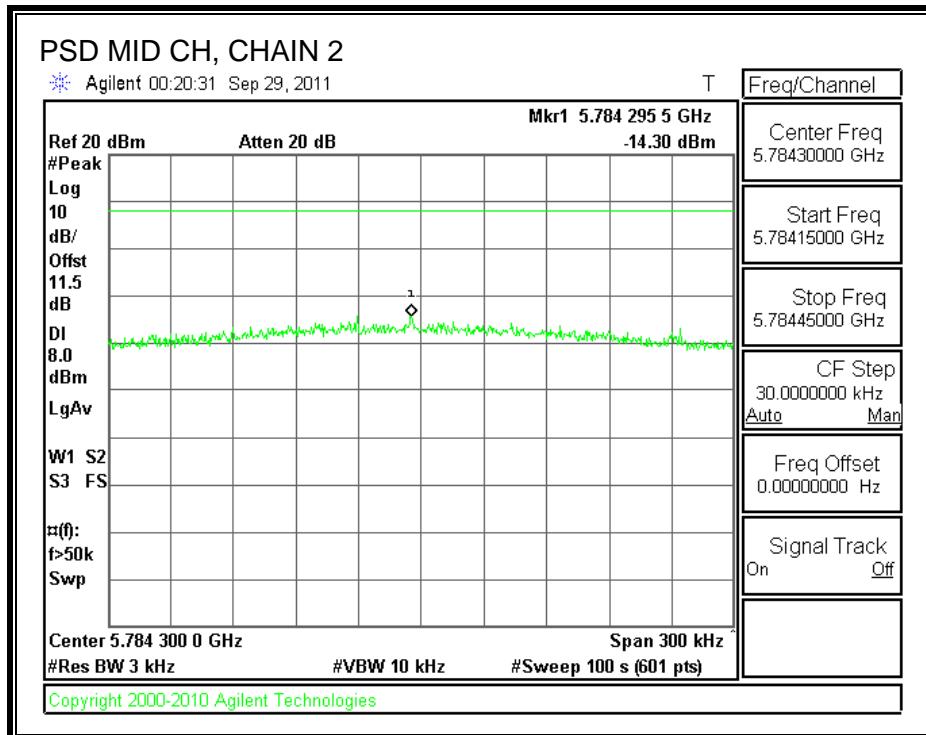
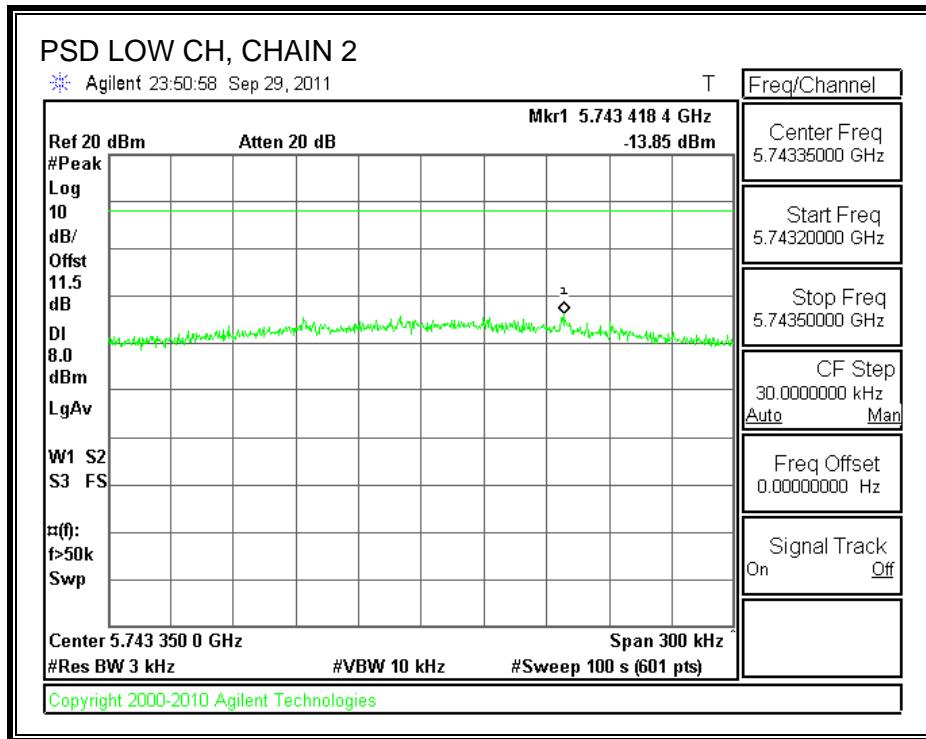
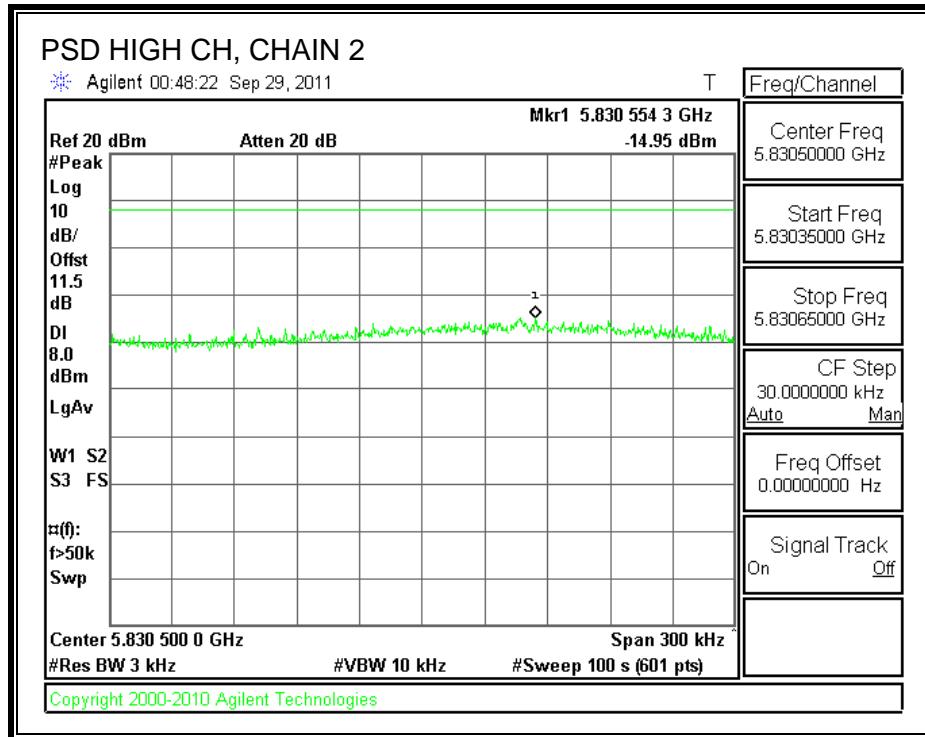
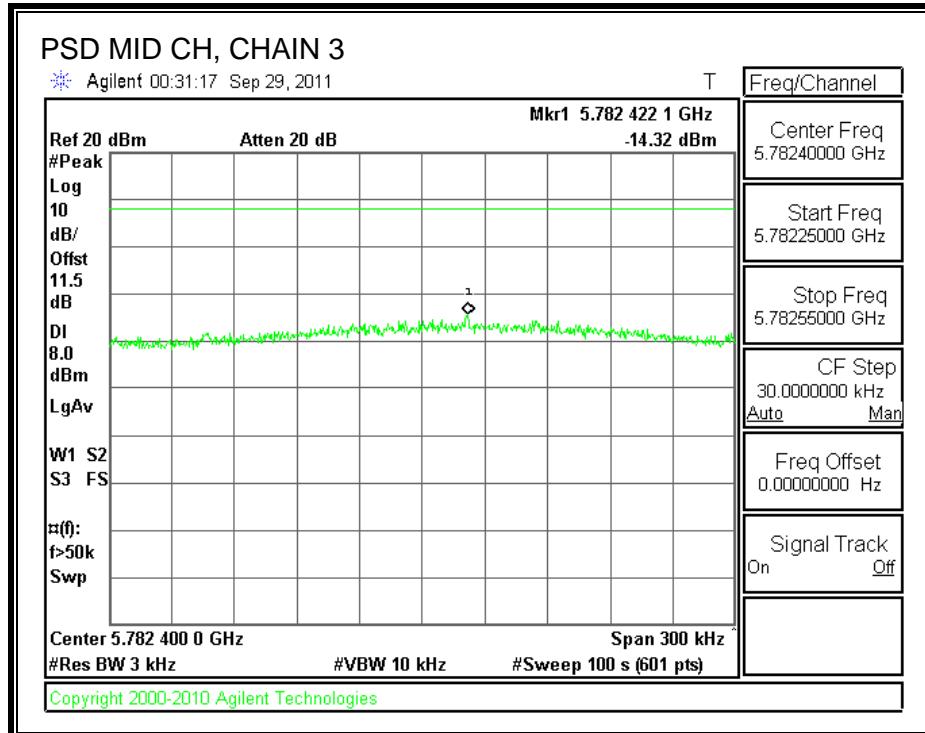
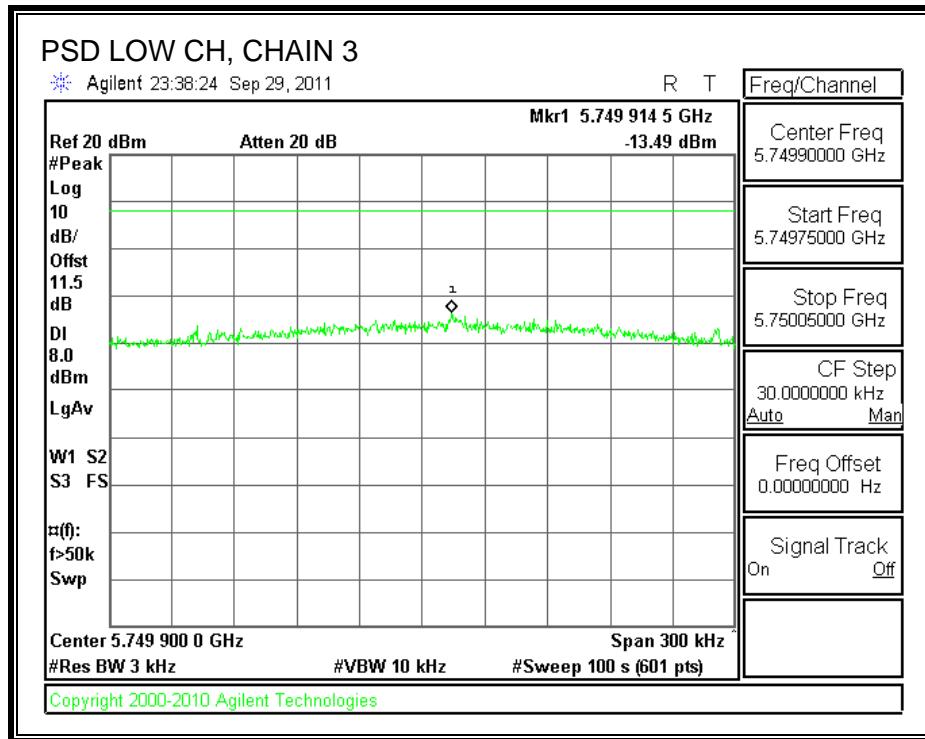


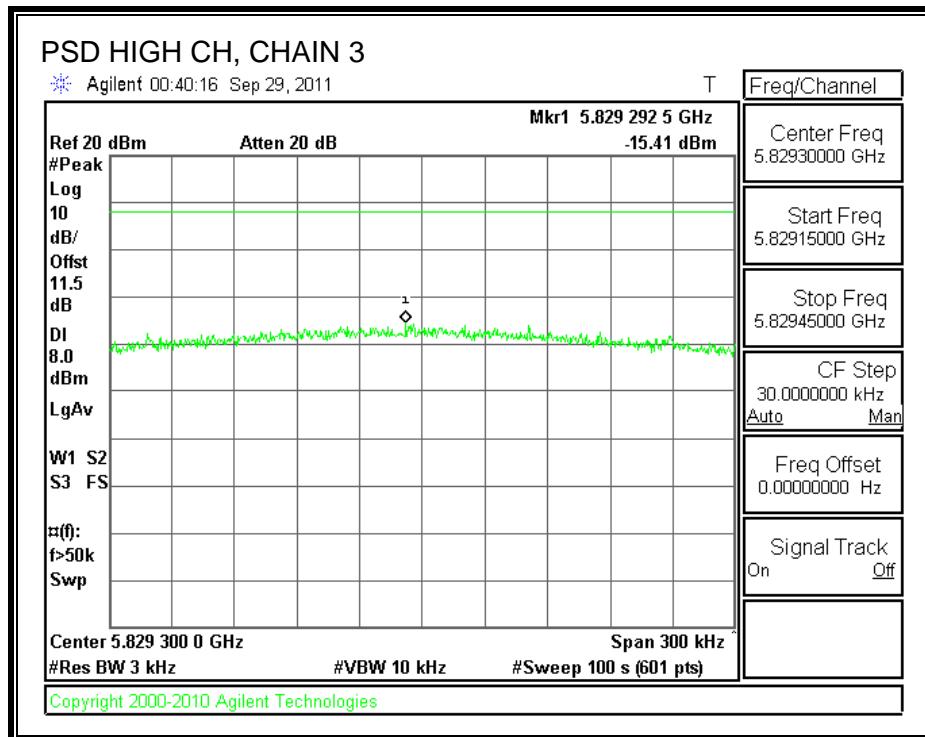
POWER SPECTRAL DENSITY, CHAIN 2





POWER SPECTRAL DENSITY, CHAIN 3





7.8.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

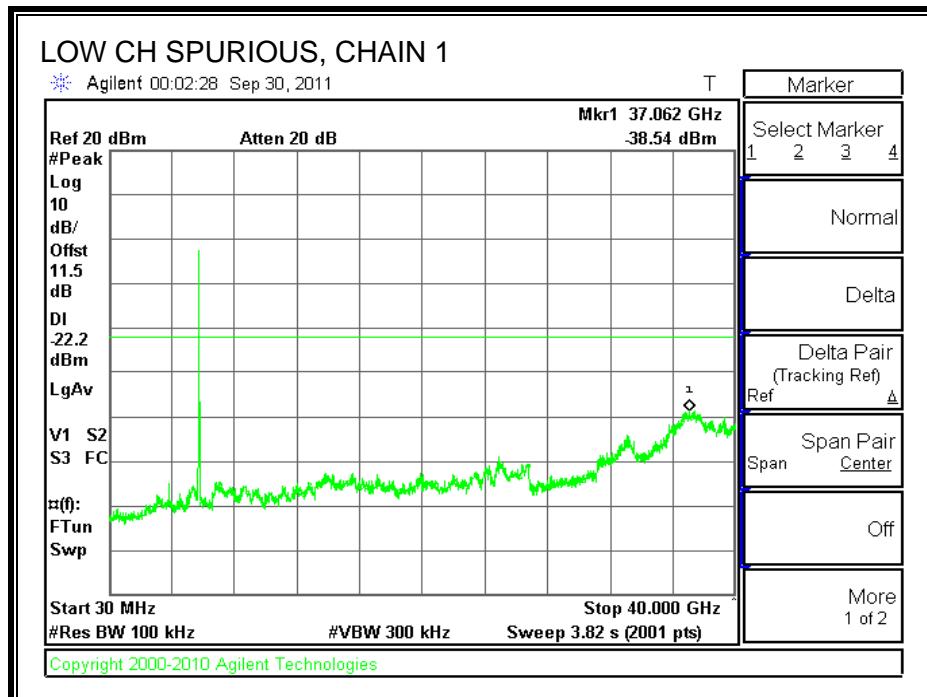
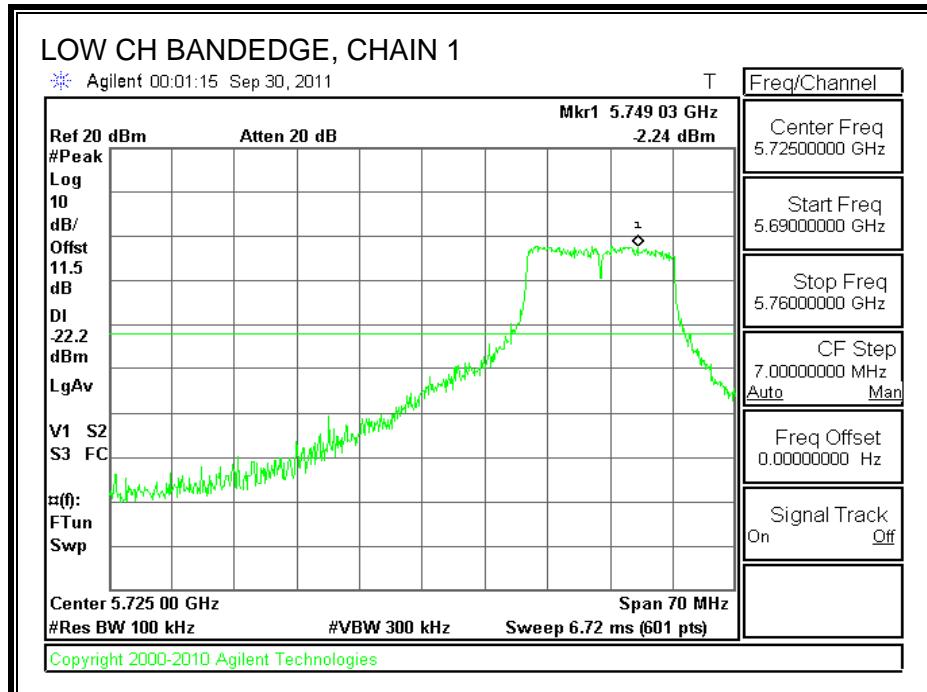
TEST PROCEDURE

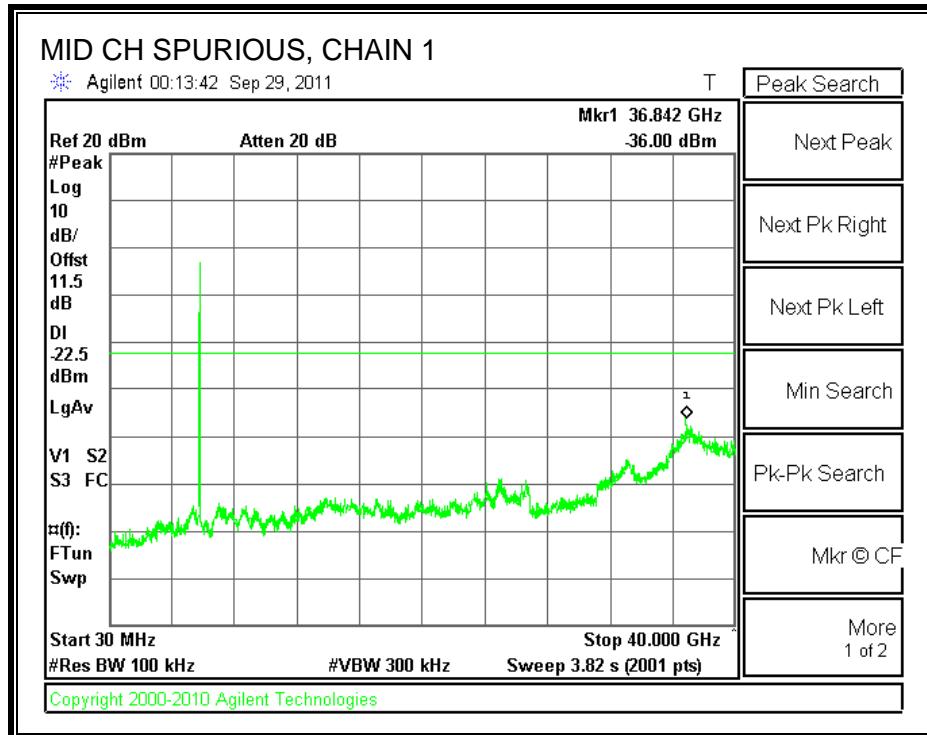
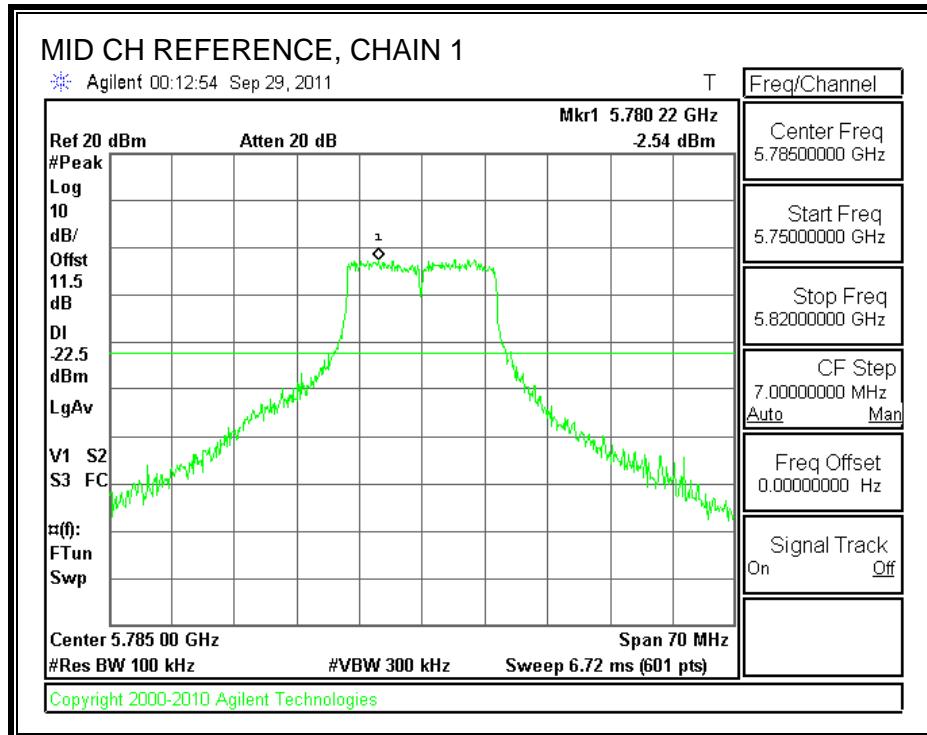
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

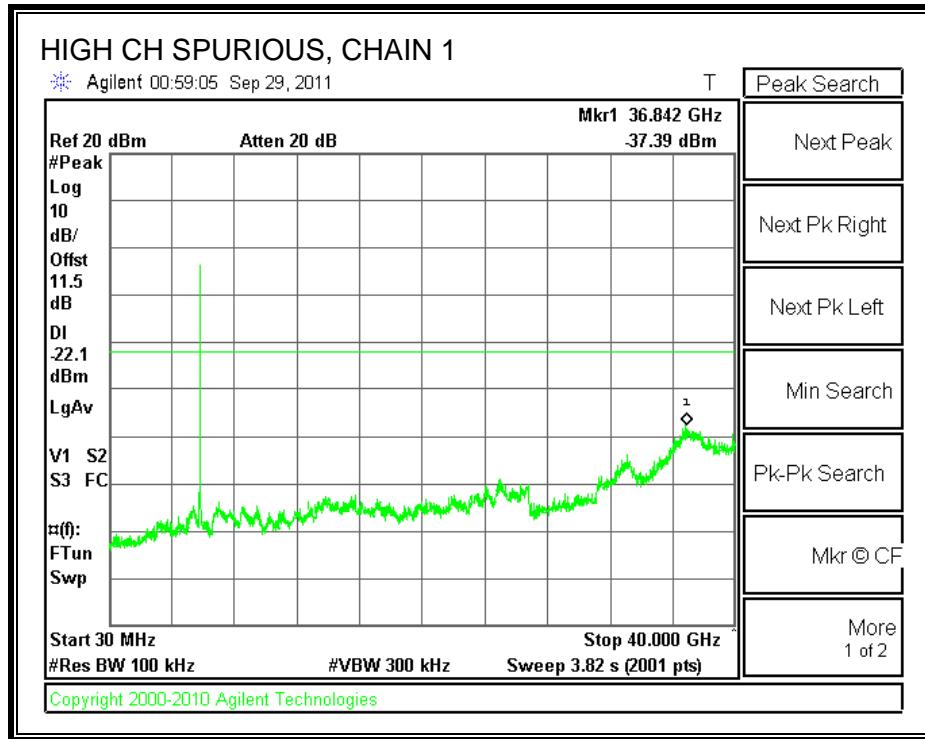
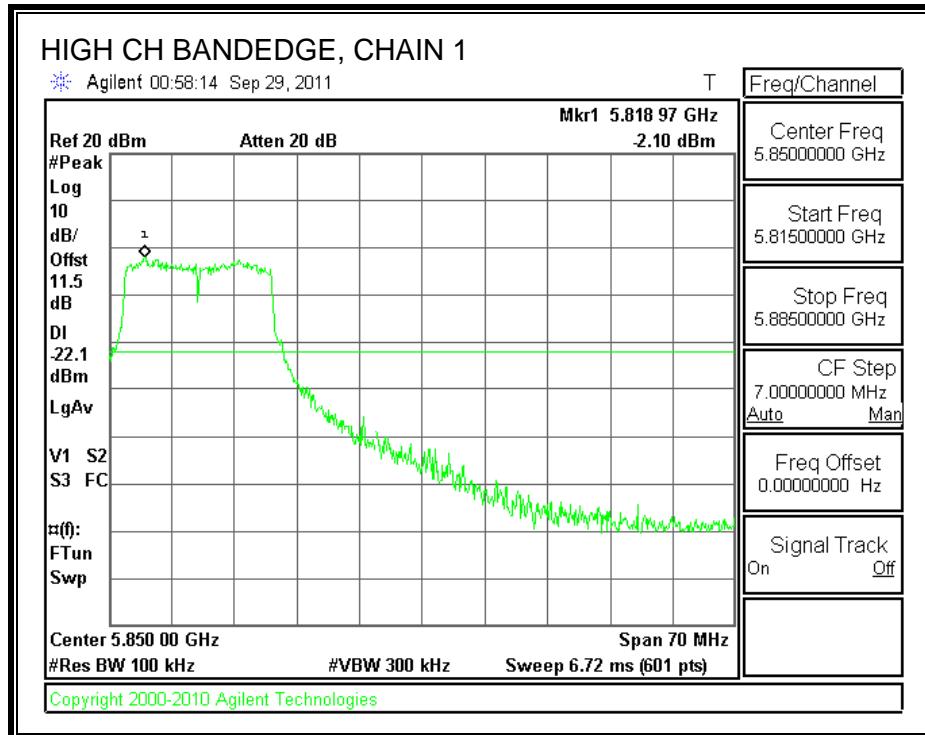
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

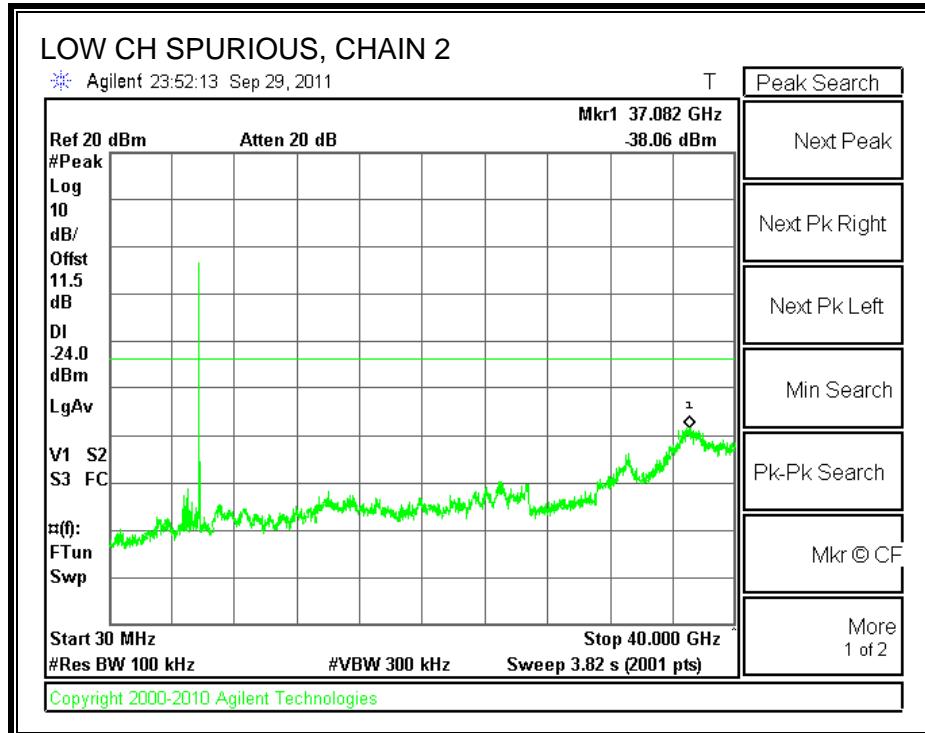
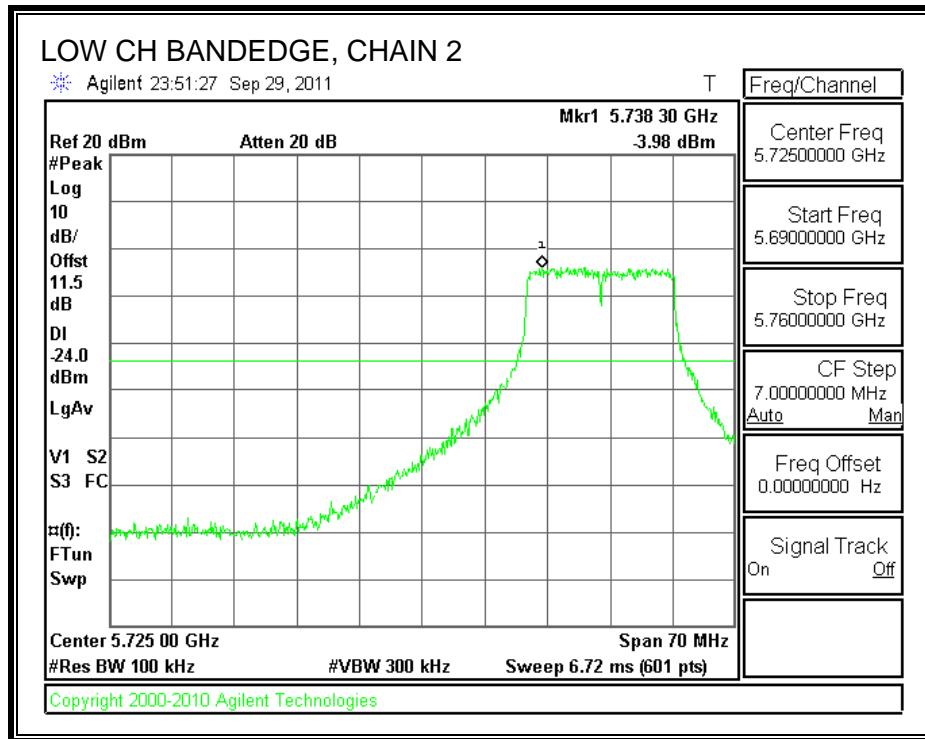
CHAIN 1 SPURIOUS EMISSIONS

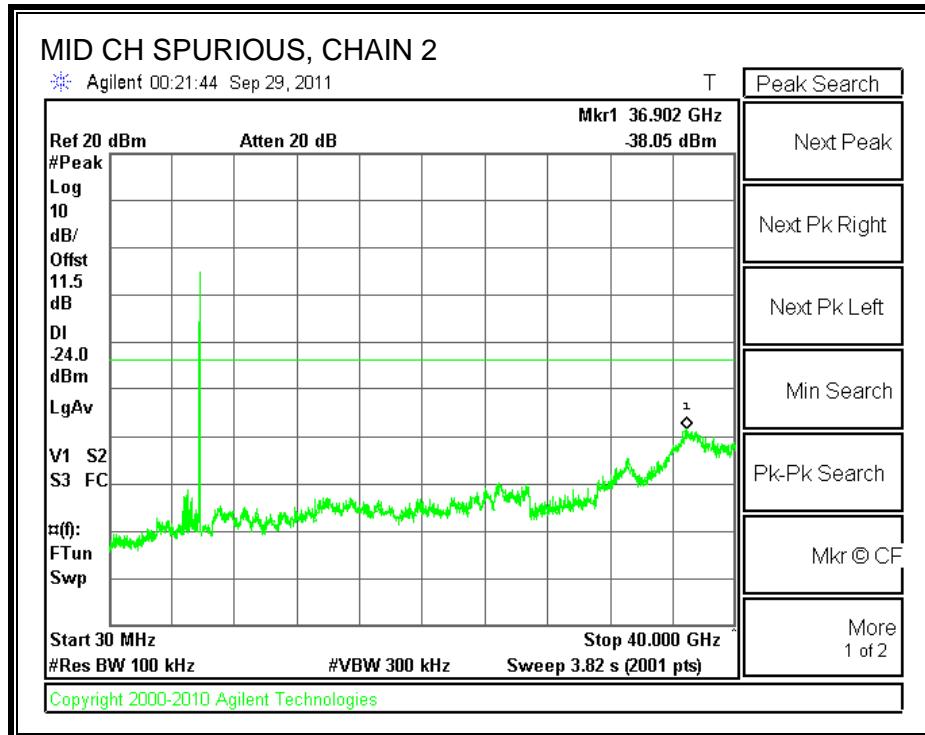
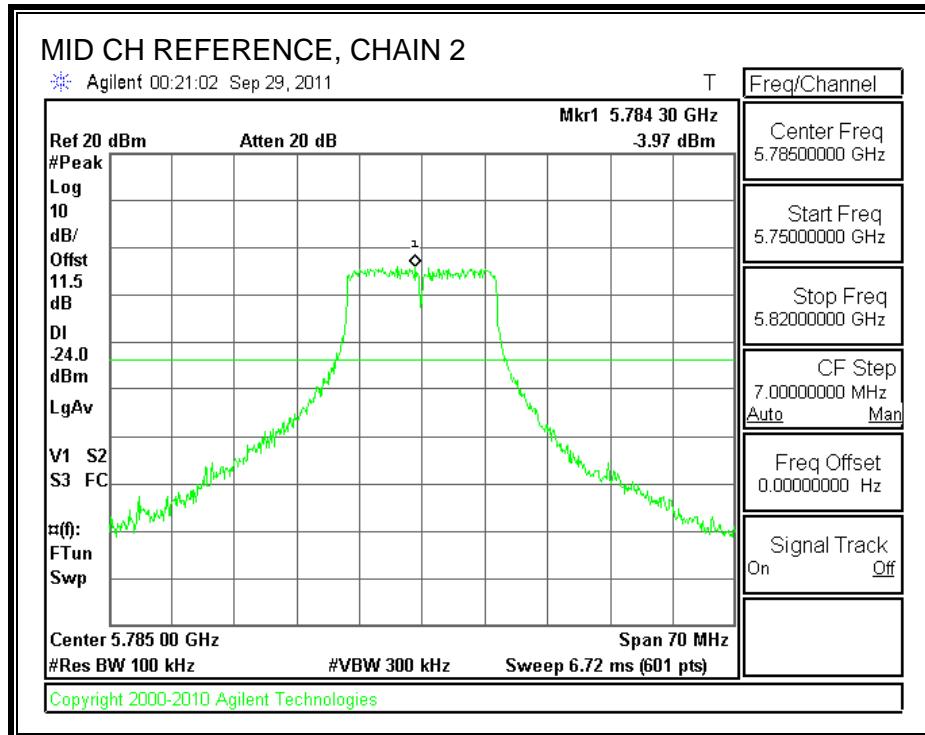


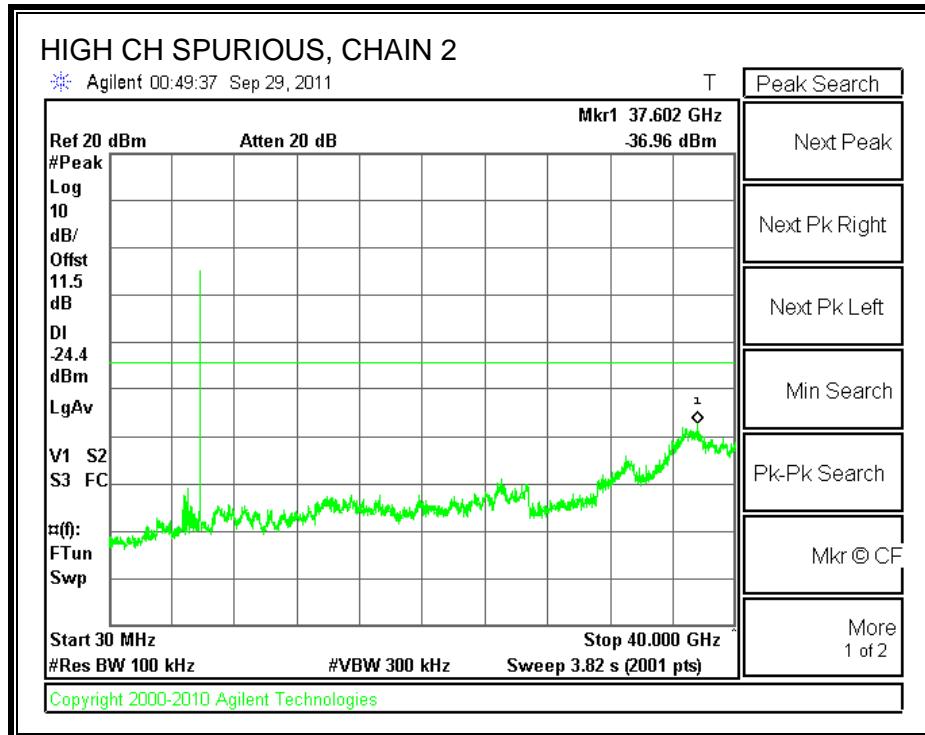
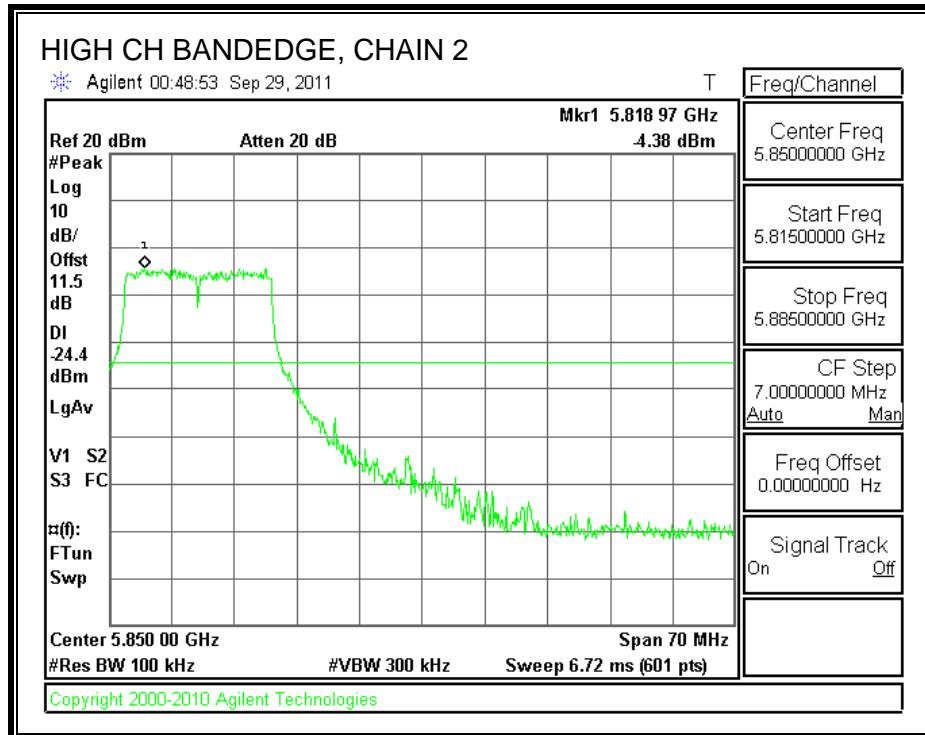




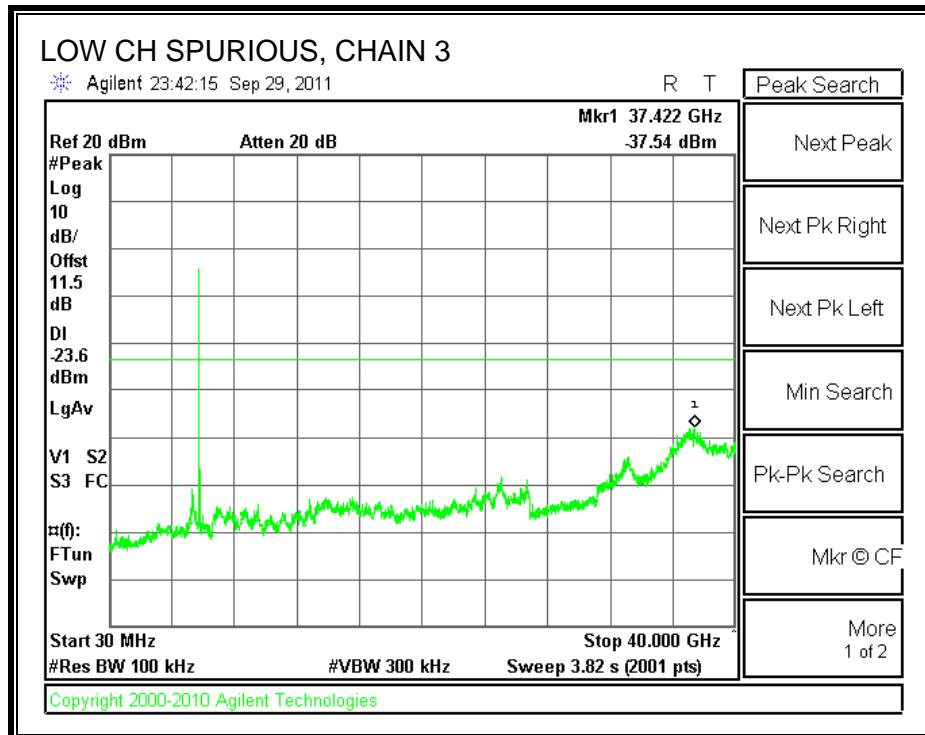
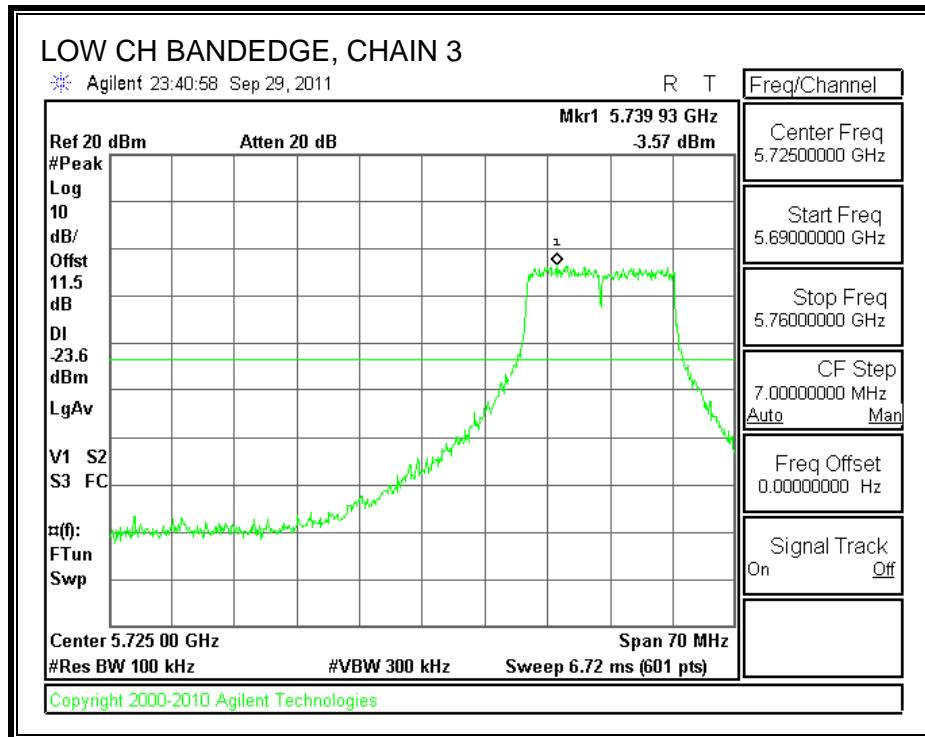
CHAIN 2 SPURIOUS EMISSIONS

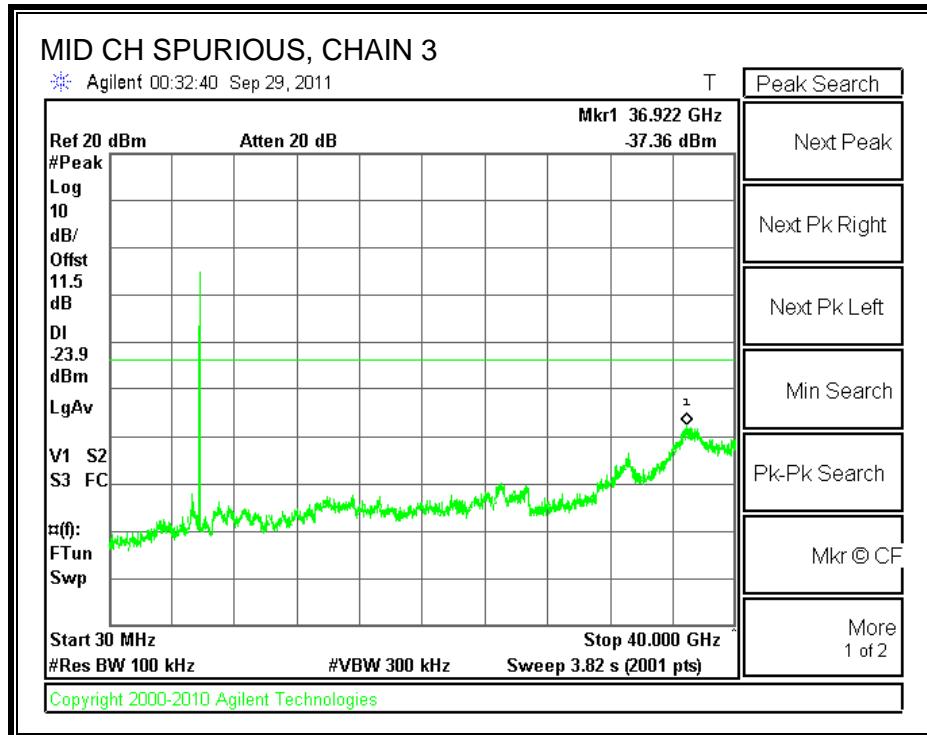
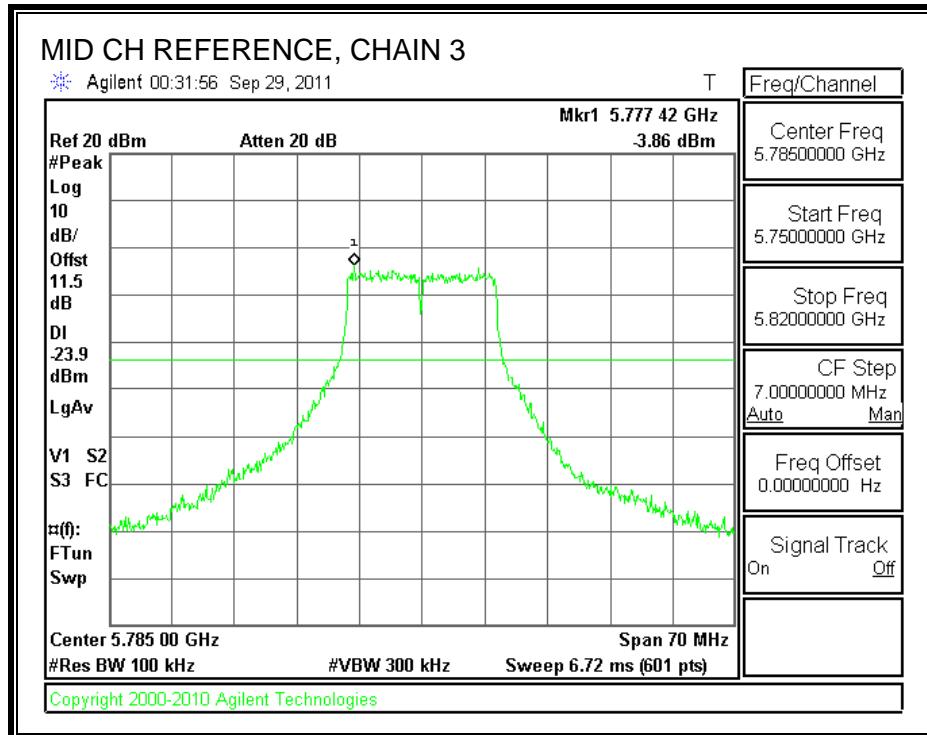


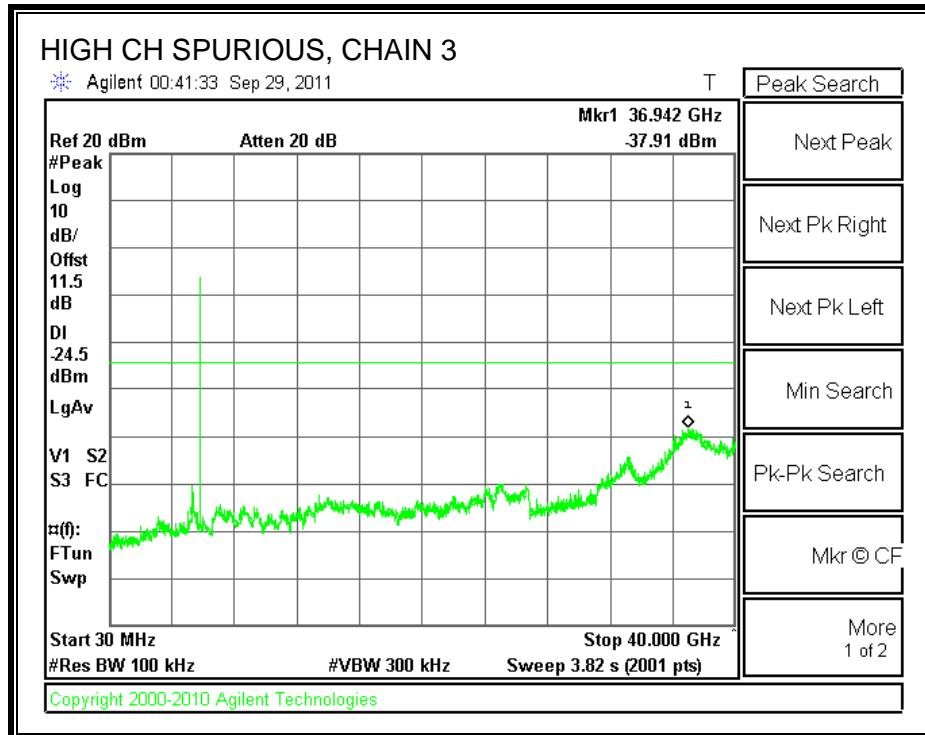
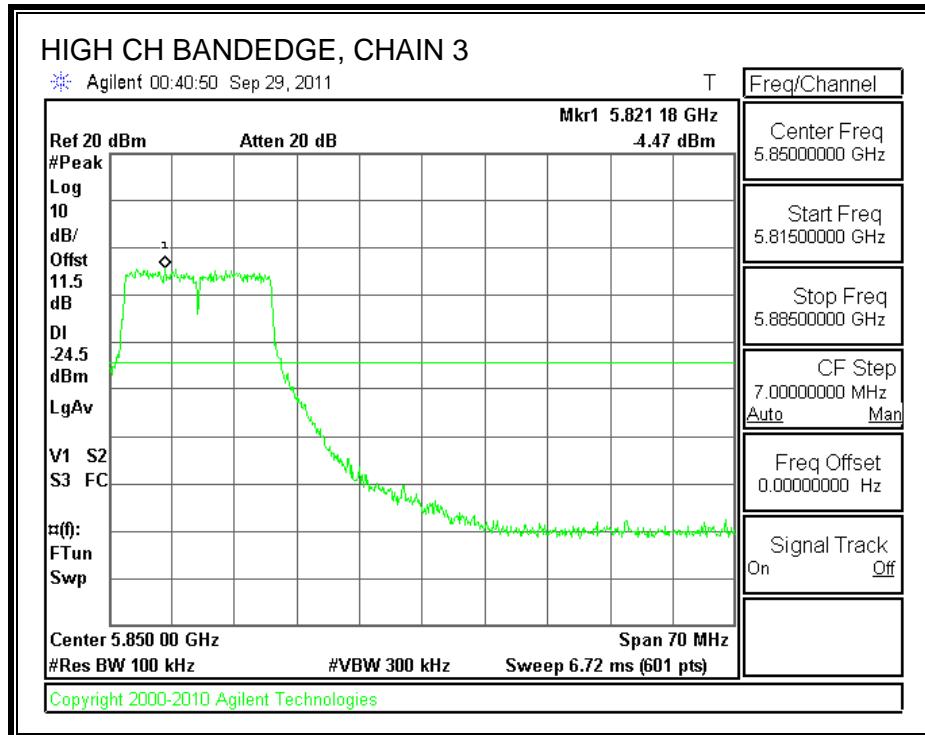




CHAIN 3 SPURIOUS EMISSIONS







7.9. 802.11n HT20 MCS0 3TX MODE IN THE 5.8 GHz BAND

7.9.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

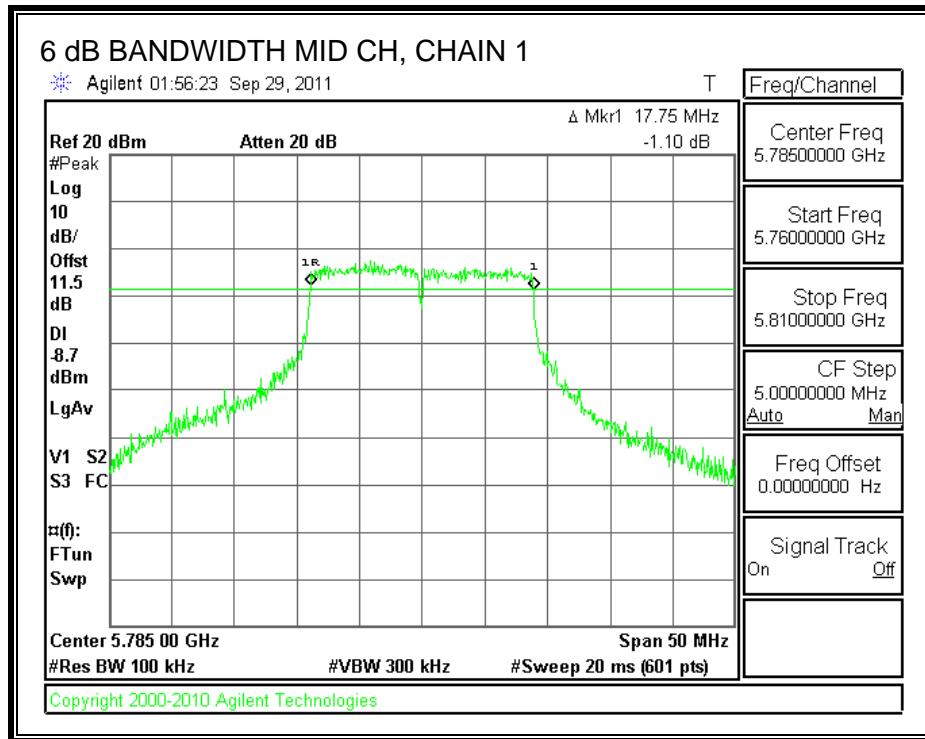
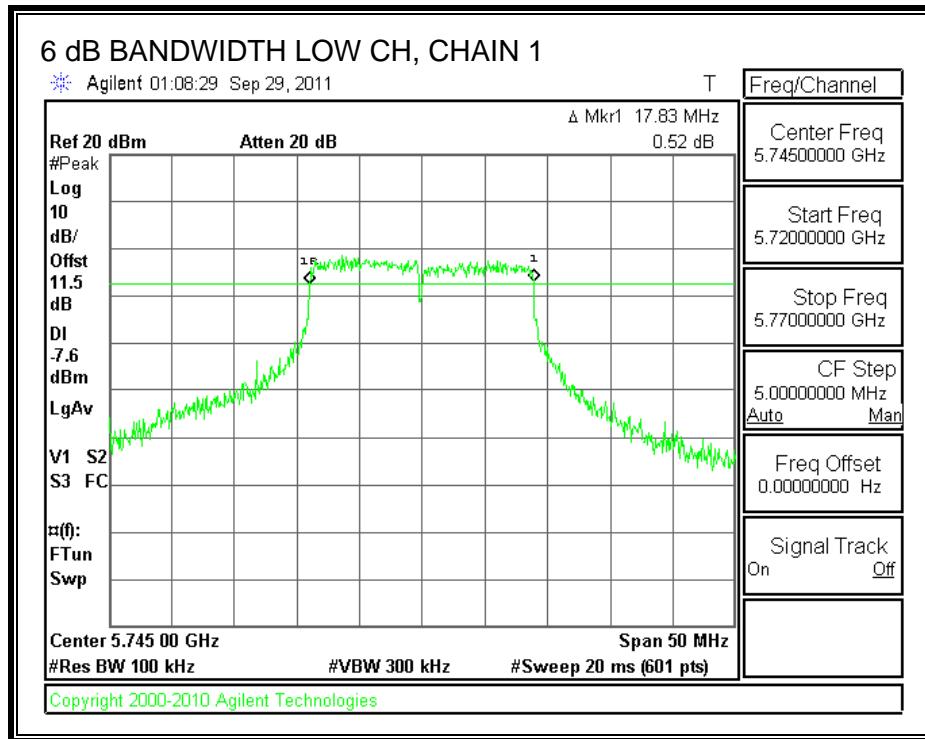
TEST PROCEDURE

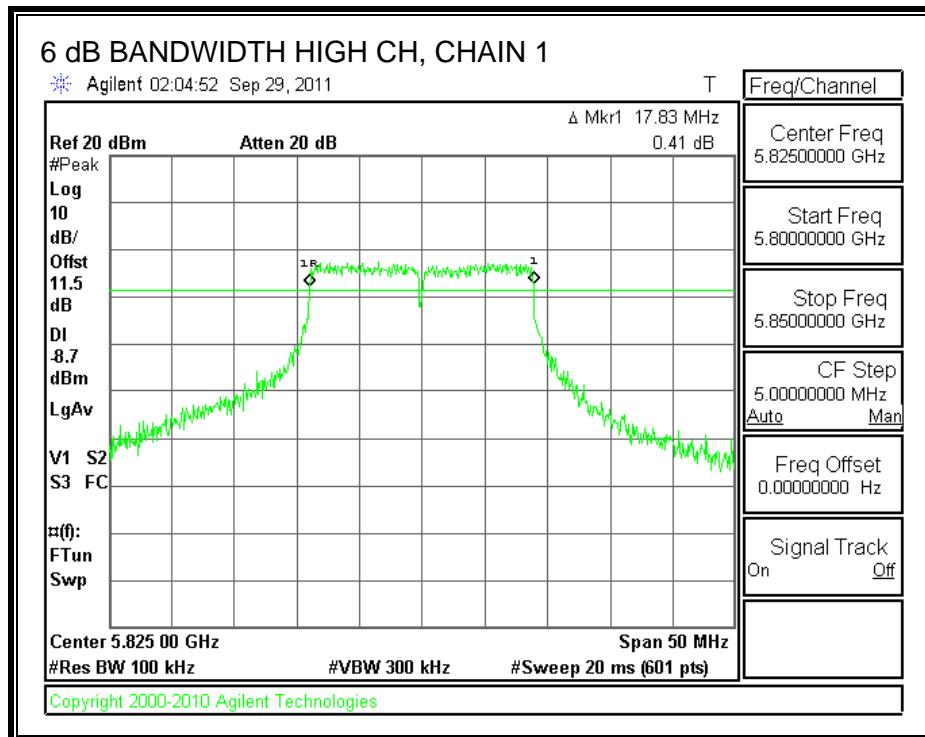
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

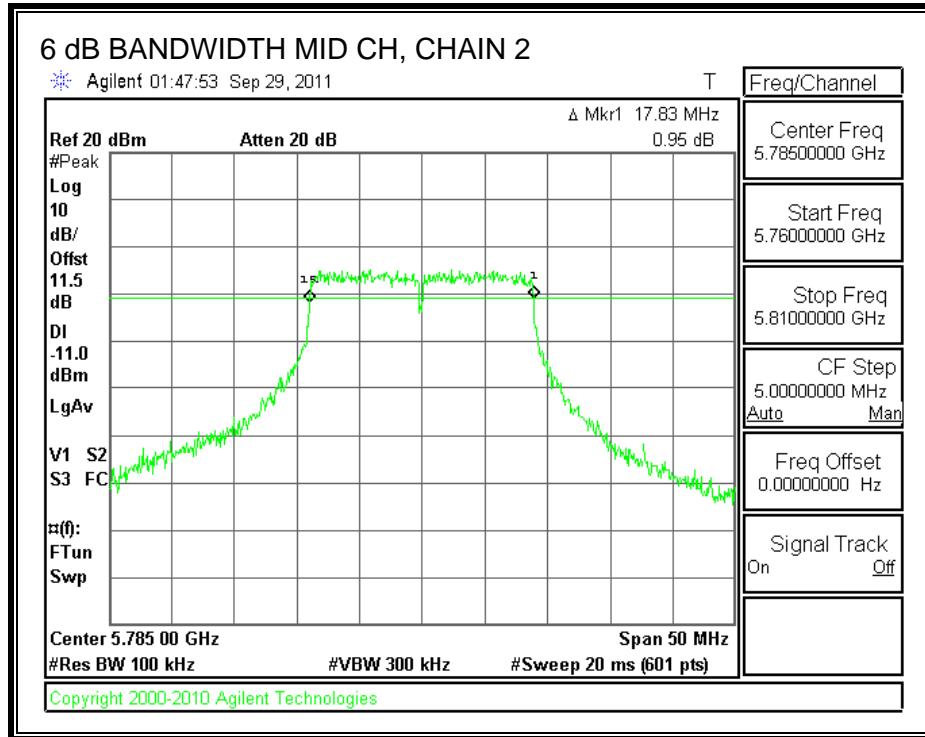
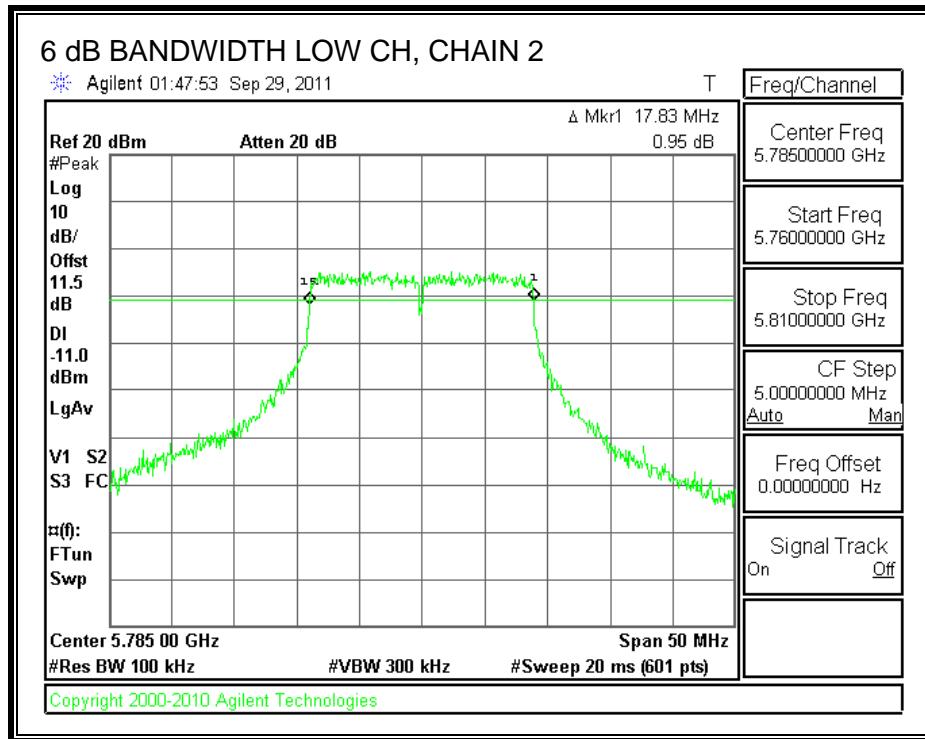
Channel	Frequency (MHz)	Chain 1 6 dB BW (MHz)	Chain 2 6 dB BW (MHz)	Chain 3 6 dB BW (MHz)	Minimum Limit (MHz)
Low	5745	17.83	17.83	17.83	0.5
Middle	5785	17.75	17.83	17.83	0.5
High	5825	17.83	17.83	17.83	0.5

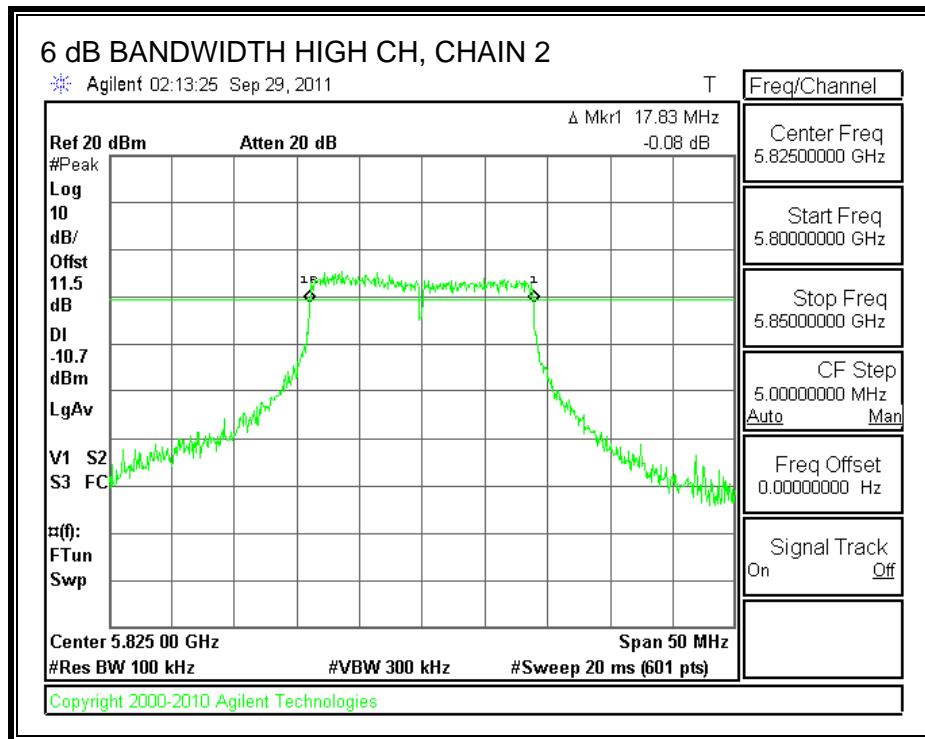
6 dB BANDWIDTH, CHAIN 1



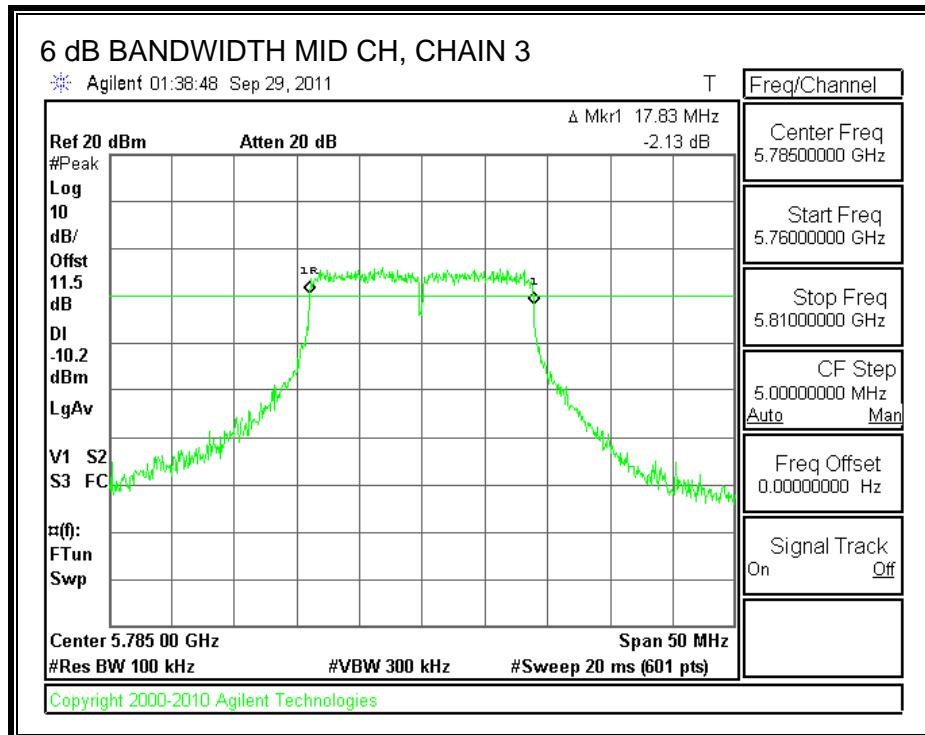
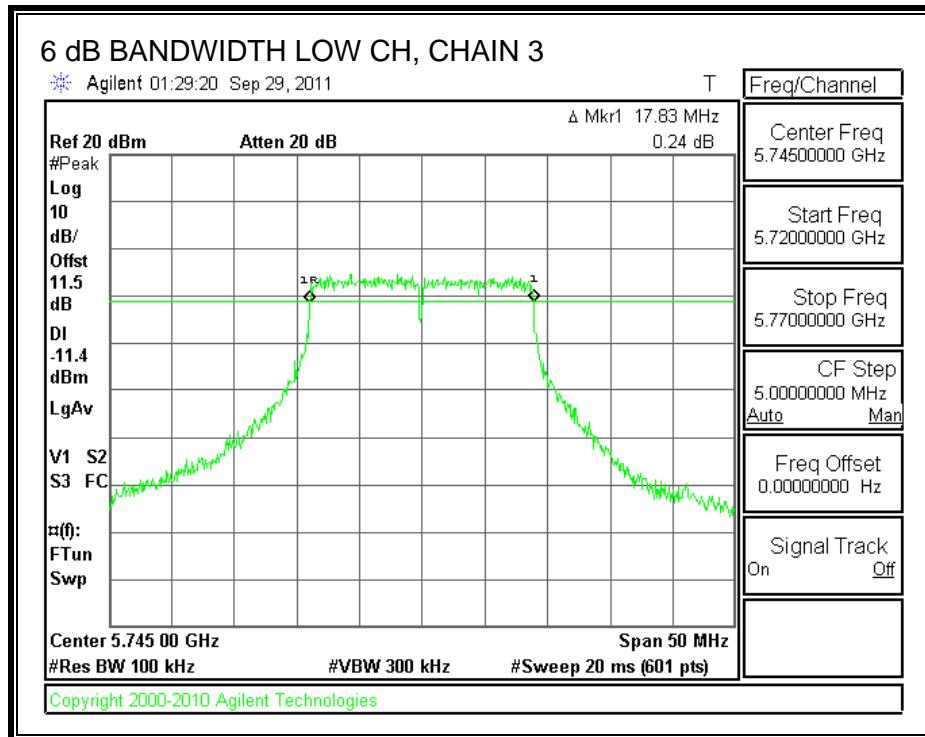


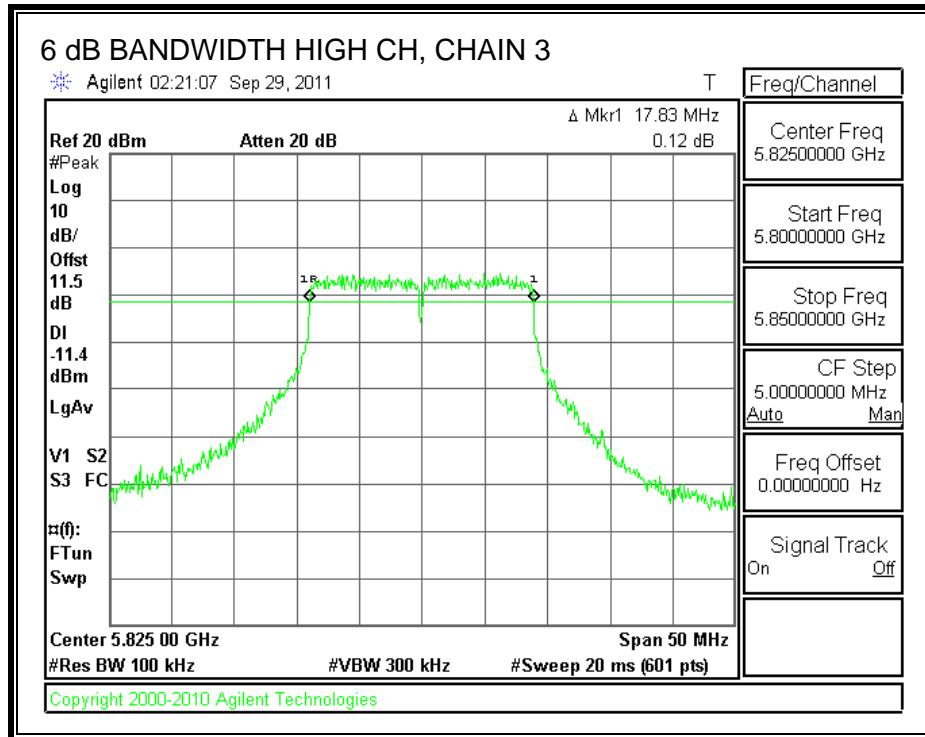
6 dB BANDWIDTH, CHAIN 2





6 dB BANDWIDTH, CHAIN 3





7.9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

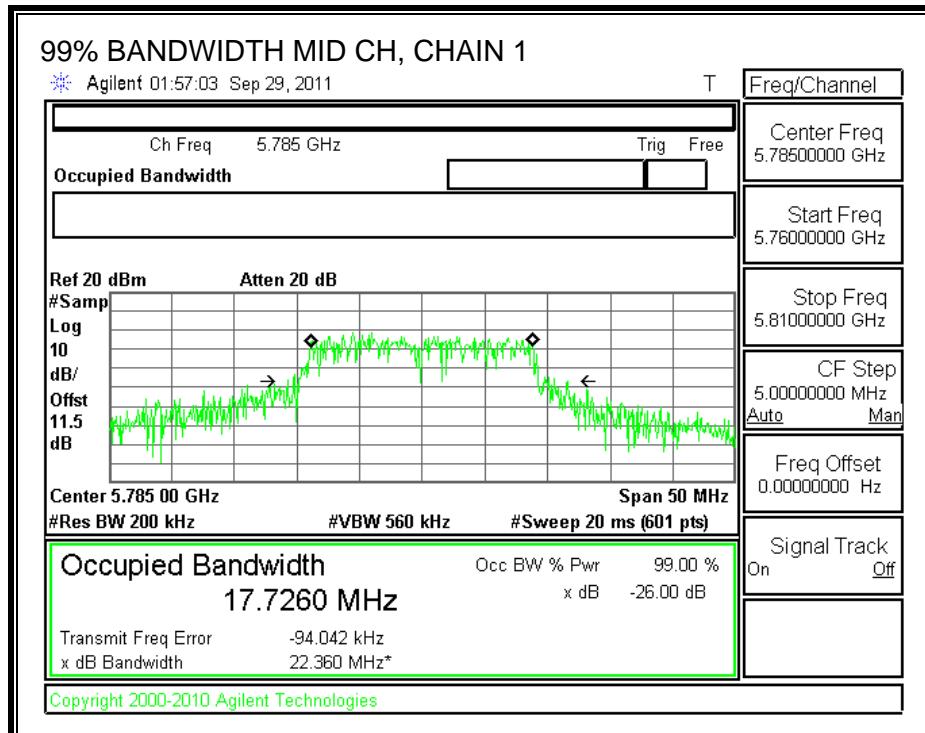
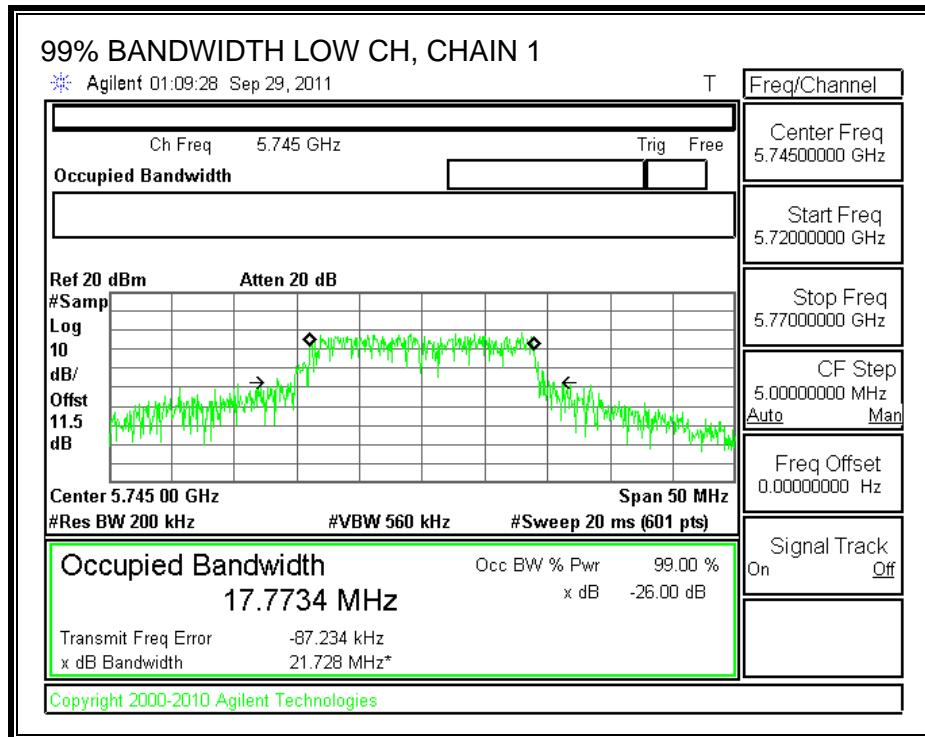
TEST PROCEDURE

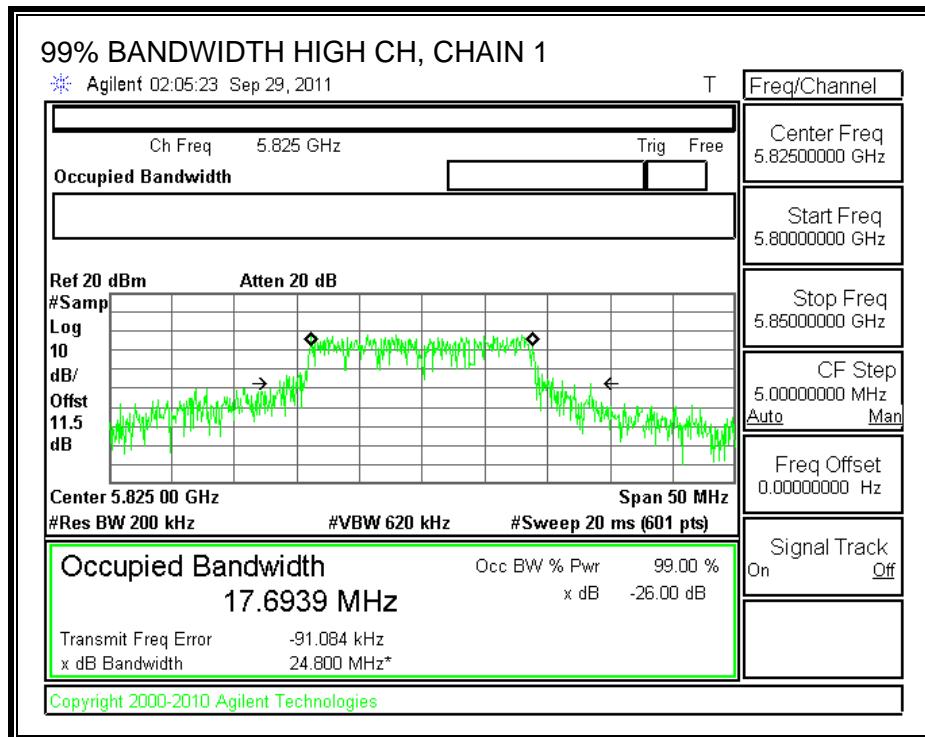
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

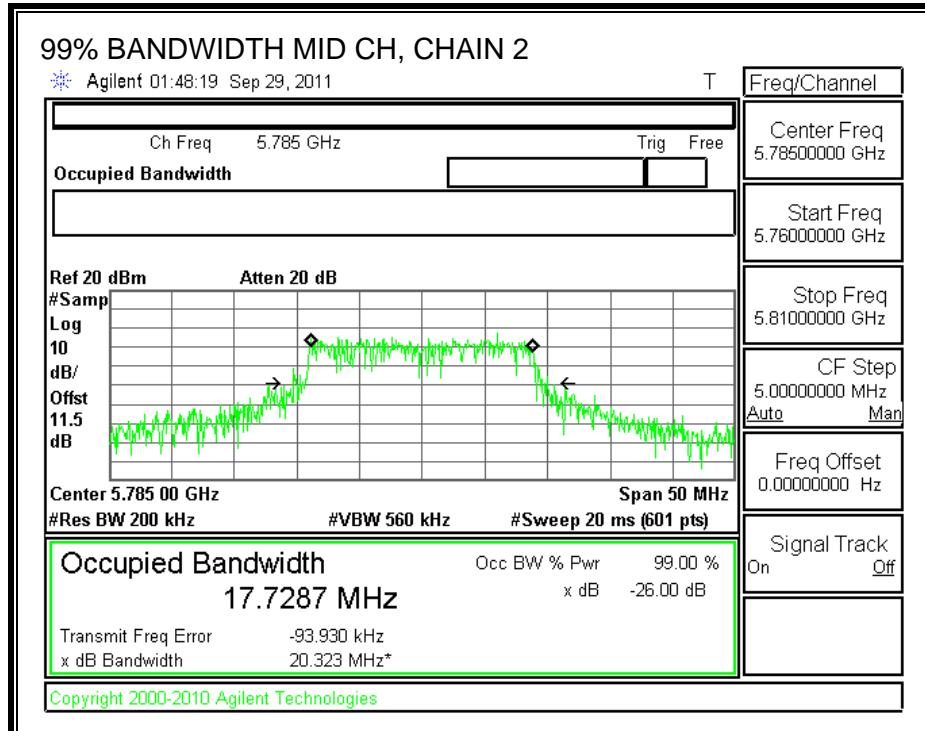
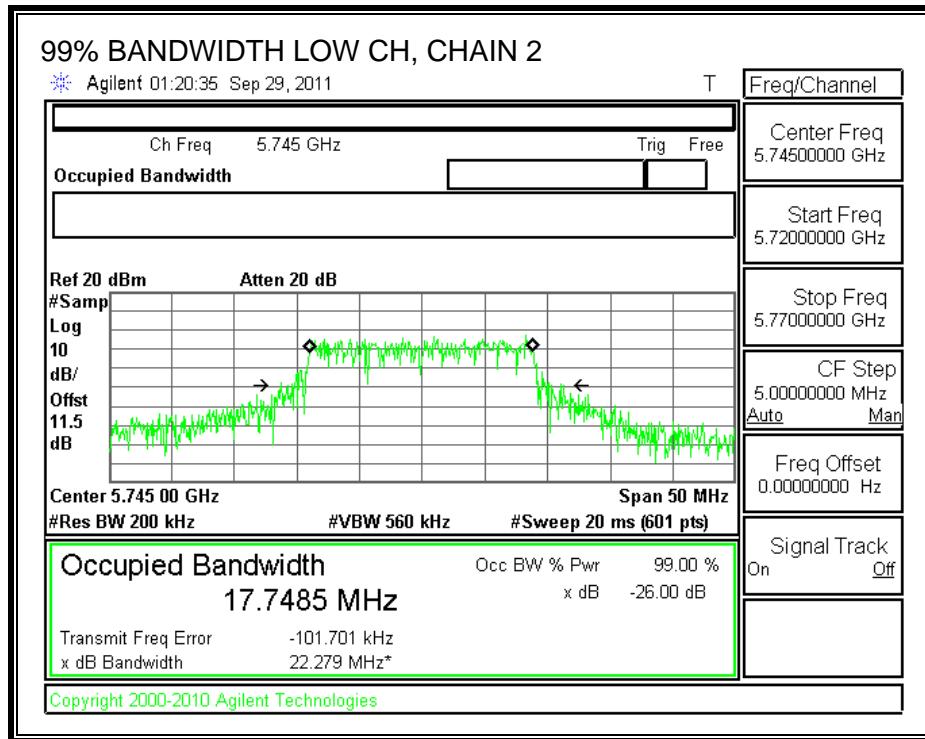
Channel	Frequency (MHz)	Chain 1 99% Bandwidth (MHz)	Chain 2 99% Bandwidth (MHz)	Chain 3 99% Bandwidth (MHz)
Low	5745	17.7734	17.7485	17.696
Middle	5785	17.7260	17.8287	17.6544
High	5825	17.6939	17.7422	17.6115

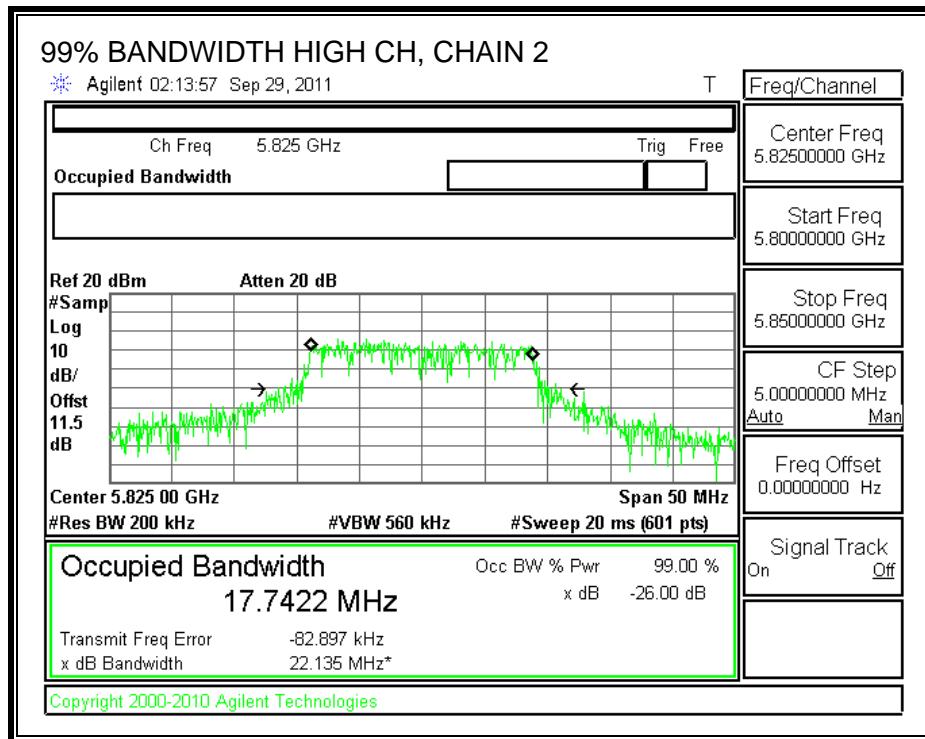
99% BANDWIDTH, CHAIN 1



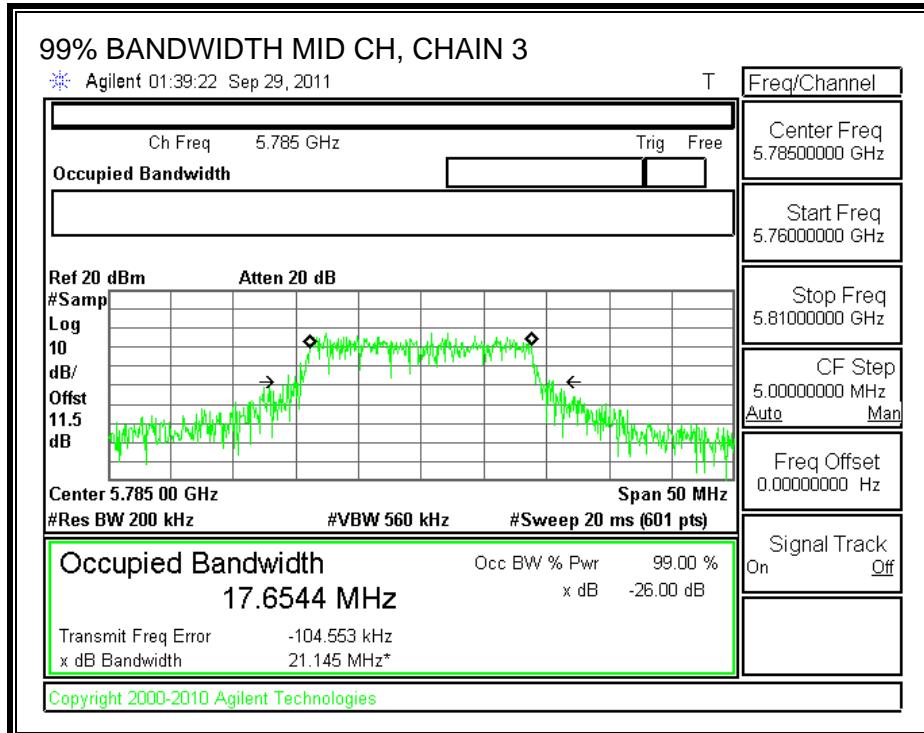
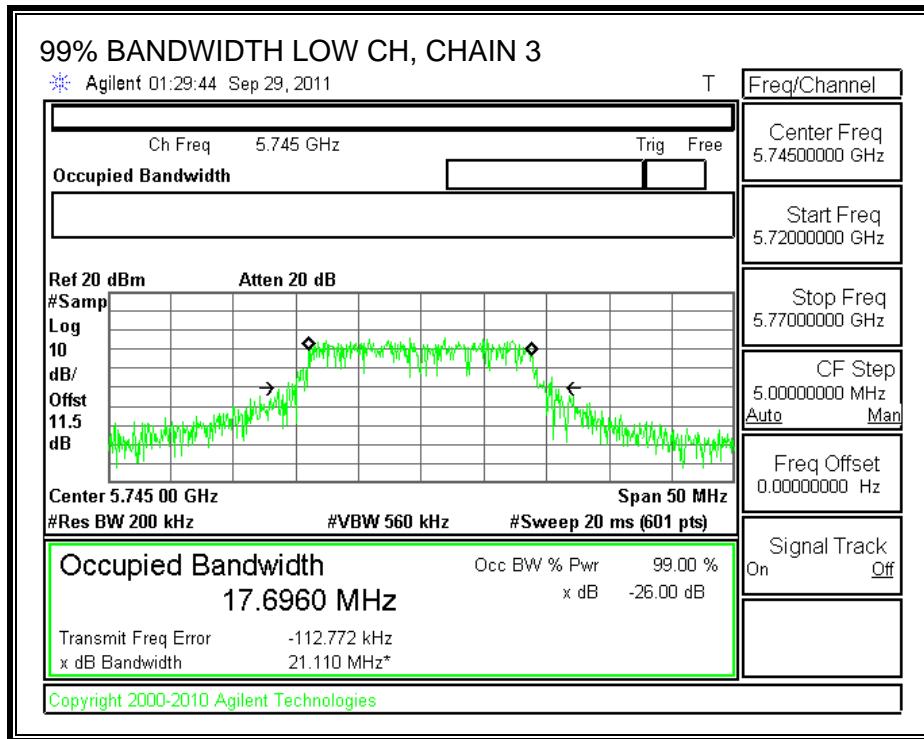


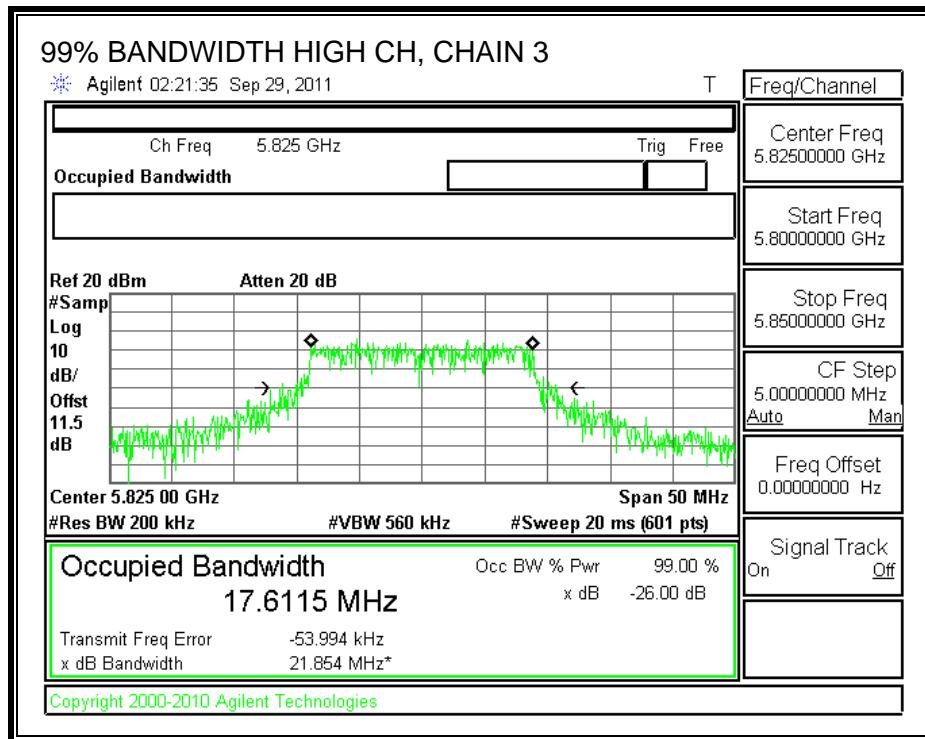
99% BANDWIDTH, CHAIN 2





99% BANDWIDTH, CHAIN 3





7.9.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

Antenna Gain (dBi)	10 Log (# Tx Chains) (dB)	Effective Legacy Gain (dBi)
4.5	4.77	9.27

The maximum effective legacy gain is 9.27 dBi for other than fixed, point-to-point operations, therefore the limit is 26.73 dBm.

TEST PROCEDURE

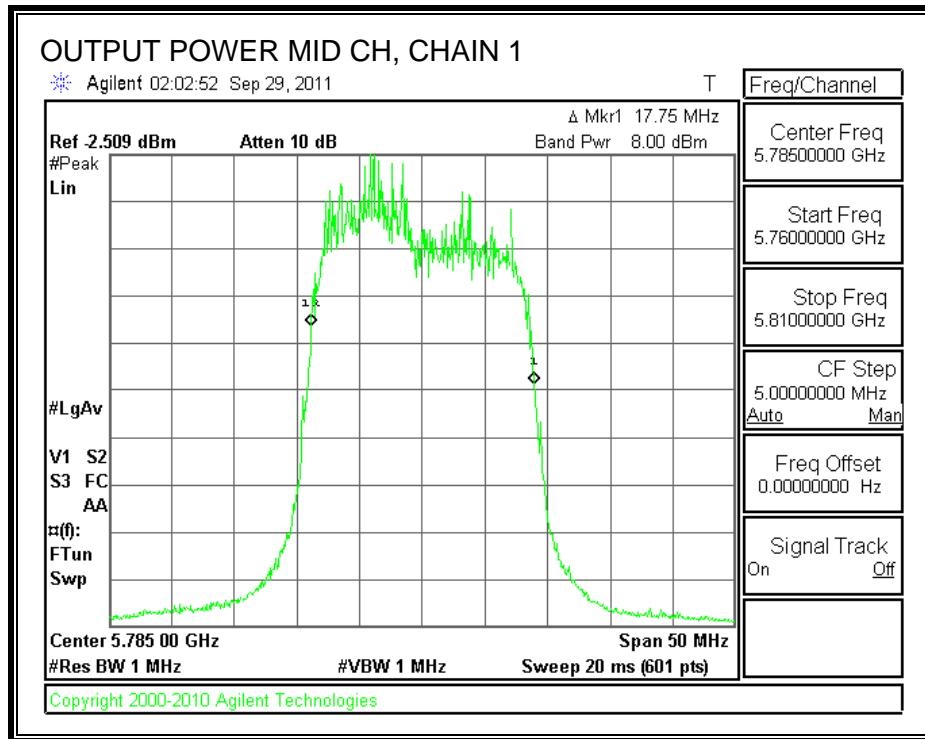
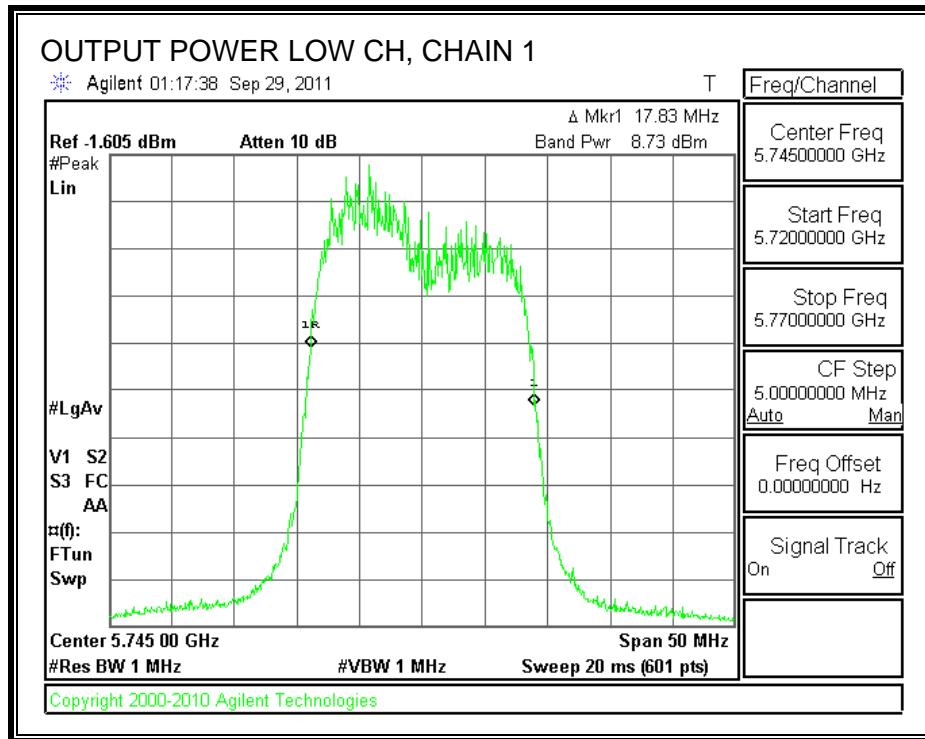
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

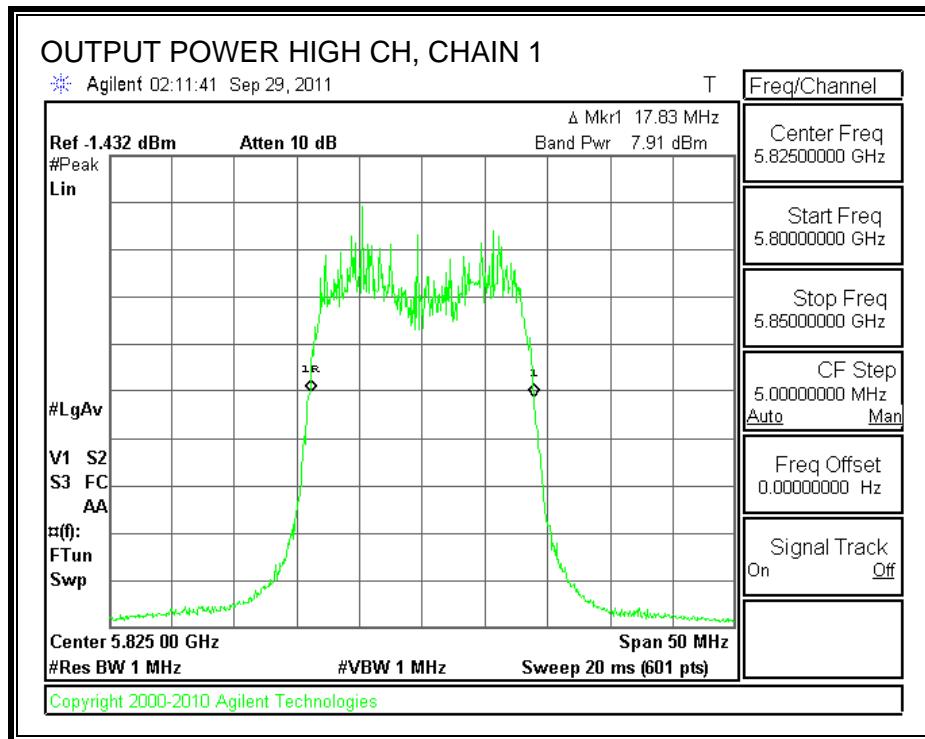
Peak power is measured using a wide bandwidth Peak Power Meter.

RESULTS

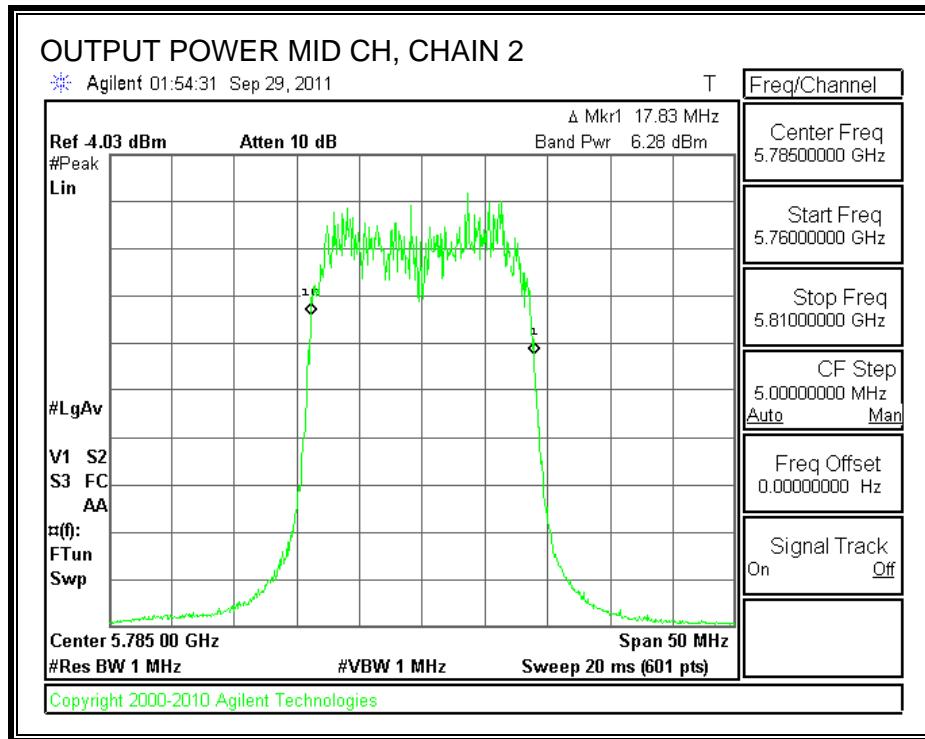
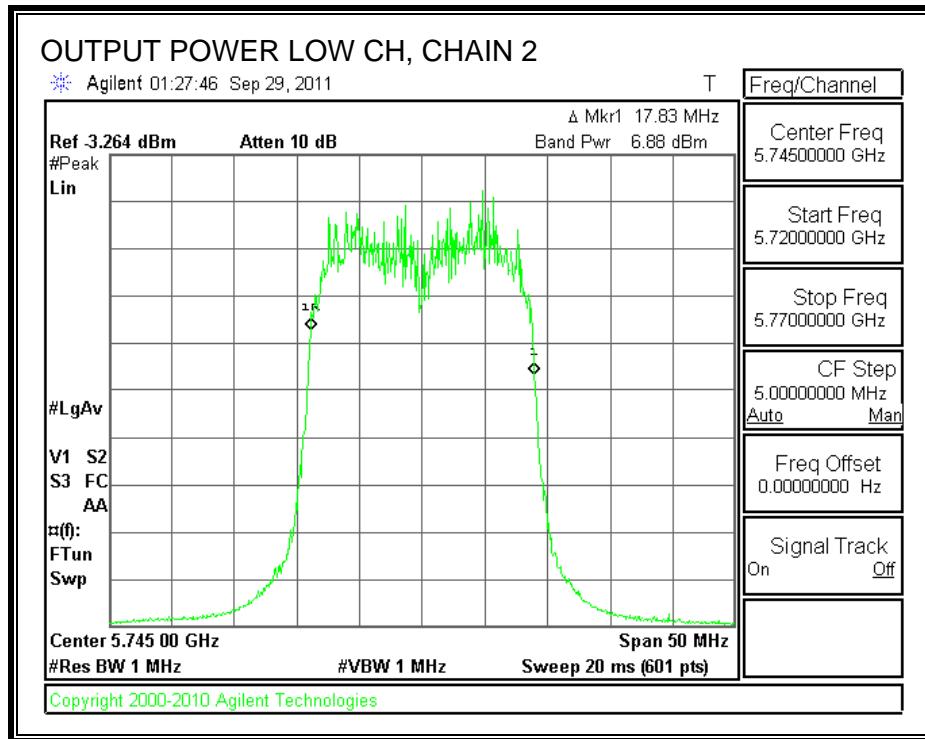
Channel	Frequency (MHz)	Chain 1 PK Power (dBm)	Chain 2 PK Power (dBm)	Chain 3 PK Power (dBm)	Attenuator + Cable Loss (dB)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	5745	8.73	6.88	6.16	11.50	23.67	26.73	-3.06
Mid	5785	8.00	6.28	6.41	11.50	23.24	26.73	-3.49
High	5825	7.91	5.92	6.39	11.50	23.10	26.73	-3.63

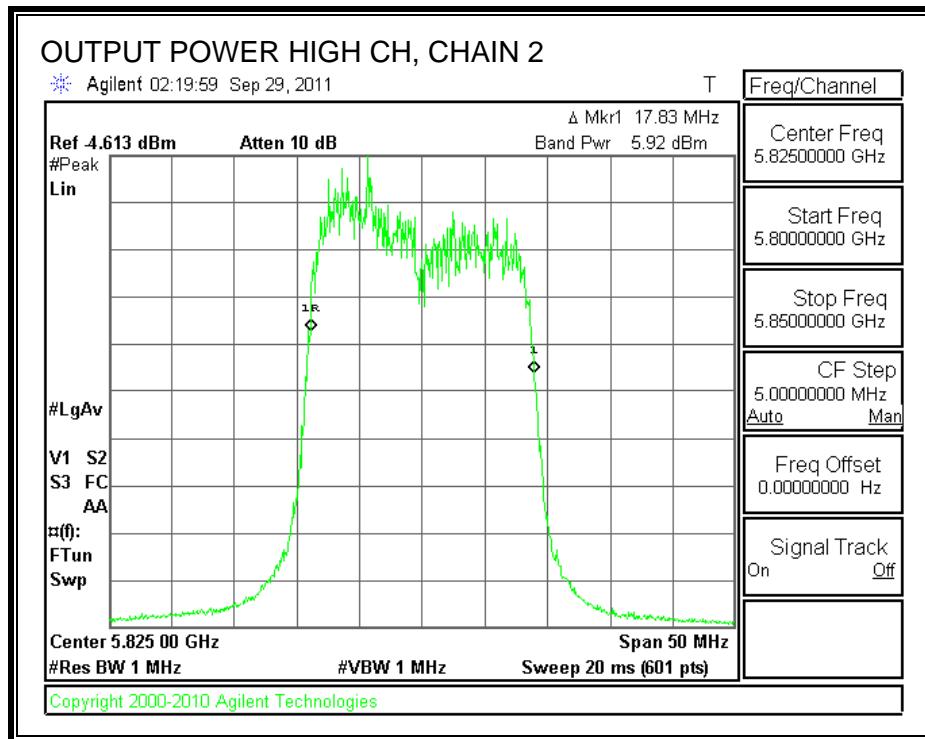
CHAIN 1 OUTPUT POWER



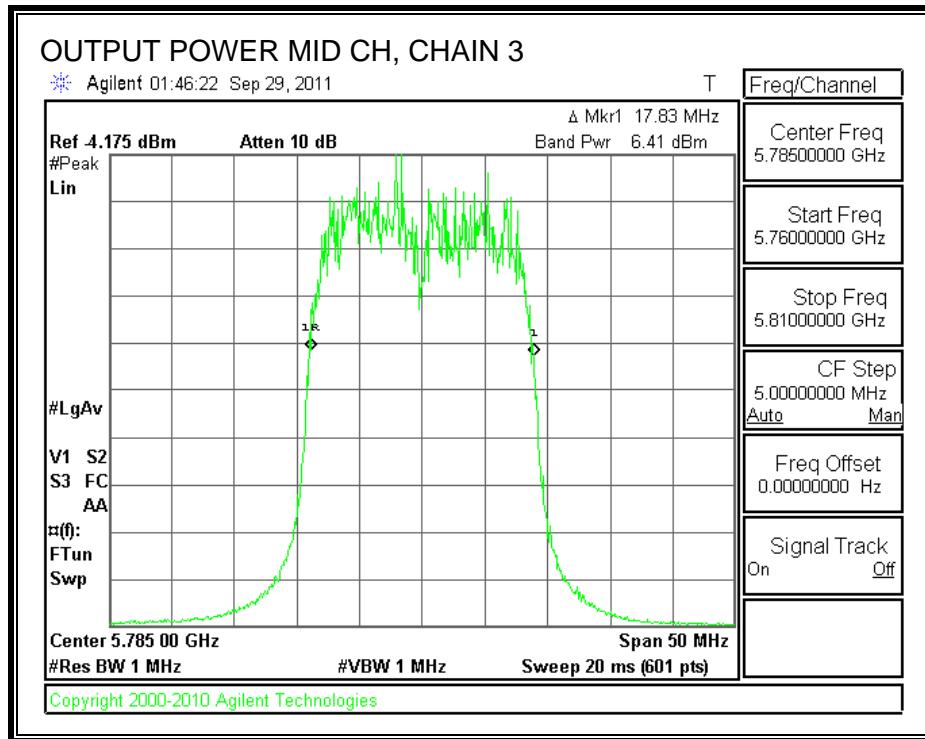
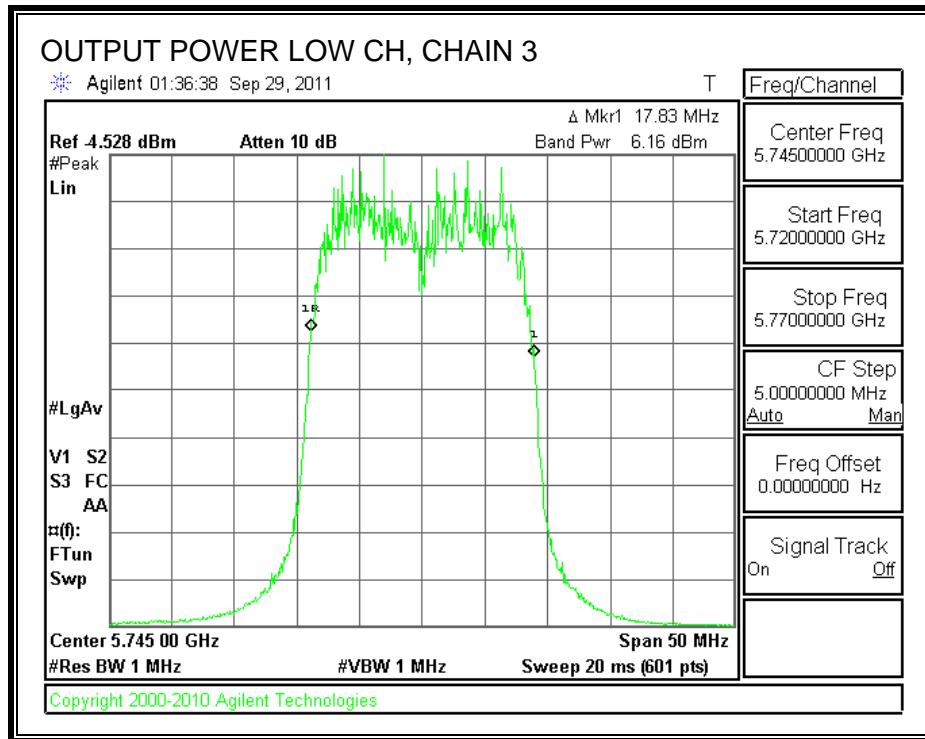


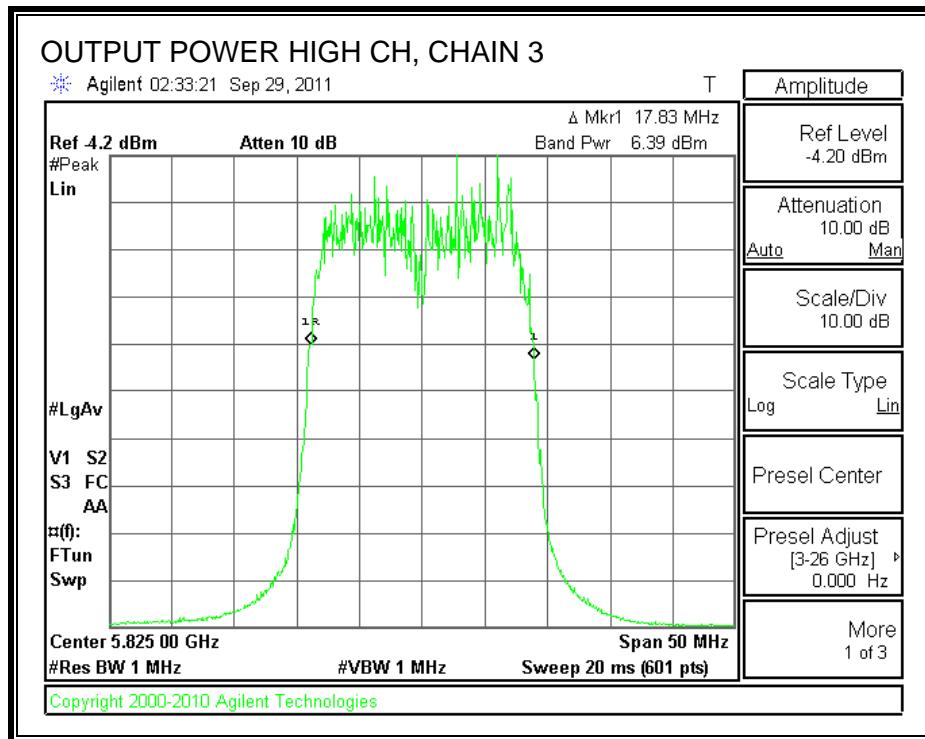
CHAIN 2 OUTPUT POWER





CHAIN 3 OUTPUT POWER





7.9.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11.5 dB (including 10 dB pad and 1.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Chain 1 Power (dBm)	Chain 2 Power (dBm)	Chain 3 Power (dBm)	Total Power (dBm)
Low	5745	13.80	13.80	13.80	18.57
Middle	5785	13.70	13.70	13.70	18.47
High	5825	13.20	13.20	13.20	17.97

7.9.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

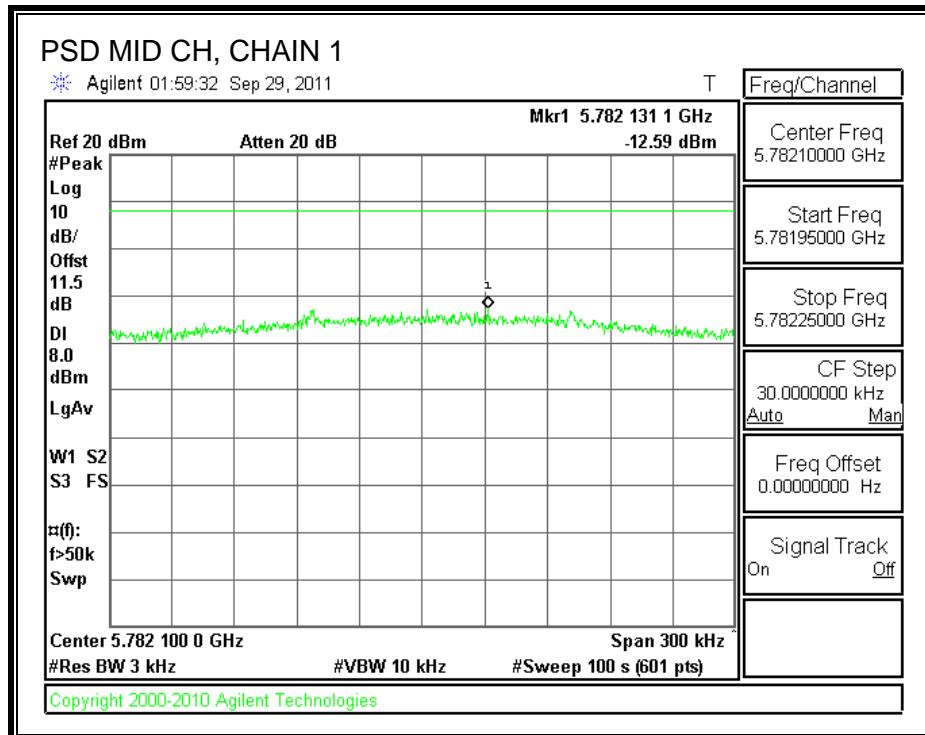
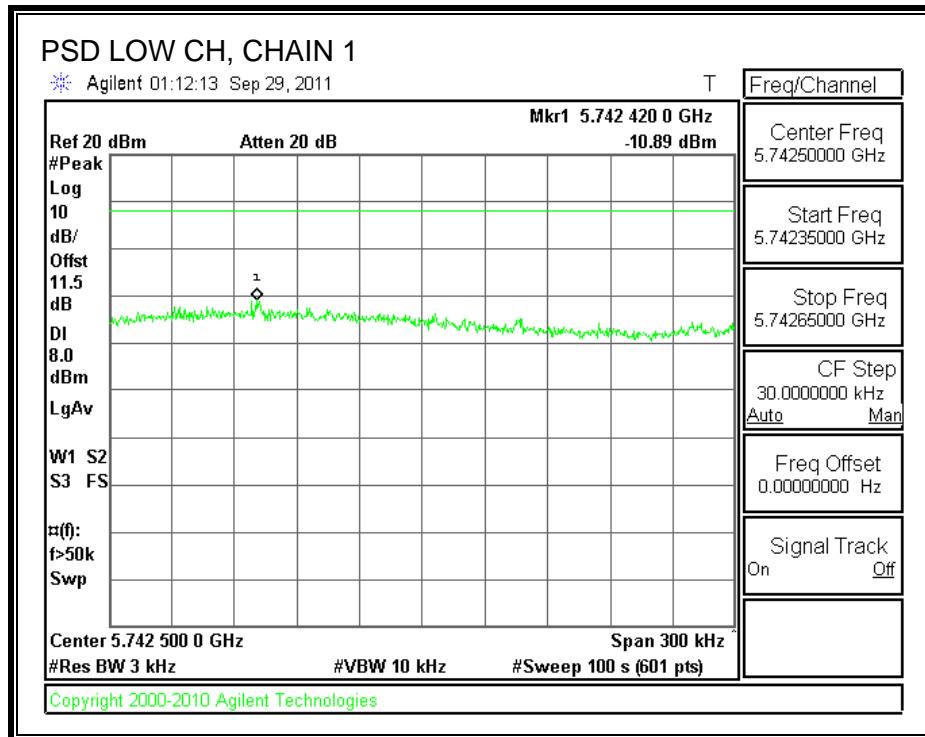
TEST PROCEDURE

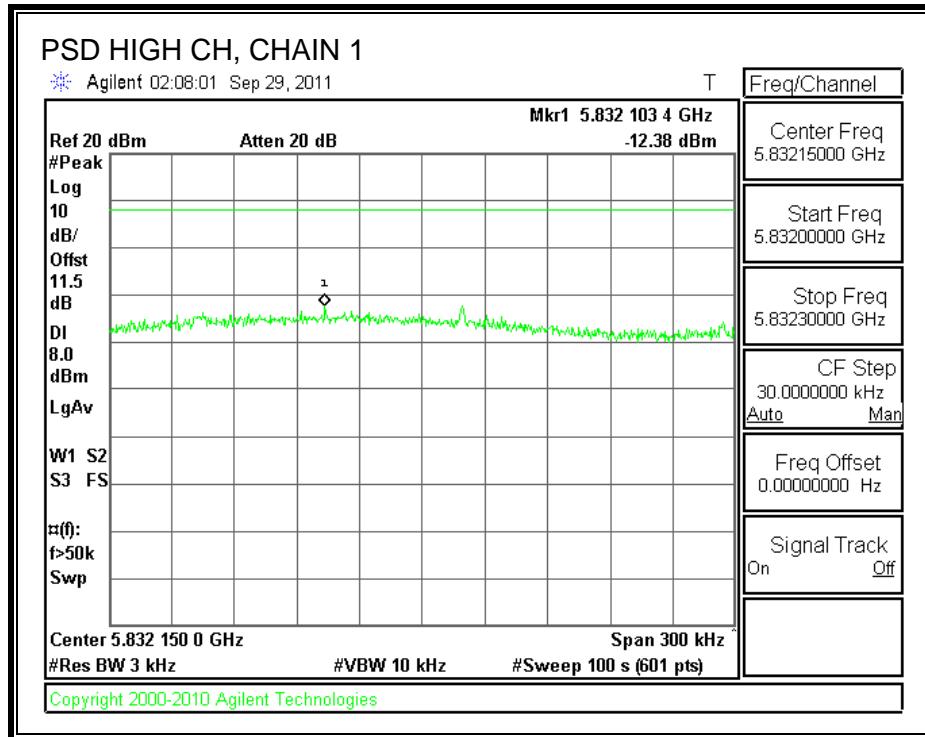
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

RESULTS:

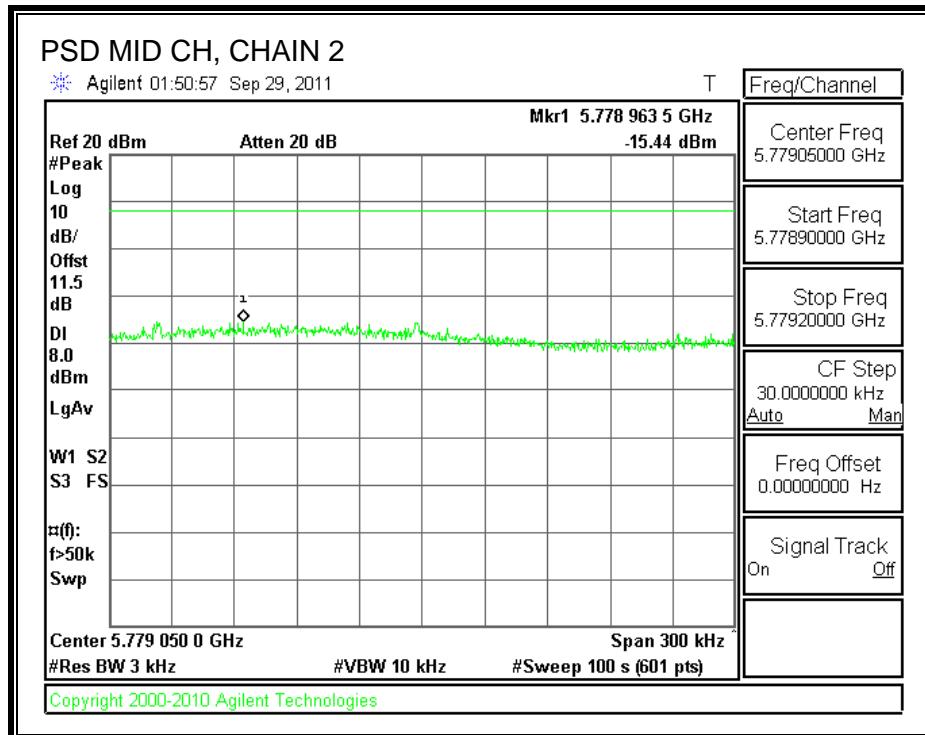
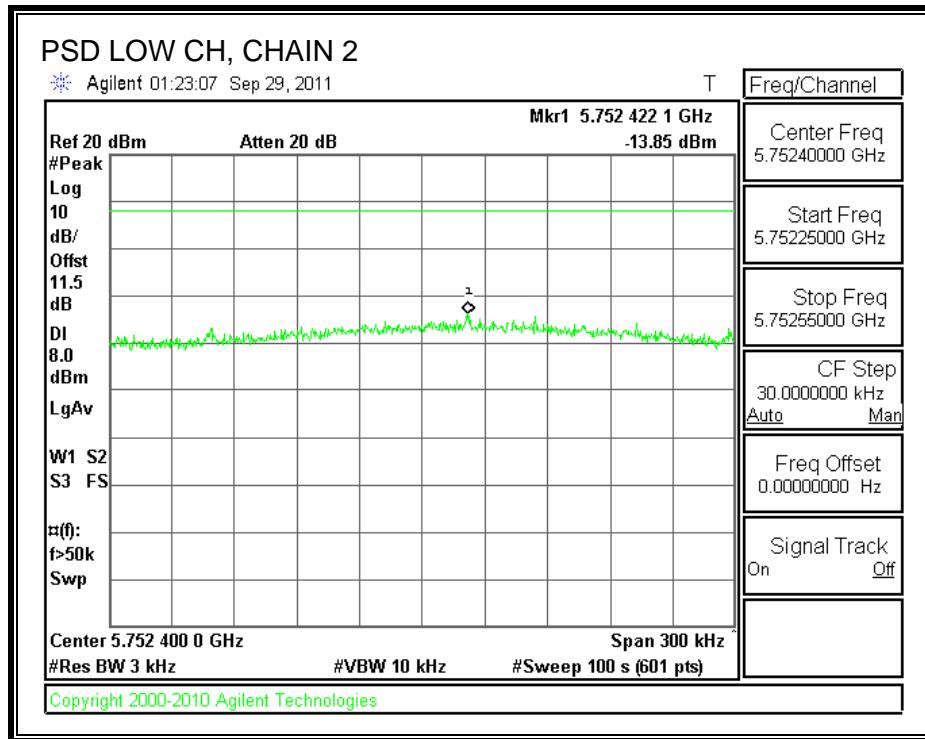
Channel	Frequency (MHz)	Chain 1 PSD (dBm)	Chain 2 PSD (dBm)	Chain 3 PSD (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	5745	-10.89	-13.85	-15.31	-8.18	8	-16.18
Middle	5785	-12.59	-15.44	-15.77	-9.58	8	-17.58
High	5825	-12.38	-14.5	-15.59	-9.18	8	-17.18

