



Appendix A: 20dB Emission Bandwidth (EBW)



1 Result Table

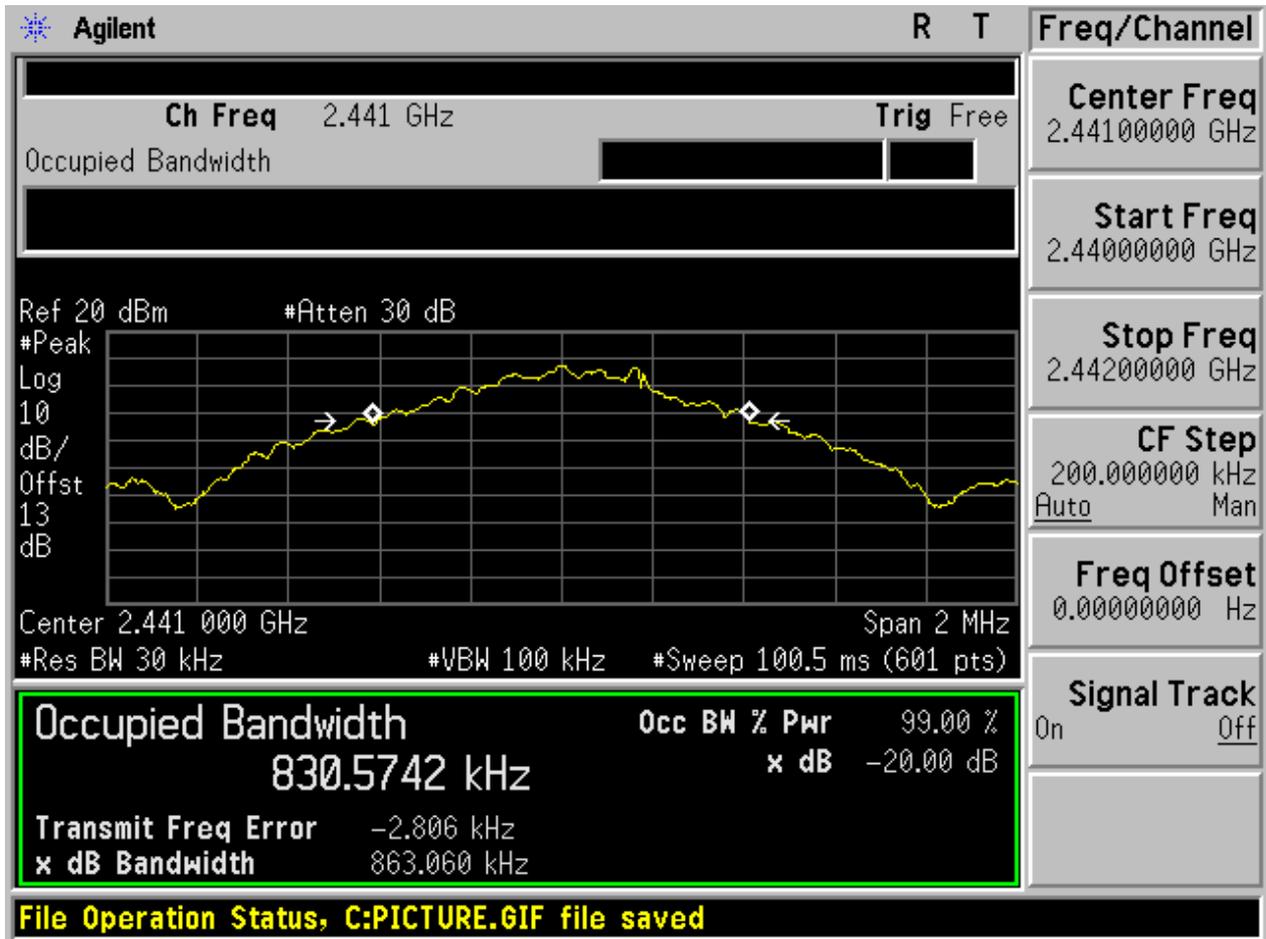
EUT Conf.	EBW [MHz]	Verdict
TM1_DH5_Ch0	0.864	Pass
TM1_DH5_Ch39	0.863	Pass
TM1_DH5_Ch78	0.862	Pass
TM2_2DH5_Ch0	1.277	Pass
TM2_2DH5_Ch39	1.279	Pass
TM2_2DH5_Ch78	1.279	Pass
TM3_3DH5_Ch0	1.278	Pass
TM3_3DH5_Ch39	1.279	Pass
TM3_3DH5_Ch78	1.280	Pass

2 Test Plot

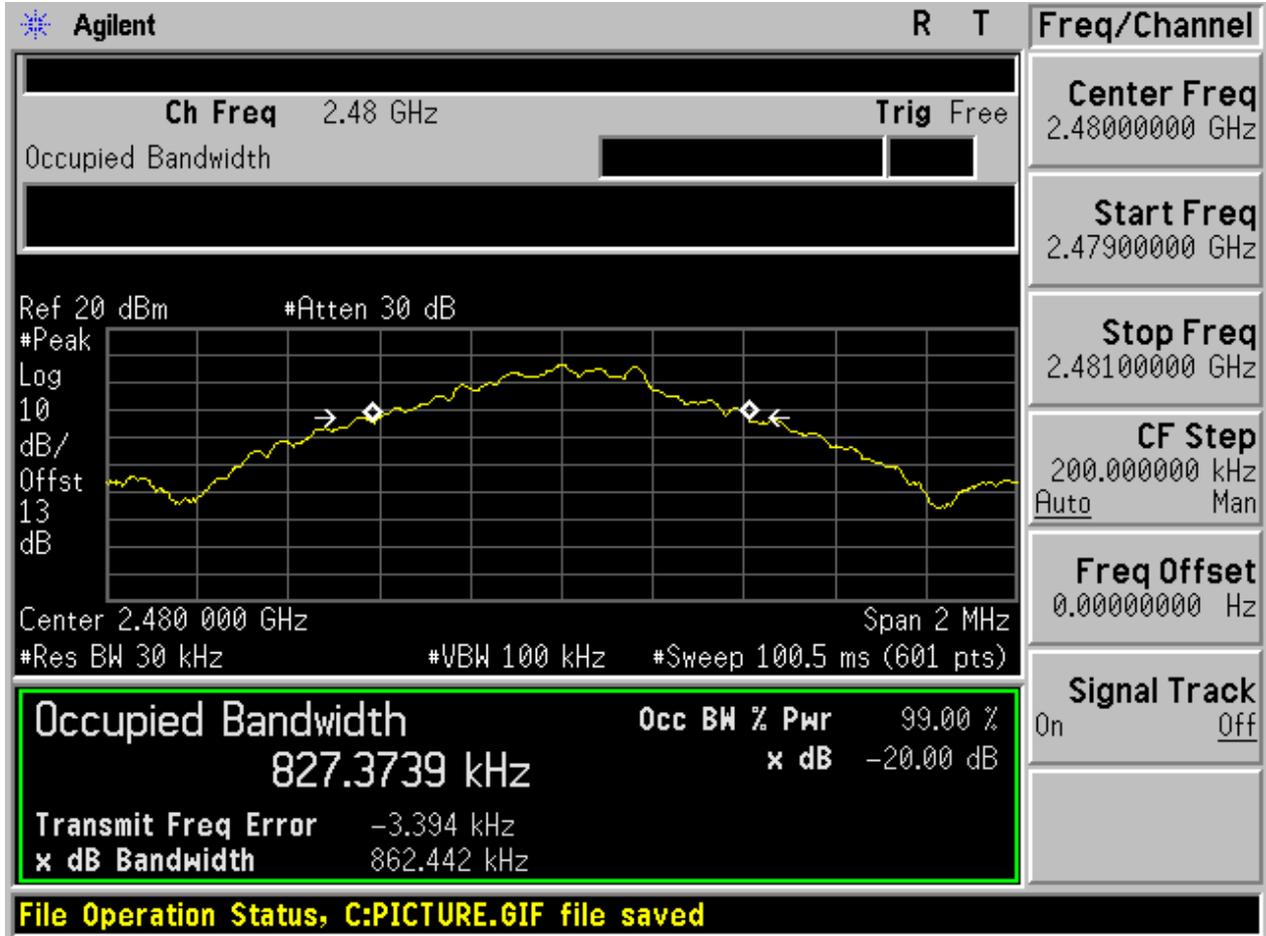
2.1 TM1_DH5_Ch0



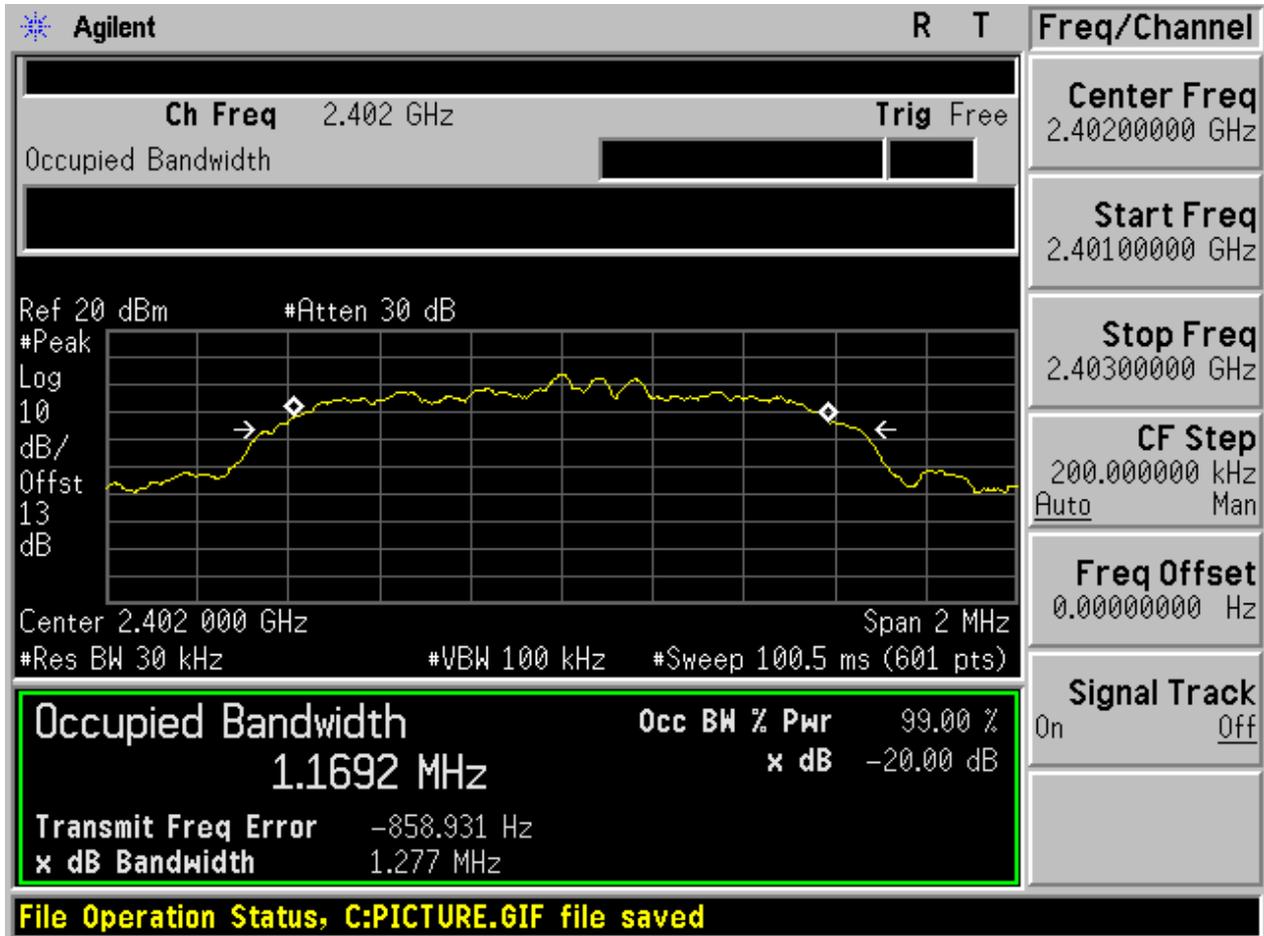
2.2 TM1_DH5_Ch39



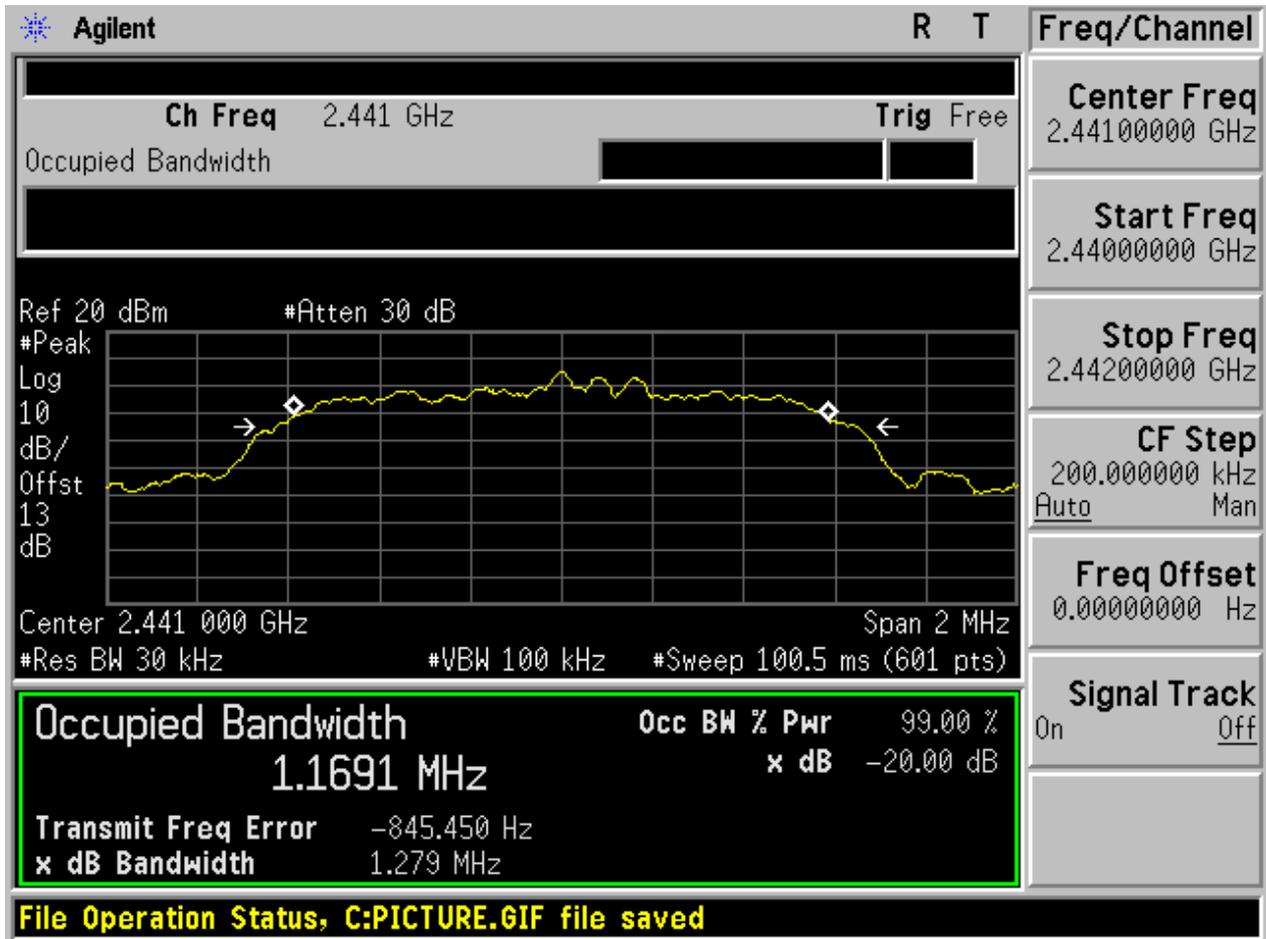
2.3 TM1_DH5_Ch78



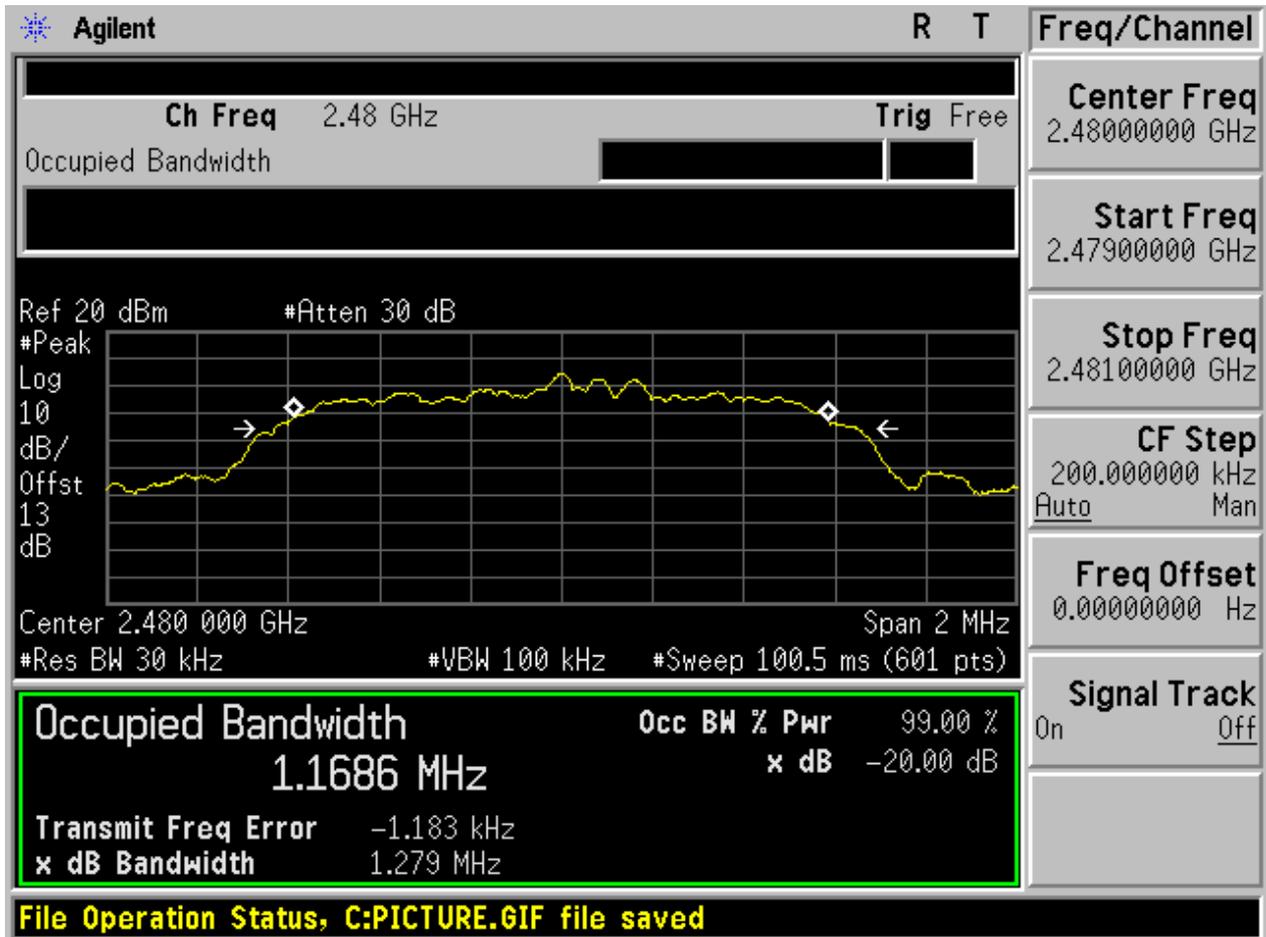
2.4 TM2_2DH5_Ch0



2.5 TM2_2DH5_Ch39



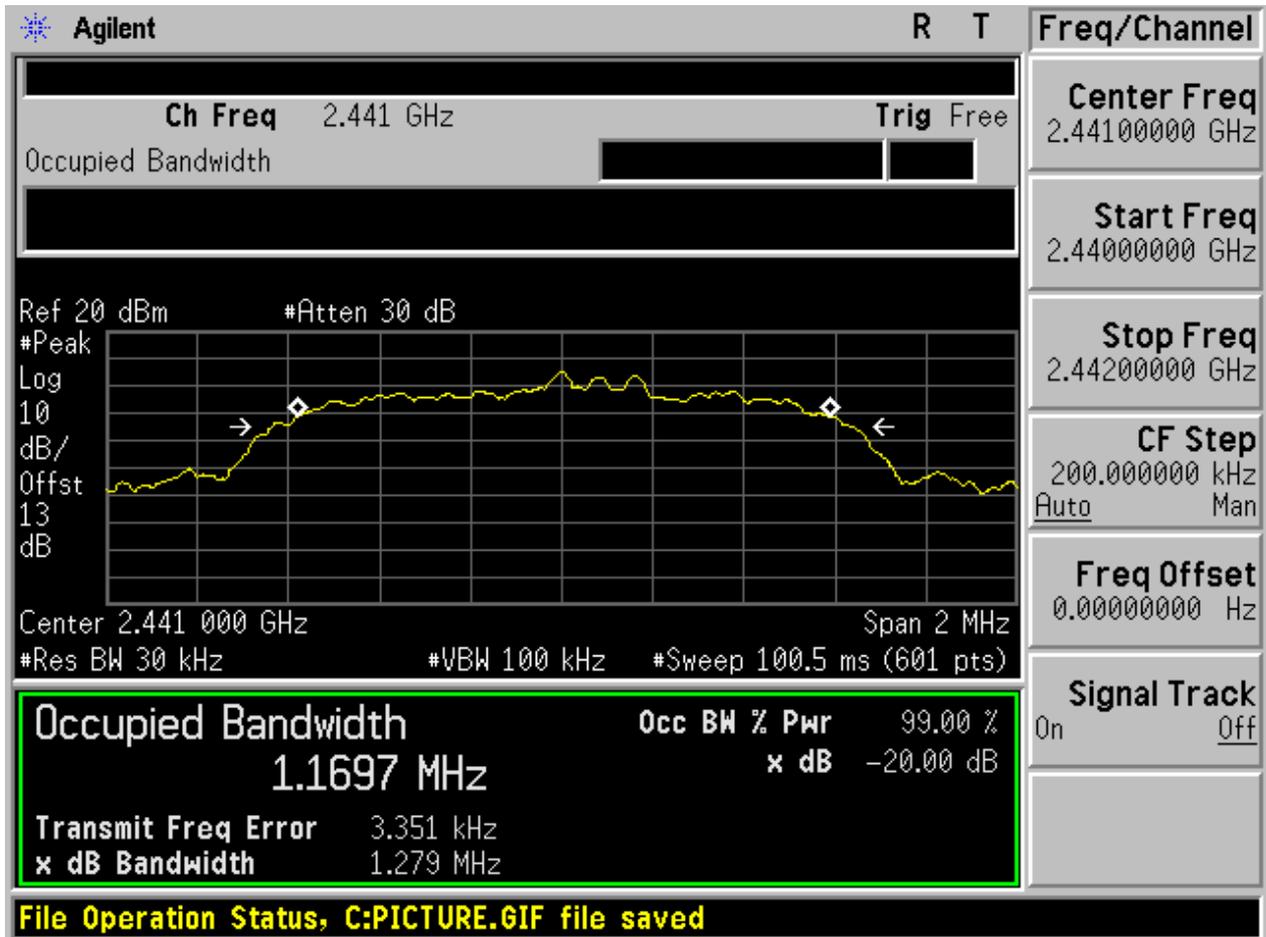
2.6 TM2_2DH5_Ch78



2.7 TM3_3DH5_Ch0



2.8 TM3_3DH5_Ch39



2.9 TM3_3DH5_Ch78





Appendix B: Carrier Frequency Separation

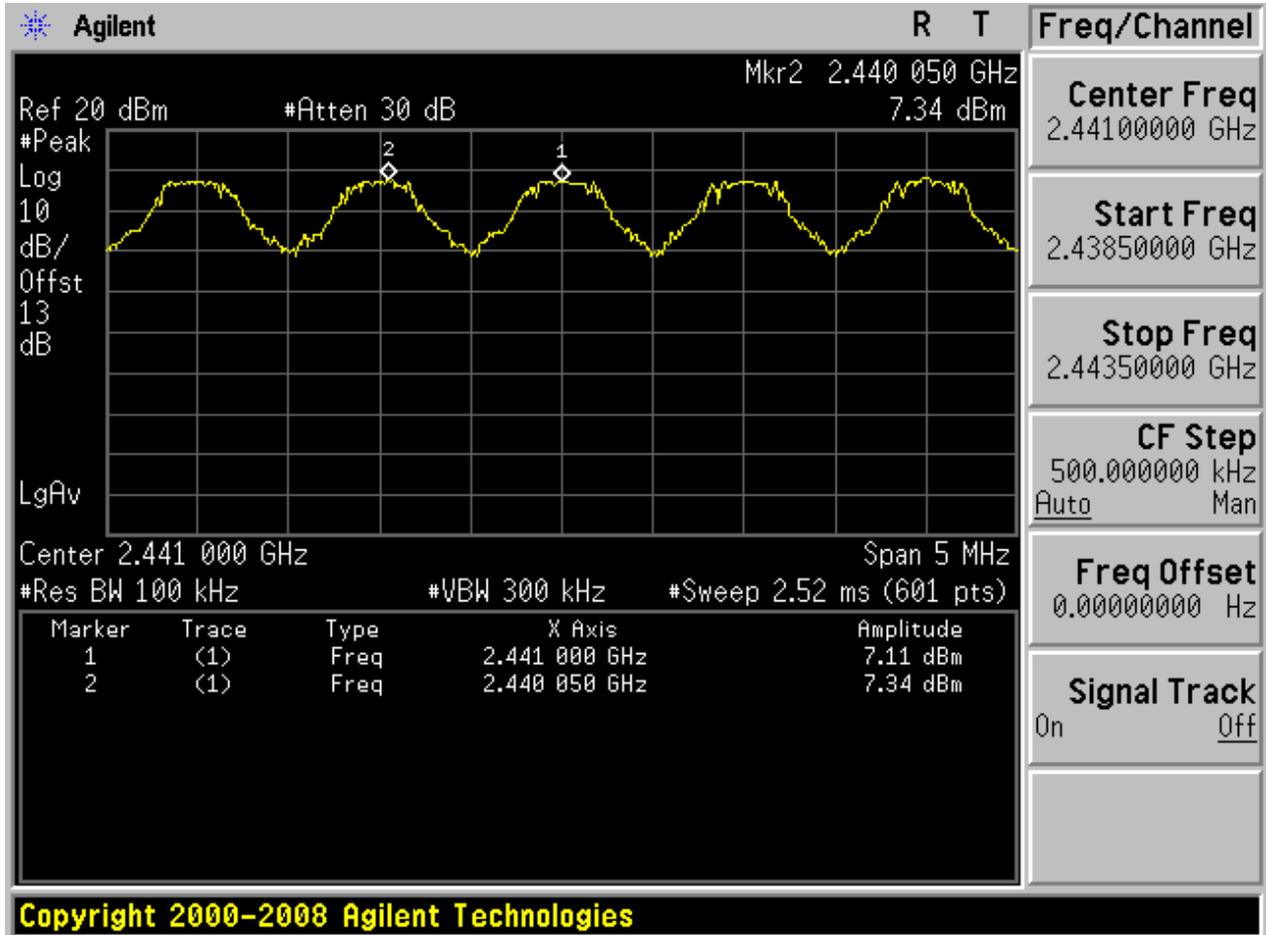


1 Result Table

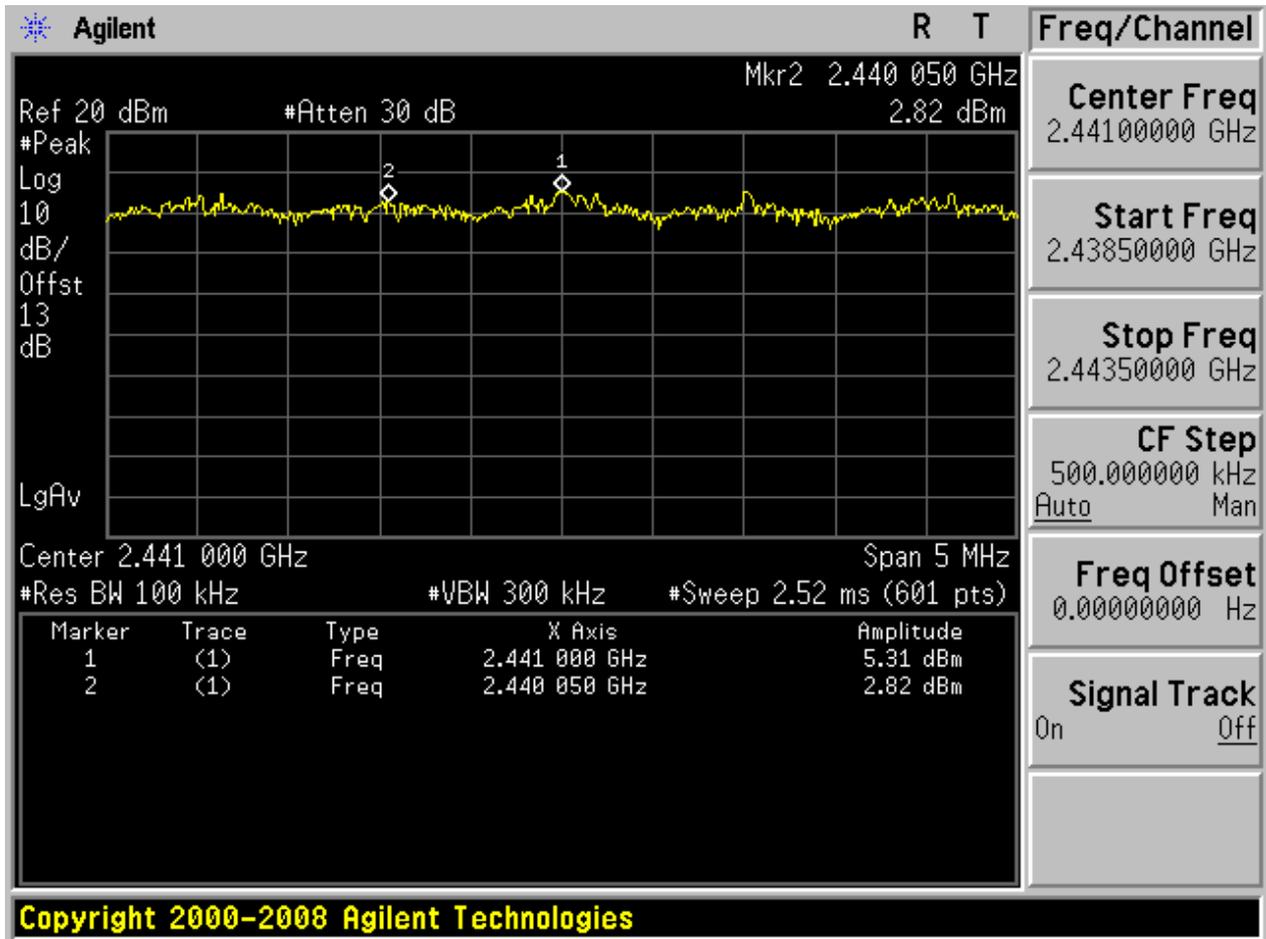
EUT Conf.	Carrier Frequency Separation [MHz]	Verdict
TM1_DH5_Hop	0.950	Pass
TM2_2DH5_Hop	0.950	Pass
TM3_3DH5_Hop	0.900	Pass

2 Test Plot

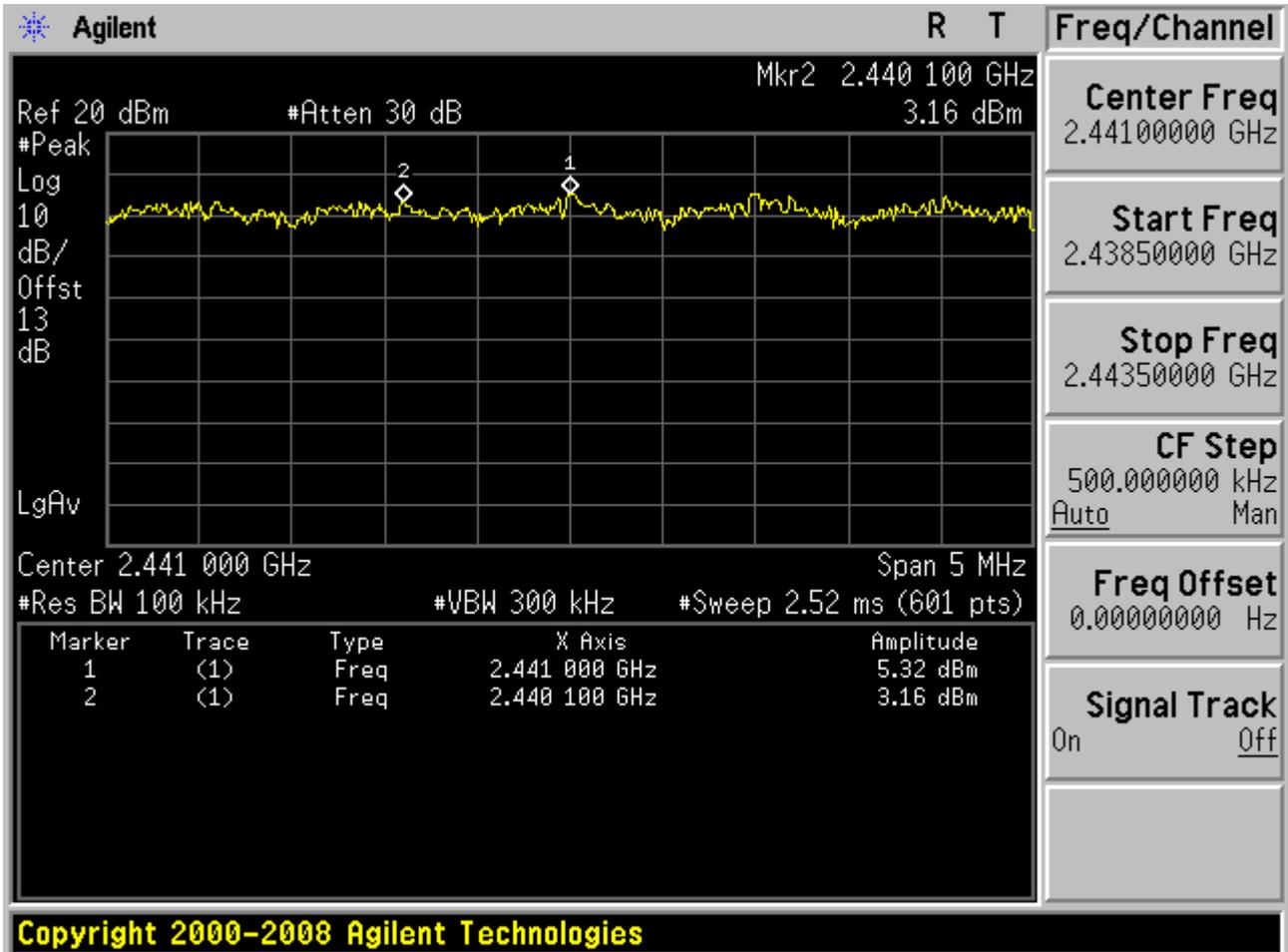
2.1 TM1_DH5_Hop



2.2 TM2_2DH5_Hop



2.3 TM3_3DH5_Hop





Appendix C: Number of Hopping Channel

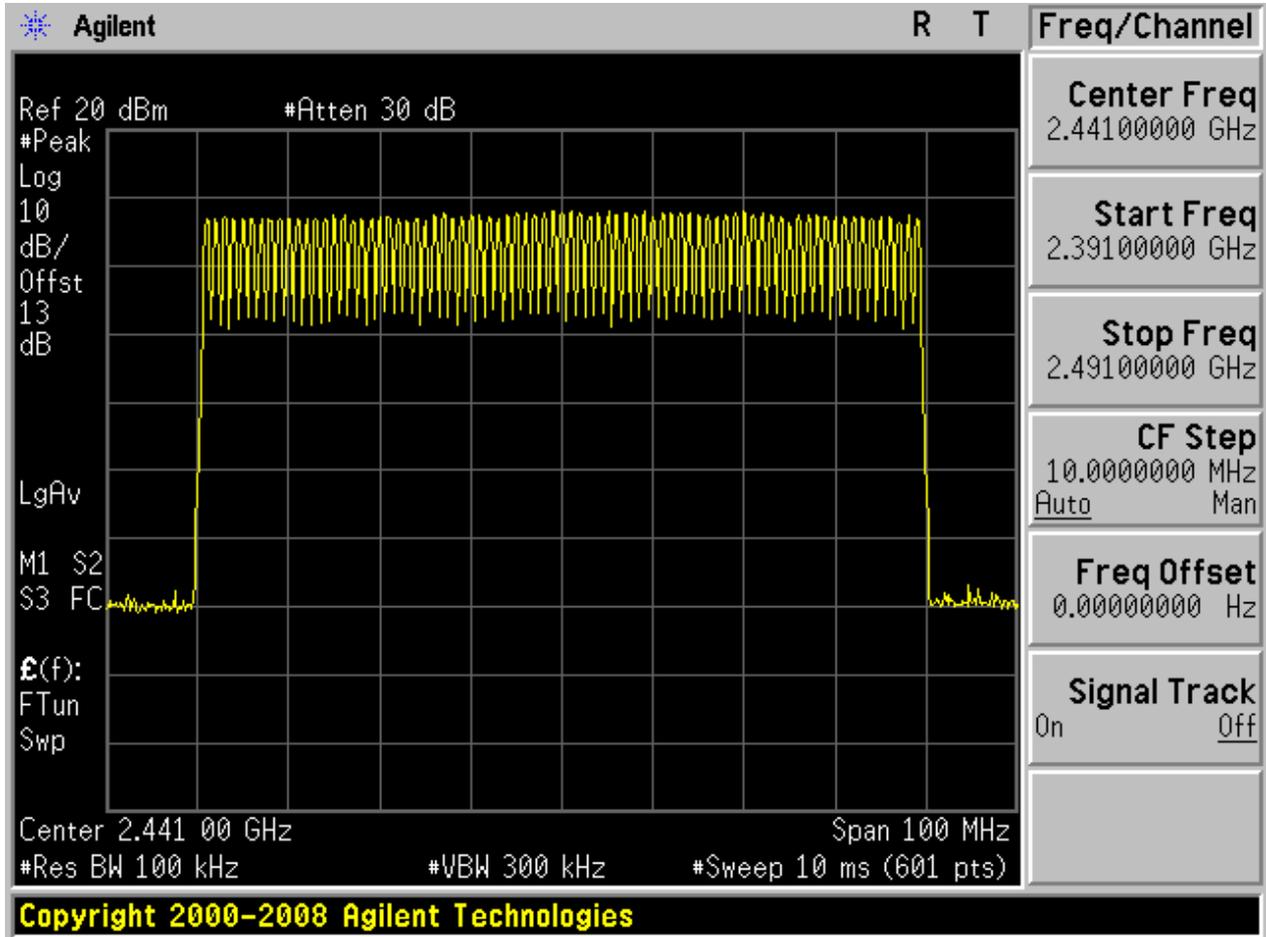


1 Result Table

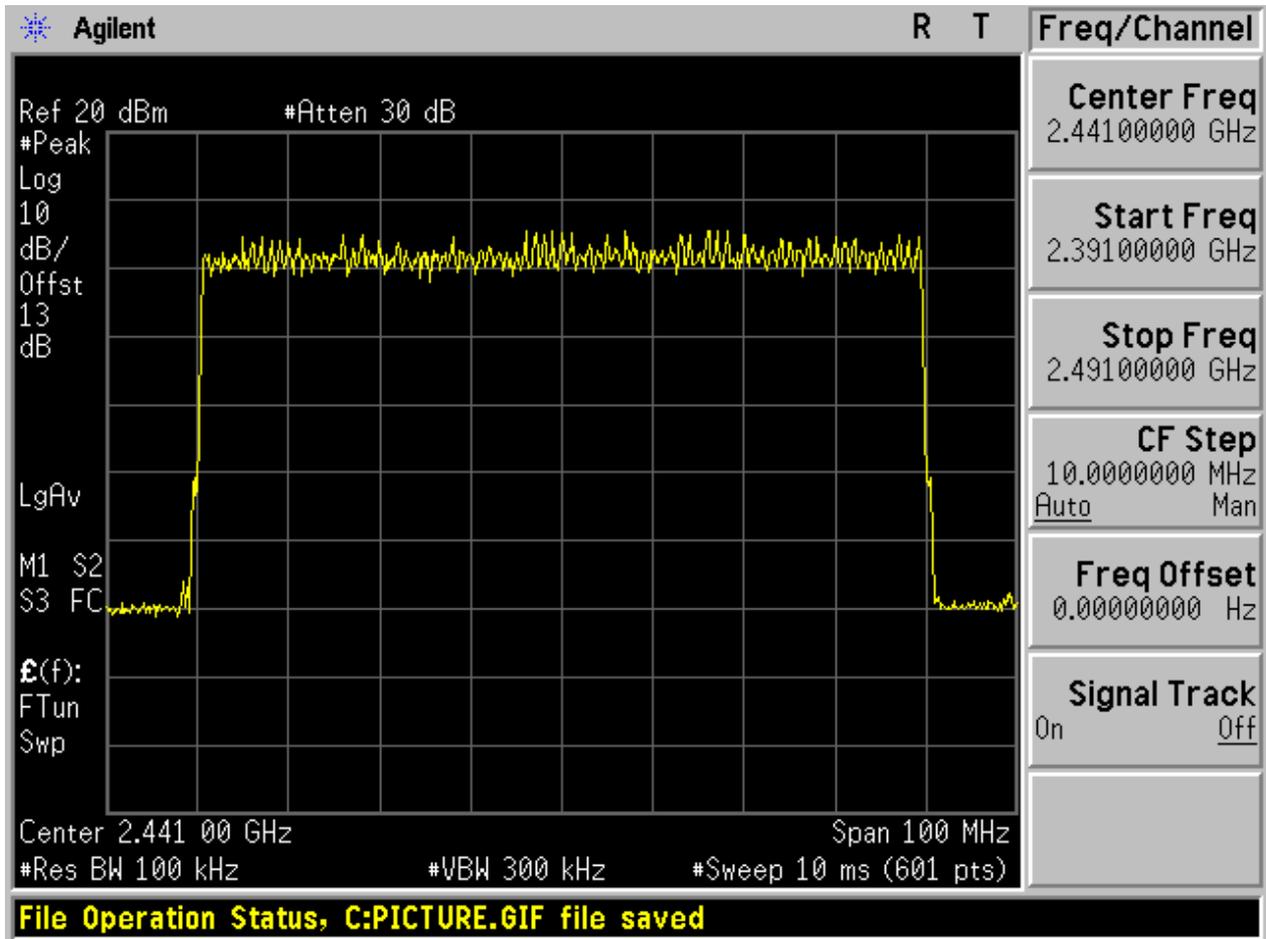
EUT Conf.	Number of Hopping Channel	Verdict
TM1_DH5_Hop	79	Pass
TM2_2DH5_Hop	79	Pass
TM3_3DH5_Hop	79	Pass
TM4	20	Pass

2 Test Plot

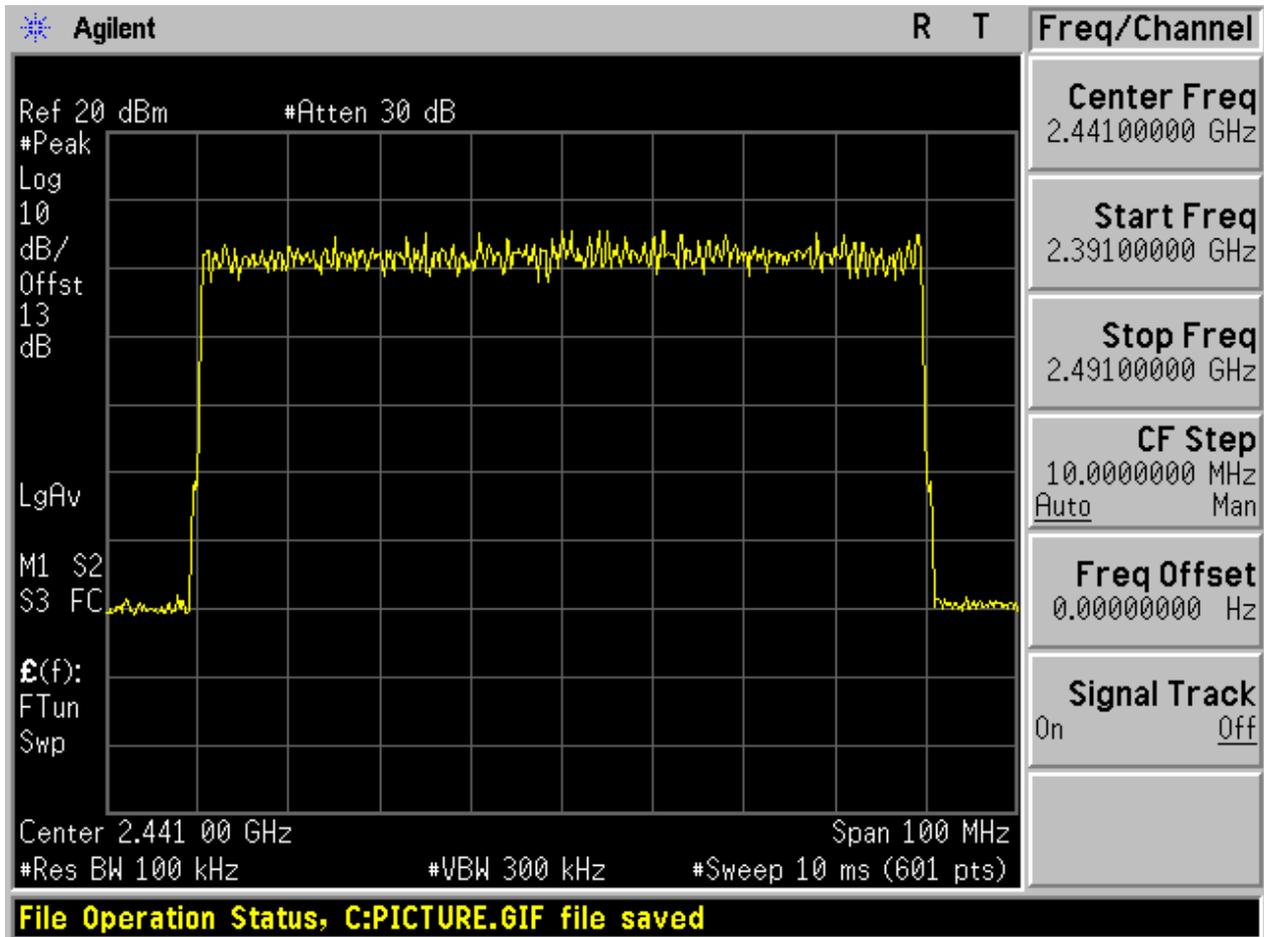
2.1 TM1_DH5_Hop



2.2 TM2_2DH5_Hop



2.3 TM3_3DH5_Hop





Appendix D: Time of Occupancy (Dwell Time)

1 Result Table

The Dwell Time = Burst Width * Total Hops. The detailed calculations are showed as follows:

- The duration for dwell time calculation: $0.4 \text{ [s]} * \text{hopping number} = 0.4 \text{ [s]} * 79 \text{ [ch]} = 31.6 \text{ [s*ch]}$;
- The burst width [ms/hop/ch], which is directly measured, refers to the duration on one channel hop.
- The hops per second for all channels: The selected EUT Conf uses a slot type of 5-Tx&1-Rx and a hopping rate of 1600 [ch*hop/s] for all channels. So the final hopping rate for all channels is $1600 / 6 = 266.67 \text{ [ch*hop/s]}$;
- The hops per second on one channel: $266.67 \text{ [ch*hop/s]} / 79 \text{ [ch]} = 3.38 \text{ [hop/s]}$;
- The total hops for all channels within the dwell time calculation duration: $3.38 \text{ [hop/s]} * 31.6 \text{ [s*ch]} = 106.67 \text{ [hop*ch]}$;
- The dwell time for all channels hopping: $106.67 \text{ [hop*ch]} * \text{Burst Width [ms/hop/ch]}$.

