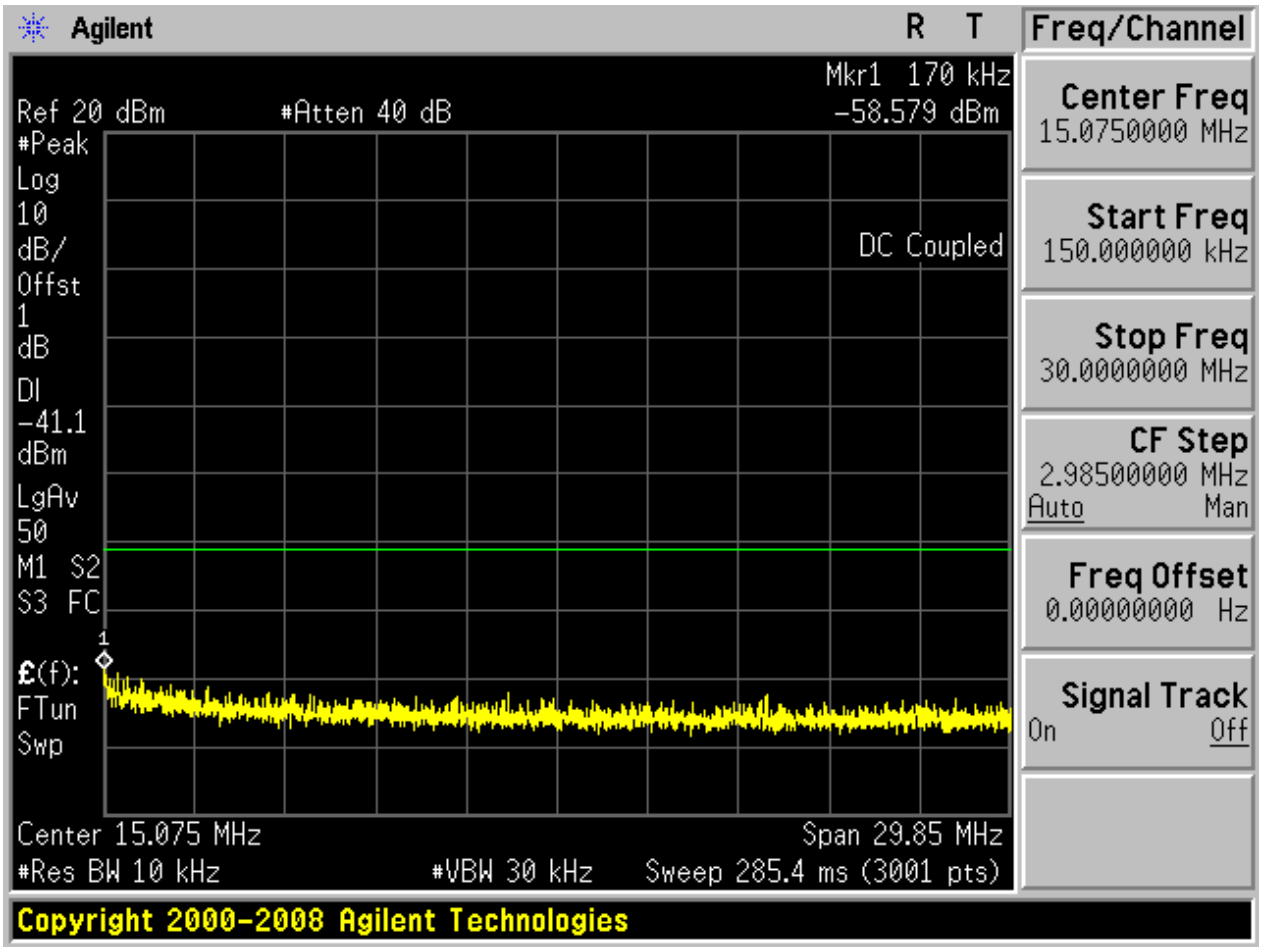
2.5 TM1_Ch39