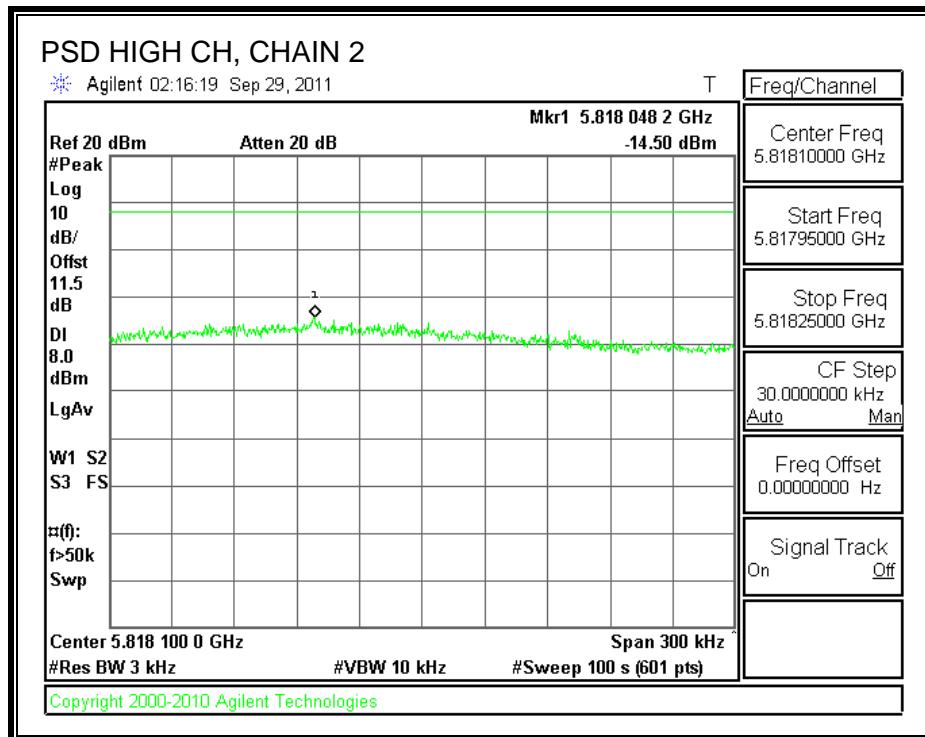
POWER SPECTRAL DENSITY, CHAIN 1



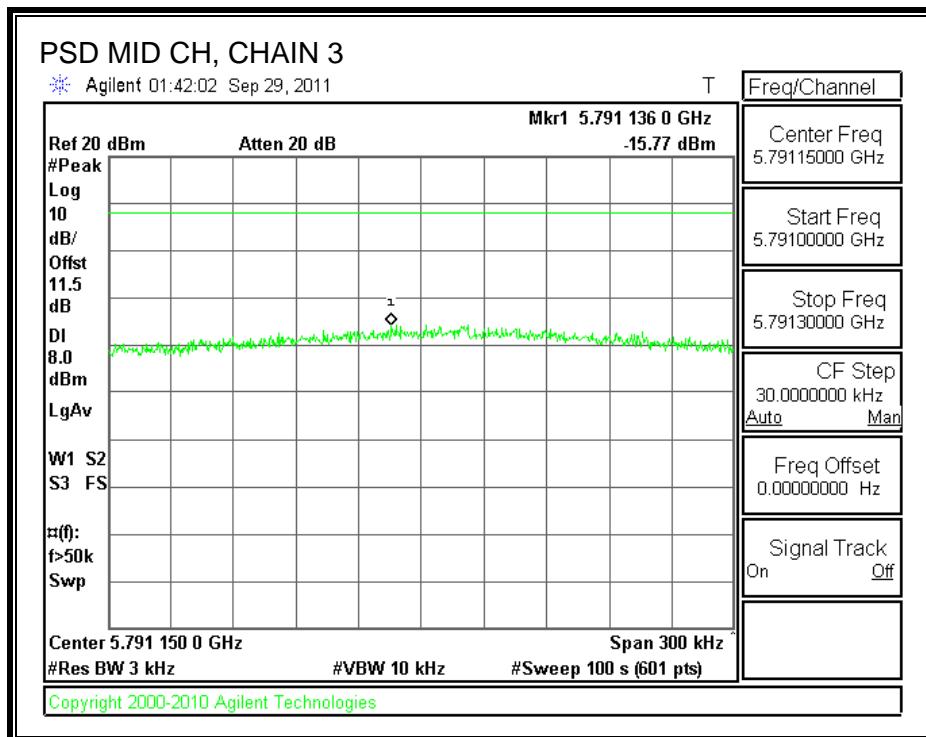
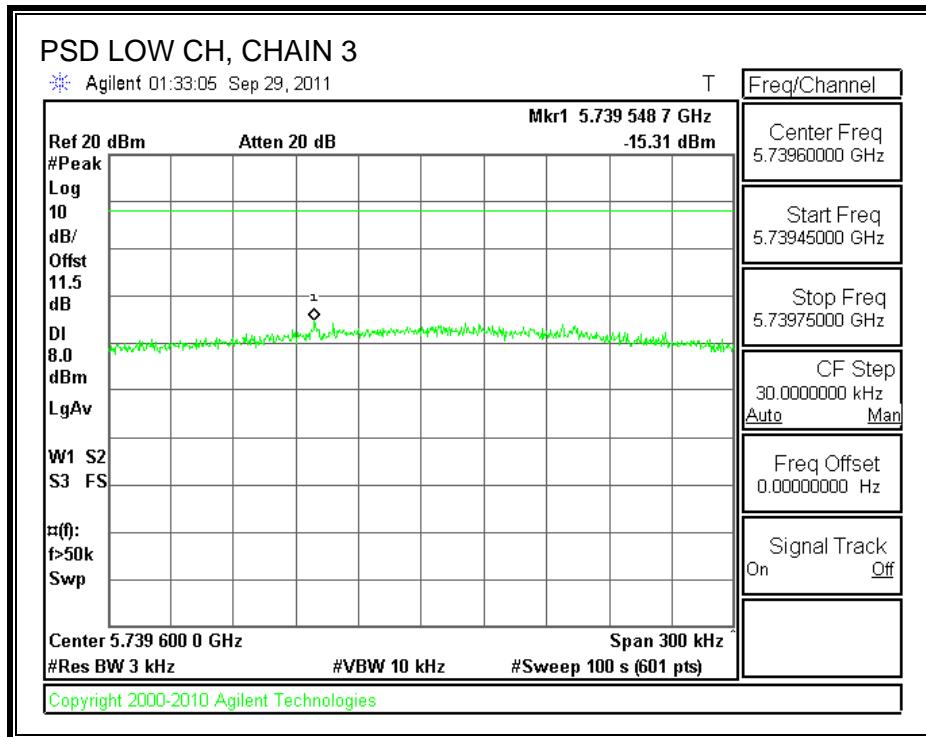


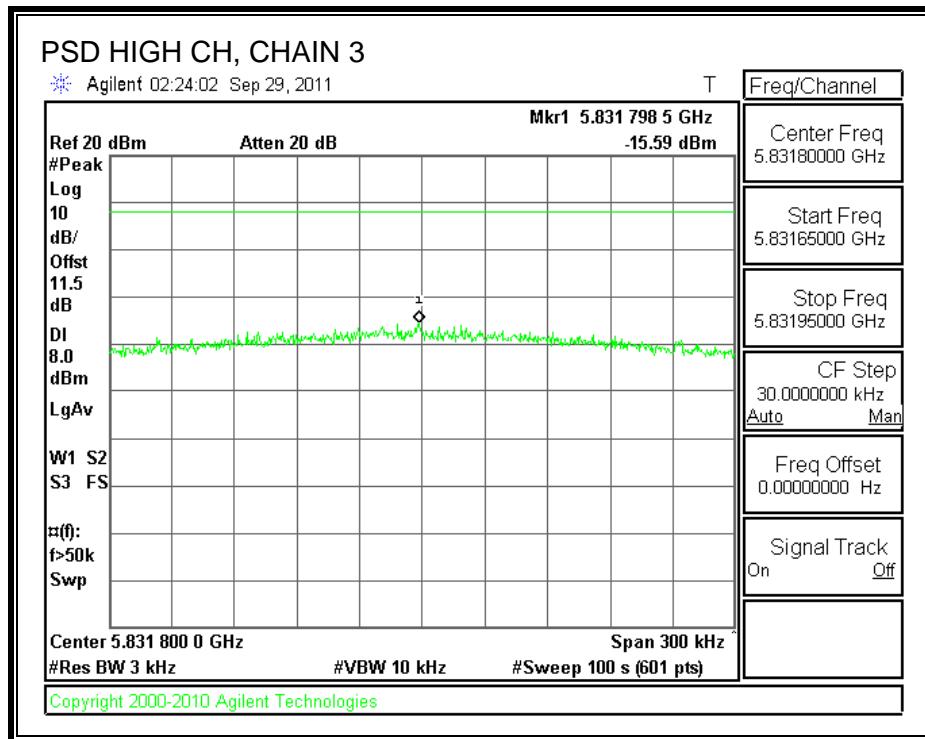
POWER SPECTRAL DENSITY, CHAIN 2





POWER SPECTRAL DENSITY, CHAIN 3





7.9.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

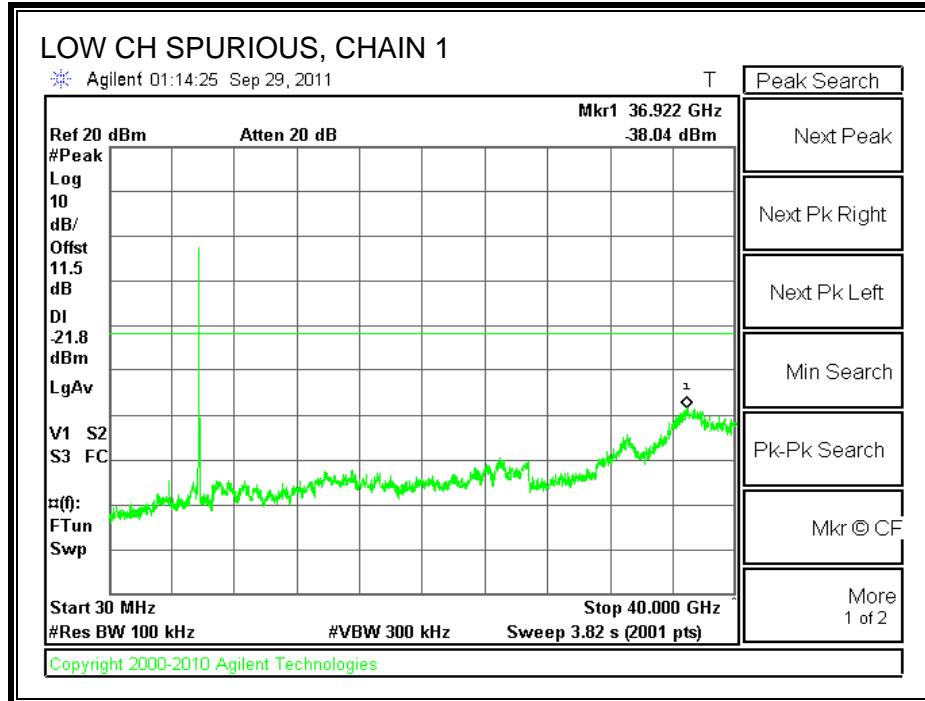
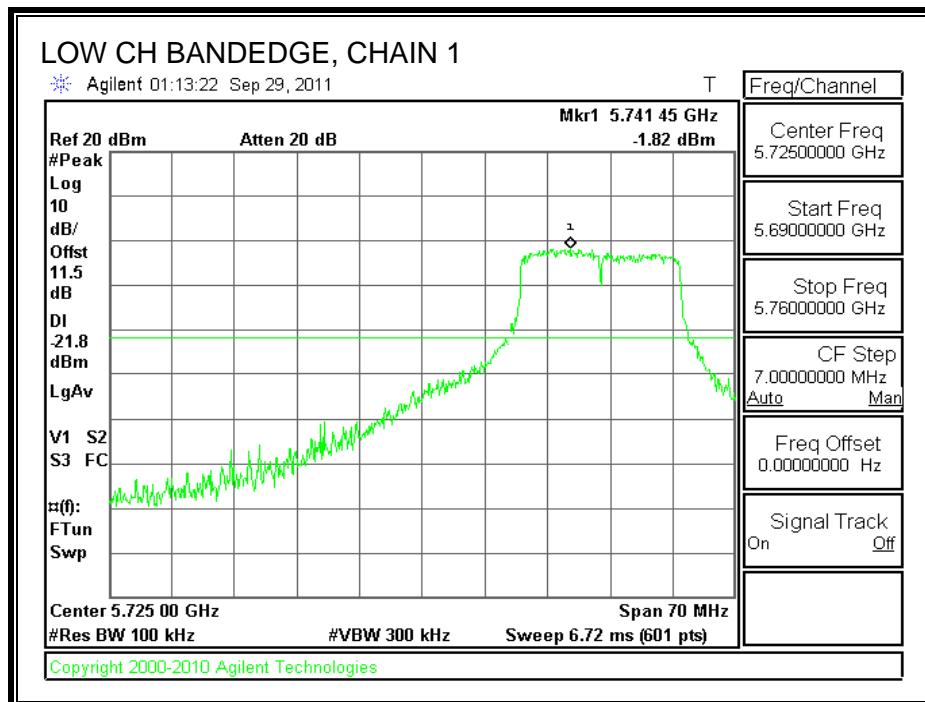
TEST PROCEDURE

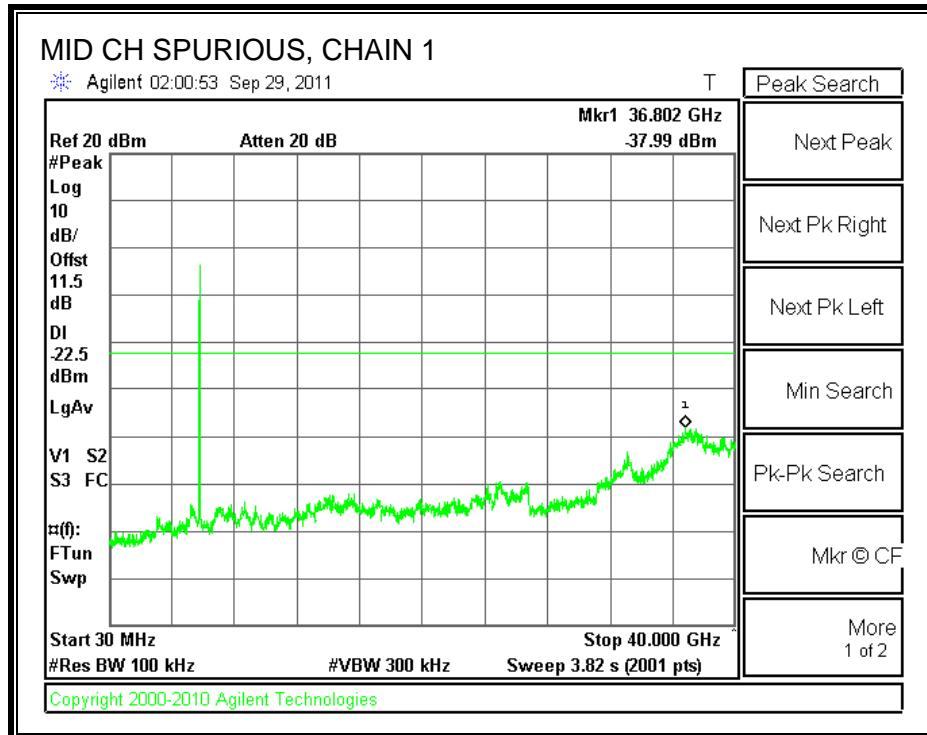
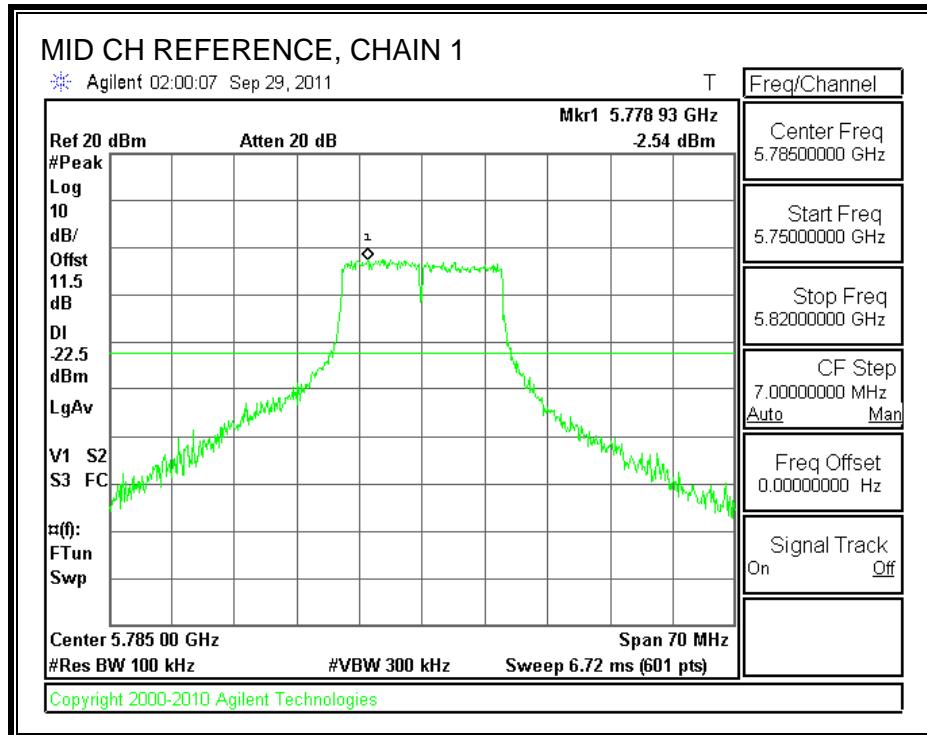
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

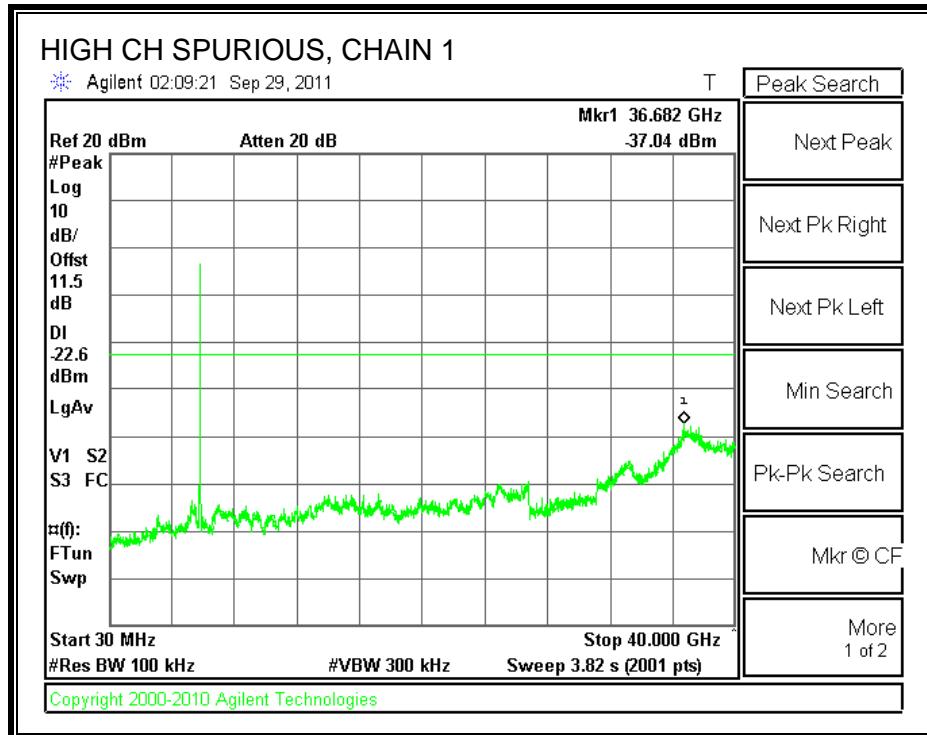
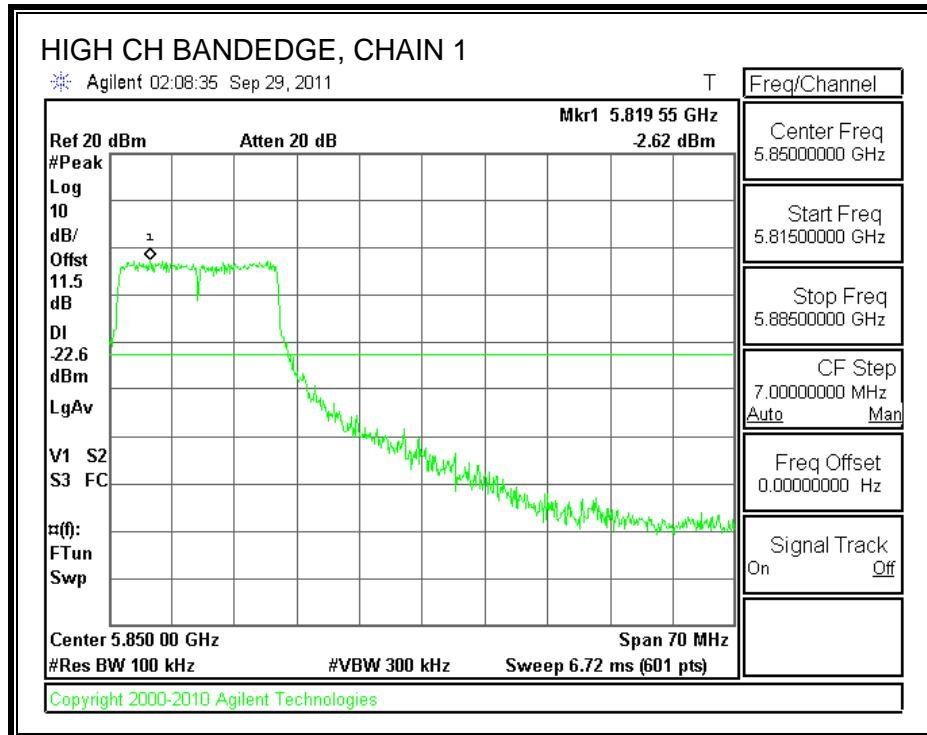
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

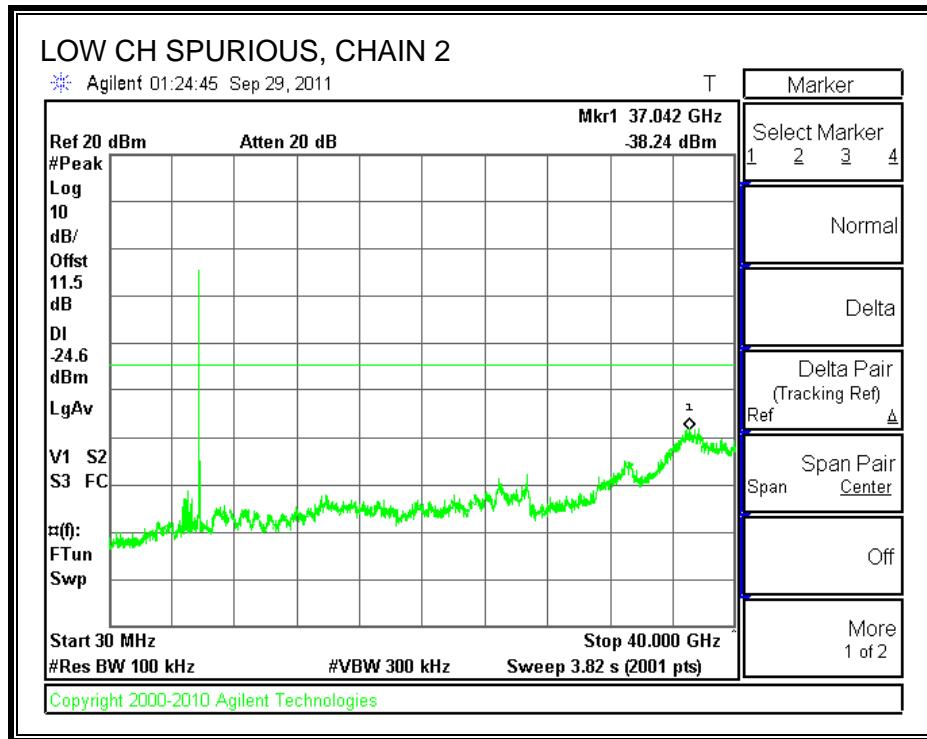
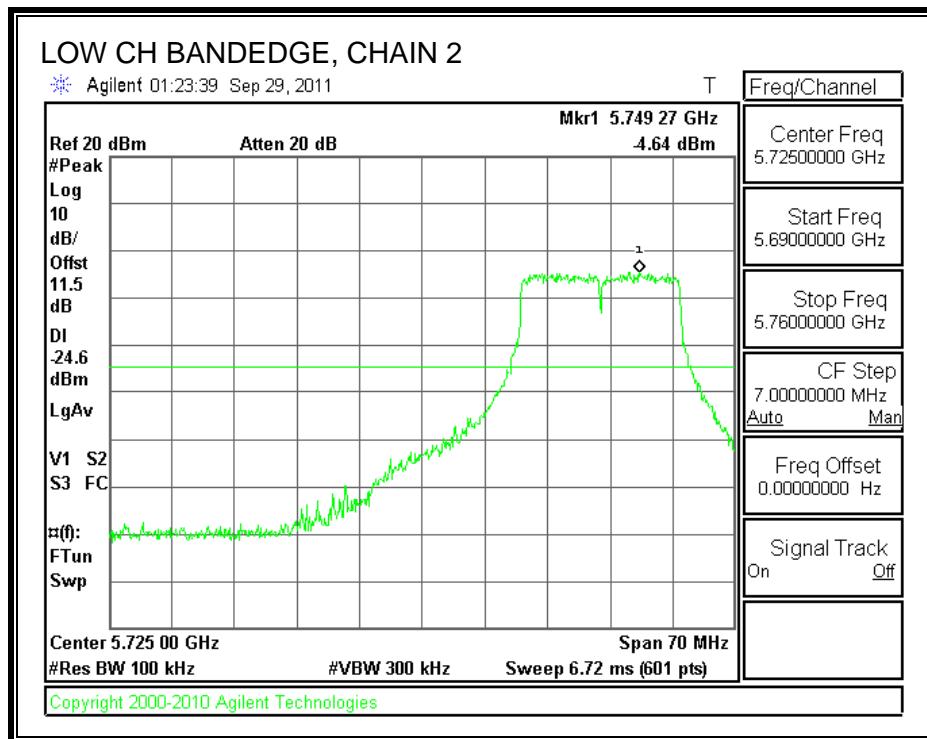
CHAIN 1 SPURIOUS EMISSIONS

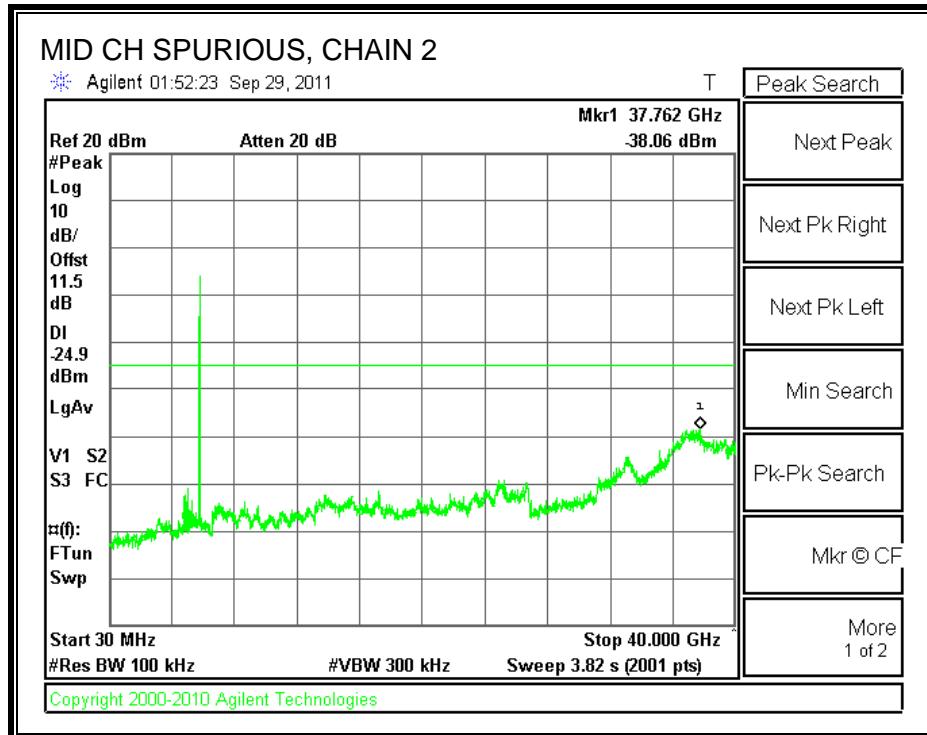
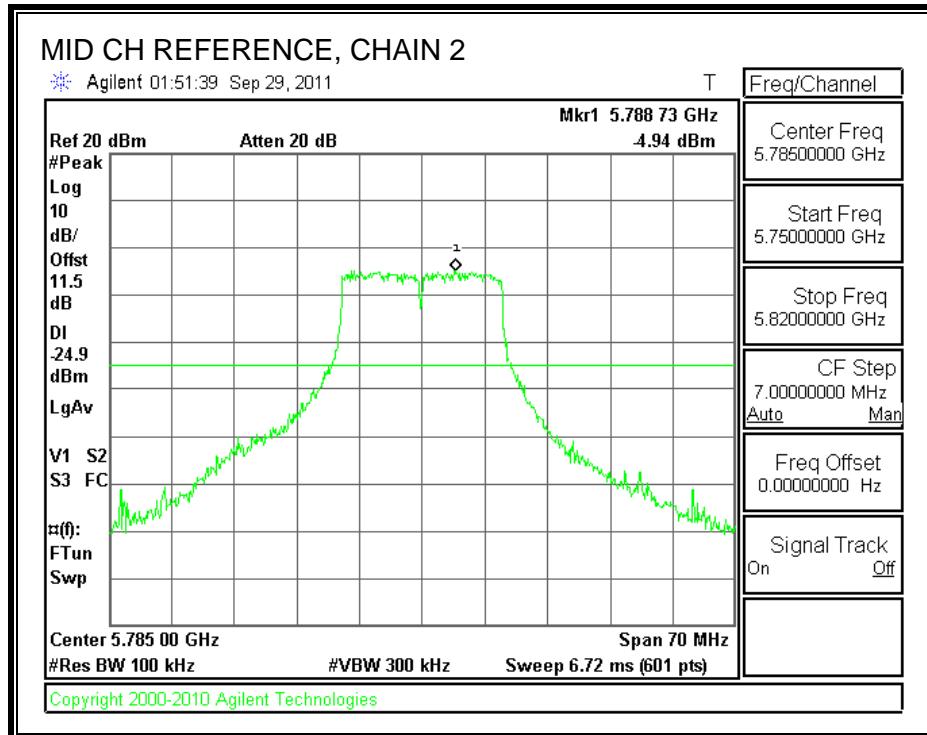


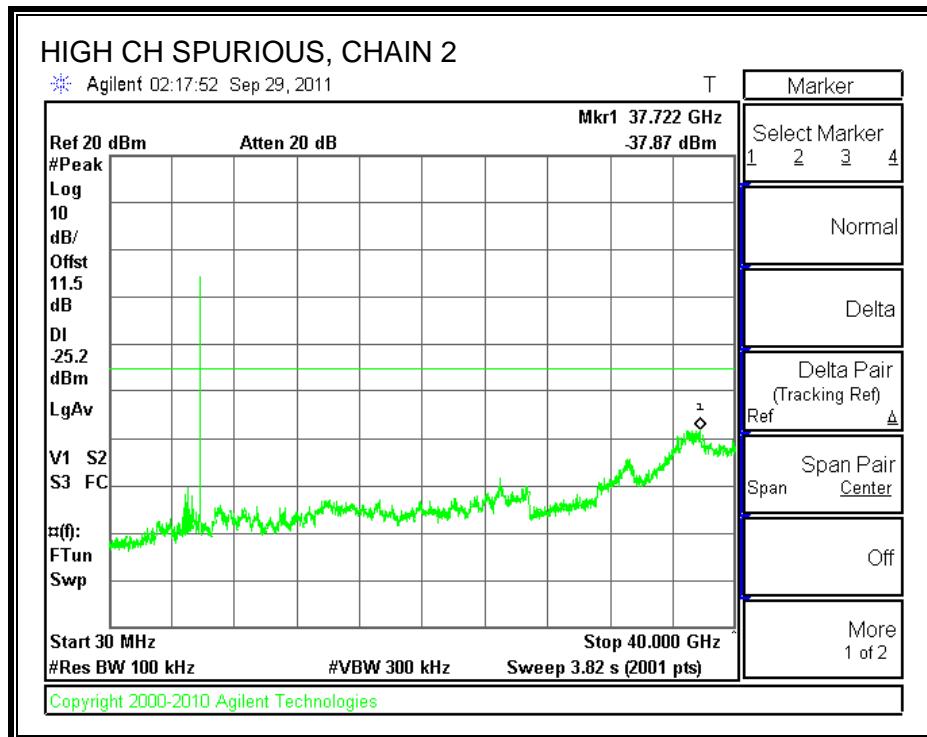
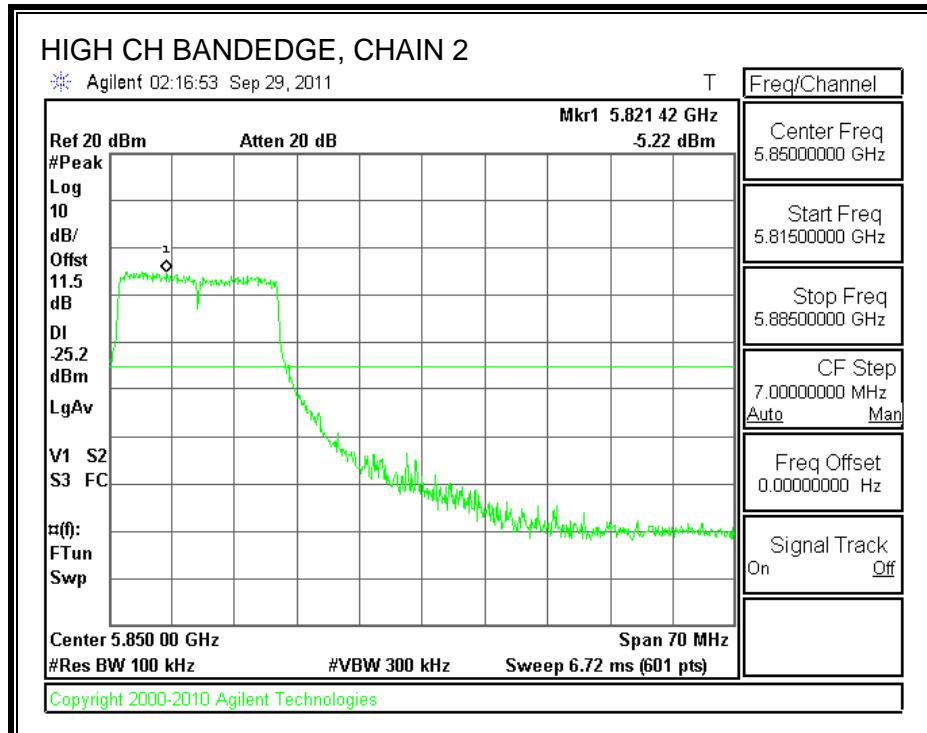




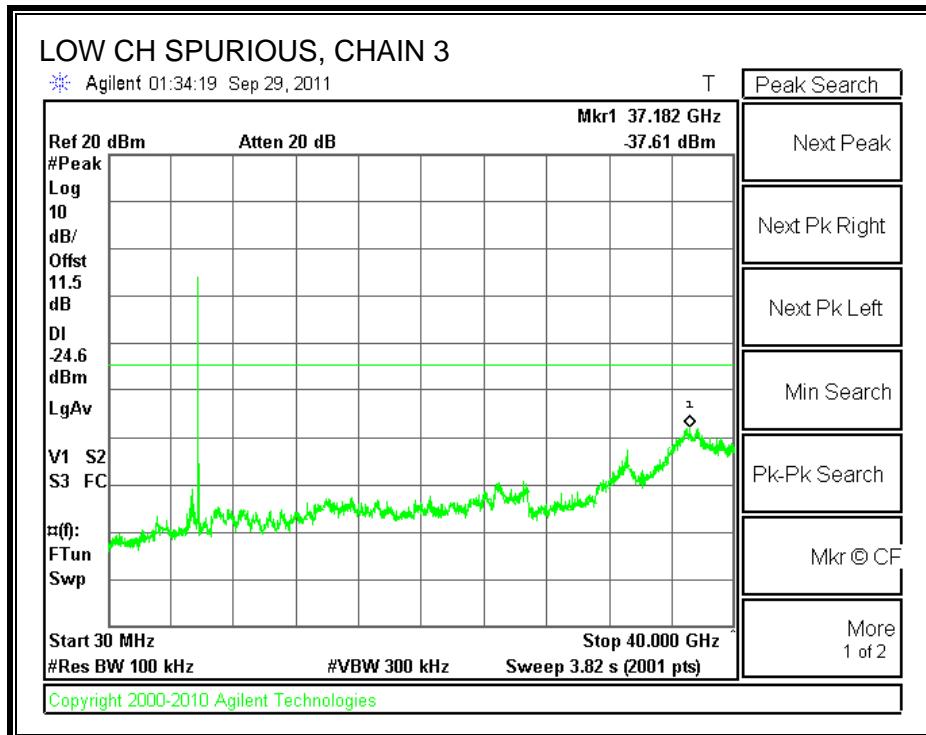
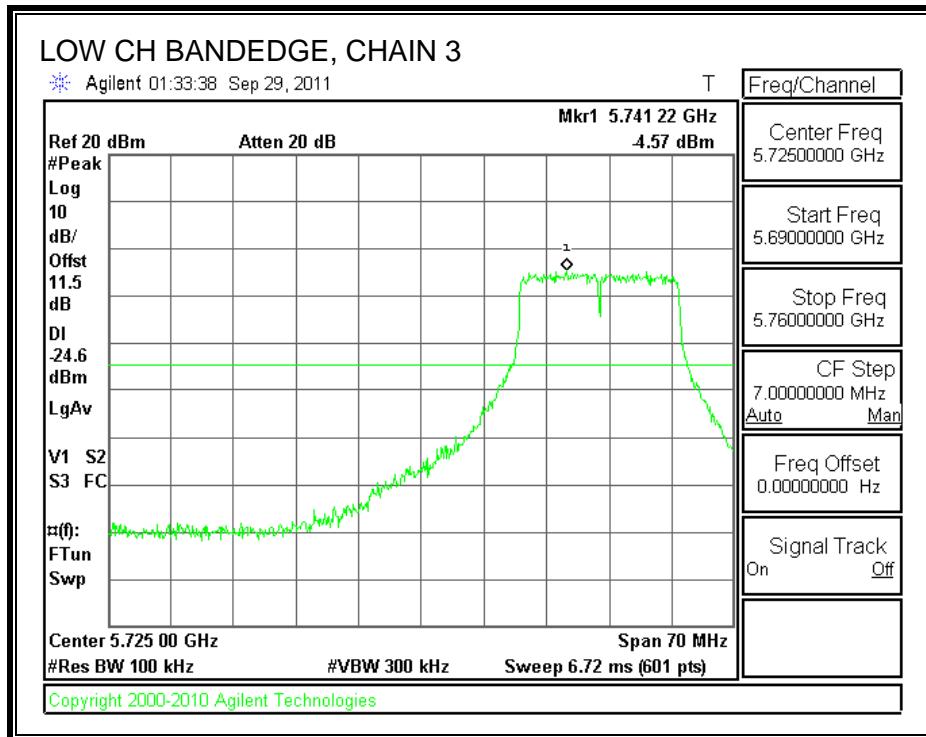
CHAIN 2 SPURIOUS EMISSIONS

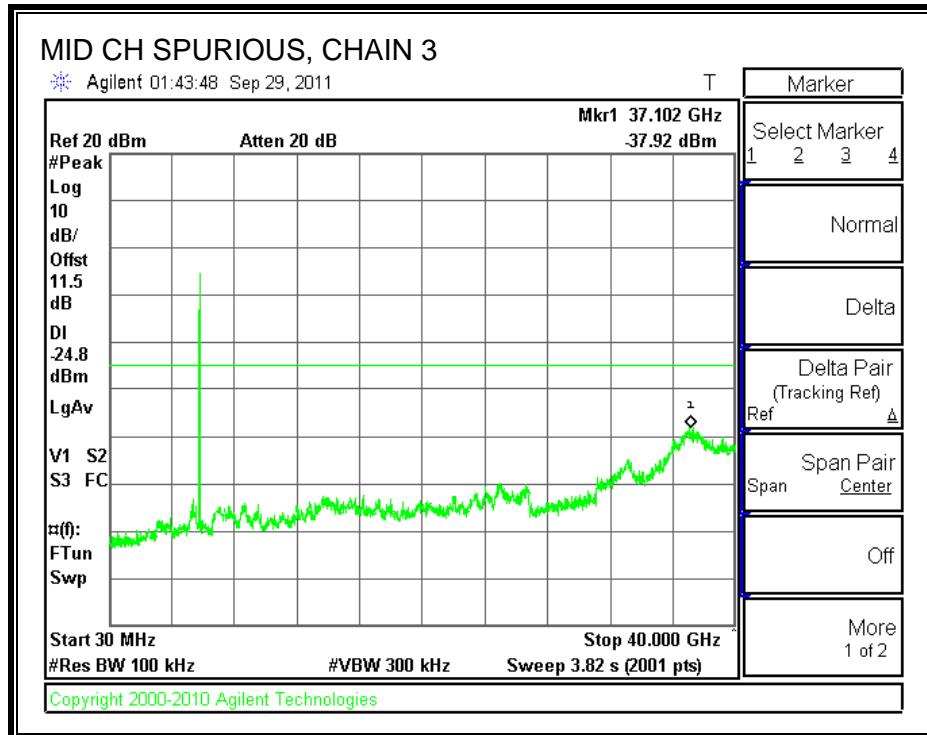
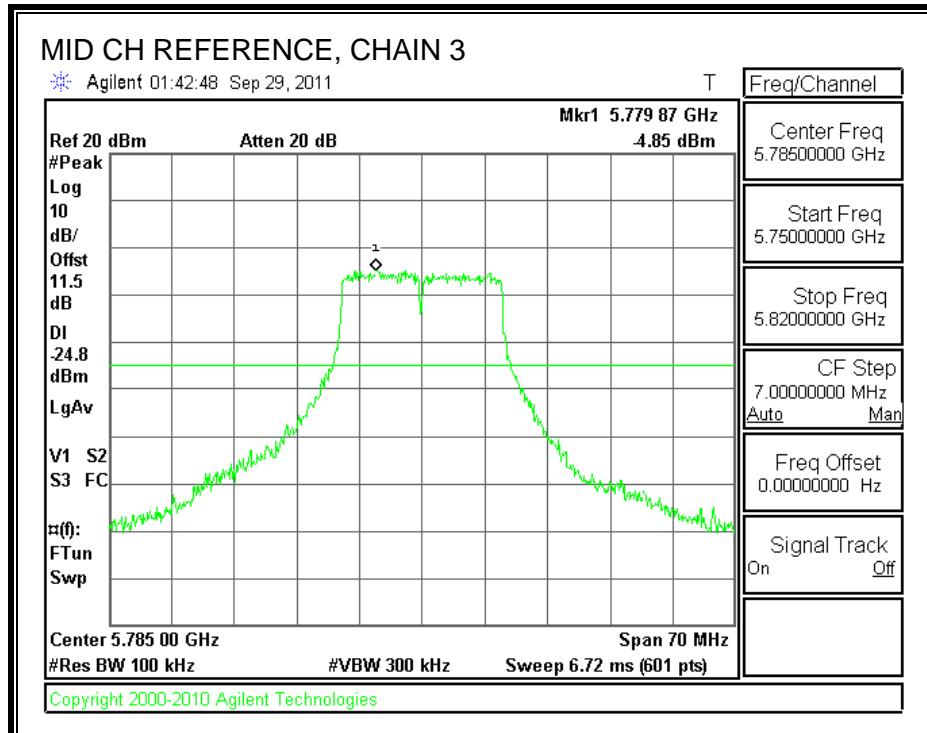


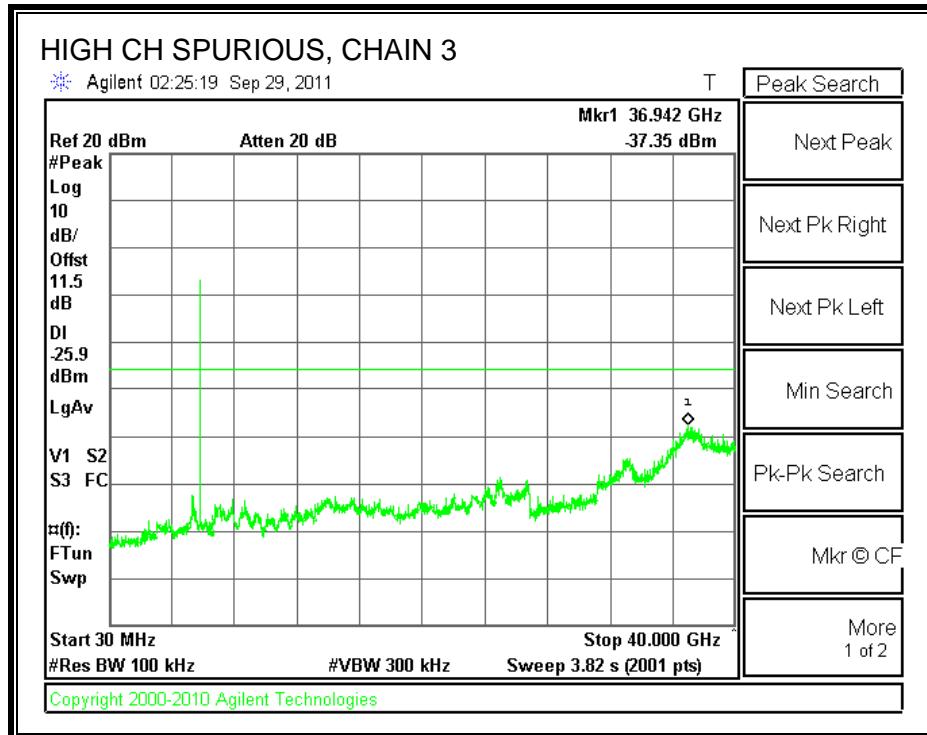
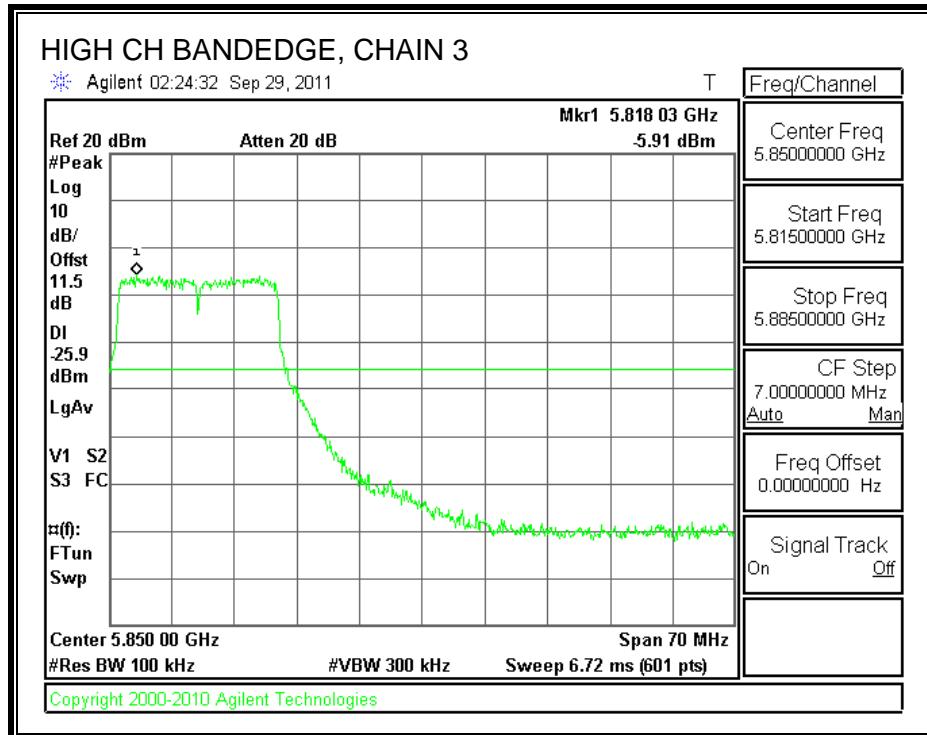




CHAIN 3 SPURIOUS EMISSIONS







7.10. 802.11n HT20 MCS8 3TX MODE IN THE 5.8 GHz BAND

7.10.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

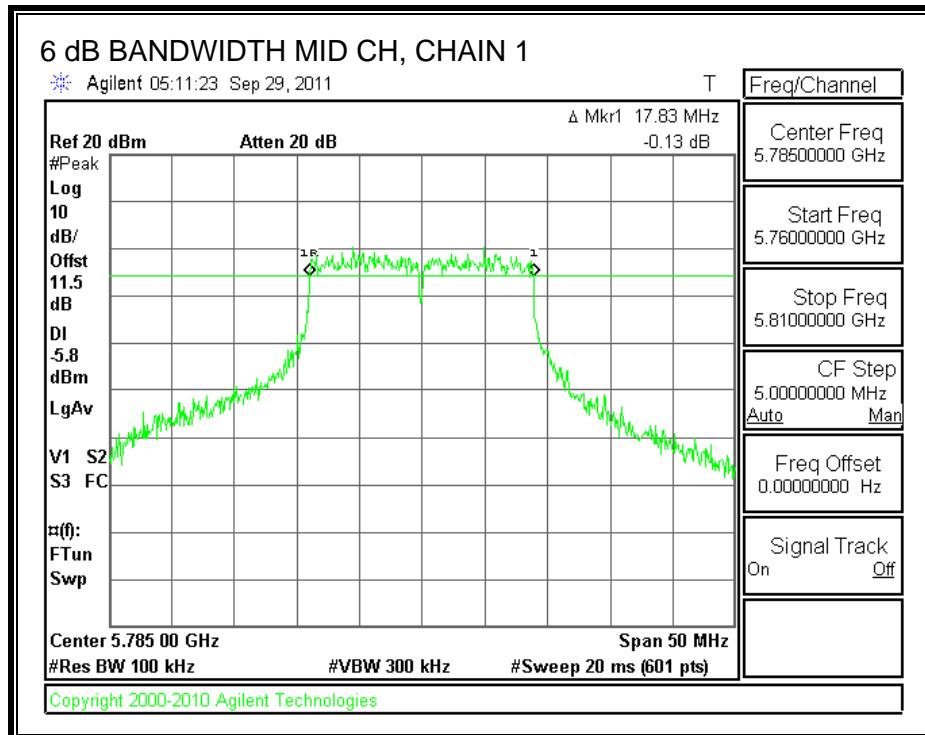
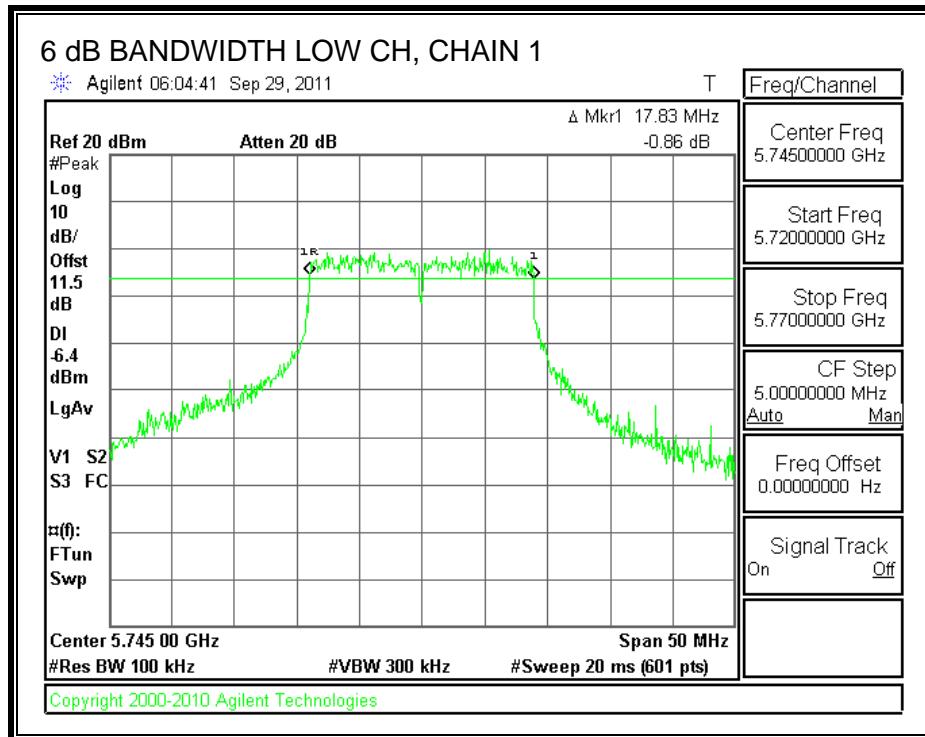
TEST PROCEDURE

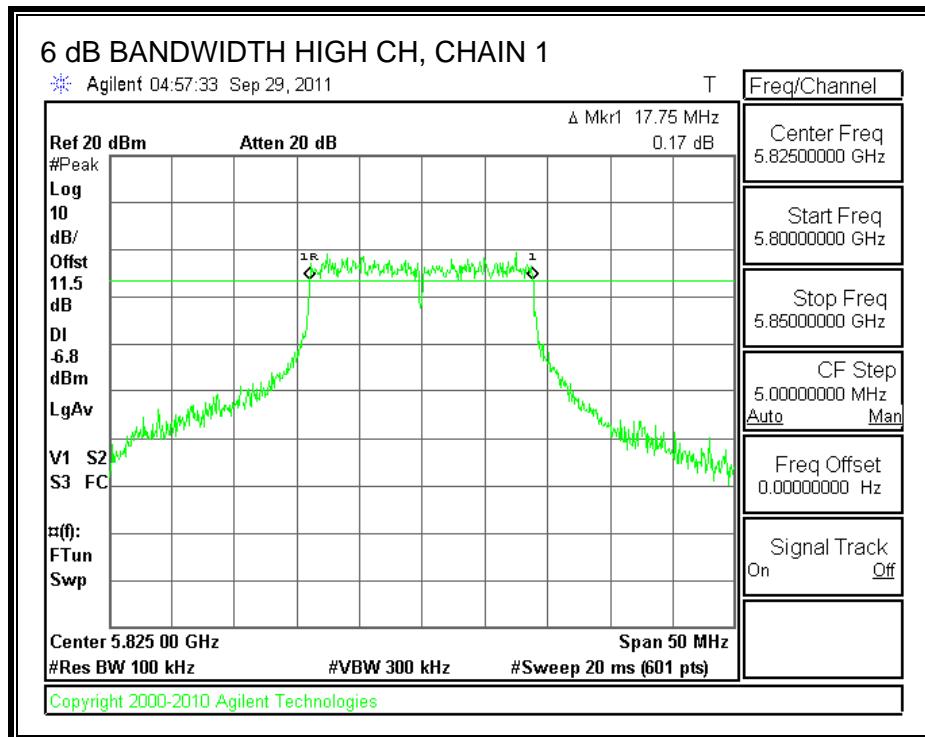
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

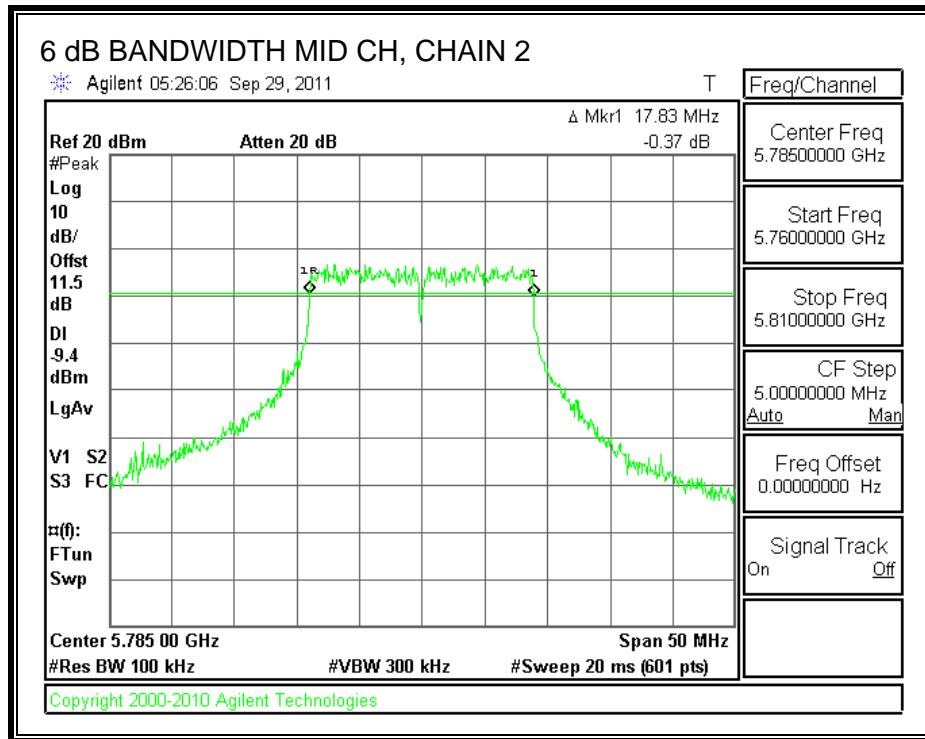
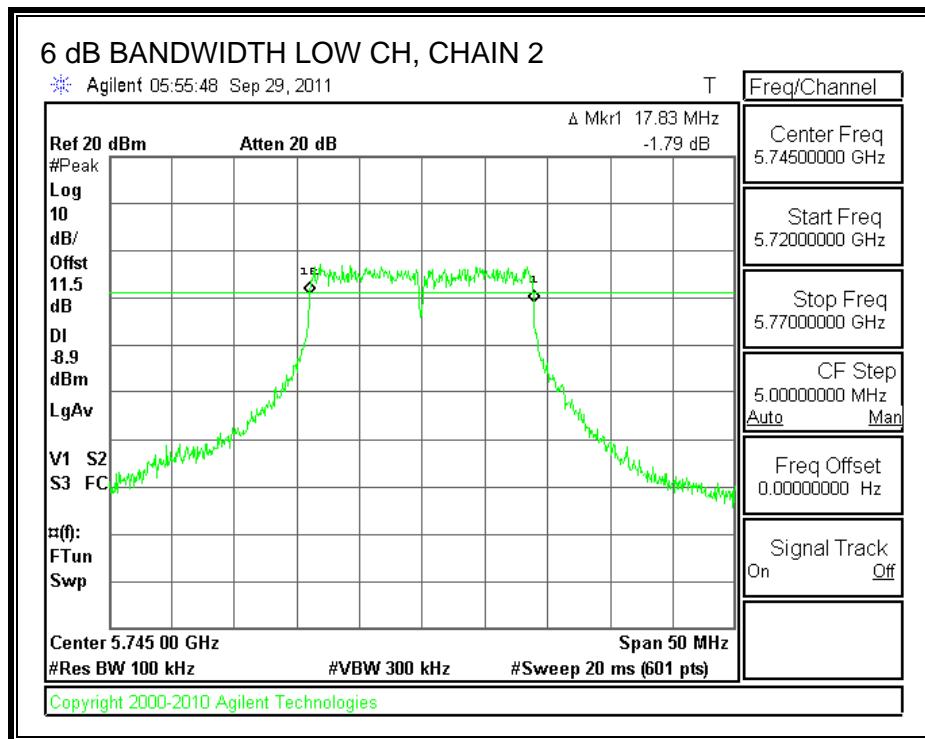
Channel	Frequency (MHz)	Chain 1 6 dB BW (MHz)	Chain 2 6 dB BW (MHz)	Chain 3 6 dB BW (MHz)	Minimum Limit (MHz)
Low	5745	17.83	17.83	17.75	0.5
Middle	5785	17.83	17.83	17.75	0.5
High	5825	17.75	17.83	17.67	0.5

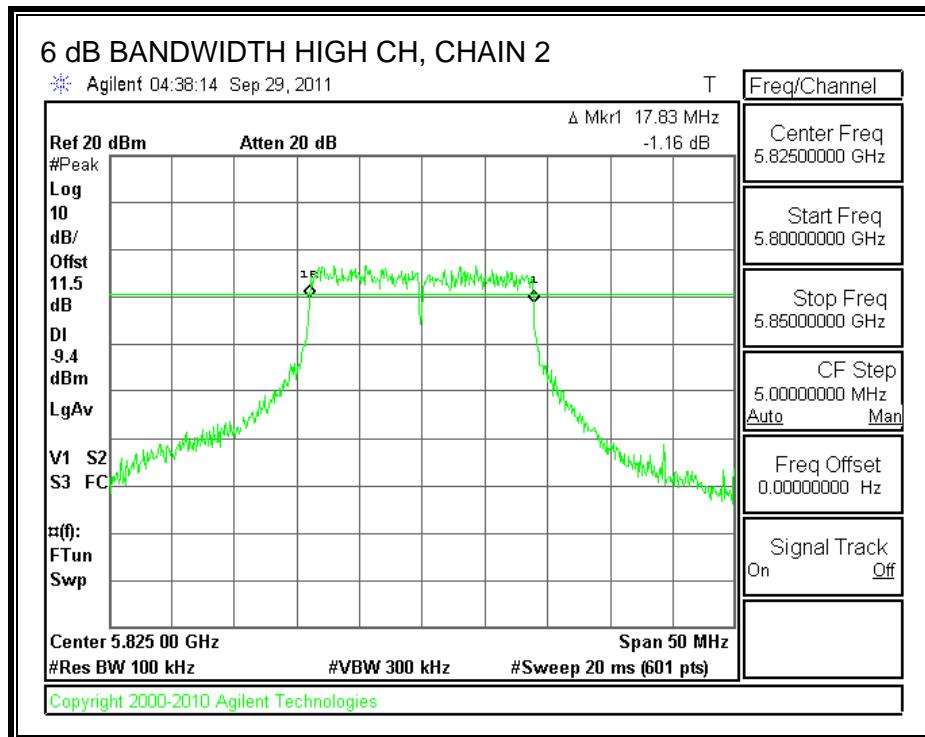
6 dB BANDWIDTH, CHAIN 1



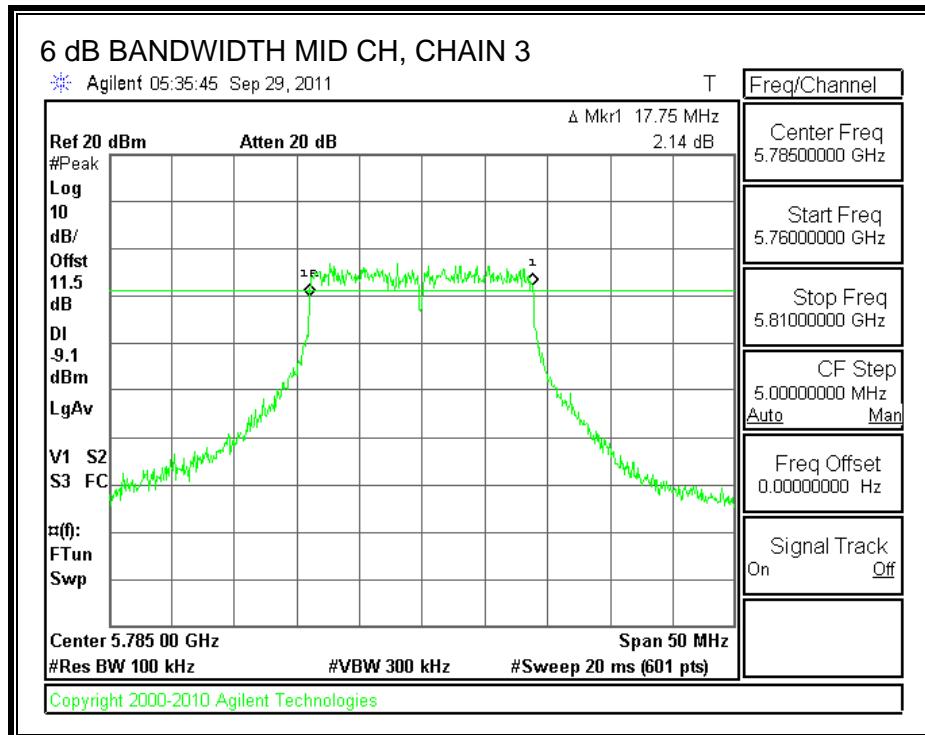
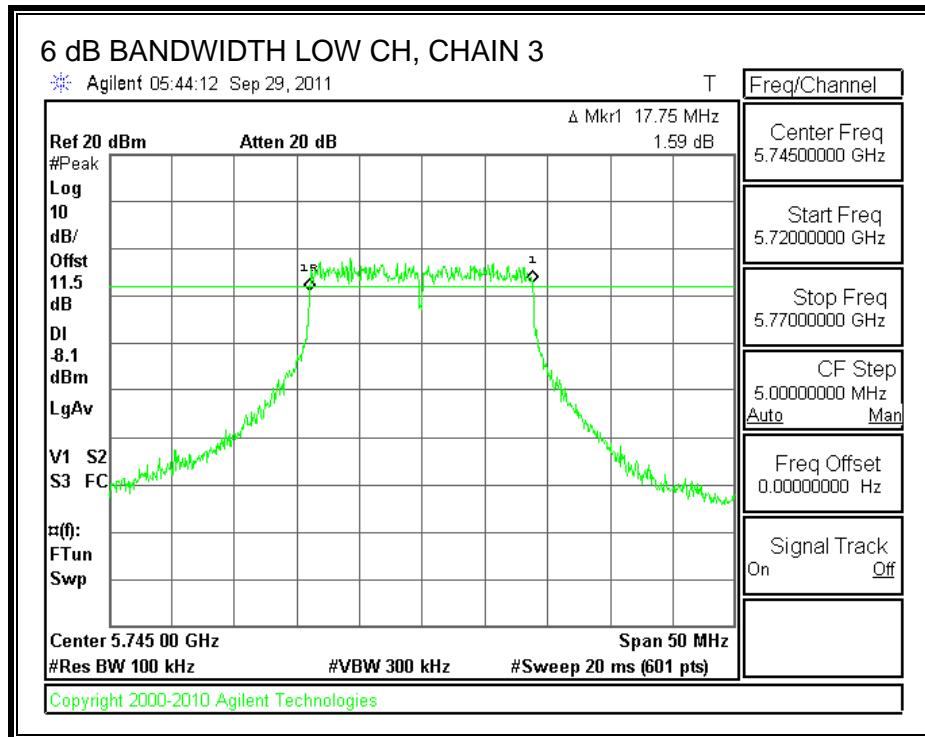


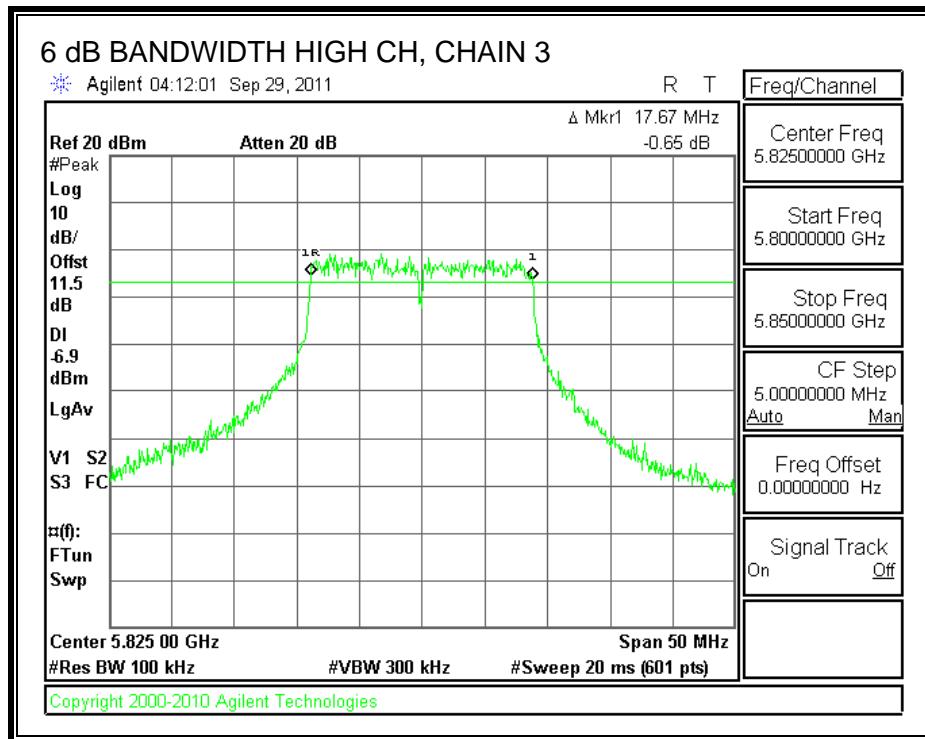
6 dB BANDWIDTH, CHAIN 2





6 dB BANDWIDTH, CHAIN 3





7.10.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

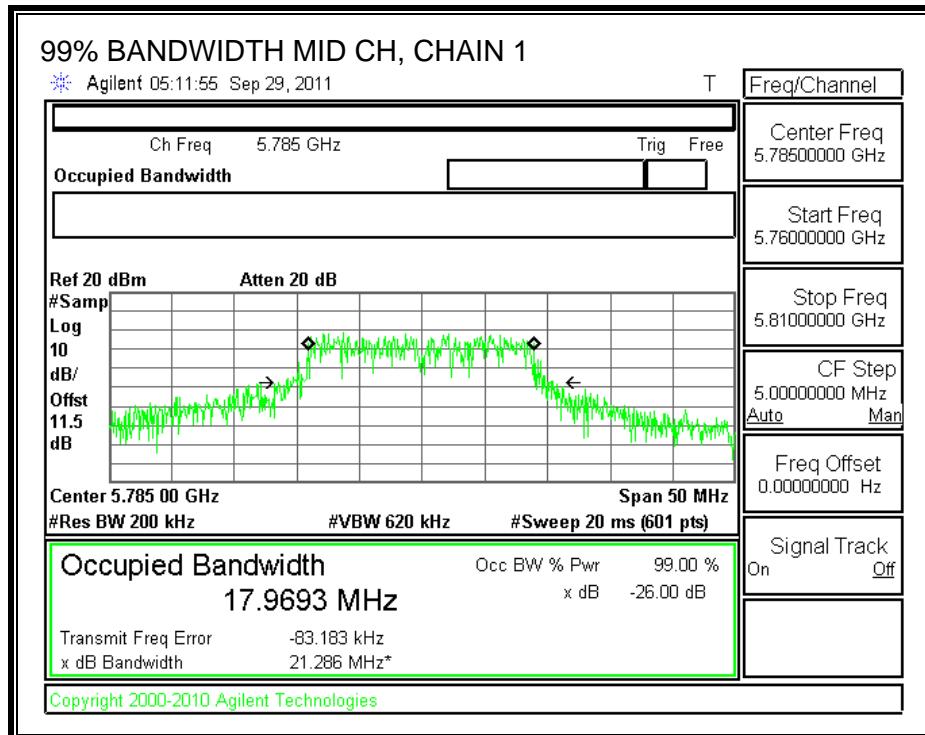
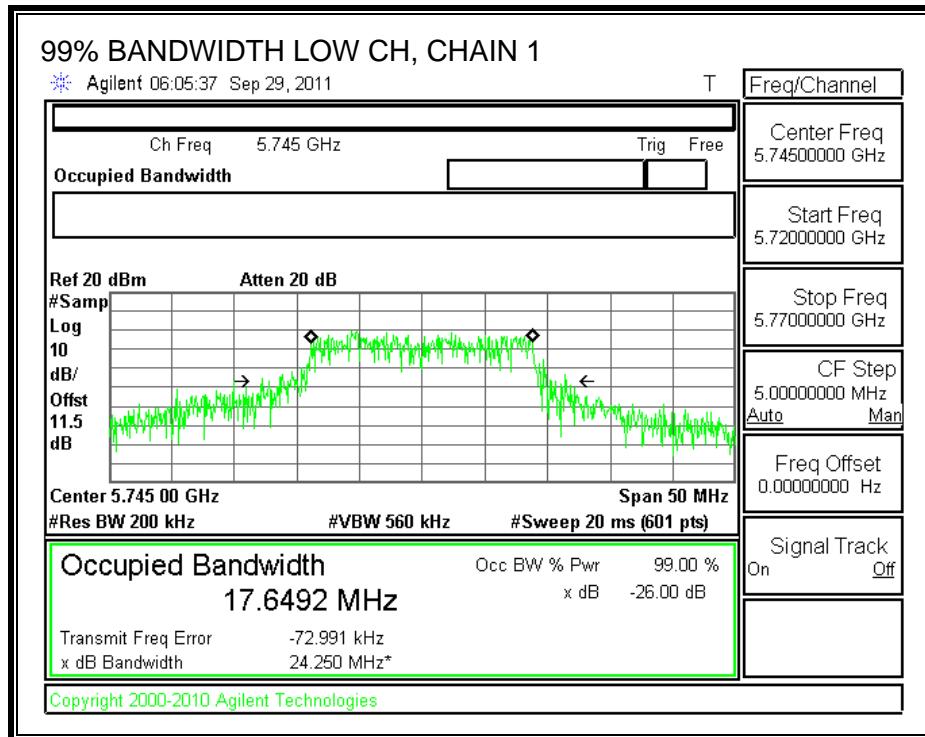
TEST PROCEDURE

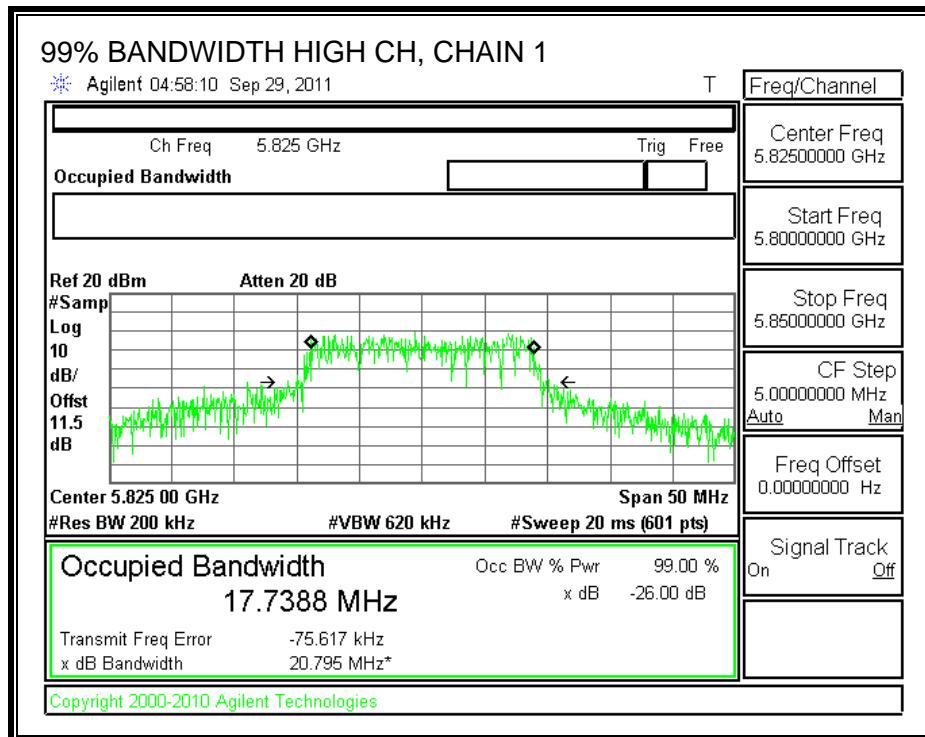
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

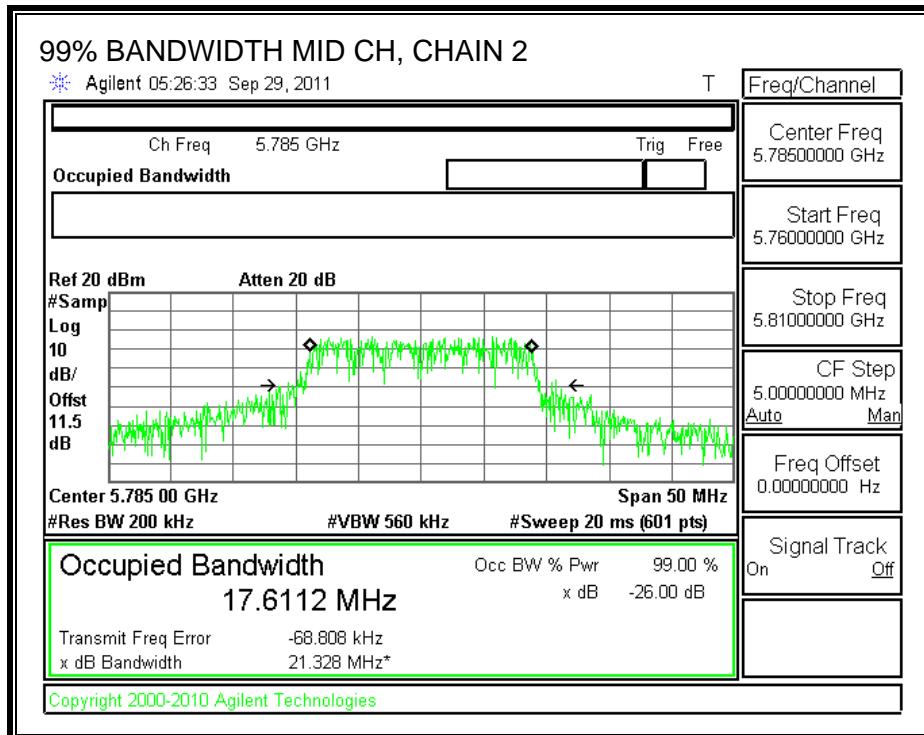
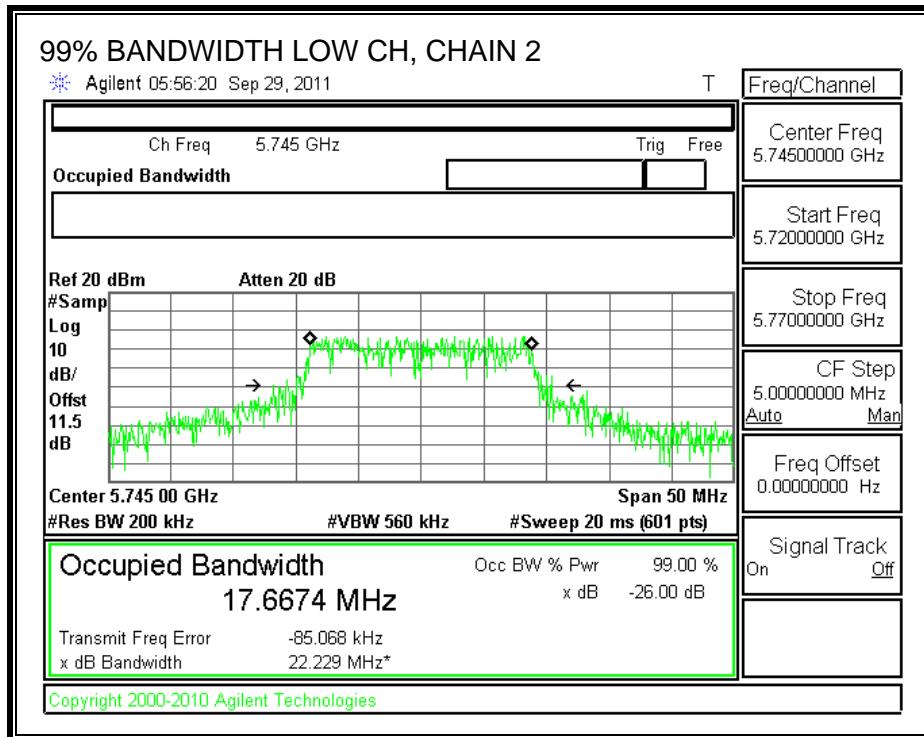
Channel	Frequency (MHz)	Chain 1 99% Bandwidth (MHz)	Chain 2 99% Bandwidth (MHz)	Chain 3 99% Bandwidth (MHz)
Low	5745	17.6492	17.6674	17.7183
Middle	5785	17.9693	17.6112	17.6928
High	5825	17.7388	17.3365	17.6561

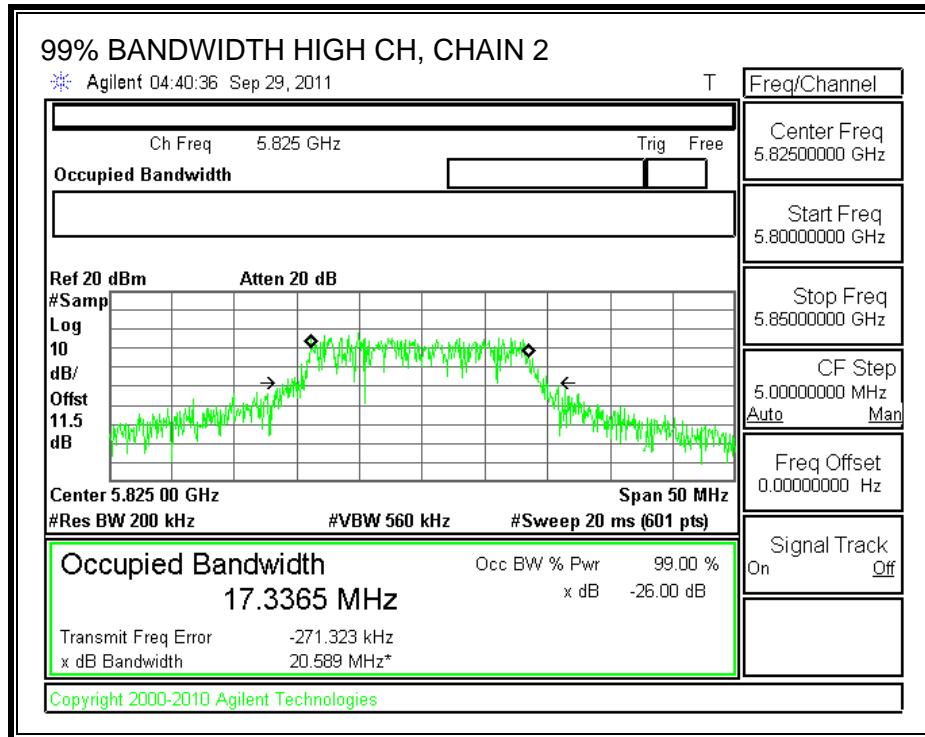
99% BANDWIDTH, CHAIN 1



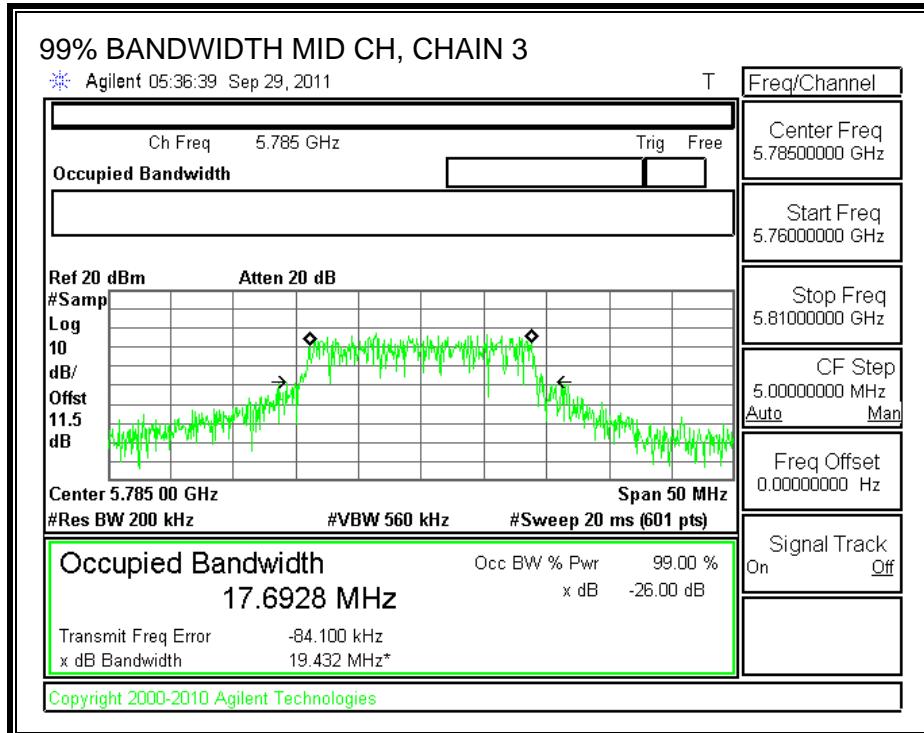
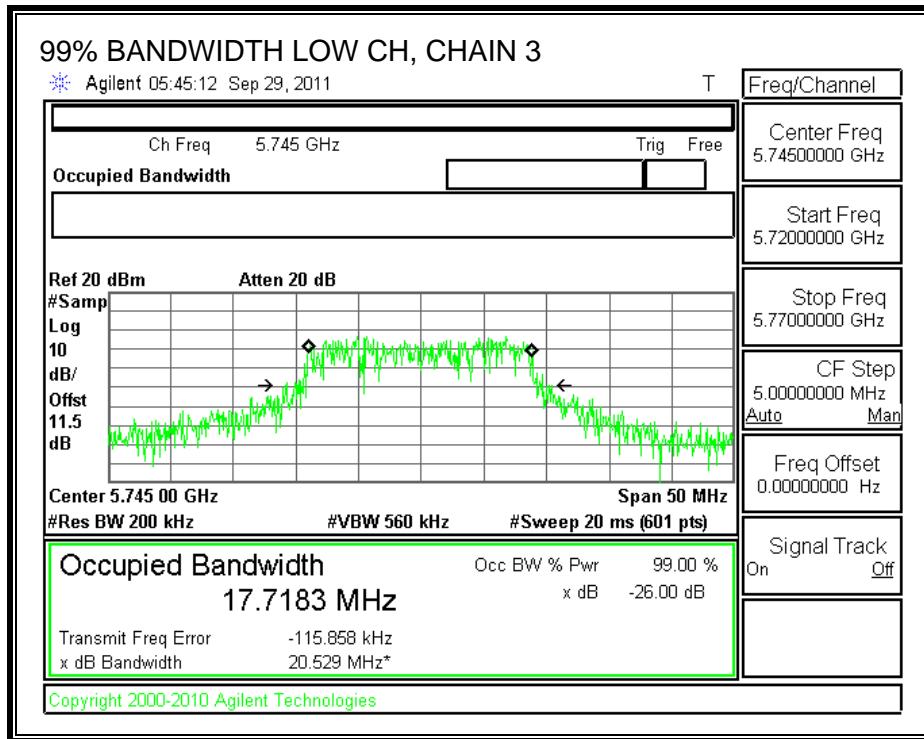


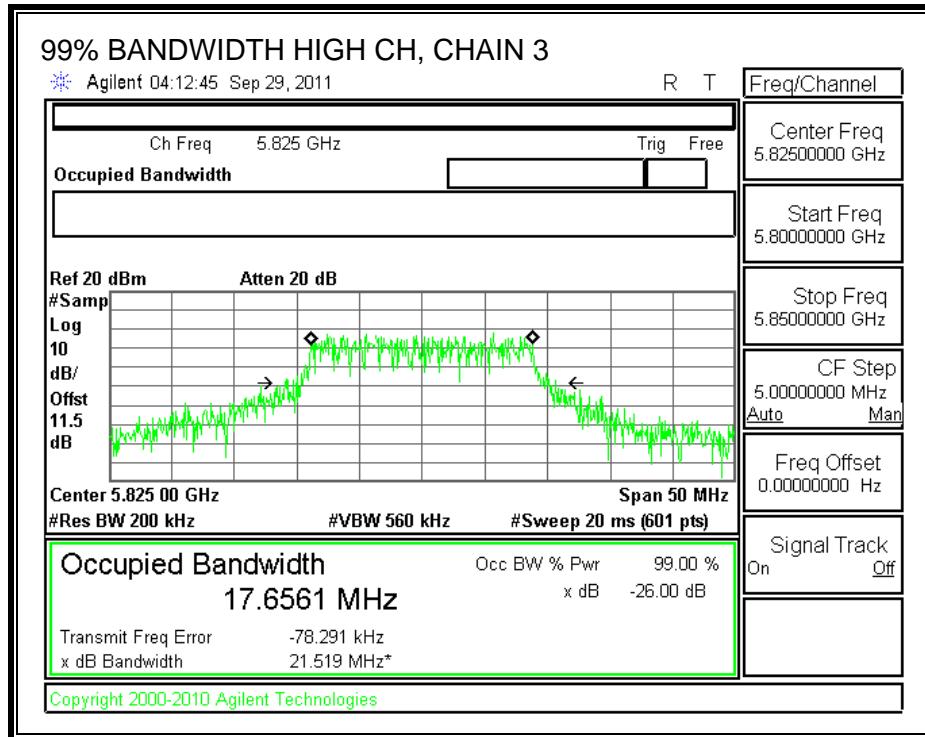
99% BANDWIDTH, CHAIN 2





99% BANDWIDTH, CHAIN 3





7.10.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

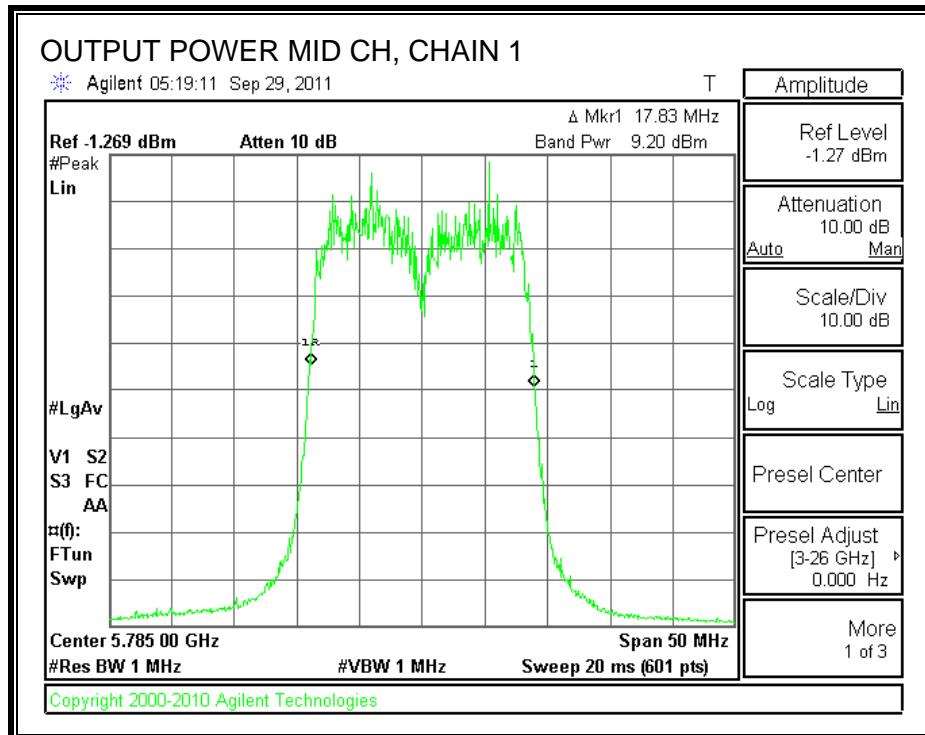
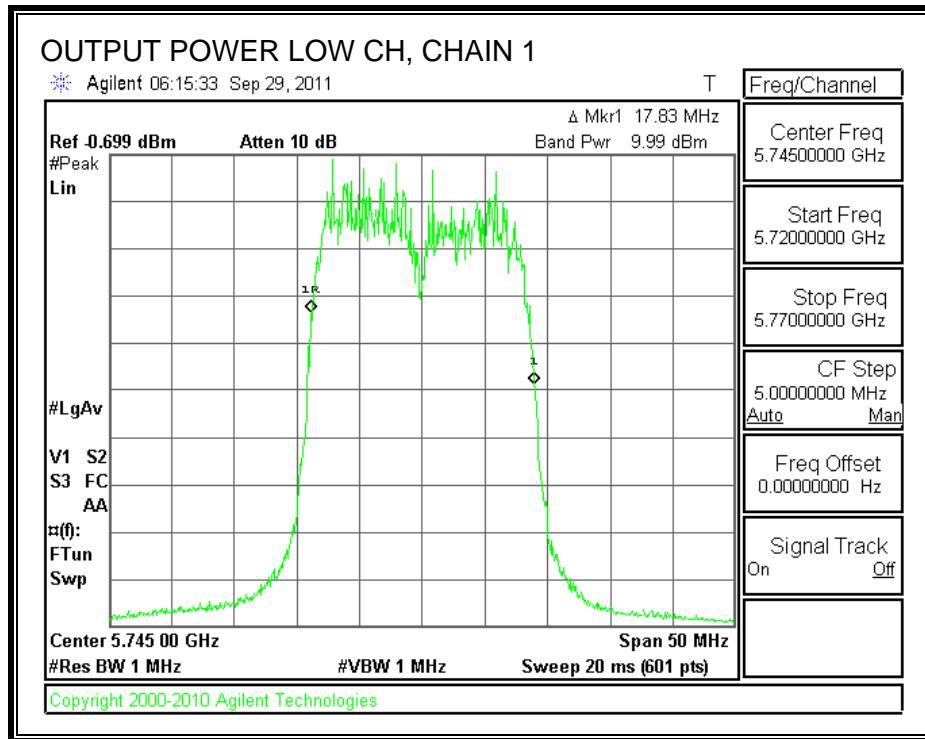
TEST PROCEDURE

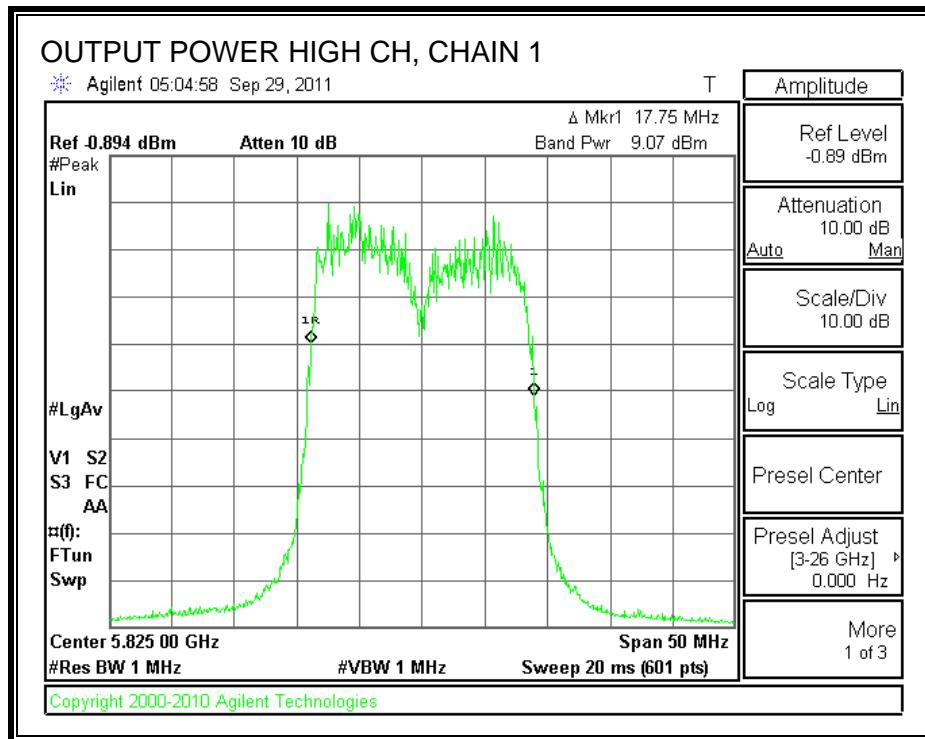
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

RESULTS

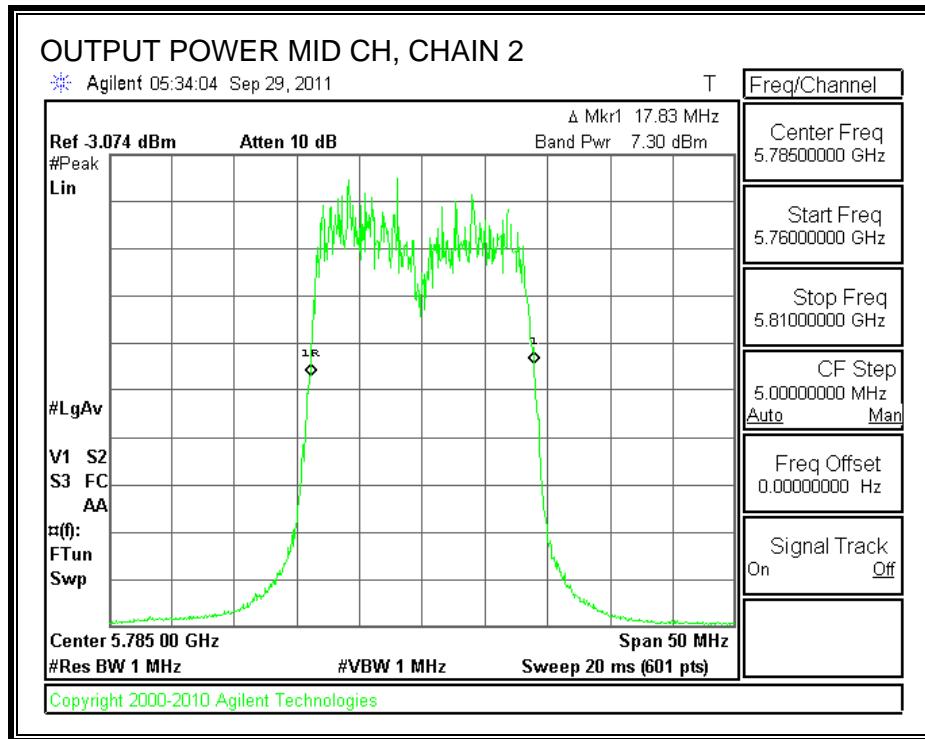
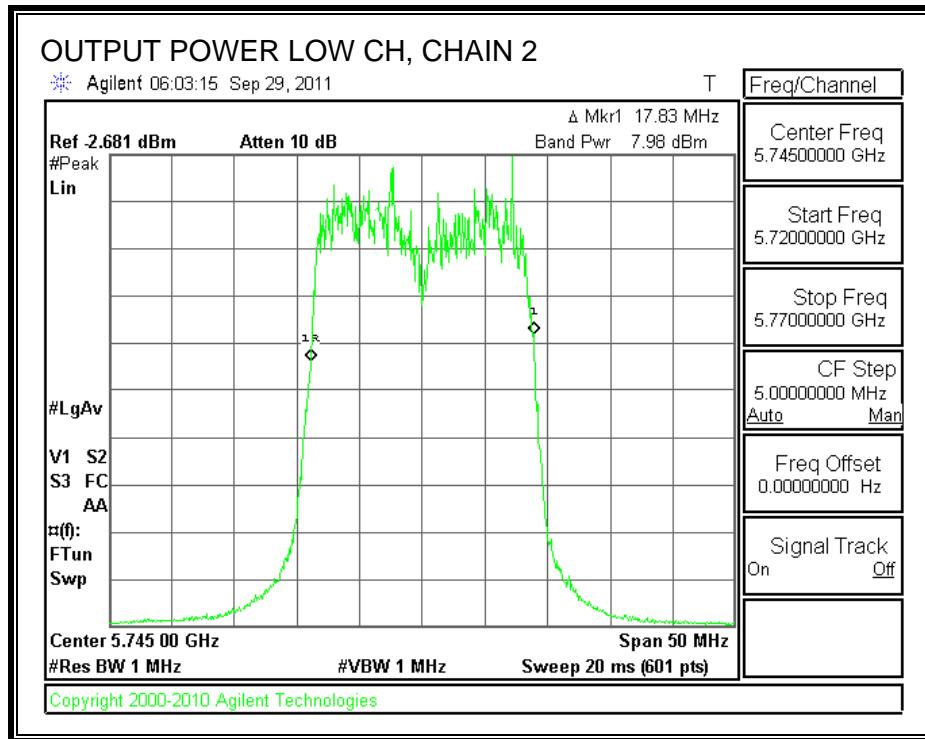
Channel	Frequency (MHz)	Chain 1 PK Power (dBm)	Chain 2 PK Power (dBm)	Chain 3 PK Power (dBm)	Attenuator + Cable Loss (dB)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	5745	9.99	7.98	7.19	11.50	24.82	30.00	-5.18
Mid	5785	9.20	7.30	7.16	11.50	24.26	30.00	-5.74
High	5825	9.07	7.48	6.92	11.50	24.19	30.00	-5.81

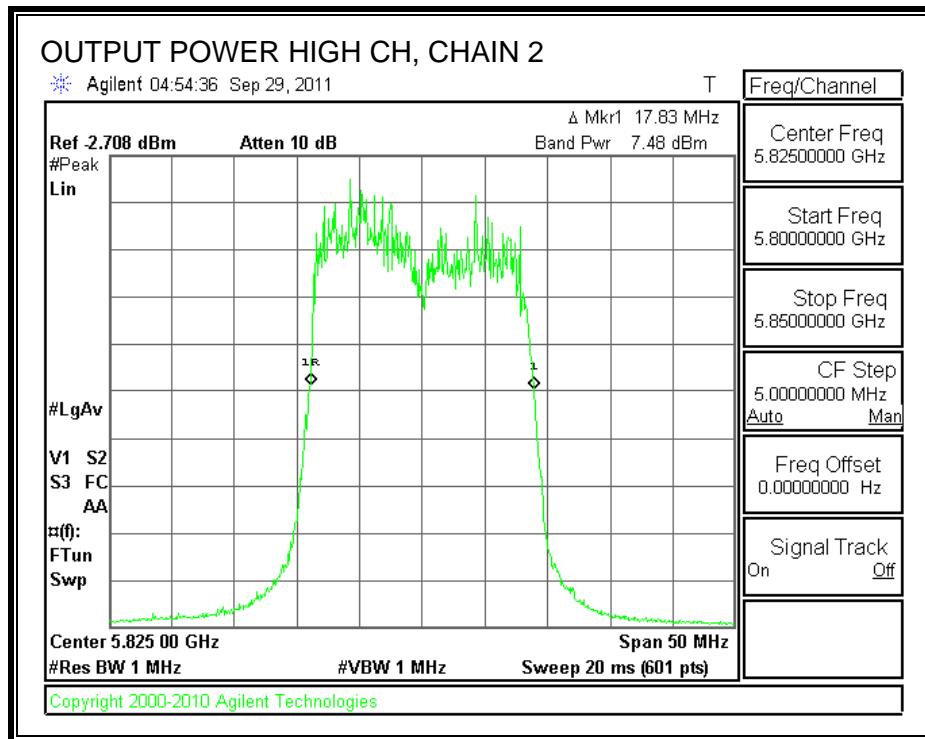
CHAIN 1 OUTPUT POWER



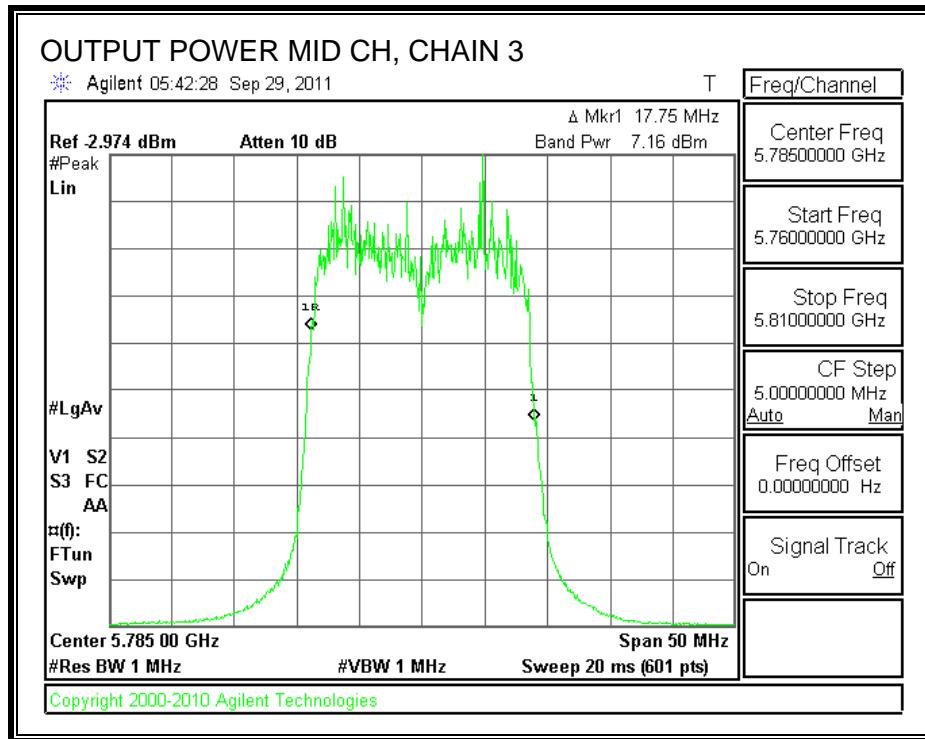
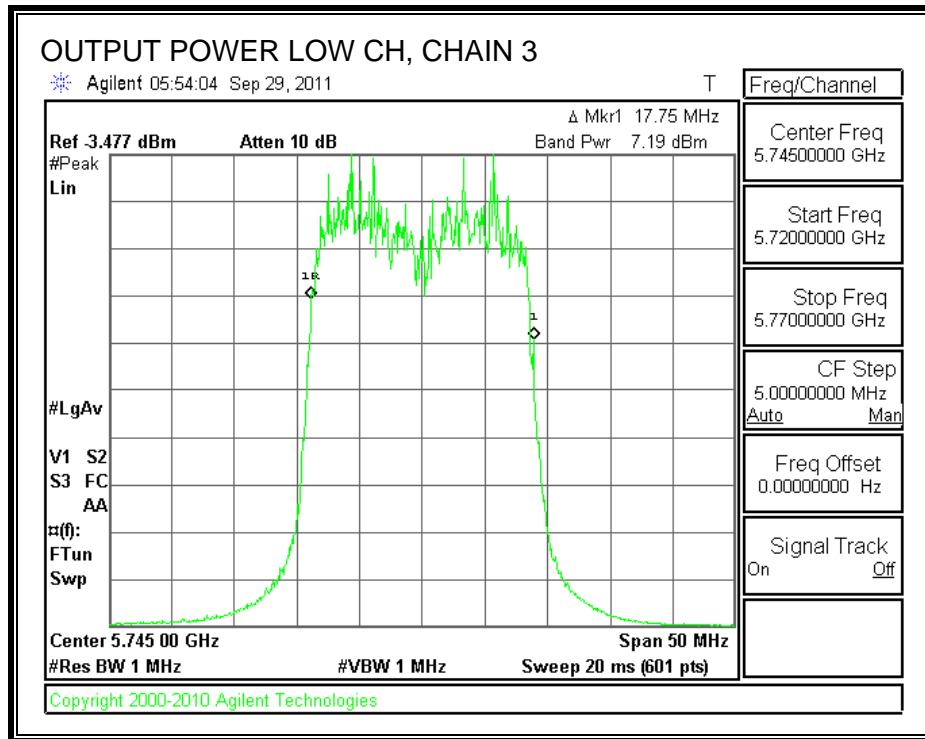


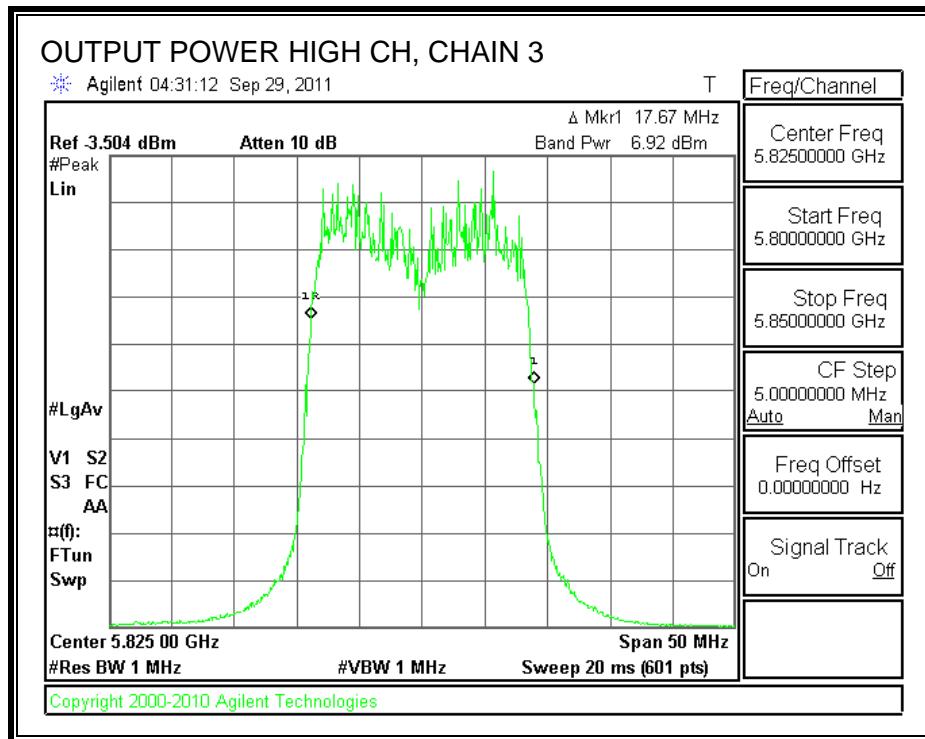
CHAIN 2 OUTPUT POWER





CHAIN 3 OUTPUT POWER





7.10.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11.5 dB (including 10 dB pad and 1.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Chain 1 Power (dBm)	Chain 2 Power (dBm)	Chain 3 Power (dBm)	Total Power (dBm)
Low	5745	13.70	13.70	13.70	18.47
Middle	5785	13.70	13.70	13.70	18.47
High	5825	13.30	13.30	13.30	18.07

7.10.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

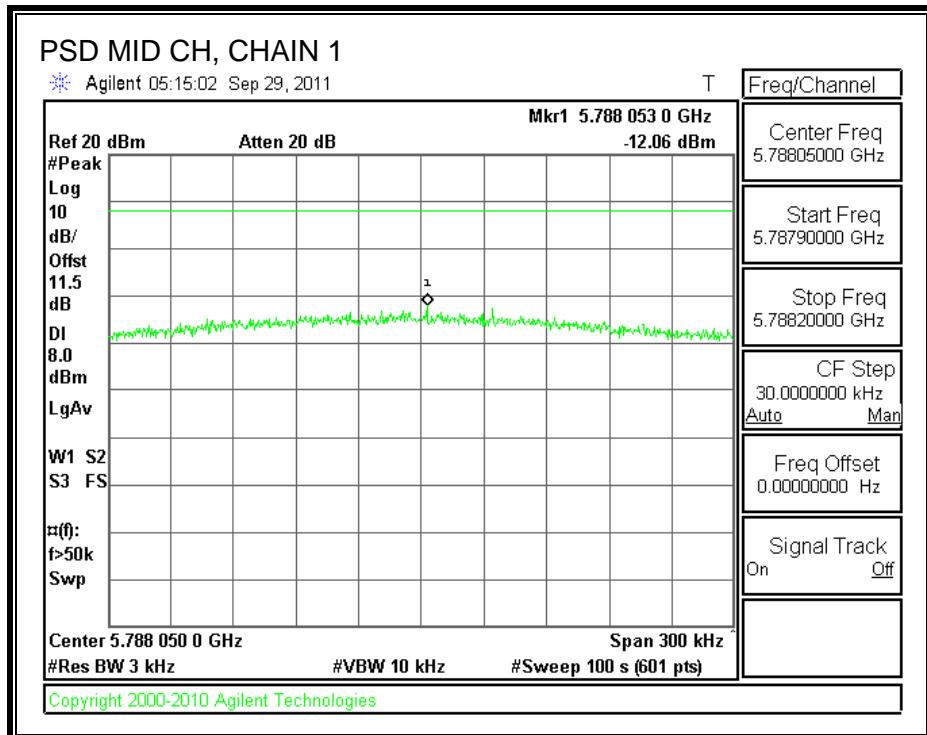
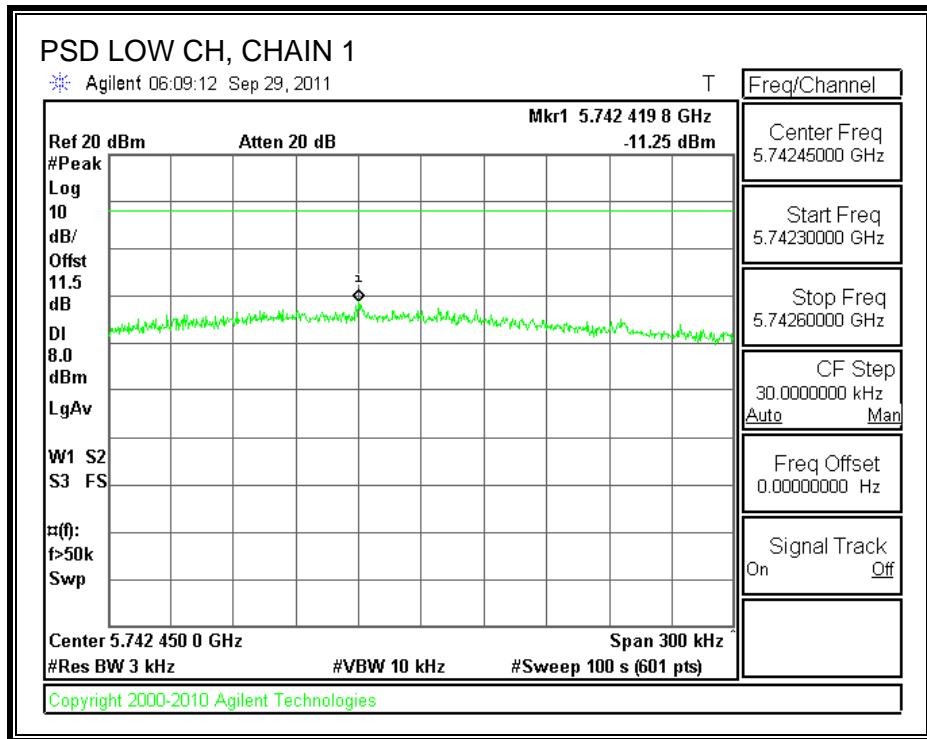
TEST PROCEDURE

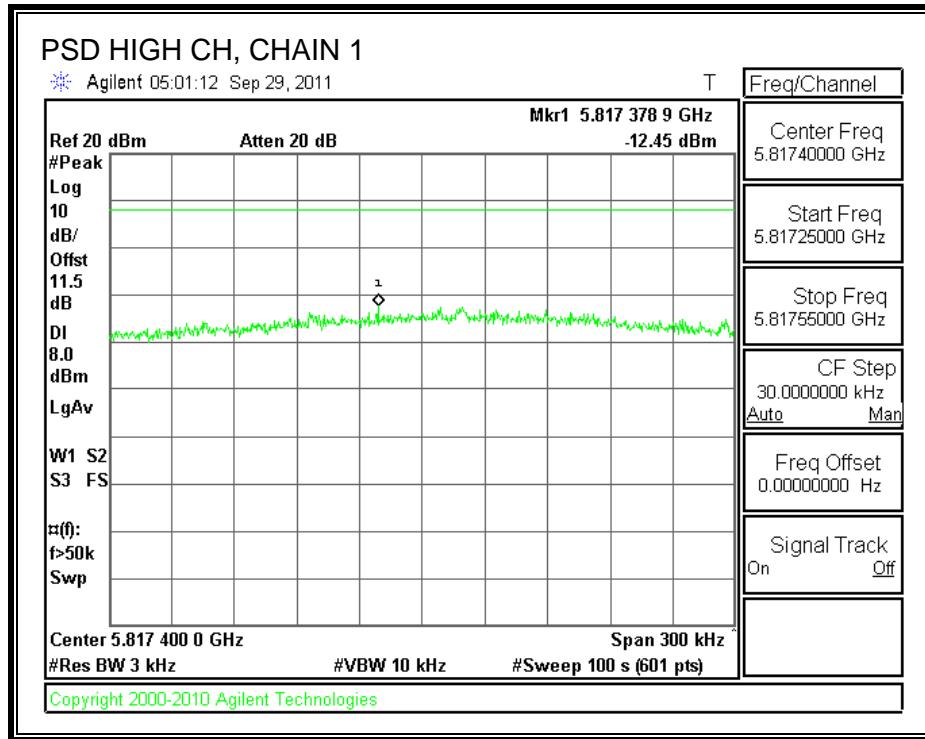
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

RESULTS:

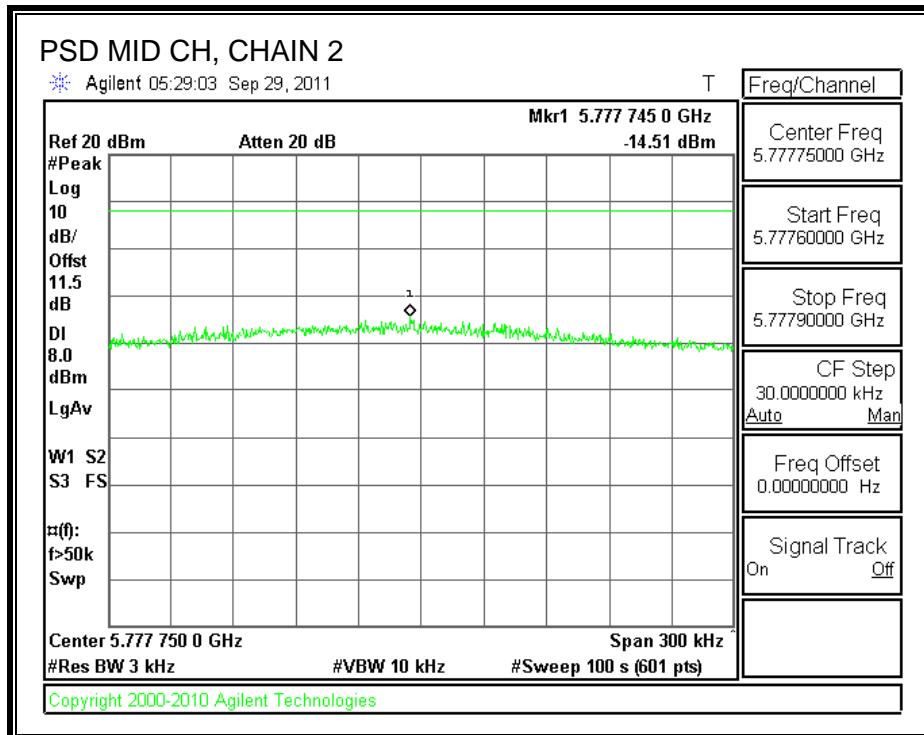
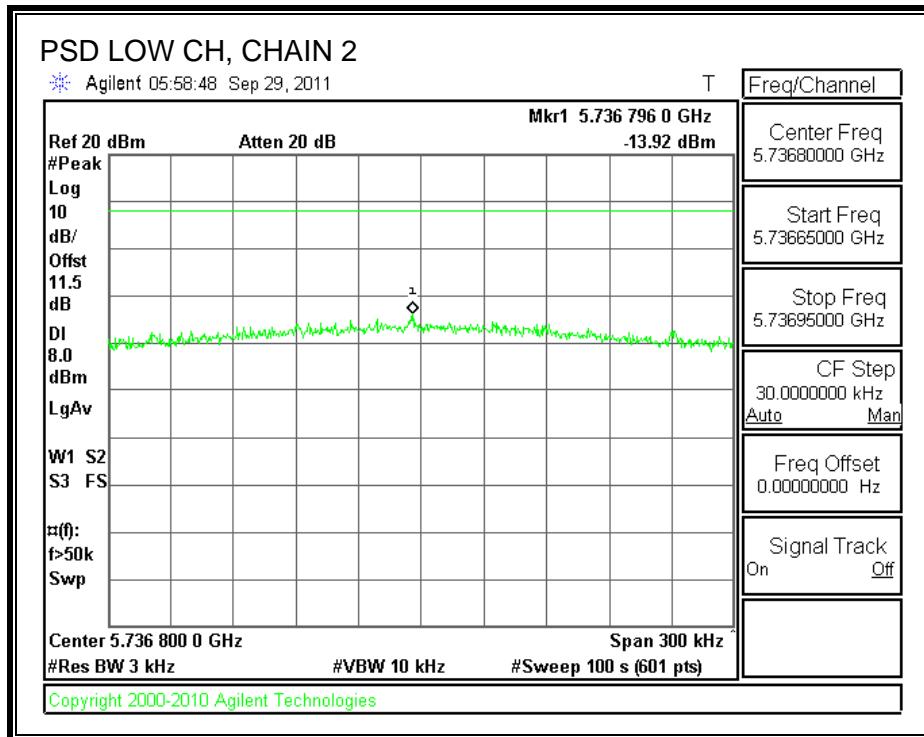
Channel	Frequency (MHz)	Chain 1 PSD (dBm)	Chain 2 PSD (dBm)	Chain 3 PSD (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	5745	-11.25	-13.92	-14.85	-8.29	8	-16.29
Middle	5785	-12.06	-14.51	-15.39	-8.98	8	-16.98
High	5825	-12.45	-15.81	-14.73	-9.33	8	-17.33

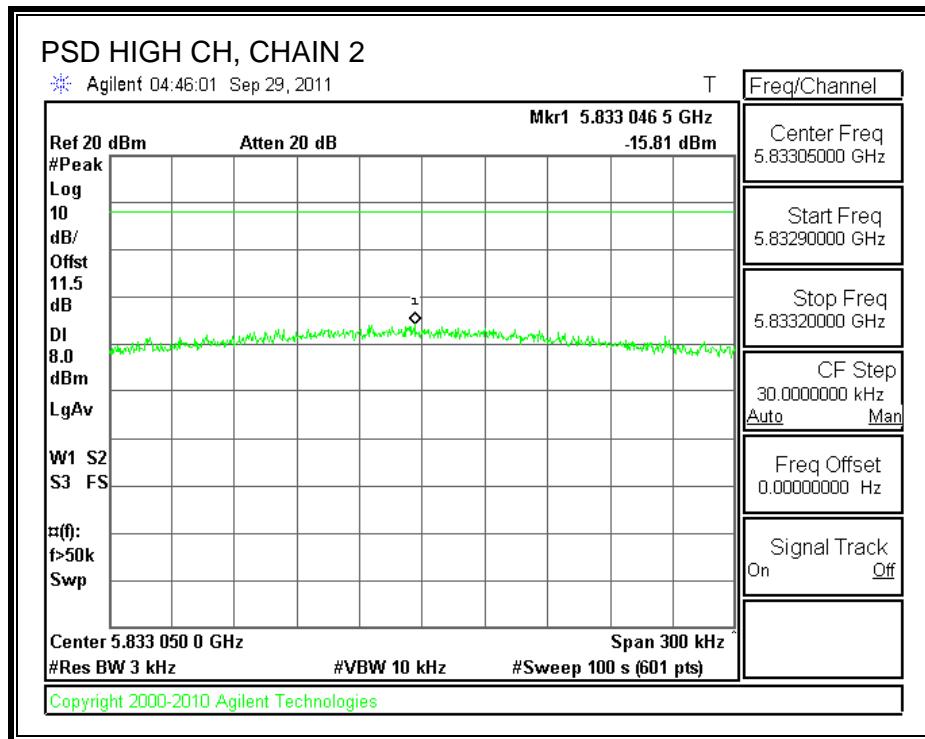
POWER SPECTRAL DENSITY, CHAIN 1



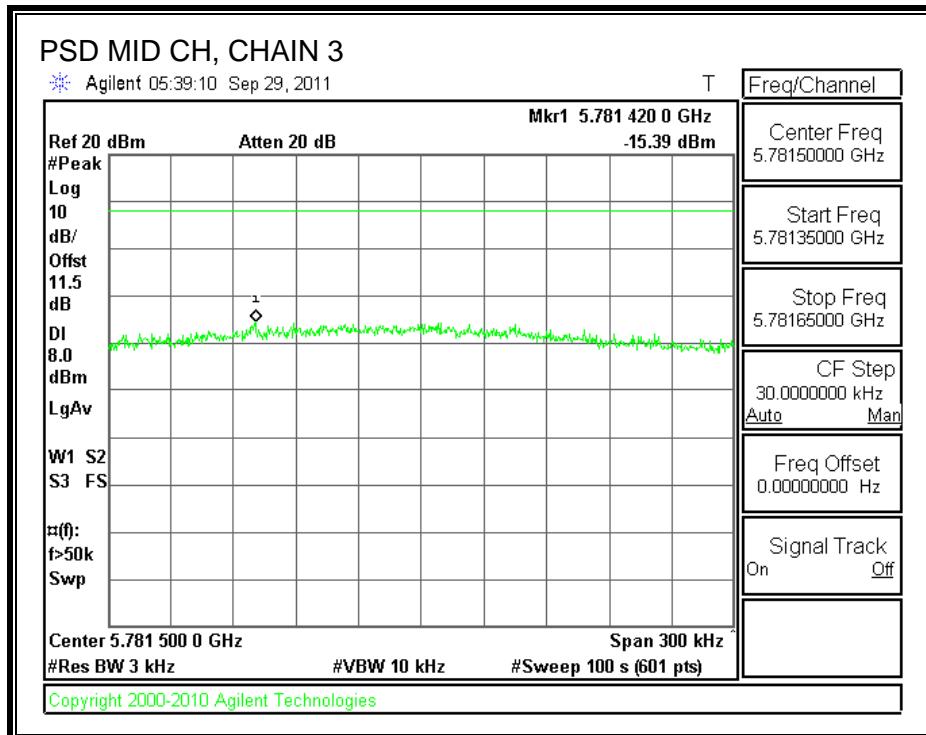
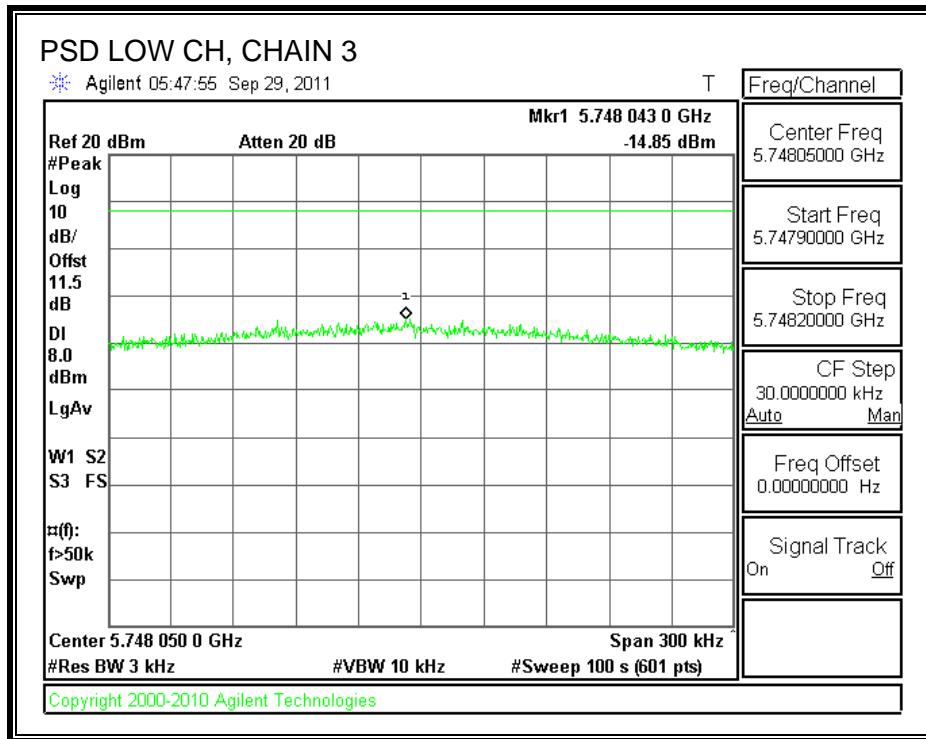