With AFH, the number of channels is reduced to a minimum of 20 channels and the channel hopping rate is reduced by 50% to 800 hops/s. AFH mode also uses 6 total slots so the Bluetooth transmitter hops at a rate of $800 / 6 = 133.3 \text{ hops/s/slot}$

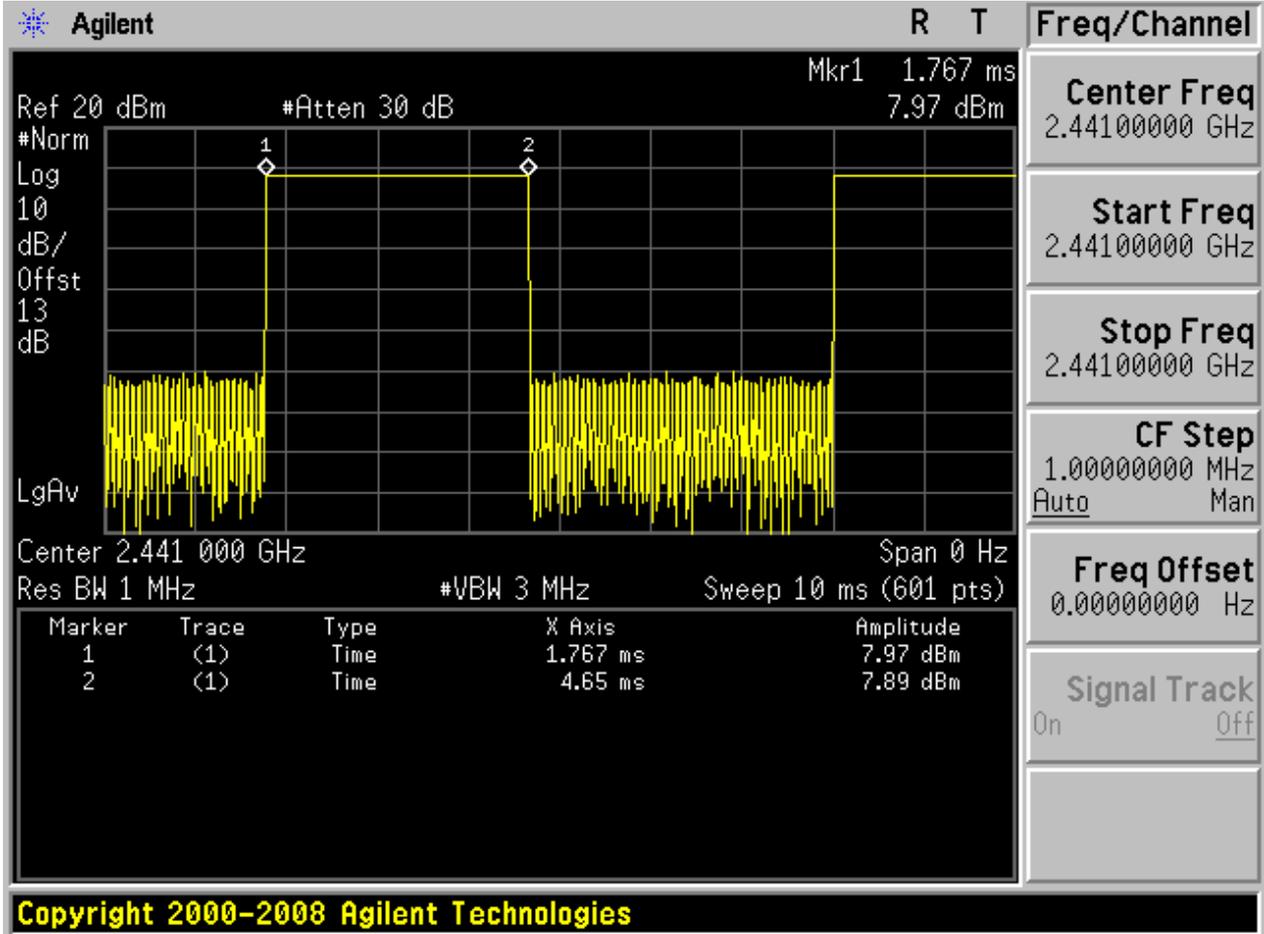
- $400\text{ms} * 20 \text{ hopping channels} = 8 \text{ sec}$ (Time of Occupancy Limit)
- Worst case BT has 133.3 hops/second/slot (for AFH mode with DH5 operation)
- $133.3 \text{ hops/s} / 20 \text{ channels} = 6.67 \text{ hops/second}$ (# of hops/second on one channel)
- $6.67 \text{ hops/s} / \text{channel} * 8 \text{ seconds} = 53.34 \text{ hops}$ (# hops over a 8 second period)
- $53.34 \text{ hops} * 2.900 \text{ ms/channel} = 154.95 \text{ ms}$ (worst case dwell time for one channel in AFH mode)

EUT Conf.	Burst Width [ms/hop/ch]	Total Hops [hop*ch]	Dwell Time [s]	Verdict
TM1_DH5_Ch39	2.900	106.67	0.309	Pass
TM2_2DH5_Ch39	2.900	106.67	0.309	Pass
TM3_3DH5_Ch39	2.900	106.67	0.309	Pass
TM4	2.900	53.34	0.155	Pass

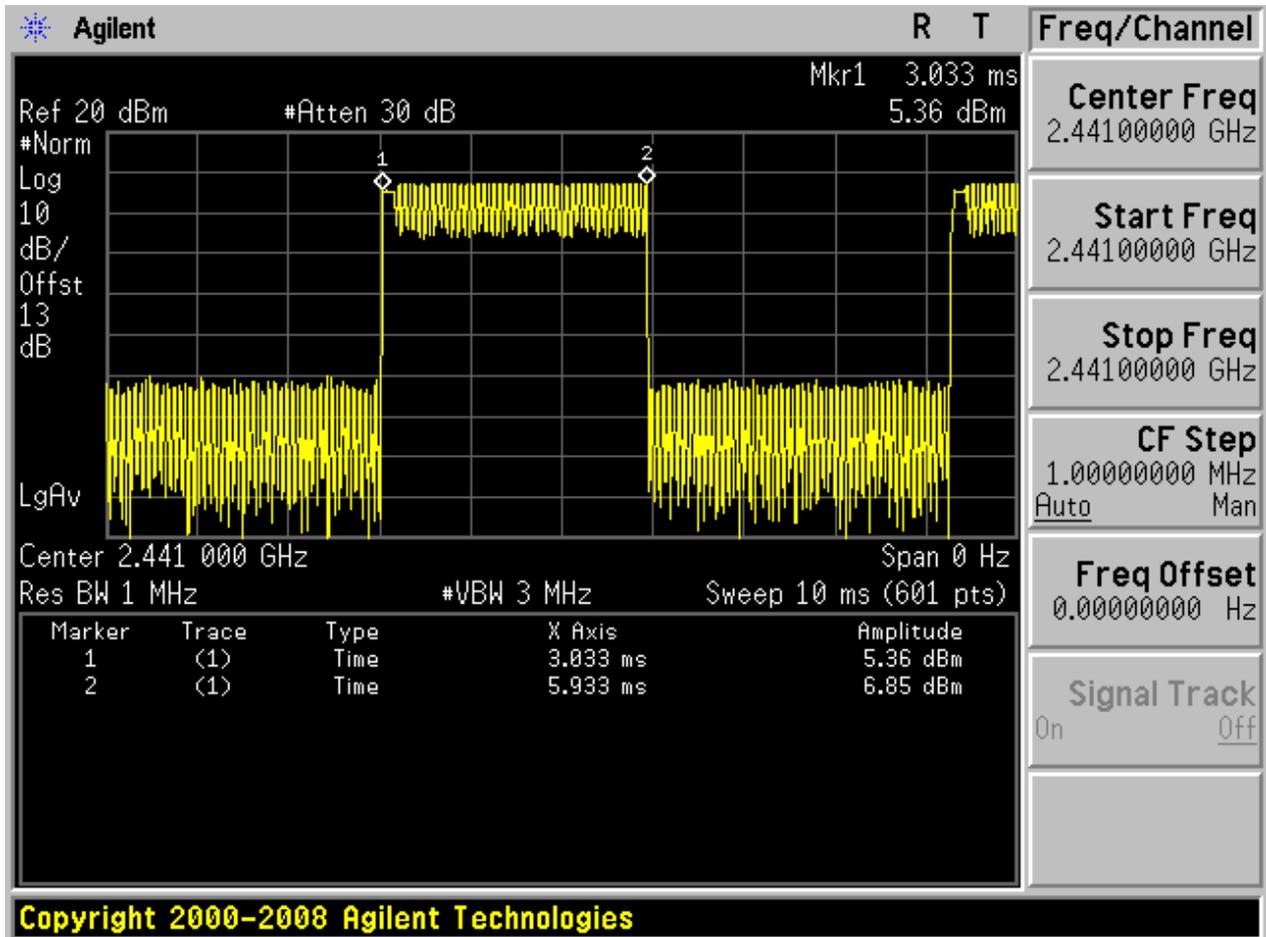
2 Test Plot

NOTE: The test plots are only for Burst Width measurements.

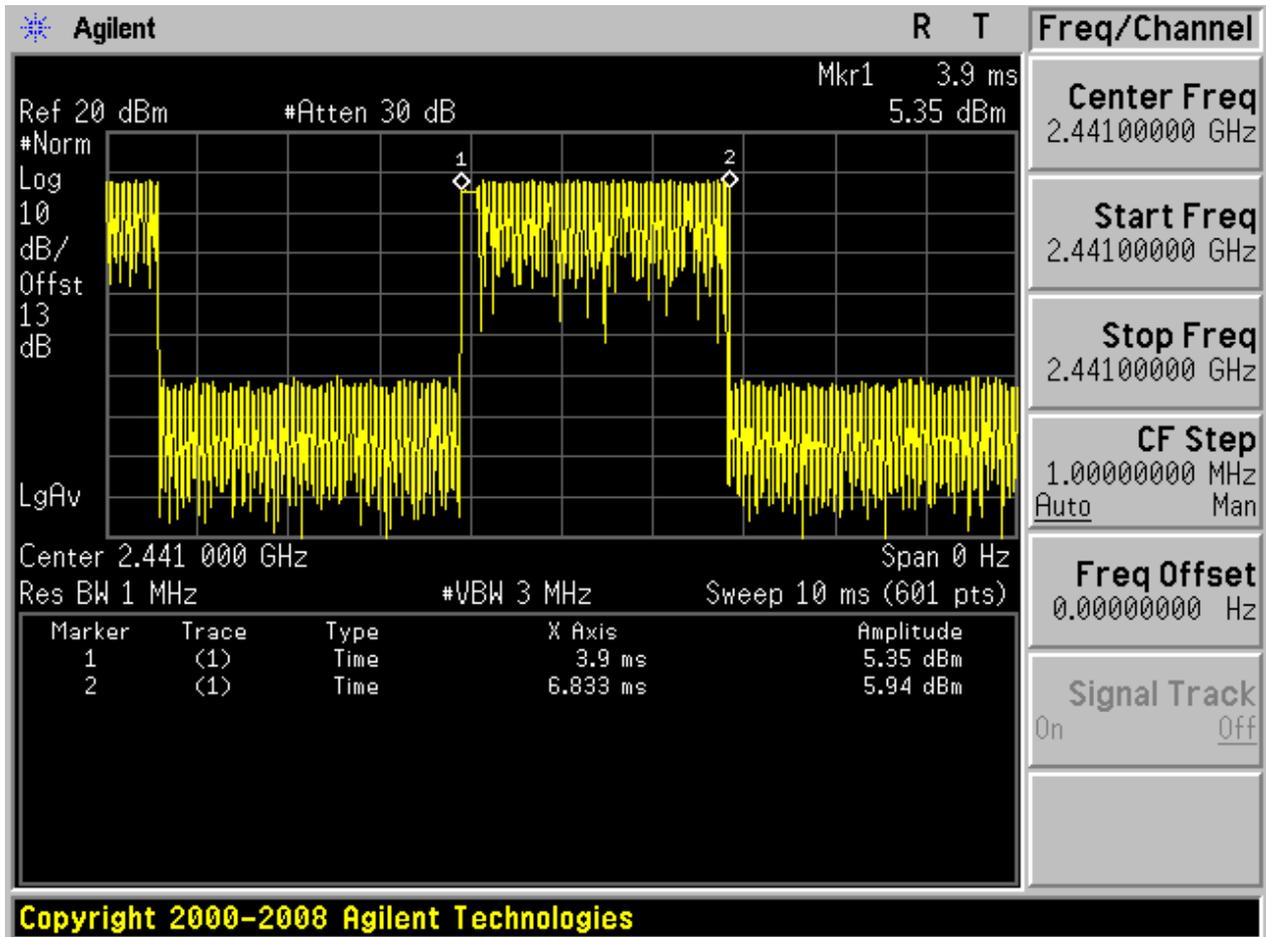
2.1 TM1_DH5_Ch39



2.2 TM2_2DH5_Ch39



2.3 TM3_3DH5_Ch39





Appendix E: Maximum Peak Conducted Output Power

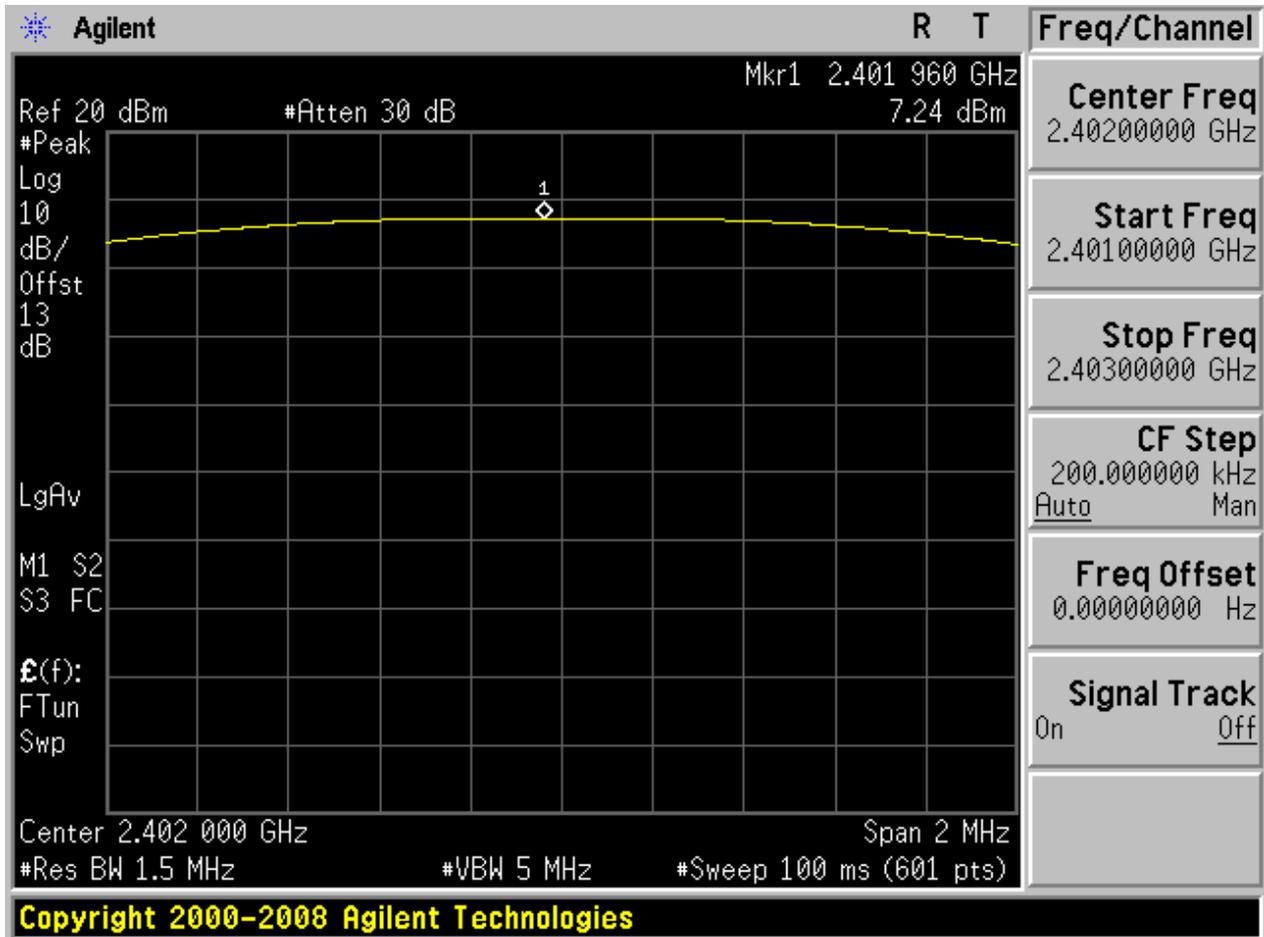


1 Result Table

EUT Conf.	Max. Peak Power [dBm]	Verdict
TM1_DH5_Ch0	7.24	Pass
TM1_DH5_Ch39	7.97	Pass
TM1_DH5_Ch78	7.42	Pass
TM2_2DH5_Ch0	6.94	Pass
TM2_2DH5_Ch39	7.69	Pass
TM2_2DH5_Ch78	7.13	Pass
TM3_3DH5_Ch0	7.61	Pass
TM3_3DH5_Ch39	8.32	Pass
TM3_3DH5_Ch78	7.77	Pass

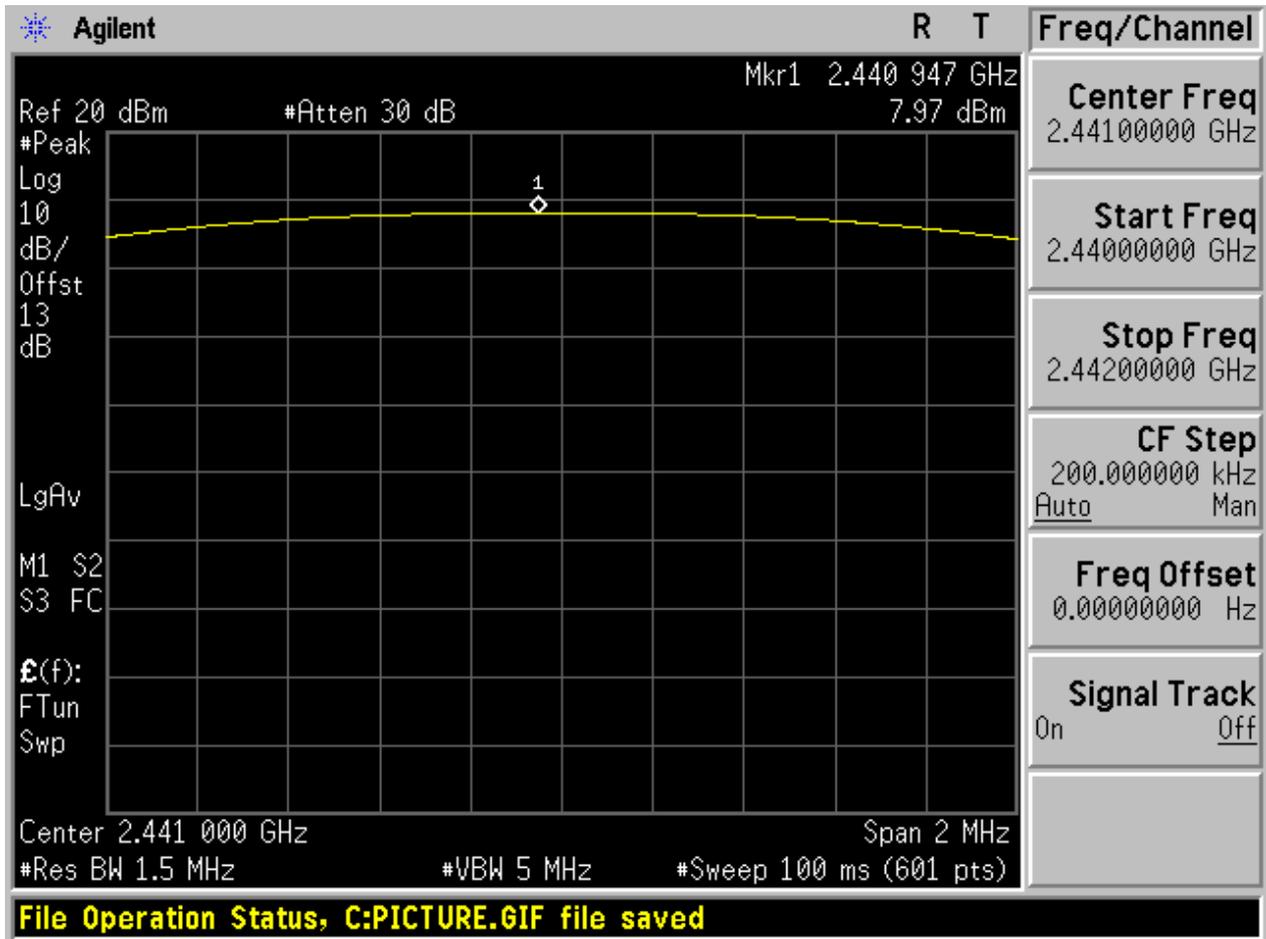
2 Test Plot

2.1 TM1_DH5_Ch0

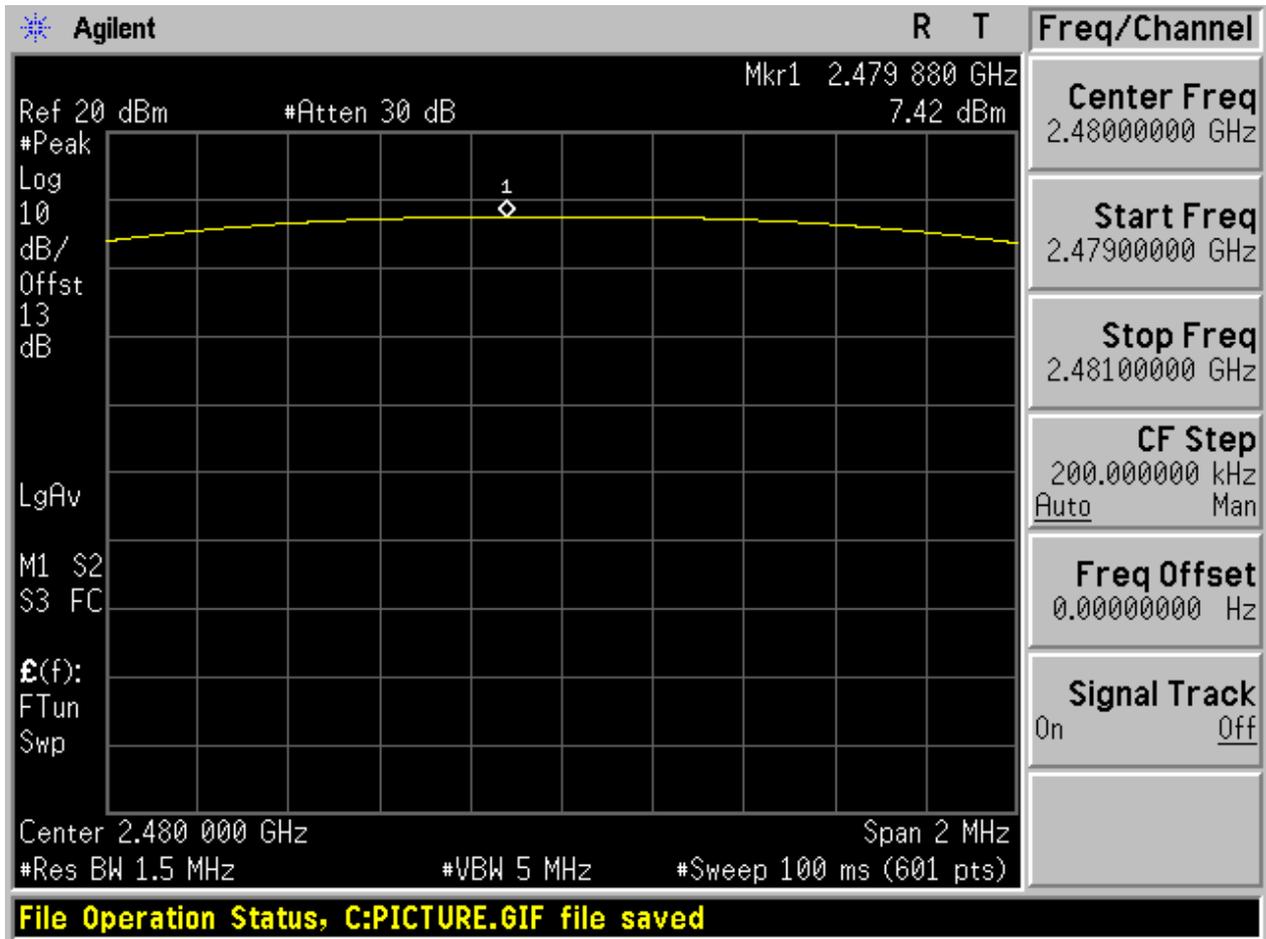




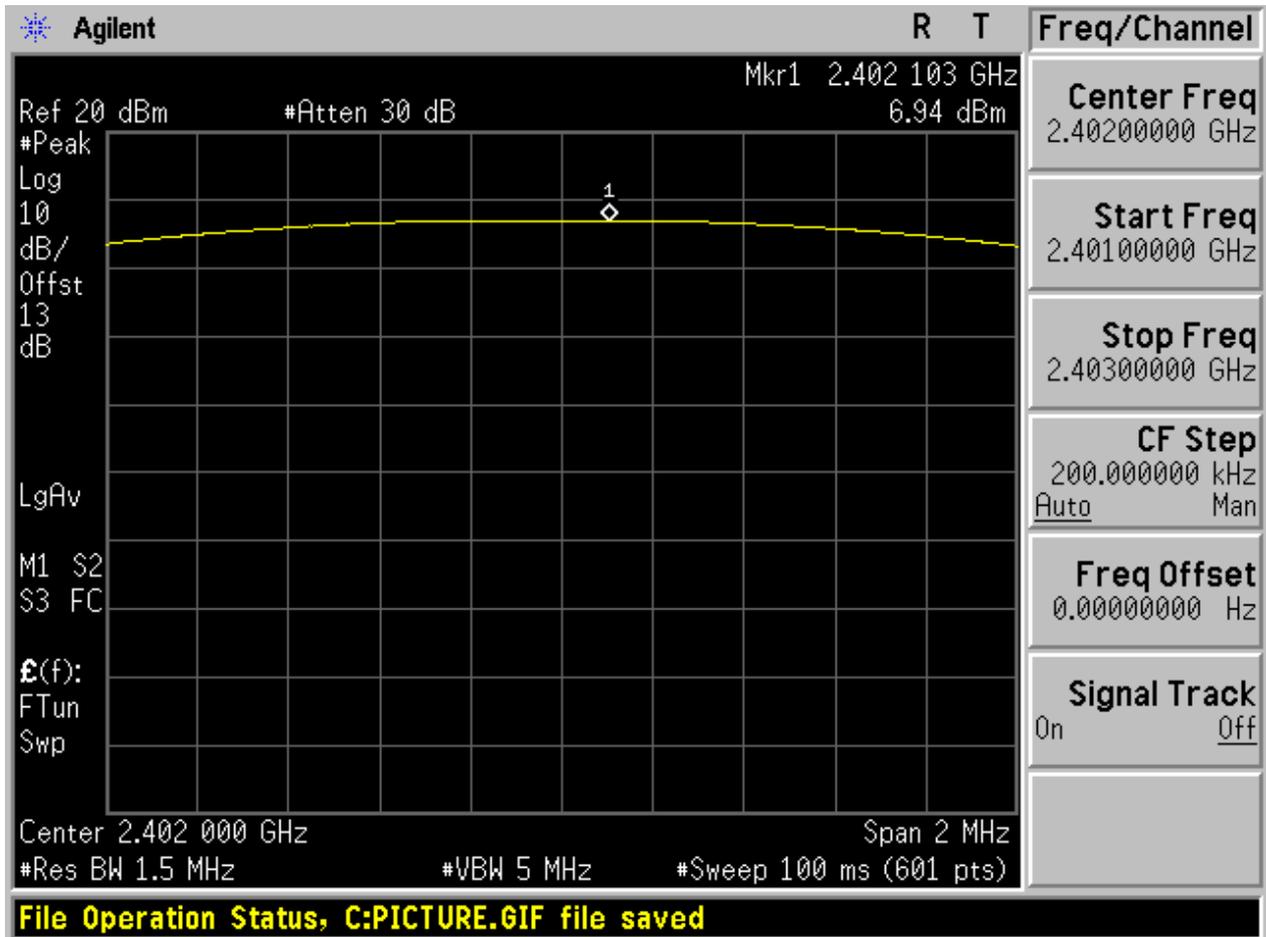
2.2 TM1_DH5_Ch39



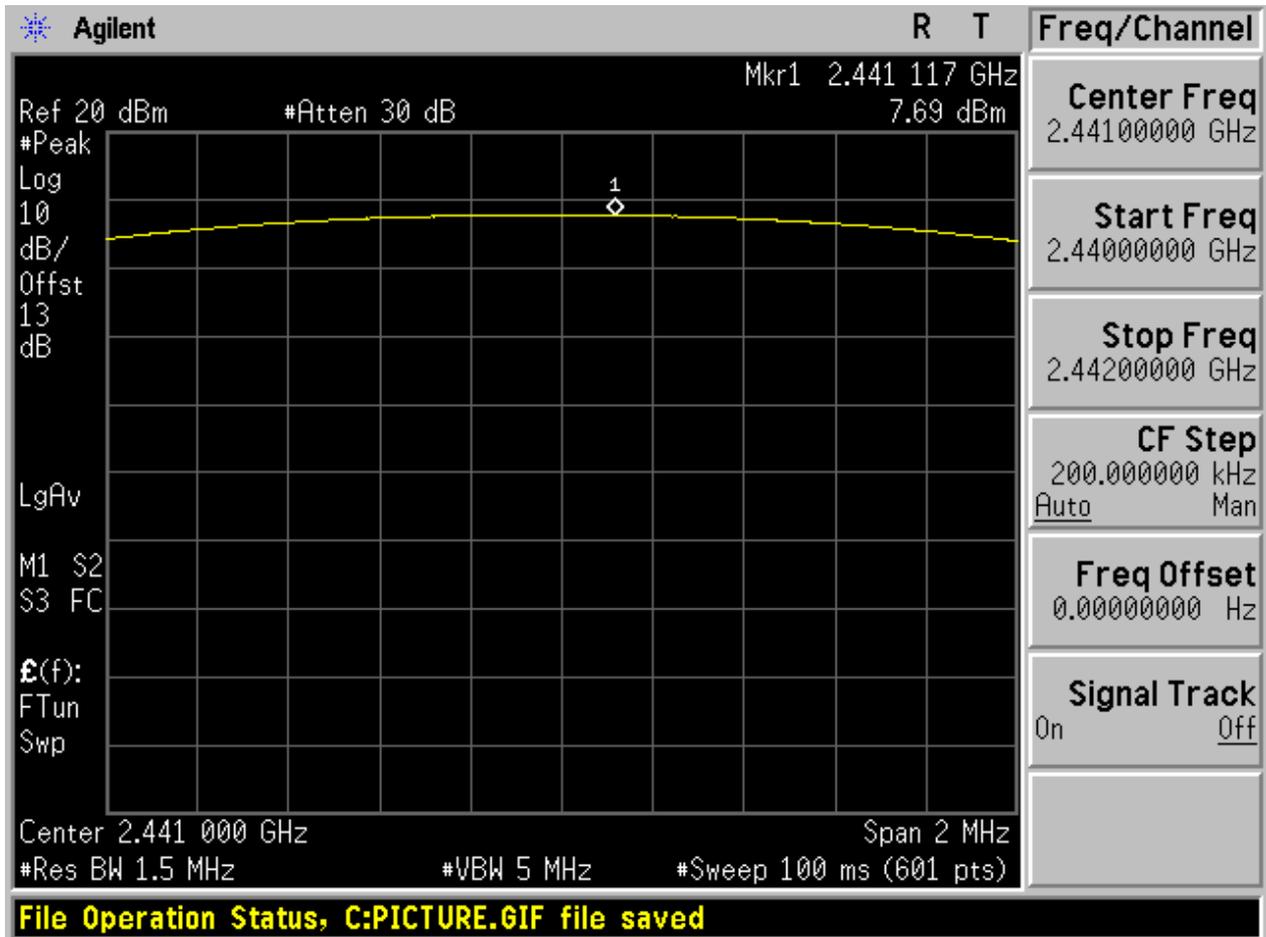
2.3 TM1_DH5_Ch78



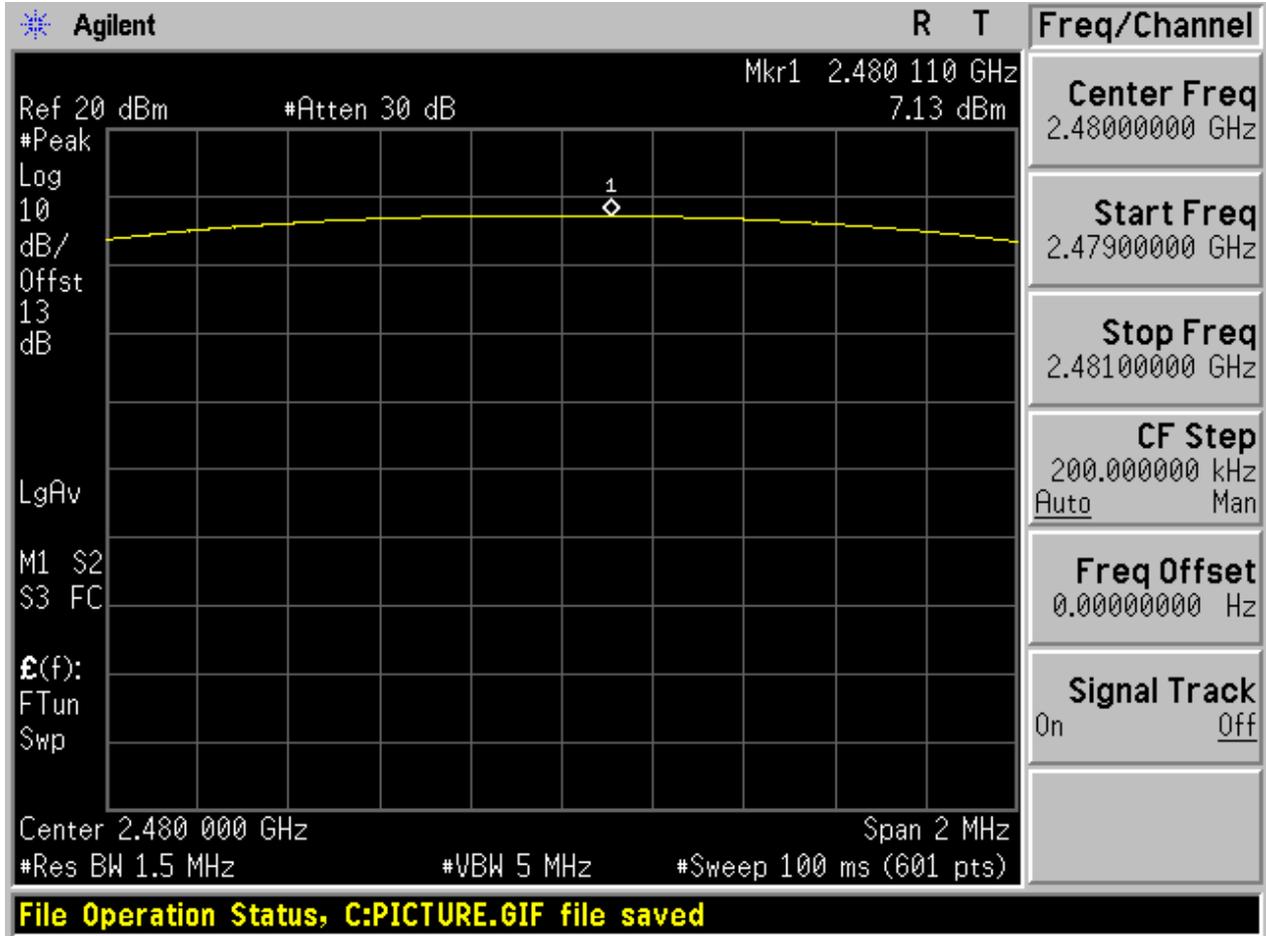
2.4 TM2_2DH5_Ch0



2.5 TM2_2DH5_Ch39

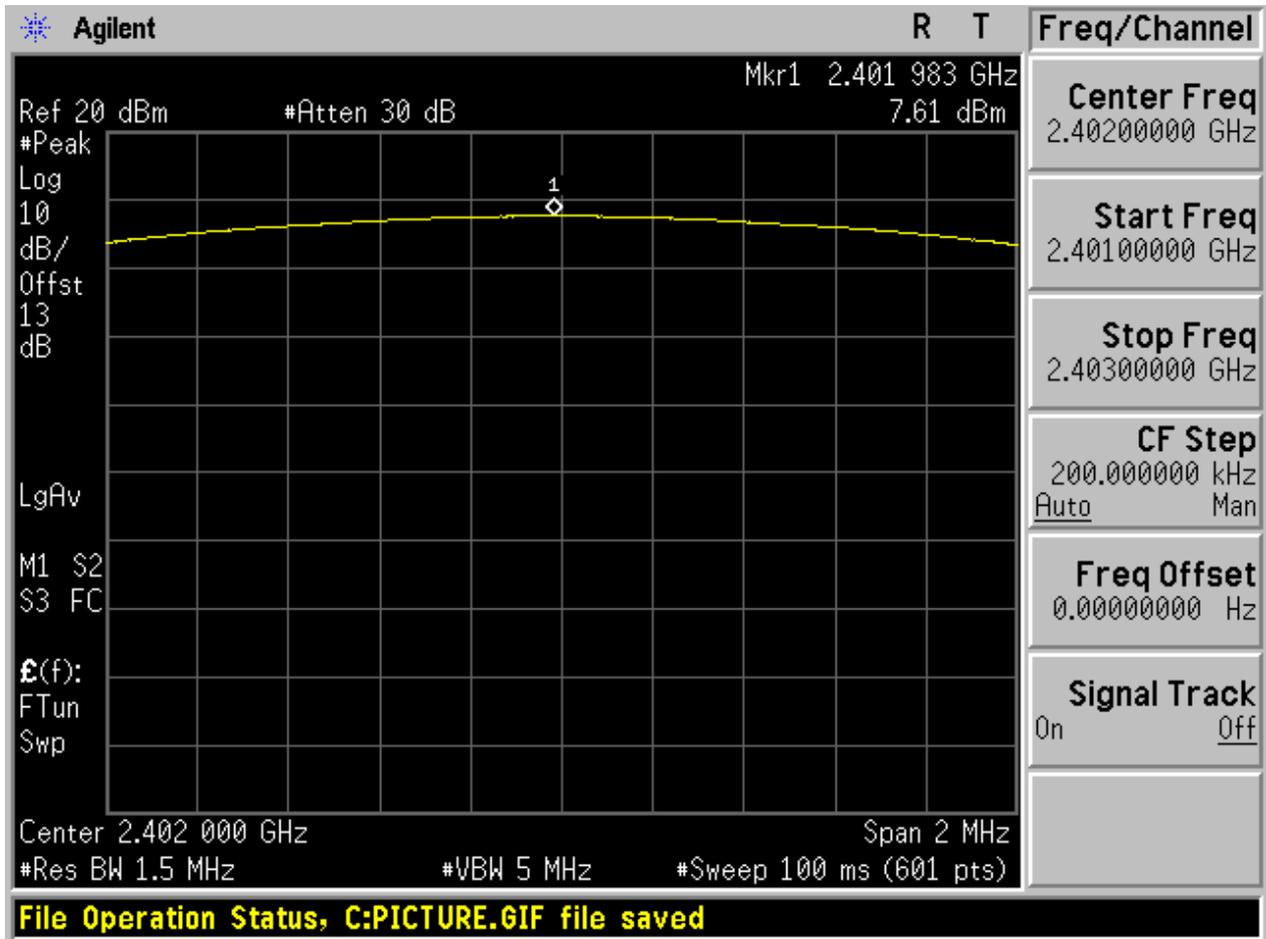


2.6 TM2_2DH5_Ch78



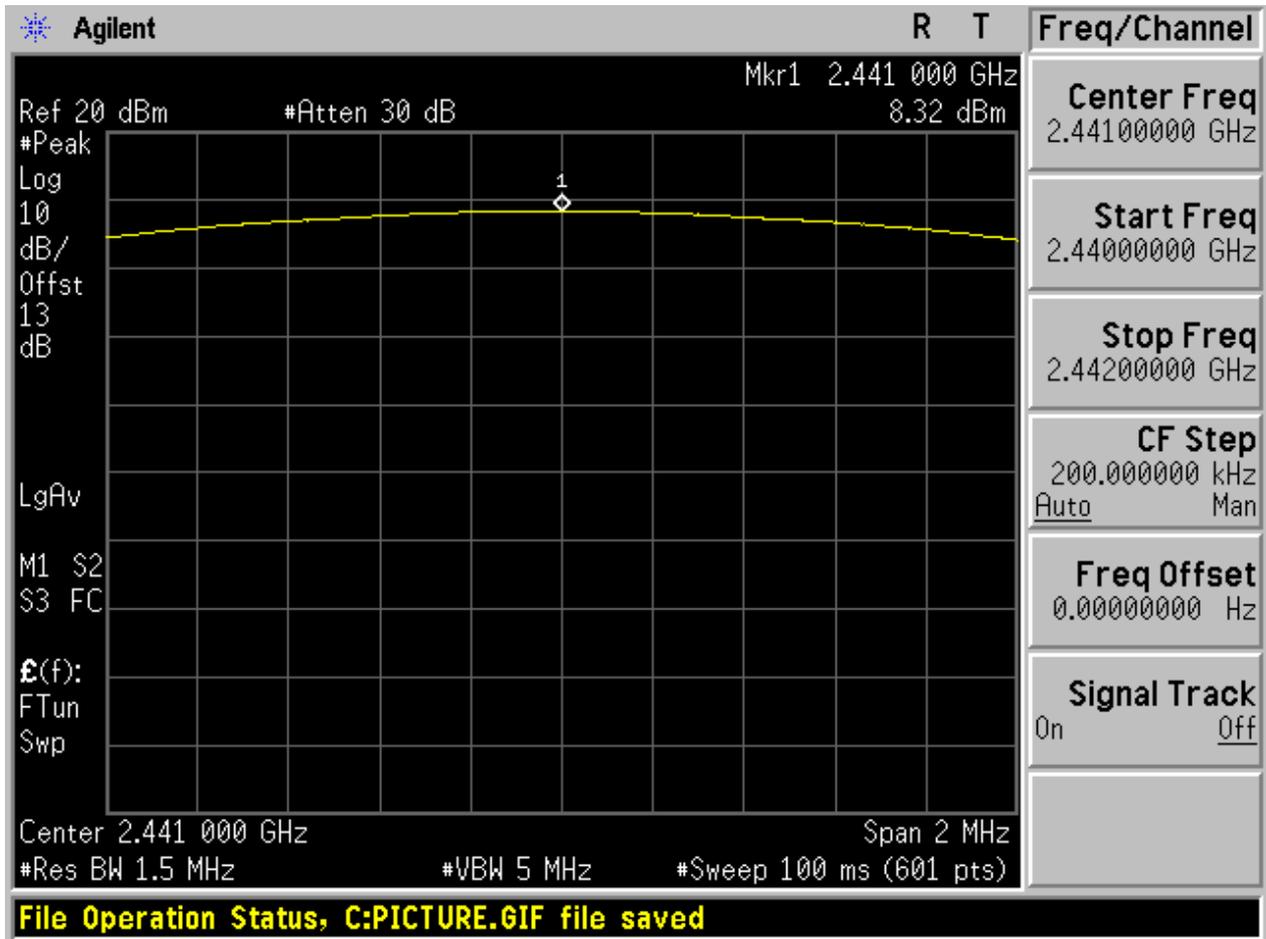


2.7 TM3_3DH5_Ch0

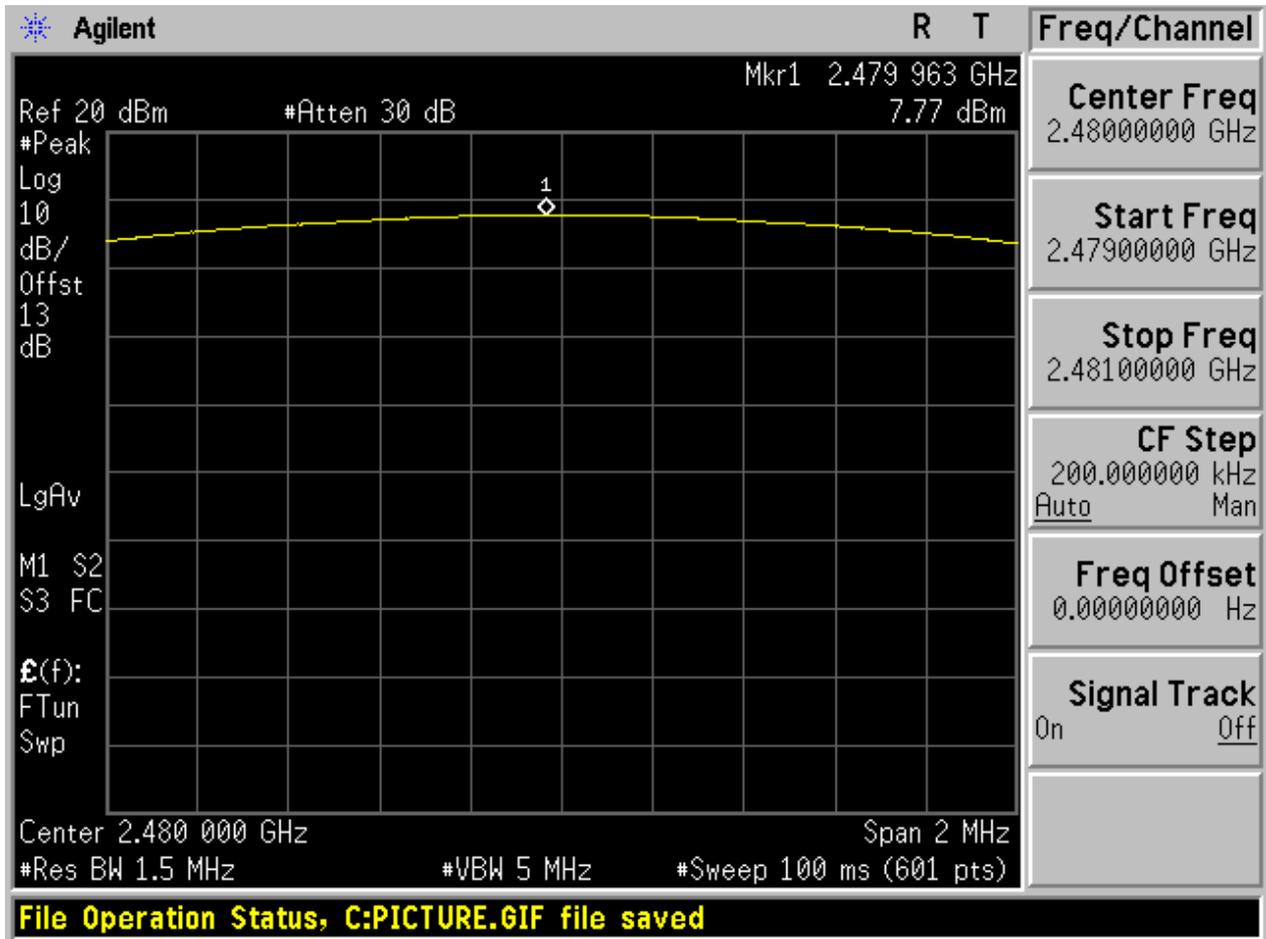




2.8 TM3_3DH5_Ch39



2.9 TM3_3DH5_Ch78





Appendix F: Band edge spurious emission

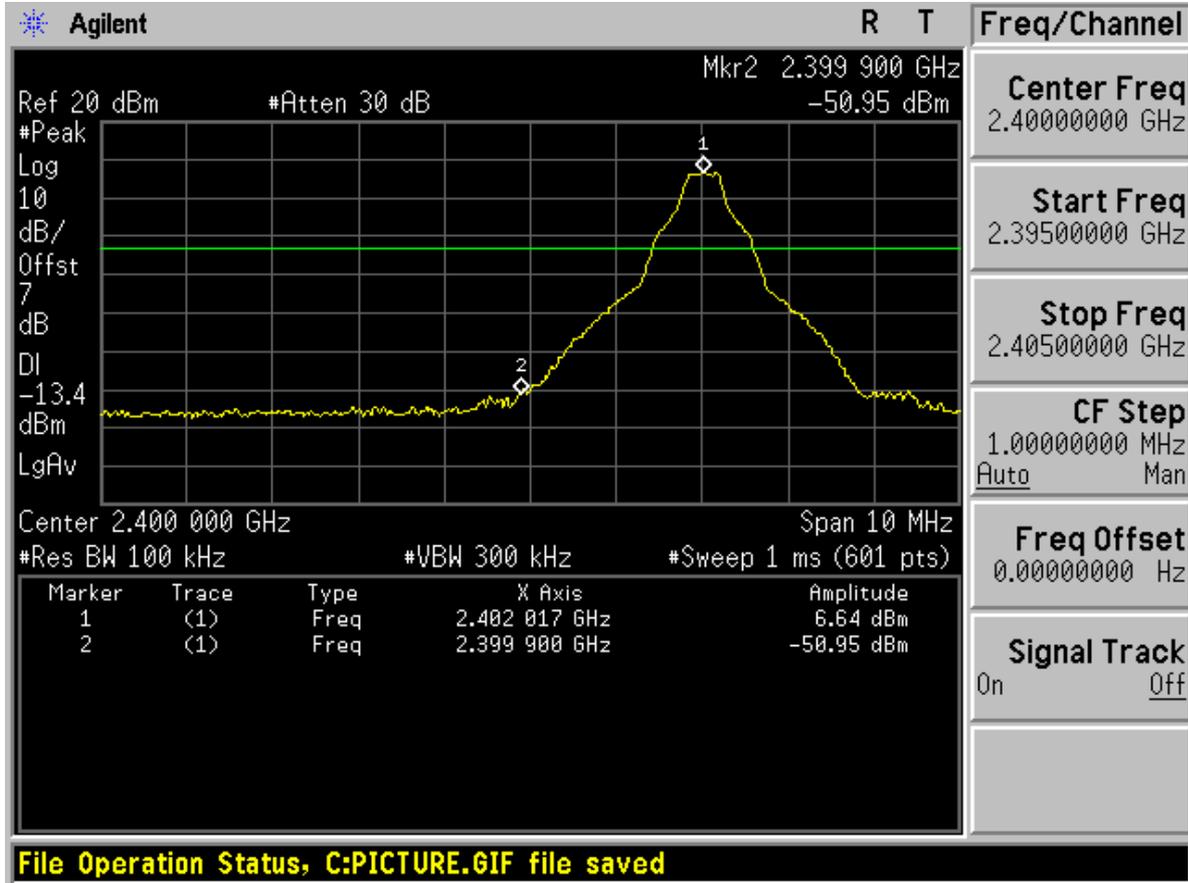
**1 Result Table**

EUT Conf.	Channel No.	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max. Spurious Level [dBm]	Limit [dBm]	Result
TM1_DH5 _Ch0	0	2402	6.64	Off	-50.95	-13.36	Pass
	-	-	6.13	On	-54.30	-13.87	Pass
TM1_DH5 _Ch78	78	2480	7.77	Off	-54.17	-12.23	Pass
	-	-	7.58	On	-54.13	-12.42	Pass
TM2_2DH 5_Ch0	0	2402	1.40	Off	-50.84	-18.60	Pass
	-	-	1.58	On	-53.07	-18.42	Pass
TM2_2DH 5_Ch78	78	2480	5.24	Off	-51.90	-14.76	Pass
	-	-	4.06	On	-48.98	-15.94	Pass
TM3_3DH 5_Ch0	0	2402	1.39	Off	-50.22	-18.61	Pass
	-	-	1.43	On	-52.12	-18.57	Pass
TM3_3DH 5_Ch78	78	2480	5.33	Off	-50.20	-14.66	Pass
	-	-	3.39	On	-53.58	-16.61	Pass

