7.10. 802.11a LEGACY MODE IN THE 5.6 GHz BAND

7.10.1. 26 dB and 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

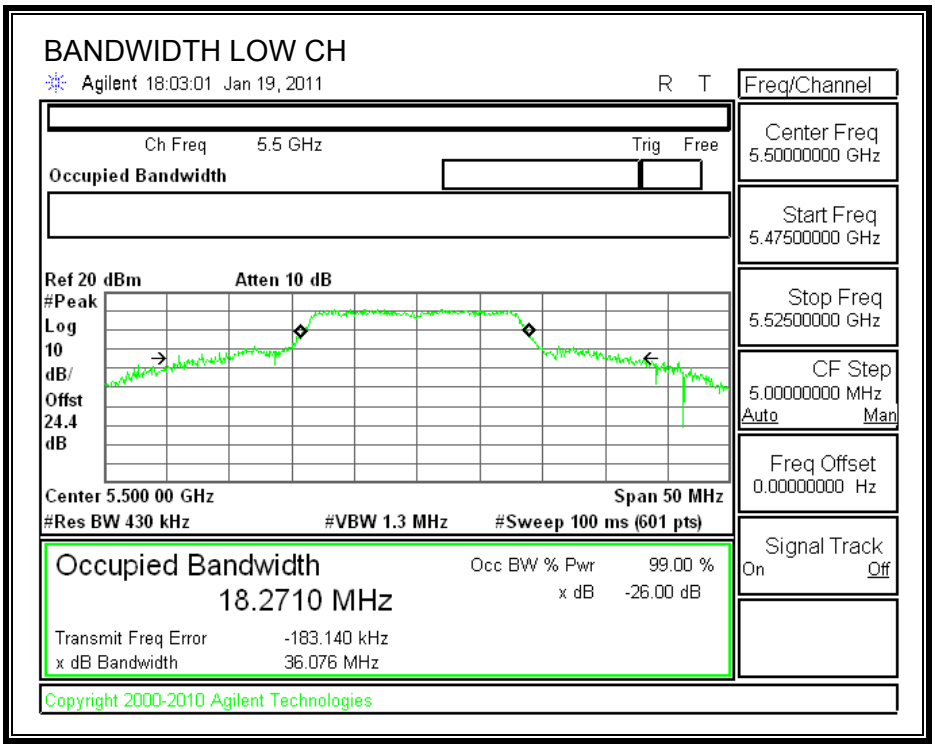
TEST PROCEDURE

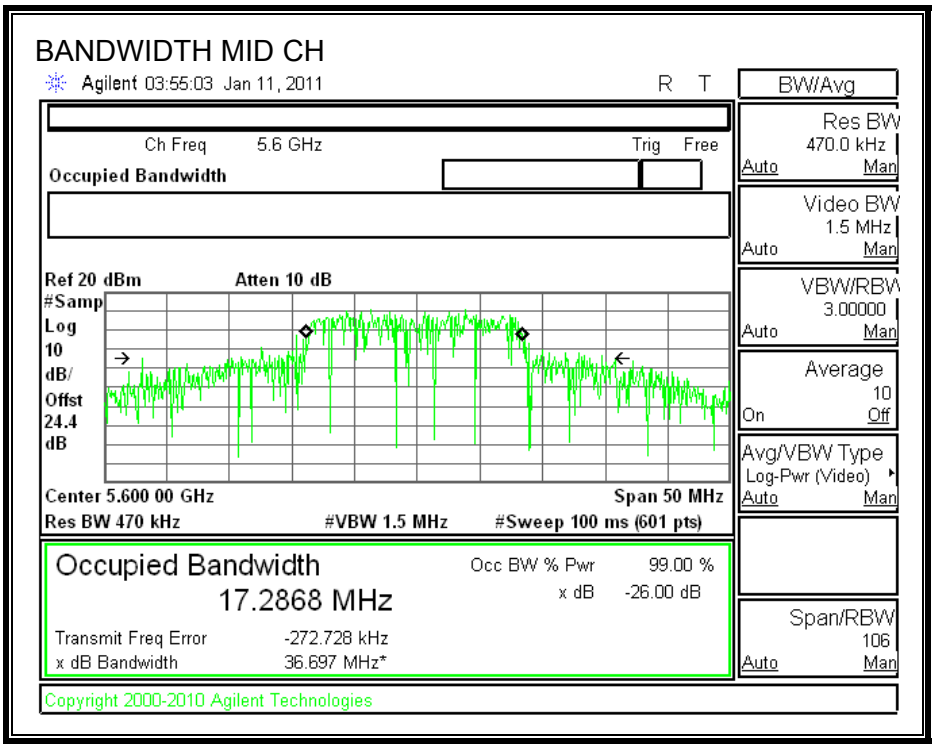
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

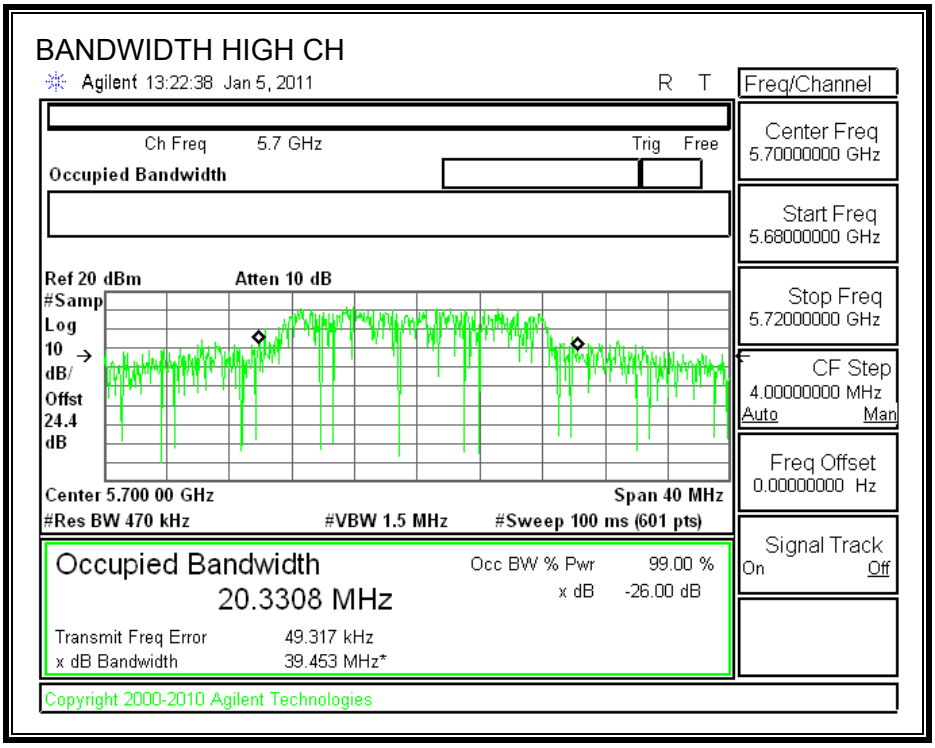
RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5500	36.076	18.271
Middle	5600	36.697	17.2868
High	5700	39.453	20.3308

26 dB and 99% BANDWIDTH







7.10.2. OUTPUT POWER

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.47-5.725 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

RESULTS

Limit

Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	11 + 10 Log B Limit (dBm)	Antenna Gain (dBi)	Limit (dBm)
Low	5500	24	36.076	26.57	7.06	22.94
Mid	5600	24	36.697	26.65	7.06	22.94
High	5700	24	39.453	26.96	7.06	22.94

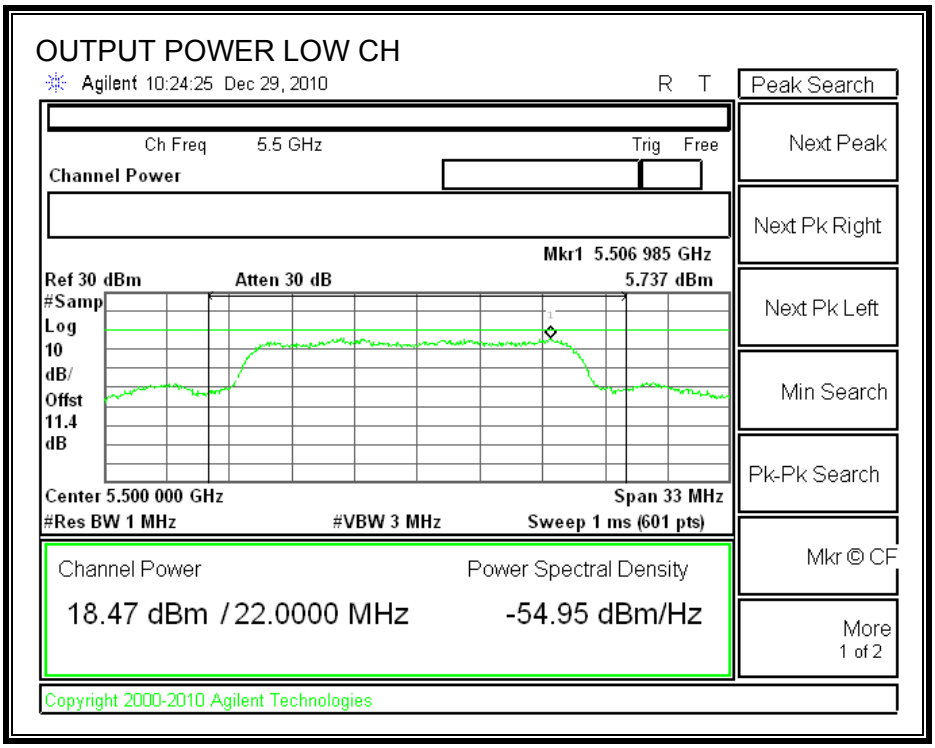
Results

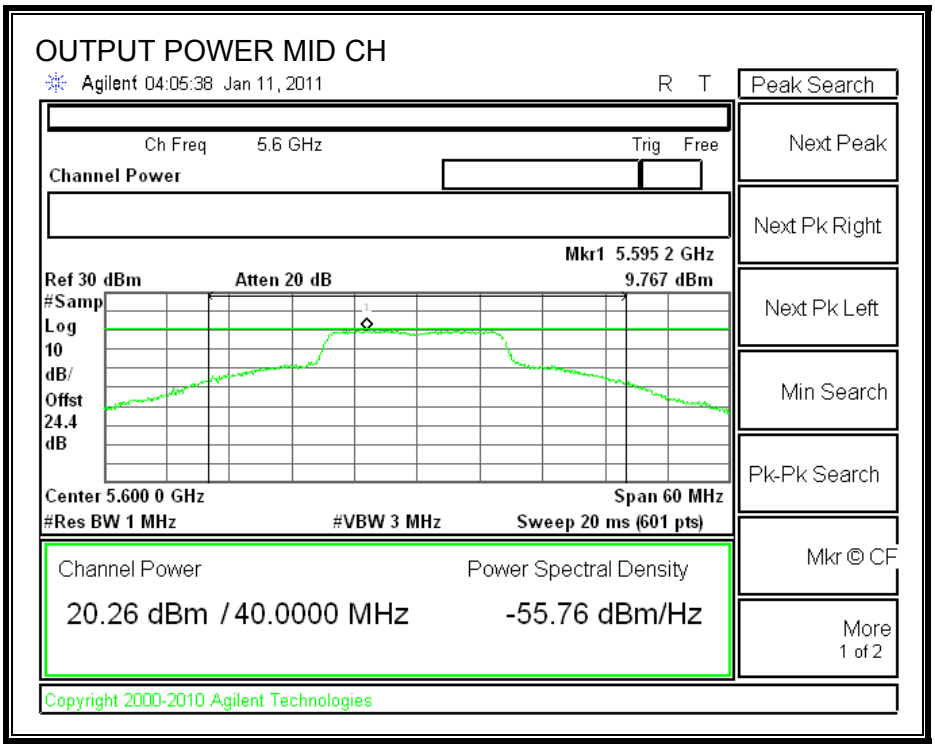
Channel	Frequency (MHz)	Power (dBm)	Limit (dBm)	Margin (dB)
Low	5500	18.47	22.94	-4.47
Mid	5600	20.26	22.94	-2.68
High	5700	20.32	22.94	-2.62

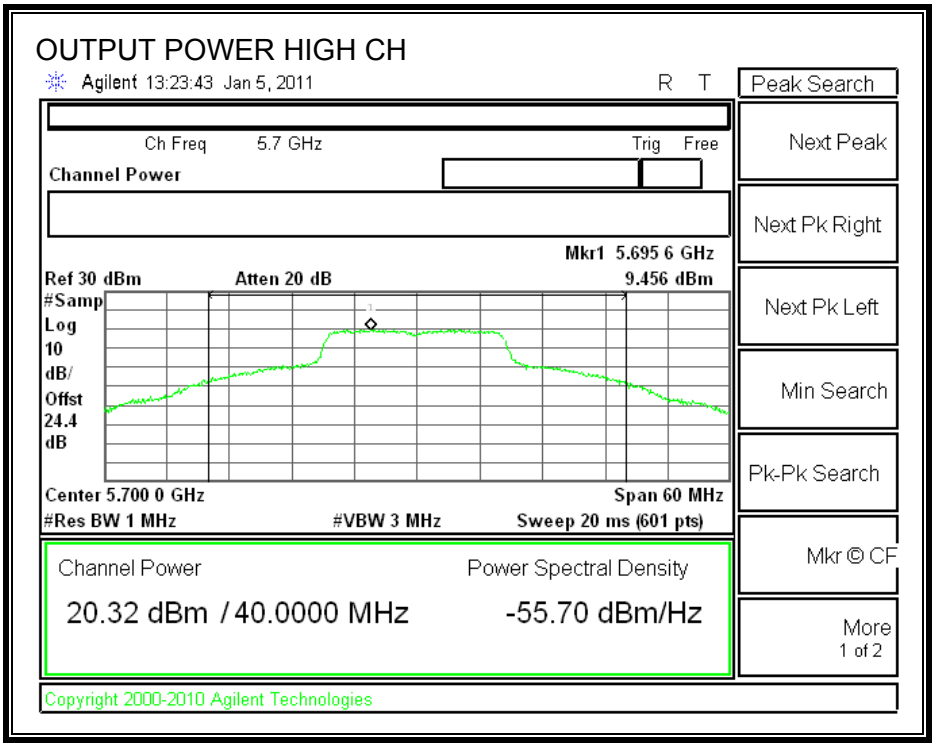
TPC Results

TPC Delta Power		Chain 0		
		4.00		
Worst-case TPC Power		Chain 0	Ant Gain	EIRP
High	5700	16.32	7.06	23.38
			TPC Limit (dBm)	24
			Margin (dB)	-0.62

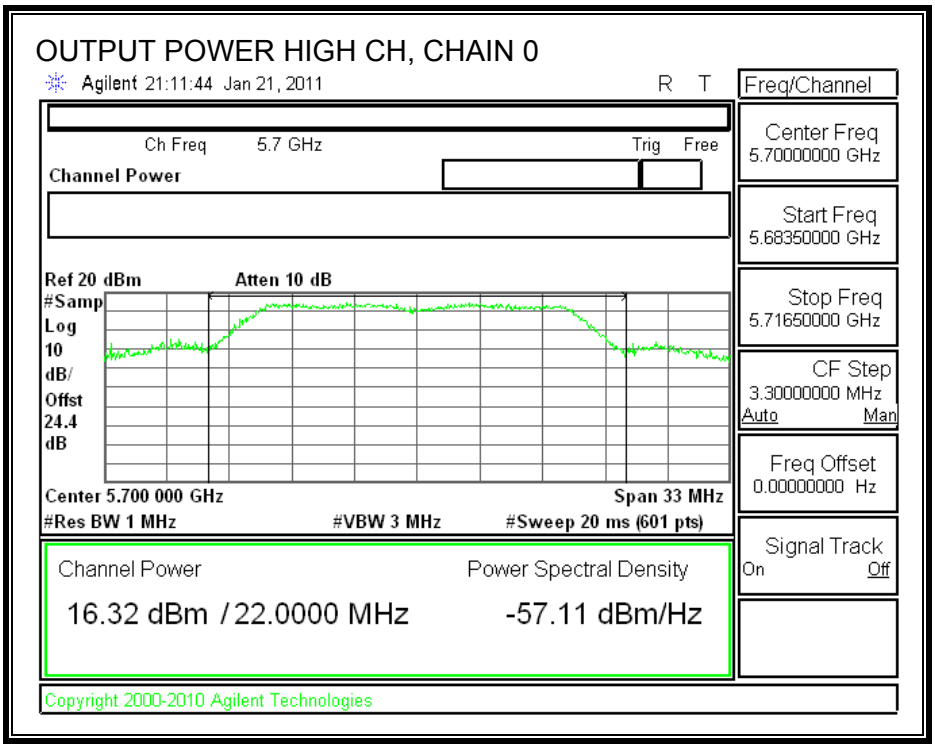
OUTPUT POWER







TPC OUTPUT POWER



7.10.3. PEAK POWER SPECTRAL DENSITY

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.47-5.725 GHz band, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is equal to 7.06, therefore the limit is 9.94.

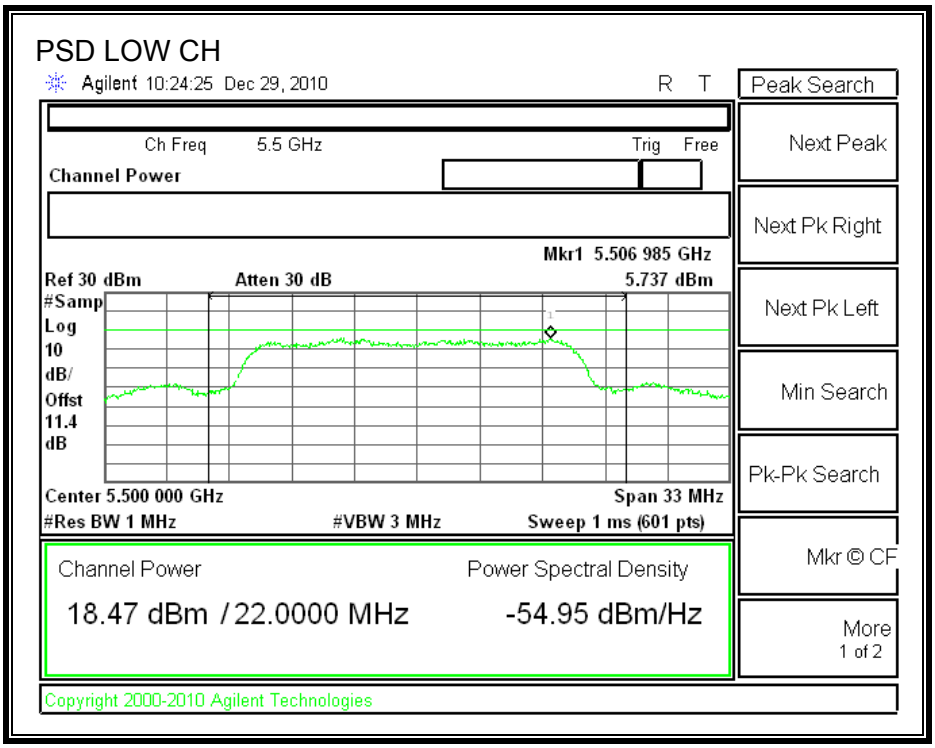
TEST PROCEDURE

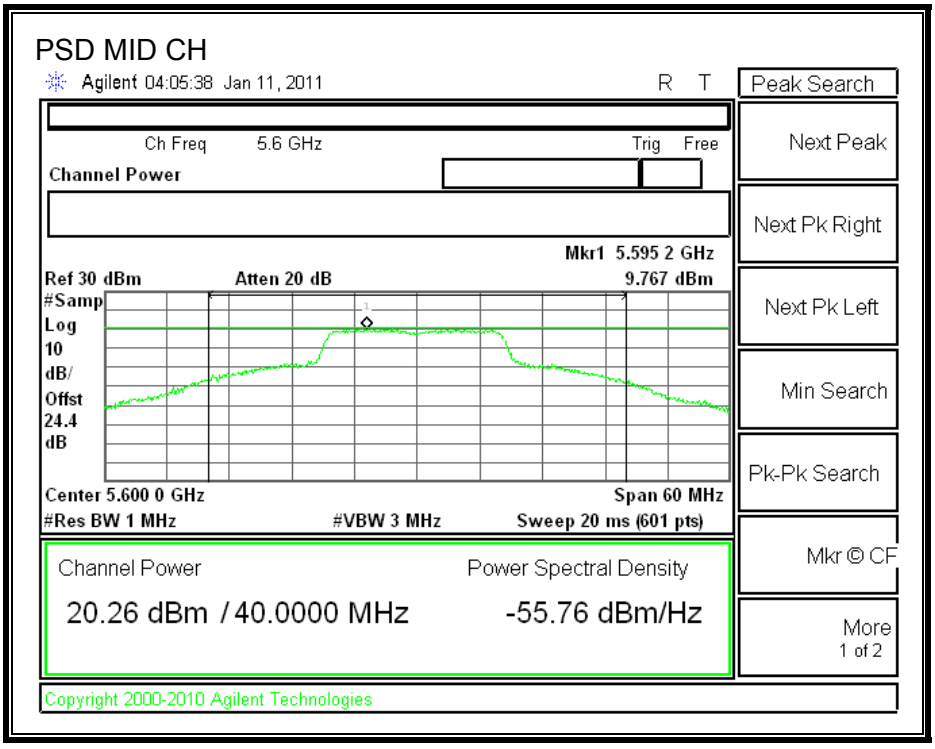
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. PPSD method #2 was used.

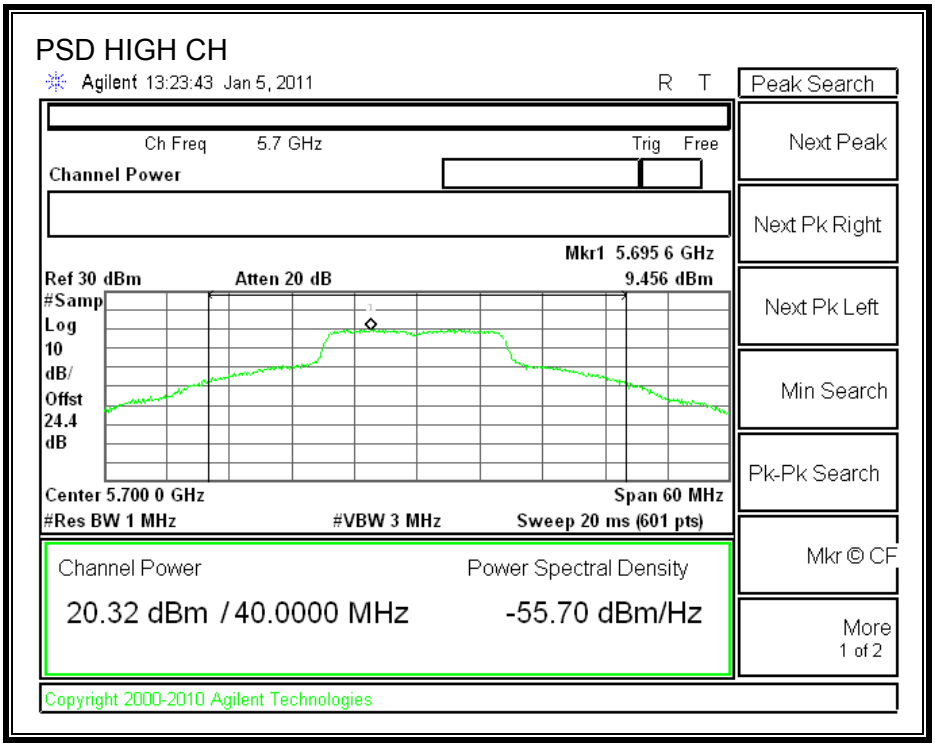
RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	5500	5.74	9.94	-4.20
Middle	5600	9.77	9.94	-0.17
High	5700	9.46	9.94	-0.48

POWER SPECTRAL DENSITY







7.10.4. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

TEST PROCEDURE

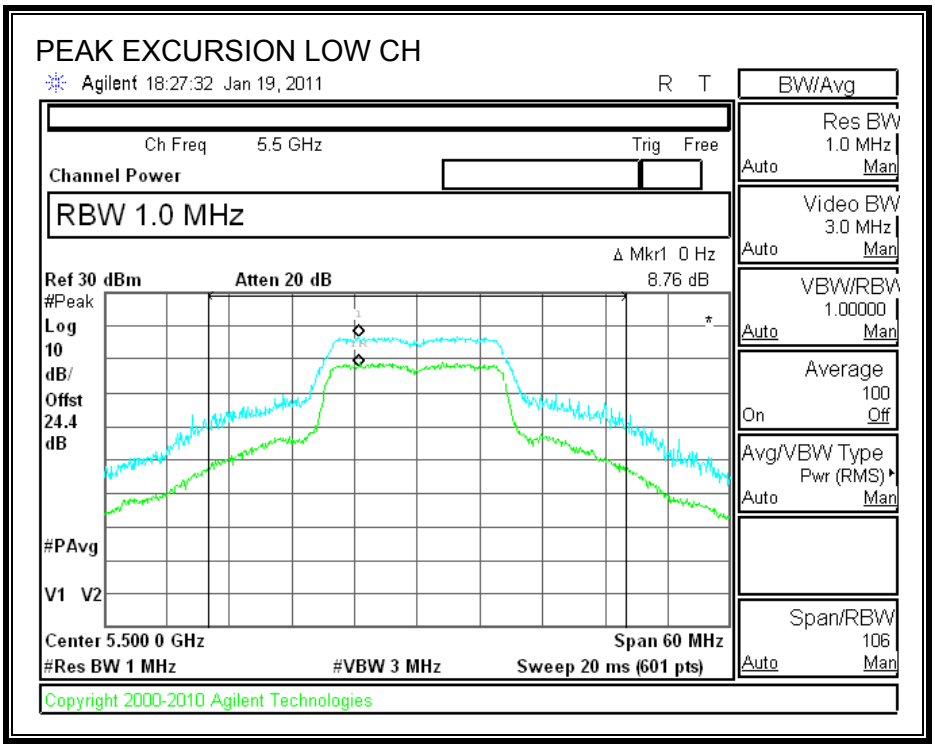
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

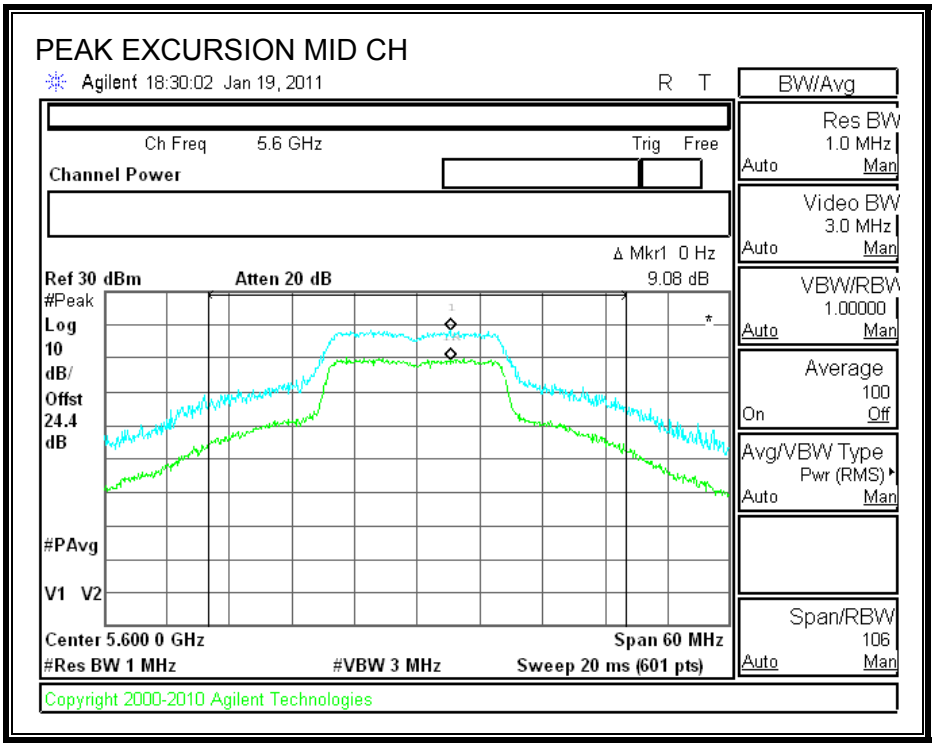
Since Method # 1 was used for peak power measurements, Method # 1 settings are used for the second PPSD trace.

RESULTS

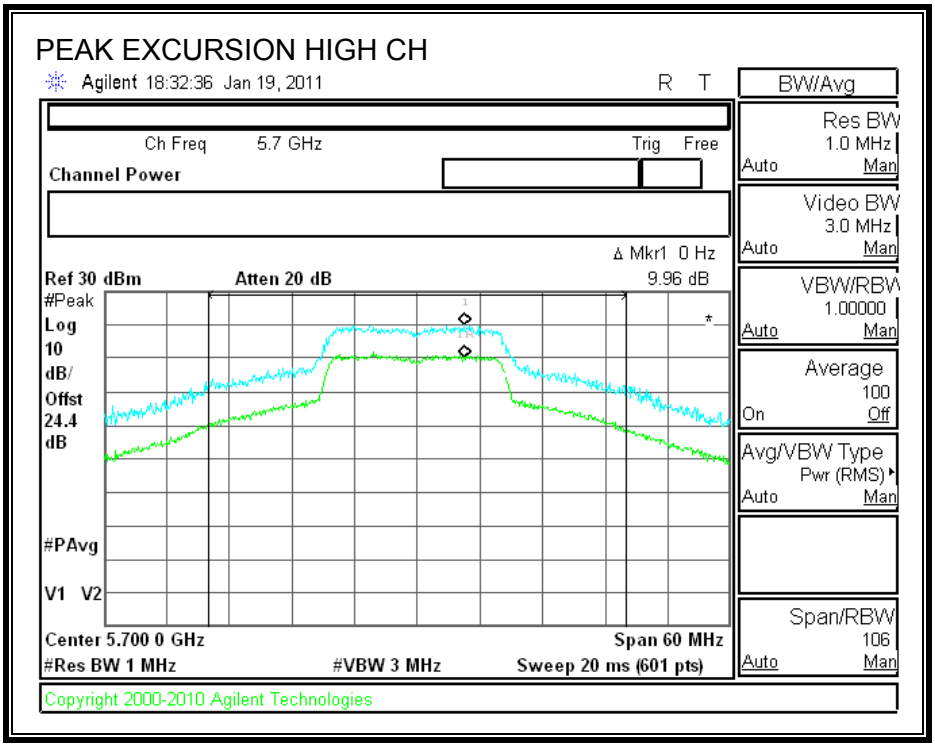
Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5500	8.76	13	-4.24
Middle	5600	9.08	13	-3.92
High	5700	9.96	13	-3.04

PEAK EXCURSION





PEAK EXCURSION HIGH CH



7.10.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.407 (b) (3)

IC RSS-210 A9.3 (3)

For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm / MHz.

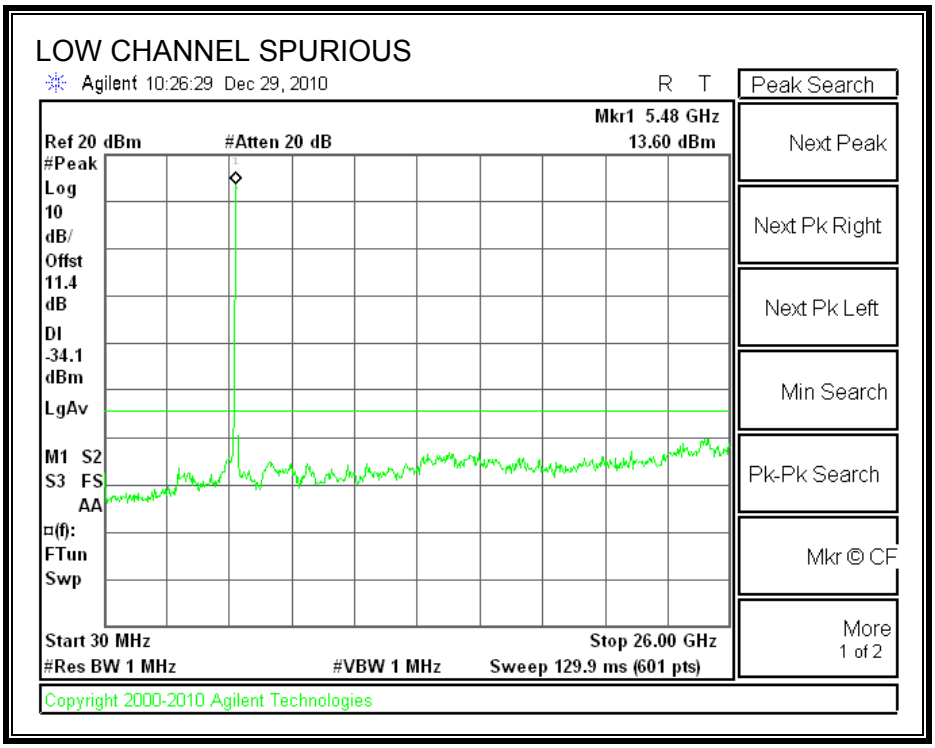
TEST PROCEDURE

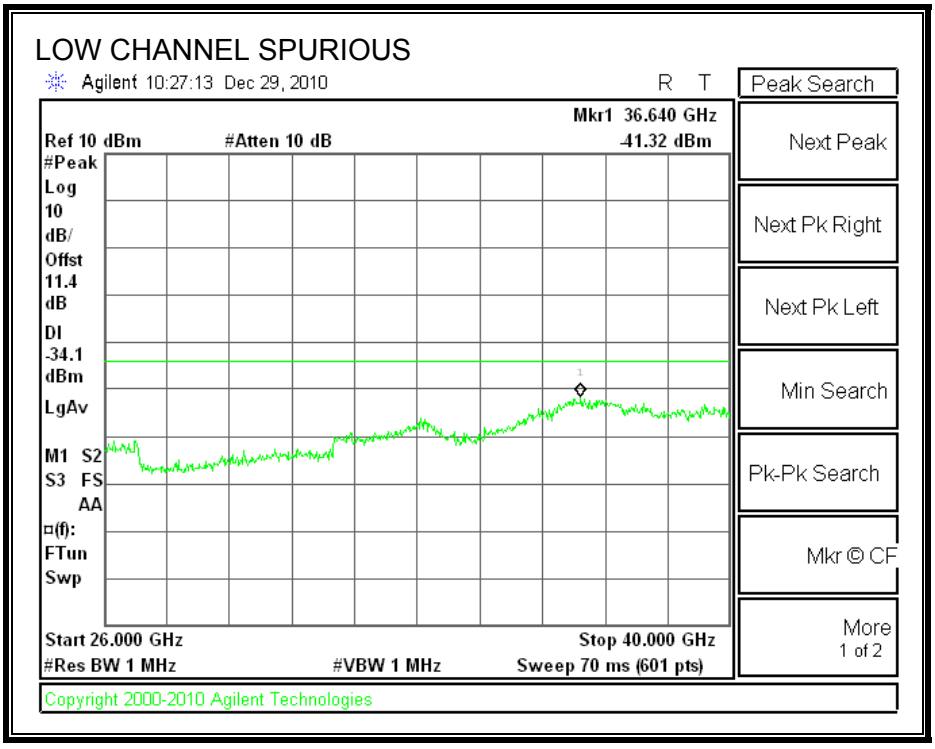
Conducted RF measurements of the transmitter output are made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

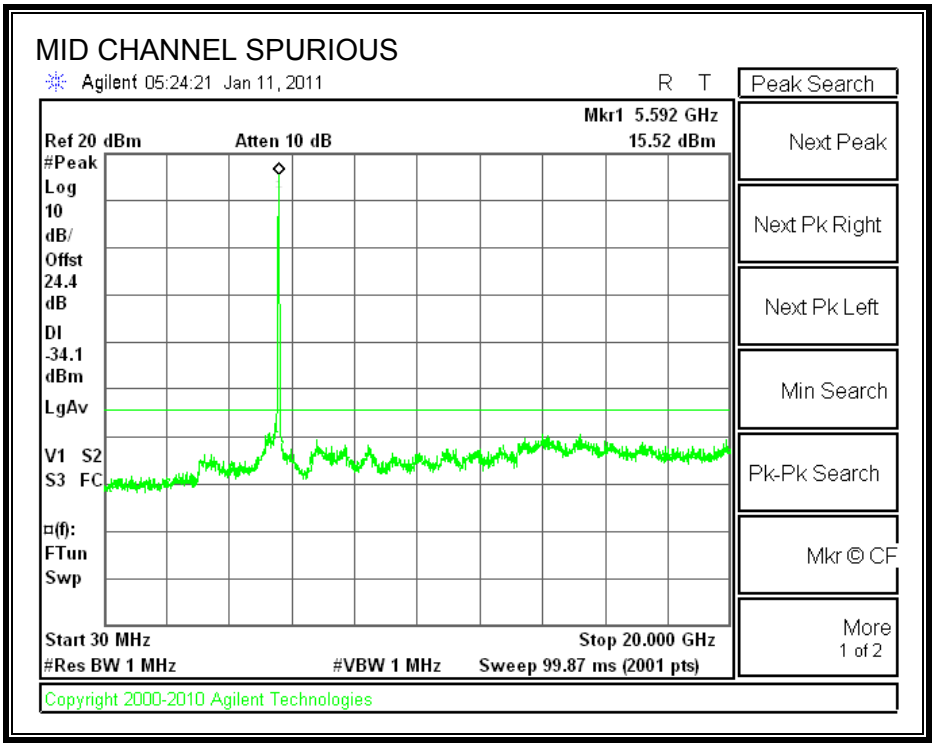
The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to EIRP limit, adjusted for the maximum antenna gain.

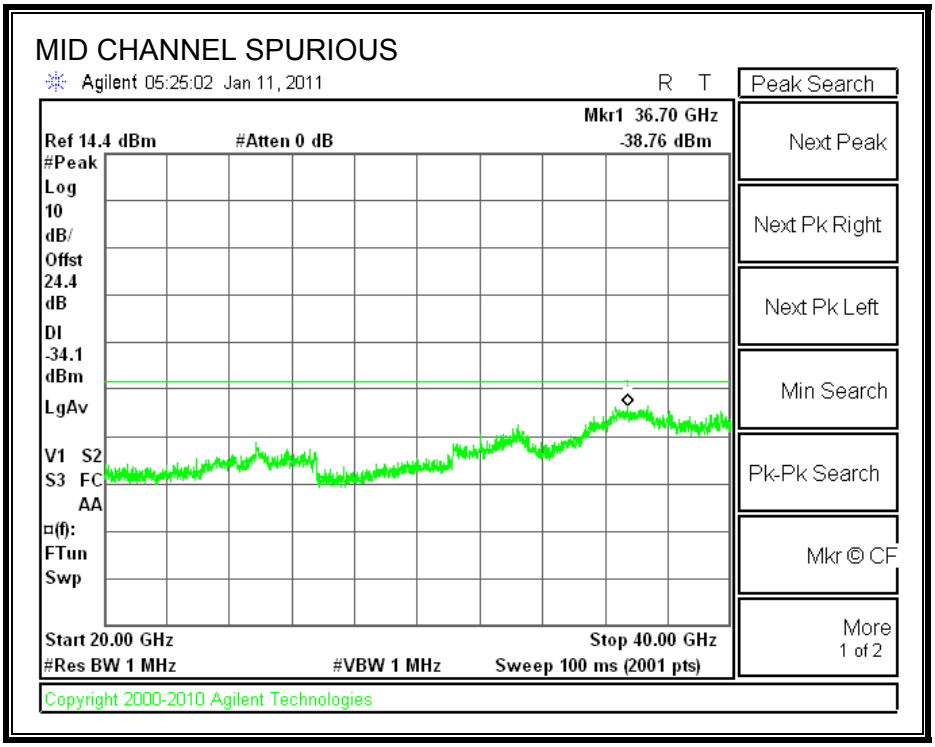
Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

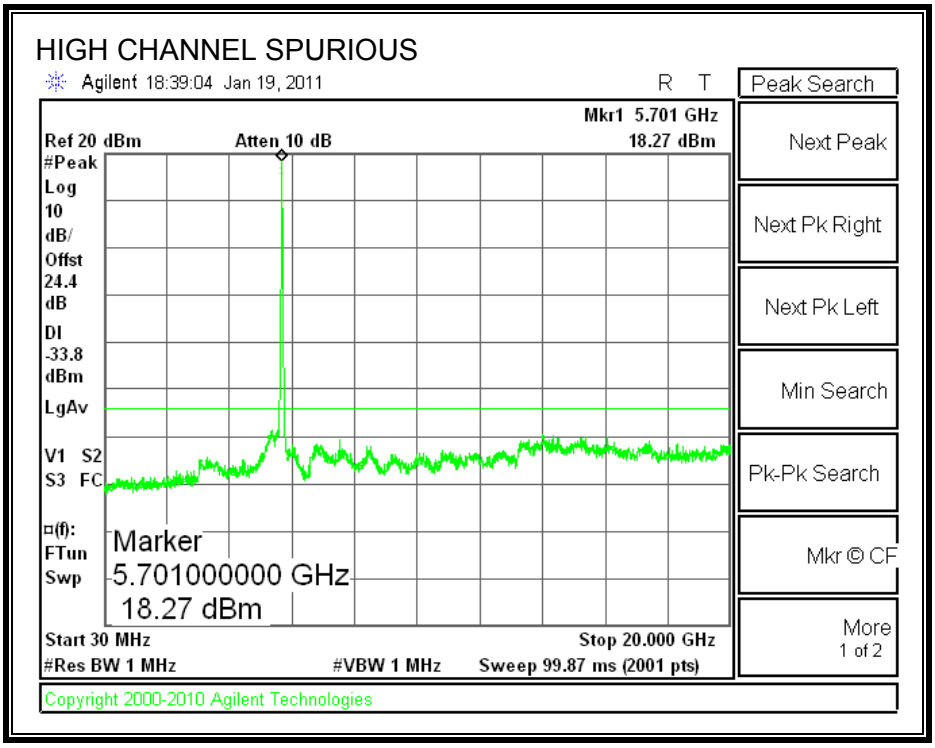
RESULTS SPURIOUS EMISSIONS

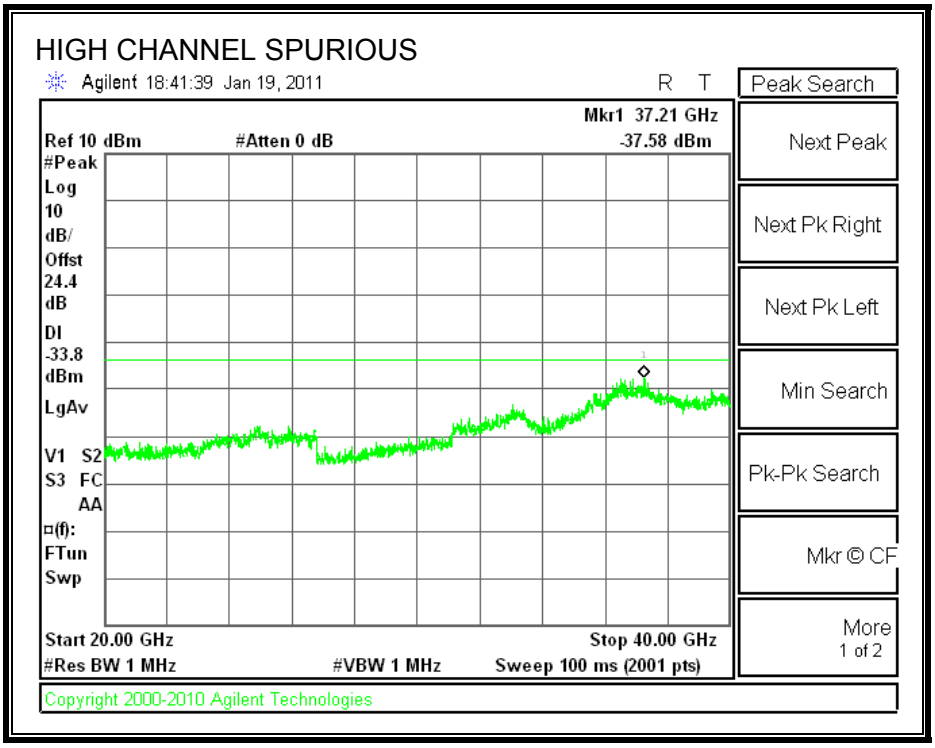












7.11. 802.11n THREE CHAINS HT20 MODE IN THE 5.6 GHz BAND

CDD MCS0

7.11.1. 26 dB and 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

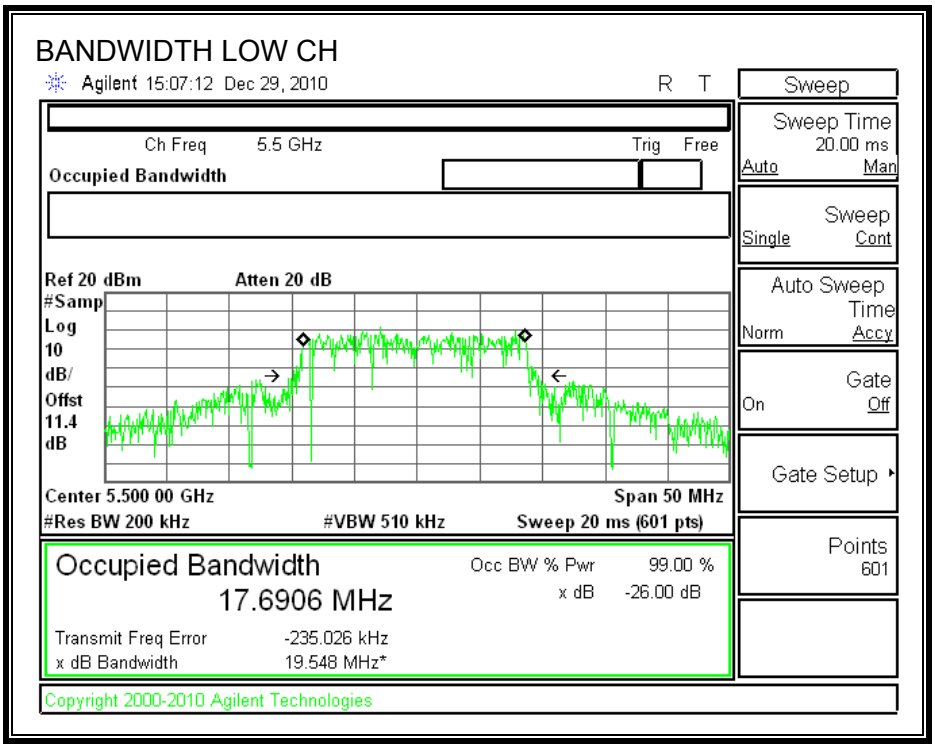
The transmitter outputs are connected to the spectrum analyzer via a combiner. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

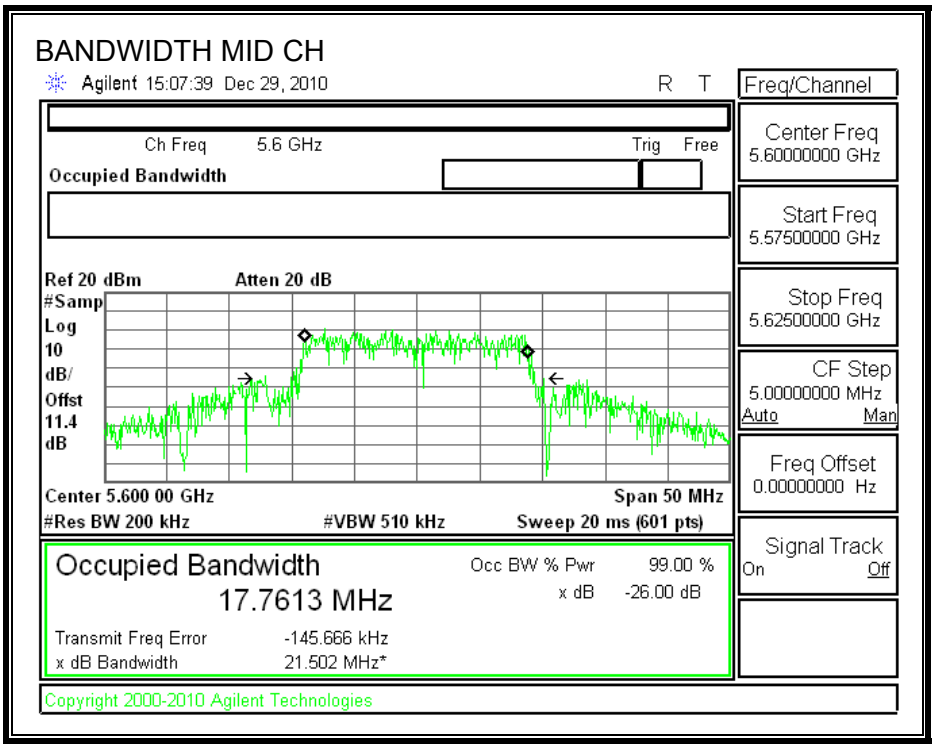
RESULTS

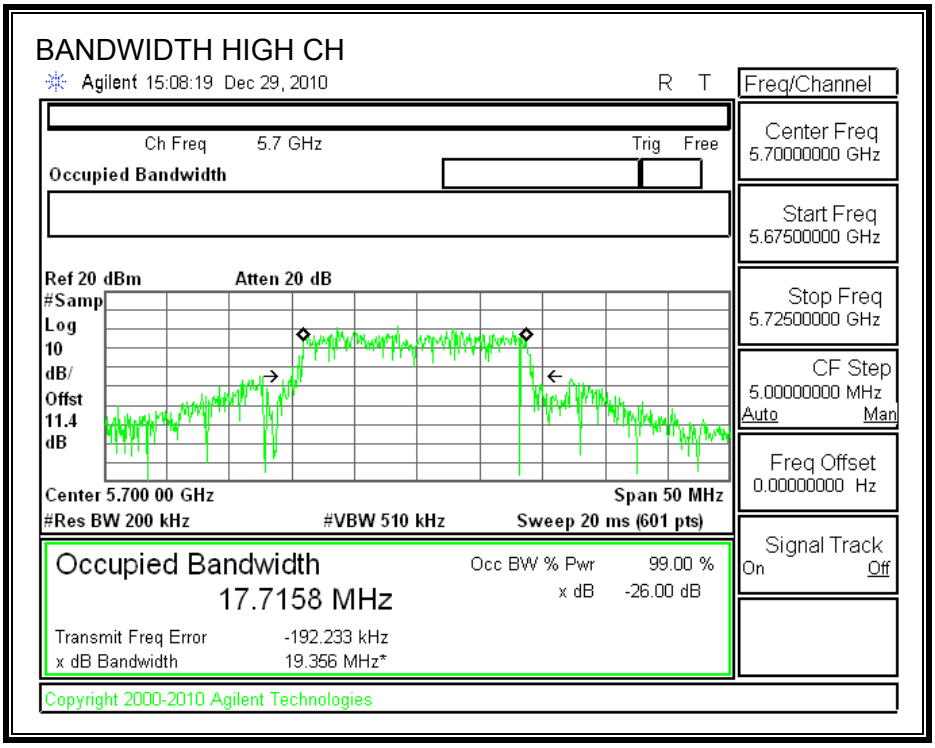
CHAIN 1

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5500	19.548	17.6906
Middle	5600	21.502	17.7613
High	5700	19.356	17.7158

26 dB and 99% BANDWIDTH







7.11.2. OUTPUT POWER

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.47-5.725 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

RESULTS

Limit

Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	11 + 10 Log B Limit (dBm)	Antenna Gain (dBi)	Limit (dBm)
Low	5500	24	19.548	23.91	11.23	18.68
Mid	5600	24	21.502	24.32	11.23	18.77
High	5700	24	19.356	23.87	11.23	18.64

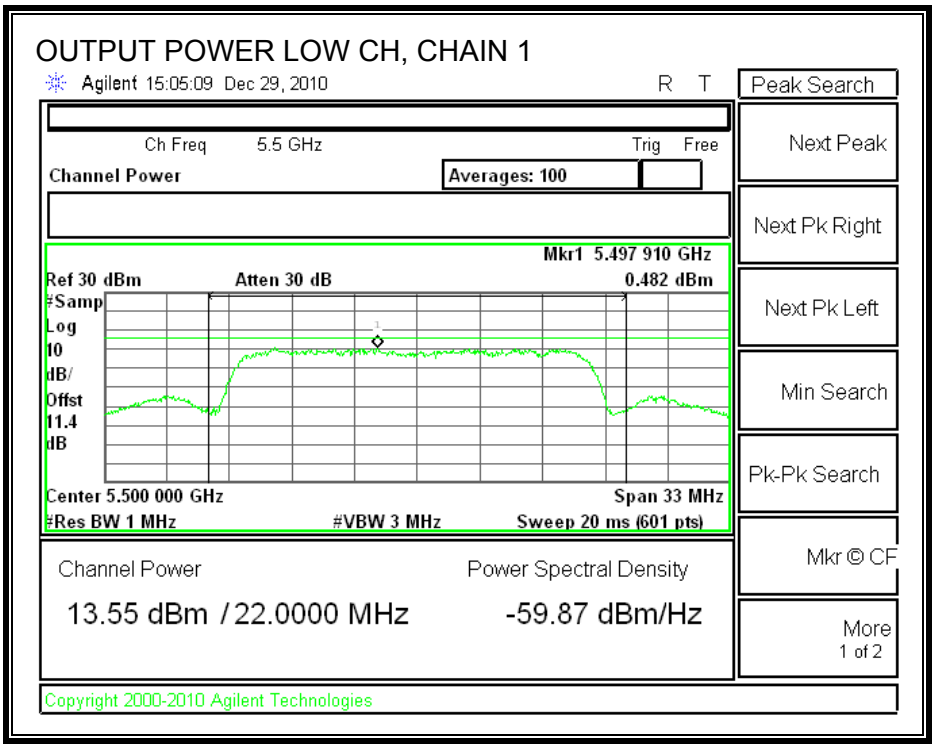
Individual Chain Results

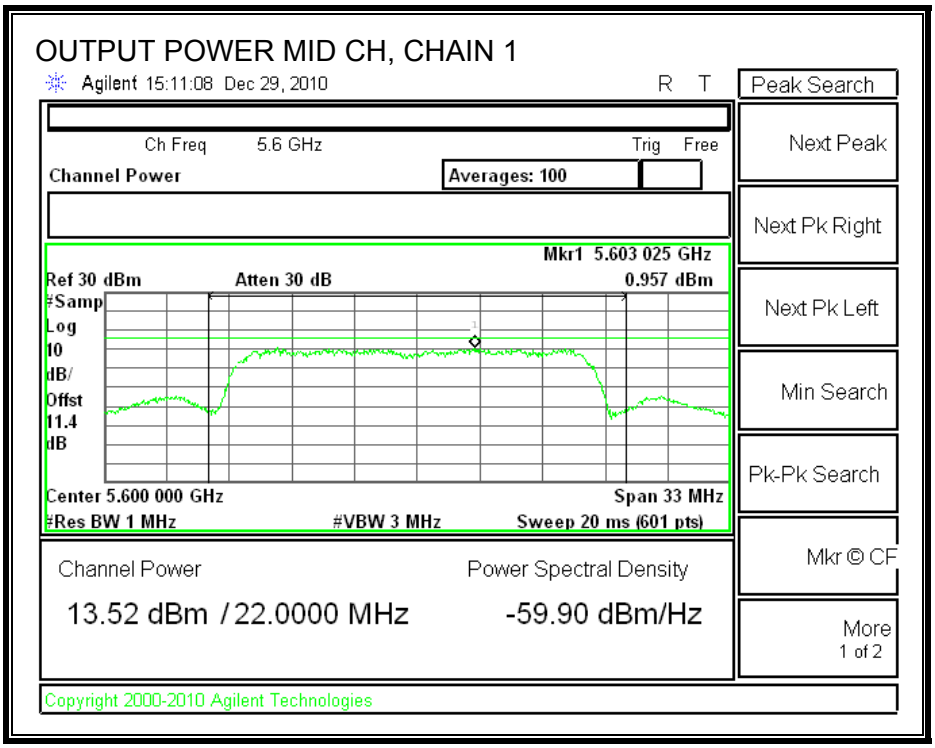
Channel	Frequency (MHz)	Chain 1 Power (dBm)	Chain 2 Power (dBm)	Chain 3 Power (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	5500	13.55	13.50	13.83	18.40	18.68	-0.28
Mid	5600	13.52	13.43	14.01	18.43	18.77	-0.34
High	5700	13.63	13.75	14.00	18.57	18.64	-0.07

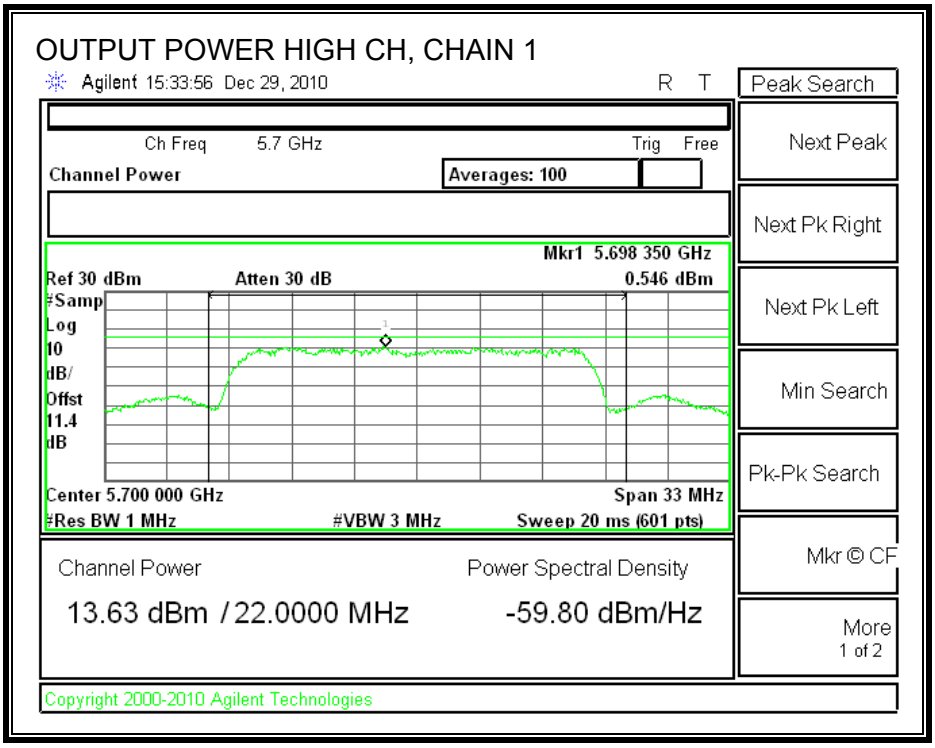
TPC Results

TPC Delta Power		Chain 0	Chain 1	Chain 2			
		6.92	6.96	7.30			
Worst-case TPC Power		Chain 0	Chain 1	Chain 2	Total Power	Ant Gain	EIRP
High	5700	6.71	6.79	6.70	11.50	11.23	22.73
						TPC Limit (dBm)	24
						Margin (dB)	-1.27