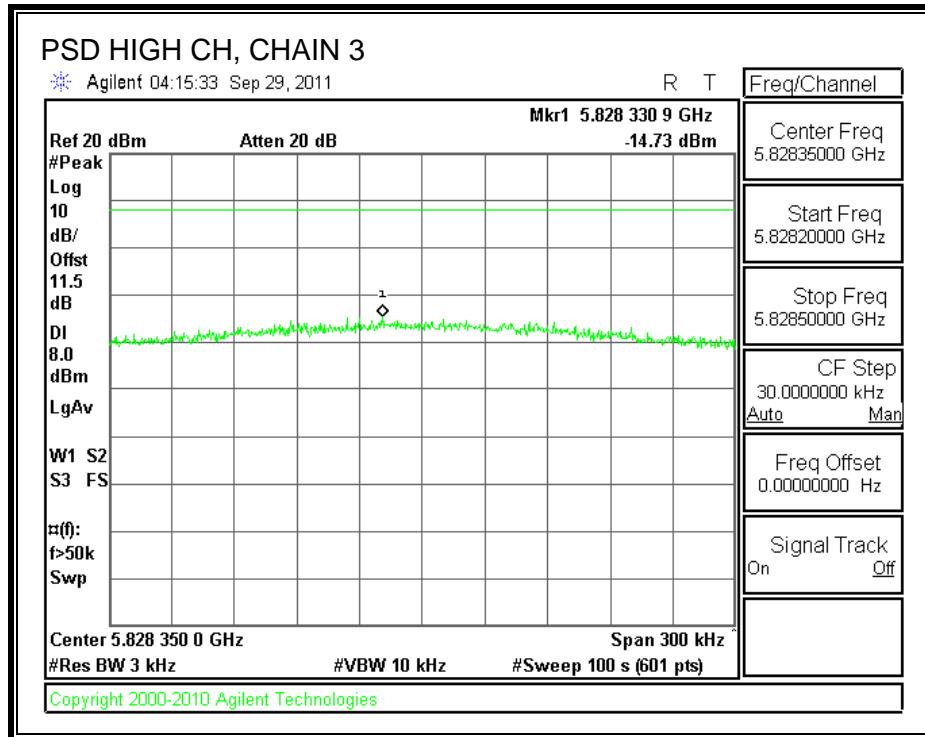
POWER SPECTRAL DENSITY, CHAIN 2





POWER SPECTRAL DENSITY, CHAIN 3





7.10.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

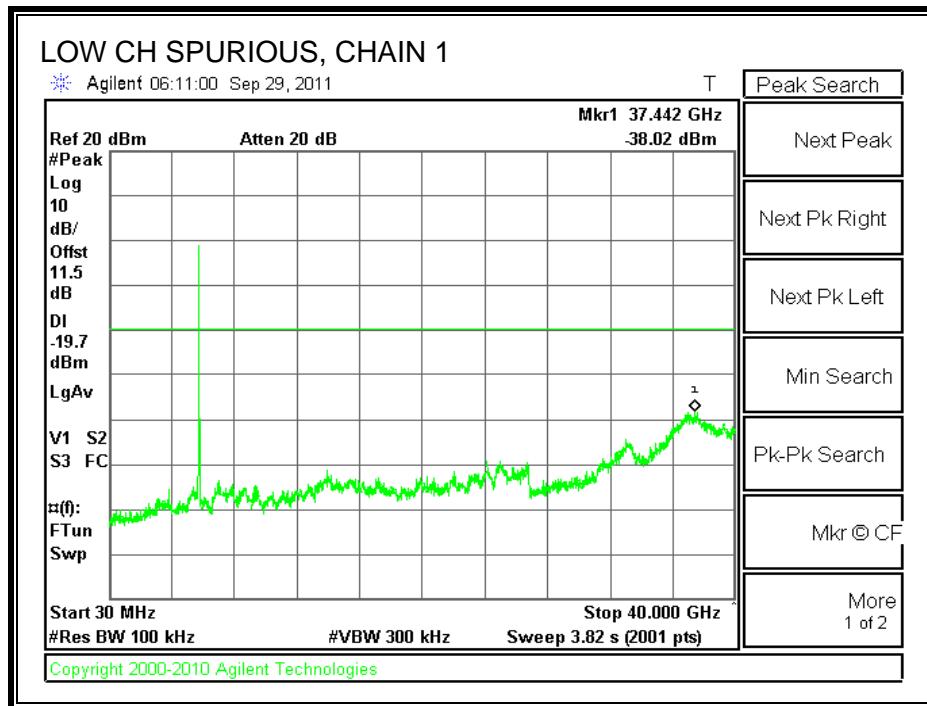
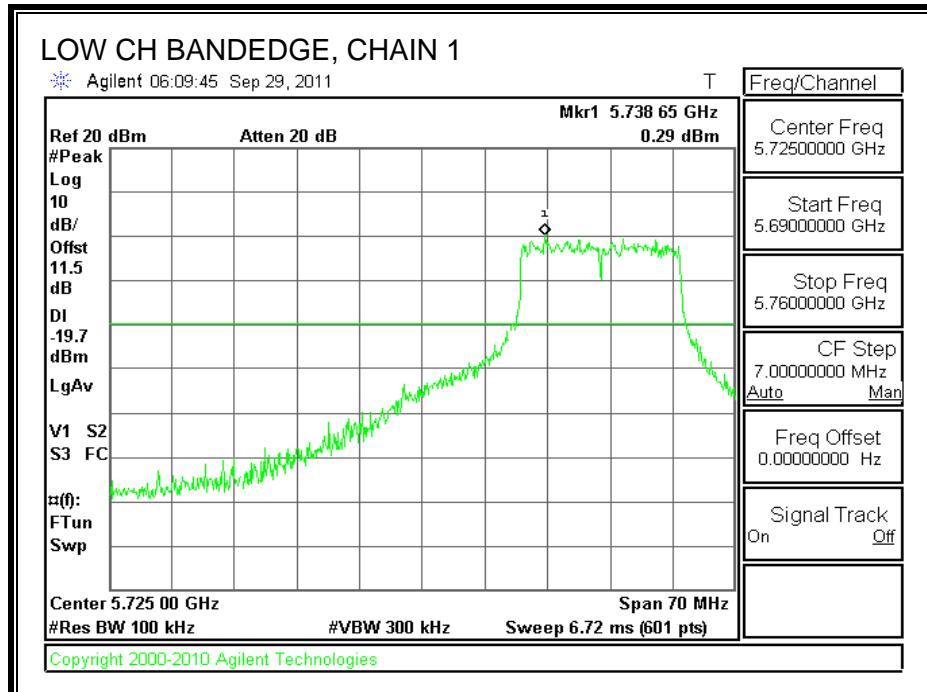
TEST PROCEDURE

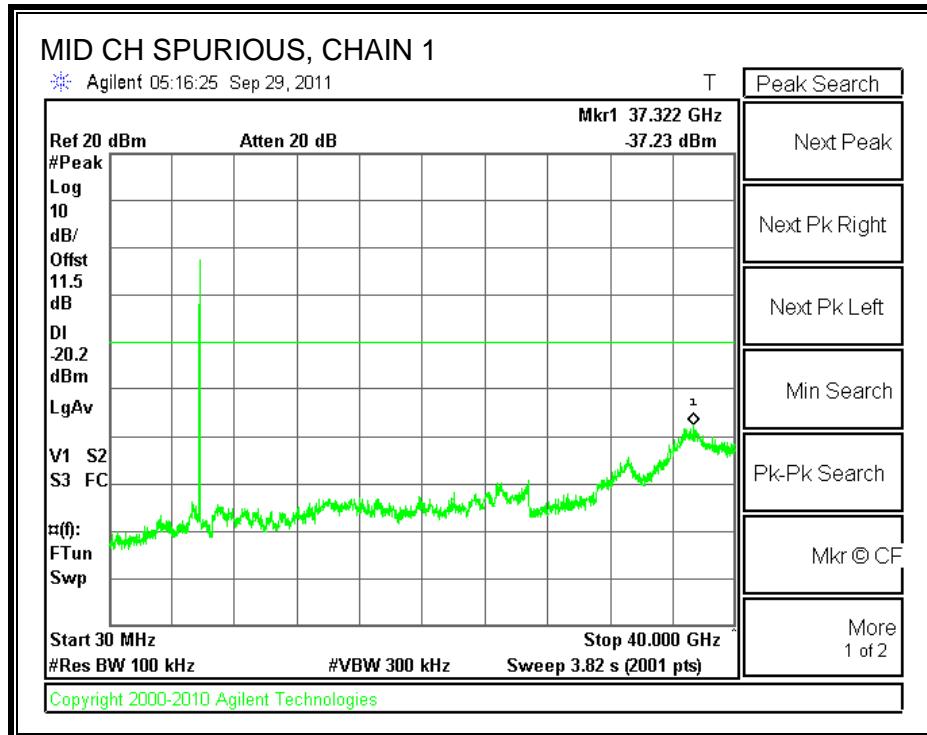
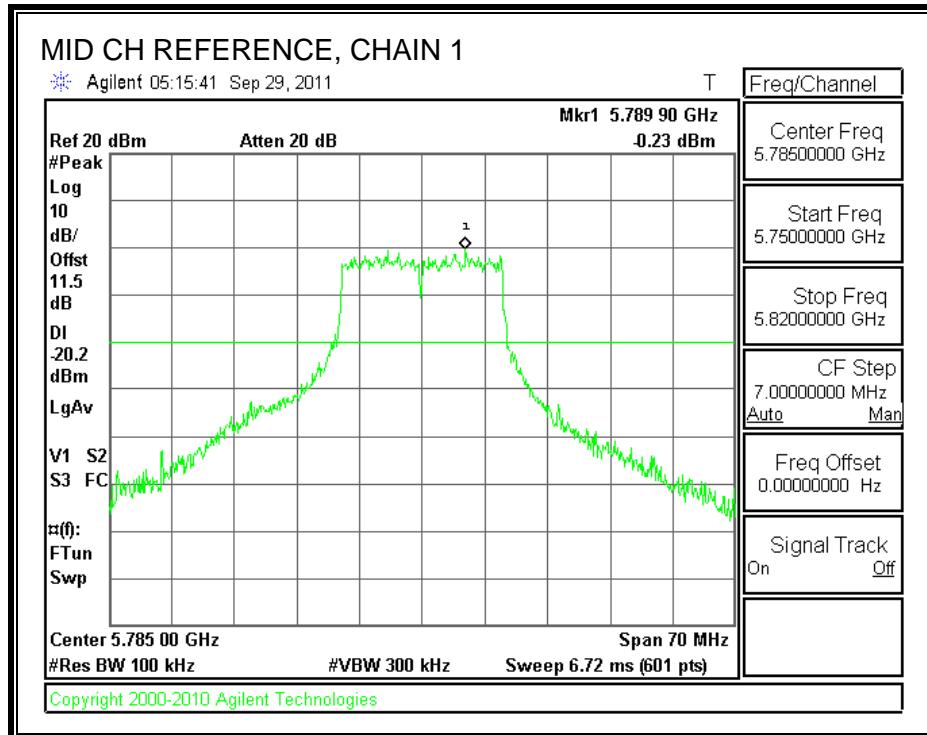
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

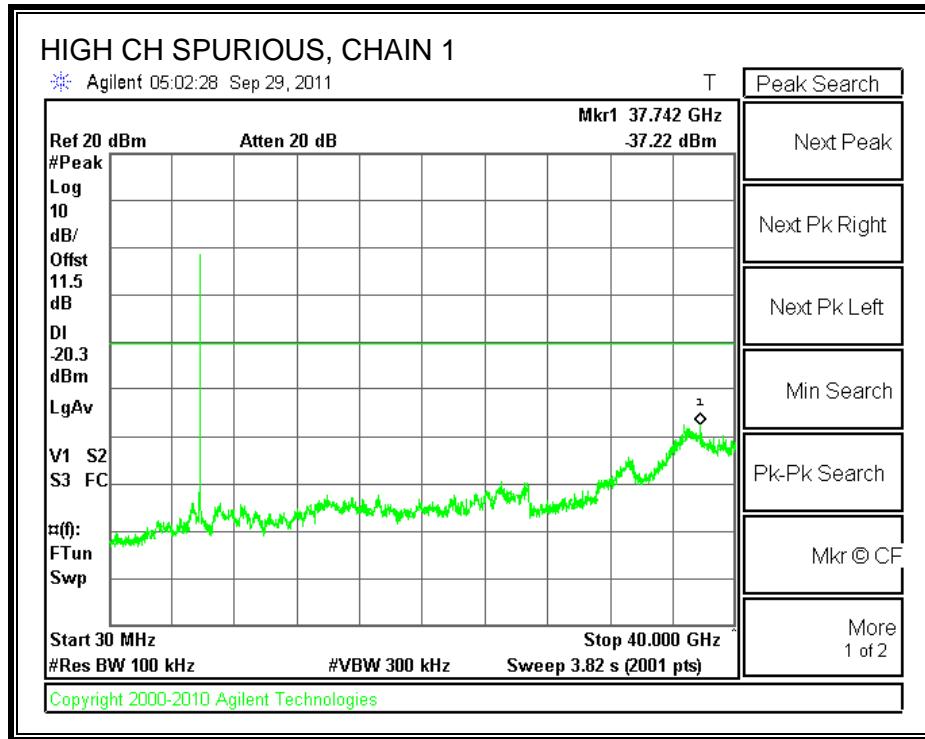
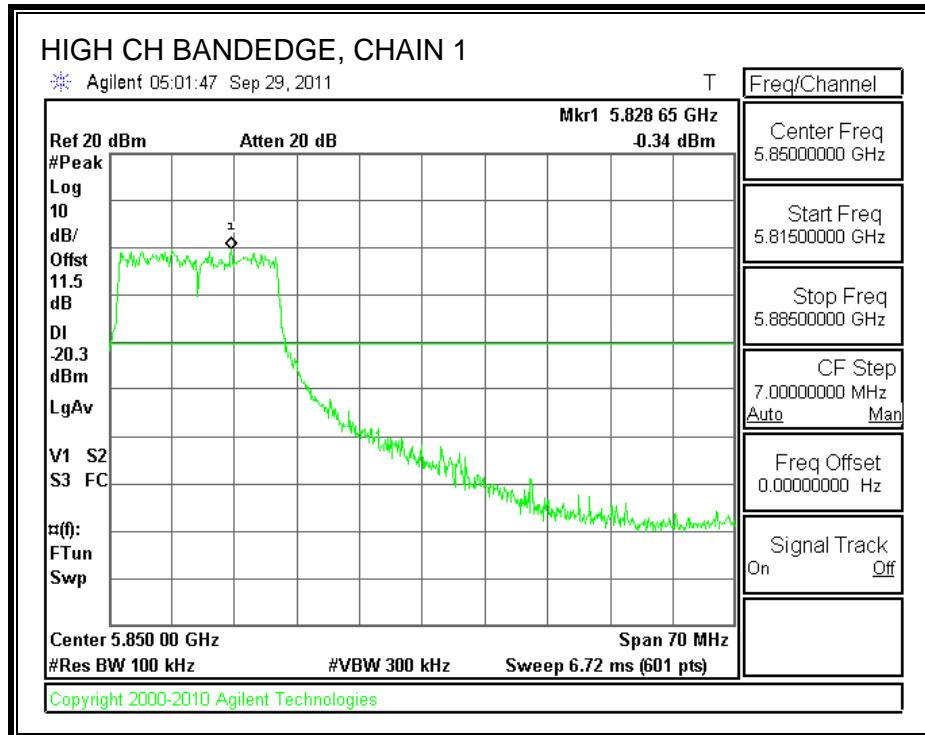
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

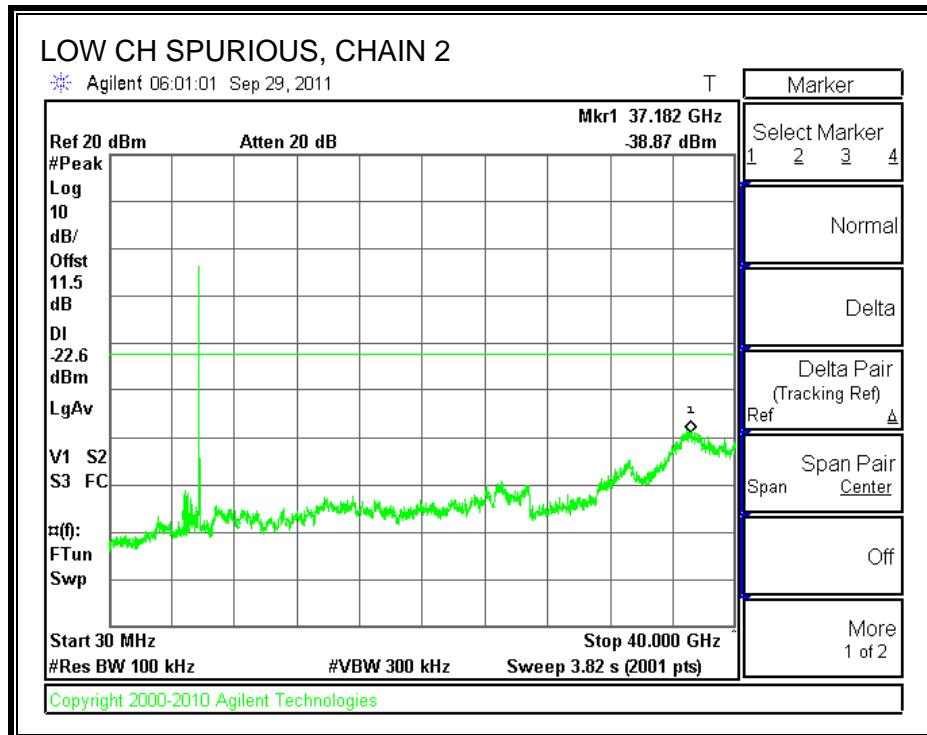
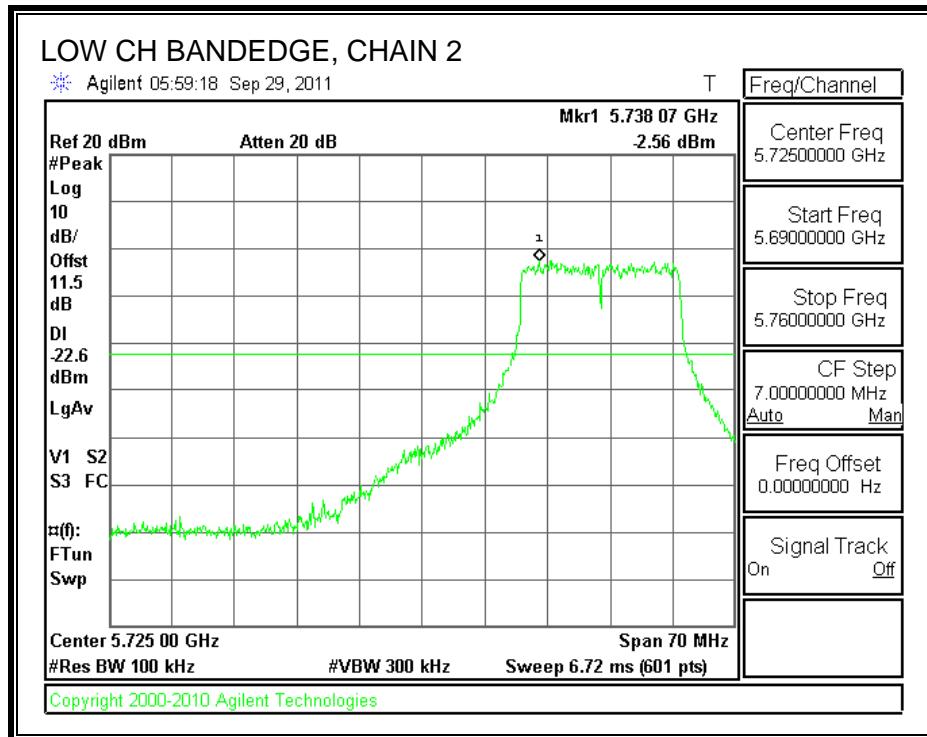
CHAIN 1 SPURIOUS EMISSIONS

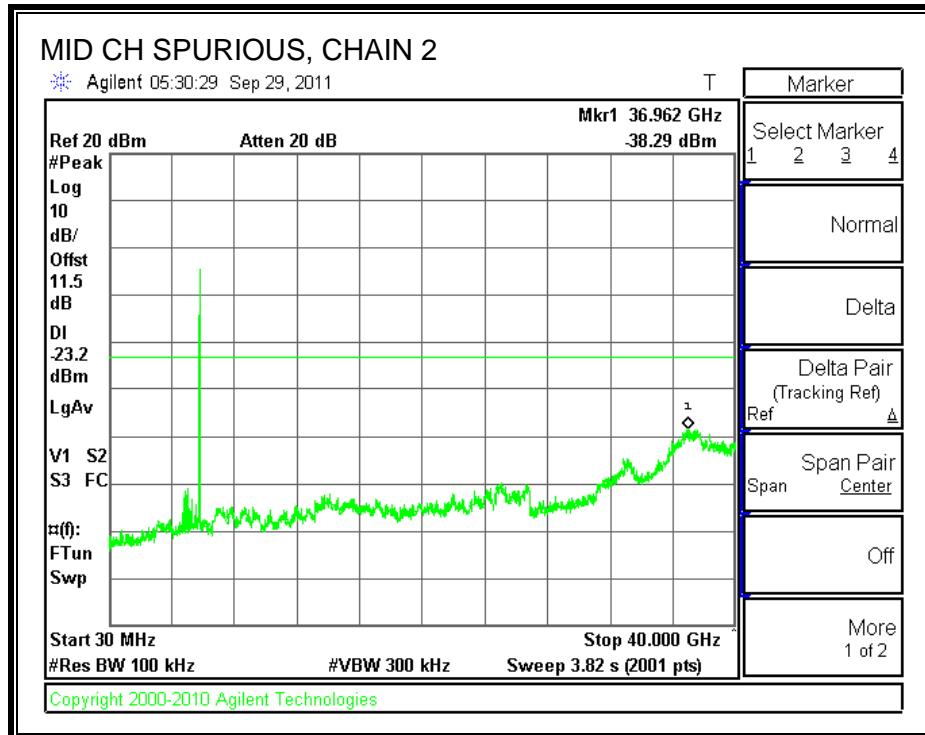
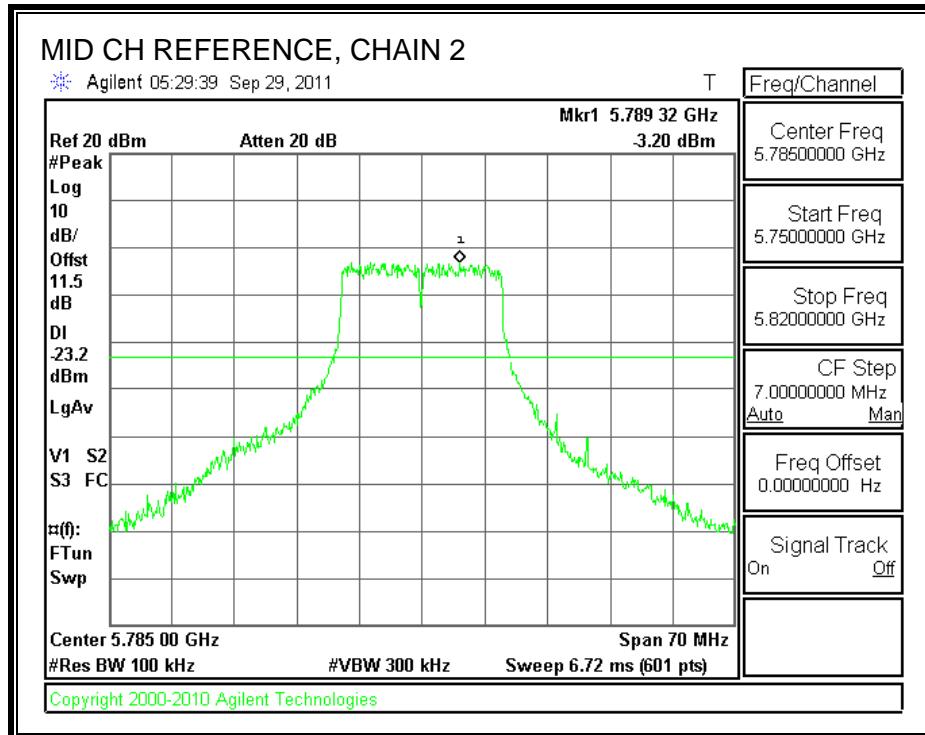


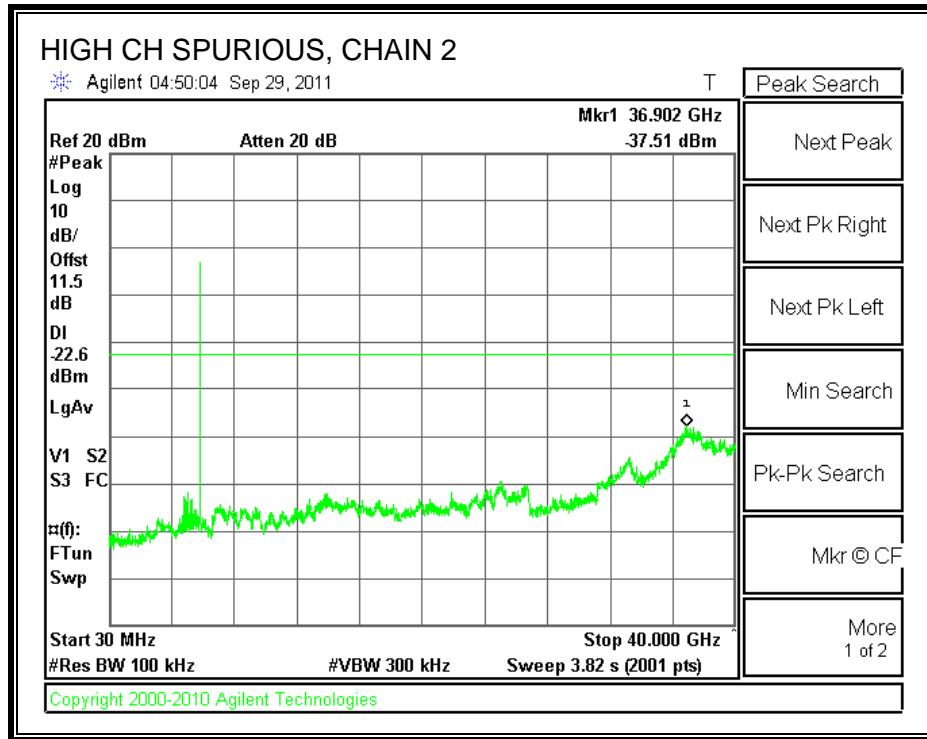
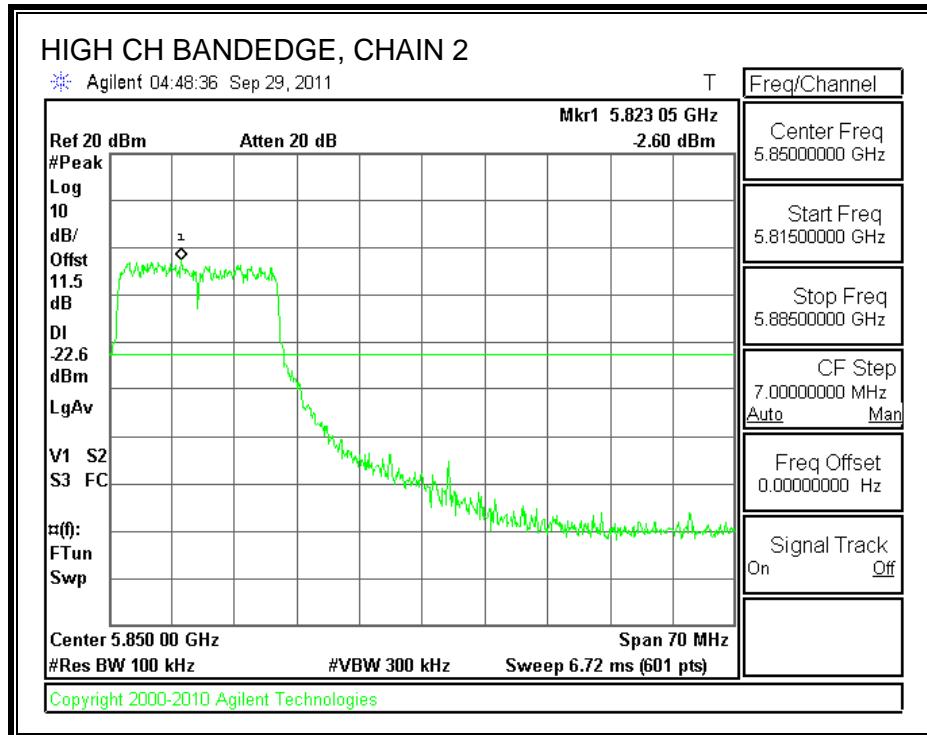




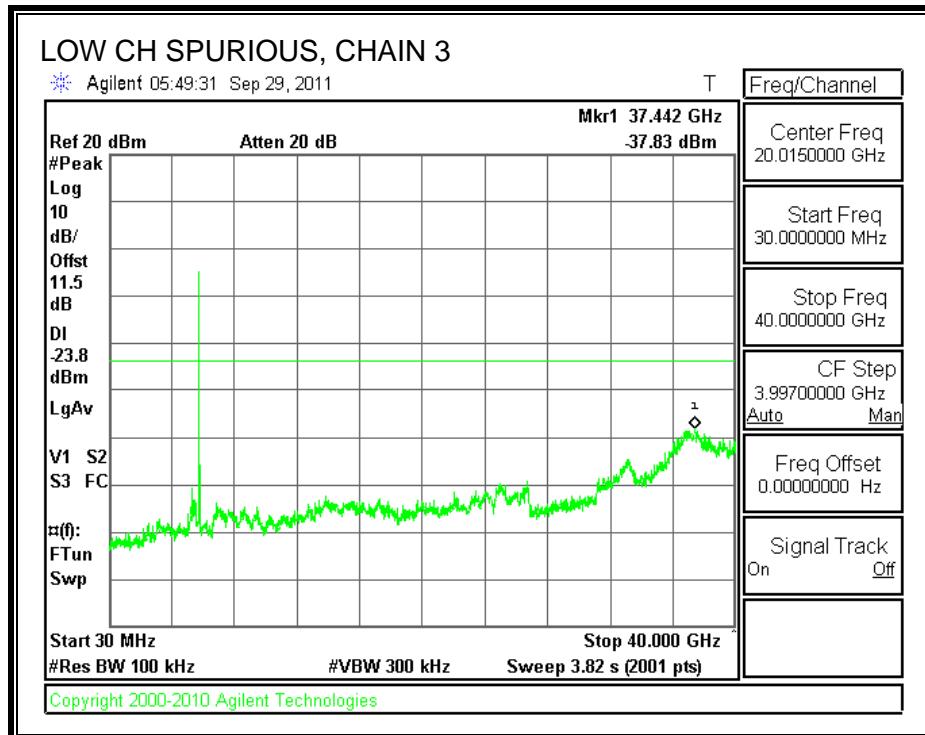
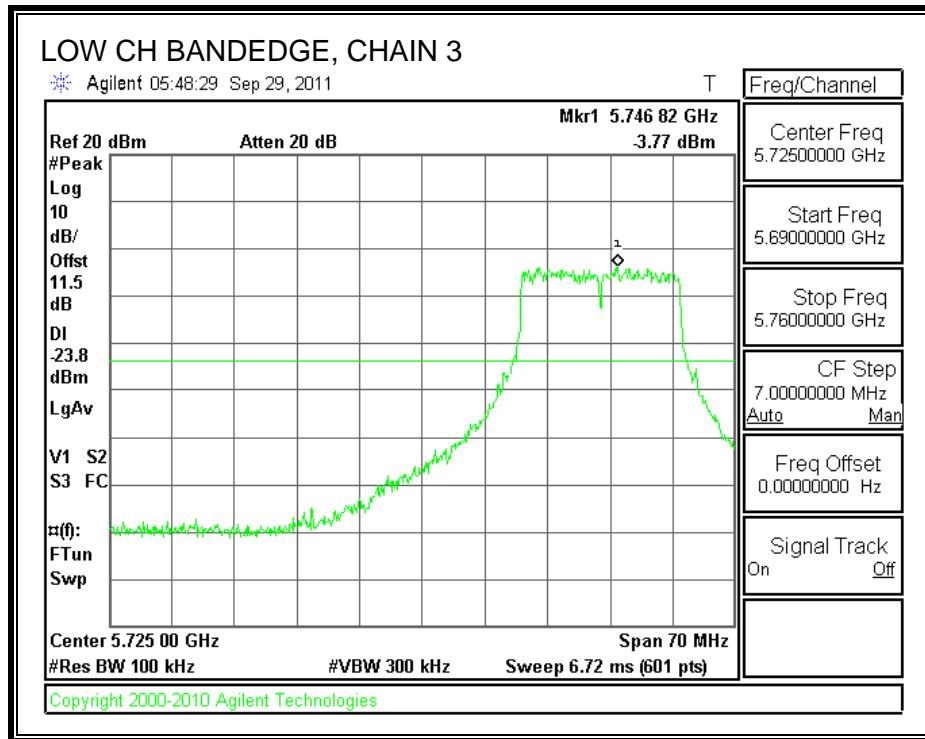
CHAIN 2 SPURIOUS EMISSIONS

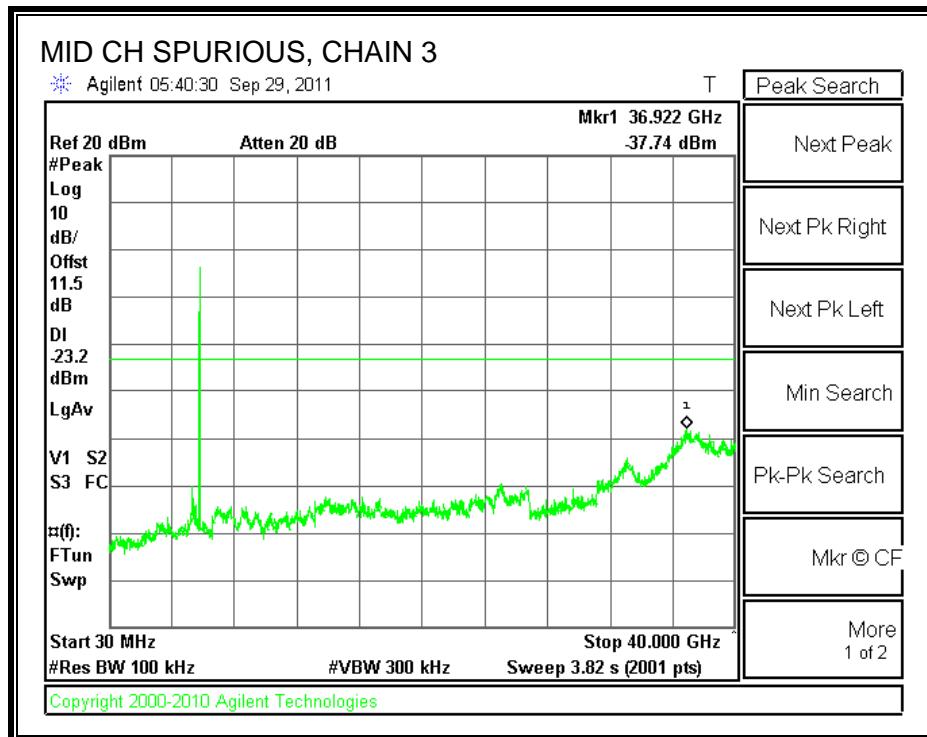
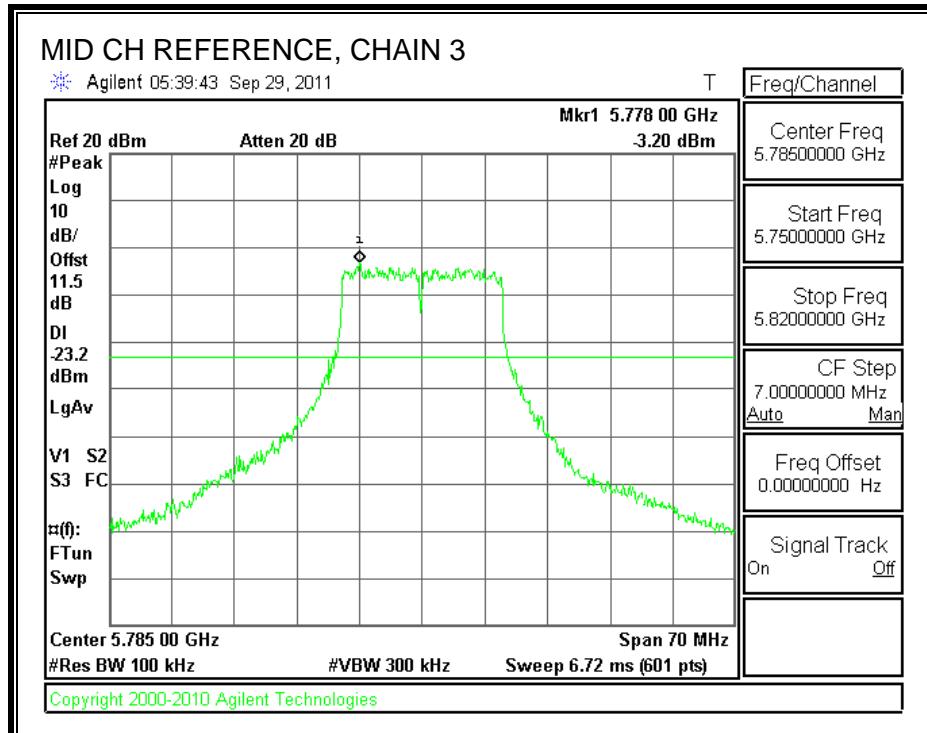


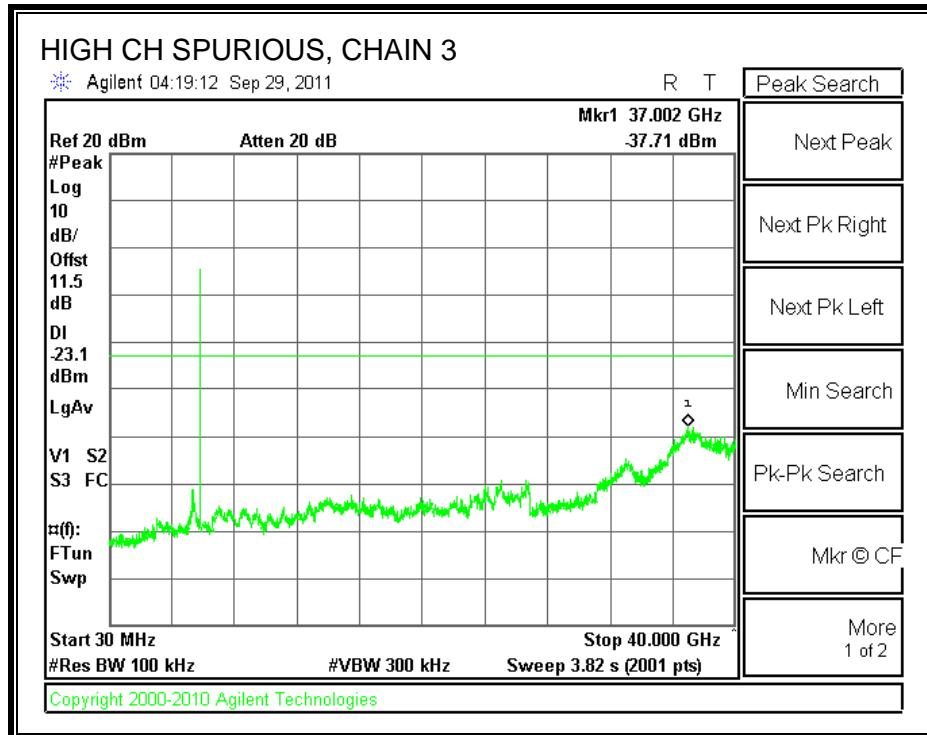
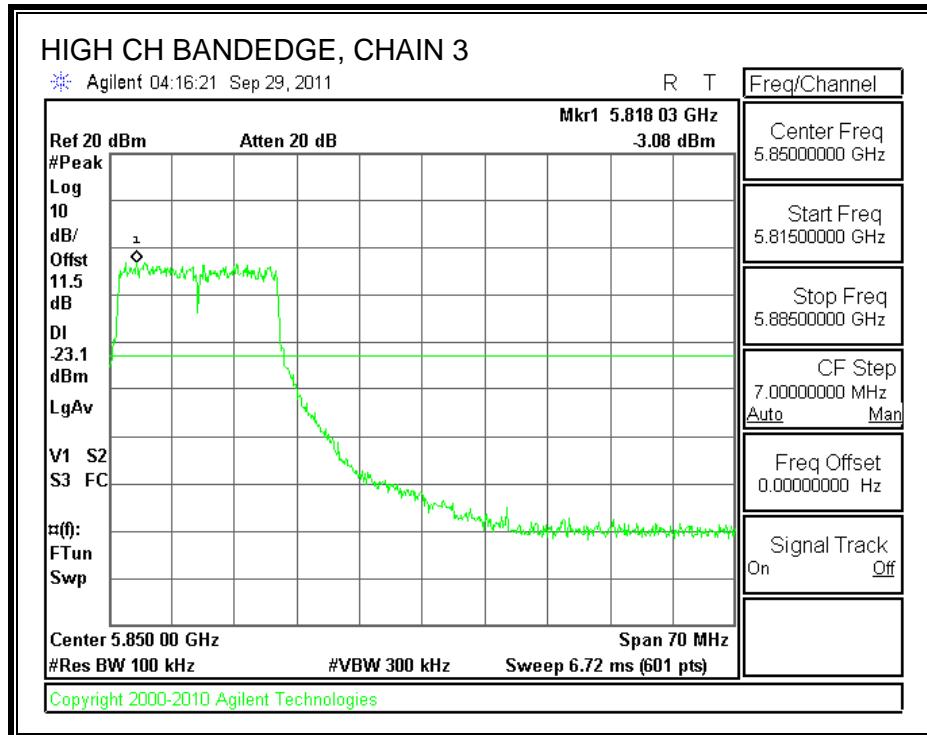




CHAIN 3 SPURIOUS EMISSIONS







7.11. 802.11n HT20 MCS16 3TX MODE IN THE 5.8 GHz BAND

7.11.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

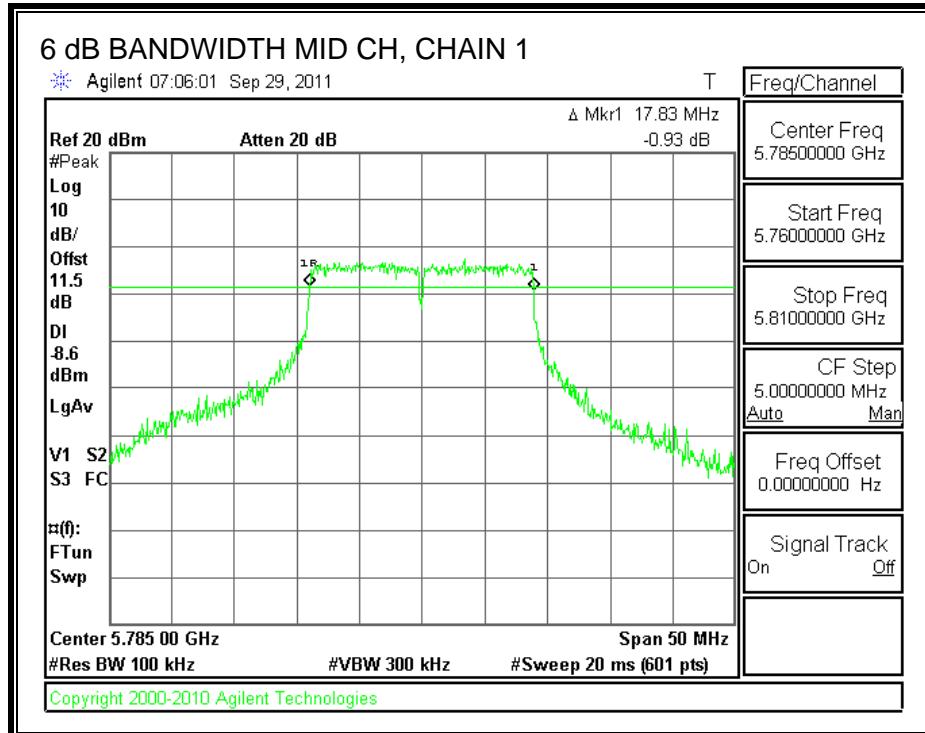
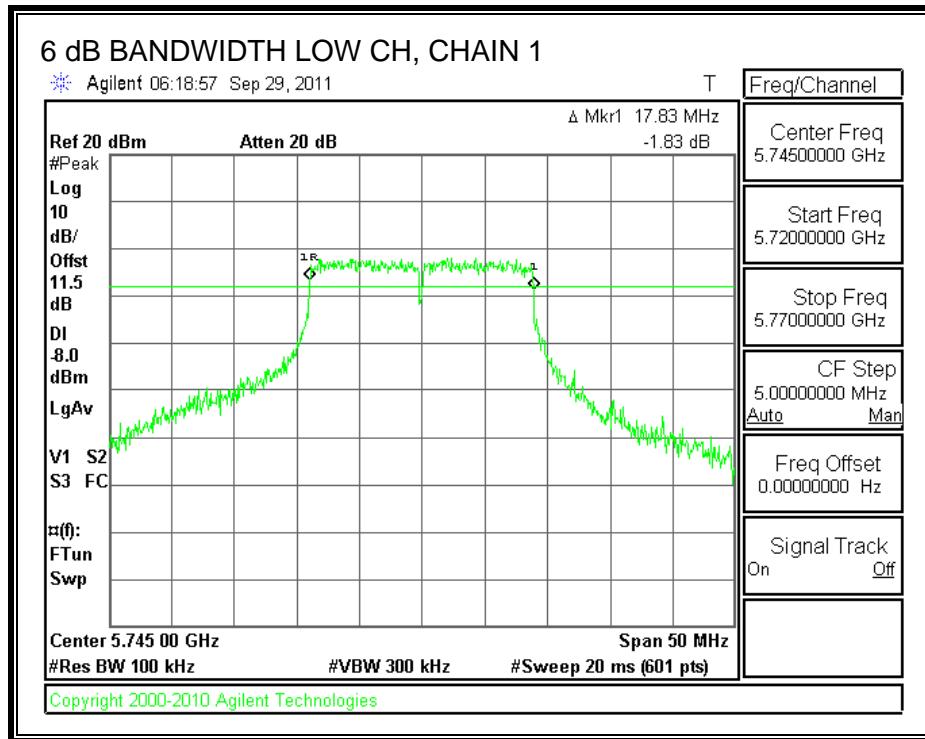
TEST PROCEDURE

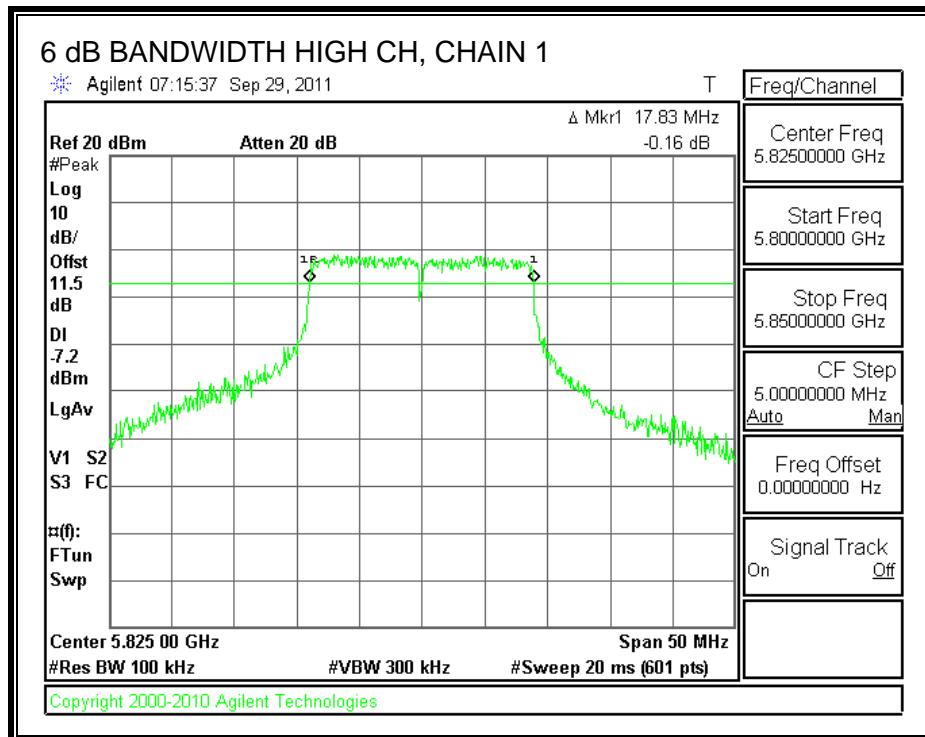
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

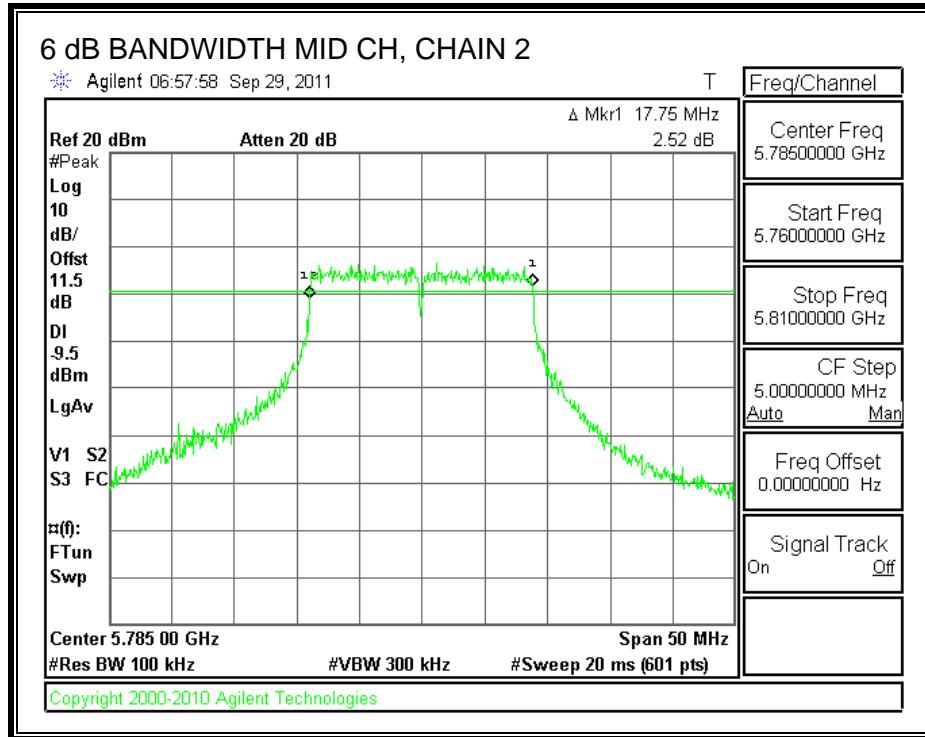
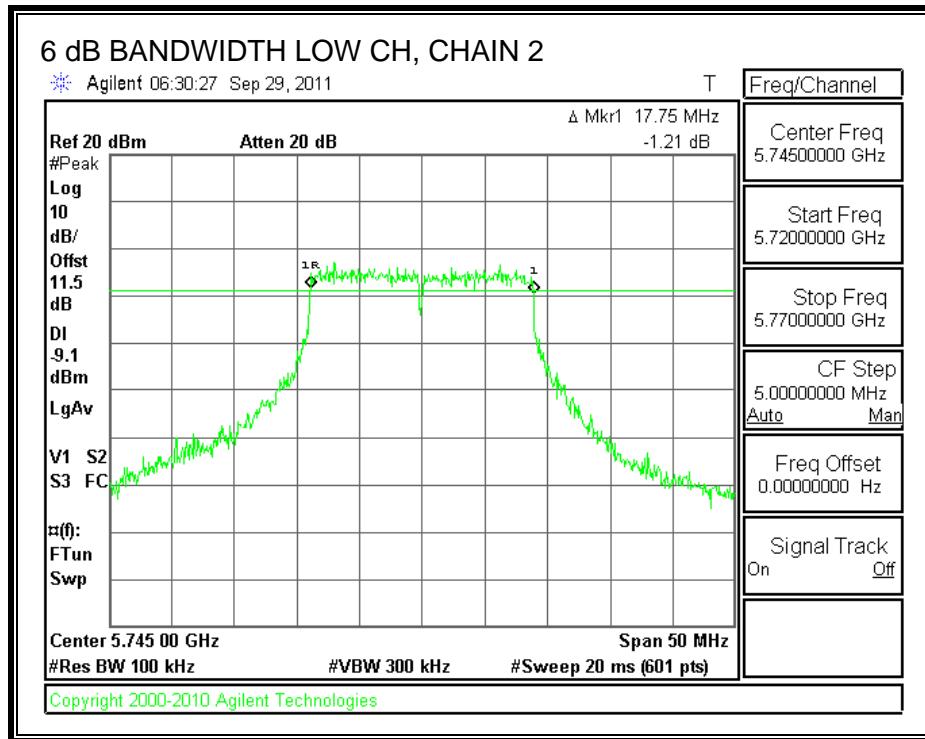
Channel	Frequency (MHz)	Chain 1 6 dB BW (MHz)	Chain 2 6 dB BW (MHz)	Chain 3 6 dB BW (MHz)	Minimum Limit (MHz)
Low	5745	-17.83	-17.75	-17.83	0.5
Middle	5785	-17.83	-17.75	-17.83	0.5
High	5825	-17.83	-17.83	-17.83	0.5

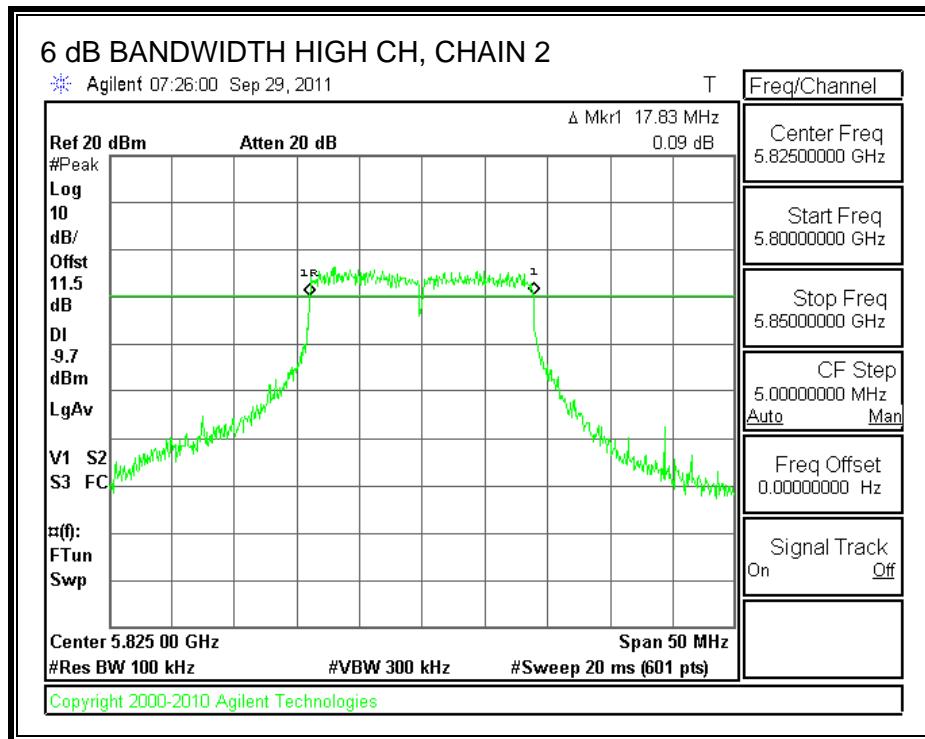
6 dB BANDWIDTH, CHAIN 1



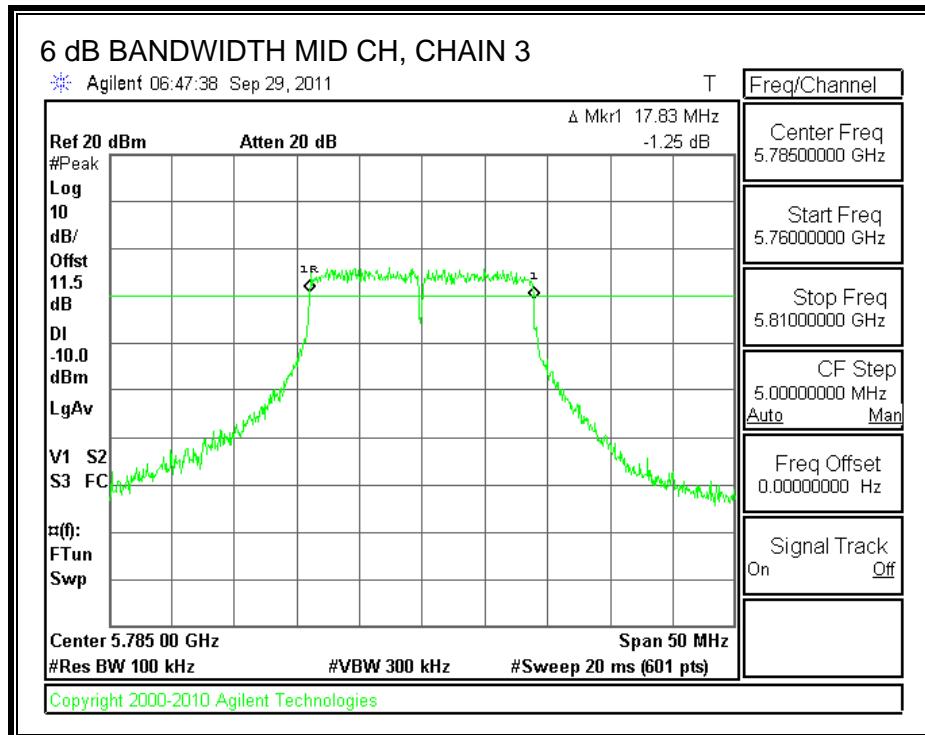
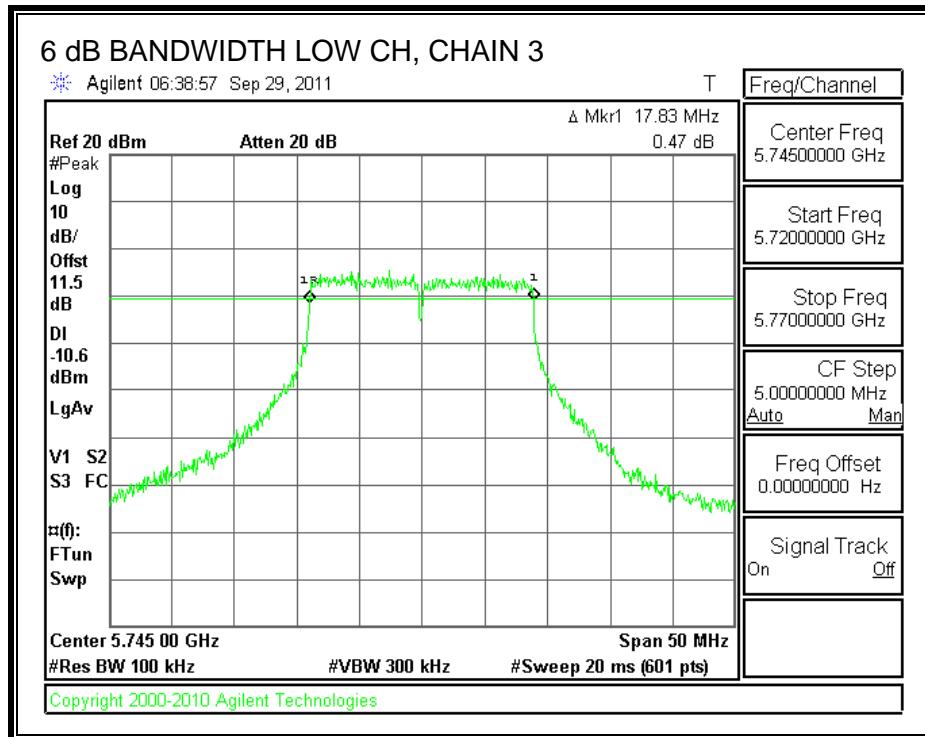


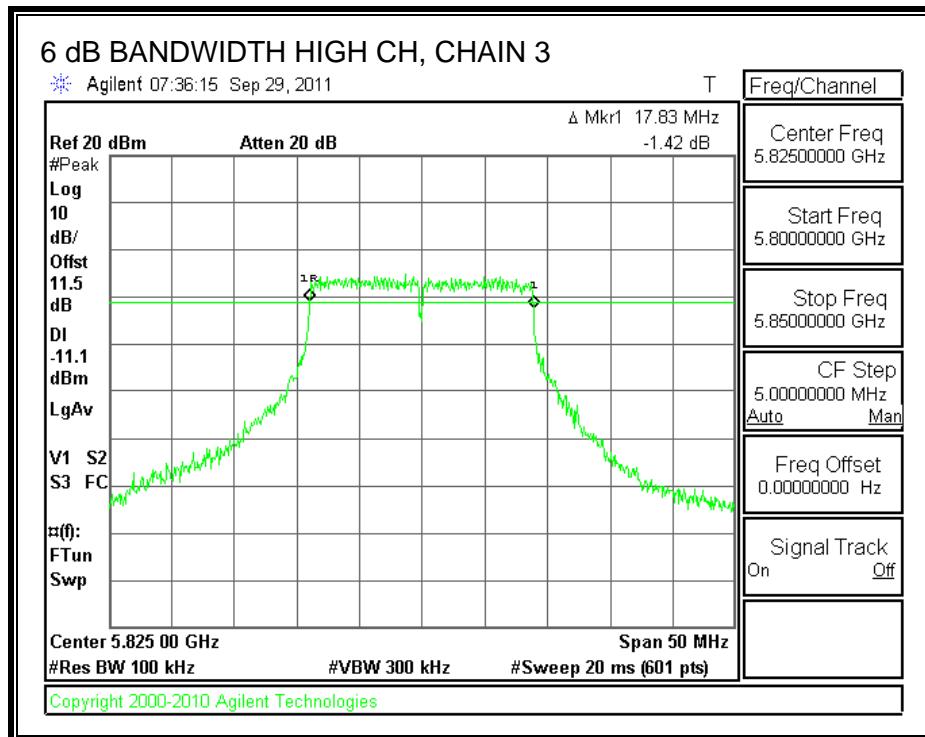
6 dB BANDWIDTH, CHAIN 2





6 dB BANDWIDTH, CHAIN 3





7.11.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

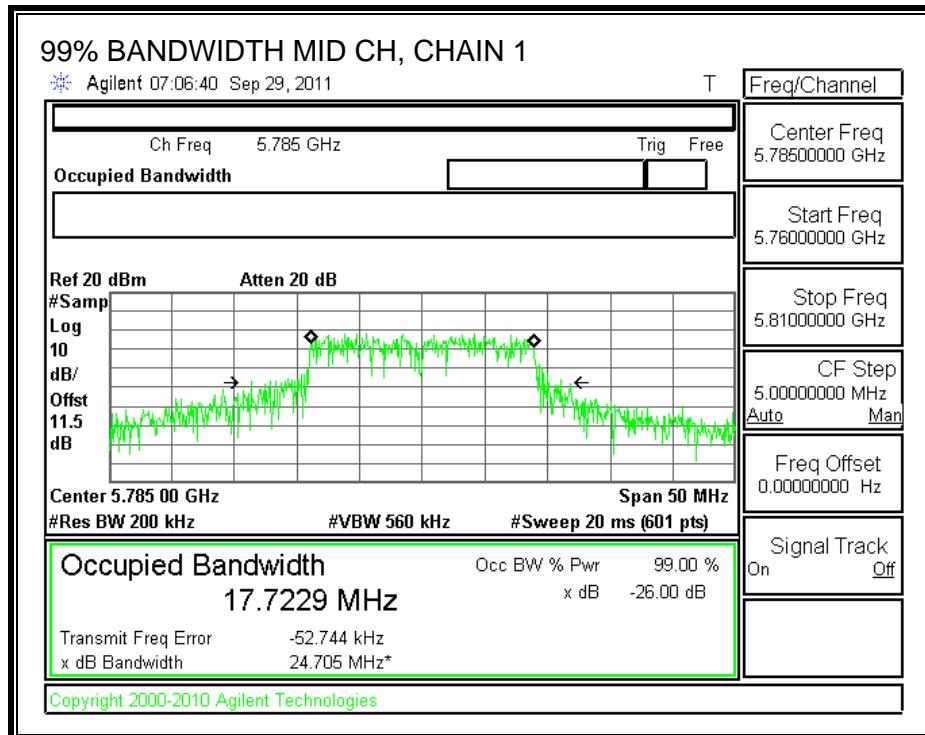
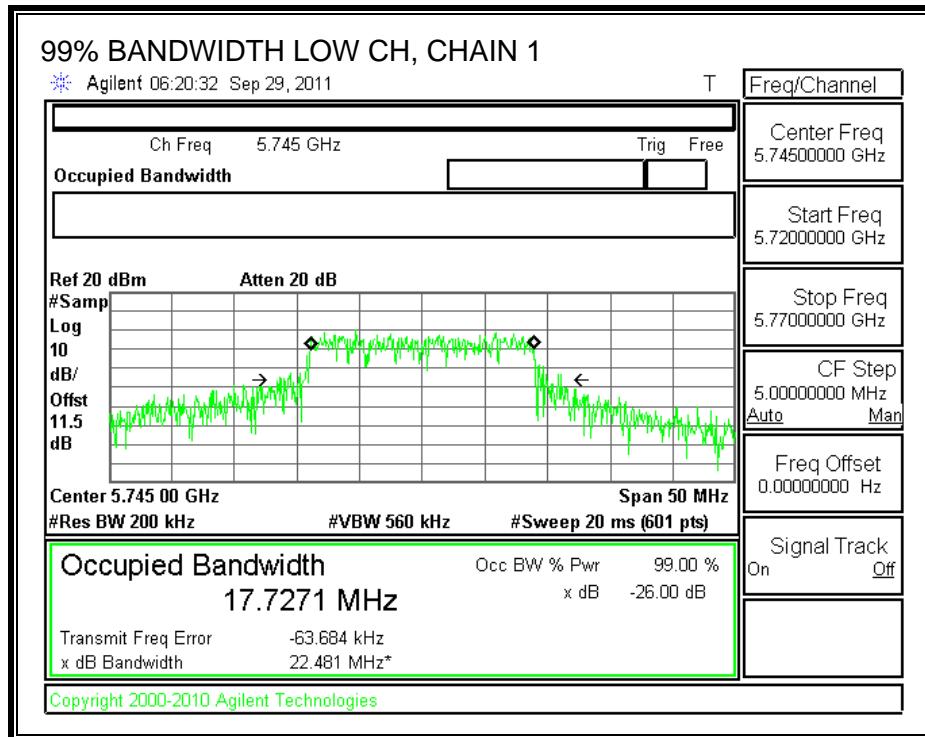
TEST PROCEDURE

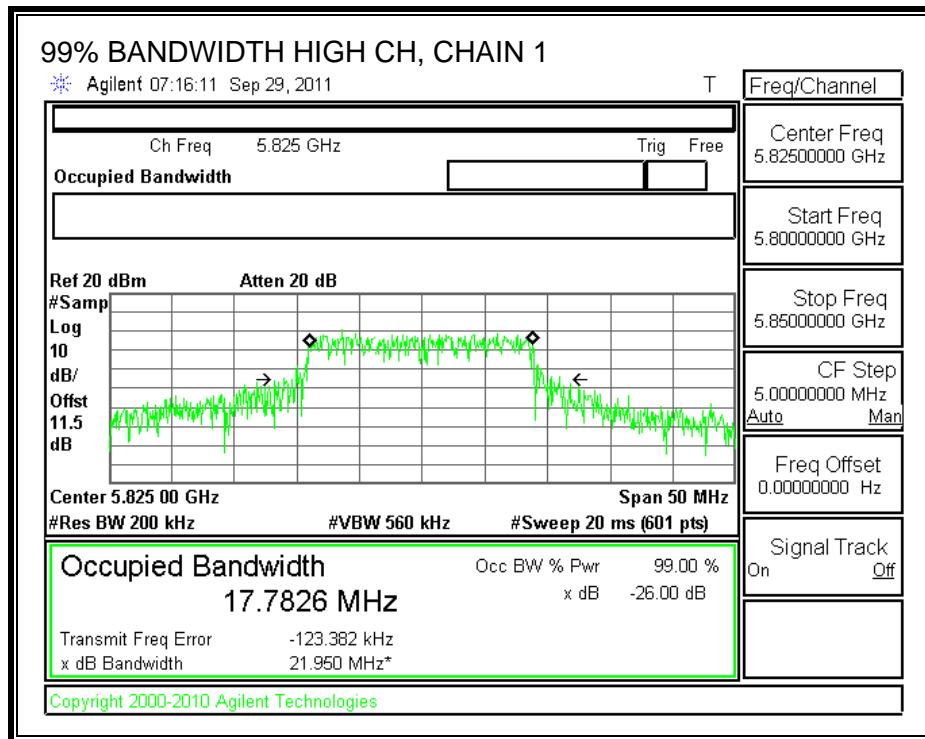
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

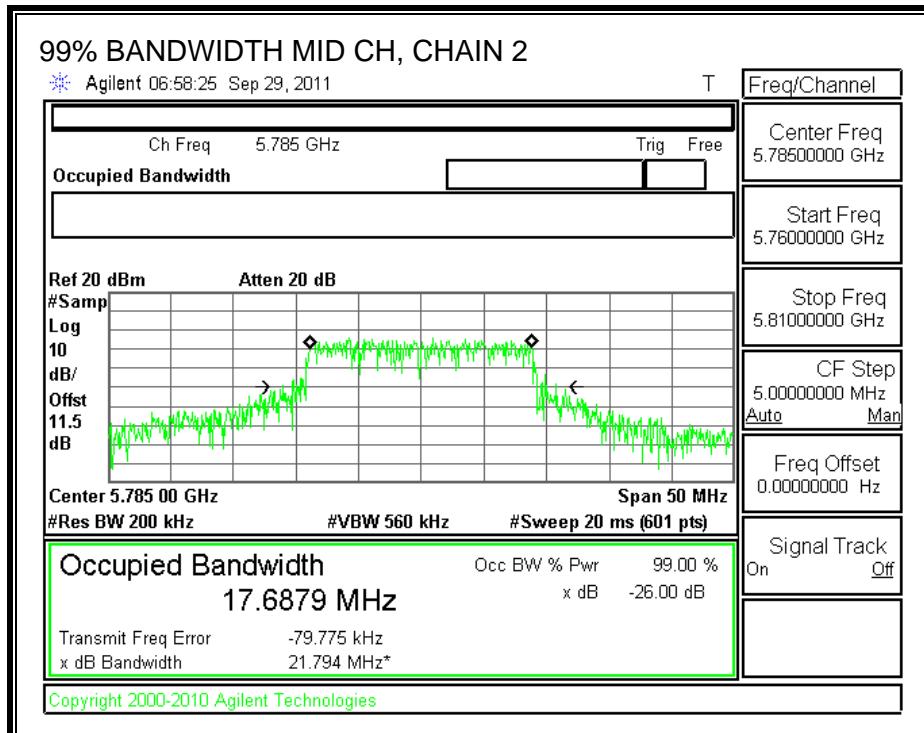
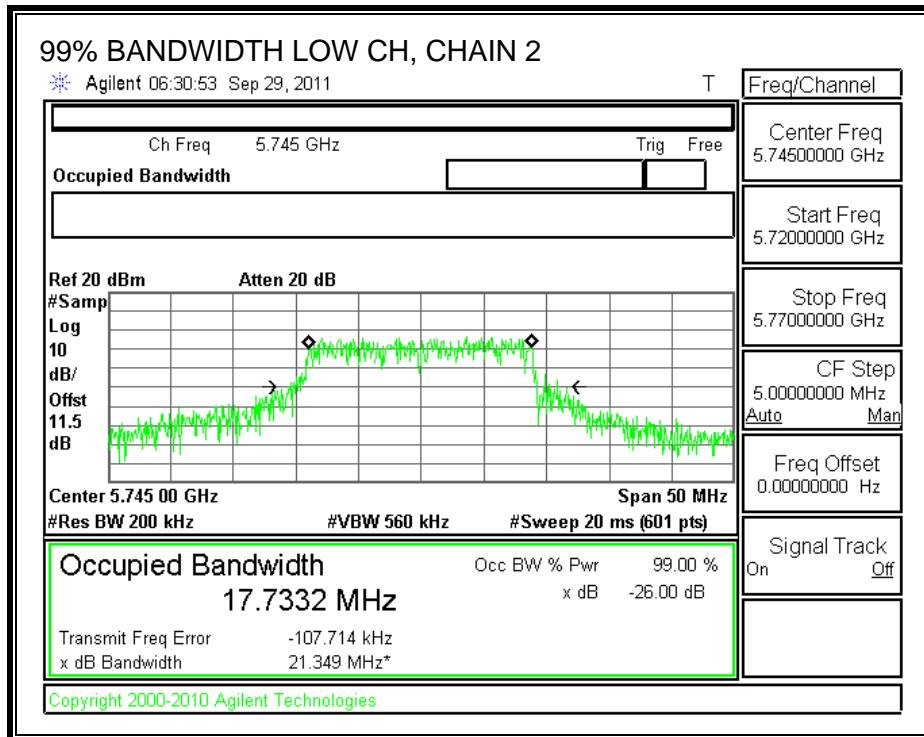
Channel	Frequency (MHz)	Chain 1 99% Bandwidth (MHz)	Chain 2 99% Bandwidth (MHz)	Chain 3 99% Bandwidth (MHz)
Low	5745	17.7271	17.7332	17.7786
Middle	5785	17.7229	17.6879	17.7411
High	5825	17.7826	17.6759	17.6421

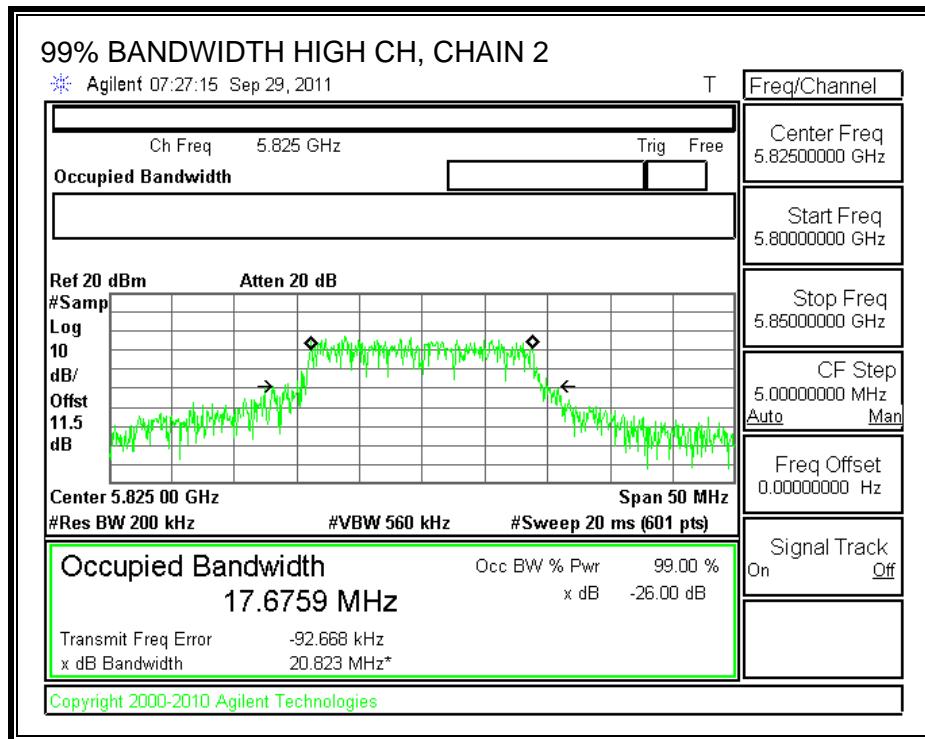
99% BANDWIDTH, CHAIN 1



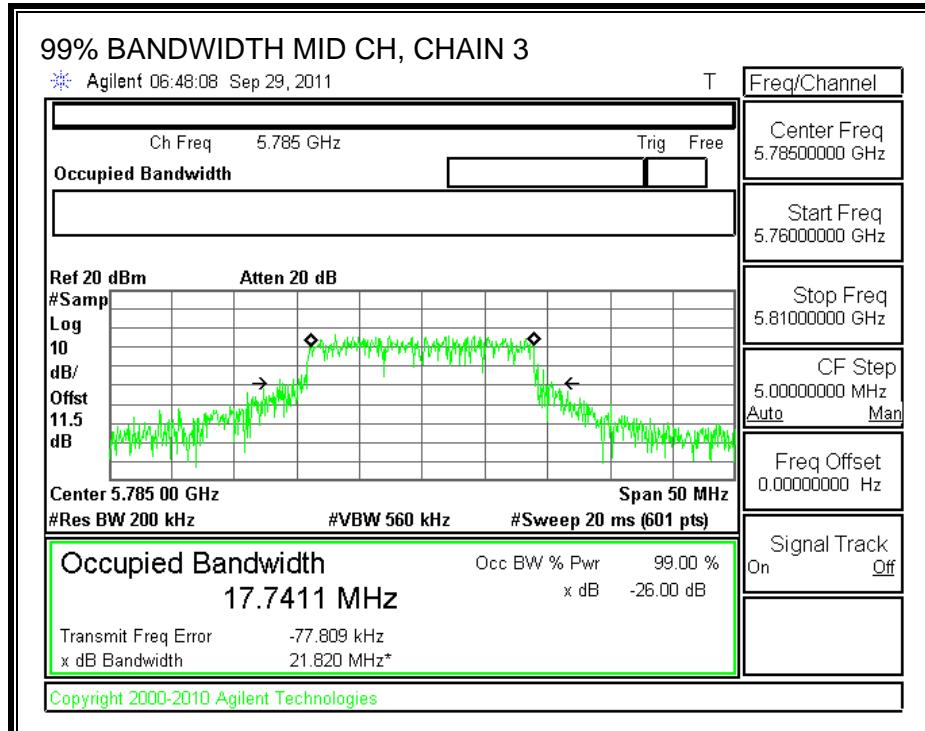
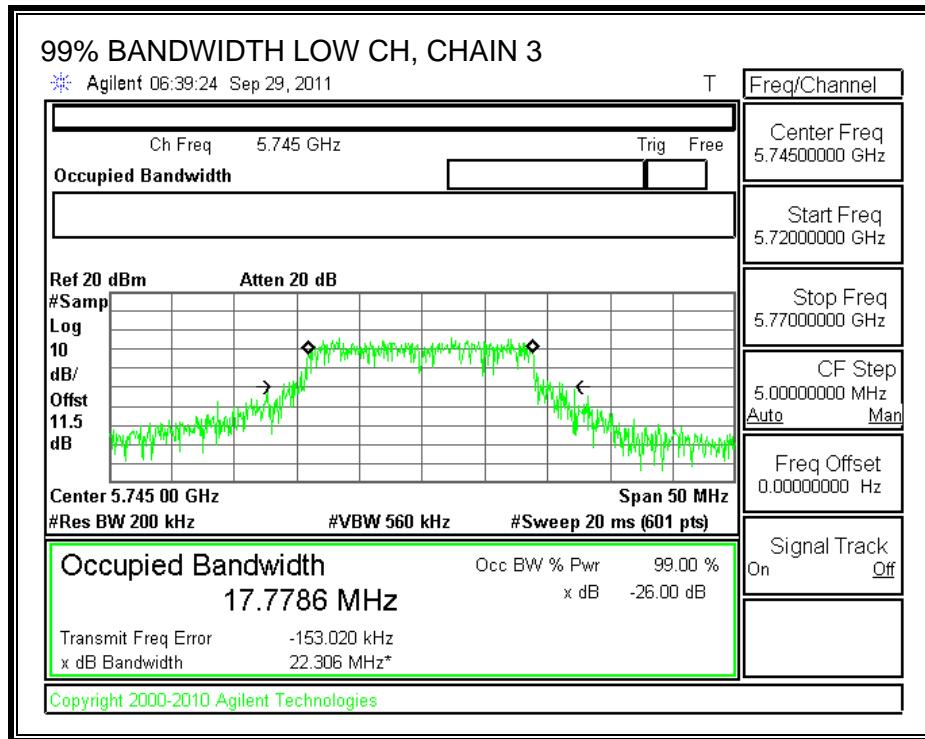


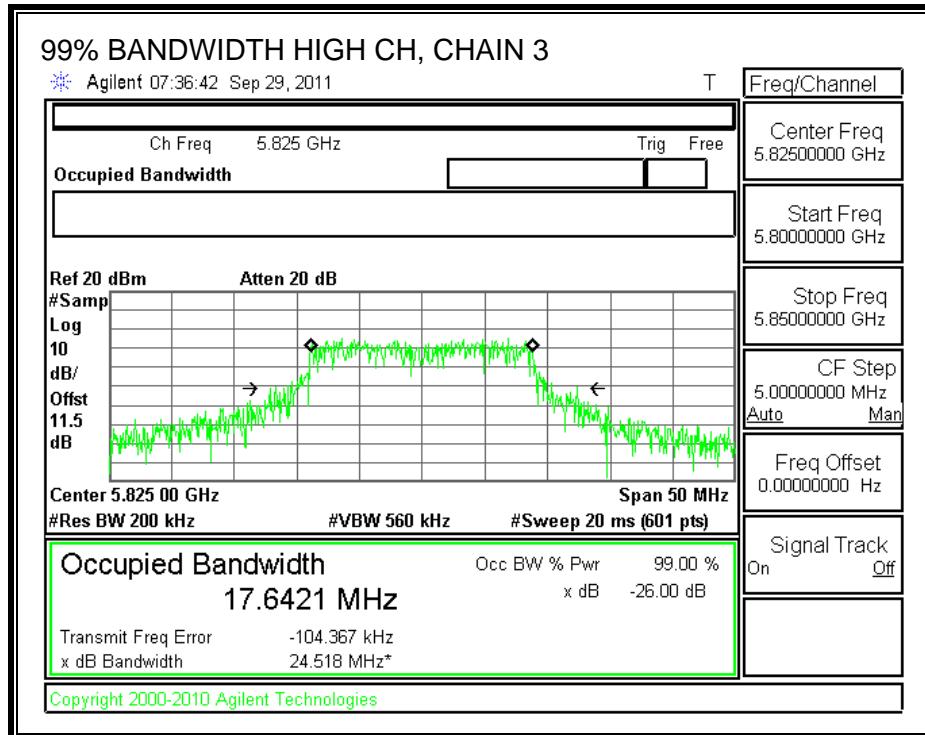
99% BANDWIDTH, CHAIN 2





99% BANDWIDTH, CHAIN 3





7.11.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

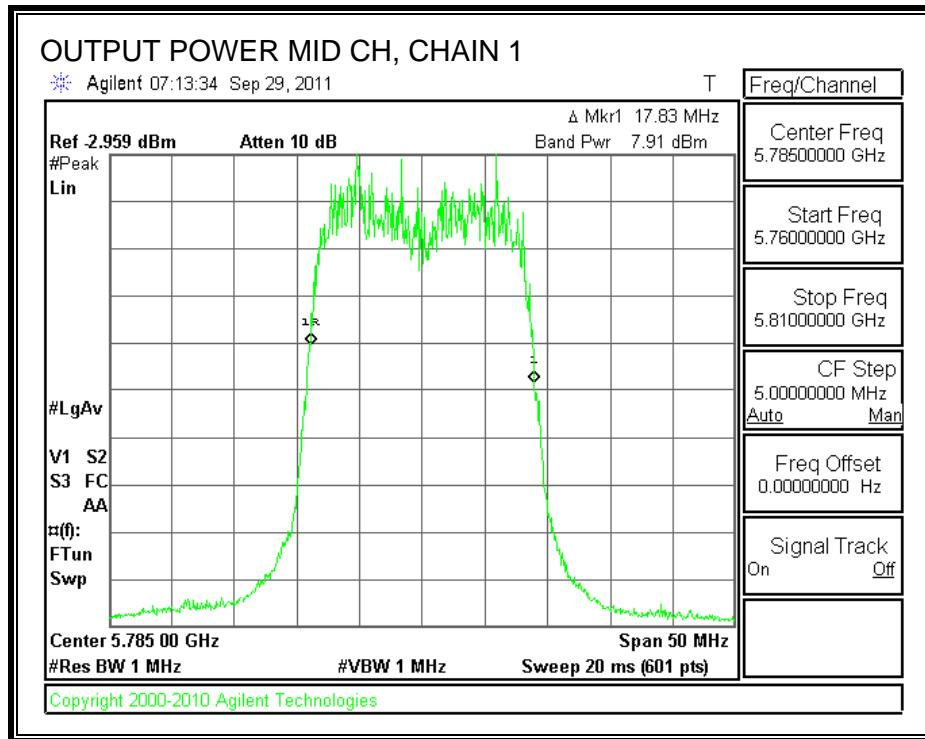
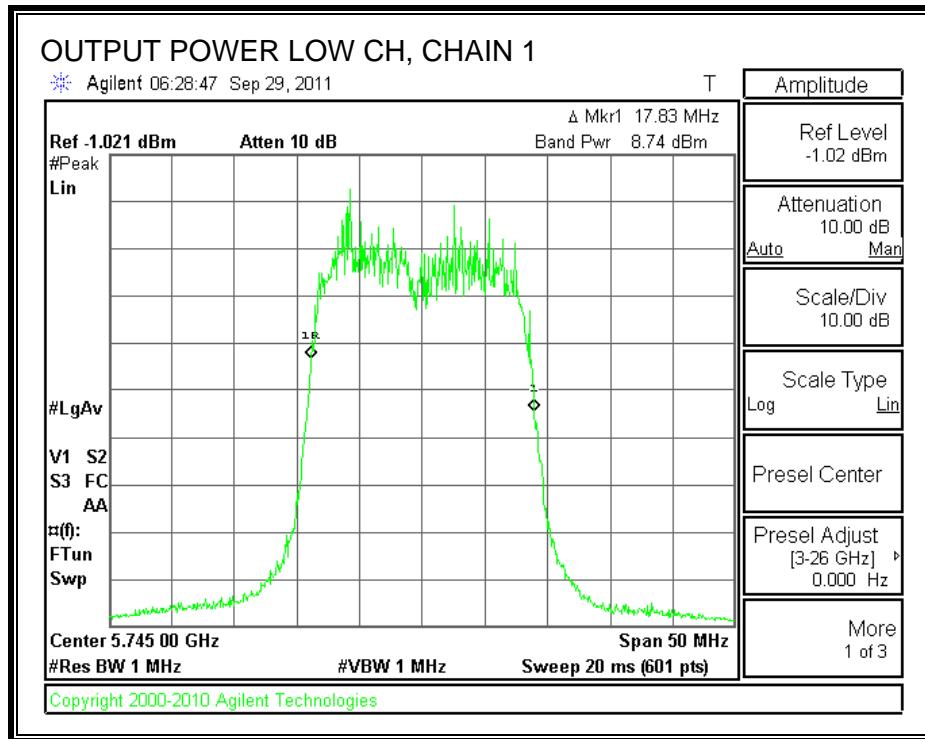
TEST PROCEDURE

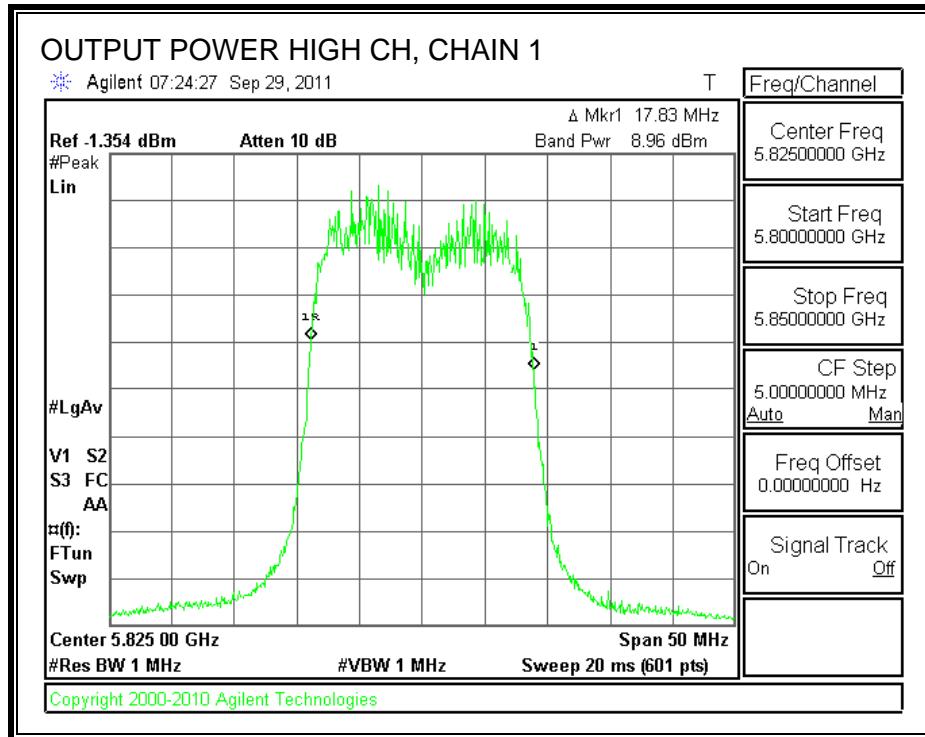
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

RESULTS

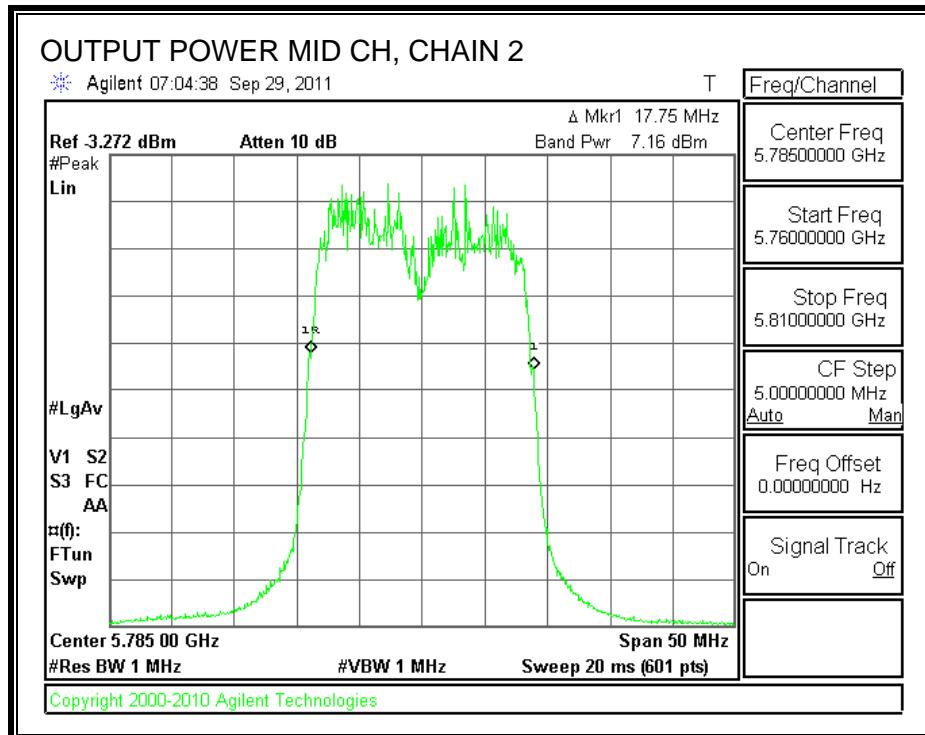
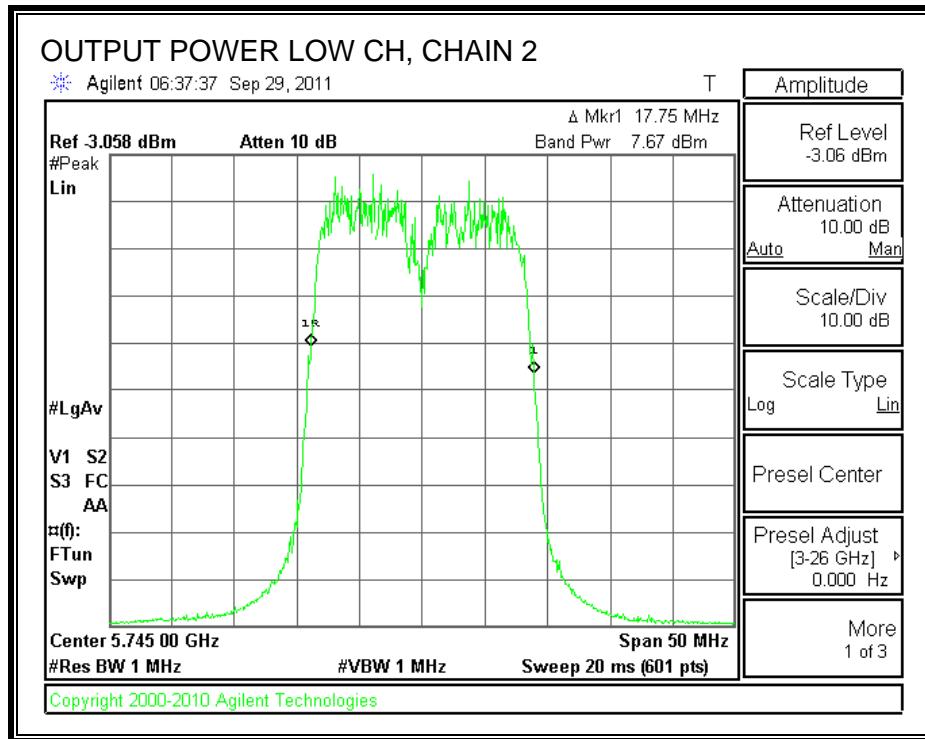
Channel	Frequency (MHz)	Chain 1 PK Power (dBm)	Chain 2 PK Power (dBm)	Chain 3 PK Power (dBm)	Attenuator + Cable Loss (dB)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	5745	8.74	7.67	6.68	11.50	24.05	30.00	-5.95
Mid	5785	7.91	7.16	7.01	11.50	23.65	30.00	-6.35
High	5825	8.96	6.72	6.51	11.50	23.82	30.00	-6.18

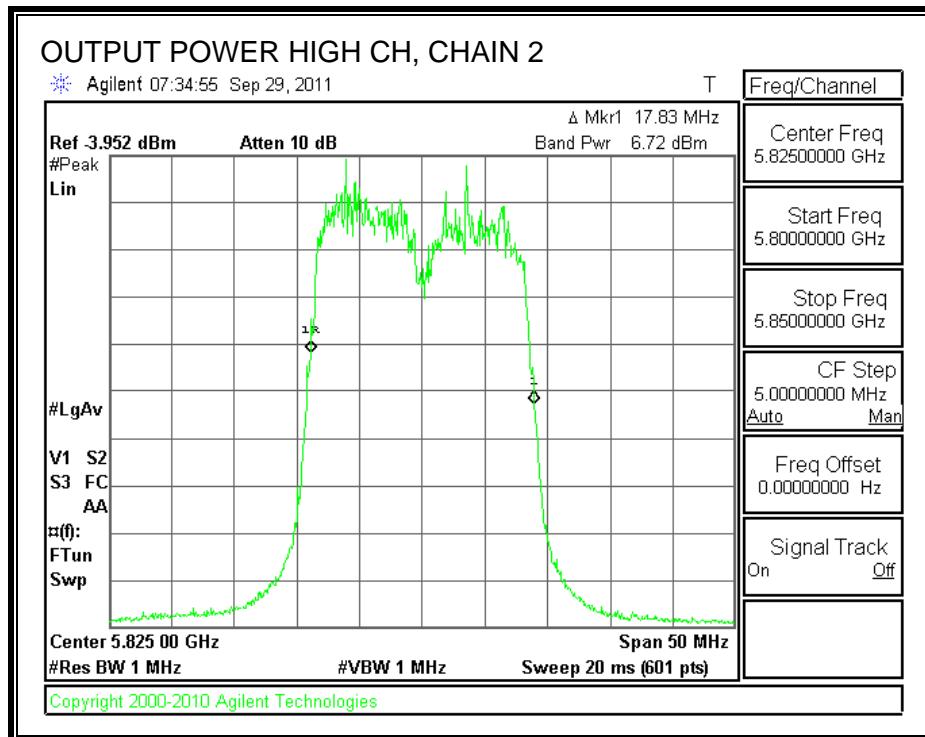
CHAIN 1 OUTPUT POWER



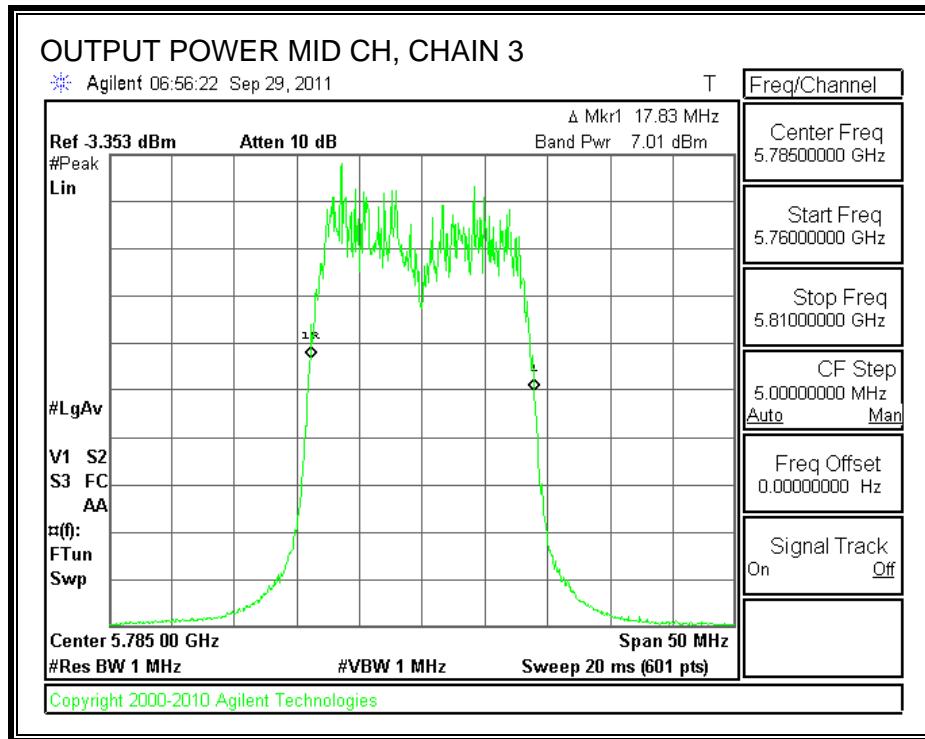
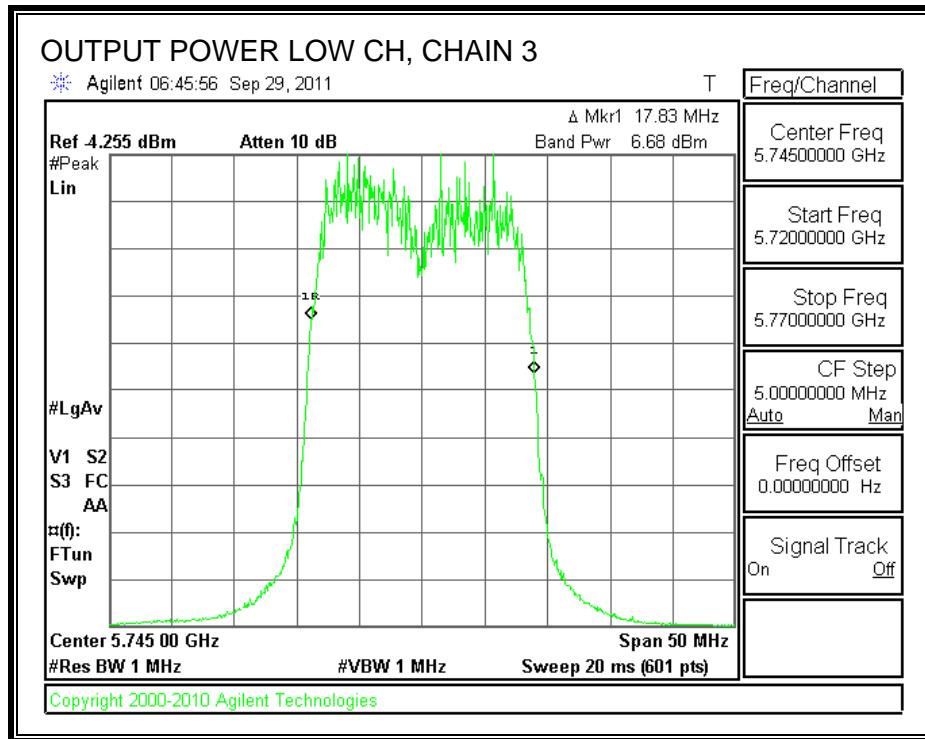


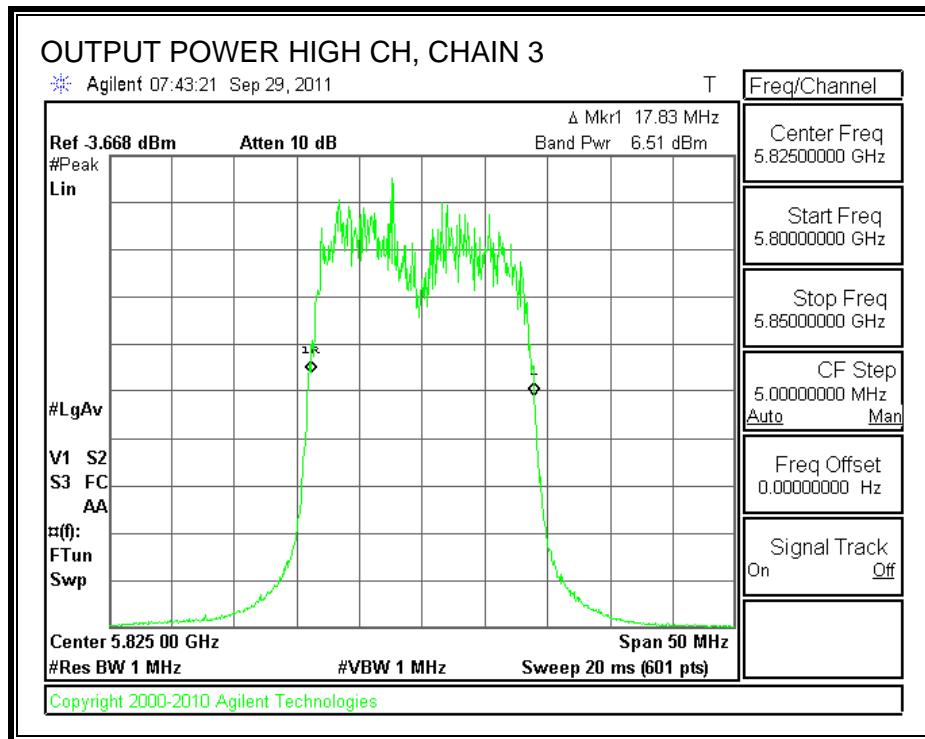
CHAIN 2 OUTPUT POWER





CHAIN 3 OUTPUT POWER





7.11.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Chain 1 Power (dBm)	Chain 2 Power (dBm)	Chain 3 Power (dBm)	Total Power (dBm)
Low	5745	13.70	13.70	13.70	18.47
Middle	5785	13.60	13.60	13.60	18.37
High	5825	13.50	13.50	13.50	18.27

7.11.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

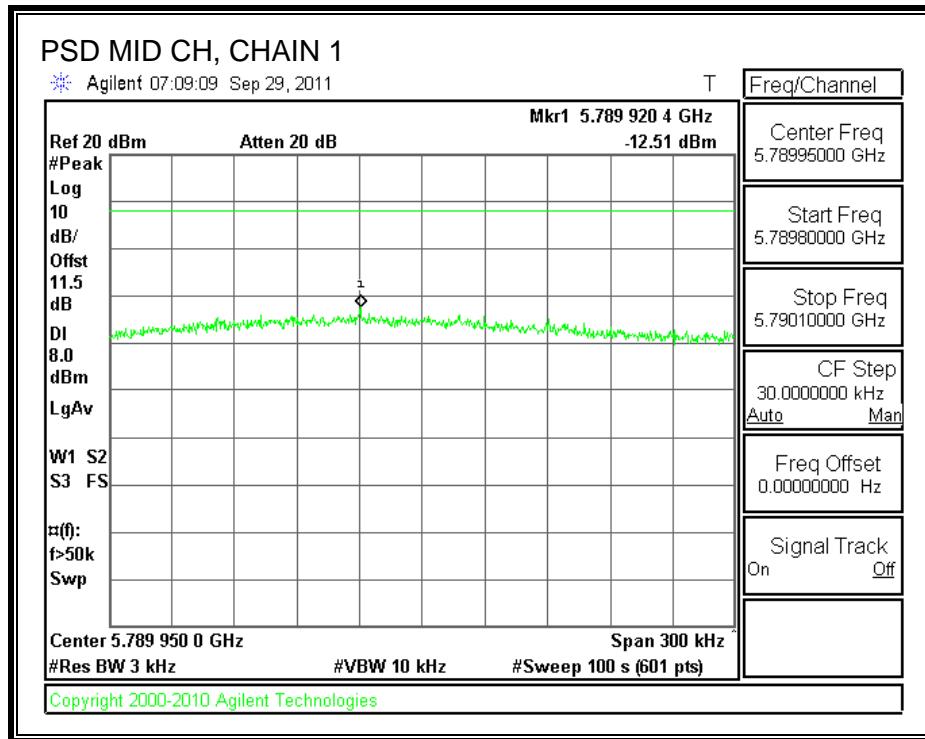
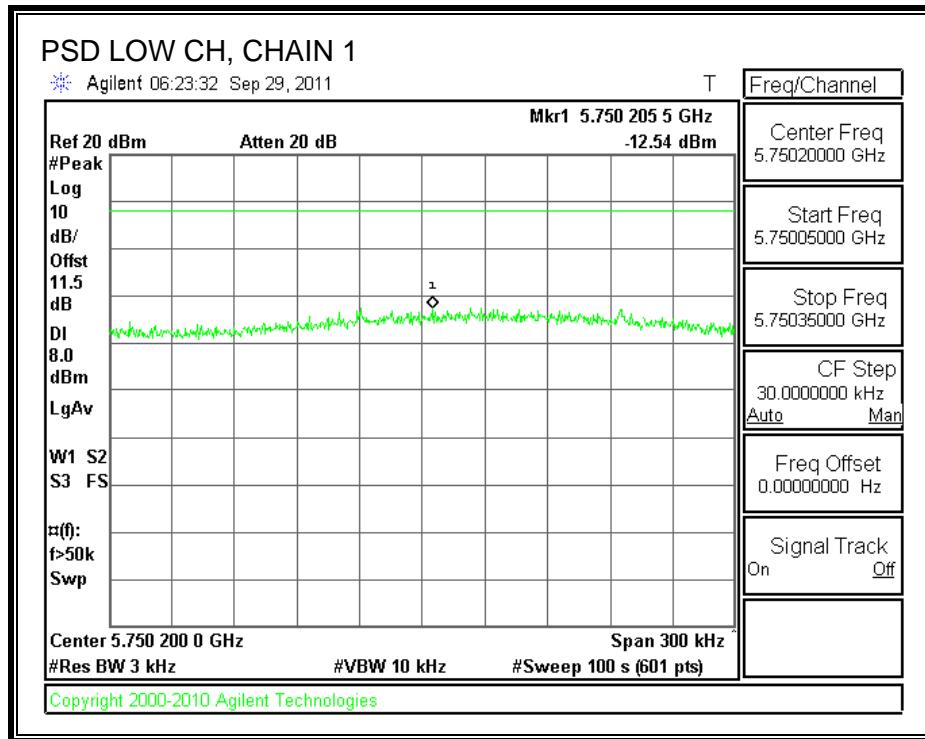
TEST PROCEDURE

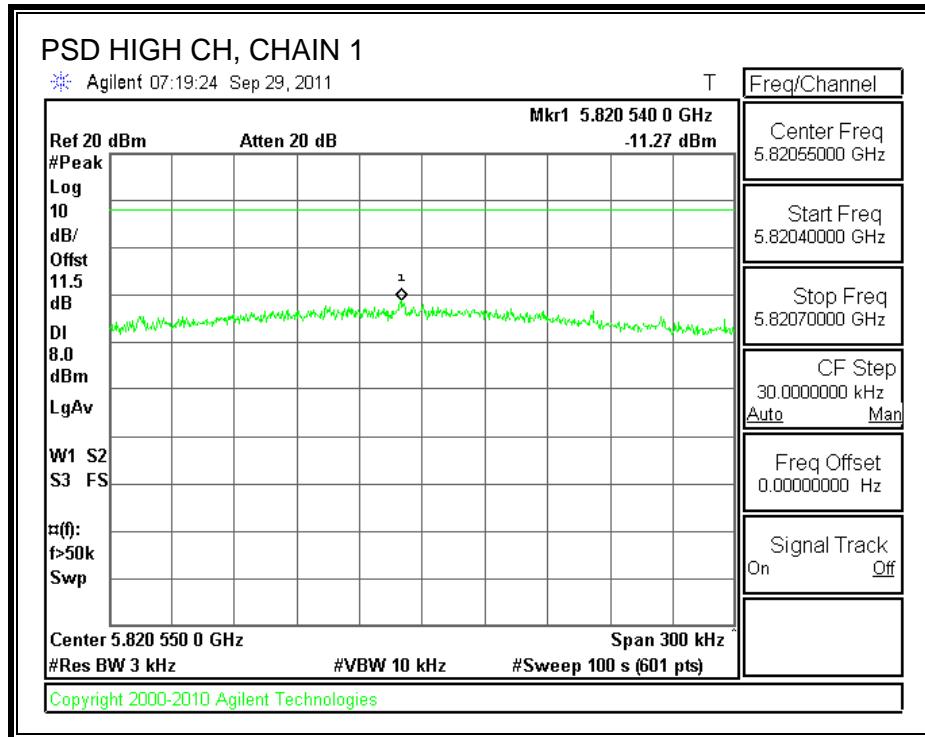
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

RESULTS:

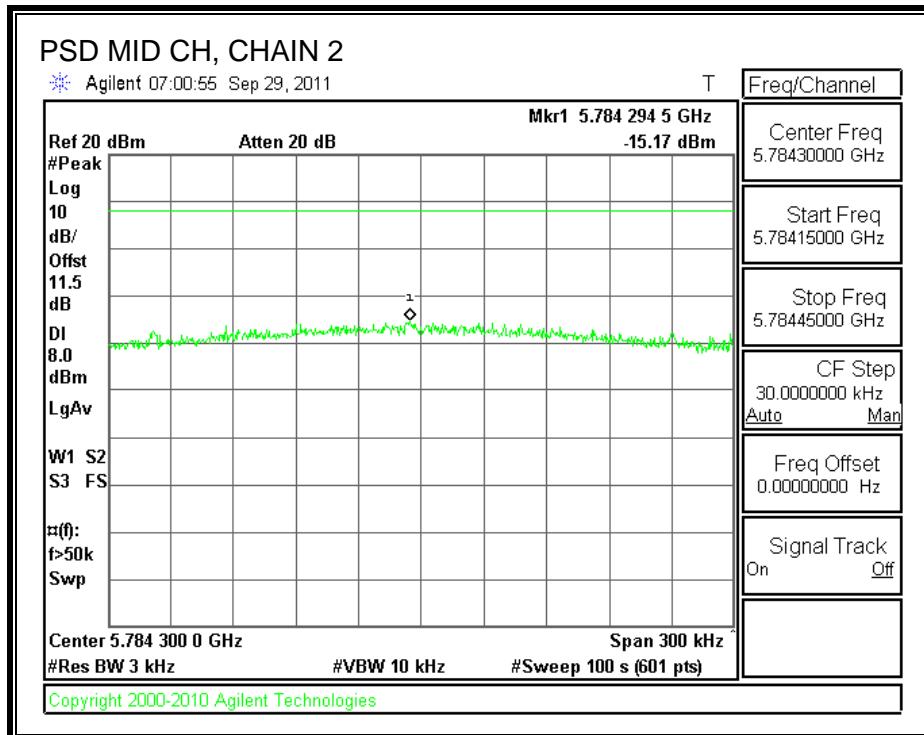
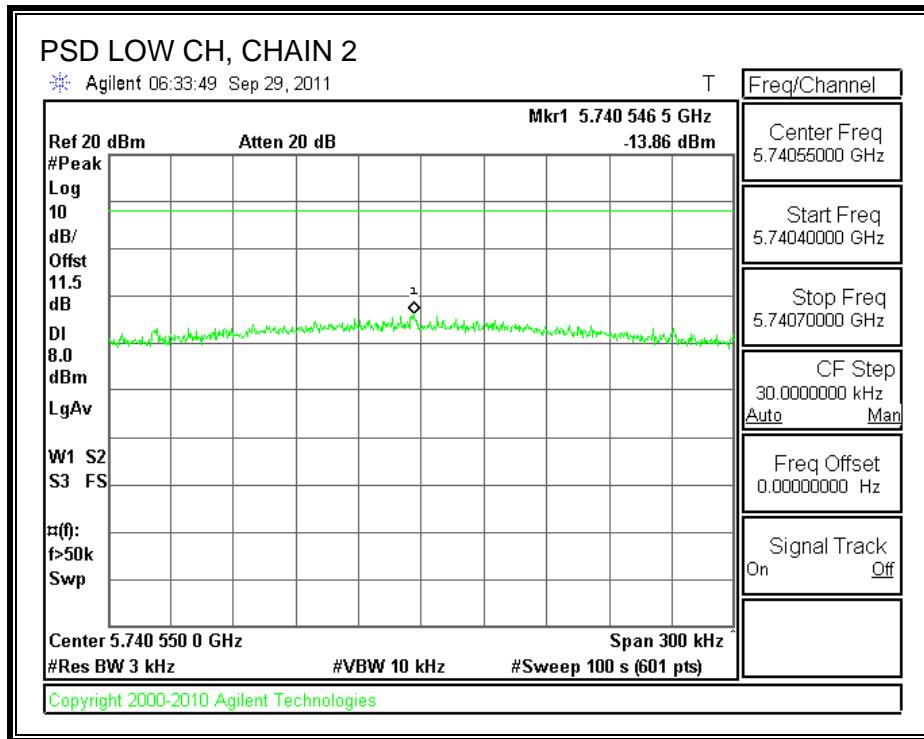
Channel	Frequency (MHz)	Chain 1 PSD (dBm)	Chain 2 PSD (dBm)	Chain 3 PSD (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	5745	-12.54	-13.86	-15.24	-8.97	8	-16.97
Middle	5785	-12.51	-15.71	-14.91	-9.38	8	-17.38
High	5825	-11.27	-14.36	-15.83	-8.62	8	-16.62

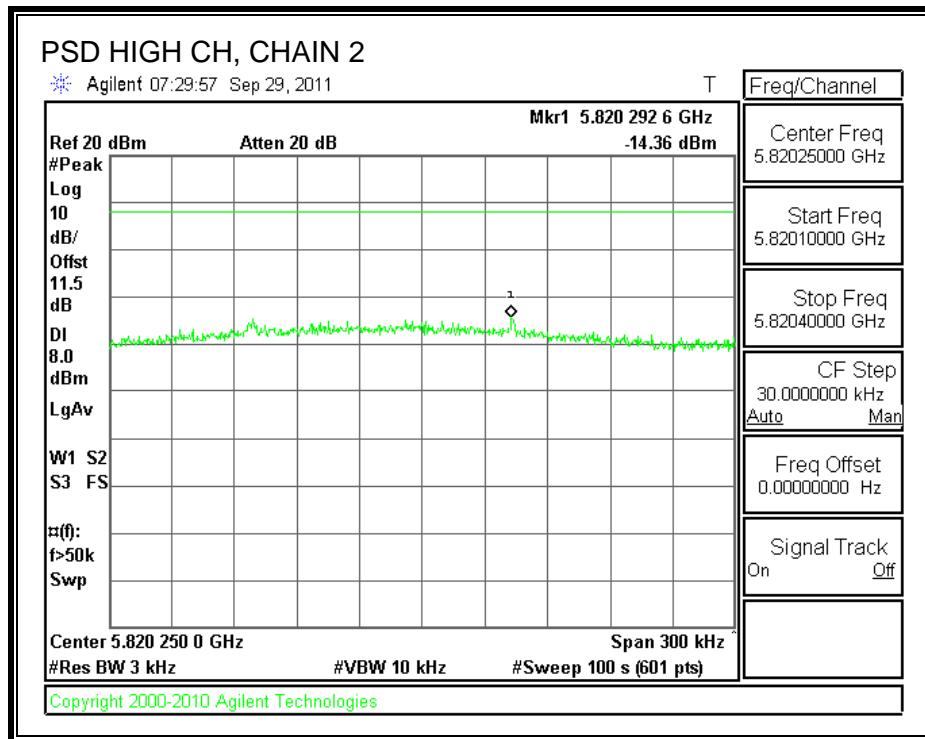
POWER SPECTRAL DENSITY, CHAIN 1



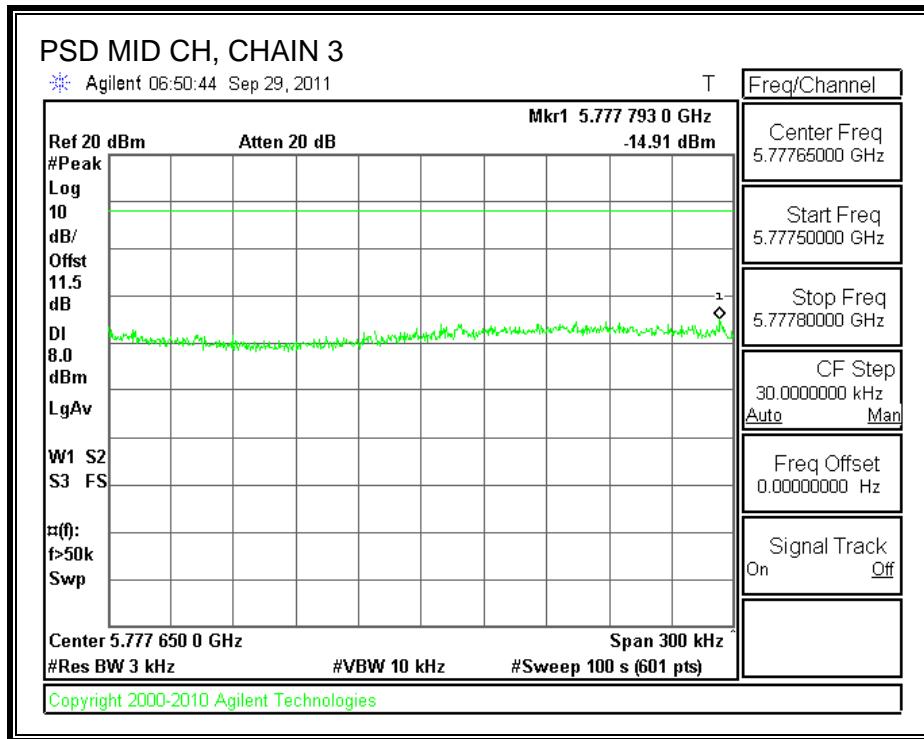
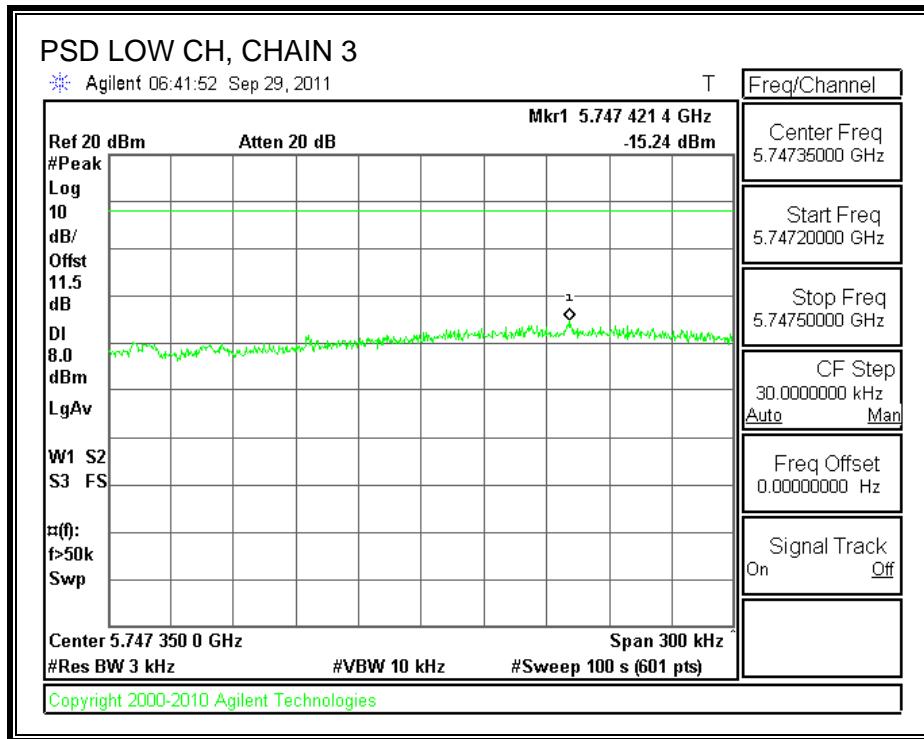


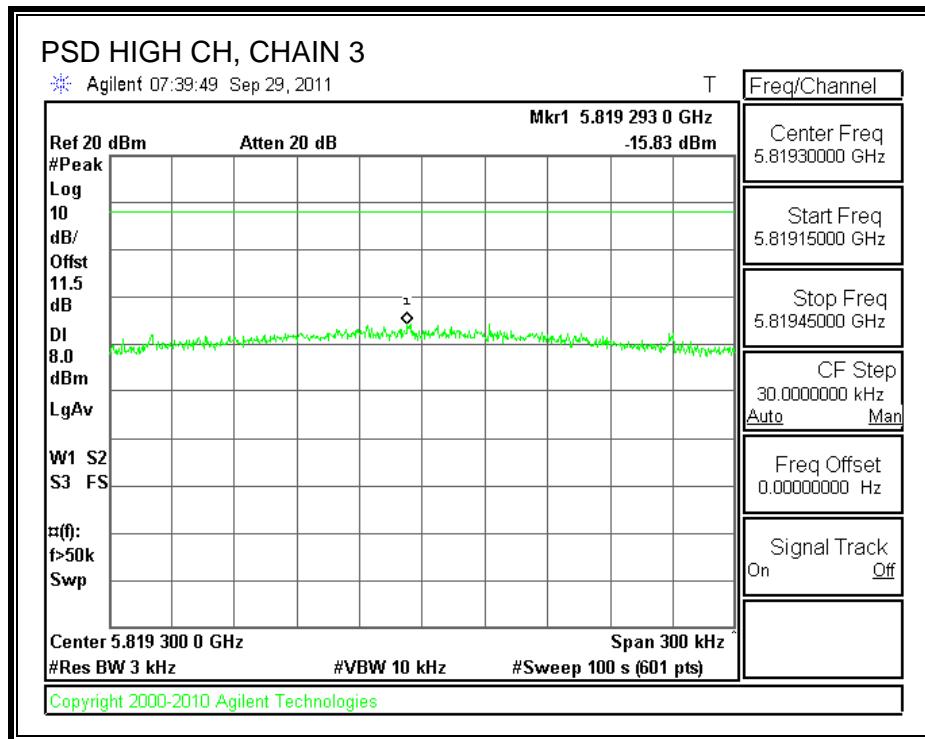
POWER SPECTRAL DENSITY, CHAIN 2





POWER SPECTRAL DENSITY, CHAIN 3





7.11.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

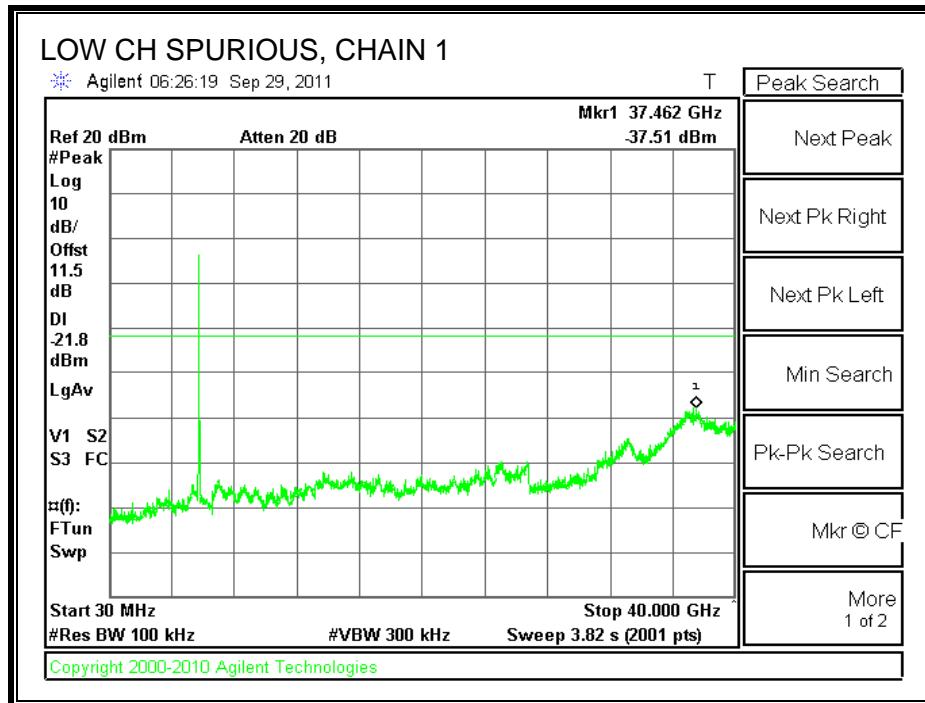
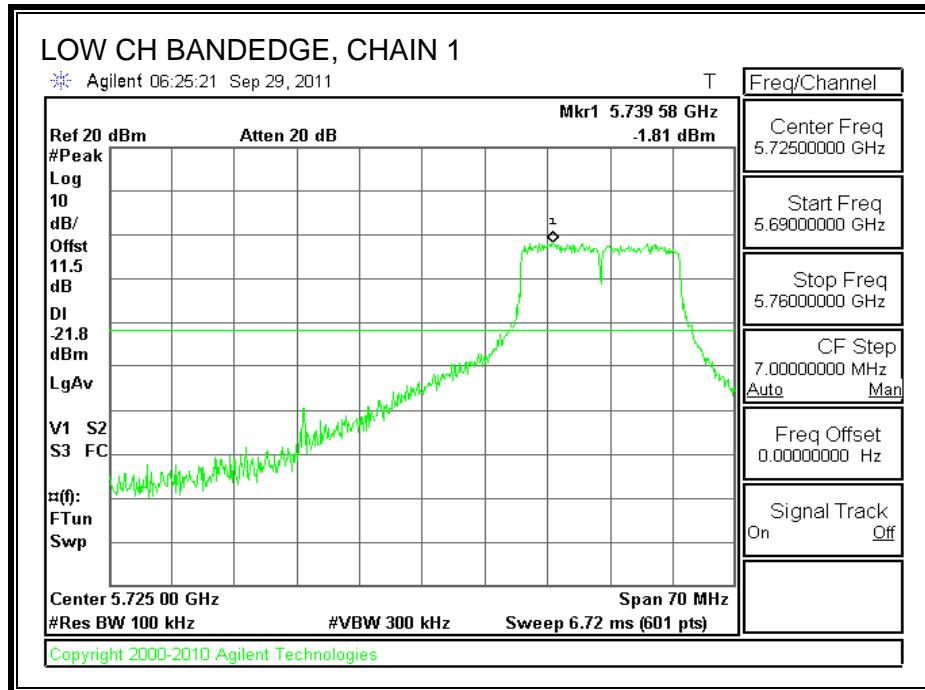
TEST PROCEDURE

