

### 8.8.2. 99% BANDWIDTH

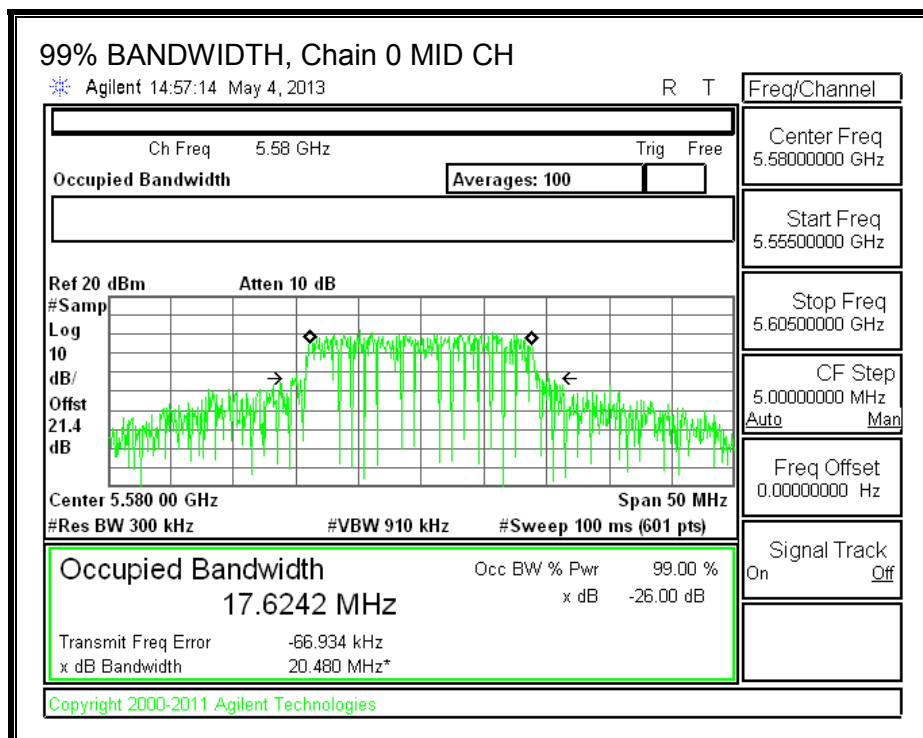
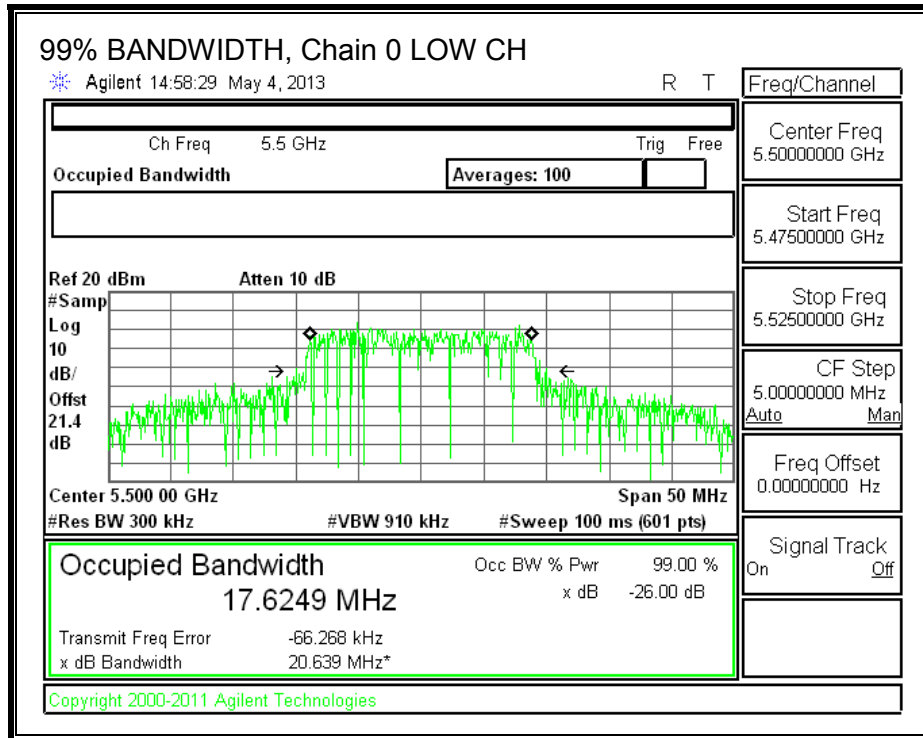
#### LIMITS

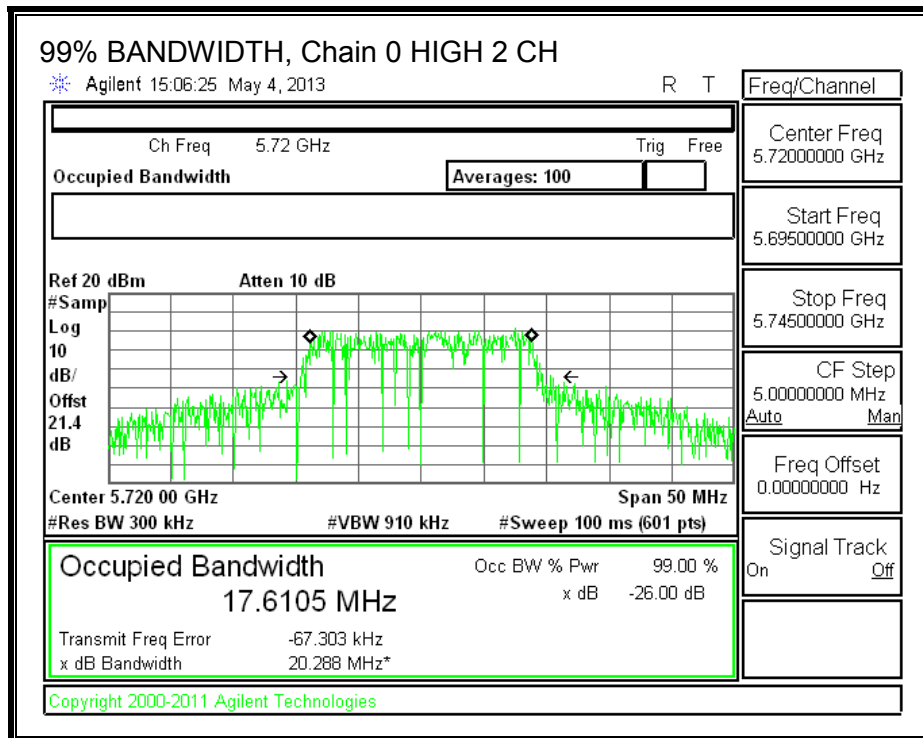
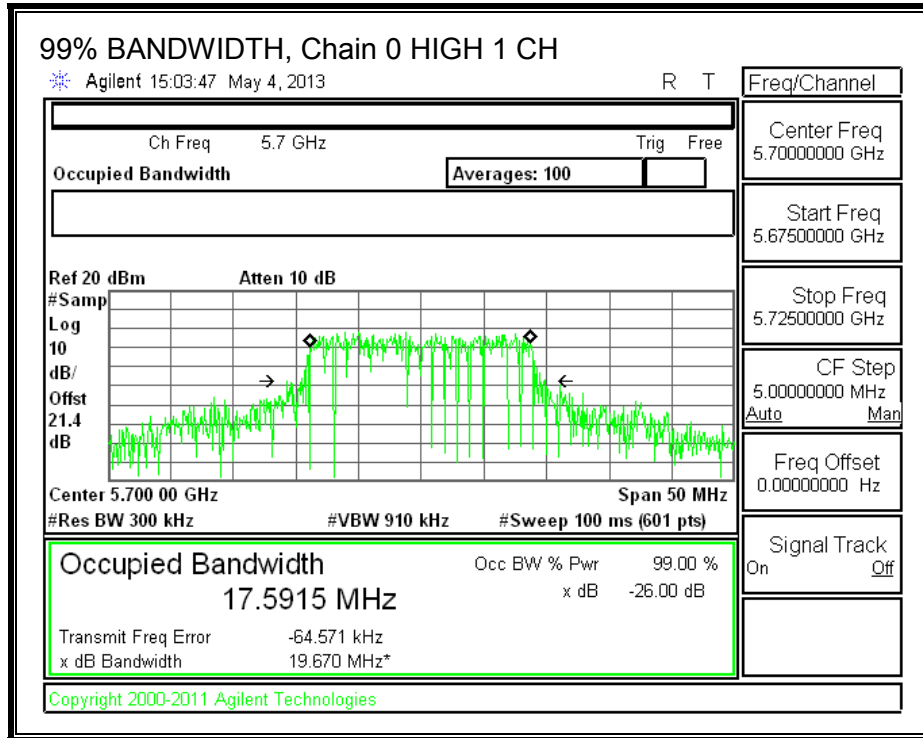
None; for reporting purposes only.

#### RESULTS

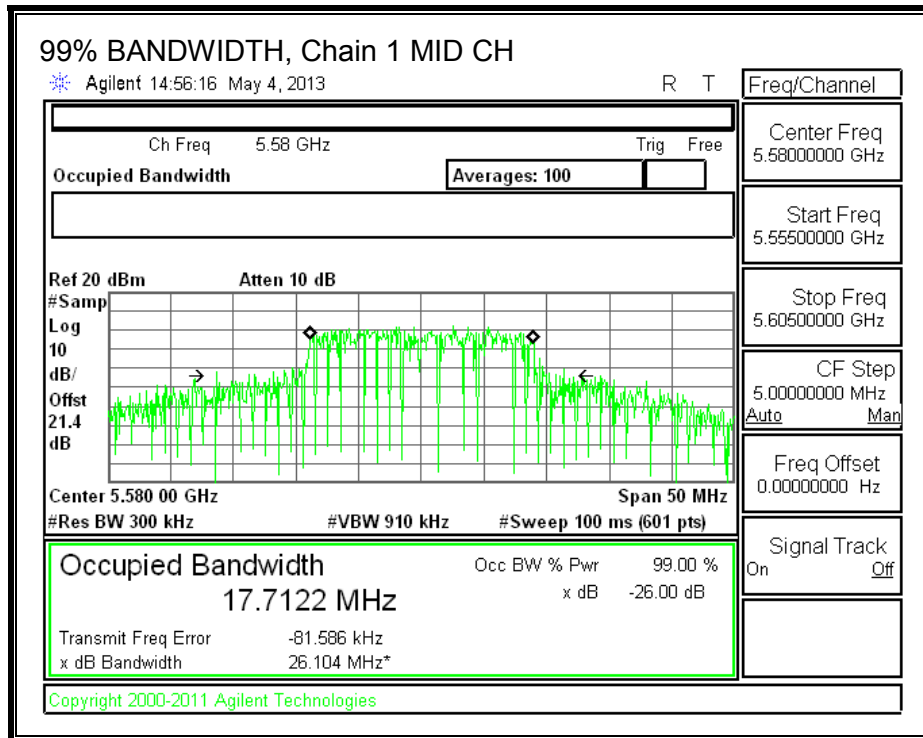
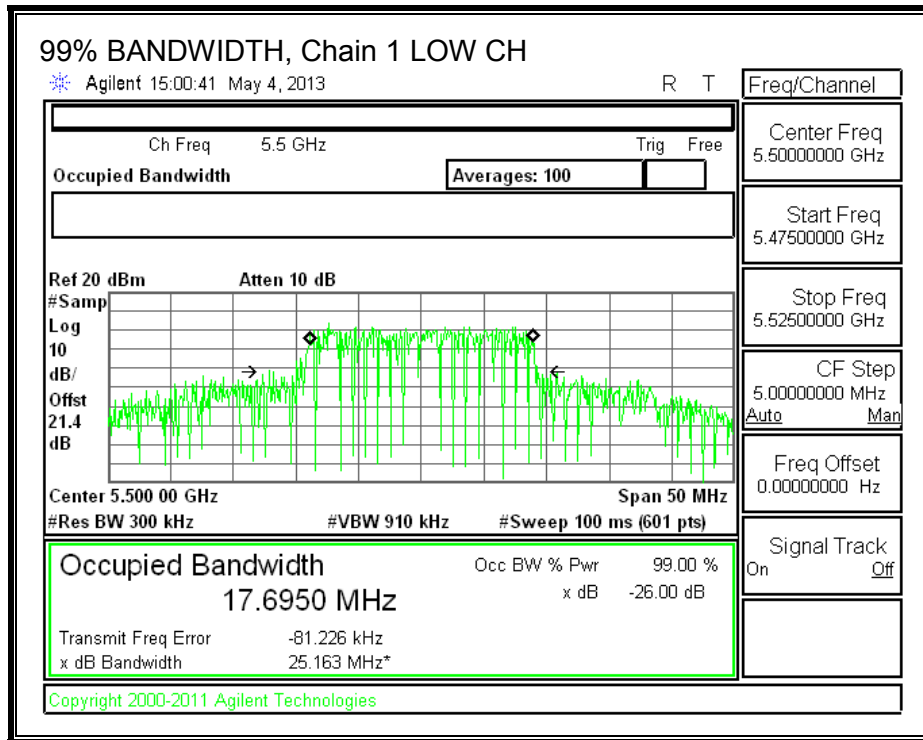
Channel	Frequency (MHz)	99% BW	
		Chain 0 (MHz)	Chain 1 (MHz)
Low	5500	17.6249	17.6950
Mid	5580	17.6242	17.7122
High 1	5700	17.5915	17.6260
High 2	5720	17.6105	17.6990

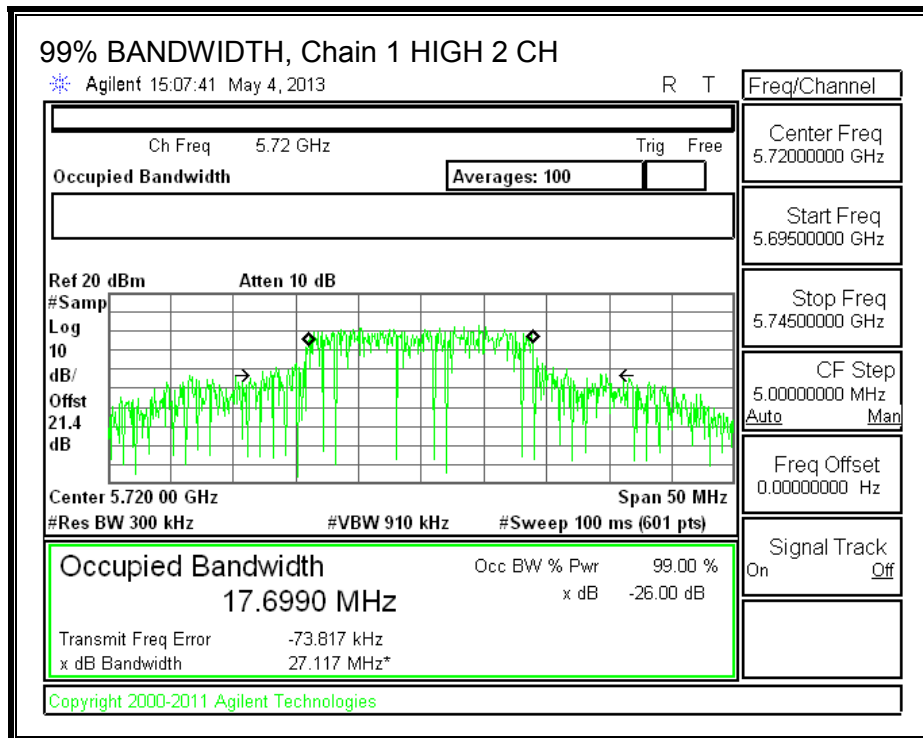
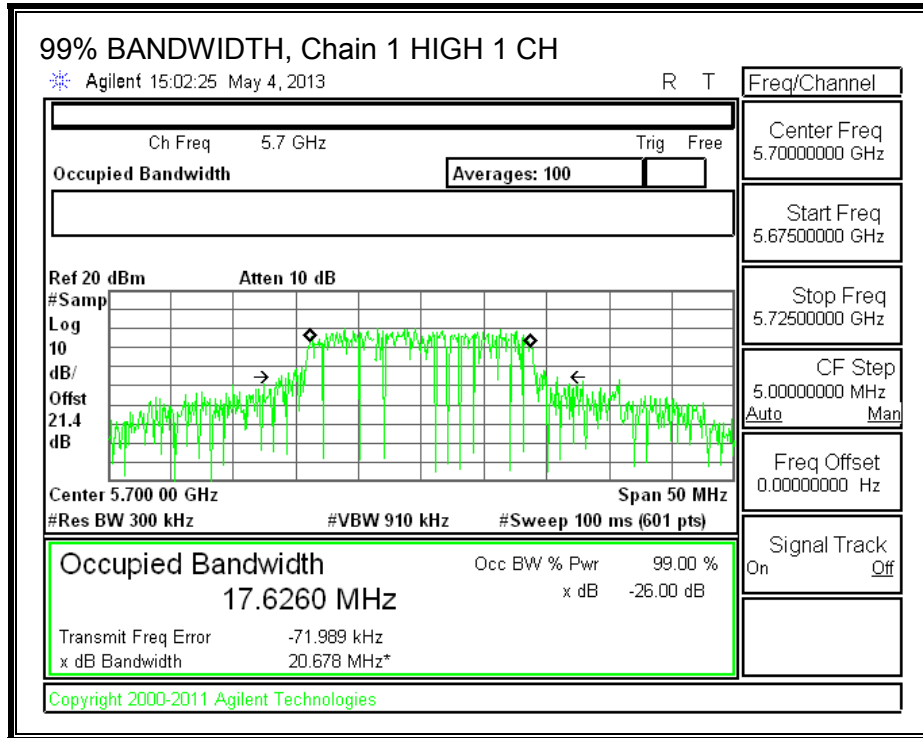
**99% BANDWIDTH, Chain 0**





**99% BANDWIDTH, Chain 1**





### 8.8.3. AVERAGE POWER (No filter Unit)

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 25.41 dB (including two 10 dB pads, 2.01 dB cables, and 3.4 dB power splitter) was entered as an offset in the power meter to allow for direct reading of power.

#### RESULTS

##### Average Power Results

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5500	13.40	14.90	17.22
Mid	5580	12.70	13.80	16.30
High 1	5700	10.50	12.30	14.50
High 2	5720	12.60	14.10	16.42

### 8.8.4. AVERAGE POWER (3G filter unit)

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 25.41 dB (including two 10 dB pads, 2.01 dB cables, and 3.4 dB power splitter) was entered as an offset in the power meter to allow for direct reading of power.

#### RESULTS

##### Average Power Results

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
High 2	5720	10.30	12.52	14.56



### 8.8.5. OUTPUT POWER AND PPSD (no filter unit)

#### LIMITS

FCC §15.407 (a) (1)

For the band 5.5–5.7 GHz, 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. In addition, 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 maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log<sub>10</sub> B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

#### DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is the same for each chain. The directional gain is equal to the antenna gain.

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
2.00	2.00	2.00

**RESULTS**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	24.27	17.6249	2.00
Mid	5580	28.33	17.6242	2.00
High 1	5700	20.75	17.5915	2.00
High 2	5720	21.58	17.6105	2.00

**Limits**

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	24.00	23.46	29.46	23.46	11.00	11.00	11.00
Mid	5580	24.00	23.46	29.46	23.46	11.00	11.00	11.00
High 1	5700	24.00	23.45	29.45	23.45	11.00	11.00	11.00
High 2	5720	24.00	23.46	29.46	23.46	11.00	12.00	11.00

<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd Power &amp; PPSD</b>
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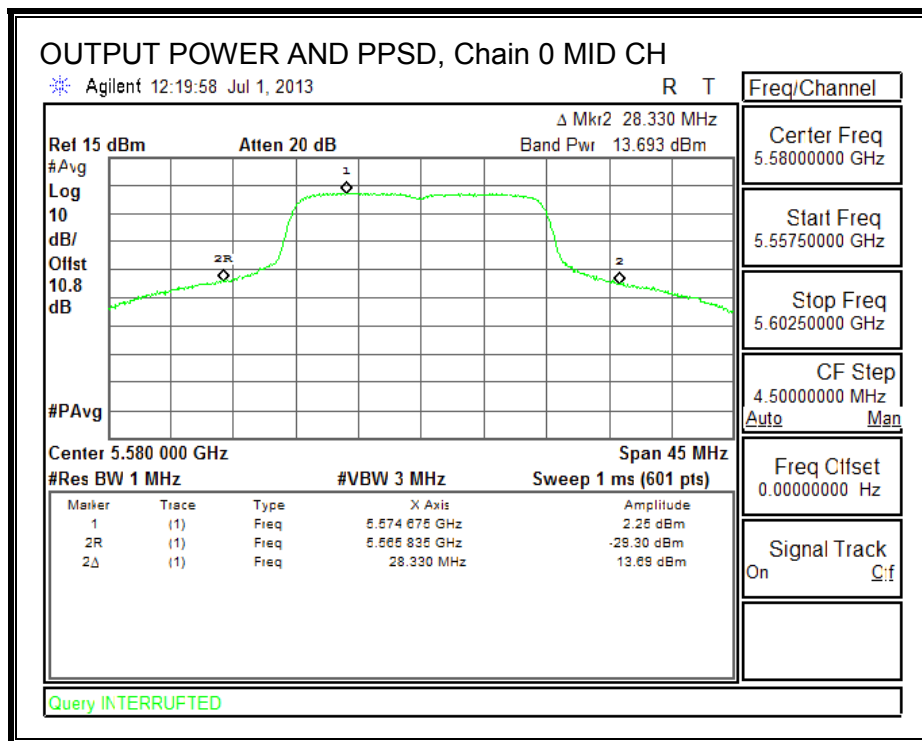
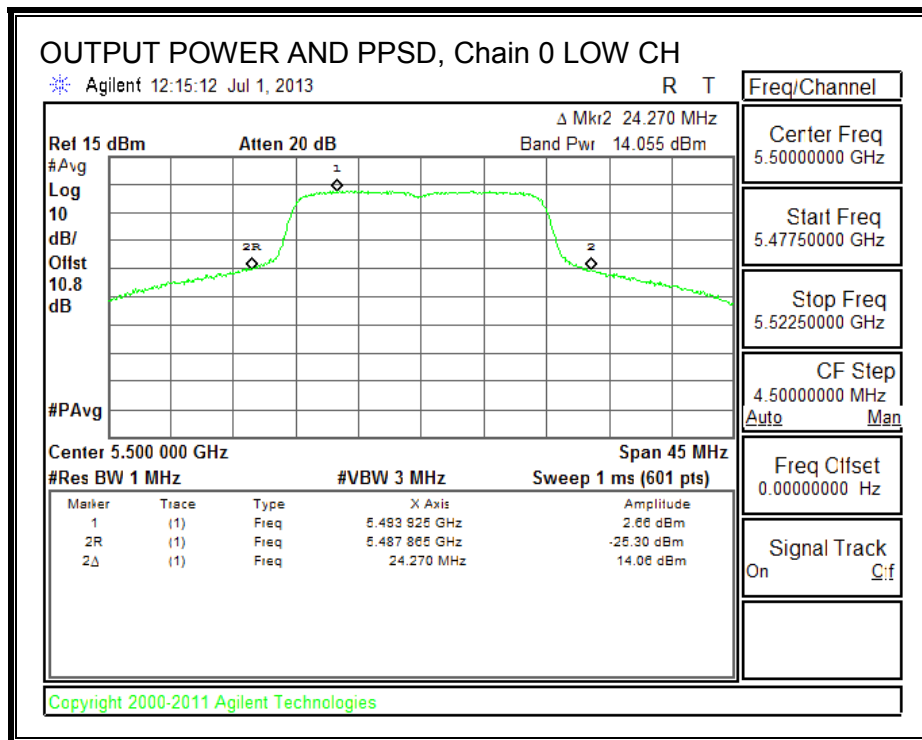
**Output Power Results**

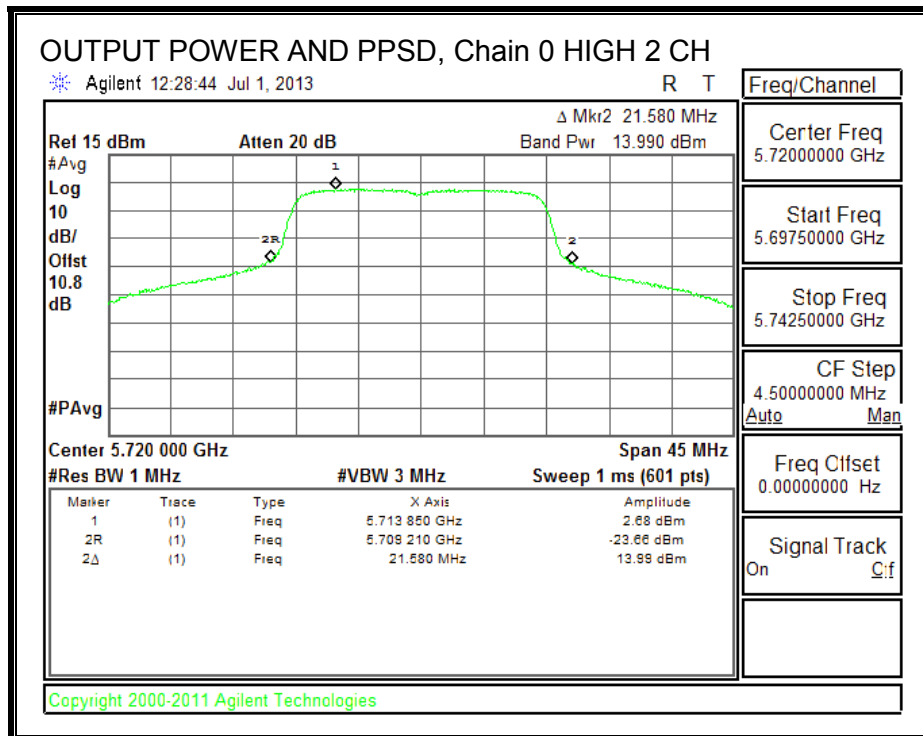
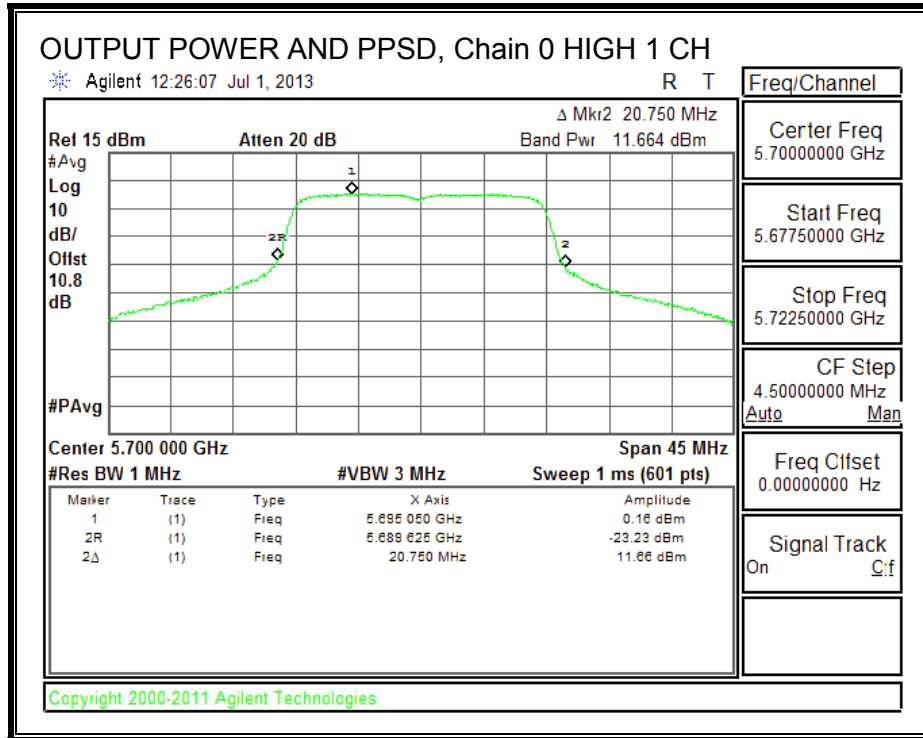
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	14.055	15.608	17.911	23.46	-5.550
Mid	5580	13.693	15.436	17.662	23.46	-5.799
High 1	5700	11.664	13.355	15.602	23.45	-7.851
High 2	5720	13.990	15.443	17.787	23.46	-5.670

**PPSD Results**

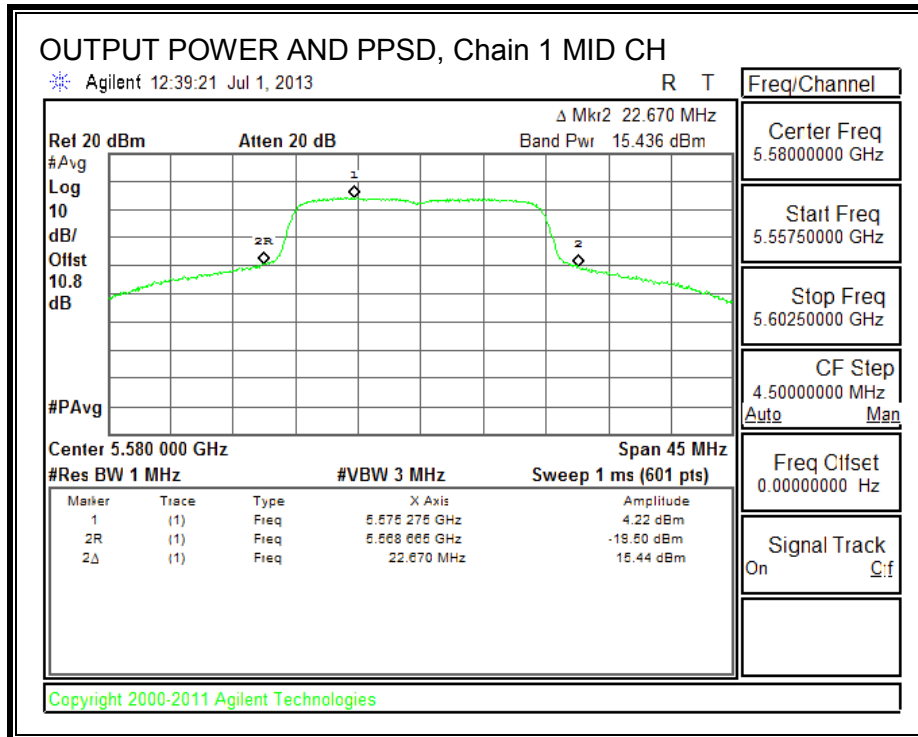
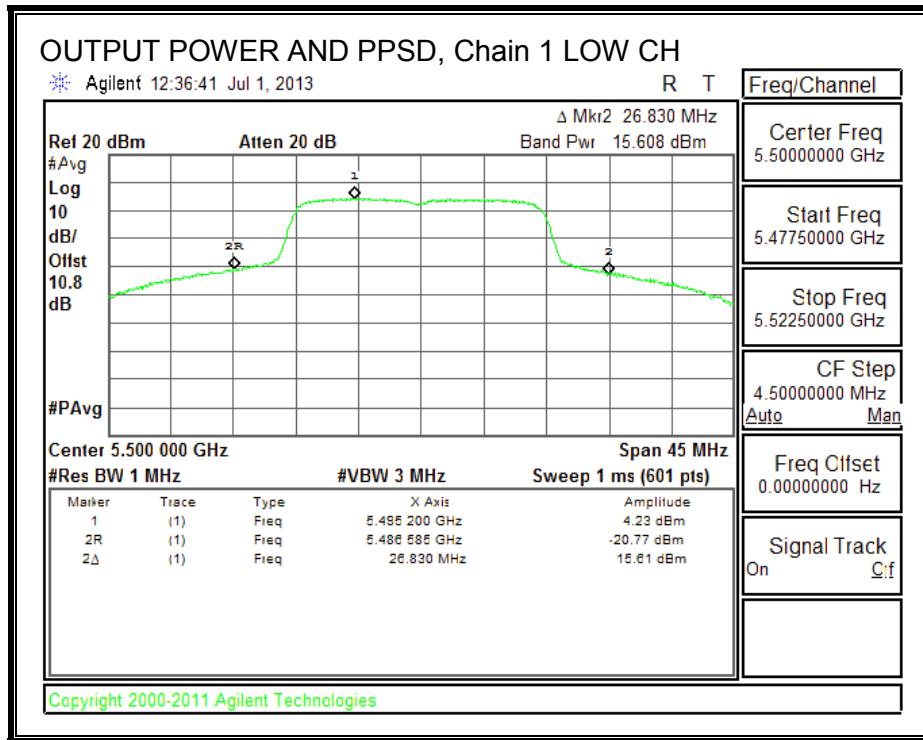
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	2.66	4.23	6.53	11.00	-4.47
Mid	5580	2.25	4.22	6.36	11.00	-4.64
High 1	5700	0.16	1.88	4.11	11.00	-6.89
High 2	5720	2.68	4.11	6.46	11.00	-4.54

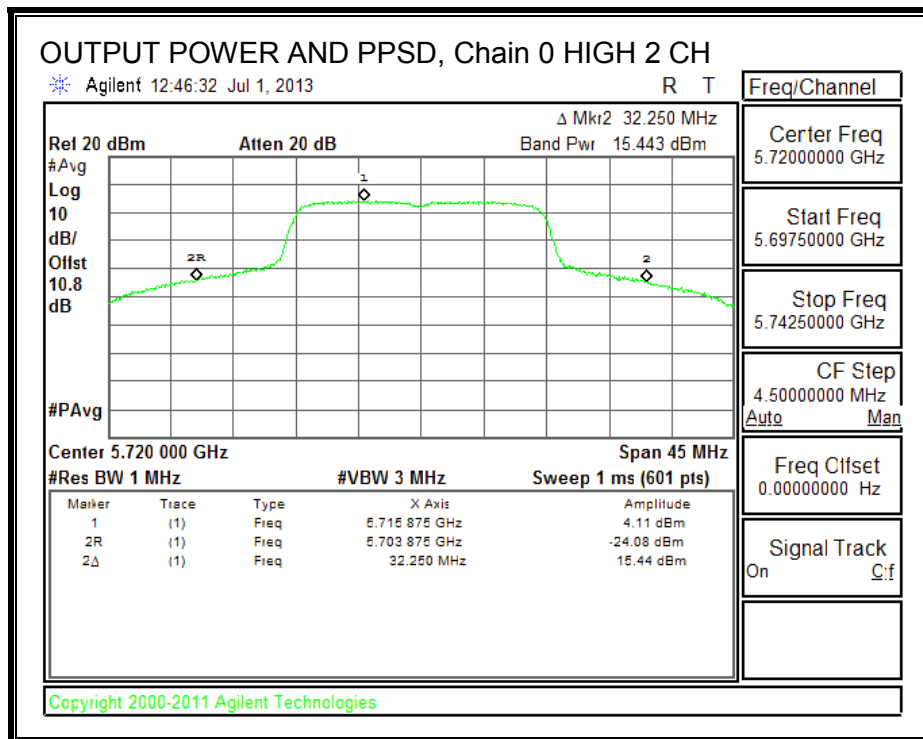
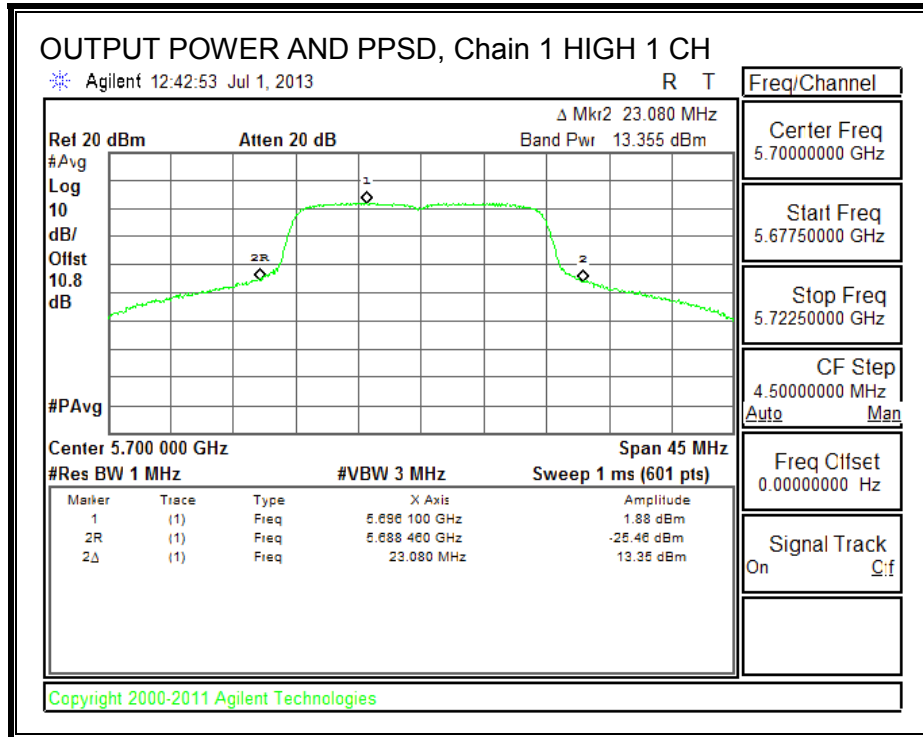
**OUTPUT POWER AND PPSD, Chain 0**





**OUTPUT POWER AND PPSD, Chain 1**





### 8.8.6. OUTPUT POWER AND PPSD (3G filter unit)

#### LIMITS

FCC §15.407 (a) (1)

For the band 5.5–5.7 GHz, 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. In addition, 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 maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log<sub>10</sub> B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

#### DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is the same for each chain. The directional gain is equal to the antenna gain.

