FCC CFR47 PART 15 SUBPART E
INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

802.11a/b/g/n/ac WLAN + Bluetooth PCI-E Mini Card

MODEL NUMBER: BCM94352HMB

FCC ID: QDS-BRCM1068
IC: 4324A-BRCM1068

REPORT NUMBER: 12U14473-2, Revision E

ISSUE DATE: OCTOBER 15, 2012

Prepared for

BROADCOM CORPORATION
190 MATHILDA PLACE
SUNNYVALE, CA 94086, U.S.A.

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	09/04/12	Initial Issue	F. Ibrahim
A	09/07/12	Revised the report to include 99% BW in the calculation of limits to cover IC aspect	F. Ibrahim
B	09/13/12	Revised sections 5.2, 5.5, 7.1, 7.3, 8.2, 8.15 and 8.18 Added an explanation for analyzer offset on the BE plots on high end for 5.6 GHz band. Removed AC80 data and plots for UNII 5.25-5.35 and 5.5-5.7 GHz bands. Revised sections 8.15 and 8.18 Revised sections 9.2.15 and 9.2.18	F. Ibrahim
C	09/19/12	Revised section 5.2	F. Ibrahim
D	09/21/12	Revised sections 8.2.3, 8.5.3, 8.8.3, 8.15.3, and 8.18.3	F. Ibrahim
E	10/15/12	Revised sections 8.14, 8.15, 8.17 and 8.18	F. Ibrahim

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: BROADCOM CORPORATION
190 MATHILDA PLACE
SUNNYVALE, CA 94086, U.S.A.

EUT DESCRIPTION: 802.11a/b/g/n/ac WLAN + Bluetooth PCI-E Mini Card

MODEL: BCM94352HMB

SERIAL NUMBER: 265 (P238)

DATE TESTED: July 01 - September 04, 2012

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E	Pass
INDUSTRY CANADA RSS-210 Issue 8 Annex 9	Pass
INDUSTRY CANADA RSS-GEN Issue 3	Pass

UL CCS tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL CCS By:

FRANK IBRAHIM
WiSE PROJECT LEADER
UL CCS

Tested By:

VIEN TRAN
WiSE ENGINEER
UL CCS

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 06-96, FCC KDB 789033, ANSI C63.10-2003, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.11a/b/g/n/ac WLAN + Bluetooth PCI-E Mini Card.

The radio module is manufactured by Broadcom.

5.2. MAXIMUM OUTPUT POWER

5.2 GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.2 GHz band, 1TX			
5180 - 5240	802.11a	14.141	25.948
5180 - 5240	802.11n HT20	Covered by testing to 802.11a	
5190 - 5230	802.11n HT40	16.658	46.323
5210	802.11n HT80 CDD MCS0	Covered by testing to HT80 CDD MCS0 2TX	
5.2 GHz band, 2TX			
5180 - 5240	802.11n HT20 CDD MCS0	12.942	19.688
5180 - 5240	802.11n HT20 STBC MCS0	15.307	33.939
5290 - 5230	802.11n HT40 CDD MCS0	14.276	26.767
5290 - 5230	802.11n HT40 STBC MCS0	16.776	47.599
5210	802.11n HT80 CDD MCS0	14.212	26.375

5.3 GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.3 GHz band, 1TX			
5260 - 5320	802.11a	20.751	118.878
5260 - 5320	802.11n HT20	Covered by testing to 802.11a	
5270 - 5310	802.11n HT40	Covered by testing to HT40 CDD MCS0 2TX	
5.3 GHz band, 2TX			
5260 - 5320	802.11n HT20 CDD MCS0	19.703	93.390
5270 - 5310	802.11n HT40 CDD MCS0	21.029	126.736

5.6 GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.6 GHz band, 1TX			
5500-5700	802.11a	19.462	88.349
5500-5700	802.11n HT20	Covered by testing to 802.11a	
5510-5670	802.11n HT40 CDD MCS0	Covered by testing to HT40 CDD MCS0 2TX	
5.6 GHz band, 2TX			
5500-5700	802.11n HT20 CDD MCS0	21.140	130.017
5510-5670	802.11n HT40 CDD MCS0	22.335	171.199
5720	802.11n HT20 CDD MCS0	17.900	61.660
5710	802.11n HT40 CDD MCS0	19.002	79.469

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

BCM94352HMB FCC ID: QDS-BRCM1068					
Antenna Type	Model	Peak gain (dBi) @ 2400-2483.5MHz	Peak gain (dBi @ 5150-5350MHz	Peak gain (dBi @ 5470-5725MHz	Peak gain (dBi @ 5725 -5850MHz
802.11bgn WLAN, Bluetooth Antenna	HMT05/HFT17-DL07	3.9 (Main / Aux)	5.6 (Main / Aux)	4.2 (Main / Aux)	5.8dBi (Main / Aux)

5.4. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was Broadcom, rev. 6.30.0.0.
The test utility software used during testing was BCM Internal, rev. 6.30.RC307.1166.

5.5. WORST-CASE CONFIGURATION AND MODE

The EUT was tested as an external module installed in a test jig board connected to a host Laptop PC. The EUT was oriented in a flat orientation, similar to the orientation it would have in real installations; see setup photos for details.

Worst-Case data rates, as provided by the client, were as follows:

All final tests in the 802.11a Legacy mode were made at 6 Mb/s.
All final tests in the 802.11n 20 MHz CDD & STBC modes were made at MCS0.
All final tests in the 802.11n 40 MHz CDD & STBC modes were made at MCS0.

Worst-case mode and channel used for 30-1000 MHz radiated and power line conducted emissions was the mode and channel with the highest output power.

For Radiated Band Edge measurements preliminary testing showed that the worst case was horizontal polarization, so final measurements were performed with horizontal polarization.

All legacy modes were measured with the highest gain for each type of antenna.

All MIMO modes were measured with the highest combination of gains for each type of antenna. Note that this combination of antennas will not be implemented in the end product. This combination was selected for testing purposes only, to accommodate the highest gain of each antenna type in one single test configuration. The combined gain of this test configuration is higher than any combined gain that will be implemented in the end product.

For all modes with single chain SISO, 1TX, Chain 2 (J0) was used for both 2.4GHz and 5GHz bands as worst case.

Radiated testing with two antennas connected was conducted and passed; therefore, no conducted RF spurious testing was performed.

For 5.3 and 5.6 GHz bands, 99% BW was used to calculate the limit as worst-case BW since the 99% BW is less than the 26 dB BW.

For 802.11n HT20 CDD 2TX mode in in the 5 GHz bands, the output power for each chain used for the testing purpose was equal to the output power on single chain for 802.11n HT20 1TX mode; therefore, 802.11n HT20 CDD 2TX mode covers 802.11n HT20 1TX mode as worst-case scenario.

For 802.11n HT40 CDD 2TX mode in the 5 GHz bands, the output power for each chain used for the testing purpose was equal to the output power on single chain for 802.11n HT40 1TX mode; therefore, 802.11n HT40 CDD 2TX mode covers 802.11n HT40 1TX mode as worst-case scenario.

Due to the power limitation in the 5150-5250 for 2TX, HT40 SISO in the 5150 – 5250 MHz was tested to maximize power and for the rest of the channels HT40 CDD 2TX was used to cover the HT40 SISO channels.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Lenovo	G560	CBU4473193	DoC
AC/DC Adapter	Lenovo	PA-1650-56LC	11S36001646ZZ400008KCM8	DoC
Jig Board	Catalyst	MINI2EXP	BRCM 2011-05	N/A

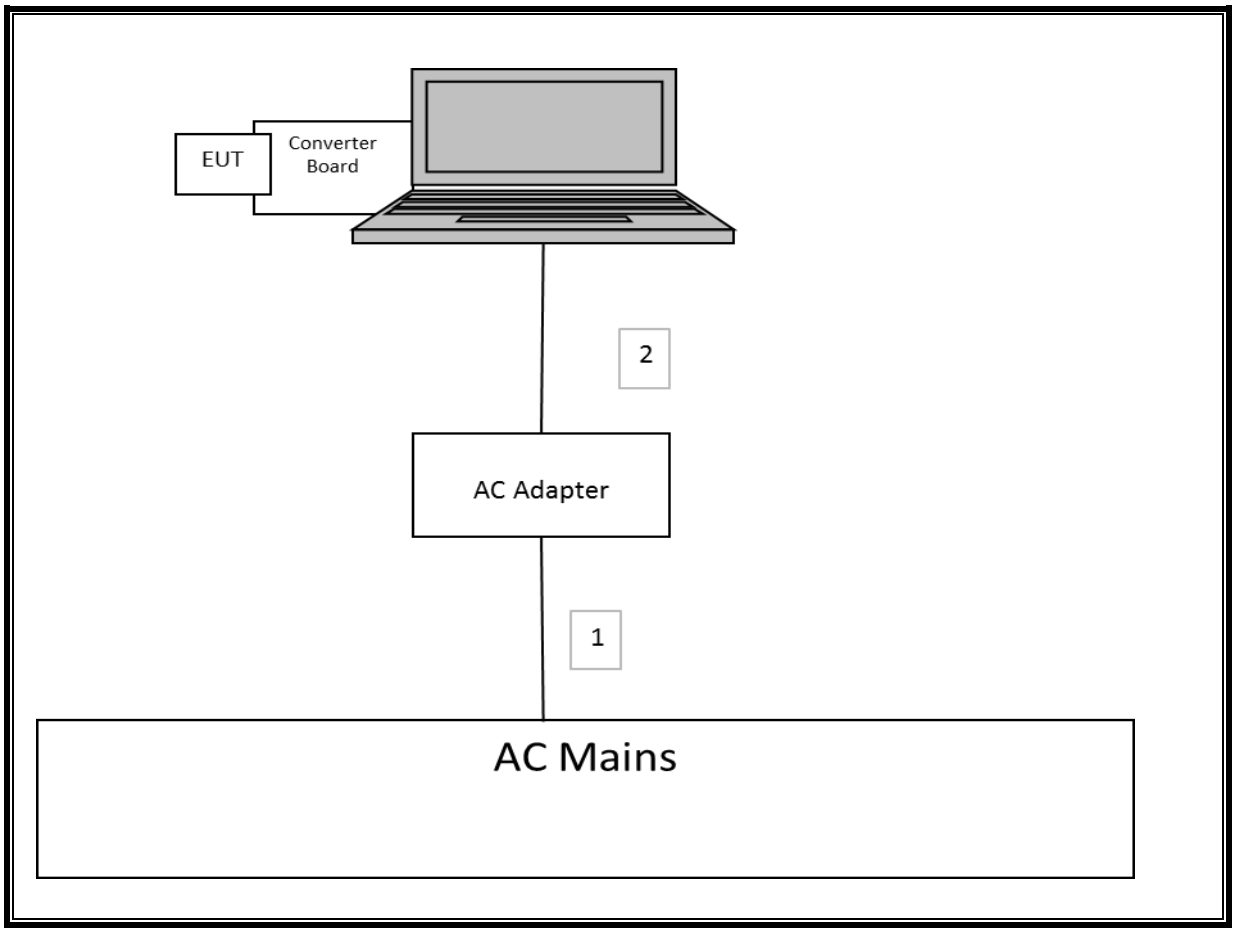
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US 115V	Shielded	1.5m	NA
2	DC	1	DC	Un-shielded	1.5m	Ferrite at laptop's end

TEST SETUP

The EUT is attached to a jig board which is installed in the PCMCI slot of a host laptop computer during the tests. Test software exercised the radio card.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List					
Description	**Manufacturer**	**Model**	**Asset**	**Cal Date**	**Cal Due**
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/15/11	12/15/12
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	09/02/11	09/02/12
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	07/13/12	07/06/13
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/19/11	08/19/13
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/11	12/13/12
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/11	12/13/12
Antenna, Horn, 18 GHz	EMCO	3115	C00872	09/20/11	09/20/12
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00589	11/01/11	11/01/12
Antenna, Horn, 40 GHz	ARA	MWH-2640/B	C00981	06/14/12	06/14/13
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	C00682	02/07/12	02/07/13
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	11/11/11	11/11/12
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	07/12/12	07/12/13
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	C00990	08/02/11	08/02/13
LISN, 30 MHz	FCC	50/250-25-2	C00626	12/13/11	12/13/12
Reject Filter, 2.4-2.5 GHz	Micro-Tronics	BRC13192	N02683	CNR	CNR
Reject Filter, 5.15-5.35 GHz	Micro-Tronics	BRC13190	N02680	CNR	CNR
Reject Filter, 5.47-5.725 GHz	Micro-Tronics	BRC13191	N02678	CNR	CNR
Reject Filter, 5.725-5.825 GHz	Micro-Tronics	BRC13192	N02676	CNR	CNR

7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.1. ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Minimum VBW (kHz)
5GHz						
802.11a 20 MHz	2.070	2.085	0.993	99.3%	0.03	0.010
802.11n HT20 CDD	11.53	11.67	0.988	98.8%	0.05	0.010
802.11n HT20 STBC	1.935	1.950	0.992	99.2%	0.03	0.010
802.11n HT40 CDD	0.946	0.963	0.982	98.2%	0.08	0.010
802.11n HT40 STBC	0.953	0.970	0.982	98.2%	0.08	0.010
802.11n HT80 CDD	0.465	0.480	0.969	96.9%	0.14	2.151

7.2. MEASUREMENT METHOD FOR POWER AND PPSD

When Duty Cycle is greater than or equal to 98%, KDB 789033 Method SA-1 is used.

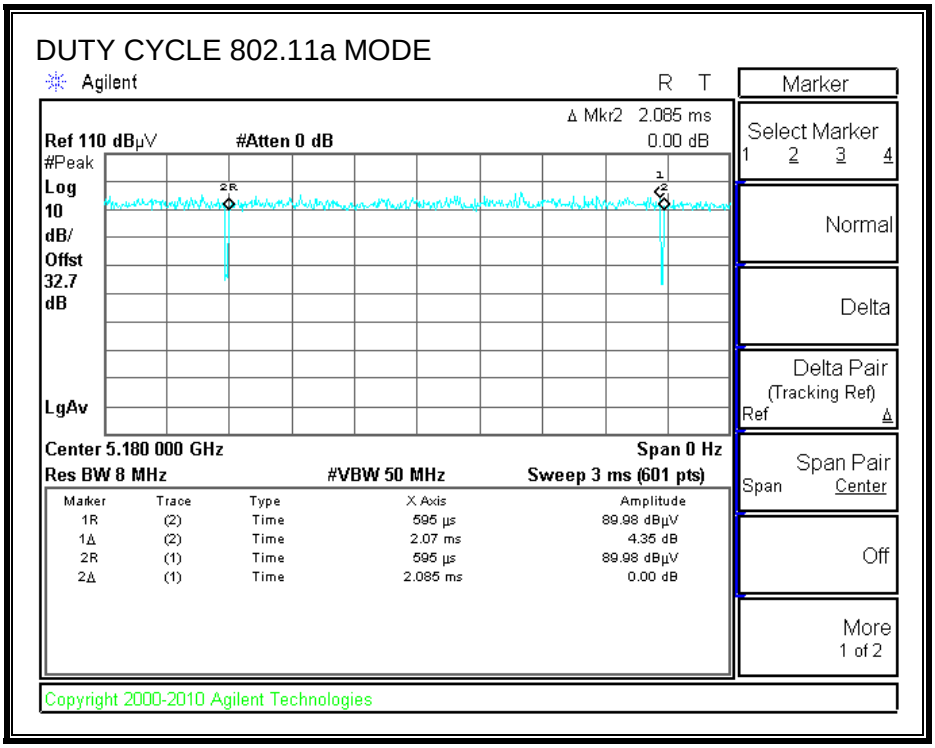
When Duty Cycle is less than 98% and consistent, KDB 789033 Method SA-2 is used.

7.3. MEASUREMENT METHOD FOR AVG SPURIOUS EMISSIONS ABOVE 1 GHz

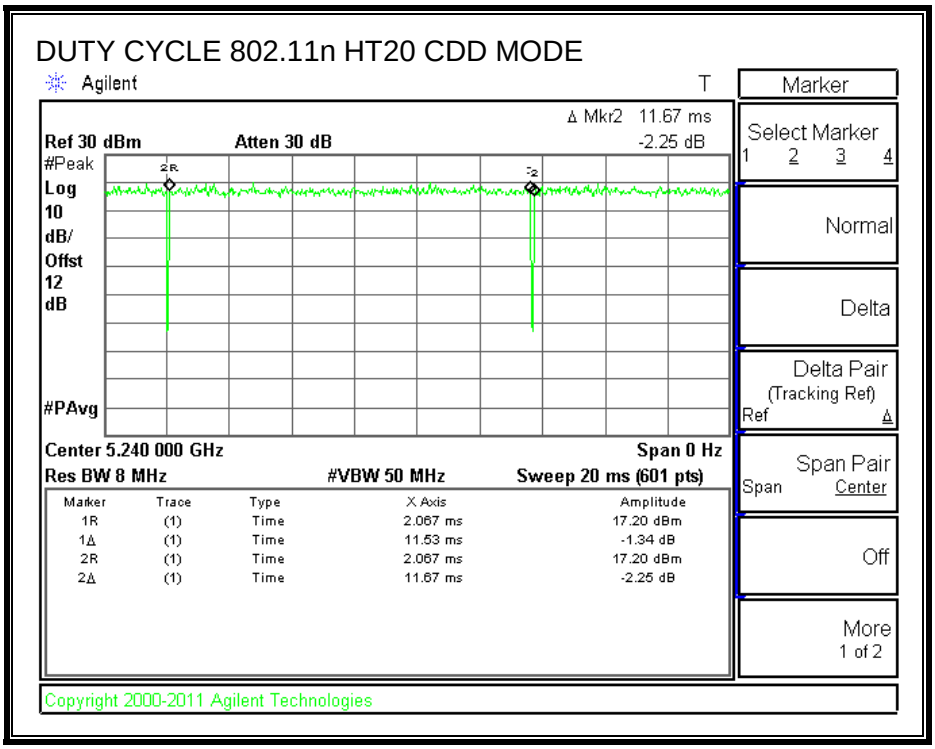
KDB 789033 Method VB Averaging is used for both cases of duty cycle greater than 98% and less than 98%.

7.4. DUTY CYCLE PLOTS

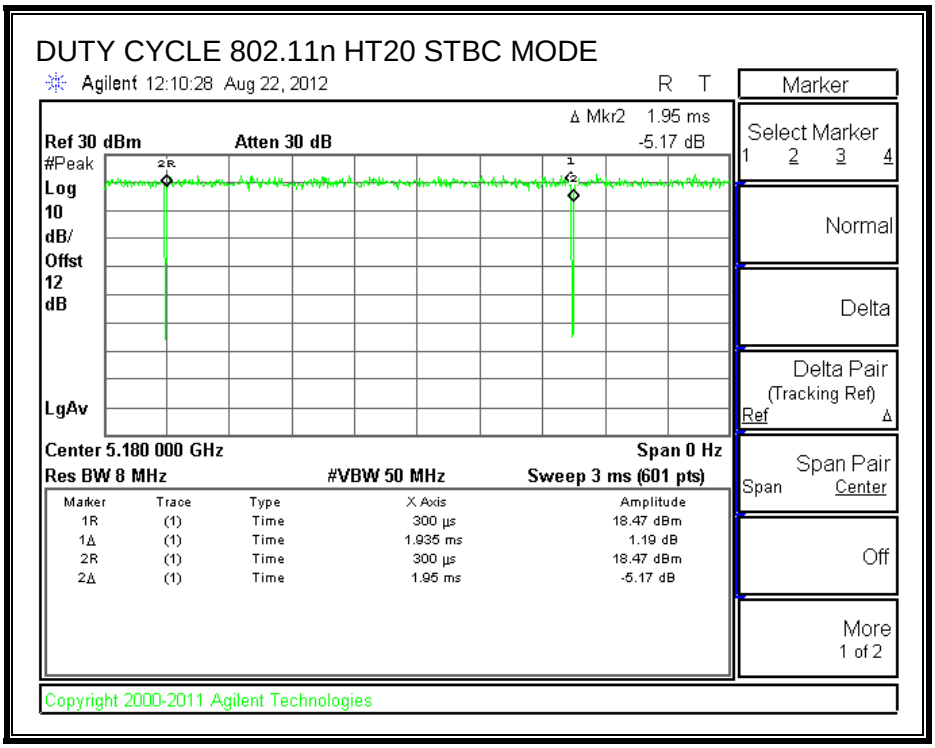
DUTY CYCLE 802.11a MODE



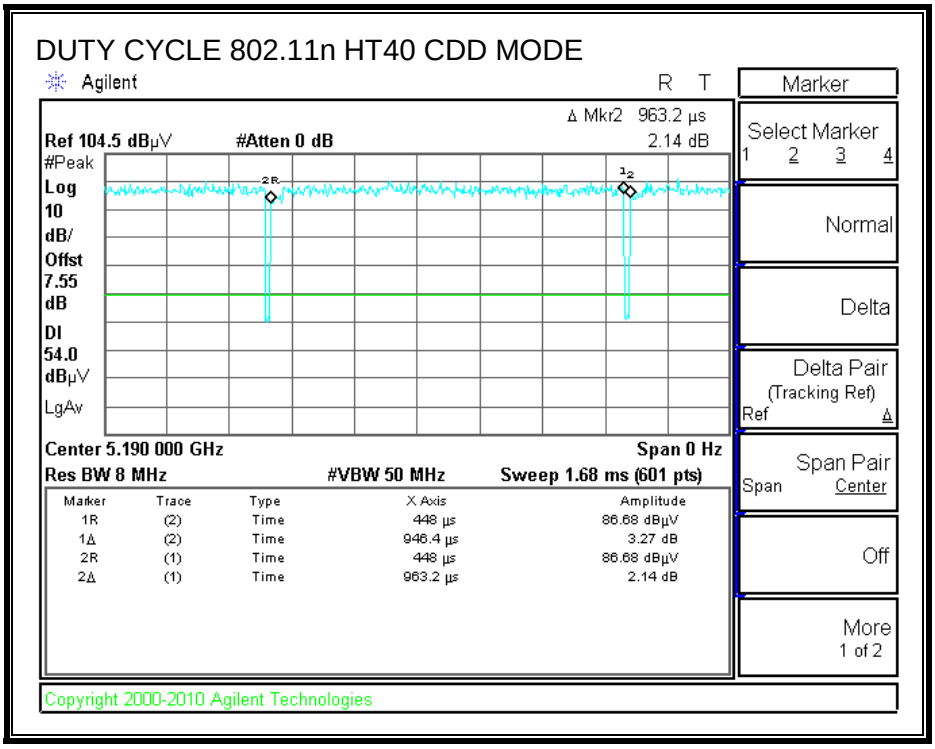
DUTY CYCLE 802.11n HT20 CDD MODE



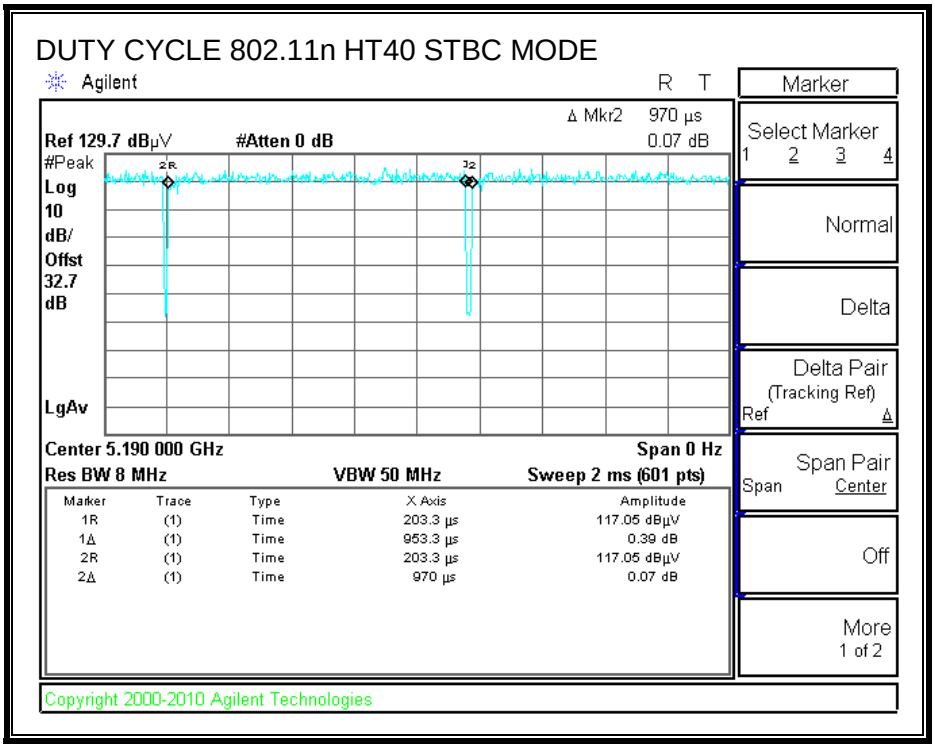
DUTY CYCLE 802.11n HT20 STBC MODE



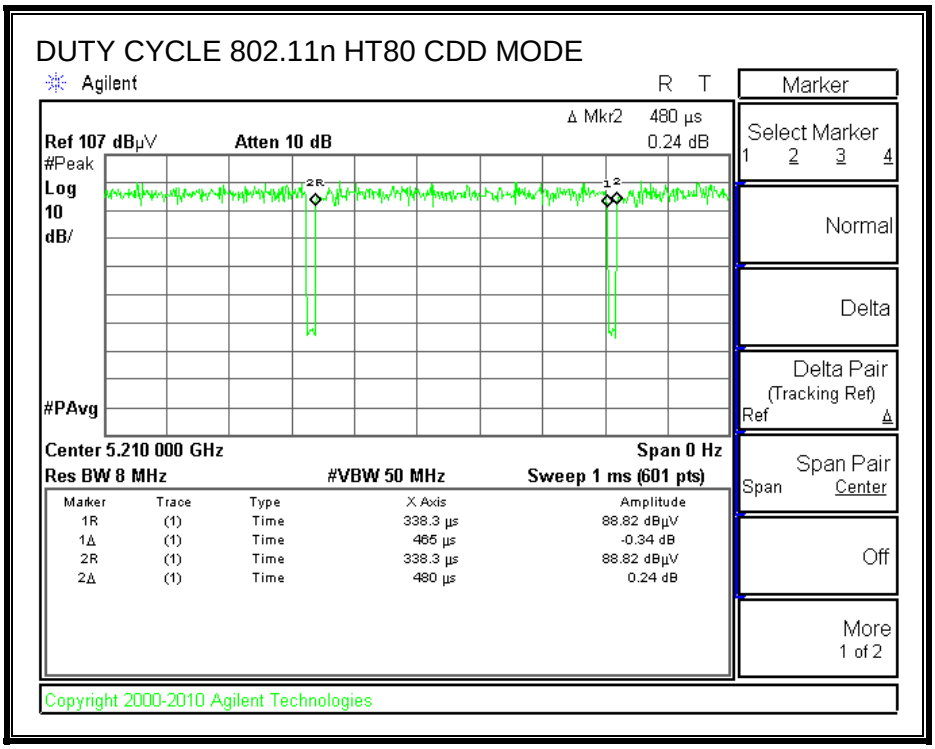
DUTY CYCLE 802.11n HT40 CDD MODE



DUTY CYCLE 802.11n HT40 STBC MODE



DUTY CYCLE 802.11n HT80 CDD MODE



8. ANTENNA PORT TEST RESULTS

8.1. 802.11a LEGACY 1TX MODE IN THE 5.2 GHz BAND

8.1.1. 26 dB BANDWIDTH

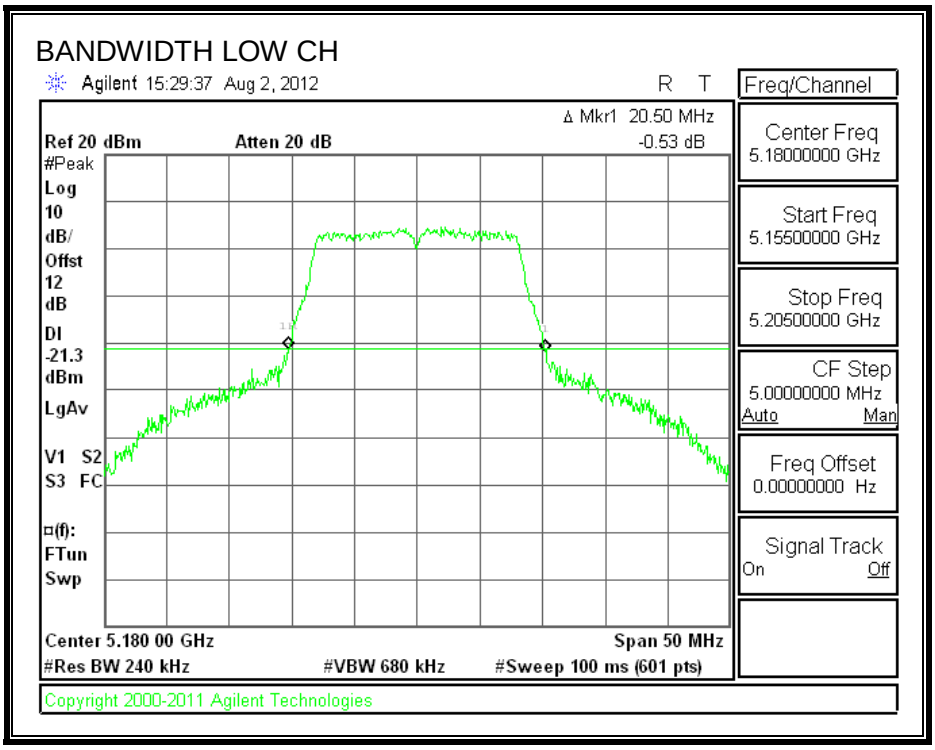
LIMITS

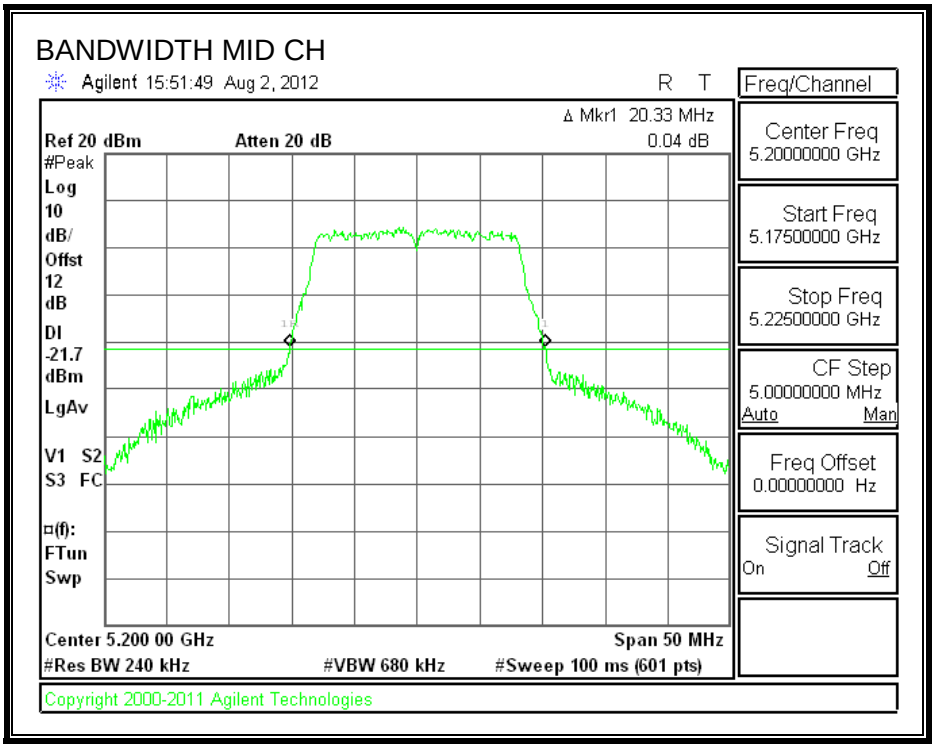
None; for reporting purposes only.

