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# 8.20. 802.11n HT20 CDD CH 144 3TX MODE, 5.6 GHz BAND

# 8.20.1.26 dB BANDWIDTH- UNII

# LIMITS

None; for reporting purposes only.

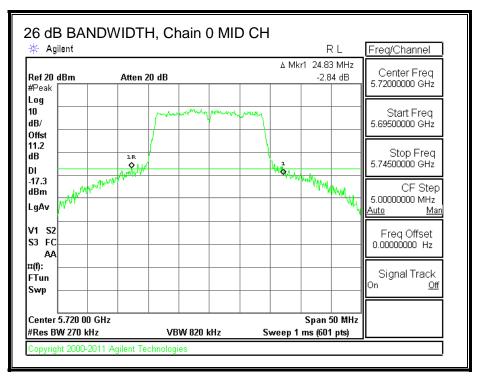
#### **RESULTS**

Channel	Frequency	26 dB BW	26 dB BW	26 dB BW
		Chain 0	Chain 1	Chain 2
	(MHz)	(MHz)	(MHz)	(MHz)
Mid	5720	24.83	23.25	26.83

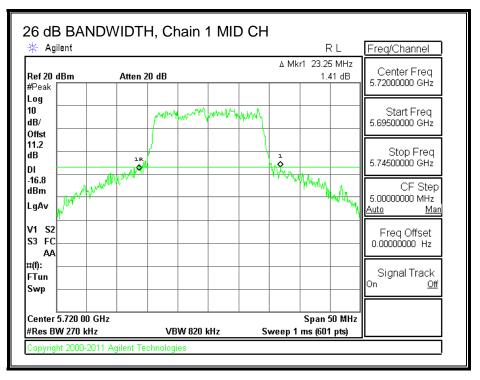
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## 26 dB BANDWIDTH, Chain 0



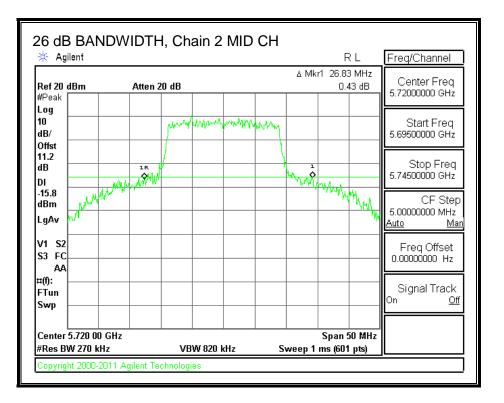
#### 26 dB BANDWIDTH, Chain 1



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#### 26 dB BANDWIDTH, Chain 2



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# 8.20.2.99% BANDWIDTH

## **LIMITS**

None; for reporting purposes only.

#### **RESULTS**

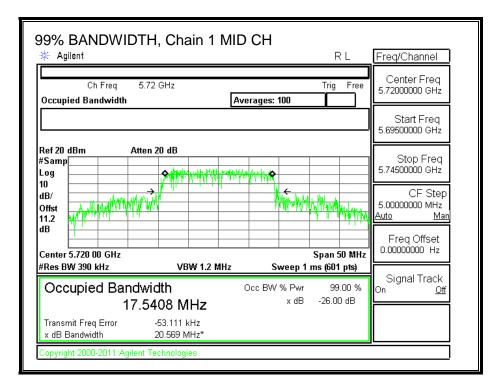
Channel	Frequency	99% BW	99% BW	99% BW
		Chain 0	Chain 1	Chain 2
	(MHz)	(MHz)	(MHz)	(MHz)
Mid	5720	17.6861	17.5408	17.7453

## 99% BANDWIDTH, Chain 0

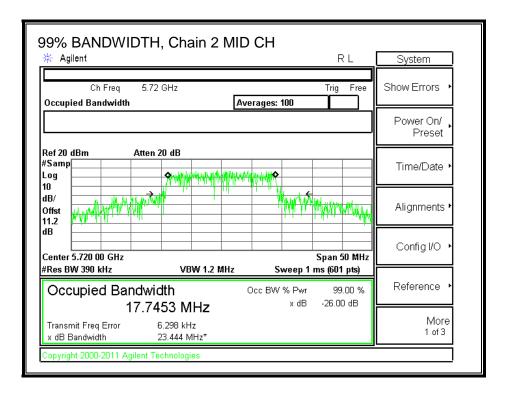
99% BANDWIDTH, Chain 0 MID CH * Agilent RL	Freq/Channel
Ch Freq 5.72 GHz Trig Free Occupied Bandwidth Averages: 100	Center Freq 5.72000000 GHz
	Start Freq 5.69500000 GHz
Ref 20 dBm Atten 20 dB #Samp Log Quinter and the subscription of t	Stop Freq 5.74500000 GHz
dB/ Offst 11.2	CF Step 5.00000000 MHz Auto <u>Man</u>
dB dB center 5.720 00 GHz Span 50 MHz	Freq Offset 0.00000000 Hz
#Res BW 390 kHz         VBW 1.2 MHz         Sweep 1 ms (601 pts)           Occupied Bandwidth         Occ BW % Pwr         99.00 %	Signal Track
Occupied Bandwidth         Occ BW % Pwr         99.00 %           17.6861 MHz         × dB         -26.00 dB	On <u>Off</u>
Transmit Freq Error -30.648 kHz x dB Bandwidth 20.748 MHz*	
Copyright 2000-2011 Agilent Technologies	

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## 99% BANDWIDTH, Chain 1



#### 99% BANDWIDTH, Chain 2



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# 8.20.3. 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 and the antenna gain is unequal among the chains. The directional gain is:

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

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

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#### **RESULTS**

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

# Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Correlated	Uncorrelated
		26 dB	99%	Gain	Gain
		BW	BW		
	(MHz)	(MHz)	(MHz)	(dBi)	(dBi)
Mid	5720	16.63	13.7704	8.06	3.36

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5720	23.21	22.39	28.39	22.39	8.94	11.00	8.94

Duty Cycle CF (dB)0.00Included in Calculations of PPSD

#### **Output Power Results**

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
							-
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)

#### **PPSD** Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
							-
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5720	3.96	3.94	3.98	8.73	8.94	-0.21

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# Limits (FCC), portion in 5.8 GHz UNII 3 band

Channel	Frequency	Min	Min	Correlated	Uncorrelated
		26 dB	<b>99%</b>	Gain	Gain
		BW	BW		
	(MHz)	(MHz)	(MHz)	(dBi)	(dBi)
Mid	5720	7.4	3.8431	8.06	3.36

#### Bandwidth and Antenna Gain

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5720	19.70	16.85	22.85	16.85	8.94	11.00	8.94

 Duty Cycle CF (dB)
 0.00
 Included in Calculations of PPSD

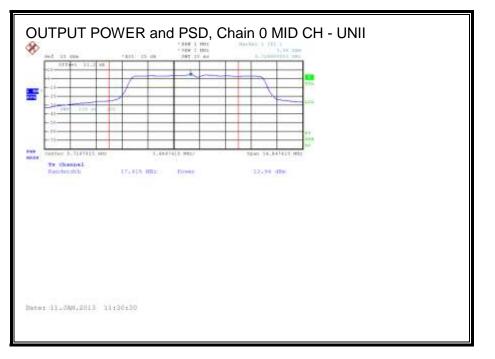
#### **Output Power Results**

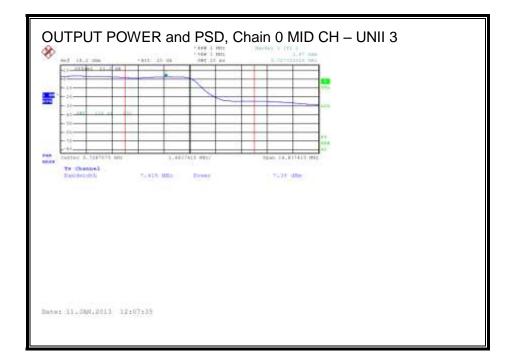
Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
							-
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
			· · ·	· · ·		•	

# **PPSD** Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5720	2.870	2.820	2.860	7.62	8.94	-1.32

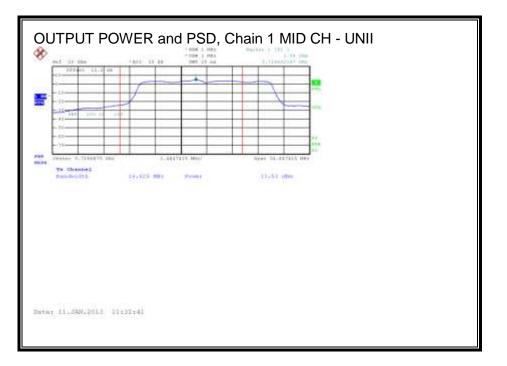
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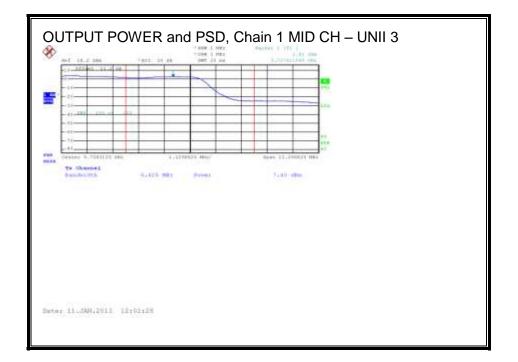




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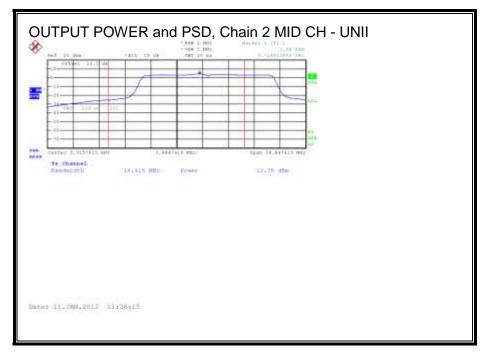
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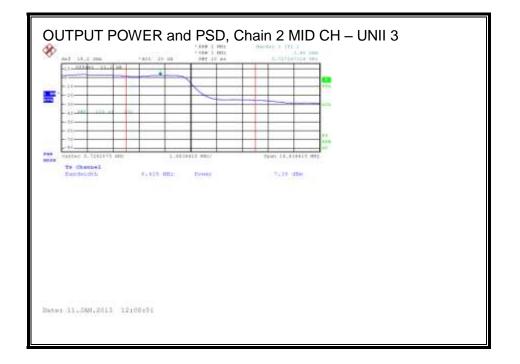




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# 8.21. 802.11n HT20 STBC CH 144 3TX MODE, 5.6 GHz BAND

# 8.21.1.26 dB BANDWIDTH- UNII

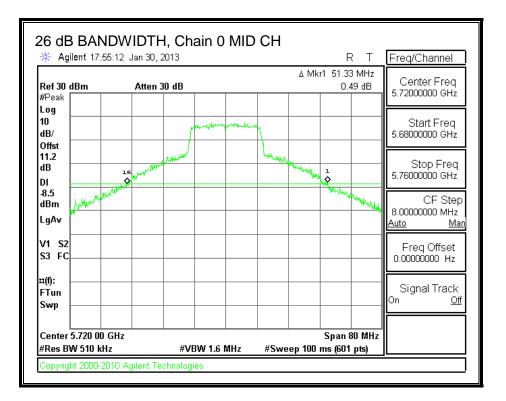
## <u>LIMITS</u>

None; for reporting purposes only.

#### RESULTS

Channel	Frequency	26 dB BW	26 dB BW	26 dB BW	
		Chain 0	Chain 1	Chain 2	
	(MHz)	(MHz)	(MHz)	(MHz)	
Mid	5720	51.33	51.73	53.07	

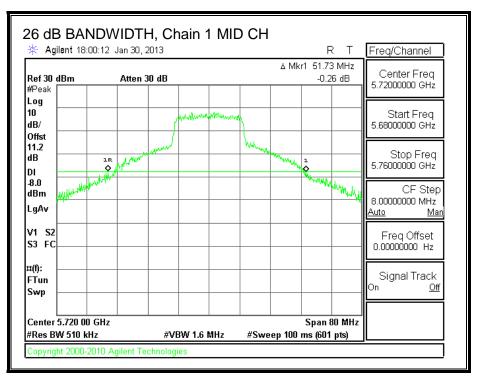
#### 26 dB BANDWIDTH, Chain 0



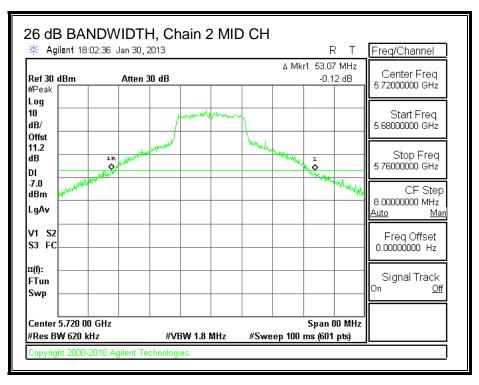
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#### 26 dB BANDWIDTH, Chain 1



#### 26 dB BANDWIDTH, Chain 2



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# 8.21.2.99% BANDWIDTH

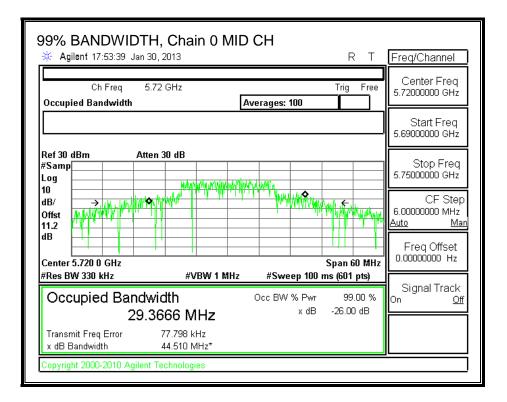
#### LIMITS

None; for reporting purposes only.

## **RESULTS**

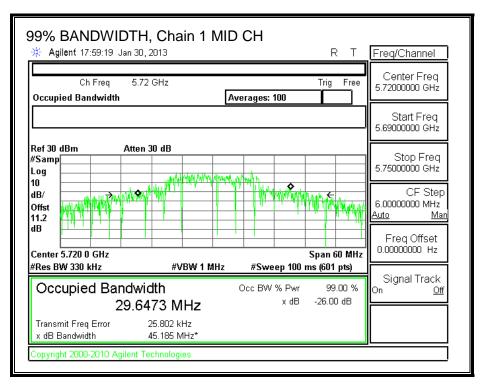
Channel	Frequency	99% BW	99% BW	99% BW	
		Chain 0	Chain 1	Chain 2	
	(MHz)	(MHz)	(MHz)	(MHz)	
Mid	5720	29.3666	29.6473	31.2352	

## 99% BANDWIDTH, Chain 0

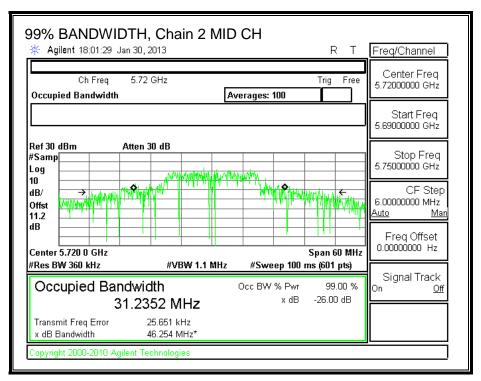


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# 99% BANDWIDTH, Chain 1



#### 99% BANDWIDTH, Chain 2



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# 8.21.3. 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	Chain 1	Chain 2	<b>Uncorrelated Chains</b>
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
4.72	2.09	2.85	3.36

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#### **RESULTS**

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

#### Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Uncorrelated
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
High	5720	30.7	20.6650	3.36

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
High	5720	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB) 0.00 Included in Calculations of PPSD

#### **Output Power Results**

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	<i>(</i> <b></b> )						
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)

#### **PPSD** Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
							_
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
High	5720	5.96	5.65	6.06	10.66	11.00	-0.34

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# Limits (FCC), portion in 5.8 GHz UNII 3 band

Channel	Frequency	Min	Min	Uncorrelated
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
High	5720	20.7	9.6833	3.36

#### Bandwidth and Antenna Gain

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
High	5720	24.00	20.86	26.86	20.86	11.00	11.00	11.00

Duty Cycle CF (dB) 0.00 Included in Calculations of PPSD

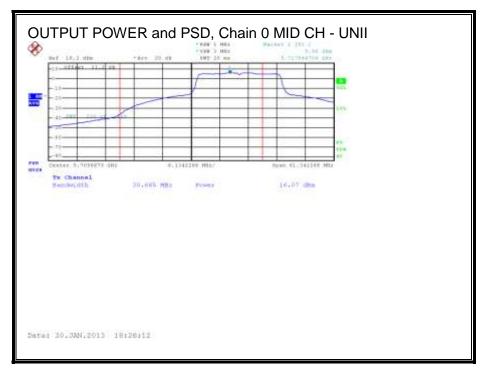
#### **Output Power Results**

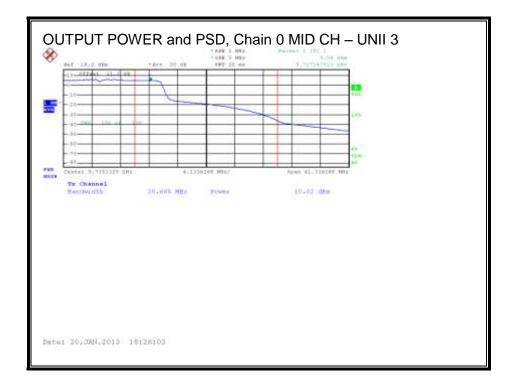
Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
	(	(abiii)	(abiii)	(aBiii)	(abiii)	(~~~)	(42)

#### **PPSD** Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
High	5720	5.04	4.54	5.20	9.71	11.00	-1.29

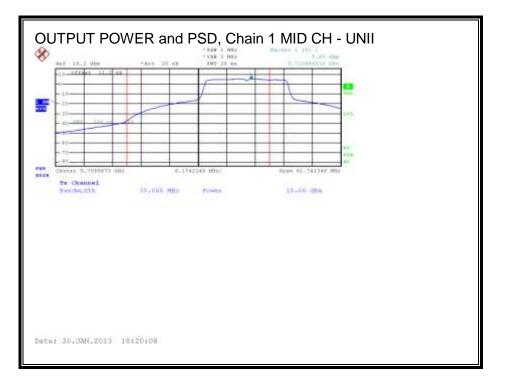
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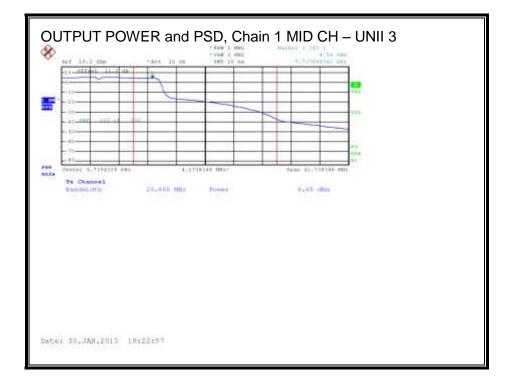




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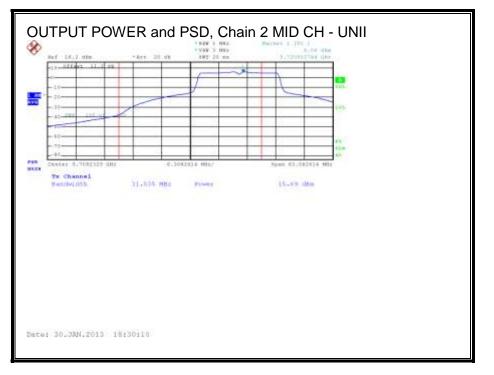
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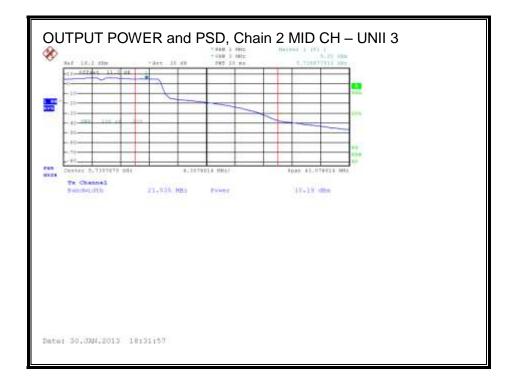




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# 8.22. 802.11n HT20 STBC 3TX MODE, 5.6 GHz BAND

# 8.22.1. 26 dB BANDWIDTH

#### LIMITS

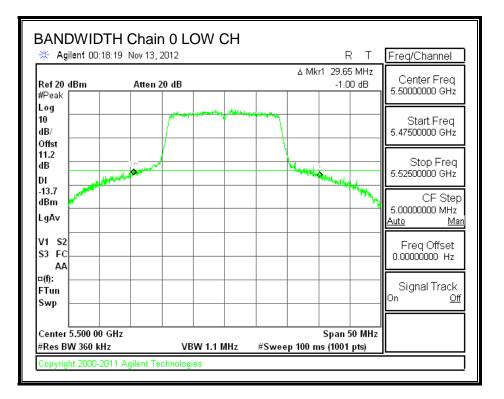
None; for reporting purposes only.

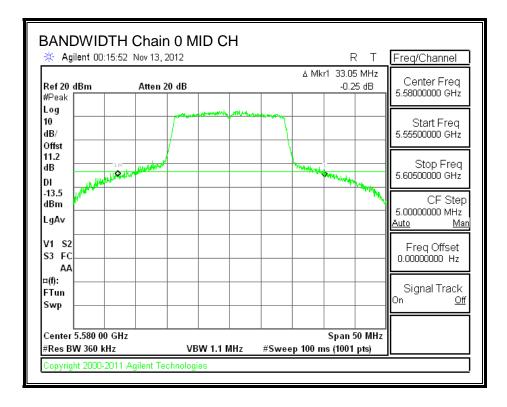
# **RESULTS**

Channel	Frequency	26 dB BW	26 dB BW	26 dB BW
		Chain 0	Chain 1	Chain 2
	(MHz)	(MHz)	(MHz)	(MHz)
Low	5500	29.65	30.40	30.70
Mid	5580	33.05	29.50	34.00
High	5700	30.20	30.65	32.95

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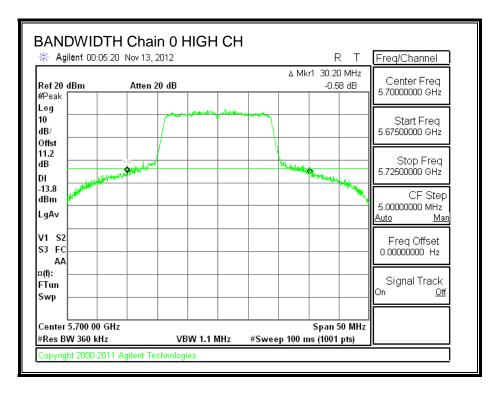
#### 26 dB BANDWIDTH, Chain 0



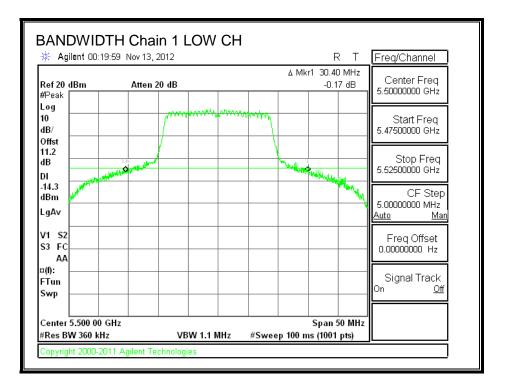


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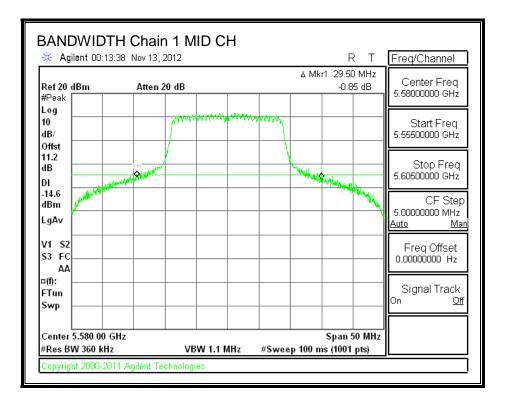


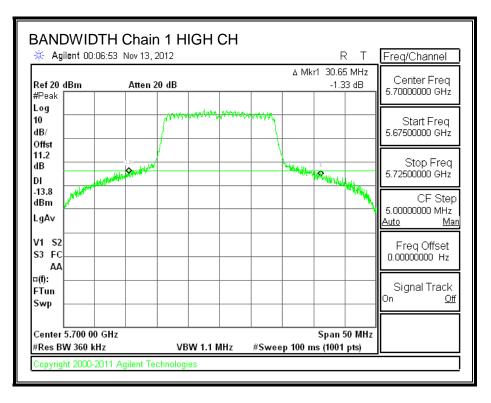
#### 26 dB BANDWIDTH, Chain 1



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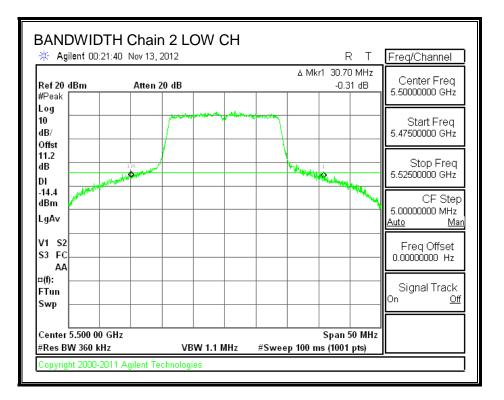


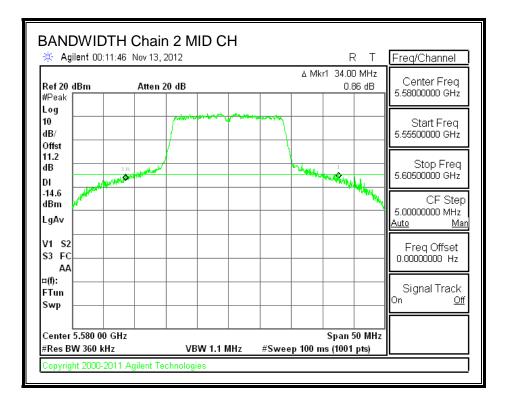


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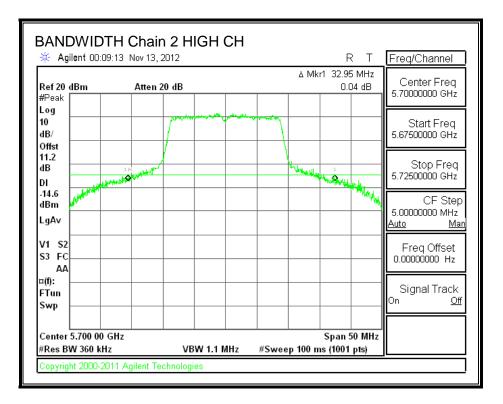
#### 26 dB BANDWIDTH, Chain 2





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# 8.22.2. 99% BANDWIDTH

# LIMITS

None; for reporting purposes only.

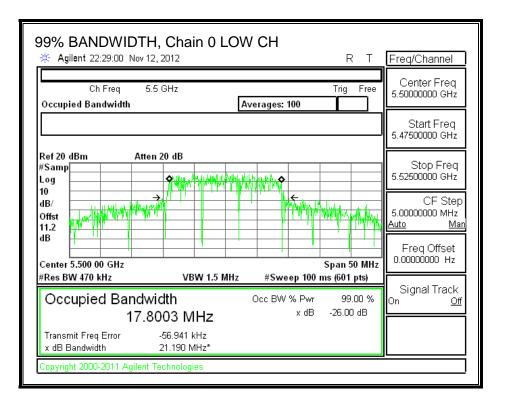
# <u>RESULTS</u>

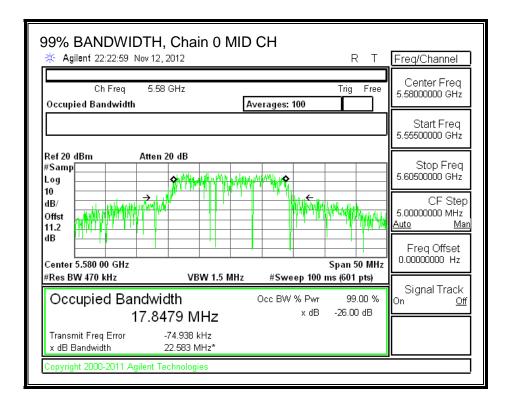
Channel	Frequency	99% BW	99% BW	99% BW
		Chain 0	Chain 1	Chain 2
	(MHz)	(MHz)	(MHz)	(MHz)
Low	5500	17.8003	17.7921	17.7959
Mid	5580	17.8479	17.8045	17.8294
High	5700	17.8005	17.8038	17.7957

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## 99% BANDWIDTH, Chain 0

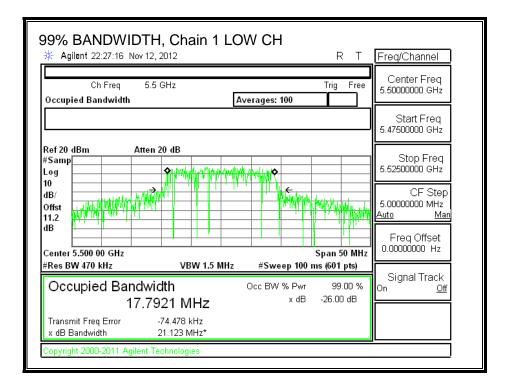




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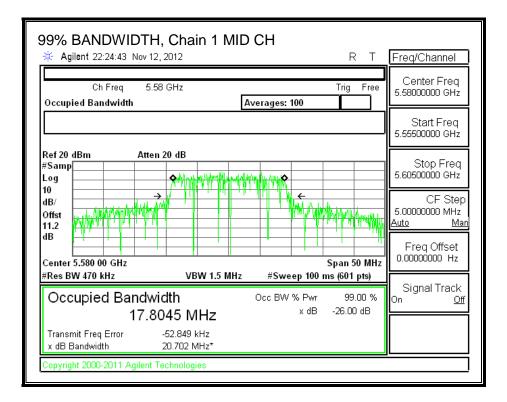
Agilent 22:17:30 Nov 12, 2012			RT	Freq/Channel Center Freq	╡
Ch Freq 5.7 GHz Occupied Bandwidth	P	verages: 100	Trig Free	5.70000000 GHz	
				Start Freq 5.67500000 GHz	
tef 20 dBm Atten 20 dB Samp				Stop Freq 5.72500000 GHz	
0 B/ 1.2 A A A A A A A A A A A A A A A A A A A		<del>€</del>		CF Step 5.0000000 MHz <u>Auto M</u> a	
Center 5.700 00 GHz	VBW 1.5 MHz	#Sweep 10	Span 50 MH; 0 ms (601 pts)	Freq Offset z 0.00000000 Hz	
Occupied Bandwidth 17.8005		Occ BW % Pwi x dE	r 99.00 %	Signal Track On <u>O</u> i	
Transmit Freq Error -60.10 x dB Bandwidth 21.215	4 kHz 5 MHz*				

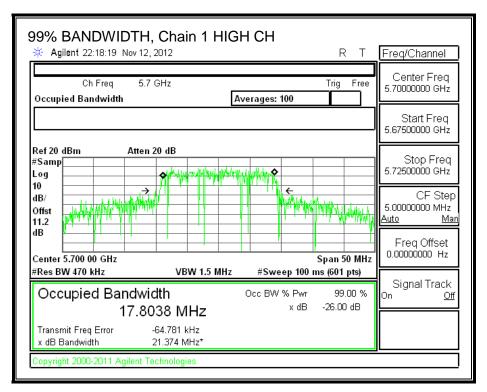
#### 99% BANDWIDTH, Chain 1



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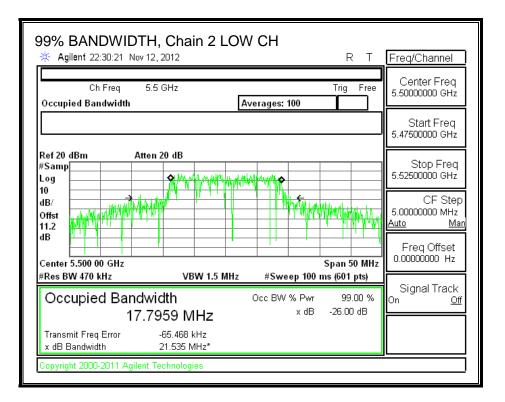
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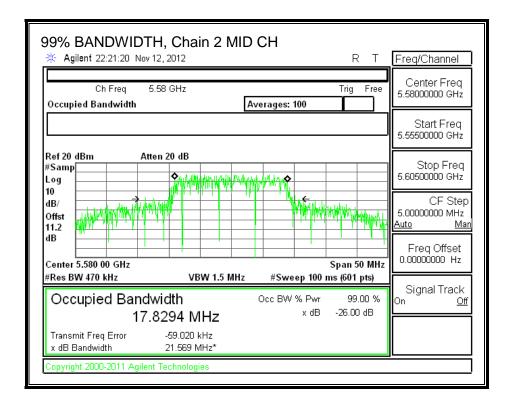




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# 99% BANDWIDTH, Chain 2





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99% BANDWIDTH, C		Н СН	RТ	Freq/Channel
Ch Freq 5.7 GHz Occupied Bandwidth		erages: 100	Trig Free	Center Freq 5.70000000 GHz
				Start Freq 5.67500000 GHz
Ref 20 dBm Atten 20 d #Samp Log 10	B MANANA			Stop Freq 5.72500000 GHz
dB/ Offst				CF Step 5.0000000 MHz <u>Auto Man</u>
Center 5.700 00 GHz #Res BW 470 kHz	VBW 1.5 MHz	#Sweep 100	Span 50 MHz ms (601 pts)	Freq Offset 0.00000000 Hz
Occupied Bandwidth 17.7957		Occ BW % Pwr x dB	99.00 % -26.00 dB	Signal Track On <u>Off</u>
x dB Bandwidth 21.5	362 kHz 20 MHz*			
Copyright 2000-2011 Agilent Techno	ologies			

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# 8.22.3. 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 log10 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	Chain 1	Chain 2	<b>Uncorrelated Chains</b>
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
4.72	2.09	2.85	3.36

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## **RESULTS**

#### Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	<b>99%</b>	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5500	30.80	17.7921	3.36
Mid	5580	28.95	17.8045	3.36
High	5700	31.10	17.7957	3.36

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5500	24.00	23.50	29.50	23.50	11.00	11.00	11.00
Mid	5580	24.00	23.51	29.51	23.51	11.00	11.00	11.00
High	5700	24.00	23.50	29.50	23.50	11.00	11.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PPSD
--------------------	------	---

#### **Output Power Results**

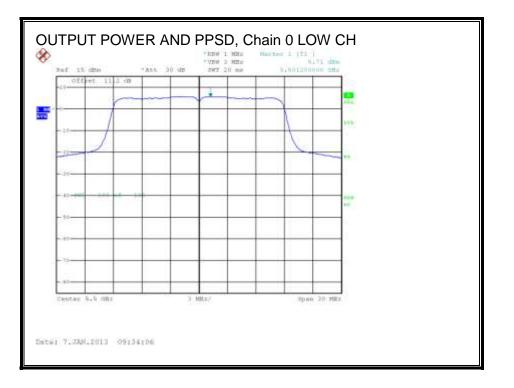
Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	18.68	18.63	18.30	23.31	23.50	-0.19
Mid	5580	18.78	18.59	18.58	23.42	23.51	-0.08
High	5700	17.51	17.50	17.40	22.24	23.50	-1.26

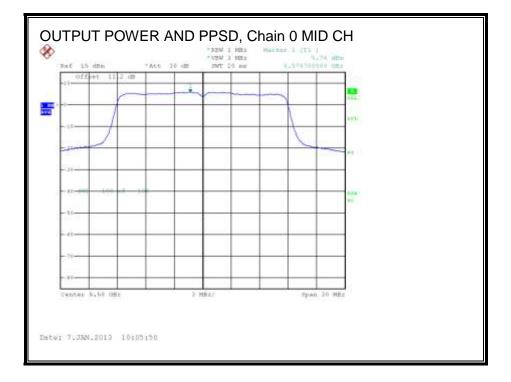
#### **PPSD** Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		8805	<b>BB0D</b>	0000	5505		
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	5.71	5.59	5.42	10.35	11.00	-0.65
Mid	5580	5.76	5.77	5.77	10.54	11.00	-0.46
High	5700	5.89	6.18	6.23	10.87	11.00	-0.13

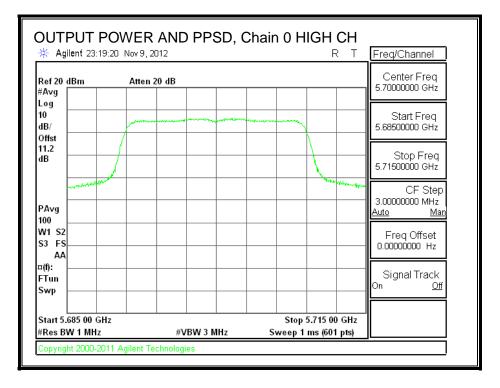
**Note:** method (1) "Measure and sum the spectra across the outputs" as specified in KDB 662911 D01 v01r02 was used for Low and Middle channels for this PSD measurements.

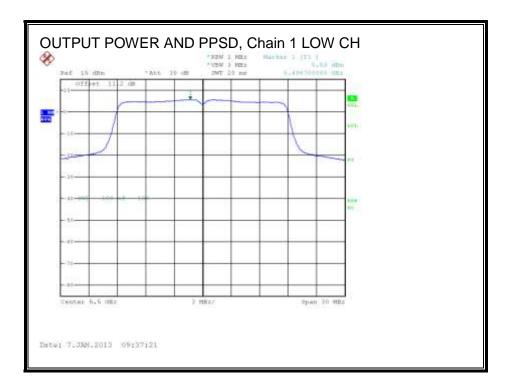
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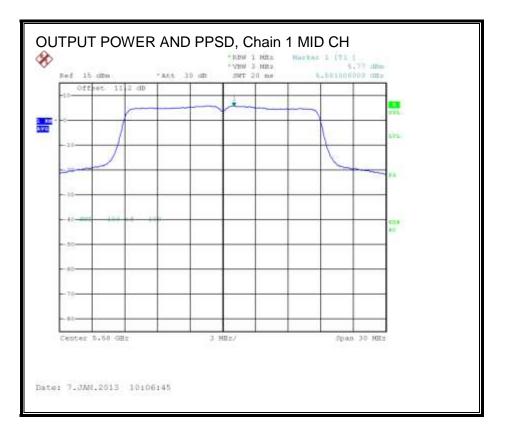


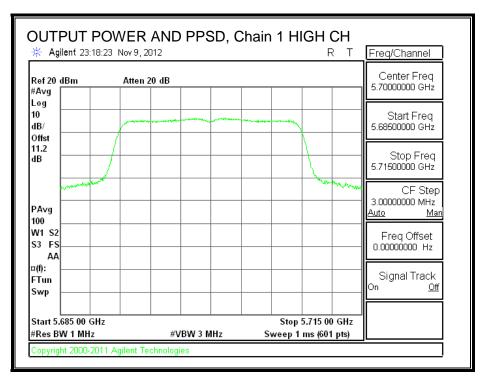


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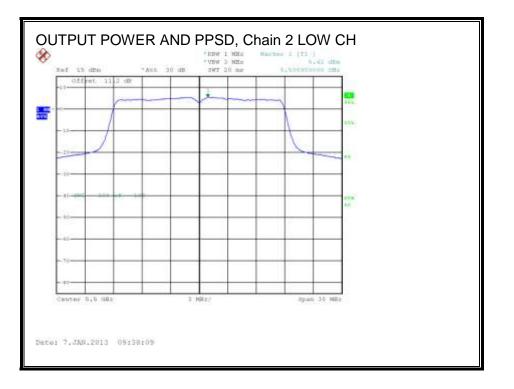


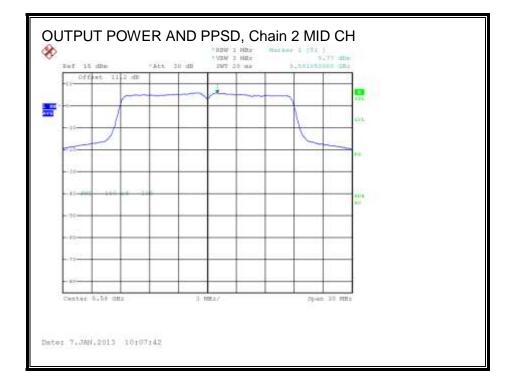




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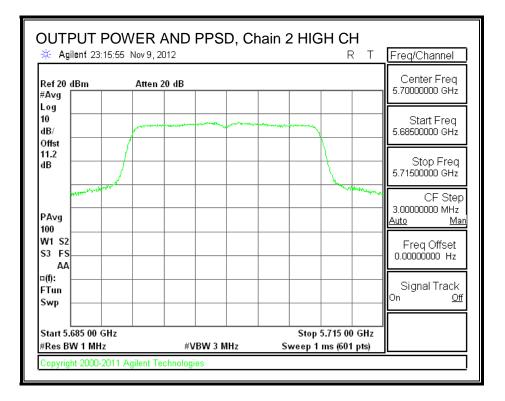
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# 8.23. 802.11n HT40 1TX MODE, 5.6 GHz BAND

## 8.23.1. 26 dB BANDWIDTH

## **LIMITS**

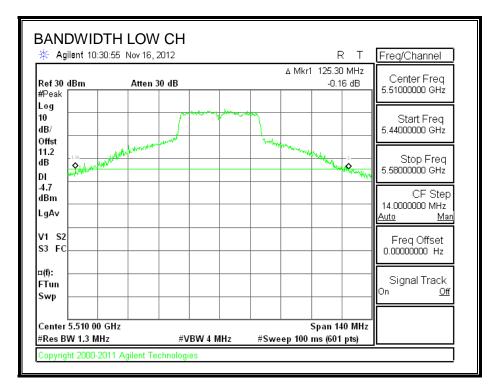
None; for reporting purposes only.