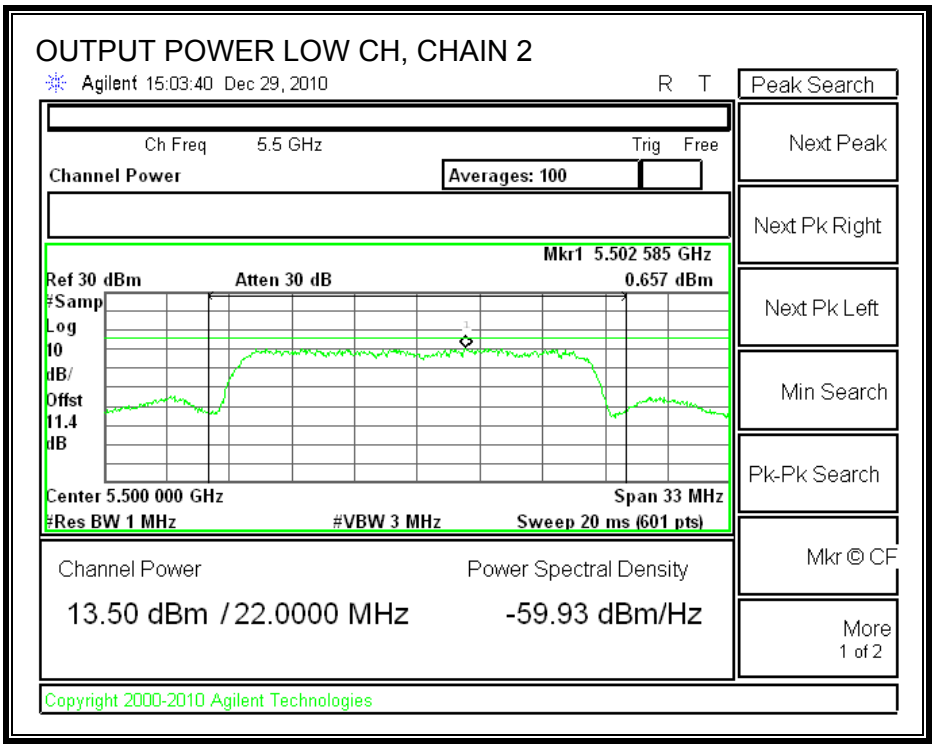
CHAIN 1 OUTPUT POWER

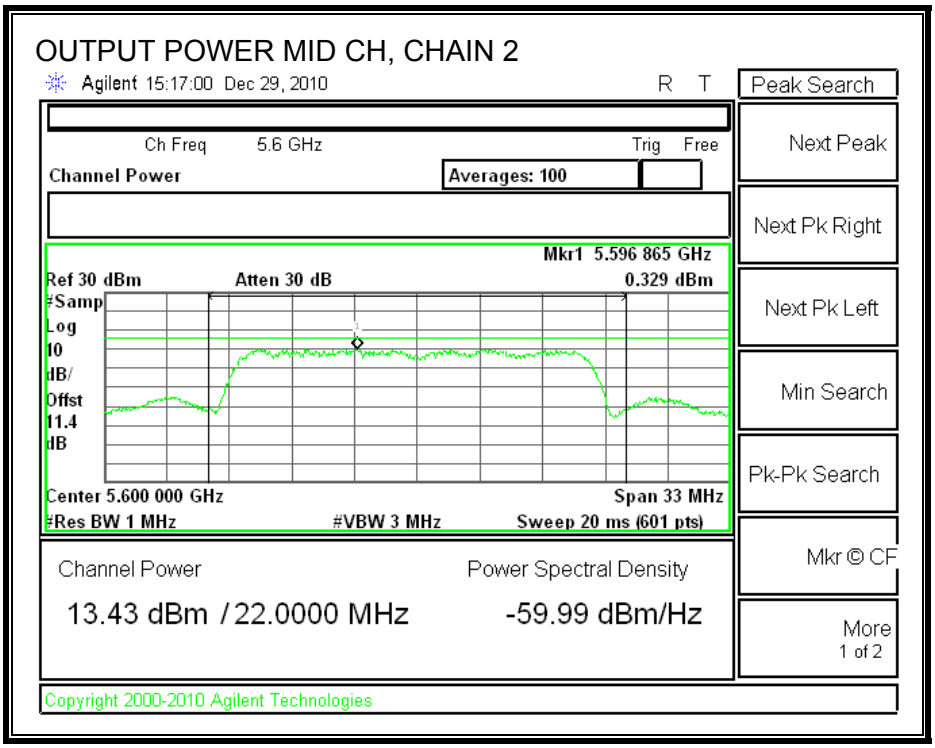


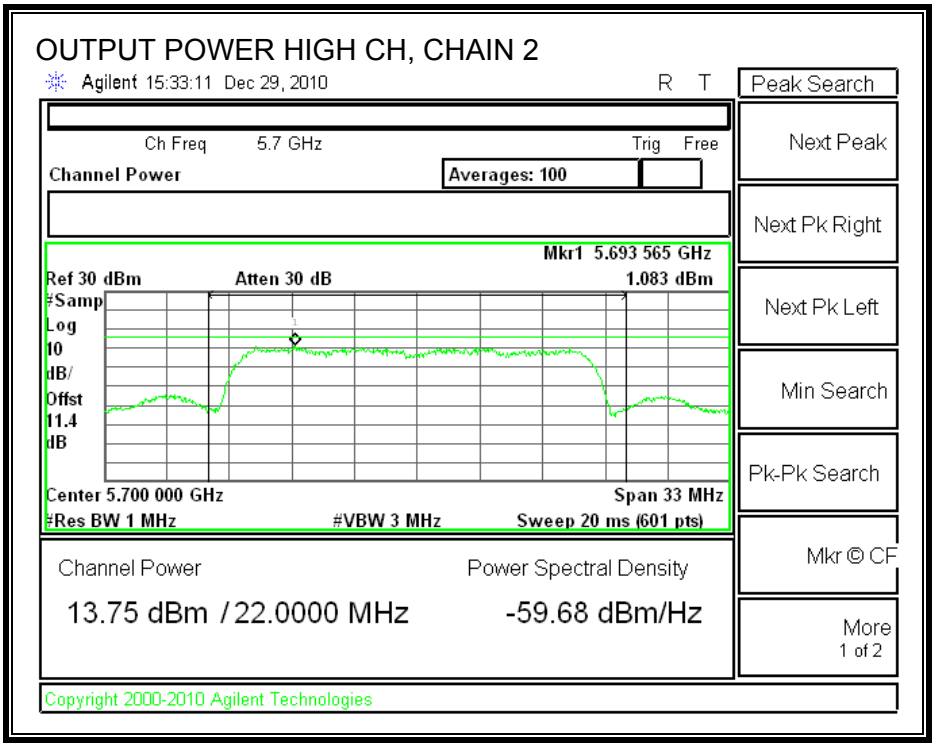




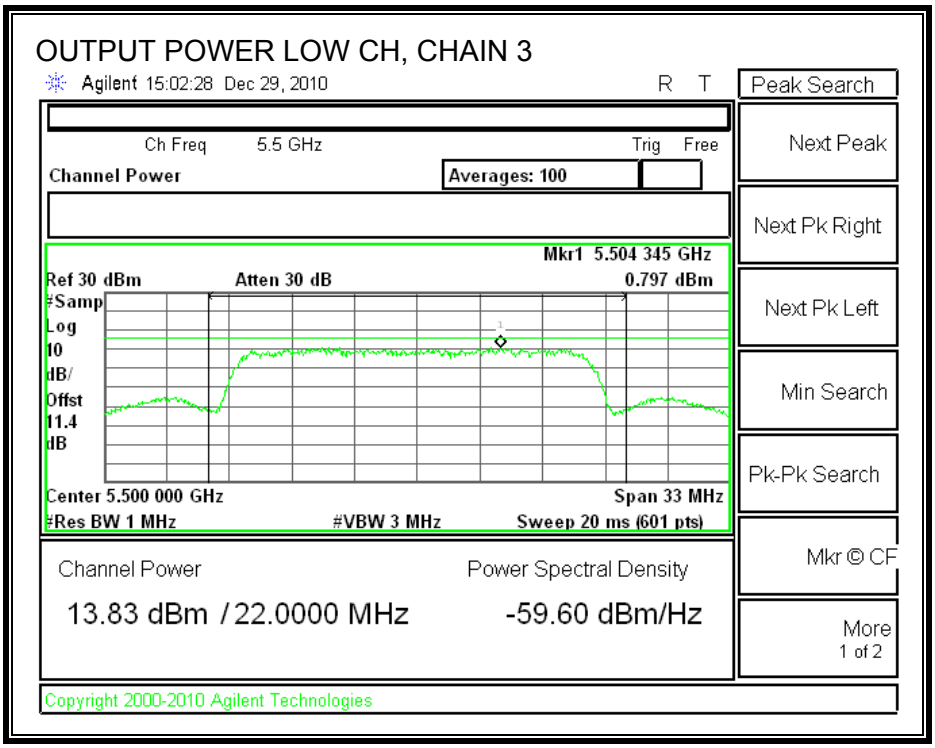
CHAIN 2 OUTPUT POWER

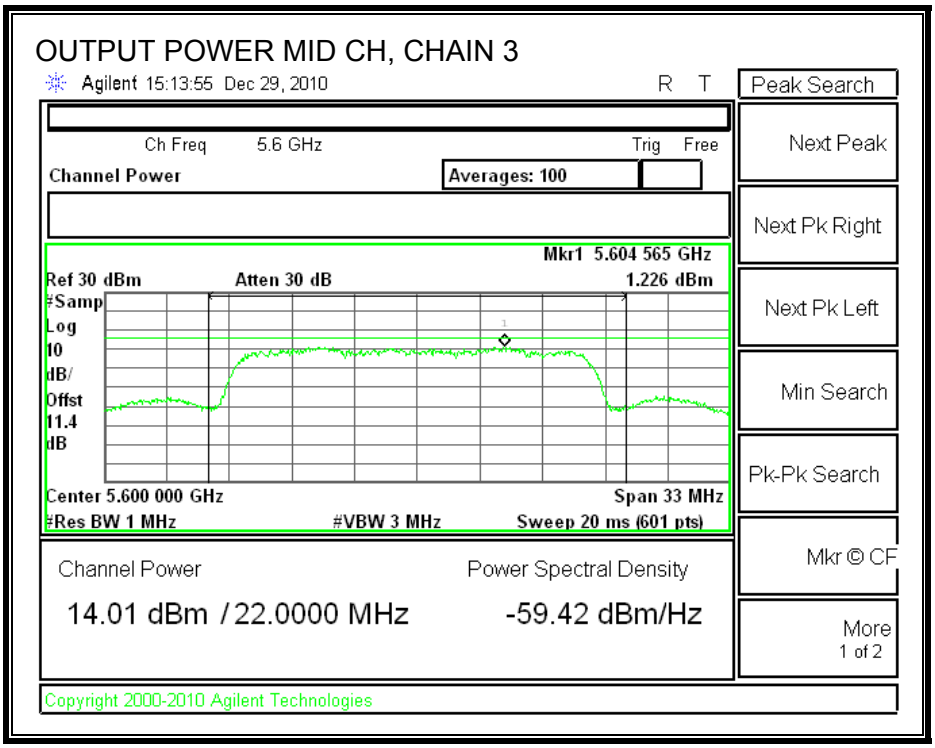


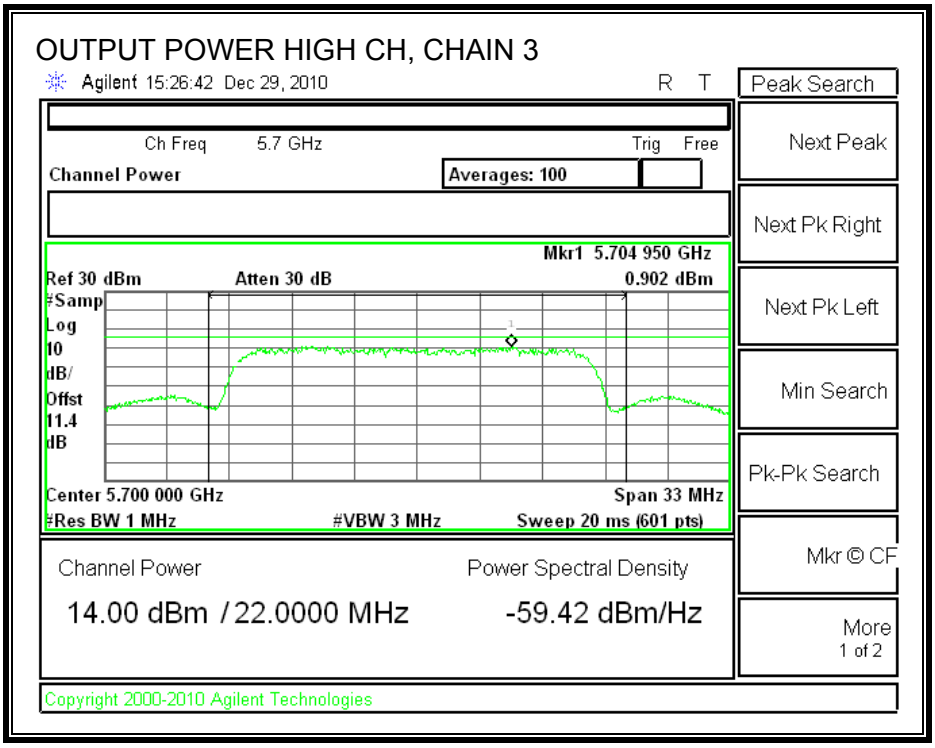




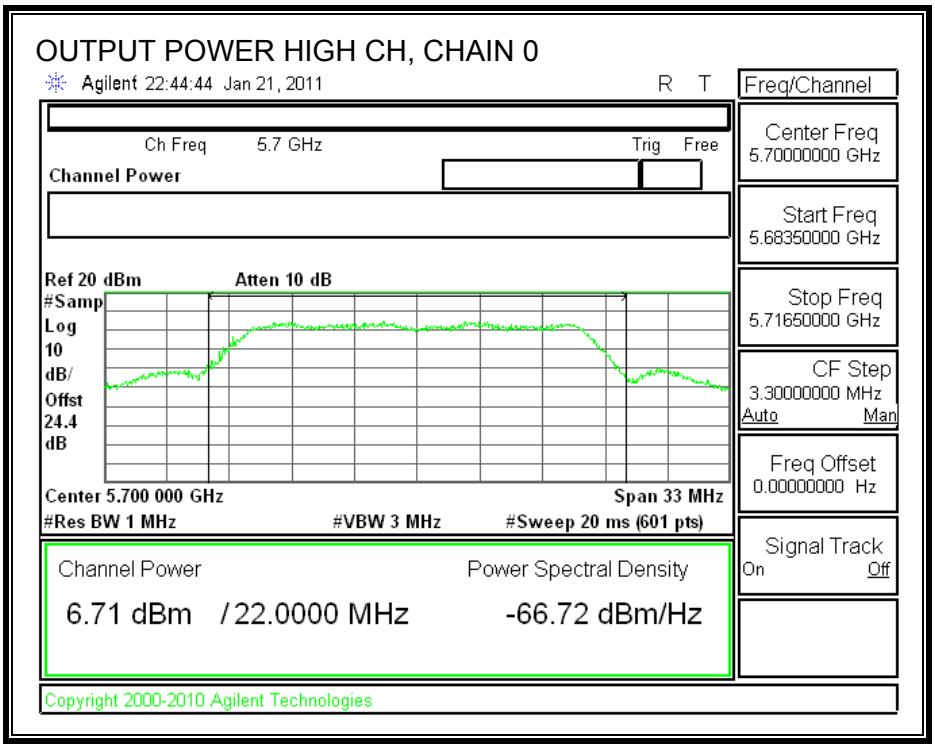
CHAIN 3 OUTPUT POWER

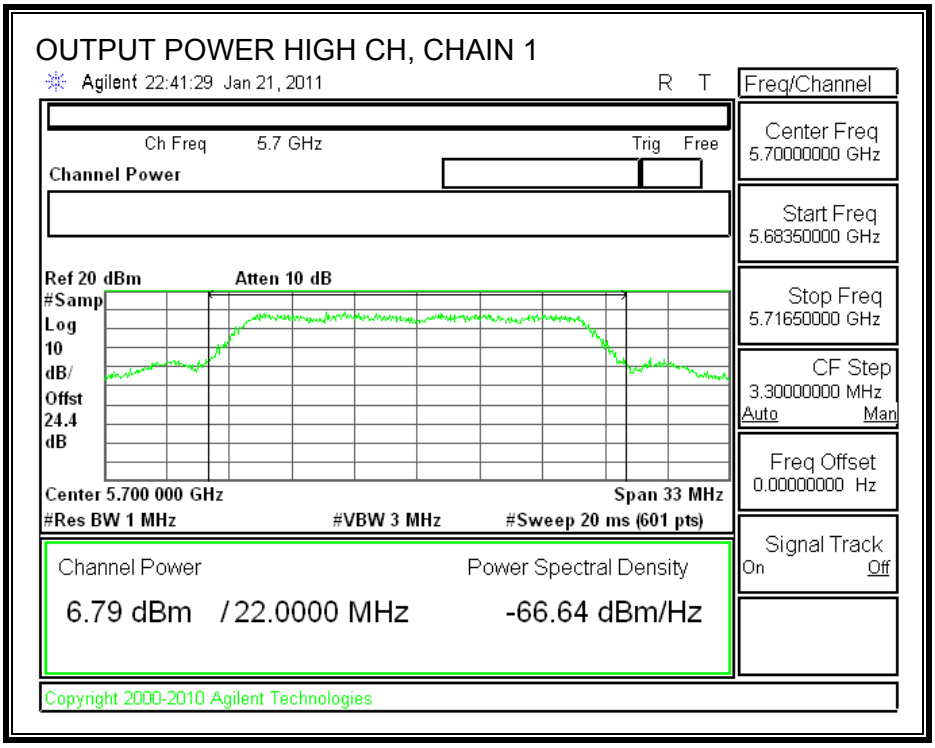


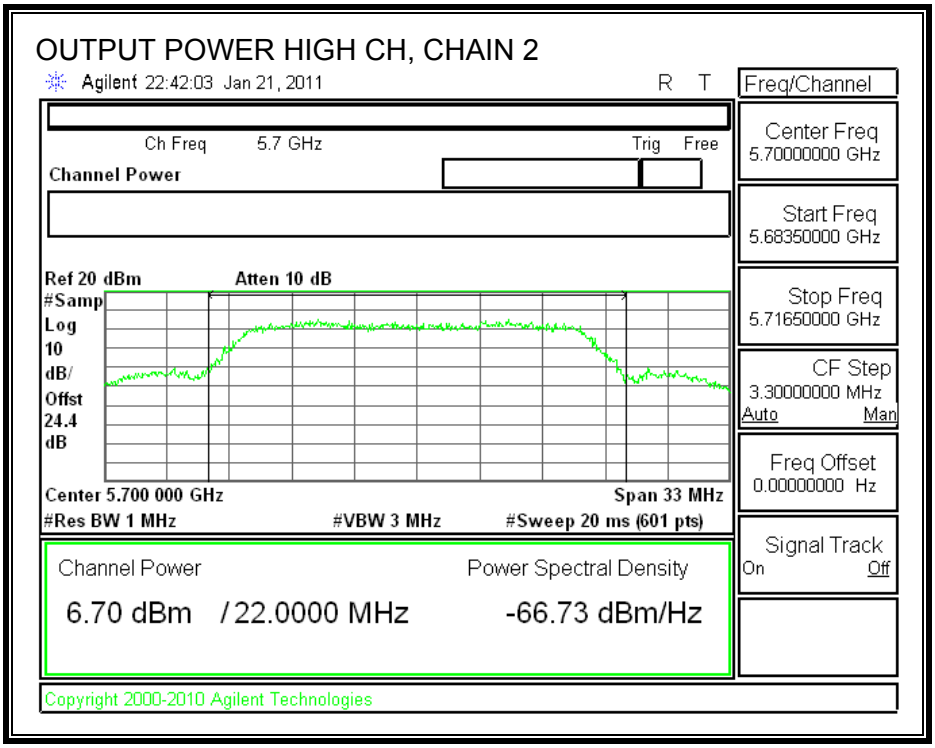




TPC OUTPUT POWER







7.11.3. PEAK POWER SPECTRAL DENSITY

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.47-5.725 GHz band, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is 11.23 dBi, therefore the limit is 5.77 dBm.

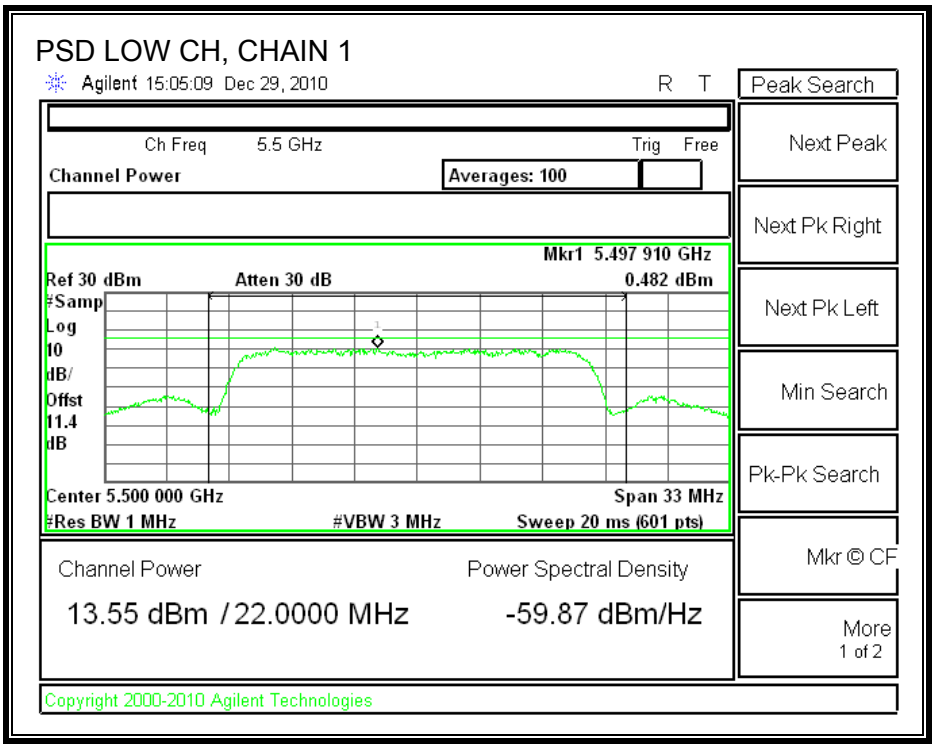
TEST PROCEDURE

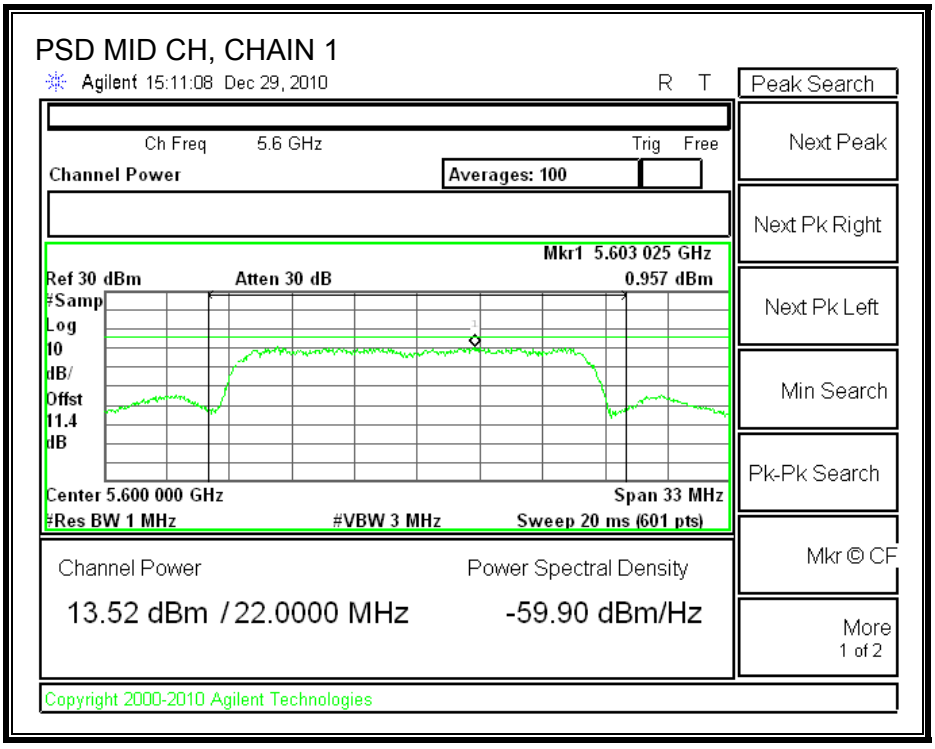
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. PPSD method #2 was used.

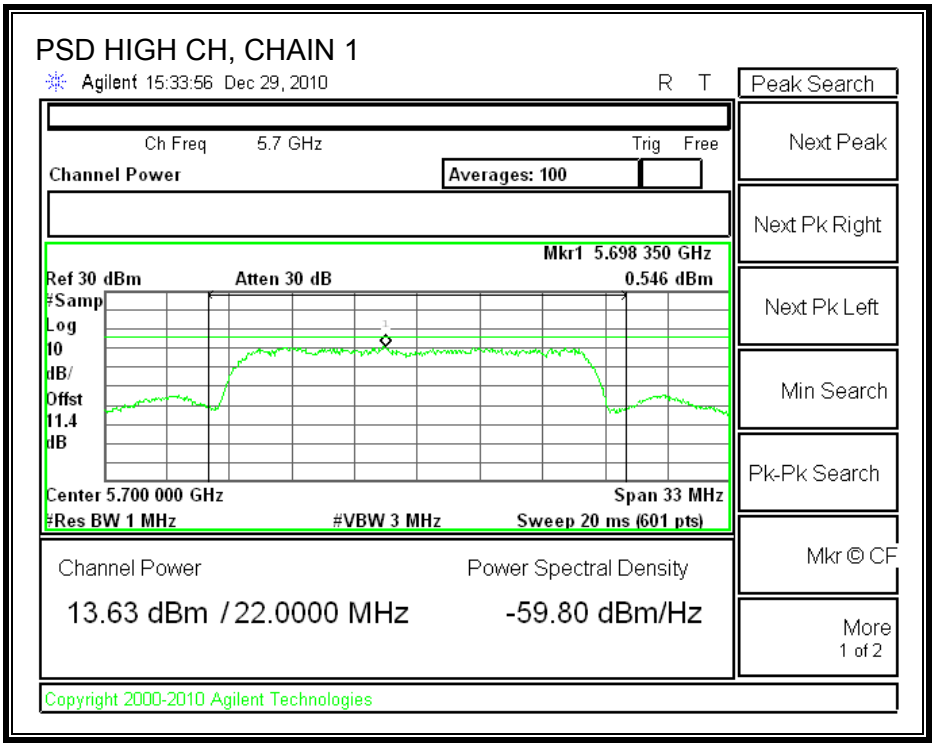
RESULTS

Channel	Frequency (MHz)	Chain 1 PPSD (dBm)	Chain 2 PPSD (dBm)	Chain 3 PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	5500	0.482	0.657	0.797	5.77	-4.97
Middle	5600	0.957	0.329	1.226	5.77	-4.54
High	5700	0.546	1.083	0.902	5.77	-4.69

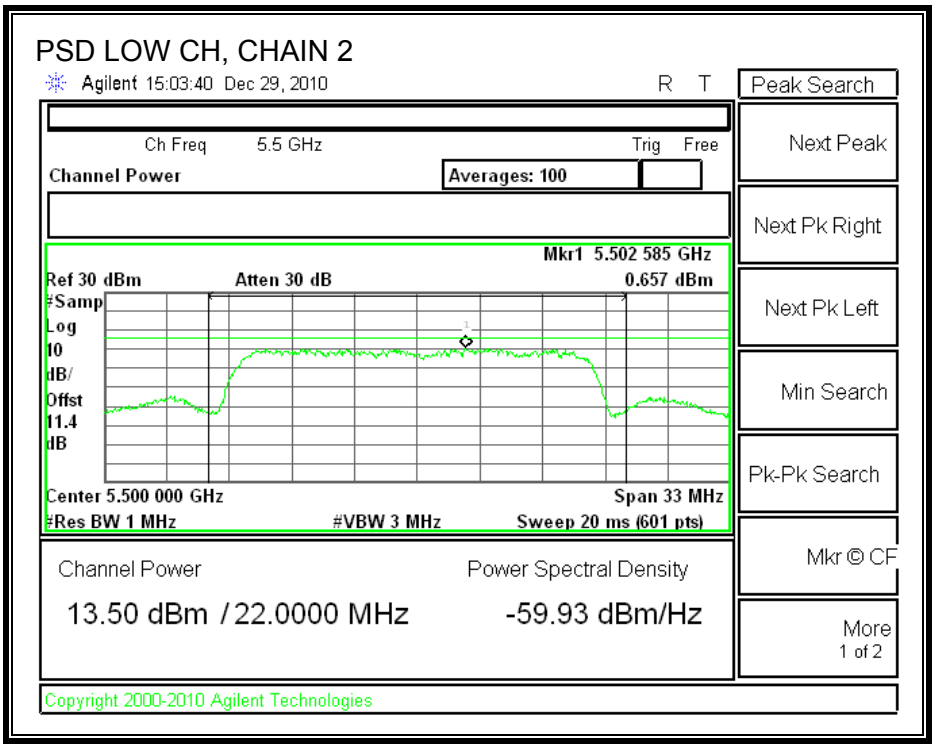
CHAIN 1 POWER SPECTRAL DENSITY

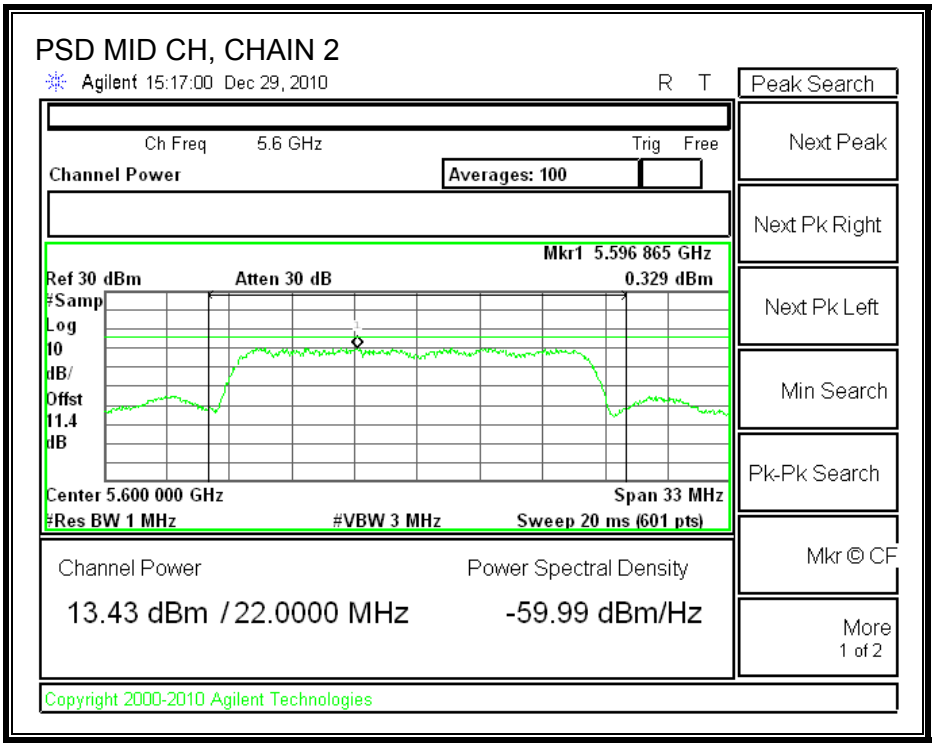


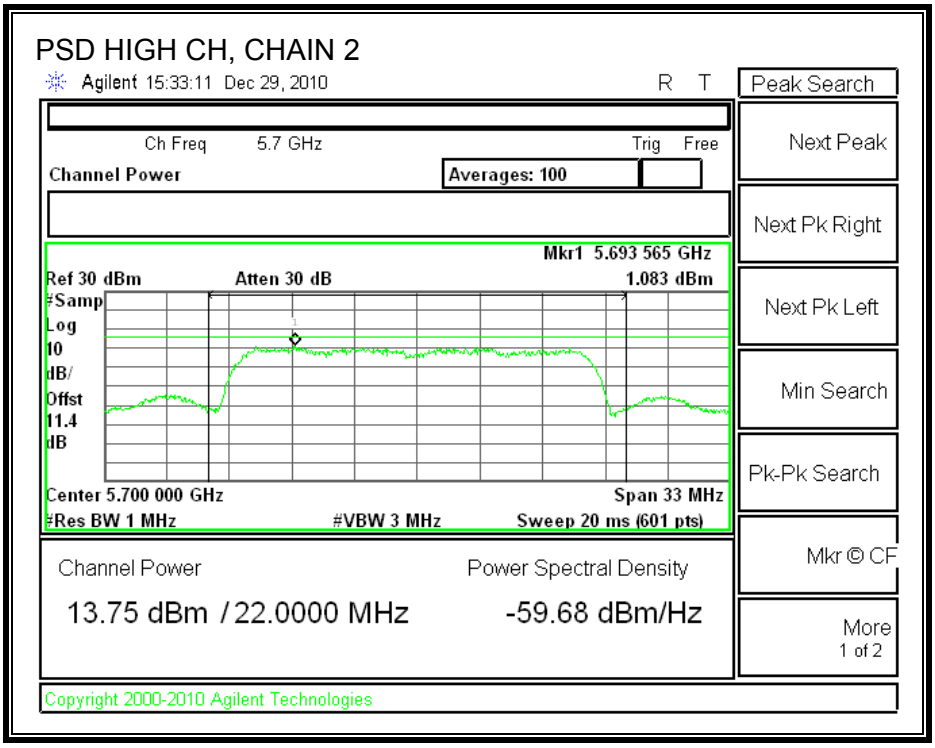




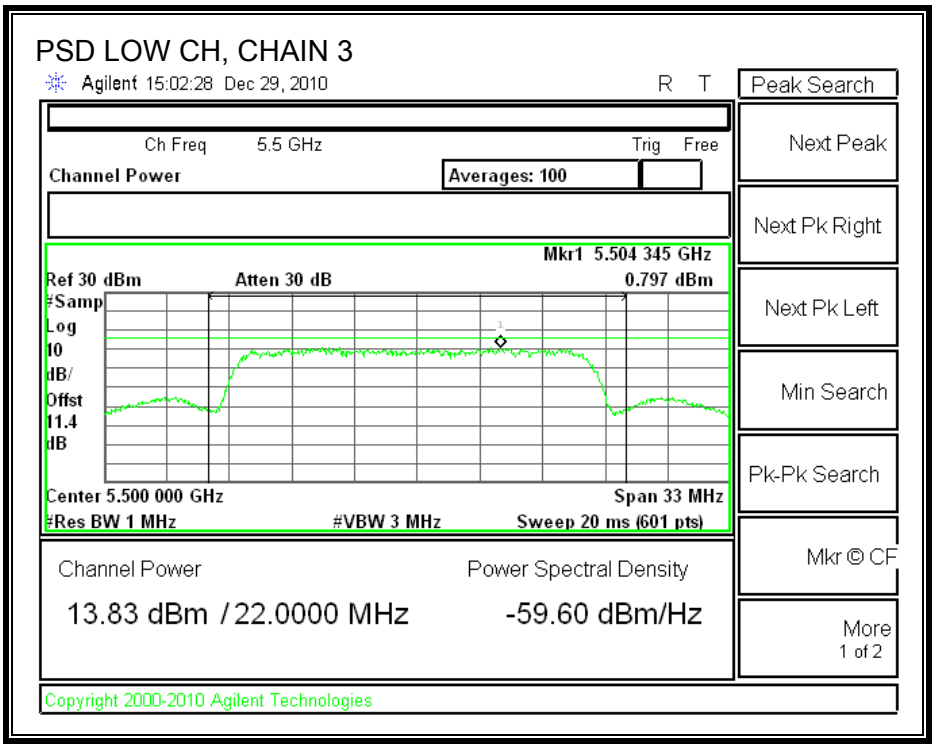
CHAIN 2 POWER SPECTRAL DENSITY

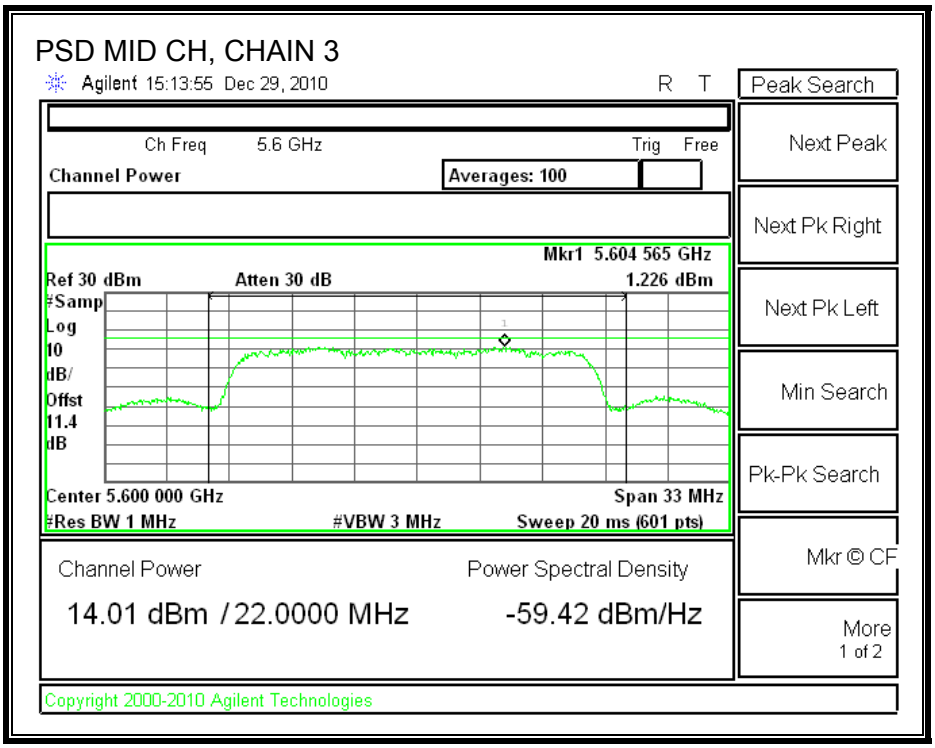


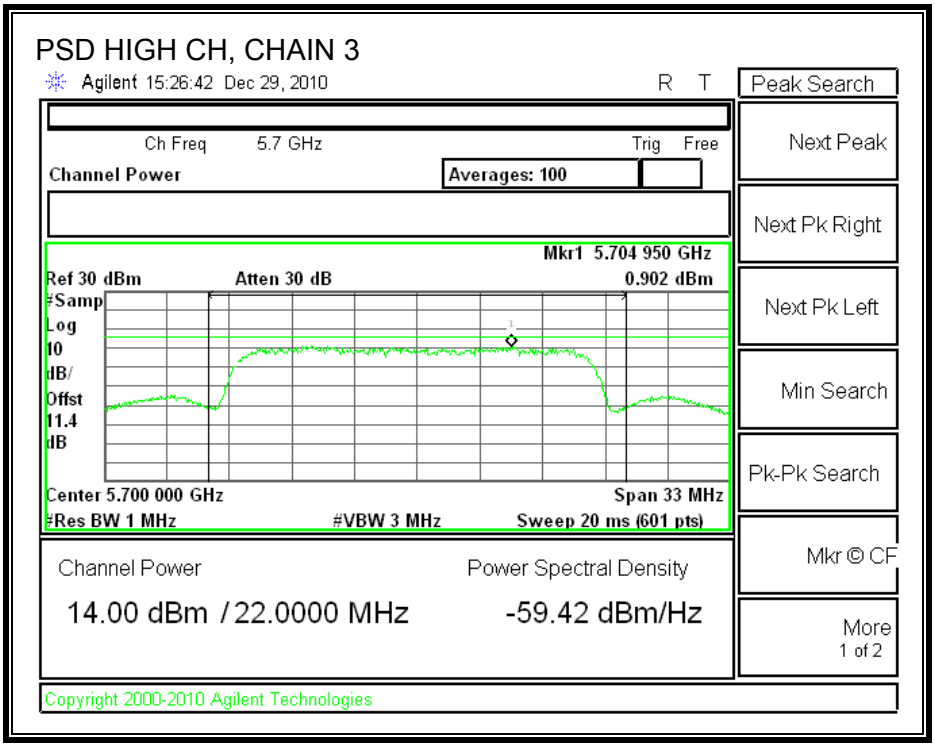




CHAIN 3 POWER SPECTRAL DENSITY







7.11.4. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

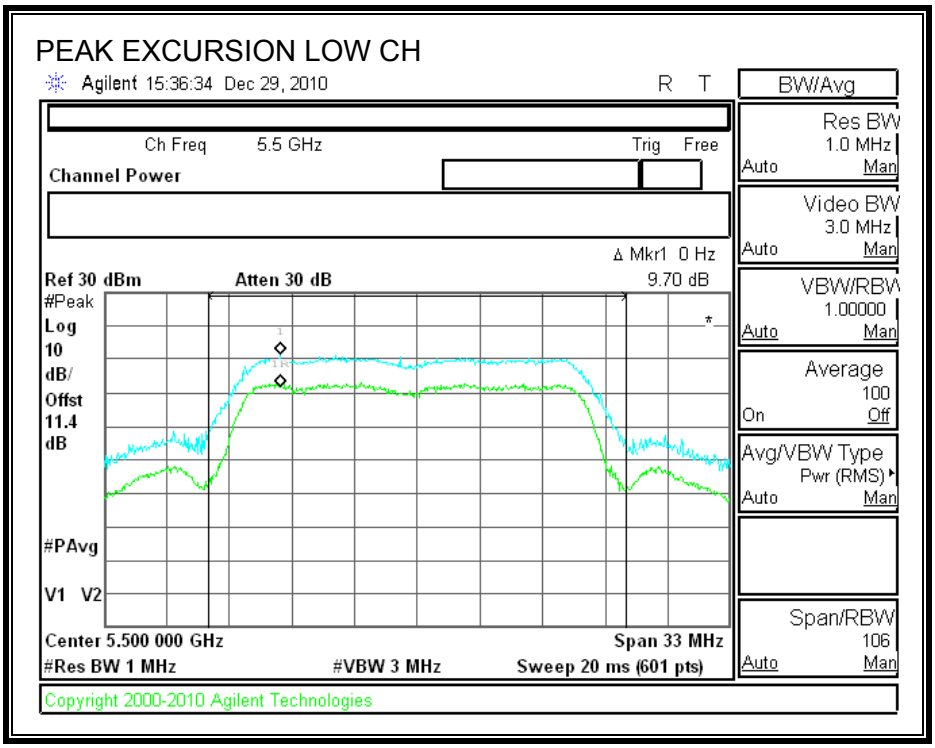
Since Method # 1 was used for peak power measurements, Method # 1 settings are used for the second PPSD trace.

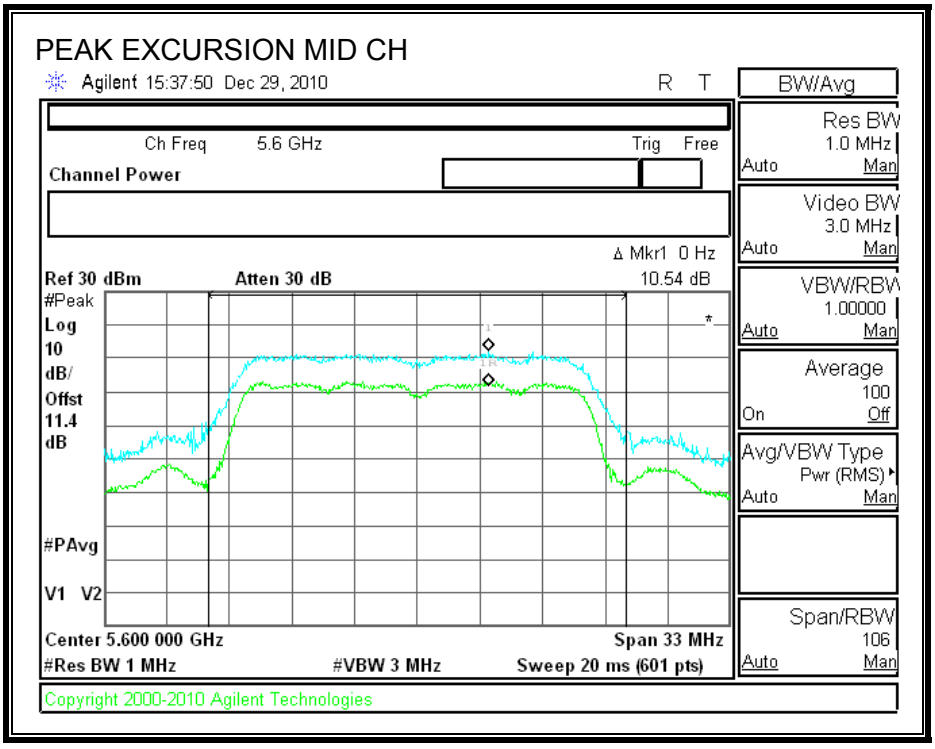
RESULTS

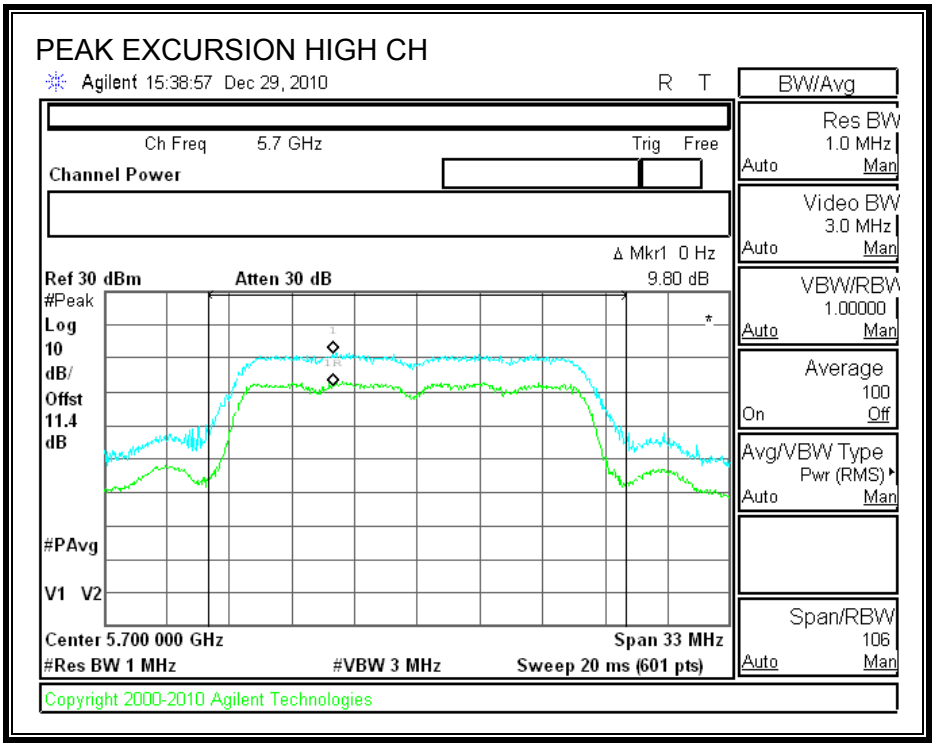
Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5500	9.70	13	-3.30
Middle	5580	10.54	13	-2.46
High	5700	9.80	13	-3.20

CHAIN 1

PEAK EXCURSION







7.11.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.407 (b) (3)

IC RSS-210 A9.3 (3)

For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm / MHz.

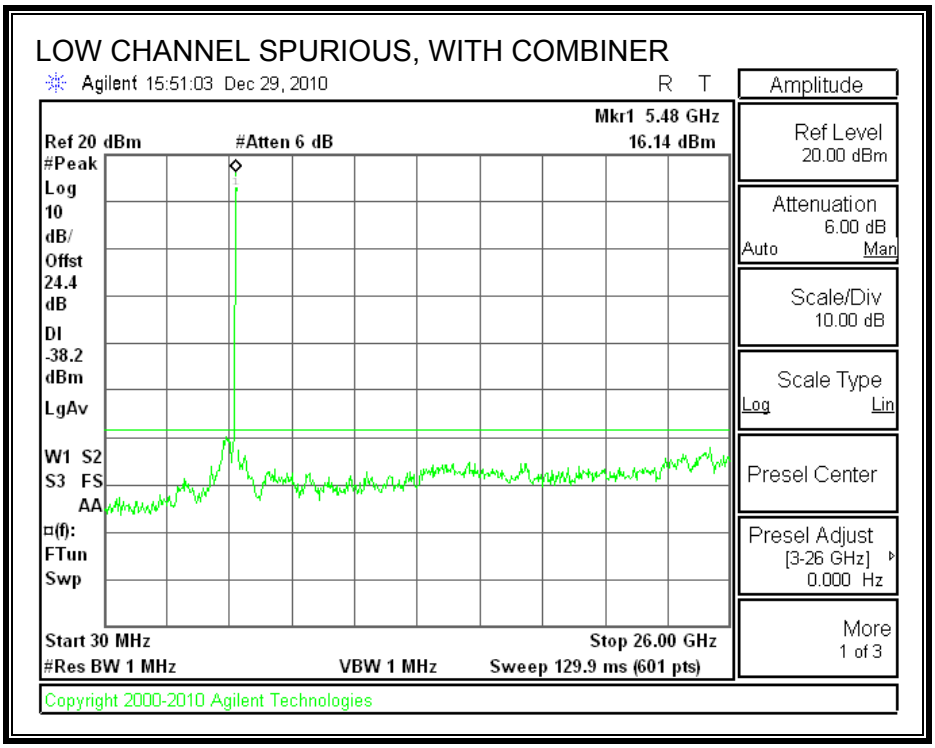
TEST PROCEDURE

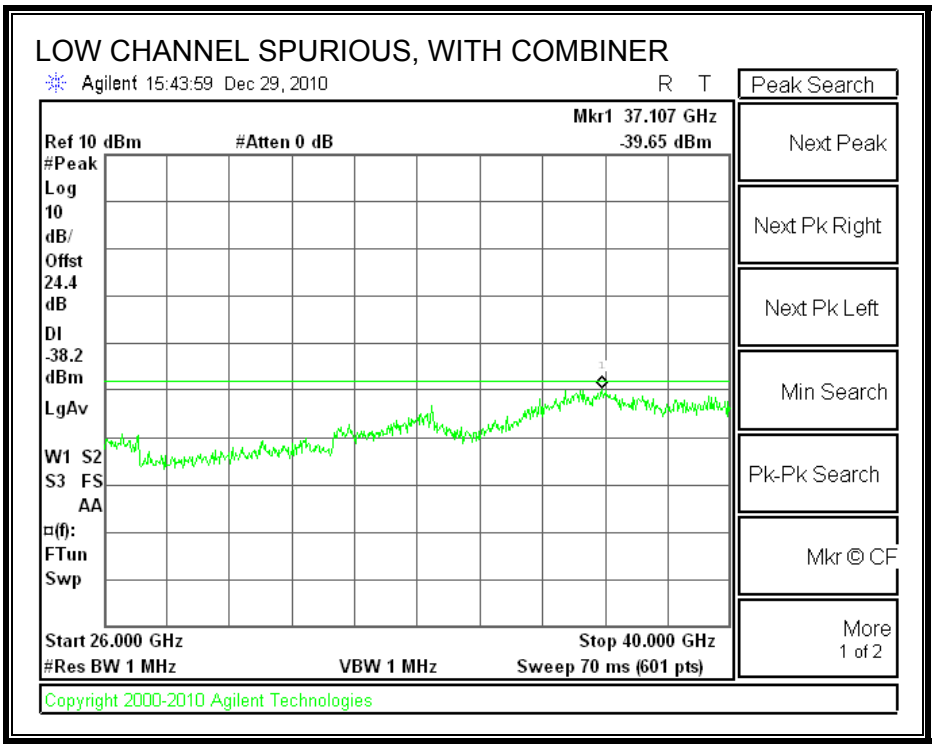
Conducted RF measurements of the transmitter output are made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to EIRP limit, adjusted for the maximum antenna gain.

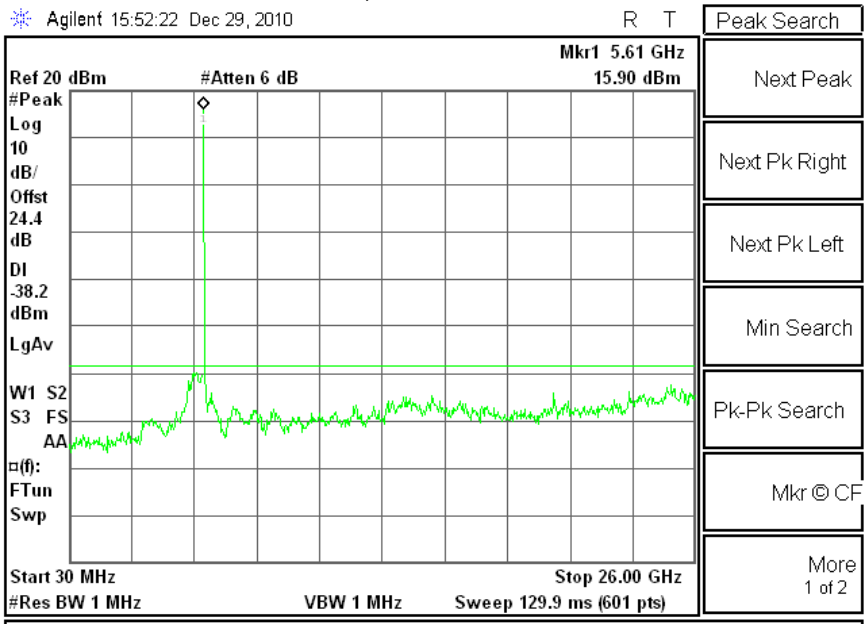
Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

RESULTS SPURIOUS EMISSIONS WITH COMBINER

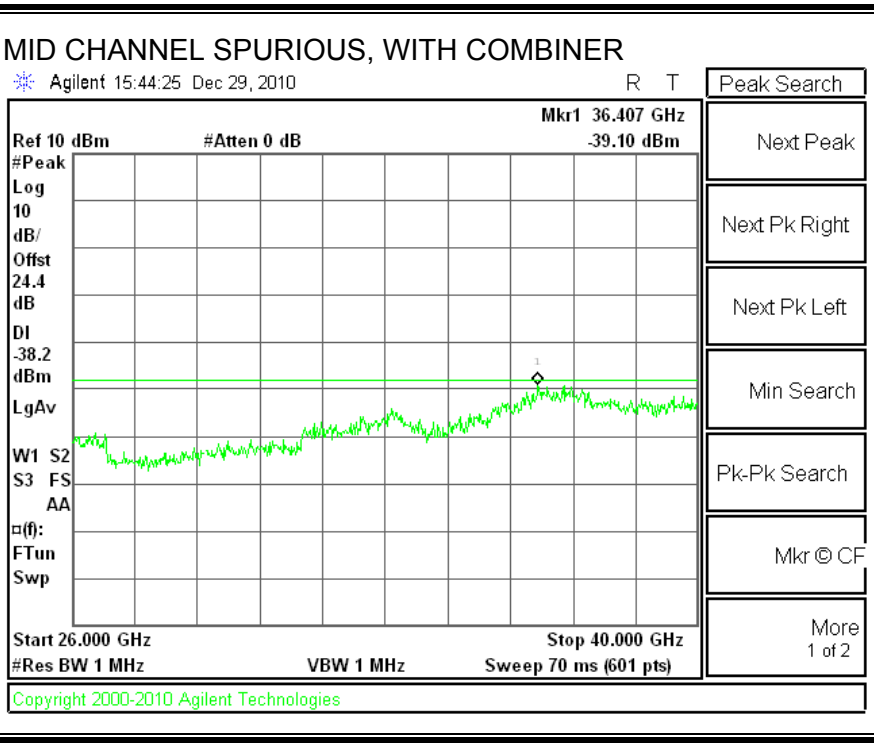


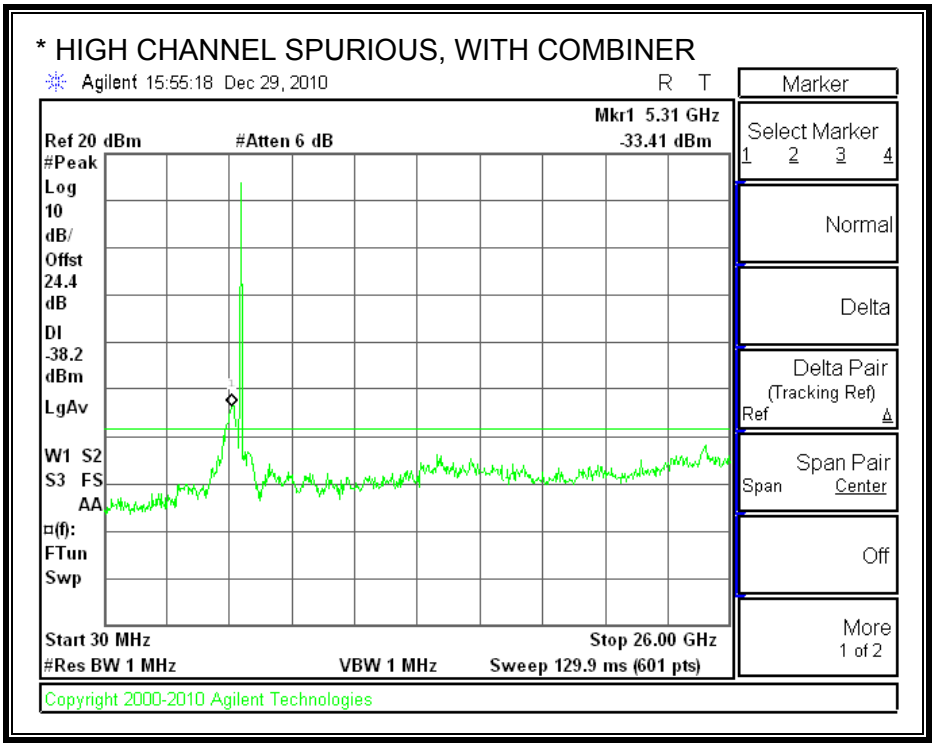


MID CHANNEL SPURIOUS, WITH COMBINER

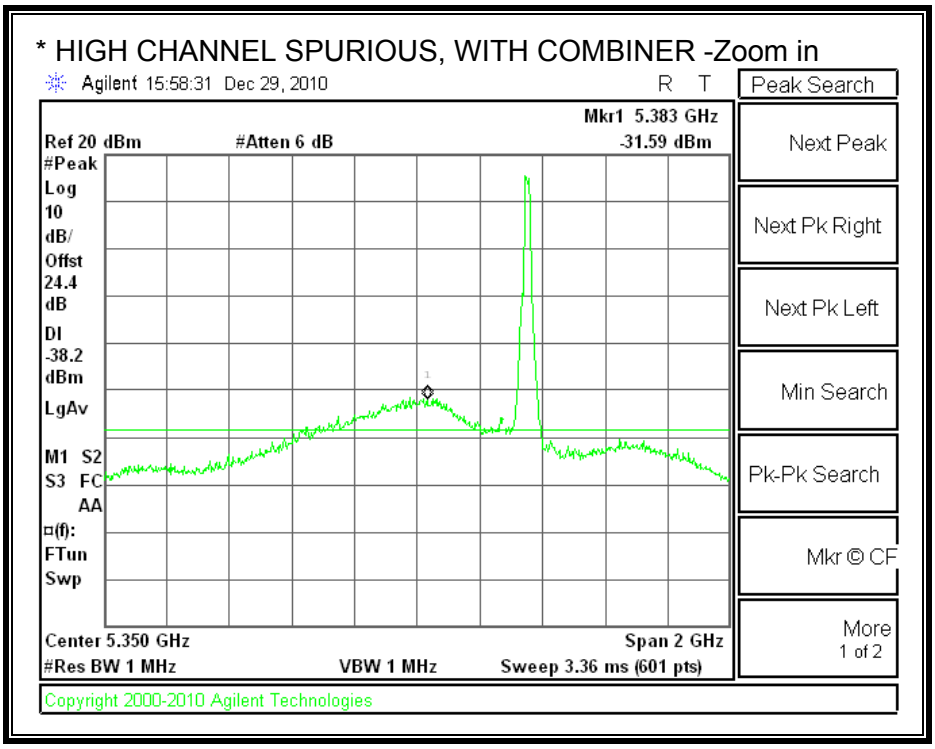


MID CHANNEL SPURIOUS, WITH COMBINER





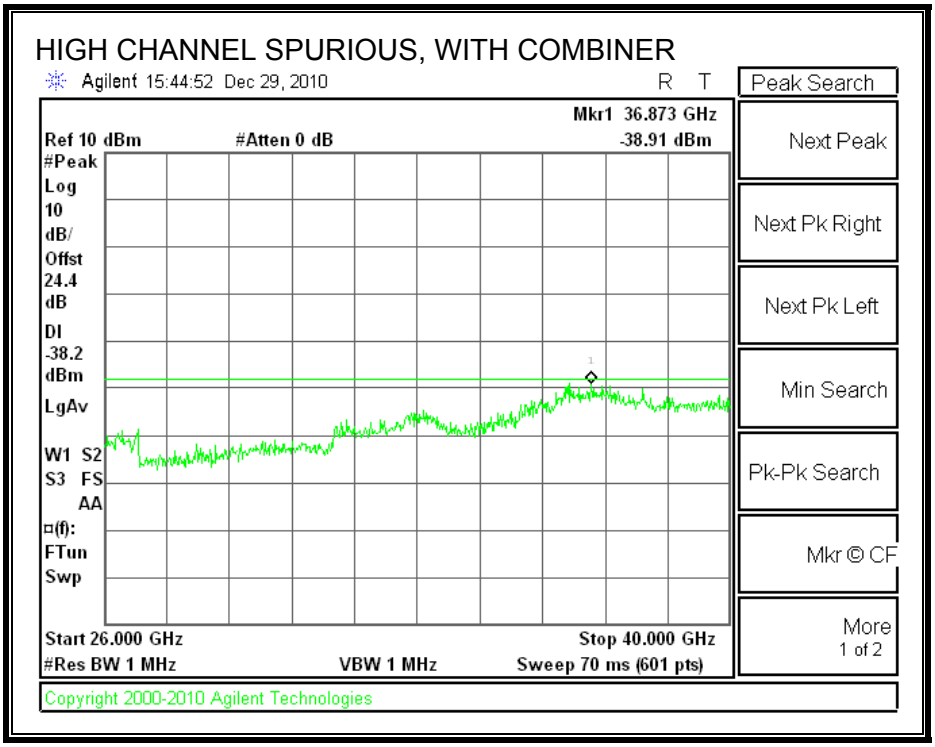
* HIGH CHANNEL SPURIOUS, WITH COMBINER -Zoom in



* Passed with EIRP Radiated Substitution

f MHz	SG reading (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Ant. Pol. (H/V)
5431	-38.0	1.2	11.0	-28.2	-27.0	-1.2	V
5431	-46.0	1.2	11.0	-35.0	-27.0	-8.0	H

HIGH CHANNEL SPURIOUS, WITH COMBINER



SDM MCS21

7.11.6. 26 dB and 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

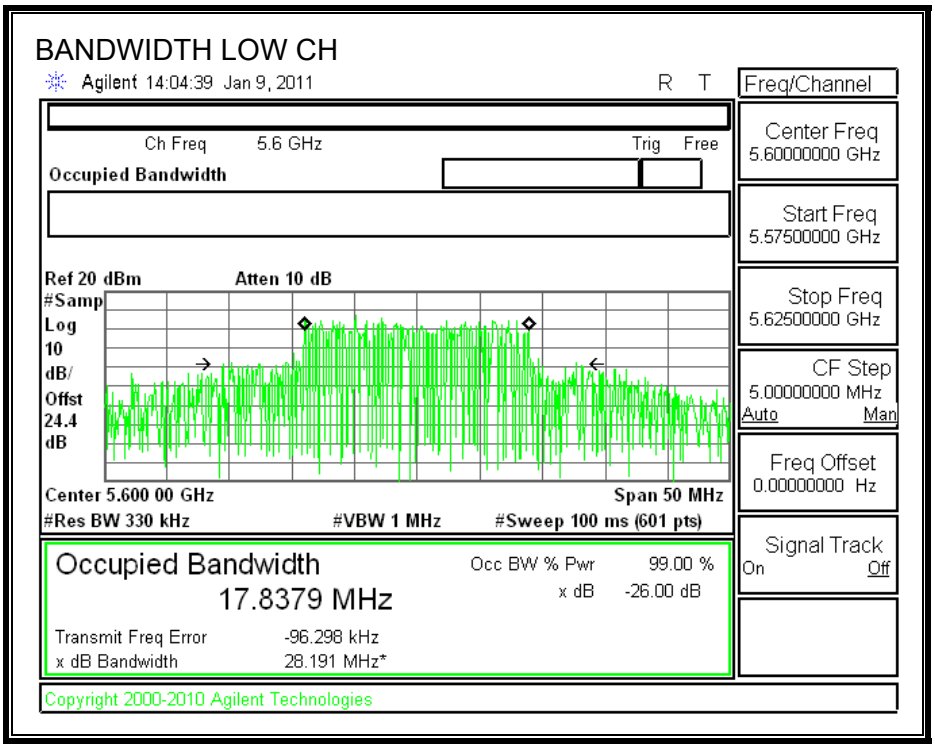
TEST PROCEDURE

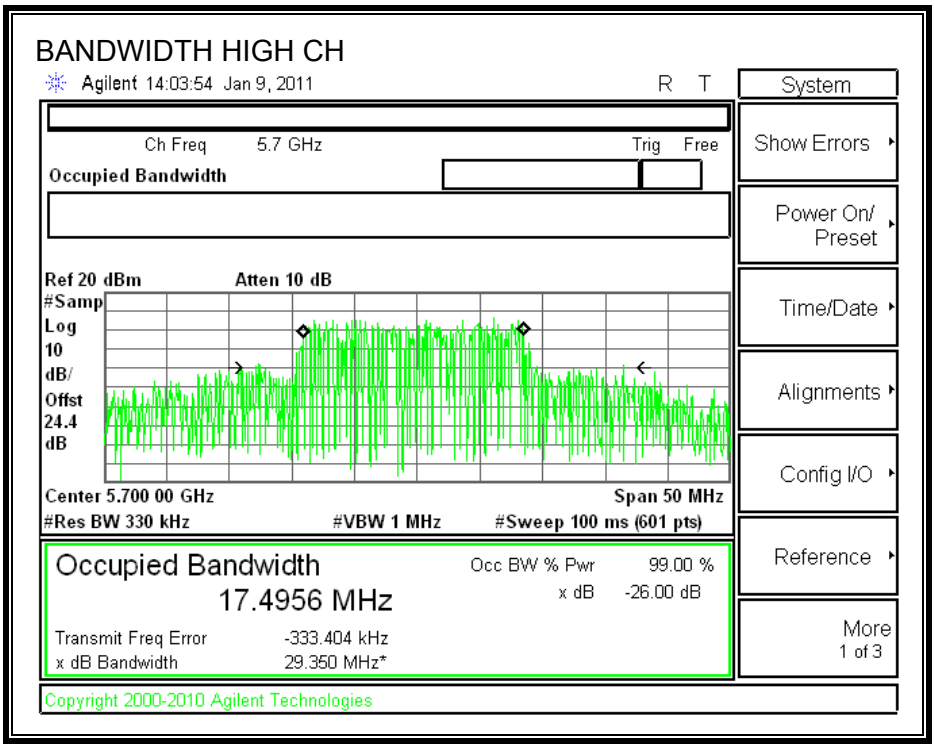
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5600	28.191	17.8379
High	5700	29.350	17.4956

26 dB and 99% BANDWIDTH





7.11.7. OUTPUT POWER

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.47-5.725 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

RESULTS

Limit

Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	11 + 10 Log B Limit (dBm)	Antenna Gain (dBi)	Limit (dBm)
Low	5600	24	28.191	25.50	7.06	22.94
High	5700	24	29.35	25.68	7.06	22.94

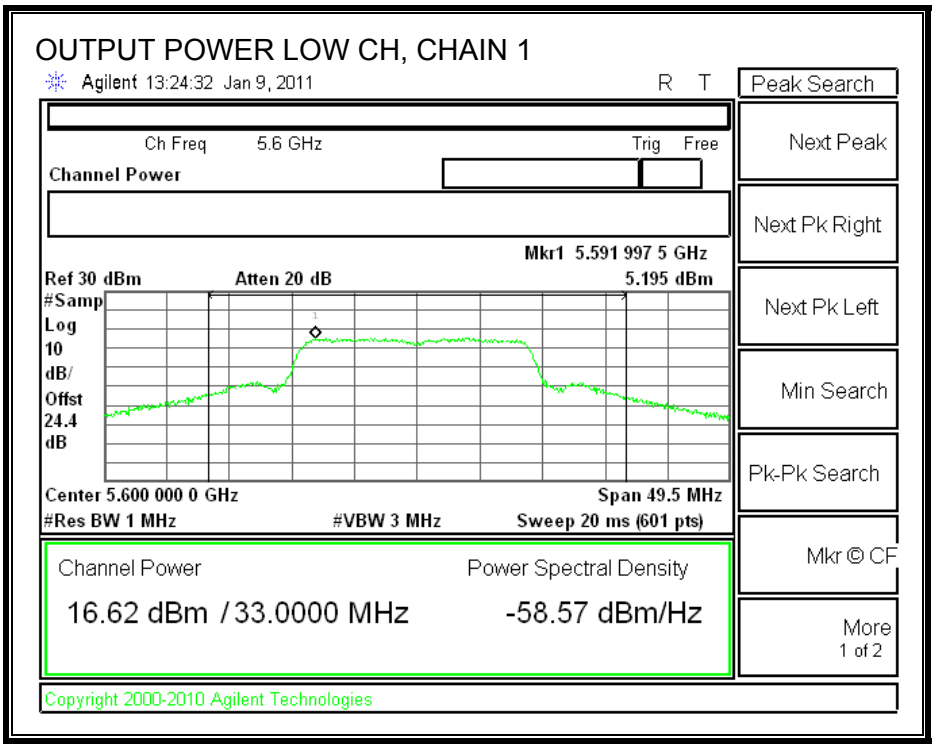
Individual Chain Results

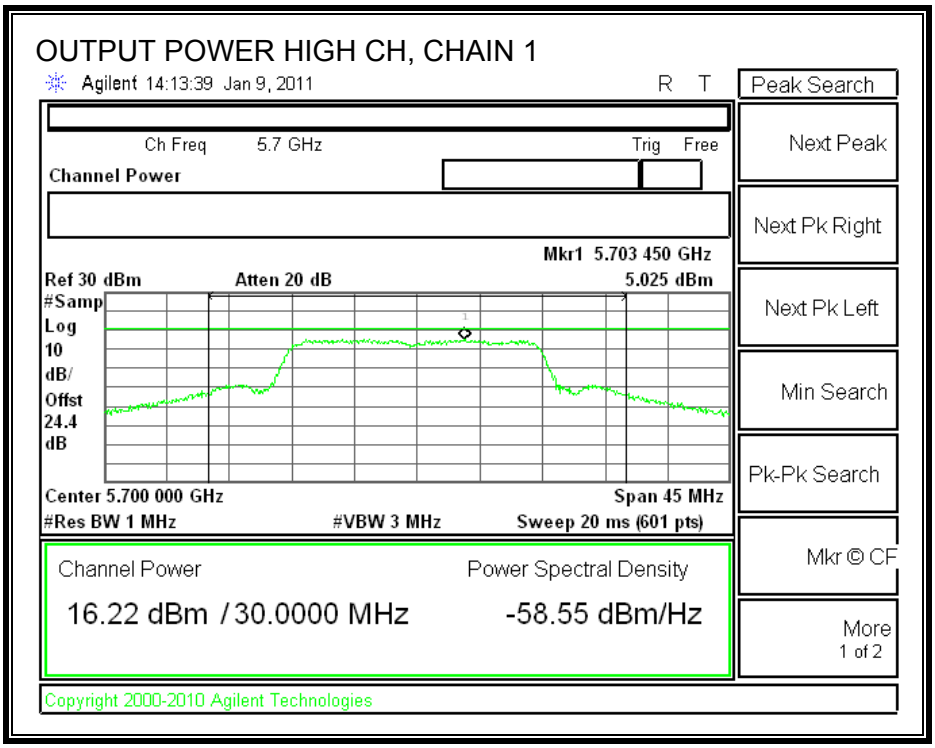
Channel	Frequency (MHz)	Chain 1 Power (dBm)	Chain 2 Power (dBm)	Chain 3 Power (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	5600	16.62	16.79	16.47	21.40	22.94	-1.54
High	5700	16.22	16.28	16.53	21.12	22.94	-1.82

