



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.

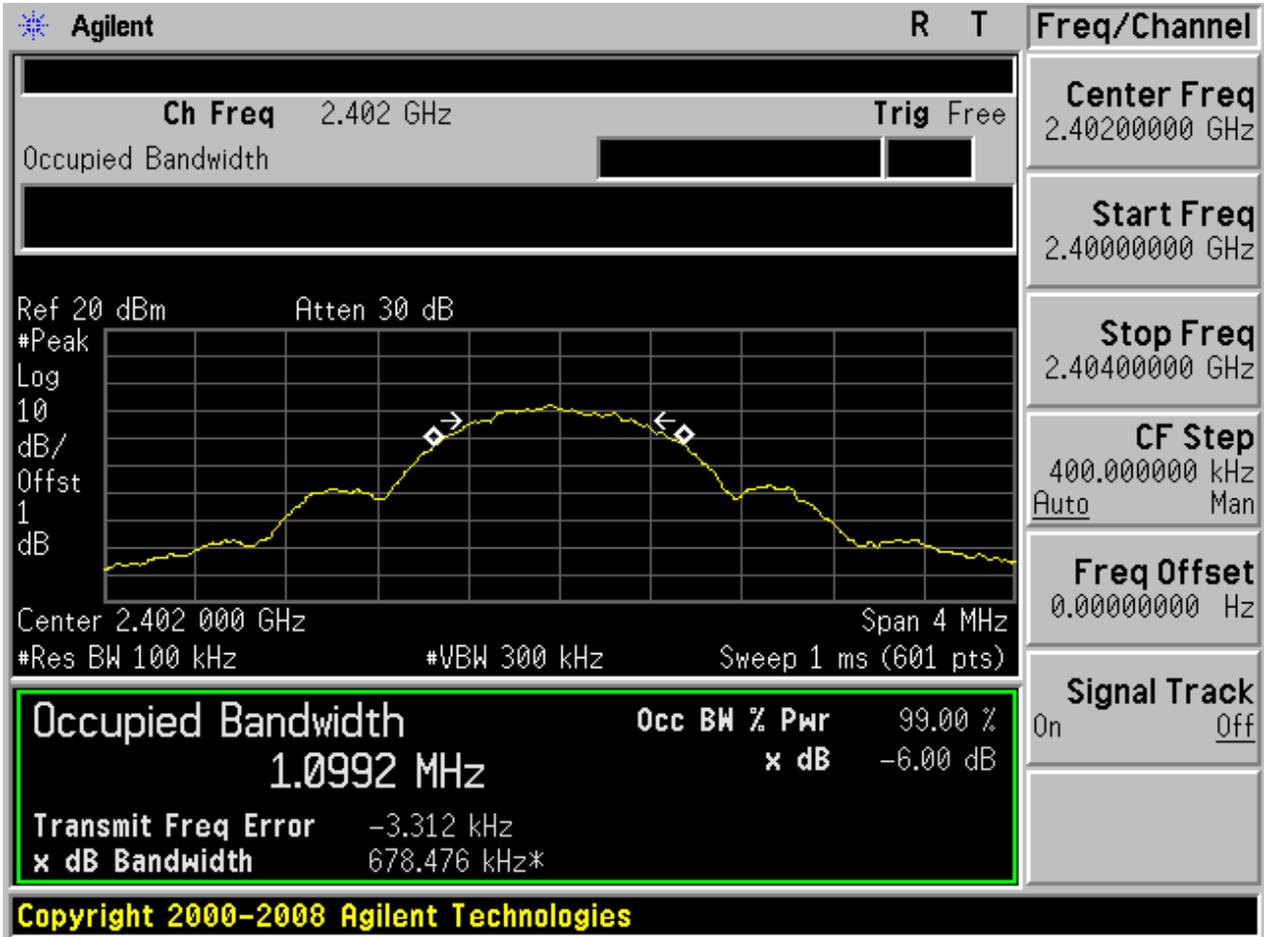
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	DTS6dBBW[MHz]	Verdict
BT4.0	L	2402	Ant 1	0.68	pass
BT4.0	M	2440	Ant 1	0.72	pass
BT4.0	H	2480	Ant 1	0.72	pass



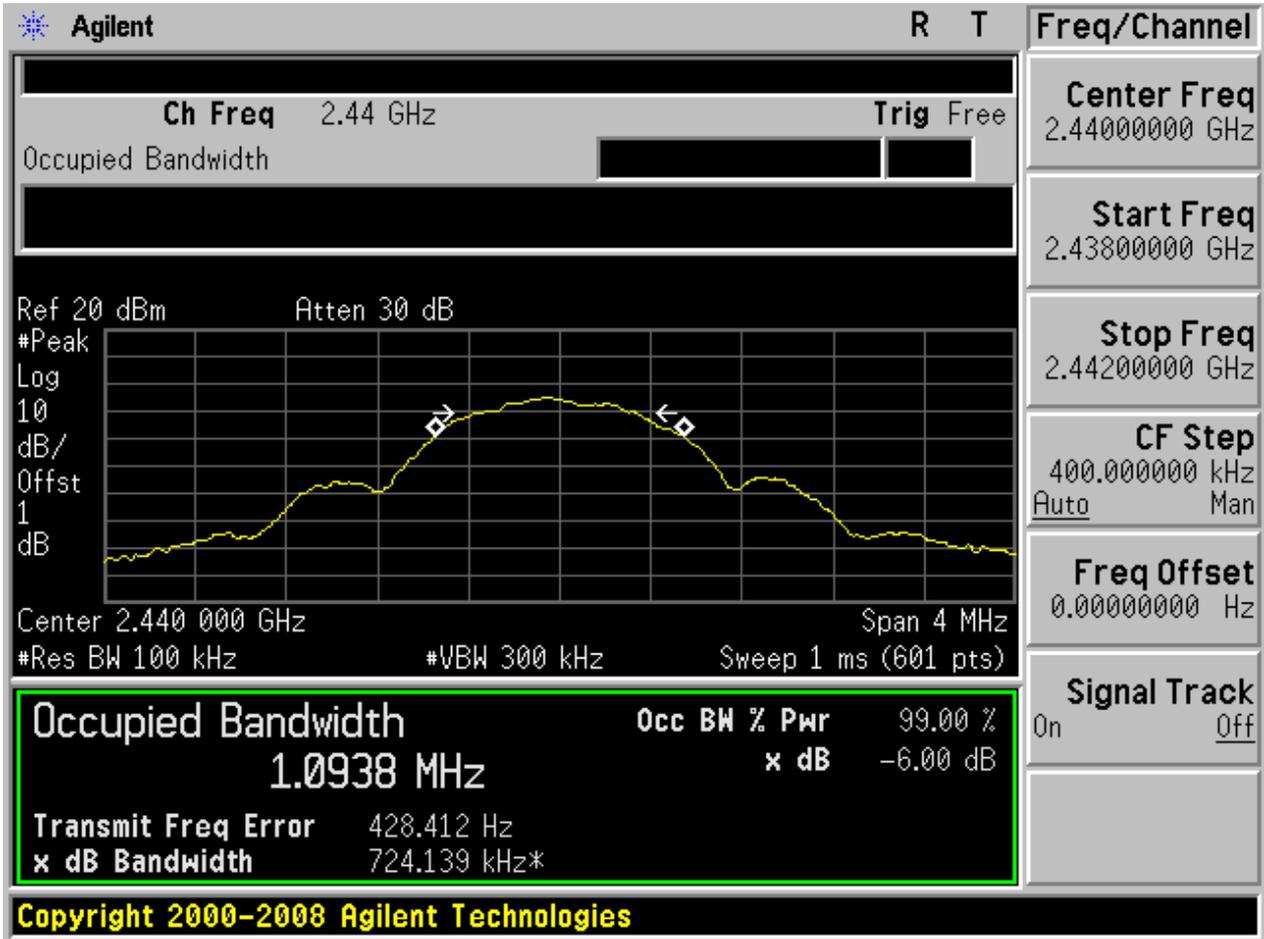
Part II - Test Plots

2.1 BLE_L@Ant 1



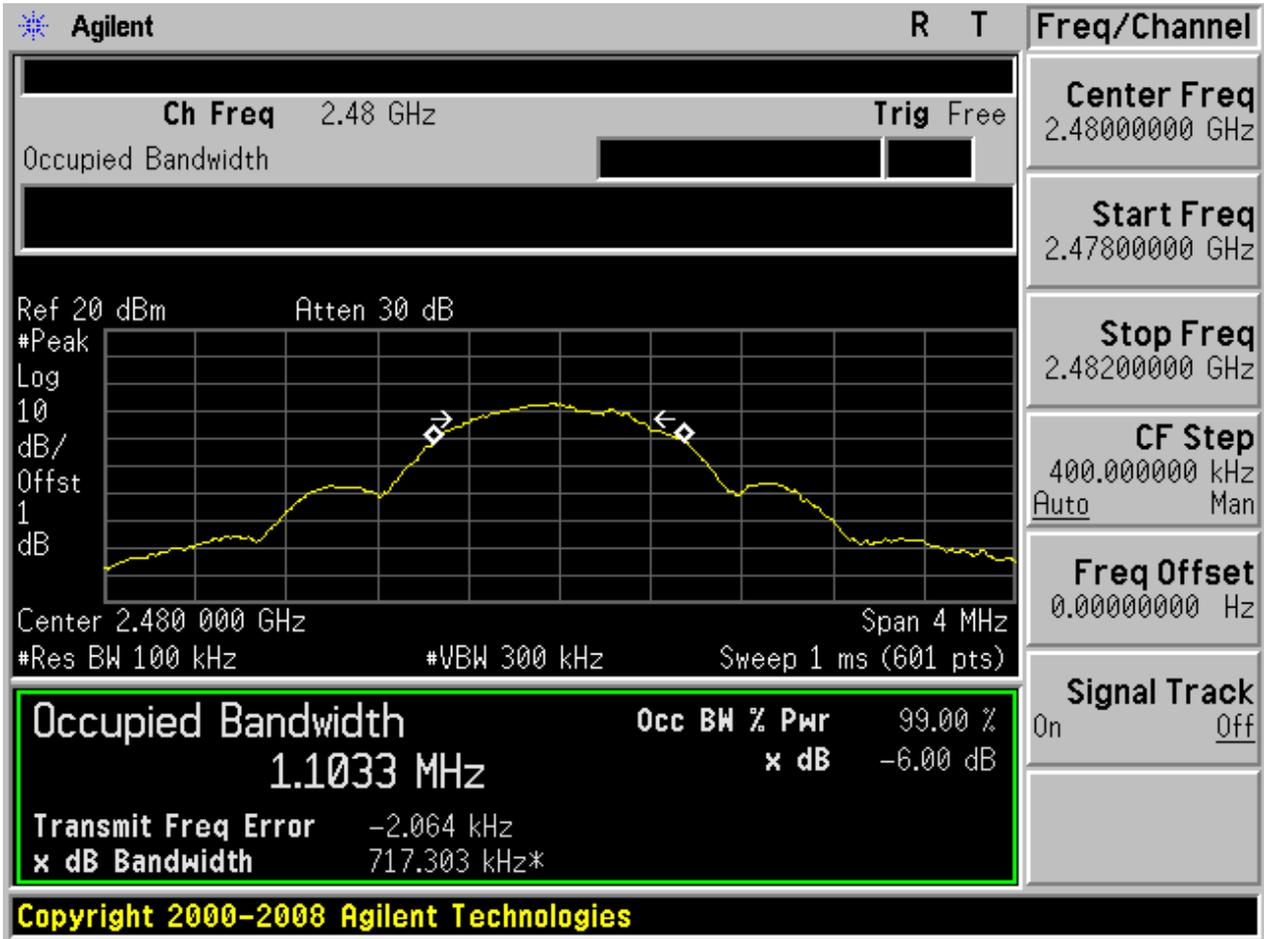


2.3 BLE_M@Ant 1





2.5 BLE_H@Ant 1





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
BT4.0	L	2402	Ant 1	1.06	pass
BT4.0	M	2440	Ant 1	1.06	pass
BT4.0	H	2480	Ant 1	1.06	pass