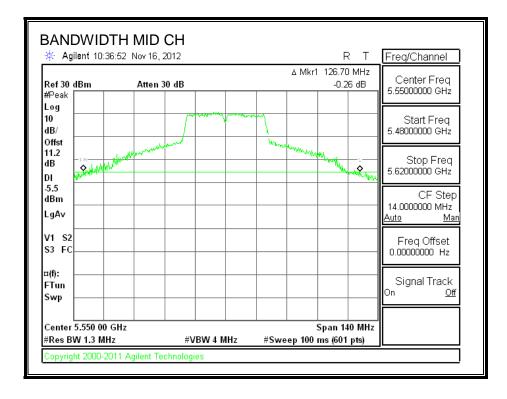
#### **RESULTS**

Channel	Frequency	26 dB Bandwidth
	(MHz)	(MHz)
Low	5510	125.30
Mid	5550	126.70
High	5670	125.77

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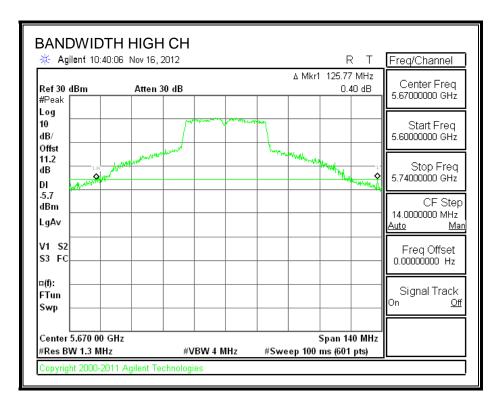
#### 26 dB BANDWIDTH





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## 8.23.2. 99% BANDWIDTH

## <u>LIMITS</u>

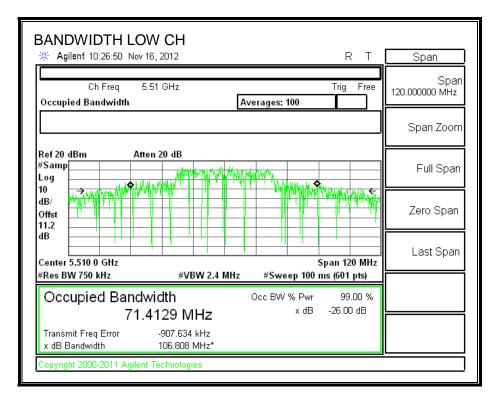
None; for reporting purposes only.

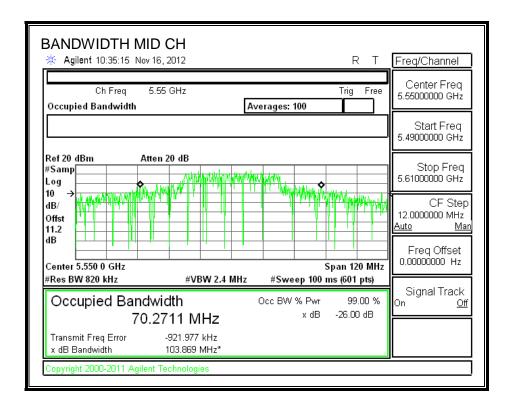
## <u>RESULTS</u>

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5510	71.4129
Mid	5550	70.2711
High	5670	65.8448

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### 99% BANDWIDTH





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BANDWIDTH HIGH CH # Agilent 10:41:03 Nov 16, 2012		RТ	Freq/Channel
Ch Freq 5.67 GHz Occupied Bandwidth	Averages: 100	Trig Free	Center Freq 5.67000000 GHz
	-		Start Freq 5.6100000 GHz
Ref 20 dBm Atten 20 dB #Samp Log 10 → → → → → → → → → → → → → → → → → → →		Pia a	Stop Freq 5.73000000 GHz
05/ 07/07/07/07/07/07/07/07/07/07/07/07/07/0			CF Step 12.000000 MHz <u>Auto Man</u>
dB		Span 120 MHz	Freq Offset 0.00000000 Hz
	2.2 MHz #Sweep 10	00 ms (601 pts) vr 99 00 %	Signal Track
Occupied Bandwidth 65.8448 MH;		/r 99.00 % B -26.00 dB	On <u>Off</u>
Transmit Freq Error -379.886 kH: x dB Bandwidth 98.230 MHz <sup>+</sup>			
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## 8.23.3. 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 log10 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

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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## **RESULTS**

## Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	<b>99%</b>	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5510	125.30	71.4129	4.72
Mid	5550	126.70	70.2711	4.72
High	5670	125.77	65.8448	4.72

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(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 PPSD
-----------------------	----	---

## **Output Power Results**

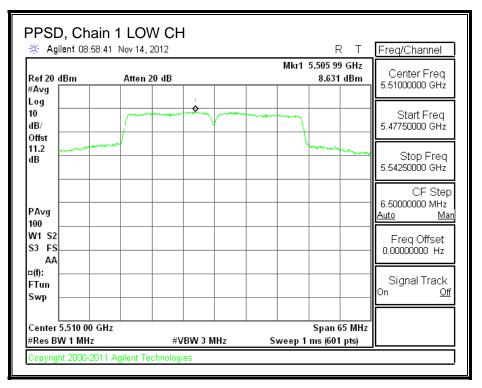
Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5510	16.57	16.57	24.00	-7.43
Mid	5550	23.05	23.05	24.00	-0.95
High	5670	18.71	18.71	24.00	-5.29

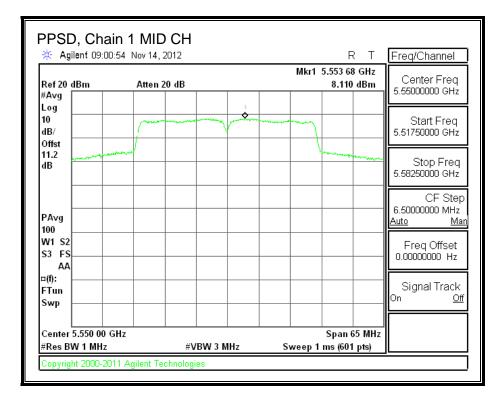
#### **PPSD** Results

Channel	Frequency	Chain 1	Total	PPSD	PPSD
		Meas	Corr'd	Limit	Margin
		PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5510	8.631	8.861	11.00	-2.139
Mid	5550	8.110	8.340	11.00	-2.660
High	5670	7.994	8.224	11.00	-2.776

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#### PPSD, Chain 1





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🔆 Agilent 09:00	6:56 Nov 14, 2012		R T	Peak Search
Ref 20 dBm #Avg	Atten 20 dB		Mkr1 5.664 26 GHz 7.994 dBm	Next Peak
Log 10 dB/		1		Next Pk Right
Offst 11.2 dB				Next Pk Left
PAvg 100				Min Search
W1 S2 S3 FS AA				Pk-Pk Search
¤(f): FTun Swp				Mkr © CF
Center 5.670 00 ( #Res BW 1 MHz		/BW 3 MHz	Span 65 MHz Sweep 1 ms (601 pts)	More 1 of 2

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

## 8.24.1. 26 dB BANDWIDTH

## <u>LIMITS</u>

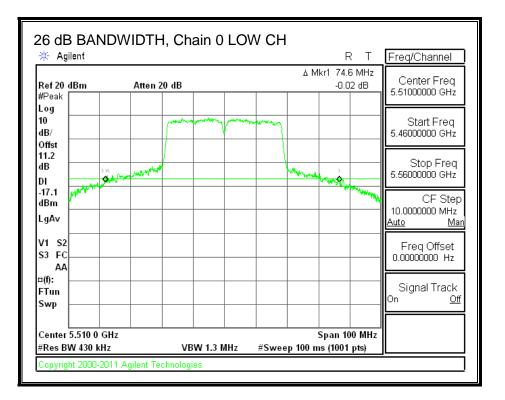
None; for reporting purposes only.

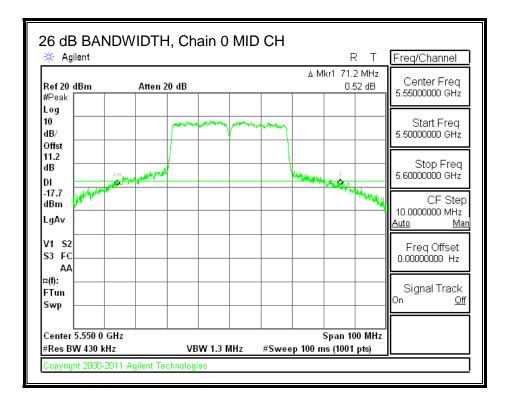
## **RESULTS**

Channel	Frequency	26 dB BW	26 dB BW	26 dB BW
		Chain 0	Chain 1	Chain 2
	(MHz)	(MHz)	(MHz)	(MHz)
Low	5510	74.6	65.2	72.1
Mid	5550	71.2	63.8	72.1
High	5670	73.0	58.3	74.1

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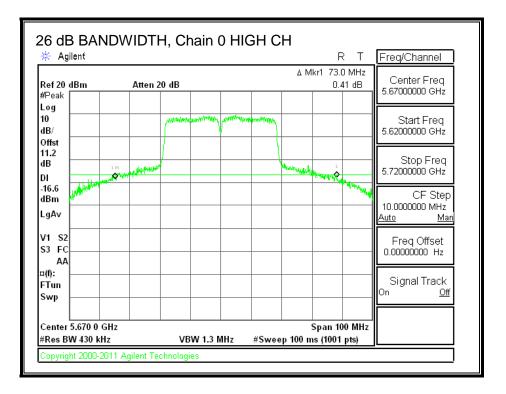
#### 26 dB BANDWIDTH, Chain 0



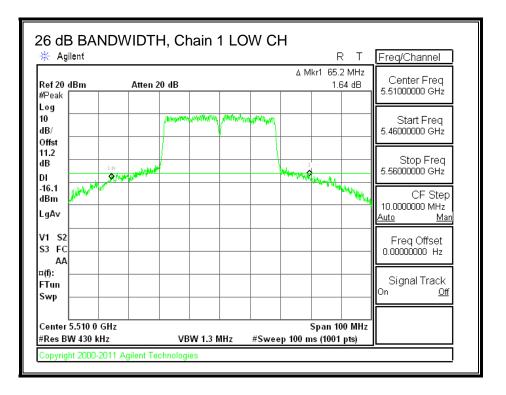


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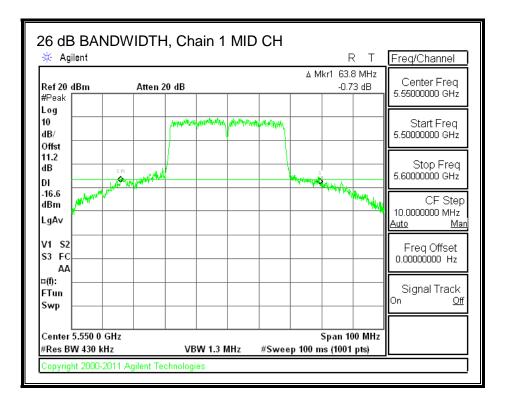
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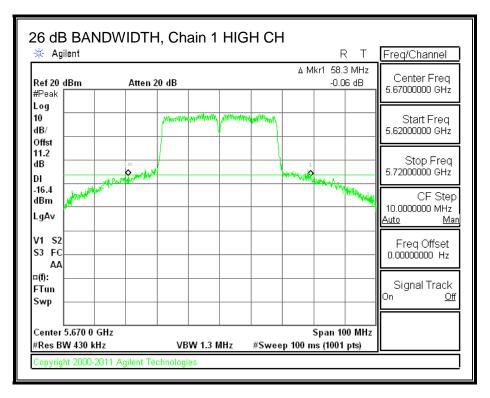


## 26 dB BANDWIDTH, Chain 1



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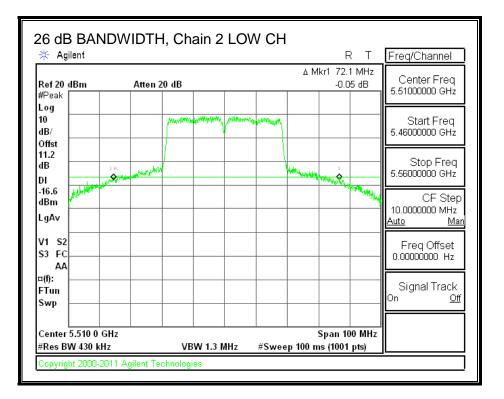


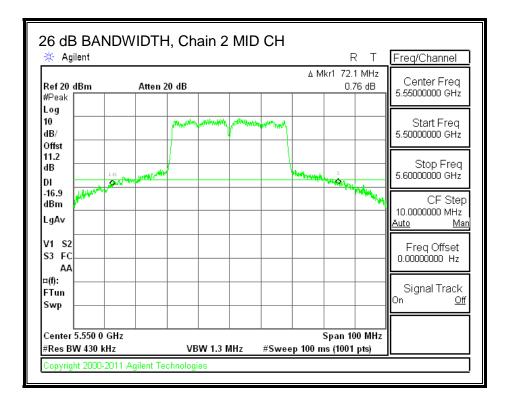


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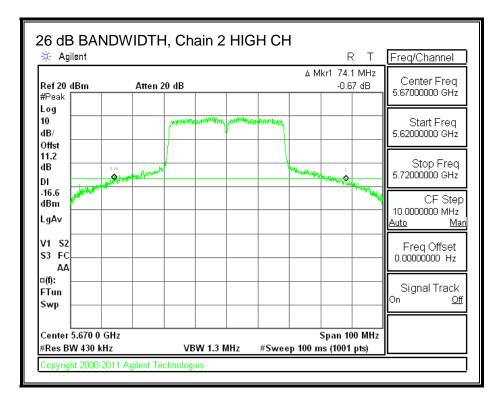
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#### 26 dB BANDWIDTH, Chain 2





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## 8.24.2. 99% BANDWIDTH

## **LIMITS**

None; for reporting purposes only.

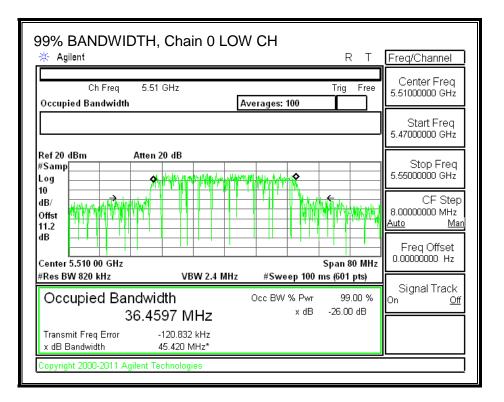
## <u>RESULTS</u>

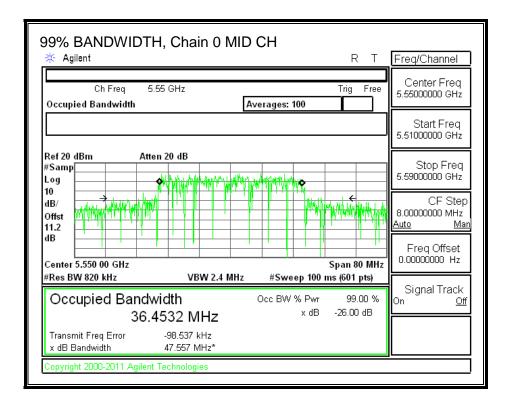
Channel	Frequency	99% BW	99% BW	99% BW
		Chain 0	Chain 1	Chain 2
	(MHz)	(MHz)	(MHz)	(MHz)
Low	5510	36.4597	36.3766	36.4974
Mid	5550	36.4532	36.3626	36.4896
High	5670	36.4082	36.3671	36.3928

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## 99% BANDWIDTH, Chain 0

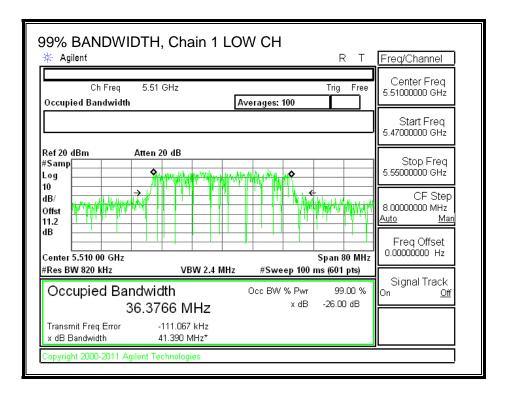




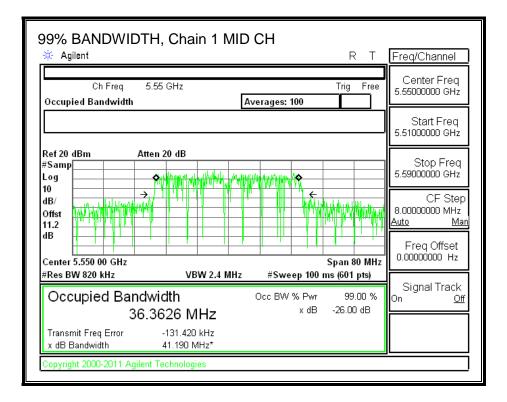
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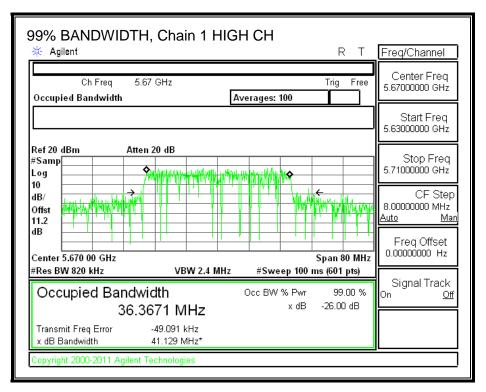
🤄 Agilent			R T	Freq/Channel
Ch Freq 5.67 Occupied Bandwidth		Averages: 100	Trig Free	Center Freq 5.67000000 GHz
	Ľ	rverages. 100		Start Freq 5.6300000 GHz
Ref 20 dBm Atten 2 Samp				Stop Freq 5.71000000 GHz
IB/ Dffst 1.2		· II I'I II II .		CF Step 8.0000000 MHz <u>Auto Man</u>
Center 5.670 00 GHz			Span 80 MHz	Freq Offset 0.00000000 Hz
Res BW 820 kHz	VBW 2.4 MHz	#Sweep 100	· · /	Signal Track
Occupied Bandwid 36.40	lth 82 MHz	Occ BW % Pwr x dB	99.00 % -26.00 dB	On <u>Off</u>
	69.799 kHz 44.793 MHz*			

## 99% BANDWIDTH, Chain 1



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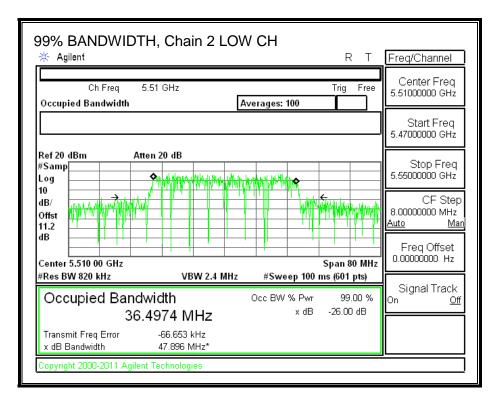


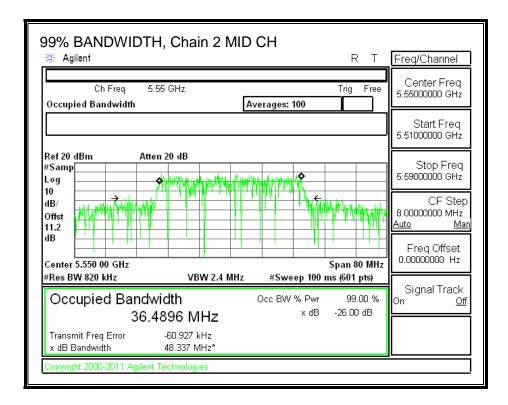


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## 99% BANDWIDTH, Chain 2





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99% BANDWIDTH, Chain	2 HIGH CH	RТ	Freq/Channel
Ch Freq 5.67 GHz Occupied Bandwidth	Averages: 100	Trig Free	Center Freq 5.67000000 GHz
			Start Freq 5.63000000 GHz
Ref 20 dBm Atten 20 dB #Samp Log Original Atten 20 dB			Stop Freq 5.71000000 GHz
dB/ Offst M/M/A/M/A/A/A/A/ 11.2 dB			CF Step 8.0000000 MHz <u>Auto Man</u>
Center 5.670 00 GHz	2.4 MHz #Sweep 100	Span 80 MHz ms (601 pts)	Freq Offset 0.00000000 Hz
Occupied Bandwidth 36.3928 MH	Occ BW % Pwr x dB		Signal Track On <u>Off</u>
Transmit Freq Error -33.194 kHz x dB Bandwidth 47.912 MHz	•		
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## 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 log10 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	Chain 1	Chain 2	<b>Uncorrelated Chains</b>
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(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	Chain 1	Chain 2	<b>Correlated Chains</b>
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
4.72	2.09	2.85	8.06

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## **RESULTS**

## Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(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	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(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
-------------------------	--

#### **Output Power Results**

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Bower		
					Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(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

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## Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(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	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(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

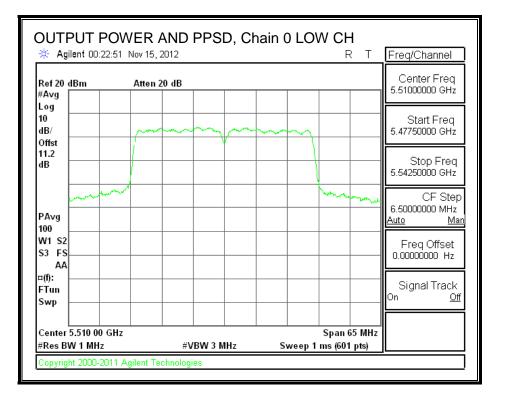
Duty Cycle CF (dB) 0.22 Included in Calculations of Corr'd Power & PPSD

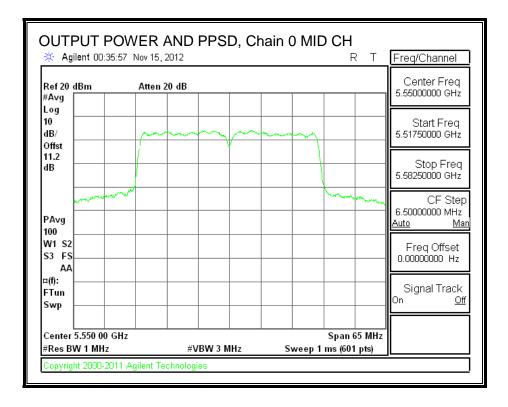
## **PPSD** Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margi
							n
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(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

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

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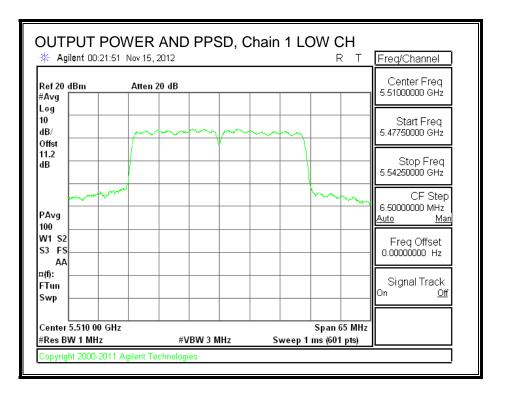




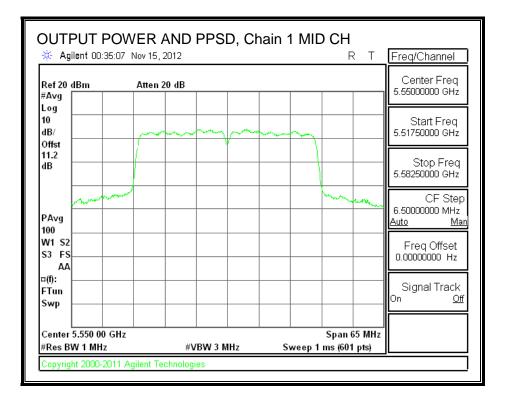
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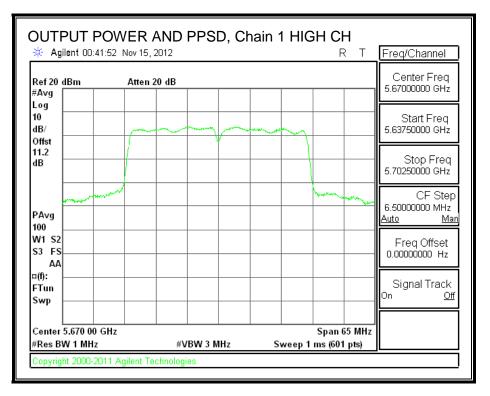
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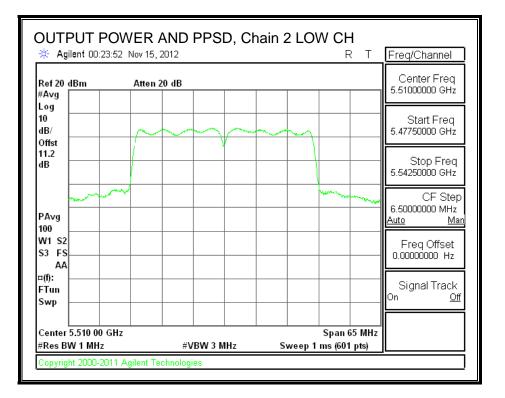
OUTPUT F			D, Chair	0 HIGH		
🔆 Agilent 00:40	0:43 Nov 15, 2012				RL	Freq/Channel
Ref 20 dBm #A∨g	Atten 20 dl	3				Center Freq 5.6700000 GHz
Log 10 dB/ Offst						Start Freq 5.63750000 GHz
dB						Stop Freq 5.70250000 GHz
PAvg 100	excum/			l hora	-	CF Step 6.5000000 MHz <u>Auto Man</u>
W1 S2 S3 FS AA						Freq Offset 0.00000000 Hz
¤(f): FTun Swp						Signal Track <sup>On <u>Off</u></sup>
Center 5.670 00 ( #Res BW 1 MHz	GHz	#VBW 3 MH	z S	Spa weep 1 ms	an 65 MHz (601 pts)	
Copyright 2000-20	111 Agilent Techno	logies				

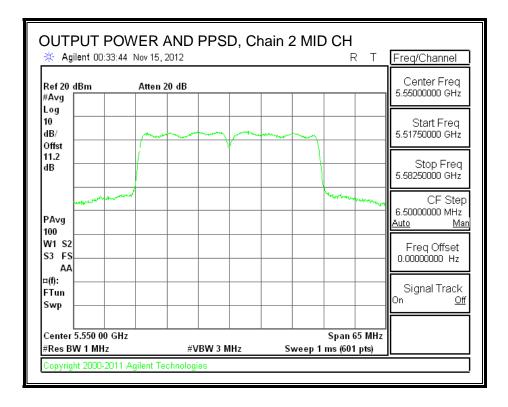


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OUTPUT POWER		ain 2 HIGH CH	Freq/Channel
	n 20 dB		Center Freq 5.67000000 GHz
Log 10 dB/ Offst			Start Freq 5.63750000 GHz
11.2 dB			Stop Freq 5.70250000 GHz
PAvg 100			CF Step 6.50000000 MHz <u>Auto Man</u>
W1 S2 S3 FS AA			Freq Offset 0.00000000 Hz
¤(f): FTun Swp			Signal Track On <u>Off</u>
Center 5.670 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 65 MHz Sweep 1 ms (601 pts)	
Copyright 2000-2011 Agilent	Fechnologies		

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## 8.25. 802.11n HT40 CDD CH 142 3TX MODE, 5.6 GHz BAND

## 8.25.1.26 dB BANDWIDTH- UNII

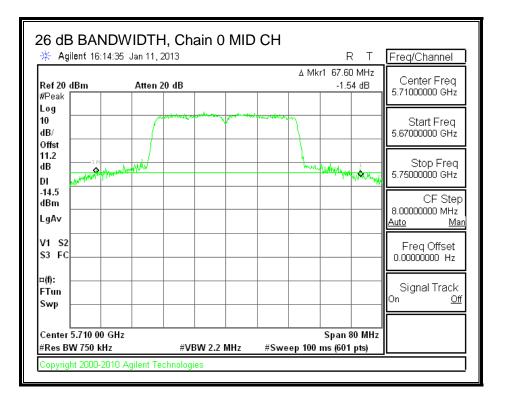
## <u>LIMITS</u>

None; for reporting purposes only.

### RESULTS

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

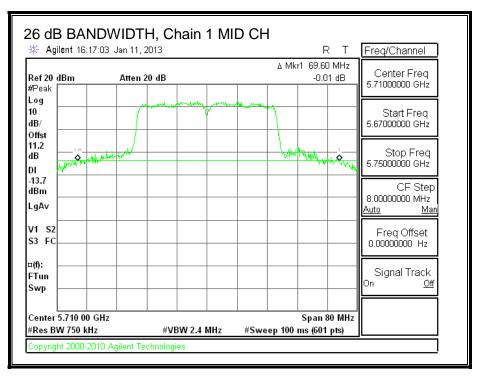
#### 26 dB BANDWIDTH, Chain 0



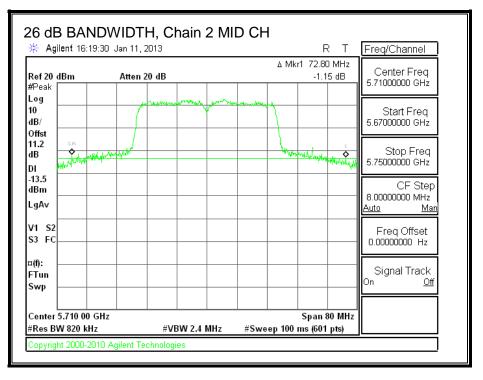
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#### 26 dB BANDWIDTH, Chain 1



## 26 dB BANDWIDTH, Chain 2



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# 8.25.2.99% BANDWIDTH

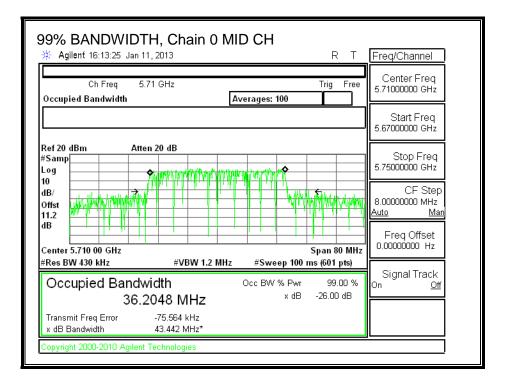
#### **LIMITS**

None; for reporting purposes only.

# **RESULTS**

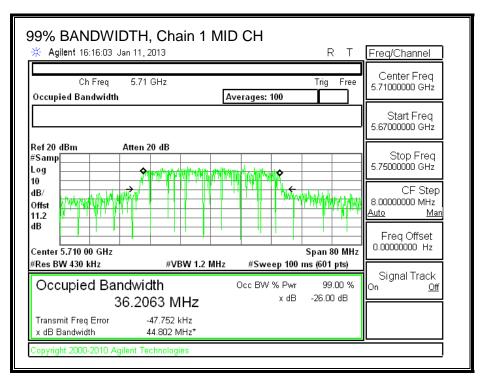
Channel	Frequency	99% BW	99% BW	99% BW
		Chain 0	Chain 1	Chain 2
	(MHz)	(MHz)	(MHz)	(MHz)
Mid	5710	36.2048	36.2063	36.2220

#### 99% BANDWIDTH, Chain 0

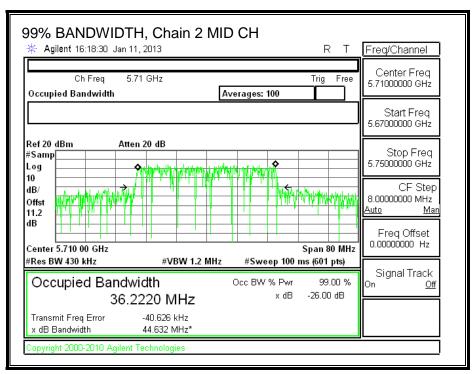


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# 99% BANDWIDTH, Chain 1



## 99% BANDWIDTH, Chain 2



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# 8.25.3. 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	Chain 1	Chain 2	<b>Uncorrelated Chains</b>
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(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	Chain 1	Chain 2	<b>Correlated Chains</b>
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
4.72	2.09	2.85	8.06

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#### **RESULTS**

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

# Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Correlated	Uncorrelated
		26 dB	99%	Gain	Gain
		BW	BW		
	(MHz)	(MHz)	(MHz)	(dBi)	(dBi)
Mid	5710	38.8	23.1024	8.06	3.36

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5710	24.00	24.00	30.00	24.00	8.94	11.00	8.94

Duty Cycle CF (dB)0.22Included in Calculations of PPSD

#### **Output Power Results**

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
							_
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)

#### **PPSD Results**

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

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# Limits (FCC), portion in 5.8 GHz UNII 3 band

Channel	Frequency	Min	Min	Correlated	Uncorrelated
		26 dB	99%	Gain	Gain
		BW	BW		
	(MHz)	(MHz)	(MHz)	(dBi)	(dBi)
Mid	5710	28.8	13.1024	8.06	3.36

#### Bandwidth and Antenna Gain

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5710	24.00	22.17	28.17	22.17	8.94	11.00	8.94

Duty Cycle CF (dB) 0.22 Included in Calculations of PPSD

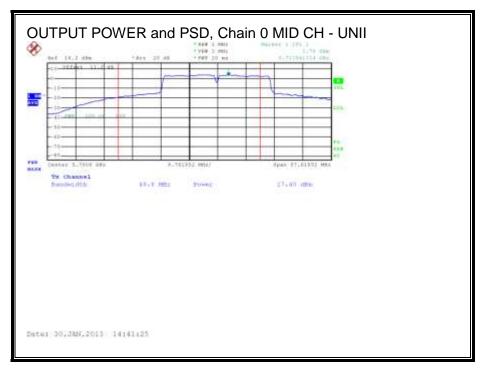
#### **Output Power Results**

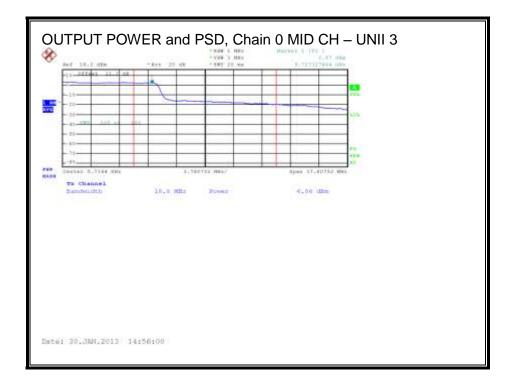
Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
	(	(	(abiii)	(abiii)	(abiii)	(	(

#### **PPSD** Results

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

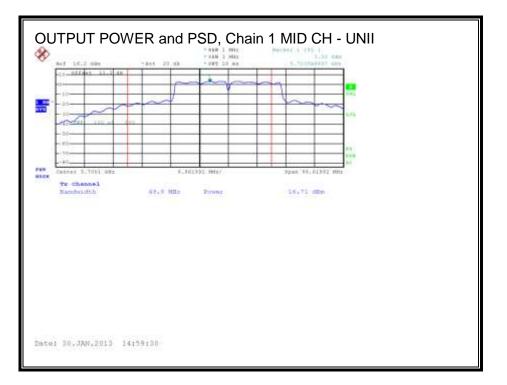
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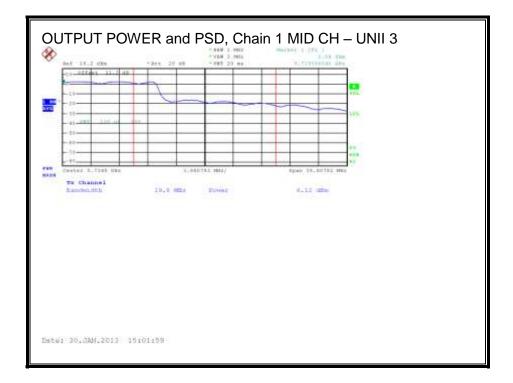




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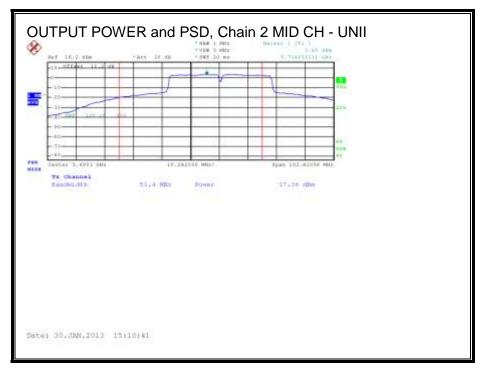
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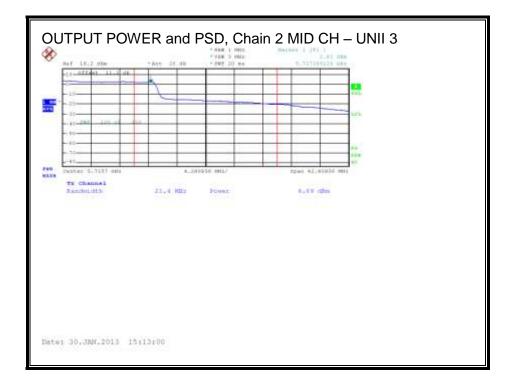




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# 8.26. 802.11n HT40 STBC CH 142 3TX MODE, 5.6 GHz BAND

# 8.26.1.26 dB BANDWIDTH- UNII

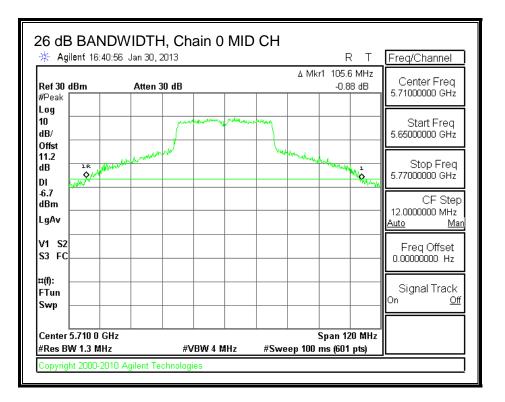
#### LIMITS

None; for reporting purposes only.

#### RESULTS

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

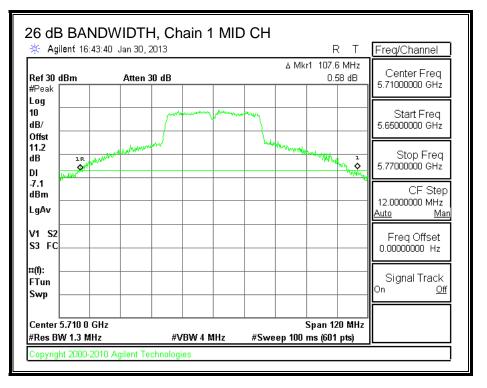
#### 26 dB BANDWIDTH, Chain 0



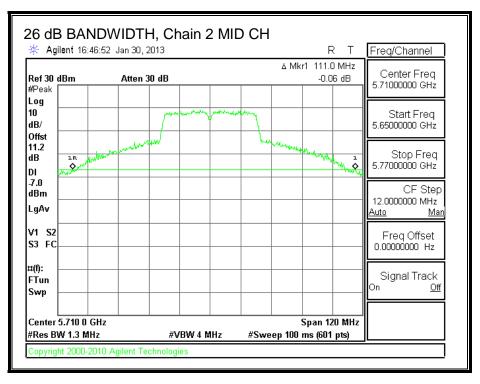
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#### 26 dB BANDWIDTH, Chain 1



#### 26 dB BANDWIDTH, Chain 2



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# 8.26.2.99% BANDWIDTH

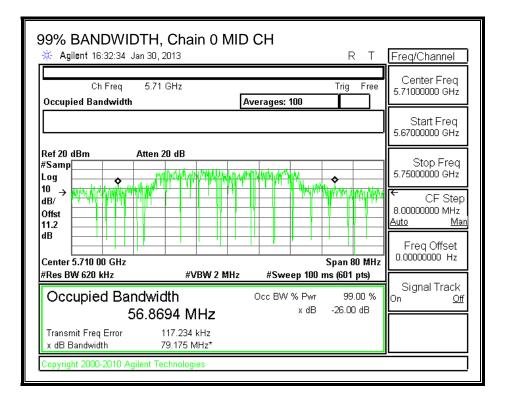
#### LIMITS

None; for reporting purposes only.