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
2.00	2.00	2.00

**RESULTS**

**Bandwidth and Antenna Gain**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
High 2	5720	21.58	17.6105	2.00

**Limits**

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
High 2	5720	24.00	23.46	29.46	23.46	11.00	12.00	11.00

<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd Power &amp; PPSD</b>
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**Output Power Results**

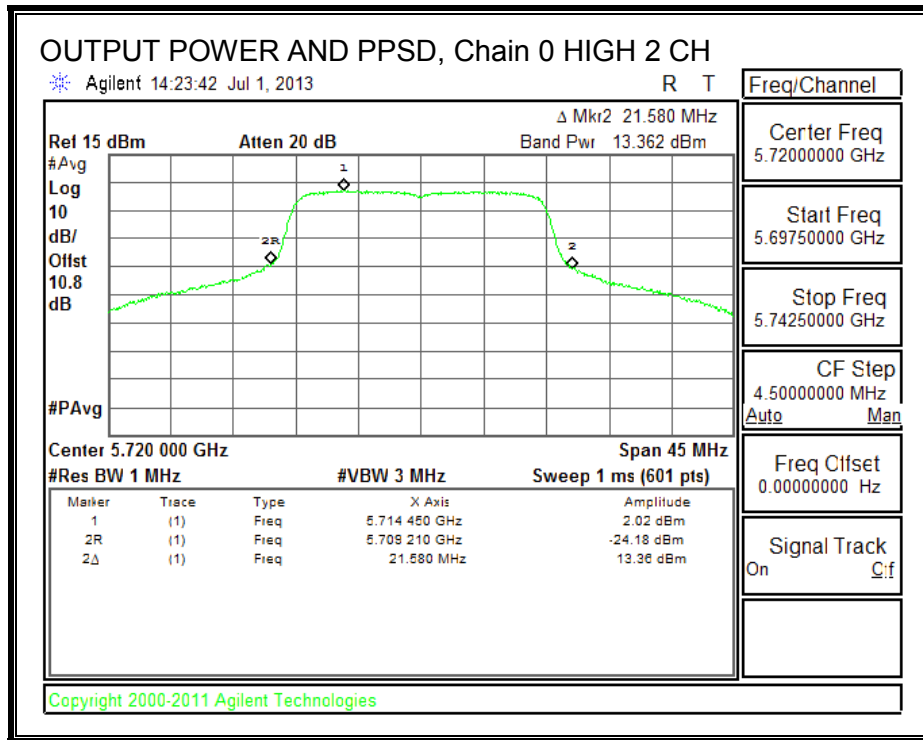
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High 2	5720	13.362	12.001	15.745	23.46	-7.713

**PPSD Results**

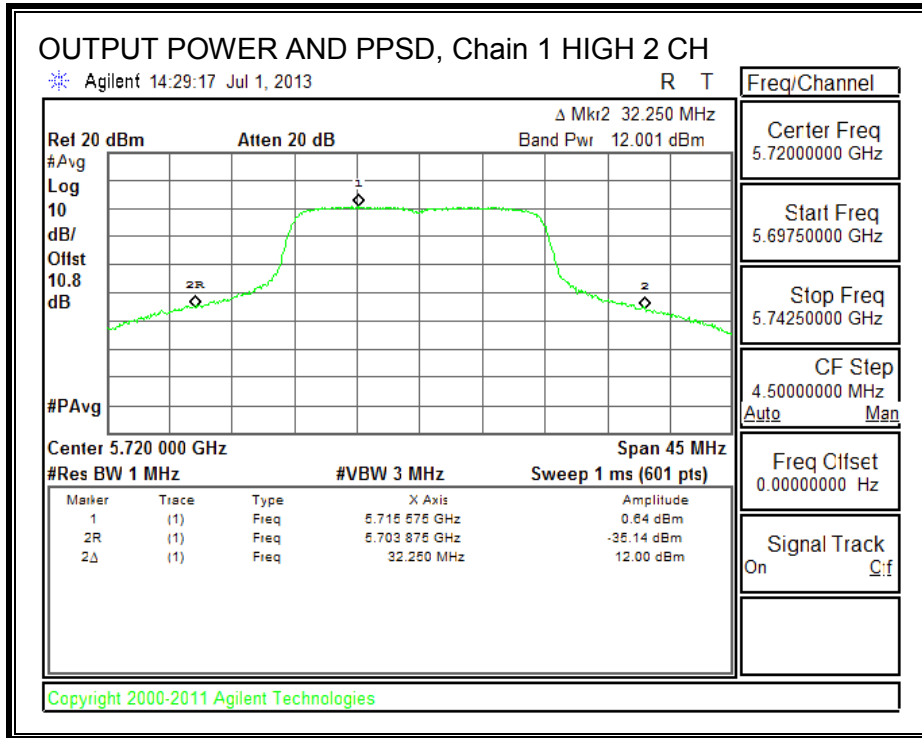
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
High 2	5720	2.02	0.64	4.39	11.00	-6.61



**OUTPUT POWER AND PPSD, Chain 0**



**OUTPUT POWER AND PPSD, Chain 1**



**8.8.7. 802.11n HT20 CH 144 2TX MODE IN THE 5.8 GHz BAND**  
**DTS/UNII = 5720 MHz**

**OUTPUT POWER AND PSD**

**LIMITS**

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**DIRECTIONAL ANTENNA GAIN**

For output power, the two chains are considered uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

<b>Chain 0 Antenna Gain (dBi)</b>	<b>Chain 1 Antenna Gain (dBi)</b>	<b>Uncorrelated Chains Directional Gain (dBi)</b>
2.00	2.00	2.00

For PSD, the two chains are considered correlated and the antenna gain is unequal among the chains. The directional gain is:

<b>Chain 0 Antenna Gain (dBi)</b>	<b>Chain 1 Antenna Gain (dBi)</b>	<b>Correlated Chains Directional Gain (dBi)</b>
2.00	2.00	5.01

Worst-case correlated antenna gain of 5.01 dBi was used in the output power and PSD table.

**RESULTS**

**Bandwidth and Antenna Gain**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Correlated Gain (dBi)	Uncorrelated Gain (dBi)
High	5720	15.79	13.8053	5.01	2.00

**Limits**

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
High	5720	22.98	22.40	28.40	22.40	11.00	11.00	11.00

<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of PPSD</b>
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**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5720	10.667	12.051	14.424	28.40	-13.976

**PPSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
High	5720	0.26	1.61	4.00	11.00	-7.00

**Limits (FCC), portion in 5.8 GHz DTS band**

**Bandwidth and Antenna Gain**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Correlated Gain (dBi)	Uncorrelated Gain (dBi)
High	5720	5.79	3.8053	5.01	2.00

**Limits**

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
High	5720	18.63	16.80	22.80	16.80	11.00	11.00	11.00

<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of PPSD</b>
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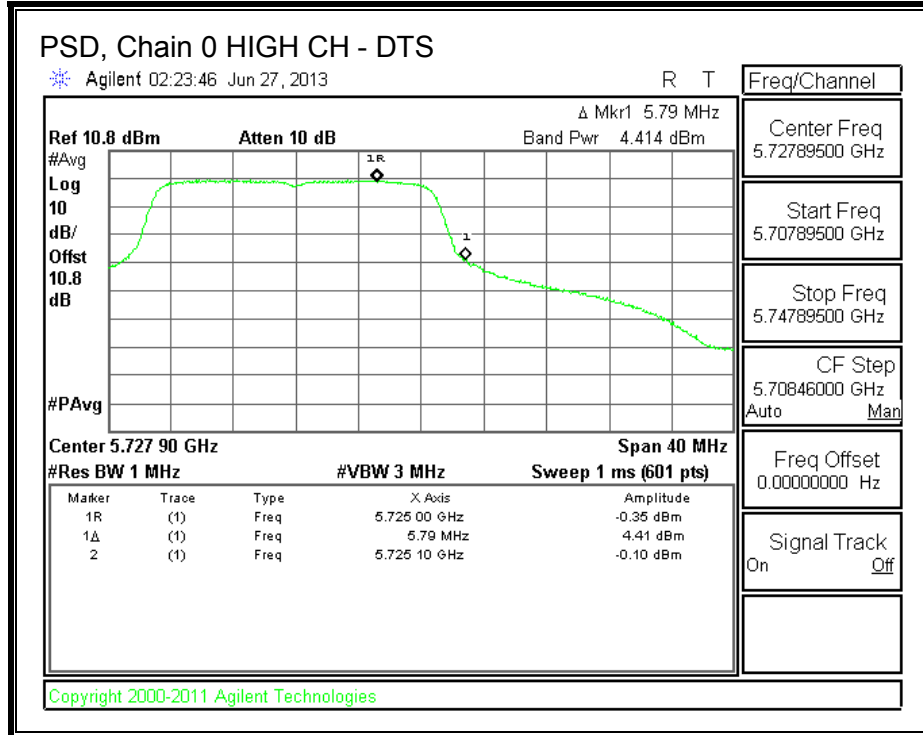
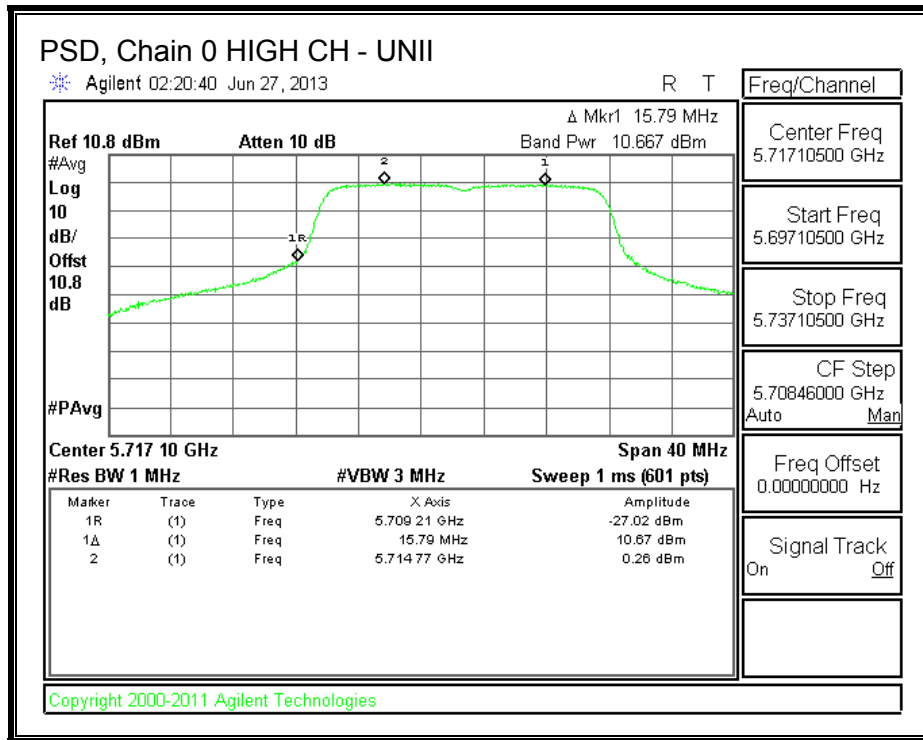
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5720	4.414	6.097	8.347	22.80	-14.457

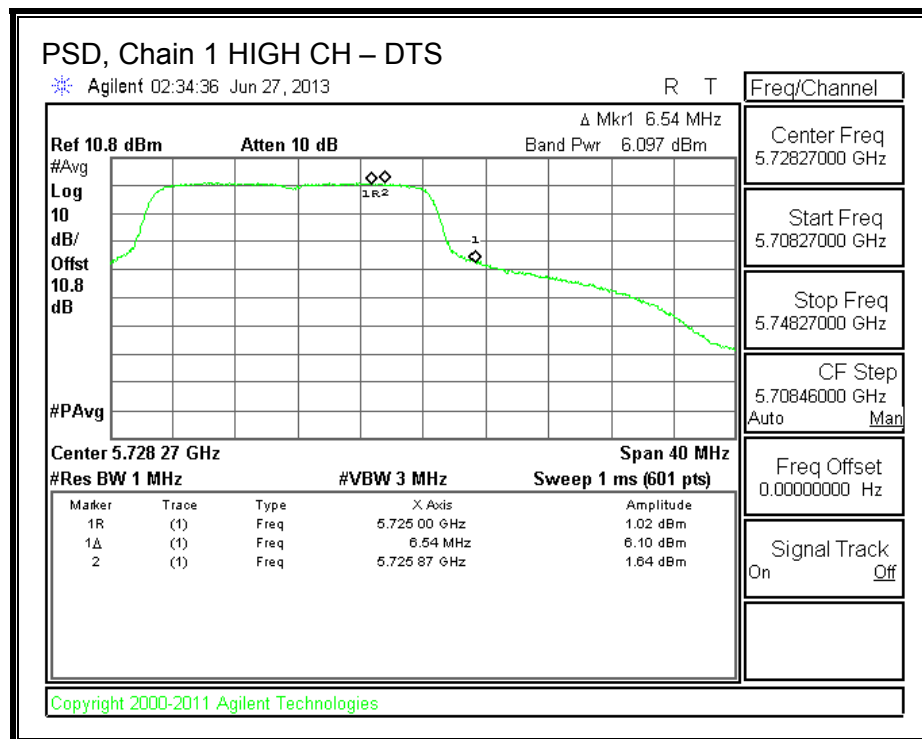
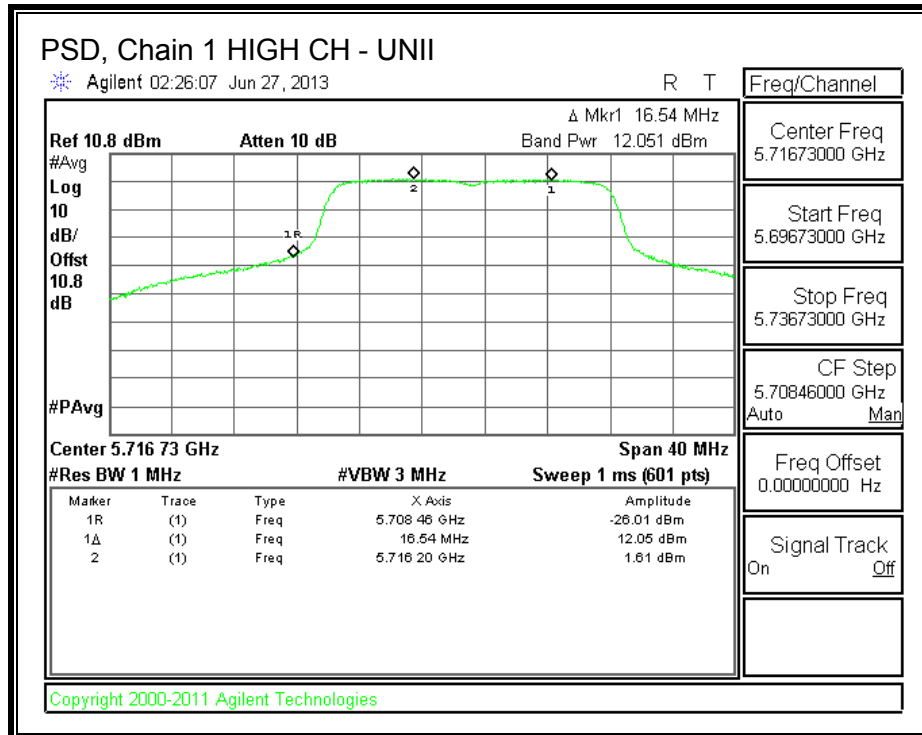
**PPSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
High	5720	-1	1.640	3.87	11.00	-7.13

**PSD, Chain 0**



**PSD, Chain 1**



### **8.8.8. 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.

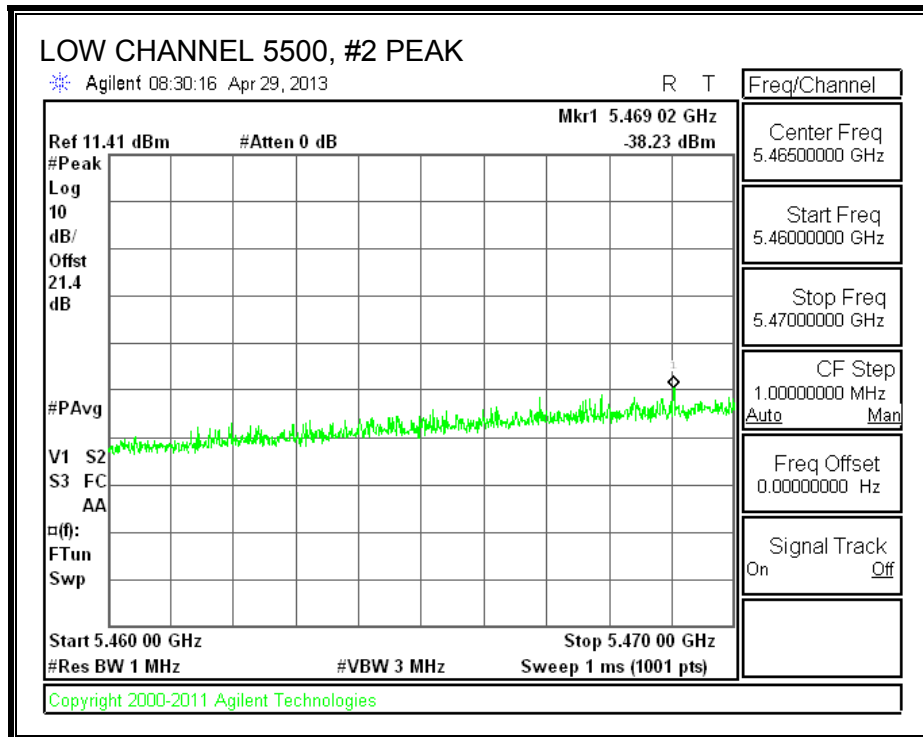
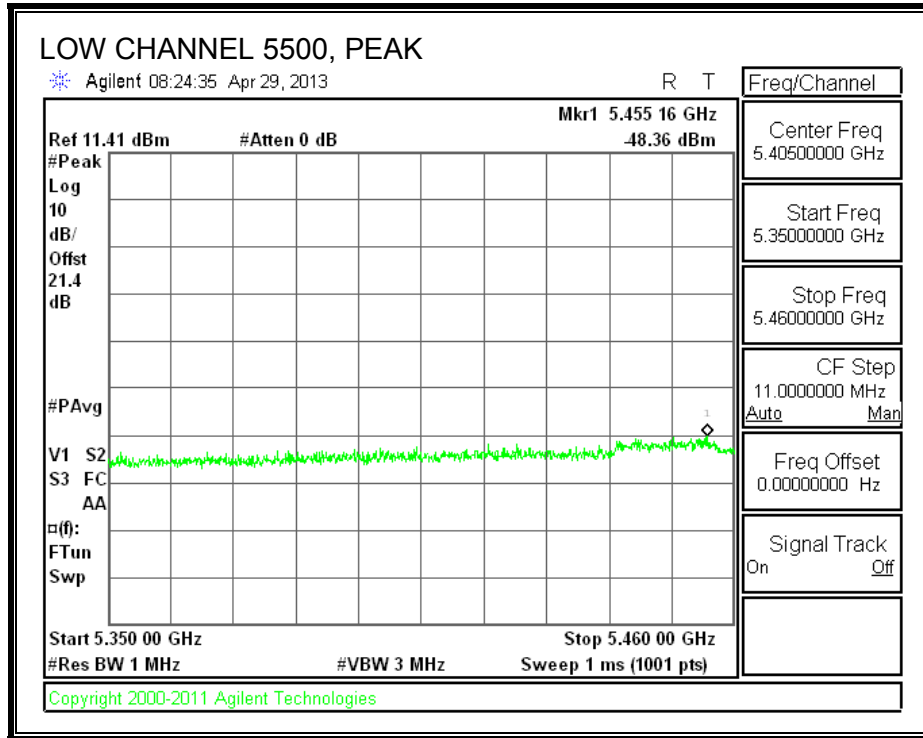
#### **RESULTS**

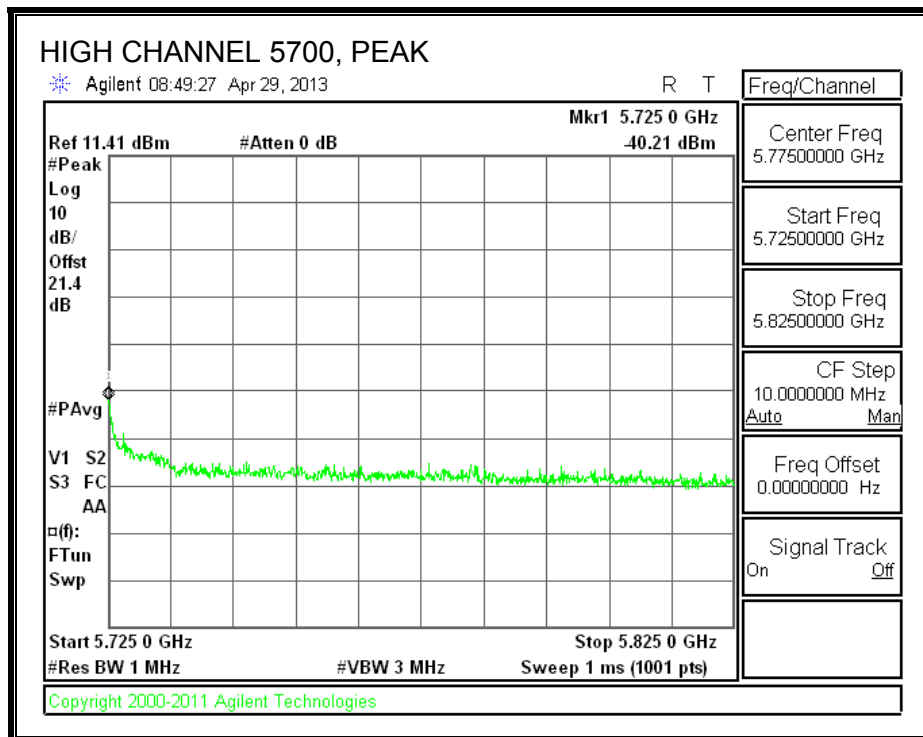
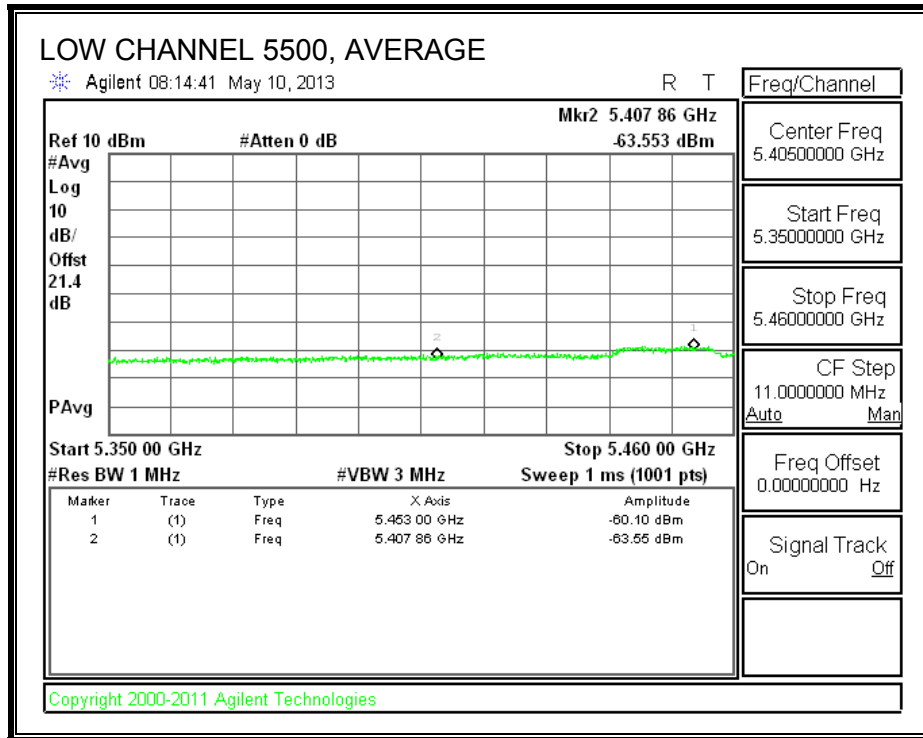
Refer to the results of 802.11n HT20 mode in the 5.2 GHz band.

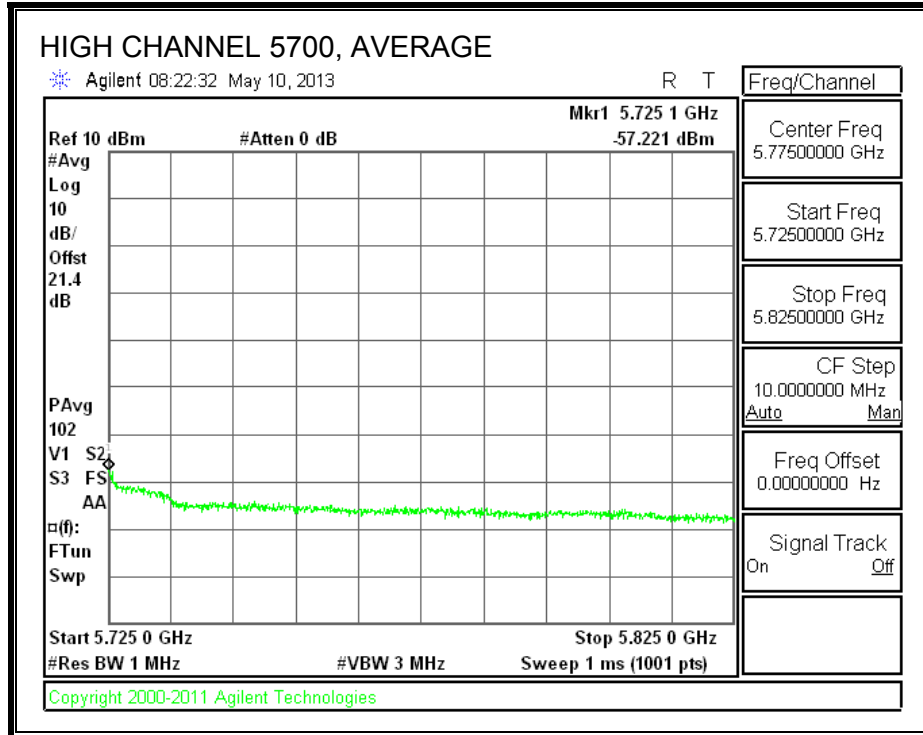


### 8.8.9. CONDUCTED BANDEGE, HARMONICS & SPURIOUS (no filter unit)

**Chain 0**  
**RESTRICTED BANDEGE**

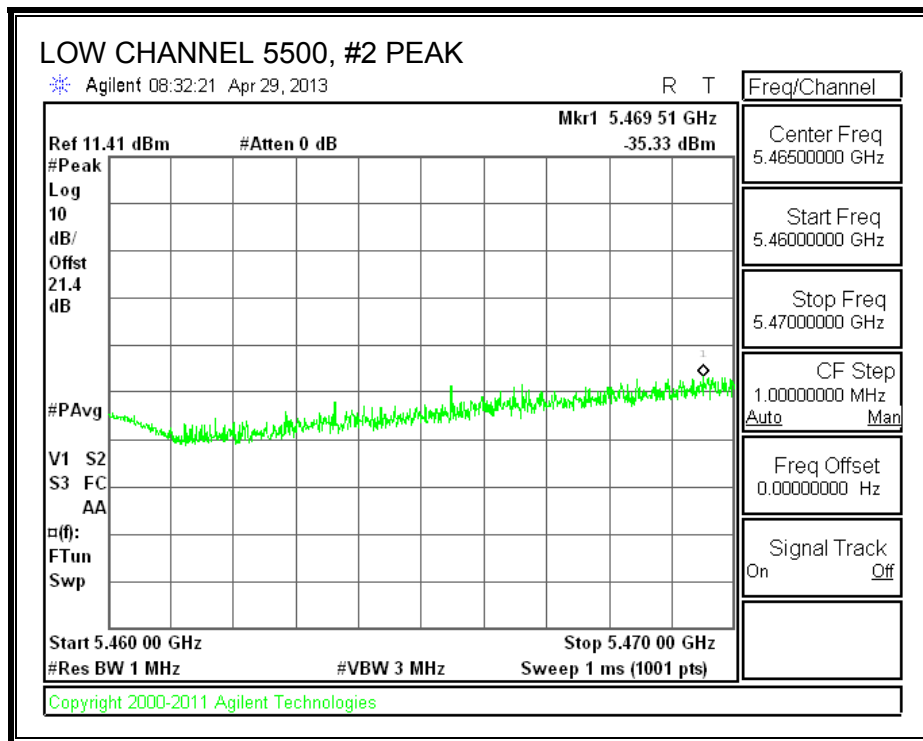
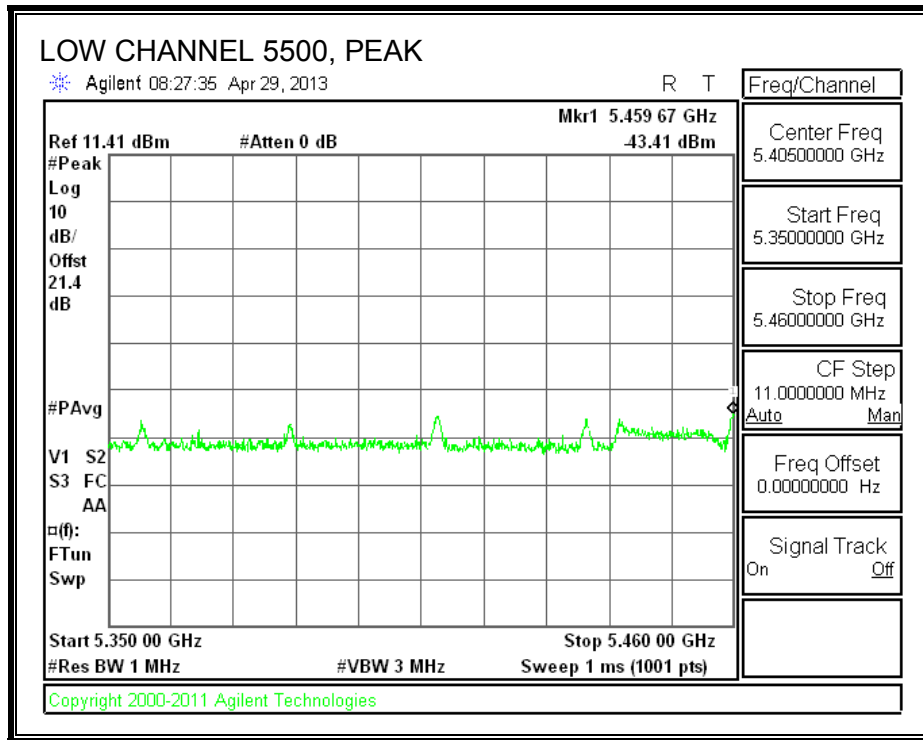


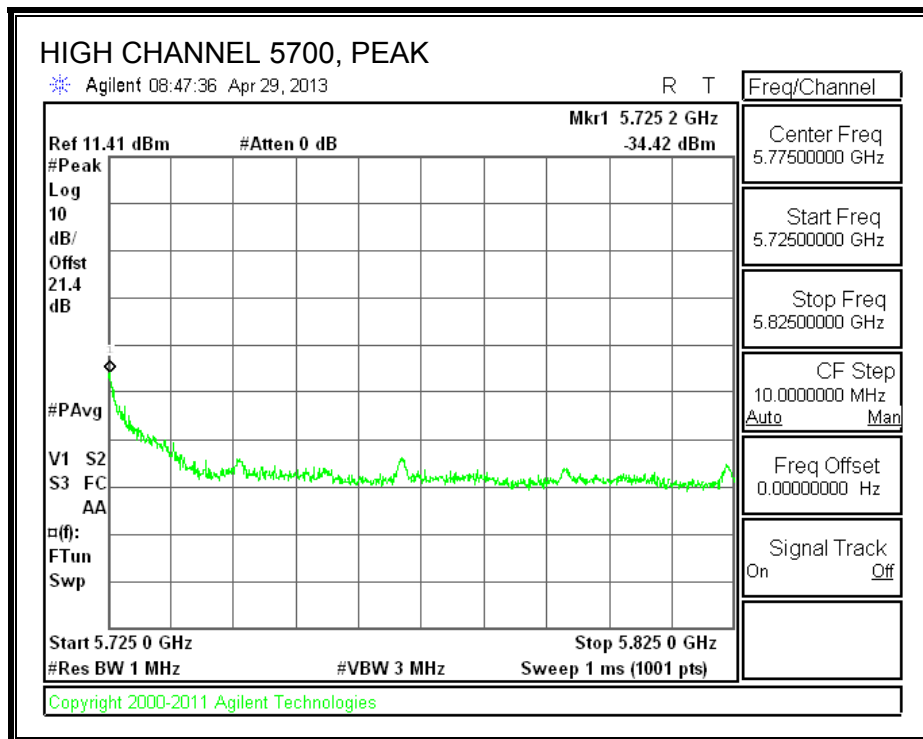
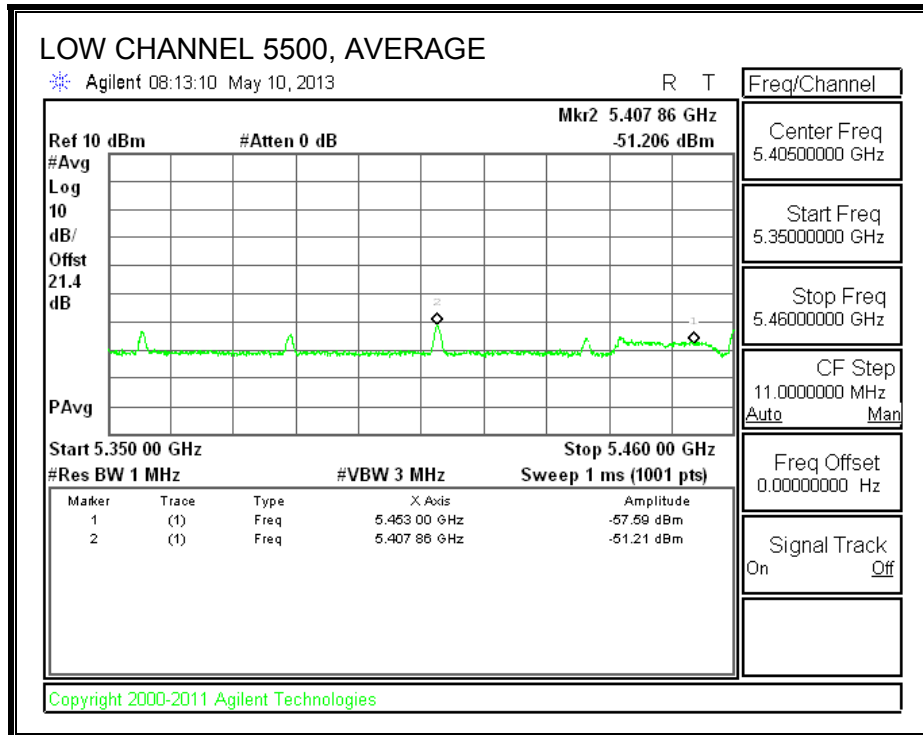


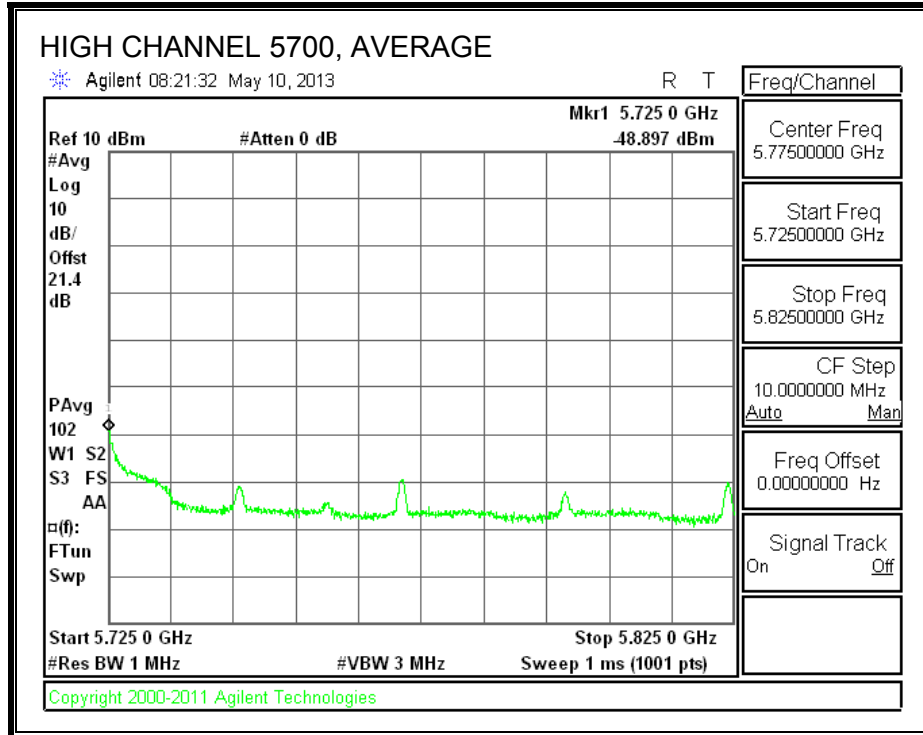


**Chain 1**

**RESTRICTED BANDEDGE**

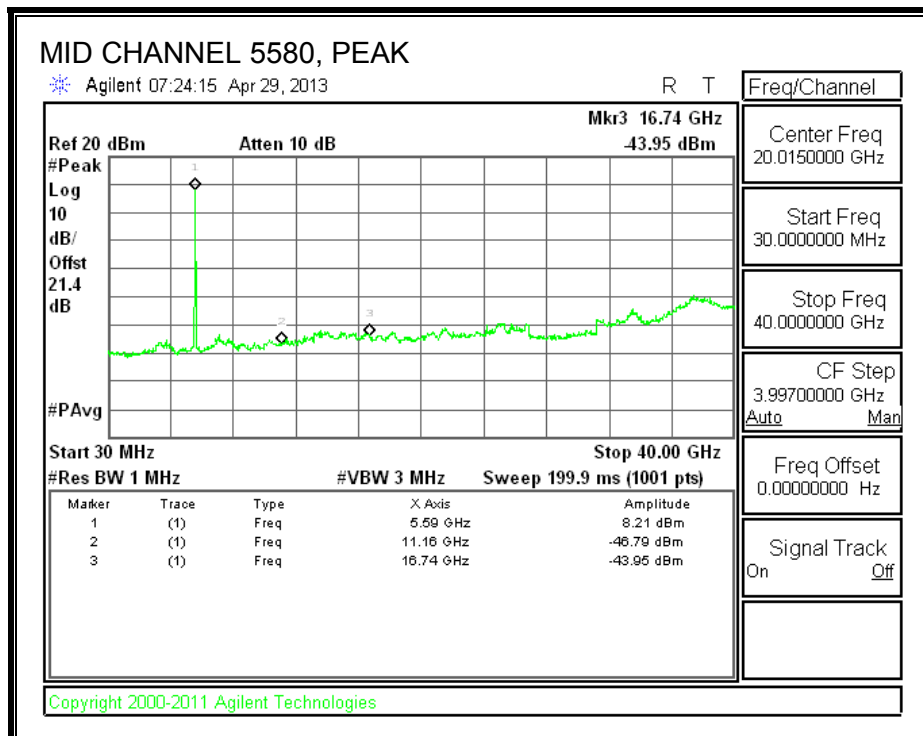
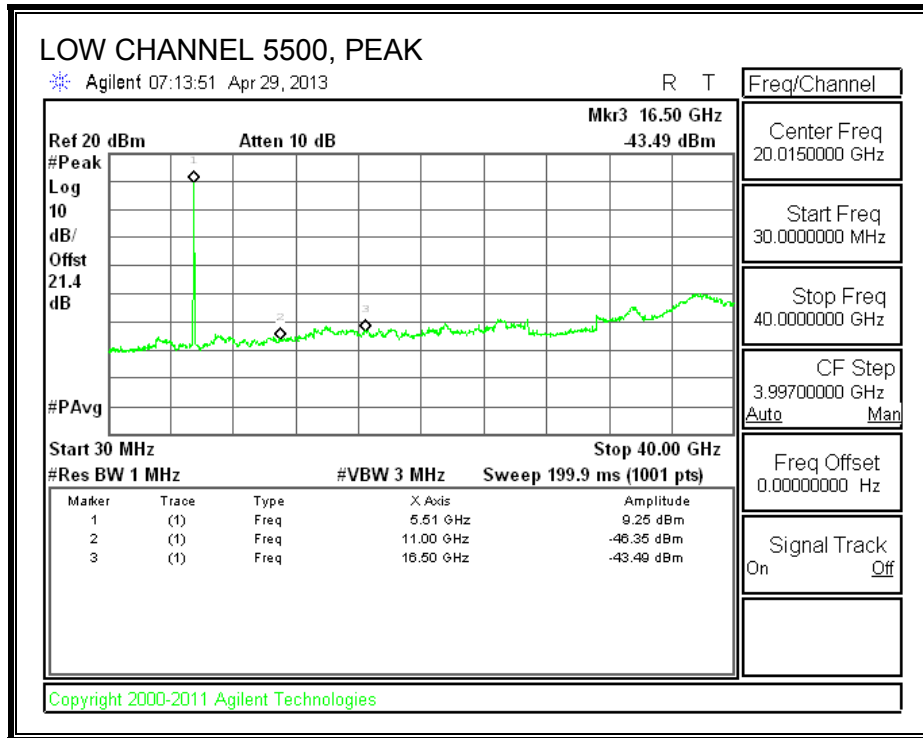