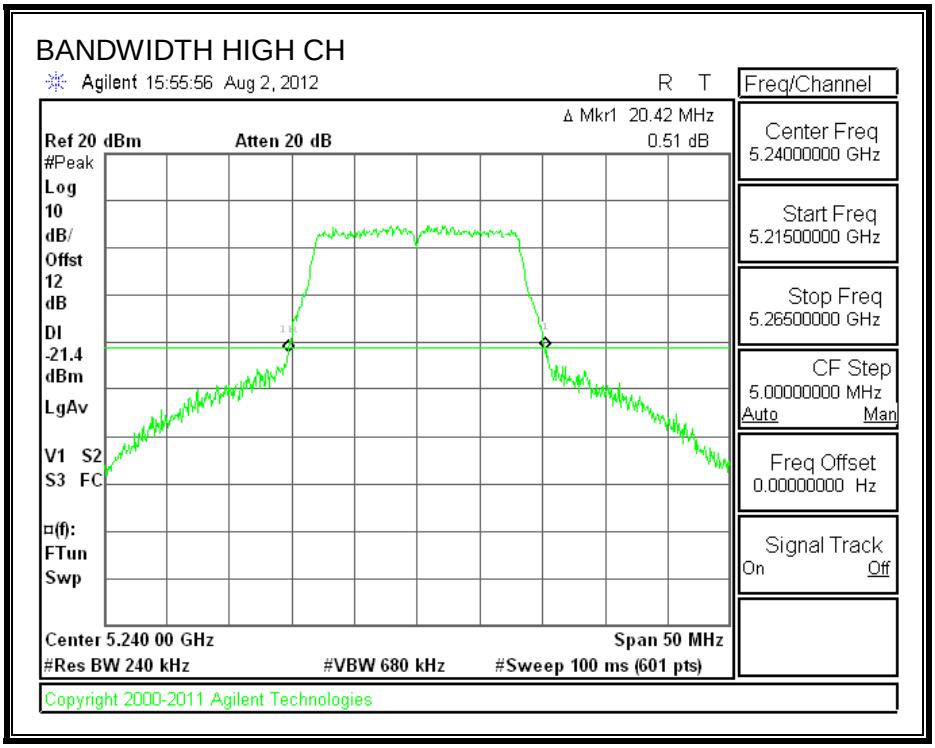
RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	20.50
Mid	5200	20.33
High	5240	20.42

26 dB BANDWIDTH







8.1.2. **99% BANDWIDTH**

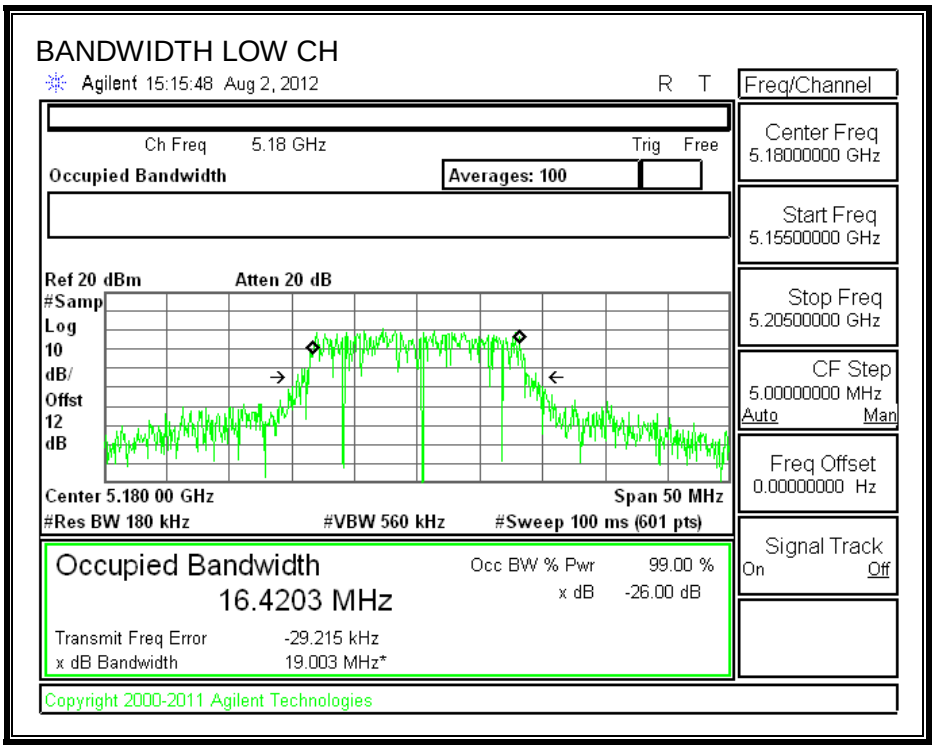
LIMITS

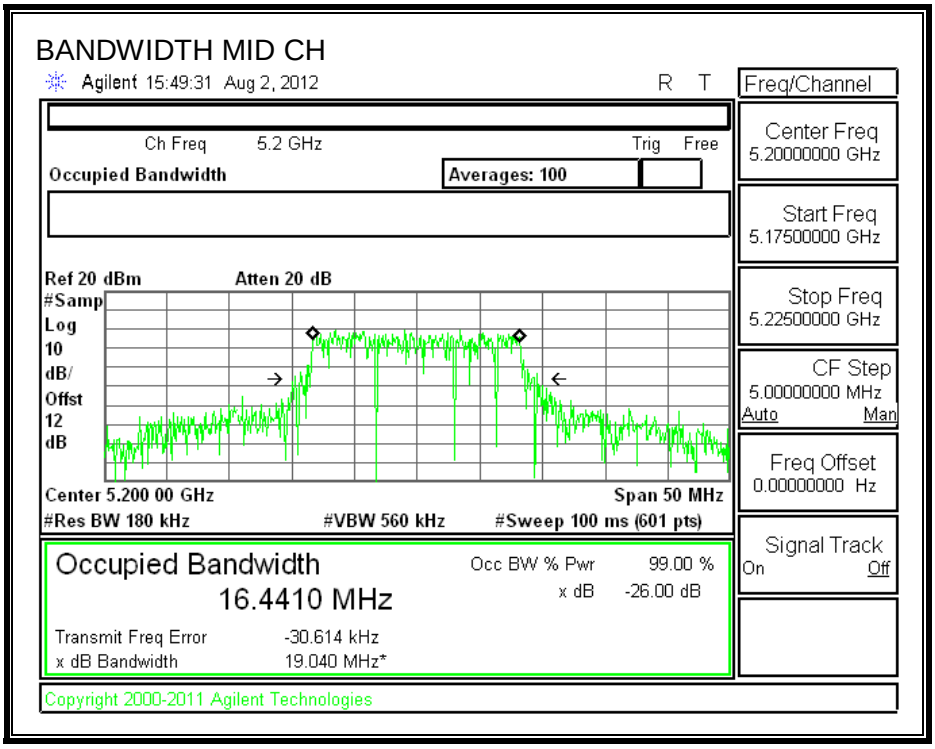
None; for reporting purposes only.

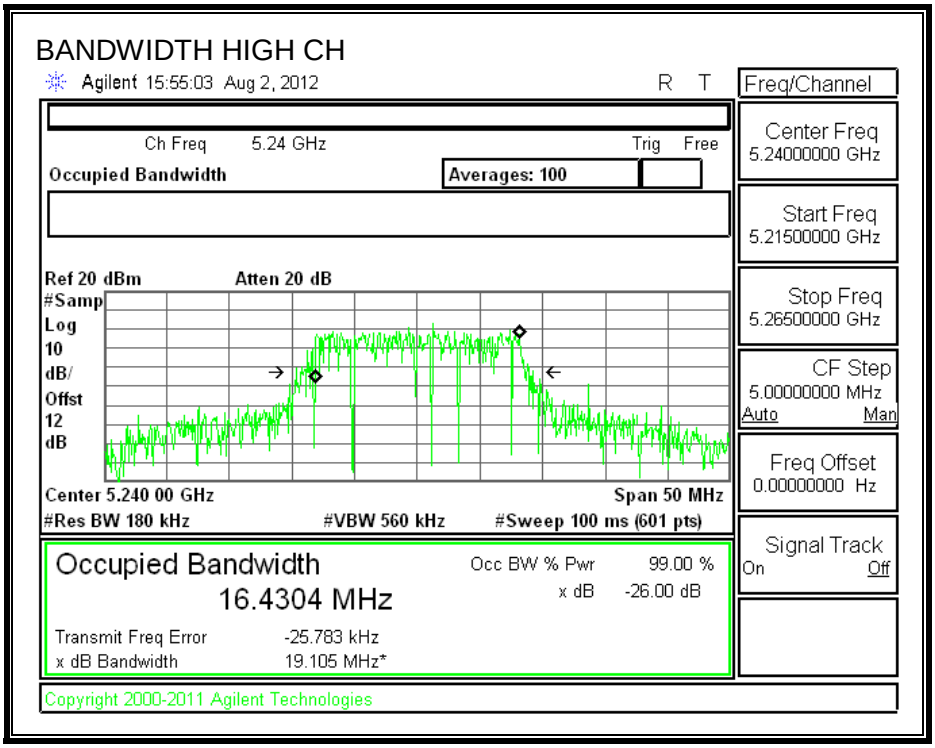
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	16.4203
Mid	5200	16.4410
High	5240	16.4304

99% BANDWIDTH







8.1.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

IC RSS-210 A9.2 (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 26dB 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.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

FCC §15.407 (a) (1)

Limits

Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	4 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Low	5180	17	20.50	17.12	5.60	17.00	4.00
Mid	5200	17	20.33	17.08	5.60	17.00	4.00
High	5240	17	20.42	17.10	5.60	17.00	4.00

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	14.091	14.091	17.00	-2.909
Mid	5200	13.902	13.902	17.00	-3.098
High	5240	14.141	14.141	17.00	-2.859

PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	2.78	2.78	4.00	-1.22
Mid	5200	2.59	2.59	4.00	-1.41
High	5240	2.81	2.81	4.00	-1.19

IC RSS-210 A9.2 (1)

Limits

Channel	Frequency (MHz)	Fixed EIRP Limit (dBm)	B 99% (MHz)	10 + 10 Log B EIRP Limit (dBm)	Directional Gain (dBi)	Power EIRP Limit (dBm)	PPSD EIRP Limit (dBm)
Low	5180	23	16.4203	22.1538	5.60	22.1538	10.00
Mid	5200	23	16.4410	22.1593	5.60	22.1593	10.00
High	5240	23	16.4304	22.1565	5.60	22.1565	10.00

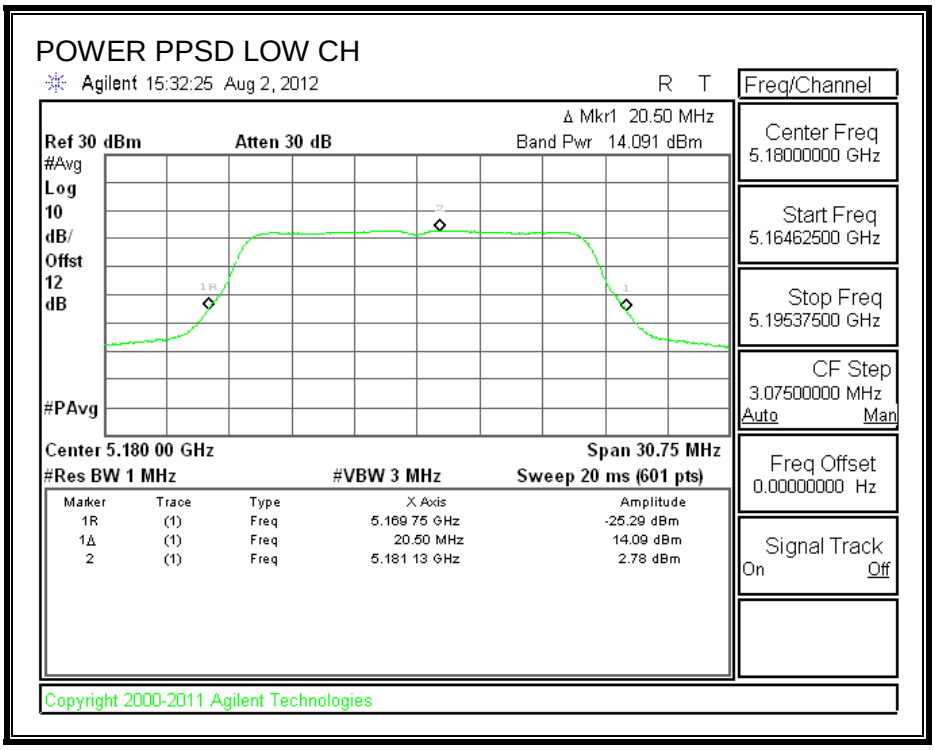
Output Power Results

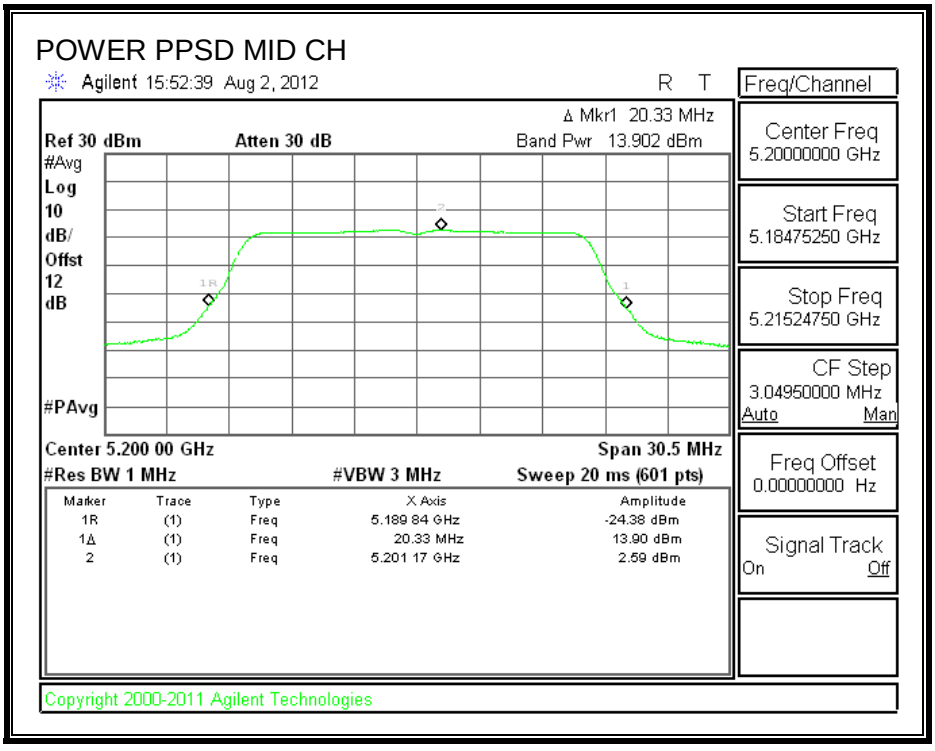
Channel	Frequency (MHz)	Meas Power (dBm)	Corr'd Power (dBm)	Meas EIRP Power (dBm)	Power EIRP Limit (dBm)	Power Margin (dB)
Low	5180	14.091	14.091	19.69	22.1538	-2.46
Mid	5200	13.902	13.902	19.50	22.1593	-2.66
High	5240	14.141	14.141	19.74	22.1565	-2.42

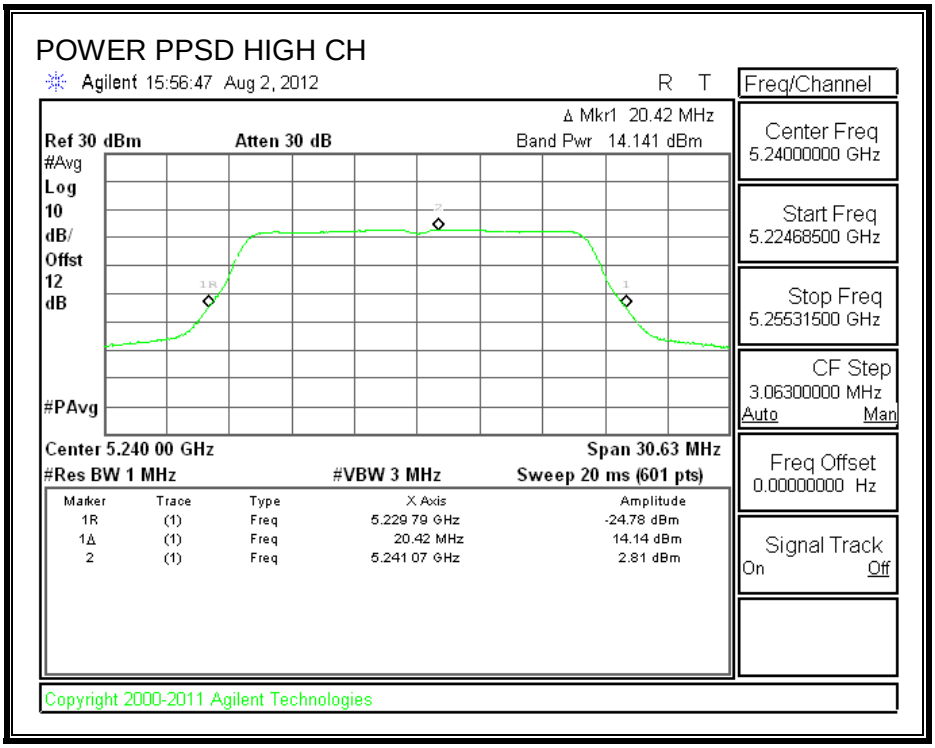
PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Corr'd PPSD (dBm)	Meas EIRP Power (dBm)	Power EIRP Limit (dBm)	PPSD Margin (dB)
Low	5180	2.78	2.78	8.78	10.00	-1.22
Mid	5200	2.59	2.59	8.59	10.00	-1.41
High	5240	2.81	2.81	8.81	10.00	-1.19

OUTPUT POWER AND PPSD







8.1.4. **PEAK EXCURSION**

LIMITS

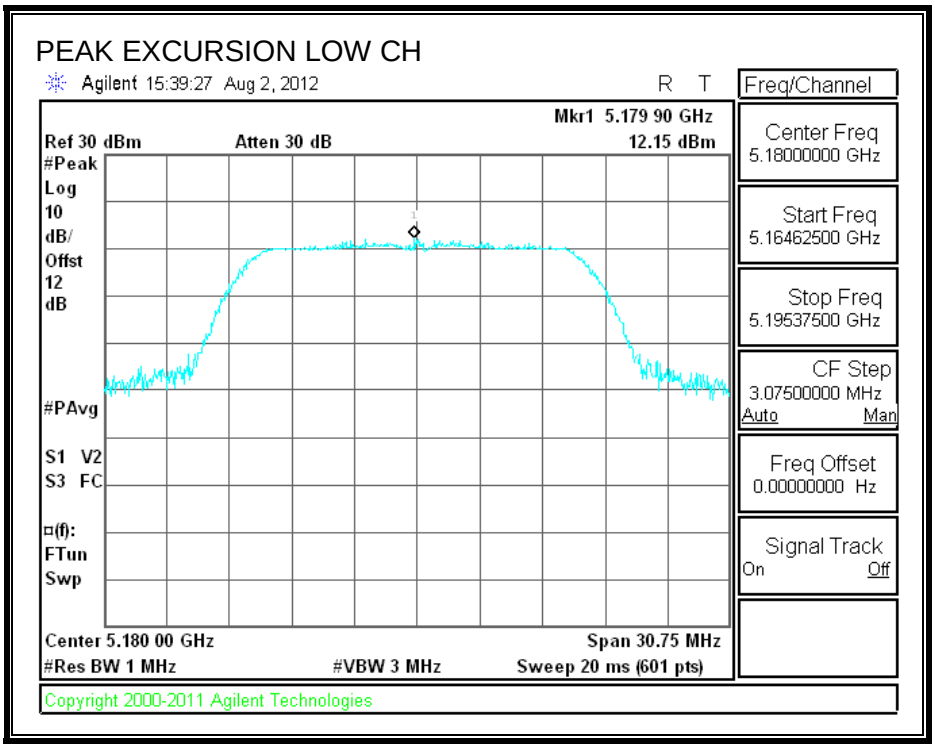
FCC §15.407 (a) (6)

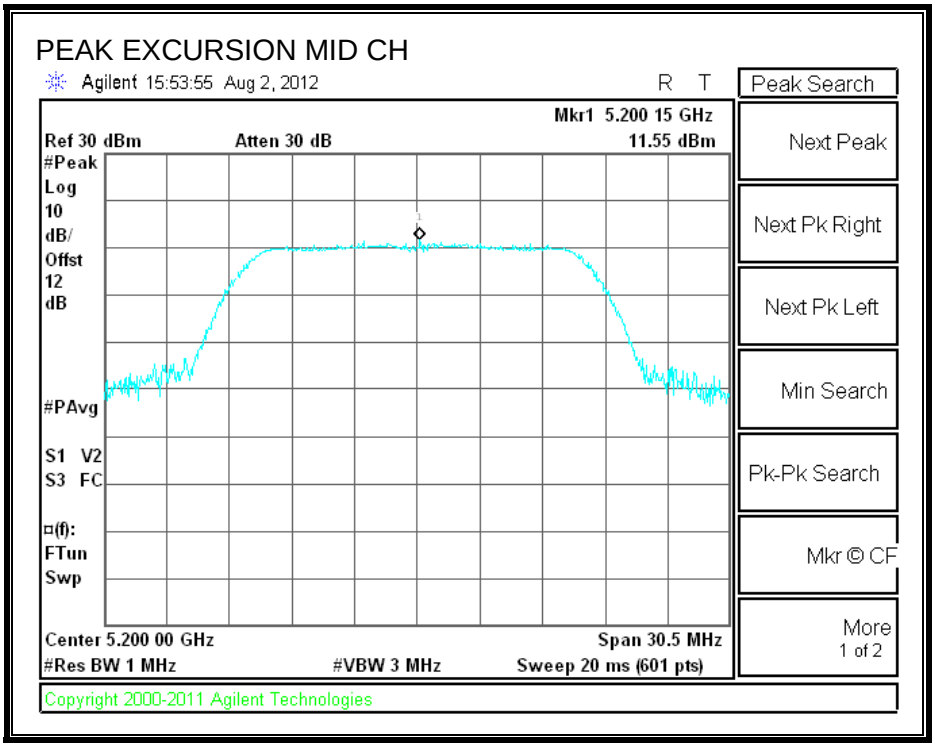
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

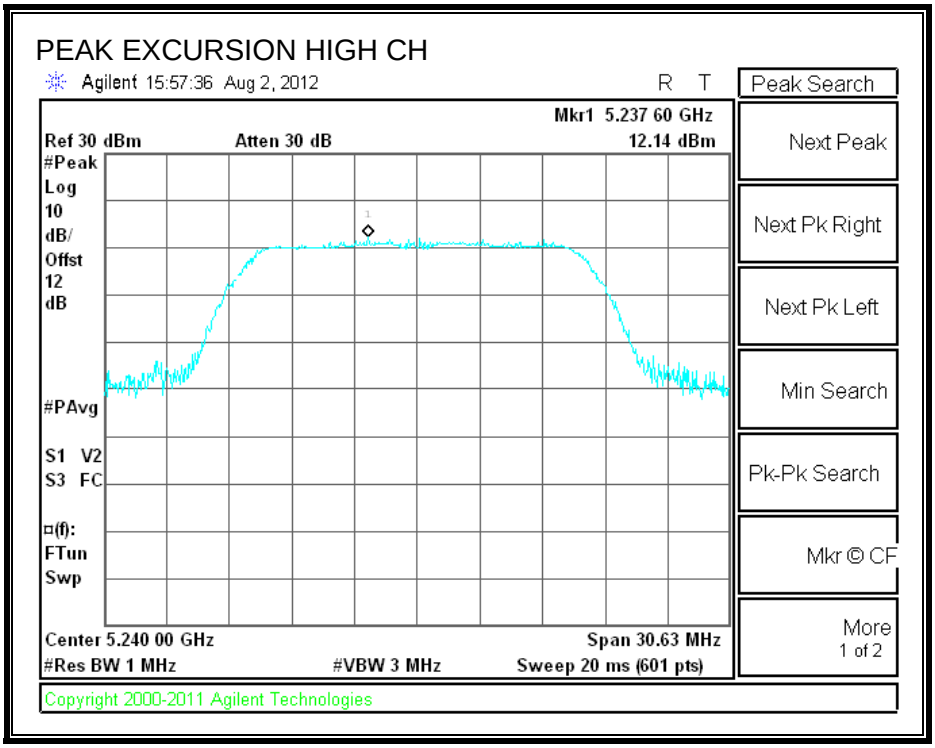
Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5180	12.15	2.78	0.03	9.34	13	-3.66
Mid	5200	11.55	2.59	0.03	8.93	13	-4.07
High	5240	12.14	2.81	0.03	9.30	13	-3.70

PEAK EXCURSION





PEAK EXCURSION HIGH CH



8.2. 802.11n HT20 CDD MCS0 2TX MODE IN THE 5.2 GHz BAND

8.2.1. **26 dB BANDWIDTH**

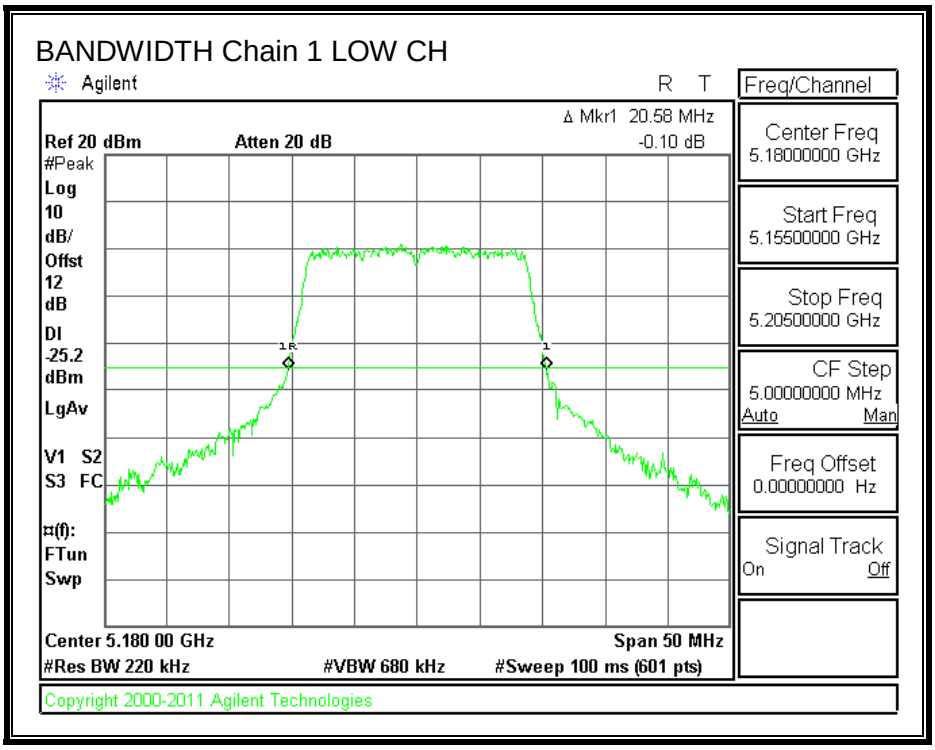
LIMITS

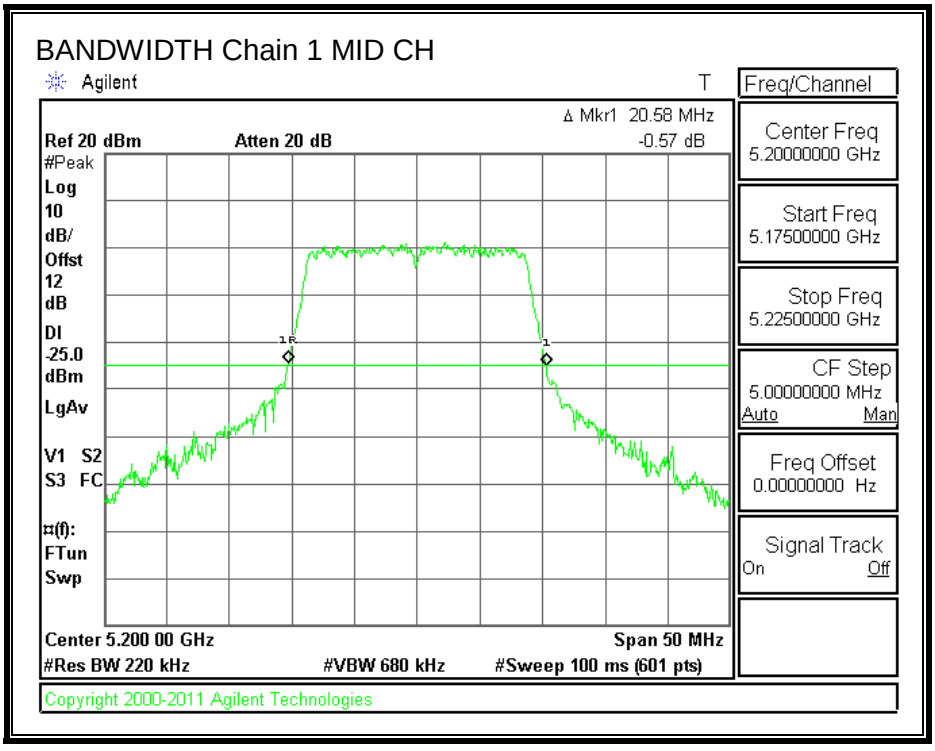
None; for reporting purposes only.

