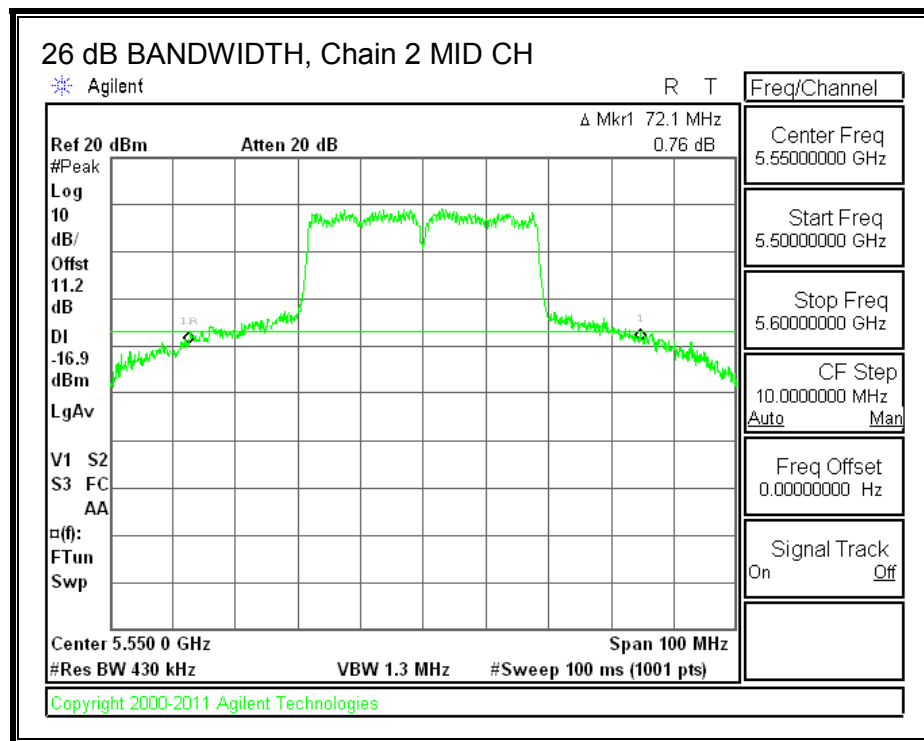
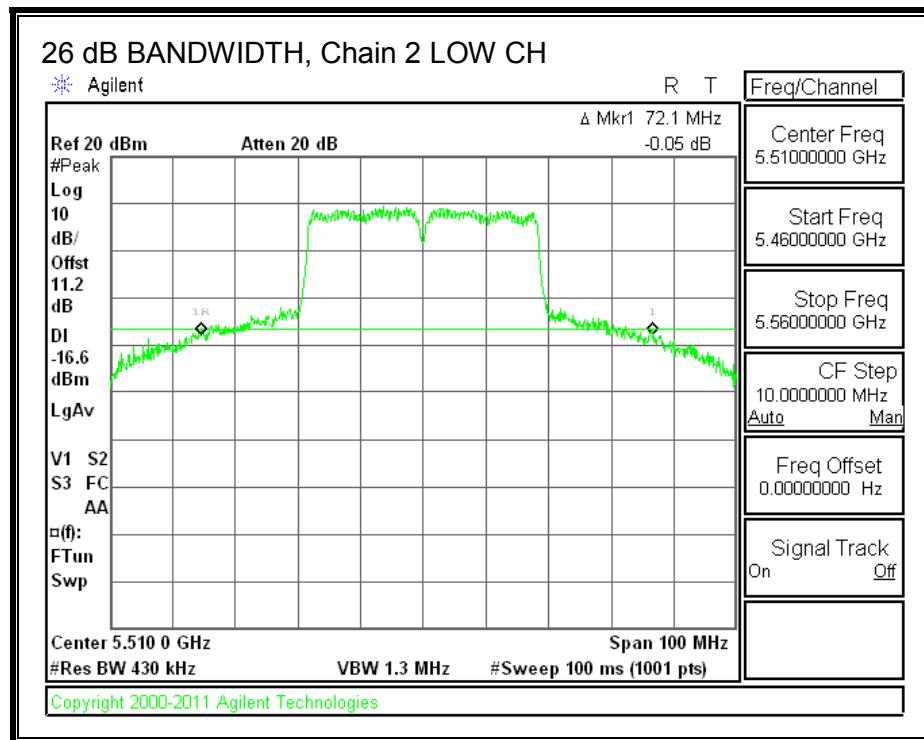
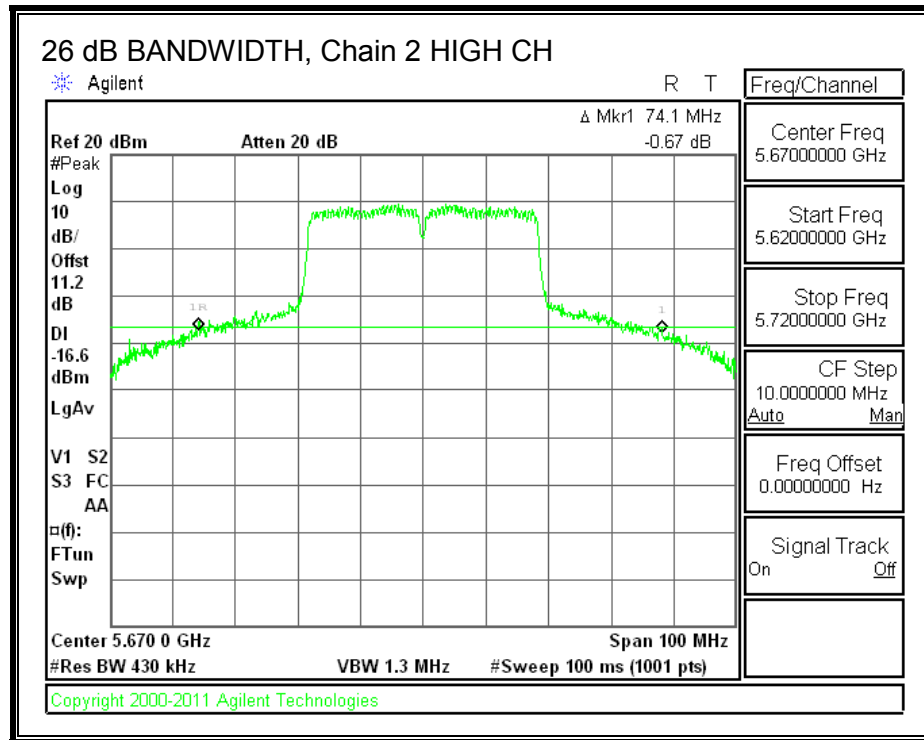


**26 dB BANDWIDTH, Chain 2**





## 8.21.2. 99% BANDWIDTH

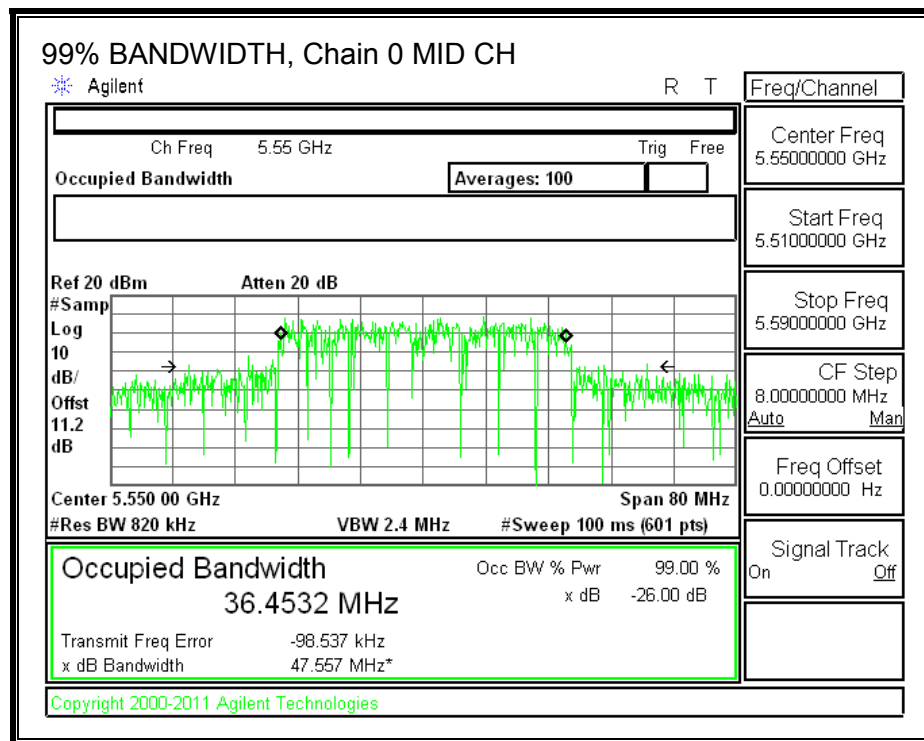
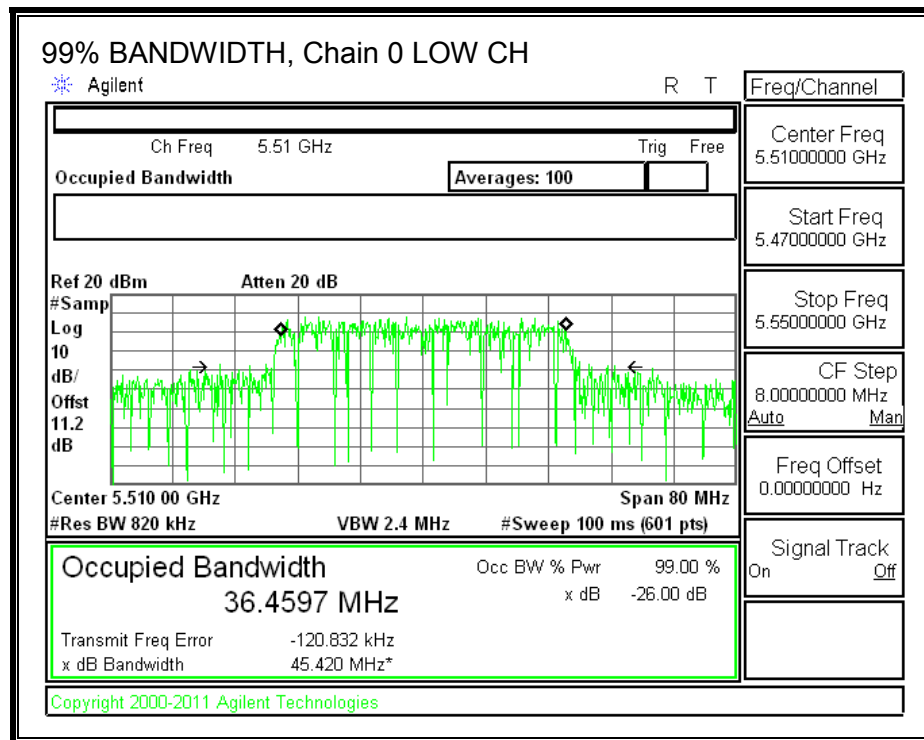
### LIMITS

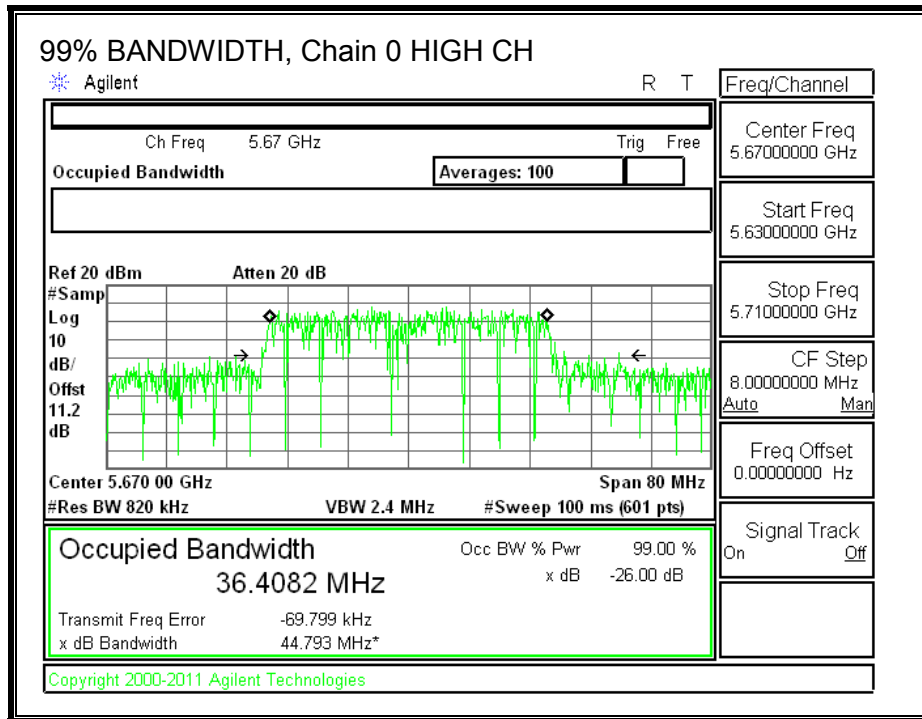
None; for reporting purposes only.

### RESULTS

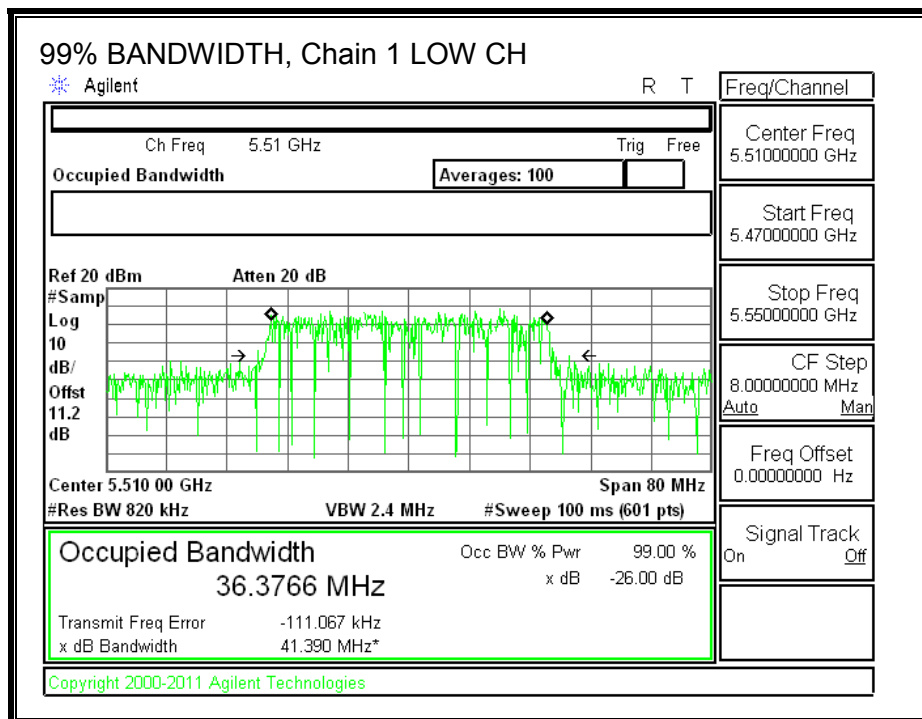
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Low	5510	36.4597	36.3766	36.4974
Mid	5550	36.4532	36.3626	36.4896
High	5670	36.4082	36.3671	36.3928

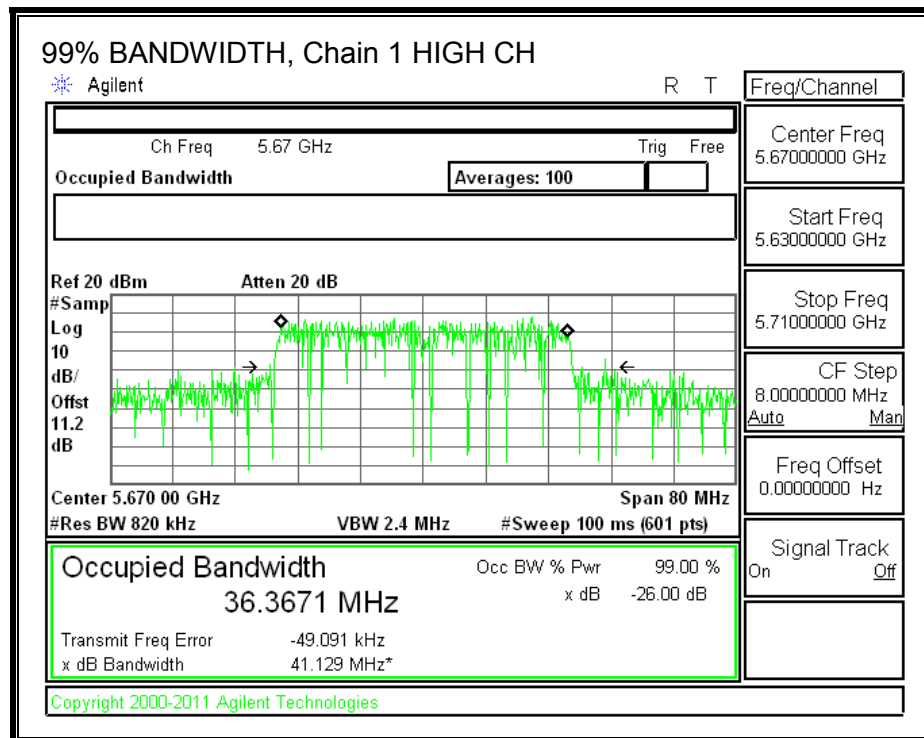
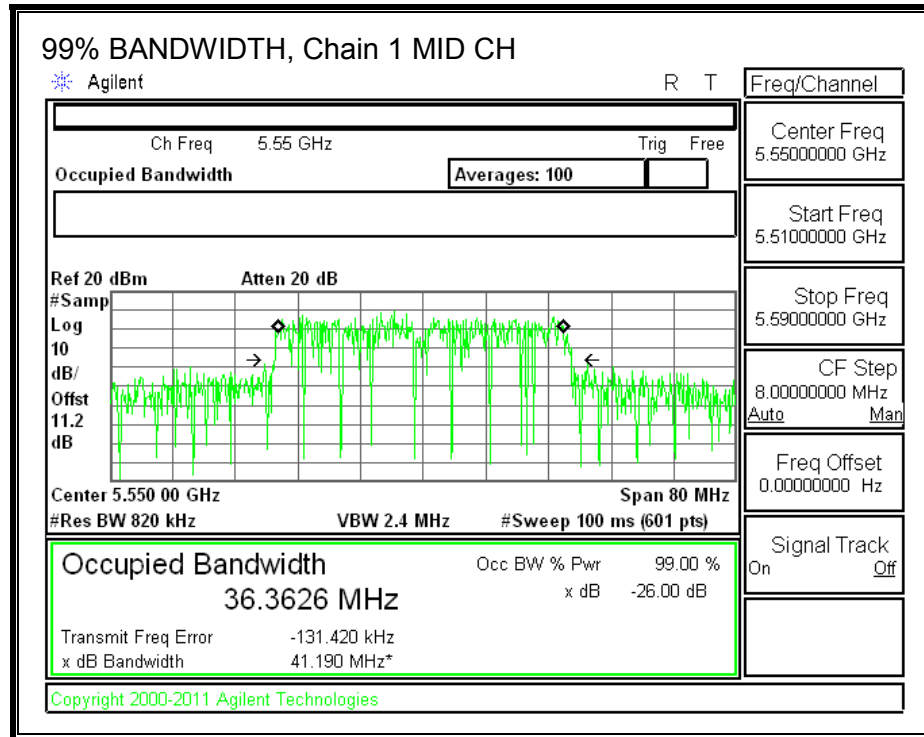
**99% BANDWIDTH, Chain 0**



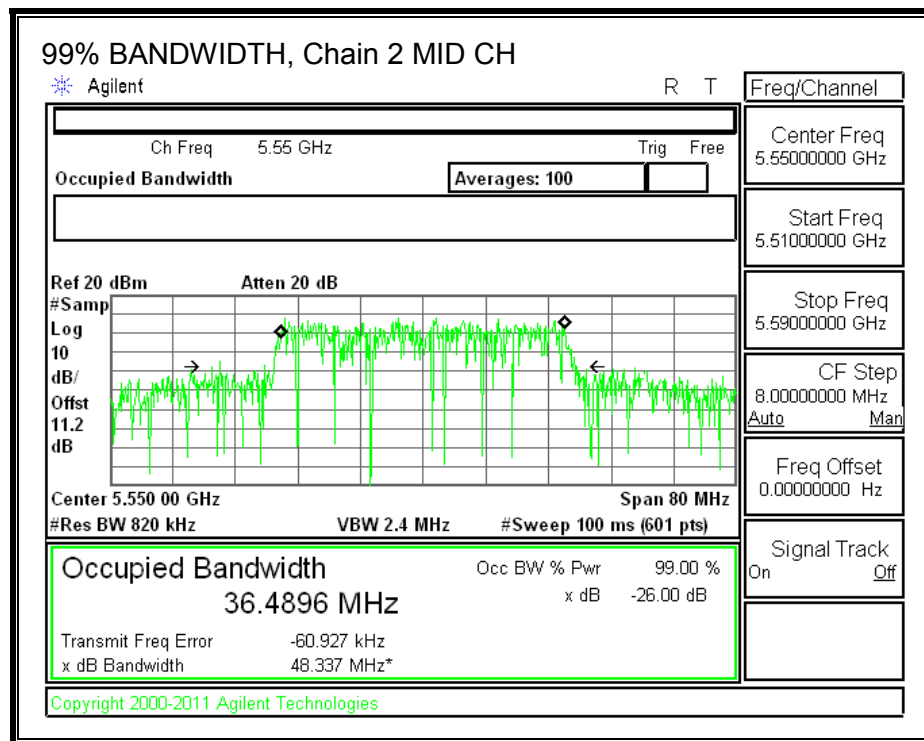
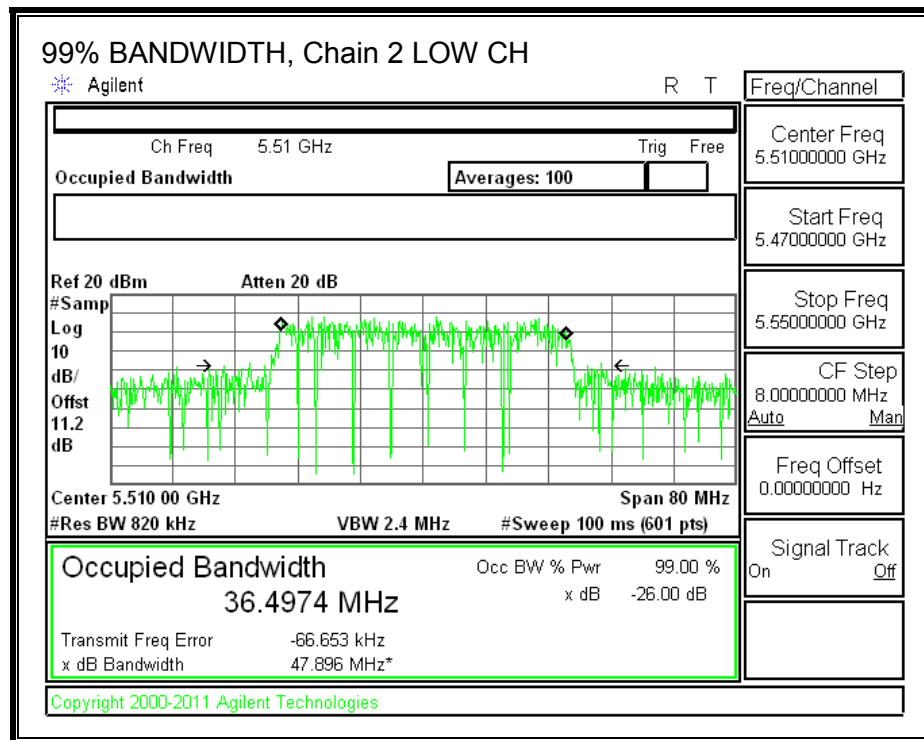


**99% BANDWIDTH, Chain 1**

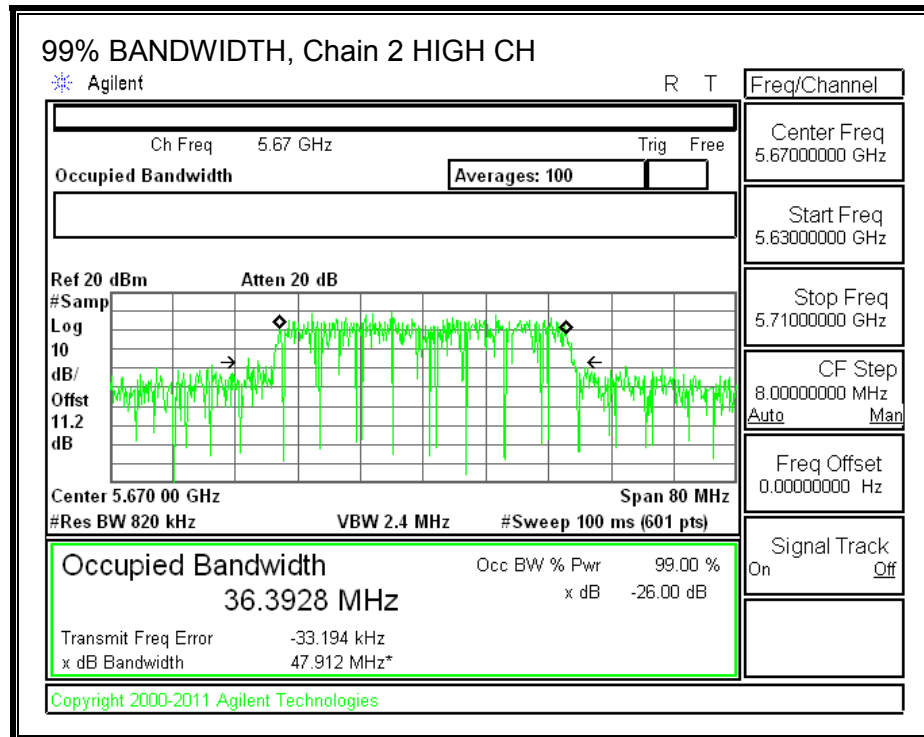




**99% BANDWIDTH, Chain 2**







### 8.21.3. OUTPUT POWER AND PPSD

#### LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or  $4 \text{ dBm} + 10 \log B$ , where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 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  $10 + 10 \log_{10} B$ , 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 for output power and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
4.72	2.09	2.85	3.36

The TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Correlated Chains Directional Gain (dBi)
4.72	2.09	2.85	8.06

## RESULTS

### Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5510	65.20	36.3766	3.36
Mid	5550	63.80	36.3626	3.36
High	5670	58.30	36.3671	3.36

### 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	5670	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	13.23	12.96	12.50	17.68	24.00	-6.32
Mid	5550	17.54	17.17	16.85	21.97	24.00	-2.03
High	5670	17.57	17.01	17.25	22.05	24.00	-1.95

#### Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5510	65.20	36.3766	8.06
Mid	5550	63.80	36.3626	8.06
High	5670	58.30	36.3671	8.06

#### 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	21.94	24.00	30.00	21.94	8.94	11.00	8.94
Mid	5550	21.94	24.00	30.00	21.94	8.94	11.00	8.94
High	5670	21.94	24.00	30.00	21.94	8.94	11.00	8.94

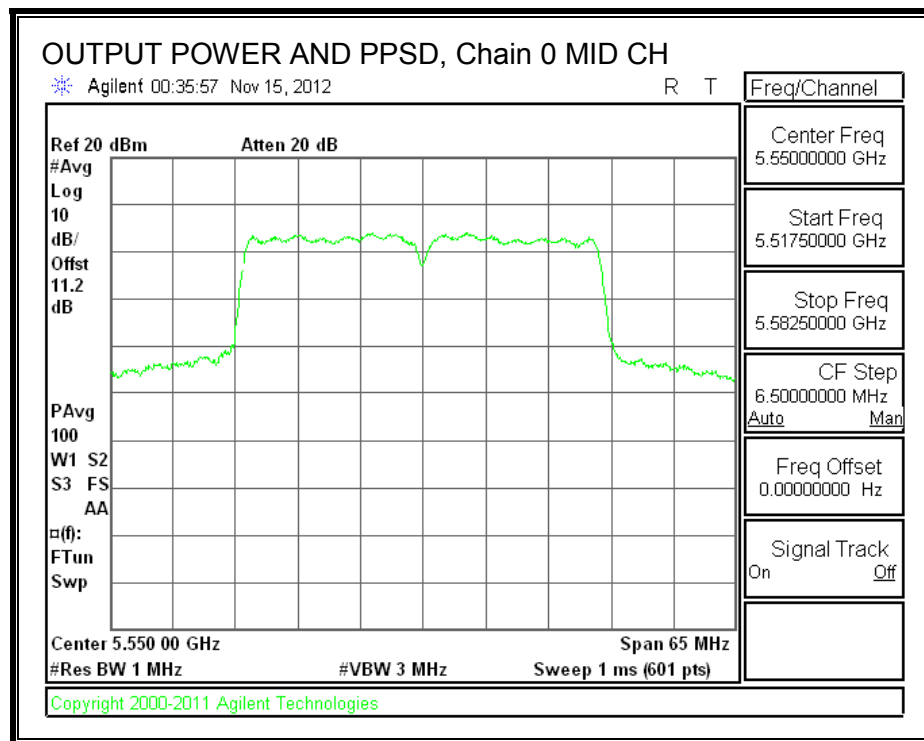
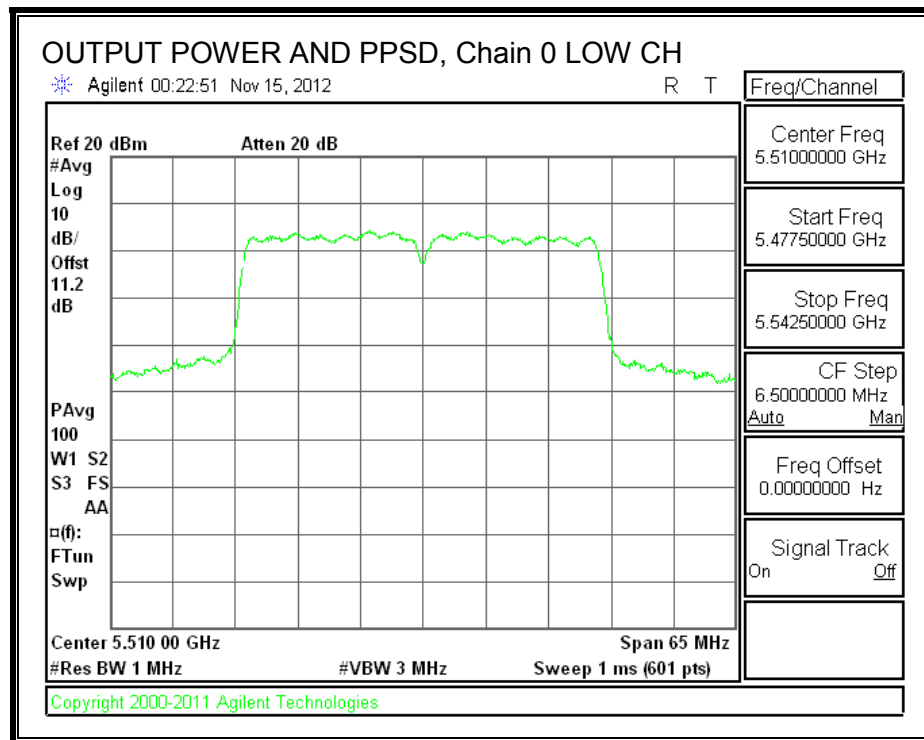
Duty Cycle CF (dB)	0.22	Included in Calculations of Corr'd Power & PSD
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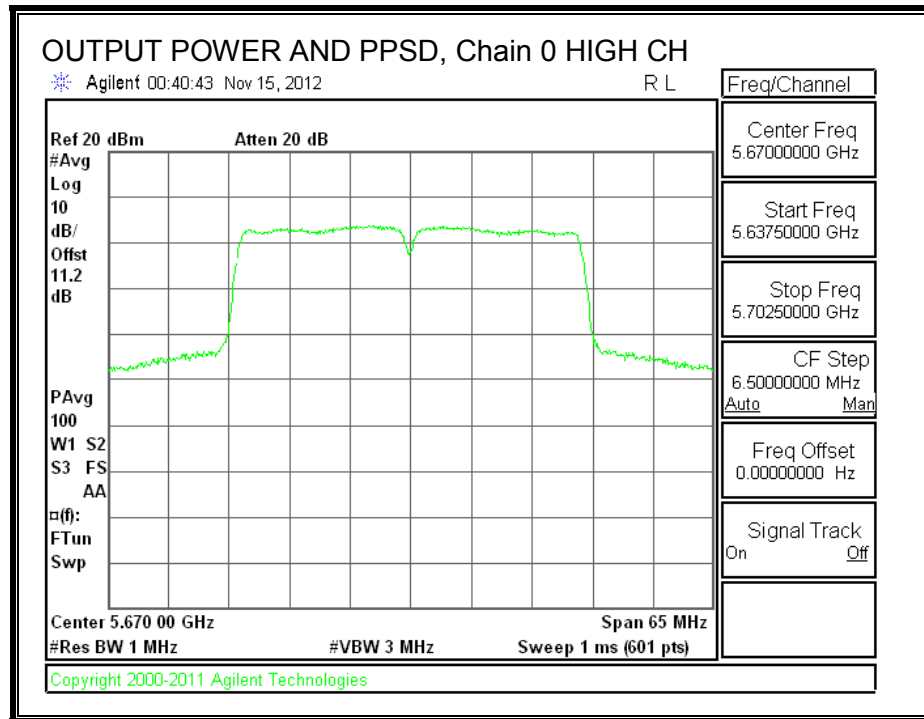
#### PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5510	3.95	3.77	3.28	8.67	8.94	-0.27
Mid	5550	3.43	3.90	3.40	8.58	8.94	-0.36
High	5670	3.60	3.53	3.62	8.58	8.94	-0.36

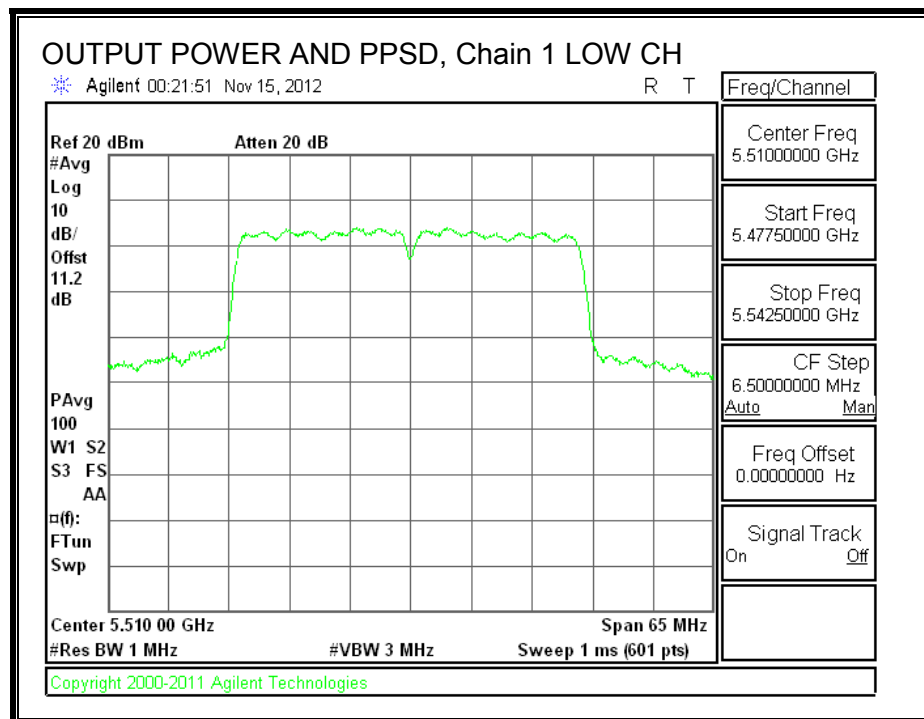
**Note:** method (1) "Measure and sum the spectra across the outputs" as specified in KDB 662911 D01 v01r02 was used for this PSD measurements.

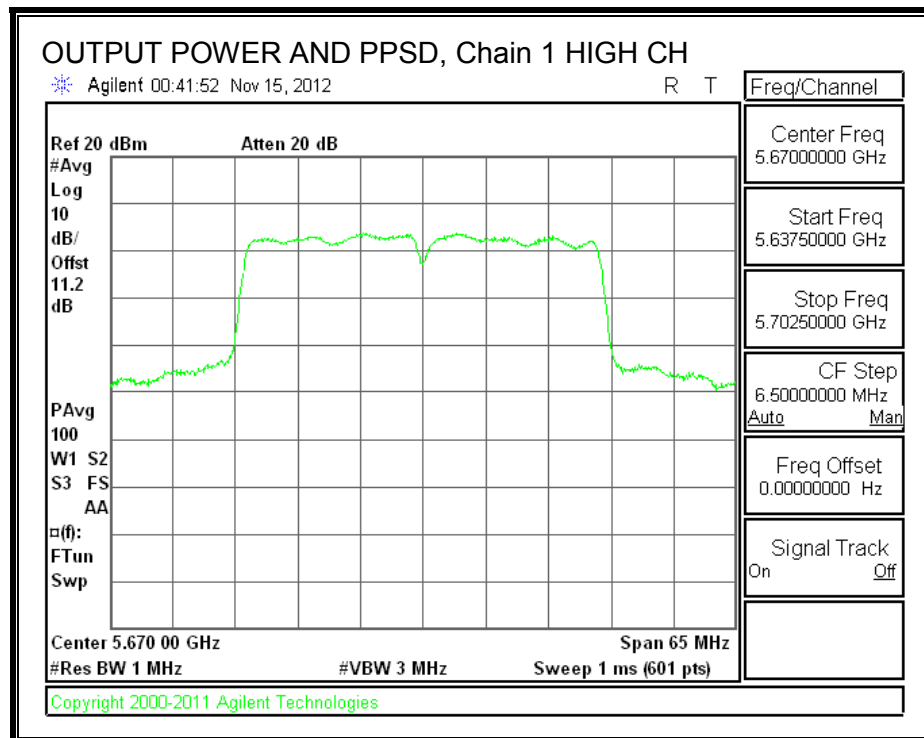
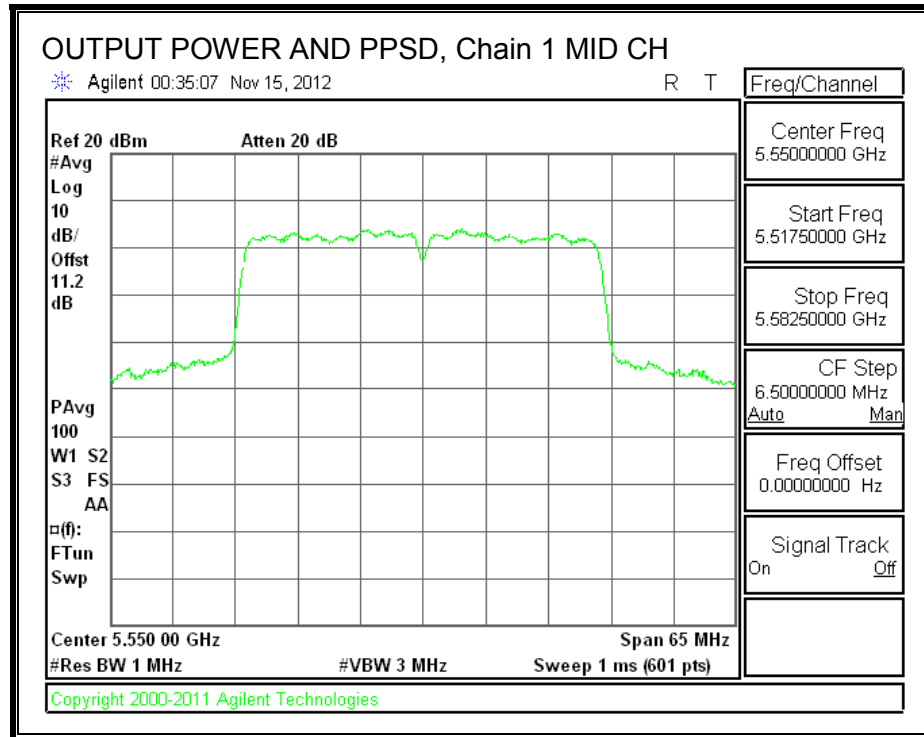
**OUTPUT POWER AND PPSD, Chain 0**



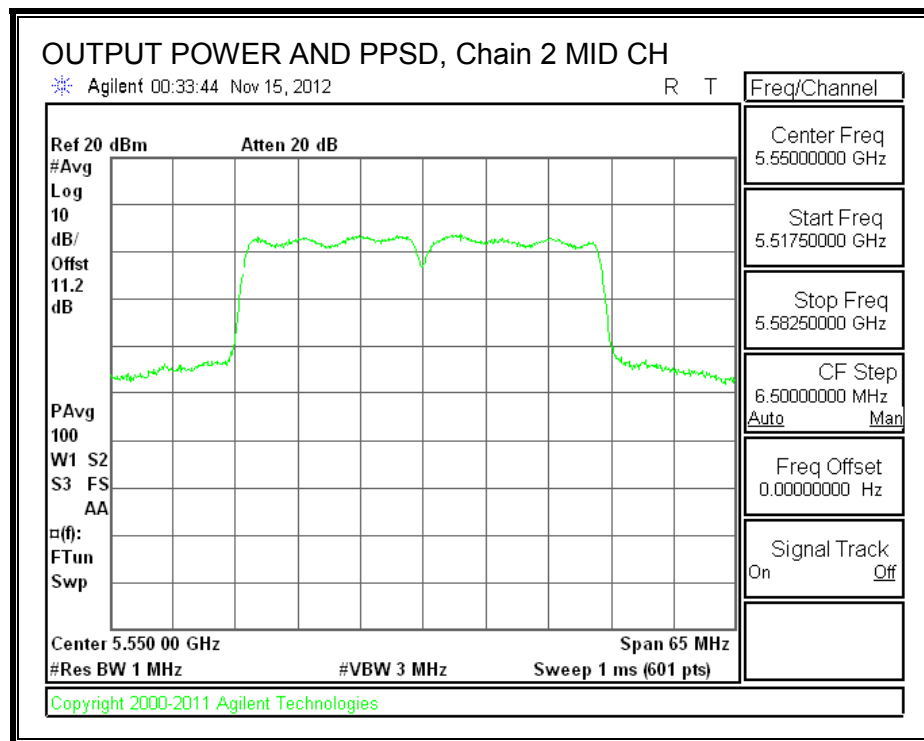
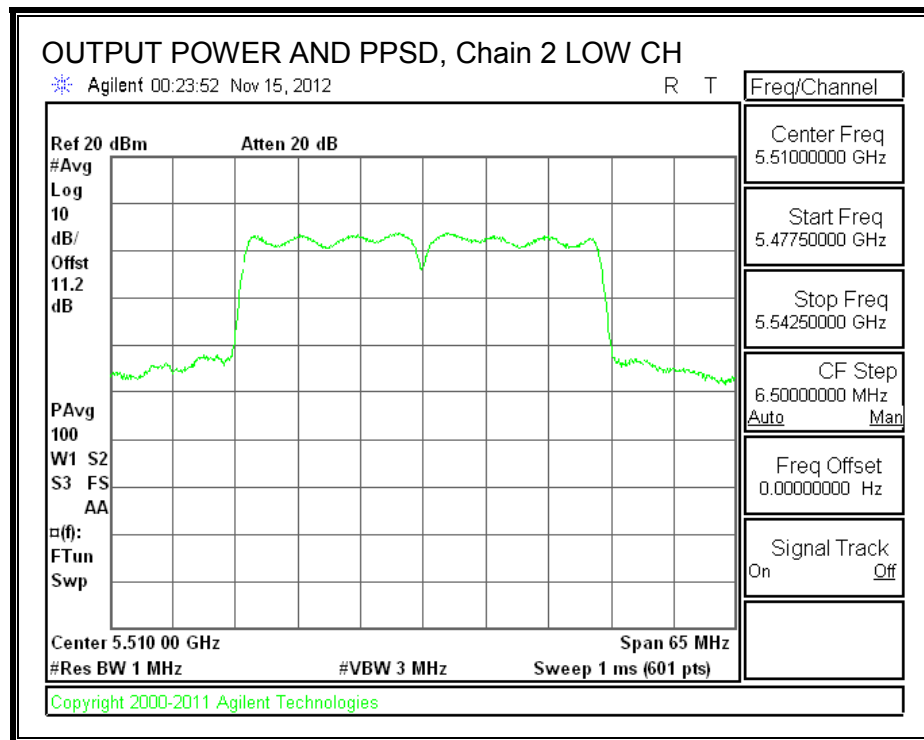


**OUTPUT POWER AND PPSD, Chain 1**

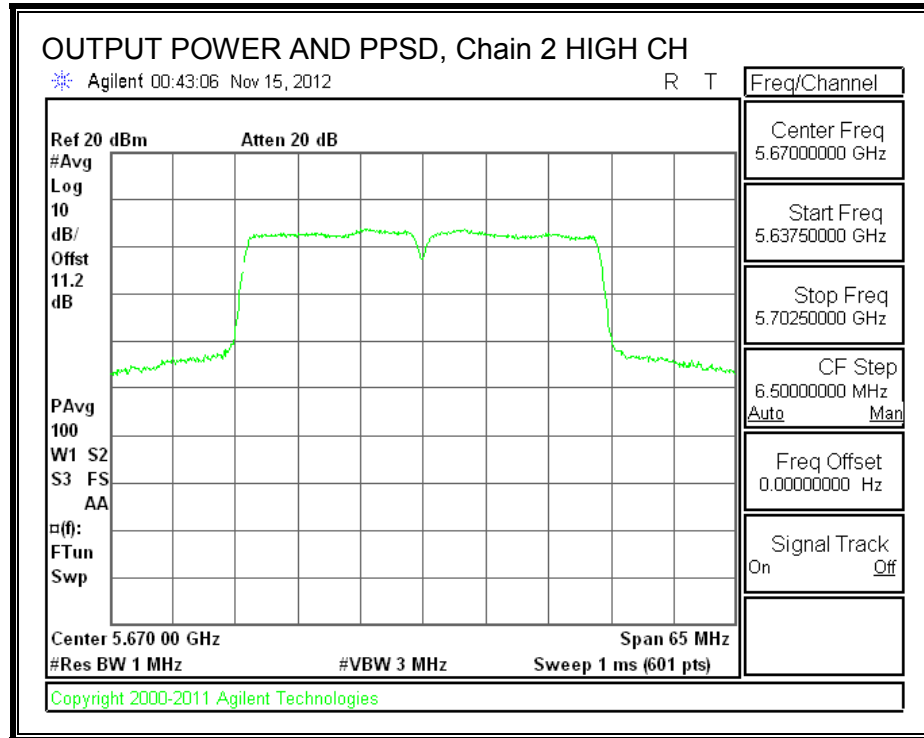




**OUTPUT POWER AND PPSD, Chain 2**







## 8.22. 802.11n HT40 CDD CH 142 3TX MODE, 5.6 GHz BAND DTS/UNII = 5710 MHz

### 8.22.1.26 dB BANDWIDTH- UNII

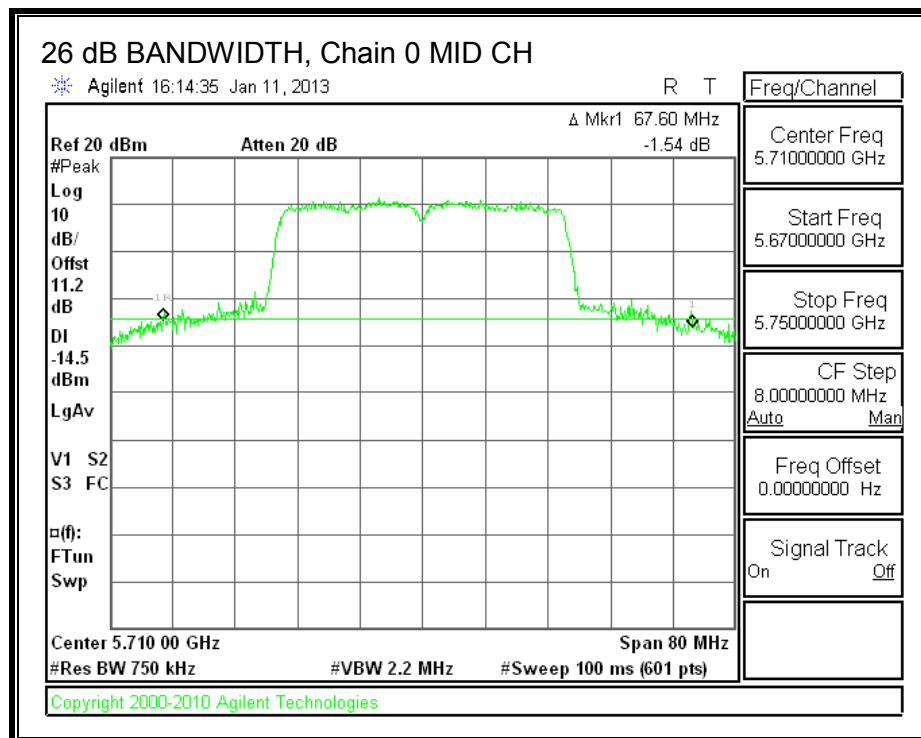
#### LIMITS

None; for reporting purposes only.