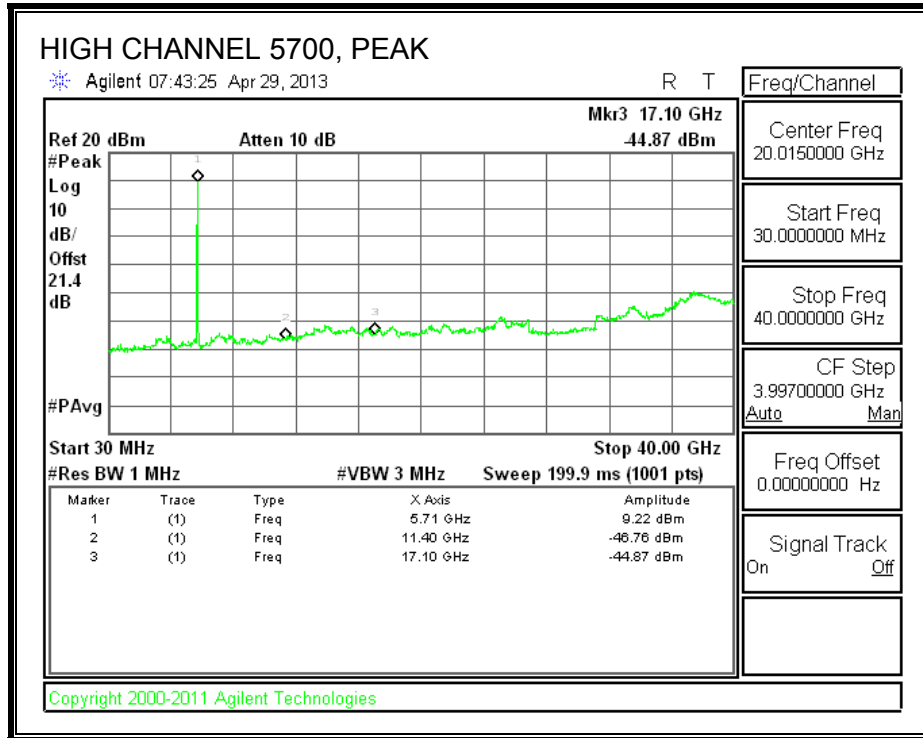




**HARMONICS AND SPURIOUS**

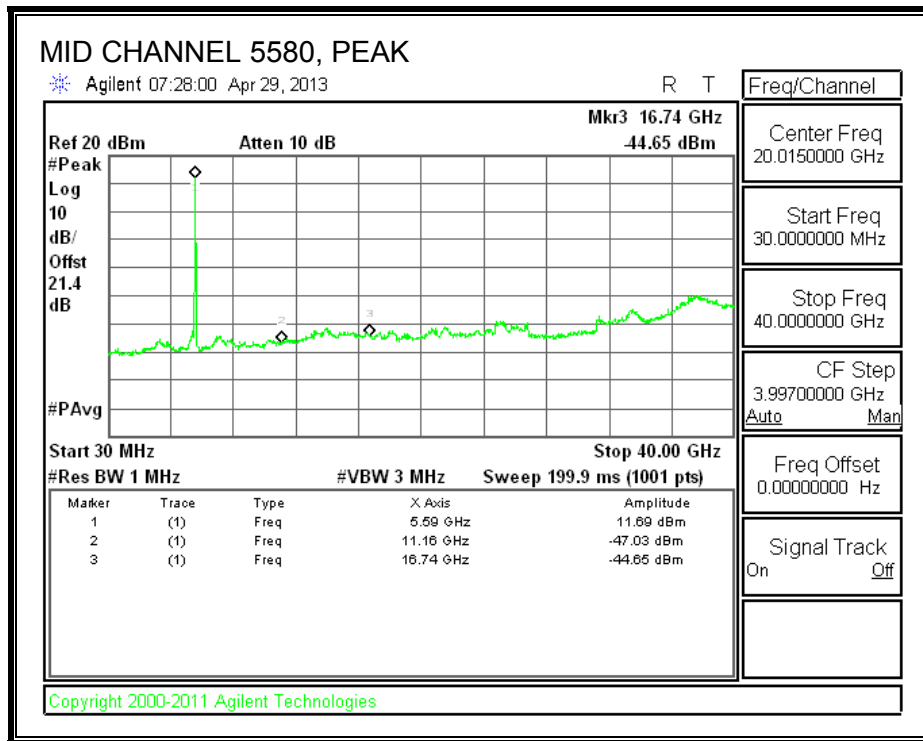
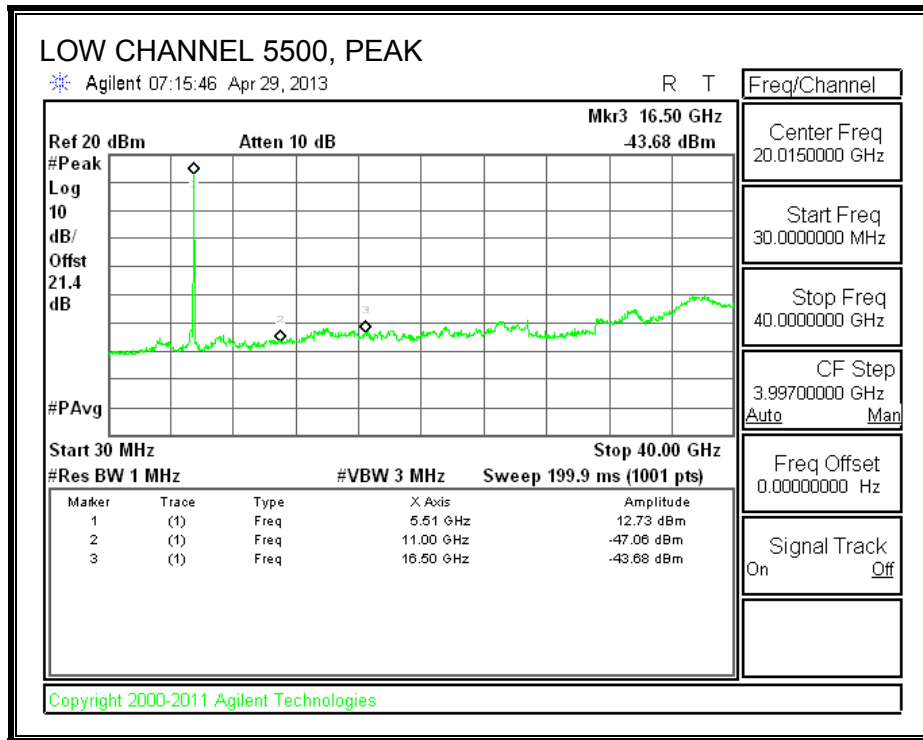
**Chain 0**

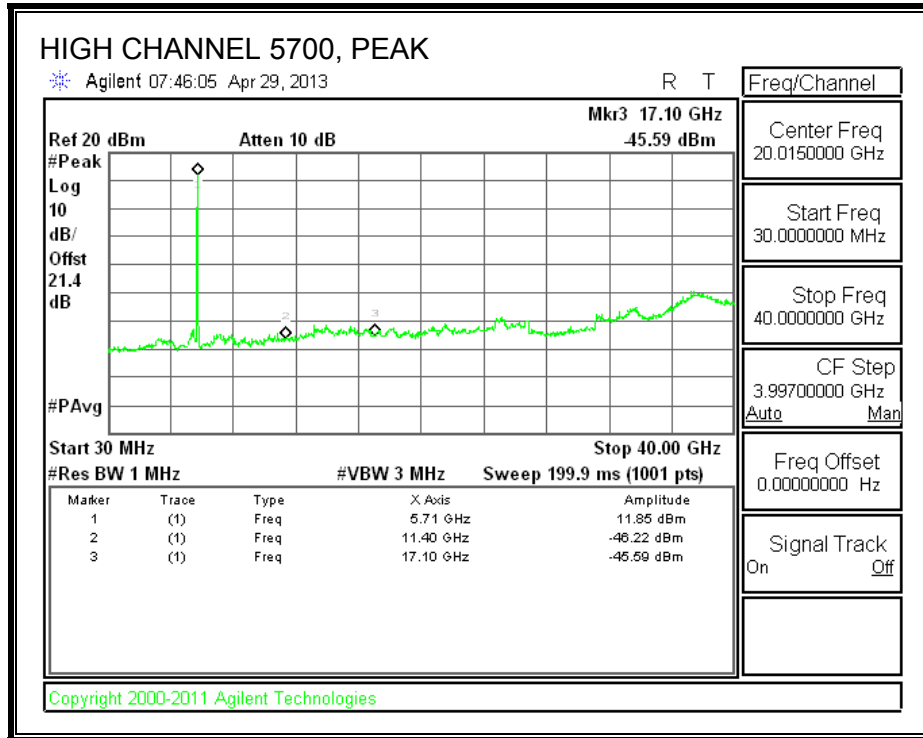






**Chain 1**





**BANDEDGE DATA**

2TX Conducted Spurious BE for UNII (in the restricted bands)									
Date:	5/9/2013								
Test Engineer:	Tony Wagoner								
Client:	Qualcomm								
Project Number:	13U14995								
Configuration:	Tx								
Mode of operation:	5.5GHz HT20 <b>Note:</b> if the PK margin is greater than 20 dB, there is no need to get AVG reading.								
Channel	Frequency (MHz)	PXA PK Reading Chain 0 (dBm)	PXA PK Reading Chain 1 (dBm)	AG/Chain (dBi)	PK EIRP (dBm)	PK E-field Limit (dBm)	PK E-field Margin (dB)	Software Setting	AVG Power Meter Reading (dBm)
100 (5500)	5455	-48.36	-43.41	2	-37.19	-21.2	-15.99	18.00	13.4 / 16
100 (5500)	5469	-38.23	-35.33	2	-28.52	-27	-1.52	18.00	13.4 / 16
140 (5700)	5725	-40.21	-34.42	2	-28.39	-27	-1.39	16.00	10.5 / 13.3
Channel	Frequency (MHz)	PXA AVG Reading Chain 0 (dBm)	PXA AVG Reading Chain 1 (dBm)	AG/Chain (dBi)	AVG EIRP (dBm)	AVG E-field Limit (dBm)	AVG E-field Margin (dB)	Software Setting	AVG Power Meter Reading (dBm)
100 (5500)	5453	-60.1	-57.59	2	-50.65	-41.2	-9.45	18.00	12.9 / 14.45
100 (5500)	5407.86	-63.55	-51.21	2	-45.95	-41.2	-4.75	18.00	12.9 / 14.45
140 (5700)	5725	-57.221	-48.897	2	-43.29	-41.2	-2.09	16.00	10.3 / 12.5

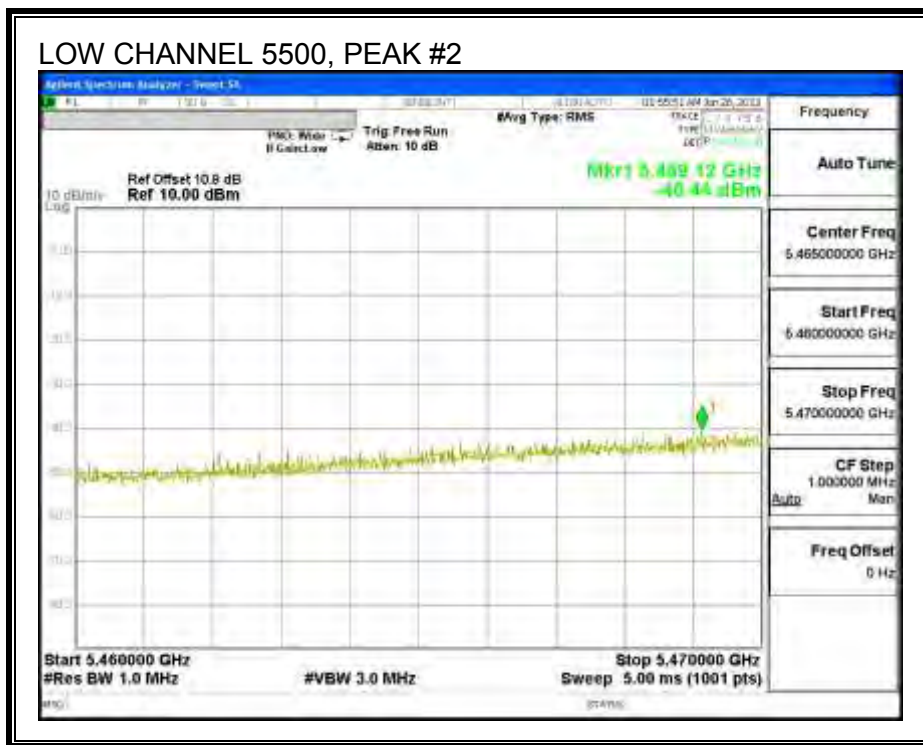
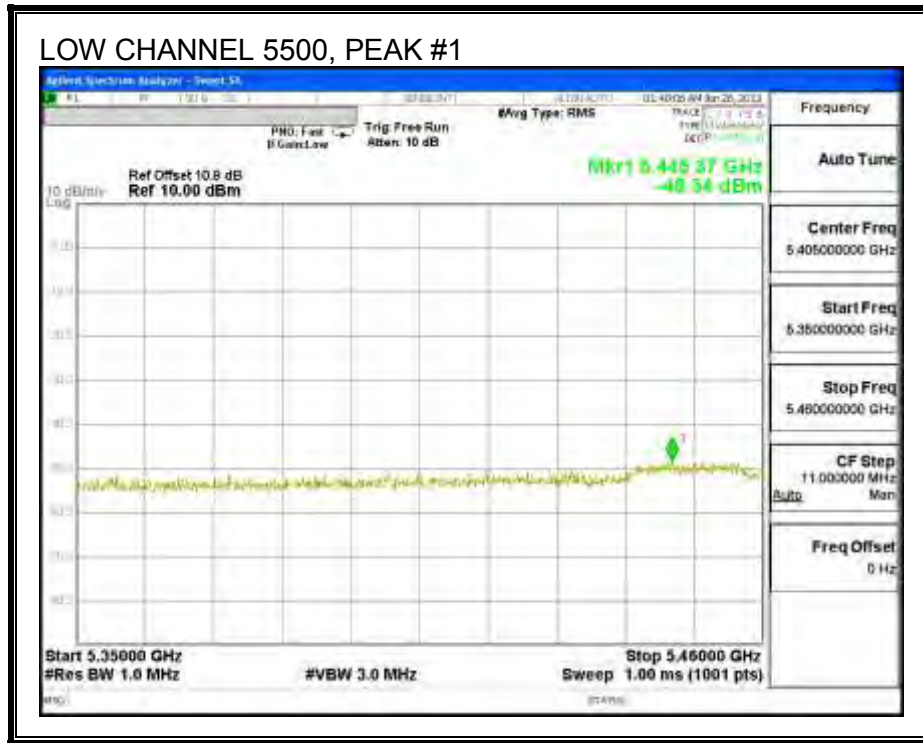
**SPURIOUS DATA**

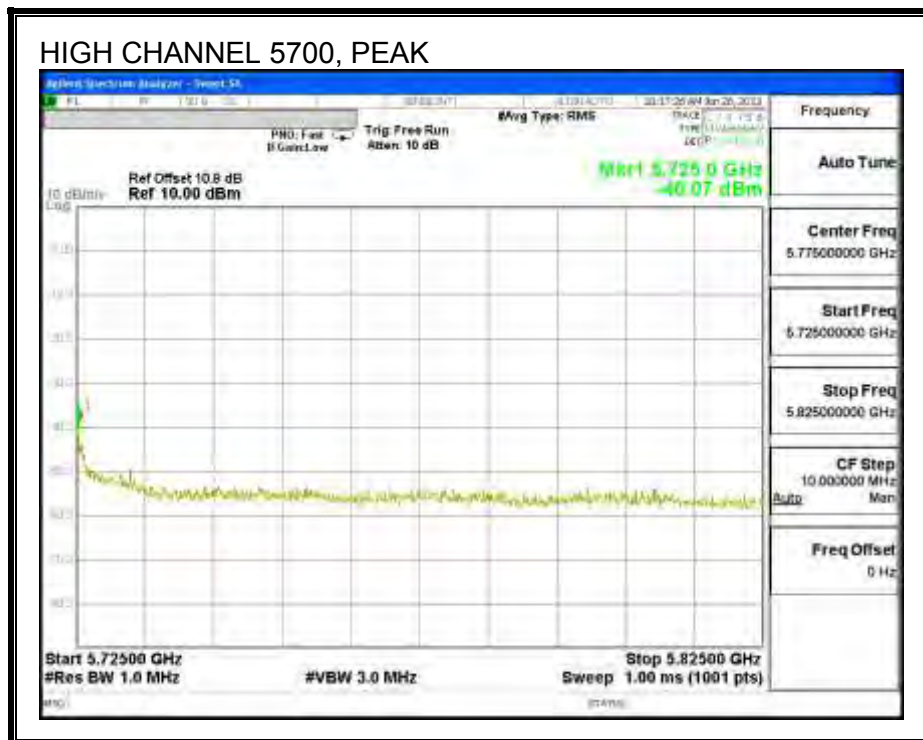
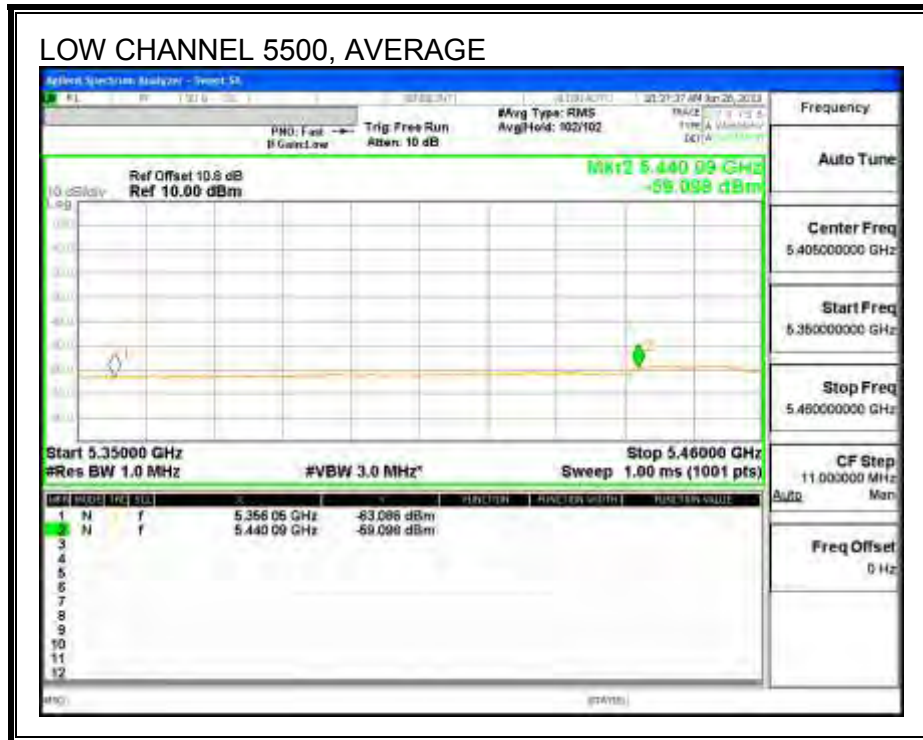
The data in this table is from testing done at the harmonics shown in the plots with the span of 1MHz.

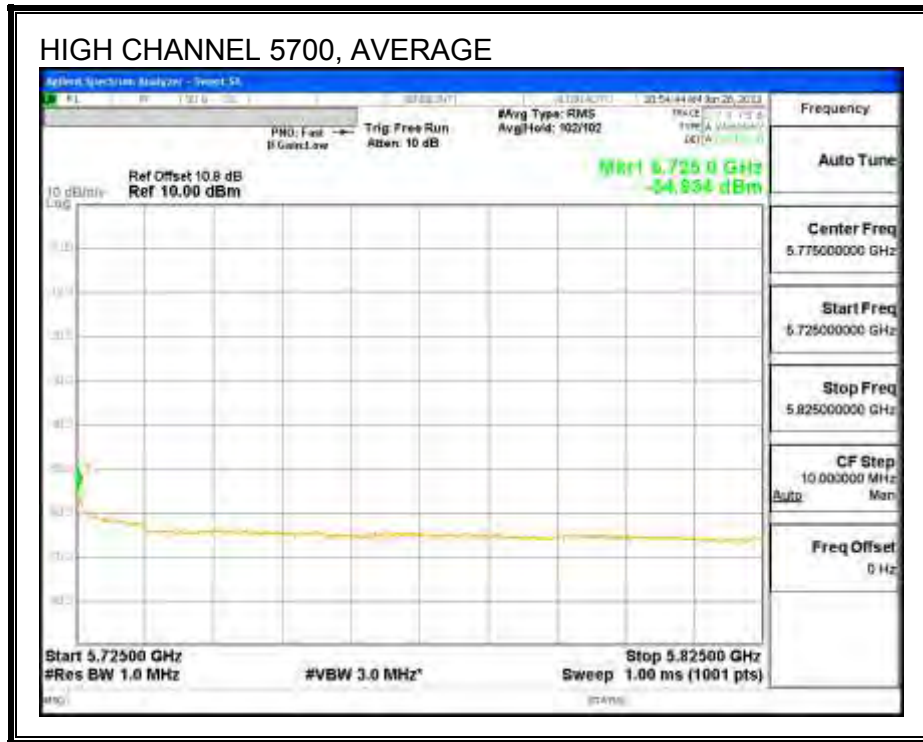
2TX Conducted Spurious for FCC DTS (in the restricted bands)									
Date:	4/29/2013								
Test Engineer:	Tony Wagoner								
Client:	Qualcomm Atheros								
Project Number:	13U14995								
Configuration:	5.5GHz 11n HT20								
Mode of operation:	Tx <b>Note:</b> if the PK margin is greater than 20 dB, there is no need to get AVG reading.								
Channel	Frequency (GHz)	PSA PK Reading Chain 0 (dBm)	PSA PK Reading Chain 1 (dBm)	AG/Chain (dBi)	PK EIRP (dBm)	PK E-field Limit (dBm)	PK E-field Margin (dB)	Software Setting	AVG Power Meter Reading (dBm)
100 (5500)	11	-55.15	-55.78	2	-47.43	-21.2	-26.23	18.00	13.34 / 15.9
100 (5500)	16.5	-52.39	-52.86	2	-44.60	-21.2	-23.40	18.00	13.4 / 16
116 (5580)	11.16	-54.86	-54.98	2	-46.90	-21.2	-25.70	18.00	11.75 / 15
116 (5580)	16.74	-53.61	-53.32	2	-45.44	-21.2	-24.24	18.00	12 / 15.05
140 (5700)	11.4	-55.11	-55.02	2	-47.04	-21.2	-25.84	18.00	12.6 / 15
140 (5700)	17.1	-52.89	-52.95	2	-44.90	-21.2	-23.70	18.00	12.7 / 15
Channel	Frequency (MHz)	PSA AVG Reading Chain 0 (dBm)	PSA AVG Reading Chain 1 (dBm)	AG/Chain (dBi)	AVG EIRP (dBm)	AVG E-field Limit (dBm)	AVG E-field Margin (dB)	Software Setting	AVG Power Meter Reading (dBm)

### 8.8.10. CONDUCTED BANDEDGE, HARMONICS & SPURIOUS (3G filter unit)

#### Chain 0 RESTRICTED BANDEDGE



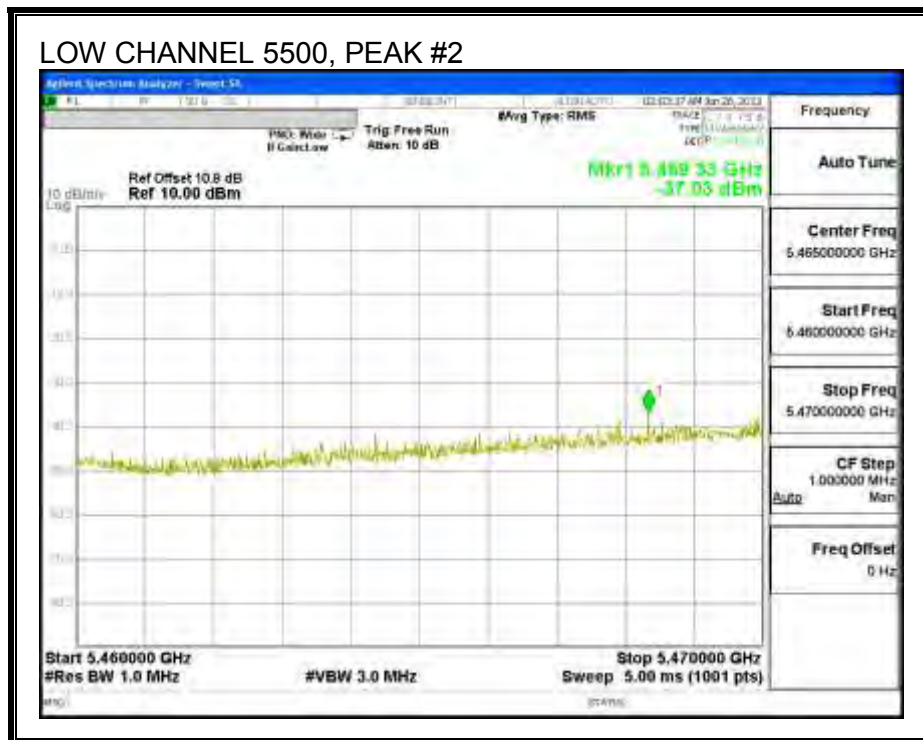
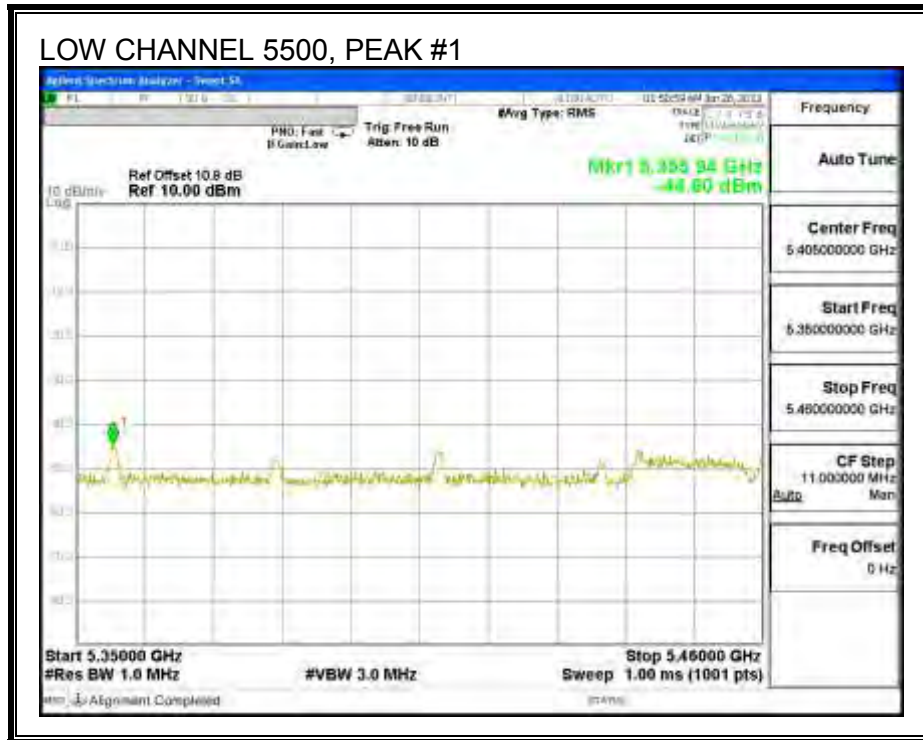




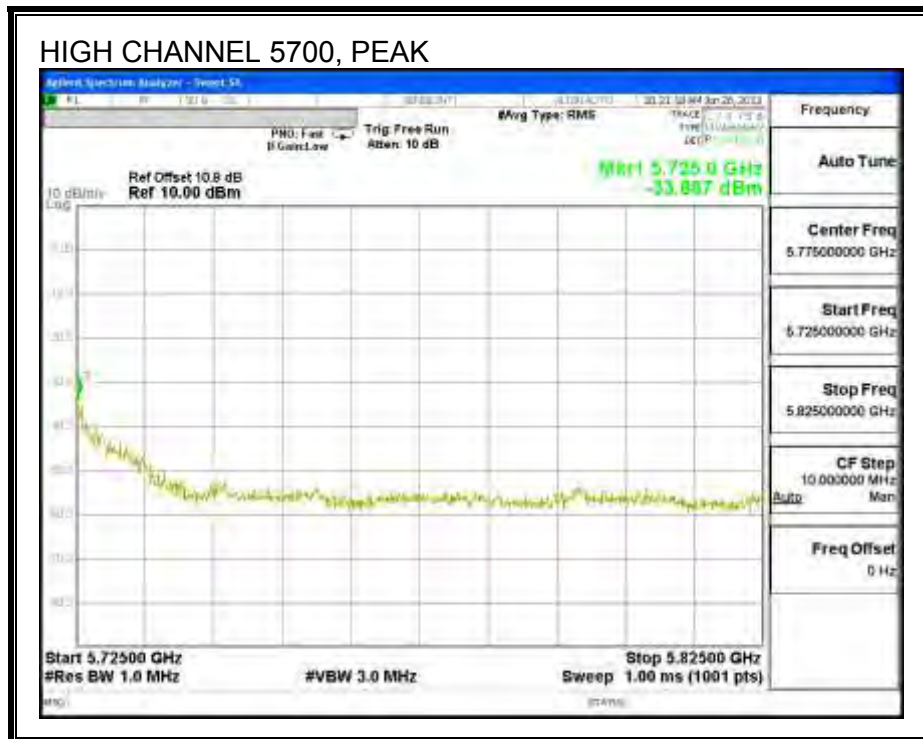
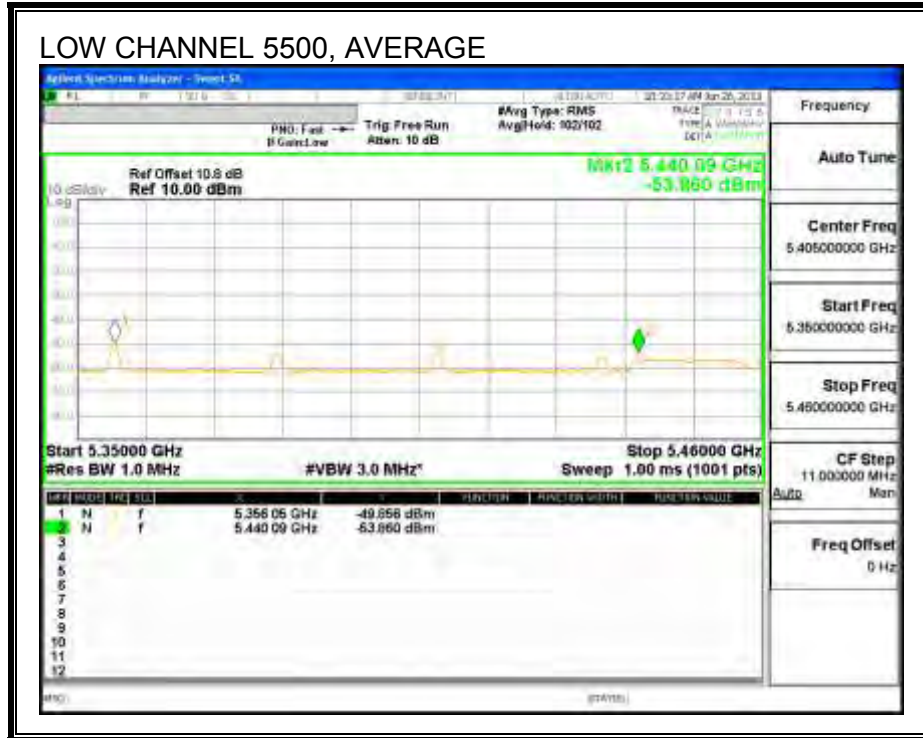


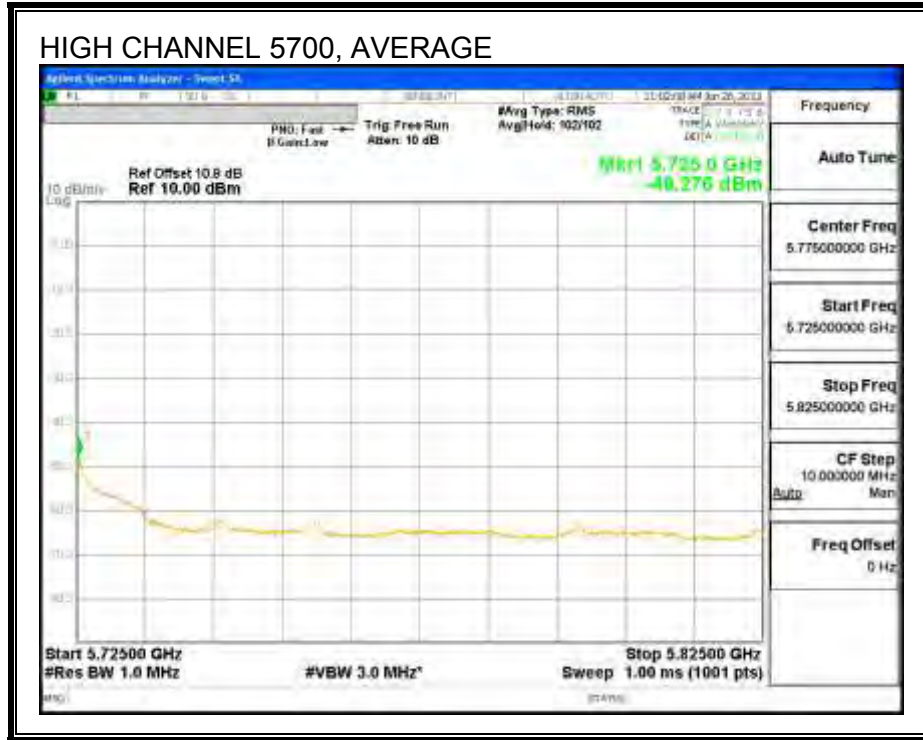
**Chain 1**

**RESTRICTED BANDEDGE**









**BANDEDGE DATA**

2TX Conducted Spurious BE for UNII									
Date:	6/26/2013								
Test Engineer:	Tony Wagoner								
Client:	Qualcomm								
Project Number:	13U14995								
Configuration:	Tx								
Mode of operation:	5.5GHz 11n HT20		<b>Note:</b> if the PK margin is greater than 20 dB, there is no need to get AVG reading.						
Channel	Frequency (MHz)	PXA PK Reading Chain 0 (dBm)	PXA PK Reading Chain 1 (dBm)	AG/Chain (dBi)	PK EIRP (dBm)	PK E-field Limit (dBm)	PK E-field Margin (dB)	Software Setting	AVG Power Meter Reading (dBm)
100 (5500)	5445.37	-48.340	-44.800	2	-38.20	-21.2	-17.00	18.00	13.52/14.6
100 (5500)	5469.12	-40.440	-37.030	2	-30.39	-27	-3.39	18.00	13.52/14.6
140 (5700)	5725	-40.070	-33.687	2	-27.78	-27	-0.78	16.00	10.9/12.91
Channel	Frequency (MHz)	PXA AVG Reading Chain 0 (dBm)	PXA AVG Reading Chain 1 (dBm)	AG/Chain (dBi)	AVG EIRP (dBm)	AVG E-field Limit (dBm)	AVG E-field Margin (dB)	Software Setting	AVG Power Meter Reading (dBm)
100 (5500)	5356.05	-63.086	-49.856	2	-44.64	-41.2	-3.44	18.00	13.52/14.6
100 (5500)	5440.09	-59.098	-53.860	2	-47.71	-41.2	-6.51	18.00	13.52/14.6
140 (5700)	5725	-54.934	-48.276	2	-42.42	-41.2	-1.22	15.50	10.30/12.52

## 8.9. 802.11n HT40 MODE IN THE 5.6 GHz BAND

### 8.9.1. 26 dB BANDWIDTH

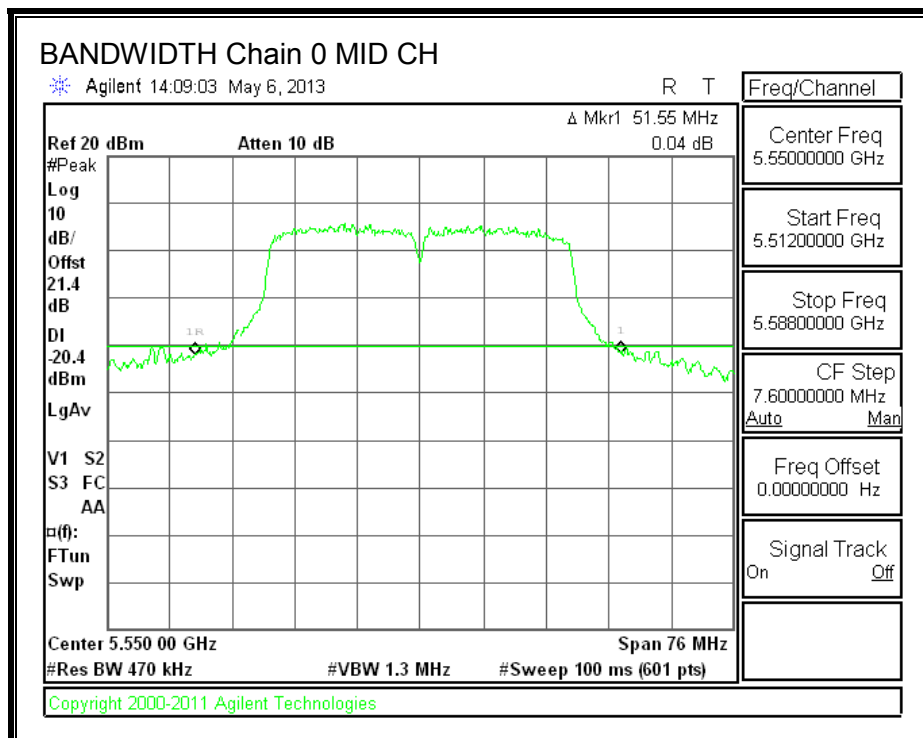
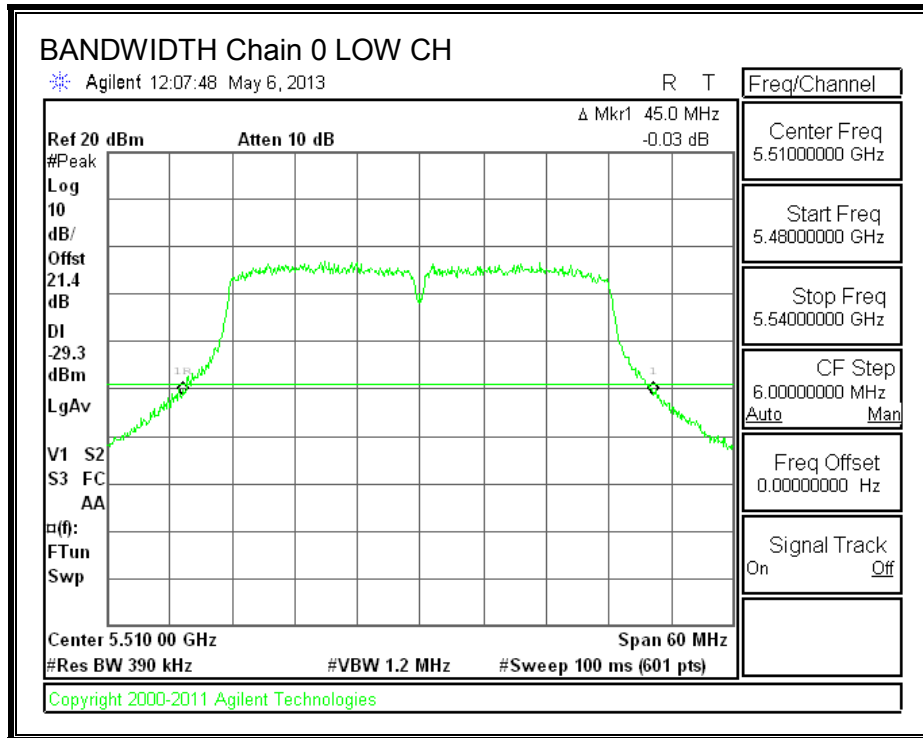
#### LIMITS

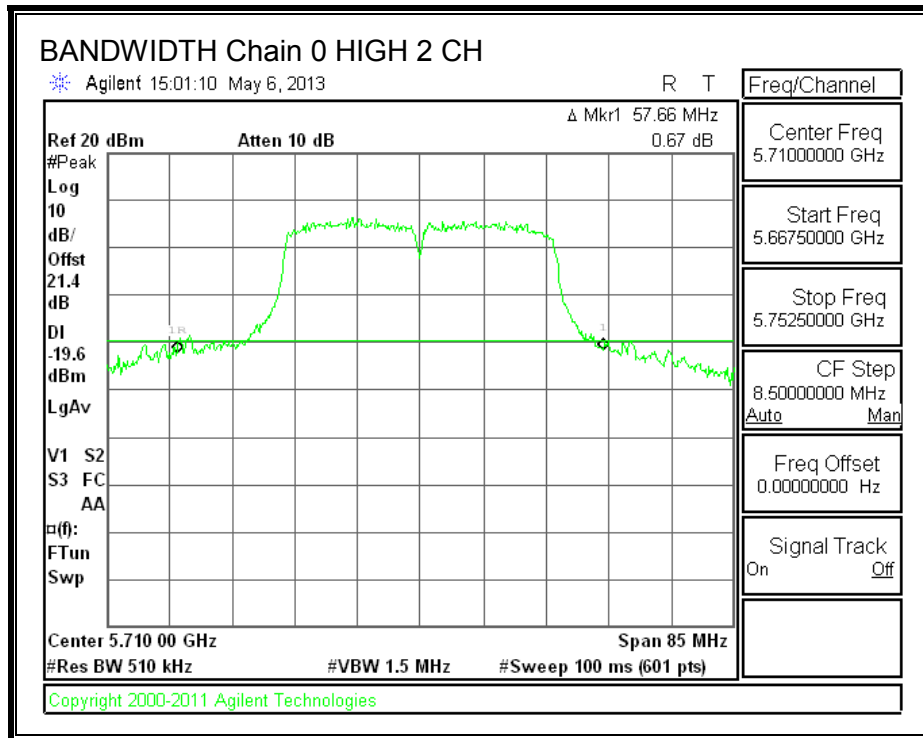
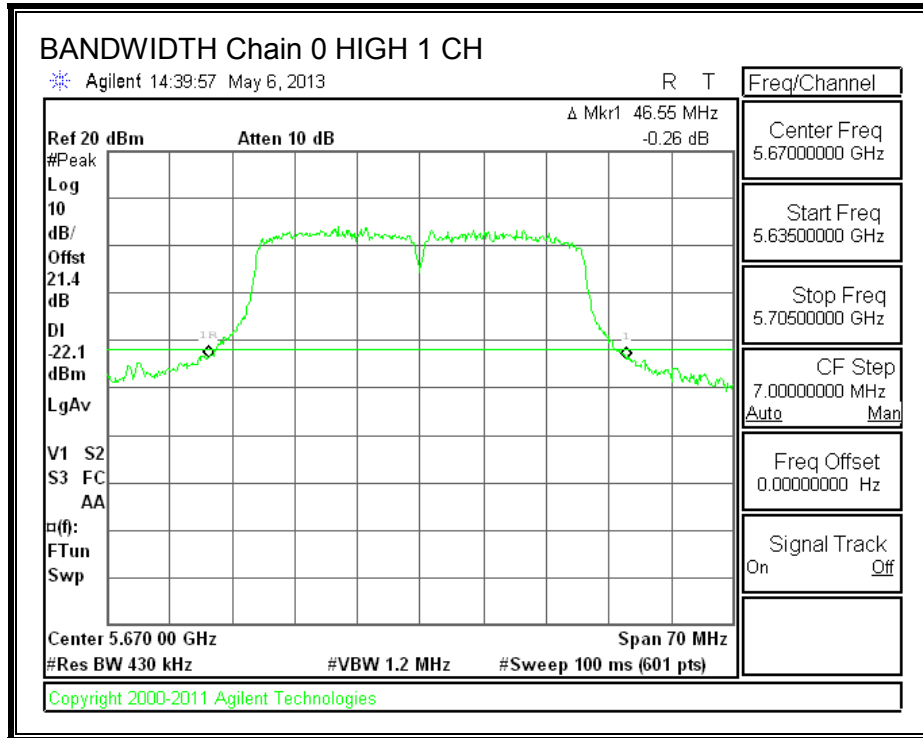
None; for reporting purposes only.