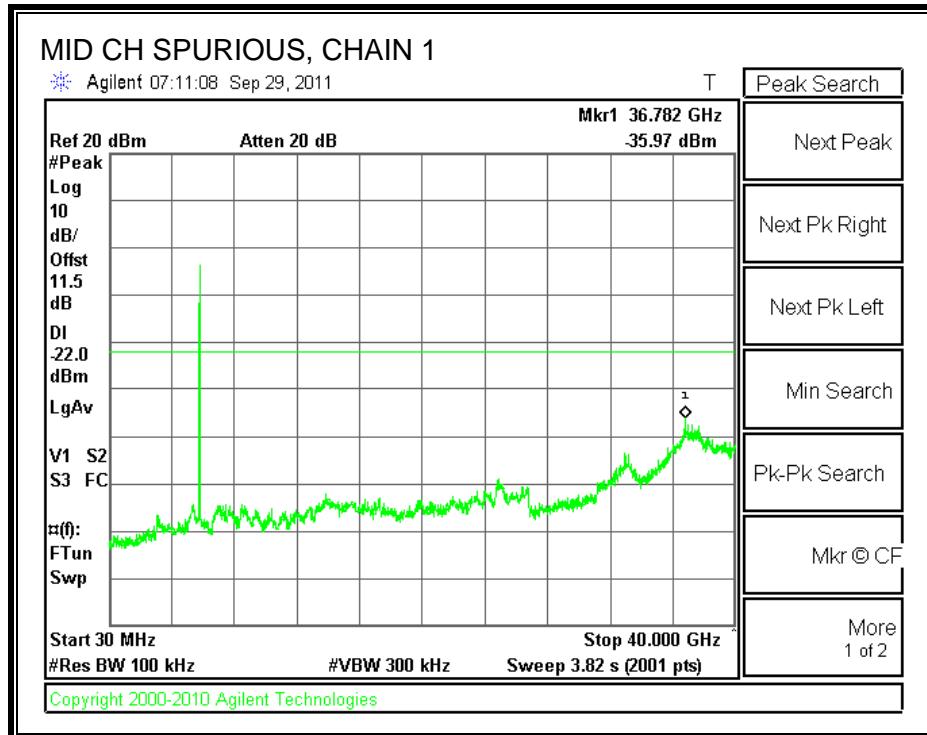
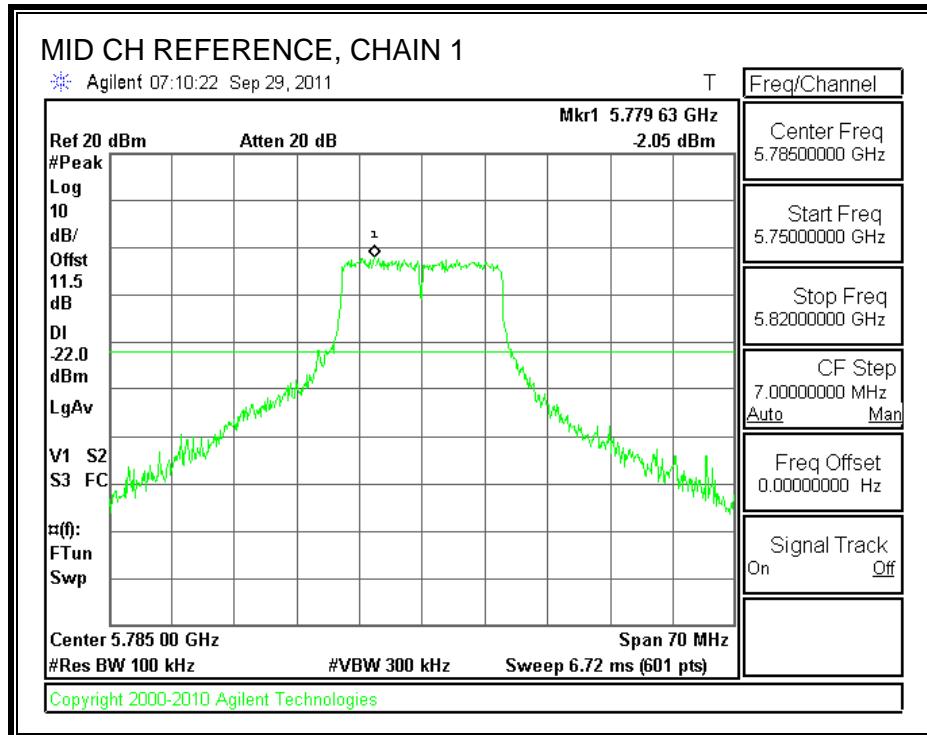
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

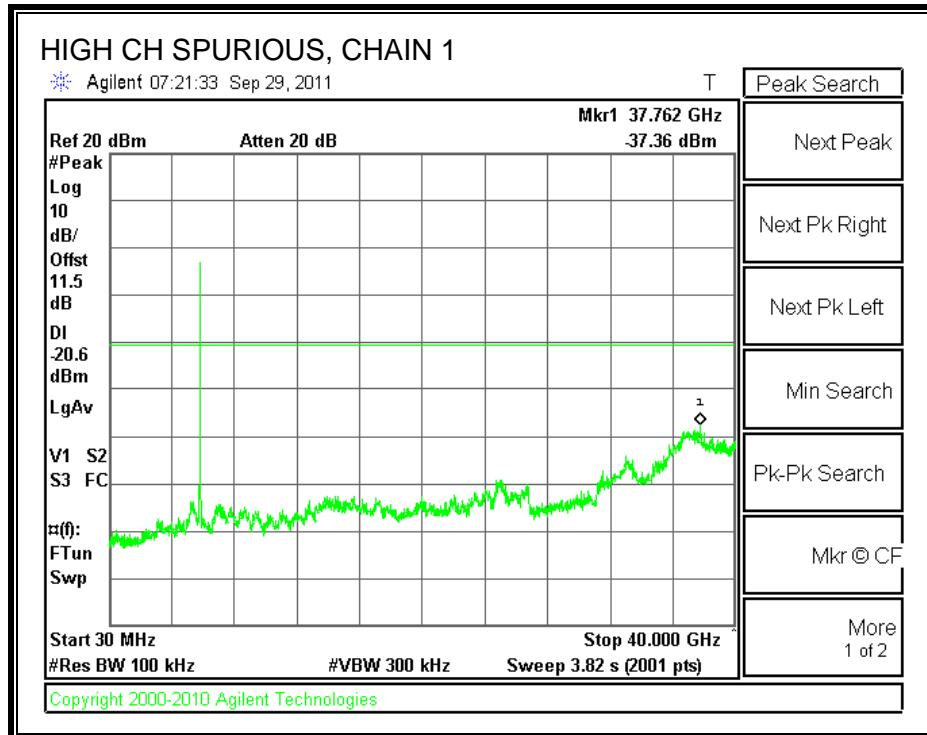
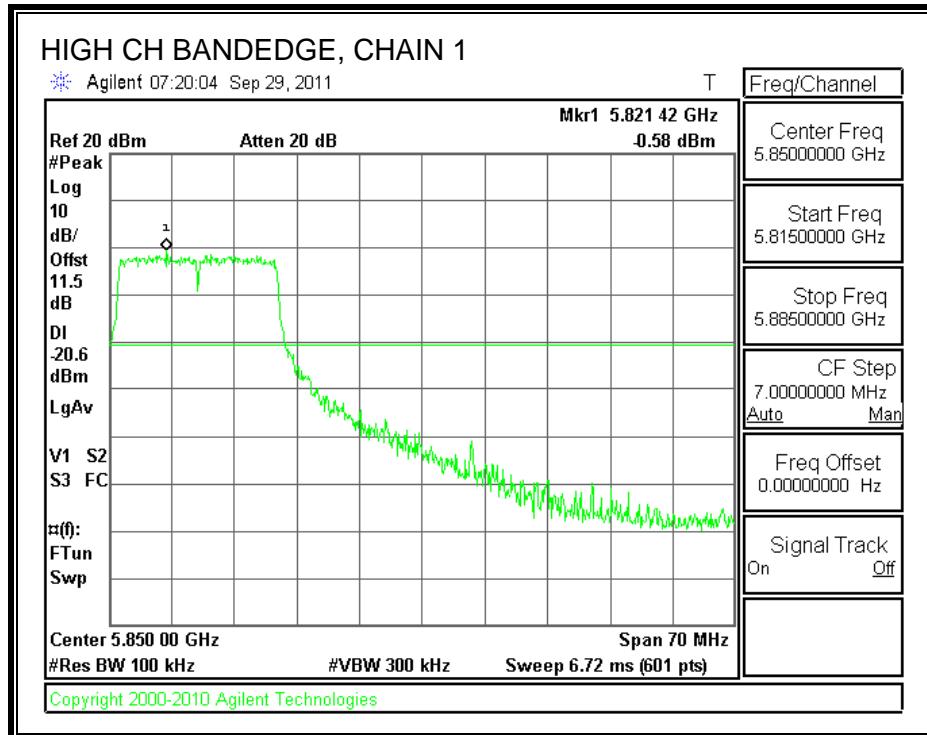
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

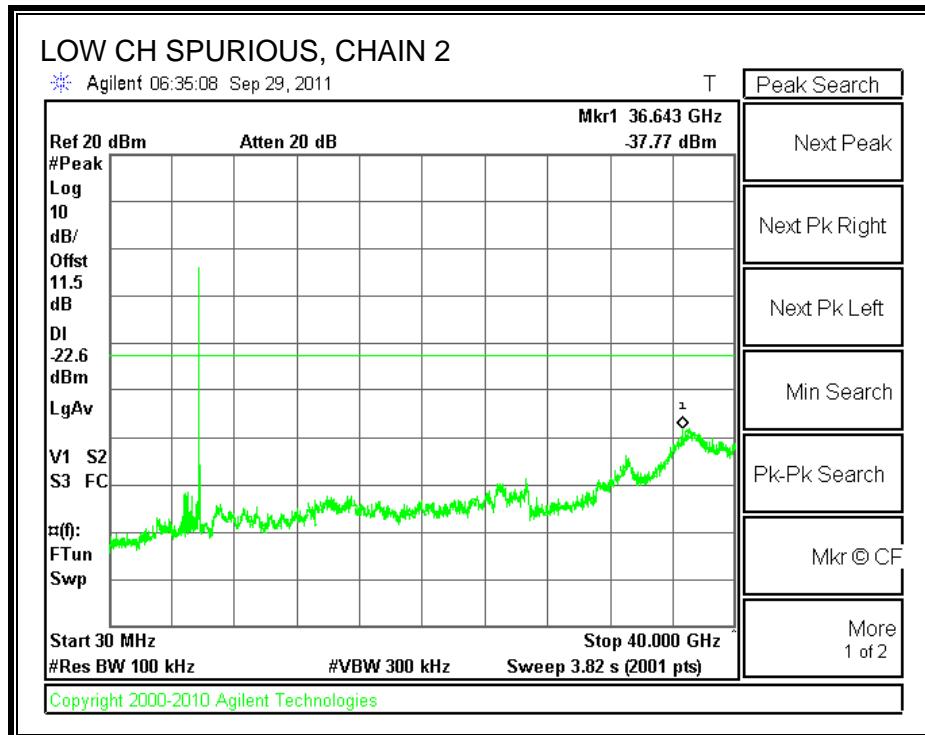
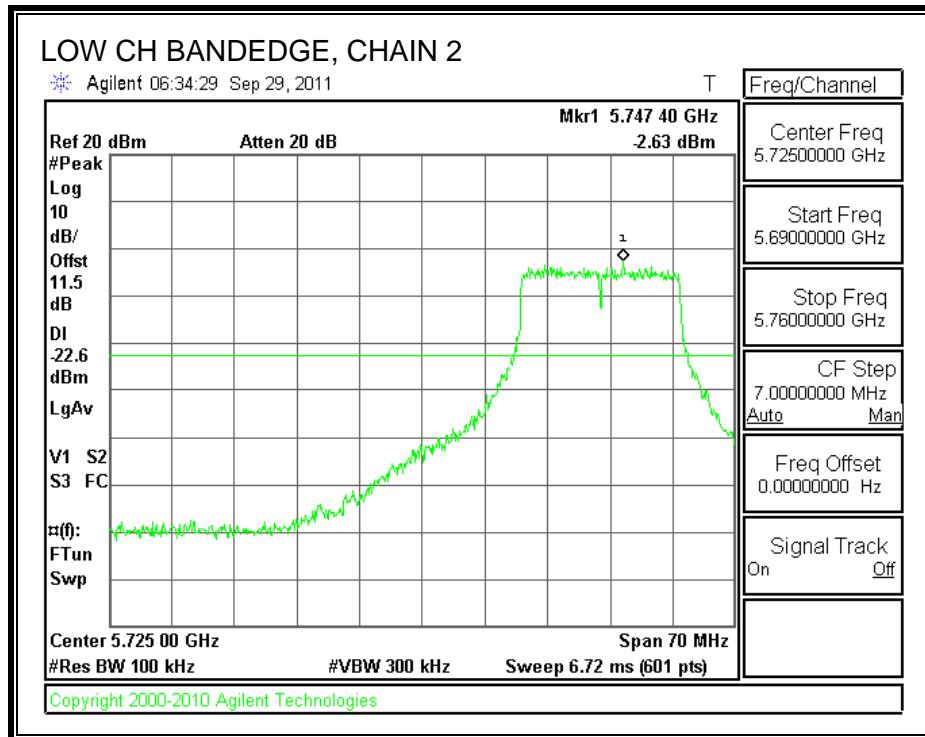
CHAIN 1 SPURIOUS EMISSIONS

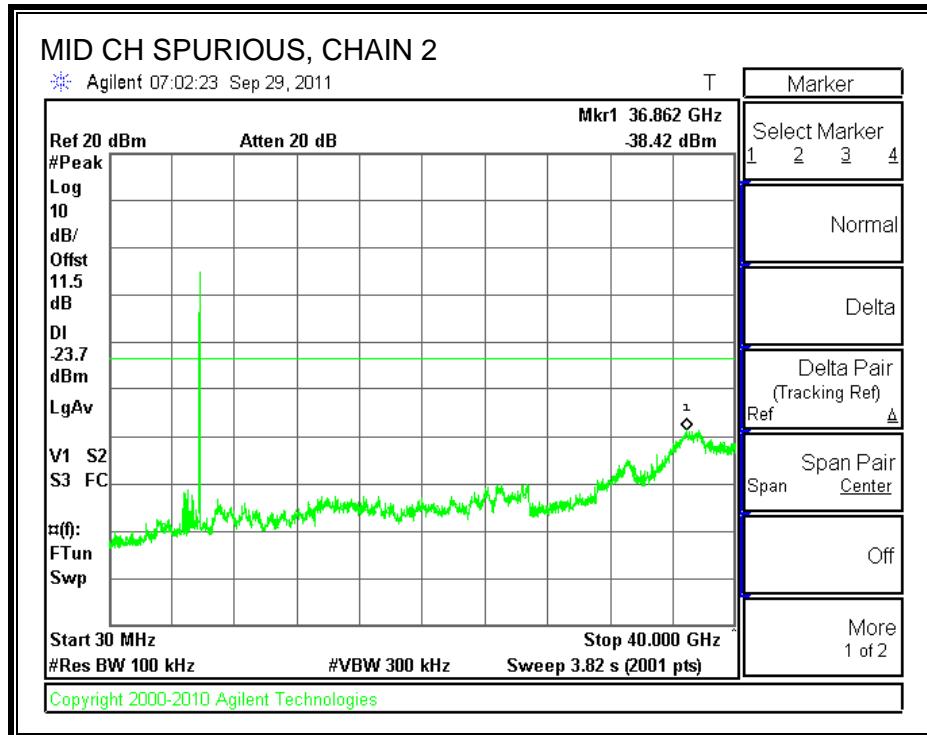
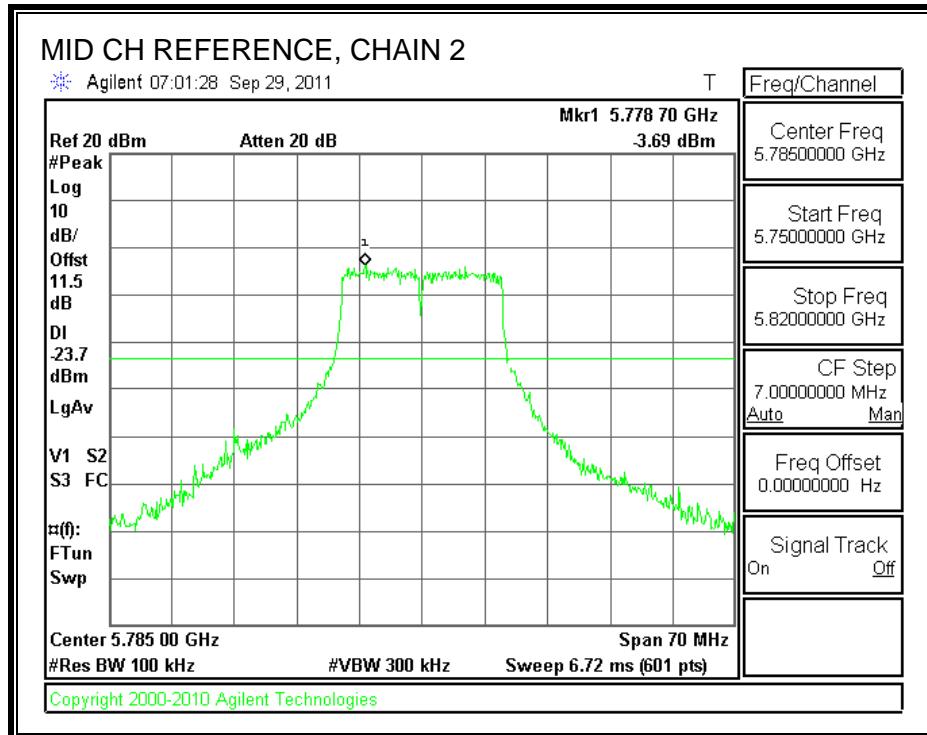


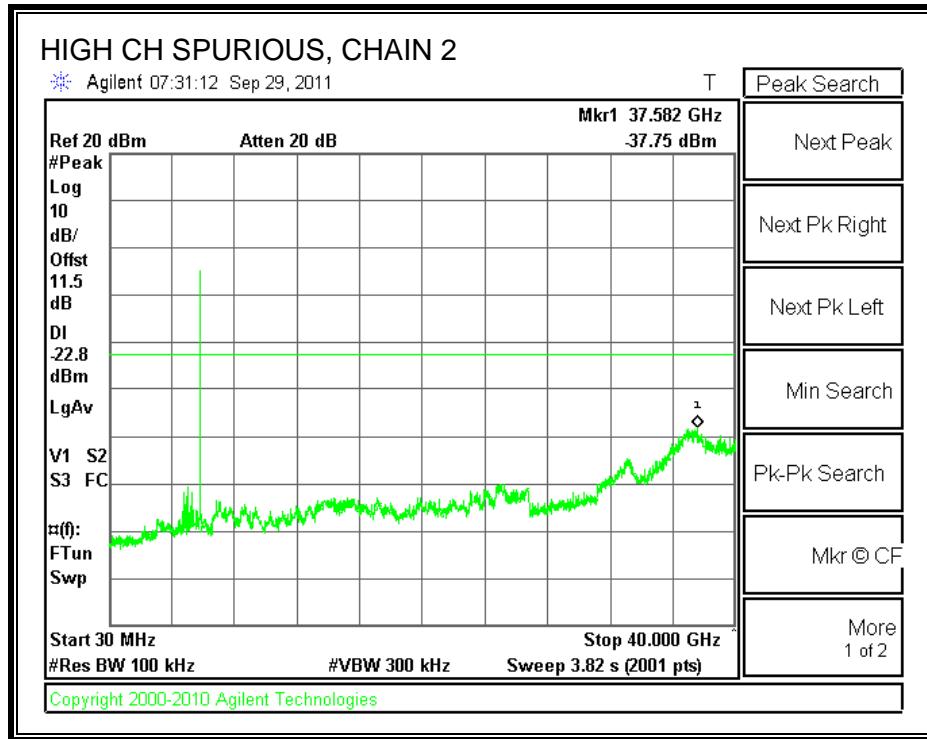
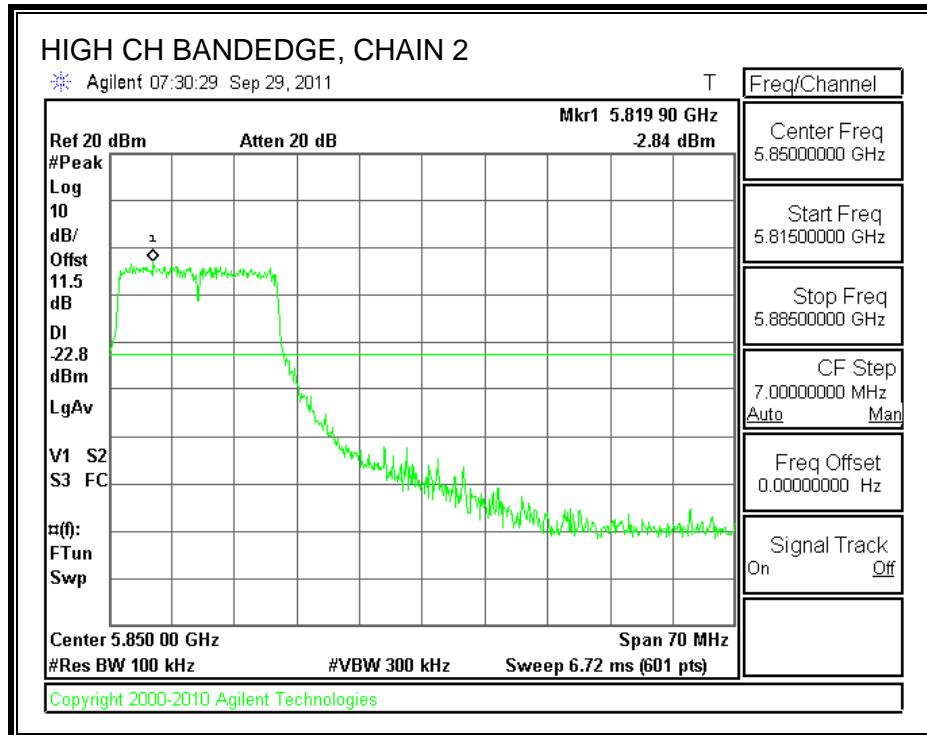




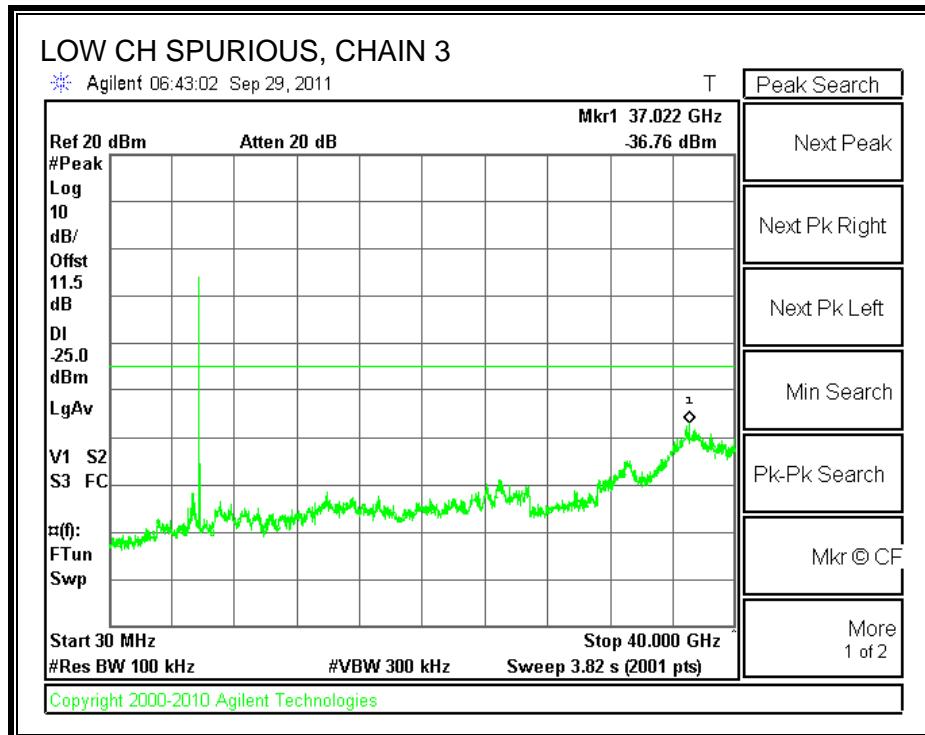
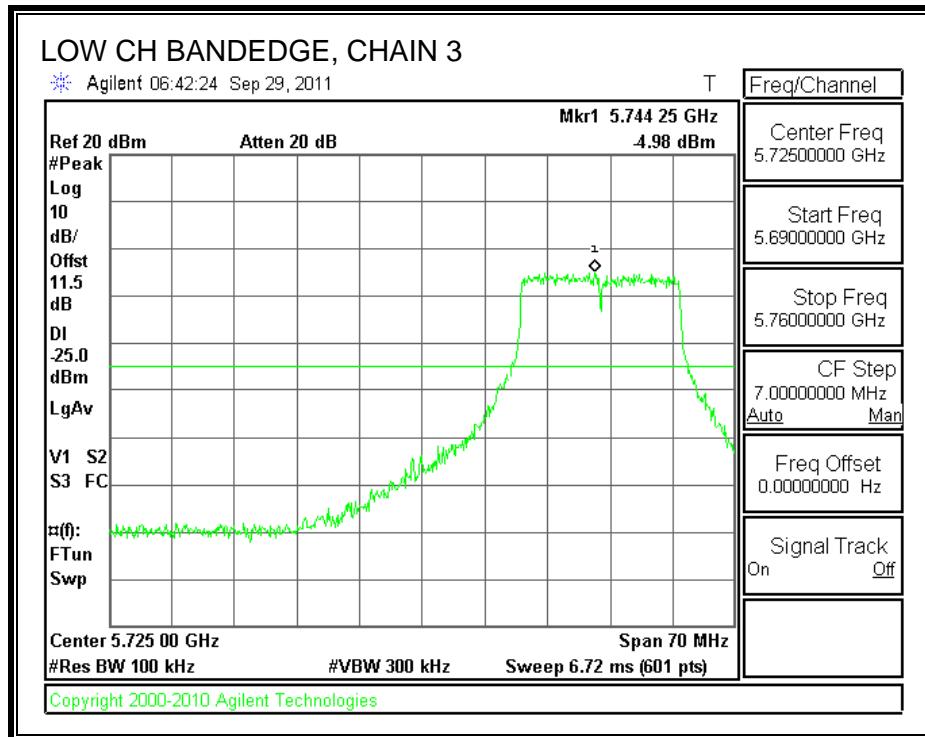
CHAIN 2 SPURIOUS EMISSIONS

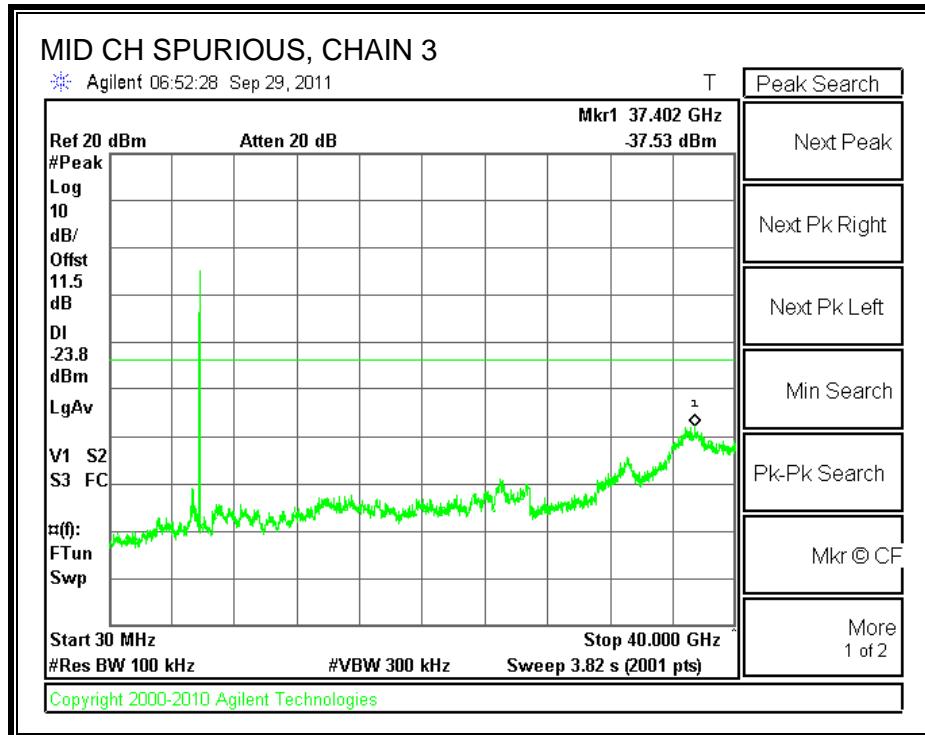
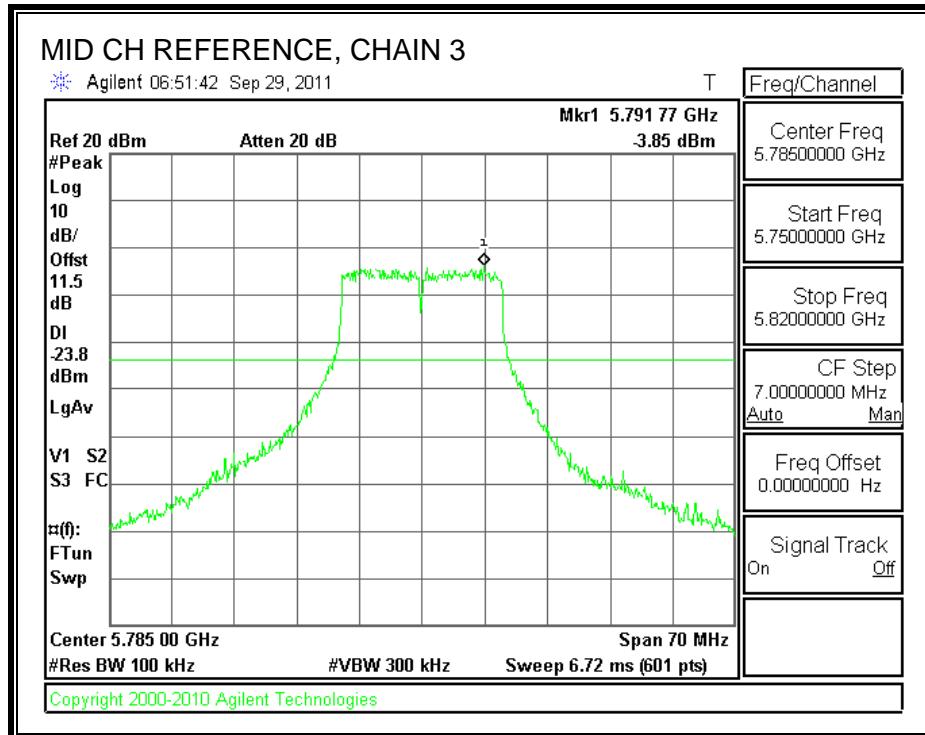


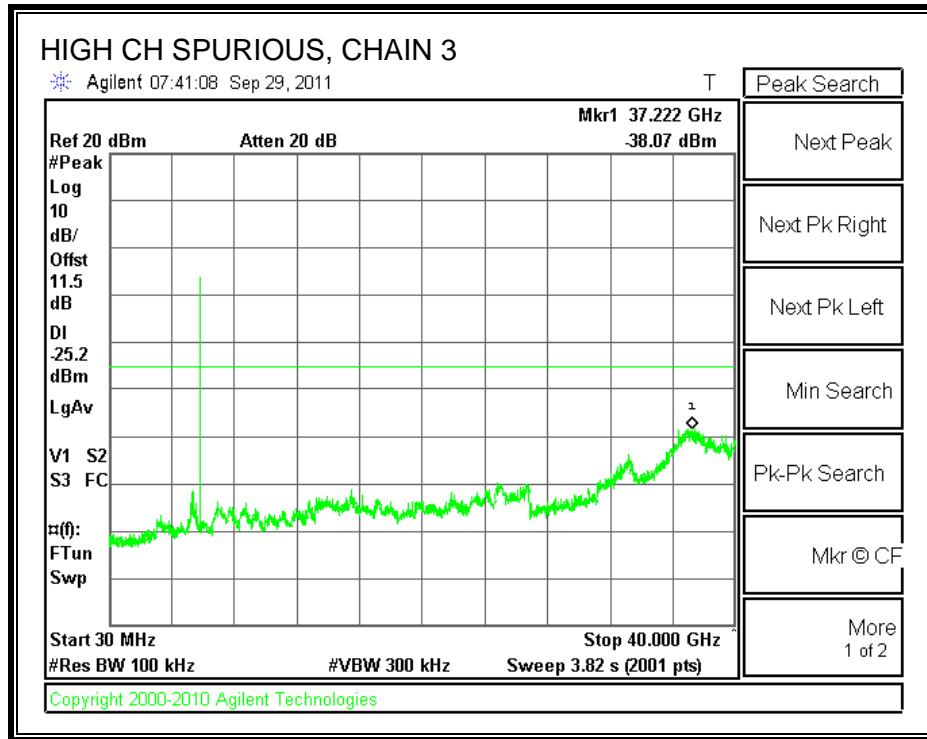
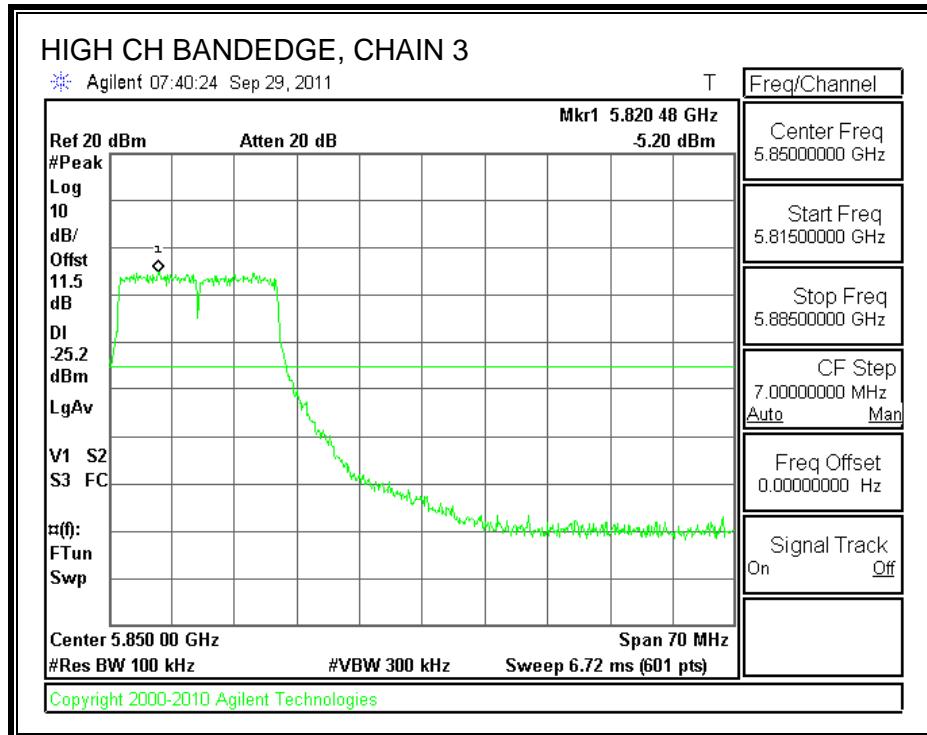




CHAIN 3 SPURIOUS EMISSIONS







7.12. 802.11n HT40 MCS0 3TX MODE IN THE 5.8 GHz BAND

7.12.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

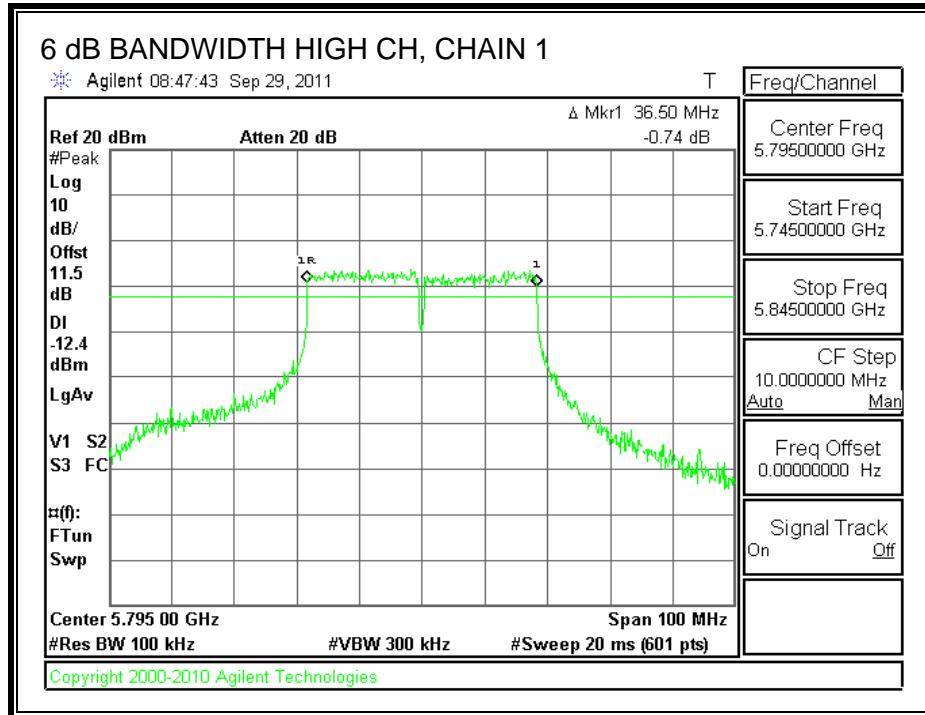
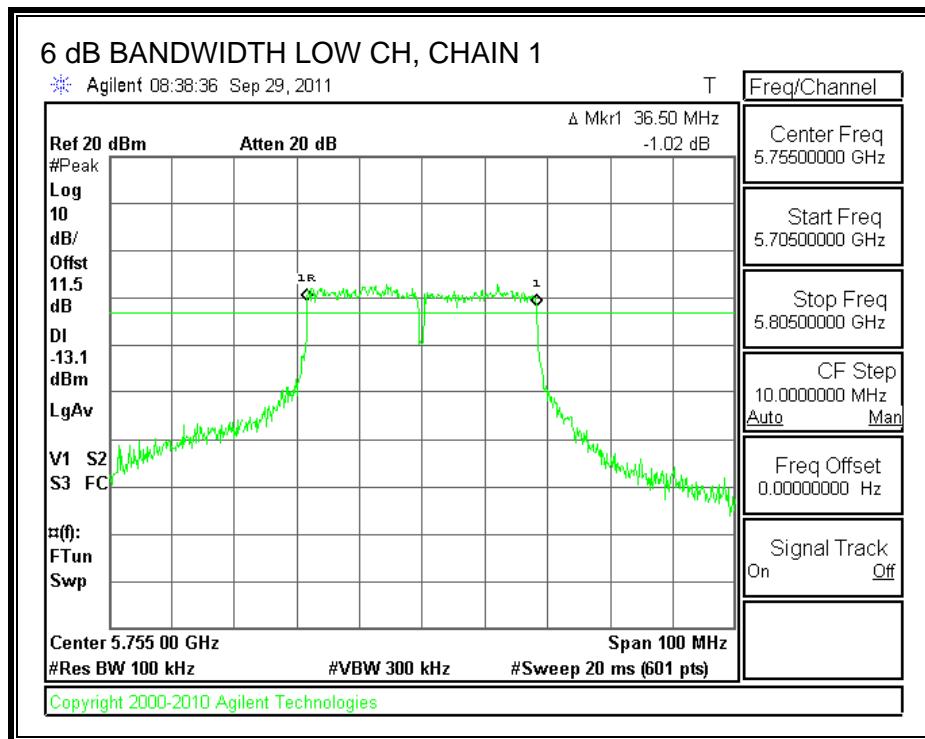
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

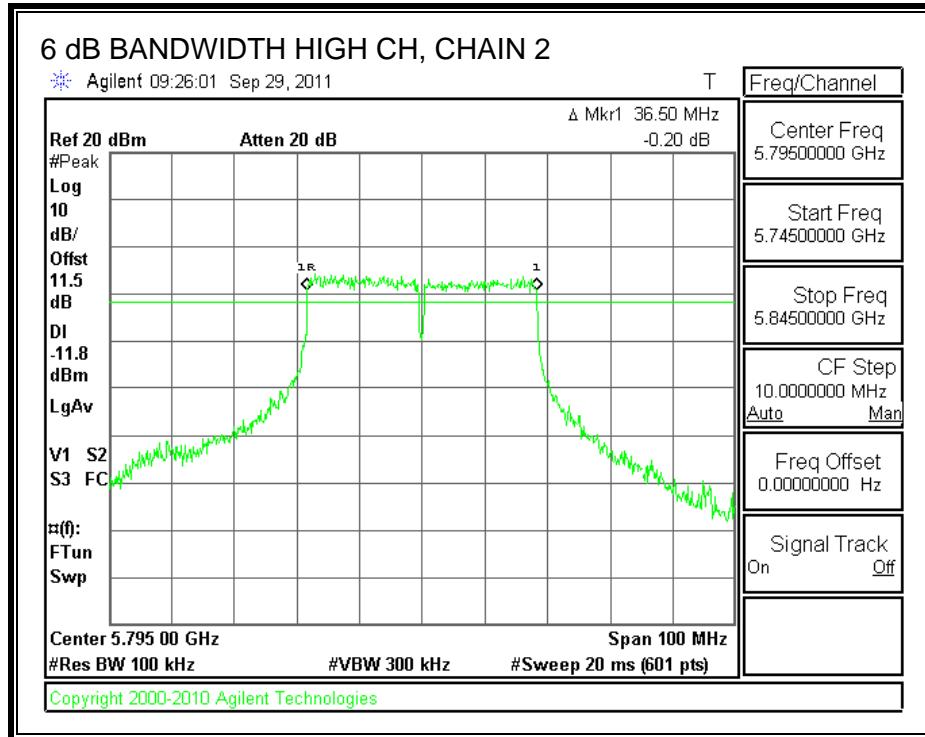
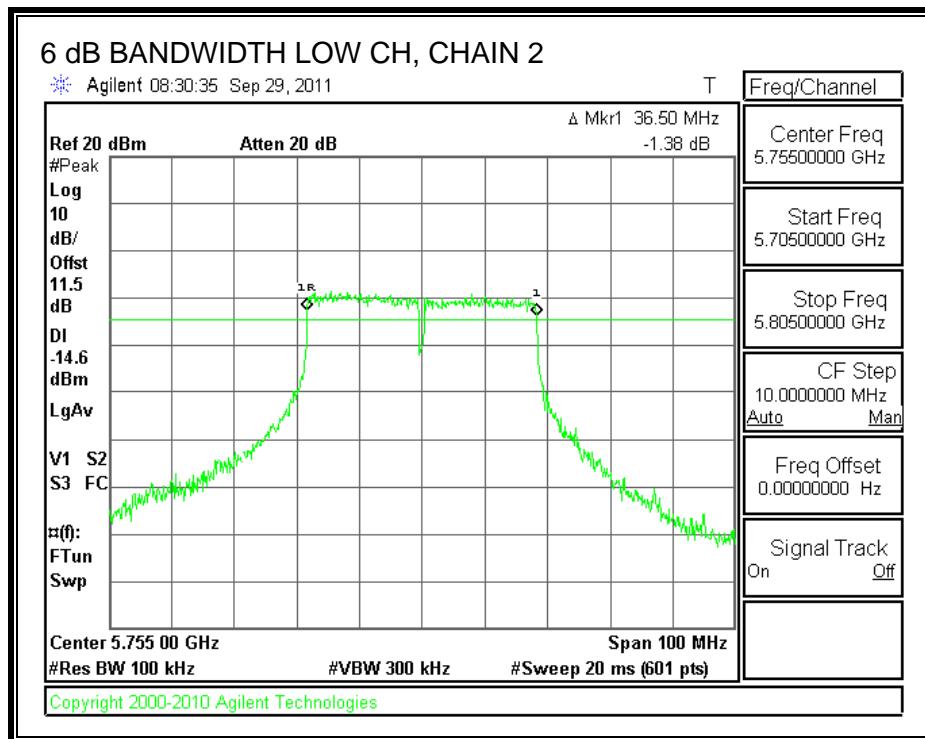
RESULTS

Channel	Frequency (MHz)	Chain 1 6 dB BW (MHz)	Chain 2 6 dB BW (MHz)	Chain 3 6 dB BW (MHz)	Minimum Limit (MHz)
Low	5755	36.5	36.5	36.5	0.5
High	5795	36.5	36.5	36.5	0.5

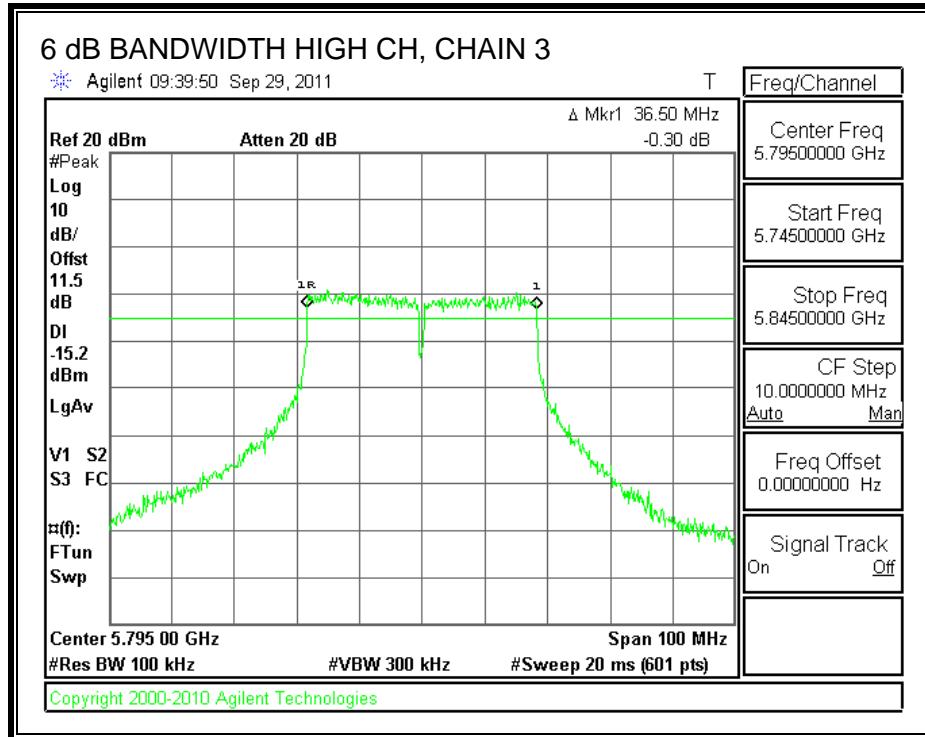
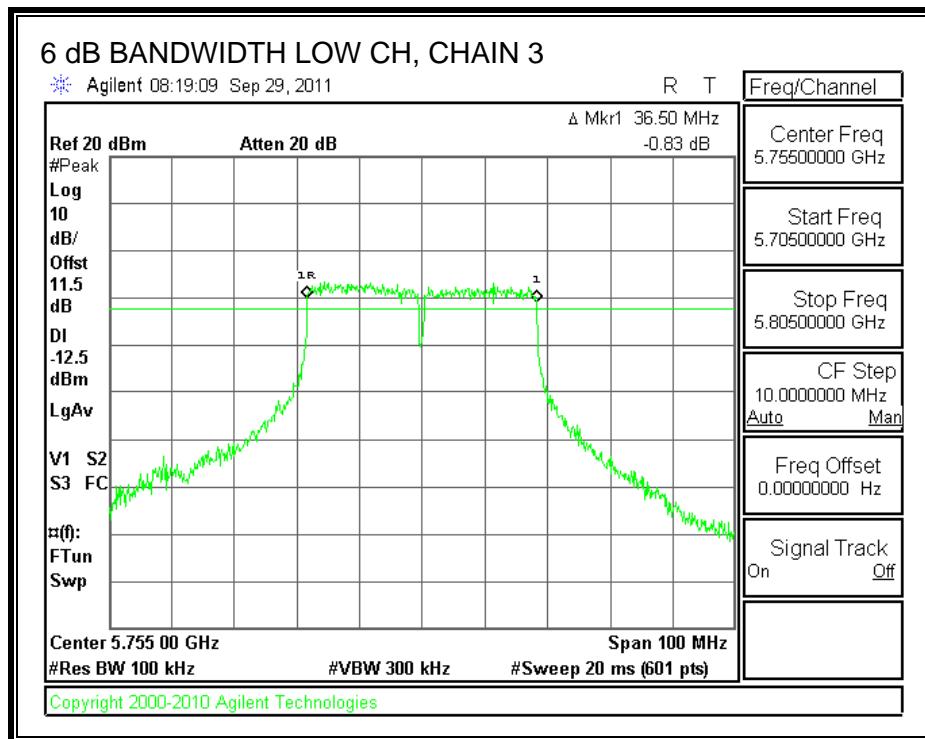
6 dB BANDWIDTH, CHAIN 1



6 dB BANDWIDTH, CHAIN 2



6 dB BANDWIDTH, CHAIN 3



7.12.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

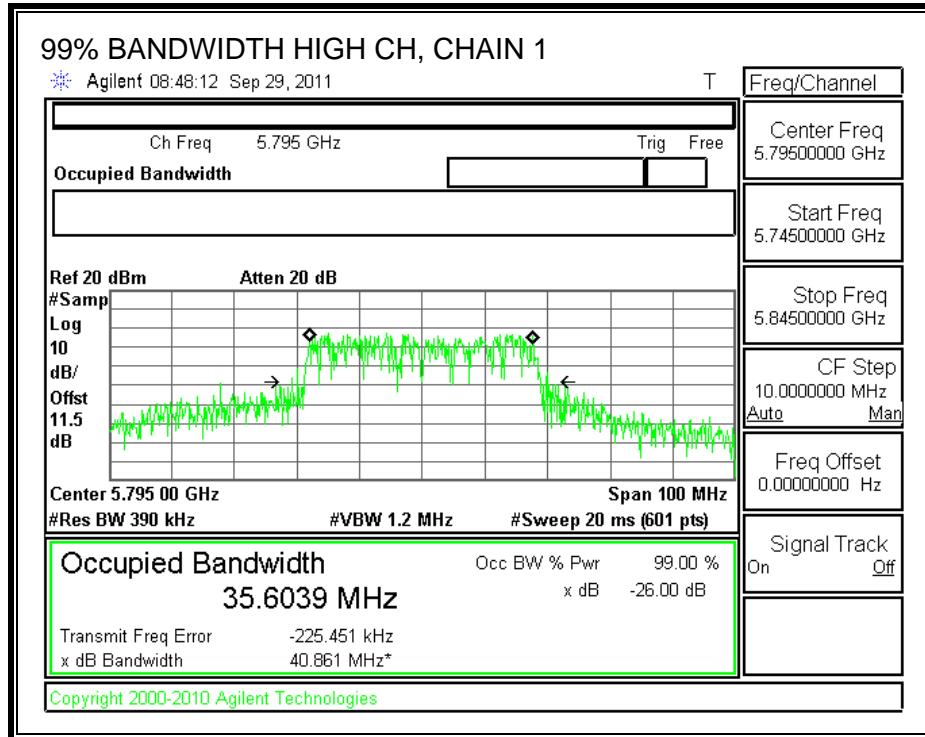
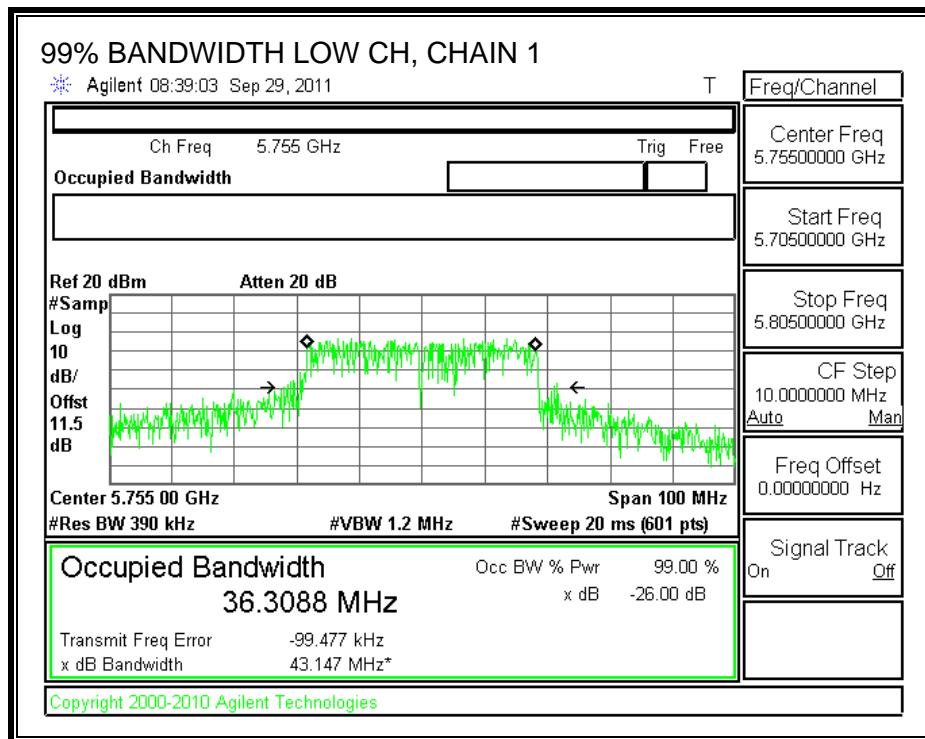
TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

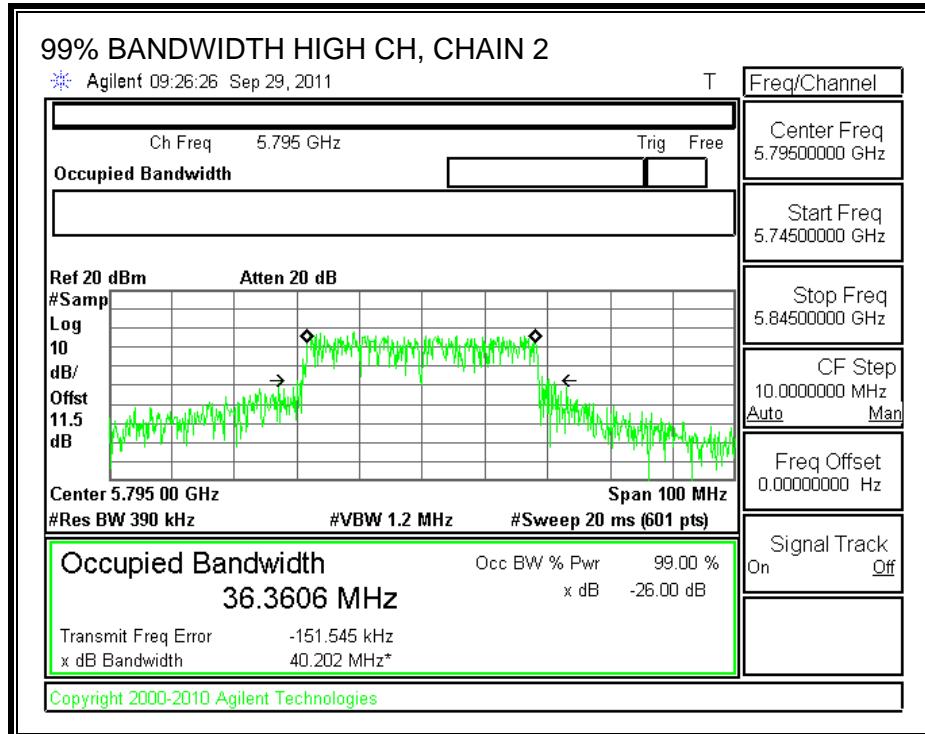
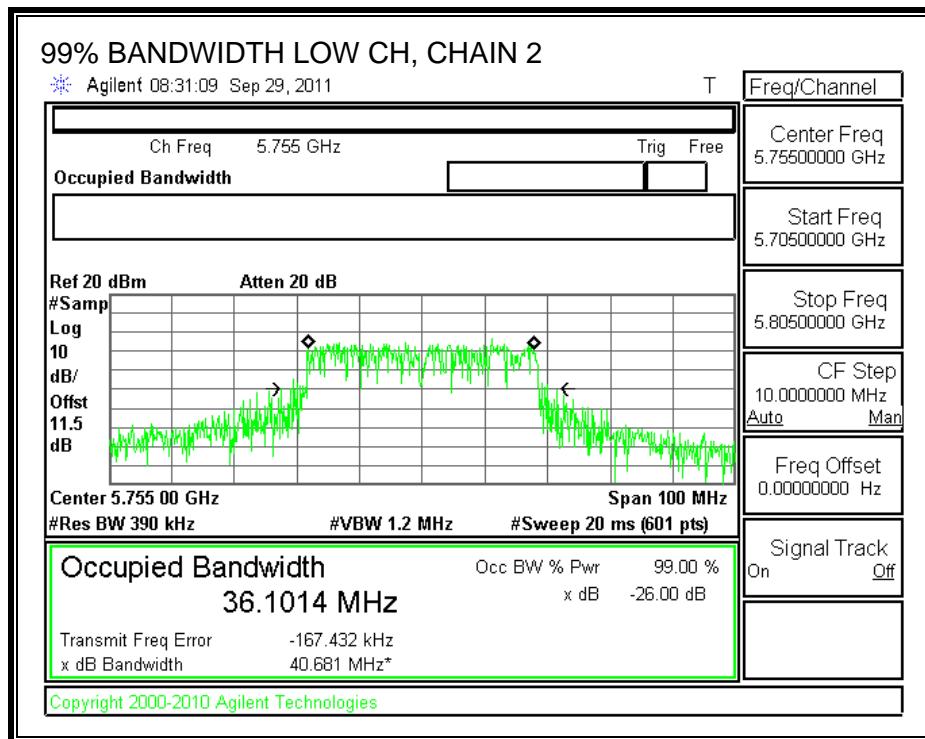
RESULTS

Channel	Frequency (MHz)	Chain 1 99% Bandwidth (MHz)	Chain 2 99% Bandwidth (MHz)	Chain 3 99% Bandwidth (MHz)
Low	5755	36.3088	36.1014	36.4250
High	5795	35.6039	36.3606	36.3649

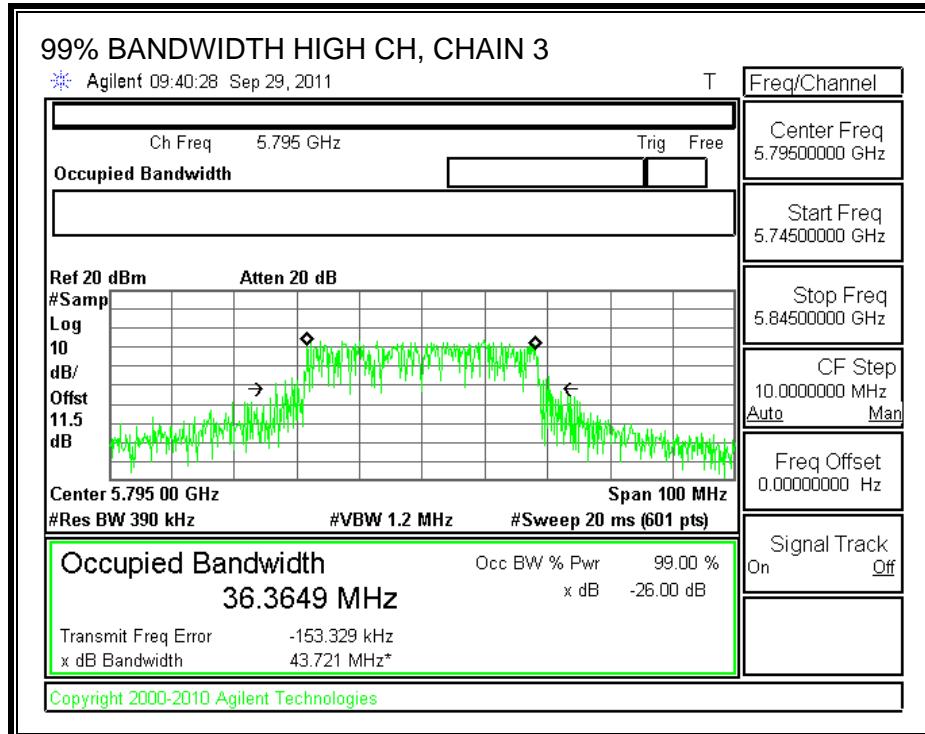
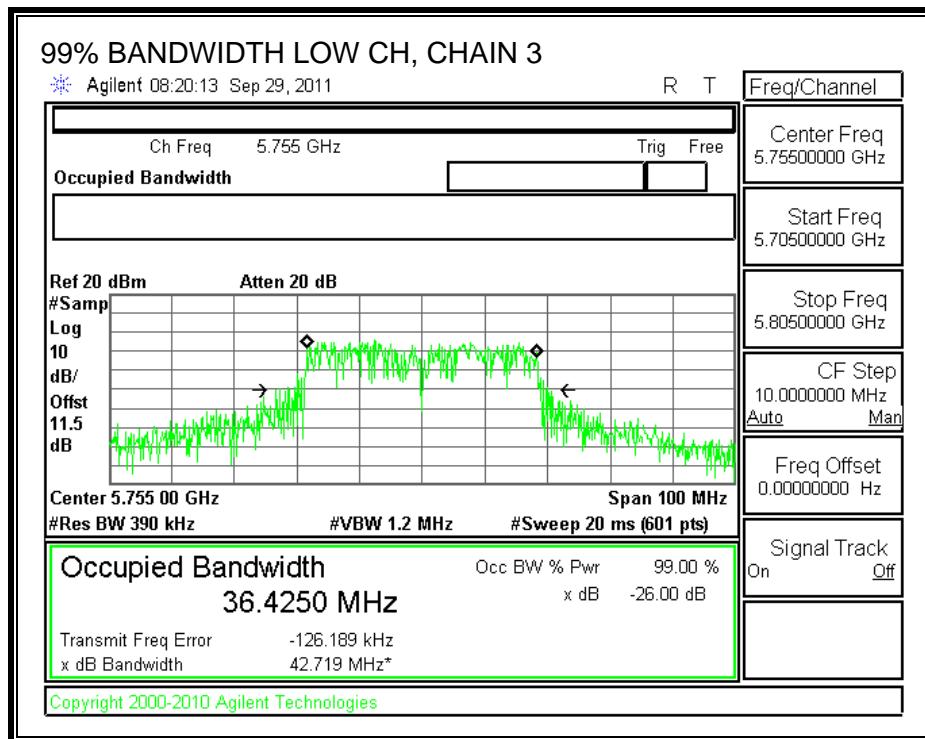
99% BANDWIDTH, CHAIN 1



99% BANDWIDTH, CHAIN 2



99% BANDWIDTH, CHAIN 3



7.12.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

Antenna Gain (dBi)	10 Log (# Tx Chains) (dB)	Effective Legacy Gain (dBi)
4.5	4.77	9.27

The maximum effective legacy gain is 9.27 dBi for other than fixed, point-to-point operations, therefore the limit is 26.73 dBm.

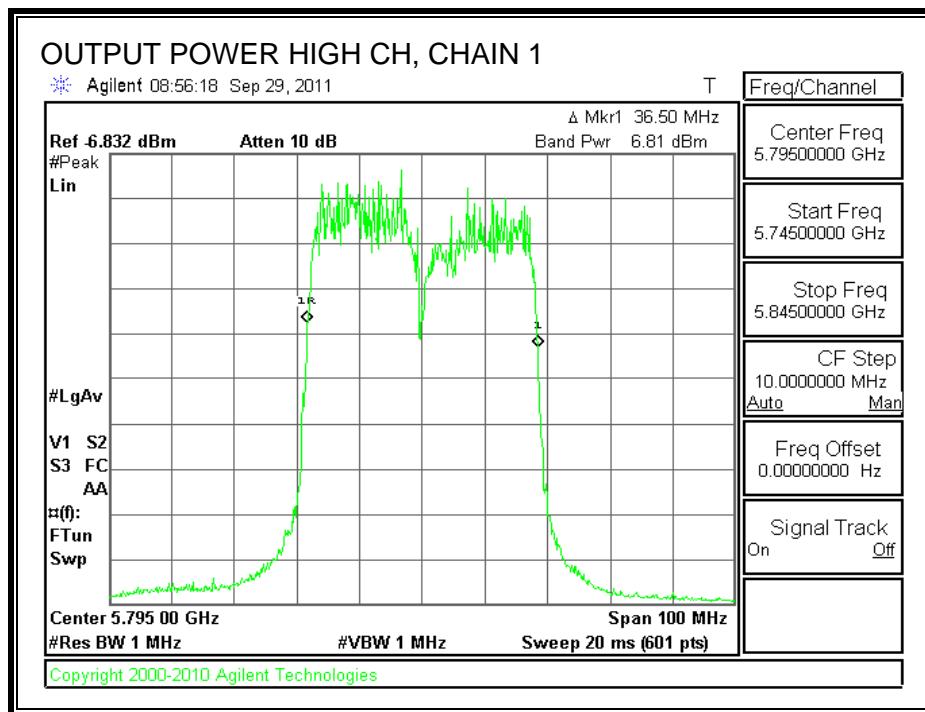
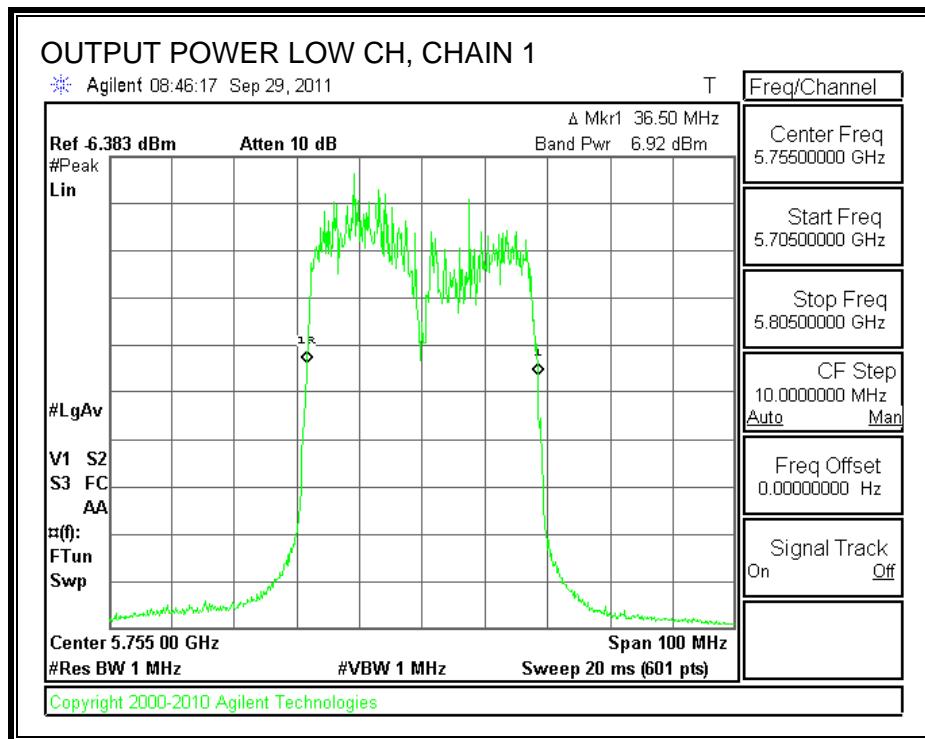
TEST PROCEDURE

Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

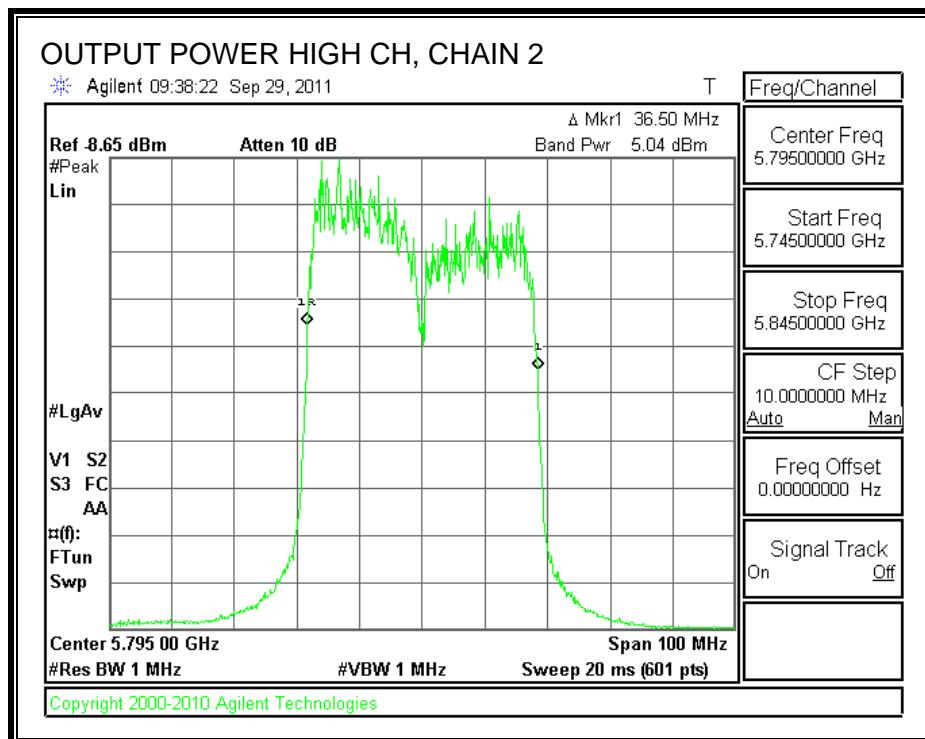
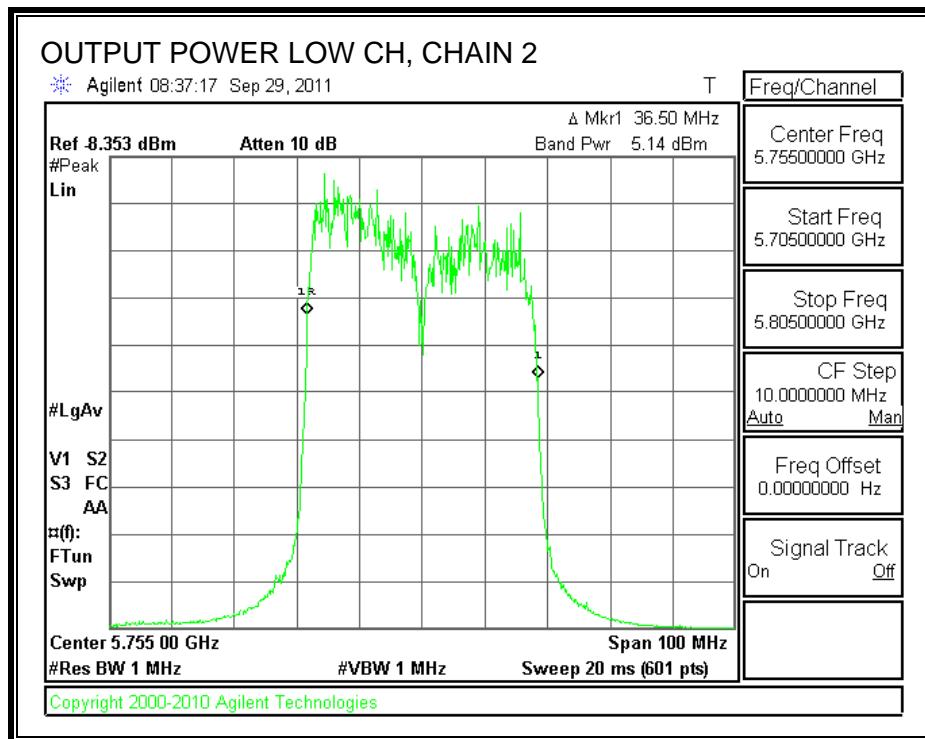
RESULTS

Channel	Frequency (MHz)	Chain 1 PK Power (dBm)	Chain 2 PK Power (dBm)	Chain 3 PK Power (dBm)	Attenuator + Cable Loss (dB)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	5755	6.92	5.14	4.69	11.50	21.97	26.73	-4.76
High	5795	6.81	5.04	4.20	11.50	21.76	26.73	-4.97

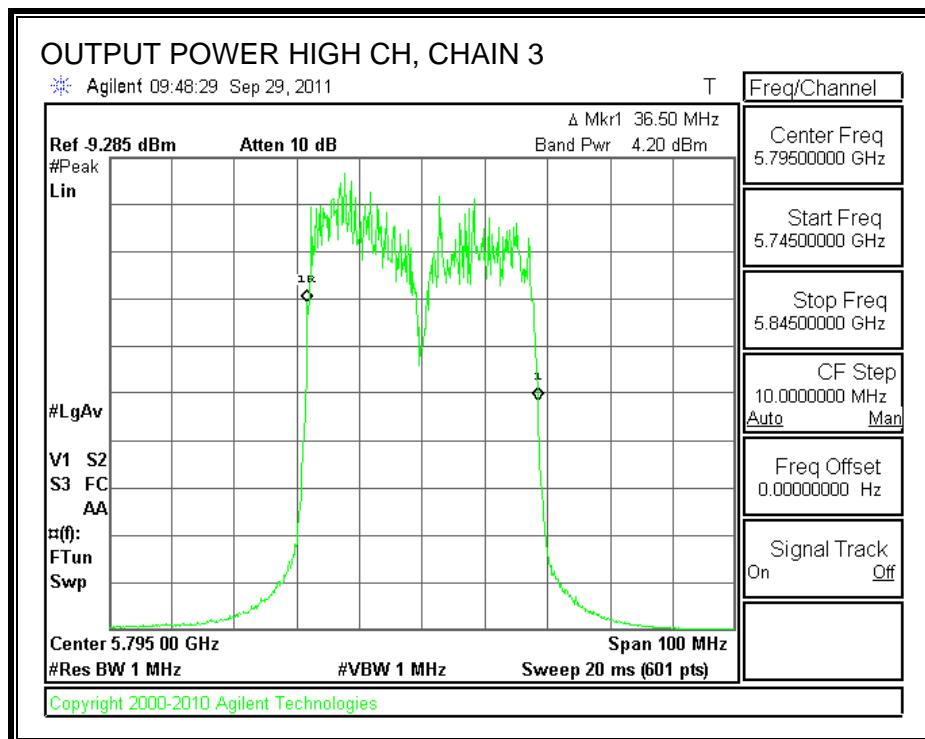
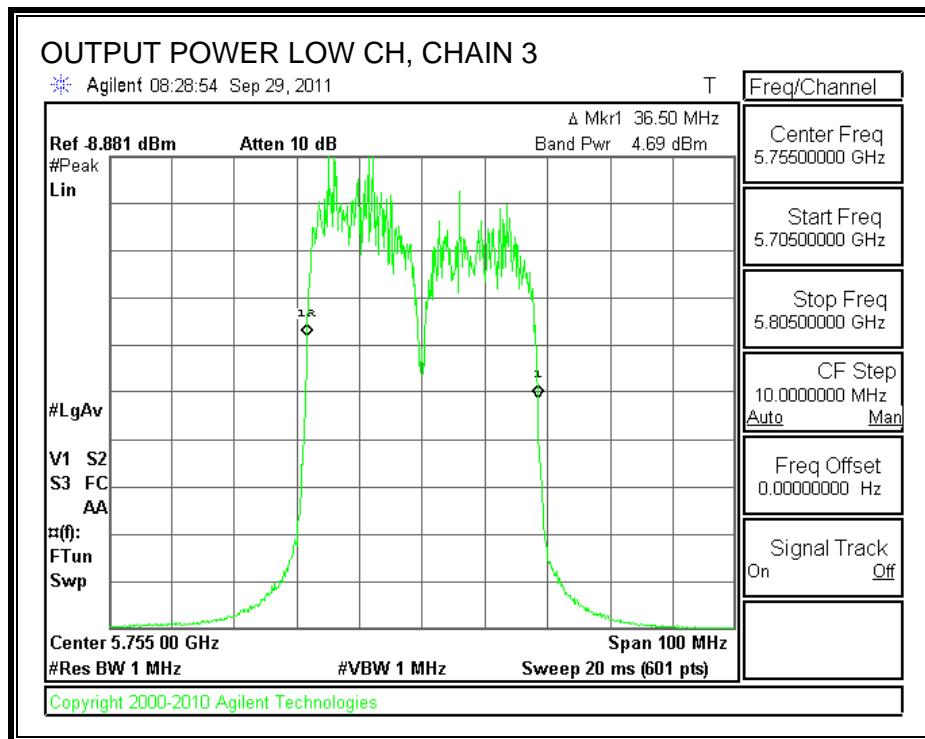
CHAIN 1 OUTPUT POWER



CHAIN 2 OUTPUT POWER



CHAIN 3 OUTPUT POWER



7.12.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11.5 dB (including 10 dB pad and 1.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Chain 1 Power (dBm)	Chain 2 Power (dBm)	Chain 3 Power (dBm)	Total Power (dBm)
Low	5755	12.10	12.10	12.10	16.87
High	5795	12.60	12.60	12.60	17.37

7.12.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

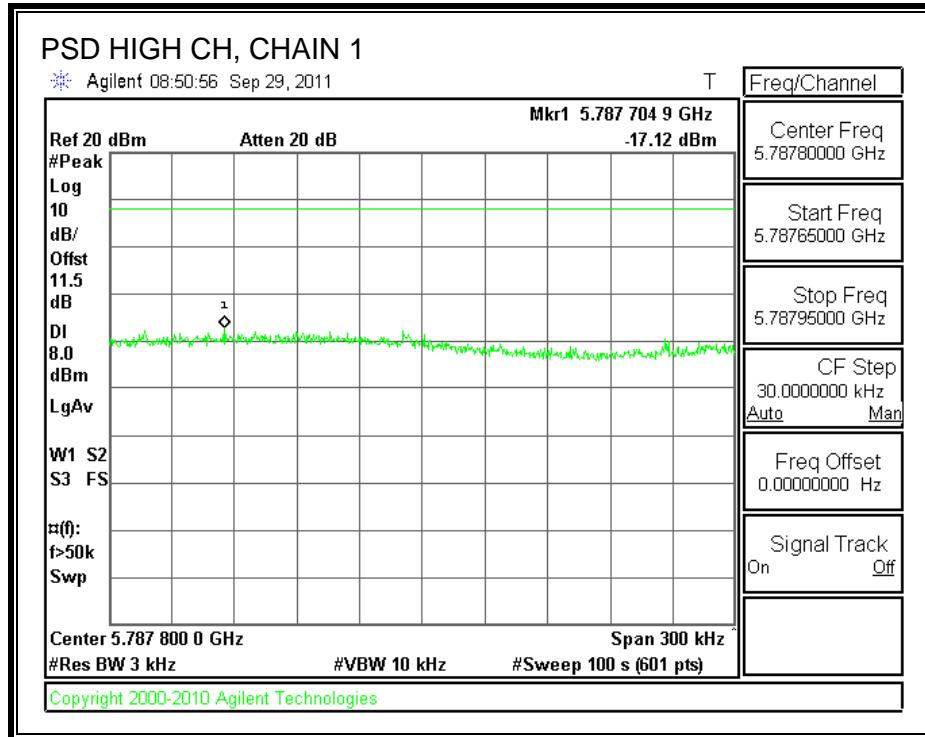
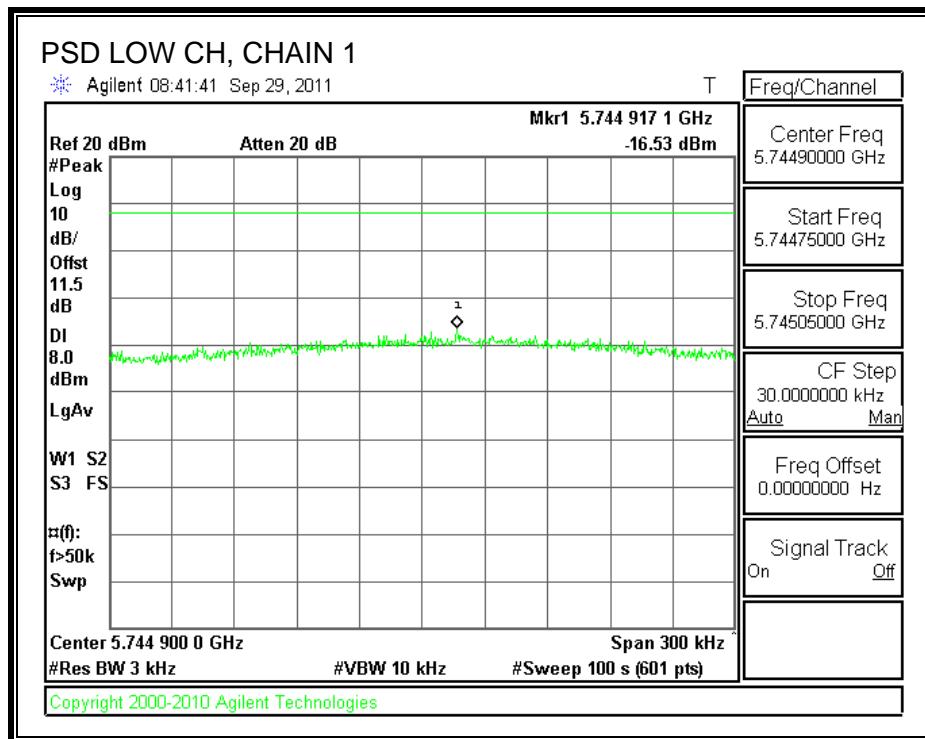
TEST PROCEDURE

Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

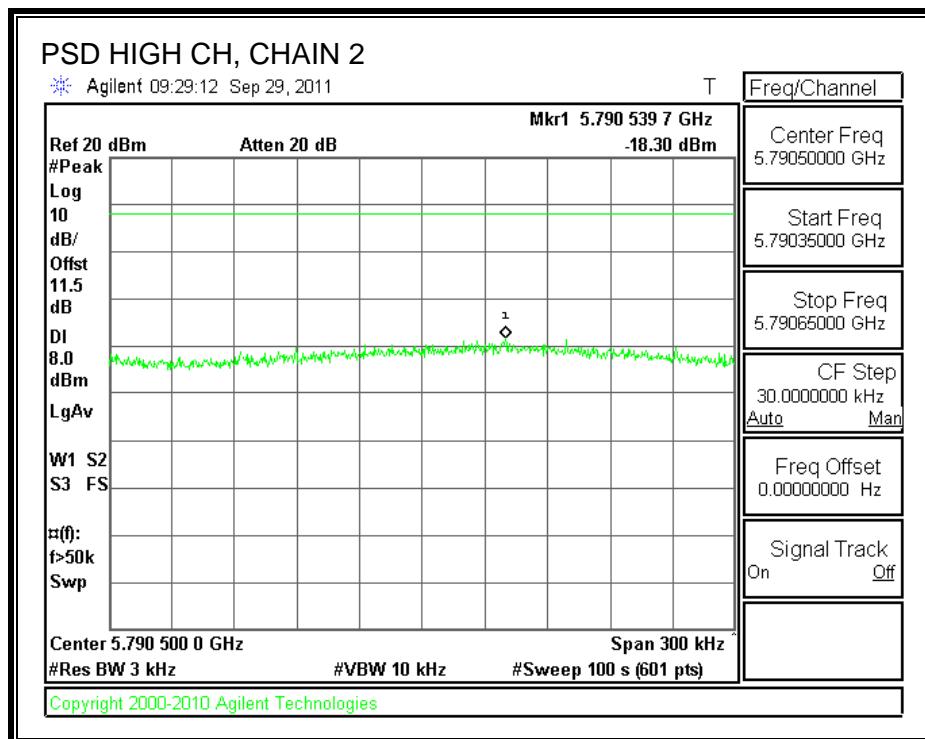
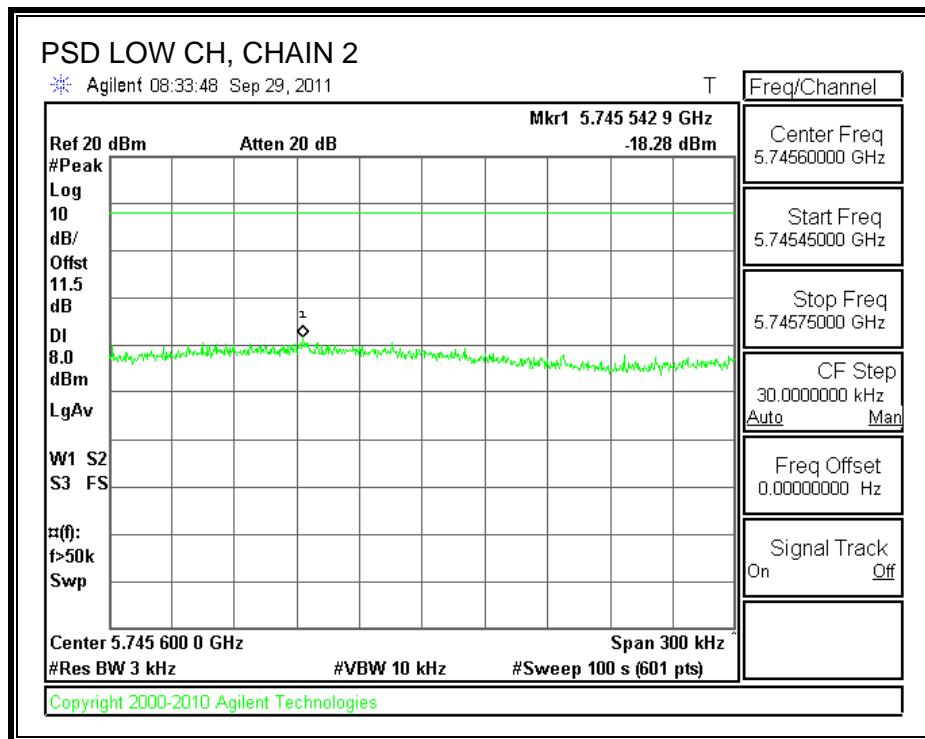
RESULTS:

Channel	Frequency (MHz)	Chain 1 PSD (dBm)	Chain 2 PSD (dBm)	Chain 3 PSD (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	5755	-16.53	-18.28	-19.74	-13.21	8	-21.21
High	5795	-17.12	-18.3	-19.72	-13.48	8	-21.48

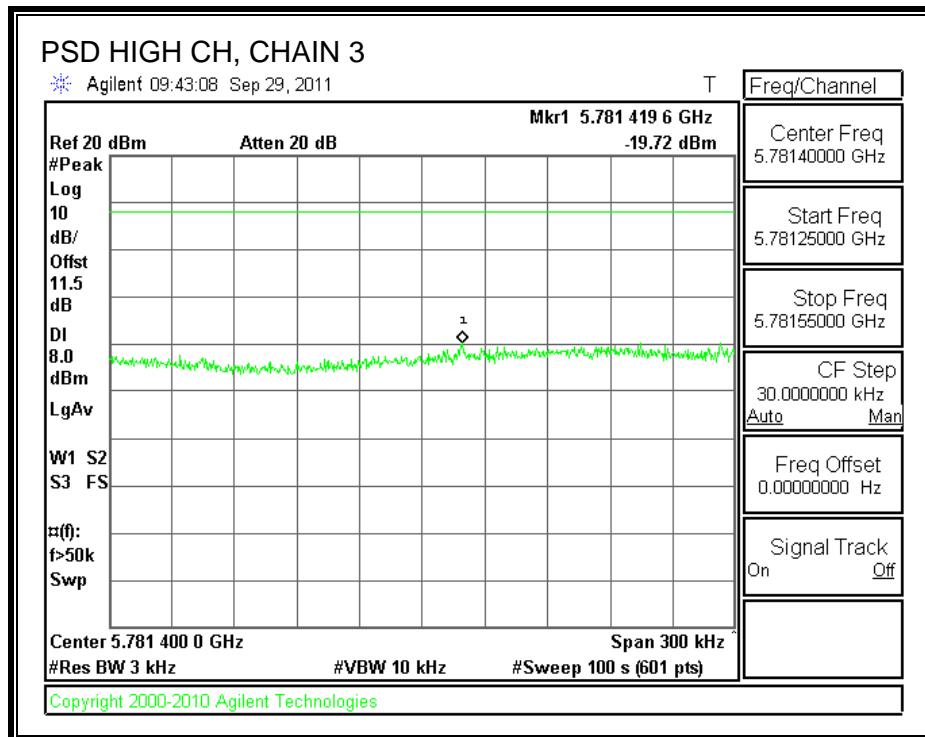
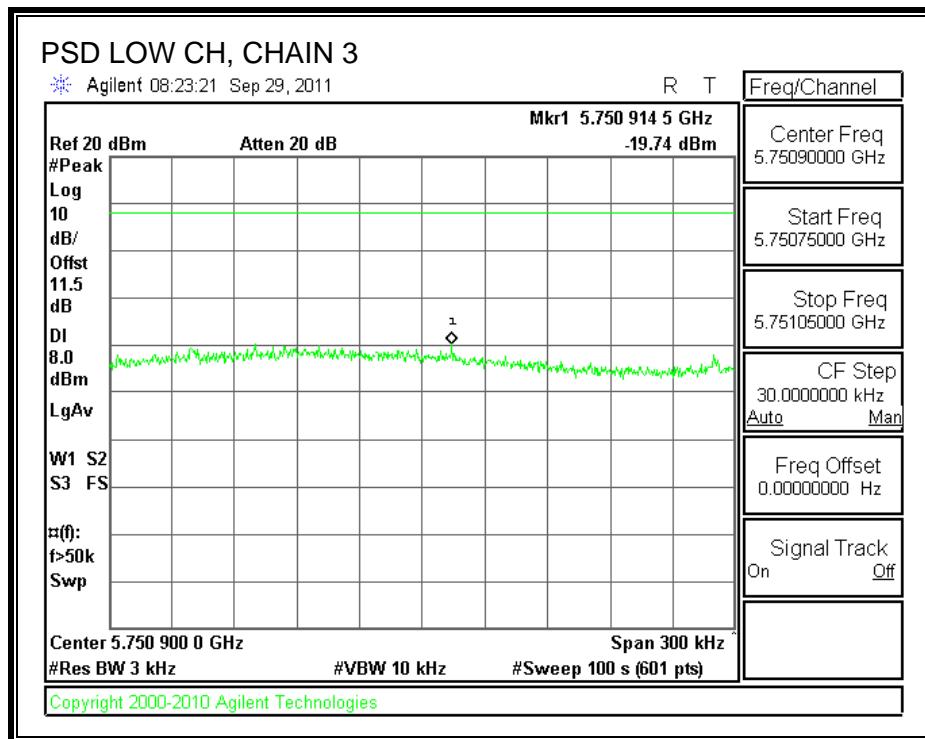
POWER SPECTRAL DENSITY, CHAIN 1



POWER SPECTRAL DENSITY, CHAIN 2



POWER SPECTRAL DENSITY, CHAIN 3



7.12.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

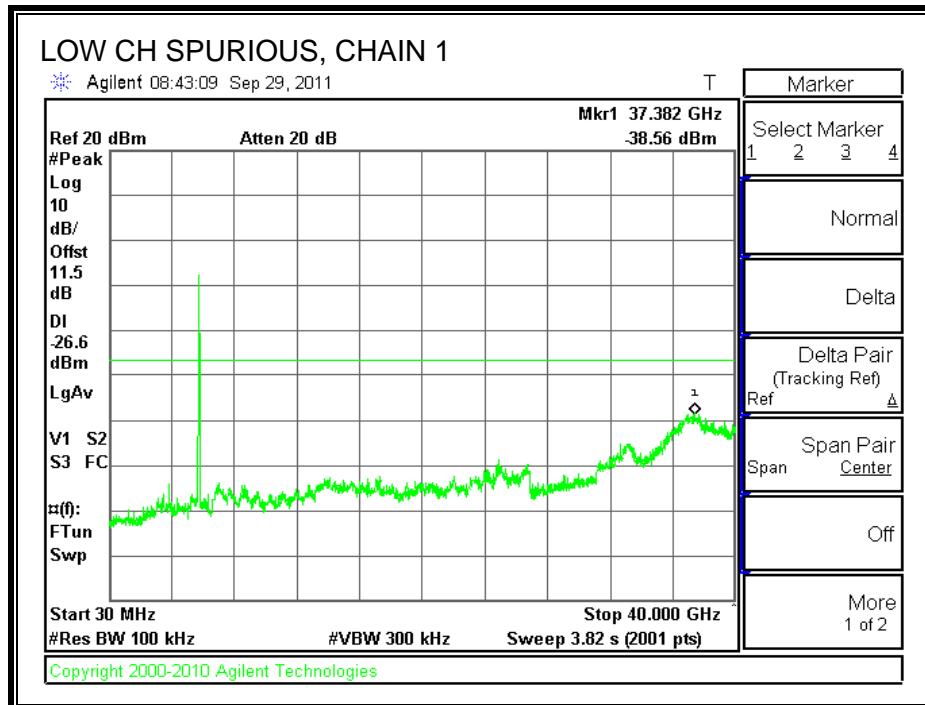
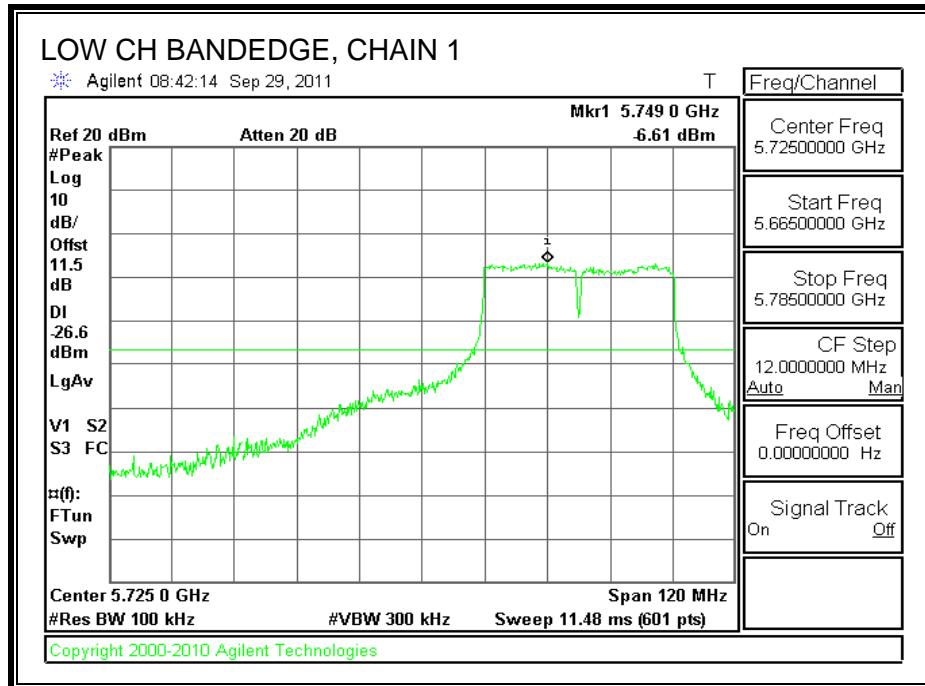
TEST PROCEDURE

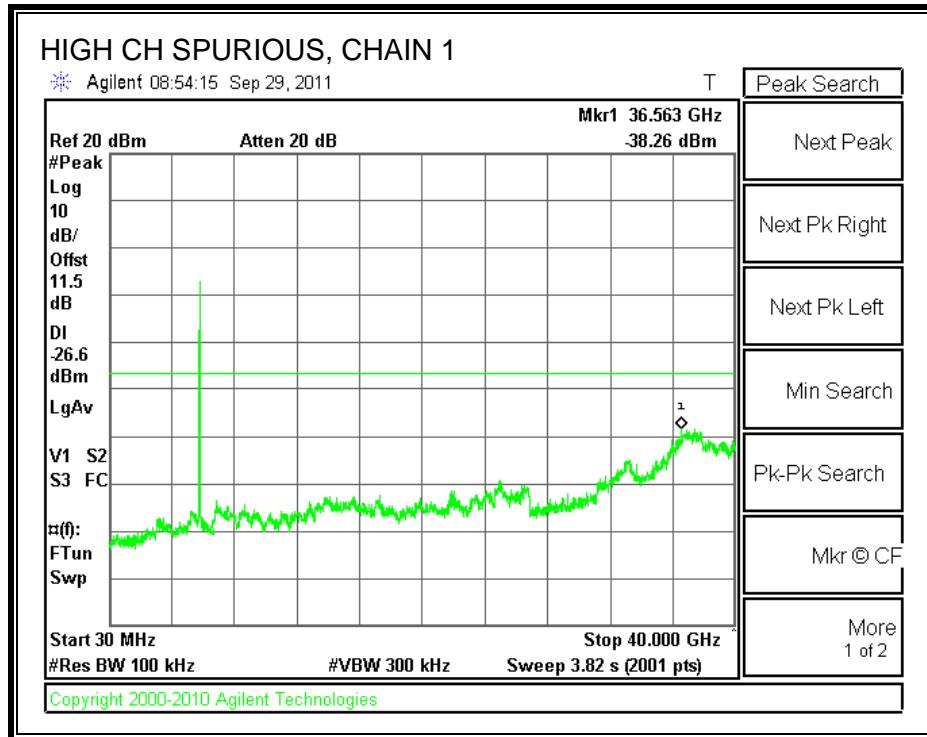
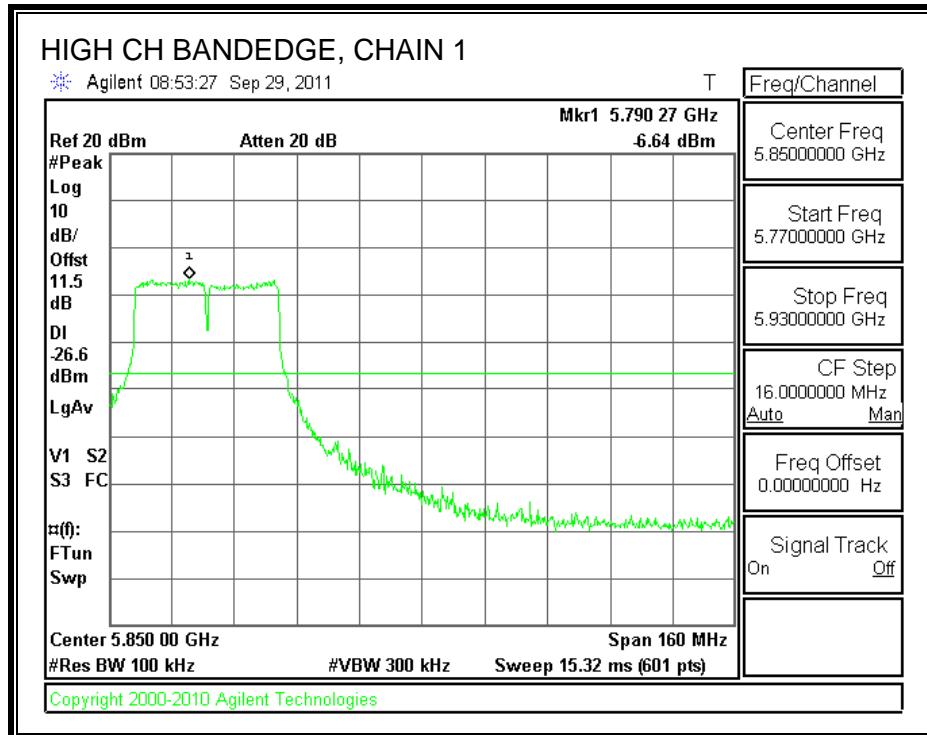
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

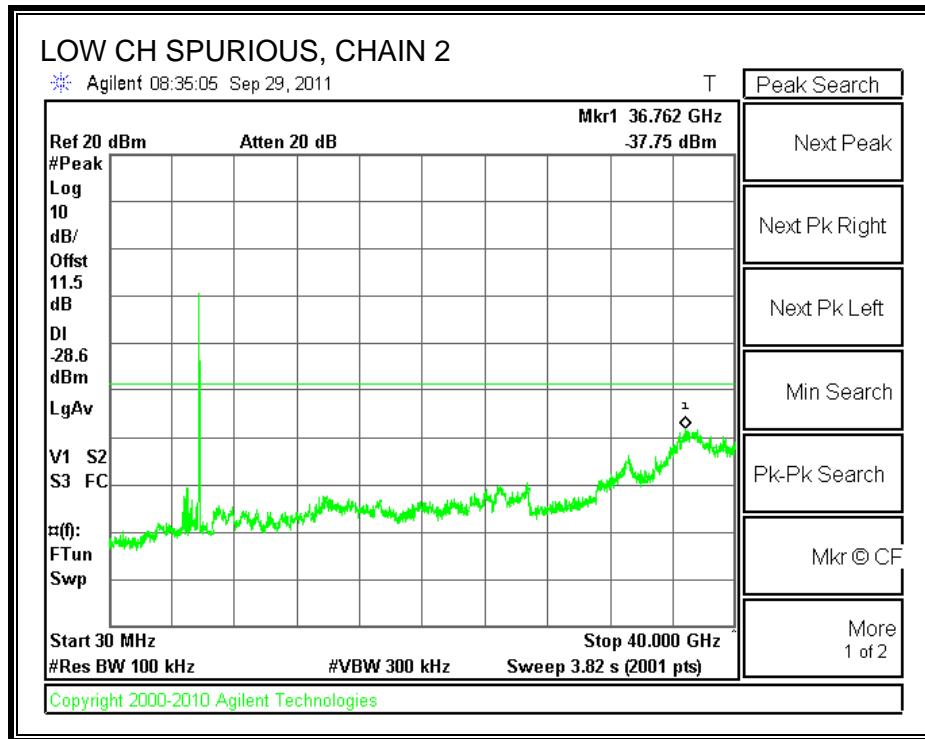
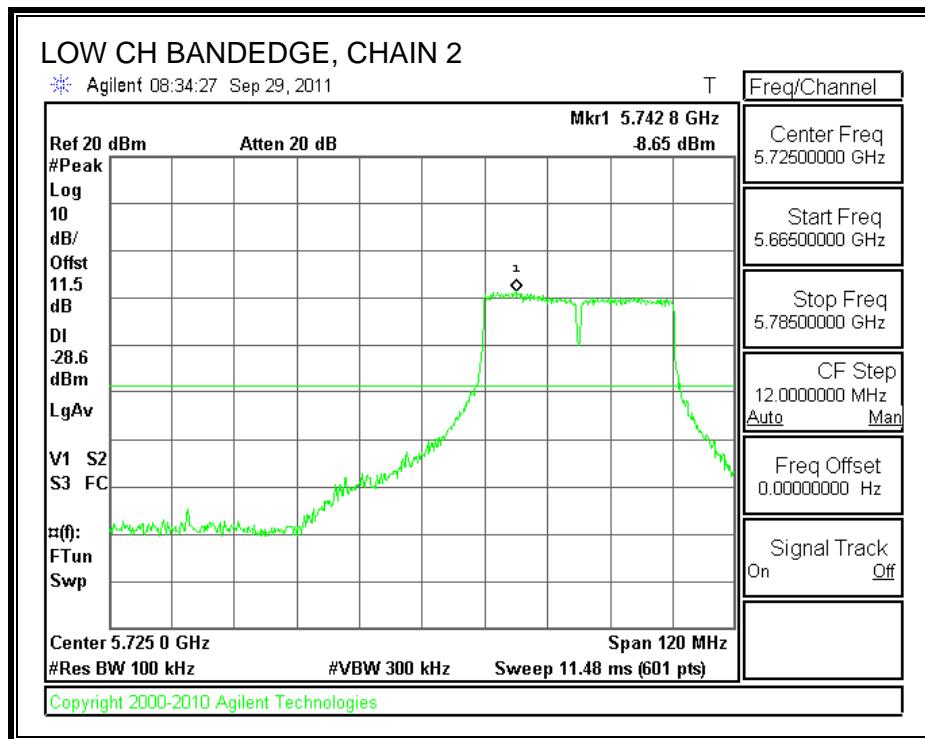
RESULTS

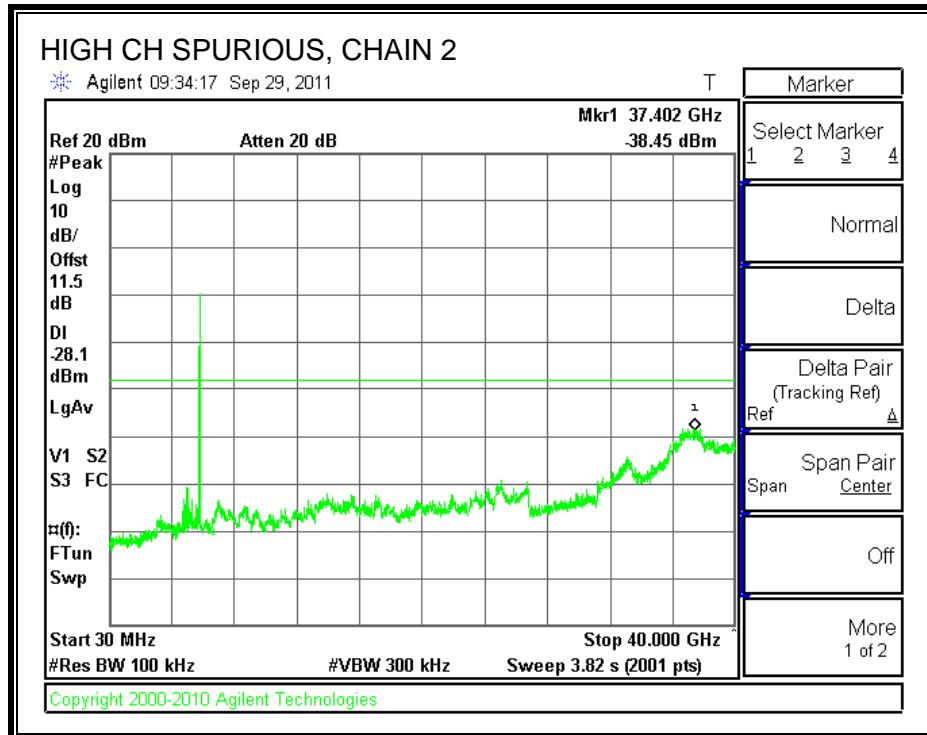
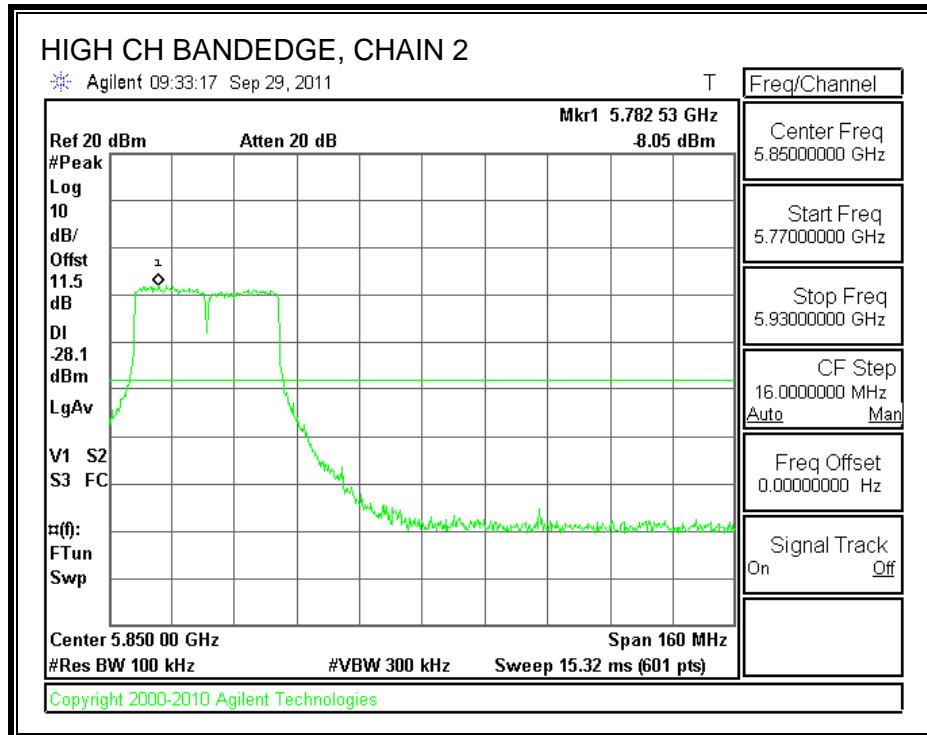
CHAIN 1 SPURIOUS EMISSIONS



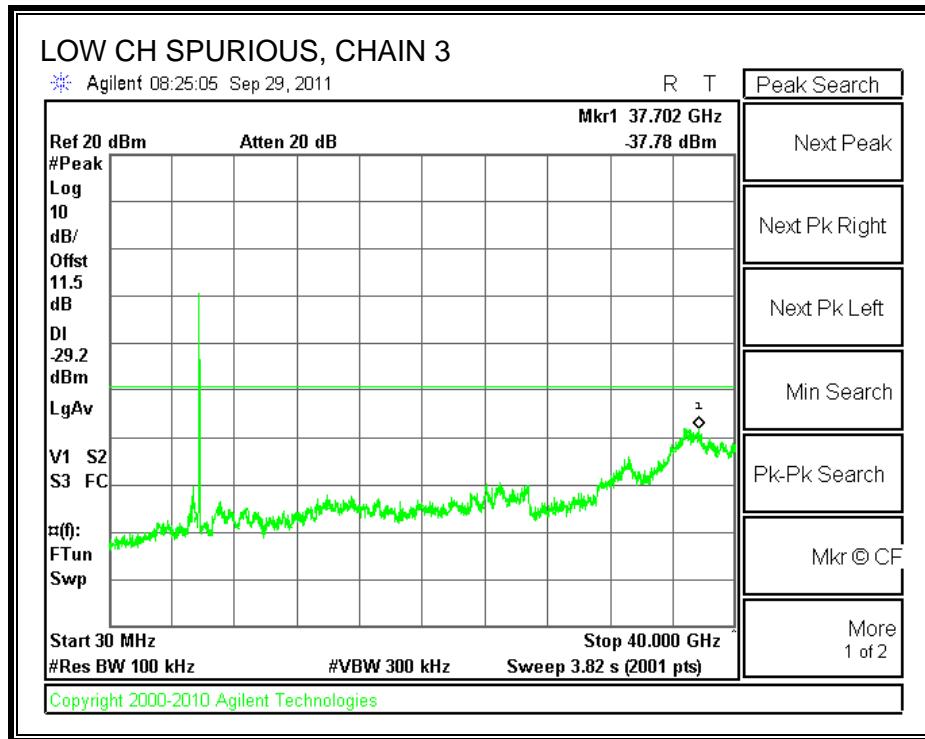
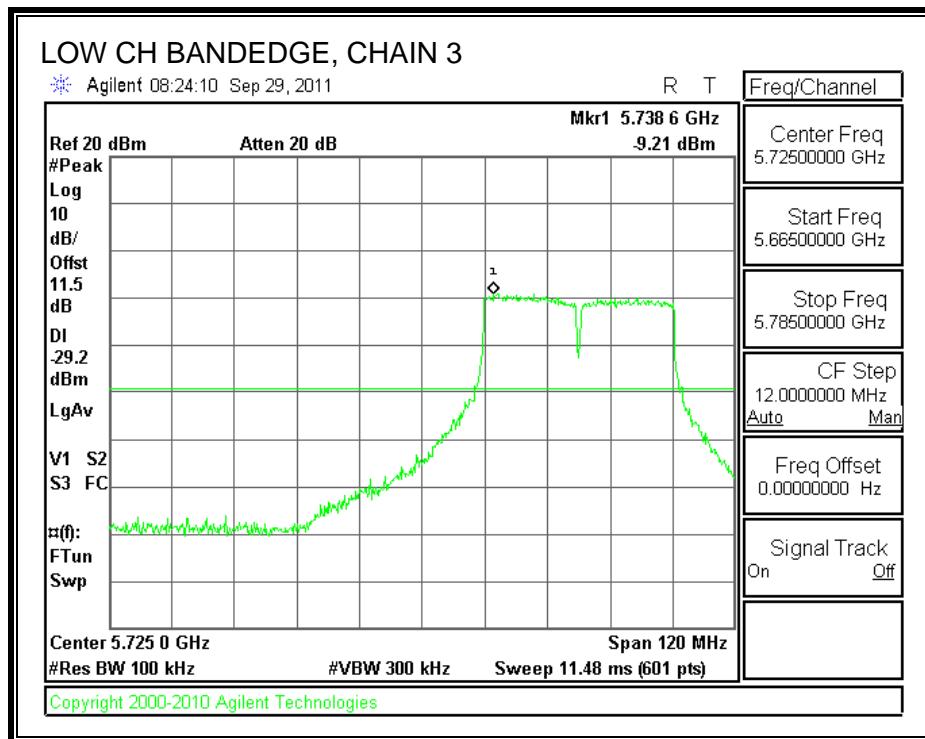


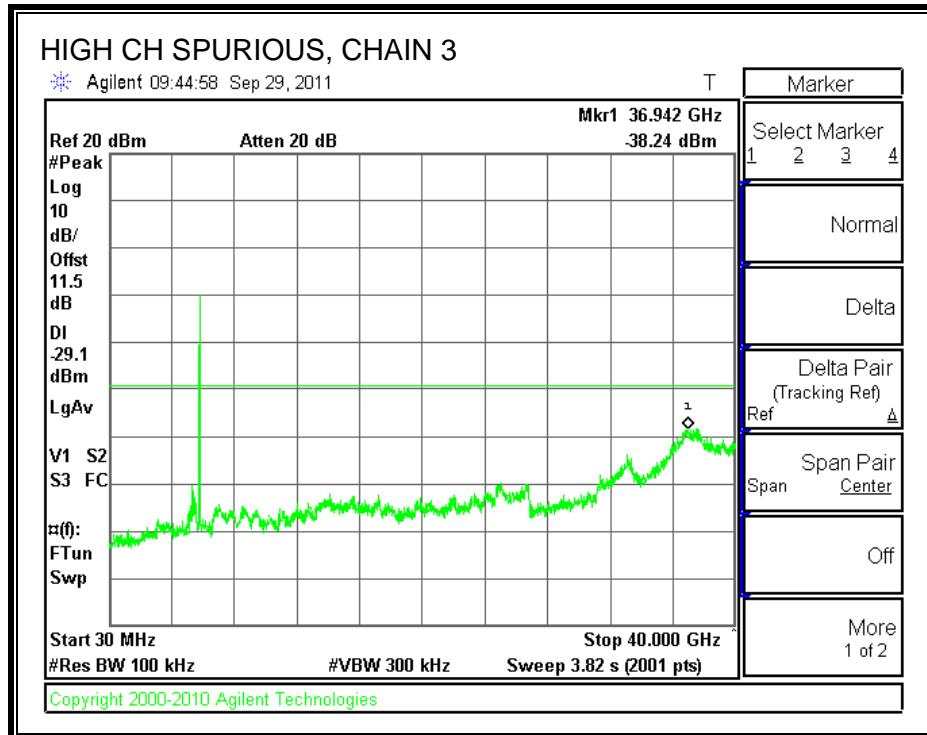
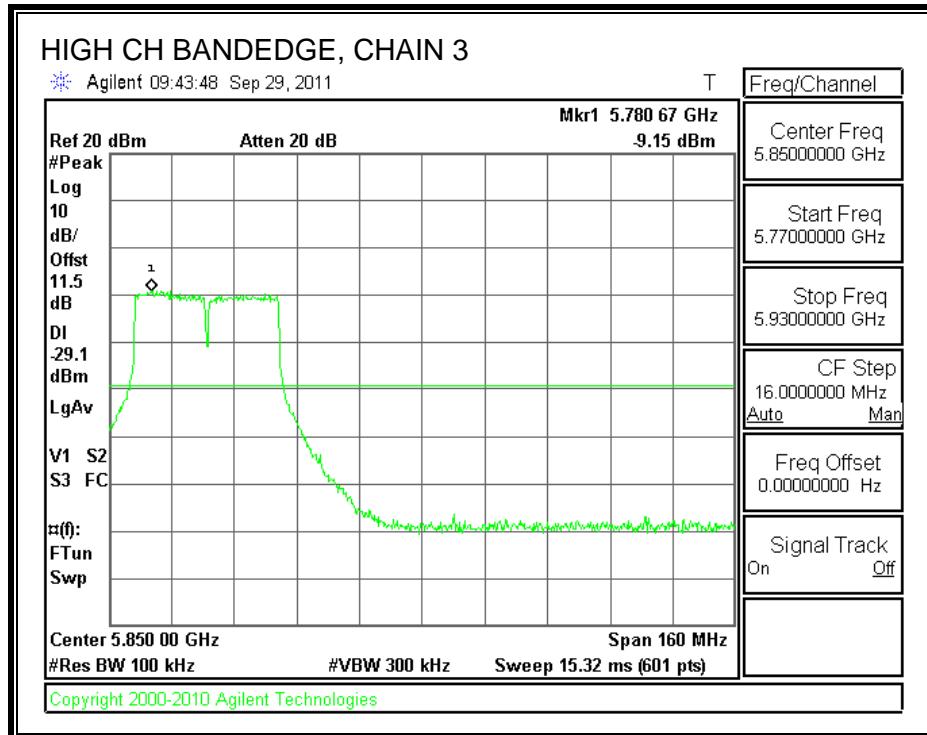
CHAIN 2 SPURIOUS EMISSIONS





CHAIN 3 SPURIOUS EMISSIONS





7.13. 802.11n HT40 MCS8 3TX MODE IN THE 5.8 GHz BAND

7.13.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

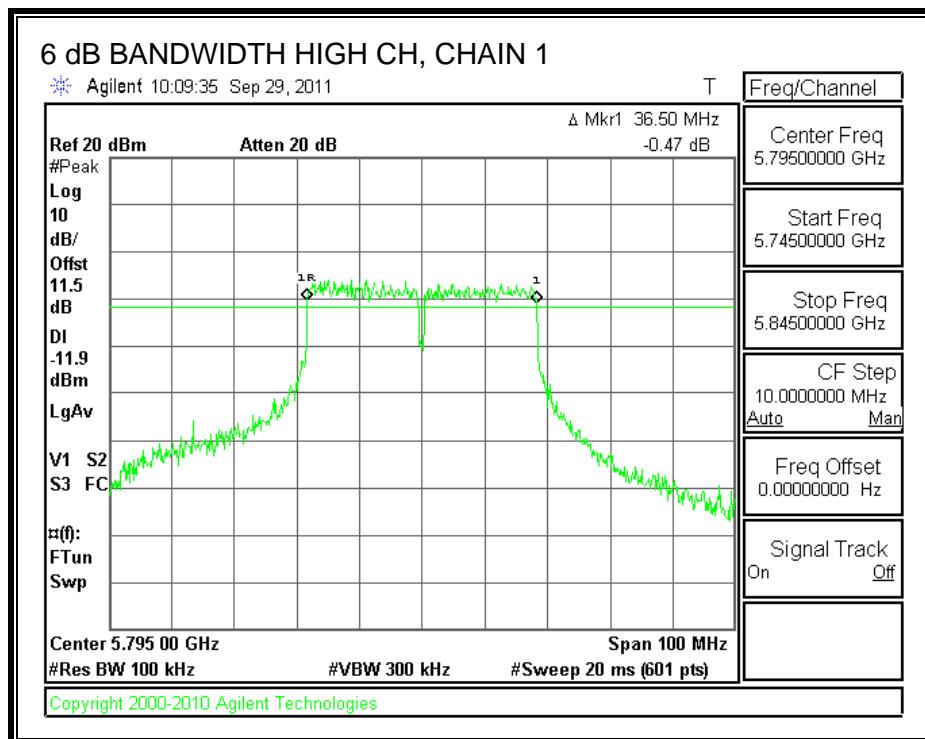
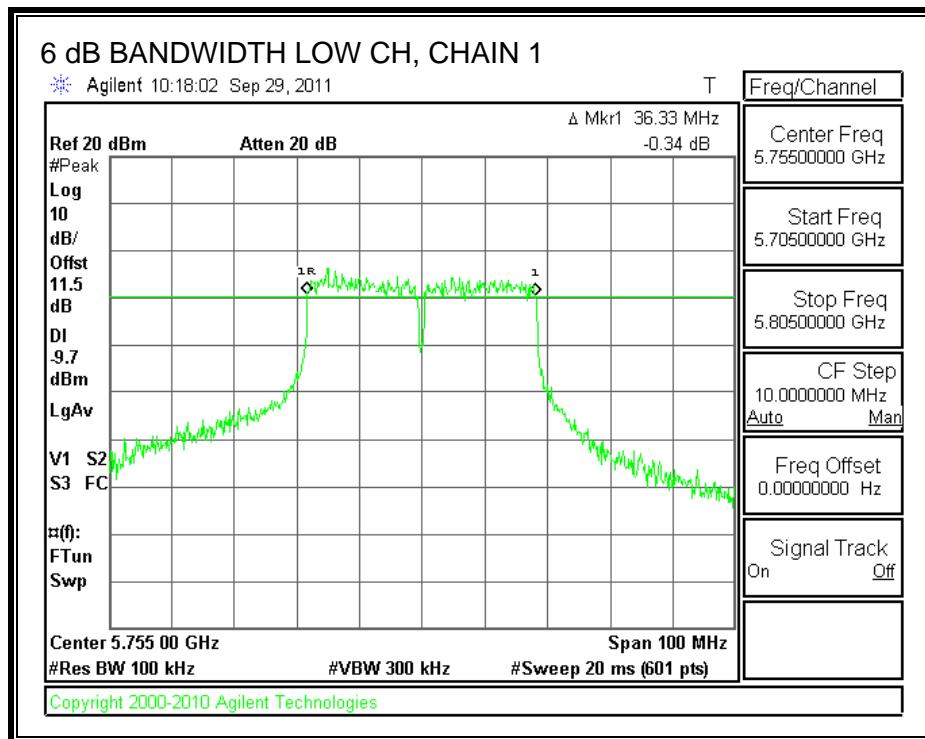
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

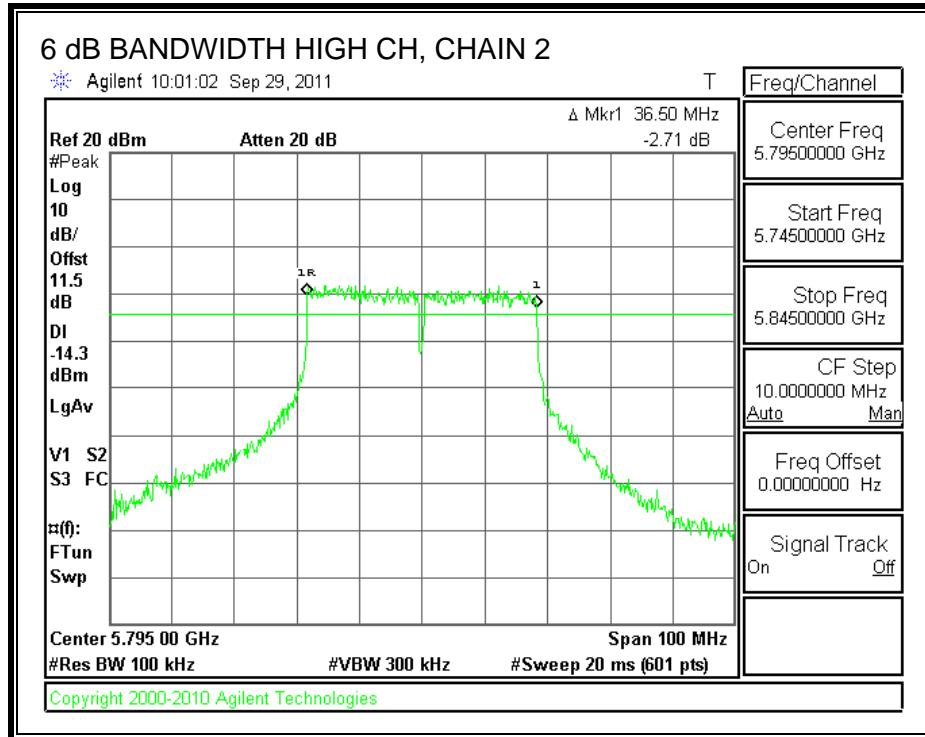
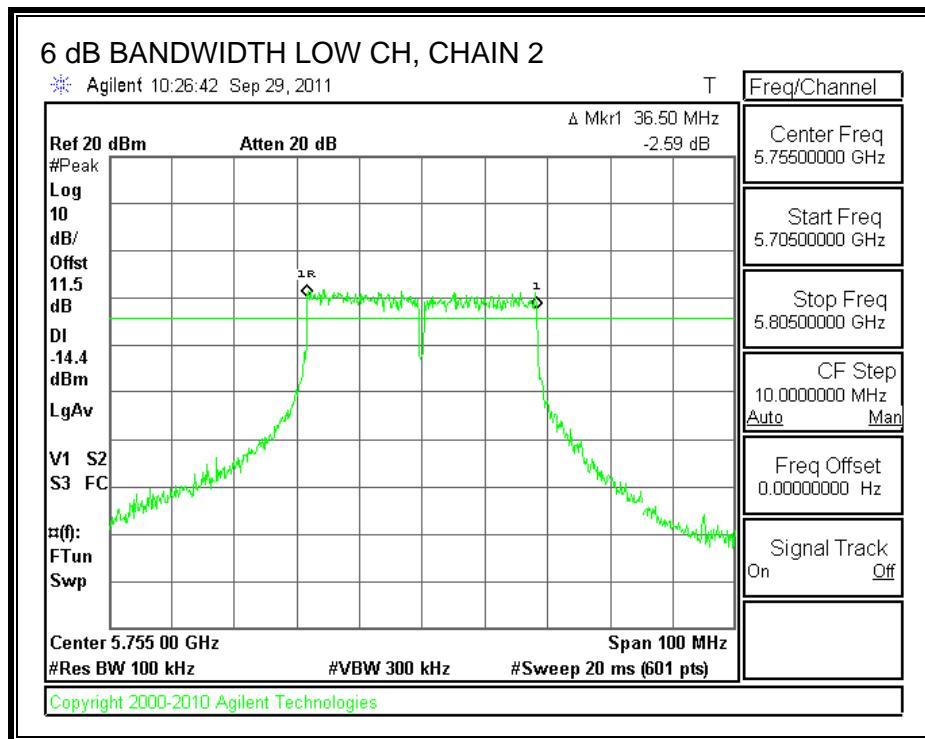
RESULTS