#### **RESULTS**

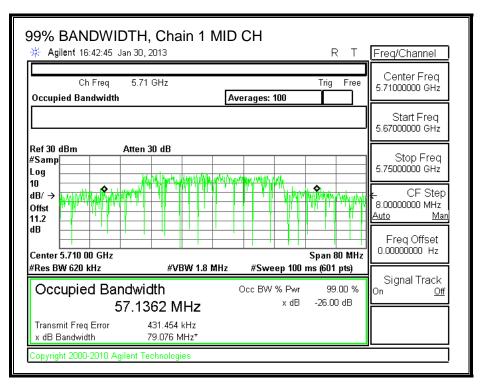
Channel	Frequency	99% BW	99% BW	99% BW
		Chain 0	Chain 1	Chain 2
	(MHz)	(MHz)	(MHz)	(MHz)
Mid	5710	56.8694	57.1362	58.7496

#### 99% BANDWIDTH, Chain 0

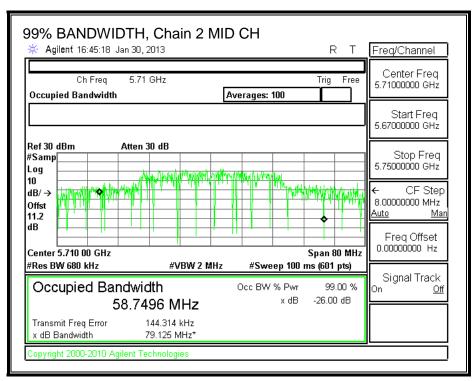


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# 99% BANDWIDTH, Chain 1



## 99% BANDWIDTH, Chain 2



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# 8.26.3. 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	Chain 1	Chain 2	<b>Uncorrelated Chains</b>
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
4.72	2.09	2.85	3.36

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#### **RESULTS**

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

### Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Uncorrelated
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Mid	5710	57.8	33.4347	3.36

#### Limits

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

Duty Cycle CF (dB)0.23Included in Calculations of PPSD

#### **Output Power Results**

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
							_
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)

#### **PPSD Results**

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

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# Limits (FCC), portion in 5.8 GHz UNII 3 band

Channel	Frequency	Min	Min	Uncorrelated
		26 dB	<b>99%</b>	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Mid	5710	47.8	23.4347	3.36

#### Bandwidth and Antenna Gain

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(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

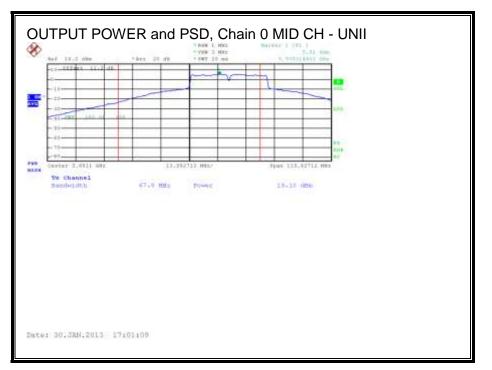
#### **Output Power Results**

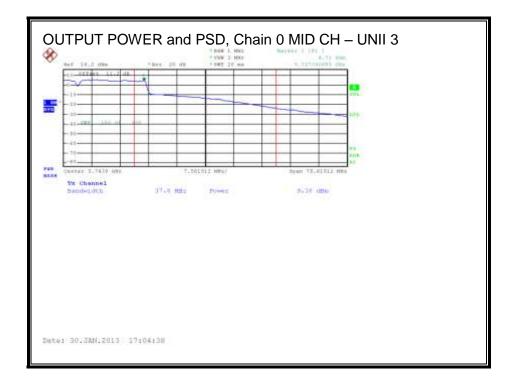
Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5710	9.38	8.91	9.34	14.22	24.00	-9.78

#### **PPSD** Results

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

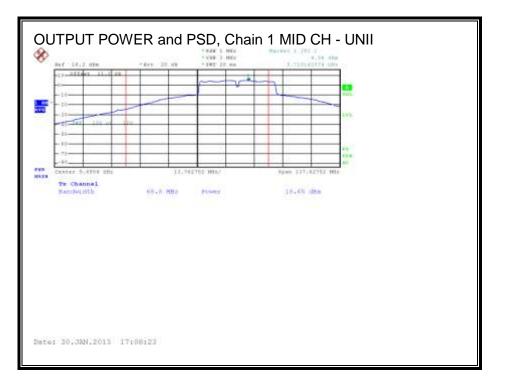
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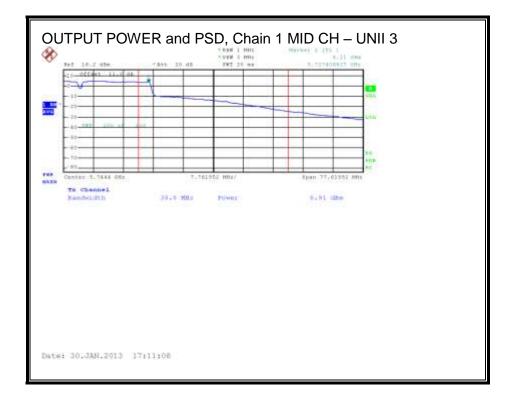




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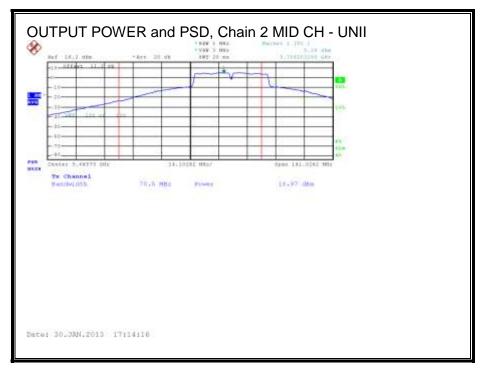
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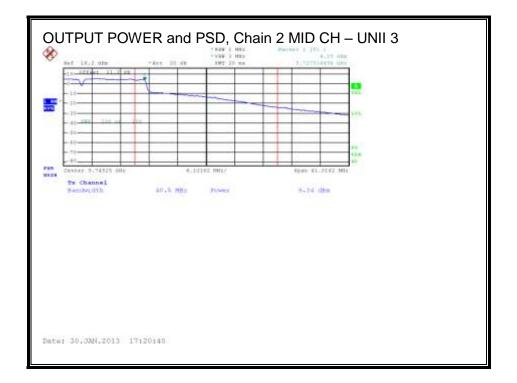




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# 8.27. 802.11n HT40 STBC 3TX MODE, 5.6 GHz BAND

# 8.27.1. 26 dB BANDWIDTH

## **LIMITS**

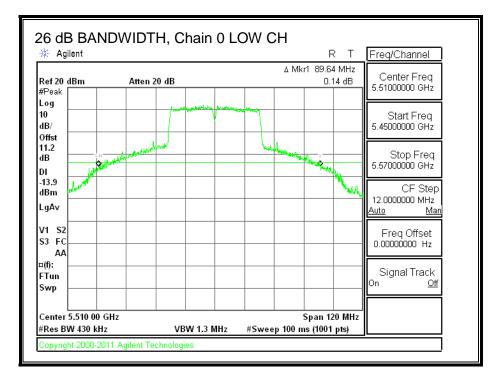
None; for reporting purposes only.

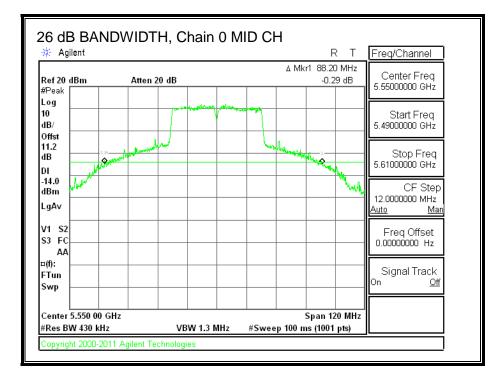
# **RESULTS**

Channel	Frequency	26 dB BW	26 dB BW	26 dB BW
		Chain 0	Chain 1	Chain 2
	(MHz)	(MHz)	(MHz)	(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

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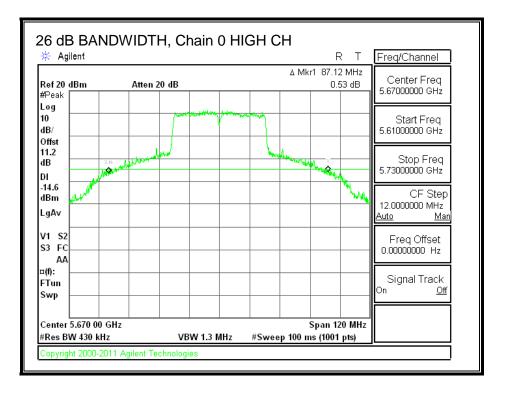
#### 26 dB BANDWIDTH, Chain 0



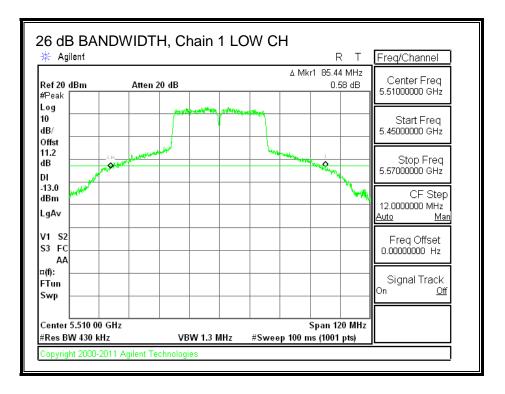


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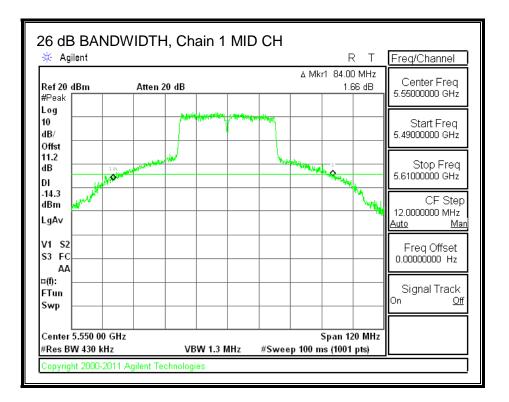
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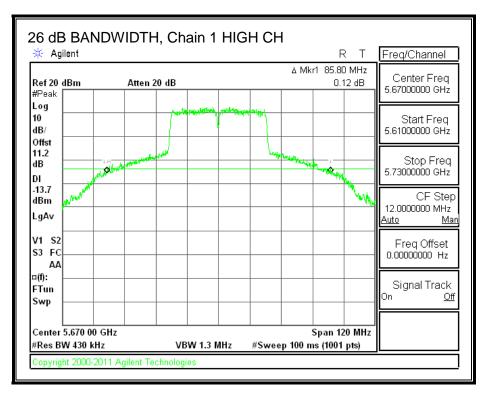


#### 26 dB BANDWIDTH, Chain 1



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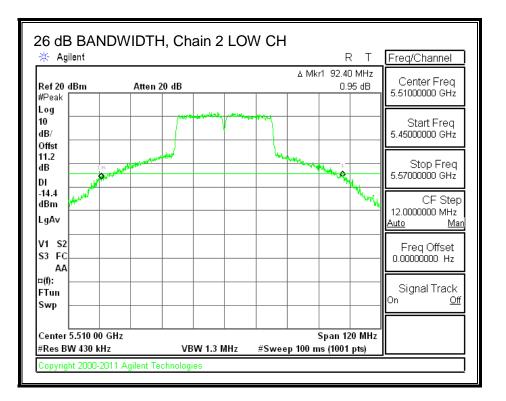


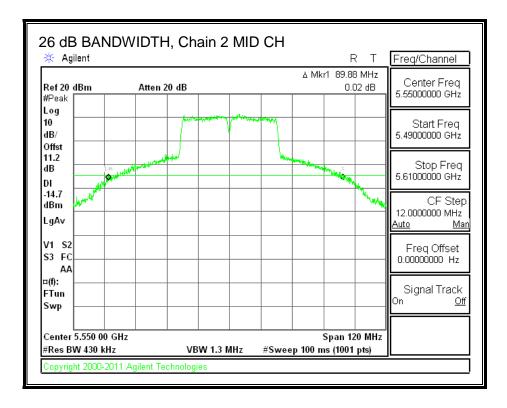


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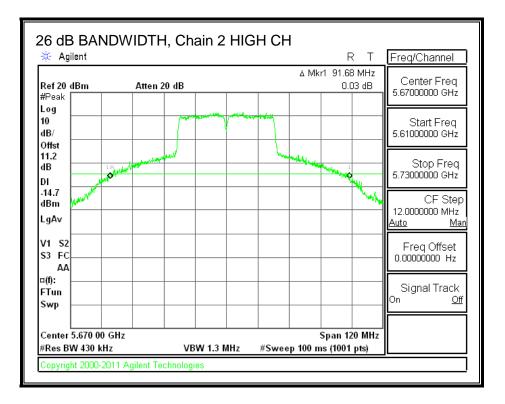
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#### 26 dB BANDWIDTH, Chain 2





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# 8.27.2. 99% BANDWIDTH

# **LIMITS**

None; for reporting purposes only.

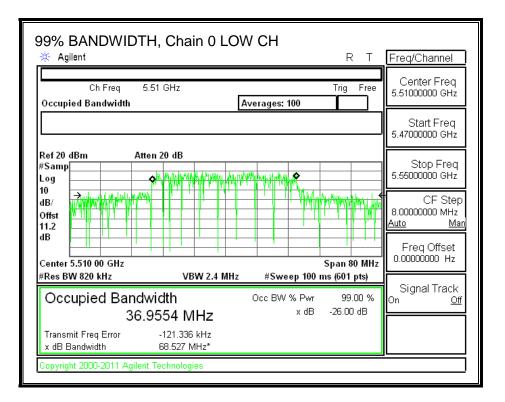
# <u>RESULTS</u>

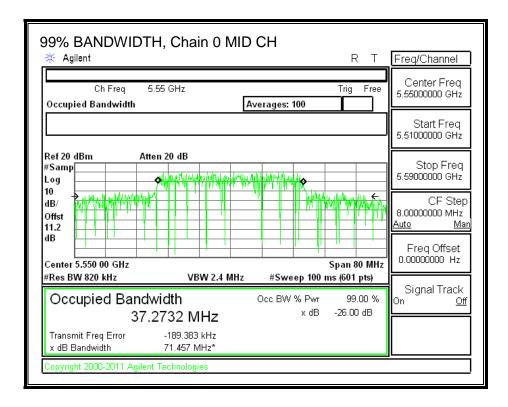
Channel	Frequency	99% BW	99% BW	99% BW	
		Chain 0	Chain 1	Chain 2	
	(MHz)	(MHz)	(MHz)	(MHz)	
Low	5510	36.9554	36.9069	37.3429	
Mid	5550	37.2732	36.7588	37.4053	
High	5670	36.8370	36.7167	37.2254	

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## 99% BANDWIDTH, Chain 0

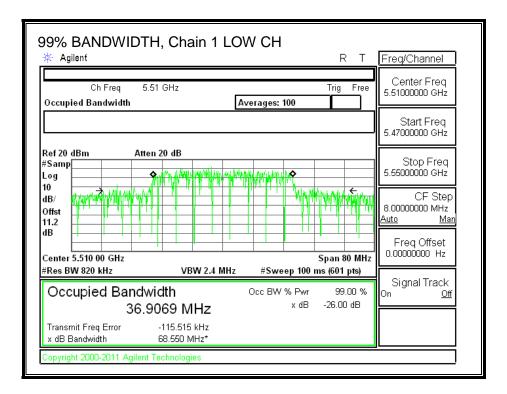




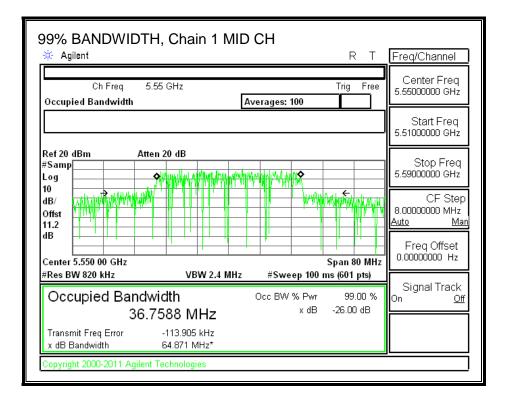
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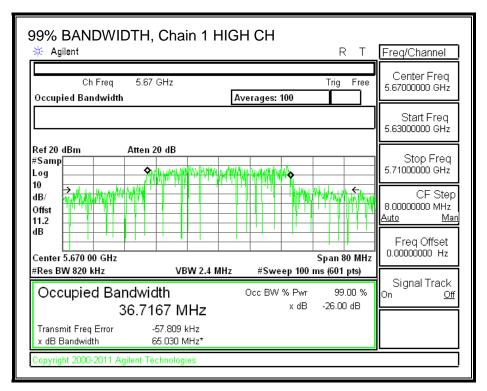
99% BANDWIDTH * Agilent	, Chain 0 HI	GH CH	RT	Freq/Channel
Ch Freq 5.67 Occupied Bandwidth	GHz	Averages: 100	Trig Free	Center Freq 5.67000000 GHz
	L			Start Freq 5.63000000 GHz
Ref 20 dBm Atten #Samp Log	20 dB			Stop Freq 5.71000000 GHz
dB/ Offst 11.2				CF Step 8.0000000 MHz <u>Auto Man</u>
dB			Span 80 MHz	Freq Offset 0.00000000 Hz
#Res BW 820 kHz	VBW 2.4 MHz	#Sweep 100 i	ns (601 pts)	Signal Track
Occupied Bandwie 36.83	dth 570 MHz	Occ BW % Pwr x dB	99.00 % -26.00 dB	On <u>Off</u>
	-75.355 kHz 68.199 MHz*			
Copyright 2000-2011 Agilent Te	chnologies			

# 99% BANDWIDTH, Chain 1



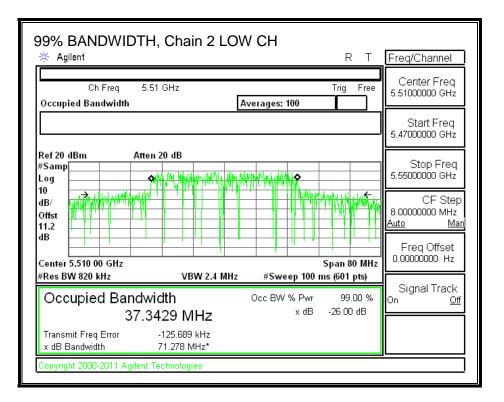
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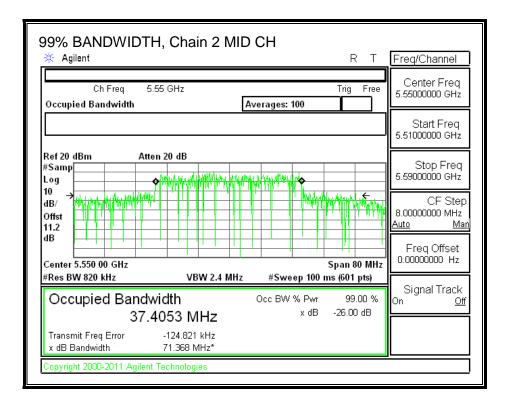




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# 99% BANDWIDTH, Chain 2





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Ch Freq 5.67 GHz Trig Free Occupied Bandwidth Averages: 100	Center Freq 5.67000000 GHz
Ref 20 dBm Atten 20 dB	Start Freq 5.63000000 GHz
#Samp Log 10	Stop Freq 5.71000000 GHz CF Step
dB/ www.harmer.com/www.ha	8.00000000 MHz <u>Auto Man</u>
Center 5.670 00 GHz Span 80 MHz #Res BW 820 kHz VBW 2.4 MHz #Sweep 100 ms (601 pts)	Freq Offset 0.00000000 Hz Signal Track
Occupied Bandwidth         Occ BW % Pwr         99.00 %           37.2254 MHz         x dB         -26.00 dB	On <u>Off</u>
Transmit Freq Error -26.179 kHz x dB Bandwidth 71.511 MHz* Copyright 2000-2011 Agilent Technologies	

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# 8.27.3. 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 log10 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	Chain 1	Chain 2	<b>Uncorrelated Chains</b>
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
4.72	2.09	2.85	3.36

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# **RESULTS**

## Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(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	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(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 PPSD
--------------------	------	---

## Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(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

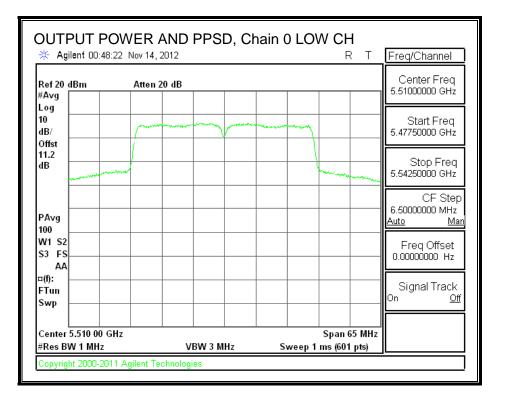
#### **PPSD** Results

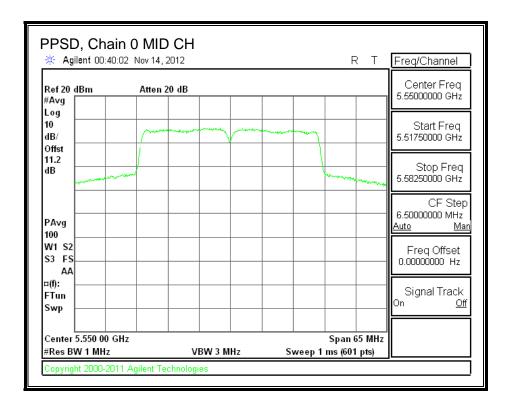
Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		5505	<b>DDOD</b>	DDOD	5505		
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5510	5.99	5.99	5.41	10.81	11.00	-0.19
Mid	5550	6.06	6.00	5.02	10.72	11.00	-0.28
High	5670	5.53	5.94	5.71	10.73	11.00	-0.27

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

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#### PPSD, Chain 0

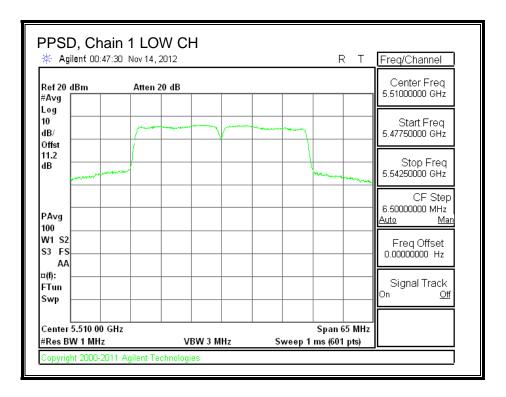




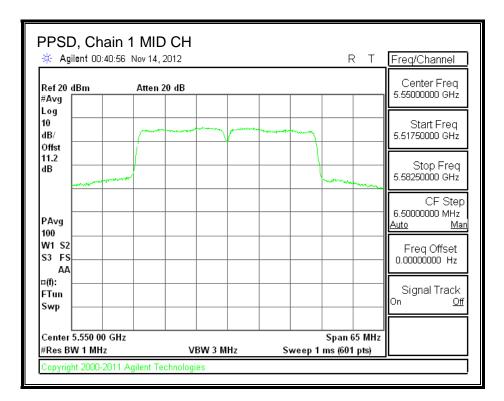
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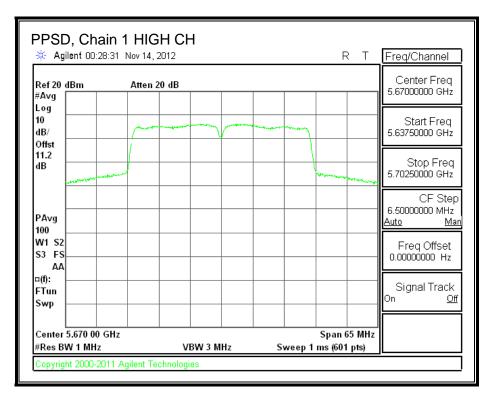
Agilent 00:29	20 Nov 14, 2012	RT	Freq/Channel
ef 20 dBm Avg	Atten 20 dB		Center Freq 5.67000000 GHz
og ) B/			Start Freq 5.63750000 GHz
B			Stop Freq 5.70250000 GHz
A∨g )0			CF Step 6.5000000 MHz <u>Auto Man</u>
/1 S2 3 FS AA			Freq Offset 0.00000000 Hz
f): Fun wp			Signal Track <sup>On <u>Off</u></sup>
enter 5.670 00 G Res BW 1 MHz	Hz VBW 3 MHz	Span 65 MHz Sweep 1 ms (601 pts)	

## PPSD, Chain 1



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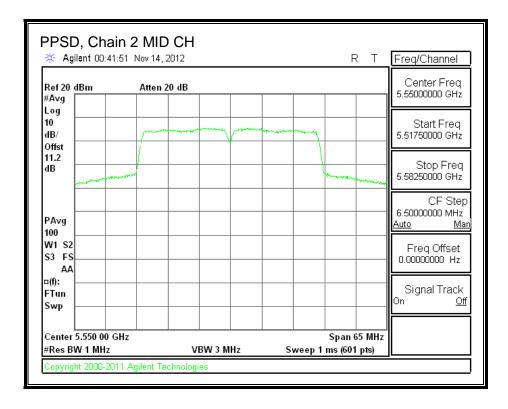




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# PPSD, Chain 2

ef 20 dBm		Atten 2	a JD					Center Freq
Avg		Atten 2						5.51000000 GHz
og D B/				and	 · · · · · · · · · · · · · · · · · · ·			Start Freq 5.47750000 GHz
1.2 В	-					4	manne	Stop Freq 5.54250000 GHz
Avg								CF Ste 6.5000000 MHz <u>Auto M</u> a
/1 S2 3 FS AA								Freq Offset 0.00000000 Hz
(f): Tun wp								Signal Track On <u>O</u>
enter 5.510 Res BW 1 M				3W 3 M	 	 Span 6 ms (601		



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Agilent 00:27				RT	Freq/Channel Center Freq
Ref 20 dBm #Avg	Atten 20	<u>qp</u>			5.67000000 GHz
Log 10 dB/ Offst					Start Freq 5.63750000 GHz
11.2 dB				hanna	Stop Frec 5.70250000 GHz
PAvg 100					CF Ste 6.5000000 MHz <u>Auto M</u>
100 W1 S2 S3 FS AA					Freq Offset 0.00000000 Hz
¤(f): FTun Swp					Signal Track On <u>C</u>
Center 5.670 00 G #Res BW 1 MHz	GHz	VBW 3 MHz	Sween 1	Span 65 MHz ms (601 pts)	

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# 8.28. 802.11n AC80 1TX MODE, 5.6 GHz BAND

# 8.28.1. 26 dB BANDWIDTH

# <u>LIMITS</u>

None; for reporting purposes only.

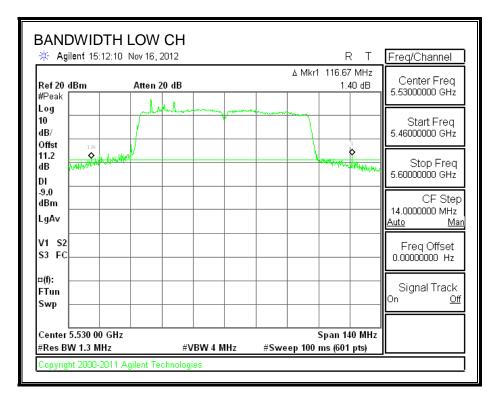
# **RESULTS**

Channel Frequency		26 dB Bandwidth
	(MHz)	(MHz)
Low	5530	116.67

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#### 26 dB BANDWIDTH



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# 8.28.2. 99% BANDWIDTH

# LIMITS

None; for reporting purposes only.

# <u>RESULTS</u>

Channel Frequency 99% Bandwidth						
	(MHz)	(MHz)				
Low	5530	75.0907				

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# 99% BANDWIDTH

BANDWIDTH LOW CH	Freq/Channel
Ch Freq 5.53 GHz Trig Free Occupied Bandwidth Averages: 100	Center Freq 5.53000000 GHz
	Start Freq 5.48000000 GHz
Ref 20 dBm         Atten 20 dB           #Samp	Stop Freq           5.58000000 GHz           CF Step           10.0000000 MHz <u>Auto</u> Man           Freq Offset           0.00000000 Hz
#Res BW 910 kHz         #VBW 2.7 MHz         #Sweep 100 ms (601 pts)           Occupied Bandwidth         Occ BW % Pwr         99.00 %	Signal Track On <u>Off</u>
75.0907 MHz       x dB       -26.00 dB         Transmit Freq Error       -72.515 kHz       x dB Bandwidth       90.386 MHz*         Copyright 2000-2011 Agilent Technologies	

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# 8.28.3. 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 log10 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

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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# **RESULTS**

#### Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	<b>99%</b>	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5530	116.67	75.0907	5.53

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5530	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB) 0.46 Included in Calculations of Corr'd PPSD

**Output Power Results** 

Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5530	12.84	12.84	24.00	-11.16

# **PPSD Results**

Channel	Frequency	Chain 1	Total	PPSD	PPSD
		Meas	Corr'd	Limit	Margin
		PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5530	5.845	6.305	11.00	-4.695

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# OUTPUT POWER AND PPSD, Chain 1

		PPSD, C	hain 1 LO		
🔆 Agilent 16:41:	US NOV 16, 2012			RT	Peak Search
Ref 20 dBm #Avg	Atten 20 dB		Mkr1	5.518 53 GHz 5.845 dBm	Next Peak
Log 10 dB/		1			Next Pk Right
Offst 11.2 dB			l lm		Next Pk Left
PAvg 100					Min Search
W1 S2 S3 FS AA					Pk-Pk Search
⊐(f): FTun Swp					Mkr © CF
Center 5.530 00 G #Res BW 1 MHz		/BW 3 MHz	#Sweep 100	Span 160 MHz ms (601 pts)	More 1 of 2
Copyright 2000-201	1 Agilent Technologi	es			

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# 8.29. 802.11n AC80 CDD 3TX MODE, 5.6 GHz BAND

# 8.29.1. 26 dB BANDWIDTH

# <u>LIMITS</u>

None; for reporting purposes only.

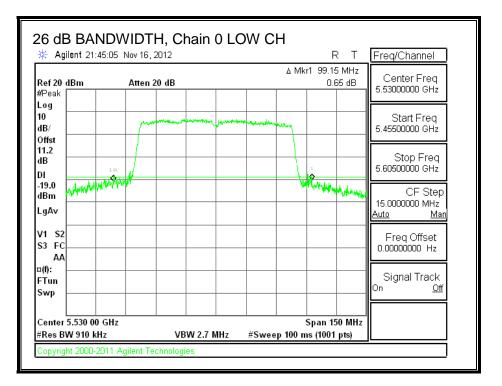
# **RESULTS**

Channel	Frequency	26 dB BW	26 dB BW	26 dB BW	
		Chain 0	Chain 1	Chain 2	
	(MHz)	(MHz)	(MHz)	(MHz)	
Low	5530	99.15	97.50	92.70	

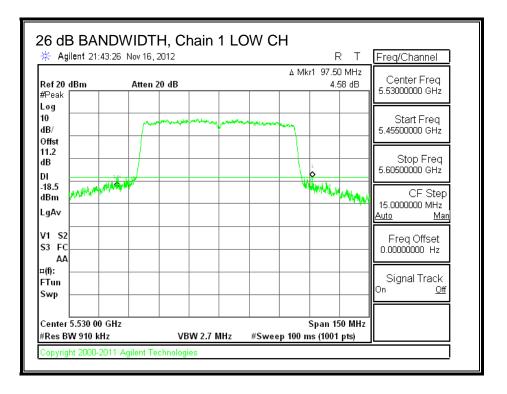
UL CCS FORM NO: CCSUP4701H 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of UL CCS.

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### 26 dB BANDWIDTH, Chain 0



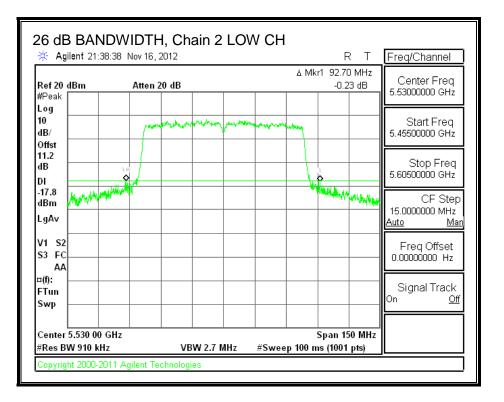
#### 26 dB BANDWIDTH, Chain 1



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### 26 dB BANDWIDTH, Chain 2



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# 8.29.2. 99% BANDWIDTH

# <u>LIMITS</u>

None; for reporting purposes only.

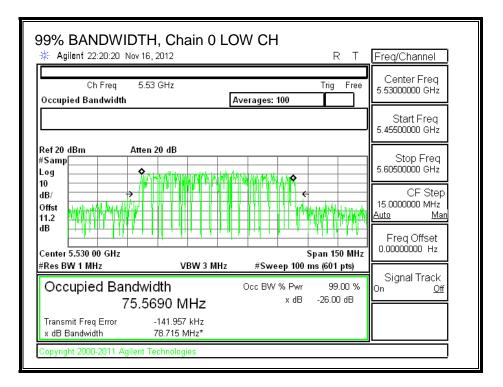
# <u>RESULTS</u>

Channel	Frequency	Frequency 99% BW		99% BW
		Chain 0	Chain 1	Chain 2
	(MHz)	(MHz)	(MHz)	(MHz)
Low	5530	75.5690	75.3174	75.5696

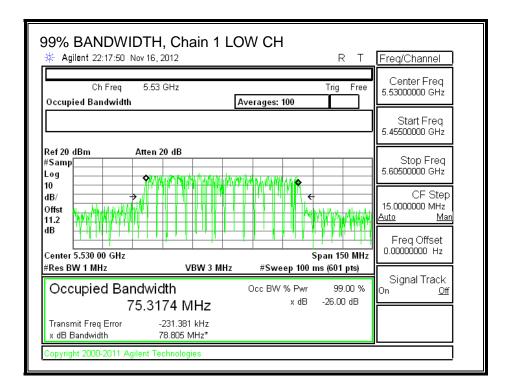
UL CCS FORM NO: CCSUP4701H 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of UL CCS.

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# 99% BANDWIDTH, Chain 0

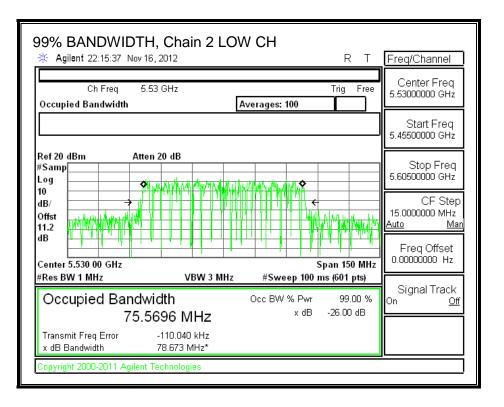


# 99% BANDWIDTH, Chain 1



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# 99% BANDWIDTH, Chain 2



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# 8.29.3. 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 log10 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	Chain 1	Chain 2	<b>Uncorrelated Chains</b>
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	3.53

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

Chain 0	Chain 1	Chain 2	<b>Correlated Chains</b>
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	8.11

# **RESULTS**

# Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	<b>99%</b>	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5530	92.70	75.3174	3.53

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC
		Power	Power	EIRP	Limit	PPSD
		Limit	Limit	Limit		Limit
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
Low	5530	24.00	24.00	30.00	24.00	11.00

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

**Gated Output Power Results** 

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
							-
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5530	12.80	12.44	12.20	17.26	24.00	-6.74

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# Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5530	92.70	75.3174	8.11

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5530	21.89	24.00	30.00	21.89	8.89	11.00	8.89

Duty Cycle CF (dB) 0.46	Included in Calculations of Corr'd PPSD
-------------------------	---

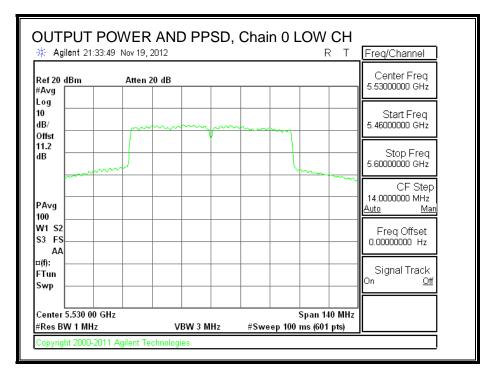
#### **PPSD** Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5530	1.98	3.06	3.78	8.23	8.89	-0.66

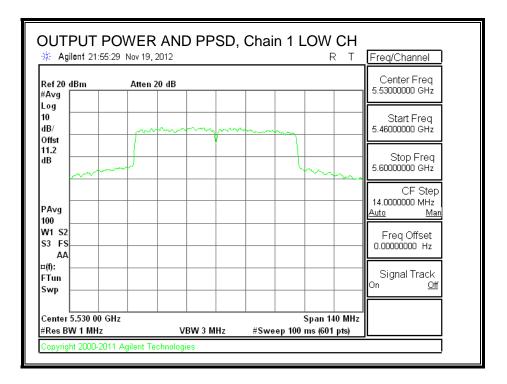
<u>Note:</u> method (1) "Measure and sum the spectra across the outputs" as specified in KDB 662911 D01 v01r02 was used for this PSD measurements.

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# **OUTPUT POWER AND PPSD, Chain 0**



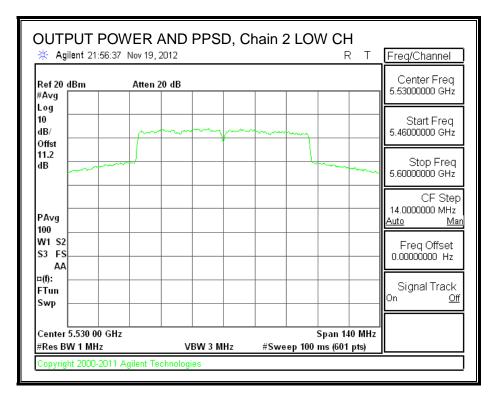
# **OUTPUT POWER AND PPSD, Chain 1**



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# **OUTPUT POWER AND PPSD, Chain 2**



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# 8.30. 802.11n AC80 BF 3TX MODE, 5.6 GHz BAND

# 8.30.1. 26 dB BANDWIDTH

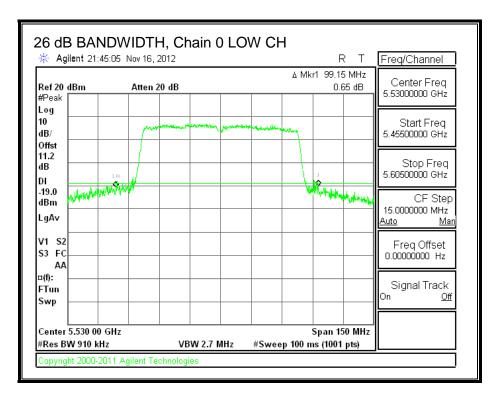
# <u>LIMITS</u>

None; for reporting purposes only.

### **RESULTS**

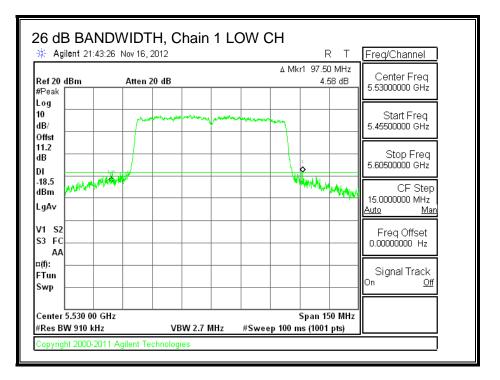
Channel	Frequency	26 dB BW	26 dB BW	26 dB BW
		Chain 0	Chain 1	Chain 2
	(MHz)	(MHz)	(MHz)	(MHz)
Low	5530	99.15	97.50	92.70

# 26 dB BANDWIDTH, Chain 0

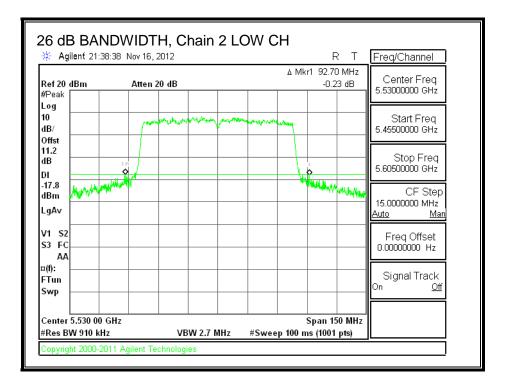


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#### 26 dB BANDWIDTH, Chain 1



#### 26 dB BANDWIDTH, Chain 2



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# 8.30.2. 99% BANDWIDTH

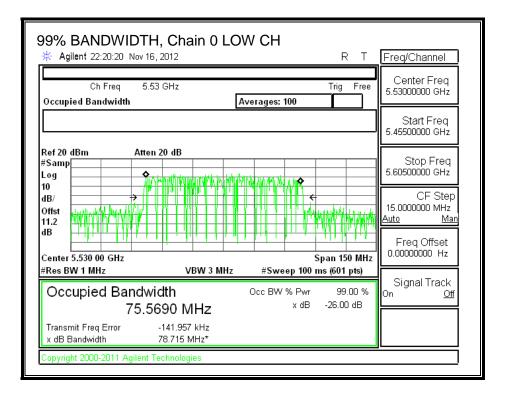
#### LIMITS

None; for reporting purposes only.

# **RESULTS**

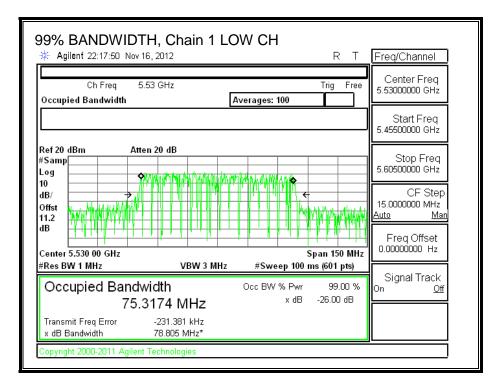
Channel	Frequency	99% BW	99% BW	99% BW
		Chain 0	Chain 1	Chain 2
	(MHz)	(MHz)	(MHz)	(MHz)
Low	5530	75.5690	75.3174	75.5696

#### 99% BANDWIDTH, Chain 0

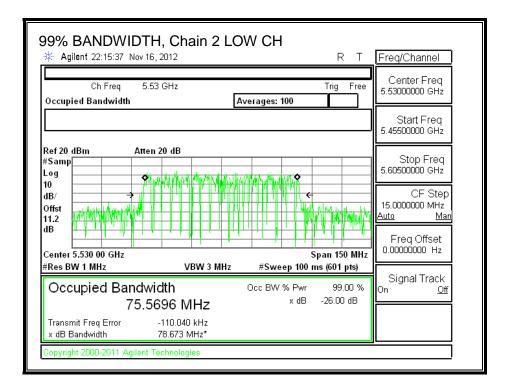


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# 99% BANDWIDTH, Chain 1



# 99% BANDWIDTH, Chain 2



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# 8.30.3. 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 log10 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 correlated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	<b>Correlated Chains</b>
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	8.11

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# **RESULTS**

# Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	<b>99%</b>	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5530	92.70	75.3174	8.11

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5530	21.89	24.00	30.00	21.89	8.89	11.00	8.89

 Duty Cycle CF (dB)
 0.46
 Included in Calculations of Corr'd PPSD

**Output Power Results** 

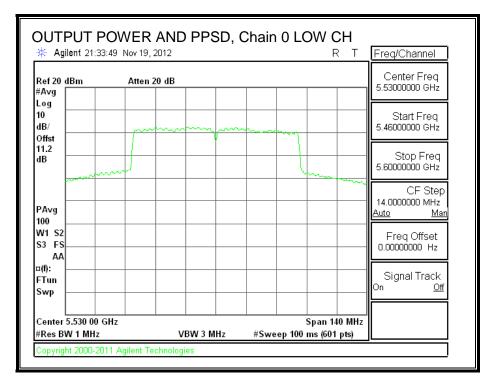
Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)

# **PPSD** Results

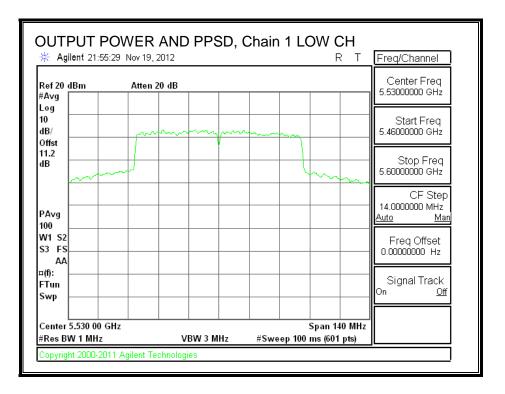
Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5530	1.98	3.06	3.78	8.23	8.89	-0.66

<u>Note:</u> 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

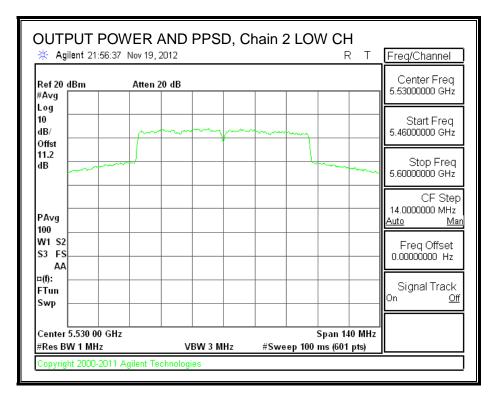


# OUTPUT POWER AND PPSD, Chain 1



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# OUTPUT POWER AND PPSD, Chain 2



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# 8.31. 802.11n AC80 CDD CH 138 3TX MODE, 5.6 GHz BAND

# 8.31.1.26 dB BANDWIDTH- UNII

# LIMITS

None; for reporting purposes only.