TPC Results

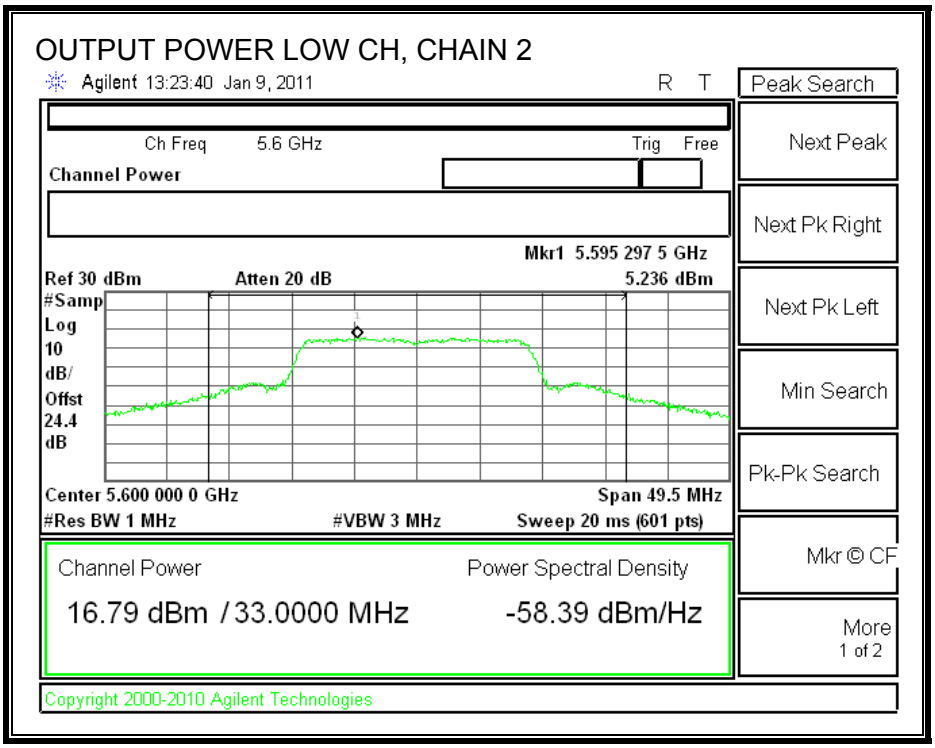
TPC Delta Power		Chain 0	Chain 1	Chain 2			
		5.58	4.88	5.35			
Worst-case TPC Power		Chain 0	Chain 1	Chain 2	Total Power	Ant Gain	EIRP
High	5700	11.04	11.40	11.18	15.98	7.06	23.04
						TPC Limit (dBm)	24
						Margin (dB)	-0.96

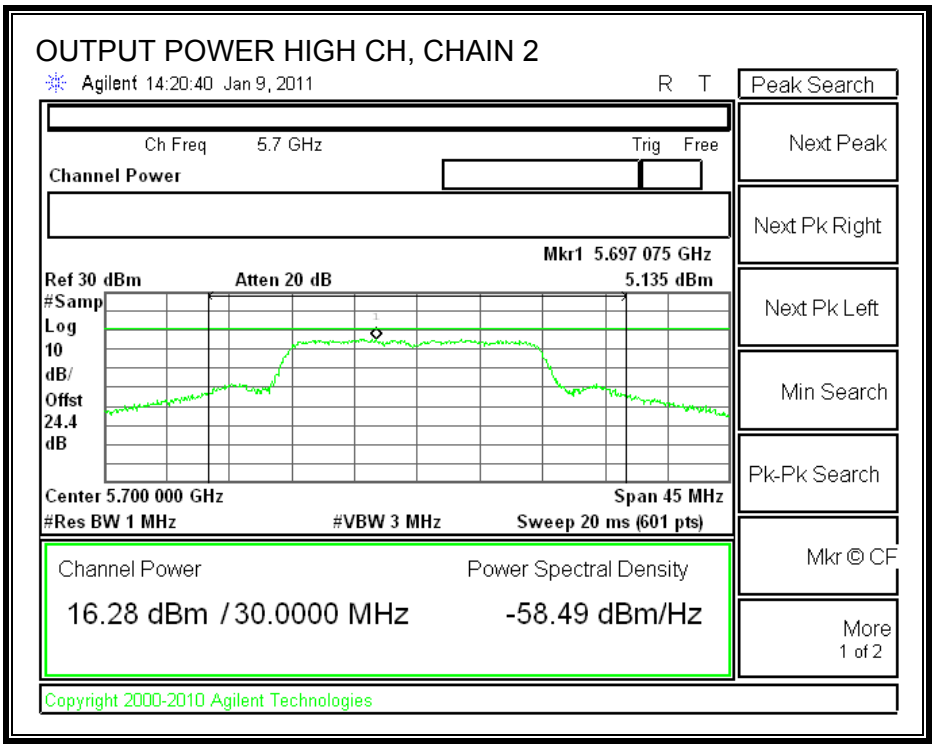
CHAIN 1 OUTPUT POWER



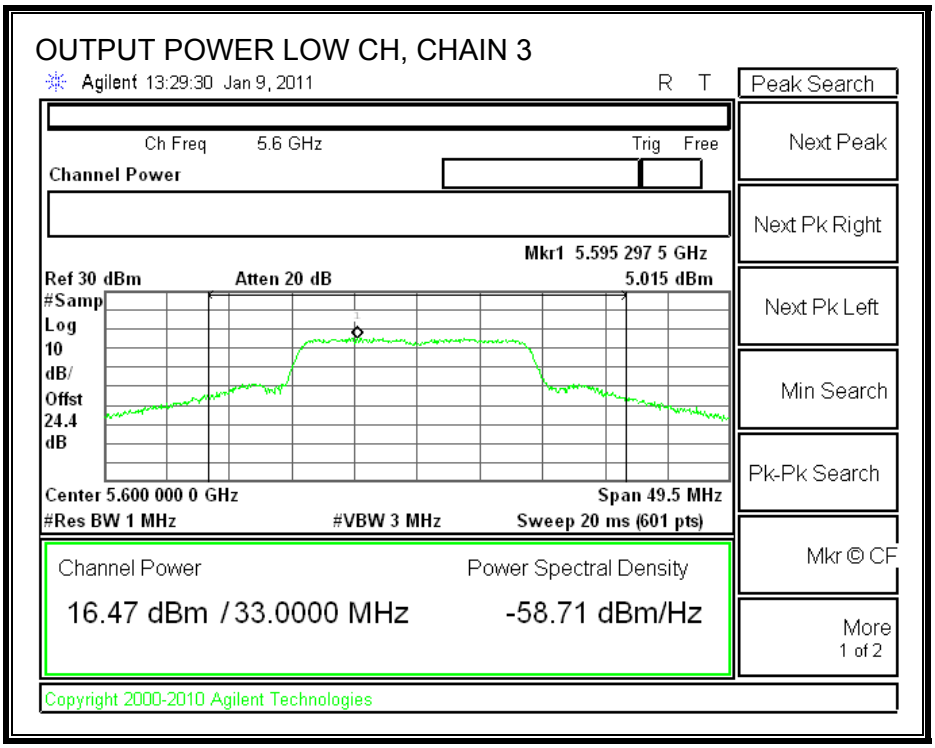


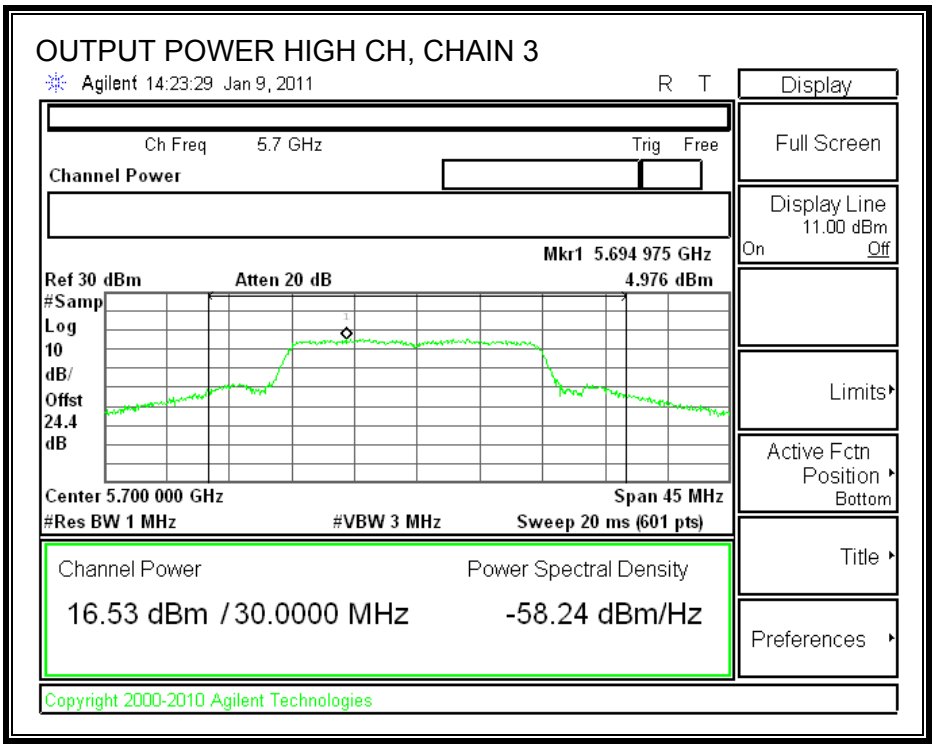
CHAIN 2 OUTPUT POWER



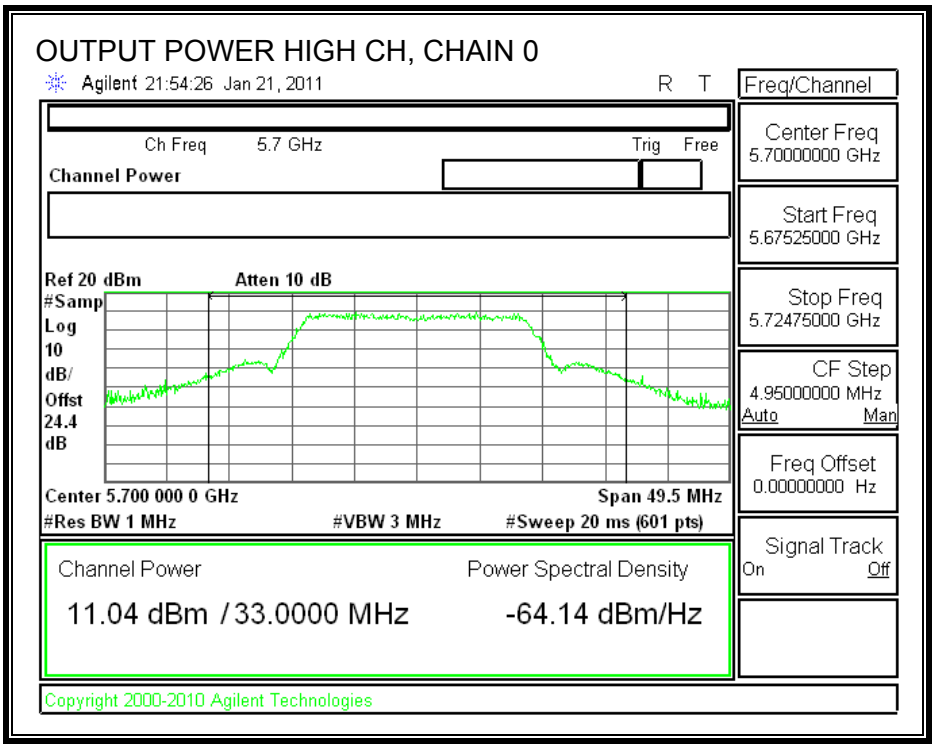


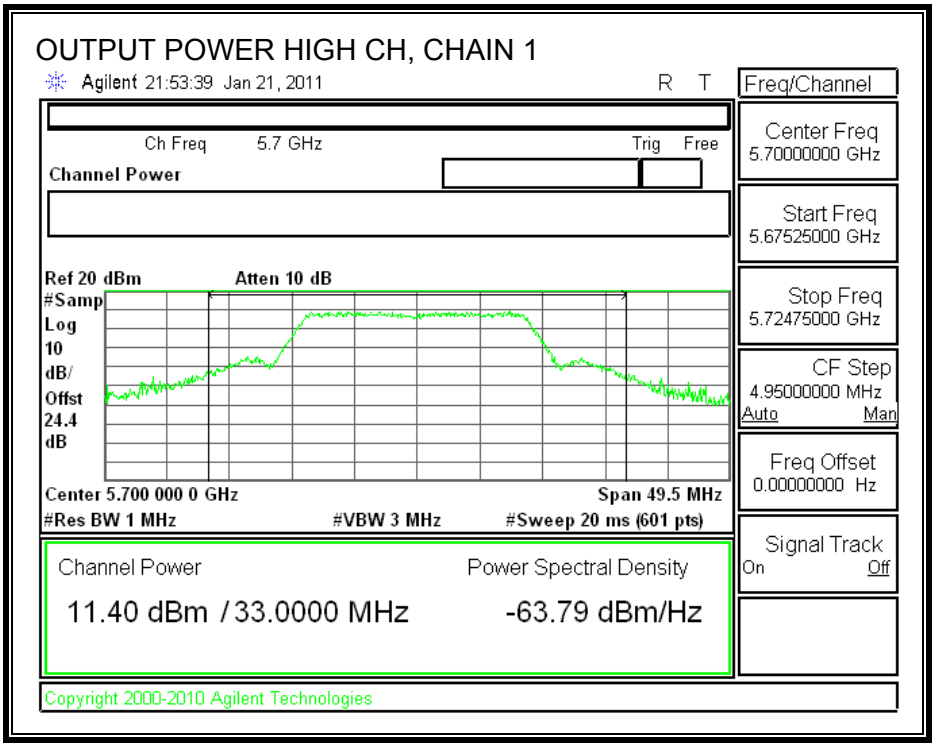
CHAIN 3 OUTPUT POWER

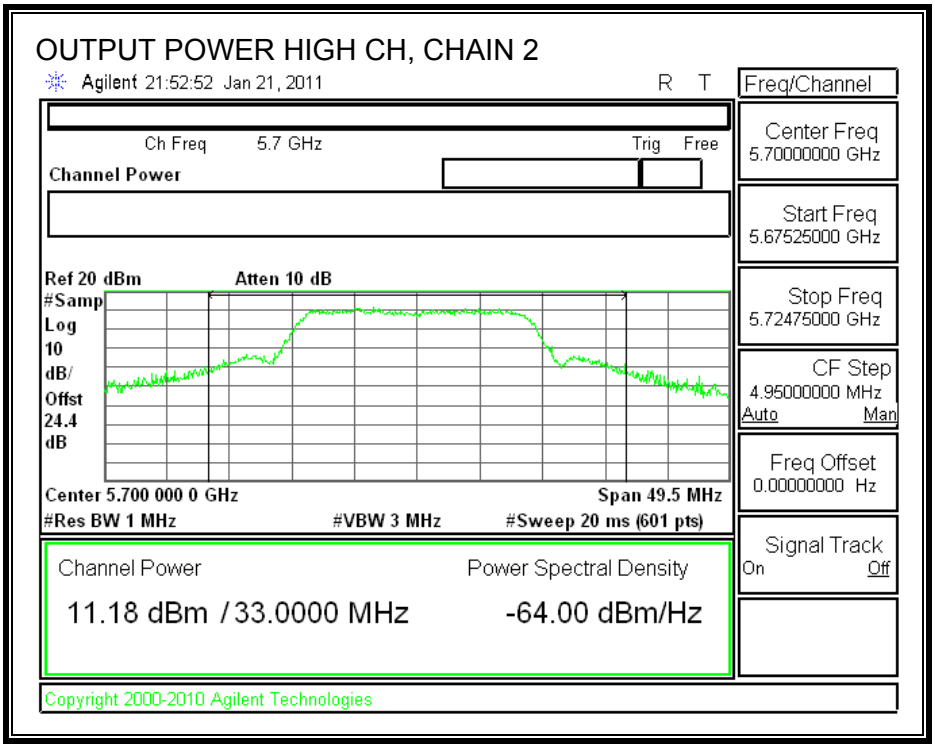




TPC OUTPUT POWER







7.11.8. PEAK POWER SPECTRAL DENSITY

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.47-5.725 GHz band, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is 7.06 dBi, therefore the limit is 9.94 dBm.

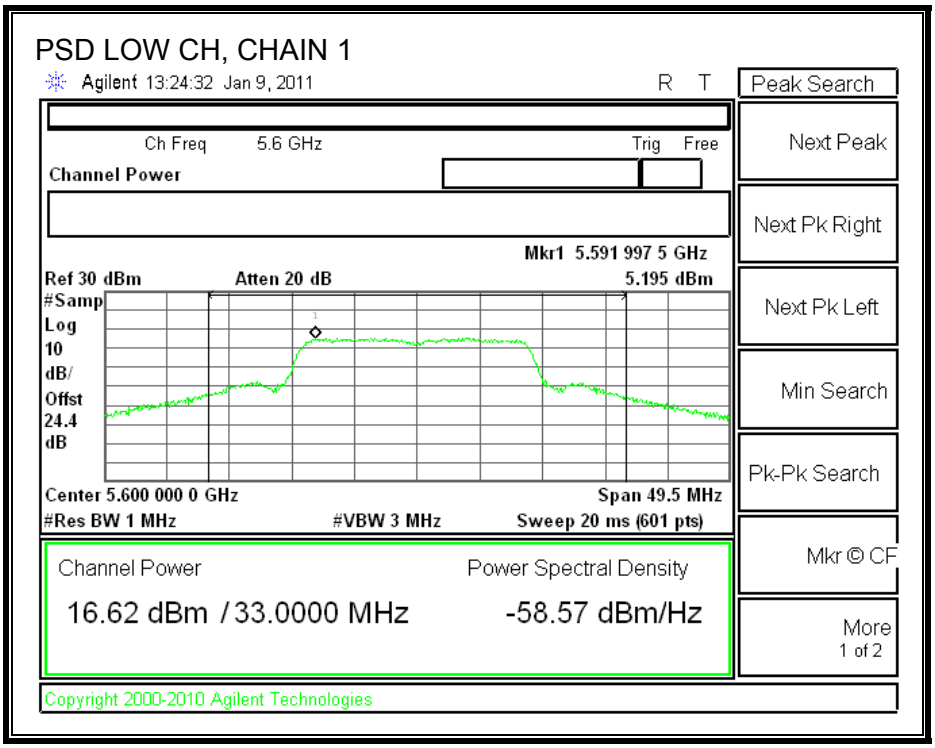
TEST PROCEDURE

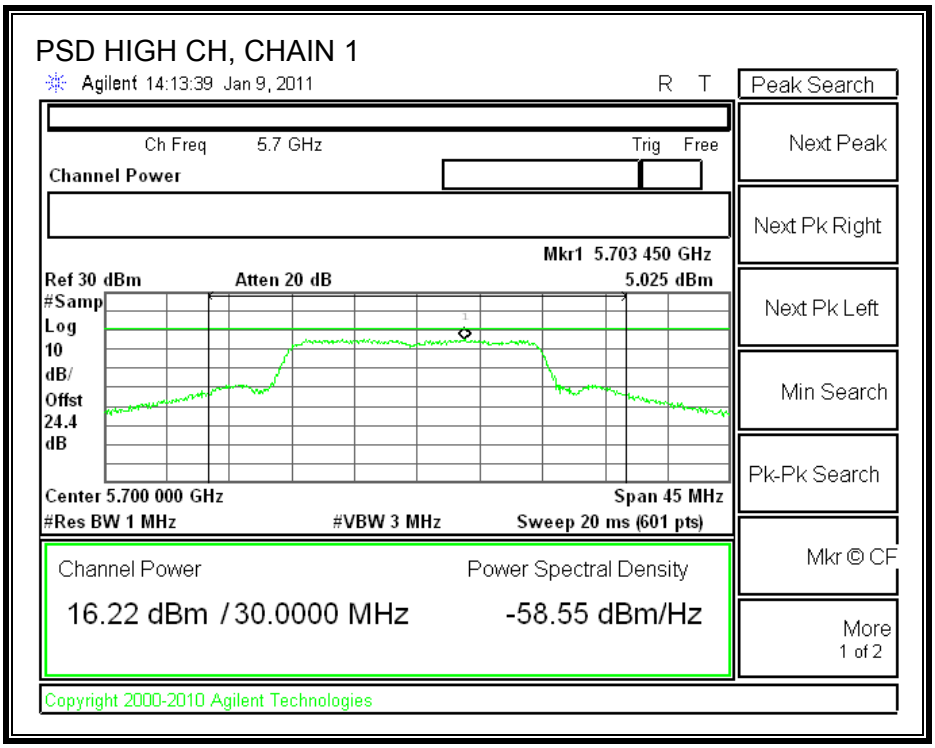
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. PPSD method #2 was used.

RESULTS

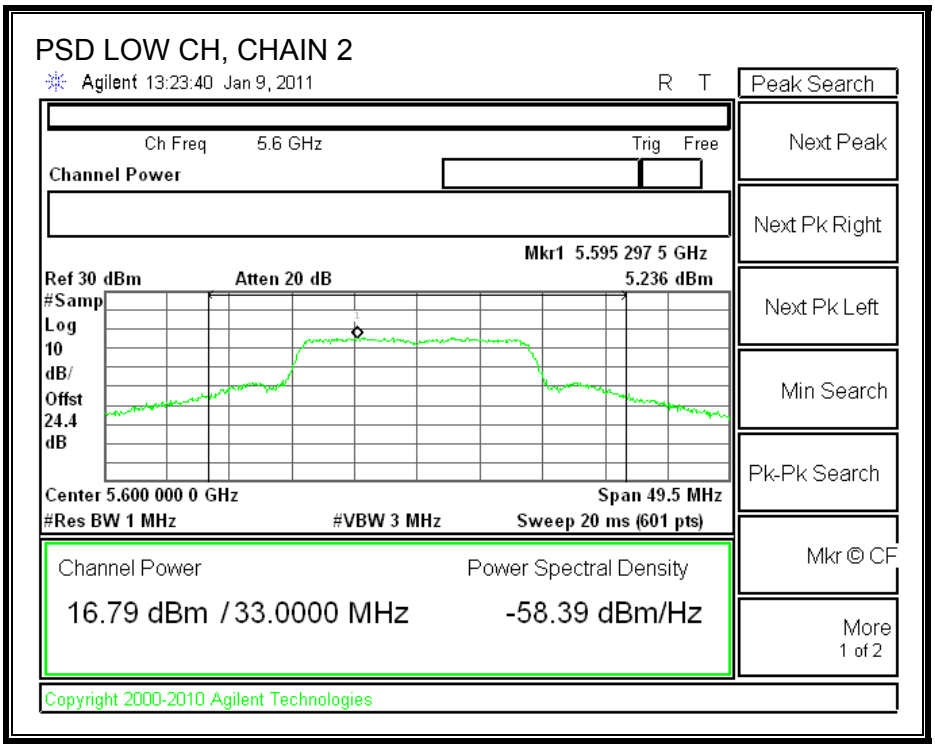
Channel	Frequency (MHz)	Chain 1 PPSD (dBm)	Chain 2 PPSD (dBm)	Chain 3 PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	5600	5.195	5.236	5.015	9.94	-4.70
High	5700	5.025	5.135	4.976	9.94	-4.81

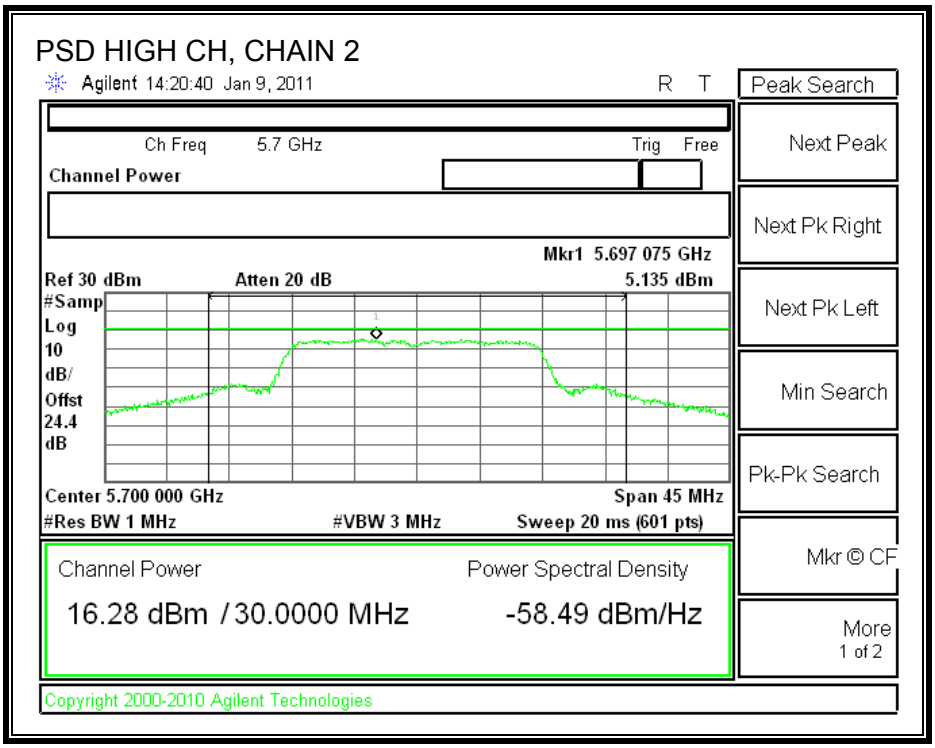
CHAIN 1 POWER SPECTRAL DENSITY



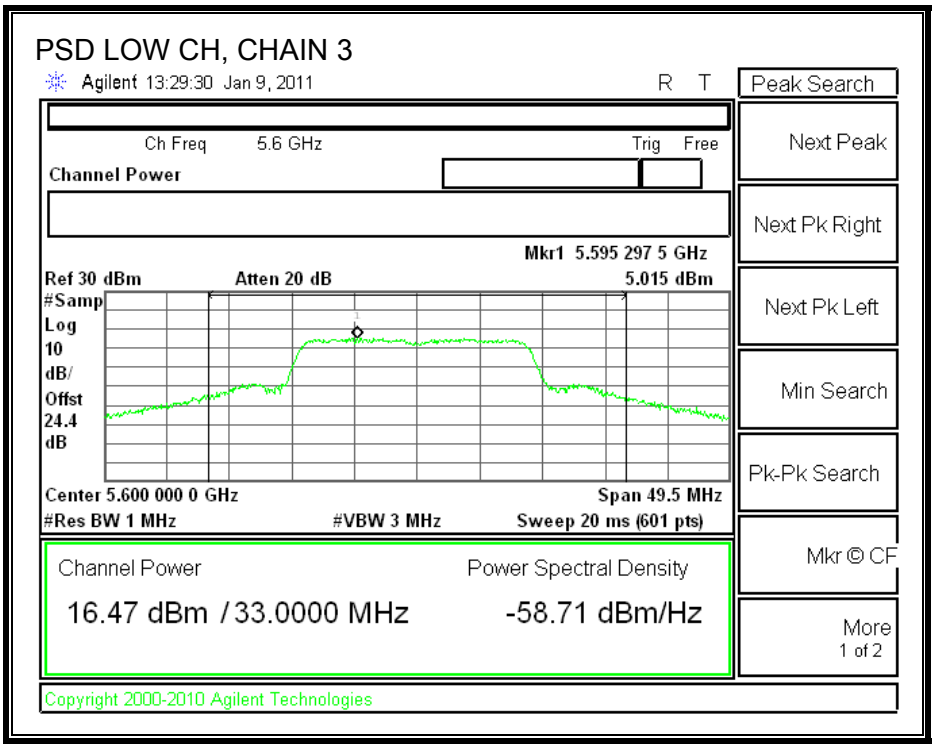


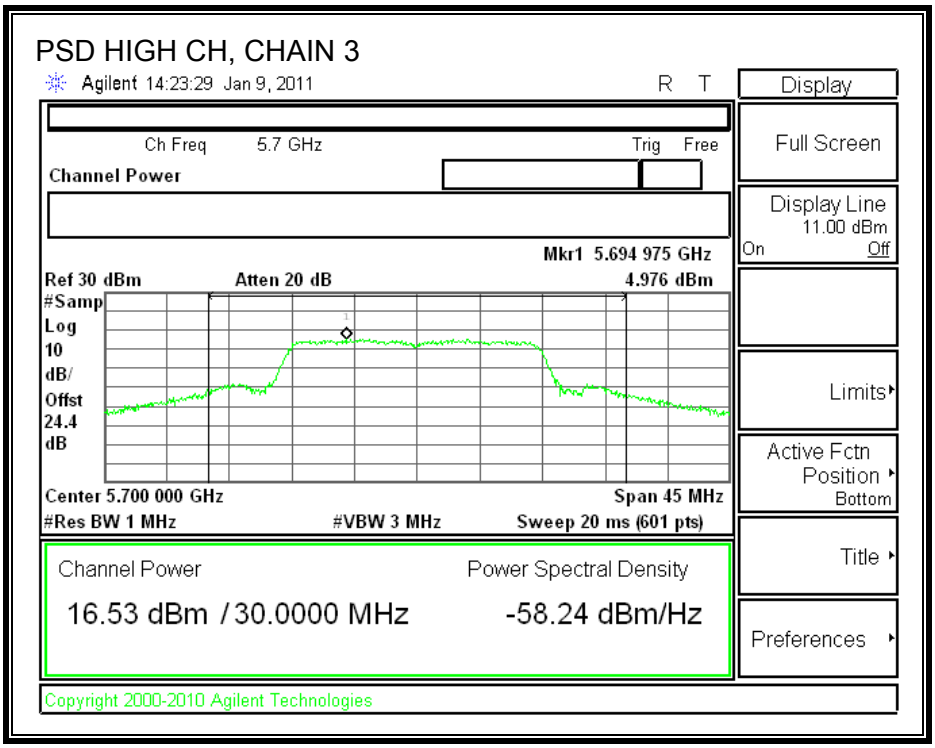
CHAIN 2 POWER SPECTRAL DENSITY





CHAIN 3 POWER SPECTRAL DENSITY





7.11.9. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

TEST PROCEDURE

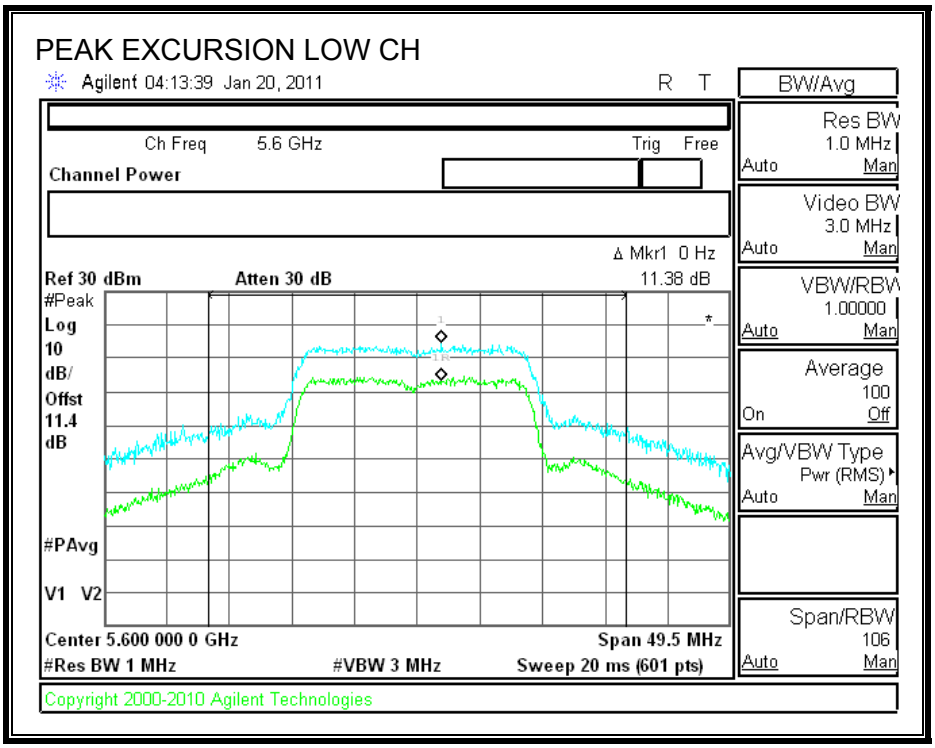
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

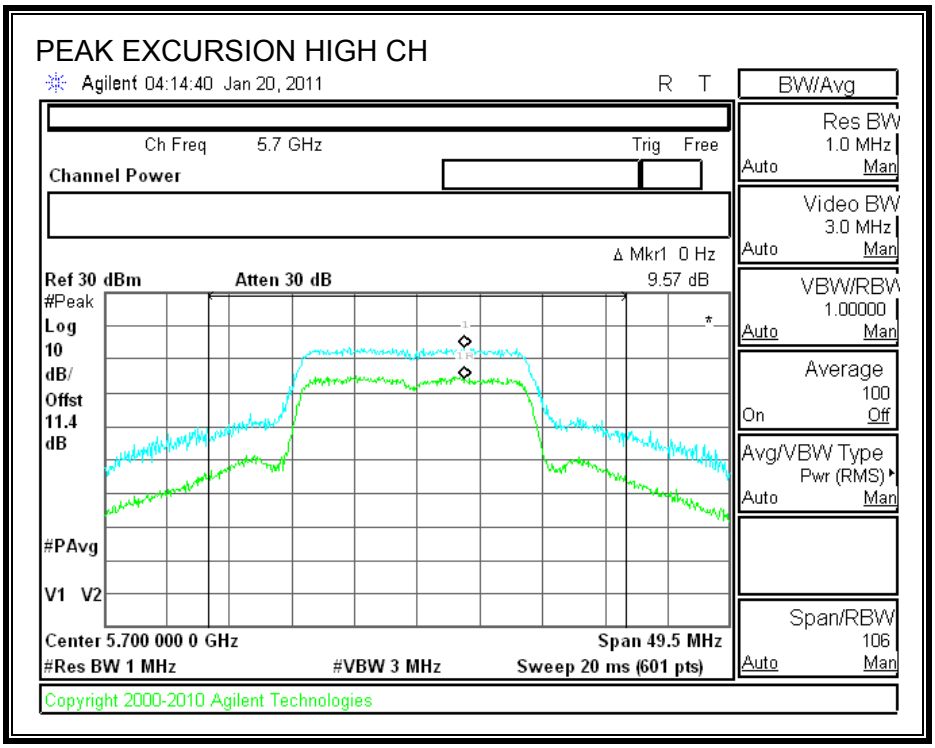
Since Method # 1 was used for peak power measurements, Method # 1 settings are used for the second PPSD trace.

RESULTS

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5600	11.38	13	-1.62
High	5700	9.57	13	-3.43

PEAK EXCURSION





7.11.10. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.407 (b) (3)

IC RSS-210 A9.3 (3)

For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm / MHz.

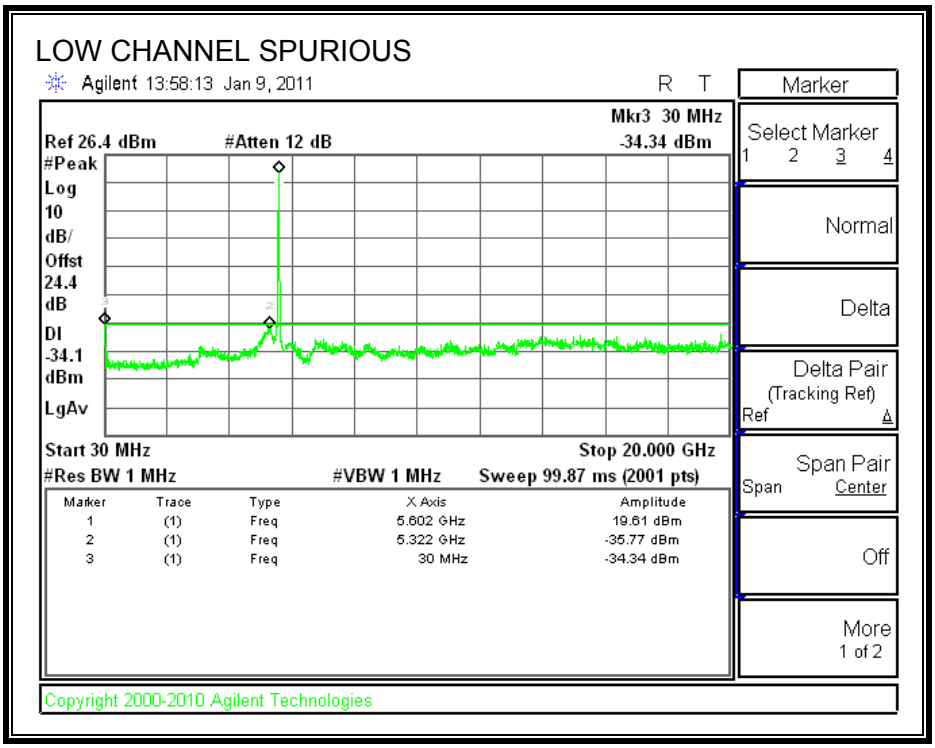
TEST PROCEDURE

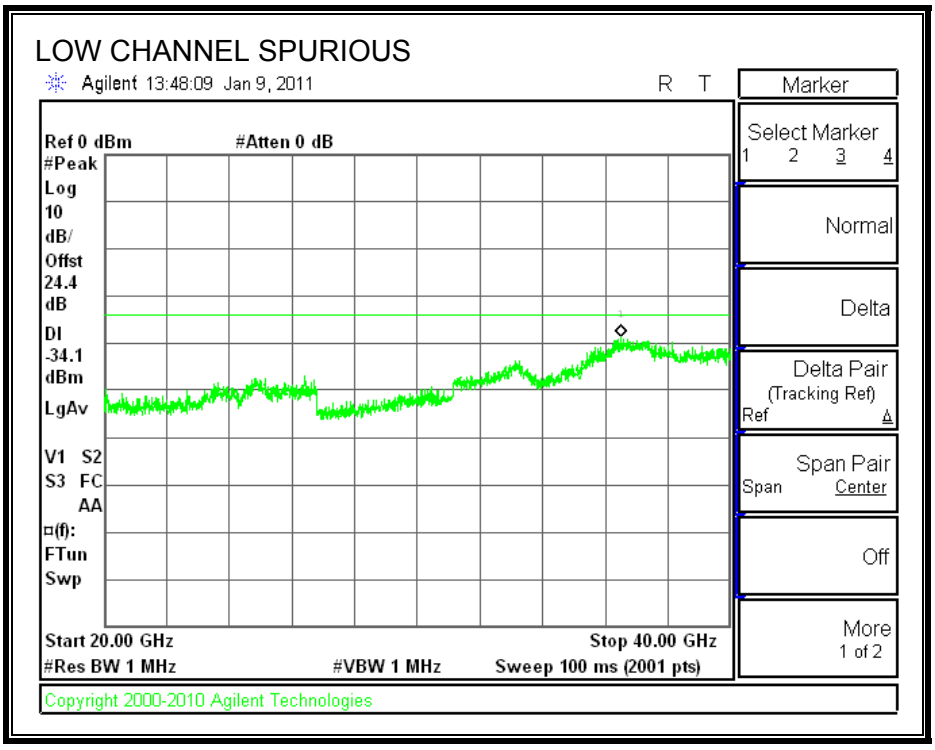
Conducted RF measurements of the transmitter output are made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

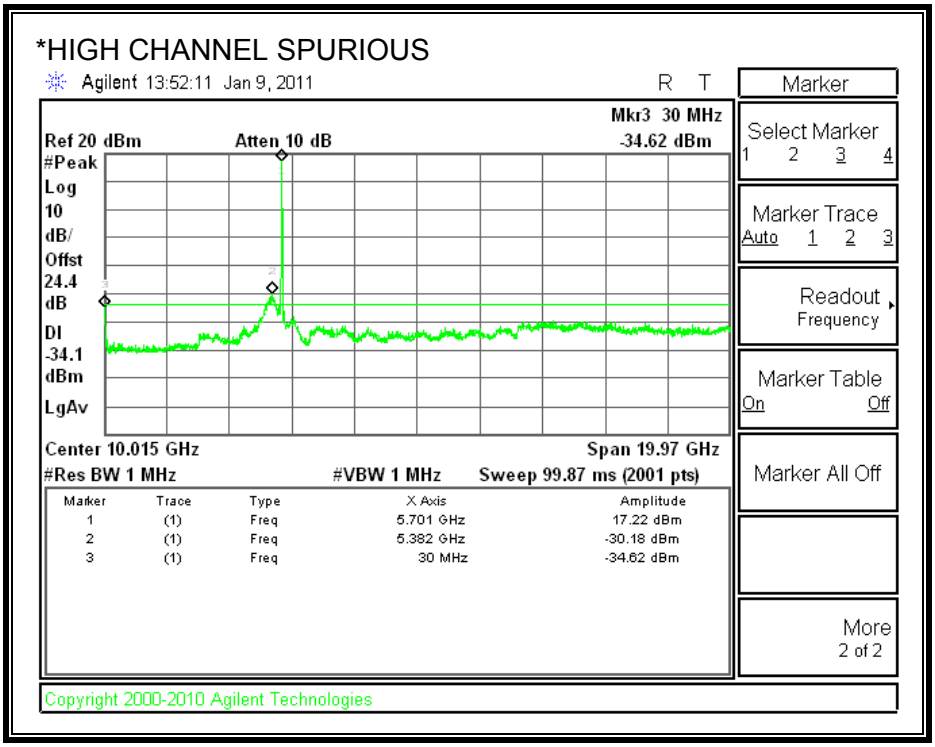
The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to EIRP limit, adjusted for the maximum antenna gain.

Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

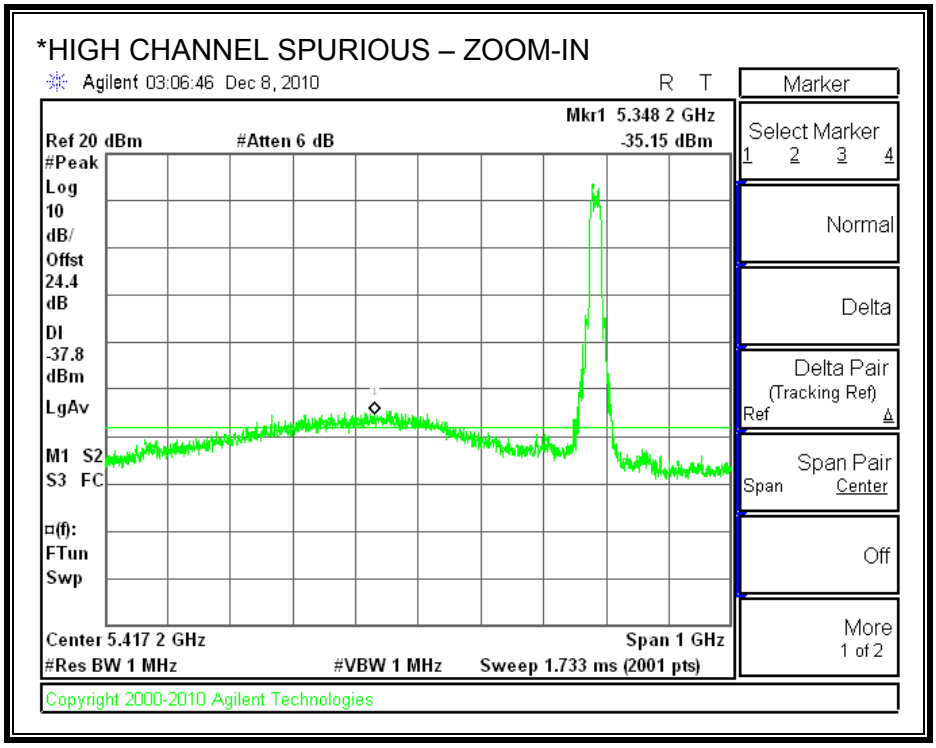
RESULTS SPURIOUS EMISSIONS







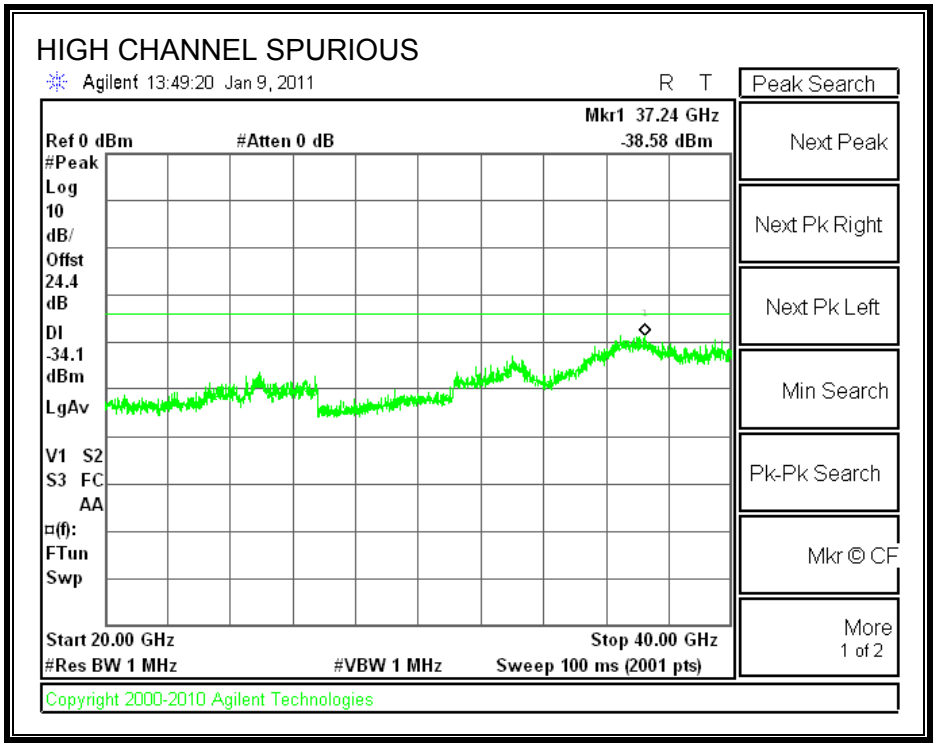
*HIGH CHANNEL SPURIOUS – ZOOM-IN



* Passed with EIRP Radiated Substitution

f MHz	SG reading (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Ant. Pol. (H/V)
5431	-38.0	1.2	11.0	-28.2	-27.0	-1.2	V
5431	-46.0	1.2	11.0	-35.0	-27.0	-8.0	H

HIGH CHANNEL SPURIOUS



7.12. 802.11n HT40 SISO MODE IN THE 5.6 GHz BAND

SISO

7.12.1. 26 dB and 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

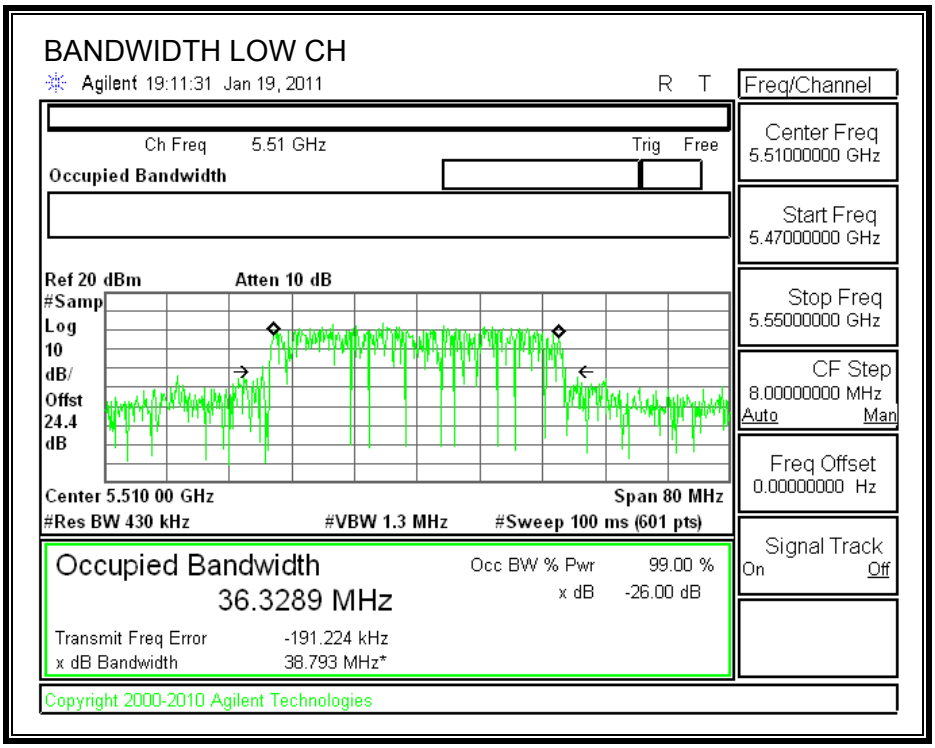
TEST PROCEDURE

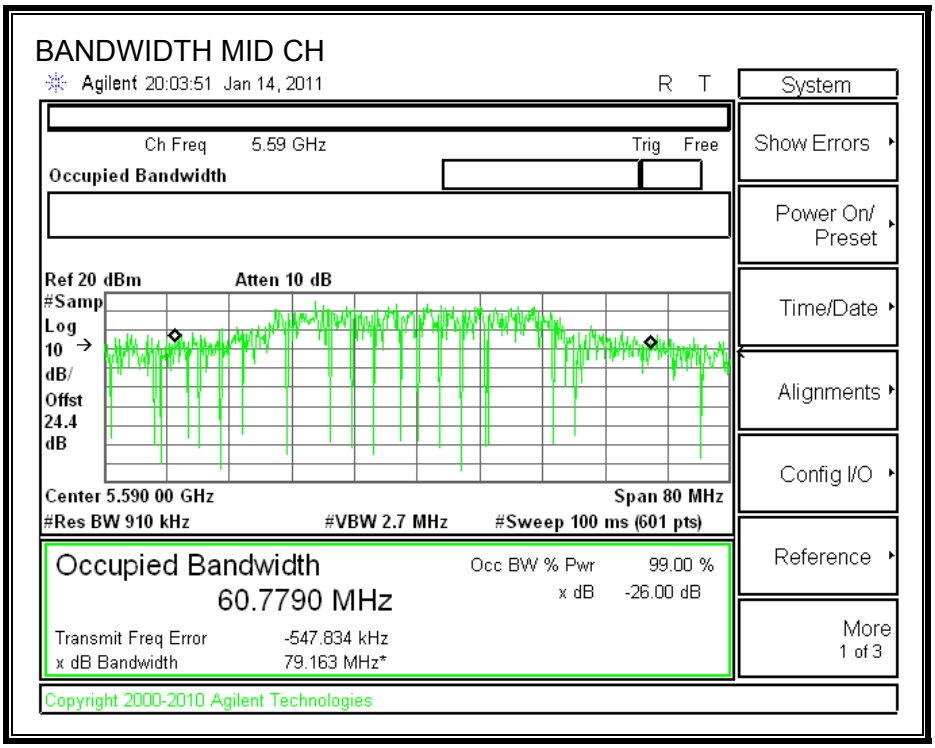
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

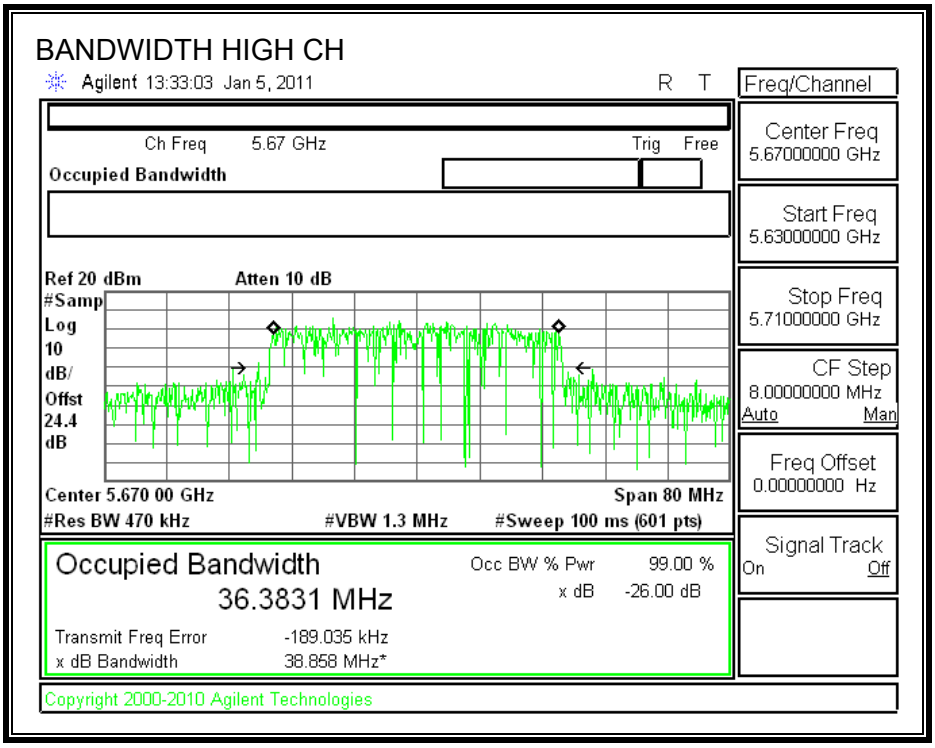
RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5500	38.793	36.3289
Middle	5580	79.163	60.7790
High	5700	38.858	36.3831

26 dB and 99% BANDWIDTH







7.12.2. OUTPUT POWER

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.47-5.725 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

RESULTS

Limit

Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	11 + 10 Log B Limit (dBm)	Antenna Gain (dBi)	Limit (dBm)
Low	5510	24	38.793	26.89	7.06	22.94
Mid	5590	24	79.163	29.99	7.06	22.94
High	5670	24	38.858	26.89	7.06	22.94

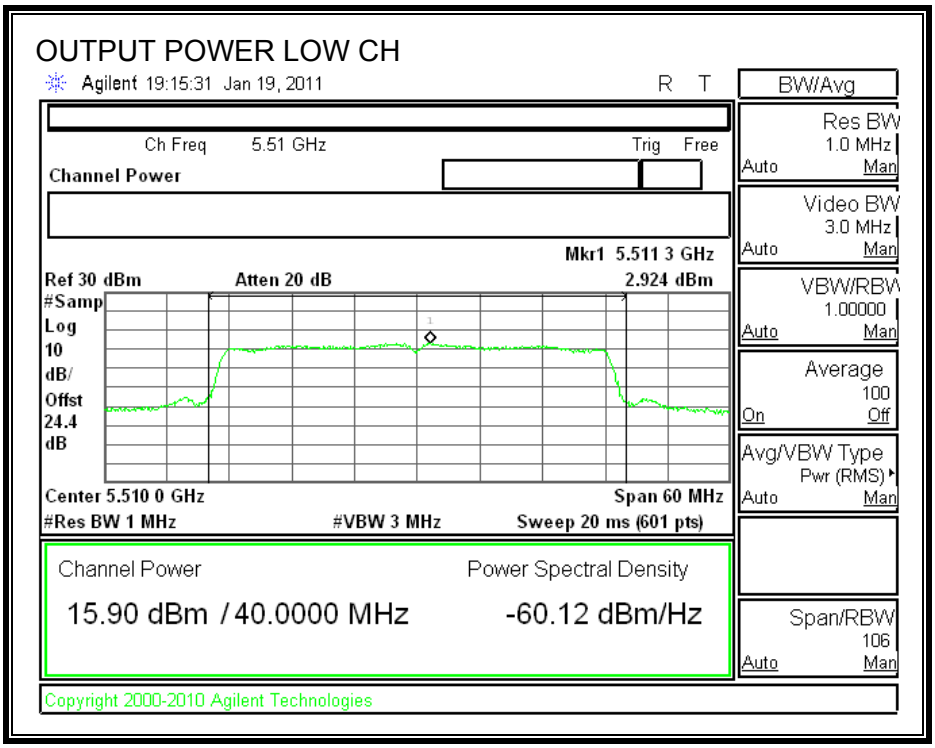
Results

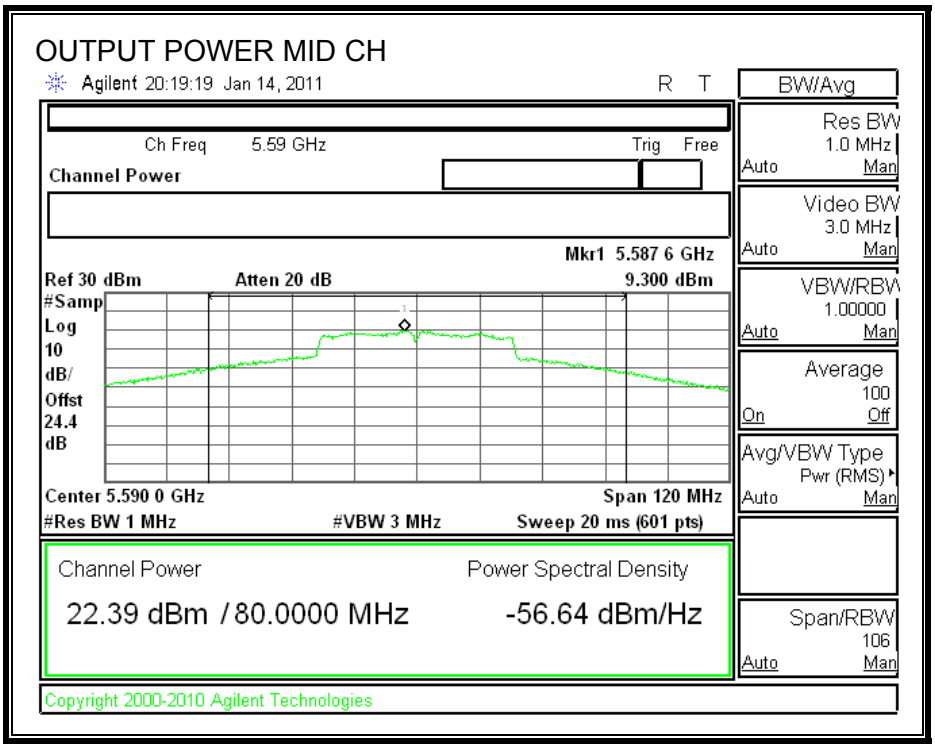
Channel	Frequency (MHz)	Power (dBm)	Limit (dBm)	Margin (dB)
Low	5510	15.90	22.94	-7.04
Mid	5590	22.39	22.94	-0.55
High	5670	22.00	22.94	-0.94

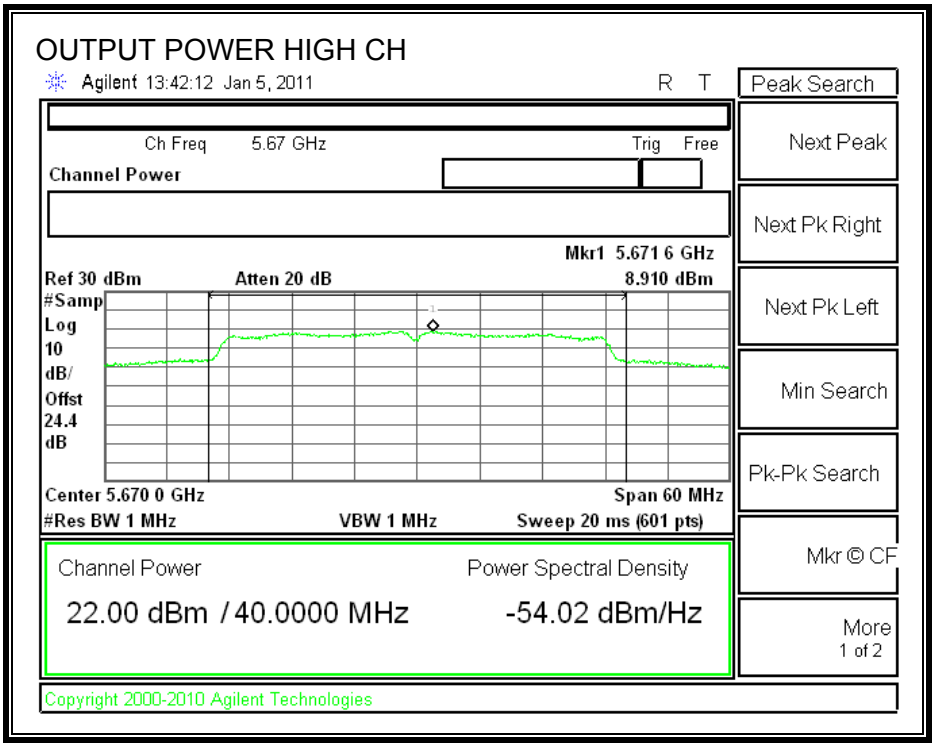
TPC Results

TPC Delta Power		Chain 0		
		6.30		
Worst-case TPC Power		Chain 0	Ant Gain	EIRP
Mid	5590	16.09	7.06	23.15
			TPC Limit (dBm)	24
			Margin (dB)	-0.85

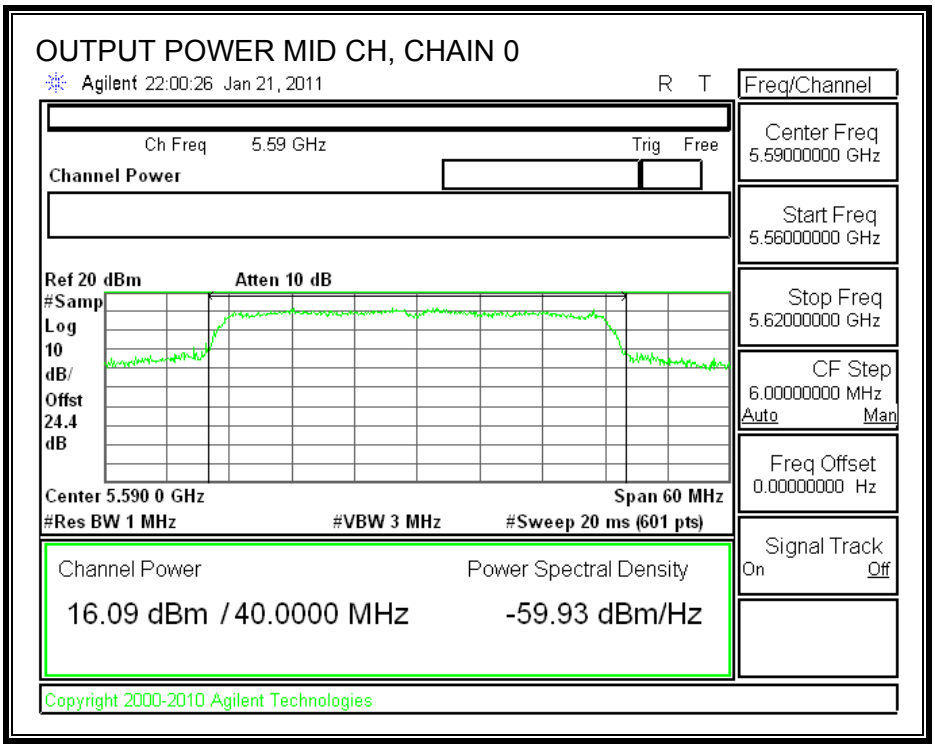
OUTPUT POWER







TPC OUTPUT POWER



7.12.3. PEAK POWER SPECTRAL DENSITY

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.47-5.725 GHz band, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is lequal to 7.06, therefore the limit is 9.94.

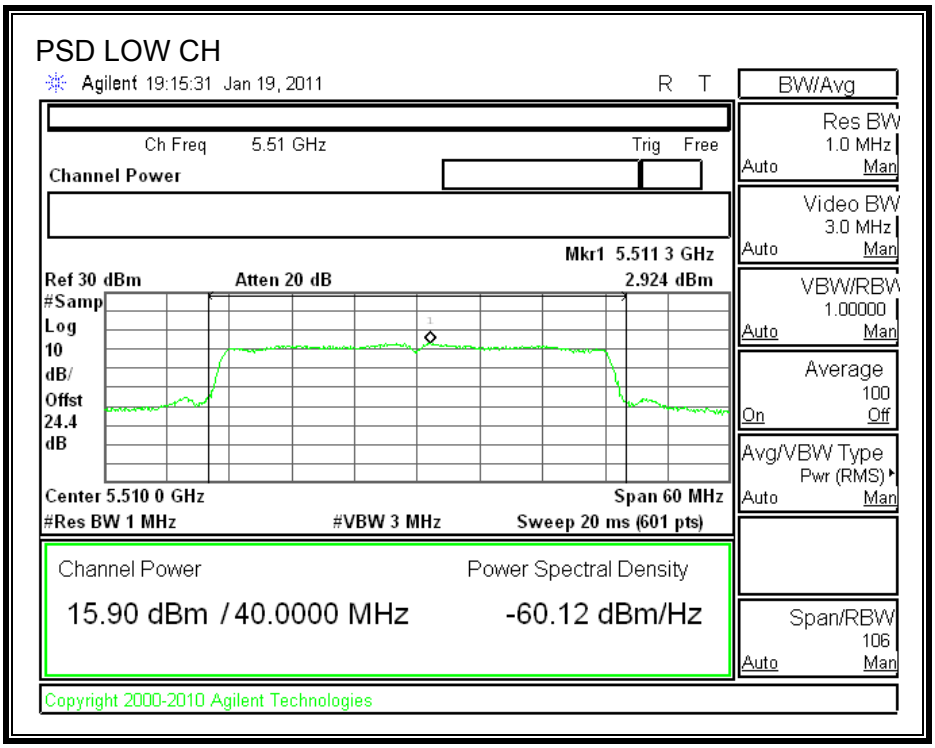
TEST PROCEDURE

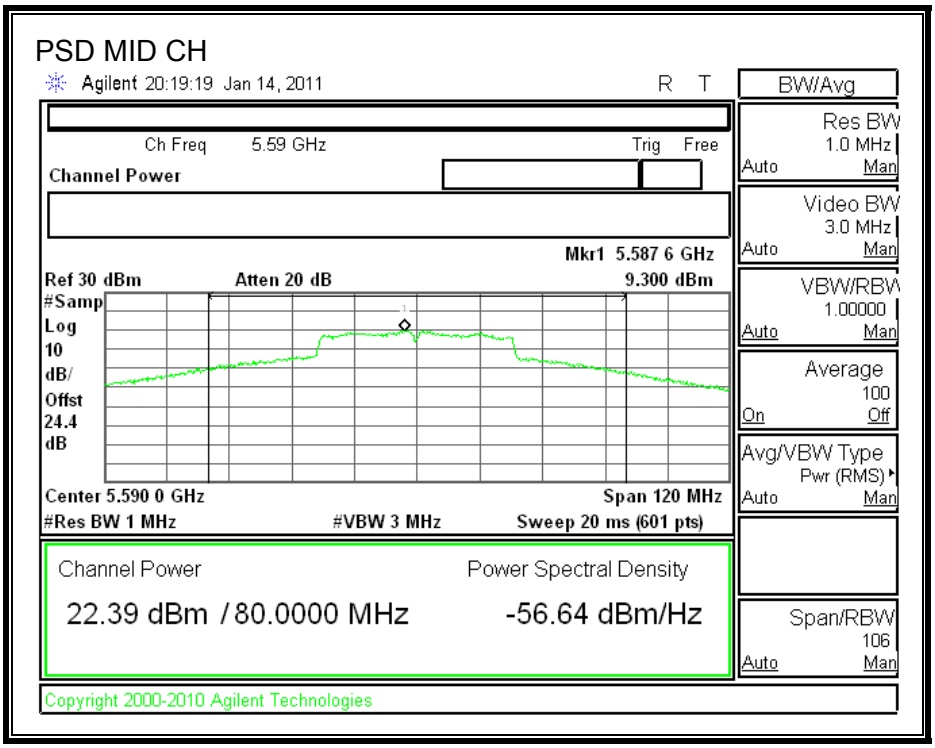
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. PPSD method #2 was used.