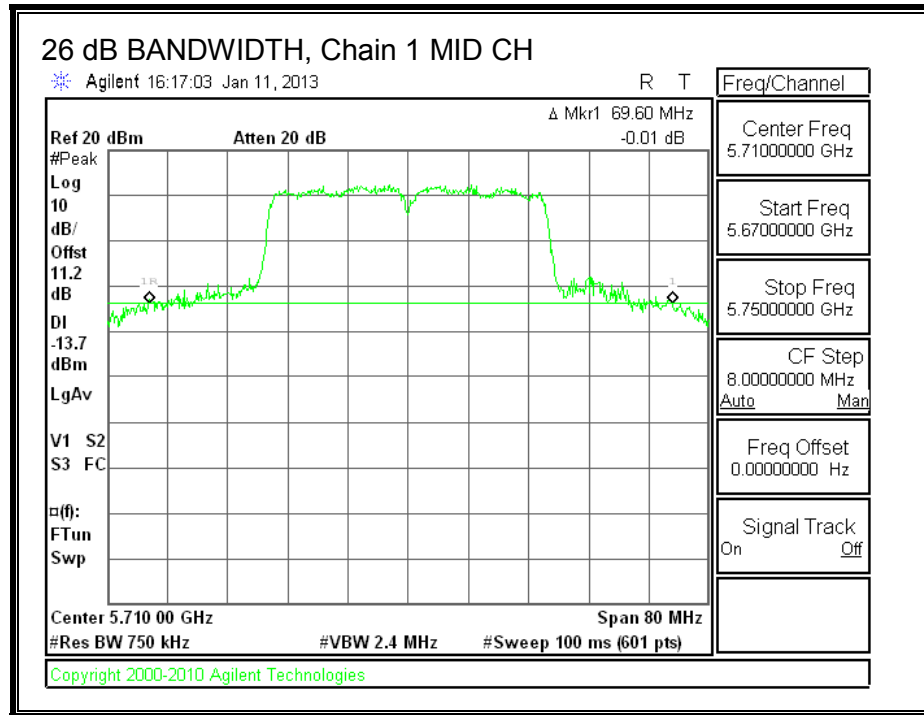
#### RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)	26 dB BW Chain 2 (MHz)
Mid	5710	67.60	69.60	72.80

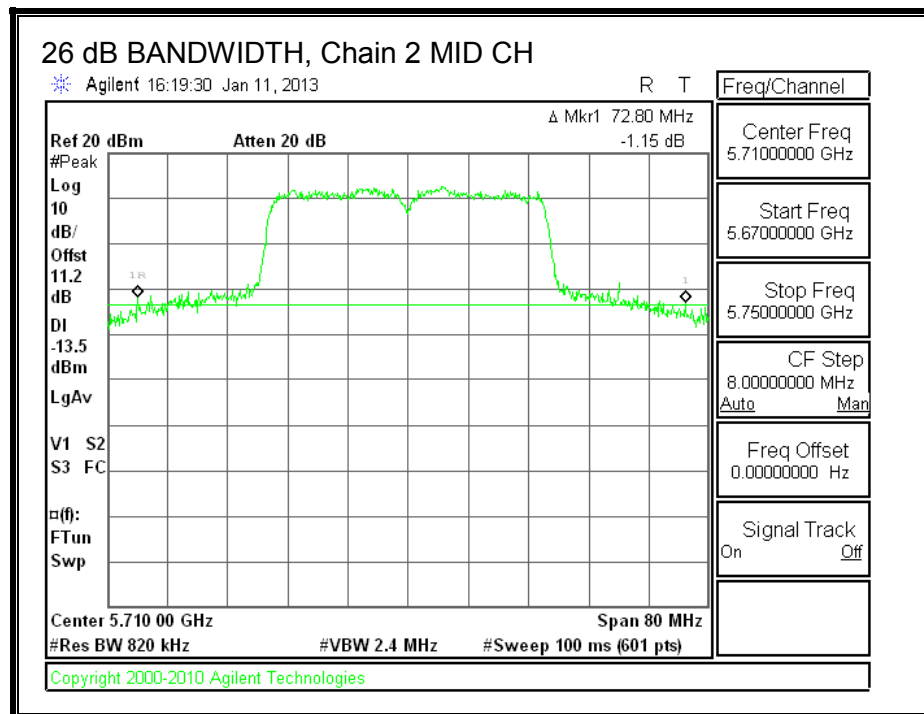
#### 26 dB BANDWIDTH, Chain 0



**26 dB BANDWIDTH, Chain 1**



**26 dB BANDWIDTH, Chain 2**



## 8.22.2.99% BANDWIDTH

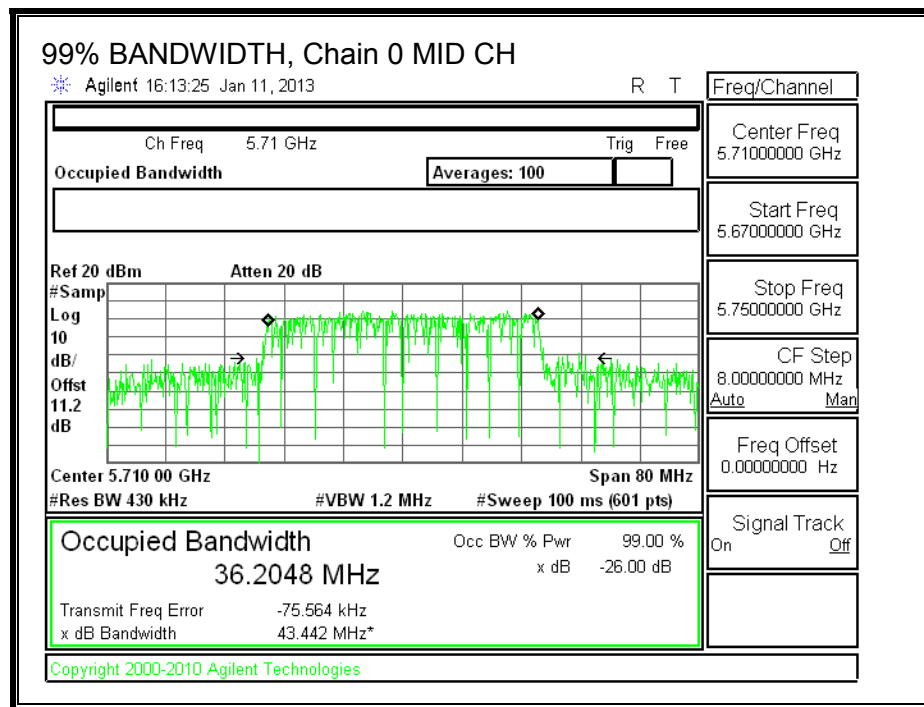
### LIMITS

None; for reporting purposes only.

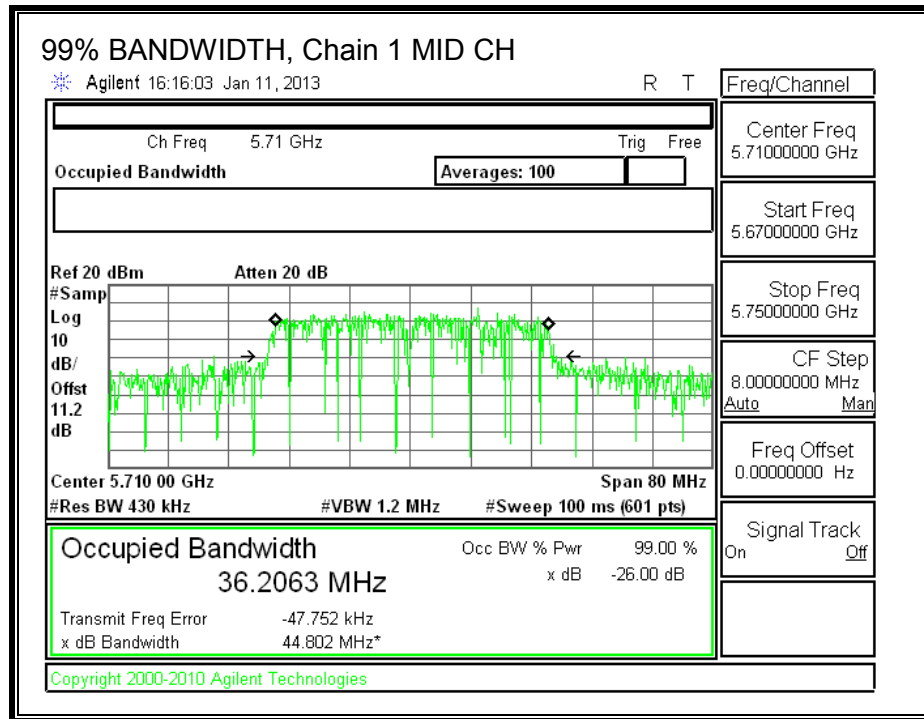
### RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Mid	5710	36.2048	36.2063	36.2220

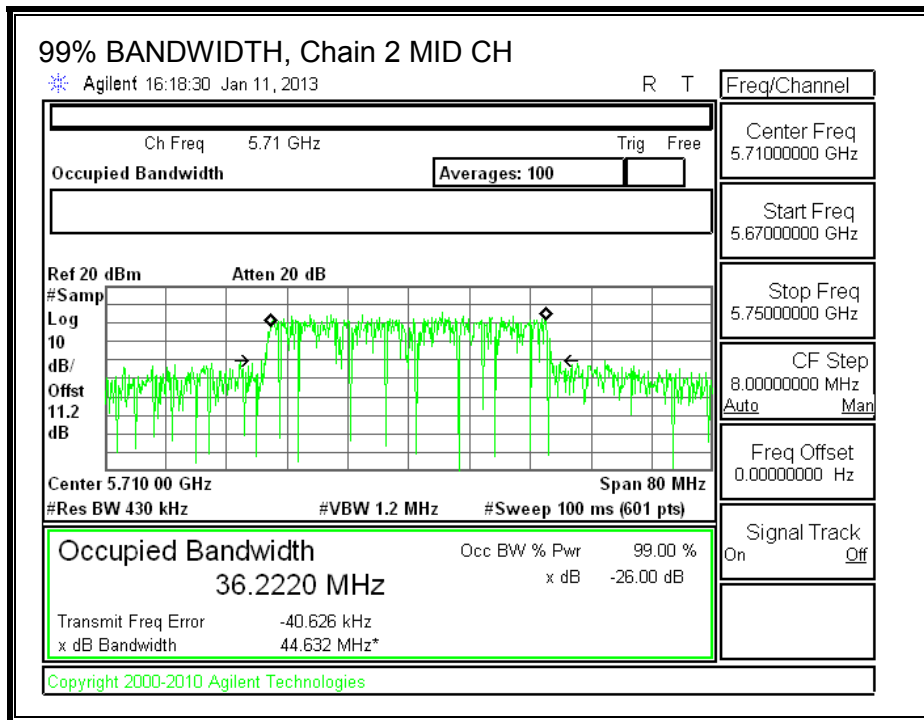
### 99% BANDWIDTH, Chain 0



**99% BANDWIDTH, Chain 1**



**99% BANDWIDTH, Chain 2**



### 8.22.3. 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

The TX chains are uncorrelated for output power and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
4.72	2.09	2.85	3.36

The TX chains are correlated for PSD and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Correlated Chains Directional Gain (dBi)
4.72	2.09	2.85	8.06

## 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)
Mid	5710	38.8	23.1024	8.06	3.36

#### 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)
Mid	5710	24.00	24.00	30.00	24.00	8.94	11.00	8.94

Duty Cycle CF (dB)	0.22	Included in Calculations of PPSD
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#### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5710	17.40	16.71	17.36	22.16	24.00	-1.84

#### PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Mid	5710	3.79	3.30	3.85	8.64	8.94	-0.30

**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)
Mid	5710	28.8	13.1024	8.06	3.36

**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)
Mid	5710	24.00	22.17	28.17	22.17	8.94	11.00	8.94

<b>Duty Cycle CF (dB)</b>	0.22	Included in Calculations of PPSP
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**Output Power Results**

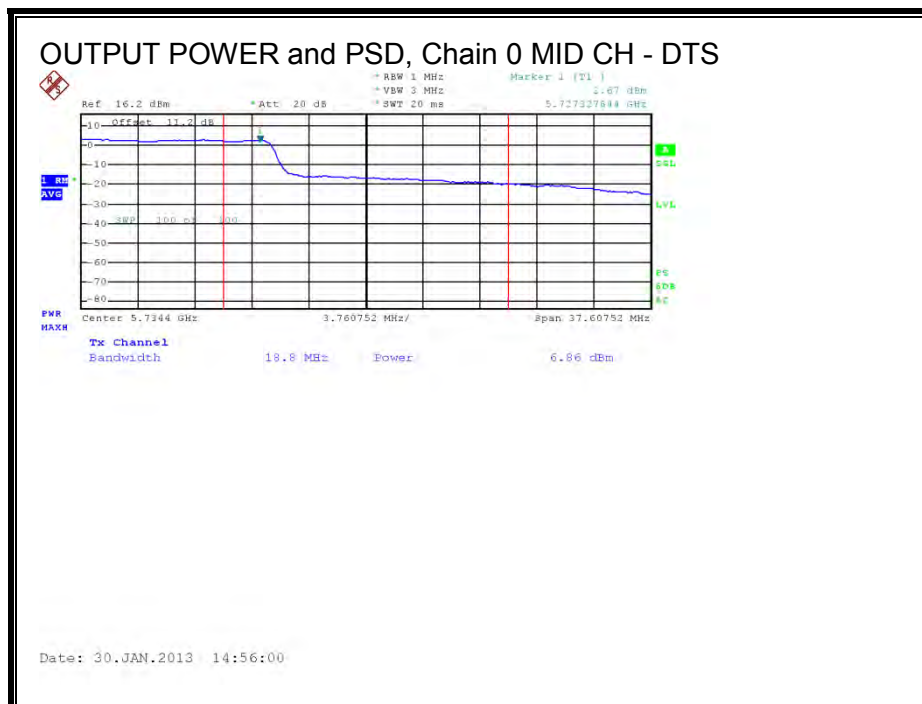
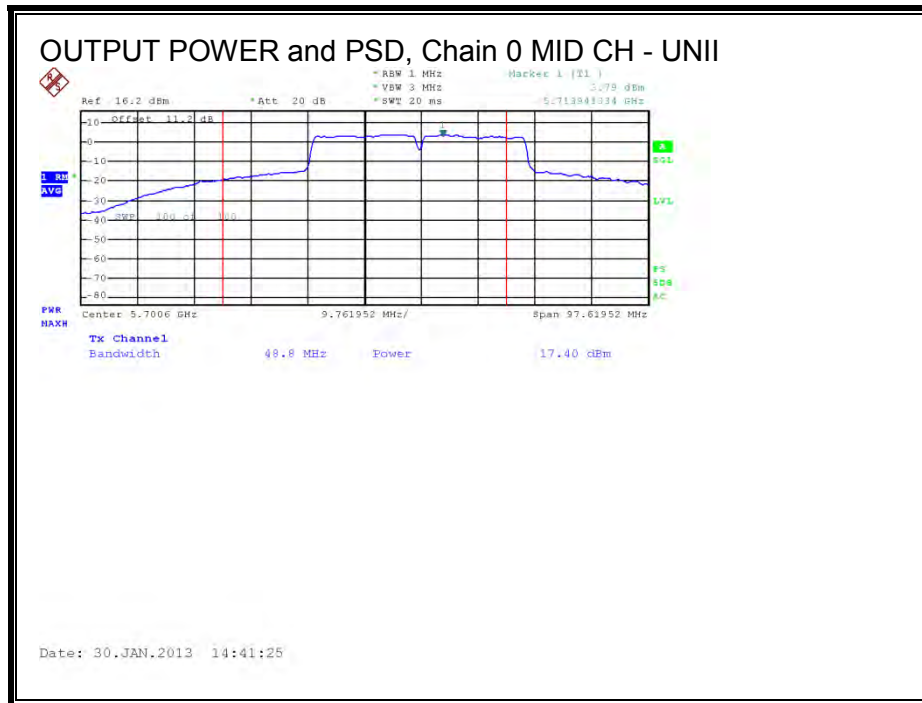
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5710	6.86	6.12	6.89	11.63	22.17	-10.54

**PPSD Results**

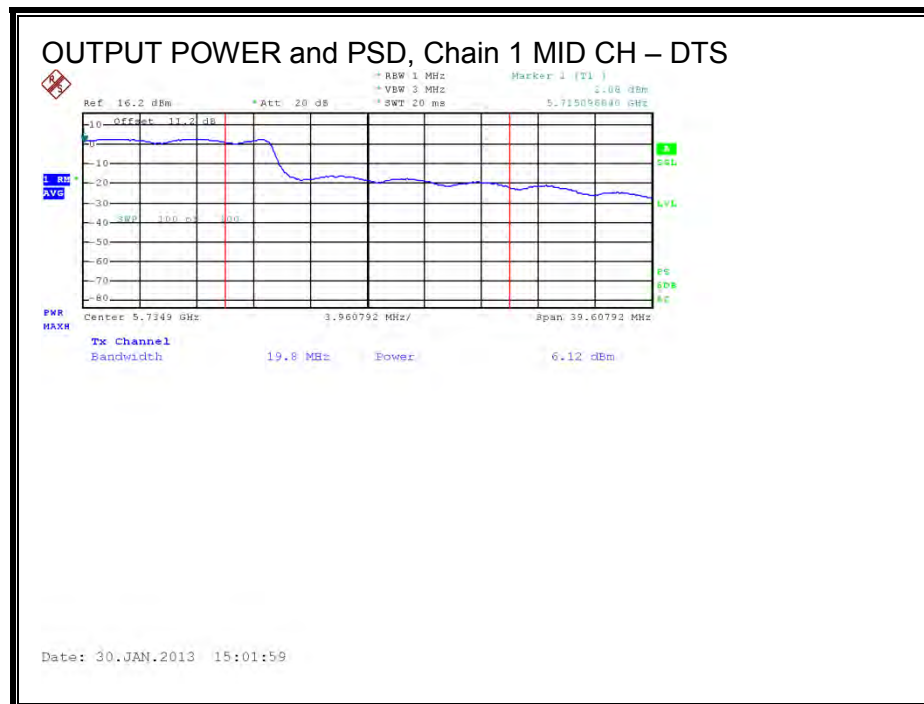
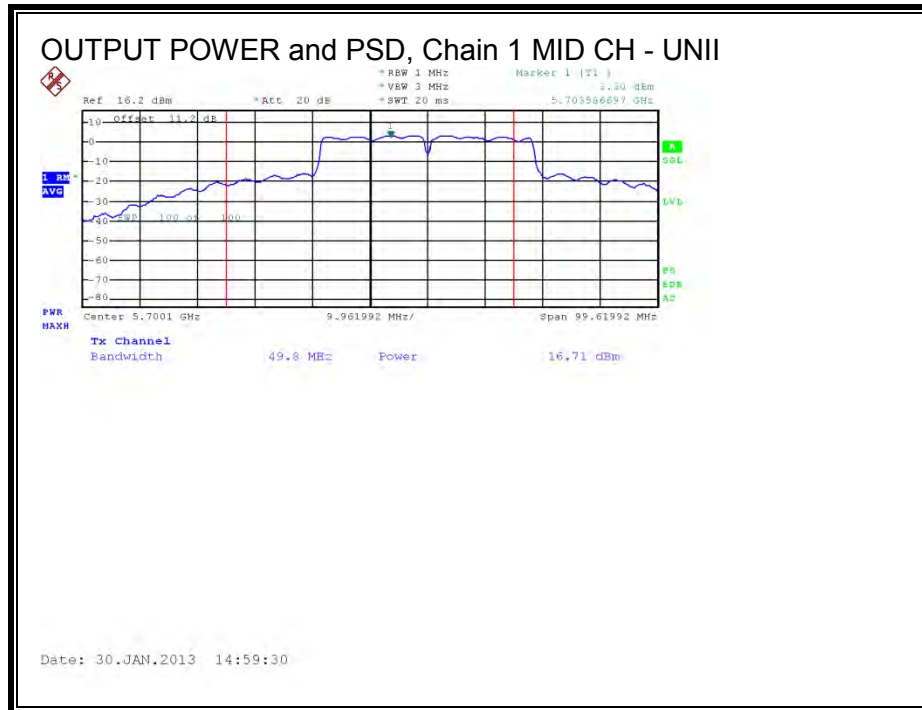
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Mid	5710	2.67	2.08	2.63	7.46	8.94	-1.48



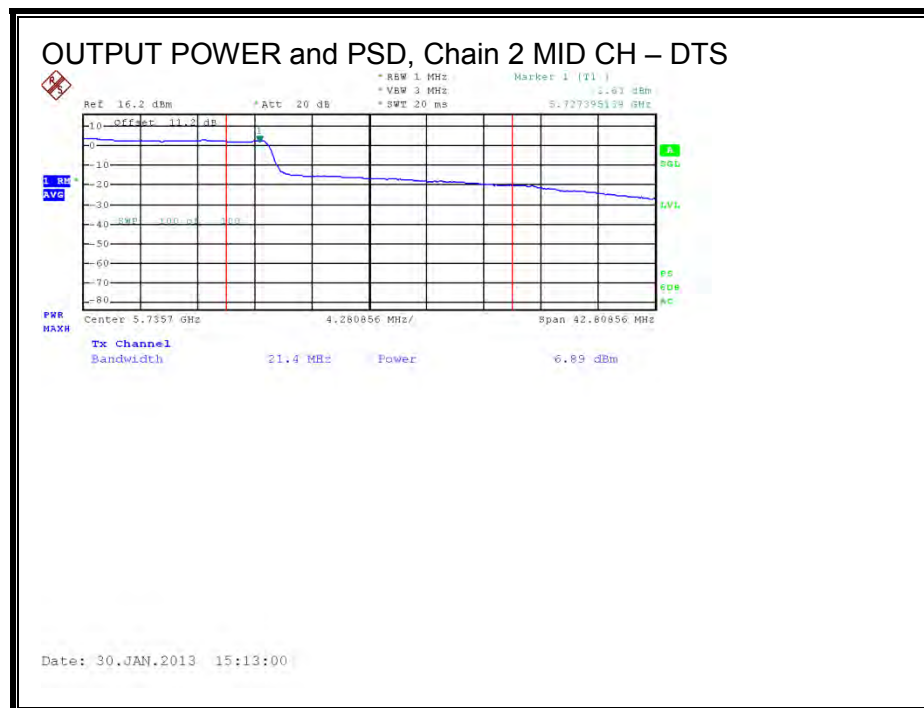
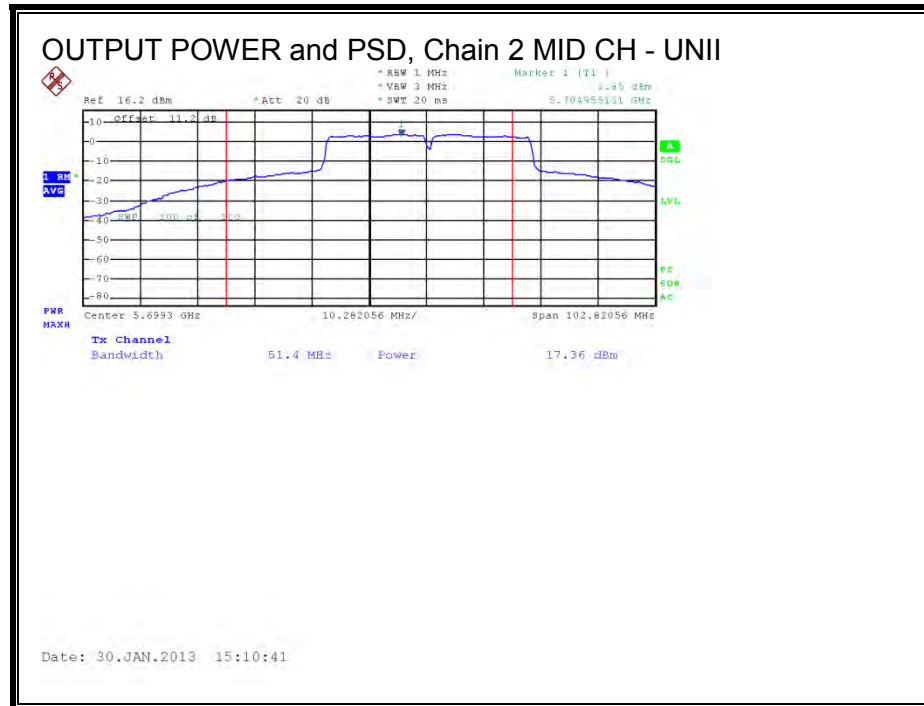
## OUTPUT POWER and PSD, Chain 0



**OUTPUT POWER and PSD, Chain 1**



**OUTPUT POWER and PSD, Chain 2**



## 8.23. 802.11n HT40 STBC CH 142 3TX MODE, 5.6 GHz BAND DTS/UNII = 5710 MHz

### 8.23.1.26 dB BANDWIDTH- UNII

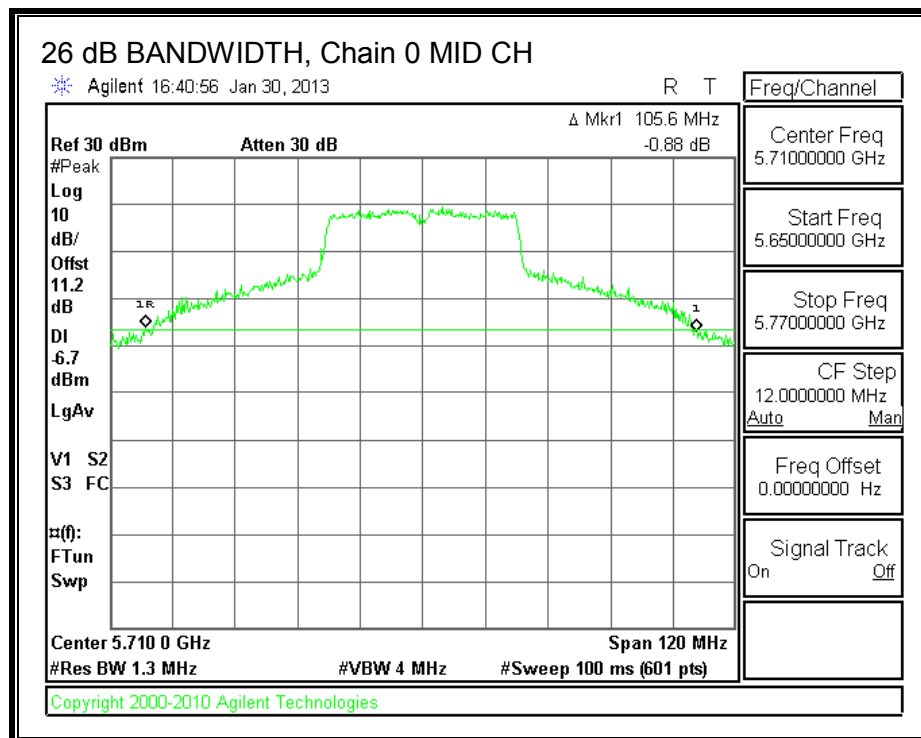
#### LIMITS

None; for reporting purposes only.

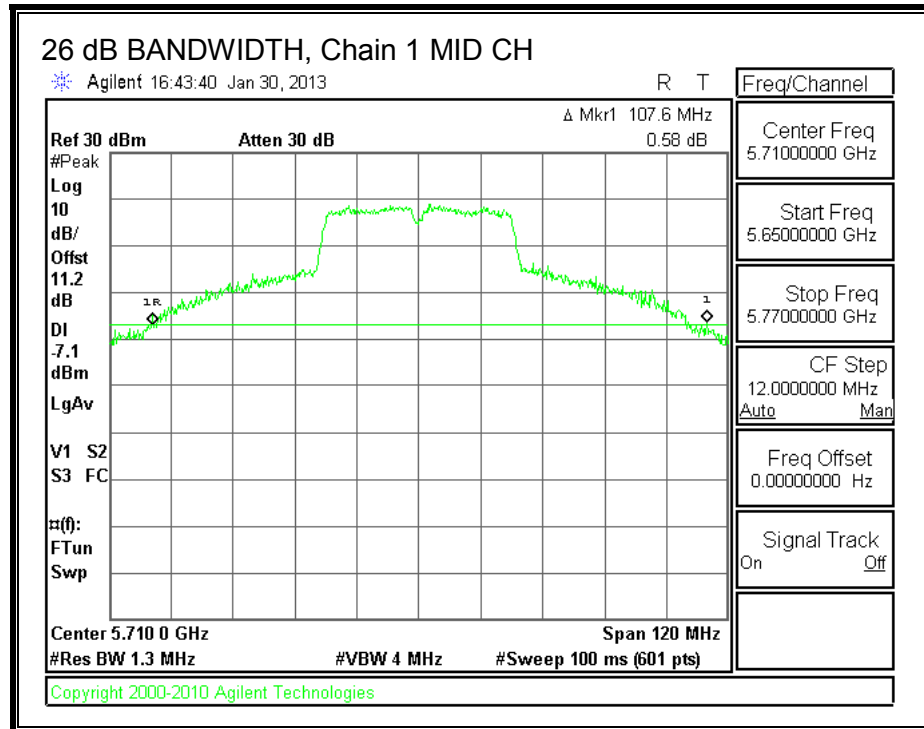
#### RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)	26 dB BW Chain 2 (MHz)
Mid	5710	105.60	107.60	111.00

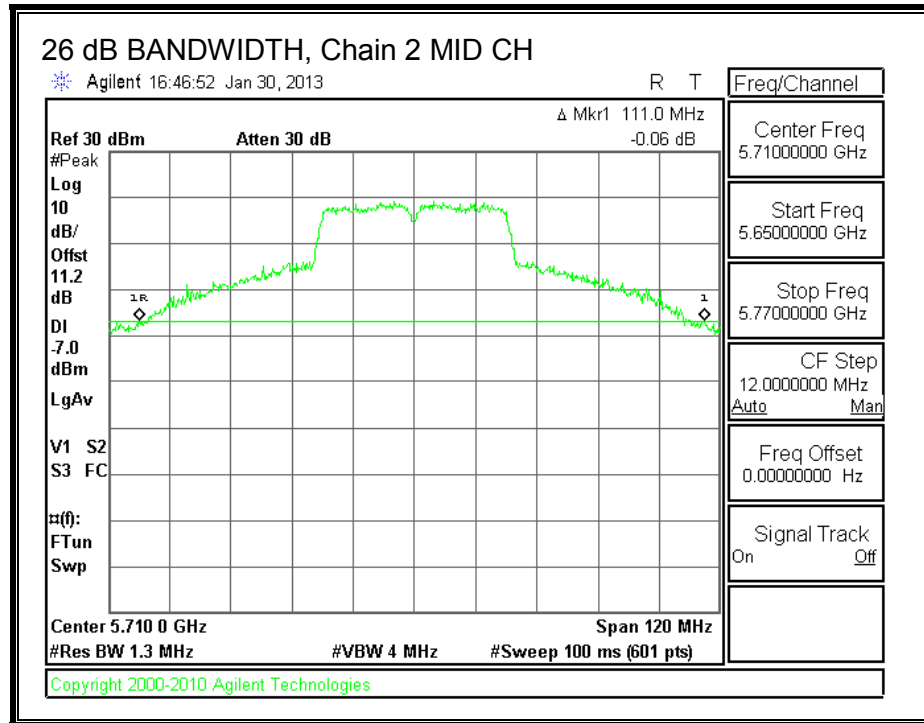
#### 26 dB BANDWIDTH, Chain 0



**26 dB BANDWIDTH, Chain 1**



**26 dB BANDWIDTH, Chain 2**



## 8.23.2.99% BANDWIDTH

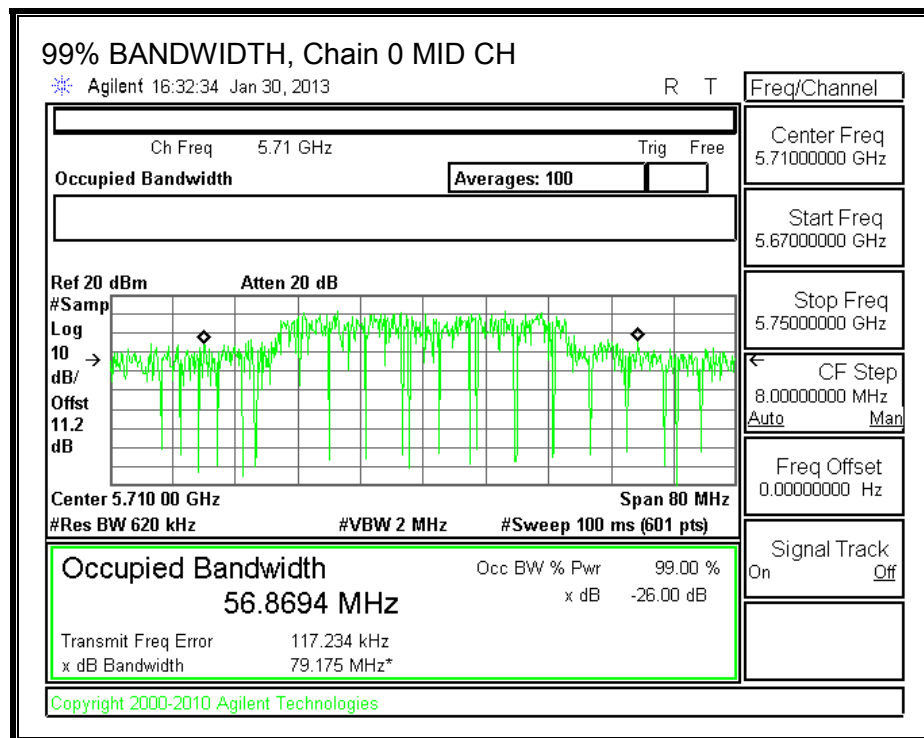
### LIMITS

None; for reporting purposes only.

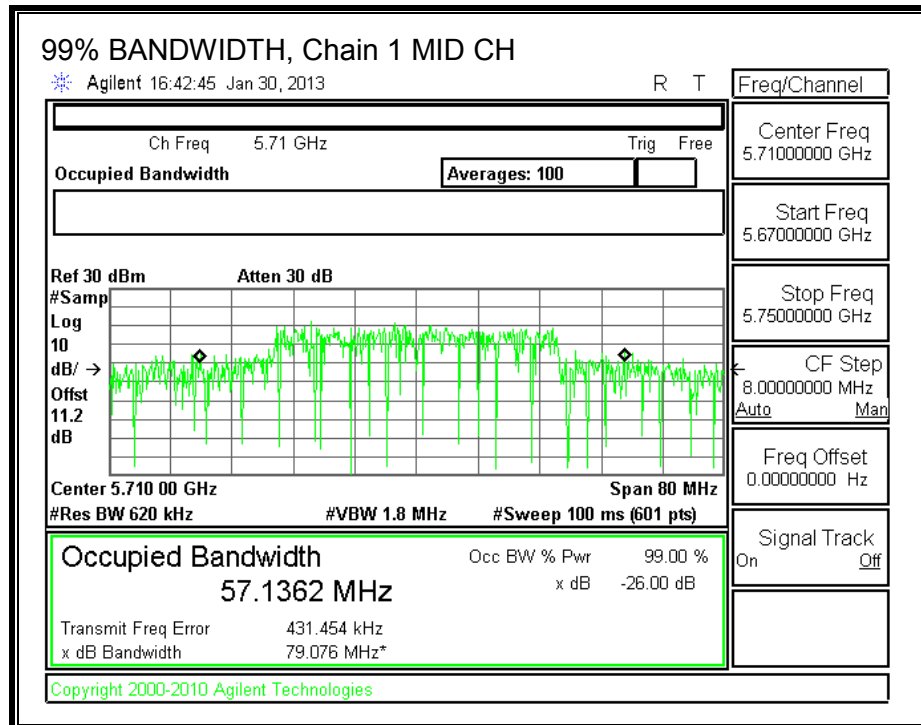
### RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Mid	5710	56.8694	57.1362	58.7496

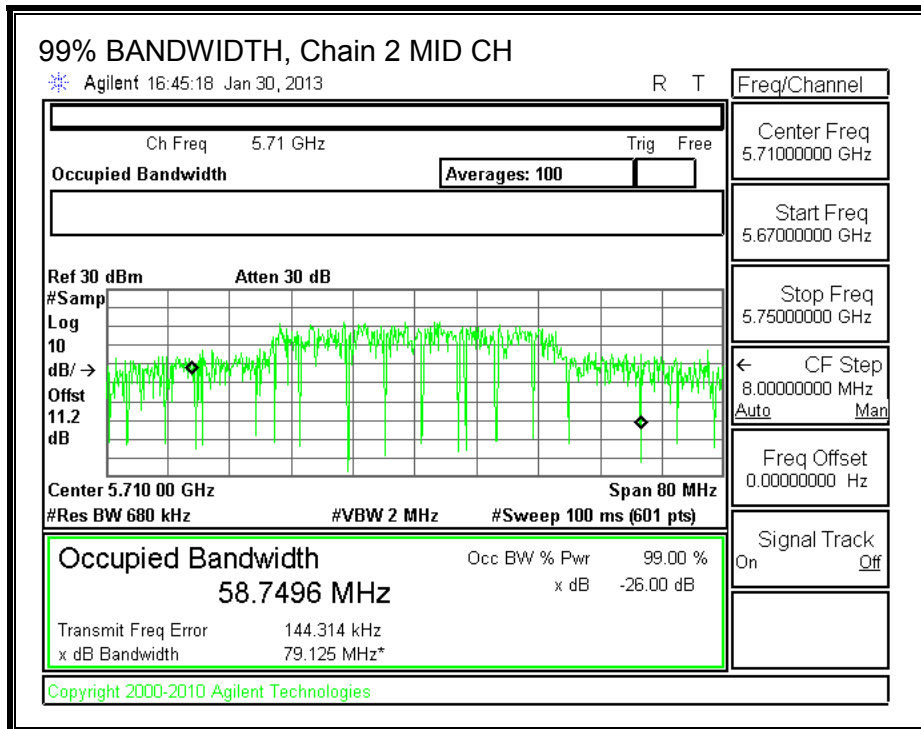
### 99% BANDWIDTH, Chain 0



**99% BANDWIDTH, Chain 1**



**99% BANDWIDTH, Chain 2**



### 8.23.3. 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

The TX chains are uncorrelated for output power and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
4.72	2.09	2.85	3.36



## 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)		Uncorrelated Gain (dBi)
Mid	5710	57.8	33.4347		3.36

#### 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)
Mid	5710	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.23	Included in Calculations of PPSD
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#### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5710	19.10	18.65	18.97	23.91	24.00	-0.09

#### PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Mid	5710	5.51	4.98	5.26	10.26	11.00	-0.74

**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)		Uncorrelated Gain (dBi)
Mid	5710	47.8	23.4347		3.36

**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)
Mid	5710	24.00	24.00	30.00	24.00	11.00	11.00	11.00

<b>Duty Cycle CF (dB)</b>	0.23	Included in Calculations of PPSP
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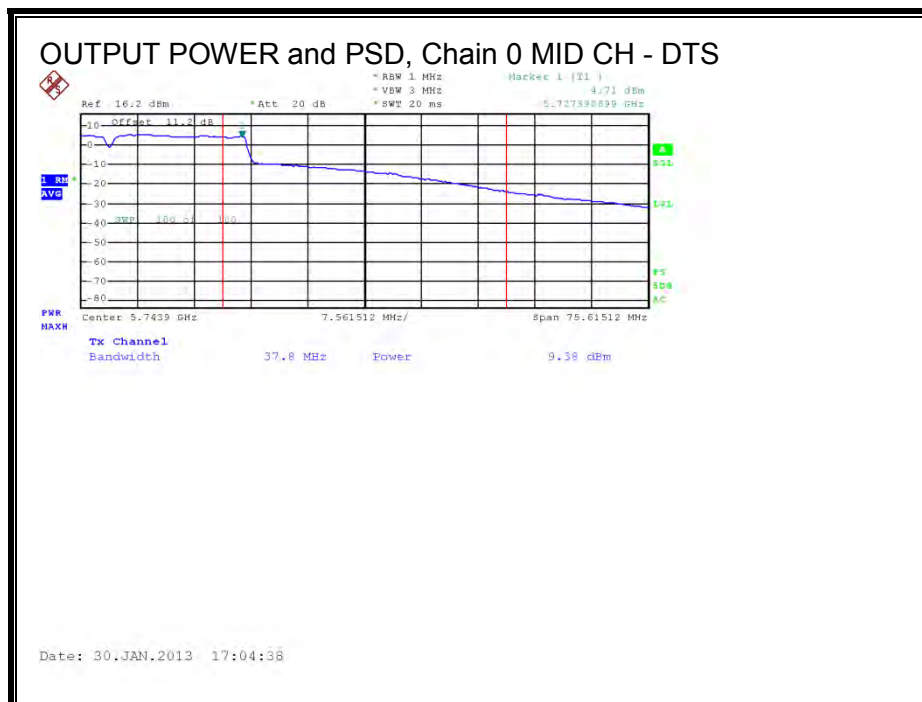
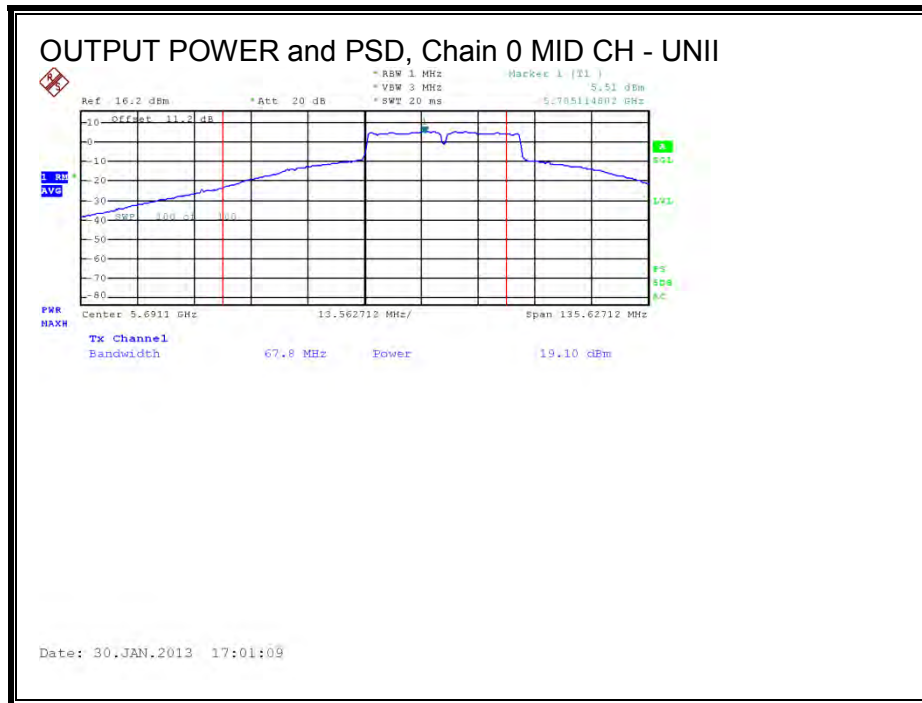
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5710	9.38	8.91	9.34	14.22	24.00	-9.78

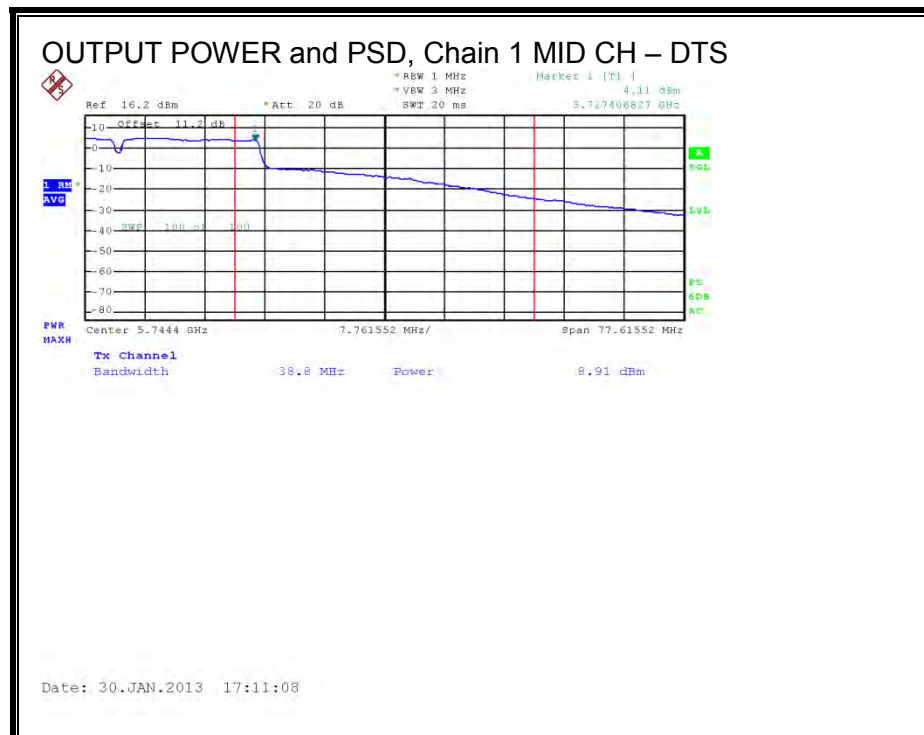
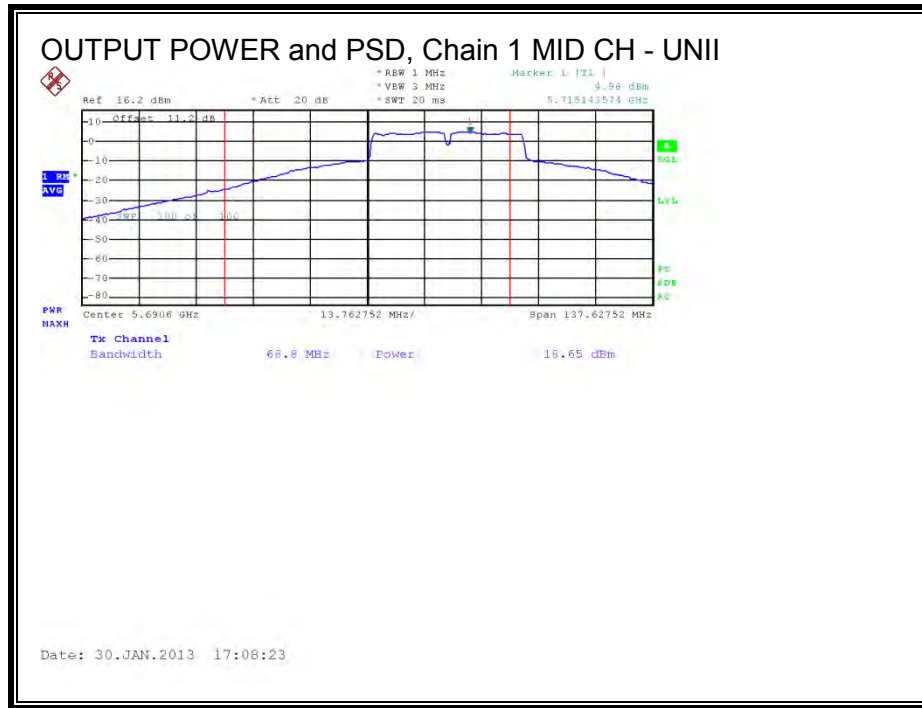
**PPSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Mid	5710	4.71	4.11	4.35	9.40	11.00	-1.60

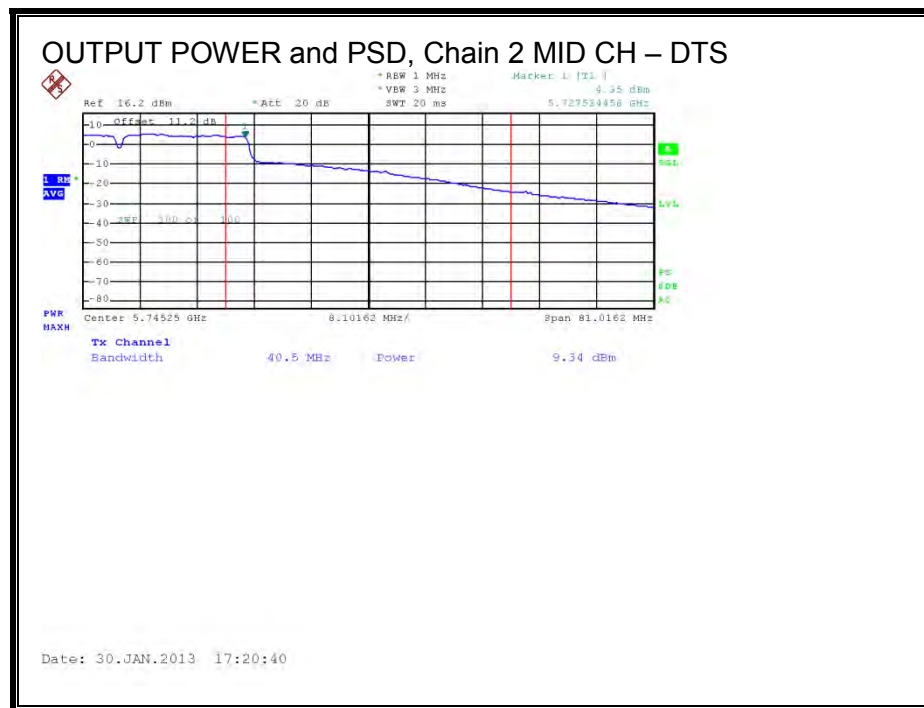
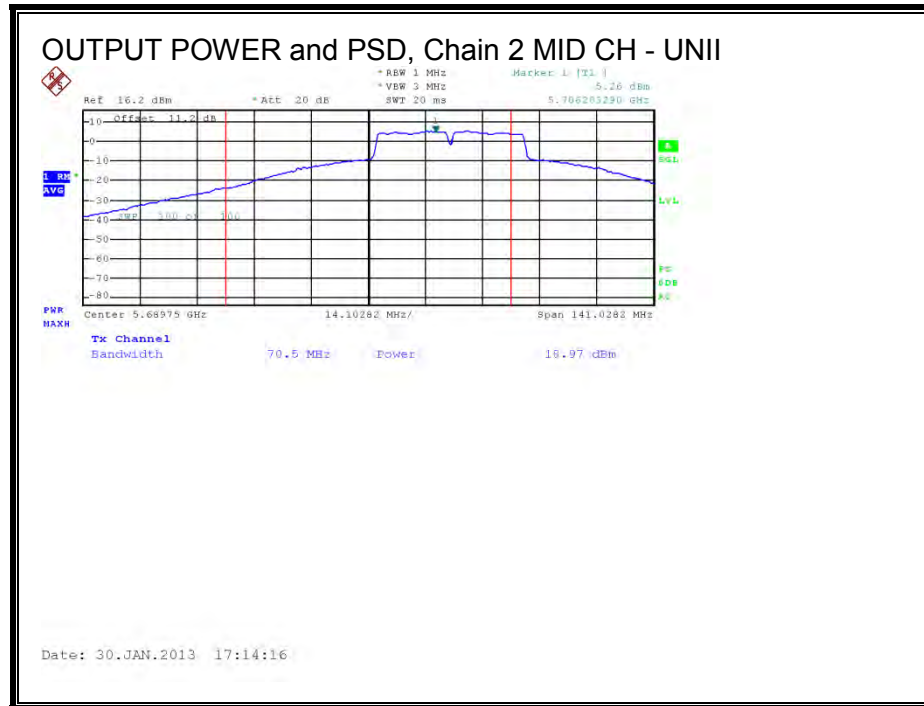
**OUTPUT POWER and PSD, Chain 0**



**OUTPUT POWER and PSD, Chain 1**



**OUTPUT POWER and PSD, Chain 2**



## **8.24. 802.11n HT40 STBC 3TX MODE, 5.6 GHz BAND**

### **8.24.1. 26 dB BANDWIDTH**

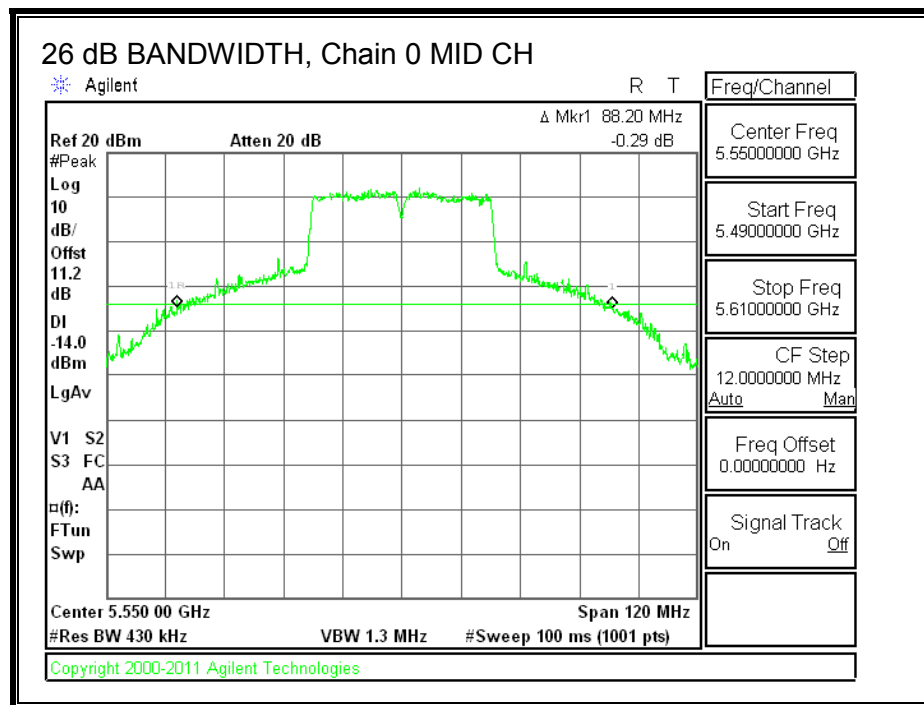
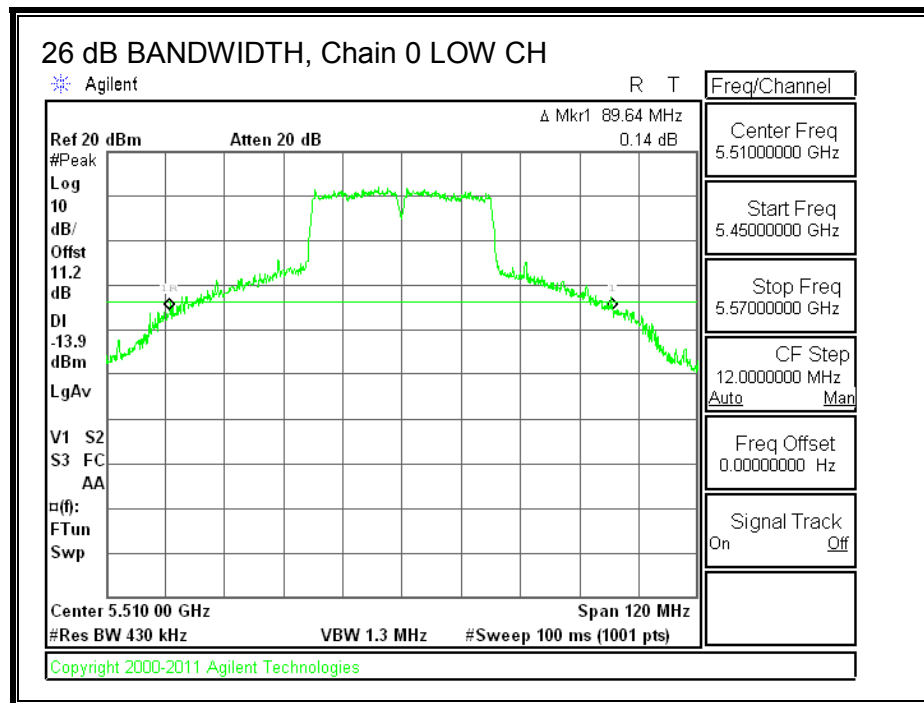
#### **LIMITS**

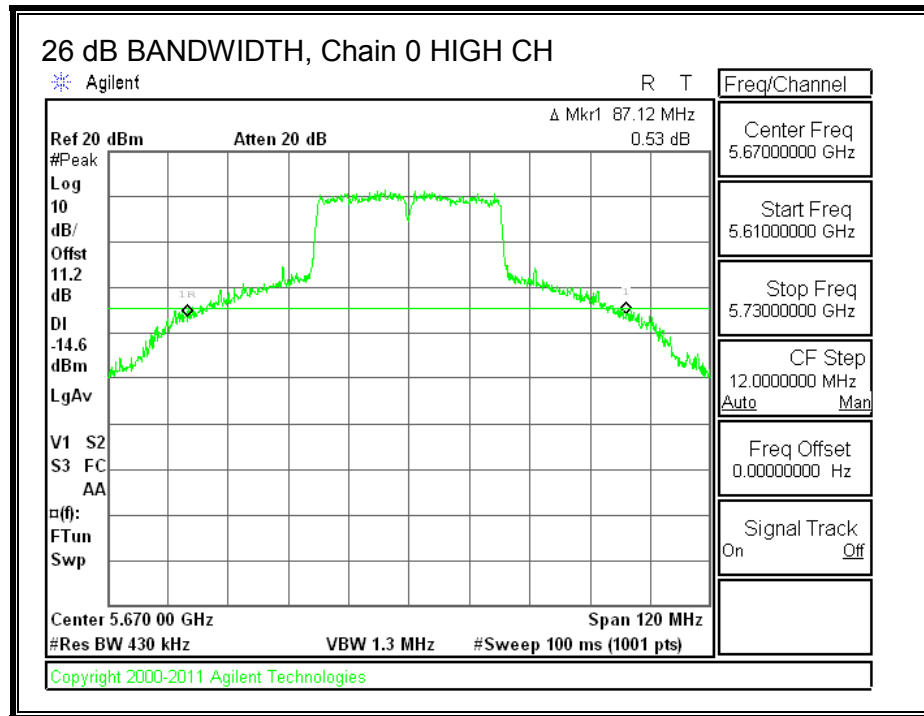
None; for reporting purposes only.