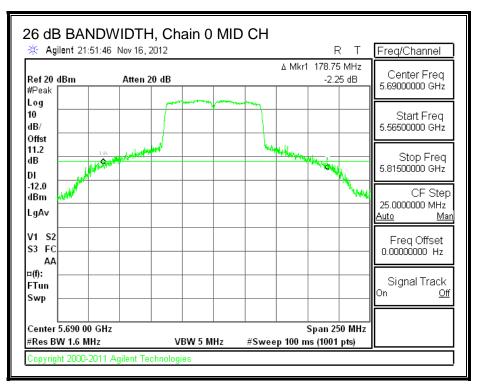
# **RESULTS**

Channel	Frequency	26 dB BW	26 dB BW	26 dB BW
		Chain 0	Chain 1	Chain 2
	(MHz)	(MHz)	(MHz)	(MHz)
Mid	5690	178.75	184.00	172.00

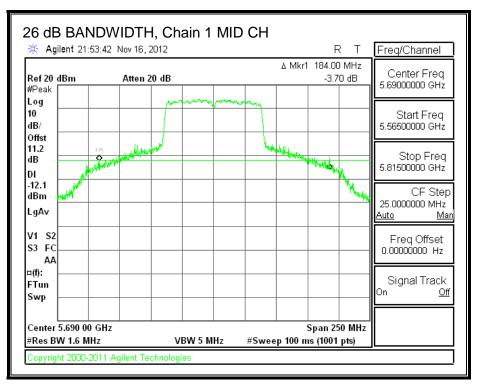
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#### 26 dB BANDWIDTH, Chain 0



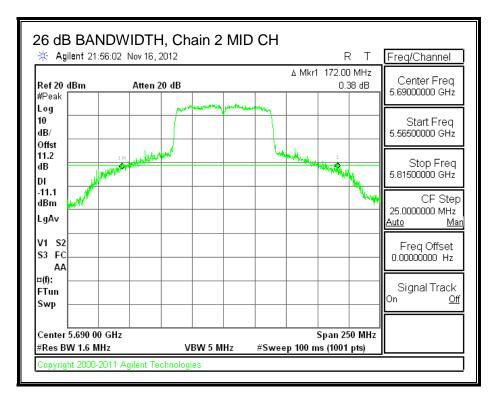
# 26 dB BANDWIDTH, Chain 1



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### 26 dB BANDWIDTH, Chain 2



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# 8.31.2.99% BANDWIDTH

# LIMITS

None; for reporting purposes only.

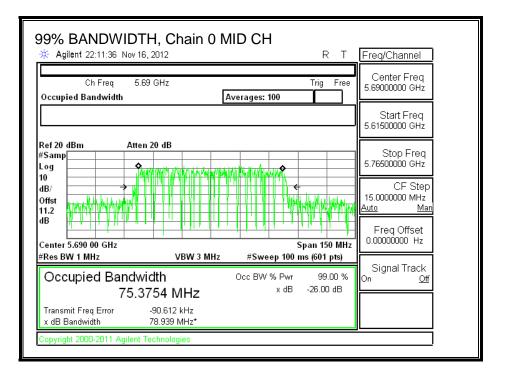
# <u>RESULTS</u>

Channel	Frequency	99% BW	99% BW	99% BW
		Chain 0	Chain 1	Chain 2
	(MHz)	(MHz)	(MHz)	(MHz)
Mid	5690	75.3754	75.5286	75.4394

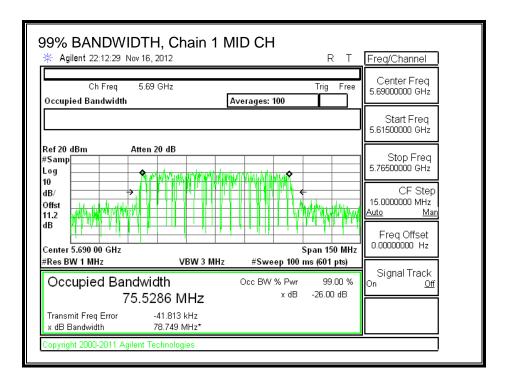
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# 99% BANDWIDTH, Chain 0

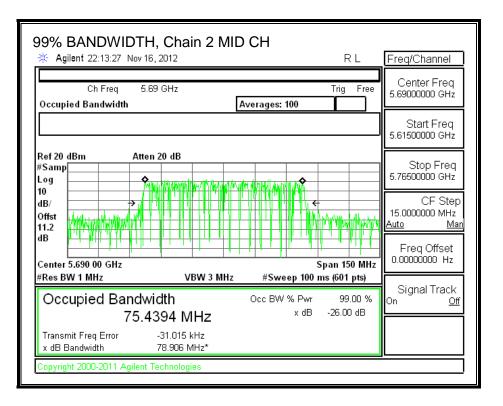


# 99% BANDWIDTH, Chain 1



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# 99% BANDWIDTH, Chain 2



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# 8.31.3. 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	Chain 1	Chain 2	<b>Uncorrelated Chains</b>
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	3.53

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

Chain 0	Chain 1	Chain 2	<b>Correlated Chains</b>
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	8.11

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#### **RESULTS**

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

# Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Correlated	Uncorrelated
		26 dB	<b>99%</b>	Gain	Gain
		BW	BW		
	(MHz)	(MHz)	(MHz)	(dBi)	(dBi)
Mid	5690	121.00	72.6877	8.11	3.53

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5690	24.00	24.00	30.00	24.00	8.89	11.00	8.89

Duty Cycle CF (dB)0.46Included in Calculations of PPSD

#### **Output Power Results**

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
							-
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5690	18.59	18.48	18.86	23.88	24.00	-0.12

#### **PPSD** Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
							_
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5690	0.605	0.740	1.016	6.02	8.89	-2.87

## Limits (FCC), portion in 5.8 GHz UNII 3 band

	Channel	Frequency	Min	Min	Correlated	Uncorrelated
			26 dB	<b>99%</b>	Gain	Gain
			BW	BW		
		(MHz)	(MHz)	(MHz)	(dBi)	(dBi)
ľ	Mid	5690	51.00	2.6877	8.11	3.53

#### Bandwidth and Antenna Gain

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5690	24.00	15.29	21.29	15.29	8.89	11.00	8.89

Duty Cycle CF (dB) 0.46 Included in Calculations of PPSD

#### **Output Power Results**

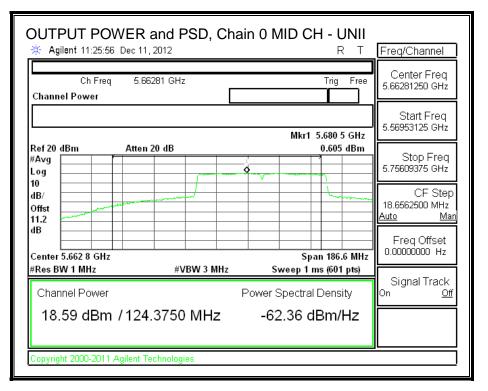
Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5690	4.68	4.41	4.27	9.69	15.29	-5.61

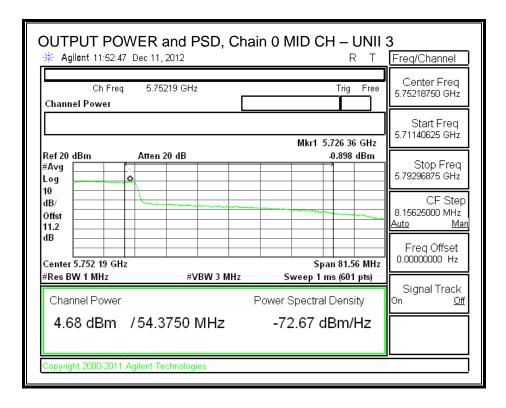
### **PPSD** Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5690	-0.898	-1.042	-0.835	4.31	8.890	-4.583

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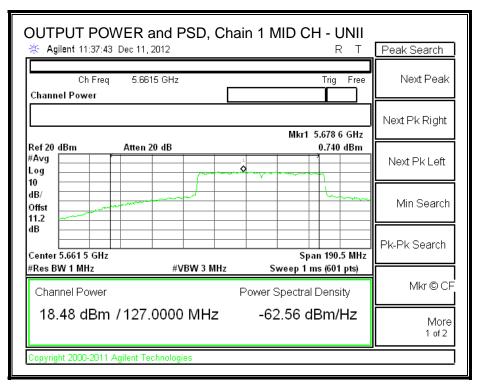
#### **OUTPUT POWER and PSD, Cain 0**

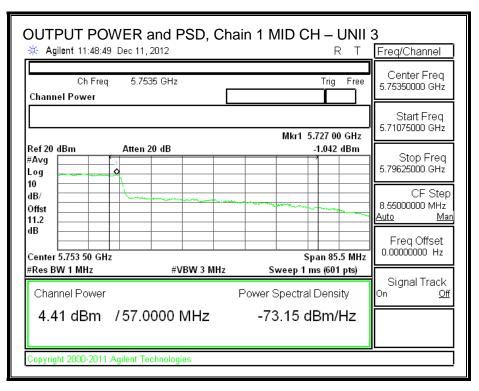




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## **OUTPUT POWER and PSD, Chain 1**

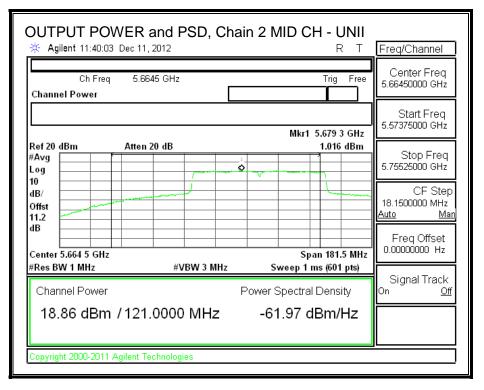




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## **OUTPUT POWER and PSD, Chain 2**



OUTPUT POWER and PS	SD, Chain	2 MID CH	I – UNII I R T	3 Freq/Channel
Ch Freq 5.7505 GHz Channel Power			Trig Free	Center Freq 5.75050000 GHz
		Mkr1 5.7	25 64 GHz	Start Freq 5.71225000 GHz
Ref 20 dBm         Atten 20 dB           #Avg			).835 dBm	Stop Freq 5.78875000 GHz
dB/ Offst 11.2 dB				CF Step 7.6500000 MHz <u>Auto Man</u>
Center 5.750 50 GHz	W 3 MHz	Spa Sweep 1 ms	an 76.5 MHz s (601 pts)	Freq Offset 0.00000000 Hz
Channel Power 4.27 dBm /51.0000 N	Signal Track On <u>Off</u>			
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## 8.32. 802.11n AC80 BF CH 138 3TX MODE IN THE 5.6 GHz BAND

## 8.32.1.26 dB BANDWIDTH- UNII

## **LIMITS**

None; for reporting purposes only.

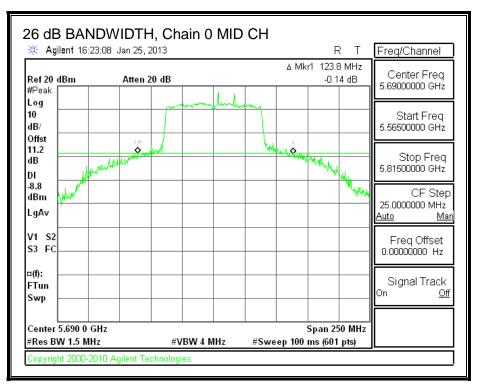
### **RESULTS**

Channel	Channel Frequency		26 dB BW	26 dB BW
		Chain 0	Chain 1	Chain 2
	(MHz)	(MHz)	(MHz)	(MHz)
Mid	5690	123.80	131.70	120.80

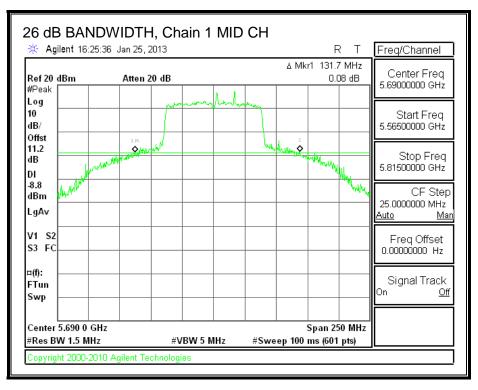
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#### 26 dB BANDWIDTH, Chain 0



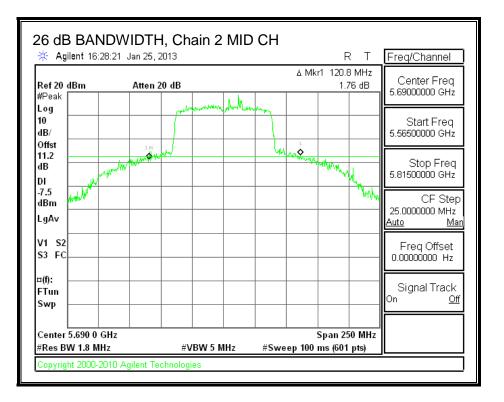
## 26 dB BANDWIDTH, Chain 1



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### 26 dB BANDWIDTH, Chain 2



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## 8.32.2.99% BANDWIDTH

### <u>LIMITS</u>

None; for reporting purposes only.

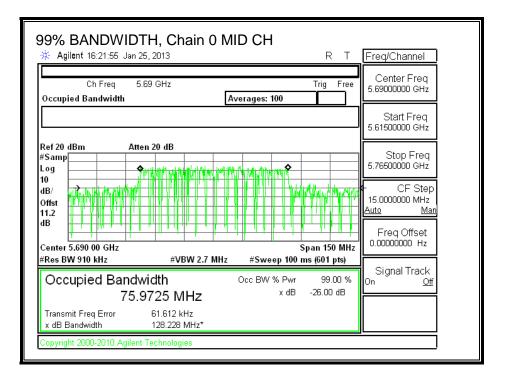
### <u>RESULTS</u>

Channel	Frequency	99% BW	99% BW	99% BW	
		Chain 0	Chain 1	Chain 2	
	(MHz)	(MHz)	(MHz)	(MHz)	
Mid	5690	75.9725	76.1059	75.4394	

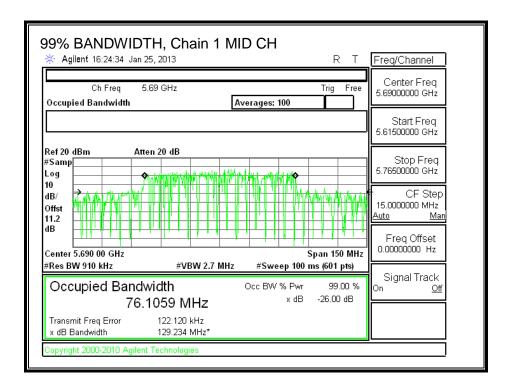
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## 99% BANDWIDTH, Chain 0

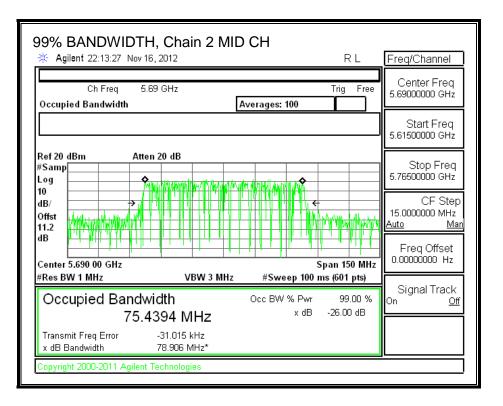


#### 99% BANDWIDTH, Chain 1



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## 99% BANDWIDTH, Chain 2



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## 8.32.3. 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 correlated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	<b>Correlated Chains</b>
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	8.11

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### **RESULTS**

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

## Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Correlated	
		26 dB	99%	Gain	
		BW	BW		
	(MHz)	(MHz)	(MHz)	(dBi)	
Mid	5690	65.4	42.9863	8.11	

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5690	24.00	24.00	30.00	21.89	8.89	11.00	8.89

Duty Cycle CF (dB)0.46Included in Calculations of PPSD

#### **Output Power Results**

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5690	16.49	16.69	16.57	21.82	21.89	-0.07

#### **PPSD** Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
							_
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5690	-1.441	-0.893	-0.903	4.160	8.89	-4.730

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## Limits (FCC), portion in 5.8 GHz UNII 3 band

С	hannel	Frequency	Min	Min	Correlated	
			26 dB	99%	Gain	
			BW	BW		
		(MHz)	(MHz)	(MHz)	(dBi)	
	Mid	5690	55.4	32.9863	8.11	

#### Bandwidth and Antenna Gain

#### Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5690	24.00	24.00	30.00	21.89	8.89	11.00	8.89

Duty Cycle CF (dB) 0.46 Included in Calculations of PPSD

#### **Output Power Results**

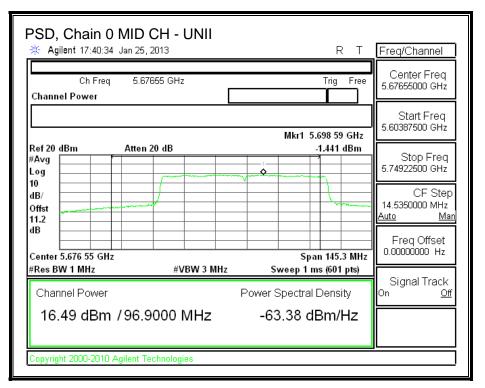
Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)

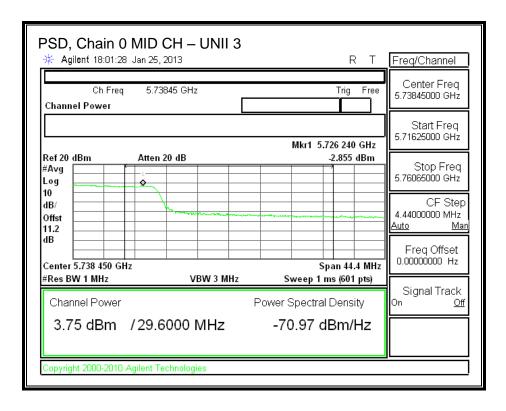
#### **PPSD Results**

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
							-
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5690	-2.855	-2.173	-2.548	2.71	8.89	-6.18

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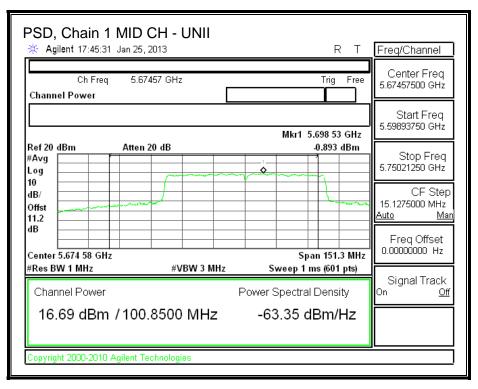
#### PSD, Cain 0

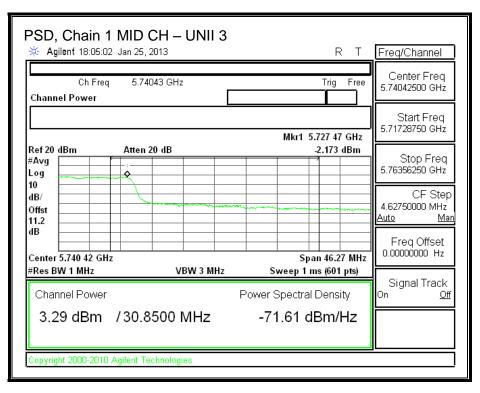




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#### PSD, Chain 1

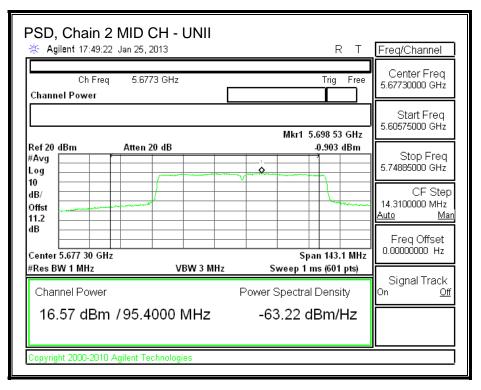




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#### PSD, Chain 2



	Chain 2		H – UNII 3 <sup>113</sup>	3		RТ	Freq/Channel
Channe	Ch Freq el Power	5.7377	′ GHz			Trig Free	Center Freq 5.73770000 GHz
				LN	lkr1 5.720	905 0 GHz	Start Freq 5.71865000 GHz
Ref20 o #A∨g Log	lBm	Atten 20	dB			-2.548 dBm	Stop Freq 5.75675000 GHz
10 dB/ Offst 11.2					****		CF Step 3.81000000 MHz <u>Auto Man</u>
	5.737 700 0 ( N 1 MHz	GHz	VBW 3 MHz		•	oan 38.1 MHz ns (601 pts)	Freq Offset 0.00000000 Hz
Chan	nel Power			Power	Spectral	Density	Signal Track <sup>On <u>Off</u></sup>
2.9	3 dBm	/25.40	00 MHz	-7	1.12 d	Bm/Hz	
Copyrigh	nt 2000-2010	Agilent Tech	nologies				

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# 9. RADIATED TEST RESULTS

## 9.1. LIMITS AND PROCEDURE

## <u>LIMITS</u>

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.

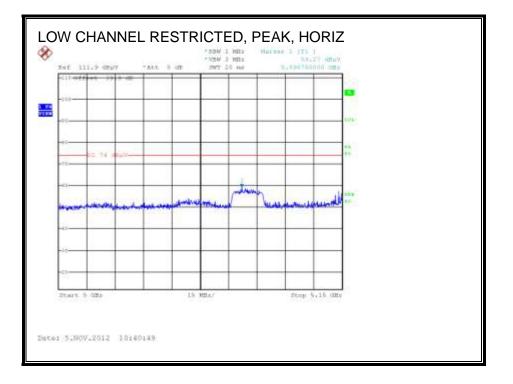
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

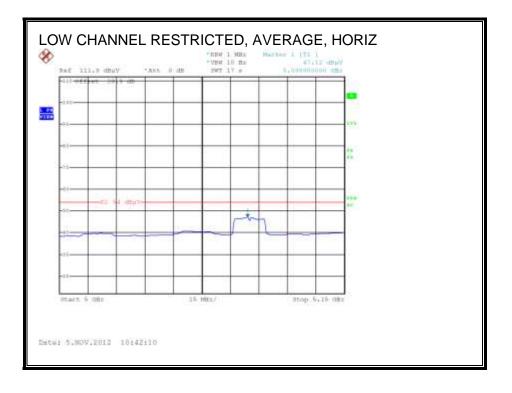
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## 9.2. TRANSMITTER ABOVE 1 GHz

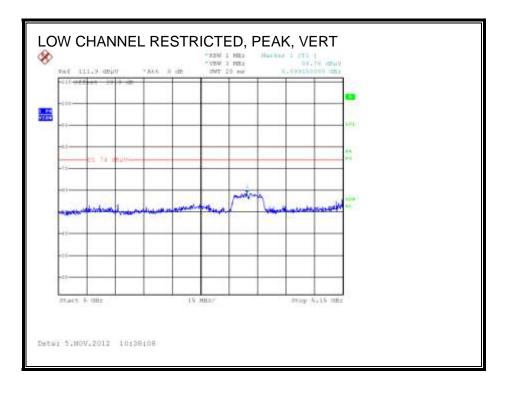
## 9.2.1. TX ABOVE 1 GHz 802.11a Legacy 1TX MODE, 5.2 GHz BAND

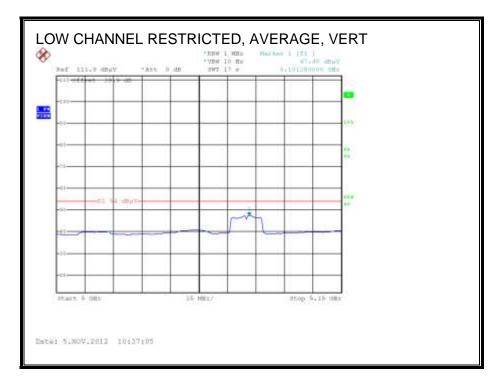
## **RESTRICTED BANDEDGE (LOW CHANNEL)**





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## HARMONICS AND SPURIOUS EMISSIONS

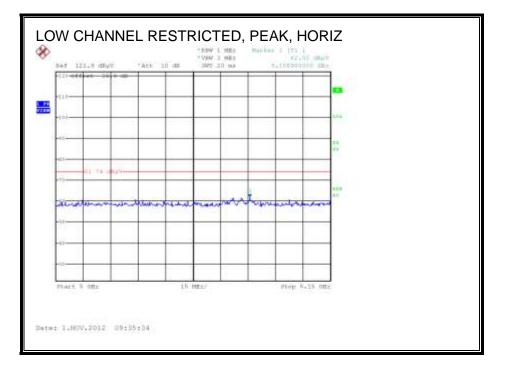
Covered by testing HT20 CDD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

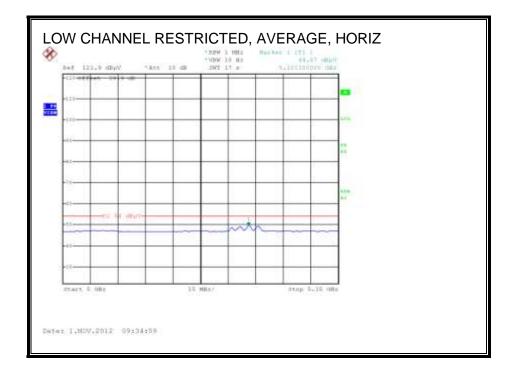
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## 9.2.2. TX ABOVE 1 GHz 802.11n HT20 CDD 3TX MODE, 5.2 GHz BAND

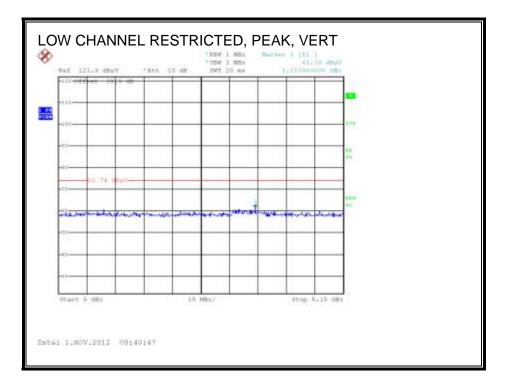
## **RESTRICTED BANDEDGE (LOW CHANNEL)**

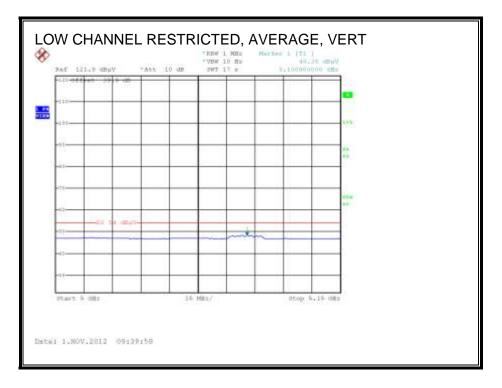




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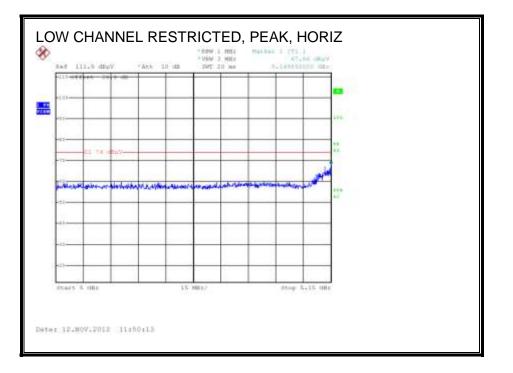
## HARMONICS AND SPURIOUS EMISSIONS

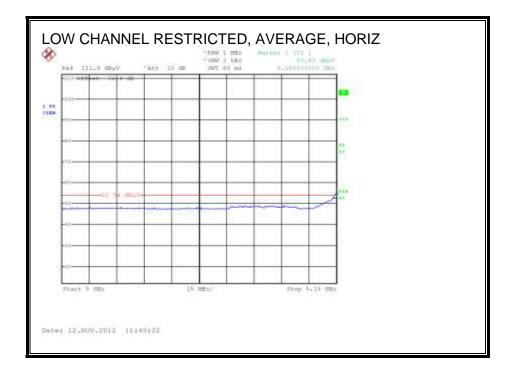
Complia Company Project / Date: Cest Eny Configur Jode:	y: ¥: gineer:		Services, Fr Broadcom 12/014669 12/5/2012 M. Mekunia D EUT, Adapter 11n HT20 3TX	anny Vu Board, A											
est Eq	ulpmen	<u>t:</u>													
He	orn 1-	18GHz	Pre-ar	nplifer	1-260	GHz	Pre-am	plifer	26-40GH	z	Н	orn > 180	Hz		Limit
T60; S	/N: 223	8 @3m	• T34 HF	P 8449B		-	T88 Mit	eq 26-	40GHz	• T39	: ARA 18-264	GHz; S/N:10	13	-	FCC 15.205 -
		2807700	-	able 2 ble 228		500	20° cab		2807500		HPF	_	oject Filte 001	RBV Average	Measurements W=VBW=1MHz ge Measurements IMHz ; VBW=10Hz
f	Dist		Read Avg.	100000	CL	Ашр	D Corr		Peak	Avg	Pk Lins		10000000000000	Avg Mar	Notes
GHz ow Char	(m)	dBuV m MHz)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
5.540 5.540	3.0 3.0	44.5 43.3	33.9 32.6	39.1 39.1	13.0 13.0	-31.9 -31.9	0.0 0.0	0.0 0.0	64.6 63.4	53.9 52.7	74 74	54 54	-9,4 -10.6	-0,1 -1.3	H, q90 V, q90
fid Chan	nel (520	0 MHz)						-		-		-			
5.600	3.0	43.5	33.3 33.9	38.8 38.8	13.0 13.0	-31.9	0.0	0.0	63.4 19.9	53.3 53.8	74	54 54	-10.6	-0.7	H, 985 V, 986
					_							1			1.00
ligh Chai 5.720	3.0	37.2	15.8	38.4	13.1	-31.9	0.0	0.0	56.8	45.4	74	54	-17.2	-8.6	H, 988
5,720	3.0	37.9	26.5	38.4	13.1	-51.9	0.0	0.0	\$7,5	46.1	74	54	-16.5	.7.9	V, 988
ev. 11.10	f Dist Read	Distance to Analyzer R	eading	Y		Avg	Average	Corre Field 1	ct to 3 mete Strength @	3 m		Pk Lim Avg Mar	Peak Field Margin vs	field Strength d Strength Li Average Li	mit mit
	AF CL	Antenna Fa Cable Loss				Peak HPF	Calculate High Pas		k Field Stre	ngth		Pk Mar	Margin vs	. Peak Limit	li

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

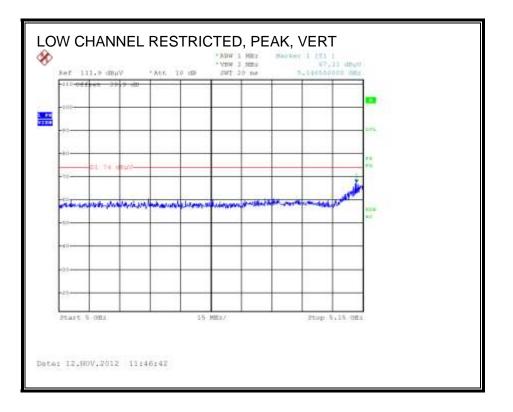
#### **RESTRICTED BANDEDGE (LOW CHANNEL)**

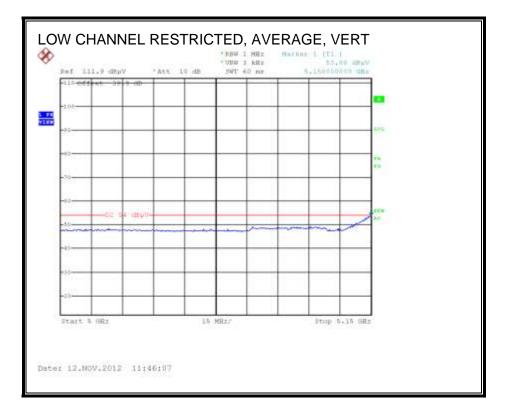




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### HARMONICS AND SPURIOUS EMISSIONS

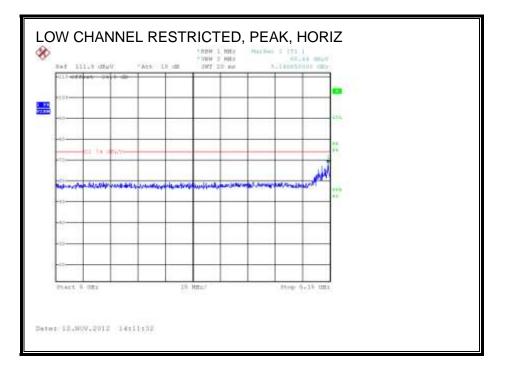
Covered by testing 11n HT40 CCD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

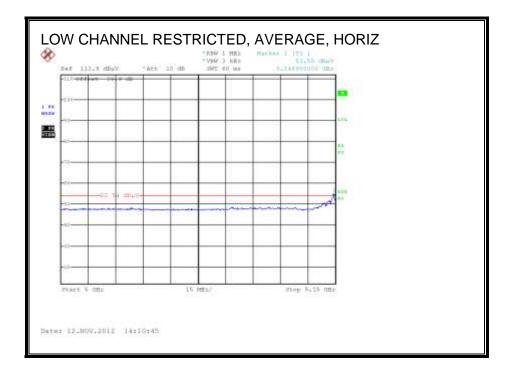
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## 9.2.4. TX ABOVE 1 GHz 802.11n HT40 CDD 3TX MODE, 5.2 GHz BAND

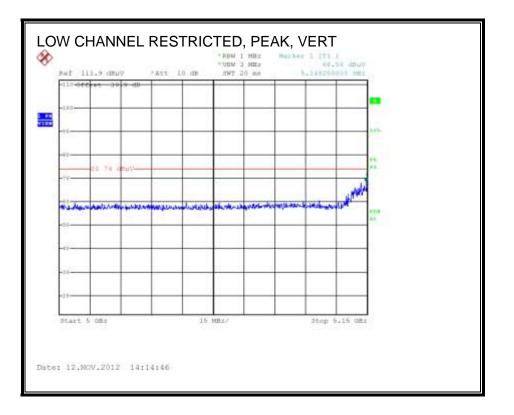
## **RESTRICTED BANDEDGE (LOW CHANNEL)**

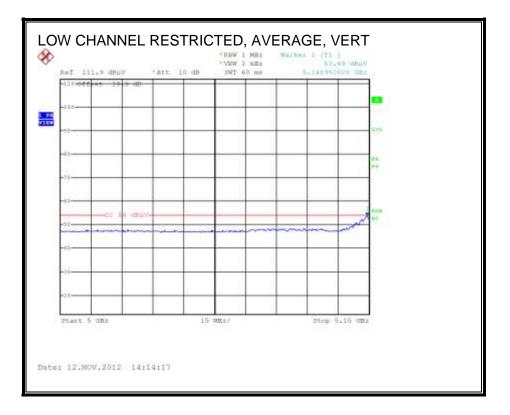




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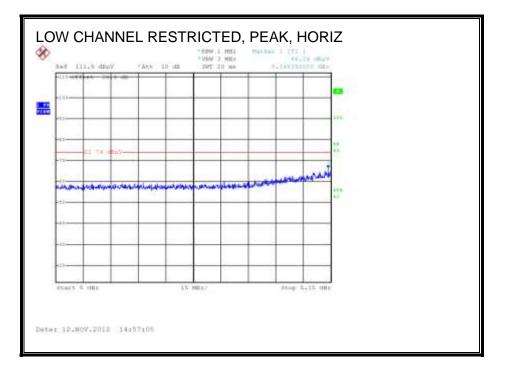
## HARMONICS AND SPURIOUS EMISSIONS

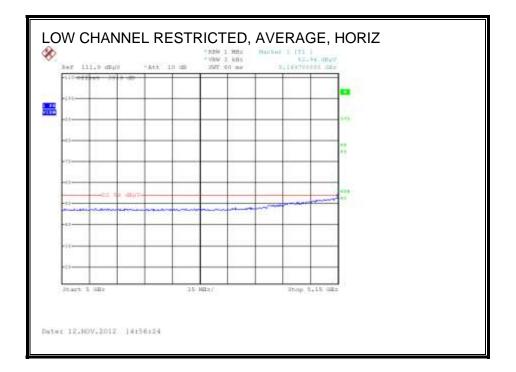
Horn 1-18GH; 173; SIN: 6717 @3m H Prequency Cables 3' cable 228077		r Board, A	1-260	1	Pre-am	plifer							
T73; S/N: 6717 @3m H Prequency Cables 3' cable 228077			-	GHz	Pre-am	nlifar		<u>r</u>					
T73; S/N: 6717 @3m H Prequency Cables 3' cable 228077	- 10 Mar		-	SPIZ	Pre-am		26 40CU		110	rn > 18G	104		Limit
H Prequency Cables				31 -	T88 Min	-			ARA 18-260		0.00		FCC 15.205
3' cable 228077			- arrow			ed roa		• 1.39		107/07/07/2	30) 	-	
	12'	cable 2	28076	00	20' cal	ble 22	807500		HPF	Re	ject Filter		Measurements
3' cable 22807700	• 12 0	able 228	07600	•	20° cab	le 2280	•	HP	F_7.6GHz	•			ge Measurement MHz ; VBW=1.1k
f Dist Read GHz (m) dBu	Pk Read Avg V dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
ow Channel (\$190.0 MHz 5.570 3.0 48.		38.9	12.2	-34,0	0.0	0.7	65.9	53.9	74	54	-5.1	-0.1	H, q81
5.570 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, qSI
High Channel (\$230 MHz) 5.690 3.0 49.		38.5	12.3	-34.0	0.0	0.7	66.9	53.2	74	54	-7.1	-0.8	H, q83
5.690 3.0 47.		38.5	12.3	-34.0	0.0	0.7	65.0	53.1	74	54	-9,0	-2.9	V, q83
Dist Distan Read Analyz	ua Factor		Amp D Corr Avg Peak HPF	Average	Corre Field S d Peal	ct to 3 mete Strength @ k Field Stre	3 m		Pk Lim Avg Mar	Peak Field	eld Strength Strength Lis Average Lis Peak Limit	mit	

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

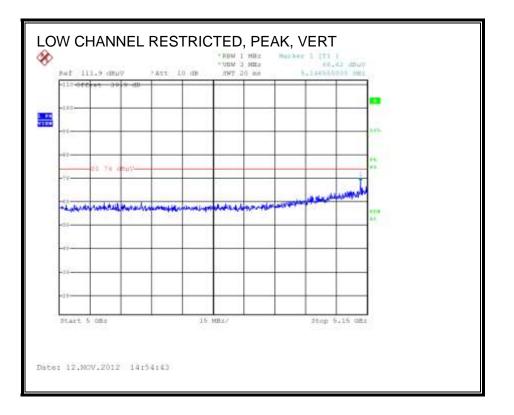
#### **RESTRICTED BANDEDGE (LOW CHANNEL)**

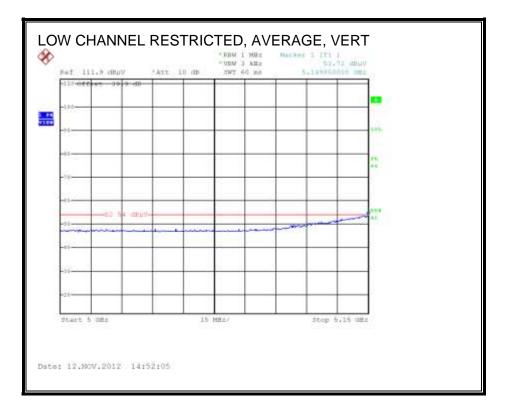




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## HARMONICS AND SPURIOUS EMISSIONS

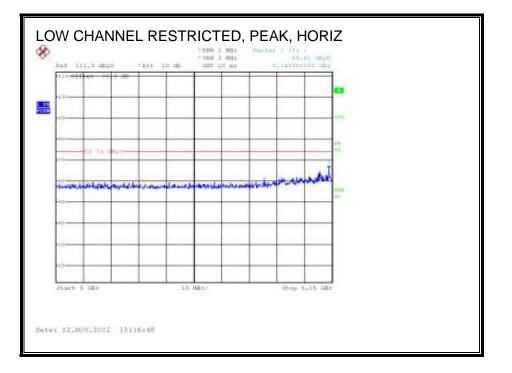
Covered by testing 11n AC80 CCD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

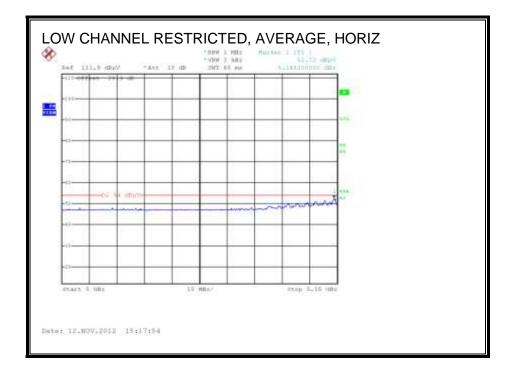
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## 9.2.6. TX ABOVE 1 GHz 802.11n AC80 CDD 3Tx MODE, 5.2 GHz BAND

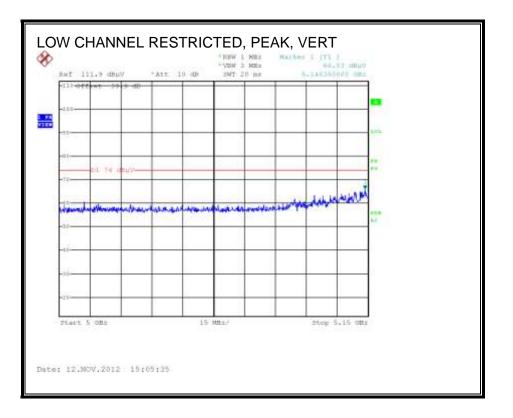
## **RESTRICTED BANDEDGE (LOW CHANNEL)**