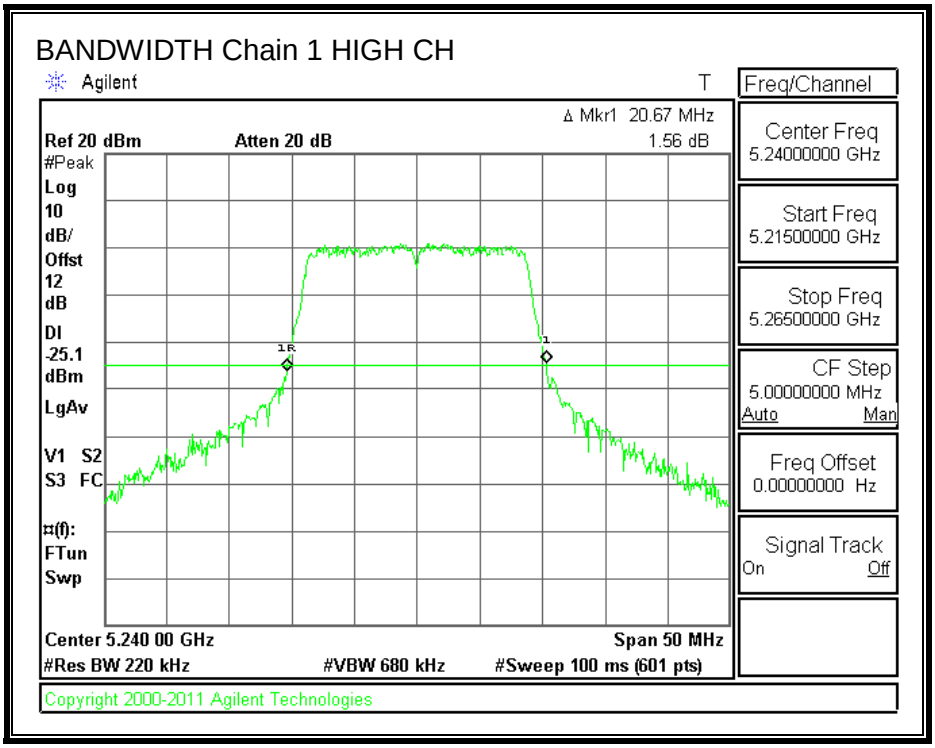
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 1 (MHz)	26 dB BW Chain 2 (MHz)
Low	5180	20.58	20.67
Mid	5200	20.58	20.92
High	5240	20.67	20.67

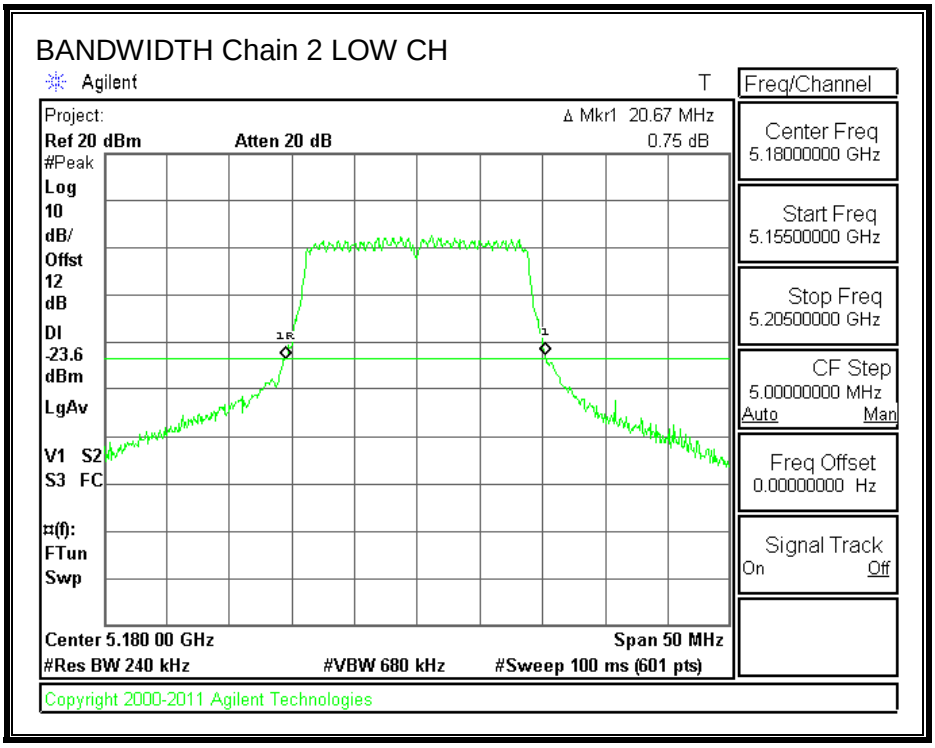
26 dB BANDWIDTH, Chain 1



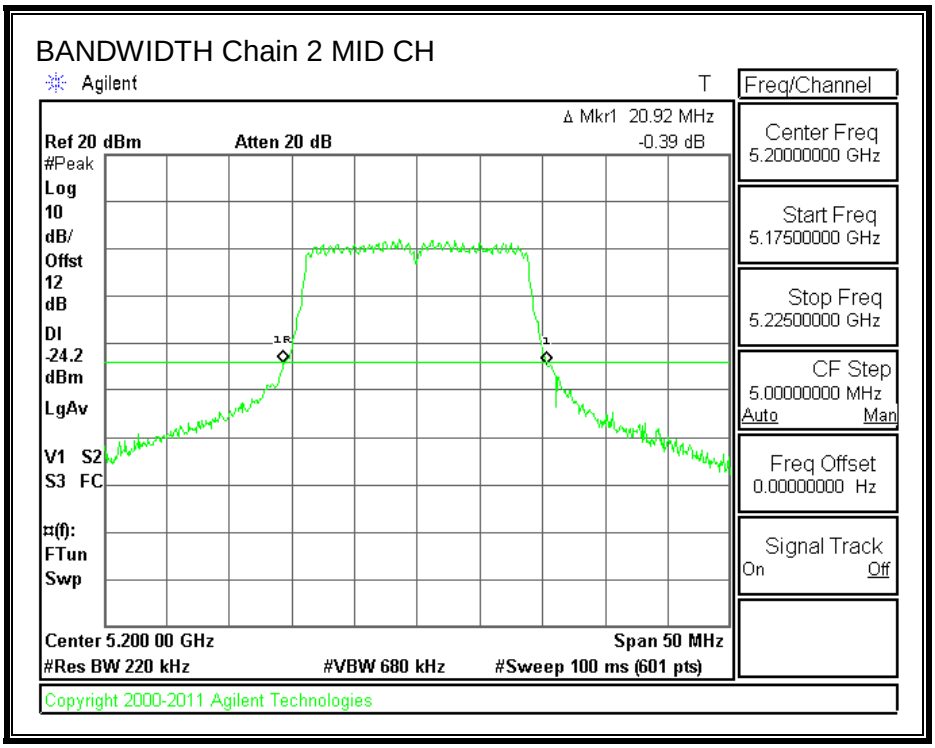




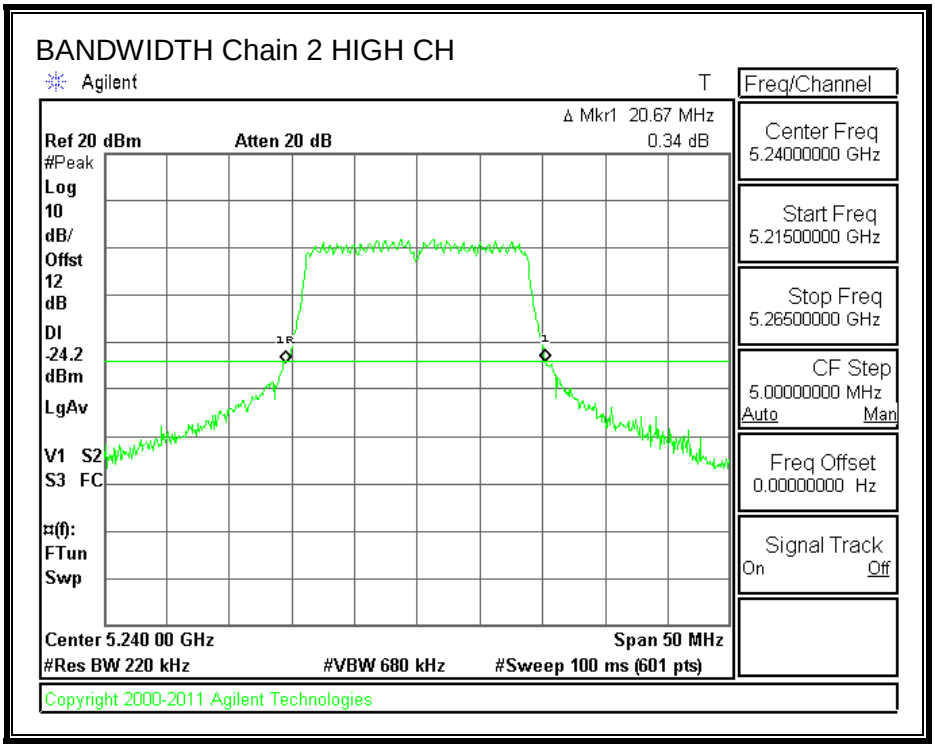
26 dB BANDWIDTH, Chain 2



BANDWIDTH Chain 2 MID CH



BANDWIDTH Chain 2 HIGH CH



8.2.2. **99% BANDWIDTH**

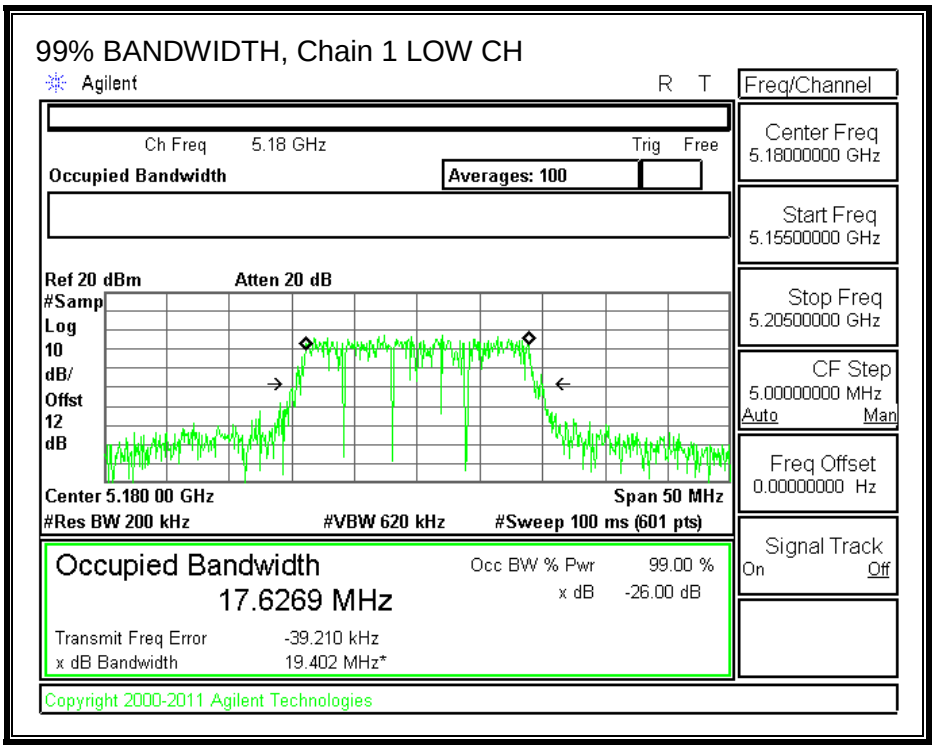
LIMITS

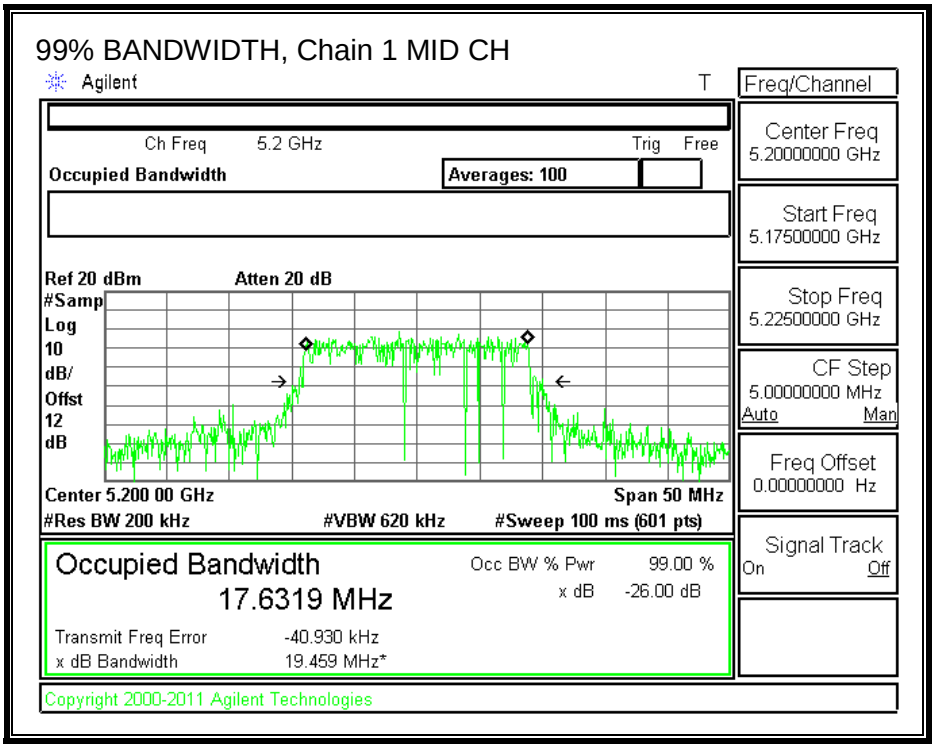
None; for reporting purposes only.

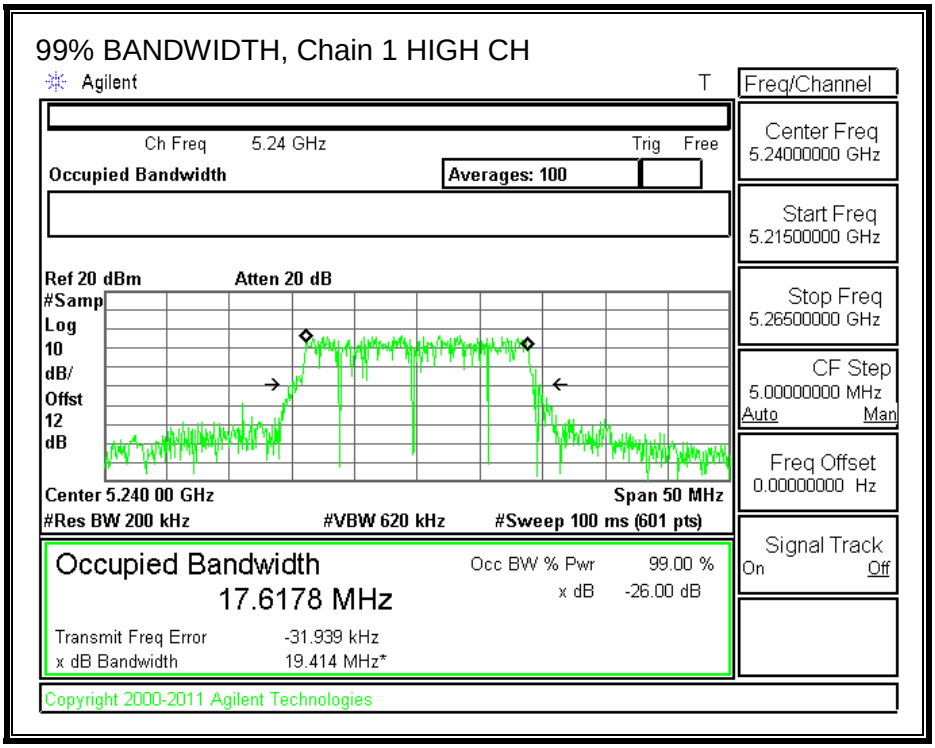
RESULTS

Channel	Frequency (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Low	5180	17.6269	17.6094
Mid	5200	17.6319	17.6336
High	5240	17.6178	17.6277

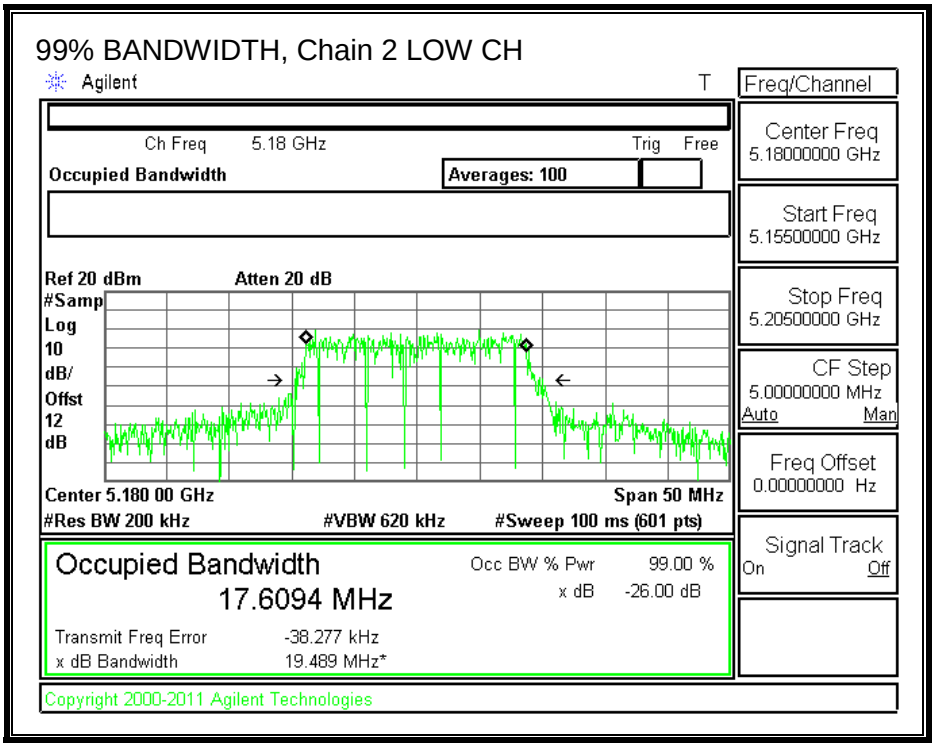
99% BANDWIDTH, Chain 1

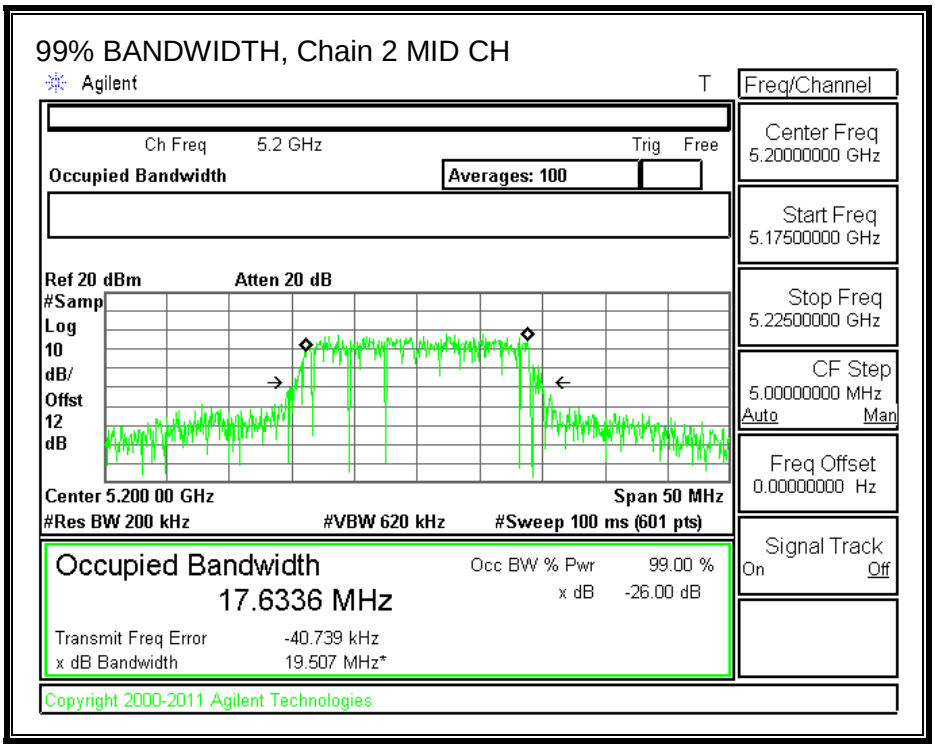


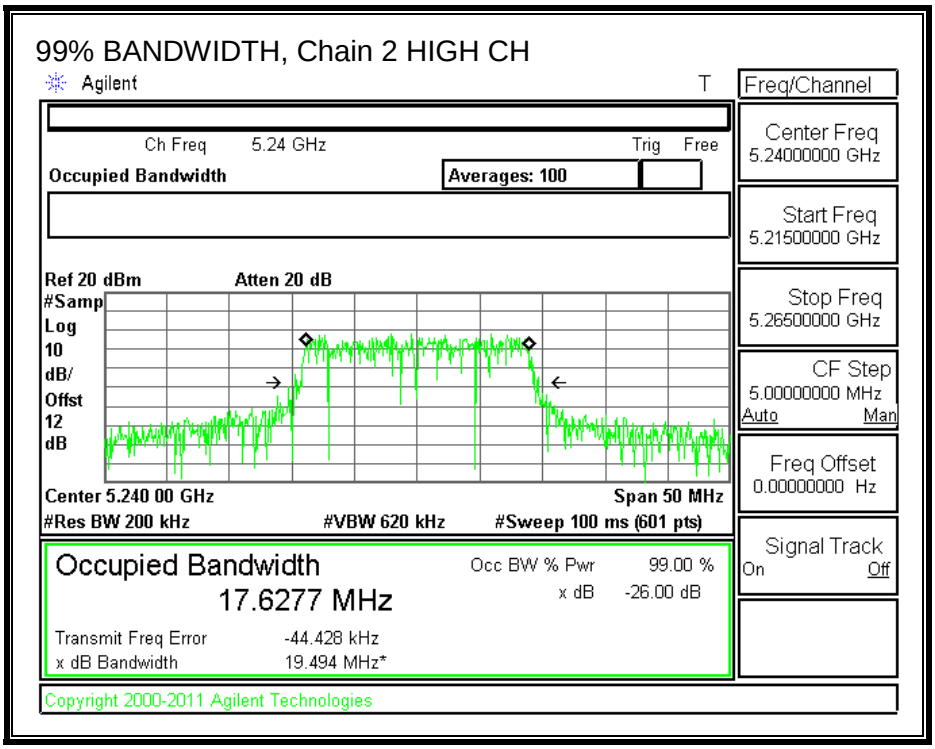




99% BANDWIDTH, Chain 2







8.2.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

IC RSS-210 A9.2 (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.

DIRECTIONAL ANTENNA GAIN

The TX chains are correlated and the antenna gain is the same for each chain. The directional gain is:

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
5.60	3.01	8.61

RESULTS

FCC §15.407 (a) (1)

Limits

Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	4 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Low	5180	17	20.58	17.13	8.61	14.39	1.39
Mid	5200	17	20.58	17.13	8.61	14.39	1.39
High	5240	17	20.67	17.15	8.61	14.39	1.39

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	9.438	10.305	12.903	14.39	-1.487
Mid	5200	9.254	10.345	12.844	14.39	-1.546
High	5240	9.371	10.428	12.942	14.39	-1.448

PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	-2.10	-1.24	1.36	1.39	-0.03
Mid	5200	-2.38	-1.24	1.24	1.39	-0.15
High	5240	-2.21	-1.23	1.32	1.39	-0.07

IC RSS-210 A9.2 (1)

Limits

Channel	Frequency (MHz)	Fixed EIRP Limit (dBm)	B 99% (MHz)	10 + 10 Log B EIRP Limit (dBm)	Directional Gain (dBi)	Power EIRP Limit (dBm)	PPSD EIRP Limit (dBm)
Low	5180	23	17.6094	22.4574	8.61	22.4574	10.00
Mid	5200	23	17.6319	22.4630	8.61	22.4630	10.00
High	5240	23	17.6178	22.4595	8.61	22.4595	10.00

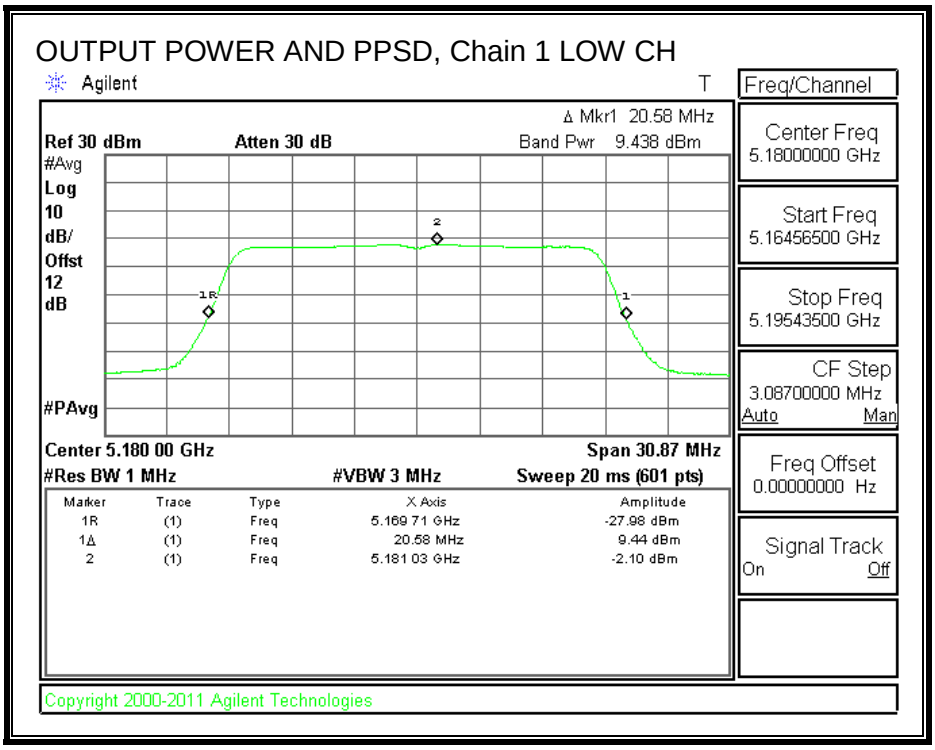
Output Power Results

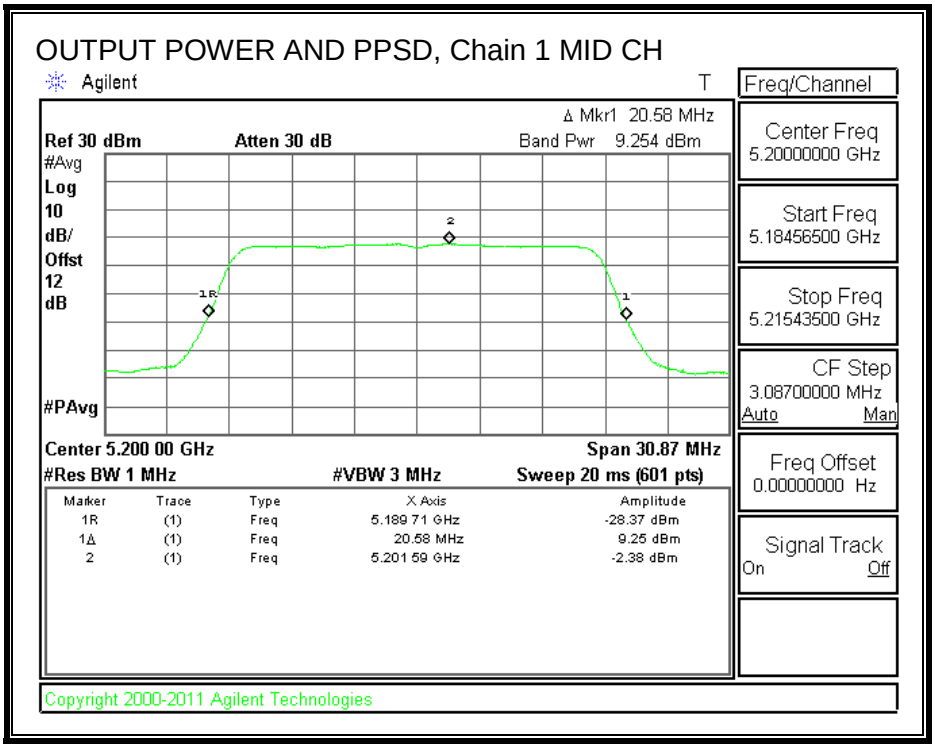
Channel	Frequency (MHz)	Meas Power (dBm)	Meas Power (dBm)	Corr'd Power (dBm)	Meas EIRP Power (dBm)	Power EIRP Limit (dBm)	Power Margin (dB)
Low	5180	9.438	10.305	12.903	21.51	22.4574	-0.94
Mid	5200	9.254	10.345	12.844	21.45	22.4630	-1.01
High	5240	9.371	10.428	12.942	21.55	22.4595	-0.91

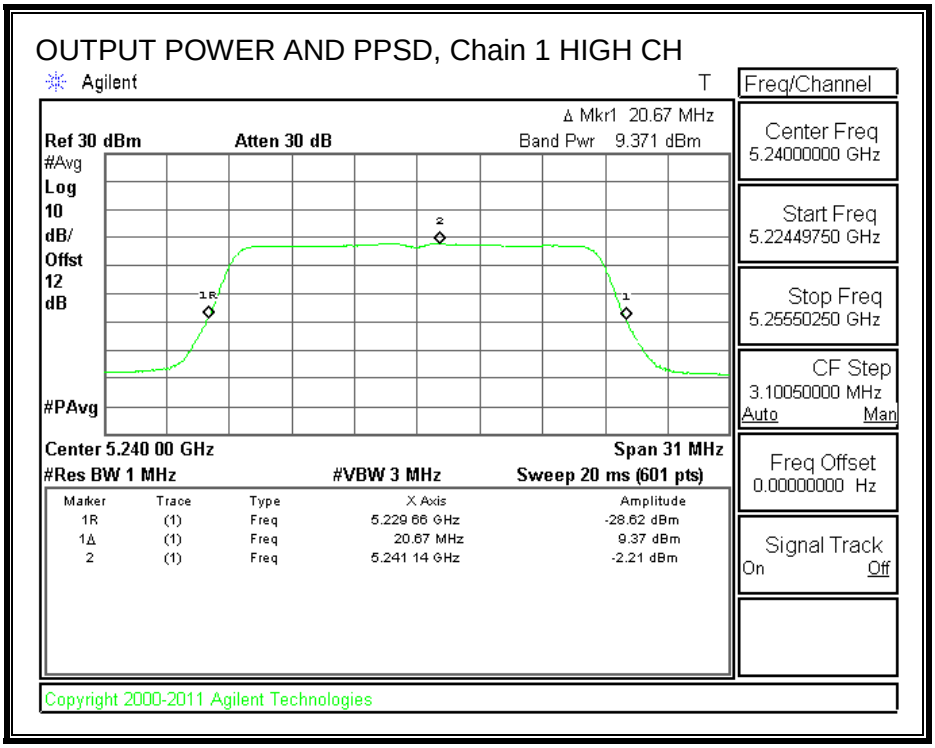
PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Meas PPSD (dBm)	Corr'd PPSD (dBm)	Meas EIRP Power (dBm)	PPSD EIRP Limit (dBm)	PPSD Margin (dB)
Low	5180	-2.10	-1.24	1.362	9.97	10.00	-0.03
Mid	5200	-2.38	-1.24	1.238	9.85	10.00	-0.15
High	5240	-2.21	-1.23	1.318	9.93	10.00	-0.07