#### **RESULTS**

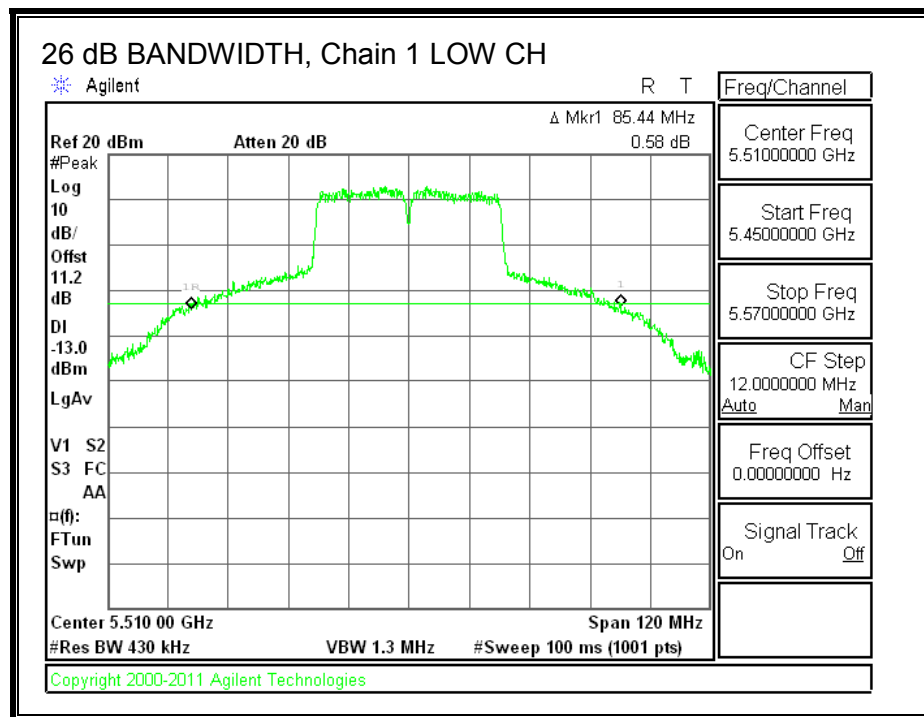
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)	26 dB BW Chain 2 (MHz)
Low	5510	89.64	85.44	92.40
Mid	5550	88.20	84.00	89.88
High	5670	87.12	85.80	91.68

**26 dB BANDWIDTH, Chain 0**

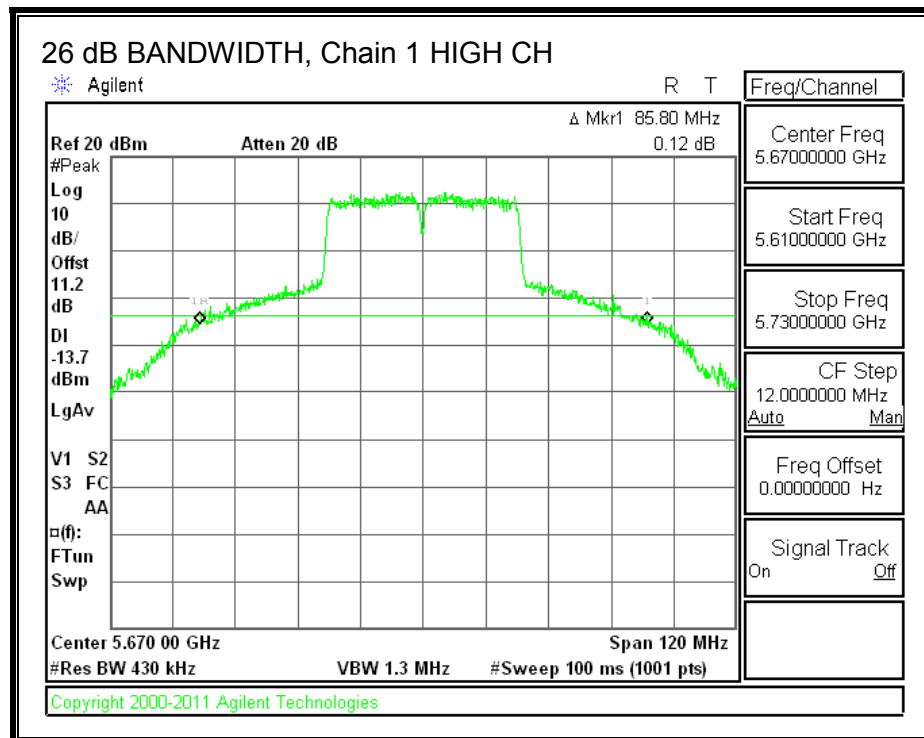
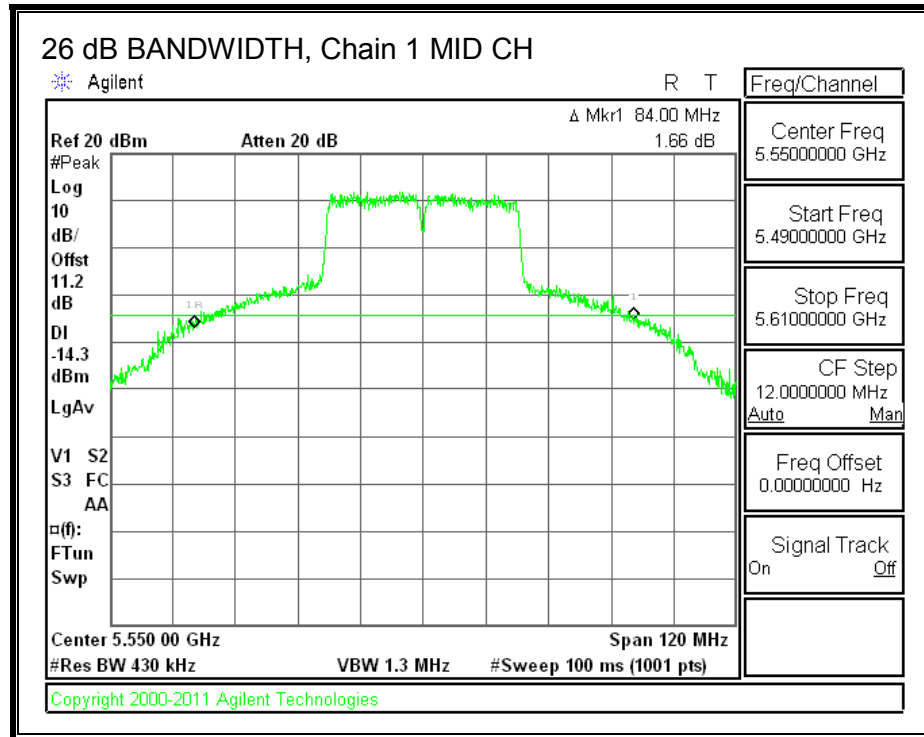




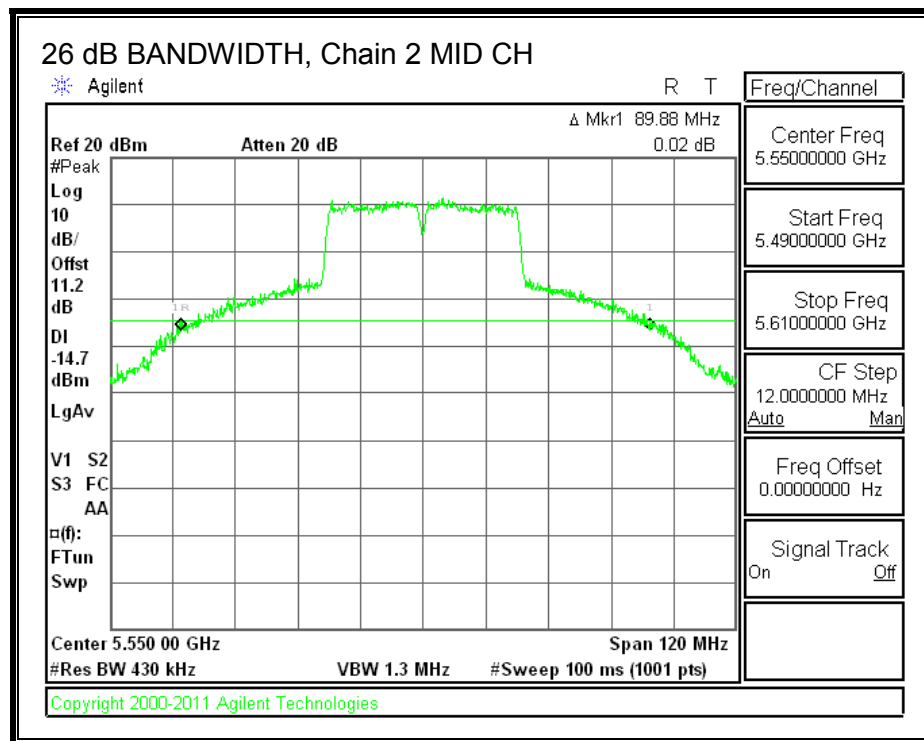
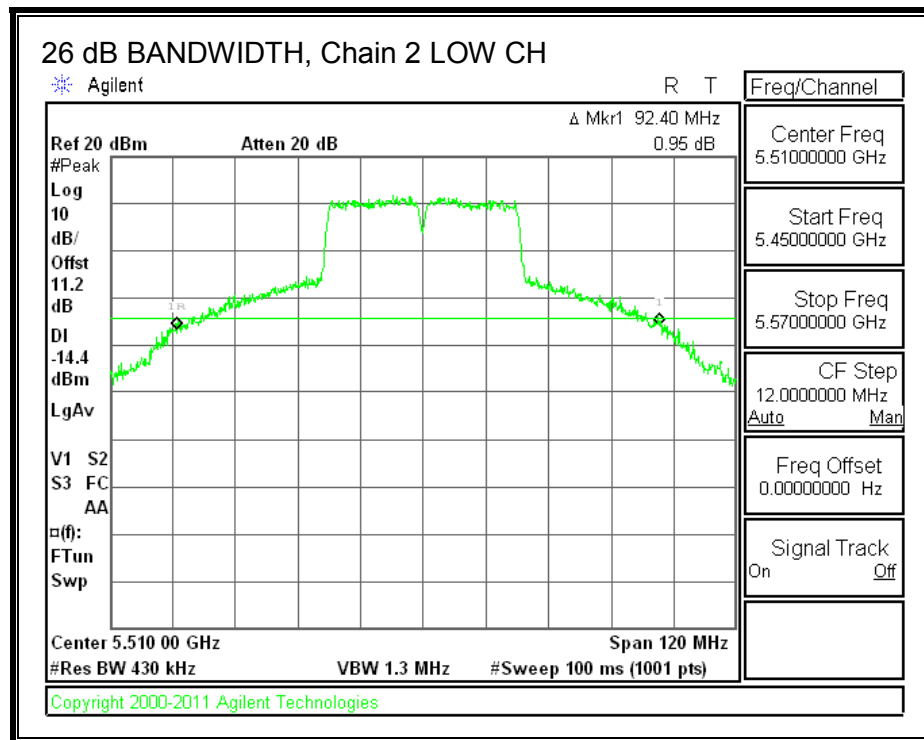
**26 dB BANDWIDTH, Chain 1**

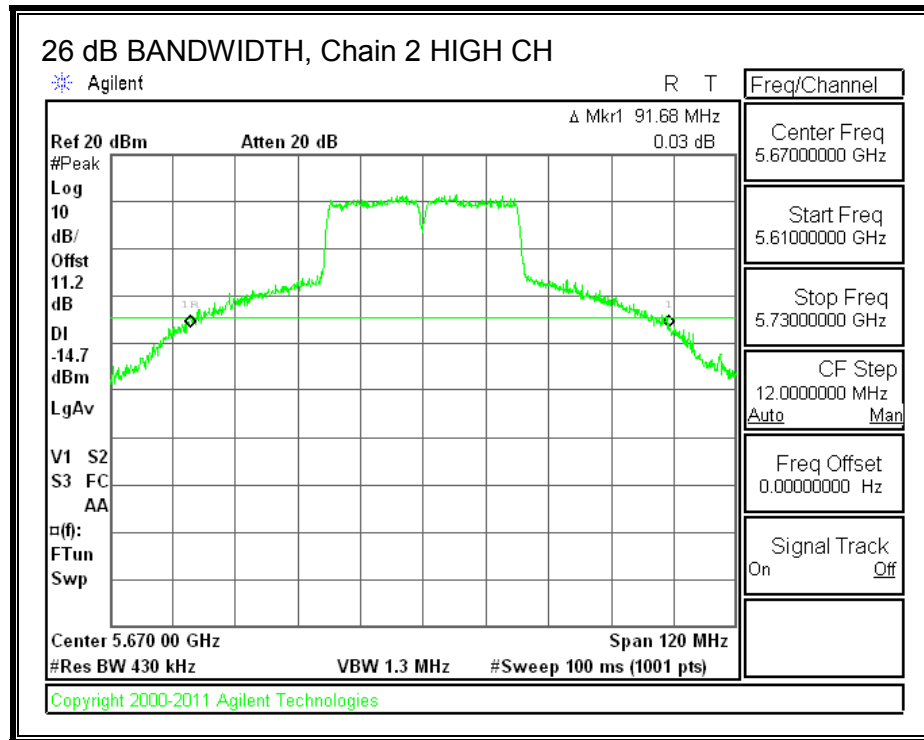






**26 dB BANDWIDTH, Chain 2**





## 8.24.2. 99% BANDWIDTH

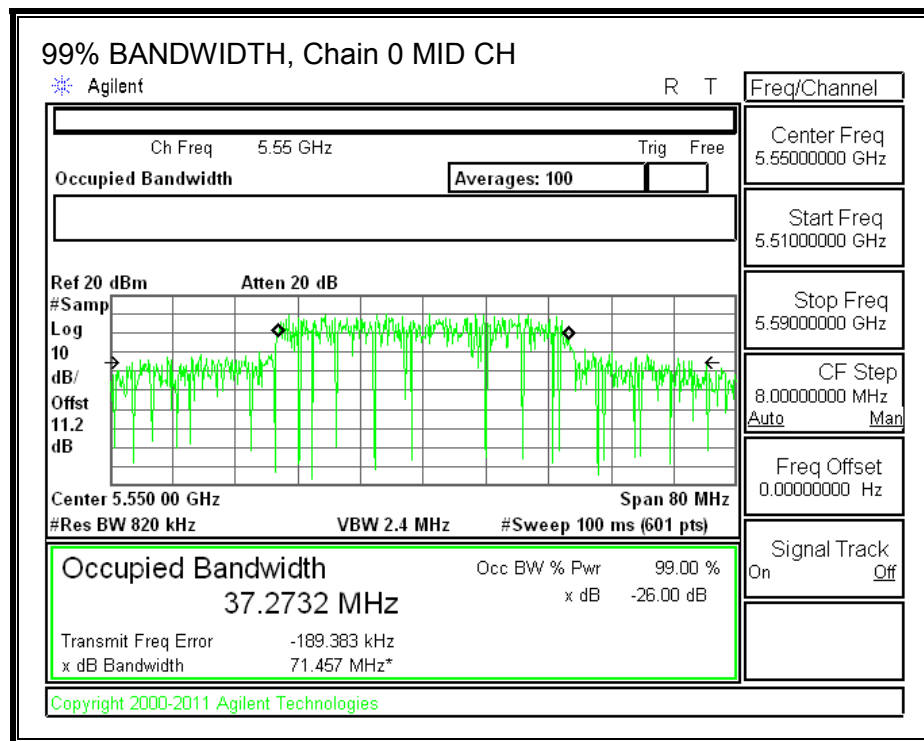
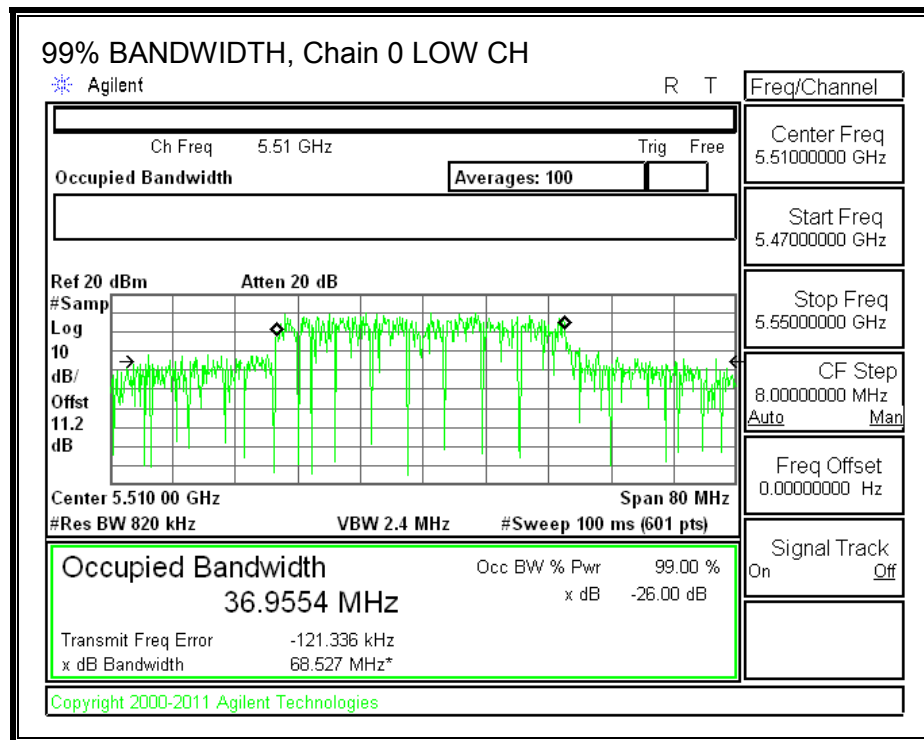
### LIMITS

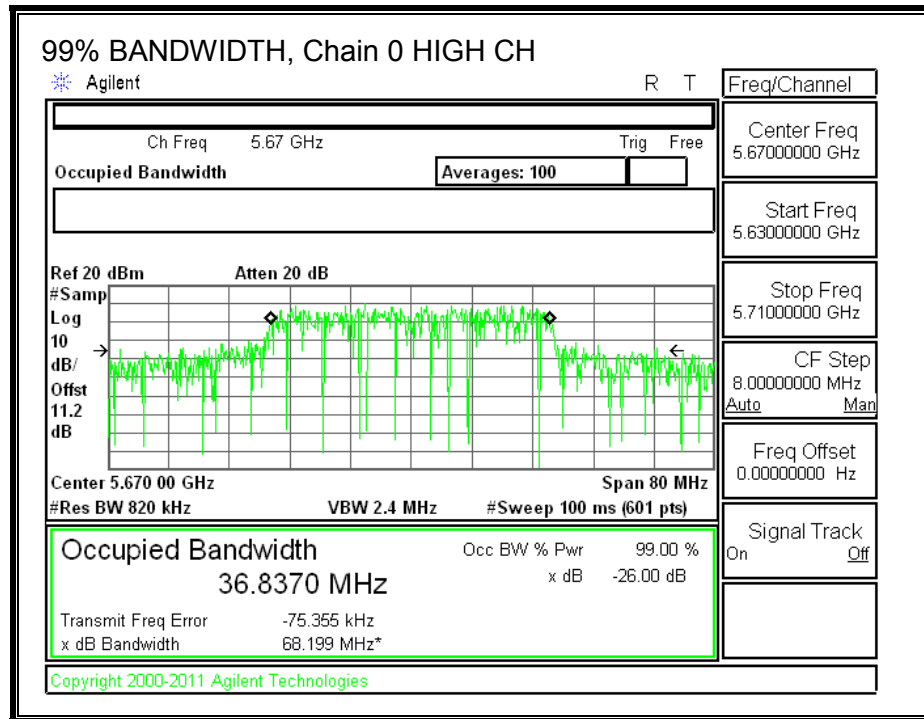
None; for reporting purposes only.

### RESULTS

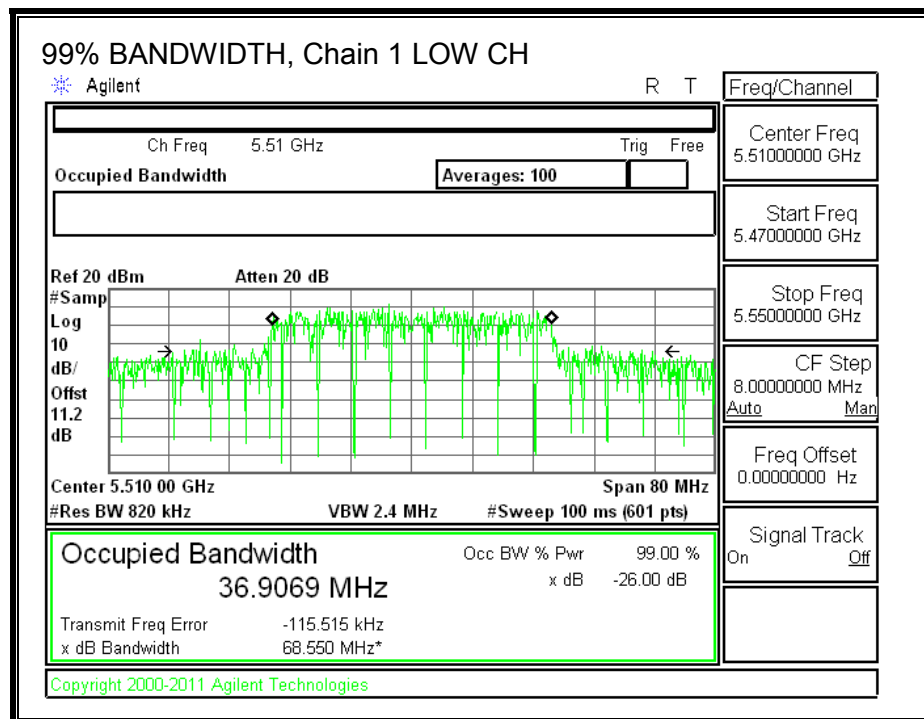
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Low	5510	36.9554	36.9069	37.3429
Mid	5550	37.2732	36.7588	37.4053
High	5670	36.8370	36.7167	37.2254

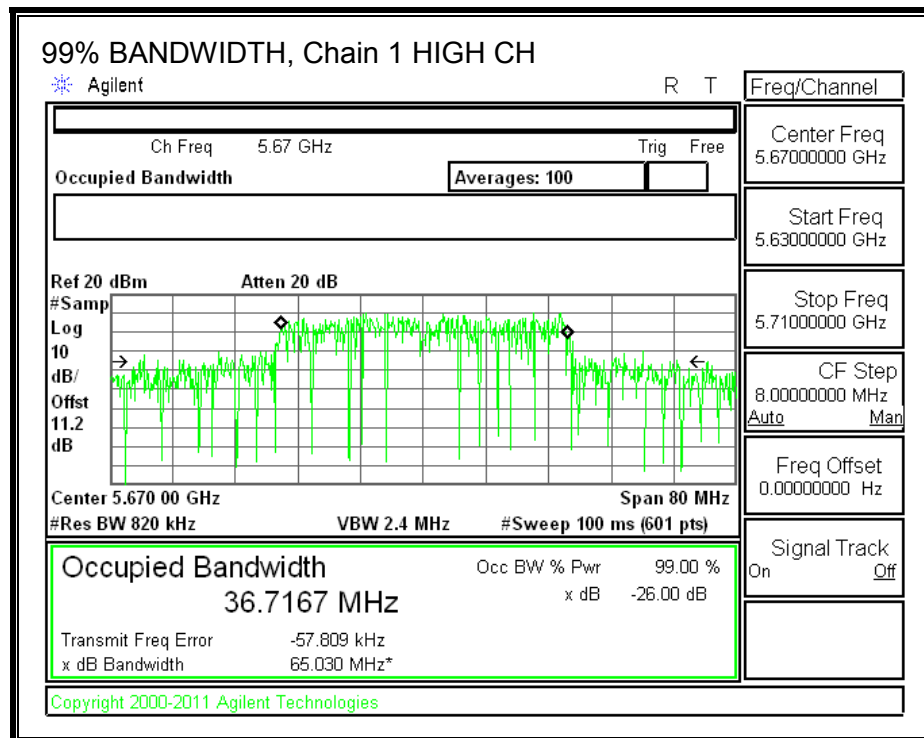
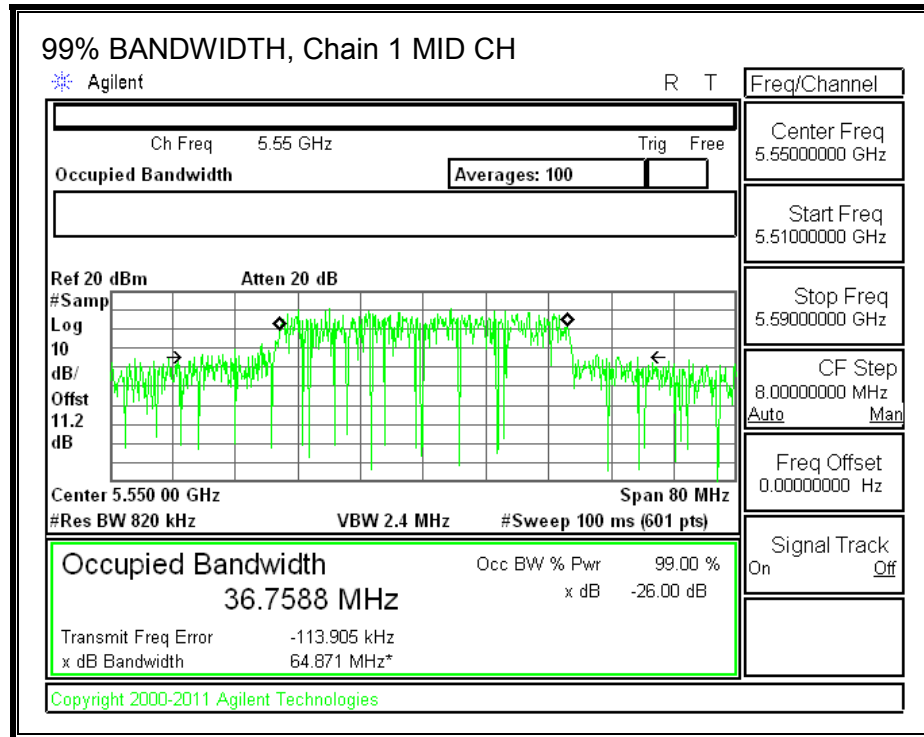
**99% BANDWIDTH, Chain 0**



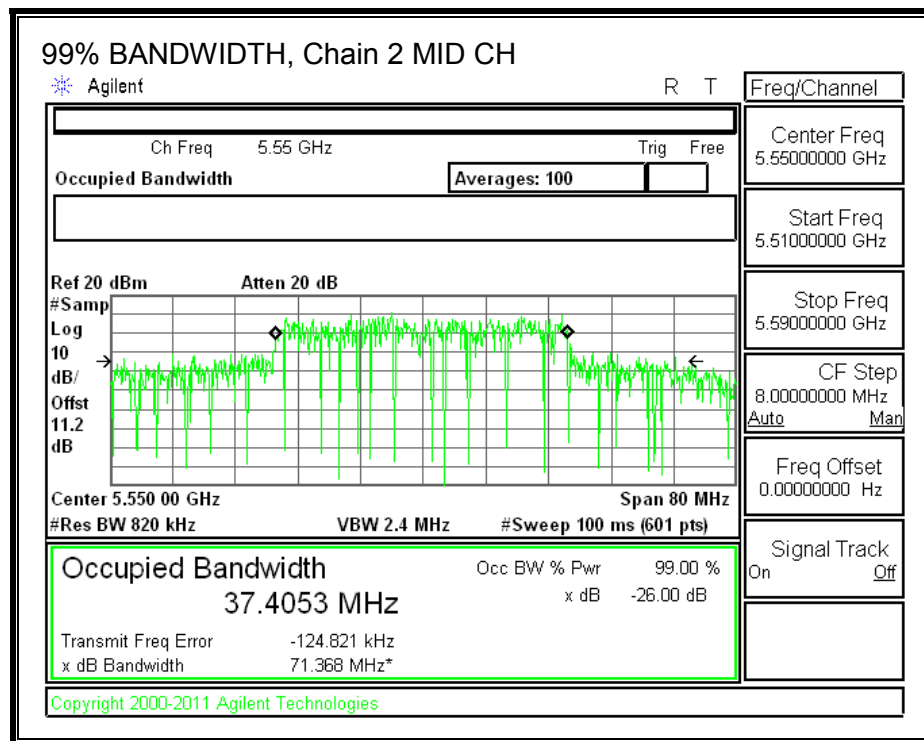
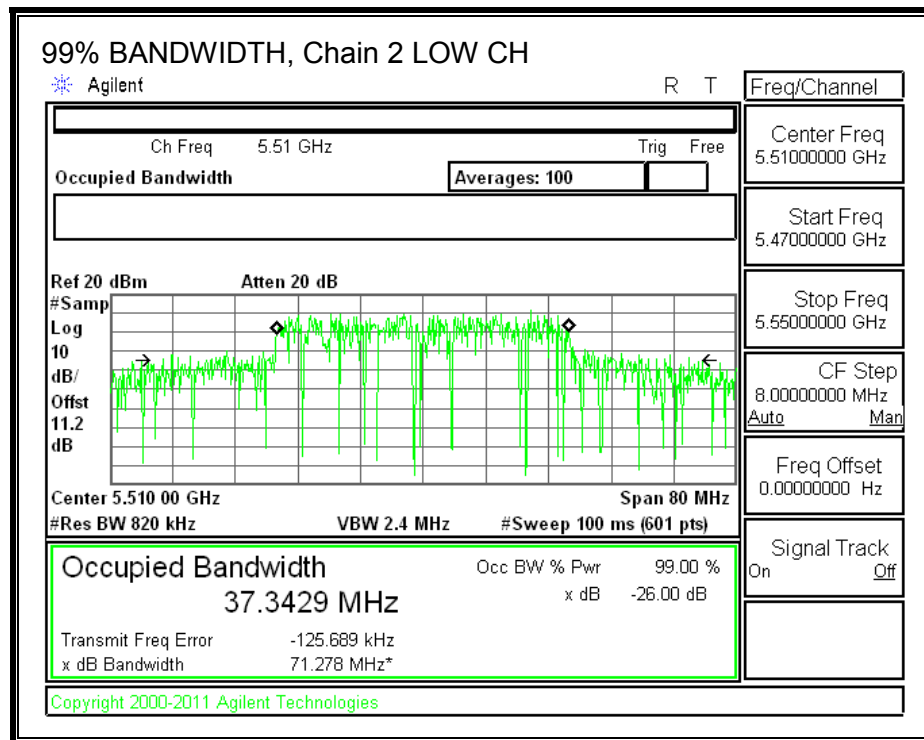


**99% BANDWIDTH, Chain 1**

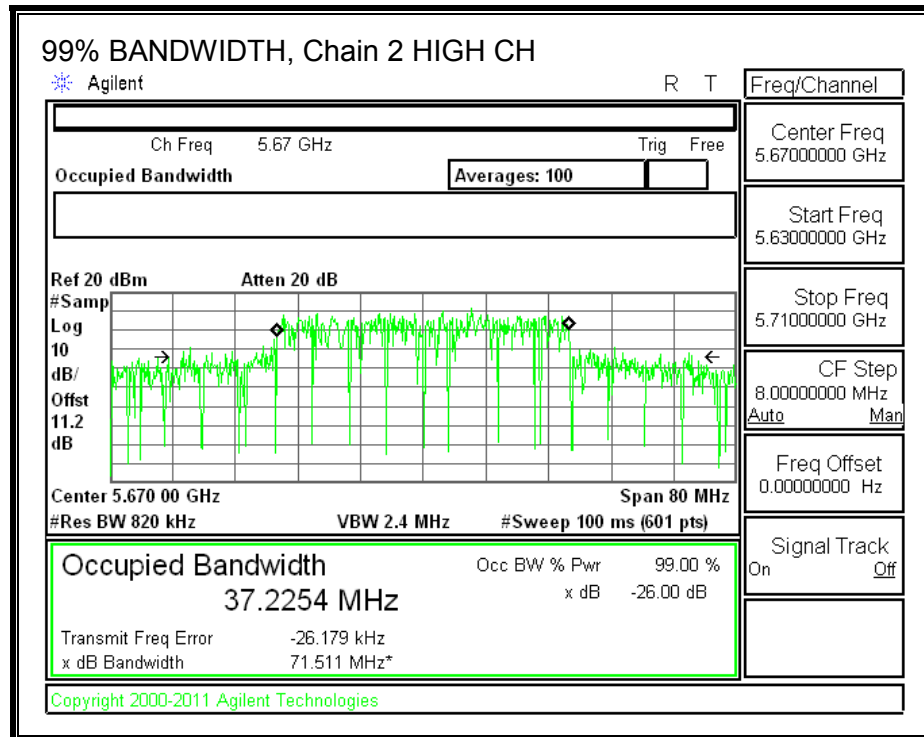




**99% BANDWIDTH, Chain 2**







### 8.24.3. OUTPUT POWER AND PPSD

#### LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 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 unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
4.72	2.09	2.85	3.36

## RESULTS

### Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5510	85.44	36.9069	3.36
Mid	5550	84.00	36.7588	3.36
High	5670	85.80	36.7167	3.36

### 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	5670	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.23	Included in Calculations of Corr'd PPSP
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### Output Power Results

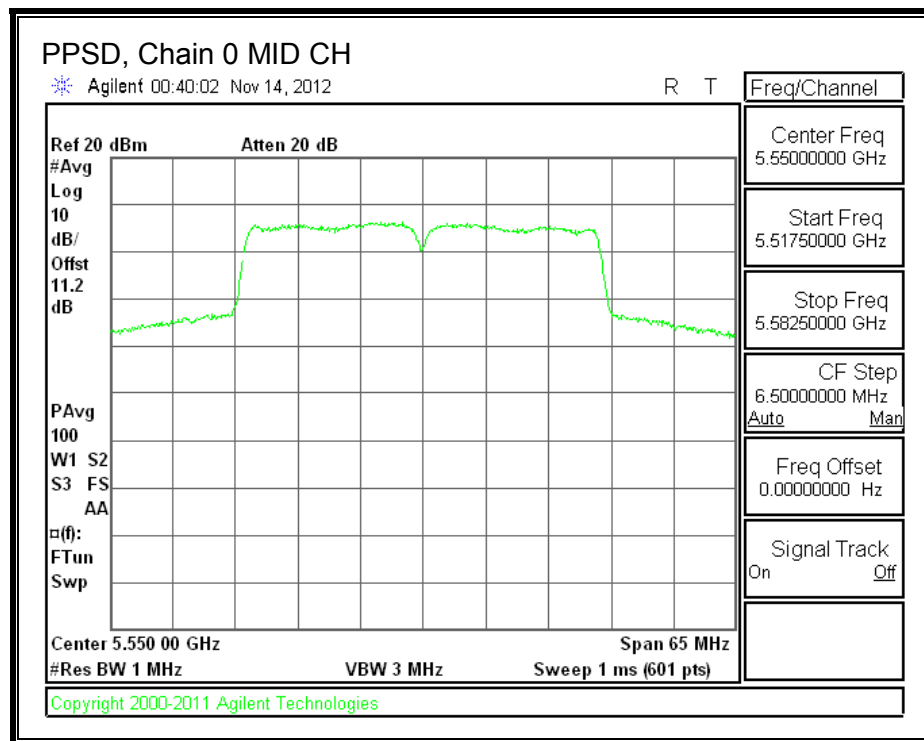
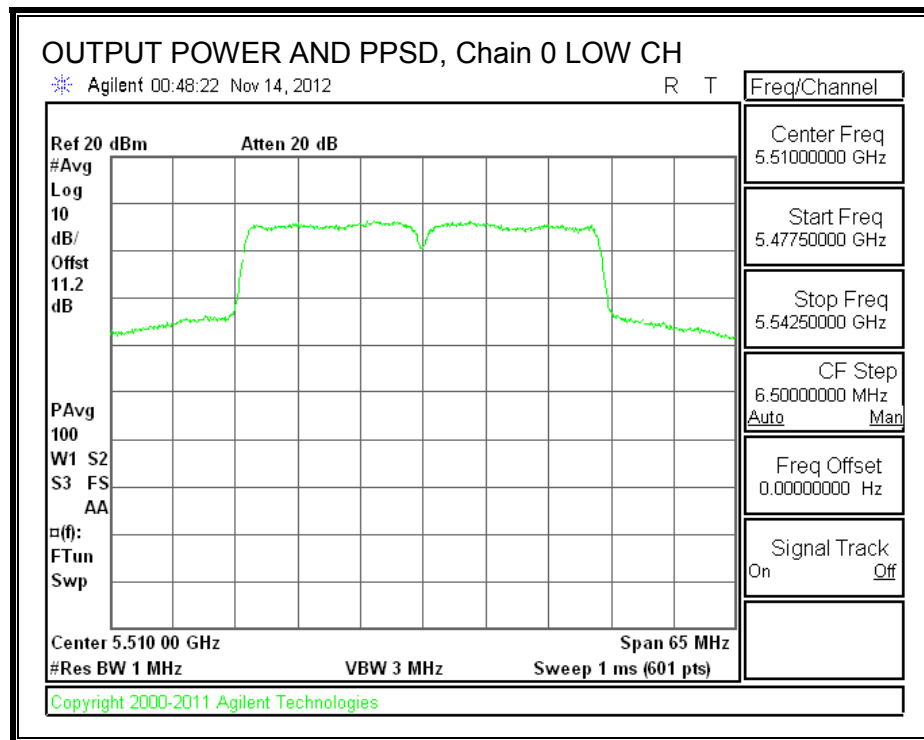
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	13.23	12.96	12.50	17.68	24.00	-6.32
Mid	5550	18.95	18.65	18.45	23.46	24.00	-0.54
High	5670	18.99	18.69	18.68	23.56	24.00	-0.44

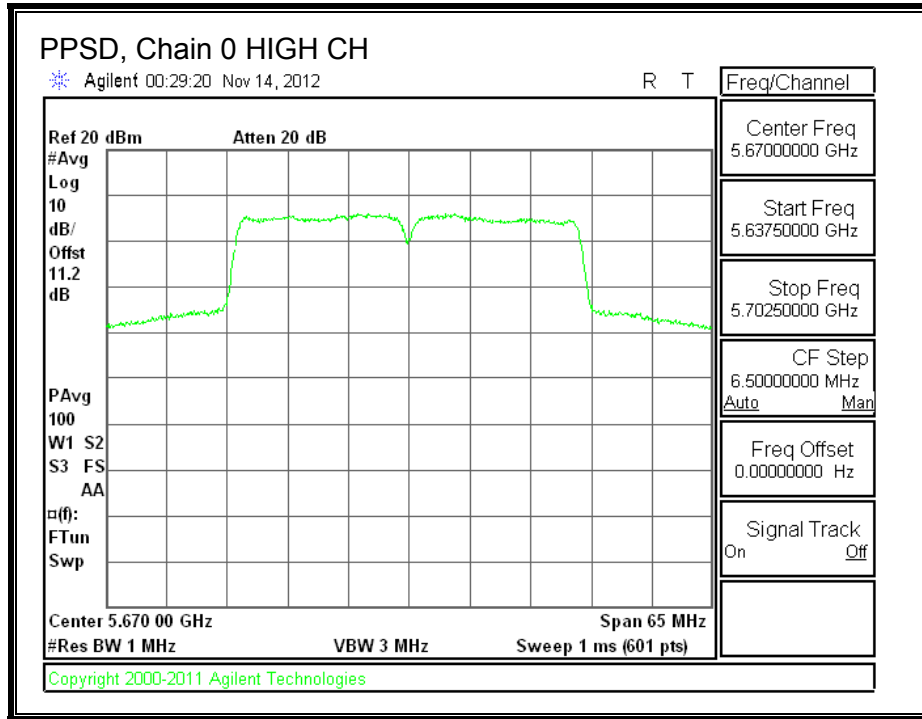
### PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5510	5.99	5.99	5.41	10.81	11.00	-0.19
Mid	5550	6.06	6.00	5.02	10.72	11.00	-0.28
High	5670	5.53	5.94	5.71	10.73	11.00	-0.27

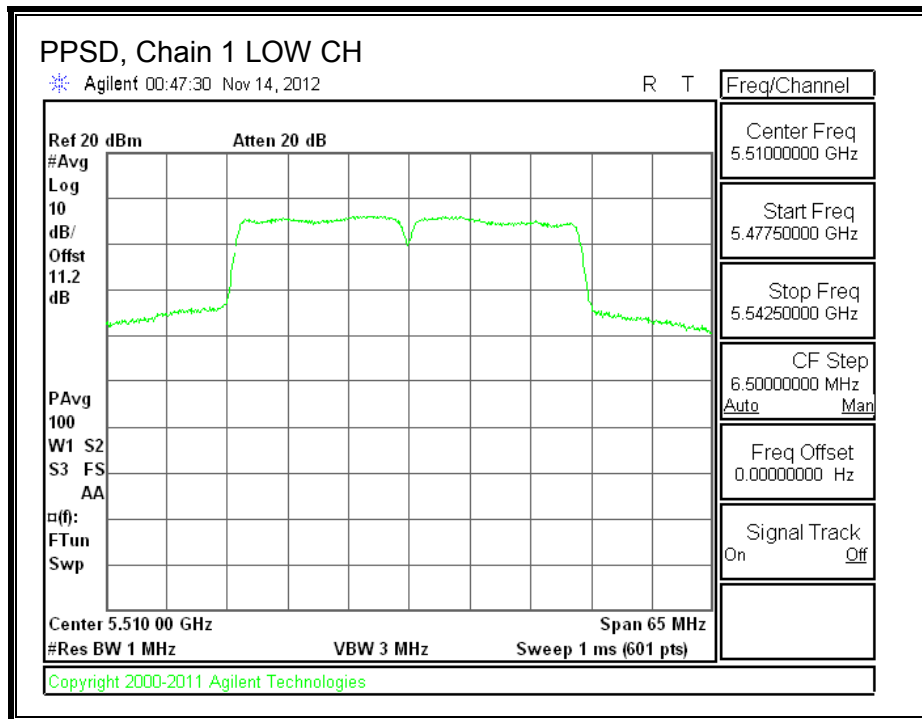
**Note:** method (1) "Measure and sum the spectra across the outputs" as specified in KDB 662911 D01 v01r02 was used for this PSD measurements.