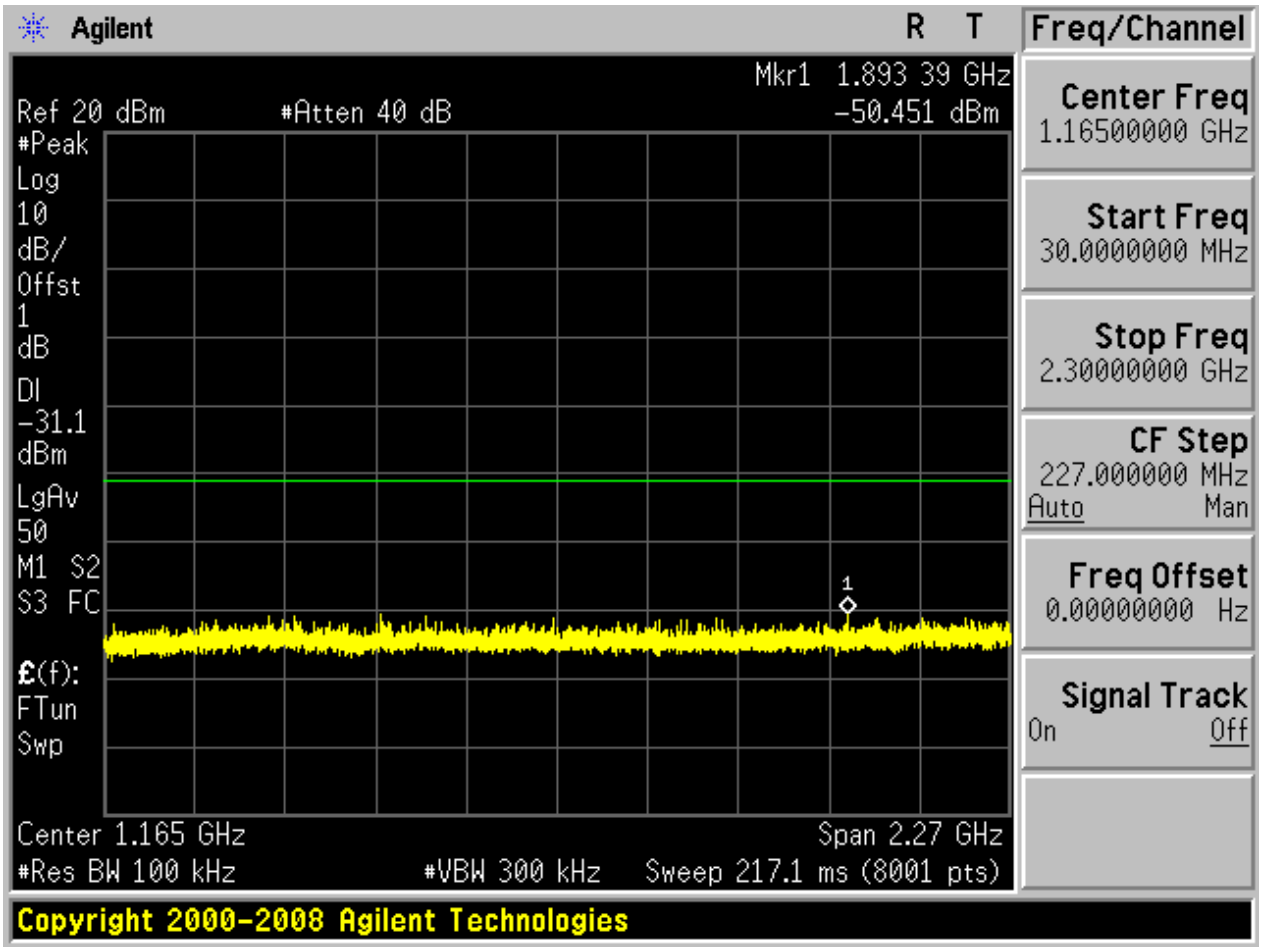
Pref:

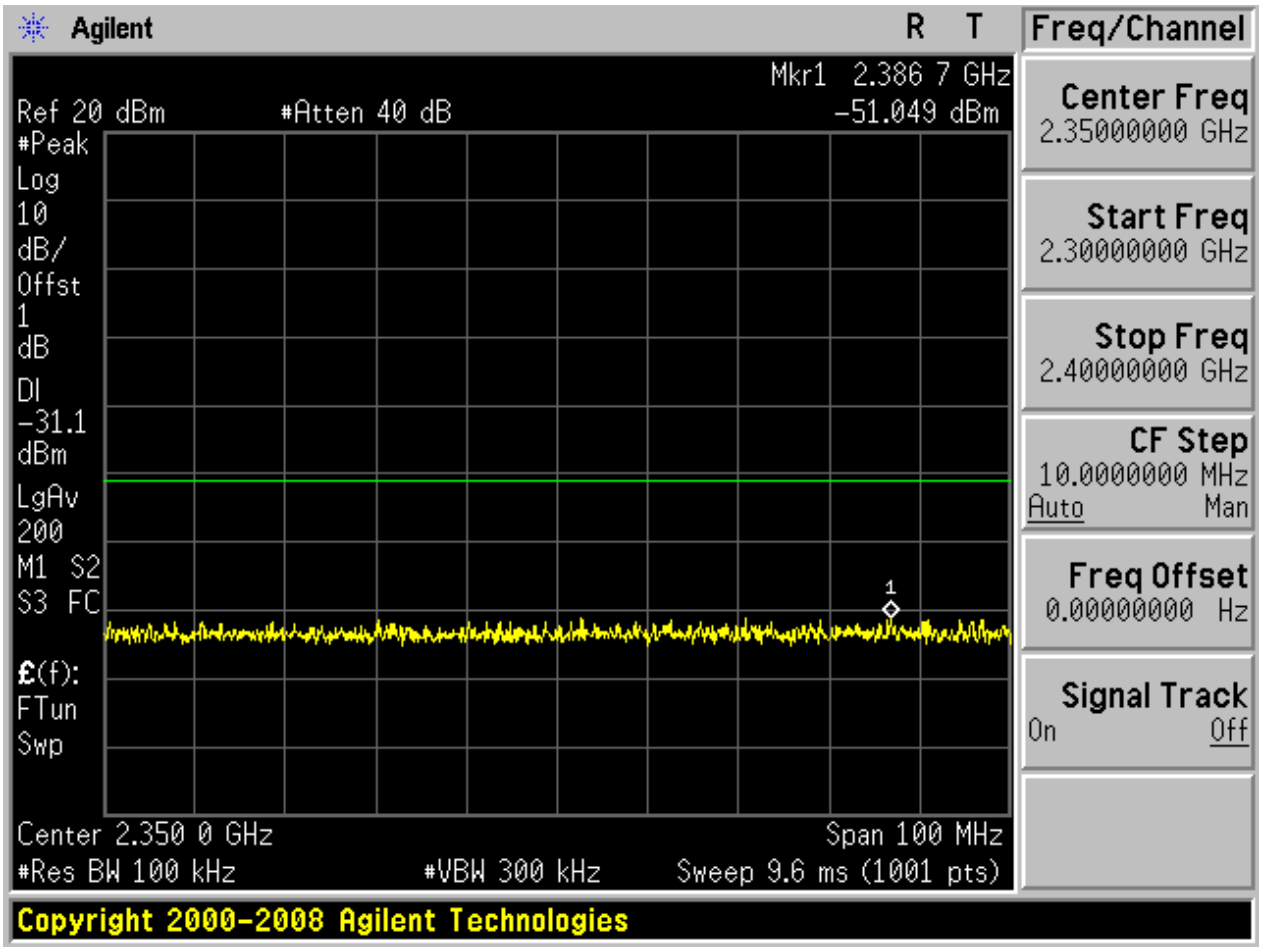


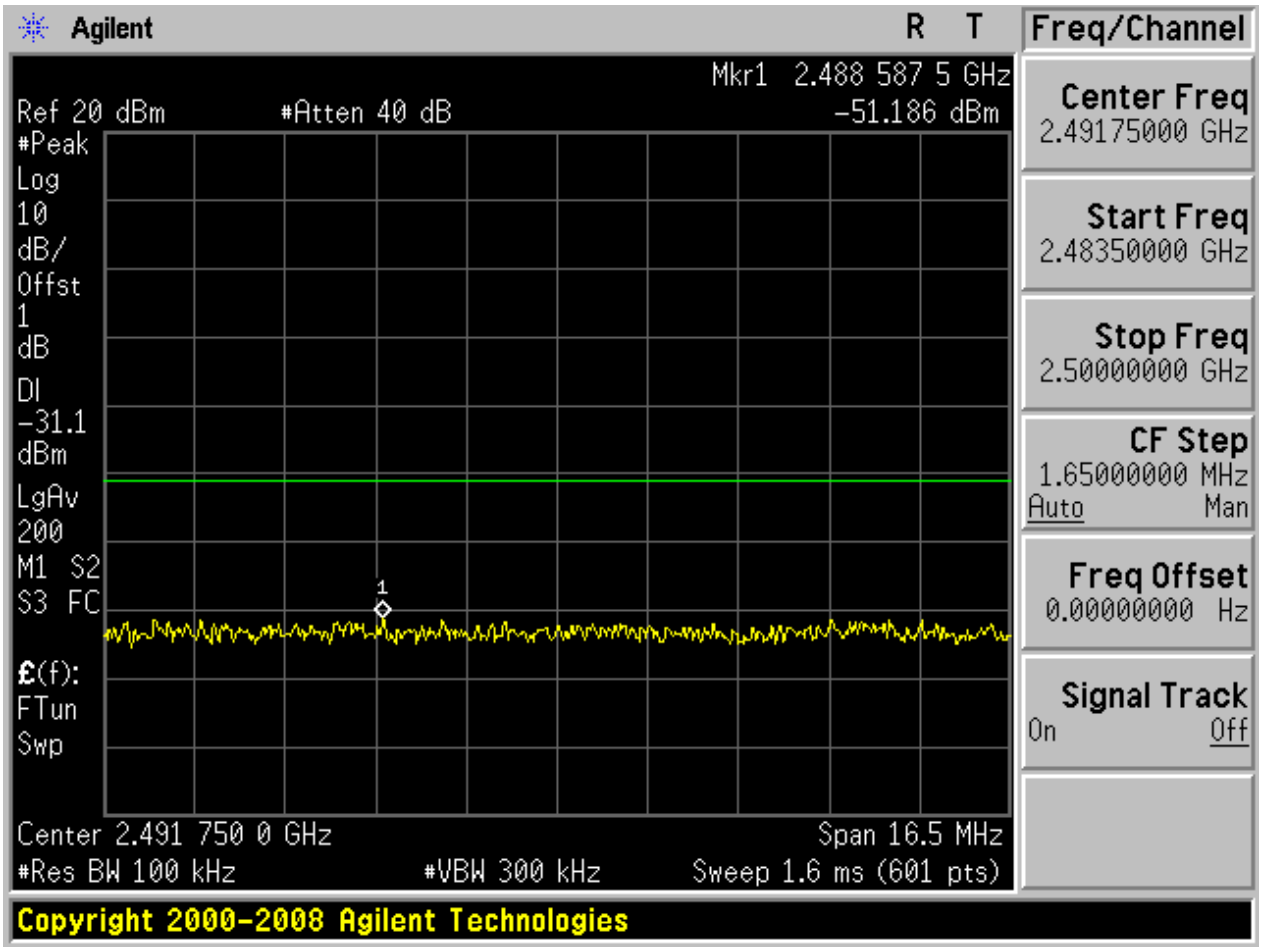
Puw:

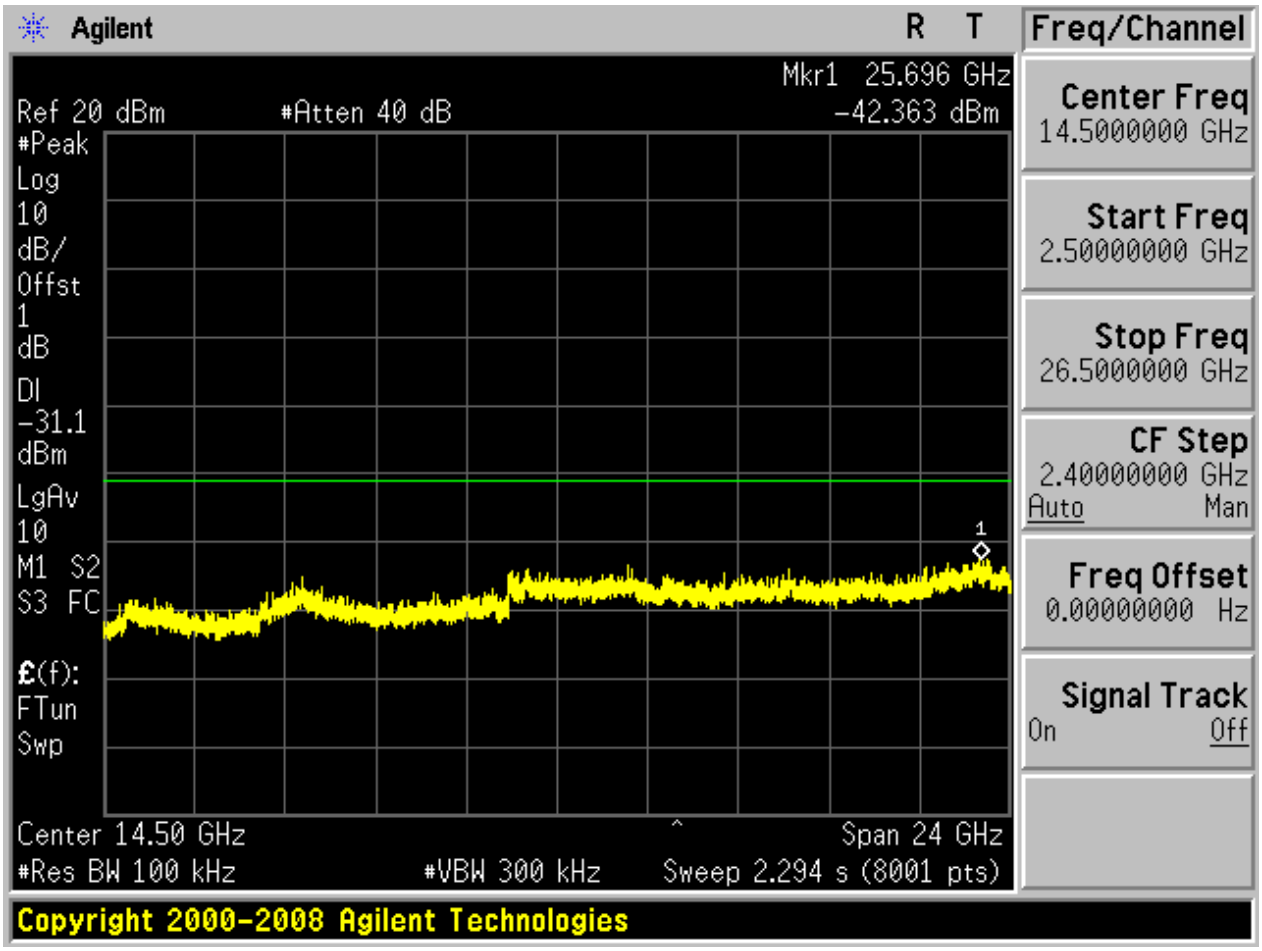












Appendix H: Radiated Spurious Emission & Spurious in Restricted Band

Note: We tested all modes, but the data presented below is the worst case.Below 1GHz, RBW = 100 kHz, VBW = 300 kHz.