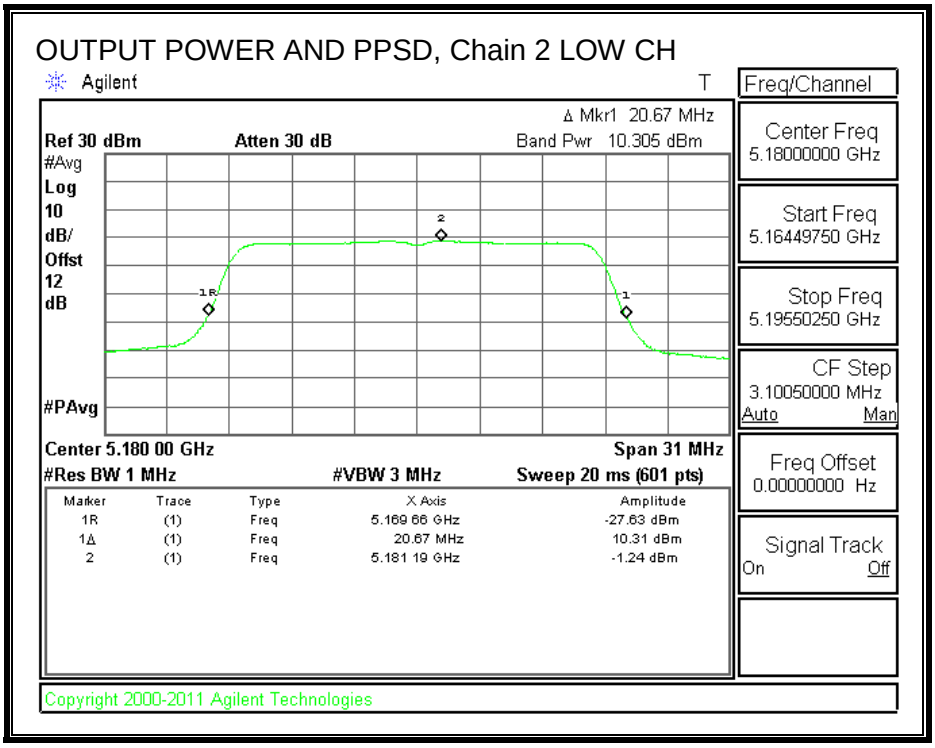
OUTPUT POWER AND PPSD, Chain 1

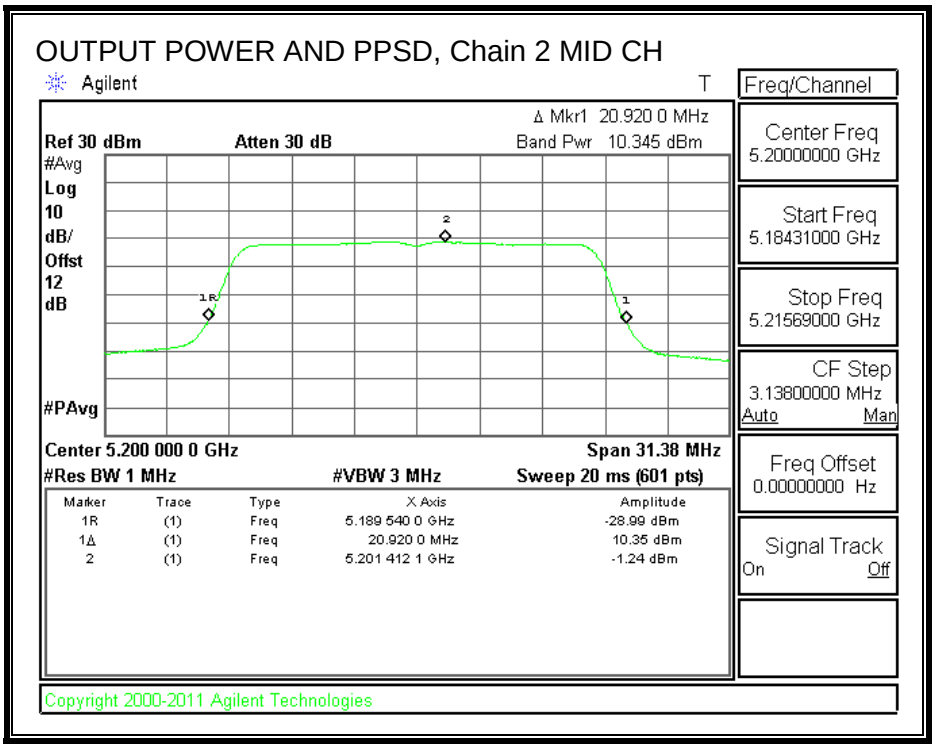


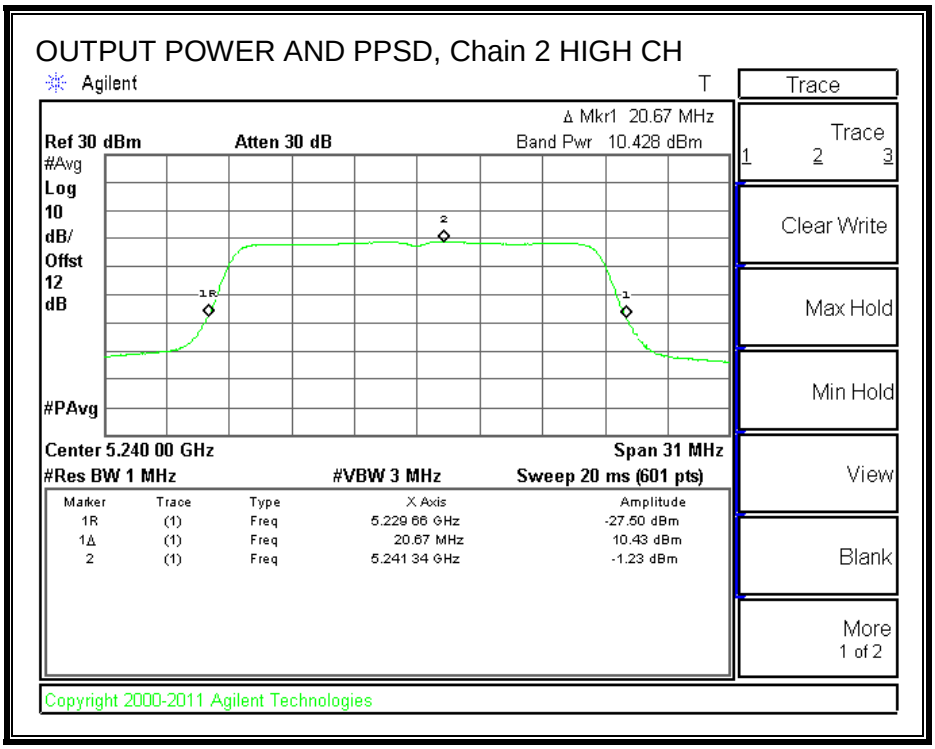




OUTPUT POWER AND PPSD, Chain 2







8.2.4. **PEAK EXCURSION**

LIMITS

FCC §15.407 (a) (6)

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

RESULTS

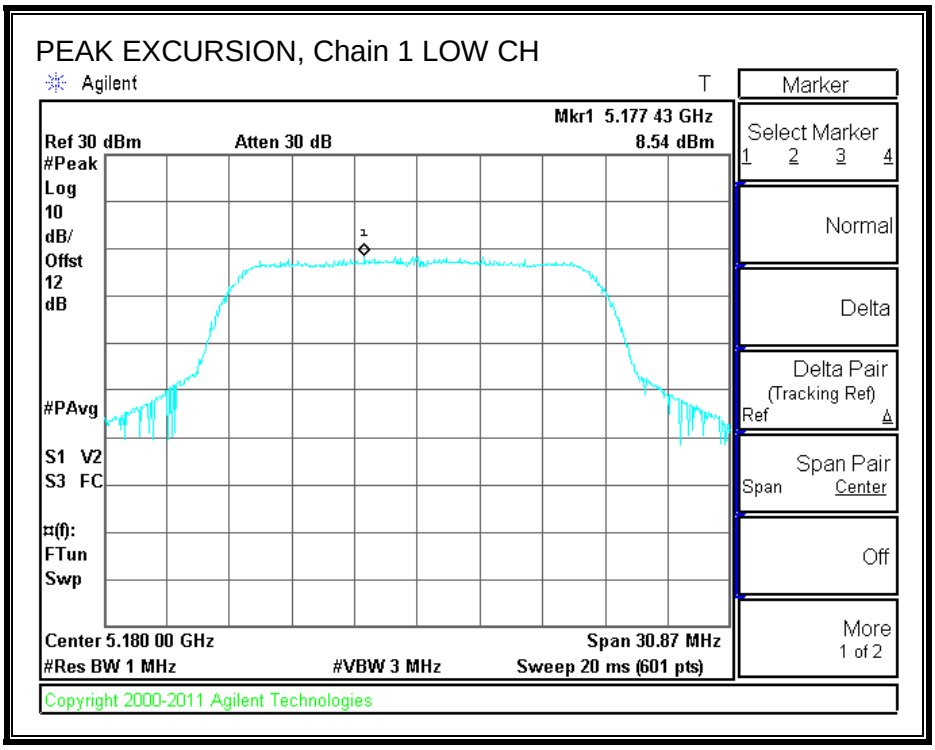
Chain 1

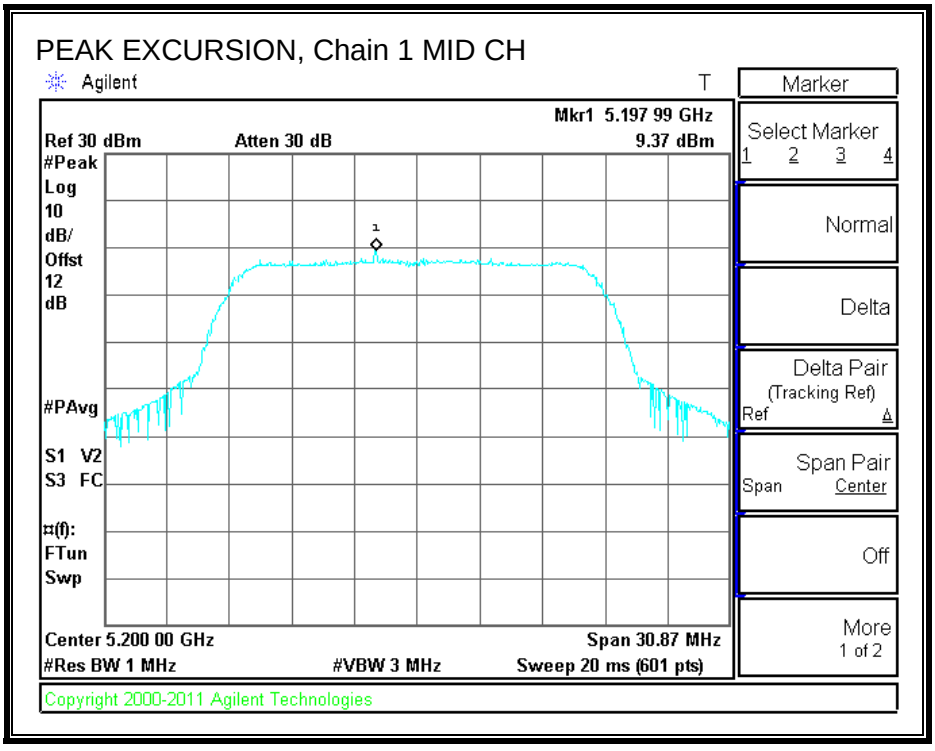
Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5180	8.54	-2.10	0.05	10.59	13	-2.41
Mid	5200	9.37	-2.38	0.05	11.70	13	-1.30
High	5240	8.84	-2.21	0.05	11.00	13	-2.00

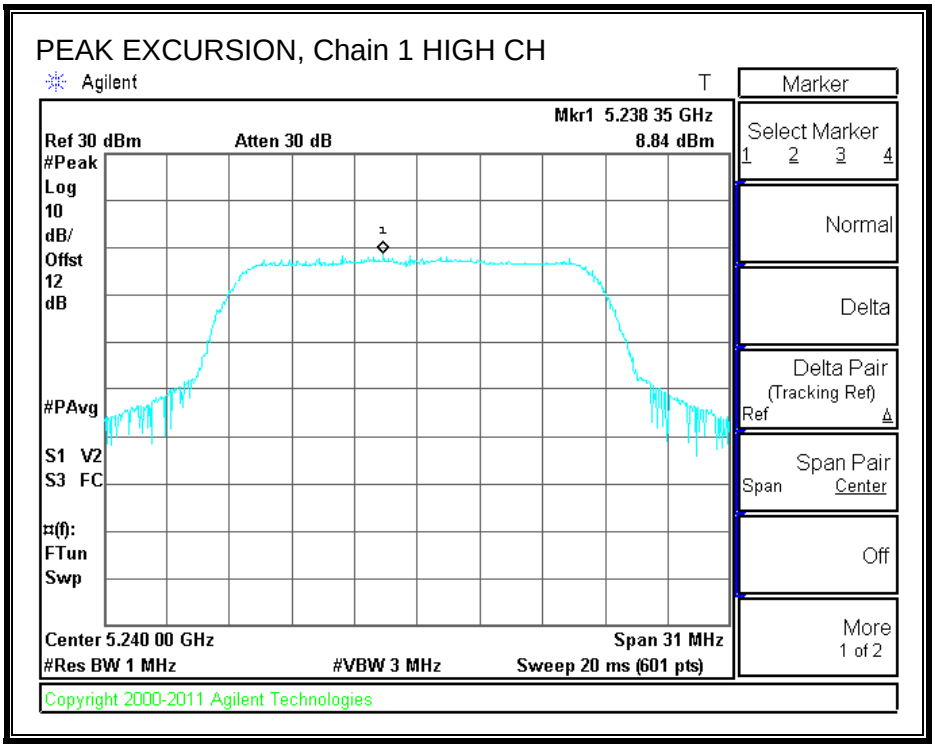
Chain 2

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5180	9.86	-1.24	0.05	11.05	13	-1.95
Mid	5200	9.71	-1.24	0.05	10.90	13	-2.10
High	5240	10.35	-1.23	0.05	11.53	13	-1.47

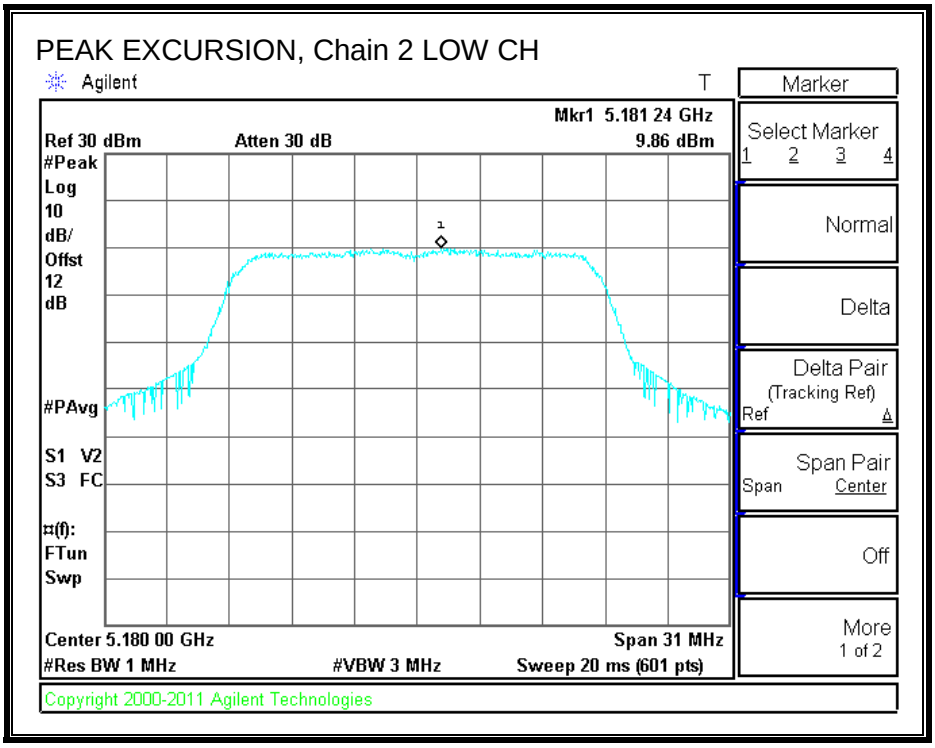
PEAK EXCURSION, Chain 1



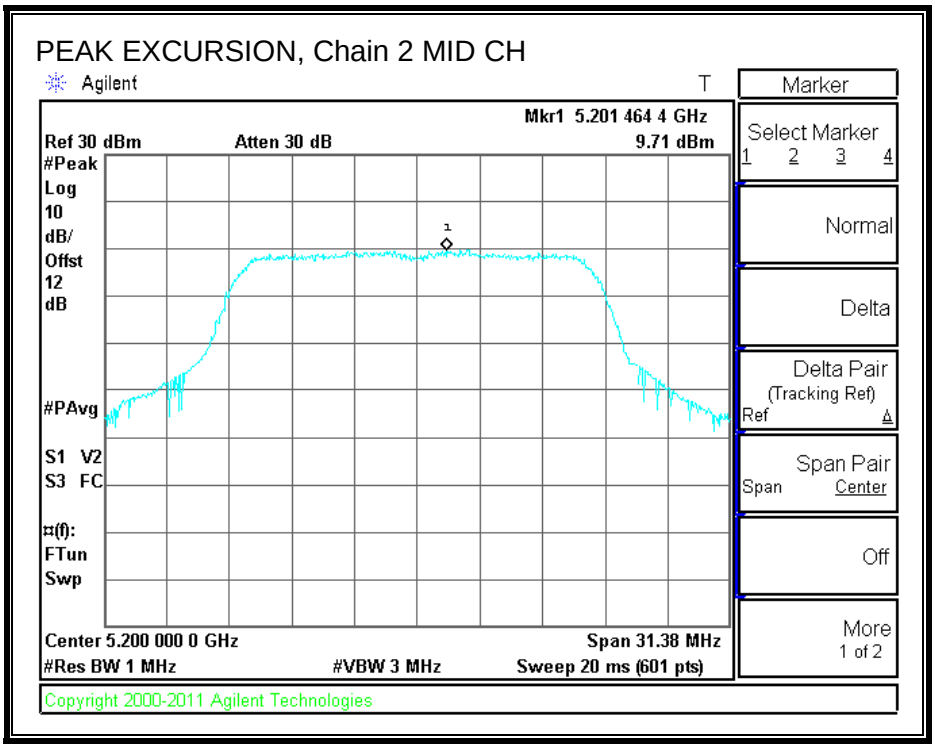




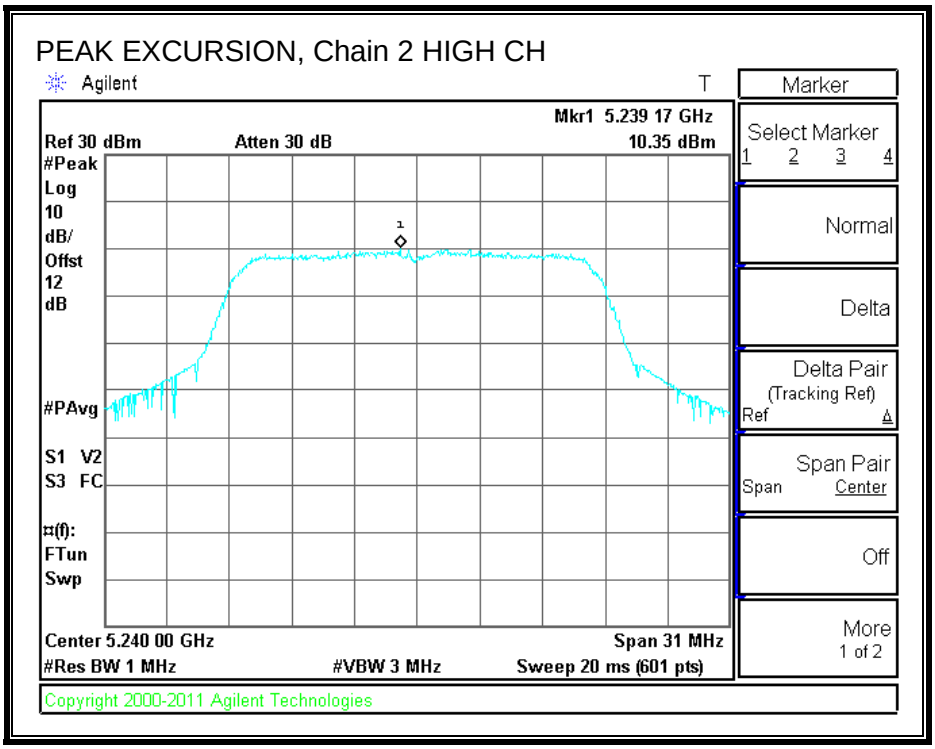
PEAK EXCURSION, Chain 2



PEAK EXCURSION, Chain 2 MID CH



PEAK EXCURSION, Chain 2 HIGH CH



8.3. 802.11n HT20 STBC MCS0 2TX MODE IN THE 5.2 GHz BAND

8.3.1. 26 dB BANDWIDTH

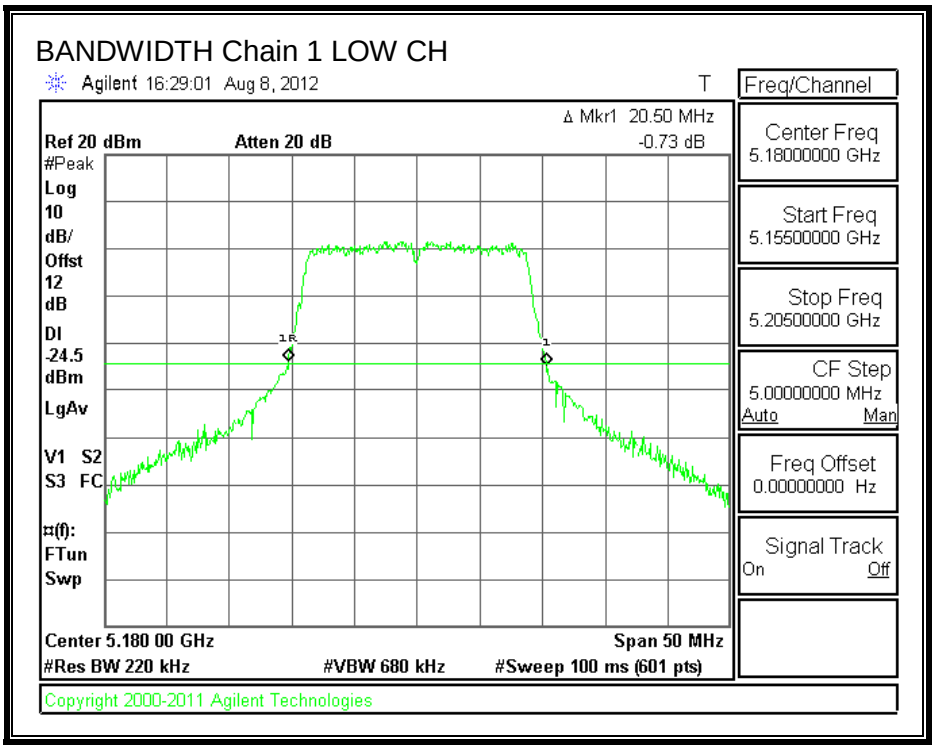
LIMITS

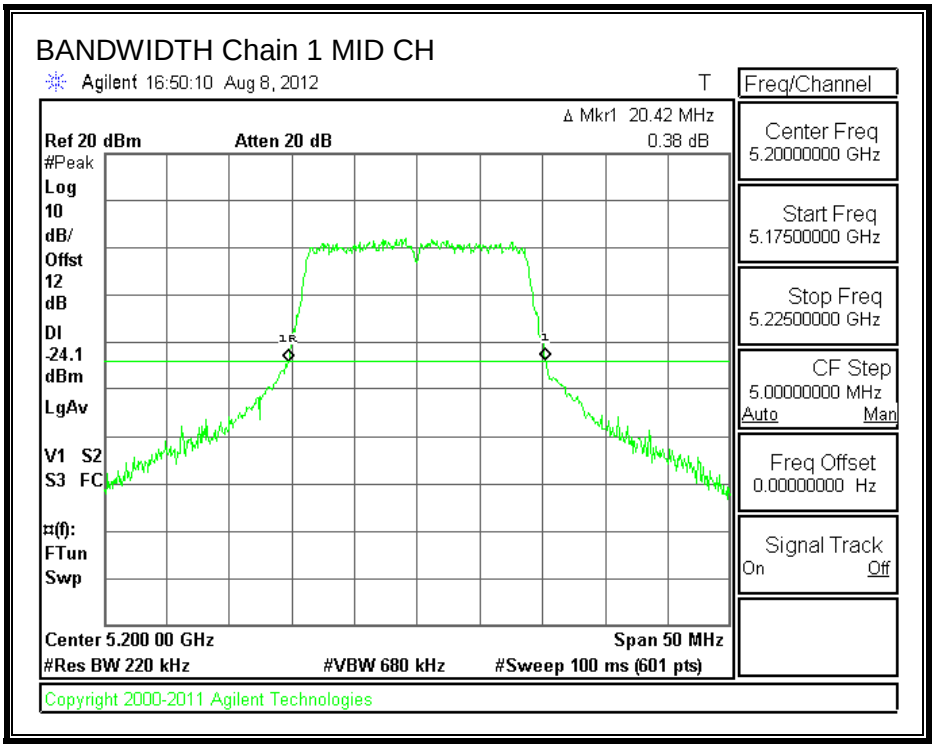
None; for reporting purposes only.

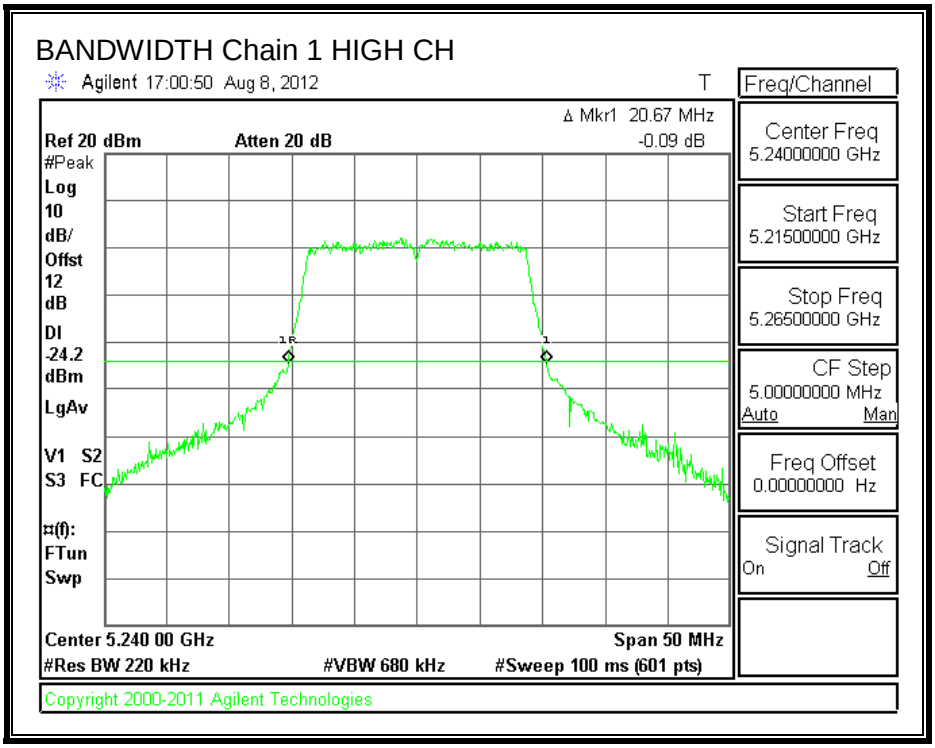
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 1 (MHz)	26 dB BW Chain 2 (MHz)
Low	5180	20.50	20.67
Mid	5200	20.42	21.25
High	5240	20.67	20.50