#### RESULTS

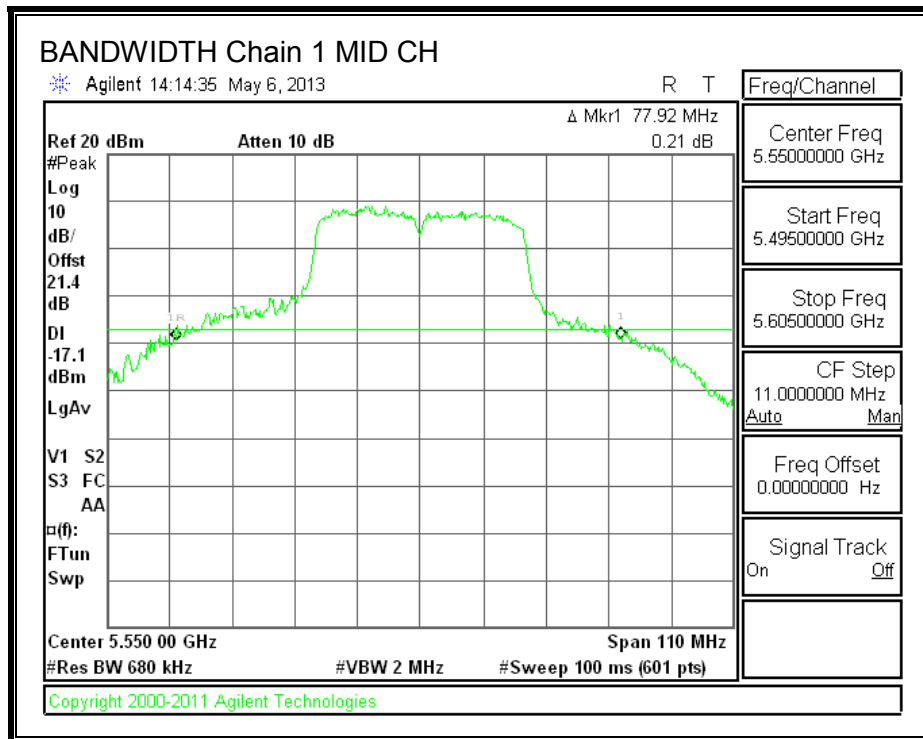
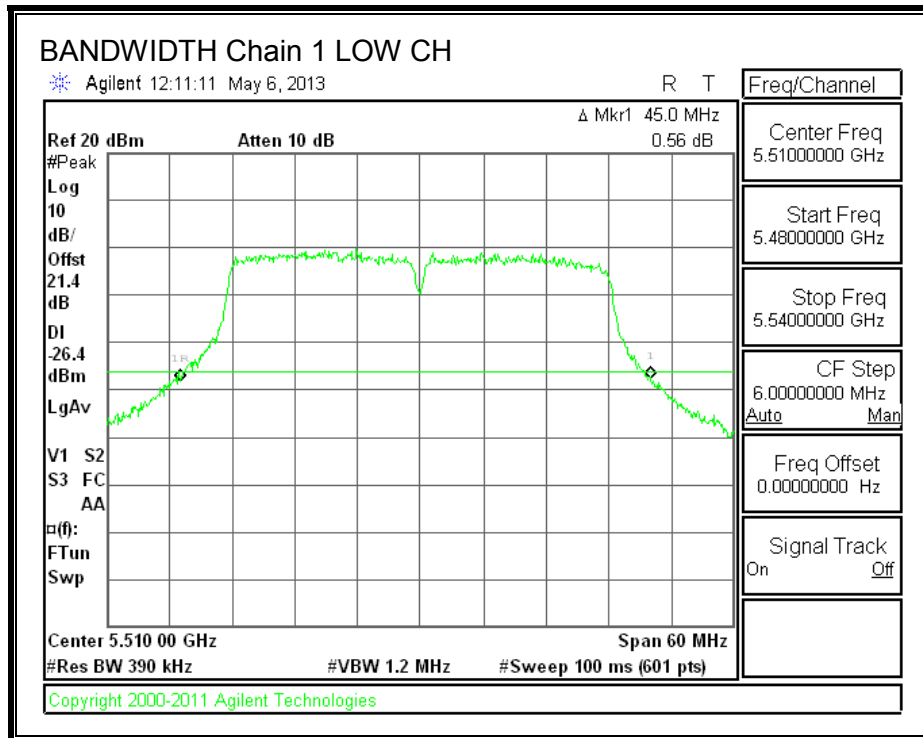
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5510	45.0	45.0
Mid	5550	51.6	77.9
High 1	5670	46.6	59.1
High 2	5710	57.7	72.8

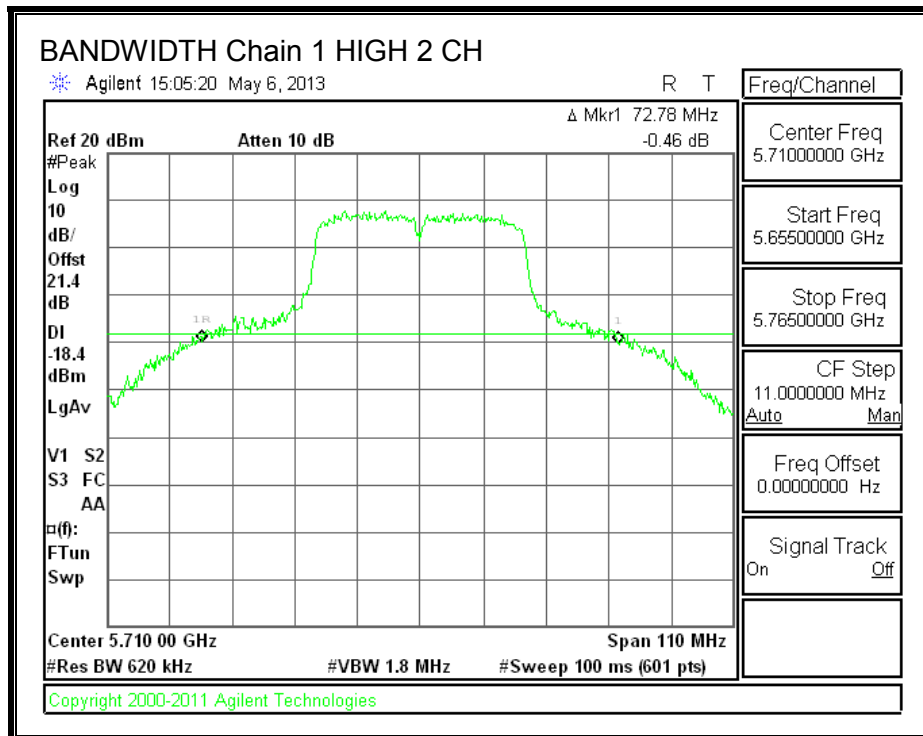
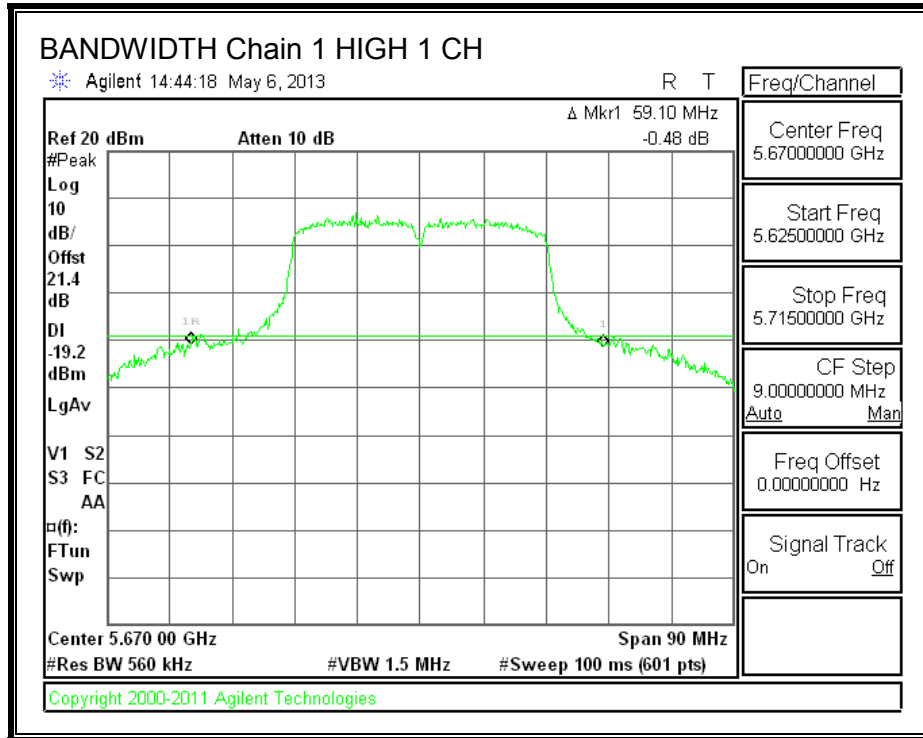
**26 dB BANDWIDTH, Chain 0**





**26 dB BANDWIDTH, Chain 1**







### 8.9.2. 99% BANDWIDTH

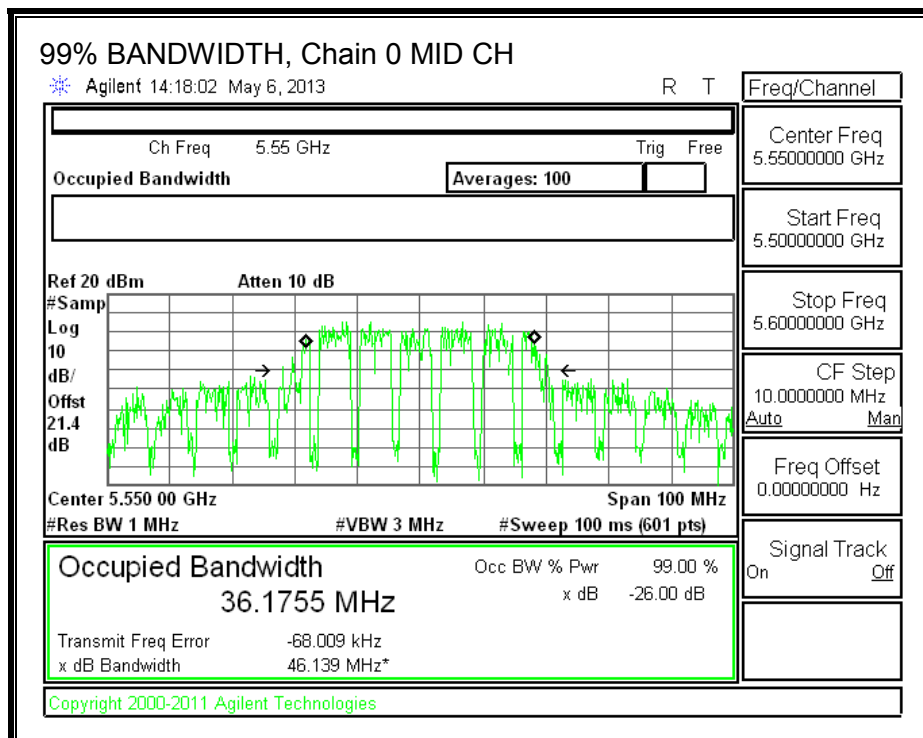
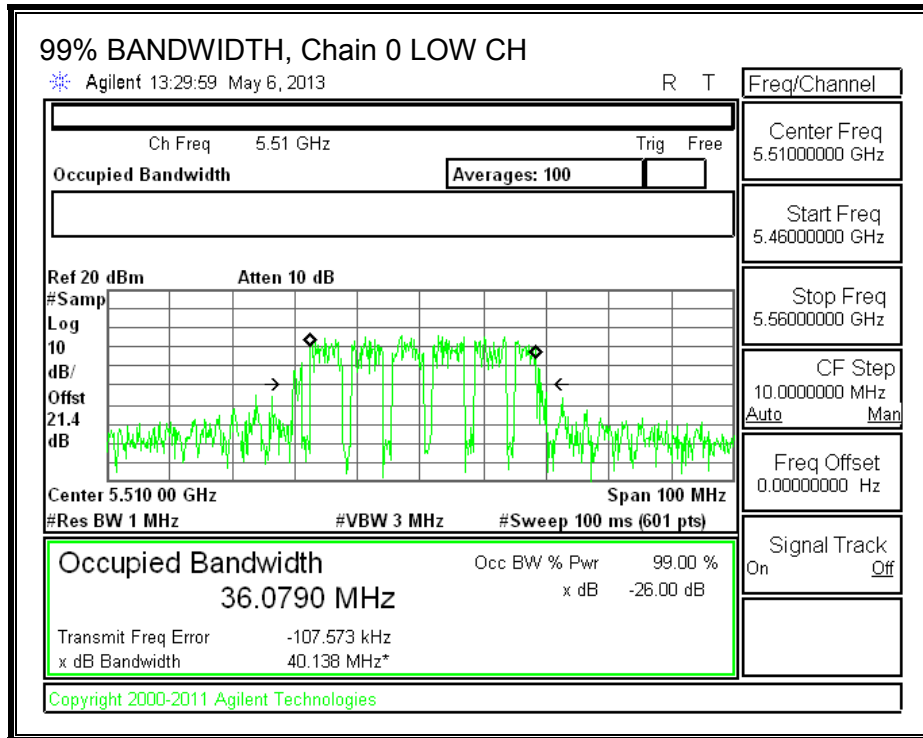
#### LIMITS

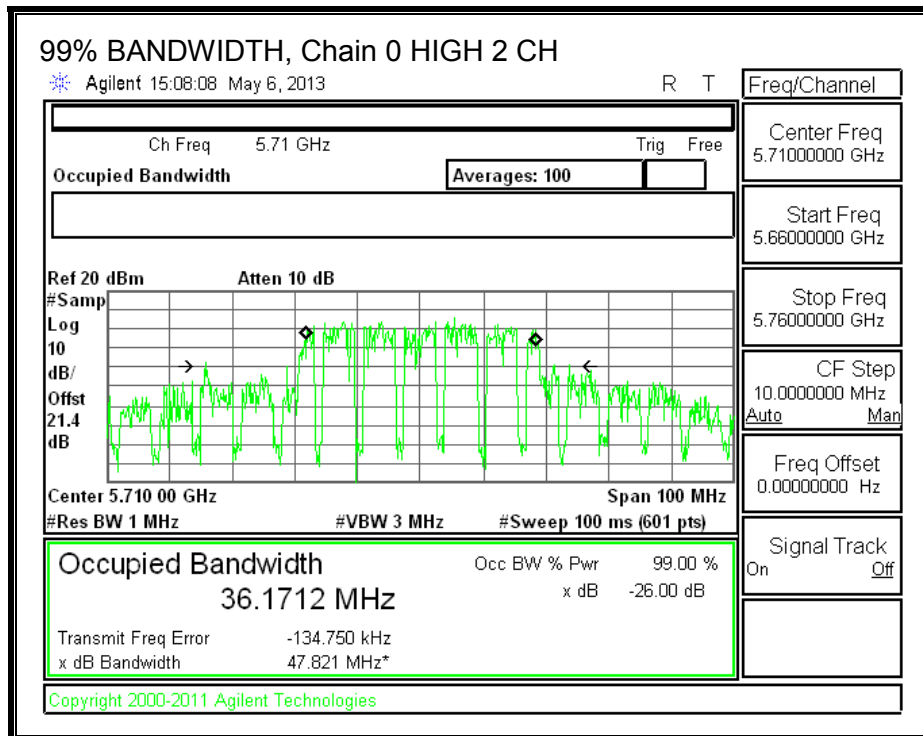
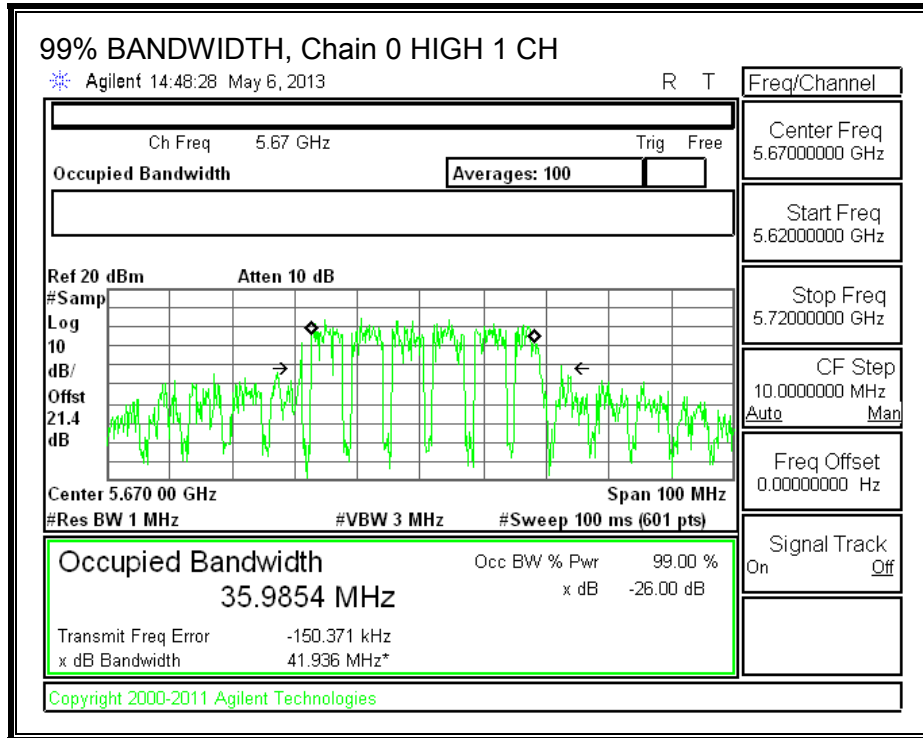
None; for reporting purposes only.

#### RESULTS

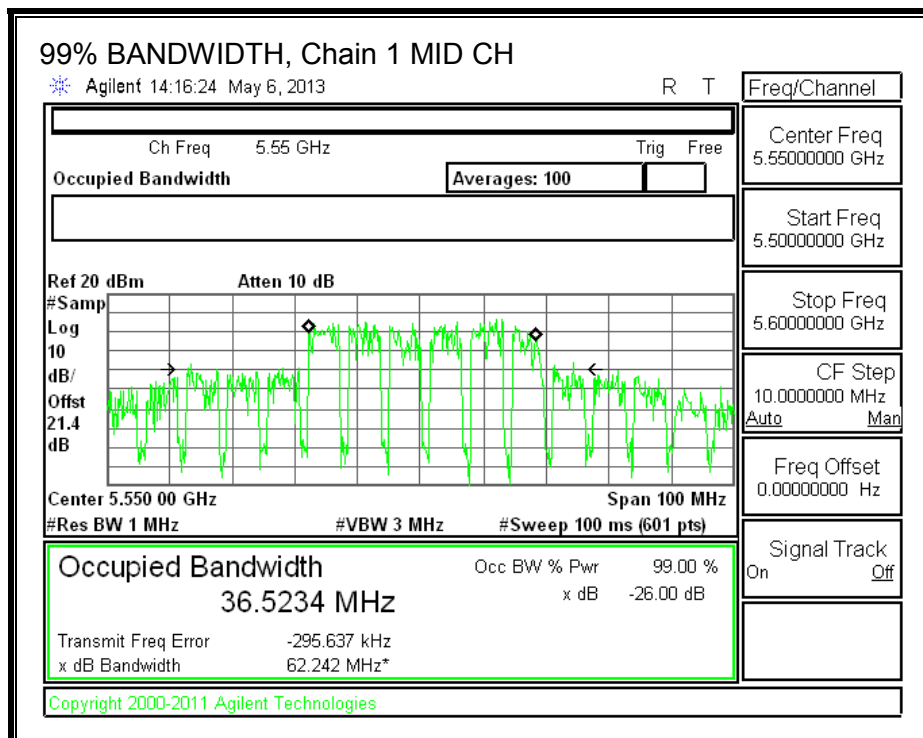
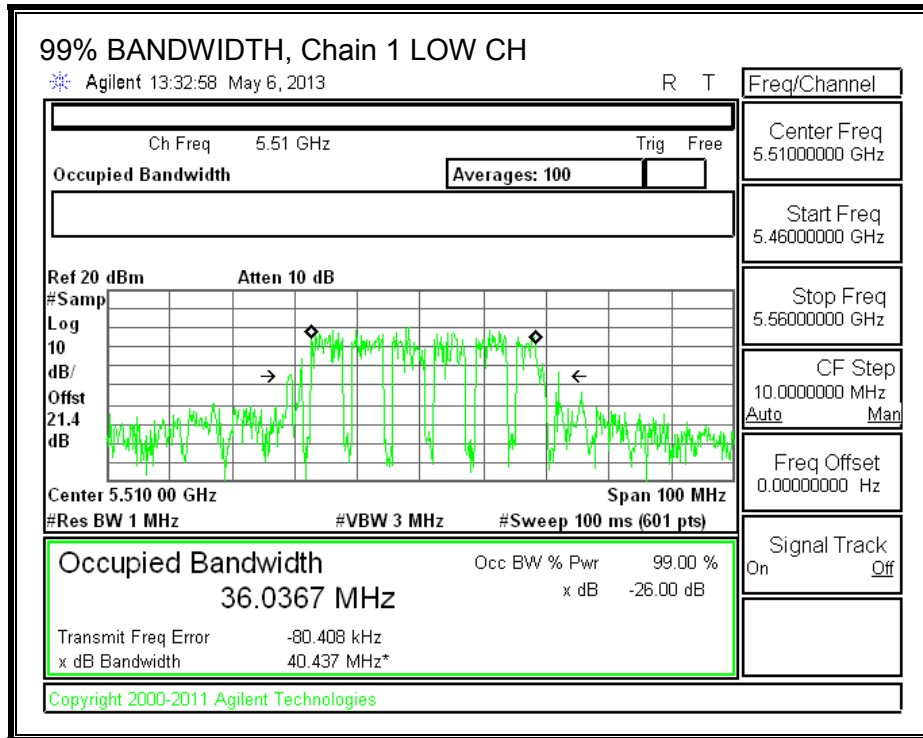
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5510	36.1	36.0
Mid	5550	36.2	36.5
High 1	5670	36.0	36.1
High 2	5710	36.2	36.3

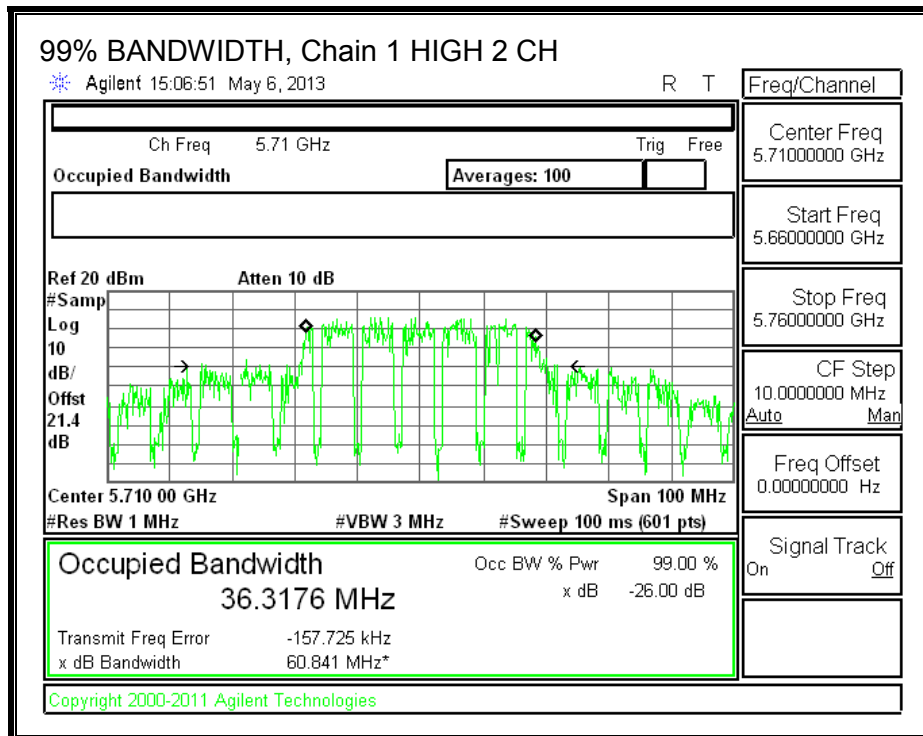
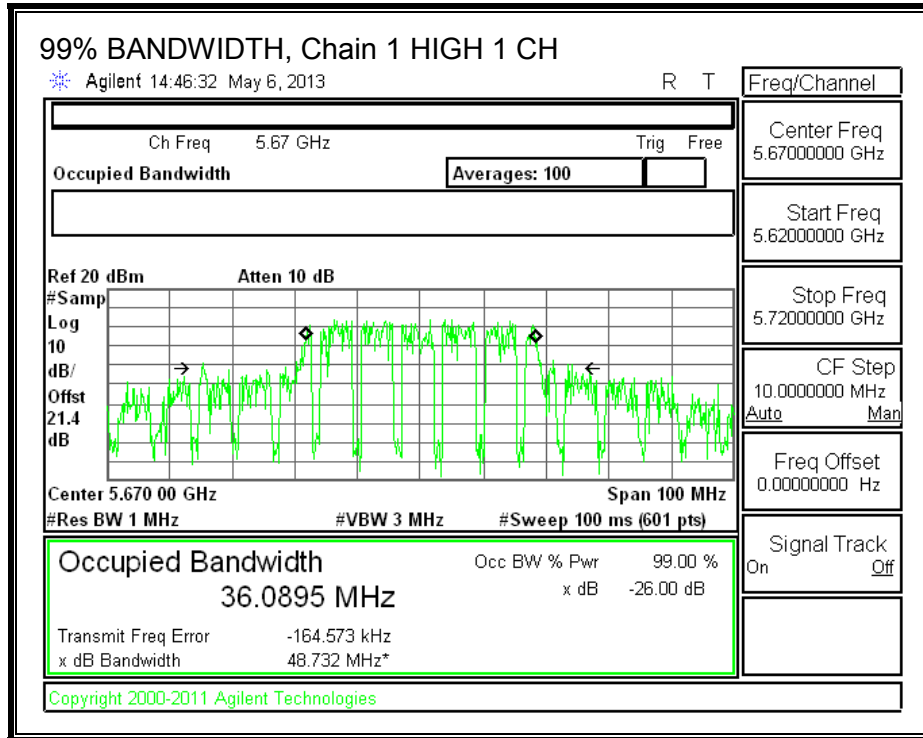
**99% BANDWIDTH, Chain 0**





**99% BANDWIDTH, Chain 1**





### 8.9.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 25.41 dB (including two 10 dB pads, 2.01 dB cables, and 3.4 dB power splitter) was entered as an offset in the power meter to allow for direct reading of power.

#### RESULTS

##### Average Power Results

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5510	8.50	7.00	10.82
Mid	5550	13.30	14.80	17.12
High 1	5670	12.10	13.25	15.72
High 2	5710	12.85	14.30	16.65

### 8.9.4. OUTPUT POWER AND PPSD

#### LIMITS

FCC §15.407 (a) (1)

For the band 5.5–5.7 GHz, 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. In addition, 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 maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log<sub>10</sub> B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

#### DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is the same for each chain. The directional gain is equal to the antenna gain.

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
2.00	2.00	2.00

**RESULTS**

**Bandwidth and Antenna Gain**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5510	45.0	36.0	2.00
Mid	5550	51.6	36.2	2.00
High 1	5670	46.6	36.0	2.00
High 2	5710	57.7	36.2	2.00

**Limits**

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5510	24.00	24.00	30.00	24.00	11.00	11.00	11.00
Mid	5550	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High 1	5670	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High 2	5710	24.00	24.00	30.00	24.00	11.00	12.00	11.00

<b>Duty Cycle CF (dB)</b>	1.07	<b>Included in Calculations of Corr'd Power &amp; PPSD</b>
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**Output Power Results**

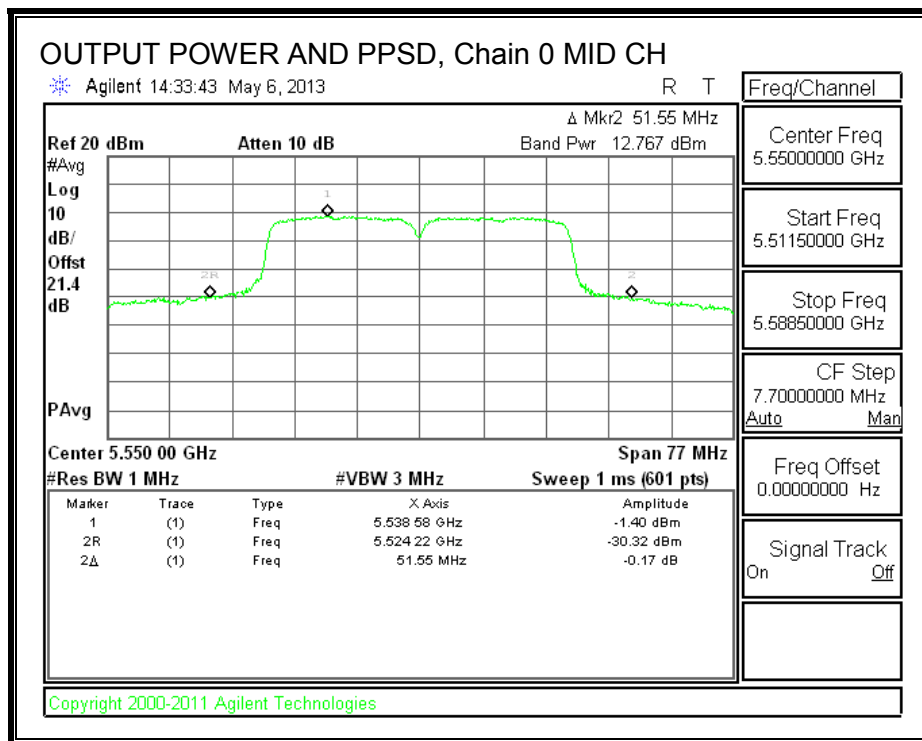
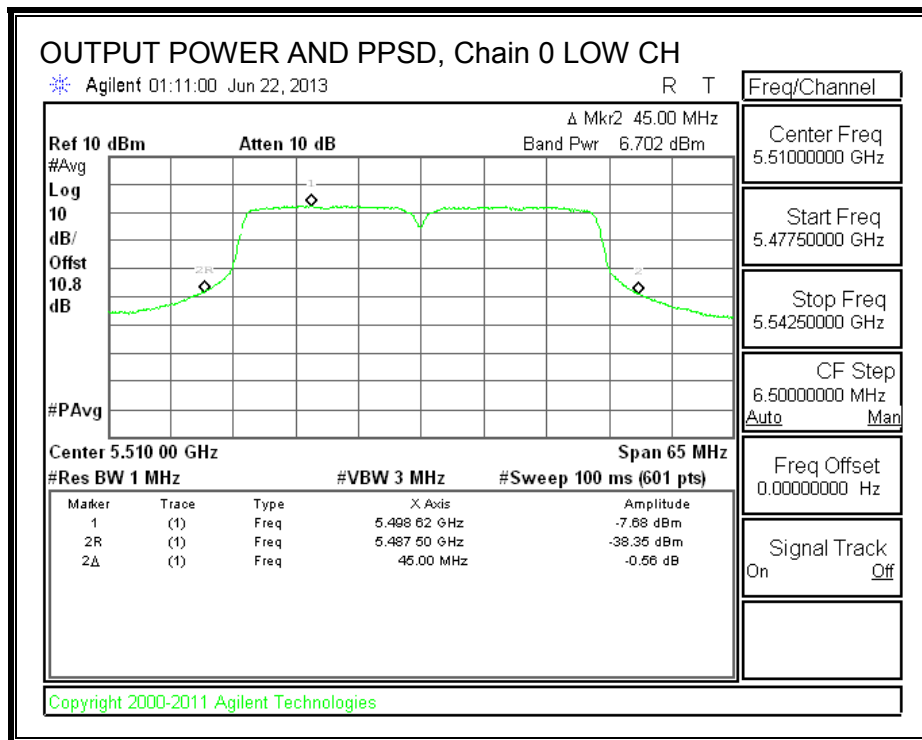
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margi n (dB)
Low	5510	6.70	8.17	11.58	24.00	-12.42
Mid	5550	12.77	13.83	17.41	24.00	-6.59
High 1	5670	11.29	12.50	16.02	24.00	-7.98
High 2	5710	12.92	14.08	17.62	24.00	-6.38

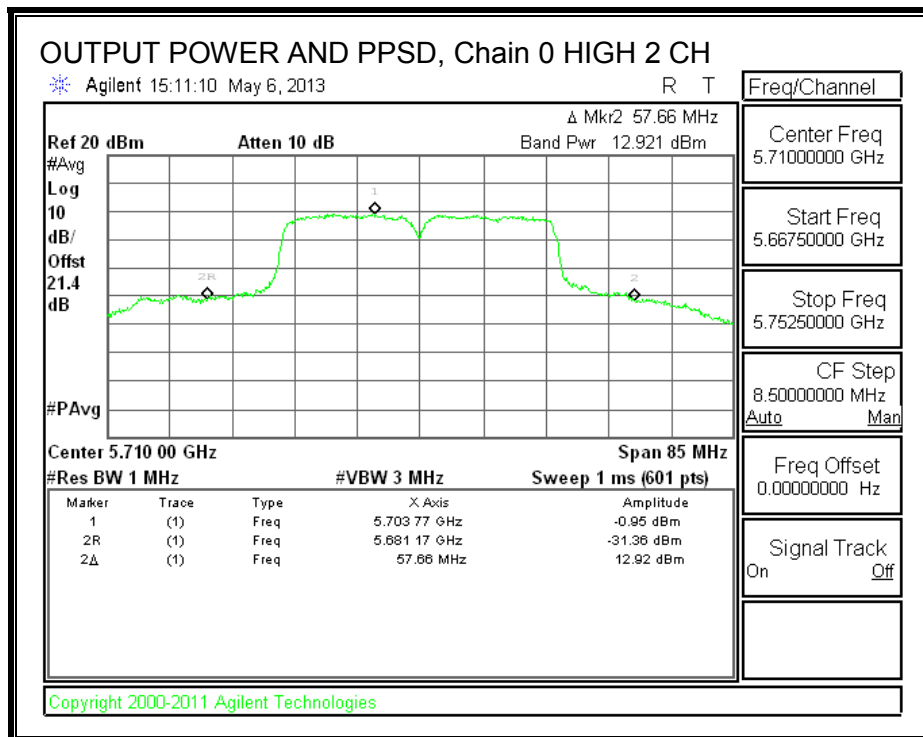
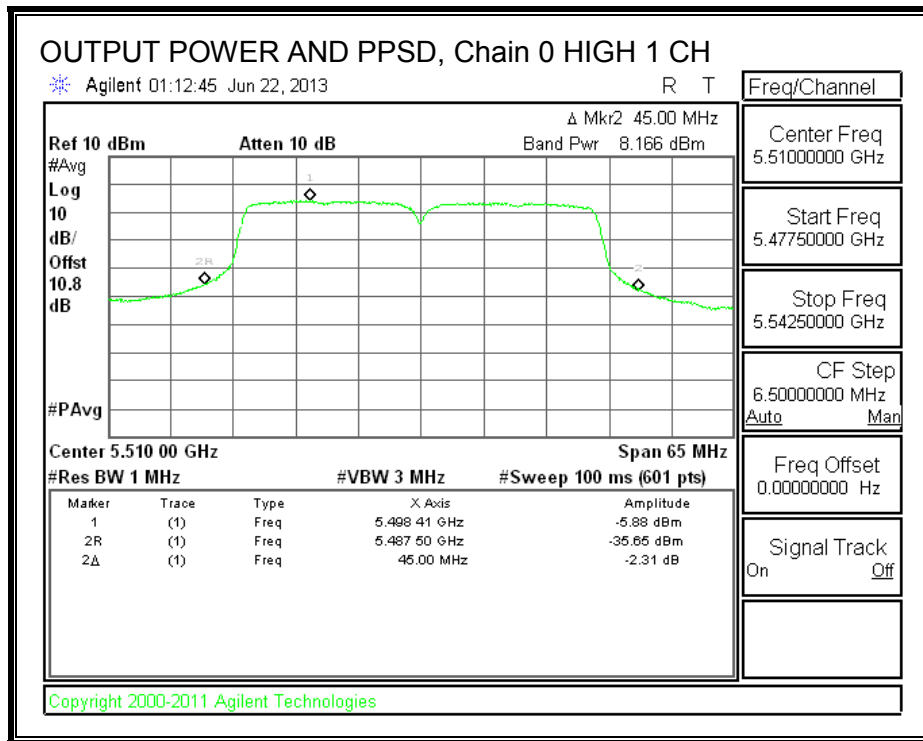
**PPSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margi n (dB)
Low	5510	-0.56	-2.31	2.73	11.00	-8.27
Mid	5550	-1.4	-0.08	3.39	11.00	-7.61
High 1	5670	-2.69	-1.51	2.02	11.00	-8.98
High 2	5710	-0.95	0.13	3.70	11.00	-7.30