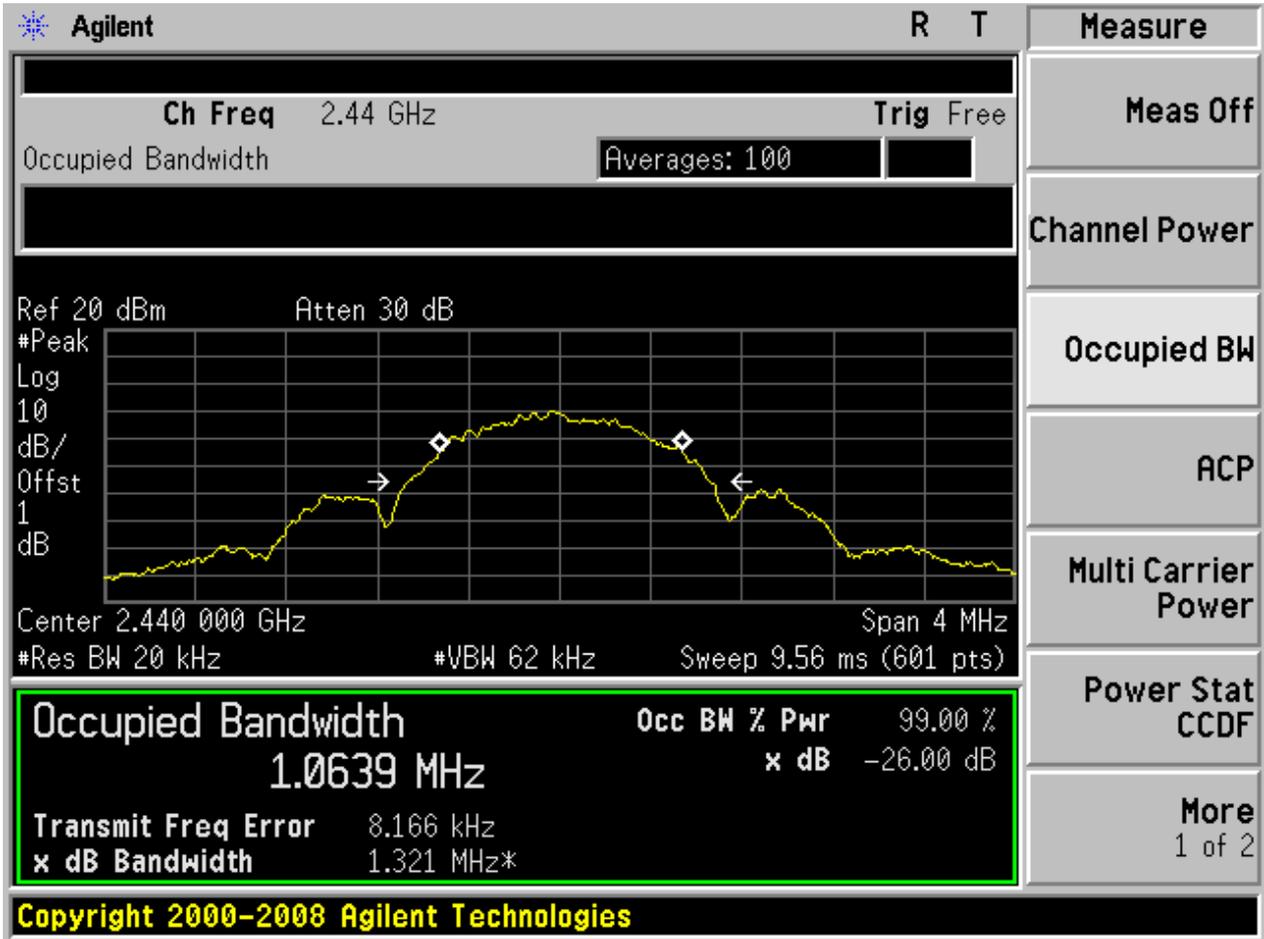
Part II - Test Plots

2.1 BLE_L@Ant 1



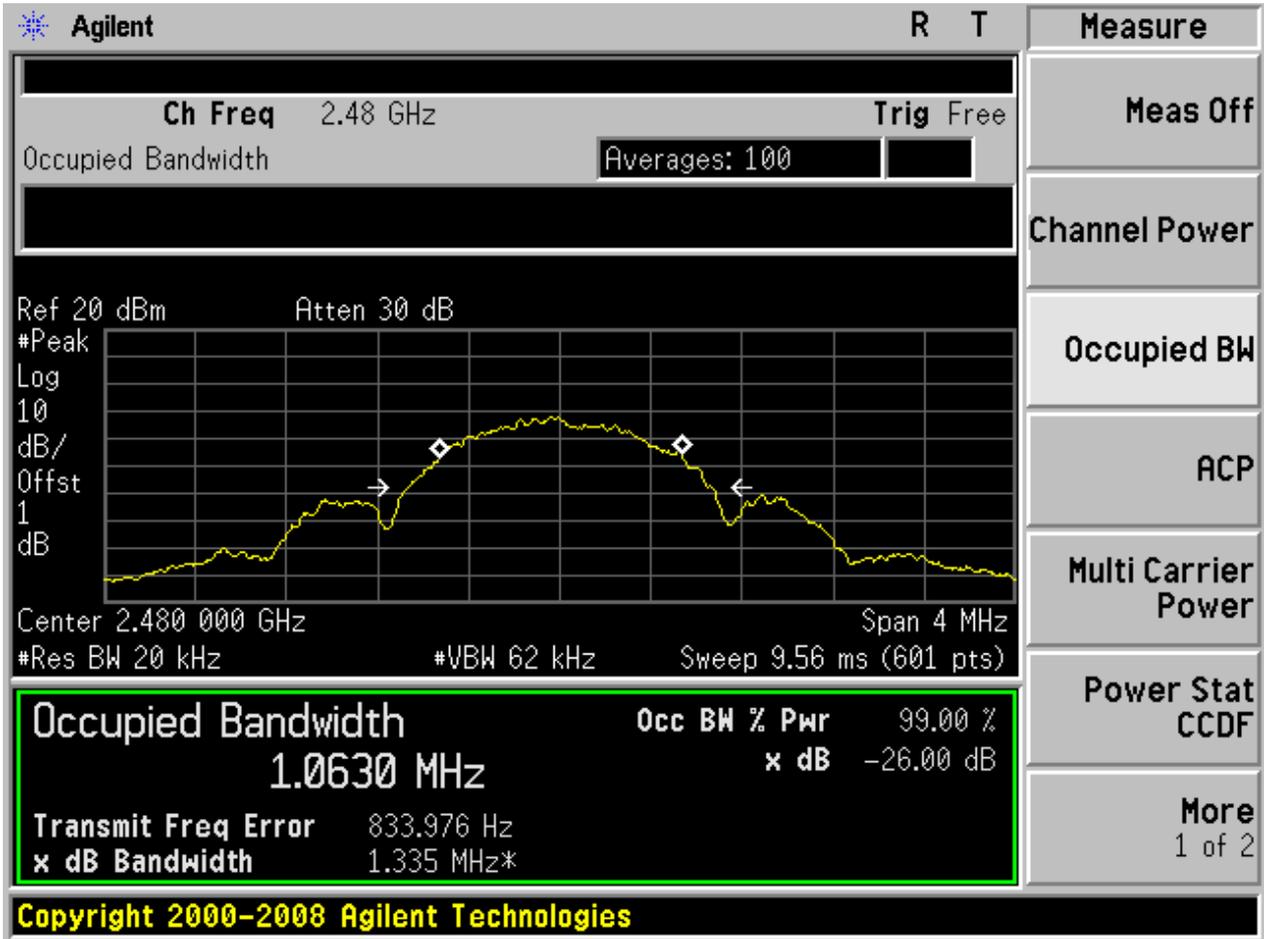


2.1 BLE_M@Ant 1





2.1 BLE_H@Ant 1





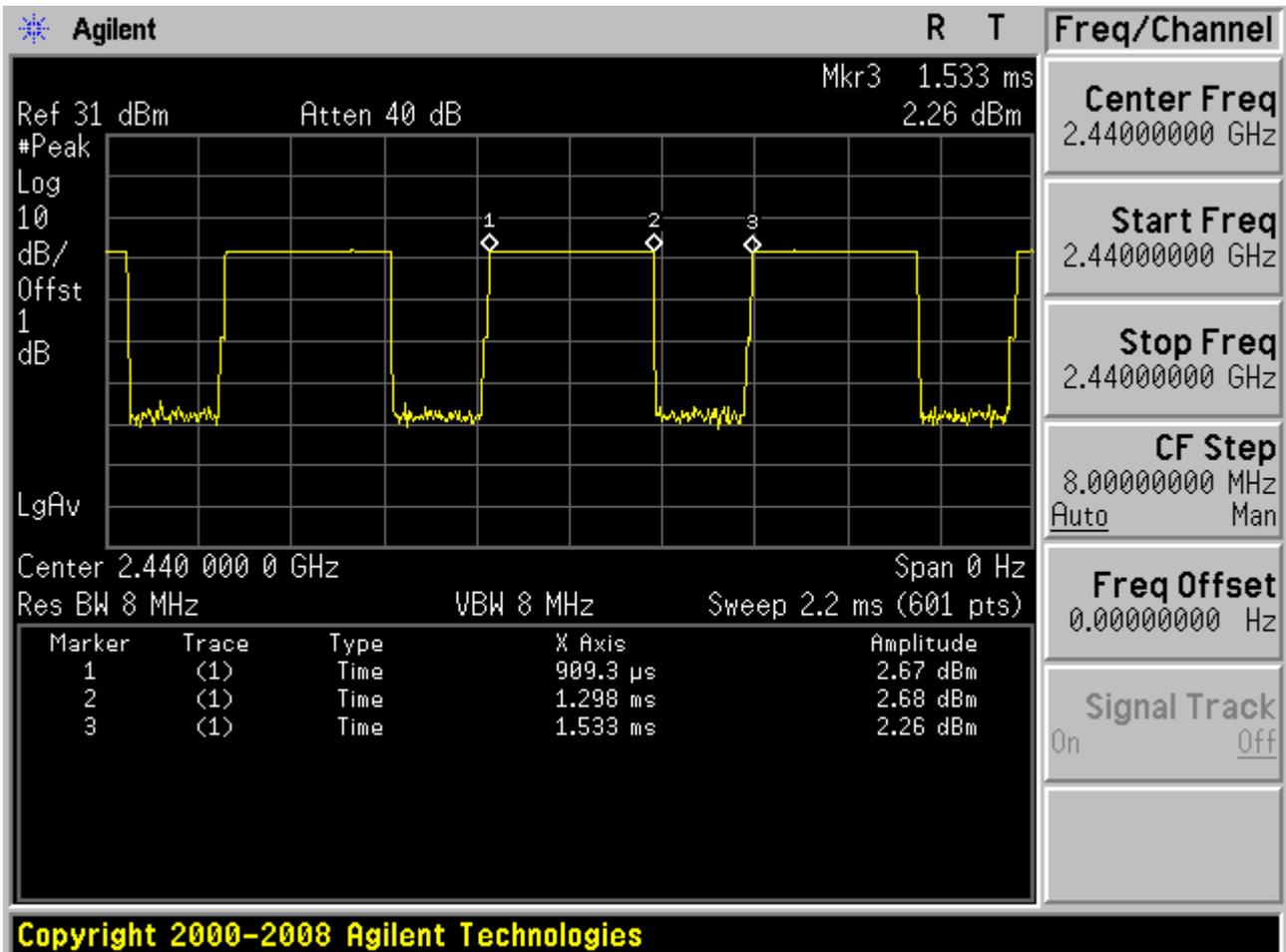
Appendix C: Duty Cycle

Part I - Test Results

Test Mode	TX Freq. [MHz]	Duty cycle [%]
TM1	CH0,CH19,CH39	62

Part II - Test Plots

2.1 TM1





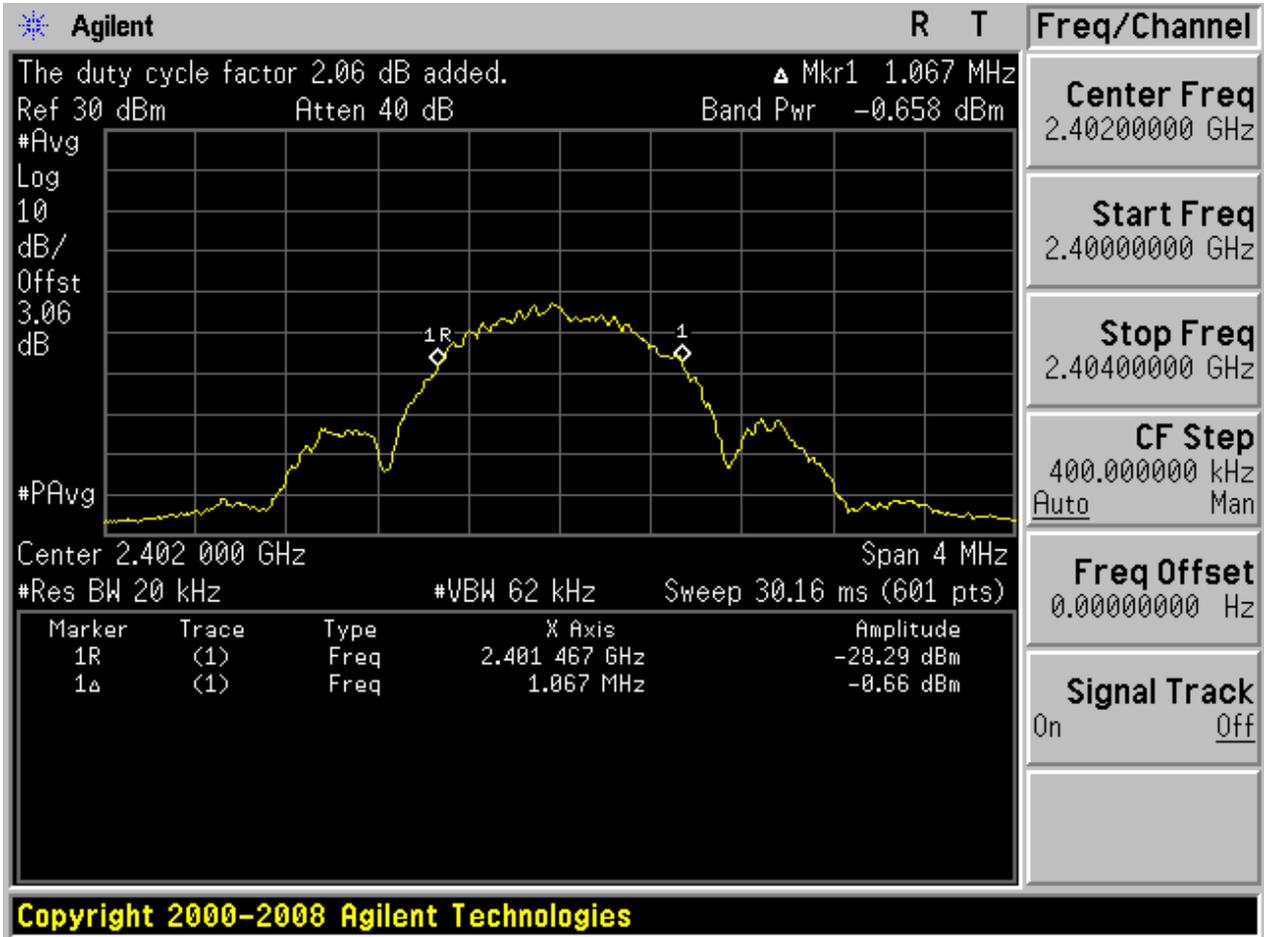
Appendix D: Maximum Conducted Average Output Power

Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Power[dBm]	Verdict
BT4.0	L	2402	Ant 1	-0.66	pass
BT4.0	M	2440	Ant 1	2.47	pass
BT4.0	H	2480	Ant 1	0.62	pass

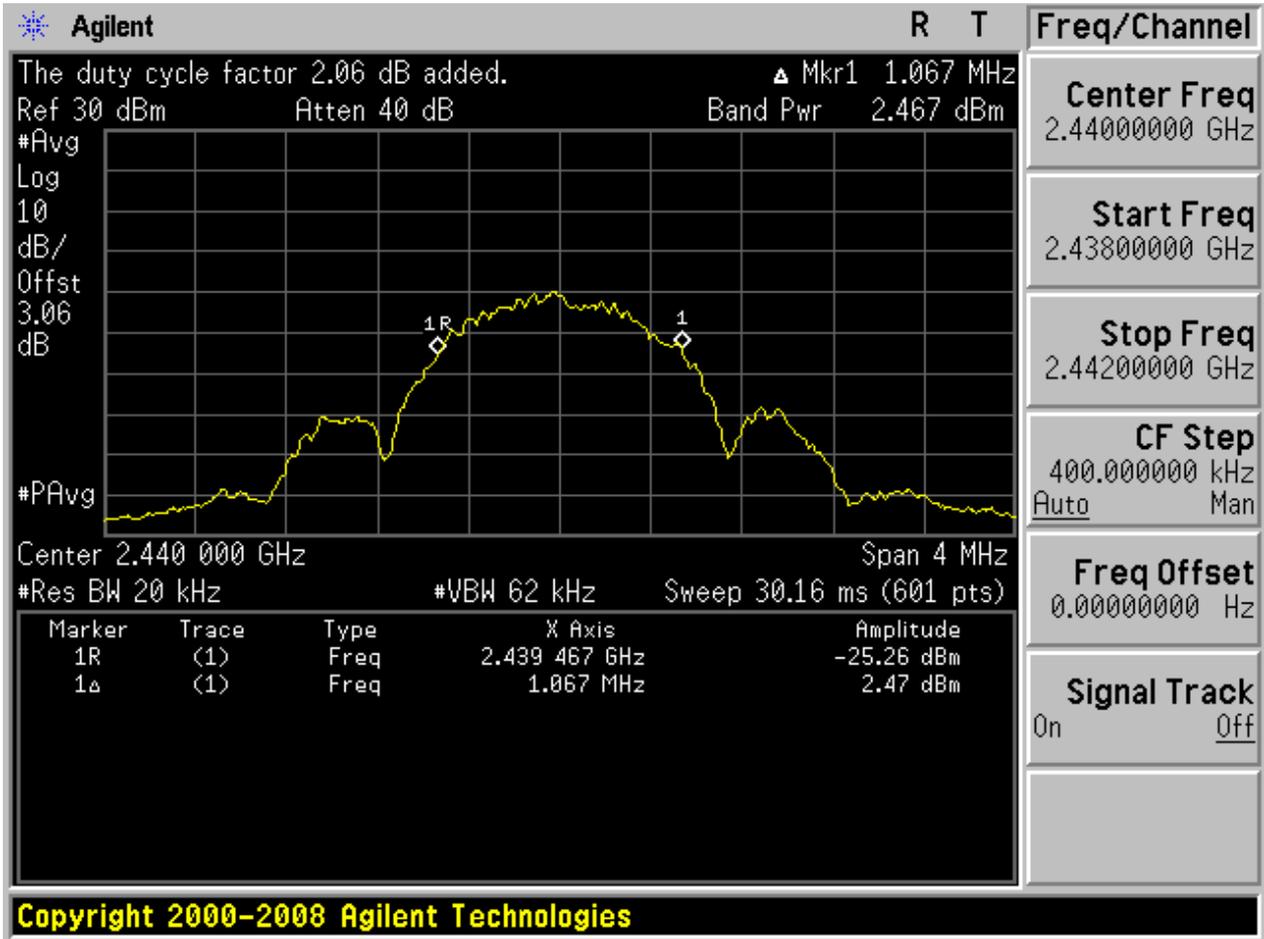
Part II - Test Plots

2.1 BLE_L@Ant 1



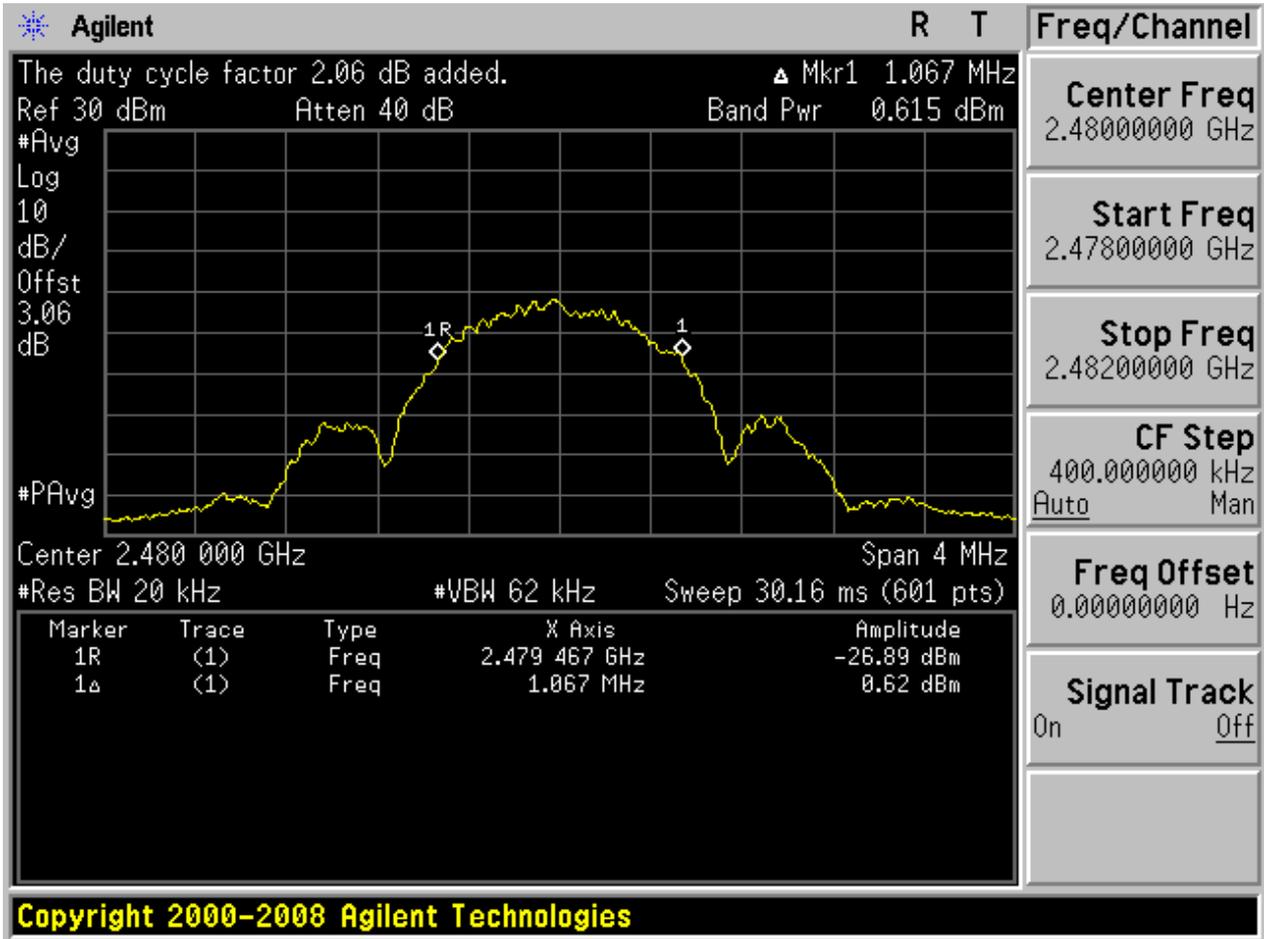


2.3 BLE_M@Ant 1





2.5 BLE_H@Ant 1





Appendix E: Maximum Power Spectral Density Level

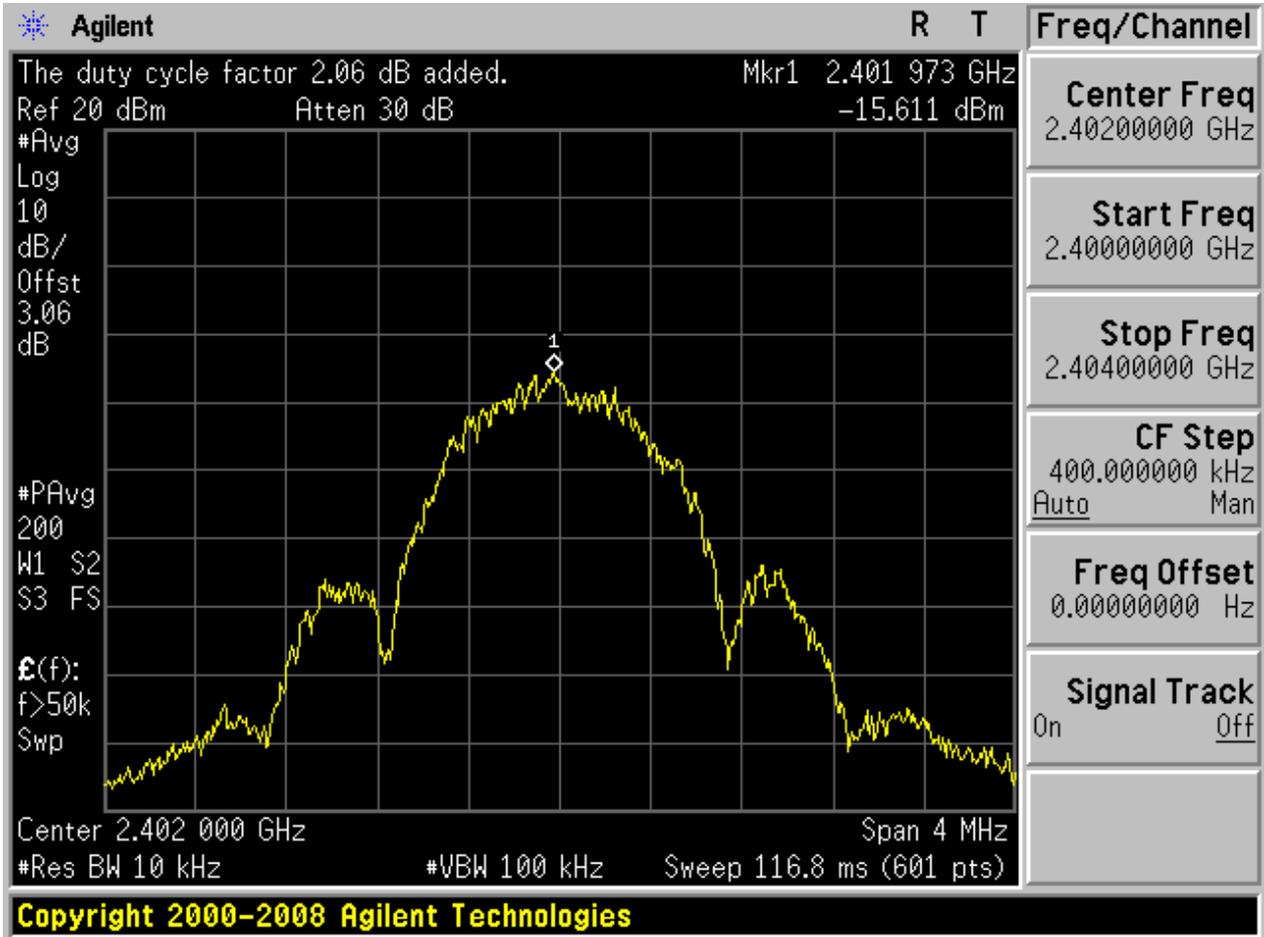
Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	PD[MHz]	Verdict
BT4.0	L	2402	Ant 1	-15.61	pass
BT4.0	M	2440	Ant 1	-12.51	pass
BT4.0	H	2480	Ant 1	-14.13	pass