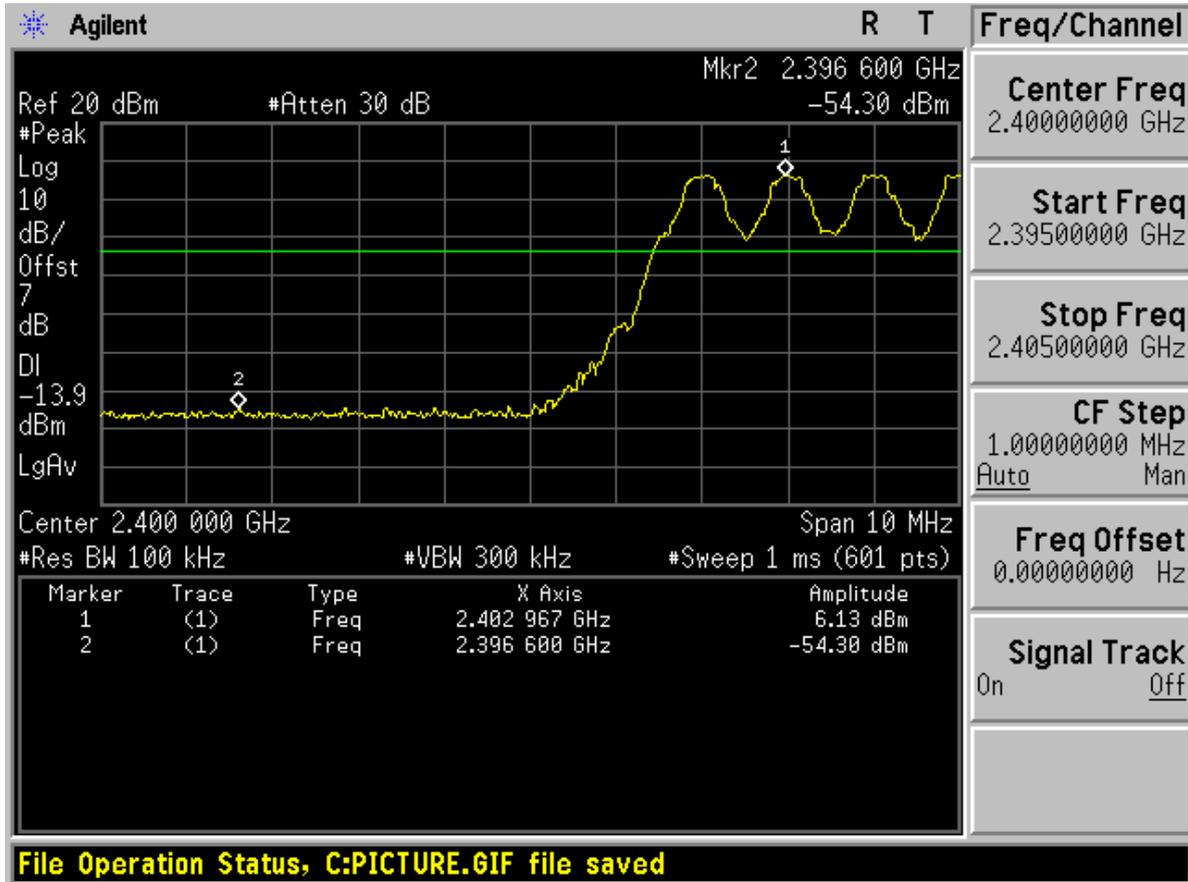
2 Test Plot

2.1 TM1_DH5_Ch0

No hopping

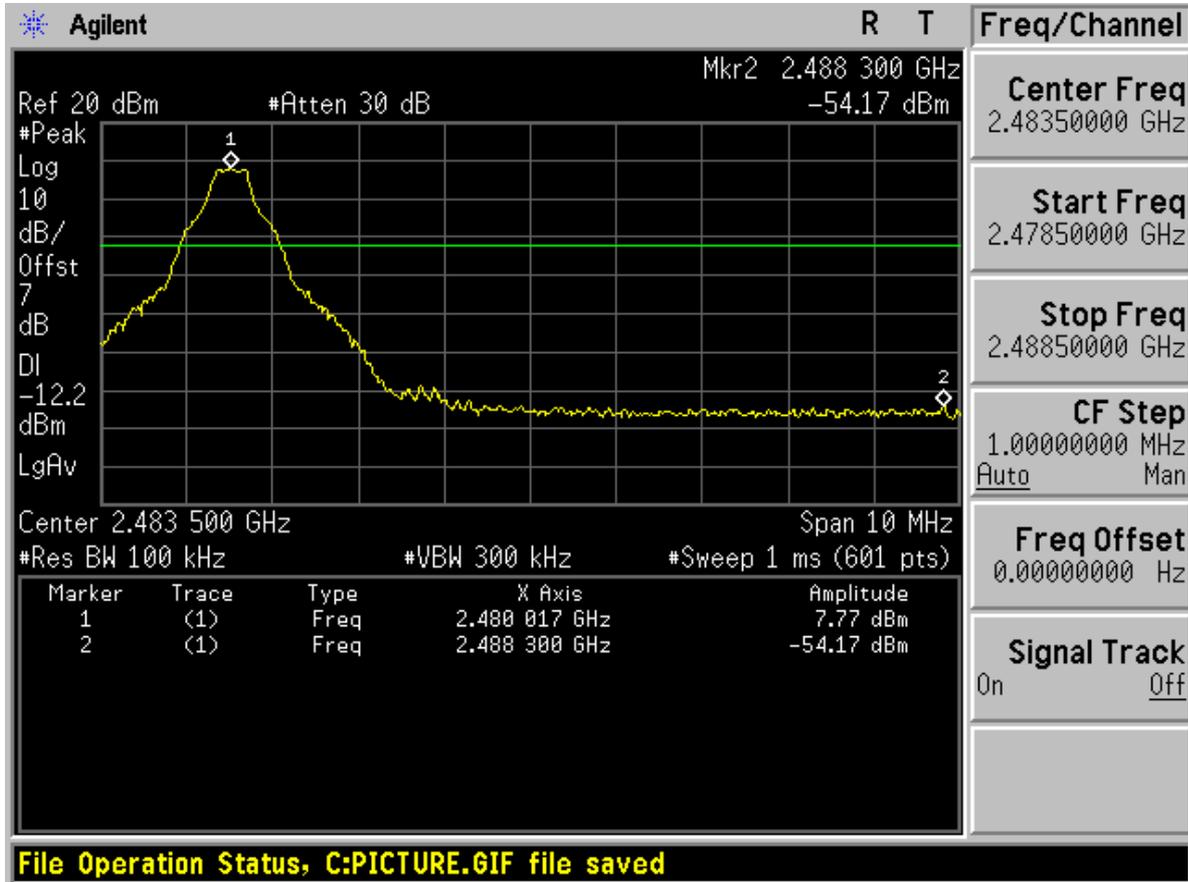


With hopping

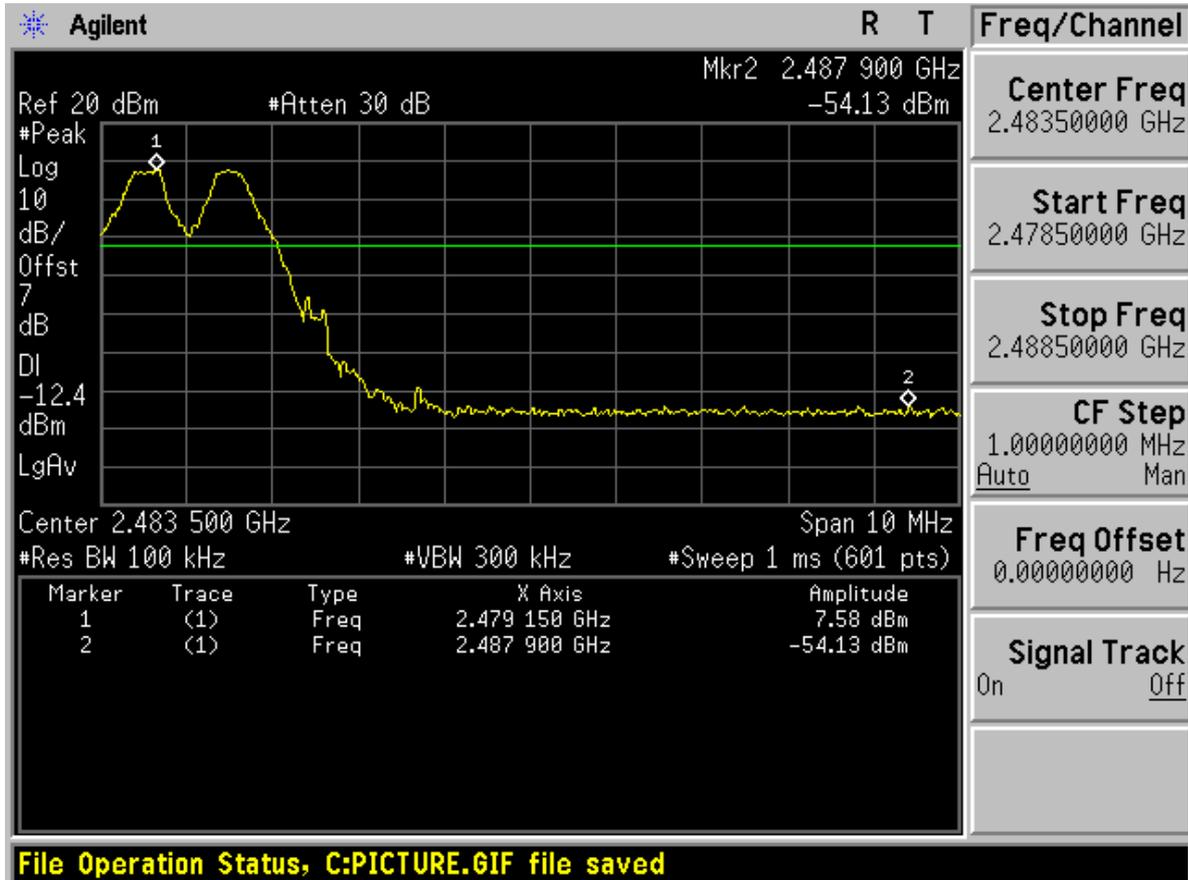


2.2 TM1_DH5_Ch78

No hopping

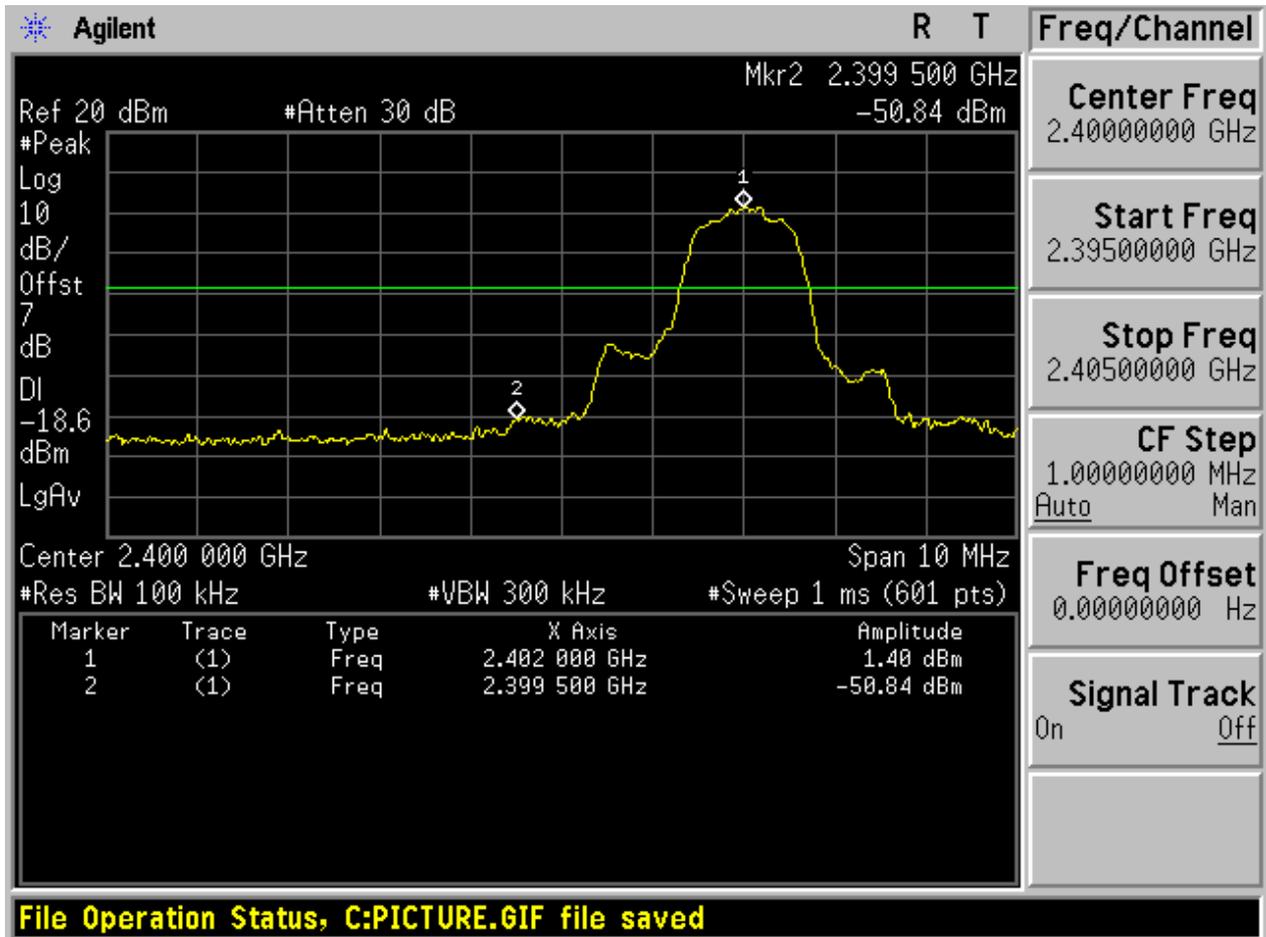


With hopping

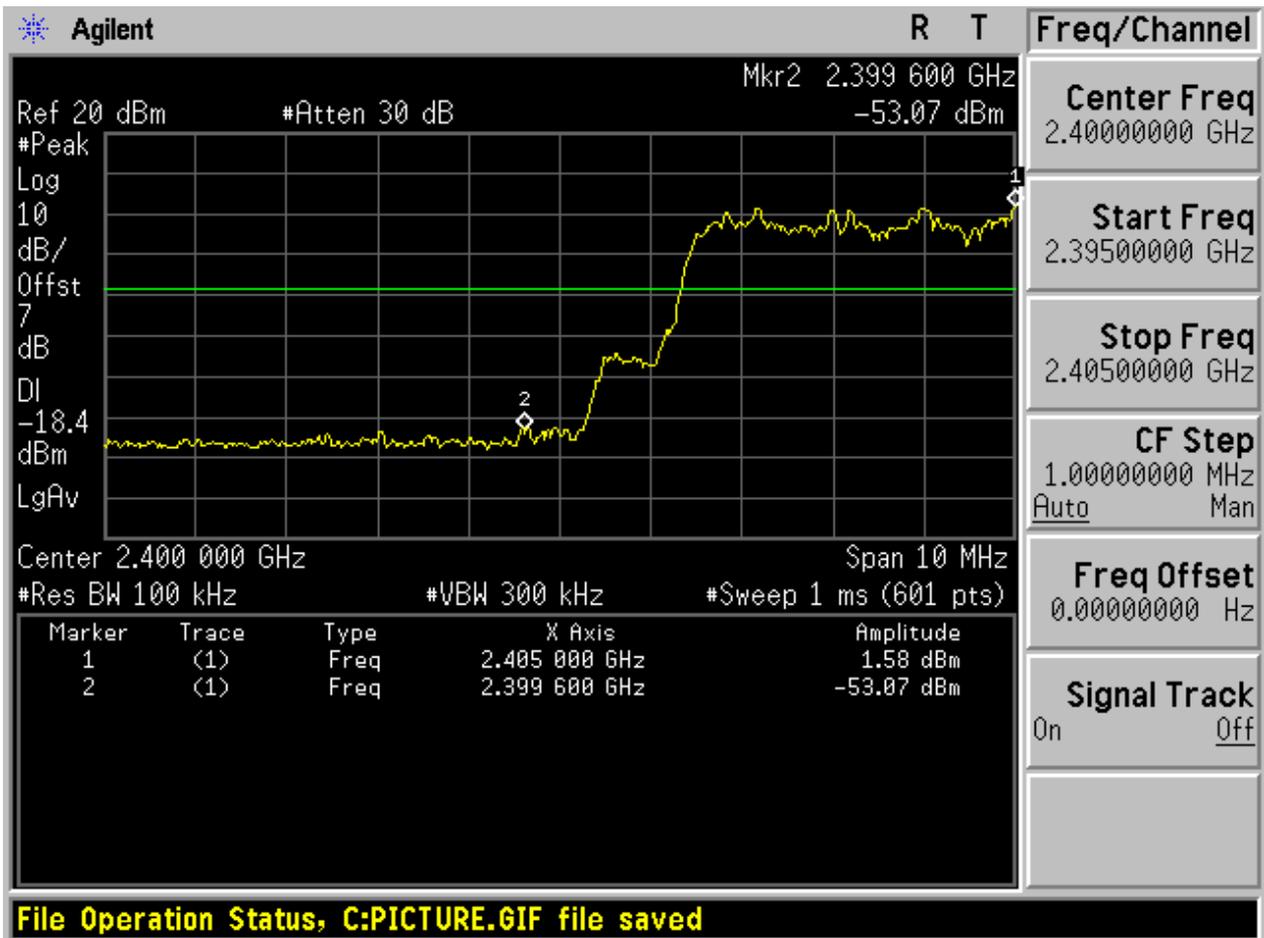


2.3 TM2_2DH5_Ch0

No hopping

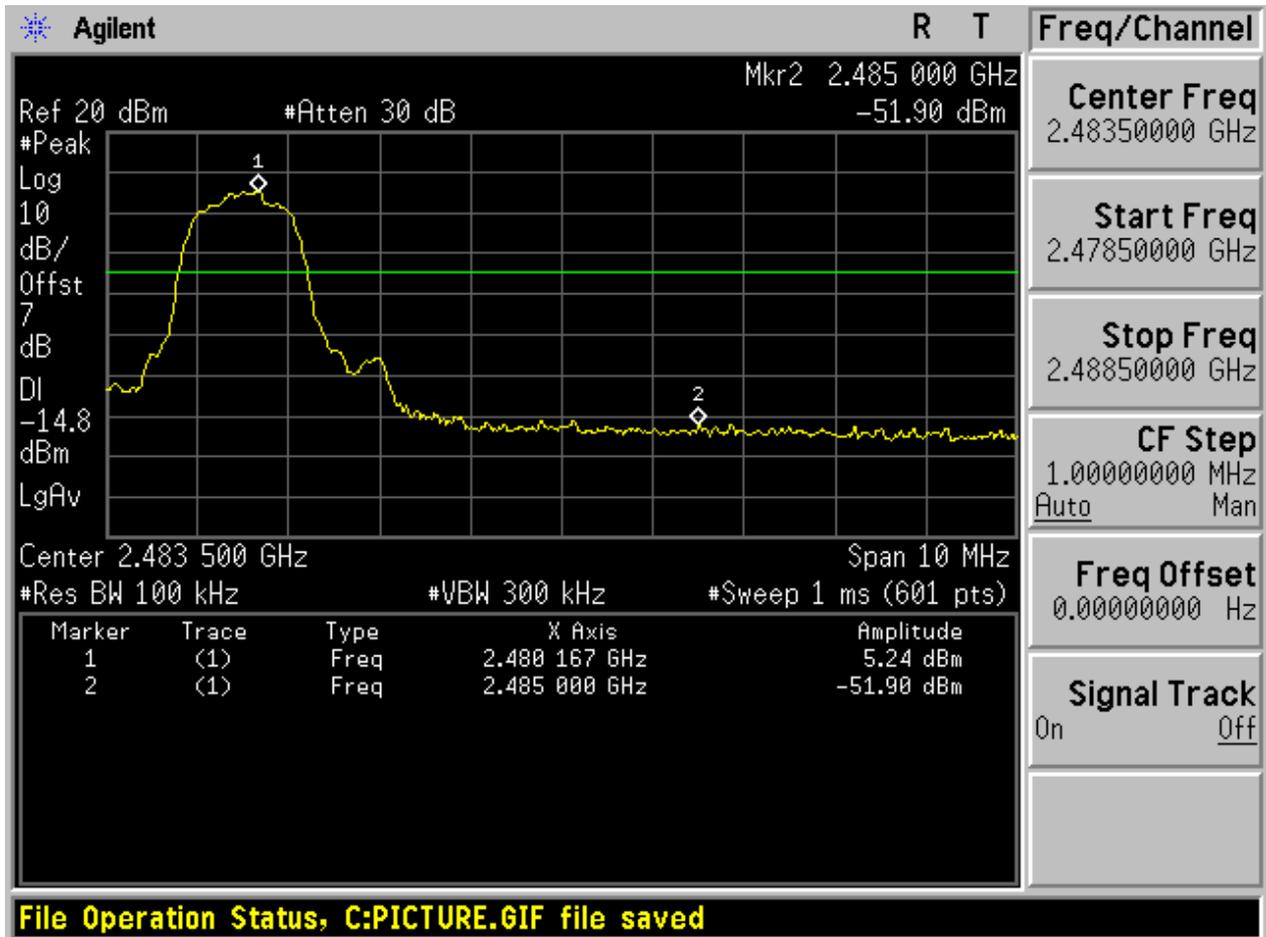


With hopping

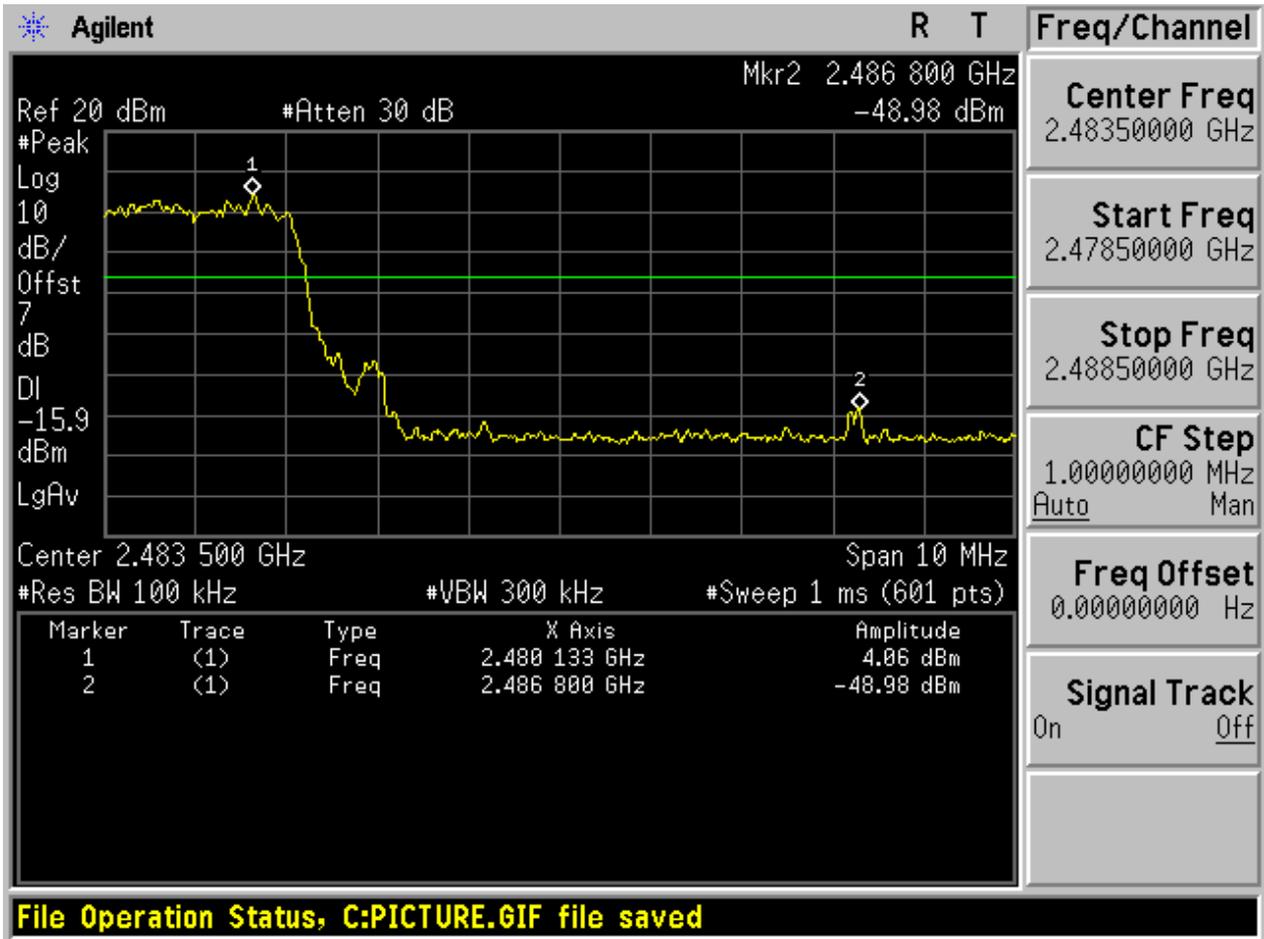


2.4 TM2_2DH5_Ch78

No hopping

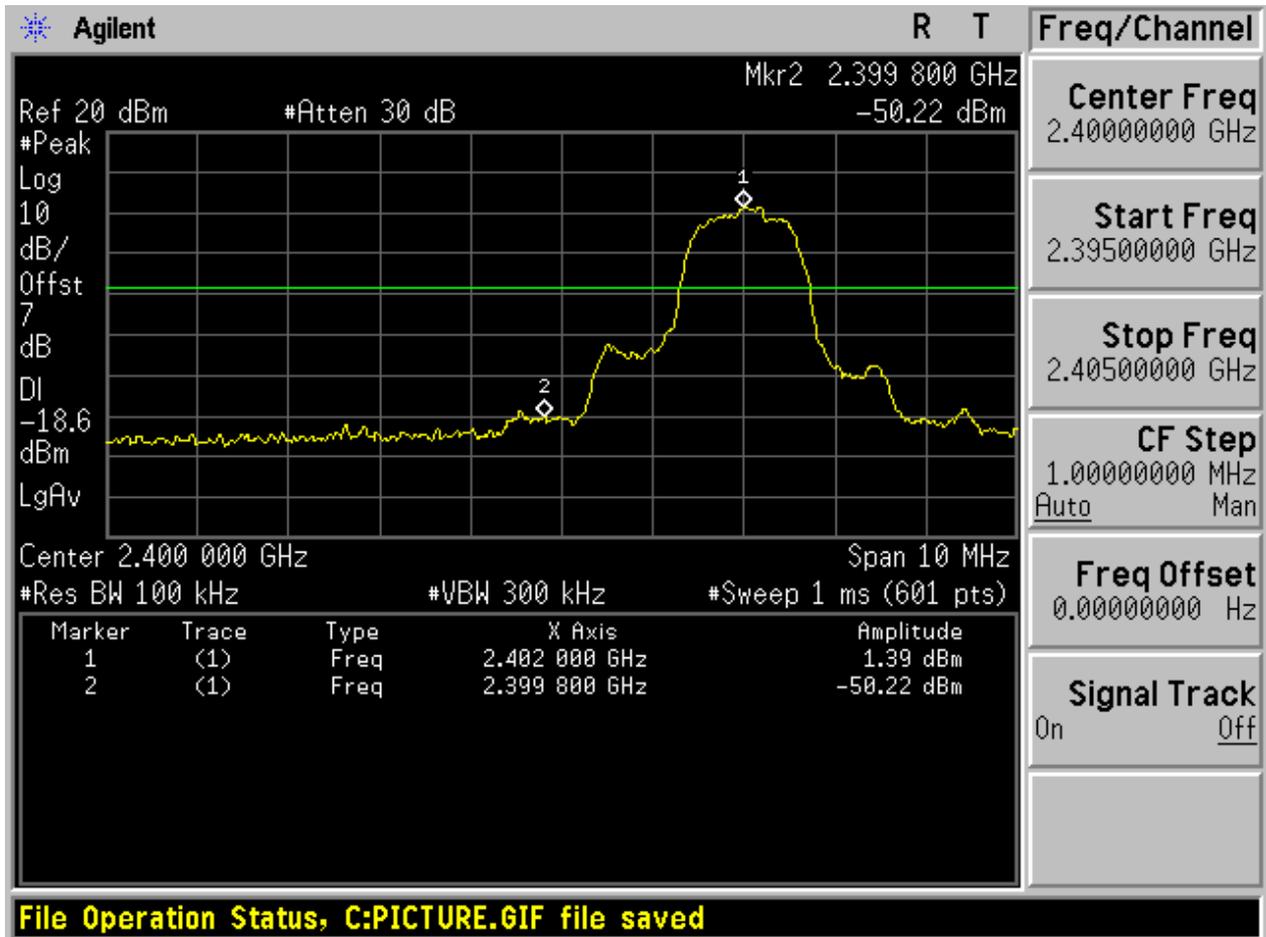


With hopping

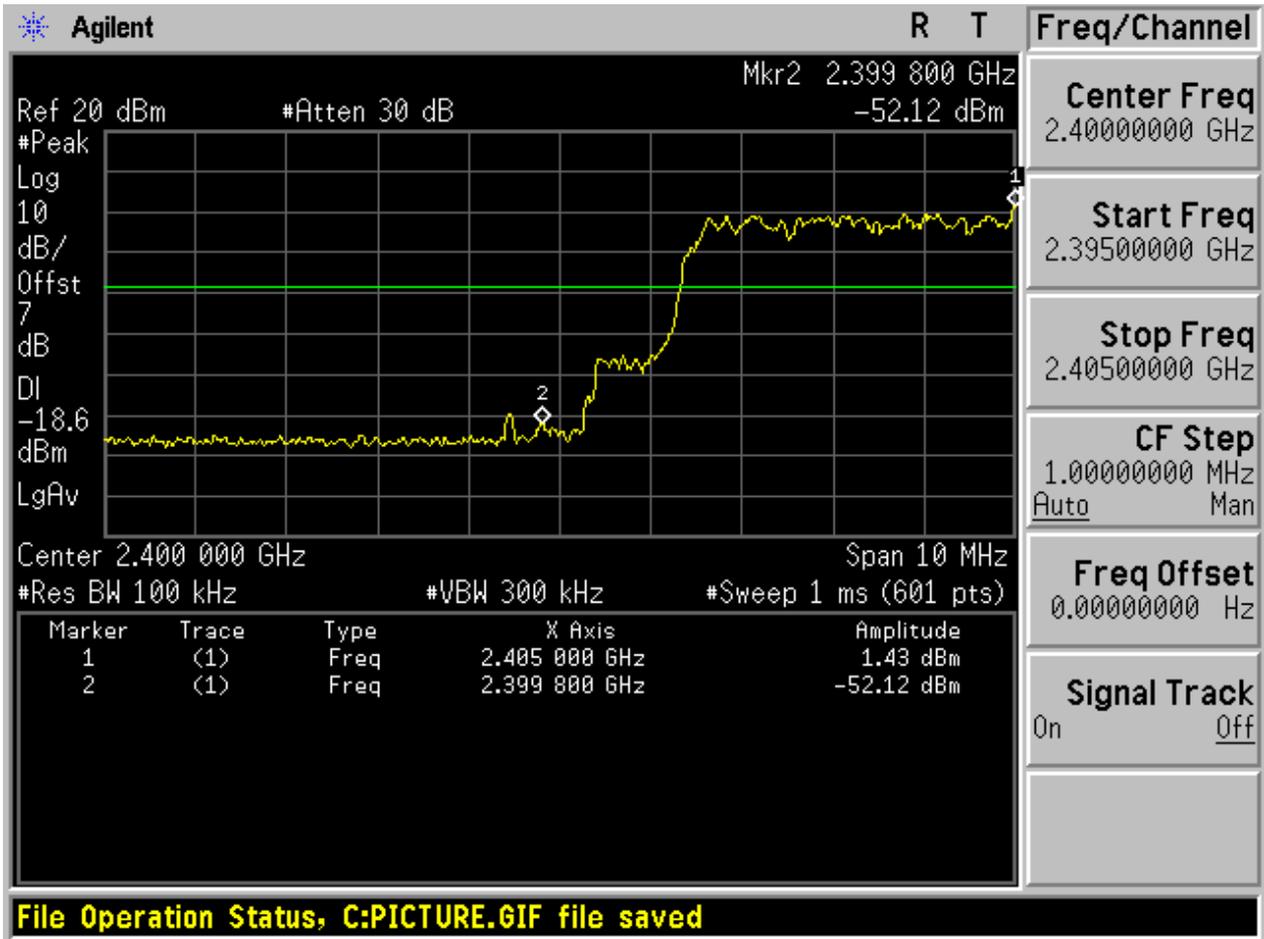


2.5 TM3_3DH5_Ch0

No hopping

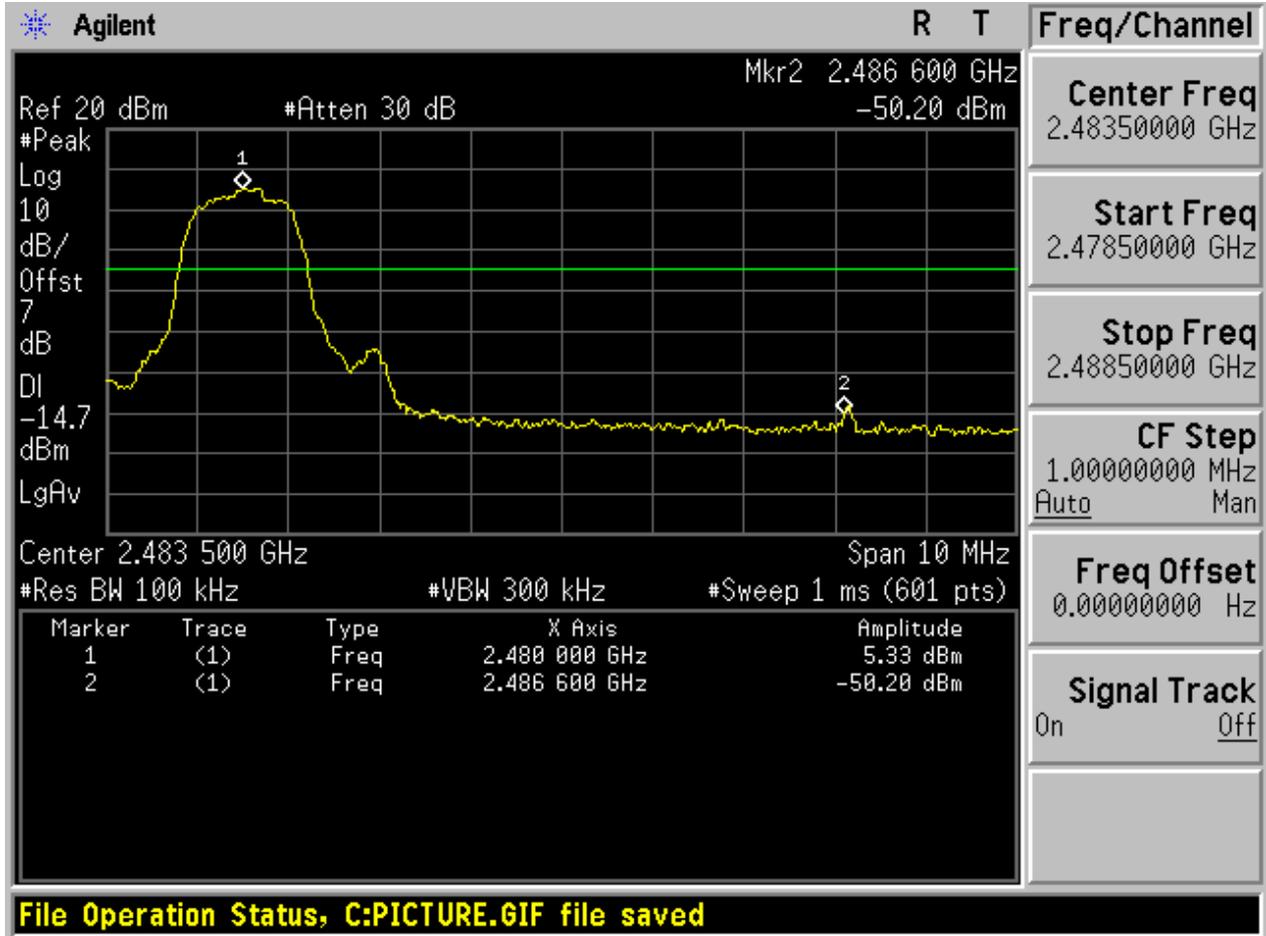


With hopping

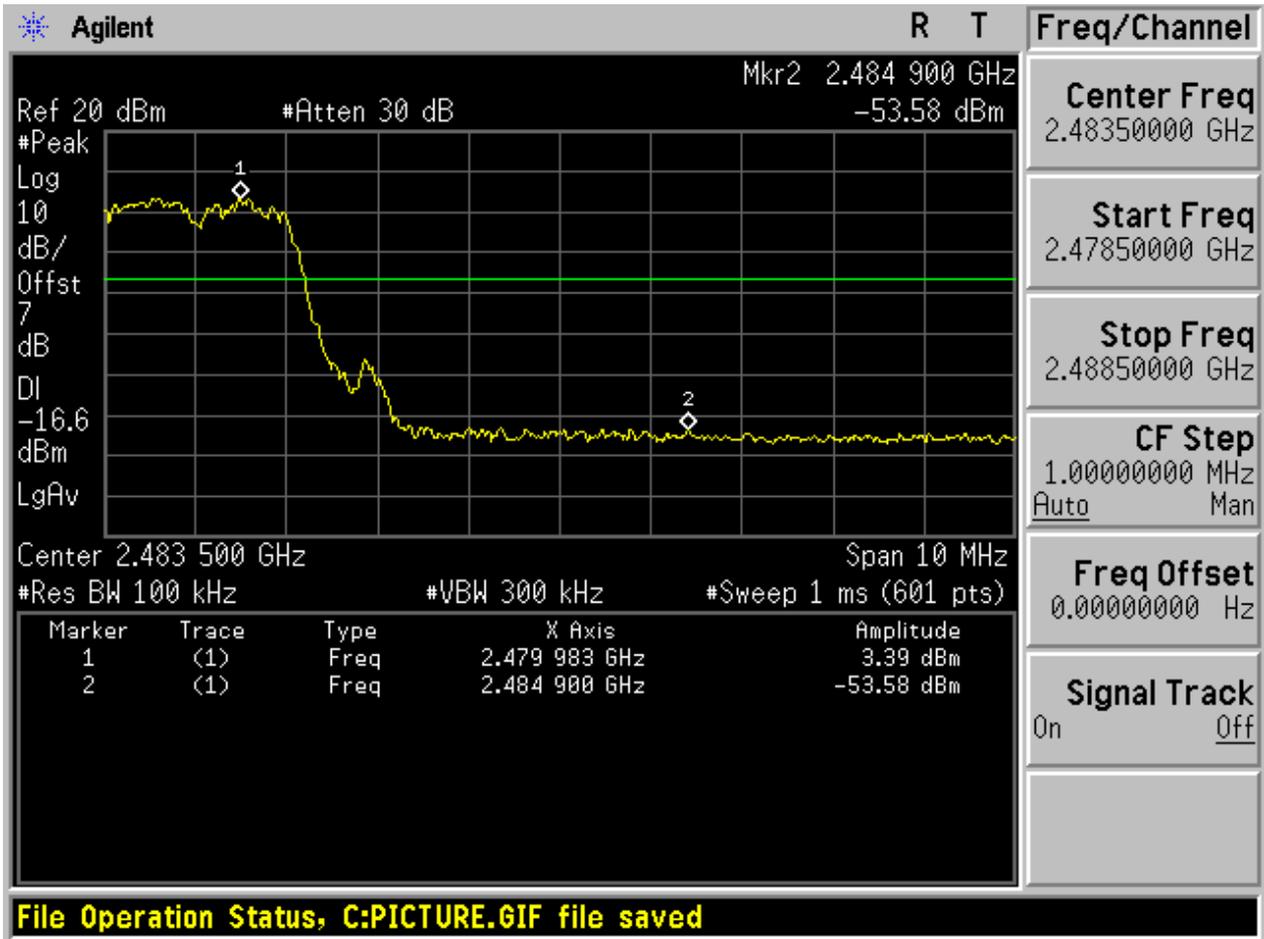


2.6 TM3_3DH5_Ch78

No hopping



With hopping





Appendix G: Conducted RF Spurious Emission

1 Result Table

In this Appendix, the “Pref” refers to the peak power level in any 100 kHz bandwidth within the fundamental emission which is used as the reference level, 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.

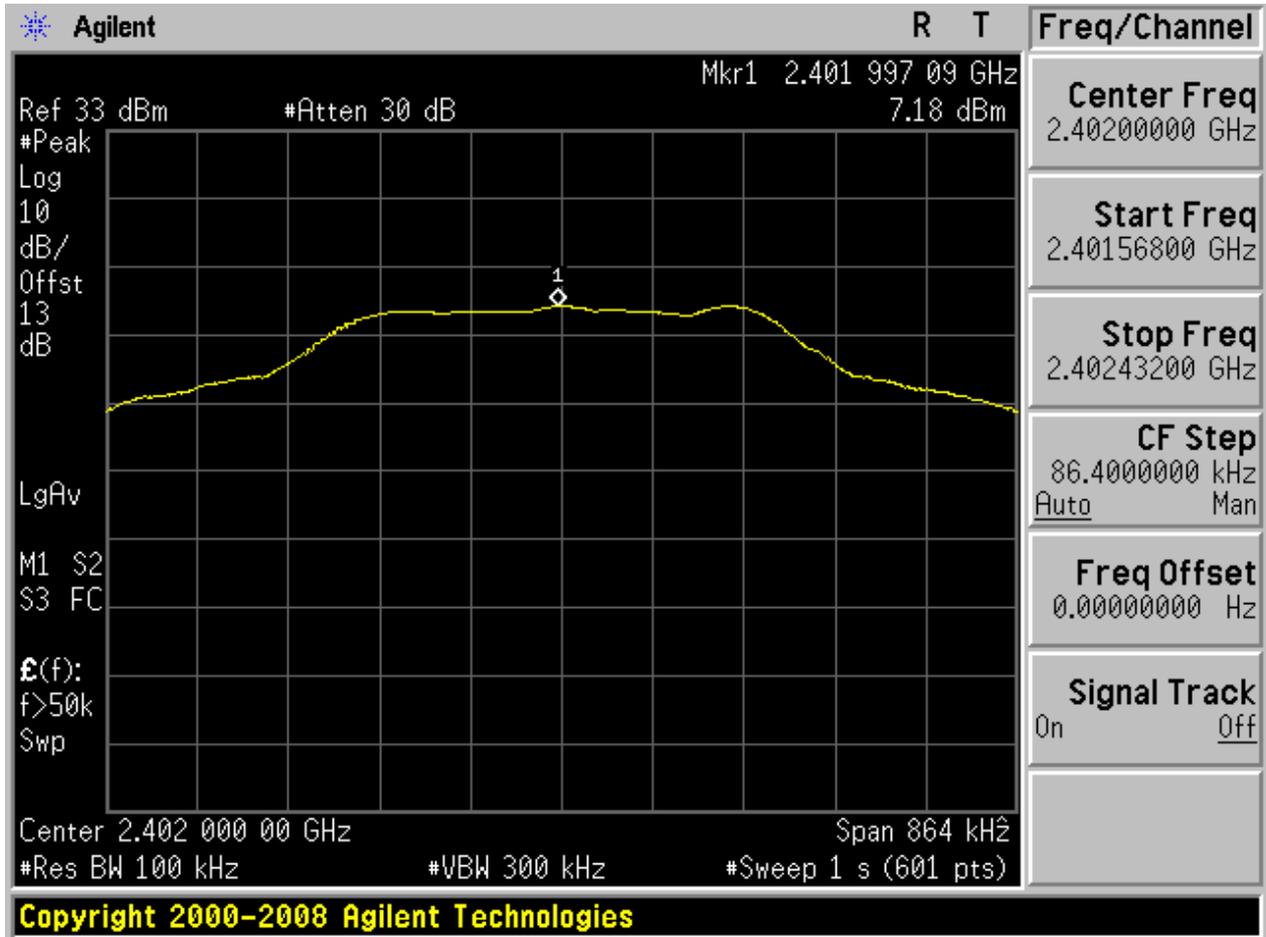
In the result table, the “< Limit” denotes that “The Puw [dBm] is less than Pref [dBm] - 20 [dB], see test plots for detailed”.