Channel	Frequency (MHz)	Chain 1 6 dB BW (MHz)	Chain 2 6 dB BW (MHz)	Chain 3 6 dB BW (MHz)	Minimum Limit (MHz)
Low	5755	36.33	36.50	36.50	0.5
High	5795	36.50	36.50	36.50	0.5

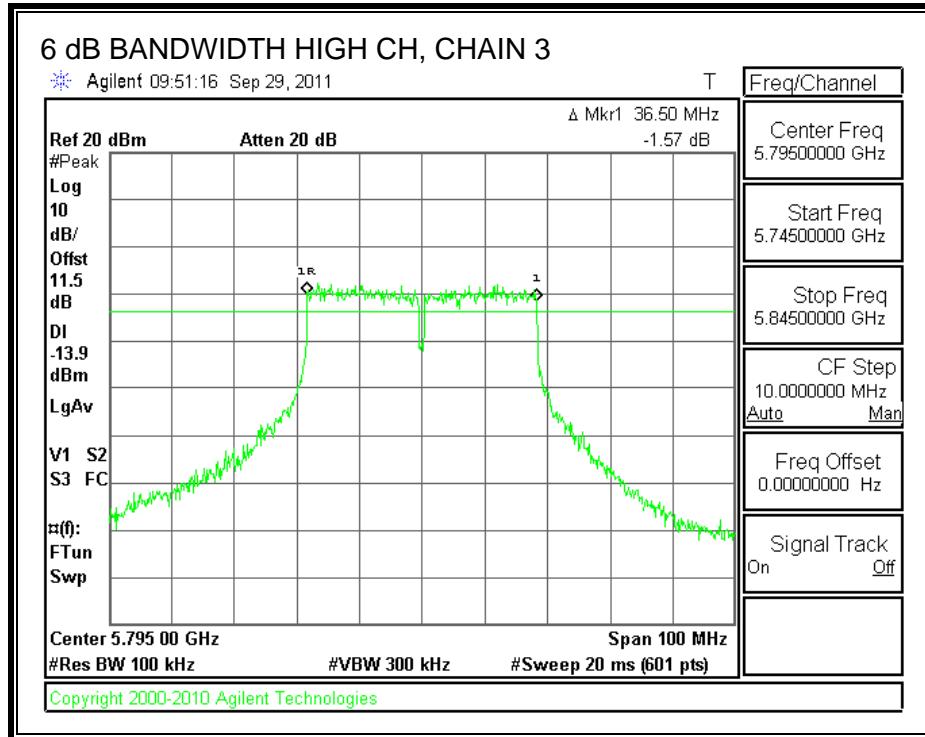
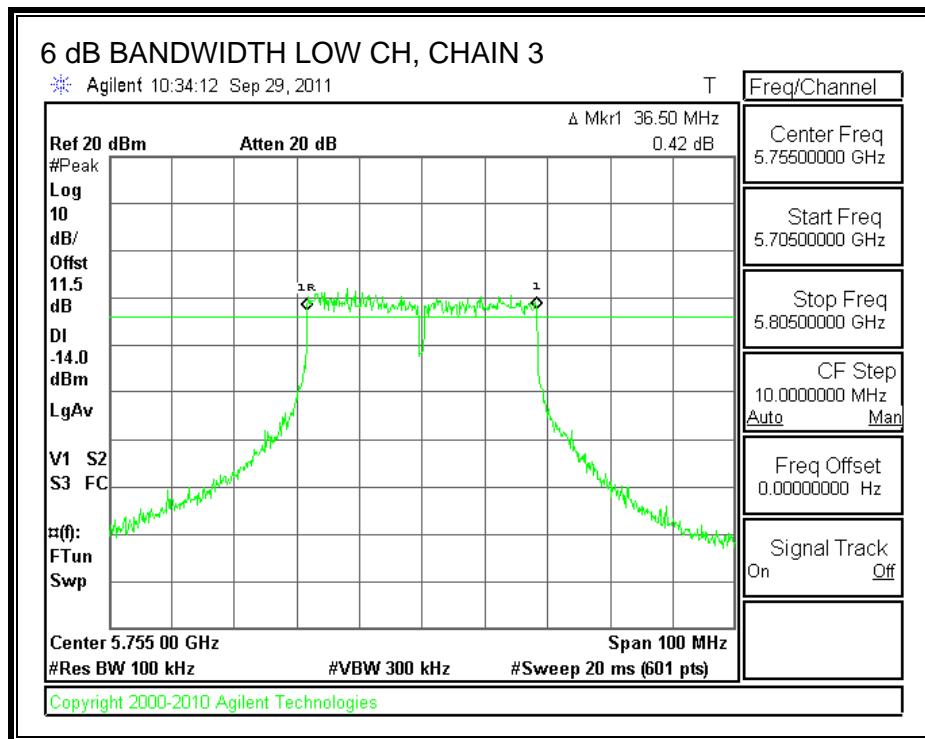
6 dB BANDWIDTH, CHAIN 1



6 dB BANDWIDTH, CHAIN 2



6 dB BANDWIDTH, CHAIN 3



7.13.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

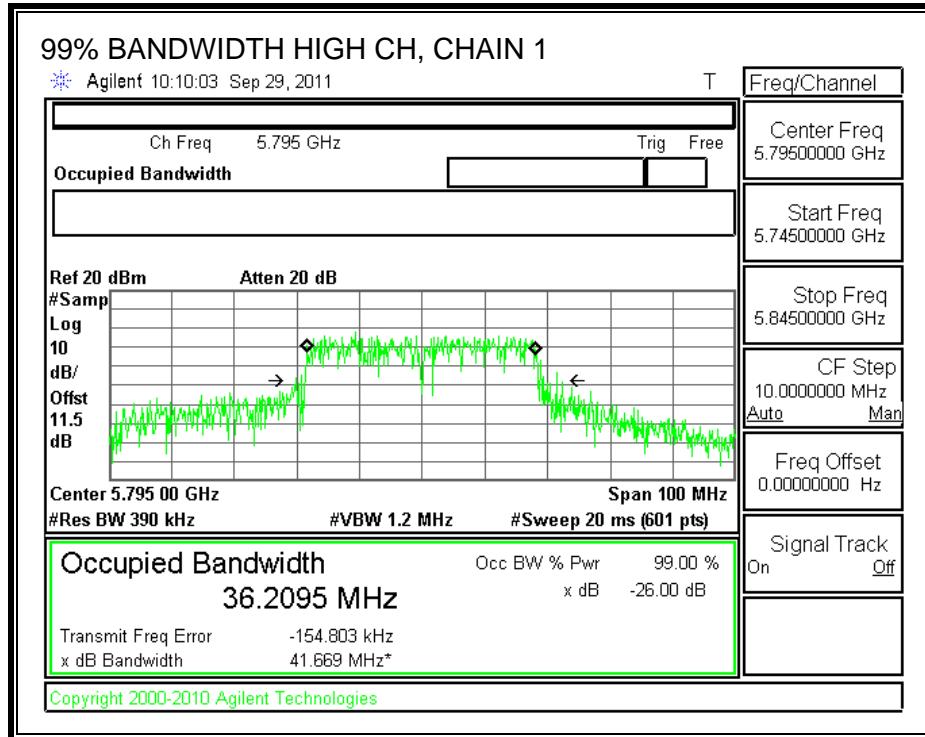
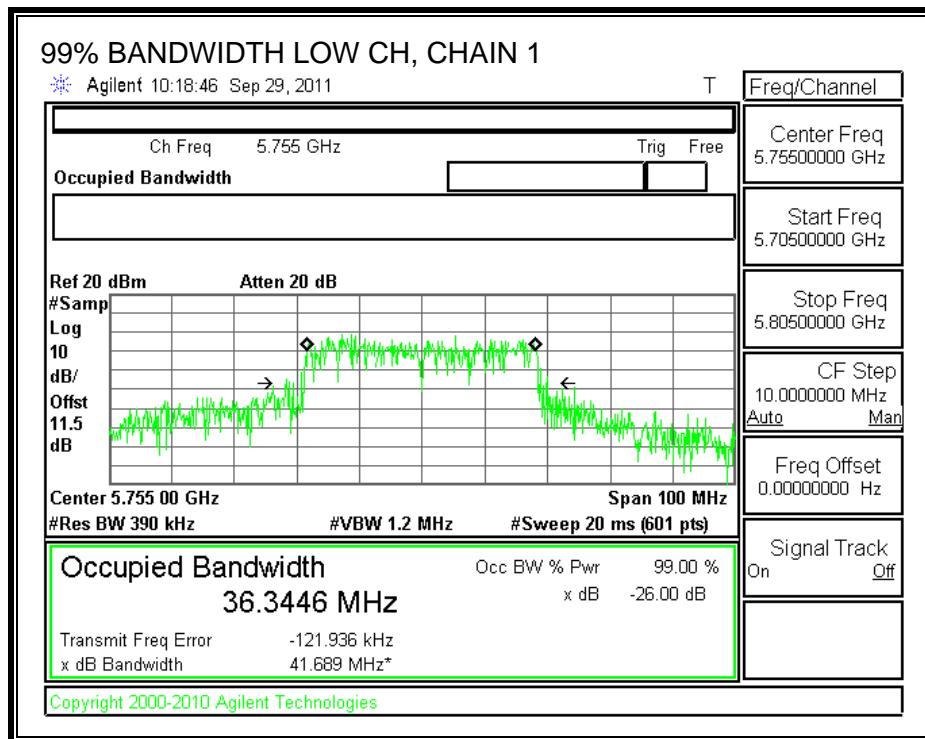
TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

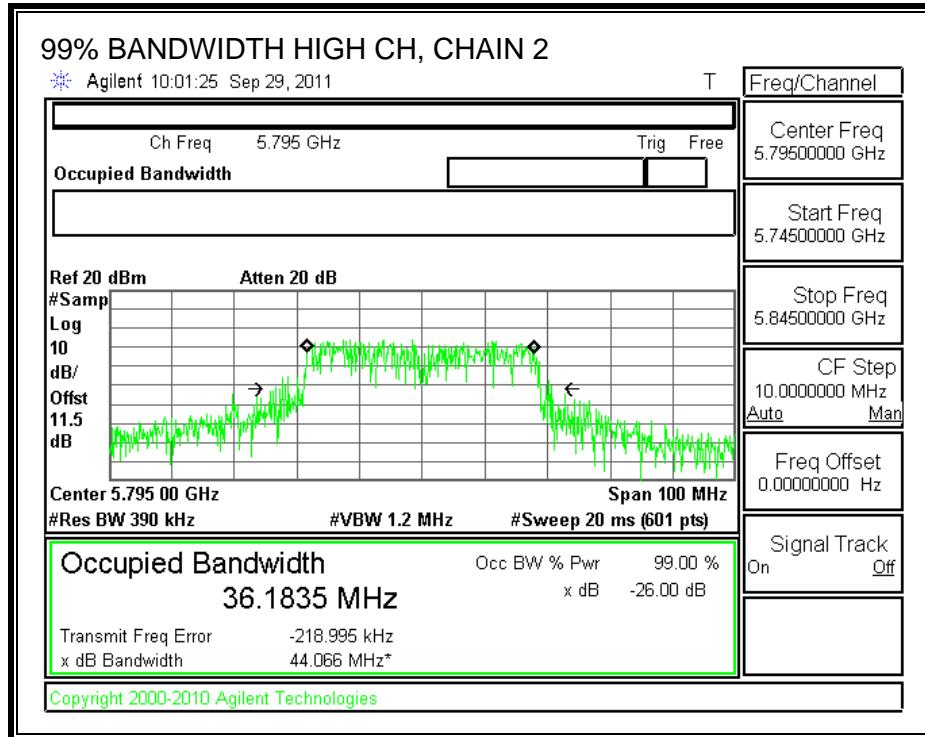
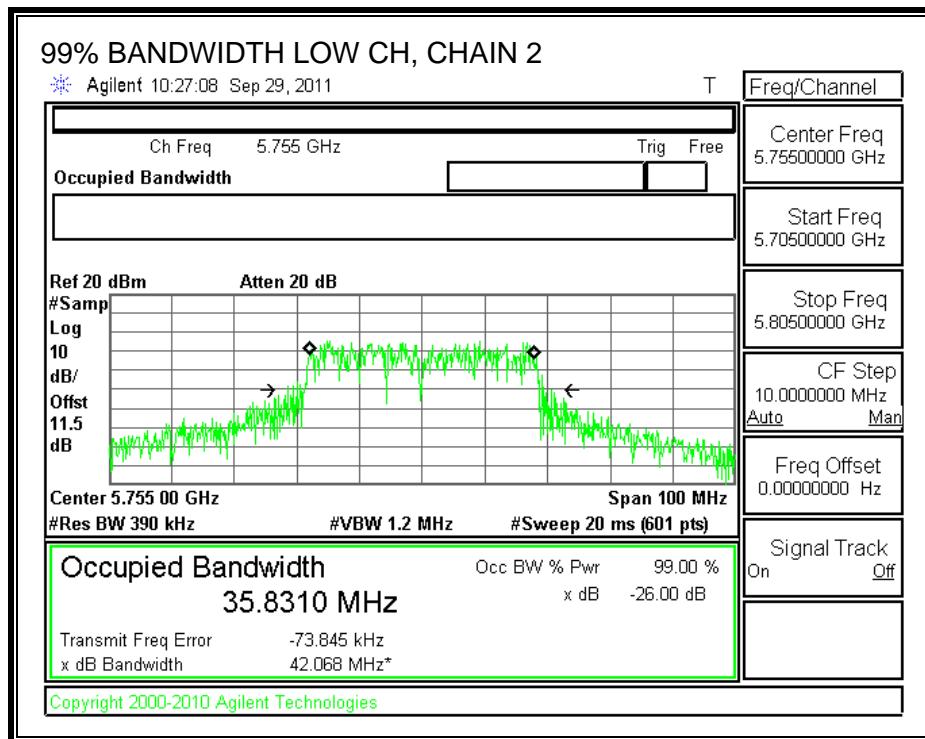
RESULTS

Channel	Frequency (MHz)	Chain 1 99% Bandwidth (MHz)	Chain 2 99% Bandwidth (MHz)	Chain 3 99% Bandwidth (MHz)
Low	5755	36.3446	35.8310	36.1862
High	5795	36.2095	36.1835	36.4309

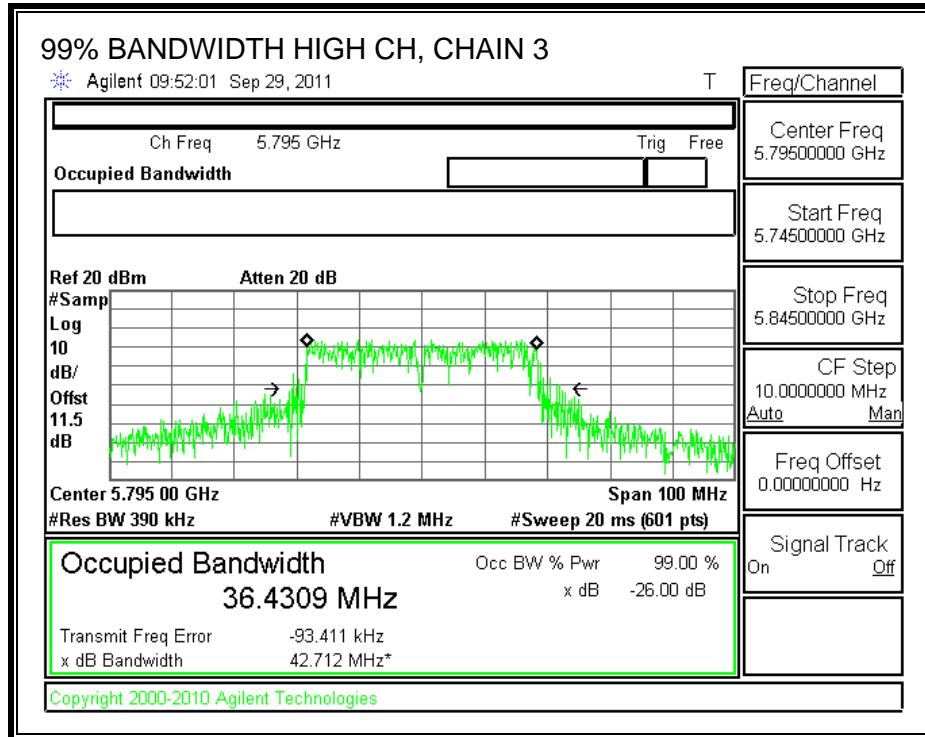
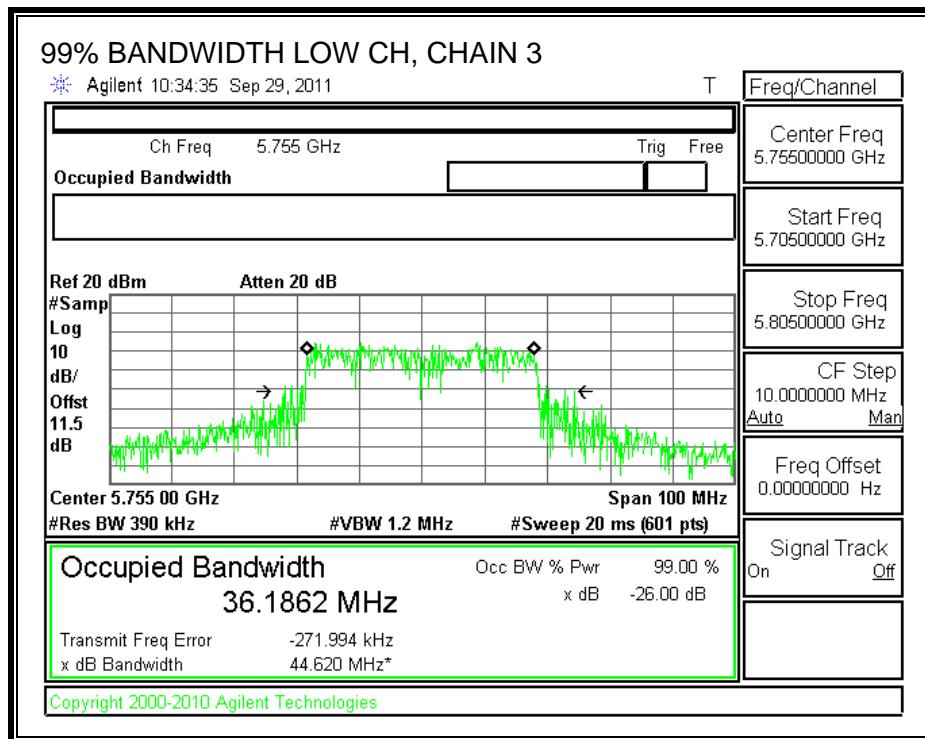
99% BANDWIDTH, CHAIN 1



99% BANDWIDTH, CHAIN 2



99% BANDWIDTH, CHAIN 3



7.13.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

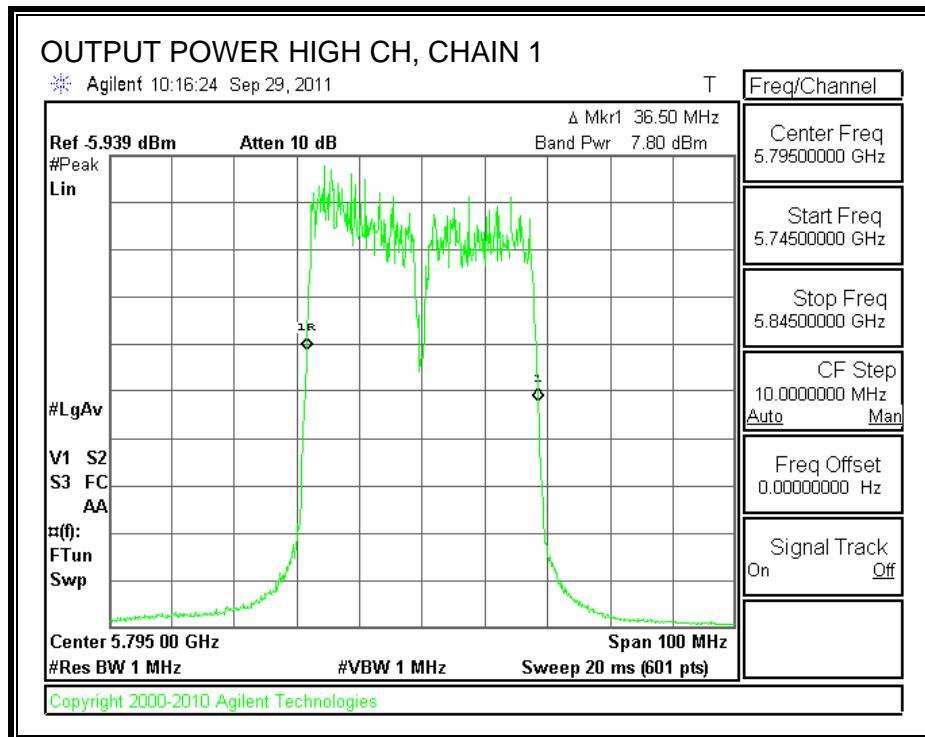
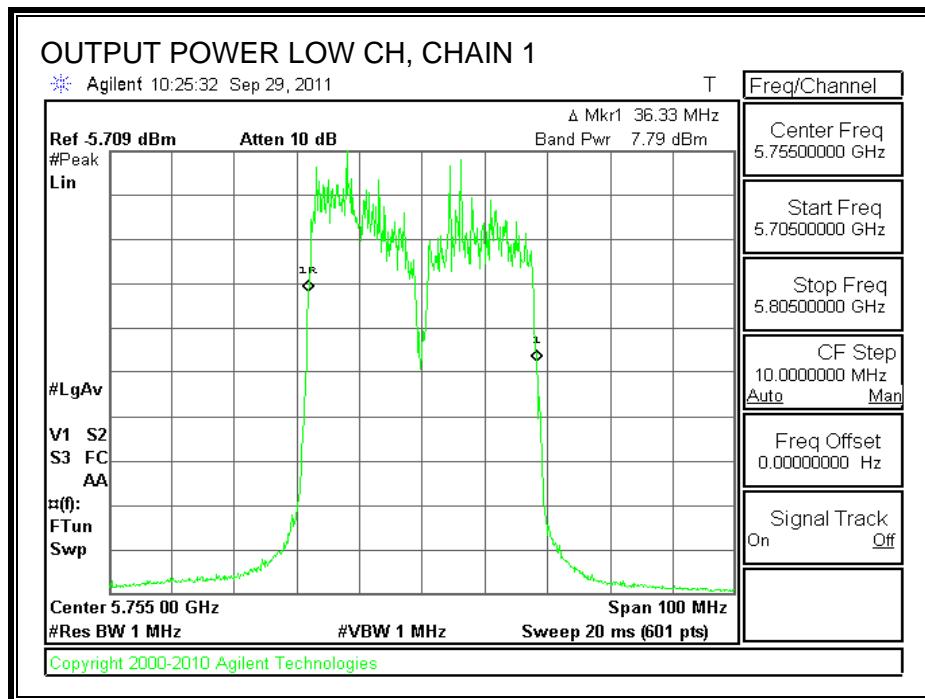
TEST PROCEDURE

Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

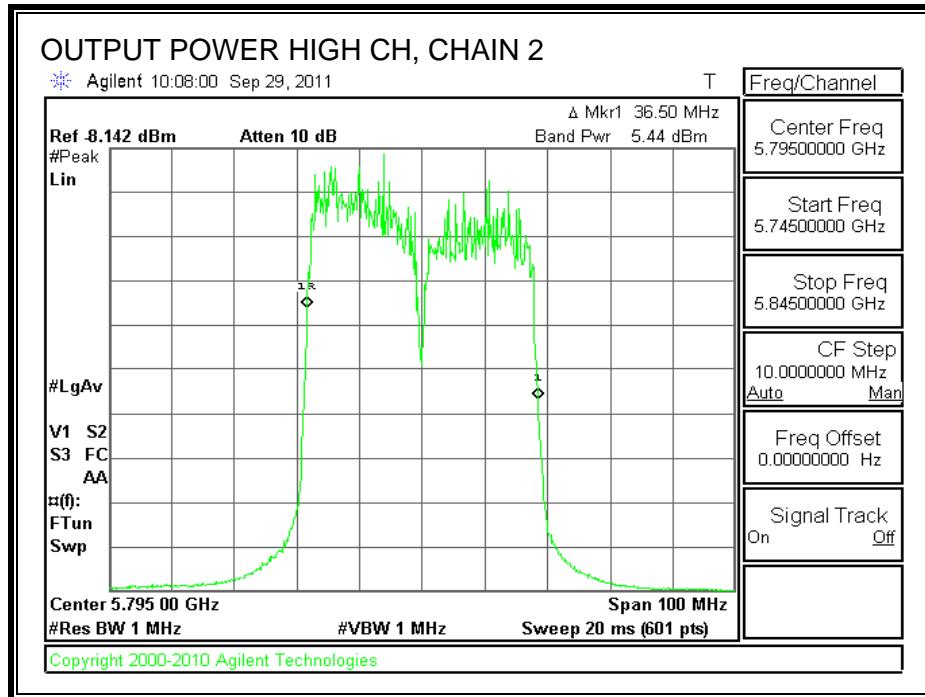
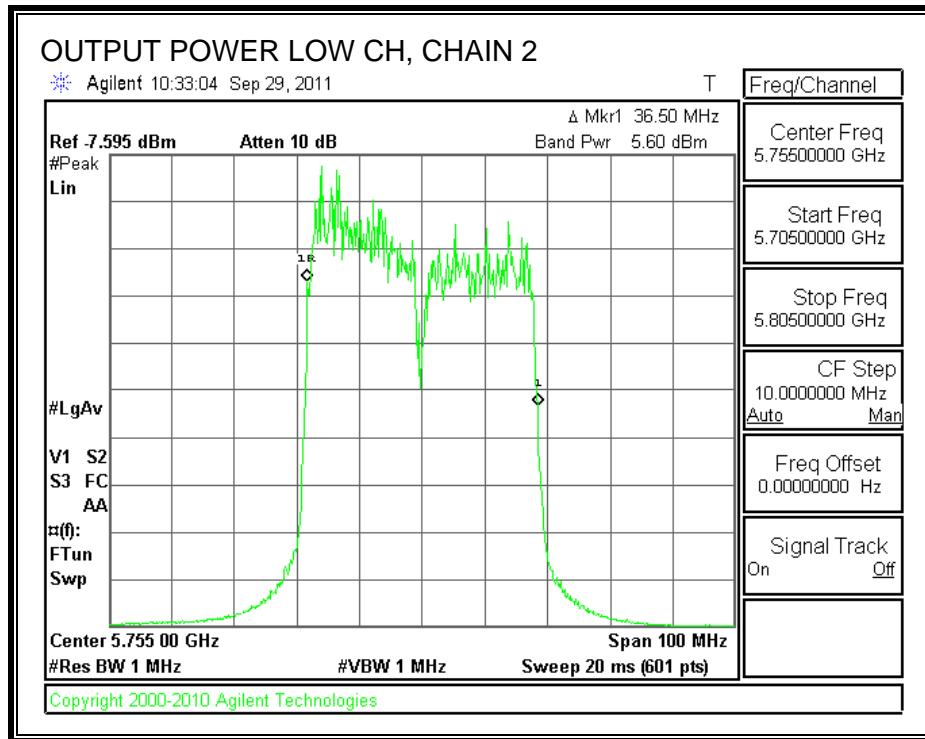
RESULTS

Channel	Frequency (MHz)	Chain 1 PK Power (dBm)	Chain 2 PK Power (dBm)	Chain 3 PK Power (dBm)	Attenuator + Cable Loss (dB)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	5755	7.79	5.60	4.83	11.50	22.53	30.00	-7.47
High	5795	7.80	5.44	5.12	11.50	22.56	30.00	-7.44

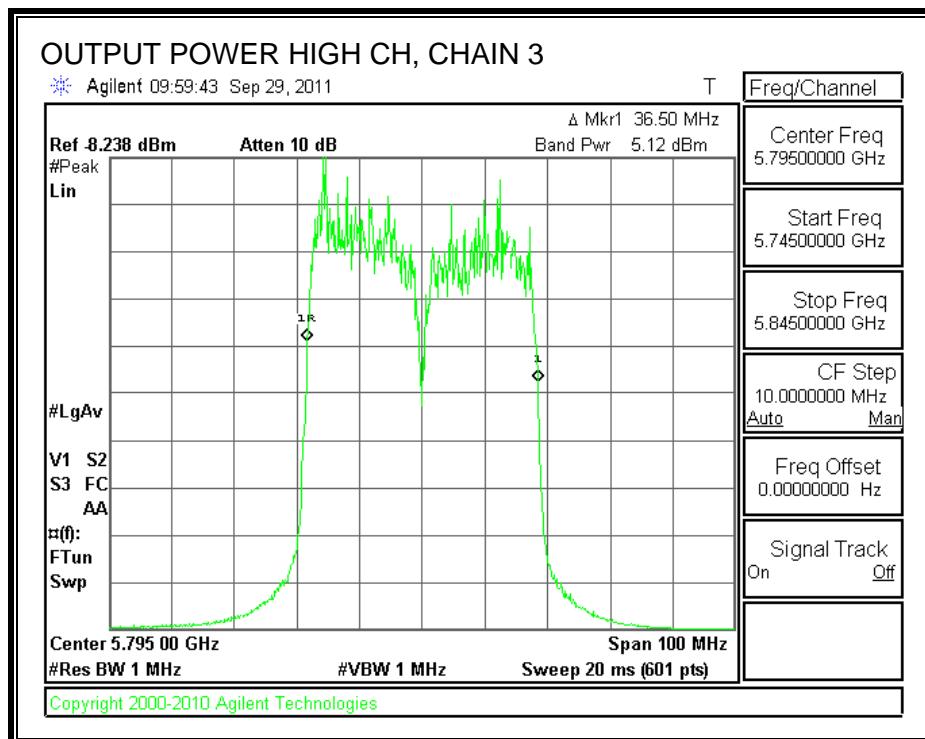
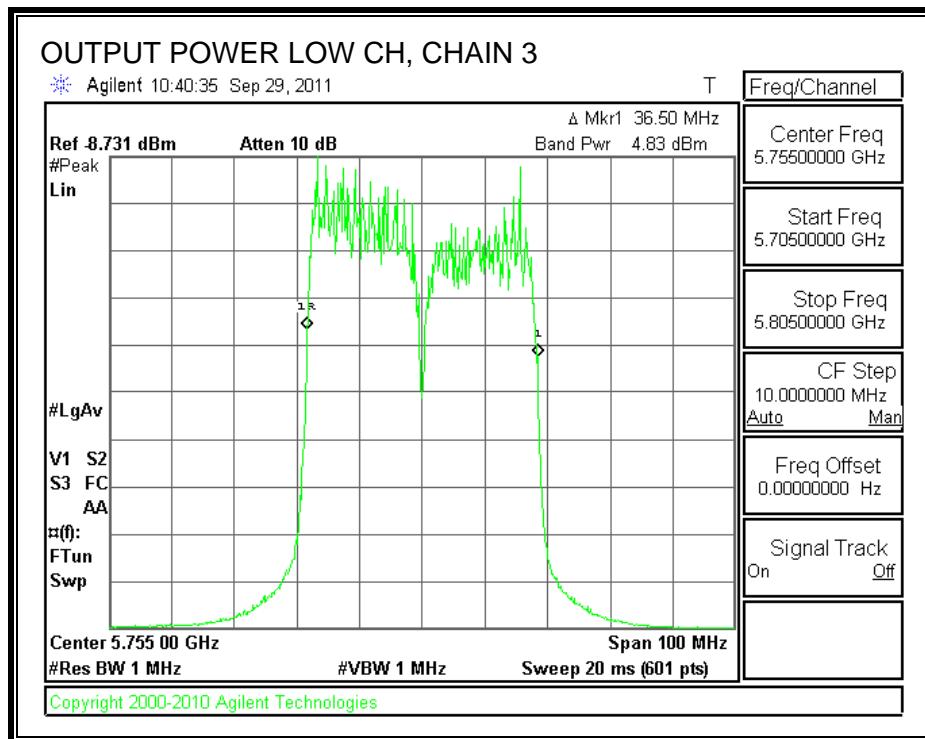
CHAIN 1 OUTPUT POWER



CHAIN 2 OUTPUT POWER



CHAIN 3 OUTPUT POWER



7.13.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11.5 dB (including 10 dB pad and 1.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Chain 1 Power (dBm)	Chain 2 Power (dBm)	Chain 3 Power (dBm)	Total Power (dBm)
Low	5755	12.00	12.00	12.00	16.77
High	5795	12.60	12.60	12.60	17.37

7.13.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

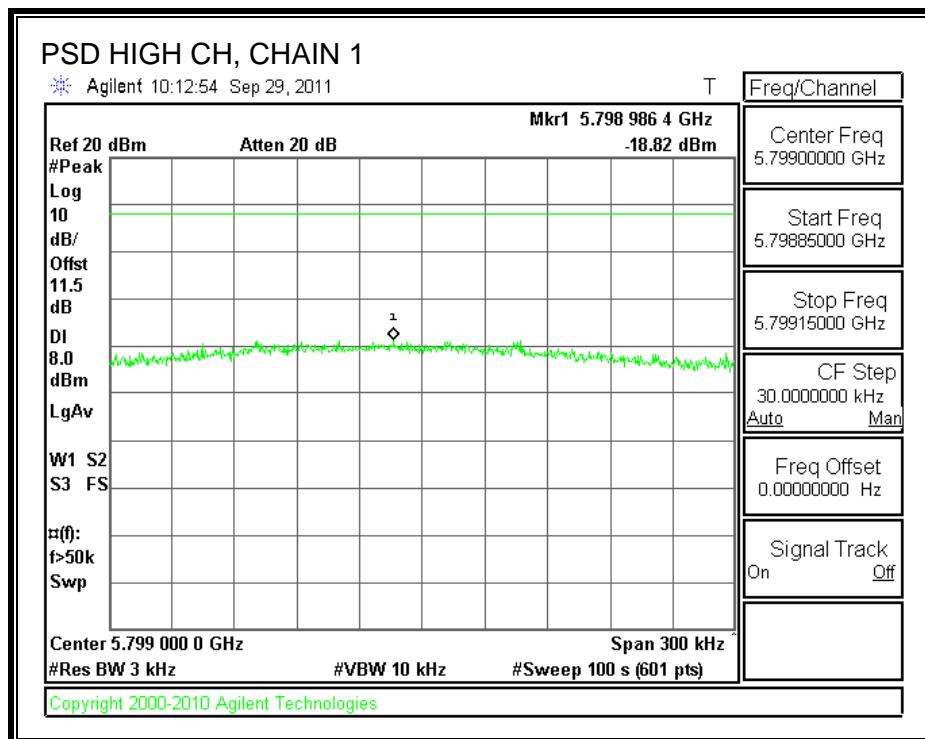
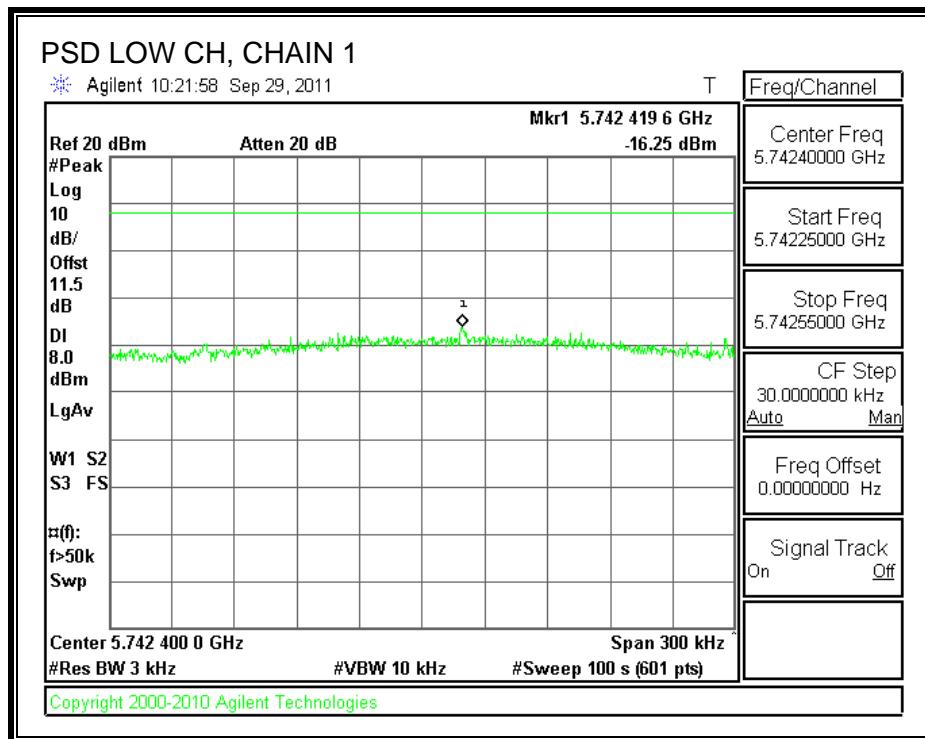
TEST PROCEDURE

Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

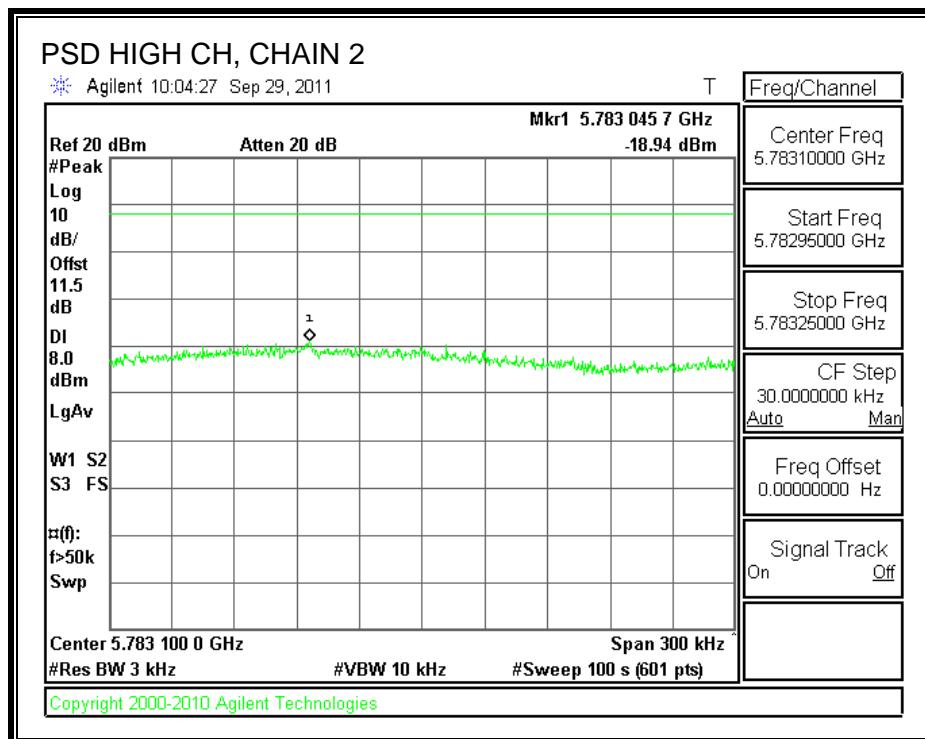
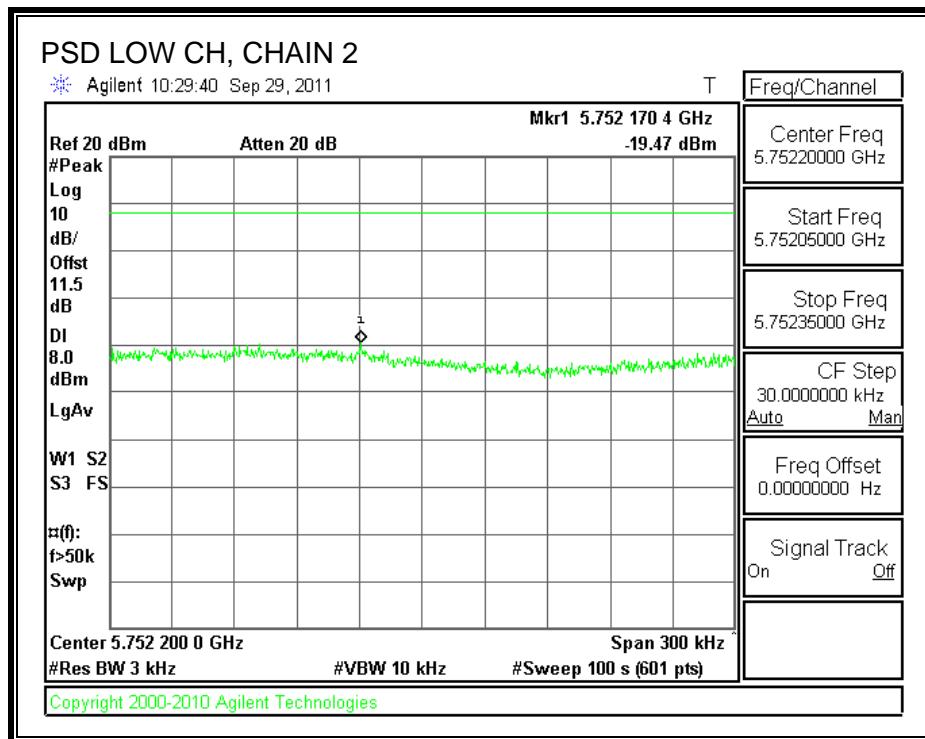
RESULTS:

Channel	Frequency (MHz)	Chain 1 PSD (dBm)	Chain 2 PSD (dBm)	Chain 3 PSD (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	5755	-16.25	-19.47	-19.74	-13.41	8	-21.41
High	5795	-18.82	-18.94	-20.08	-14.47	8	-22.47

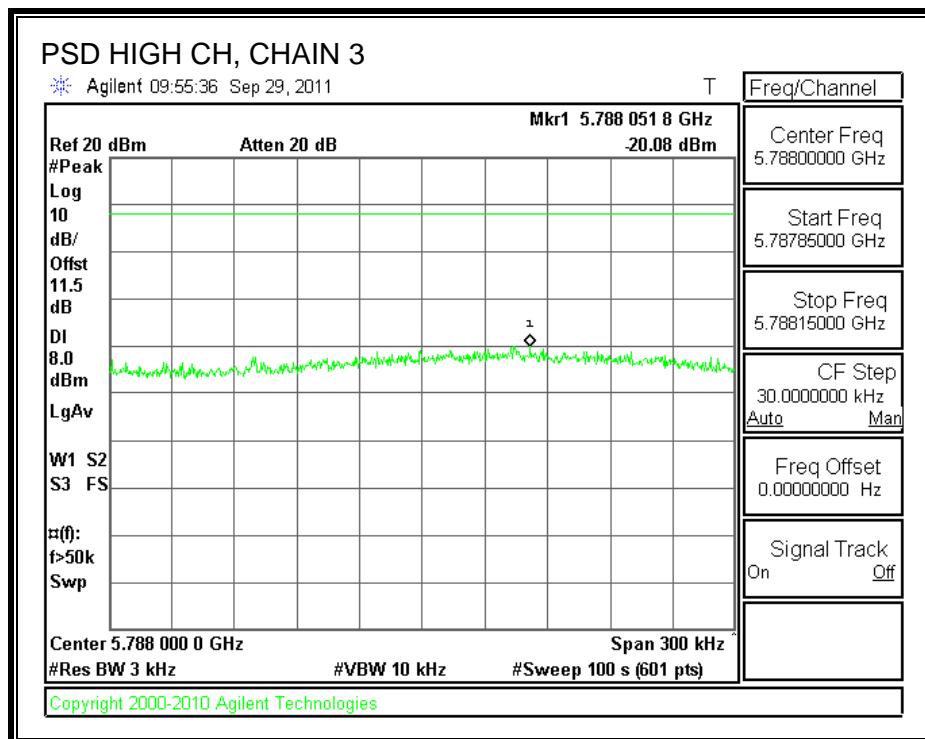
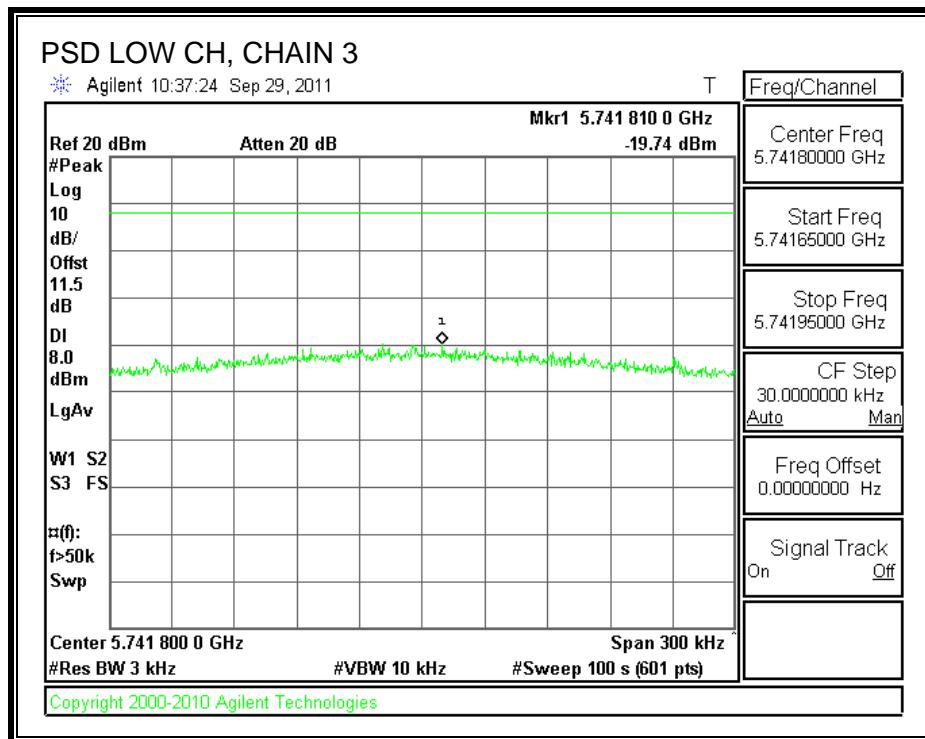
POWER SPECTRAL DENSITY, CHAIN 1



POWER SPECTRAL DENSITY, CHAIN 2



POWER SPECTRAL DENSITY, CHAIN 3



7.13.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

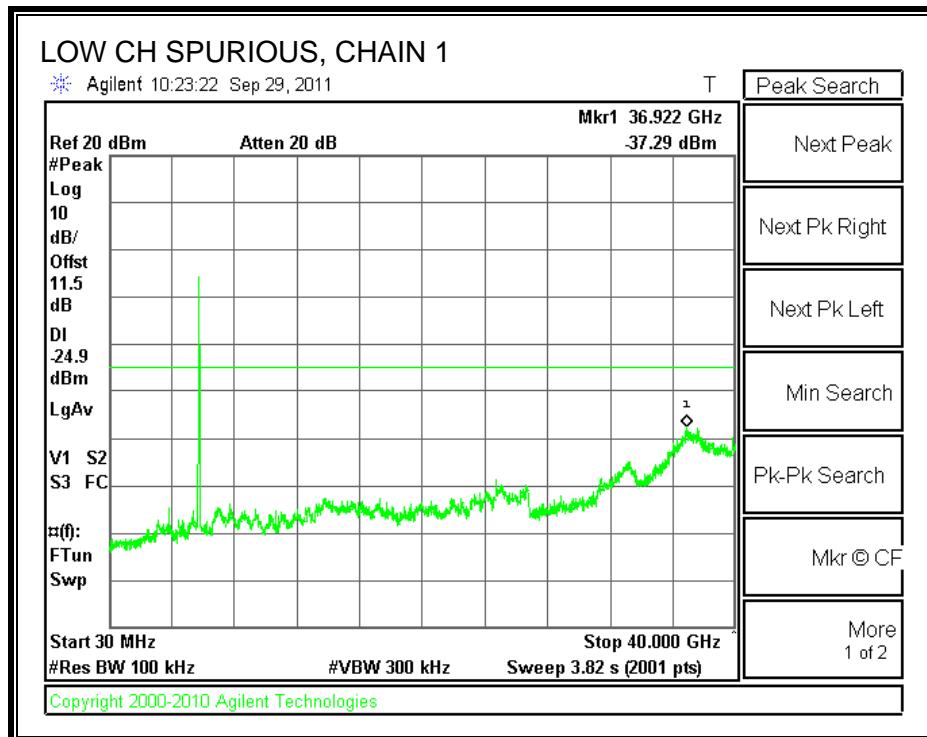
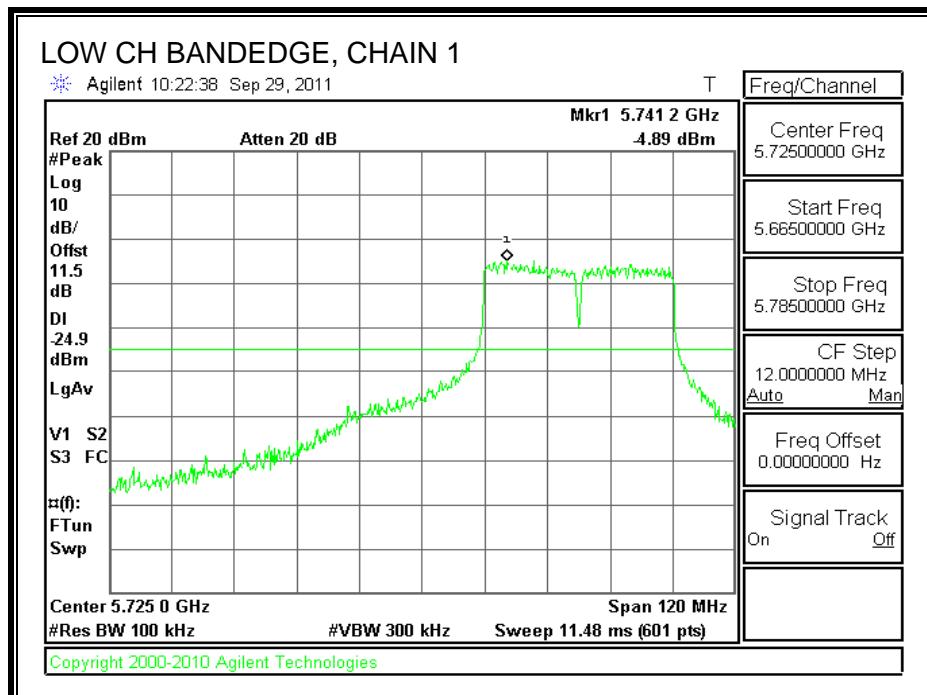
TEST PROCEDURE

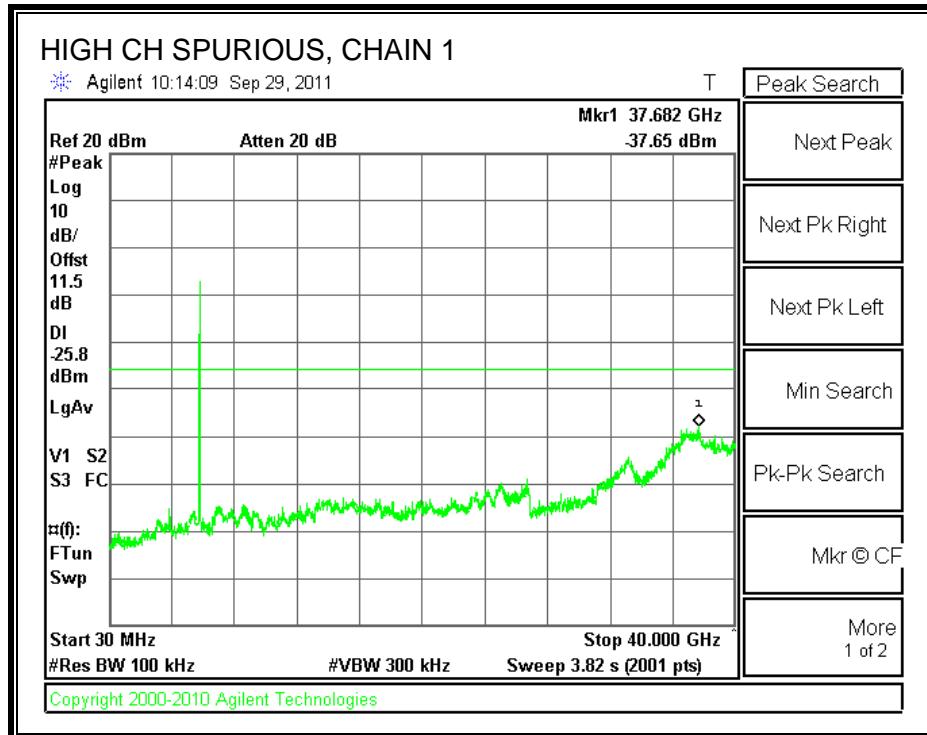
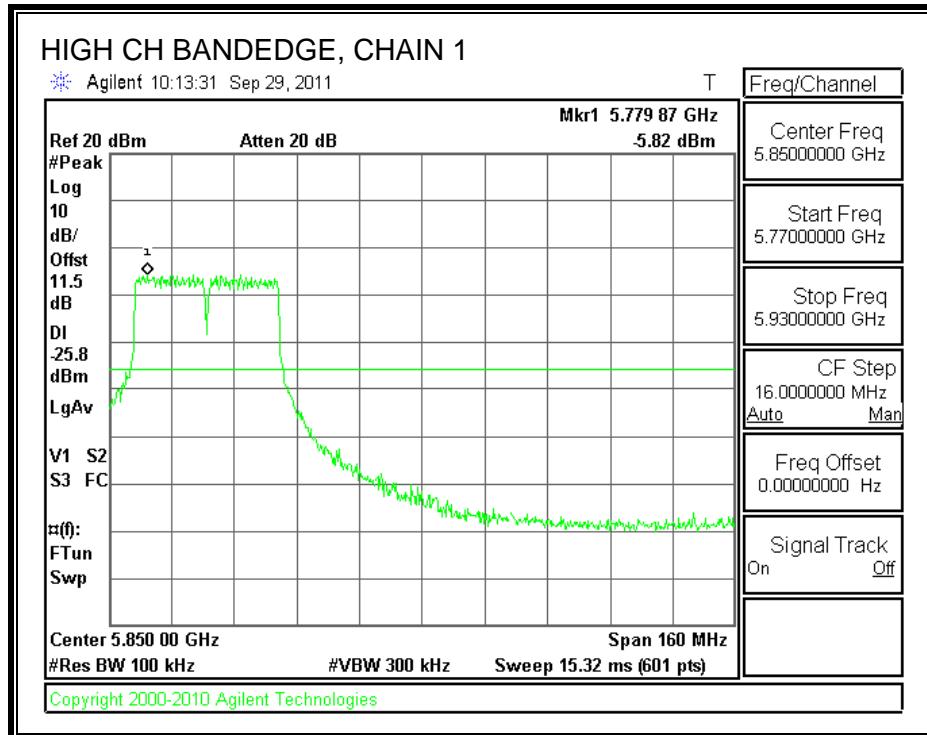
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

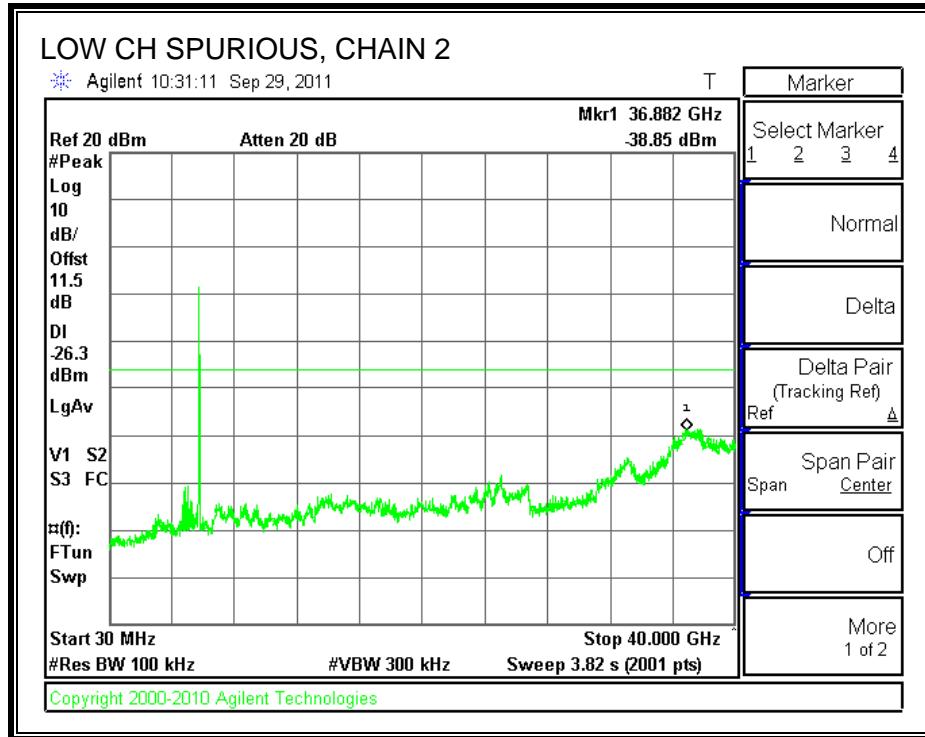
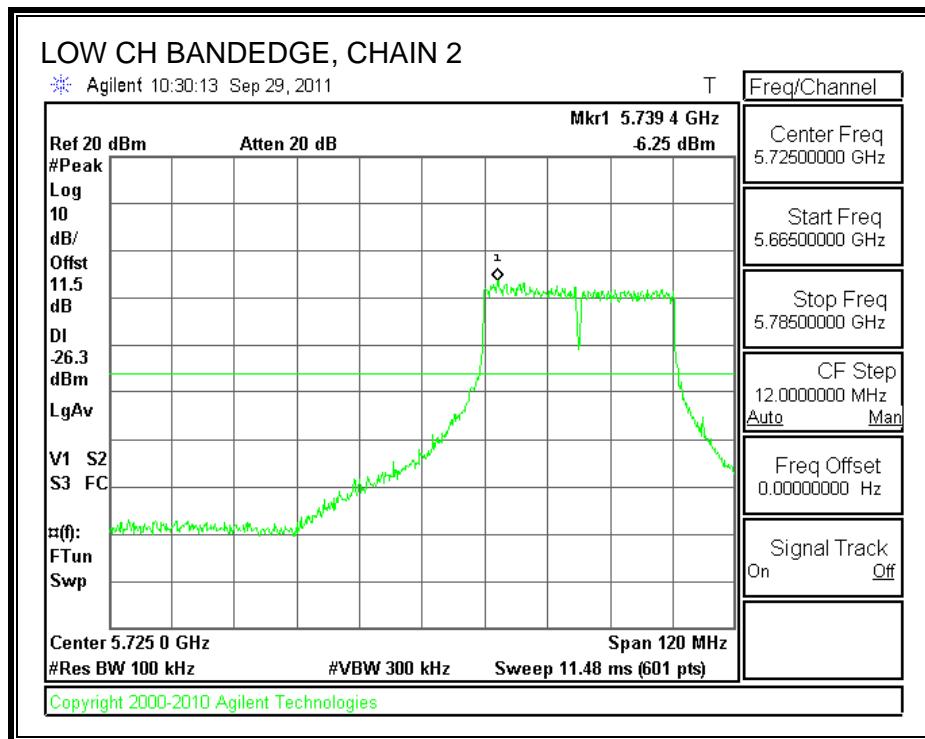
RESULTS

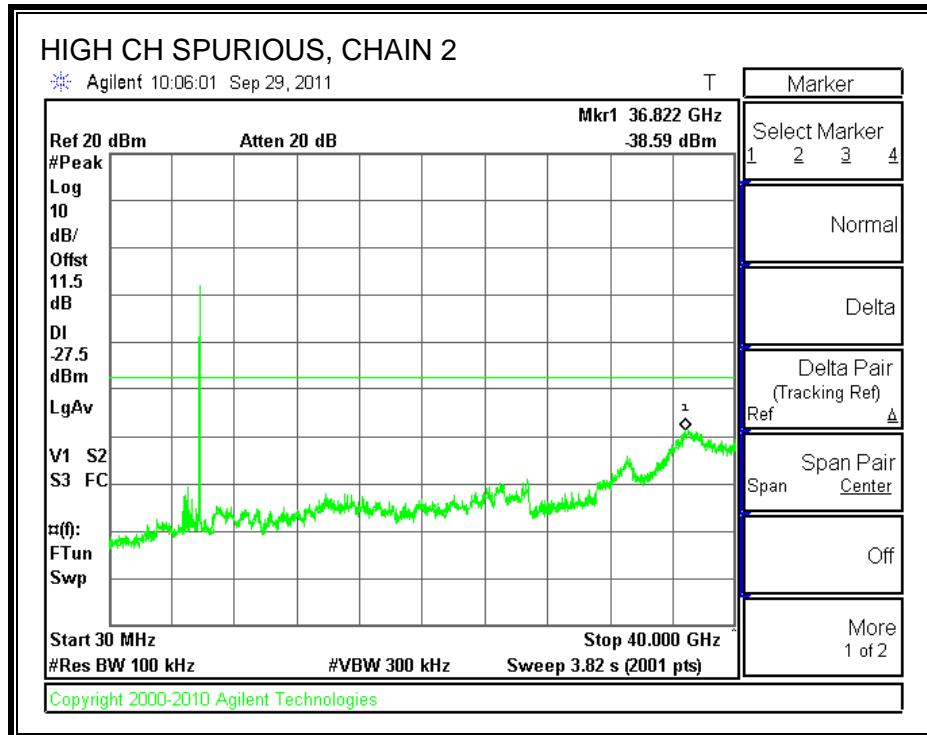
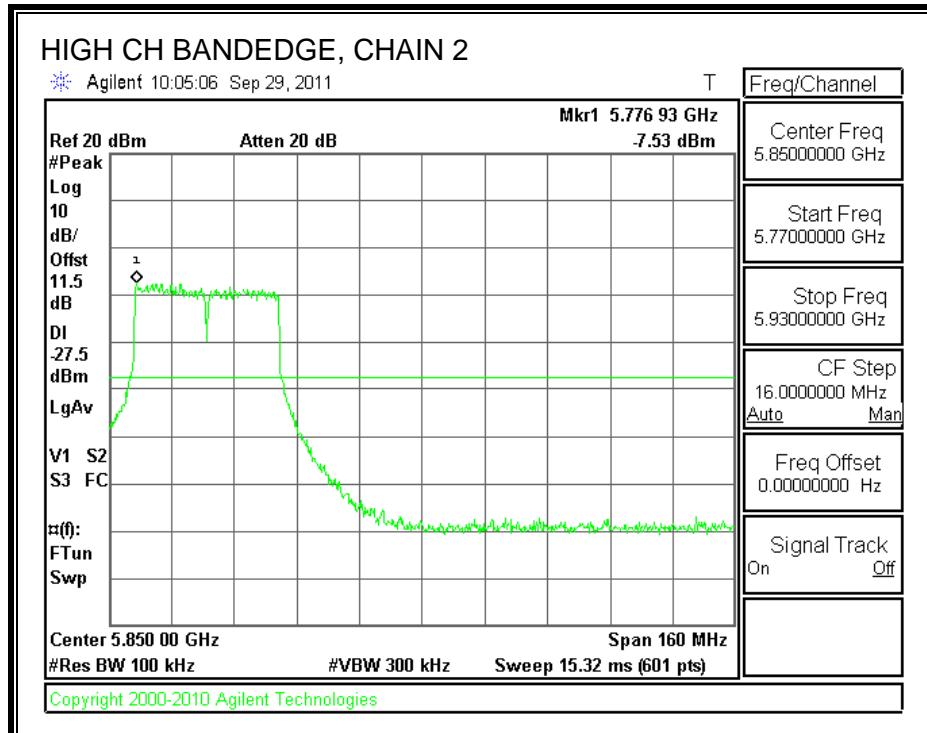
CHAIN 1 SPURIOUS EMISSIONS



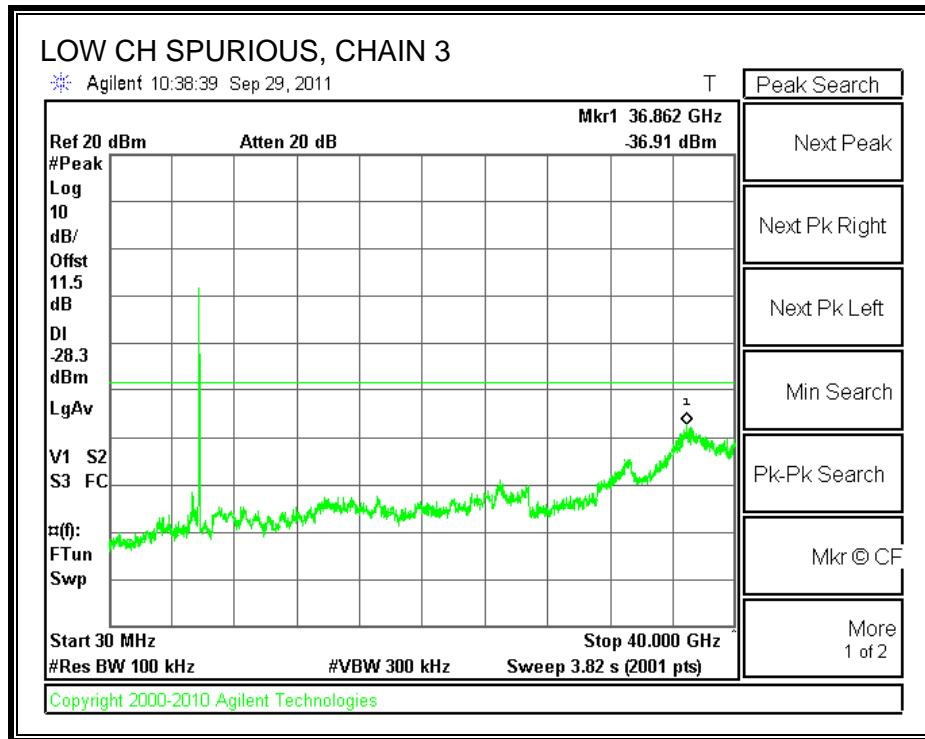
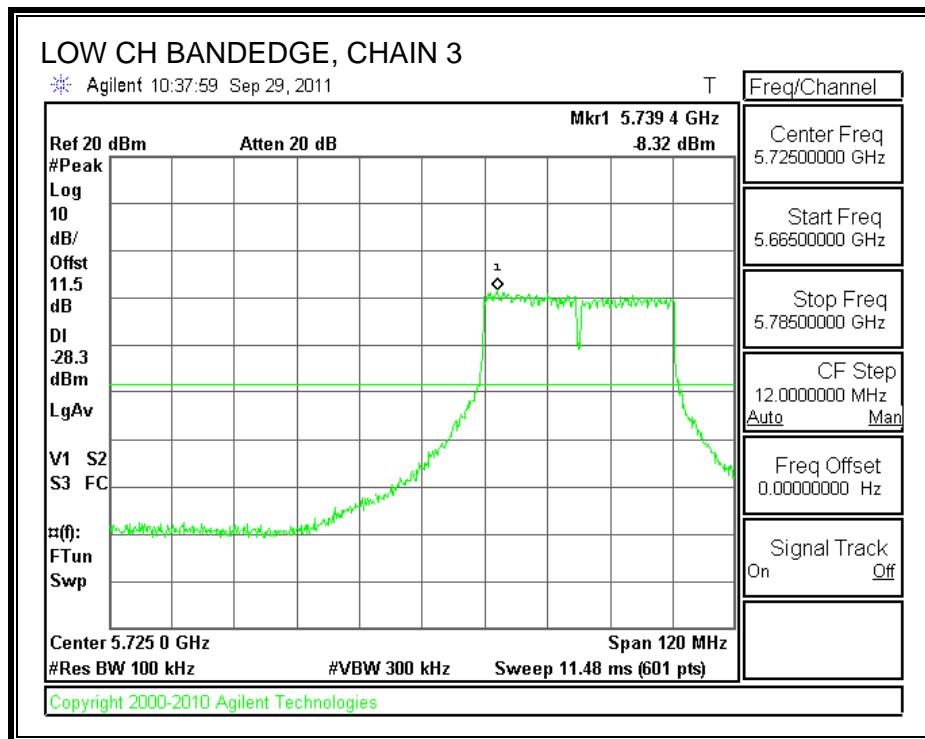


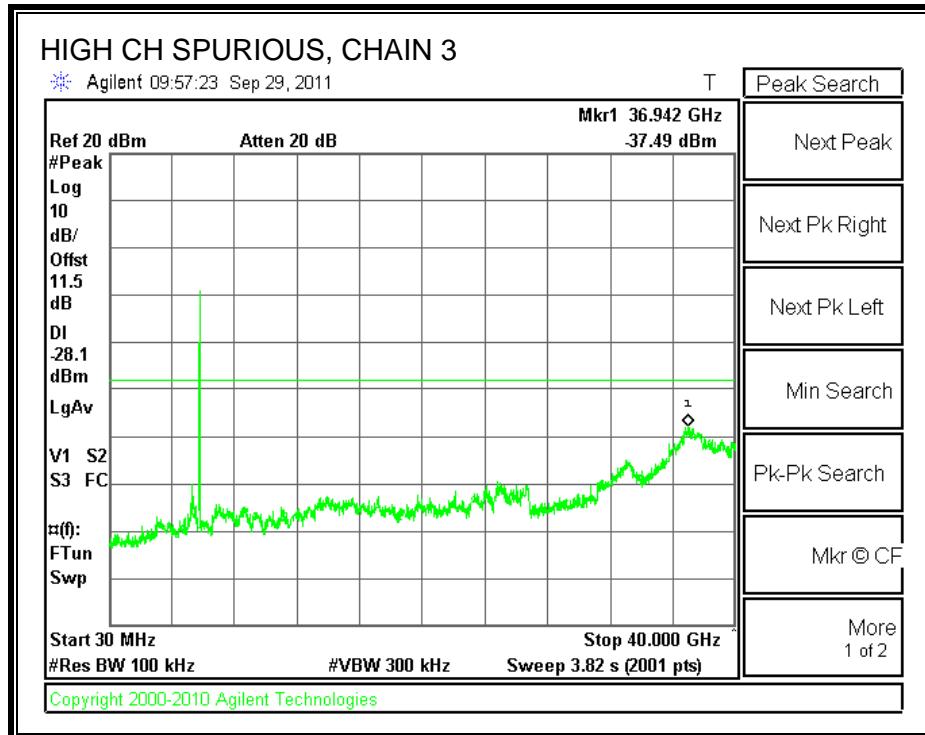
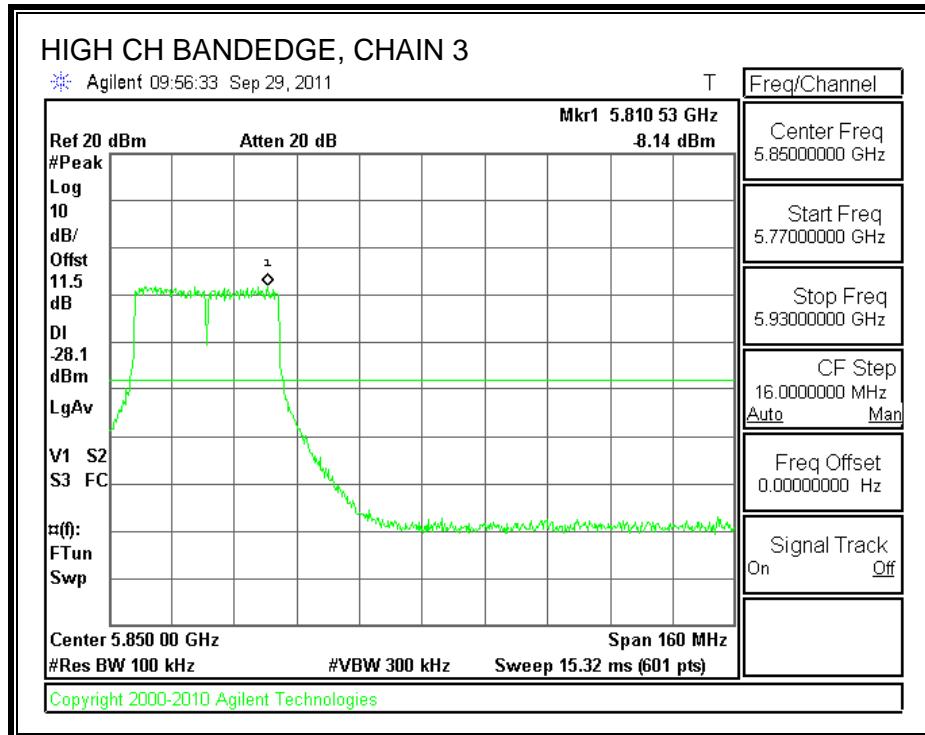
CHAIN 2 SPURIOUS EMISSIONS





CHAIN 3 SPURIOUS EMISSIONS





7.14. 802.11n HT40 MCS16 3TX MODE IN THE 5.8 GHz BAND

7.14.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

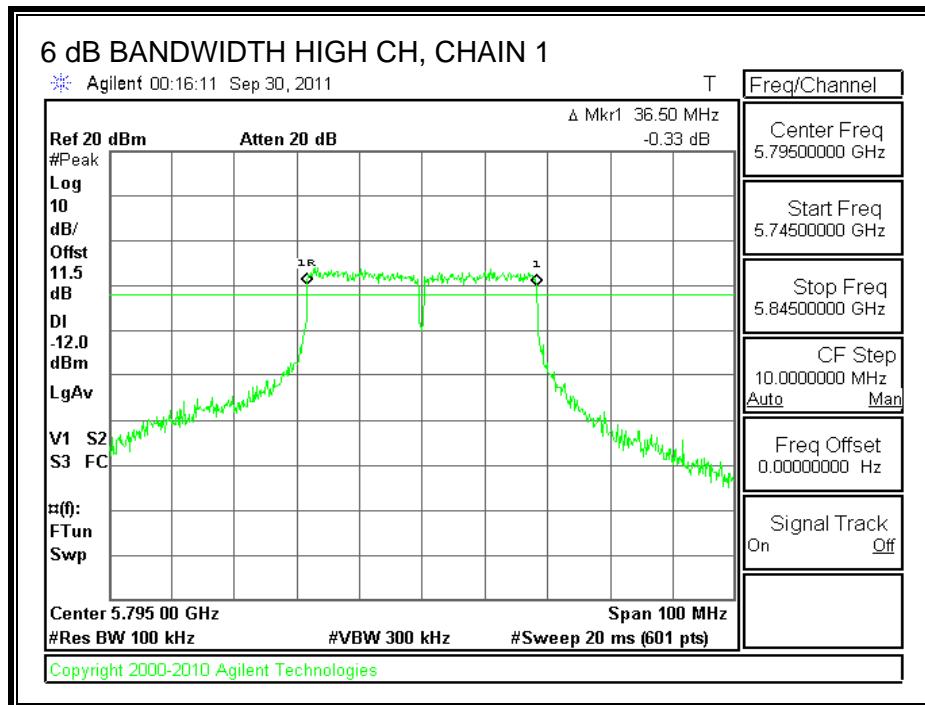
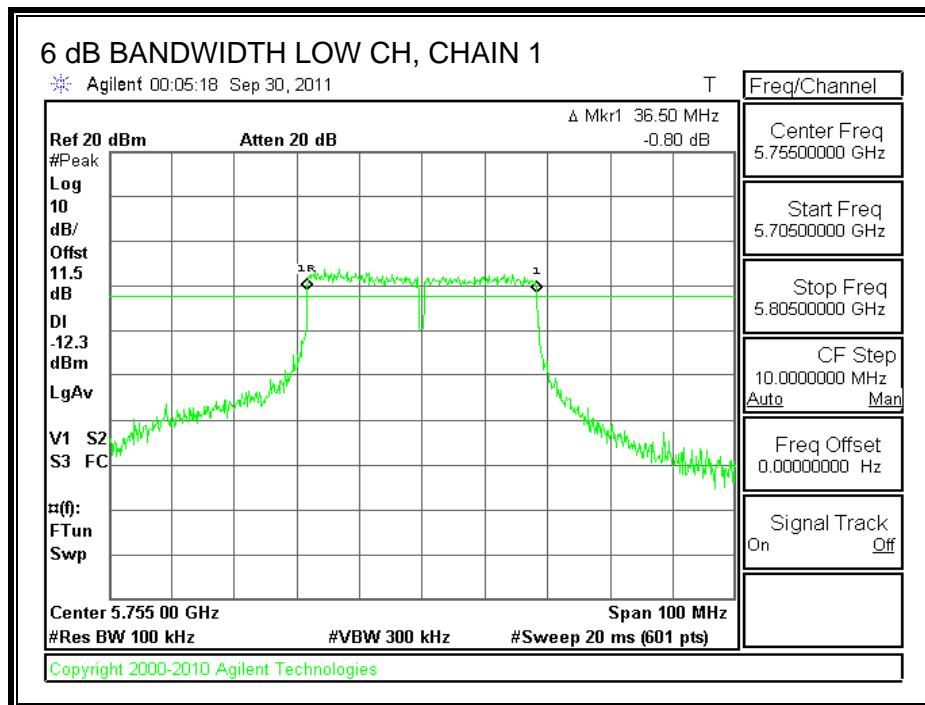
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

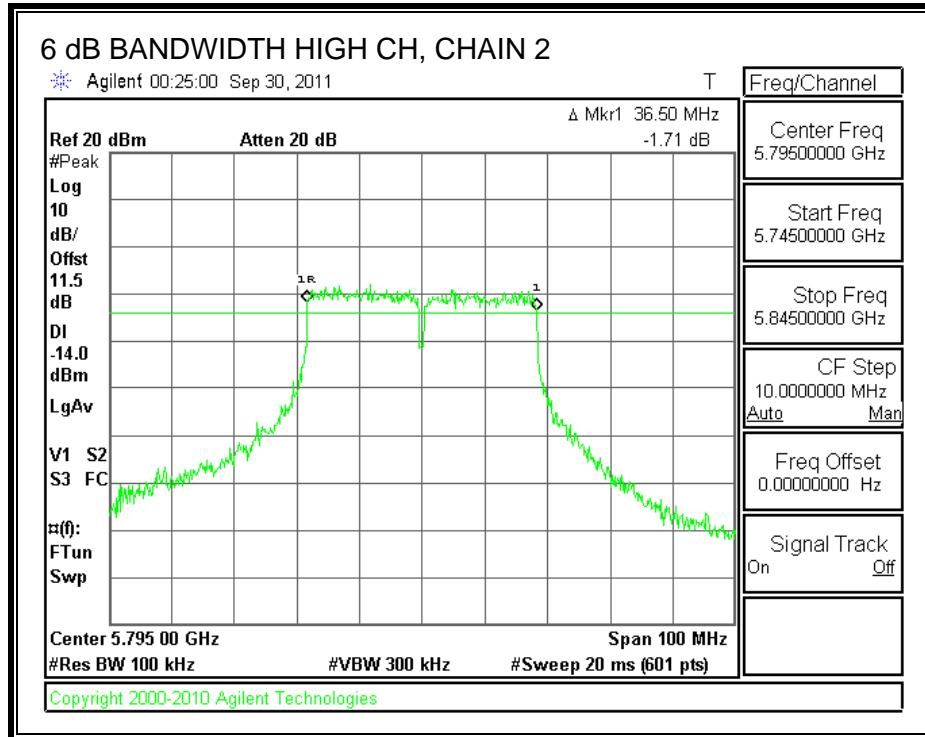
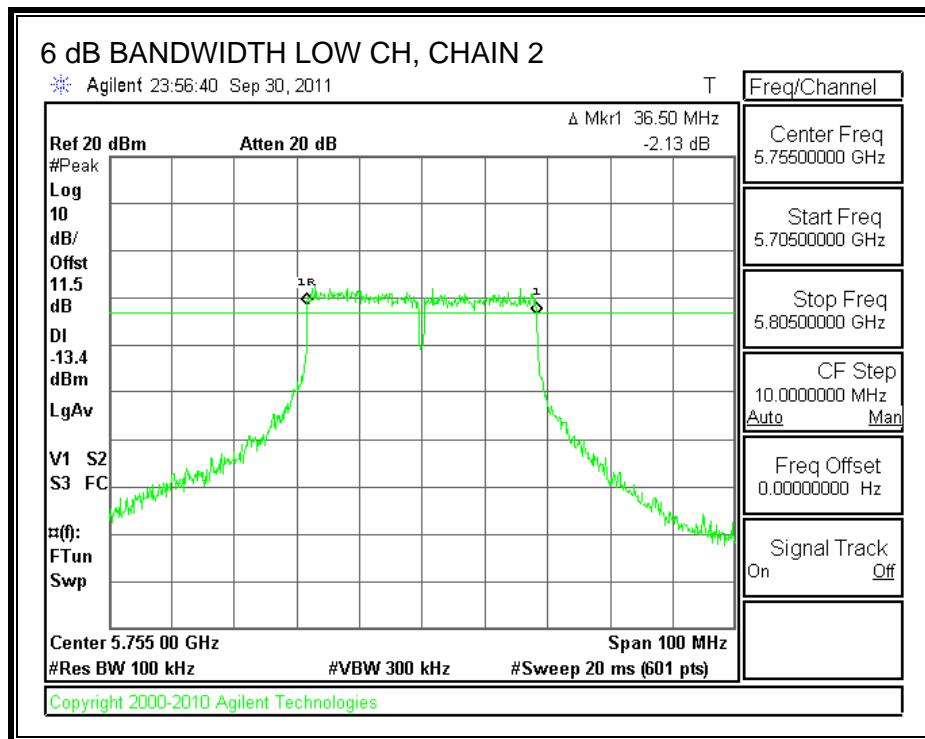
RESULTS

Channel	Frequency (MHz)	Chain 1 6 dB BW (MHz)	Chain 2 6 dB BW (MHz)	Chain 3 6 dB BW (MHz)	Minimum Limit (MHz)
Low	5755	36.5	36.5	36.5	0.5
High	5795	36.5	36.5	36.5	0.5

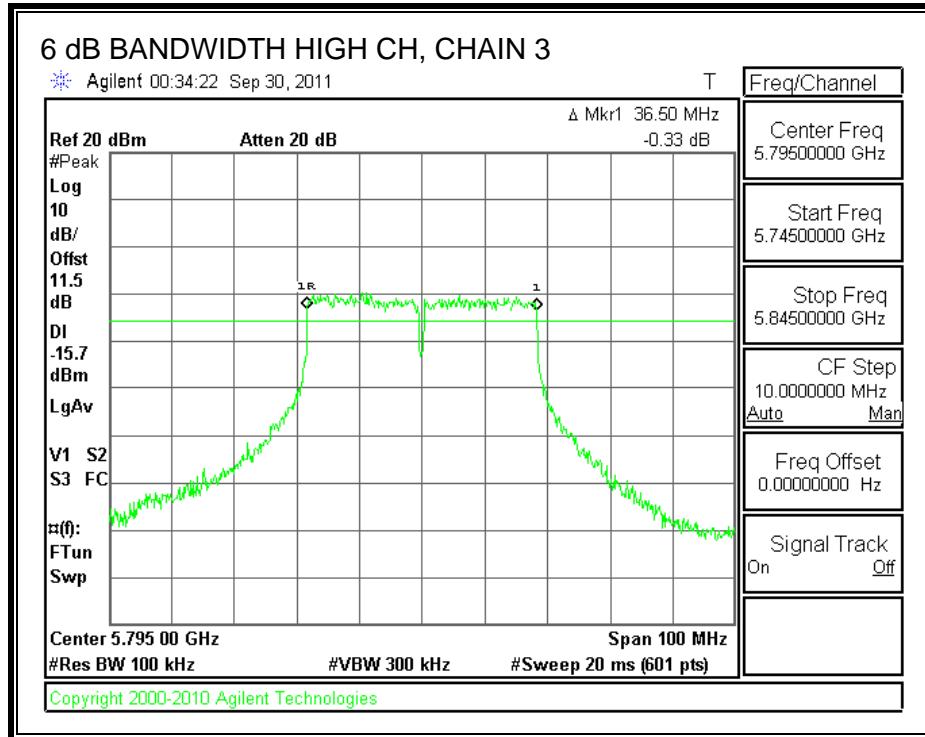
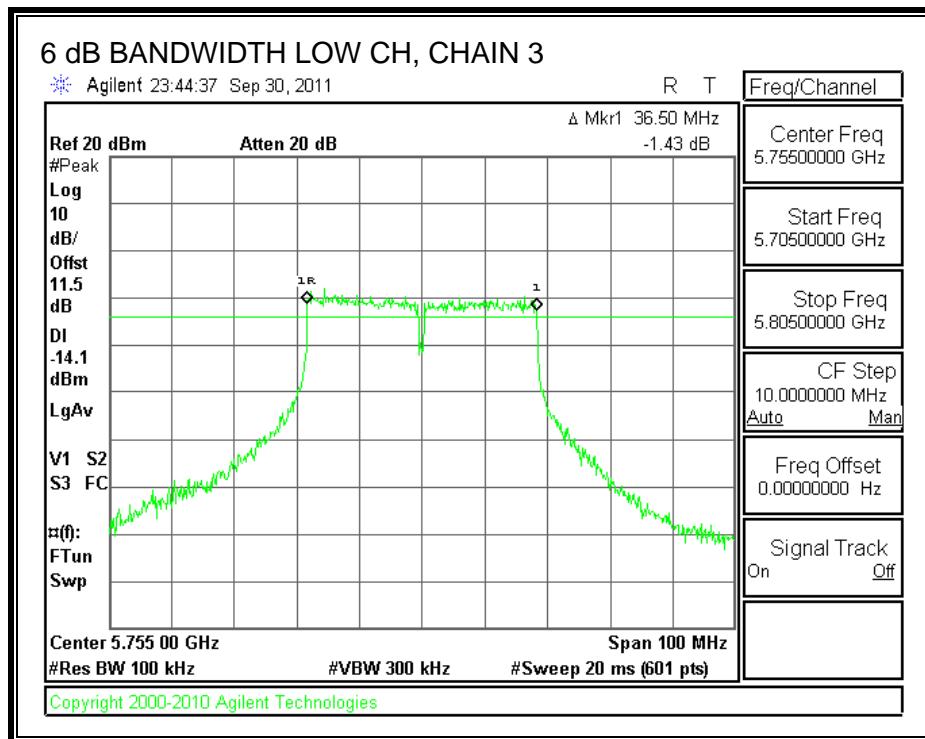
6 dB BANDWIDTH, CHAIN 1



6 dB BANDWIDTH, CHAIN 2



6 dB BANDWIDTH, CHAIN 3



7.14.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

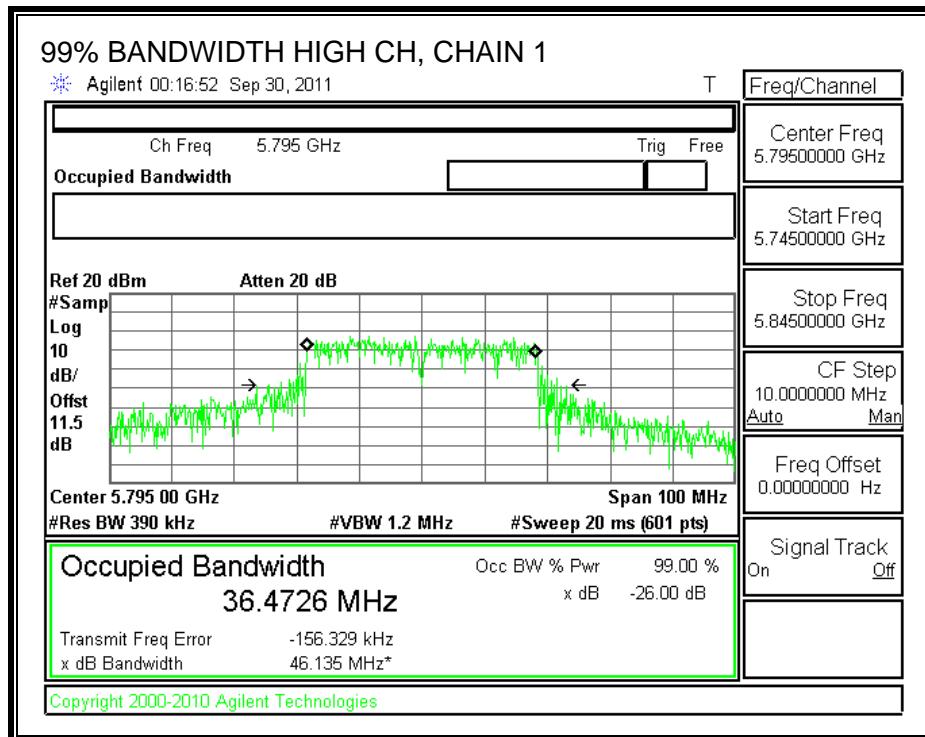
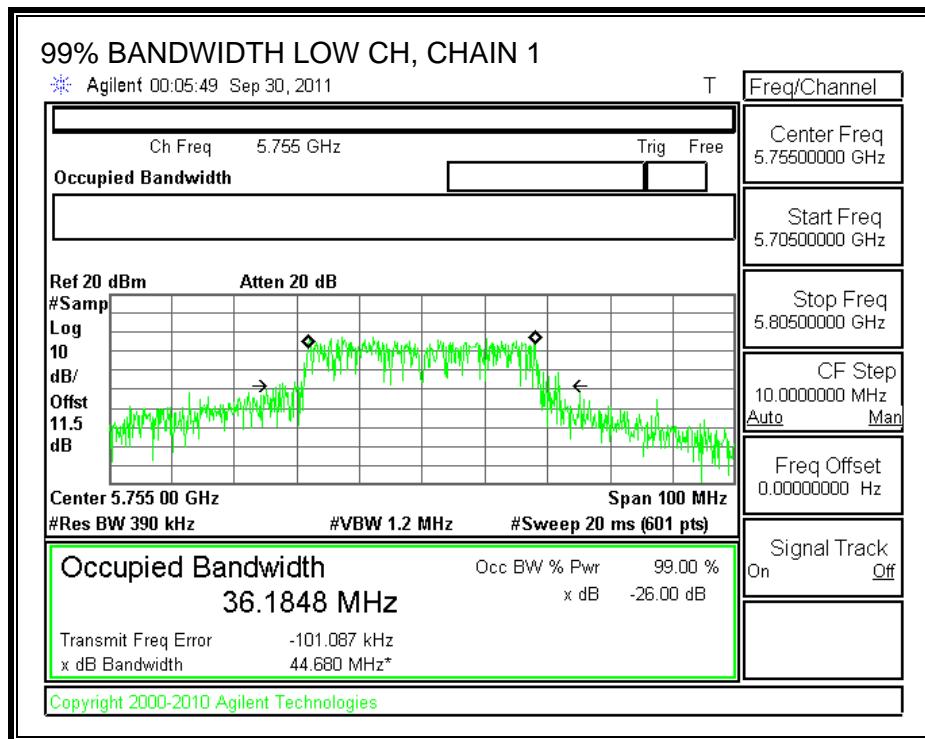
TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

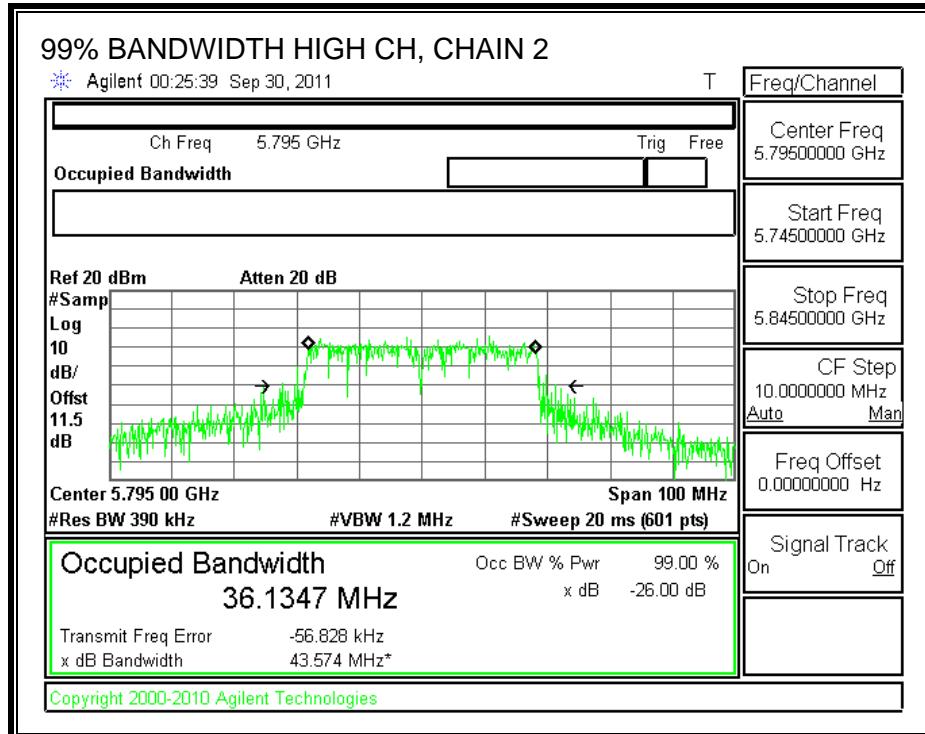
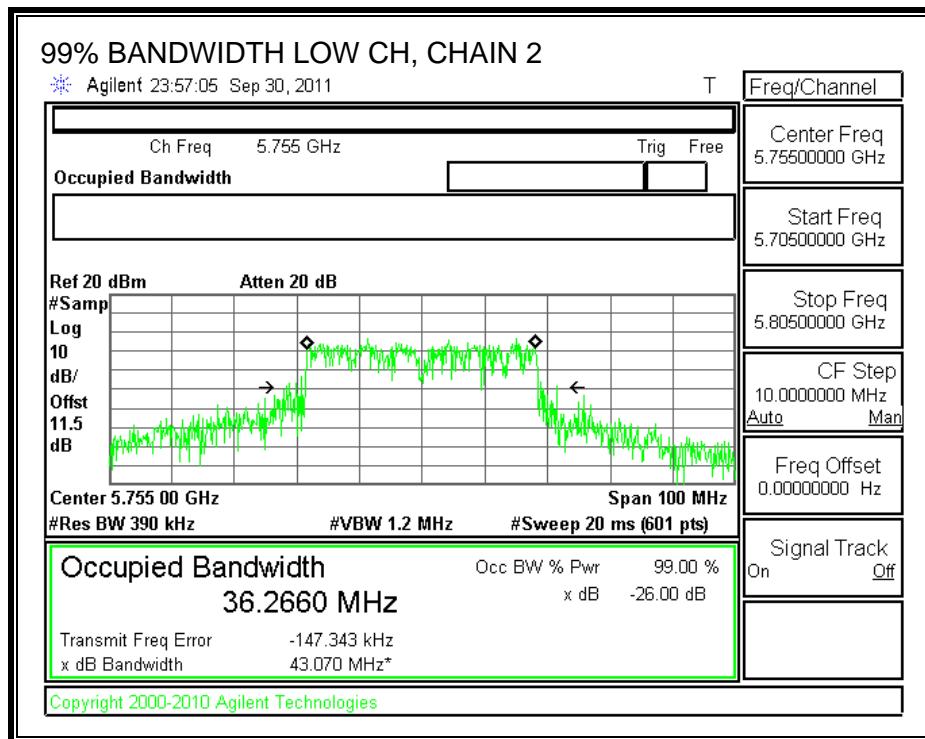
RESULTS

Channel	Frequency (MHz)	Chain 1 99% Bandwidth (MHz)	Chain 2 99% Bandwidth (MHz)	Chain 3 99% Bandwidth (MHz)
Low	5755	36.1848	36.2660	36.4114
High	5795	36.4726	36.1347	36.2548

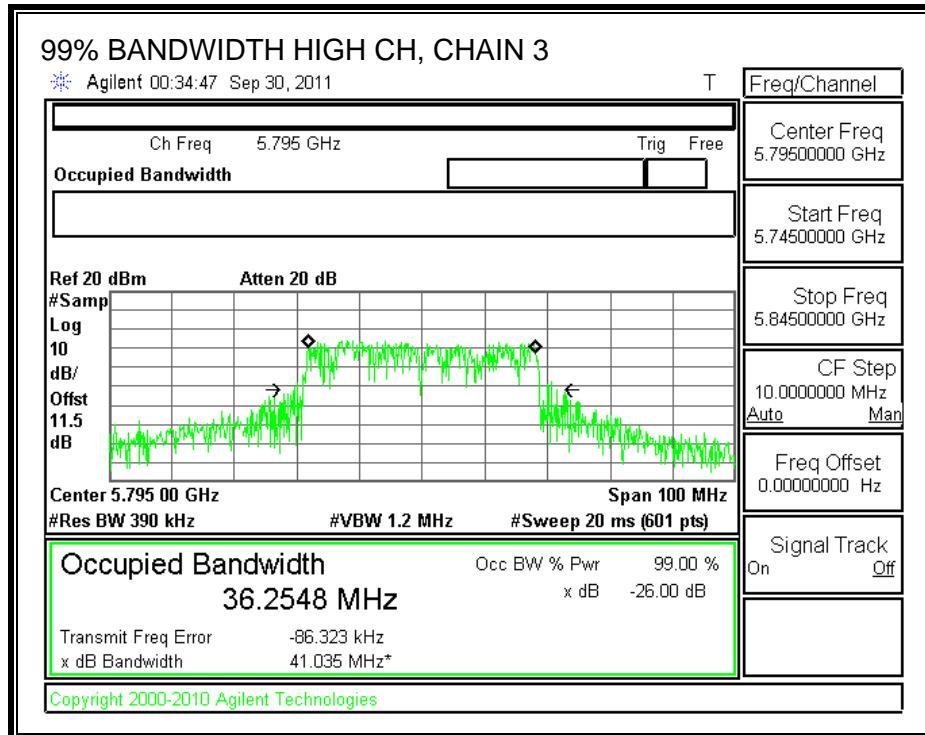
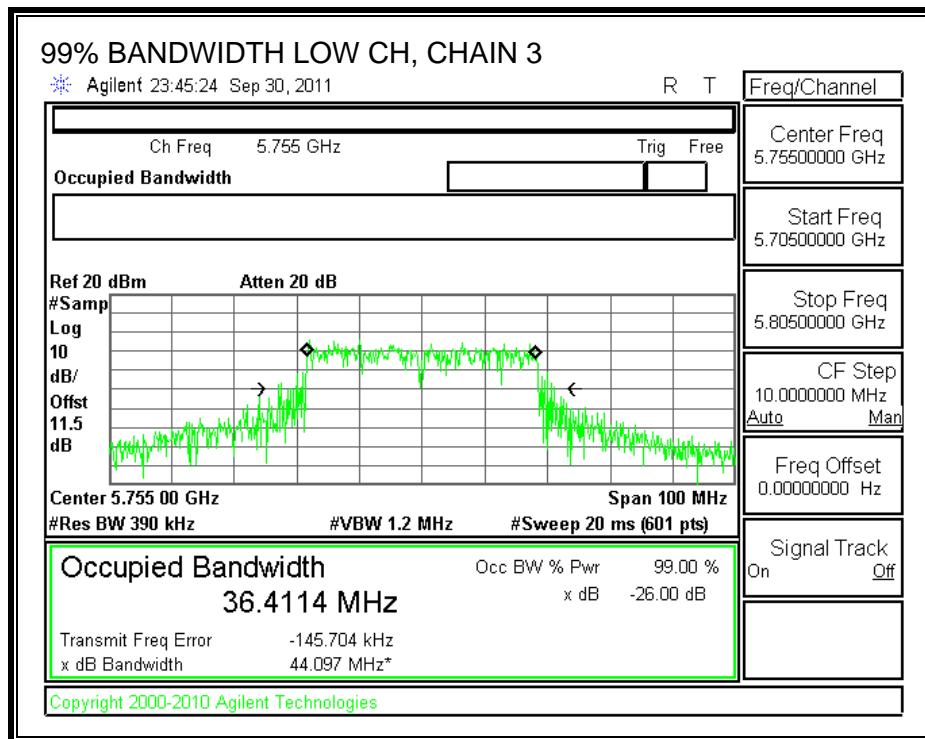
99% BANDWIDTH, CHAIN 1



99% BANDWIDTH, CHAIN 2



99% BANDWIDTH, CHAIN 3



7.14.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

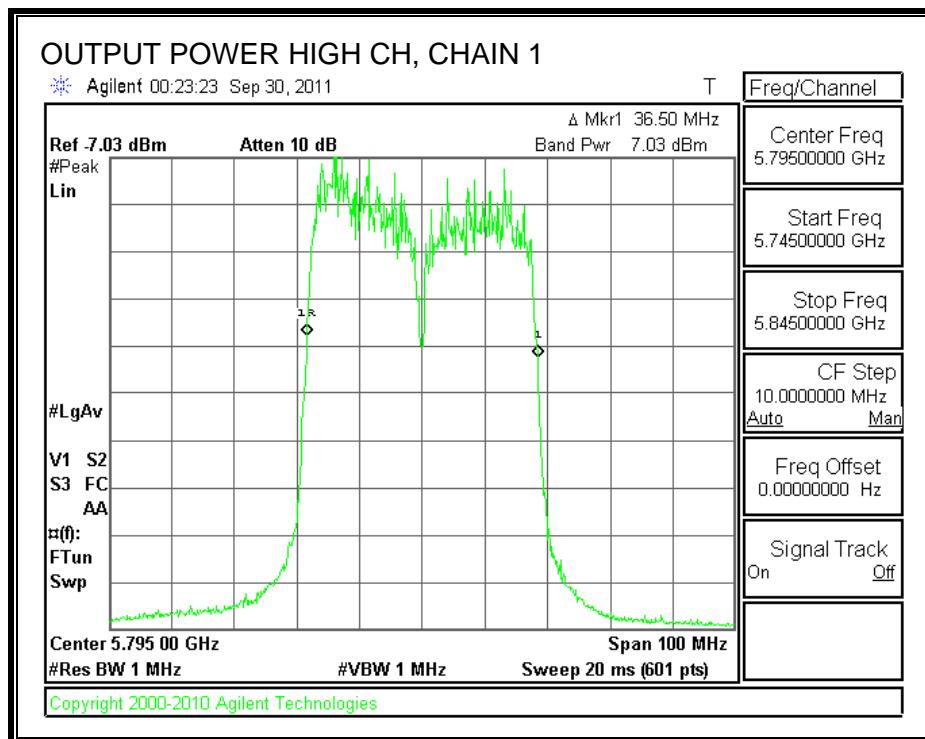
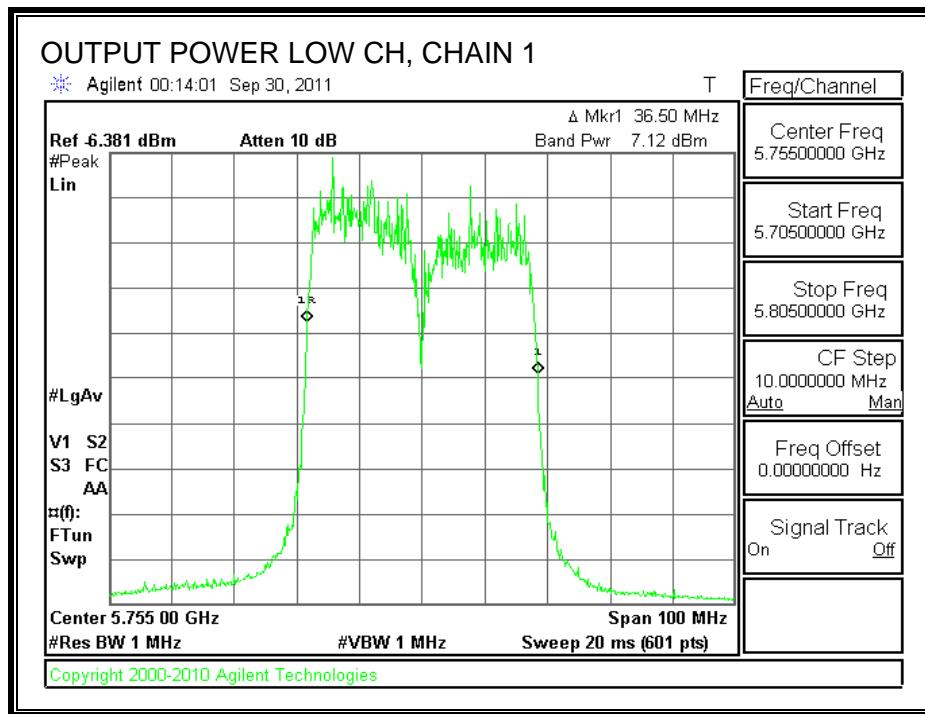
TEST PROCEDURE

Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

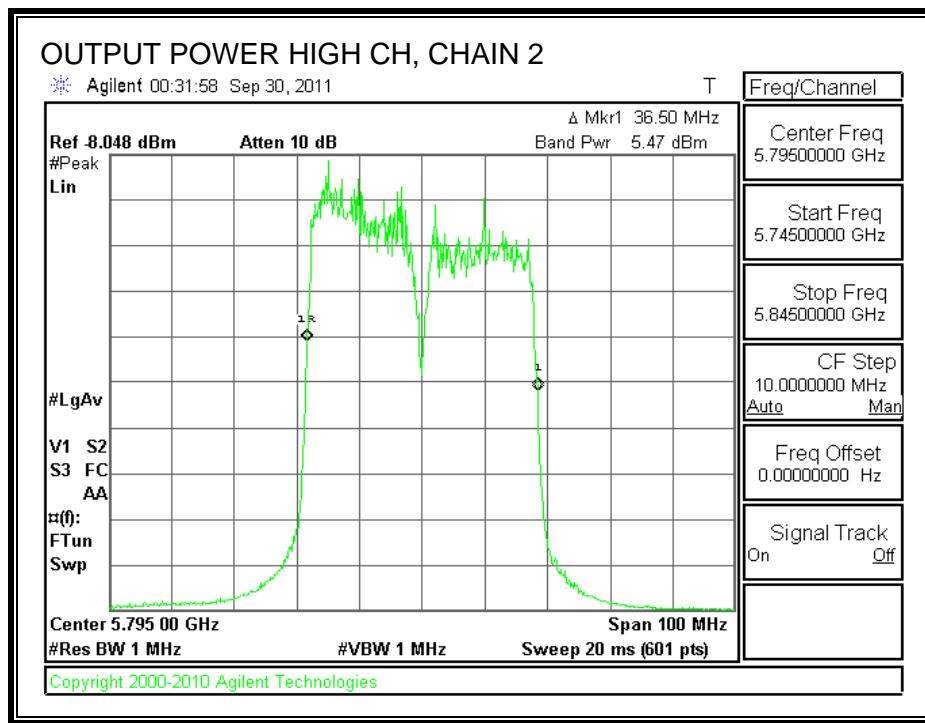
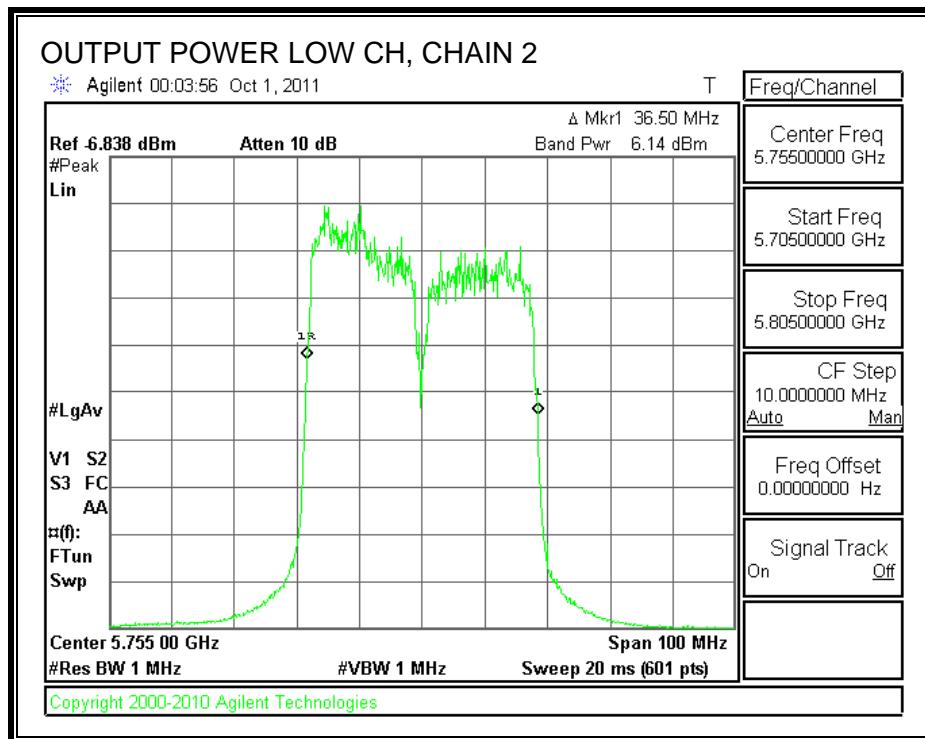
RESULTS

Channel	Frequency (MHz)	Chain 1 PK Power (dBm)	Chain 2 PK Power (dBm)	Chain 3 PK Power (dBm)	Attenuator + Cable Loss (dB)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	5755	7.12	6.14	5.23	11.50	22.50	30.00	-7.50
High	5795	7.03	5.47	5.11	11.50	22.22	30.00	-7.78

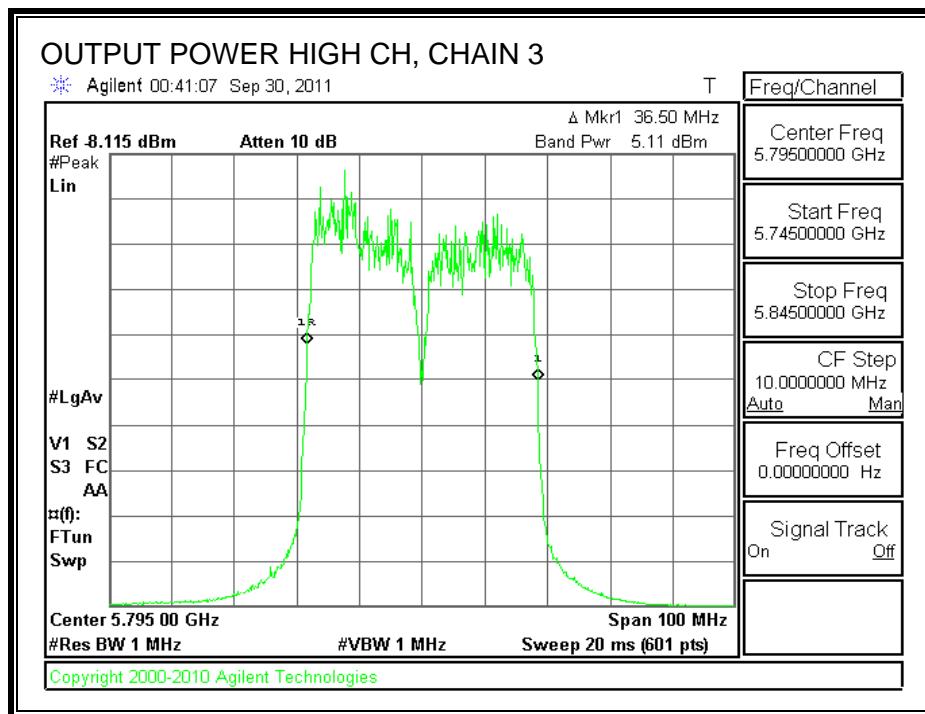
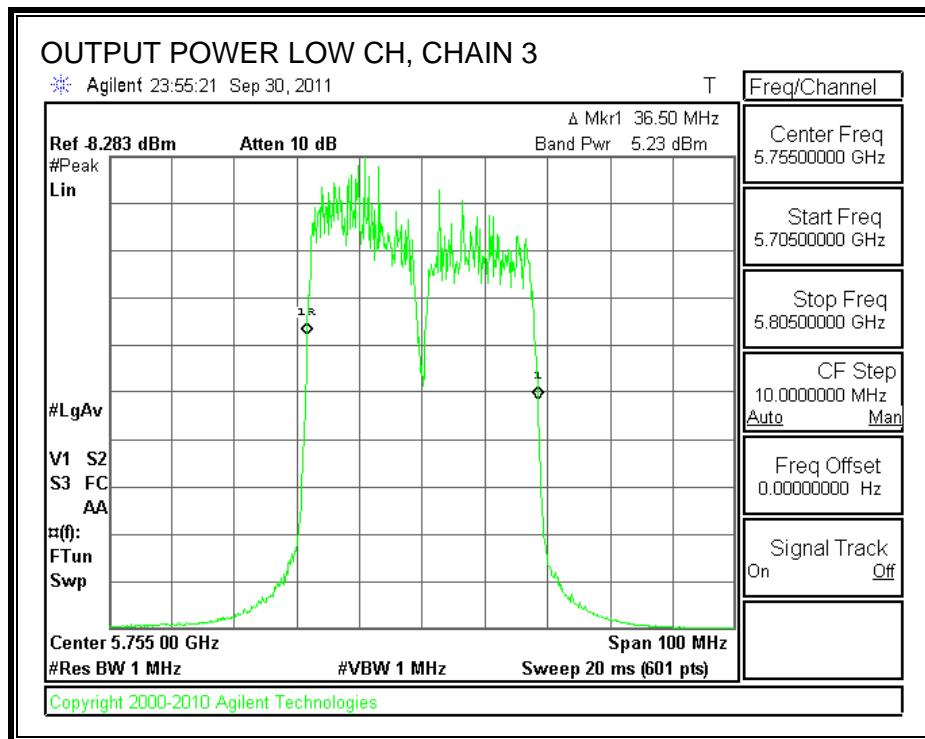
CHAIN 1 OUTPUT POWER



CHAIN 2 OUTPUT POWER



CHAIN 3 OUTPUT POWER



7.14.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11.5 dB (including 10 dB pad and 1.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Chain 1 Power (dBm)	Chain 2 Power (dBm)	Chain 3 Power (dBm)	Total Power (dBm)
Low	5755	12.00	12.00	12.00	16.77
High	5795	12.50	12.50	12.50	17.27

7.14.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

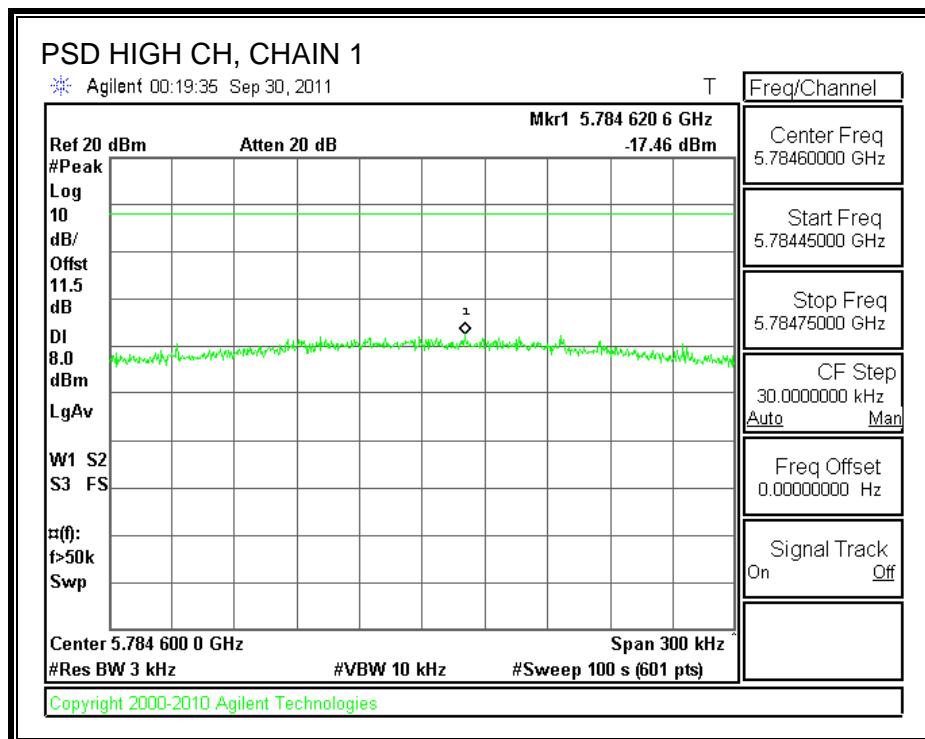
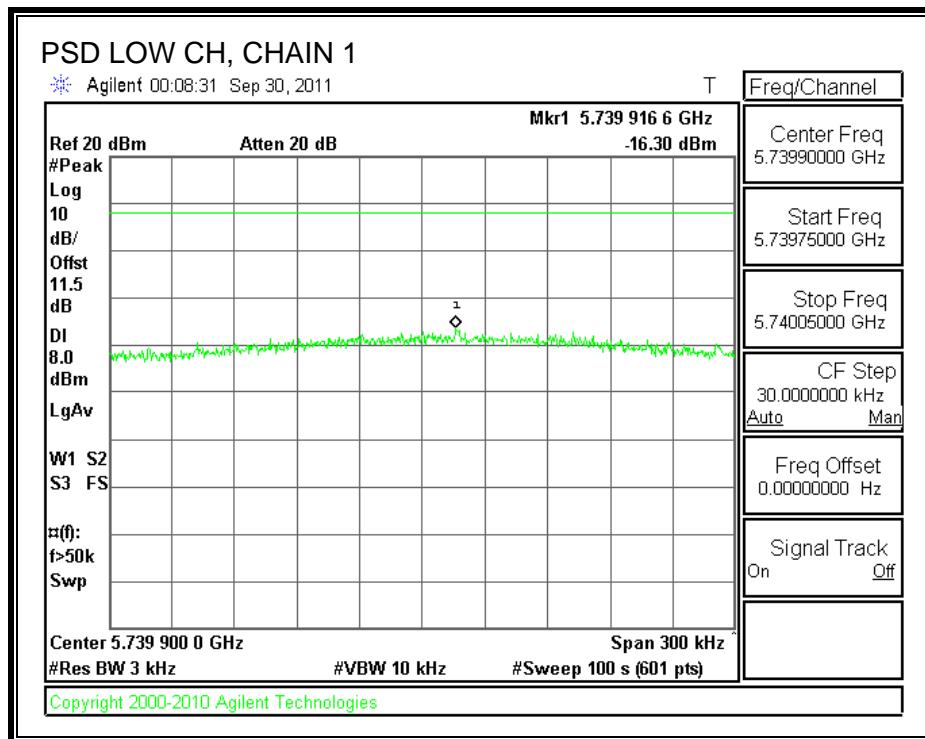
TEST PROCEDURE

Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

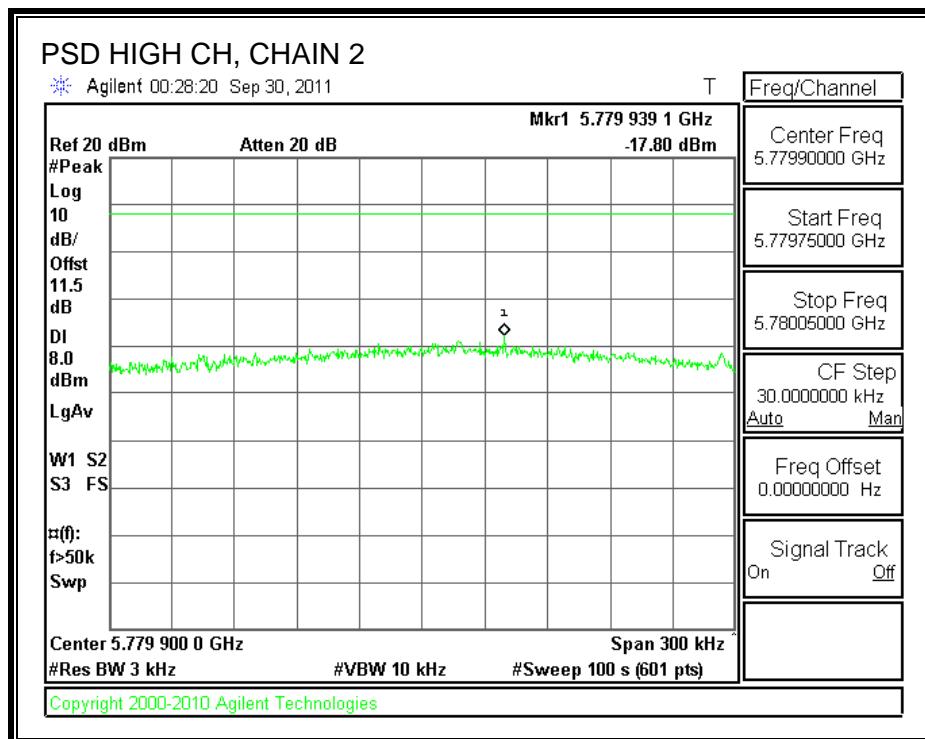
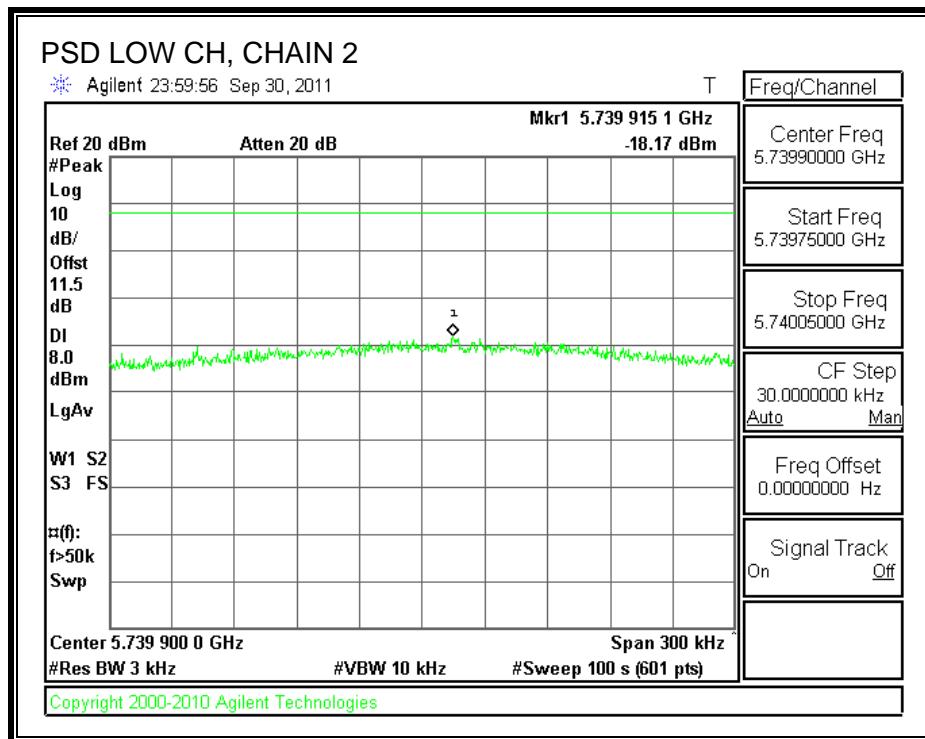
RESULTS:

Channel	Frequency (MHz)	Chain 1 PSD (dBm)	Chain 2 PSD (dBm)	Chain 3 PSD (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	5755	-16.30	-18.17	-19.41	-13.00	8	-21.00
High	5795	-17.46	-17.80	-19.81	-13.47	8	-21.47

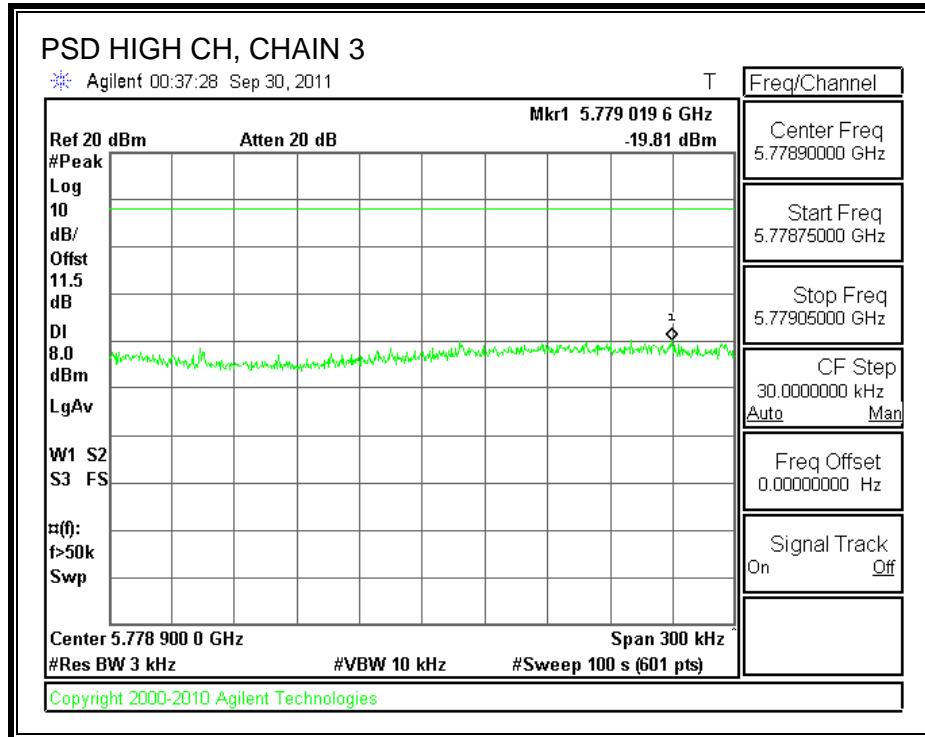
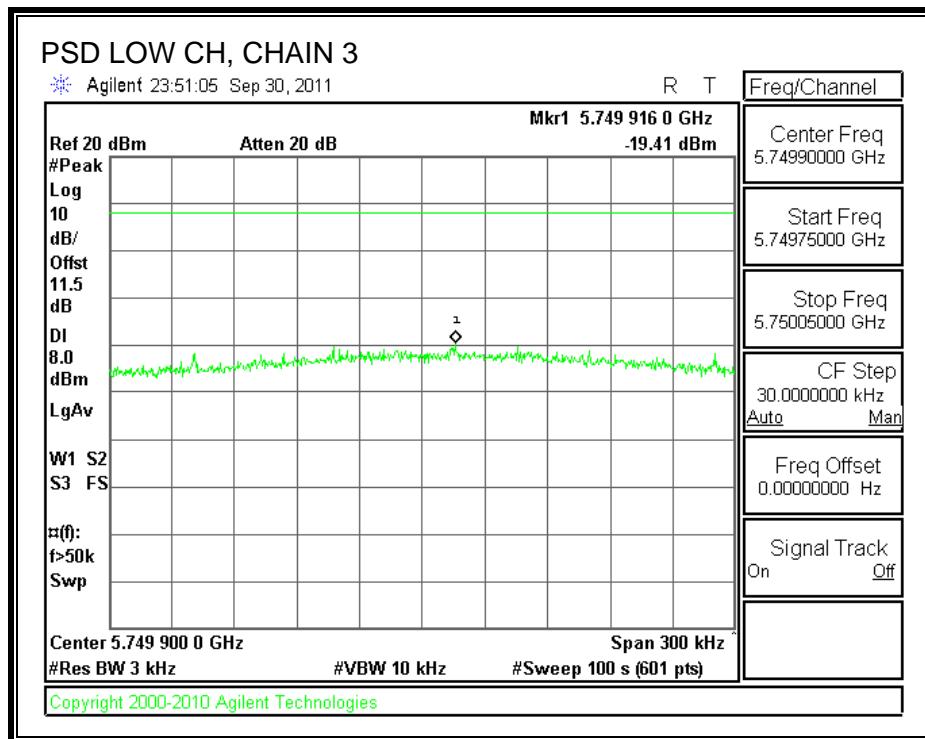
POWER SPECTRAL DENSITY, CHAIN 1