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

The simultaneous transmission has been considered

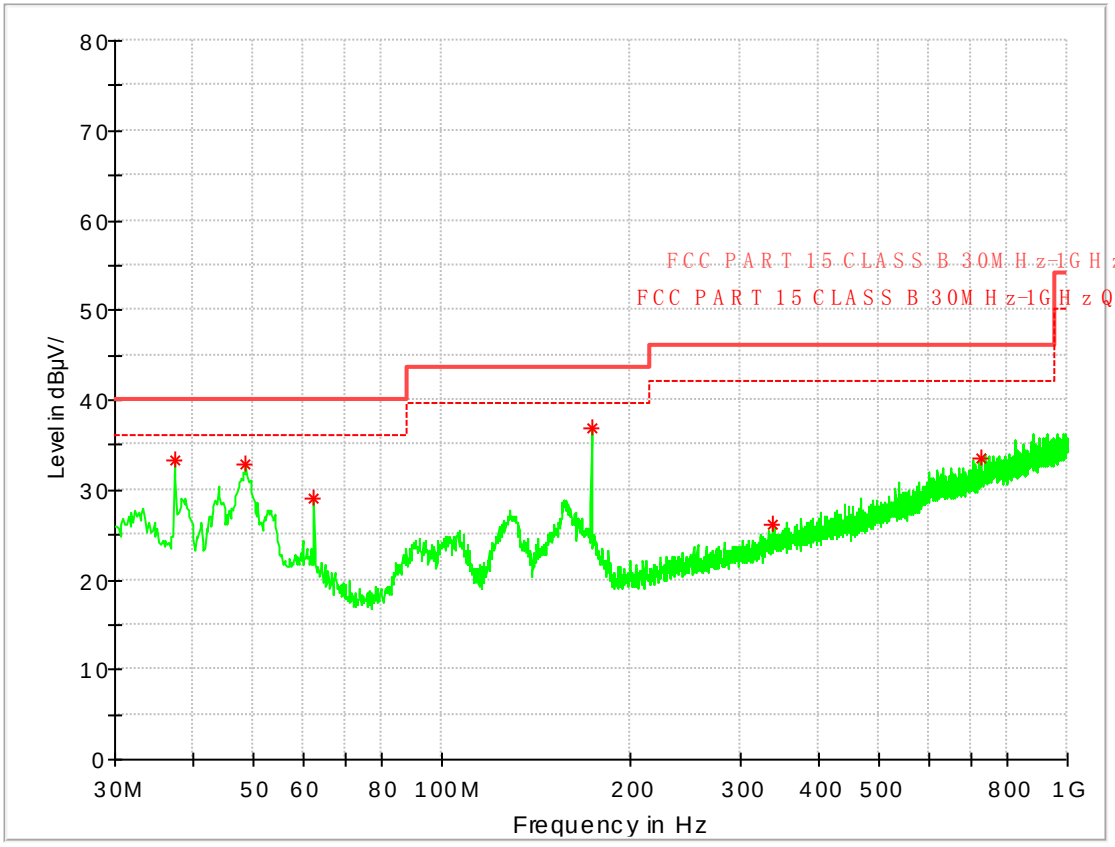
7.1Part 1: Testing Range of “9 kHz to 30MHz”

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

7.2Part 2: Testing Range of “30 MHz to 1 GHz”

Note 1: The test results and plot for testing range of “30 MHz to 1 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

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



Final Result 1

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth	Corr. (dB)
37.372000	33.30	40.00	-6.70	100.0	V	56.0	15.2
48.624000	32.76	40.00	-7.24	100.0	V	310.	15.1
62.398000	29.13	40.00	-10.87	100.0	V	244.	12.7
173.560000	36.85	43.50	-6.65	100.0	V	280.	11.1
338.266000	26.09	46.00	-19.91	100.0	V	32.0	16.7
727.042000	33.55	46.00	-12.45	100.0	H	335.	23.4

7.3Part 3: Testing Range of “18 GHz to 26.5 GHz”

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

7.4Part 4: 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.