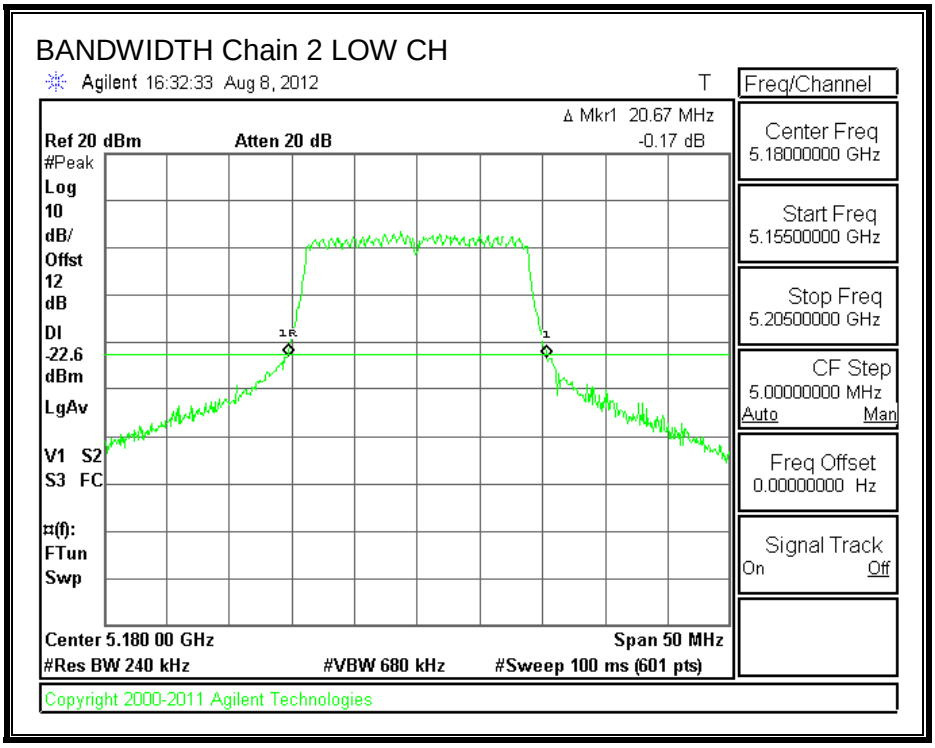
26 dB BANDWIDTH, Chain 1

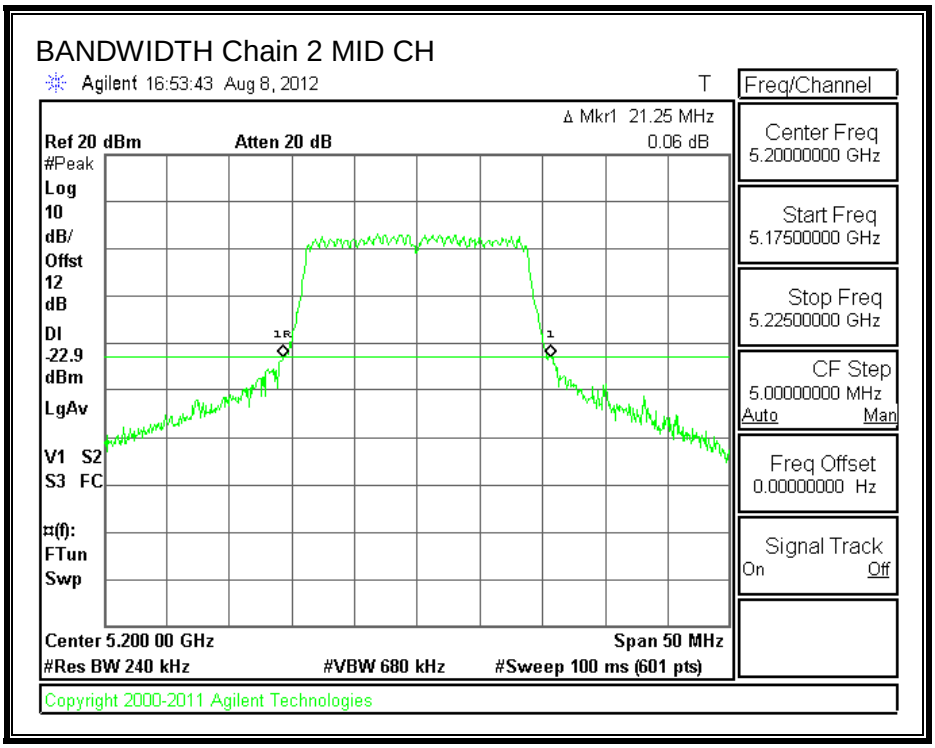


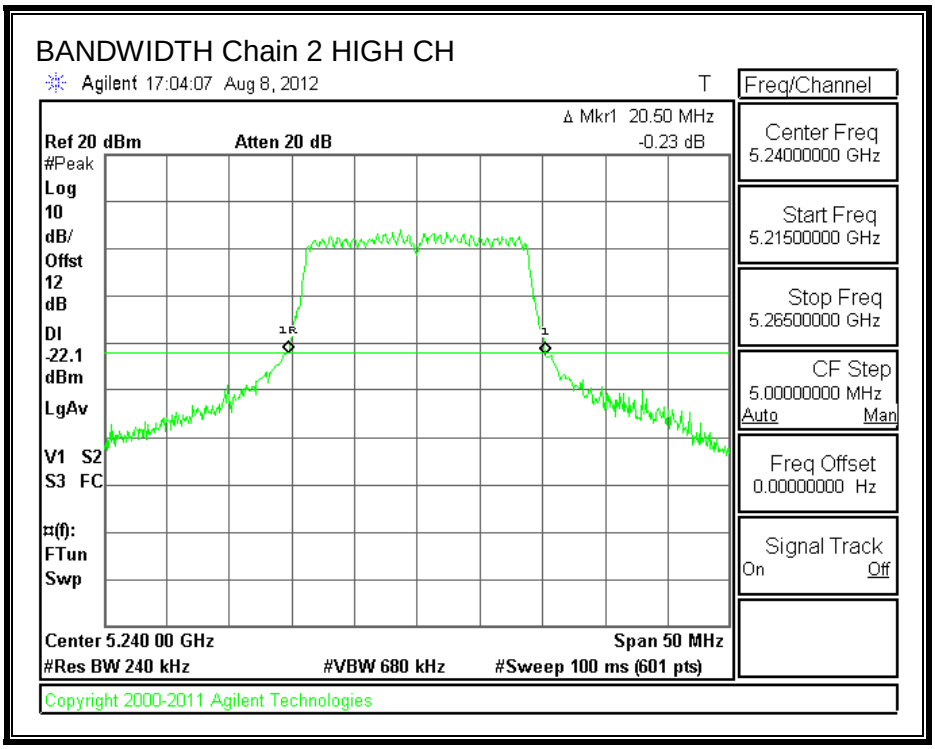




26 dB BANDWIDTH, Chain 2







8.3.2. **99% BANDWIDTH**

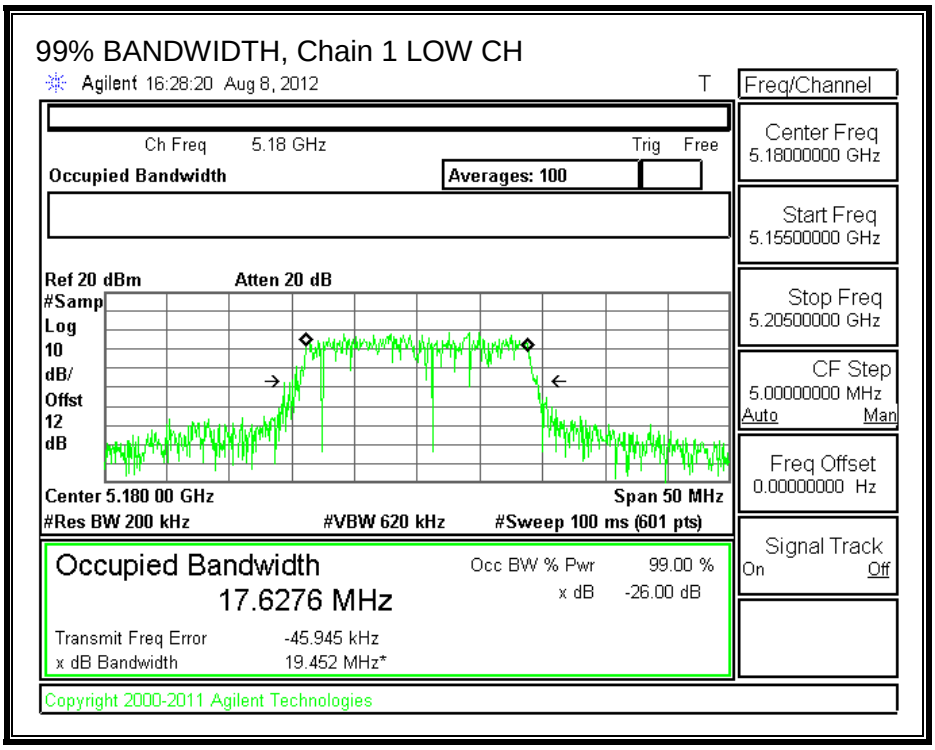
LIMITS

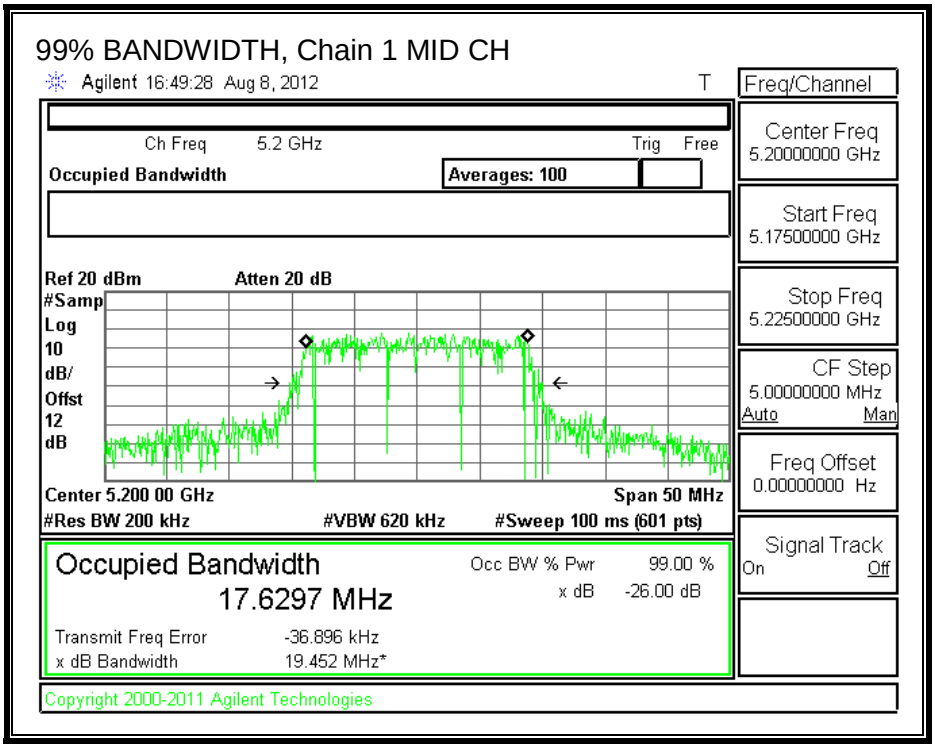
None; for reporting purposes only.

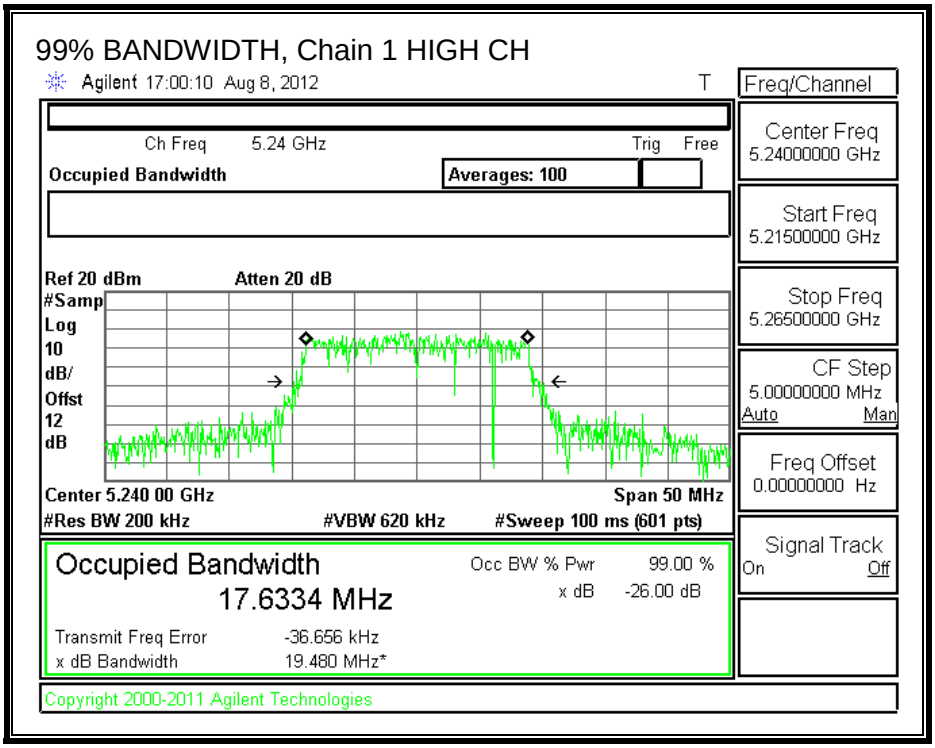
RESULTS

Channel	Frequency (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Low	5180	17.6276	17.6406
Mid	5200	17.6297	17.6291
High	5240	17.6334	17.6142

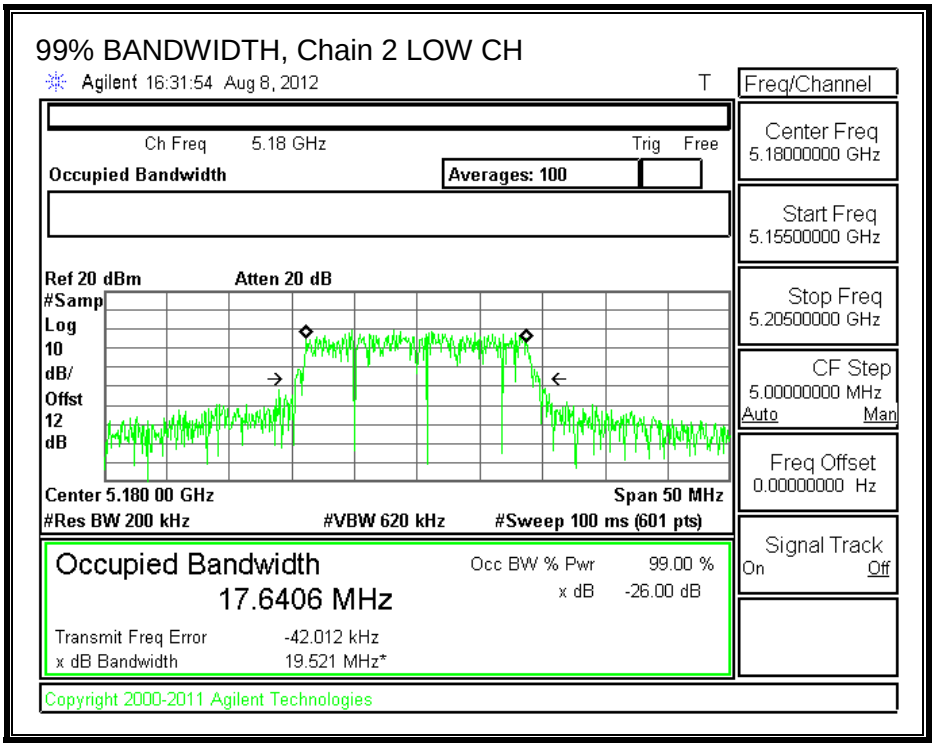
99% BANDWIDTH, Chain 1

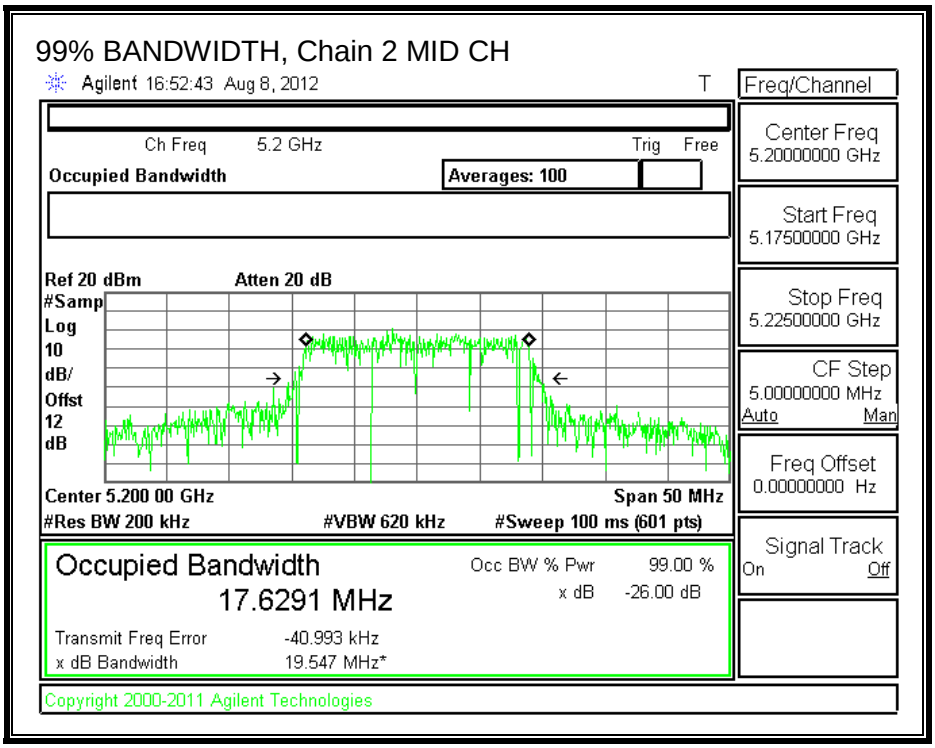


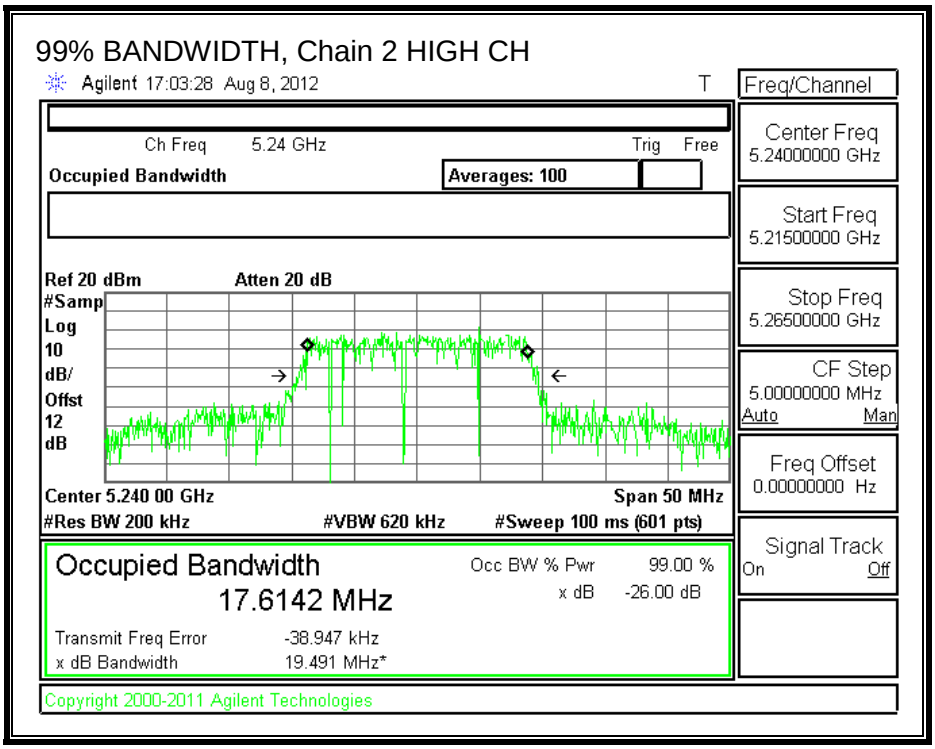




99% BANDWIDTH, Chain 2







8.3.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

IC RSS-210 A9.2 (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.

DIRECTIONAL ANTENNA GAIN

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

Chain 1 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
5.60	5.60	5.60

RESULTS

FCC §15.407 (a) (1)

Limits

Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	4 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Low	5180	17	20.50	17.12	5.60	17.00	4.00
Mid	5200	17	20.42	17.10	5.60	17.00	4.00
High	5240	17	20.50	17.12	5.60	17.00	4.00

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	11.782	12.603	15.222	17.00	-1.778
Mid	5200	11.530	12.572	15.092	17.00	-1.908
High	5240	11.751	12.782	15.307	17.00	-1.693

PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	0.18	1.06	3.65	4.00	-0.35
Mid	5200	-0.08	1.03	3.52	4.00	-0.48
High	5240	0.08	1.19	3.68	4.00	-0.32

IC RSS-210 A9.2 (1)

Limits

Channel	Frequency (MHz)	Fixed EIRP Limit (dBm)	B 99% (MHz)	10 + 10 Log B EIRP Limit (dBm)	Directional Gain (dBi)	Power EIRP Limit (dBm)	PPSD EIRP Limit (dBm)
Low	5180	23	17.6276	22.4619	5.60	22.4619	10.00
Mid	5200	23	17.6291	22.4623	5.60	22.4623	10.00
High	5240	23	17.6142	22.4586	5.60	22.4586	10.00

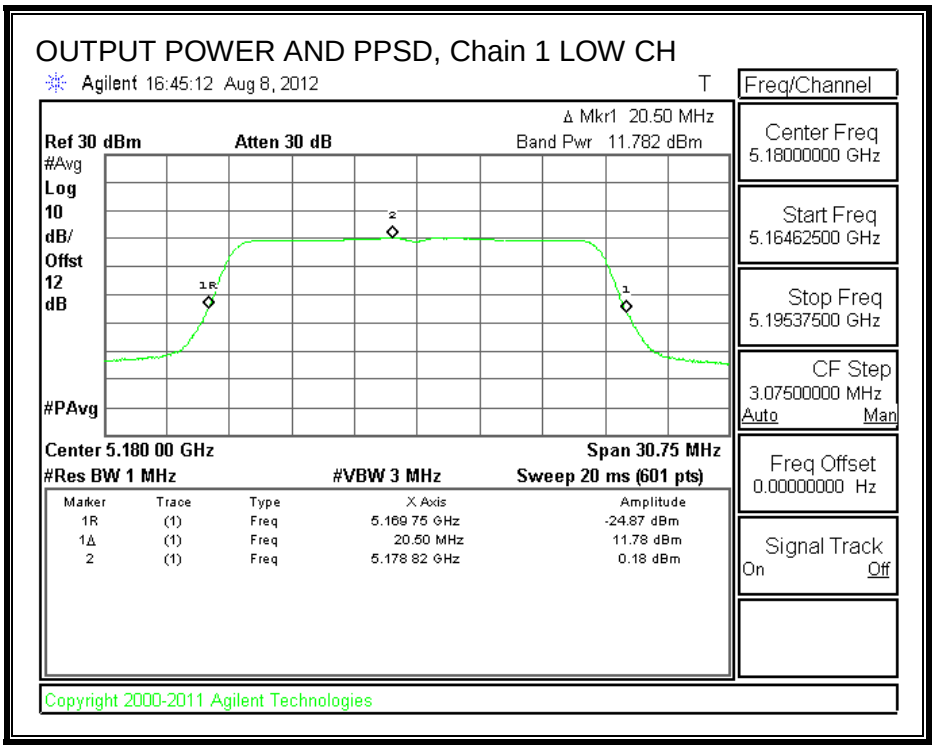
Output Power Results

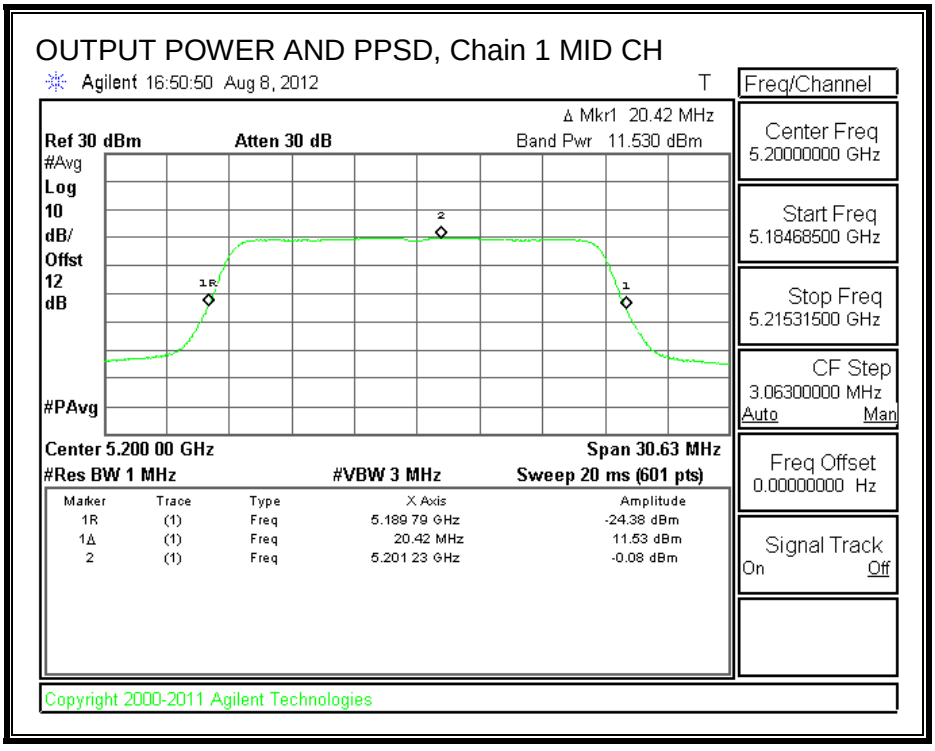
Channel	Frequency (MHz)	Meas Power (dBm)	Meas Power (dBm)	Corr'd Power (dBm)	Meas EIRP Power (dBm)	Power EIRP Limit (dBm)	Power Margin (dB)
Low	5180	11.782	12.603	15.222	20.82	22.4619	-1.64
Mid	5200	11.530	12.572	15.092	20.69	22.4623	-1.77
High	5240	11.751	12.782	15.307	20.91	22.4586	-1.55

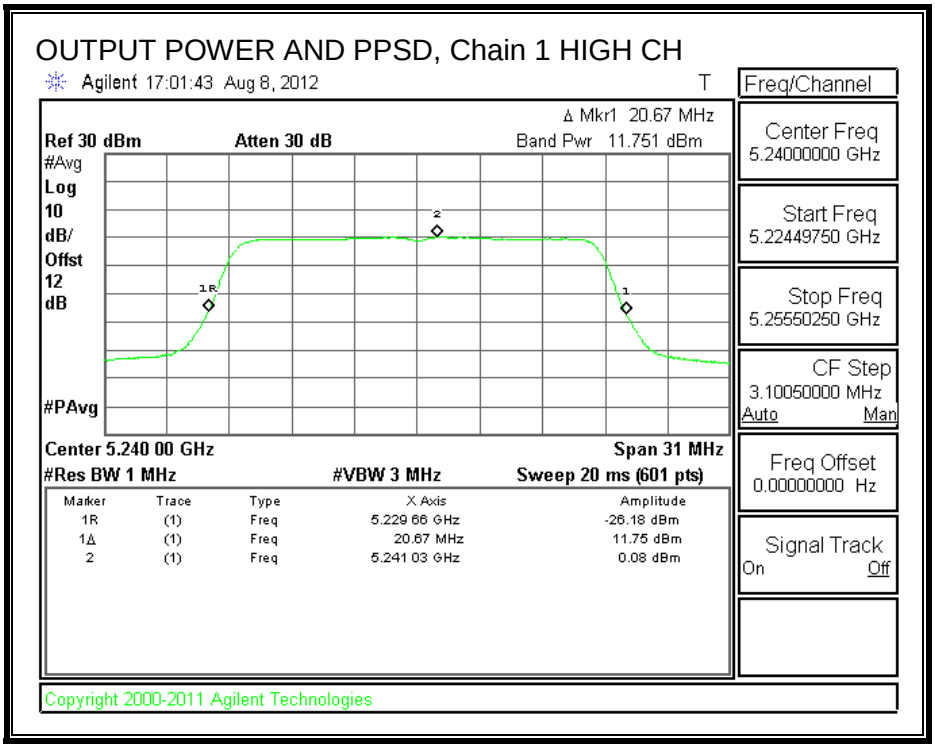
PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Meas PPSD (dBm)	Corr'd PPSD (dBm)	Meas EIRP Power (dBm)	PPSD EIRP Limit (dBm)	PPSD Margin (dB)
Low	5180	0.18	1.06	3.653	9.25	10.00	-0.75
Mid	5200	-0.08	1.03	3.521	9.12	10.00	-0.88
High	5240	0.08	1.19	3.681	9.28	10.00	-0.72

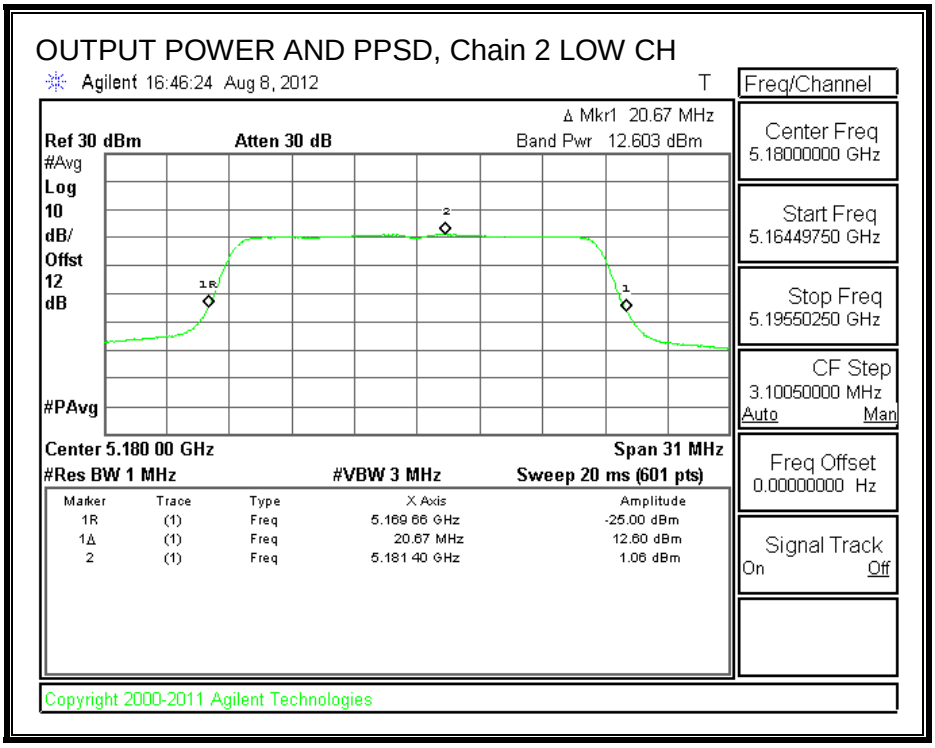
OUTPUT POWER AND PPSD, Chain 1

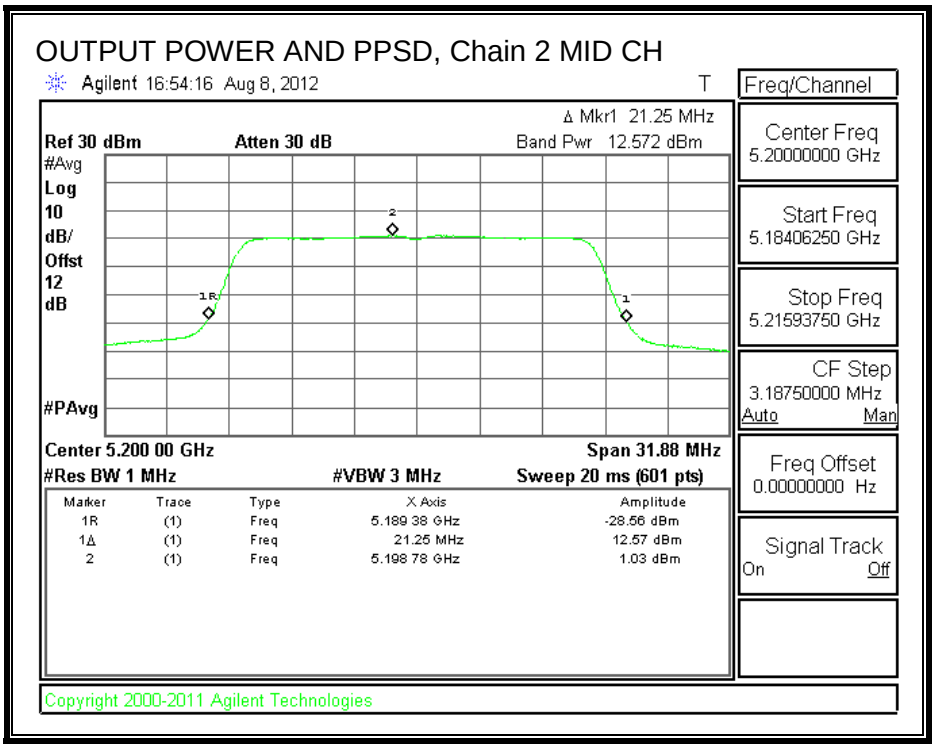


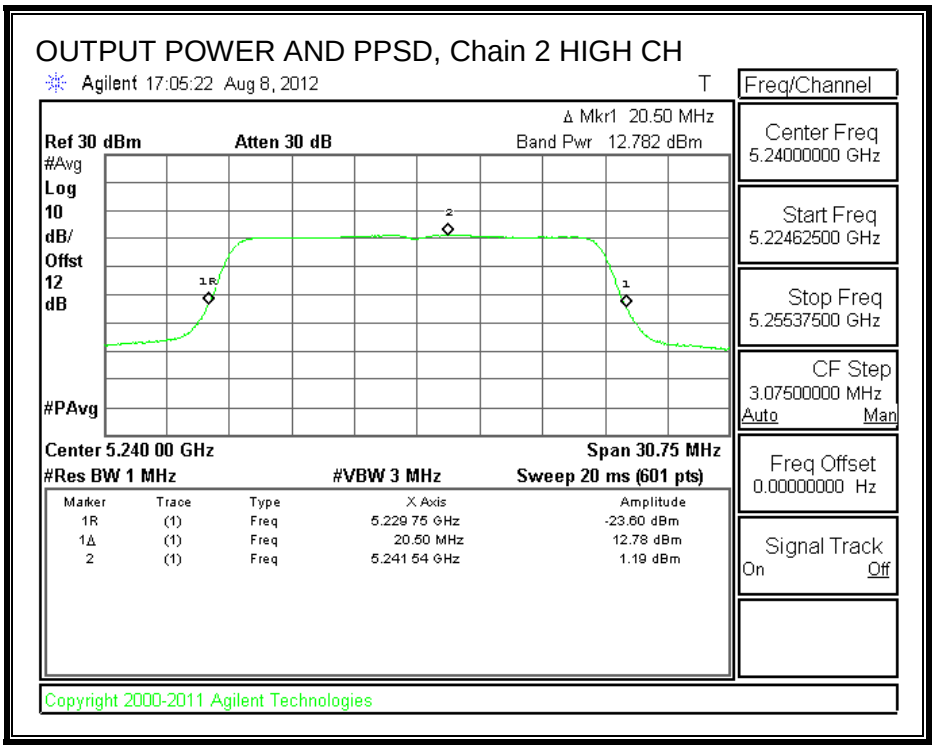




OUTPUT POWER AND PPSD, Chain 2







8.3.4. **PEAK EXCURSION**

LIMITS

FCC §15.407 (a) (6)