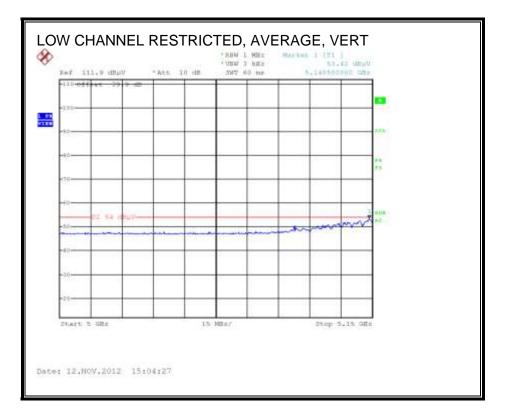




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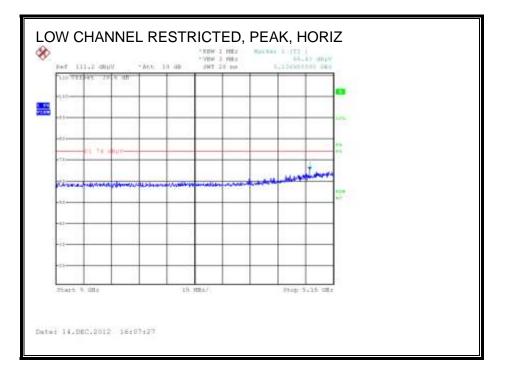
## HARMONICS AND SPURIOUS EMISSIONS

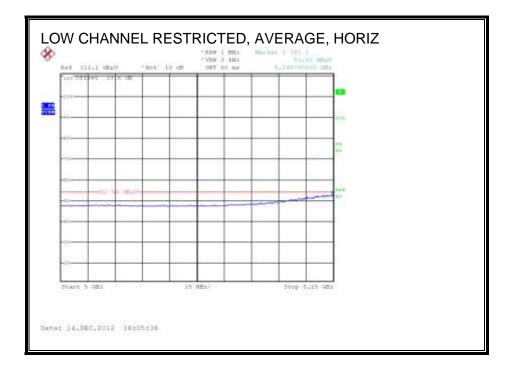
est Engineer:       M. Melunia         onfiguration:       EUT, Adapter Board, Antenna         ode:       11a HT00 3TX mode         est Equipment:       Pre-amplifer 1-26GHz       Pre-amplifer 26-40GHz       Horn > 18GHz       Limit         T73; S/N: 6717 @3m       T144 Mineq 3008A00931       T88 Mineq 26.40GHz       T39: ARA 18-26GHz; S/N: 1013       European       European         3' cable 22807700       12' cable 22807600       20' cable 22807500       HPF_7 & GHz       Reject Filter       Peak Measurements RBW1MHz; BW=3MHz         f       Dist       Read Pk       Read Avg.       AF       CL       Amp       D Corr       Ftr       Peak       Avg       Pk Lim       Avg Lim       Pk Mar       Avg Mar       Notes         630       3.0       47.3       36.0       36.7       12.2       34.0       0.0       0.7       65.0       53.7       74       54       9.0       0.3       H, q85         630       3.0       43.7       31.9       38.7       12.2       34.0       0.0       0.7       65.0       53.7       74       54       9.0       0.3       H, q85	voject #: 12U14669 te: 128-2012 set Engineent: Horn 1-18GHz T73; SN: 6717 @3m * T144 Miteq 3008A00931 T44 Miteq 3008A00931 T44 Miteq 3008A00931 T48 Miteq 26-40GHz T73; SN: 6717 @3m * T144 Miteq 3008A00931 T48 Miteq 26-40GHz T73; SN: 6717 @3m * T144 Miteq 3008A00931 T48 Miteq 26-40GHz T73; SN: 6717 @3m * T144 Miteq 3008A00931 T2 cable 22807600 T2 cable 22807500 T2 cable 22807600 T2 cable 32807600 T2 cable 32807760 T2 cable 32807600 T2 cable 32	voject #: 12U14669 te: 128-2012 set Engineer: Mokunia anfiguration: EUT, Adapter Board, Antenna ode: 11a HT39 3TX node test Equipment: Horn 1-18GHz IIa HT39 3TX node test Equipment: Horn 1-18GHz IIa HT39 3TX node test Equipment: 13' cable 22807700 12' cable 22807600 20' cable 22807500 20	voject #: 12U14699 te: 12+2012 set Engineer: Moduli anfiguration: EUT, Adapter Board, Antenna ode: 11aHT30 3TX node est Equipment: Horn 1-18GHz T73; SN: 6717 @3m T144 Miteq 3008A00931 T144 Miteq 3008A00931 T144 Miteq 3008A00931 T144 Miteq 3008A00931 T88 Miteq 26-40GHz 3' cable 22807700 12' cable 22807600 20' cable 22807500 12' cable 22807600 12' cable 22807500 12' cable 22807500 14' C	ompli			Measurem Services, Fr		5m Ch	amber-	A																
Cest Equipment:         Horn 1-18GHz       Pre-amplifer 26-40GHz       Horn > 18GHz       Limit         T73; SN: 6717 @3m       Colspan="6">Limit       Limit         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       Peak Measurements         3' cable 22807700       Peak Avg       AF       Cable 22807500         3' cable 22807700       12' cable 22807600       Peak Avg       Peak Avg       Peak Measurements $BW=1MHz$ Volcpan="6">Colspan= 62807500       Peak Avg       Peak Avg       Peak Measurements $CBLz$ (m)       dBa V       Are and Pk       Read Avg       Are and Pk       Peak Avg       Are and Pk       Avg       Are and Pk       Are and Pk       Abbit       Are and Pk       Are and Pk <th <="" colspan="6" th=""><th>test Equipment:         Horn 1-18GHz       Pre-amplifer 26-40GHz       Horn &gt; 18GHz       Limit         T73; SiN: 6717 @3m       Colspan="4"&gt;Limit       Limit         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       Colspan="4"&gt;Colspan="4"&gt;Colspan="4"&gt;Colspan="4"&gt;Limit         1' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       Colspan= 22807500       Peak Measurements         1' cable 22807700       12' cable 22807600       20' cable 22807500         1' cable 22807700       12' cable 22807600       Peak Mag Masurements         2' cable 22807700       12' cable 22807600       Peak Mag Masurements         1' cable 22807700       12' cable 22807500       Pit med Avg       Pit Med Avg Mar Notes         1' cable 22807700       12' cable 22807500       Pit med Avg Mar Notes         1' cable 22807700       O Corr       Fit Peak Avg Pk Lim Avg Lim Avg Mar Notes         1' cable 22807700       O Corr</th><th>test Equipment:         Horn 1-18GHz       Pre-amplifer 25-40GHz       Horn &gt; 18GHz       Limit         T73; SiN: 6717 @3m       Colspan="4"&gt;Colspan="4"&gt;Limit         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       Peak Mag Mag Mathing BW and B         12' cable 22807700       12' cable 22807600       Pit Mar Avg Lim Pit Mar Avg Mar Notes         GHz       (m)       dBa V       dB dB       dB dB dB dB dV/m dBaV/m dBaV/m dBaV/m dBaV/m dBa V/m d</th><th>Test Equipment:         Horn 1-18GHz       Pre-amplifer 25-40GHz       Horn &gt; 18GHz       Limit         T73; SN: 6717 @3m       Colspan="4"&gt;Colspan="4"&gt;Limit         3' cable 22807700       20' cable 22807500         3' cable 22807700       Colspan="4"&gt;Colspan="4"&gt;Colspan="4"&gt;Colspan="4"&gt;Colspan="4"&gt;Colspan="4"&gt;Colspan="4"&gt;Limit         7'3; SN: 6717 @3m       Colspan="4"&gt;Limit       Colspan="4"&gt;Limit         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       Colspan= 22807600       Peak Measurements         3' cable 22807700       Colspan= 22807600       Peak Measurements         3' cable 22807700       Colspan= 22807600       Peak Measurements         12' cable 22807700       Colspan= 22807600       Peak Measurements         12' cable 22807700       Colspan= 22807500       Peak Measurements         12' cable 22807700       Peak Measurements         10' c</th><th>roject ate: est Er onfigu</th><th>#: gineer: ration:</th><th></th><th>12U14669 12/9/2012 M. Mekuria EUT, Adapter</th><th></th><th>ntenna</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th>	<th>test Equipment:         Horn 1-18GHz       Pre-amplifer 26-40GHz       Horn &gt; 18GHz       Limit         T73; SiN: 6717 @3m       Colspan="4"&gt;Limit       Limit         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       Colspan="4"&gt;Colspan="4"&gt;Colspan="4"&gt;Colspan="4"&gt;Limit         1' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       Colspan= 22807500       Peak Measurements         1' cable 22807700       12' cable 22807600       20' cable 22807500         1' cable 22807700       12' cable 22807600       Peak Mag Masurements         2' cable 22807700       12' cable 22807600       Peak Mag Masurements         1' cable 22807700       12' cable 22807500       Pit med Avg       Pit Med Avg Mar Notes         1' cable 22807700       12' cable 22807500       Pit med Avg Mar Notes         1' cable 22807700       O Corr       Fit Peak Avg Pk Lim Avg Lim Avg Mar Notes         1' cable 22807700       O Corr</th> <th>test Equipment:         Horn 1-18GHz       Pre-amplifer 25-40GHz       Horn &gt; 18GHz       Limit         T73; SiN: 6717 @3m       Colspan="4"&gt;Colspan="4"&gt;Limit         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       Peak Mag Mag Mathing BW and B         12' cable 22807700       12' cable 22807600       Pit Mar Avg Lim Pit Mar Avg Mar Notes         GHz       (m)       dBa V       dB dB       dB dB dB dB dV/m dBaV/m dBaV/m dBaV/m dBaV/m dBa V/m d</th> <th>Test Equipment:         Horn 1-18GHz       Pre-amplifer 25-40GHz       Horn &gt; 18GHz       Limit         T73; SN: 6717 @3m       Colspan="4"&gt;Colspan="4"&gt;Limit         3' cable 22807700       20' cable 22807500         3' cable 22807700       Colspan="4"&gt;Colspan="4"&gt;Colspan="4"&gt;Colspan="4"&gt;Colspan="4"&gt;Colspan="4"&gt;Colspan="4"&gt;Limit         7'3; SN: 6717 @3m       Colspan="4"&gt;Limit       Colspan="4"&gt;Limit         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       Colspan= 22807600       Peak Measurements         3' cable 22807700       Colspan= 22807600       Peak Measurements         3' cable 22807700       Colspan= 22807600       Peak Measurements         12' cable 22807700       Colspan= 22807600       Peak Measurements         12' cable 22807700       Colspan= 22807500       Peak Measurements         12' cable 22807700       Peak Measurements         10' c</th> <th>roject ate: est Er onfigu</th> <th>#: gineer: ration:</th> <th></th> <th>12U14669 12/9/2012 M. Mekuria EUT, Adapter</th> <th></th> <th>ntenna</th> <th></th>						test Equipment:         Horn 1-18GHz       Pre-amplifer 26-40GHz       Horn > 18GHz       Limit         T73; SiN: 6717 @3m       Colspan="4">Limit       Limit         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       Colspan="4">Colspan="4">Colspan="4">Colspan="4">Limit         1' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       Colspan= 22807500       Peak Measurements         1' cable 22807700       12' cable 22807600       20' cable 22807500         1' cable 22807700       12' cable 22807600       Peak Mag Masurements         2' cable 22807700       12' cable 22807600       Peak Mag Masurements         1' cable 22807700       12' cable 22807500       Pit med Avg       Pit Med Avg Mar Notes         1' cable 22807700       12' cable 22807500       Pit med Avg Mar Notes         1' cable 22807700       O Corr       Fit Peak Avg Pk Lim Avg Lim Avg Mar Notes         1' cable 22807700       O Corr	test Equipment:         Horn 1-18GHz       Pre-amplifer 25-40GHz       Horn > 18GHz       Limit         T73; SiN: 6717 @3m       Colspan="4">Colspan="4">Limit         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       Peak Mag Mag Mathing BW and B         12' cable 22807700       12' cable 22807600       Pit Mar Avg Lim Pit Mar Avg Mar Notes         GHz       (m)       dBa V       dB dB       dB dB dB dB dV/m dBaV/m dBaV/m dBaV/m dBaV/m dBa V/m d	Test Equipment:         Horn 1-18GHz       Pre-amplifer 25-40GHz       Horn > 18GHz       Limit         T73; SN: 6717 @3m       Colspan="4">Colspan="4">Limit         3' cable 22807700       20' cable 22807500         3' cable 22807700       Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Limit         7'3; SN: 6717 @3m       Colspan="4">Limit       Colspan="4">Limit         3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       Colspan= 22807600       Peak Measurements         3' cable 22807700       Colspan= 22807600       Peak Measurements         3' cable 22807700       Colspan= 22807600       Peak Measurements         12' cable 22807700       Colspan= 22807600       Peak Measurements         12' cable 22807700       Colspan= 22807500       Peak Measurements         12' cable 22807700       Peak Measurements         10' c	roject ate: est Er onfigu	#: gineer: ration:		12U14669 12/9/2012 M. 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Inc. of rif gent       Inc. of rif gent       Inc. of rif gent       Presency Cables         3' cable 22807700       12' cable 22807600       20' cable 22807500       PFF_7.6GHz       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         1' cable 22807700       1' cable 22807600       2' cable 22807500       PFF_7.6GHz       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         1' cable 22807700       1' cable 22807600       2' cable 22807500       PFF_7.6GHz       Press       Average Measurement RBW1MHz; VBW=1.1kl         1       1' cable 22807600       0' cable 22807500       Pite Peak       Avg       Pk Lim       Avg Lim       Avg Mar       Notes         6Hz       0iiii dBuV       dBuV       dBuV       dBu       dB       dB       dB       BuVim dB       dB       (Mu - Avg Mar       Notes         6Hz       0iii dBuV       dBuV       dBuV       dBuV       dBuV/m	Inc. of H gelin       Inc. of H gelin <thi< th=""><th>Inc of H gelin     Inc of H gelin     Inc of H gelin     Inc of H gelin       3' cable 22807700     12' cable 22807600     20' cable 22807500     Image 22807500     Image 22807600     Image 22807600&lt;</th><th>Inc. of H geln     Inc. of H geln     Inc. of H geln     Inc. of H geln     Inc. of H geln       3' cable 22807700     12' cable 22807600     20' cable 22807500     Image 22807500     Image 22807600     Image 22807600&lt;</th><th></th><th></th><th>-</th><th>Pre-ar</th><th>nplifer</th><th>1-260</th><th>GHz</th><th>Pre-am</th><th>plifer</th><th>26-40GH</th><th>z</th><th></th><th>Н</th><th>orn &gt; 180</th><th>Hz</th><th>1</th><th>Limit</th><th></th></thi<>	Inc of H gelin     Inc of H gelin     Inc of H gelin     Inc of H gelin       3' cable 22807700     12' cable 22807600     20' cable 22807500     Image 22807500     Image 22807600     Image 22807600<	Inc. of H geln       3' cable 22807700     12' cable 22807600     20' cable 22807500     Image 22807500     Image 22807600     Image 22807600<			-	Pre-ar	nplifer	1-260	GHz	Pre-am	plifer	26-40GH	z		Н	orn > 180	Hz	1	Limit							
3' cable 22807700       12' cable 22807600       20' cable 22807500         3' cable 22807700       12' cable 22807600       20' cable 22807500       HPF       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         1'' cable 22807600       1'' cable 22807600       2'' cable 22807500       Pit Mar       Avg Mar       Average Measurements RBW=1MHz, VBW=1.14d         f       Dist       Read Pik       Read Avg       AF       CL       Amp       D Corr       Fitr       Peak       Avg       BWV/m       BW       Mar       Avg Mar       Notes         GHz       (m)       dBuV       dBuV       dB	3' cable 22807700       12' cable 22807600       20' cable 22807500       HPF_       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         3' cable 22807700       0       12' cable 22807600       0' cable 22807500       0'''       PF_7 & GHz       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         f       Dist       Read Avg       AF       CL       Amp       D Corr       Fltr       Peak       Avg       Pk Lim       Avg Lim       Avg Mar       Avg Mar       Notes         GHz       (m)       dBuV       dBu'       dB       dB <td>3' cable 22807700       12' cable 22807600       20' cable 22807500       HPF       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         3' cable 22807700       12' cable 22807600       20' cable 22807500       0       10' cable 22807500       0       10' cable 22807600       10' cable 22807500       10' cable 22807500<td>3' cable 22807700       12' cable 22807600       20' cable 22807500       HPF       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         3' cable 22807700       0       12' cable 22807600       0       0' cable 22807500       0       HPF       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         f       Dist       Read Pk       Read Avg       AF       CL       Amp       D Corr       Flt       Peak       Avg       Pk Lim       Avg Lim       Avg Mar       Avg Mar       Notes         GHz       (m)       dBuV       dBuV       dB       dB</td><td>173;</td><td>S/N: 671</td><td>7 @3m</td><td>- T144 N</td><td>fiteq 30</td><td>08A00</td><td>931 -</td><td>T88 Mit</td><td>eq 26-</td><td>40GHz</td><td>•</td><td>T39;</td><td>ARA 18-264</td><td>GHz; S/N:10</td><td>13</td><td>•</td><td>FCC 15.205</td><td></td></td>	3' cable 22807700       12' cable 22807600       20' cable 22807500       HPF       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         3' cable 22807700       12' cable 22807600       20' cable 22807500       0       10' cable 22807500       0       10' cable 22807600       10' cable 22807500       10' cable 22807500 <td>3' cable 22807700       12' cable 22807600       20' cable 22807500       HPF       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         3' cable 22807700       0       12' cable 22807600       0       0' cable 22807500       0       HPF       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         f       Dist       Read Pk       Read Avg       AF       CL       Amp       D Corr       Flt       Peak       Avg       Pk Lim       Avg Lim       Avg Mar       Avg Mar       Notes         GHz       (m)       dBuV       dBuV       dB       dB</td> <td>173;</td> <td>S/N: 671</td> <td>7 @3m</td> <td>- T144 N</td> <td>fiteq 30</td> <td>08A00</td> <td>931 -</td> <td>T88 Mit</td> <td>eq 26-</td> <td>40GHz</td> <td>•</td> <td>T39;</td> <td>ARA 18-264</td> <td>GHz; S/N:10</td> <td>13</td> <td>•</td> <td>FCC 15.205</td> <td></td>	3' cable 22807700       12' cable 22807600       20' cable 22807500       HPF       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         3' cable 22807700       0       12' cable 22807600       0       0' cable 22807500       0       HPF       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         f       Dist       Read Pk       Read Avg       AF       CL       Amp       D Corr       Flt       Peak       Avg       Pk Lim       Avg Lim       Avg Mar       Avg Mar       Notes         GHz       (m)       dBuV       dBuV       dB	173;	S/N: 671	7 @3m	- T144 N	fiteq 30	08A00	931 -	T88 Mit	eq 26-	40GHz	•	T39;	ARA 18-264	GHz; S/N:10	13	•	FCC 15.205							
RBWIMIE: BW=3MH2         3' cable 22807700       12' cable 22807500       Perf. 7.6GHz       Average Measurement RBW=1MH2; VBW=1.140         f       Dist       Read Pk       Read Avg. (m)       AF       CL       Amp       D Corr       Fltr       Peak       Avg       Pk Lim       Avg Lim       Pk Mar       Avg Mar       Notes         GHz       (m)       dBuV       dBuV       dBu       dB       dC       dB       dB <th< td=""><td>RBWINHIZ, BW=3MHz         Average Measurements         3' cable 22807700       12' cable 22807600       20' cable 22807500       PPF_7 6GHz       Average Measurements         f       Dist       Read Pk       Read Avg       AF       CL       Amp       D Corr       Fltr       Peak       Avg       Pk Lim       Avg Lim       Pk Mar       Avg Mar       Notes         GHz       (m)       dBaV       dBaV       dB       dV/m       dBaV/m       dBaV/m       dBaV/m       dBaV/m       dBaV/m       dBaV/m       dBaV/m       dBa       dB       (V/H)         or Channel (5210.0 MBz)       36.0       38.7       12.2       34.0       0.0       0.7       61.3       49.6       74       <t< td=""><td>RBWIMHz, BW=3MHz         3' cable 22807700       12' cable 22807500       20' cable 22807500       HPF_7 &amp; GHz       Average Measurements         f       Dist       Read Pk       Read Avg       AF       CL       Amp       D Corr       Fltr       Peak       Avg       Pk Lim       Avg Lim       Pk Mar       Avg Mar       Notes         GHz       (m)       dBuV       dBuV       dB       dB</td><td>RBW1MHz, BW=3MHz         3' cable 22807700       12' cable 22807600       20' cable 22807500       HPF_7 &amp; GHz       Average Measurements         f       Dist       Read Avg       AF       CL       Amp       D Corr       Fltr       Peak       Avg       Pk Lim       Avg Lim       Avg Mar       Notes         GHz       (m)       dBaV       dBaV       dB       dB</td><td></td><td></td><td></td><td>12' 0</td><td>able 2</td><td>28076</td><td>500</td><td>20' ca</td><td>ble 22</td><td>2807500</td><td></td><td></td><td>HPF</td><td>Re</td><td>ect Filte</td><td></td><td></td><td></td></t<></td></th<>	RBWINHIZ, BW=3MHz         Average Measurements         3' cable 22807700       12' cable 22807600       20' cable 22807500       PPF_7 6GHz       Average Measurements         f       Dist       Read Pk       Read Avg       AF       CL       Amp       D Corr       Fltr       Peak       Avg       Pk Lim       Avg Lim       Pk Mar       Avg Mar       Notes         GHz       (m)       dBaV       dBaV       dB       dV/m       dBaV/m       dBaV/m       dBaV/m       dBaV/m       dBaV/m       dBaV/m       dBaV/m       dBa       dB       (V/H)         or Channel (5210.0 MBz)       36.0       38.7       12.2       34.0       0.0       0.7       61.3       49.6       74 <t< td=""><td>RBWIMHz, BW=3MHz         3' cable 22807700       12' cable 22807500       20' cable 22807500       HPF_7 &amp; GHz       Average Measurements         f       Dist       Read Pk       Read Avg       AF       CL       Amp       D Corr       Fltr       Peak       Avg       Pk Lim       Avg Lim       Pk Mar       Avg Mar       Notes         GHz       (m)       dBuV       dBuV       dB       dB</td><td>RBW1MHz, BW=3MHz         3' cable 22807700       12' cable 22807600       20' cable 22807500       HPF_7 &amp; GHz       Average Measurements         f       Dist       Read Avg       AF       CL       Amp       D Corr       Fltr       Peak       Avg       Pk Lim       Avg Lim       Avg Mar       Notes         GHz       (m)       dBaV       dBaV       dB       dB</td><td></td><td></td><td></td><td>12' 0</td><td>able 2</td><td>28076</td><td>500</td><td>20' ca</td><td>ble 22</td><td>2807500</td><td></td><td></td><td>HPF</td><td>Re</td><td>ect Filte</td><td></td><td></td><td></td></t<>	RBWIMHz, BW=3MHz         3' cable 22807700       12' cable 22807500       20' cable 22807500       HPF_7 & GHz       Average Measurements         f       Dist       Read Pk       Read Avg       AF       CL       Amp       D Corr       Fltr       Peak       Avg       Pk Lim       Avg Lim       Pk Mar       Avg Mar       Notes         GHz       (m)       dBuV       dBuV       dB	RBW1MHz, BW=3MHz         3' cable 22807700       12' cable 22807600       20' cable 22807500       HPF_7 & GHz       Average Measurements         f       Dist       Read Avg       AF       CL       Amp       D Corr       Fltr       Peak       Avg       Pk Lim       Avg Lim       Avg Mar       Notes         GHz       (m)       dBaV       dBaV       dB				12' 0	able 2	28076	500	20' ca	ble 22	2807500			HPF	Re	ect Filte									
GHz         (m)         dBuV         dBuV         dB         dB         dB         dB         dB         dB         dBuV/m         dBuV/m         dBuV/m         dBuV/m         dB         dB         (V/H)           orr Channel (5210.0 MHz)         36.0         36.7         12.2         34.0         0.0         0.7         65.0         53.7         74         54         9.0         -0.3         H, q85           5.630         3.0         43.7         31.9         38.7         12.2         34.0         0.0         0.7         61.3         49.6         74         54         -9.0         -0.3         H, q85           5.639         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           ev: 11.10.11         Frequency         Amp         Preamp Gain         Avg Lin         Average Field Strength Limit           D Coer         Distance Correct to 3 meters         Pk Lin         Peak Field Strength Limit           AF         Analyzer Reading         Avg         Avg         Avg Average Field Strength Limit         Avg Mar Margin vs. Average Limit	GHz         (m)         dBuV         dBuV         dB         dB         dB         dB         dB         dB         dB         dV/m         dBuV/m         dB         dB         dV/m         dB         dB         (V/H)           or Channel (5210.0 MBz)         36.0         36.7         12.2         34.0         0.0         0.7         65.0         53.7         74         54         9.0         -0.3         H, q85           5630         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           ev<11.10.11	GHz         (m)         dBuV         dBuV         dB         (V/H)           or Channel (5210.0 MHz)         36.0         39.7         12.2         34.0         0.0         0.7         65.0         53.7         74         54         9.0         0.3         H, q85           5630         3.0         43.7         31.9         38.7         12.2         34.0         0.0         0.7         61.3         49.6         74         54         31.2.7         4.4         V, q85           ev<11.10.11	GHz         (m)         dBuV         dBuV         dB         dB         dB         dB         dB         dB         dB         dB         dB         dBuV/m         dBuV/m         dBuV/m         dB         dB         (V/H)           or Channel (5210.0 MBz)         36.0         38.7         12.2         34.0         0.0         0.7         65.0         53.7         74         54         .9.0         -0.3         H, q85           5.630         3.0         43.7         31.9         38.7         12.2         34.0         0.0         0.7         61.3         49.6         74         54         .9.0         -0.3         H, q85           sc.310         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           ev.11.10.11         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           AF         Analyzer Reading         Avg         Average Field S	3 0	able 221	107700 ,	• 12 ca	ble 228	07600	•	20° cab	le 228	07500 .		HPF	F_7.6GHz	•		Avera	ge Measuremen	ts						
or Channel (\$210.0 MBz) 5630 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 5630 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 ev. 11.10.11 f Measurement Frequency Amp Preamp Gain Avg Lim Average Field Strength Limit Distance to Antenna D Corr Distance Correct to 3 meters Pk Lim Peak Field Strength Limit AF Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Average Limit Pk Mar Margin vs. Peak Limit	or Channel (\$210.0 MBz)         or         or <thor< th="">         or         or         or&lt;</thor<>	or Channel (\$210.0 MBz)         o <tho< th="">         o         <tho< th=""> <tho< th=""></tho<></tho<></tho<>	or Channel (\$210.0 MBz)         or         or <thor< th="">         or         or         or&lt;</thor<>	2000	10000			202200		10770020	A - 1714 1.12 - 11		1														
5.630     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       ev: 11.10.11       f Measurement Frequency Dist Distance to Antenna Read Analyzer Reading AF Antenna Factor     Amp     Preamp Gain D Corr Distance Correct to 3 meters Pield Strength Limit     Avg Lim Avg Average Field Strength Limit       AF     Antenna Factor     Peak     Calculated Peak Field Strength     Pk Mar     Margin vs. Average Limit	5.630     3.0     43.7     31.9     38.7     12.2     34.0     0.0     0.7     61.3     49.6     74     54     32.7     -4.4     V. 985       ev. 11.10.11       f Measurement Frequency Dist Distance to Antenna Read Analyzer Reading AF Antenna Factor     D Corr Distance Correct to 3 meters     Pk Lim     Peak Field Strength Limit       AF Antenna Factor     Peak Calculated Peak Field Strength     Pk Mar Margin vs. Peak Limit	5.630       3.0       43.7       31.9       38.7       12.2       34.0       0.0       0.7       61.3       49.6       74       54       32.7       -4.4       V, q85         ev. 11.10.11         f Measurement Frequency Distance to Antenna       D Corr Distance Correct to 3 meters       Avg Lim Average Field Strength Limit         Dist Distance to Antenna       D Corr Distance Correct to 3 meters       Pk Lim Peak Field Strength Limit         AF       Antenna Factor       Peak Calculated Peak Field Strength       Pk Mar Margin vs. Average Limit	5.630     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       ev: 11.10.11       f Measurement Frequency Dist Distance to Antenna Read Analyzer Reading AF Antenna Factor     Amp     Preamp Gain D Corr Distance Correct to 3 meters Pield Strength     Avg Lim     Average Field Strength Limit Arg Mar       Arg Mar     Margin vs. Average Limit Peak     Avg Average Field Strength     3 m     Avg Mar     Margin vs. Average Limit Pk Mar				dBuV	dB/m	dB	dB	dB	-	dBaV/m	dBu	V/m	dBuV/m	dBuV/m	dB	dB	(V/H)	_						
ev. 11.10.11           f         Measurement Frequency         Amp         Preamp Gain         Avg Lin         Average Field Strength Limit           Dist         Distance to Antenna         D Corr         Distance Correct to 3 meters         Pk Lin         Peak Field Strength Limit           Read         Analyzer Reading         Avg         Average Field Strength Limit         Avg Mar         Margin vs. Average Limit           AF         Antenna Factor         Peak         Calculated Peak Field Strength         Pk Mar         Margin vs. Peak Limit	ev 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           AF         Ansterna Factor         Peak         Calculated Peak Field Strength         Pk Mar         Margin vs. Average Limit	ev 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 Correct to 3 meters         Pk Lim         Peak Field Strength Limit           AF         Antenna Factor         Peak         Calculated Peak Field Strength         Pk Mar         Margin vs. Peak Limit	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	5.630																	_						
					Read AF	Analyzer R Antenna Fa	eading actor			Avg Peak	Average Calculate	Field 9 od Pea	Strength @ k Field Stre	3 m			Avg Mar	Margin vs	Average Li	mit							
					4644				)	1499048. <sup>1</sup> 1		1910 1999	4														

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

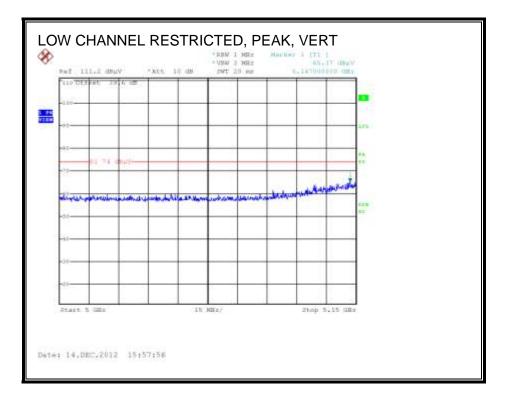
### **RESTRICTED BANDEDGE (LOW CHANNEL)**

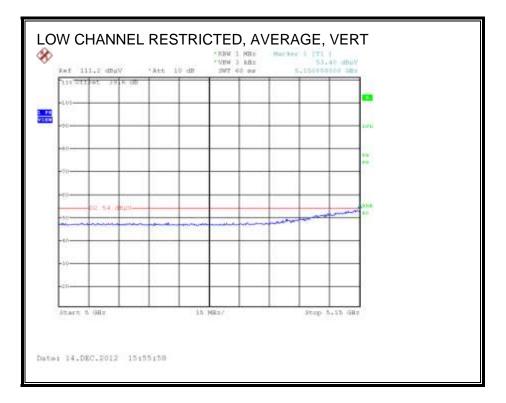




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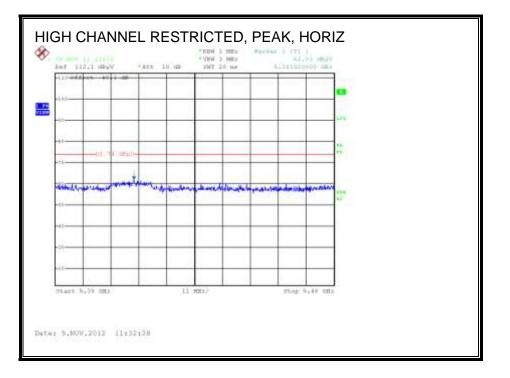
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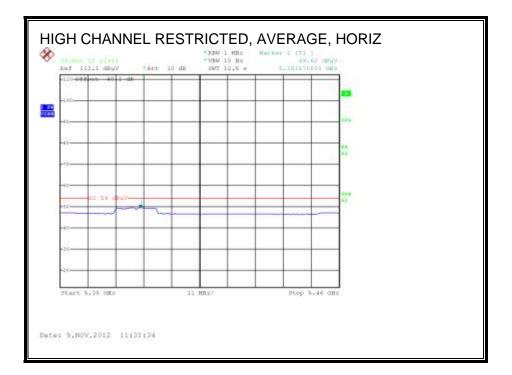
Compary:       Breadree         Project #:       1213-030         Fort Engineer:       MAkins         Configuration:       EUT, Adapter Bound, Antenna         Node:       Itel H200 BP JTX mode         Horn 1-18GHz       Pre-amplifer 1-26GHz       Pre-amplifer 26-40GHz       Horn > 18GHz       Limit         T3:       Site 6717 @2m       T144 Mineg 3000A00931       Pre-amplifer 26-40GHz       T39: ARA 18-26GHz; SR-1013       Peak Measurements         Stable 22807700       12' cable 22807600       20' cable 22807500       20' cable 22807500       Peak Measurements       RBWILMEr, BW-3MEr, Average Measurements         GHz       (m) dBa V       dBa dB       BeaV       Max avg Mar       Notes         CHable 22807700       12' cable 22807600       22' cable 22807500       22' cable 22807500       Peak Masurements       Reject Filter       Peak Measurements         CHable 300 Add Ba V       B dB dB       dB       dB       dB       dB       dB       dB       dB       dB       dB       dB       dB       dB       dB       dB       dB       dB       dB       dB       dB <t< th=""><th></th><th>ance Ce</th><th>rtification !</th><th>Measurem Services, Fr</th><th></th><th>5m Ch</th><th>amber-</th><th>A</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>		ance Ce	rtification !	Measurem Services, Fr		5m Ch	amber-	A									
Note:       1213/2012         Test Engineer:       M. Makanis         Configuration:       ELT, Adopter Board, Anternas         Jode:       Ile HT39 BF 3TX mode         Test Equipment:       Pre-amplifer 1-26GHz       Pre-amplifer 26-40GHz       Horn > 18GHz       Linit         T73: SN: 65717 @3m       Pre-amplifer 1-26GHz       Pre-amplifer 26-40GHz       Horn > 18GHz       Pre-structure         3' cable 22807700       12' cable 22807600       20' cable 22807500       Pre-structure       Pre-amplifer 26-40GHz       Reject Filter       Peak Measurements         G       Dist       Read Avg       AF       CL       Amp       D Corr       Fltr       Peak       Avg       Mar Avg Mar       Notes         GHz       Old BaV       dBa dB       dB <thddb< th="">       dB       dB       d</thddb<>																	
Line Higher Hourd, Antenna Ind HT303 BF 3TX mode         Pre-amplifer 1-26 GHz         Pre-amplifer 26-40 GHz         Horn > 18 GHz         Linit           T73; S/R: 6717 @3m         Pre-amplifer 1-26 GHz         Pre-amplifer 26-40 GHz         T39; ARA 18-26 GHz; S/R:1013         Image: Comparison of the two states of the two states of two s	Date:			the second second													
Mode:       IIIn HT39 BF 3TX mode         Sett Equipment:       Pre-amplifer 1-26 GHz       Pre-amplifer 26-40 GHz       Horn > 18 GHz       Limit         T73; S/N: 5/17 @3m       T144 Miteq 3008A00931       T88 Miteq 26-40 GHz       T39; ARA 18-26 GHz; S/N:1013       ECC 15-205         3' cable 22807700       12' cable 22807600       20' cable 22807500       D' cable 22807500       Pre-amplifer 26-40 GHz       T39; ARA 18-26 GHz; S/N:1013       Peak Measurements RBW:1MHz, BW=3MHz         3' cable 22807700       12' cable 22807600       20' cable 22807500       Pre-amplifer 26-40 GHz       T39; ARA 18-26 GHz       State 18-20 GHz       FCC 15-205       FCC 15-205       FCC 15-205       FCC 15-205       FCC 15-205       FCC 15-205       Pre-amplifer 26-40 GHz       FCC 15-205       FCC																	
Horn 1-18GHz         Pre-amplifer 1-26GHz         Pre-amplifer 26-40GHz         Horn > 18GHz         Limit           T73; S/N: 6717 @3m         T144 Miteg 3008A00931         T88 Miteg 26-40GHz         T39; ARA 18-26GHz; S/R-1013         FCC 15.205           ***         ***         T2* cable 22807700         12* cable 22807600         20* cable 22807500         ****         *****         ******         ************************************		ration:															
Trist Srit: 6717 @Jm       Ti44 Miteq 3008A00931       Ti86 Miteq 26.40GHz       Ti9; ARA 18.26GHz; S/8-1013       FCC 15.205         Tig rable 22807700       12' cable 22807600       20' cable 22807500       Tig rable 22807500         3' cable 22807700       Ti2' cable 22807600       20' cable 22807500         3' cable 22807700       Ti2' cable 22807600       20' cable 22807500         3' cable 22807700       Ti2' cable 22807600       Peak Measurements         A provide 22807600       20' cable 22807500         3' cable 22807700       Peak Measurements         12' cable 22807600       Peak Masurements         20' cable 22807500       Peak Measurements         Average Measurements         Cable 22807700       Peak Measurements         Average Masurements         Cable 22807600       Peak Masurements         Average Masurements         Cable 22807500       Peak Masurements         Arg Masurements       Peak Masurements         Cable 22807500	lest Eq	ulpmen	E.														
Inc. of H result of the number of the num	н	om 1-	18GHz	Pre-ar	nplifer	1-260	GHz	Pre-am	plifer	26-40GH	z		Н	orn > 180	Hz		Limit
3' cable 22807700         3' cable 22807700       12' cable 22807600       20' cable 22807500       HPF       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         3' cable 22807700       12' cable 22807600       0       0' cable 22807500       Peak       Avg       Imp       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         f       Dist       Read Pik       Read Pik       Red       Avg       Arg       Avg       Avg <td>173; 5</td> <td>S/N: 671</td> <td>7 @Jm</td> <td>• T144 B</td> <td>Aiteq 30</td> <td>08A00</td> <td>931 .</td> <td>T88 Min</td> <td>eq 26-</td> <td>40GHz</td> <td>•</td> <td>T39;</td> <td>ARA 18-264</td> <td>GHz; S/N:10</td> <td>13</td> <td>-</td> <td>FCC 15.205 .</td>	173; 5	S/N: 671	7 @Jm	• T144 B	Aiteq 30	08A00	931 .	T88 Min	eq 26-	40GHz	•	T39;	ARA 18-264	GHz; S/N:10	13	-	FCC 15.205 .
It could 22807600       RBW1MHz, BW=3MHz         3' cable 22807700       12' cable 22807600       20' cable 22807500       If PF_7 6GHz       RBW1MHz, Waw=1.0000         f       Dist       Read Pik       Read Avg.       AF       CL       Amp       D Corr       Fltr       Peak       Avg       Pk Lim       Avg Lim       Avg Mar       Avg Mar       Notes         GHz       (m)       dBaV       dBa'm       dB				12'0	able 2	28074	100	20' cal	ble 22	807500	1		UDC		antes moise	Peak	Measurements
Image: State of the state				-								-		-	gectrate	RBW	
GHz         (m)         dBaV         dBuV         dB/m         dB         dB         dB         dB         dB dB         dBaV/m         dBaV/m         dBaV/m         dB         dB         (V/H)           orr Channel (5210.0 MHz)         56.30         3.0         48.1         35.1         38.7         12.2         34.0         0.0         0.7         65.8         52.7         74         54         45.2         -1.3         H, q89           56.50         3.0         45.3         33.2         38.7         12.2         -34.0         0.0         0.7         63.0         50.9         74         54         -1.3         H, q89           tev: 11.10.11         Field Strength Correct to 3 meters           f         Measurement Frequency Distance to Antenna Read Analyzer Reading AF         Arg         Arerage Field Strength Correct to 3 meters Pistance Correct to 3 meters         Pk Lim Arg Mar Margin vs. Average Limit Pask Field Strength Limit           AF         Antenna Factor         Peak         Calculated Peak Field Strength         Pk Mar         Margin vs. Peak Limit	3, 0	able 228	907700	• 12 ca	ible 228	07600	-	20' cab	le 228	07500		HPF	_7.6GHz	•			
f         Measurement Frequency         Amp         Preamp Gain         Avg Lin         Avg Lin         Average Field Strength Limit           f         Measurement Frequency         Amp         Preamp Gain         Avg Lin         Average Field Strength Limit           AF         Antenna Factor         Peak         Caluated Peak Field Strength         Pk         Margin vs. Peak Limit		100000000	Contraction of the Contract		Contraction of the			and the second second							the state of the s		
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         -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           tev. 11.10.11         Arge presents prequency         Amp         Preamp Gain         Avg Lim         Avg Lim         Avgrage Field Strength Limit           Dist         Distance to Antenna         D Corr         Distance Correct to 3 meters         Pk Lim         Peak Field Strength Limit           AF         Analyzer Reading         Avg         Avg         Avg Margin vs. Average Limit           AF         Antenna Factor         Peak         Calculated Peak Field Strength         Pk Mar         Margin vs. Peak Limit	- Andrewson and the second			dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBa	iV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
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         tev: 11.10.11				35.1	38.7	12.2	-34.0	0.0	0.7	65.8	5	2.7	74	54	-8.2	-13	H. 689
f     Measurement Frequency     Amp     Preamp Gain     Avg Lin     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										63.0	5	0.9					
		Dist Read	Distance to Analyzer R	Antenna eading	<i></i>		D Corr Avg	Distance Average	Corre Field S	strength @	3 m			Pk Lim Avg Mar	Peak Field Margin vs	d Strength Li . Average Li	mit
											ugui			PK Juar	Stargin vs.	Peak Link	

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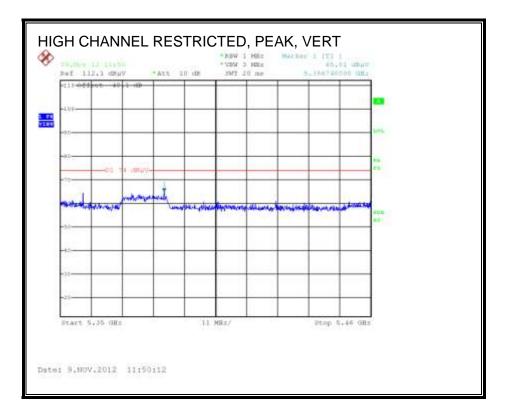
## 9.2.8. TX ABOVE 1 GHz 802.11a 1TX MODE, 5.3 GHz BAND

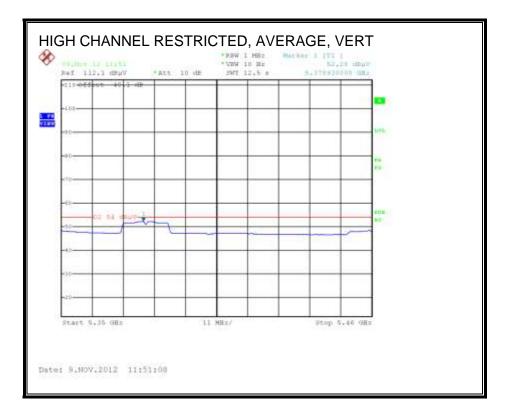
#### **RESTRICTED BANDEDGE (HIGH CHANNEL, 5300 MHz)**





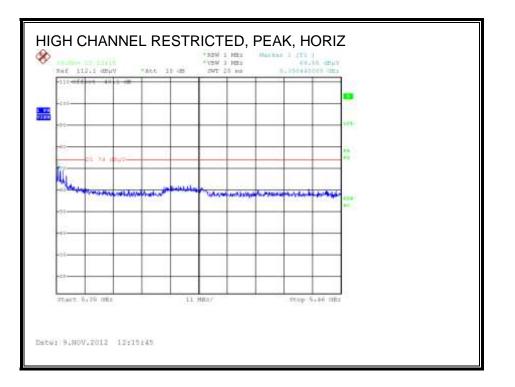
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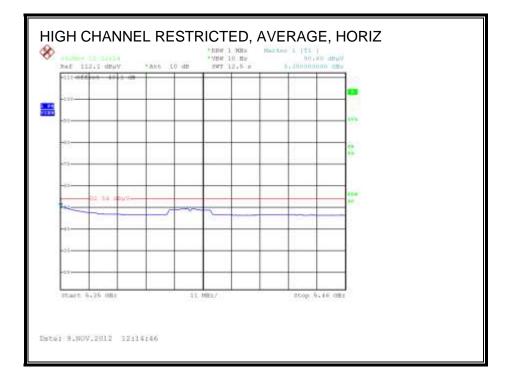




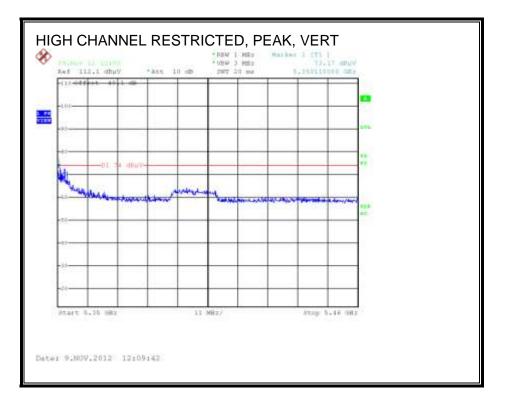
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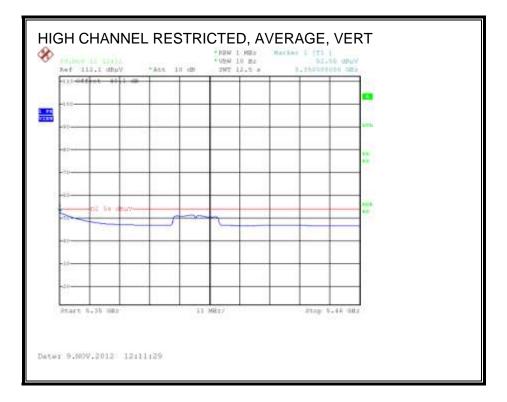
#### **RESTRICTED BANDEDGE (HIGH CHANNEL, 5320 MHz)**





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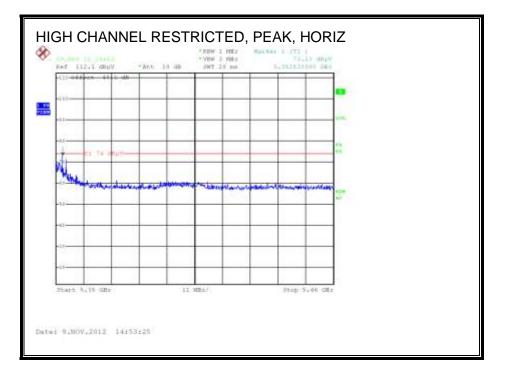
Covered by testing 11n HT20 CCD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

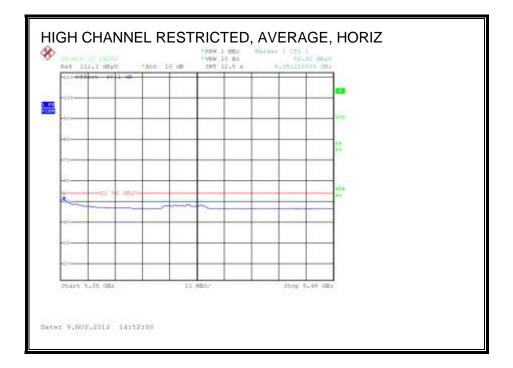
UL CCS FORM NO: CCSUP4701H 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of UL CCS.