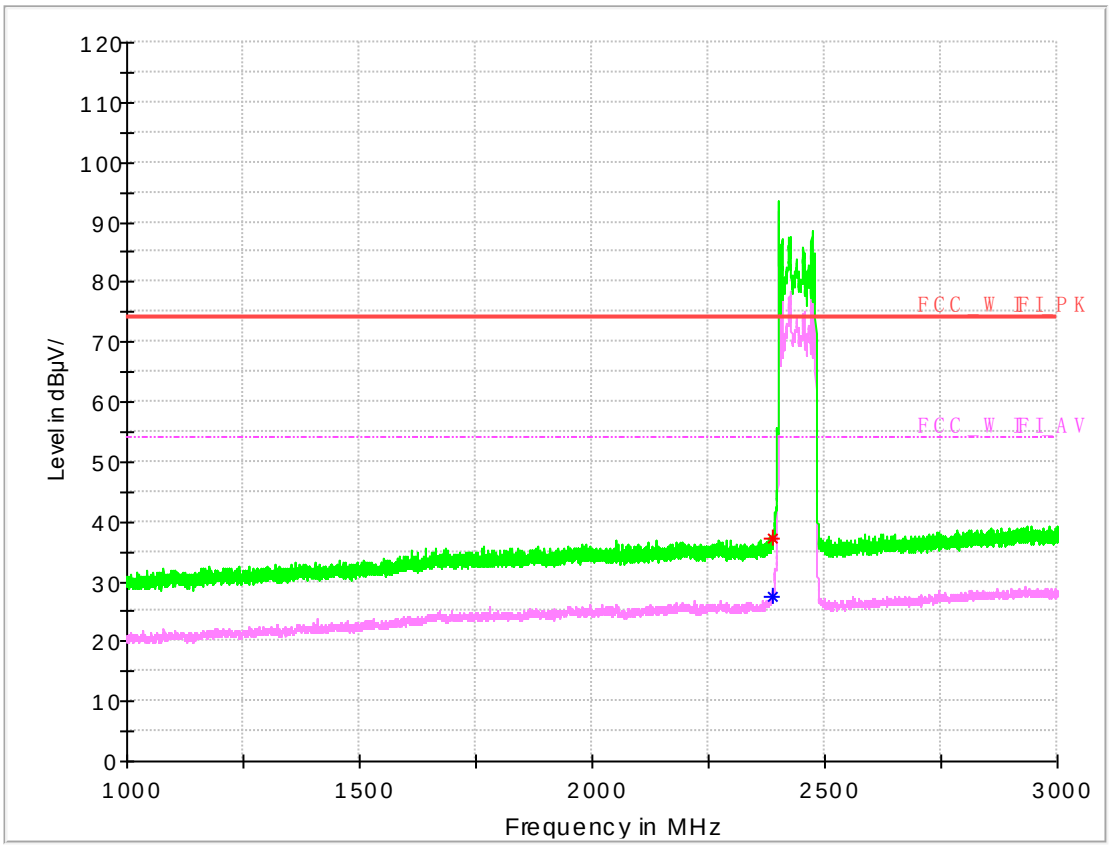
Note 2: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dBµV/m) and Average Limit (54 dBµV/m).

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

Test Mode:

7.4.1Test Mode: BLE

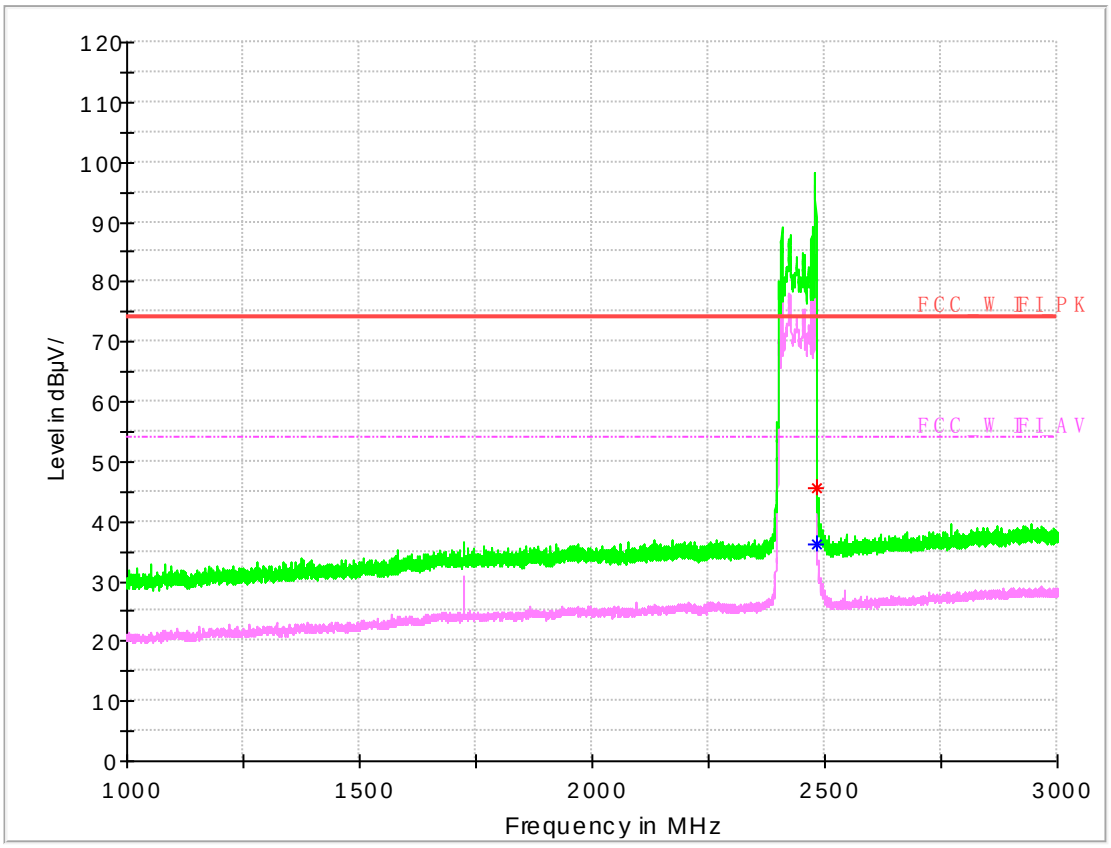
7.4.1.1Channel 0



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

Frequency (MHz)	MaxPeak (dB μ	Average (dB μ	Limit (dB μ	Margin (dB)	Height (cm)	Pol	Azimuth	Corr.
2390.000000	---	27.55	54.00	-26.45	100.0	H	189.0	-7.8
2390.000000	37.27	---	74.00	-36.73	100.0	H	189.0	-7.8

7.4.1.2 Channel 78



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

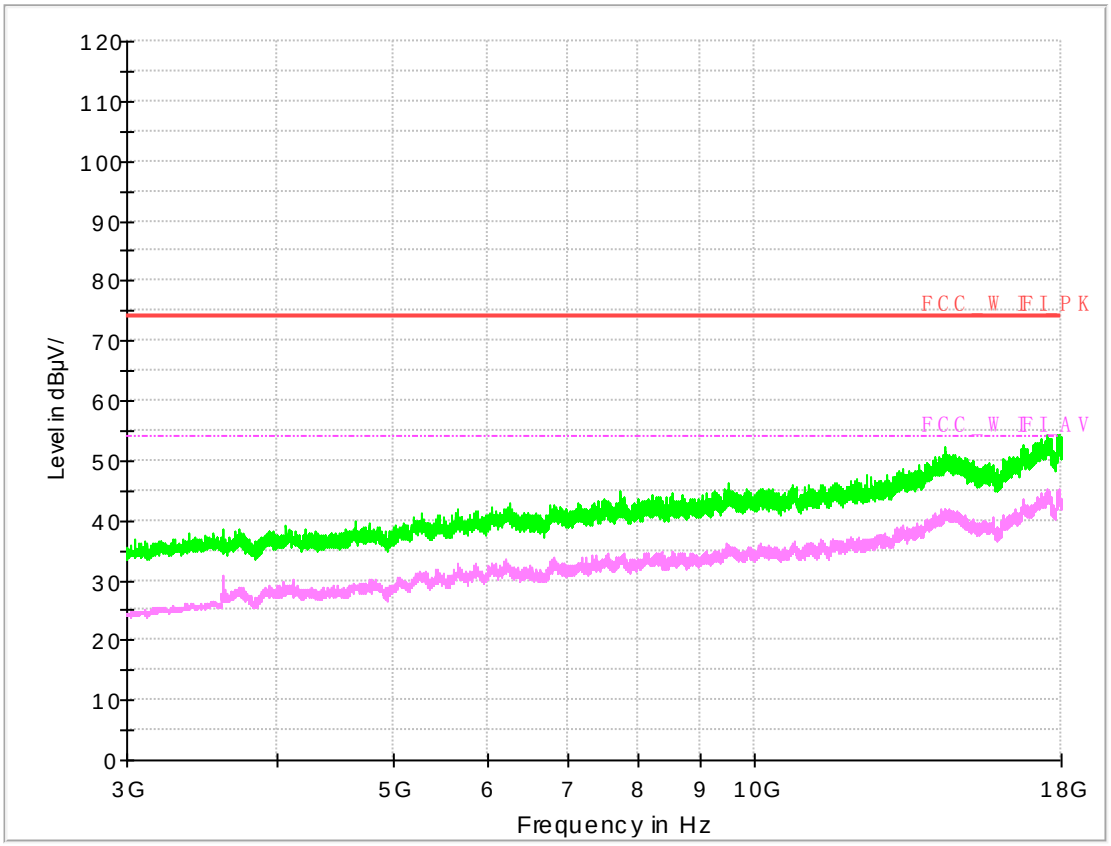
Frequency (MHz)	MaxPeak	Average (dB µ	Limit (dB µ	Margin (dB)	Height (cm)	Pol	Azimuth	Corr.
2483.500000	---	36.22	54.00	-17.78	100.0	H	198.0	1.2
2483.500000	45.43	---	74.00	-28.57	100.0	V	157.0	1.2