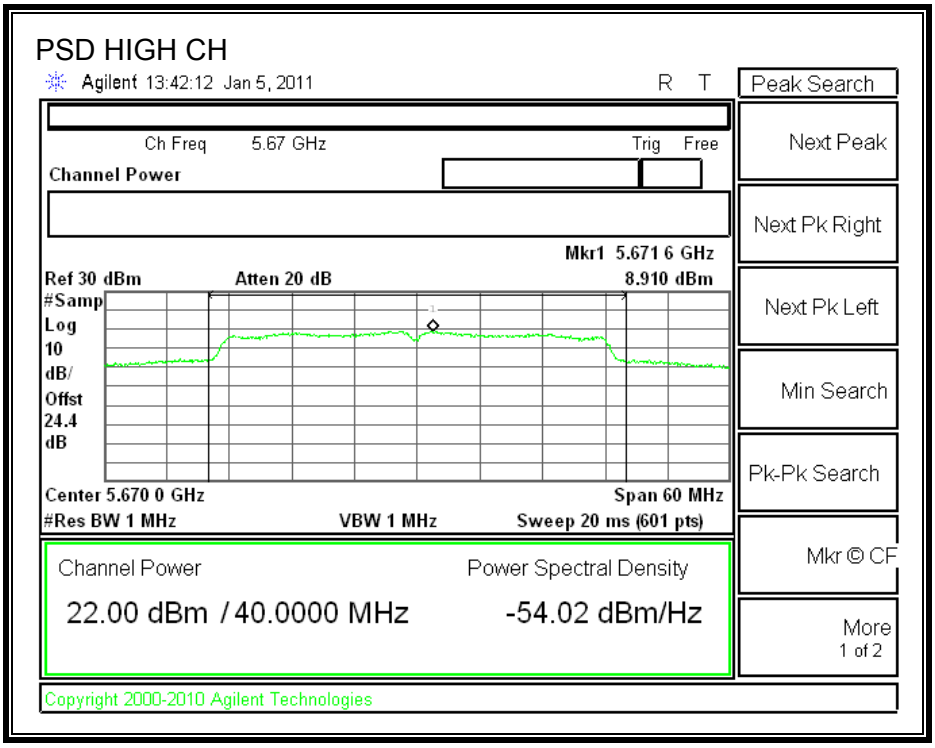
RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	5510	2.92	9.94	-7.02
Middle	5590	9.30	9.94	-0.64
High	5760	8.91	9.94	-1.03

POWER SPECTRAL DENSITY







7.12.4. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

TEST PROCEDURE

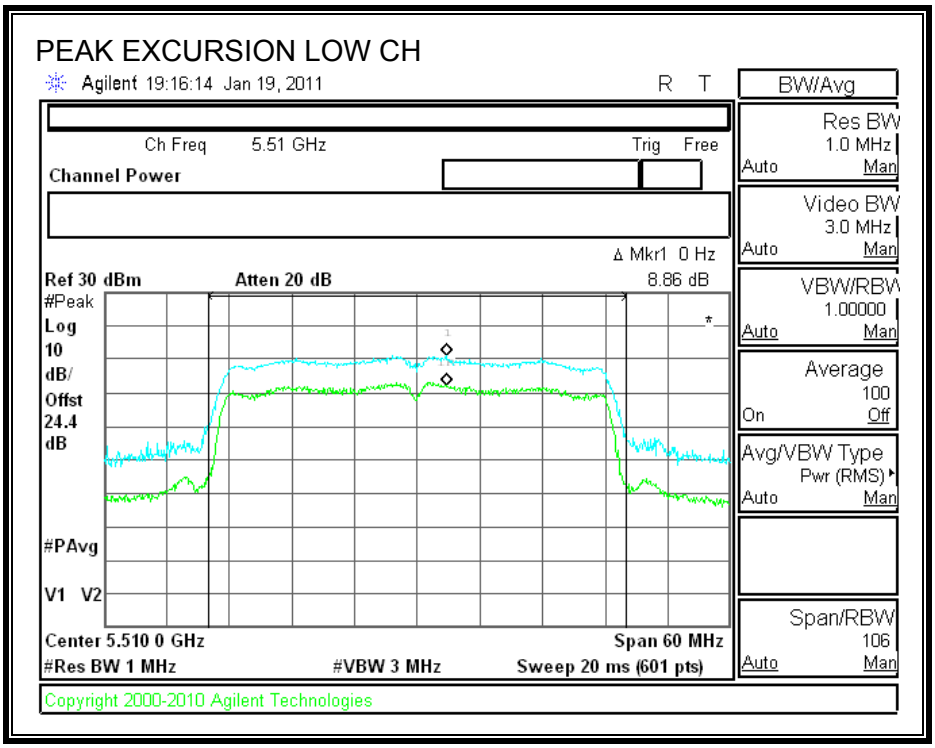
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

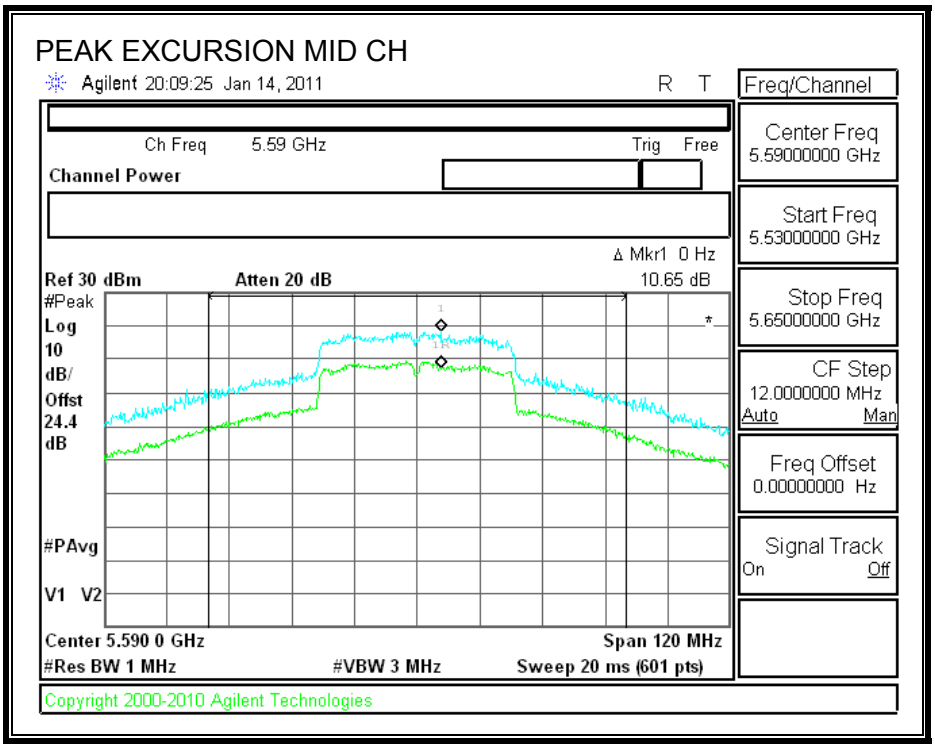
Since Method # 1 was used for peak power measurements, Method # 1 settings are used for the second PPSD trace.

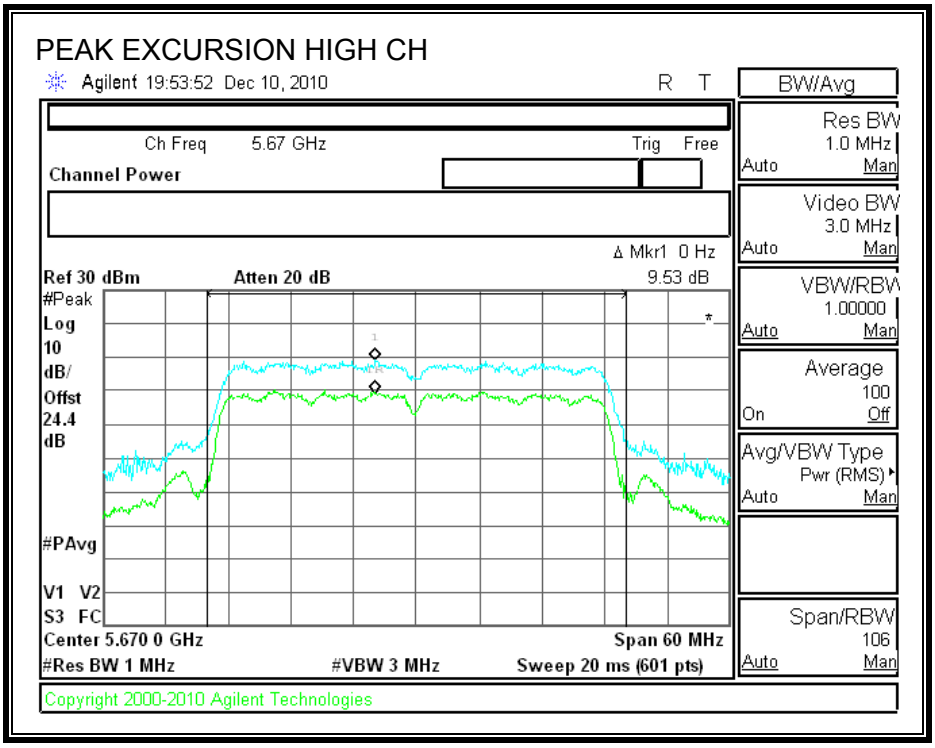
RESULTS

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5510	8.86	13	-4.14
Middle	5590	10.65	13	-2.35
High	5670	9.53	13	-3.47

PEAK EXCURSION







7.12.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.407 (b) (3)

IC RSS-210 A9.3 (3)

For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm / MHz.

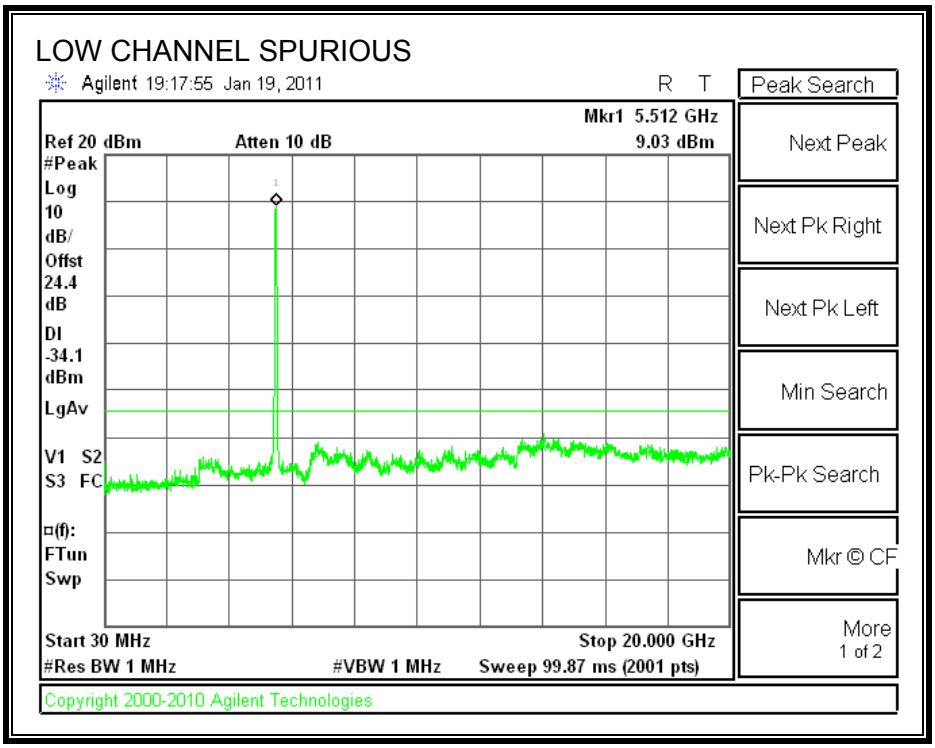
TEST PROCEDURE

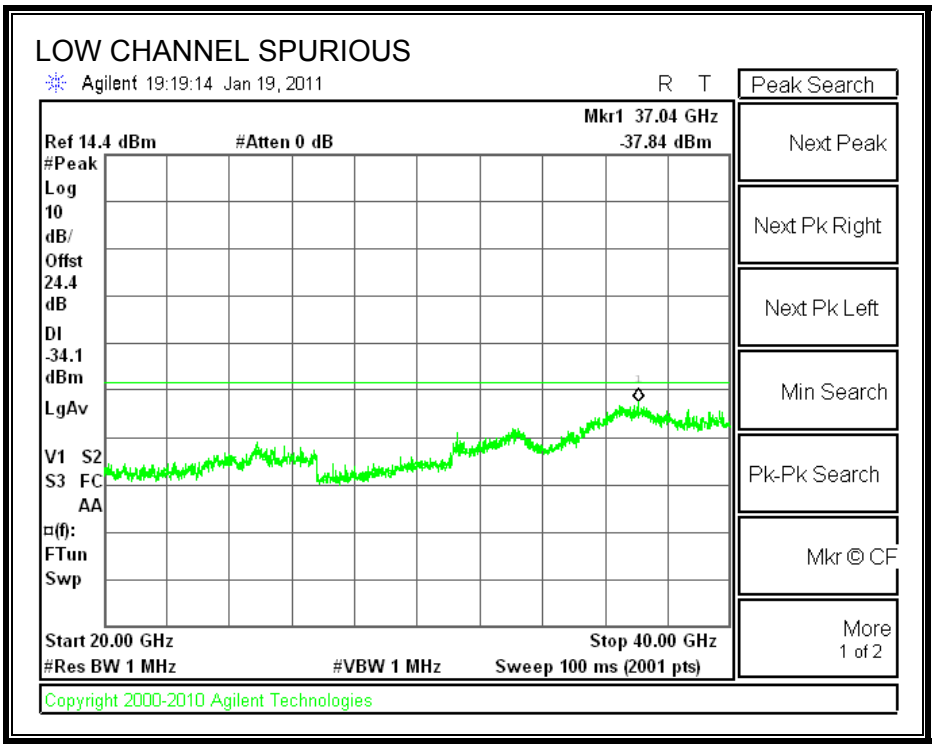
Conducted RF measurements of the transmitter output are made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

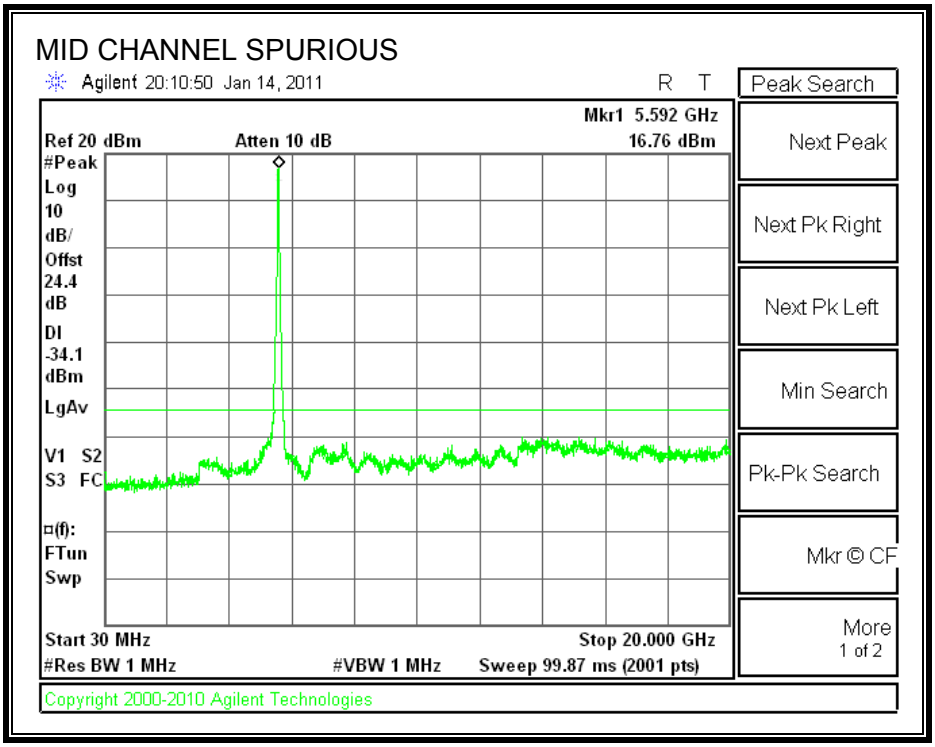
The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to EIRP limit, adjusted for the maximum antenna gain.

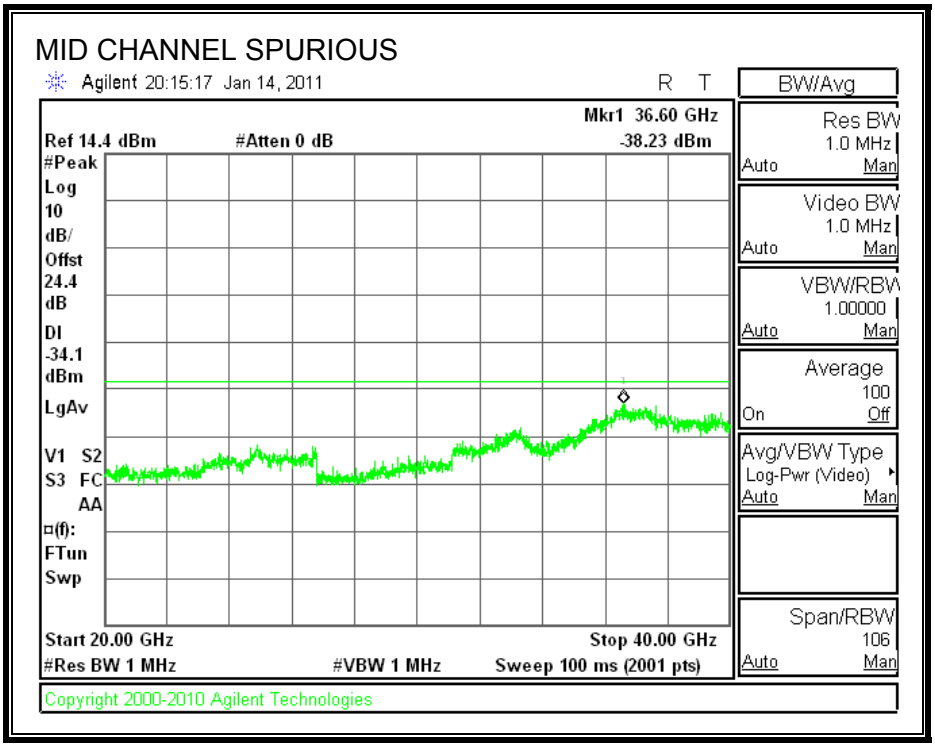
Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

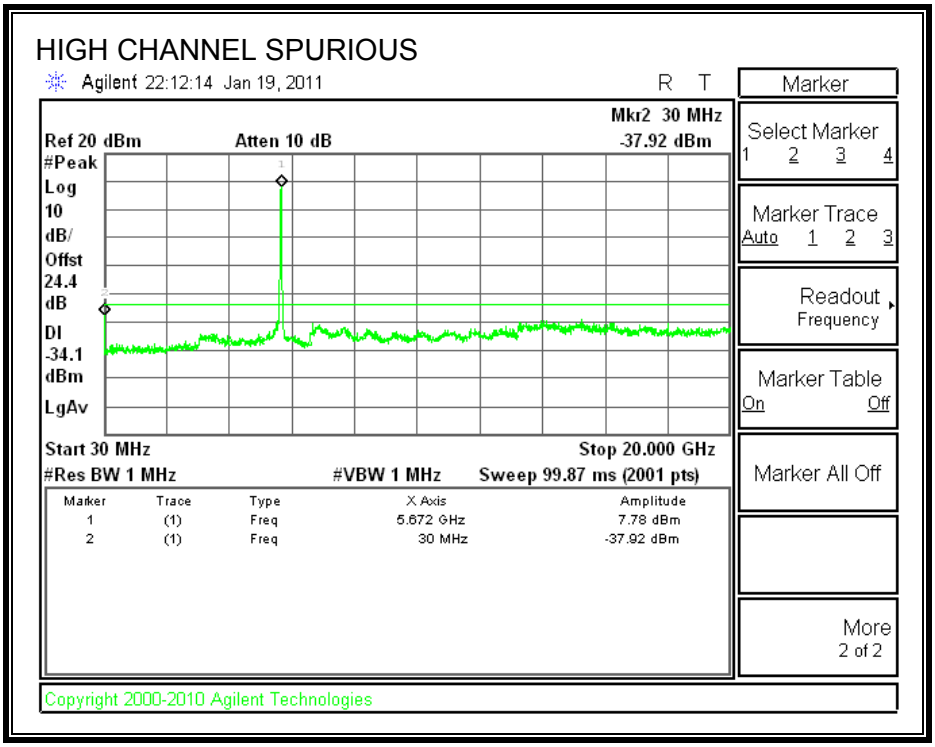
SPURIOUS EMISSIONS - COMBINER

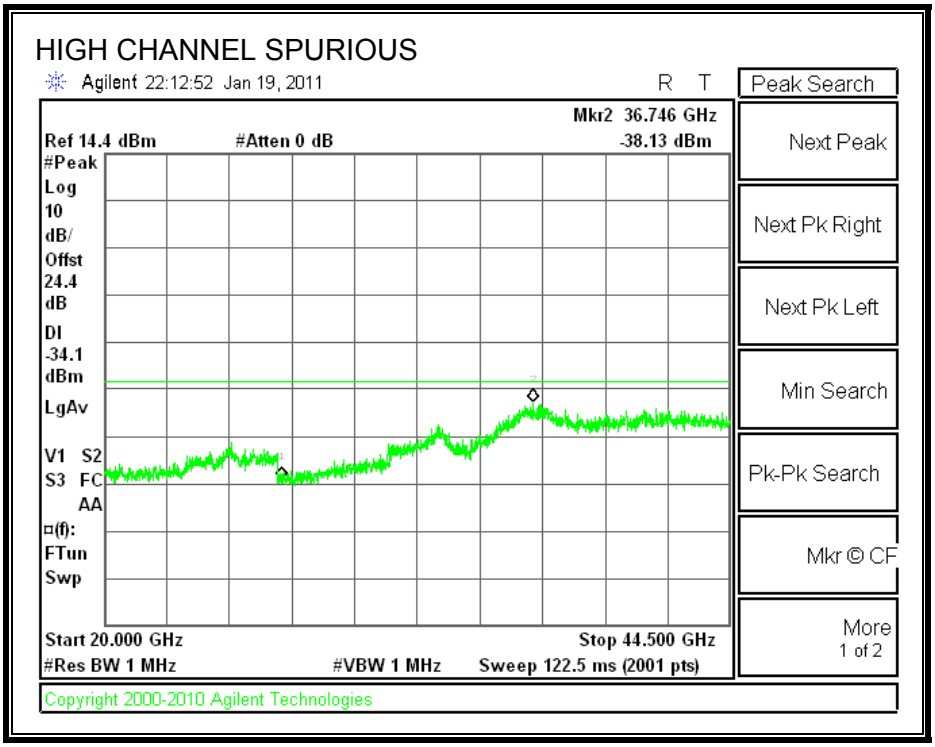












7.13. 802.11n THREE CHAINS HT40 MODE IN THE 5.6 GHz BAND

CDD MCS0

7.13.1. 26 dB and 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

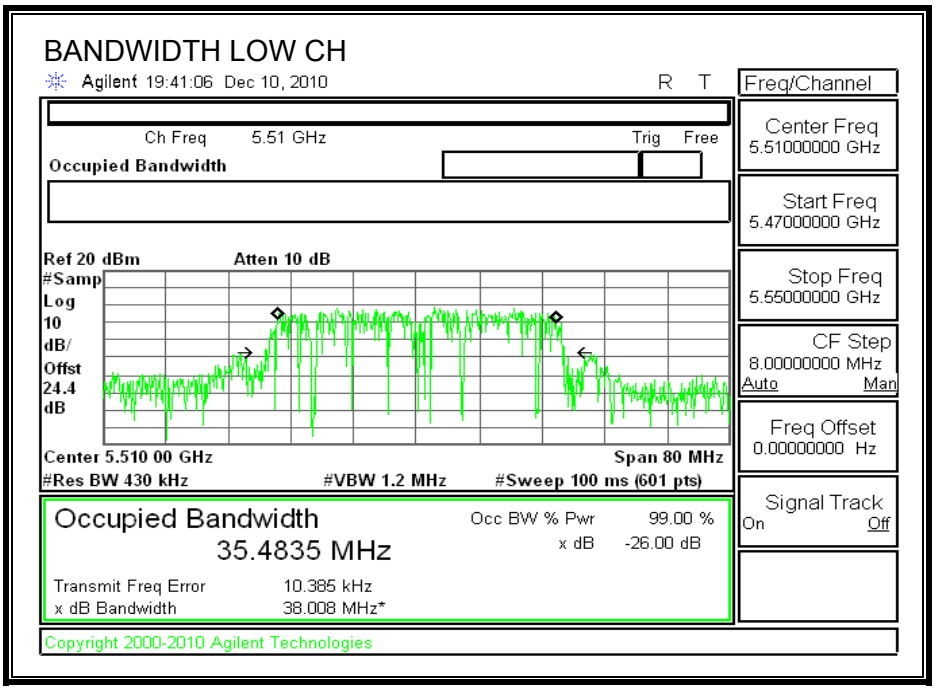
TEST PROCEDURE

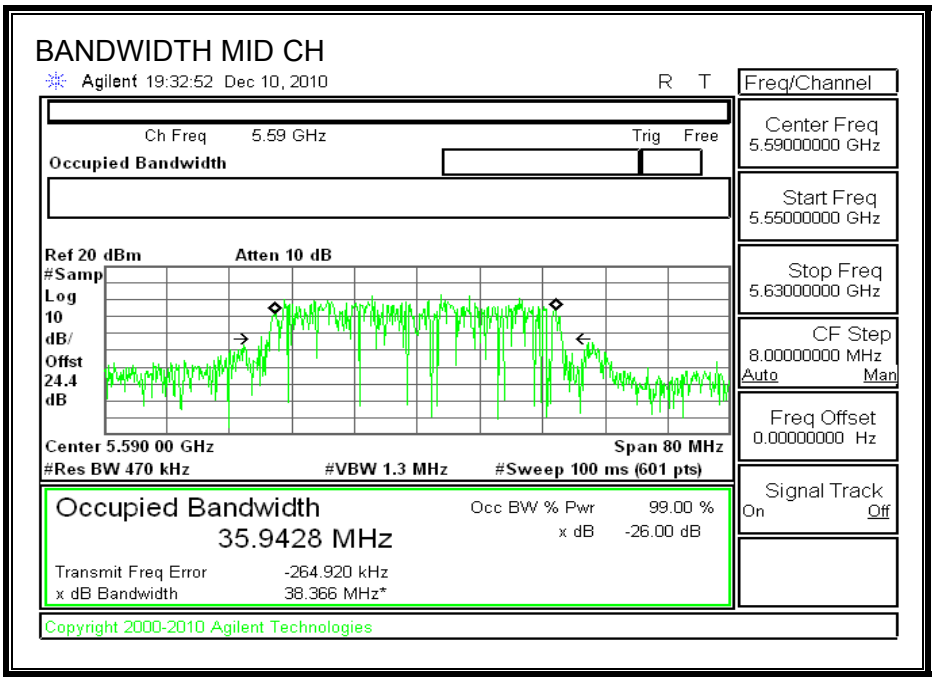
The transmitter outputs are connected to the spectrum analyzer via a combiner. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

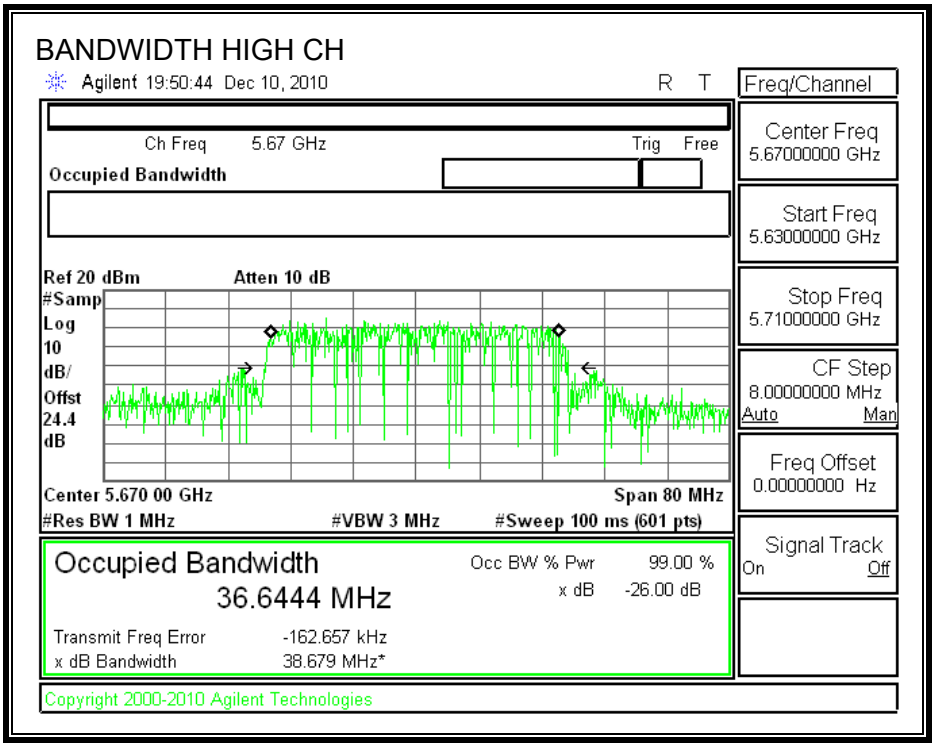
RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5510	38.008	35.4835
Middle	5590	38.366	35.9428
High	5670	38.679	36.6444

26 dB and 99% BANDWIDTH







7.13.2. OUTPUT POWER

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.47-5.725 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

RESULTS

Limit

Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	11 + 10 Log B Limit (dBm)	Antenna Gain (dBi)	Limit (dBm)
Low	5510	23.98	38.008	26.80	11.23	18.75
Mid	5590	23.98	38.366	26.84	11.23	18.75
High	5670	23.98	38.679	26.87	11.23	18.75

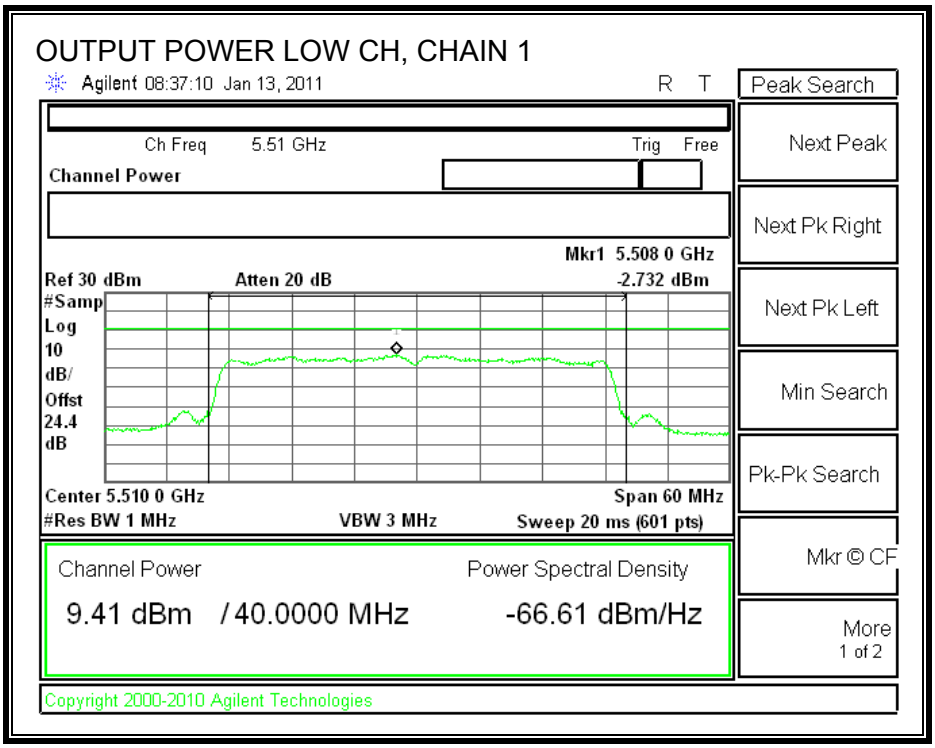
Individual Chain Results

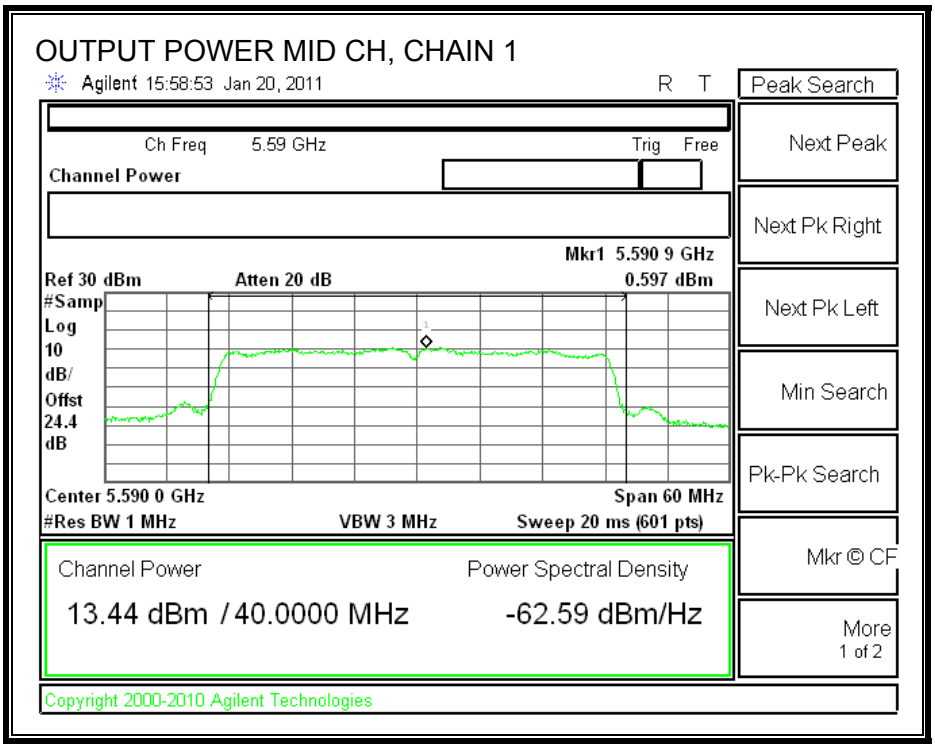
Channel	Frequency (MHz)	Chain 1 Power (dBm)	Chain 2 Power (dBm)	Chain 3 Power (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	5510	9.41	9.85	9.78	14.46	18.75	-4.29
Mid	5590	13.44	13.56	14.02	18.45	18.75	-0.30
High	5670	13.40	13.68	14.15	18.53	18.75	-0.22

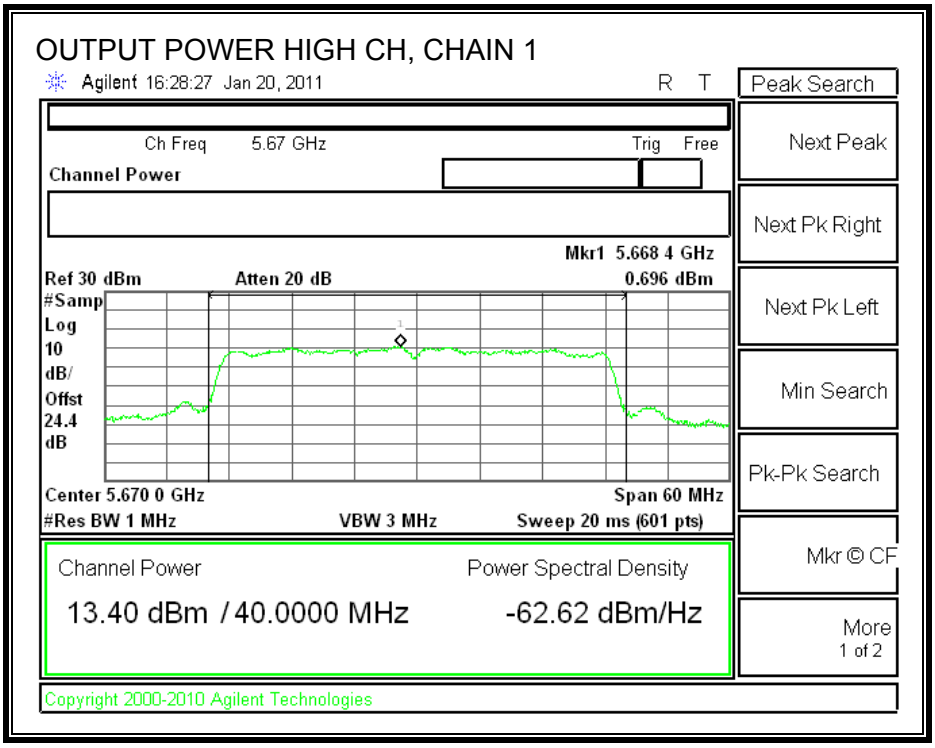
TPC Results

TPC Delta Power		Chain 0	Chain 1	Chain 2			
		6.60	7.00	6.96			
Worst-case TPC Power		Chain 0	Chain 1	Chain 2	Total Power	Ant Gain	EIRP
High	5670	6.80	6.68	7.19	11.67	11.23	22.90
						TPC Limit (dBm)	24
						Margin (dB)	-1.10

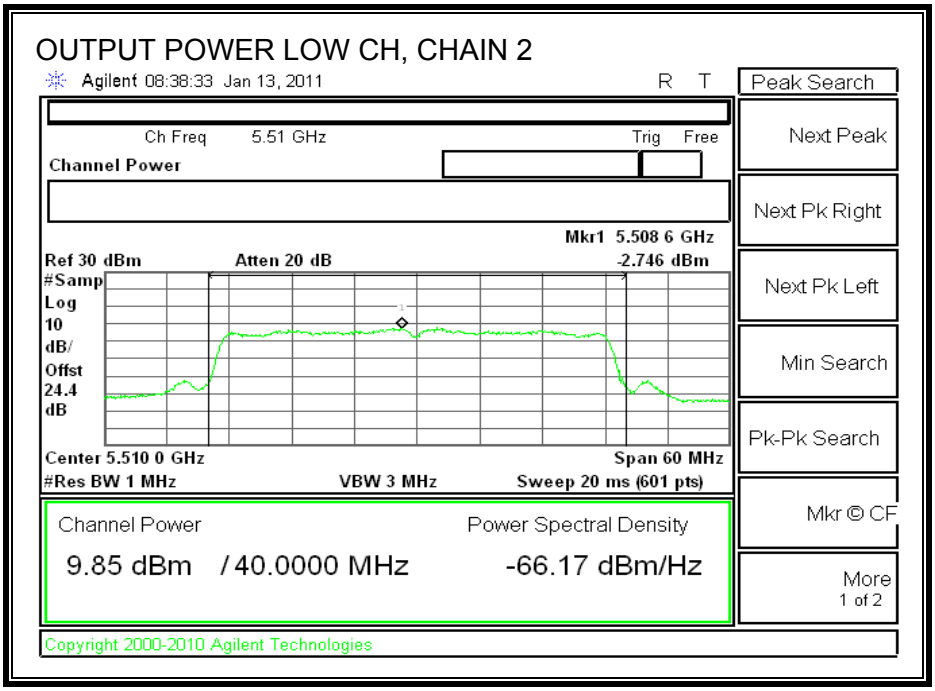
CHAIN 1 OUTPUT POWER



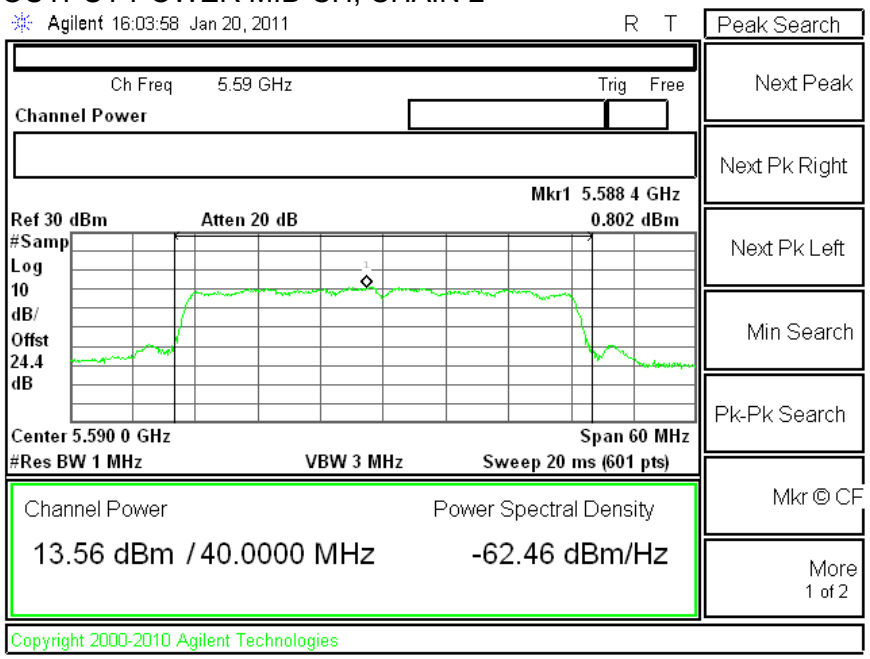




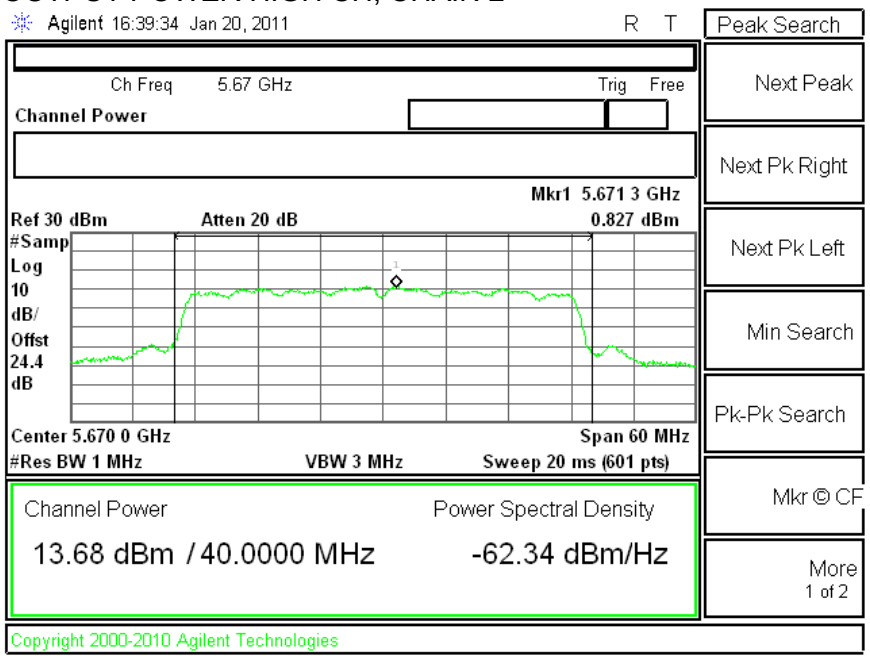
CHAIN 2 OUTPUT POWER



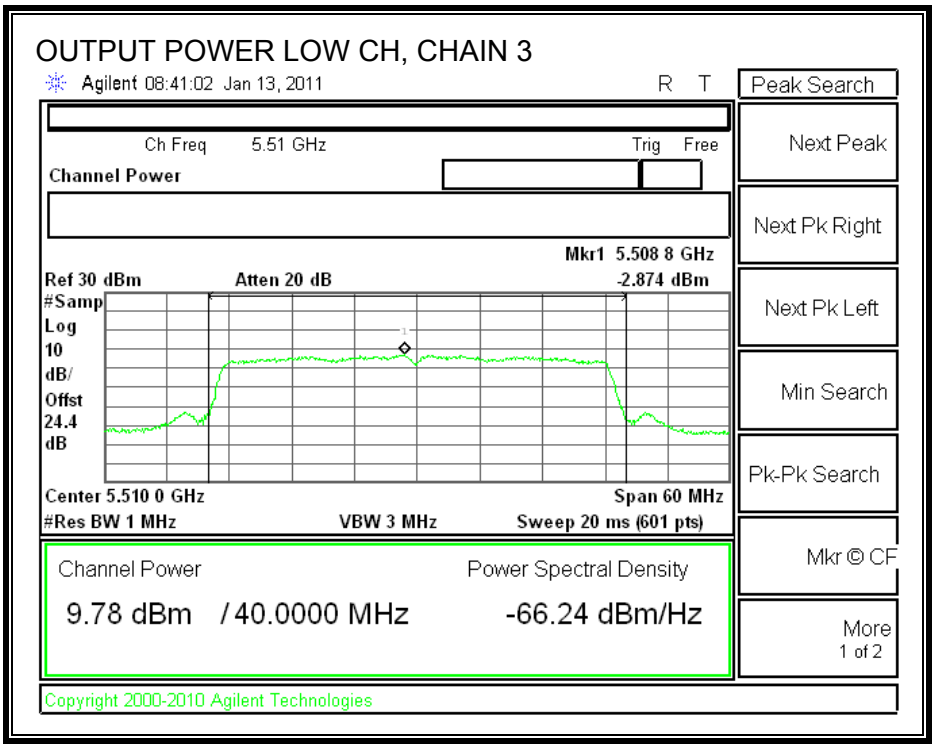
OUTPUT POWER MID CH, CHAIN 2

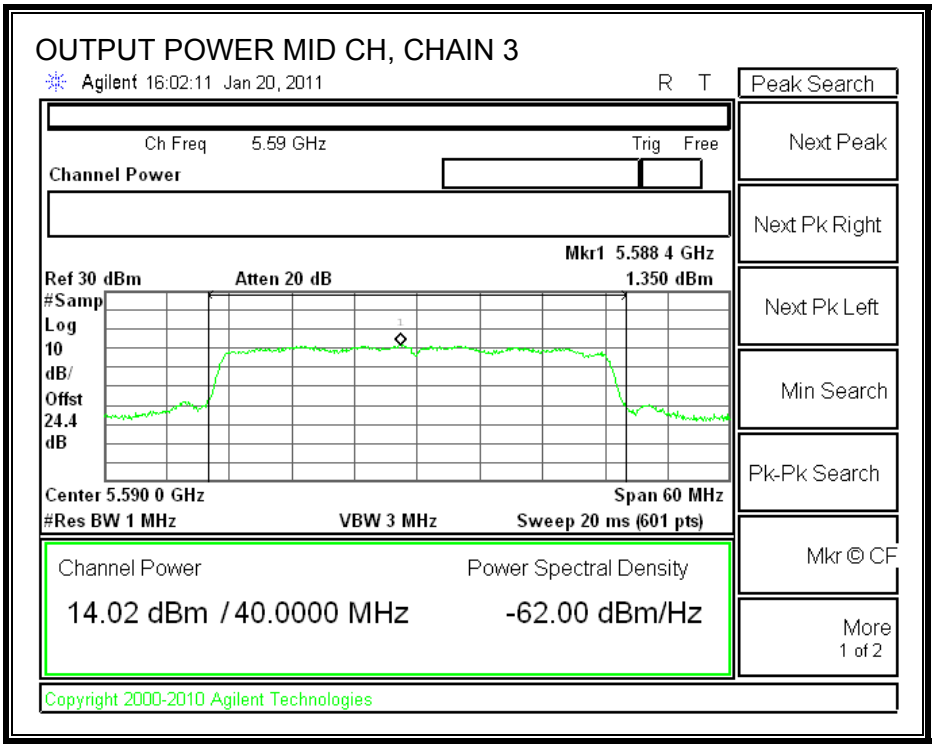


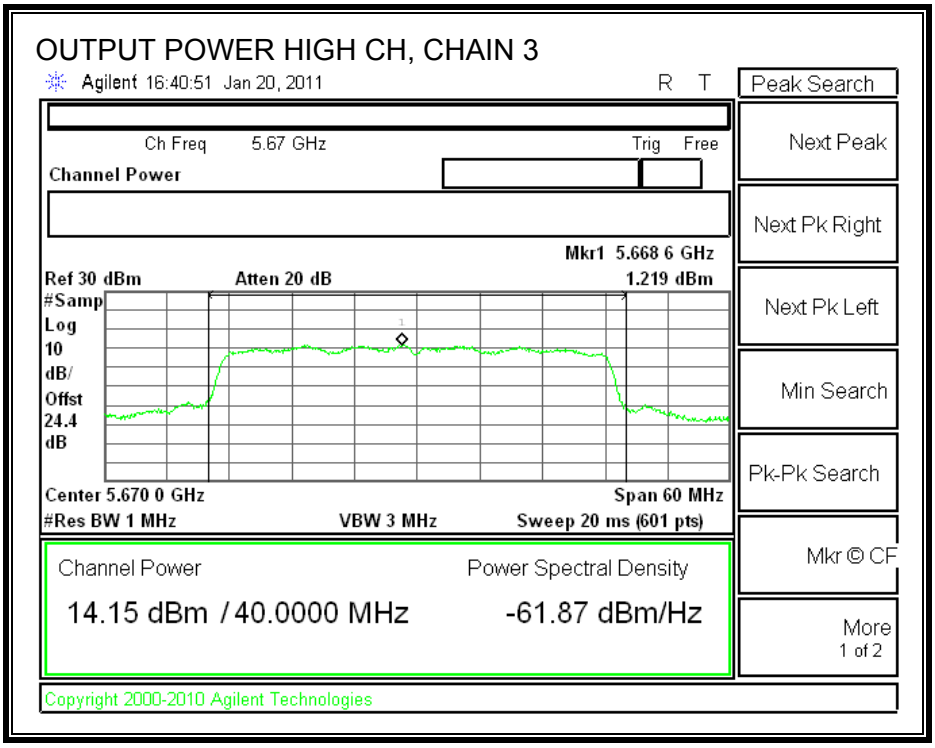
OUTPUT POWER HIGH CH, CHAIN 2



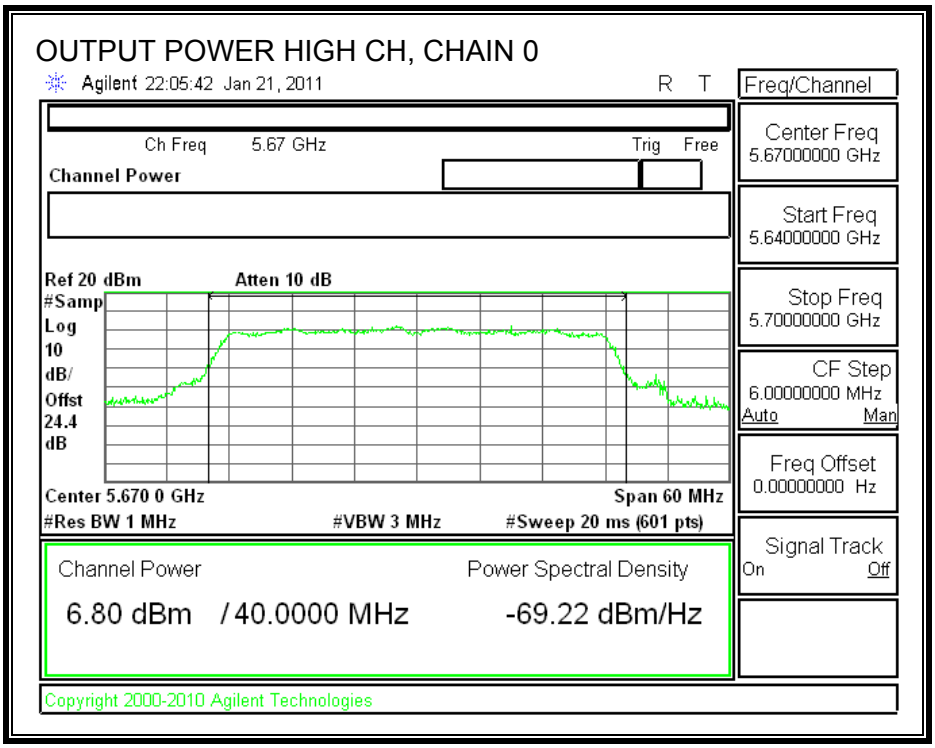
CHAIN 3 OUTPUT POWER

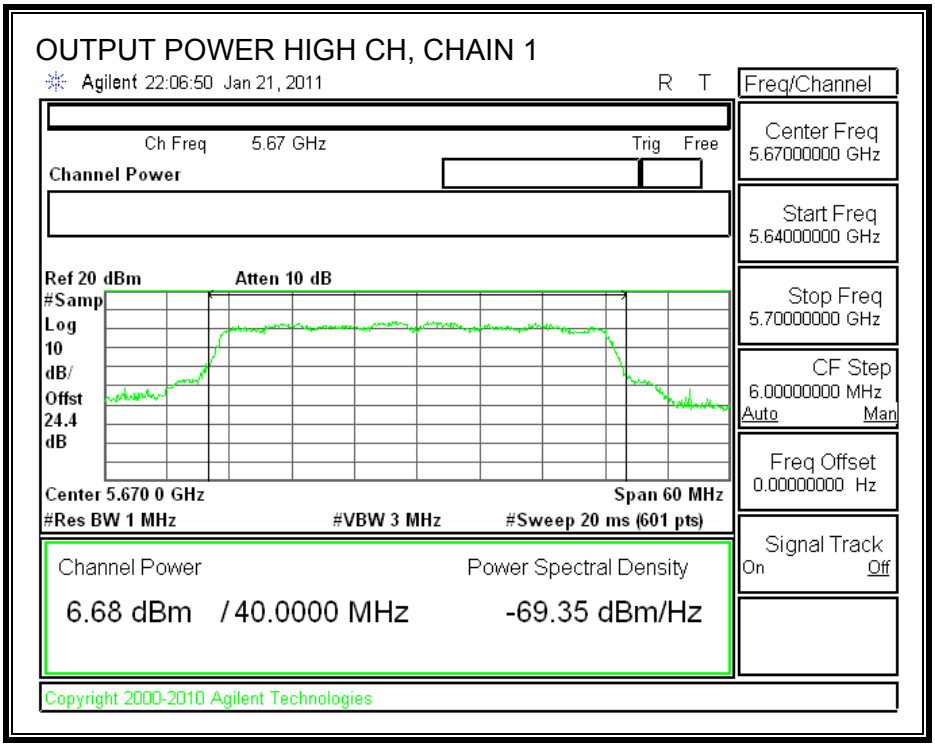


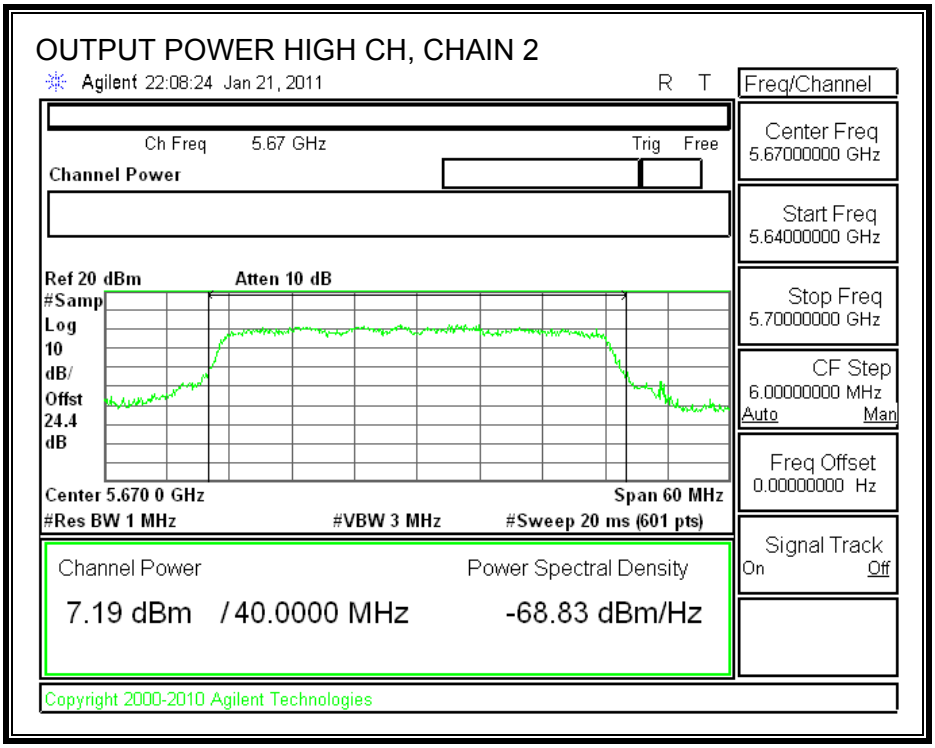




TPC OUTPUT POWER







7.13.3. PEAK POWER SPECTRAL DENSITY

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.47-5.725 GHz band, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The composite antenna gain is11.23 dBi, therefore the limit is 5.77 dBm.

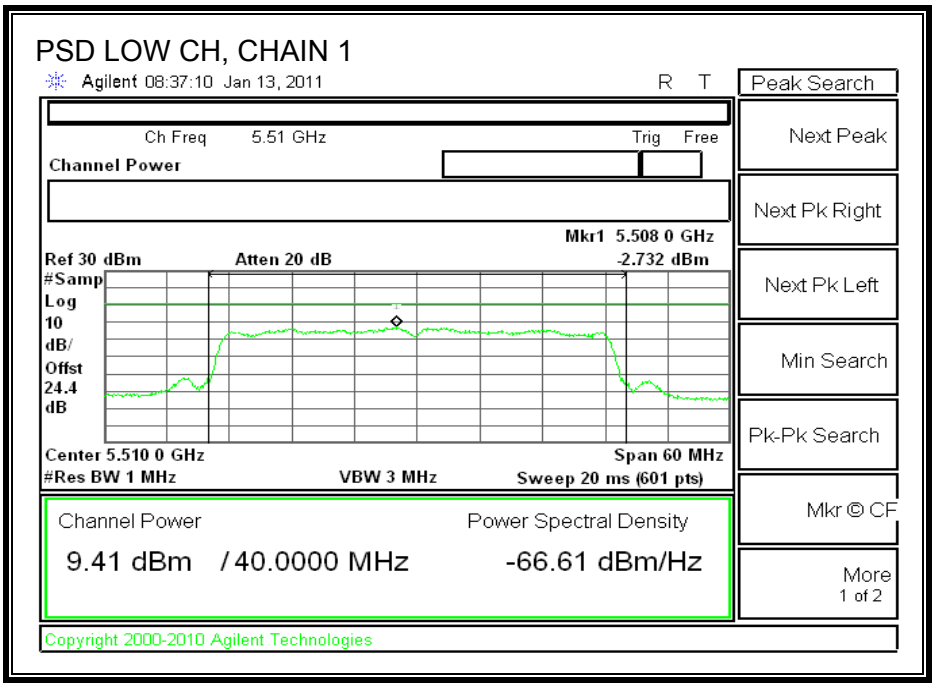
TEST PROCEDURE

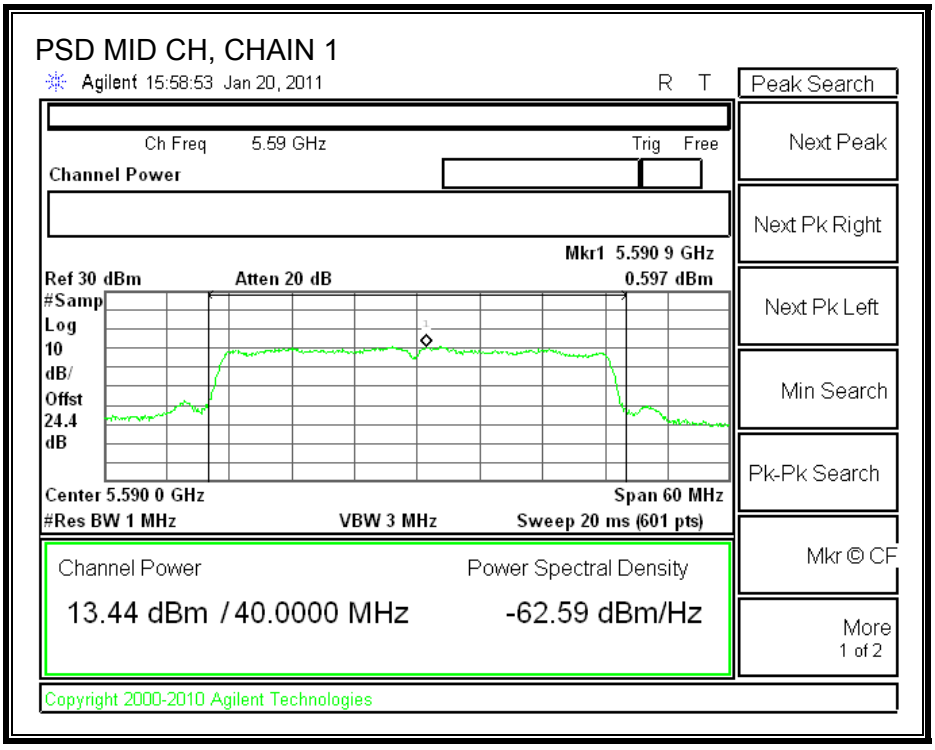
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. PPSD method #2 was used.