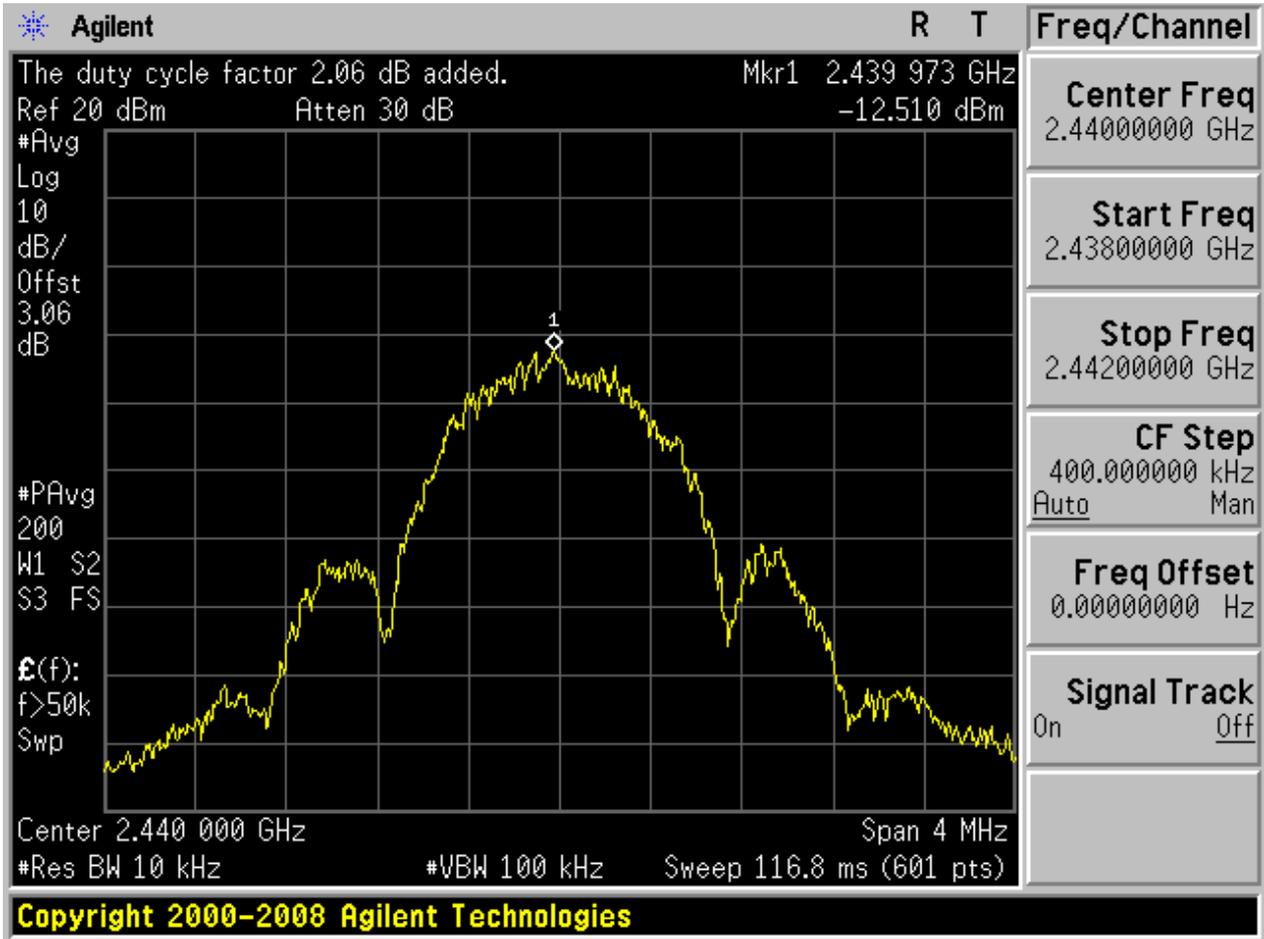
Part II - Test Plots

2.1 BLE_L@Ant 1



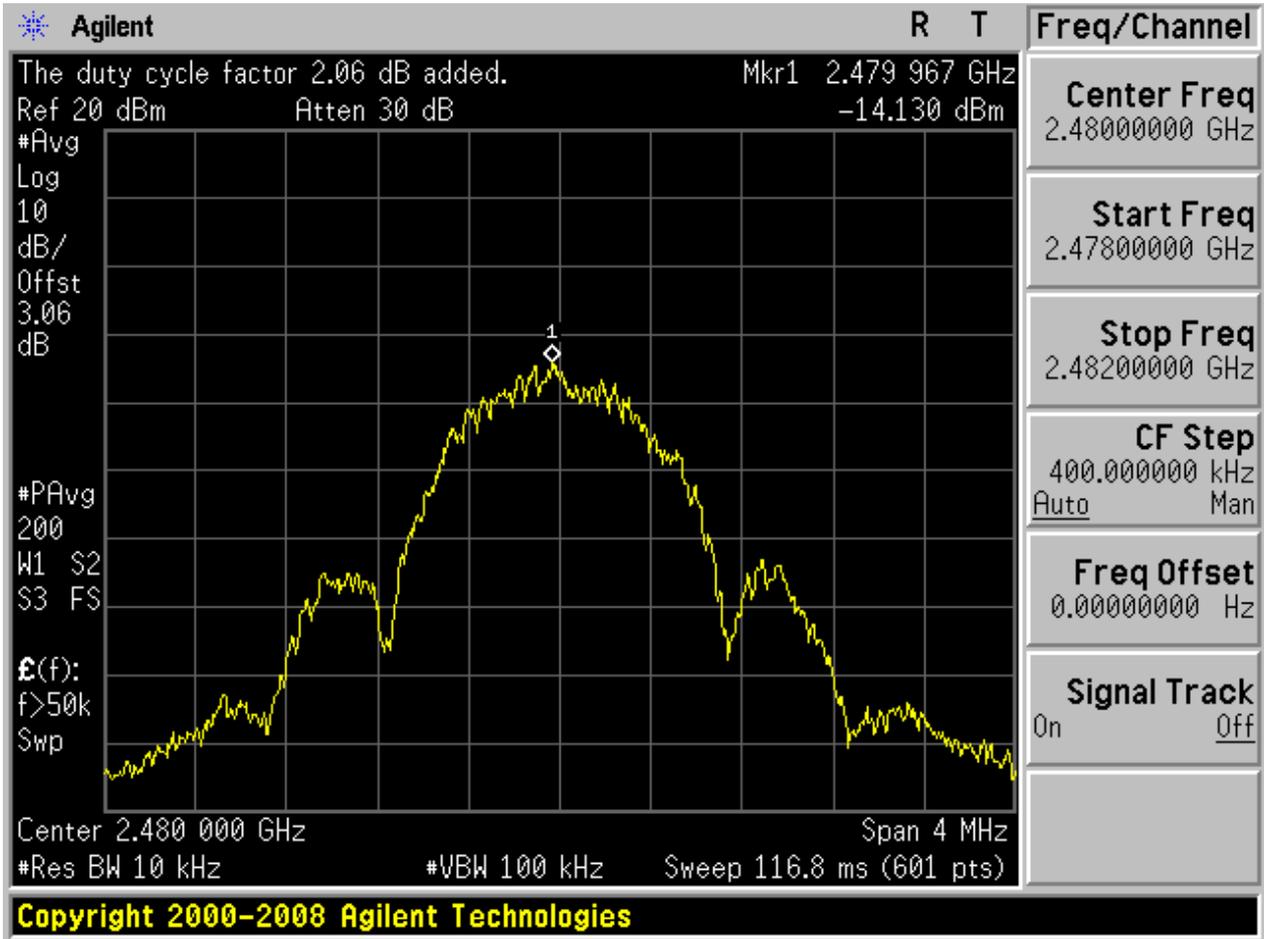


2.3 BLE_M@Ant 1





2.5 BLE_H@Ant 1





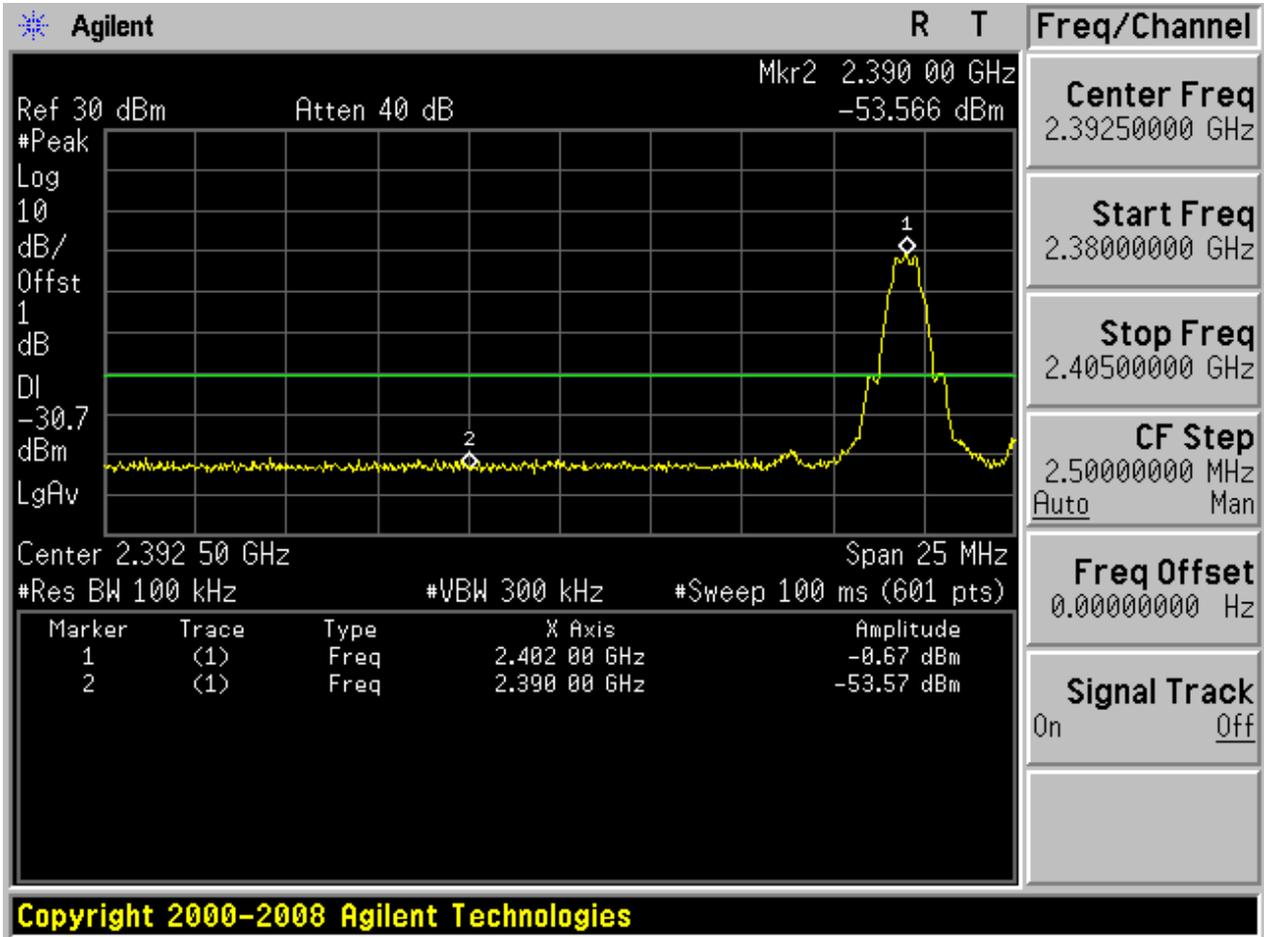
Appendix F: Band Edges Compliance

Part I - Test Results

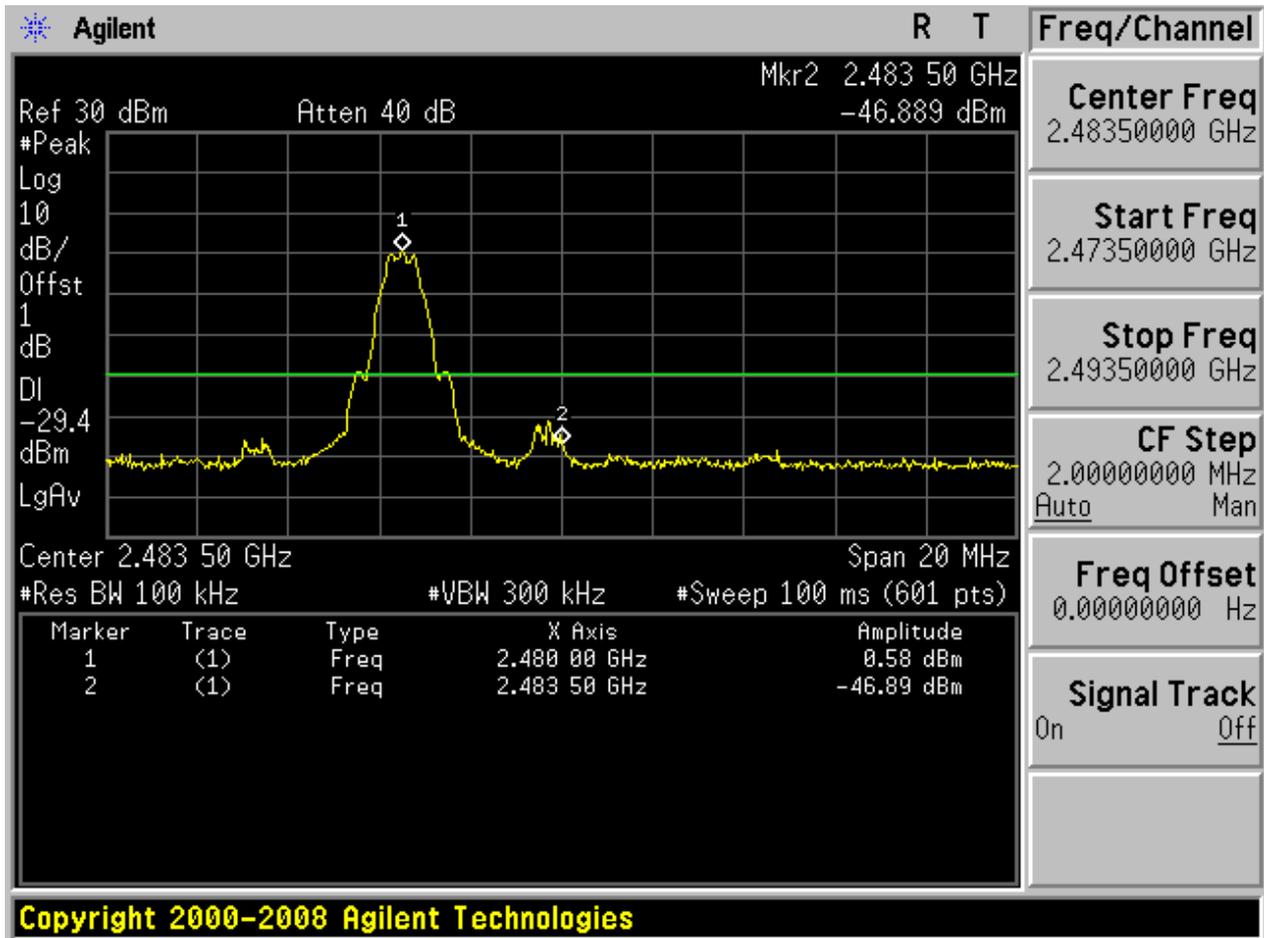
Test Mode	Test Channel	Frequency[MHz]	Ant	Carrier Power[dBm]	Max.Spurious Level[dBm]	Verdict
BT4.0	L	2402	Ant 1	-0.67	-53.57	pass
BT4.0	H	2480	Ant 1	0.57	-46.89	pass

Part II - Test Plots

2.1 BLE_L@Ant 1



2.3 BLE_H@Ant 1





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" 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]-30[dBm], see test plots for detailed".

Part I - Test Results

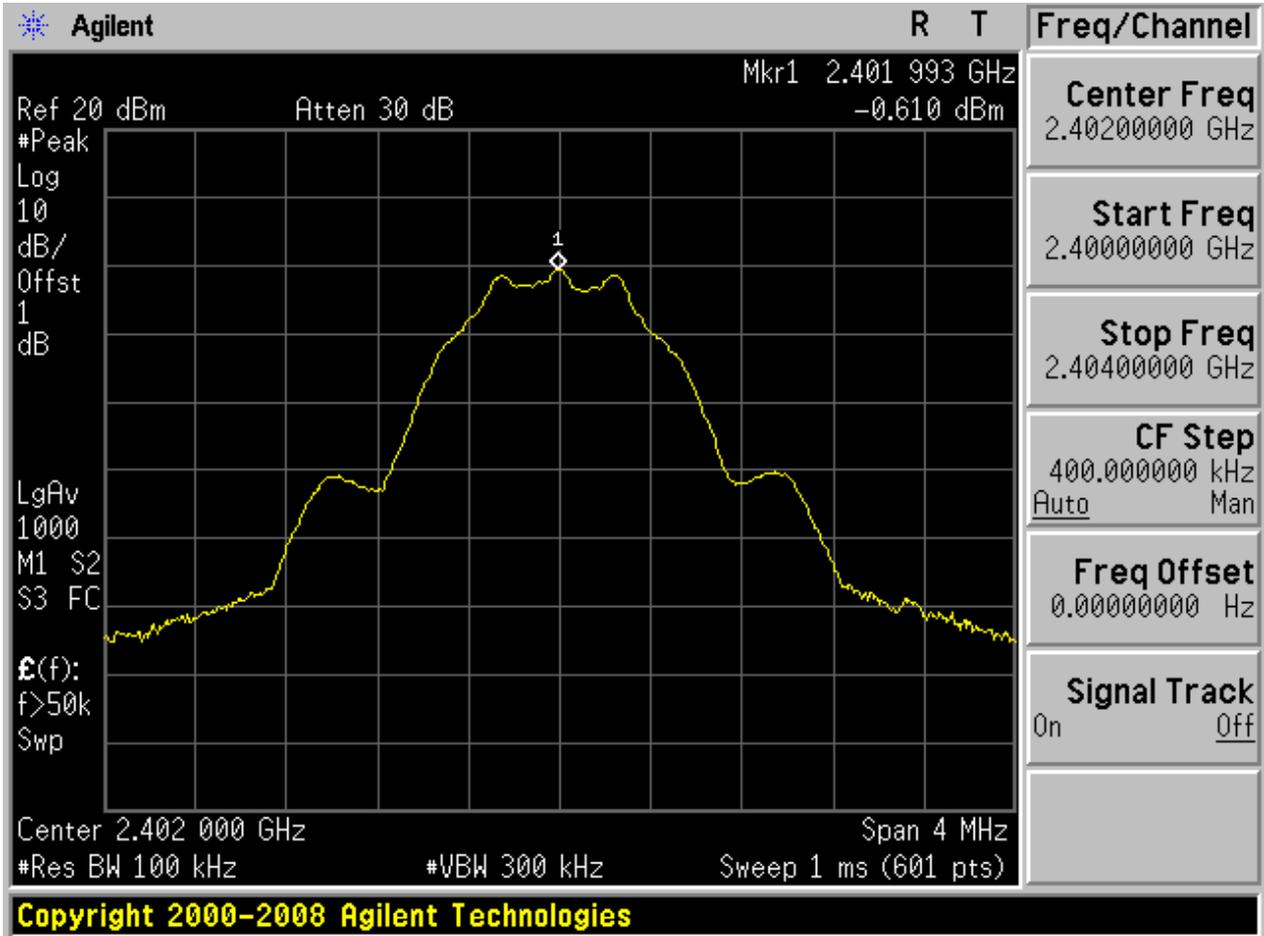
Test Mode	Test Channel	Frequency[MHz]	Ant	Pref[dBm]	Puw[dBm]	Verdict
BT4.0	L	2402	Ant 1	-.61	<limit	pass
BT4.0	M	2440	Ant 1	2.55	<limit	pass
BT4.0	H	2480	Ant 1	.62	<limit	pass