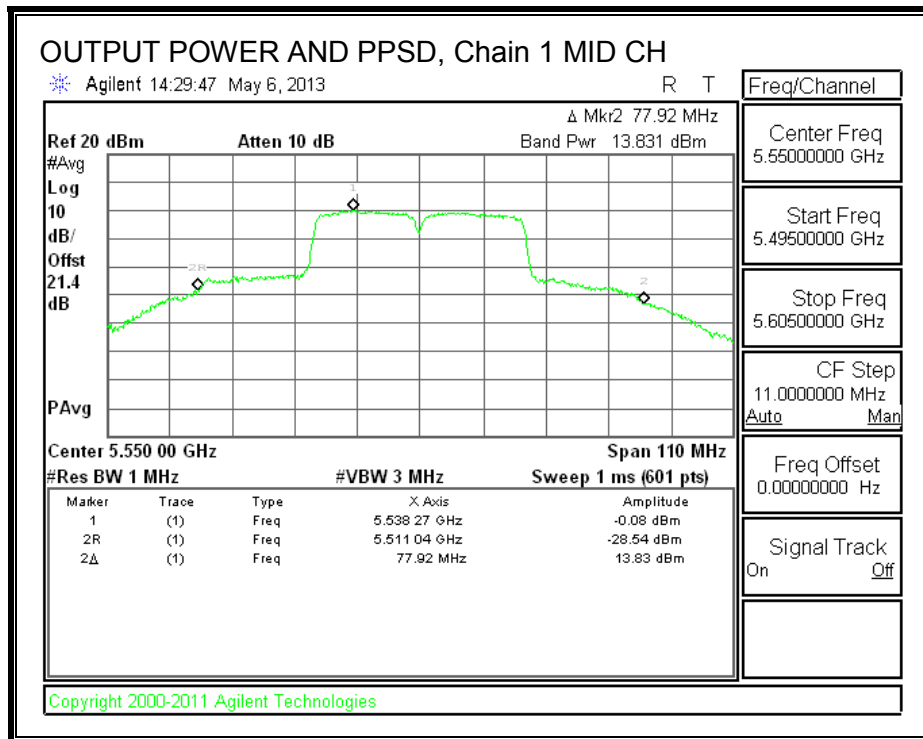
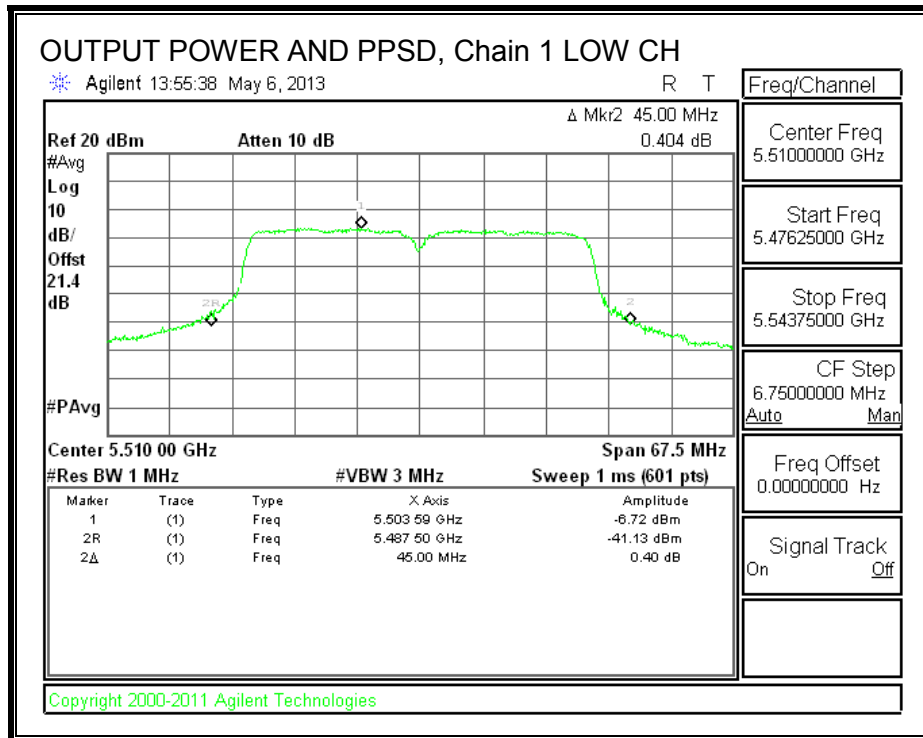


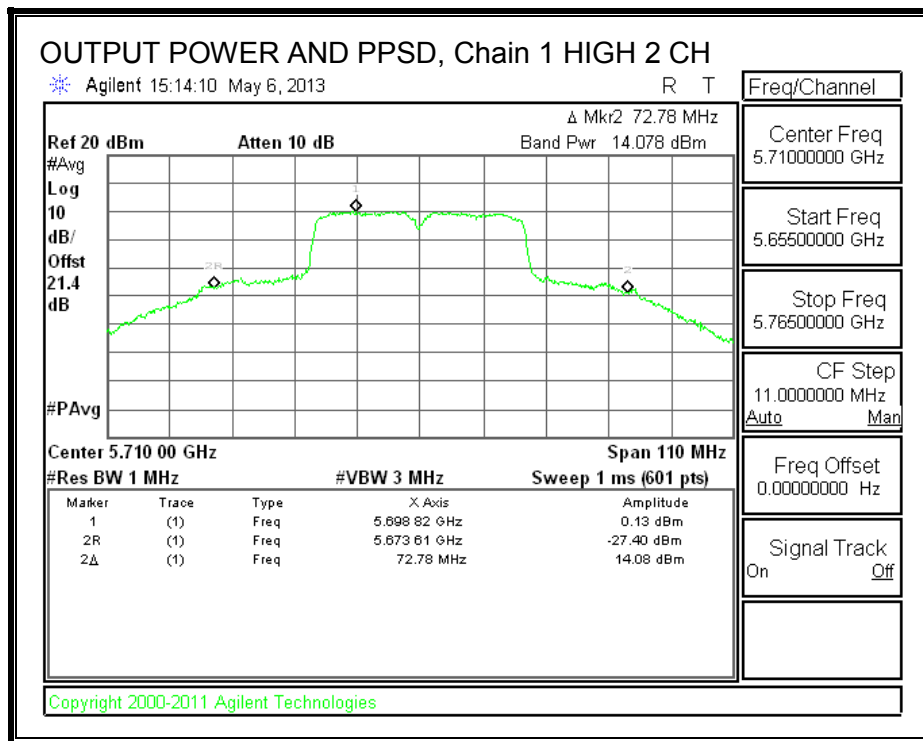
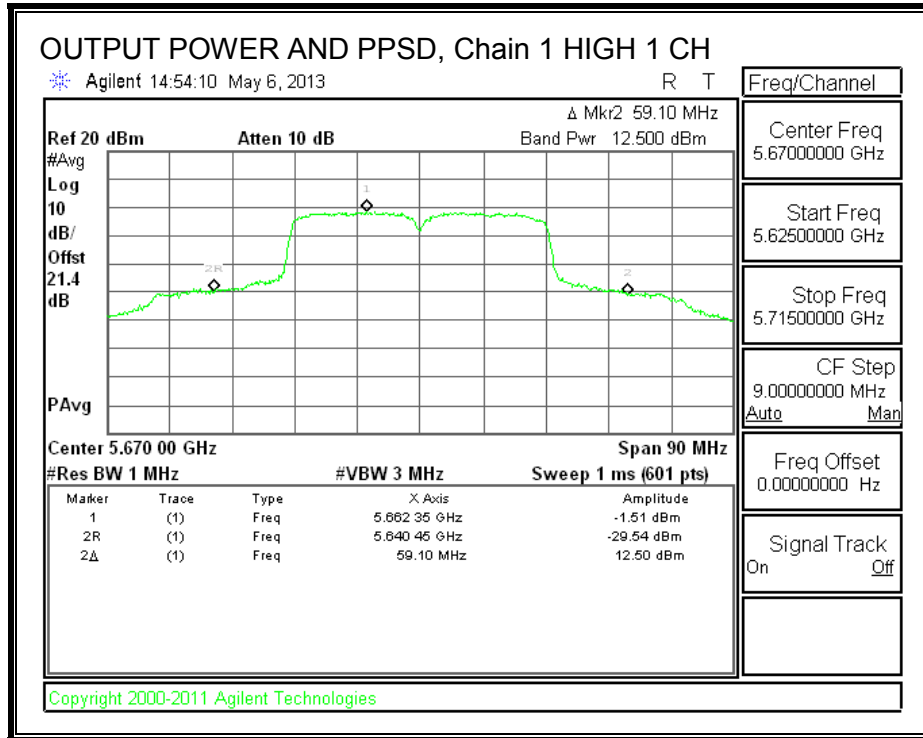
**OUTPUT POWER AND PPSD, Chain 0**





**OUTPUT POWER AND PPSD, Chain 1**





**8.9.5. 802.11n HT40 CH 142 2TX MODE IN THE 5.8 GHz BAND**  
**DTS/UNII = 5710 MHz**

**OUTPUT POWER AND PSD**

**LIMITS**

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**DIRECTIONAL ANTENNA GAIN**

For output power, the two chains are considered uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

<b>Chain 0 Antenna Gain (dBi)</b>	<b>Chain 1 Antenna Gain (dBi)</b>	<b>Uncorrelated Chains Directional Gain (dBi)</b>
2.00	2.00	2.00

For PSD, the two chains are considered correlated and the antenna gain is unequal among the chains. The directional gain is:

<b>Chain 0 Antenna Gain (dBi)</b>	<b>Chain 1 Antenna Gain (dBi)</b>	<b>Correlated Chains Directional Gain (dBi)</b>
2.00	2.00	5.01

Worst-case correlated antenna gain of 5.01 dBi was used in the output power and PSD table.

**RESULTS**

**Limits (FCC), portion in UNII 2 ext band**

**Bandwidth and Antenna Gain**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Correlated Gain (dBi)	Uncorrelated Gain (dBi)
High	5710	43.83	33.0856	5.01	2.00

**Limits**

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
High	5710	24.00	24.00	30.00	24.00	11.00	11.00	11.00

<b>Duty Cycle CF (dB)</b>	1.07	<b>Included in Calculations of PPSD</b>
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**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5710	12.203	13.212	16.817	30.00	-13.183

**PPSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
High	5710	-1.38	-0.69	3.06	11.00	-7.94

**Limits (FCC), portion in 5.8 GHz DTS band**

**Bandwidth and Antenna Gain**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Correlated Gain (dBi)	Uncorrelated Gain (dBi)
High	5710	13.83	3.0856	5.01	2.00

**Limits**

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
High	5710	22.41	15.89	21.89	15.89	11.00	11.00	11.00

<b>Duty Cycle CF (dB)</b>	1.07	<b>Included in Calculations of PPSD</b>
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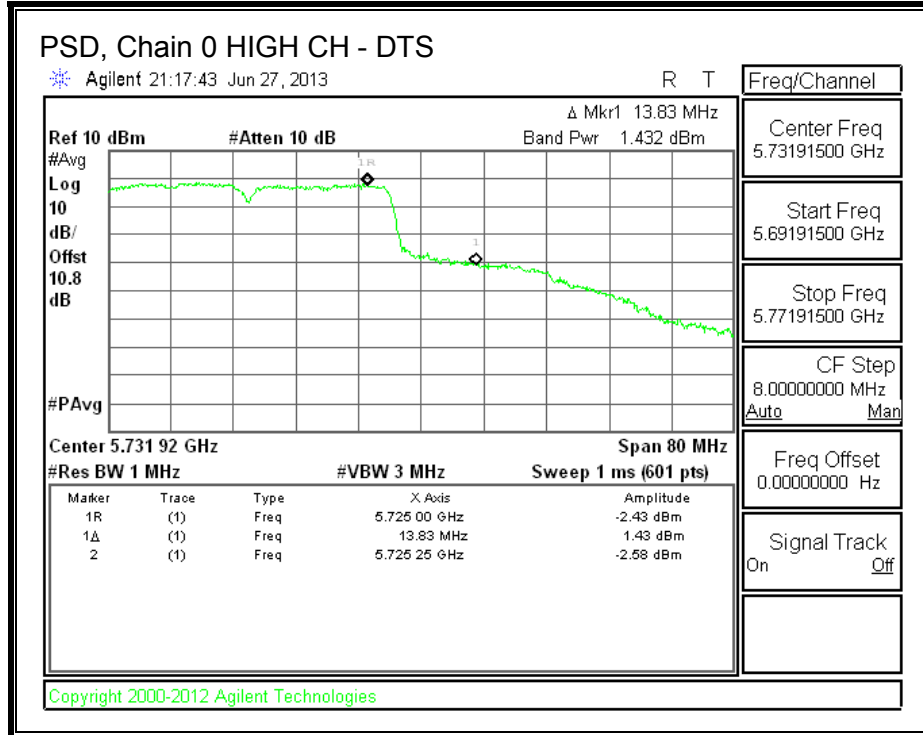
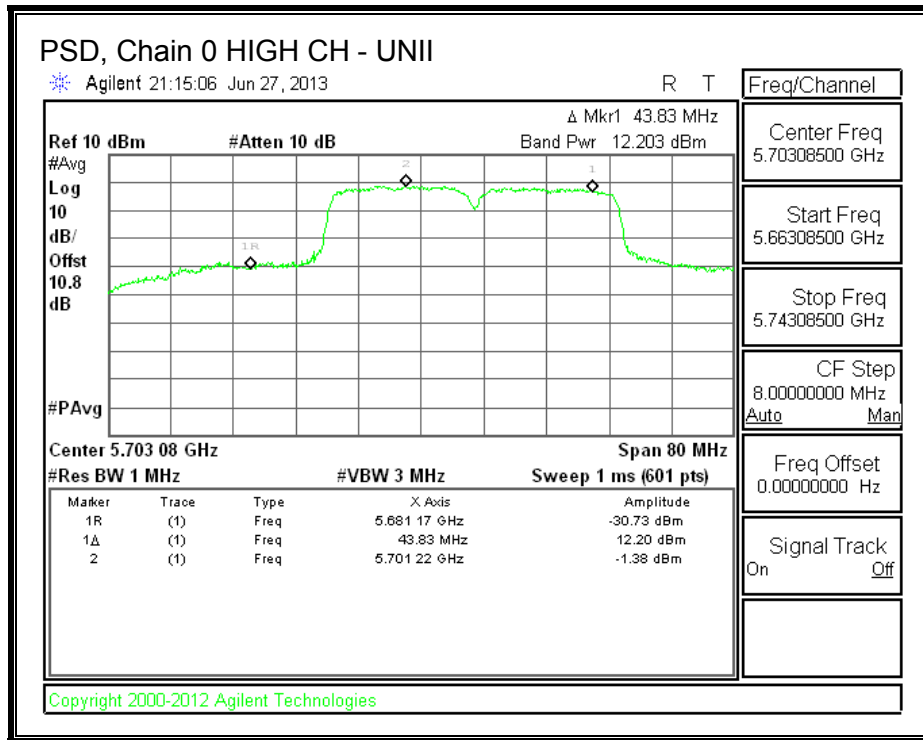
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5710	1.432	1.210	5.403	21.89	-16.491

**PPSD Results**

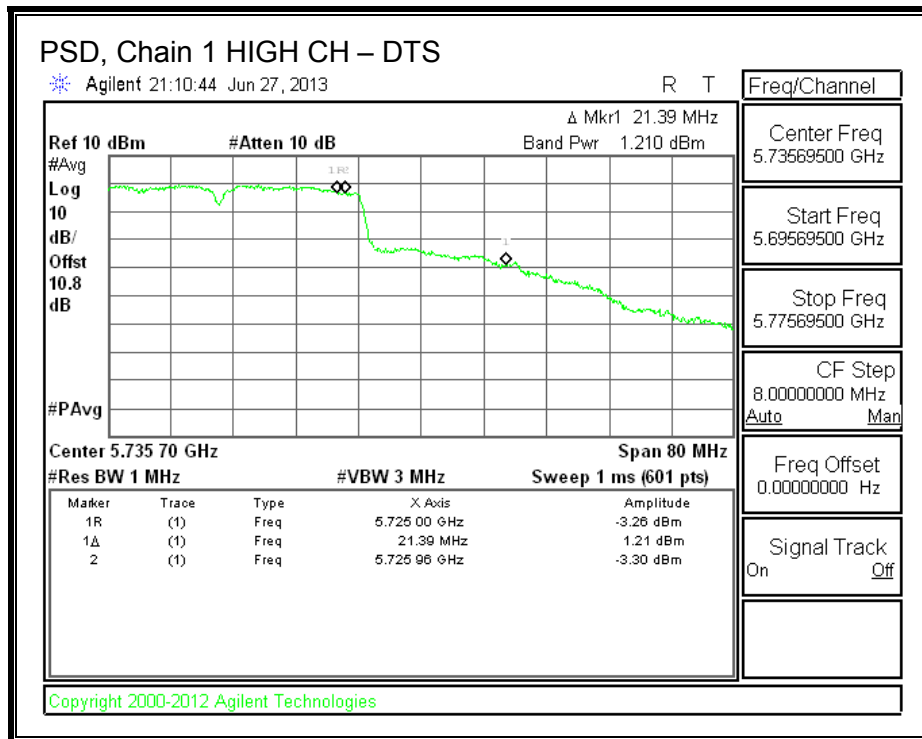
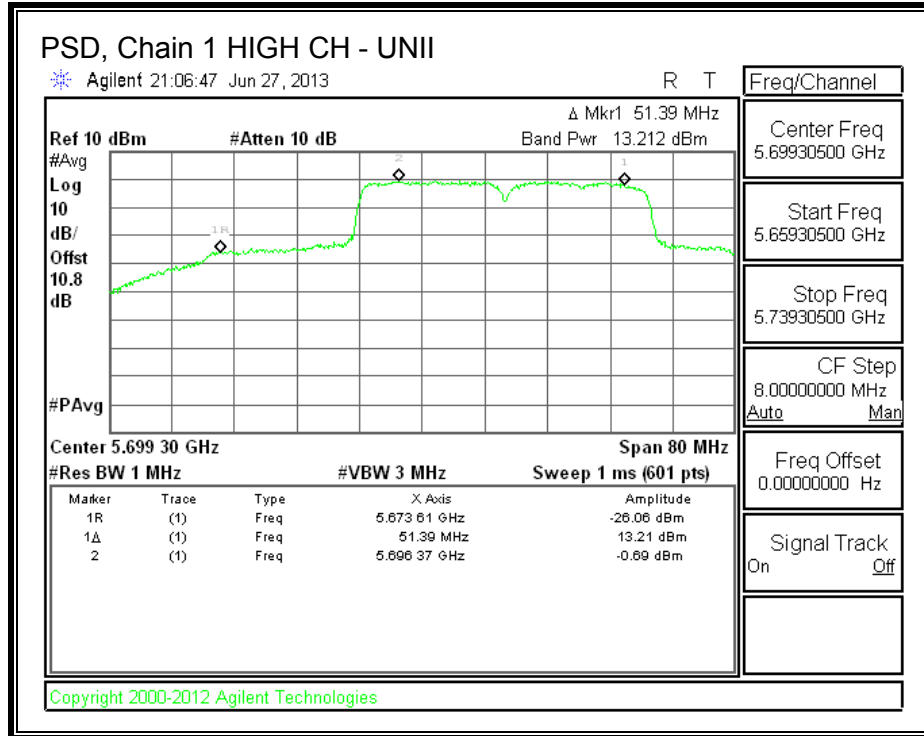
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
High	5710	-2.580	-3.300	1.16	11.00	-9.84

**PSD, Chain 0**





**PSD, Chain 1**



## **8.9.6. 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.

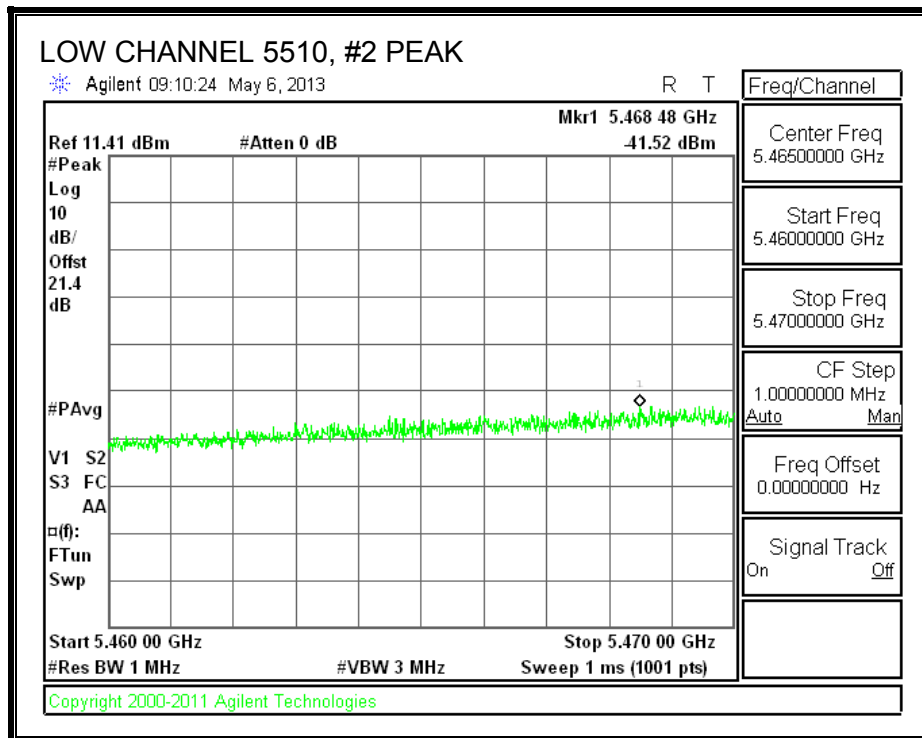
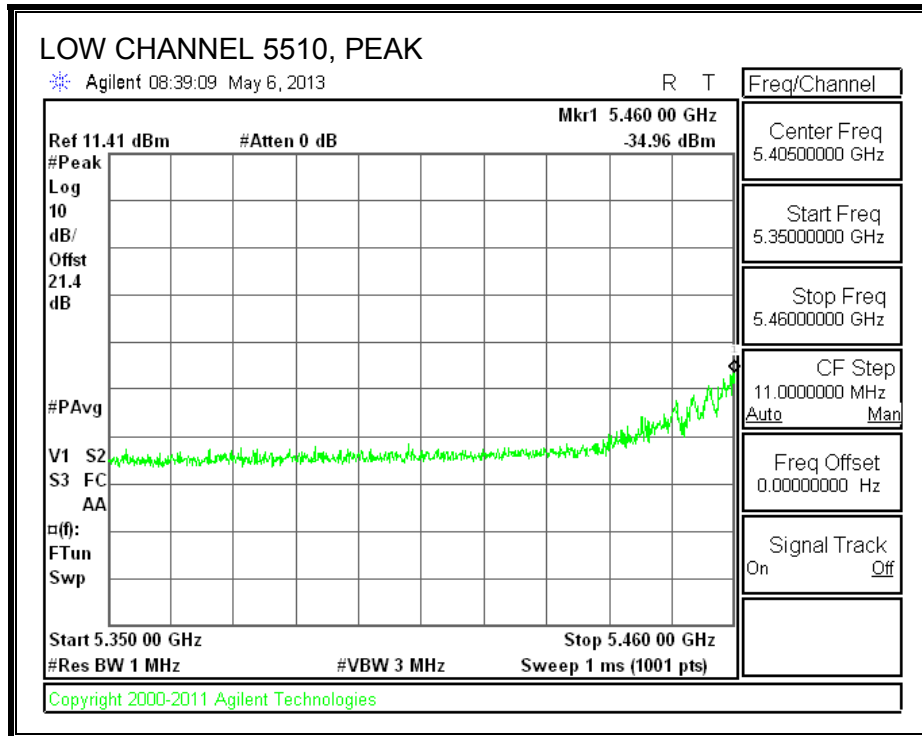
### **RESULTS**

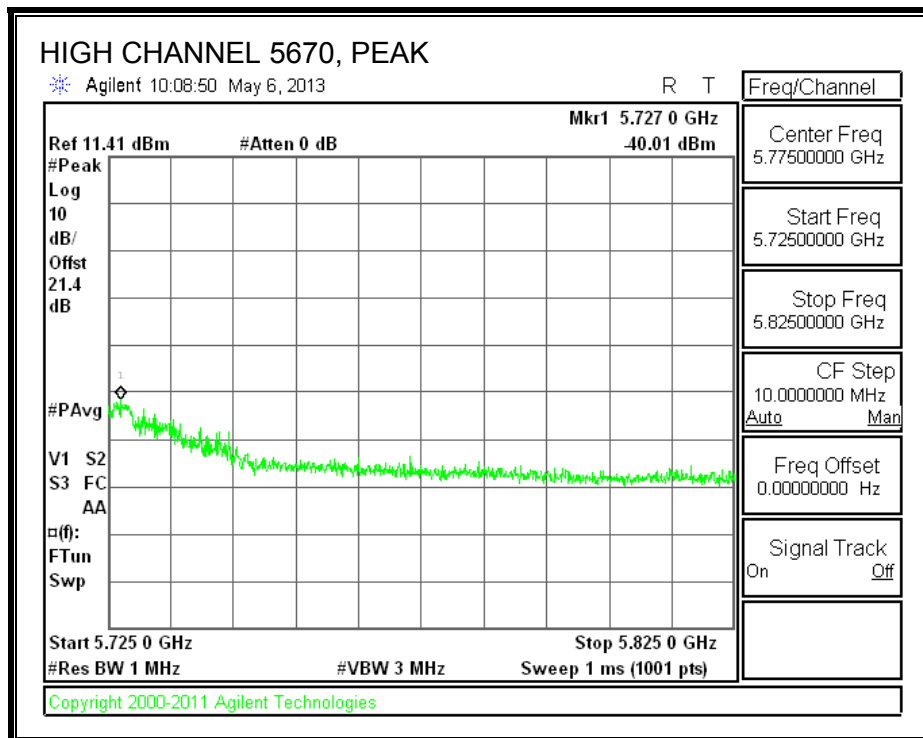
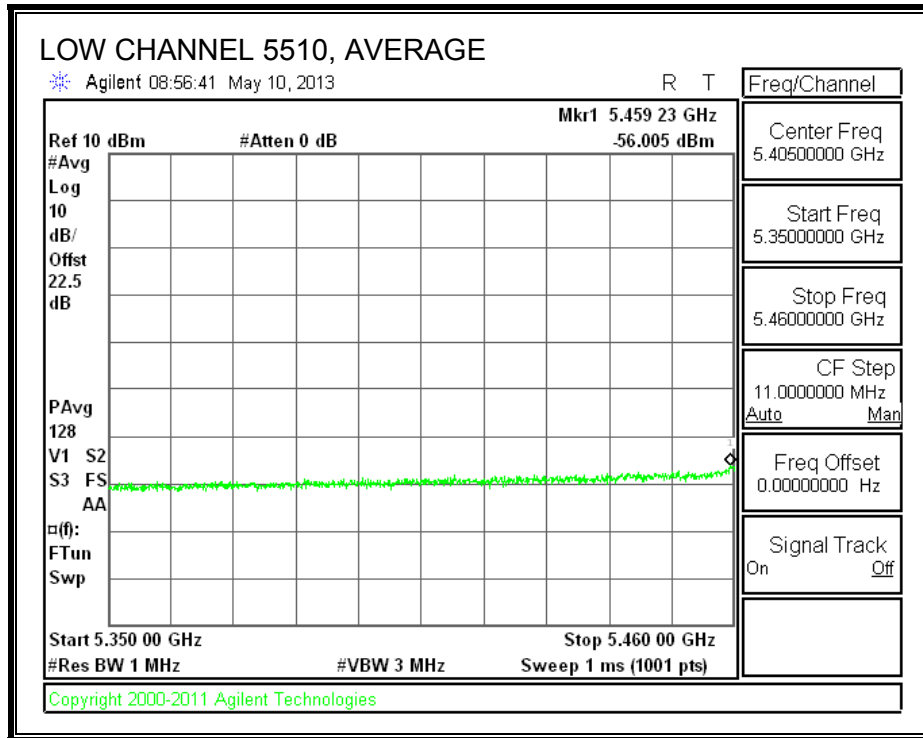
Refer to the results of 802.11n HT20 mode in the 5.2 GHz band.

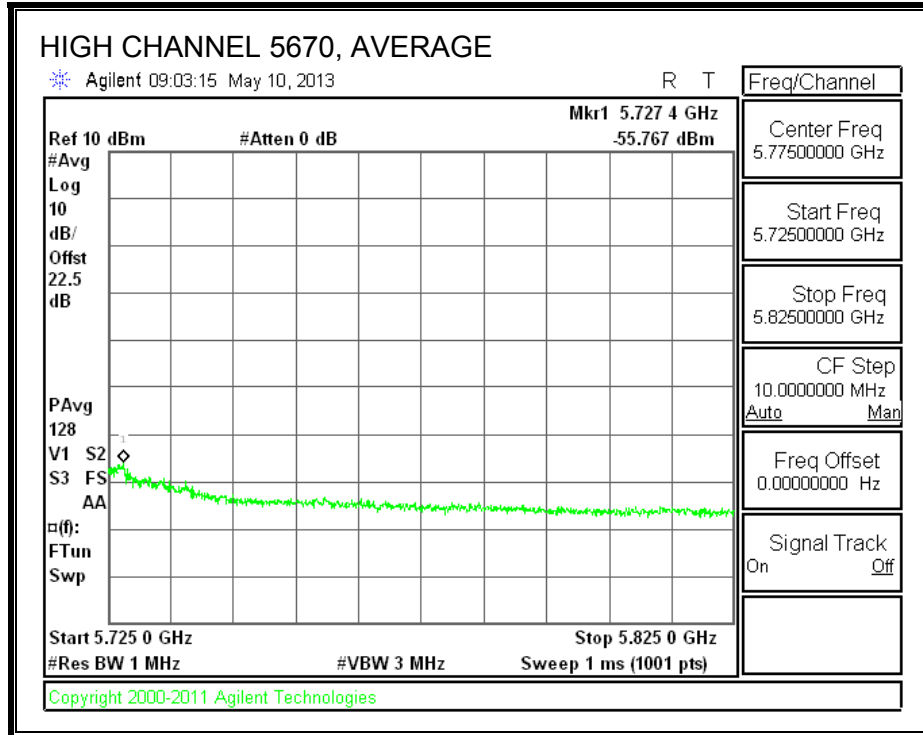
### 8.9.7. CONDUCTED BANDEGE, HARMONICS, & SPURIOUS (no filter unit)

#### RESTRICTED BANDEGE

#### Chain 0

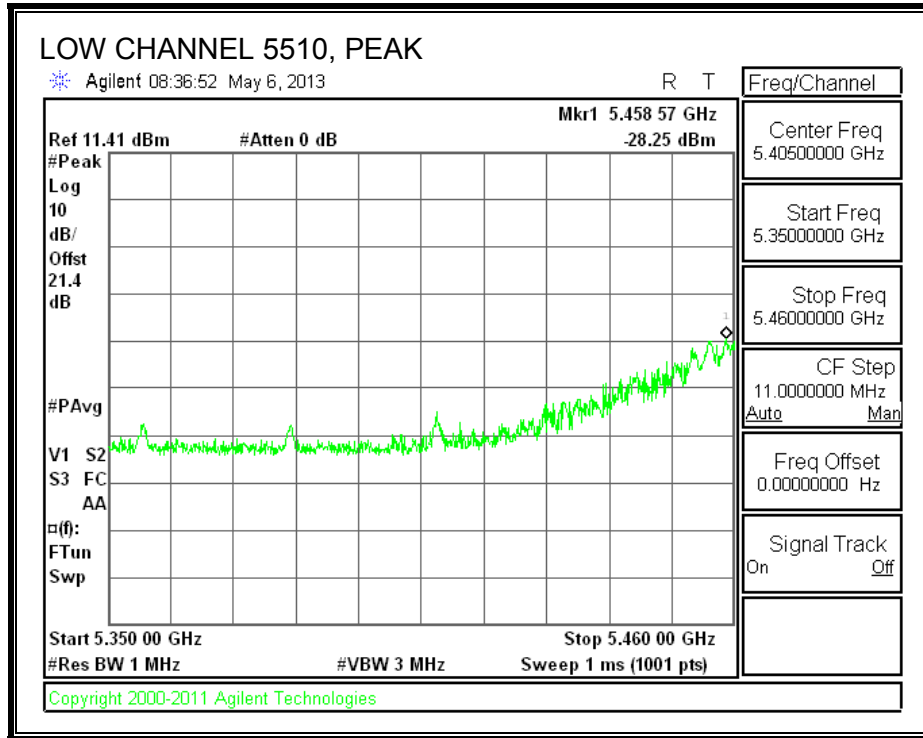


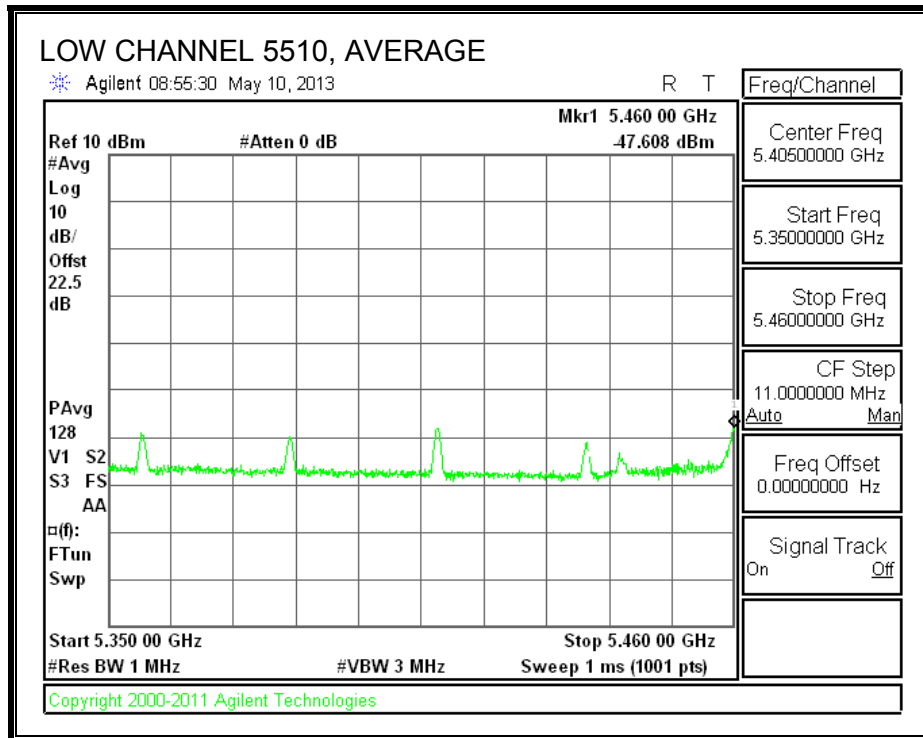
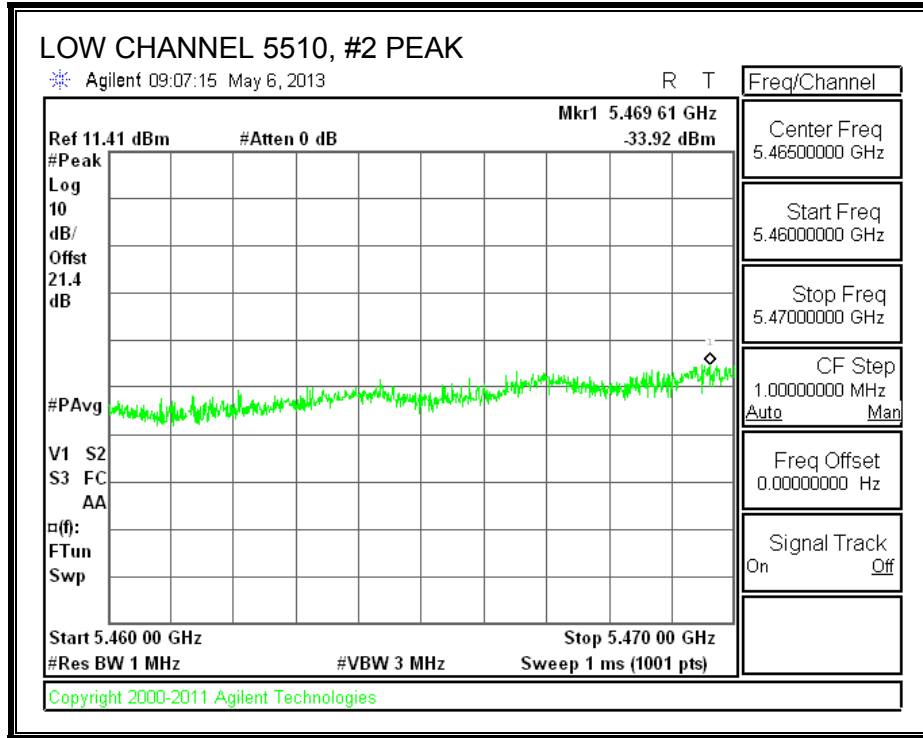


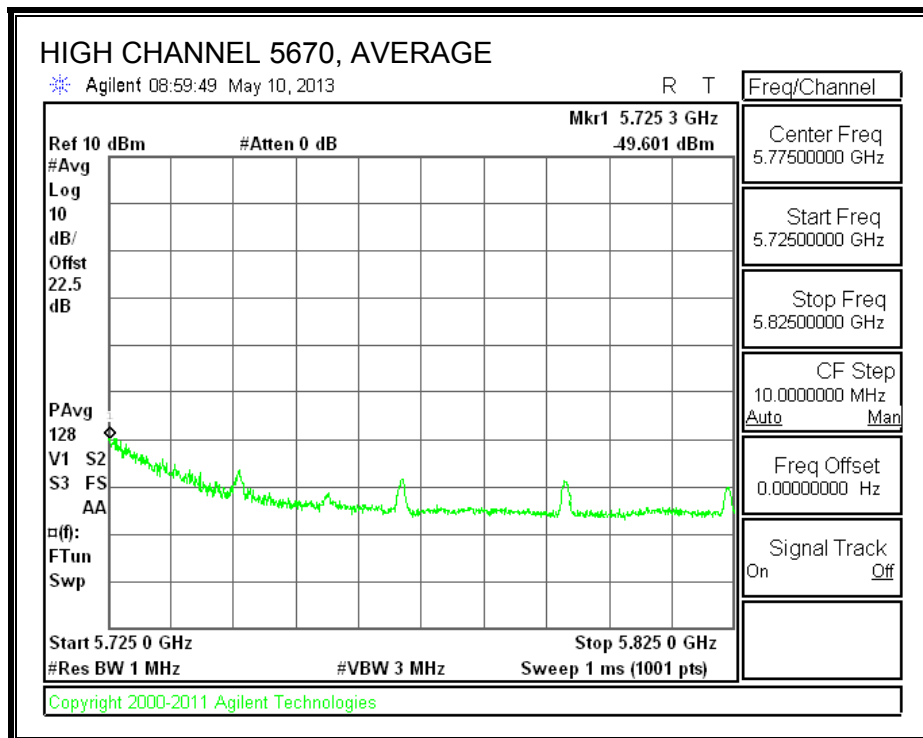
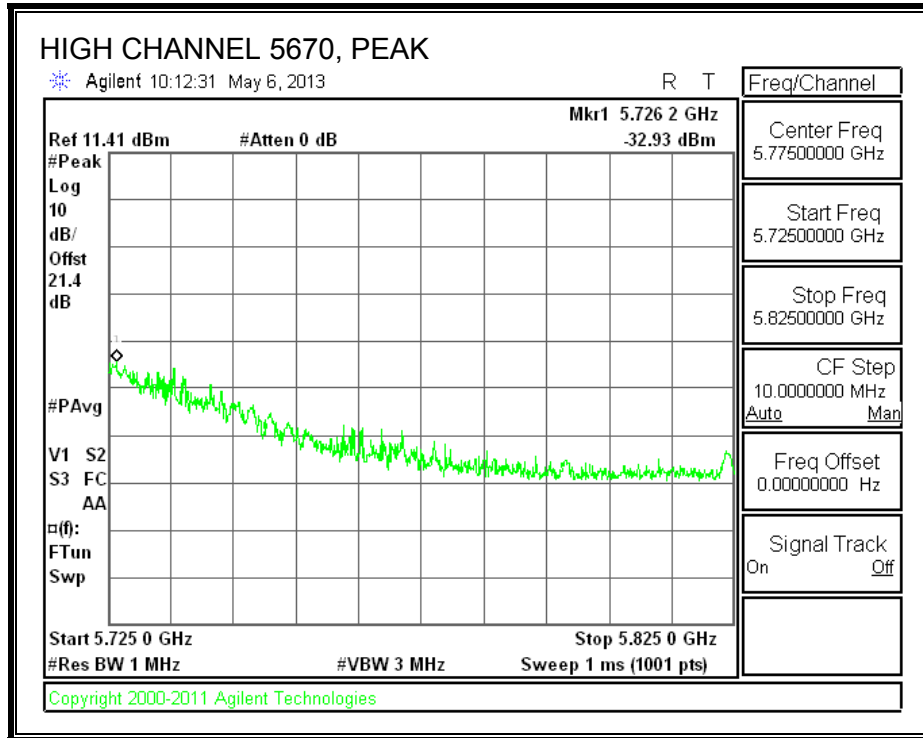