7.5Part 5: Testing Range of “3 GHz to 18 GHz”

Note 1: The test results and plot for testing range of “3 GHz to 18 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

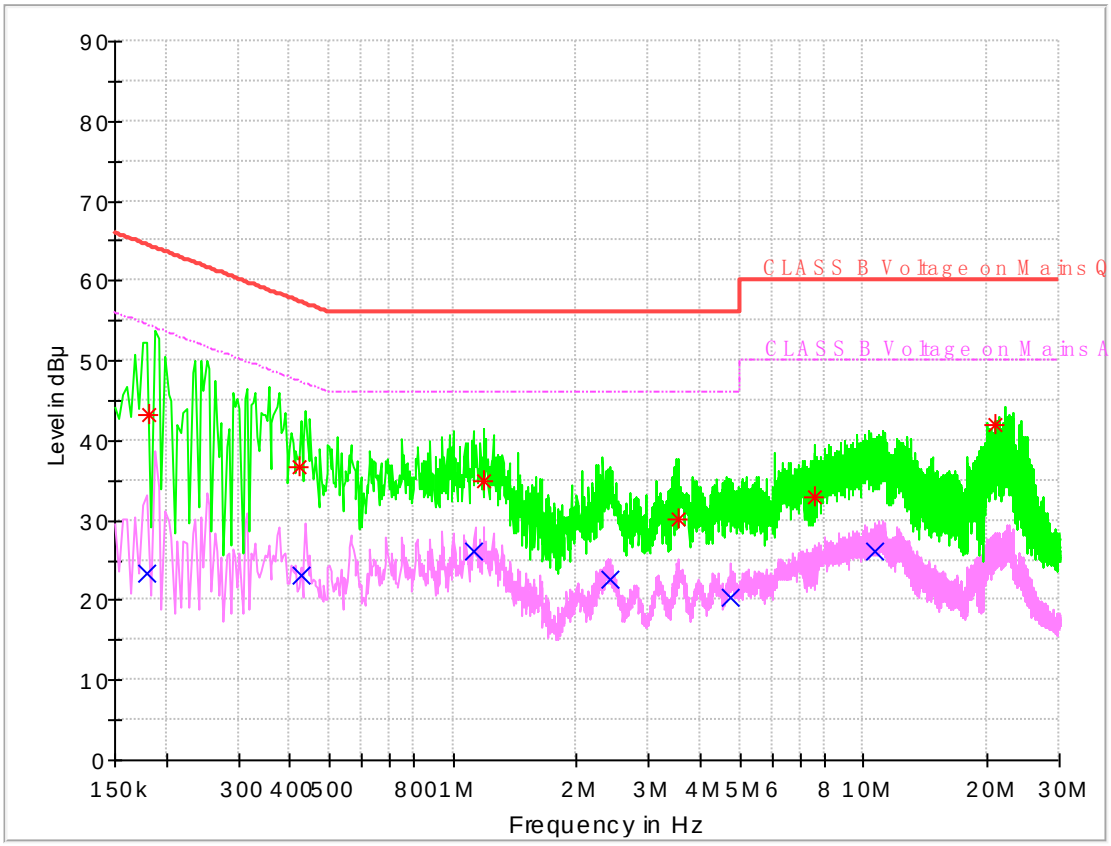
Note 2: The testing range of “3 GHz to 18 GHz” is for checking radiated emissions located in restricted bands faraway from the EUT operating bands.

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



Appendix I: Conducted Emission at Power Port

Note: RBW =9 kHz, VBW = 30 kHz



Final Result 1

Frequency (MHz)	QuasiPeak	Average (dBμ V)	Limit (dB μ	Corr. (dB)	Margin (dB)	Line	Filter
0.180771	43.29	---	64.45	9.7	-21.16	L1	ON
20.867923	42.05	---	60.00	10.2	-17.95	N	ON
7.610162	32.97	---	60.00	9.9	-27.03	N	ON
0.422047	36.63	---	57.41	9.7	-20.78	N	ON
3.541028	30.10	---	56.00	9.8	-25.90	N	ON
1.189500	35.01	---	56.00	9.7	-20.99	N	ON
0.179759	---	23.43	54.50	9.7	-31.07	L1	ON
10.684239	---	26.26	50.00	10.0	-23.74	N	ON
0.426337	---	23.15	47.32	9.7	-24.18	N	ON
4.735258	---	20.46	46.00	9.9	-25.54	N	ON
1.125703	---	26.09	46.00	9.7	-19.91	N	ON
2.417328	---	22.63	46.00	9.8	-23.37	N	ON

END