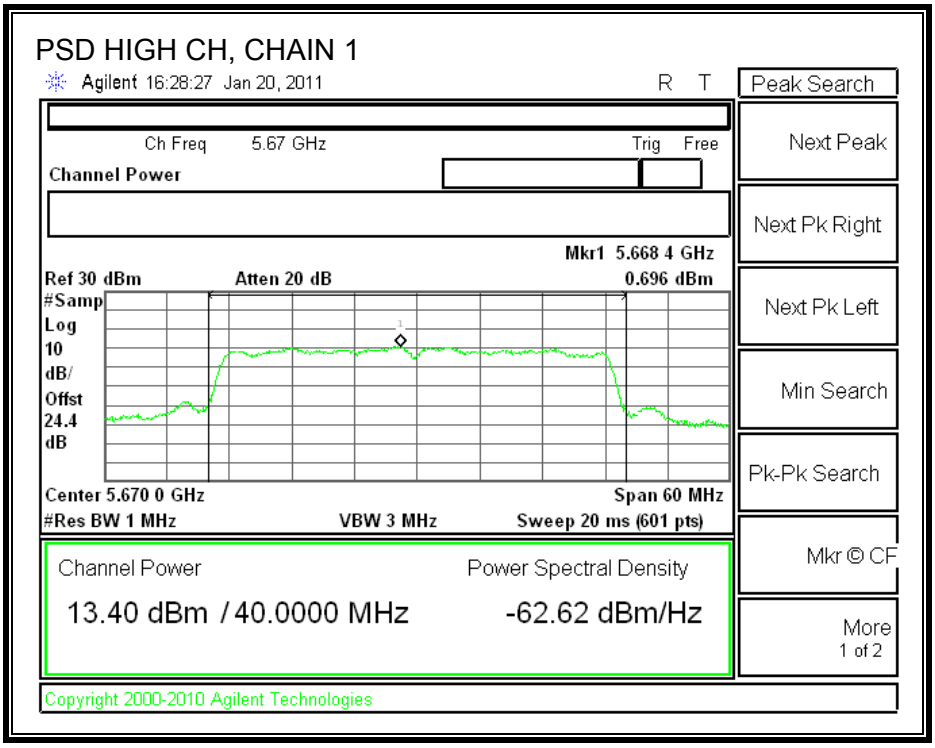
RESULTS

Channel	Frequency (MHz)	Chain 1 PPSD (dBm)	Chain 2 PPSD (dBm)	Chain 3 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	5510	-2.732	-2.746	-2.874	1.988	5.77	-3.78
Middle	5590	0.597	0.802	1.35	5.699	5.77	-0.07
High	5670	0.696	0.827	1.219	5.691	5.77	-0.08

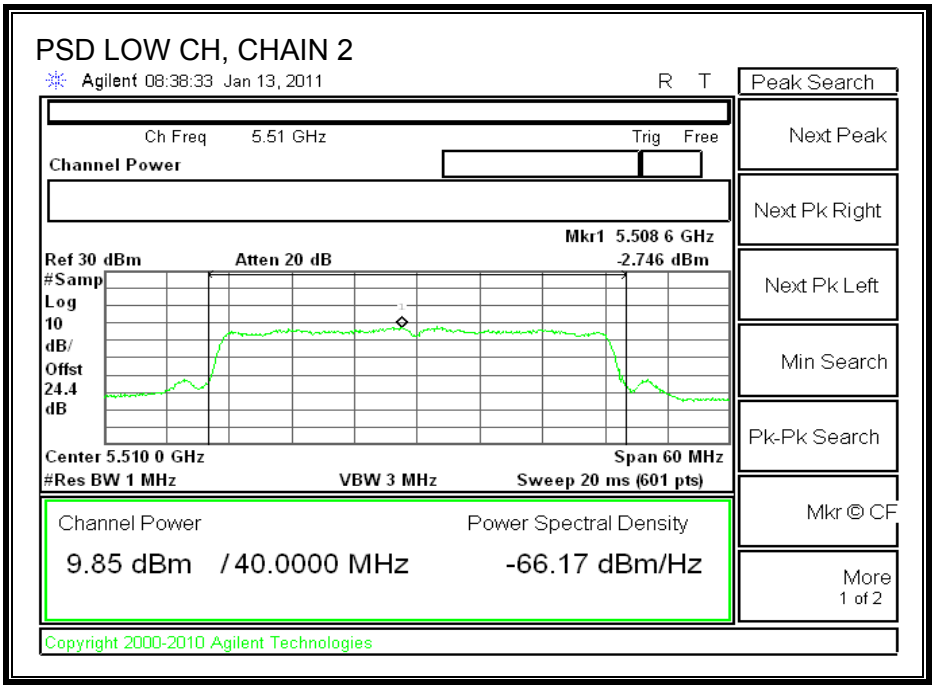
CHAIN 1 POWER SPECTRAL DENSITY

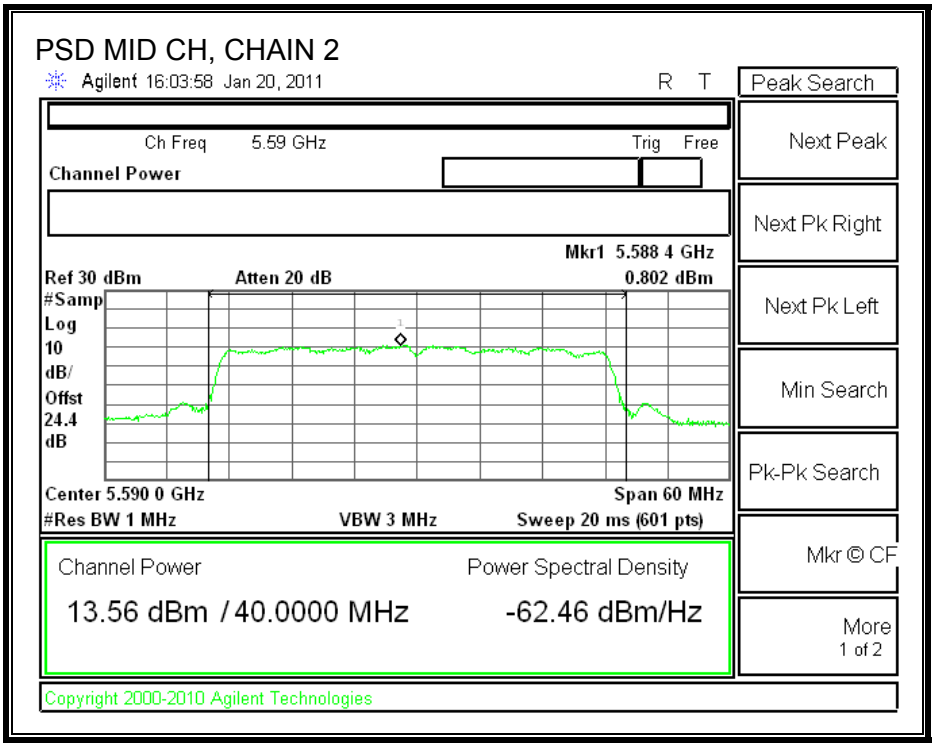


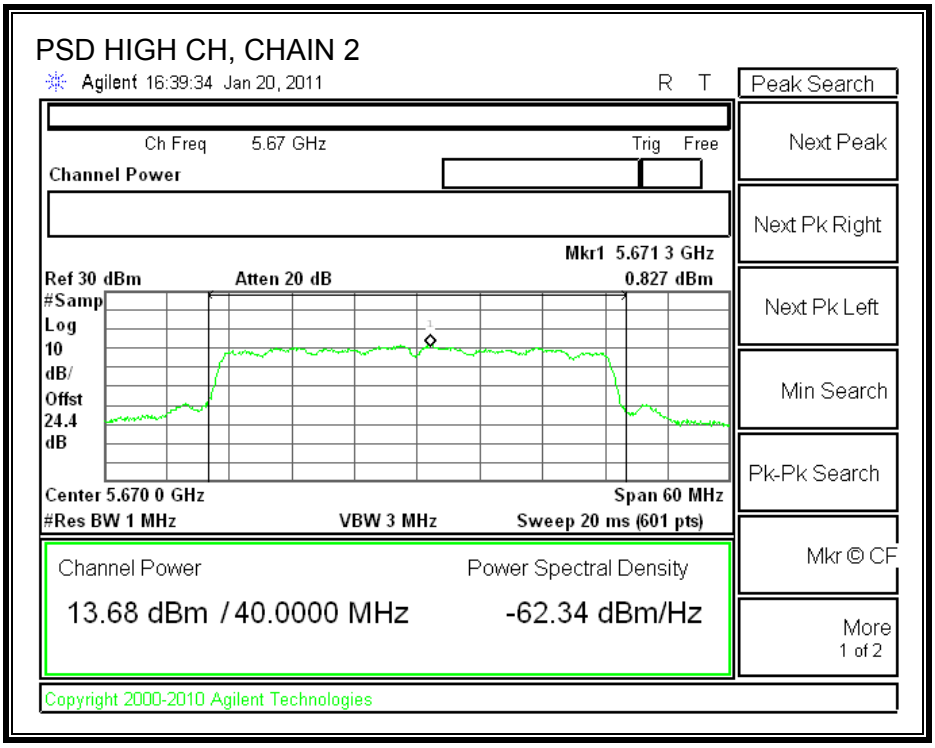




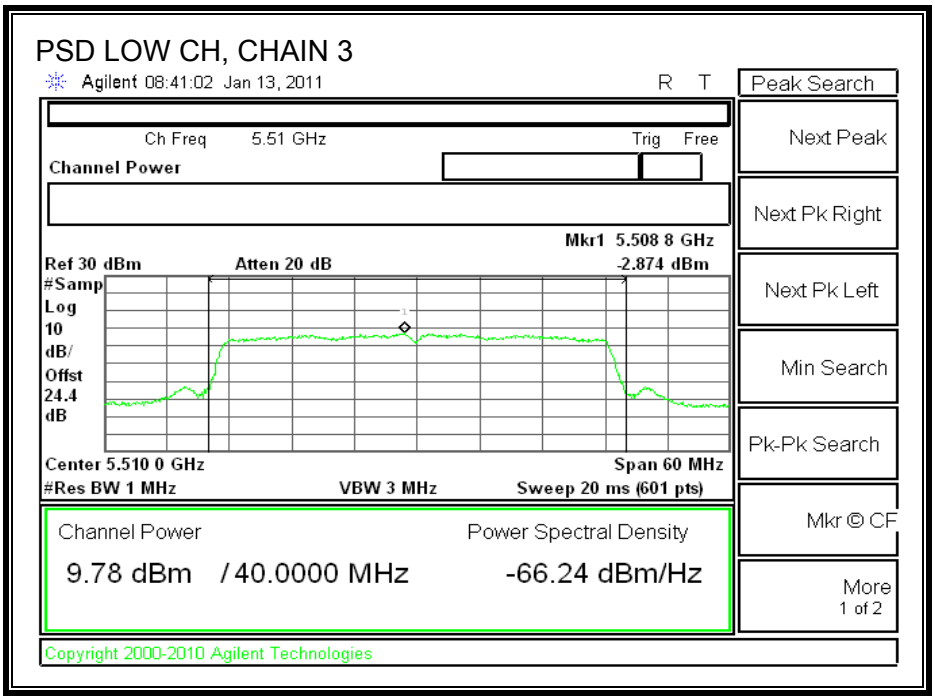
CHAIN 2 POWER SPECTRAL DENSITY

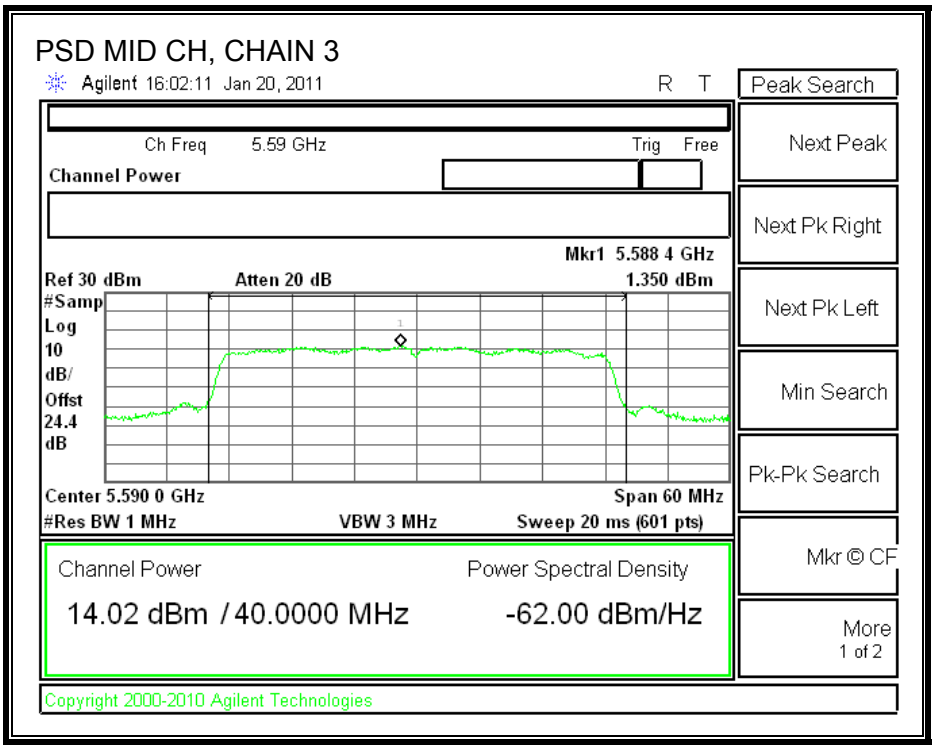


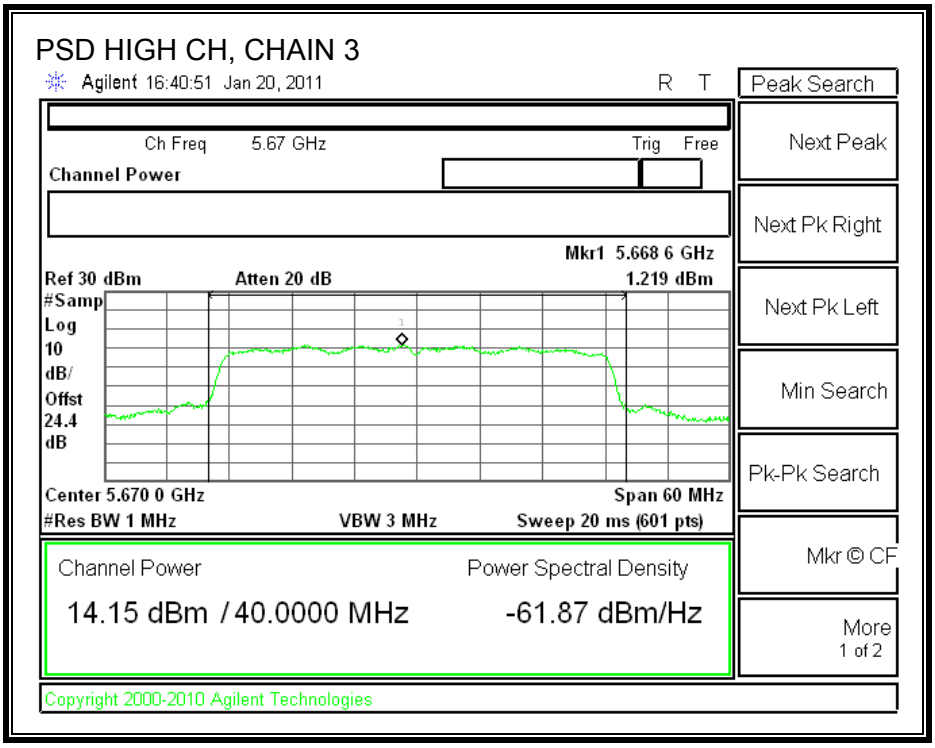




CHAIN 3 POWER SPECTRAL DENSITY







7.13.4. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner.

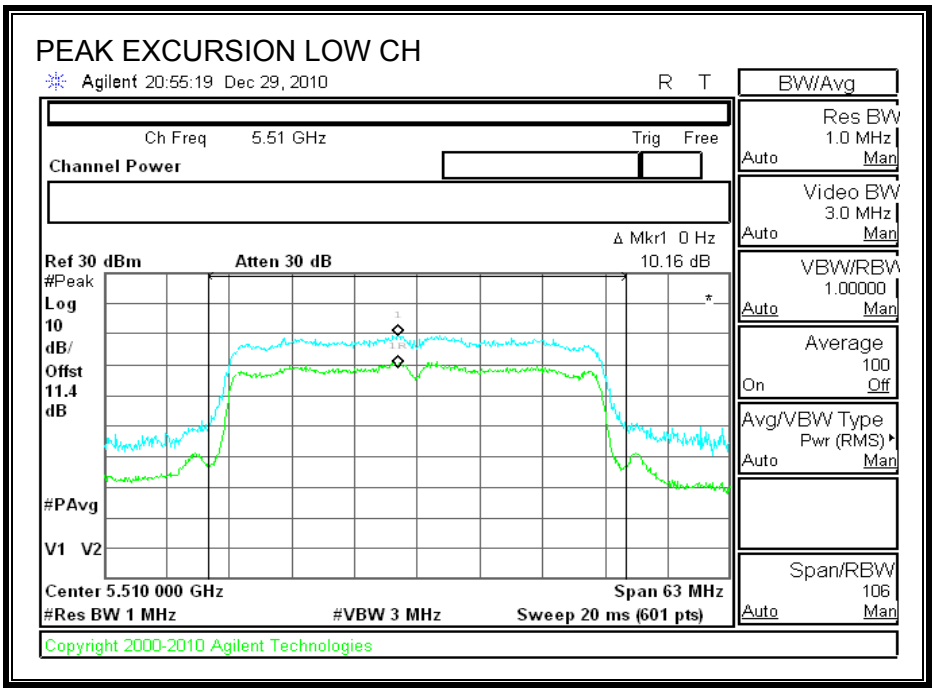
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

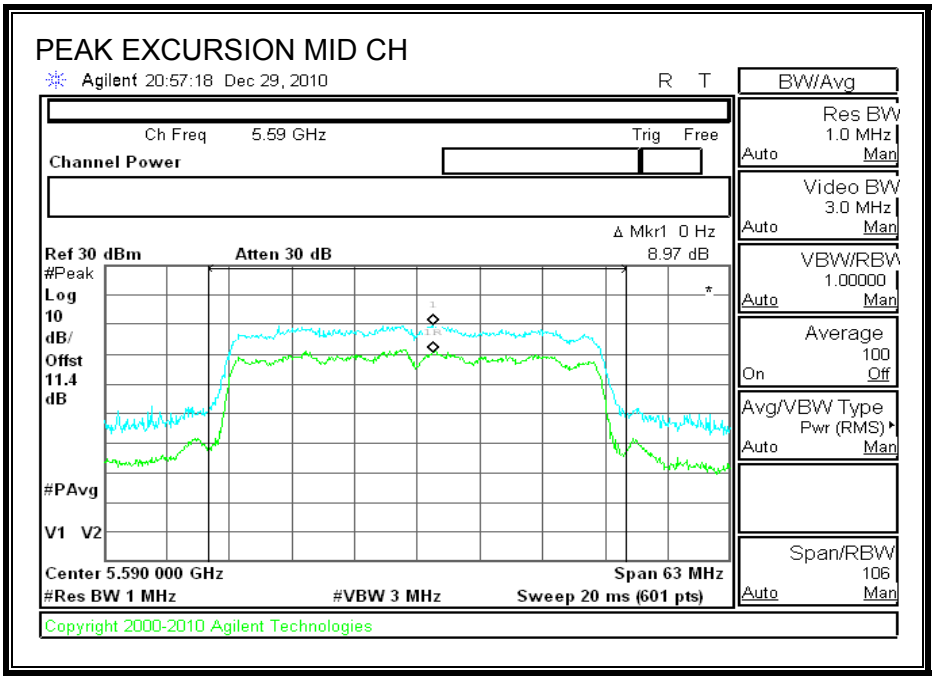
Since Method # 1 was used for peak power measurements, Method # 1 settings are used for the second PPSD trace.

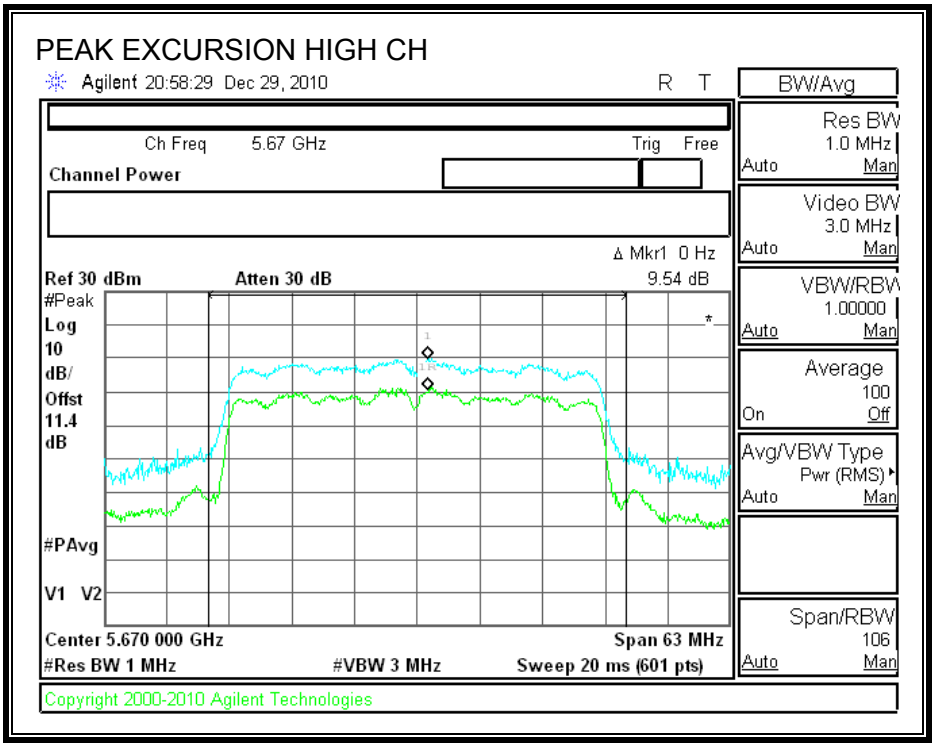
RESULTS

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5510	10.16	13	-2.84
Middle	5550	8.97	13	-4.03
High	5670	9.54	13	-3.46

PEAK EXCURSION







7.13.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.407 (b) (3)

IC RSS-210 A9.3 (3)

For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm / MHz.

TEST PROCEDURE

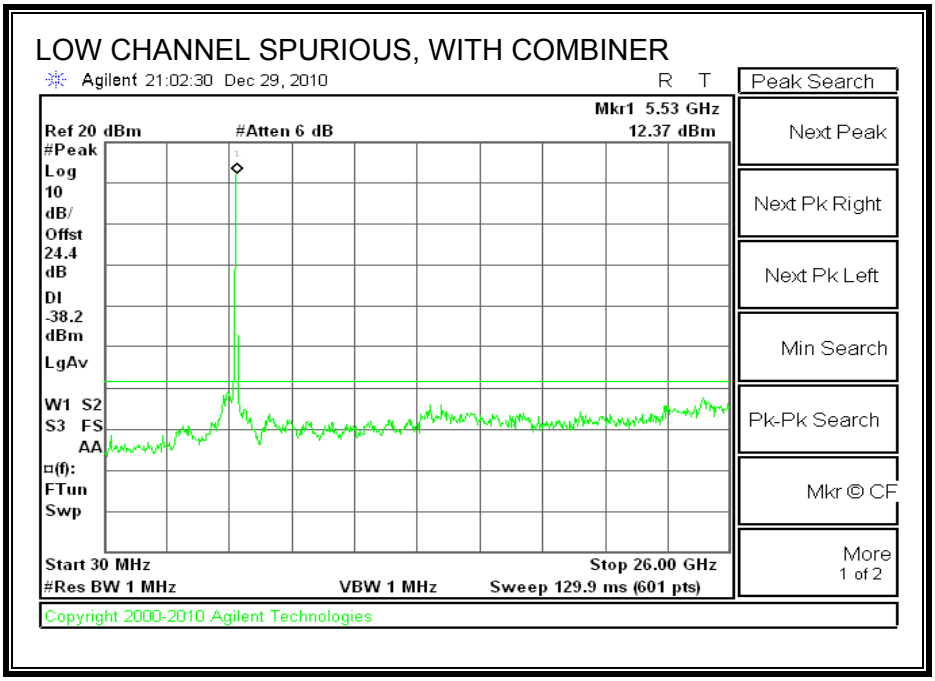
Conducted RF measurements of the transmitter output are made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

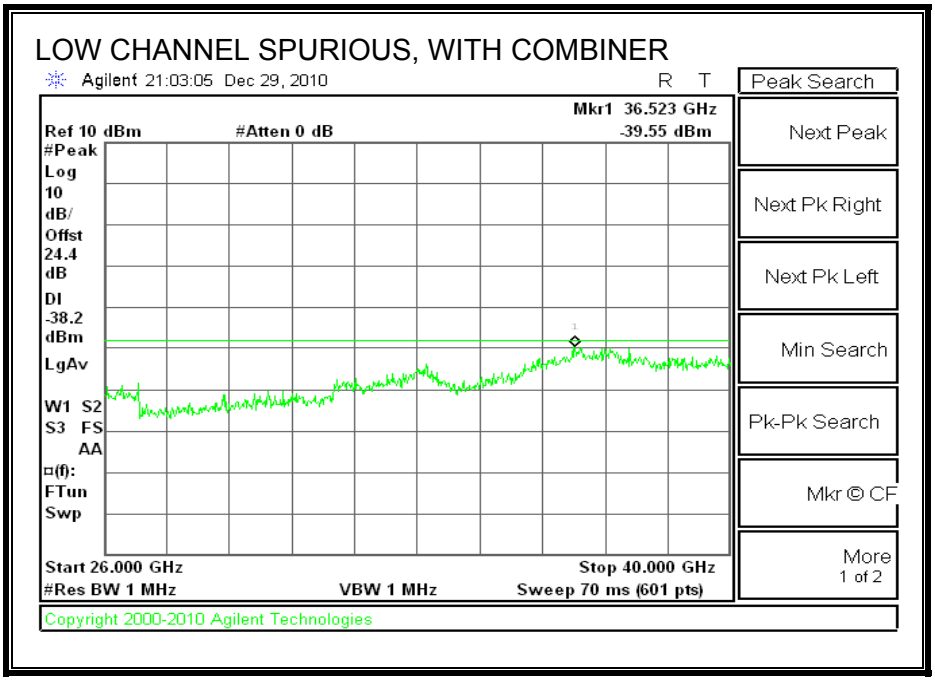
The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to EIRP limit, adjusted for the maximum antenna gain.

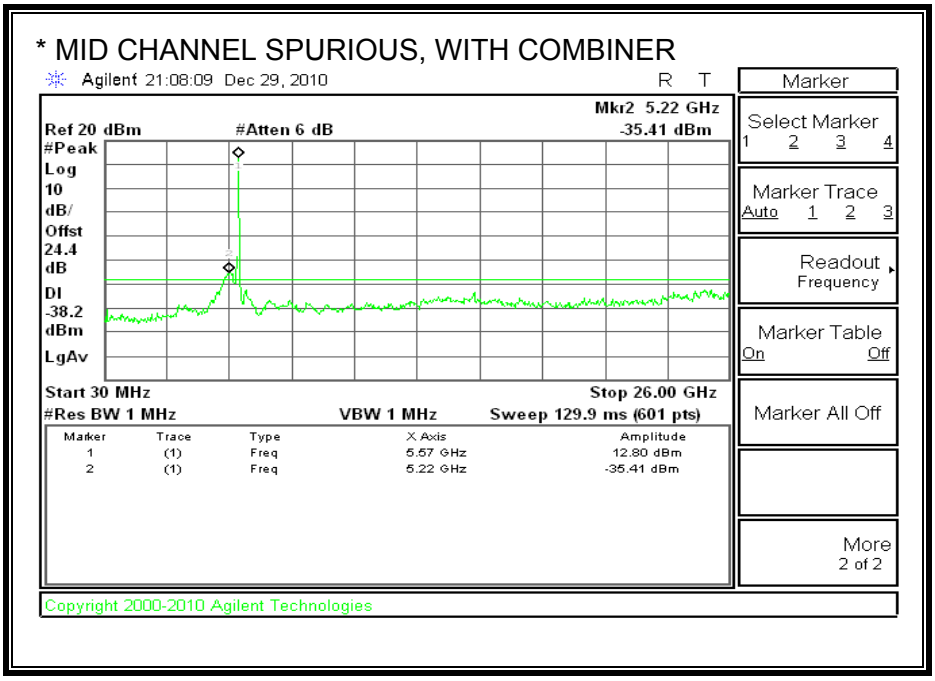
Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

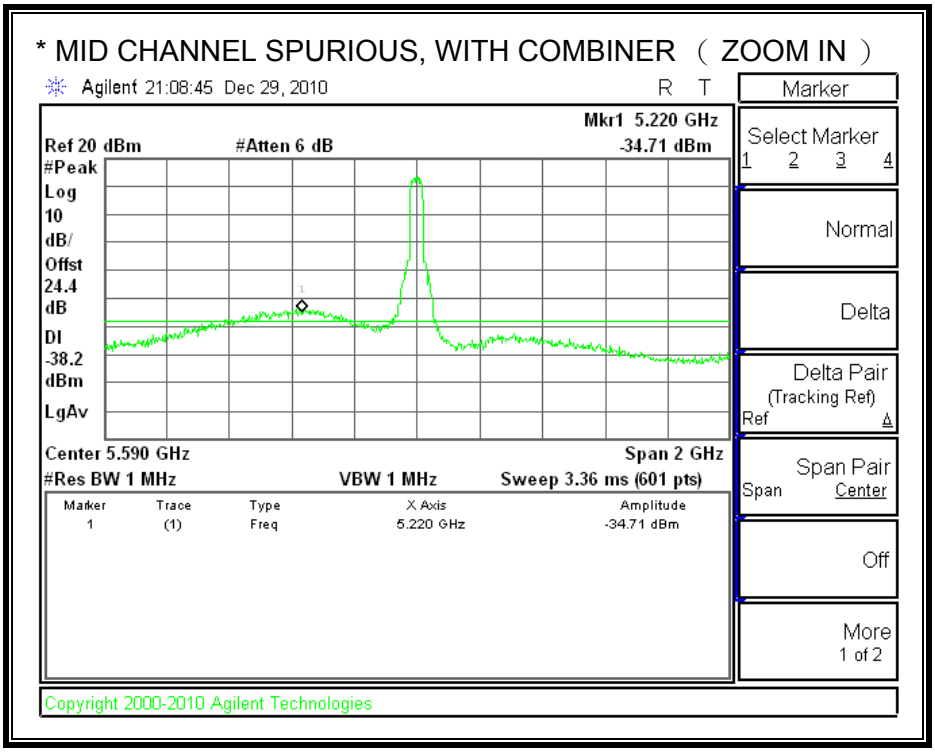
RESULTS

SPURIOUS EMISSIONS WITH COMBINER





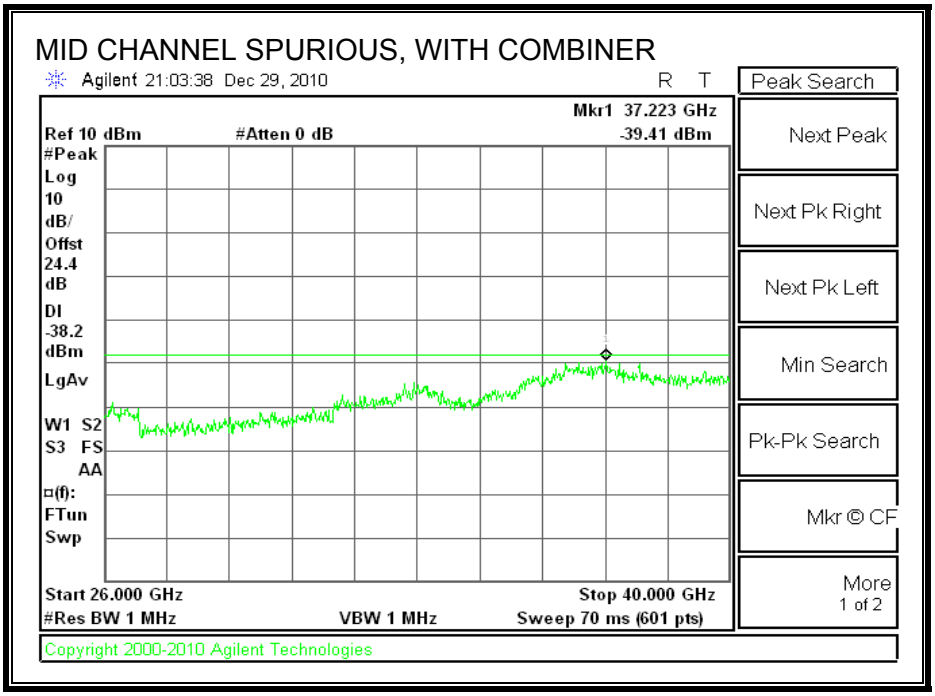


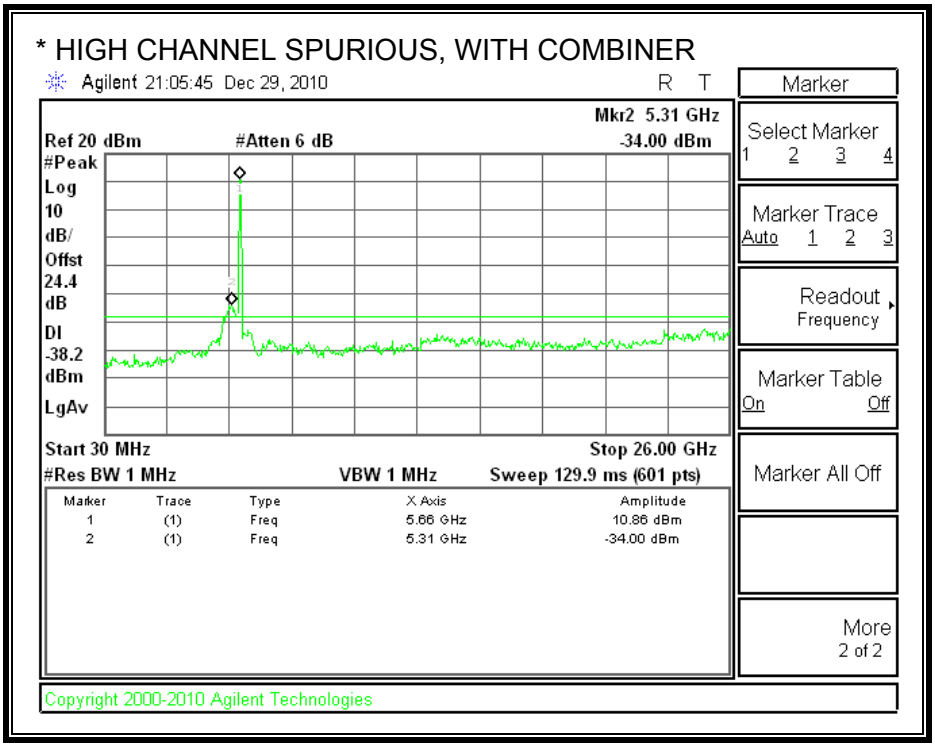


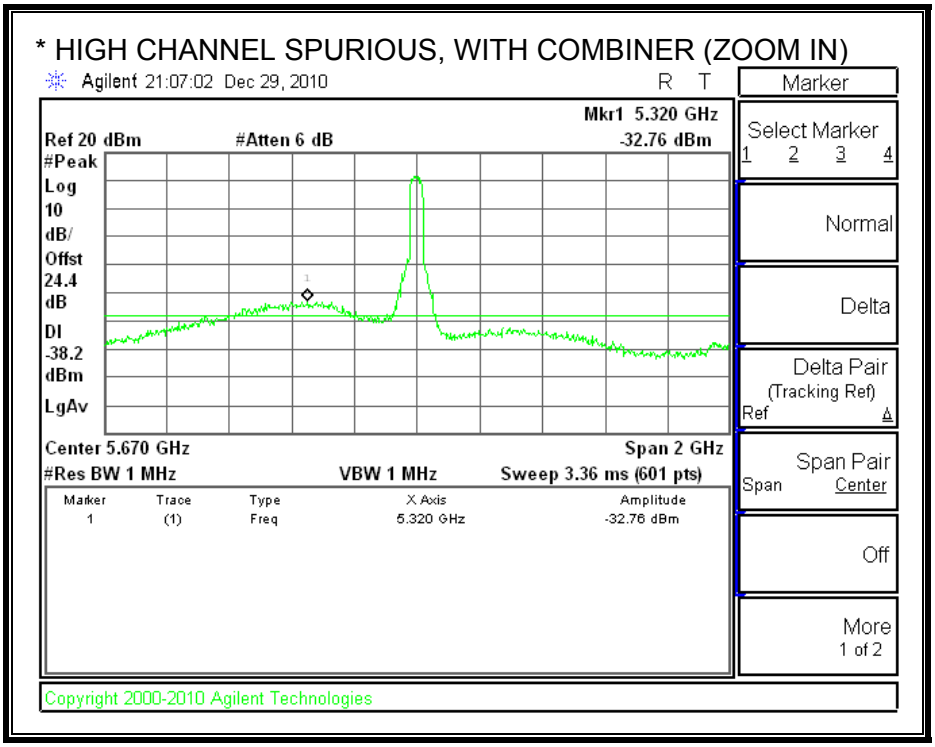
* Passed with EIRP Radiated Substitution

f MHz	SG reading (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Ant. Pol. (H/V)
5431	-38.0	1.2	11.0	-28.2	-27.0	-1.2	V
5431	-46.0	1.2	11.0	-35.0	-27.0	-8.0	H

MID CHANNEL SPURIOUS, WITH COMBINER



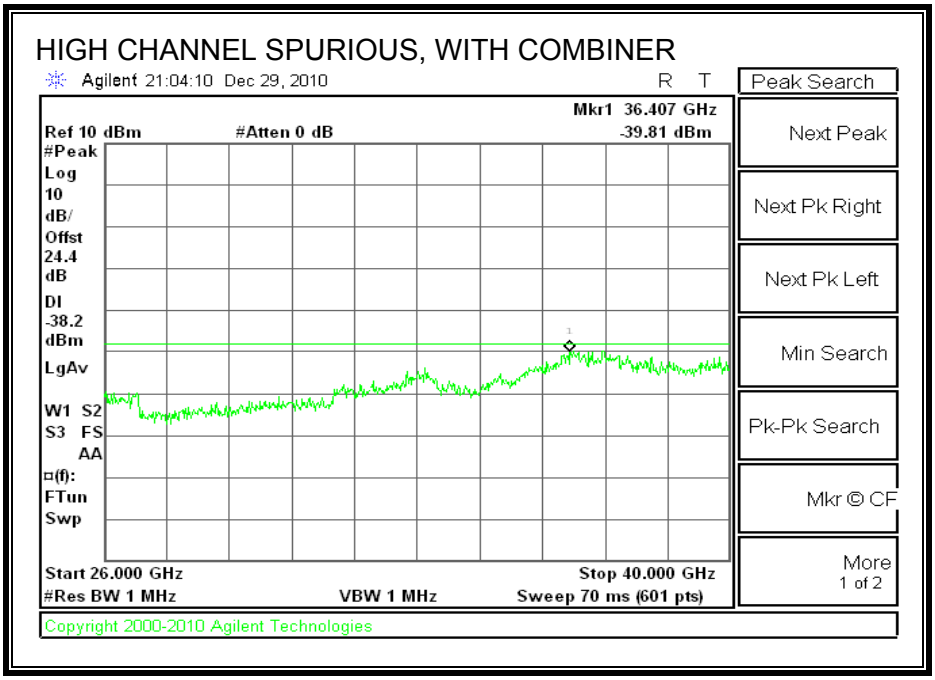




* Passed with EIRP Radiated Substitution

f MHz	SG reading (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Ant. Pol. (H/V)
5431	-38.0	1.2	11.0	-28.2	-27.0	-1.2	V
5431	-46.0	1.2	11.0	-35.0	-27.0	-8.0	H

HIGH CHANNEL SPURIOUS, WITH COMBINER



SDM MCS21

7.13.6. 26 dB and 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

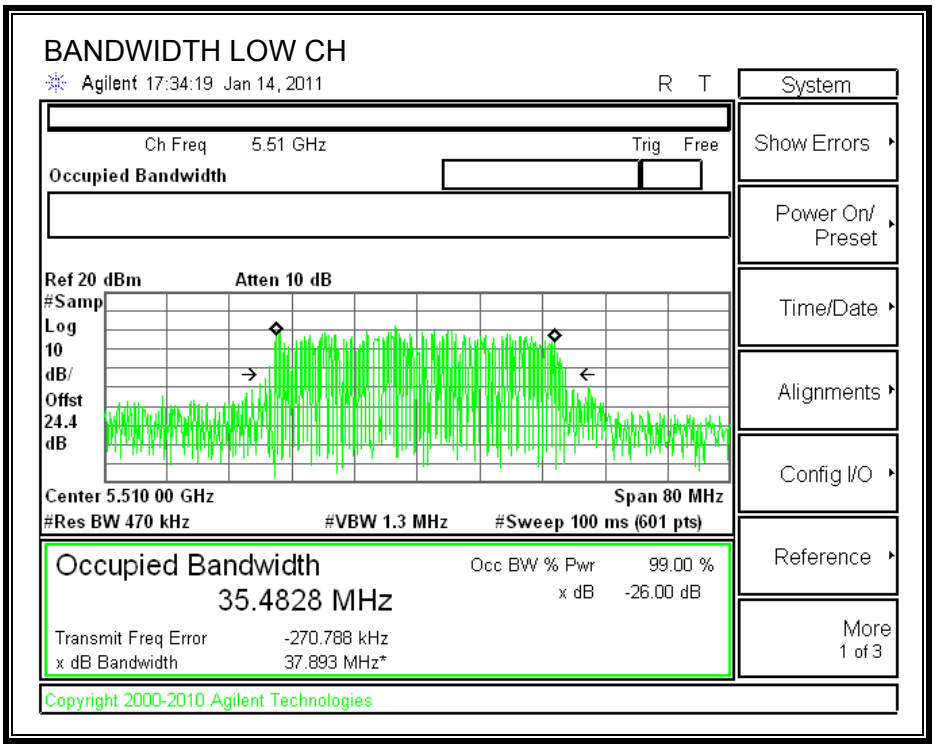
TEST PROCEDURE

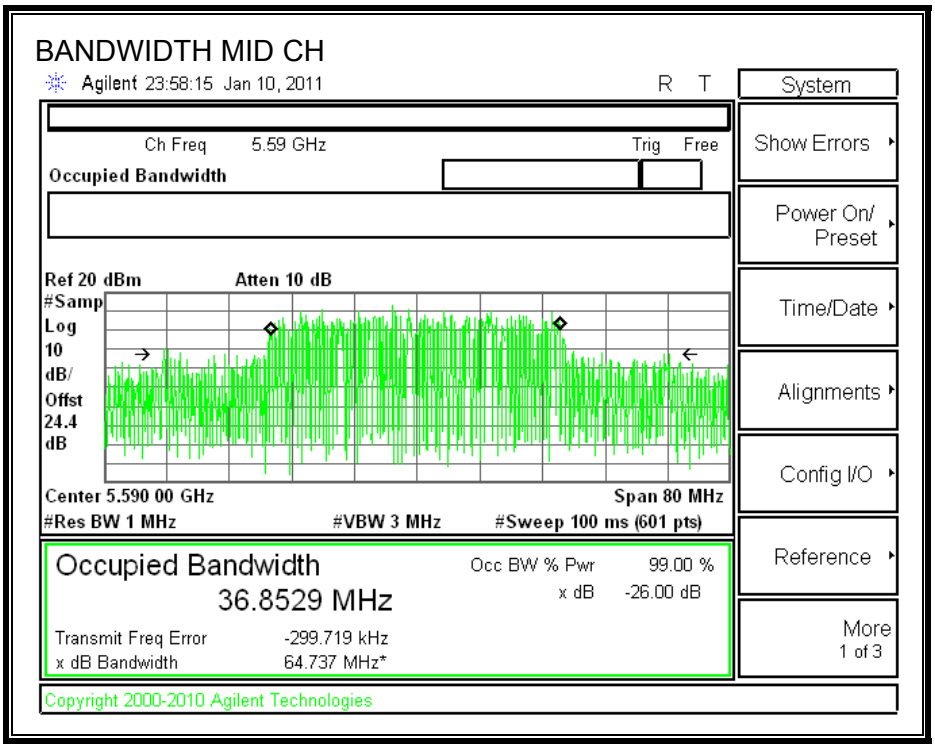
The transmitter outputs are connected to the spectrum analyzer via a combiner. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

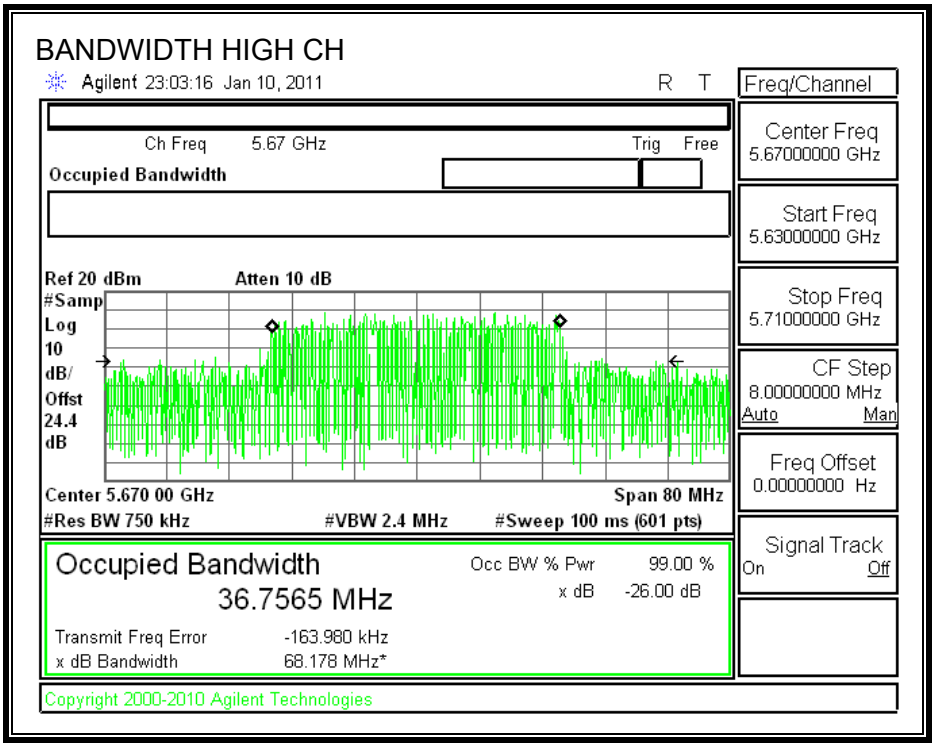
RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5510	37.893	35.4828
Middle	5590	64.737	36.8529
High	5670	68.178	36.7565

26 dB and 99% BANDWIDTH







7.13.7. OUTPUT POWER

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.47-5.725 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

RESULTS

Limit

Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	11 + 10 Log B Limit (dBm)	Antenna Gain (dBi)	Limit (dBm)
Low	5510	23.98	37.893	26.79	7.06	22.92
Mid	5590	23.98	64.737	29.11	7.06	22.92
High	5670	23.98	68.178	29.34	7.06	22.92

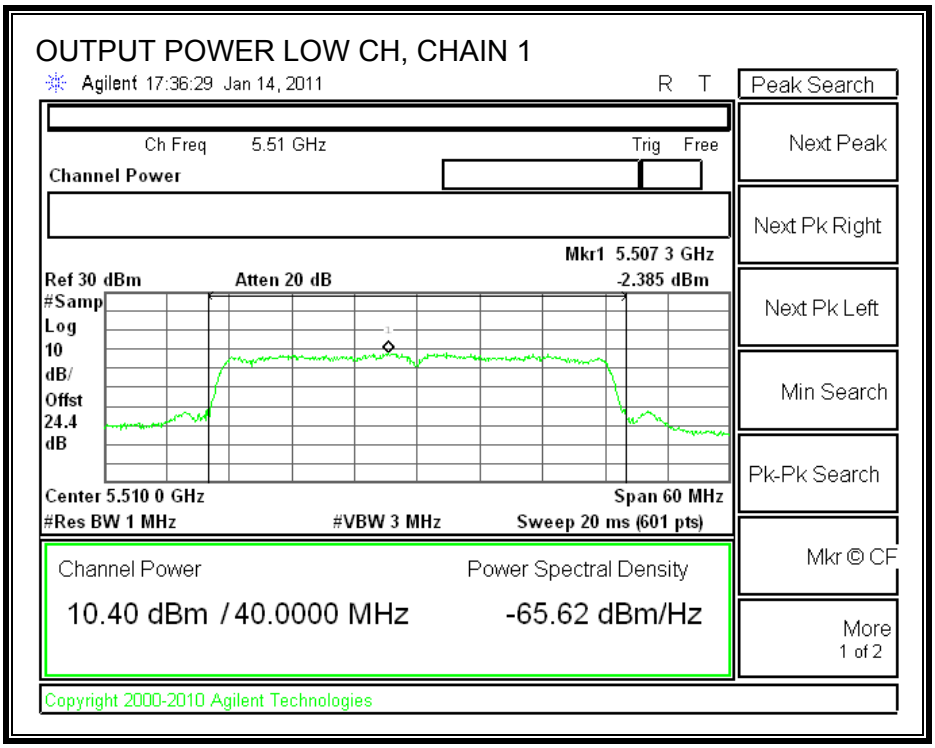
Individual Chain Results

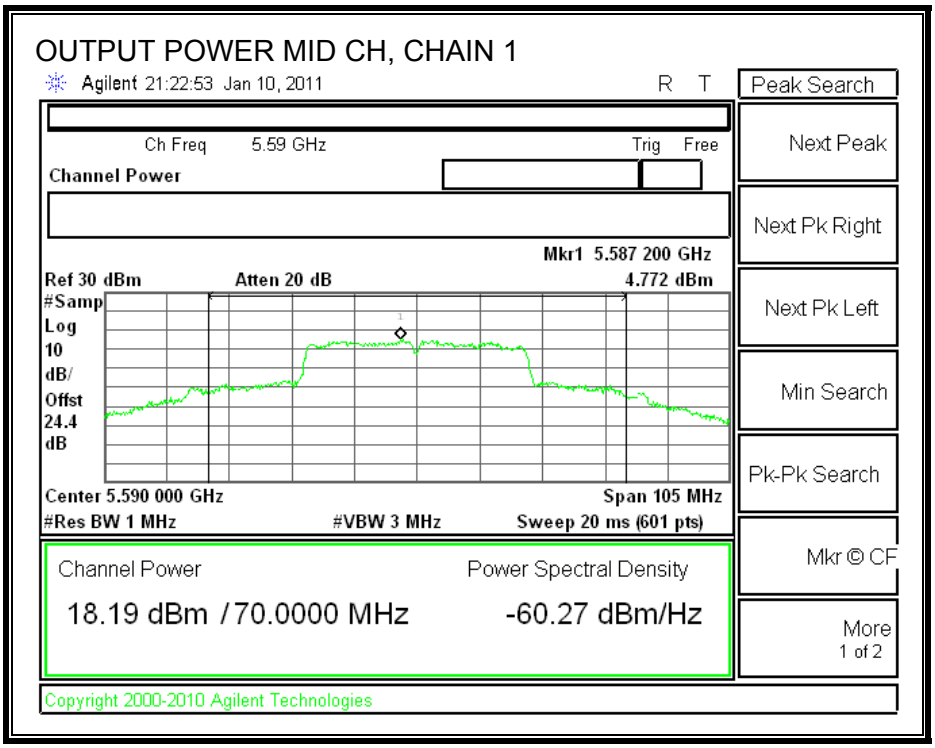
Channel	Frequency (MHz)	Chain 1 Power (dBm)	Chain 2 Power (dBm)	Chain 3 Power (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	5510	10.40	11.00	10.58	15.44	22.92	-7.48
Mid	5590	18.19	18.08	18.09	22.89	22.92	-0.03
High	5670	17.01	18.44	18.31	22.74	22.92	-0.18

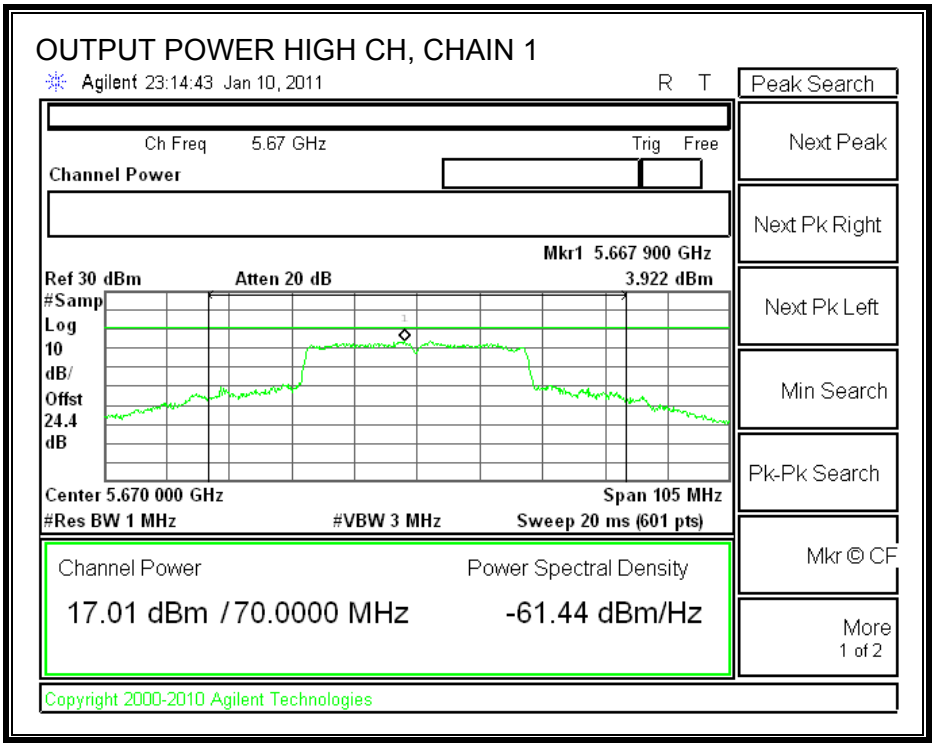
TPC Results

TPC Delta Power		Chain 0	Chain 1	Chain 2			
		5.38	7.00	5.78			
Worst-case TPC Power		Chain 0	Chain 1	Chain 2	Total Power	Ant Gain	EIRP
Mid	5590	12.81	11.08	12.31	16.90	7.06	23.96
						TPC Limit (dBm)	24
						Margin (dB)	-0.04

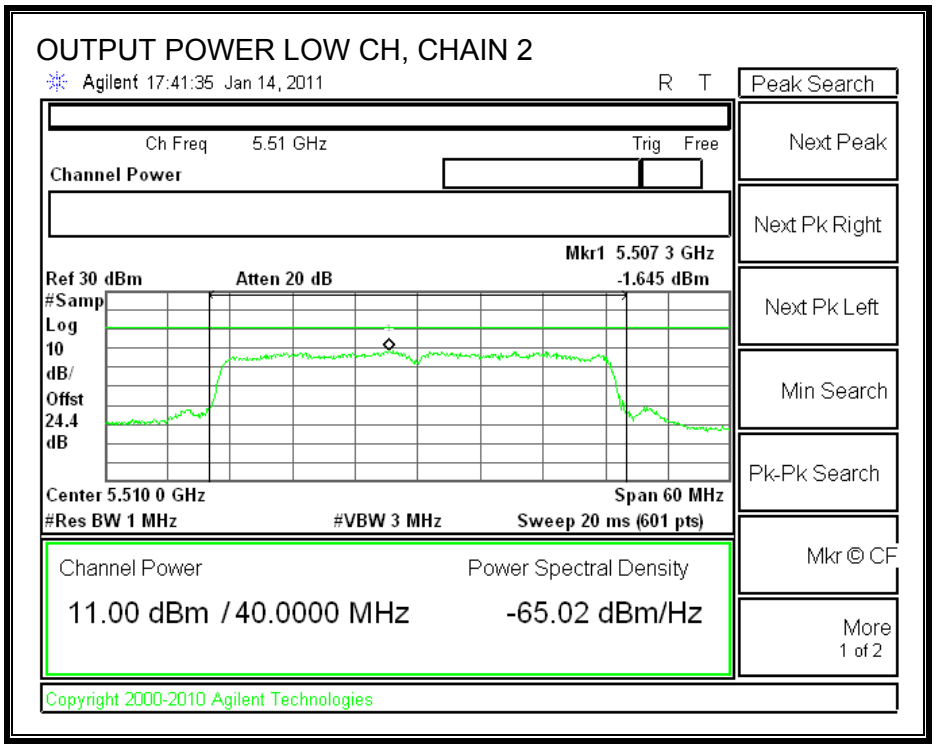
CHAIN 1 OUTPUT POWER



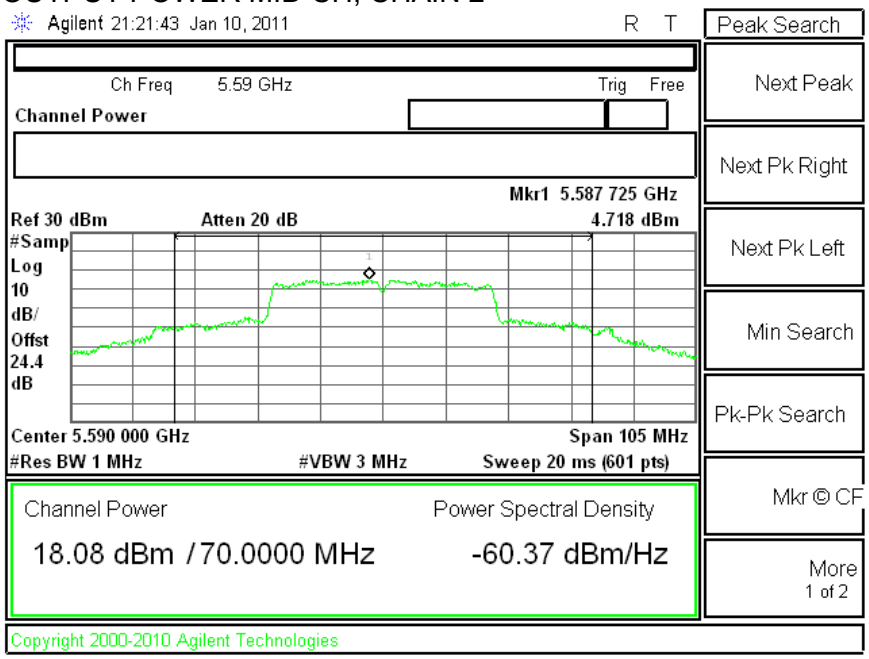




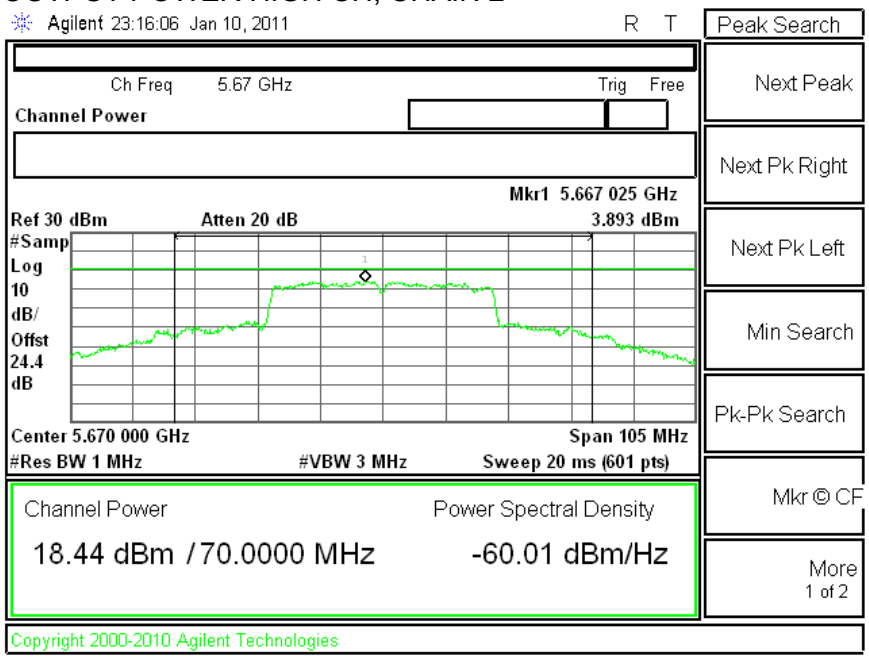
CHAIN 2 OUTPUT POWER



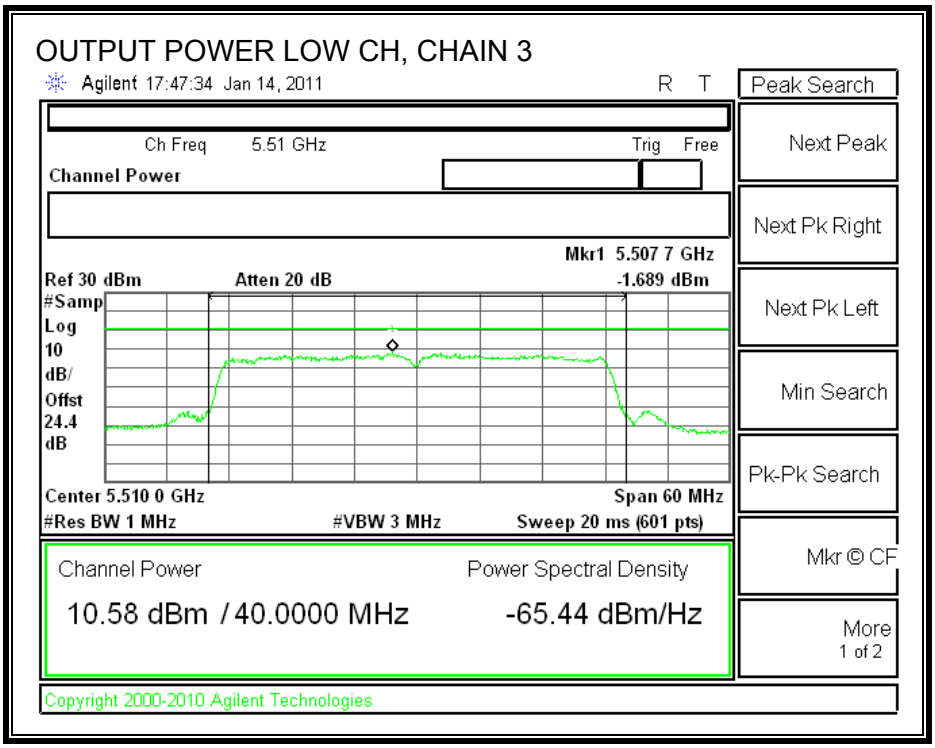
OUTPUT POWER MID CH, CHAIN 2

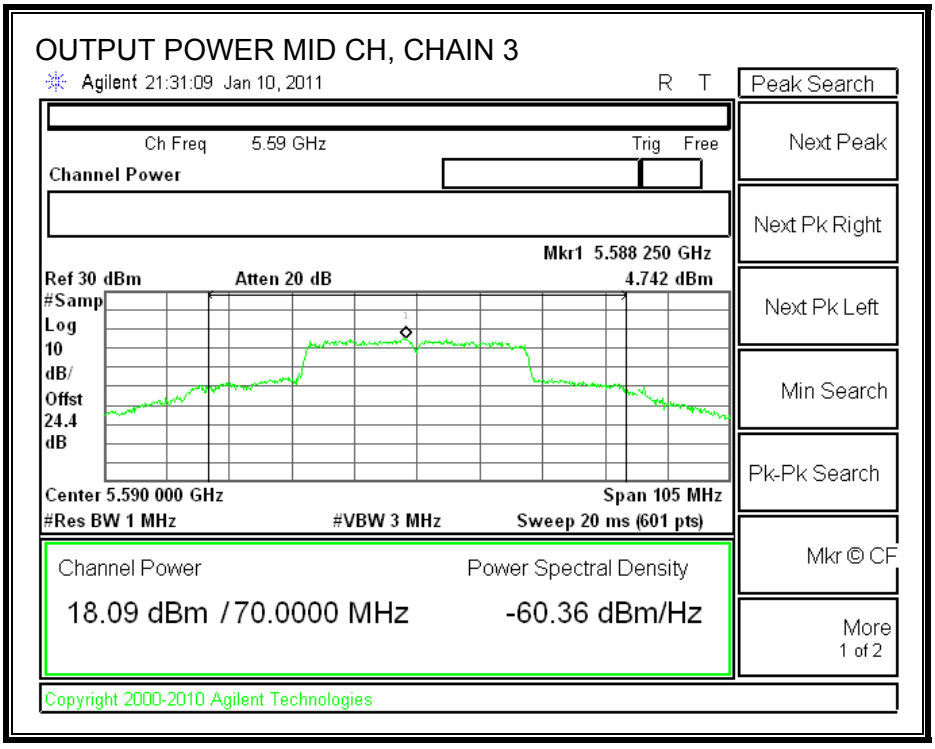


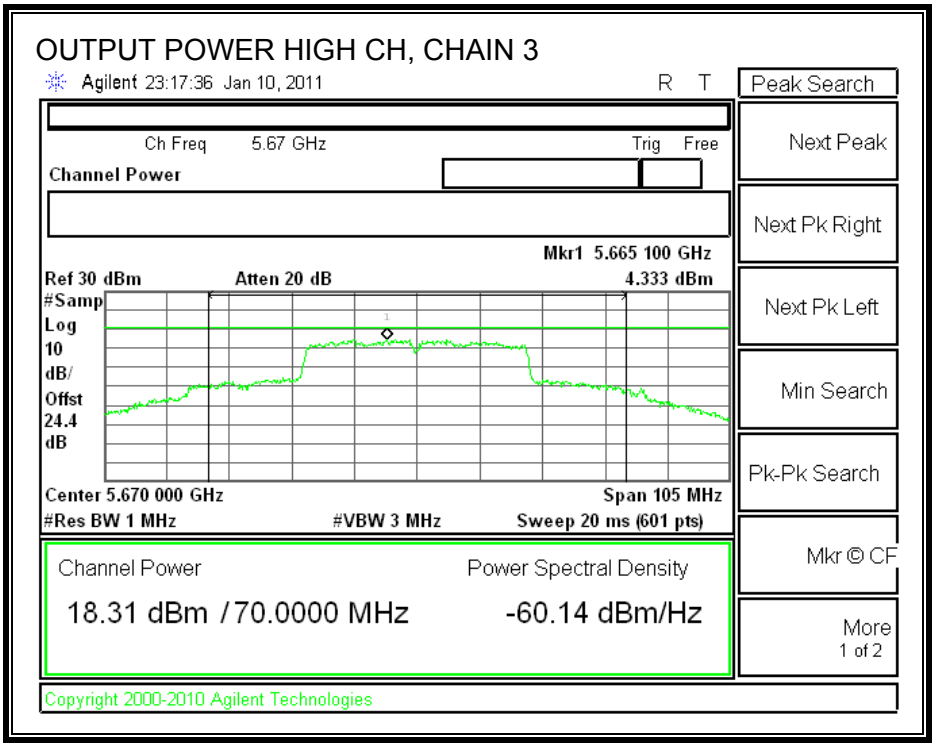
OUTPUT POWER HIGH CH, CHAIN 2



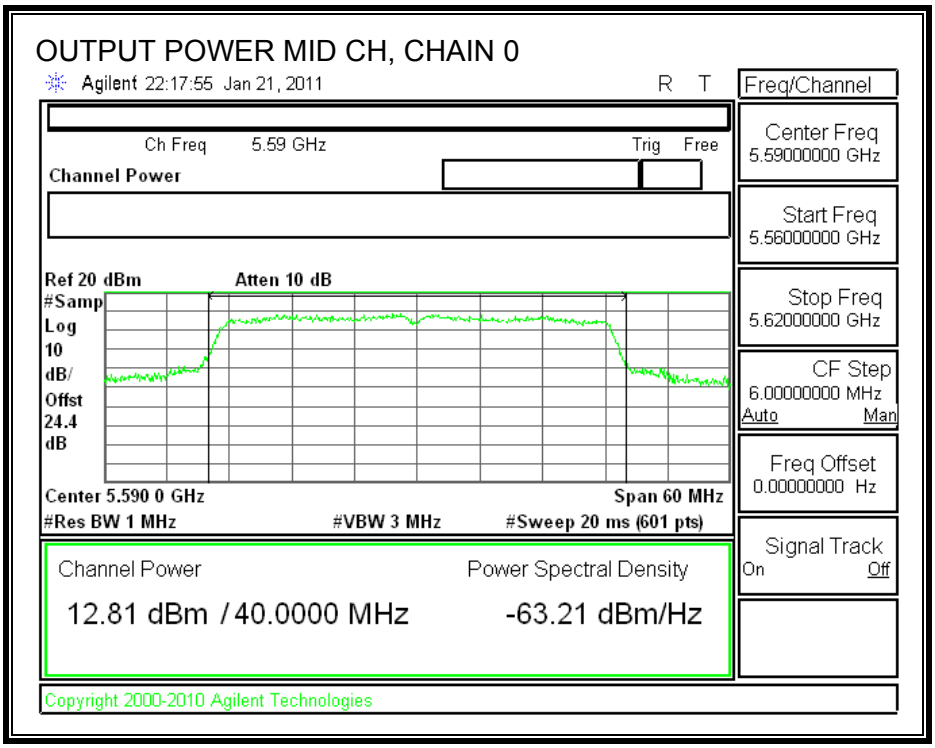
CHAIN 3 OUTPUT POWER

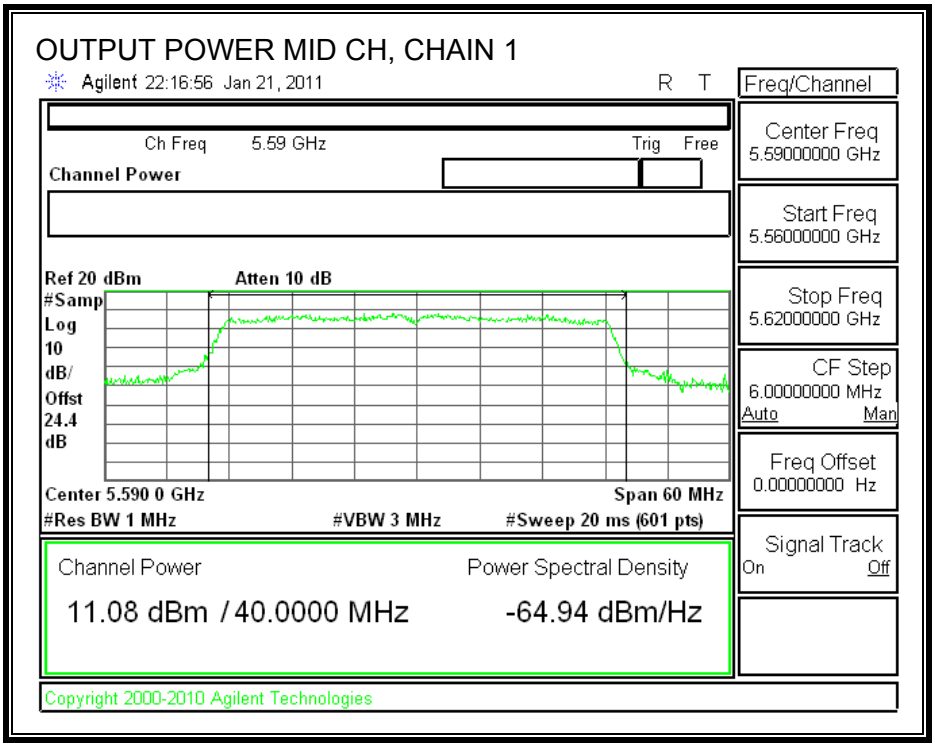


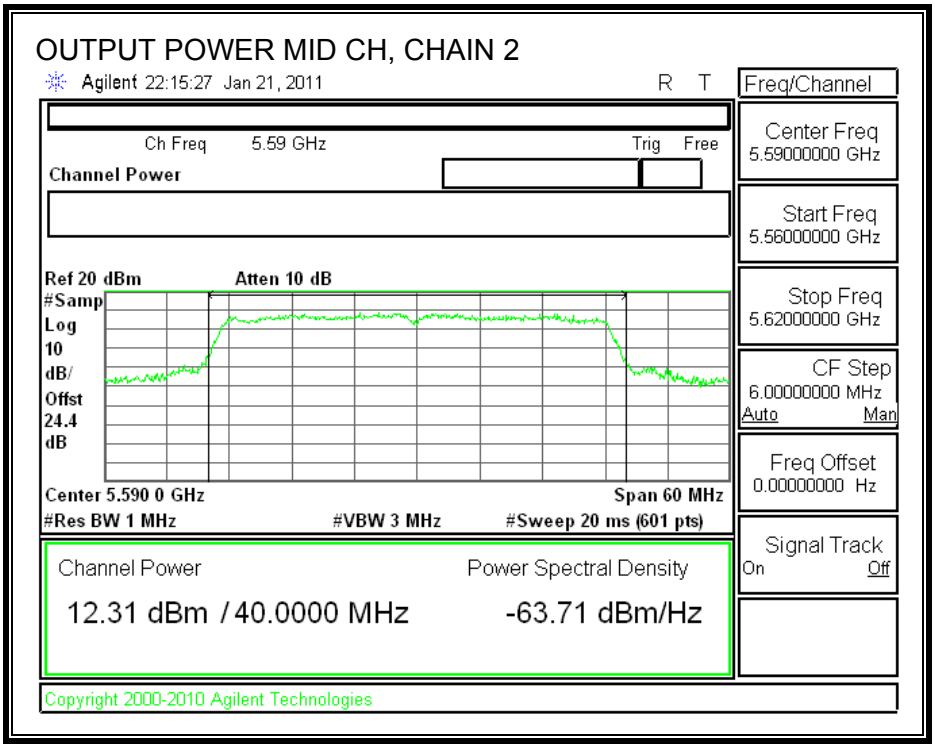




TPC OUTPUT POWER







7.13.8. PEAK POWER SPECTRAL DENSITY

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.47-5.725 GHz band, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is 7.06 dBi, therefore the limit is9.94 dBm.