Part II - Test Plots

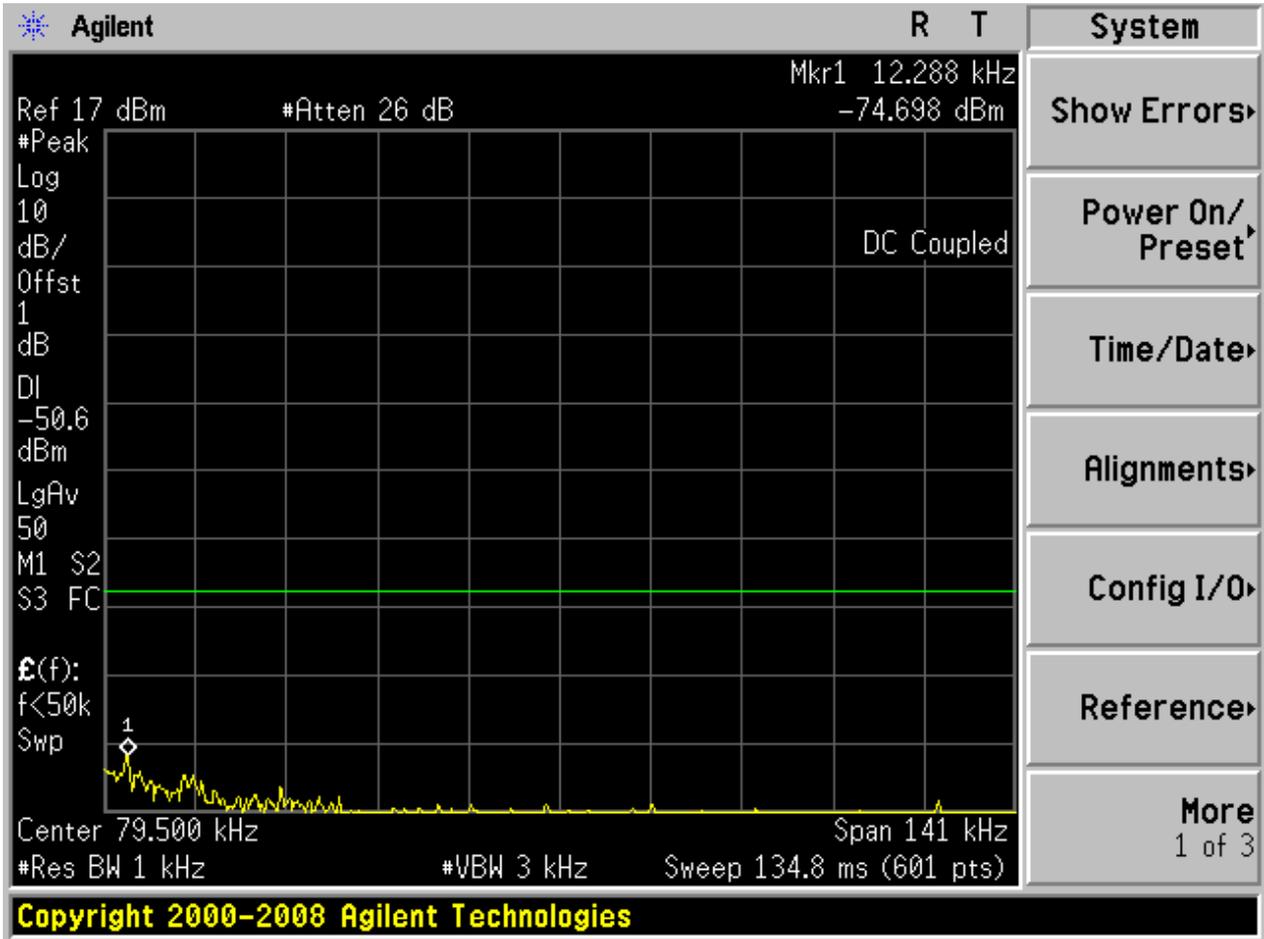
2.1 BLE_L@Ant 1

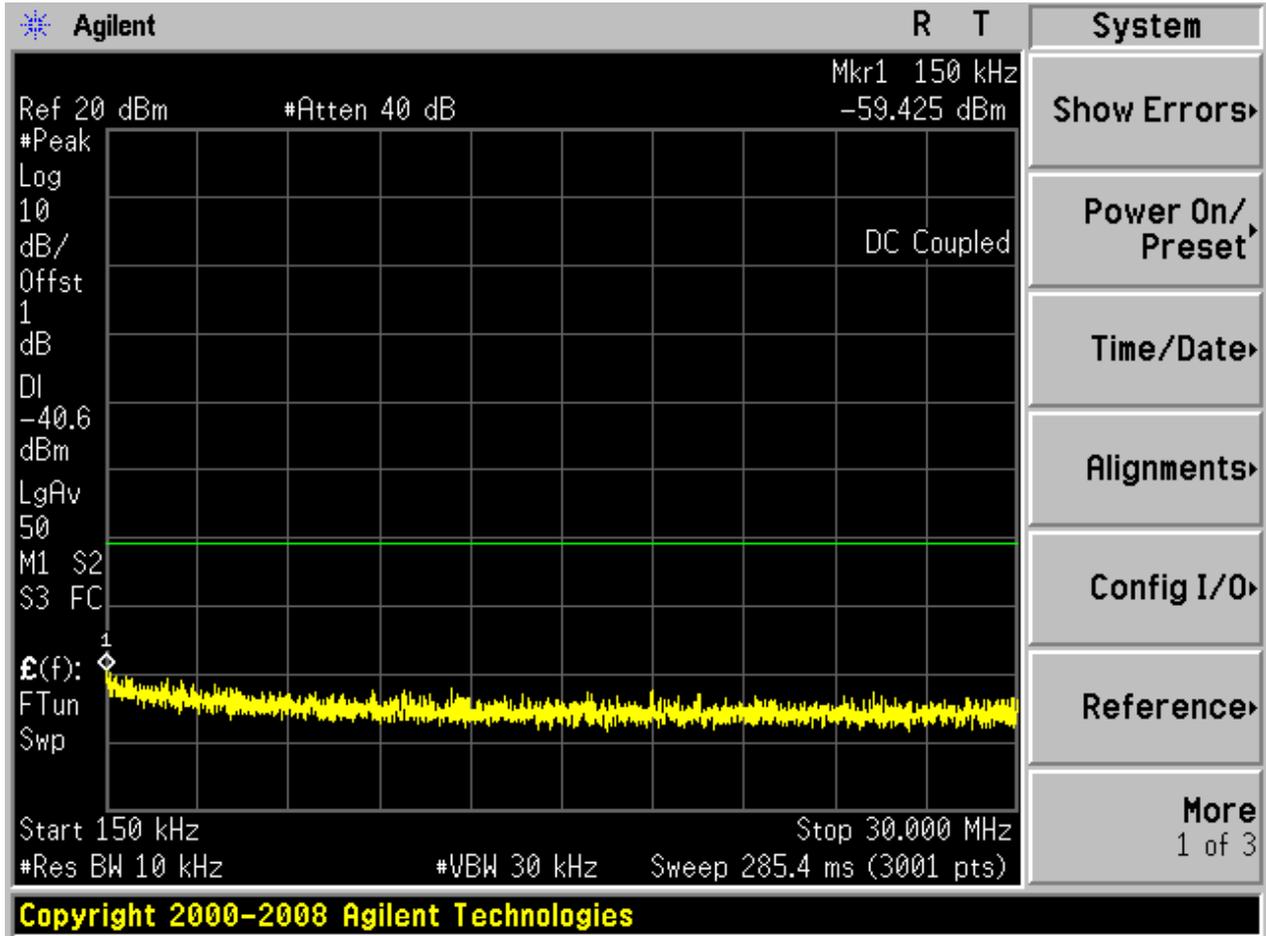
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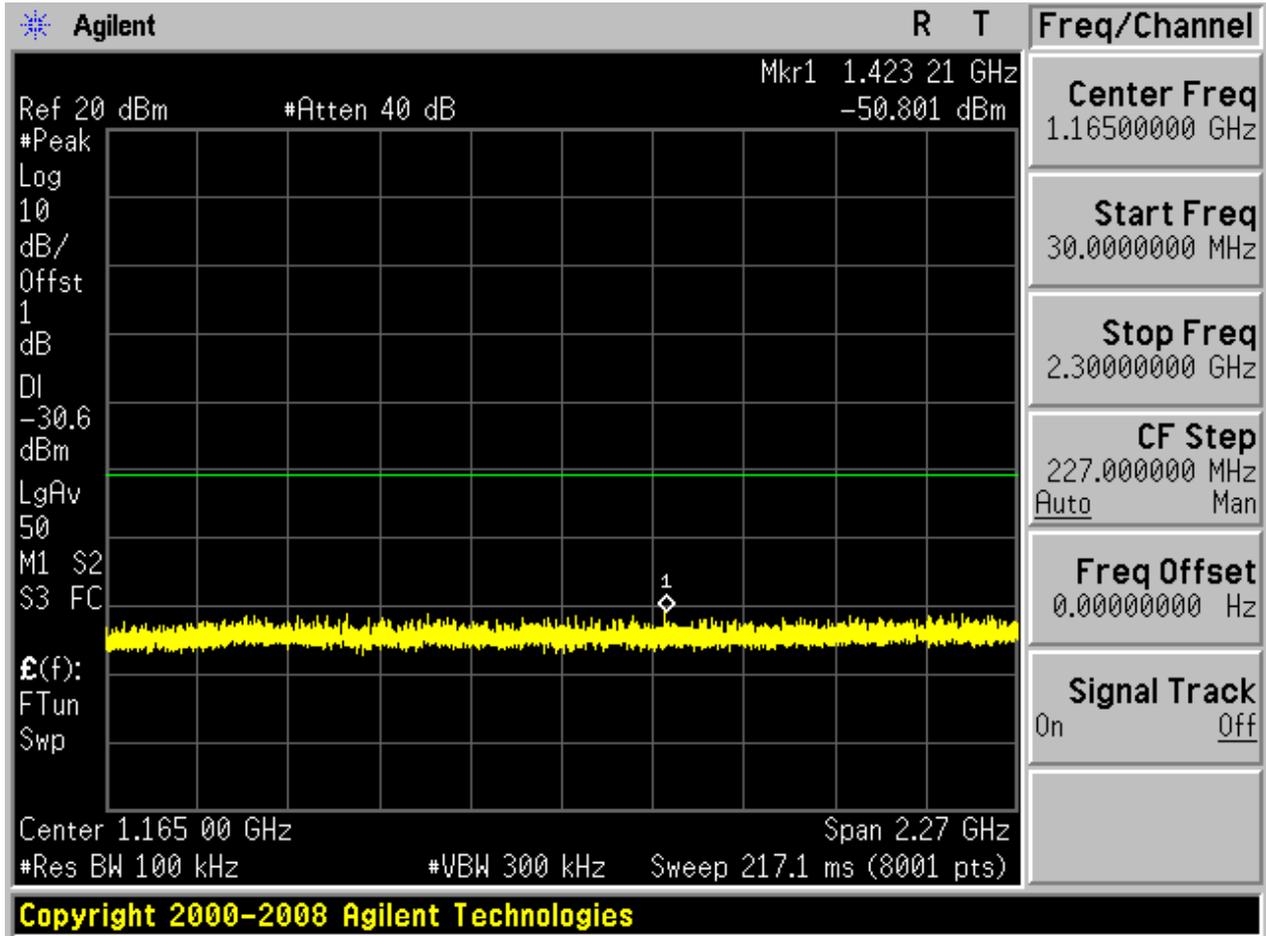


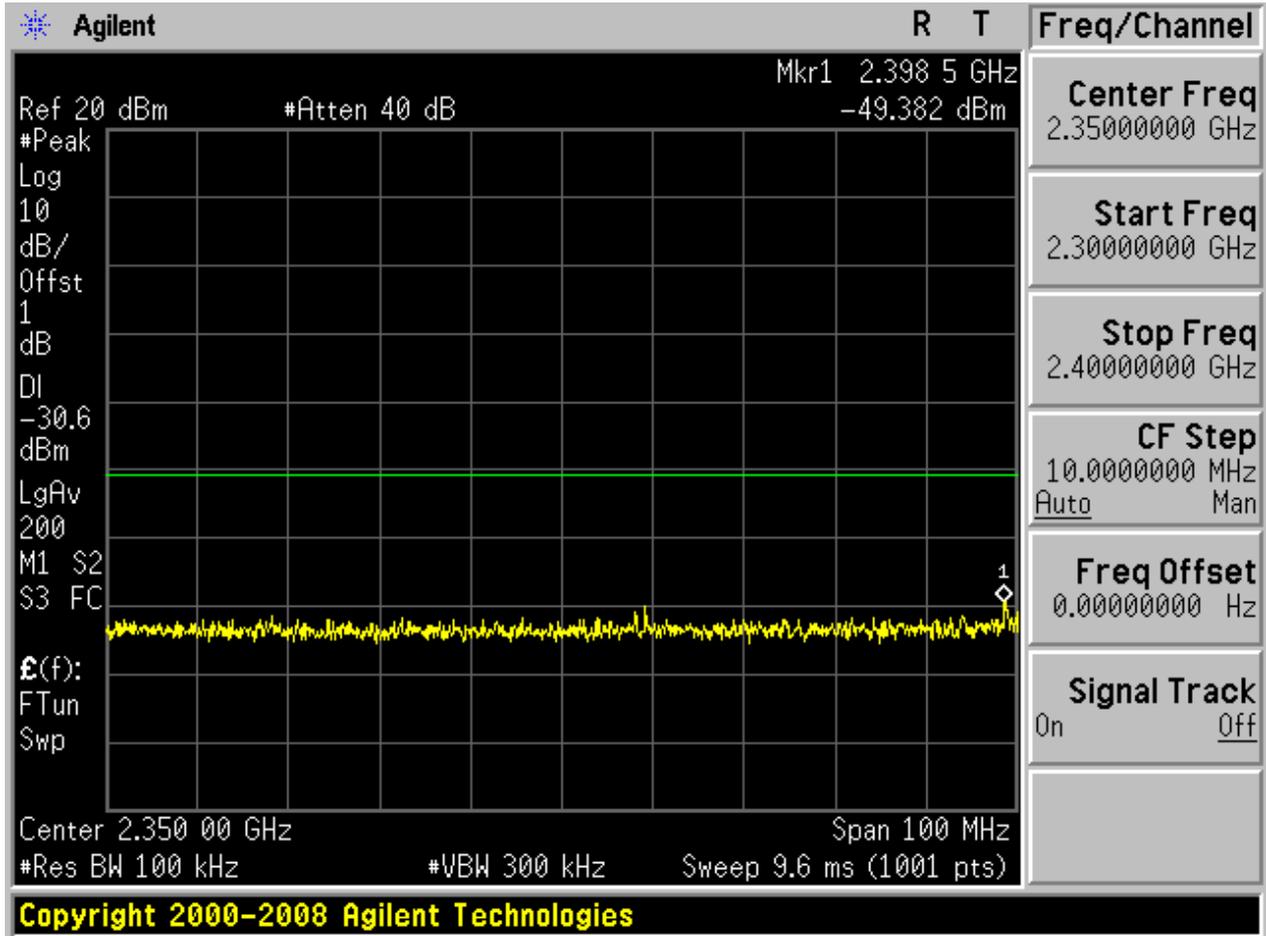


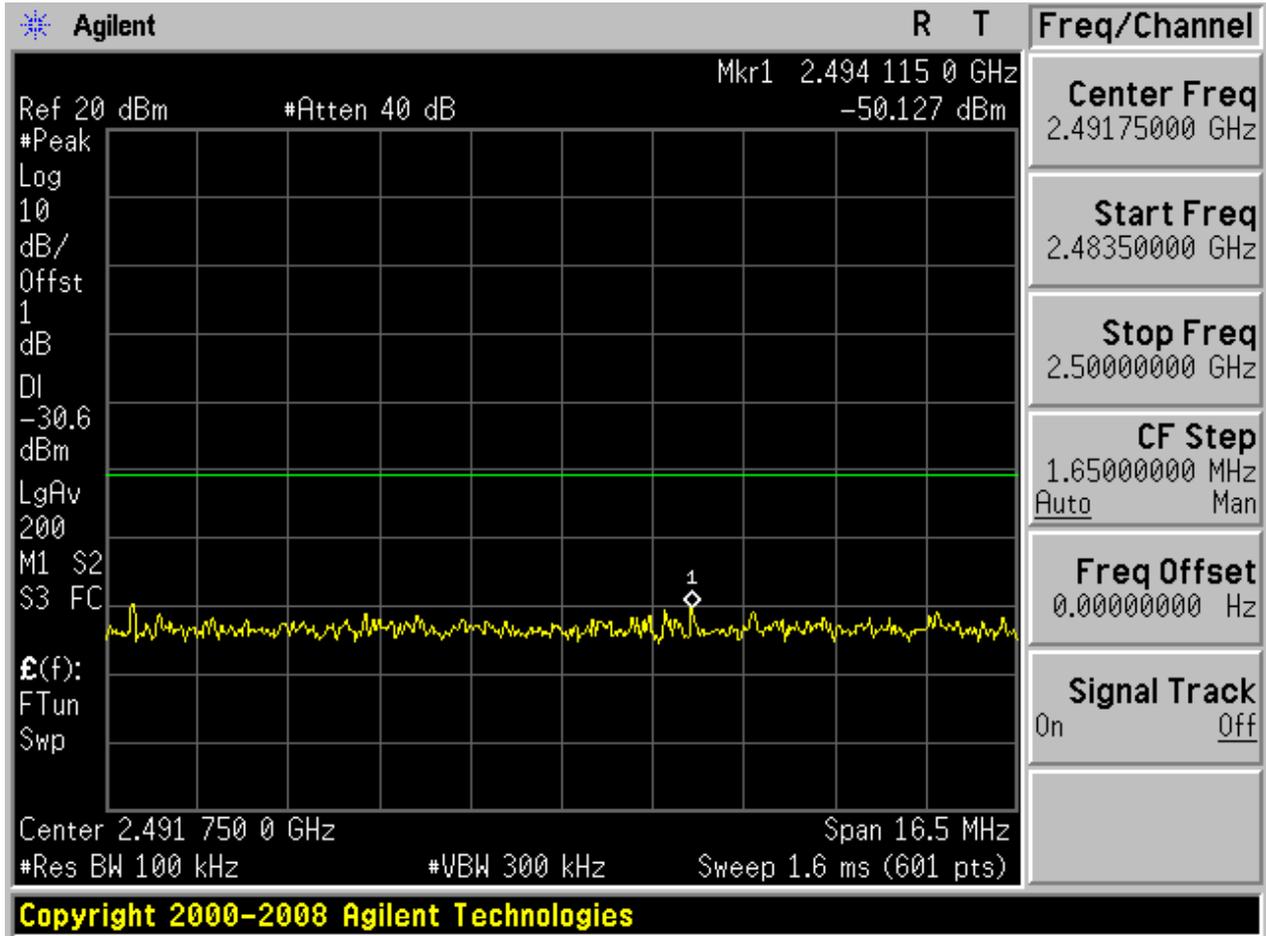
Puw:

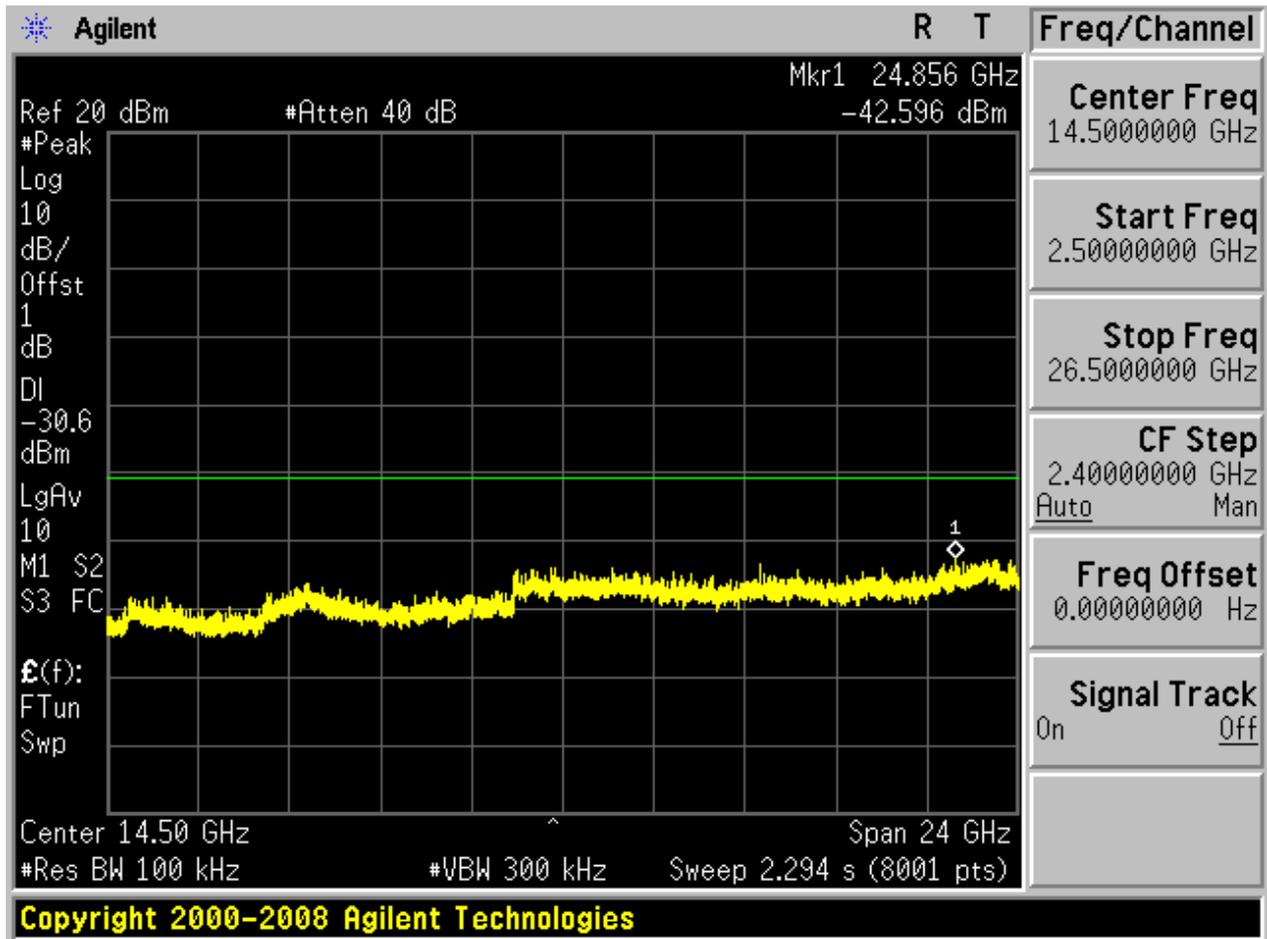








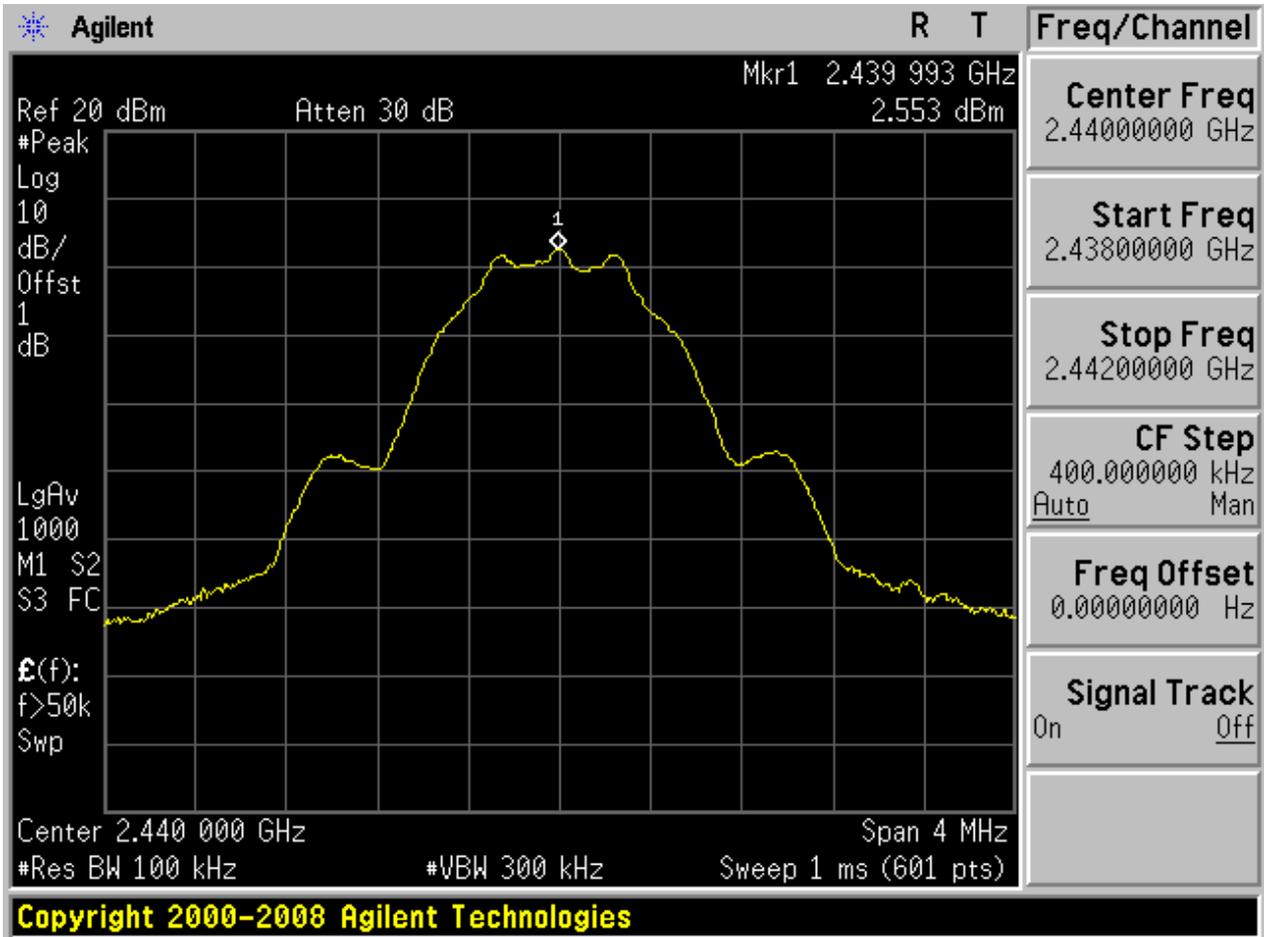






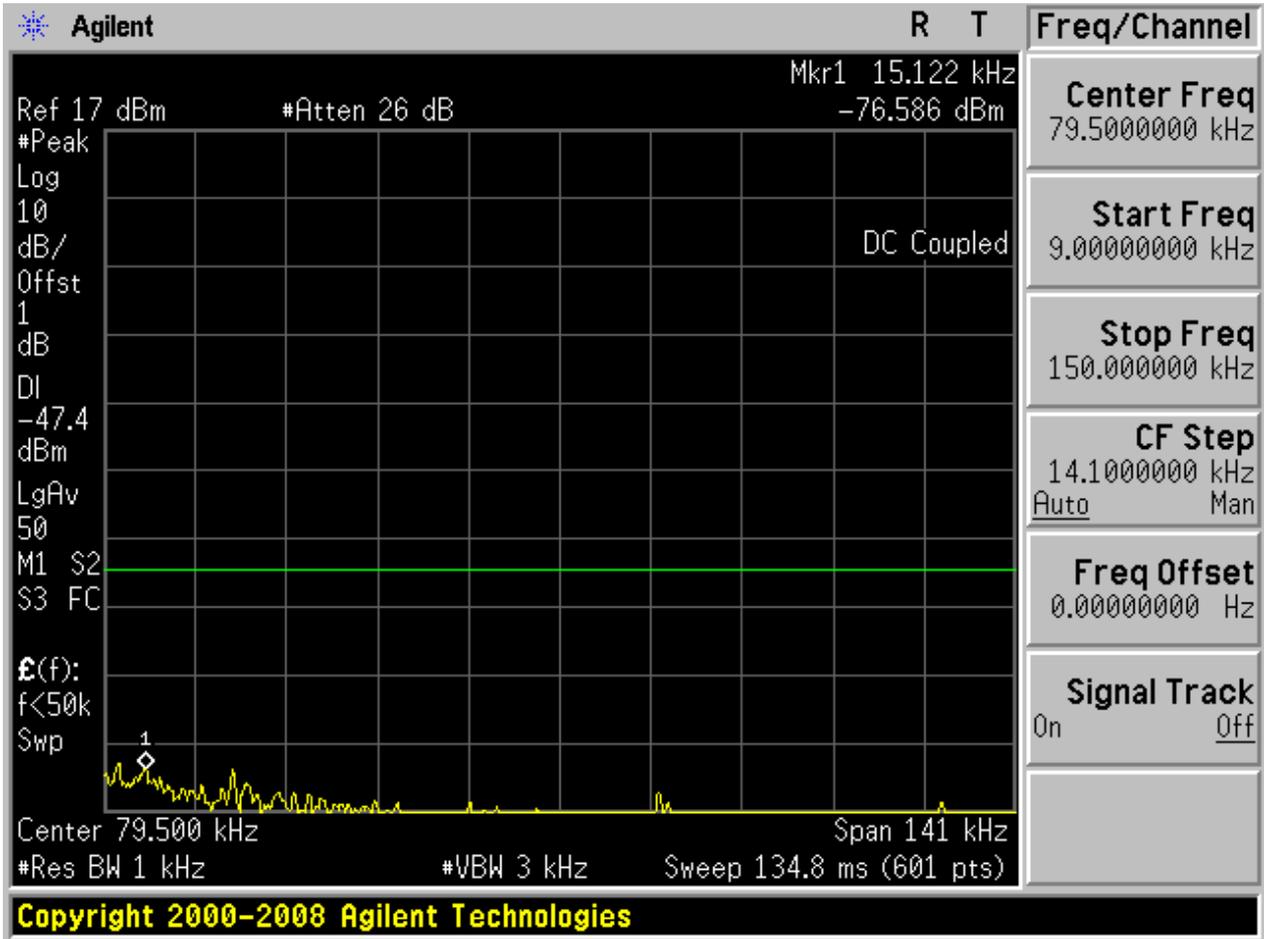
2.3 BLE_M@Ant 1

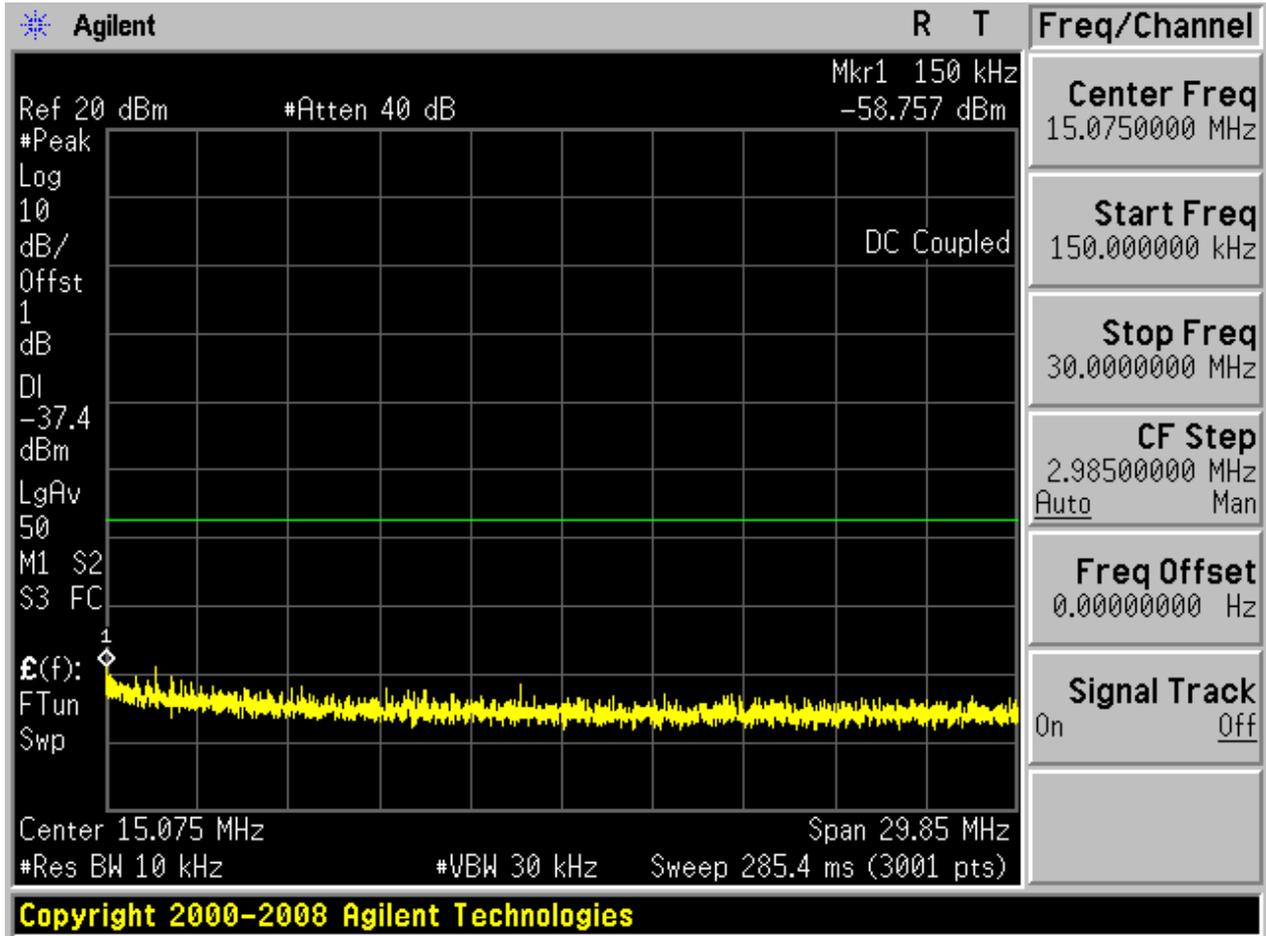
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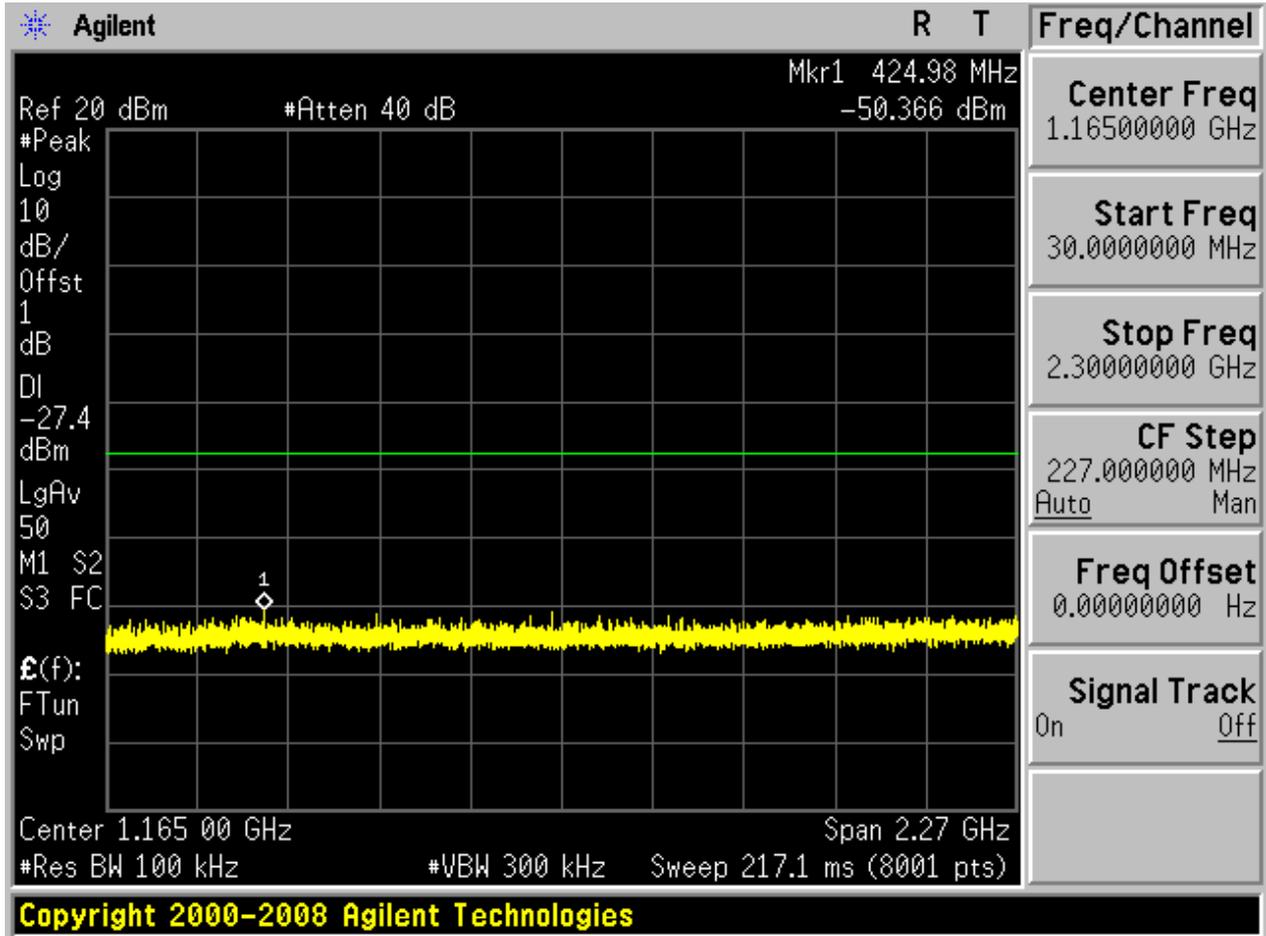