**RESTRICTED BANDEDGE**

**Chain 1**



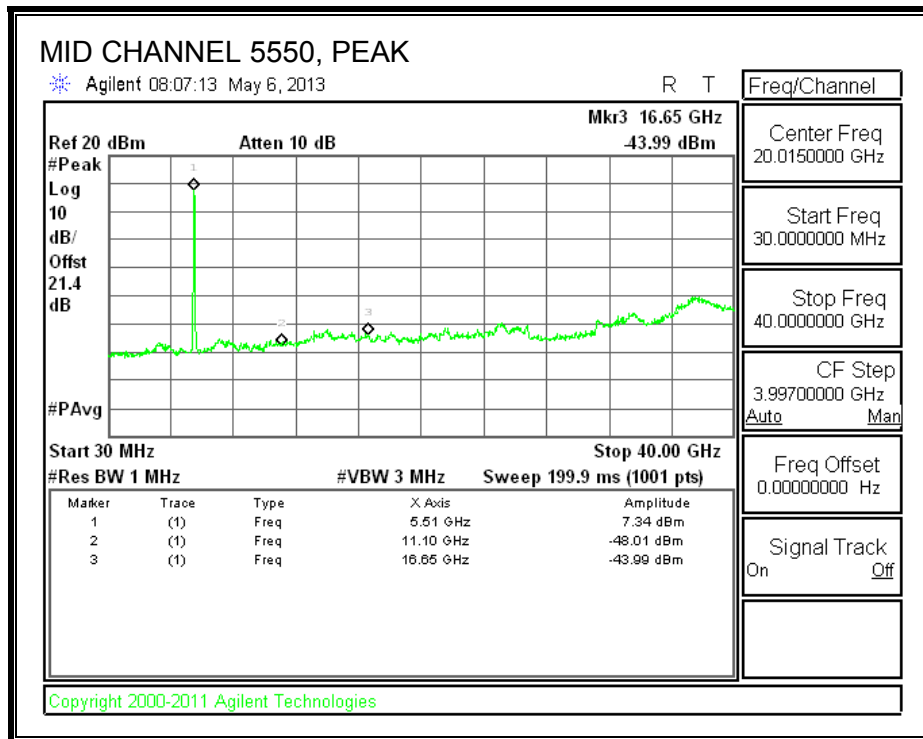
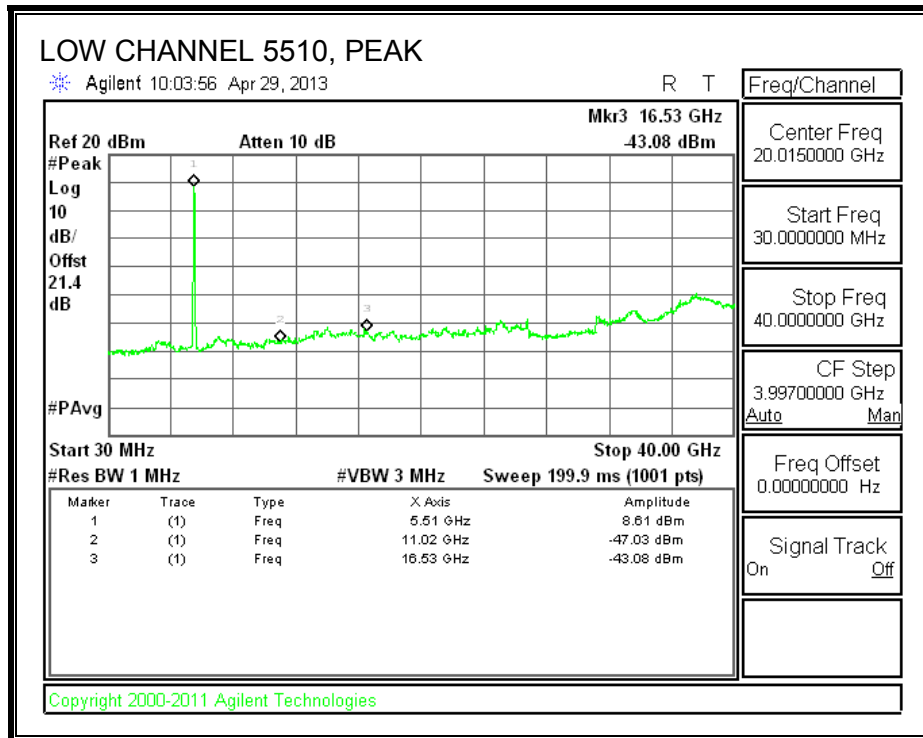


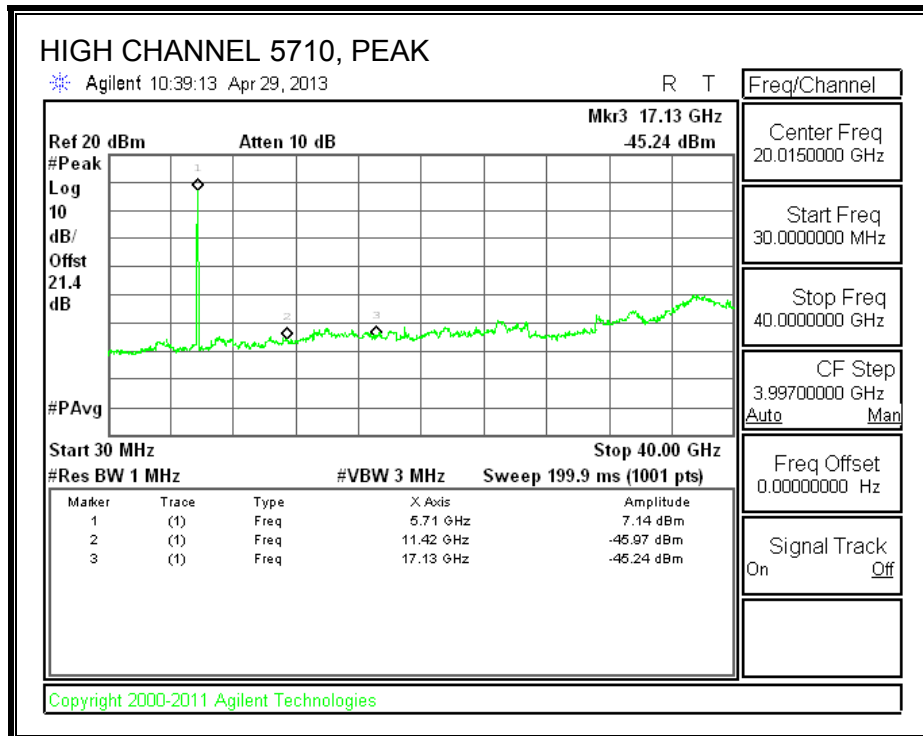
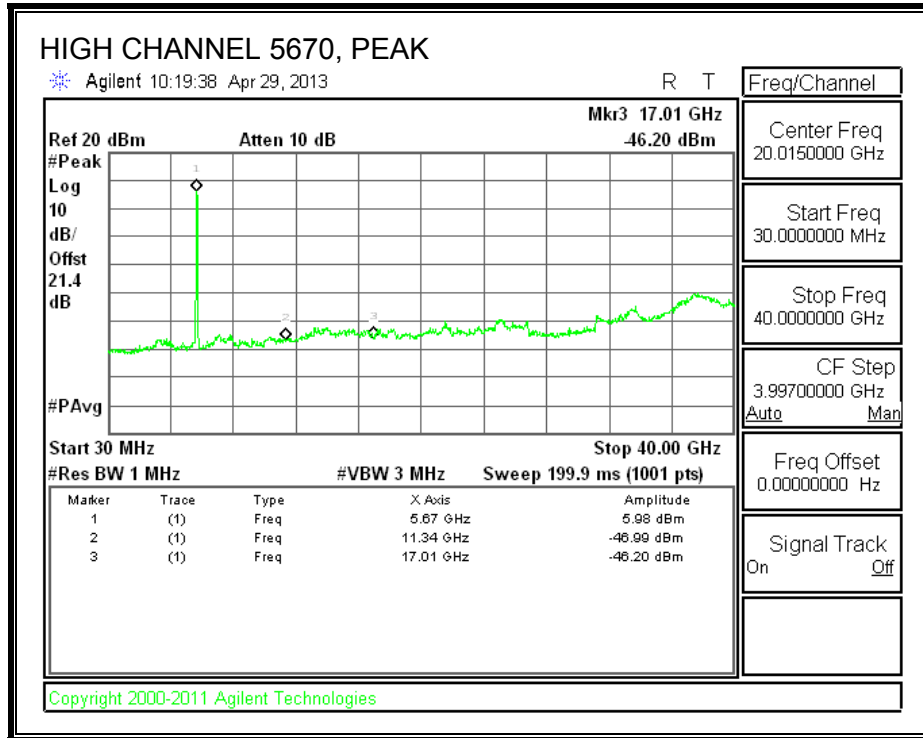




**HARMONICS & SPURIOUS**

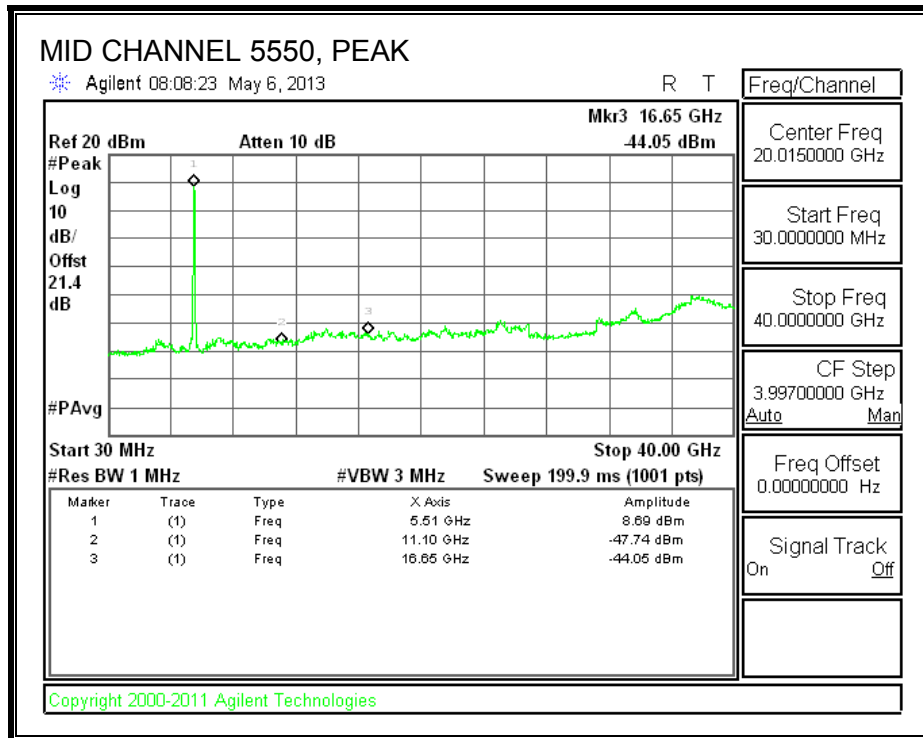
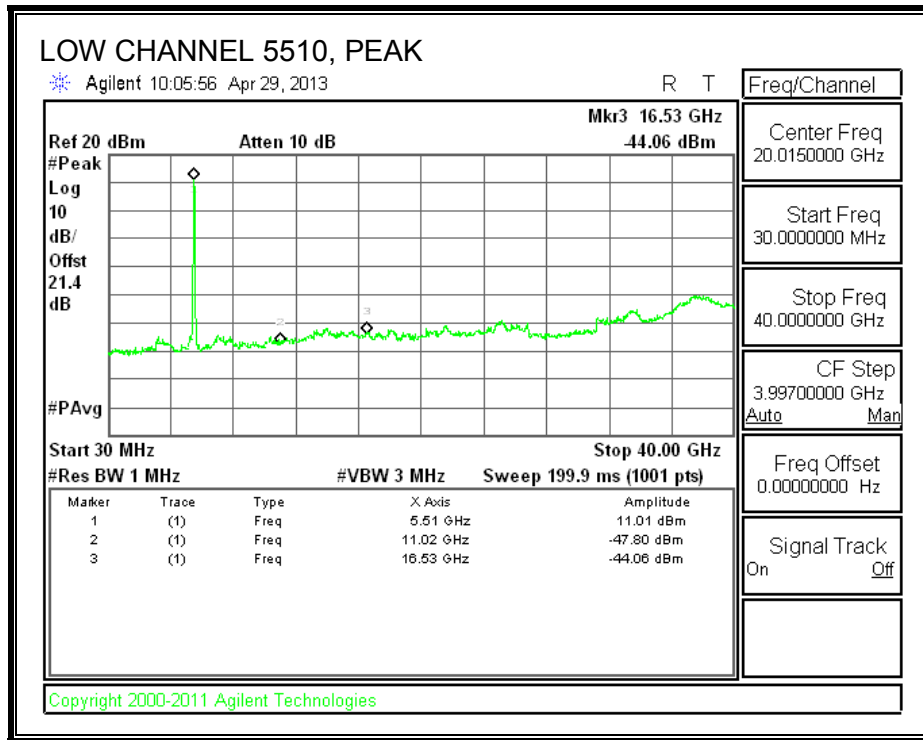
**Chain 0**

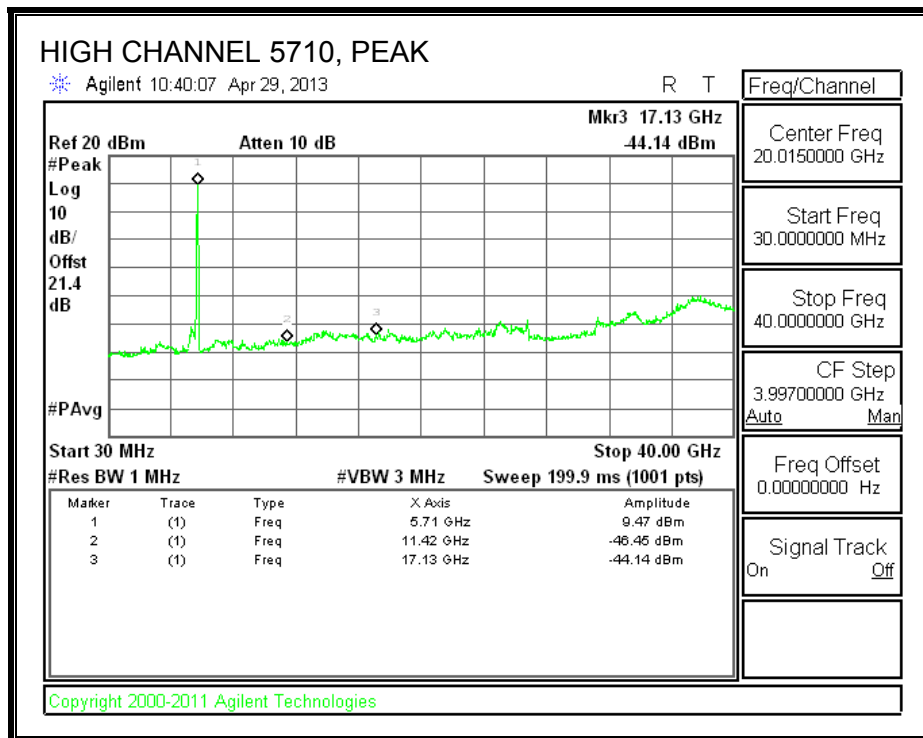
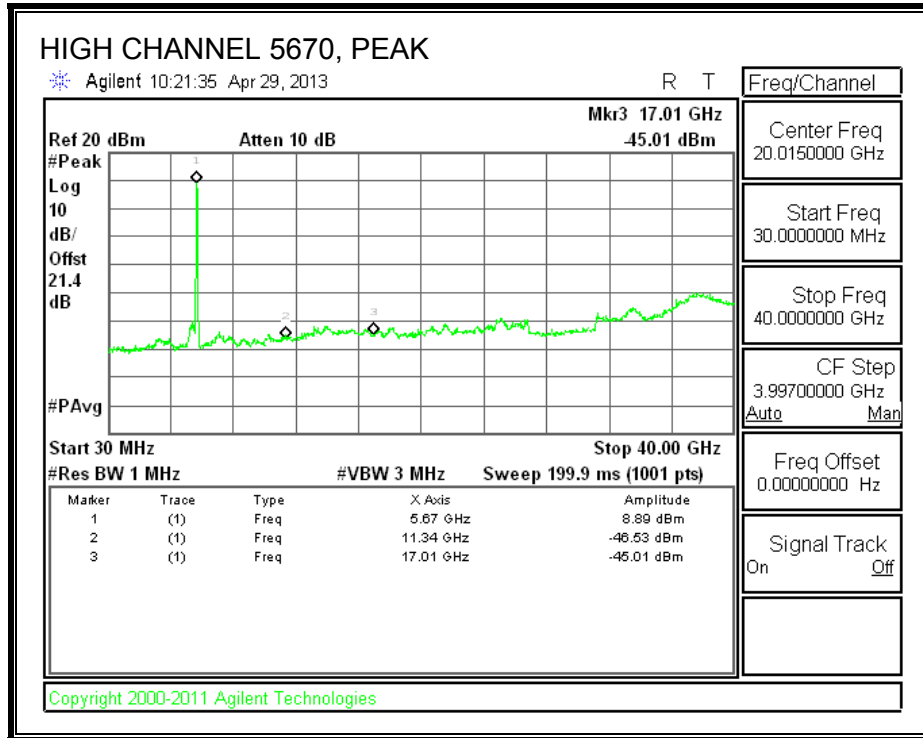




**HARMONICS & SPURIOUS**

**Chain 1**





**BANDEDGE DATA**

2TX Conducted Spurious BE for UNII (in the restricted bands)									
Date:	5/9/2013								
Test Engineer:	Tony Wagoner								
Client:	Qualcomm								
Project Number:	13U14995								
Configuration:	Tx								
Mode of operation:	5.5GHz HT40 <b>Note:</b> if the PK margin is greater than 20 dB, there is no need to get AVG reading.								
Channel	Frequency (MHz)	PXA PK Reading Chain 0 (dBm)	PXA PK Reading Chain 1 (dBm)	AG/Chain (dBi)	PK EIRP (dBm)	PK E-field Limit (dBm)	PK E-field Margin (dB)	Software Setting	AVG Power Meter Reading (dBm)
102 (5510)	5460	-34.96	-28.25	2	-22.40	-21.2	-1.20	16.50	11.8 / 13.5
102 (5510)	5469.71	-41.52	-33.92	2	-28.21	-27	-1.21	10.50	6.1 / 7.65
142 (5670)	5727	-40.01	-32.93	2	-27.14	-27	-0.14	17.00	12.1 / 13.5
Channel	Frequency (MHz)	PXA AVG Reading Chain 0 (dBm)	PXA AVG Reading Chain 1 (dBm)	AG/Chain (dBi)	AVG EIRP (dBm)	AVG E-field Limit (dBm)	AVG E-field Margin (dB)	Software Setting	AVG Power Meter Reading (dBm)
102 (5510)	5460	-56.005	-47.608	2	-42.01	-41.2	-0.81	13.00	8.35 / 10.4
142 (5670)	5725	-55.767	-49.601	2	-43.65	-41.2	-2.45	17.00	12.1 / 13.25

**SPURIOUS DATA**

The data in this table is from testing done at the harmonics shown in the plots with the span of 1MHz.

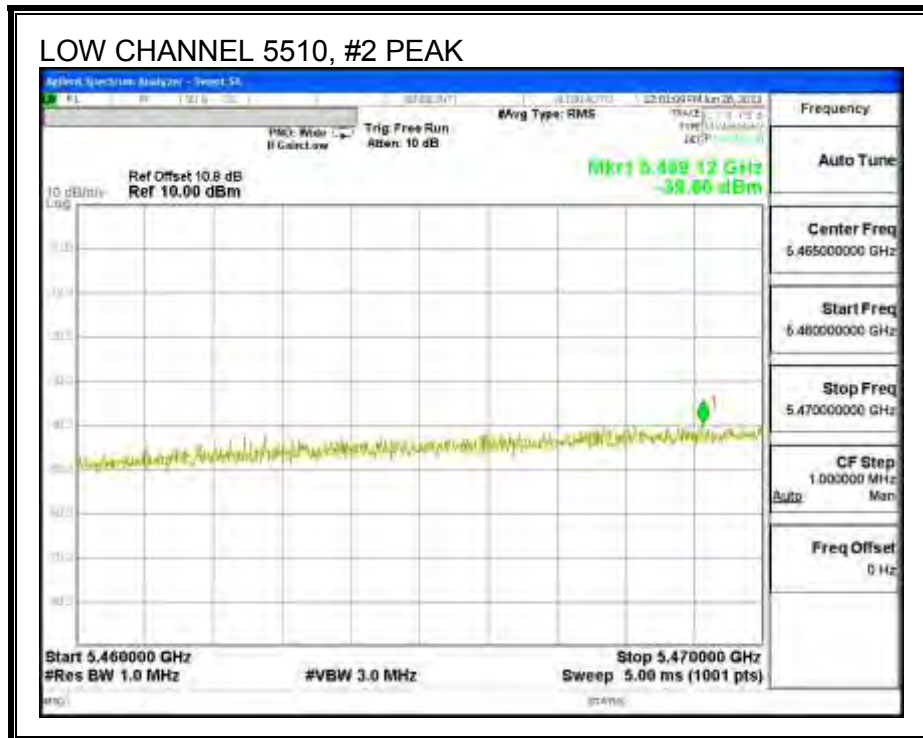
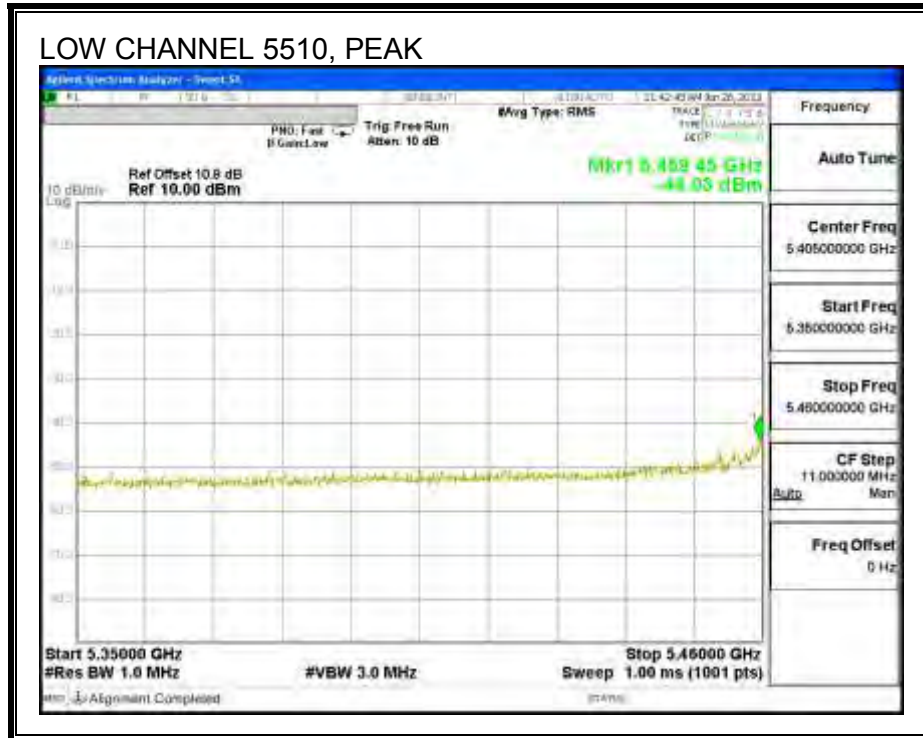
2TX Conducted Spurious for FCC DTS (in the restricted bands)									
Date:	5/6/2013								
Test Engineer:	Tony Wagoner								
Client:	Qualcomm Atheros								
Project Number:	13U14995								
Configuration:	5.5GHz 11n HT40								
Mode of operation:	Tx								<b>Note:</b> if the PK margin is greater than 20 dB, there is no need to get AVG reading.

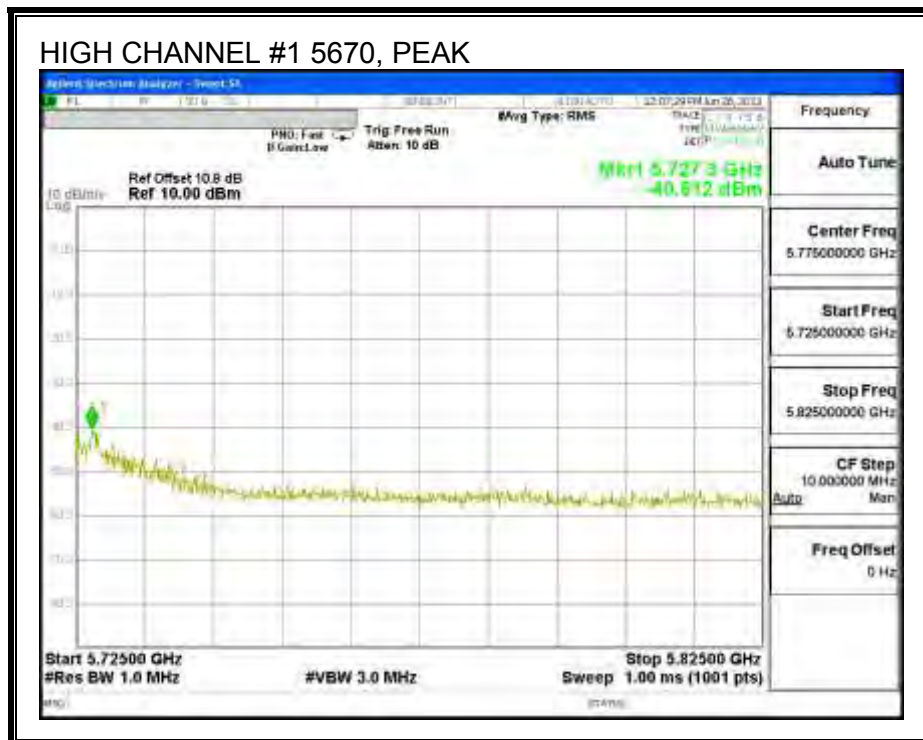
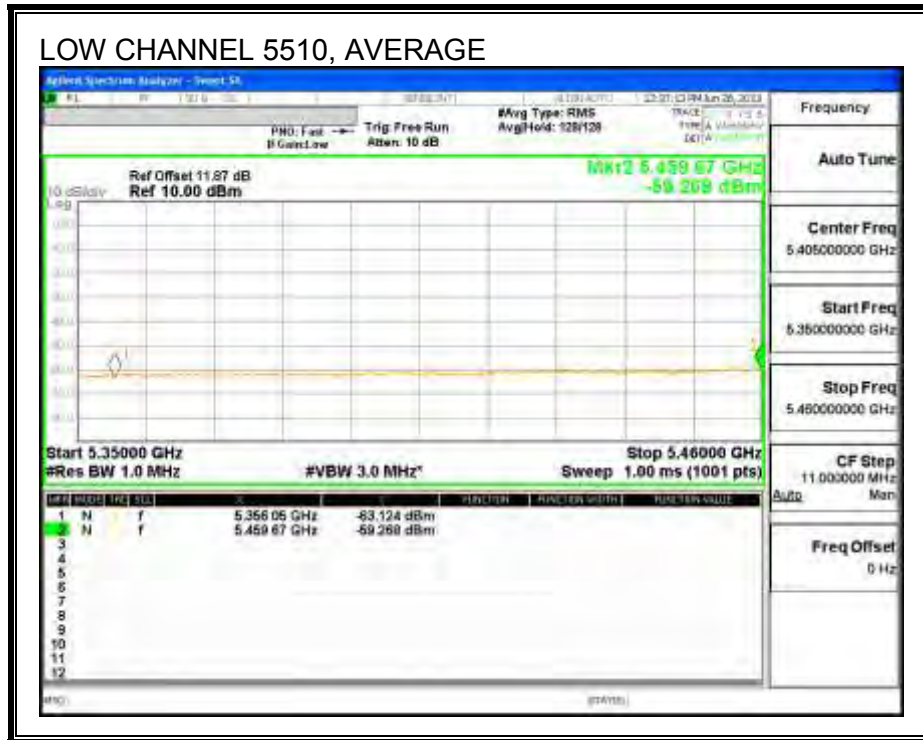
Channel	Frequency (GHz)	PSA PK Reading Chain 0 (dBm)	PSA PK Reading Chain 1 (dBm)	AG/Chain (dBi)	PK EIRP (dBm)	PK E-field Limit (dBm)	PK E-field Margin (dB)	Software Setting	AVG Power Meter Reading (dBm)
102 (5510)	11.02	-55.61	-55.17	2	-47.36	-21.2	-26.16	18.00	13.10 / 15.8
102 (5510)	16.53	-52.44	-52.15	2	-44.27	-21.2	-23.07	18.00	13.25 / 15.7
110 (5550)	11.1	-55.64	-55.36	2	-47.48	-21.2	-26.28	18.00	13.15 / 14.6
110 (5550)	16.65	-52.97	-53.03	2	-44.98	-21.2	-23.78	18.00	13.30 / 14.8
134 (5670)	11.34	-55.61	-55.59	2	-47.58	-21.2	-26.38	18.00	11.5 / 14
134 (5670)	17.01	-53.38	-53.87	2	-45.60	-21.2	-24.40	18.00	11.98 / 14.20
142 (5710)	11.42	-55.07	-54.52	2	-46.77	-21.2	-25.57	18.00	12.1 / 14.5
142 (5710)	17.13	-52.45	-53.23	2	-44.80	-21.2	-23.60	18.00	12.6 / 14.5

Channel	Frequency (MHz)	PSA AVG Reading Chain 0 (dBm)	PSA AVG Reading Chain 1 (dBm)	AG/Chain (dBi)	AVG EIRP (dBm)	AVG E-field Limit (dBm)	AVG E-field Margin (dB)	Software Setting	AVG Power Meter Reading (dBm)

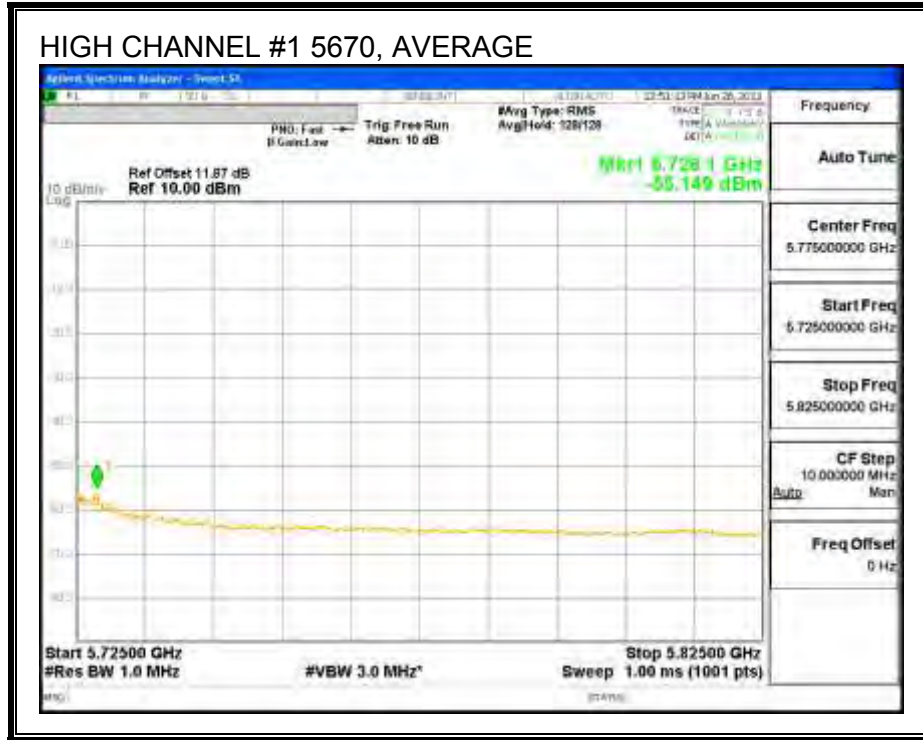
### 8.9.8. CONDUCTED BANDEGE, HARMONICS, & SPURIOUS (3G filter unit)

#### Chain 0 RESTRICTED BANDEGE

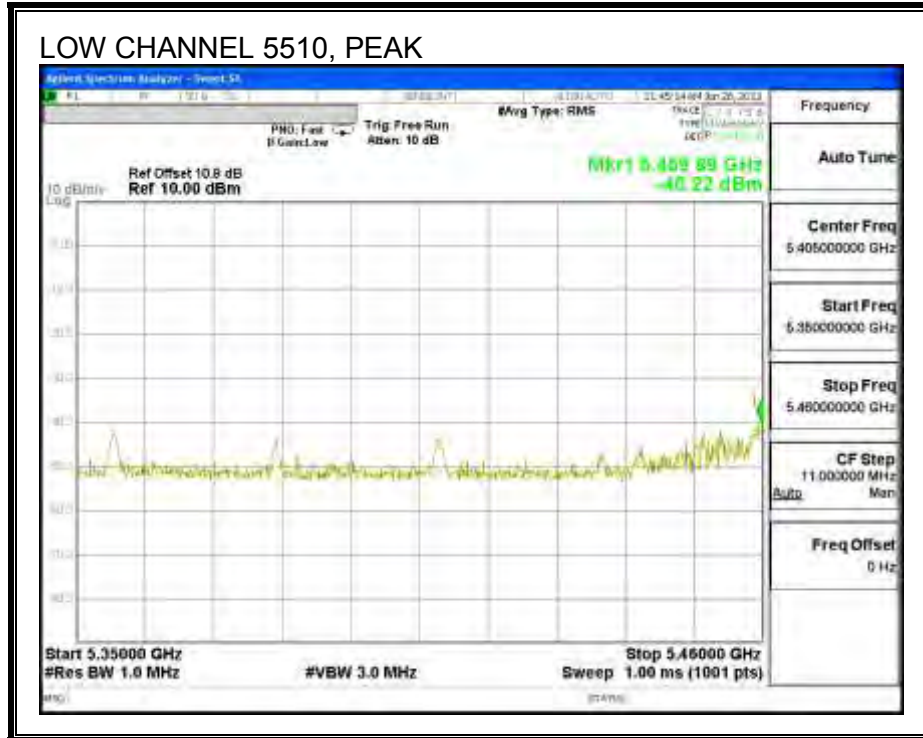


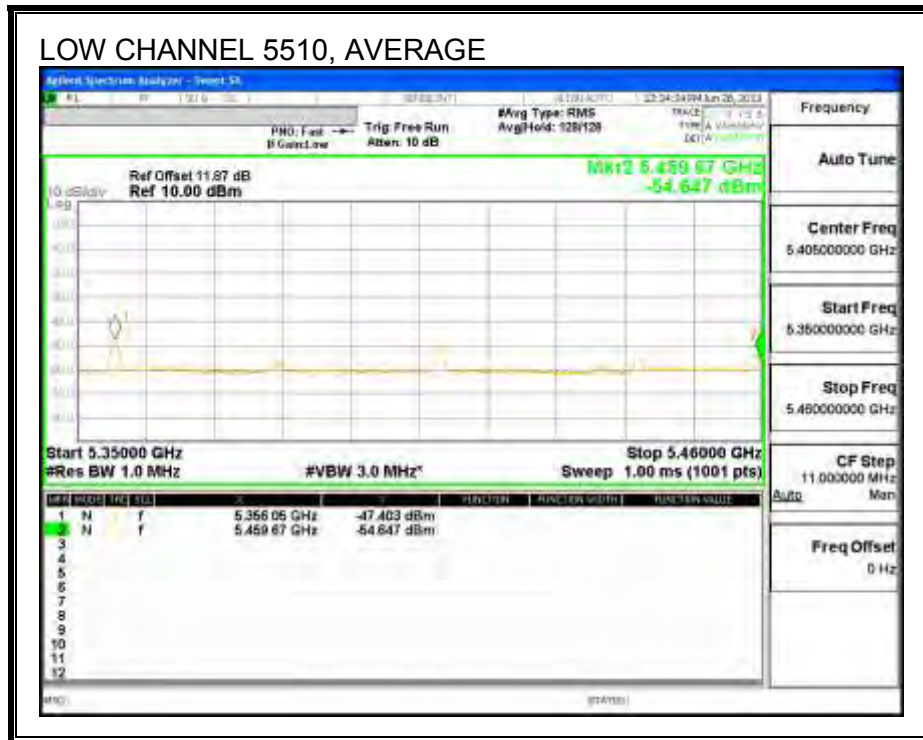
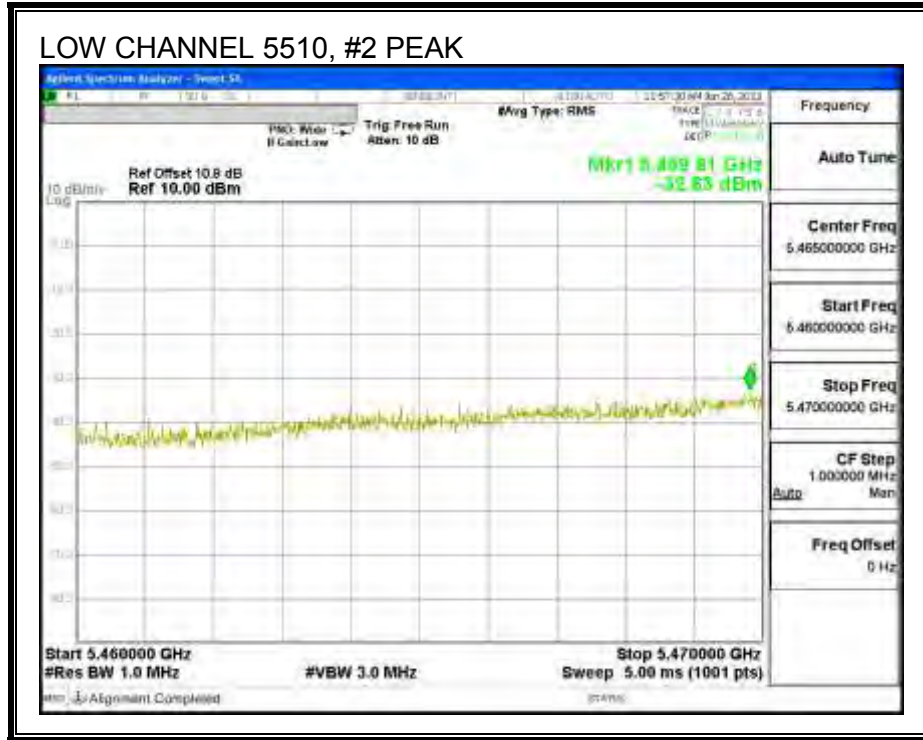