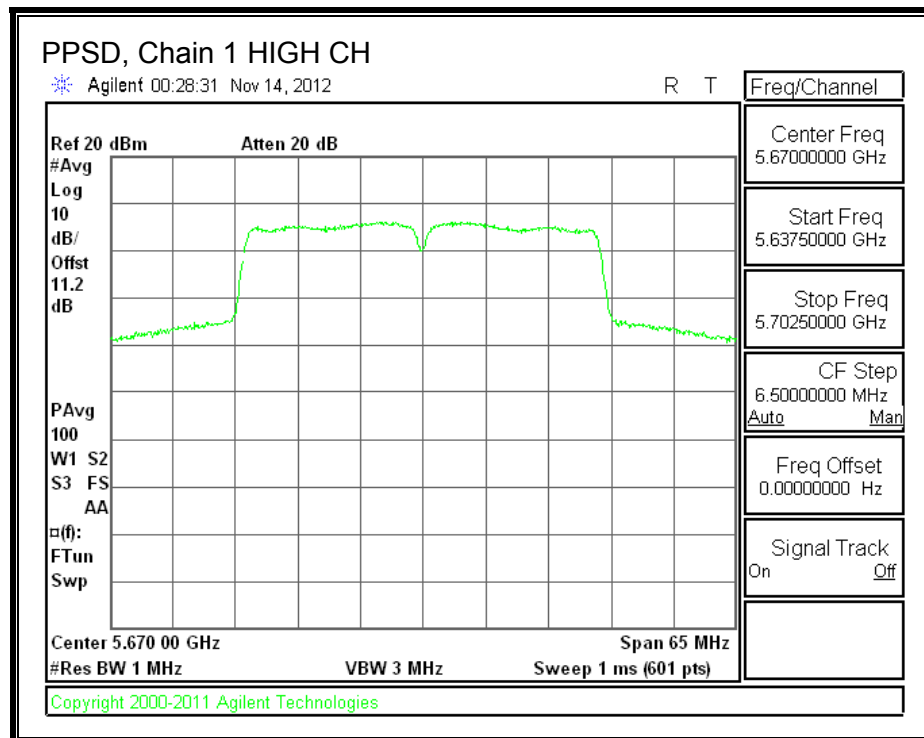
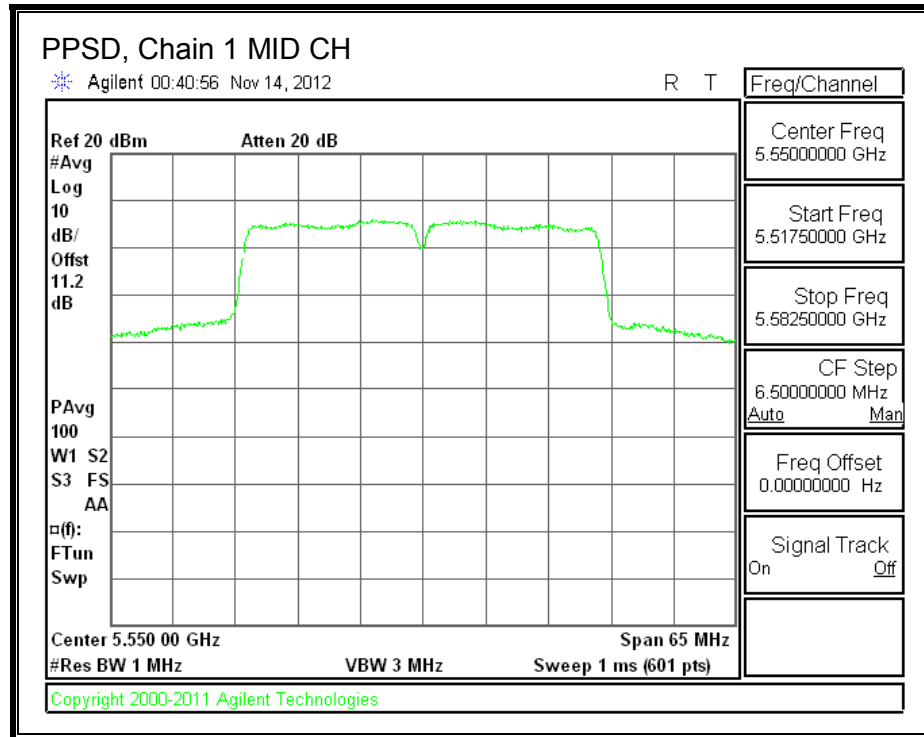
**PPSD, Chain 0**



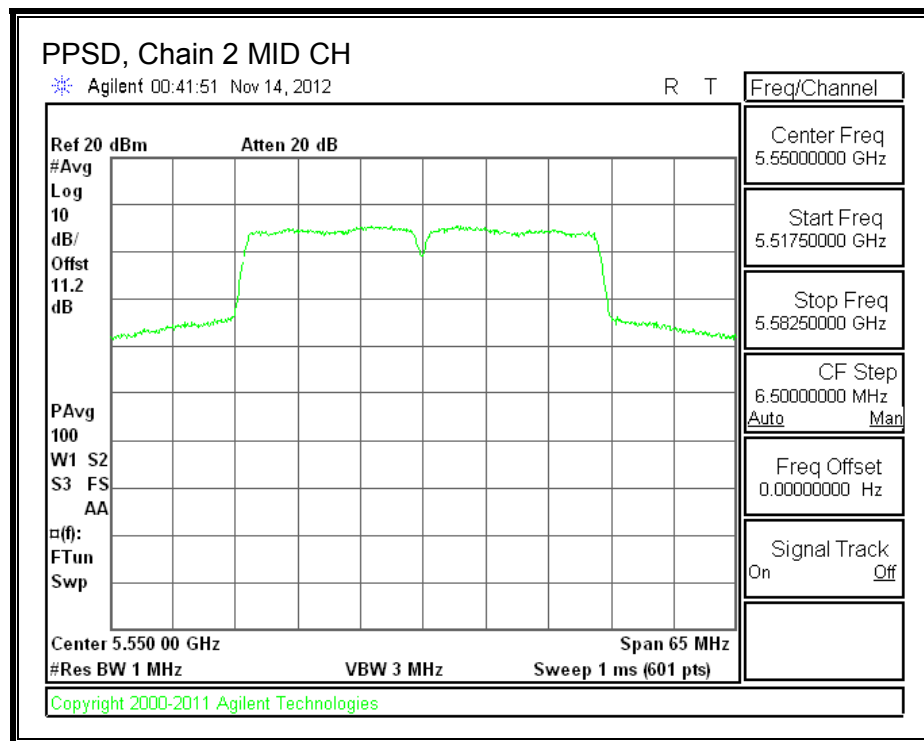
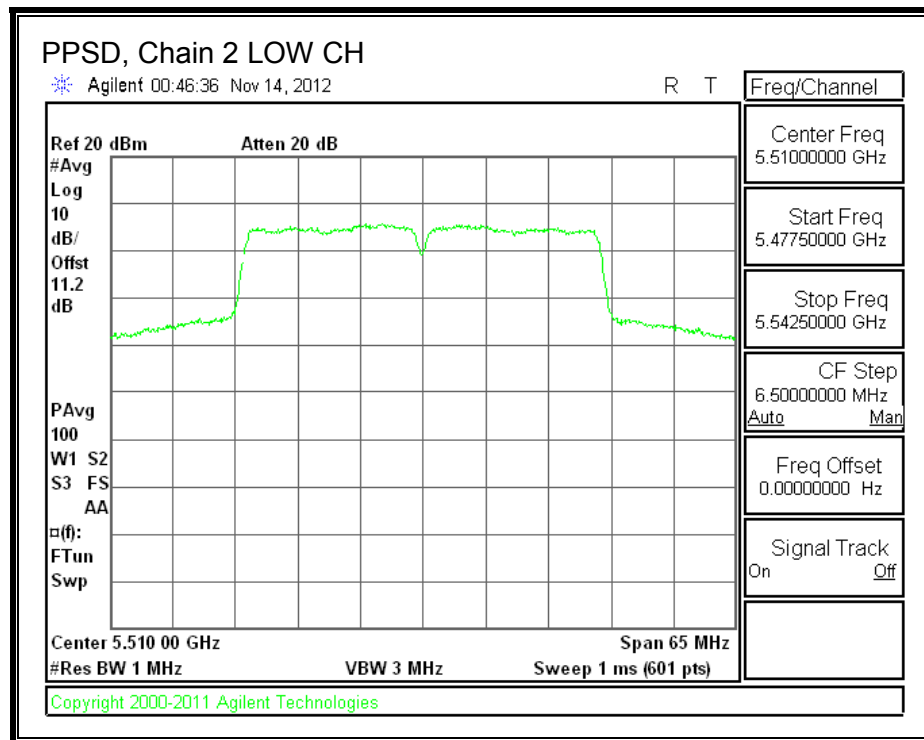


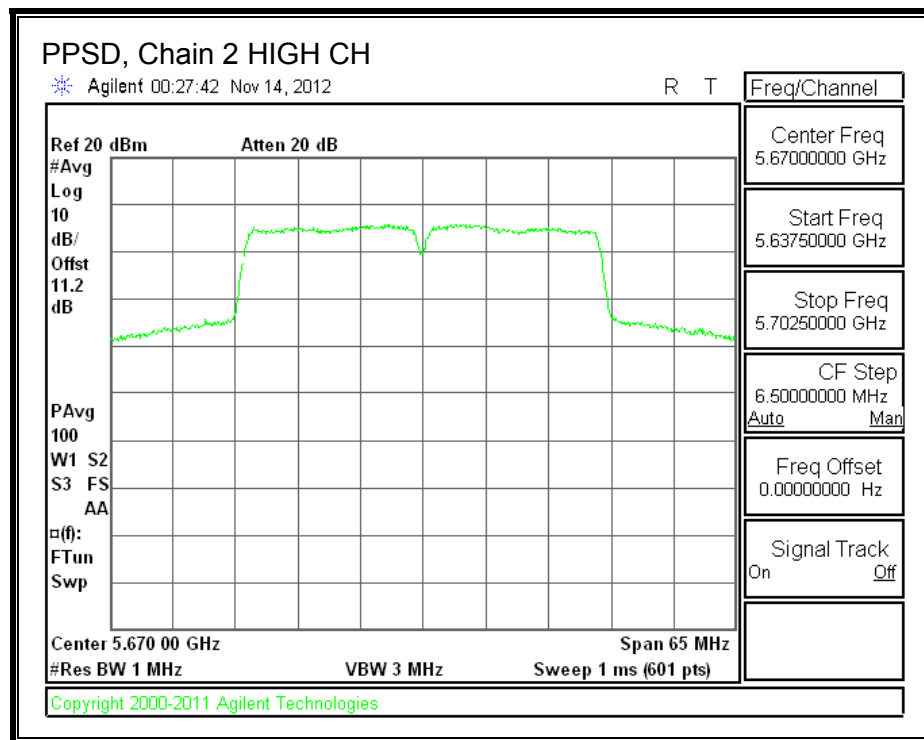
**PPSD, Chain 1**





**PPSD, Chain 2**







## 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.

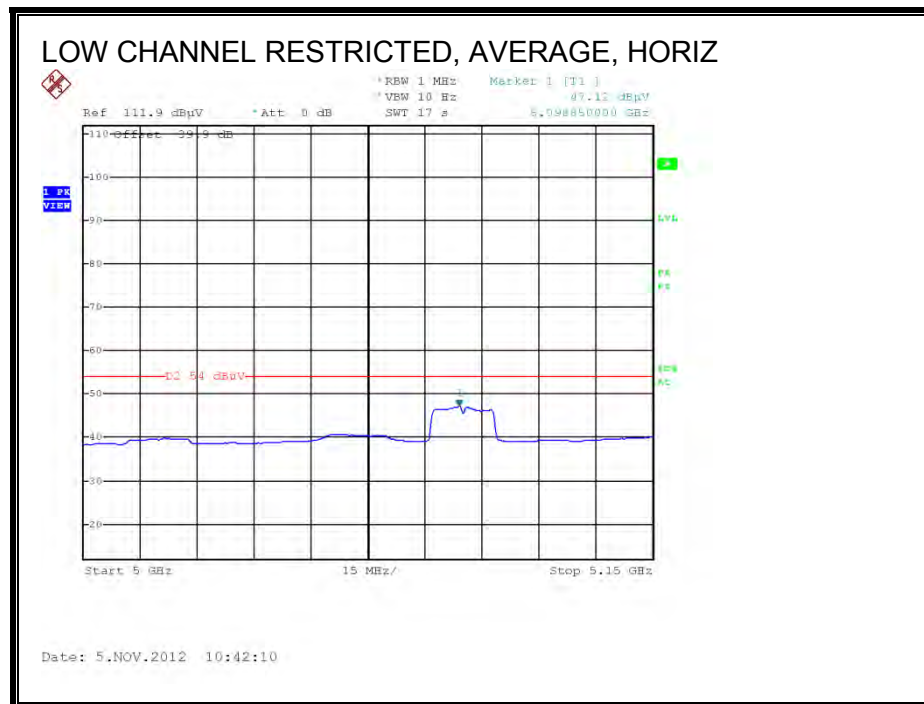
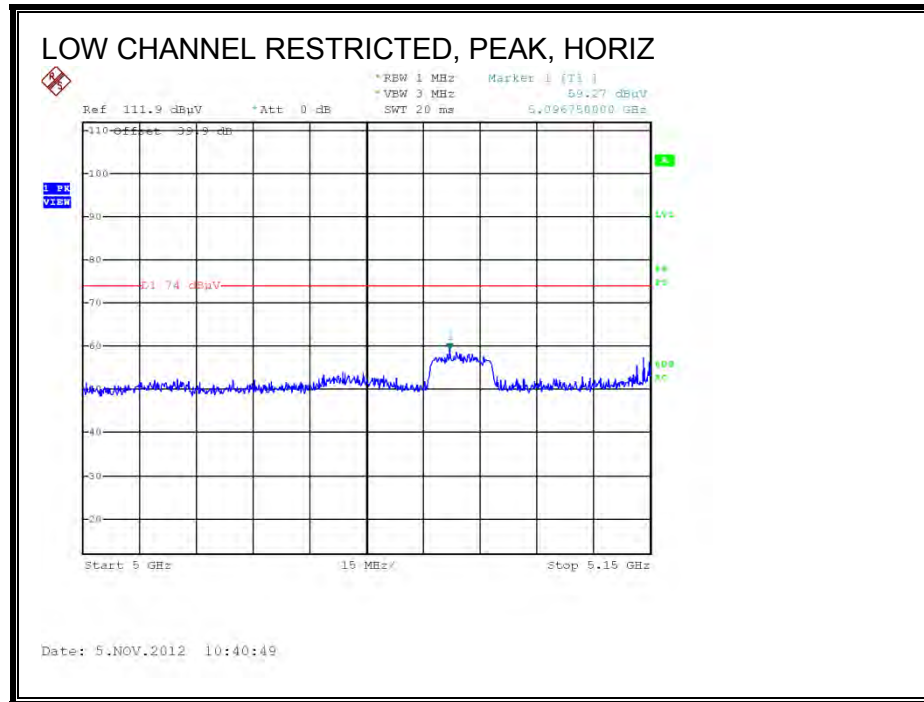
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

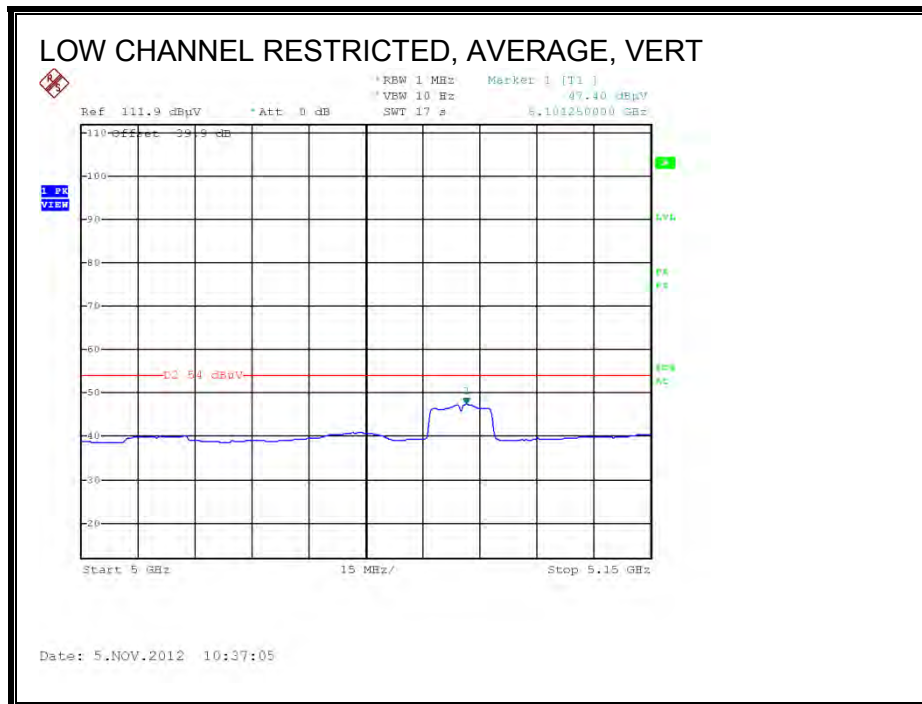
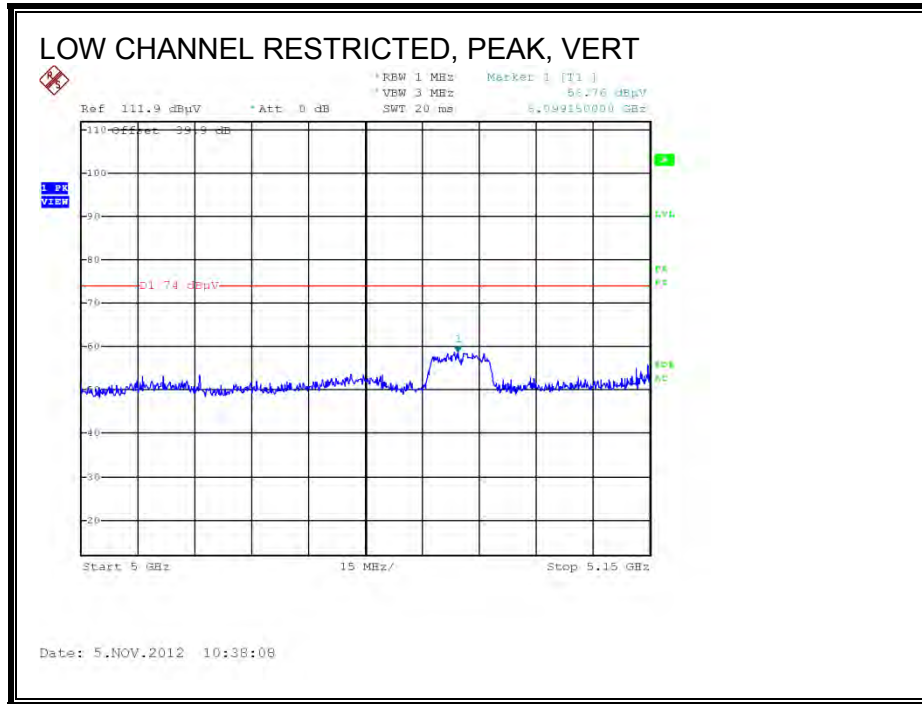
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

## 9.2. TRANSMITTER ABOVE 1 GHz

### 9.2.1. TX ABOVE 1 GHz 802.11a Legacy 1TX MODE, 5.2 GHz BAND

#### RESTRICTED BANDEDGE (LOW CHANNEL)





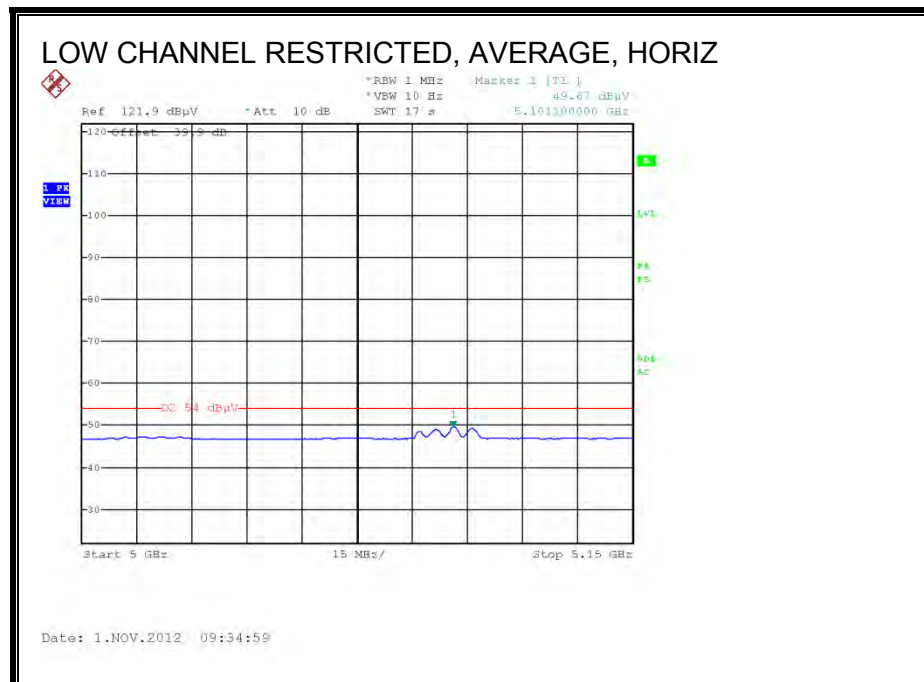
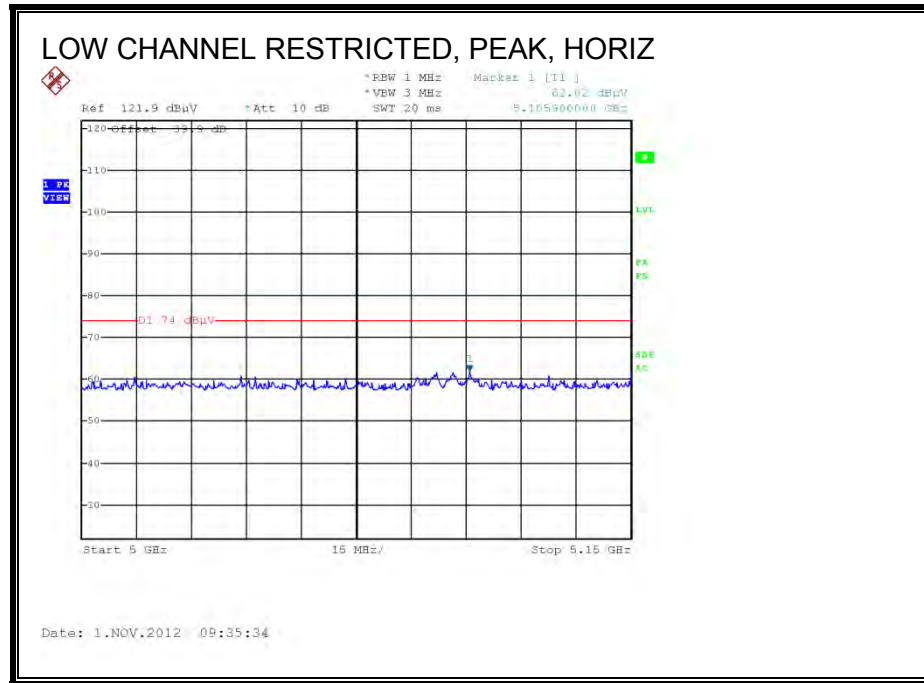
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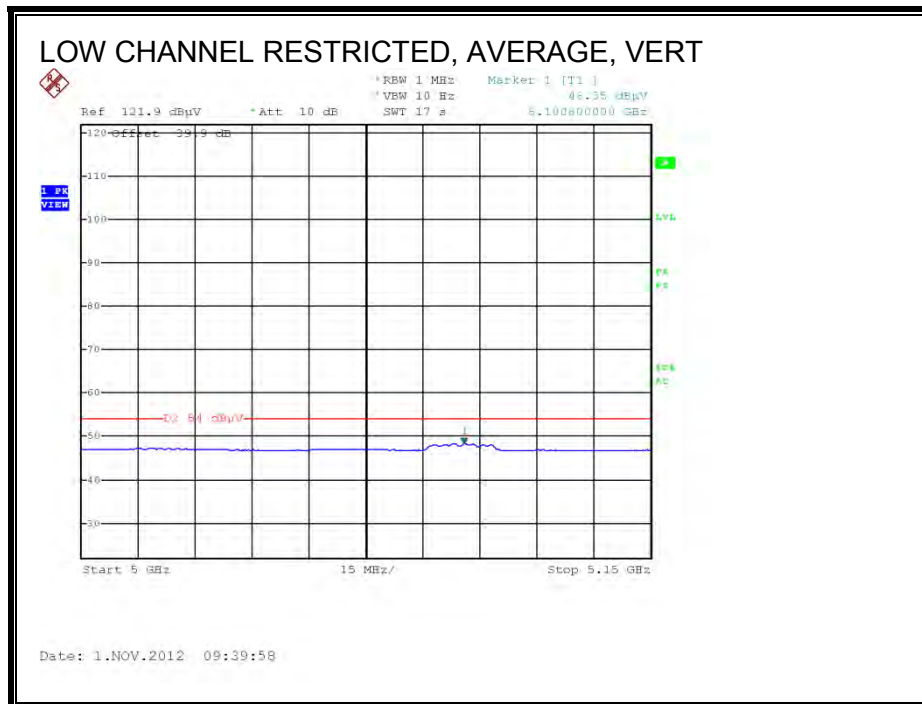
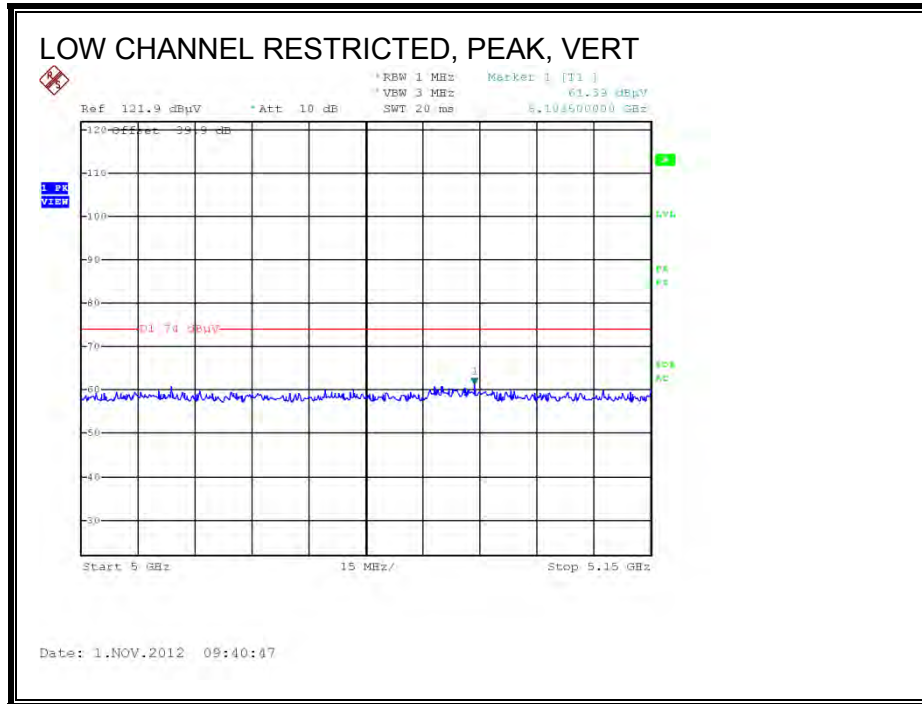
**HARMONICS AND SPURIOUS EMISSIONS**

Covered by testing HT20 CDD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

## 9.2.2. TX ABOVE 1 GHz 802.11n HT20 CDD 3TX MODE, 5.2 GHz BAND

### RESTRICTED BANDEDGE (LOW CHANNEL)



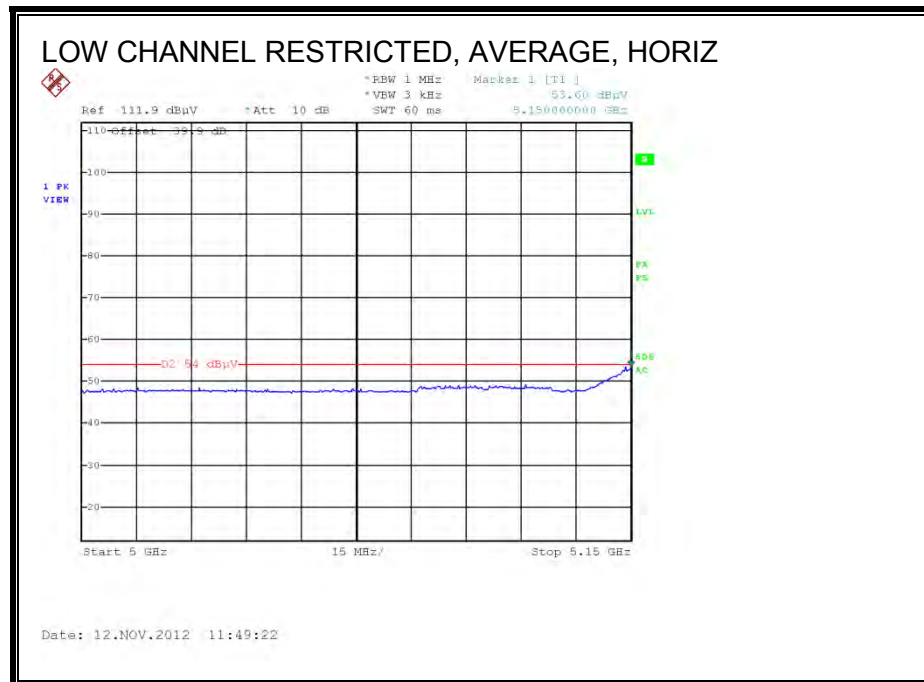
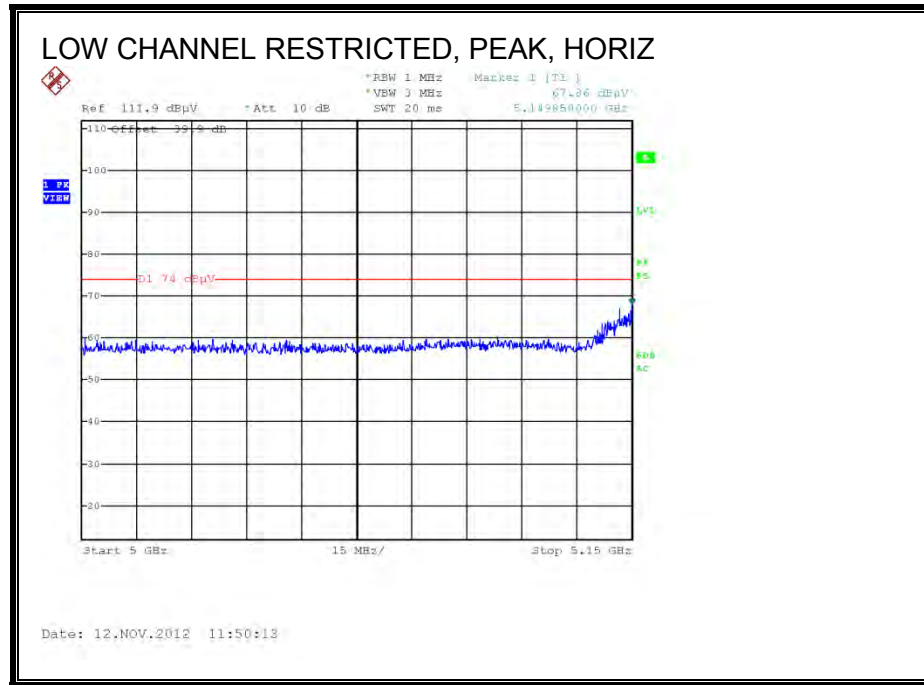


# HARMONICS AND SPURIOUS EMISSIONS

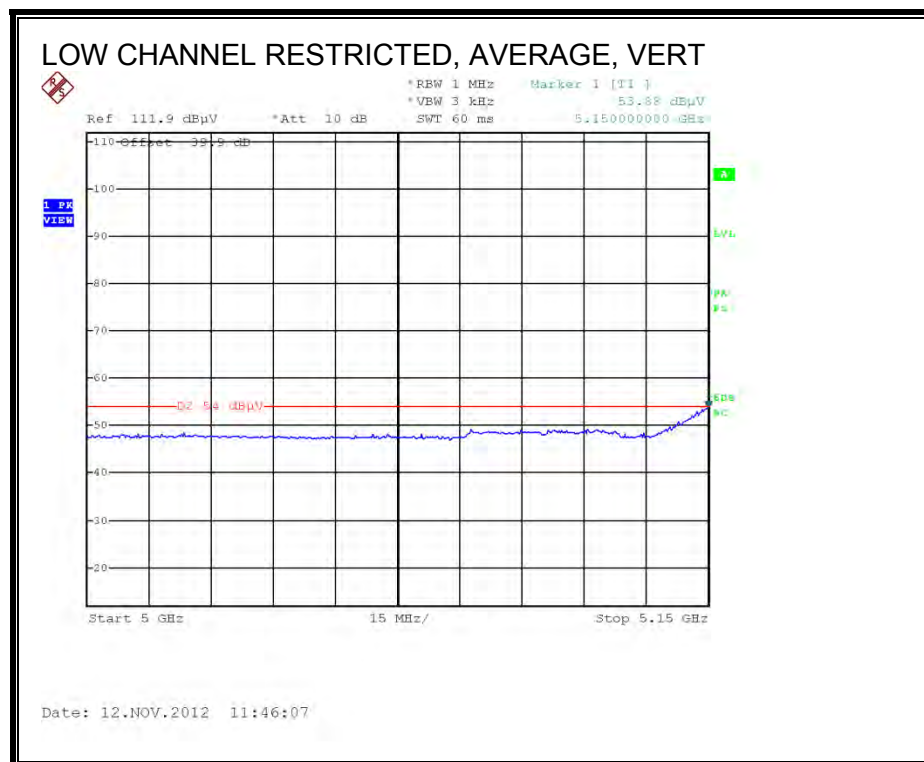
High Frequency Measurement																
Compliance Certification Services, Fremont 3m Chamber																
Company:		Broadcom														
Project #:		12U14669														
Date:		12/5/2012														
Test Engineer:		M. Mekuria/Danny Vu														
Configuration:		EUT, Adapter Board, Antenna														
Mode:		11n HT20 3TX mode														
Test Equipment:																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit				
T60; S/N: 2238 @3m			T34 HP 8449B			T88 Miteq 26-40GHz			T39; ARA 18-26GHz; S/N:1013			FCC 15.205				
Hi Frequency Cables																
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF			Reject Filter			Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz	
3' cable 22807700			12' cable 22807600			20' cable 22807500						R_001				
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr 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 (5180 MHz)																
15.540	3.0	44.5	33.9	39.1	13.0	-31.9	0.0	0.0	64.6	53.9	74	54	-9.4	-0.1	H, q80	
15.540	3.0	43.3	32.6	39.1	13.0	-31.9	0.0	0.0	63.4	52.7	74	54	-10.6	-1.3	V, q80	
Mid Channel (5200 MHz)																
15.600	3.0	43.5	33.3	38.8	13.0	-31.9	0.0	0.0	63.4	53.3	74	54	-10.6	-0.7	H, q85	
15.600	3.0		33.9	38.8	13.0	-31.9	0.0	0.0	19.9	53.8	74	54	-54.1	-0.2	V, q86	
High Channel (5240 MHz)																
15.720	3.0	37.2	25.8	38.4	13.1	-31.9	0.0	0.0	56.8	45.4	74	54	-17.2	-8.6	H, q88	
15.720	3.0	37.9	26.5	38.4	13.1	-31.9	0.0	0.0	57.5	46.1	74	54	-16.5	-7.9	V, q88	
Rev. 11.10.11																
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												

### 9.2.3. TX ABOVE 1 GHz 802.11n HT40 1TX MODE, 5.2 GHz BAND

#### RESTRICTED BANDEDGE (LOW CHANNEL)





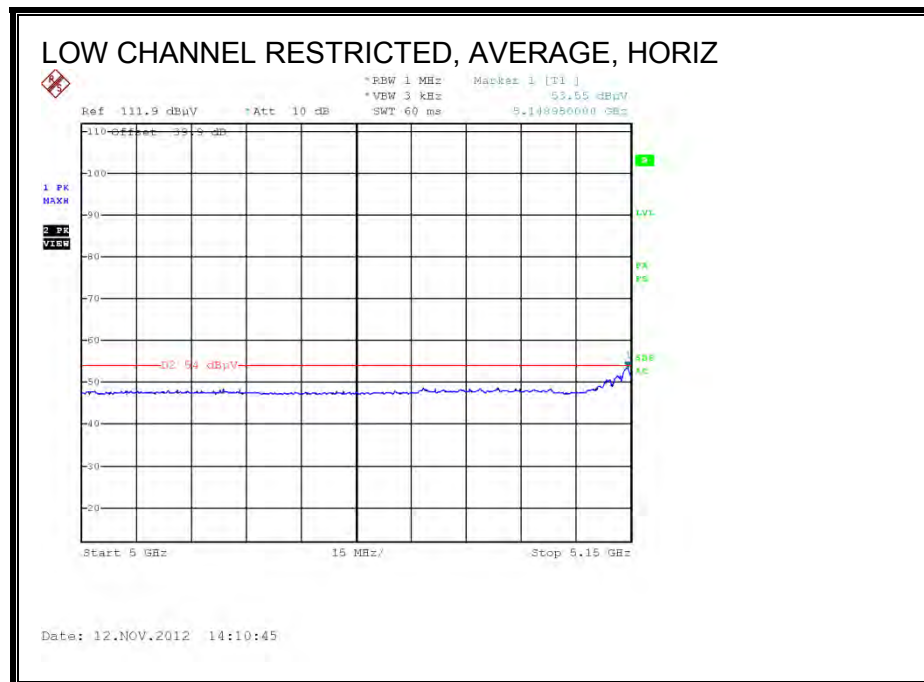
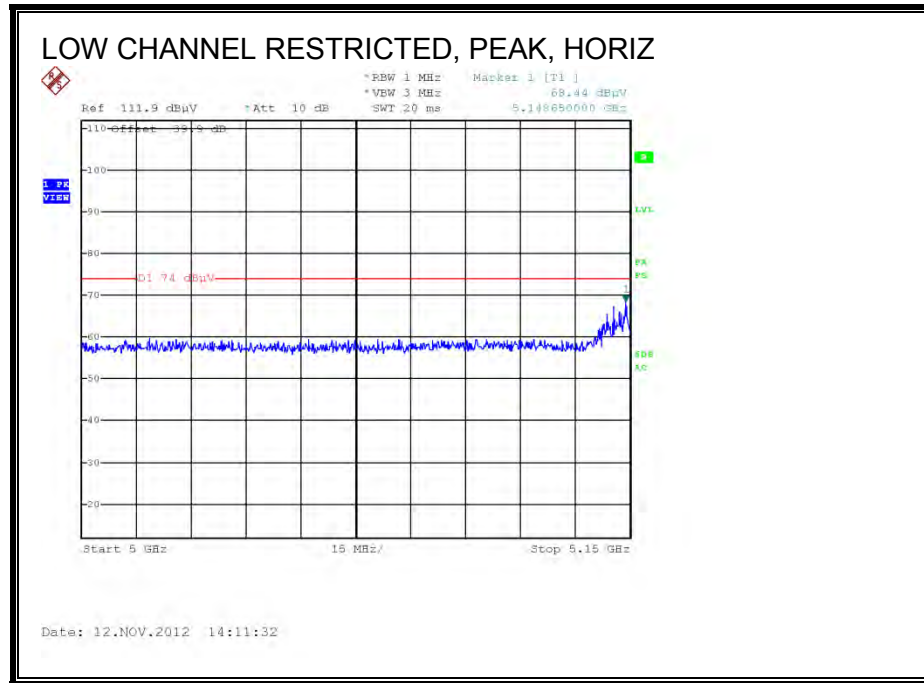


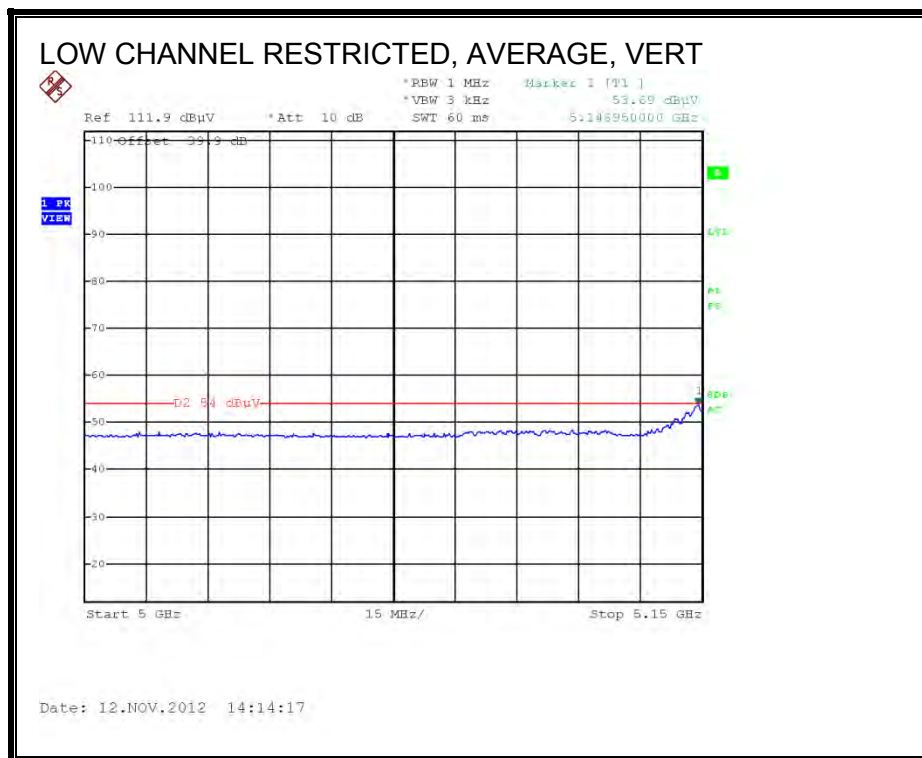
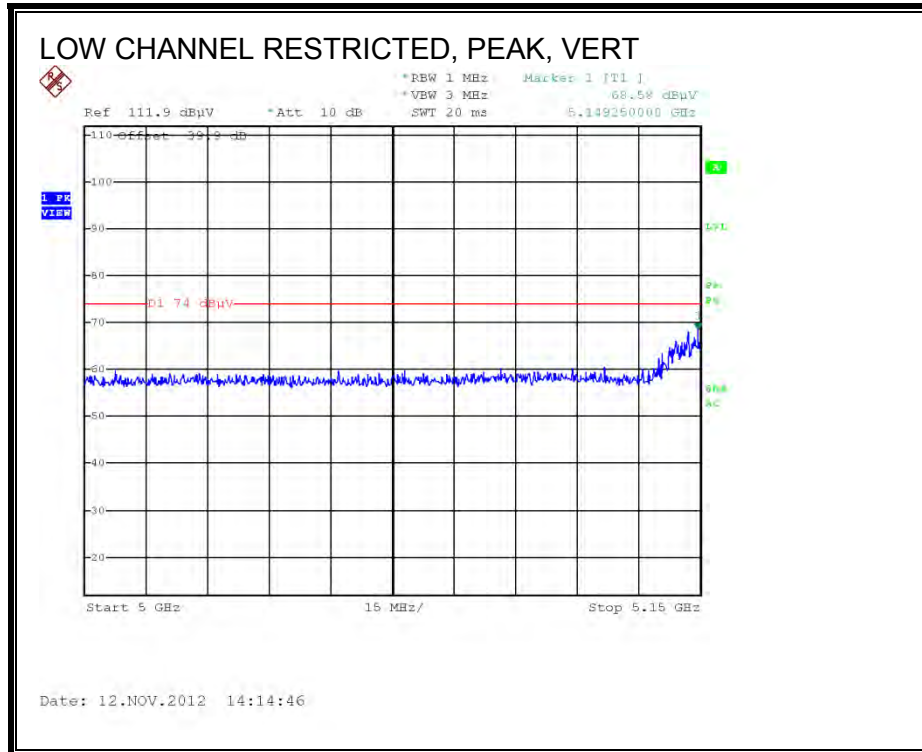
**HARMONICS AND SPURIOUS EMISSIONS**

Covered by testing 11n HT40 CCD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

## 9.2.4. TX ABOVE 1 GHz 802.11n HT40 CDD 3TX MODE, 5.2 GHz BAND

### RESTRICTED BANDEDGE (LOW CHANNEL)



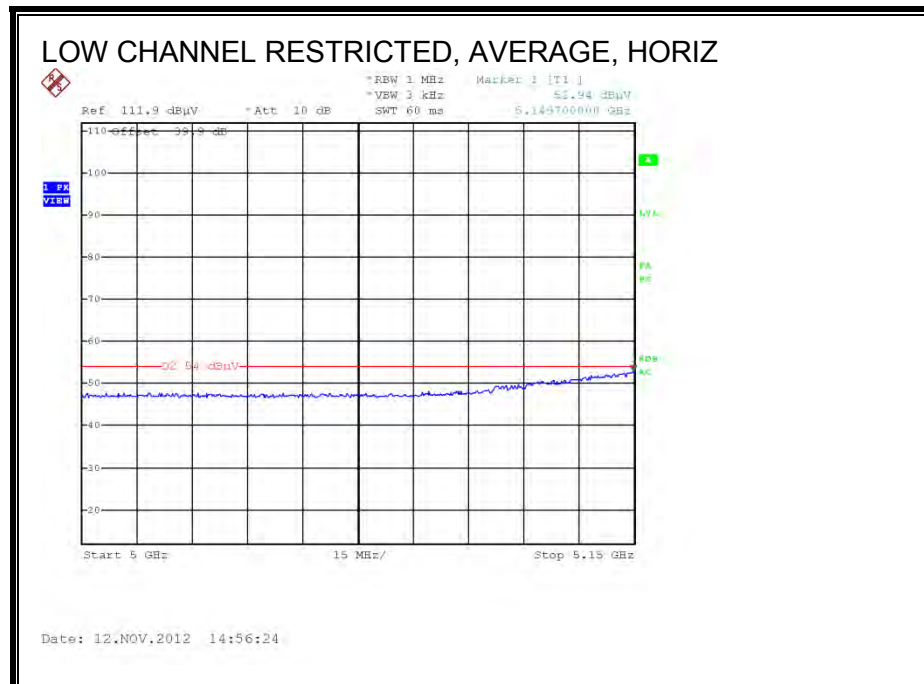
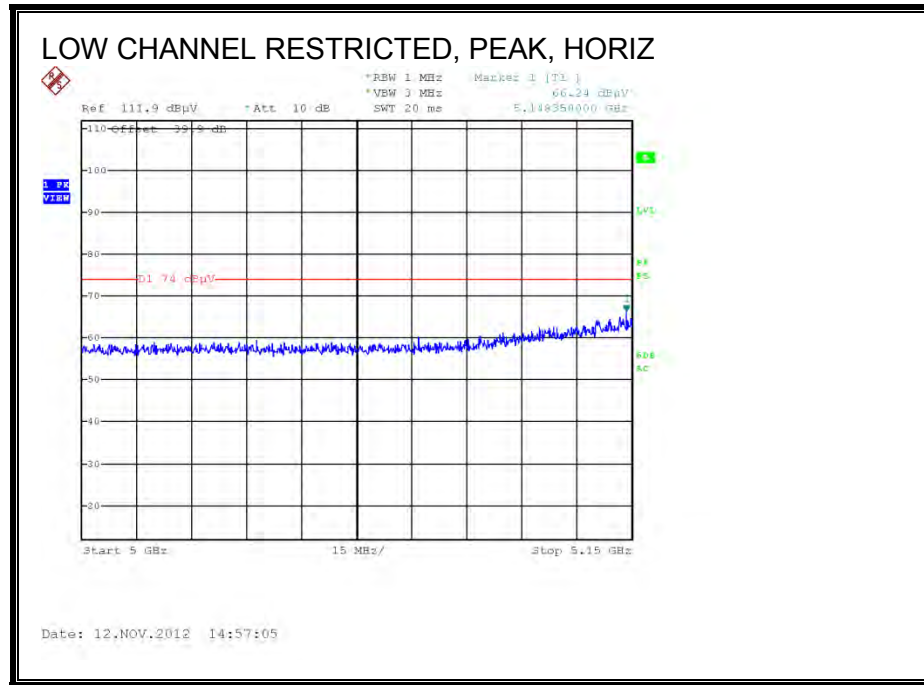


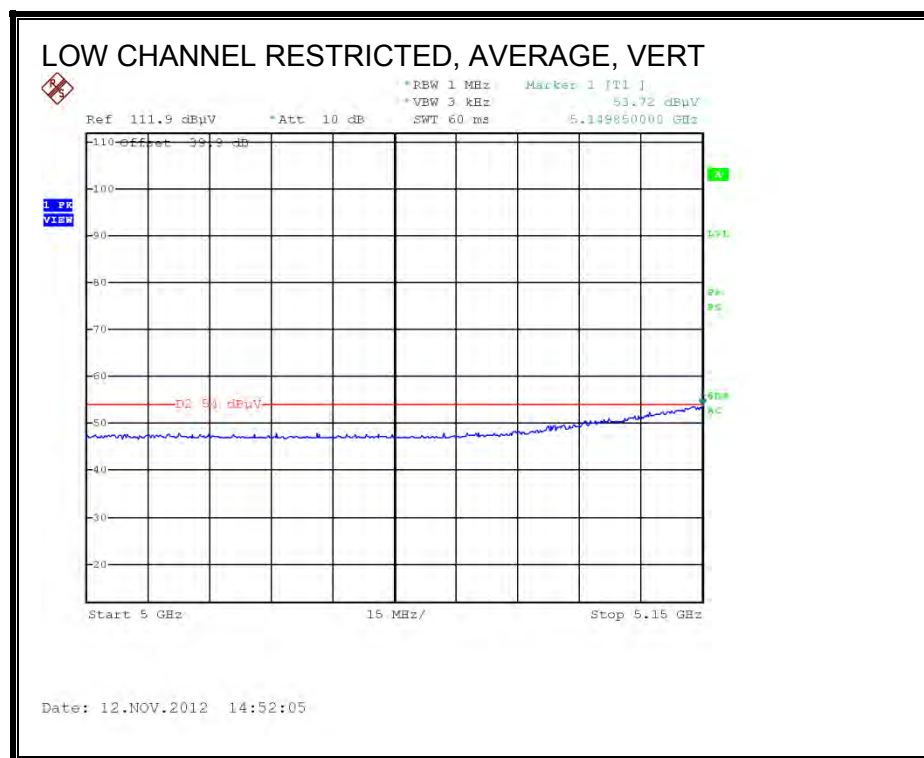
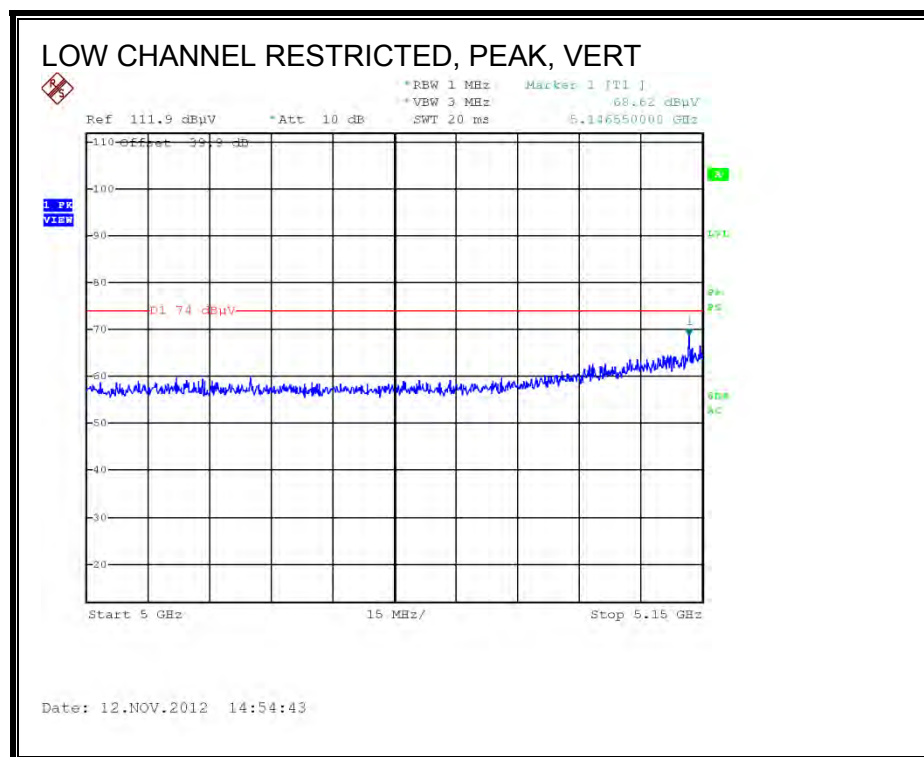
# HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement																	
Compliance Certification Services, Fremont 5m Chamber-A																	
Company:		Broadcom															
Project #:		12U14669															
Date:		12/7/2012															
Test Engineer:		D. Garcia/Danny Vu															
Configuration:		EUT, Adapter Board, Antenna															
Mode:		11n HT40 3TX mode															
Test Equipment:																	
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit					
T73; S/N: 6717 @3m			T144 Miteq 3008A00931			T88 Miteq 26-40GHz			T39; ARA 18-26GHz; S/N:1013			FCC 15.205					
Hi Frequency Cables																	
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF			Reject Filter		Peak Measurements RBW=1MHz, BW=3MHz Average Measurements RBW=1MHz ; VBW=1.1kHz			
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF_7.6GHz								
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr 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 (5190.0 MHz)																	
15.570	3.0	48.1	36.0	38.9	12.2	-34.0	0.0	0.7	65.9	53.9	74	54	-8.1	-0.1	H, q81		
15.570	3.0	46.5	34.3	38.9	12.2	-34.0	0.0	0.7	64.4	52.2	74	54	-9.6	-1.8	V, q81		
High Channel (5230 MHz)																	
15.690	3.0	49.4	35.6	38.5	12.3	-34.0	0.0	0.7	66.9	53.2	74	54	-7.1	-0.8	H, q83		
15.690	3.0	47.4	33.5	38.5	12.3	-34.0	0.0	0.7	65.0	51.1	74	54	-9.0	-2.9	V, q83		
Rev. 11.10.11																	
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										

## 9.2.5. TX ABOVE 1 GHz 802.11n AC80 1TX MODE, 5.2 GHz BAND

### RESTRICTED BANDEDGE (LOW CHANNEL)





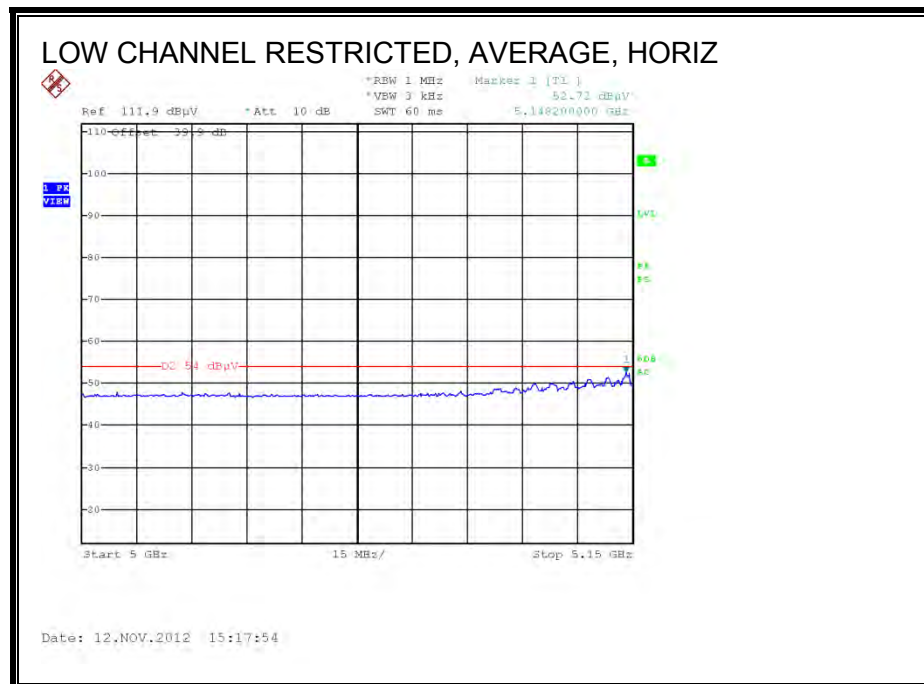
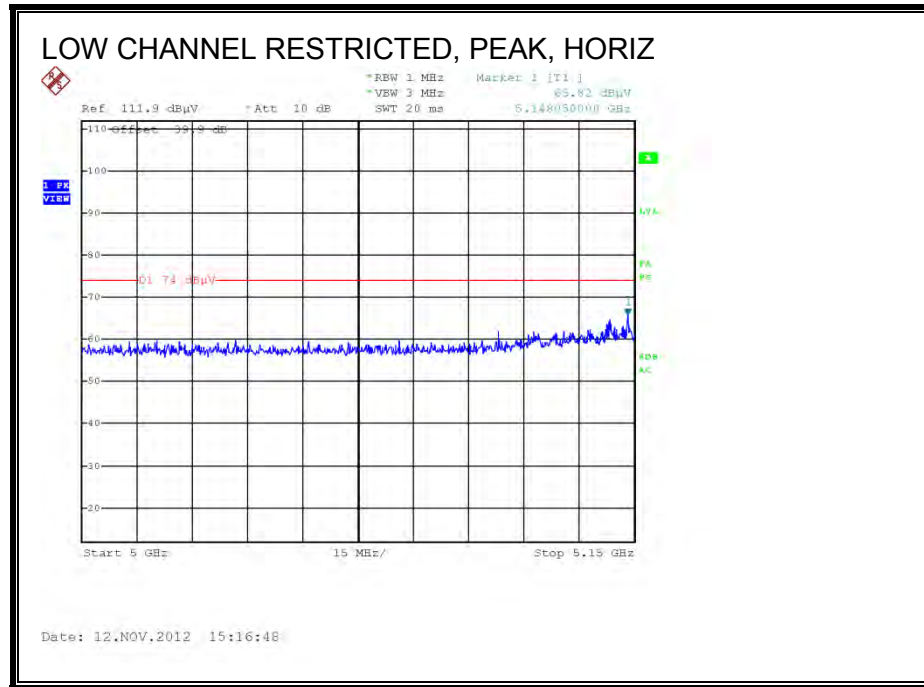
**HARMONICS AND SPURIOUS EMISSIONS**

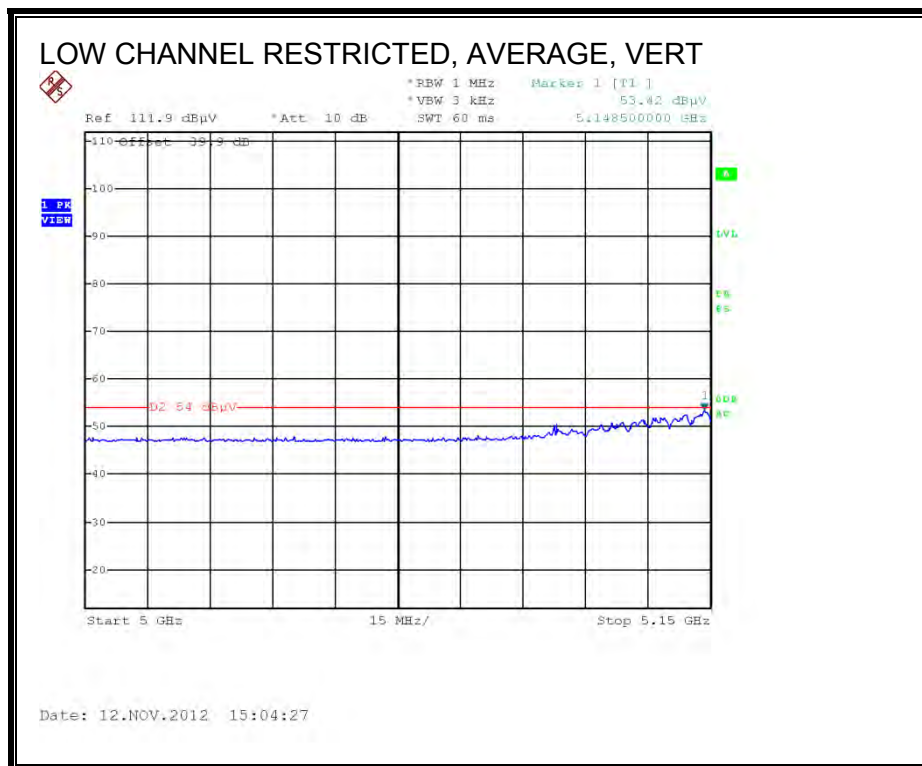
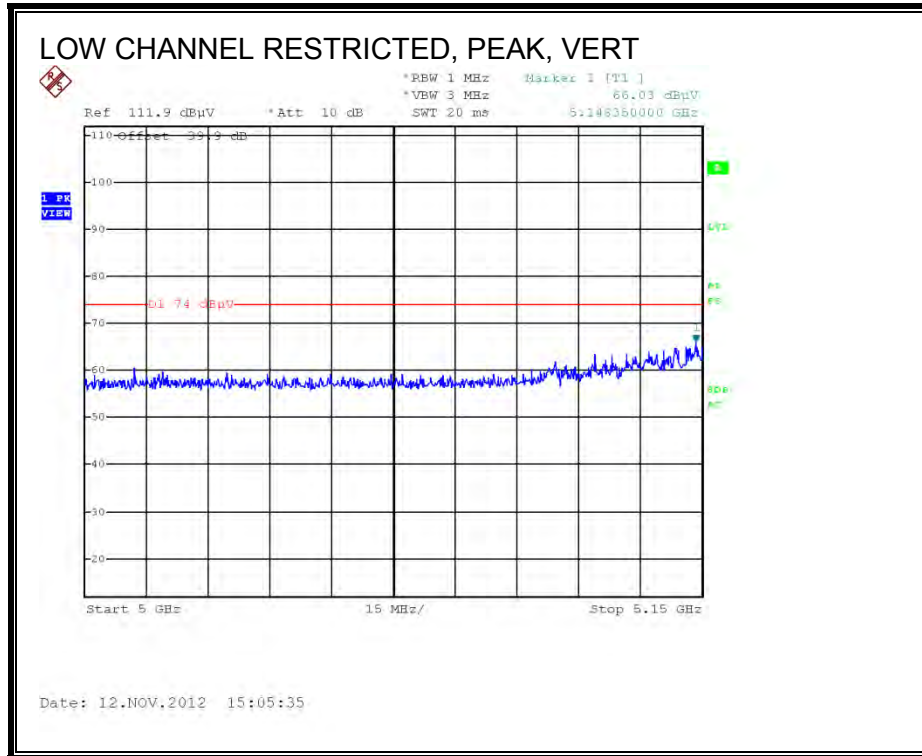
Covered by testing 11n AC80 CCD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.