EUT Conf.	Pref [dBm/100 kHz]	Puw [dBm/100 kHz]	Verdict
TM1_DH5_Ch0	7.18	< Limit	Pass
TM1_DH5_Ch39	7.92	< Limit	Pass
TM1_DH5_Ch78	7.39	< Limit	Pass
TM2_2DH5_Ch0	4.52	< Limit	Pass
TM2_2DH5_Ch39	5.32	< Limit	Pass
TM2_2DH5_Ch78	4.81	< Limit	Pass
TM3_3DH5_Ch0	4.52	< Limit	Pass
TM3_3DH5_Ch39	5.33	< Limit	Pass
TM3_3DH5_Ch78	4.81	< Limit	Pass

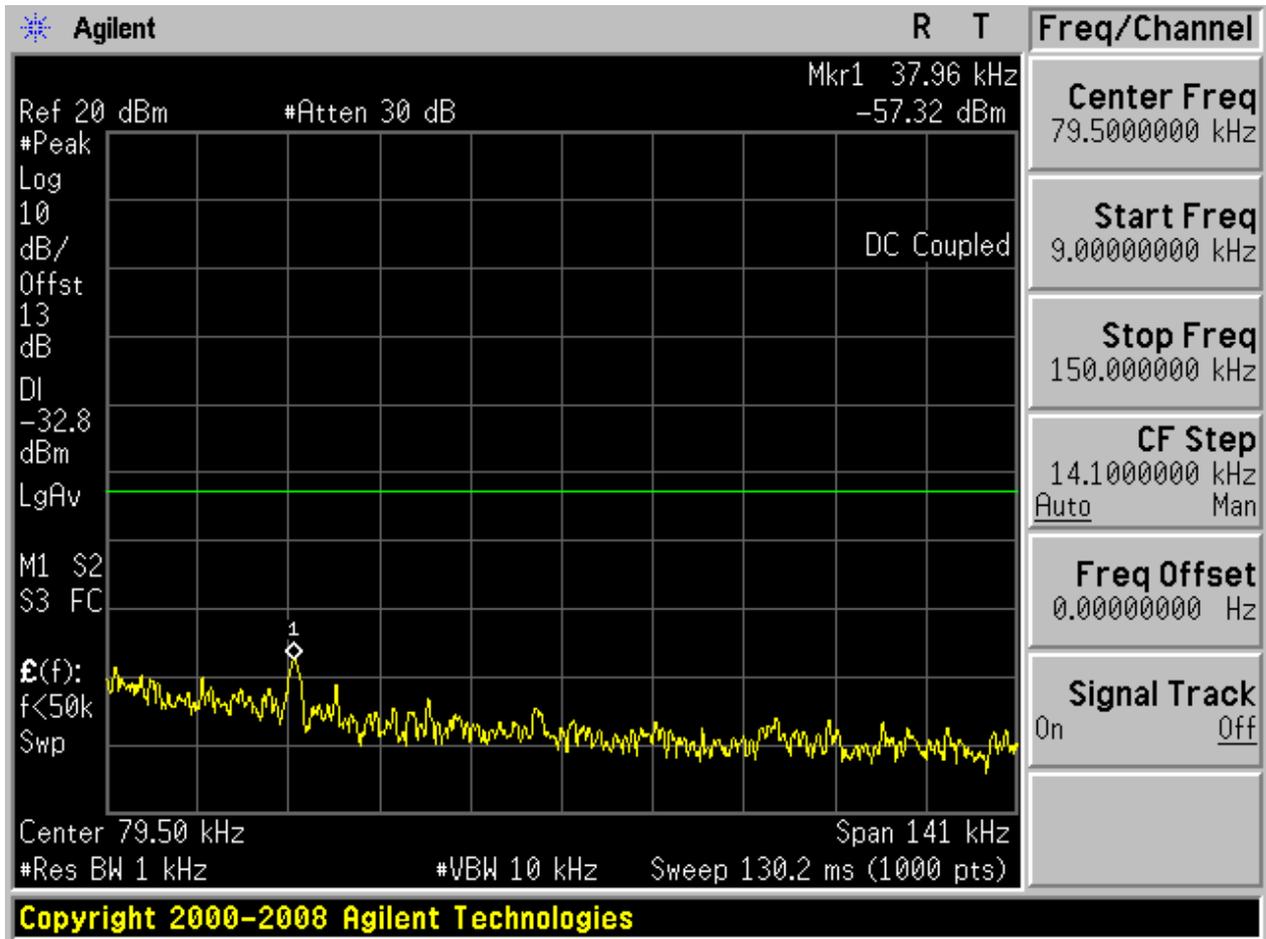
2 Test Plot

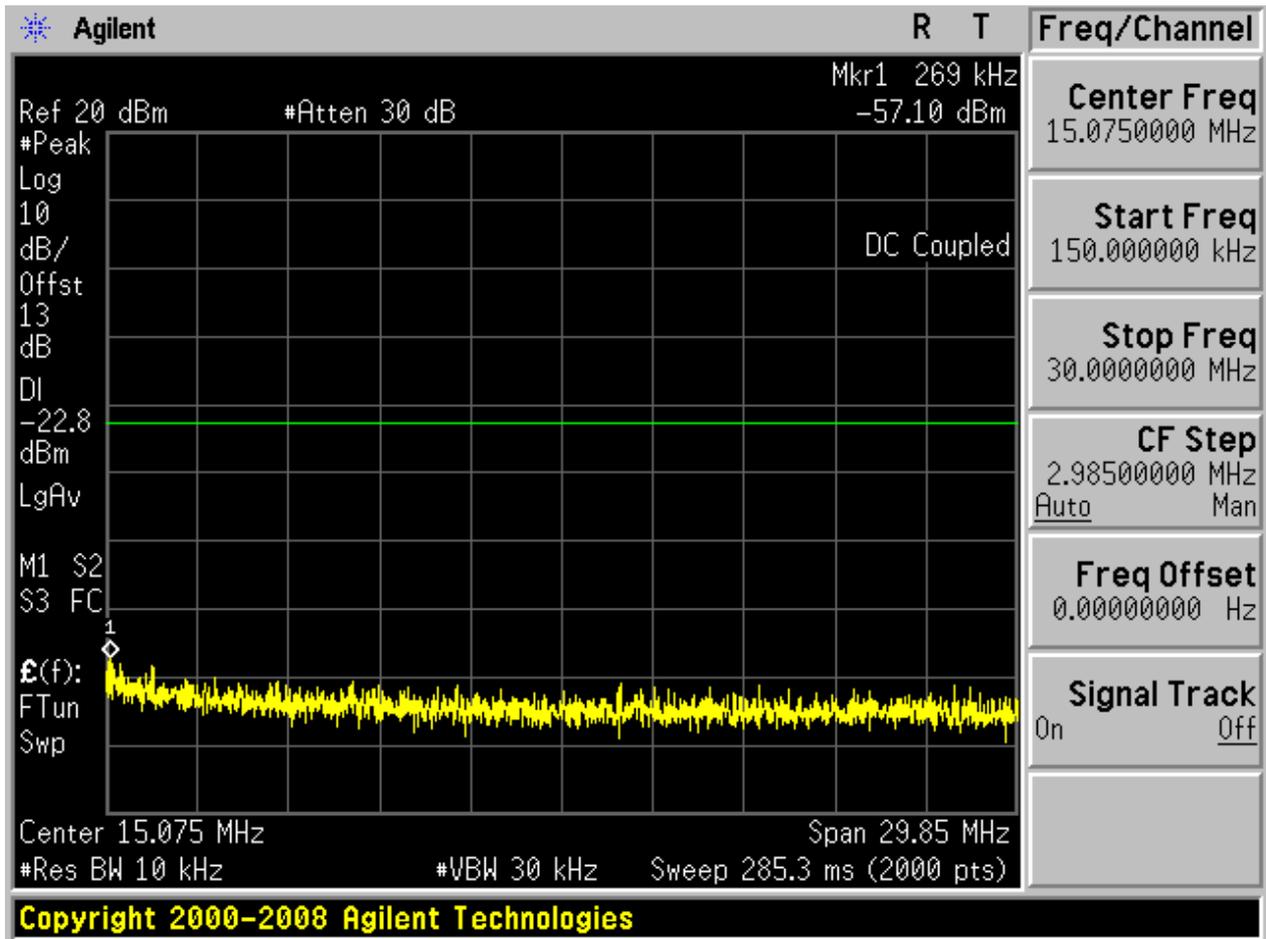
2.1 TM1_DH5_Ch0

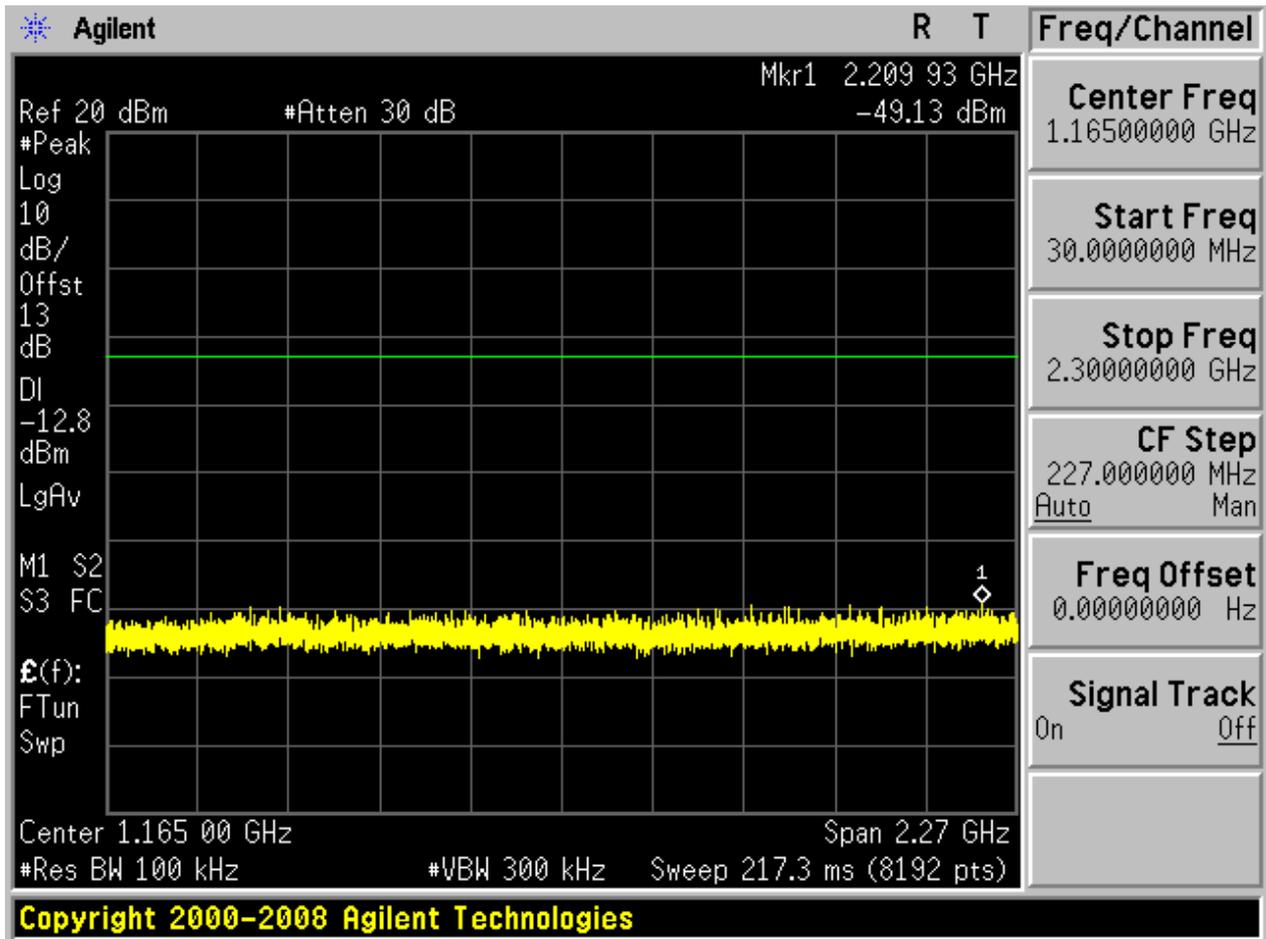
2.1.1 Pref

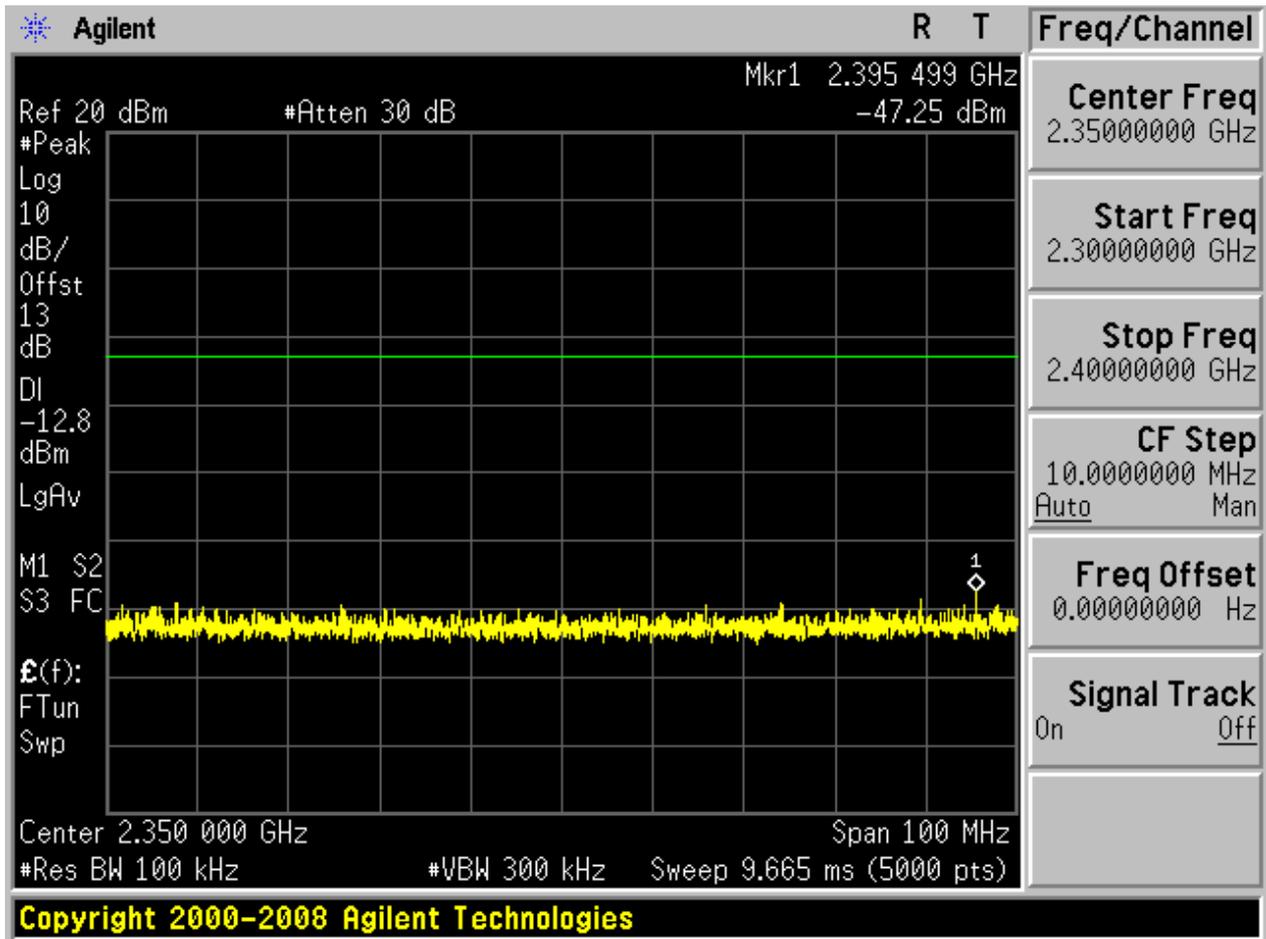


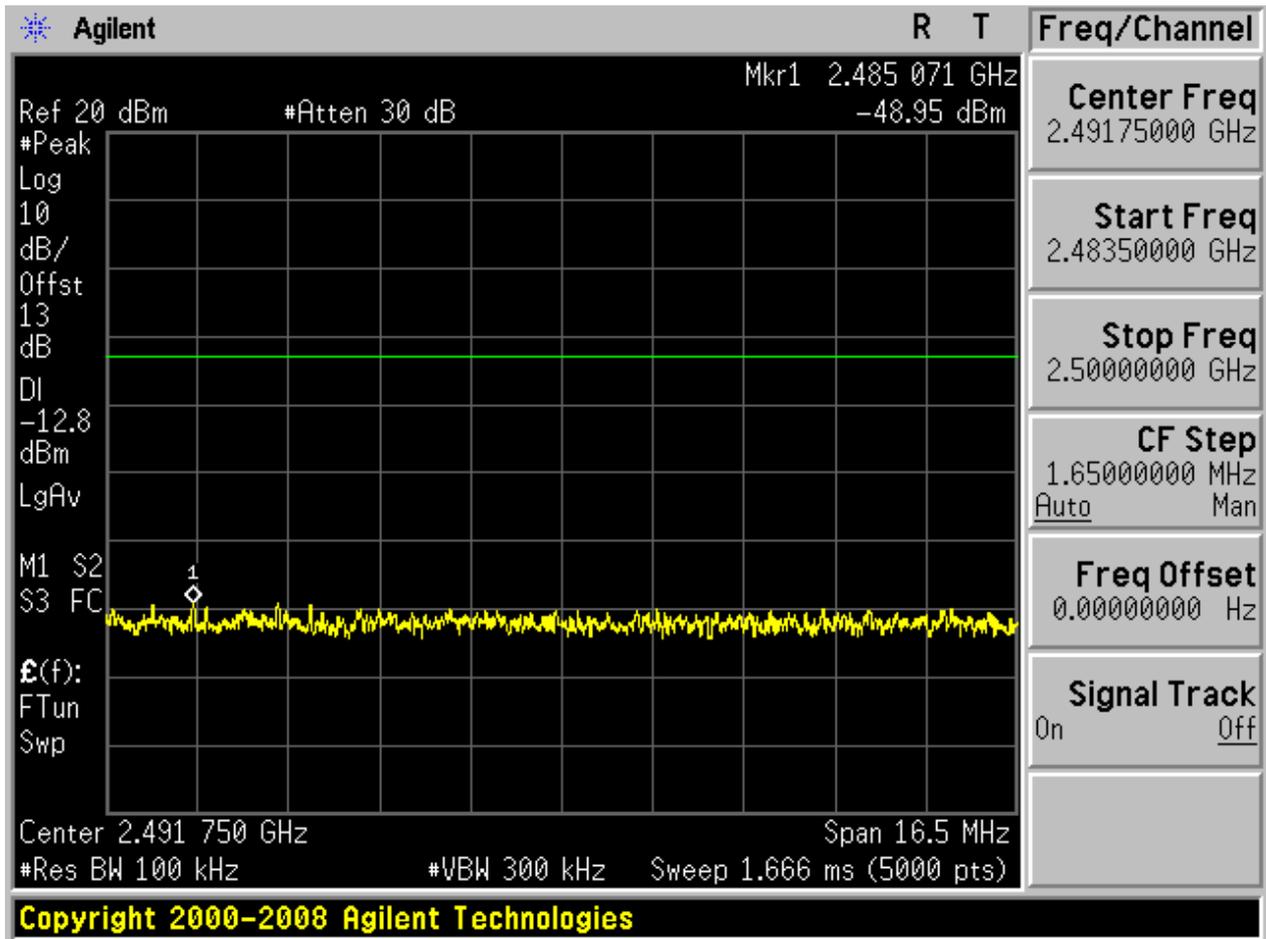
2.1.2 Puw

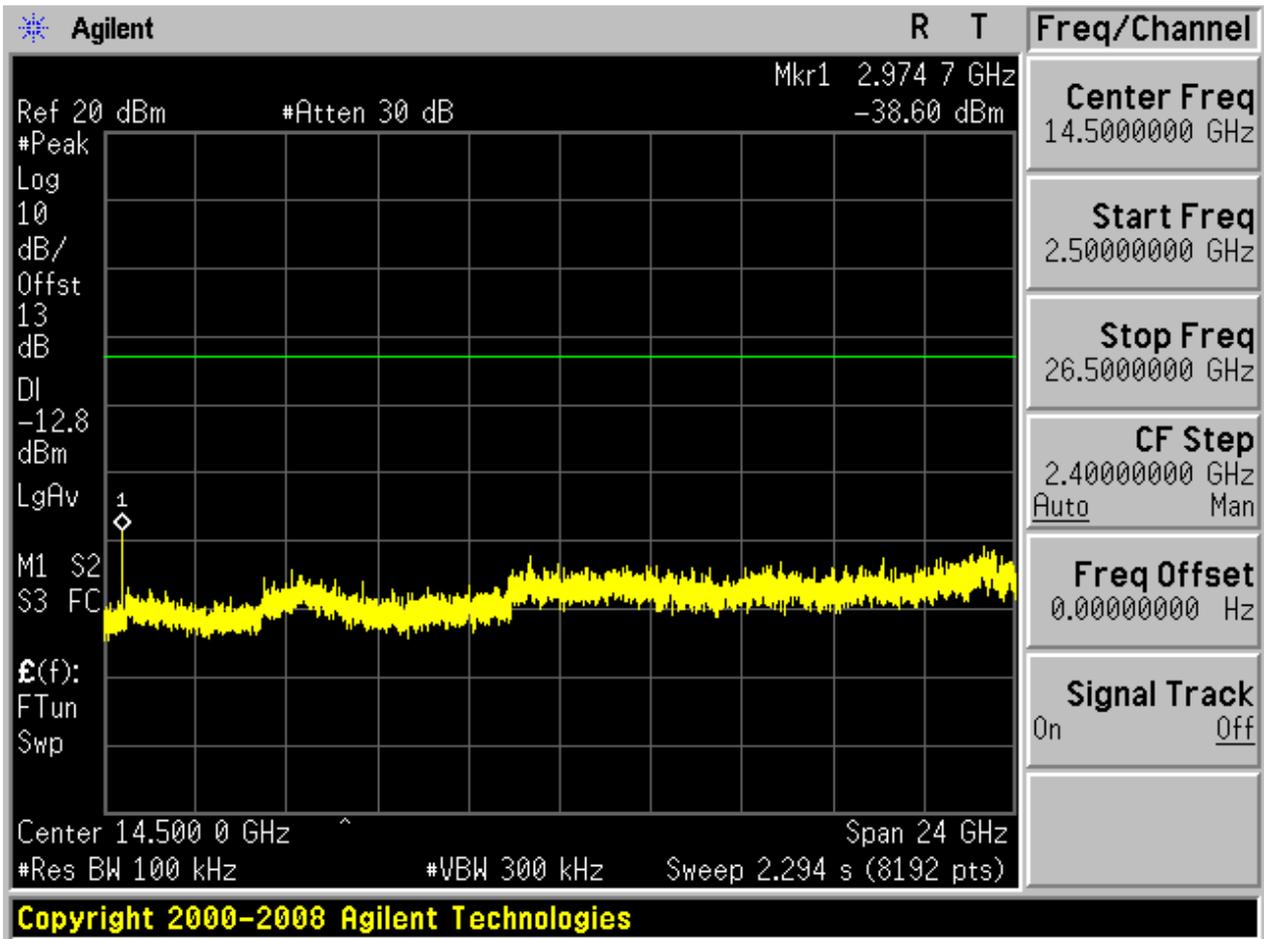






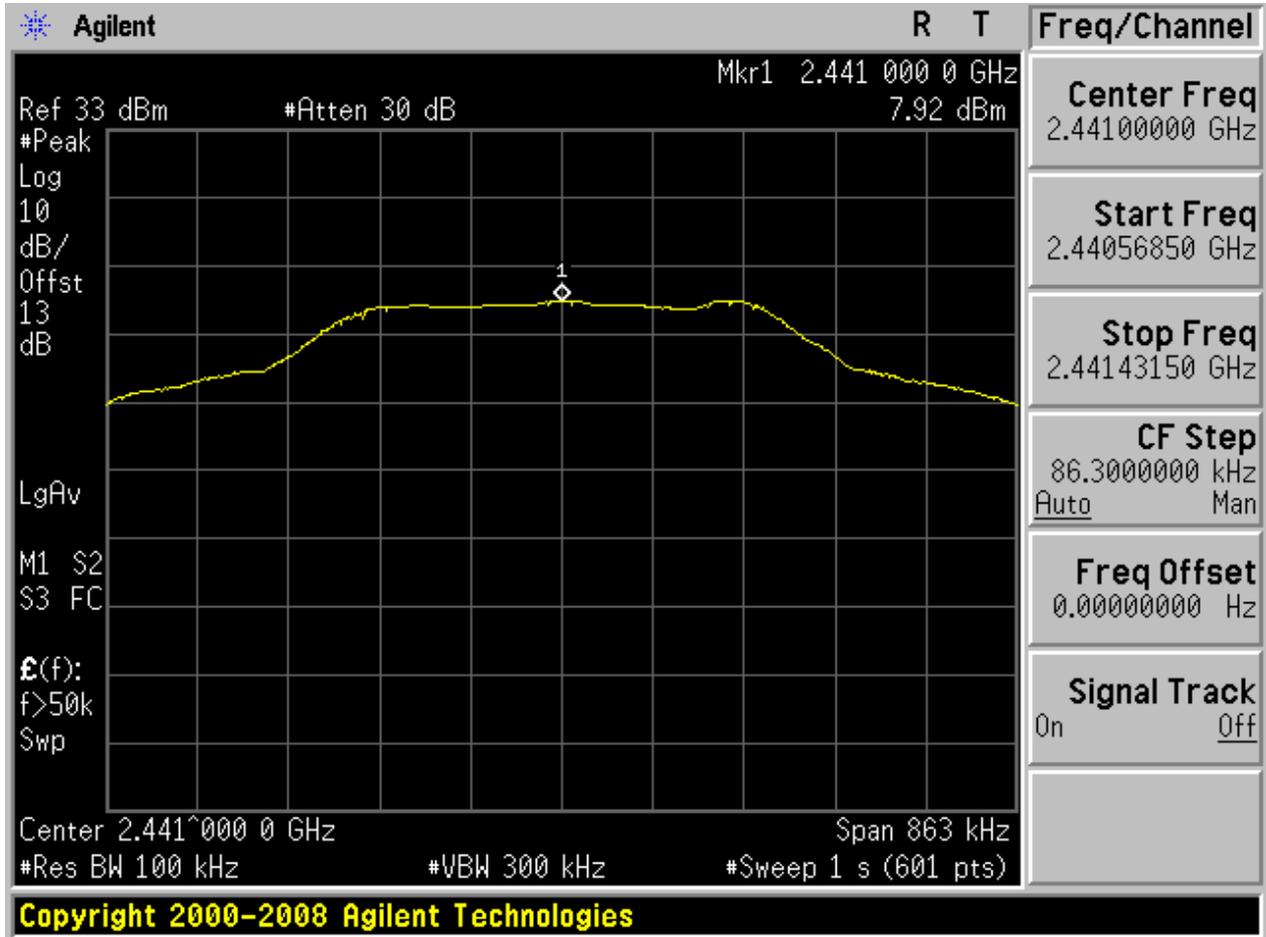




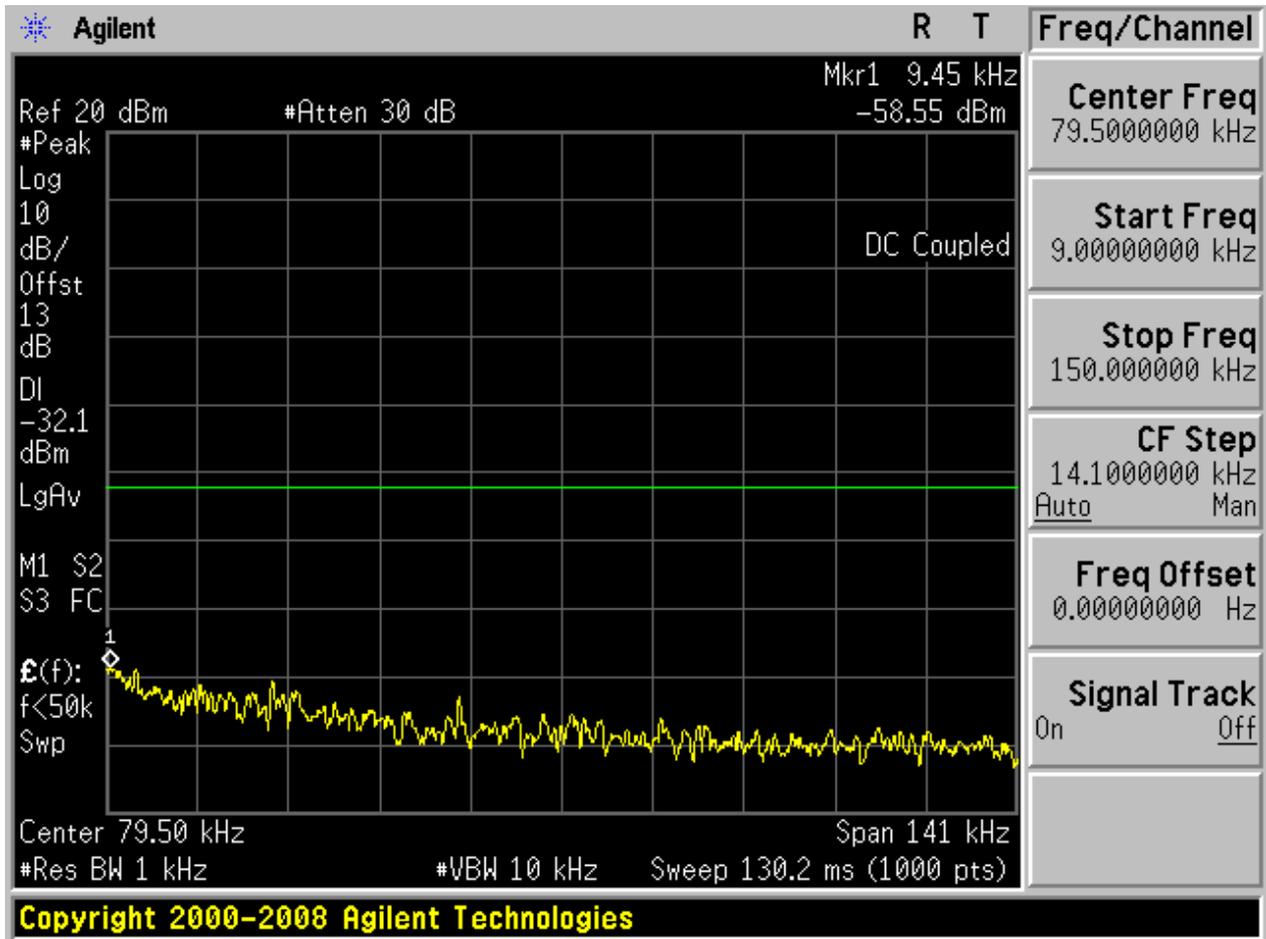


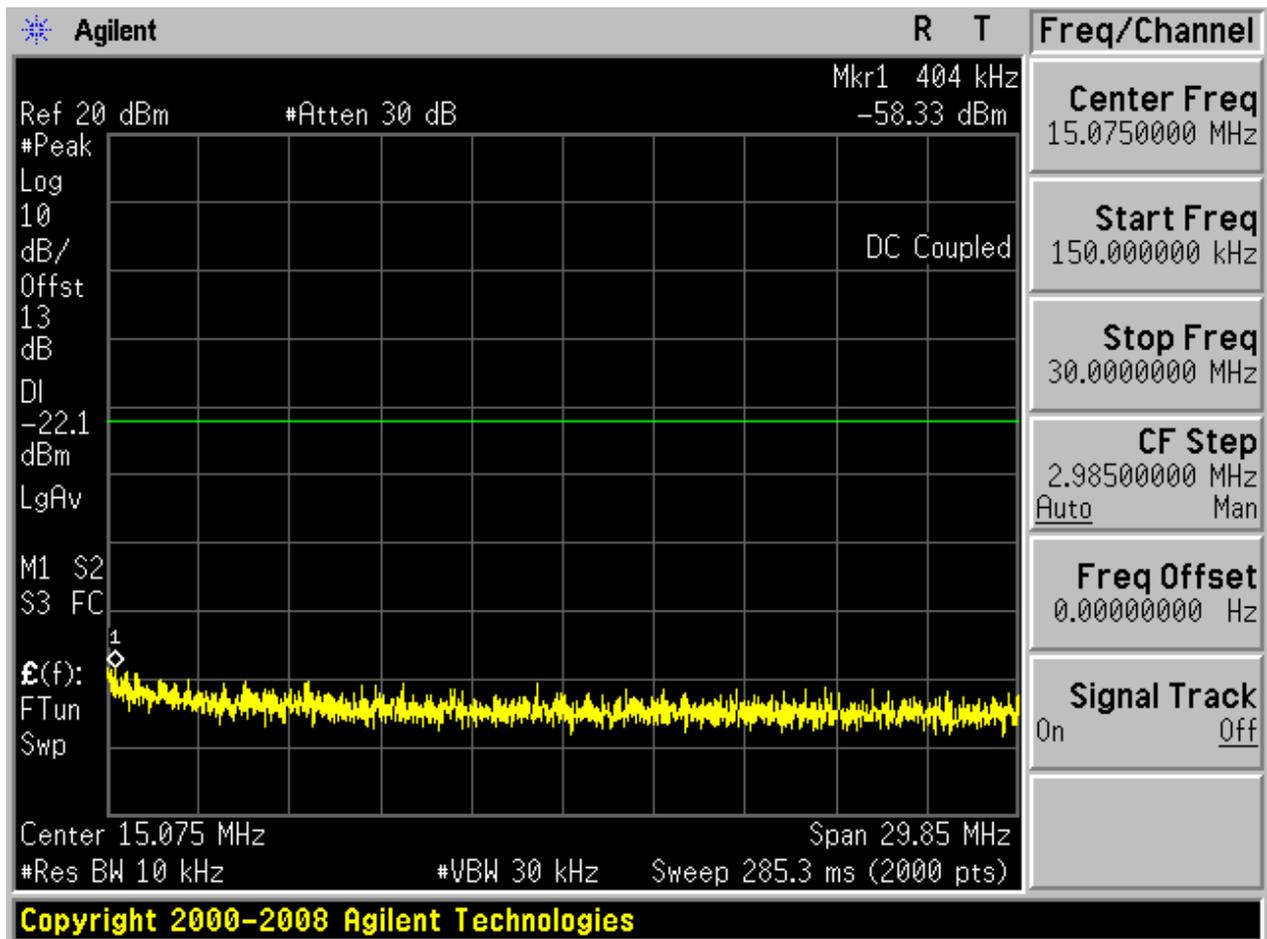
2.2 TM1_DH5_Ch39

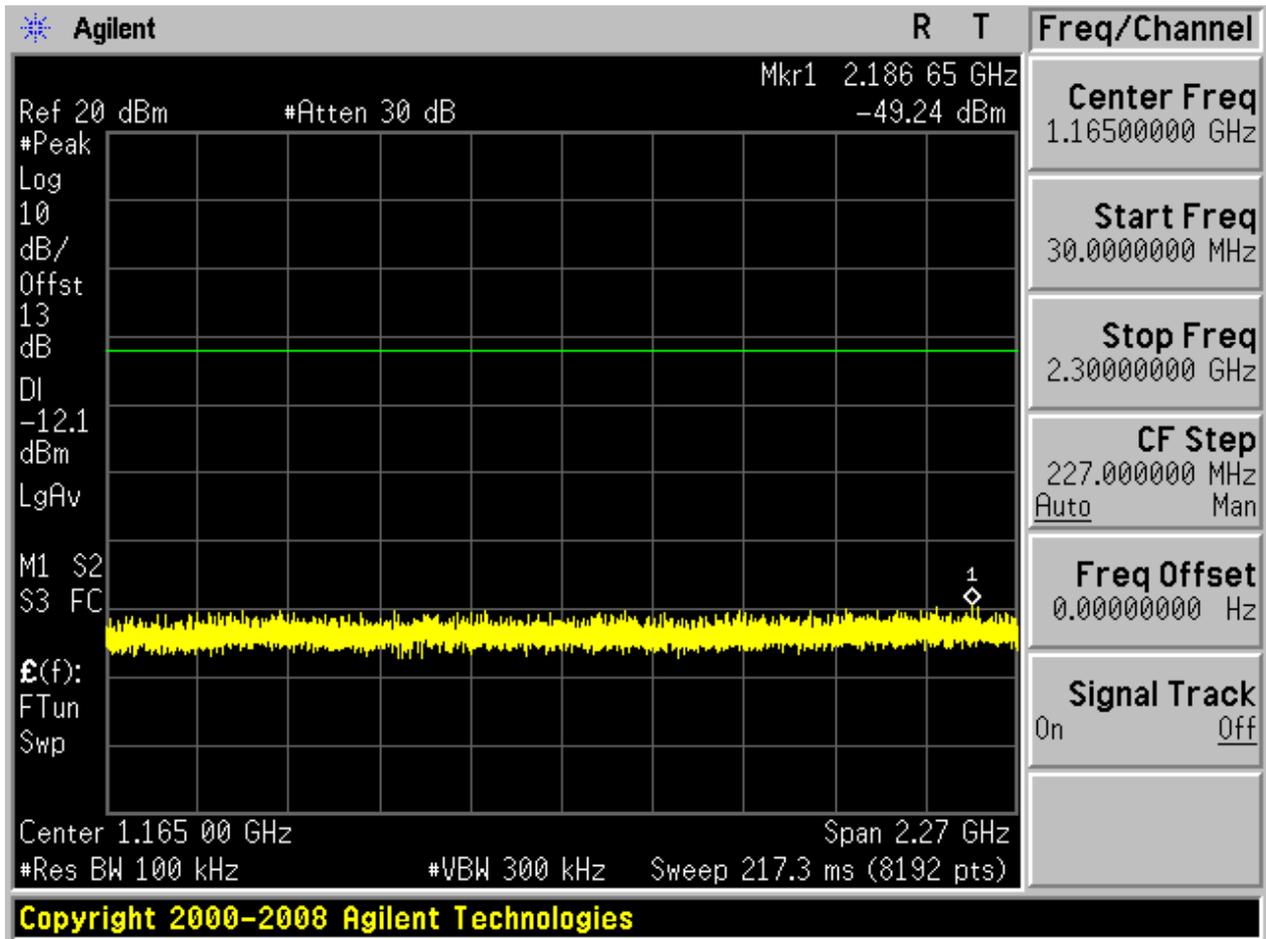
2.2.1 Pref

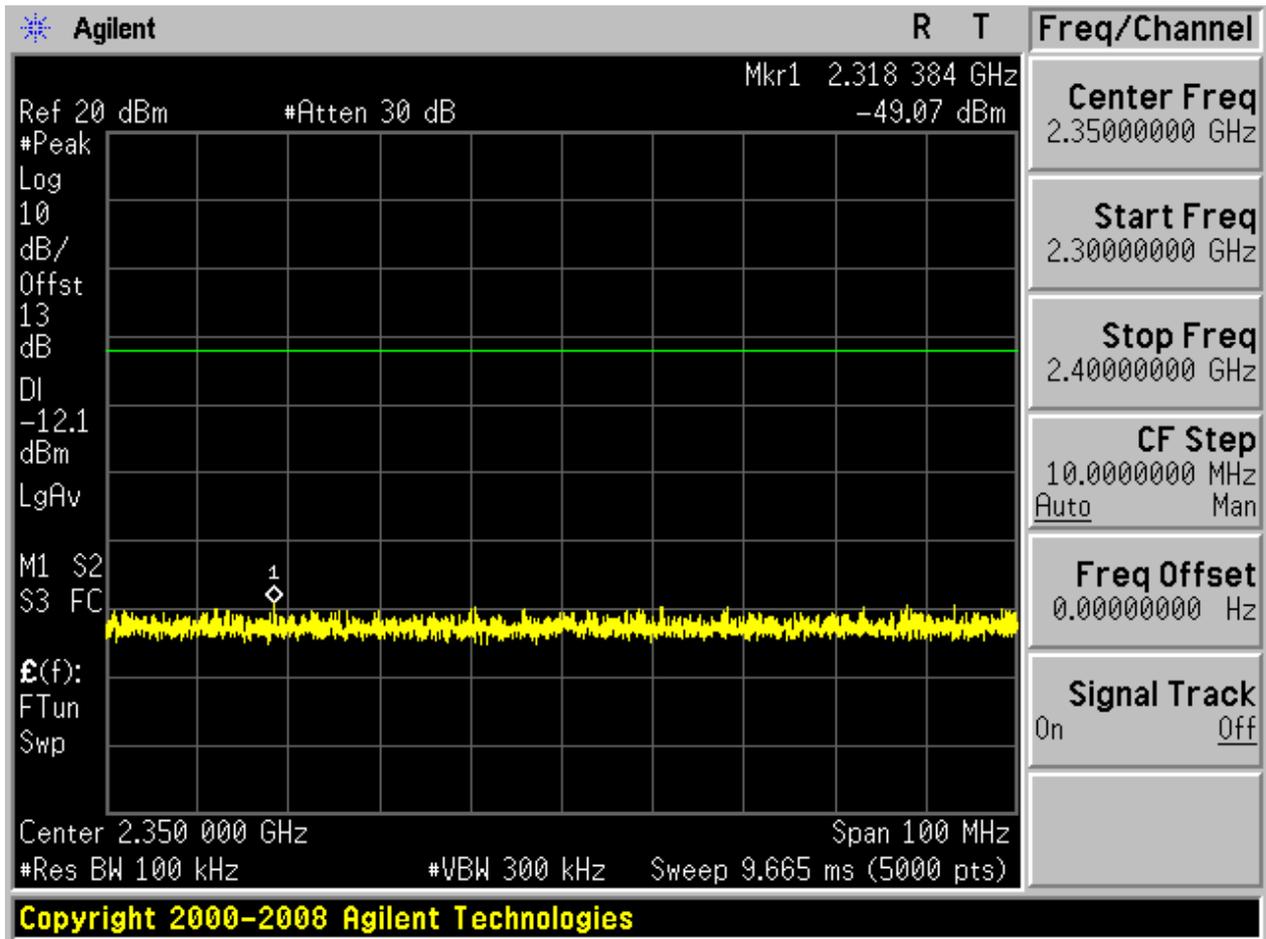


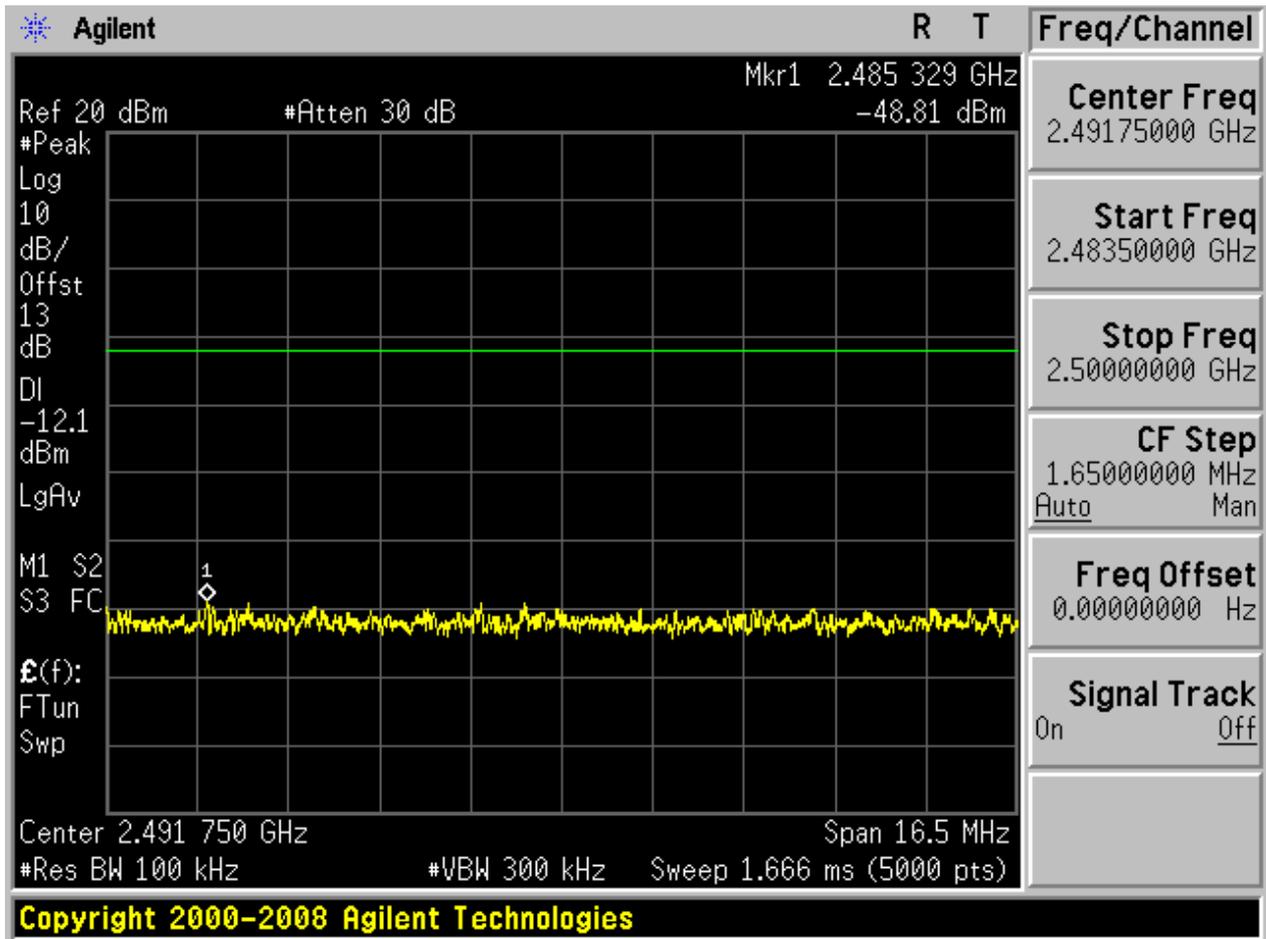
2.2.2 P_{uw}

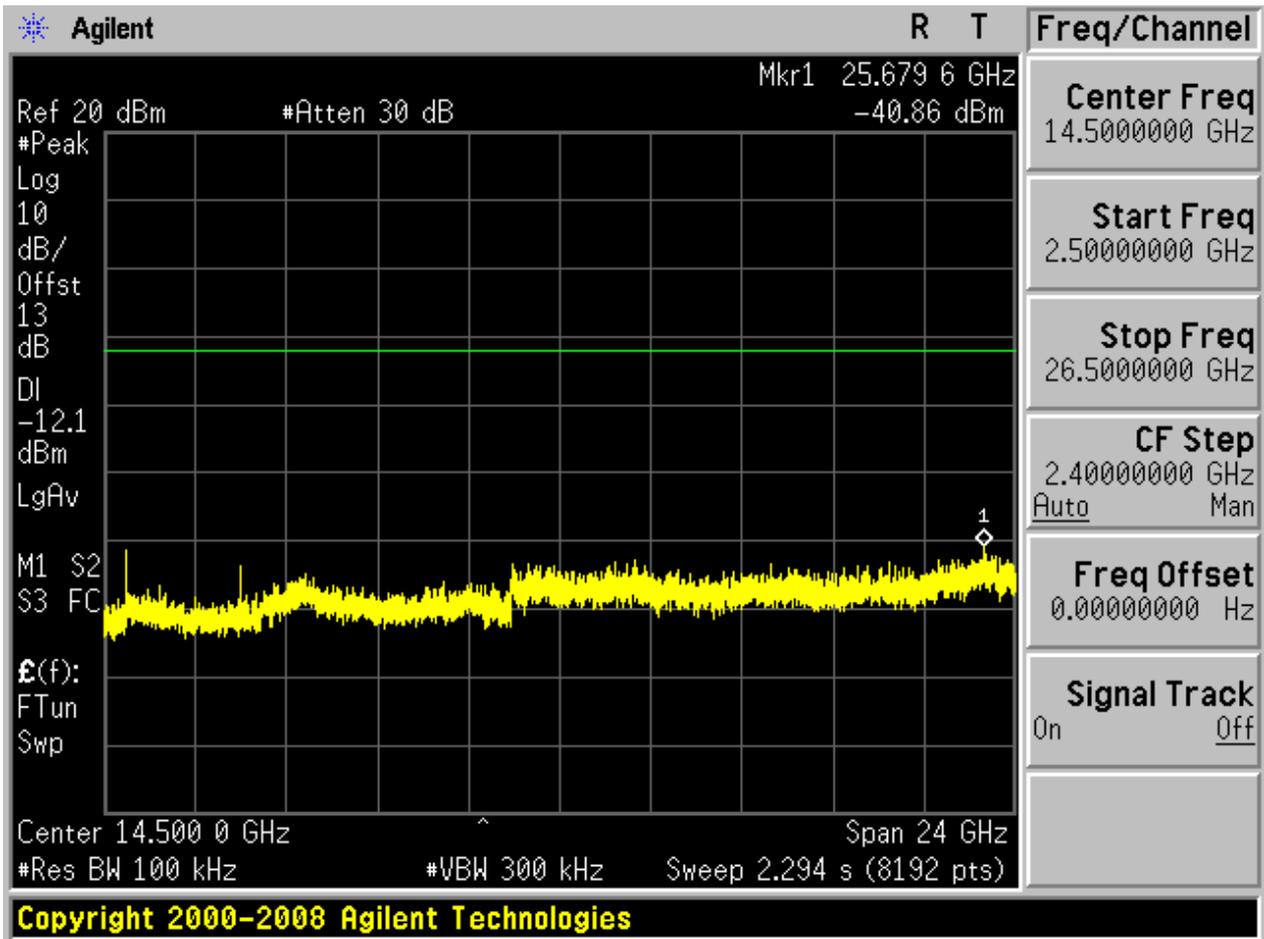






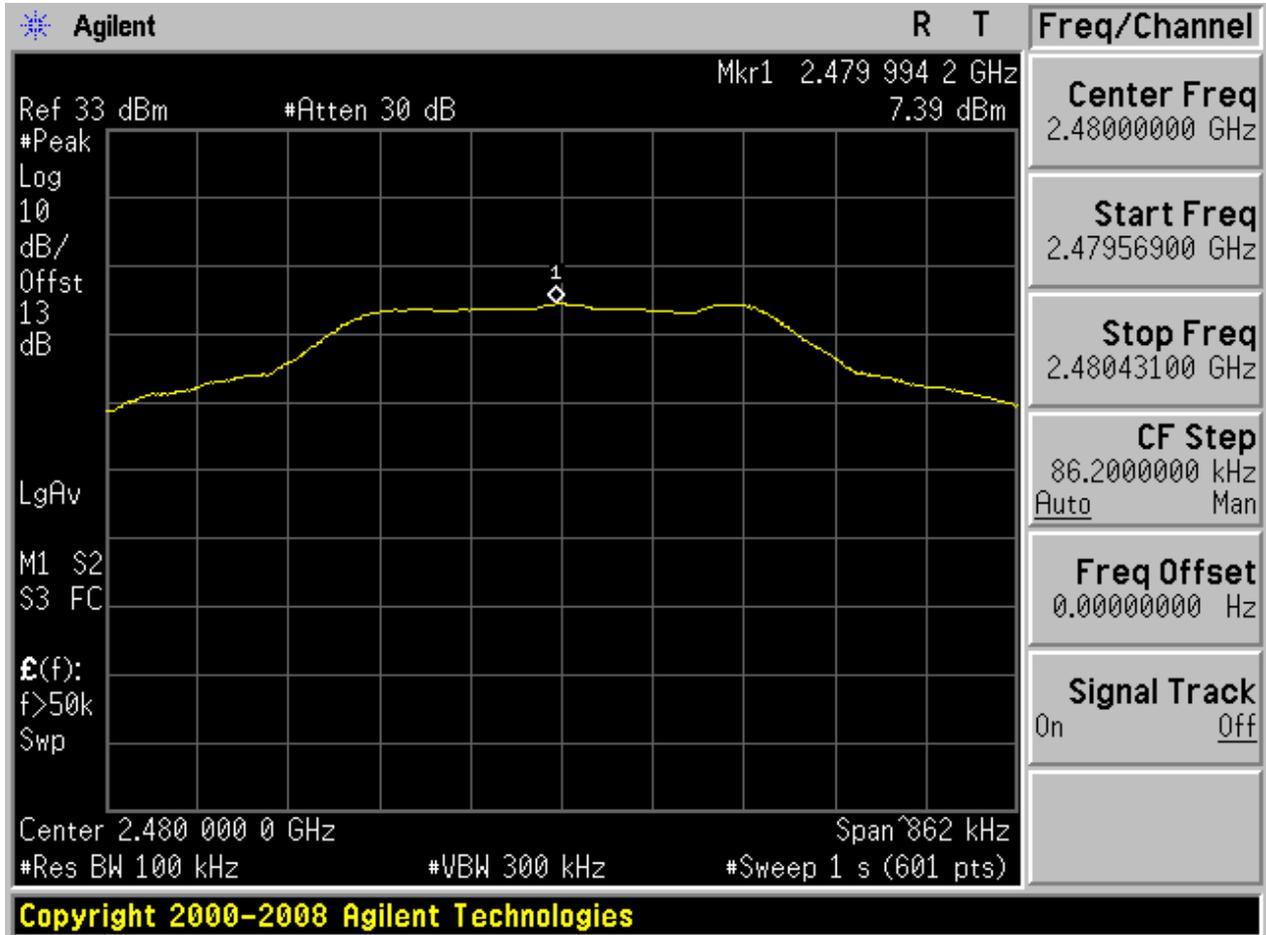






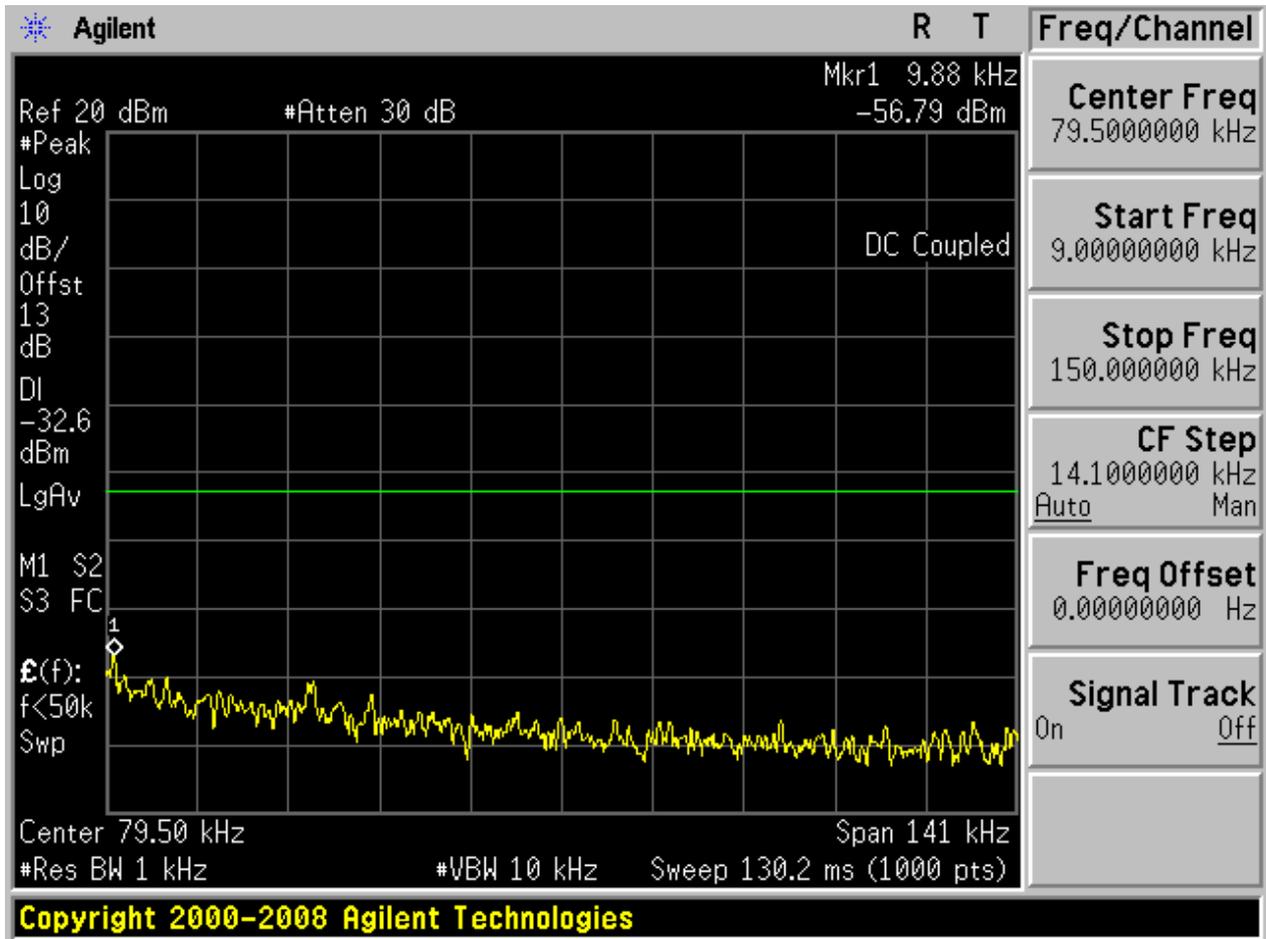
2.3 TM1_DH5_Ch78

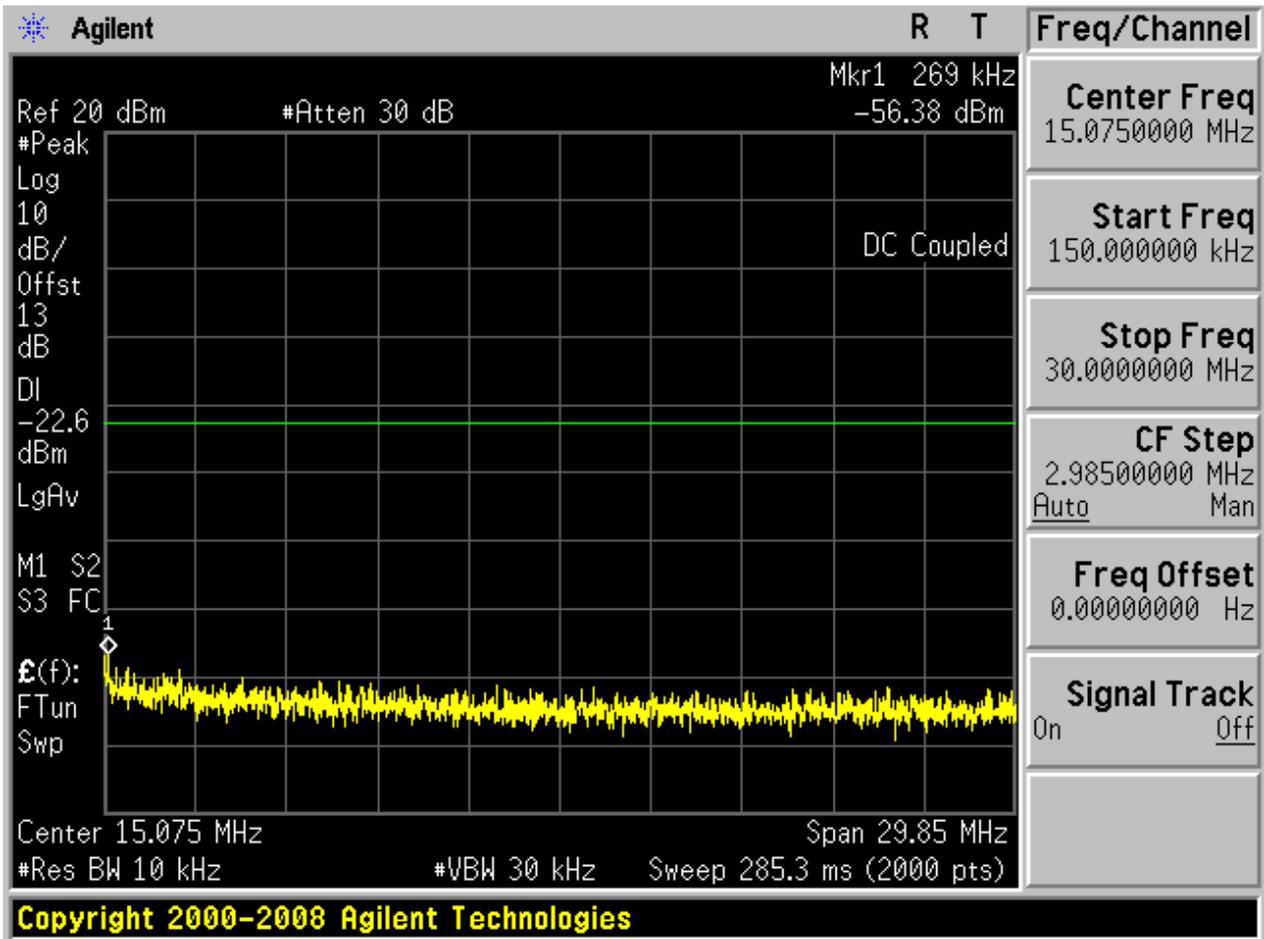
2.3.1 Pref

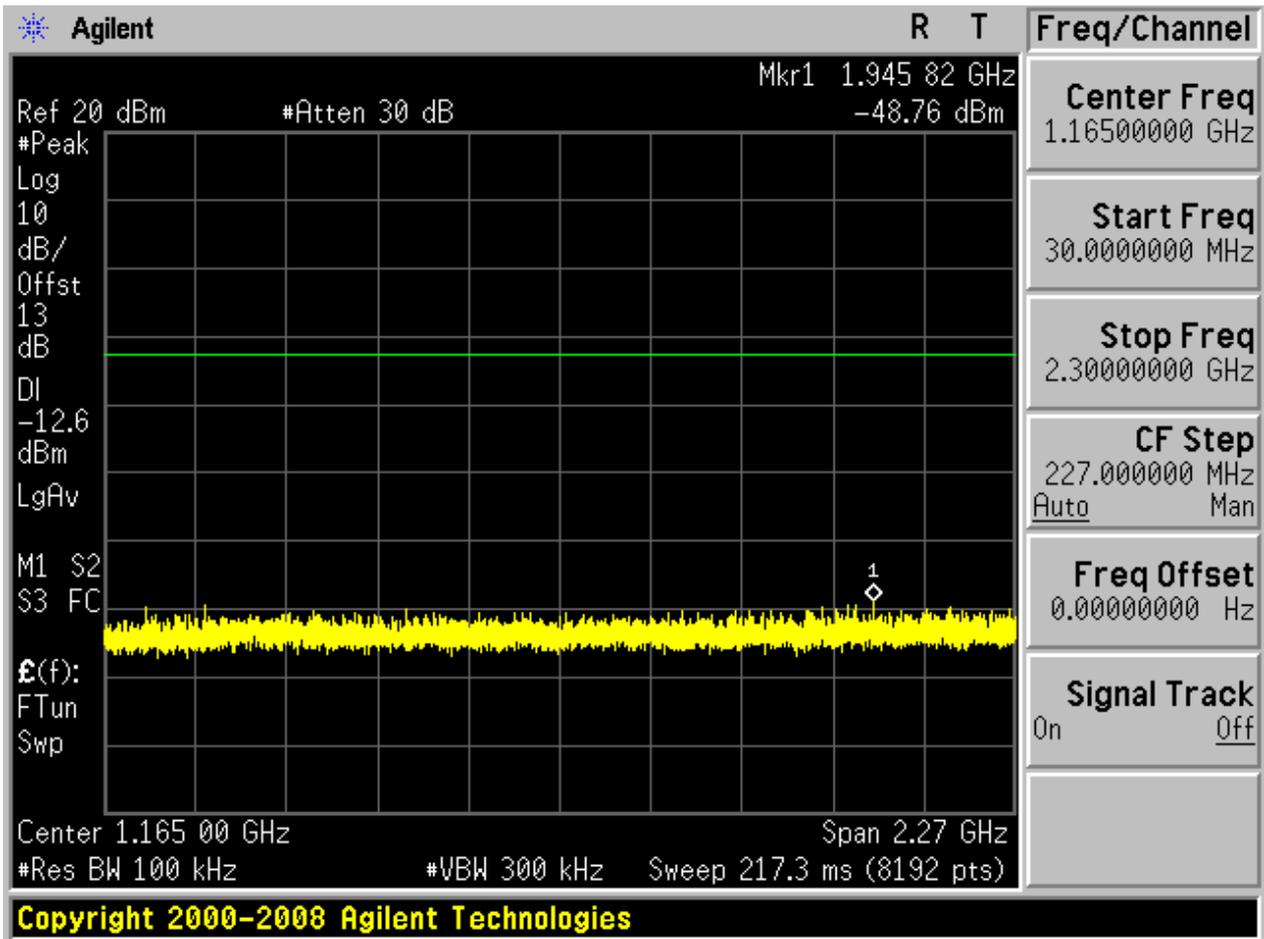


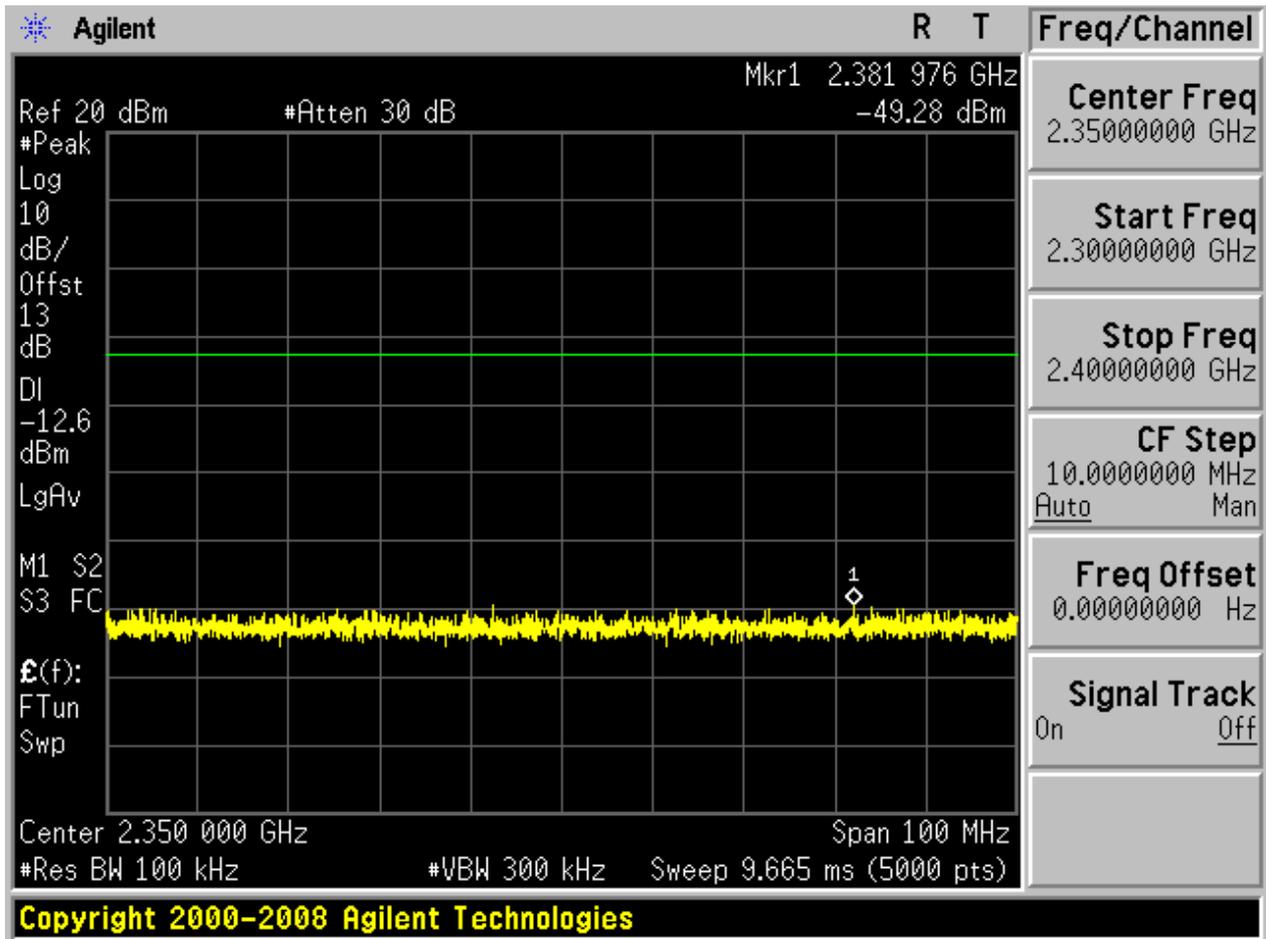


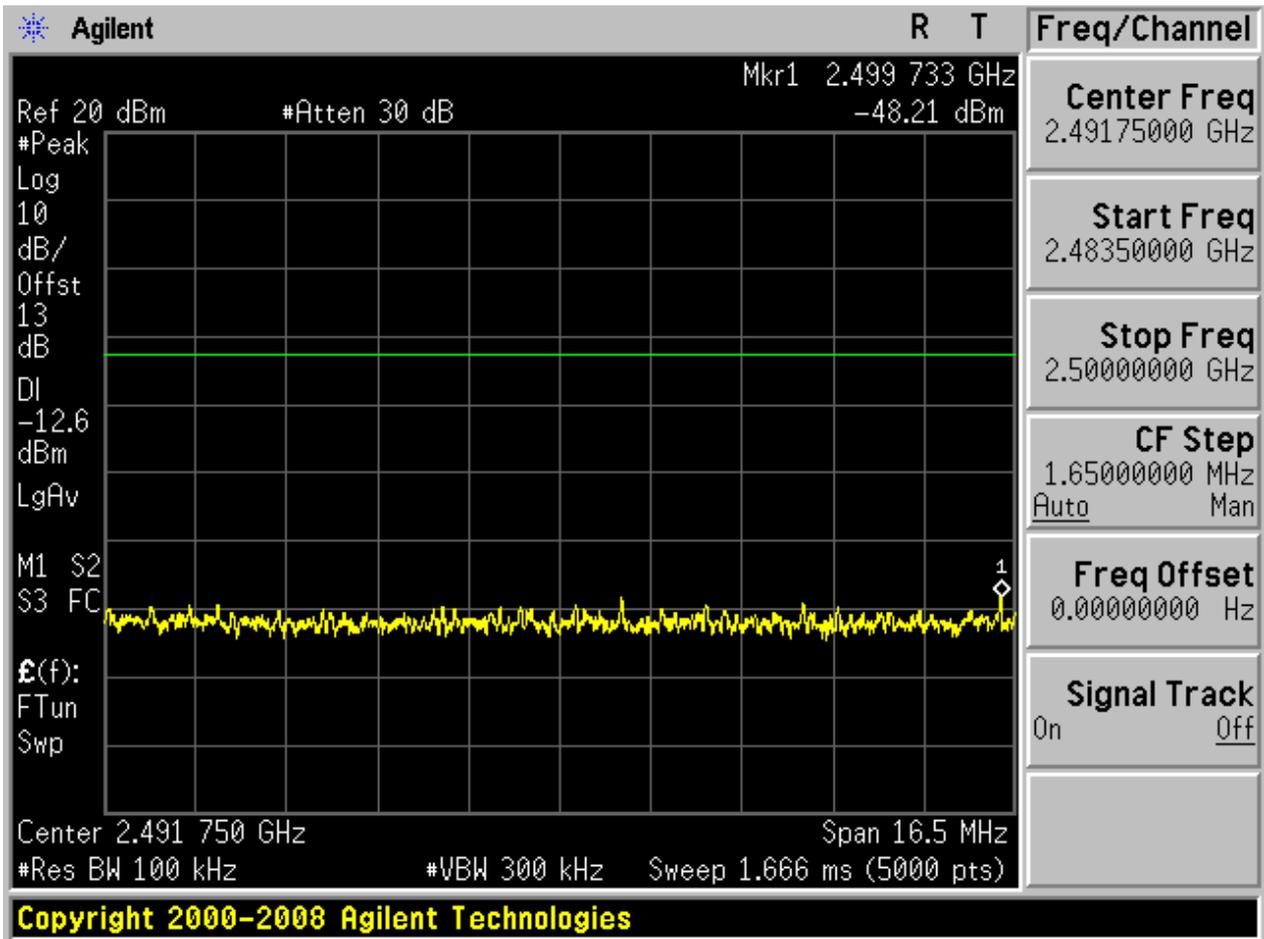
2.3.2 Puw

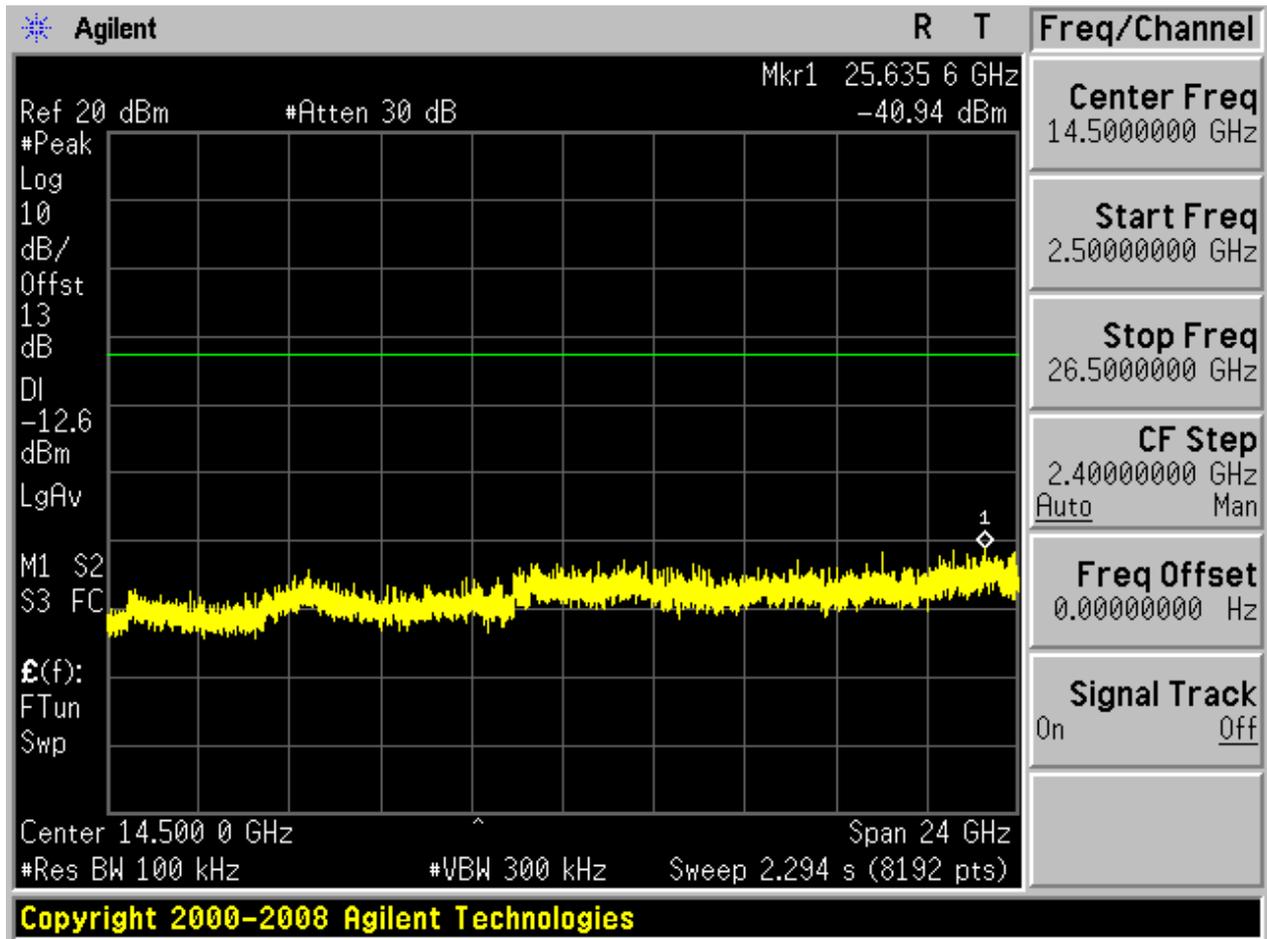








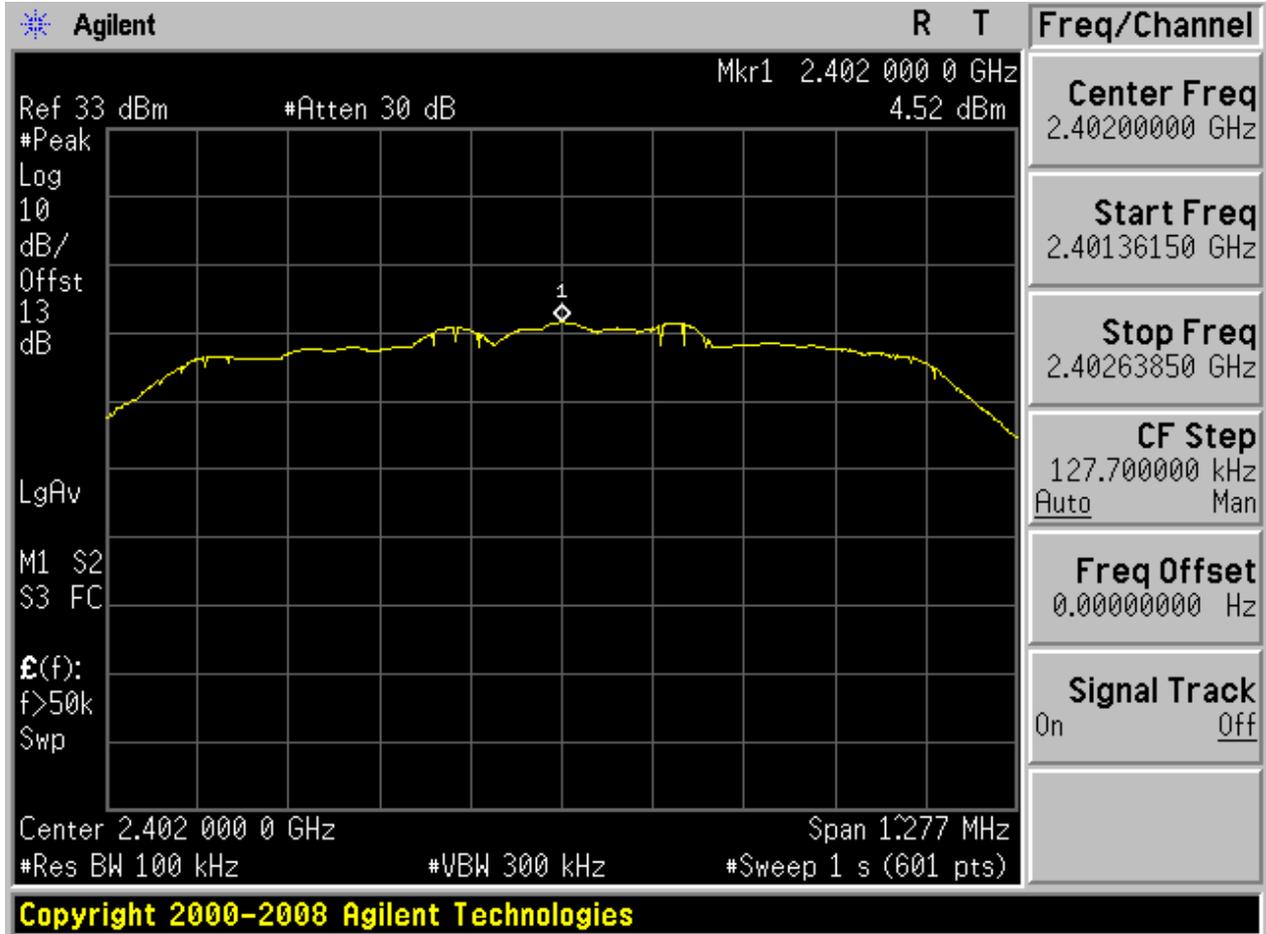




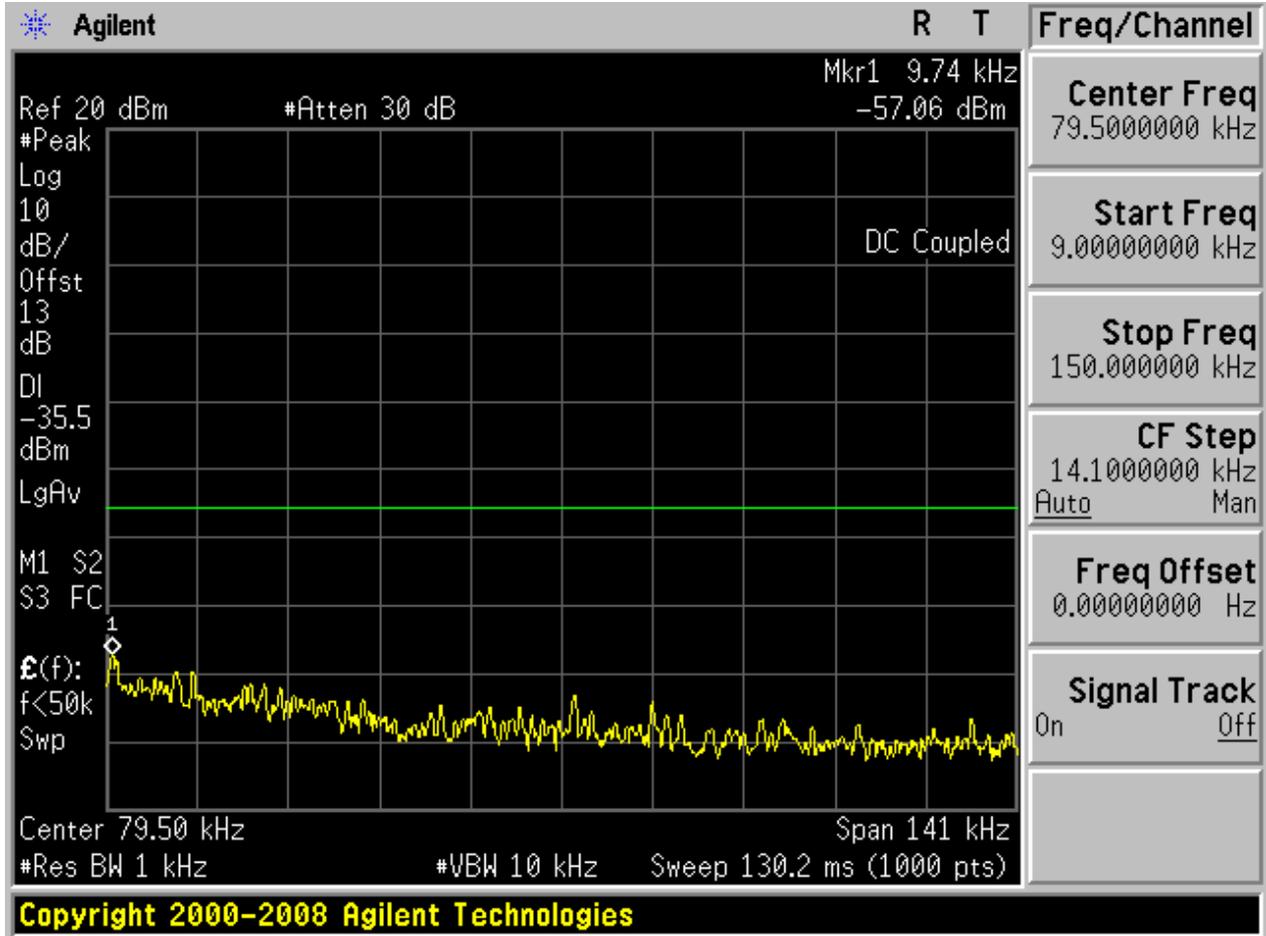


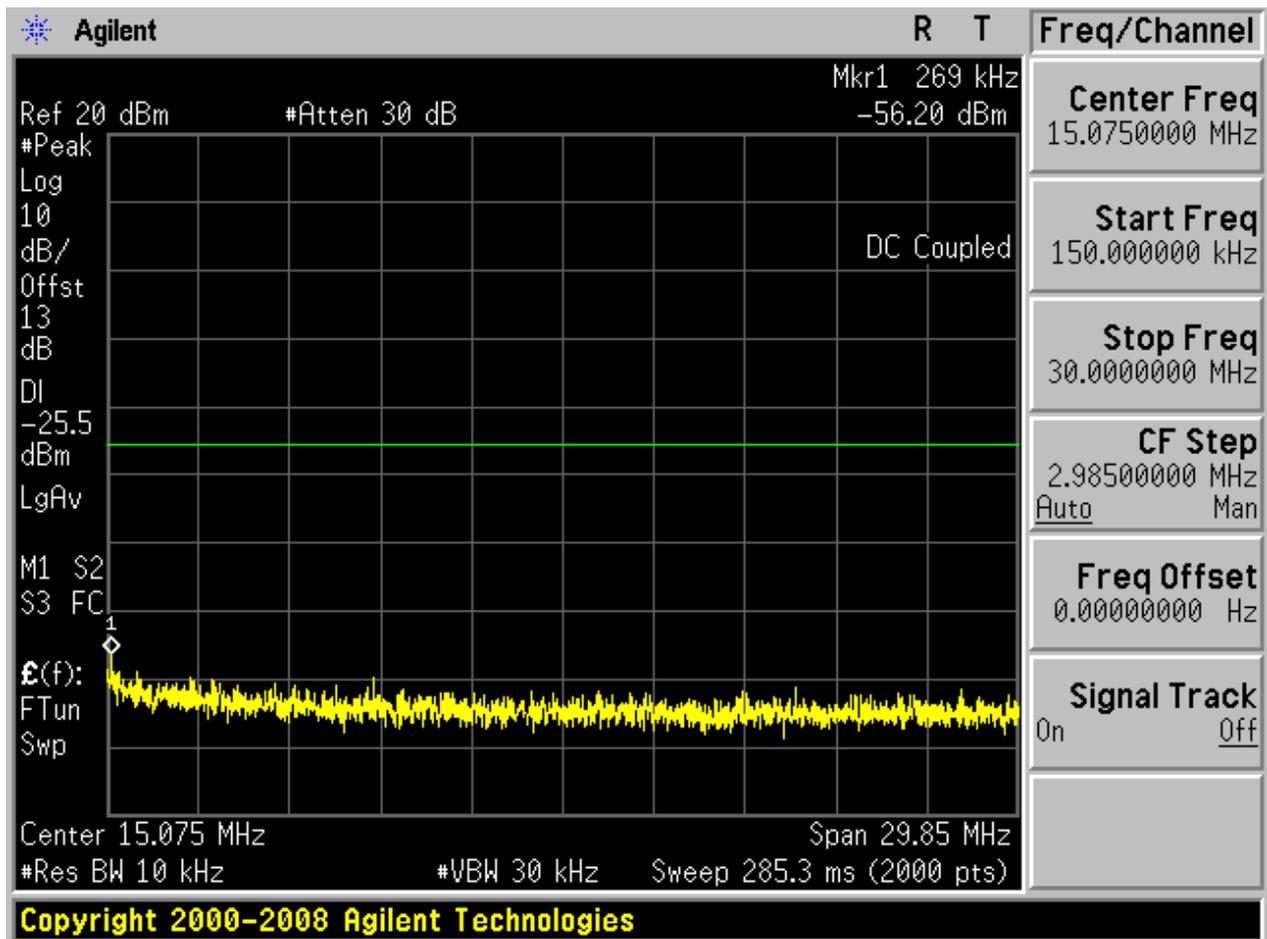
2.4 TM2_2DH5_Ch0

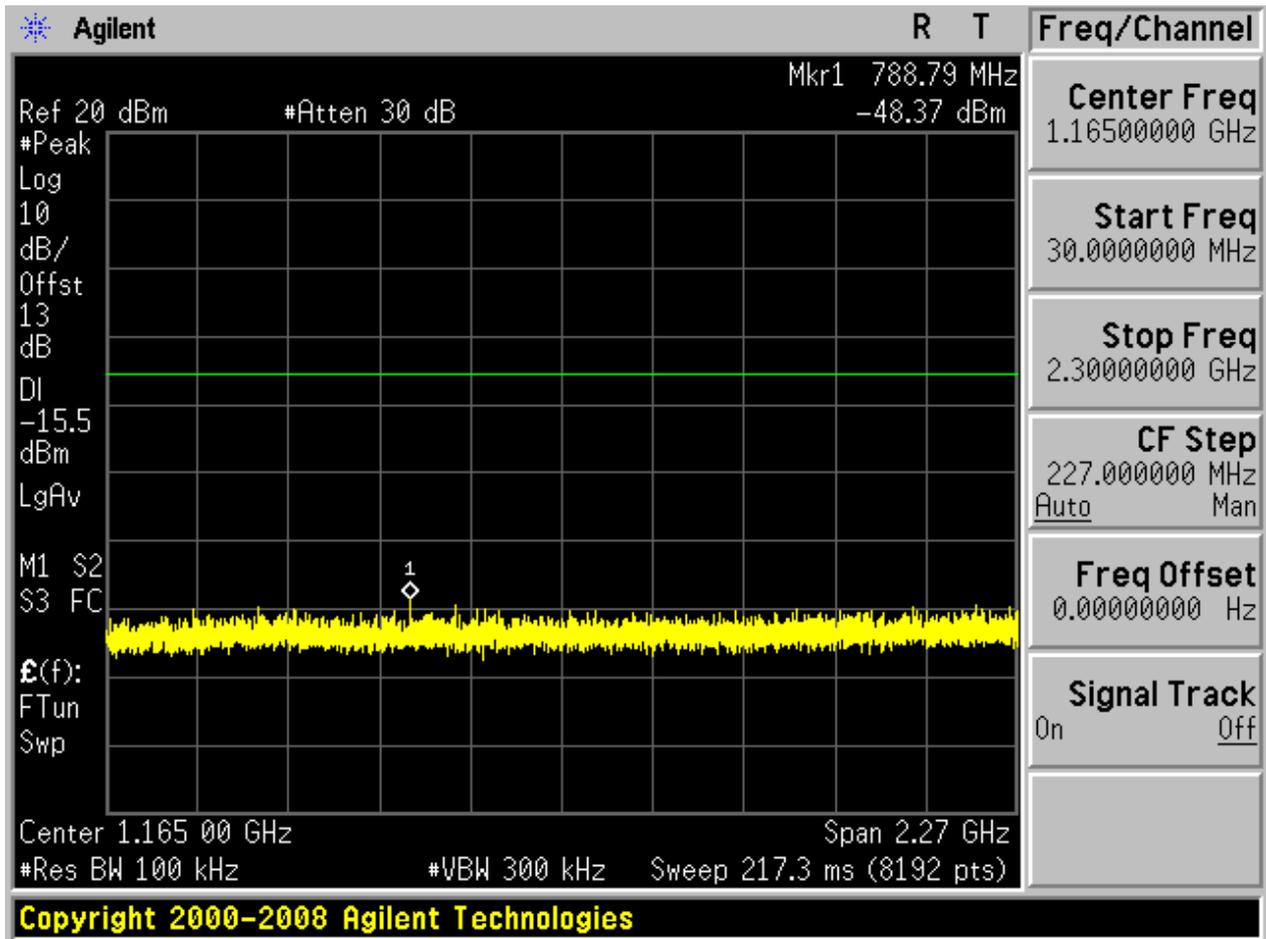
2.4.1 Pref

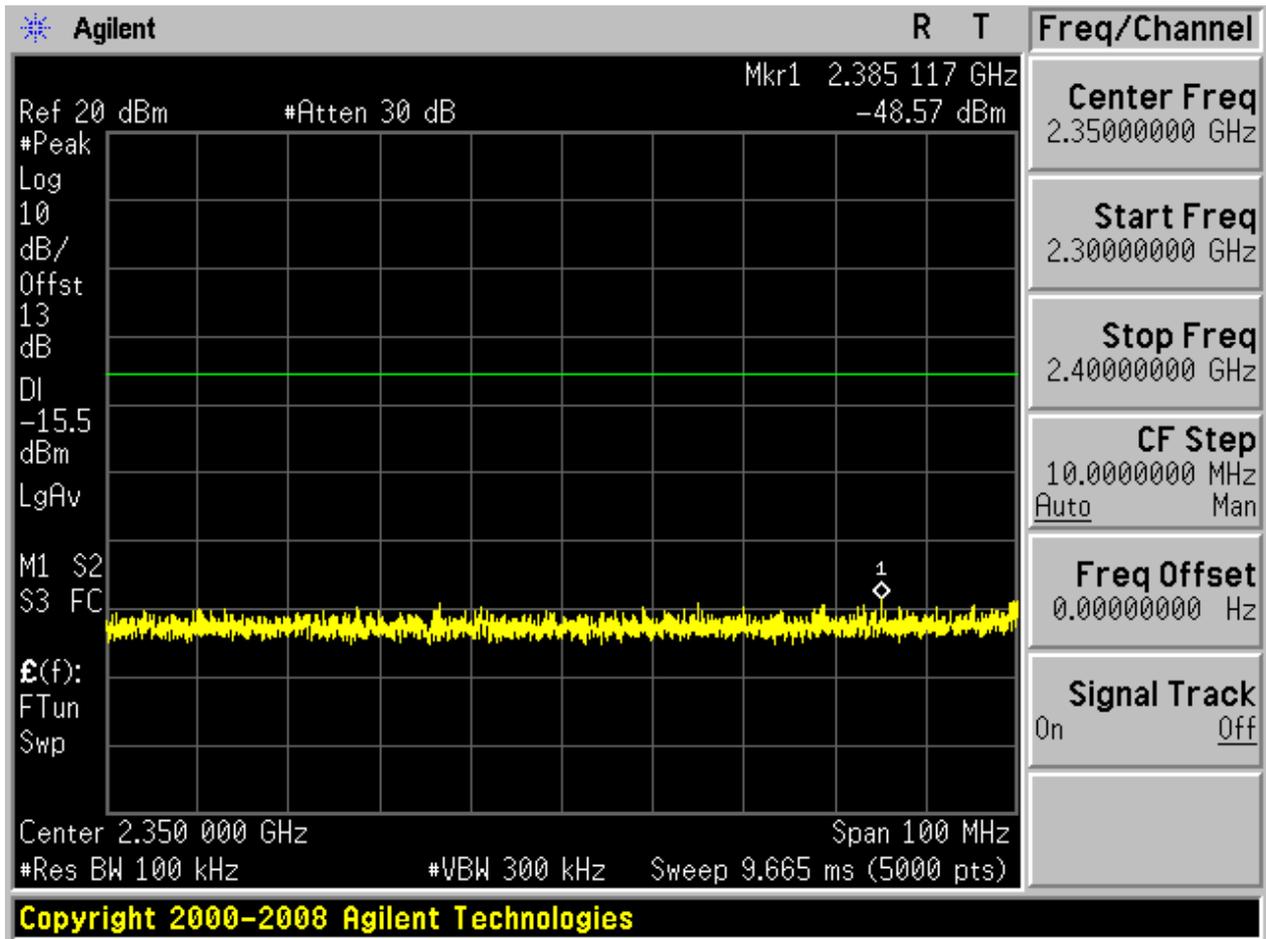


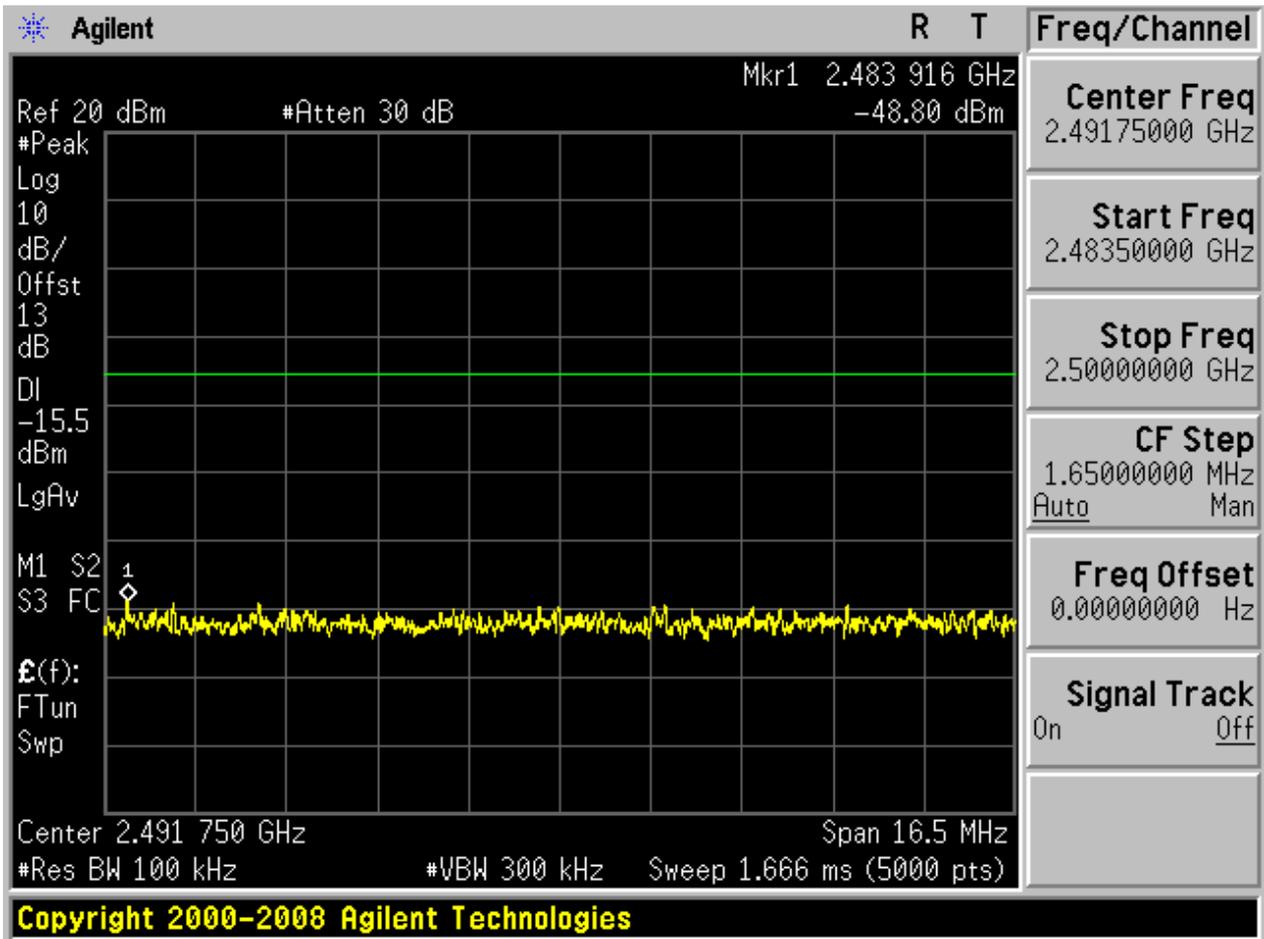