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# 9.2.9. TX ABOVE 1 GHz 802.11n HT20 CDD 3TX MODE, 5.3 GHz BAND

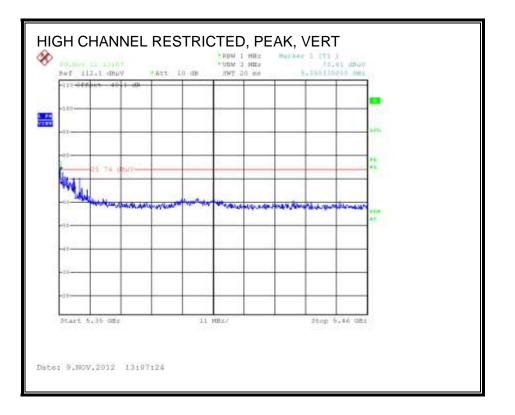
### **RESTRICTED BANDEDGE (HIGH CHANNEL)**

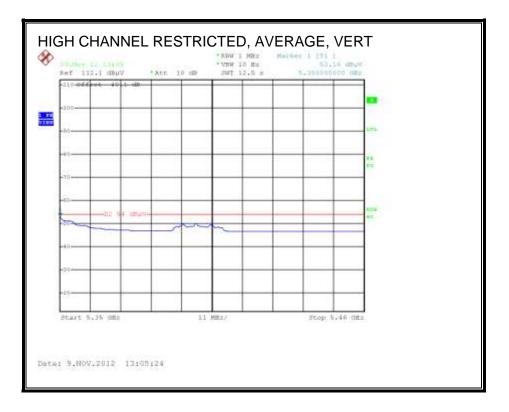




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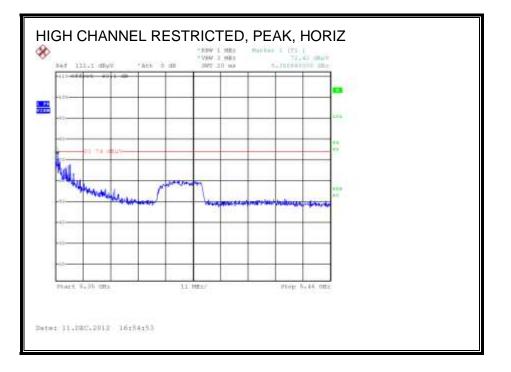
Compan Project ( Date: Test En Configu Mode:	v: gineer:		licoadcom 12U14669 12:5/2912 M. Mekuria D EUT, Adapter 11m HT20 3T2	Bourd, /											
lest Eq	ulpmen	6	-			1				T.				10	
		18GHz	Part and a	mplifer	0.2223	GHz		10.1	26-40GH		1977	rn > 180			Limit
T60; 5	IN: 223	1 @Jm	• T34 H	P 8449B		•	T88 Mit	eg 26-	40GHz	• 139	ARA 18.260	Hz; S/N:10	13	-	FCC 15.205
3. 0	able 228	2807700		able 2		500	20° cab		2807500 <sup>07500</sup>		HPF	_	iject Filtr 001	RB'	Measurements W=VBW=1MHz ge Measurements 1MHz ; VBW=10Hz
ſ	Dist	Read Pk			CL	Ашр	D Corr	Fltr	Peak	Avg	Pk Lim		Pk Mar	Avg Mar	Notes
GH2	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBaV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
5,780	3.0	44.3	33.6	38.2	13.1	-31.9	0.0	0.0	63.7	\$3.0	74	54	-10.3	-1.0	н
5.780	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
fid Chan	nel (530	MHz)					-								
0.600	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
5,900	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
0.600	3.0	47.3 48.6	35.7	38.4	9.9	-34.0 -34.0	0.0	0.0	61.6	50.0 50.4	74	54 54	-12.4	-4.0	v v
5.900	3.0	42.7	33.6	37.8	13.2	31.8	0.0	0,0	61.8	\$2.7	74	54	12.2	-1.3	v
Rev. 11.10	f Dist Read AF	Measureme Distance to Analyzer Re Antenna Fa Cable Loss	Antenna ading ctor	y.		Amp D Corr Avg Peak HPF	Average	Corre Field S of Peal	ct to 3 met Strength @ k Field Stre	3 m		Pk Lim Avg Mar	Peak Fiel Margin vi	Field Strengti d Strength Li 1. Average Li 2. Peak Limit	mit mit

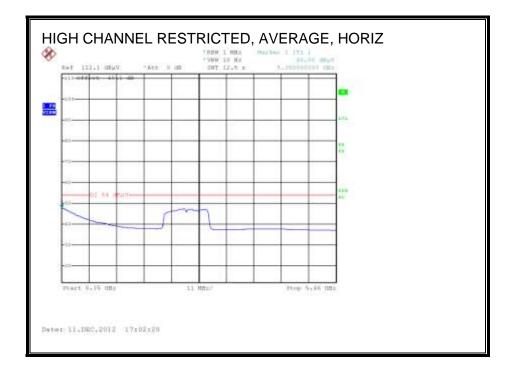
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Project #:         1           Date:         1           Test Engineer:         1           Configuration:         1           Mode:         1           Test Equipment:         1           Horn 1-18GHz         1           T73; S/N: 6717 @3m         1           Horn 1-18GHz         1           3' cable 22807700         1           3' cable 22807700         1           GHz         (m)         dBuV           High Channel (5320.0 MHz)         10.640         3.0           15.960         3.0         46.1           15.960         3.0         44.5	Ereadcom 12014669 127/2012 D. Garcia Danny EUT, Adapter B Uin HT20 3TX c Pre-am T144 Mi 12' ca 12' cab Read Avg.	y Vu Board, A wode	1-260 08A009 28076	GHz 931 -	Pre-am		26-40GH		Ho : ARA 18-260	rn > 180 iHz; S/N:10	51071		Limit FCC 15.205
Project #:         1           Date:         1           Date:         1           Test Engineer:         1           Interview         1           Test Equipment:         1           Horn 1-18GHz         1           T73; S/N: 6717 @3m         1           Is PrequencyCoble         3' cable 22807700           3' cable 22807700         1           GHz         (m)         dBuV           High Channel (5320, 0 MHr)         10.640         3.0         44.5	12U14669 12/1/2012 D. Garcia Danny EUT, Adapter B Lin HT20 3TX e T144 Mi 12' ca 12' cab	Sound, A mode uplifer iteq 300 able 25	1-260 08A009 28076	GHz 931 -	T88 Min				37,022		51071		
Date:         I           Cest Engineer:         I           Configuration:         E           Mode:         I           Internet:           Horn 1-18GHz           T73; S/N: 6717 @3m           T8 frequency Cobles           3' cable 22807700           3' cable 22807700           GHz         (m)           GHz         (m)           Jost 3.0         46.1           S40         3.0         44.5	12/7/2012 D. Garcia Danny EUT, Adapter B Ilin HT29 3TX ( Pre-am T144 Mi 12' ca 12' cab Read Avg.	Sound, A mode uplifer iteq 300 able 25	1-260 08A009 28076	GHz 931 -	T88 Min				37,022		51071		
Configuration:         E           Mode:         1           Cest Equipment:         1           Horn 1-18GHz         1           T73; S/N: 6717 @3m         1           T8 Prequency Cables         3' cable 22807700           3' cable 22807700         1           f         Dist         Read Pix 1           GHz         (m)         dBuV           ligb Channel (S320.0 MHz)         0.640         3.0           0.640         3.0         44.5	Pre-am T144 Mi 12' cab Read Avg.	Sound, A mode uplifer iteq 300 able 25	1-260 08A009 28076	GHz 931 -	T88 Min				37,022		51071		
Interference         Image: Second system         Image: Second sys	Pre-am T144 Mi 12' ca 12' cab Read Avg.	node uplifer iteq 300 able 22	1-260 08A009 28076	GHz 931 -	T88 Min				37,022		51071		
Horn 1-18GHz T73; S/N: 6717 @3m IS Prequency Cables 3' cable 22807700 3' cable 22807700 (Dist Read Pk J GHz (m) dBuV High Channel (5320.0 MHz) 0.640 3.0 46.1 5560 3.0 44.5	<ul> <li>T144 Mi</li> <li>12' ca</li> <li>12' cab</li> <li>Read Avg.</li> </ul>	iteq 300 able 21	08A005 28076	931 .	T88 Min				37,022		51071		
T73; S/N: 6717 @Jm           T73; S/N: 6717 @Jm           T8 Prequency Cables           3' cable 22807700           3' cable 22807700           f         Dist         Read Pk           GHz         (m)         dBuV           ligh Channel (S320: 0.MHz)         0.640         3.0         46.1           5560         3.0         44.5         560         3.0         44.5	<ul> <li>T144 Mi</li> <li>12' ca</li> <li>12' cab</li> <li>Read Avg.</li> </ul>	iteq 300 able 21	08A005 28076	931 .	T88 Min				37,022		51071		
IS Prequency Cobles           3' cable 22807700           3' cable 22807700           f         Dist         Read Pk         J           GRz         (m)         dBuV         High Channel (\$320.0 MHz)         0.640         3.0         46.1         5.540         3.0         44.5	12' ca 12' cab Read Avg.	able 22	28076		ASSAULT	leq 26-	40GHz	<ul> <li>T39</li> </ul>	ARA 18-260	Hz; S/N=10	113	-	FCC 15.205
3' cable 22807700           3' cable 22807700           I           Dist           Read Plk           GHz           (m)           dBuV           High Channel (5320.0 MHz)           0.640           3.0           46.1           5560           3.0	, 12 cab			100	201-1								
f         Dist         Read Pk         3           GHz         (m)         dBuV         High Channel (5320.0 MHz)         0.640         3.0         46.1         5.540         3.0         44.5	Read Avg.	ble 2280	07600		20 cal	ble 22	807500		HPF	R	eject Filte		Measurements W=VBW=1MHz
GHz         (m)         dBuV           High Channel (5320.0 MHz)         0.640         3.0         46.1           15.960         3.0         44.5         3.0         3.0		_		•	20' cab	ile 2280	. 07500			• R	_001	Avera	ge Measurements 1MHz ; VBW=10Hz
10.640 3.0 46.1 15.960 3.0 44.5		AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m		Avg Mar dB	Notes (V/H)
15.960 3.0 44.5													
	38.7 37.5	38.3 37.6	9.8 12.4	-35.7	0.0	0.0	58.4 60.6	\$1.0 \$3.7	74	54 54	-15.6	-3.0	H, q83 H, q83
0.640 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, 983
5.960 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, 983
f Measuremen Dist Distance to / Read Analyzer Re AF Antenna Fac CL Cable Loss	sading ctor			Amp D Corr Avg Peak HPF	Average	Corres Field S ed Peal	ct to 3 mete Strength @ k Field Stre	3 m		Pk Lim	Peak Field Margin vs	ield Strength 1 Strength Li Average Li Peak Limit	mit nuit
CL CARLON	ίί.		-		1101100								

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

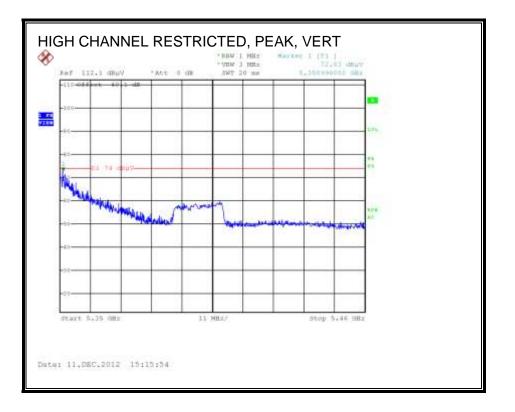
#### **RESTRICTED BANDEDGE (HIGH CHANNEL)**

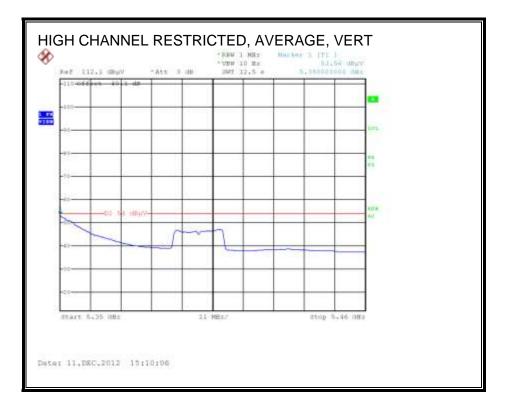




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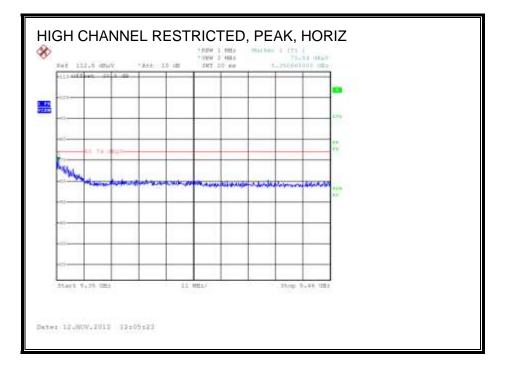
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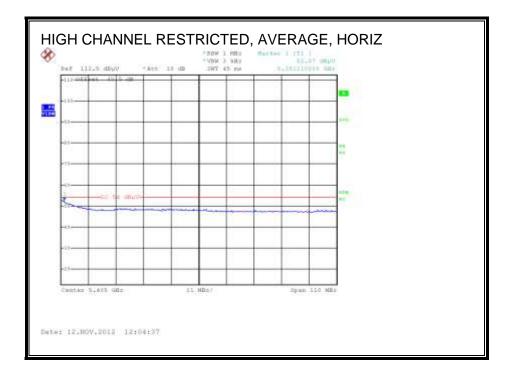
Complia		rtification 3	Services, Fr	emont	3m Ch	amber									
roject #			12U14669												
late:			12/12/2012												
est Eng			M. Mekuria	31793											
Configur Lode:	ration:		EUT, Adapter 11n HT20 BF												
est Equ	ulpmen	<u>t:</u>													
Н	om 1-	18GHz	Pre-ar	mplifer	1-26	GHz	Pre-am	plifer	26-40GH	z	н	orn > 18	GHz	1	Limit
T60; 5	/N: 2238	8 @Jm	• T34 H	P 8449B		•	T88 Mit	eq 26.	10GHz	• 13	9; ARA 18-266	iHz; S/N:	1013	-	FCC 15.205 •
	uency Cab		401-	able 2	0007		201 cal	bla 22	807500		HPF	Ť.		Peal	c Measurements
	able 228	2807700	-	able 228		00	20 cab				HPF	_	teject Filte R_001	RB Avera	W=VBW=1MHz ge Measurements
1		00000 J				2	1.000					a I.		KBW=	1MHz ; VBW=10Hz
f GH2	Dist (m)	dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/n	Pk Lim dBuV/m	Avg Li dBuV/		Avg Mar dB	Notes (V/H)
Low Chan 5.780	mel (526 3.0	0 MHz) 47.9	33.7	38.2	13.1	-31.9	0.0	0.0	67.3	53.2	74	54	-6.7	-0.8	н
5.780	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
fid Chan						-		-							
0.600	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
5,900	3.0	47.3	34.8	37.8	13.2	-31.8	0.0	0.0	66.4 63.3	53.9 49.6	74	54	-10.7	-0.1	H V
5.900	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
ligh Char	nnel (532	0 MHz)										-	1		
0.640	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
5.960	3.0	49.5	34.9 37.9	37.6	13.2	-31.8	0.0	0.0	68.4	53.8 52.3	74	54 54	-5.6	-0.2	H
5.960	3.0	46.0	331	37,6	13.2	-31.8	0.0	0.0	65.0	52.0	74	54	.9.0	.2.0	Ŷ
lev. 11.10	.11														
	f		ent Frequenc	x		Атр	Preamp (					20.012		Field Strengt	
		Distance to							ct to 3 mete			Pk Lim		d Strength L	
		Analyzer R Antenna Fa				Avg Peak			strength @ c Field Stre					Average L	
						HPF	High Pas			ngth		PK Mar	Margin vi	s. Peak Limit	

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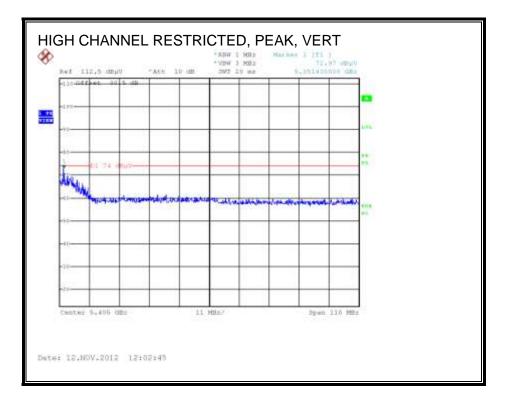
## 9.2.11. TX ABOVE 1 GHz 802.11n HT40 1TX MODE, 5.3 GHz BAND

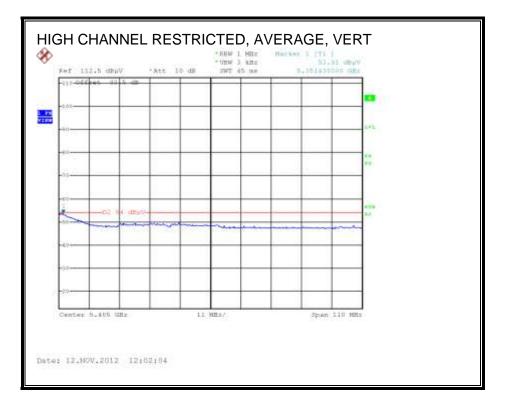
### **RESTRICTED BANDEDGE (HIGH CHANNEL)**





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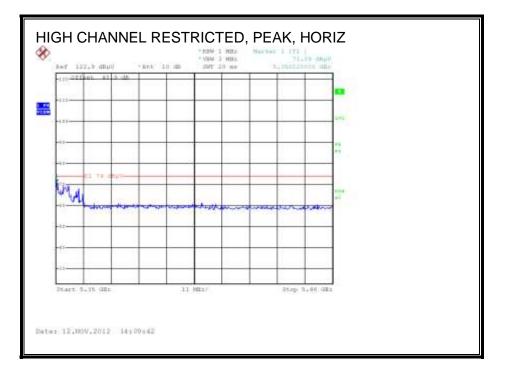
Covered by testing 11n HT40 CCD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

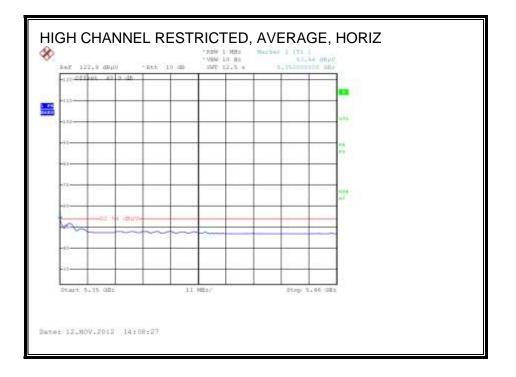
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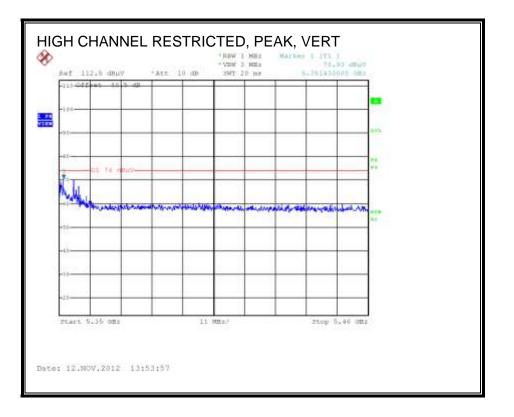
# 9.2.12. TX ABOVE 1 GHz 802.11n HT40 CDD 3TX MODE, 5.3 GHz BAND

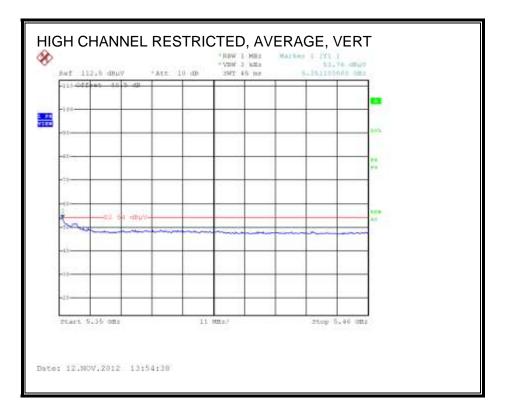
### **RESTRICTED BANDEDGE (HIGH CHANNEL)**





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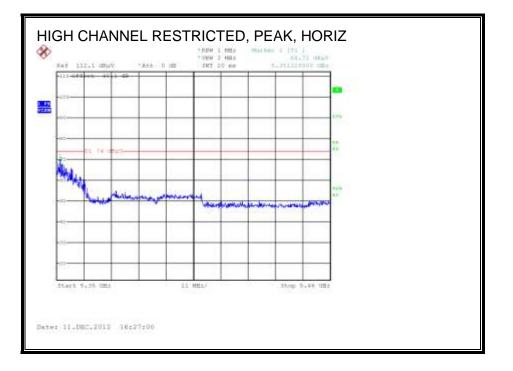
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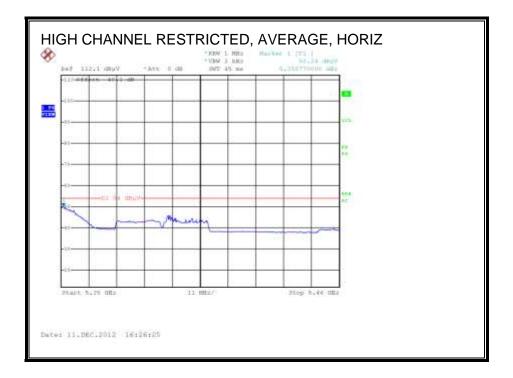
Configu Mode:	#: igineer: iration:		Broadcon 12U14669 12-7/2012 D. Garcia Dan EUT, Adapter 11n HT40 3T2	Board, A	ntenna										
	nipmen	-	1	mplifer	4.00	-			26-40GH	T.	211	orn > 180		1	Limit
	lorn 1-	2222012	0.776	Miteq 30	100		T88 Mit	1.111	205-HB(26)		9: ARA 18-266		2000		FCC 15.205
1195390	quency Cab	2757 day	-		Surroo.		1000 1000		in an a	1	1012040200	105 2000	373	•	1 2
		2807700	12' 0	able 2	28076	500	20' ca	ble 22	807500		HPF	Re	ject Filte		<b>Measurements</b> 1MHz, BW=3MHz
3.0	able 228	07700	• 17 ci	ible 228	07600	•	20' cab	le 228	)7500 •	H	PF_7.6GHz	· [		Avera	ge Measurements MHz ; VBW=1.1kHz
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL. dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBaV/m	Pk Lins dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
	unel (527)					.11.9				511			-8.7		
5.810	3.0	48.1	36.0	38,1 38,1	12.3	-33.9	0.0	0.7	65.3 62.0	51.5	74	54 54	-12.0	-0.7	H, q88 V, q88
ligh Cha	novel (531			1000000	50.00	- Section of the	10000	1.00021						1.	1000
10,620	3.0	50.7	39.2 36.7	38.3 37.7	9.7 12.4	-35.7 -33.9	0.0	0.8	63.8 64.1	52.2 53.6	74	54 54	-10.2	-1.8	H, q90 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	f Dist Read AF	Measureme Distance to Analyzer R Antenna Fa Cable Loss	eading actor	у		Amp D Corr Avg Peak HPF	Average	Corre Field S d Peal	ct to 3 mete strength @ c Field Stre	3 m		Pk Lim Avg Mar	Peak Field Margin vs	ield Strengt I Strength L Average L Peak Limit	mit mit

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

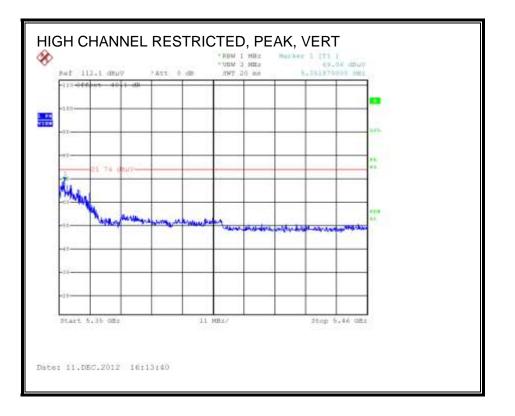
### **RESTRICTED BANDEDGE (HIGH CHANNEL)**

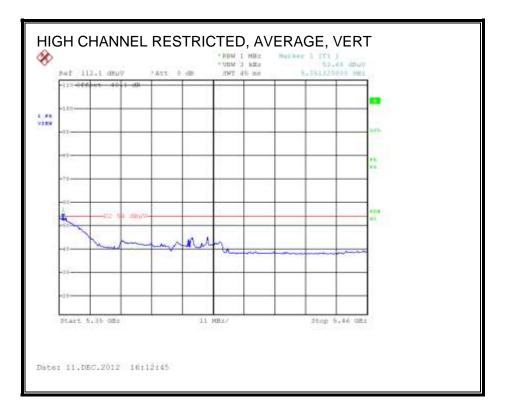




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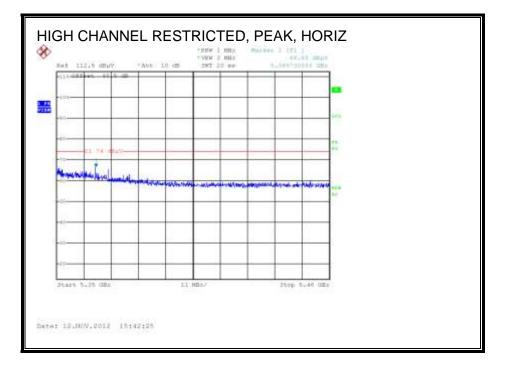
Instruction of the manual science o												iode			Breadcon 12U14669 12-12-2012 D. Garcia EUT, Adapter 11n HT40 3TX			
T38 Miteq 26.40GHz       T39: ARA 18-26GHz; S/N:1013       FCC 15.205         T73; S/N: 6717 @3m       T144 Mitteq 3008A00931       T88 Miteq 26.40GHz       T39: ARA 18-26GHz; S/N:1013       FCC 15.205         Miteq 22807700       12' cable 22807600       20' cable 22807500       MIPF       Reject Filter       Peak Measureme RBW=1MHz; VBW=         S able 22807700       12' cable 22807600       20' cable 22807500       PC 15.205         If Dist Read Pk Read Avg. AF       CL Amp D Corr Fltr Peak Avg Pk Lim Avg Lim Pk Mar Avg Mar Note GH2 (m)       OBsV/m dBsV/m dBsV	1 Instit	- 13						1							1			
3' cable 22807700         12' cable 22807600         20' cable 22807500         HPF         Reject Filter         Peak Measureme RBW=1MHz; VBW=           3' cable 22807700         12' cable 22807600         20' cable 22807500         0' cable 22	FCC 15.205	-	_	10.000	1. C.S.S.			-		_		11.1	10000	(300 c)	100000-000	137017-		
Image: State in the system         Image: State in the system <th< th=""><th>ak Measurements =1MHz ; VBW=3MF</th><th></th><th>or</th><th>ject Filte</th><th>Re</th><th></th><th>HPF</th><th></th><th>807500</th><th>ole 22</th><th>20' cal</th><th>00</th><th>28076</th><th>able 2</th><th>12' c</th><th></th><th></th><th></th></th<>	ak Measurements =1MHz ; VBW=3MF		or	ject Filte	Re		HPF		807500	ole 22	20' cal	00	28076	able 2	12' c			
GHz         (m)         dBuV         dBuV         dB/m         dB         dB         dB         dB         dB         dB         dBuV/m         dBuV/m         dBuV/m         dBuV/m         dBuV/m         dB         dB         (V/H           Low Channel (\$270 MHz)         5         36.4         38.1         13.1         -33.9         0.0         0.0         64.6         55.7         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         52.4         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         52.4         74         54         -11.5         -1.4         V           High Channel (5310 MHz)	rage Measurements	Avera	•	001	R	•			7500 •	le 2280	20° cab	•	07600	ble 228	12' ca	07700	able 228	3. 0
5510       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         5810       3.0       45.5       35.3       38.1       13.1       -33.9       0.0       0.0       62.7       52.6       74       54       -9.4       -0.3       H         Igh Channel (5310 MBz)       0.0       0.0       62.7       52.6       74       54       -11.3       -1.4       V         Igh Channel (5310 MBz)       0.0       0.0       63.6       50.1       74       54       -11.2       0.4       V         0.620       3.0       49.1       37.6       38.3       9.9       35.7       0.0       0.0       63.6       50.1       74       54       -12.4       3.9       H         15.930       3.0       46.7       33.9       9.9       35.7       0.0       0.0       63.6       53.5       74       54       -14.8       -7.7       V       53.9       74       54       -9.1       0.1       V       9.1       0.1       V       9.1       0.1       V       9.1       0.1       V	r Notes (V/H)	1. March 1. March 1.	A		-	1.00						1000			Contraction of the second second	dBuV	(m)	GHz
0.650         3.0         49.1         37.6         38.3         9.9         35.7         0.0         0.0         61.6         50.1         74         54         412.4         3.9         H           5.930         3.0         46.8         36.4         37.7         13.2         33.9         0.0         0.0         61.6         50.1         74         54         412.4         3.9         H           6x20         3.0         46.7         33.9         9.9         35.7         0.0         0.0         59.2         46.3         74         54         41.8         -7.7         V         5930         3.0         47.9         36.9         37.7         13.2         33.9         0.0         0.0         64.9         53.9         74         54         41.8         -7.7         V         5930         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           arc         11.0.11         V         Amp         Preamp Gain						-										47.3	3.0	5.810
ev. 11.10.11 f Measurement Frequency Amp Preamp Gain Avg Lim Average Field Strength Limit	H V	-0.5		-10.2 -14.8	84 54		74 74	53.5 46.3	63.8 59.2	0.0	0.0 0.0	-33.9 -35.7	13.2 9.9	37.7 38.3	36.6 33.9	49.1 46.8 46.7	3.0 3.0 3.0	0.620 5.930 0.620
		-0.1			34		.74	53.5	94,9	0.0	0.0	33.9	13.4	31.1	36.9	4/3		
Disk         Disknee         Office         Press         Press         Press         Press         Disk         Press         Disk         Press         Disk         Press         Disk         Press         Disk         Disk <thdisk< th=""> <thdisk< th=""> <thdisk< th=""></thdisk<></thdisk<></thdisk<>	Limit Limit	trength Li verage Li	d Si	Peak Field Margin vs	Lim g Mar	Pk Av		3 m	strength @ : Field Stren	Correc Field S d Peak	Distance Average Calculate	D Corr Avg Peak		6	Antenna eading actor	Distance to Analyzer R Antenna Fa	Dist Read AF	

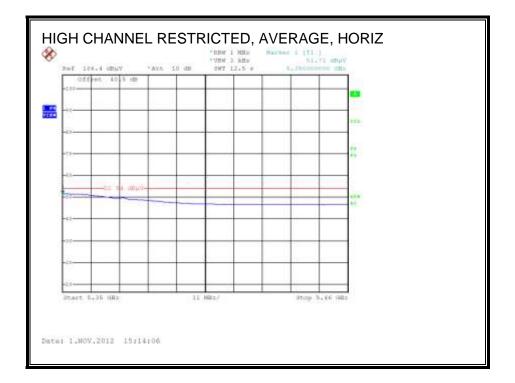
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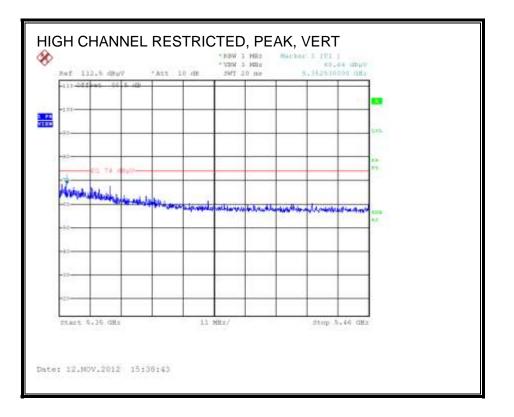
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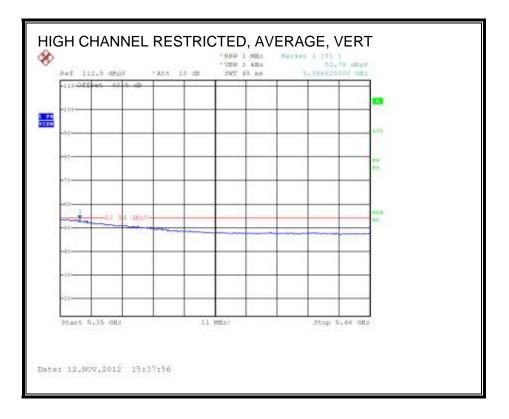
## 9.2.14. TX ABOVE 1 GHz 802.11n AC80 1TX MODE, 5.3 GHz BAND

### **RESTRICTED BANDEDGE (HIGH CHANNEL)**









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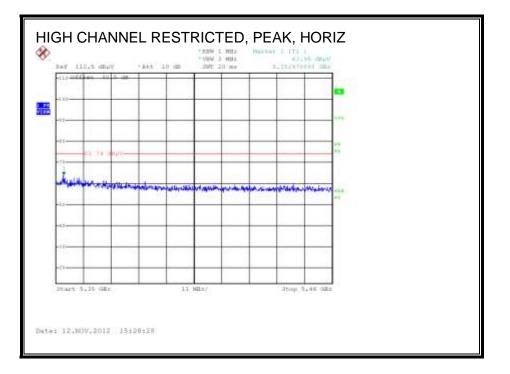
Covered by testing 11n AC80 CCD MCS0 3TX at the same power level.