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

RESULTS

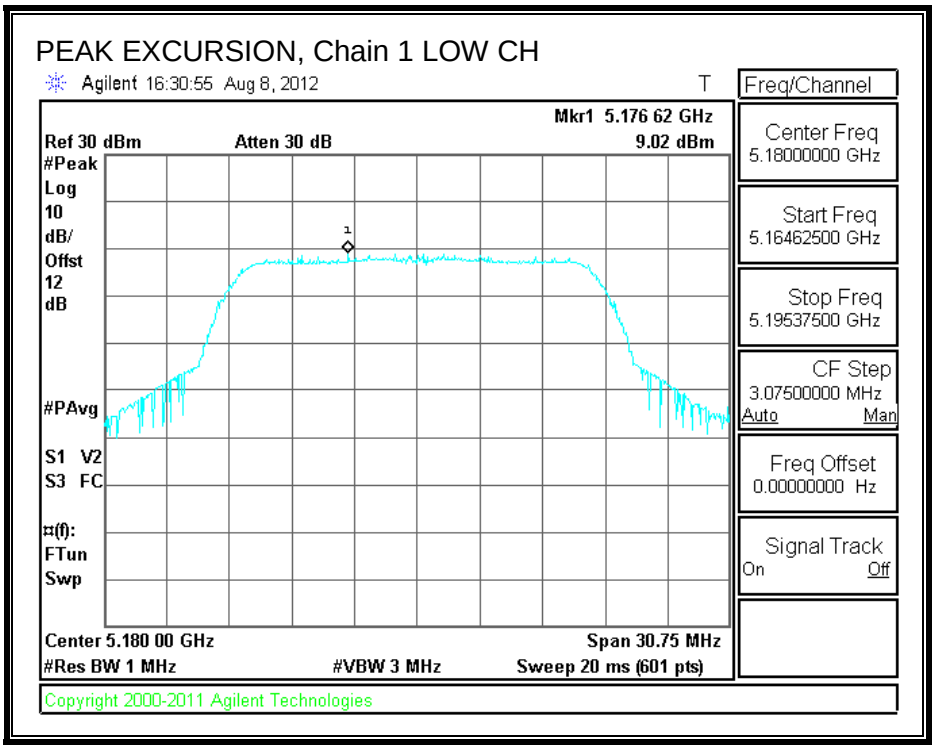
Chain 1

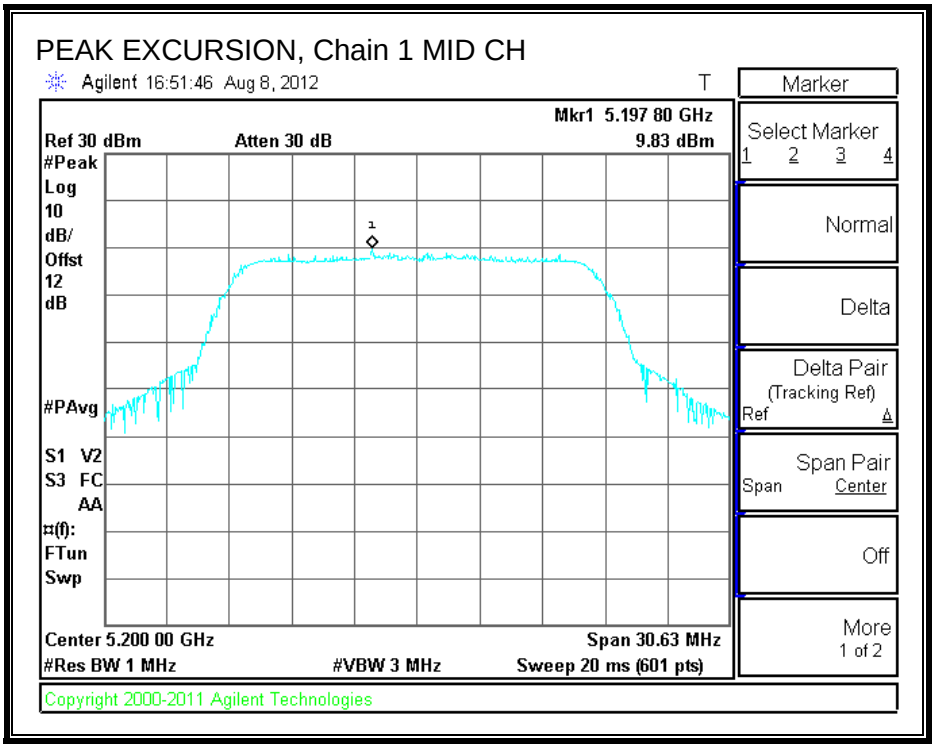
Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5180	9.02	0.18	0.03	8.81	13	-4.19
Mid	5200	9.83	-0.08	0.03	9.88	13	-3.12
High	5240	9.90	0.08	0.03	9.79	13	-3.21

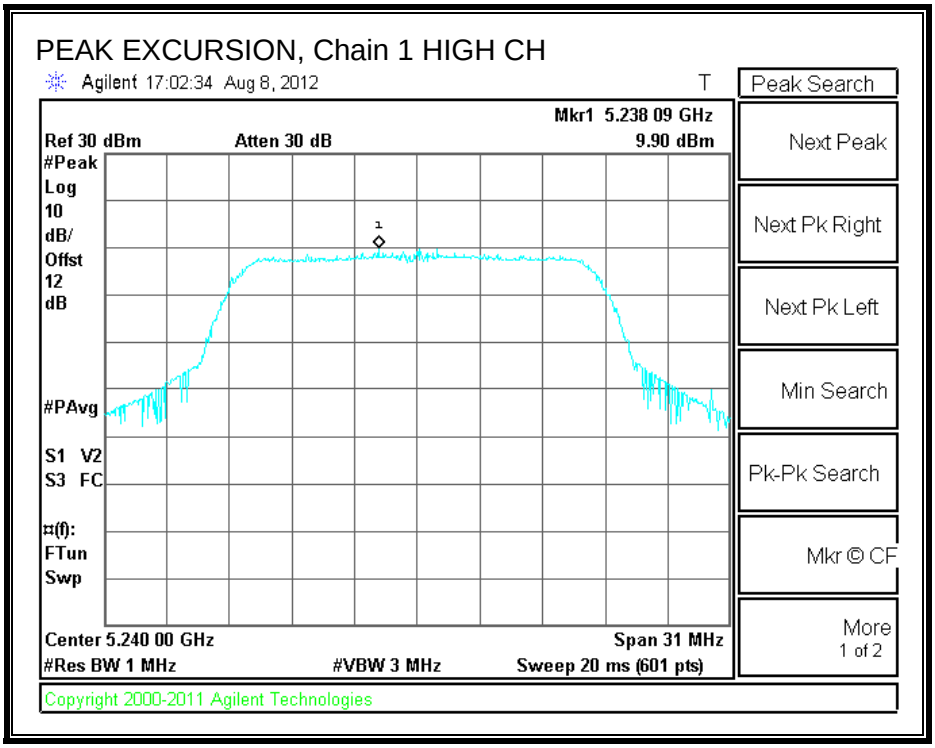
Chain 2

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5180	10.46	1.06	0.03	9.37	13	-3.63
Mid	5200	11.08	1.03	0.03	10.02	13	-2.98
High	5240	10.91	1.19	0.03	9.69	13	-3.31

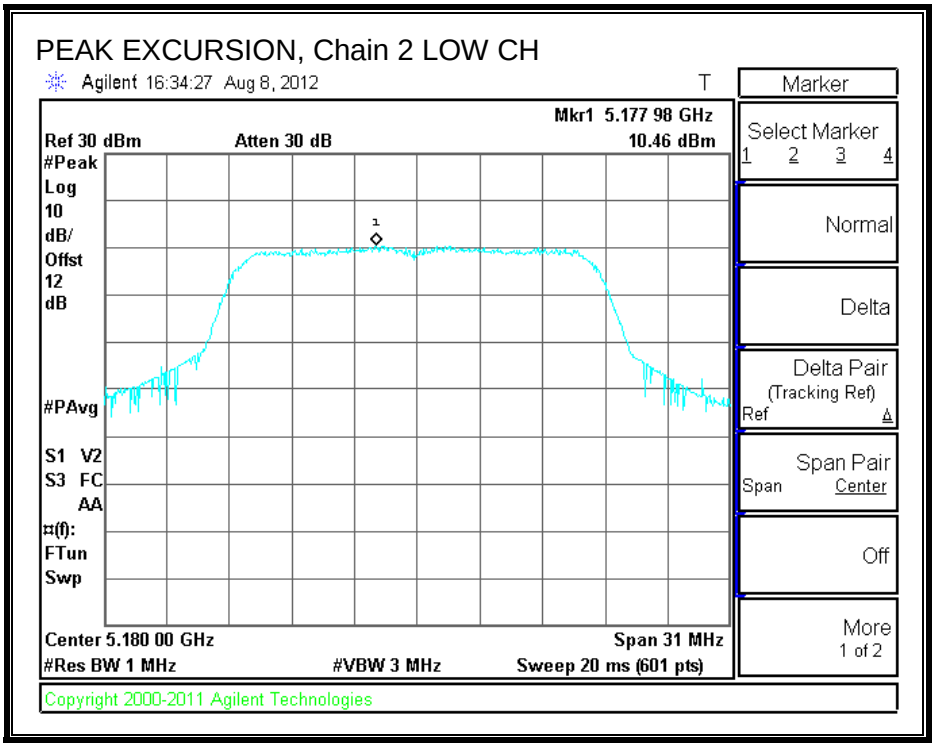
PEAK EXCURSION, Chain 1



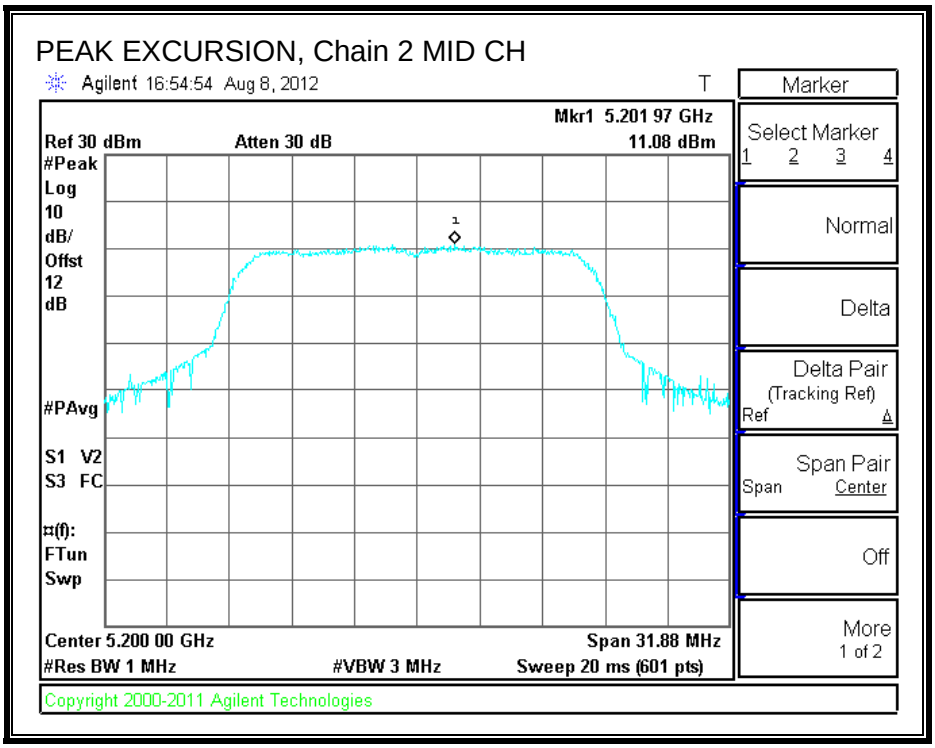




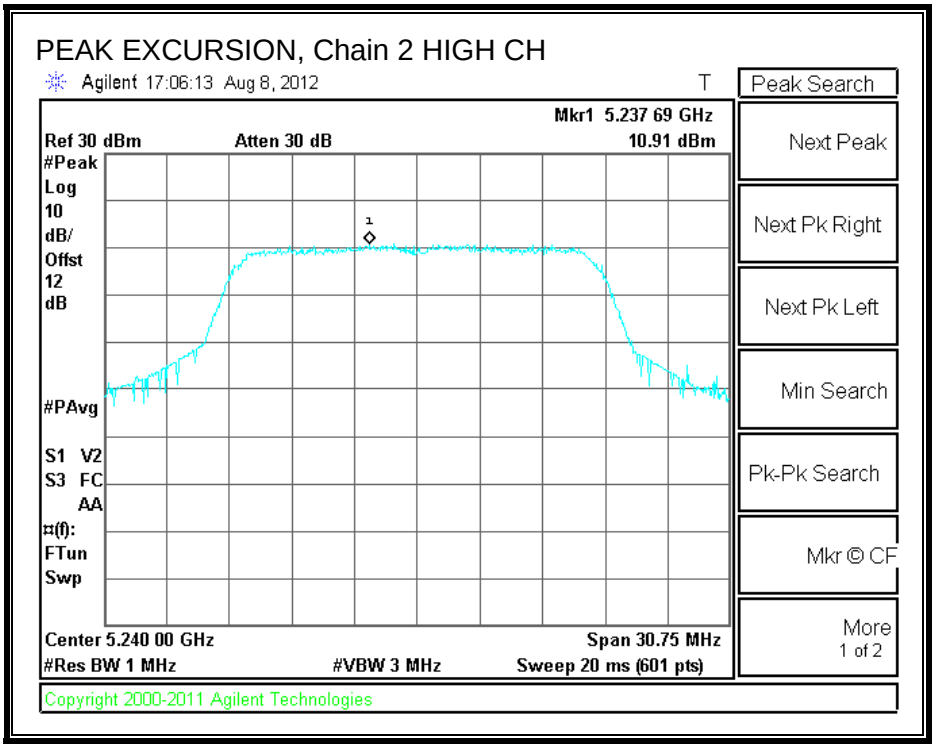
PEAK EXCURSION, Chain 2



PEAK EXCURSION, Chain 2 MID CH



PEAK EXCURSION, Chain 2 HIGH CH



8.4. 802.11n HT40 CDD MCS0 1TX MODE IN THE 5.2 GHz BAND

8.4.1. **26 dB BANDWIDTH**

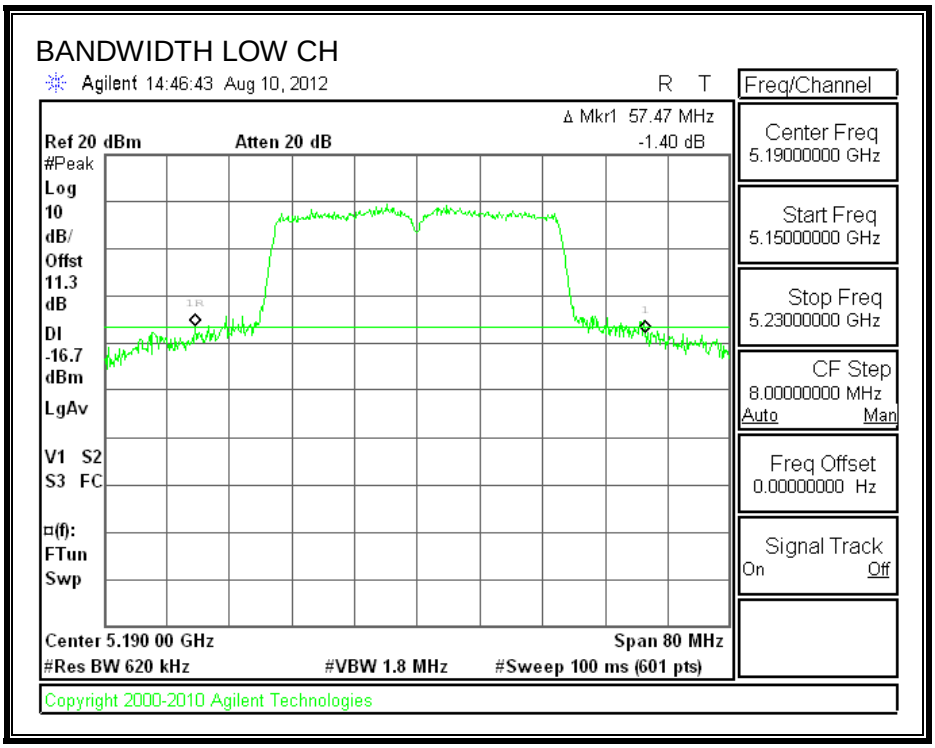
LIMITS

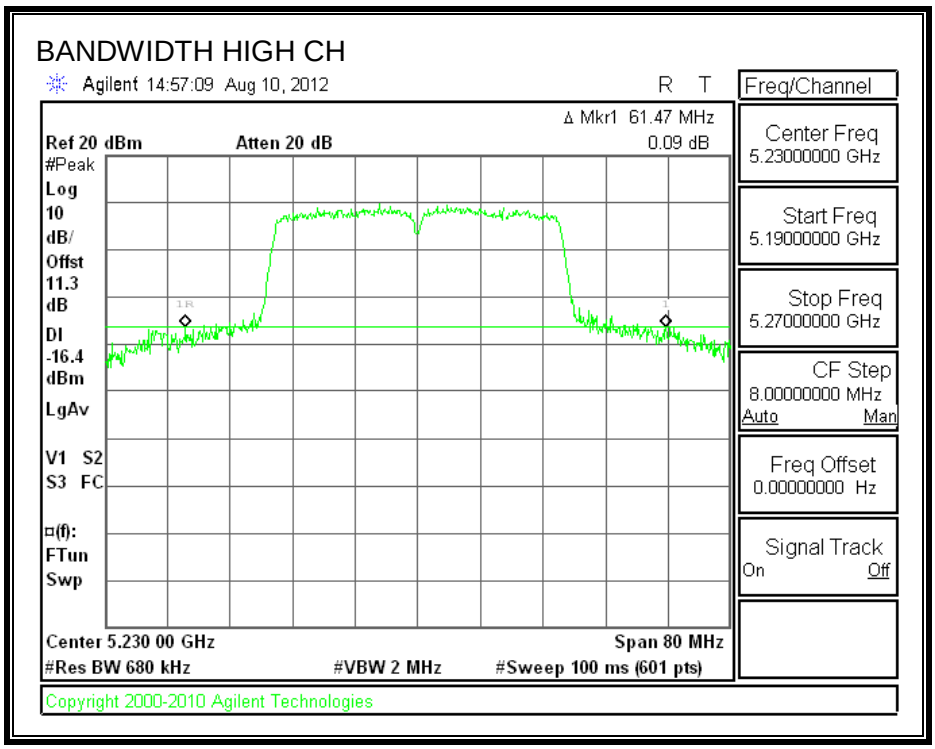
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5190	57.47
High	5230	61.47

26 dB BANDWIDTH





8.4.2. **99% BANDWIDTH**

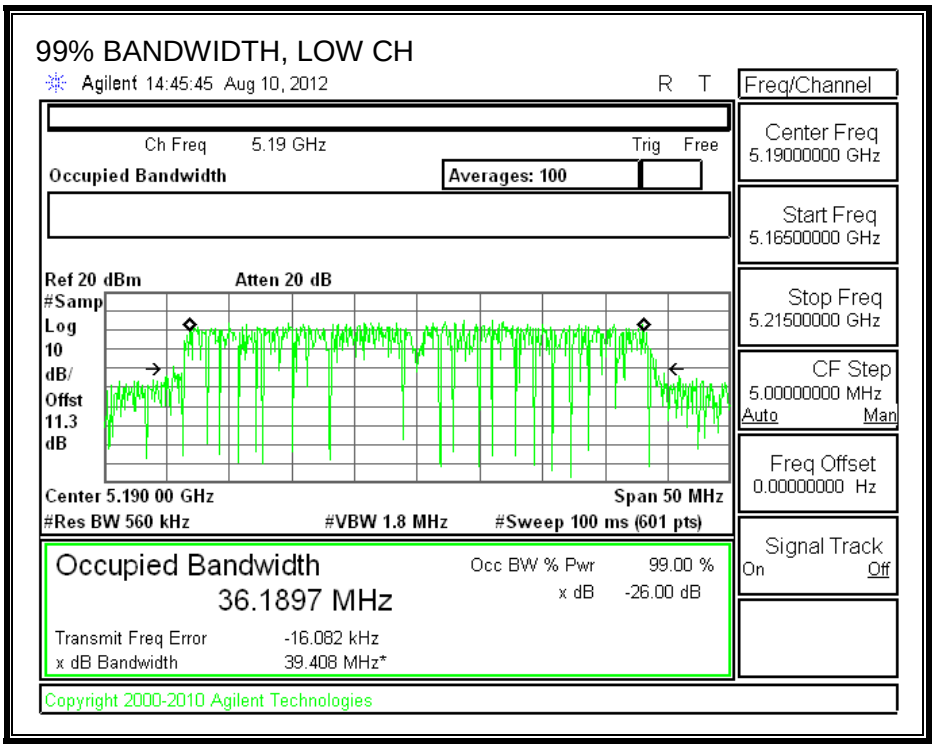
LIMITS

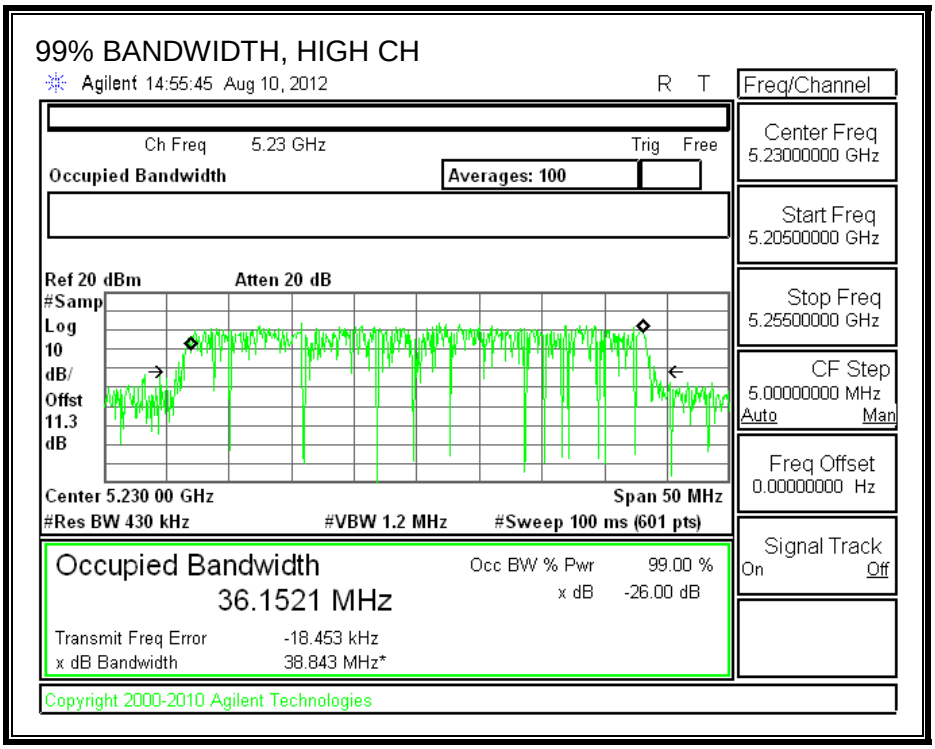
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	36.1897
High	5230	36.1521

99% BANDWIDTH





8.4.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

IC RSS-210 A9.2 (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.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

FCC §15.407 (a) (1)

Limits

Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	4 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Low	5190	17	57.47	21.59	5.60	17.00	4.00
High	5230	17	61.47	21.89	5.60	17.00	4.00

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	16.658	16.658	17.00	-0.342
High	5230	16.469	16.469	17.00	-0.531

PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5190	2.21	2.21	4.00	-1.79
High	5230	1.98	1.98	4.00	-2.02

IC RSS-210 A9.2 (1)

Limits

Channel	Frequency (MHz)	Fixed EIRP Limit (dBm)	B 99% (MHz)	10 + 10 Log B EIRP Limit (dBm)	Directional Gain (dBi)	Power EIRP Limit (dBm)	PPSD EIRP Limit (dBm)
Low	5190	23	36.1897	25.5858	5.60	23.00	10.00
High	5230	23	36.1521	25.5813	5.60	23.00	10.00

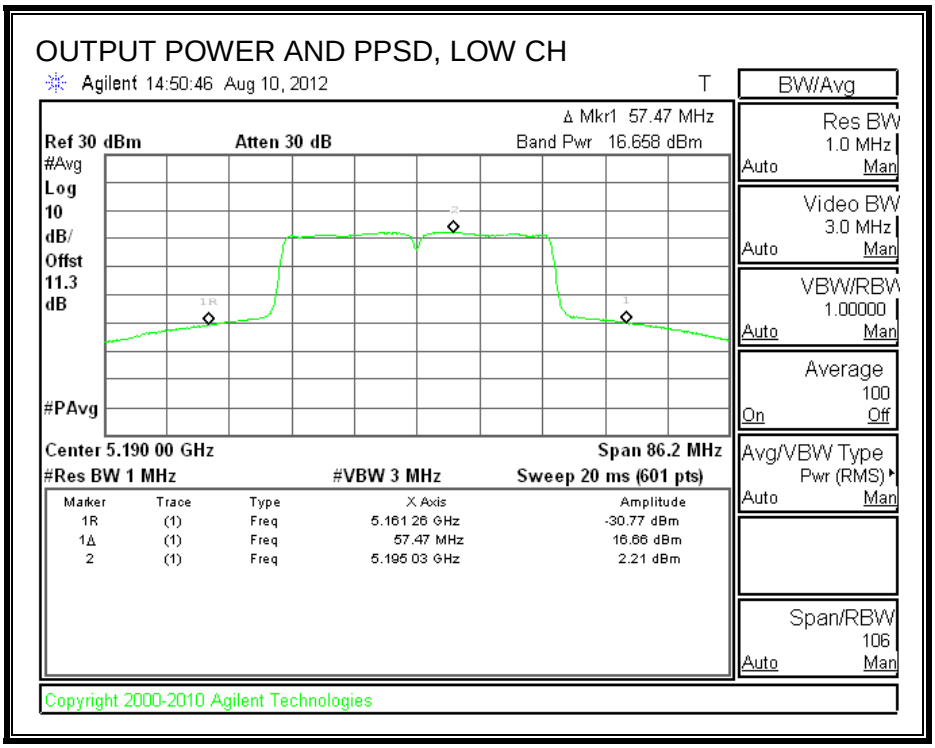
Output Power Results

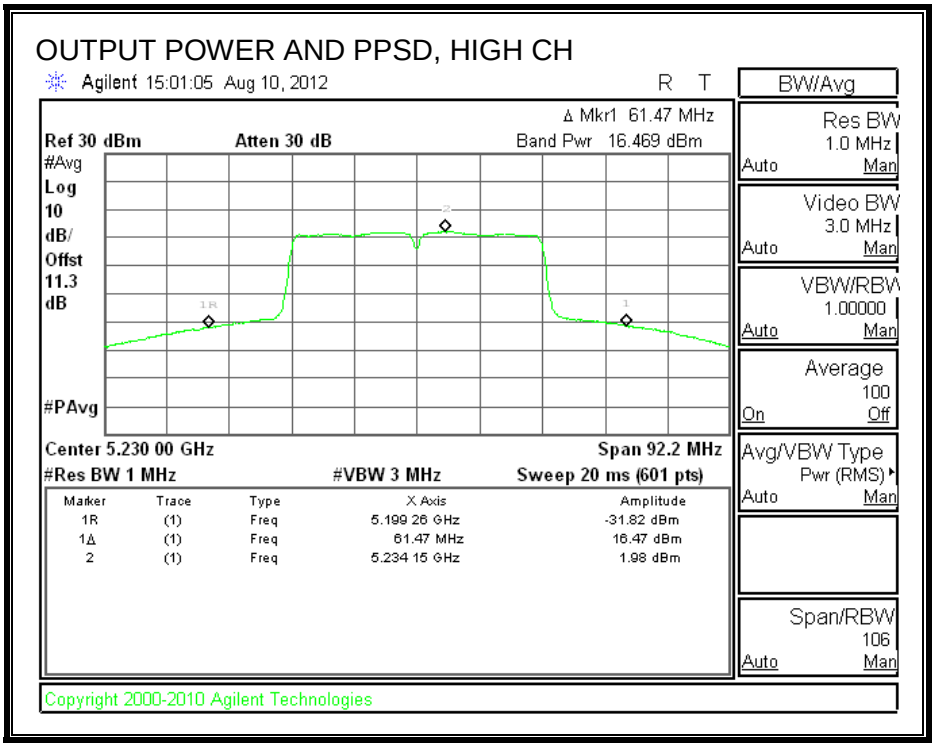
Channel	Frequency (MHz)	Meas Power (dBm)	Corr'd Power (dBm)	Meas EIRP Power (dBm)	Power EIRP Limit (dBm)	Power Margin (dB)
Low	5190	16.658	16.658	22.26	23.00	-0.74
High	5230	16.469	16.469	22.07	23.00	-0.93

PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Corr'd PPSD (dBm)	Meas EIRP Power (dBm)	Power EIRP Limit (dBm)	PPSD Margin (dB)
Low	5190	2.21	2.21	8.21	10.00	-1.79
High	5230	1.98	1.98	7.98	10.00	-2.02