2.4.2 Puw

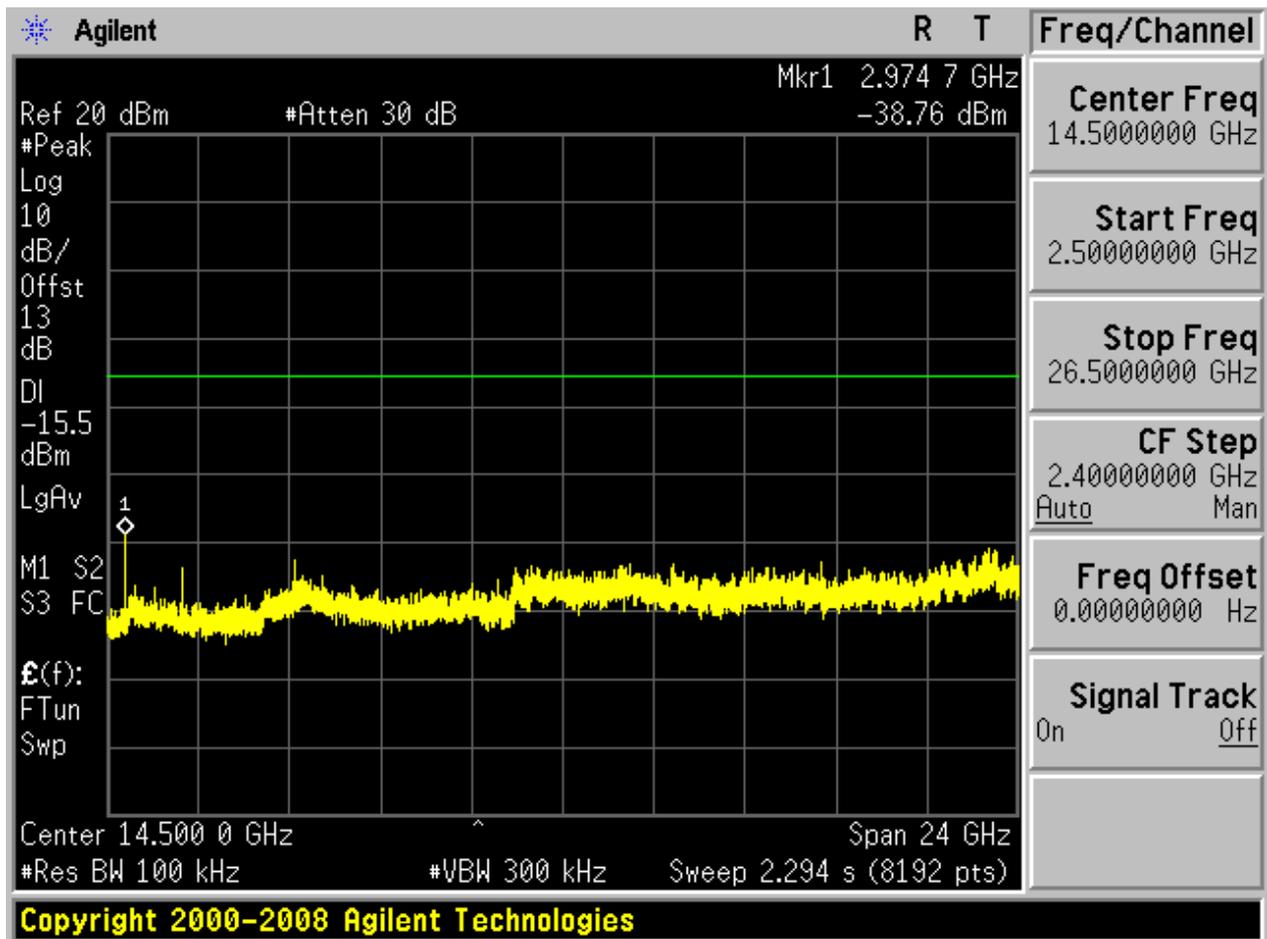








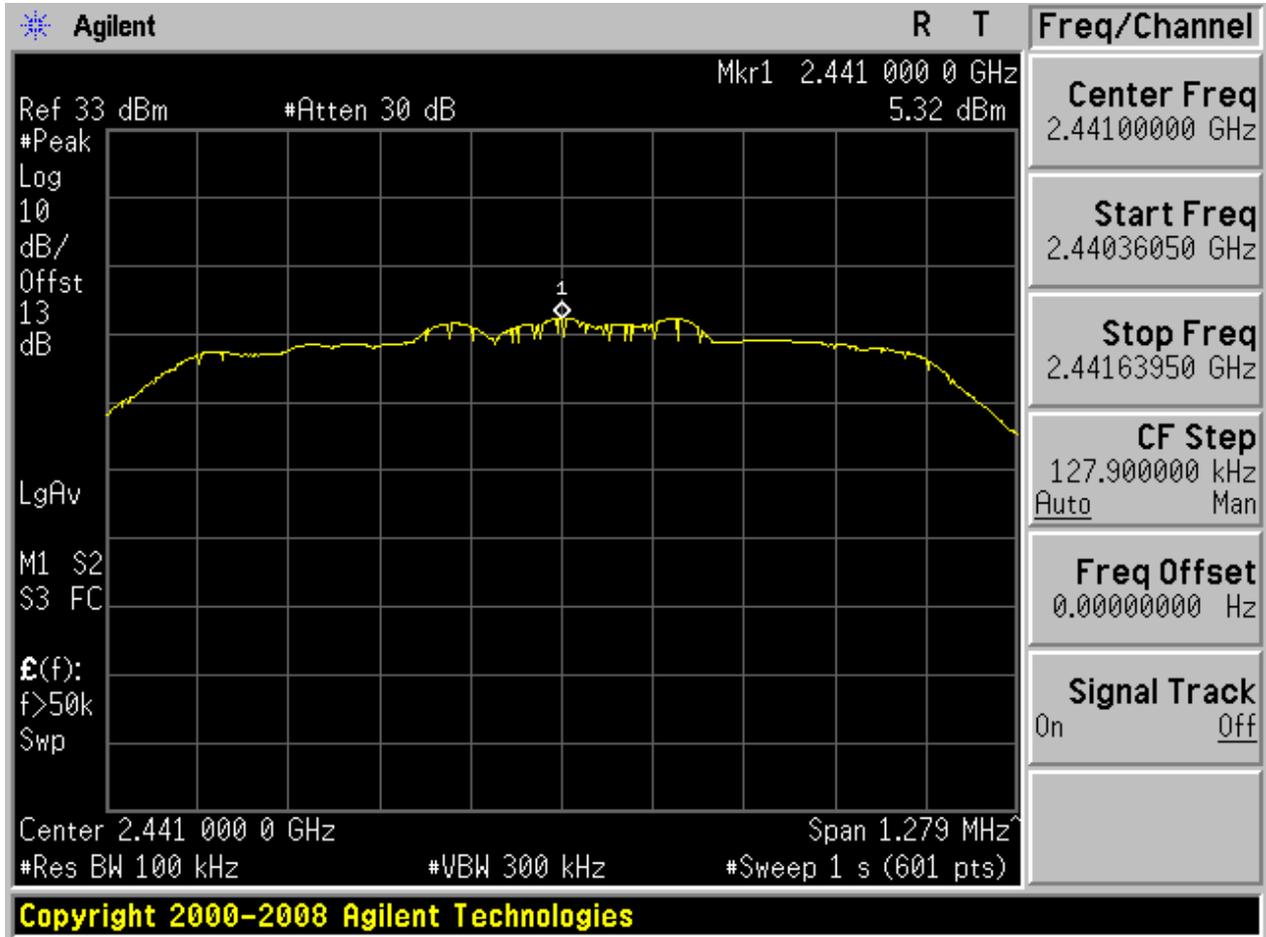




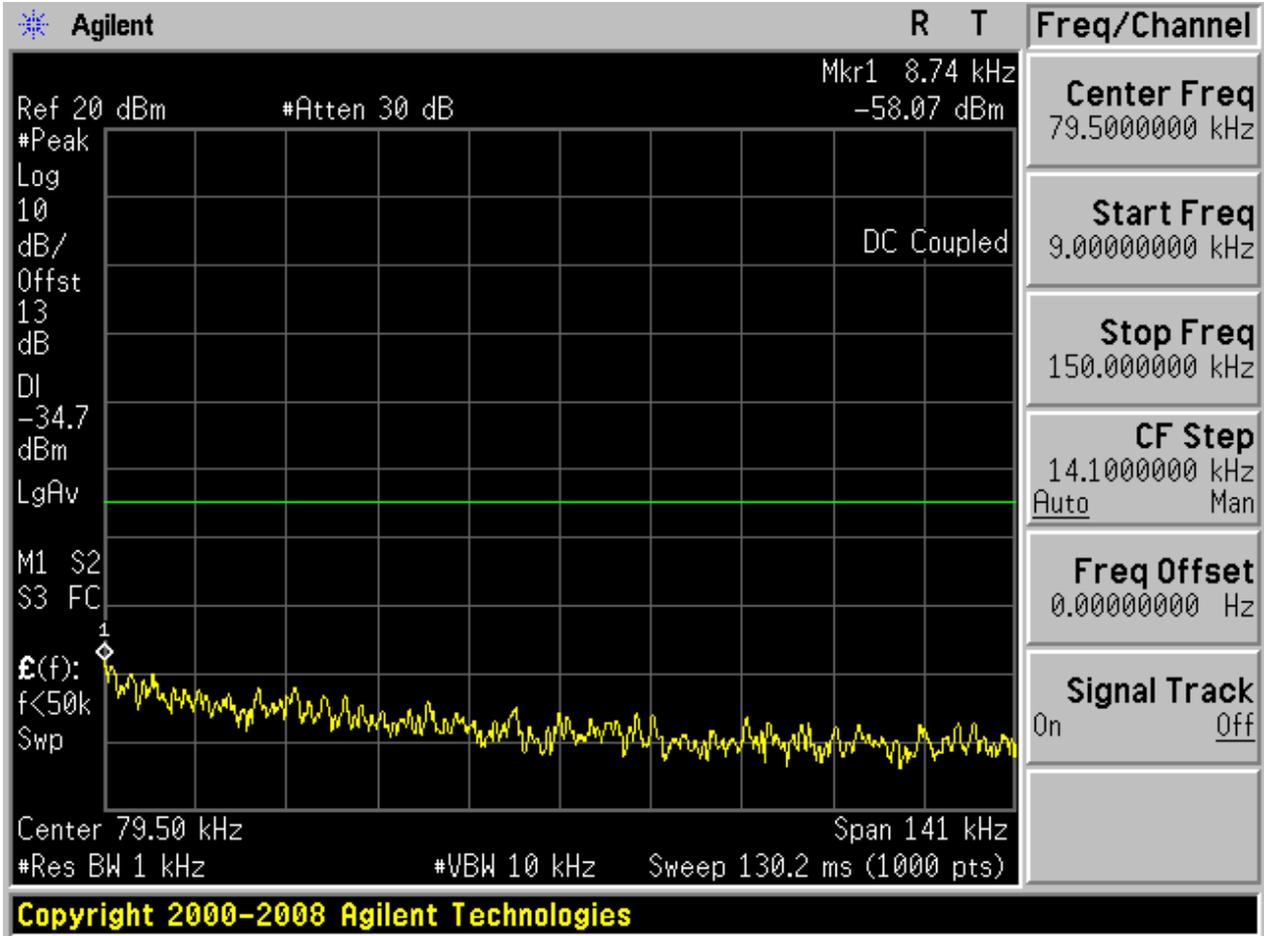


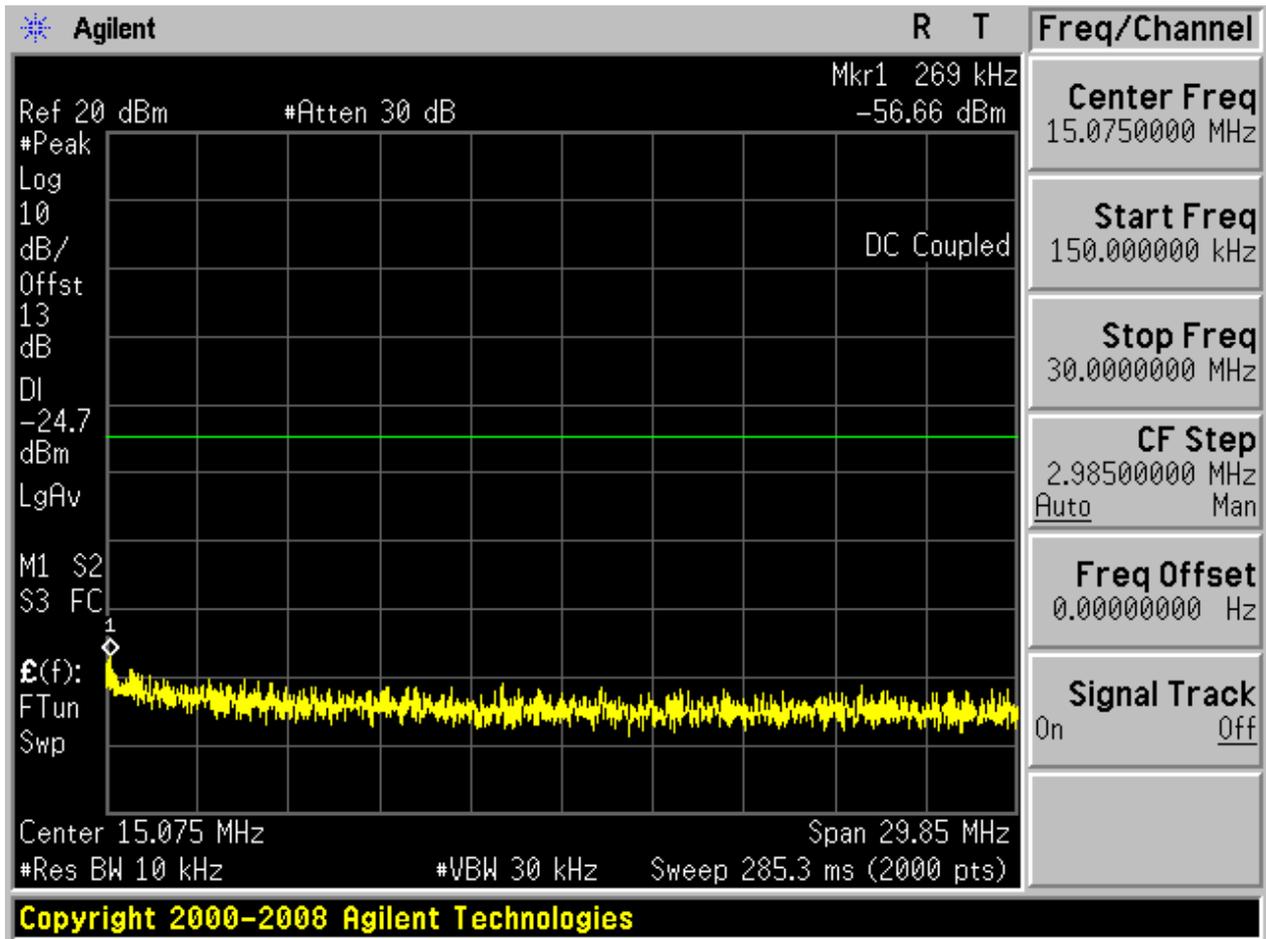
2.5 TM2_2DH5_Ch39

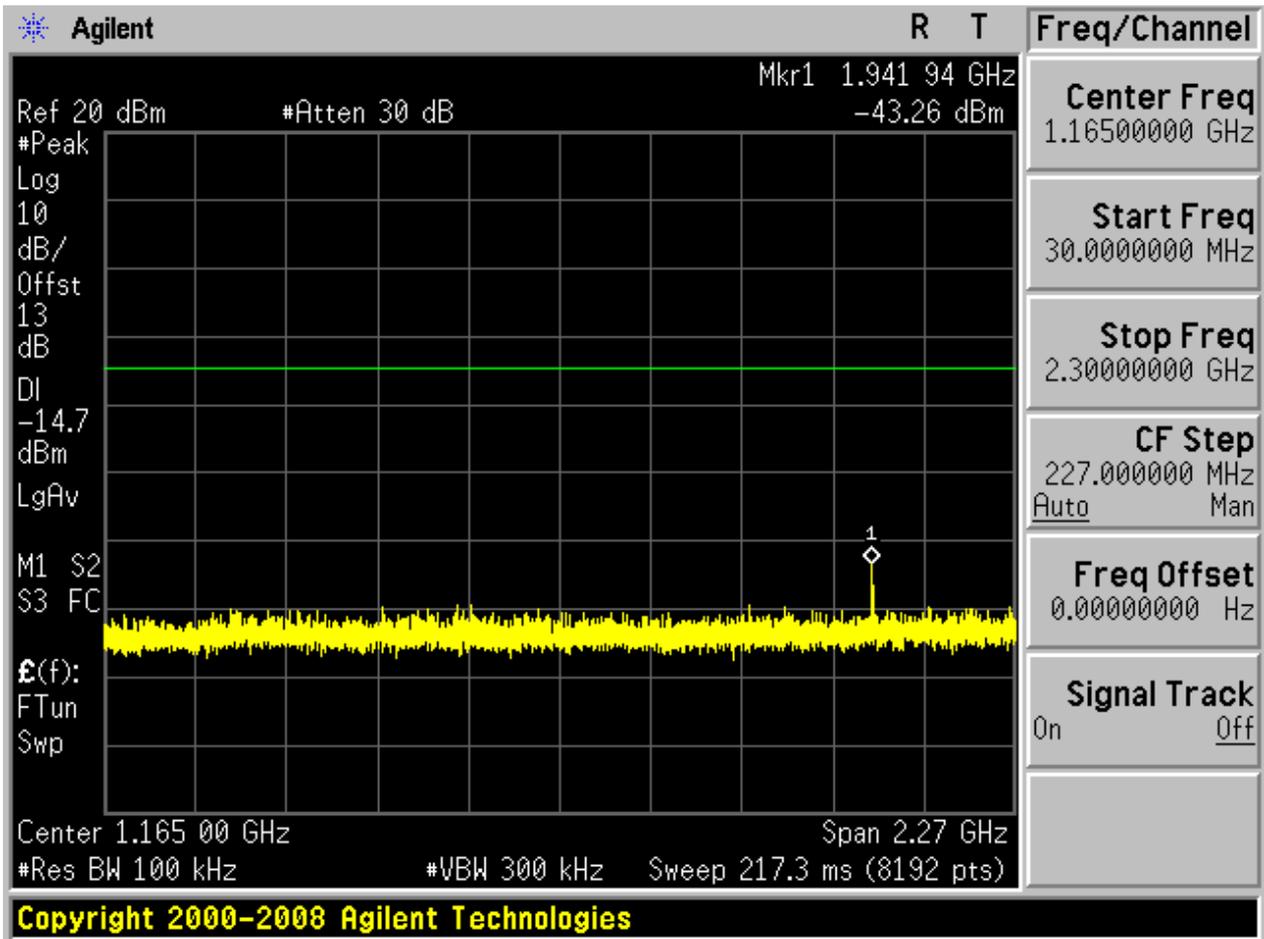
2.5.1 Pref

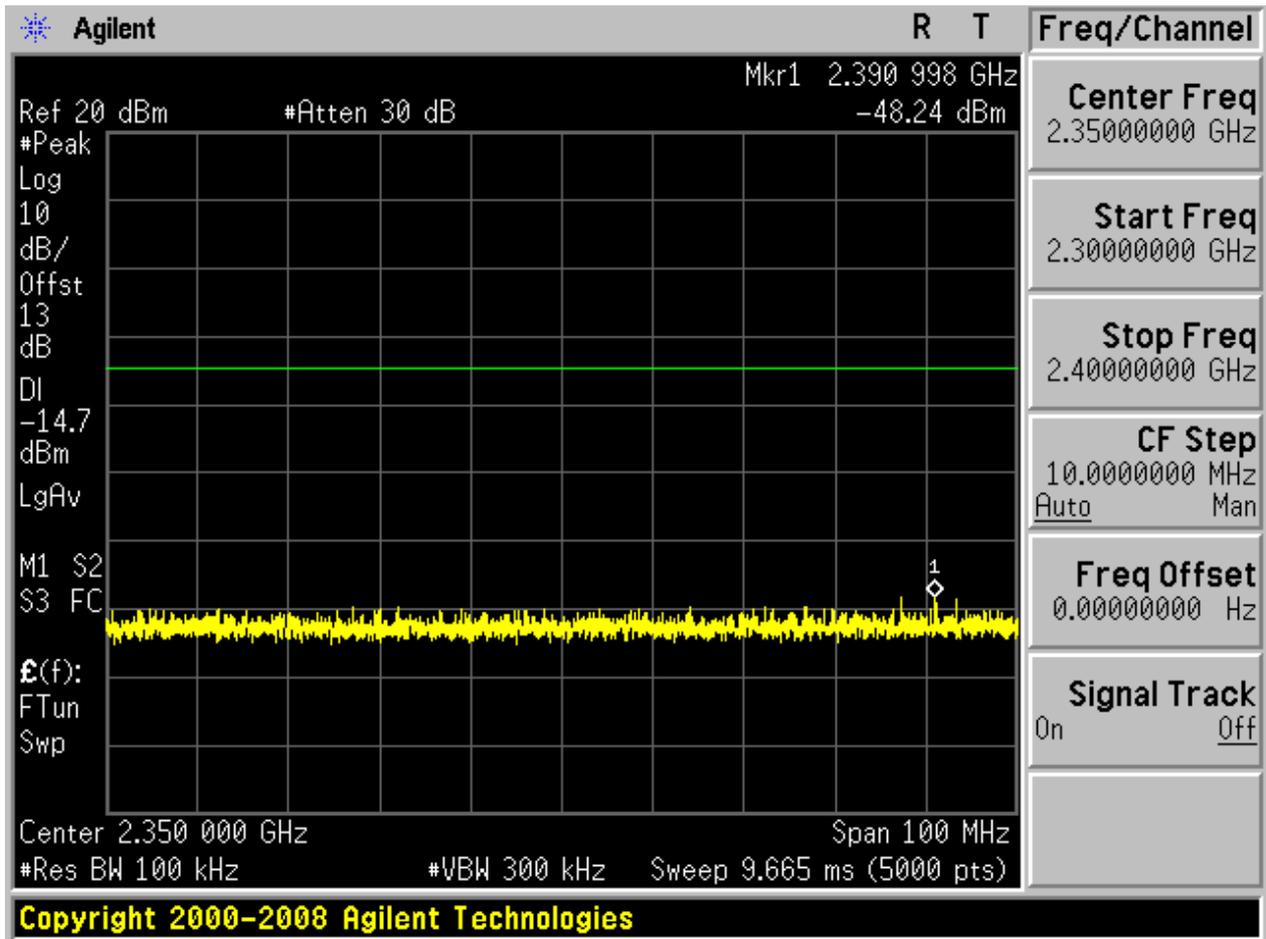


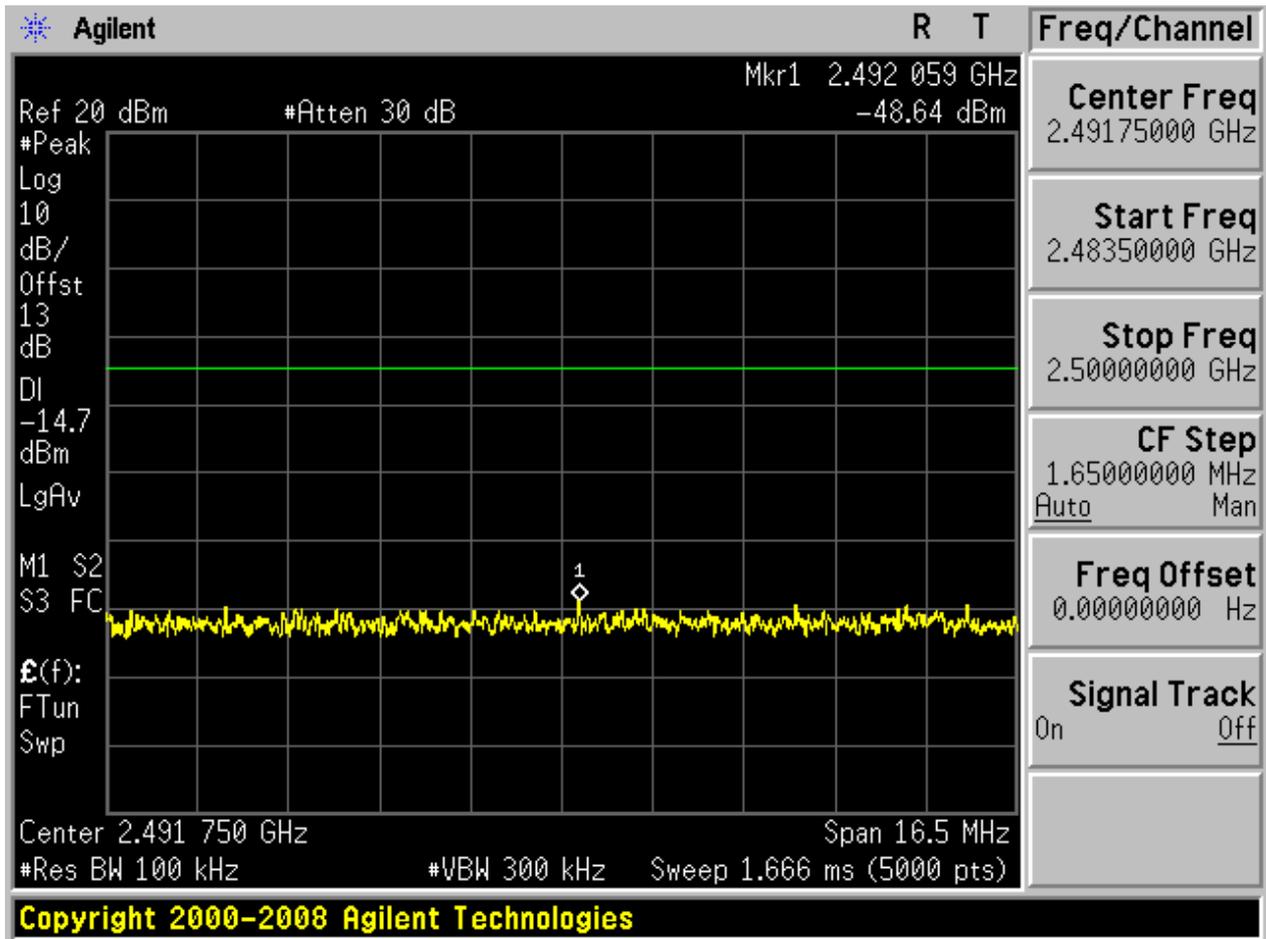
2.5.2 Puw

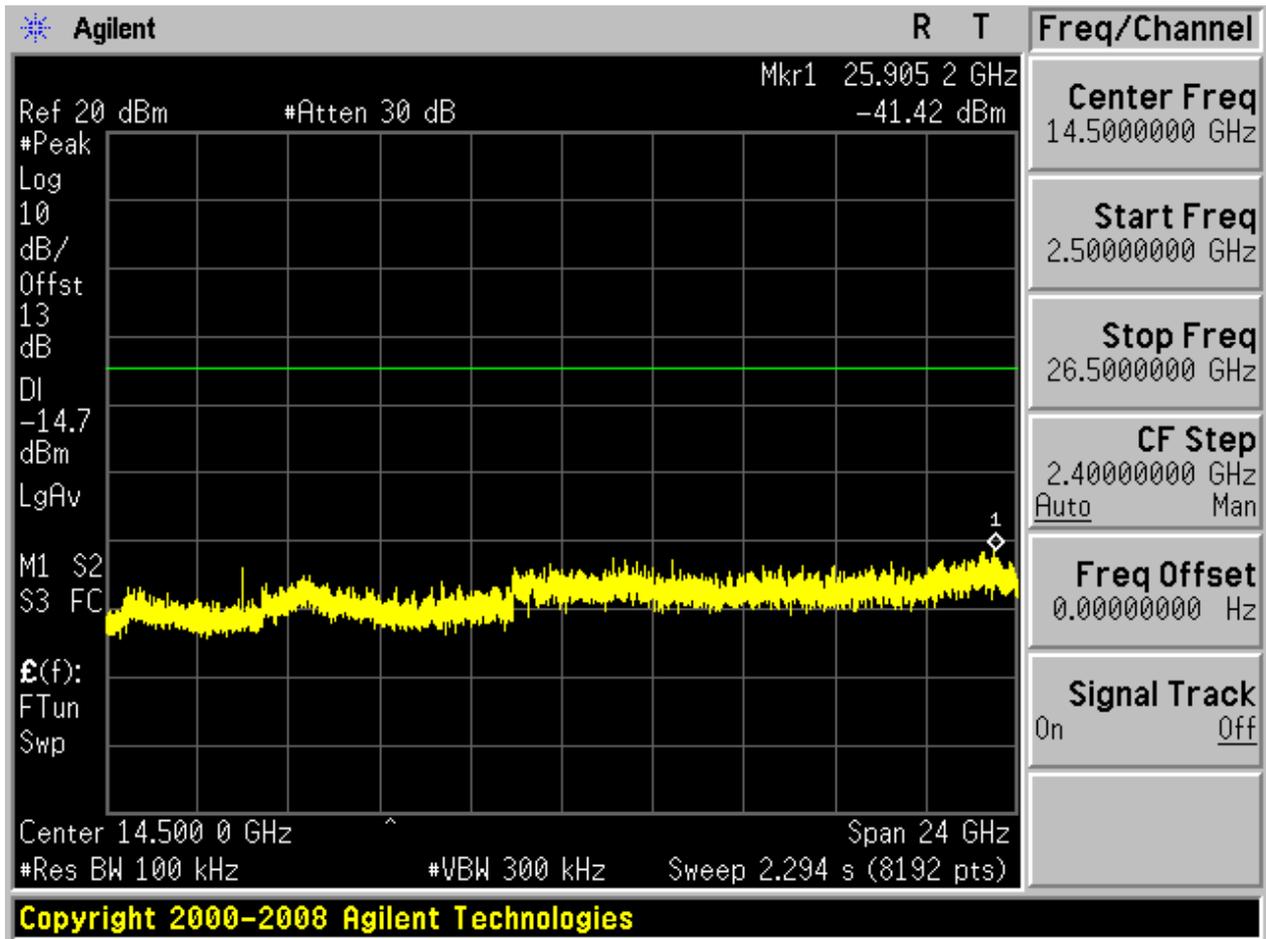








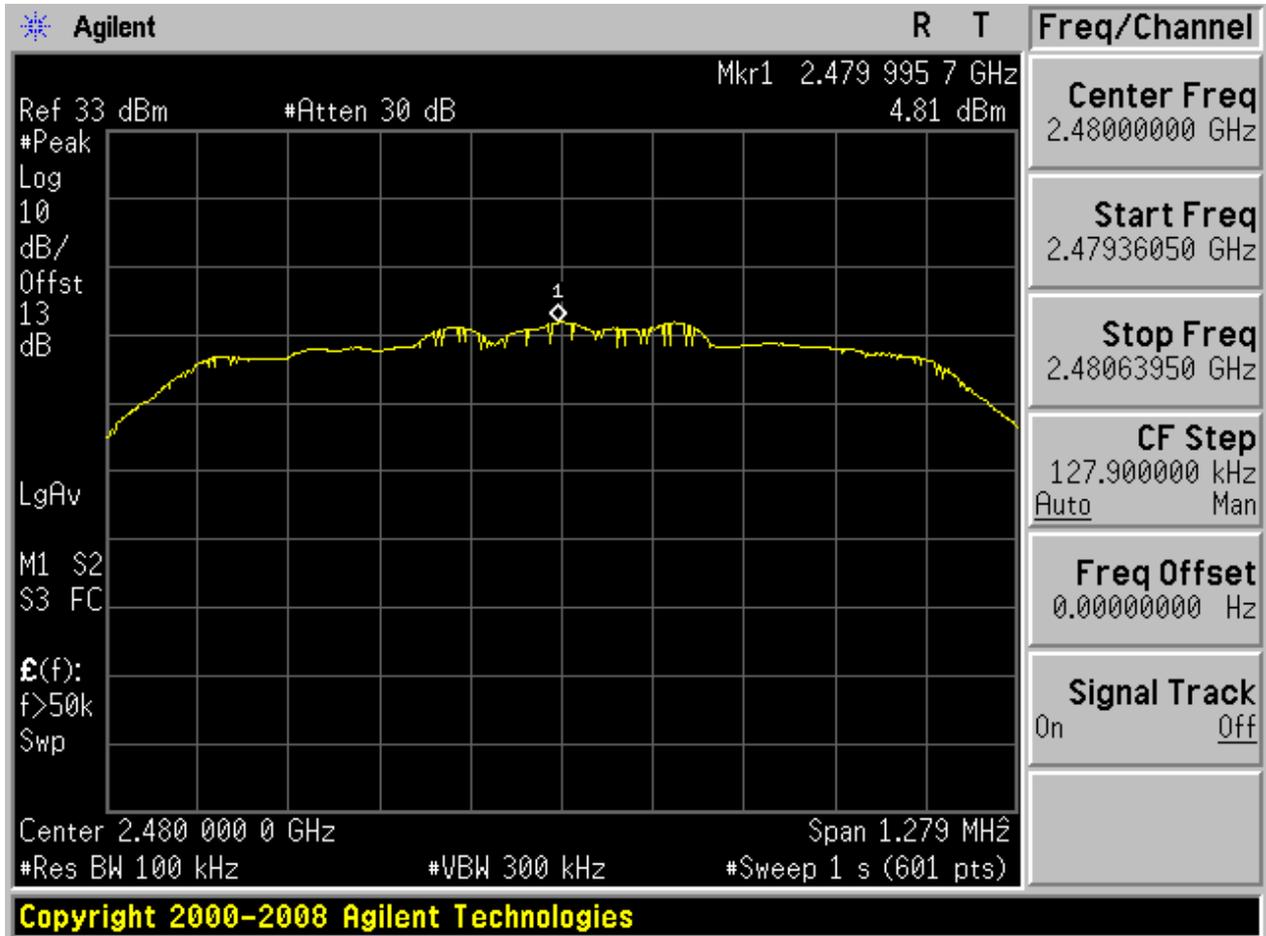




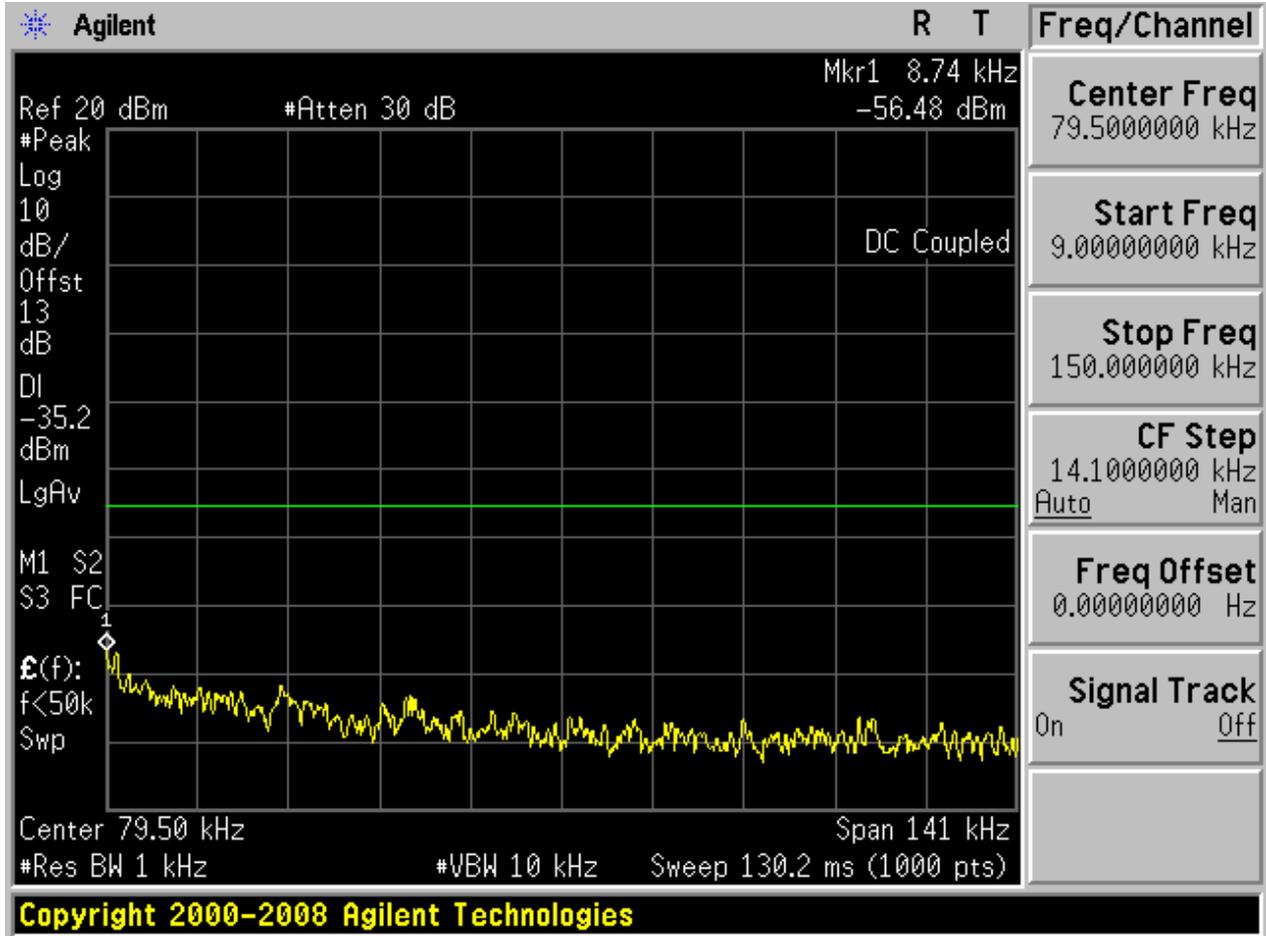


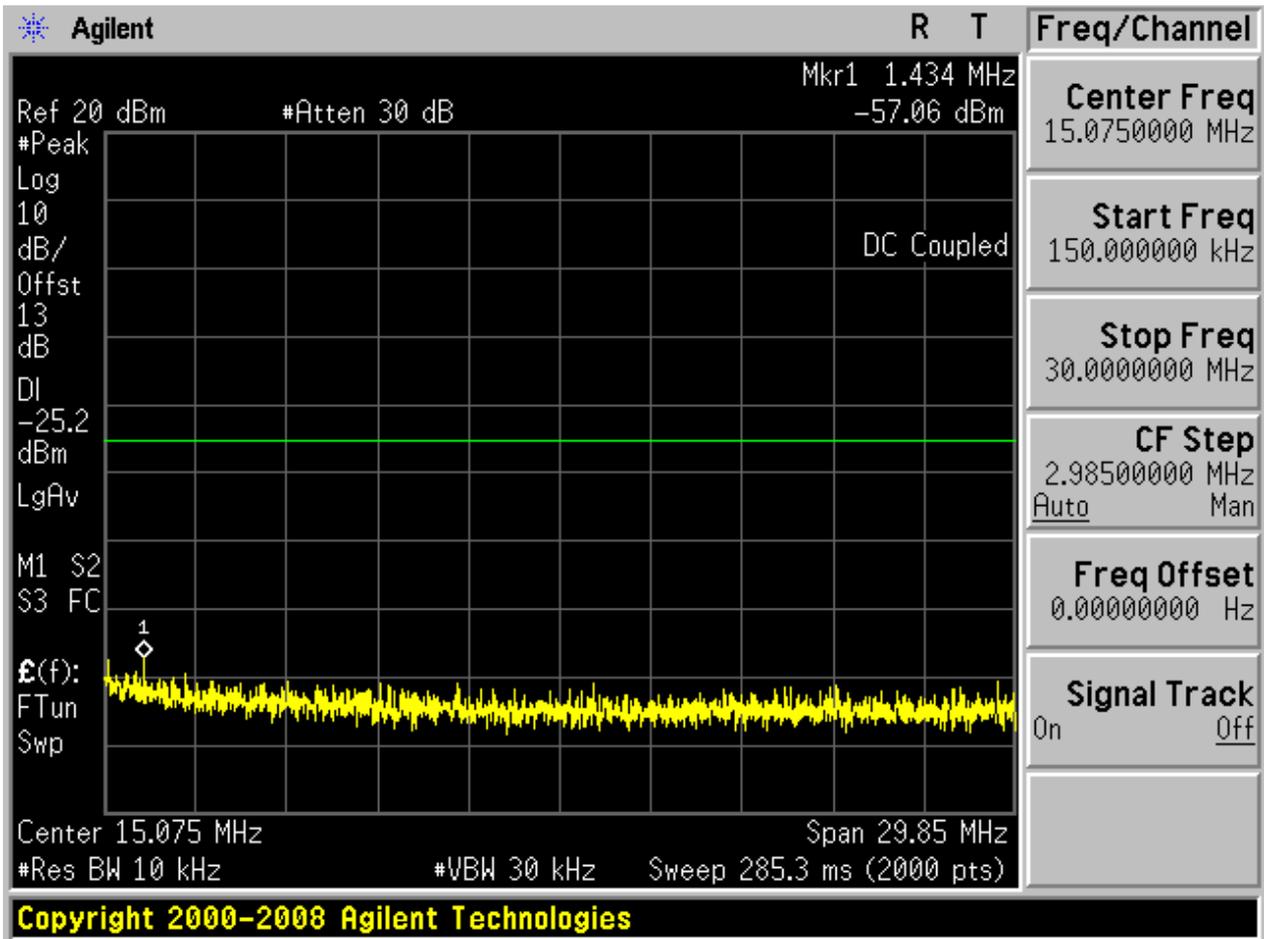
2.6 TM2_2DH5_Ch78

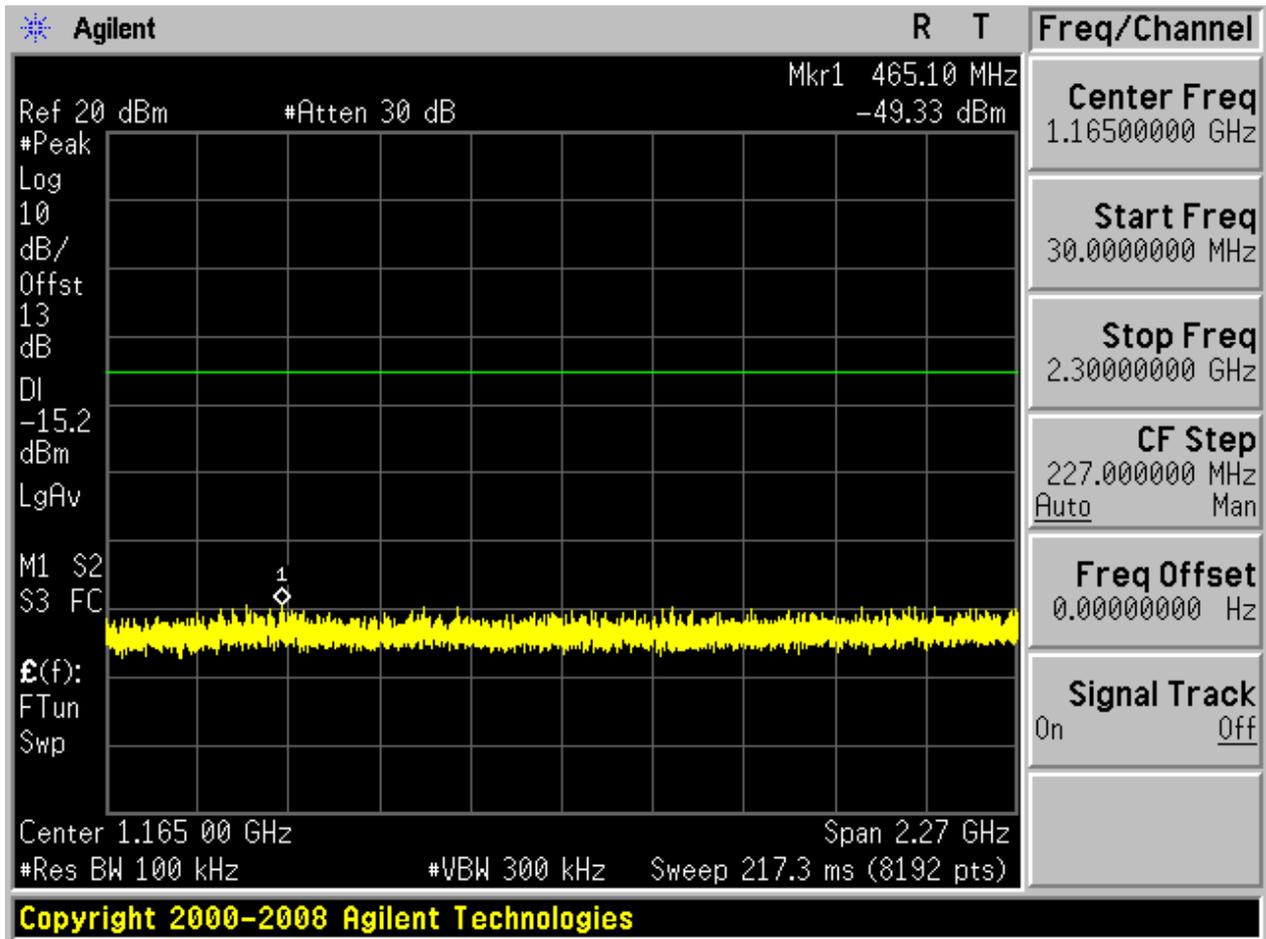
2.6.1 Pref

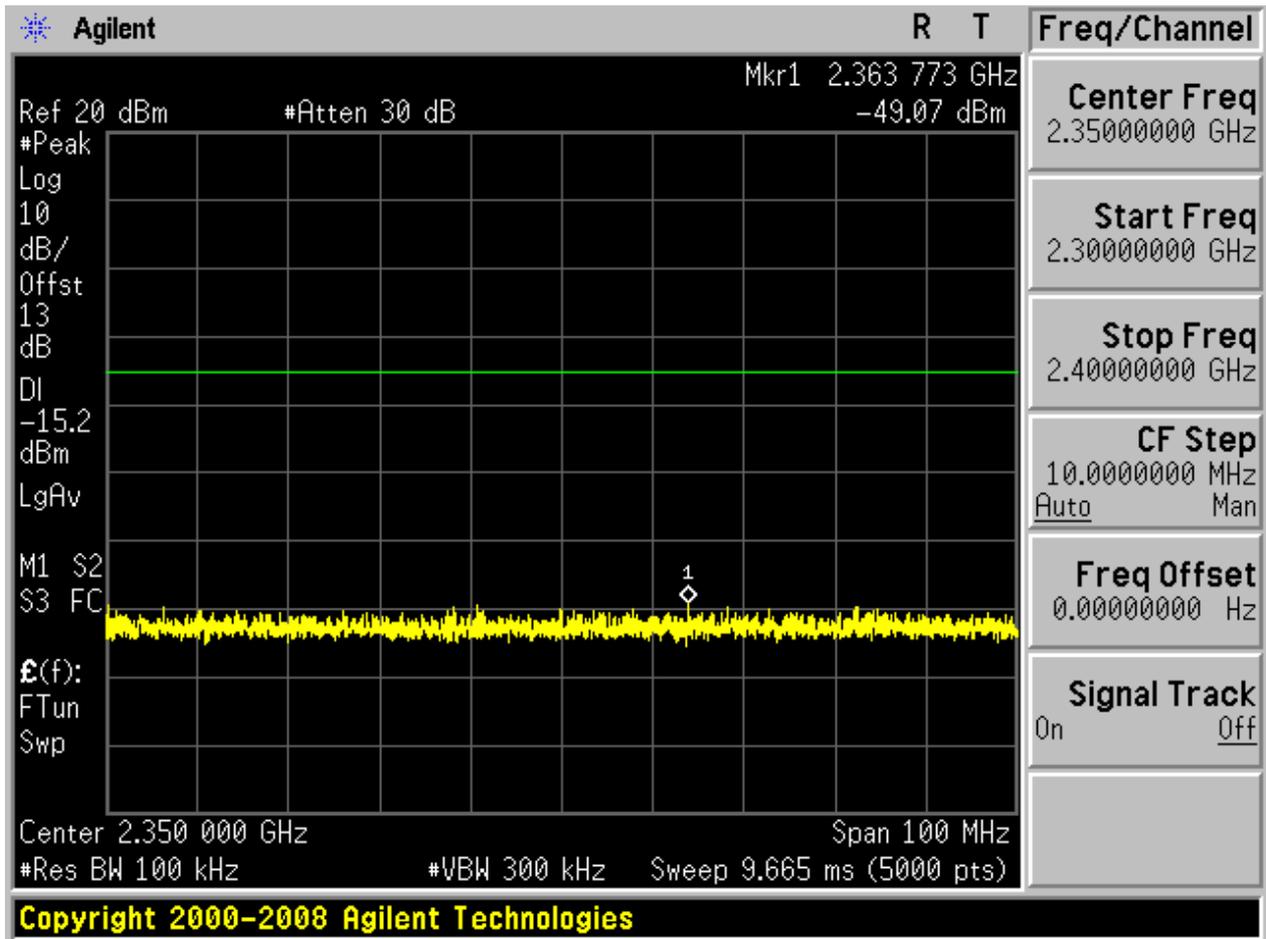


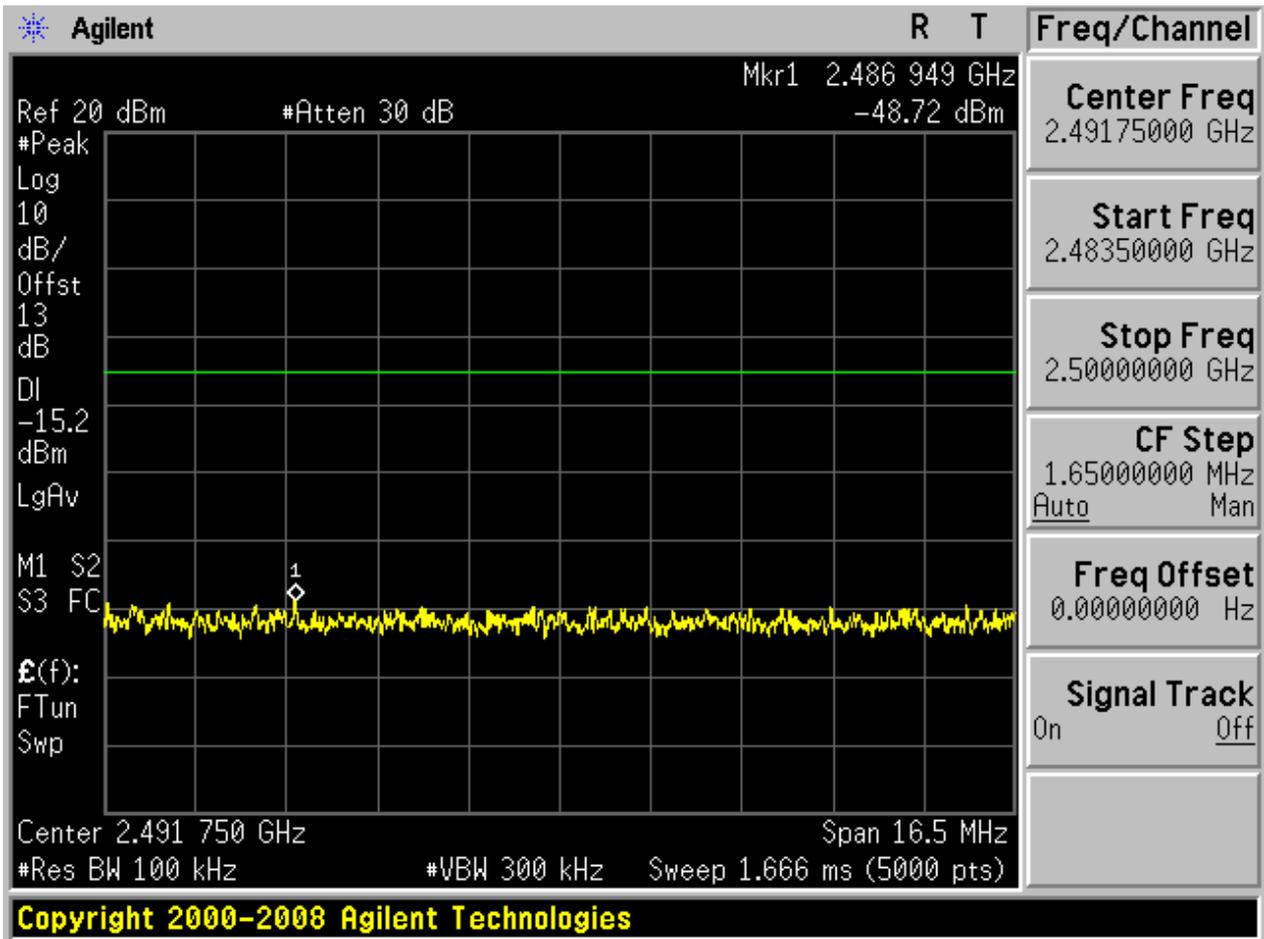
2.6.2 Puw

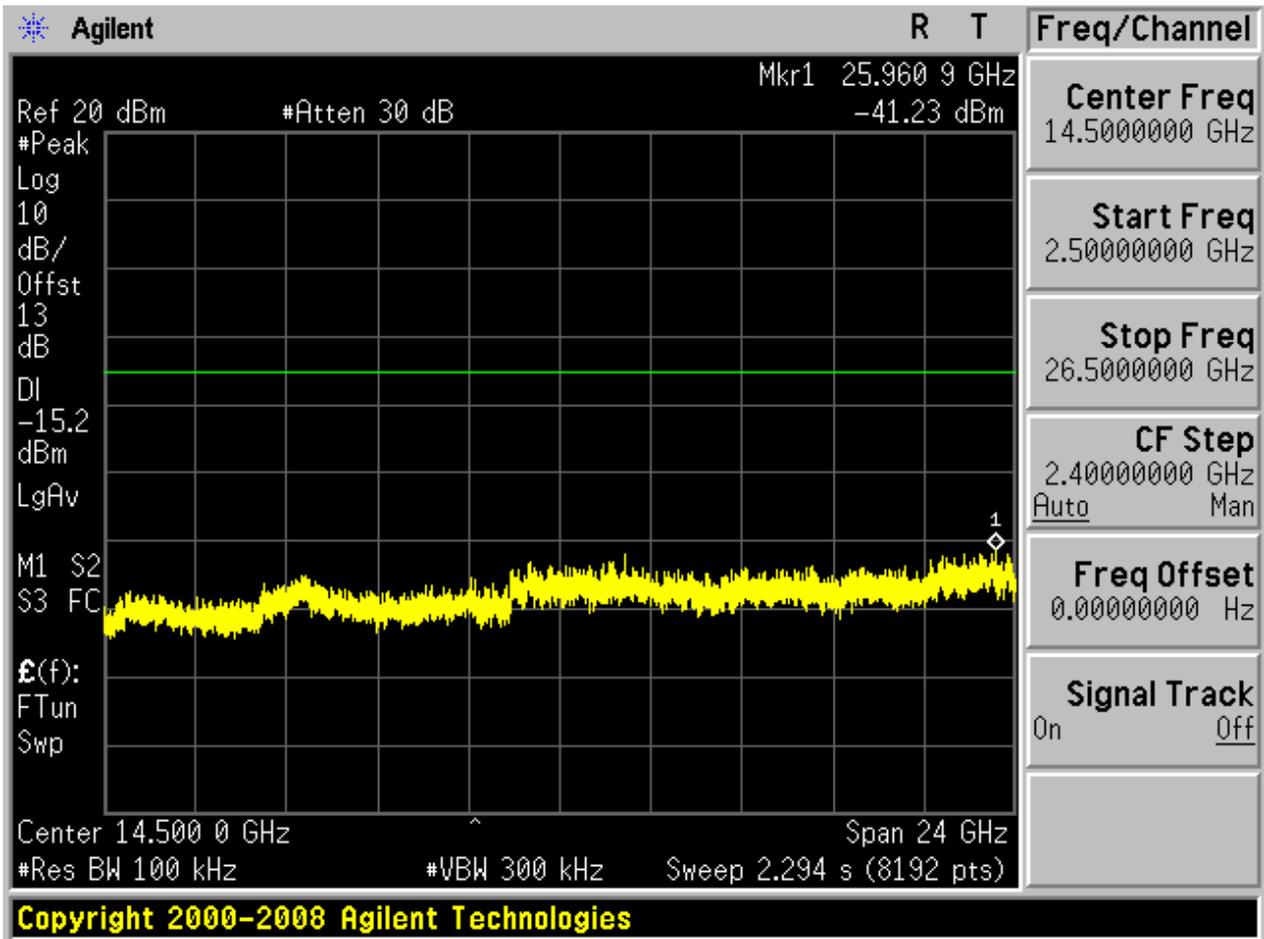






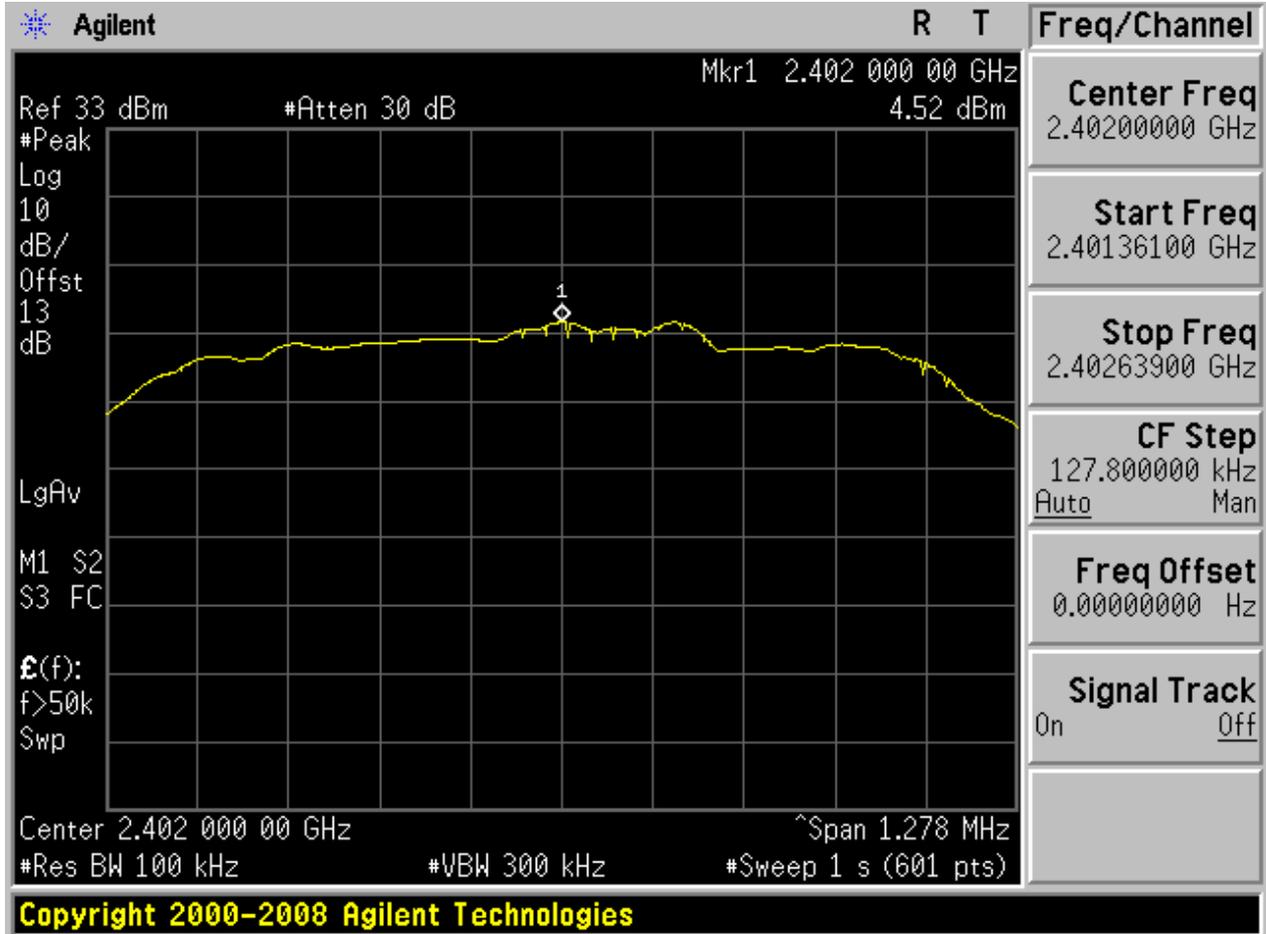




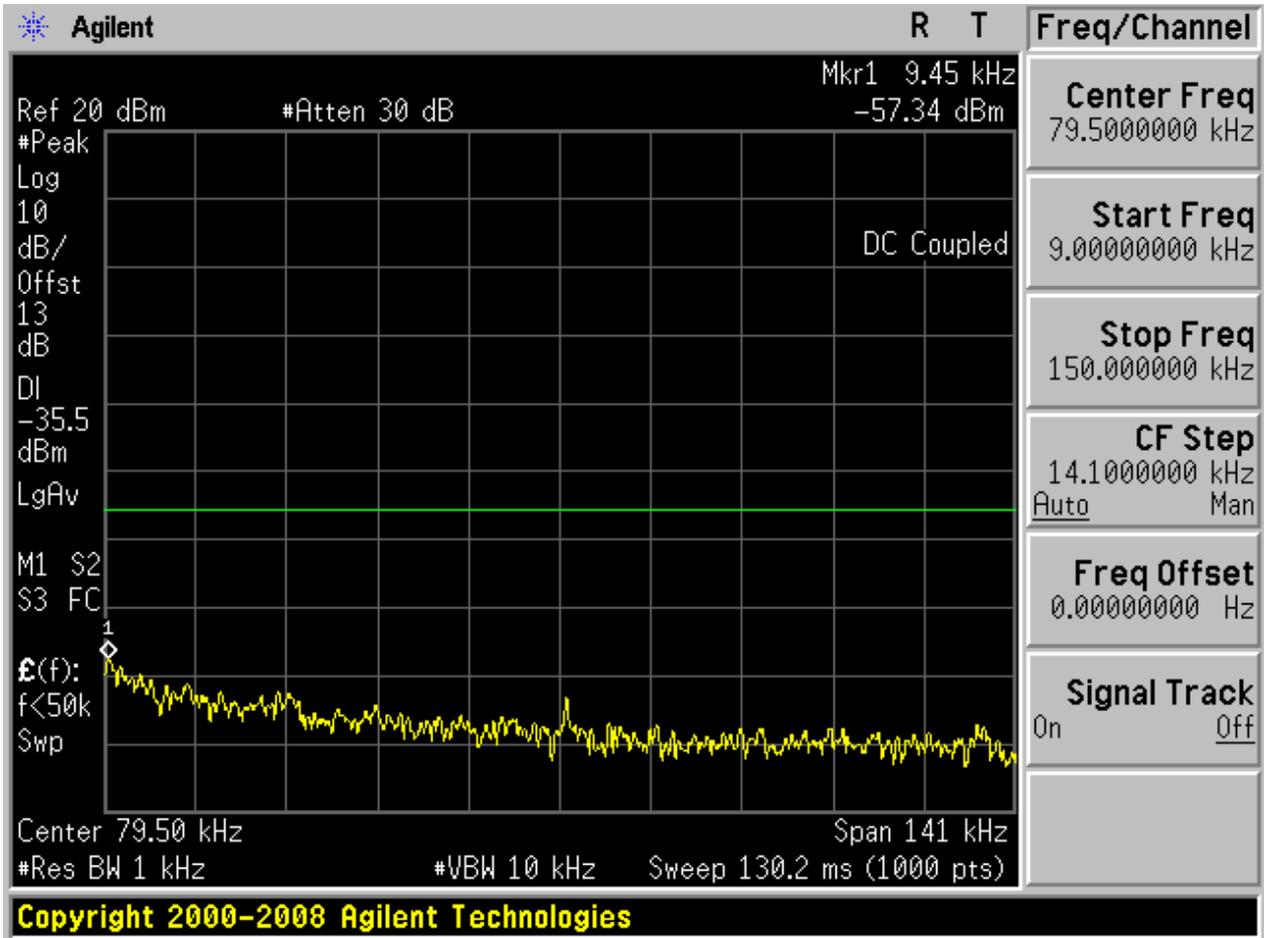


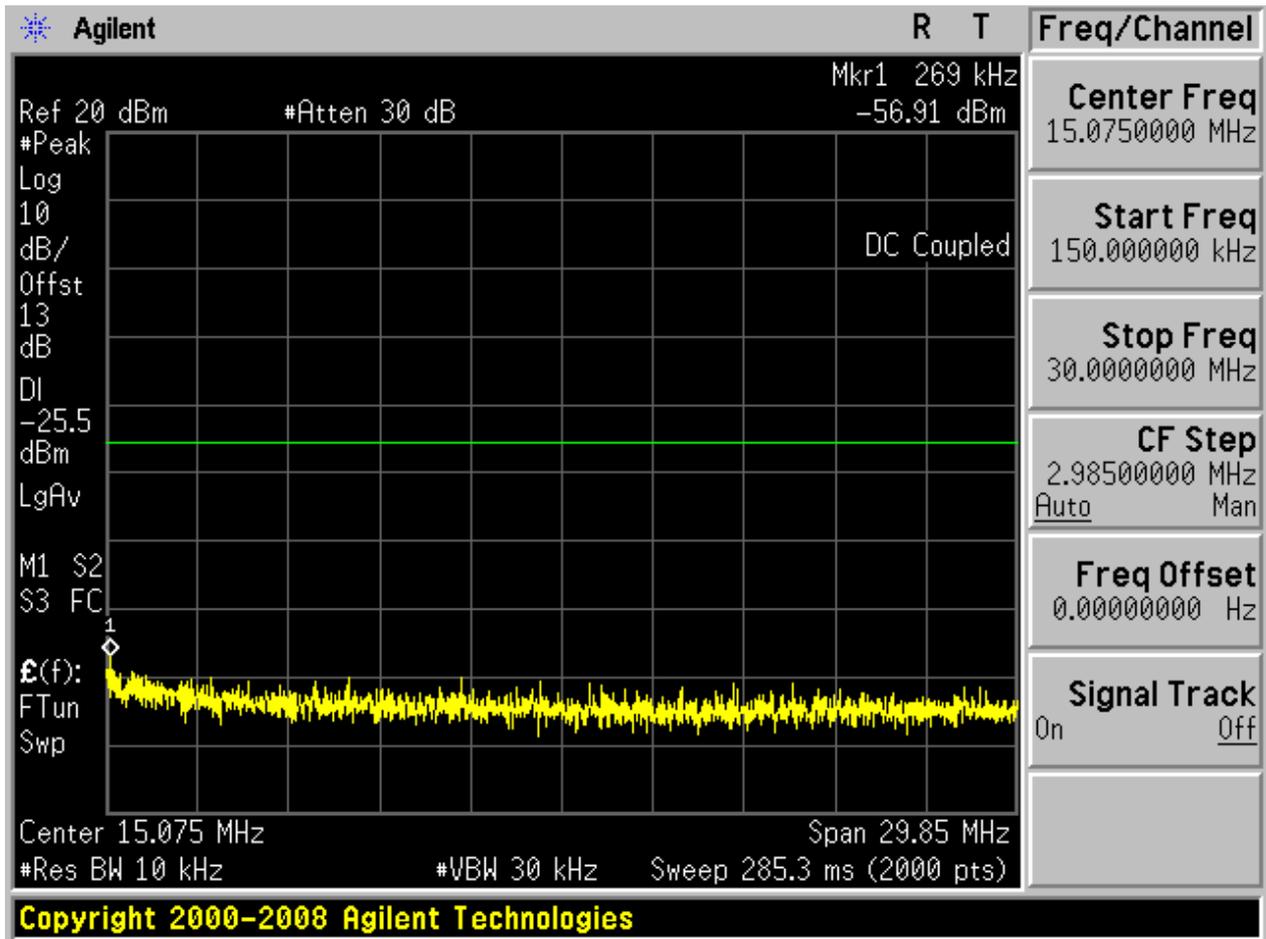
2.7 TM3_3DH5_Ch0

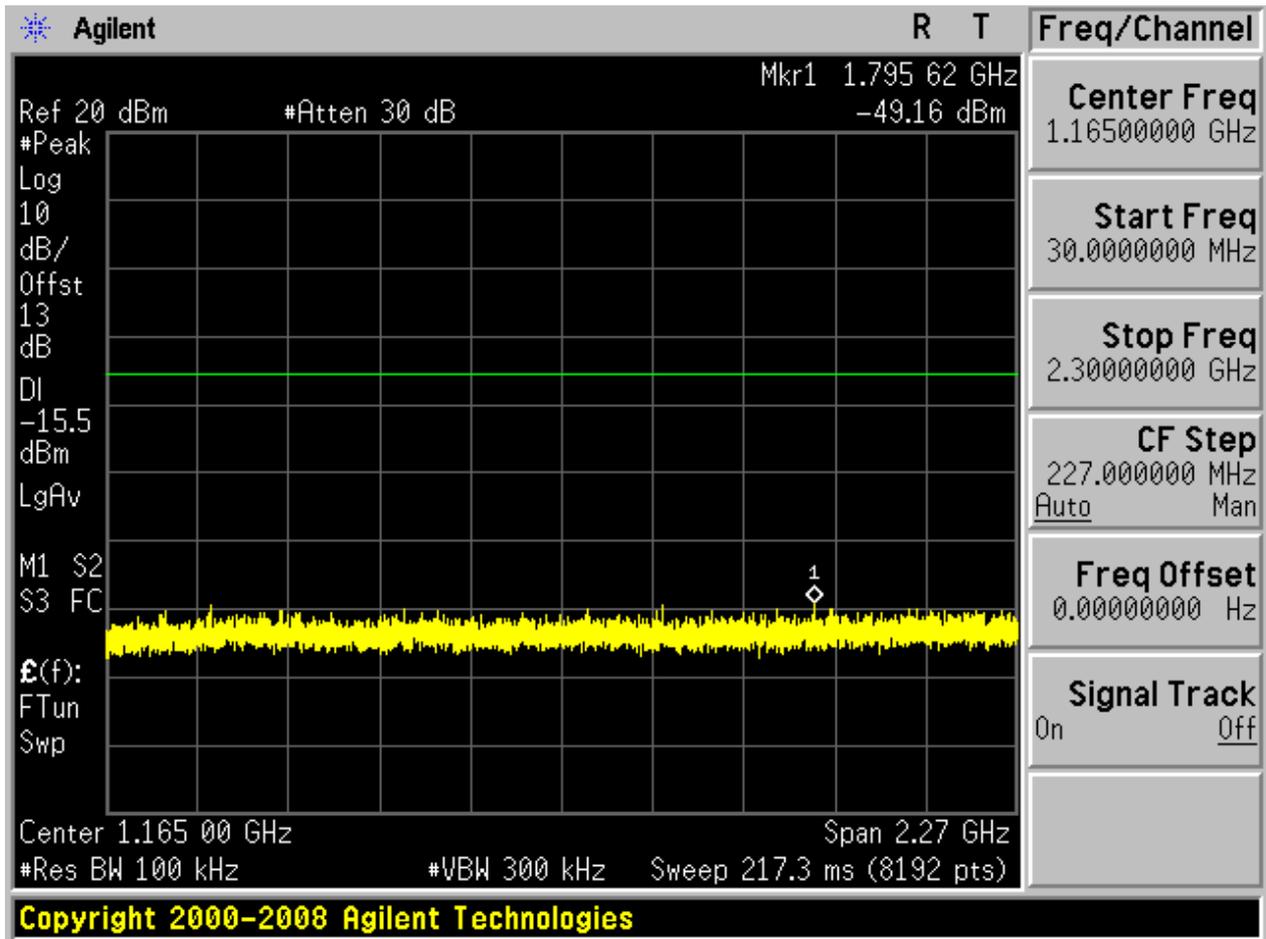
2.7.1 Pref

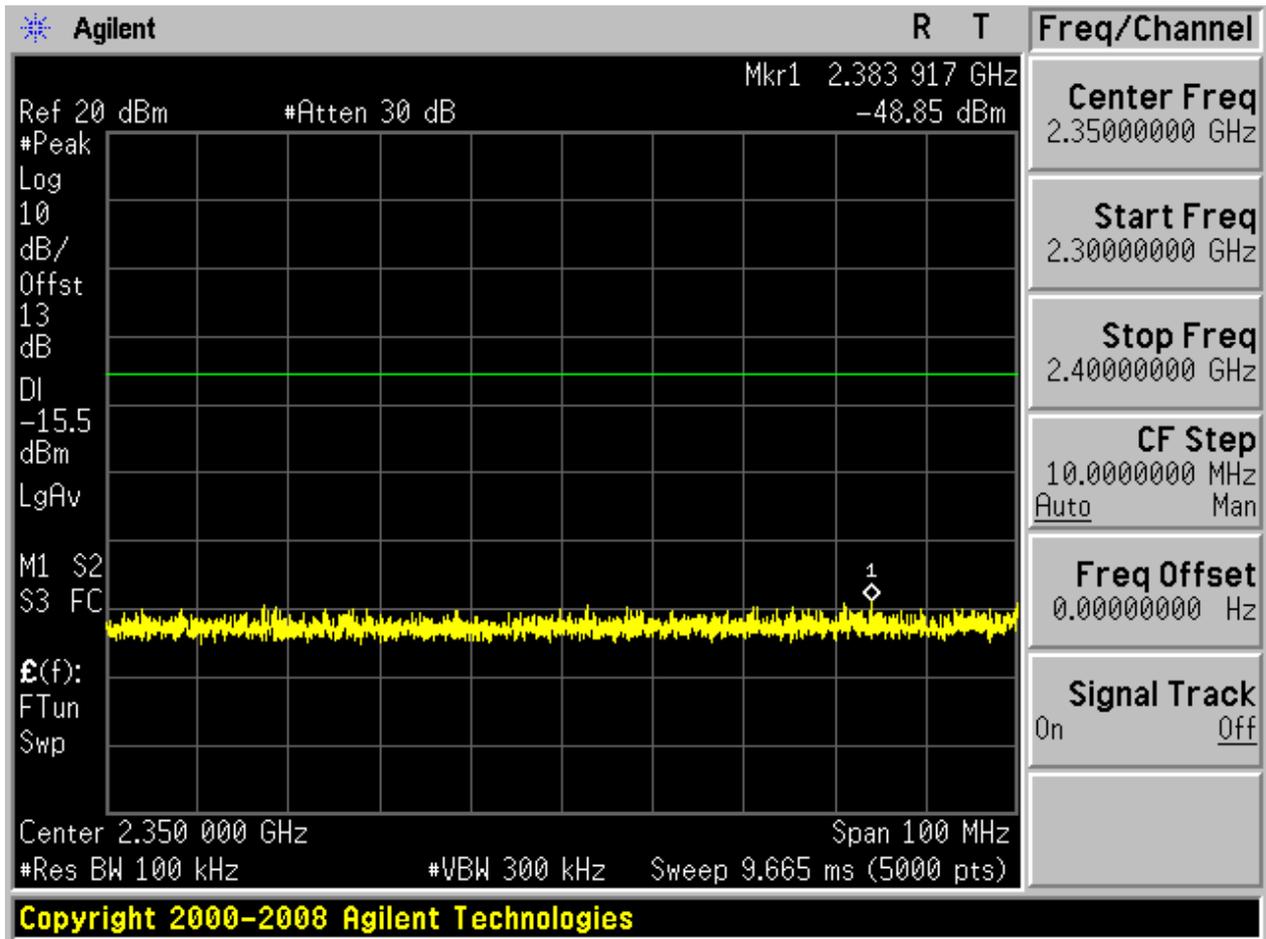


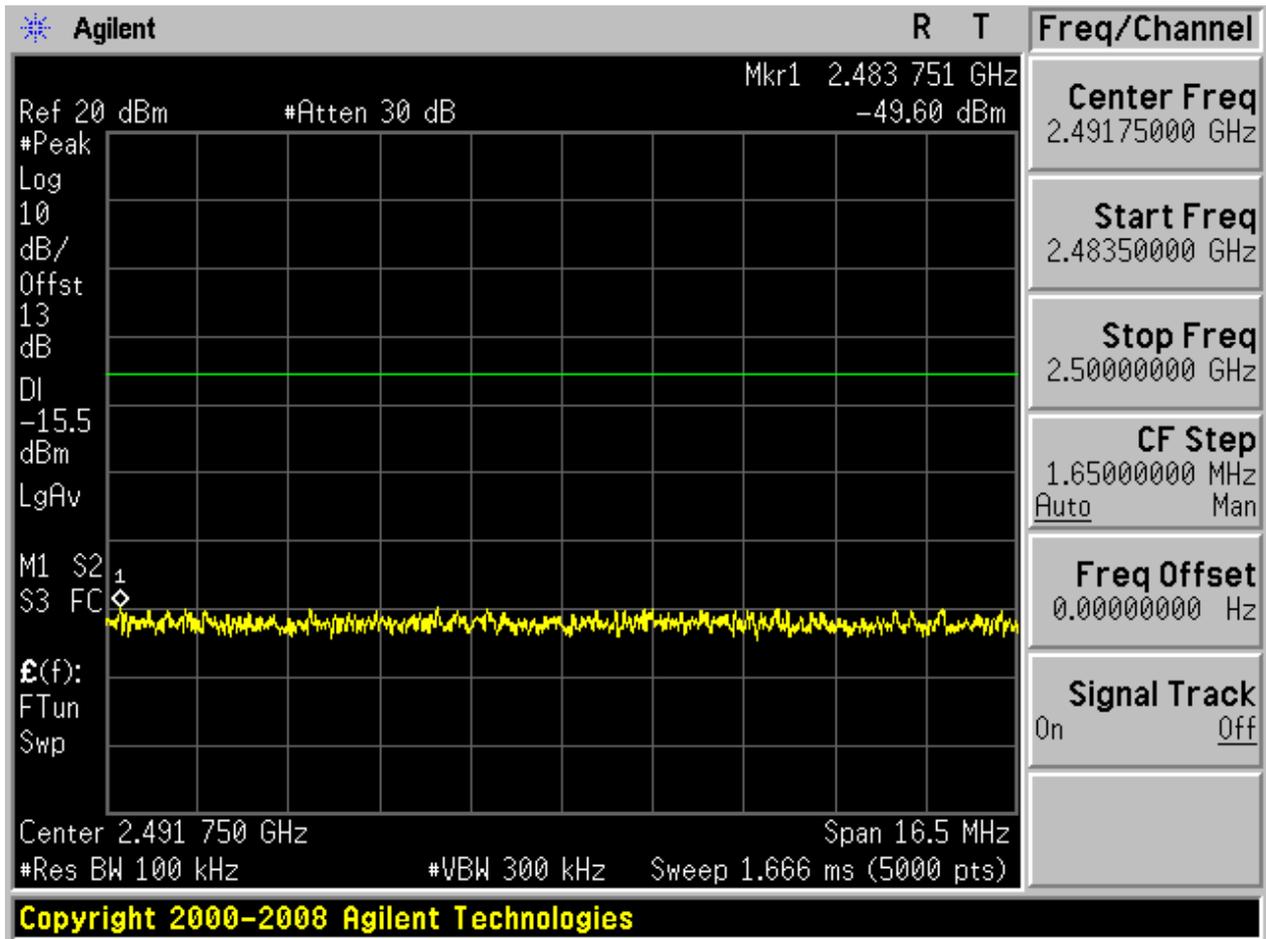
2.7.2 P_{uw}

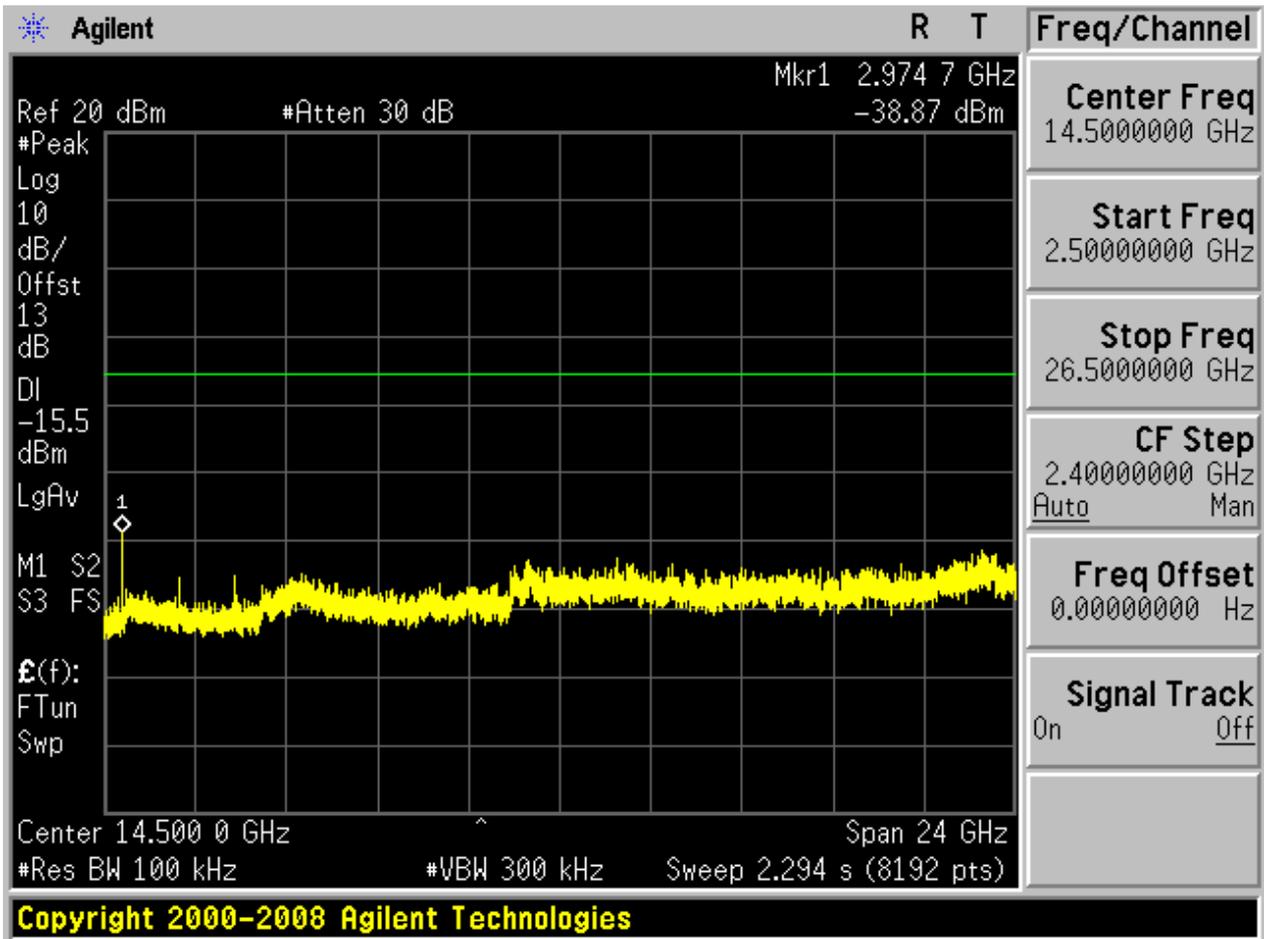






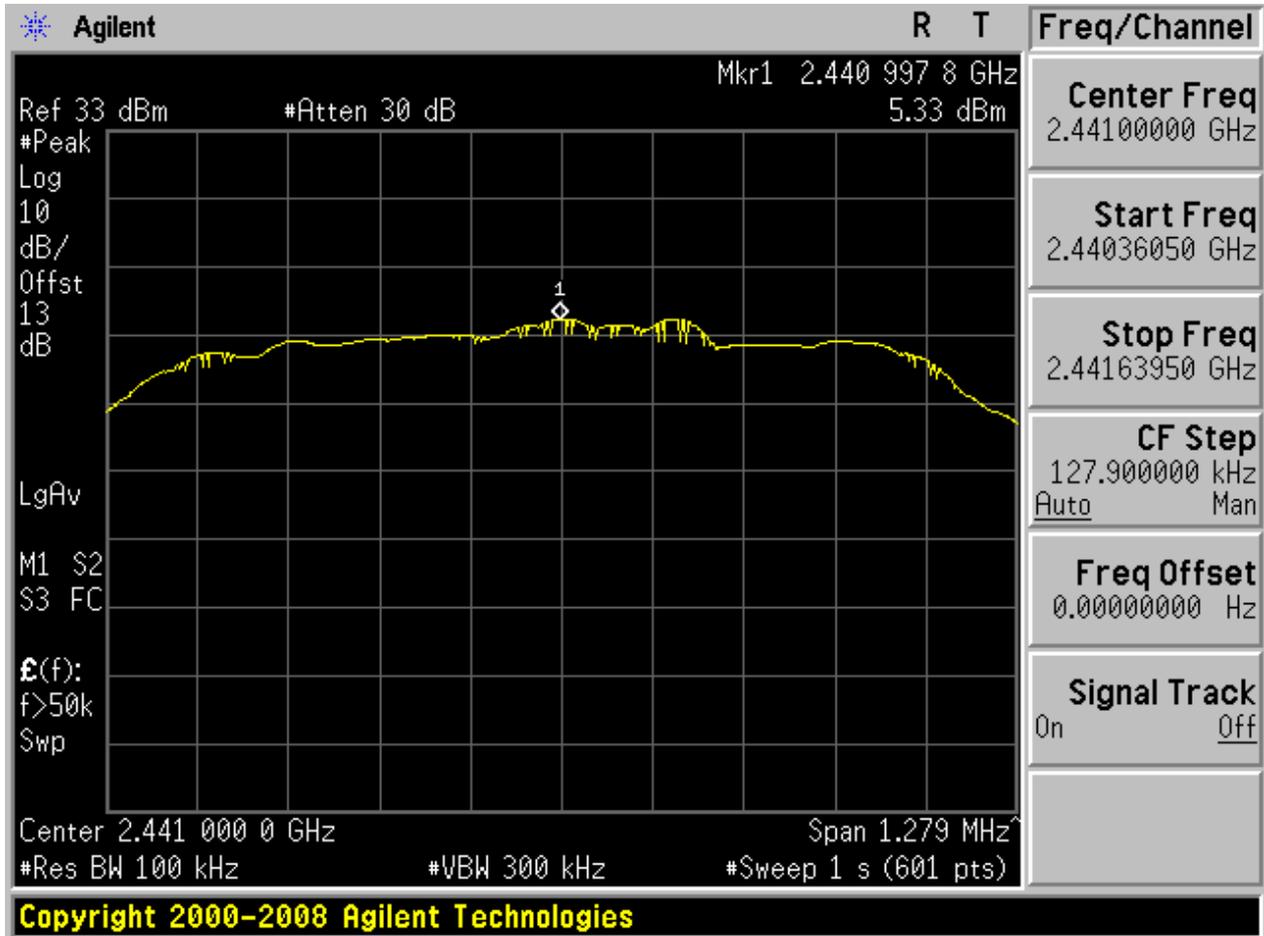




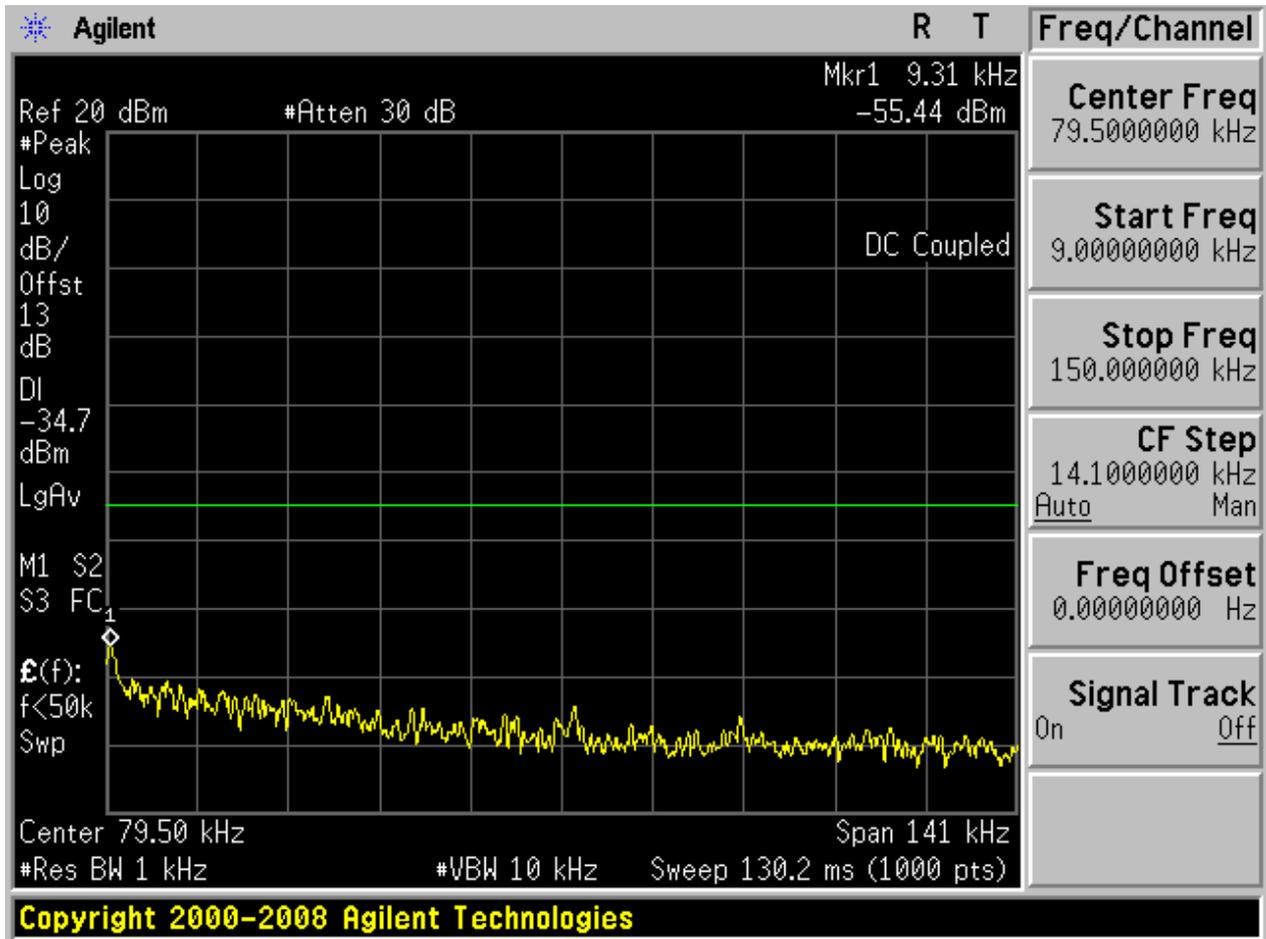


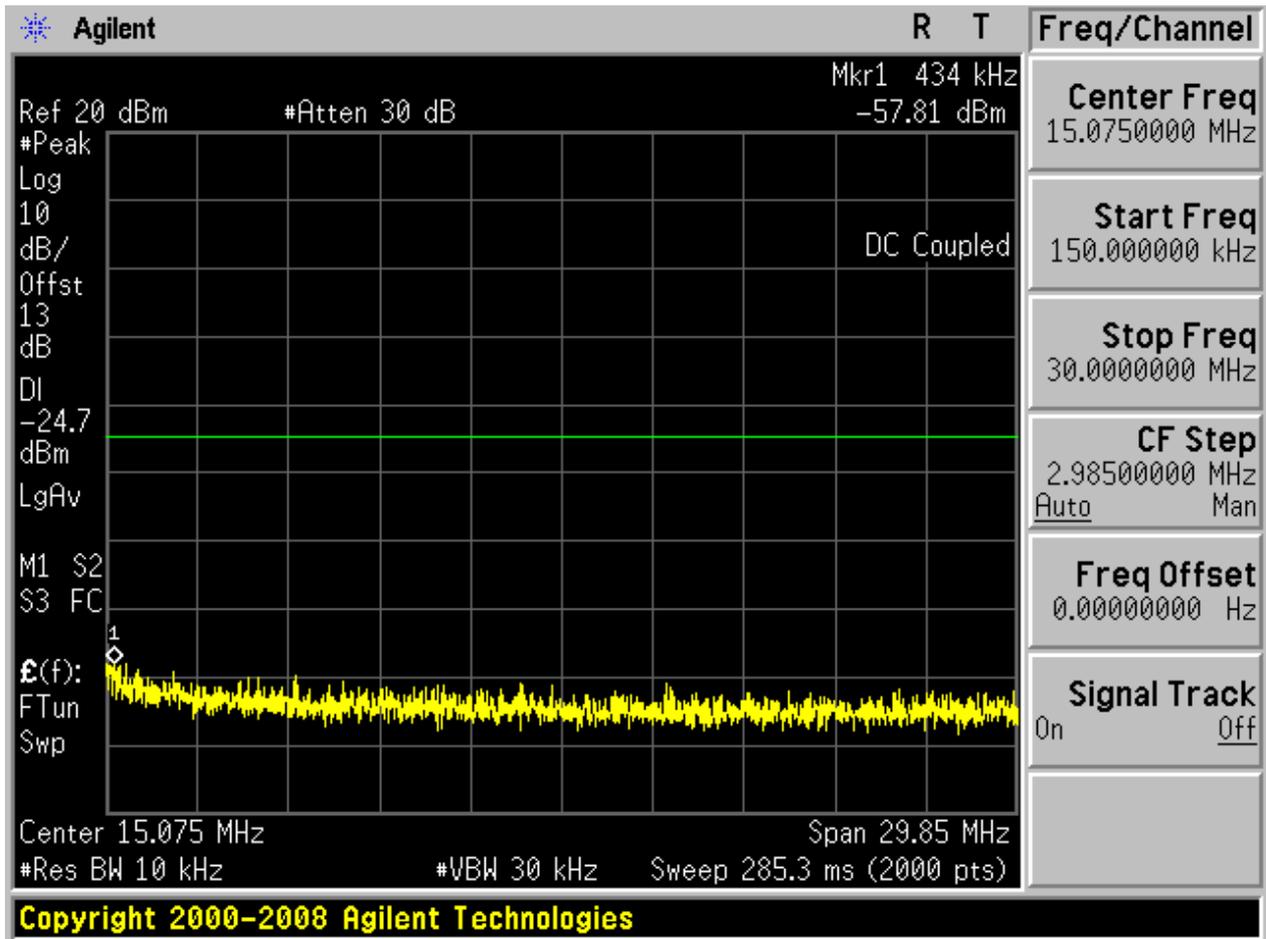
2.8 TM3_3DH5_Ch39

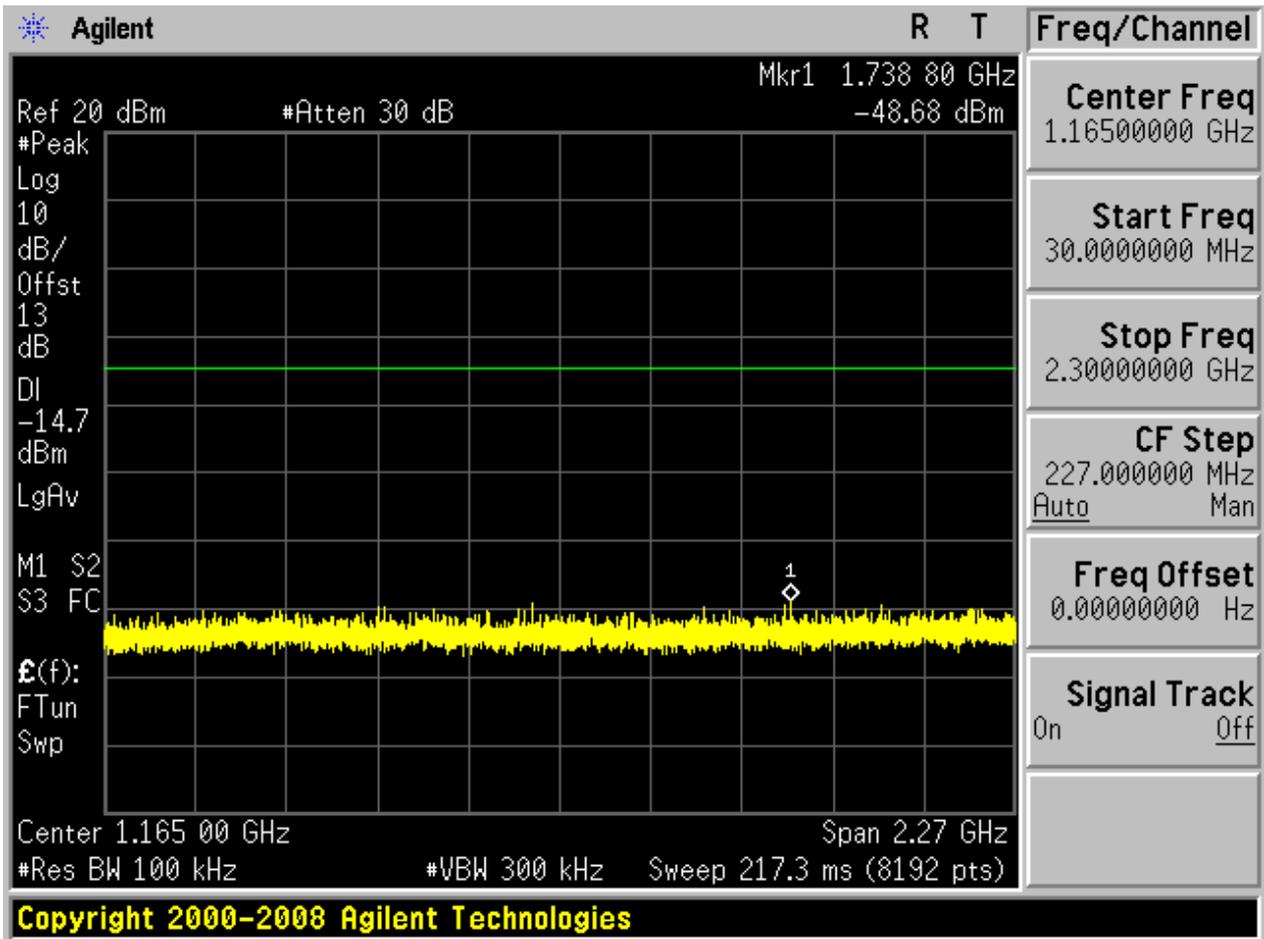
2.8.1 Pref

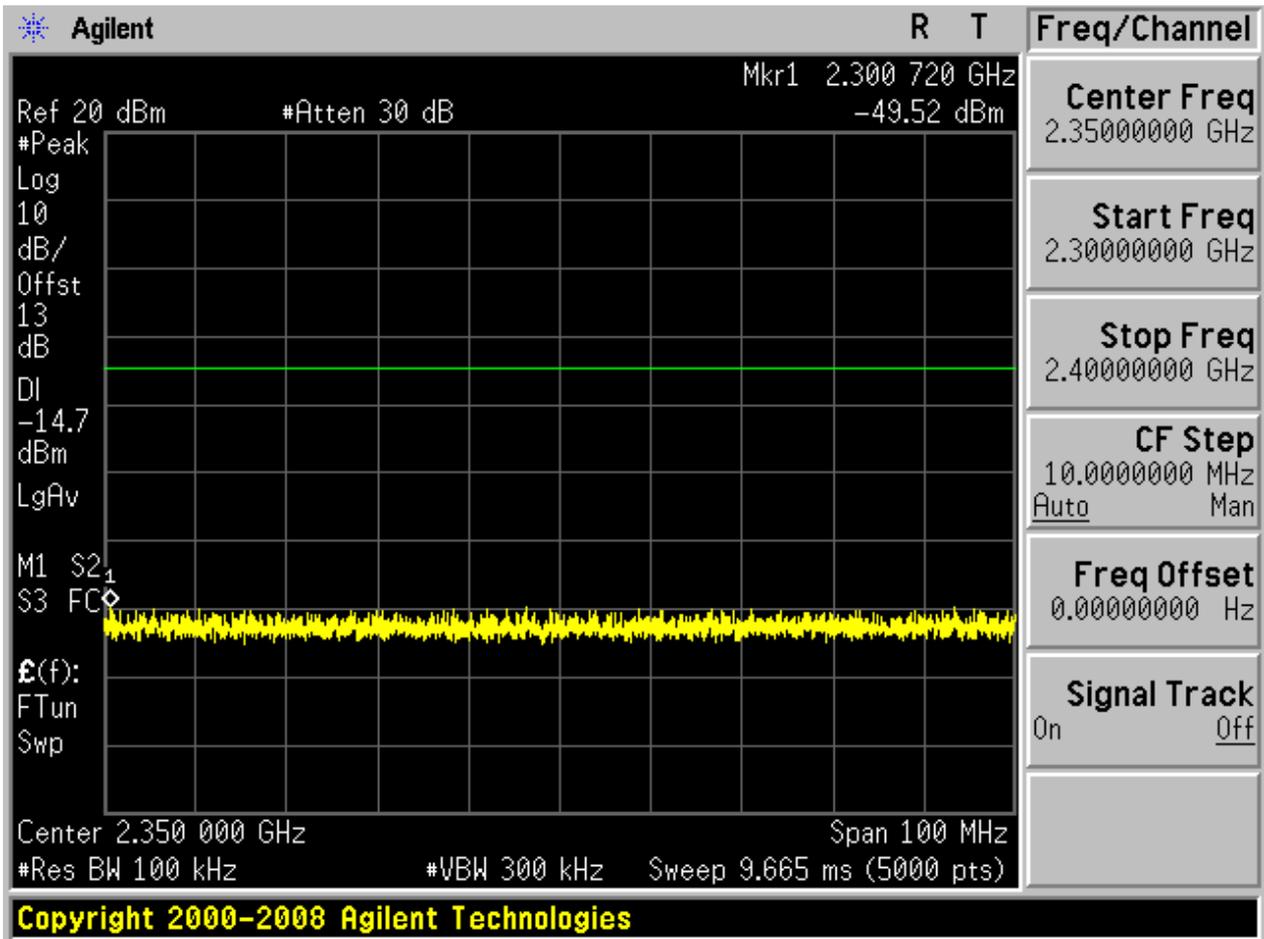


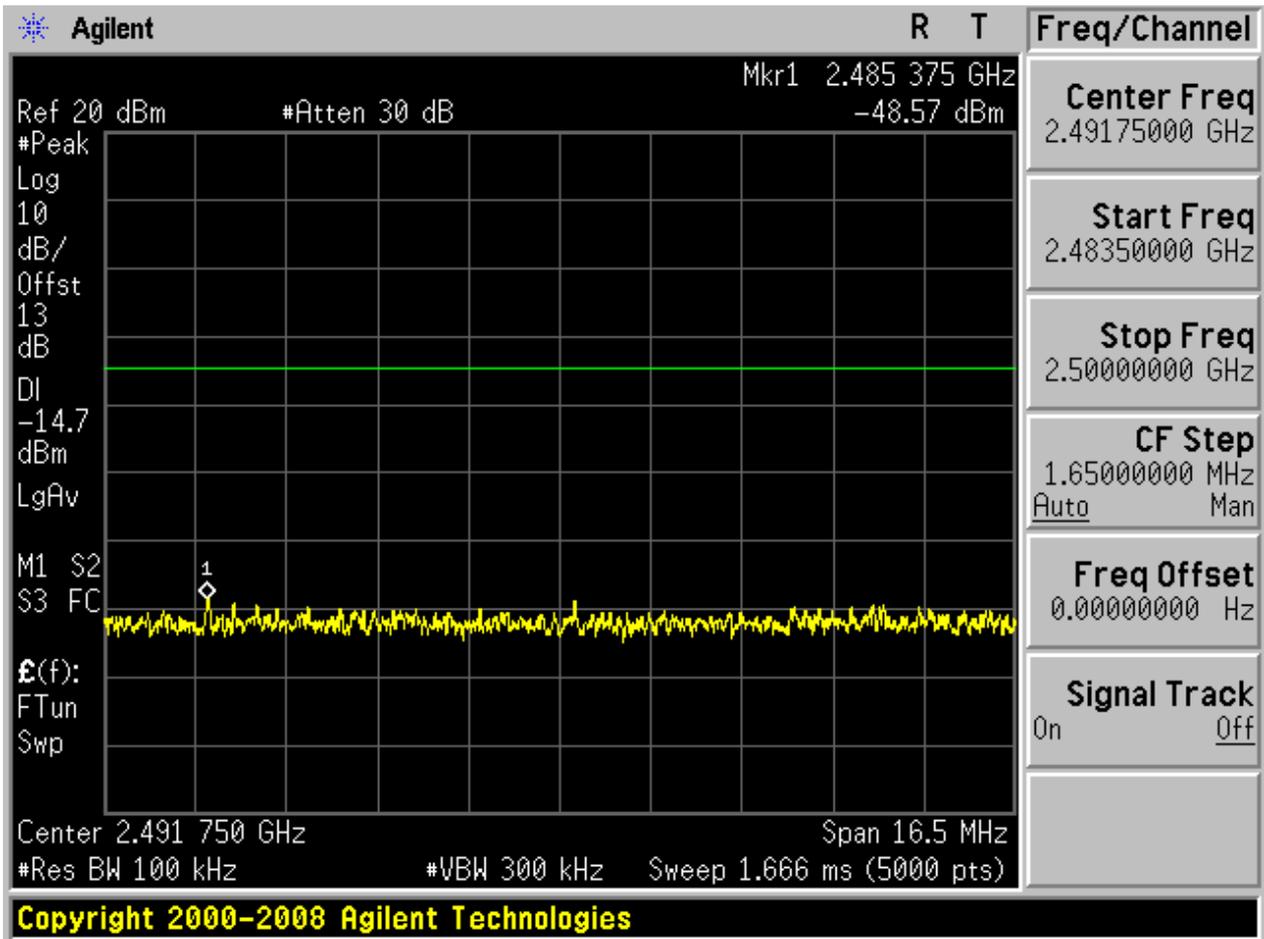
2.8.2 P_{uw}

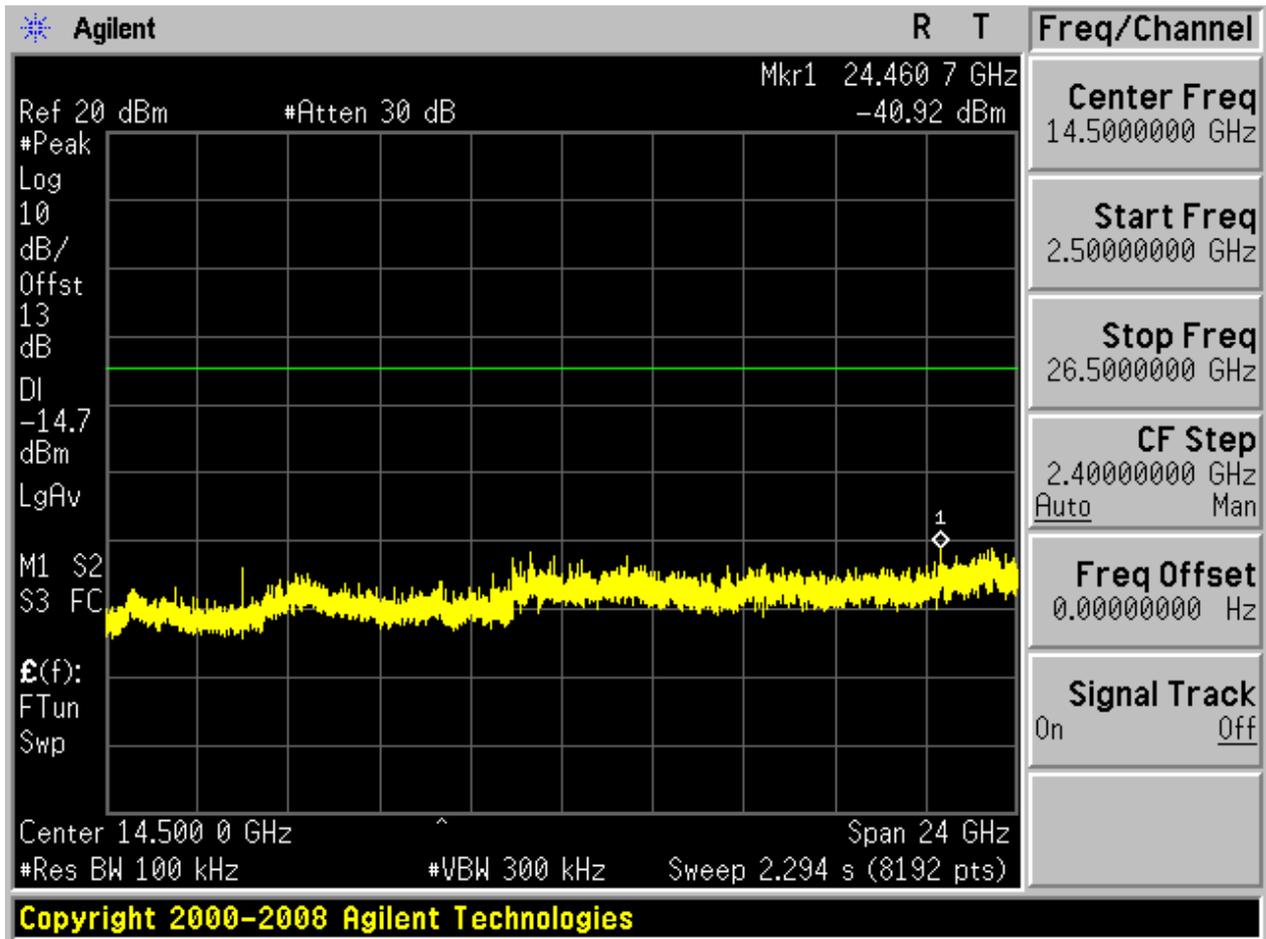






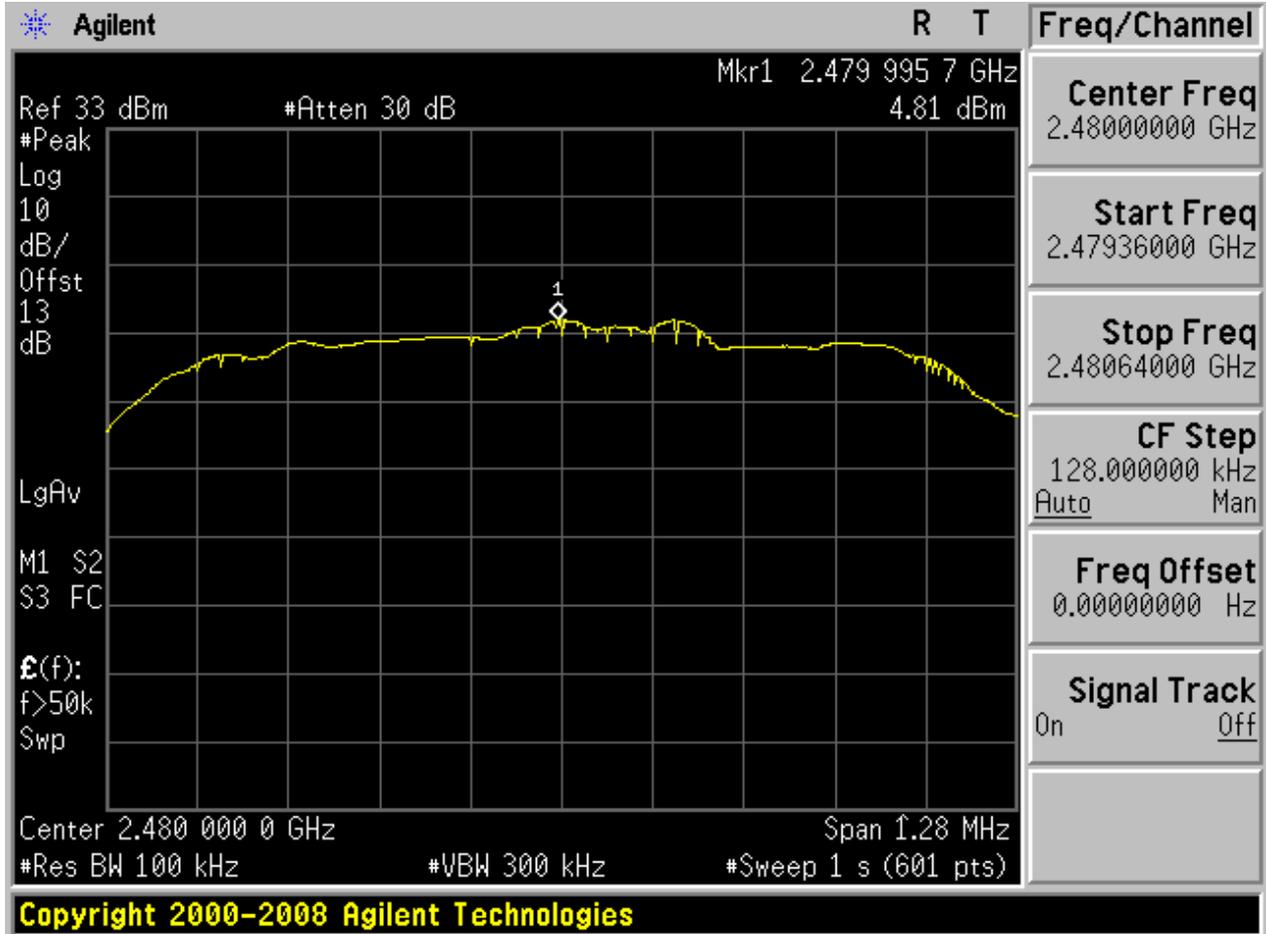






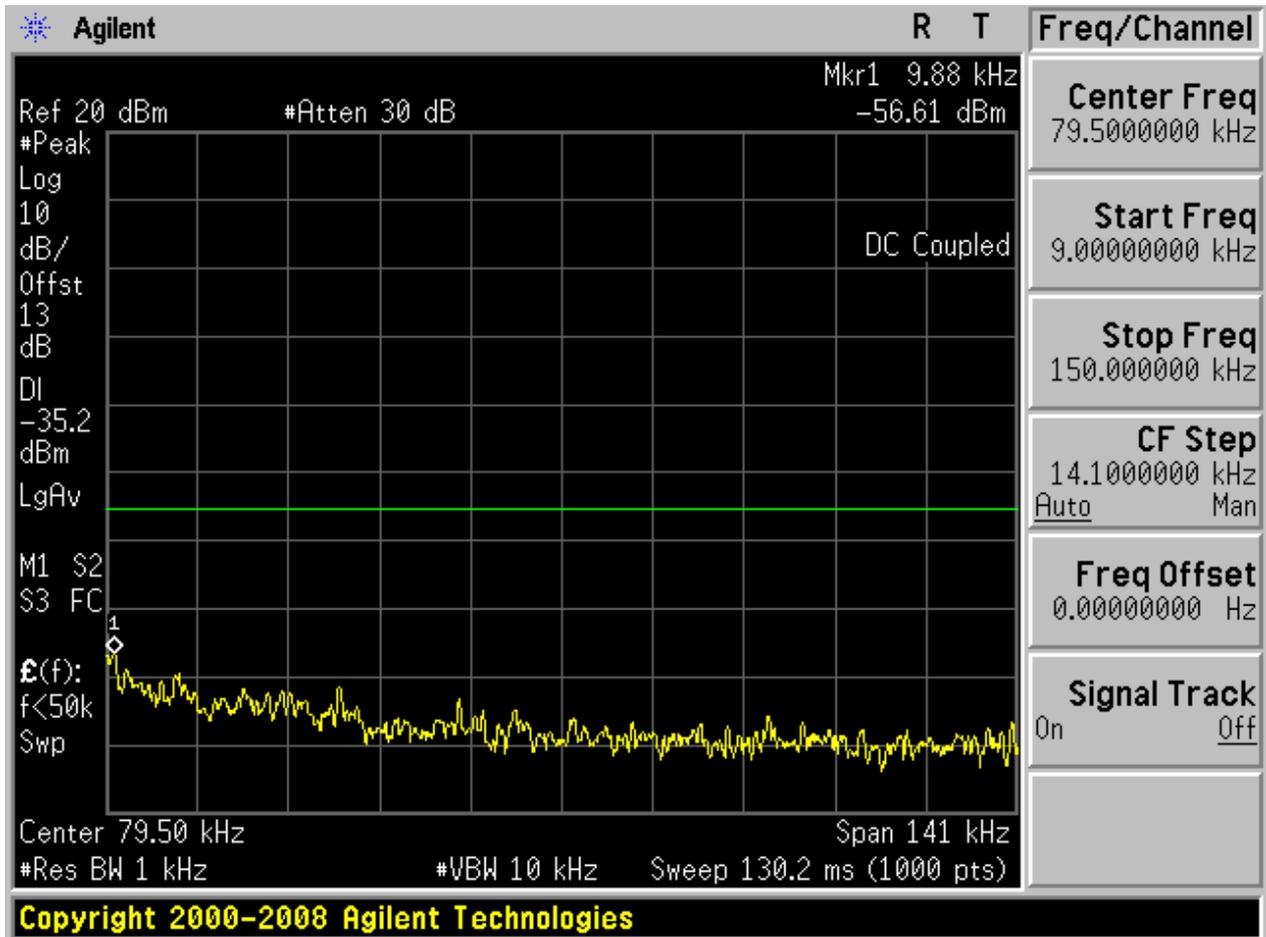
2.9 TM3_3DH5_Ch78

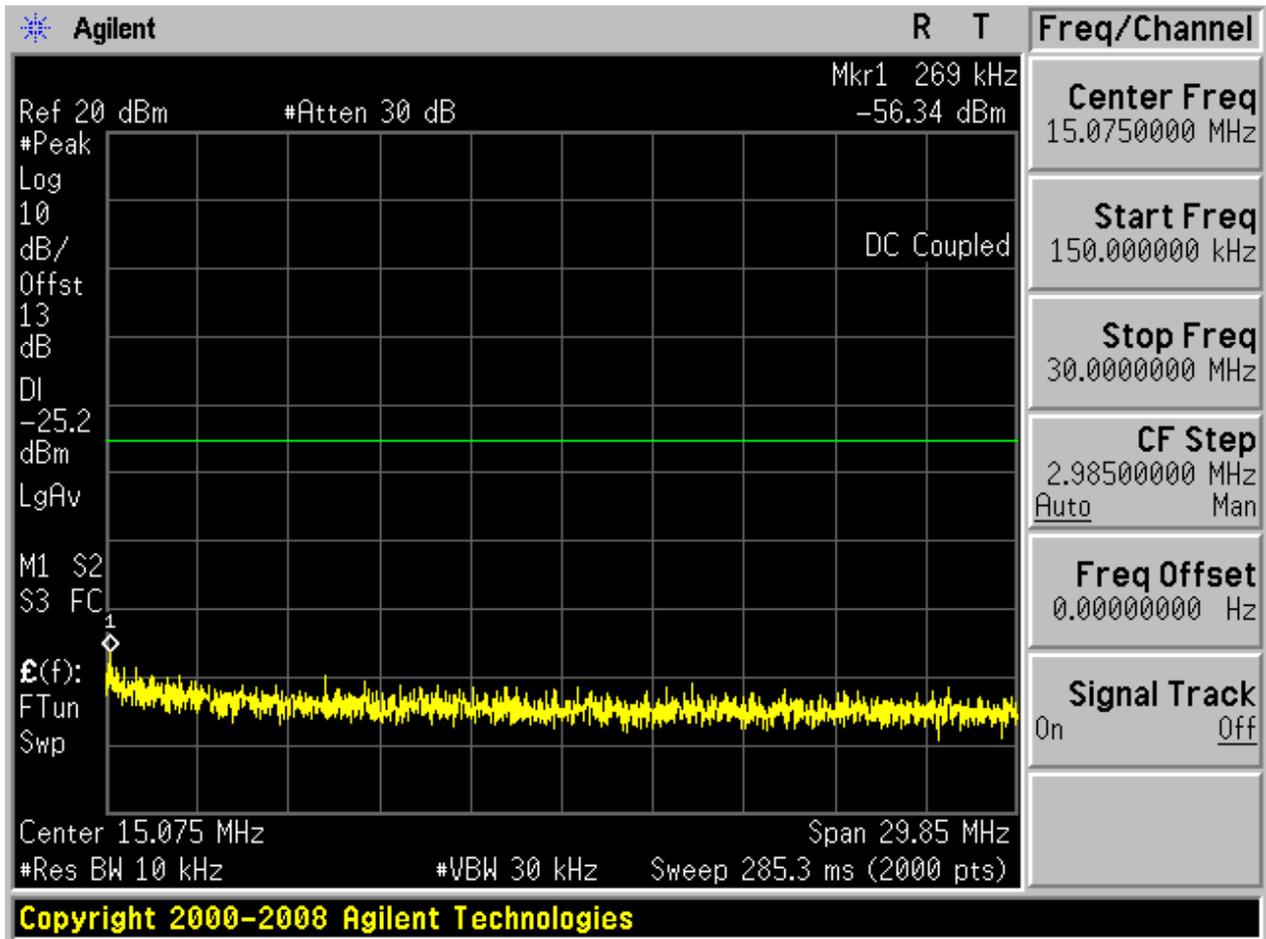
2.9.1 Pref