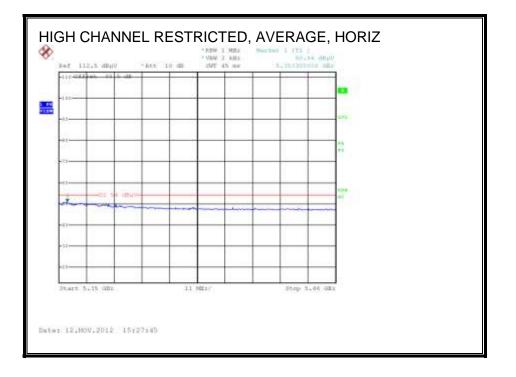
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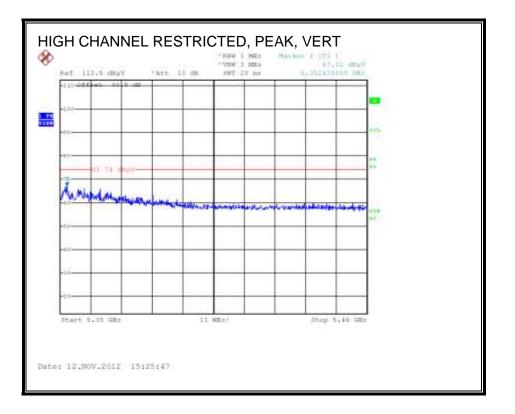
# 9.2.15. TX ABOVE 1 GHz 802.11n AC80 CDD 3TX MODE, 5.3 GHz BAND

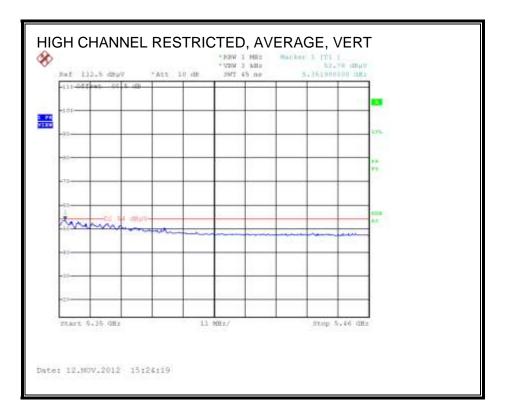
#### **RESTRICTED BANDEDGE (HIGH CHANNEL)**





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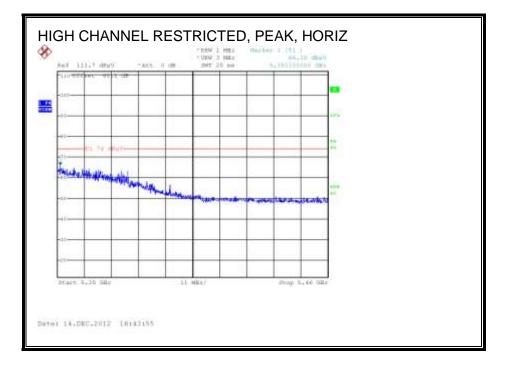
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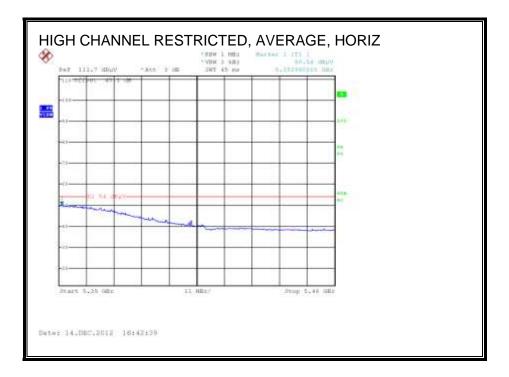
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	omplia			Measurem Services, Fr		5m Ch	amber-	A									
Total Pictor Product         T73; S/N: 6717 @Dm       T144 Mineq 3000A00931       T88 Mineq 26.40GHz       T39; ARA 18.26GHz; S/N:1013       FCC 15.205         T37; S/N: 6717 @Dm       T144 Mineq 3000A00931       T88 Mineq 26.40GHz       T39; ARA 18.26GHz; S/N:1013       FCC 15.205         A respect Cable       2807500       D' cable 22807500       Peak Measurements         3' cable 22807700       12' cable 22807600       D' cable 22807500       Peak Measurements         3' cable 22807700       12' cable 22807600       PO' cable 22807500         12' cable 22807600       D' cable 22807500       Peak Measurements         RBW=IMHz; VBW=1LIHz;         O' cable 22807500       Peak Measurements         RBW=10H1; VBW=1LIHz;         O' cable 22807500       P' Cable 22807500         O' cable 22807500       P' Cable 22807500         O' cable 22807500       P' Cable 22807500         O' cable 22807500       P' Peak       Peak Margarements         O' cable 22807500<	Project Date: Cest En	#: gineer:		12U14669 12/9/2912 M. Mekuria EUT, Adapter		ntenna											
Total Pictor Product         T73; S/N: 6717 @Dm       T144 Mineq 3000A00931       T88 Mineq 26.40GHz       T39; ARA 18.26GHz; S/N:1013       FCC 15.205         T37; S/N: 6717 @Dm       T144 Mineq 3000A00931       T88 Mineq 26.40GHz       T39; ARA 18.26GHz; S/N:1013       FCC 15.205         A respect Cable       2807500       D' cable 22807500       Peak Measurements         3' cable 22807700       12' cable 22807600       D' cable 22807500       Peak Measurements         3' cable 22807700       12' cable 22807600       PO' cable 22807500         12' cable 22807600       D' cable 22807500       Peak Measurements         RBW=IMHz; VBW=1LIHz;         O' cable 22807500       Peak Measurements         RBW=10H1; VBW=1LIHz;         O' cable 22807500       P' Cable 22807500         O' cable 22807500       P' Cable 22807500         O' cable 22807500       P' Cable 22807500         O' cable 22807500       P' Peak       Peak Margarements         O' cable 22807500<		julpmen															
Inc. of the gala       Inc. of the mask scalar operation	н	lorn 1-	18GHz	Pre-ar	nplifer	1-260	GHz	Pre-am	plifer	26-40GH	z		Н	om > 180	Hz		Limit
3' cable 22807700       12' cable 22807600       20' cable 22807500       HPF_       Reject Filter       Peak Measurements         3' cable 22807700       12' cable 22807600       20' cable 22807500       PFF_7.6GHz       PFF_7.6GHz       Peak Measurements         6       Dist       Read Avg       AF       CL       Amp       D Corr       Fitr       Peak       Avg       Pk Lim       Avg Lim       Avg Mar       Avg Mar       Notes         6       Dist       Read Pk       Read Avg       AF       CL       Amp       D Corr       Fitr       Peak       Avg       Pk Lim       Avg Lim       Avg Mar       Notes         6       Dist       Resurement Frequency       Amp       D corr       Fitr       Peak       Avg       Pk Lim       Avg Lim       Avg Lim       Average Field Strength Limit         9       Massurement Frequency       Amp       Preamp Gain       Avg Average Field Strength Limit       Pk Lim       Peak Field Strength Limit         11.10.11       Distance to Antenna       D Corr       Distance Correct to 3 meters       Pk Lim       Average Field Strength Limit         AF       Antenna Factor       Peak       Cakulated Peak Field Strength (@ 3 m)       Avg Mar Margin	173;	S/N: 671	7 @3m	• T144 N	Aiteq 30	08A00	931 -	T88 Mit	eq 26-	40GHz		T39;	ARA 18-264	GHz; S/N:10	13	•	FCC 15.205
3' cable 22807700       12' cable 22807600       20' cable 22807500       PF_7 6GHz       Average Measurements RBW=1MHz; VBW=1.1kHz         f       Dist       Read Pk       Read Avg       AF       CL       Amp       D Corr       Fltr       Peak       Avg       Pk Lim       Avg Lim       Pk Mar       Avg Mar       Notes         GHz       (m)       dBuV       dBuV       dB       dB <th< td=""><td></td><td></td><td></td><td>12' c</td><td>able 2</td><td>28076</td><td>500</td><td>20' ca</td><td>ble 22</td><td>2807500</td><td></td><td></td><td>HPF</td><td>Re</td><td>ject Filte</td><td></td><td></td></th<>				12' c	able 2	28076	500	20' ca	ble 22	2807500			HPF	Re	ject Filte		
GHz         (m)         dBuV         dBuV         dBuV         dB         dW/m         dB         dB         dB         (V/H)           or Channel (5290.0 MBz)	3.0	able 221	807700	• 12 ca	ible 228	07600	•	20° cab	ile 228	07500 •		HPF	_7.6GHz	•	5.0	Avera	ge Measurements
f         Measurement Frequency         Amp         Preamp Gain         Avg Lim         Average Field Strength Limit           f         Measurement Frequency         Amp         Preamp Gain         Avg Lim         Average Field Strength Limit           pit         Distance to Antenna         D Corr         Distance Correct to 3 meters         Pk Lim         Peak Field Strength Limit           AF         Antenna Factor         Peak         Cakulated Peak Field Strength         Pk Mar         Margin vs. Peak Limit		100000	1 - 1 - C - C - C - C - C - C - C - C -		COMPANIES IN		1077020	4 - 10 - 1 - 1 - 1 - 1 - 1		1	115.502	-					
5.870     3.0     44.6     32.8     37.9     12.4     33.9     0.0     0.7     61.6     49.8     74     54     -12.4     -4.2     V, q00       ev. 11.10.11       f Measurement Frequency Dist Distance to Antenna Read Analyzer Reading AF Antenna Factor     Amp Preamp Gain Distance Correct to 3 meters Pik Lim Peak Field Strength Limit Average Field Strength Limit Average Field Strength Limit Peak Field Strength Pik Mar Margin vs. Average Limit Peak Field Strength Pik Mar Margin vs. Peak Limit	ow Char	unel (529	0.0 MHz)	and the second second					-		biconist in						1
ev. 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 Correct to 3 meters         Pk Lim         Peak Field Strength Limit           AF         Antenna Factor         Peak         Cakulated Peak Field Strength         Pk Mar         Margin vs. Peak Limit	5.870 5.870																
		Read AF	Analyzer R Antenna Fa	eading actor			Avg Peak	Average Calculate	Field 9 od Pea	Strength @ k Field Stre	3 m			Avg Mar	Margin vs	Average Li	imit

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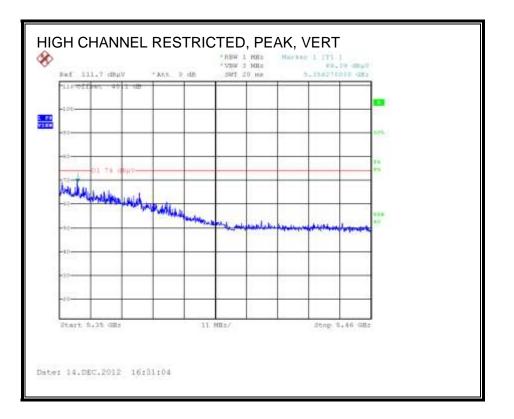
## 9.2.16. TX ABOVE 1 GHz 802.11n AC80 BF 3TX MODE, 5.3 GHz BAND

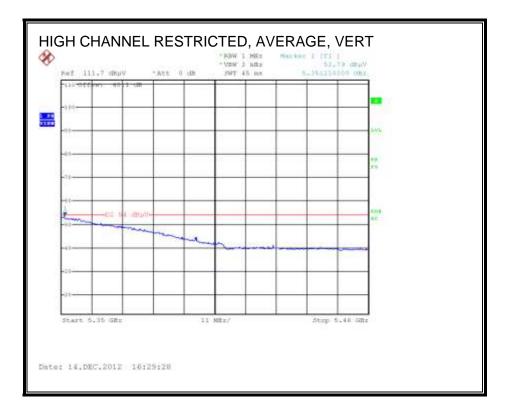
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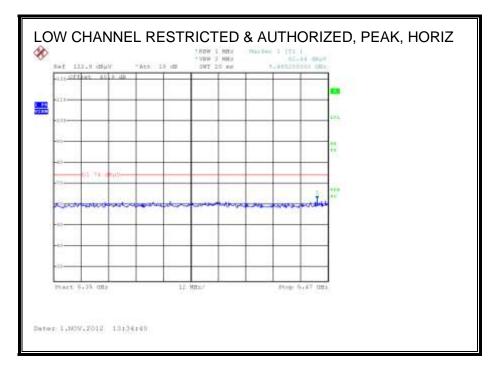
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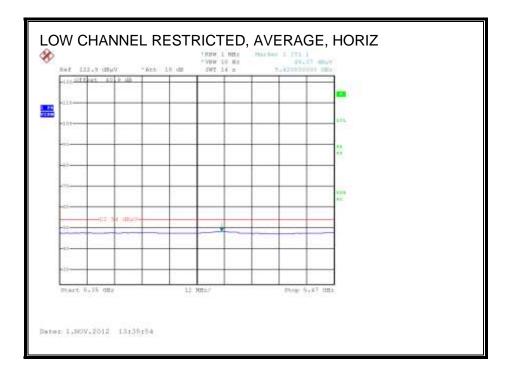
Est Engineer:       M. Mekunia         onfiguration:       EUT, Adapter Board, Antenna         ode:       11a HT39 3TX mode         Intermettion:         Morn 1-18GHz       Pre-amplifer 1-26GHz       Horn 26-40GHz       Horn > 18GHz       Limit         Horn 1-18GHz       Pre-amplifer 1-26GHz       Pre-amplifer 26-40GHz       Horn > 18GHz       European (Colspan="2">FCC 15.205         3' cable 22807700       12' cable 22807600       20' cable 22807500       Pre-amplifer 26-40GHz       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         3' cable 22807700       12' cable 22807600       20' cable 22807500       Pre-amplifer 26-40GHz       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         4       Pre-amplifer 26-40GHz       <	oject ff: 12U14669 te: 12U140	mplia		Frequency rtification 5	Measurem Services, Fr		5m Ch	amber-	A										
Test Equipment:         Horn 1-18GHz       Pre-amplifer 26-40GHz       Horn > 18GHz       Limit         T73; SN: 6717 @3m       Ti44 Miteq 3008A00931       Pre-amplifer 26-40GHz       Horn > 18GHz       Limit         T3; SN: 6717 @3m       Ti44 Miteq 3008A00931       Pre-amplifer 26-40GHz       Horn > 18GHz       Limit         T3; SN: 6717 @3m       Ti44 Miteq 3008A00931       Pre-amplifer 26-40GHz       Ti39; ARA 18-26GHz; SN:1013       Limit         T Requency Cables       20° cable 22807500       Pre-amplifer 26-40GHz       Time: Tige: Titler       Peak Measurements         T cable 22807700       12' cable 22807600       Pre-amplifer 26-40GHz       Pre-amplifer 26-40GHz       Time: Tige: Titler       Peak Measurements         T cable 22807700       12' cable 22807600       Pre-amplifer 26-40GHz       <	Test Equipment:         Horn 1-18GHz       Pre-amplifer 26-40GHz       Horn > 18GHz       Limit         T73; SR: 6717 @3m       Test mplifer 1-26GHz       Test mplifer 26-40GHz       TBS Miteq 26-40GHz       TS Mite 22807500       TS Mite 22807500       TS Mite 22807500       TS Mite 228077600	roject late: 'est En	#: gineer:		12U14669 12/13/2012 M. Mekuria EUT, Adapter		ntenna												
Trist filter       Trist Mitten 3008A00931       Trist Mitten 3008A00931       Trist Mitten 3008A00931       Trist Mitten 3008A00931       FCC 15.205         Trist Mitten 3008A00931       Trist Mitten 3008A00931       Trist Mitten 3008A00931       FCC 15.205         3' cable 22807700       12' cable 22807600       Peak Measurements         3' cable 22807700       12' cable 22807600       Peak Measurements         20' cable 22807500       Peak Measurements         12' cable 22807500       Peak Measurements         Preset Pield Strength Imit       Average Measurements         Preset Manp D Corr       Fitr Peak Avg       Pk Lim       Avg Im Avg Mar Marg Notes         Gai       Avg Im Avg Mar Marg Notes         Field Strength Imit         State to Antenna <th colspan<="" th=""><th>Trist Srit: 6717 @3m       Title Mineq 3000A00931       Tab Mineq 26.40GHz       Title Mineq 3000A00931         Total Mineq 3000A00931       Title Mineq 26.40GHz       Title Mineq 26.40GHz       Title Mineq 26.40GHz       FCC 15.205         Stable 22807700       12' cable 22807600       Colspan="2"&gt;Colspan="2"&gt;Peak Measurements RBW=IMHz       Peak Measurements RBW=</th><th></th><th>ulpmen</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th>	<th>Trist Srit: 6717 @3m       Title Mineq 3000A00931       Tab Mineq 26.40GHz       Title Mineq 3000A00931         Total Mineq 3000A00931       Title Mineq 26.40GHz       Title Mineq 26.40GHz       Title Mineq 26.40GHz       FCC 15.205         Stable 22807700       12' cable 22807600       Colspan="2"&gt;Colspan="2"&gt;Peak Measurements RBW=IMHz       Peak Measurements RBW=</th> <th></th> <th>ulpmen</th> <th></th>	Trist Srit: 6717 @3m       Title Mineq 3000A00931       Tab Mineq 26.40GHz       Title Mineq 3000A00931         Total Mineq 3000A00931       Title Mineq 26.40GHz       Title Mineq 26.40GHz       Title Mineq 26.40GHz       FCC 15.205         Stable 22807700       12' cable 22807600       Colspan="2">Colspan="2">Peak Measurements RBW=IMHz       Peak Measurements RBW=		ulpmen															
Incoming	Inc. of H gale       Inc. of H many securities (I)       Inc.	н	lorn 1-	18GHz	Pre-ar	nplifer	1-26	GHz	Pre-am	plifer	26-40GH	z		н	orn > 180	Hz		Limit	
3' cable 22807700       12' cable 22807600       20' cable 22807500       HPF_       Reject Filter       Peak Measurements RBW1MHz, BW=3MHz         3' cable 22807700       0       12' cable 22807600       0       0' cable 22807500       0 <td>3' cable 22807700       12' cable 22807600       20' cable 22807500       HPF       Reject Filter       Peak Measurements         3' cable 22807700       12' cable 22807600       20' cable 22807500       PF       PF       Reject Filter       Peak Measurements       RBW1MHz, BW=3MHz         12' cable 22807600       12' cable 22807600       20' cable 22807500       PF       Peak       Avg       PF       PF       Reject Filter       Peak Measurements       RBW1MHz, BW=3MHz         12' cable 22807600       12' cable 22807600       P       Peak       Avg       PF       PF       PF       Peak       Average Measurements         12' cable 22807600       12' cable 22807600       P       Peak       Avg       PF       Pit Mar       Avg Mar       Average Measurements         6       Dist       Read Pk       Read Avg       AF       CL       Amp       D Corr       Filt       Peak       Avg       Pk Lim       Avg Lim       Avg Mar       Average Measurements         6       Bas70       3.0       45.1       33.3       37.9       12.4       33.9       0.0       0.7       61.0       48.1       74       54       13.0       5.9       V, q89       Netes</td> <td>173; 5</td> <td>S/N: 671</td> <td>7 @3m</td> <td>- T144 N</td> <td>Aiteq 30</td> <td>08A90</td> <td>931 .</td> <td>T88 Mit</td> <td>eq 26-</td> <td>40GHz</td> <td>•</td> <td>T39;</td> <td>ARA 18-264</td> <td>GHz; S/N:10</td> <td>13</td> <td>-</td> <td>FCC 15.205</td>	3' cable 22807700       12' cable 22807600       20' cable 22807500       HPF       Reject Filter       Peak Measurements         3' cable 22807700       12' cable 22807600       20' cable 22807500       PF       PF       Reject Filter       Peak Measurements       RBW1MHz, BW=3MHz         12' cable 22807600       12' cable 22807600       20' cable 22807500       PF       Peak       Avg       PF       PF       Reject Filter       Peak Measurements       RBW1MHz, BW=3MHz         12' cable 22807600       12' cable 22807600       P       Peak       Avg       PF       PF       PF       Peak       Average Measurements         12' cable 22807600       12' cable 22807600       P       Peak       Avg       PF       Pit Mar       Avg Mar       Average Measurements         6       Dist       Read Pk       Read Avg       AF       CL       Amp       D Corr       Filt       Peak       Avg       Pk Lim       Avg Lim       Avg Mar       Average Measurements         6       Bas70       3.0       45.1       33.3       37.9       12.4       33.9       0.0       0.7       61.0       48.1       74       54       13.0       5.9       V, q89       Netes	173; 5	S/N: 671	7 @3m	- T144 N	Aiteq 30	08A90	931 .	T88 Mit	eq 26-	40GHz	•	T39;	ARA 18-264	GHz; S/N:10	13	-	FCC 15.205	
3° cable 22807700       12° cable 22807600       20° cable 22807500       MPF_7 &GHz       Average Measurements RBW=1MHz; VBW=1.1kHz         f       Dist       Read Pk       Read Avg. dBuV       AF       CL       Amp       D Corr dB       Fltr       Peak dB       Avg       Pk Lim dBuV/m       Avg Mar       Avg Mar       Notes         GHz       (m)       dBuV       dB/m       dB       dW       dB       dB       dW       dB       dB       dW       dW <thdw< th="">       dW       dW       dW</thdw<>	3' cable 22807700       12' cable 22807600       20' cable 22807500       MPF_7.6GHz       Average Measurements RBW=1MHz; VBW=1.1kHz         f       Dist       Read Pk       Read Avg. dBuV       AF       CL       Amp       D Corr       Fltr       Peak       Avg       Pk Lina       Avg Lim       Pk Mar       Avg Mar       Notes         GHz       (m)       dBuV       dBuV       dB				12' c	able 2	28076	500	20' ca	ble 22	2807500			HPF	R	ject Filte			
GHz         (m)         dBuV         dBuV         dB/m         dB         dB         dB         dB         dB         dB         dB         dB         dB         dV/m         dBaV/m         dB         dB         dB         (V/H)           or Channel (5290.0 MBz)         0.0         45.1         33.3         37.9         12.4         33.9         0.0         0.7         62.1         50.4         74         54         -11.9         -3.6         H, q89           5870         3.0         45.1         33.3         37.9         12.4         33.9         0.0         0.7         61.0         48.1         74         54         -11.9         -3.6         H, q89           ex         11.10.11         Arge primes of the summer of the s	GHz         (m)         dBuV         dBuV         dBv/m         dB	3.0	able 221	107700	• 12 ca	ible 228	07600	•	20' cab	le 228	07500 •		HPF	F_7.6GHz	•	200 	Avera	ge Measurements	
or Channel (\$290.0 MHz)         or Channel (\$200.0 MHz)         or Channel (\$2	or Channel (\$290.0 MHz)         or Channel (\$290.0 MHz)         or Channel (\$290.0 MHz)         or Channel (\$290.0 MHz)           5.870         3.0         45.1         33.3         37.9         12.4         -33.9         0.0         0.7         62.1         50.4         74         54         -11.9         -3.6         H, q89           5.870         3.0         43.9         31.1         37.9         12.4         -33.9         0.0         0.7         61.0         48.1         74         54         -11.9         -3.6         H, q89           ev. 11.10.11            Amp         Preamp Gain         Avg Lim         Average Field Strength Limit           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           AF         Analyzer Reading         Avg         Average Field Strength @ 3 m         Avg Mar <margia average="" limit<="" td="" vs.="">           AF         Antenna Factor         Peak         Cakulated Peak Field Strength         Pk Mar         Margia vs. Peak Limit</margia>		100000		- 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	COMPANIES IN		10770120	and the second second		1	100.00	-						
8.870     3.0     43.9     31.1     37.9     12.4     -33.9     0.0     0.7     61.0     48.1     74     54     -13.0     -5.9     V, q89       ev 11.10.11       f Measurement Frequency Dist Distance to Antenna     D Corr Distance Correct to 3 meters     Avg Lim     Average 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	5.870     3.0     43.9     31.1     37.9     12.4     33.9     0.0     0.7     61.0     48.1     74     54     13.0     6.9     V, 989       ev 11.10.11       f Measurement Frequency Distance to Antenna     D Corr Distance Correct to 3 meters     Avg Lim Average 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	ow Char	unel (529	0.0 MHz)	and the second							and so that is a		Landonna Kontenista					
f     Measurement Frequency     Amp     Preamp Gain     Avg Lin     Average Field Strength Limit       Dist     Distance to Antenna     D Corr     Distance Correct to 3 meters     Pk Lin     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	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																		
			AF	Analyzer R Antenna Fa	eading ctor			Avg Peak	Average Calculate	Field 9 of Pea	Strength @ k Field Stre	3 m				Margin vs	Average Li	mit	

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

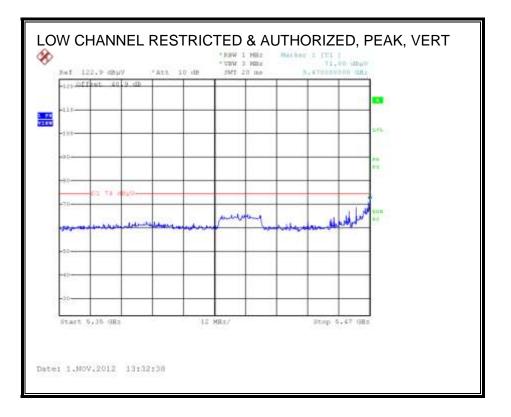
#### **RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)**

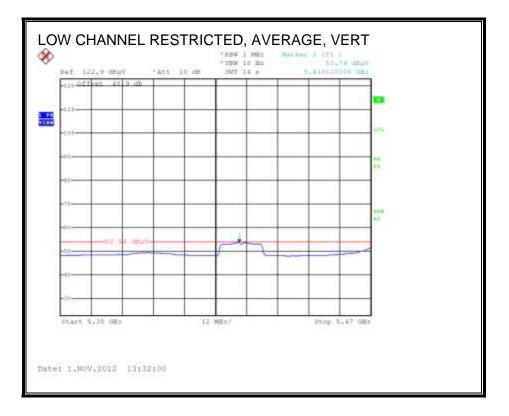




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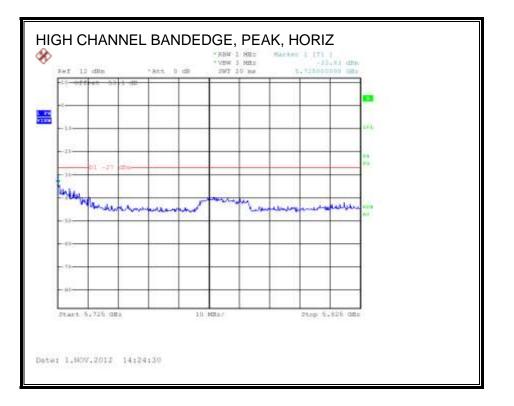
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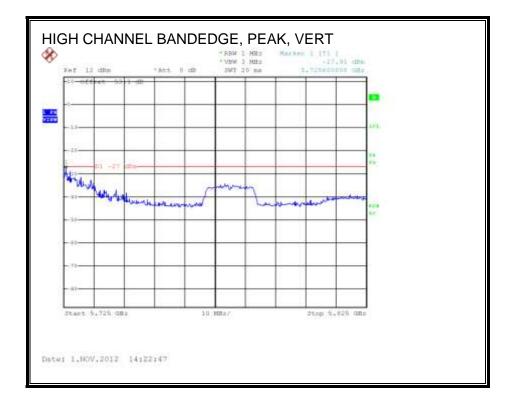




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#### AUTHORIZED BANDEDGE (HIGH CHANNEL)





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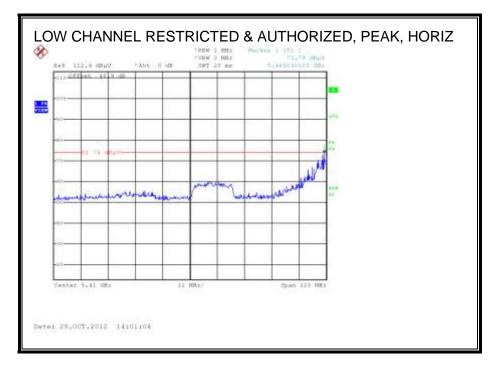
Covered by testing HT20 CDD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

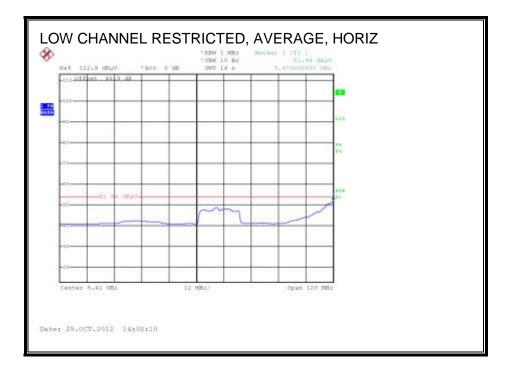
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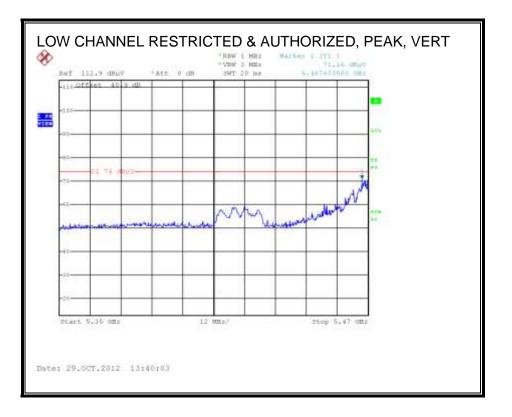
### 9.2.18. TX ABOVE 1 GHz 802.11n HT20 CDD 3TX MODE, 5.6 GHz BAND

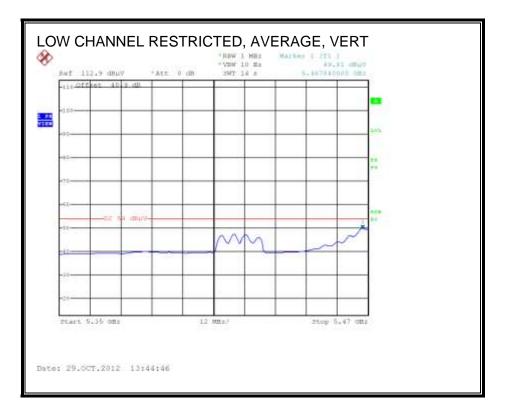
#### **RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)**





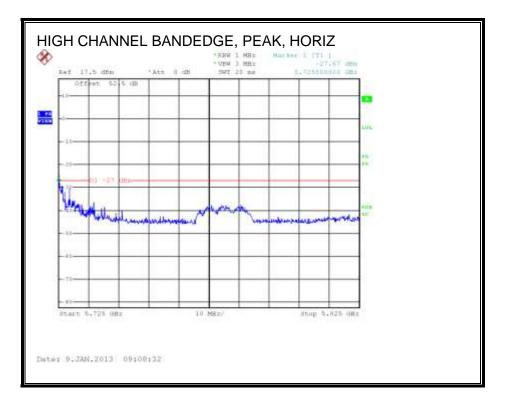
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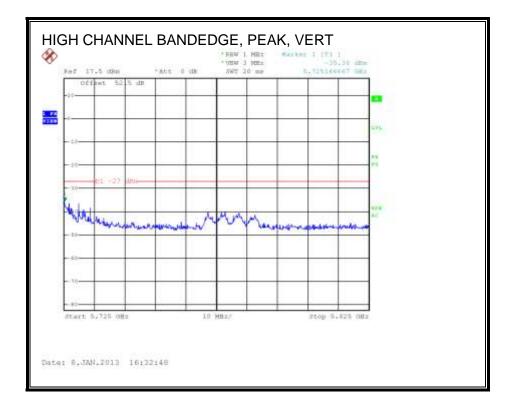




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### AUTHORIZED BANDEDGE (HIGH CHANNEL)





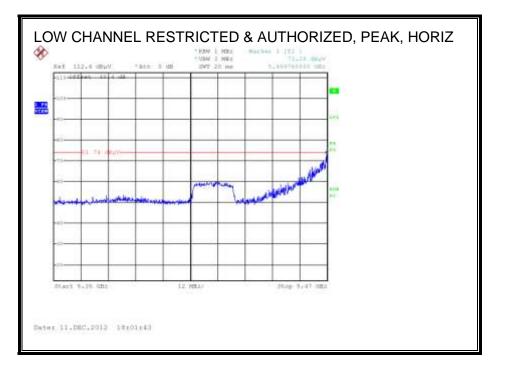
Complia			y Measurem Services, Fr		Im Ch	amber									
		runcanoa .	Services, 11	emour .	Mill Color	Juoer									
Compan			Breadcom												
Project / Date:	WI .		12U14669												
Cest Eng	gineer;		M. Mekuria D	Annery Vu											
onfigur			EUT, Adapter	r Board, A											
Mode:			11n HT20 3TX	mode											
lest Equ	ulpmen	t:				1.7				400					
Н	orn 1-	18GHz	Pre-ar	mplifer	1-260	SHz	Pre-am	plifer	26-40GH	z	Ho	orn > 180	Limit		
10.03555	S/N: 671	10/10/07	• T144 M	Miteq 30	08A009	31 -	T88 Mite	eq 26-	40GHz	• T39;	ARA 18-260	GHz; S/N:10	113	•	FCC 15.205 .
- Hi Freq	puency Cab	yes	1			1	a state of	100000	a market the second	1		1		1 1000	1968-1960-1997-1998-1998-1998-1998-1998-1998-1998
3' 0	able 2	2807700	12' c	able 2	28076	00	20' cal	ble 22	2807500		HPF	R	eject Filte		Measurements W=VBW=1MHz
3' ca	3' cable 22807700 • 12' cable 22807600 •		•	20' cable 22807500						001	Averas	ge Measurements MHz ; VBW=10Hz			
[ 1	Dist	Read Pk	Read Avg.	AF	CL	Ашр	D Corr	Fltr	Peak	Avg	Pk Lina	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBaV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
Low Char 11.000	mel (55)	10 MHz) 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	-11.5	-1.1	H, q86 V, q86
Mid Chan	-al (558)	(MHz)													0.5860
11.160	3.0	48.8	37.1	38.5	10.7	.38.6	0.0	0.0	62.4	50.7	74	54	11.6	-3.3	H, 985
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, 982
al free and the second		00 MHz)	1	Sec.			1		-	-		1			102000
	3.0	53.1	38.4	38.7	11.1	-35.6	0.0	0.0	67.4	52.7	74	54	-6.6	-13	H, q85
11.400			38.6	38.7	11.1	35.6	0.0	0.0	14.3	52.8	74	54	-59.7	-1.2	V, 985
11.400	370			Annual second se											
11.400 11.400															
11.400 11.400 Rev. 11.10		Measurem	ent Frequency	y.		Ашр	Preamp (	Jain		Tables 1		Avg Lim	Average F	ield Strength	ı Limit
11.400 11.400 Rev. 11.10	f Dist	Distance to	Antenna	Y		D Corr	Distance	Corre	ect to 3 mete			Pk Lim	Peak Field	Strength Li	mit
11.400 11.400 Rev. 11.10	f Dist Read	Distance to Analyzer R	o Antenna leading	Ÿ	1000	D Corr Avg	Distance Average	Corre Field S	Strength @	3 m		Pk Lim Avg Mar	Peak Field Margin vs	Strength Li Average Li	mit mit
11.400 11.400 Rev. 11.10	f Dist Read AF	Distance to	o Antenna leading actor	Y		D Corr	Distance Average	Corre Field S od Peal	Strength @ k Field Stre	3 m		Pk Lim	Peak Field Margin vs	Strength Li	mit mit

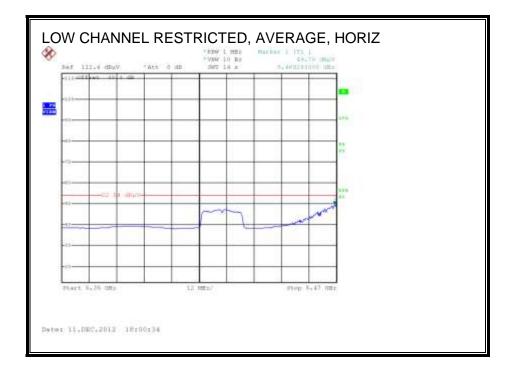
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### 9.2.19. TX ABOVE 1 GHz 802.11n HT20 BF 3TX MODE, 5.6 GHz BAND

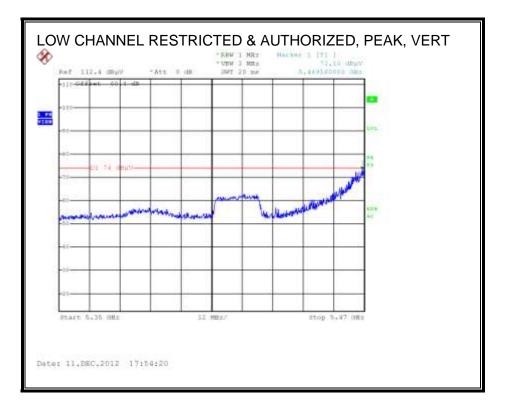
**RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)** 

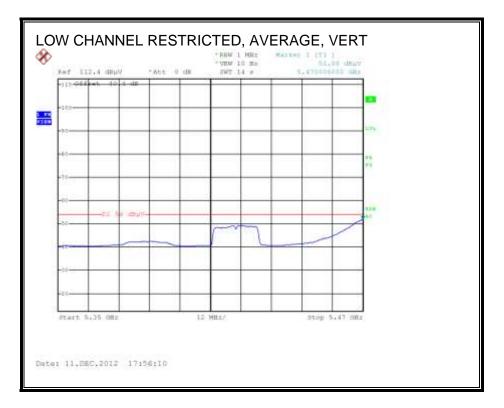




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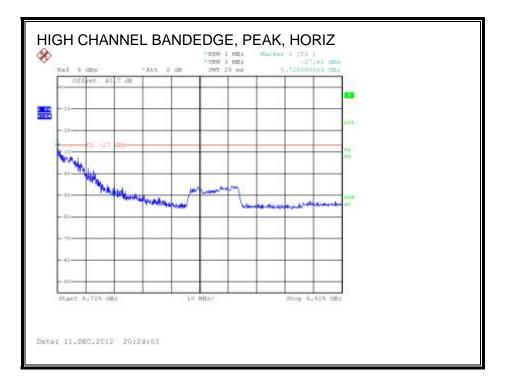


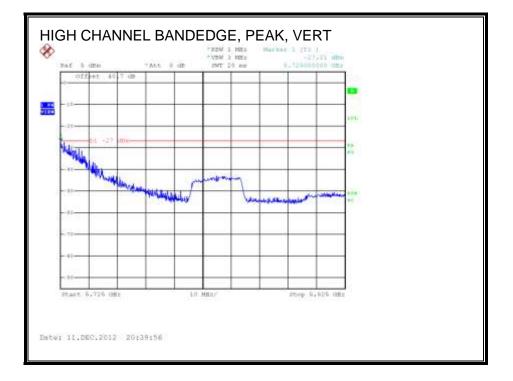


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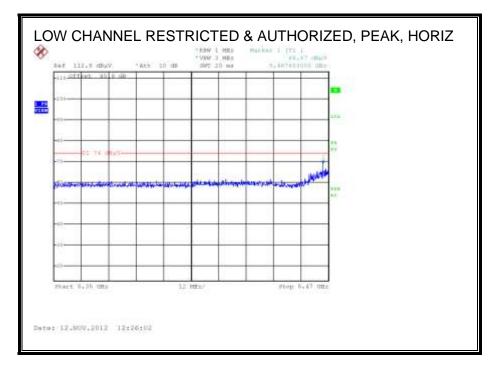
		Frequency													
omplia	ince Ce	rtification S	iervices, Fr	emont	3m Ch	amber									
Compan Project Date: Cest En Configu	#: gineer:		Broadcon 12U14669 12/12/2012 D. Garcia EUT, Adapter	Board, A	Lintenna										
Iode:			11n HT20 3TX	Beam F	oming	node									
est Eq	ulpmen	t:													
н	orn 1-	18GHz	Pre-ar	nplifer	1-260	GHz	Pre-am	plifer	26-40GH	z	Н	orn > 180	GHz		Limit
173; 5	S/N: 671	7 @3m	• T144 M	fiteq 30	08400	931 .	T88 Miteq 26-40GHz • 739				9; ARA 18-264	•	FCC 15.205		
3' cable 22807700		12' c	12' cable 22607600					2807500		HPF		Reject Filts		<u>w=VBW=1MHz</u>	
3 6	able 221	807700	12' ca	ible 228	07600	•	20° cab	le 228	07500			• R	001		ge Measurements 1MHz ; VBW=10Hz
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lina dBaV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
ow Char 1.000	anel (55)	0 MHz) 52.9	38.2	38.4	10.5	-35.6	0.0	0.0	66.1	51.4	74	54	-7.9	-1.6	H, q86
1.000	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
lid Chan	nel (558)	0 MHz)		-				-			-				
1.160	3.0	49.2	33.2	38.5	10.7	-35.6	0.0	0.0	62.8	46.8	74	54	31.2	-7.2	H 480
1.160	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, 980
	nnel (57	00 MHz)		(HSR)		1000	4.2		10.15	1.910-2-			1.595		
1.400 1.400	3.0	49,3	36.3 38.1	38.7 38.7	11.1	-35.6 -35.6	0.0	0.0	14.3 63.6	50.6 49,4	74	54 54	-59.7	-3.4 -4.6	H, q86 V, q86
lev. 11.10															
	f Dist Read AF CL	Measureme Distance to Analyzer Ra Antenna Fa Cable Loss	sading ctor	ŕ		Amp D Corr Avg Peak HPF	Average	Corre Field S d Peal	ct to 3 mete Strength @ k Field Stre	3 m		Pk Lim	Peak Fiel Margin vs	Field Strength d Strength Li & Average Li & Peak Limit	mit

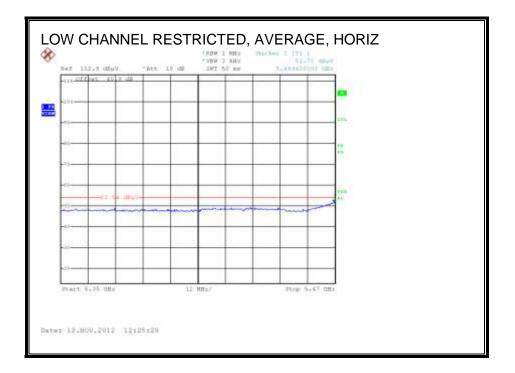
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### 9.2.20. TX ABOVE 1 GHz 802.11n HT40 1TX MODE, 5.6 GHz BAND

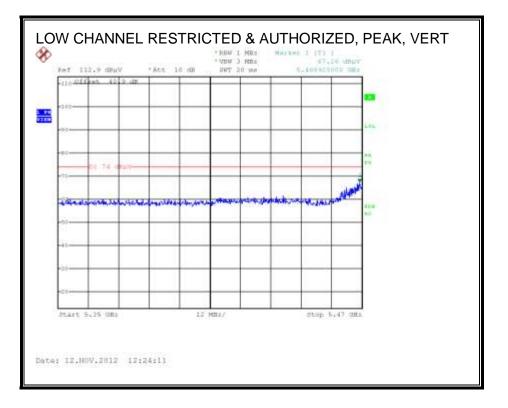
**RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)** 

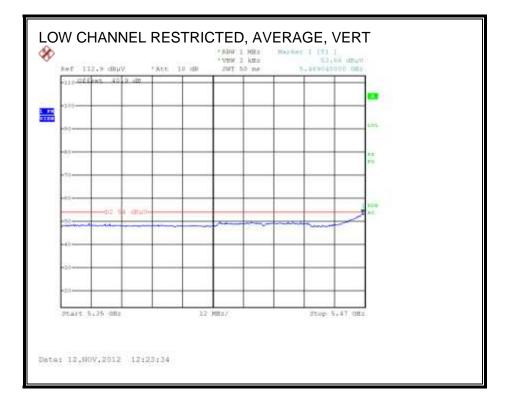




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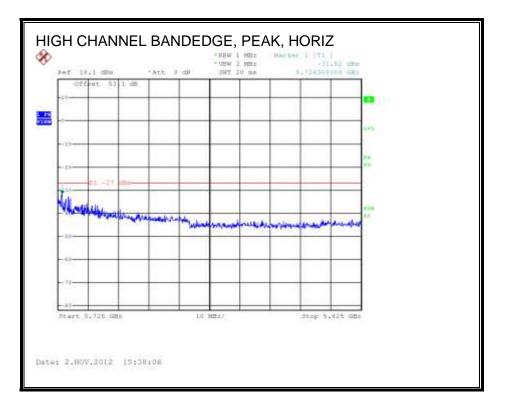
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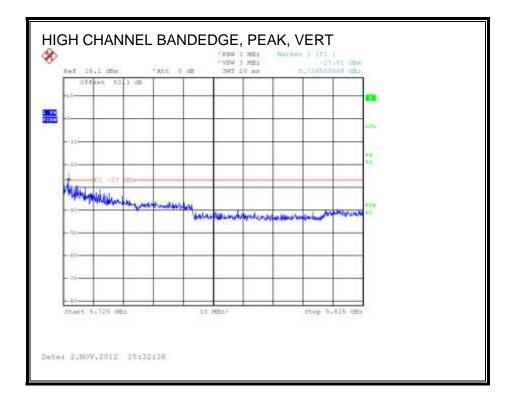




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#### AUTHORIZED BANDEDGE (HIGH CHANNEL)





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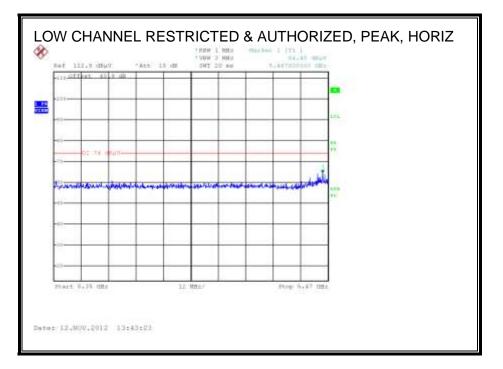
Covered by testing HT40 CDD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