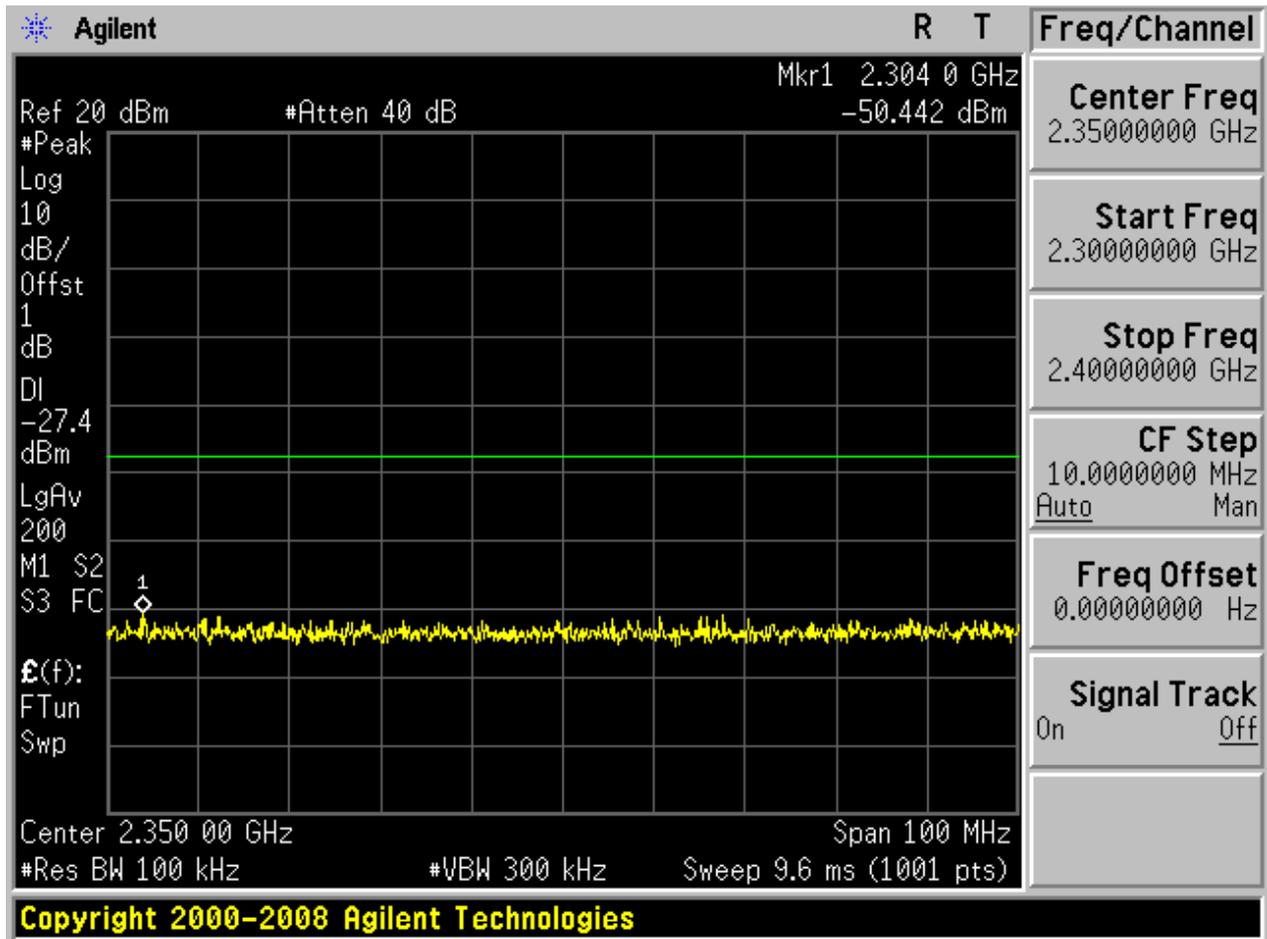


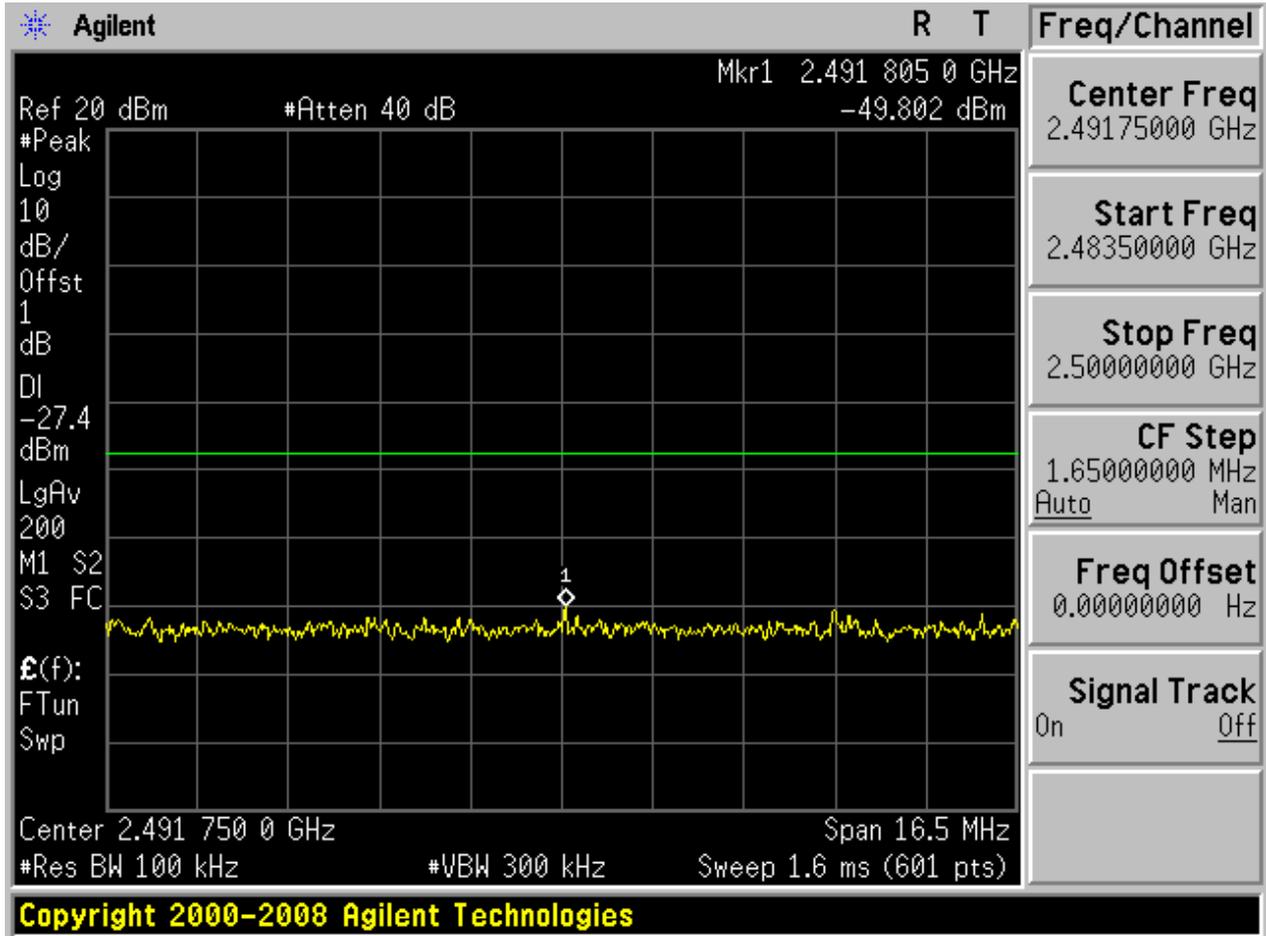
Puw:

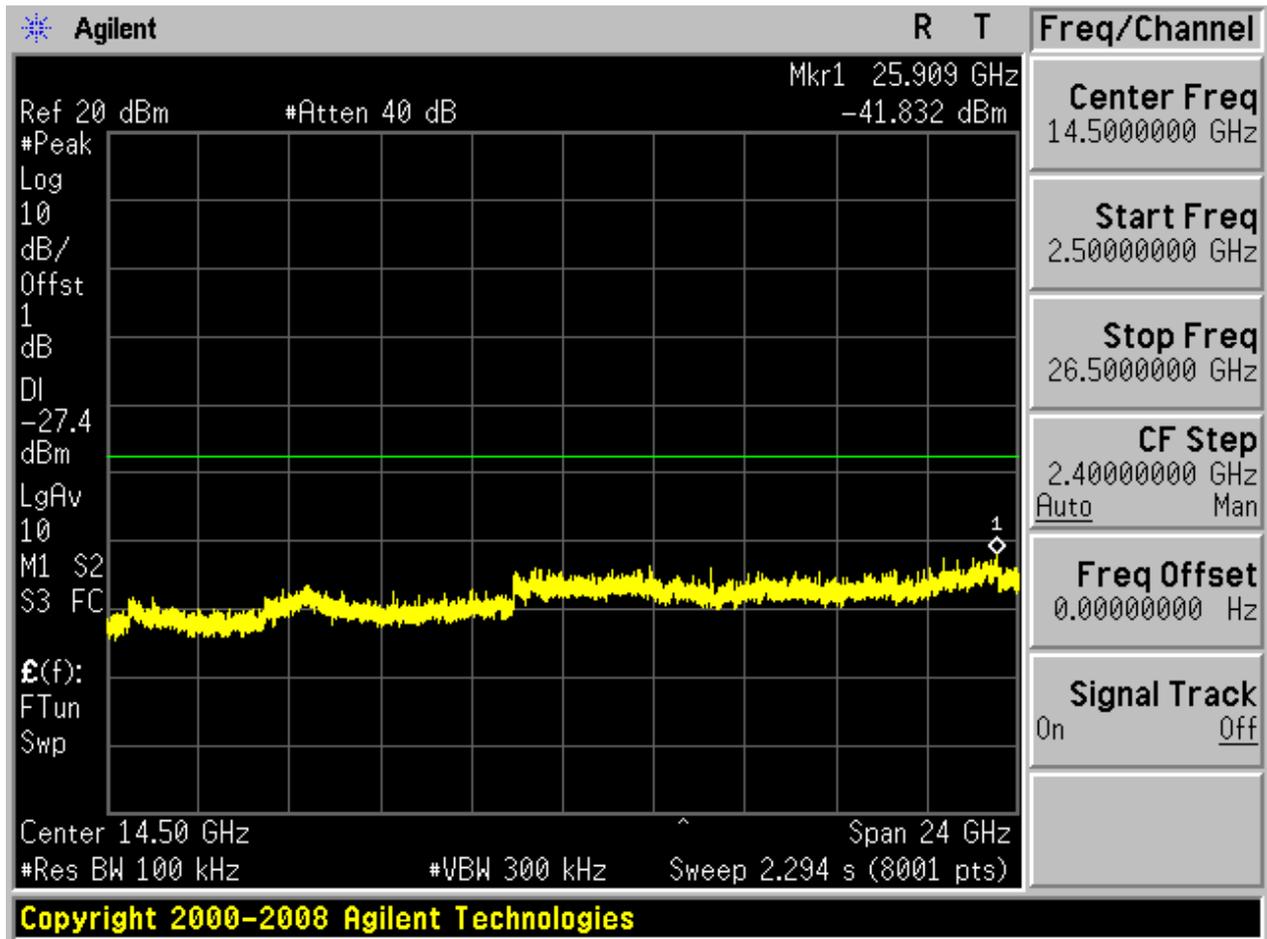








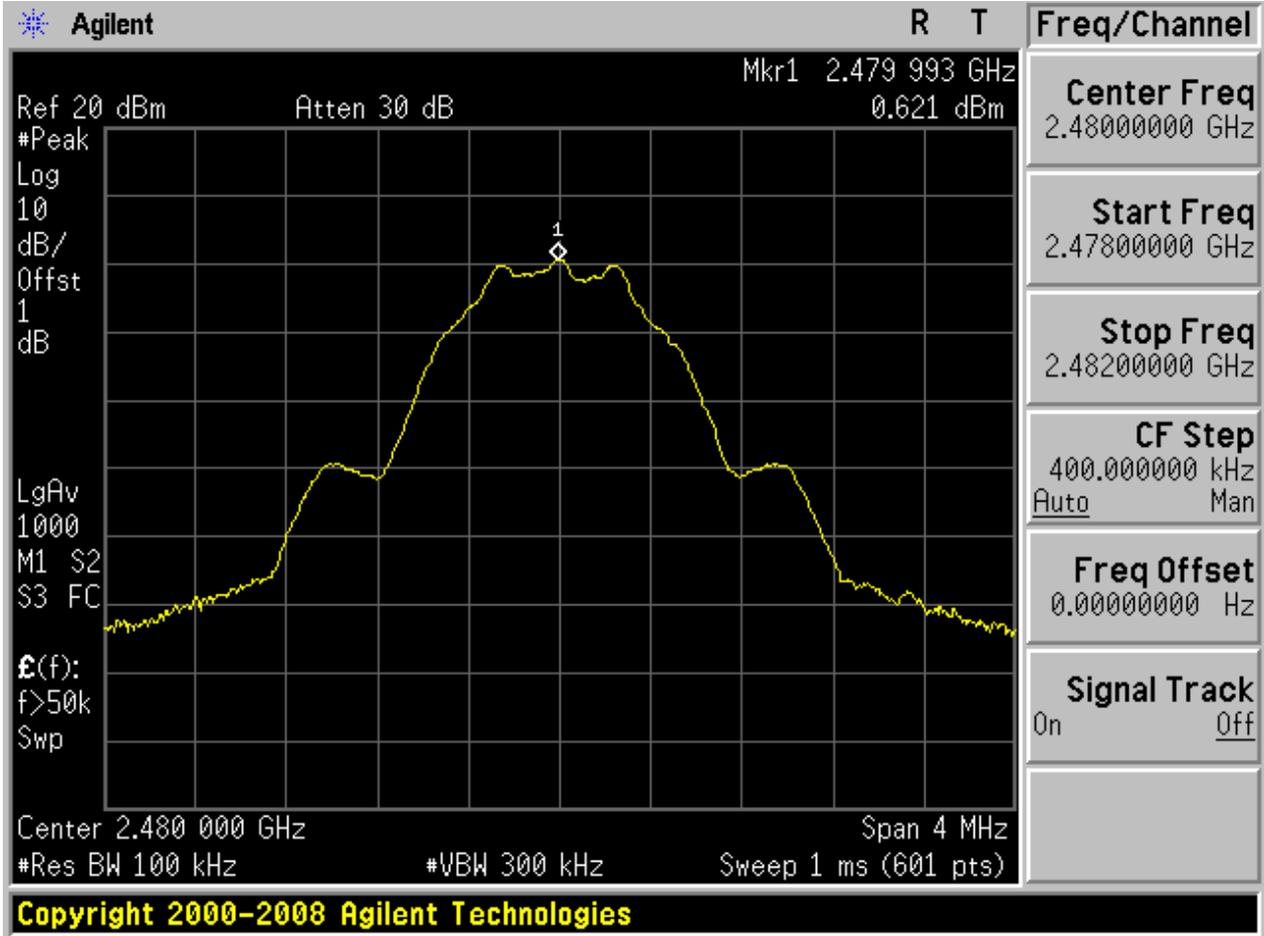






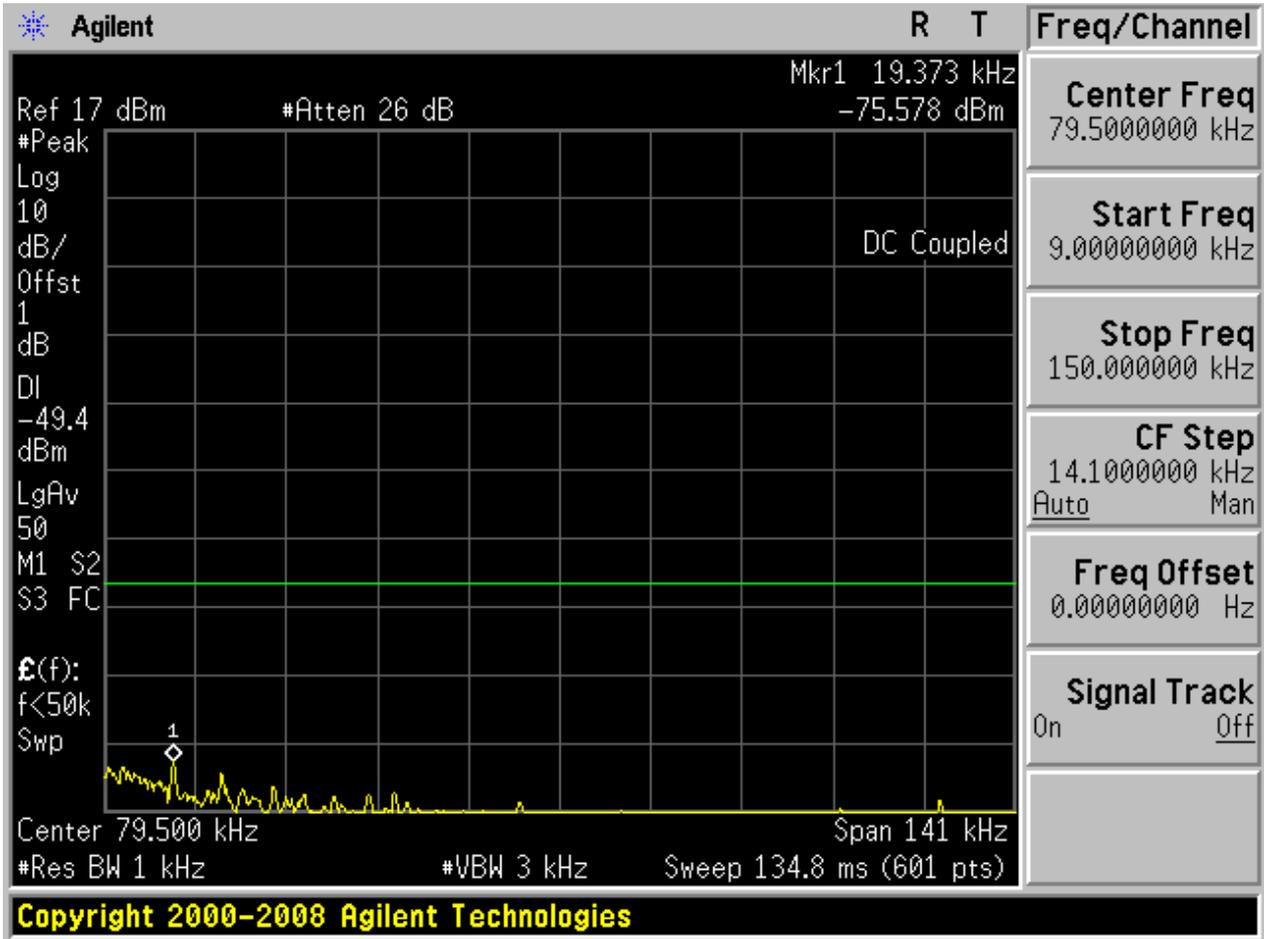
2.5 BLE_H@Ant 1

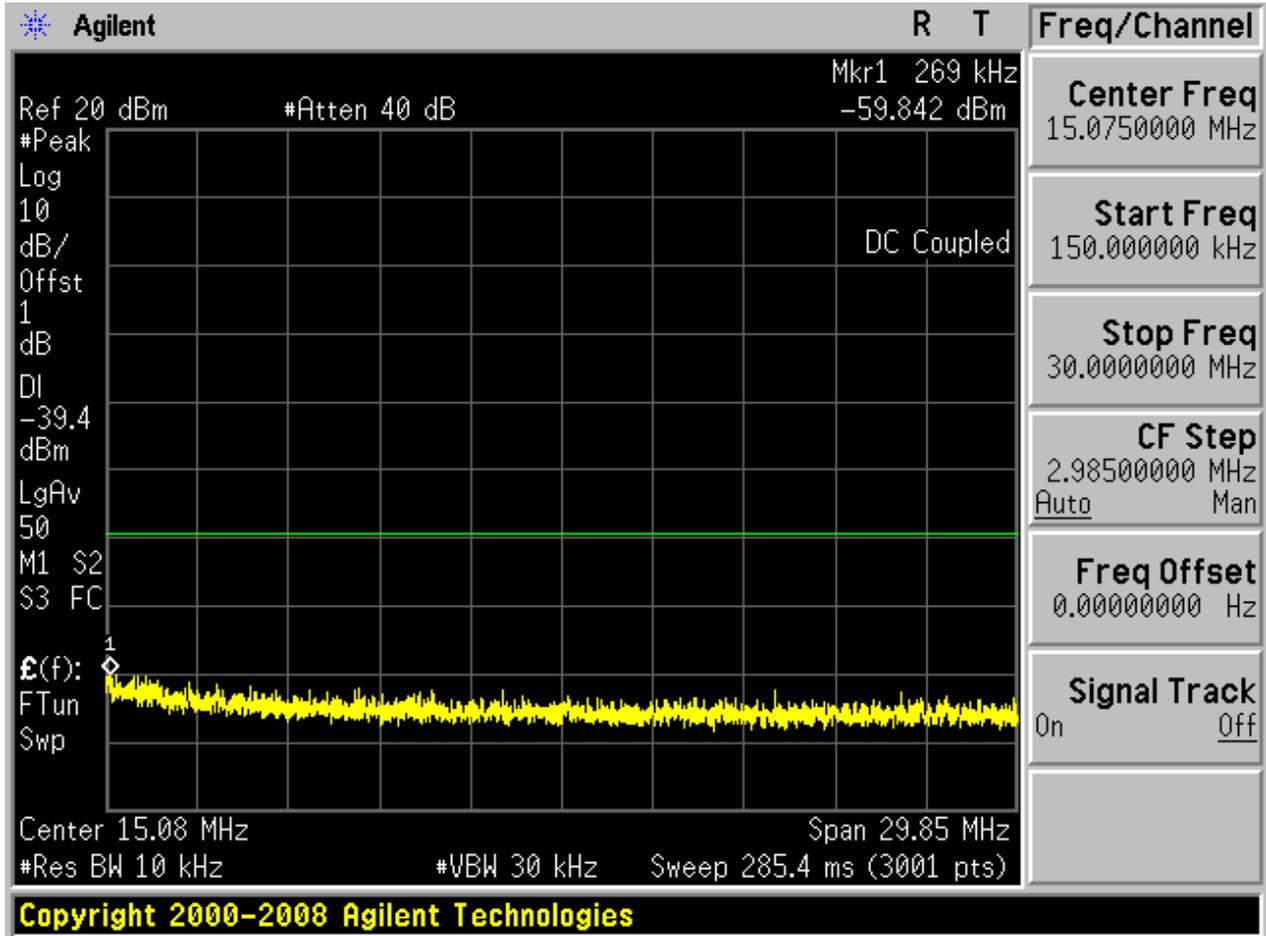
Pref:

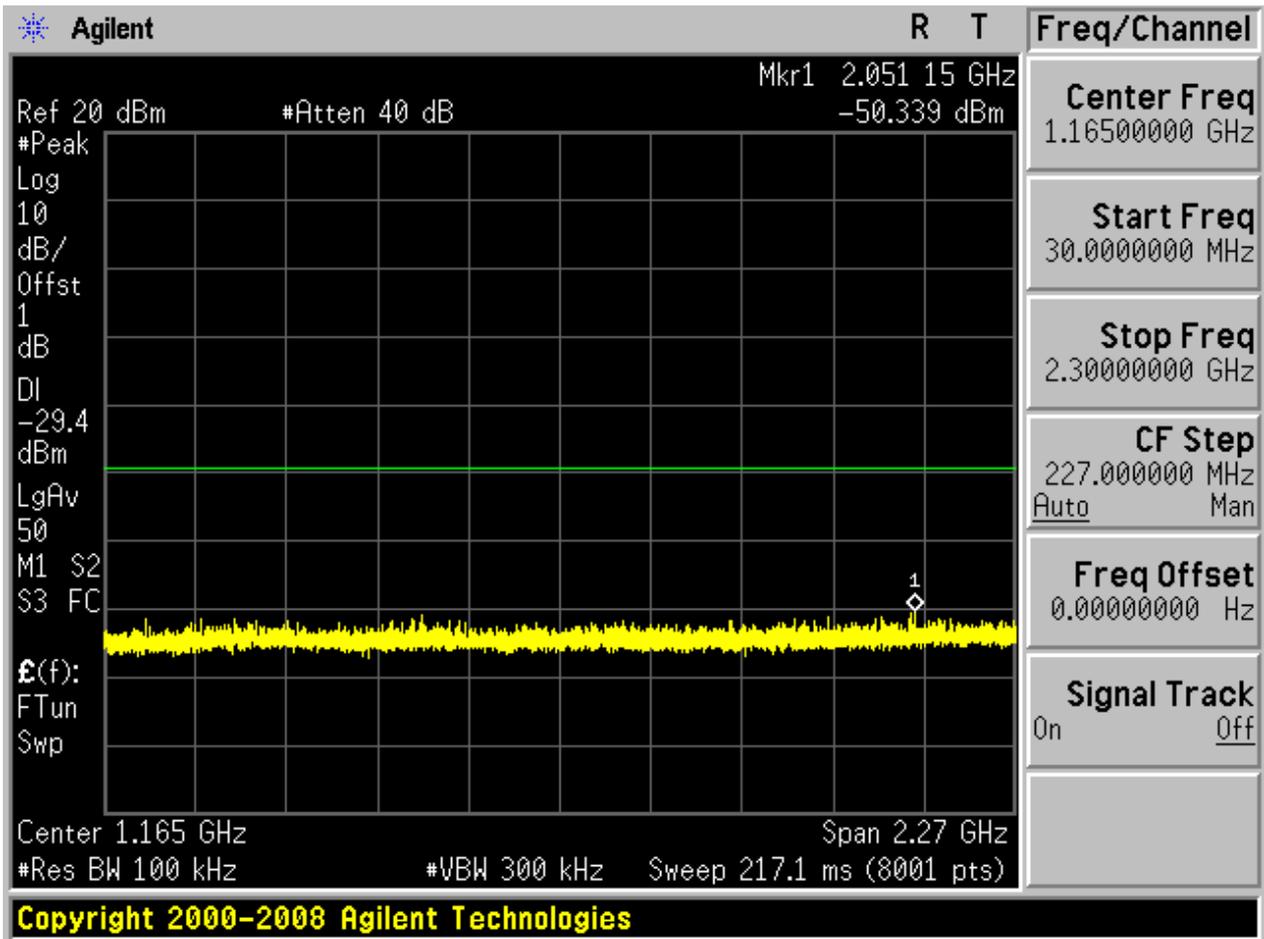


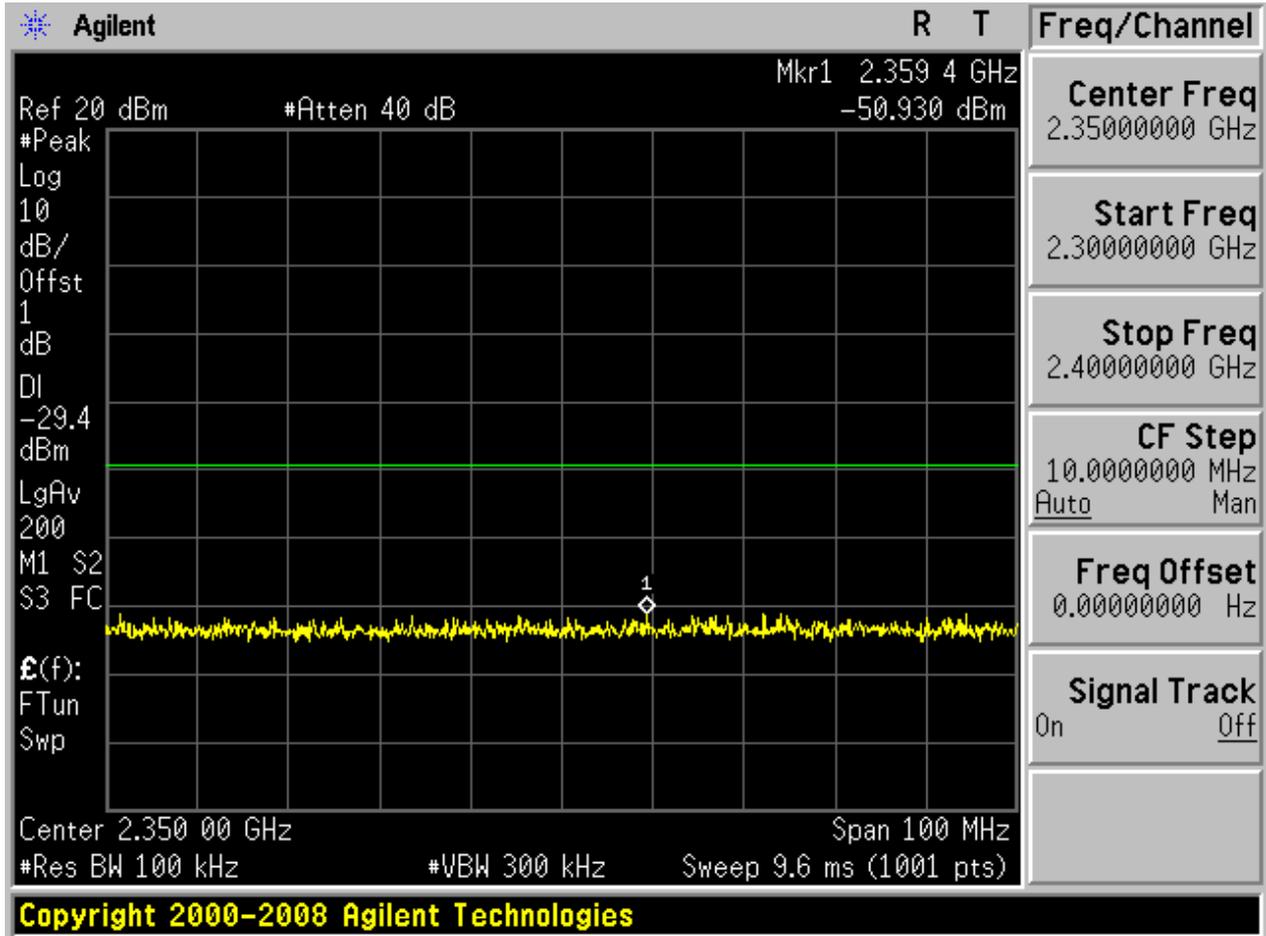


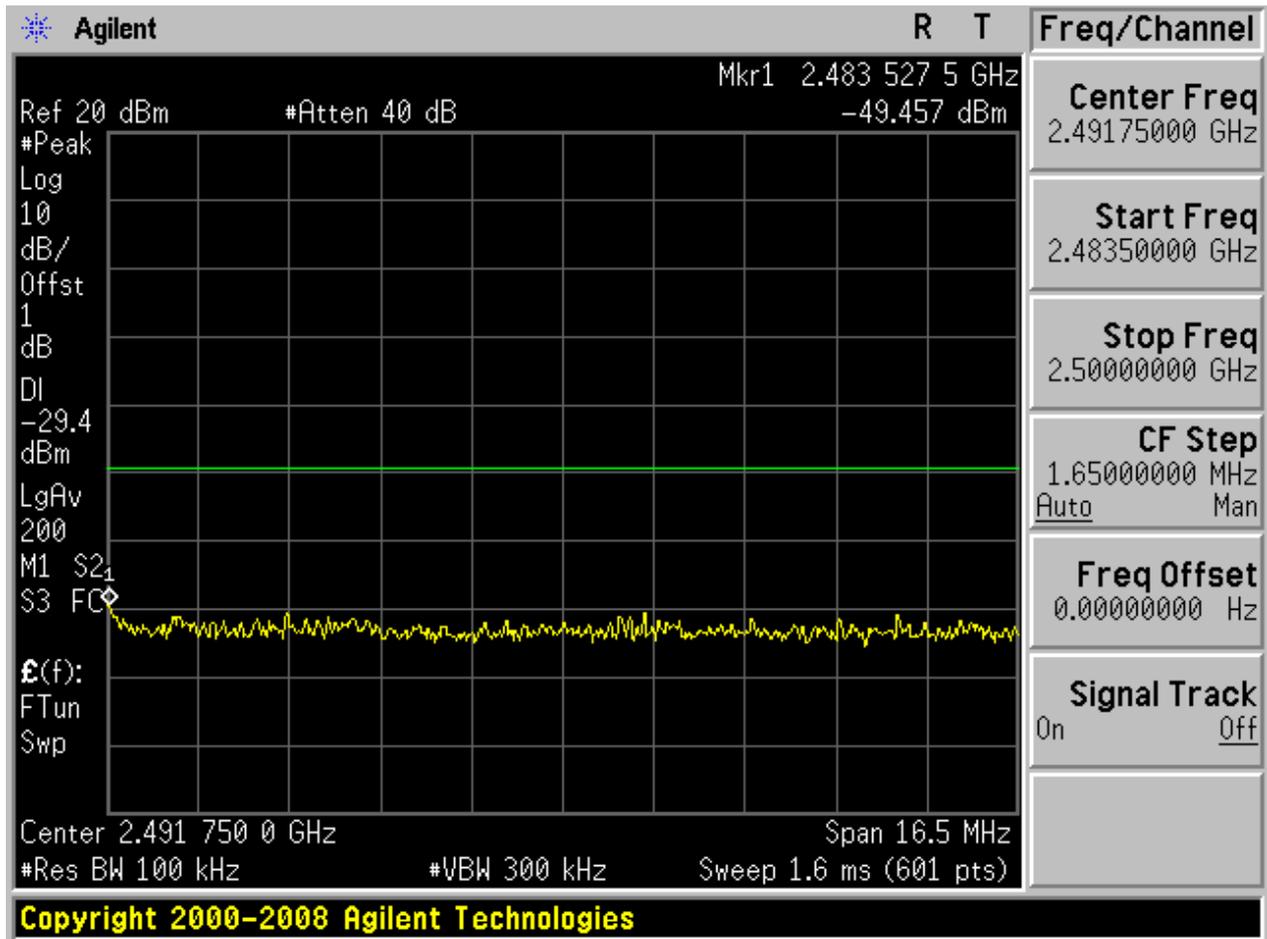
Puw:

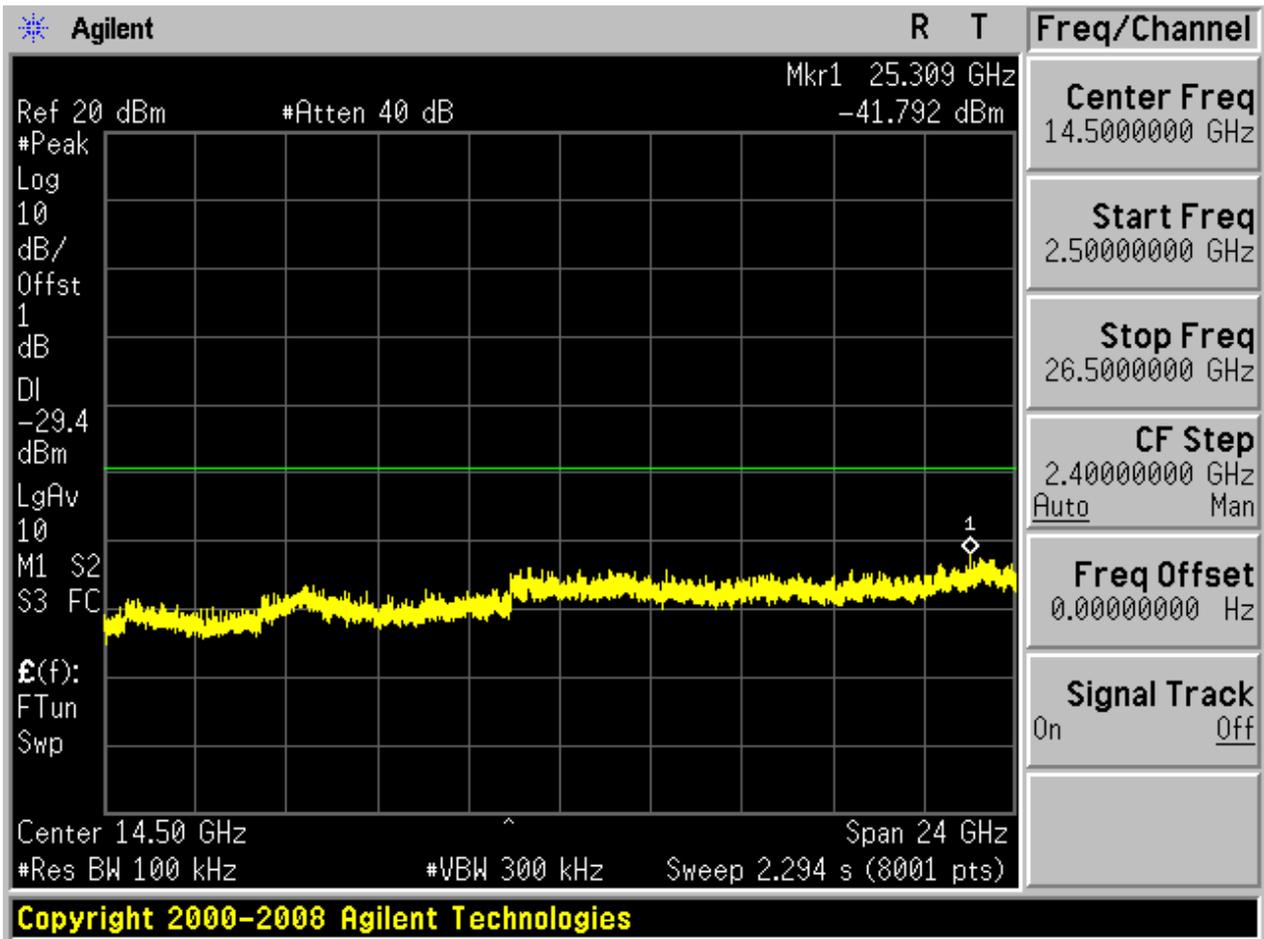














Appendix H: Radiated Spurious Emission & Spurious in Restricted Band

Note: We tested all modes, but the data presented below is the worst case. Below

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



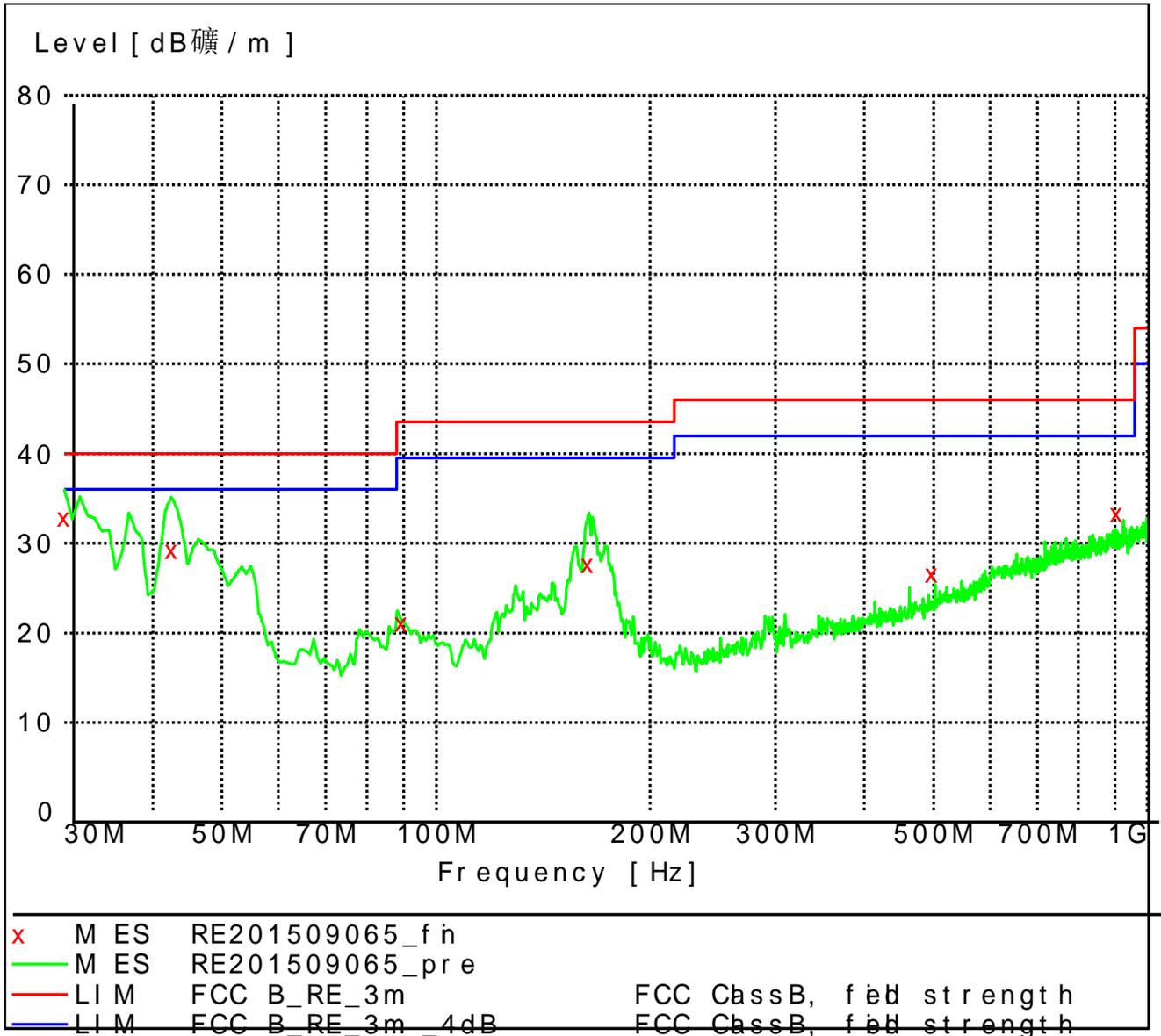
Part 1: Testing Range of “9 kHz to 30MHz”

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

Part 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).