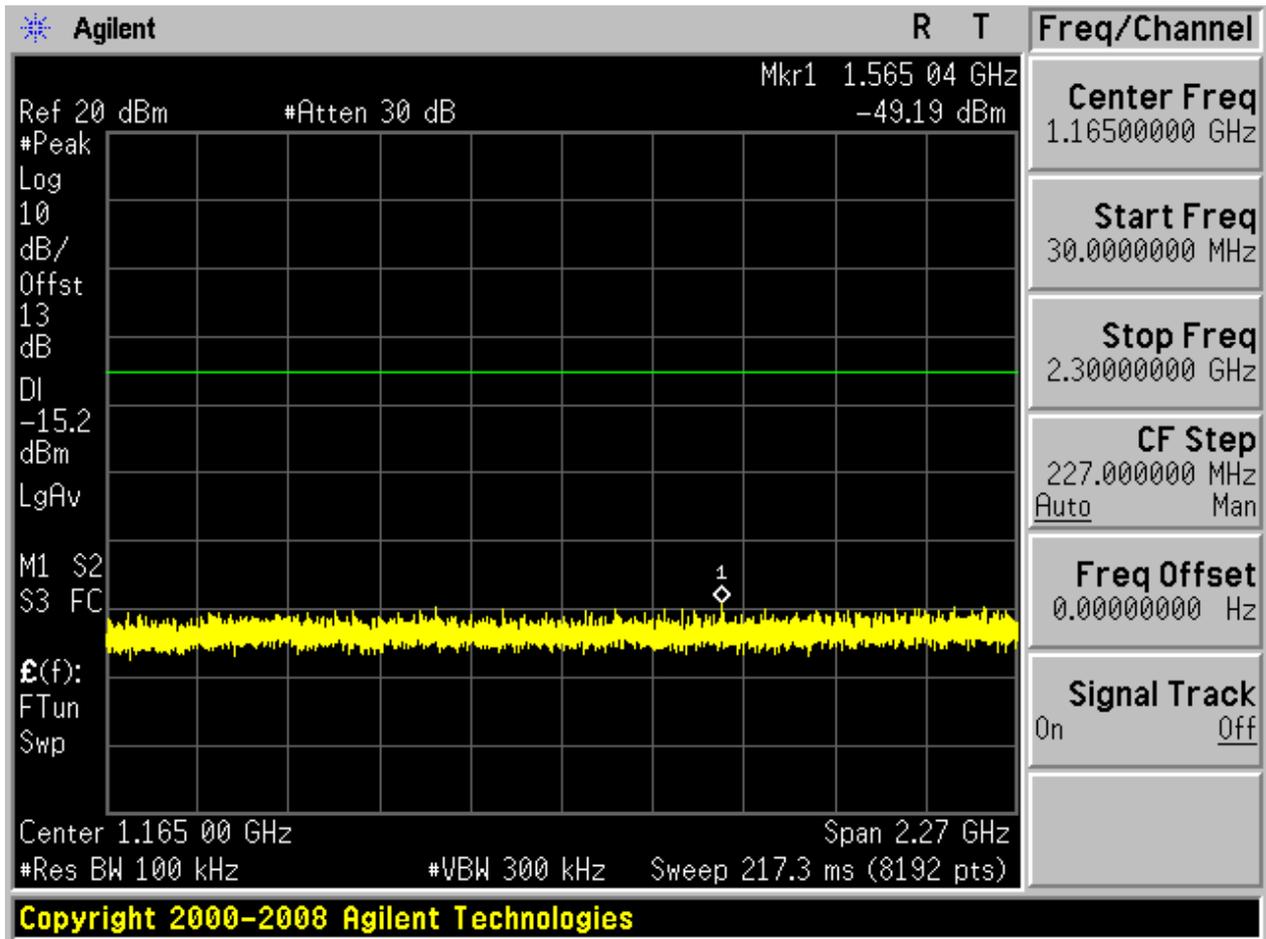


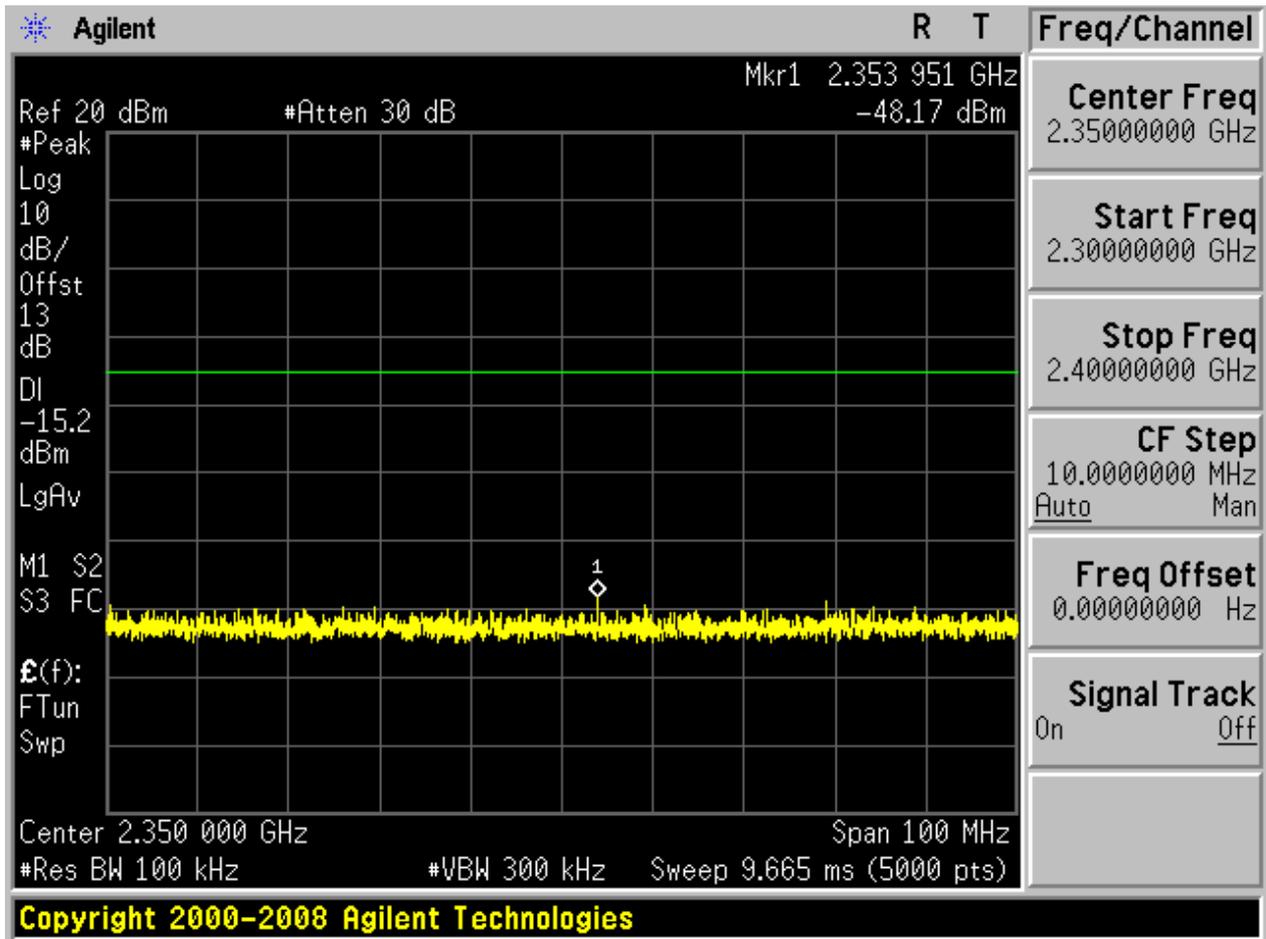


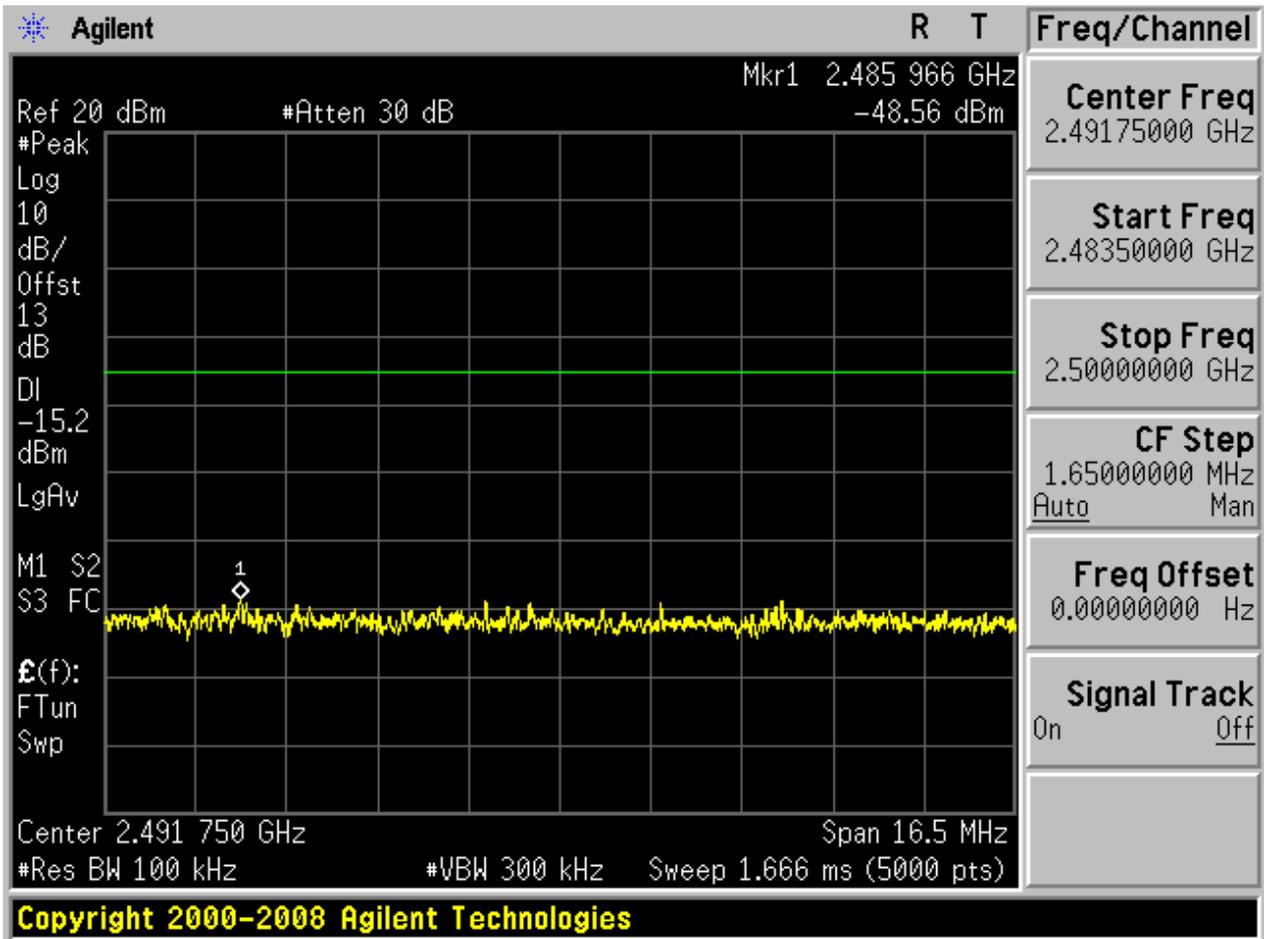
2.9.2 Puw

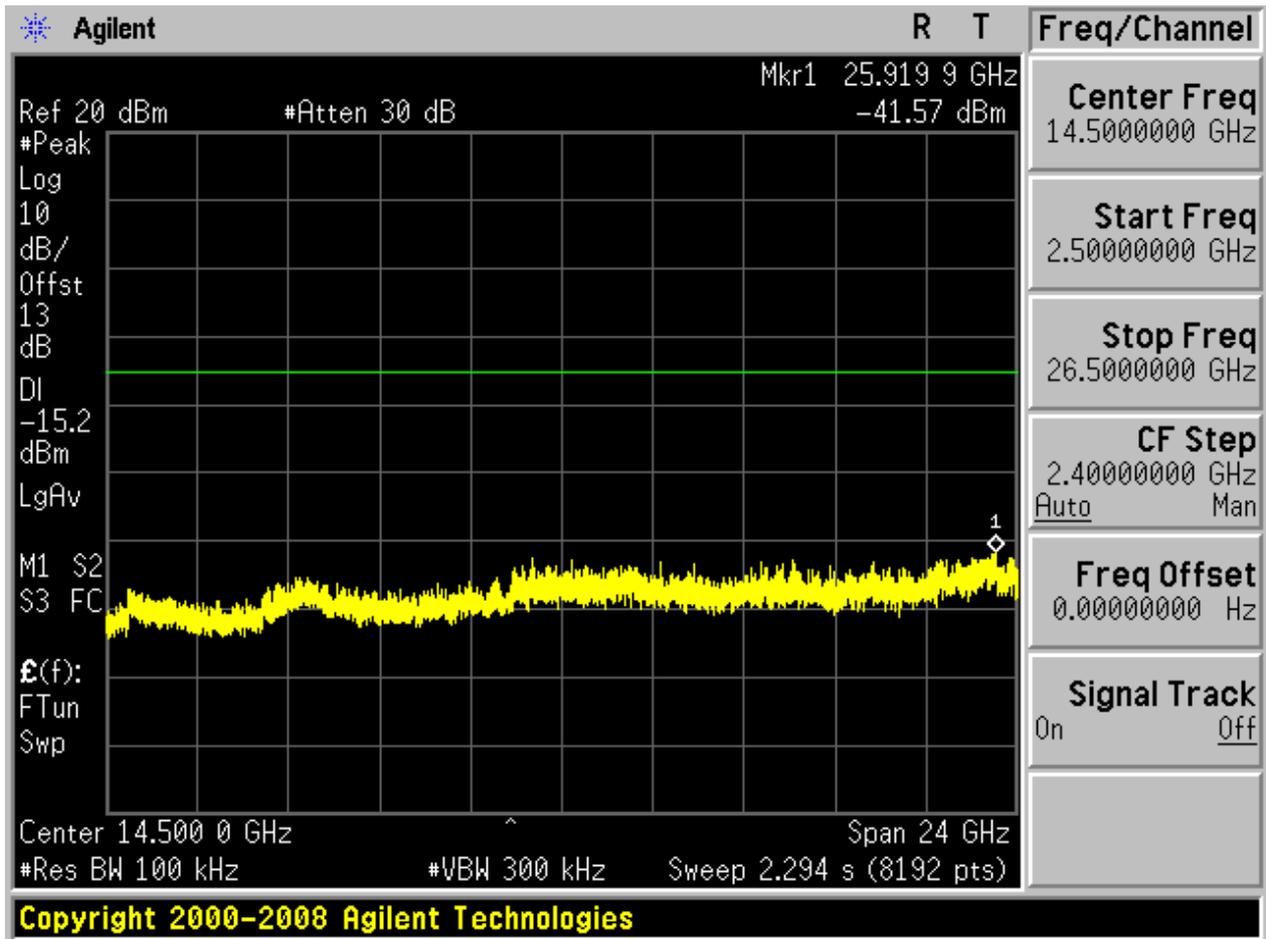














Appendix H: Radiated Emissions in the Restricted Bands

1 Result Table

The whole testing range is from “30 MHz to 26.5 GHz (10th harmonics)” is divided into 4 parts according to the test site settings, which are:

- (Part 1): Test range of “30 MHz to 1 GHz”,
- (Part 2): Test range of “1 GHz to 3 GHz”,
- (Part 3): Test range of “3 GHz to 18 GHz”, and
- (Part 4): Test range of “18 GHz to 26.5 GHz”.

In this Appendix, only the test results and plots under the worst case can be reported. In the result table, the “< Limit” denotes that “Not found obvious spikes or see marked spikes on plots and listed emissions records”.

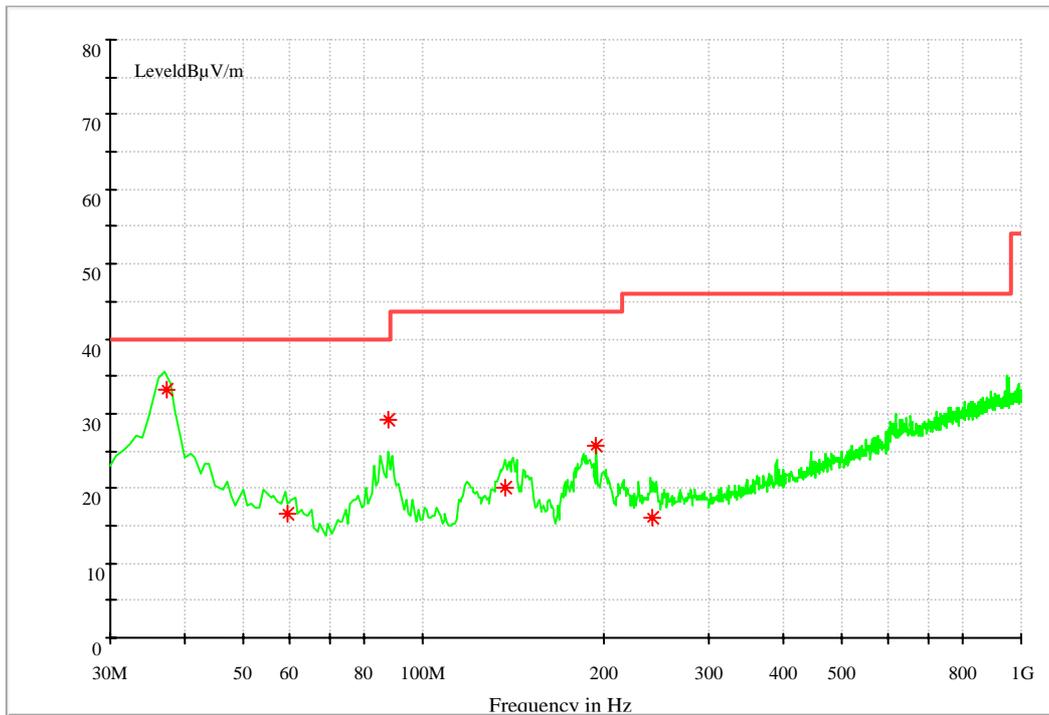
Test Range	EUT Conf.	Emissions	Verdict
30 MHz to 1 GHz	TM1_DH5_Ch0 (Worst Conf.)	< Limit	Pass
1 GHz to 3 GHz	TM1_DH5_Ch0	< Limit	Pass
	TM1_DH5_Ch39	< Limit	Pass
	TM1_DH5_Ch78	< Limit	Pass
	TM2_2DH5_Ch0	< Limit	Pass
	TM2_2DH5_Ch39	< Limit	Pass
	TM2_2DH5_Ch78	< Limit	Pass
	TM3_3DH5_Ch0	< Limit	Pass
	TM3_3DH5_Ch39	< Limit	Pass
	TM3_3DH5_Ch78	< Limit	Pass
3 GHz to 18 GHz	TM1_DH5_Ch0 (Worse Conf.)	< Limit	Pass
	TM1_DH5_Ch39 (Worse Conf.)	< Limit	Pass
	TM1_DH5_Ch78 (Worse Conf.)	< Limit	Pass
18 GHz to 26.5 GHz	TM1_DH5_Ch0 (Worst Conf.)	< Limit	Pass

2 Result Plot

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	Polarization
37.166400	33.1	12.6	40.0	6.9	100.0	180.0	VERTICAL
59.228480	16.7	12.6	40.0	23.3	100.0	186.0	VERTICAL
87.800320	29.2	11.3	40.0	10.8	212.0	104.0	HORIZONTAL