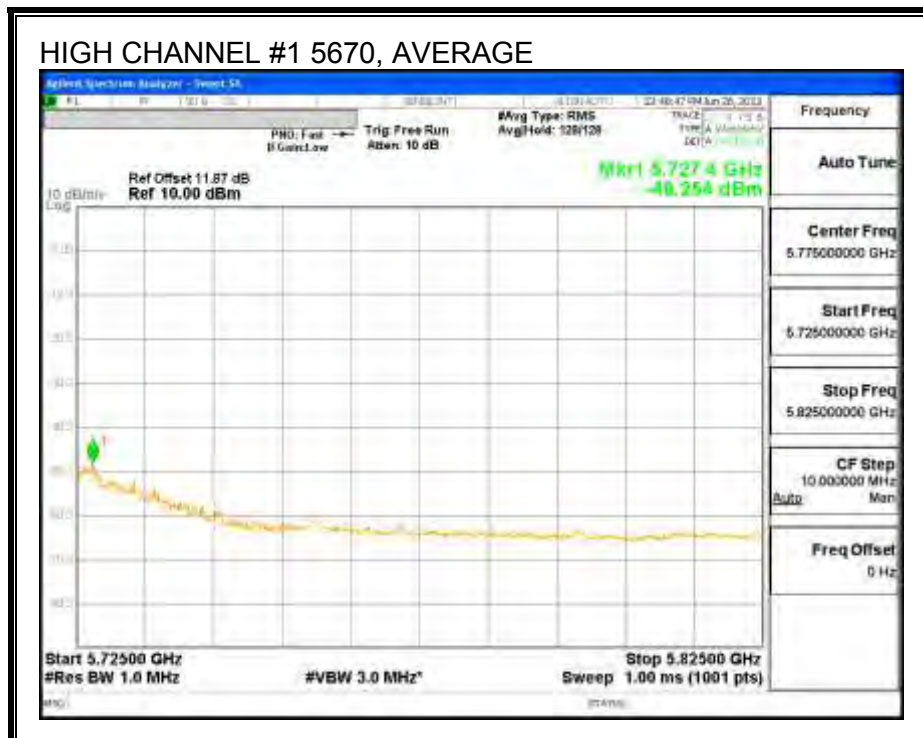
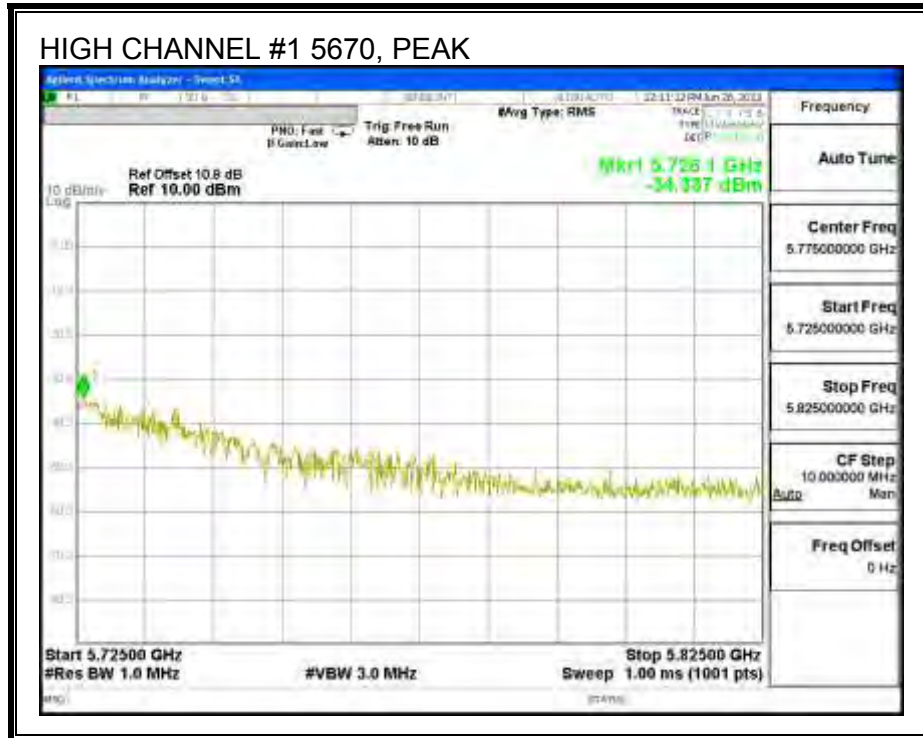




**Chain 1**





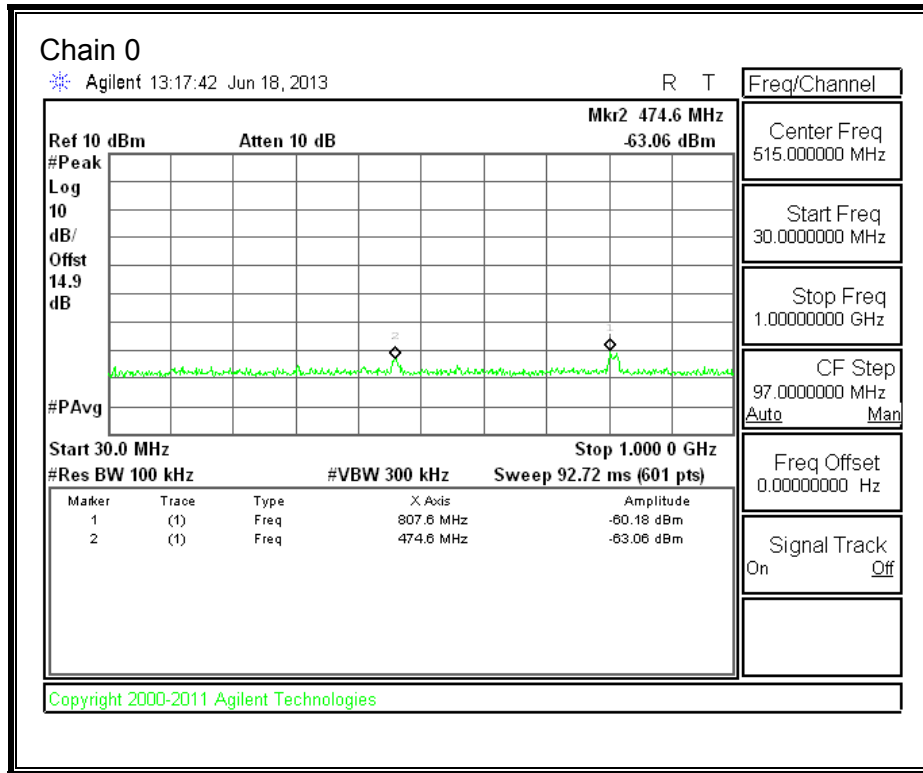


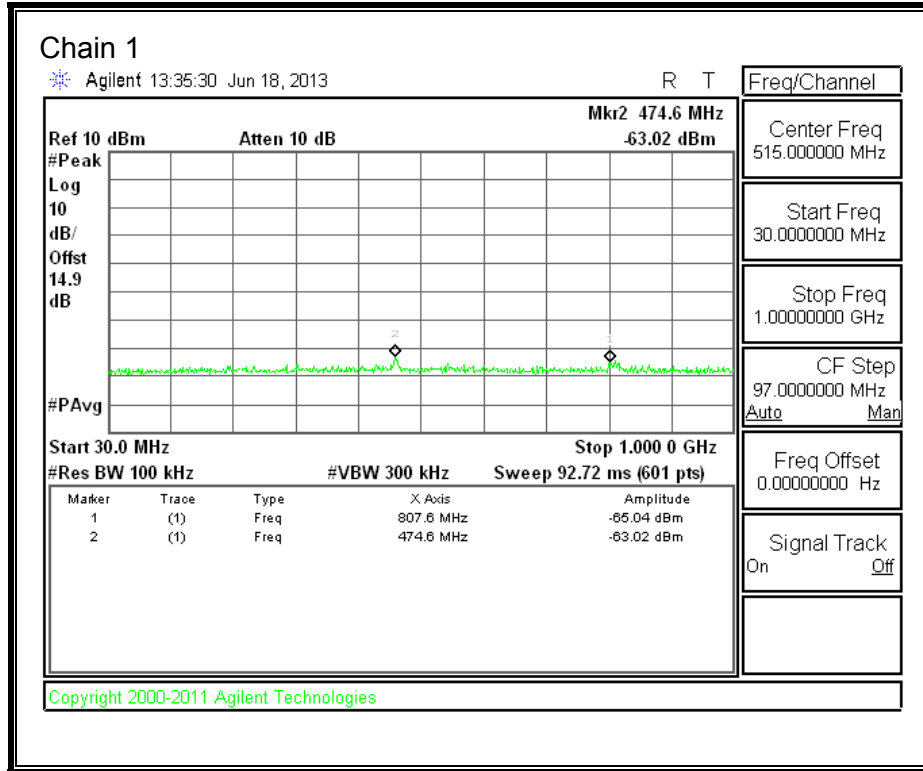
**BANDEDGE DATA**

2TX Conducted Spurious BE for UNII										
Date:	6/26/2013									
Test Engineer:	Tony Wagoner									
Client:	Qualcomm									
Project Number:	13U14995									
Configuration:	Tx									
Mode of operation:	5.5GHz 11n HT40			<b>Note:</b> if the PK margin is greater than 20 dB, there is no need to get AVG reading.						
Channel	Frequency (MHz)	PXA PK Reading Chain 0 (dBm)	PXA PK Reading Chain 1 (dBm)	AG/Chain (dBi)	PK EIRP (dBm)	PK E-field Limit (dBm)	PK E-field Margin (dB)	Software Setting	AVG Power Meter Reading (dBm)	
102 (5510)	5459.45	-44.030	-40.220	2	-33.70	-21.2	-12.50	13.00	6.82/8.38	
102 (5510)	5469.4	-39.860	-32.830	2	-27.03	-27	-0.03	11.00	4.83/6.52	
136 (5670)	5727.3	-40.612	-34.337	2	-28.41	-27	-1.41	17.00	10.01/12.14	
Channel	Frequency (MHz)	PXA AVG Reading Chain 0 (dBm)	PXA AVG Reading Chain 1 (dBm)	AG/Chain (dBi)	AVG EIRP (dBm)	AVG E-field Limit (dBm)	AVG E-field Margin (dB)	Software Setting	AVG Power Meter Reading (dBm)	
102 (5510)	5356.05	-63.124	-47.403	2	-42.28	-41.2	-1.08	11.00	5.02/6.57	
102 (5510)	5459.67	-59.268	-54.647	2	-48.35	-41.2	-7.15	11.00	5.02/6.57	
136 (5670)	5727.4	-55.149	-48.254	2	-42.44	-41.2	-1.24	17.00	10.01/12.14	

### 8.10. WORST-CASE BELOW 1 GHz

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





**DATA**

**2TX Conducted Spurious for FCC (in the restricted bands)**

Date: 6/18/2013  
 Test Engineer: Tony Wagoner  
 Client: Qualcomm  
 Project Number: 13u14995  
 Configuration: 30-1000MHz  
 Mode of operation: Worst Case

Frequency (MHz)	Meter PK Reading Chain 0 (dBm)	Meter PK Reading Chain 1 (dBm)	AG Chain 0 (dBi)	AG Chain 1 (dBi)	PK EIRP (dBm)	QP E-field Limit (dBm)	QP E-field Margin (dB)
474.6	-63.06	-63.02	2	2	-50.32	-49.18	-1.14
807.6	-60.18	-65.04	2	2	-49.24	-49.18	-0.06

**Note:** if the QP margin is passing there is no need to get QP measurement.

QP Limit Start Freq (MHz)	Stop Freq (MHz)	Limit (dBm)
30	88	-55.20
88	216	-51.68
216	960	-49.18
960	1000	-41.22



## 9. RADIATED TEST RESULTS

### 9.1. 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.

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.

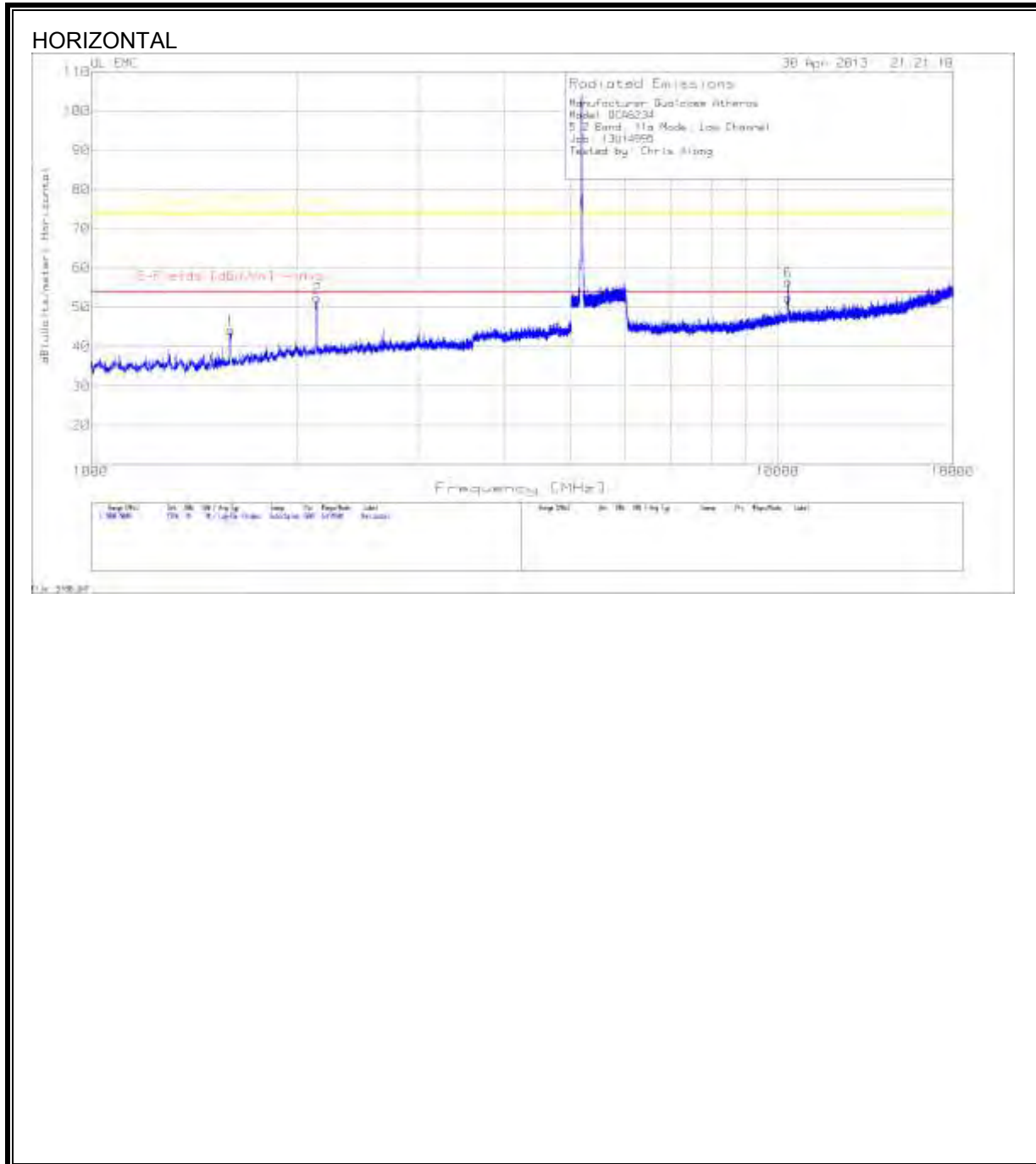
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 1 MHz for peak measurements and as applicable for average measurements.

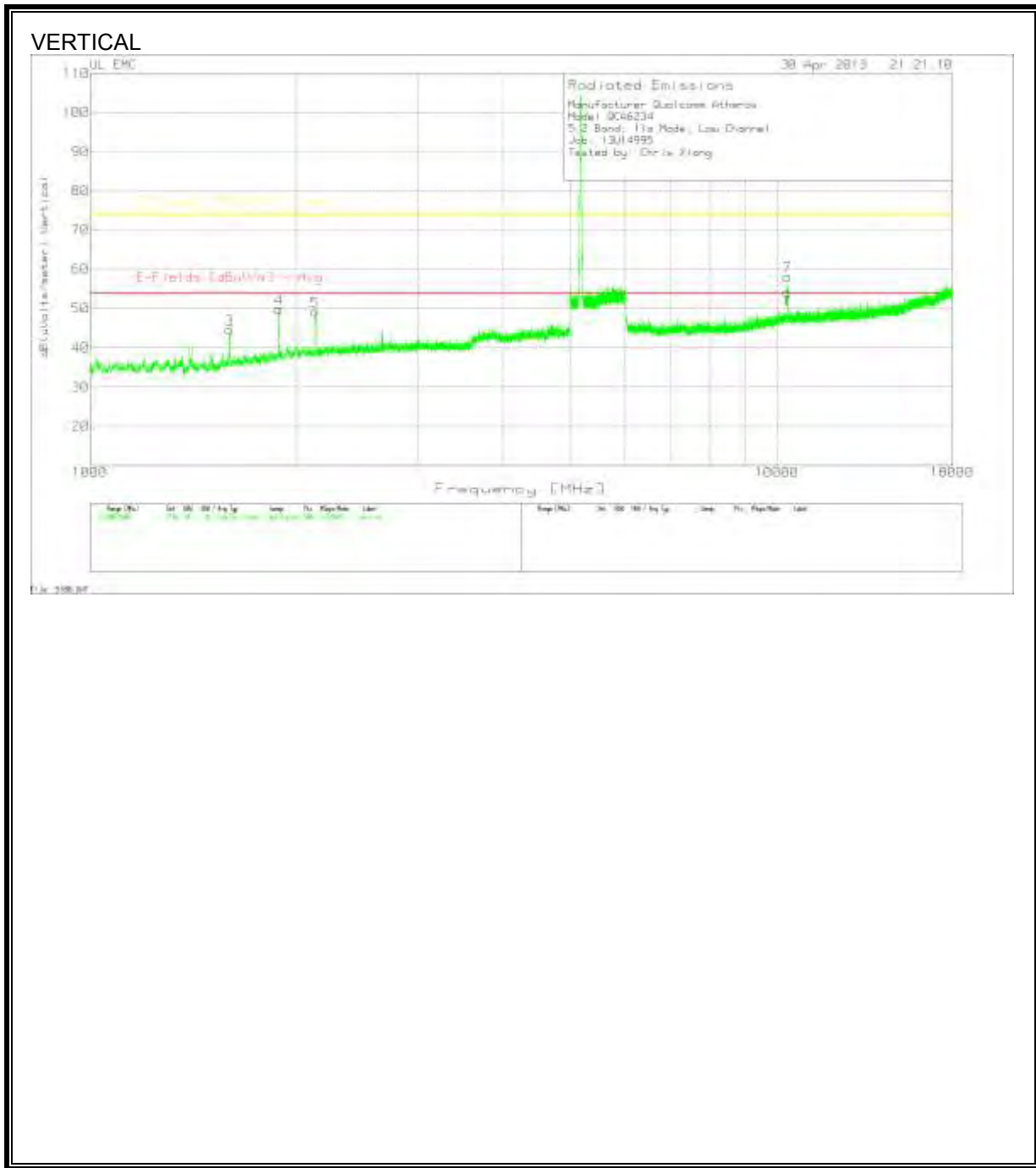
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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

## 9.2. TX ABOVE 1 GHz 802.11a MODE, 5.2 GHz BAND, with 50 ohm load

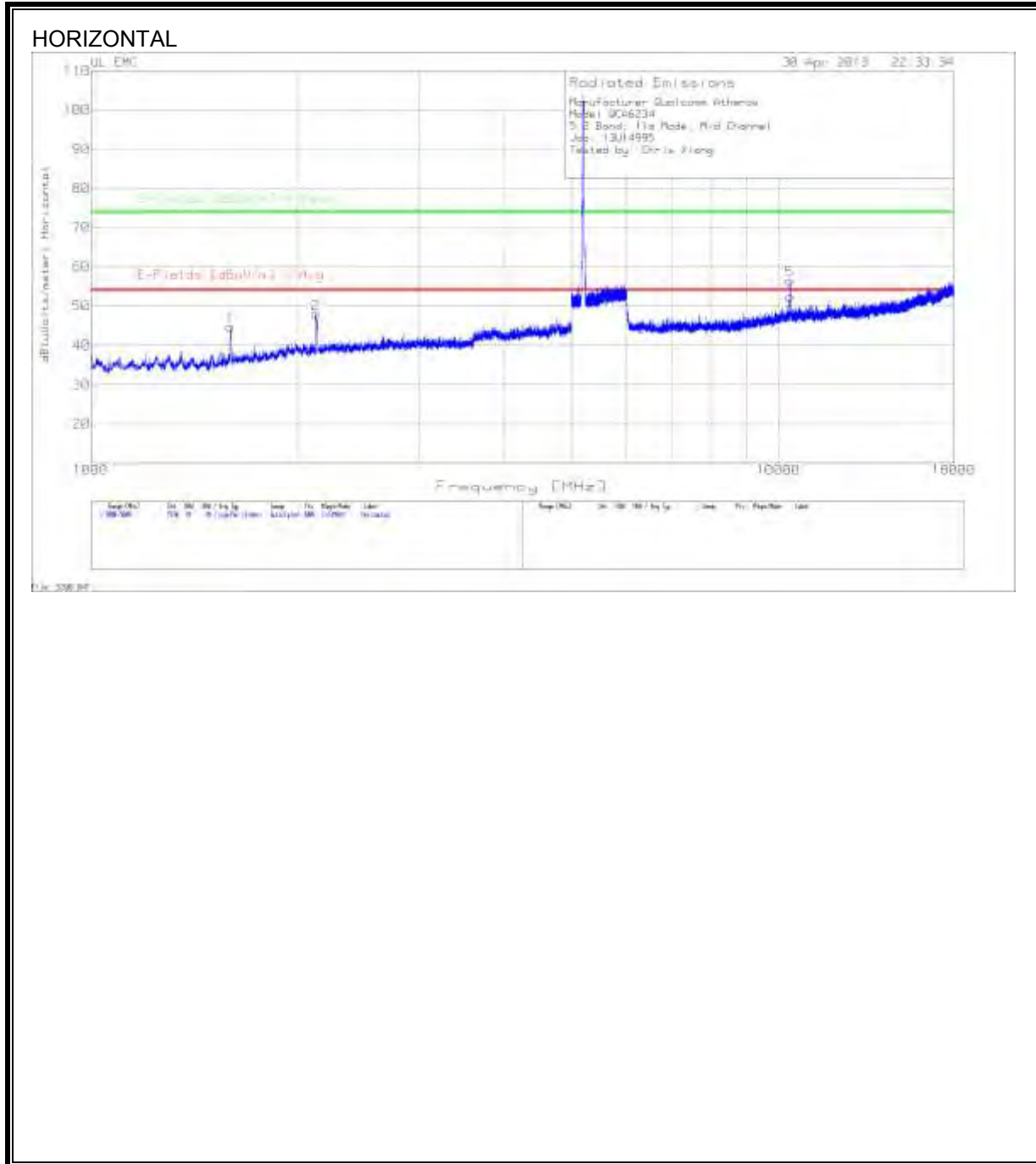
### 11a Mode, 5180 MHz

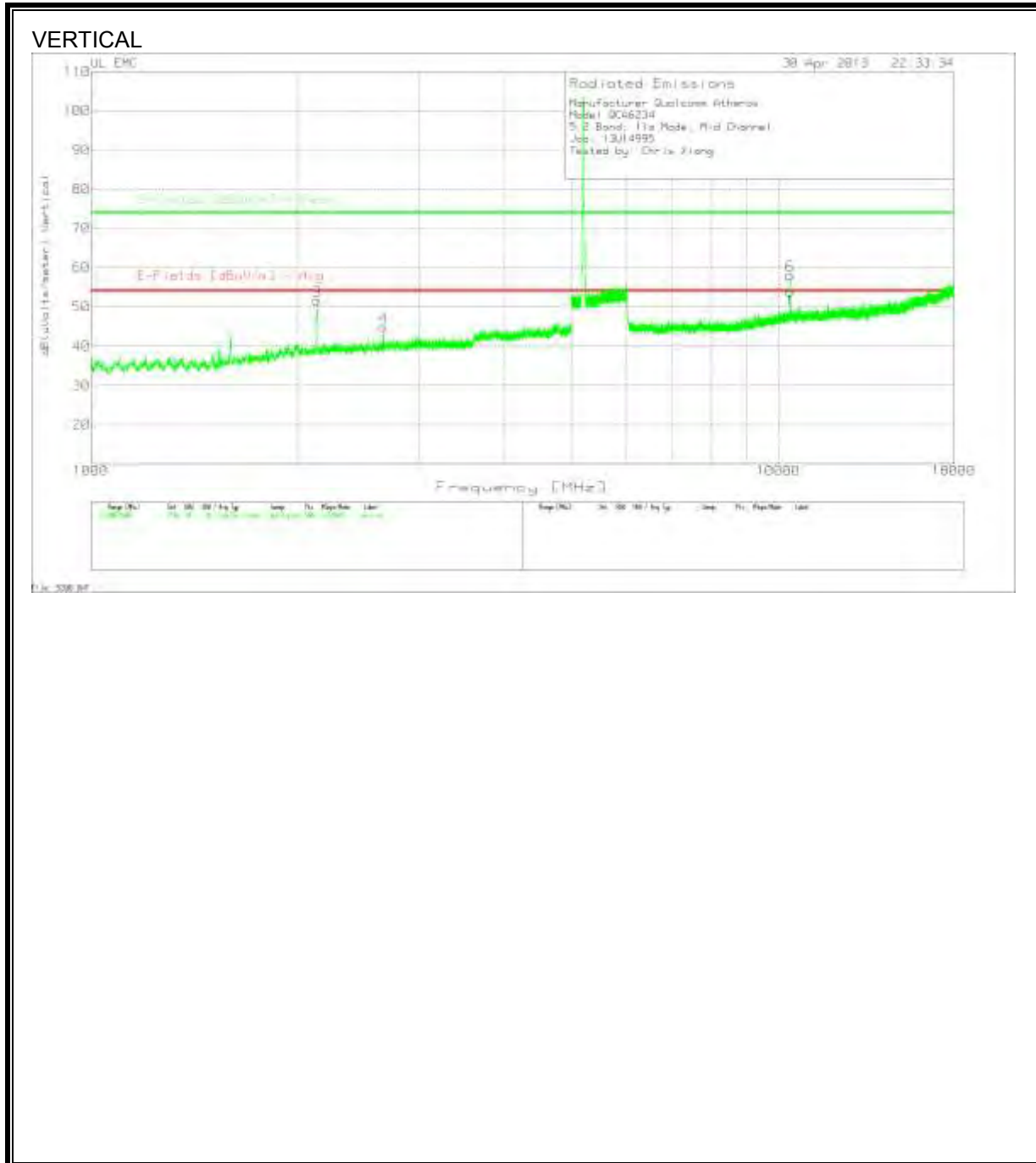




Manufacturer: Qualcomm Atheros Model: QCA6234 5.2 Band, 11a Mode, Low Channel Job: 13U14995 Tested by: Chris Xiong												
Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	Preamp/Cable 5GHz LPF dB	dB(uVolts /meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
1000 - 5000MHz												
1	1598.667	49.14	PK	29.5	-34.5	44.14	53.97	-9.83	74	-29.86	200	Horz
2	1882.667	42.9	PK	31.3	-33.9	40.3	53.97	-13.67	74	-33.7	300	Horz
3	2133.333	54.47	PK	32.3	-34.3	52.47	53.97	-1.5	74	-21.53	200	Horz
4	1597.333	49.63	PK	29.5	-34.5	44.63	53.97	-9.34	74	-29.37	400	Vert
5	1883.333	52.39	PK	31.4	-33.9	49.89	53.97	-4.08	74	-24.11	200	Vert
6	2127.333	51.35	PK	32.3	-34.4	49.25	53.97	-4.72	74	-24.75	200	Vert
6015 - 18000MHz												
7	*10371.184	42.82	PK	38.3	-25.5	55.62	53.97	1.65	74	-18.38	199	Horz
8	*10356.204	45.29	PK	38.3	-25.4	58.19	53.97	4.22	74	-15.81	400	Vert
*=Not in the restricted band												
Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	6GHz HPF Preamp/Cable dB	dB(uVolts /meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Range:7 10000 - 18000MHz												
9	10645.28	18.57	PK	38.5	-25.8	31.27	53.97	-22.7	74	-42.73	400	Horz
Range:8 10000 - 18000MHz												
10	10601.283	18.58	PK	38.4	-25.9	31.08	53.97	-22.89	74	-42.92	200	Vert
Average:												
Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	Preamp/Cable 5GHz LPF dB	dB(uVolts /meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
Horizontal 1000 - 5000MHz												
2125.343	33.43	VB1	32.3	-34.4	31.33	53.97	-22.64	74	-42.67	188	171	Horz
Horizontal 6015 - 18000MHz												
10364.201	33.59	VB1	38.3	-25.4	46.49	53.97	-7.48	74	-27.51	114	197	Horz
Vertical 6015 - 18000MHz												
10350.484	36.84	VB1	38.3	-25.4	49.74	53.97	-4.23	74	-24.26	95	143	Vert
10483.454	38.44	VB1	38.4	-25.6	51.24	53.97	-2.73	74	-22.76	273	287	Vert
16540.673	24.74	VB1	41.3	-22.6	43.44	53.97	-10.53	74	-30.56	182	175	Vert
Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	6GHz HPF Preamp/Cable dB	dB(uVolts /meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
Range:7 10000 - 18000MHz												
10401.457	32.45	VB1	38.4	-24.9	45.95	53.97	-8.02	74	-28.05	176	387	Horz
PK - Peak detector												
QP - Quasi-Peak detector												
LnAv - Linear Average detector												
LgAv - Log Average detector												
Av - Average detector												

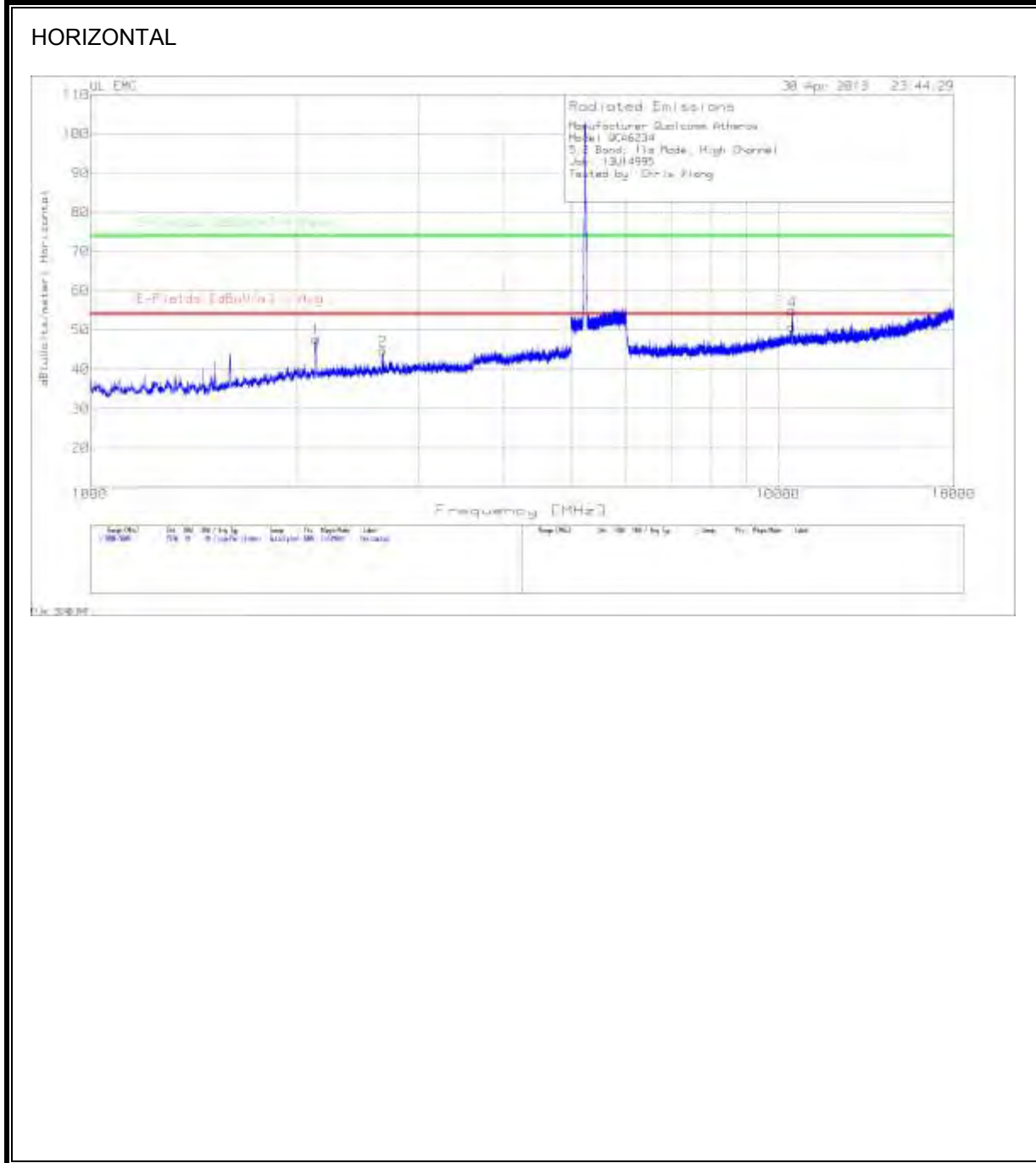
**11a Mode, 5200 MHz**





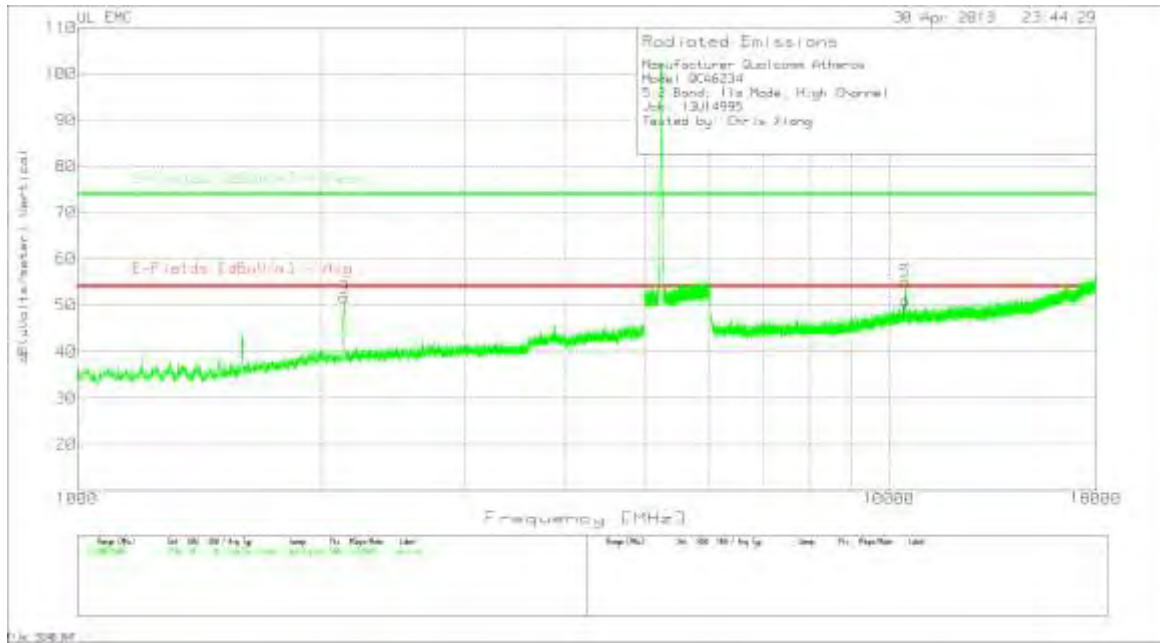
<b>Manufacturer: Qualcomm Atheros</b>											
<b>Model: QCA6234</b>											
<b>5.2 Band, 11a Mode, Mid Channel</b>											
<b>Job: 13U14995</b>											
<b>Tested by: Chris Xiong</b>											
<b>Marker No.</b>	<b>Test Frequency</b>	<b>Meter Reading</b>	<b>Detector</b>	<b>T346 Ant Factor [dB/m]</b>	<b>Preamp/ Cable 5GHz LPF dB</b>	<b>dB(uVolts /meter)</b>	<b>E-Fields [dBuV/m] Avg</b>	<b>Margin (dB)</b>	<b>E-Fields [dBuV/m] Peak</b>	<b>Margin (dB)</b>	<b>Height [cm]</b>
Horizontal 1000 - 5000MHz											
1	1597.333	49.71	PK	29.5	-34.5	44.71	53.97	-9.26	74	-29.29	399
2	2124.667	50.21	PK	32.2	-34.4	48.01	53.97	-5.96	74	-25.99	300
Vertical 1000 - 5000MHz											
3	2130	53.71	PK	32.3	-34.4	51.61	53.97	-2.36	74	-22.39	200
4	2661.333	45.46	PK	33	-33.6	44.86	53.97	-9.11	74	-29.14	200
<b>Marker No.</b>	<b>Test Frequency</b>	<b>Meter Reading</b>	<b>Detector</b>	<b>T346 Ant Factor [dB/m]</b>	<b>Preamp/ Cable 5GHz LPF dB</b>	<b>dB(uVolts /meter)</b>	<b>E-Fields [dBuV/m] Avg</b>	<b>Margin (dB)</b>	<b>E-Fields [dBuV/m] Peak</b>	<b>Margin (dB)</b>	<b>Height [cm]</b>
Horizontal 6015 - 18000MHz											
5	*10397.15	43.14	PK	38.4	-25	56.54			68.2	-11.66	400
Vertical 6015 - 18000MHz											
6	*10403.142	44.53	PK	38.4	-24.9	58.03			68.2	-10.17	400
* = Not in the restricted band											
<b>Marker No.</b>	<b>Test Frequency</b>	<b>Meter Reading</b>	<b>Detector</b>	<b>T346 Ant Factor [dB/m]</b>	<b>6GHz HPF Preamp/ Cable dB</b>	<b>dB(uVolts /meter)</b>	<b>E-Fields [dBuV/m] Avg</b>	<b>Margin (dB)</b>	<b>E-Fields [dBuV/m] Peak</b>	<b>Margin (dB)</b>	<b>Height [cm]</b>
Range:7 10000 - 18000MHz											
7	13630.364	20.33	PK	39.2	-26.3	33.23	53.97	-20.74	74	-40.77	300
Range:8 10000 - 18000MHz											
8	14093.659	20.09	PK	39.6	-26.2	33.49	53.97	-20.48	74	-40.51	200
PK - Peak detector											
QP - Quasi-Peak detector											
LnAv - Linear Average detector											
LgAv - Log Average detector											
Av - Average detector											

**11a Mode, 5240 MHz**





VERTICAL



Manufacturer: Qualcomm Atheros  
 Model: QCA6234  
 5.2 Band, 11a Mode, High Channel  
 Job: 13U14995  
 Tested by: Chris Xiong

Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	Preamp/ Cable 5GHz LPF dB	dB(uVolts /meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Horizontal 1000 - 5000MHz												
1	2131.333	49.77	PK	32.3	-34.3	47.77	53.97	-6.2	74	-26.23	300	Horz
2	2664	45.29	PK	33	-33.5	44.79	53.97	-9.18	74	-29.21	200	Horz
Vertical 1000 - 5000MHz												
3	2131.333	53.67	PK	32.3	-34.3	51.67	53.97	-2.3	74	-22.33	200	Horz