OUTPUT POWER AND PPSD





8.4.4. **PEAK EXCURSION**

LIMITS

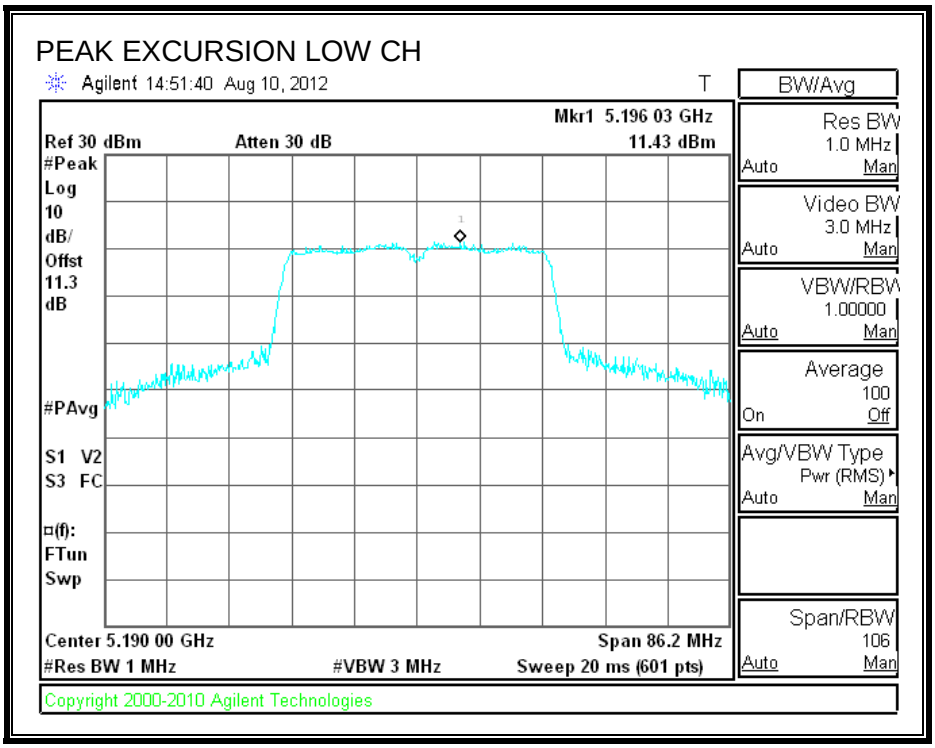
FCC §15.407 (a) (6)

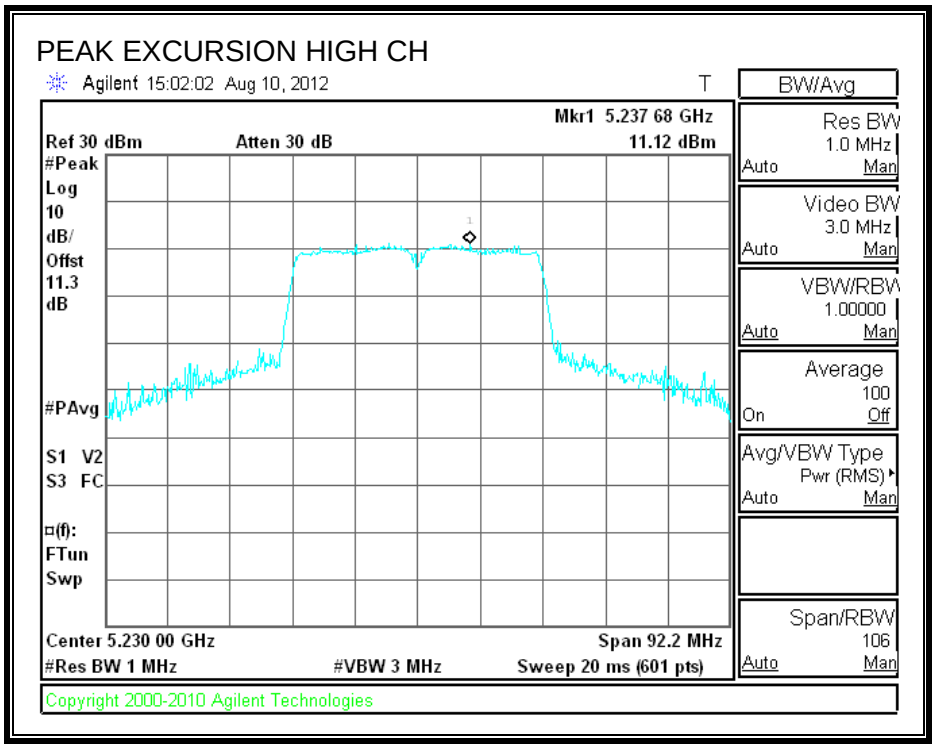
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5190	11.43	2.21	0.08	9.14	13	-3.86
High	5230	11.12	1.98	0.08	9.06	13	-3.94

PEAK EXCURSION





8.5. 802.11n HT40, CDD MCS0, 2TX MODE IN THE 5.2 GHz BAND

8.5.1. **26 dB BANDWIDTH**

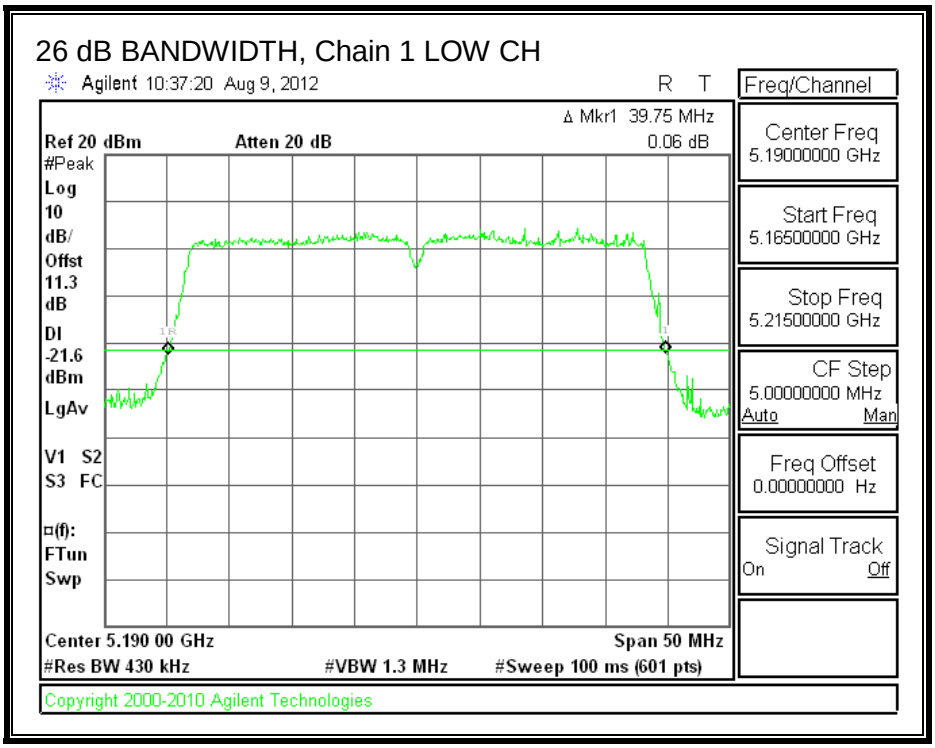
LIMITS

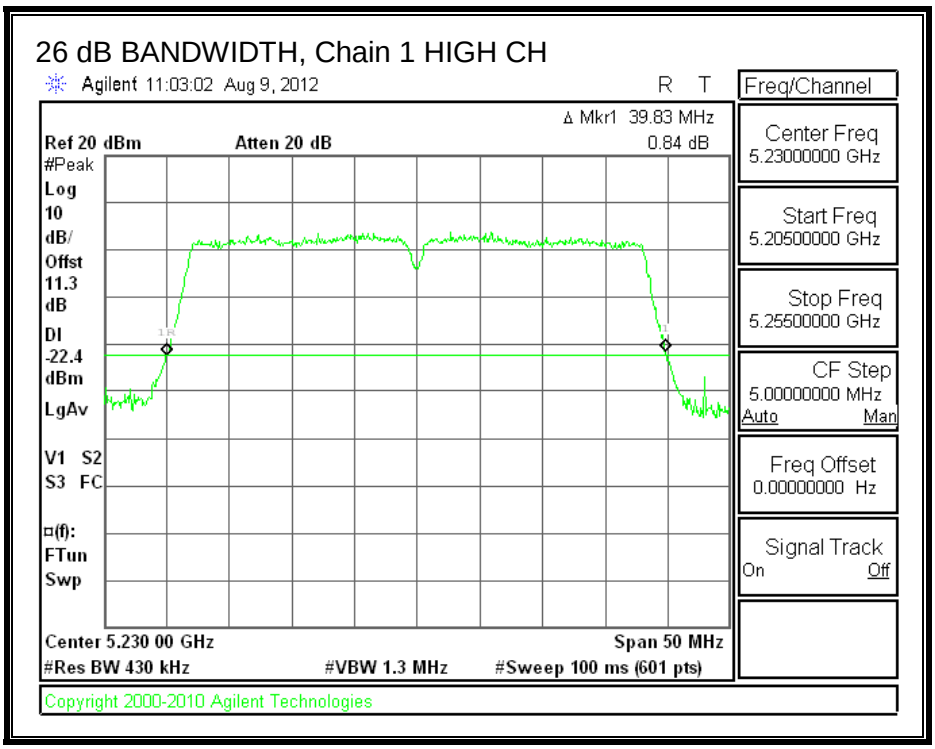
None; for reporting purposes only.

RESULTS

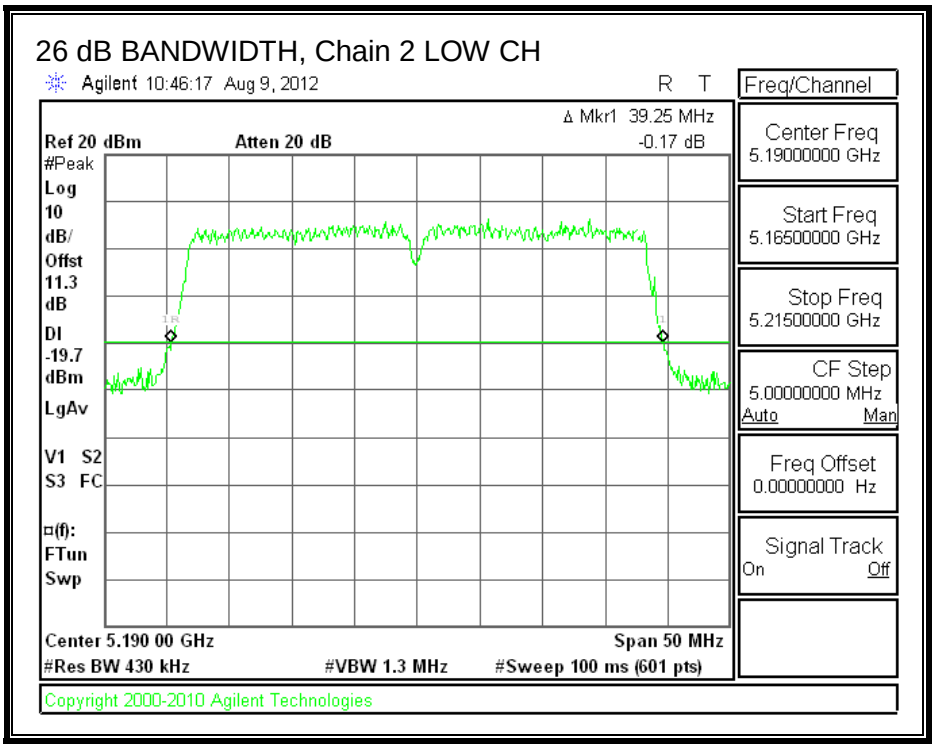
Channel	Frequency (MHz)	26 dB BW Chain 1 (MHz)	26 dB BW Chain 2 (MHz)
Low	5190	39.75	39.25
High	5230	39.83	39.33

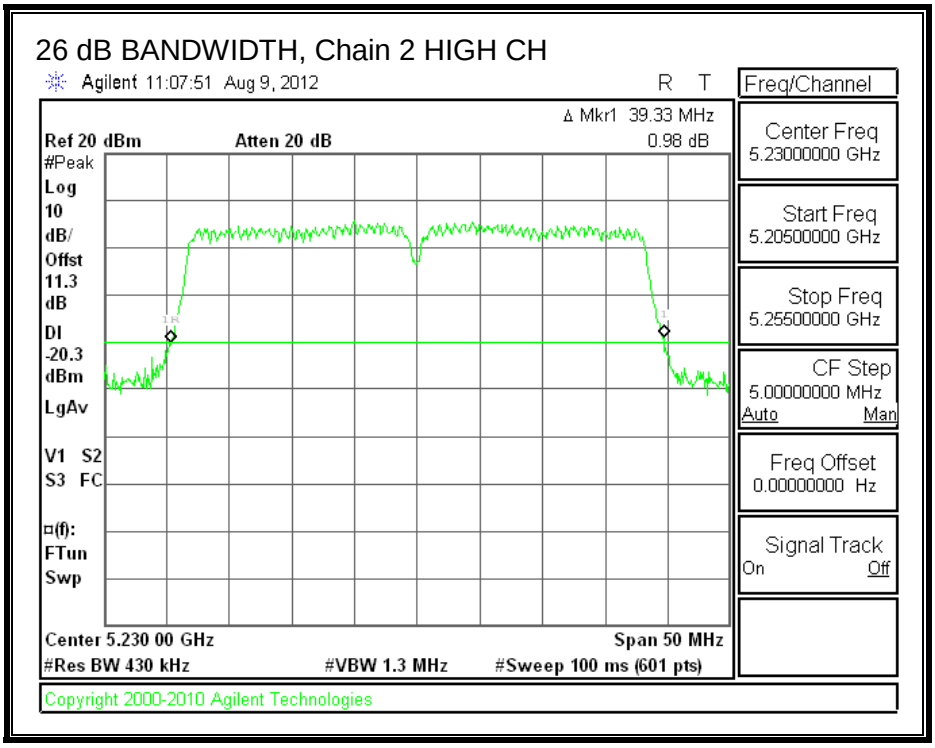
26 dB BANDWIDTH, Chain 1





26 dB BANDWIDTH, Chain 2





8.5.2. **99% BANDWIDTH**

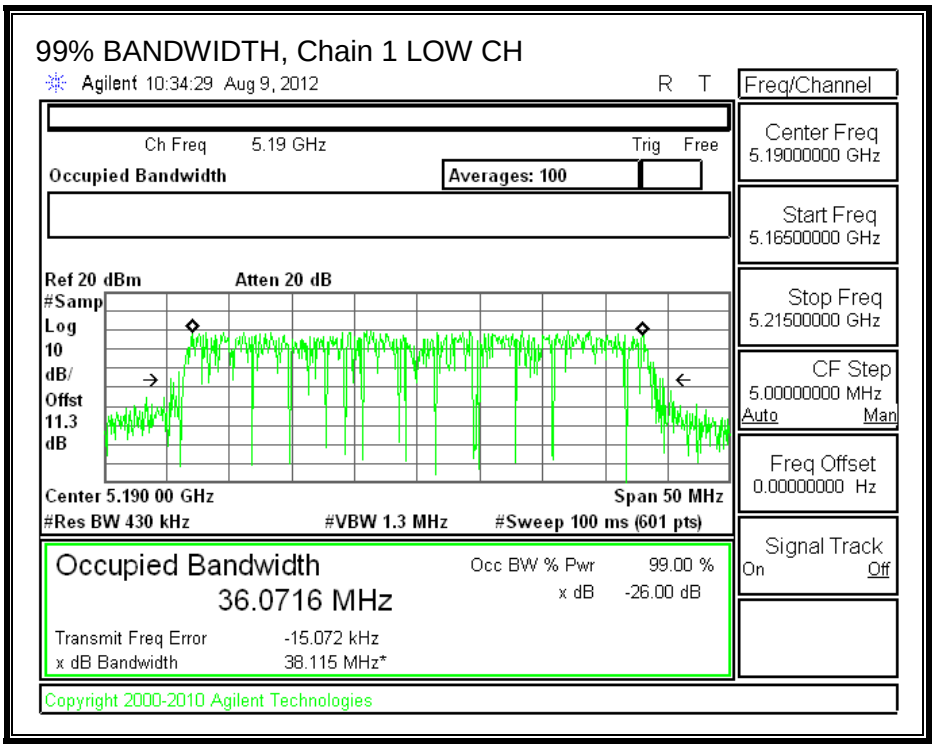
LIMITS

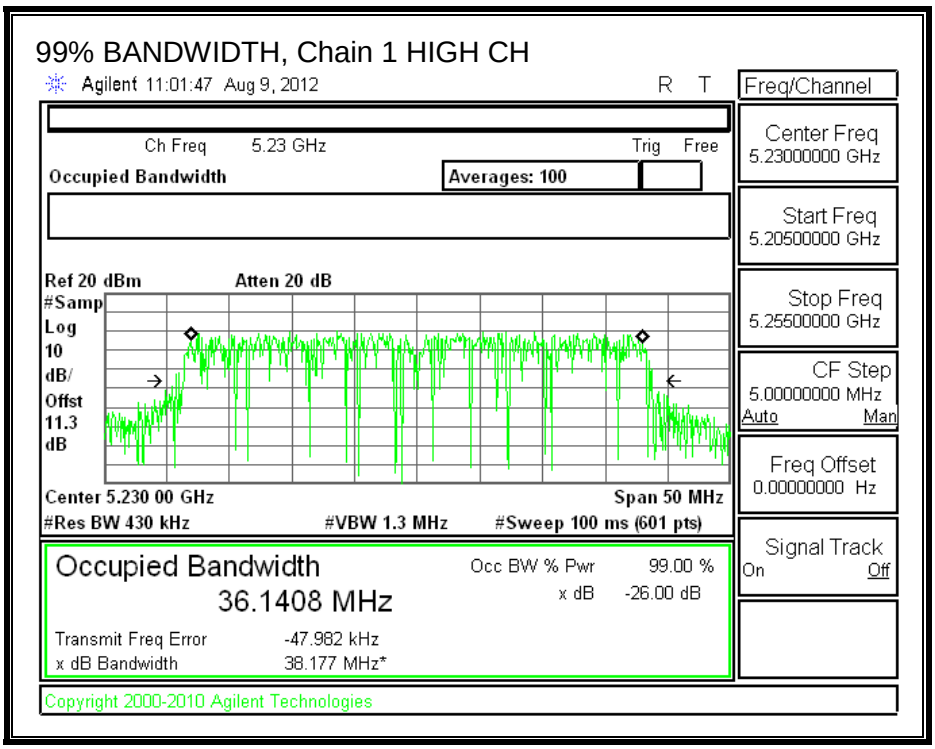
None; for reporting purposes only.

RESULTS

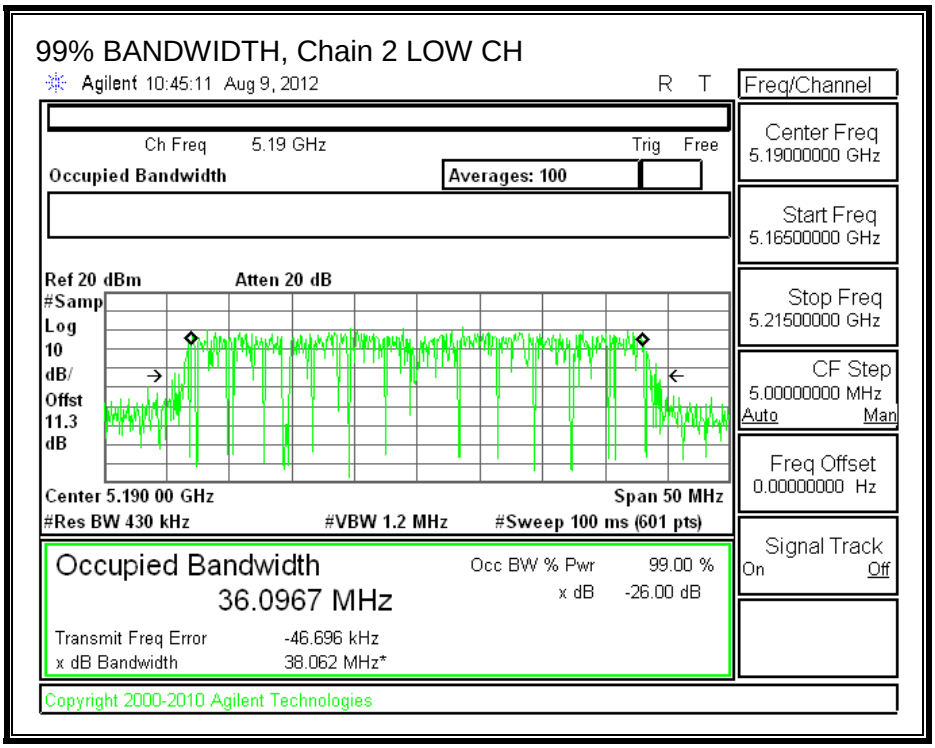
Channel	Frequency (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Low	5190	36.0716	36.0967
High	5230	36.1408	36.0979

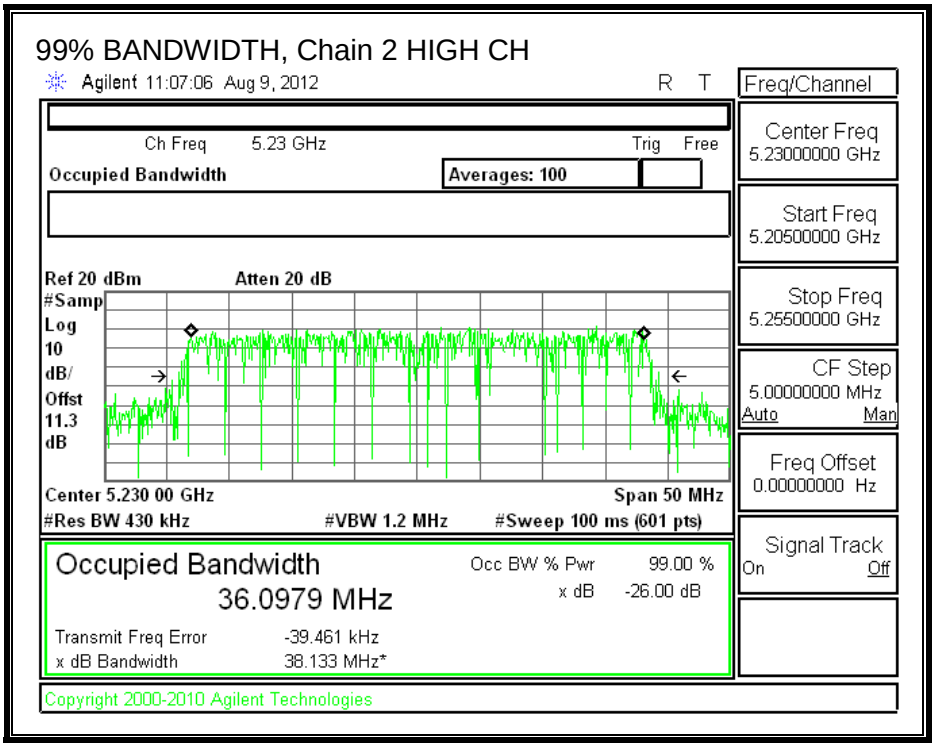
99% BANDWIDTH, Chain 1





99% BANDWIDTH, Chain 2





8.5.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

IC RSS-210 A9.2 (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.

DIRECTIONAL ANTENNA GAIN

The TX chains are correlated and the antenna gain is the same for each chain. The directional gain is:

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
5.60	3.01	8.61

RESULTS

FCC §15.407 (a) (1)

Limits

Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	4 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Low	5190	17	39.25	19.94	8.61	14.39	1.39
High	5230	17	39.33	19.95	8.61	14.39	1.39

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	10.973	11.539	14.276	14.39	-0.114
High	5230	10.816	11.480	14.171	14.39	-0.219

PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5190	-3.55	-2.83	-0.16	1.39	-1.55
High	5230	-3.65	-3.07	-0.34	1.39	-1.73

IC RSS-210 A9.2 (1)

Limits

Channel	Frequency (MHz)	Fixed EIRP Limit (dBm)	B 99% (MHz)	10 + 10 Log B EIRP Limit (dBm)	Directional Gain (dBi)	Power EIRP Limit (dBm)	PPSD EIRP Limit (dBm)
Low	5190	23	36.0716	25.5717	8.61	23.00	10.00
High	5230	23	36.0979	25.5748	8.61	23.00	10.00

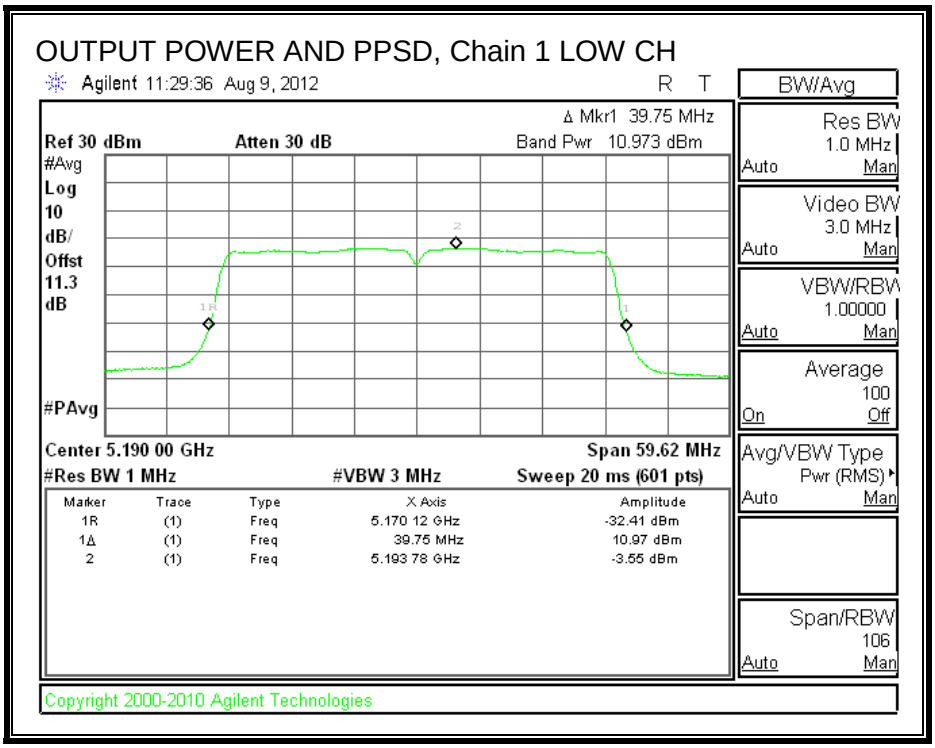
Output Power Results

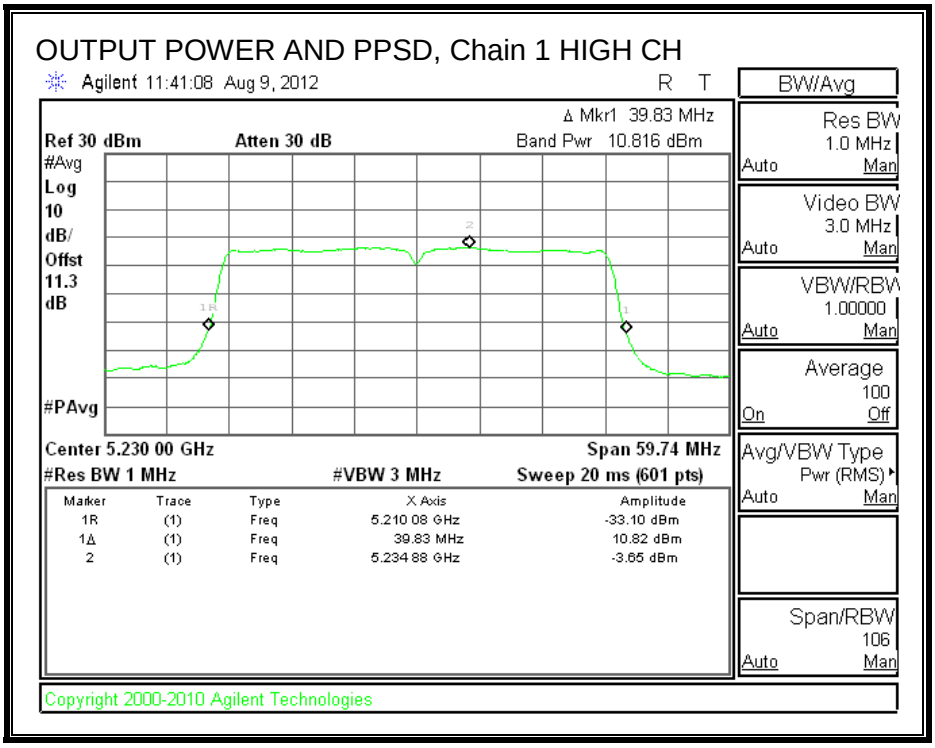
Channel	Frequency (MHz)	Meas Power (dBm)	Meas Power (dBm)	Corr'd Power (dBm)	Meas EIRP Power (dBm)	Power EIRP Limit (dBm)	Power Margin (dB)
Low	5190	10.973	11.539	14.276	22.89	23.00	-0.11
High	5230	10.816	11.480	14.171	22.78	23.00	-0.22

PPSD Results

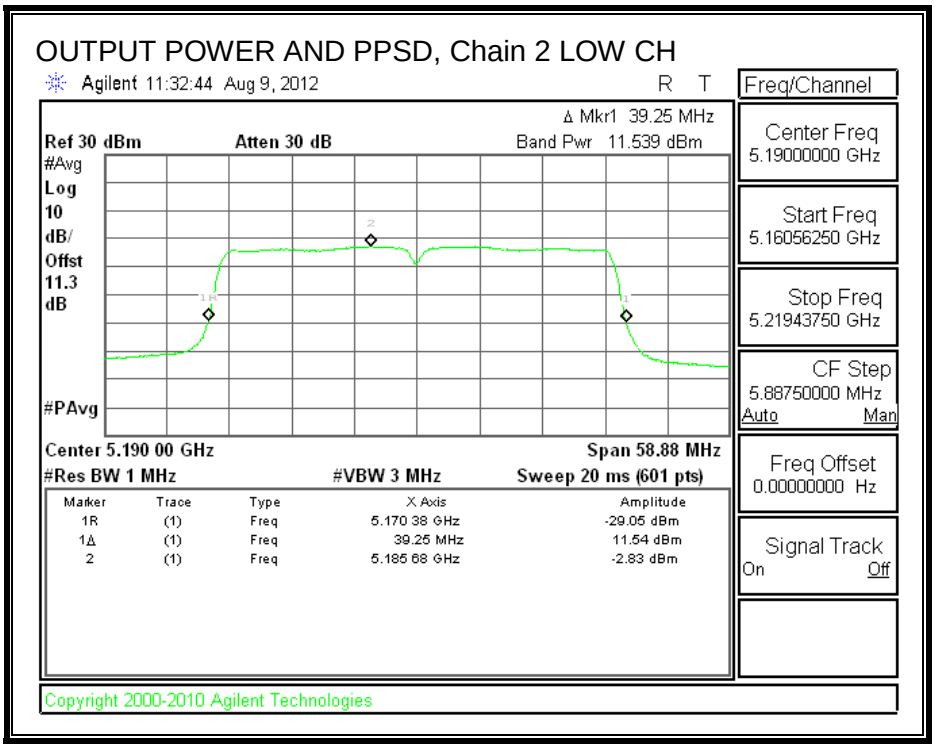
Channel	Frequency (MHz)	Meas PPSD (dBm)	Meas PPSD (dBm)	Corr'd PPSD (dBm)	Meas EIRP Power (dBm)	PPSD EIRP Limit (dBm)	PPSD Margin (dB)
Low	5190	-3.55	-2.83	-0.165	8.45	10.00	-1.55
High	5230	-3.65	-3.07	-0.340	8.27	10.00	-1.73