POWER SPECTRAL DENSITY, CHAIN 2



POWER SPECTRAL DENSITY, CHAIN 3



7.14.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

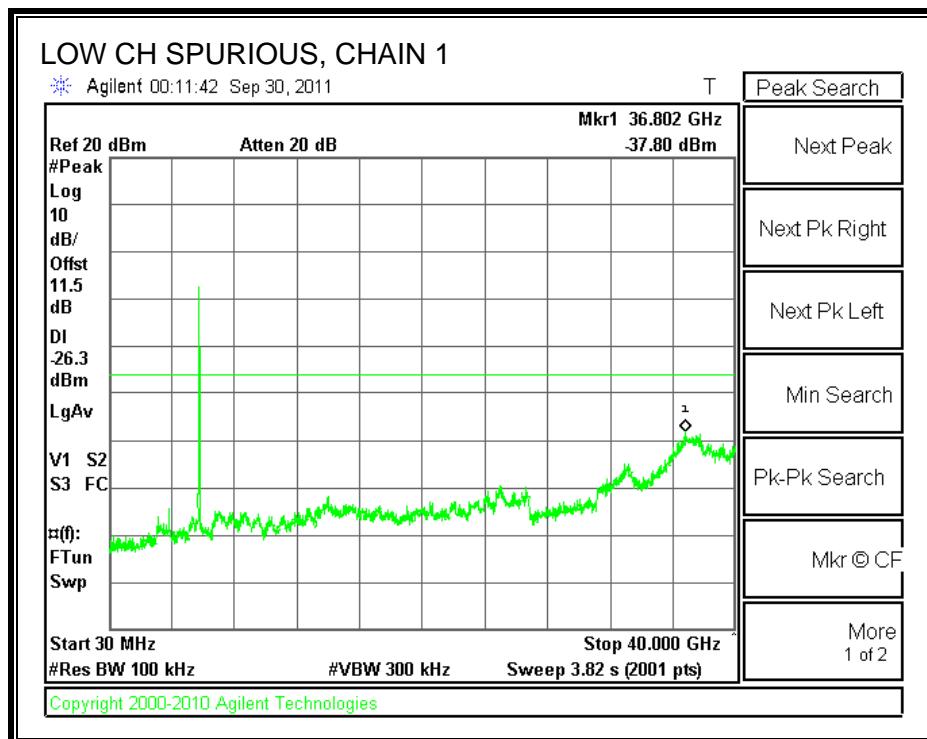
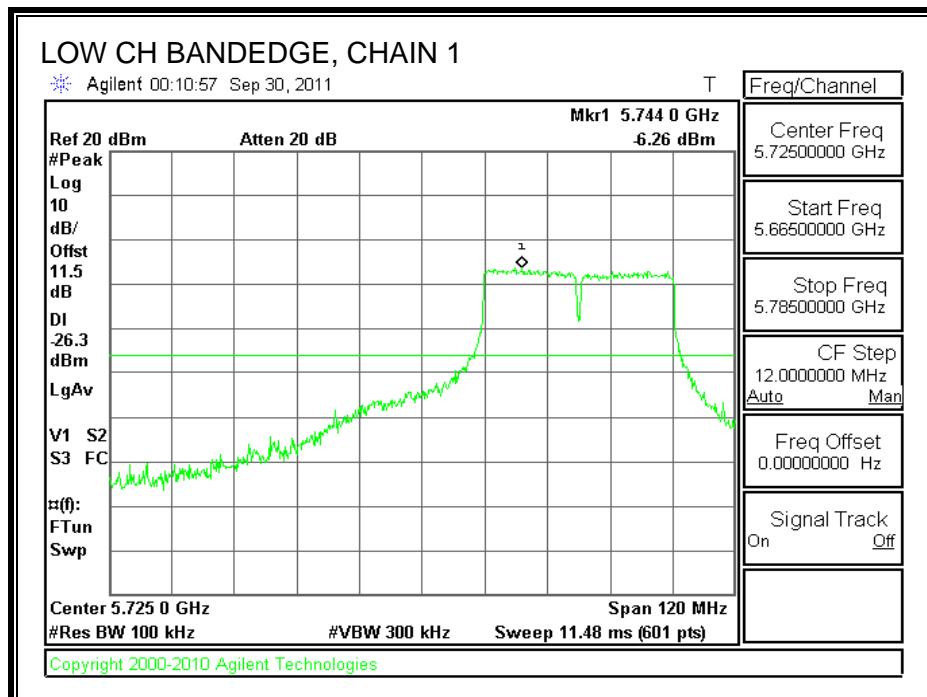
TEST PROCEDURE

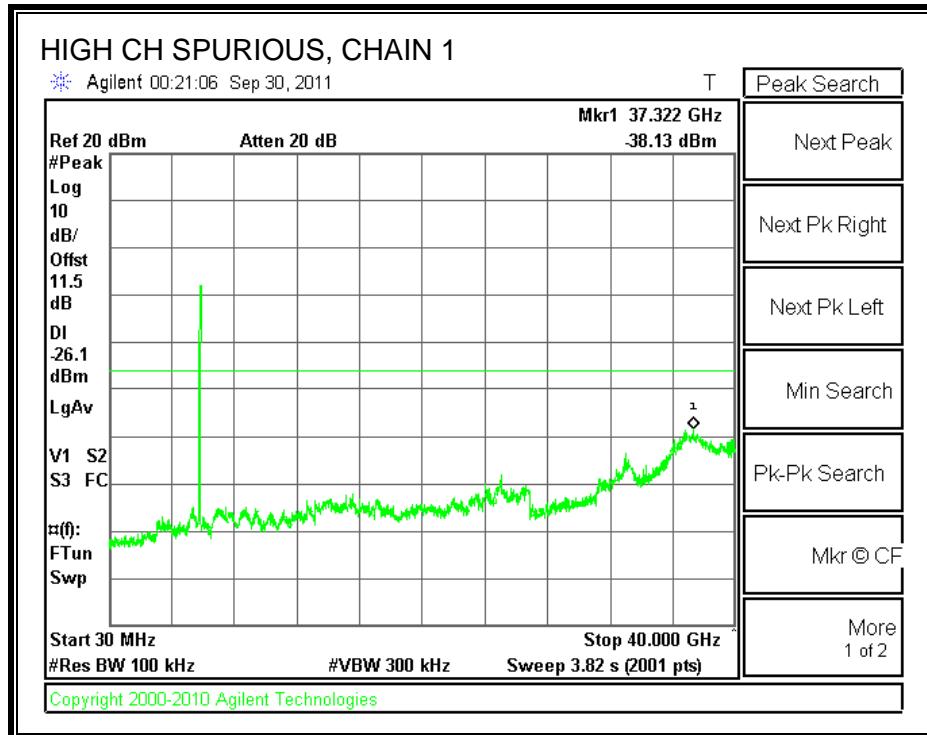
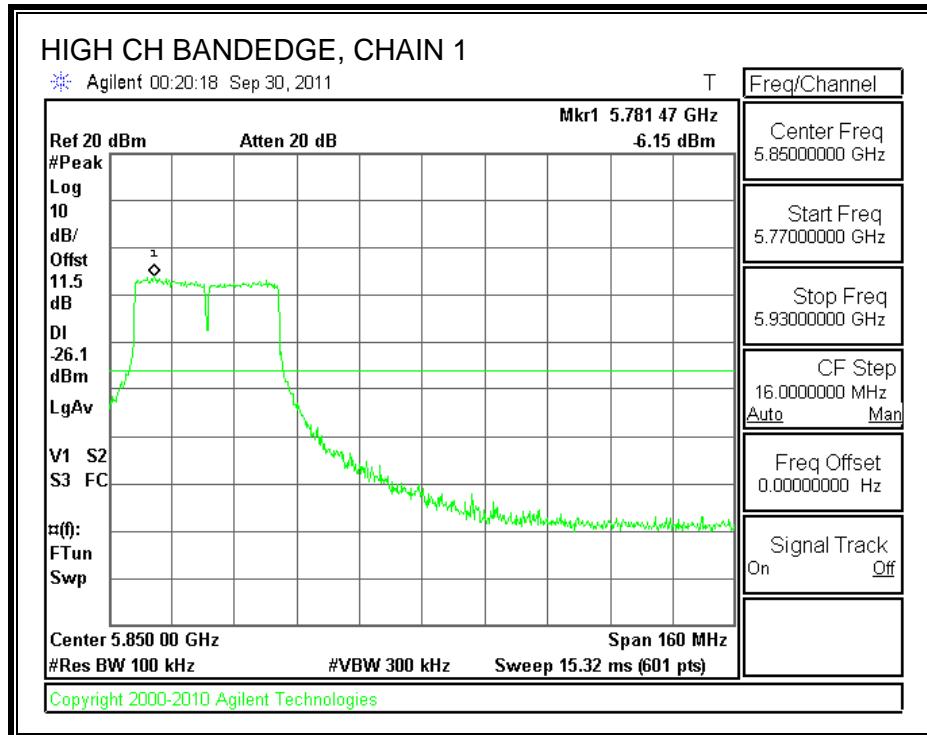
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

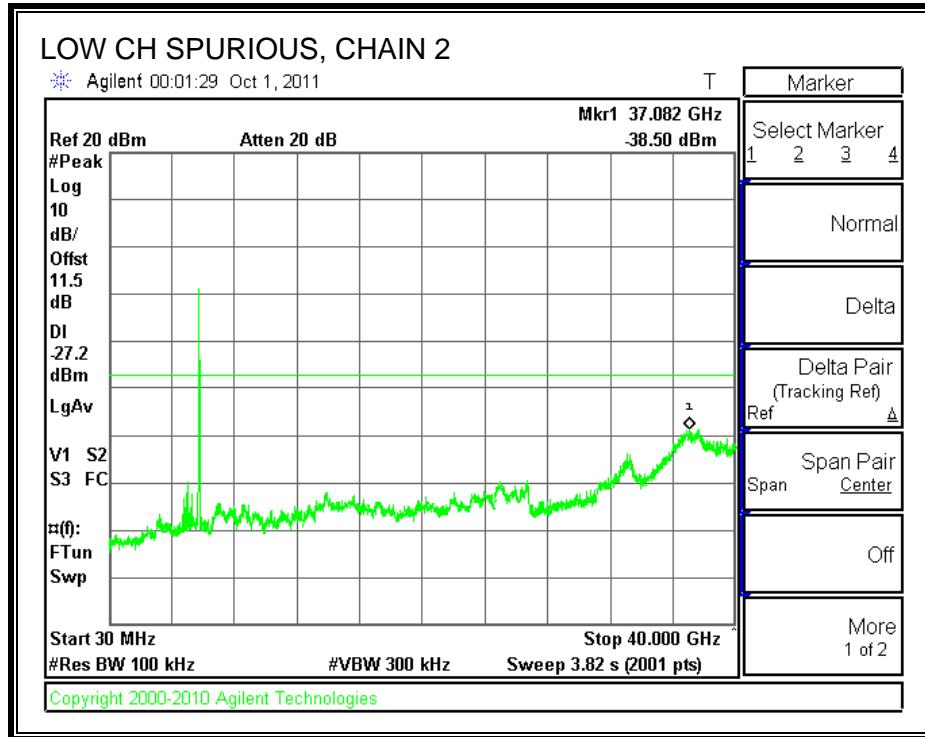
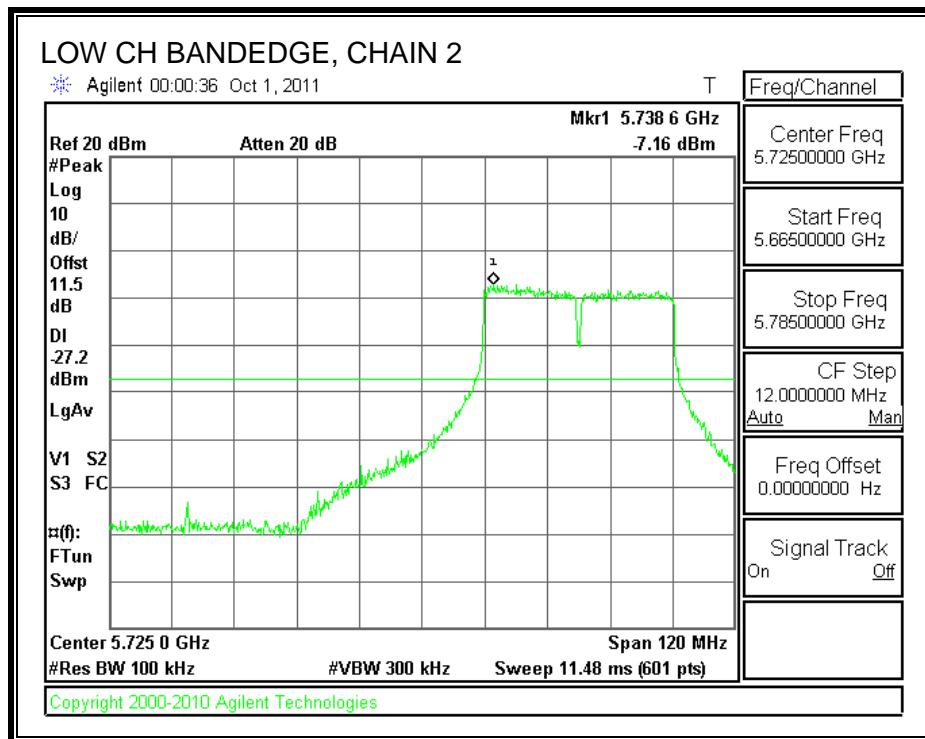
RESULTS

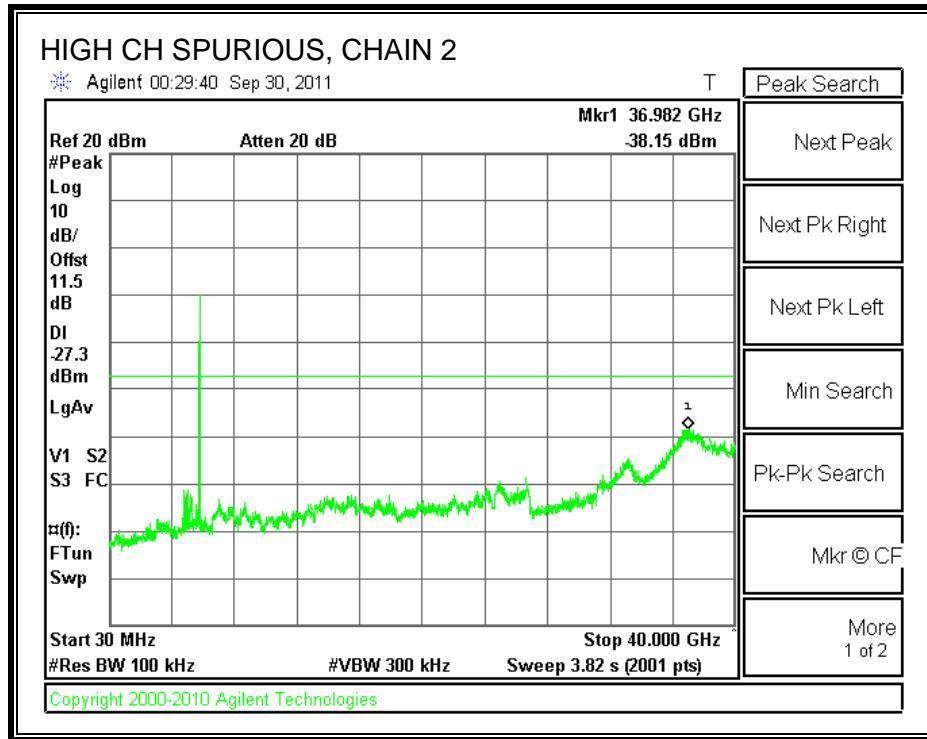
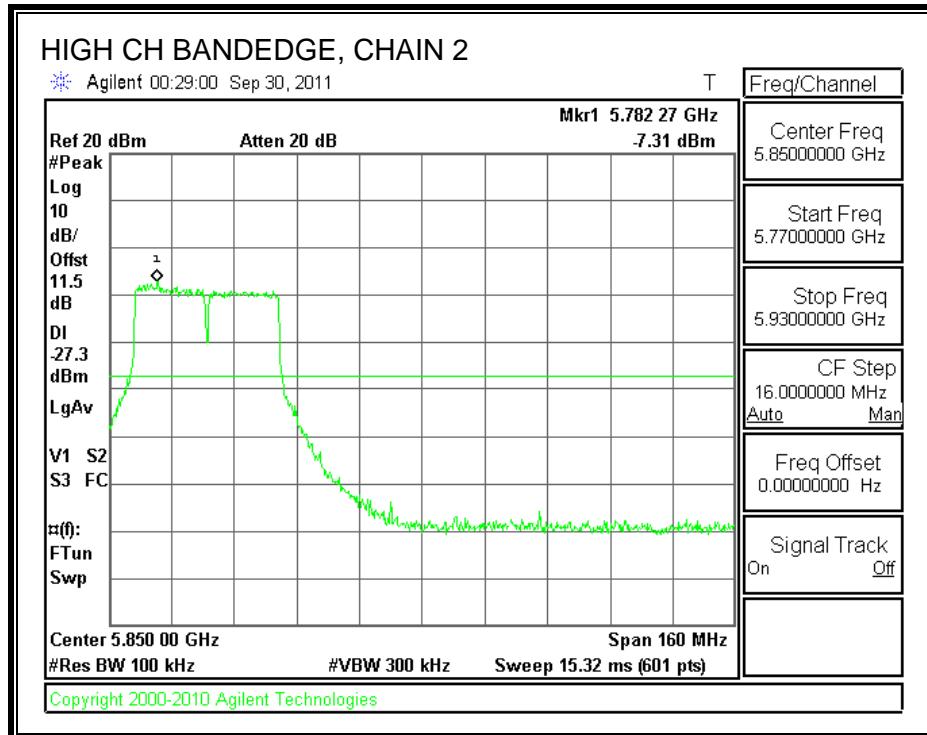
CHAIN 1 SPURIOUS EMISSIONS



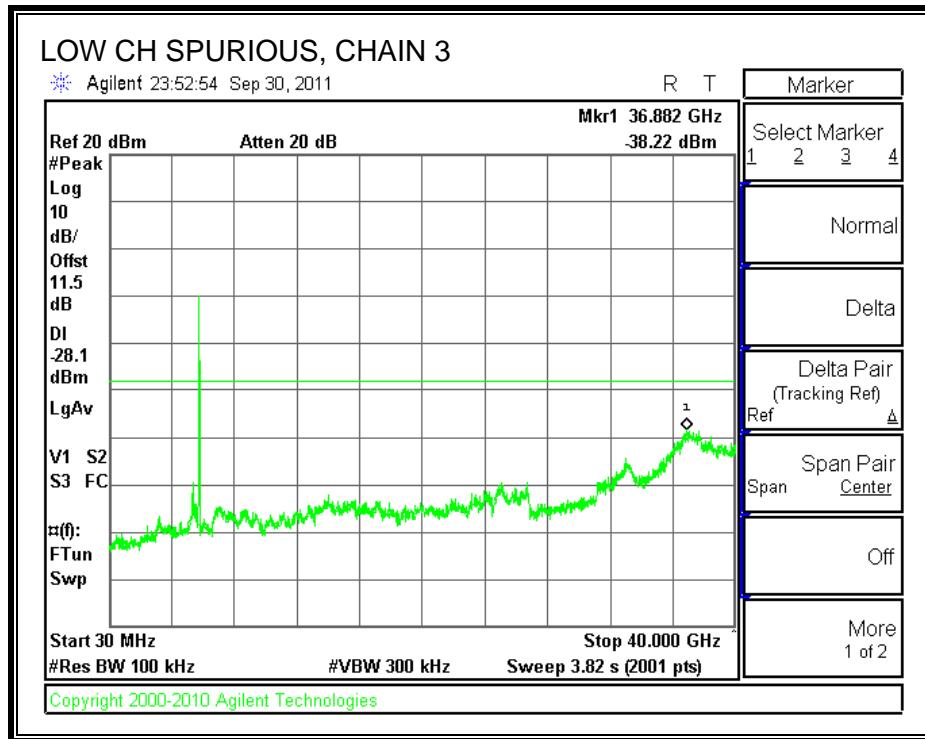
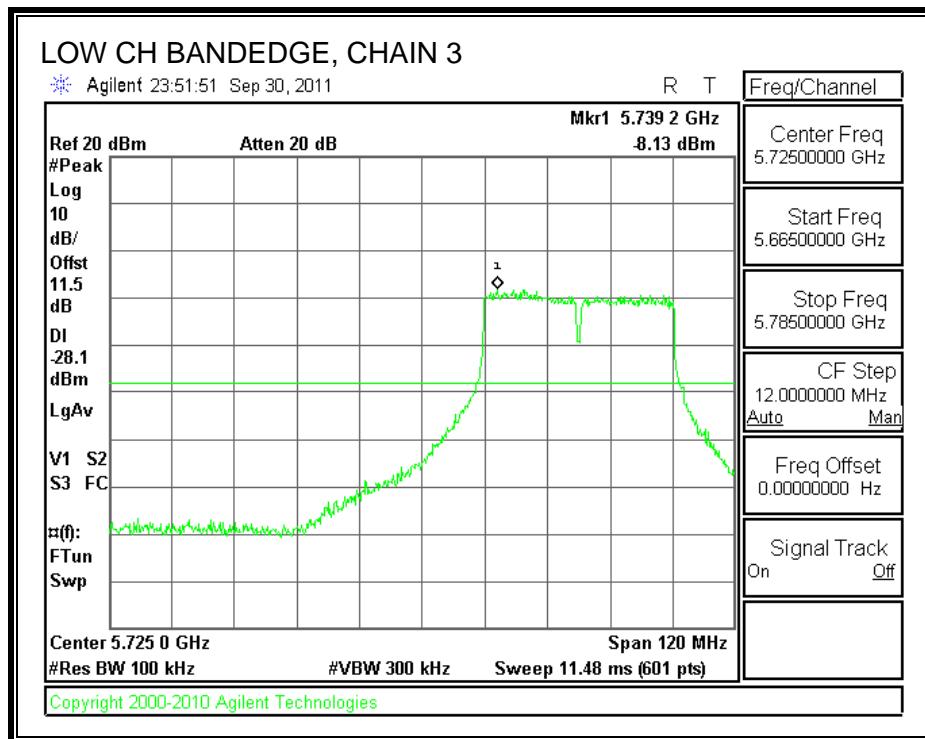


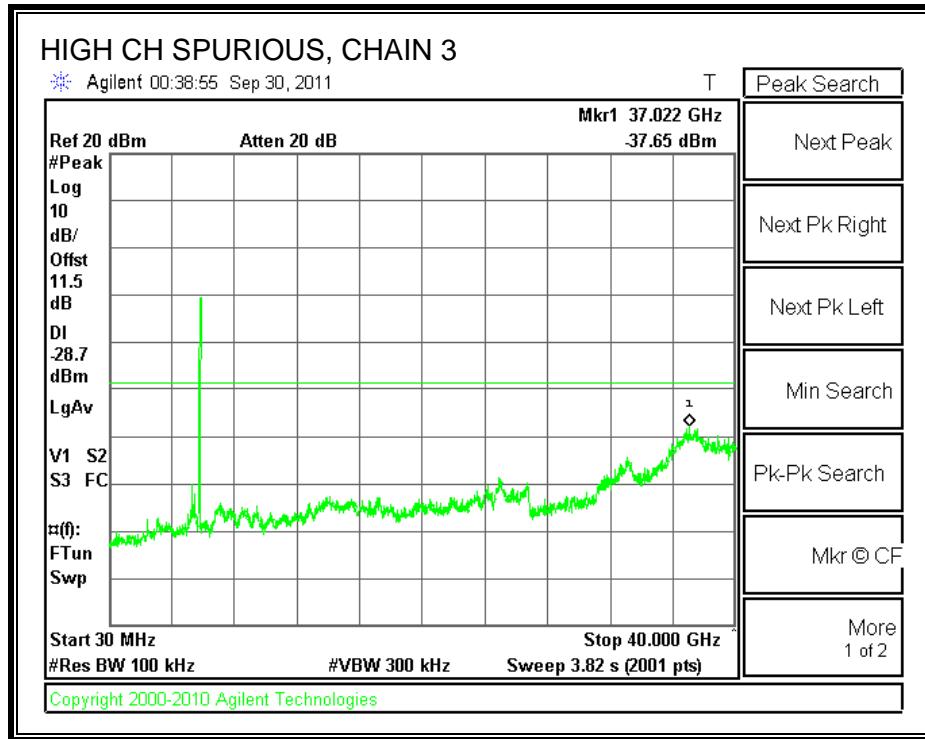
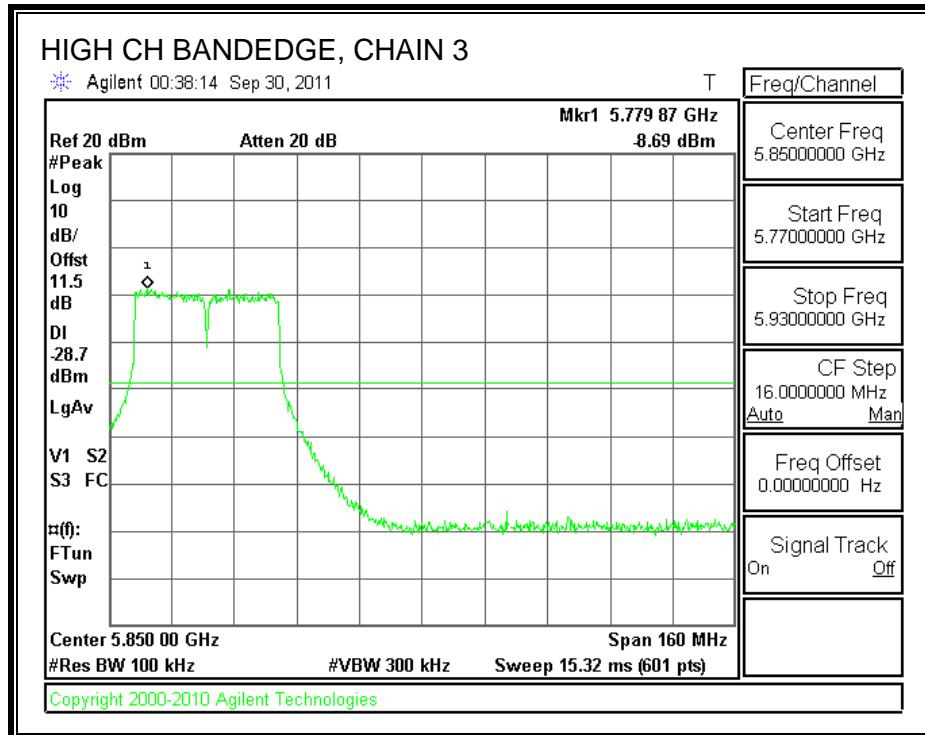
CHAIN 2 SPURIOUS EMISSIONS





CHAIN 3 SPURIOUS EMISSIONS





8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

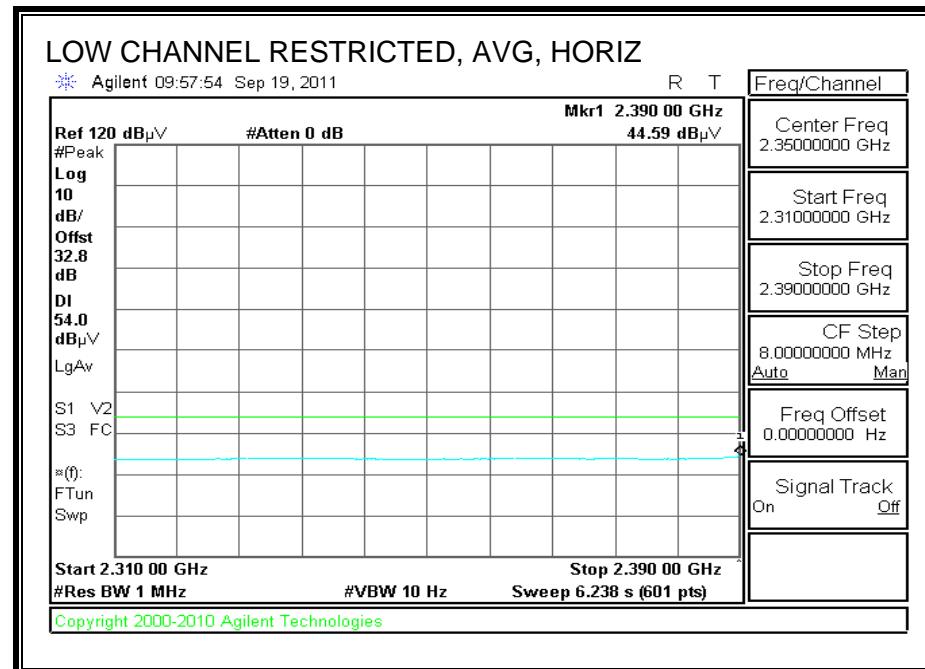
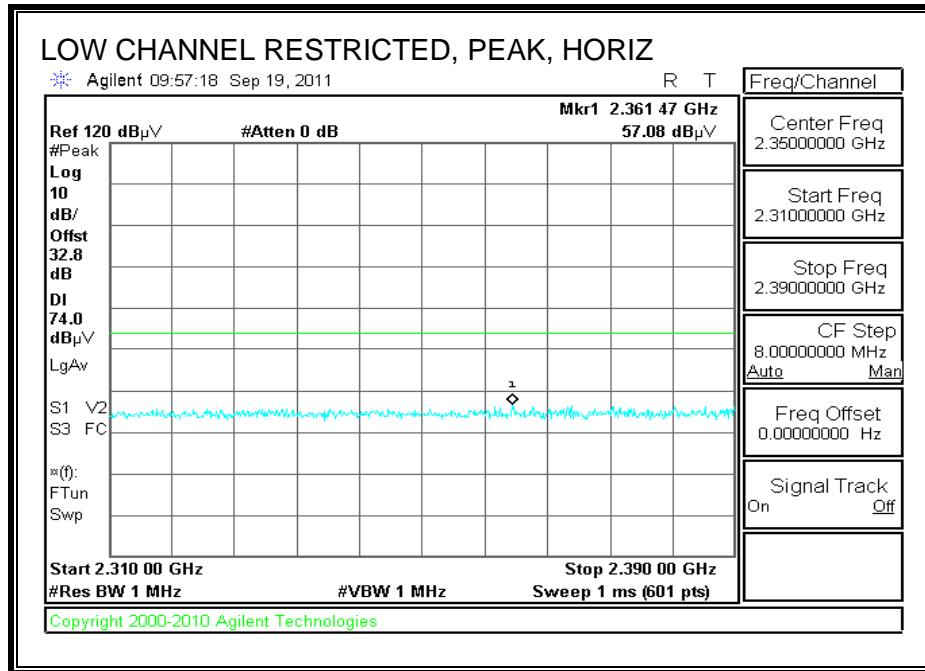
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

8.2. TRANSMITTER ABOVE 1 GHz

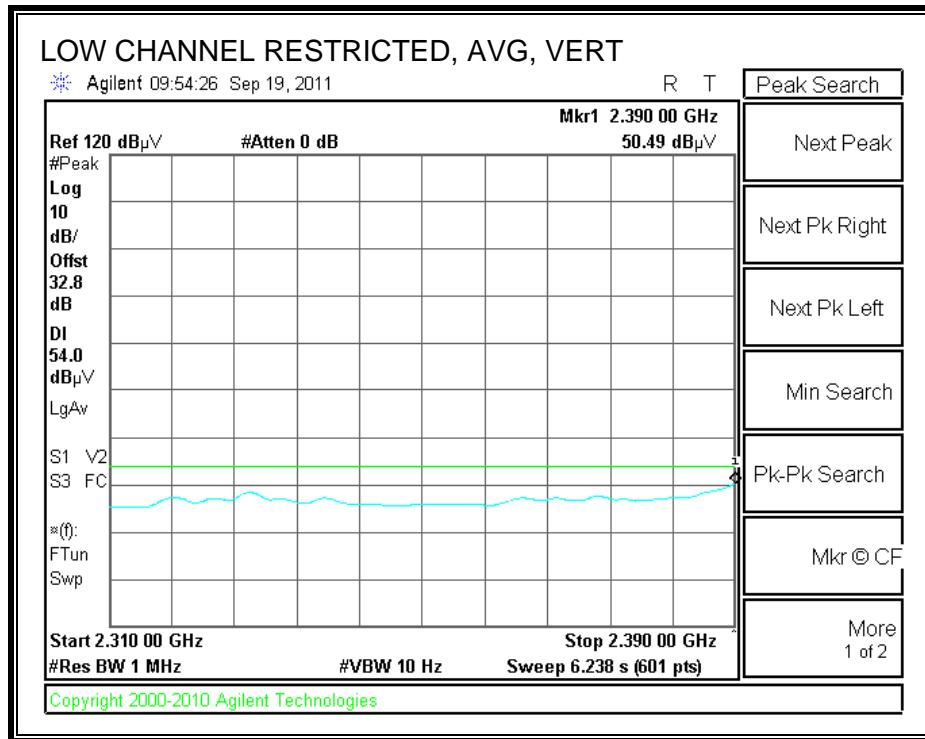
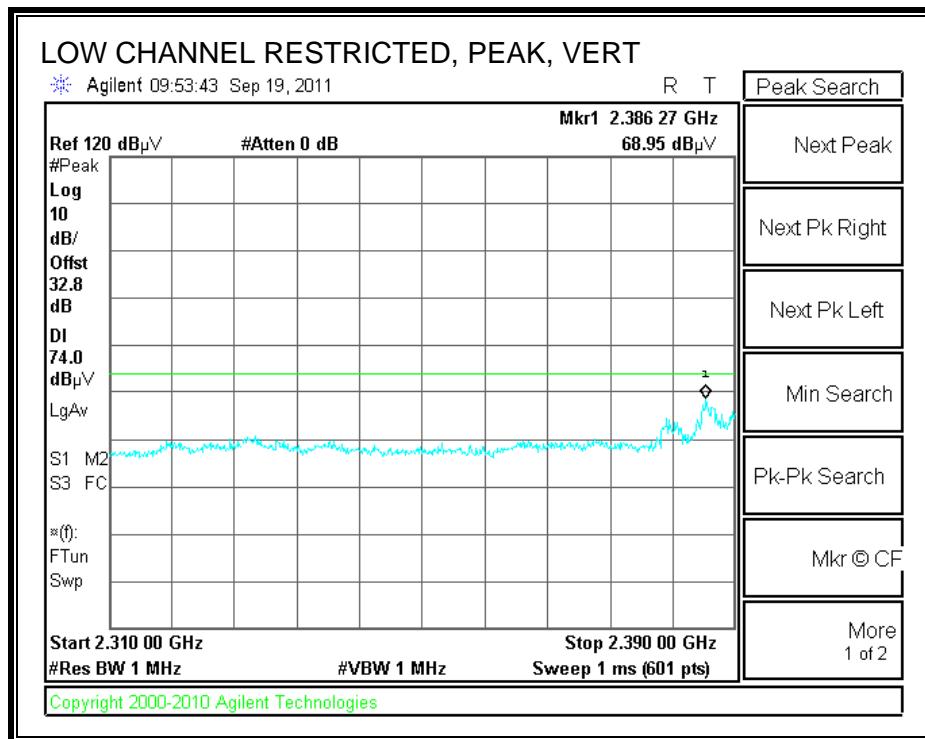
2.4GHz BAND - MONOPOLE ANTENNA; 4dBi

8.2.1. 802.11g 3TX MODE IN THE 2.4 GHz BAND

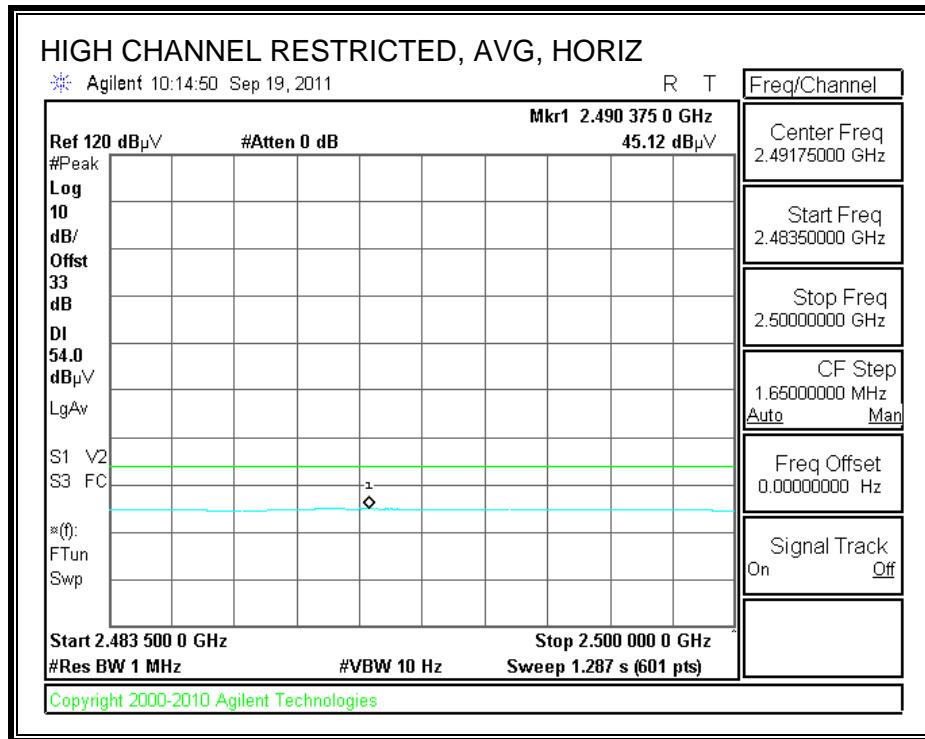
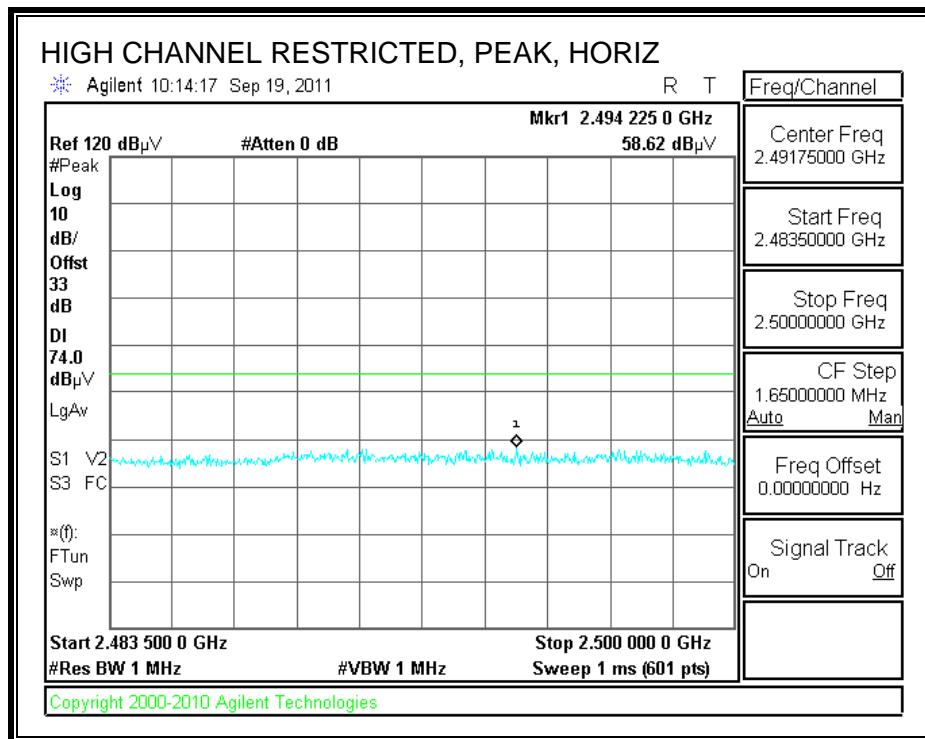
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



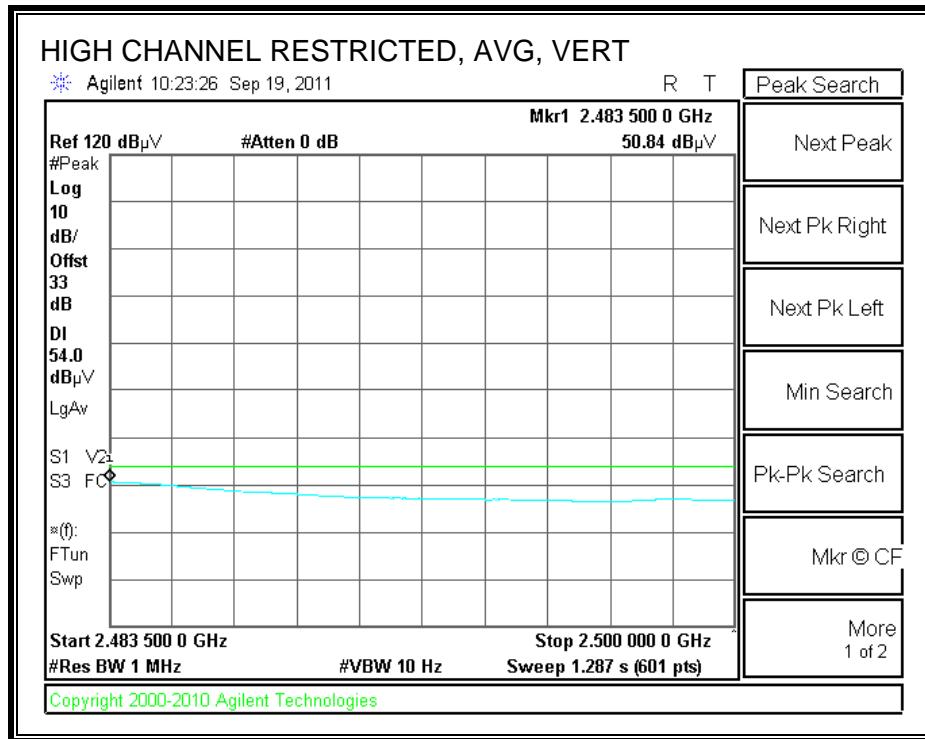
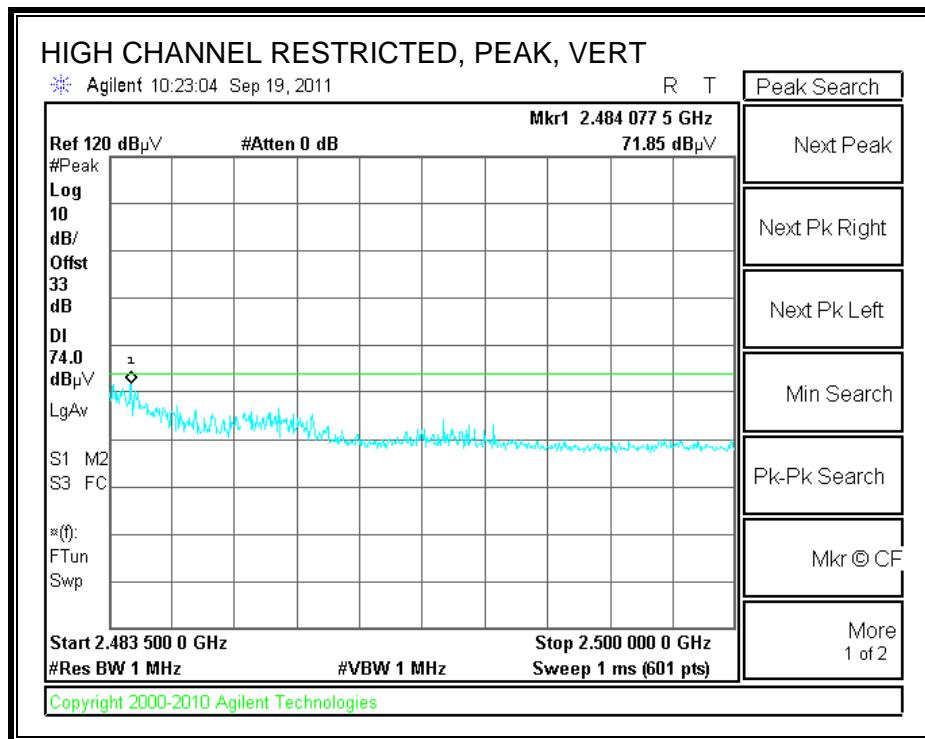
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 09/20/11
Project #: 11U13957
Company: Varian Card Access
Test Target:
Mode Oper: Tx On, 2.4 GHz, g Mode 9 Mbps

f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters	Peak Field Strength Limit
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m	Margin vs. Average Limit
AF	Antenna Factor	Peak		Calculated Peak Field Strength	Margin vs. Peak Limit
CL	Cable Loss	HPF		High Pass Filter	

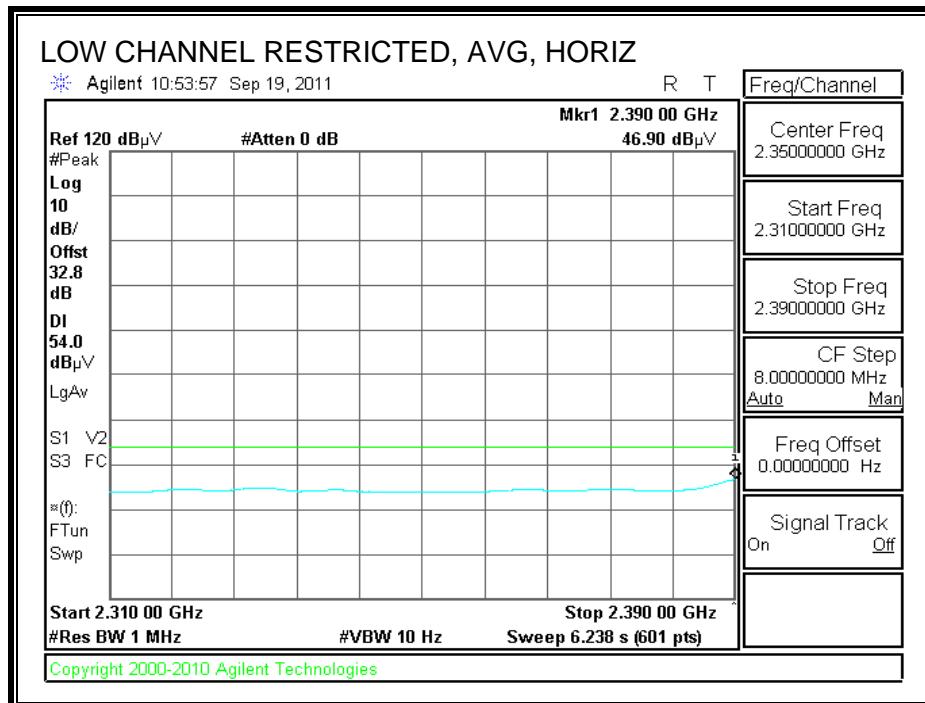
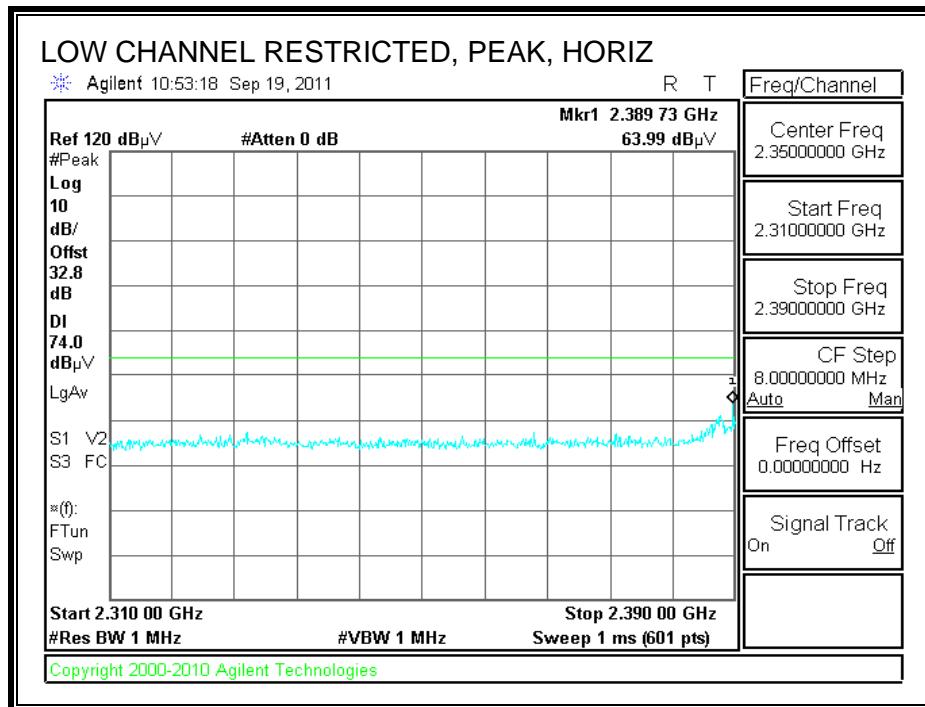
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 2412 MHz															
4.824	3.0	36.6	33.9	6.8	-34.1	0.0	0.0	43.2	74.0	-30.8	V	P	158.0	99.0	
4.824	3.0	24.3	33.9	6.8	-34.1	0.0	0.0	30.9	54.0	-23.1	V	A	158.0	99.0	
4.824	3.0	36.6	33.9	6.8	-34.1	0.0	0.0	43.2	74.0	-30.8	H	P	162.0	114.0	
4.824	3.0	24.2	33.9	6.8	-34.1	0.0	0.0	30.8	54.0	-23.2	H	A	162.0	114.0	
Mid Ch. 2437 MHz															
4.874	3.0	36.2	33.9	6.8	-34.0	0.0	0.0	42.9	74.0	-31.1	V	P	98.0	163.0	
4.874	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	V	A	98.0	163.0	
4.874	3.0	35.7	33.9	6.8	-34.0	0.0	0.0	42.4	74.0	-31.6	H	P	177.0	178.0	
4.874	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	H	A	177.0	178.0	
High Ch. 2462 MHz															
4.924	3.0	36.9	34.0	6.8	-34.0	0.0	0.0	43.7	74.0	-30.3	V	P	125.0	230.0	
4.924	3.0	24.1	34.0	6.8	-34.0	0.0	0.0	30.9	54.0	-23.1	V	A	125.0	230.0	
4.924	3.0	36.1	34.0	6.8	-34.0	0.0	0.0	42.9	74.0	-31.1	H	P	155.0	335.0	
4.924	3.0	24.0	34.0	6.8	-34.0	0.0	0.0	30.8	54.0	-23.2	H	A	155.0	335.0	

Rev. 4.1.2.7

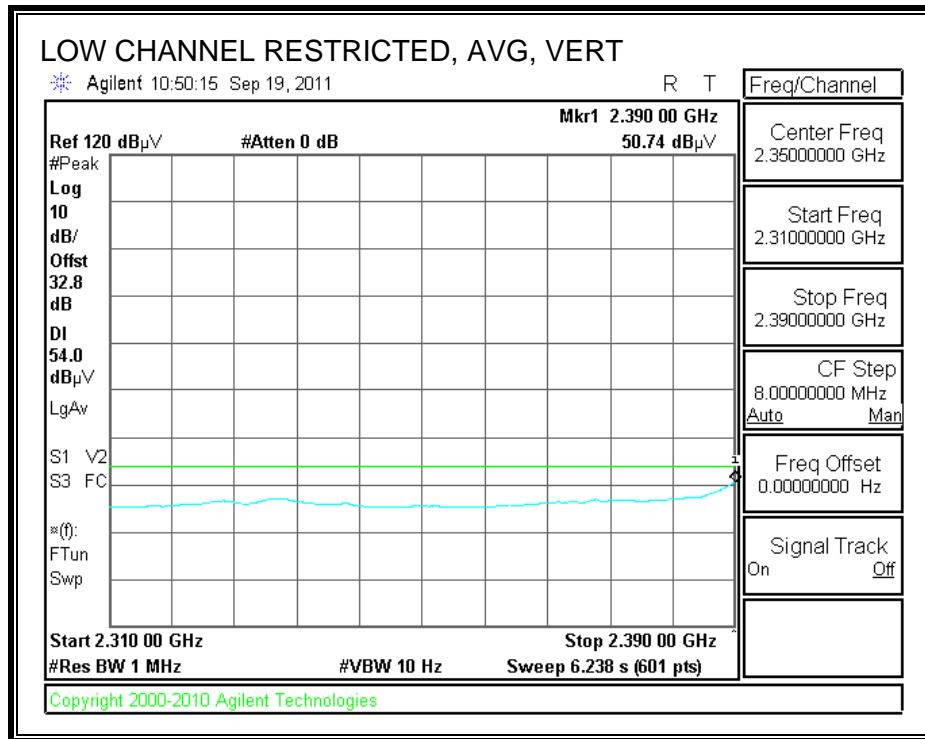
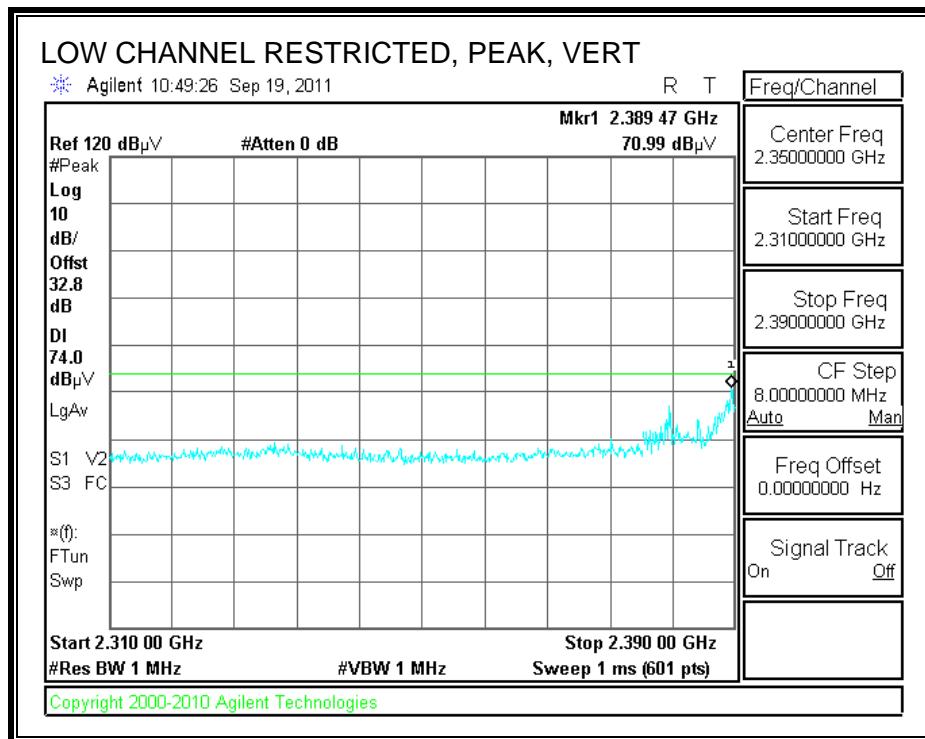
Note: No other emissions were detected above the system noise floor.

8.2.2. 802.11n HT20 MCS0 3TX MODE IN THE 2.4 GHz BAND

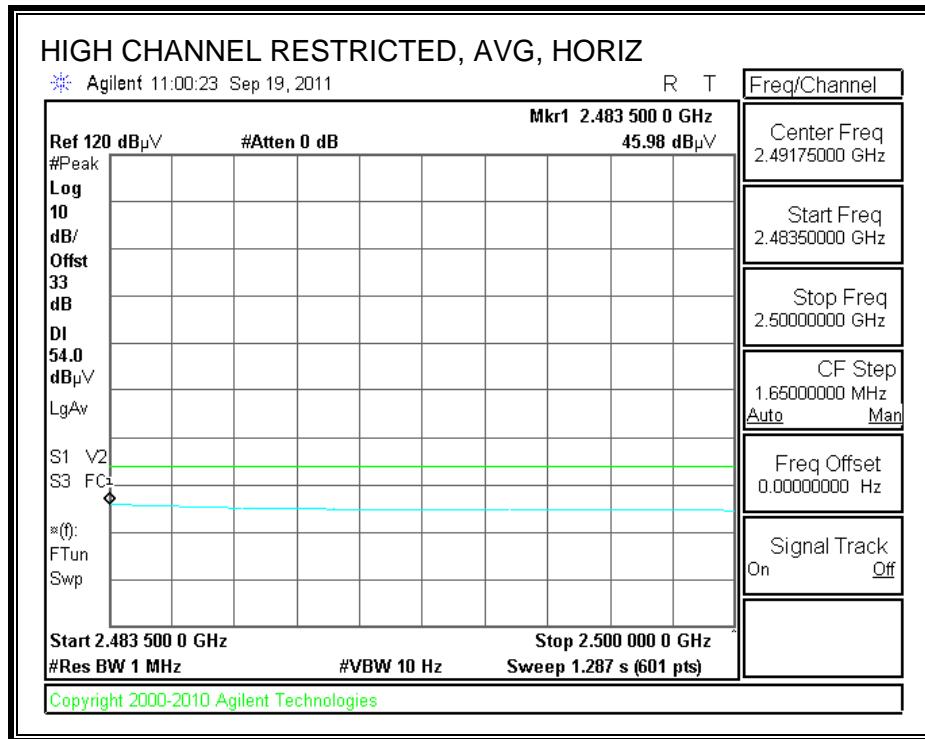
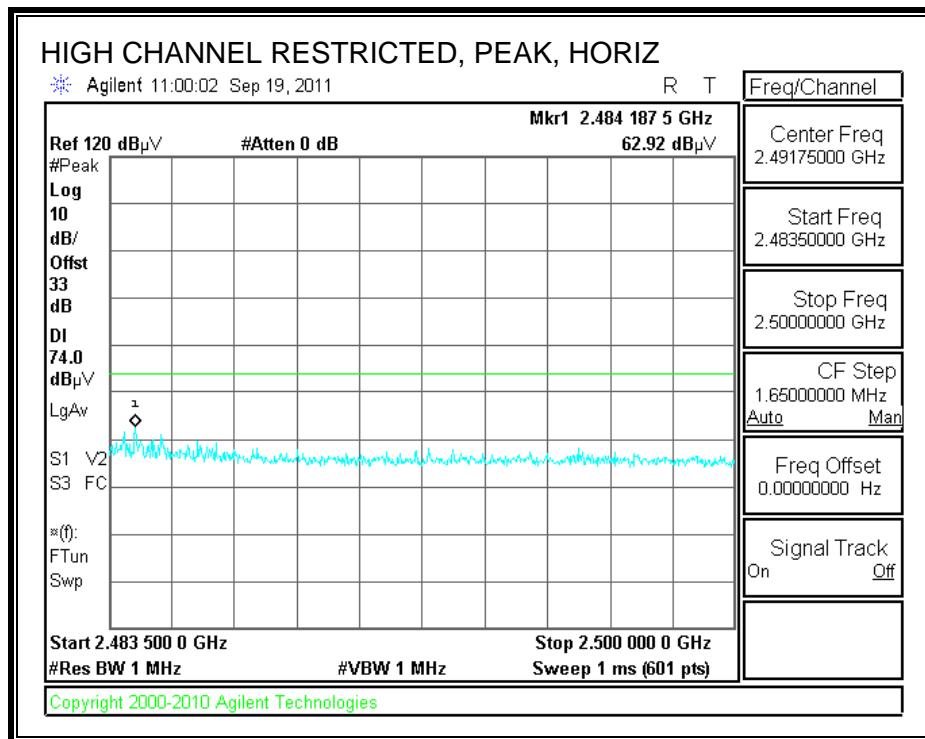
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



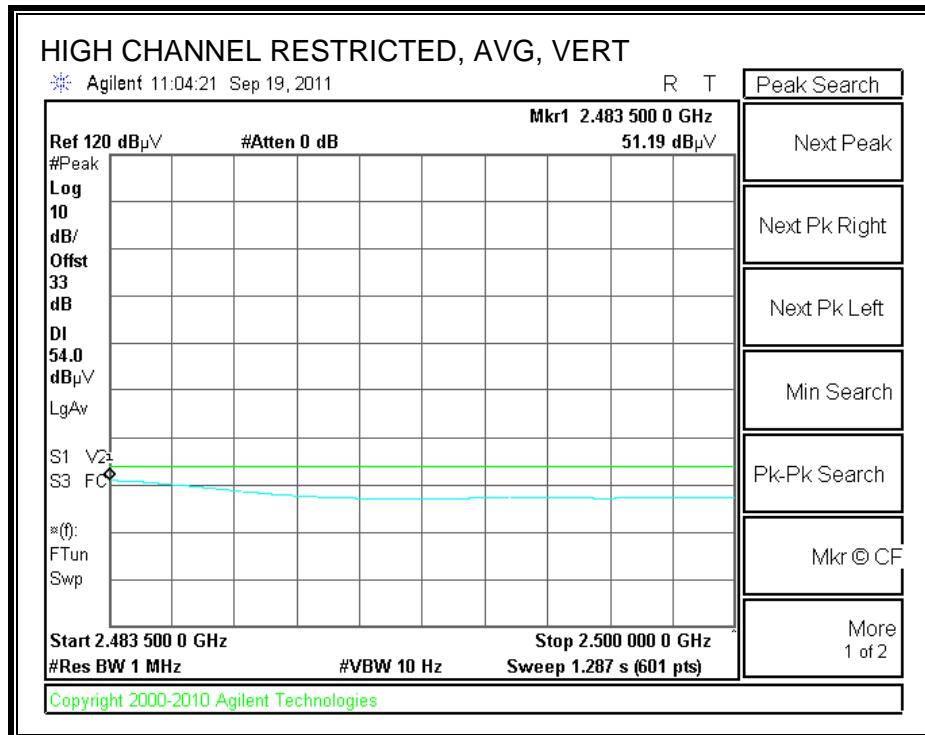
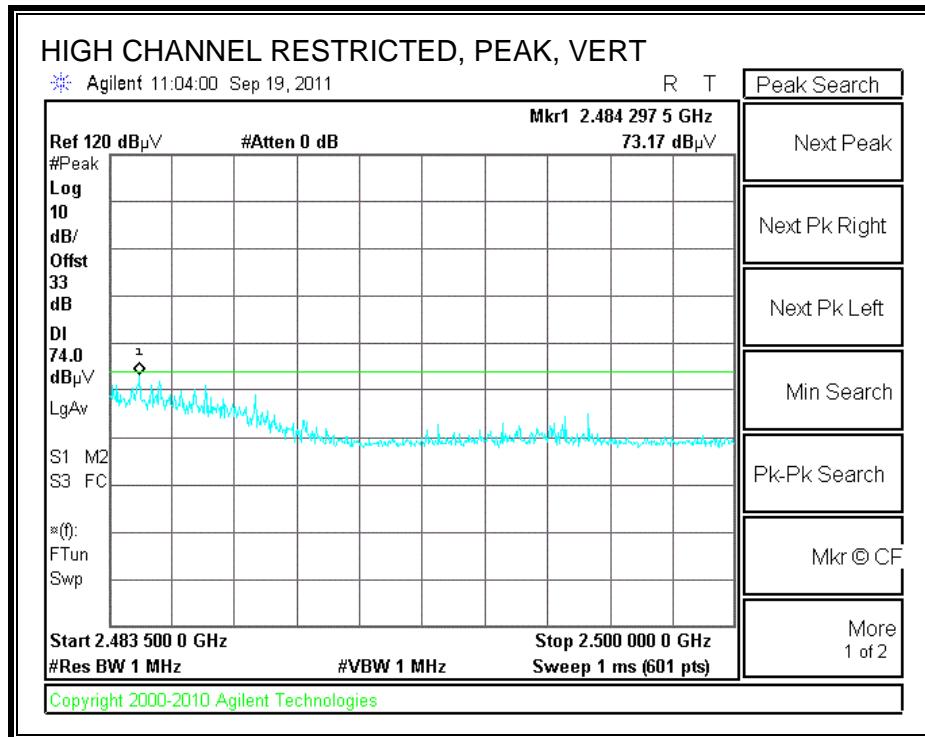
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 09/20/11
Project #: 11U13957
Company: Varian Card Access
Test Target:
Mode Oper: Tx On, 2.4 GHz, HT20 Mode MCS0

f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m
AF	Antenna Factor	Peak		Calculated Peak Field Strength
CL	Cable Loss	HPF		Margin vs. Peak Limit

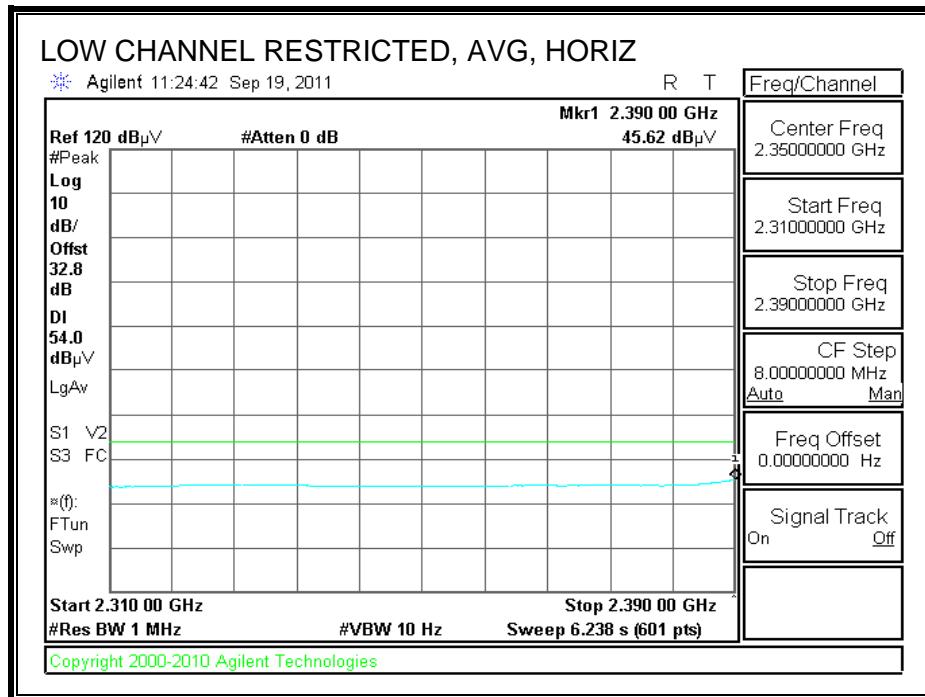
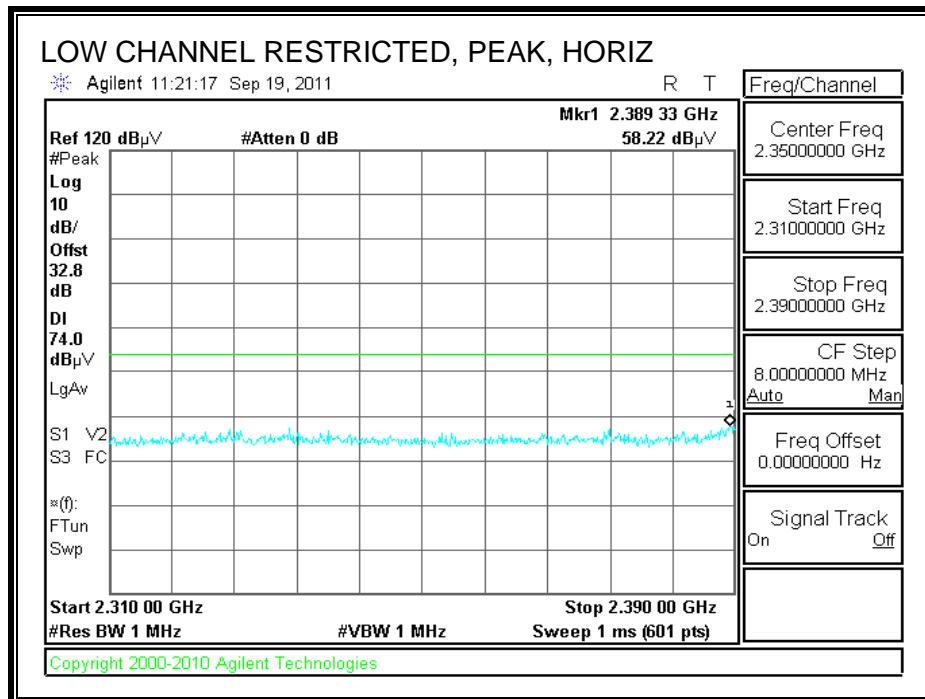
f GHz	Dist (m)	Read dBuV	AF dB/m	CL	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 2412 MHz															
4.824	3.0	36.9	33.9	6.8	-34.1	0.0	0.0	43.5	74.0	-30.5	V	P	104.0	64.0	
4.824	3.0	24.2	33.9	6.8	-34.1	0.0	0.0	30.9	54.0	-23.1	V	A	104.0	64.0	
4.824	3.0	36.3	33.9	6.8	-34.1	0.0	0.0	42.9	74.0	-31.1	H	P	121.0	62.0	
4.824	3.0	24.2	33.9	6.8	-34.1	0.0	0.0	30.8	54.0	-23.2	H	A	121.0	62.0	
Mid Ch. 2437 MHz															
4.874	3.0	36.3	33.9	6.8	-34.0	0.0	0.0	43.0	74.0	-31.0	V	P	119.0	144.0	
4.874	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.6	54.0	-23.4	V	A	119.0	144.0	
4.874	3.0	36.5	33.9	6.8	-34.0	0.0	0.0	43.2	74.0	-30.8	H	P	190.0	312.0	
4.874	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	H	A	190.0	312.0	
High Ch. 2462 MHz															
4.924	3.0	35.7	34.0	6.8	-34.0	0.0	0.0	42.5	74.0	-31.5	V	P	103.0	130.0	
4.924	3.0	24.0	34.0	6.8	-34.0	0.0	0.0	30.8	54.0	-23.2	V	A	103.0	130.0	
4.924	3.0	35.8	34.0	6.8	-34.0	0.0	0.0	42.6	74.0	-31.4	H	P	115.0	190.0	
4.924	3.0	23.9	34.0	6.8	-34.0	0.0	0.0	30.7	54.0	-23.3	H	A	115.0	190.0	

Rev. 4.1.2.7

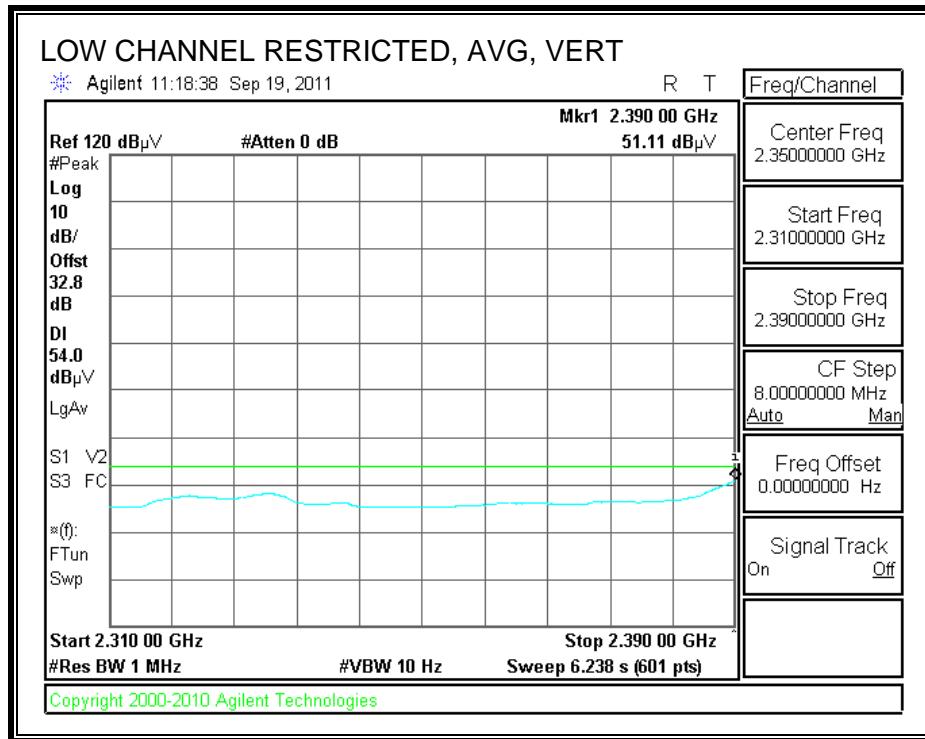
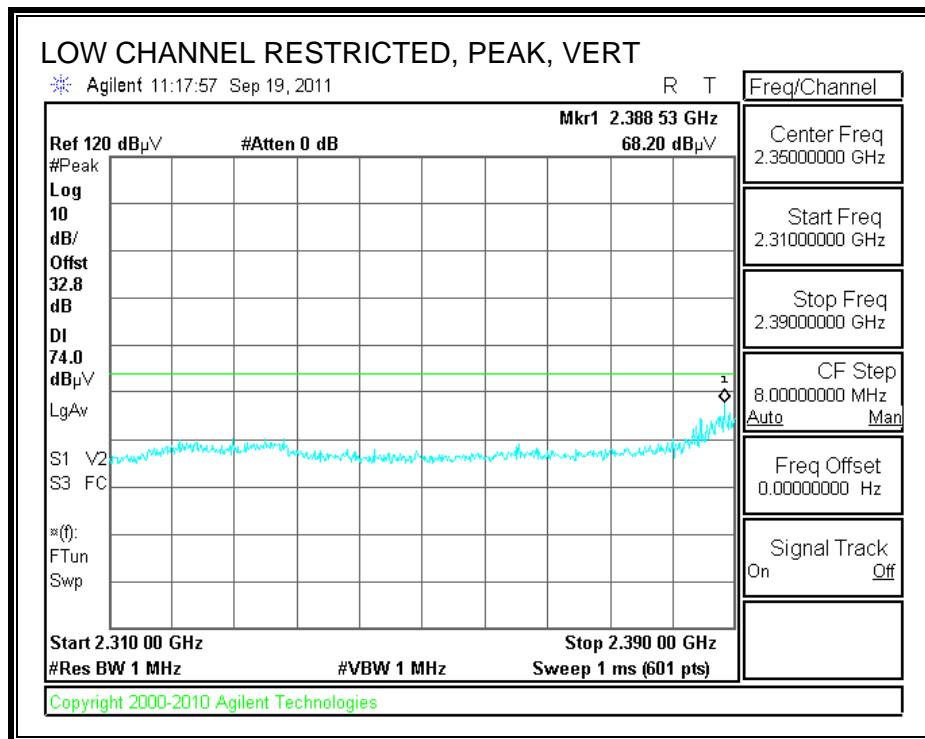
Note: No other emissions were detected above the system noise floor.

8.2.3. 802.11n HT20 MCS8 3TX MODE IN THE 2.4 GHz BAND

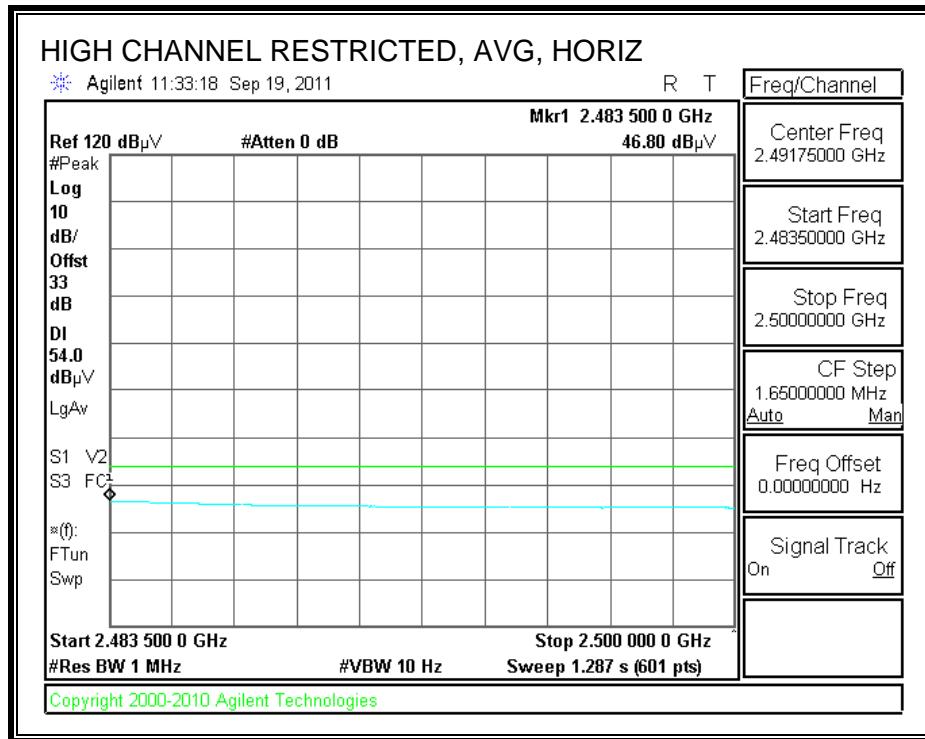
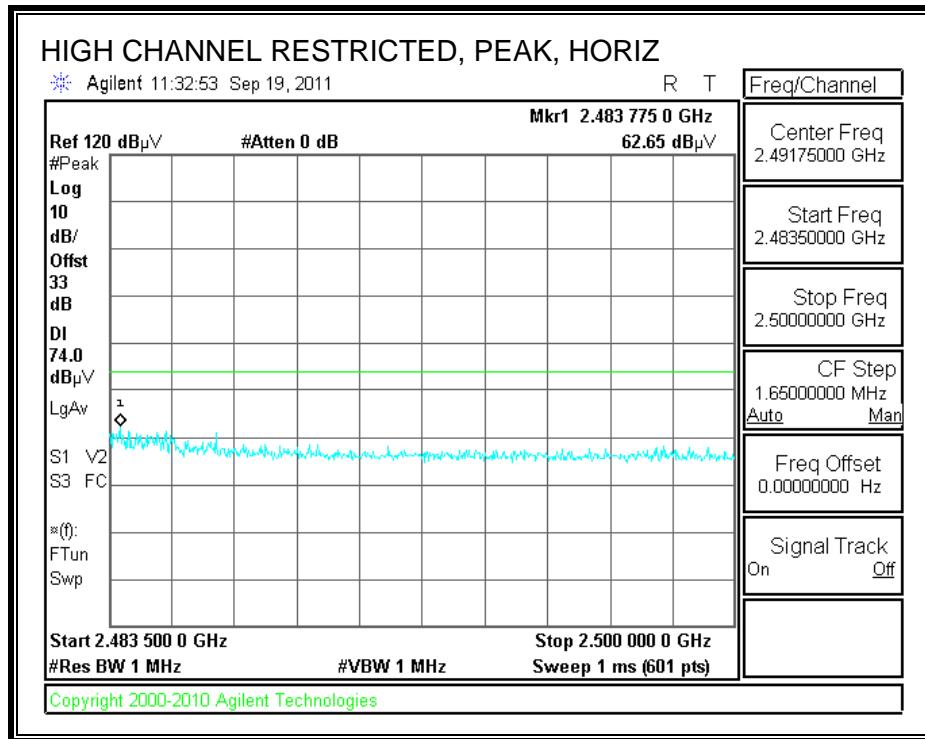
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



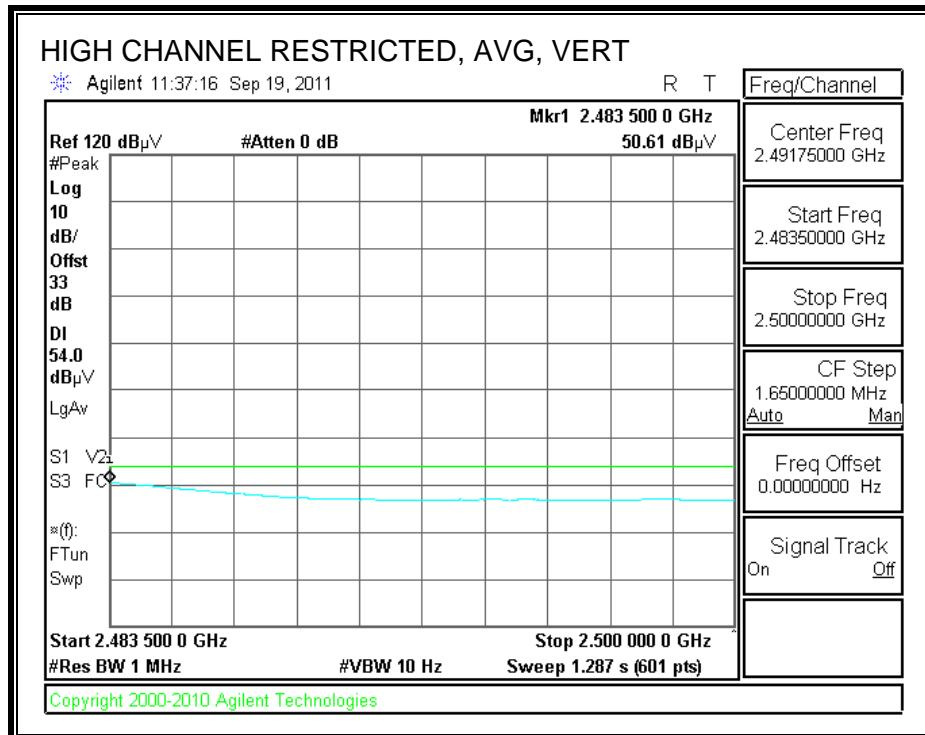
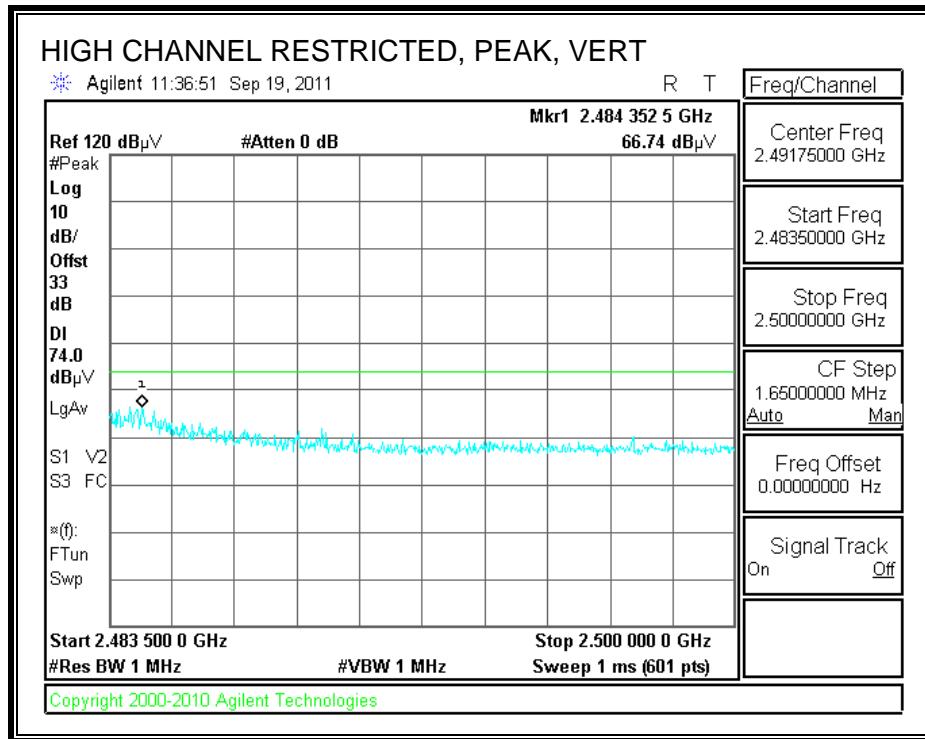
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 09/20/11
Project #: 11U13957
Company: Varian Card Access
Test Target:
Mode Oper: Tx On, 2.4 GHz, HT20 Mode MCS8

f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter	

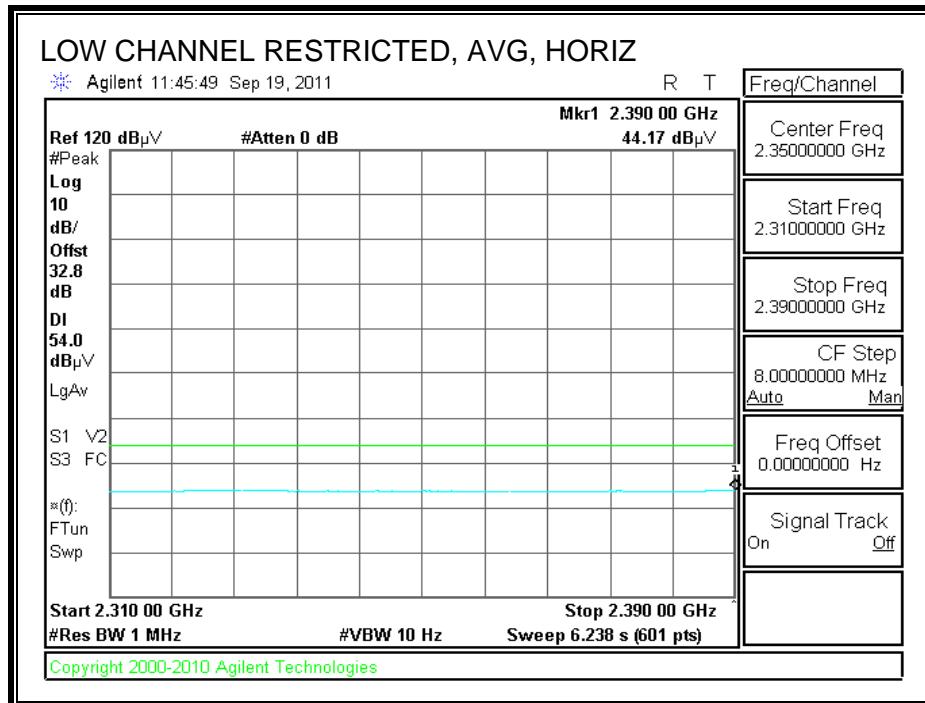
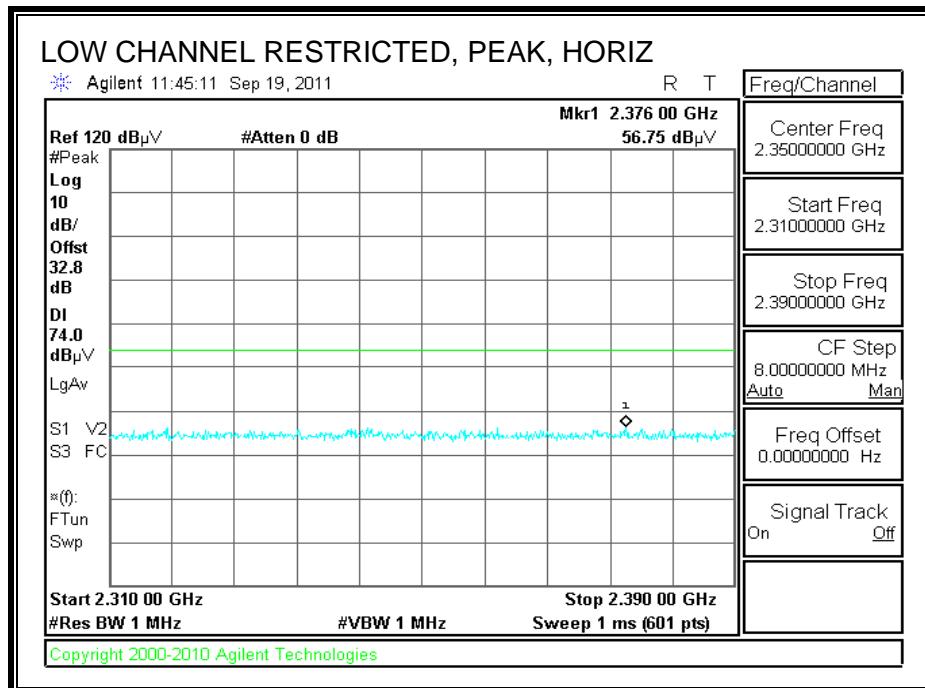
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 2412 MHz															
4.824	3.0	37.2	33.9	6.8	-34.1	0.0	0.0	43.8	74.0	-30.2	V	P	128.0	41.0	
4.824	3.0	24.3	33.9	6.8	-34.1	0.0	0.0	30.9	54.0	-23.1	V	A	128.0	41.0	
4.824	3.0	37.0	33.9	6.8	-34.1	0.0	0.0	43.6	74.0	-30.4	H	P	193.0	224.0	
4.824	3.0	24.2	33.9	6.8	-34.1	0.0	0.0	30.8	54.0	-23.2	H	A	193.0	224.0	
Mid Ch. 2437 MHz															
4.874	3.0	36.7	33.9	6.8	-34.0	0.0	0.0	43.4	74.0	-30.6	V	P	169.0	237.0	
4.874	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.6	54.0	-23.4	V	A	169.0	237.0	
4.874	3.0	36.2	33.9	6.8	-34.0	0.0	0.0	42.9	74.0	-31.1	H	P	155.0	362.0	
4.874	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.6	54.0	-23.4	H	A	155.0	362.0	
High Ch. 2462 MHz															
4.924	3.0	36.5	34.0	6.8	-34.0	0.0	0.0	43.3	74.0	-30.7	V	P	156.0	66.0	
4.924	3.0	24.0	34.0	6.8	-34.0	0.0	0.0	30.8	54.0	-23.2	V	A	156.0	66.0	
4.924	3.0	36.3	34.0	6.8	-34.0	0.0	0.0	43.1	74.0	-30.9	H	P	140.0	252.0	
4.924	3.0	24.0	34.0	6.8	-34.0	0.0	0.0	30.8	54.0	-23.2	H	A	140.0	252.0	

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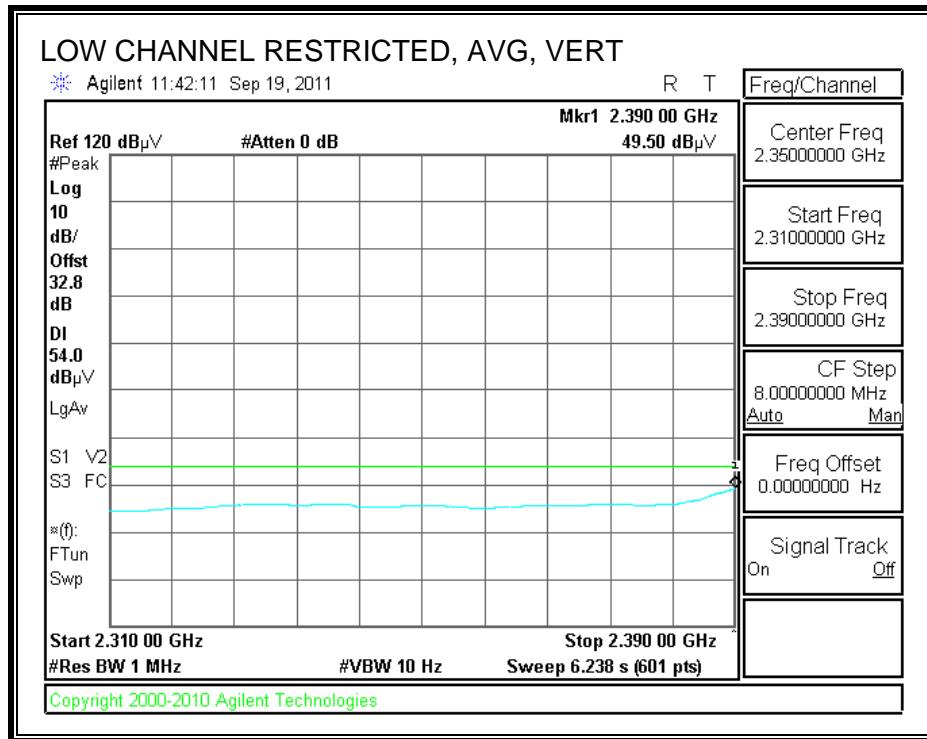
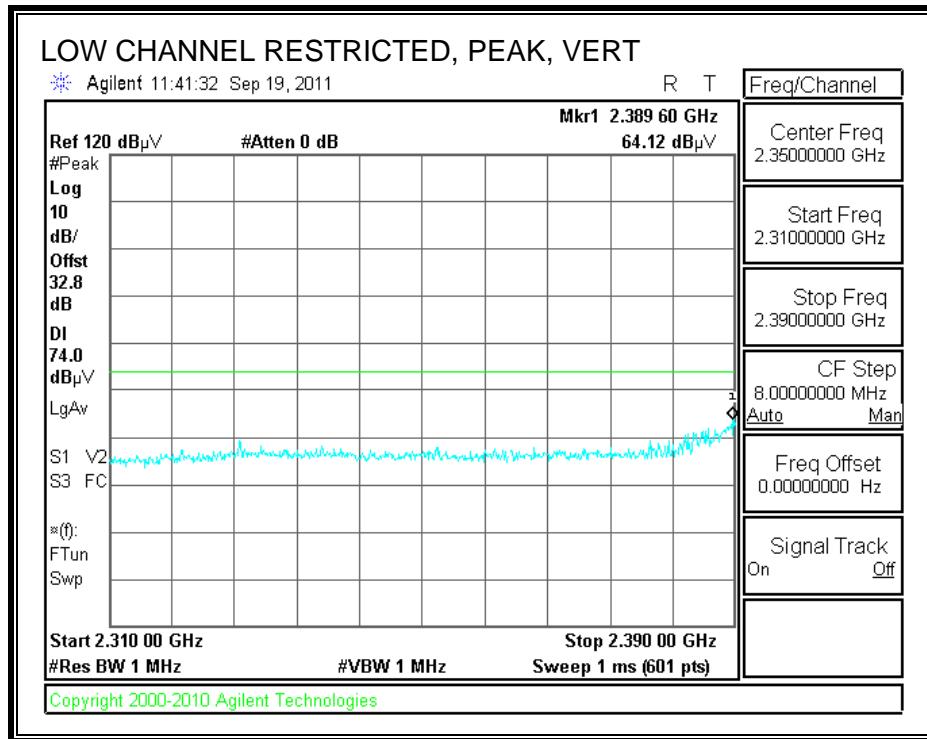
Note: No other emissions were detected above the system noise floor.

8.2.4. 802.11n HT20 MCS16 3TX MODE IN THE 2.4 GHz BAND

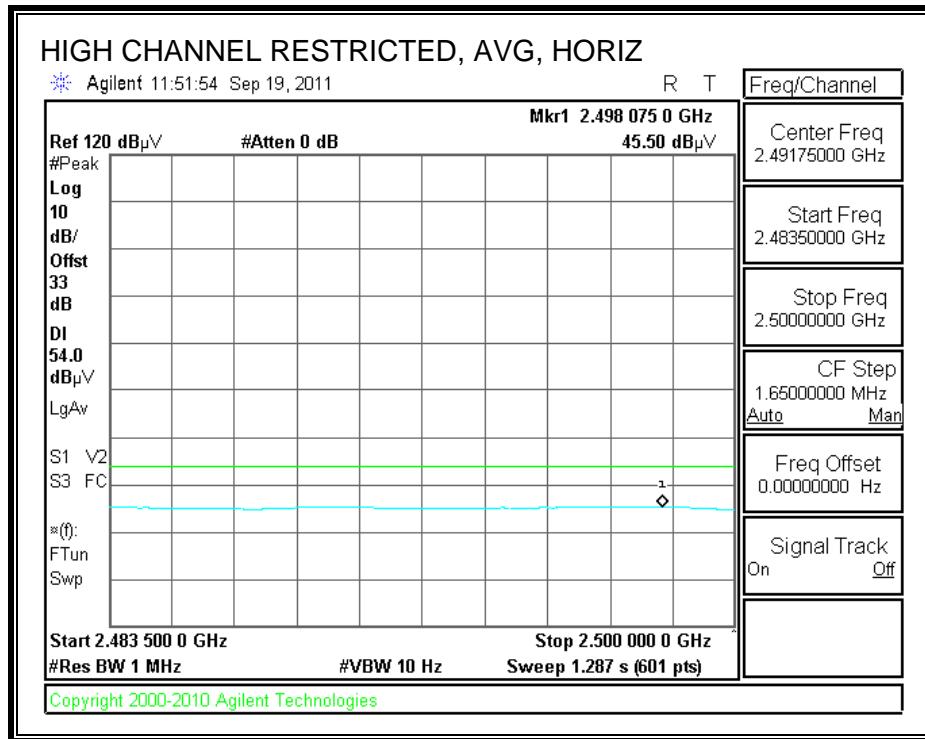
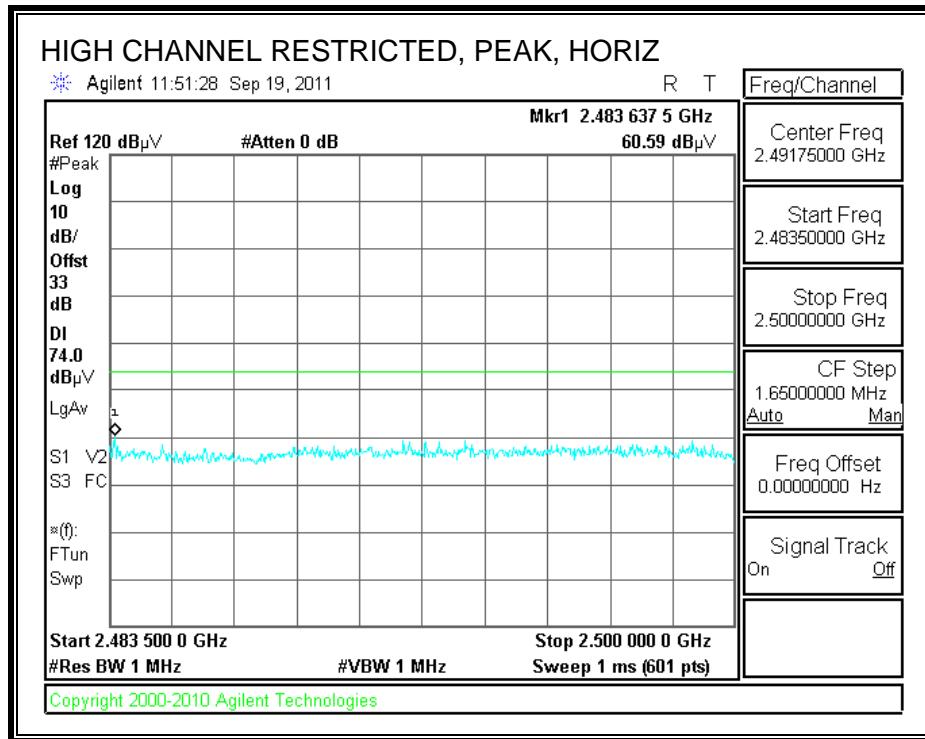
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



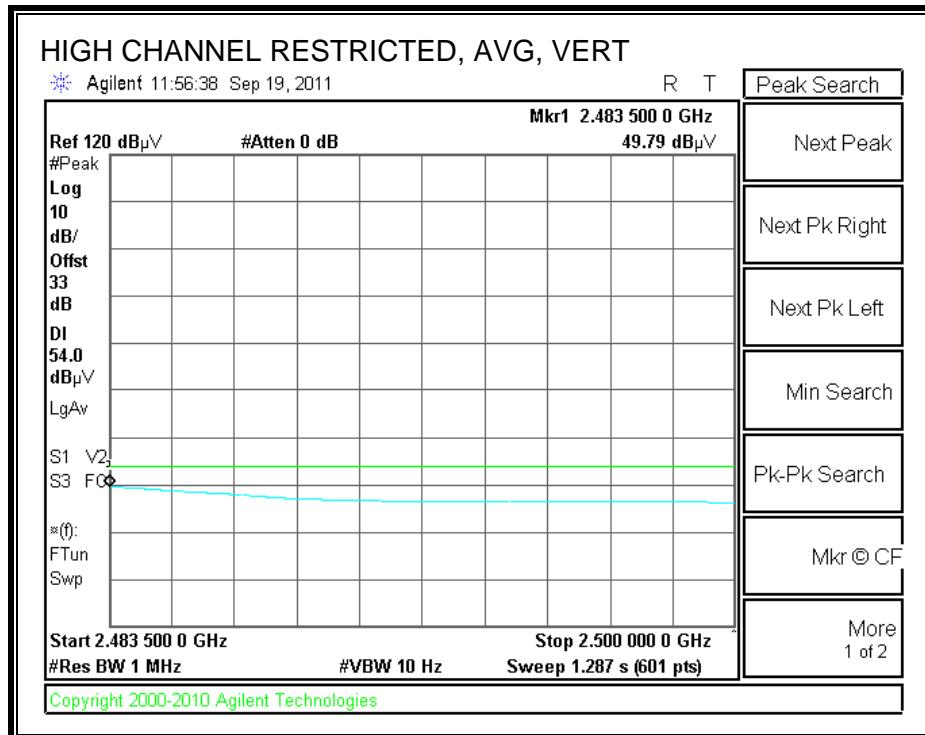
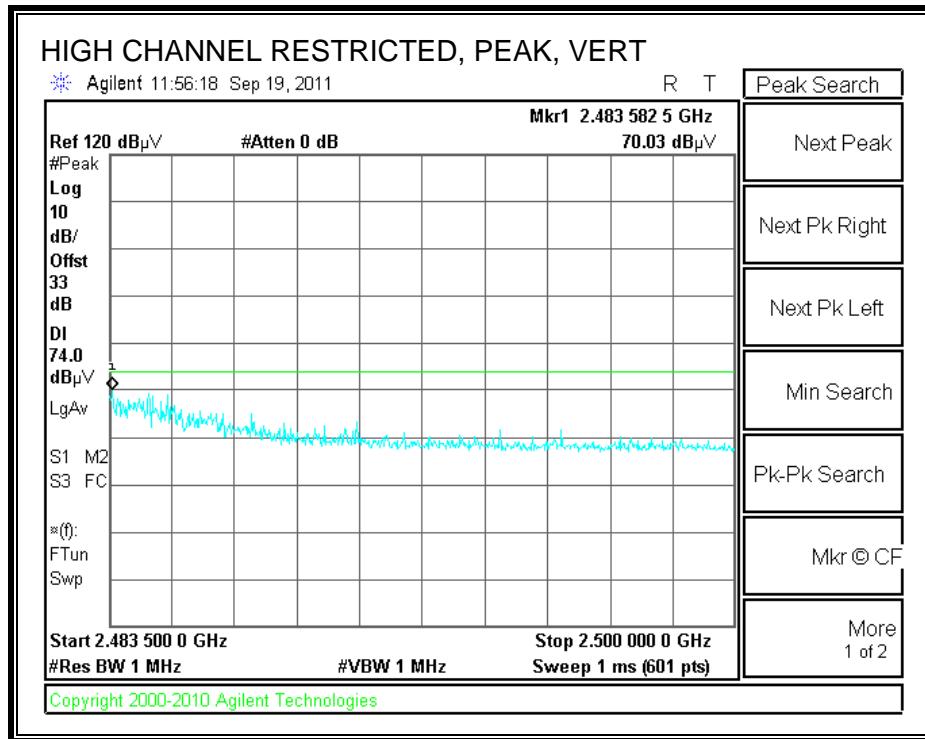
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 09/20/11
Project #: 11U13957
Company: Varian Card Access
Test Target:
Mode Oper: Tx On, 2.4 GHz, HT20 Mode MCS16

f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter	

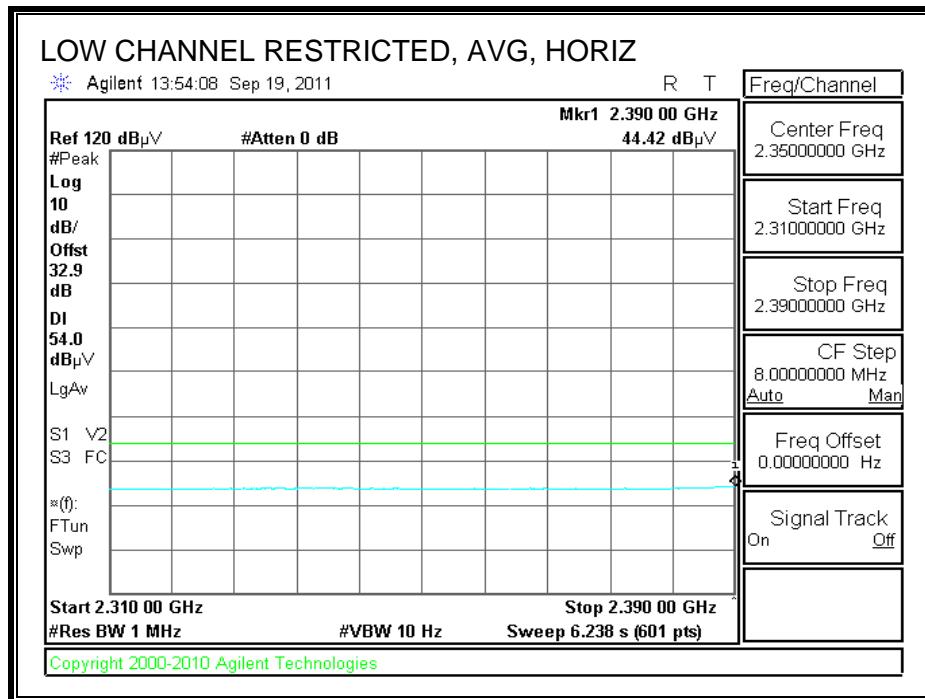
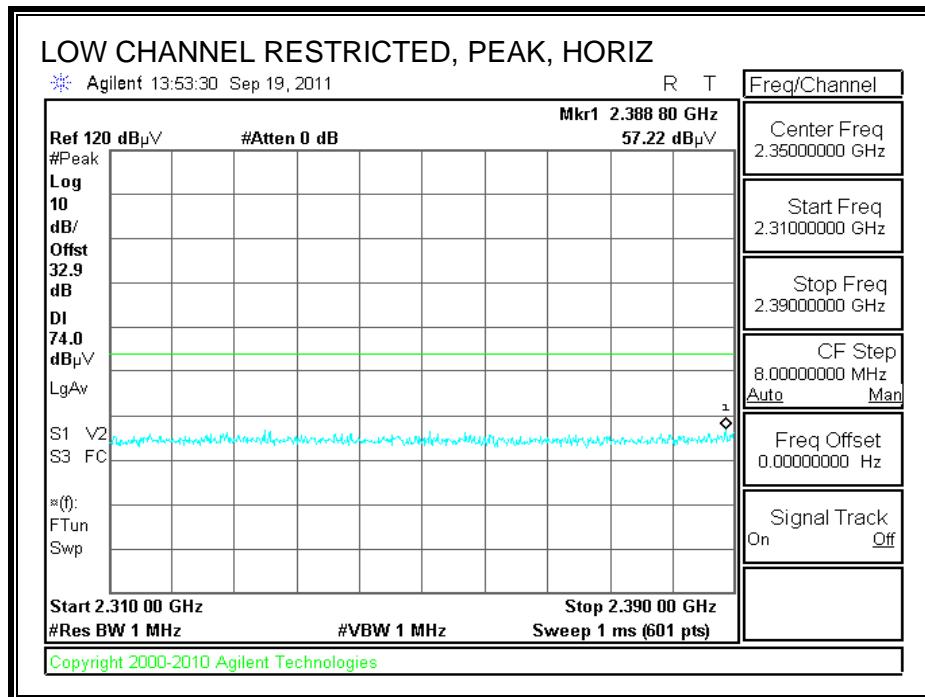
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr	Corr.	Limit	Margin dB	Ant. Pol V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 2412 MHz															
4.824	3.0	36.6	33.9	6.8	-34.1	0.0	0.0	43.2	74.0	-30.8	V	P	136.0	6.0	
4.824	3.0	24.2	33.9	6.8	-34.1	0.0	0.0	30.9	54.0	-23.1	V	A	136.0	6.0	
4.824	3.0	36.6	33.9	6.8	-34.1	0.0	0.0	43.2	74.0	-30.8	H	P	98.0	309.0	
4.824	3.0	24.2	33.9	6.8	-34.1	0.0	0.0	30.8	54.0	-23.2	H	A	98.0	309.0	
Mid Ch. 2437 MHz															
4.874	3.0	36.0	33.9	6.8	-34.0	0.0	0.0	42.7	74.0	-31.3	V	P	98.0	283.0	
4.874	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.6	54.0	-23.4	V	A	98.0	283.0	
4.874	3.0	36.1	33.9	6.8	-34.0	0.0	0.0	42.8	74.0	-31.2	H	P	131.0	59.0	
4.874	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.6	54.0	-23.4	H	A	131.0	59.0	
High Ch. 2462 MHz															
4.924	3.0	36.6	34.0	6.8	-34.0	0.0	0.0	43.4	74.0	-30.6	V	P	130.0	308.0	
4.924	3.0	24.0	34.0	6.8	-34.0	0.0	0.0	30.8	54.0	-23.2	V	A	130.0	308.0	
4.924	3.0	36.2	34.0	6.8	-34.0	0.0	0.0	43.0	74.0	-31.0	H	P	154.0	214.0	
4.924	3.0	24.0	34.0	6.8	-34.0	0.0	0.0	30.8	54.0	-23.2	H	A	154.0	214.0	

Rev. 4.1.2.7

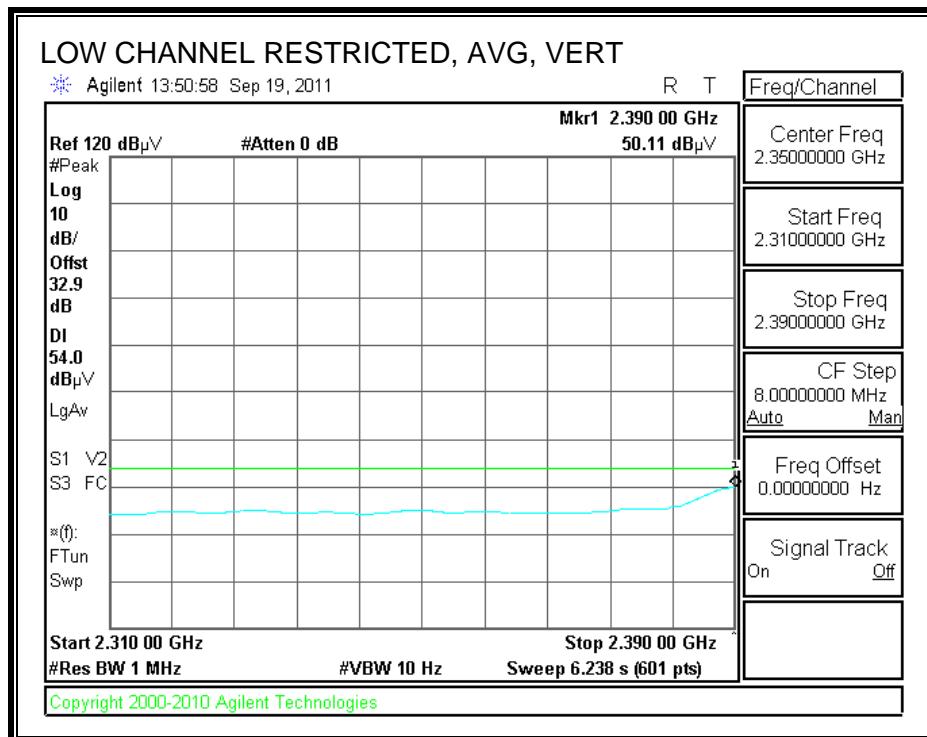
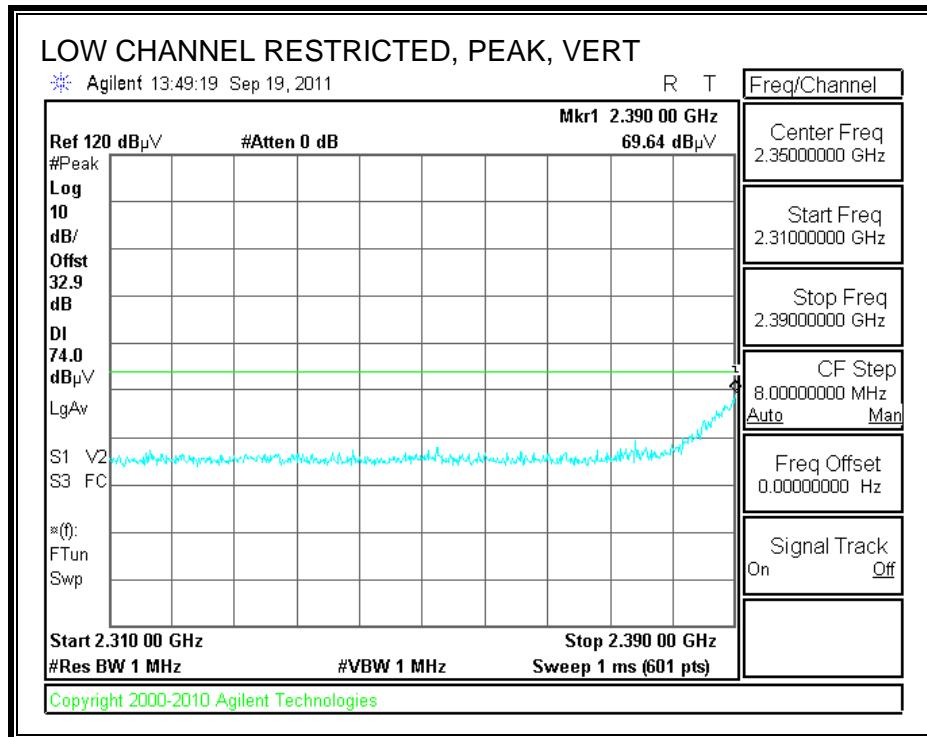
Note: No other emissions were detected above the system noise floor.