## 9.2.6. TX ABOVE 1 GHz 802.11n AC80 CDD 3Tx MODE, 5.2 GHz BAND

### RESTRICTED BANDEDGE (LOW CHANNEL)



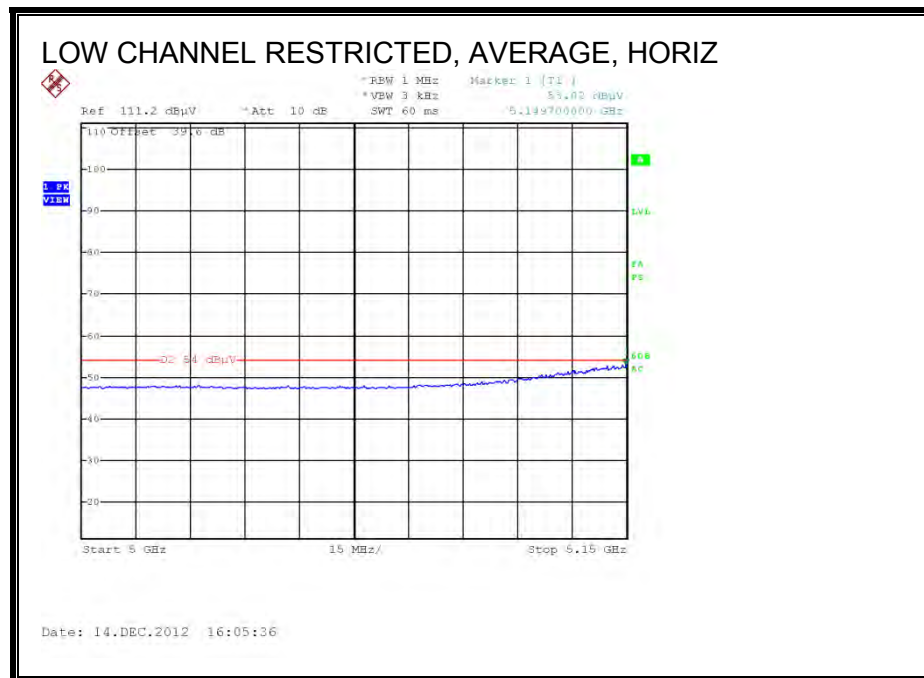
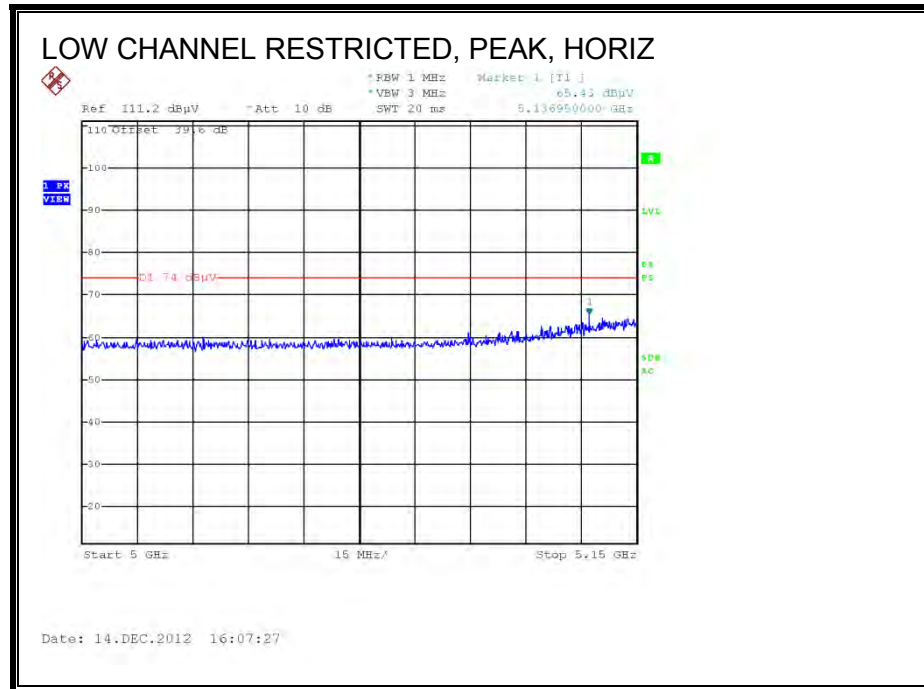


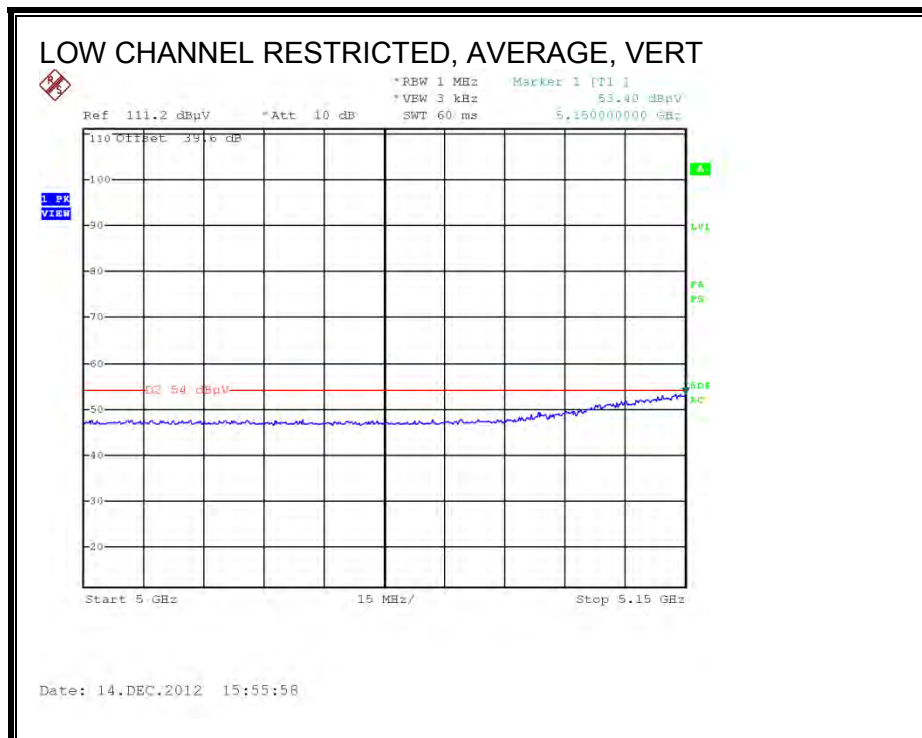
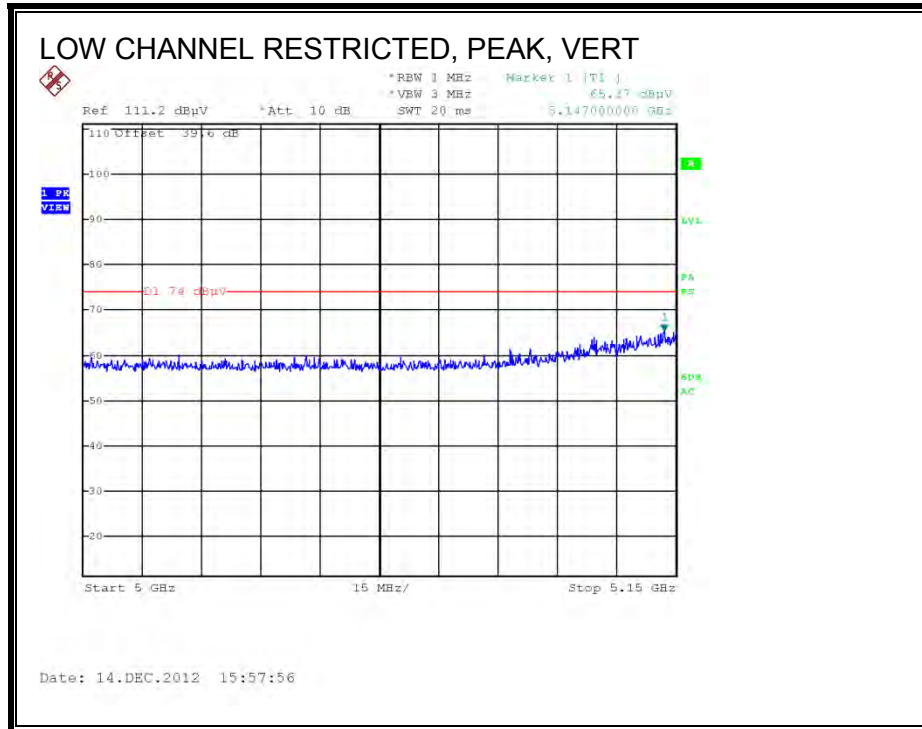
# HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement																	
Compliance Certification Services, Fremont 5m Chamber-A																	
Company:		Broadcom															
Project #:		12U14669															
Date:		12/9/2012															
Test Engineer:		M. Mekuria															
Configuration:		EUT, Adapter Board, Antenna															
Mode:		11n HT80 3TX mode															
<b>Test Equipment:</b>																	
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit					
T73; S/N: 6717 @3m			T144 Miteq 3008A00931			T88 Miteq 26-40GHz			T39; ARA 18-26GHz; S/N:1013			FCC 15.205					
Hi Frequency Cables																	
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF			Reject Filter			Peak Measurements RBW=1MHz, BW=3MHz Average Measurements RBW=1MHz ; VBW=1.1kHz		
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF_7.6GHz								
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr 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 (5210.0 MHz)																	
15.630	3.0	47.3	36.0	38.7	12.2	-34.0	0.0	0.7	65.0	53.7	74	54	-9.0	-0.3	H, q85		
15.630	3.0	43.7	31.9	38.7	12.2	-34.0	0.0	0.7	61.3	49.6	74	54	-12.7	-4.4	V, q85		
Rev. 11.10.11																	
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												

## 9.2.7. TX ABOVE 1 GHz 802.11n AC80 BF 3Tx MODE, 5.2 GHz BAND

### RESTRICTED BANDEDGE (LOW CHANNEL)



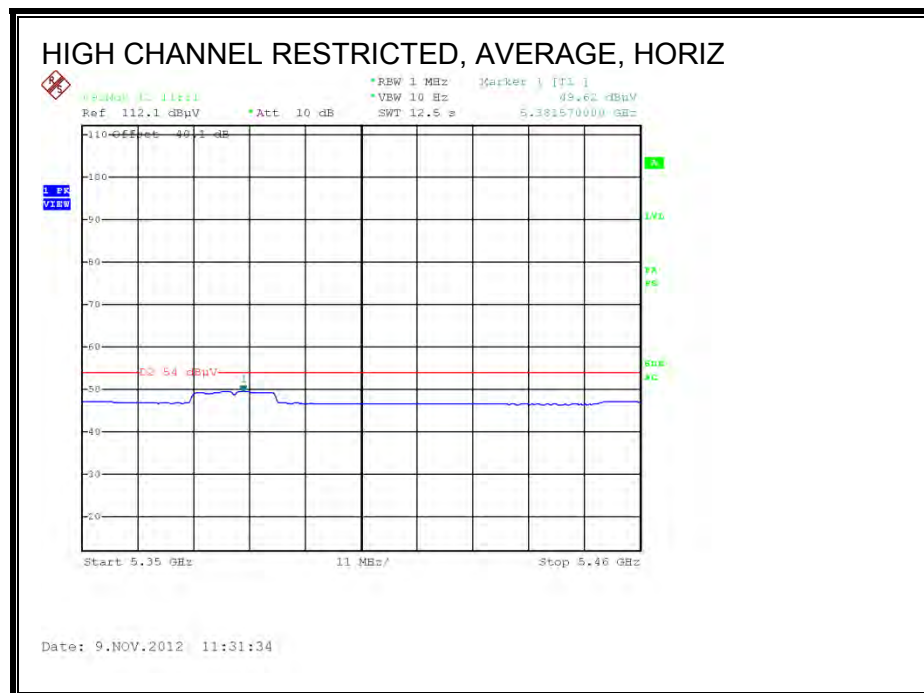
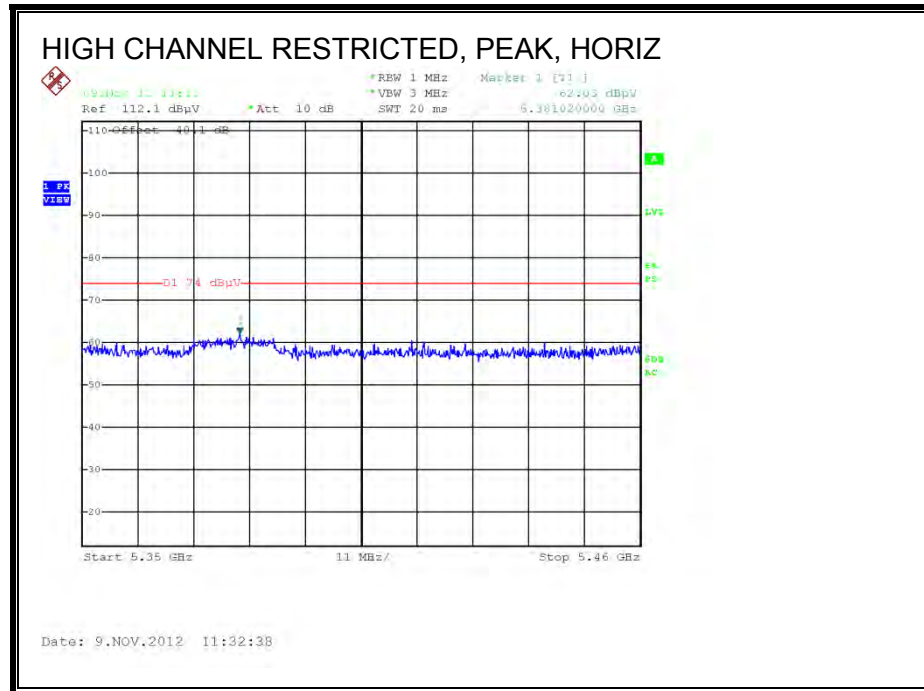


## HARMONICS AND SPURIOUS EMISSIONS

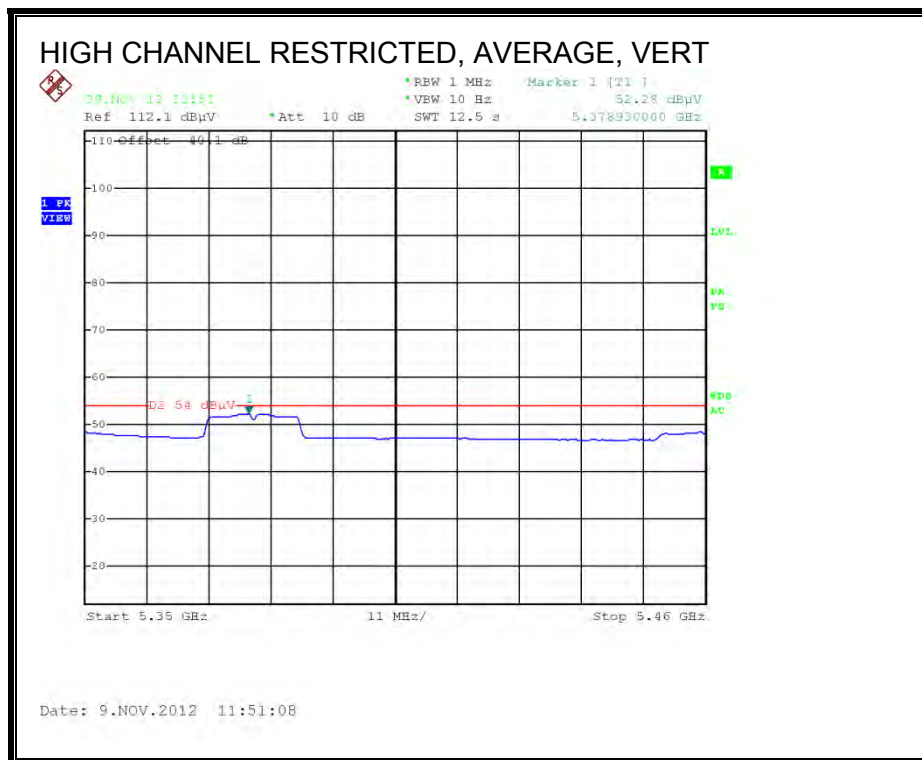
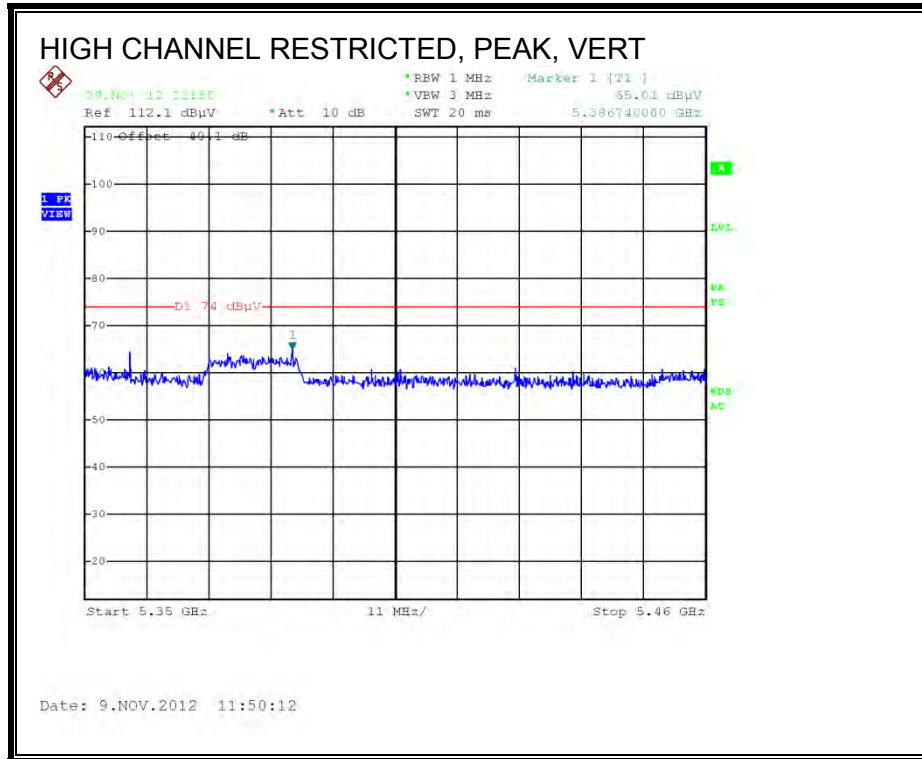
High Frequency Measurement																	
Compliance Certification Services, Fremont 5m Chamber-A																	
Company:		Broadcom															
Project #:		12U14669															
Date:		12/13/2012															
Test Engineer:		M. Mekuria															
Configuration:		EUT, Adapter Board, Antenna															
Mode:		11n HT80 BF 3TX mode															
<b>Test Equipment:</b>																	
Horn 1-18GHz				Pre-amplifier 1-26GHz				Pre-amplifier 26-40GHz				Horn > 18GHz				Limit	
T73; S/N: 6717 @3m				T144 Miteq 3008A00931				T88 Miteq 26-40GHz				T39; ARA 18-26GHz; S/N:1013				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				HPF_7.6GHz					
<div style="display: flex; justify-content: space-between;"> <div> <b>Peak Measurements</b> RBW=1MHz, BW=3MHz <b>Average Measurements</b> RBW=1MHz ; VBW=1.1kHz </div> </div>																	
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr 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 (5210.0 MHz)																	
15.630	3.0	48.1	35.1	38.7	12.2	-34.0	0.0	0.7	65.8	52.7	74	54	-8.2	-1.3	H, q89		
15.630	3.0	45.3	33.2	38.7	12.2	-34.0	0.0	0.7	63.0	50.9	74	54	-11.0	-3.1	V, q89		
Rev. 11.10.11																	
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													

## 9.2.8. TX ABOVE 1 GHz 802.11a 1TX MODE, 5.3 GHz BAND

### RESTRICTED BANDEDGE (HIGH CHANNEL, 5300 MHz)

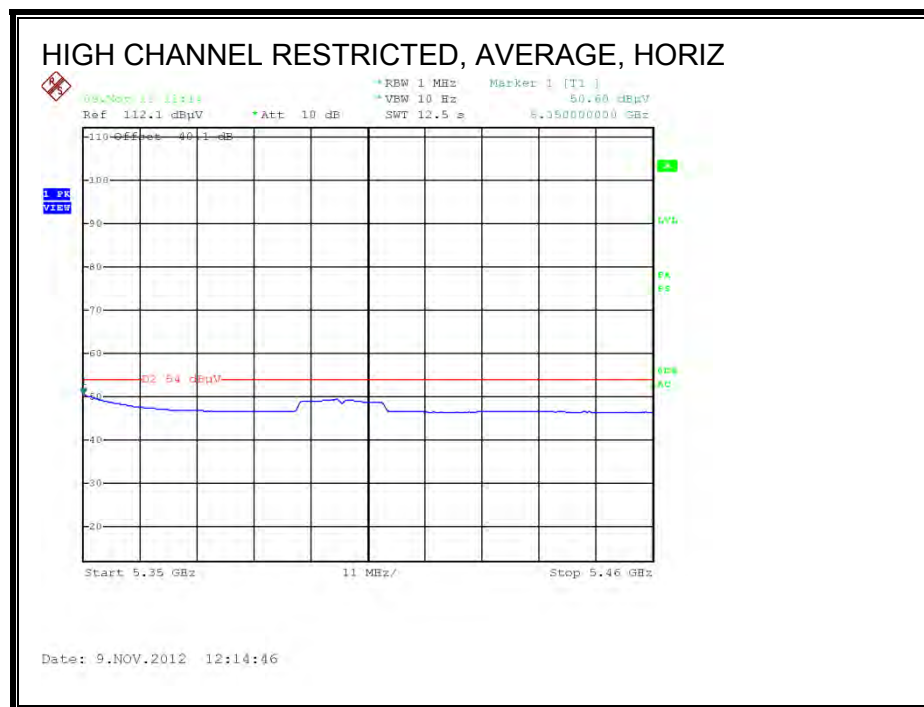
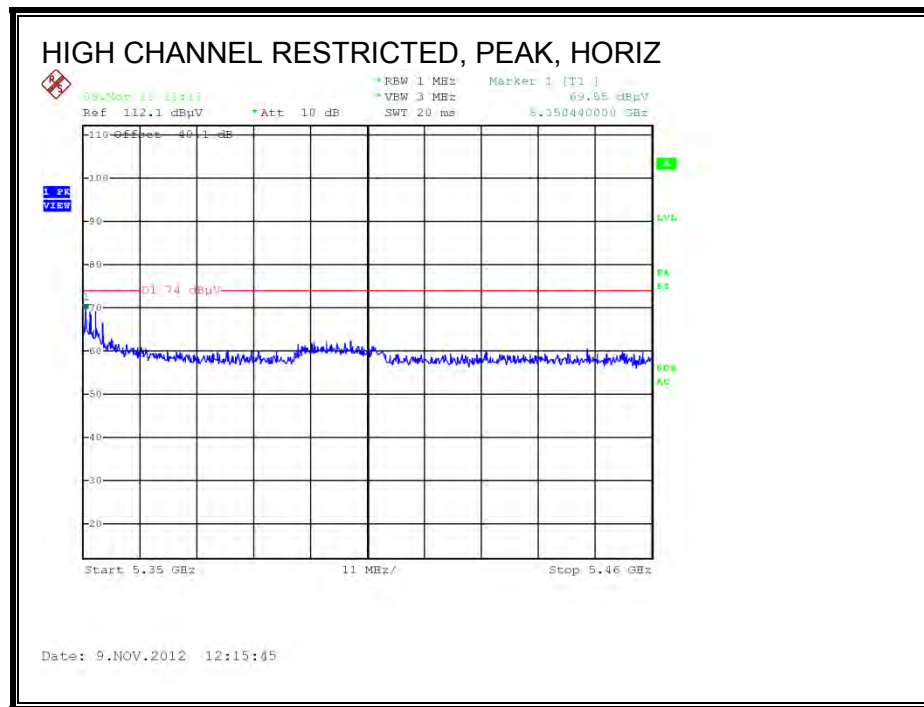


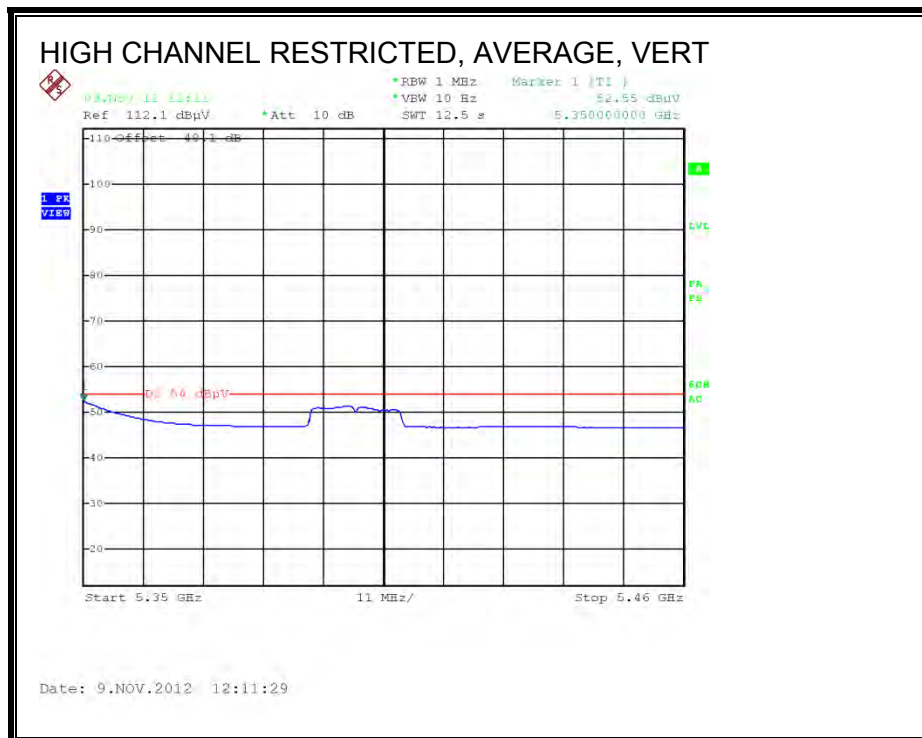
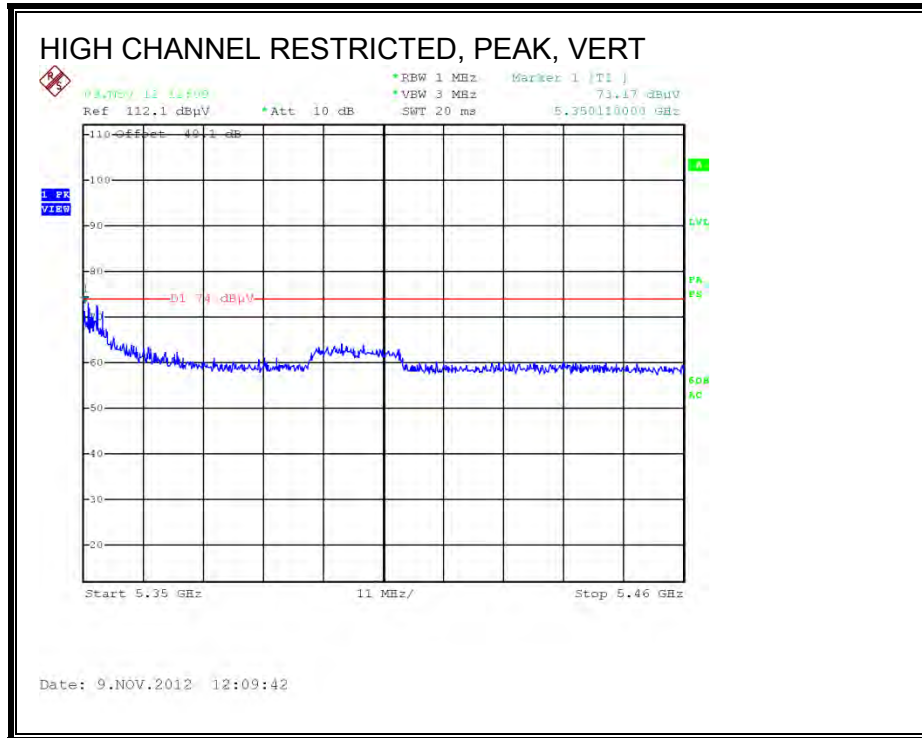






**RESTRICTED BANDEDGE (HIGH CHANNEL, 5320 MHz)**



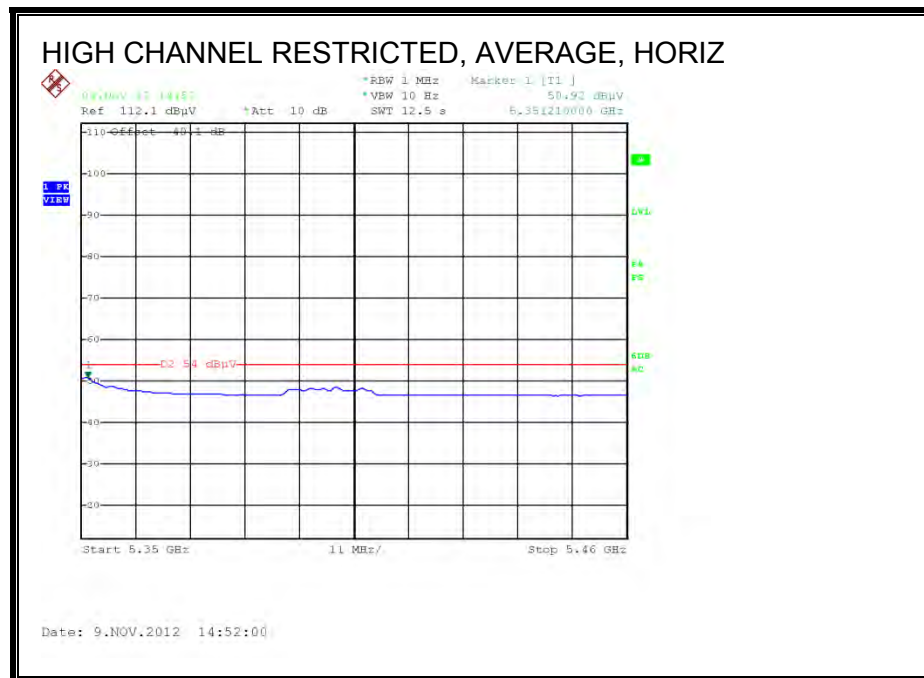


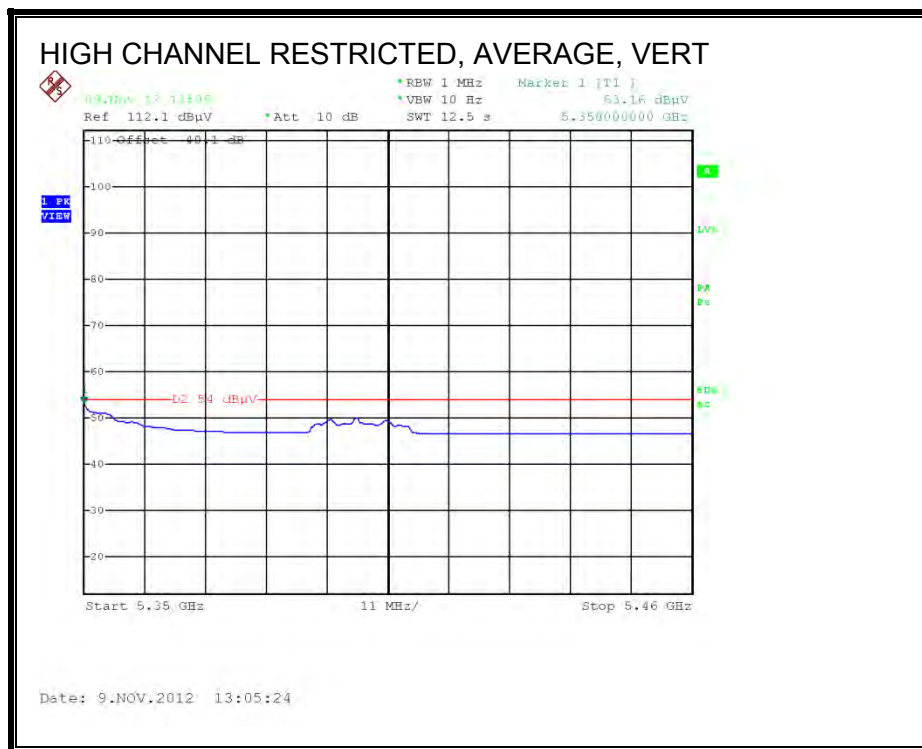
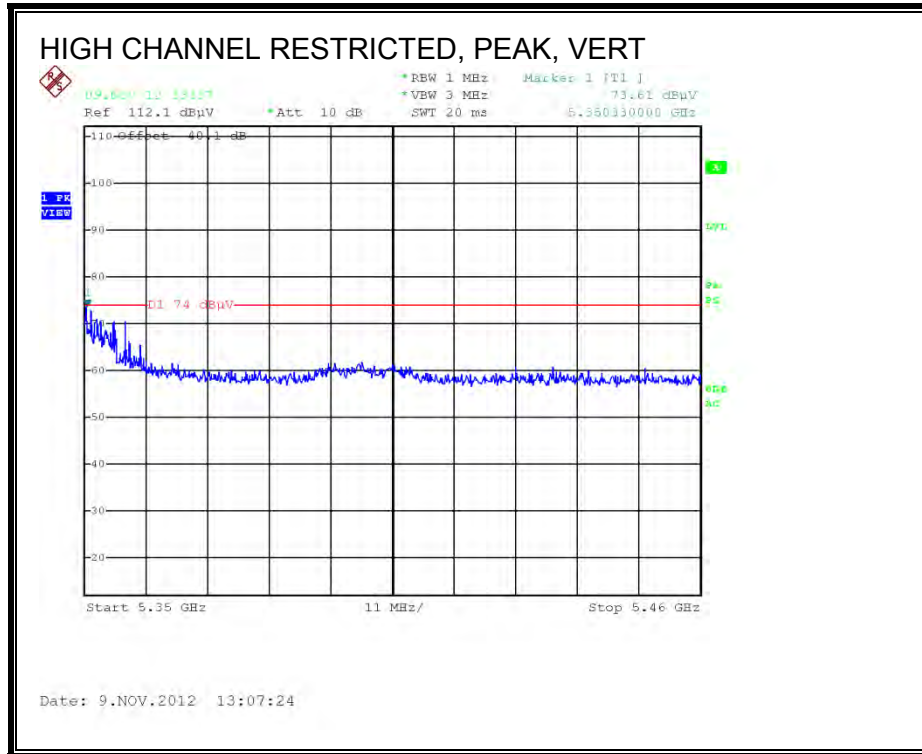
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**HARMONICS AND SPURIOUS EMISSIONS**

Covered by testing 11n HT20 CCD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

### RESTRICTED BANDEDGE (HIGH CHANNEL)





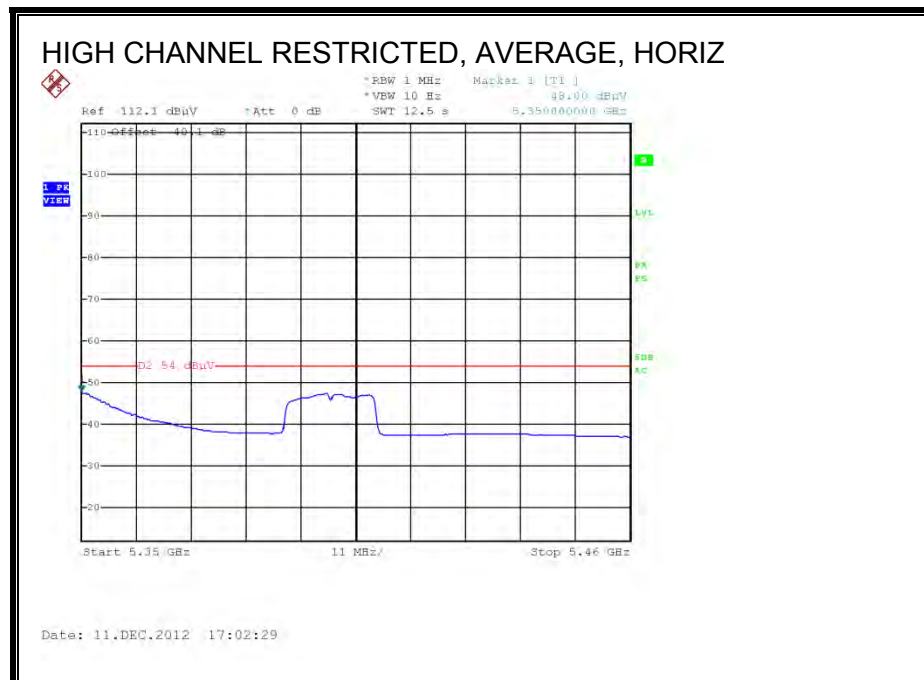
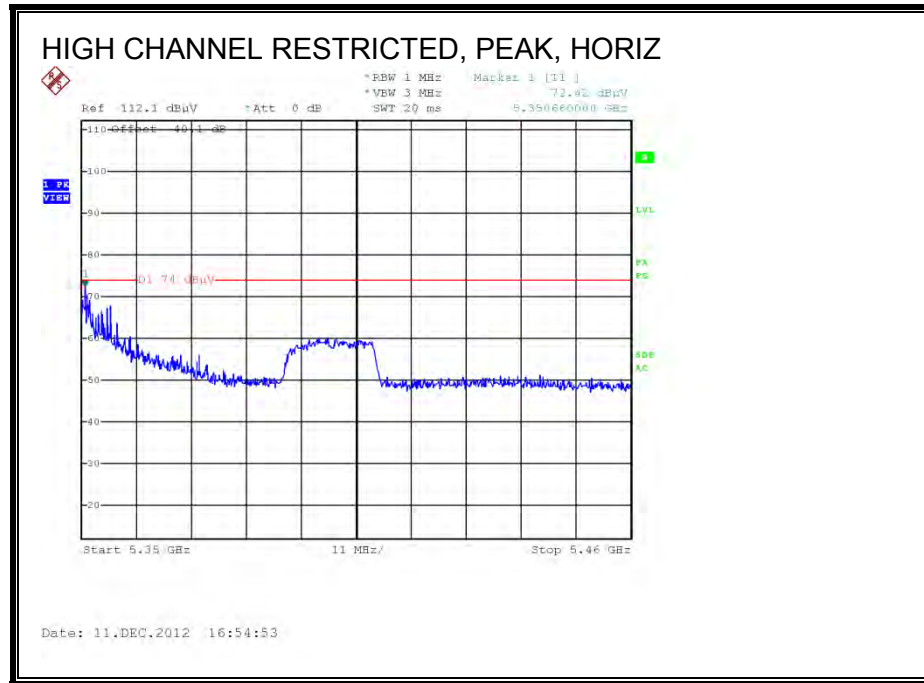
## HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement																
Compliance Certification Services, Fremont 3m Chamber																
Company:		Broadcom														
Project #:		12U14669														
Date:		12/5/2012														
Test Engineer:		M. Mekuria/Danny Vu														
Configuration:		EUT, Adapter Board, Antenna														
Mode:		11n HT20 3TX mode														
<b>Test Equipment:</b>																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit				
T60; S/N: 2238 @3m			T34 HP 8449B			T88 Miteq 26-40GHz			T39; ARA 18-26GHz; S/N:1013			FCC 15.205				
Hi Frequency Cables																
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF			Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz		
3' cable 22807700			12' cable 22807600			20' cable 22807500						R_001				
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)	
<b>Low Channel (5260 MHz)</b>																
15.780	3.0	44.3	33.6	38.2	13.1	-31.9	0.0	0.0	63.7	53.0	74	54	-10.3	-1.0	H	
15.780	3.0	43.0	32.2	38.2	13.1	-31.9	0.0	0.0	62.4	51.6	74	54	-11.6	-2.4	V	
<b>Mid Channel (5300 MHz)</b>																
10.600	3.0	48.6	35.6	38.4	9.9	-34.0	0.0	0.0	62.9	49.8	74	54	-11.1	-4.2	H	
15.900	3.0	46.4	34.8	37.8	13.2	-31.8	0.0	0.0	65.5	53.9	74	54	-8.5	-0.1	H	
10.600	3.0	47.3	35.7	38.4	9.9	-34.0	0.0	0.0	61.6	50.0	74	54	-12.4	-4.0	V	
10.600	3.0	48.6	36.2	38.4	9.9	-34.0	0.0	0.0	62.9	50.4	74	54	-11.1	-3.6	V	
15.900	3.0	42.7	33.6	37.8	13.2	-31.8	0.0	0.0	61.8	52.7	74	54	-12.2	-1.3	V	
Rev. 11.10.11																
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									

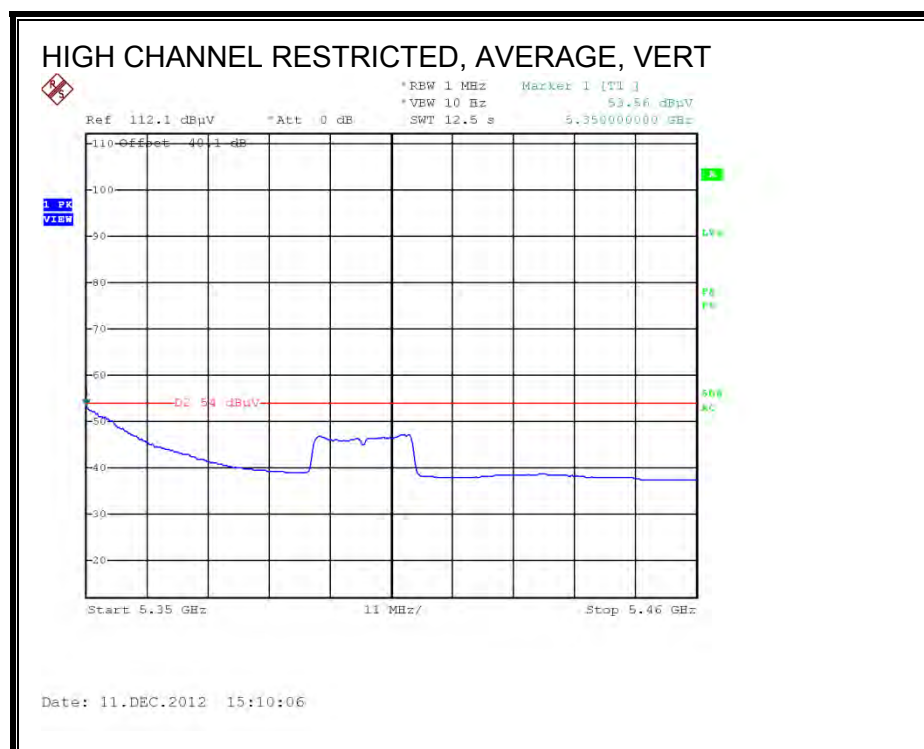
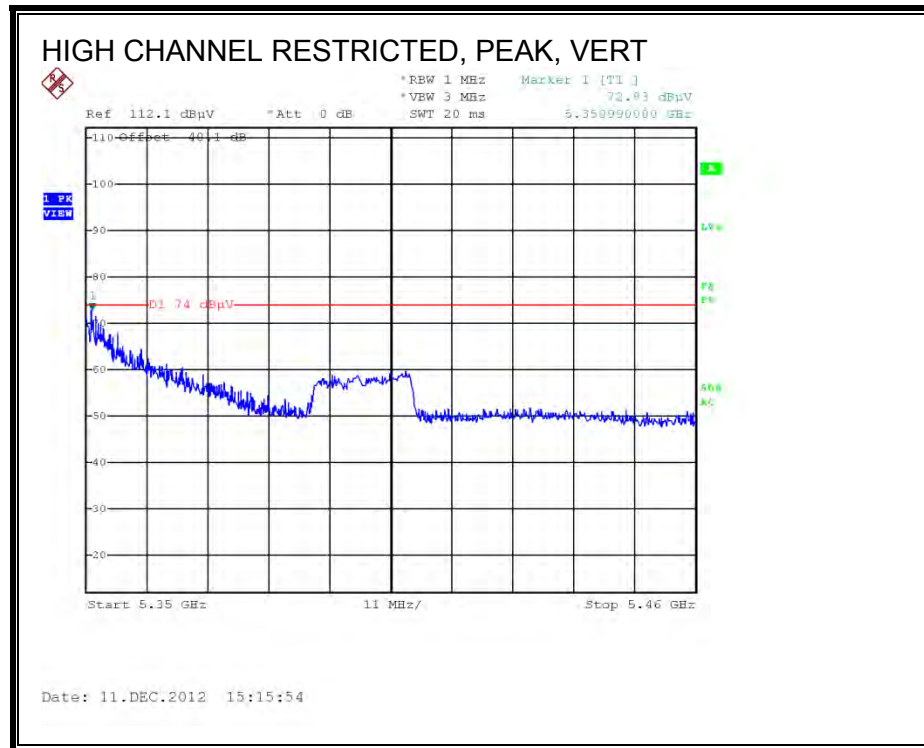
<b>High Frequency Measurement</b> Compliance Certification Services, Fremont 5m Chamber-A																	
<b>Company:</b>		Broadcom															
<b>Project #:</b>		12U14669															
<b>Date:</b>		12/7/2012															
<b>Test Engineer:</b>		D. Garcia/Danny Vu															
<b>Configuration:</b>		EUT, Adapter Board, Antenna															
<b>Mode:</b>		11n HT20 3TX mode															
<b>Test Equipment:</b>																	
Horn 1-18GHz				Pre-amplifier 1-26GHz				Pre-amplifier 26-40GHz				Horn > 18GHz				Limit	
T73; S/N: 6717 @3m				T144 Miteq 3008A00931				T88 Miteq 26-40GHz				T39; ARA 18-26GHz; S/N:1013				FCC 15.205	
Hi Frequency Cables																	
3' cable 22807700				12' cable 22807600				20' cable 22807500				HPF		Reject Filter		<u>Peak Measurements</u> RBW=VBW=1MHz <u>Average Measurements</u> RBW=1MHz ; VBW=10Hz	
3' cable 22807700				12' cable 22807600				20' cable 22807500						R_001			
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr 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 (5320.0 MHz)																	
10.640	3.0	46.1	38.7	38.3	9.8	-35.7	0.0	0.0	58.4	51.0	74	54	-15.6	-3.0	H, q83		
15.960	3.0	44.5	37.5	37.6	12.4	-33.9	0.0	0.0	60.6	53.7	74	54	-13.4	-0.3	H, q83		
10.640	3.0	46.8	32.9	38.3	9.8	-35.7	0.0	0.0	59.2	45.2	74	54	-14.8	-8.8	V, q83		
15.960	3.0	48.2	35.0	37.6	12.4	-33.9	0.0	0.0	64.3	51.1	74	54	-9.7	-2.9	V, q83		
Rev. 11.10.11																	
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										