Frequency	Level	Transd	Limit	Margin Det.	Height	Azimuth	Polarization	
MHz	dB μ V/m	dB	dB μ V/m	dB	cm	deg		
30.000000	32.80	14.8	40.0	7.2	QP	100.0	125.00	VERTICAL
42.596000	29.20	15.2	40.0	10.8	QP	100.0	306.00	VERTICAL
89.576000	21.10	11.9	43.5	22.4	QP	127.0	356.00	VERTICAL
163.412000	27.70	10.2	43.5	15.8	QP	100.0	344.00	VERTICAL
498.580000	26.60	19.2	46.0	19.4	QP	300.0	218.00	VERTICAL
906.880000	33.30	25.1	46.0	12.7	QP	100.0	91.00	VERTICAL



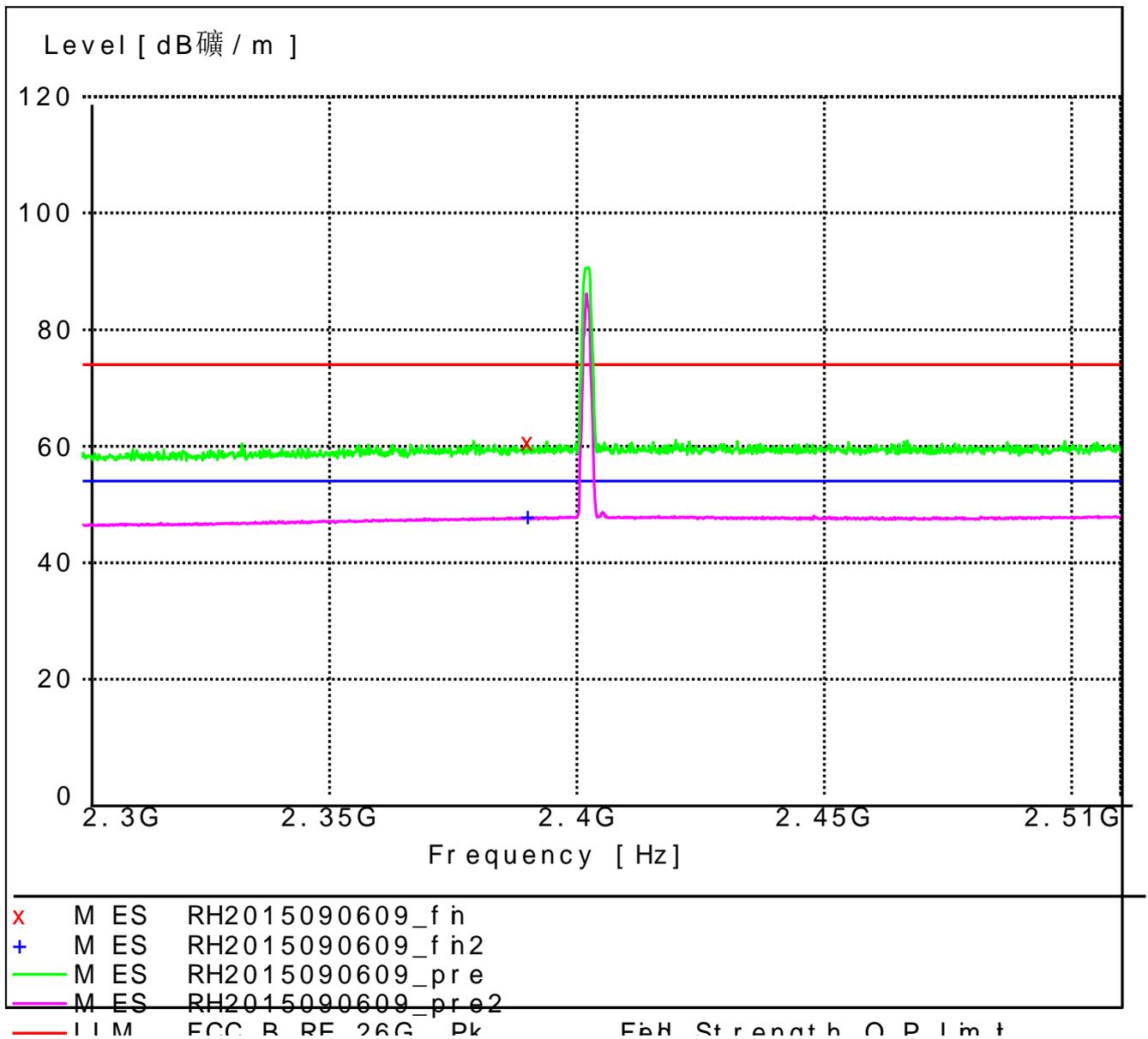
Part 3: Testing Range of “18 GHz to 26.5 GHz”

NOTE1: No peak found in the Test Range of “18 GHz to 26.5GHz”

Part 4: Testing Range of “2.3GHz to 2.5GHz”

- Note 1: The testing range of “2.3 GHz to 2.5 GHz” is for checking radiated emissions located in restricted bands near the EUT operating bands.
- Note 2: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 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

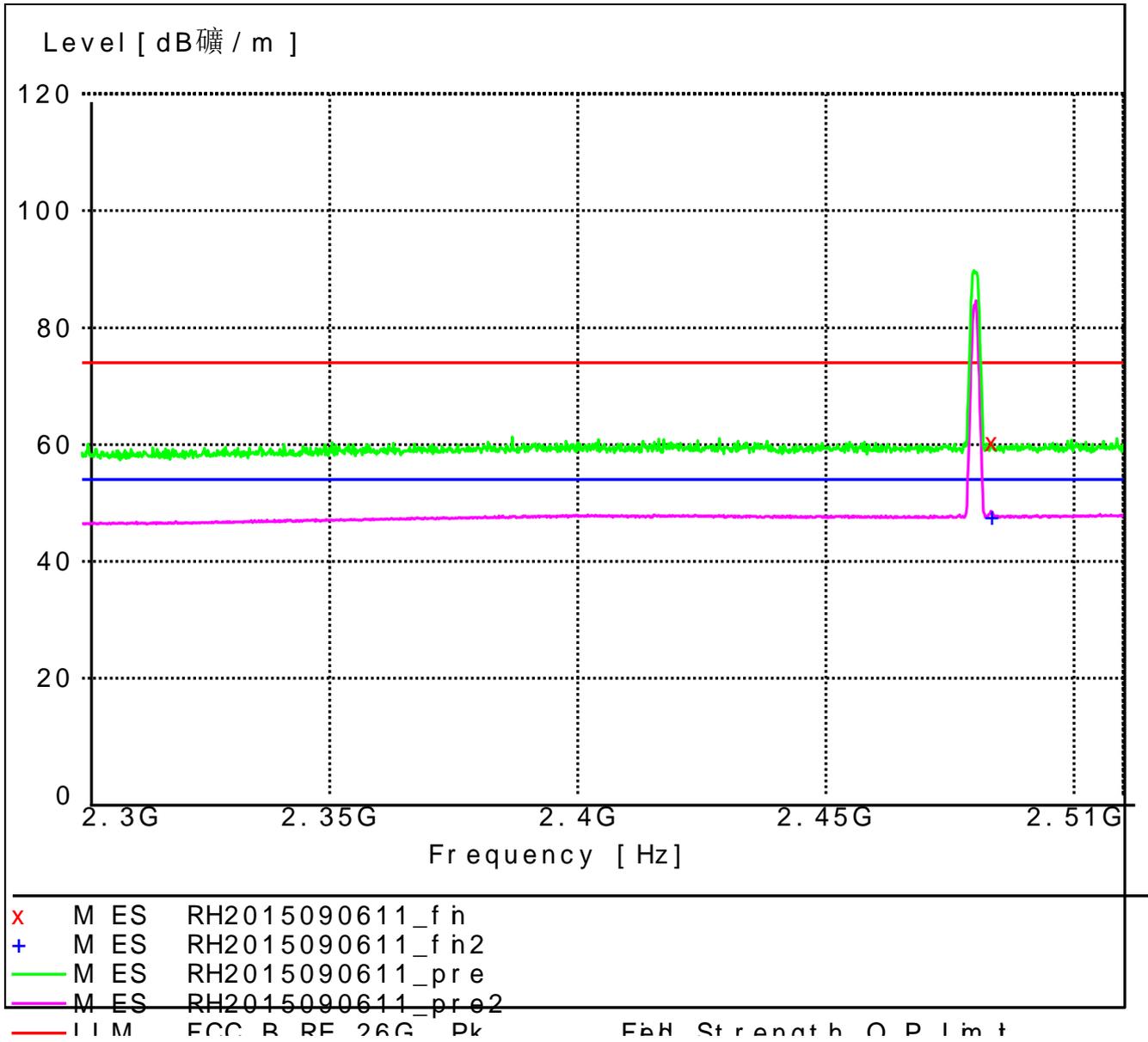


Note: The peak exceeds the limit line is carrier frequency.



No.MK.	Frequency	Level	Transd	Limit	Margin Det.	Height	Azimuth	Polarization	
	MHz	dB μ V/m	dB	dB μ V/m	dB	cm	deg		
1.	2390.000000	60.70	34.8	74.0	13.3	PK	133.0	136.00	HORIZONTAL
2.	2390.000000	47.90	34.8	54.0	6.1	AV	157.0	0.00	HORIZONTAL

Channel 39



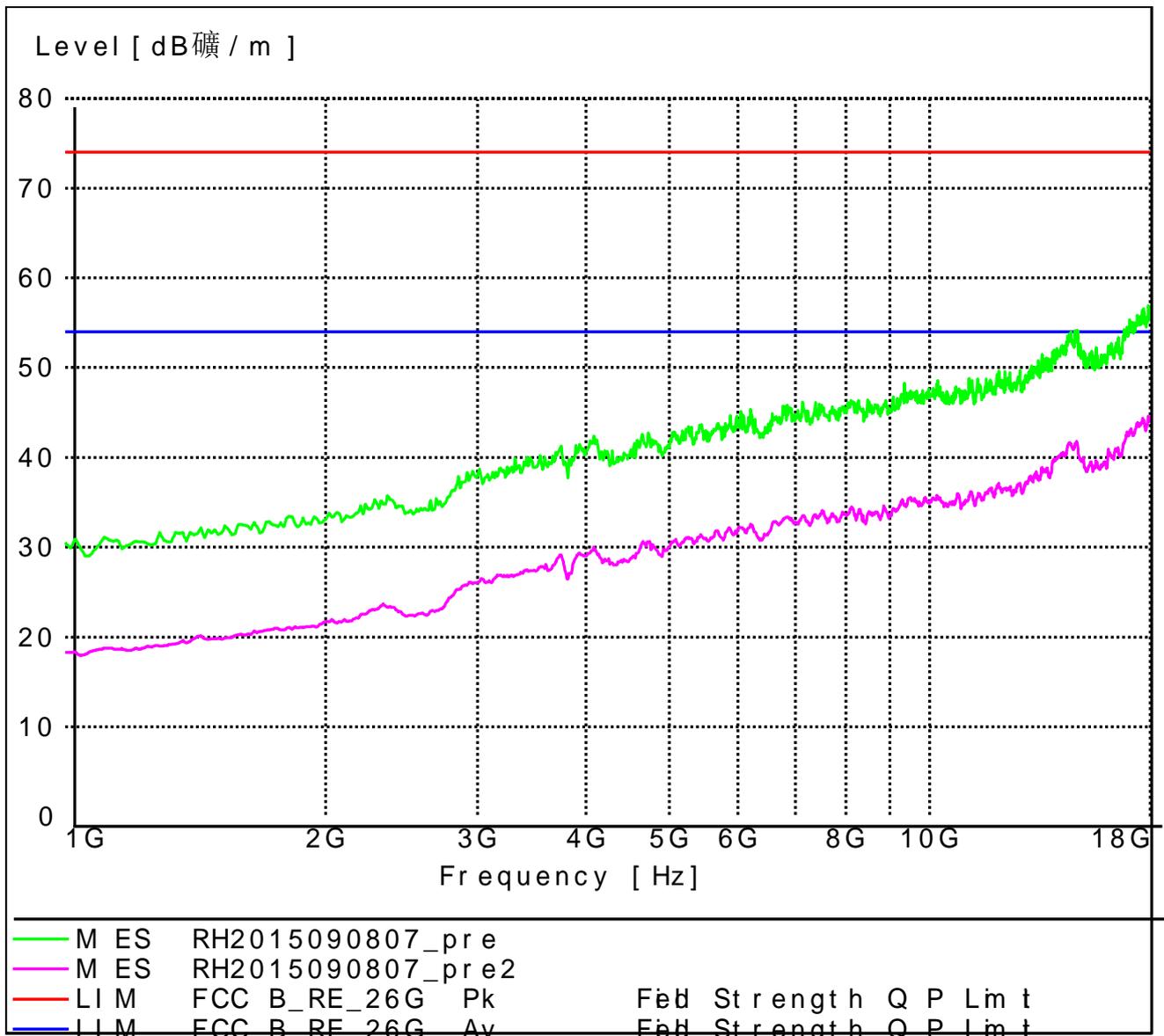
Note: The peak exceeds the limit line is carrier frequency.

No.MK.	Frequency	Level	Transd	Limit	Margin Det.	Height	Azimuth	Polarization	
	MHz	dB μ V/m	dB	dB μ V/m	dB	cm	deg		
1.	2483.500000	60.40	35.1	74.0	13.6	PK	100.0	10.00	VERTICAL
2.	2483.500000	47.70	35.1	54.0	6.3	AV	100.0	12.00	HORIZONTAL



Part 5: Testing Range of “1 GHz to 18 GHz”

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

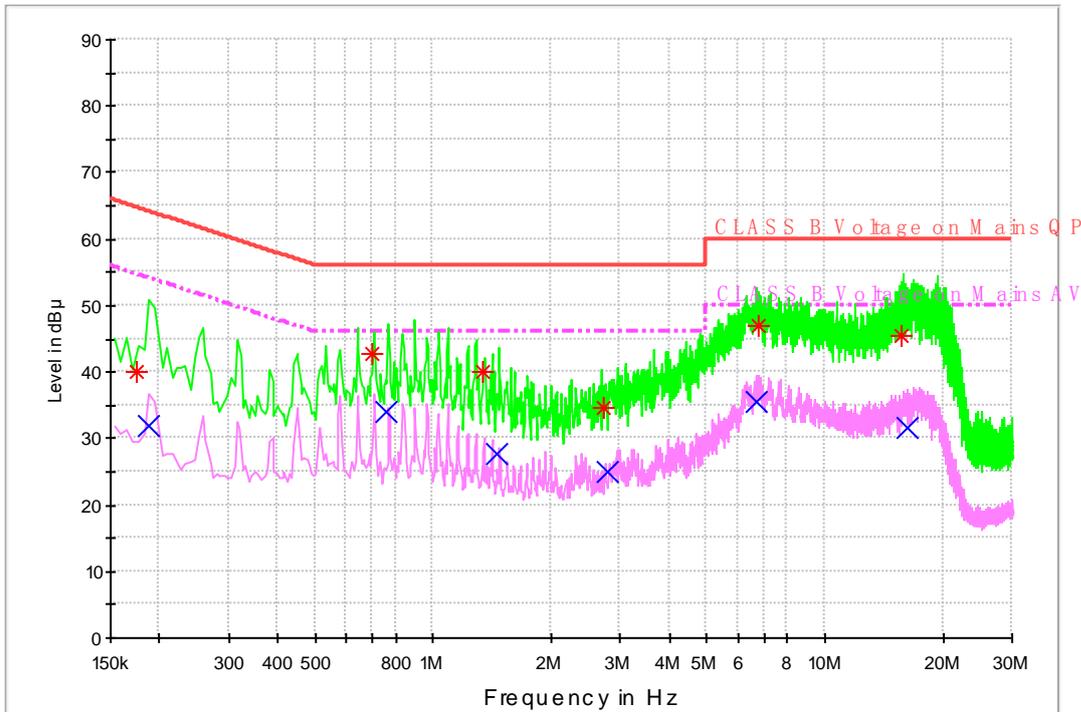


Appendix I: Conducted Emission at Power Port

Note: RBW =9 kHz, VBW = 30 kHz

Channel 39

CLASS B Voltage with ENV216



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Correct Factor dB	Limit dBuV	Margin dB	Line
0.175866	40.1	9.8	64.7	24.6	L1
0.699843	42.7	9.8	56.0	13.3	L1
1.333884	40.0	9.8	56.0	16.0	L1
2.725434	34.5	9.8	56.0	21.5	L1
6.733938	46.8	10.0	60.0	13.2	L1
15.715068	45.5	10.2	60.0	14.5	L1

Final Result 2

Frequency (MHz)	Average (dB μ V)	Correct Factor dB	Limit dB μ V	Margin dB	Line
0.175866	32.0	9.8	54.1	22.1	L1
0.699843	34.0	9.8	46.0	12.0	L1
1.333884	27.7	9.8	46.0	18.3	L1
2.725434	25.0	9.8	46.0	21.0	L1
6.733938	35.6	10.0	50.0	14.4	L1
15.715068	31.5	10.2	50.0	18.5	L1

END