8.2.5. 802.11n HT40 MCS0 3TX MODE IN THE 2.4 GHz BAND

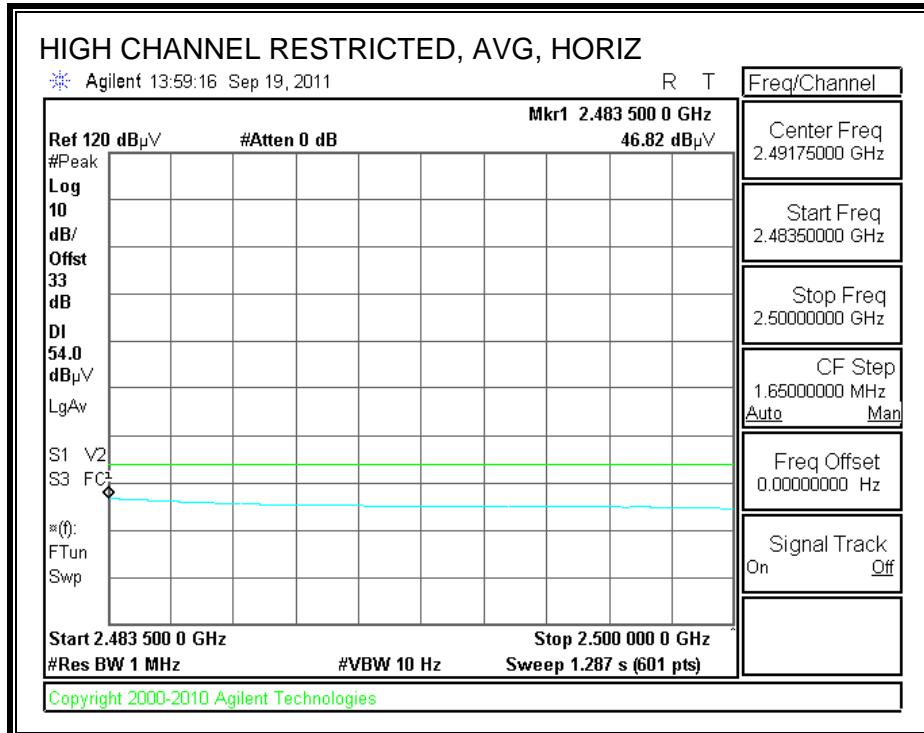
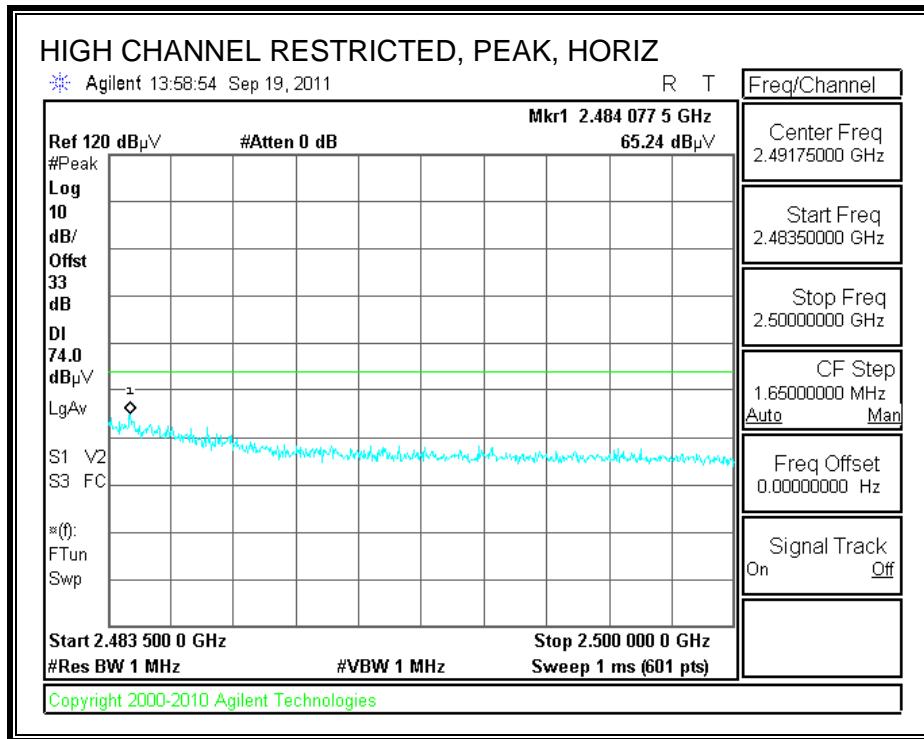
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



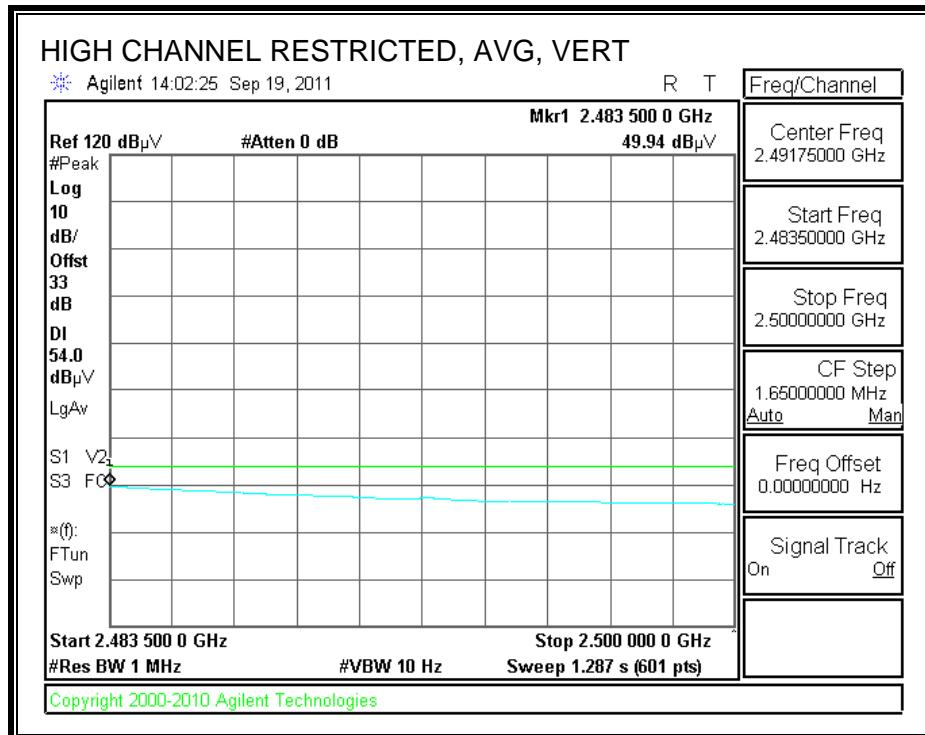
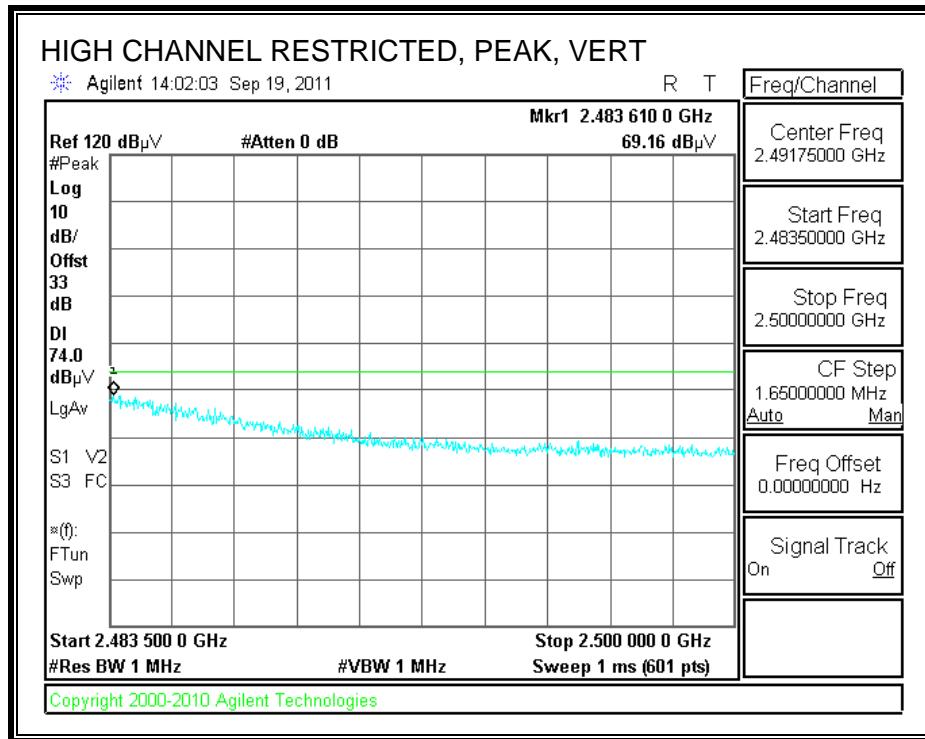
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

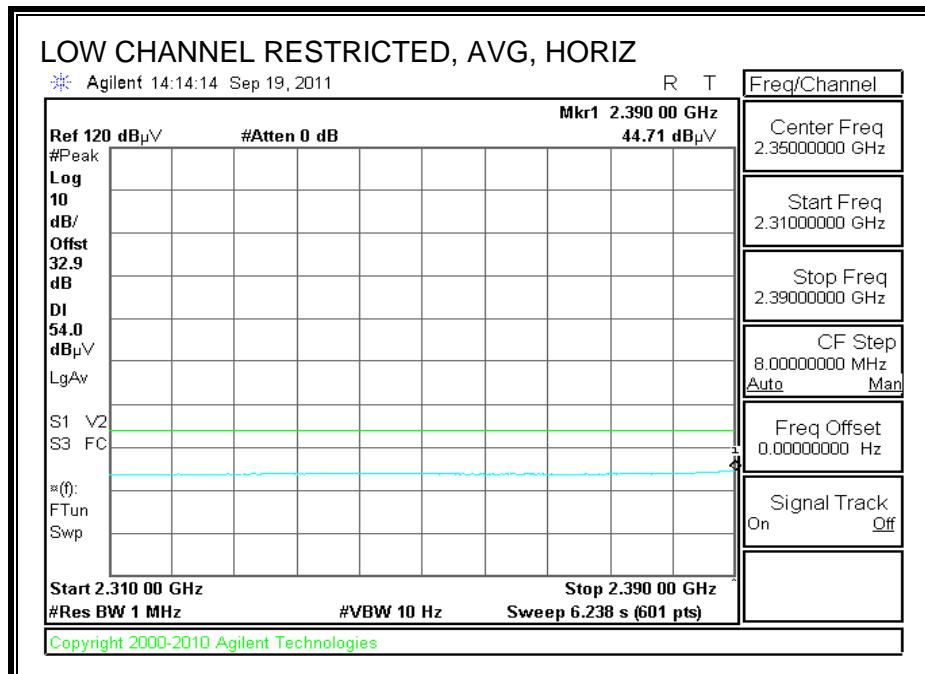
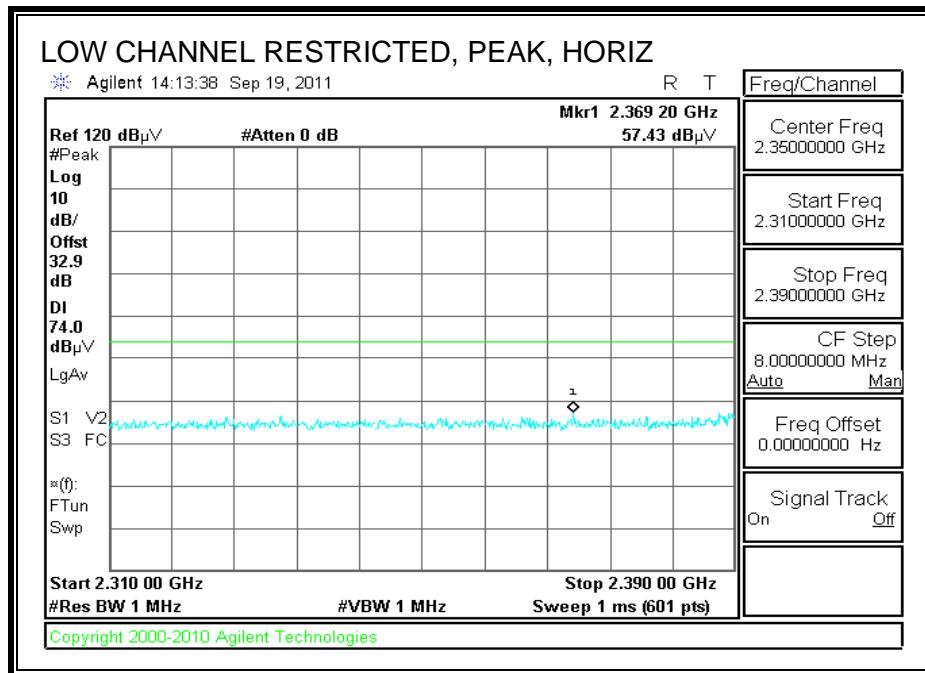


HARMONICS AND SPURIOUS EMISSIONS

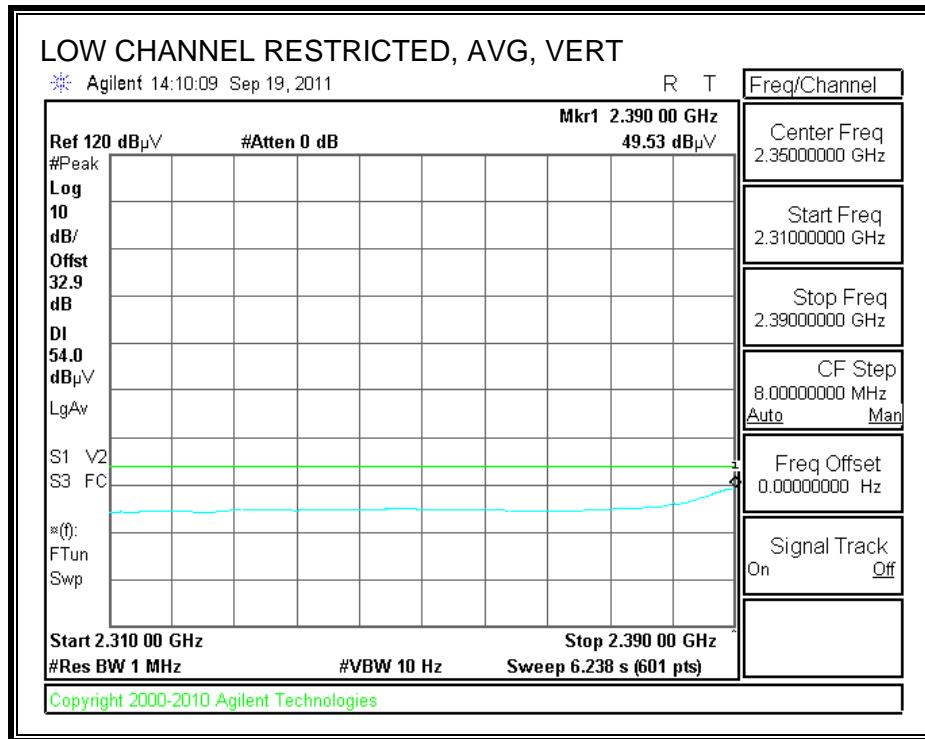
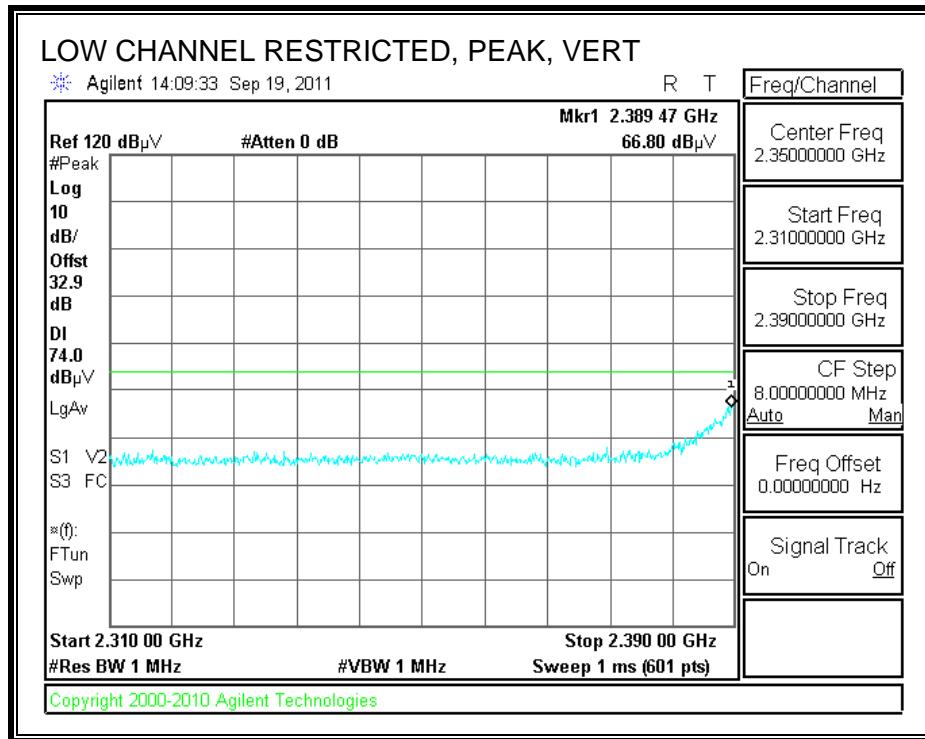
High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/20/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:	Tx On, 2.4 GHz, HT40 Mode MCS0														
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance	Correct to 3	meters								Peak Field Strength Limit	
Read	Analyzer Reading	Avg		Average	Field	Strength	@ 3	m						Margin vs. Average Limit	
AF	Antenna Factor	Peak		Calculated	Peak	Field	Strength							Margin vs. Peak Limit	
CL	Cable Loss	HPF		High	Pass	Filter									
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 2422 MHz															
4.844	3.0	36.3	33.9	6.8	-34.0	0.0	0.0	43.0	74.0	-31.0	V	P	98.0	173.0	
4.844	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.6	54.0	-23.4	V	A	98.0	173.0	
4.844	3.0	35.7	33.9	6.8	-34.0	0.0	0.0	42.3	74.0	-31.7	H	P	98.0	358.0	
4.844	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	H	A	98.0	358.0	
Mid Ch. 2437 MHz															
4.874	3.0	36.1	33.9	6.8	-34.0	0.0	0.0	42.8	74.0	-31.2	V	P	161.0	256.0	
4.874	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.6	54.0	-23.4	V	A	161.0	256.0	
4.874	3.0	36.3	33.9	6.8	-34.0	0.0	0.0	43.0	74.0	-31.0	H	P	148.0	349.0	
4.874	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.6	54.0	-23.4	H	A	148.0	349.0	
High Ch. 2452 MHz															
4.904	3.0	36.5	34.0	6.8	-34.0	0.0	0.0	43.3	74.0	-30.7	V	P	148.0	233.0	
4.904	3.0	24.2	34.0	6.8	-34.0	0.0	0.0	30.9	54.0	-23.1	V	A	148.0	233.0	
4.904	3.0	36.3	34.0	6.8	-34.0	0.0	0.0	43.1	74.0	-30.9	H	P	109.0	4.0	
4.904	3.0	24.0	34.0	6.8	-34.0	0.0	0.0	30.8	54.0	-23.2	H	A	109.0	4.0	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

8.2.6. 802.11n HT40 MCS8 3TX MODE IN THE 2.4 GHz BAND

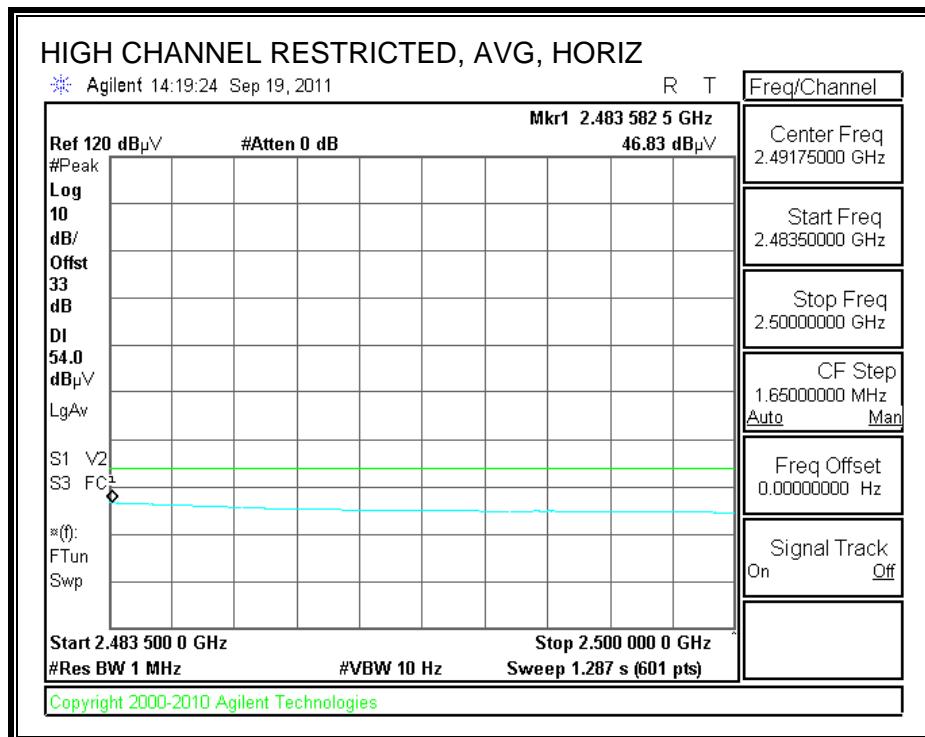
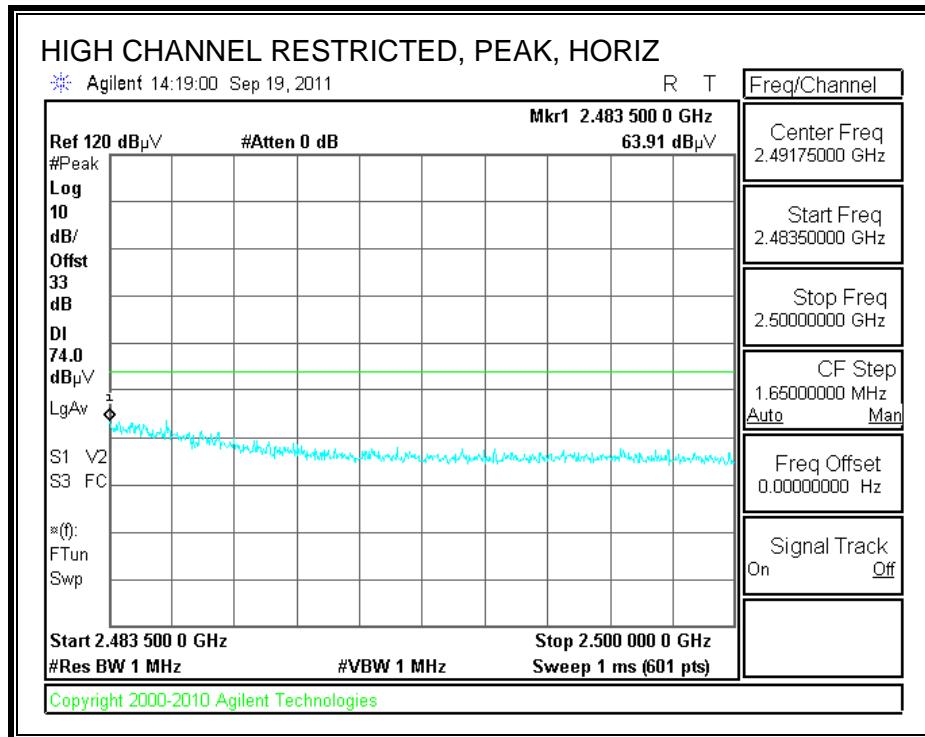
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



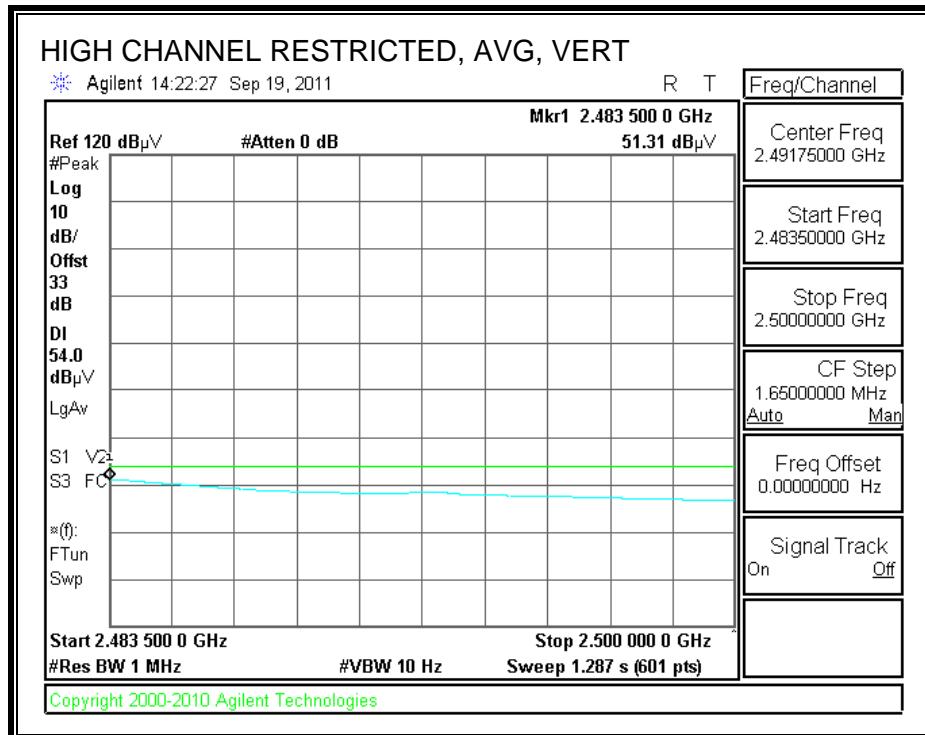
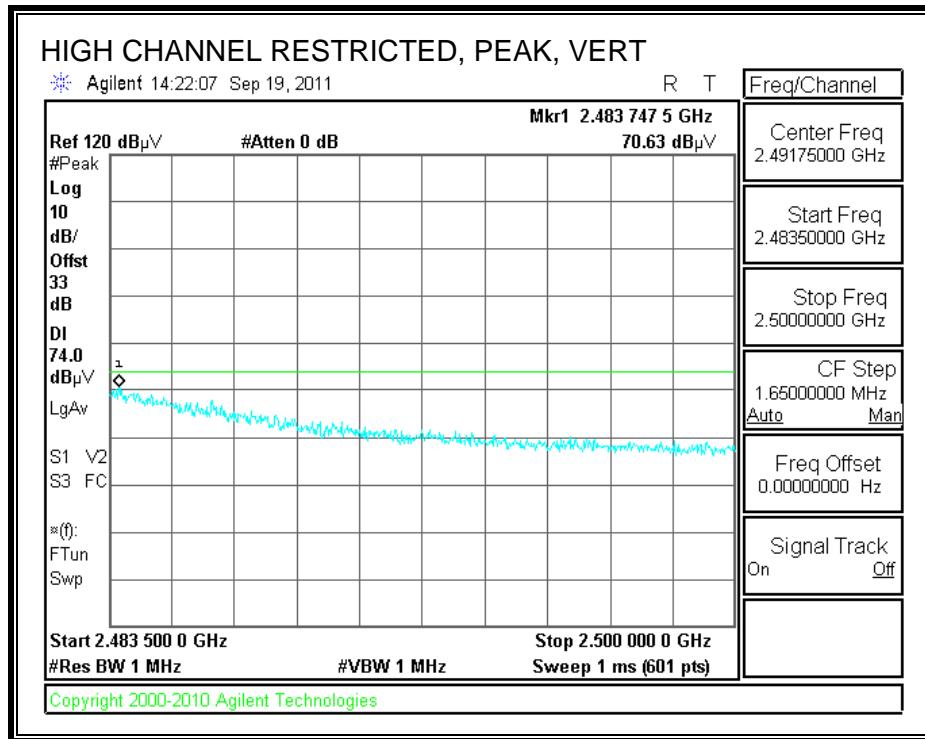
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 09/20/11
Project #: 11U13957
Company: Varian Card Access
Test Target:
Mode Oper: Tx On, 2.4 GHz, HT40 Mode MCS8

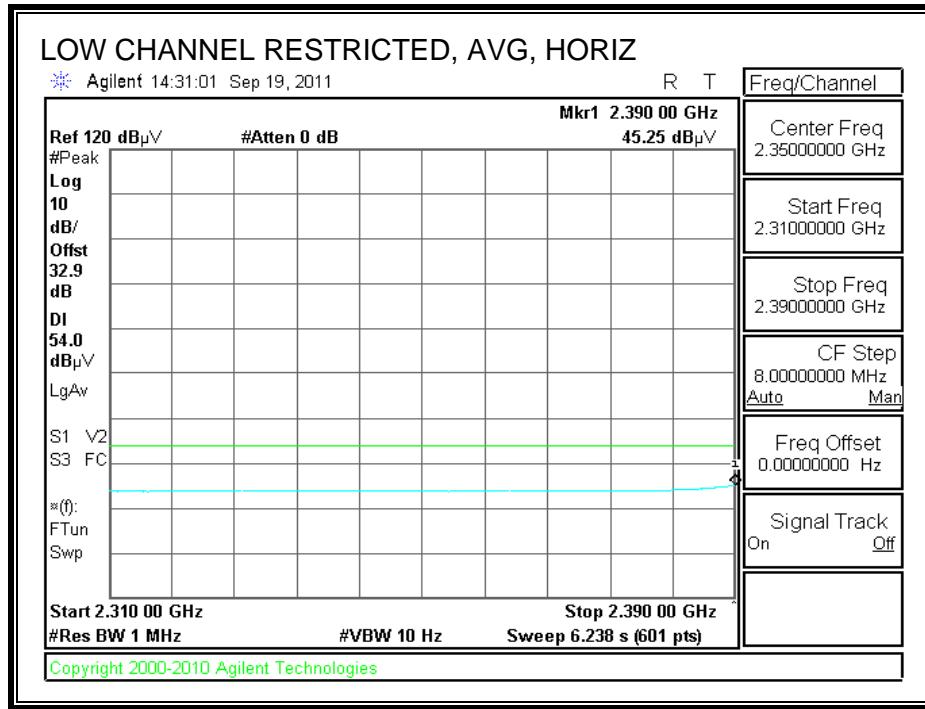
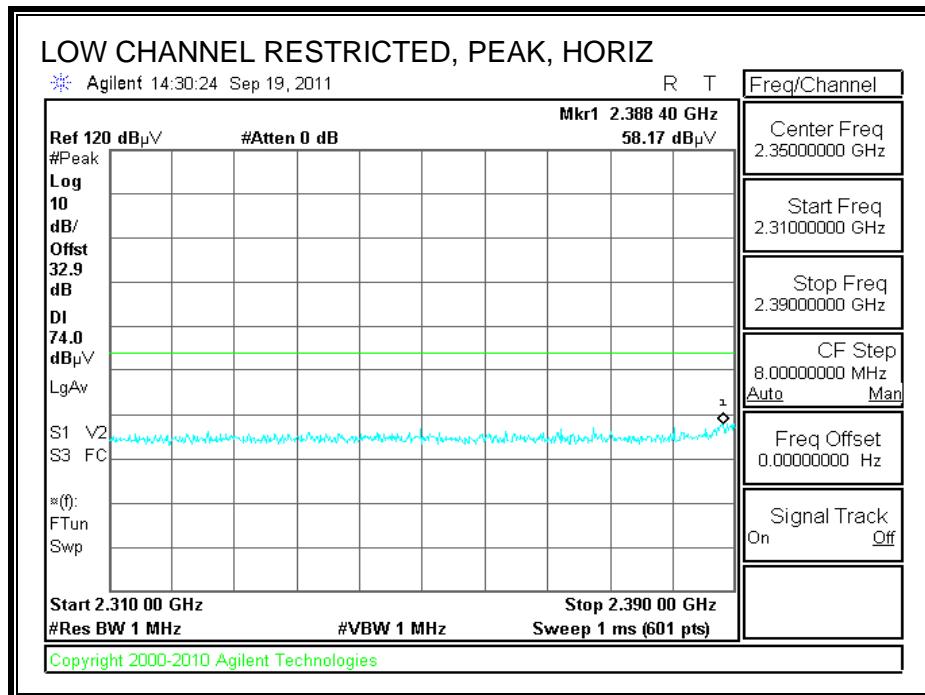
f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit							
Dist	Distance to Antenna	D	Corr	Peak Field Strength Limit							
Read	Analyzer Reading	Avg	Margin vs. Average Limit								
AF	Antenna Factor	Peak	Margin vs. Peak Limit								
CL	Cable Loss	HPF	Margin vs. Peak Limit								
Low Ch. 2422 MHz											
4.844	3.0	36.1	33.9	6.8	-34.0	0.0	0.0	42.7	74.0	-31.3	V
4.844	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	V
4.844	3.0	36.2	33.9	6.8	-34.0	0.0	0.0	42.8	74.0	-31.2	H
4.844	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	H
Mid Ch. 2437 MHz											
4.874	3.0	35.8	33.9	6.8	-34.0	0.0	0.0	42.5	74.0	-31.5	V
4.874	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	V
4.874	3.0	36.1	33.9	6.8	-34.0	0.0	0.0	42.8	74.0	-31.2	H
4.874	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	H
High Ch. 2452 MHz											
4.904	3.0	36.4	34.0	6.8	-34.0	0.0	0.0	43.1	74.0	-30.9	V
4.904	3.0	24.1	34.0	6.8	-34.0	0.0	0.0	30.9	54.0	-23.1	V
4.904	3.0	36.5	34.0	6.8	-34.0	0.0	0.0	43.3	74.0	-30.7	H
4.904	3.0	24.1	34.0	6.8	-34.0	0.0	0.0	30.9	54.0	-23.1	H

Rev. 4.1.2.7

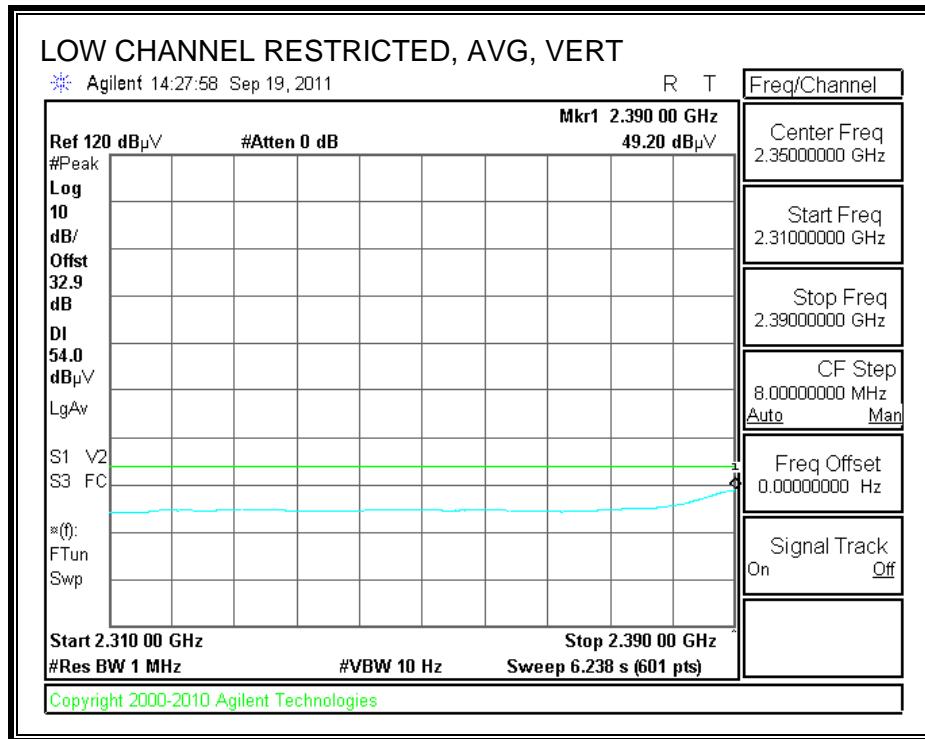
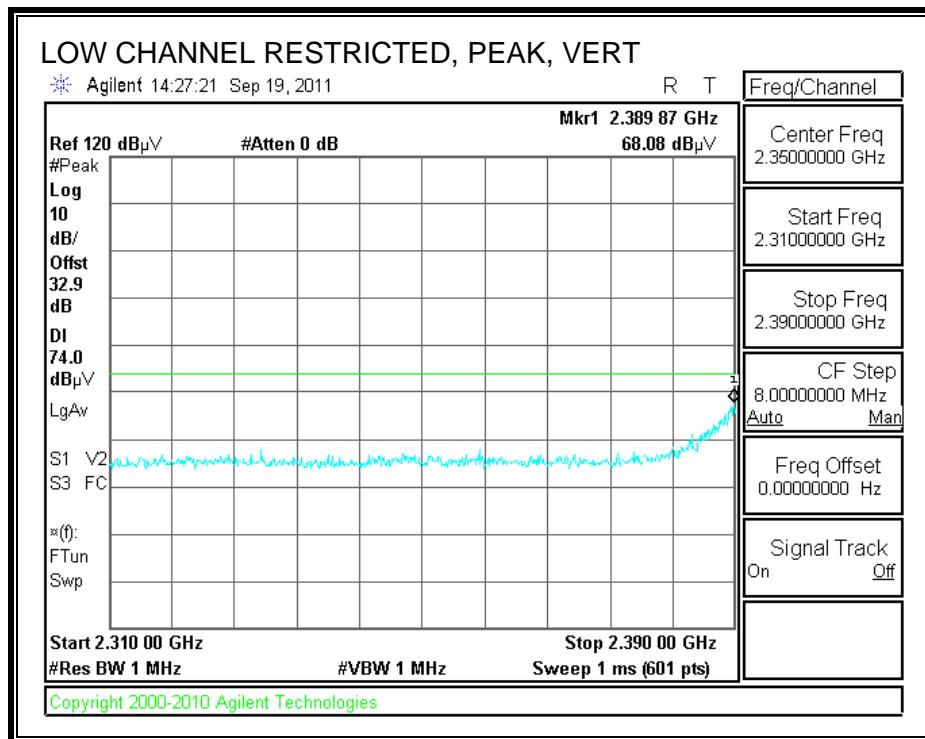
Note: No other emissions were detected above the system noise floor.

8.2.7. 802.11n HT40 MCS16 3TX MODE IN THE 2.4 GHz BAND

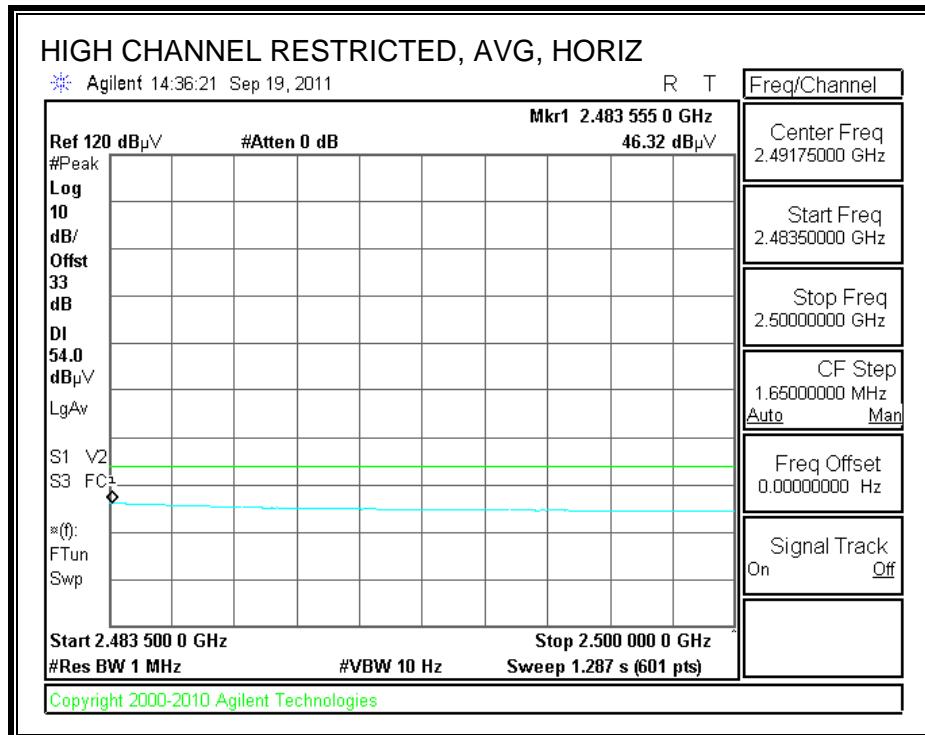
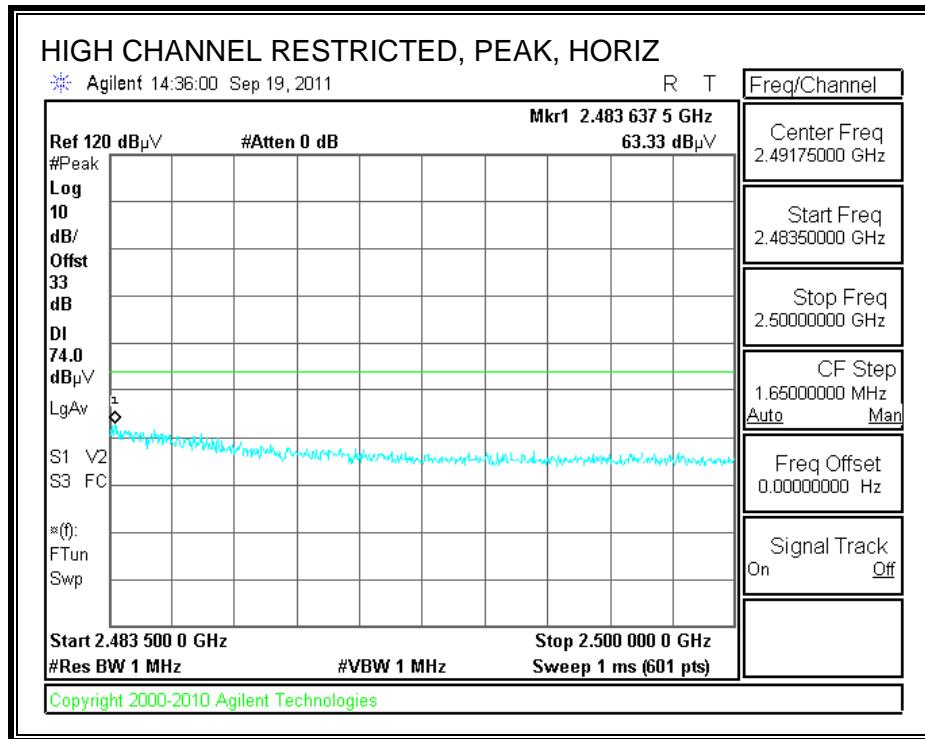
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



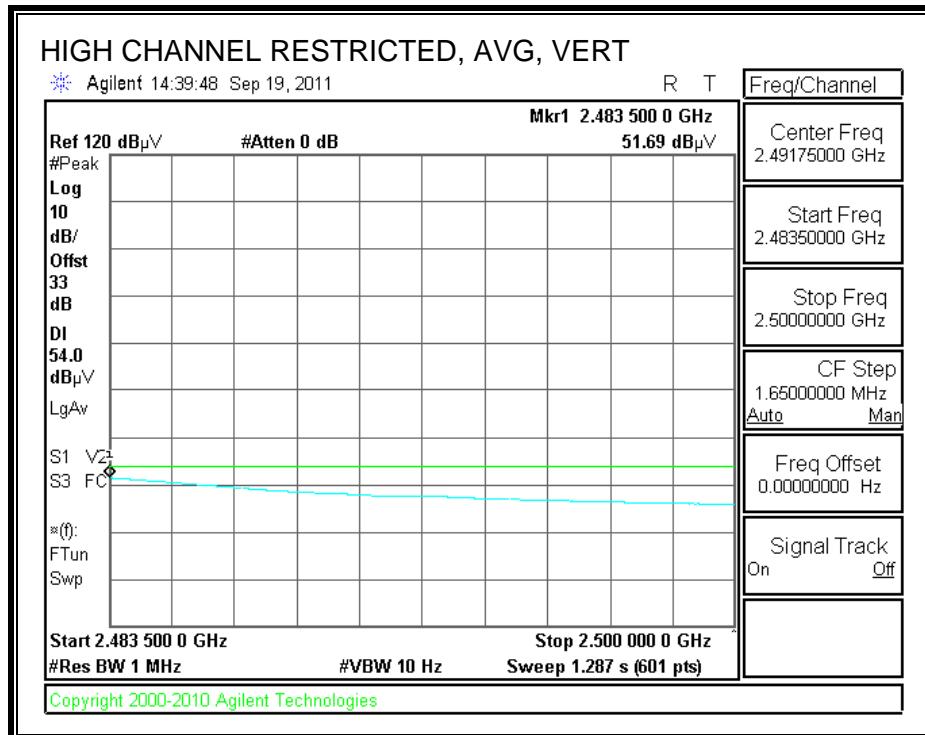
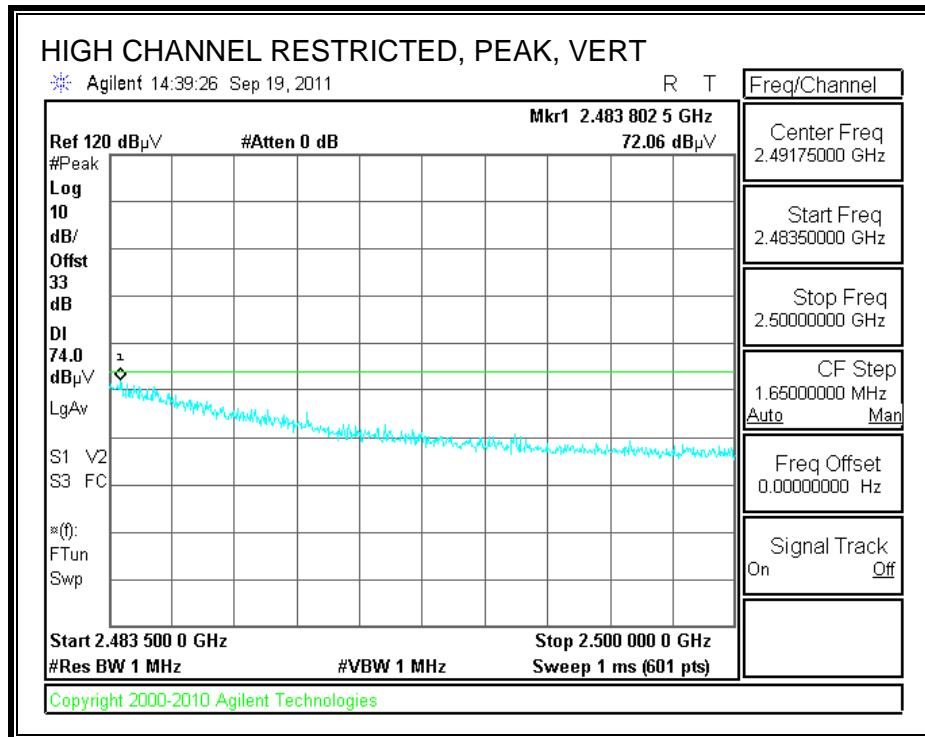
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 09/20/11
Project #: 11U13957
Company: Varian Card Access
Test Target:
Mode Oper: Tx On, 2.4 GHz, HT40 Mode MCS16

f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter	

f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 2422 MHz															
4.844	3.0	35.8	33.9	6.8	-34.0	0.0	0.0	42.4	74.0	-31.6	V	P	193.0	196.0	
4.844	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	V	A	193.0	196.0	
4.844	3.0	36.6	33.9	6.8	-34.0	0.0	0.0	43.2	74.0	-30.8	H	P	115.0	97.0	
4.844	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	H	A	115.0	97.0	
Mid Ch. 2437 MHz															
4.874	3.0	36.9	33.9	6.8	-34.0	0.0	0.0	43.6	74.0	-30.4	V	P	99.0	230.0	
4.874	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	V	A	99.0	230.0	
4.874	3.0	35.9	33.9	6.8	-34.0	0.0	0.0	42.6	74.0	-31.4	H	P	158.0	162.0	
4.874	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	H	A	158.0	162.0	
High Ch. 2452 MHz															
4.904	3.0	36.7	34.0	6.8	-34.0	0.0	0.0	43.5	74.0	-30.5	V	P	130.0	118.0	
4.904	3.0	24.1	34.0	6.8	-34.0	0.0	0.0	30.8	54.0	-23.2	V	A	130.0	118.0	
4.904	3.0	36.1	34.0	6.8	-34.0	0.0	0.0	42.8	74.0	-31.2	H	P	134.0	8.0	
4.904	3.0	24.0	34.0	6.8	-34.0	0.0	0.0	30.7	54.0	-23.3	H	A	134.0	8.0	

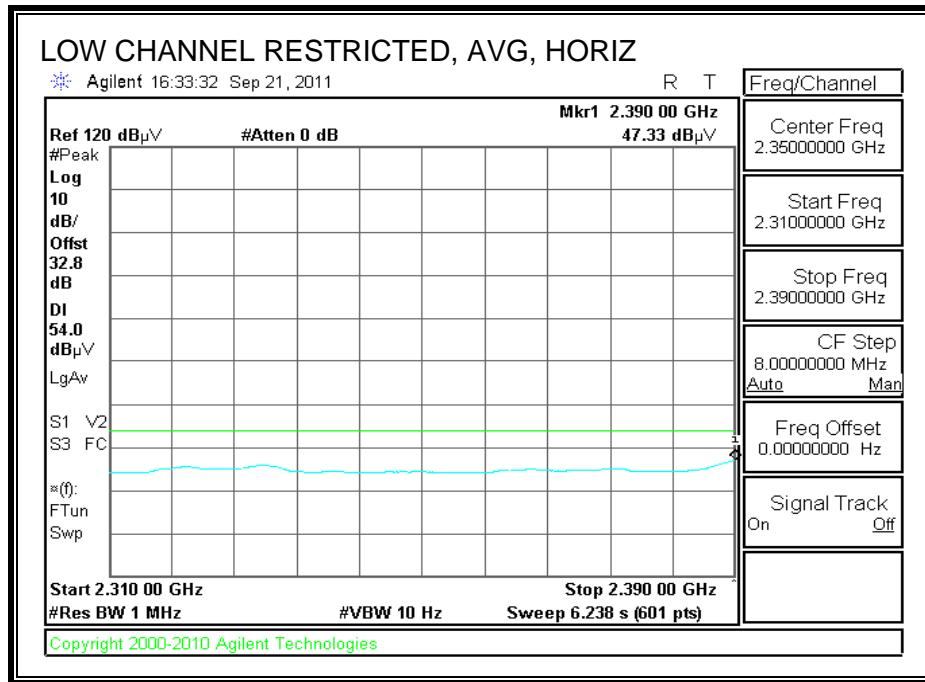
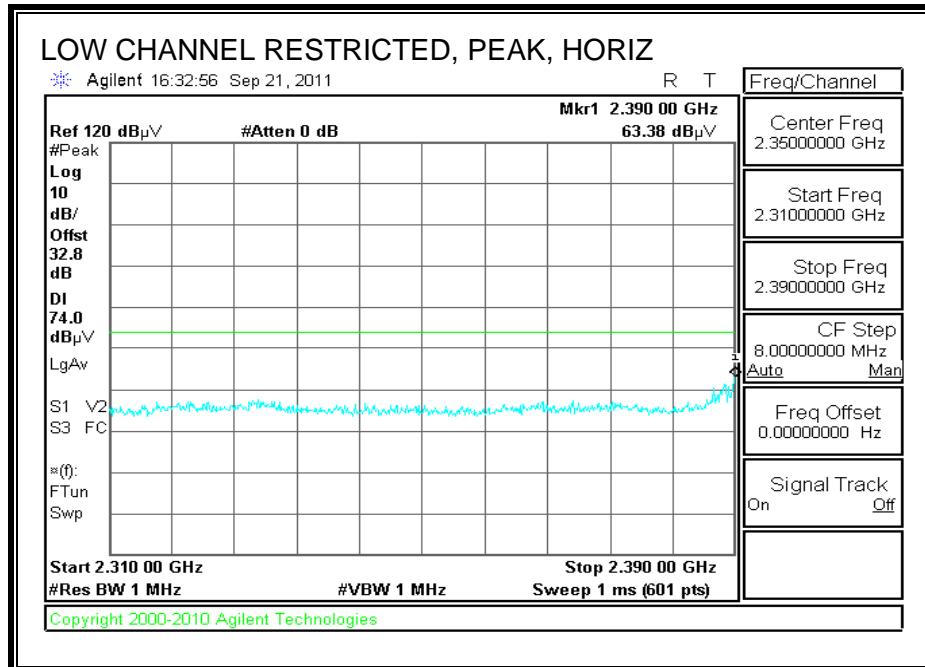
Rev. 4.1.2.7

Note: No other emissions were detected above the system noise floor.

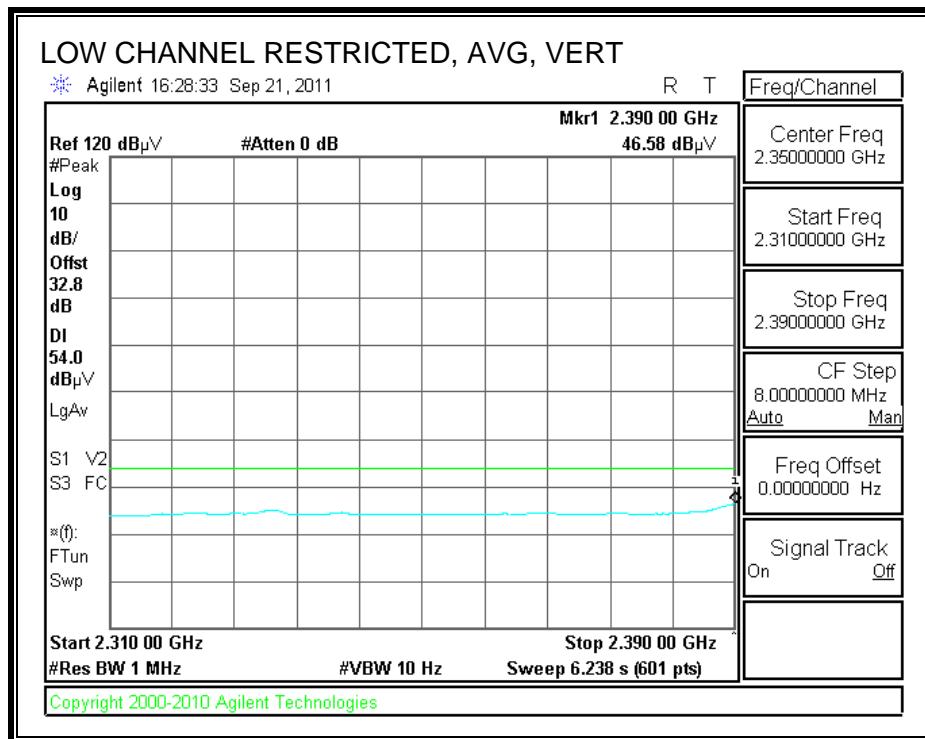
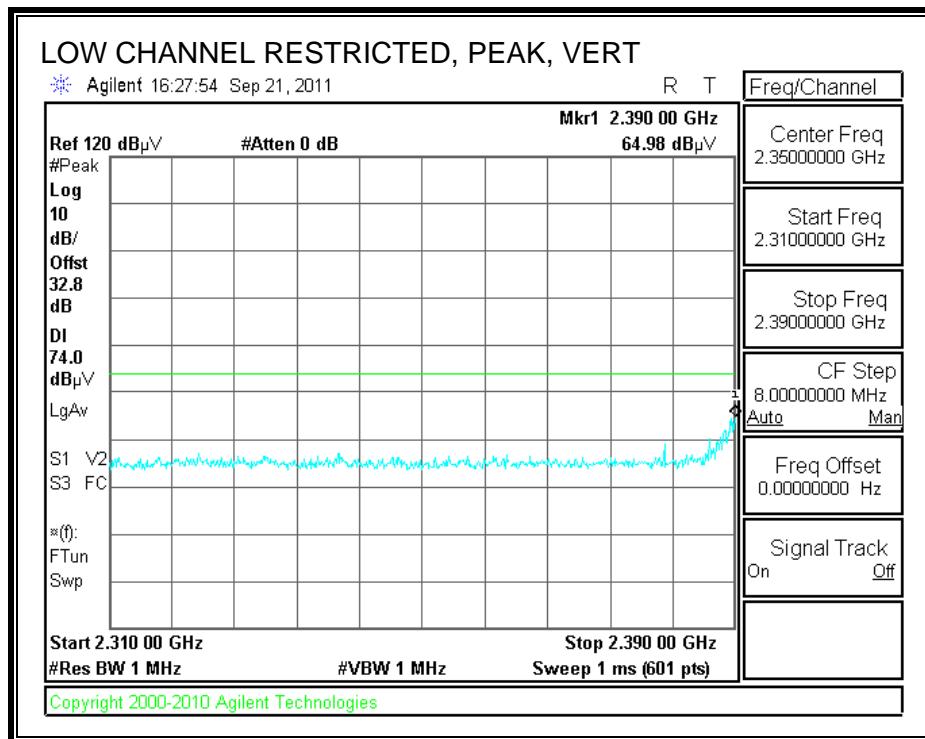
2.4GHz BAND - FRACTAL ANTENNA; -6dBi

8.2.8. 802.11g 3TX MODE IN THE 2.4 GHz BAND

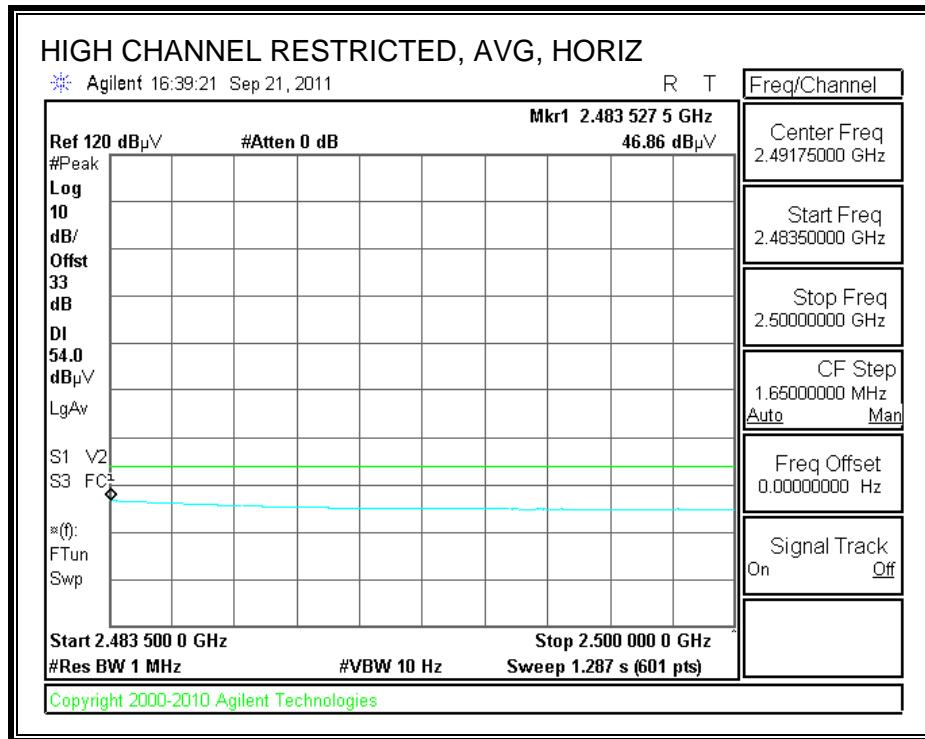
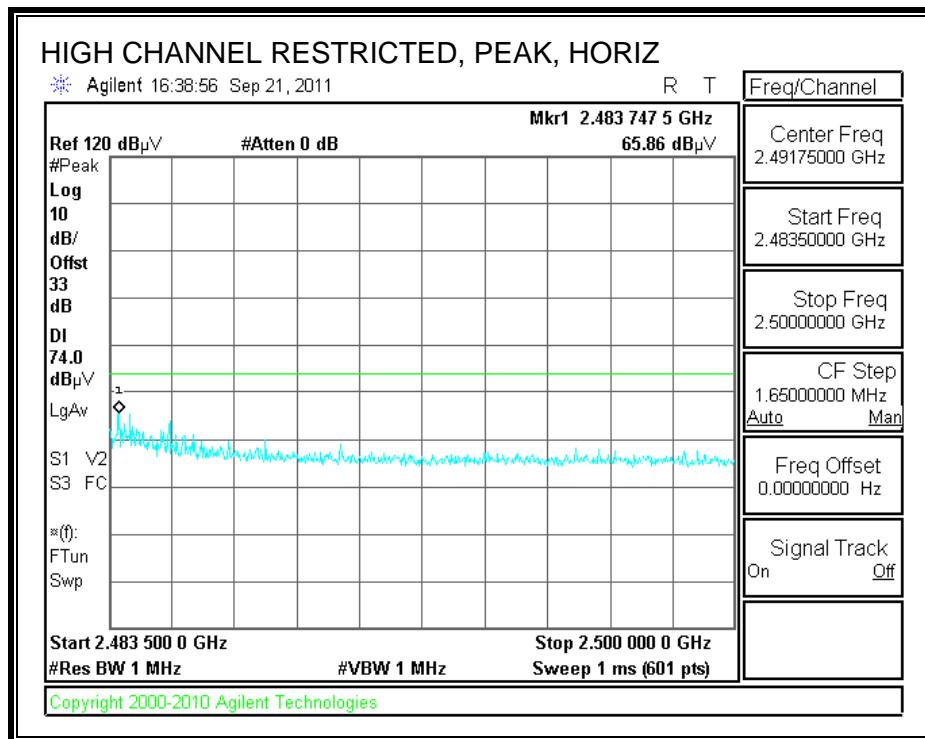
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



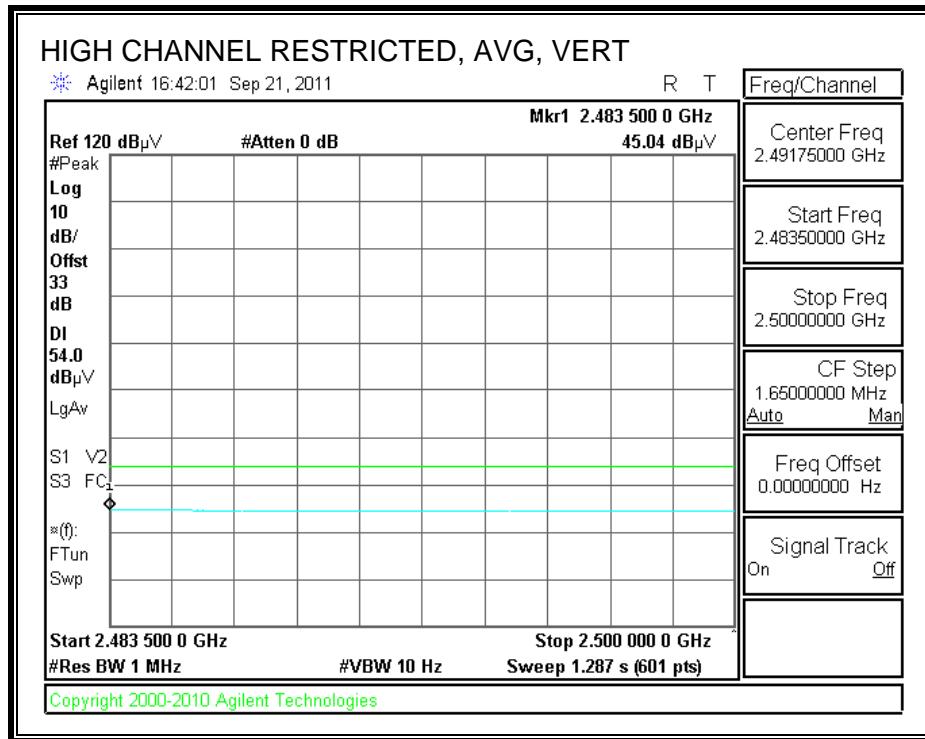
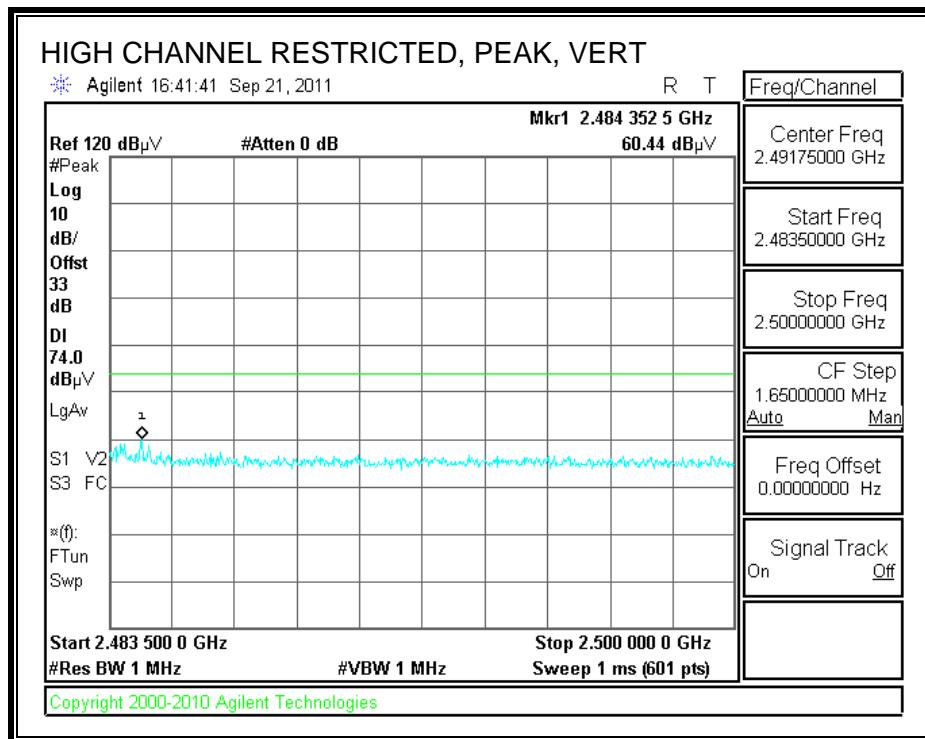
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

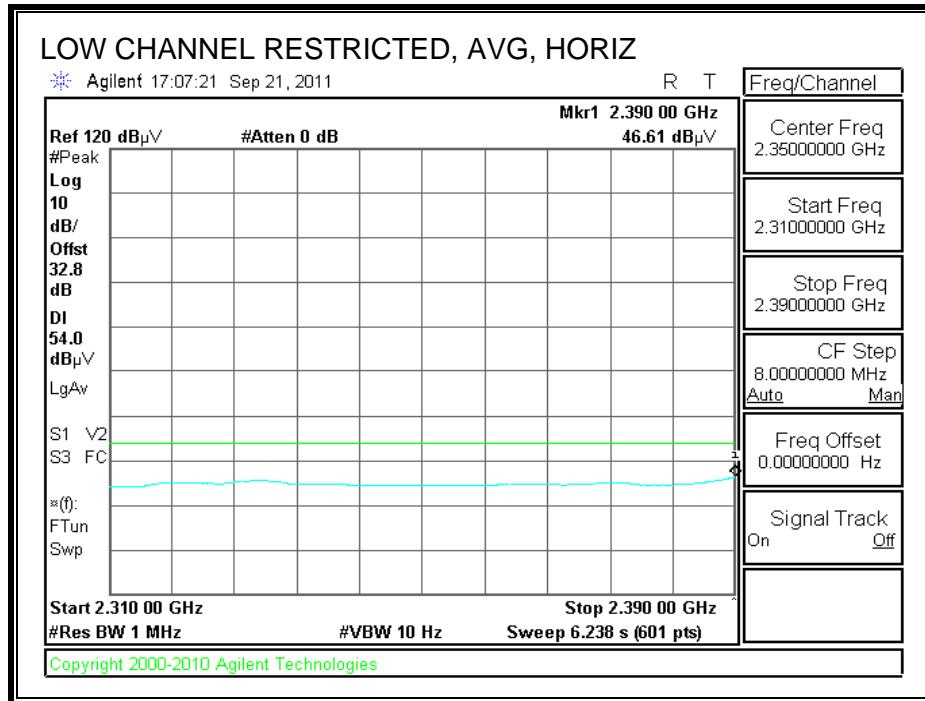
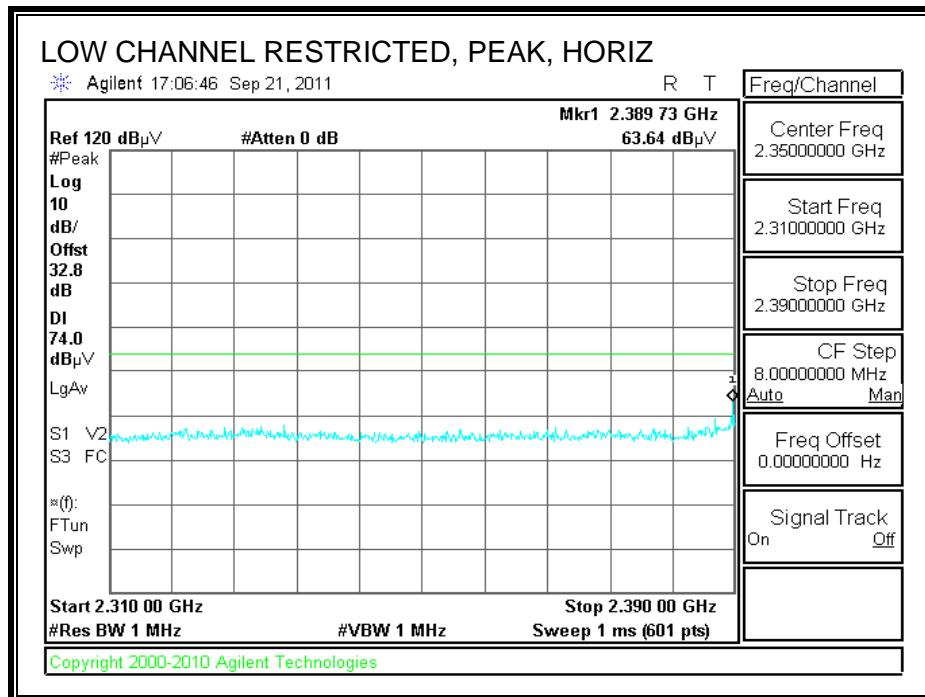


HARMONICS AND SPURIOUS EMISSIONS

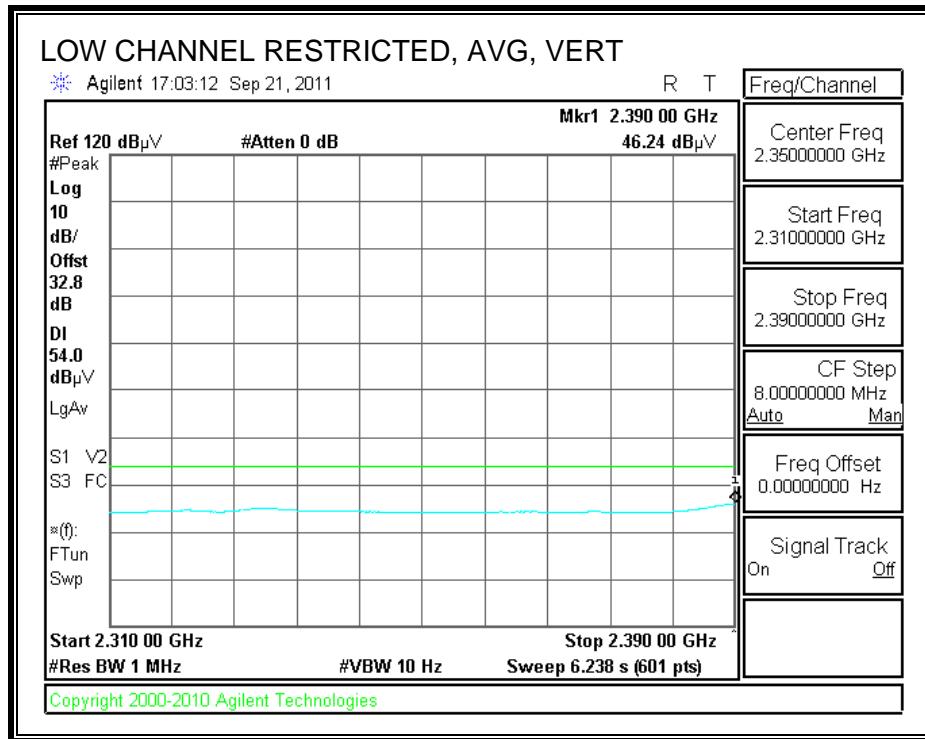
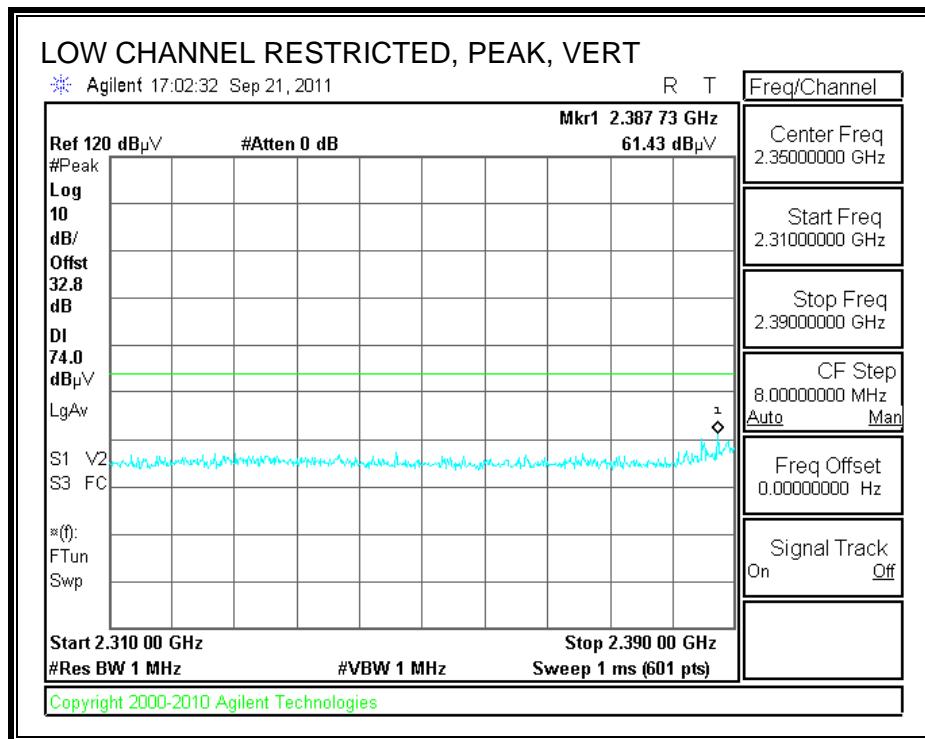
High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber																
Test Engr:	William Zhuang															
Date:	09/22/11															
Project #:	11U13957															
Company:	Varian Card Access															
Test Target:	Tx On, 2.4 GHz, g Mode 9 Mbps															
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit		
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters												
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m												
AF	Antenna Factor	Peak		Calculated Peak Field Strength												
CL	Cable Loss	HPF	High Pass Filter													
f	Dist	Read	AF	CL	Amp	D	Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det.	Ant.High	Table Angle	Notes
GHz	(m)	dBuV	dB/m	dB	dB	Corr.	dB	Fltr	dBuV/m	dBuV/m	dB	V/H	P/A/QP	cm	Degree	
Low Ch. 2412 MHz																
4.824	3.0	36.7	33.9	6.8	-34.1	0.0	10.0	53.3	74.0	-20.7	V	P	151.0	156.0		
4.824	3.0	24.1	33.9	6.8	-34.1	0.0	10.0	40.7	54.0	-13.3	V	A	151.0	156.0		
4.824	3.0	36.2	33.9	6.8	-34.1	0.0	10.0	52.8	74.0	-21.2	H	P	184.0	337.0		
4.824	3.0	24.1	33.9	6.8	-34.1	0.0	10.0	40.7	54.0	-13.3	H	A	184.0	337.0		
Mid Ch. 2437 MHz																
4.874	3.0	35.7	33.9	6.8	-34.0	0.0	10.0	52.4	74.0	-21.6	H	P	141.0	38.0		
4.874	3.0	23.9	33.9	6.8	-34.0	0.0	10.0	40.6	54.0	-13.4	H	A	141.0	38.0		
4.874	3.0	35.9	33.9	6.8	-34.0	0.0	10.0	52.6	74.0	-21.4	V	P	146.0	153.0		
4.874	3.0	23.9	33.9	6.8	-34.0	0.0	10.0	40.6	54.0	-13.4	V	A	146.0	153.0		
High Ch. 2462 MHz																
4.924	3.0	37.0	34.0	6.8	-34.0	0.0	10.0	53.8	74.0	-20.2	V	P	136.0	220.0		
4.924	3.0	23.9	34.0	6.8	-34.0	0.0	10.0	40.7	54.0	-13.3	V	A	136.0	220.0		
4.924	3.0	36.3	34.0	6.8	-34.0	0.0	10.0	53.1	74.0	-20.9	H	P	120.0	242.0		
4.924	3.0	23.9	34.0	6.8	-34.0	0.0	10.0	40.7	54.0	-13.3	H	A	120.0	242.0		
Rev. 4.1.2.7																
Note: No other emissions were detected above the system noise floor.																

8.2.9. 802.11n HT20 MCS0 3TX MODE IN THE 2.4 GHz BAND

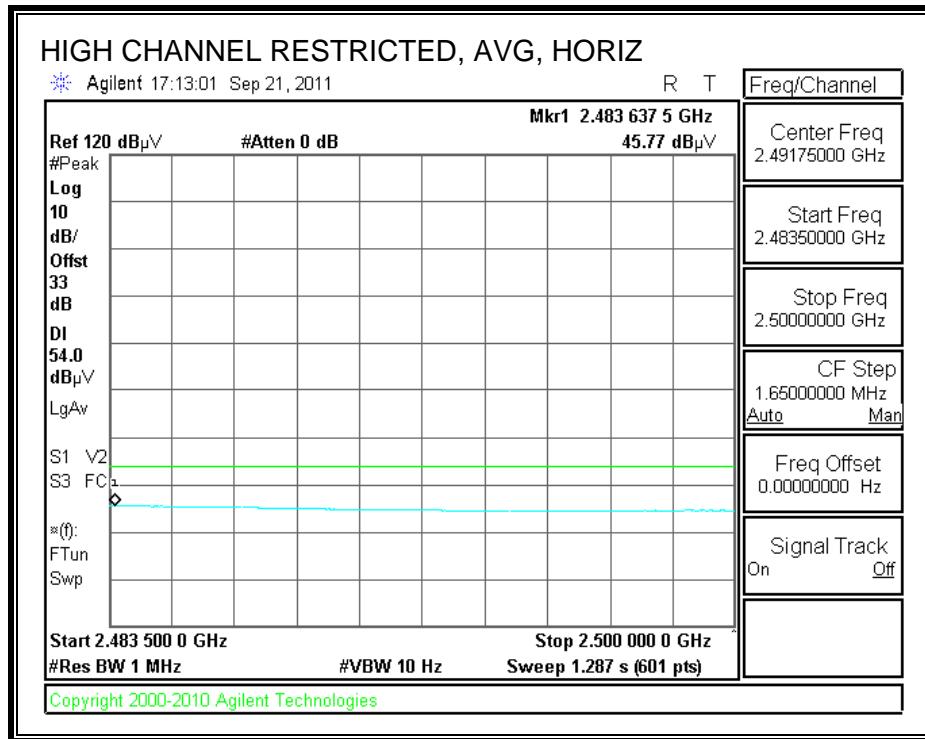
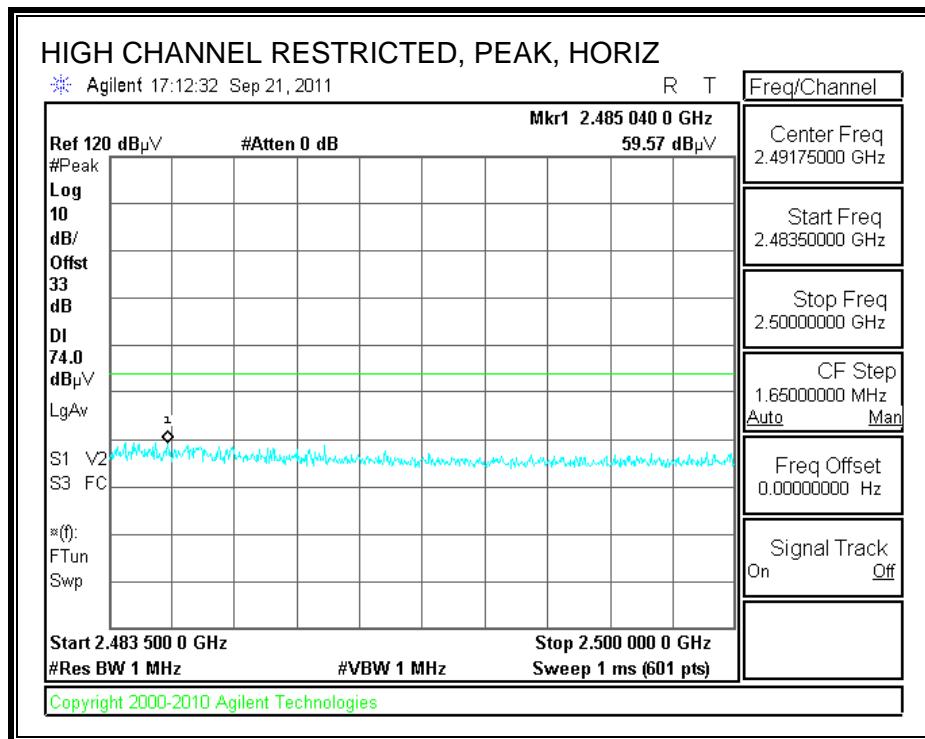
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



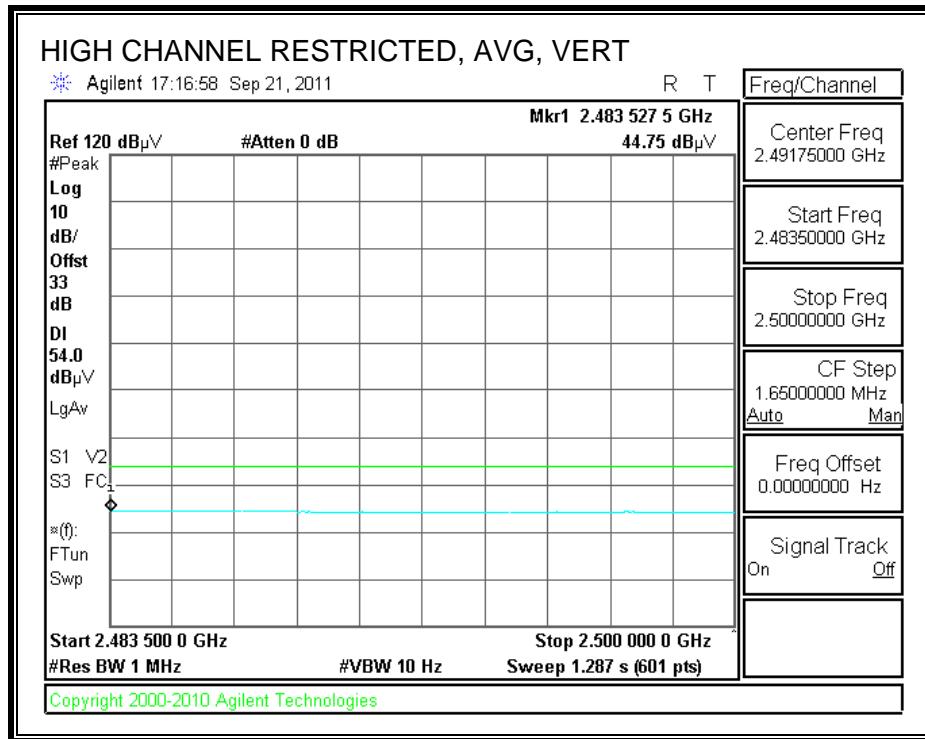
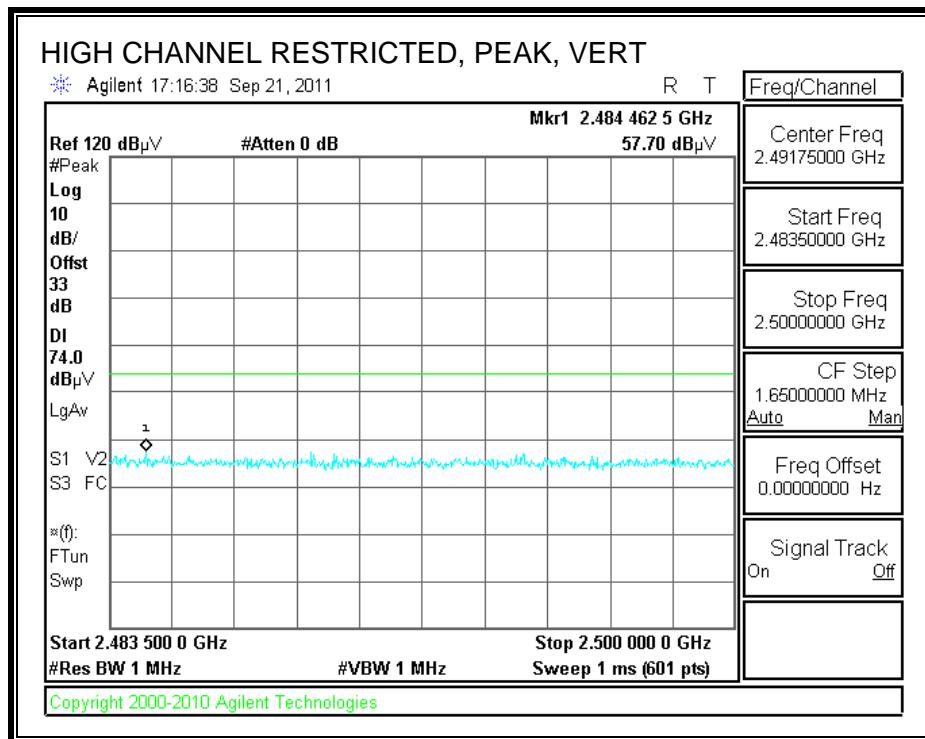
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 09/22/11
Project #: 11U13957
Company: Varian Card Access
Test Target:
Mode Oper: Tx On, 2.4 GHz, HT20 Mode MCS0

f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter	

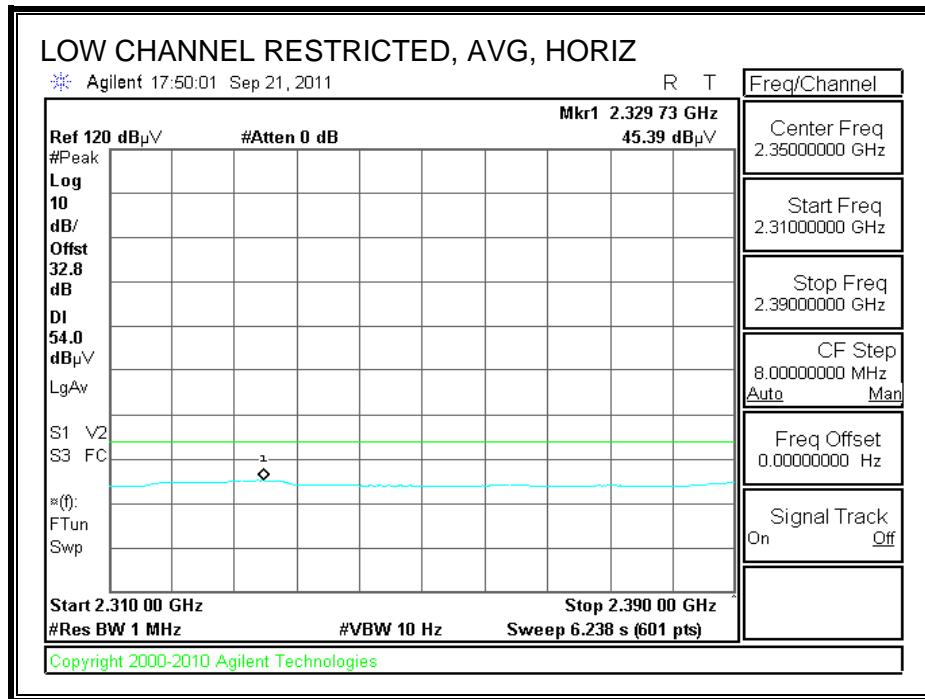
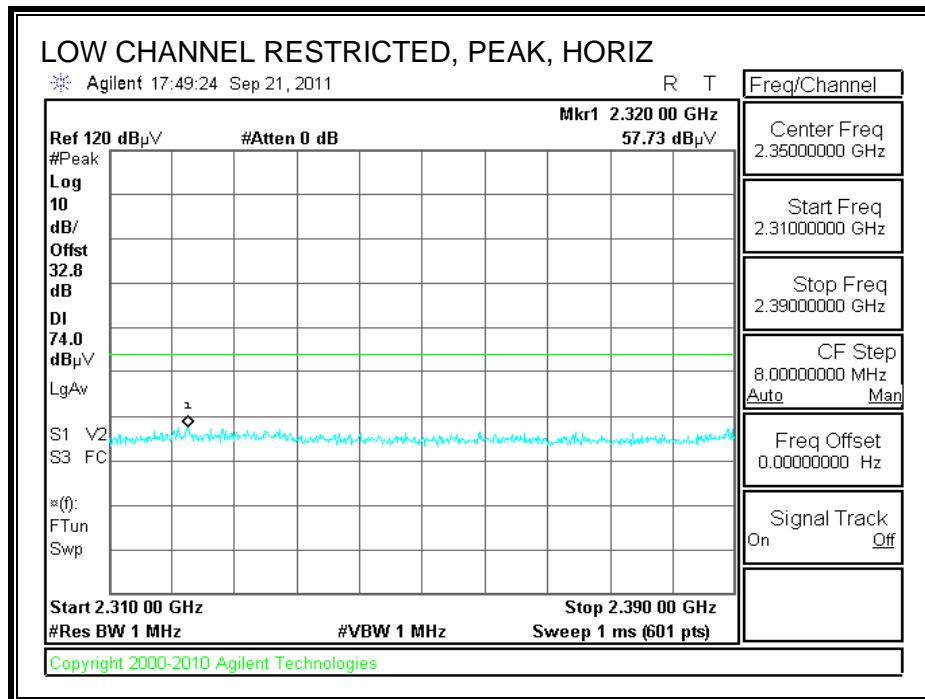
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuVm	Limit dBuVm	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 2412 MHz															
4.824	3.0	36.4	33.9	6.8	-34.1	0.0	0.0	43.0	74.0	-31.0	V	P	98.0	214.0	
4.824	3.0	24.2	33.9	6.8	-34.1	0.0	0.0	30.8	54.0	-23.2	V	A	98.0	214.0	
4.824	3.0	36.2	33.9	6.8	-34.1	0.0	0.0	42.8	74.0	-31.2	H	P	157.0	162.0	
4.824	3.0	24.2	33.9	6.8	-34.1	0.0	0.0	30.8	54.0	-23.2	H	A	157.0	162.0	
Mid Ch. 2437 MHz															
4.874	3.0	36.4	33.9	6.8	-34.0	0.0	0.0	43.1	74.0	-30.9	H	P	184.0	234.0	
4.874	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	H	A	184.0	234.0	
4.874	3.0	36.3	33.9	6.8	-34.0	0.0	0.0	43.0	74.0	-31.0	V	P	152.0	46.0	
4.874	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	V	A	152.0	46.0	
High Ch. 2462 MHz															
4.924	3.0	36.2	34.0	6.8	-34.0	0.0	0.0	43.0	74.0	-31.0	V	P	186.0	-2.0	
4.924	3.0	23.8	34.0	6.8	-34.0	0.0	0.0	30.6	54.0	-23.4	V	A	186.0	-2.0	
4.924	3.0	36.1	34.0	6.8	-34.0	0.0	0.0	42.9	74.0	-31.1	H	P	169.0	342.0	
4.924	3.0	23.7	34.0	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	H	A	169.0	342.0	

Rev. 4.1.2.7

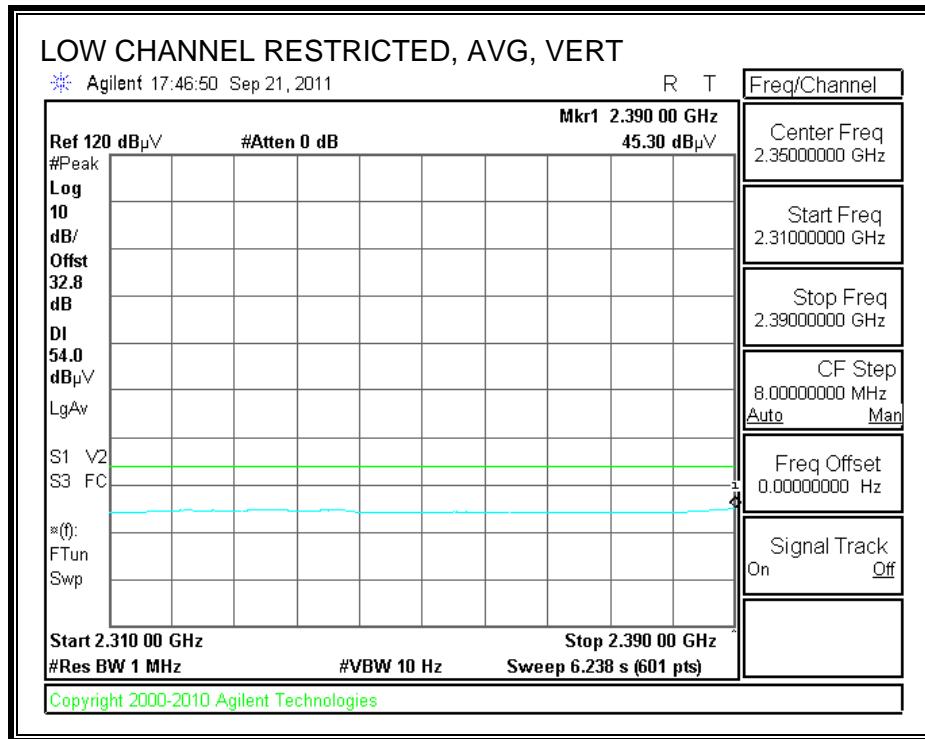
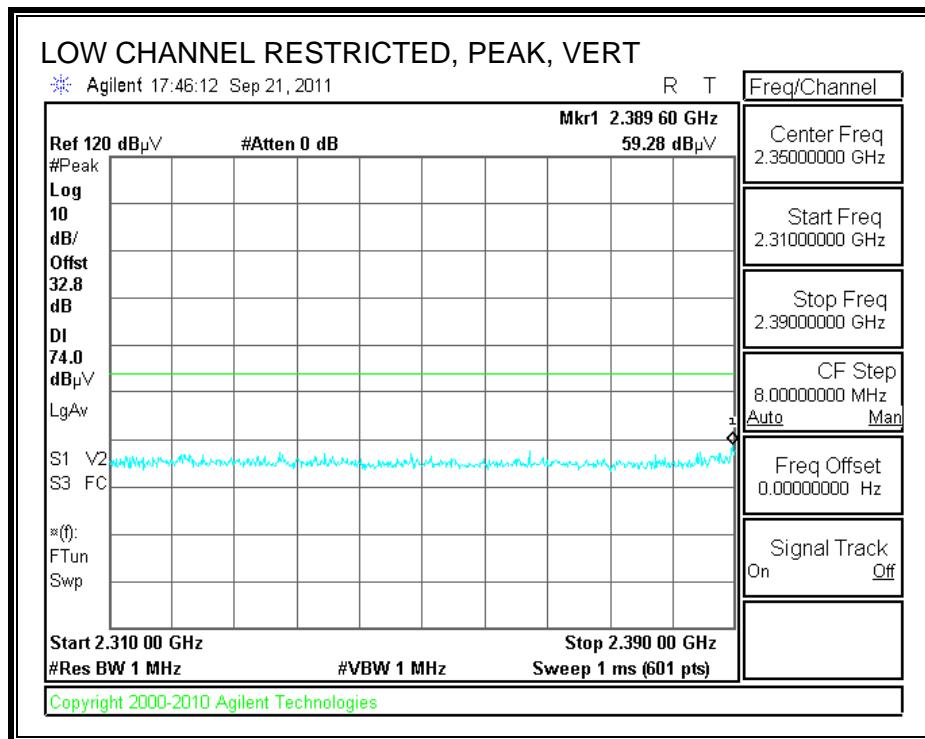
Note: No other emissions were detected above the system noise floor.

8.2.10. 802.11n HT20 MCS8 3TX MODE IN THE 2.4 GHz BAND

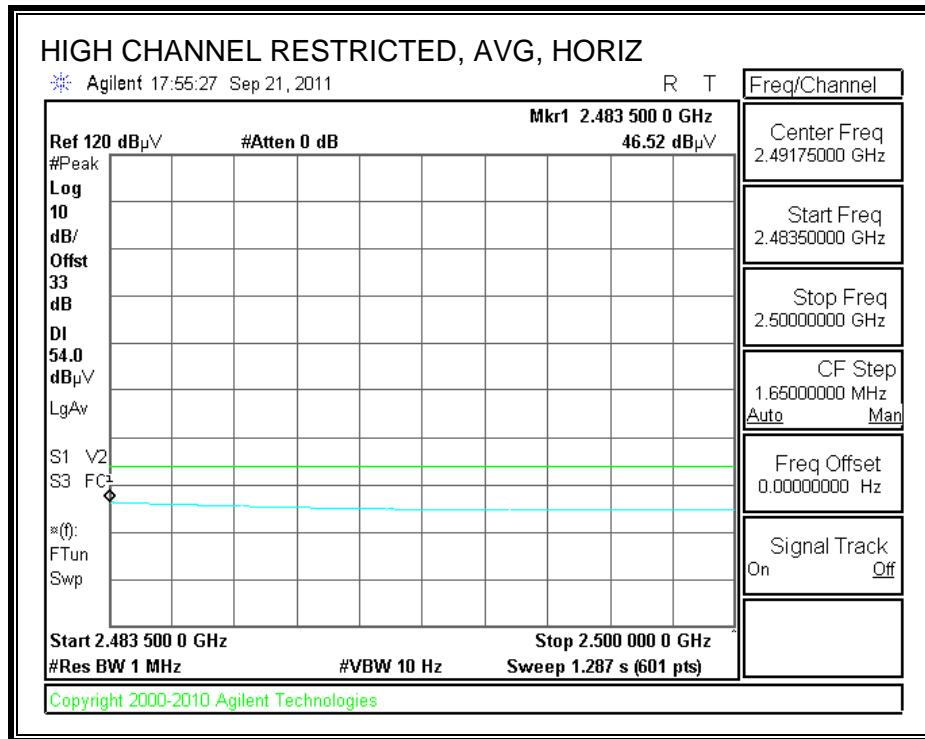
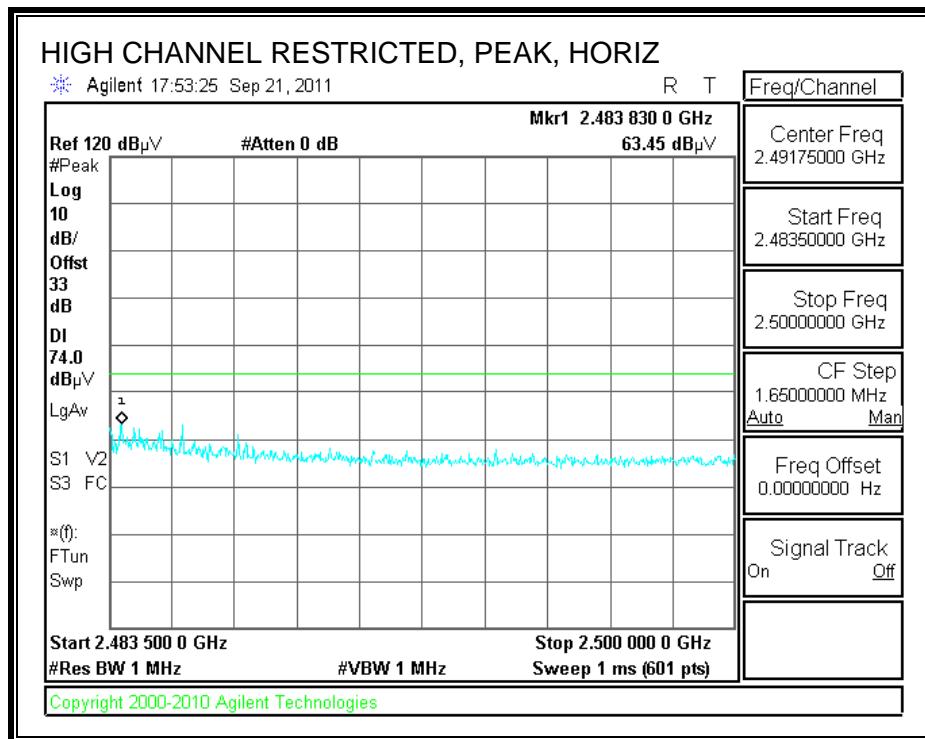
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



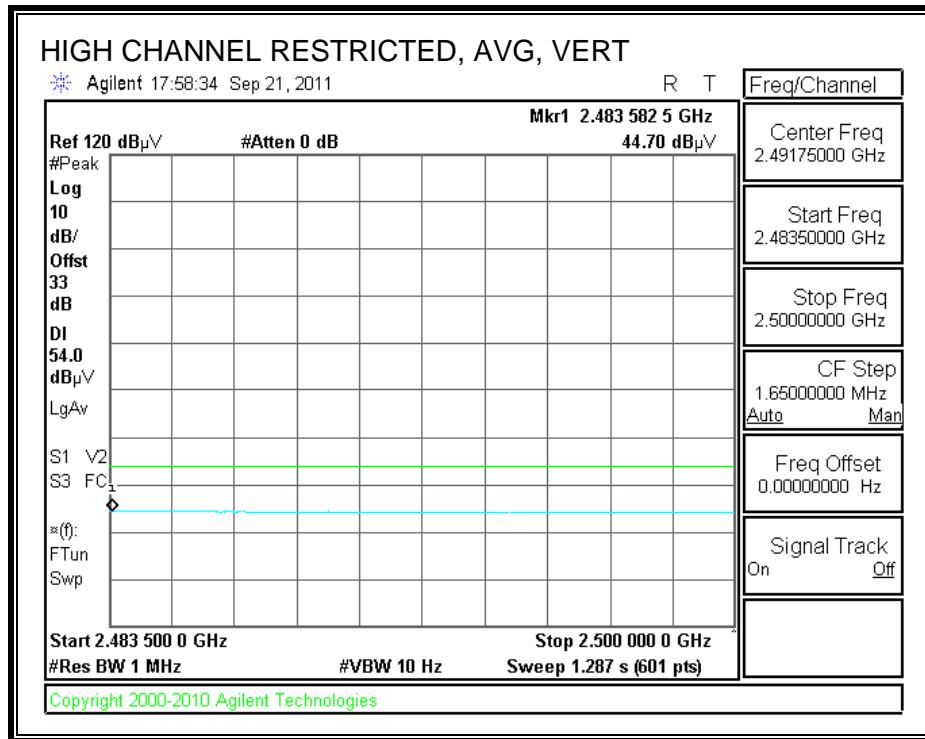
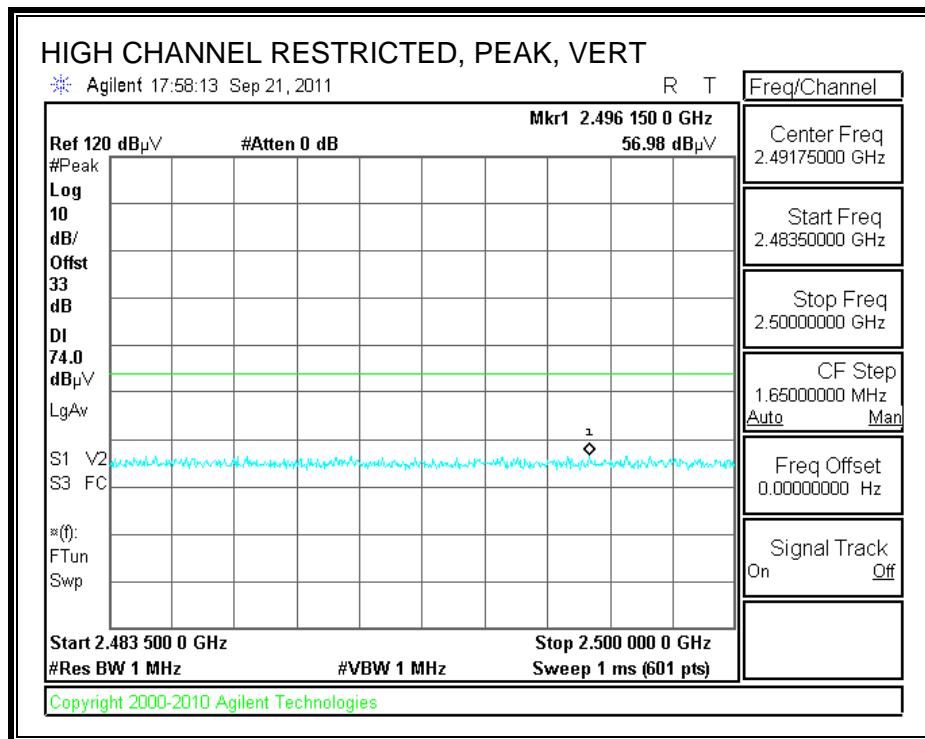
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

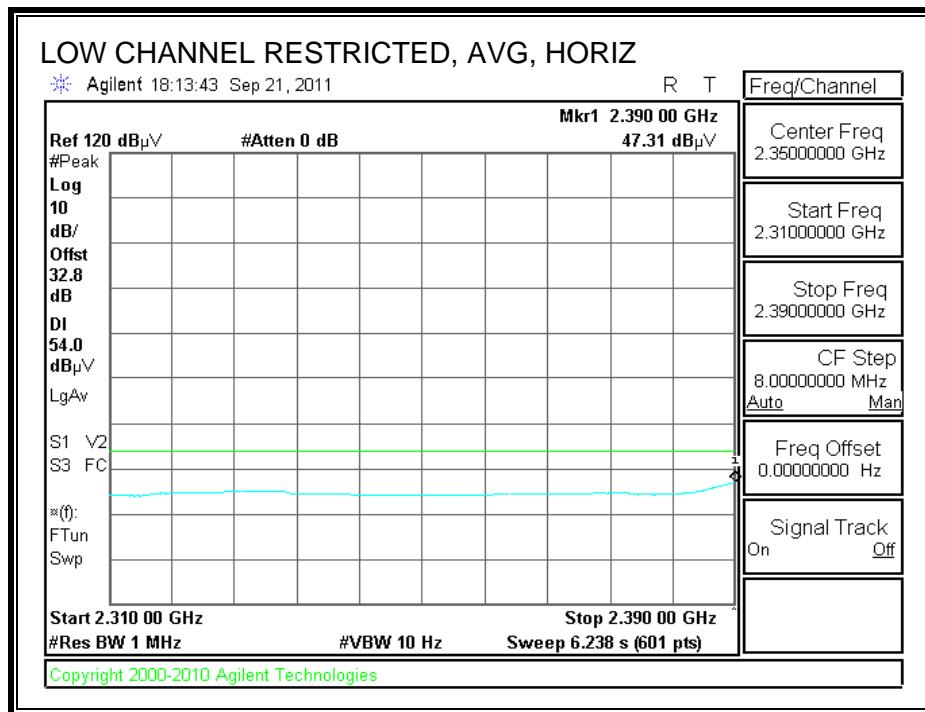
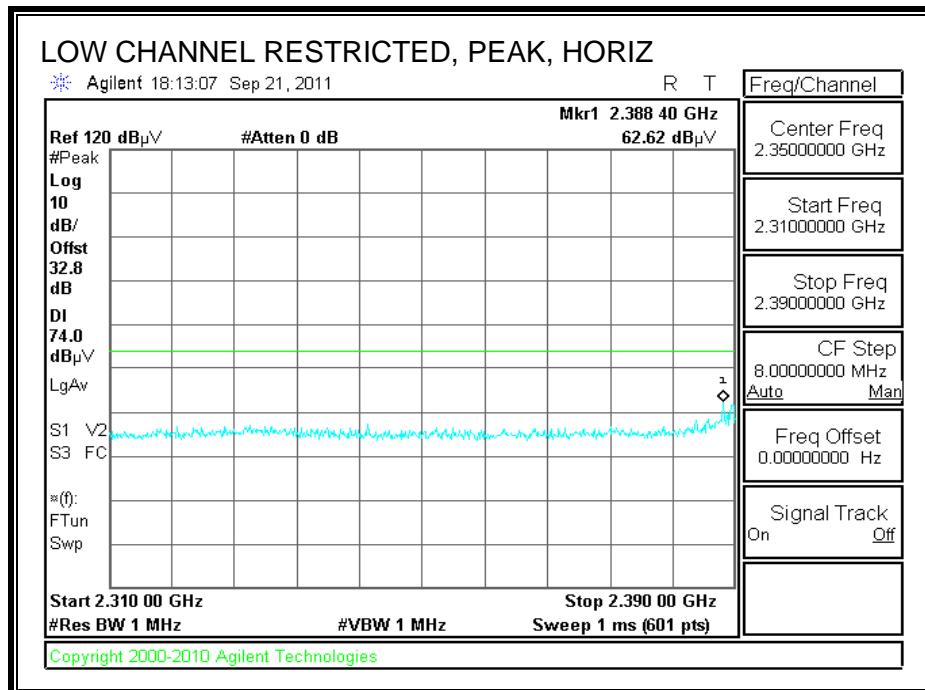


HARMONICS AND SPURIOUS EMISSIONS

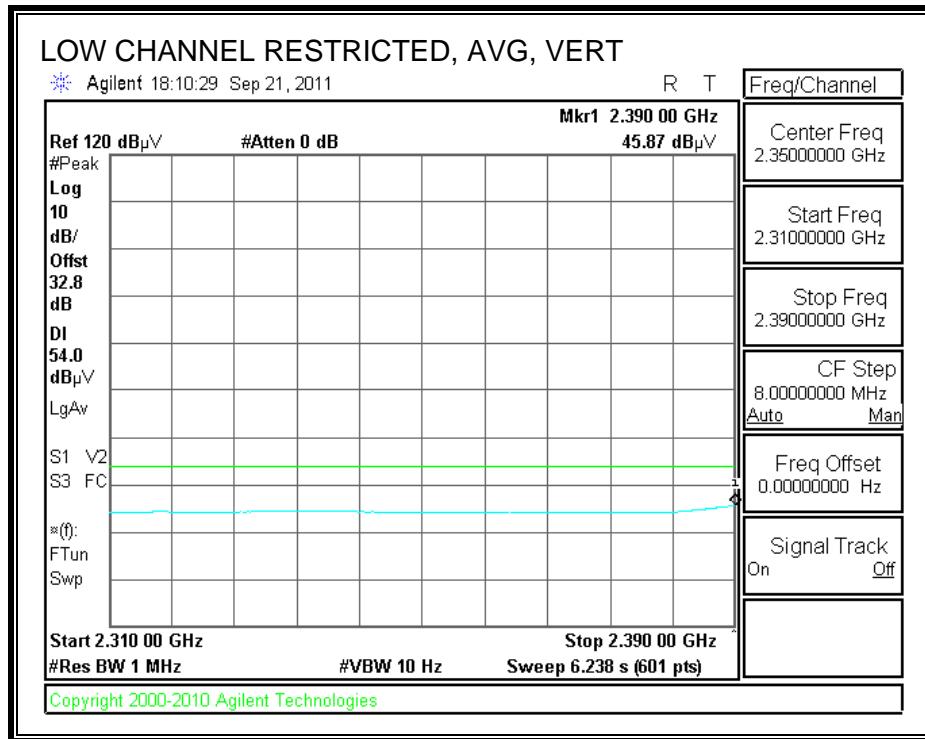
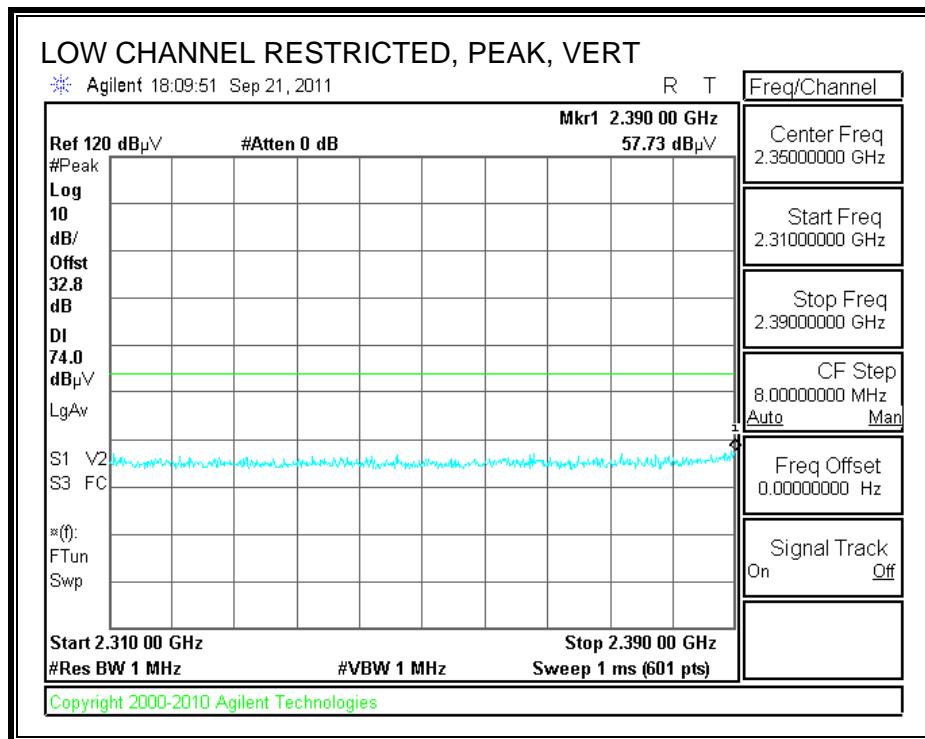
High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/22/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:															
Mode Oper:	Tx On, 2.4 GHz, HT20 Mode MCS8														
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance	Correct to 3	meters								Peak Field Strength Limit	
Read	Analyzer Reading	Avg		Average	Field	Strength	@ 3	m						Margin vs. Average Limit	
AF	Antenna Factor	Peak		Calculated	Peak	Field	Strength							Margin vs. Peak Limit	
CL	Cable Loss	HPF		High	Pass	Filter									
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 2412 MHz															
4.824	3.0	36.4	33.9	6.8	-34.1	0.0	0.0	43.1	74.0	-30.9	V	P	99.0	249.0	
4.824	3.0	24.2	33.9	6.8	-34.1	0.0	0.0	30.8	54.0	-23.2	V	A	99.0	249.0	
4.824	3.0	36.9	33.9	6.8	-34.1	0.0	0.0	43.5	74.0	-30.5	H	P	149.0	34.0	
4.824	3.0	24.2	33.9	6.8	-34.1	0.0	0.0	30.8	54.0	-23.2	H	A	149.0	34.0	
Mid Ch. 2437 MHz															
4.874	3.0	35.8	33.9	6.8	-34.0	0.0	0.0	42.5	74.0	-31.5	H	P	113.0	174.0	
4.874	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	H	A	113.0	174.0	
4.874	3.0	36.1	33.9	6.8	-34.0	0.0	0.0	42.8	74.0	-31.2	V	P	98.0	183.0	
4.874	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	V	A	98.0	183.0	
High Ch. 2462 MHz															
4.924	3.0	36.5	34.0	6.8	-34.0	0.0	0.0	43.3	74.0	-30.7	V	P	181.0	118.0	
4.924	3.0	24.0	34.0	6.8	-34.0	0.0	0.0	30.8	54.0	-23.2	V	A	181.0	118.0	
4.924	3.0	36.2	34.0	6.8	-34.0	0.0	0.0	43.0	74.0	-31.0	H	P	103.0	218.0	
4.924	3.0	24.0	34.0	6.8	-34.0	0.0	0.0	30.8	54.0	-23.2	H	A	103.0	218.0	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

8.2.11. 802.11n HT20 MCS16 3TX MODE IN THE 2.4 GHz BAND

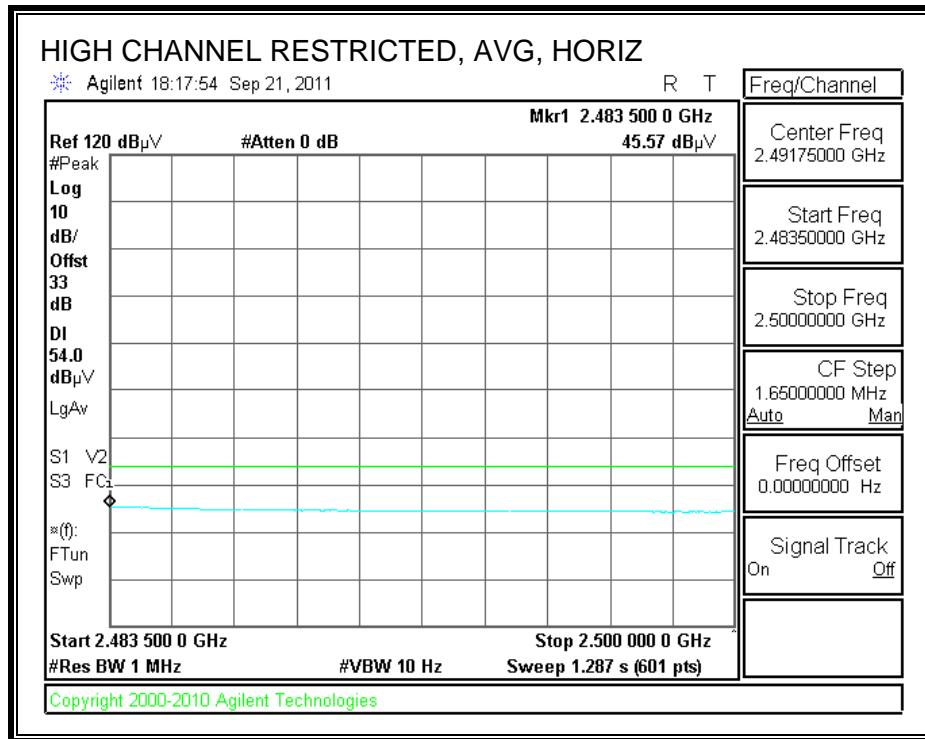
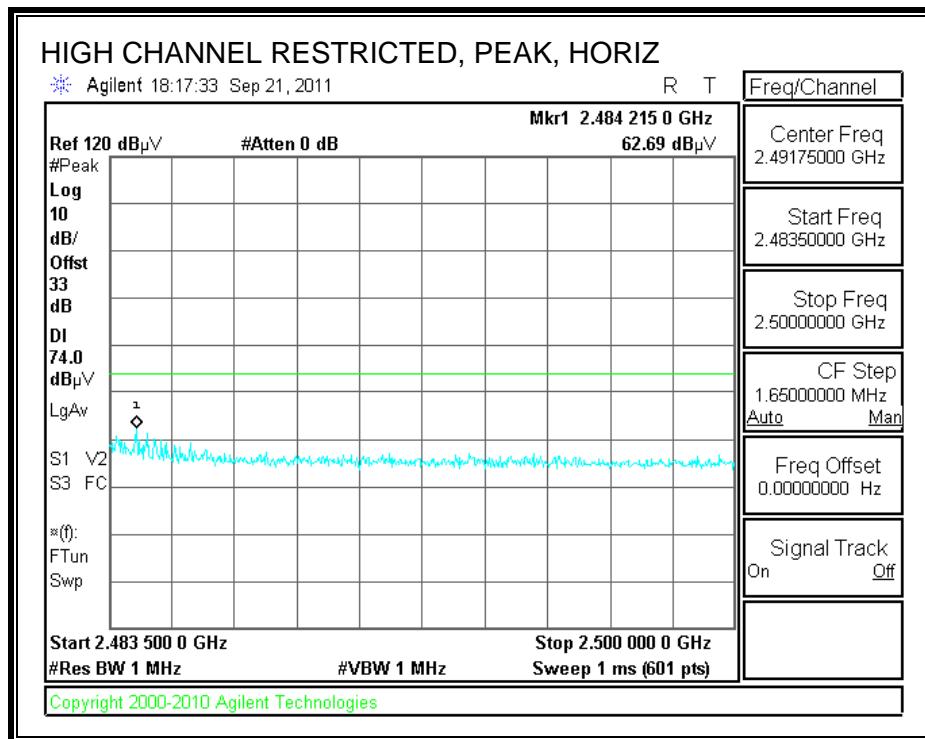
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



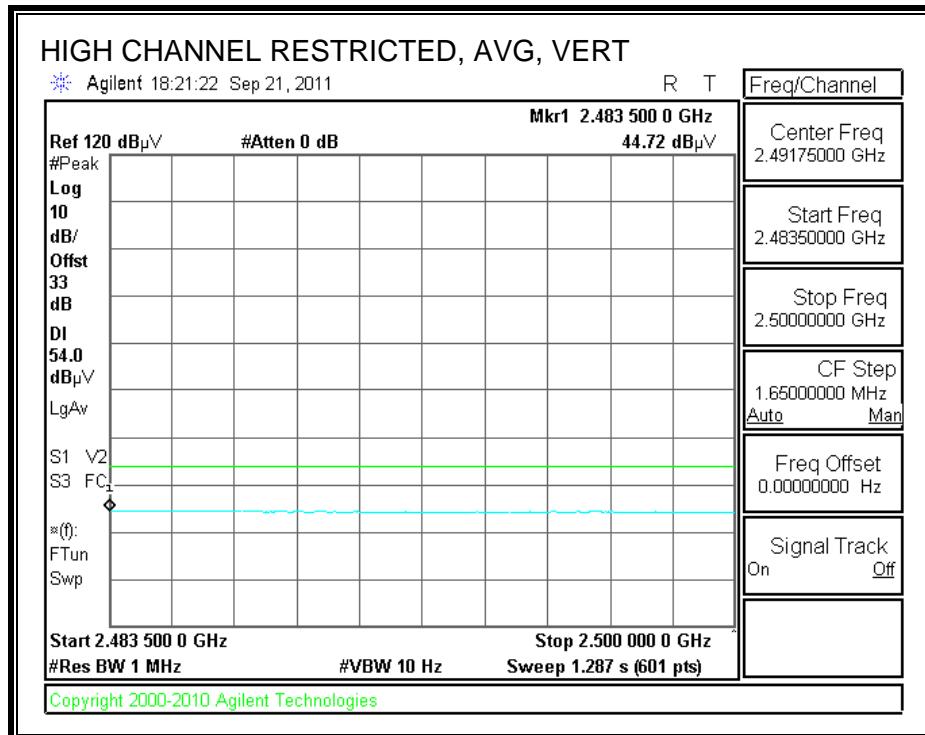
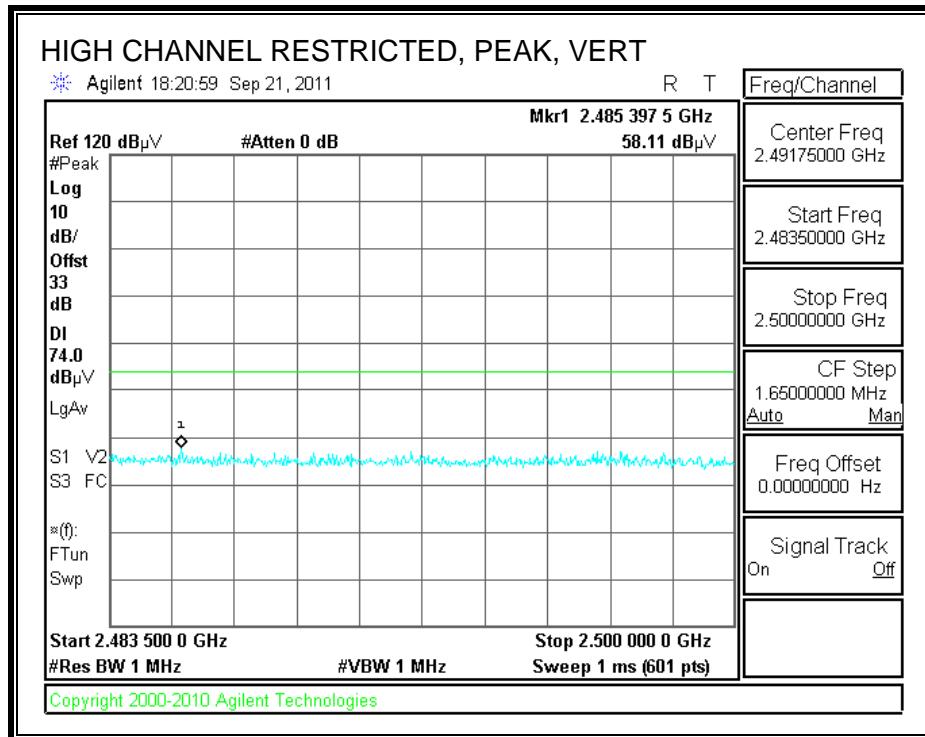
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 09/22/11
Project #: 11U13957
Company: Varian Card Access
Test Target:
Mode Oper: Tx On, 2.4 GHz, HT20 Mode MCS16

f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m
AF	Antenna Factor	Peak		Calculated Peak Field Strength
CL	Cable Loss	HPF		Margin vs. Peak Limit

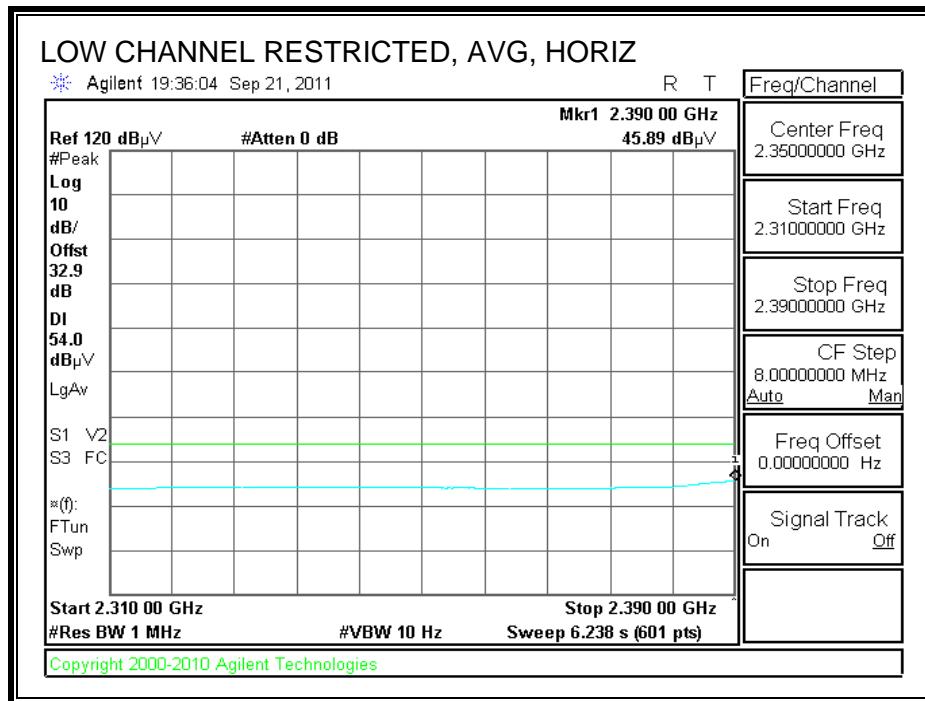
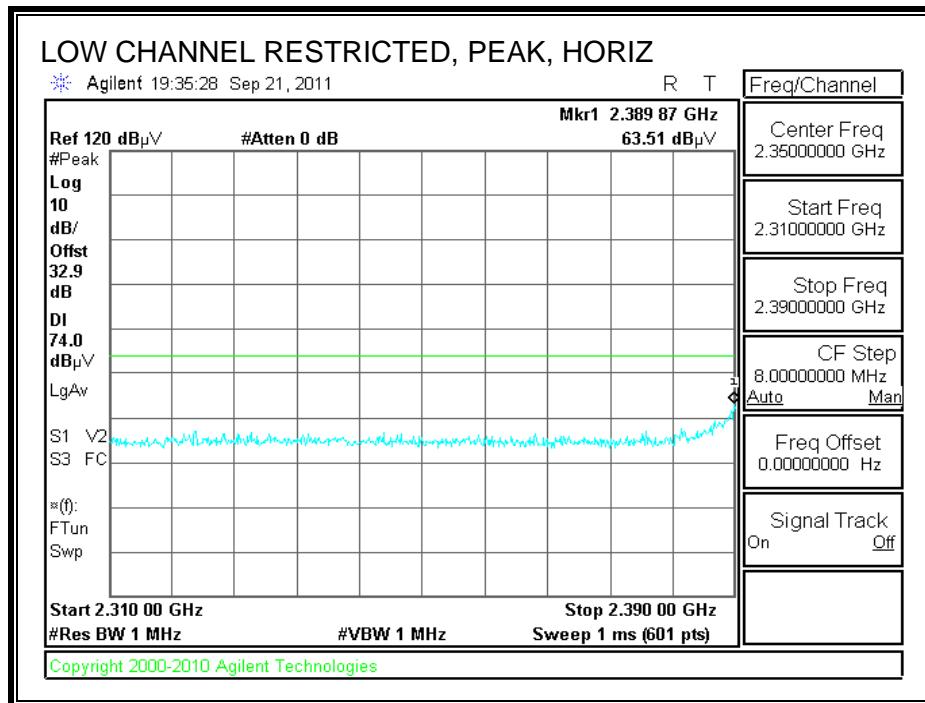
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 2412 MHz															
4.824	3.0	36.4	33.9	6.8	-34.1	0.0	0.0	43.0	74.0	-31.0	V	P	196.0	308.0	
4.824	3.0	24.2	33.9	6.8	-34.1	0.0	0.0	30.8	54.0	-23.2	V	A	196.0	308.0	
4.824	3.0	37.8	33.9	6.8	-34.1	0.0	0.0	44.4	74.0	-29.6	H	P	109.0	260.0	
4.824	3.0	24.2	33.9	6.8	-34.1	0.0	0.0	30.8	54.0	-23.2	H	A	109.0	260.0	
Mid Ch. 2437 MHz															
4.874	3.0	36.6	33.9	6.8	-34.0	0.0	0.0	43.3	74.0	-30.7	H	P	131.0	318.0	
4.874	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	H	A	131.0	318.0	
4.874	3.0	36.6	33.9	6.8	-34.0	0.0	0.0	43.3	74.0	-30.7	V	P	146.0	7.0	
4.874	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	V	A	146.0	7.0	
High Ch. 2462 MHz															
4.924	3.0	36.2	34.0	6.8	-34.0	0.0	0.0	43.0	74.0	-31.0	V	P	107.0	136.0	
4.924	3.0	24.0	34.0	6.8	-34.0	0.0	0.0	30.8	54.0	-23.2	V	A	107.0	136.0	
4.924	3.0	36.0	34.0	6.8	-34.0	0.0	0.0	42.8	74.0	-31.2	H	P	98.0	270.0	
4.924	3.0	24.0	34.0	6.8	-34.0	0.0	0.0	30.8	54.0	-23.2	H	A	98.0	270.0	

Rev. 4.1.2.7

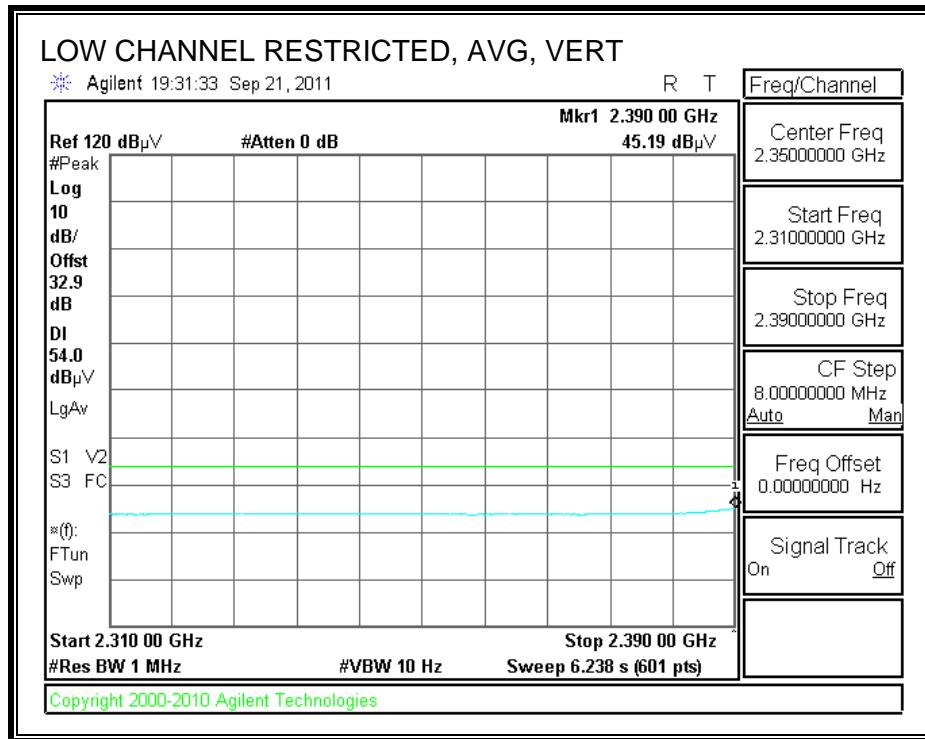
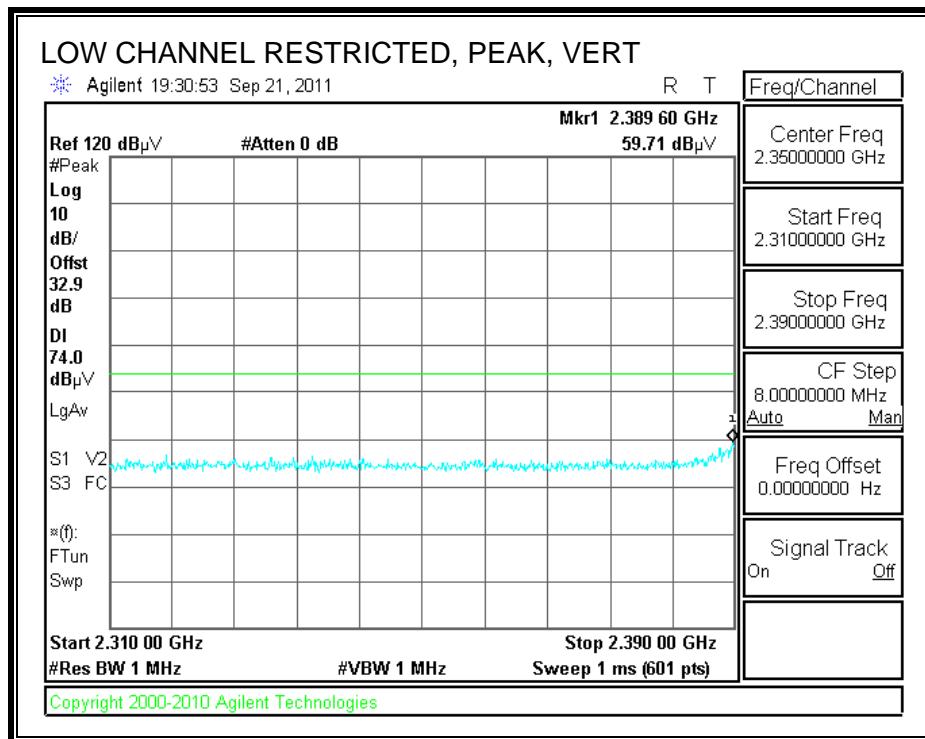
Note: No other emissions were detected above the system noise floor.