137.441280	20.2	9.3	43.5	23.3	100.0	91.0	VERTICAL
195.001920	25.8	12.1	43.5	17.7	154.0	136.0	HORIZONTAL
242.193920	16.1	14.3	46.0	29.9	138.0	314.0	HORIZONTAL



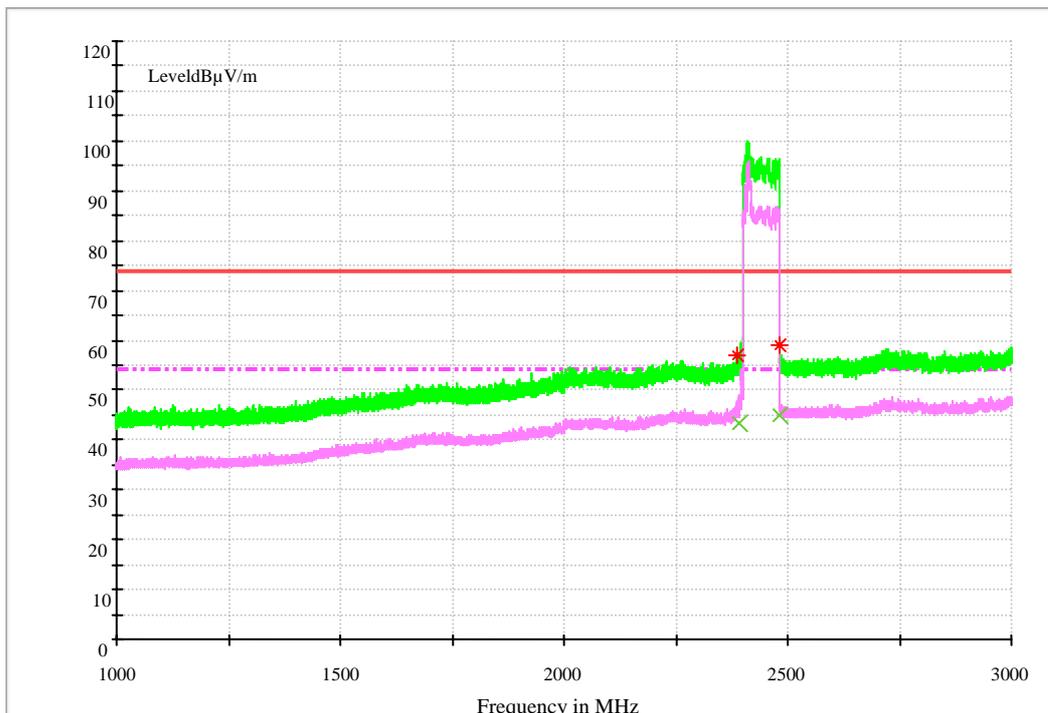
Part 2: Testing Range of “18 GHz to 26.5 GHz”

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.

Channel 0



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

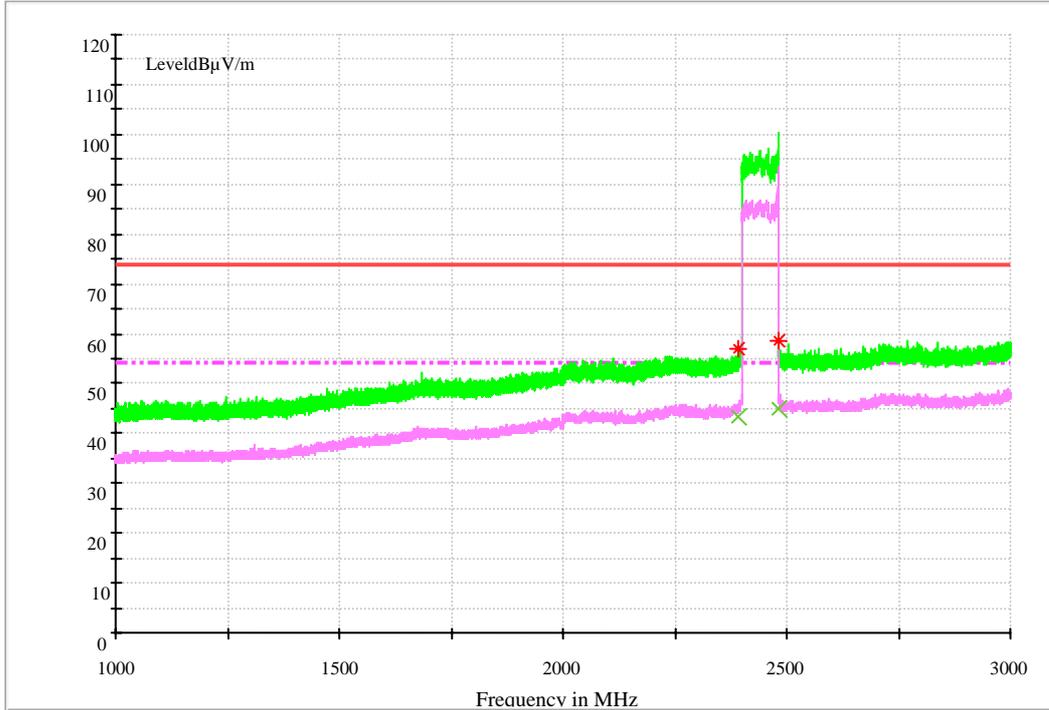
MEASUREMENT RESULT: PK Detector

Frequency MHz	Level dB μ V/m	Transd dB	Limit dB μ V/m	Margin dB	Height cm	Azimuth deg	Polarization
2390.000000	56.9	38.3	74.0	17.1	100.0	300.0	VERTICAL
2483.500000	59.1	40.5	74.0	14.9	100.0	58.0	HORIZONTAL

MEASUREMENT RESULT: AVDetector

Frequency MHz	Level dB μ V/m	Transd dB	Limit dB μ V/m	Margin dB	Height cm	Azimuth deg	Polarization
2390.000000	43.3	38.3	54.0	10.7	100.0	268.0	VERTICAL
2483.500000	45.0	40.5	54.0	9.0	100.0	103.0	HORIZONTAL

Channel 78



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

MEASUREMENT RESULT: PK Detector

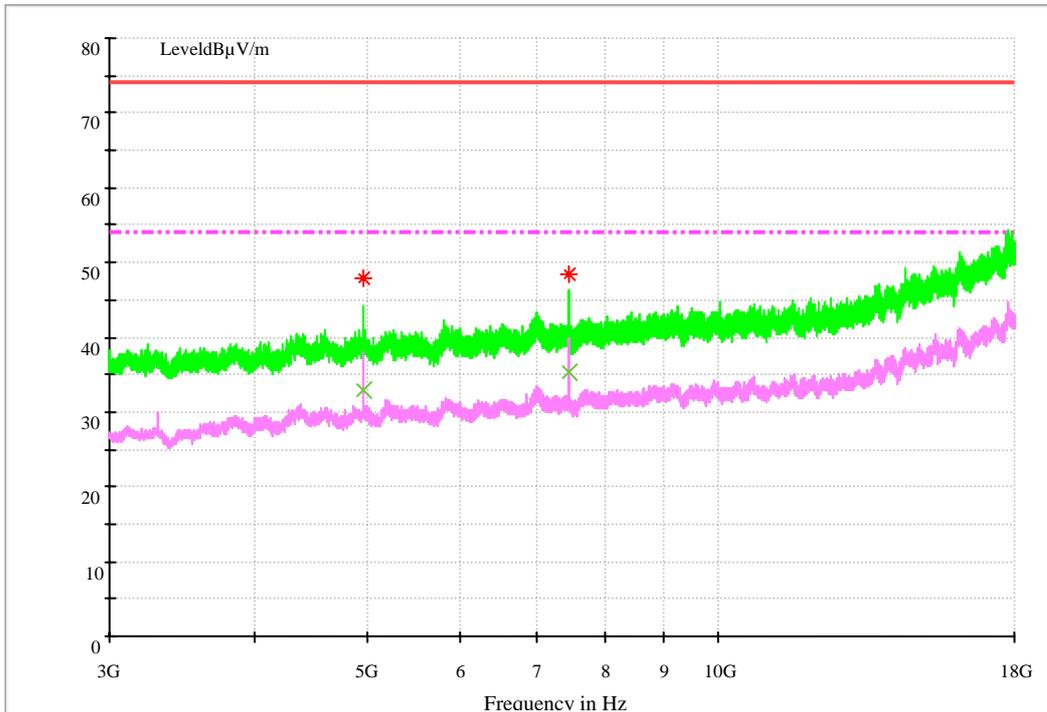
Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarization
2390.000000	56.9	38.3	74.0	17.1	100.0	269.0	HORIZONTAL
2483.500000	58.8	40.5	74.0	15.2	100.0	307.0	VERTICAL

MEASUREMENT RESULT: AVDetector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarization
2390.000000	43.2	38.3	54.0	10.8	100.0	269.0	HORIZONTAL
2483.500000	45.1	40.5	54.0	8.9	100.0	0.0	HORIZONTAL

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

- Note 1: The test results and plot for testing range of “3 GHz to 18 GHz” showed as below is **the WORST case for all Test Modes and Channels**. This range will not be presented for each Test Mode and each Channel.