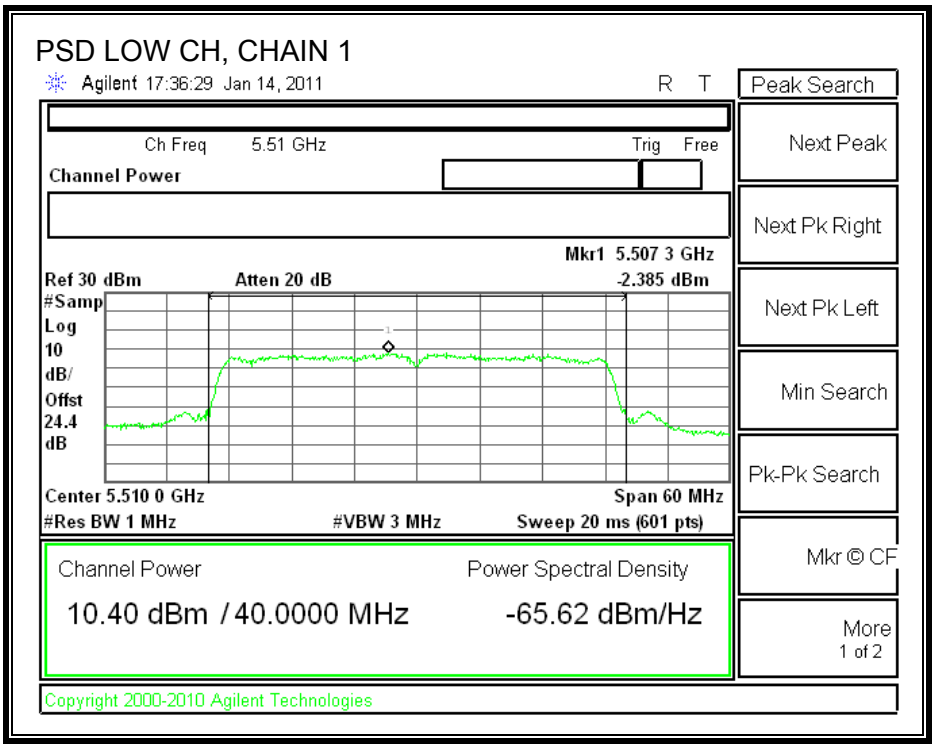
TEST PROCEDURE

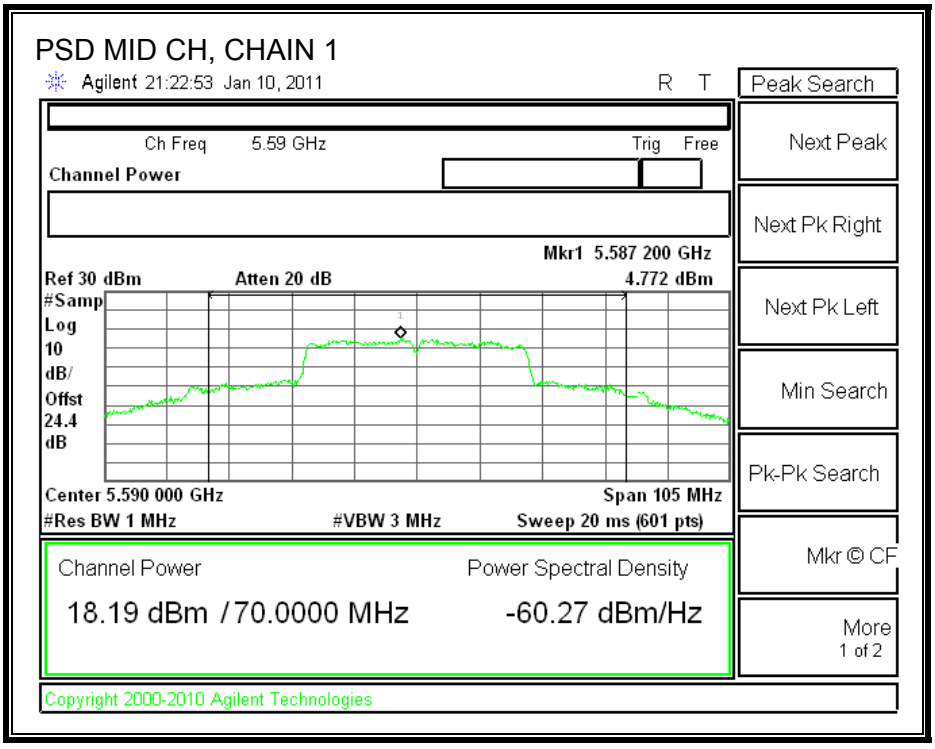
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. PPSD method #2 was used.

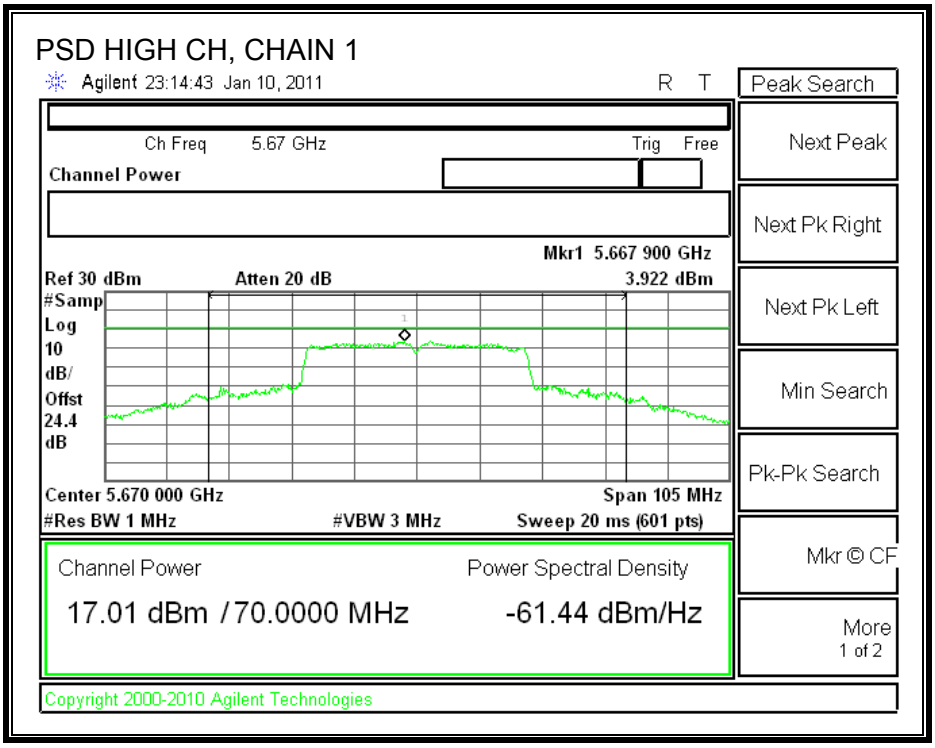
RESULTS

Channel	Frequency (MHz)	Chain 1 PPSD (dBm)	Chain 2 PPSD (dBm)	Chain 3 PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	5510	-2.385	-1.645	-1.689	2.88	10	-7.06
Middle	5590	4.772	4.718	4.742	9.52	10	-0.42
High	5670	3.922	3.893	4.333	8.83	10	-1.11

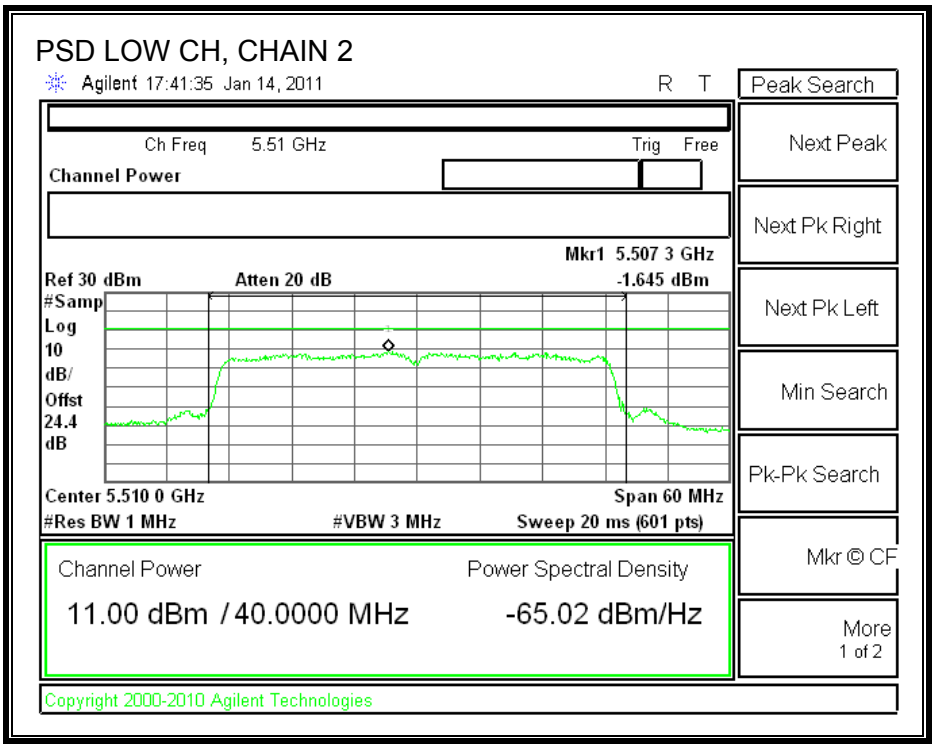
CHAIN 1 POWER SPECTRAL DENSITY



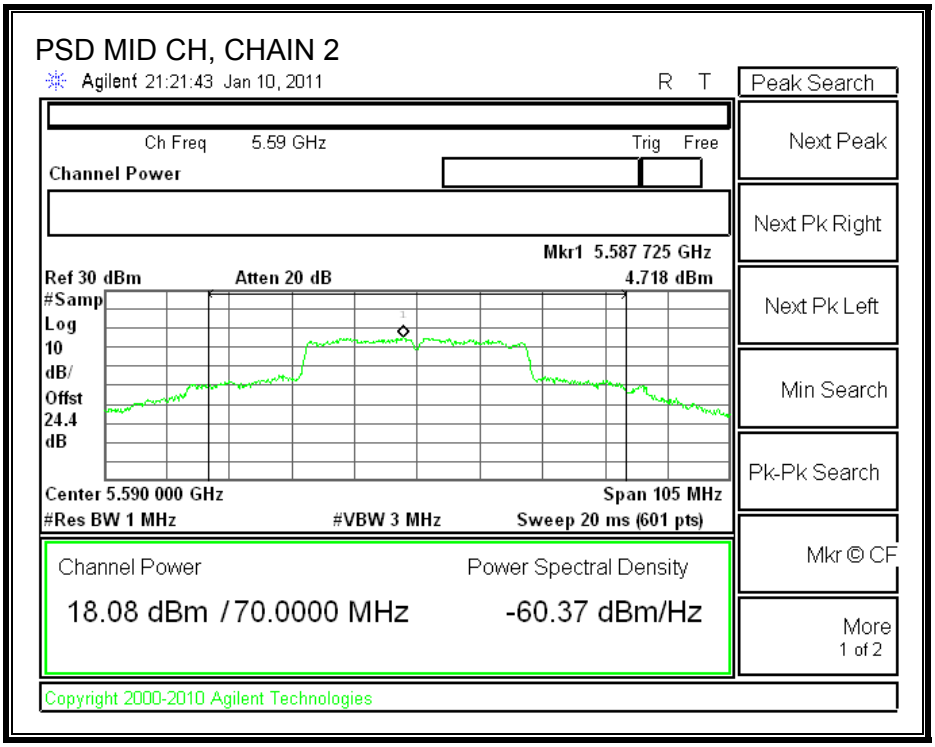




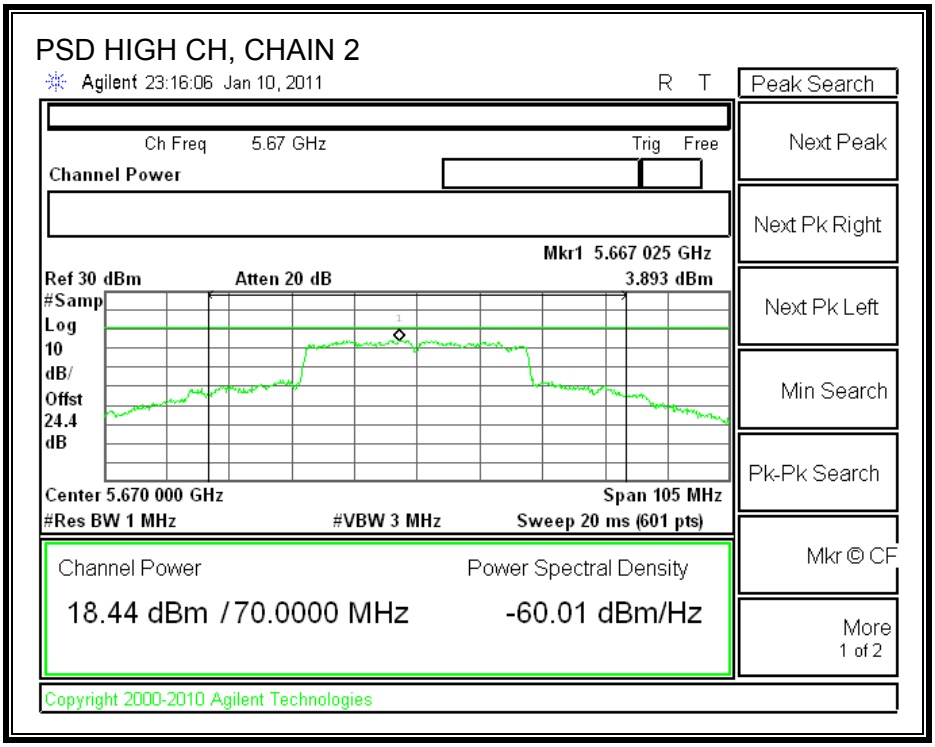
CHAIN 2 POWER SPECTRAL DENSITY



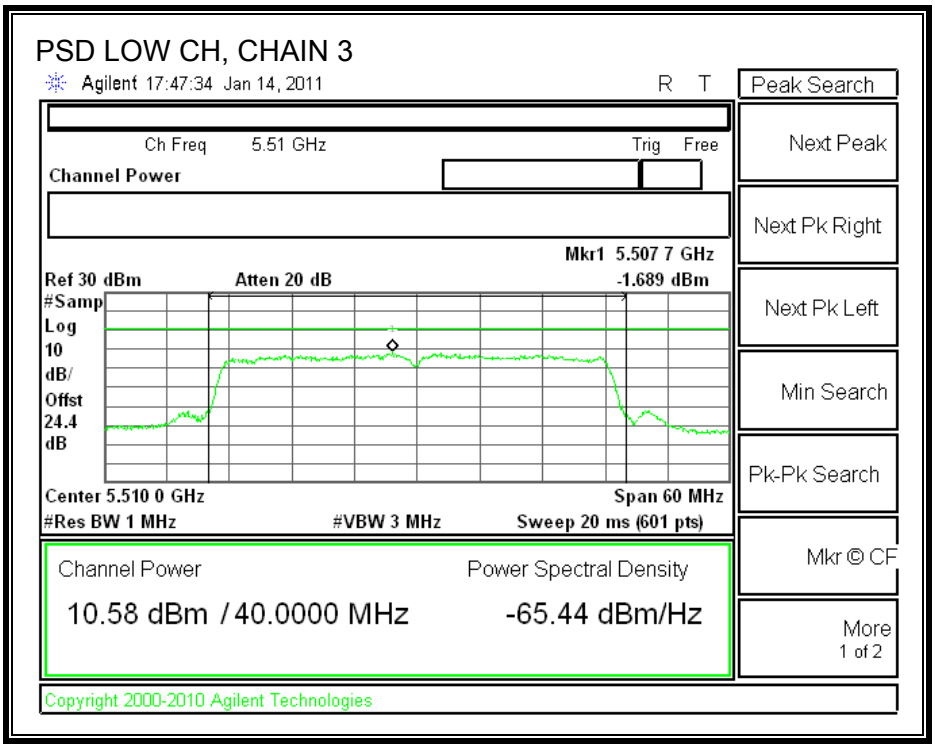
PSD MID CH, CHAIN 2

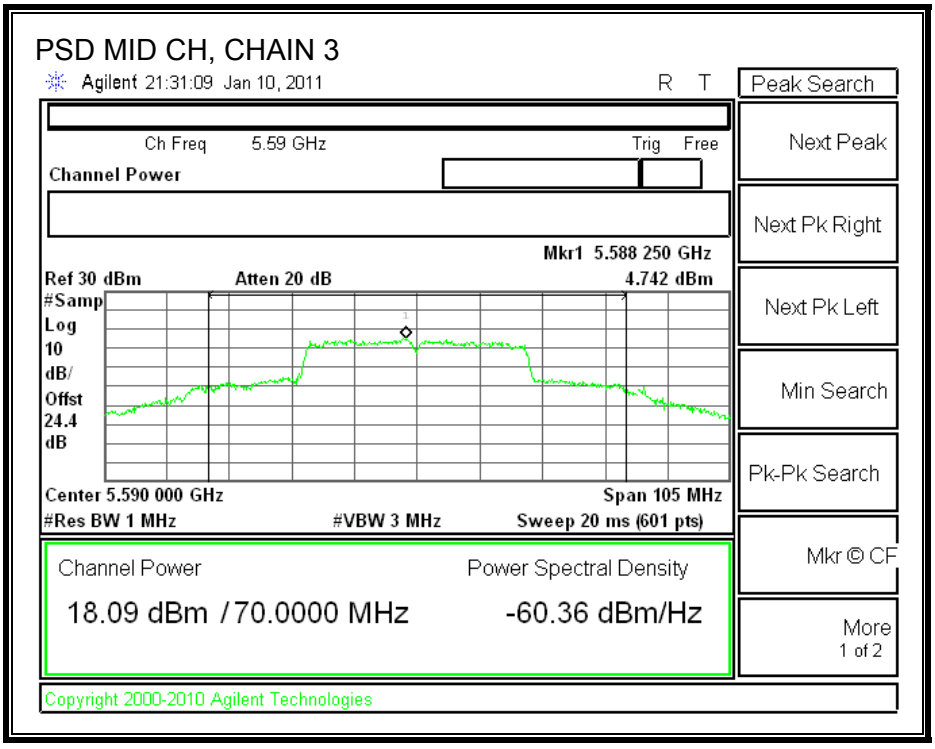


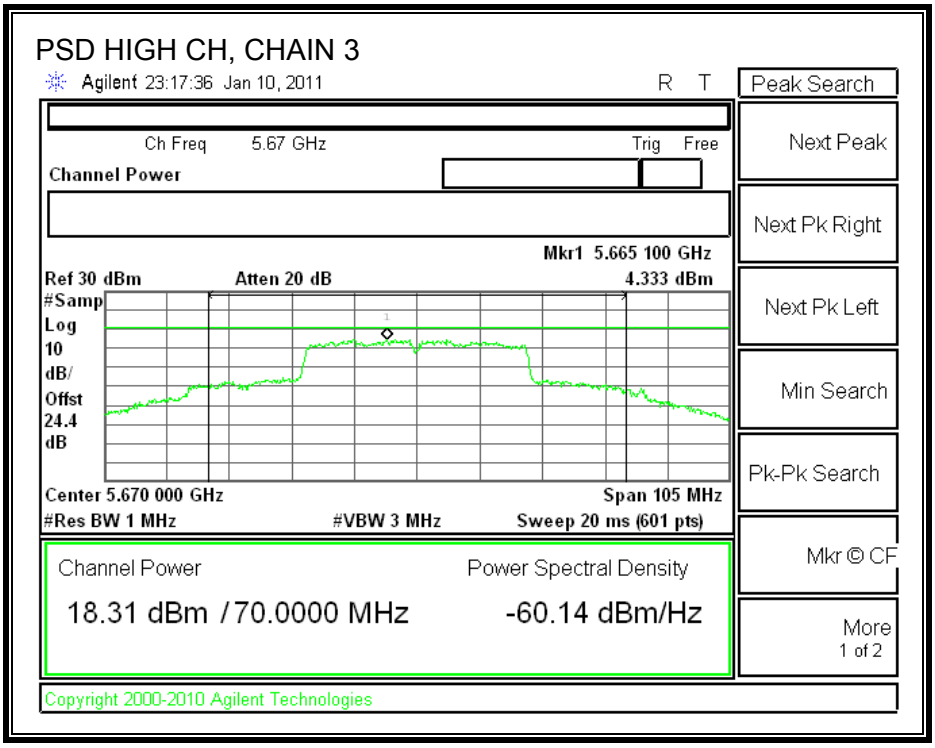
PSD HIGH CH, CHAIN 2



CHAIN 3 POWER SPECTRAL DENSITY







7.13.9. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner.

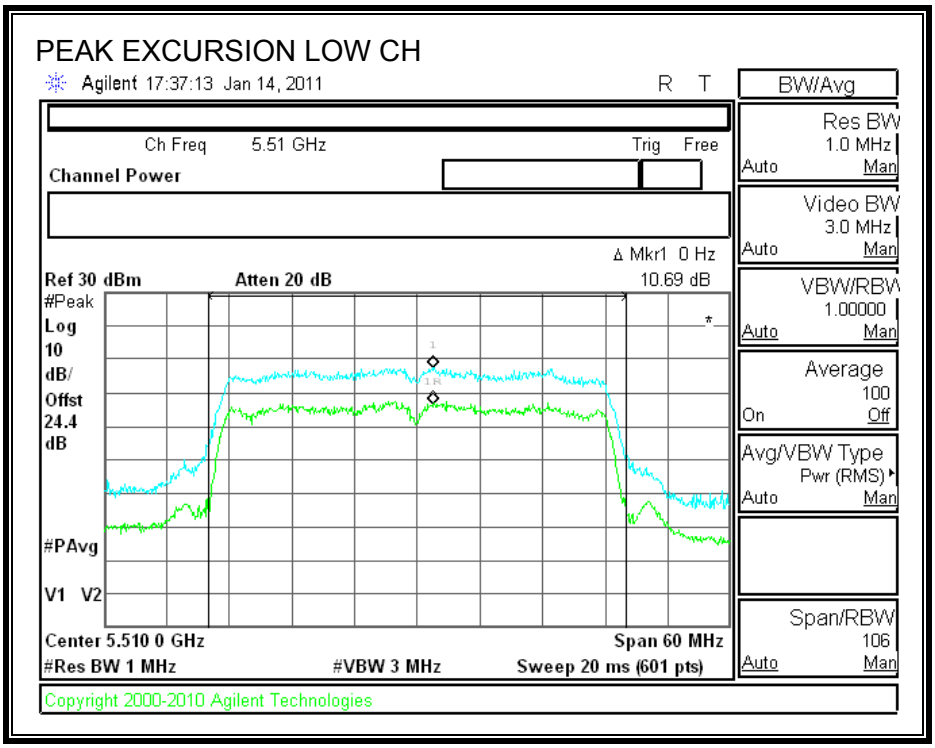
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

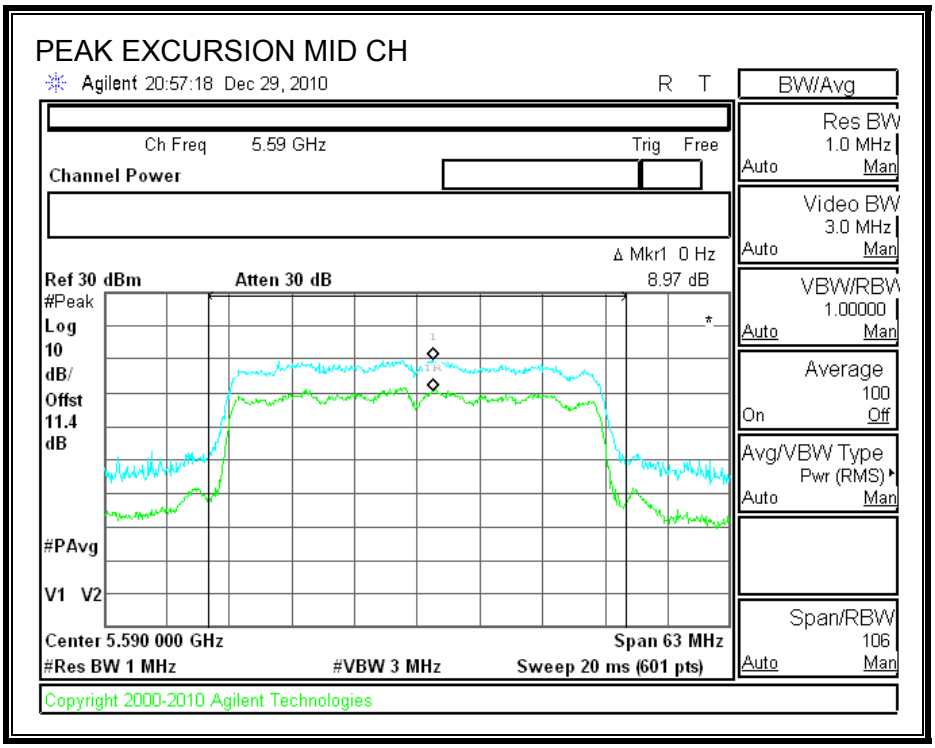
Since Method # 1 was used for peak power measurements, Method # 1 settings are used for the second PPSD trace.

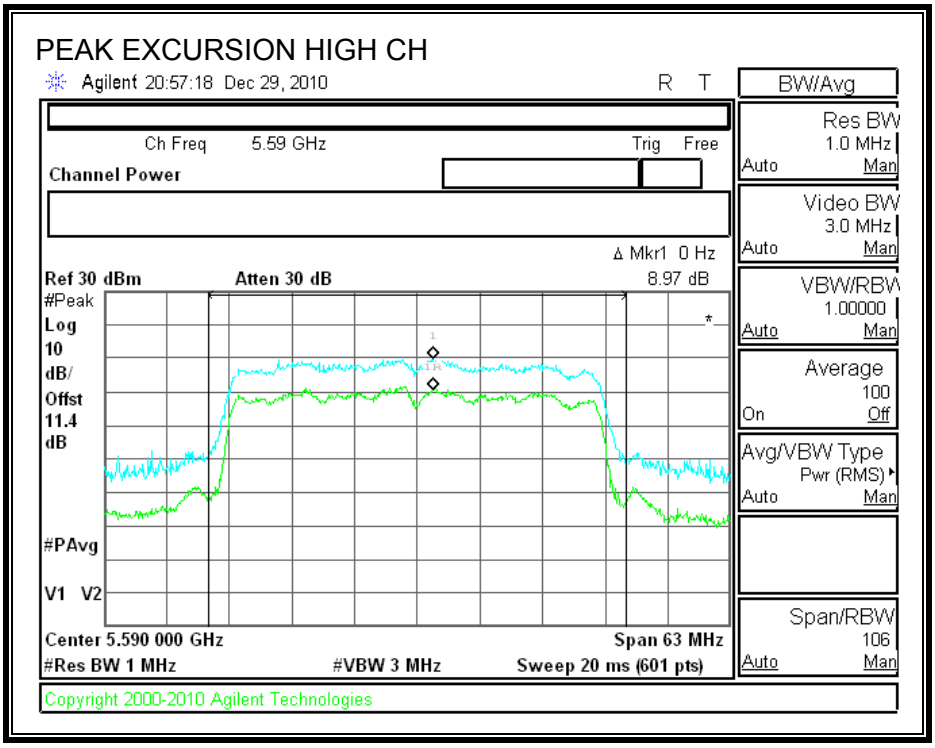
RESULTS

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5510	10.69	13	-2.31
Middle	5590	8.97	13	-4.03
High	5670	8.97	13	-4.03

PEAK EXCURSION







7.13.10. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.407 (b) (3)

IC RSS-210 A9.3 (3)

For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm / MHz.

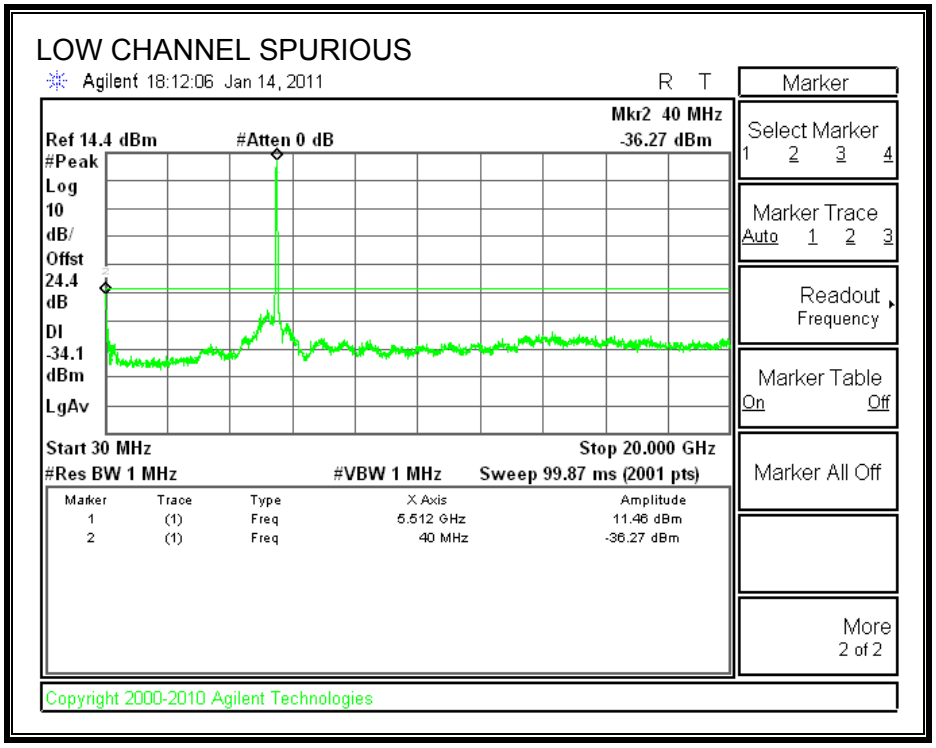
TEST PROCEDURE

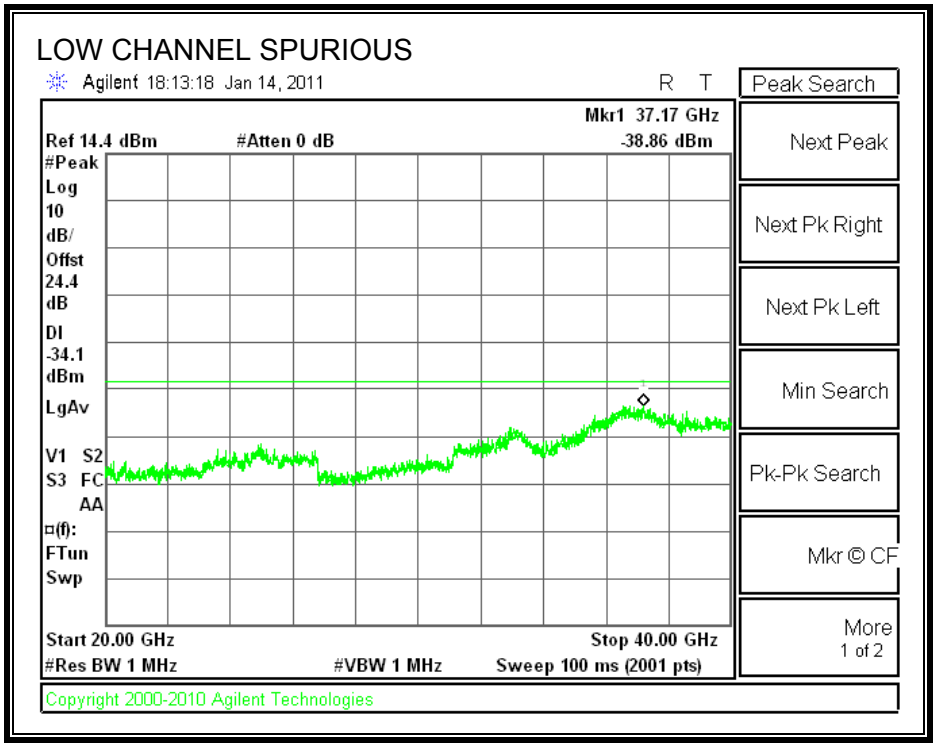
Conducted RF measurements of the transmitter output are made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

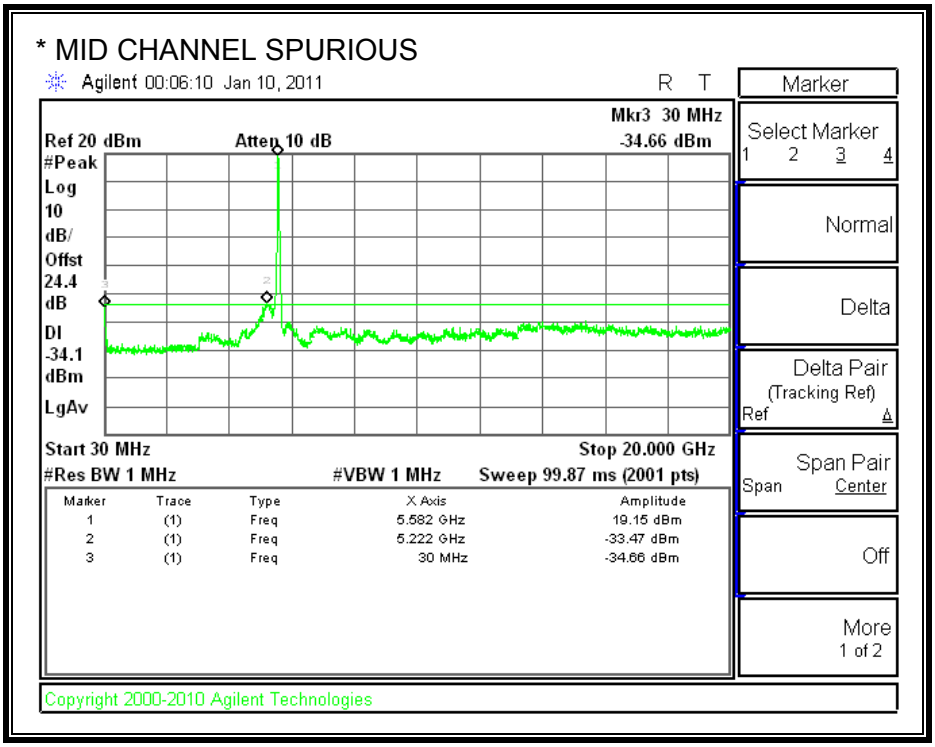
The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to EIRP limit, adjusted for the maximum antenna gain.

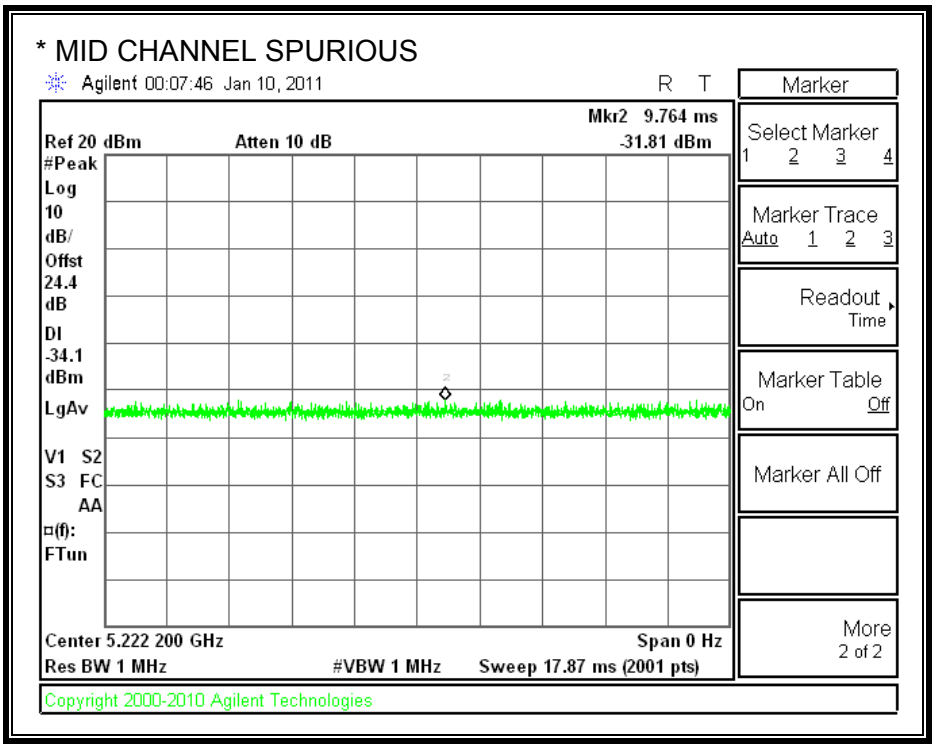
Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

SPURIOUS EMISSIONS WITH COMBINER



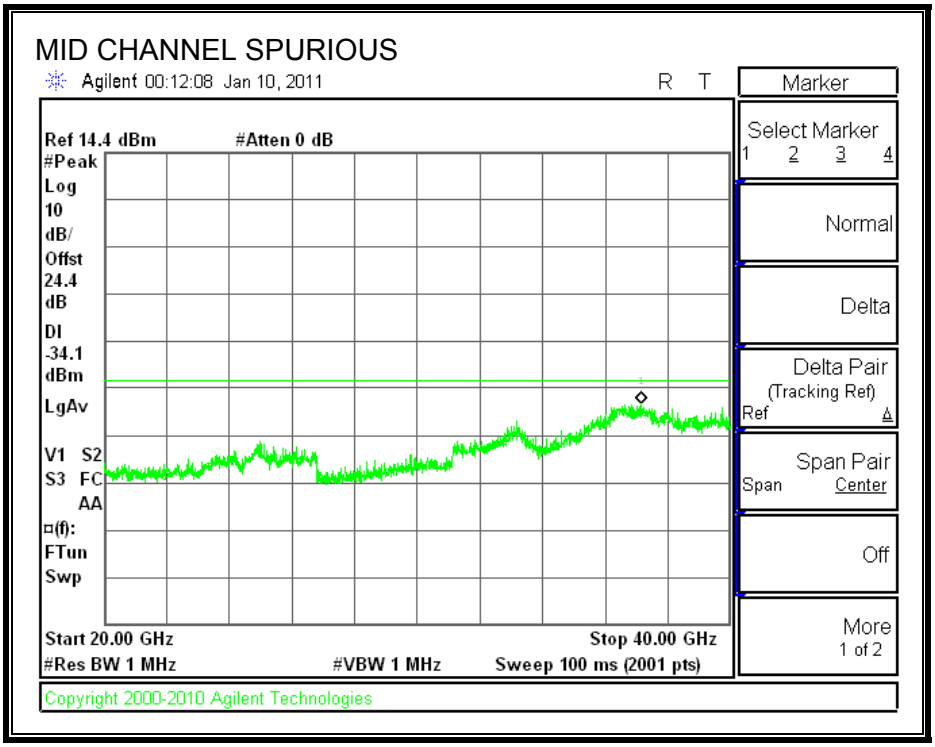


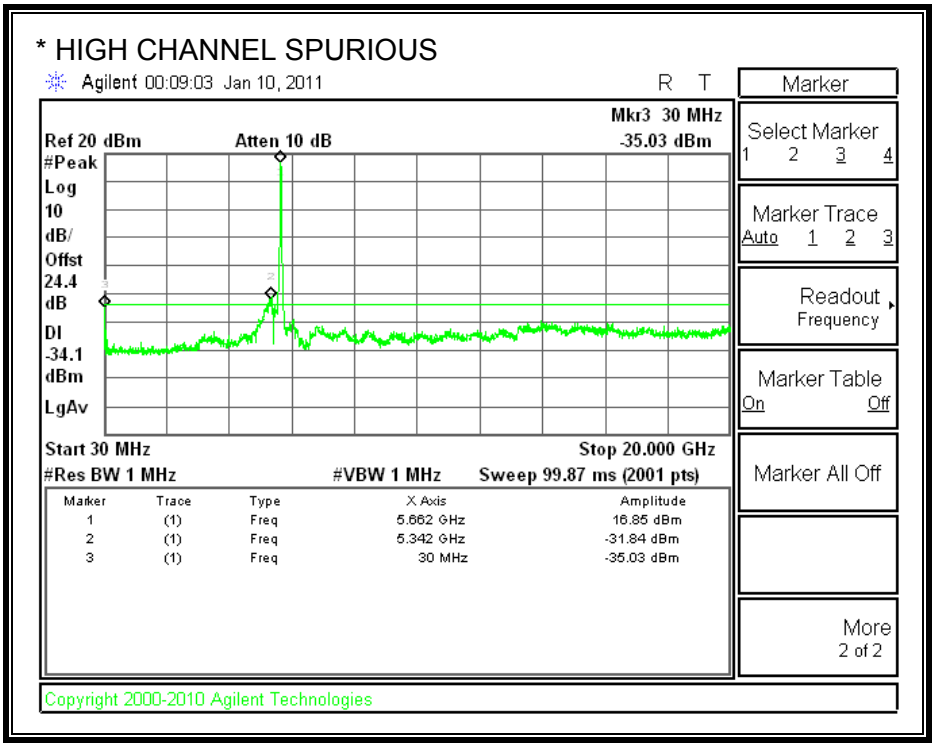


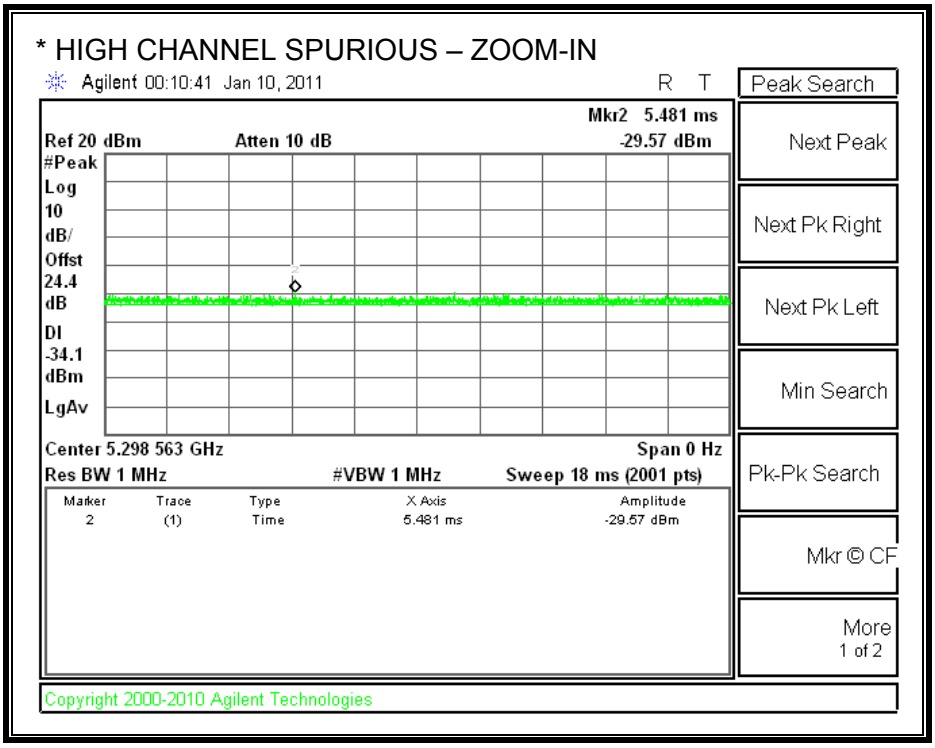


* Passed with EIRP Radiated Substitution

f MHz	SG reading (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Ant. Pol. (H/V)
5431	-38.0	1.2	11.0	-28.2	-27.0	-1.2	V
5431	-46.0	1.2	11.0	-35.0	-27.0	-8.0	H

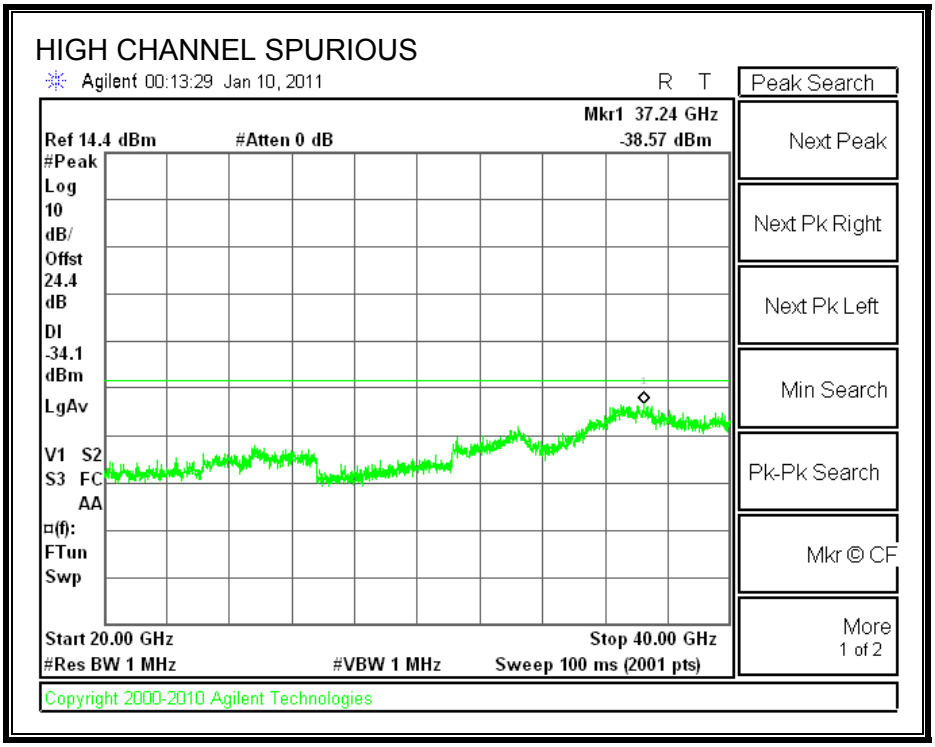






* Passed with EIRP Radiated Substitution

f MHz	SG reading (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Ant. Pol. (H/V)
5431	-38.0	1.2	11.0	-28.2	-27.0	-1.2	V
5431	-46.0	1.2	11.0	-35.0	-27.0	-8.0	H



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 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each appplicable 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.

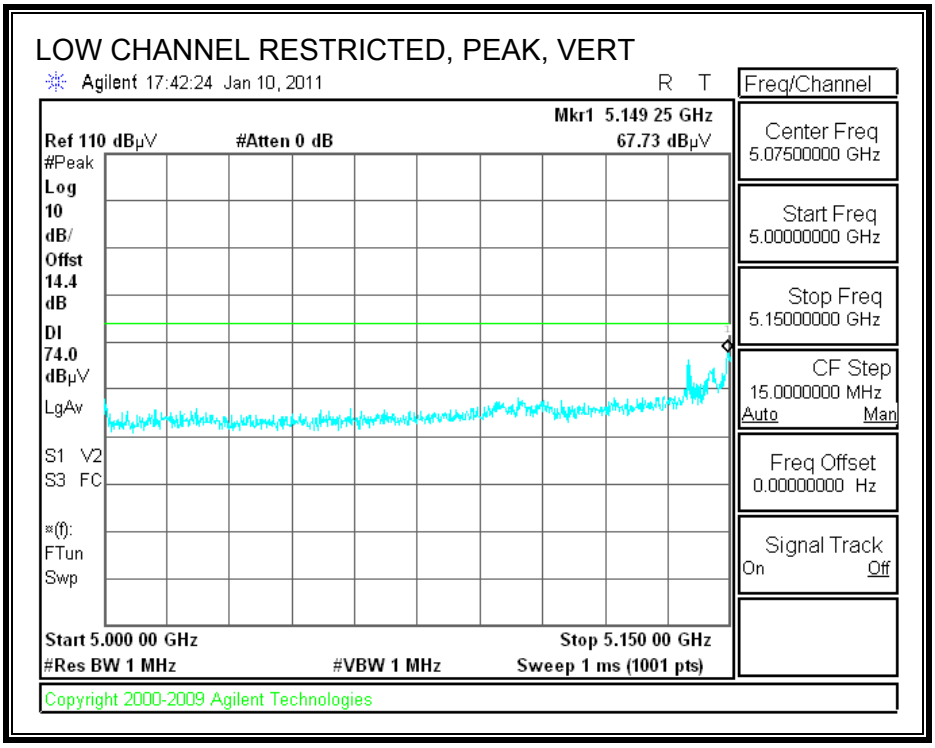
8.2. TRANSMITTER ABOVE 1 GHz

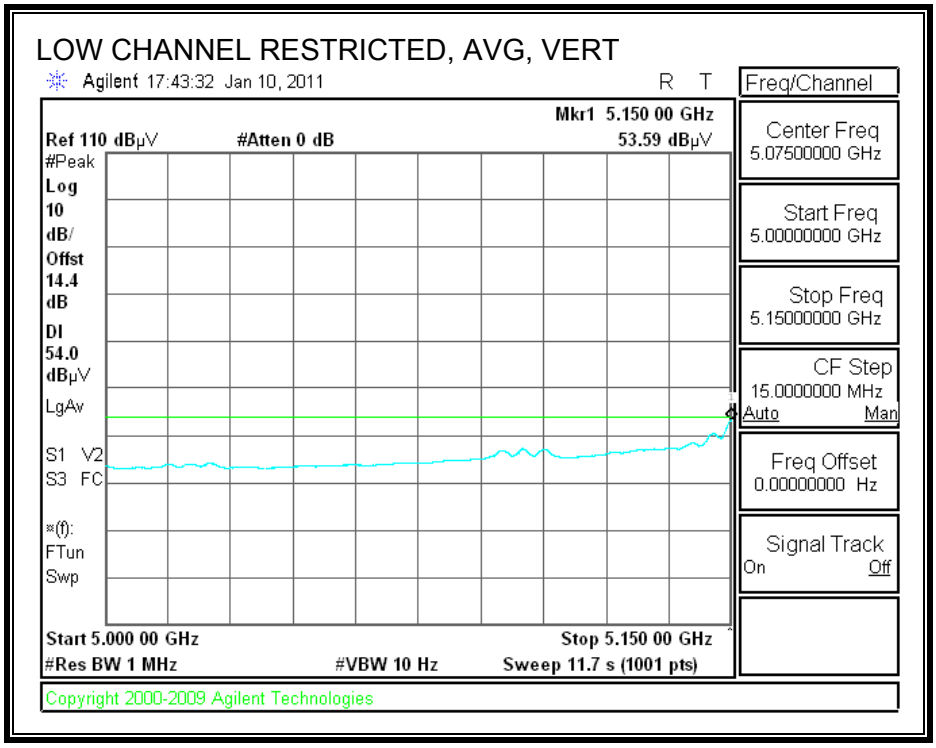
Except as shown by specific results below, all 20 MHz bandwidth modes not specificially referenced are covered by the HT20 3x3 CDD MCS0 mode, which was determined to be the worst case mode. HT20 3x3 CDD MCS0 radiated testing was performed at the highest, worst-case power of all modes covered by HT20 3x3 CDD MCS0 radiated test results.

Except as shown by specific results below, all 40 MHz bandwidth modes not specificially referenced are covered by the HT40 3x3 CDD MCS0 mode, which was determined to be the worst case mode. HT40 3x3 CDD MCS0 radiated testing was performed at the highest, worst-case power of all modes covered by HT40 3x3 CDD MCS0 radiated test results.

8.2.1. 802.11a MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



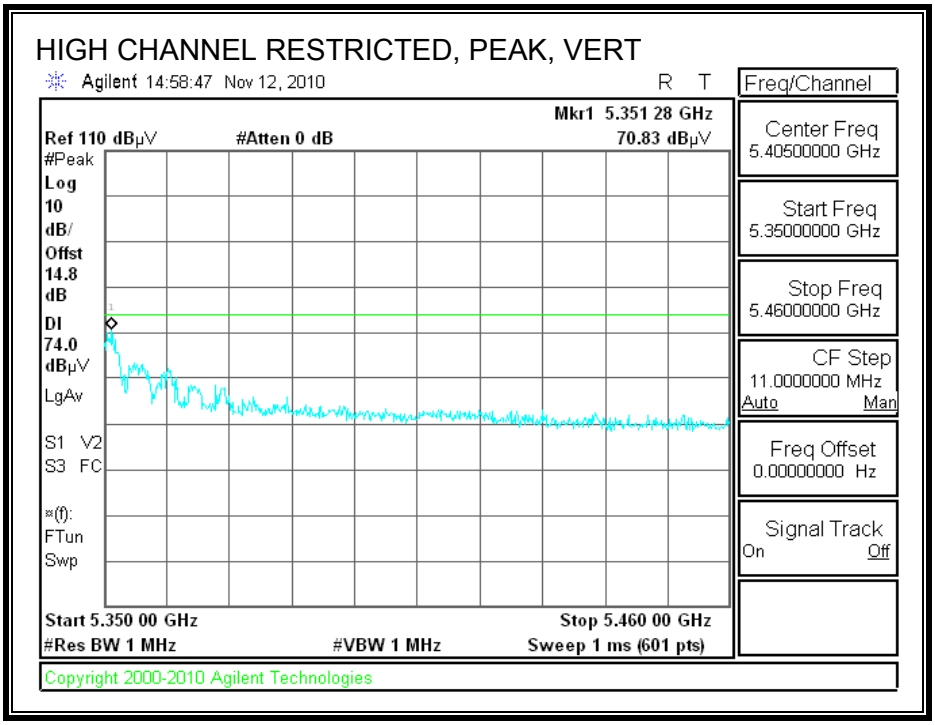


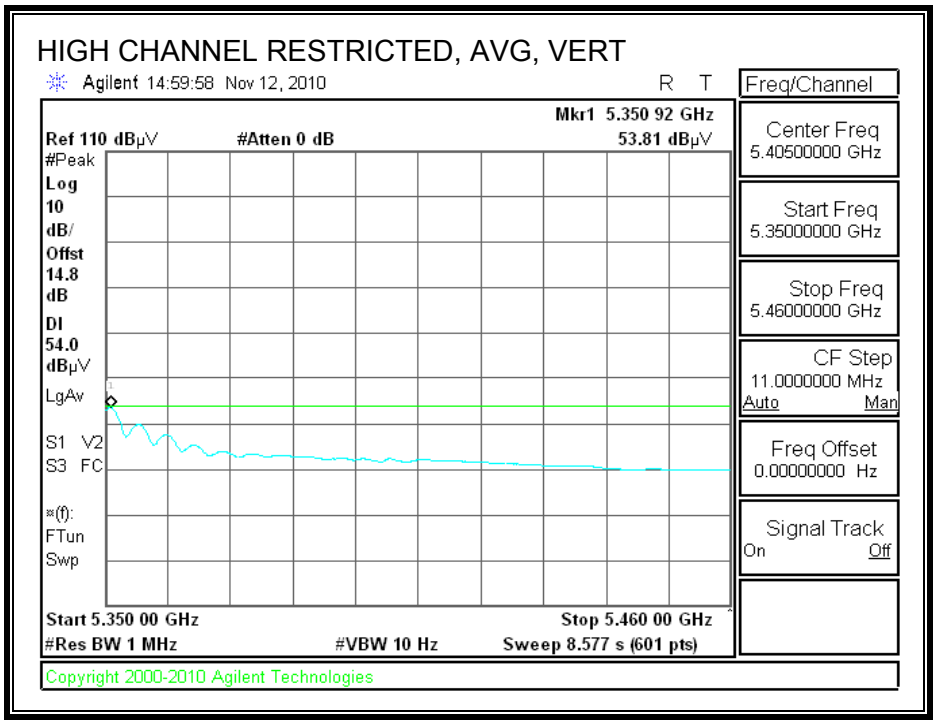
HARMONICS AND SPURIOUS EMISSIONS

Covered by 11n HT20 3x3 CDD MCS0 which was tested at the worst case of a-mode mid channel output power.

8.2.2. 802.11a MODE IN THE 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

Covered by 11n HT20 3x3 CDD MCS0 which was tested at the worst case of a-mode mid channel output power.

8.2.3. 802.11a MODE IN THE 5.6 GHz BAND

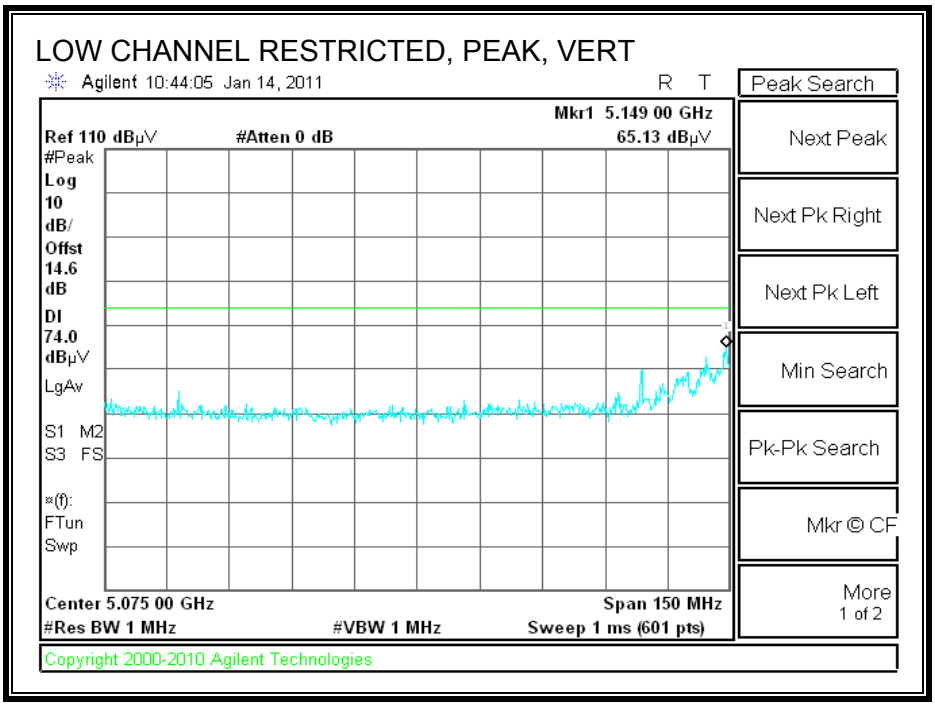
Covered by 11n HT20 3x3 CDD MCS0 which was tested at the worst case of a-mode output power.

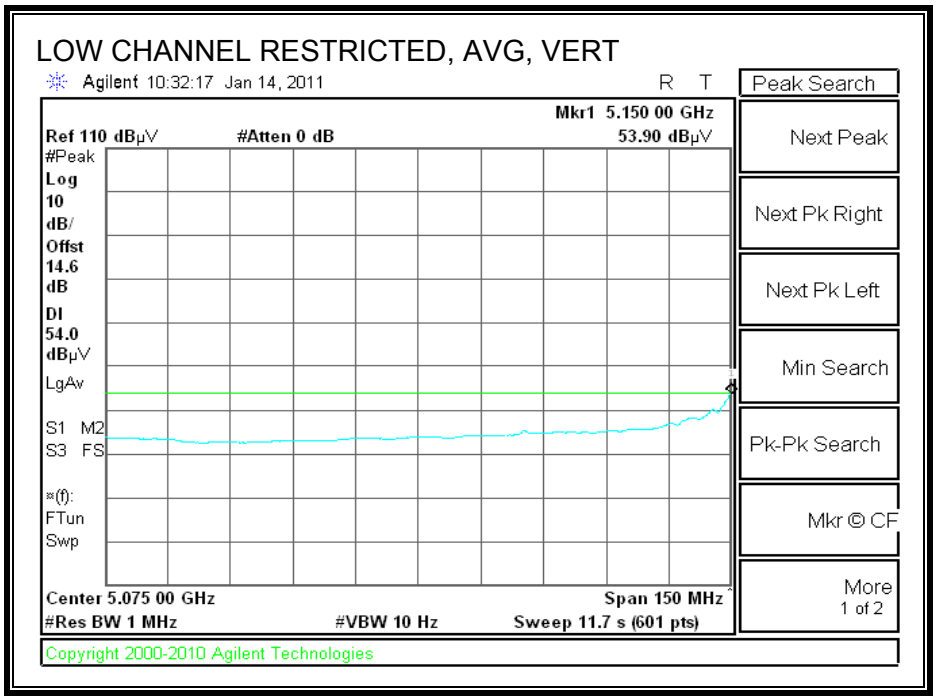
802.11n HT20 THREE CHAINS MODE IN THE 5.2 GHz BAND (CDD MCS0)

The CDD MCS0 mode is not implemented in the 5.2 GHz band and will be disabled in production devices.

Preliminary testing demonstrated that CDD MCS0 was the worst case of various HT20 modes, therefore radiated measurements in the CDD MCS0 mode were performed at the highest, worst-case power of all modes covered by these radiated test results.