**9.2.10. TX ABOVE 1 GHz 802.11n HT20 BF 3TX MODE, 5.3 GHz BAND**

**RESTRICTED BANDEDGE (HIGH CHANNEL)**





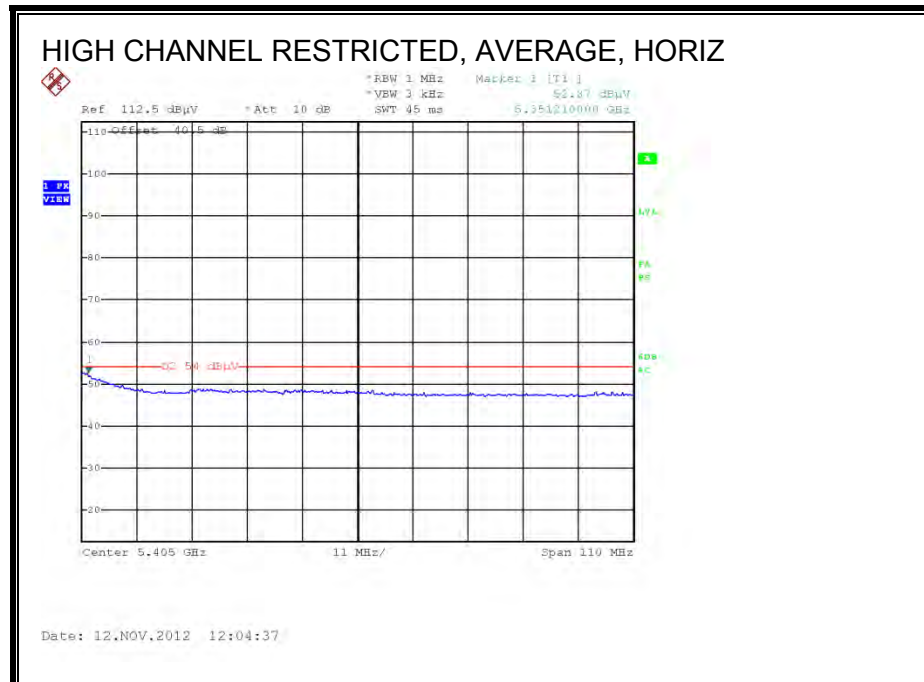
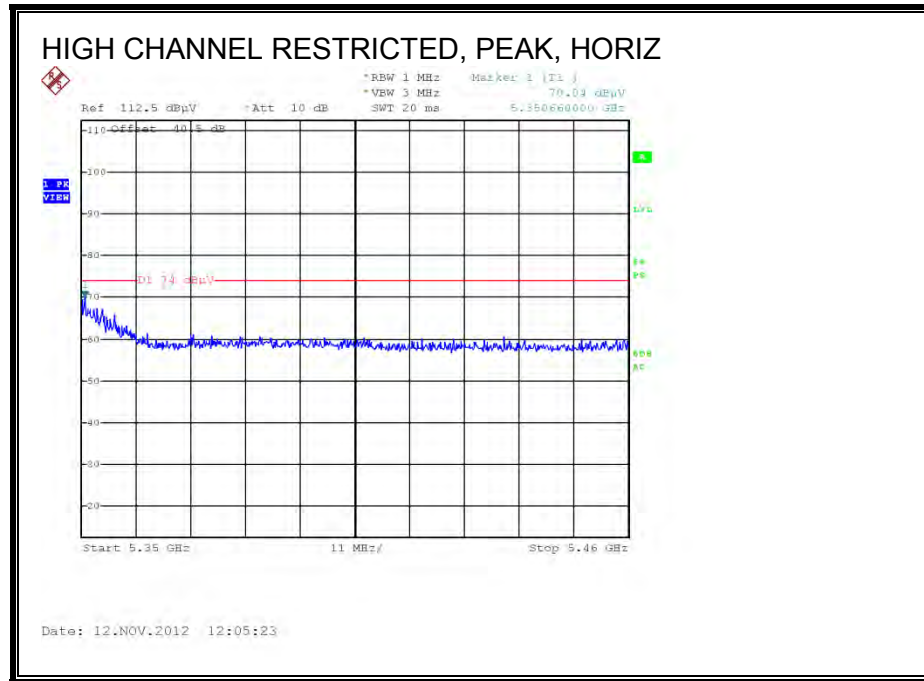


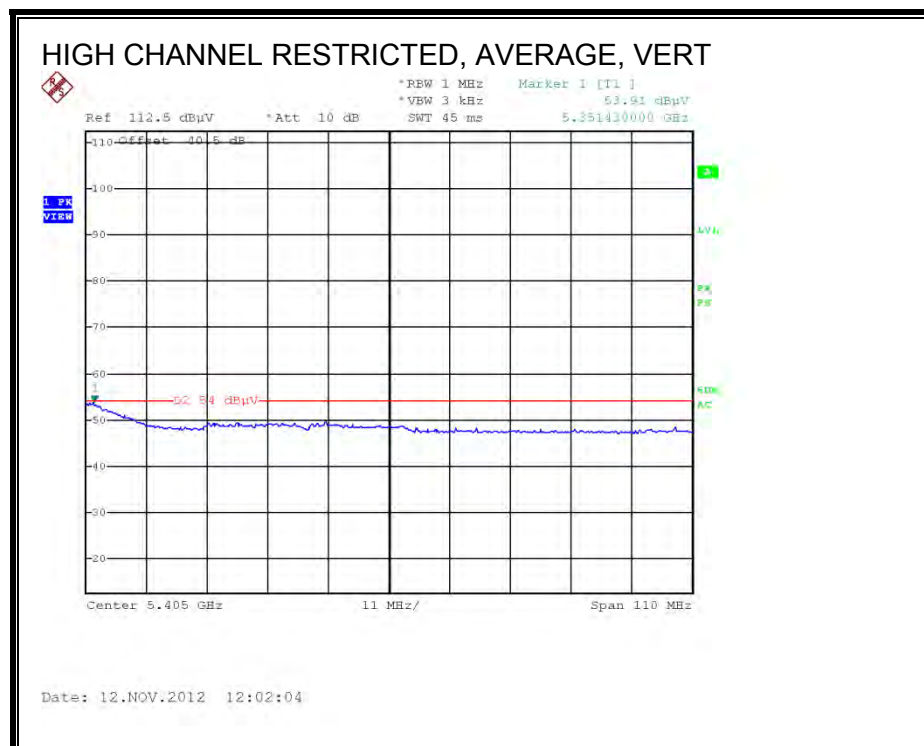
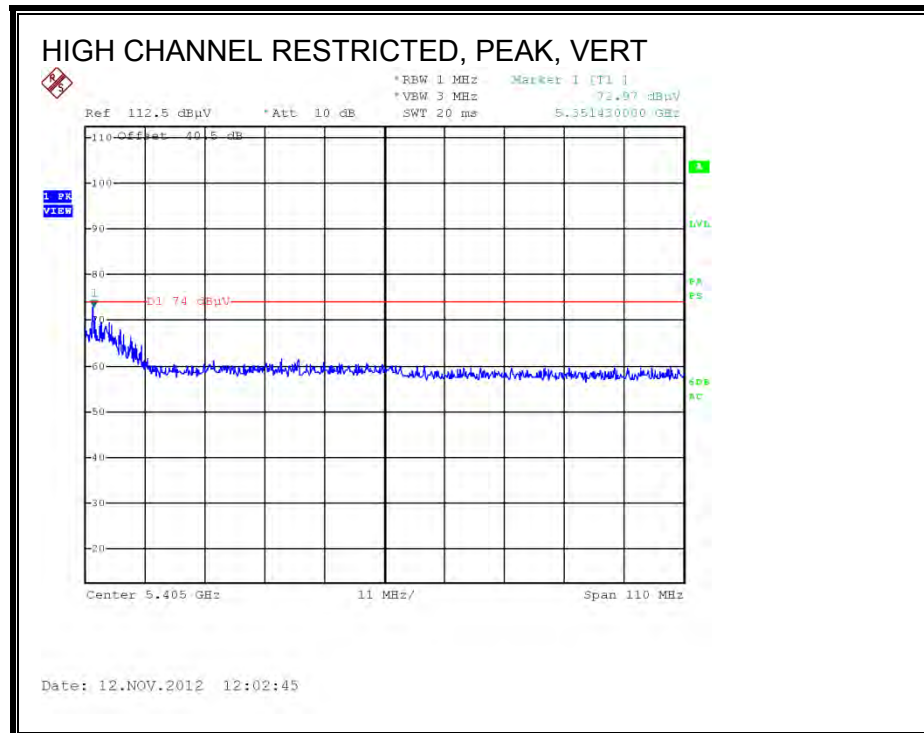
## HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement																
Compliance Certification Services, Fremont 3m Chamber																
Company:		Broadcom														
Project #:		12U14669														
Date:		12/12/2012														
Test Engineer:		M. Mekuria														
Configuration:		EUT, Adapter Board, Antenna														
Mode:		11n HT20 BF 3TX mode														
Test Equipment:																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit				
T60; S/N: 2238 @3m			T34 HP 8449B			T88 Miteq 26-40GHz			T39; ARA 18-26GHz; S/N:1013			FCC 15.205				
Hi Frequency Cables																
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF			Reject Filter			Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz	
3' cable 22807700			12' cable 22807600			20' cable 22807500						R_001				
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr 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 (5260 MHz)																
15.780	3.0	47.9	33.7	38.2	13.1	-31.9	0.0	0.0	67.3	53.2	74	54	-6.7	-0.8	H	
15.780	3.0	42.5	32.5	38.2	13.1	-31.9	0.0	0.0	61.9	51.9	74	54	-12.1	-2.1	V	
Mid Channel (5300 MHz)																
10.600	3.0	51.9	39.6	38.4	9.9	-34.0	0.0	0.0	66.2	53.8	74	54	-7.8	-0.2	H	
15.900	3.0	47.3	34.8	37.8	13.2	-31.8	0.0	0.0	66.4	53.9	74	54	-7.6	-0.1	H	
10.600	3.0	49.0	35.3	38.4	9.9	-34.0	0.0	0.0	63.3	49.6	74	54	-10.7	-4.4	V	
15.900	3.0	45.7	31.8	37.8	13.2	-31.8	0.0	0.0	64.8	50.9	74	54	-9.2	-3.1	V	
High Channel (5320 MHz)																
10.640	3.0	52.1	38.9	38.4	10.0	-34.0	0.0	0.0	66.5	53.3	74	54	-7.5	-0.7	H	
15.960	3.0	49.5	34.9	37.6	13.2	-31.8	0.0	0.0	68.4	53.8	74	54	-5.6	-0.2	H	
10.640	3.0	51.7	37.9	38.4	10.0	-34.0	0.0	0.0	66.1	52.3	74	54	-7.9	-1.7	V	
15.960	3.0	46.0	33.1	37.6	13.2	-31.8	0.0	0.0	65.0	52.0	74	54	-9.0	-2.0	V	
Rev. 11.10.11																
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									

**9.2.11. TX ABOVE 1 GHz 802.11n HT40 1TX MODE, 5.3 GHz BAND**

**RESTRICTED BANDEDGE (HIGH CHANNEL)**



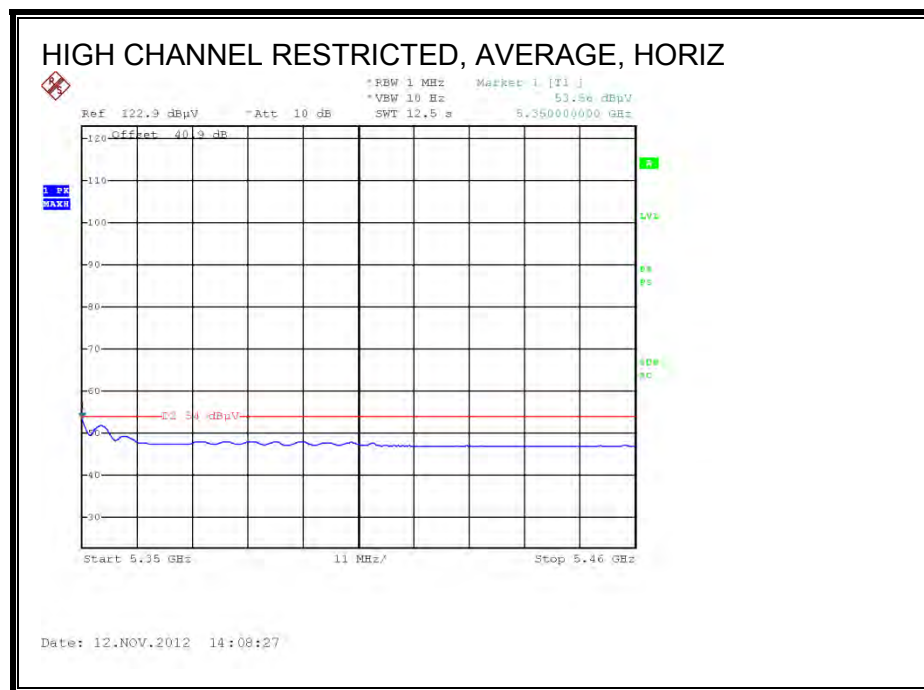
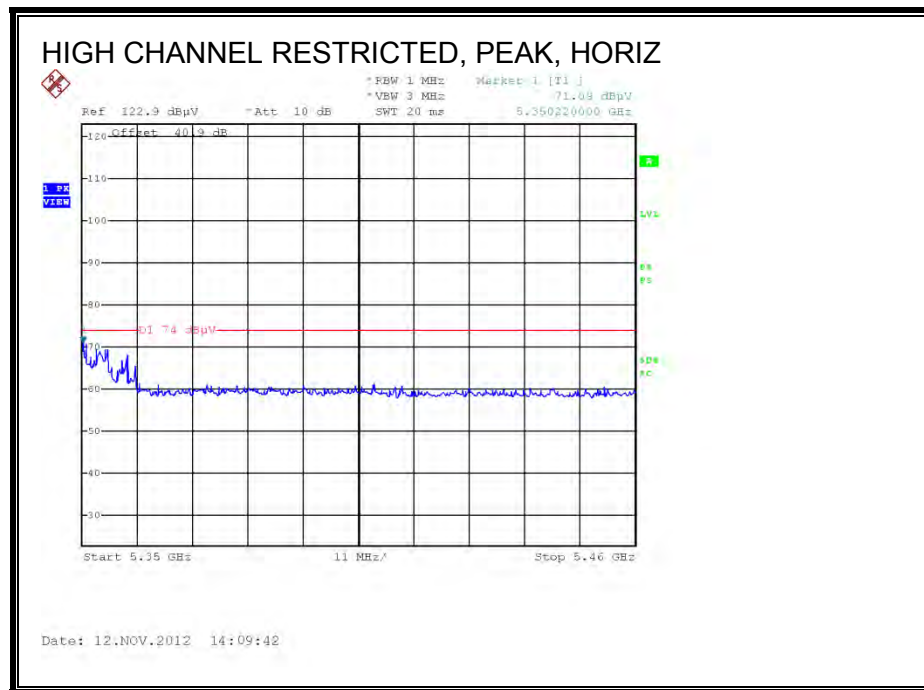


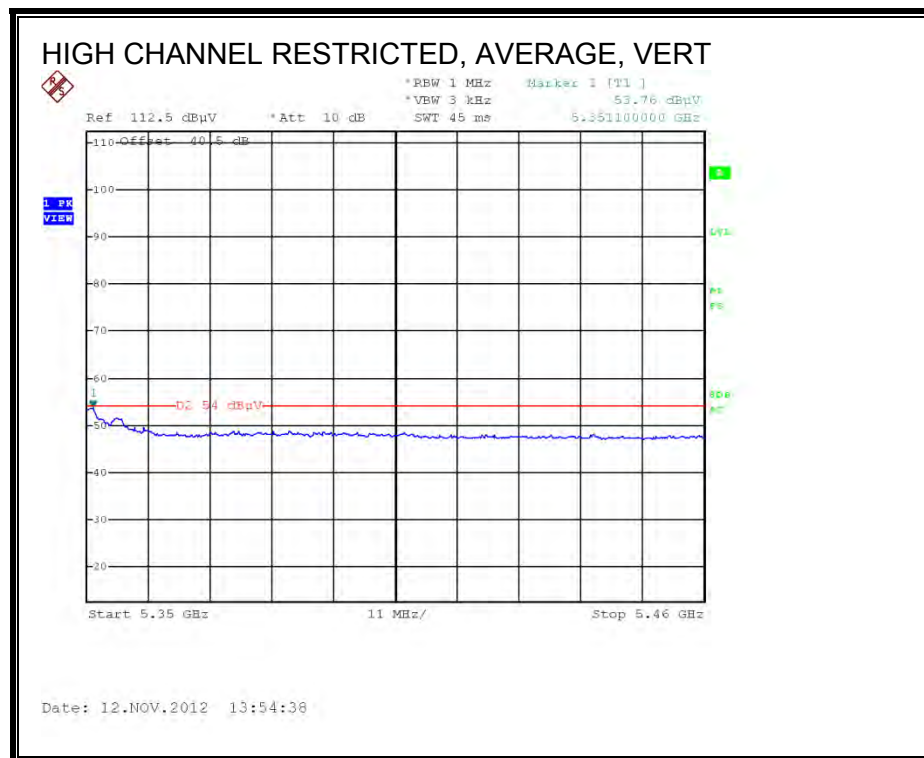
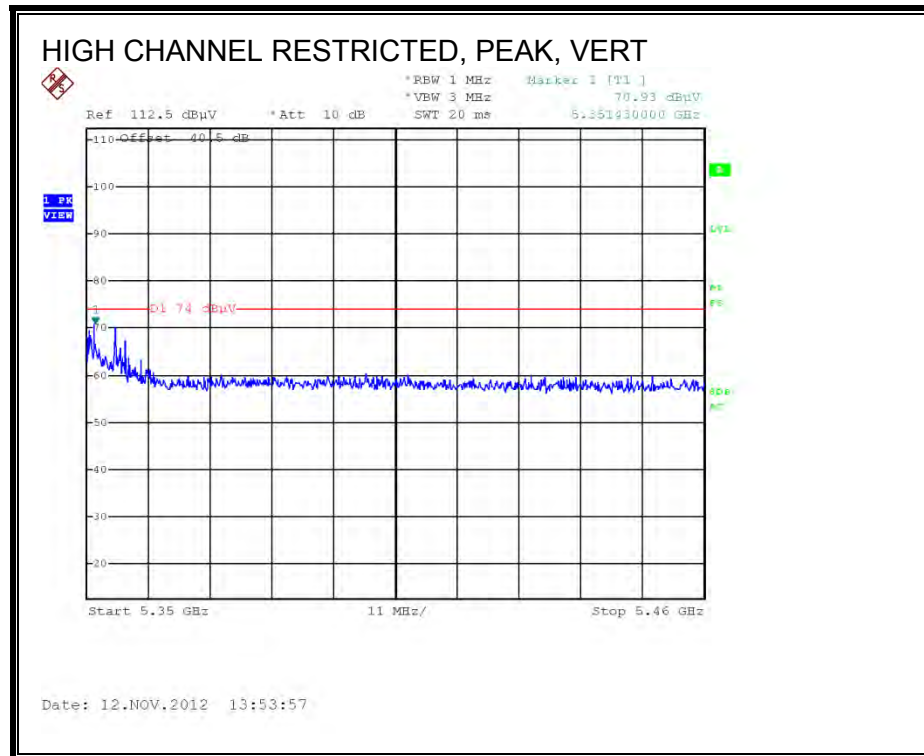
**HARMONICS AND SPURIOUS EMISSIONS**

Covered by testing 11n HT40 CCD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

## 9.2.12. TX ABOVE 1 GHz 802.11n HT40 CDD 3TX MODE, 5.3 GHz BAND

### RESTRICTED BANDEDGE (HIGH CHANNEL)







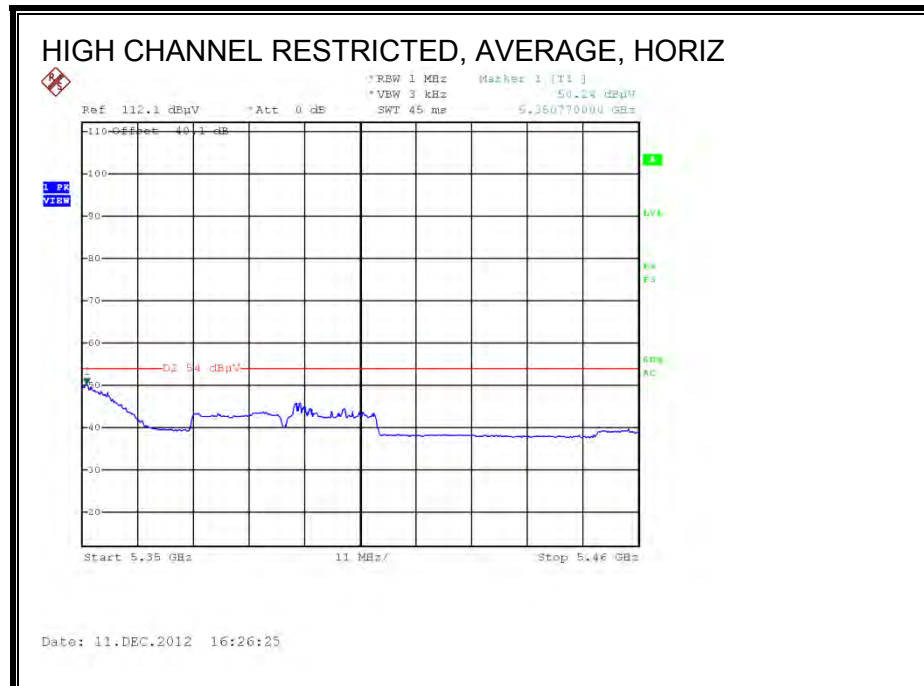
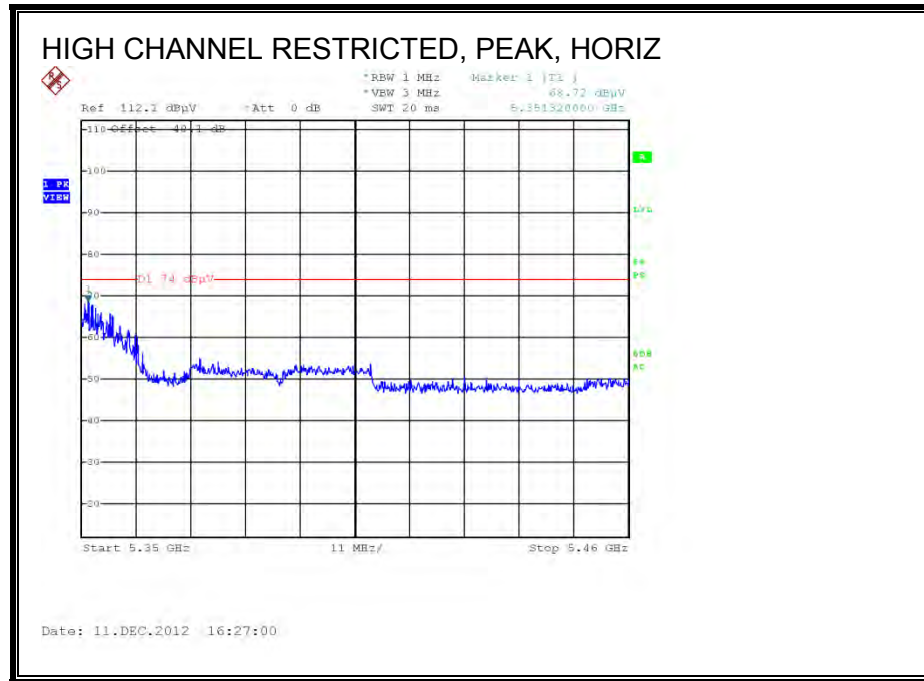
## HARMONICS AND SPURIOUS EMISSIONS

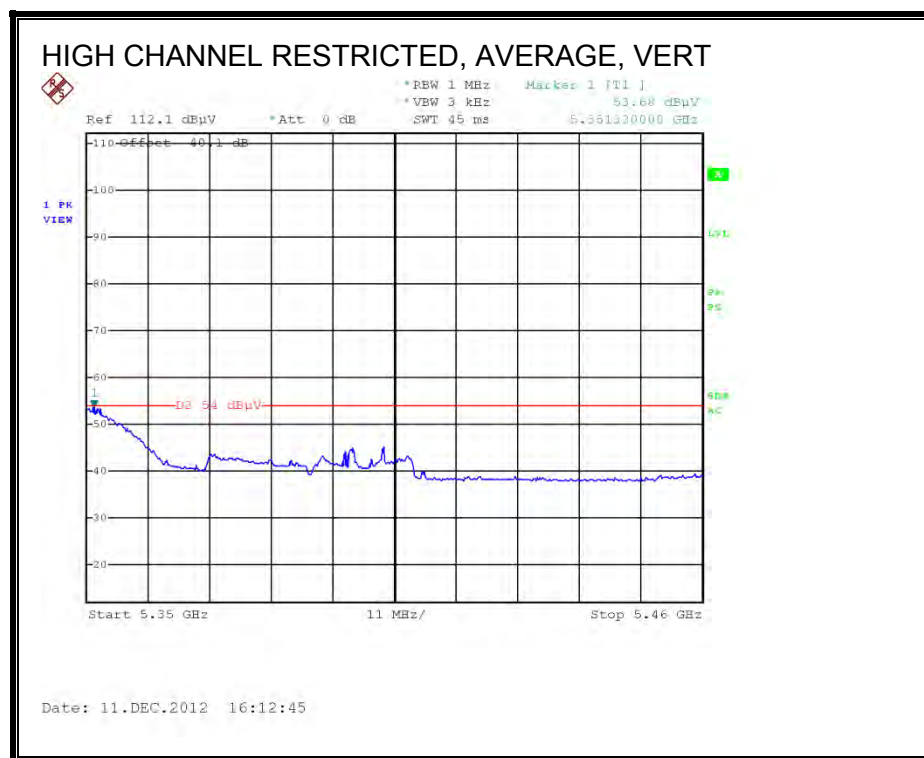
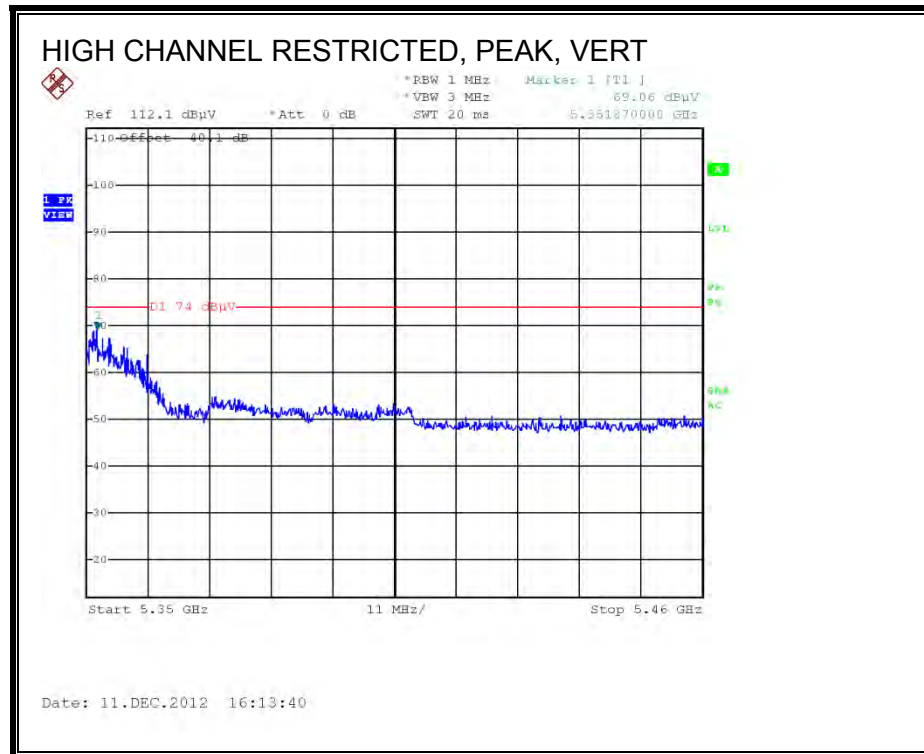
High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber-A																
Company:		Broadcom														
Project #:		12U14669														
Date:		12/7/2012														
Test Engineer:		D. Garcia/Danny Vu														
Configuration:		EUT, Adapter Board, Antenna														
Mode:		11n HT40 3TX mode														
<b>Test Equipment:</b>																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit				
T73; S/N: 6717 @3m			T144 Miteq 3008A00931			T88 Miteq 26-40GHz			T39; ARA 18-26GHz; S/N:1013			FCC 15.205				
Hi Frequency Cables																
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF			Reject Filter			Peak Measurements RBW=1MHz, BW=3MHz Average Measurements RBW=1MHz ; VBW=1.1kHz	
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF_7.6GHz							
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fitr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)	
<b>Low Channel (5270.0 MHz)</b>																
15.810	3.0	48.1	36.0	38.1	12.3	-33.9	0.0	0.7	65.3	53.3	74	54	-8.7	-0.7	H, q88	
15.810	3.0	44.8	34.2	38.1	12.3	-33.9	0.0	0.7	62.0	51.5	74	54	-12.0	-2.5	V, q88	
<b>High Channel (5310 MHz)</b>																
10.620	3.0	50.7	39.2	38.3	9.7	-35.7	0.0	0.8	63.8	52.2	74	54	-10.2	-1.8	H, q90	
15.930	3.0	47.2	36.7	37.7	12.4	-33.9	0.0	0.7	64.1	53.6	74	54	-9.9	-0.4	H, q89	
10.620	3.0	44.4	33.2	38.3	9.7	-35.7	0.0	0.8	57.5	46.2	74	54	-16.5	-7.8	V, q89	
15.930	3.0	44.7	34.1	37.7	12.4	-33.9	0.0	0.7	61.6	51.0	74	54	-12.4	-3.0	V, q89	
Rev. 11.10.11																
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									



**9.2.13. TX ABOVE 1 GHz 802.11n HT40 BF 3TX MODE, 5.3 GHz BAND**

**RESTRICTED BANDEDGE (HIGH CHANNEL)**



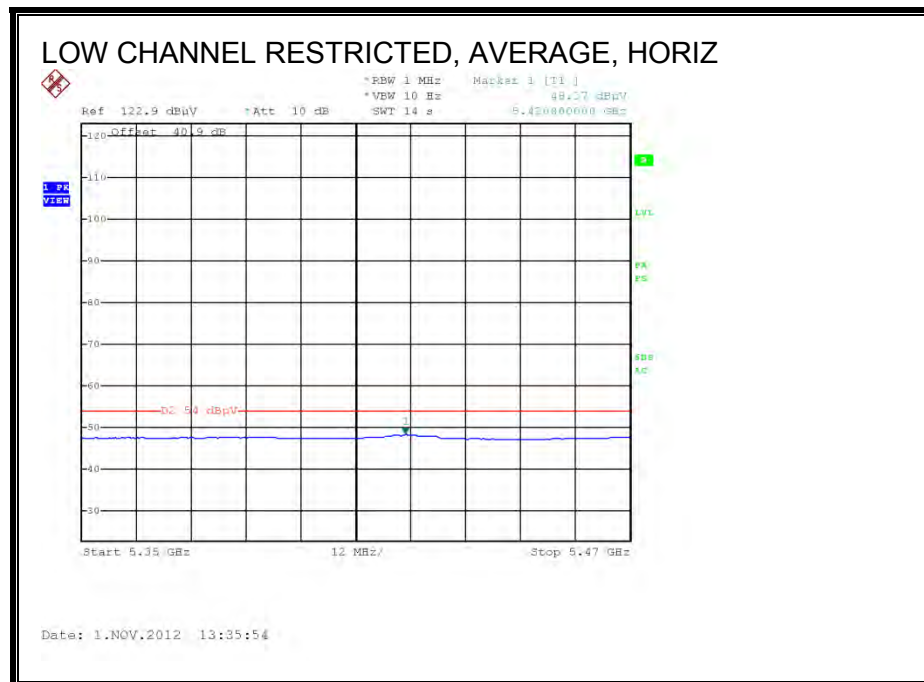
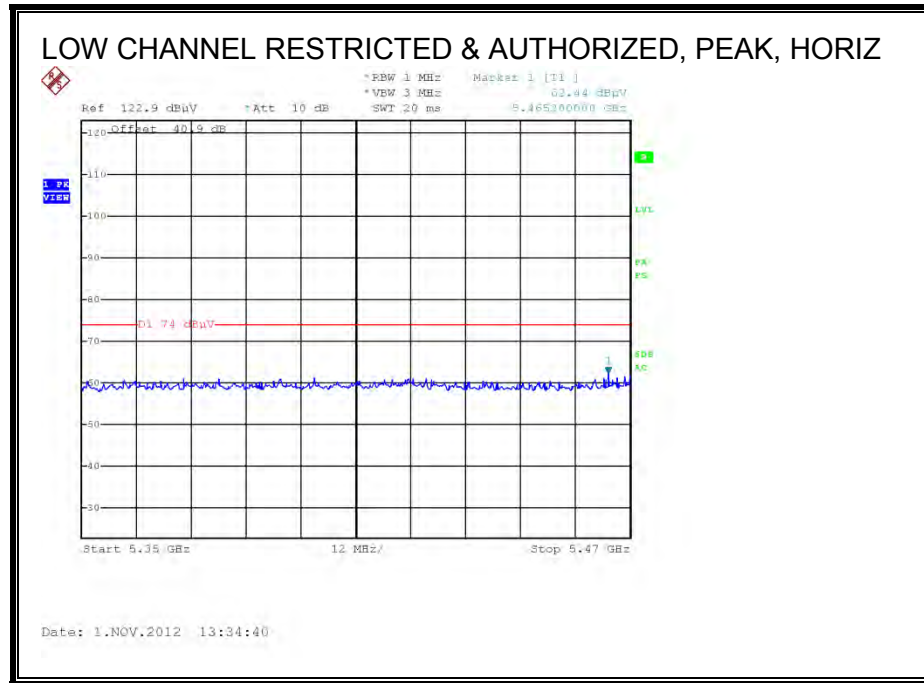


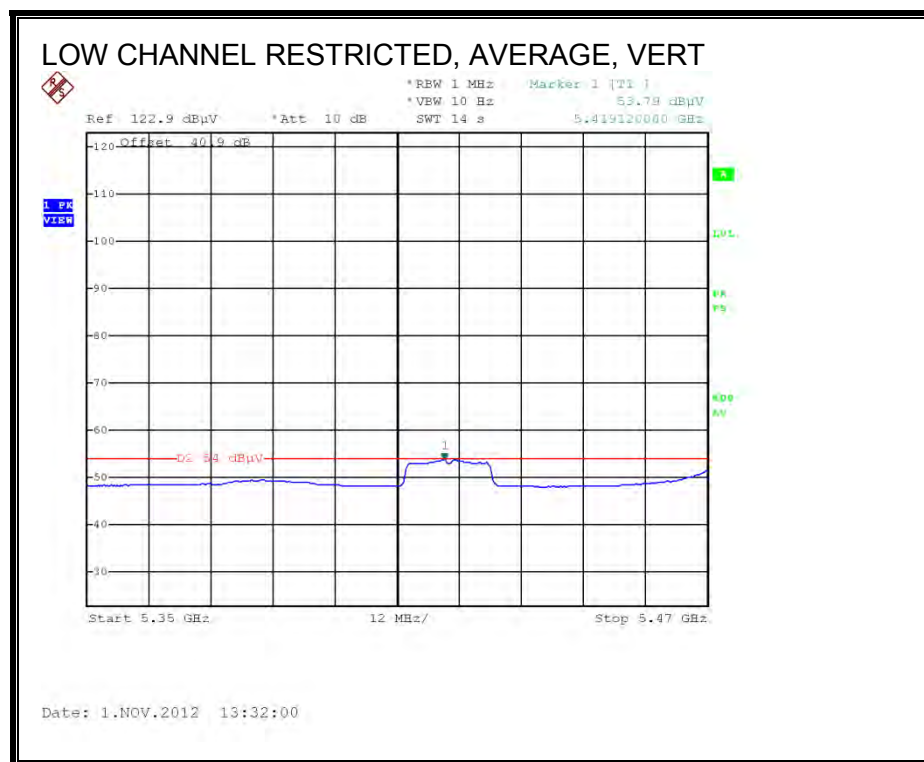
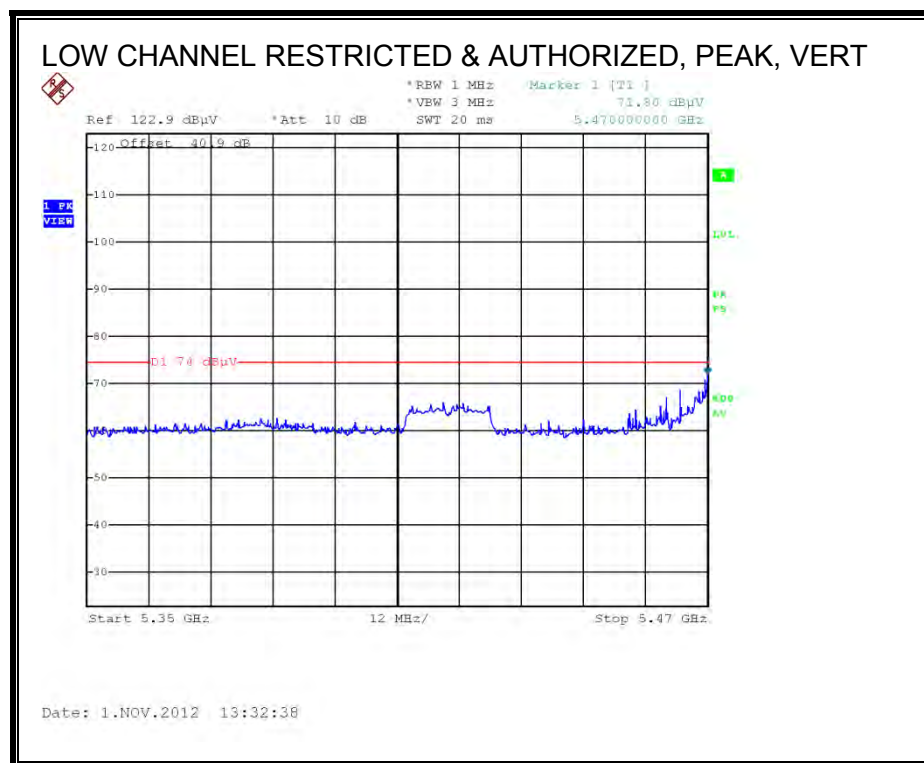
## HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement																
Compliance Certification Services, Fremont 3m Chamber																
Company:		Broadcom														
Project #:		12U14669														
Date:		12/12/2012														
Test Engineer:		D. Garcia														
Configuration:		EUT, Adapter Board, Antenna														
Mode:		11n HT40 3TX Beam Forming mode														
<b>Test Equipment:</b>																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit				
T73; S/N: 6717 @3m			T144 Miteq 3008A00931			T88 Miteq 26-40GHz			T39; ARA 18-26GHz; S/N:1013			FCC 15.205				
Hi Frequency Cables																
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF			Reject Filter			Peak Measurements RBW=1MHz ; VBW=3MHz Average Measurements RBW=1MHz ; VBW=1.1kHz	
3' cable 22807700			12' cable 22807600			20' cable 22807500						R_001				
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)	
<b>Low Channel (5270 MHz)</b>																
15.810	3.0	47.3	36.4	38.1	13.1	-33.9	0.0	0.0	64.6	53.7	74	54	-9.4	-0.3	H	
15.810	3.0	45.5	35.3	38.1	13.1	-33.9	0.0	0.0	62.7	52.6	74	54	-11.3	-1.4	V	
<b>High Channel (5310 MHz)</b>																
10.620	3.0	49.1	37.6	38.3	9.9	-35.7	0.0	0.0	61.6	50.1	74	54	-12.4	-3.9	H	
15.930	3.0	46.8	36.6	37.7	13.2	-33.9	0.0	0.0	63.8	53.5	74	54	-10.2	-0.5	H	
10.620	3.0	46.7	33.9	38.3	9.9	-35.7	0.0	0.0	59.2	46.3	74	54	-14.8	-7.7	V	
15.930	3.0	47.9	36.9	37.7	13.2	-33.9	0.0	0.0	64.9	53.9	74	54	-9.1	-0.1	V	
Rev. 11.10.11																
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												

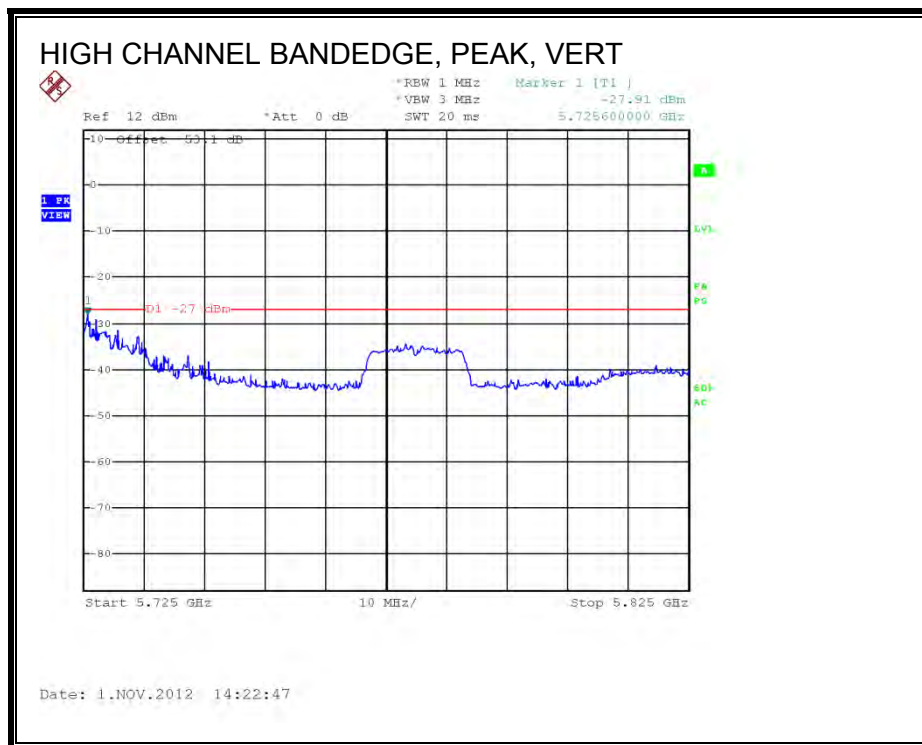
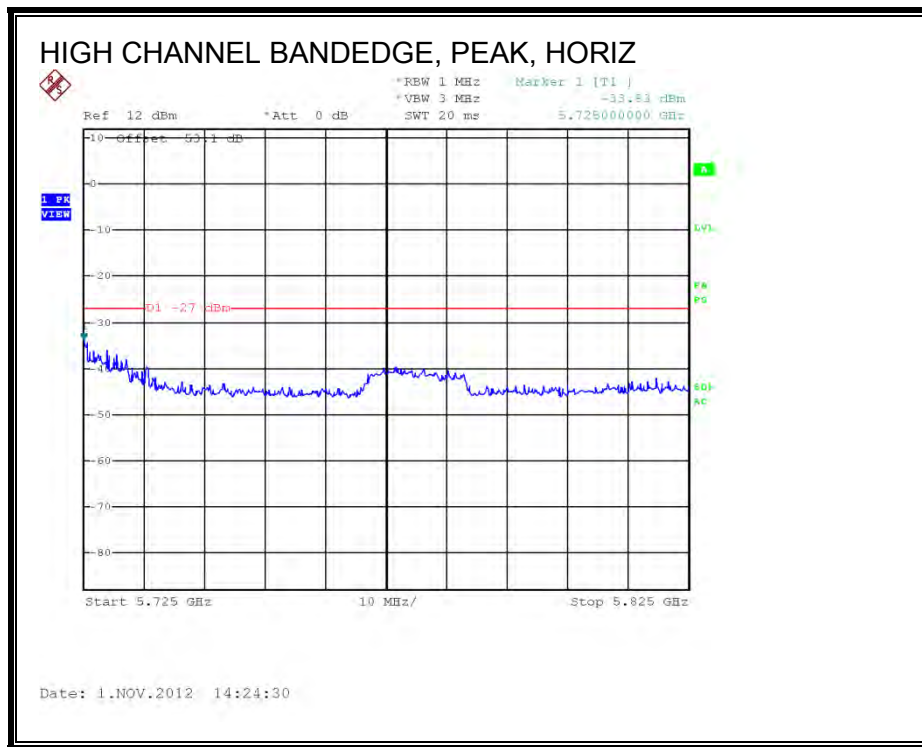
## 9.2.14. TX ABOVE 1 GHz 802.11a MODE, 5.6 GHz BAND

### RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)





**AUTHORIZED BANDEDGE (HIGH CHANNEL)**



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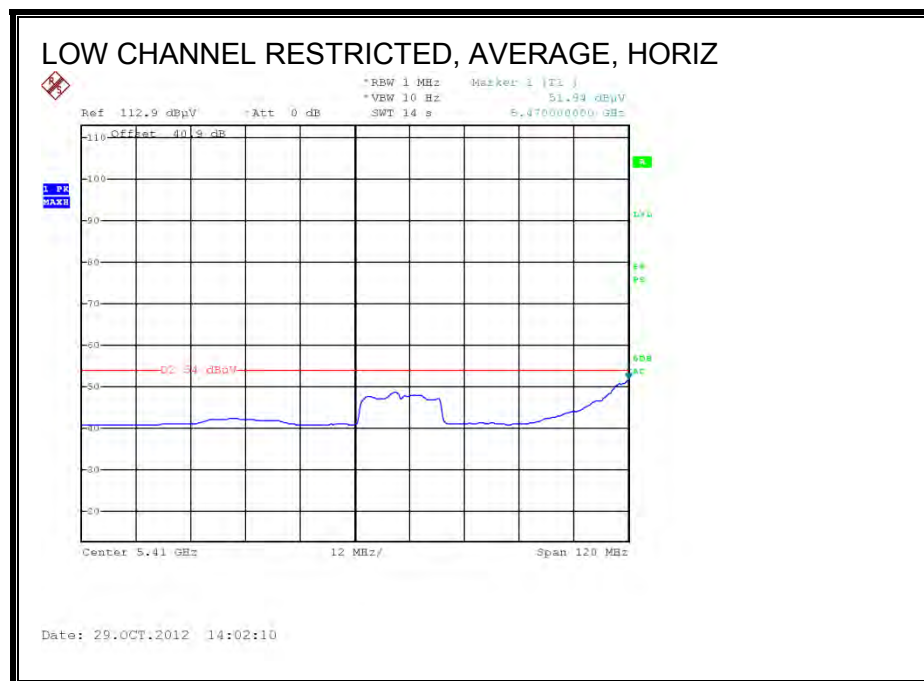
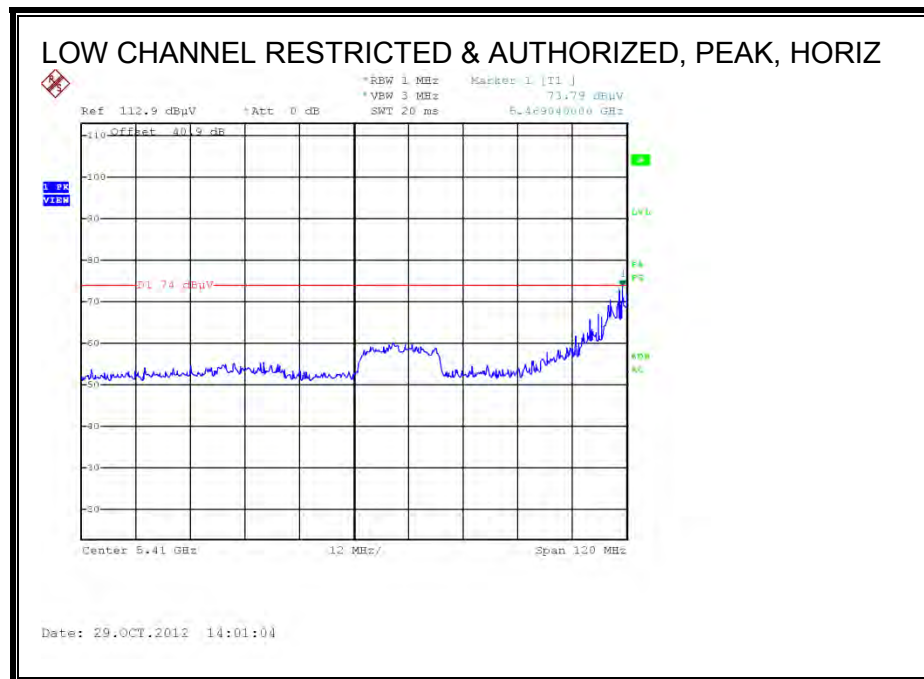
**HARMONICS AND SPURIOUS EMISSIONS**

Covered by testing HT20 CDD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

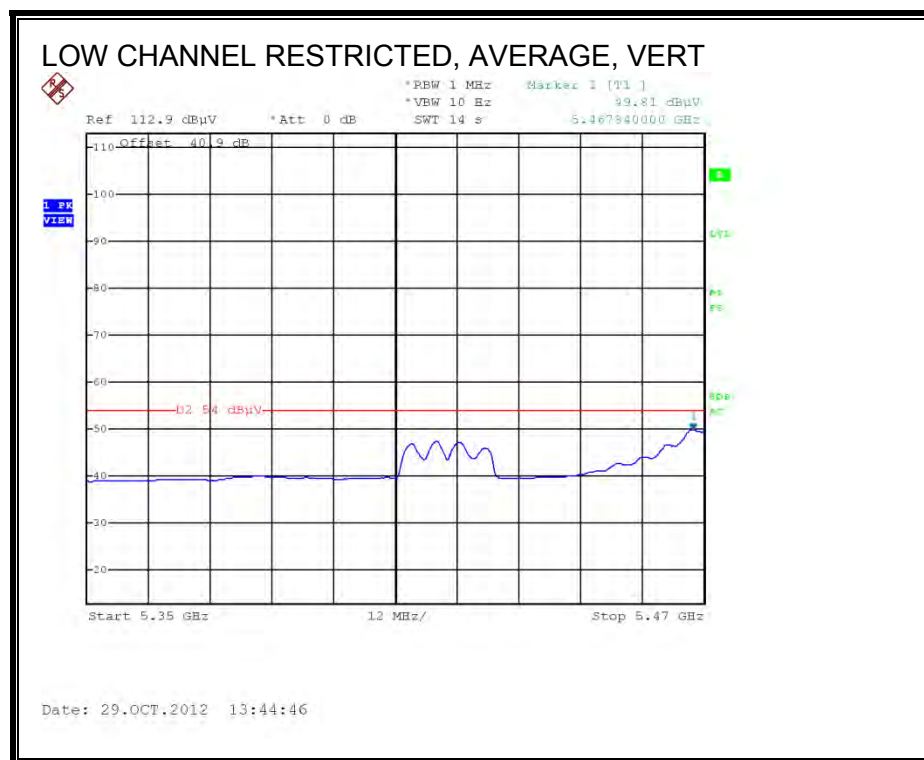
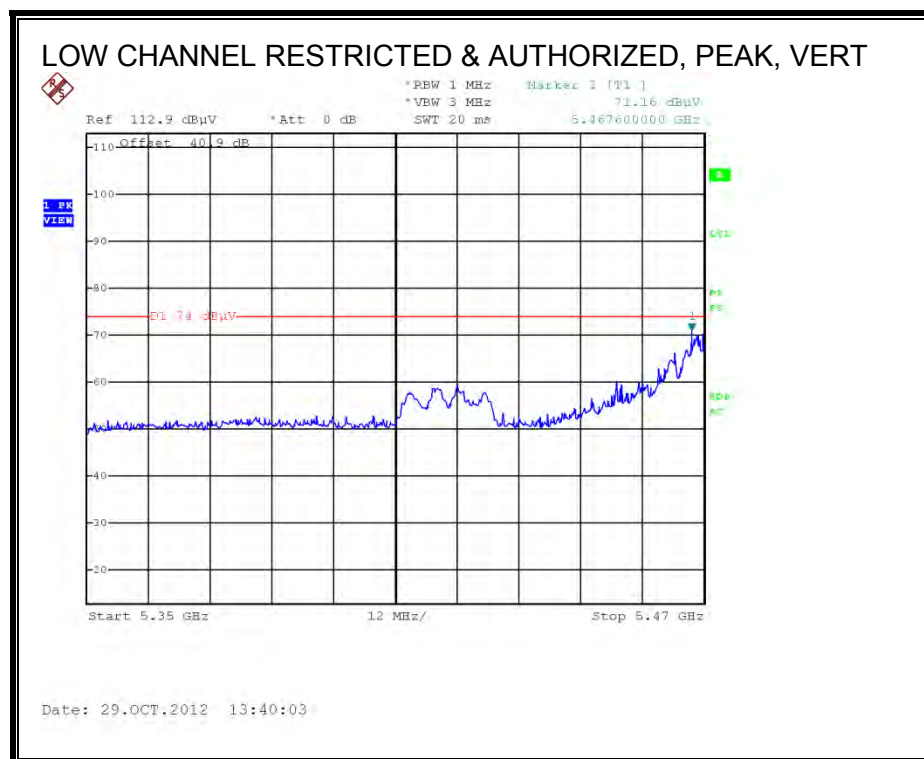