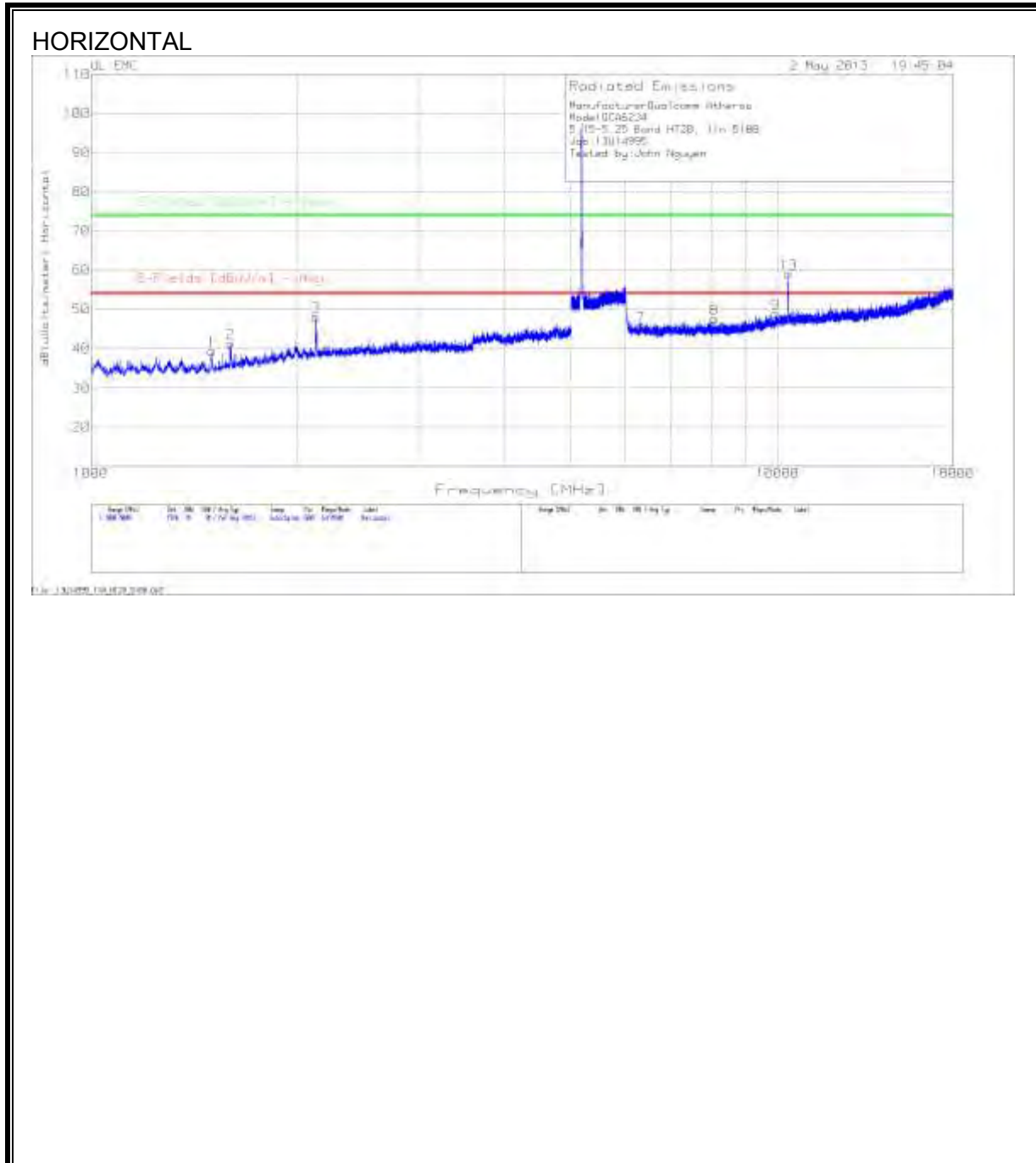
Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	Preamp/ Cable 5GHz LPF dB	dB(uVolts /meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Horizontal 6015 - 18000MHz												
4	*10476.044	42	PK	38.4	-25.5	54.9			68.2	-13.3	299	Horz
Vertical 6015 - 18000MHz												
5	*10482.036	42.34	PK	38.4	-25.6	55.14			68.2	-13.06	400	Horz
*=-Not in the restricted band												

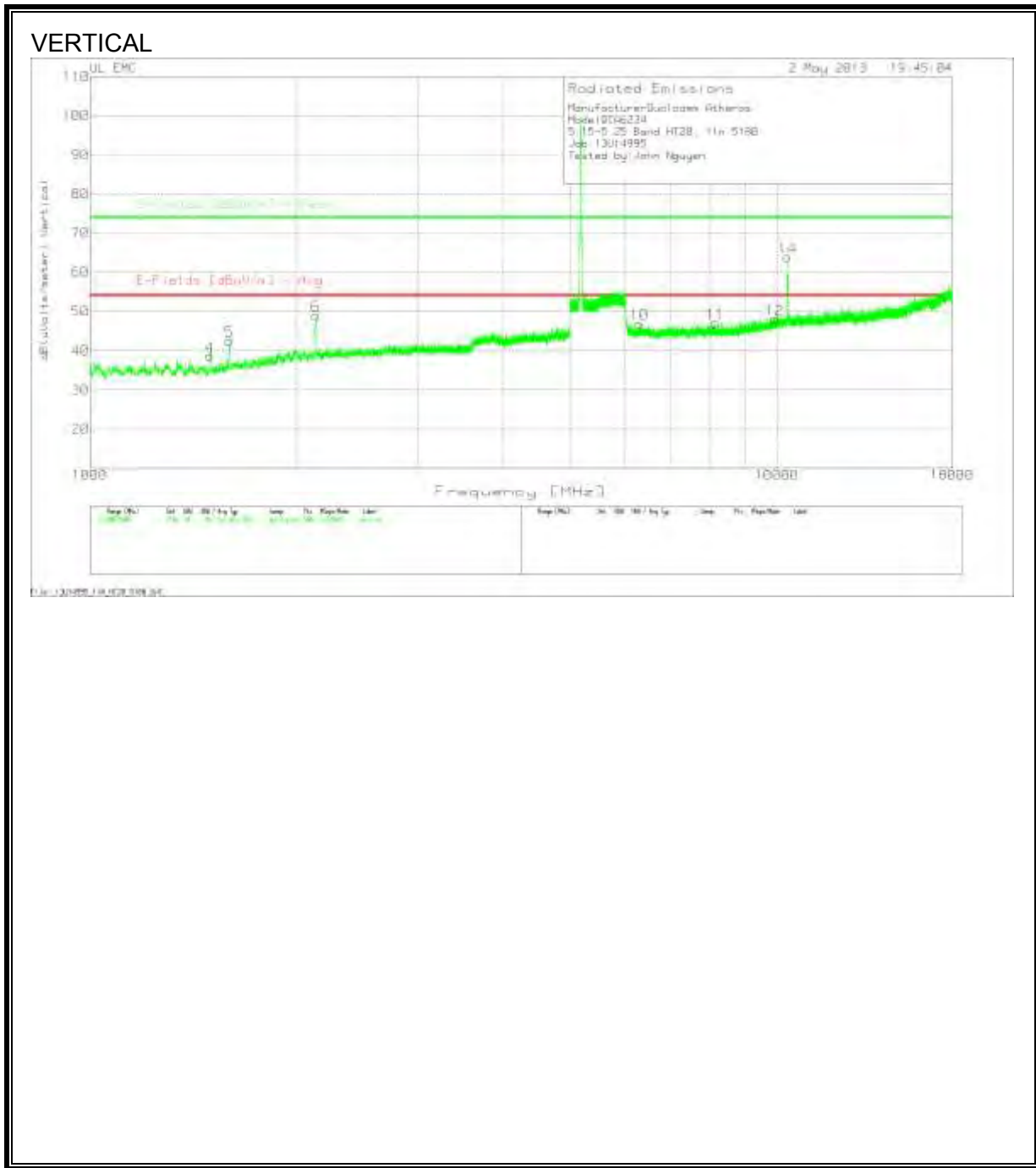
Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	6GHz HPF Preamp/ Cable dB	dB(uVolts /meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Range:7 10000 - 18000MHz												
6	17387.384	20.6	PK	41.6	-21.1	41.1	53.97	-12.87	74	-32.9	100	Horz
Range:8 10000 - 18000MHz												
7	17717.357	19.86	PK	42.1	-21	40.96	53.97	-13.01	74	-33.04	200	Vert

PK - Peak detector  
 QP - Quasi-Peak detector  
 LnAv - Linear Average detector  
 LgAv - Log Average detector  
 Av - Average detector

### 9.3. TX ABOVE 1 GHz 802.11n HT20 MODE, 5.2 GHz BAND, with 50 ohm load

#### 11n HT20 Mode, 5180 MHz





Manufacturer: Qualcomm Atheros  
 Model: QCA6234  
 5.15-5.25 Band HT20, 11n 5180  
 Job: 13U14995  
 Tested by: John Nguyen

Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	Preamp/Cable 5GHz LPF dB	dB(uVolts /meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Horizontal 1000 - 5000MHz												
1	1499.333	45.85	PK	28.8	-35.3	39.35	53.97	-14.62	74	-34.65	300	Horz
2	1598.667	46.36	PK	29.5	-34.5	41.36	53.97	-12.61	74	-32.64	400	Horz
3	2128	50.35	PK	32.3	-34.4	48.25	53.97	-5.72	74	-25.75	300	Horz
Vertical 1000 - 5000MHz												
4	1494.667	45.08	PK	28.8	-35.3	38.58	53.97	-15.39	74	-35.42	100	Vert
5	1597.333	47.51	PK	29.5	-34.5	42.51	53.97	-11.46	74	-31.49	300	Vert
6	2131.333	50.99	PK	32.3	-34.3	48.99	53.97	-4.98	74	-25.01	400	Vert

Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	Preamp/cable/6G Hz HPF dB	dB(uVolts /meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Horizontal 6015 - 18000MHz												
7	6322.589	39.08	PK	35.9	-29.2	45.78	53.97	-8.19	74	-28.22	100	Horz
8	8095.223	40.13	PK	36.2	-28.7	47.63	53.97	-6.34	74	-26.37	100	Horz
9	9928.775	36.74	PK	38	-25.8	48.94	53.97	-5.03	74	-25.06	400	Horz
Vertical 6015 - 18000MHz												
10	6309.607	40.25	PK	35.9	-29.3	46.85	53.97	-7.12	74	-27.15	100	Vert
11	8131.175	39.31	PK	36.2	-28.5	47.01	53.97	-6.96	74	-26.99	100	Vert
12	9933.768	35.79	PK	38	-25.8	47.99	53.97	-5.98	74	-26.01	200	Vert

Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	6GHz HPF Preamp/Cable dB	dB(uVolts /meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Range:7 10000 - 18000MHz												
15	*10363.97	40.66	PK	38.3	-25.4	53.56			68.2	-14.64	299	Horz

Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	6GHz HPF Preamp/Cable dB	dB(uVolts /meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Range:8 10000 - 18000MHz												
16	*10361.303	44.04	PK	38.3	-25.3	57.04			68.2	-11.16	400	Vert

\* = Not In restricted band

PK - Peak detector

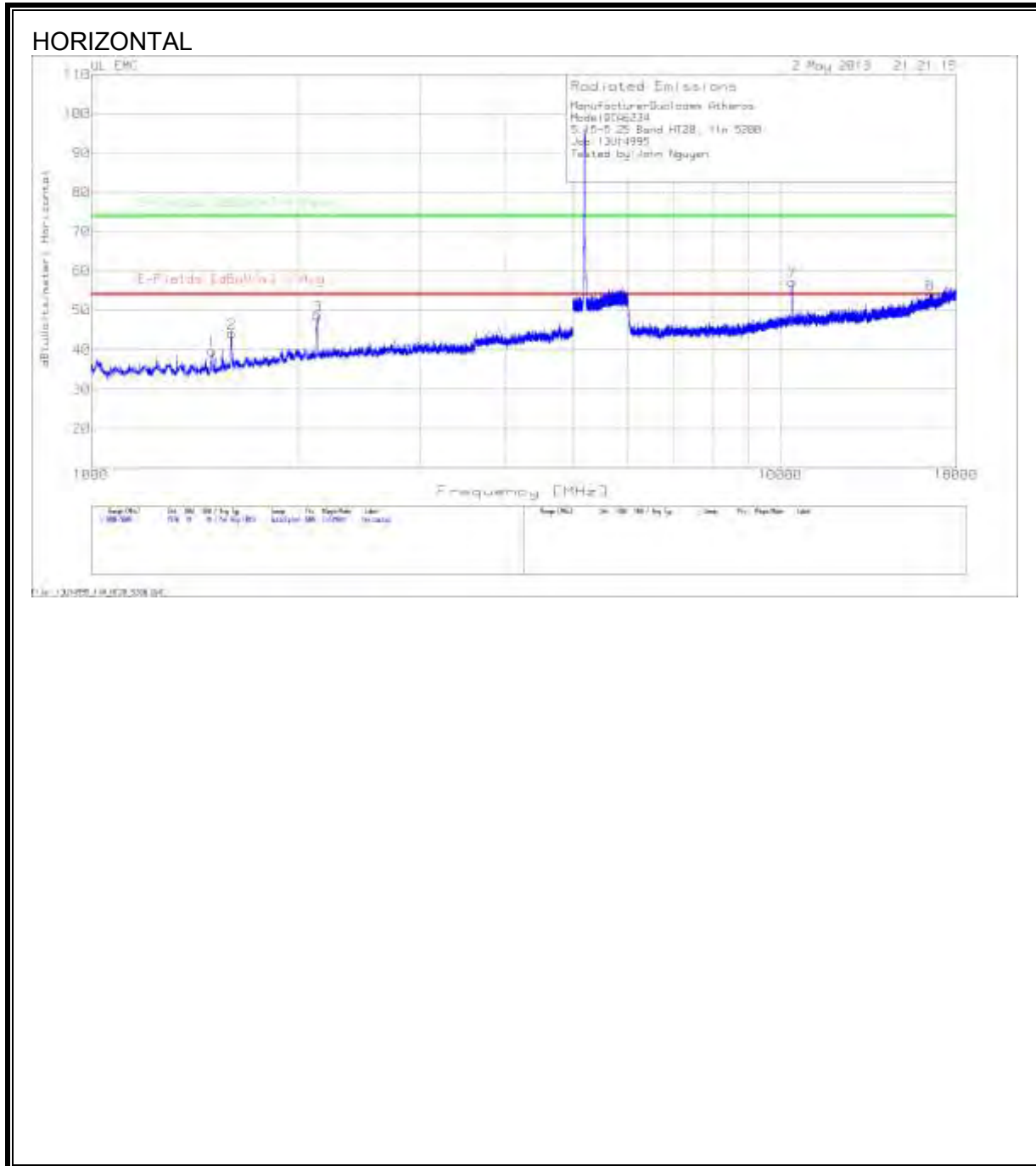
QP - Quasi-Peak detector

LnAv - Linear Average detector

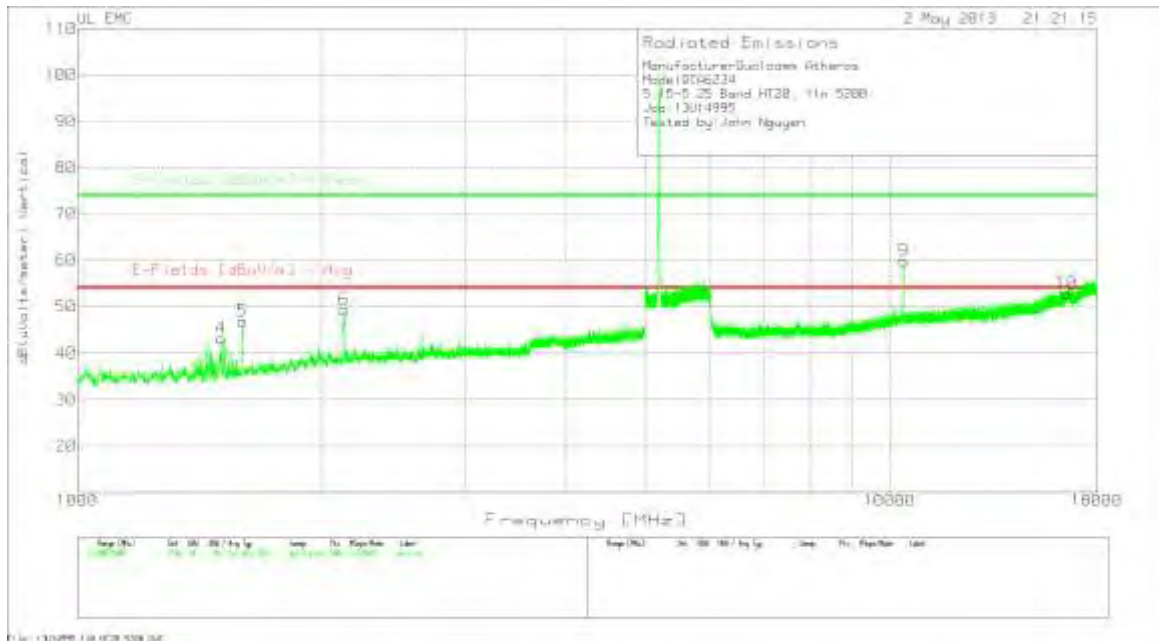
LgAv - Log Average detector

Av - Average detector

**11n HT20 Mode, 5200 MHz**



VERTICAL



Manufacturer: Qualcomm Atheros  
 Model: QCA6234  
 5.15-5.25 Band HT20, 11n 5200  
 Job: 13U14995  
 Tested by: John Nguyen

Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	Preamp/Cable 5GHz LPF dB	dB(uVolts/meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Horizontal 1000 - 5000MHz												
1	1499.333	45.85	PK	28.8	-35.3	39.35	53.97	-14.62	74	-34.65	300	Horz
2	1598.667	46.36	PK	29.5	-34.5	41.36	53.97	-12.61	74	-32.64	400	Horz
3	2128	50.35	PK	32.3	-34.4	48.25	53.97	-5.72	74	-25.75	300	Horz
Vertical 1000 - 5000MHz												
4	1494.667	45.08	PK	28.8	-35.3	38.58	53.97	-15.39	74	-35.42	100	Vert
5	1597.333	47.51	PK	29.5	-34.5	42.51	53.97	-11.46	74	-31.49	300	Vert
6	2131.333	50.99	PK	32.3	-34.3	48.99	53.97	-4.98	74	-25.01	400	Vert

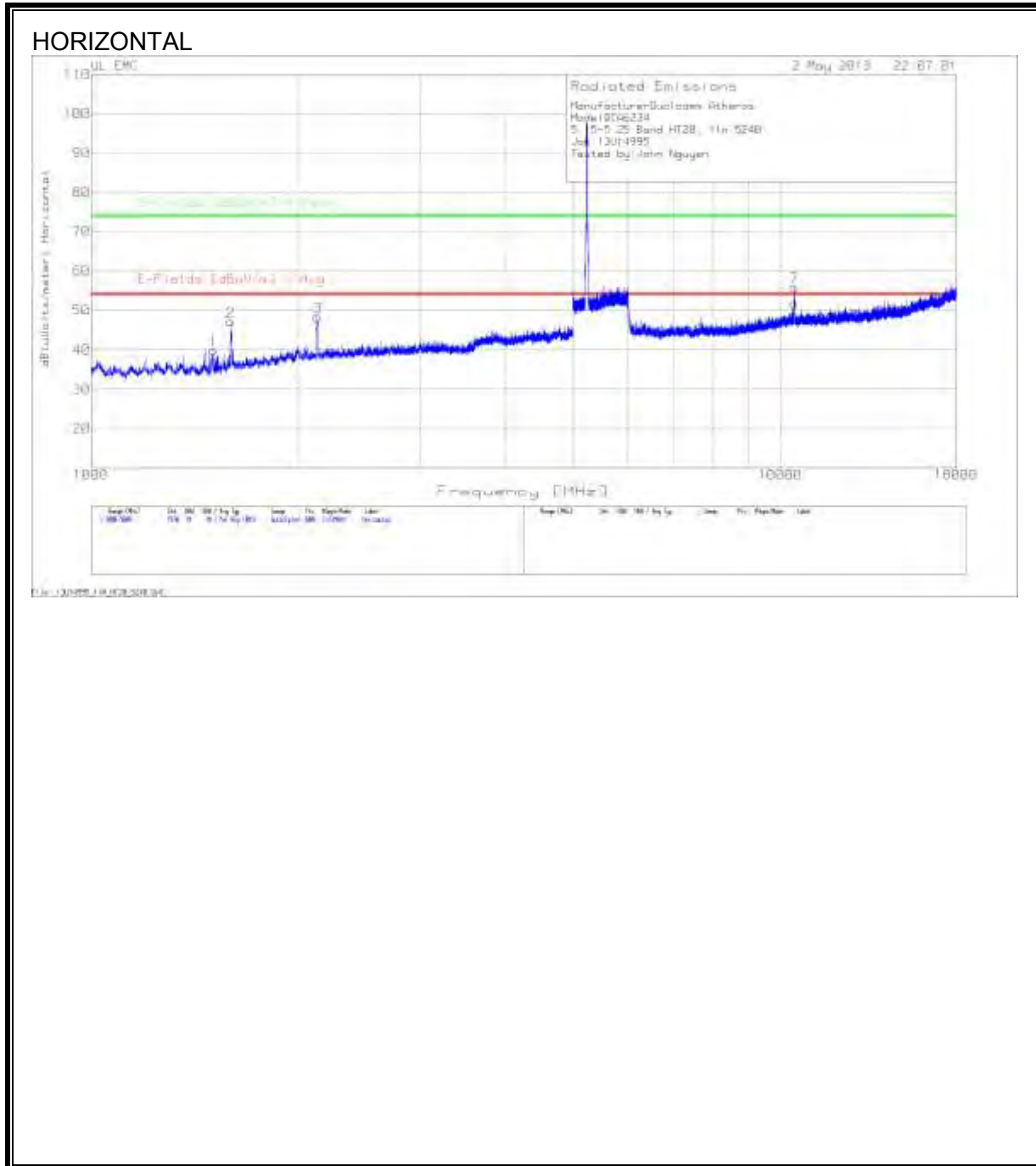
Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	dB(uVolts/meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Horizontal 6015 - 18000MHz												
7	6322.589	39.08	PK	35.9	-29.2	45.78	53.97	-8.19	74	-28.22	100	Horz
8	8095.223	40.13	PK	36.2	-28.7	47.63	53.97	-6.34	74	-26.37	100	Horz
9	9928.775	36.74	PK	38	-25.8	48.94	53.97	-5.03	74	-25.06	400	Horz
13	10364.194	46.24	PK	38.3	-25.4	59.14	53.97	5.17	74	-14.86	300	Horz
Vertical 6015 - 18000MHz												
10	6309.607	40.25	PK	35.9	-29.3	46.85	53.97	-7.12	74	-27.15	100	Vert
11	8131.175	39.31	PK	36.2	-28.5	47.01	53.97	-6.96	74	-26.99	100	Vert
12	9933.768	35.79	PK	38	-25.8	47.99	53.97	-5.98	74	-26.01	200	Vert
14	10362.196	51.03	PK	38.3	-25.4	63.93	53.97	9.96	74	-10.07	300	Vert

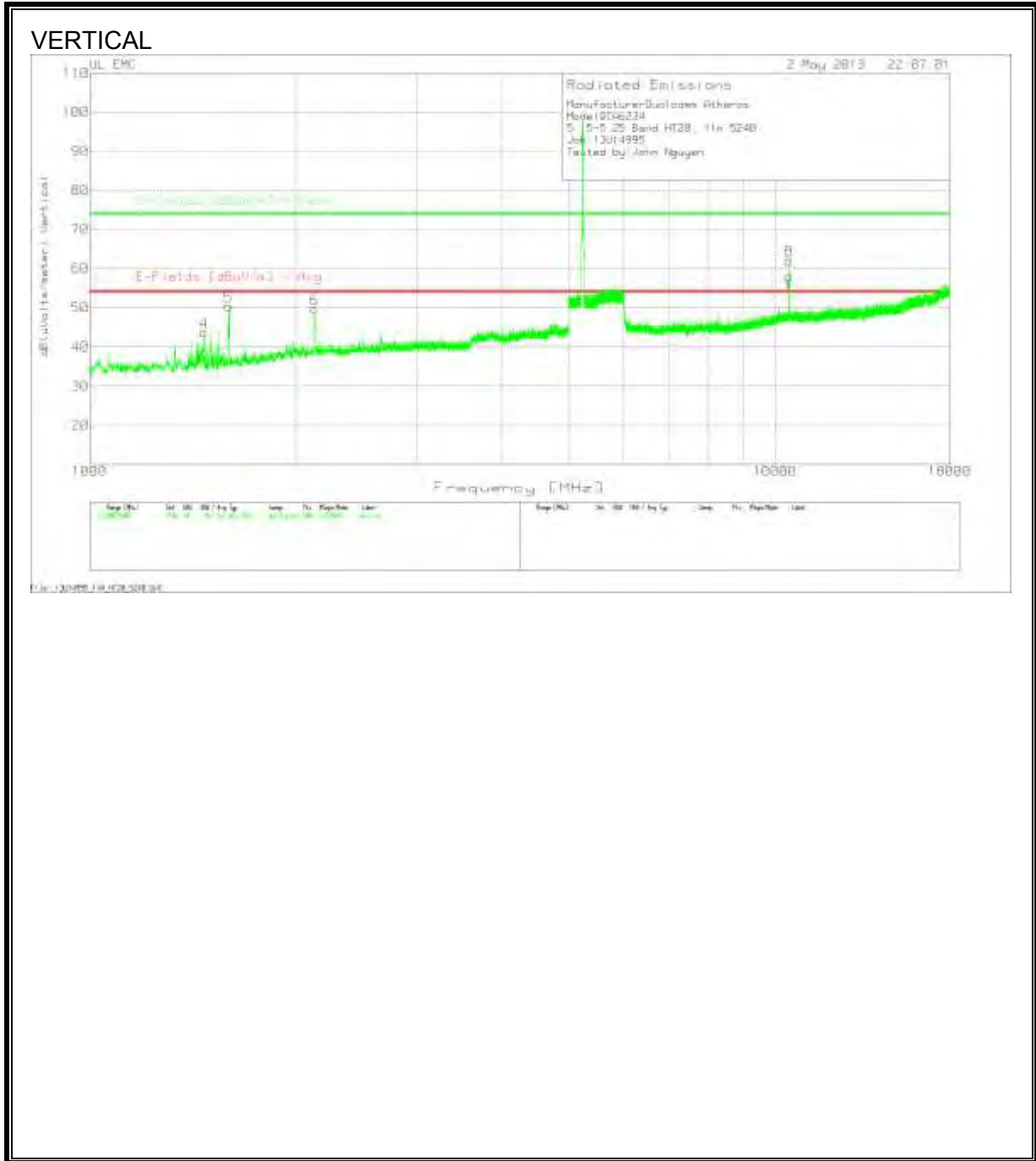
Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	dB(uVolts/meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
Horizontal 6015 - 18000MHz												
10402.032	35.14	VB1	38.4	-24.9	48.64	53.97	-5.33	74	-25.36	22	263	Horz
Vertical 6015 - 18000MHz												
10402.249	32.52	VB1	38.4	-24.9	46.02	53.97	-7.95	74	-27.98	261	366	Vert

PK - Peak detector  
 QP - Quasi-Peak detector  
 LnAv - Linear Average detector  
 LgAv - Log Average detector  
 Av - Average detector



**11n HT20 Mode, 5240 MHz**





Manufacturer: Qualcomm Atheros  
 Model: QCA6234  
 5.15-5.25 Band HT20, 11n 5240  
 Job: 13U14995  
 Tested by: John Nguyen

Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	Preamp/Cable 5GHz LPF dB	dB(uVolts /meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Horizontal 1000 - 5000MHz												
1	1504.667	46.39	PK	28.8	-35.3	39.89	53.97	-14.08	74	-34.11	400	Horz
2	1594.667	52.31	PK	29.4	-34.6	47.11	53.97	-6.86	74	-26.89	400	Horz
3	*2128	50.45	PK	32.3	-34.4	48.35	53.97	-5.62	74	-25.65	200	Horz
Vertical 1000 - 5000MHz												
4	1469.333	50.13	PK	28.8	-35.2	43.78	53.97	-10.22	74	-30.25	300	Vert
5	1594.667	55.6	PK	29.4	-34.6	50.4	53.97	-3.57	74	-23.6	300	Vert
6	*2126	51.94	PK	32.3	-34.4	49.84	53.97	-4.13	74	-24.18	300	Vert

\*=Not in the restricted band

Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	Preamp/cable 6GHz HPF dB	dB(uVolts /meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Horizontal 6015 - 18000MHz												
7	10487.03	43.21	PK	38.4	-25.7	55.91	53.97	1.94	74	-18.05	400	Horz
Vertical 6015 - 18000MHz												
8	10484.034	49.32	PK	38.4	-25.6	82.12	53.97	8.15	74	-11.88	200	Vert

Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	6GHz HPF Preamp/Cable dB	dB(uVolts /meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Height [cm]	Polarity
Range:7 10000 - 18000MHz												
9	10489.961	35.11	PK	38.4	-25.4	48.11	53.97	-5.86	74	-25.89	399	Horz
Range:8 10000 - 18000MHz												
10	10486.626	41.73	PK	38.4	-25.7	54.43	53.97	0.46	74	-19.57	200	Vert

Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	dB(uVolts /meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
Horizontal 6015 - 18000MHz												
10485.84	36.37	VB1	38.4	-25.7	49.07	53.97	-4.9	74	-24.93	176	330	Horz
Vertical 6015 - 18000MHz												
10483.454	38.44	VB1	38.4	-25.6	51.24	53.97	-2.73	74	-22.76	273	287	Vert

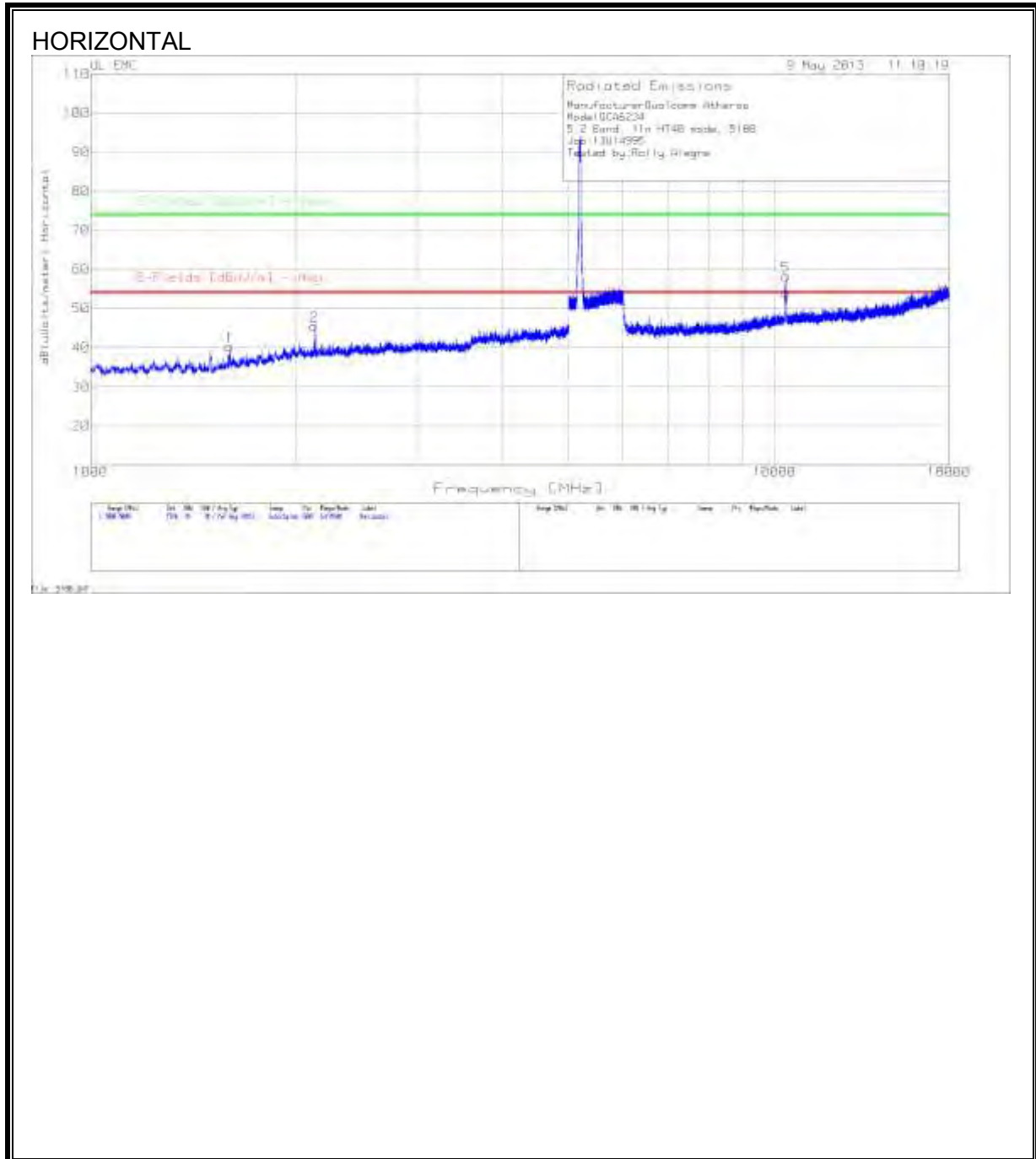
Test Frequency	Meter Reading	Detector	T346 Ant Factor [dB/m]	6GHz HPF Preamp/Cable dB	dB(uVolts /meter)	E-Fields [dBuV/m] Avg	Margin (dB)	E-Fields [dBuV/m] Peak	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
Range:7 10000 - 18000MHz												
10401.457	32.45	VB1	38.4	-24.9	45.95	53.97	-8.02	74	-28.05	176	387	Horz
10401.457	32.11	PK	38.4	-24.9	45.81	53.97	-8.36	74	-28.39	176	387	Horz

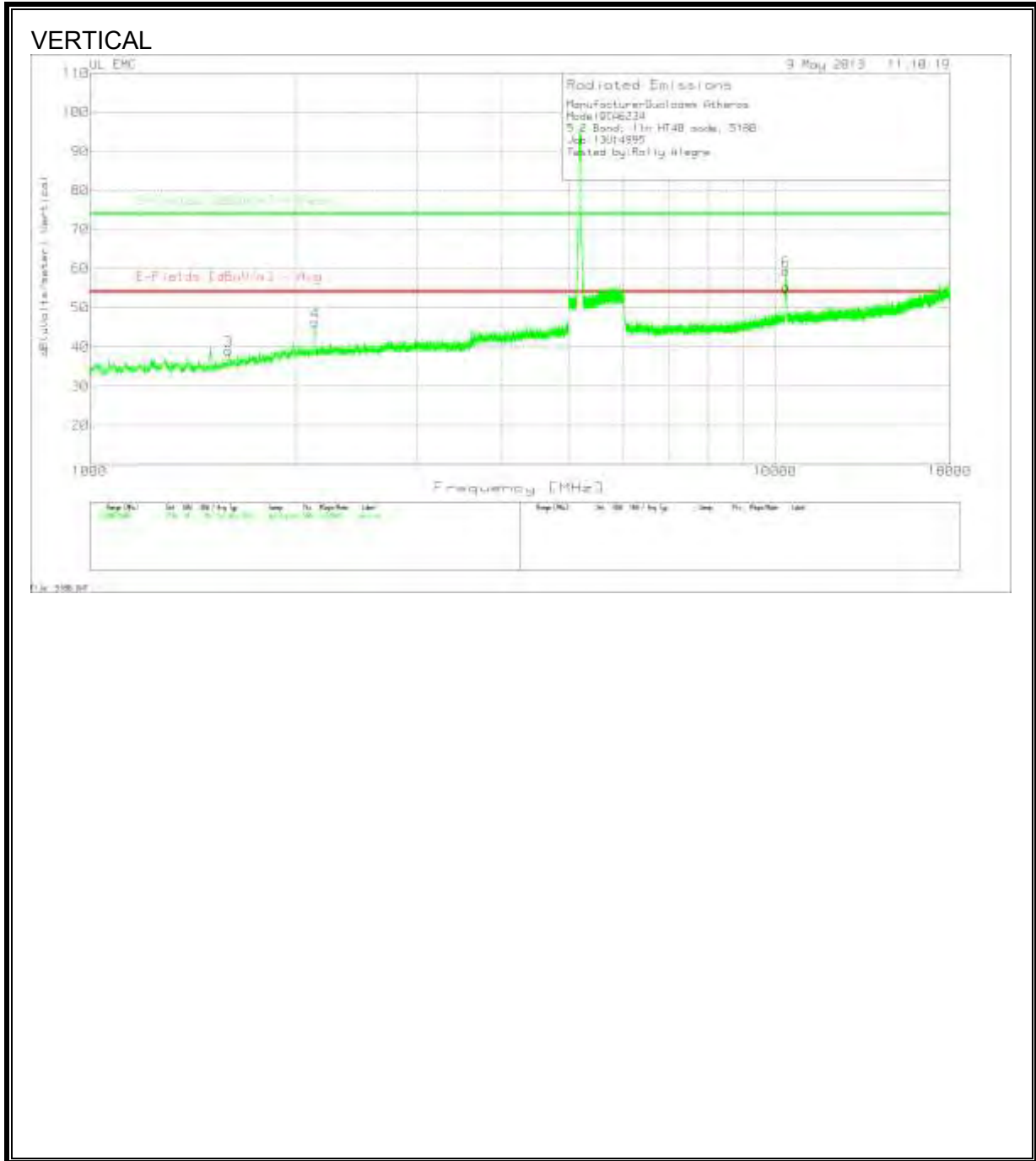
Test Frequency	Meter Reading	Detector	T345 Ant Factor	T145 Preamp	Cable Factor	T162 BRFF [dB]	dB(uVolts /meter)	E-Fields [dBuV/m]	Margin (dB)	E-Fields [dBuV/m]	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1399.43	34.18	VB1	29	-35.2	3.0	0.1	31.88	53.97	-22.09	74	-42.12	95	107	Vert

PK - Peak detector  
 QP - Quasi-Peak detector  
 LnAv - Linear Average detector  
 LgAv - Log Average detector  
 Av - Average detector

### 9.4. TX ABOVE 1 GHz 802.11n HT40 MODE, 5.2 GHz BAND, with 50 ohm load

#### 11n HT40 Mode, 5190 MHz





ManufacturerQualcomm Atheros												
ModelQCA6234												
5.2 Band, 11n HT40 mode, 5190												
Job:13U14995												
Tested by:Rolly Alegre												
Horizontal 1000 - 5000MHz												
Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor	Preamp/ Cable	dB(uV/s/meter)	E-Fields [dBuV/m]	Margin (dB)	E-Fields [dBuV/m]	Margin (dB)	Height [cm]	Polarity
1	1597.333	45.2	PK	29.5	-34.5	40.2	53.97	-13.77	74	-33.8	399	Horz
2	2125.333	47.63	PK	32.3	-34.4	45.53	53.97	-8.44	74	-28.47	399	Horz
Vertical 1000 - 5000MHz												
Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor	Preamp/ Cable	dB(uV/s/meter)	E-Fields [dBuV/m]	Margin (dB)	E-Fields [dBuV/m]	Margin (dB)	Height [cm]	Polarity
3	1593.333	44.32	PK	29.4	-34.6	39.12	53.97	-14.85	74	-34.88	300	Vert
4	2132.667	48.21	PK	32.3	-34.3	46.21	53.97	-7.76	74	-27.79	300	Vert
Horizontal 6015 - 18000MHz												
Marker No.	Test Frequency	Meter Reading	Detector	Factor [dB/m]	cable/6G Hz HPF	dB(uV/s/meter)	[dBuV/m] - Avg	Margin (dB)	[dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
5	10389.16	44.99	PK	38.4	-25.1	58.29	53.97	4.32	74	-15.71	400	Horz
Vertical 6015 - 18000MHz												
Marker No.	Test Frequency	Meter Reading	Detector	T346 Ant Factor	Preamp/ cable/6G	dB(uV/s/meter)	E-Fields [dBuV/m]	Margin (dB)	E-Fields [dBuV/m]	Margin (dB)	Height [cm]	Polarity
6	10376.178	46.42	PK	38.4	-25.4	59.42	53.97	5.45	74	-14.58	300	Vert
Horizontal 6015 - 18000MHz												
Test Frequenc	Meter Reading	Detector	T346 Ant Factor	Preamp/ cable/6G	dB(uV/s/meter)	E-Fields [dBuV/m]	Margin (dB)	E-Fields [dBuV/m]	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
10382.72	39.3	VB1	38.4	-25.3	52.4	53.97	-1.57	74	-21.6	274	373	Horz
Vertical 6015 - 18000MHz												
Test Frequenc	Meter Reading	Detector	T346 Ant Factor	Preamp/ cable/6G	dB(uV/s/meter)	E-Fields [dBuV/m]	Margin (dB)	E-Fields [dBuV/m]	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
10381.25	36.36	VB1	38.4	-25.4	49.36	53.97	-4.61	74	-24.64	125	304	Vert
PK - Peak detector												
QP - Quasi-Peak detector												
LnAv - Linear Average detector												
LgAv - Log Average detector												
Av - Average detector												