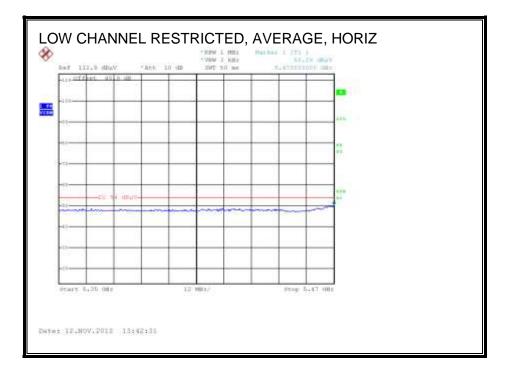
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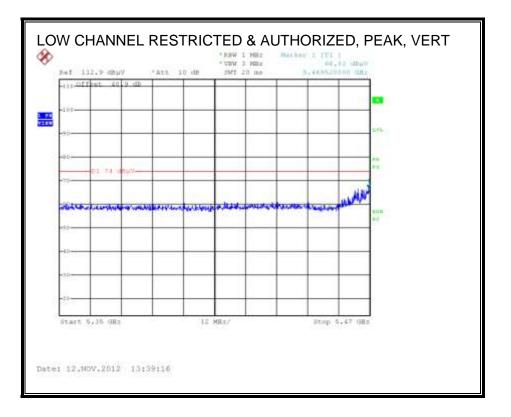
### 9.2.21. TX ABOVE 1 GHz 802.11n HT40 CDD 3TX MODE, 5.6 GHz BAND

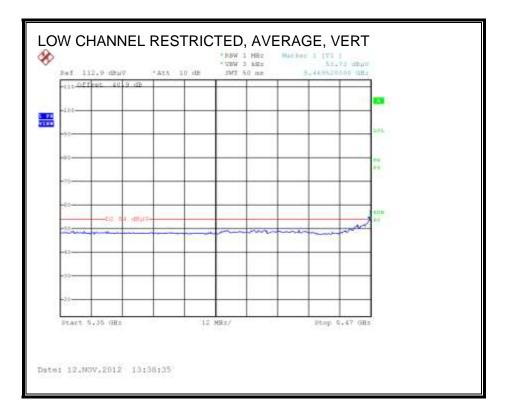
#### **RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)**





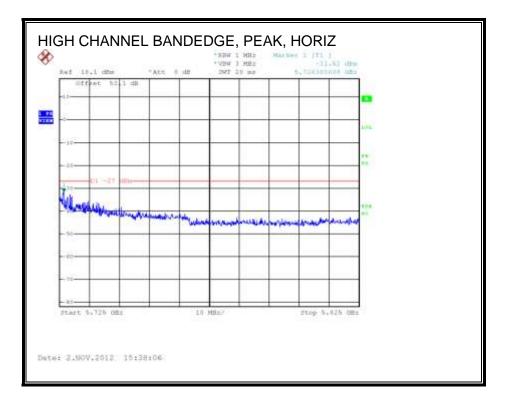
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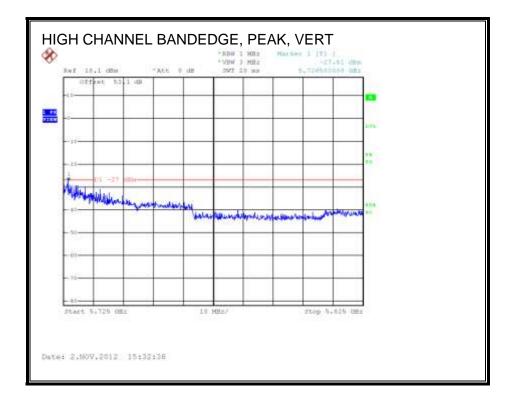




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### AUTHORIZED BANDEDGE (HIGH CHANNEL)





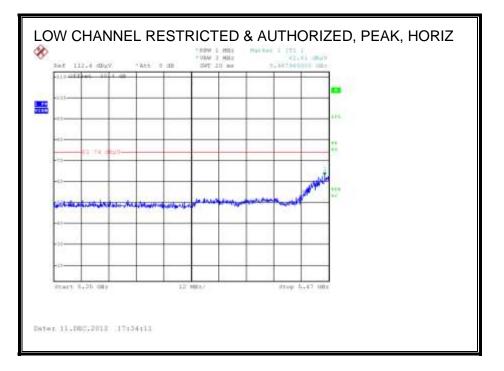
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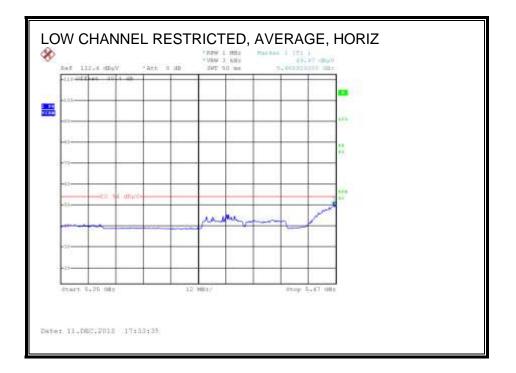
			Measurem		9 192	1255									
ompli	ance Co	rtification	Services, Fr	emont	3m Ch	amber									
Compa	IN:		Broadcon												
roject			12U14669												
Date:			12/7/2012												
	igineer.		M. Mekuna	8 . W.											
lode:	iration:		EUT, Adapter 11n HT40 3TX		ntenna										
Test Ec	ulpmen	t:													
H	lorn 1-	18GHz	Pre-ar	nplifer	1-260	GHz	Pre-am	plifer	26-40GH	z	Но	orn > 180	Limit		
173;	S/N: 671	7 @3m	- T144 I	Aiteq 30	08A00		T88 Miteq 26-40GHz T39: ARA 18-26				-26GHz; S/N:1013				
	quency Ca			22.2			-					Ĩ.		Beak	Measurements
3,	3' cable 22807700 12' cable 22807600 3' cable 22807700 12' cable 22807600			00	20' cable 22807500				HPF	Re	ject Filte		W=VBW=1MHz		
3 0	3' cable 22807700			•	20° cable 22807500				- R_001 -				ge Measurements 1MHz ; VBW=10Hz		
ſ	Dist	Read Pk	Read Avg.	AF	CL	Ашр	D Corr	Fltr	Peak	Avg	Pk Lina	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBaV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
Low Cha 1.020	annel (55)	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, q89
1.020	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
	unel (555														
1.100	3.0	47.8	36.1 37.9	38.5 38.5	10.6	35.6	0.0	0.0	61.3 62.7	49.5 51.4	74	54 54	-12.7	-4.5	H, 987 V, 987
		anoce.	31.9	36.5	10.0	-35/0	0.0	0.0	04.7	21.4	24	04	-11.5	-2.0	*.407
A	nnel (\$6		1. 10.00	Start's		1000		-	1000	Segmel 1		1	6.2	-	1992
	3.0	48.9	36.6	38.7 38.7	11.0	-35.6	0.0	0.0	63.0	50.7 51.7	74	54	-11.0	-3.3	H, q88 V, q88
1.340	3.0														
High Chi (1.340 (1.340 (1.340															
1.340 1.340		Measurem	ent Frequenc	y		Атр	Preamp (	Jain				Avg Lim	Average I	field Strength	s Limit
1.340	0.11 f Dist	Distance to	Antenna	y		0008-	Distance	Corre	ct to 3 mete			Pk Lim	Peak Fiel	d Strength Li	mit
1.340	0.11 f Dist Read	Distance to Analyzer R	Antenna eading	y		D Corr Avg	Distance Average	Corre Field S	Strength @	3 m		Pk Lim Avg Mar	Peak Fiel Margin vs	d Strength Li Average Li	mit mit
1.340	0.11 f Dist	Distance to	Autenna eading actor	Y		D Corr	Distance Average	Corre Field S d Peal	Strength @ k Field Stre	3 m		Pk Lim	Peak Fiel Margin vs	d Strength Li	mit mit

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### 9.2.22. TX ABOVE 1 GHz 802.11n HT40 BF 3TX MODE, 5.6 GHz BAND

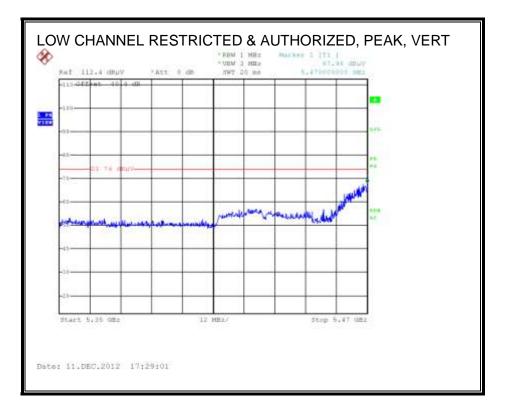
**RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)** 

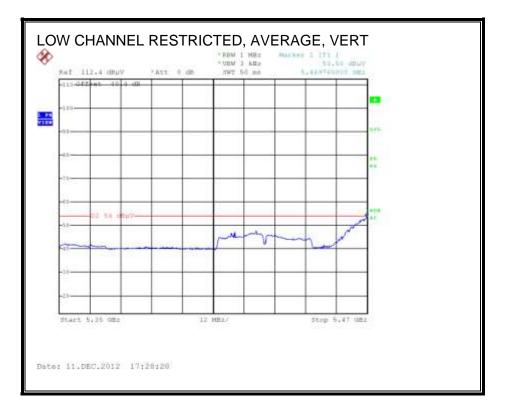




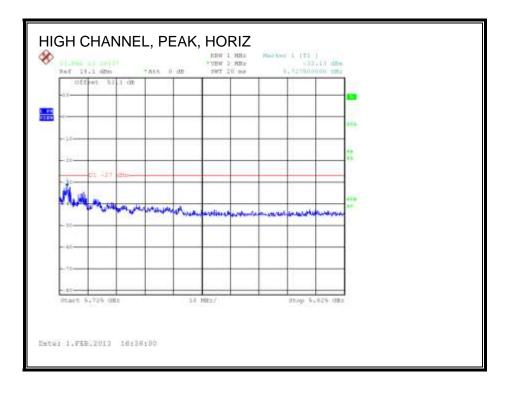
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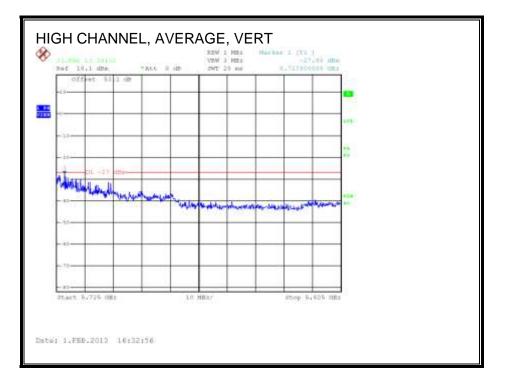
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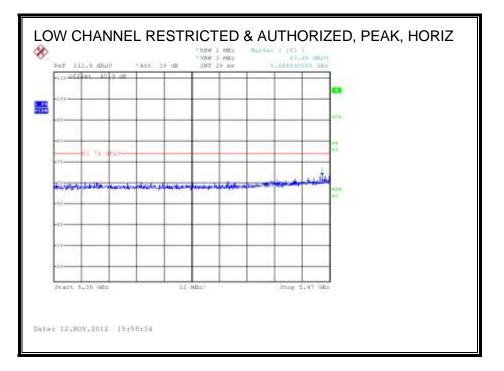
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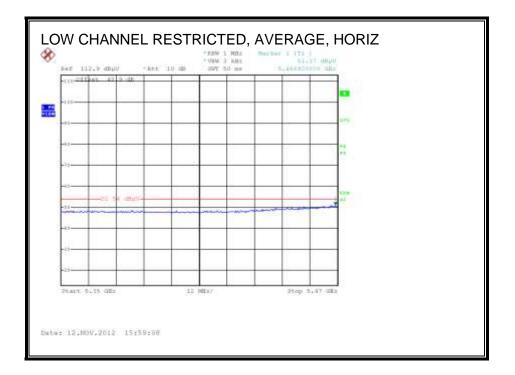
			Measurem			12									
ompli	ance Co	runcation	Services, Fr	emont.	Sm C.B	amber									
Compa			Breadcom												
roject	#:		12U14669												
Date: Fort Fr	igineer:		12/12/2012 D. Garcia												
	ration:		EUT, Adapter	Board, A	nienna										
Iode:	0.112.2.2.0		11n HT40 3TX												
lest Eq	uipmen	t:													
H	lorn 1-	18GHz	Pre-ar	nplifer	1-260	GHz	Pre-am	plifer	26-40GH	z	Н	Horn > 18GHz			
173;	S/N: 671	7 @3m	• T144 M	Aiteq 30	084009	131 .	T88 Miteq 26-40GHz T39; ARA 18-26				26GHz; S/N:1013 FCC 15:205				
- Hi Fre	quency Ca	bles	_			-	ateres			ā —		4		-	
3'	3' cable 22807700 12' cable 22807600				00	20' cable 22807500				HPF	Re	ject Filte		Measurements MHz ; VBW=3MHz	
3 0	3' cable 22807700			•	20' cable 22807500			Г	- R_001			Avera	ge Measurements MHz ; VBW=1.1kHz		
ſ	Dist	Read Pk	Read Avg.	AF	CL	Ашр	D Corr	Fltr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBaV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
Low Cha 1.020	annel (55) 3.0	10 MHz) 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, q89
1.020	3.0	32.3	40.1	38.4	10.5	35.6	0.0	0.0	45.6	53.4	74	54	-11.6	-0.6	V, q88
did Cha	mel (555	0 MHz)			-			-							
11.100	3.0	51.5	40.0	38.5	10.6	-38.6	0.0	0.0	65.0	\$3.4	74	54	.9.0	-0.6	V, 986
1.100	3.0	47.2	36.2	38.5	10.6	-35.6	0.0	0.0	60.7	49.7	74	54	-13.3	-43	H, q86
	anel (56			(HSR)	·	Lines	1.4.2	1.2.1	1046			1. 10.	6.72		40-0-20
1_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
1.340	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	II, q86
	0.11														
lev. 11.1	9.54						Preamp (	Gain				Ave Lim	Average I	Field Strength	Limit
lev. 11.1	1994	Measurem	ent Frequenc	v.		Amp									
lev. 11.1	f Dist	Measurem Distance to	ent Frequenc Antenna	Y		Amp D Corr		Corre	ct to 3 mete	15		Pk Lim	Peak Field	d Strength Li	mit
lev. 11.1	f Dist		Antenna	Y		12008-	Distance		ct to 3 mete Strength @					d Strength Li . Average Li	
lev. 11.1	f Dist	Distance to	Antenna eading	Y		D Corr	Distance Average	Field 1		3 m		Avg Mar	Margin vs		mit

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#### TX ABOVE 1 GHz 802.11n AC80 1TX MODE, 5.6 GHz BAND 9.2.23.

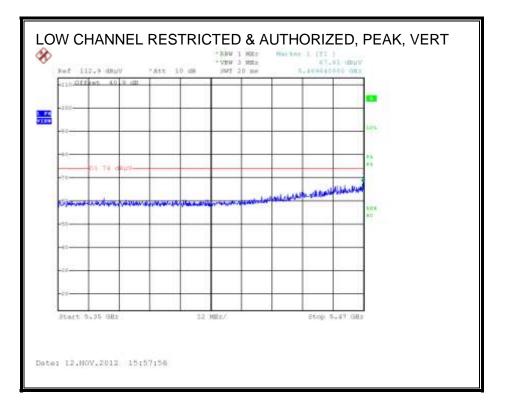
**RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)** 

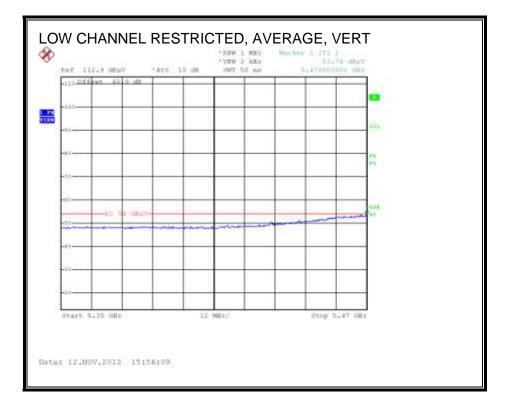




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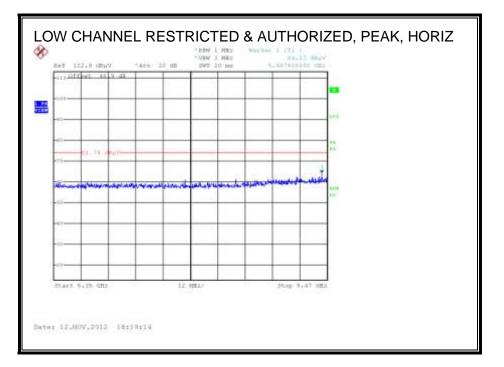
Covered by testing AC80 CDD MCS0 3TX at the same power level.

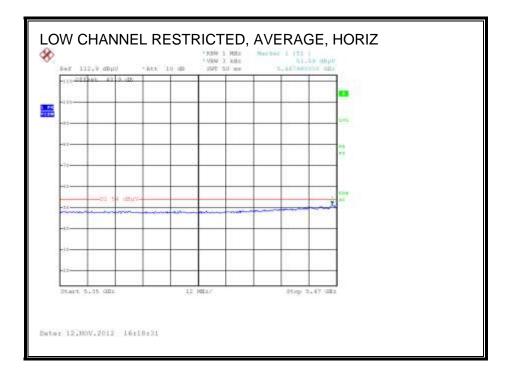
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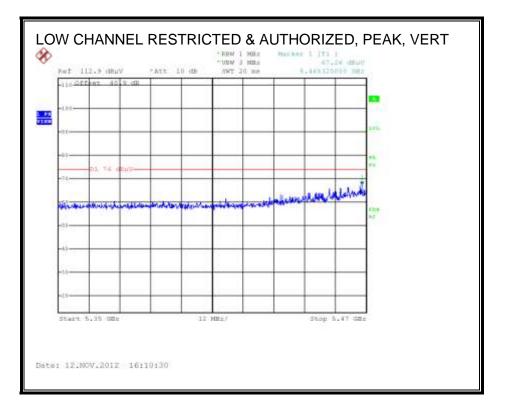
### 9.2.24. TX ABOVE 1 GHz 802.11n AC80 CDD 3TX MODE, 5.6 GHz BAND

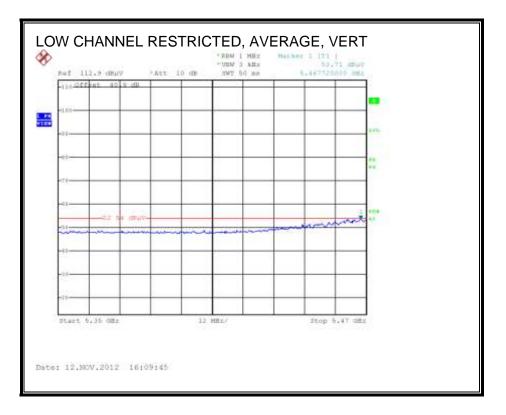
#### **RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)**





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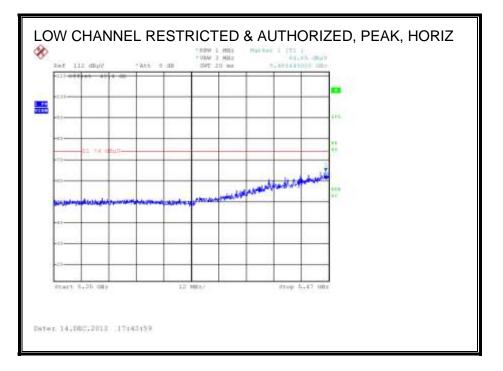
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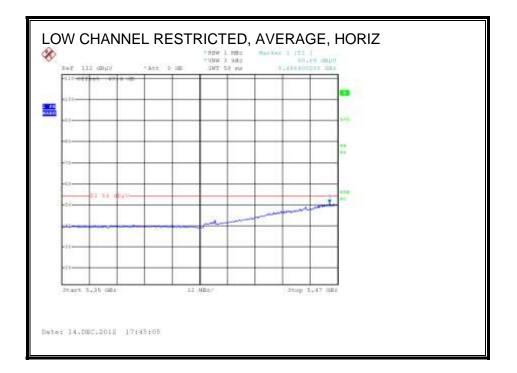
est Engineer onfiguration: Iode:		Beoadcom 12U14669 12/9/2012 M. Mekunta EUT, Adapter 11n HT80 3TN		atenna	eș									
est Equipme		1	nplifer				ata.	26-40GH		100	orn > 180		1	Limit
Horn 1	1000000	1005500	liteq 30			T88 Mit	-		0	ARA 18-260				FCC 15.205
	22807700	12' c	able 2	2807	500			2807500		HPF	R	eject Filte	RB	Measurements W=VBW=1MHz
3' cable 22	5957)1981 (1		ible 228	07600	•	20' cab	le 228	07500			312	_001	RBW=	ge Measurements 1MHz ; VBW=10Hz
f Dist GHz (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m		Avg Mar dB	Notes (V/H)
ow Channel (55	30 MHz) \$0.1	38.3	38.4	10.6	-35.6	0.0	0.0	63.5	\$1.7	74	54	-10.5	-23	H, 989
L060 3.0	52.5	39.7	38.4	10.6	-35.6	0.0	0.0	65.8	53.1	74	54	-8.2	0.9	V, q89
igh Channel (50														
L380 3.0 L380 3.0	50.8	38.1 37.0	38.7 38.7	11.0	-35.6	0.0	0.0	65.0 64.0	52.3 51.2	74	54	-9.0	-1.7	H, q90 V, q90
f Dist Read AF	Distance to	eading. actor	ti.		Amp D Corr Avg Peak	Average	Corre Field S of Peal	ct to 3 mete Strength @ k Field Stre	3 m		Pk Lim Avg Mar	Peak Fiel Margin vs	Field Strength d Strength Li Average Li Peak Limit	mit mit
						4204244		2						

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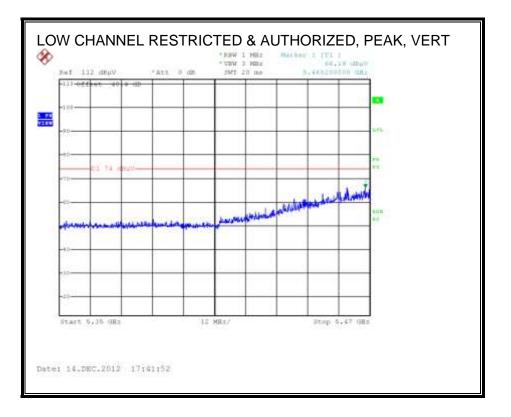
### 9.2.25. TX ABOVE 1 GHz 802.11n AC80 BF 3TX MODE, 5.6 GHz BAND

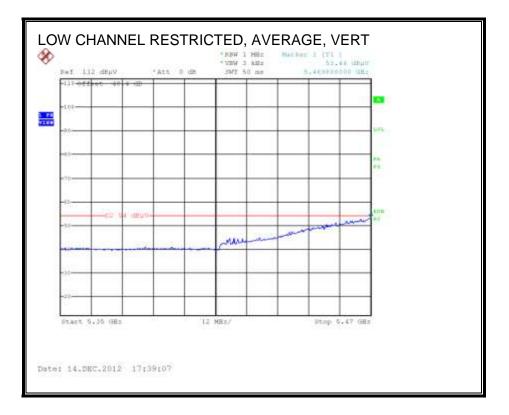
**RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)** 





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			Measuren Services, Fr		3m Ch	amber									
Company Project # Date: Cest Eng Configura Mode:	i: pineer:		Broadcon 12U14669 12/13/2012 M. Mekuna EUT, Adapter 11n HT39 BF												
fest Equ		-	1					-		ř.				13	8 tools
Ho 173; 5/		18GHz	PLUS	mplifer Niteg 30	0.000.5		Pre-am	S. 1. 1	26-40GH	8	Ho ARA 18-260	rn > 18G	2011 C		Limit FCC 15.205
T H Prequ		1222.07		nited 20	GUHDO		100 800	ed say	wonte.	1			Т.		1
	3' cable 22807700 12' cable 22807		500	20' cable 22807500				HPF	Reject Filter			Peak Measurements RBW=VBW=1MHz			
3' cat	3' cable 22807700		07600	-	• 20' cable 22807500 •				- R_001		001		ge Measurements 1MHz ; VBW=10Hz		
f GH2	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBaV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Chang 1.060	nel (553		34.7	38.4	10.6	.35.6	0.0	0.0	62.4	48.1	74	54	-11.6	-5.9	H, q88
1.060	3.0 3.0	53.1	38.3	38.4	10.6	-35.6	0.0	0.0	66.4	48.1 51.7	74	54	-7.6	-2.3	H, 988 V, 988
ligh Chan	mel (569	0 MHz)													
1.380	3.0	53.2 52.6	35.8 38.1	38.7 38.7	11.0	-35.6 -35.6	0.0	0.0 0.0	67.4 66.8	50.0 52.3	74	54 54	-6.6	-4.0	H, q90 V, q90
1	Dist Read AF	Measureme Distance to Analyzer Ro Antenna Fa Cable Loss	eading ctor	7		Amp D Corr Avg Peak HPF	Average	Corre Field S d Peal	ct to 3 mete Strength @ c Field Stre	3 m		Pk Lim Avg Mar	Peak Fiel Margin vs	field Strengt I Strength Li Average Li Peak Limit	mit mit

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### 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 3	0 - 1000MI	lz	-						
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	РК	-27.4	9.4	28.58	40	-11.42	100	Vert
66.249	46.38	РК	-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

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## **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".

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### 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	Client			
		(without DFS)	(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-ServiceMonitoring

Maximum Transmit Power	Value
	(see note)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 dBm
Note 1: This is the level at the input of the receiver as Note 2: Throughout these test procedures an addition of the test transmission waveforms to account for vari will ensure that the test signal is at or above the detect response.	al 1 dB has been added to the amplitude ations in measurement equipment. This

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### Table 4: DFS Response requirement values

Parameter	Value
Non-occupancy period	30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds
Channel Closing Transmission Time	200 milliseconds +
	approx. 60 milliseconds
	over remaining 10 second
	period

The instant that the *Channel Move Time* and the *Channel Closing Transmission Time* begins is as follows:

For the Short pulse radar Test Signals this instant is the end of the Burst.

For the Frequency Hopping radar Test Signal, this instant is the end of the last radar burst generated.

For the Long Pulse radar Test Signal this instant is the end of the 12 second period defining the radar transmission.

The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate channel changes (an aggregate of approximately 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

### Table 5 – Short Pulse Radar Test Waveforms

Radar	Pulse Width	PRI	Pulses	Minimum	Minimum
Туре	(Microseconds)	(Microseconds)		Percentage of	Trials
				Successful	
				Detection	
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 (I	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

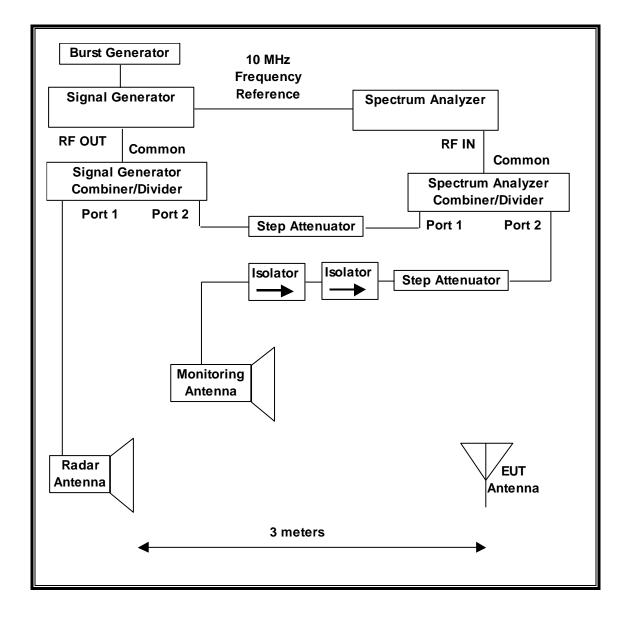
### Table 7 – Frequency Hopping Radar Test Signal

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

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### 10.1.2. TEST AND MEASUREMENT SYSTEM

#### RADIATED METHOD SYSTEM BLOCK DIAGRAM



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### 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 runtime.

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.

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### 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

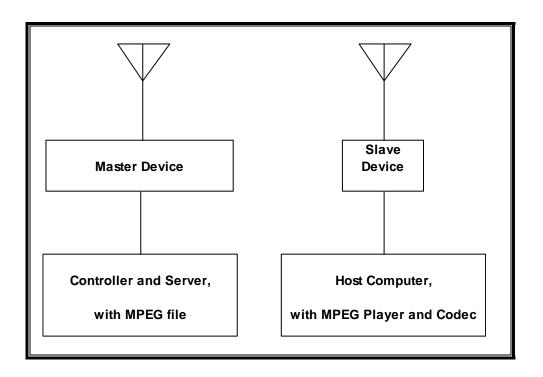
The following test and measurement equipment was utilized for the DFS tests documented in this report:

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				

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# 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	r 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			

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# 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.

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### 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.

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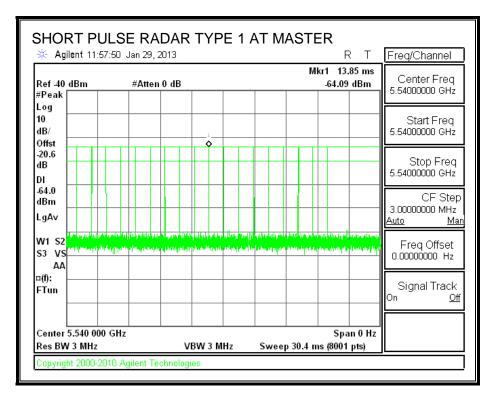
# 10.2. RESULTS FOR 20 MHz BANDWIDTH

### 10.2.1. TEST CHANNEL

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

# 10.2.2. RADAR WAVEFORM AND TRAFFIC

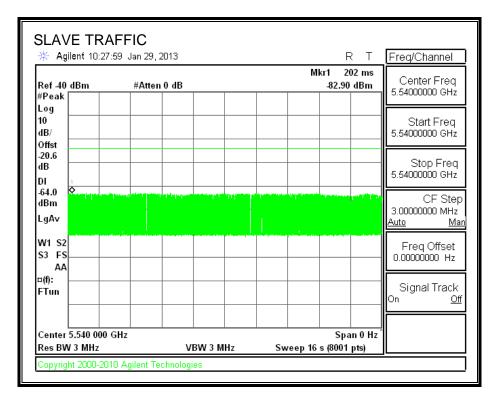
### RADAR WAVEFORM



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#### TRAFFIC



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## 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).

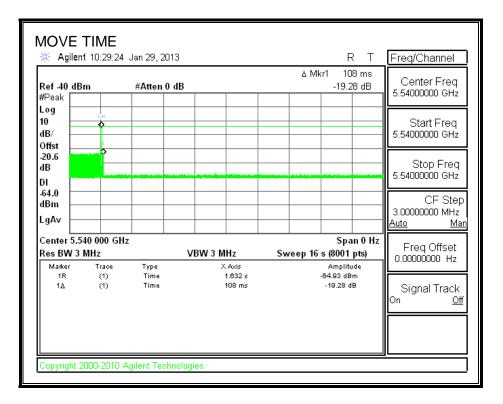
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

### RESULTS

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

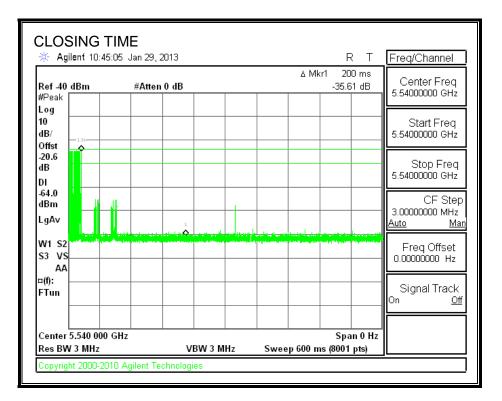
Agency	Aggregate Channel Closing Transmission Time	Limit
	(msec)	(msec)
FCC	0.0	60
IC	40.0	260

#### MOVE TIME



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#### **CHANNEL CLOSING TIME**

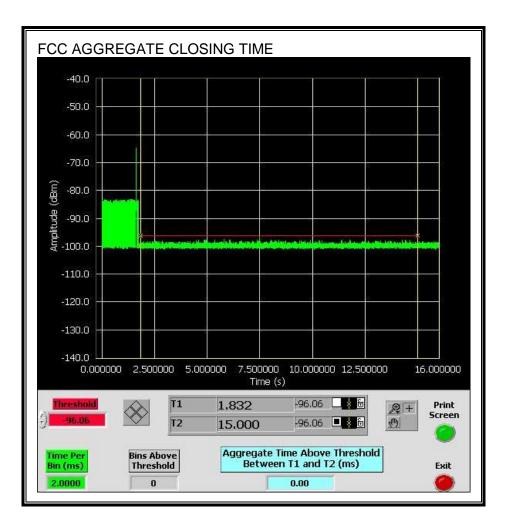


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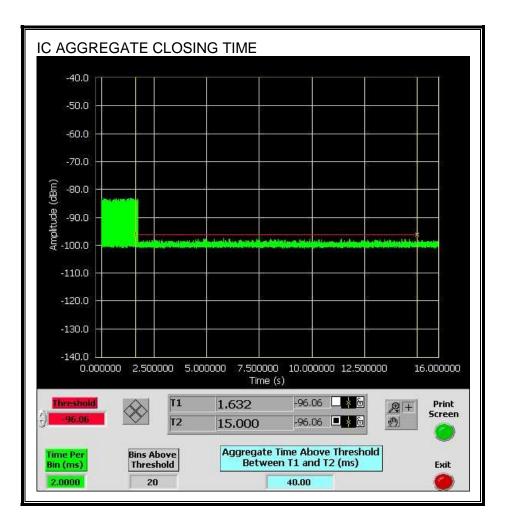
#### AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the FCC aggregate monitoring period.



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



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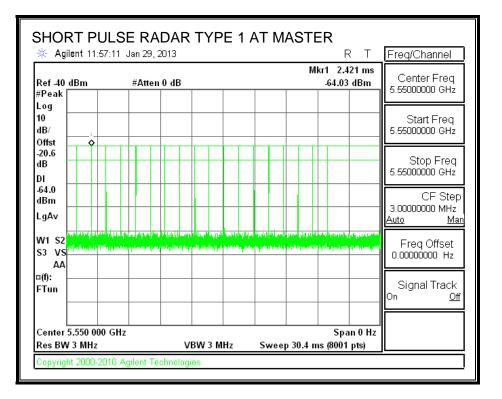
# 10.3. RESULTS FOR 40 MHz BANDWIDTH

### 10.3.1. TEST CHANNEL

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

# 10.3.2. RADAR WAVEFORM AND TRAFFIC

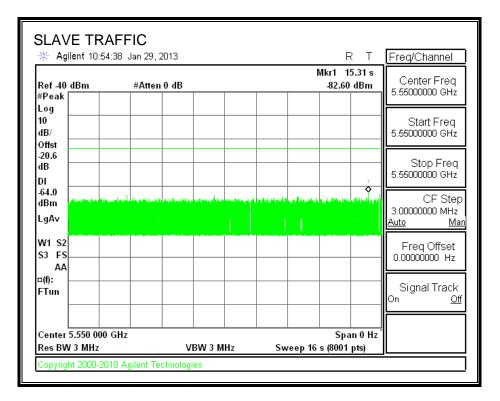
### RADAR WAVEFORM



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#### TRAFFIC



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## 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).

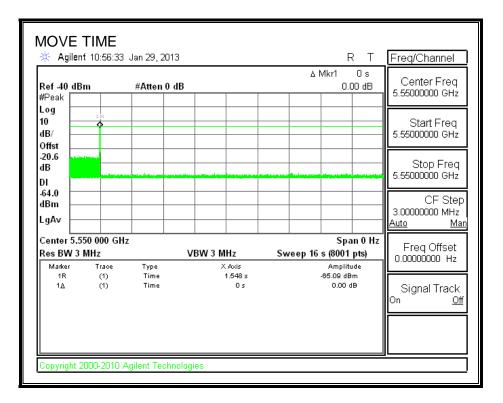
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

### RESULTS

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

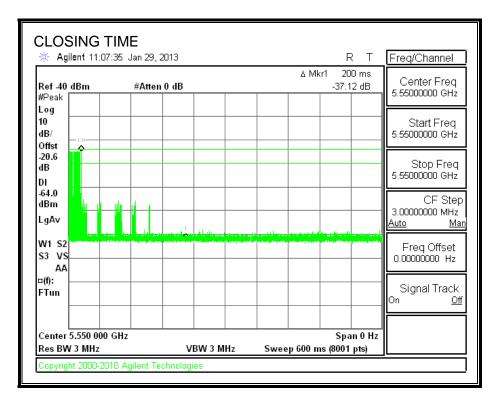
Agency	Aggregate Channel Closing Transmission Time	Limit
	(msec)	(msec)
FCC	0.0	60
IC	0.0	260

#### MOVE TIME



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#### **CHANNEL CLOSING TIME**

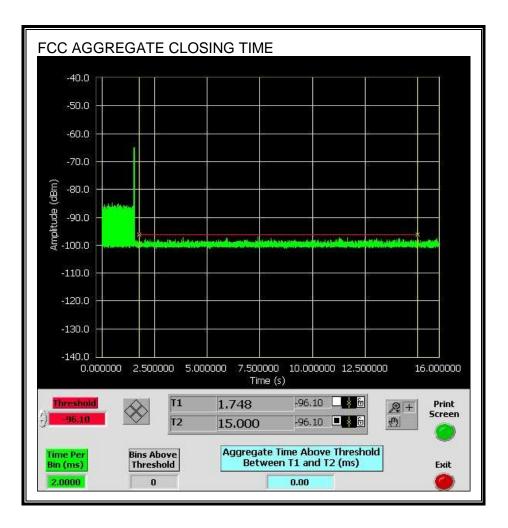


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#### AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

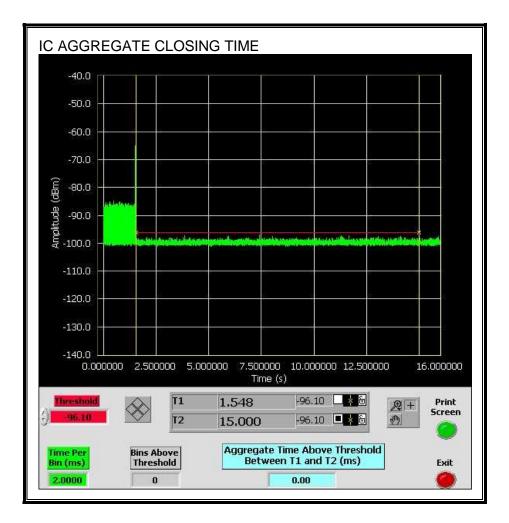
No transmissions are observed during the FCC aggregate monitoring period.



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No transmissions are observed during the IC aggregate monitoring period.



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# 10.3.5. NON-OCCUPANCY PERIOD

### **RESULTS**

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

Agilent 11:54			Δ.Ν	R T 1kr1 1.8 ks	Freq/Channel
Ref -40 dBm #Peak	#Atten 0 dB			-33.42 dB	Center Freq 5.55000000 GHz
Log 10 dB/ Dffst					Start Freq 5.5500000 GHz
20.6 dB DI					Stop Freq 5.5500000 GHz
64.0 dBm LgAv				1	CF Step 3.00000000 MHz <u>Auto Ma</u>
W1 S2 S3 FS AA					Freq Offset 0.00000000 Hz
a(f): FTun					Signal Track On <u>Of</u>
Center 5.550 000 Res BW 3 MHz		/BW 3 MHz	Sween 21	Span 0 Hz î (s (8001 pts)	

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# 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.

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#### **RESULTS**

#### **<u>6 WORST EMISSIONS</u>**

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

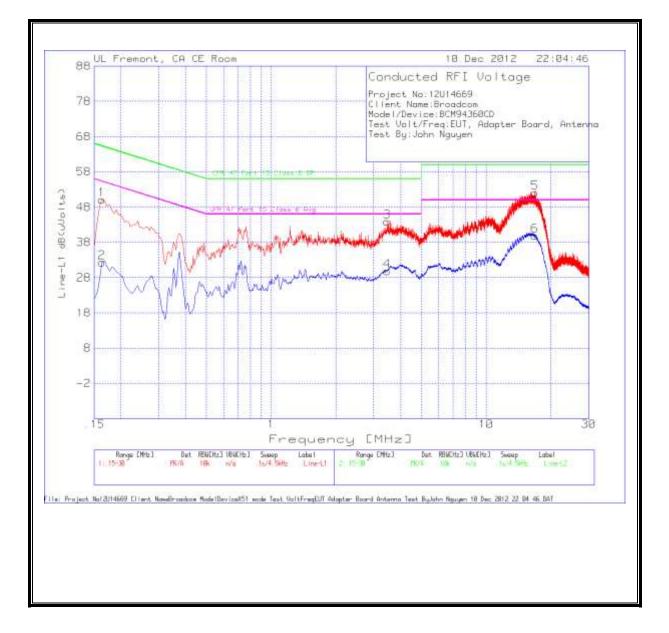
			T24 IL	LC Cables		CFR 47 Part 15		CFR 47 Part 15	
Test	Meter		L1.TXT	1&3.TXT		Class B		Class B	
Frequency	Reading	Detector	(dB)	(dB)	dB(uVolts)	QP	Margin	Avg	Margin
Line-L1 .15	- 30MHz								
0.1635	49.99	РК	0.1	0	50.09	65.3	-15.21	-	-
0.1635	32.23	Av	0.1	0	32.33	-	-	55.3	-22.97
3.579	43.91	РК	0.2	0.1	44.21	56	-11.79	-	-
3.579	30.95	Av	0.2	0.1	31.25	-	-	46	-14.75
16.9935	50.75	РК	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	РК	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	РК	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	РК	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

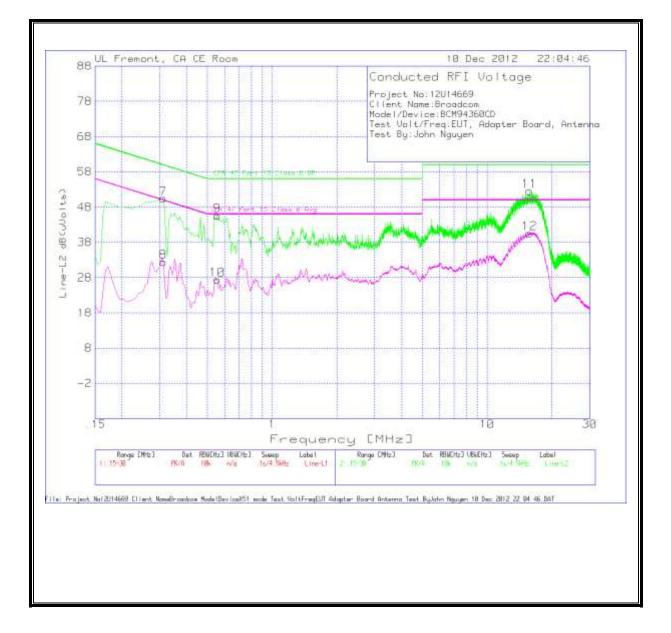
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### LINE 1 RESULTS



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### LINE 2 RESULTS



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