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Chin Pang
Date: 12/22/10
Project #: 10U13492
Company: Broadcom
Test Target: FCC 15.407
Mode Oper: TX, HT20 3x3 CDD

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

Average Field Strength Limit
Peak Field Strength Limit
Margin vs. Average Limit
Margin vs. Peak Limit

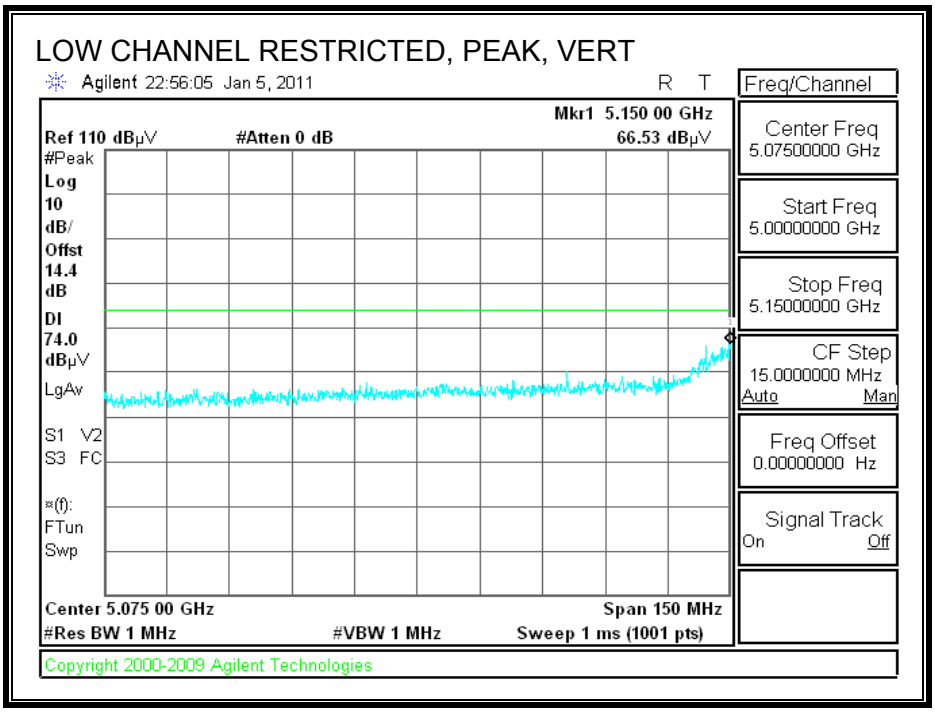
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Low Ch, 5180MHz													
15.540	3.0	35.9	38.7	11.3	-34.8	0.0	0.0	51.0	74.0	-23.0	H	P	
15.540	3.0	23.7	38.7	11.3	-34.8	0.0	0.0	38.9	54.0	-15.1	H	A	
15.540	3.0	36.9	38.7	11.3	-34.8	0.0	0.0	52.0	74.0	-22.0	V	P	
15.540	3.0	24.9	38.7	11.3	-34.8	0.0	0.0	40.1	54.0	-13.9	V	A	
Mid Ch, 5200MHz													
15.600	3.0	41.2	38.5	11.4	-34.8	0.0	0.0	56.3	74.0	-17.7	V	P	
15.600	3.0	28.0	38.5	11.4	-34.8	0.0	0.0	43.1	54.0	-10.9	V	A	
15.600	3.0	37.0	38.5	11.4	-34.8	0.0	0.0	52.1	74.0	-21.9	H	P	
15.600	3.0	24.4	38.5	11.4	-34.8	0.0	0.0	39.5	54.0	-14.5	H	A	
High Ch, 5240MHz													
15.720	3.0	37.2	38.2	11.4	-34.7	0.0	0.0	52.2	74.0	-21.8	H	P	
15.720	3.0	24.9	38.2	11.4	-34.7	0.0	0.0	39.8	54.0	-14.2	H	A	
15.720	3.0	39.3	38.2	11.4	-34.7	0.0	0.0	54.2	74.0	-19.8	V	P	
15.720	3.0	28.1	38.2	11.4	-34.7	0.0	0.0	43.0	54.0	-11.0	V	A	

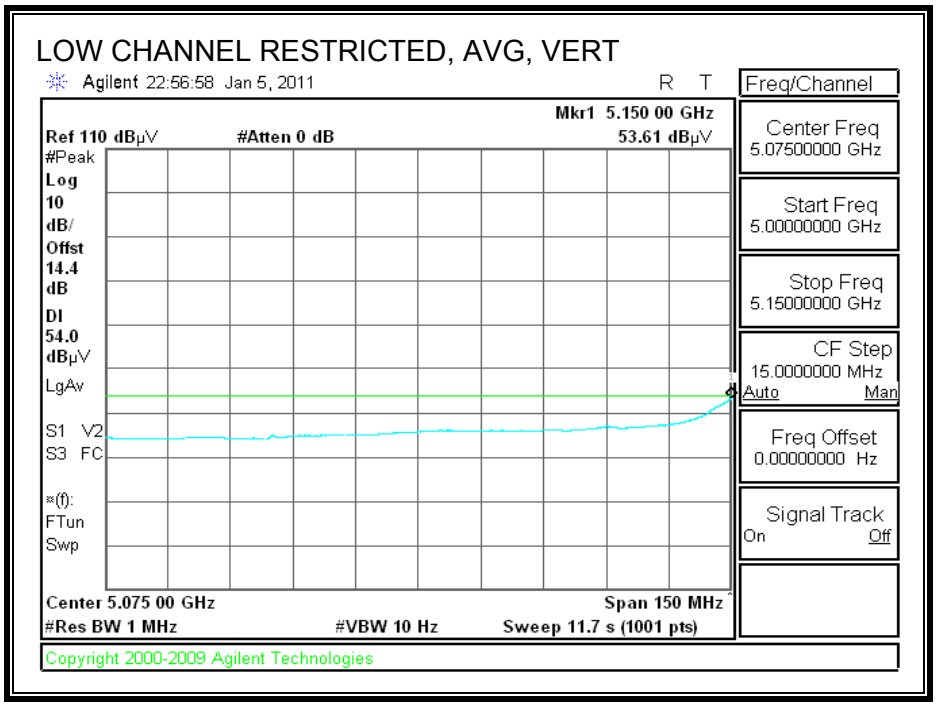
Rev. 4.1.2.7
Note: No other emissions were detected above the system noise floor.

Tested with the highest output power as worst case of 18 dBm for all modes covered by HT20 3x3 CDD MCS0.

8.2.4. 802.11n HT20 THREE CHAINS MODE IN THE 5.2 GHz BAND (SDM MCS16)

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: Broadcom
Project #: 10U13492
Date: 1/6/2011
Test Engineer: Mengistu Mekuria
Configuration: EUT / Laptop / 5GHz Antenna
Mode: Tx 5.2GHz Band_11n HT20 3x3 MCS 16

Test Equipment:

Horn 1-18GHz: T59; S/N: 3245 @3m
Pre-amplifer 1-26GHz: T145 Agilent 3008A005(
Pre-amplifer 26-40GHz:
Horn > 18GHz:
Limit: FCC 15.209

Hi Frequency Cables
3' cable 22807700: 3' cable 22807700
12' cable 22807600: 12' cable 22807600
20' cable 22807500: 20' cable 22807500

HPF:
Reject Filter: R_001

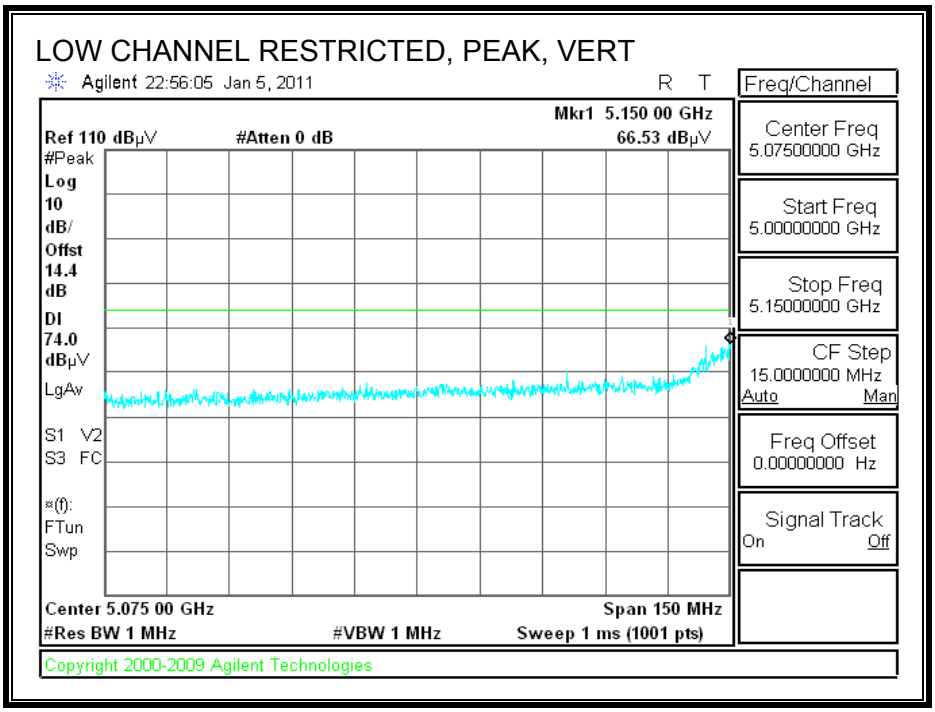
Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

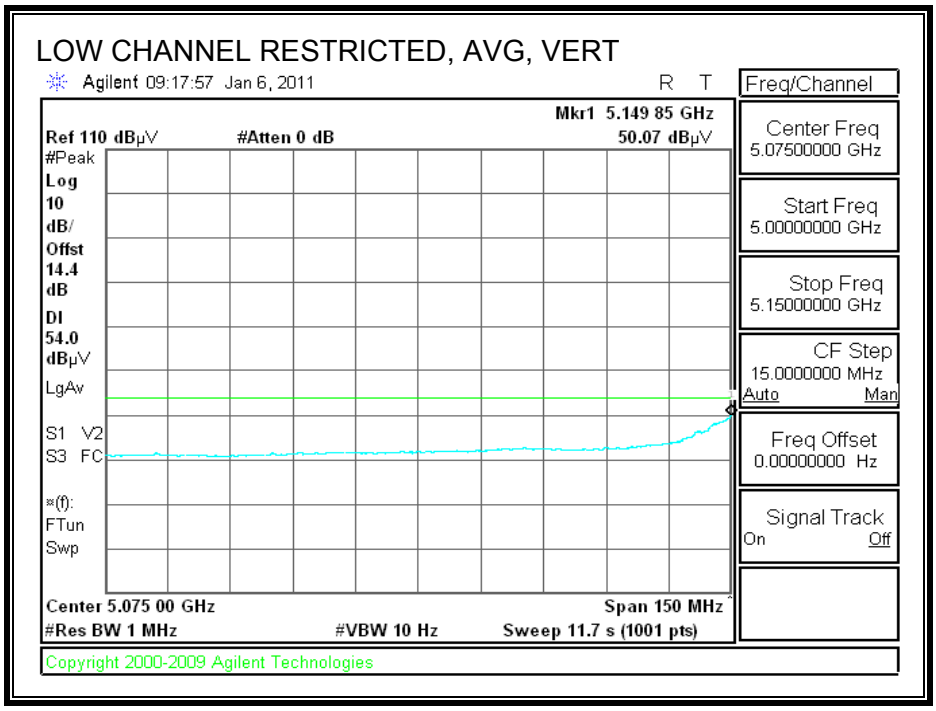
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CHANNEL 5180MHz															
10.360	3.0	49.6	36.0	37.4	8.9	-34.6	0.0	0.0	61.3	47.7	74	54	-12.7	-6.3	V
10.360	3.0	38.1	26.1	37.4	8.9	-34.6	0.0	0.0	49.8	37.8	74	54	-24.2	-16.2	V
HIGH CHANNEL 5240MHz															
10.480	3.0	49.8	35.6	37.5	9.0	-34.5	0.0	0.0	61.8	47.6	74	54	-12.2	-6.4	V

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

8.2.5. 802.11n HT20 THREE CHAINS MODE IN THE 5.2 GHz BAND (SDM MCS21)

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company:	Broadcom
Project #:	10U13492
Date:	1/6/2011
Test Engineer:	Mengistu Mekuria
Configuration:	EUT / Laptop / 5GHz Antenna
Mode:	Tx 5.3GHz Band_11n HT20 3x3 MCS 21

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T145 Agilent 3008A005(			FCC 15.209

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001

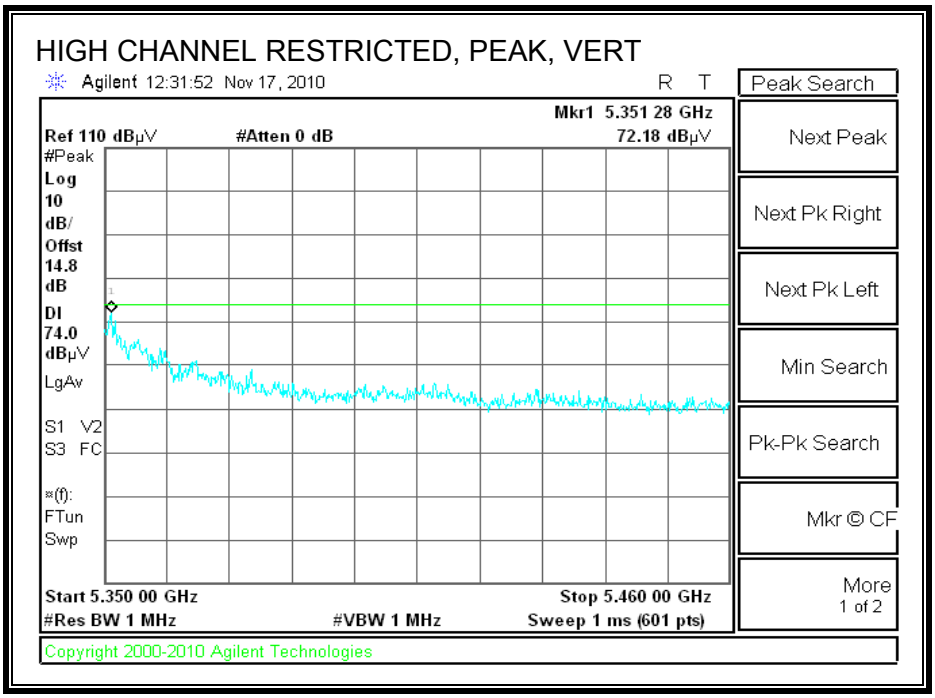
Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

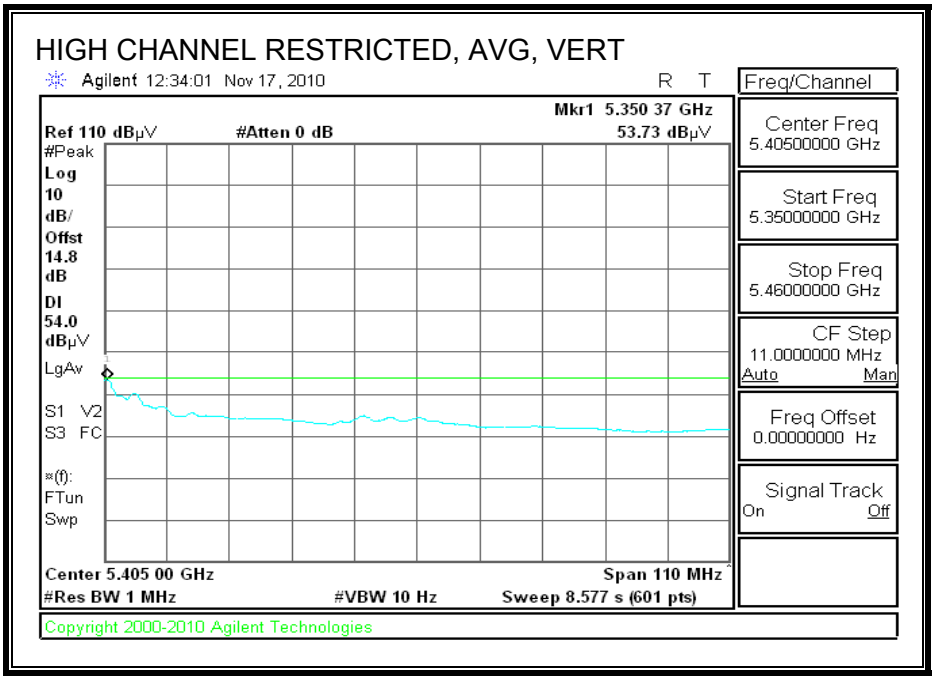
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CHANNEL 5180MHz															
10.360	3.0	49.6	33.8	37.4	8.9	-34.6	0.0	0.0	61.3	45.5	74	54	-12.7	-8.5	V
10.360	3.0	41.5	29.8	37.4	8.9	-34.6	0.0	0.0	53.2	41.5	74	54	-20.8	-12.5	H
HIGH CHANNEL 5240MHz															
10.480	3.0	48.6	33.3	37.5	9.0	-34.5	0.0	0.0	60.6	45.3	74	54	-13.4	-8.7	V

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

8.2.6. 802.11n HT20 THREE CHAINS MODE IN THE 5.3 GHz BAND (CDD MCS0)

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: BROADCOM
Project #: 10U13492
Date: 12/29/2010
Test Engineer: MENGISTU MEKURIA
Configuration: EUT WITH EXTERNAL ANTENNA AND LAPTOP
Mode: Tx 5.2 & 5.3GHz Band_11n HT20 3x3 CDD

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B			FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

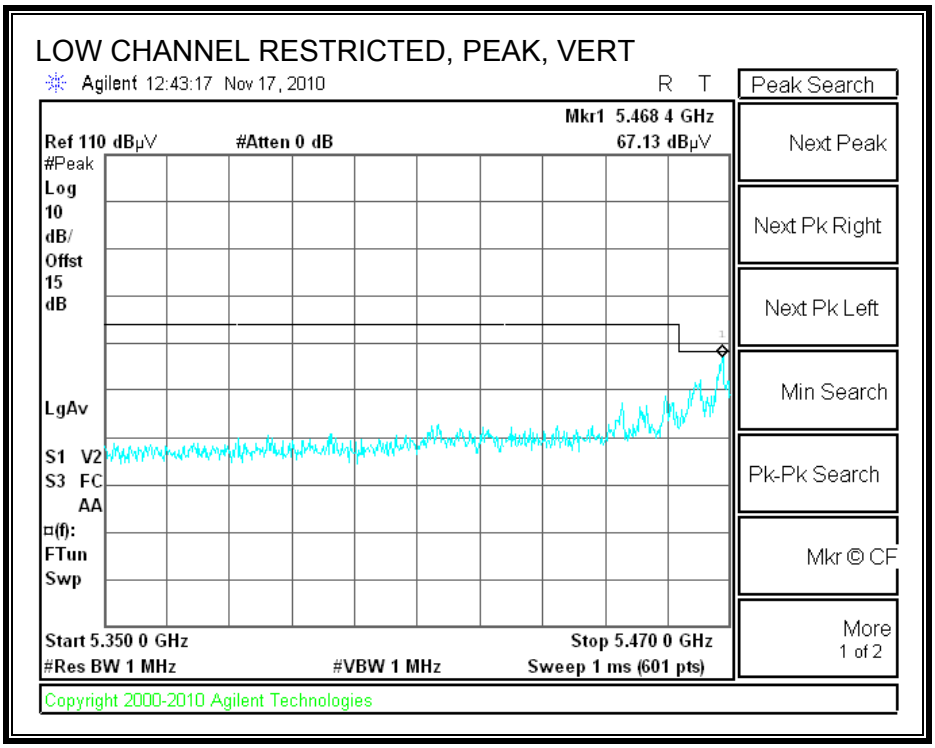
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CHANNEL 5260MHz															
15.780	3.0	39.9	26.7	37.8	11.5	-32.2	0.0	0.0	57.0	43.8	74	54	-17.0	-10.2	V
15.780	3.0	38.8	25.3	37.8	11.5	-32.2	0.0	0.0	55.9	42.4	74	54	-18.1	-11.6	H
MID CHANNEL 5300MHz															
10.600	3.0	40.8	27.9	37.6	9.0	-32.6	0.0	0.0	54.8	41.9	74	54	-19.2	-12.1	V
15.900	3.0	39.0	26.8	37.5	11.5	-32.1	0.0	0.0	55.8	43.6	74	54	-18.2	-10.4	V
10.600	3.0	38.6	25.5	37.6	9.0	-32.6	0.0	0.0	52.6	39.5	74	54	-21.4	-14.5	H
15.900	3.0	39.0	26.0	37.5	11.5	-32.1	0.0	0.0	55.8	42.8	74	54	-18.2	-11.2	H
HIGH CHANNEL 5320MHz															
10.640	3.0	38.3	26.0	37.6	9.1	-32.6	0.0	0.0	52.3	40.0	74	54	-21.7	-14.0	V
15.960	3.0	40.2	26.9	37.3	11.5	-32.1	0.0	0.0	56.9	43.6	74	54	-17.1	-10.4	V
10.640	3.0	37.3	25.6	37.6	9.1	-32.6	0.0	0.0	51.3	39.6	74	54	-22.7	-14.4	H
15.960	3.0	39.1	25.2	37.3	11.5	-32.1	0.0	0.0	55.8	41.9	74	54	-18.2	-12.1	H

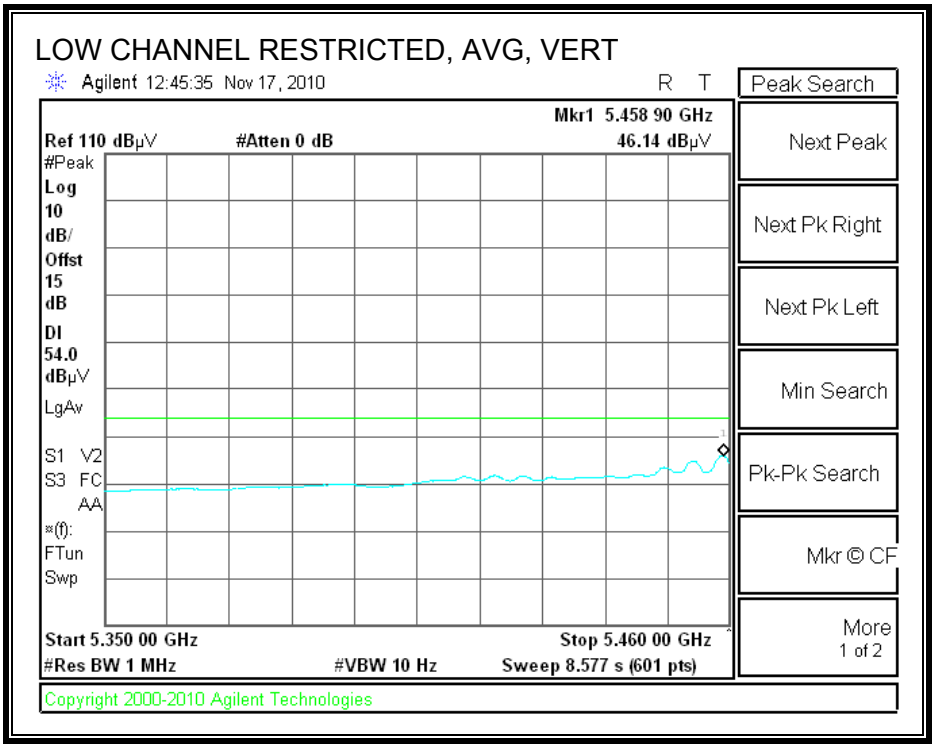
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field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

Tested with the highest output power as worst case of 19 dBm for all modes covered by HT20 3x3 CDD MCS0.

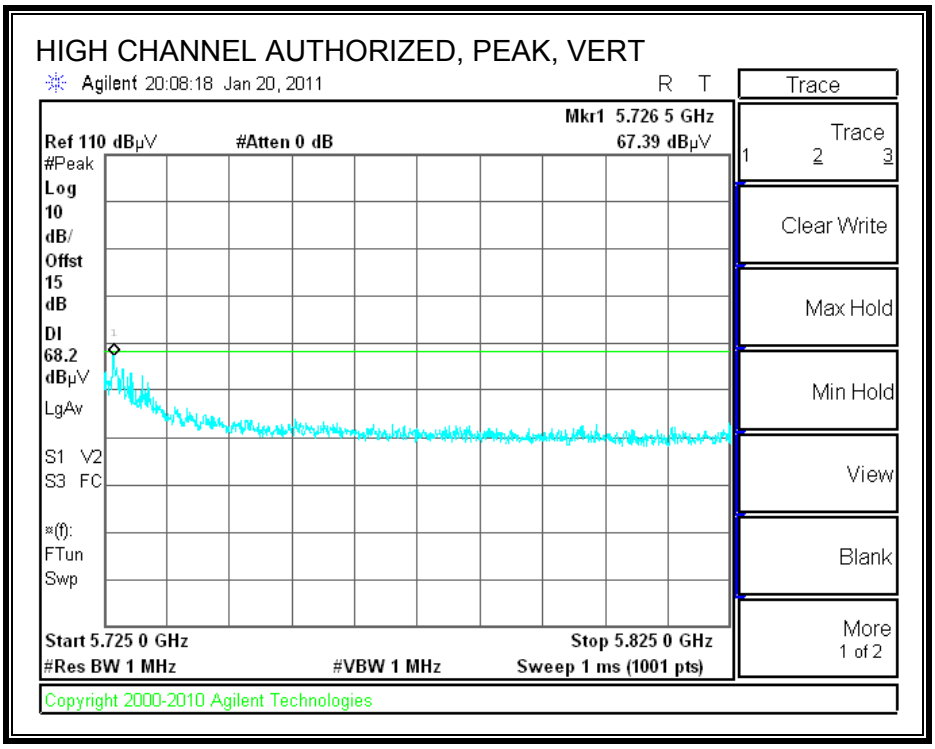
8.2.7. 802.11n HT20 THREE CHAINS MODE IN THE 5.6 GHz BAND (CDD MCS0)

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)





AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: Broadcom
Project #: 10U13492
Date: 11/17/2010
Test Engineer: Vien Tran
Configuration:
Mode: Tx 5.6GHz Band_11n HT20 3x3 CDD

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz
T60; S/N: 2238 @3m	T34 HP 8449B		

FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CHANNEL (100), 5500MHz															o 20
11.000	3.0	50.1	34.6	37.6	9.2	-32.6	0.0	0.0	64.4	48.8	74	54	-9.6	-5.2	V
11.000	3.0	39.4	28.8	37.6	9.2	-32.6	0.0	0.0	53.6	43.0	74	54	-20.4	-11.0	H
MID CHANNEL (120), 5600MHz															o 20
11.200	3.0	45.5	32.8	37.8	9.3	-32.6	0.0	0.0	60.0	47.3	74	54	-14.0	-6.7	V
11.200	3.0			37.8	9.3	-32.6	0.0	0.0	14.5	14.5	74	54	-59.5	-39.5	H
MID CHANNEL (140), 5700MHz															o 20
11.400	3.0	46.6	31.8	38.0	9.4	-32.5	0.0	0.0	61.4	46.6	74	54	-12.6	-7.4	V
11.400	3.0	40.1	28.0	38.0	9.4	-32.5	0.0	0.0	54.9	42.8	74	54	-19.1	-11.2	H
															V

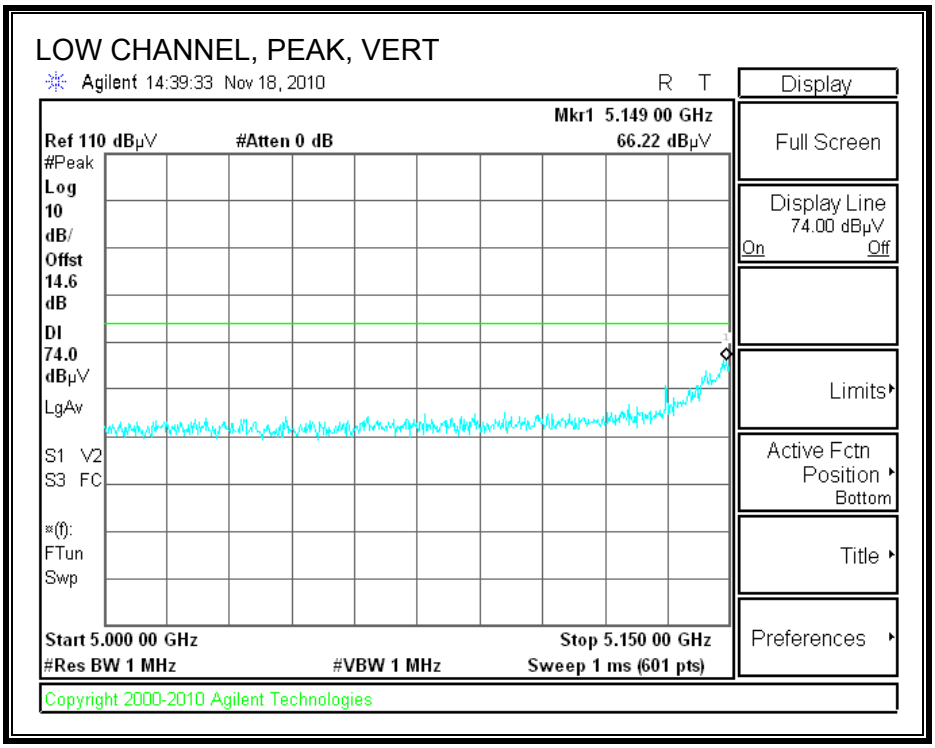
Rev. 07.22.09

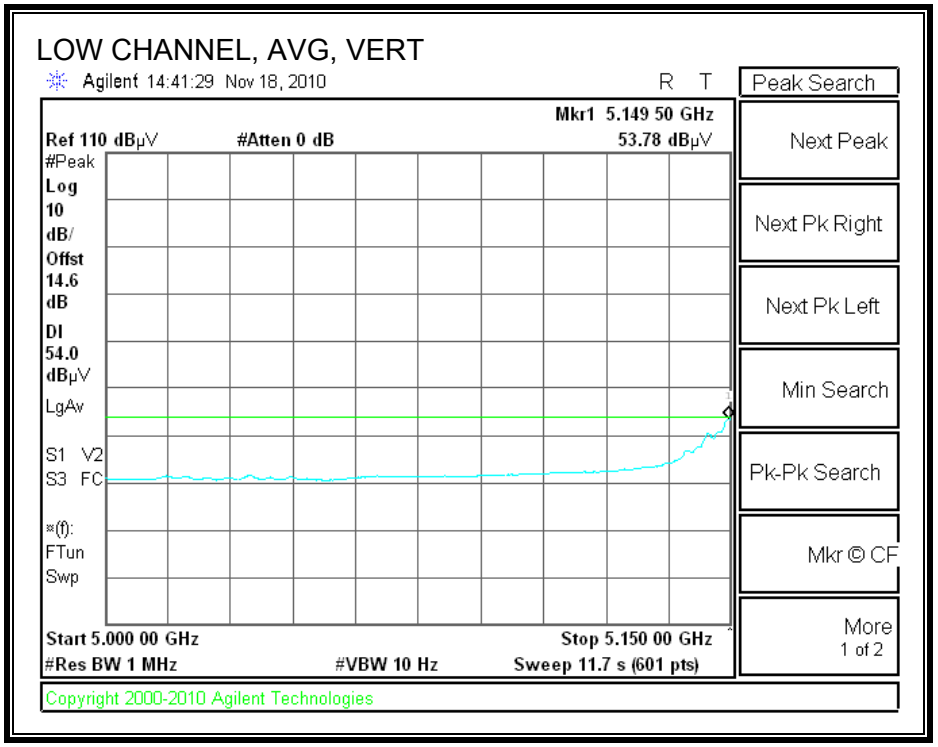
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field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

Tested with the highest output power as worst case of 21 dBm for all modes covered by HT20 3x3 CDD MCS0.

8.2.8. 802.11n HT40 SISO MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



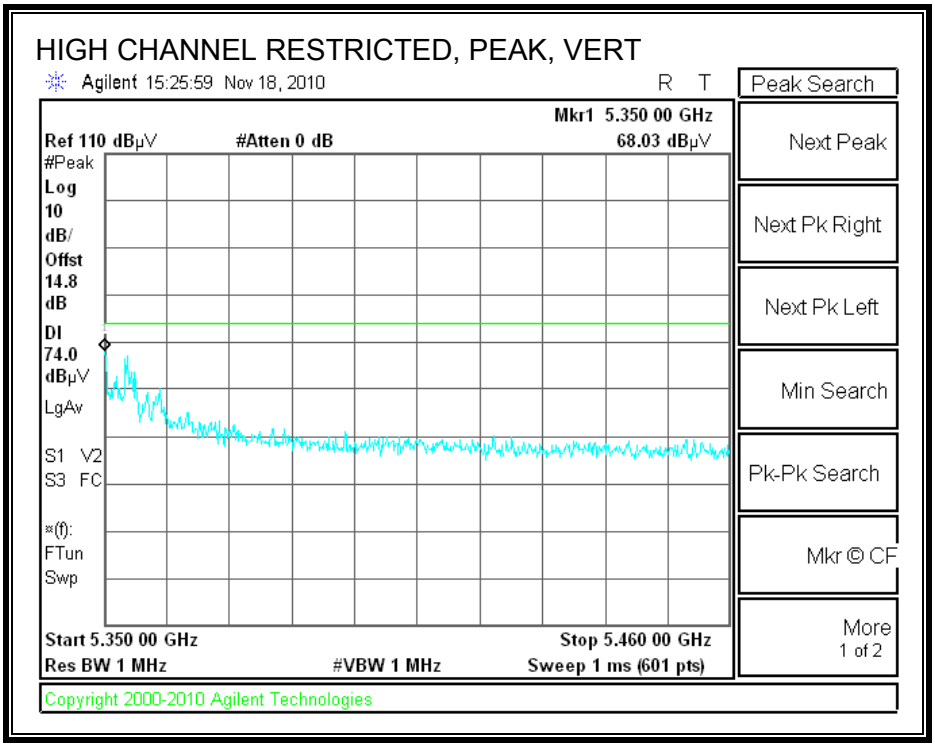


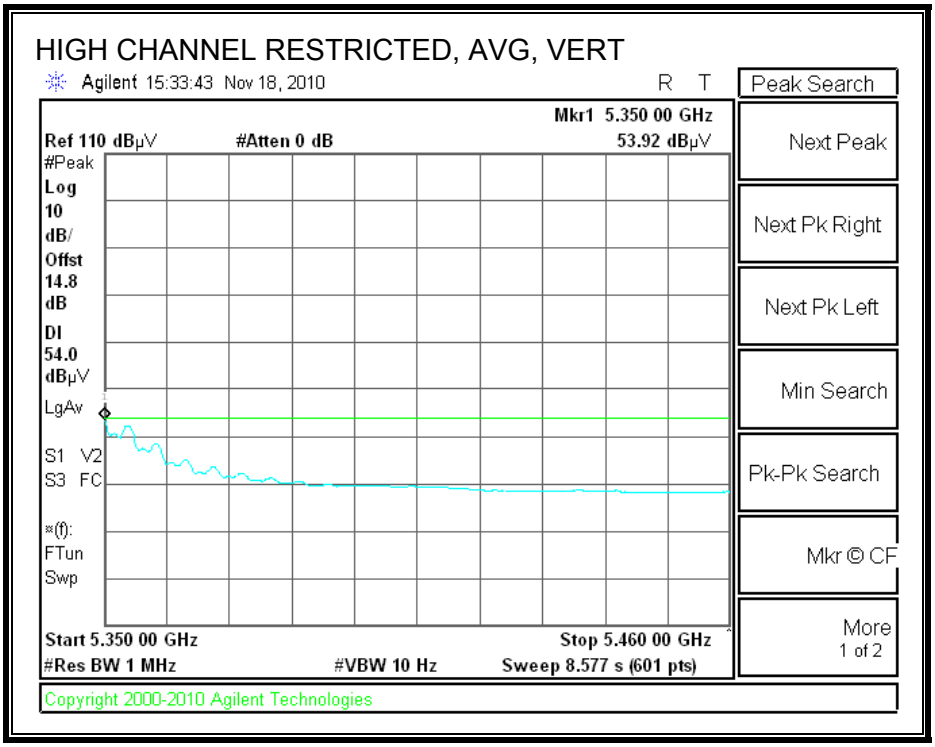
HARMONICS AND SPURIOUS EMISSIONS TESTS

It is covered by HT40 CDD 3x3 5MCS0 for radiated harmonics at worst case max power.

8.2.9. 802.11n HT40 SISO MODE IN THE 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



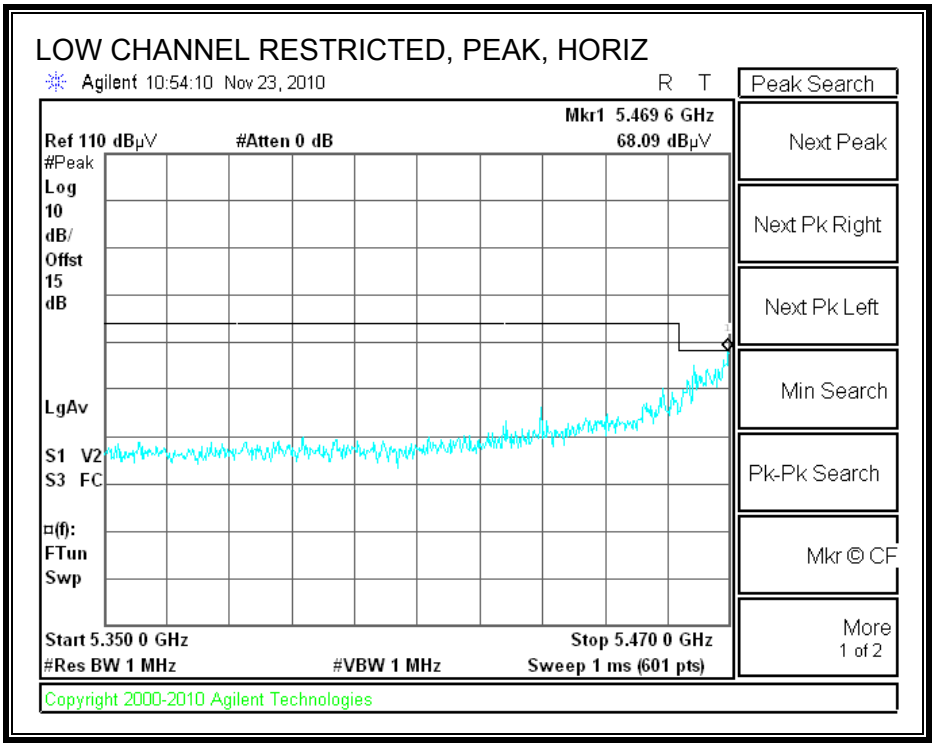


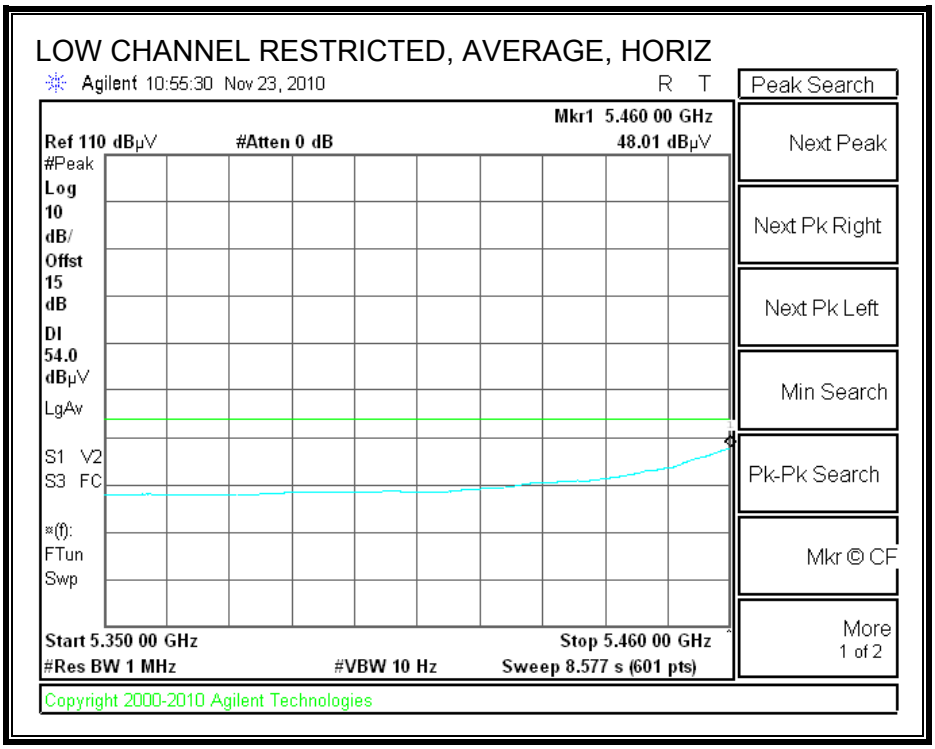
HARMONICS AND SPURIOUS EMISSIONS TESTS

Covered by HT40 3x3 CDD MCS0 for radiated harmonics at worst case max power.

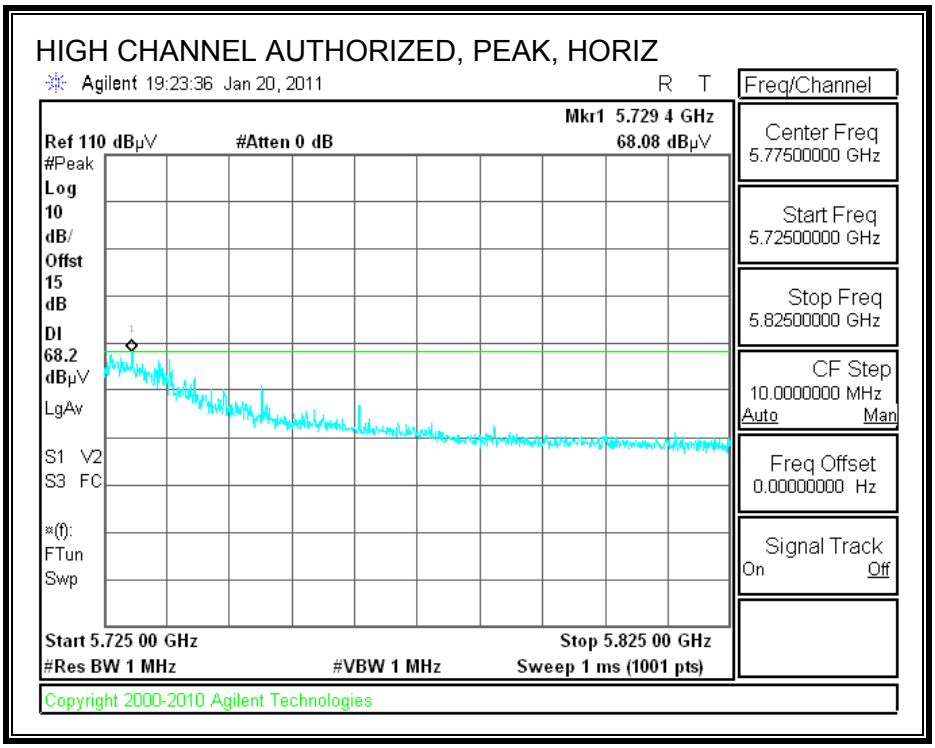
8.2.10. 802.11n HT40 SISO MODE IN THE 5.6 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



HARMONICS AND SPURIOUS EMISSIONS

Covered by HT40 3x3 CDD MCS0 for radiated harmonics at worst case max power.

8.2.11. 802.11n HT40 THREE CHAINS MODE IN THE 5.2 GHz BAND (CDD MCS0)

The CDD MCS0 mode is not implemented in the 5.2 GHz band and will be disabled in production devices.

Preliminary testing demonstrated that CDD MCS0 was the worst case of various HT40 modes, therefore radiated measurements in the CDD MCS0 mode were performed at the highest, worst-case power of all modes covered by these radiated test results.

HARMONICS AND SPURIOUS EMISSIONS

Tested at the worst case max output power of 17 dBm and apply to all the HT40 modes.

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: David Garcia
Date: 01/13/11
Project #: 10U13492
Company: Broadcom
Test Target: FCC 15.207
Mode Oper: TX, HT40 3x3 CDD MCS0

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

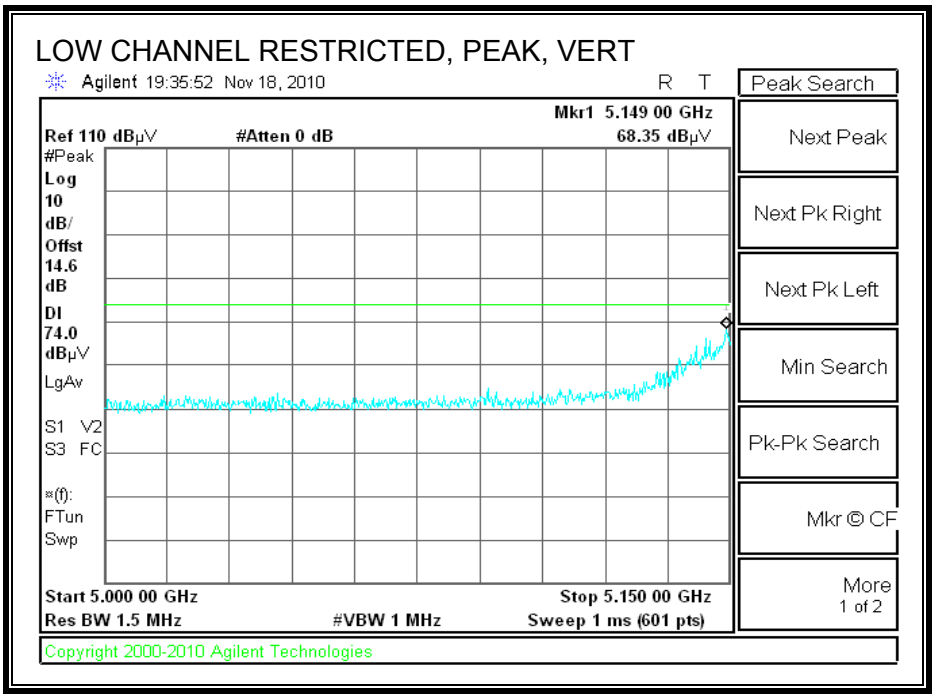
Average Field Strength Limit
Peak Field Strength Limit
Margin vs. Average Limit
Margin vs. Peak Limit

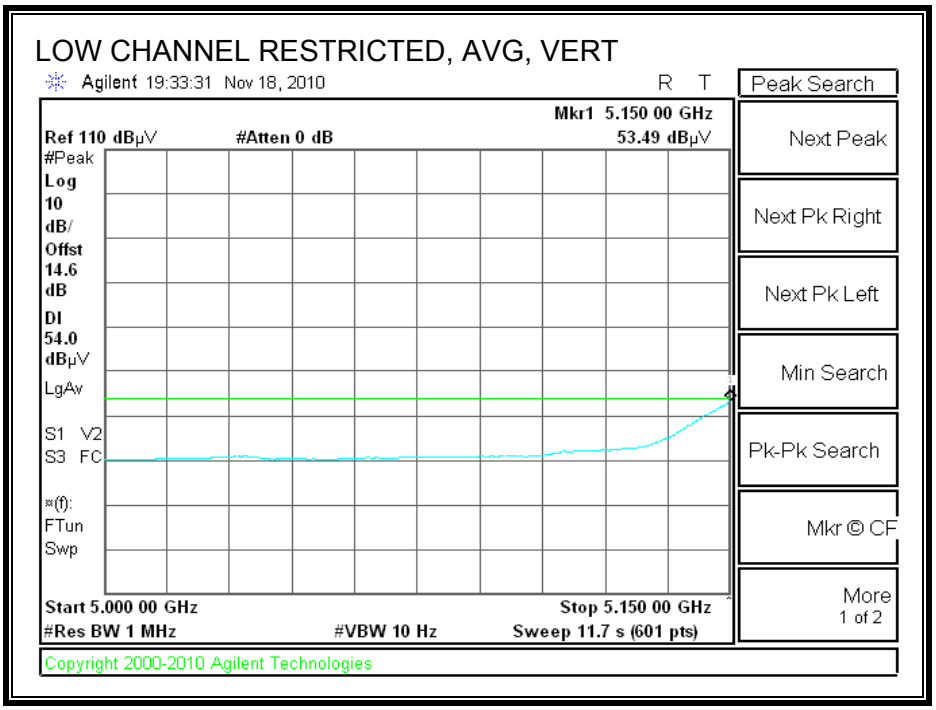
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Low Channel: 5190 MHz													
15.570	3.0	29.7	38.4	11.4	-32.2	0.0	0.7	48.0	74.0	-26.0	V	P	
15.570	3.0	15.8	38.4	11.4	-32.2	0.0	0.7	34.1	54.0	-19.9	V	A	
High Channel, 5230 MHz													
15.690	3.0	36.0	38.5	11.4	-34.7	0.0	0.7	51.9	74.0	-22.1	V	P	
15.690	3.0	24.5	38.5	11.4	-34.7	0.0	0.7	40.4	54.0	-13.6	V	A	

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

8.2.12. 802.11n HT40 THREE CHAINS MODE IN THE 5.2 GHz BAND (STBC MCS0)

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



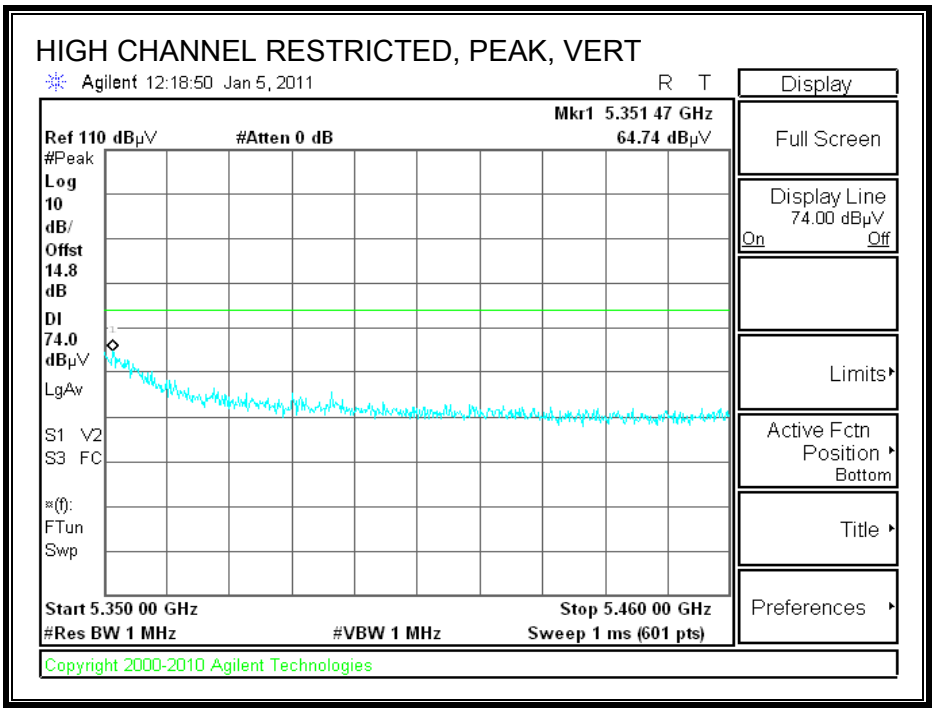


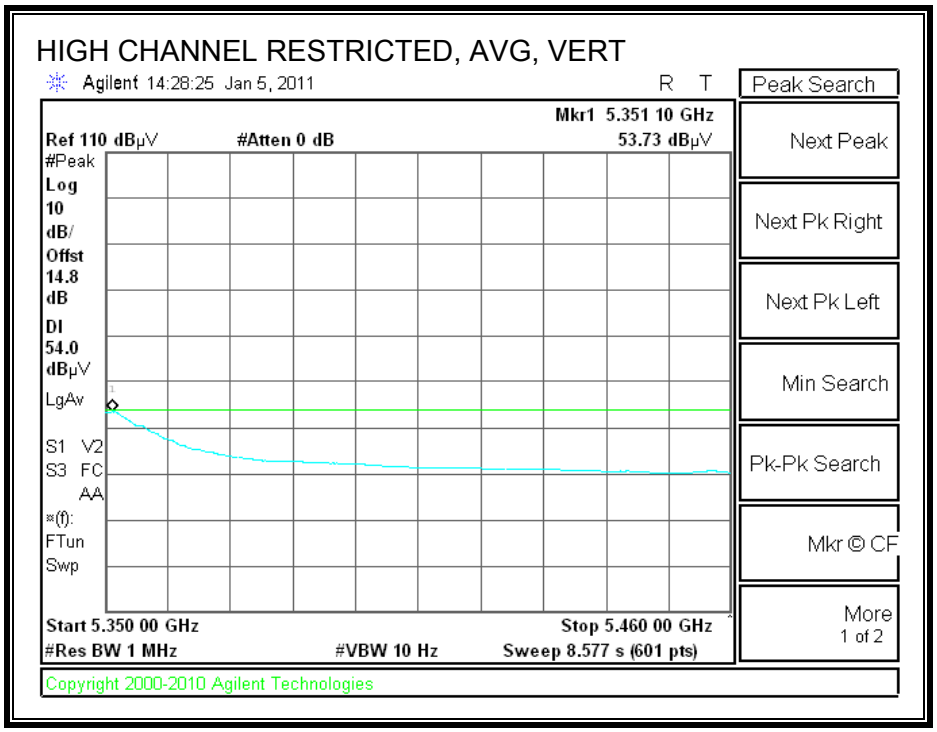
HARMONICS AND SPURIOUS EMISSIONS

Covered by HT40 3x3 CDD MCS0 radiated emission at worst case max power

8.2.13. 802.11n HT40 THREE CHAINS MODE IN THE 5.3 GHz BAND (CDD MCS0)

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: BROADCOM
Project #: 10U13492
Date: 12/29/2010
Test Engineer: MENGISTU MEKURIA
Configuration: EUT WITH EXTERNAL ANTENNA AND LAPTOP
Mode: Tx 5.2 & 5.3GHz Band_11n HT40 3x3 CDD

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T145 Agilent 3008A0056			FCC 15.209

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001

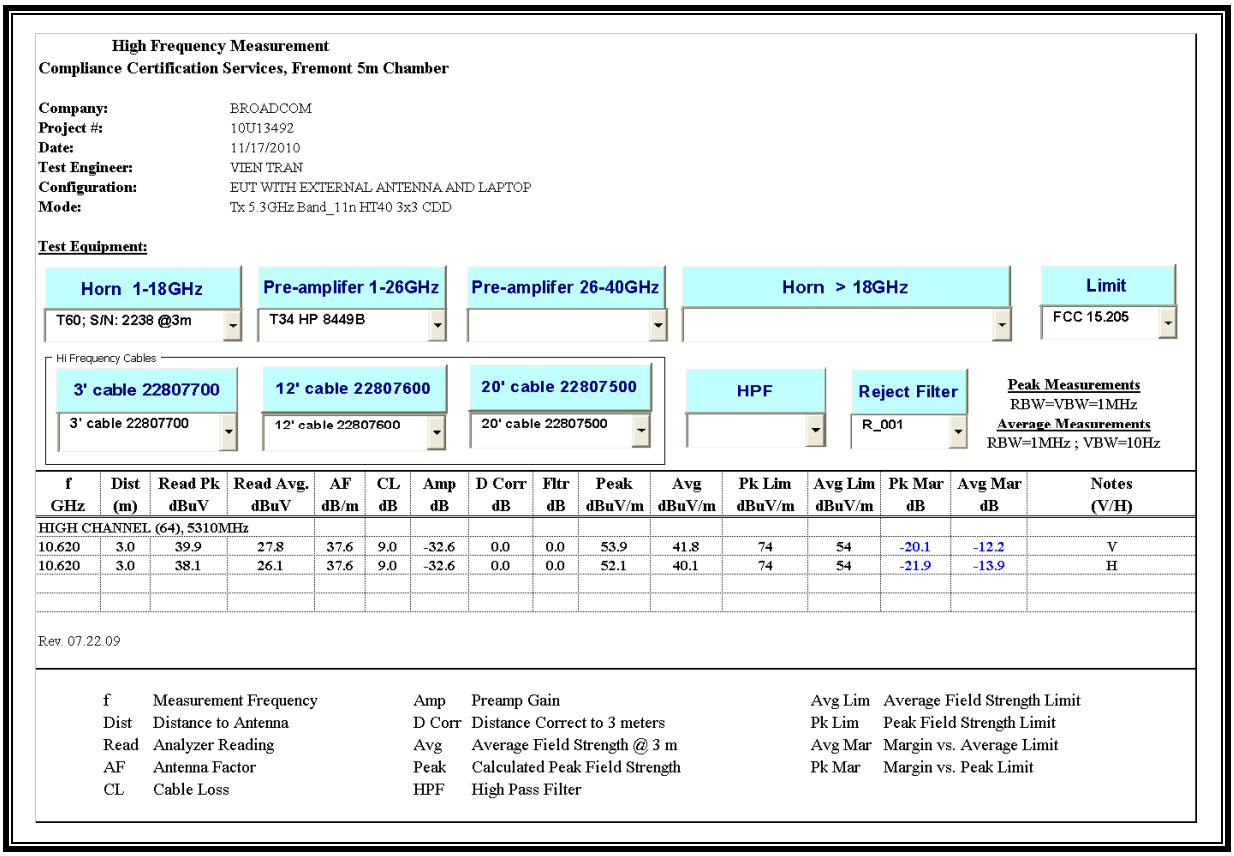
Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
MID CHANNEL (54), 5270MHz															
10.540	3.0	44.2	30.0	37.7	9.0	-34.4	0.0	0.0	56.5	42.3	74	54	-17.5	-11.7	V
10.540	3.0	40.0	27.4	37.7	9.0	-34.4	0.0	0.0	52.4	39.8	74	54	-21.6	-14.2	H

Rev. 07.22.09

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

Tested with the highest output power as worst case of 19 dBm for this mode HT40 3x3 CDD.



High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: BROADCOM
Project #: 10U13492
Date: 11/17/2010
Test Engineer: VIEN TRAN
Configuration: EUT WITH EXTERNAL ANTENNA AND LAPTOP
Mode: Tx 5.3GHz Band_11n HT40 3x3 CDD

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B			FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
HIGH CHANNEL (64), 5310MHz															
10.620	3.0	39.9	27.8	37.6	9.0	-32.6	0.0	0.0	53.9	41.8	74	54	-20.1	-12.2	V
10.620	3.0	38.1	26.1	37.6	9.0	-32.6	0.0	0.0	52.1	40.1	74	54	-21.9	-13.9	H

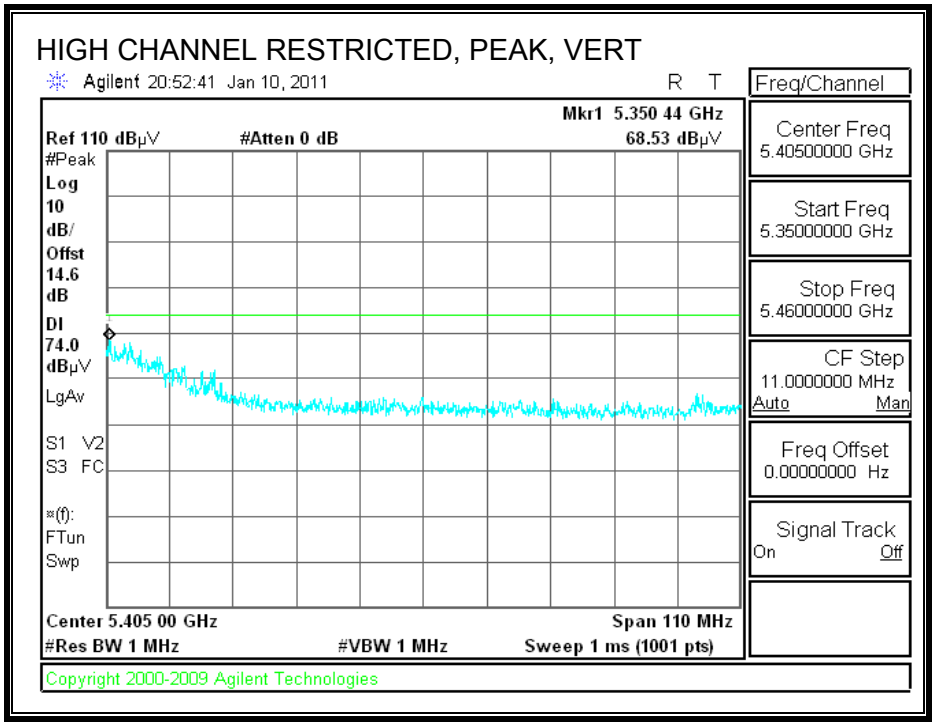
Rev. 07.22.09

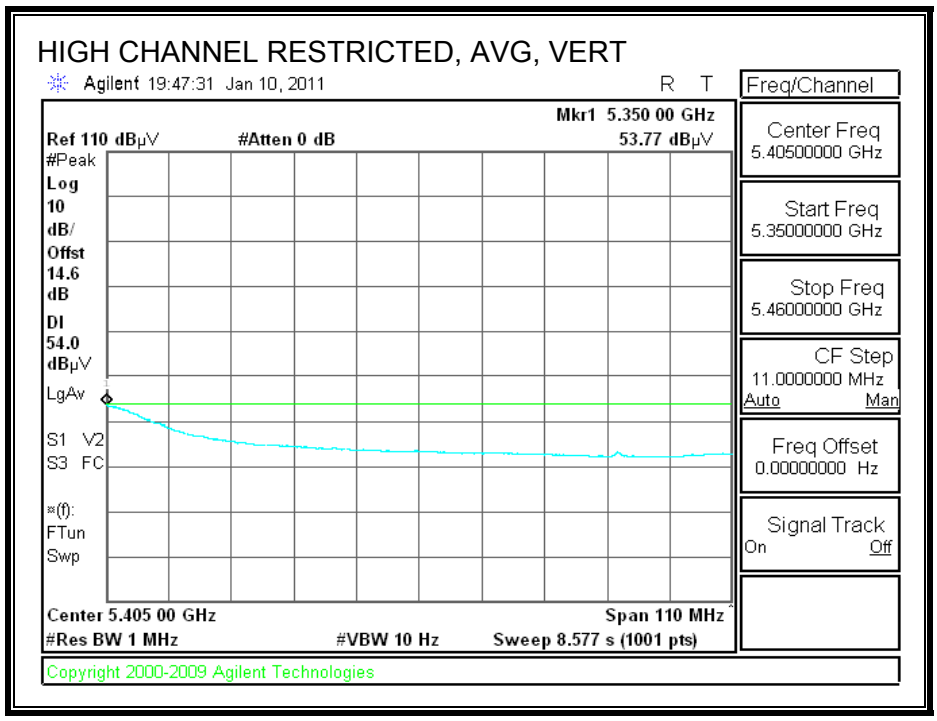
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field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

Tested with the highest output power as worst case of 19 dBm for this mode HT40 3x3 CDD.

8.2.14. 802.11n HT40 THREE CHAINS MODE IN THE 5.3 GHz BAND (SDM MCS21)

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



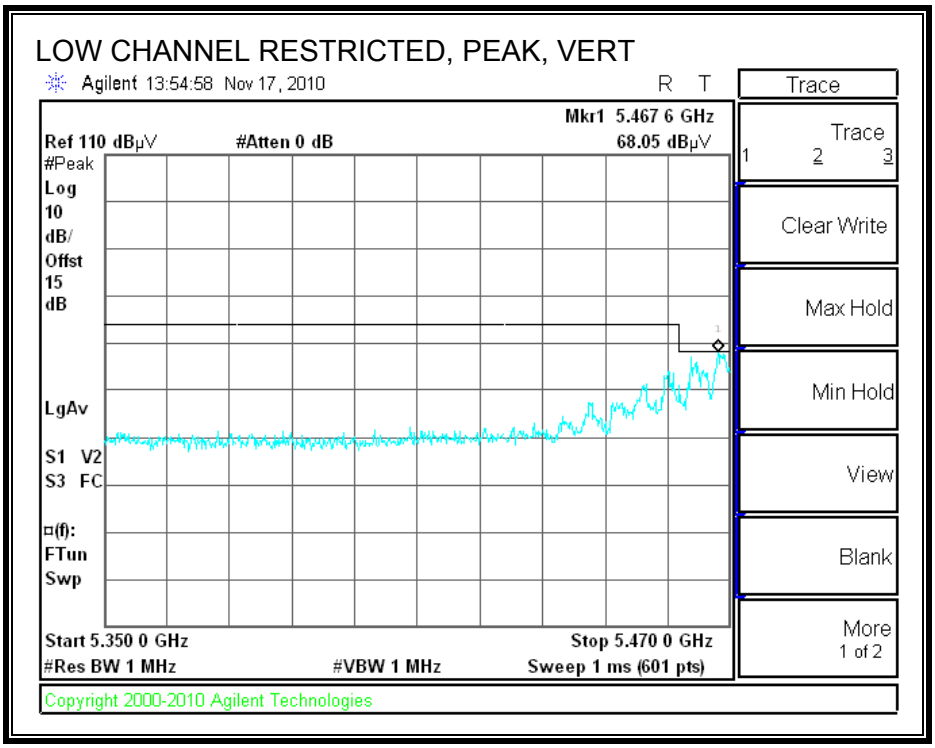


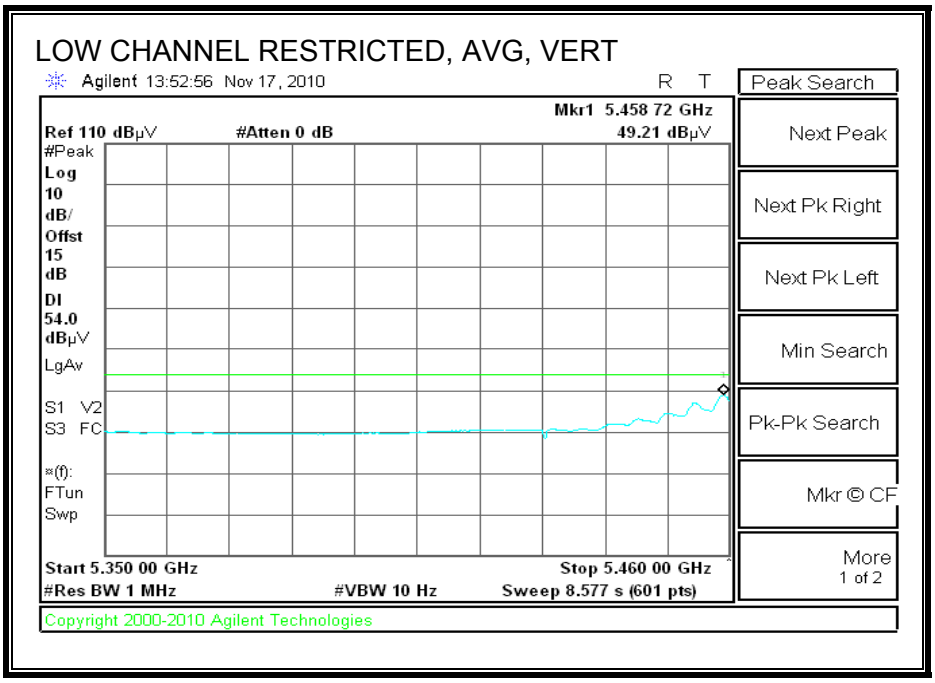
HARMONICS AND SPURIOUS EMISSIONS

Covered by HT40 3x3 CDD MCS0 for radiated harmonics at worst case max power.