8.2.12. 802.11n HT40 MCS0 3TX MODE IN THE 2.4 GHz BAND

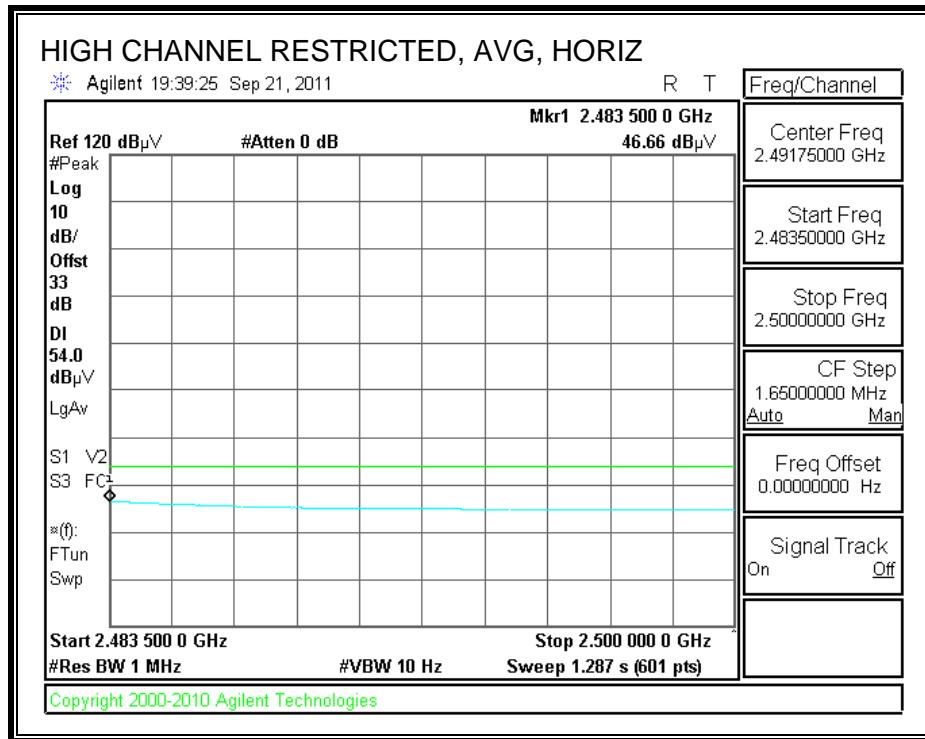
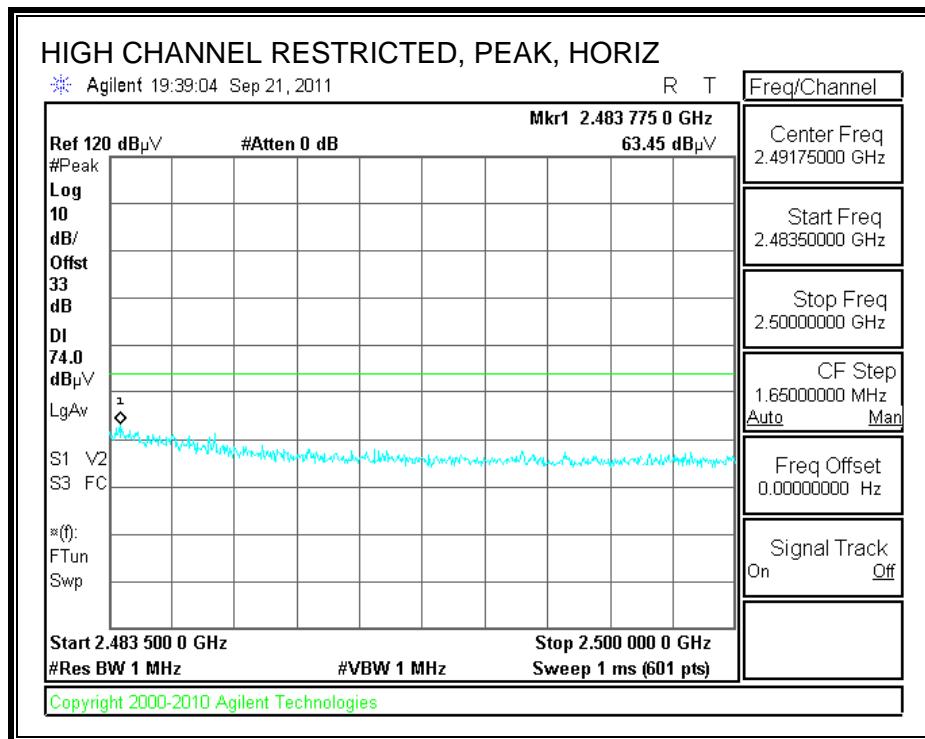
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



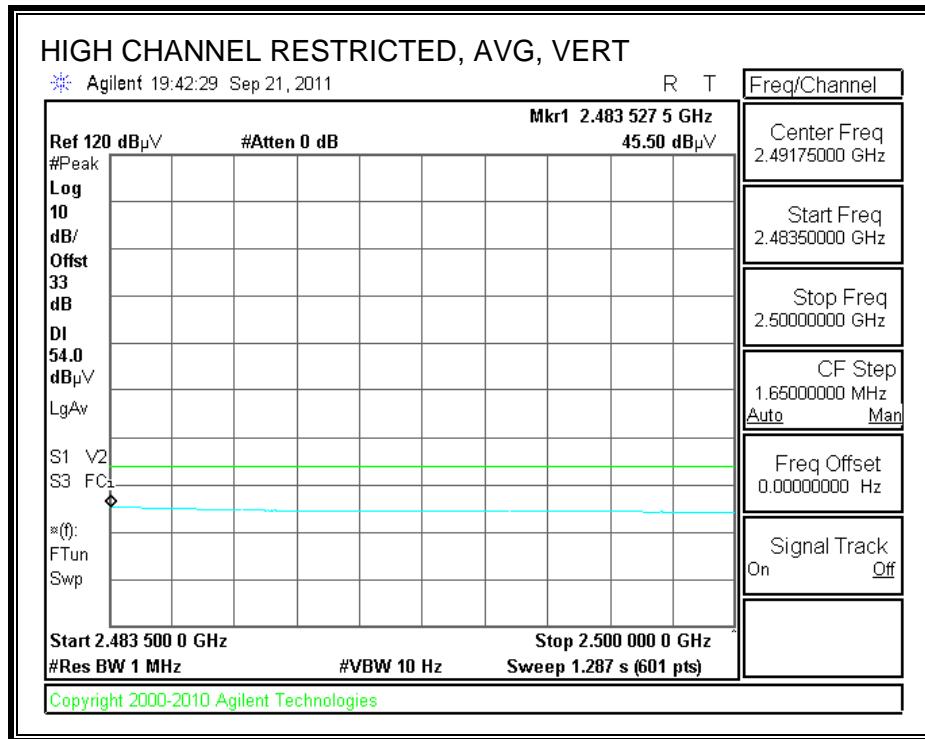
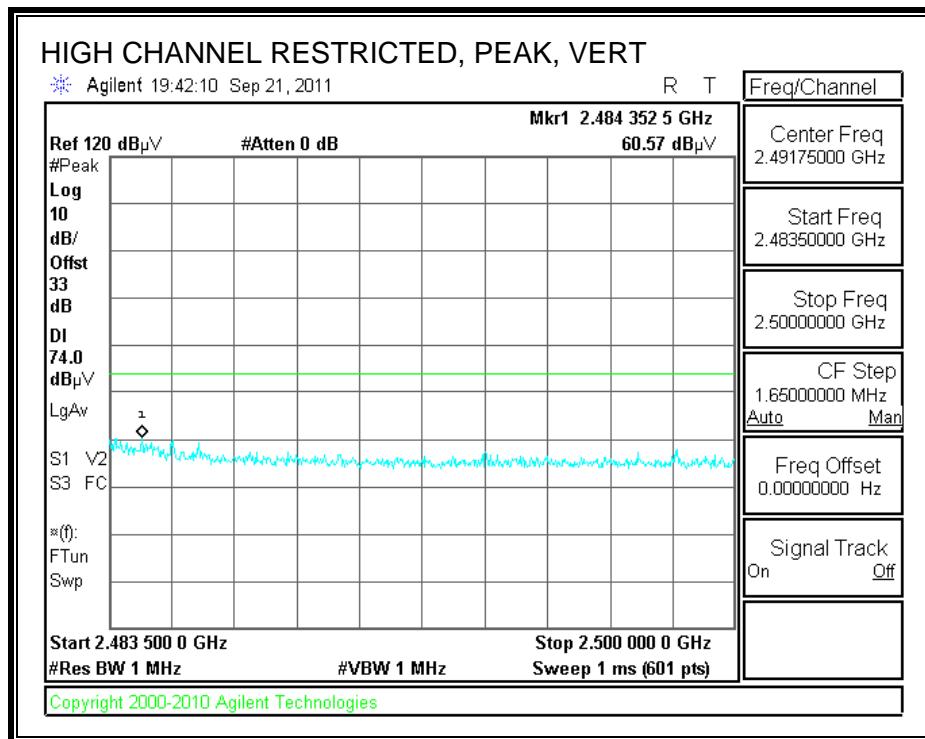
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

**High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber**

Test Engr: William Zhuang
Date: 09/22/11
Project #: 11U13957
Company: Varian Card Access
Test Target:
Mode Oper: Tx On, 2.4 GHz, HT40 Mode MCS0

f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters	Peak Field Strength Limit
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m	Margin vs. Average Limit
AF	Antenna Factor	Peak		Calculated Peak Field Strength	Margin vs. Peak Limit
CL	Cable Loss	HPF		High Pass Filter	

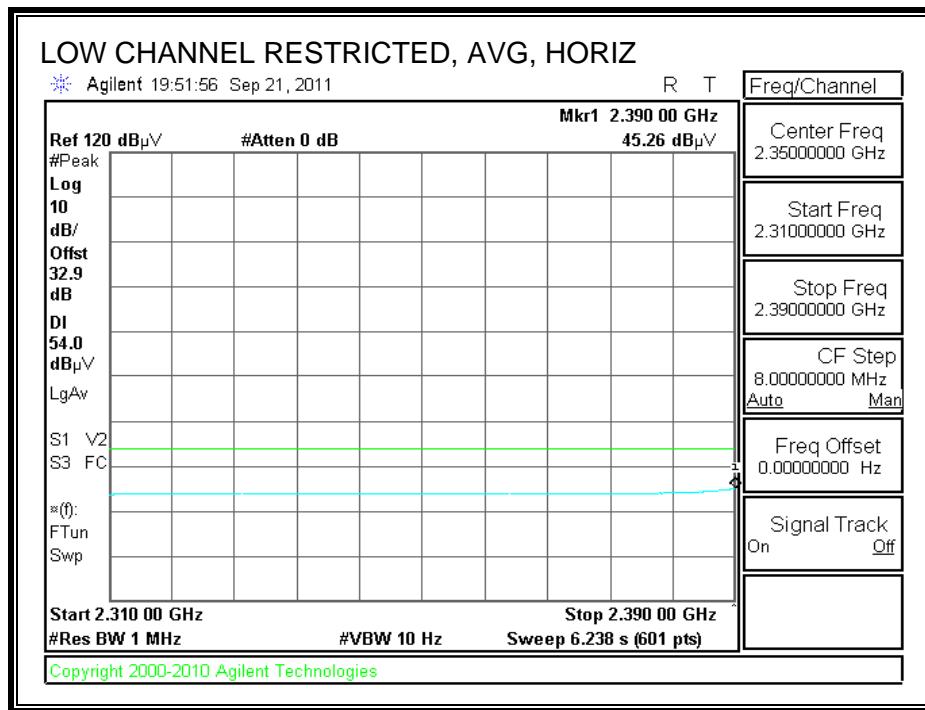
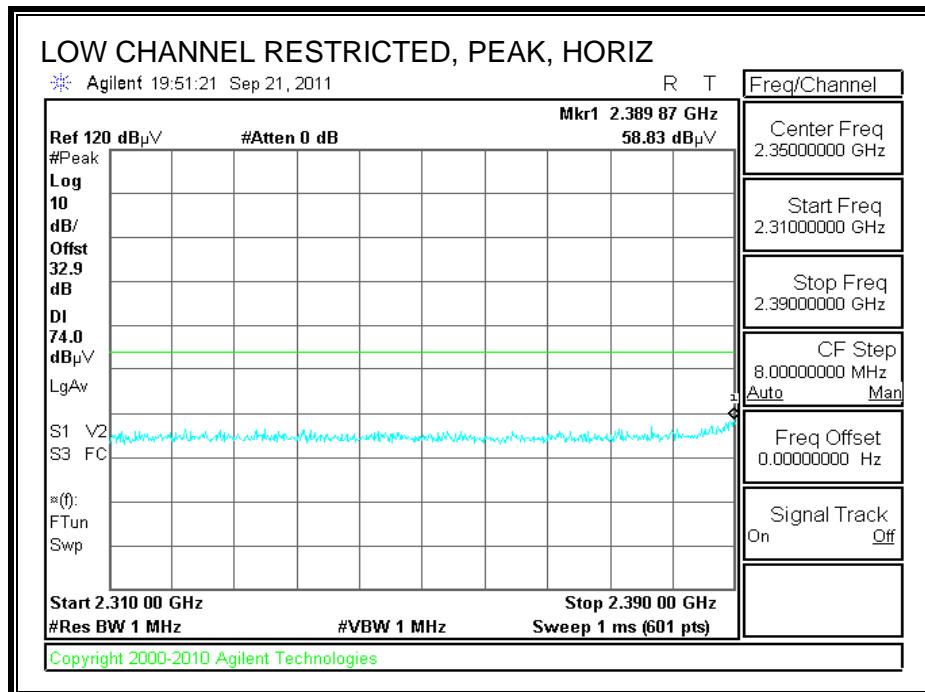
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 2422 MHz															
4.844	3.0	36.7	33.9	6.8	-34.0	0.0	0.0	43.4	74.0	-30.6	V	P	134.0	183.0	
4.844	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.6	54.0	-23.4	V	A	134.0	183.0	
4.844	3.0	37.1	33.9	6.8	-34.0	0.0	0.0	43.8	74.0	-30.2	H	P	100.0	245.0	
4.844	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.6	54.0	-23.4	H	A	100.0	245.0	
Mid Ch. 2437 MHz															
4.874	3.0	35.9	33.9	6.8	-34.0	0.0	0.0	42.6	74.0	-31.4	H	P	194.0	271.0	
4.874	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.6	54.0	-23.4	H	A	194.0	271.0	
4.874	3.0	36.6	33.9	6.8	-34.0	0.0	0.0	43.3	74.0	-30.7	V	P	197.0	315.0	
4.874	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.6	54.0	-23.4	V	A	197.0	315.0	
High Ch. 2452 MHz															
4.904	3.0	36.8	34.0	6.8	-34.0	0.0	0.0	43.6	74.0	-30.5	V	P	190.0	16.0	
4.904	3.0	24.2	34.0	6.8	-34.0	0.0	0.0	30.9	54.0	-23.1	V	A	190.0	16.0	
4.904	3.0	36.6	34.0	6.8	-34.0	0.0	0.0	43.3	74.0	-30.7	H	P	154.0	209.0	
4.904	3.0	24.2	34.0	6.8	-34.0	0.0	0.0	30.9	54.0	-23.1	H	A	154.0	209.0	

Rev. 4.1.2.7

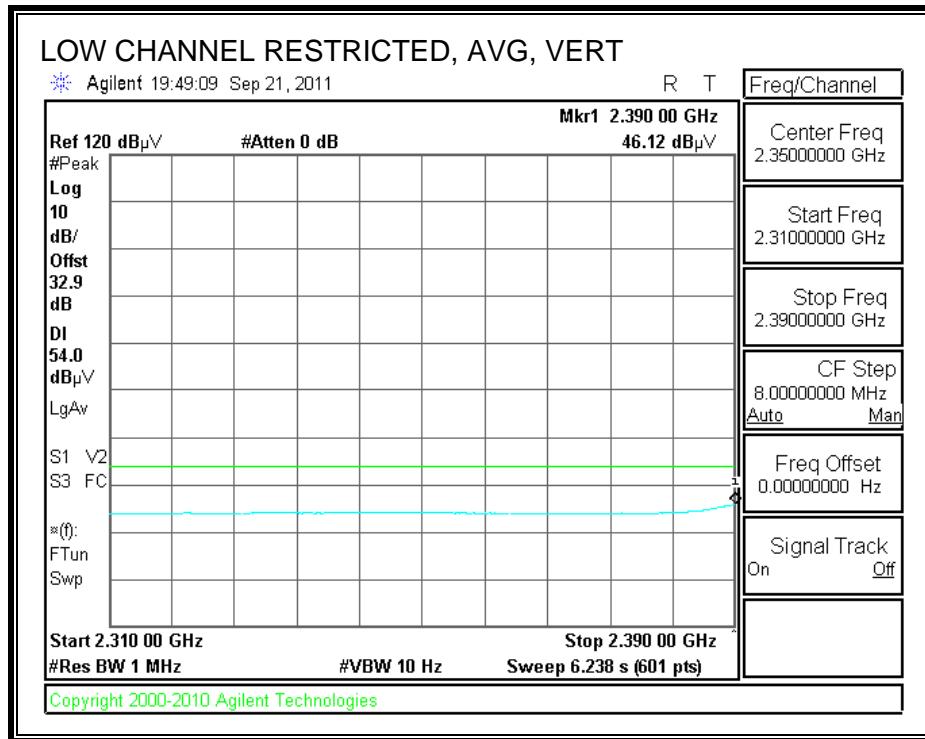
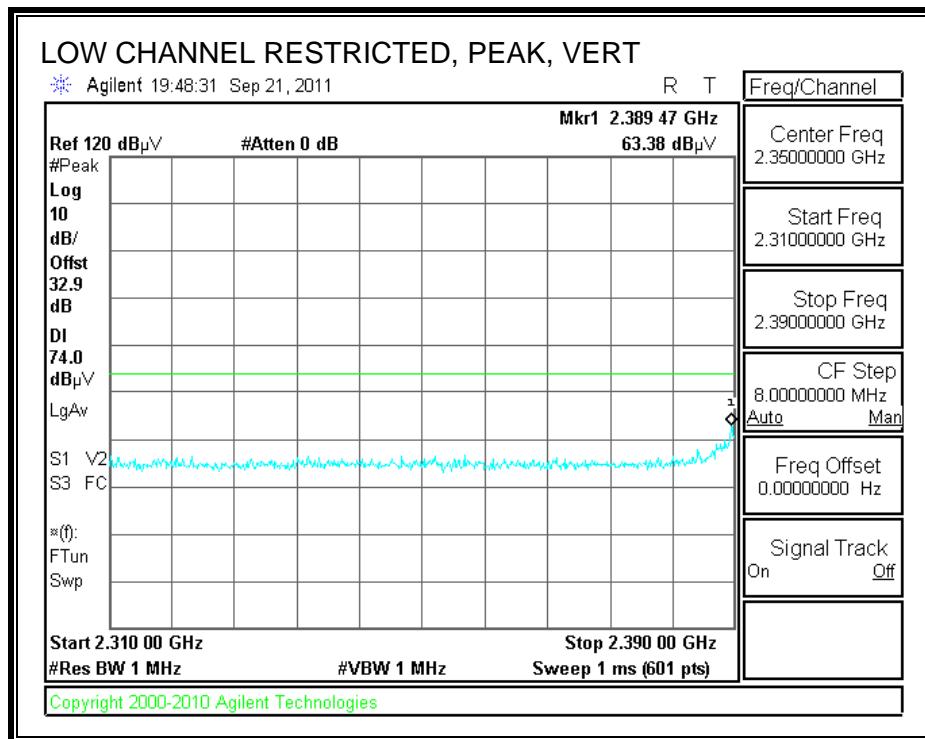
Note: No other emissions were detected above the system noise floor.

8.2.13. 802.11n HT40 MCS8 3TX MODE IN THE 2.4 GHz BAND

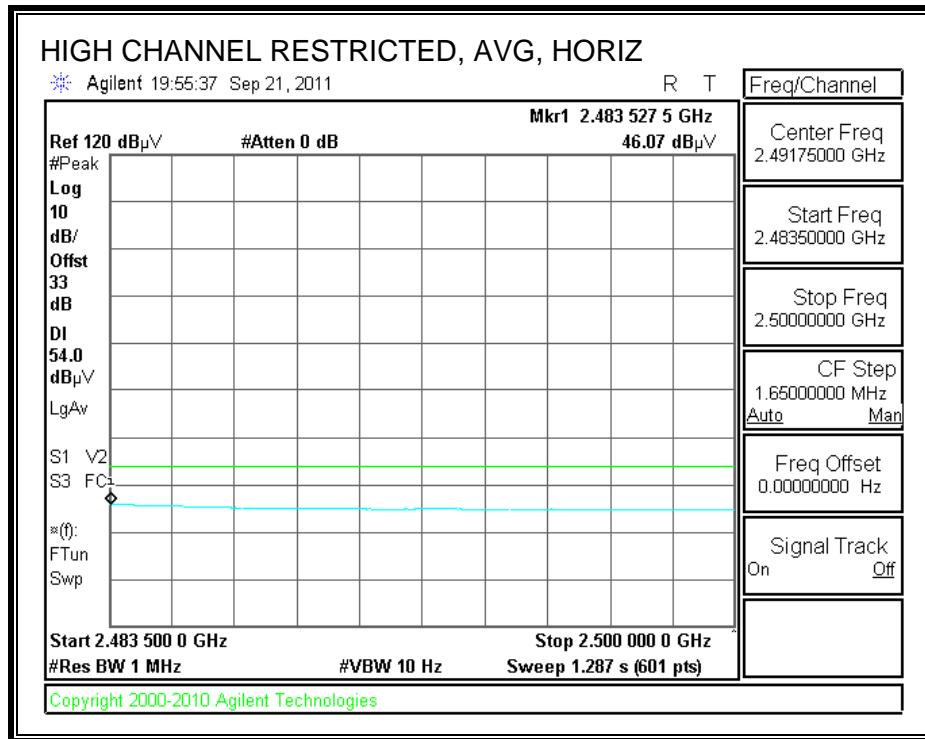
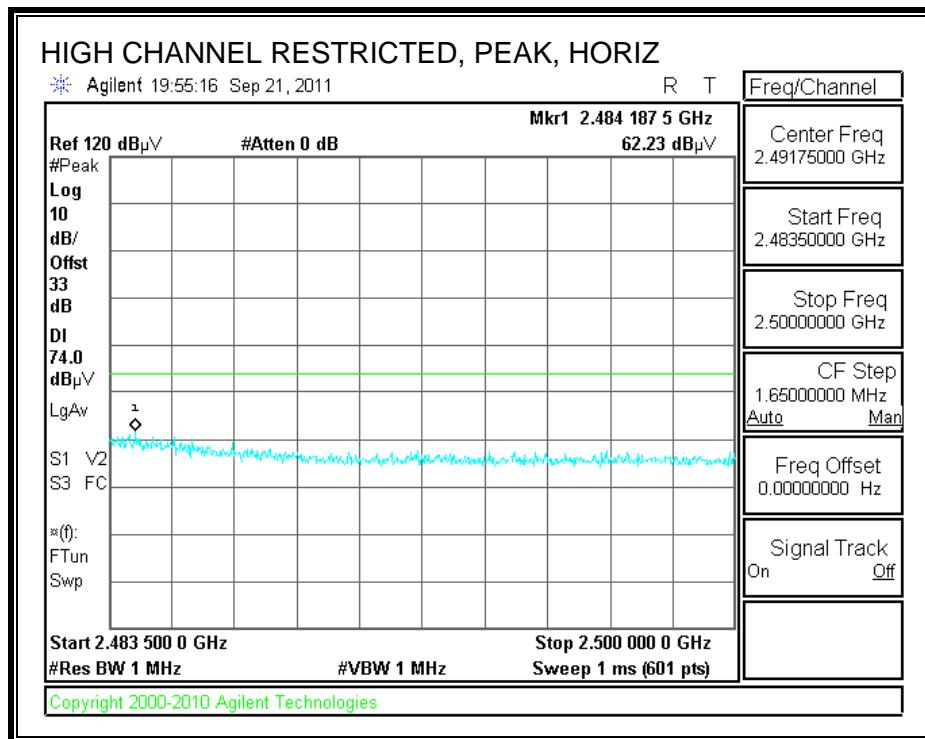
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



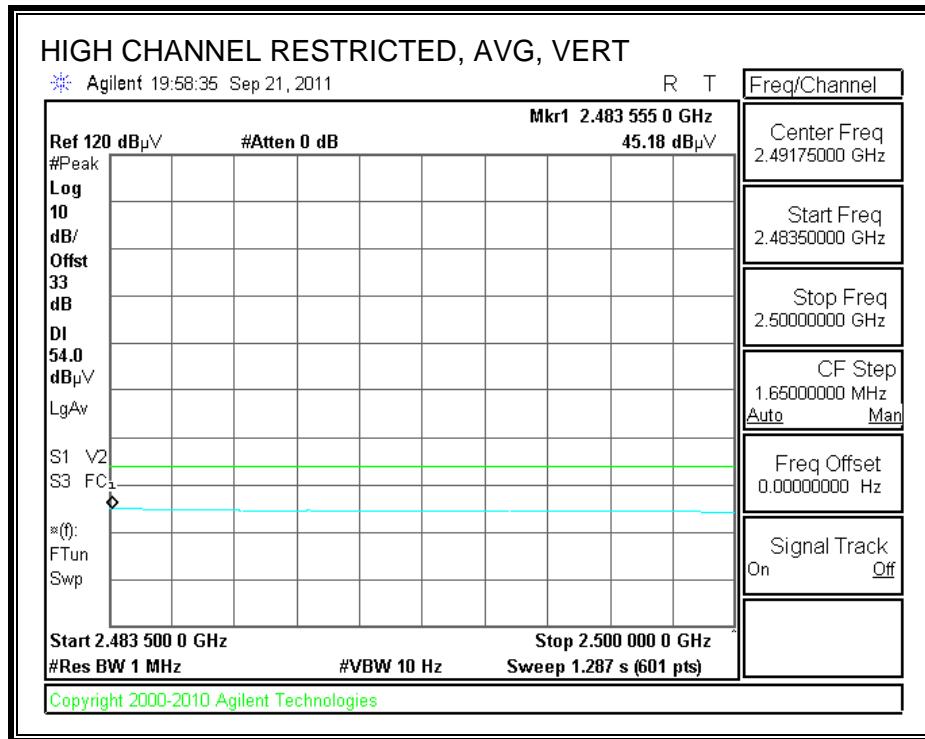
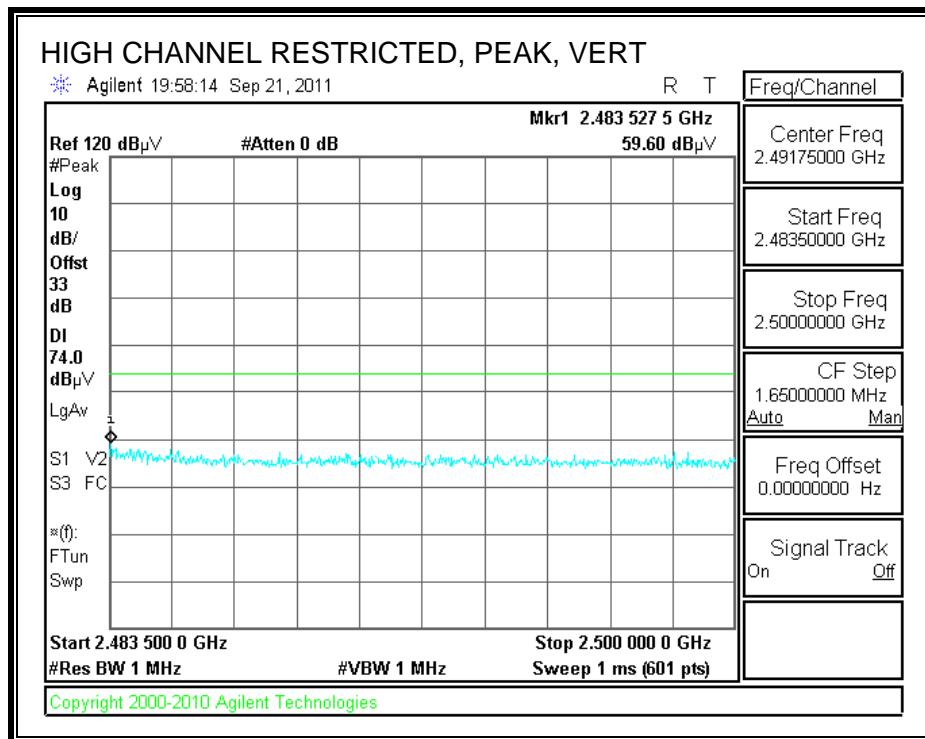
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 09/22/11
Project #: 11U13957
Company: Varian Card Access
Test Target:
Mode Oper: Tx On, 2.4 GHz, HT40 Mode MCS8

f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter	

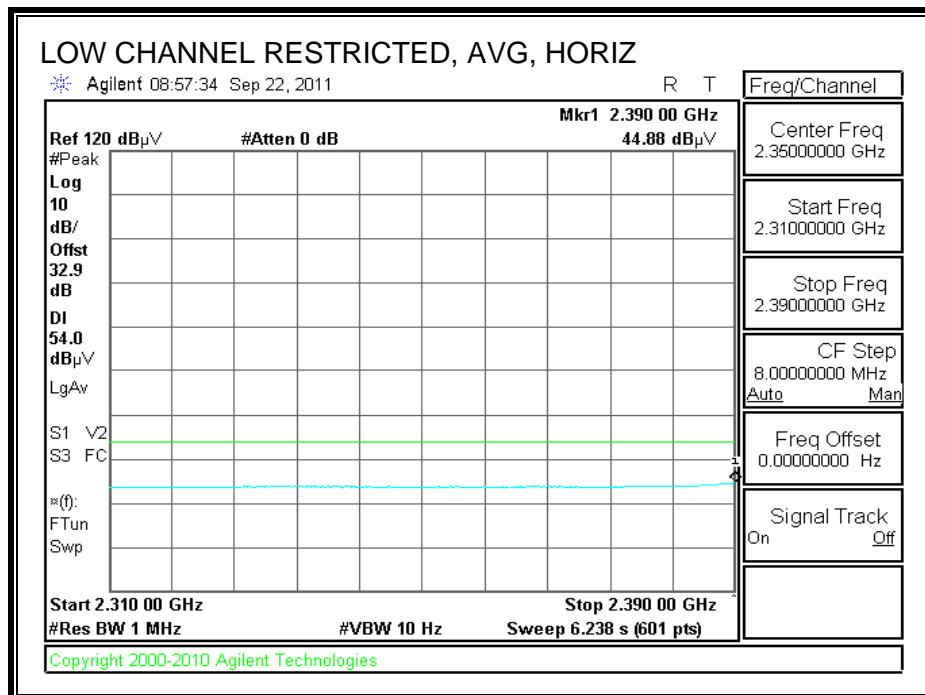
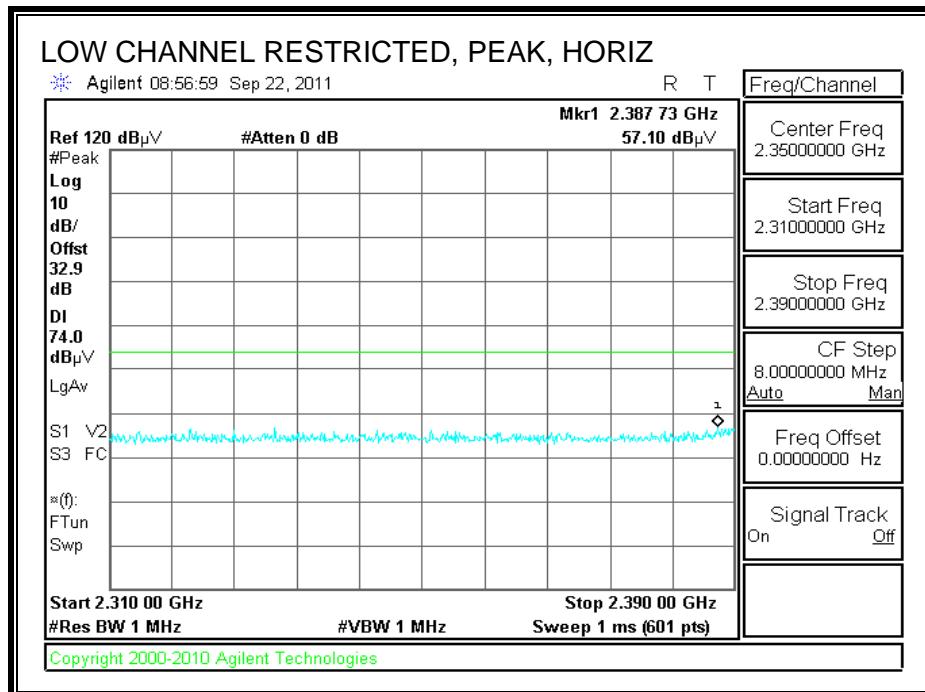
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 2422 MHz															
4.844	3.0	36.8	33.9	6.8	-34.0	0.0	0.0	43.5	74.0	-30.8	V	P	158.0	27.0	
4.844	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.4	54.0	-23.6	V	A	158.0	27.0	
4.844	3.0	36.6	33.9	6.8	-34.0	0.0	0.0	43.2	74.0	-30.8	H	P	188.0	8.0	
4.844	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.4	54.0	-23.6	H	A	188.0	8.0	
Mid Ch. 2437 MHz															
4.874	3.0	36.1	33.9	6.8	-34.0	0.0	0.0	42.8	74.0	-31.2	H	P	113.0	344.0	
4.874	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	H	A	113.0	344.0	
4.874	3.0	36.7	33.9	6.8	-34.0	0.0	0.0	43.4	74.0	-30.6	V	P	177.0	323.0	
4.874	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	V	A	177.0	323.0	
High Ch. 2452 MHz															
4.904	3.0	37.1	34.0	6.8	-34.0	0.0	0.0	43.9	74.0	-30.1	V	P	105.0	248.0	
4.904	3.0	24.1	34.0	6.8	-34.0	0.0	0.0	30.9	54.0	-23.1	V	A	105.0	248.0	
4.904	3.0	37.3	34.0	6.8	-34.0	0.0	0.0	44.1	74.0	-29.9	H	P	118.0	355.0	
4.904	3.0	24.1	34.0	6.8	-34.0	0.0	0.0	30.9	54.0	-23.1	H	A	118.0	355.0	

Rev. 4.1.2.7

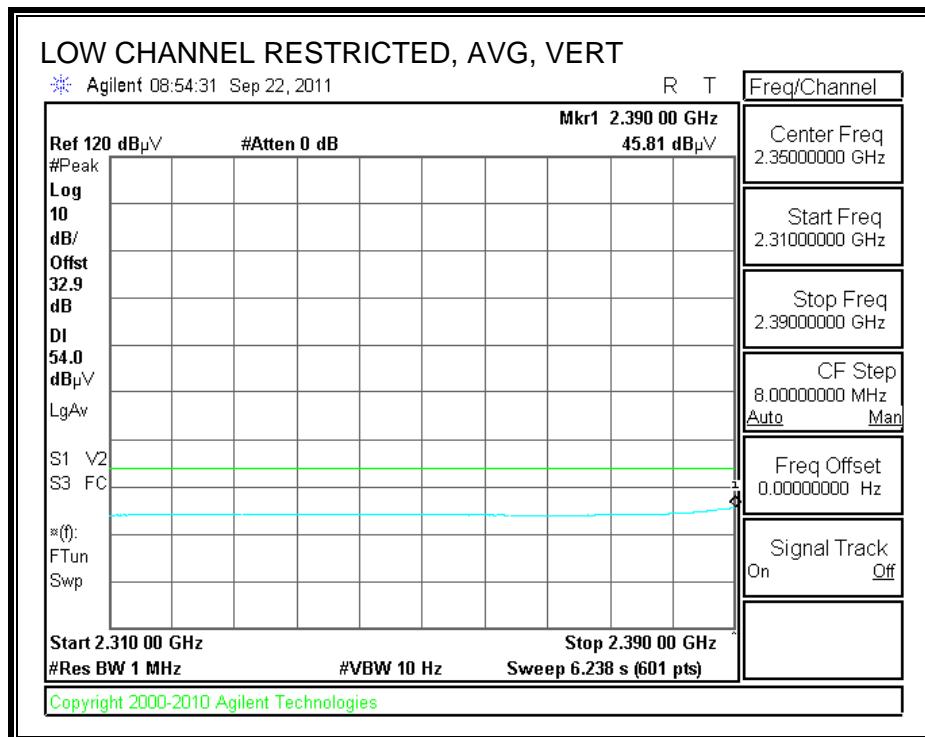
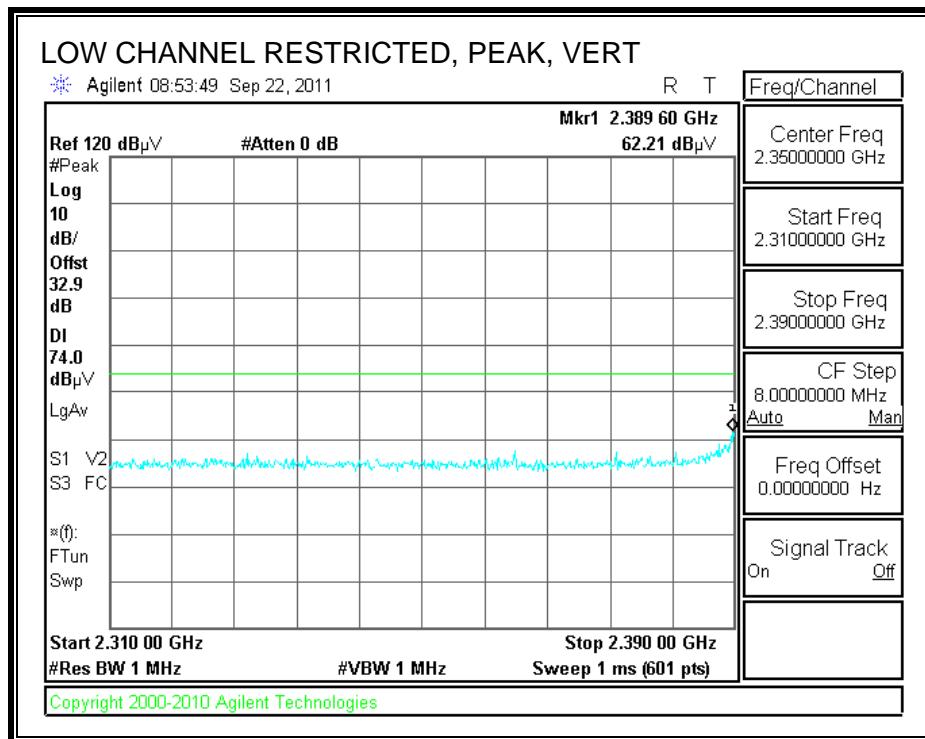
Note: No other emissions were detected above the system noise floor.

8.2.14. 802.11n HT40 MCS16 3TX MODE IN THE 2.4 GHz BAND

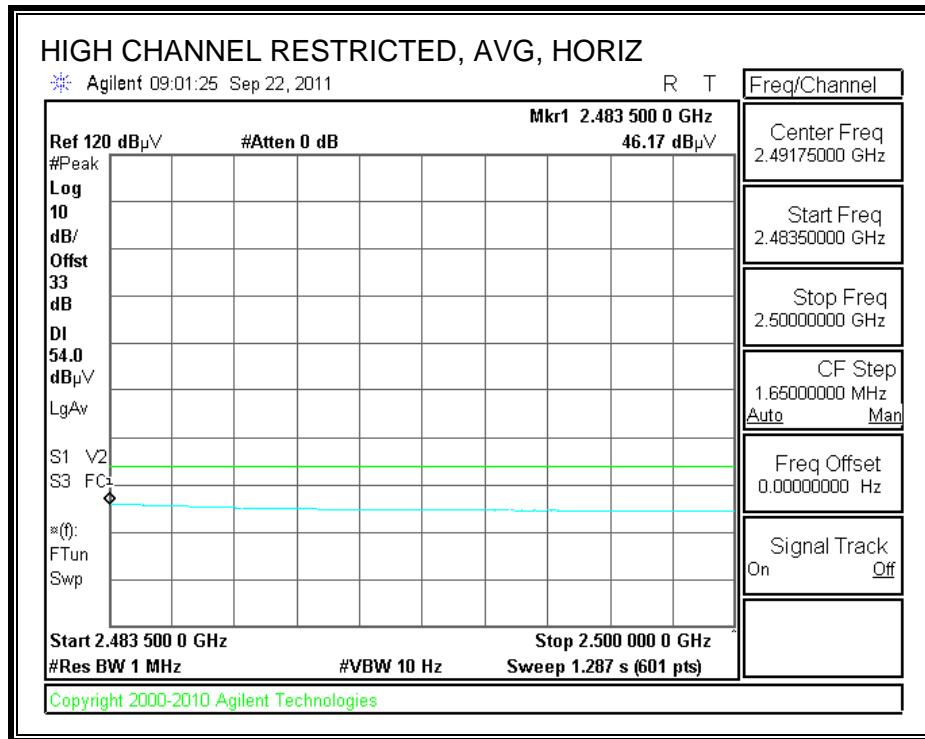
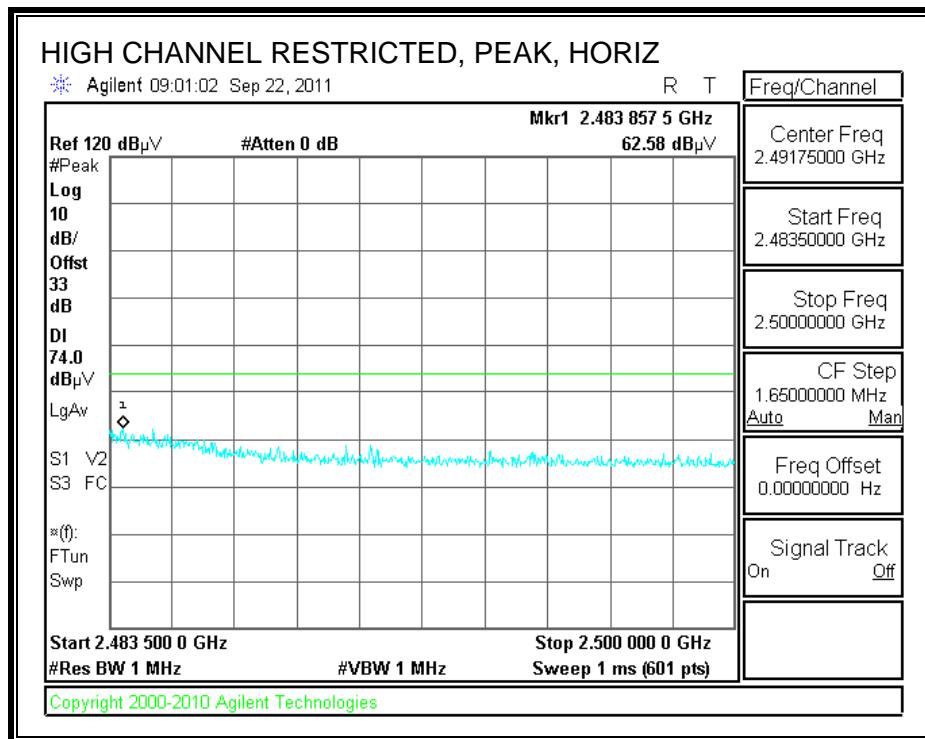
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



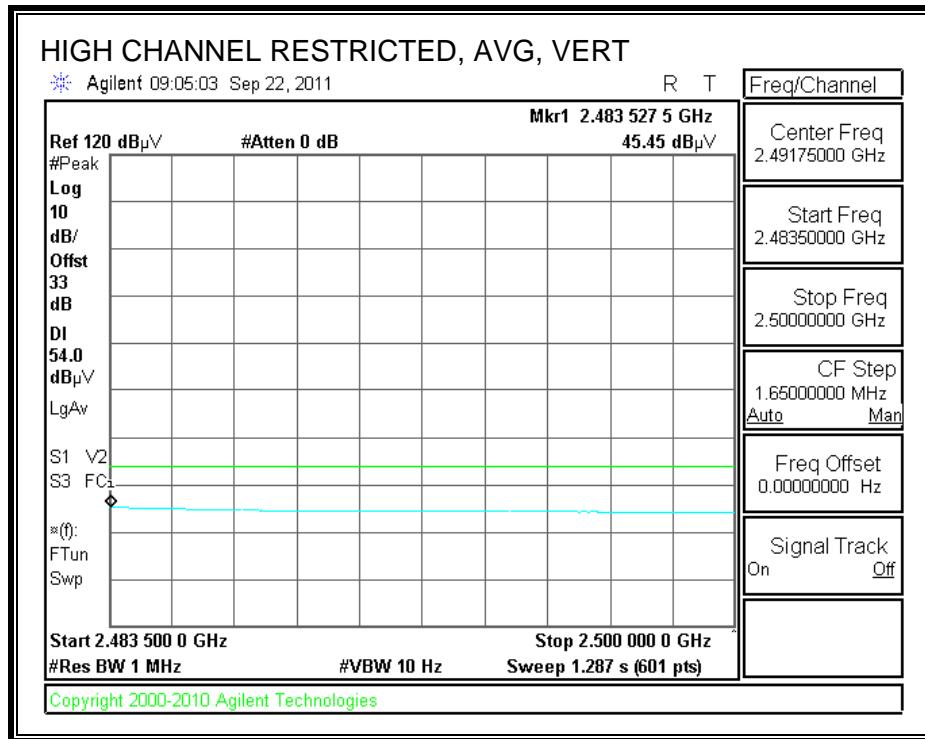
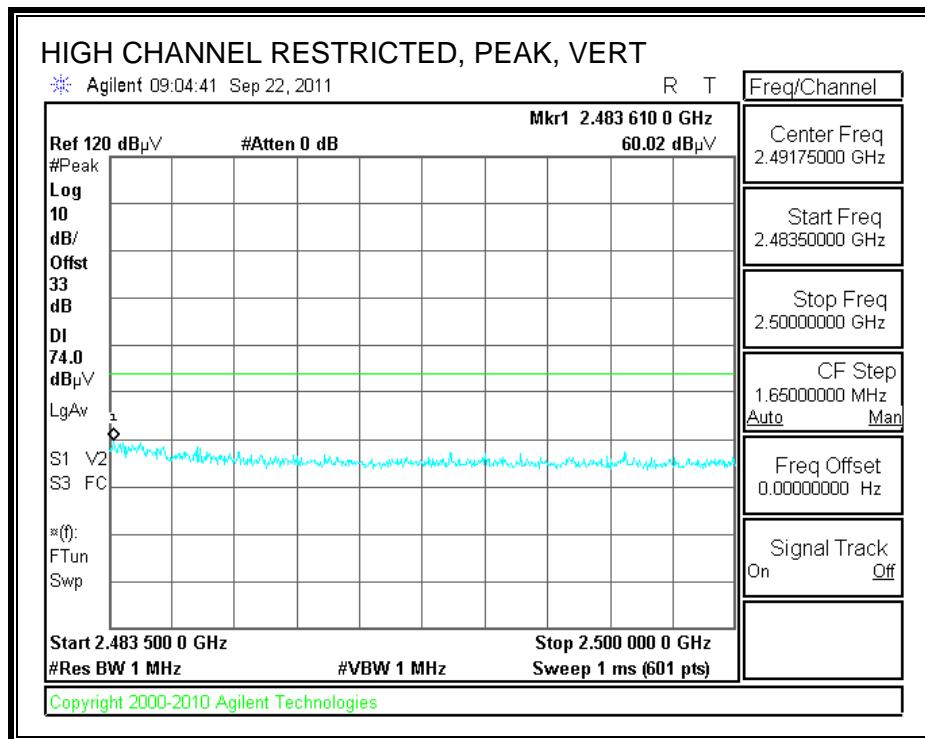
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 09/22/11
Project #: 11U13957
Company: Varian Card Access
Test Target:
Mode Oper: Tx On, 2.4 GHz, HT40 Mode MCS16

f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m
AF	Antenna Factor	Peak		Calculated Peak Field Strength
CL	Cable Loss	HPF		High Pass Filter

f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 2422 MHz															
4.844	3.0	36.1	33.9	6.8	-34.0	0.0	0.0	42.8	74.0	-31.2	V	P	198.0	95.0	
4.844	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	V	A	198.0	95.0	
4.844	3.0	36.4	33.9	6.8	-34.0	0.0	0.0	43.1	74.0	-30.9	H	P	150.0	209.0	
4.844	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	H	A	150.0	209.0	
Mid Ch. 2437 MHz															
4.874	3.0	36.2	33.9	6.8	-34.0	0.0	0.0	42.9	74.0	-31.1	H	P	110.0	345.0	
4.874	3.0	23.9	33.9	6.8	-34.0	0.0	0.0	30.6	54.0	-23.4	H	A	110.0	345.0	
4.874	3.0	35.7	33.9	6.8	-34.0	0.0	0.0	42.4	74.0	-31.6	V	P	112.0	5.0	
4.874	3.0	23.8	33.9	6.8	-34.0	0.0	0.0	30.5	54.0	-23.5	V	A	112.0	5.0	
High Ch. 2452 MHz															
4.904	3.0	37.9	34.0	6.8	-34.0	0.0	0.0	44.6	74.0	-29.4	V	P	137.0	147.0	
4.904	3.0	24.1	34.0	6.8	-34.0	0.0	0.0	30.9	54.0	-23.1	V	A	137.0	147.0	
4.904	3.0	36.9	34.0	6.8	-34.0	0.0	0.0	43.6	74.0	-30.4	H	P	113.0	130.0	
4.904	3.0	24.1	34.0	6.8	-34.0	0.0	0.0	30.9	54.0	-23.1	H	A	113.0	130.0	

Rev. 4.1.2.7

Note: No other emissions were detected above the system noise floor.

5.8GHz BAND - MONOPOLE ANTENNA; 4.5dBi

8.2.15. 802.11a MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/21/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:															
Mode Oper:	Tx On, 5.8 GHz, a Mode 9 Mbps														
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance	Correct to 3 meters									Peak Field Strength Limit	
Read	Analyzer Reading	Avg		Average	Field Strength @ 3 m									Margin vs. Average Limit	
AF	Antenna Factor	Peak		Calculated	Peak Field Strength									Margin vs. Peak Limit	
CL	Cable Loss	HPF		High	Pass Filter										
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 5745 MHz															
11.490	3.0	37.8	39.1	11.2	-32.4	0.0	0.0	55.7	74.0	-18.3	V	P	146.0	50.0	
11.490	3.0	24.6	39.1	11.2	-32.4	0.0	0.0	42.4	54.0	-11.6	V	A	146.0	50.0	
11.490	3.0	38.0	39.1	11.2	-32.4	0.0	0.0	55.9	74.0	-18.1	H	P	133.0	235.0	
11.490	3.0	26.3	39.1	11.2	-32.4	0.0	0.0	44.2	54.0	-9.8	H	A	133.0	235.0	
Mid Ch. 5785 MHz															
11.570	3.0	35.6	39.2	11.3	-32.4	0.0	0.0	53.7	74.0	-20.3	V	P	98.0	48.0	
11.570	3.0	23.6	39.2	11.3	-32.4	0.0	0.0	41.7	54.0	-12.3	V	A	98.0	48.0	
11.570	3.0	35.5	39.2	11.3	-32.4	0.0	0.0	53.6	74.0	-20.4	H	P	121.0	27.0	
11.570	3.0	22.7	39.2	11.3	-32.4	0.0	0.0	40.8	54.0	-13.2	H	A	121.0	27.0	
High Ch. 5825 MHz															
11.650	3.0	37.8	39.3	11.4	-32.4	0.0	0.0	56.1	74.0	-17.9	V	P	191.0	-2.0	
11.650	3.0	24.8	39.3	11.4	-32.4	0.0	0.0	43.1	54.0	-10.9	V	A	191.0	-2.0	
11.650	3.0	34.6	39.3	11.4	-32.4	0.0	0.0	53.0	74.0	-21.0	H	P	158.0	115.0	
11.650	3.0	21.2	39.3	11.4	-32.4	0.0	0.0	39.6	54.0	-14.4	H	A	158.0	115.0	

Rev. 4.1.2.7
Note: No other emissions were detected above the system noise floor.

8.2.16. 802.11n HT20 MCS 0 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/23/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:															
Mode Oper:	Tx On, 5.8 GHz, HT20 Mode MCS0														
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters										Peak Field Strength Limit	
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m										Margin vs. Average Limit	
AF	Antenna Factor	Peak		Calculated Peak Field Strength										Margin vs. Peak Limit	
CL	Cable Loss	HPF		High Pass Filter											
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 5745 MHz															
11.490	3.0	37.9	39.1	11.2	-32.4	0.0	0.0	55.8	74.0	-18.2	V	P	168.0	142.0	
11.490	3.0	24.5	39.1	11.2	-32.4	0.0	0.0	42.4	54.0	-11.6	V	A	168.0	142.0	
11.490	3.0	33.5	39.1	11.2	-32.4	0.0	0.0	51.4	74.0	-22.6	H	P	156.0	30.0	
11.490	3.0	21.2	39.1	11.2	-32.4	0.0	0.0	39.1	54.0	-14.9	H	A	156.0	30.0	
Mid Ch. 5785 MHz															
11.570	3.0	33.5	39.2	11.3	-32.4	0.0	0.0	51.6	74.0	-22.4	H	P	153.0	290.0	
11.570	3.0	21.1	39.2	11.3	-32.4	0.0	0.0	39.2	54.0	-14.8	H	A	153.0	290.0	
11.570	3.0	35.5	39.2	11.3	-32.4	0.0	0.0	53.6	74.0	-20.4	V	P	138.0	108.0	
11.570	3.0	22.8	39.2	11.3	-32.4	0.0	0.0	40.9	54.0	-13.1	V	A	138.0	108.0	
High Ch. 5825 MHz															
11.650	3.0	35.0	39.3	11.4	-32.4	0.0	0.0	53.4	74.0	-20.6	V	P	98.0	223.0	
11.650	3.0	23.1	39.3	11.4	-32.4	0.0	0.0	41.5	54.0	-12.5	V	A	98.0	223.0	
11.650	3.0	33.2	39.3	11.4	-32.4	0.0	0.0	51.6	74.0	-22.4	H	P	167.0	353.0	
11.650	3.0	21.0	39.3	11.4	-32.4	0.0	0.0	39.4	54.0	-14.6	H	A	167.0	353.0	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

8.2.17. 802.11n HT20 MCS8 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/23/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:															
Mode Oper:	Tx On, 5.8 GHz, HT20 Mode MCS8														
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters										Peak Field Strength Limit	
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m										Margin vs. Average Limit	
AF	Antenna Factor	Peak		Calculated Peak Field Strength										Margin vs. Peak Limit	
CL	Cable Loss	HPF		High Pass Filter											
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 5745 MHz															
11.490	3.0	37.9	39.1	11.2	-32.4	0.0	0.0	55.8	74.0	-18.2	V	P	160.0	109.0	
11.490	3.0	23.9	39.1	11.2	-32.4	0.0	0.0	41.7	54.0	-12.3	V	A	160.0	109.0	
11.490	3.0	33.2	39.1	11.2	-32.4	0.0	0.0	51.1	74.0	-22.9	H	P	140.0	74.0	
11.490	3.0	21.1	39.1	11.2	-32.4	0.0	0.0	39.0	54.0	-15.0	H	A	140.0	74.0	
Mid Ch. 5785 MHz															
11.570	3.0	34.3	39.2	11.3	-32.4	0.0	0.0	52.4	74.0	-21.6	H	P	102.0	7.0	
11.570	3.0	21.0	39.2	11.3	-32.4	0.0	0.0	39.2	54.0	-14.8	H	A	102.0	7.0	
11.570	3.0	33.9	39.2	11.3	-32.4	0.0	0.0	52.0	74.0	-22.0	V	P	197.0	98.0	
11.570	3.0	22.1	39.2	11.3	-32.4	0.0	0.0	40.2	54.0	-13.8	V	A	197.0	98.0	
High Ch. 5825 MHz															
11.650	3.0	35.1	39.3	11.4	-32.4	0.0	0.0	53.5	74.0	-20.5	V	P	98.0	116.0	
11.650	3.0	22.9	39.3	11.4	-32.4	0.0	0.0	41.3	54.0	-12.7	V	A	98.0	116.0	
11.650	3.0	33.2	39.3	11.4	-32.4	0.0	0.0	51.6	74.0	-22.4	H	P	153.0	339.0	
11.650	3.0	21.2	39.3	11.4	-32.4	0.0	0.0	39.5	54.0	-14.5	H	A	153.0	339.0	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

8.2.18. 802.11n HT20 MCS 16 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/23/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:															
Mode Oper:	Tx On, 5.8 GHz, HT20 Mode MCS16														
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters										Peak Field Strength Limit	
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m										Margin vs. Average Limit	
AF	Antenna Factor	Peak		Calculated Peak Field Strength										Margin vs. Peak Limit	
CL	Cable Loss	HPF		High Pass Filter											
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 5745 MHz															
11.490	3.0	34.3	39.1	11.2	-32.4	0.0	0.0	52.2	74.0	-21.8	V	P	153.0	181.0	
11.490	3.0	22.7	39.1	11.2	-32.4	0.0	0.0	40.6	54.0	-13.4	V	A	153.0	181.0	
11.490	3.0	32.8	39.1	11.2	-32.4	0.0	0.0	50.7	74.0	-23.3	H	P	198.0	267.0	
11.490	3.0	21.0	39.1	11.2	-32.4	0.0	0.0	38.9	54.0	-15.1	H	A	198.0	267.0	
Mid Ch. 5785 MHz															
11.570	3.0	34.4	39.2	11.3	-32.4	0.0	0.0	52.5	74.0	-21.5	H	P	141.0	158.0	
11.570	3.0	21.1	39.2	11.3	-32.4	0.0	0.0	39.2	54.0	-14.8	H	A	141.0	158.0	
11.570	3.0	34.8	39.2	11.3	-32.4	0.0	0.0	52.9	74.0	-21.1	V	P	102.0	98.0	
11.570	3.0	22.5	39.2	11.3	-32.4	0.0	0.0	40.6	54.0	-13.4	V	A	102.0	98.0	
High Ch. 5825 MHz															
11.650	3.0	35.4	39.3	11.4	-32.4	0.0	0.0	53.7	74.0	-20.3	V	P	169.0	115.0	
11.650	3.0	23.0	39.3	11.4	-32.4	0.0	0.0	41.4	54.0	-12.6	V	A	169.0	115.0	
11.650	3.0	34.1	39.3	11.4	-32.4	0.0	0.0	52.4	74.0	-21.6	H	P	120.0	128.0	
11.650	3.0	21.0	39.3	11.4	-32.4	0.0	0.0	39.4	54.0	-14.6	H	A	120.0	128.0	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

8.2.19. 802.11n HT40 MCS 0 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/23/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:															
Mode Oper:	Tx On, 5.8 GHz, HT40 Mode MCS0														
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters										Peak Field Strength Limit	
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m										Margin vs. Average Limit	
AF	Antenna Factor	Peak		Calculated Peak Field Strength										Margin vs. Peak Limit	
CL	Cable Loss	HPF		High Pass Filter											
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 5755 MHz															
11.510	3.0	34.0	39.1	11.2	-32.4	0.0	0.0	51.9	74.0	-22.1	V	P	130.0	47.0	
11.510	3.0	21.2	39.1	11.2	-32.4	0.0	0.0	39.2	54.0	-14.8	V	A	130.0	47.0	
11.510	3.0	33.4	39.1	11.2	-32.4	0.0	0.0	51.3	74.0	-22.7	H	P	169.0	326.0	
11.510	3.0	21.1	39.1	11.2	-32.4	0.0	0.0	39.0	54.0	-15.0	H	A	169.0	326.0	
High Ch. 5795 MHz															
11.590	3.0	33.4	39.2	11.3	-32.4	0.0	0.0	51.6	74.0	-22.4	H	P	128.0	362.0	
11.590	3.0	20.8	39.2	11.3	-32.4	0.0	0.0	39.0	54.0	-15.0	H	A	128.0	362.0	
11.590	3.0	32.5	39.2	11.3	-32.4	0.0	0.0	50.6	74.0	-23.4	V	P	182.0	298.0	
11.590	3.0	21.0	39.2	11.3	-32.4	0.0	0.0	39.1	54.0	-14.9	V	A	182.0	298.0	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

8.2.20. 802.11n HT40 MCS8 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/23/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:															
Mode Oper:	Tx On, 5.8 GHz, HT40 Mode MCS8														
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters										Peak Field Strength Limit	
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m										Margin vs. Average Limit	
AF	Antenna Factor	Peak		Calculated Peak Field Strength										Margin vs. Peak Limit	
CL	Cable Loss	HPF		High Pass Filter											
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 5755 MHz															
11.510	3.0	34.5	39.1	11.2	-32.4	0.0	0.0	52.4	74.0	-21.6	V	P	191.0	51.0	
11.510	3.0	21.1	39.1	11.2	-32.4	0.0	0.0	39.1	54.0	-14.9	V	A	191.0	51.0	
11.510	3.0	33.2	39.1	11.2	-32.4	0.0	0.0	51.1	74.0	-22.9	H	P	184.0	156.0	
11.510	3.0	21.1	39.1	11.2	-32.4	0.0	0.0	39.0	54.0	-15.0	H	A	184.0	156.0	
High Ch. 5795 MHz															
11.590	3.0	33.3	39.2	11.3	-32.4	0.0	0.0	51.5	74.0	-22.5	H	P	98.0	281.0	
11.590	3.0	20.9	39.2	11.3	-32.4	0.0	0.0	39.1	54.0	-14.9	H	A	98.0	281.0	
11.590	3.0	33.1	39.2	11.3	-32.4	0.0	0.0	51.2	74.0	-22.8	V	P	174.0	122.0	
11.590	3.0	21.2	39.2	11.3	-32.4	0.0	0.0	39.3	54.0	-14.7	V	A	174.0	122.0	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

8.2.21. 802.11n HT40 MCS16 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/23/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:															
Mode Oper:	Tx On, 5.8 GHz, HT40 Mode MCS16														
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters										Peak Field Strength Limit	
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m										Margin vs. Average Limit	
AF	Antenna Factor	Peak		Calculated Peak Field Strength										Margin vs. Peak Limit	
CL	Cable Loss	HPF		High Pass Filter											
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 5755 MHz															
11.510	3.0	34.5	39.1	11.2	-32.4	0.0	0.0	52.4	74.0	-21.6	V	P	169.0	151.0	
11.510	3.0	22.1	39.1	11.2	-32.4	0.0	0.0	40.1	54.0	-13.9	V	A	169.0	151.0	
11.510	3.0	33.1	39.1	11.2	-32.4	0.0	0.0	51.1	74.0	-22.9	H	P	194.0	-2.0	
11.510	3.0	21.1	39.1	11.2	-32.4	0.0	0.0	39.0	54.0	-15.0	H	A	194.0	-2.0	
High Ch. 5795 MHz															
11.590	3.0	33.0	39.2	11.3	-32.4	0.0	0.0	51.2	74.0	-22.8	H	P	103.0	326.0	
11.590	3.0	20.9	39.2	11.3	-32.4	0.0	0.0	39.1	54.0	-14.9	H	A	103.0	326.0	
11.590	3.0	33.0	39.2	11.3	-32.4	0.0	0.0	51.2	74.0	-22.8	V	P	106.0	237.0	
11.590	3.0	21.0	39.2	11.3	-32.4	0.0	0.0	39.2	54.0	-14.8	V	A	106.0	237.0	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

5.8GHz BAND - FRACTAL ANTENNA; -1dBi

8.2.22. 802.11a MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 09/23/11
Project #: 11U13957
Company: Varian Card Access
Test Target:
Mode Oper: Tx On, 5.8 GHz, A Mode 9Mbps

f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m
AF	Antenna Factor	Peak		Margin vs. Average Limit
CL	Cable Loss	HPF		Margin vs. Peak Limit

f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 5745 MHz															
11.490	3.0	36.0	39.1	11.2	-32.4	0.0	0.0	53.9	74.0	-20.1	V	P	152.0	180.0	
11.490	3.0	23.7	39.1	11.2	-32.4	0.0	0.0	41.5	54.0	-12.5	V	A	152.0	180.0	
11.490	3.0	33.9	39.1	11.2	-32.4	0.0	0.0	51.8	74.0	-22.2	H	P	172.0	12.0	
11.490	3.0	21.1	39.1	11.2	-32.4	0.0	0.0	39.0	54.0	-15.0	H	A	172.0	12.0	
Mid Ch. 5785 MHz															
11.570	3.0	32.9	39.2	11.3	-32.4	0.0	0.0	51.0	74.0	-23.0	H	P	134.0	57.0	
11.570	3.0	21.2	39.2	11.3	-32.4	0.0	0.0	39.4	54.0	-14.6	H	A	134.0	57.0	
11.570	3.0	35.6	39.2	11.3	-32.4	0.0	0.0	53.7	74.0	-20.3	V	P	145.0	179.0	
11.570	3.0	22.2	39.2	11.3	-32.4	0.0	0.0	40.3	54.0	-13.7	V	A	145.0	179.0	
High Ch. 5825 MHz															
11.650	3.0	33.3	39.3	11.4	-32.4	0.0	0.0	51.6	74.0	-22.4	V	P	98.0	223.0	
11.650	3.0	21.3	39.3	11.4	-32.4	0.0	0.0	39.6	54.0	-14.4	V	A	98.0	223.0	
11.650	3.0	34.4	39.3	11.4	-32.4	0.0	0.0	52.8	74.0	-21.2	H	P	150.0	178.0	
11.650	3.0	21.8	39.3	11.4	-32.4	0.0	0.0	40.1	54.0	-13.9	H	A	150.0	178.0	

Rev. 4.1.2.7

Note: No other emissions were detected above the system noise floor.

8.2.23. 802.11n HT20 MCS 0 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/23/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:															
Mode Oper:	Tx On, 5.8 GHz, HT20 Mode MCS0														
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters										Peak Field Strength Limit	
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m										Margin vs. Average Limit	
AF	Antenna Factor	Peak		Calculated Peak Field Strength										Margin vs. Peak Limit	
CL	Cable Loss	HPF		High Pass Filter											
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 5745 MHz															
11.490	3.0	37.9	39.1	11.2	-32.4	0.0	0.0	55.8	74.0	-18.2	V	P	168.0	142.0	
11.490	3.0	24.5	39.1	11.2	-32.4	0.0	0.0	42.4	54.0	-11.6	V	A	168.0	142.0	
11.490	3.0	33.5	39.1	11.2	-32.4	0.0	0.0	51.4	74.0	-22.6	H	P	156.0	30.0	
11.490	3.0	21.2	39.1	11.2	-32.4	0.0	0.0	39.1	54.0	-14.9	H	A	156.0	30.0	
Mid Ch. 5785 MHz															
11.570	3.0	33.5	39.2	11.3	-32.4	0.0	0.0	51.6	74.0	-22.4	H	P	153.0	290.0	
11.570	3.0	21.1	39.2	11.3	-32.4	0.0	0.0	39.2	54.0	-14.8	H	A	153.0	290.0	
11.570	3.0	35.5	39.2	11.3	-32.4	0.0	0.0	53.6	74.0	-20.4	V	P	138.0	108.0	
11.570	3.0	22.8	39.2	11.3	-32.4	0.0	0.0	40.9	54.0	-13.1	V	A	138.0	108.0	
High Ch. 5825 MHz															
11.650	3.0	35.0	39.3	11.4	-32.4	0.0	0.0	53.4	74.0	-20.6	V	P	98.0	223.0	
11.650	3.0	23.1	39.3	11.4	-32.4	0.0	0.0	41.5	54.0	-12.5	V	A	98.0	223.0	
11.650	3.0	33.2	39.3	11.4	-32.4	0.0	0.0	51.6	74.0	-22.4	H	P	167.0	353.0	
11.650	3.0	21.0	39.3	11.4	-32.4	0.0	0.0	39.4	54.0	-14.6	H	A	167.0	353.0	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

8.2.24. 802.11n HT20 MCS8 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/23/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:															
Mode Oper:	Tx On, 5.8 GHz, HT20 Mode MCS8														
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance	Correct to 3 meters									Peak Field Strength Limit	
Read	Analyzer Reading	Avg		Average	Field Strength @ 3 m									Margin vs. Average Limit	
AF	Antenna Factor	Peak		Calculated	Peak Field Strength									Margin vs. Peak Limit	
CL	Cable Loss	HPF		High Pass Filter											
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 5745 MHz															
11.490	3.0	37.9	39.1	11.2	-32.4	0.0	0.0	55.8	74.0	-18.2	V	P	160.0	109.0	
11.490	3.0	23.9	39.1	11.2	-32.4	0.0	0.0	41.7	54.0	-12.3	V	A	160.0	109.0	
11.490	3.0	33.2	39.1	11.2	-32.4	0.0	0.0	51.1	74.0	-22.9	H	P	140.0	74.0	
11.490	3.0	21.1	39.1	11.2	-32.4	0.0	0.0	39.0	54.0	-15.0	H	A	140.0	74.0	
Mid Ch. 5785 MHz															
11.570	3.0	34.3	39.2	11.3	-32.4	0.0	0.0	52.4	74.0	-21.6	H	P	102.0	7.0	
11.570	3.0	21.0	39.2	11.3	-32.4	0.0	0.0	39.2	54.0	-14.8	H	A	102.0	7.0	
11.570	3.0	33.9	39.2	11.3	-32.4	0.0	0.0	52.0	74.0	-22.0	V	P	197.0	98.0	
11.570	3.0	22.1	39.2	11.3	-32.4	0.0	0.0	40.2	54.0	-13.8	V	A	197.0	98.0	
High Ch. 5825 MHz															
11.650	3.0	35.1	39.3	11.4	-32.4	0.0	0.0	53.5	74.0	-20.5	V	P	98.0	116.0	
11.650	3.0	22.9	39.3	11.4	-32.4	0.0	0.0	41.3	54.0	-12.7	V	A	98.0	116.0	
11.650	3.0	33.2	39.3	11.4	-32.4	0.0	0.0	51.6	74.0	-22.4	H	P	153.0	339.0	
11.650	3.0	21.2	39.3	11.4	-32.4	0.0	0.0	39.5	54.0	-14.5	H	A	153.0	339.0	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

8.2.25. 802.11n HT20 MCS 16 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/23/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:															
Mode Oper:	Tx On, 5.8 GHz, HT20 Mode MCS16														
f	Measurement Frequency	Amp	Preamp Gain												
Dist	Distance to Antenna	D	Corr	Distance	Correct to 3 meters										
Read	Analyzer Reading	Avg		Average	Field Strength	@ 3 m									
AF	Antenna Factor	Peak		Calculated	Peak	Field Strength									
CL	Cable Loss	HPF		High	Pass	Filter									
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 5745 MHz															
11.490	3.0	34.3	39.1	11.2	-32.4	0.0	0.0	52.2	74.0	-21.8	V	P	153.0	181.0	
11.490	3.0	22.7	39.1	11.2	-32.4	0.0	0.0	40.6	54.0	-13.4	V	A	153.0	181.0	
11.490	3.0	32.8	39.1	11.2	-32.4	0.0	0.0	50.7	74.0	-23.3	H	P	198.0	267.0	
11.490	3.0	21.0	39.1	11.2	-32.4	0.0	0.0	38.9	54.0	-15.1	H	A	198.0	267.0	
Mid Ch. 5785 MHz															
11.570	3.0	34.4	39.2	11.3	-32.4	0.0	0.0	52.5	74.0	-21.5	H	P	141.0	158.0	
11.570	3.0	21.1	39.2	11.3	-32.4	0.0	0.0	39.2	54.0	-14.8	H	A	141.0	158.0	
11.570	3.0	34.8	39.2	11.3	-32.4	0.0	0.0	52.9	74.0	-21.1	V	P	102.0	98.0	
11.570	3.0	22.5	39.2	11.3	-32.4	0.0	0.0	40.6	54.0	-13.4	V	A	102.0	98.0	
High Ch. 5825 MHz															
11.650	3.0	35.4	39.3	11.4	-32.4	0.0	0.0	53.7	74.0	-20.3	V	P	169.0	115.0	
11.650	3.0	23.0	39.3	11.4	-32.4	0.0	0.0	41.4	54.0	-12.6	V	A	169.0	115.0	
11.650	3.0	34.1	39.3	11.4	-32.4	0.0	0.0	52.4	74.0	-21.6	H	P	120.0	128.0	
11.650	3.0	21.0	39.3	11.4	-32.4	0.0	0.0	39.4	54.0	-14.6	H	A	120.0	128.0	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

8.2.26. 802.11n HT40 MCS 0 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/23/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:															
Mode Oper:	Tx On, 5.8 GHz, HT40 Mode MCS0														
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance	Correct to 3 meters									Peak Field Strength Limit	
Read	Analyzer Reading	Avg		Average	Field Strength @ 3 m									Margin vs. Average Limit	
AF	Antenna Factor	Peak		Calculated	Peak Field Strength									Margin vs. Peak Limit	
CL	Cable Loss	HPF		High Pass Filter											
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det P/AQP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 5755 MHz															
11.510	3.0	34.0	39.1	11.2	-32.4	0.0	0.0	51.9	74.0	-22.1	V	P	130.0	47.0	
11.510	3.0	21.2	39.1	11.2	-32.4	0.0	0.0	39.2	54.0	-14.8	V	A	130.0	47.0	
11.510	3.0	33.4	39.1	11.2	-32.4	0.0	0.0	51.3	74.0	-22.7	H	P	169.0	326.0	
11.510	3.0	21.1	39.1	11.2	-32.4	0.0	0.0	39.0	54.0	-15.0	H	A	169.0	326.0	
High Ch. 5795 MHz															
11.590	3.0	33.4	39.2	11.3	-32.4	0.0	0.0	51.6	74.0	-22.4	H	P	128.0	362.0	
11.590	3.0	20.8	39.2	11.3	-32.4	0.0	0.0	39.0	54.0	-15.0	H	A	128.0	362.0	
11.590	3.0	32.5	39.2	11.3	-32.4	0.0	0.0	50.6	74.0	-23.4	V	P	182.0	298.0	
11.590	3.0	21.0	39.2	11.3	-32.4	0.0	0.0	39.1	54.0	-14.9	V	A	182.0	298.0	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

8.2.27. 802.11n HT40 MCS8 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 09/23/11
Project #: 11U13957
Company: Varian Card Access
Test Target:
Mode Oper: Tx On, 5.8 GHz, HT40 Mode MCS8

f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter	

f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 5755 MHz															
11.510	3.0	34.5	39.1	11.2	-32.4	0.0	0.0	52.4	74.0	-21.6	V	P	191.0	51.0	
11.510	3.0	21.1	39.1	11.2	-32.4	0.0	0.0	39.1	54.0	-14.9	V	A	191.0	51.0	
11.510	3.0	33.2	39.1	11.2	-32.4	0.0	0.0	51.1	74.0	-22.9	H	P	184.0	156.0	
11.510	3.0	21.1	39.1	11.2	-32.4	0.0	0.0	39.0	54.0	-15.0	H	A	184.0	156.0	
High Ch. 5795 MHz															
11.590	3.0	33.3	39.2	11.3	-32.4	0.0	0.0	51.5	74.0	-22.5	H	P	98.0	281.0	
11.590	3.0	20.9	39.2	11.3	-32.4	0.0	0.0	39.1	54.0	-14.9	H	A	98.0	281.0	
11.590	3.0	33.1	39.2	11.3	-32.4	0.0	0.0	51.2	74.0	-22.8	V	P	174.0	122.0	
11.590	3.0	21.2	39.2	11.3	-32.4	0.0	0.0	39.3	54.0	-14.7	V	A	174.0	122.0	

Rev. 4.1.2.7

Note: No other emissions were detected above the system noise floor.

8.2.28. 802.11n HT40 MCS16 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/23/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:															
Mode Oper:	Tx On, 5.8 GHz, HT40 Mode MCS16														
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters										Peak Field Strength Limit	
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m										Margin vs. Average Limit	
AF	Antenna Factor	Peak		Calculated Peak Field Strength										Margin vs. Peak Limit	
CL	Cable Loss	HPF		High Pass Filter											
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 5755 MHz															
11.510	3.0	34.5	39.1	11.2	-32.4	0.0	0.0	52.4	74.0	-21.6	V	P	169.0	151.0	
11.510	3.0	22.1	39.1	11.2	-32.4	0.0	0.0	40.1	54.0	-13.9	V	A	169.0	151.0	
11.510	3.0	33.1	39.1	11.2	-32.4	0.0	0.0	51.1	74.0	-22.9	H	P	194.0	-2.0	
11.510	3.0	21.1	39.1	11.2	-32.4	0.0	0.0	39.0	54.0	-15.0	H	A	194.0	-2.0	
High Ch. 5795 MHz															
11.590	3.0	33.0	39.2	11.3	-32.4	0.0	0.0	51.2	74.0	-22.8	H	P	103.0	326.0	
11.590	3.0	20.9	39.2	11.3	-32.4	0.0	0.0	39.1	54.0	-14.9	H	A	103.0	326.0	
11.590	3.0	33.0	39.2	11.3	-32.4	0.0	0.0	51.2	74.0	-22.8	V	P	106.0	237.0	
11.590	3.0	21.0	39.2	11.3	-32.4	0.0	0.0	39.2	54.0	-14.8	V	A	106.0	237.0	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

8.3. RECEIVER ABOVE 1 GHz

2.4GHz BAND - MONOPOLE ANTENNA; 4dBi

8.3.1. 20 MHz BANDWIDTH IN THE 2.4 GHz BAND

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/26/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:															
Mode Oper:	Rx On, 2.4 GHz, HT20 Mode MCS16, Mid Ch. 2437 MHz														
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters										Peak Field Strength Limit	
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m										Margin vs. Average Limit	
AF	Antenna Factor	Peak		Calculated Peak Field Strength										Margin vs. Peak Limit	
CL	Cable Loss	HPF		High Pass Filter											
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
1.550	3.0	53.7	26.7	3.5	-37.0	0.0	0.0	46.9	74.0	-27.1	V	P	101.0	5.0	
1.550	3.0	43.4	26.7	3.5	-37.0	0.0	0.0	36.6	54.0	-17.4	V	A	101.0	5.0	
1.550	3.0	61.4	26.7	3.5	-37.0	0.0	0.0	54.6	74.0	-19.4	H	P	98.0	46.0	
1.550	3.0	50.8	26.7	3.5	-37.0	0.0	0.0	44.0	54.0	-10.0	H	A	98.0	46.0	
2.490	3.0	53.3	29.0	4.6	-35.6	0.0	0.0	51.3	74.0	-22.7	H	P	118.0	25.0	
2.490	3.0	33.6	29.0	4.6	-35.6	0.0	0.0	31.7	54.0	-22.3	H	A	118.0	25.0	
2.490	3.0	51.1	29.0	4.6	-35.6	0.0	0.0	49.1	74.0	-24.9	V	P	127.0	15.0	
2.490	3.0	32.8	29.0	4.6	-35.6	0.0	0.0	30.3	54.0	-23.2	V	A	127.0	15.0	
3.550	3.0	47.6	31.9	5.7	-34.8	0.0	0.0	50.5	74.0	-23.5	V	P	108.0	153.0	
3.550	3.0	36.1	31.9	5.7	-34.8	0.0	0.0	39.0	54.0	-15.0	V	A	108.0	153.0	
3.550	3.0	44.1	31.9	5.7	-34.8	0.0	0.0	47.0	74.0	-27.0	H	P	98.0	95.0	
3.550	3.0	32.8	31.9	5.7	-34.8	0.0	0.0	35.7	54.0	-18.3	H	A	98.0	95.0	

Rev. 4.1.2.7
Note: No other emissions were detected above the system noise floor.

8.3.2. 40 MHz BANDWIDTH IN THE 2.4 GHz BAND

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 09/26/11
Project #: 11U13957
Company: Varian Card Access
Test Target:
Mode Oper: Rx On, 2.4 GHz, HT40 Mode MCS16, Mid Ch. 2437 MHz

f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter	

f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
1.017	3.0	59.9	24.7	2.8	-37.8	0.0	0.0	49.6	74.0	-24.4	V	P	100.0	10.0	
1.017	3.0	43.6	24.7	2.8	-37.8	0.0	0.0	33.3	54.0	-20.7	V	A	100.0	10.0	
1.017	3.0	65.7	24.7	2.8	-37.8	0.0	0.0	55.5	74.0	-18.5	H	P	98.0	199.0	
1.017	3.0	49.9	24.7	2.8	-37.8	0.0	0.0	39.6	54.0	-14.4	H	A	98.0	199.0	
1.550	3.0	57.7	26.7	3.5	-37.0	0.0	0.0	50.9	74.0	-23.1	H	P	101.0	-2.0	
1.550	3.0	46.2	26.7	3.5	-37.0	0.0	0.0	39.4	54.0	-14.6	H	A	101.0	-2.0	
1.550	3.0	54.9	26.7	3.5	-37.0	0.0	0.0	48.1	74.0	-25.9	V	P	100.0	9.0	
1.550	3.0	44.6	26.7	3.5	-37.0	0.0	0.0	37.8	54.0	-16.2	V	A	100.0	9.0	
2.500	3.0	51.1	29.1	4.6	-35.6	0.0	0.0	49.2	74.0	-24.8	V	P	100.0	18.0	
2.500	3.0	32.8	29.1	4.6	-35.6	0.0	0.0	30.8	54.0	-23.2	V	A	100.0	18.0	
2.500	3.0	54.6	29.1	4.6	-35.6	0.0	0.0	52.6	74.0	-21.4	H	P	98.0	23.0	
2.500	3.0	34.4	29.1	4.6	-35.6	0.0	0.0	32.5	54.0	-21.5	H	A	98.0	23.0	
3.508	3.0	44.8	31.8	5.7	-34.8	0.0	0.0	47.5	74.0	-26.5	H	P	101.0	23.0	
3.508	3.0	32.5	31.8	5.7	-34.8	0.0	0.0	35.2	54.0	-18.8	H	A	101.0	23.0	
3.508	3.0	47.3	31.8	5.7	-34.8	0.0	0.0	49.9	74.0	-24.1	V	P	109.0	174.0	
3.508	3.0	35.3	31.8	5.7	-34.8	0.0	0.0	38.0	54.0	-16.0	V	A	109.0	174.0	

Rev. 4.1.2.7

Note: No other emissions were detected above the system noise floor.

2.4GHz - FRACTAL ANTENNA; -6dBi

8.3.3. 20 MHz BANDWIDTH IN THE 2.4 GHz BAND

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/26/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:	Rx On, 2.4 GHz, HT20 Mode MCS16, Mid Ch. 2437 MHz														
f	Measurement Frequency	Amp	Preamp Gain												
Dist	Distance to Antenna	D	Corr	Distance Correct to 3 meters											
Read	Analyzer Reading	Avg		Average Field Strength @ 3 m											
AF	Antenna Factor	Peak		Calculated Peak Field Strength											
CL	Cable Loss	HPF		High Pass Filter											
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
1.550	3.0	54.8	26.7	3.5	-37.0	0.0	0.0	48.0	74.0	-26.0	V	P	98.0	270.0	
1.550	3.0	43.4	26.7	3.5	-37.0	0.0	0.0	36.6	54.0	-17.4	V	A	98.0	270.0	
1.550	3.0	60.6	26.7	3.5	-37.0	0.0	0.0	53.3	74.0	-20.2	H	P	100.0	38.0	
1.550	3.0	49.4	26.7	3.5	-37.0	0.0	0.0	42.6	54.0	-11.4	H	A	100.0	38.0	
2.490	3.0	44.7	29.0	4.6	-35.6	0.0	0.0	42.7	74.0	-31.3	H	P	192.0	6.0	
2.490	3.0	29.6	29.0	4.6	-35.6	0.0	0.0	27.6	54.0	-26.4	H	A	192.0	6.0	
2.490	3.0	51.6	29.0	4.6	-35.6	0.0	0.0	49.6	74.0	-24.4	V	P	98.0	146.0	
2.490	3.0	32.7	29.0	4.6	-35.6	0.0	0.0	30.7	54.0	-23.3	V	A	98.0	146.0	
3.550	3.0	47.2	31.9	5.7	-34.8	0.0	0.0	50.1	74.0	-23.9	V	P	109.0	2.0	
3.550	3.0	36.4	31.9	5.7	-34.8	0.0	0.0	39.3	54.0	-14.7	V	A	109.0	2.0	
3.550	3.0	46.7	31.9	5.7	-34.8	0.0	0.0	49.6	74.0	-24.4	H	P	98.0	21.0	
3.550	3.0	35.0	31.9	5.7	-34.8	0.0	0.0	37.9	54.0	-16.1	H	A	98.0	21.0	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

8.3.4. 40 MHz BANDWIDTH IN THE 2.4 GHz BAND

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit											
Dist	Distance to Antenna	D	Corr	Peak Field Strength Limit											
Read	Analyzer Reading	Avg	Avg	Margin vs. Average Limit											
AF	Antenna Factor	Peak	Peak	Margin vs. Peak Limit											
CL	Cable Loss	HPF	High Pass Filter												
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
1.017	3.0	58.7	24.7	2.8	-37.8	0.0	0.0	48.4	74.0	-25.6	V	P	98.0	9.0	
1.017	3.0	42.5	24.7	2.8	-37.8	0.0	0.0	32.3	54.0	-21.7	V	A	98.0	9.0	
1.017	3.0	65.0	24.7	2.8	-37.8	0.0	0.0	54.7	74.0	-19.3	H	P	107.0	299.0	
1.017	3.0	52.2	24.7	2.8	-37.8	0.0	0.0	41.9	54.0	-12.1	H	A	107.0	299.0	
1.550	3.0	61.1	26.7	3.5	-37.0	0.0	0.0	54.3	74.0	-19.7	H	P	98.0	39.0	
1.550	3.0	50.6	26.7	3.5	-37.0	0.0	0.0	43.8	54.0	-10.2	H	A	98.0	39.0	
1.550	3.0	57.1	26.7	3.5	-37.0	0.0	0.0	50.3	74.0	-23.7	V	P	98.0	270.0	
1.550	3.0	46.3	26.7	3.5	-37.0	0.0	0.0	39.5	54.0	-14.5	V	A	98.0	270.0	
2.500	3.0	52.2	29.1	4.6	-35.6	0.0	0.0	50.2	74.0	-23.8	V	P	101.0	146.0	
2.500	3.0	33.5	29.1	4.6	-35.6	0.0	0.0	31.6	54.0	-22.4	V	A	101.0	146.0	
2.500	3.0	53.0	29.1	4.6	-35.6	0.0	0.0	51.0	74.0	-23.0	H	P	98.0	356.0	
2.500	3.0	33.9	29.1	4.6	-35.6	0.0	0.0	32.0	54.0	-22.0	H	A	98.0	356.0	
3.508	3.0	46.4	31.8	5.7	-34.8	0.0	0.0	49.0	74.0	-25.0	H	P	101.0	21.0	
3.508	3.0	34.4	31.8	5.7	-34.8	0.0	0.0	37.1	54.0	-16.9	H	A	101.0	21.0	
3.508	3.0	43.6	31.8	5.7	-34.8	0.0	0.0	46.2	74.0	-27.8	V	P	98.0	2.0	
3.508	3.0	31.6	31.8	5.7	-34.8	0.0	0.0	34.3	54.0	-19.7	V	A	98.0	2.0	

Rev. 4.1.2.7
Note: No other emissions were detected above the system noise floor.

5.8GHz BAND - MONOPOLE ANTENNA; 4.5dBi

8.3.5. 20 MHz BANDWIDTH IN THE 5.8 GHz BAND

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/26/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:	Rx On, 5.8 GHz, HT20 Mode MCS16, Mid Ch. 5785 MHz														
Mode Oper:	Rx On, 5.8 GHz, HT20 Mode MCS16, Mid Ch. 5785 MHz														
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit	
Dist	Distance to Antenna	D	Corr	Distance	Correct to 3	meters								Peak Field Strength Limit	
Read	Analyzer Reading	Avg		Average	Field Strength	@ 3 m								Margin vs. Average Limit	
AF	Antenna Factor	Peak		Calculated	Peak Field	Strength								Margin vs. Peak Limit	
CL	Cable Loss	HPF		High Pass	Filter										
f GHz	Dist (m)	Read dBuV	AF dB/m	CL	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limt dBuV/m	Margin	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
1.000	3.0	60.5	24.6	2.8	-37.8	0.0	0.0	50.1	74.0	-23.9	V	P	98.0	39.0	
1.000	3.0	38.6	24.6	2.8	-37.8	0.0	0.0	28.2	54.0	-25.8	V	A	98.0	39.0	
1.000	3.0	65.7	24.6	2.8	-37.8	0.0	0.0	55.3	74.0	-18.7	H	P	100.0	193.0	
1.000	3.0	49.5	24.6	2.8	-37.8	0.0	0.0	39.1	54.0	-14.9	H	A	100.0	193.0	
1.560	3.0	61.4	26.8	3.5	-37.0	0.0	0.0	54.6	74.0	-19.4	H	P	100.0	48.0	
1.560	3.0	50.4	26.8	3.5	-37.0	0.0	0.0	43.7	54.0	-10.3	H	A	100.0	48.0	
1.560	3.0	54.3	26.8	3.5	-37.0	0.0	0.0	47.5	74.0	-26.5	V	P	98.0	235.0	
1.560	3.0	43.1	26.8	3.5	-37.0	0.0	0.0	36.4	54.0	-17.6	V	A	98.0	235.0	
3.613	3.0	47.1	32.1	5.8	-34.7	0.0	0.0	50.3	74.0	-23.7	V	P	108.0	145.0	
3.613	3.0	36.1	32.1	5.8	-34.7	0.0	0.0	39.2	54.0	-14.8	V	A	108.0	145.0	
3.613	3.0	45.7	32.1	5.8	-34.7	0.0	0.0	48.9	74.0	-25.1	H	P	98.0	94.0	
3.613	3.0	34.5	32.1	5.8	-34.7	0.0	0.0	37.7	54.0	-16.3	H	A	98.0	94.0	
4.990	3.0	39.8	34.0	6.9	-34.0	0.0	0.0	46.7	74.0	-27.3	H	P	101.0	336.0	
4.990	3.0	24.1	34.0	6.9	-34.0	0.0	0.0	31.0	54.0	-23.0	H	A	101.0	336.0	
4.990	3.0	40.9	34.0	6.9	-34.0	0.0	0.0	47.8	74.0	-26.2	V	P	98.0	16.0	
4.990	3.0	24.7	34.0	6.9	-34.0	0.0	0.0	31.6	54.0	-22.4	V	A	98.0	16.0	

Rev. 4.1.2.7

Note: No other emissions were detected above the system noise floor.

8.3.6. 40 MHz BANDWIDTH IN THE 5.8 GHz BAND

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 09/26/11
Project #: 11U13957
Company: Varian Card Access
Test Target:
Mode Oper: Rx On, 5.8 GHz, HT40 Mode MCS16, Low Ch. 5755 MHz

f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter	

f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
1.000	3.0	58.6	24.6	2.8	-37.8	0.0	0.0	48.2	74.0	-25.8	V	P	101.0	130.0	
1.000	3.0	42.8	24.6	2.8	-37.8	0.0	0.0	32.4	54.0	-21.6	V	A	101.0	130.0	
1.000	3.0	65.6	24.6	2.8	-37.8	0.0	0.0	55.2	74.0	-18.8	H	P	100.0	198.0	
1.000	3.0	49.9	24.6	2.8	-37.8	0.0	0.0	39.5	54.0	-14.5	H	A	100.0	198.0	
1.480	3.0	61.0	26.4	3.4	-37.1	0.0	0.0	53.7	74.0	-20.3	H	P	100.0	47.0	
1.480	3.0	48.1	26.4	3.4	-37.1	0.0	0.0	40.8	54.0	-13.2	H	A	100.0	47.0	
1.480	3.0	57.1	26.4	3.4	-37.1	0.0	0.0	49.9	74.0	-24.1	V	P	98.0	326.0	
1.480	3.0	43.6	26.4	3.4	-37.1	0.0	0.0	36.3	54.0	-17.7	V	A	98.0	326.0	
3.667	3.0	46.7	32.2	5.8	-34.7	0.0	0.0	50.1	74.0	-23.9	V	P	109.0	143.0	
3.667	3.0	35.8	32.2	5.8	-34.7	0.0	0.0	39.2	54.0	-14.8	V	A	109.0	143.0	
3.667	3.0	42.2	32.2	5.8	-34.7	0.0	0.0	45.6	74.0	-28.4	H	P	98.0	91.0	
3.667	3.0	30.5	32.2	5.8	-34.7	0.0	0.0	34.0	54.0	-20.0	H	A	98.0	91.0	
5.000	3.0	36.3	34.0	6.9	-34.0	0.0	0.0	43.2	74.0	-30.8	H	P	101.0	216.0	
5.000	3.0	23.8	34.0	6.9	-34.0	0.0	0.0	30.7	54.0	-23.3	H	A	101.0	216.0	
5.000	3.0	41.0	34.0	6.9	-34.0	0.0	0.0	47.9	74.0	-26.1	V	P	98.0	19.0	
5.000	3.0	24.8	34.0	6.9	-34.0	0.0	0.0	31.7	54.0	-22.3	V	A	98.0	19.0	

Rev. 4.1.2.7

Note: No other emissions were detected above the system noise floor.

5.8GHz BAND - FRACTAL ANTENNA; -1dBi

8.3.7. 20 MHz BANDWIDTH IN THE 5.8 GHz BAND

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Test Engr:	William Zhuang														
Date:	09/26/11														
Project #:	11U13957														
Company:	Varian Card Access														
Test Target:															
Mode Oper:	Rx On, 5.8 GHz, HT20 Mode MCS16, Mid Ch. 5785 MHz														
f	Measurement	Frequency	Amp	Preamp	Gain										Average Field Strength Limit
Dist	Distance to Antenna		D	Corr	Distance	Correct to 3 meters									Peak Field Strength Limit
Read	Analyzer Reading		Avg		Average	Field Strength @ 3 m									Margin vs. Average Limit
AF	Antenna Factor		Peak		Calculated	Peak Field Strength									Margin vs. Peak Limit
CL	Cable Loss		HPF		High Pass Filter										
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
1.000	3.0	60.0	24.6	2.8	-37.8	0.0	0.0	49.6	74.0	-24.4	V	P	111.0	143.0	
1.000	3.0	42.8	24.6	2.8	-37.8	0.0	0.0	32.4	54.0	-21.6	V	A	111.0	143.0	
1.000	3.0	65.6	24.6	2.8	-37.8	0.0	0.0	55.2	74.0	-18.8	H	P	101.0	296.0	
1.000	3.0	52.2	24.6	2.8	-37.8	0.0	0.0	41.8	54.0	-12.2	H	A	101.0	296.0	
1.560	3.0	61.1	26.8	3.5	-37.0	0.0	0.0	54.3	74.0	-19.7	H	P	100.0	41.0	
1.560	3.0	50.2	26.8	3.5	-37.0	0.0	0.0	43.5	54.0	-10.5	H	A	100.0	41.0	
1.560	3.0	56.2	26.8	3.5	-37.0	0.0	0.0	49.5	74.0	-24.5	V	P	98.0	270.0	
1.560	3.0	45.2	26.8	3.5	-37.0	0.0	0.0	38.4	54.0	-15.6	V	A	98.0	270.0	
3.613	3.0	46.3	32.1	5.8	-34.7	0.0	0.0	49.4	74.0	-24.6	V	P	101.0	173.0	
3.613	3.0	34.9	32.1	5.8	-34.7	0.0	0.0	38.0	54.0	-16.0	V	A	101.0	173.0	
3.613	3.0	43.2	32.1	5.8	-34.7	0.0	0.0	46.3	74.0	-27.7	H	P	98.0	102.0	
3.613	3.0	31.3	32.1	5.8	-34.7	0.0	0.0	34.5	54.0	-19.5	H	A	98.0	102.0	
4.990	3.0	38.2	34.0	6.9	-34.0	0.0	0.0	45.1	74.0	-28.9	H	P	101.0	314.0	
4.990	3.0	24.3	34.0	6.9	-34.0	0.0	0.0	31.2	54.0	-22.8	H	A	101.0	314.0	
4.990	3.0	42.8	34.0	6.9	-34.0	0.0	0.0	49.7	74.0	-24.3	V	P	98.0	356.0	
4.990	3.0	25.4	34.0	6.9	-34.0	0.0	0.0	32.3	54.0	-21.7	V	A	98.0	356.0	

Rev. 4.1.2.7

Note: No other emissions were detected above the system noise floor.

8.3.8. 40 MHz BANDWIDTH IN THE 5.8 GHz BAND

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 09/26/11
Project #: 11U13957
Company: Varian Card Access
Test Target:
Mode Oper: Rx On, 5.8 GHz, HT40 Mode MCS16, Low Ch. 5755 MHz

f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter	

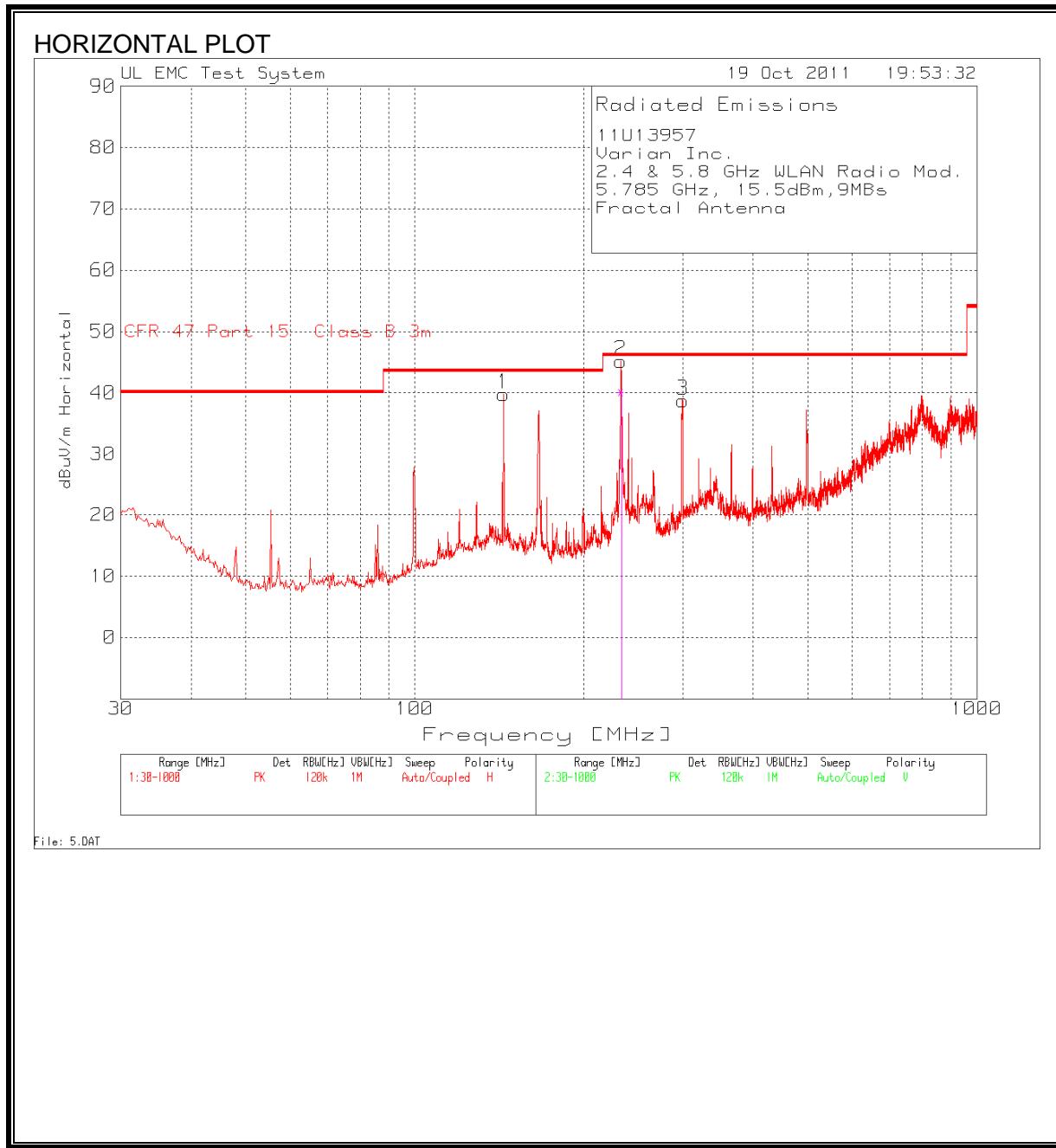
f GHz	Dist (m)	Read dBuV	AF dB/m	CL	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant. High cm	Table Angle Degree	Notes
1.000	3.0	59.8	24.6	2.8	-37.8	0.0	0.0	49.4	74.0	-24.6	V	P	101.0	144.0	
1.000	3.0	40.5	24.6	2.8	-37.8	0.0	0.0	30.1	54.0	-23.9	V	A	101.0	144.0	
1.000	3.0	65.0	24.6	2.8	-37.8	0.0	0.0	54.6	74.0	-19.4	H	P	116.0	290.0	
1.000	3.0	52.1	24.6	2.8	-37.8	0.0	0.0	41.7	54.0	-12.3	H	A	116.0	290.0	
1.480	3.0	59.9	26.4	3.4	-37.1	0.0	0.0	52.6	74.0	-21.4	H	P	100.0	200.0	
1.480	3.0	46.1	26.4	3.4	-37.1	0.0	0.0	38.8	54.0	-15.2	H	A	100.0	200.0	
1.480	3.0	58.7	26.4	3.4	-37.1	0.0	0.0	51.5	74.0	-22.5	V	P	98.0	318.0	
1.480	3.0	45.4	26.4	3.4	-37.1	0.0	0.0	38.1	54.0	-15.9	V	A	98.0	318.0	
3.667	3.0	47.0	32.2	5.8	-34.7	0.0	0.0	50.4	74.0	-23.6	V	P	106.0	356.0	
3.667	3.0	36.6	32.2	5.8	-34.7	0.0	0.0	40.0	54.0	-14.0	V	A	106.0	356.0	
3.667	3.0	43.3	32.2	5.8	-34.7	0.0	0.0	46.7	74.0	-27.3	H	P	100.0	104.0	
3.667	3.0	32.5	32.2	5.8	-34.7	0.0	0.0	35.9	54.0	-18.1	H	A	100.0	104.0	
5.000	3.0	38.8	34.0	6.9	-34.0	0.0	0.0	45.7	74.0	-28.3	H	P	99.0	319.0	
5.000	3.0	24.2	34.0	6.9	-34.0	0.0	0.0	31.1	54.0	-22.9	H	A	99.0	319.0	
5.000	3.0	41.4	34.0	6.9	-34.0	0.0	0.0	48.4	74.0	-25.6	V	P	98.0	155.0	
5.000	3.0	24.9	34.0	6.9	-34.0	0.0	0.0	31.8	54.0	-22.2	V	A	98.0	155.0	

Rev. 4.1.2.7

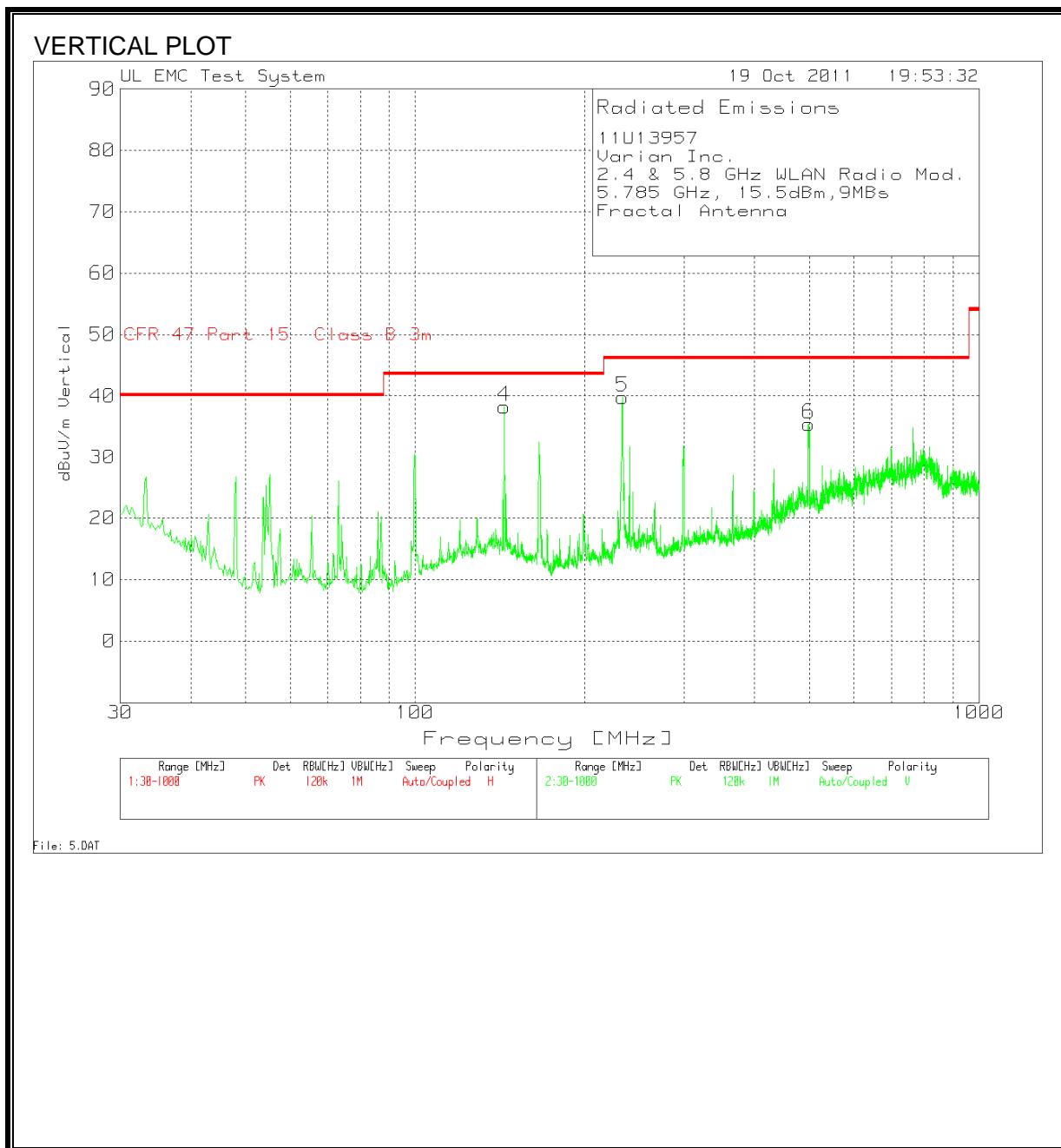
Note: No other emissions were detected above the system noise floor.

8.4. WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



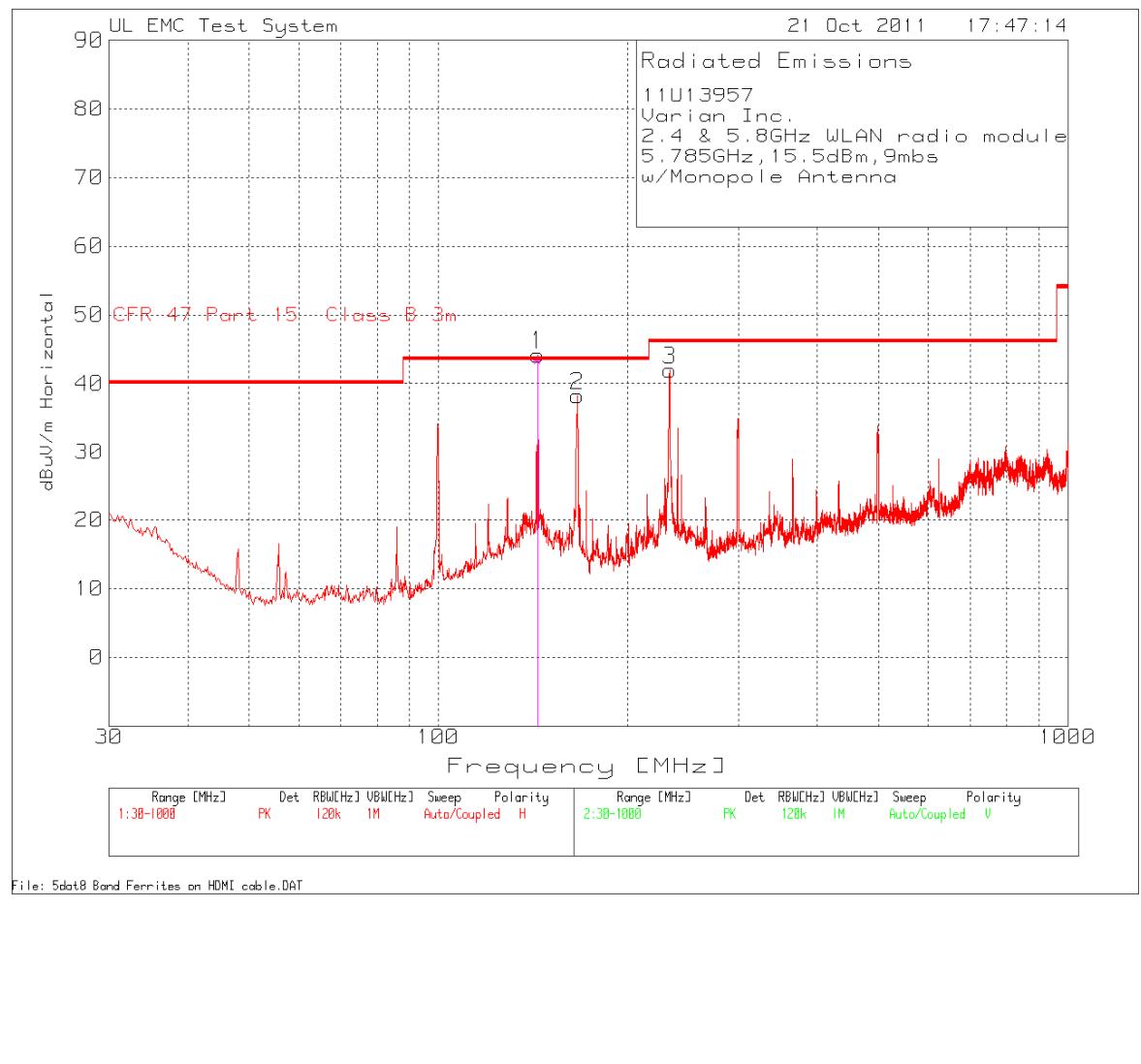
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)



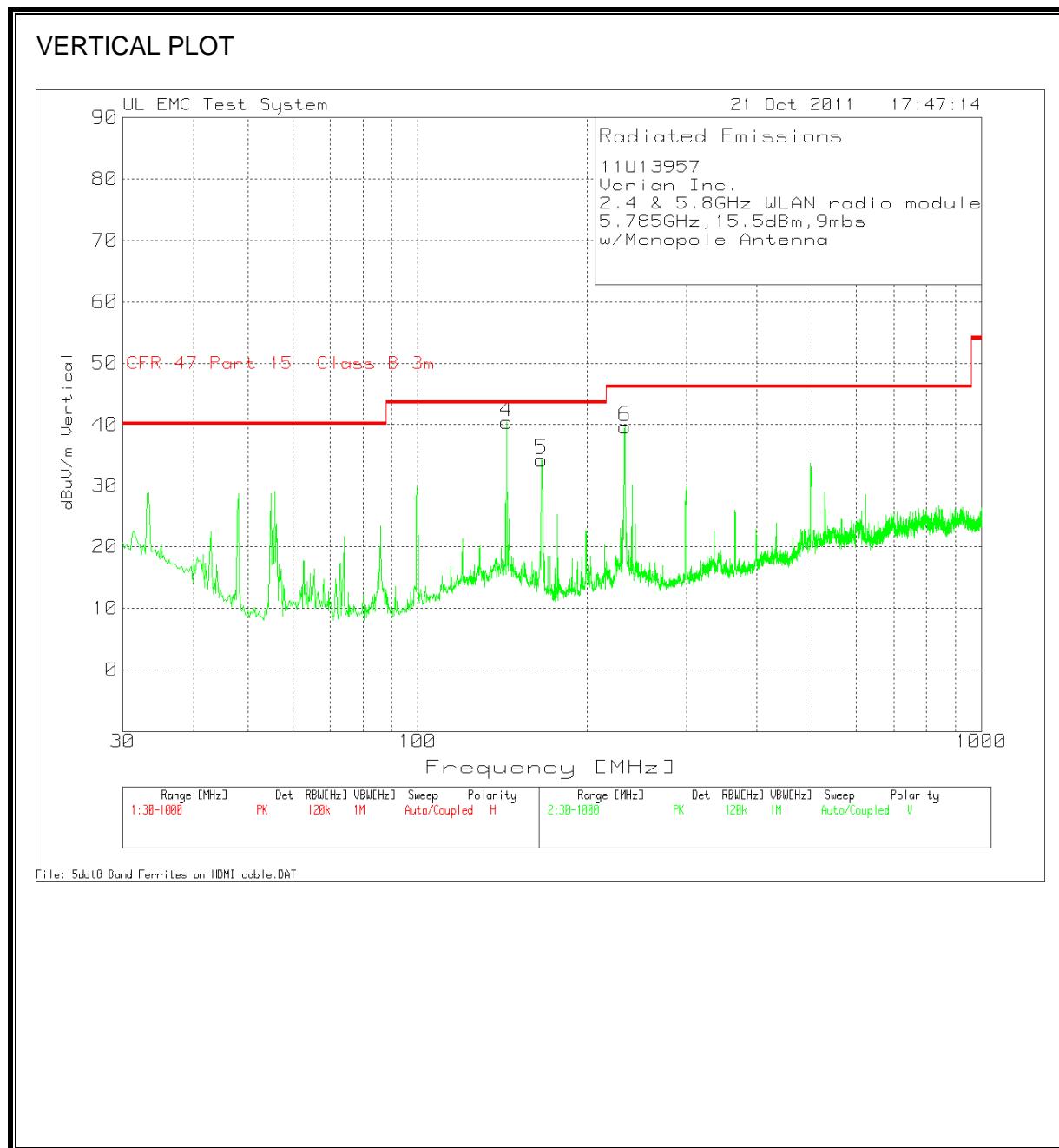
HORIZONTAL AND VERTICAL DATA

11U13957												
Varian Inc.												
2.4 & 5.8 GHz WLAN Radio Mod.												
5.785 GHz, 15.5dBm, 9MBs												
Fractal Antenna												
Test Frequency (MHz)	Analyzer Reading (dBuV)	Detector Type	Cable Factor (dB)	PreAmp Factor (dB)	Bilog Antenna Factor (dB)	Corrected Analyzer Reading (dBuV)	CFR 47 Part 15 Class B 3m Limit (dBuV)	Margin to Limit (dBuV)	Height (cm)	Polarity	Azimuth (Deg)	
Range 1 30 - 1000MHz												
143.9808	53.58	PK	1.3	-28.1	13	39.78	43.5	-3.72	200	Horz		
232.3741	59.81	PK	1.6	-28.1	11.9	45.21	46	-0.79	100	Horz		
233.1345	54.62	QP	1.6	-28.1	11.9	40.02	46	-5.98	118	Horz	194	
299.8321	51.48	PK	1.9	-28	13.4	38.78	46	-7.22	100	Horz		
Range 2 30 - 1000MHz												
143.9808	52	PK	1.3	-28.1	13	38.2	43.5	-5.3	100	Vert		
232.9556	54.38	PK	1.6	-28.1	11.9	39.78	46	-6.22	200	Vert		
499.6863	43.93	PK	2.5	-27.7	16.7	35.43	46	-10.57	100	Vert		
PK - Peak detector												
QP - Quasi-Peak detector												

HORIZONTAL PLOT



SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)



HORIZONTAL AND VERTICAL DATA

11U13957											
Varian Inc.											
2.4 & 5.8GHz WLAN radio module											
5.785GHz, 15.5dBm, 9mbps											
w/Monopole Antenna											
Test Frequency (MHz)	Analyzer Reading (dBuV)	Detector Type	5m A Cable Factor (dB)	5m A T64 PreAmp Factor (dB)	5m A T122 Bilog Antenna Factor (dB)	Corrected Reading (dBuV)	CFR 47 Part 15 Class B 3m Limit (dBuV)	Margin to Limit (dBuV)	Height (cm)	Polarity (Deg)	Azimuth [Degs]
Range 1 30 - 1000MHz											
143.9808	58.01	PK	1.3	-28.1	13	44.21	43.5	0.71	200	Horz	
144.0013	57.19	QP	1.3	-28.1	13	43.39	43.5	-0.11	232	Horz	222
166.4668	53.87	PK	1.4	-28.1	11.1	38.27	43.5	-5.23	200	Horz	
233.1495	56.58	PK	1.6	-28.1	11.9	41.98	46	-4.02	100	Horz	
Range 2 30 - 1000MHz											
143.9808	54.24	PK	1.3	-28.1	13	40.44	43.5	-3.06	100	Vert	
165.8853	49.81	PK	1.4	-28.1	11.2	34.31	43.5	-9.19	100	Vert	
232.9556	54.22	PK	1.6	-28.1	11.9	39.62	46	-6.38	200	Vert	
PK - Peak detector											
QP - Quasi-Peak detector											

9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 [*]	56 to 46 [*]
0.5-5	56	46
5-30	60	50

^{*} Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

6 WORST EMISSIONS

COMPANY: Varian									
PROJECT #: 11U13957									

Line-L1 .15 - 30MHz

Test Frequency	Meter Reading	Detector	LISN [dB]	Conducted Emission Cable [dB]	dB[uVolts]	Class B QP Limit	Margin	Class B Avg Limit	Margin
0.231	52.41	PK	0	0	52.41	62.4	-9.99	52.4	0.01
0.231	34.68	Av	0	0	34.68	62.4	-27.72	52.4	-17.72
0.3615	45.62	PK	0	0	45.62	58.7	-13.08	48.7	-3.08
0.3615	31.01	Av	0	0	31.01	58.7	-27.69	48.7	-17.69
0.4965	42.08	PK	0	0	42.08	56.1	-14.02	46.1	-4.02
0.4965	25.70	Av	0	0	25.70	56.1	-30.40	46.1	-20.40
0.987	36.55	PK	0	0	36.55	56.0	-19.45	46.0	-9.45
0.987	18.79	Av	0	0	18.79	56.0	-37.21	46.0	-27.21
4.3395	33.89	PK	0	0	33.89	56.0	-22.11	46.0	-12.11
4.3395	22.60	Av	0	0	22.60	56.0	-33.40	46.0	-23.40
15.8685	35.77	PK	0	0	35.77	60.0	-24.23	50.0	-14.23
15.8685	21.79	Av	0	0	21.79	60.0	-38.21	50.0	-28.21

Line-L2 .15 - 30MHz

Test Frequency	Meter Reading	Detector	LISN [dB]	Conducted Emission Cable [dB]	dB[uVolts]	Class B QP Limit	Margin	Class B Avg Limit	Margin
0.15	58.31	PK	0	0	58.31	66.0	-7.69	56.0	2.31
0.15	33.77	Av	0	0	33.77	66.0	-32.23	56.0	-22.23
0.222	47.14	PK	0	0	47.14	62.7	-15.56	52.7	-5.56
0.222	32.00	Av	0	0	32.00	62.7	-30.70	52.7	-20.70
0.5775	39.00	PK	0	0	39.00	56.0	-17.00	46.0	-7.00
0.5775	18.93	Av	0	0	18.93	56.0	-37.07	46.0	-27.07
0.9915	35.96	PK	0	0	35.96	56.0	-20.04	46.0	-10.04
0.9915	19.16	Av	0	0	19.16	56.0	-36.84	46.0	-26.84
4.4115	34.08	PK	0	0	34.08	56.0	-21.92	46.0	-11.92
4.4115	23.94	Av	0	0	23.94	56.0	-32.06	46.0	-22.06
17.6055	36.79	PK	0	0	36.79	60.0	-23.21	50.0	-13.21
17.6055	23.05	Av	0	0	23.05	60.0	-36.95	50.0	-26.95

PK - Peak detector

QP - Quasi-Peak detector

LnAv - Linear Average detector

LgAv - Log Average detector

Av - Average detector

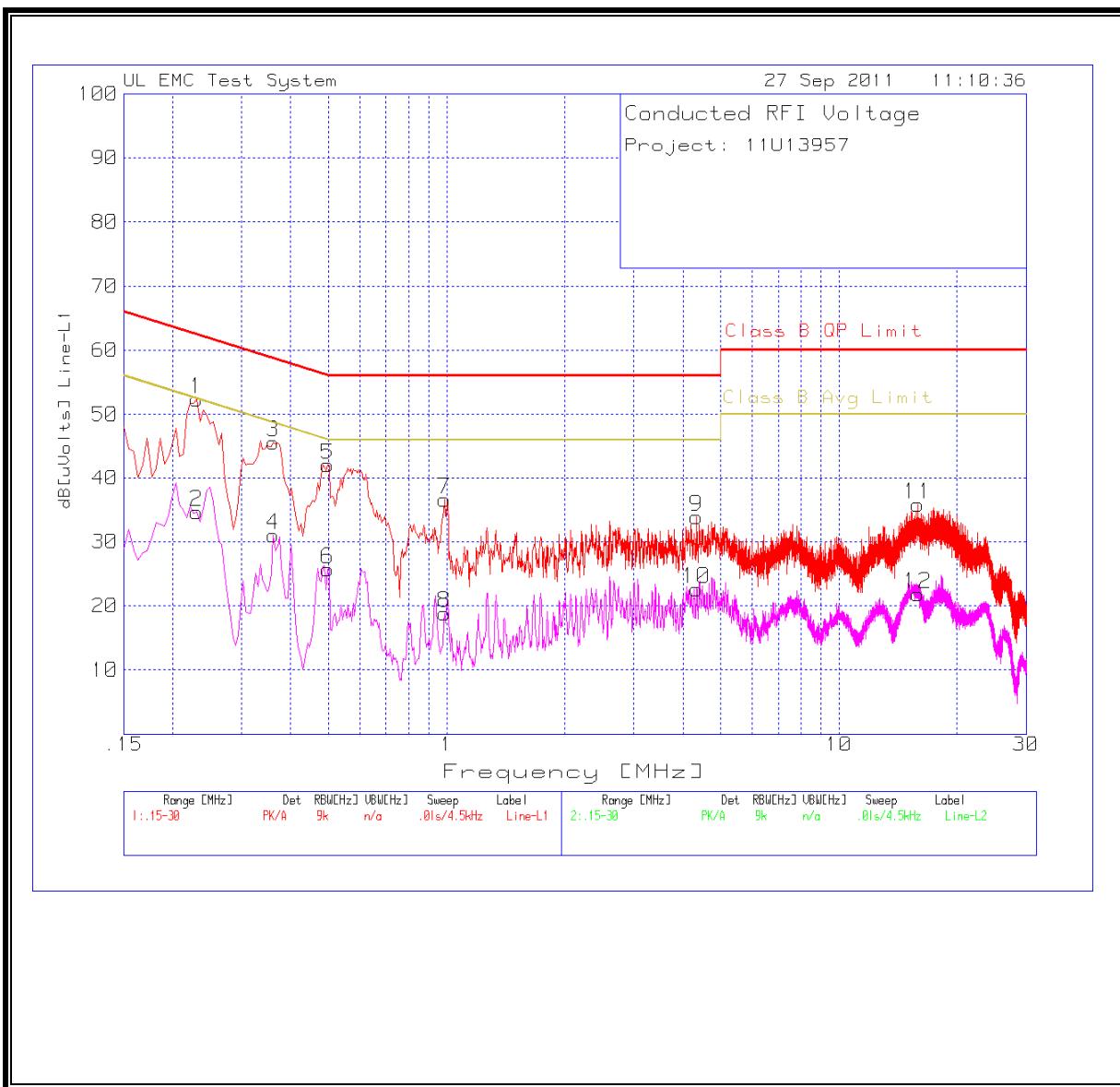
CAV - CISPR Average detector

RMS - RMS detection

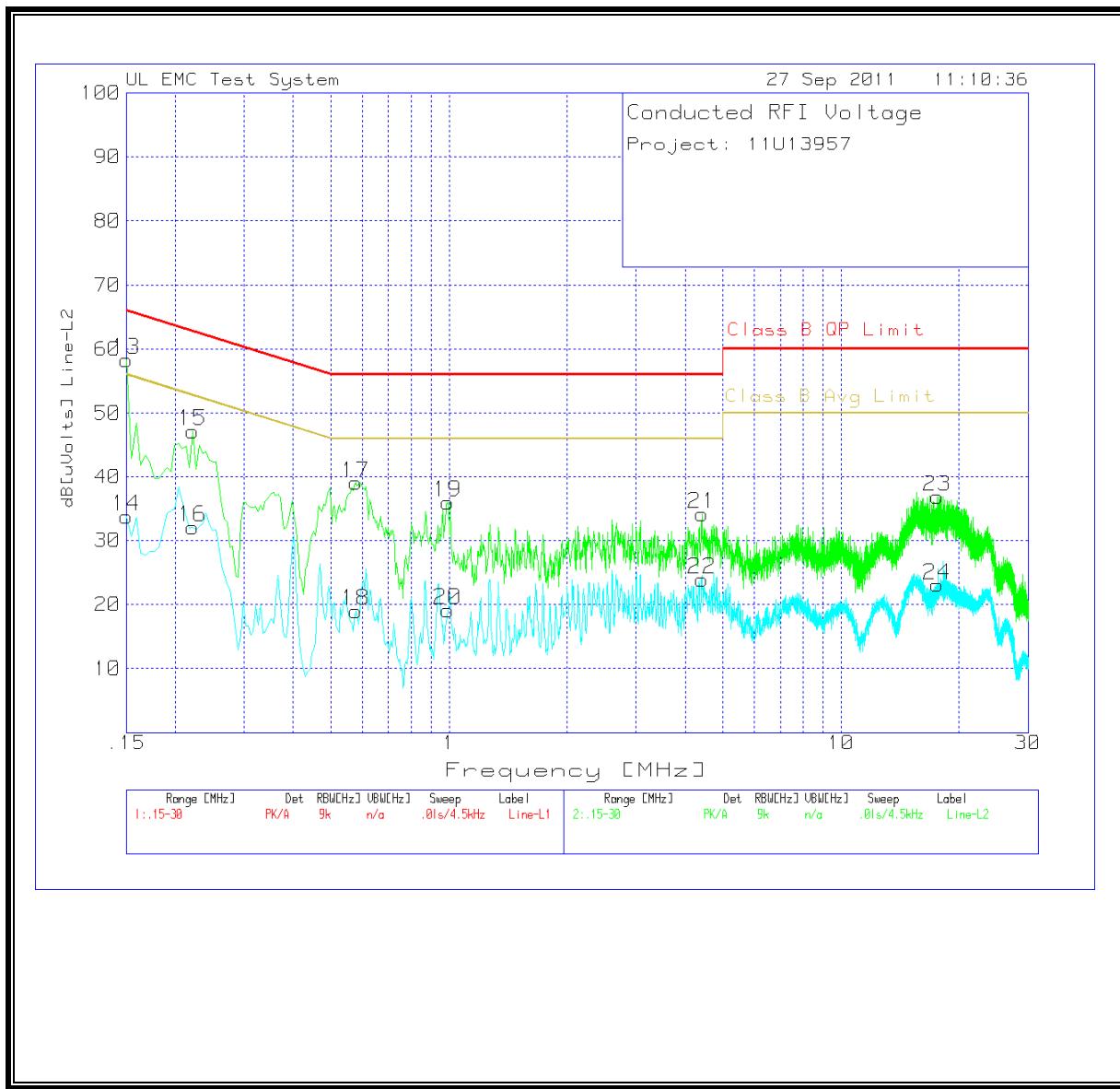
CRMS - CISPR RMS detection

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LINE 1 RESULTS



LINE 2 RESULTS



10. MAXIMUM PERMISSIBLE EXPOSURE

FCC RULES

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
30–300	27.5	0.073	0.2	30
300–1500 .....	.....	.....	f/1500	30
1500–100,000 .....	.....	.....	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

IC RULES

IC Safety Code 6, Section 2.2.1 (a) A person other than an RF and microwave exposed worker shall not be exposed to electromagnetic radiation in a frequency band listed in Column 1 of Table 5, if the field strength exceeds the value given in Column 2 or 3 of Table 5, when averaged spatially and over time, or if the power density exceeds the value given in Column 4 of Table 5, when averaged spatially and over time.

Table 5
Exposure Limits for Persons Not Classed As RF and Microwave Exposed Workers (Including the General Public)

1 Frequency (MHz)	2 Electric Field Strength; rms (V/m)	3 Magnetic Field Strength; rms (A/m)	4 Power Density (W/m ²)	5 Averaging Time (min)
0.003–1	280	2.19		6
1–10	280/ <i>f</i>	2.19/ <i>f</i>		6
10–30	28	2.19/ <i>f</i>		6
30–300	28	0.073	2*	6
300–1 500	1.585 <i>f</i> ^{0.5}	0.0042 <i>f</i> ^{0.5}	<i>f</i> /150	6
1 500–15 000	61.4	0.163	10	6
15 000–150 000	61.4	0.163	10	616 000 / <i>f</i> ^{1.2}
150 000–300 000	0.158 <i>f</i> ^{0.5}	4.21 × 10 ⁻⁴ <i>f</i> ^{0.5}	6.67 × 10 ⁻⁵ <i>f</i>	616 000 / <i>f</i> ^{1.2}

* Power density limit is applicable at frequencies greater than 100 MHz.

Notes: 1. Frequency, *f*, is in MHz.
2. A power density of 10 W/m² is equivalent to 1 mW/cm².
3. A magnetic field strength of 1 A/m corresponds to 1.257 microtesla (μT) or 12.57 milligauss (mG).

EQUATIONS

Power density is given by:

$$S = \text{EIRP} / (4 * \pi * D^2)$$

where

S = Power density in W/m²

EIRP = Equivalent Isotropic Radiated Power in W

D = Separation distance in m

Power density in units of W/m² is converted to units of mW/cm² by dividing by 10.

Distance is given by:

$$D = \sqrt{(\text{EIRP} / (4 * \pi * S))}$$

where

D = Separation distance in m

EIRP = Equivalent Isotropic Radiated Power in W

S = Power density in W/m²

For multiple colocated transmitters operating simultaneously in frequency bands where the limit is identical, the total power density is calculated using the total EIRP obtained by summing the Power * Gain product (in linear units) of each transmitter.

$$\text{Total EIRP} = (P1 * G1) + (P2 * G2) + \dots + (Pn * Gn)$$

where

Px = Power of transmitter x

Gx = Numeric gain of antenna x

In the table(s) below, Power and Gain are entered in units of dBm and dBi respectively and conversions to linear forms are used for the calculations.

LIMITS

From FCC §1.1310 Table 1 (B), the maximum value of S = 1.0 mW/cm²

From IC Safety Code 6, Section 2.2 Table 5 Column 4, S = 10 W/m²

RESULTS

(MPE distance equals 20 cm)

Multiple chain or colocated transmitters									
Band	Mode	Chain for MIMO	Separation Distance (m)	Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	IC Power Density (W/m^2)	FCC Power Density (mW/cm^2)
2.4 GHz	WLAN	1		14.20	4.00	18.20	0.07		
2.4 GHz	WLAN	2		14.20	4.00	18.20	0.07		
2.4 GHz	WLAN	3		14.20	4.00	18.20	0.07		
Combined			0.20				0.20	0.39	0.039

Multiple chain or colocated transmitters									
Band	Mode	Chain for MIMO	Separation Distance (m)	Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	IC Power Density (W/m^2)	FCC Power Density (mW/cm^2)
5 GHz	WLAN	1		15.50	4.50	20.00	0.10		
5 GHz	WLAN	2		15.50	4.50	20.00	0.10		
5 GHz	WLAN	3		15.50	4.50	20.00	0.10		
Combined			0.20				0.30	0.60	0.060