## 9.2.15. TX ABOVE 1 GHz 802.11n HT20 CDD 3TX MODE, 5.6 GHz BAND

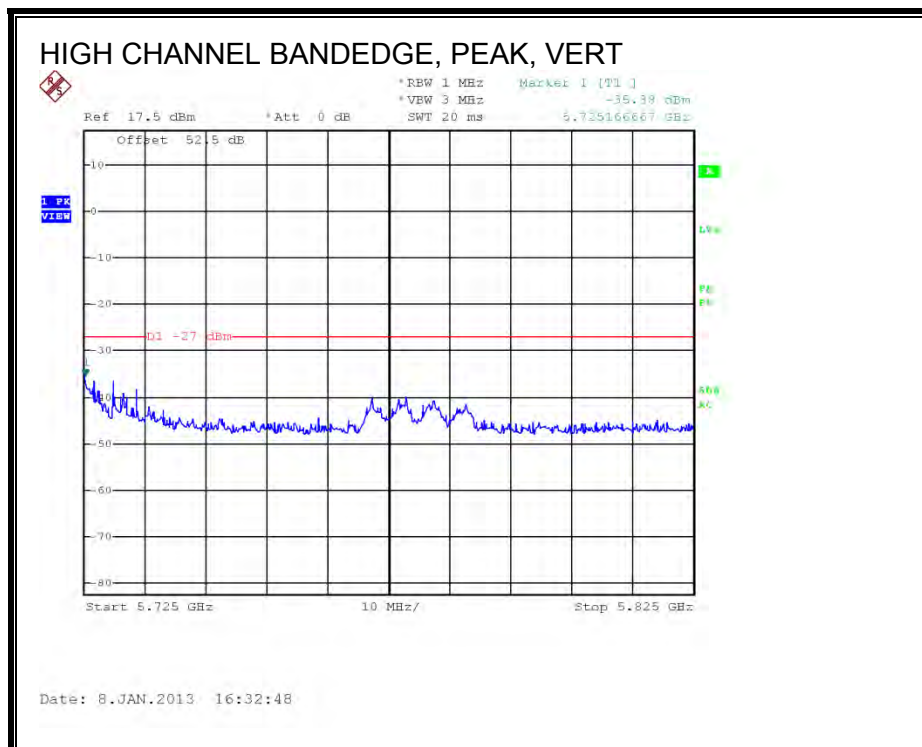
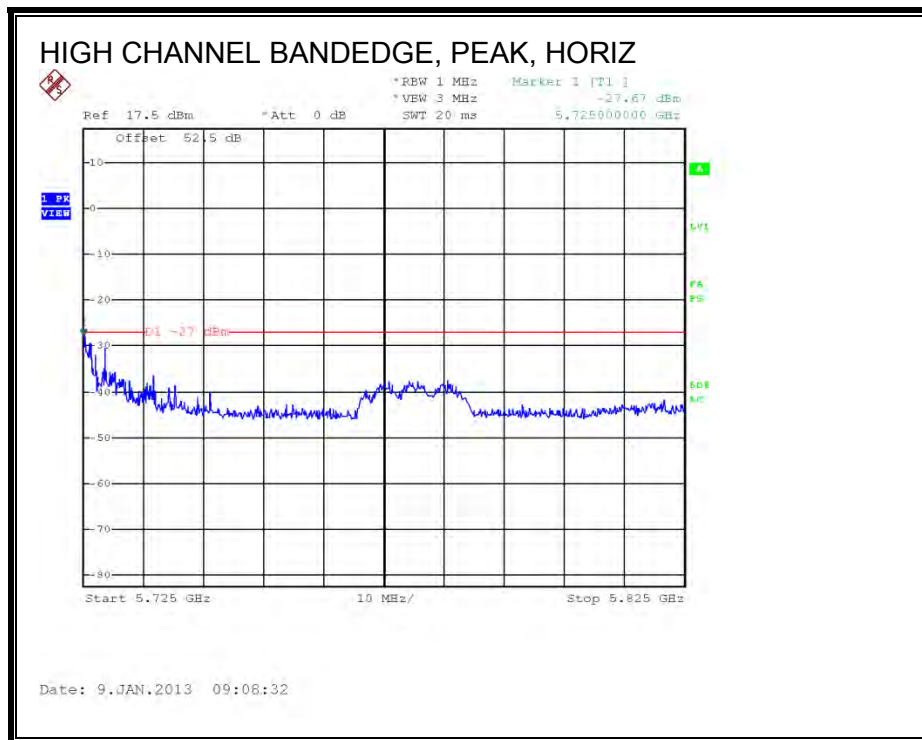
### RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)







**AUTHORIZED BANDEDGE (HIGH CHANNEL)**

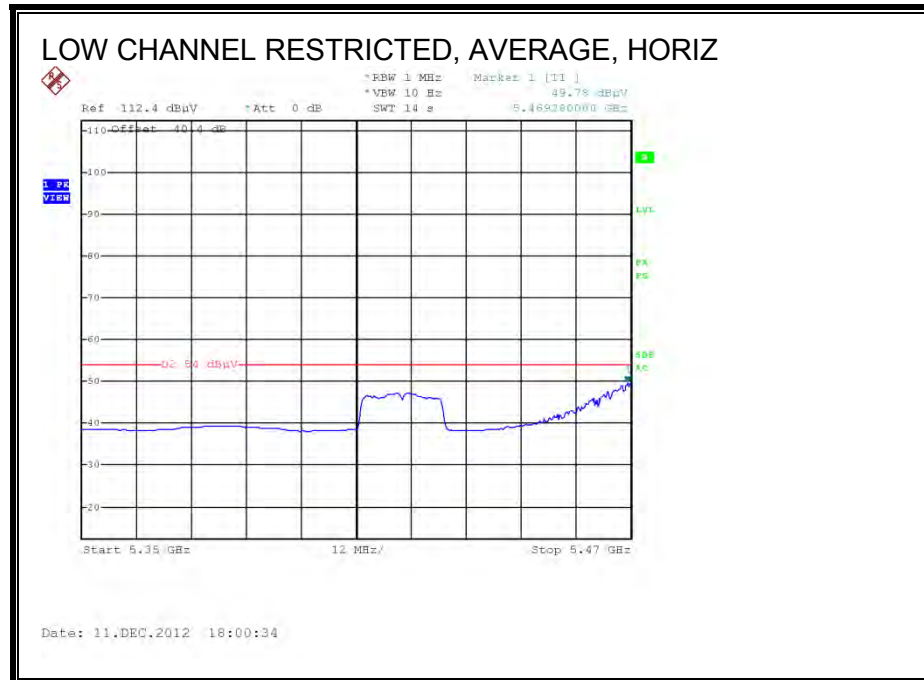
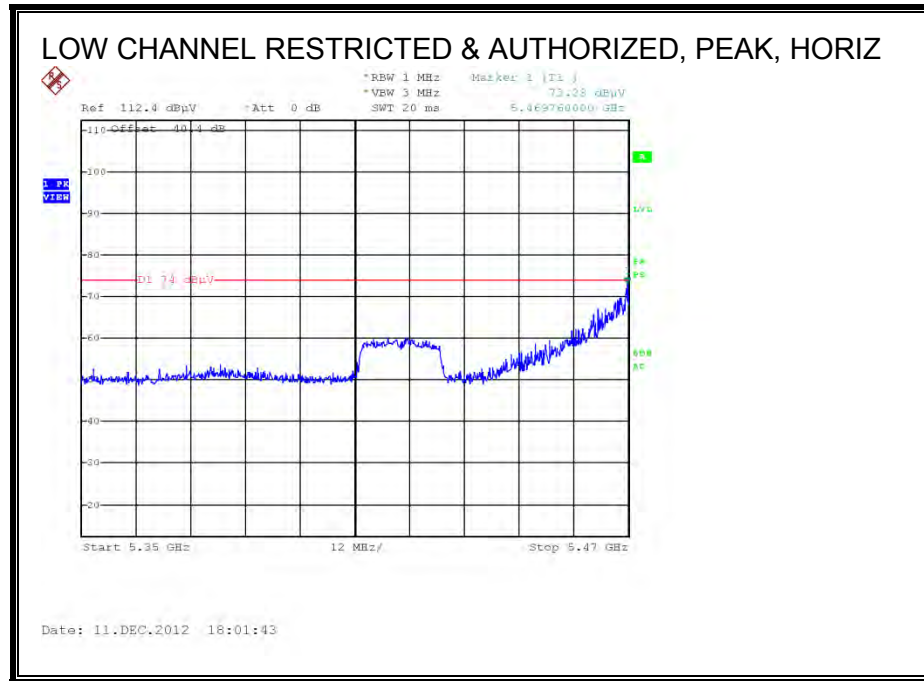


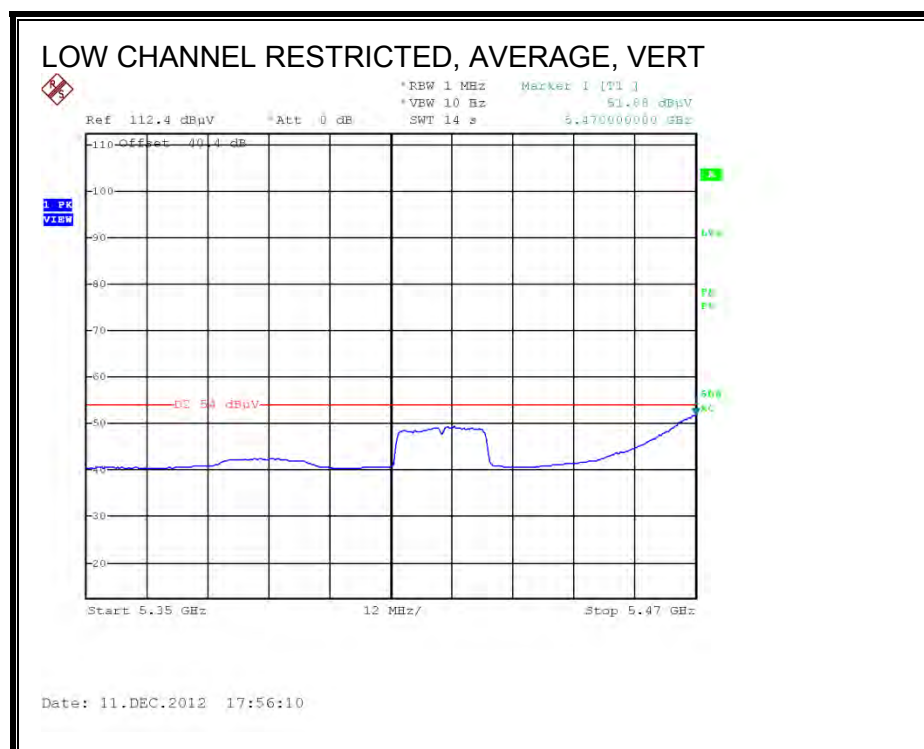
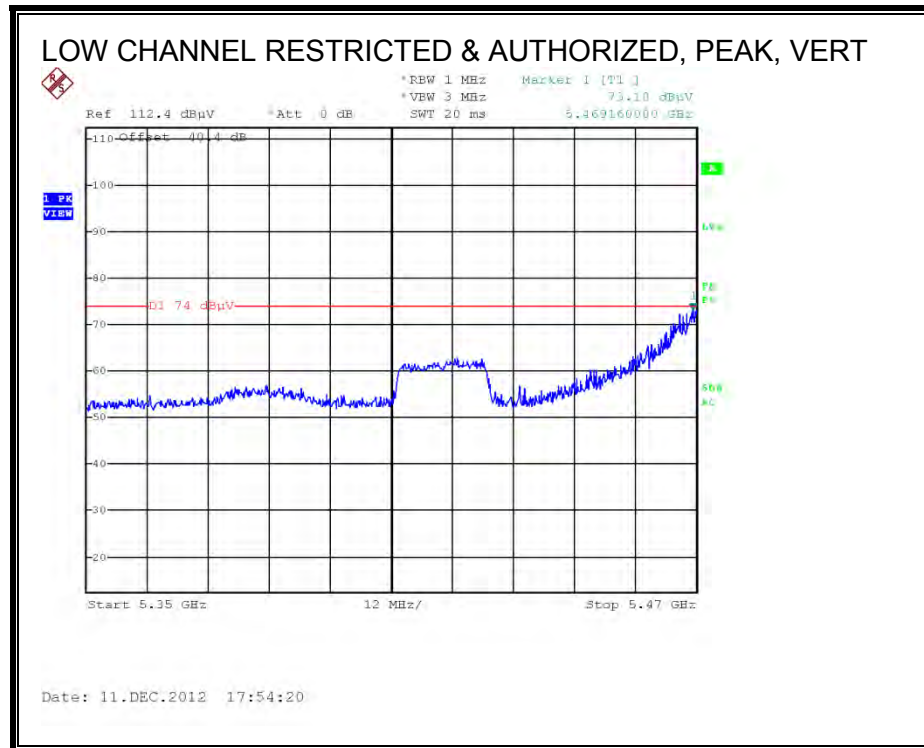
## HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement																	
Compliance Certification Services, Fremont 3m Chamber																	
Company:		Broadcom															
Project #:		12U14669															
Date:		12/6/2012															
Test Engineer:		M. Mekuria/Danny Vu															
Configuration:		EUT, Adapter Board, Antenna															
Mode:		11n HT20 3TX mode															
<b>Test Equipment:</b>																	
Horn 1-18GHz				Pre-amplifier 1-26GHz				Pre-amplifier 26-40GHz				Horn > 18GHz				Limit	
T73; S/N: 6717 @3m				T144 Miteq 3008A00931				T88 Miteq 26-40GHz				T39; ARA 18-26GHz; S/N:1013				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	
<div style="display: flex; justify-content: space-between;"> <div> <b>Peak Measurements</b> RBW=VBW=1MHz <b>Average Measurements</b> RBW=1MHz ; VBW=10Hz </div> </div>																	
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)		
<b>Low Channel (5500 MHz)</b>																	
11.000	3.0	49.3	37.9	38.4	10.5	-35.6	0.0	0.0	62.5	51.1	74	54	-11.5	-2.9	H, q86		
11.000	3.0	50.6	39.7	38.4	10.5	-35.6	0.0	0.0	63.8	52.9	74	54	-10.2	-1.1	V, q86		
<b>Mid Channel (5580 MHz)</b>																	
11.160	3.0	48.8	37.1	38.5	10.7	-35.6	0.0	0.0	62.4	50.7	74	54	-11.6	-3.3	H, q85		
11.160	3.0	53.1	39.4	38.5	10.7	-35.6	0.0	0.0	66.7	53.1	74	54	-7.3	-0.9	V, q82		
<b>High Channel (5700 MHz)</b>																	
11.400	3.0	53.1	38.4	38.7	11.1	-35.6	0.0	0.0	67.4	52.7	74	54	-6.6	-1.3	H, q85		
11.400	3.0		38.6	38.7	11.1	-35.6	0.0	0.0	14.3	52.8	74	54	-59.7	-1.2	V, q85		
Rev. 11.10.11																	
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										

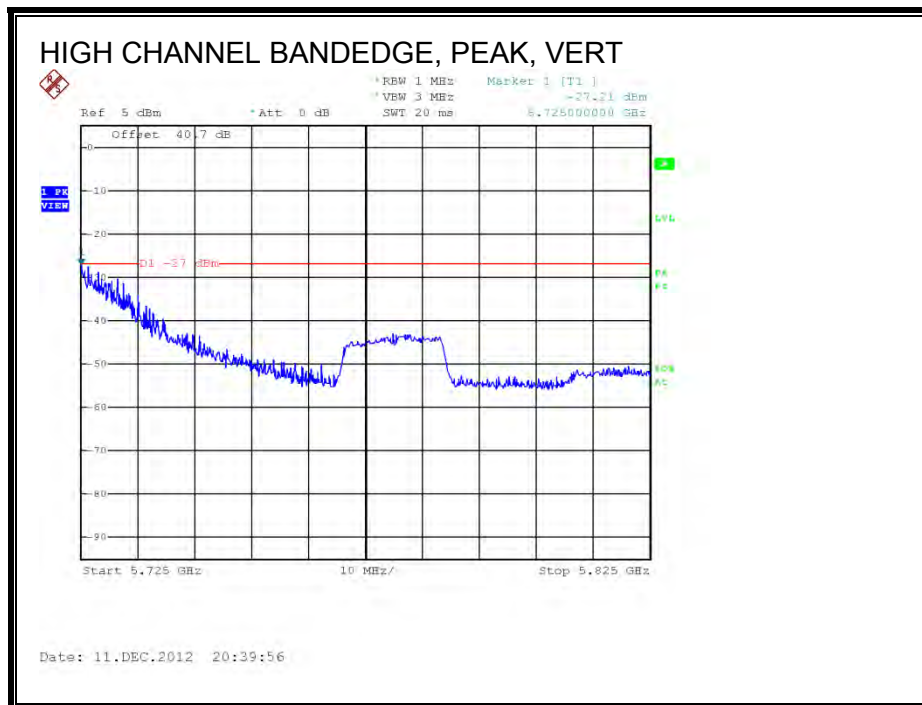
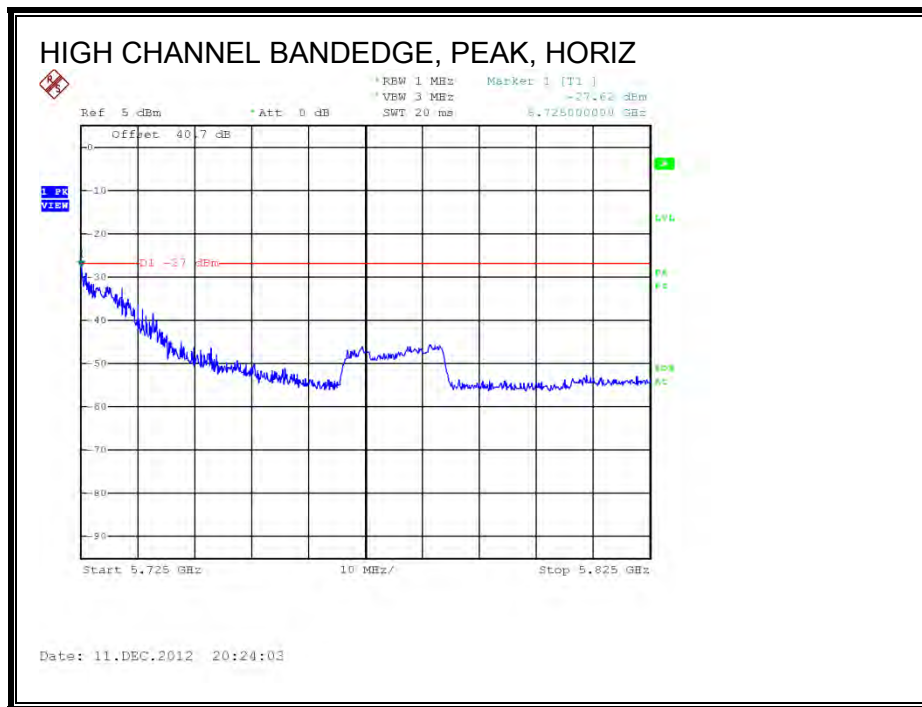
**9.2.16. TX ABOVE 1 GHz 802.11n HT20 BF 3TX MODE, 5.6 GHz BAND**

**RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)**





**AUTHORIZED BANDEDGE (HIGH CHANNEL)**



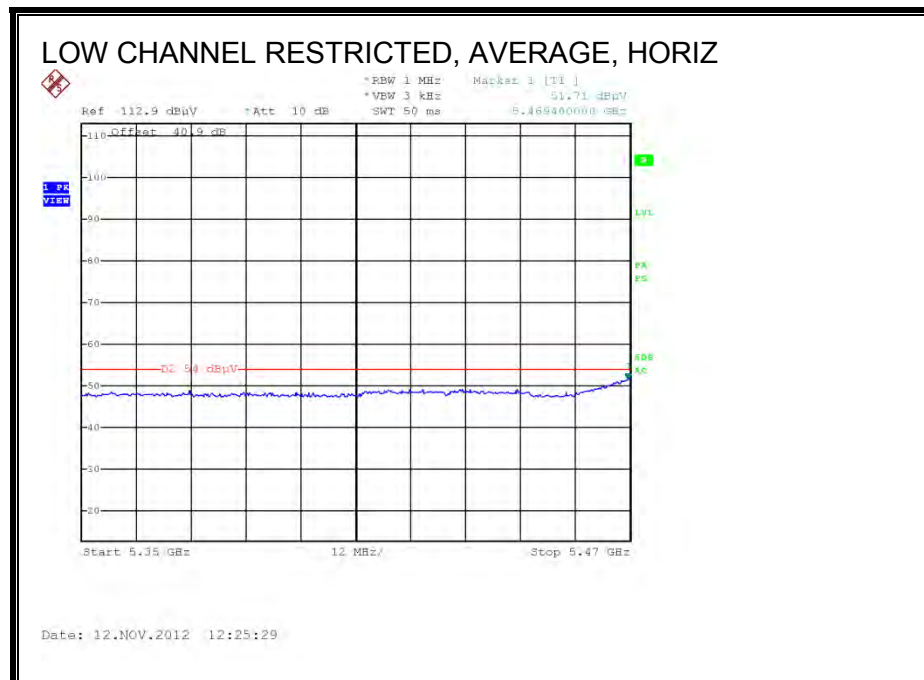
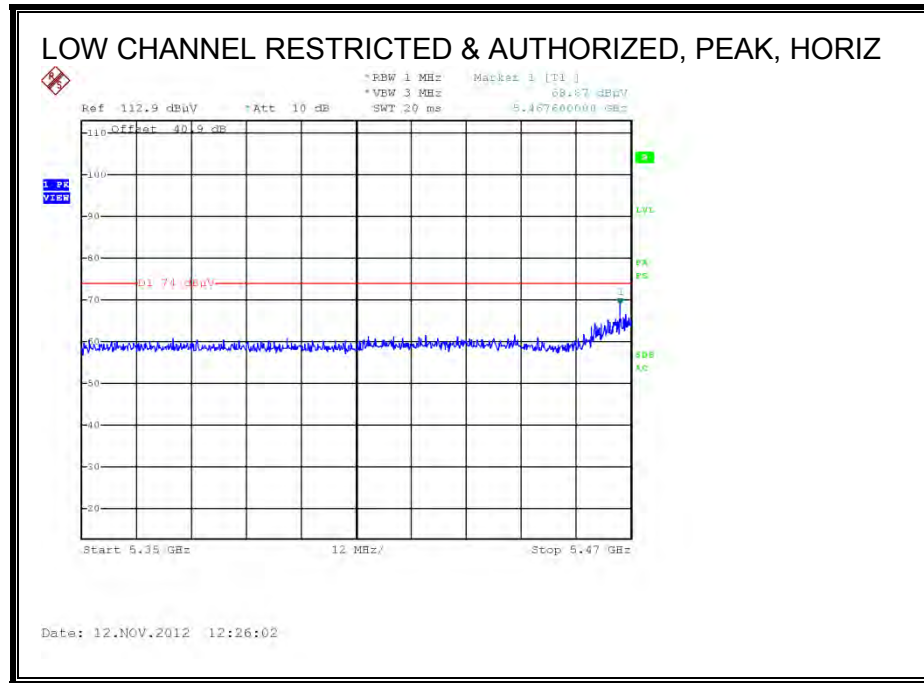


# HARMONICS AND SPURIOUS EMISSIONS

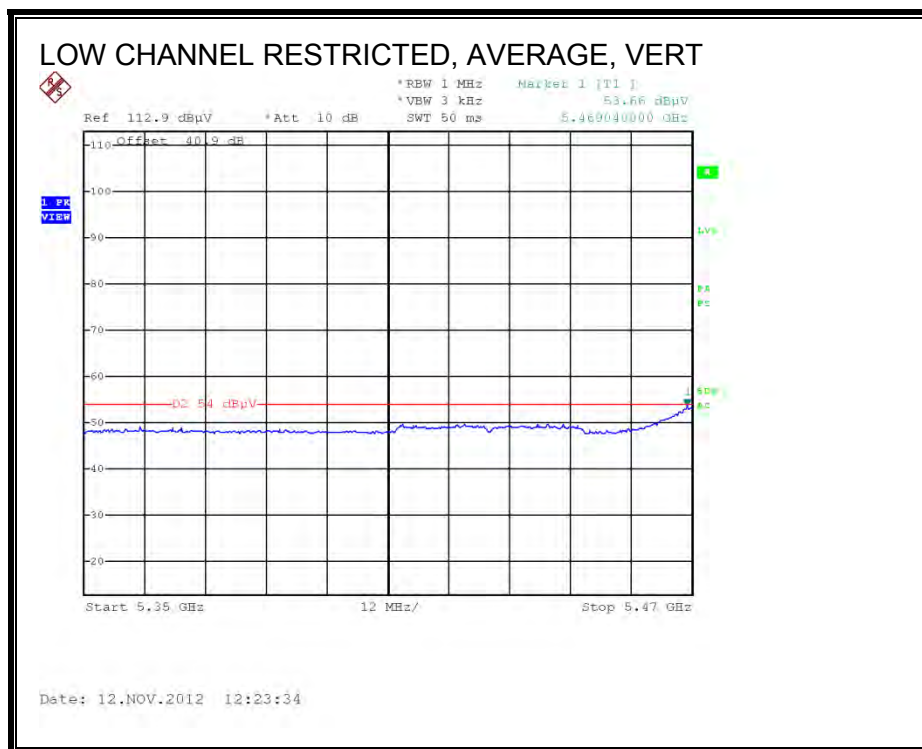
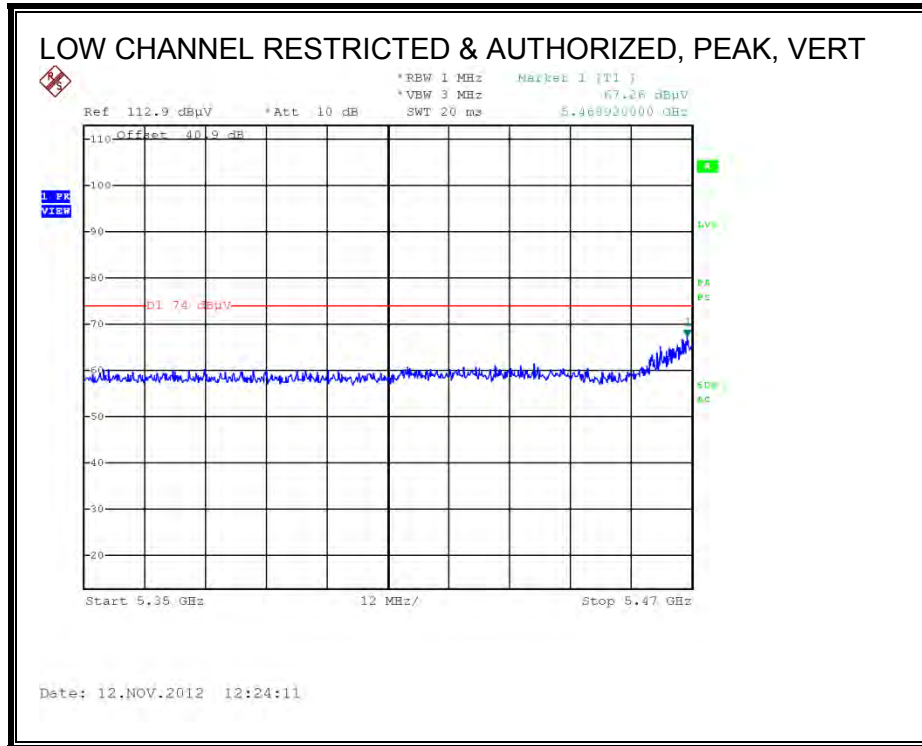
High Frequency Measurement																
Compliance Certification Services, Fremont 3m Chamber																
Company:		Broadcom														
Project #:		12U14669														
Date:		12/12/2012														
Test Engineer:		D. Garcia														
Configuration:		EUT, Adapter Board, Antenna														
Mode:		11n HT20 3TX Beam Forming mode														
Test Equipment:																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit				
T73; S/N: 6717 @3m			T144 Miteq 3008A00931			T88 Miteq 26-40GHz			T39; ARA 18-26GHz; S/N:1013			FCC 15.205				
Hi Frequency Cables																
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF			Reject Filter			Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz	
3' cable 22807700			12' cable 22807600			20' cable 22807500						R_001				
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr 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 (5500 MHz)																
11.000	3.0	52.9	38.2	38.4	10.5	-35.6	0.0	0.0	66.1	51.4	74	54	-7.9	-2.6	H, q86	
11.000	3.0	54.8	39.9	38.4	10.5	-35.6	0.0	0.0	68.0	53.1	74	54	-6.0	-0.9	V, q85	
Mid Channel (5580 MHz)																
11.160	3.0	49.2	33.2	38.5	10.7	-35.6	0.0	0.0	62.8	46.8	74	54	-11.2	-7.2	H q80	
11.160	3.0	55.8	40.1	38.5	10.7	-35.6	0.0	0.0	69.4	53.7	74	54	-4.6	-0.3	V, q80	
High Channel (5700 MHz)																
11.400	3.0		36.3	38.7	11.1	-35.6	0.0	0.0	14.3	50.6	74	54	-59.7	-3.4	H, q86	
11.400	3.0	49.3	35.1	38.7	11.1	-35.6	0.0	0.0	63.6	49.4	74	54	-10.4	-4.6	V, q86	
Rev. 11.10.11																
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												

**9.2.17. TX ABOVE 1 GHz 802.11n HT40 1TX MODE, 5.6 GHz BAND**

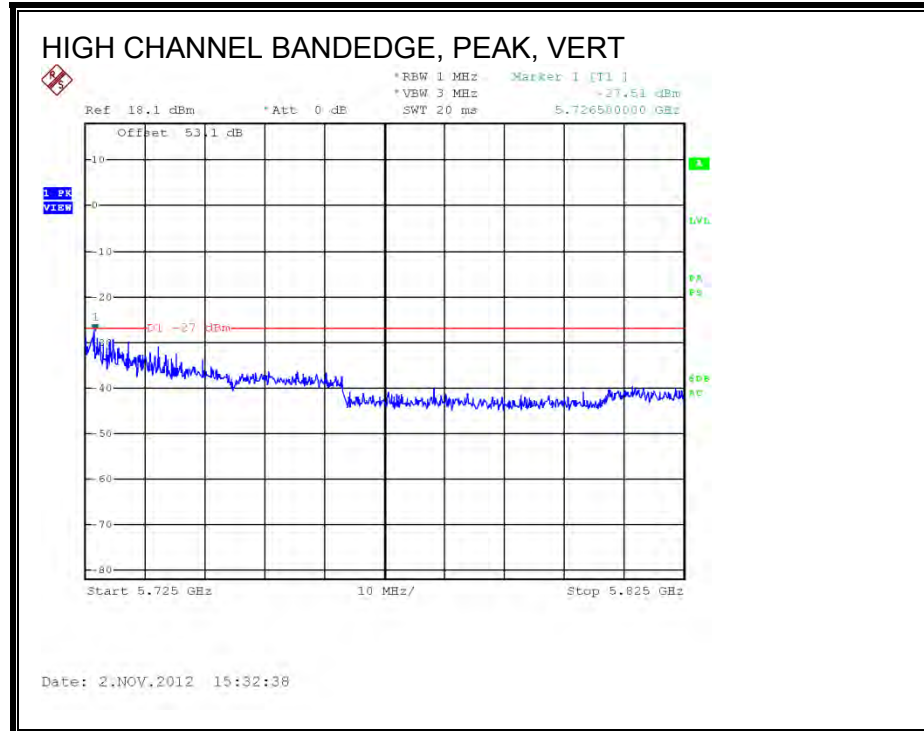
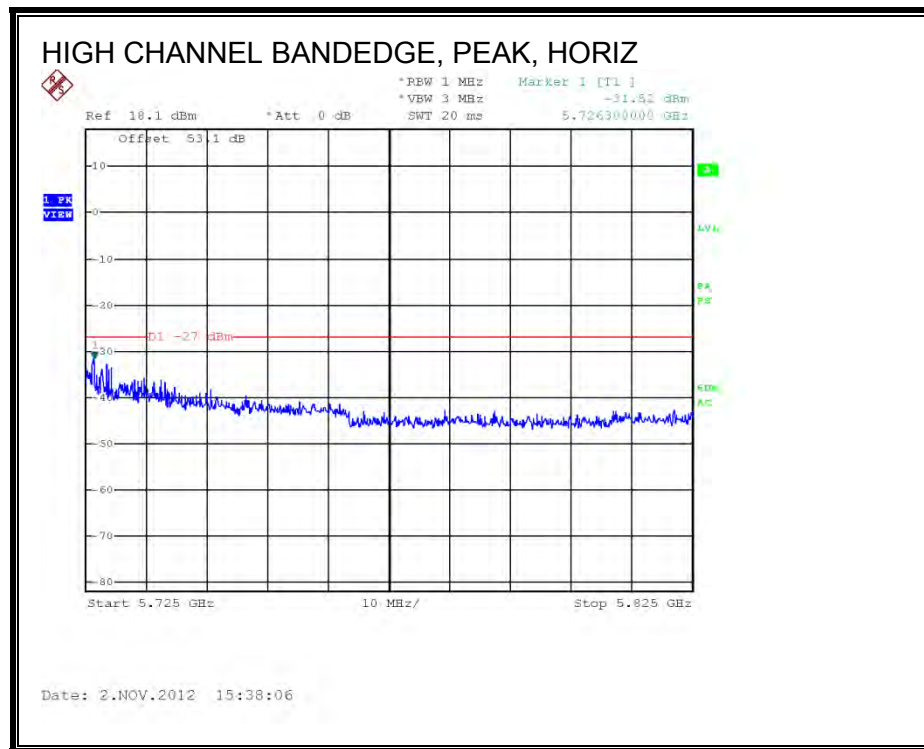
**RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)**







**AUTHORIZED BANDEDGE (HIGH CHANNEL)**

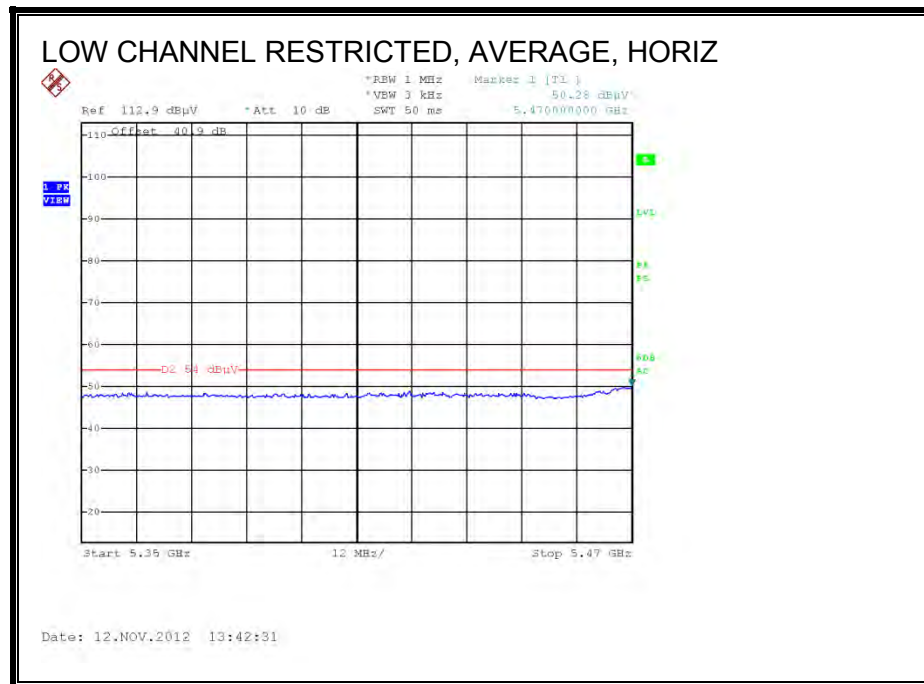
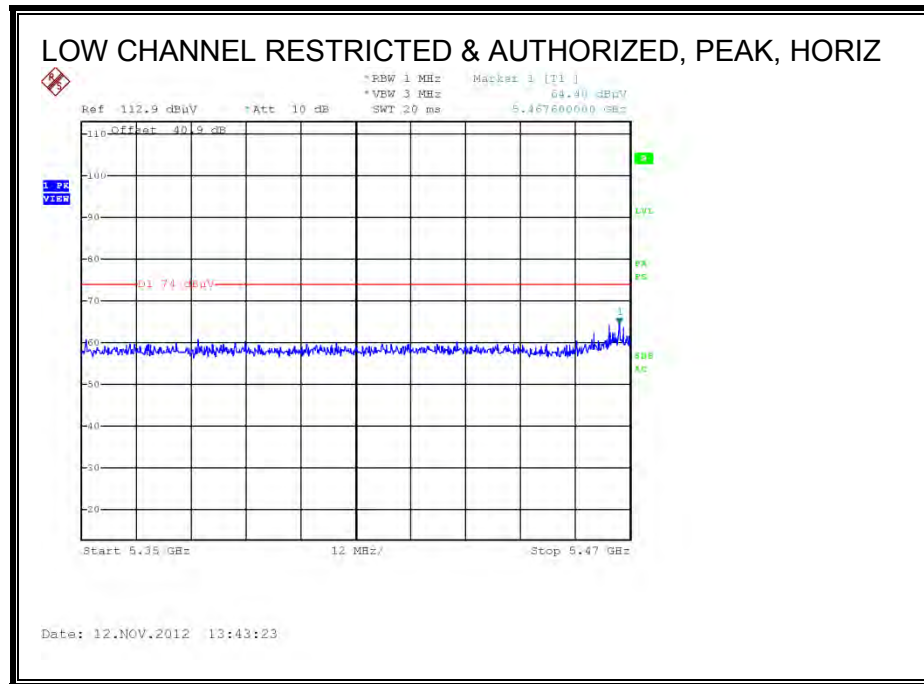


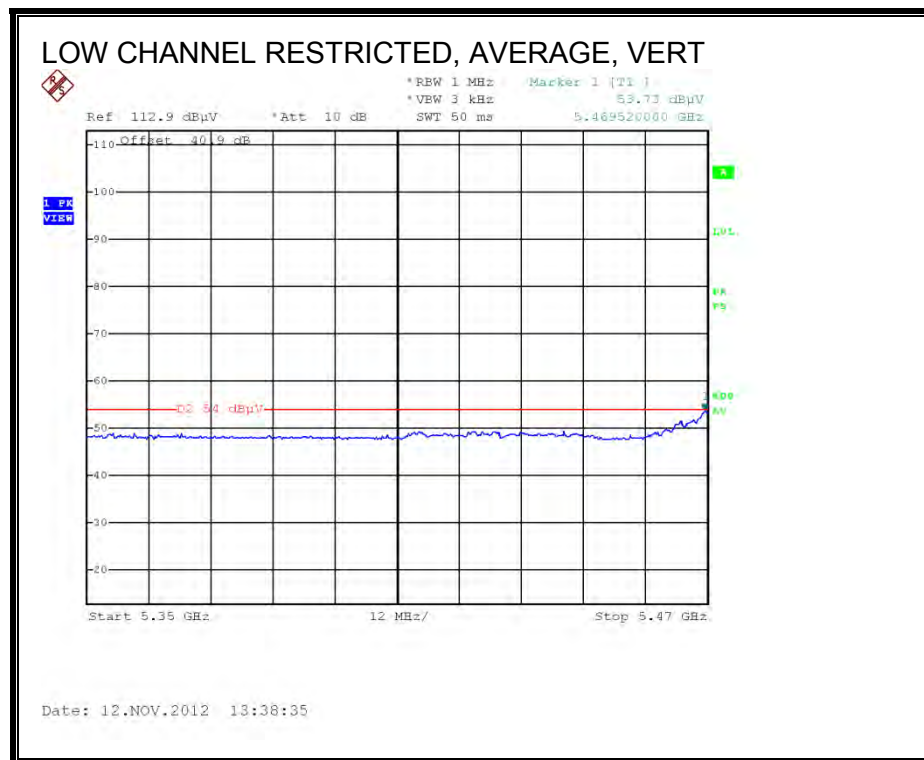
**HARMONICS AND SPURIOUS EMISSIONS**

Covered by testing HT40 CDD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

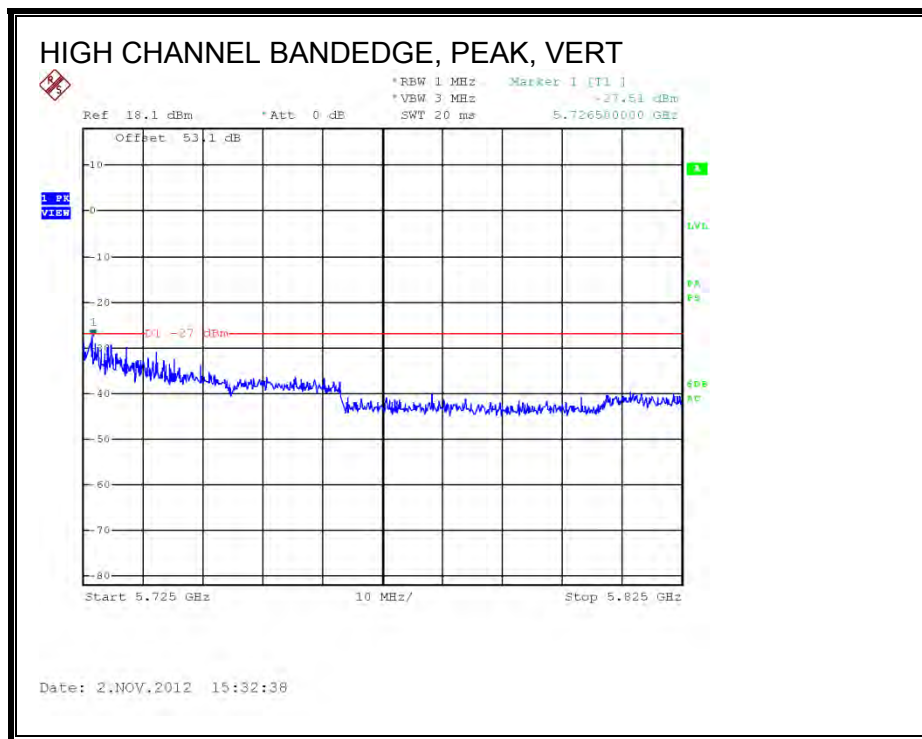
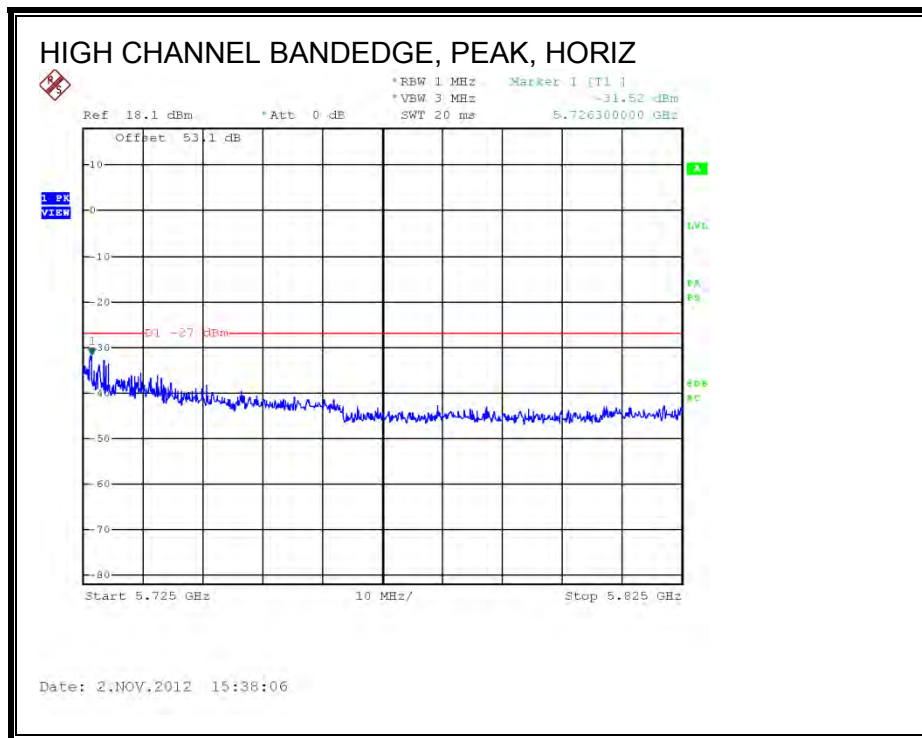
## 9.2.18. TX ABOVE 1 GHz 802.11n HT40 CDD 3TX MODE, 5.6 GHz BAND

### RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)





**AUTHORIZED BANDEDGE (HIGH CHANNEL)**



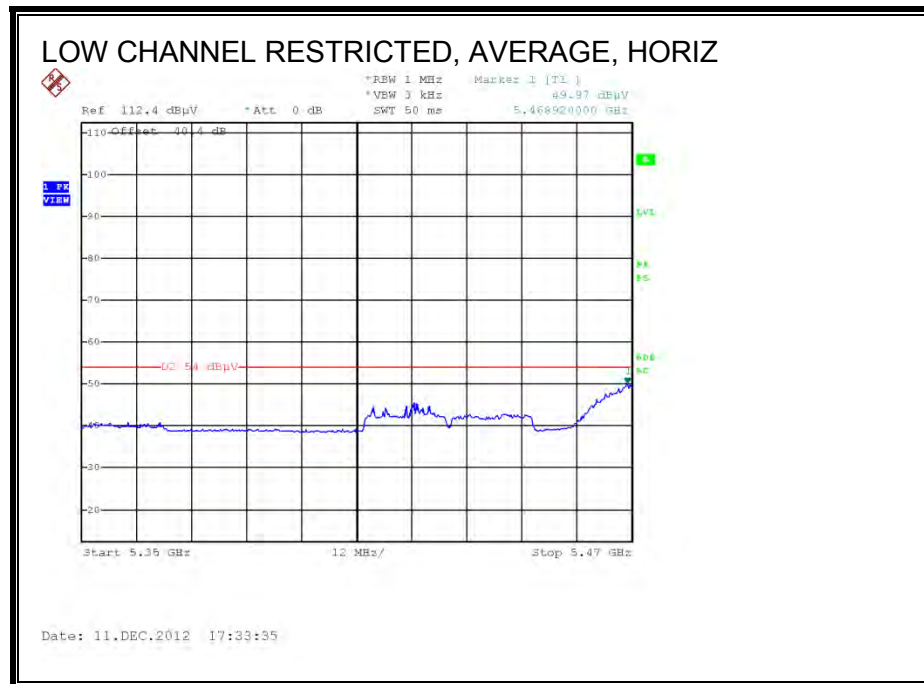
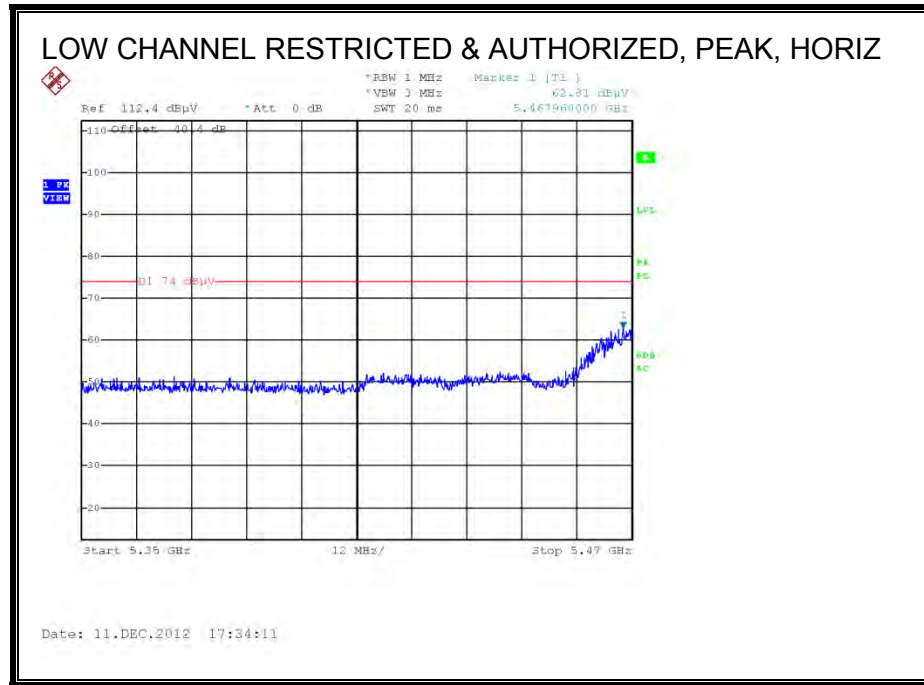
## HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement															
Compliance Certification Services, Fremont 3m Chamber															
Company:		Broadcom													
Project #:		12U14669													
Date:		12/7/2012													
Test Engineer:		M. Mekuria													
Configuration:		EUT, Adapter Board, Antenna													
Mode:		11n HT40 3TX mode													
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz				Limit					
T73; S/N: 6717 @3m		T144 Miteq 3008A00931		T88 Miteq 26-40GHz		T39; ARA 18-26GHz; S/N:1013				FCC 15.205					
Hi Frequency Cables															
3' cable 22807700		12' cable 22807600		20' cable 22807500		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz					
3' cable 22807700		12' cable 22807600		20' cable 22807500				R_001							
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr 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 (5510 MHz)															
11.020	3.0	49.6	38.1	38.4	10.5	-35.6	0.0	0.0	62.8	51.4	74	54	-11.2	-2.6	H, q88
11.020	3.0	49.5	39.3	38.4	10.5	-35.6	0.0	0.0	62.7	52.5	74	54	-11.3	-1.5	V, q88
Mid Channel (5550 MHz)															
11.100	3.0	47.8	36.1	38.5	10.6	-35.6	0.0	0.0	61.3	49.5	74	54	-12.7	-4.5	H, q87
11.100	3.0	49.2	37.9	38.5	10.6	-35.6	0.0	0.0	62.7	51.4	74	54	-11.3	-2.6	V, q87
High Channel (5670 MHz)															
11.340	3.0	48.9	36.6	38.7	11.0	-35.6	0.0	0.0	63.0	50.7	74	54	-11.0	-3.3	H, q88
11.340	3.0	48.9	37.6	38.7	11.0	-35.6	0.0	0.0	63.0	51.7	74	54	-11.0	-2.3	V, q88
Rev. 11.10.11															
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								