- Note 2: The testing range of “3 GHz to 18 GHz” is for checking radiated emissions located in restricted bands far away 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).



MEASUREMENT RESULT: PK Detector

Frequency MHz	Level dB μ V/m	Transd dB	Limit dB μ V/m	Margin dB	Height cm	Azimuth deg	Polarization
4959.921333	47.9	1.7	74.0	26.1	122.0	122.0	VERTICAL
7440.455333	48.4	6.2	74.0	25.6	100.0	100.0	VERTICAL

MEASUREMENT RESULT: AVDetector

Frequency MHz	Level dB μ V/m	Transd dB	Limit dB μ V/m	Margin dB	Height cm	Azimuth deg	Polarization
4960.034667	33.0	1.7	54.0	21.0	100.0	14.0	VERTICAL
7439.978667	35.4	6.2	54.0	18.6	100.0	90.0	VERTICAL



Appendix I: AC Power Line Conducted Emissions

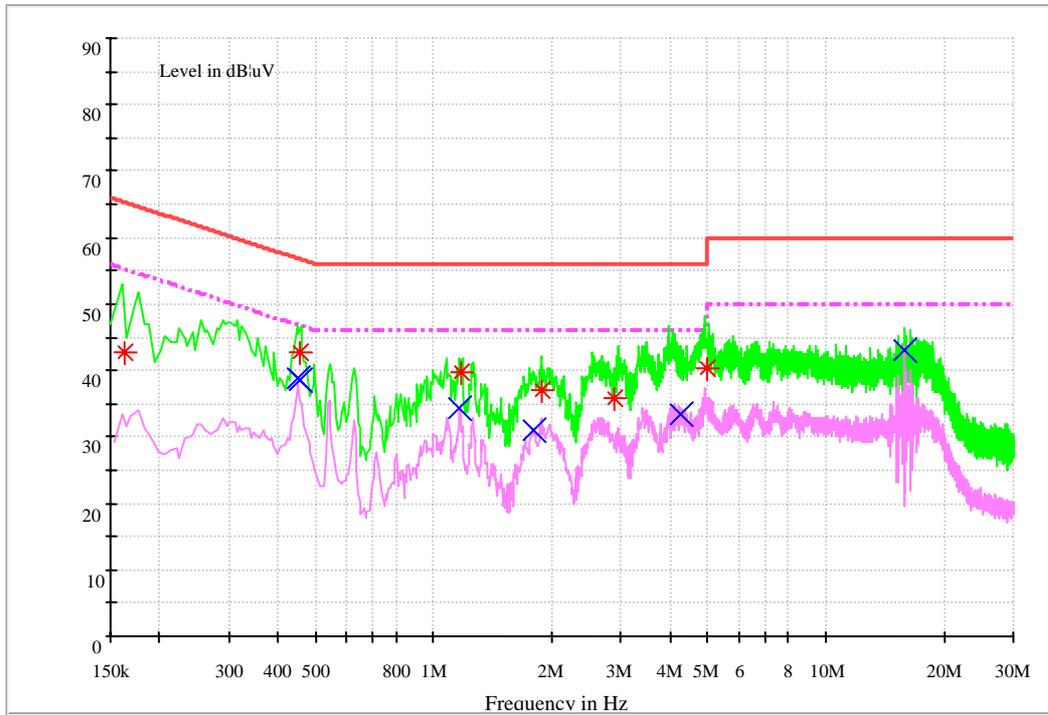


1 Result Table

In this Appendix, only the test results and plots under the worst case can be reported.

EUT Conf.	Maximum Emissions	Verdict
TM1_DH5_Ch39	Not found obvious spikes or see marked spikes on plots and listed emissions records.	Pass

2 Result Plot



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.163702	42.6	9.7	65.3	22.7	L1	FLO
0.458512	42.7	9.7	56.7	14.0	N	FLO
1.167942	39.6	9.7	56.0	16.4	L1	FLO
1.889854	37.0	9.7	56.0	19.0	L1	FLO
2.889942	35.8	9.7	56.0	20.2	N	FLO
4.964142	40.2	9.8	56.0	15.8	L1	FLO

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.450750	38.8	9.7	46.9	8.1	L1	FLO
0.453806	38.5	9.7	46.8	8.3	L1	FLO
1.166880	34.3	9.7	46.0	11.7	L1	FLO
1.802194	31.1	9.7	46.0	14.9	L1	FLO
4.260708	33.6	9.8	46.0	12.4	L1	FLO
15.860865	43.1	10.0	50.0	6.9	L1	FLO

END