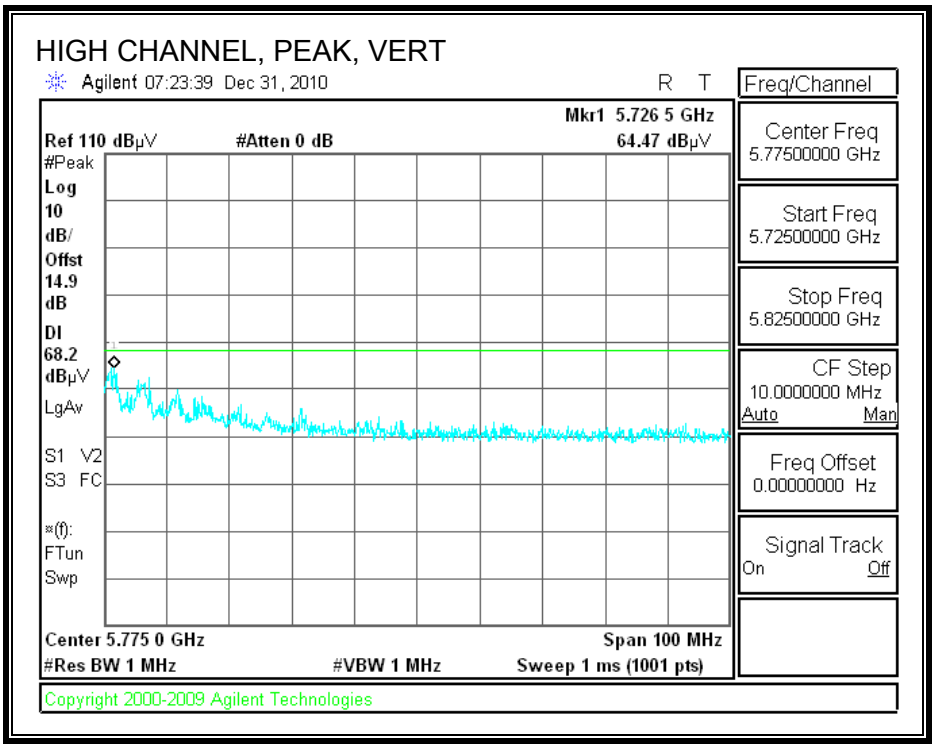
8.2.15. 802.11n HT40 THREE CHAINS MODE IN THE 5.6 GHz BAND (CDD MCS0)

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: Broadcom
Project #: 10U13492
Date: 11/17/2010
Test Engineer: Vien Tran
Configuration: EUT/antenna
Mode: Tx 5.6GHz Band_11n HT40 3x3 CDD

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B			FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

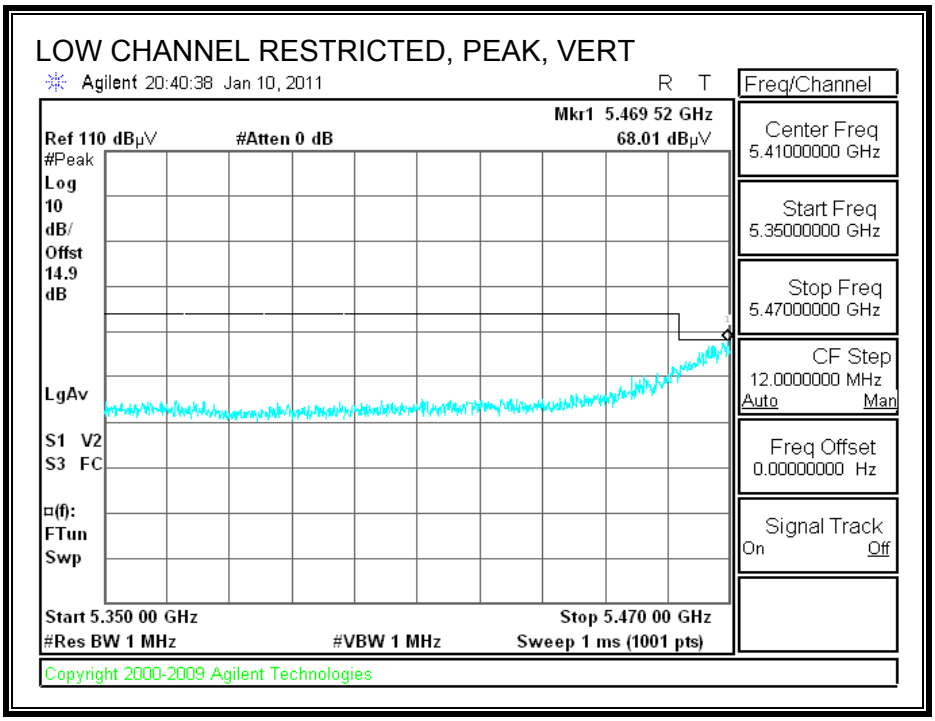
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CHANNEL (102), 5510MHz															
11.020	3.0	38.9	28.5	37.6	9.2	-32.6	0.0	0.0	53.2	42.8	74	54	-20.8	-11.2	V
11.020	3.0	36.8	25.8	37.6	9.2	-32.6	0.0	0.0	51.1	40.1	74	54	-22.9	-13.9	H
MID CHANNEL (118), 5590MHz															
11.180	3.0	39.9	28.5	37.7	9.3	-32.6	0.0	0.0	54.4	43.0	74	54	-19.6	-11.0	V
11.180	3.0	38.2	26.8	37.7	9.3	-32.6	0.0	0.0	52.7	41.3	74	54	-21.3	-12.7	H
HIGH CHANNEL (134), 5670MHz															
11.340	3.0	45.1	32.3	37.9	9.4	-32.6	0.0	0.0	59.8	47.1	74	54	-14.2	-6.9	V
11.340	3.0	42.5	29.6	37.9	9.4	-32.6	0.0	0.0	57.3	44.4	74	54	-16.7	-9.6	H

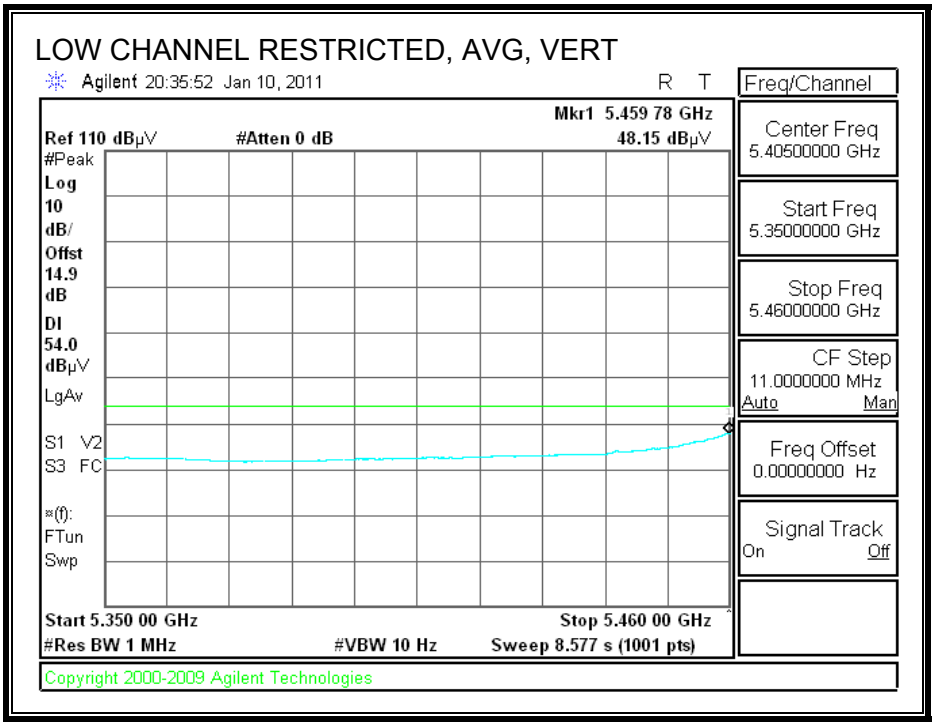
Rev. 07.22.09

Tested with the highest output power as worst case of 21 dBm for this mode HT40 3x3 CDD MCS0.

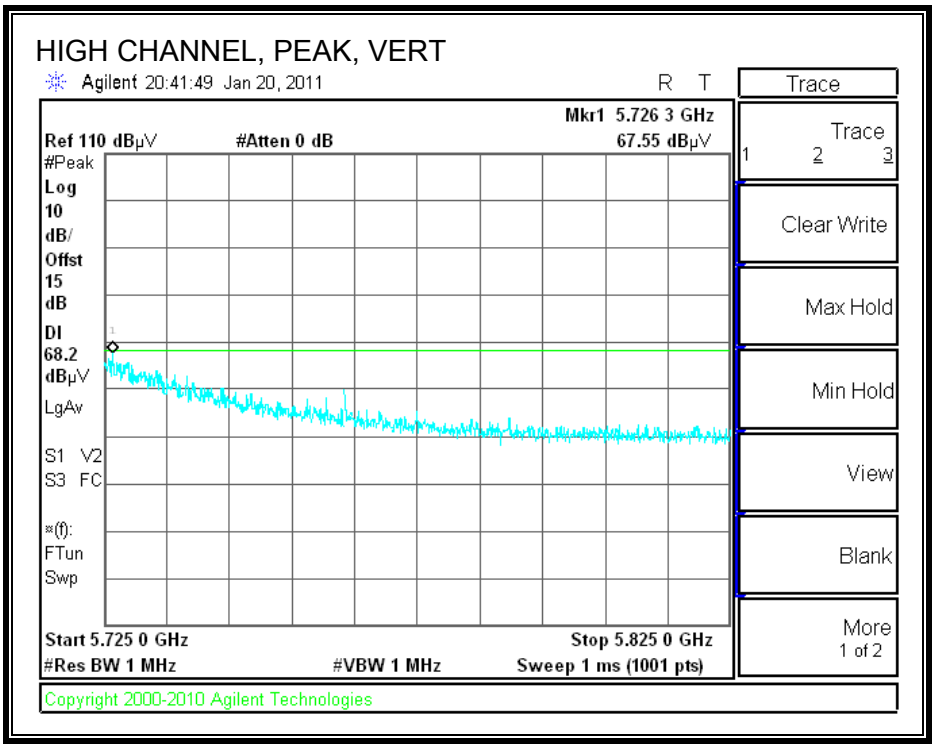
8.2.16. 802.11n HT40 THREE CHAINS MODE IN THE 5.6 GHz BAND (SDM MCS21)

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)





AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

Covered by HT40 3x3 CDD MCS0 for radiated harmonics at worst case max power.

8.3. RECEIVER ABOVE 1 GHz

8.3.1. 20 MHz BANDWIDTH

High Frequency Measurement
Compliance Certification Services, Fremont 3m Chamber

Company:	Broadcom
Project #:	10U13492
Date:	12/23/10
Test Engineer:	Mengistu Mekuria
Configuration:	EUT / Laptop
Mode:	Rx Mode_20MHz Bandwidth

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T145 Agilent 3008A005(			RX RSS 210

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
1.320	3.0	55.7	35.8	24.9	2.7	-35.9	0.0	0.0	47.4	27.6	74	54	-26.6	-26.4	H
1.595	3.0	53.4	37.8	25.9	3.0	-35.7	0.0	0.0	46.6	31.0	74	54	-27.4	-23.0	H
1.795	3.0	52.9	35.1	26.5	3.2	-35.5	0.0	0.0	47.1	29.3	74	54	-26.9	-24.7	H
2.500	3.0	53.8	33.0	28.5	3.9	-35.1	0.0	0.0	51.1	30.4	74	54	-22.9	-23.6	H
5.000	3.0	48.3	27.3	33.2	5.9	-34.9	0.0	0.0	52.6	31.6	74	54	-21.4	-22.4	H
1.035	3.0	55.6	38.7	24.0	2.4	-36.1	0.0	0.0	45.9	29.0	74	54	-28.1	-25.0	V
1.106	3.0	57.4	41.5	24.2	2.5	-36.1	0.0	0.0	48.0	32.2	74	54	-26.0	-21.8	V
1.795	3.0	53.3	34.9	26.5	3.2	-35.5	0.0	0.0	47.5	29.2	74	54	-26.5	-24.8	V
2.490	3.0	55.2	33.5	28.5	3.9	-35.1	0.0	0.0	52.5	30.8	74	54	-21.5	-23.2	V
5.000	3.0	51.5	27.9	33.2	5.9	-34.9	0.0	0.0	55.8	32.2	74	54	-18.2	-21.8	V

No other emissions were detected above system noise floor

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

8.3.2. 40 MHz BANDWIDTH

High Frequency Measurement
Compliance Certification Services, Fremont 3m Chamber

Company: Broadcom
Project #: 10U13492
Date: 12/23/10
Test Engineer: Mengistu Mekuria
Configuration: EUT / Laptop
Mode: Rx Mode_40MHz Bandwidth

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B			RX RSS 210

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
1.395	3.0	56.0	34.4	25.8	2.8	-37.7	0.0	0.0	46.9	25.3	74	54	-27.1	-28.7	H
1.595	3.0	54.3	38.5	26.5	3.0	-37.4	0.0	0.0	46.3	30.5	74	54	-27.7	-23.5	H
1.795	3.0	53.8	35.7	27.1	3.2	-37.2	0.0	0.0	47.0	28.9	74	54	-27.0	-25.1	H
2.500	3.0	54.3	34.0	28.3	3.9	-36.3	0.0	0.0	50.3	30.0	74	54	-23.7	-24.0	H
5.000	3.0	47.2	28.1	32.8	5.9	-34.8	0.0	0.0	51.2	32.1	74	54	-22.8	-21.9	H
1.105	3.0	58.9	43.0	24.8	2.5	-38.1	0.0	0.0	48.1	32.2	74	54	-25.9	-21.8	V
1.655	3.0	55.4	38.2	26.7	3.1	-37.4	0.0	0.0	47.8	30.6	74	54	-26.2	-23.4	V
2.125	3.0	56.7	36.3	27.9	3.6	-36.7	0.0	0.0	51.5	31.1	74	54	-22.5	-22.9	V
2.490	3.0	55.9	34.2	28.3	3.9	-36.3	0.0	0.0	51.8	30.1	74	54	-22.2	-23.9	V
5.000	3.0	52.1	34.4	32.8	5.9	-34.8	0.0	0.0	56.0	38.4	74	54	-18.0	-15.6	V

No other emissions were detected above system noise floor

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

8.4. WORST-CASE BELOW 1 GHz

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

HORIZONTAL AND VERTICAL DATA

30-1000MHz Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: MENGISTU MEKURIA
Date: 12/23/10
Project #: 10U13492
Company: BROADCOM
Test Target: FCC CLASS B
Mode Oper: TX MODE

f	Measurement Frequency	Amp	Preamp Gain	Margin	Margin vs. Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters		
Read	Analyzer Reading	Filter	Filter Insert Loss		
AF	Antenna Factor	Corr.	Calculated Field Strength		
CL	Cable Loss	Limit	Field Strength Limit		

f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Pad dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
233.168	3.0	52.9	11.9	1.3	28.2	0.0	0.0	37.9	46.0	-8.1	H	P	
240.009	3.0	52.7	11.8	1.3	28.2	0.0	0.0	37.7	46.0	-8.3	H	P	
499.819	3.0	46.0	16.7	2.0	27.8	0.0	0.0	37.0	46.0	-9.0	H	P	
587.063	3.0	44.4	18.2	2.2	27.6	0.0	0.0	37.3	46.0	-8.7	H	P	
597.143	3.0	44.0	18.4	2.2	27.5	0.0	0.0	37.1	46.0	-8.9	H	P	
720.028	3.0	40.9	19.9	2.5	27.2	0.0	0.0	36.0	46.0	-10.0	H	P	
895.716	3.0	38.3	21.8	2.8	27.8	0.0	0.0	35.1	46.0	-10.9	H	P	
158.525	3.0	53.7	11.8	1.1	28.3	0.0	0.0	38.4	43.5	-5.1	V	P	
346.693	3.0	49.1	14.1	1.7	28.1	0.0	0.0	36.8	46.0	-9.2	V	P	
381.374	3.0	45.2	14.6	1.8	28.1	0.0	0.0	33.5	46.0	-12.5	V	P	
499.579	3.0	42.3	16.7	2.0	27.8	0.0	0.0	33.2	46.0	-12.8	V	P	
566.422	3.0	42.9	17.9	2.2	27.6	0.0	0.0	35.3	46.0	-10.7	V	P	
693.147	3.0	39.0	19.5	2.4	27.2	0.0	0.0	33.7	46.0	-12.3	V	P	

Rev. 1.27.09
Note: No other emissions were detected above the system noise floor.

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

ANSI C63.4

RESULTS

6 WORST EMISSIONS

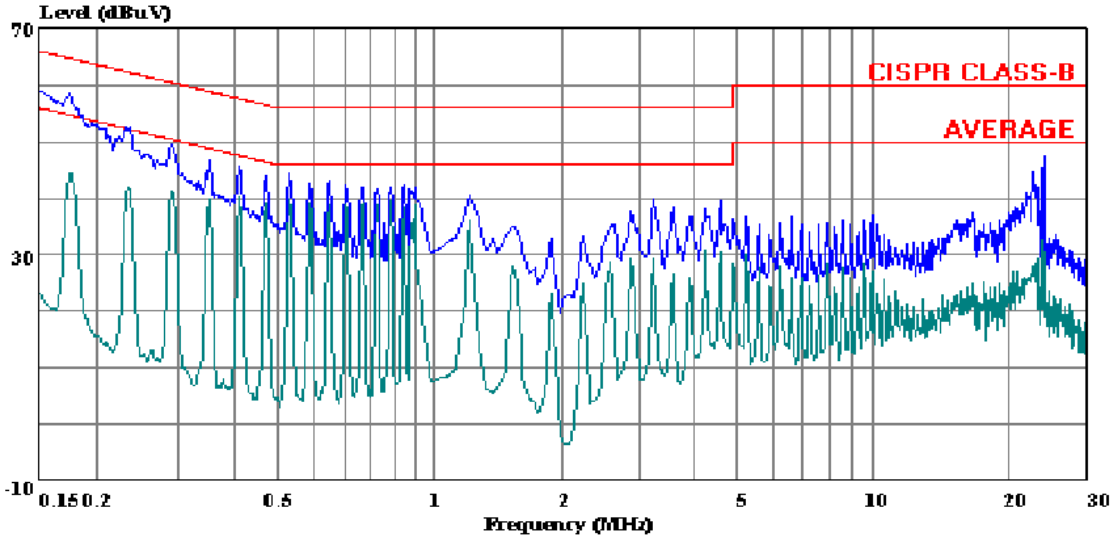
CONDUCTED EMISSIONS DATA (115VAC 60Hz)

Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.17	58.99	--	44.66	0.00	64.77	54.77	-5.78	-10.11	L1
0.23	53.31	--	40.82	0.00	62.31	52.31	-9.00	-11.49	L1
0.29	49.37	--	39.80	0.00	60.50	50.50	-11.13	-10.70	L1
0.17	58.41	--	44.41	0.00	64.77	54.77	-6.36	-10.36	L2
0.23	52.82	--	41.82	0.00	62.38	52.38	-9.56	-10.56	L2
0.29	49.57	--	41.22	0.00	60.50	50.50	-10.93	-9.28	L2
6 Worst Data									

LINE 1 RESULTS

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 14 File#: 10U13492_LC.EMI Date: 12-23-2010 Time: 19:41:07



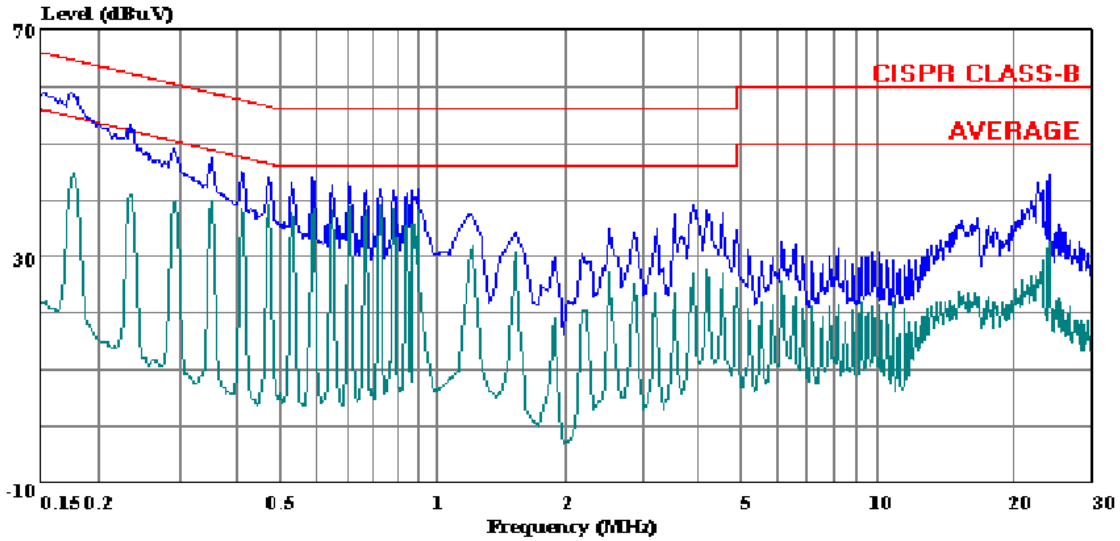
Trace: 12 Ref Trace:

Condition: CISPR CLASS-B
Test Operator: Mengistu Mekuria
Project # : 10U13492
Company : Broadcom
Configuration: EUT with Minimum Configurations
Mode : Tx Worst Case and Active I/O Ports
Target : FCC Class 15B
Voltage : 115VAC/60Hz
: L1:Blue (Peak), Green (Average)

LINE 2 RESULTS

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 7 File#: 10U13492_LC.EMI Date: 12-23-2010 Time: 19:33:42



Trace: 5 Ref Trace:

Condition: CISPR CLASS-B
Test Operator: Mengistu Mekuria
Project # : 10U13492
Company : Broadcom
Configuration: EUT with Minimum Configurations
Mode : Tx Worst Case and Active I/O Ports
Target : FCC Class 15B
Voltage : 115VAC/60Hz
: L2:Blue (Peak), Green (Average)

10. DYNAMIC FREQUENCY SELECTION

10.1. OVERVIEW

10.1.1. LIMITS

INDUSTRY CANADA

IC RSS-210 is closely harmonized with FCC Part 15 DFS rules. The deviations are as follows:

RSS-210 Issue 7 A9.4 (b) (ii) **Channel Availability Check Time:** …

Additional requirements for the band 5600-5650 MHz: Until further notice, devices subject to this Section shall not be capable of transmitting in the band 5600-5650 MHz, so that Environment Canada weather radars operating in this band are protected.

RSS-210 Issue 7 A9.4 (b) (iv) **Channel closing time:** the maximum channel closing time is 260 ms.

FCC

§15.407 (h) and FCC 06-96 APPENDIX "COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVCIES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION".

Table 1: Applicability of DFS requirements prior to use of a channel

Requirement	Operational Mode		
	Master	Client (without radar detection)	Client (with radar detection)
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
Uniform Spreading	Yes	Not required	Not required

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client **(without DFS)**	Client **(with DFS)**
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes

Table 3: Interference Threshold values, Master or Client incorporating In-Service Monitoring

Maximum Transmit Power	Value (see note)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 dBm

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna
Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.

Table 4: DFS Response requirement values

Parameter	Value
Non-occupancy period	30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds
Channel Closing Transmission Time	200 milliseconds + approx. 60 milliseconds over remaining 10 second period
The instant that the *Channel Move Time* and the *Channel Closing Transmission Time* begins is as follows: For the Short pulse radar Test Signals this instant is the end of the *Burst*. For the Frequency Hopping radar Test Signal, this instant is the end of the last radar burst generated. For the Long Pulse radar Test Signal this instant is the end of the 12 second period defining the radar transmission. The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate channel changes (an aggregate of approximately 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.	

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (Microseconds)	PRI (Microseconds)	Pulses	Minimum Percentage of Successful Detection	Minimum Trials
1	1	1428	18	60%	30
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Table 6 – Long Pulse Radar Test Signal

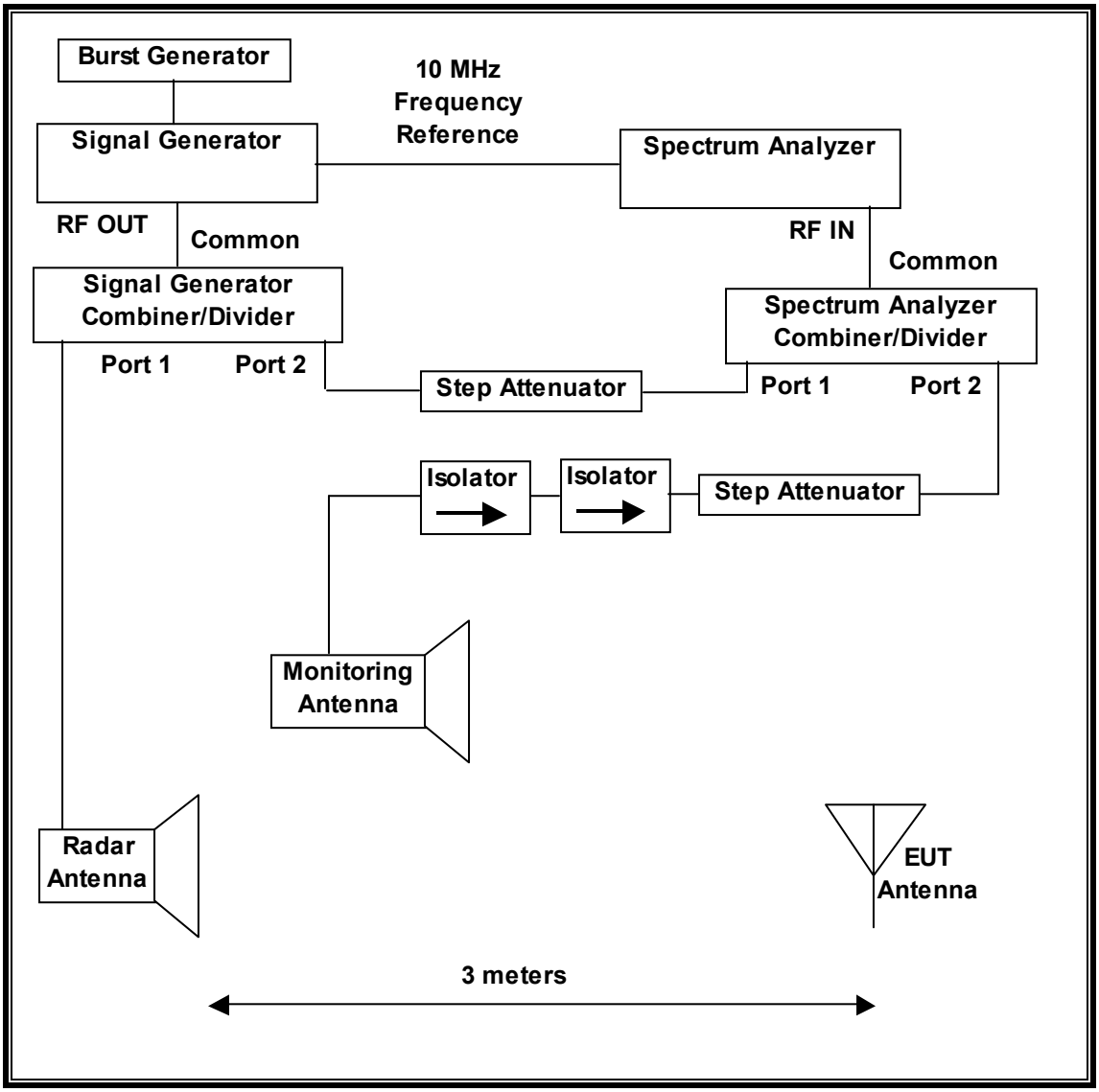
Radar Waveform	Bursts	Pulses per Burst	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Minimum Percentage of Successful Detection	Minimum Trials
5	8-20	1-3	50-100	5-20	1000-2000	80%	30

Table 7 – Frequency Hopping Radar Test Signal

Radar Waveform	Pulse Width (µsec)	PRI (µsec)	Burst Length (ms)	Pulses per Hop	Hopping Rate (kHz)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	300	9	.333	70%	30

10.1.2. TEST AND MEASUREMENT SYSTEM

RADIATED METHOD SYSTEM BLOCK DIAGRAM



SYSTEM OVERVIEW

The short pulse and long pulse signal generating system utilizes the NTIA software. The Vector Signal Generator has been validated by the NTIA. The hopping signal generating system utilizes the CCS simulated hopping method and system, which has been validated by the DoD, FCC and NTIA. The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution.

The short pulse types 2, 3 and 4, and the long pulse type 5 parameters are randomized at run-time.

The hopping type 6 pulse parameters are fixed while the hopping sequence is based on the August 2005 NTIA Hopping Frequency List. The initial starting point randomized at run-time and each subsequent starting point is incremented by 475. Each frequency in the 100-length segment is compared to the boundaries of the EUT Detection Bandwidth and the software creates a hopping burst pattern in accordance with Section 7.4.1.3 Method #2 Simulated Freqeuncy Hopping Radar Waveform Generating Subsystem of FCC 06-96 APPENDIX. The frequency of the signal generator is incremented in 1 MHz steps from F_L to F_H for each successive trial. This incremental sequence is repeated as required to generate a minimum of 30 total trials and to maintain a uniform frequency distribution over the entire Detection Bandwidth.

The signal monitoring equipment consists of a spectrum analyzer. The aggregate ON time is calculated by multiplying the number of bins above a threshold during a particular observation period by the dwell time per bin, with the analyzer set to peak detection and max hold.

SYSTEM CALIBRATION

A 50-ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to a horn antenna via a coaxial cable, with the reference level offset set to (horn antenna gain – coaxial cable loss). The signal generator is set to CW mode. The amplitude of the signal generator is adjusted to yield a level of –64 dBm as measured on the spectrum analyzer.

Without changing any of the instrument settings, the spectrum analyzer is reconnected to the Common port of the Spectrum Analyzer Combiner/Divider. The Reference Level Offset of the spectrum analyzer is adjusted so that the displayed amplitude of the signal is –64 dBm.

The spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device. The interference detection threshold may be varied from the calibrated value of –64 dBm and the spectrum analyzer will still indicate the level as received by the Master Device.

ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL

A link is established between the Master and Slave and the distance between the units is adjusted as needed to provide a suitable received level at the Master and Slave devices. The video test file is streamed to generate WLAN traffic. The monitoring antenna is adjusted so that the WLAN traffic level, as displayed on the spectrum analyzer, is at lower amplitude than the radar detection threshold.

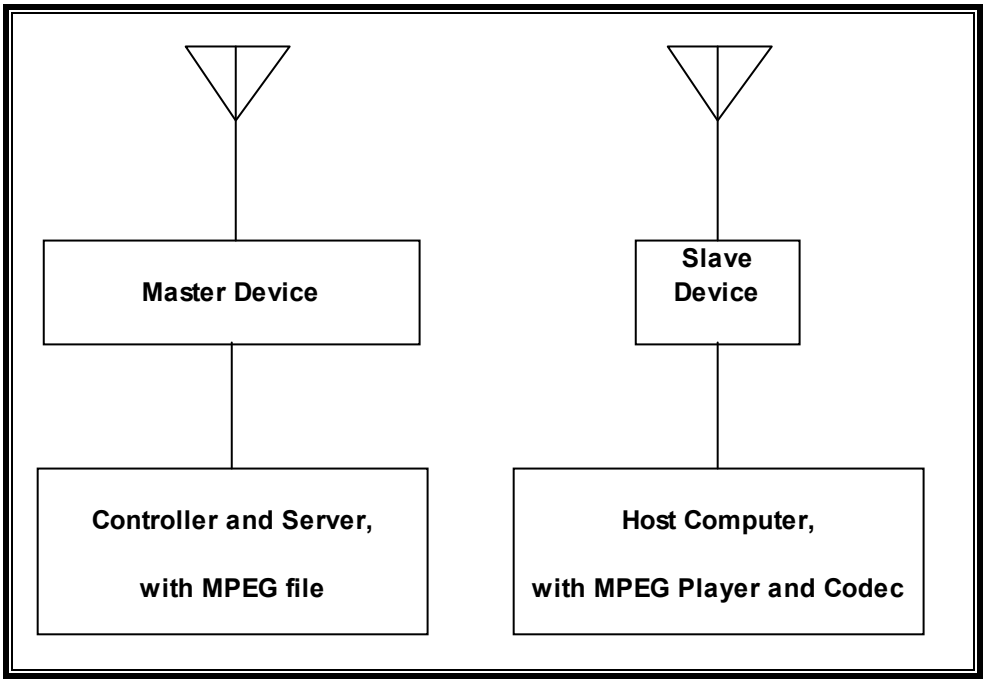
TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the DFS tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Asset Number**	**Cal Due**
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00996	10/29/11
Vector Signal Generator, 20GHz	Agilent / HP	E8267C	C01066	02/12/12

10.1.3. SETUP OF EUT

RADIATED METHOD EUT TEST SETUP



SUPPORT EQUIPMENT

The following test and measurement equipment was utilized for the DFS tests documented in this report:

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Wireless Access Point	Linksys	WRT600NV11	MNR007800466	Q87-WRT600NV11
AC Adapter (AP)	Linksys	DSA-30W-12	01008	DoC
Notebook PC (Host)	HP	Pavilion zv6000	CND5290401	DoC
AC Adapter (Host PC)	HP	PA-1121-12HD	58B240ALLRK0HU	DoC
Notebook PC (Client)	Dell	HEP-E2-C1	69 of 76	DoC
AC Adapter (Client PC)	Delta Electronics	DA65NS0-00	CN-0CF745-48661-741-2P2E	DoC

10.1.4. DESCRIPTION OF EUT

The EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges.

The EUT is a Slave Device without Radar Detection.

The highest power level within these bands is 29.91 dBm EIRP in the 5250-5350 MHz band and 27.12 dBm EIRP in the 5470-5725 MHz band.

The highest individual gain antenna assembly utilized with the EUT has a gain of 6.8 dBi in the 5250-5350 MHz band and 7.06 dBi in the 5470-5725 MHz band. The lowest individual gain antenna assembly utilized with the EUT has a gain of 2.98 dBi in the 5250-5350 MHz band and 4.04 dBi in the 5470-5725 MHz band.

Three non-identical antennas are utilized to meet the diversity and MIMO operational requirements.

The EUT uses three transmitter/receiver chains, each connected to an antenna to perform radiated tests.

WLAN traffic is generated by streaming the video file TestFile.mp2 “6 ½ Magic Hours” from the Master to the Slave in full motion video mode using Microsoft Media Player 9 version 9.00.00.3367 media player.

TPC is required since the maximum EIRP is greater than 500 mW (27 dBm).

The EUT utilizes the 802.11a/n architecture. Two nominal channel bandwidths are implemented: 20 MHz and 40 MHz.

The software installed in the EUT is revision 5.100.98.17

MANUFACTURER’S STATEMENT REGARDING UNIFORM CHANNEL SPREADING

Not Applicable for Slave Devices.

OVERVIEW OF MASTER DEVICE WITH RESPECT TO §15.407 (h) REQUIREMENTS

The Master Device is a Linux Access Point, FCC ID: Q87-WRT600NV11. The DFS software installed in the Master Device is Linux revision 4.101.27. The minimum antenna gain for the Master Device is 1.6 dBi.

The calibrated radiated DFS Detection Threshold level is set to –64 dBm.

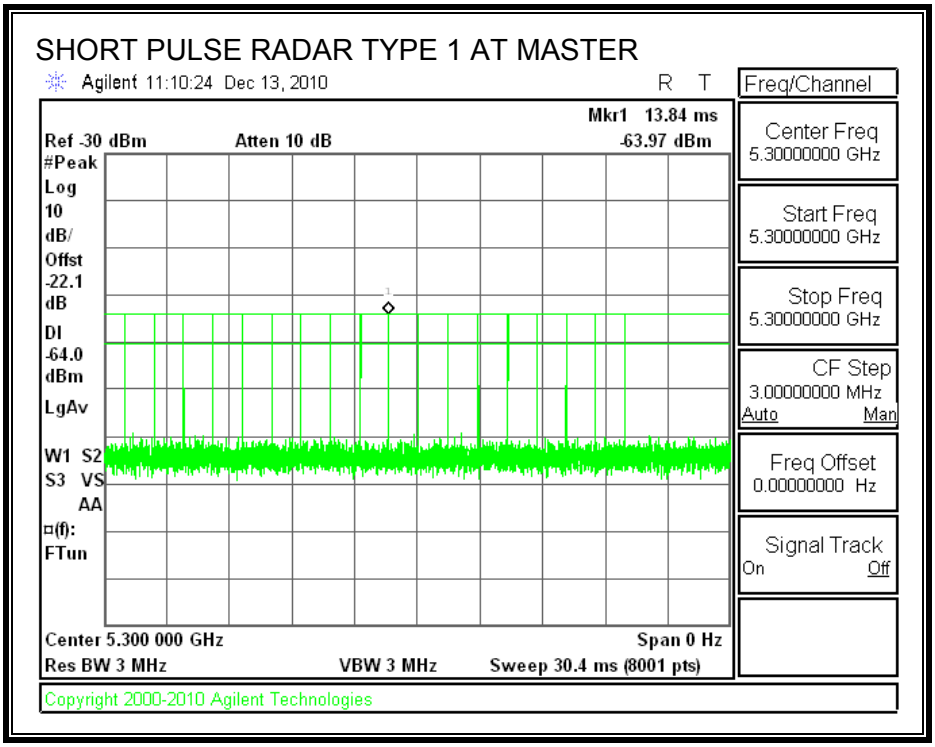
10.2. RESULTS FOR 20 MHz BANDWIDTH

10.2.1. TEST CHANNEL

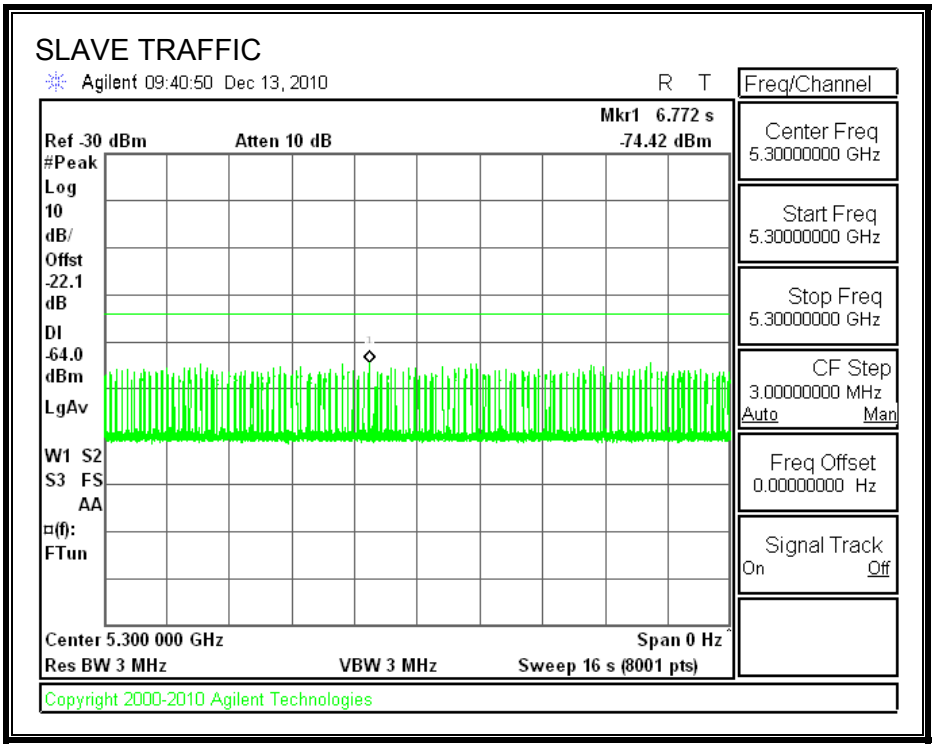
All tests were performed at a channel center frequency of 5300 MHz.

10.2.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



10.2.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

10.2.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the FCC aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

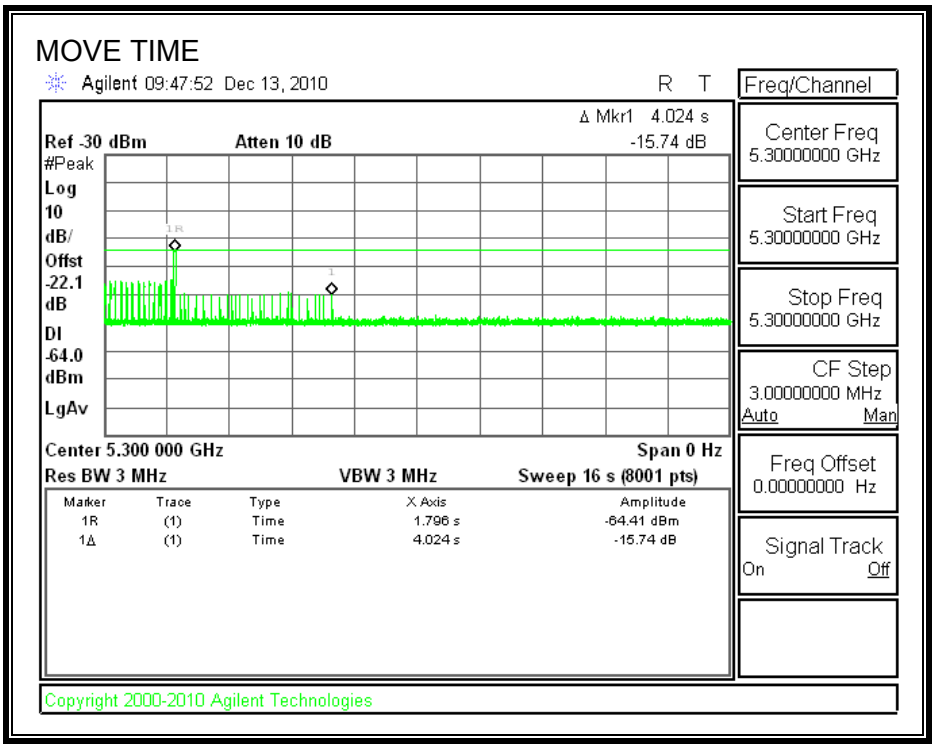
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

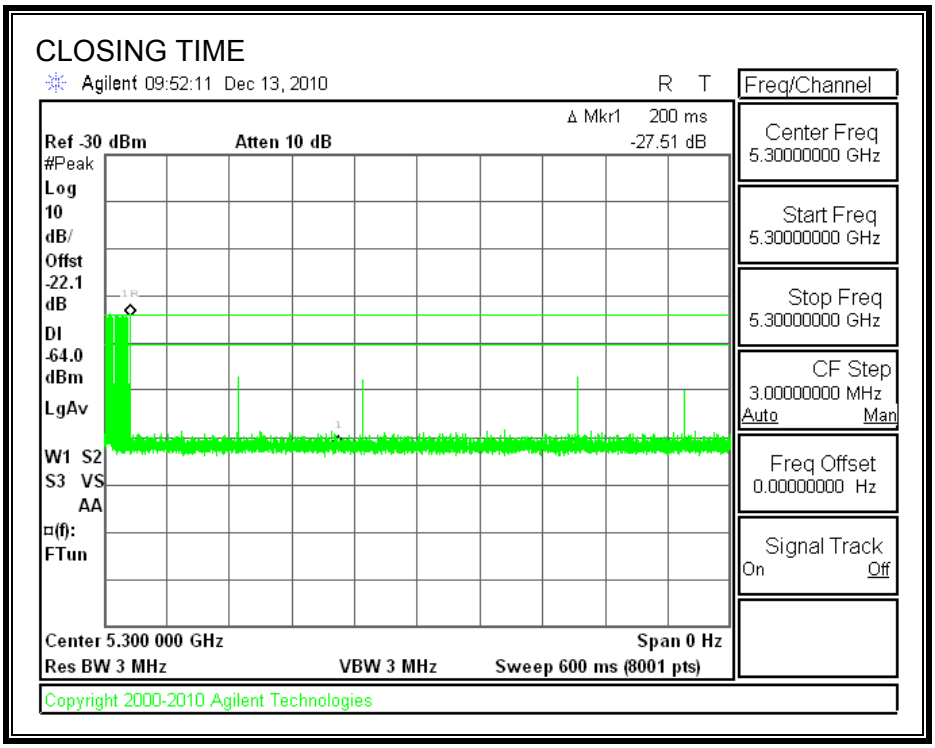
Agency	Channel Move Time (sec)	Limit (sec)
FCC / IC	4.024	10

Agency	Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
FCC	48.0	60
IC	50.0	260

MOVE TIME

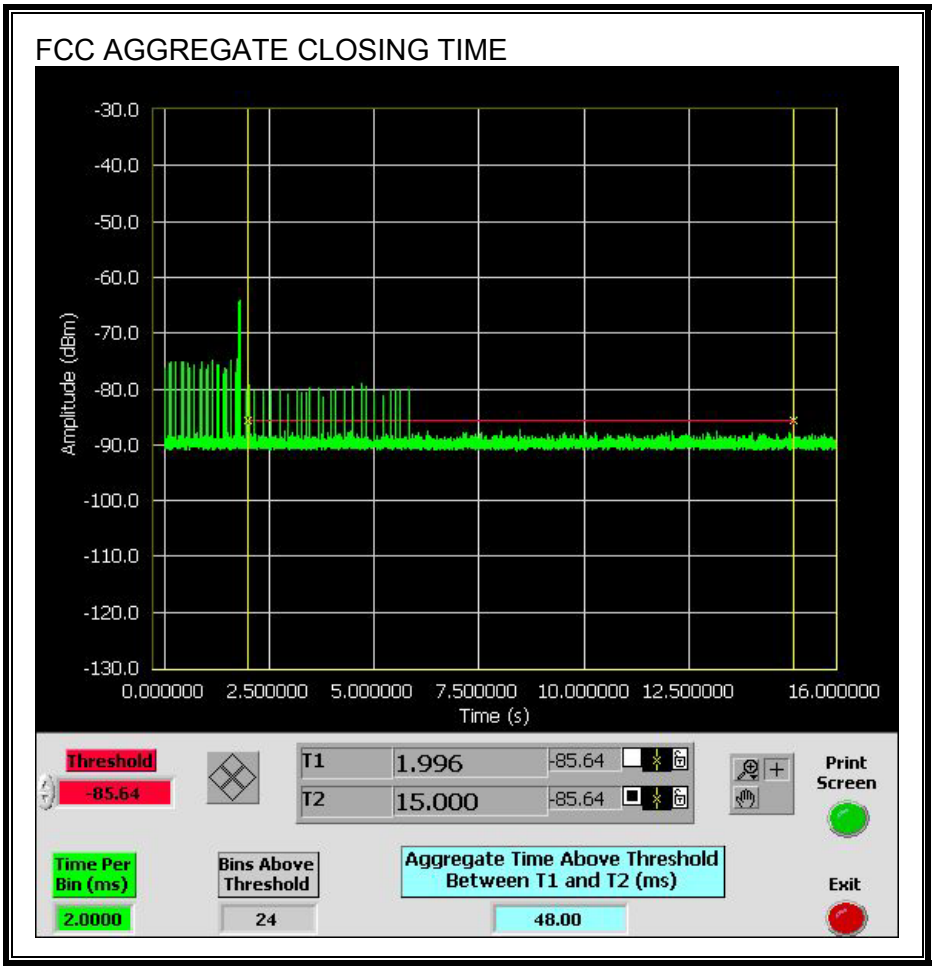


CHANNEL CLOSING TIME

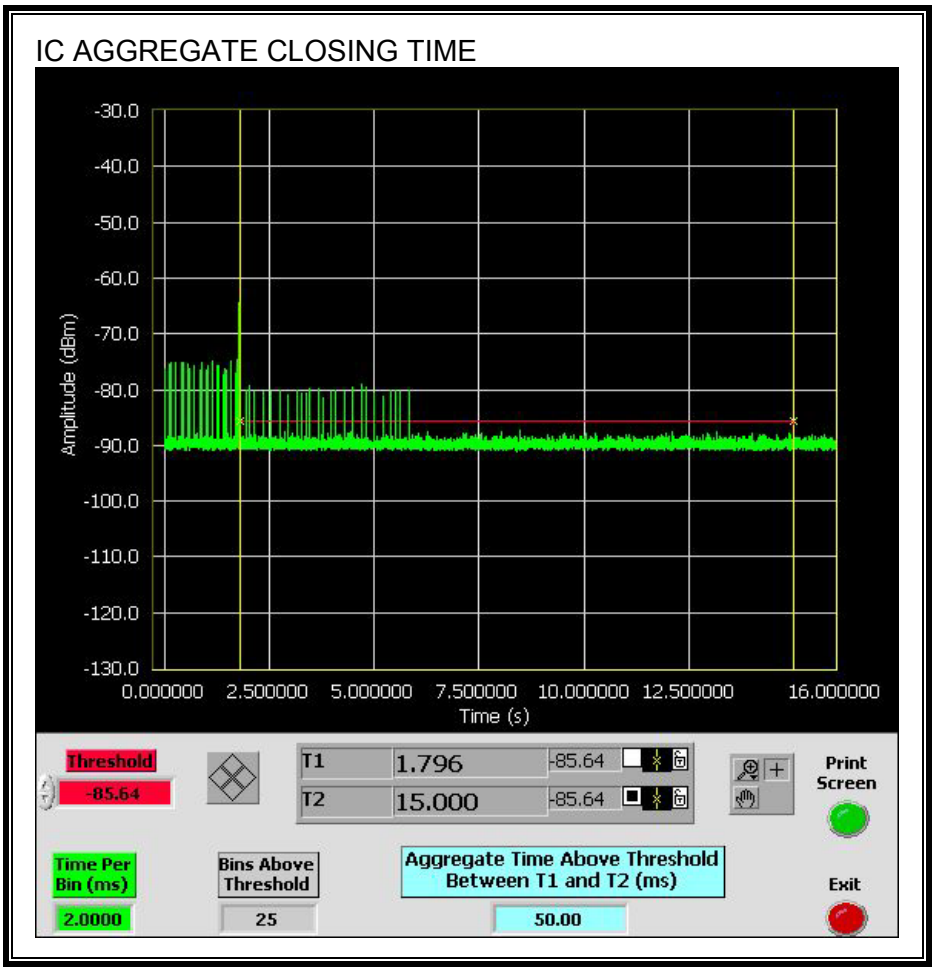


AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

Only intermittent transmissions are observed during the FCC aggregate monitoring period.



Only intermittent transmissions are observed during the IC aggregate monitoring period.



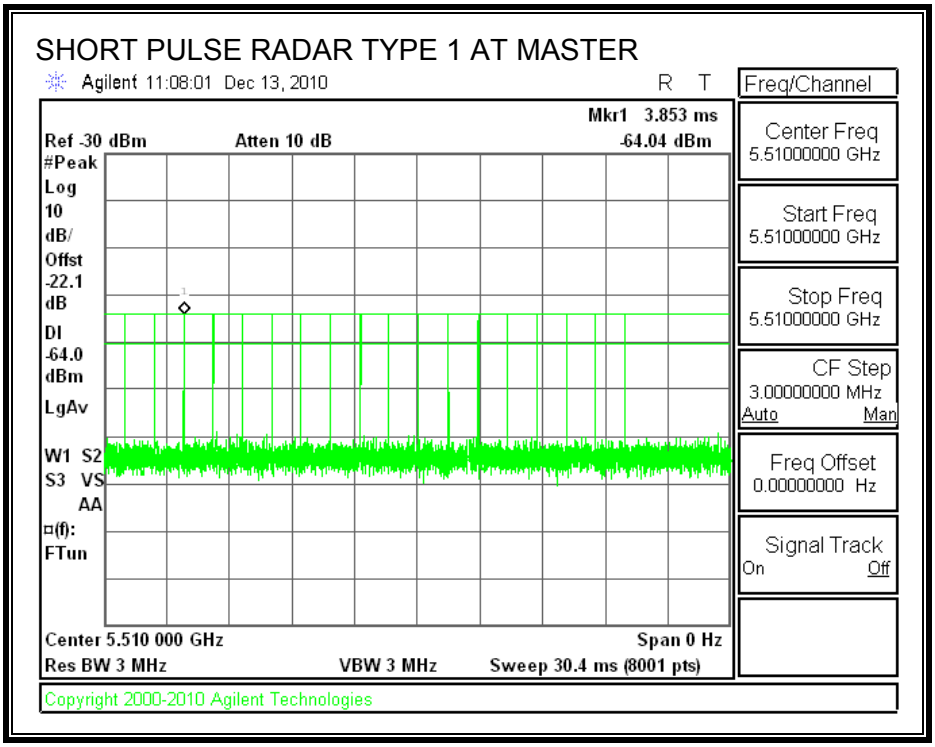
10.3. RESULTS FOR 40 MHz BANDWIDTH

10.3.1. TEST CHANNEL

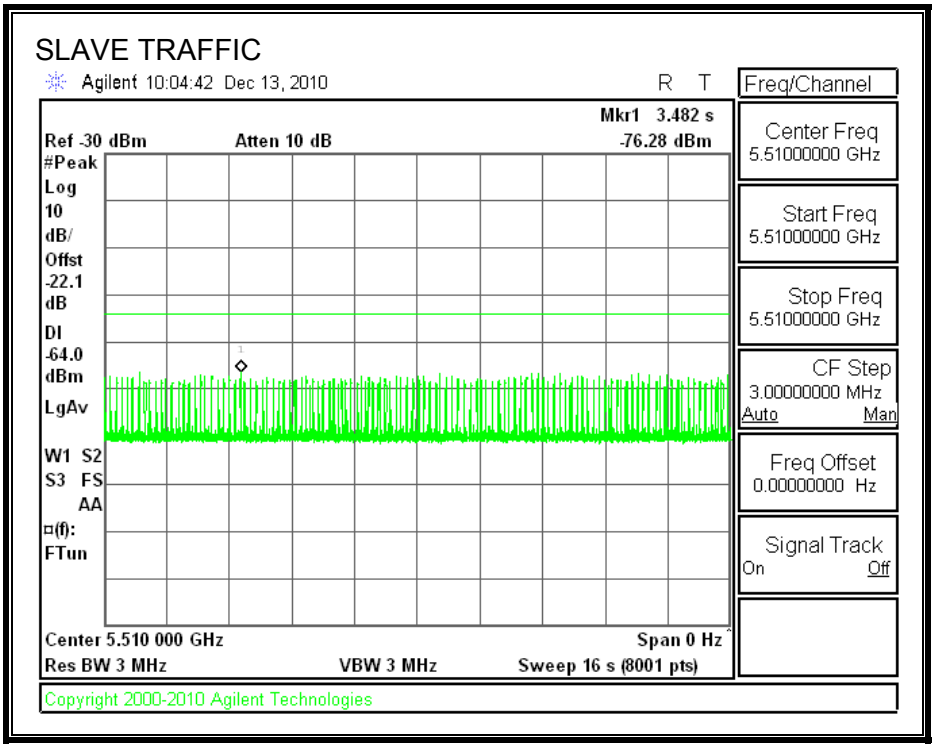
All tests were performed at a channel center frequency of 5510 MHz.

10.3.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



10.3.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

10.3.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the FCC aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

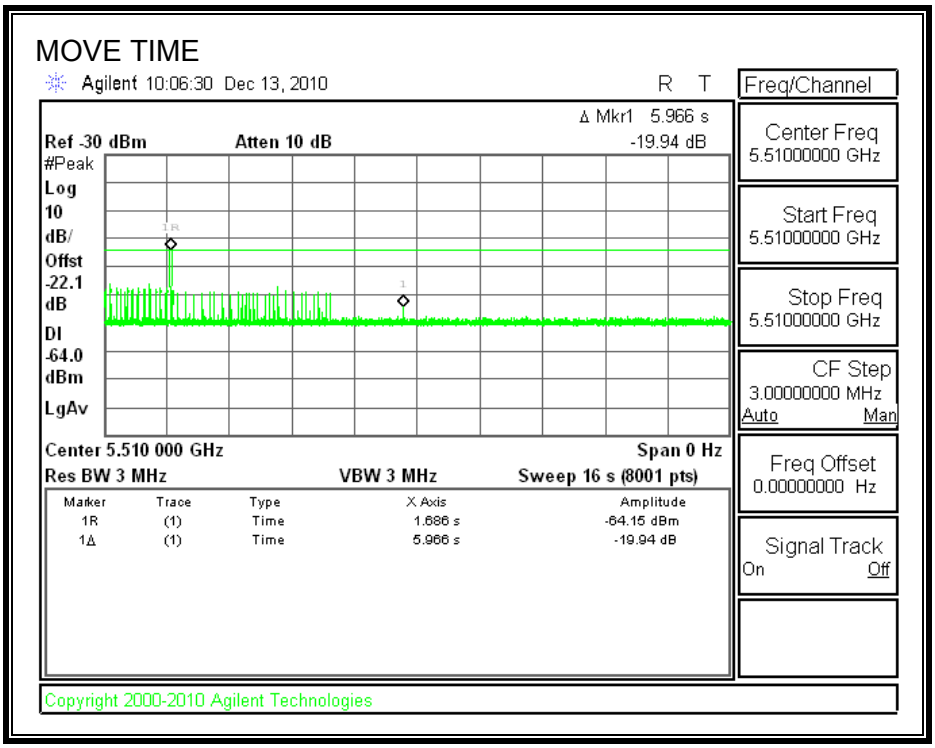
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

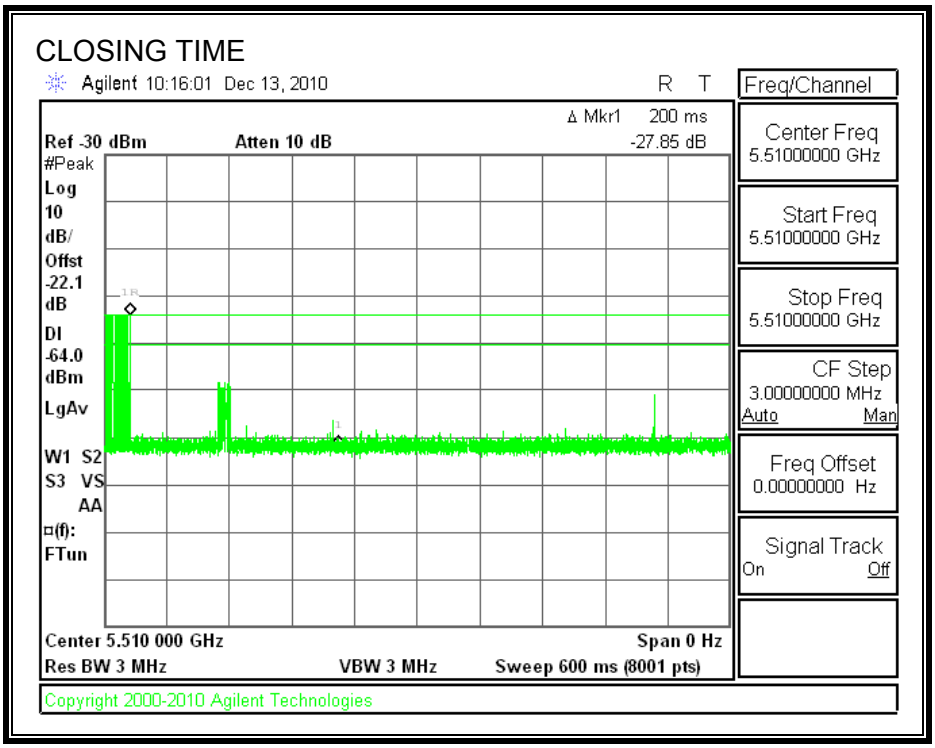
Agency	Channel Move Time (sec)	Limit (sec)
FCC / IC	5.966	10

Agency	Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
FCC	27.0	60
IC	28.0	260

MOVE TIME

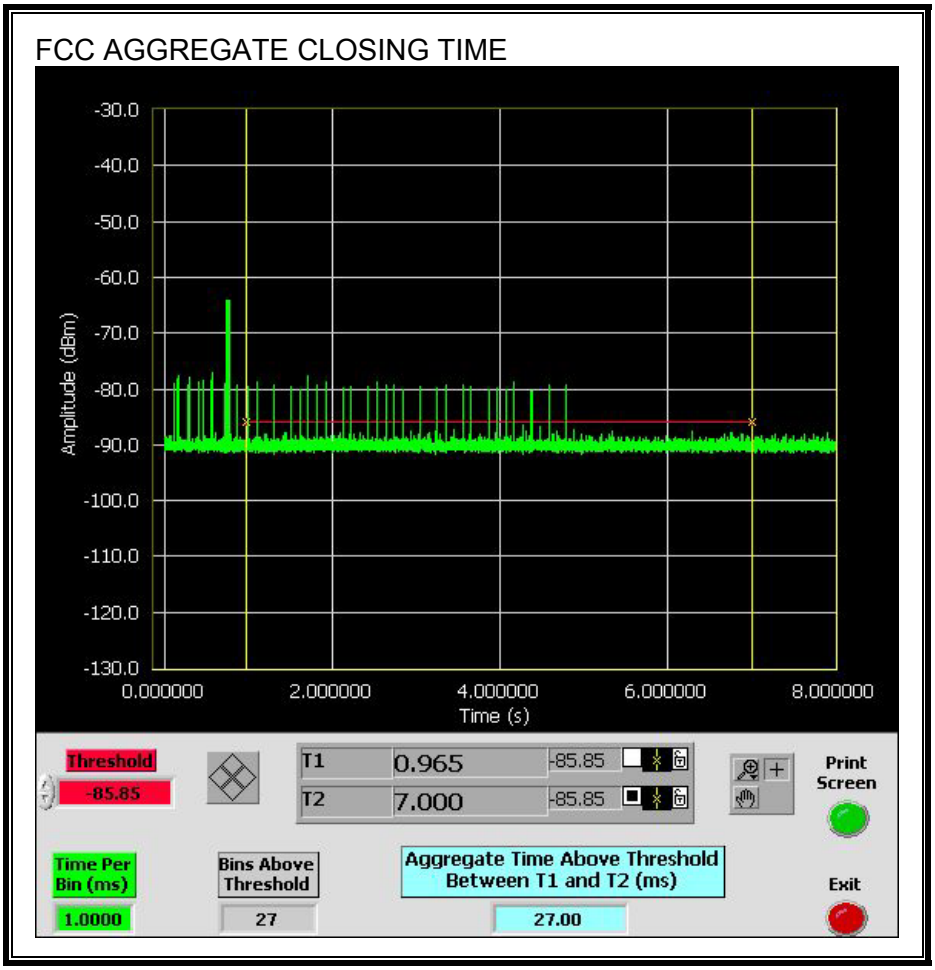


CHANNEL CLOSING TIME

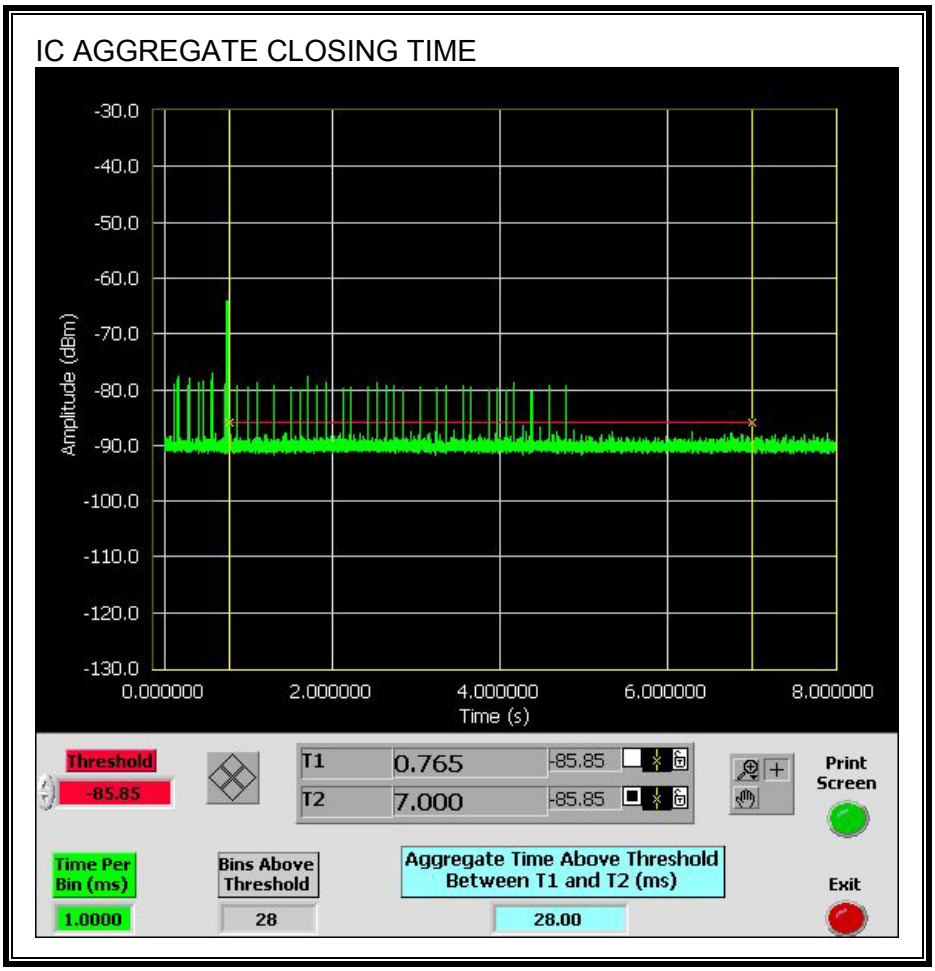


AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

Only intermittent transmissions are observed during the FCC aggregate monitoring period.



Only intermittent transmissions are observed during the IC aggregate monitoring period.



10.3.5. NON-OCCUPANCY PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 30-minute observation time.