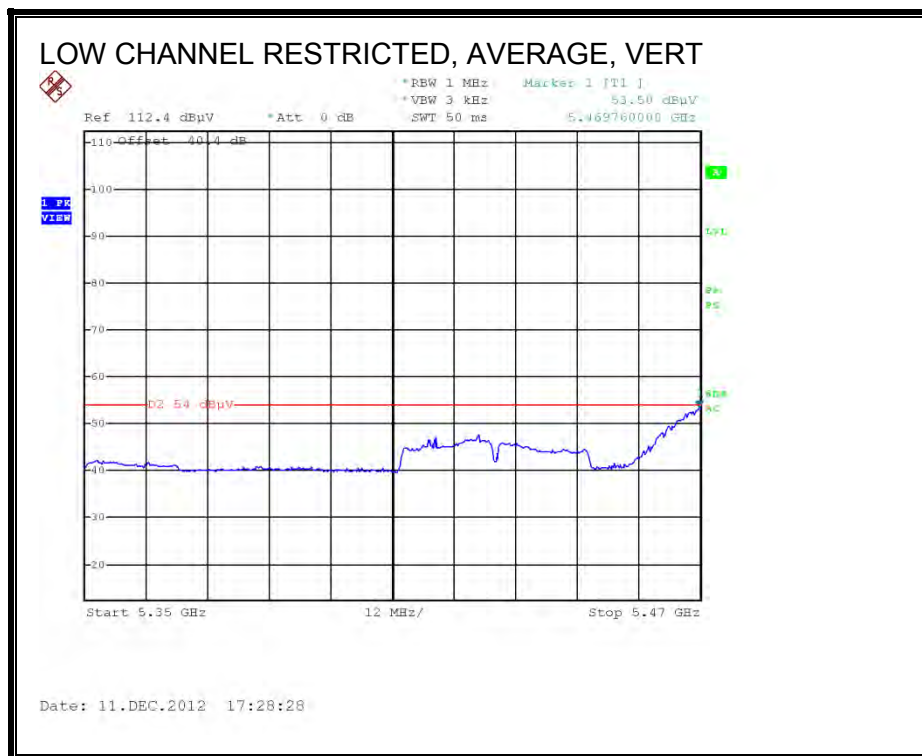
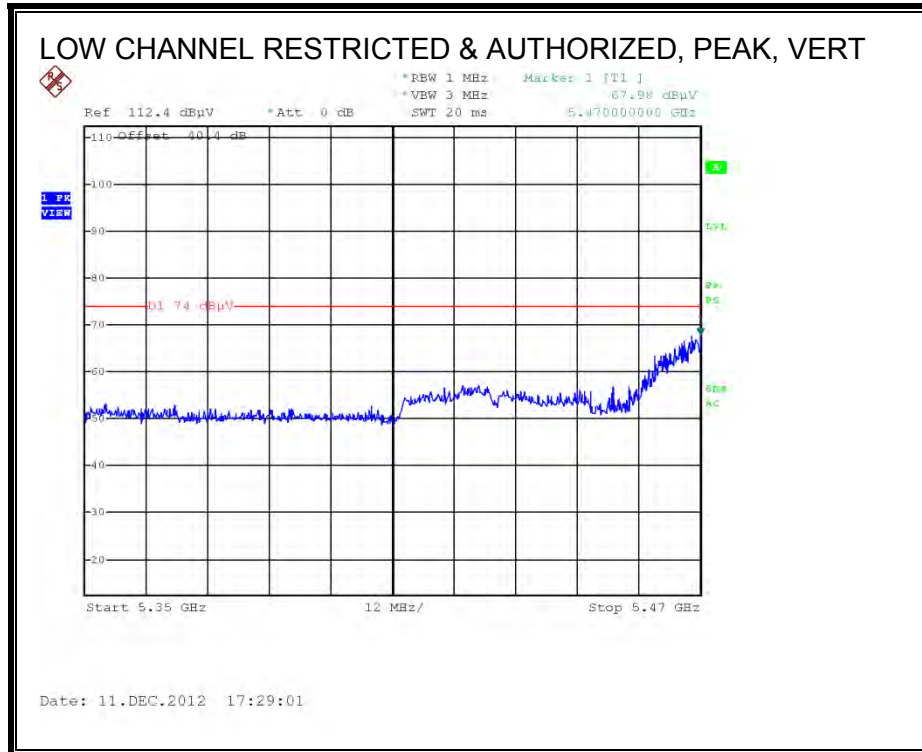


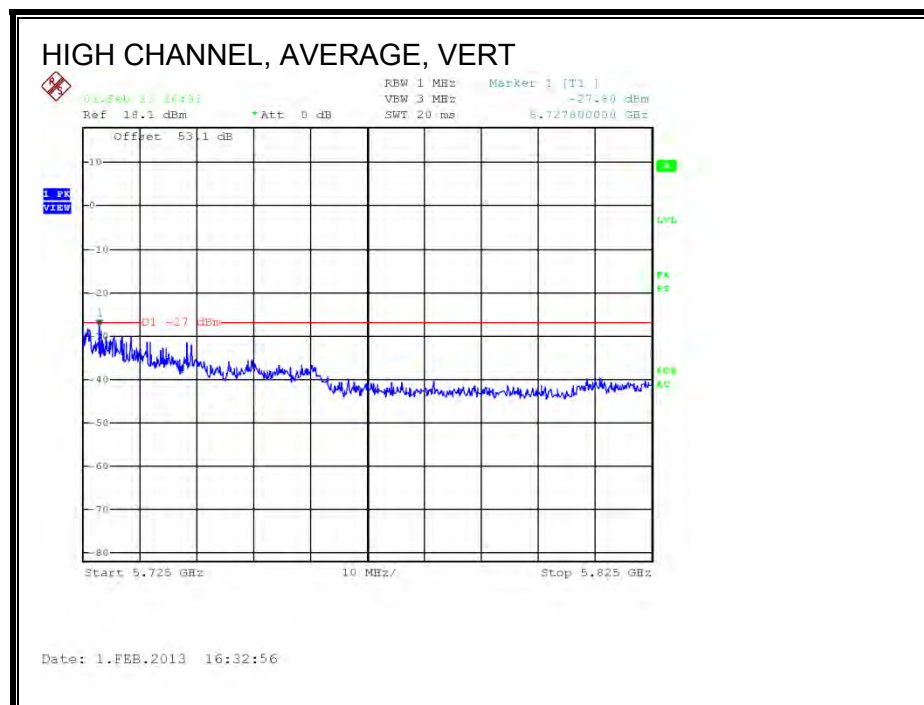
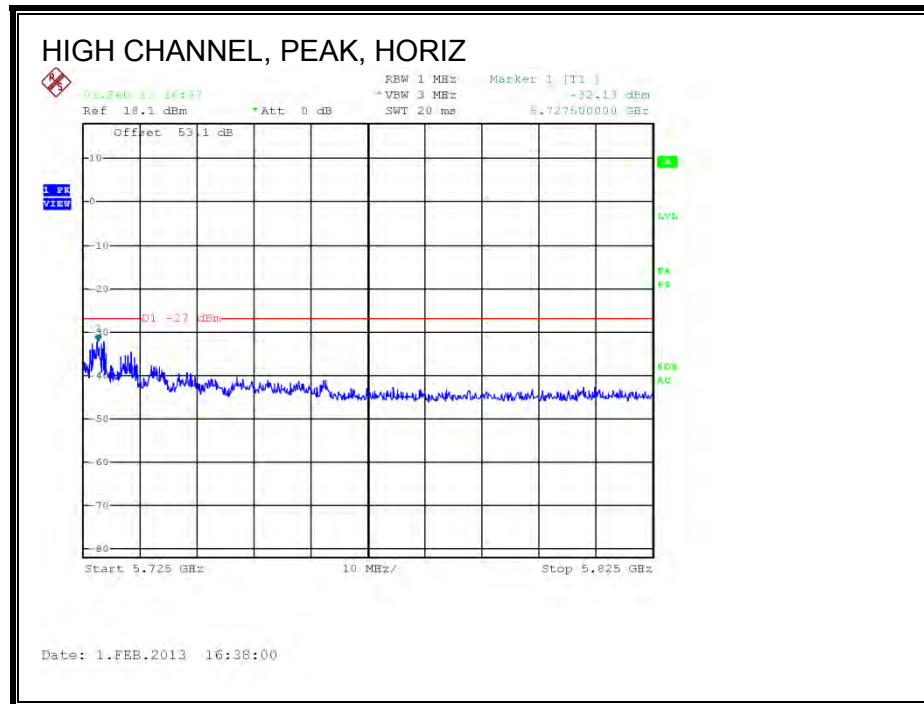
**9.2.19. TX ABOVE 1 GHz 802.11n HT40 BF 3TX MODE, 5.6 GHz BAND**

**RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)**









## HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement															
Compliance Certification Services, Fremont 3m Chamber															
Company:		Broadcom													
Project #:		12U14669													
Date:		12/12/2012													
Test Engineer:		D. Garcia													
Configuration:		EUT, Adapter Board, Antenna													
Mode:		11n HT40 3TX Beam Forming mode													
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz				Limit					
T73; S/N: 6717 @3m		T144 Miteq 3008A00931		T88 Miteq 26-40GHz		T39; ARA 18-26GHz; S/N:1013				FCC 15.205					
Hi Frequency Cables															
3' cable 22807700		12' cable 22807600		20' cable 22807500		HPF		Reject Filter		Peak Measurements RBW=1MHz ; VBW=3MHz Average Measurements RBW=1MHz ; VBW=1.1kHz					
3' cable 22807700		12' cable 22807600		20' cable 22807500				R_001							
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr 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 (5510 MHz)															
11.020	3.0	49.2	37.8	38.4	10.5	-35.6	0.0	0.0	62.4	51.1	74	54	-11.6	-2.9	H, q88
11.020	3.0	32.3	40.1	38.4	10.5	-35.6	0.0	0.0	45.6	53.4	74	54	-28.4	-0.6	V, q88
Mid Channel (5550 MHz)															
11.100	3.0	51.5	40.0	38.5	10.6	-35.6	0.0	0.0	65.0	53.4	74	54	-9.0	-0.6	V, q86
11.100	3.0	47.2	36.2	38.5	10.6	-35.6	0.0	0.0	60.7	49.7	74	54	-13.3	-4.3	H, q86
HighChannel (5670 MHz)															
11.340	3.0	47.4	36.8	38.7	11.0	-35.6	0.0	0.0	61.5	50.9	74	54	-12.5	-3.1	V, q86
11.340	3.0	48.4	36.9	38.7	11.0	-35.6	0.0	0.0	62.5	51.0	74	54	-11.5	-3.0	H, q86
Rev. 11.10.11															
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								

### 9.3. WORST-CASE BELOW 1 GHz

#### HORIZONTAL AND VERTICAL DATA

Project No:12U14669  
Client Name:Broadcom  
Model / Device: BCM94360CD  
Config / Other:EUT, Adapter Board, Antenna  
Test By:John Nguyen

Test Frequency	Meter Reading	Detector	25MHz-1GHz ChmbrA Amplifie d.TX (dB)	T243 Sunol Bilog.TXT (dB)	dBuV/m	CFR 47 Part 15 Class B 3m	Margin	Height [cm]	Polarity
Horizontal 30 - 1000MHz									
160.8453	52.8	PK	-26.5	12	38.3	43.5	-5.2	200	Horz
299.6383	55.19	PK	-25.8	13.2	42.59	46	-3.41	300	Horz
798.789	42.81	PK	-23.3	21	40.51	46	-5.49	100	Horz
Vertical 30 - 1000MHz									
47.0584	46.58	PK	-27.4	9.4	28.58	40	-11.42	100	Vert
66.249	46.38	PK	-27.2	7.8	26.98	40	-13.02	100	Vert
294.4045	44.64	PK	-25.8	13.3	32.14	46	-13.86	200	Vert

PK - Peak detector

QP - Quasi-Peak detector

## 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
<p>Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna</p> <p>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.</p>	

**Table 4: DFS Response requirement values**

Parameter	Value
<i>Non-occupancy period</i>	30 minutes
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds
<i>Channel Closing Transmission Time</i>	200 milliseconds + approx. 60 milliseconds over remaining 10 second period
<p>The instant that the <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> begins is as follows:</p> <p>For the Short pulse radar Test Signals this instant is the end of the <i>Burst</i>.</p> <p>For the Frequency Hopping radar Test Signal, this instant is the end of the last radar burst generated.</p> <p>For the Long Pulse radar Test Signal this instant is the end of the 12 second period defining the radar transmission.</p> <p>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.</p>	

**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





## **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 Frequency 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.

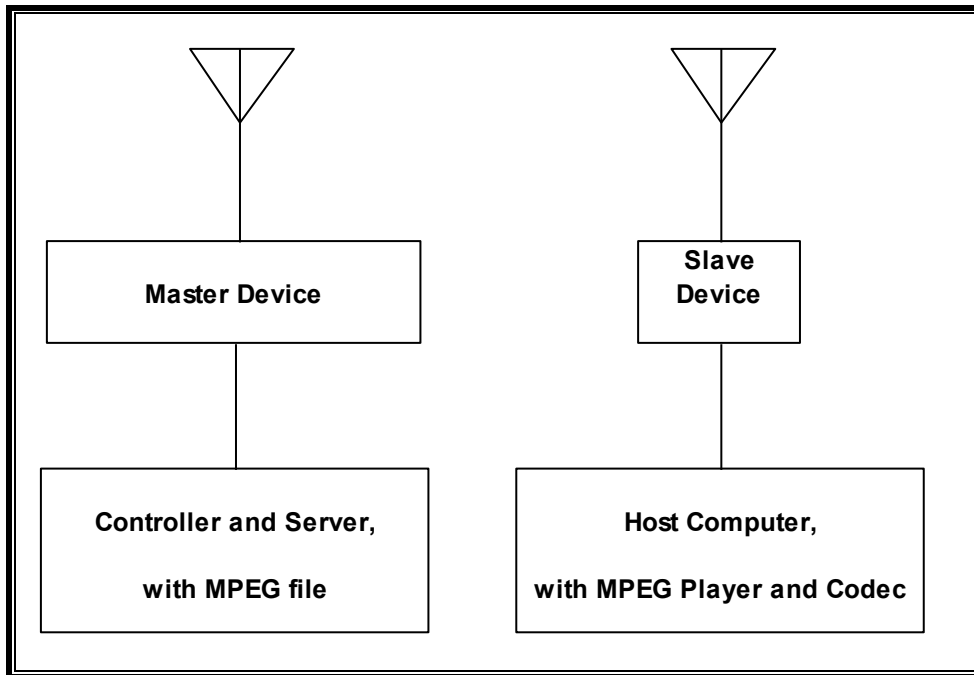
### **TEST AND MEASUREMENT EQUIPMENT**

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, 26.5 GHz	Agilent / HP	E4440A	C01178	08/18/13
Vector Signal Generator, 20GHz	Agilent / HP	E8267C	C01066	11/20/13

### 10.1.3. SETUP OF EUT

#### RADIATED METHOD EUT TEST SETUP



#### SUPPORT EQUIPMENT

The following support equipment was utilized for the DFS tests documented in this report:

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
N600 Wireless Dual Band Router	Netgear	WNDR3400	2BK311730FF6B	PY309300116
AC Adapter (AP)	Netgear	FA-1201500SJA / FA-1201500SUA	4F105116T10209045B	DoC
Notebook PC (Controller/Server)	HP	Pavilion zv6000	CND5290401	DoC
AC Adapter (Controller/Server PC)	HP	PA-1121-12HD	58B240ALLRK0HU	DoC
Notebook PC (Host)	Apple	MacBook Pro A1297	C02H124BDV10	DoC
AC Adapter (Host PC)	Delta Electronics	ADP-85EB T V85	C04207625HVDJ92BD	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 capabilities.

The highest power level within these bands is 27.34 dBm EIRP in the 5250-5350 MHz band and 27.41 dBm EIRP in the 5470-5725 MHz band.

The highest gain antenna assembly consists of 3 antennas with individual gains of 5.53 dBi, 1.34 dBi and 1.93 dBi in the 5250-5350 MHz band and 5.53 dBi, 2.68 dBi and 1.26 dBi in the 5470-5725 MHz band. The lowest gain antenna assembly consists of 3 antennas with individual gains of 4.52 dBi, 3.21 dBi and 1.48 dBi in the 5250-5350 MHz band and 4.72 dBi, 2.09 dBi and 2.85 dBi in the 5470-5725 MHz band.

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

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is -64 dBm. After correction for procedural adjustments, the required radiated threshold at the antenna port is  $-64 + 1 = -63$  dBm.

The calibrated radiated DFS Detection Threshold level is set to -64 dBm. The tested level is lower than the required level hence it provides margin to the limit.

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

WLAN traffic exceeding the transmitter minimum activity ratio of 30% is generated by streaming the compressed video file "6 ½ Magic Hours" from the Master to the Slave in full motion video.

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 access point is Linux revision 5.22.84.0.

**MANUFACTURER'S STATEMENT REGARDING UNIFORM CHANNEL SPREADING**

This is not applicable to slave devices.

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

The Master Device is a Netgear N600 Dual Band Router, FCC ID: PY309300116. The DFS software installed in the Master Device is Linux revision 5.22.84.0. The minimum antenna gain for the Master Device is 2.73 dBi.

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

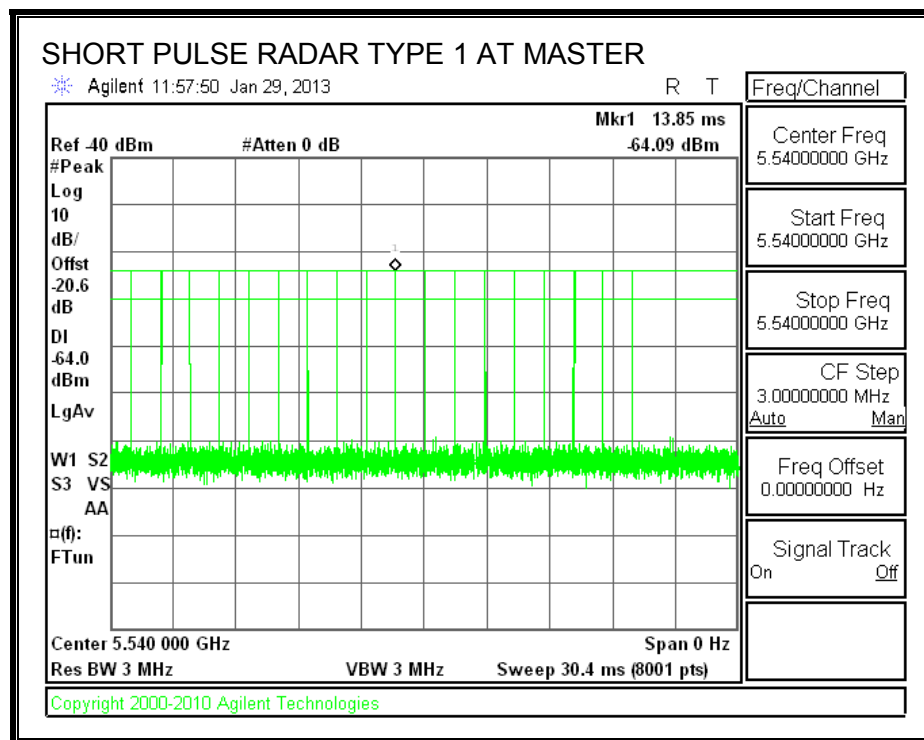
## 10.2. RESULTS FOR 20 MHz BANDWIDTH

### 10.2.1. TEST CHANNEL

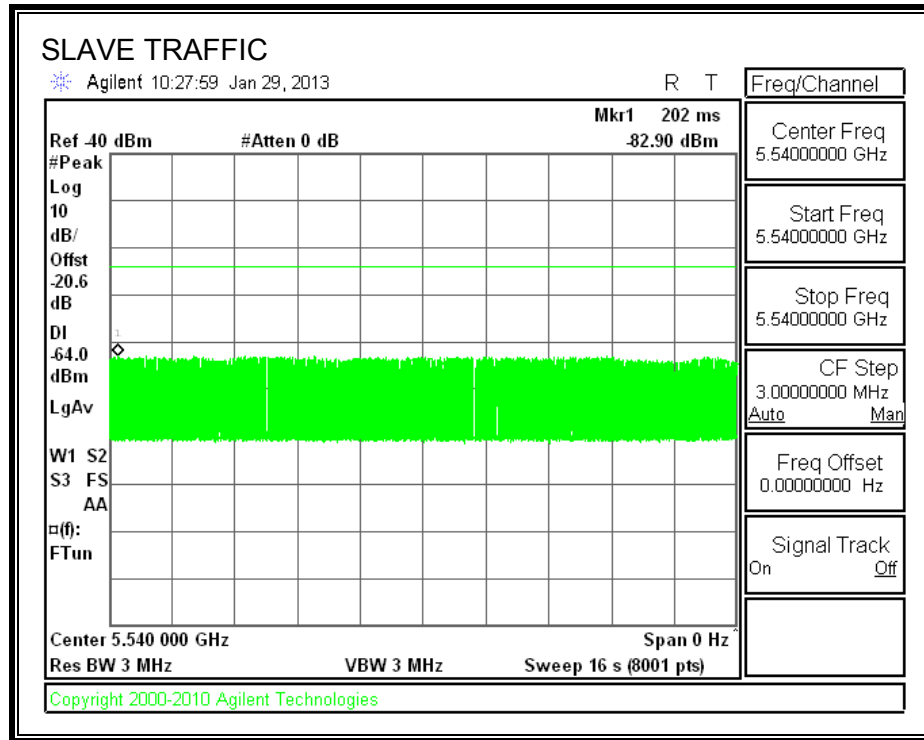
All tests were performed at a channel center frequency of 5540 MHz.

### 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).

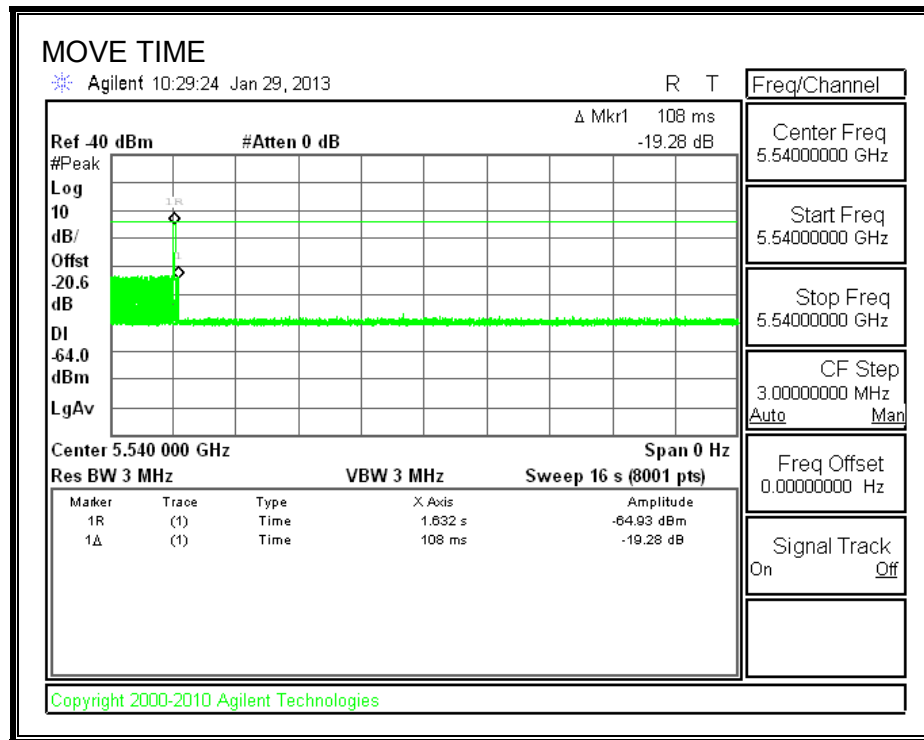
#### RESULTS

Agency	Channel Move Time (sec)	Limit (sec)
FCC / IC	0.108	10

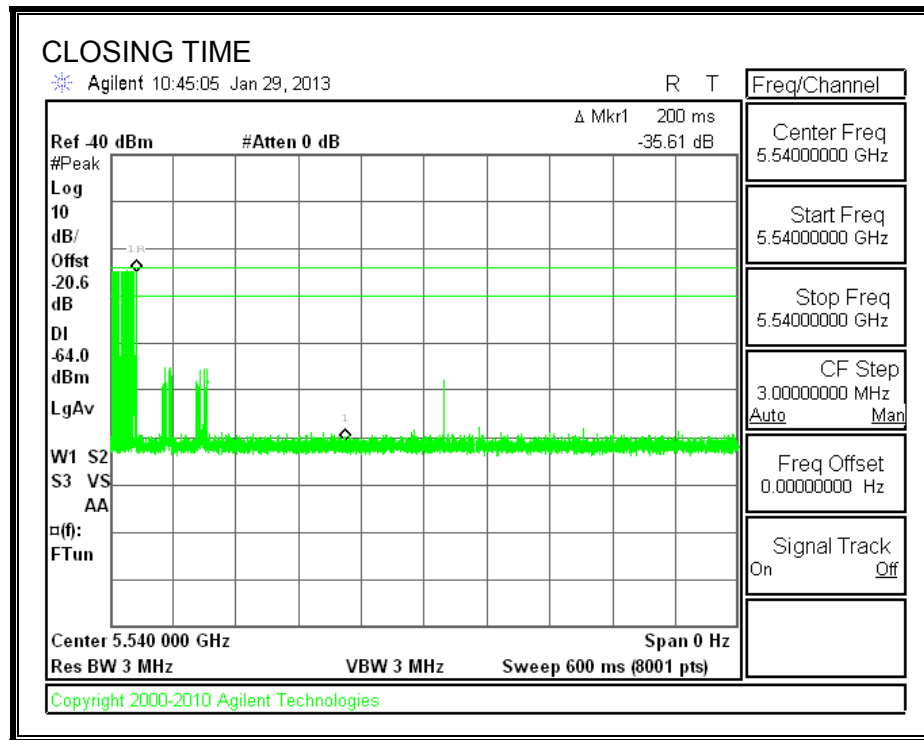
Agency	Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
FCC	0.0	60
IC	40.0	260



# **MOVE TIME**

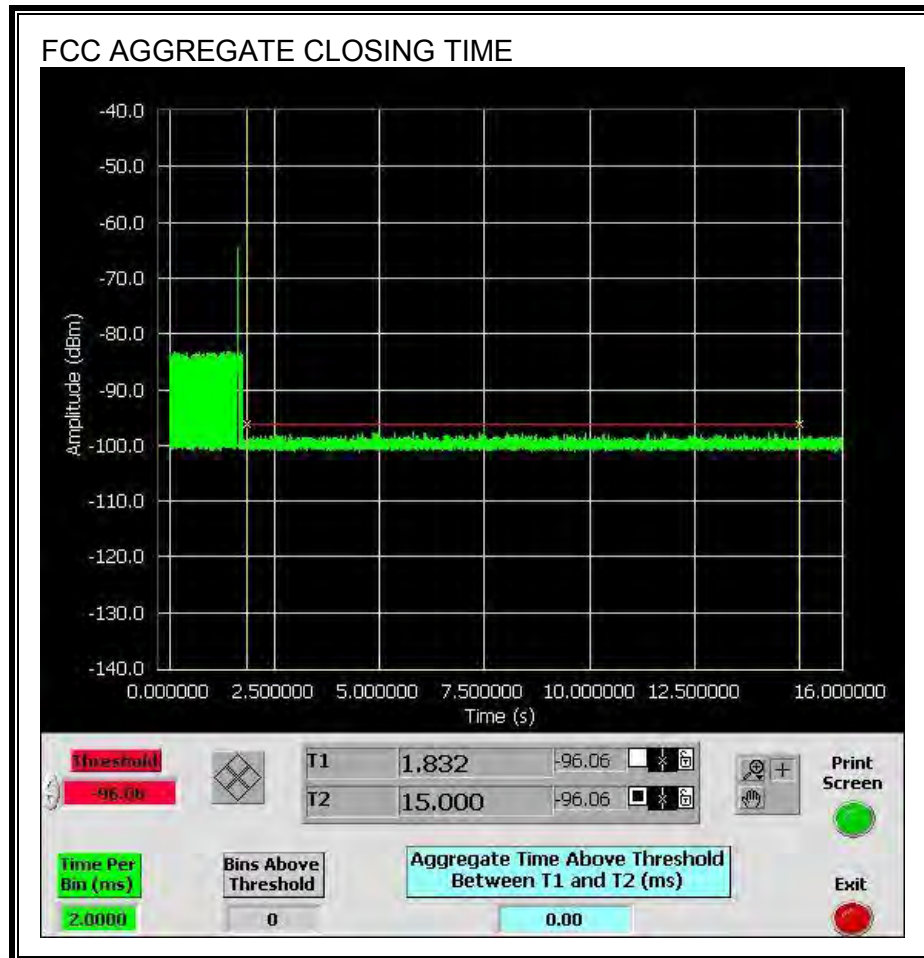


# **CHANNEL CLOSING TIME**

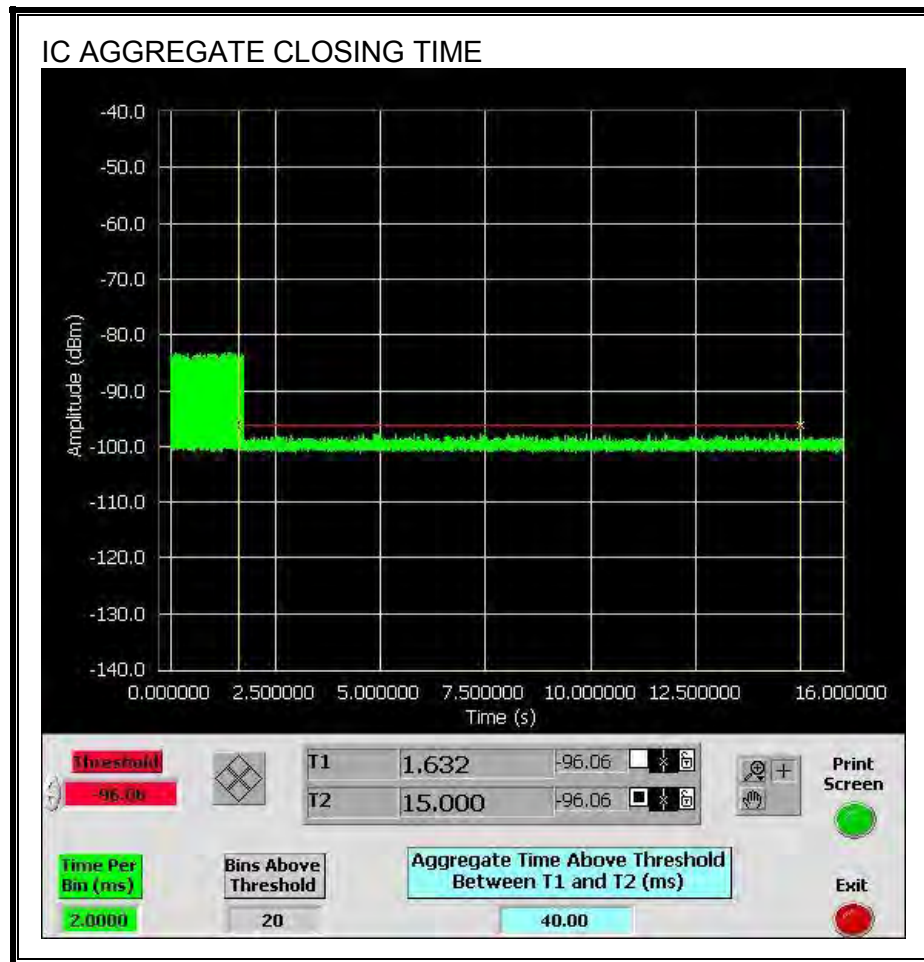


### AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the FCC aggregate monitoring period.



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



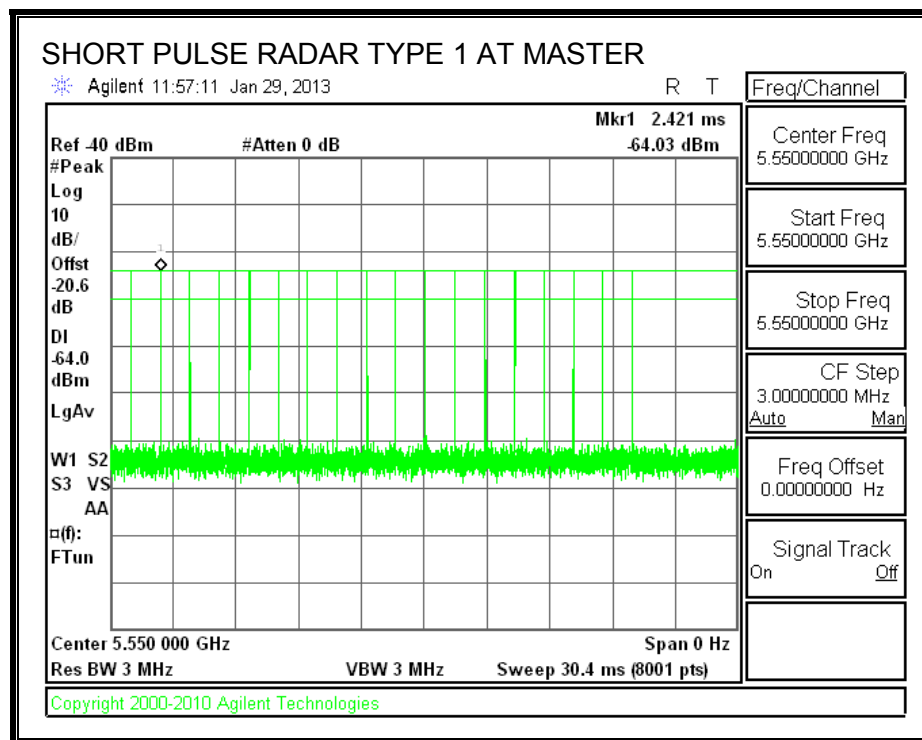
### 10.3. RESULTS FOR 40 MHz BANDWIDTH

#### 10.3.1. TEST CHANNEL

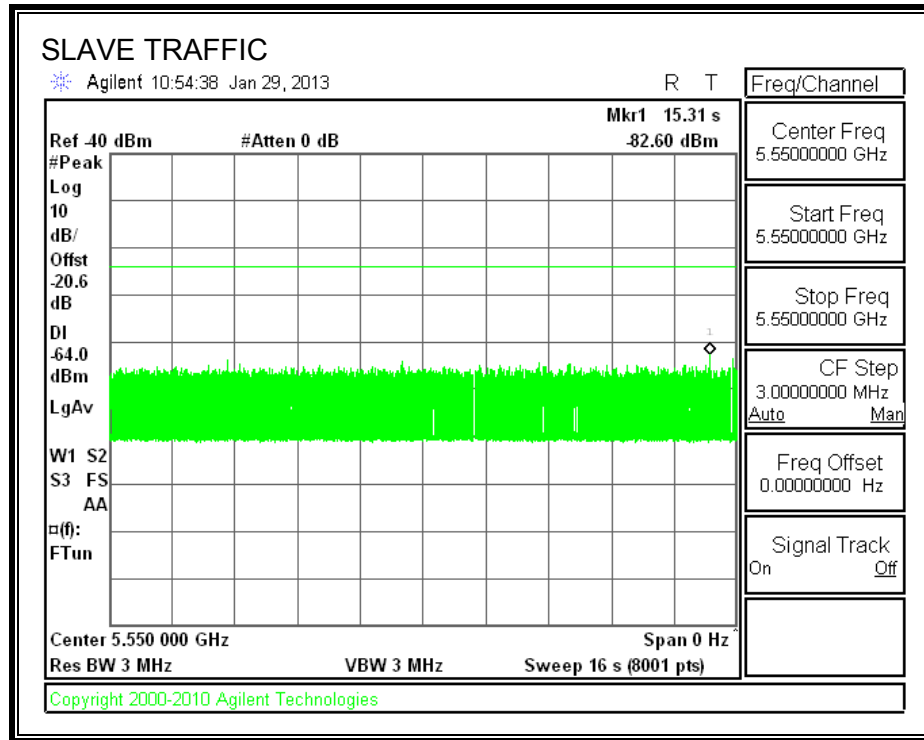
All tests were performed at a channel center frequency of 5550 MHz.

#### 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).

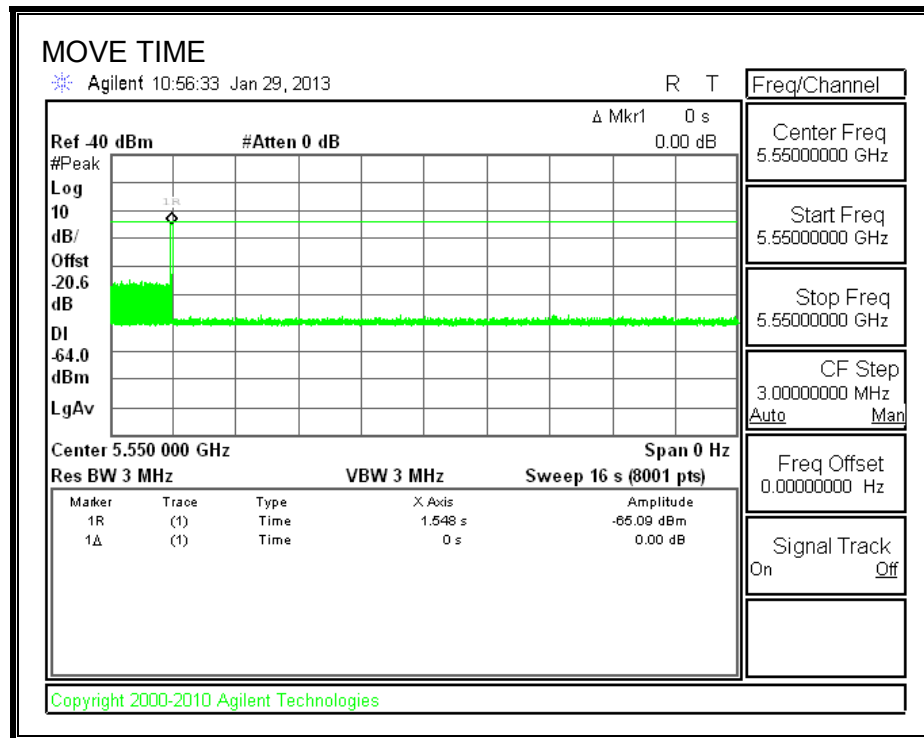
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

#### RESULTS

Agency	Channel Move Time (sec)	Limit (sec)
FCC / IC	0.000	10

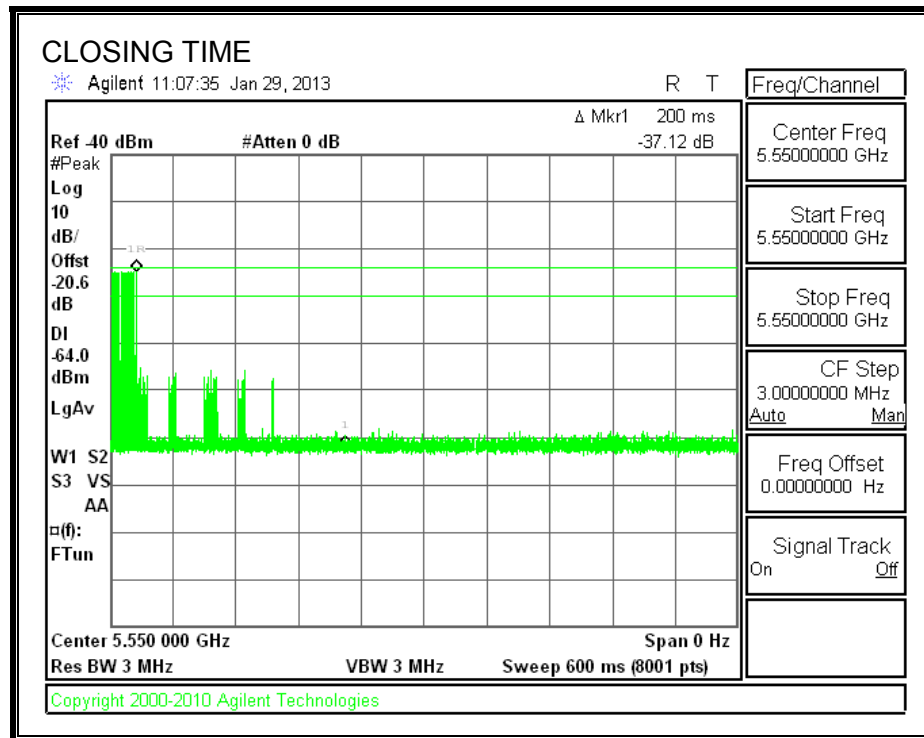
Agency	Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
FCC	0.0	60
IC	0.0	260

# MOVE TIME



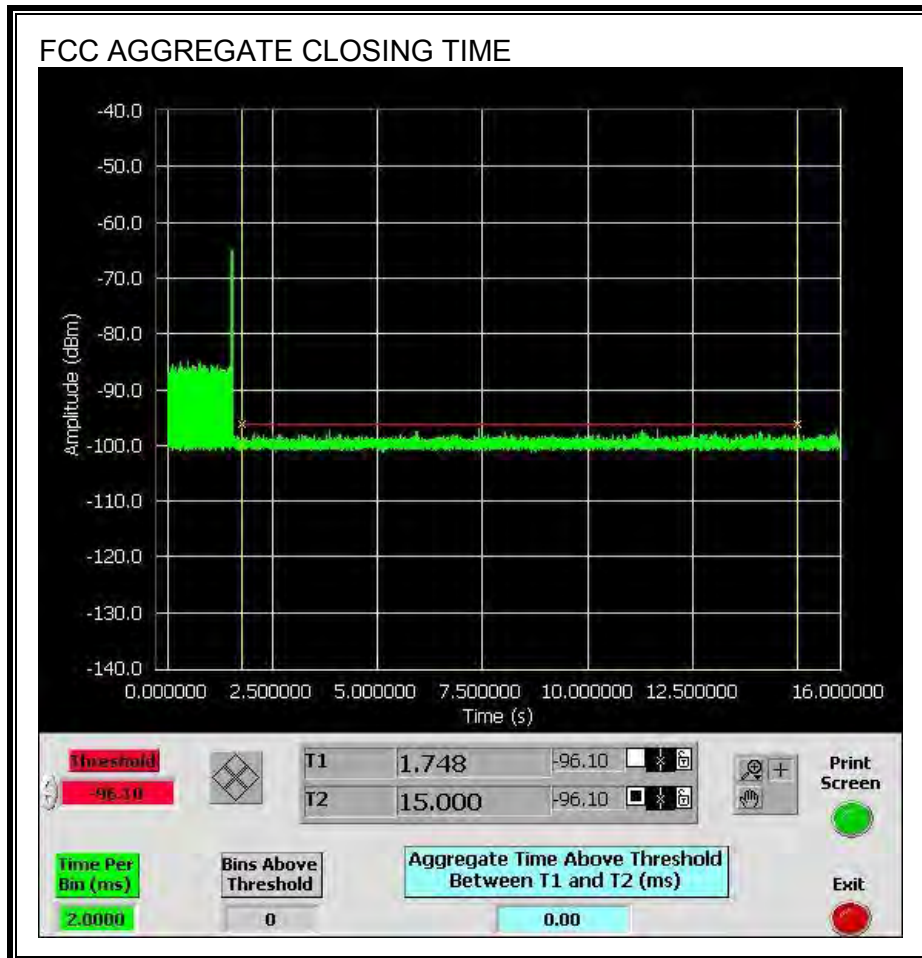


**CHANNEL CLOSING TIME**

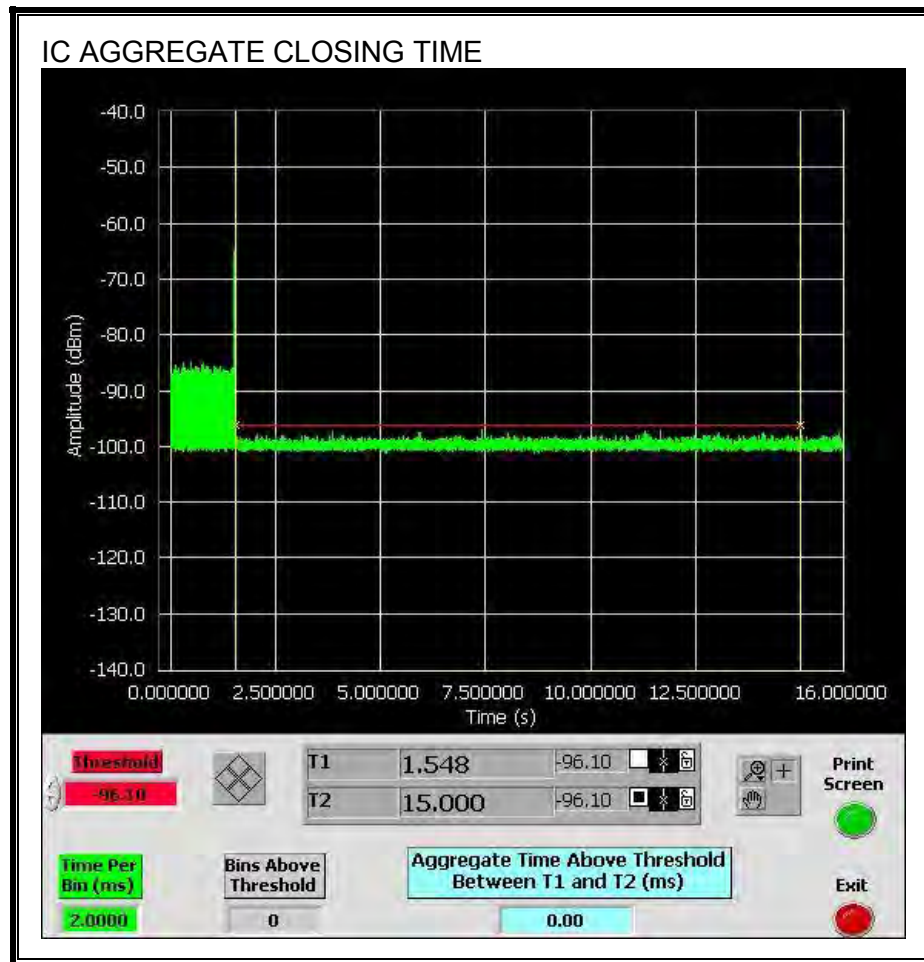


### AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the FCC aggregate monitoring period.



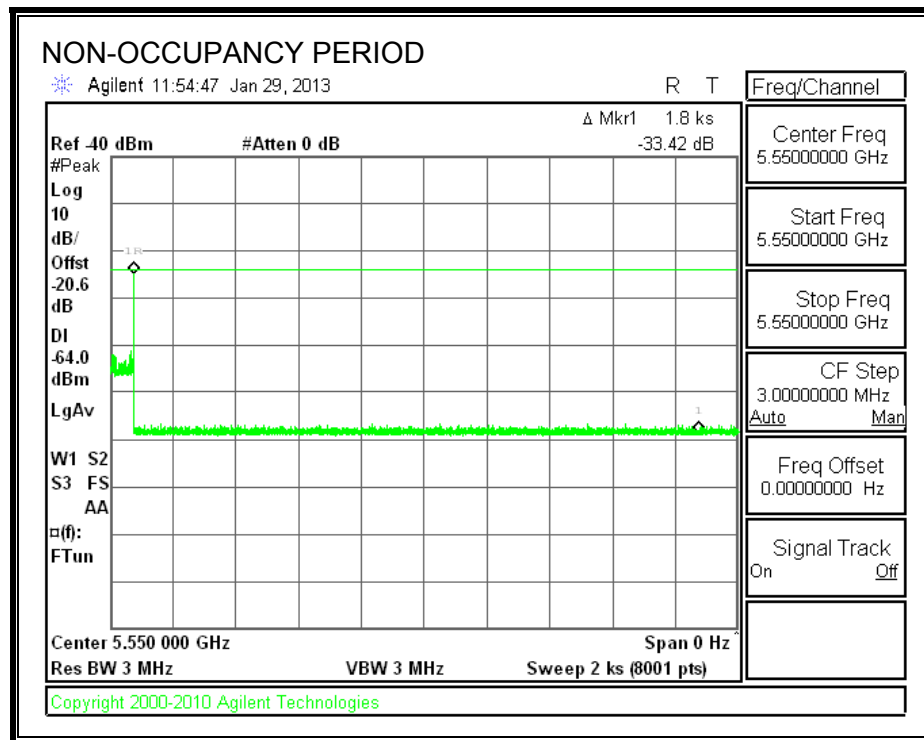
No transmissions are observed during the IC aggregate monitoring period.



### 10.3.5. NON-OCCUPANCY PERIOD

#### RESULTS

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



## 11. AC POWER LINE CONDUCTED EMISSIONS

### LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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

\* Decreases with the logarithm of the frequency.

### TEST PROCEDURE

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

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

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

## RESULTS

### 6 WORST EMISSIONS

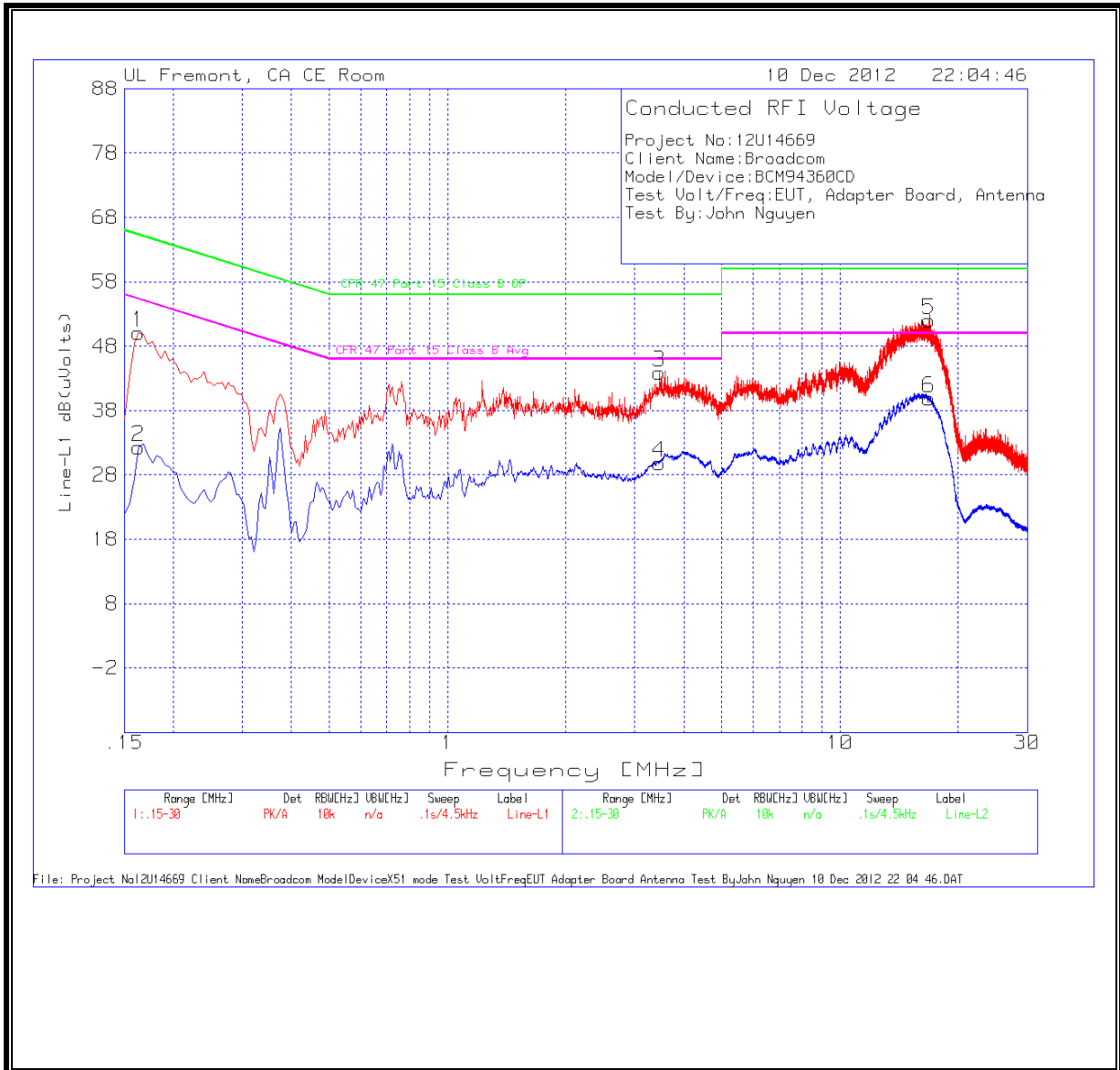
Project No :12U14669  
Client Name: Broadcom  
Model/Device: BCM94360CD  
Test Volt/Freq: EUT, Adapter Board, Antenna  
Test By: John Nguyen

Test Frequency	Meter Reading	Detector	T24 IL L1.TXT (dB)	LC Cables 1&3.TXT (dB)	dB(uVolts)	CFR 47 Part 15 Class B QP	Margin	CFR 47 Part 15 Class B Avg	Margin
Line-L1 .15 - 30MHz									
0.1635	49.99	PK	0.1	0	50.09	65.3	-15.21	-	-
0.1635	32.23	Av	0.1	0	32.33	-	-	55.3	-22.97
3.579	43.91	PK	0.2	0.1	44.21	56	-11.79	-	-
3.579	30.95	Av	0.2	0.1	31.25	-	-	46	-14.75
16.9935	50.75	PK	0.2	0.2	51.15	60	-8.85	-	-
16.9935	39.3	Av	0.2	0.2	39.7	-	-	50	-10.3
Line-L2 .15 - 30MHz									
0.312	50.32	PK	0.1	0	50.42	59.9	-9.48	-	-
0.312	32.37	Av	0.1	0	32.47	-	-	49.9	-17.43
0.555	45.45	PK	0.1	0	45.55	56	-10.45	-	-
0.555	27.34	Av	0.1	0	27.44	-	-	46	-18.56
15.837	50.95	PK	0.2	0.2	51.35	60	-8.65	-	-
15.837	39.95	Av	0.2	0.2	40.35	-	-	50	-9.65

PK - Peak detector

QP - Quasi-Peak detector

**LINE 1 RESULTS**



**LINE 2 RESULTS**