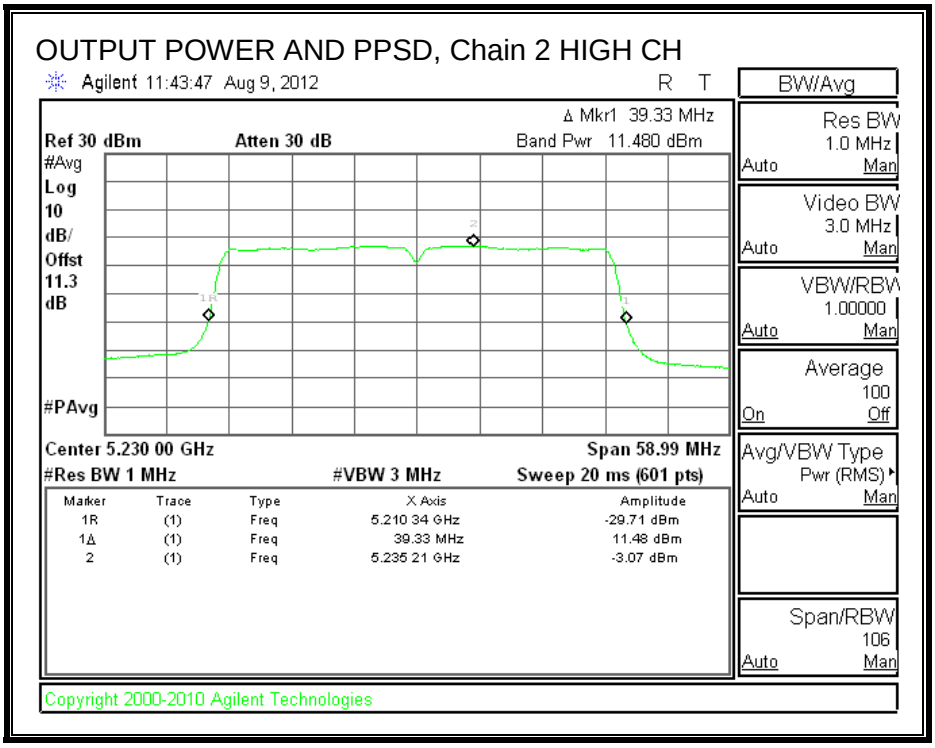
OUTPUT POWER AND PPSD, Chain 1





OUTPUT POWER AND PPSD, Chain 2





8.5.4. **PEAK EXCURSION**

LIMITS

FCC §15.407 (a) (6)

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

RESULTS

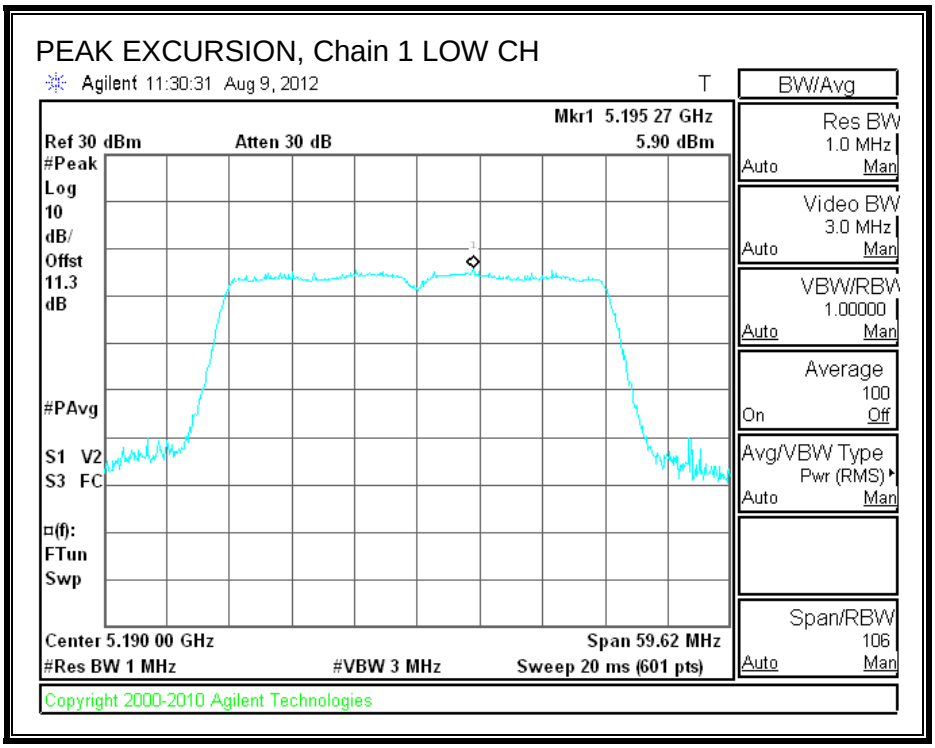
Chain 1

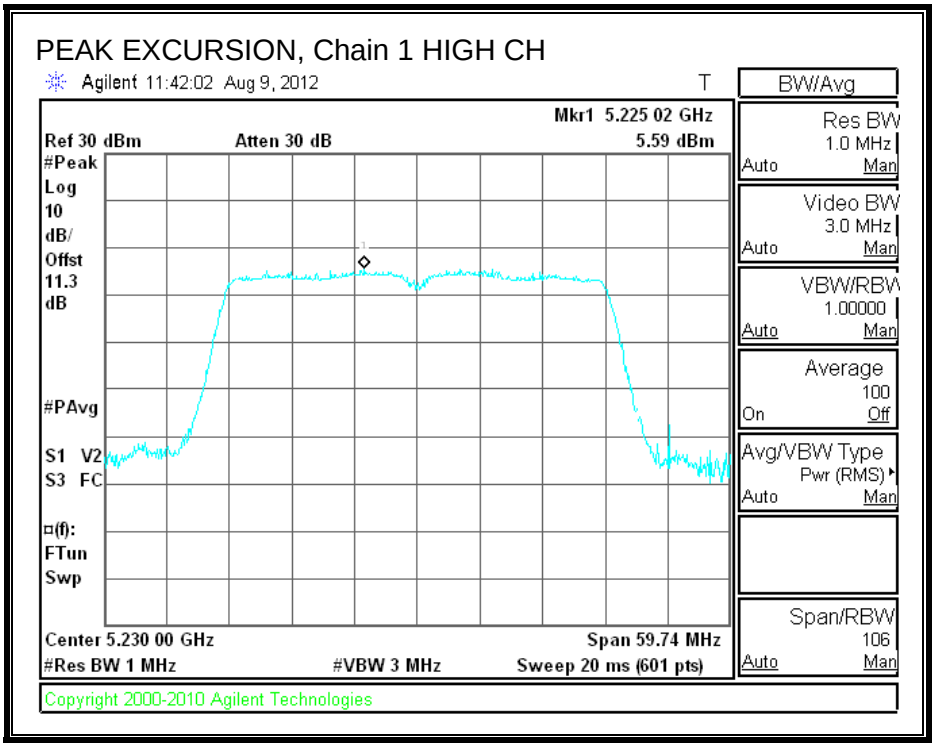
Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5190	5.90	-3.55	0.08	9.37	13	-3.63
High	5230	5.59	-3.65	0.08	9.16	13	-3.84

Chain 2

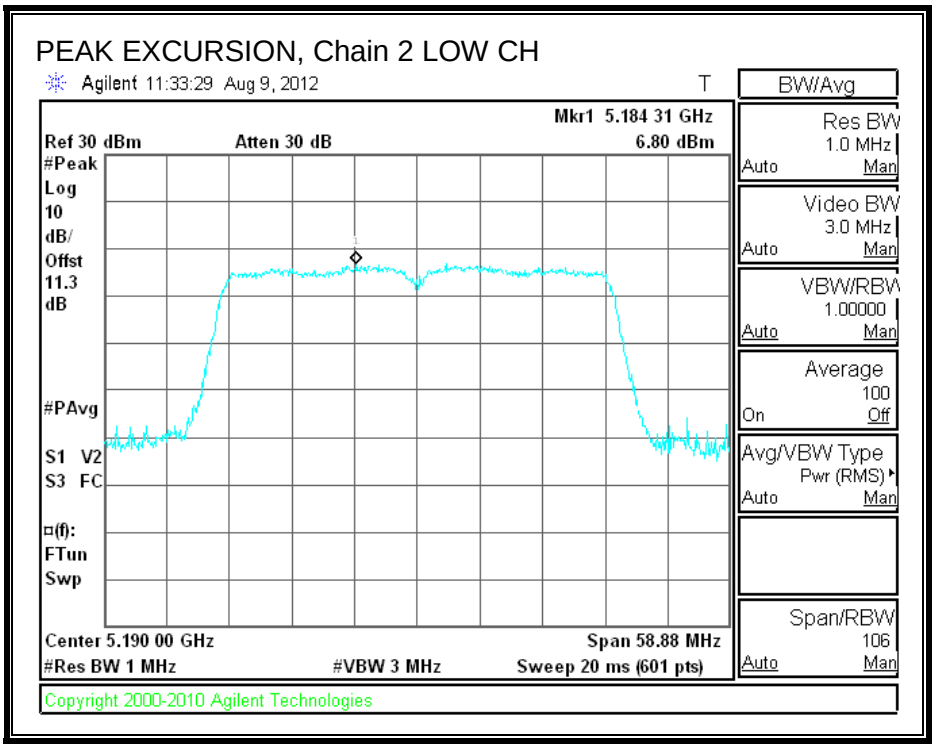
Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5190	6.80	-2.83	0.08	9.55	13	-3.45
High	5230	6.76	-3.07	0.08	9.75	13	-3.25

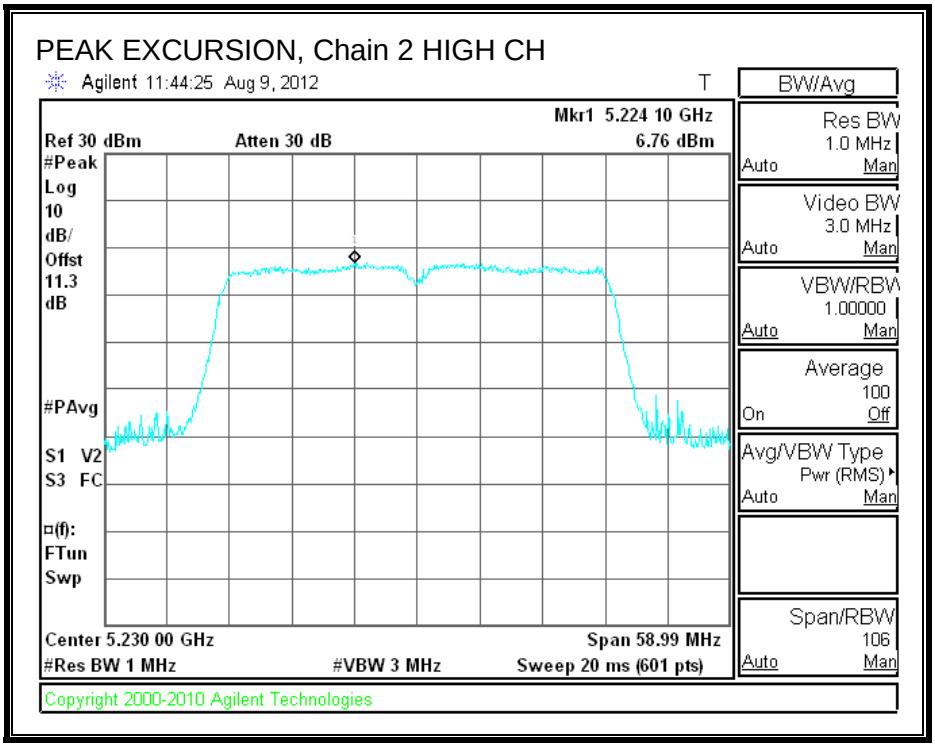
PEAK EXCURSION, Chain 1





PEAK EXCURSION, Chain 2





8.6. 802.11n HT40 STBC MCS0, 2TX MODE IN THE 5.2 GHz BAND

8.6.1. 26 dB BANDWIDTH

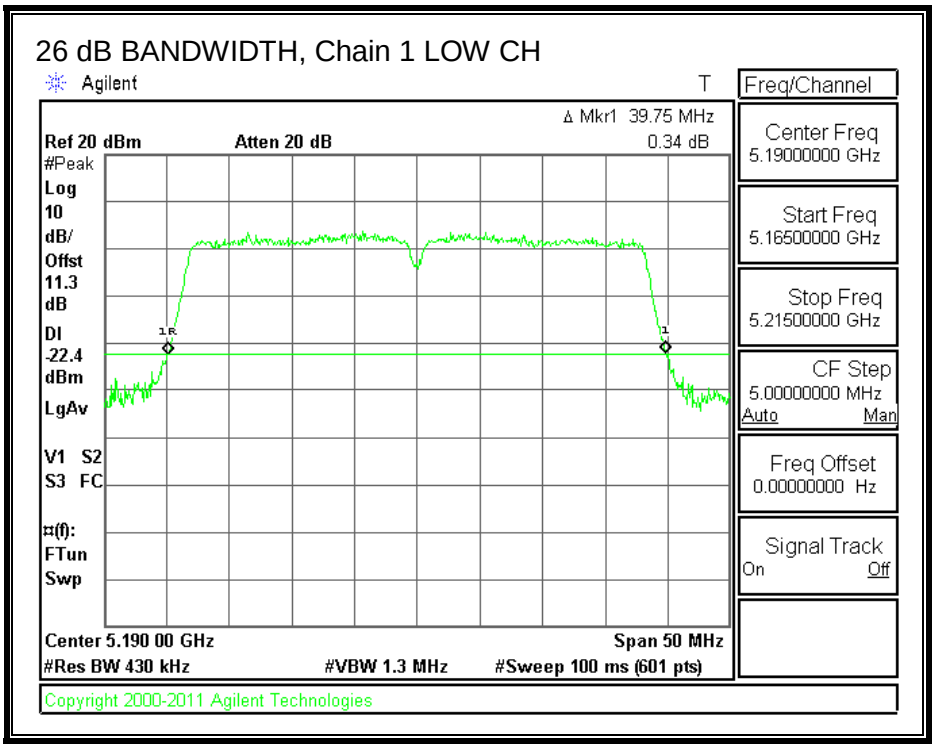
LIMITS

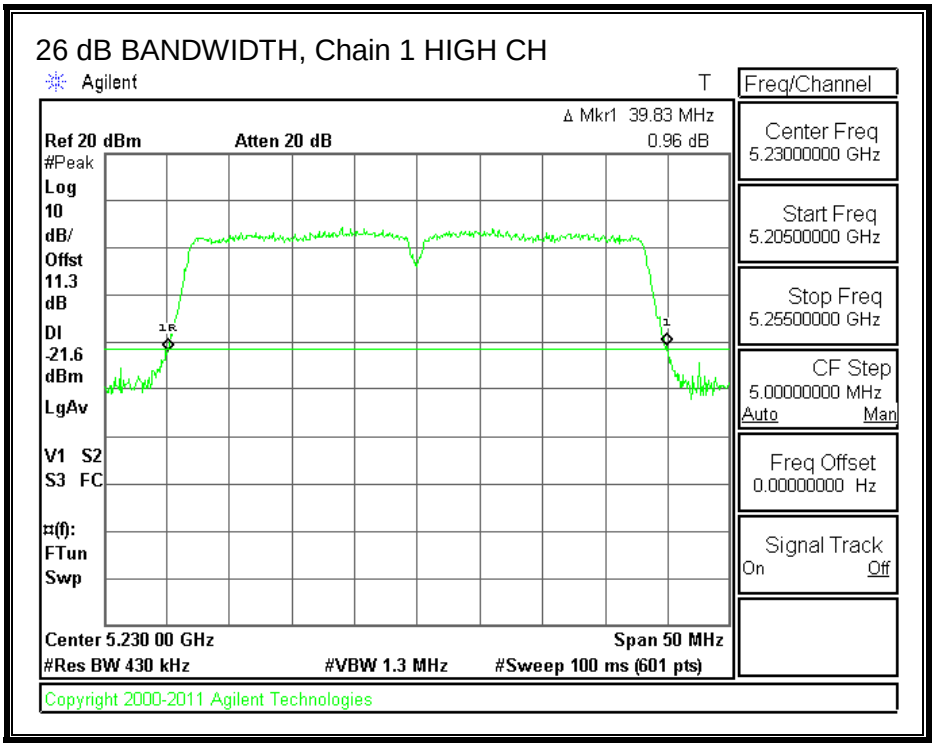
None; for reporting purposes only.

RESULTS

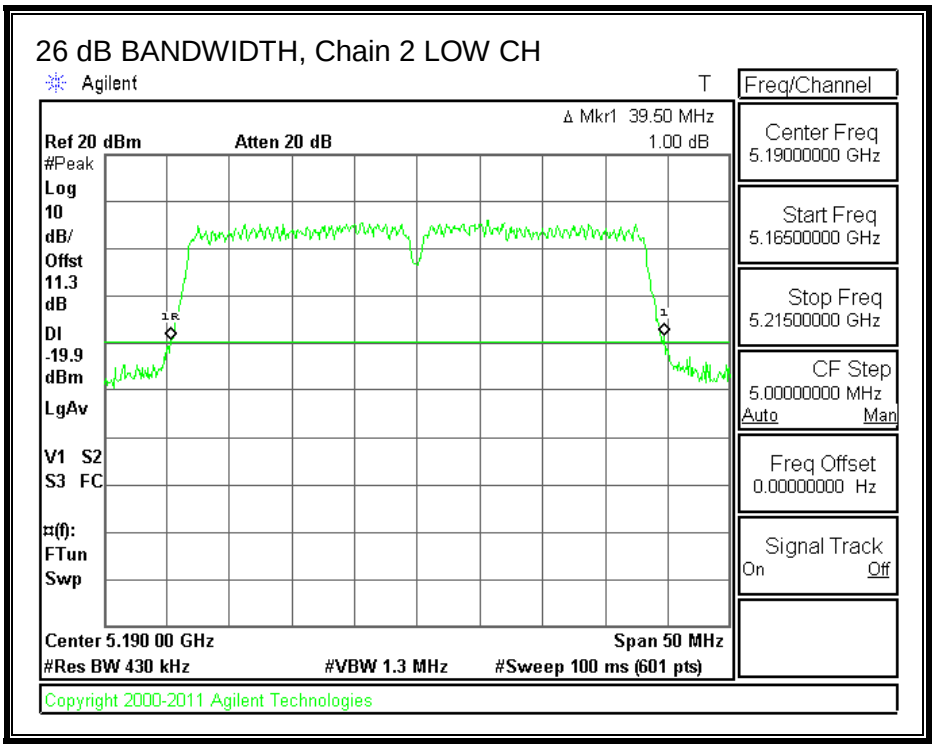
Channel	Frequency (MHz)	26 dB BW Chain 1 (MHz)	26 dB BW Chain 2 (MHz)
Low	5190	39.75	39.50
High	5230	39.83	39.58

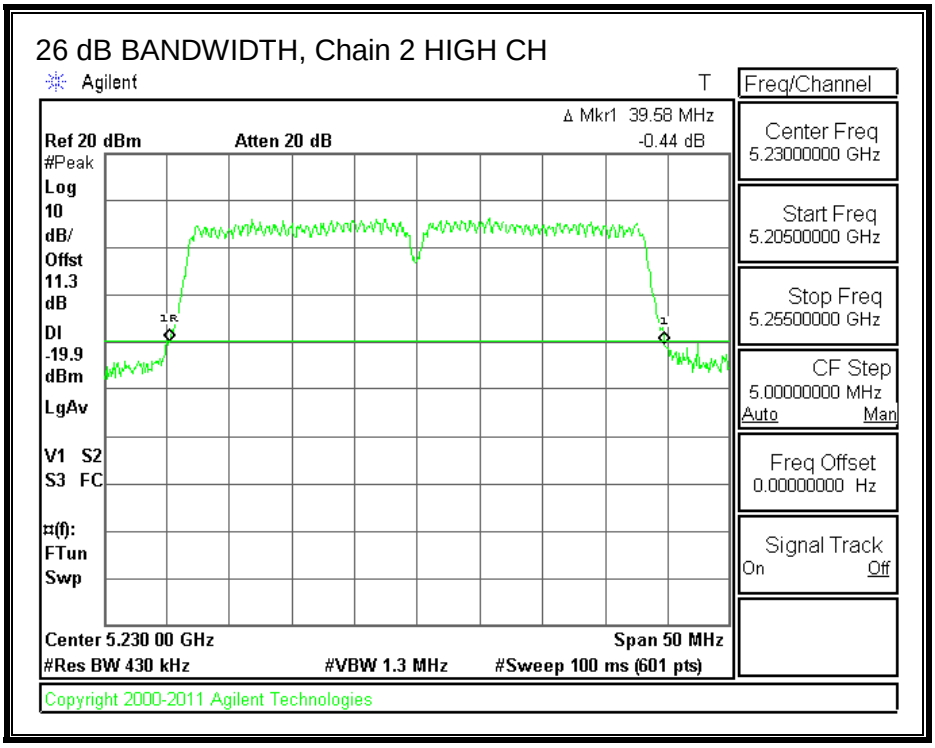
26 dB BANDWIDTH, Chain 1





26 dB BANDWIDTH, Chain 2





8.6.2. **99% BANDWIDTH**

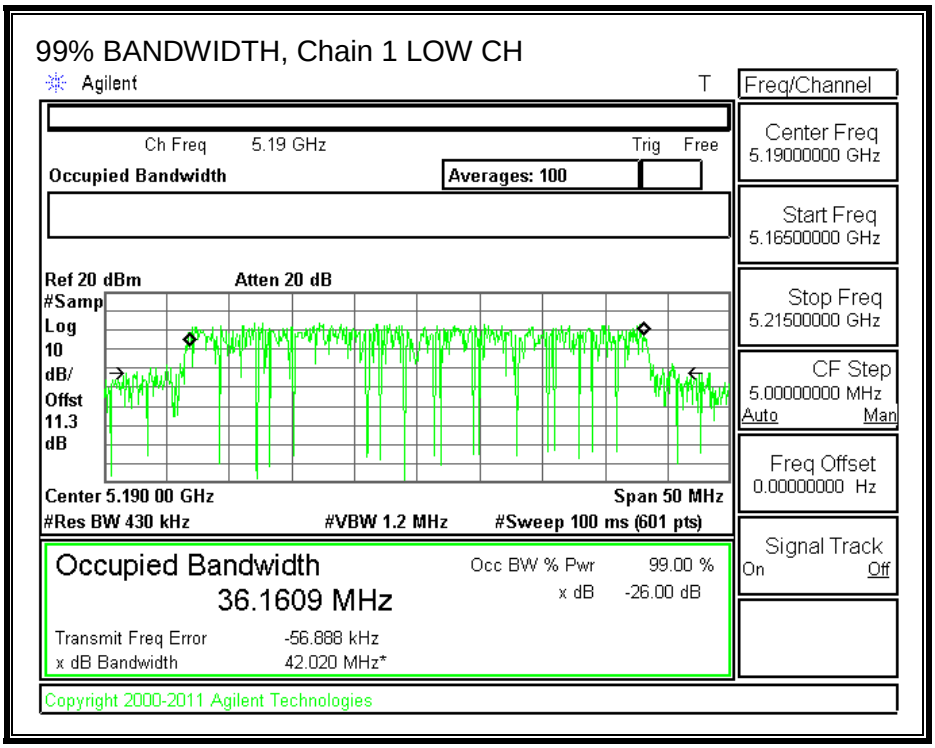
LIMITS

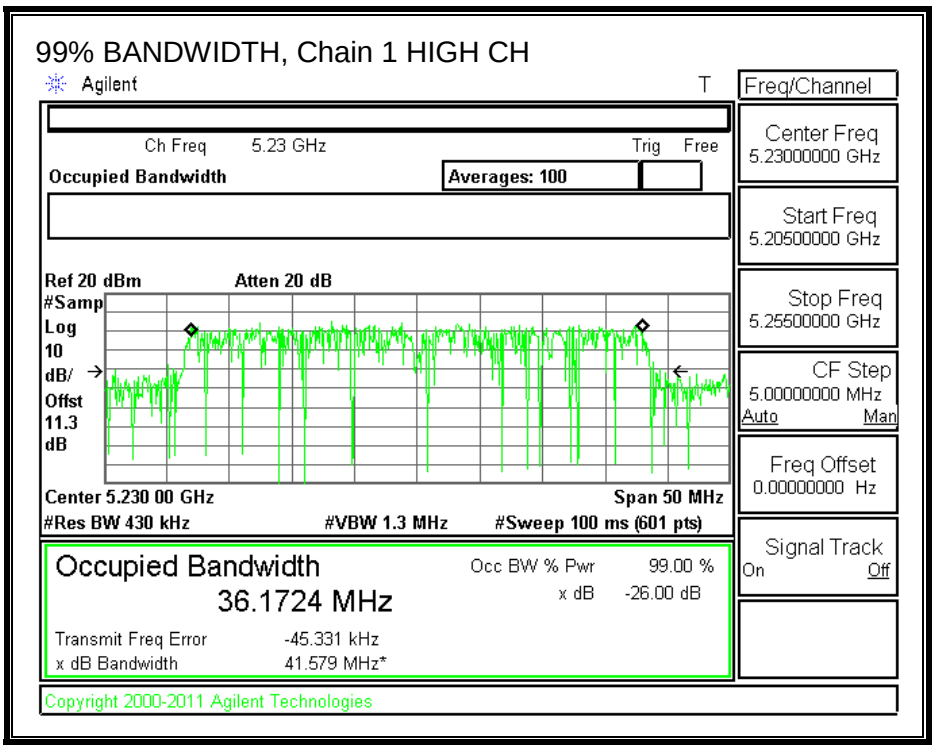
None; for reporting purposes only.

RESULTS

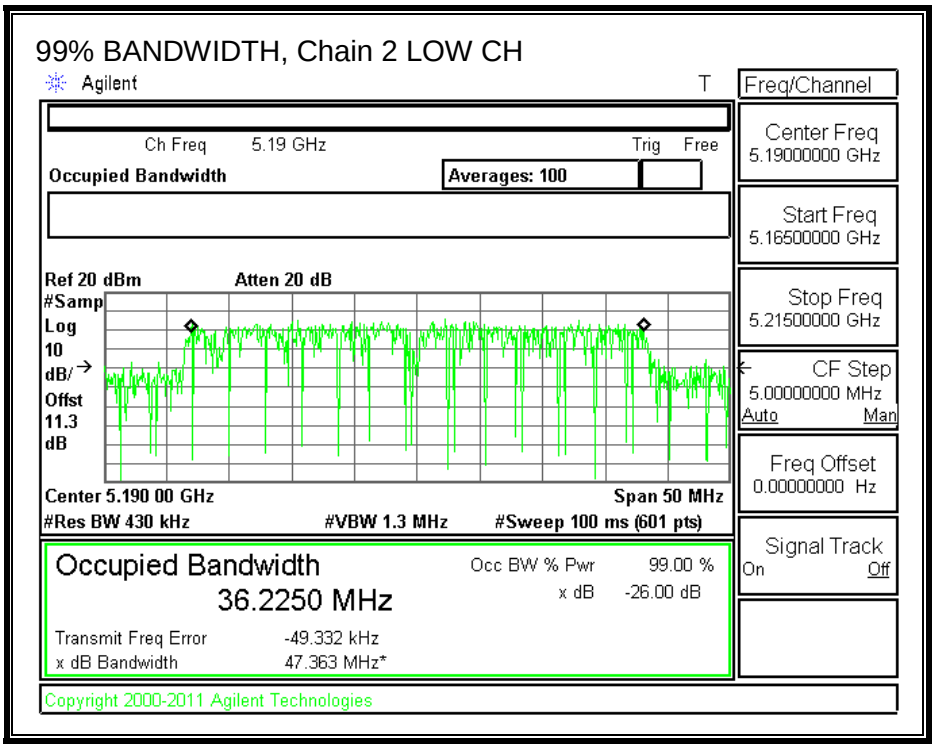
Channel	Frequency (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Low	5190	36.1609	36.2250
High	5230	36.1724	36.1854

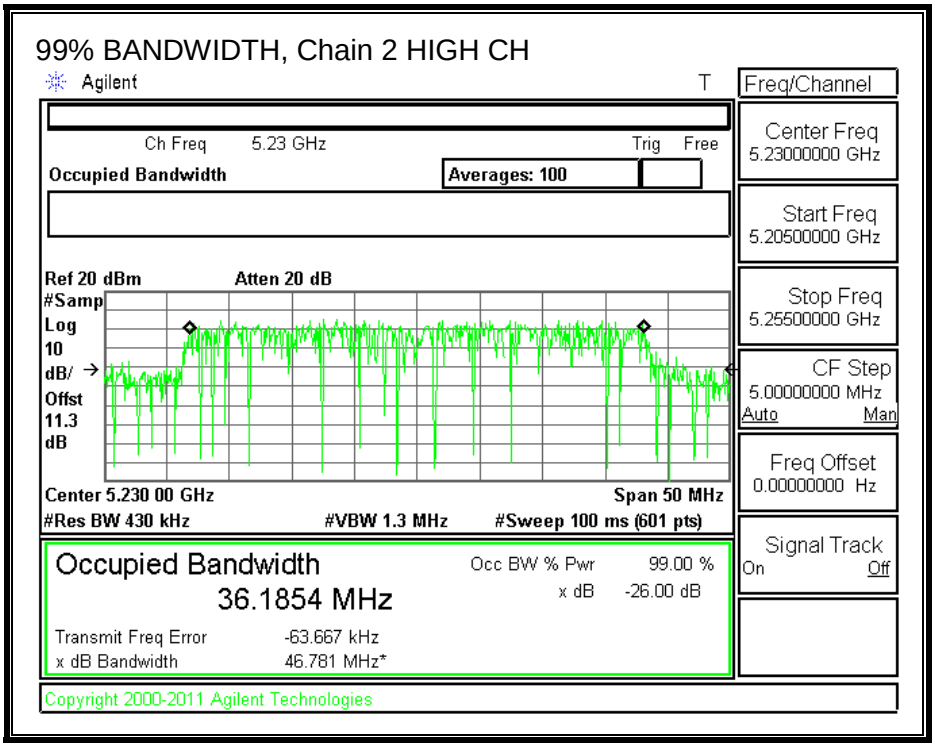
99% BANDWIDTH, Chain 1





99% BANDWIDTH, Chain 2





8.6.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

IC RSS-210 A9.2 (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.

DIRECTIONAL ANTENNA GAIN

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

Chain 1 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
5.60	5.60	5.60

RESULTS

FCC §15.407 (a) (1)

Limits

Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	4 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Low	5190	17	39.50	19.97	5.60	17.00	4.00
High	5230	17	39.58	19.97	5.60	17.00	4.00

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	13.302	13.979	16.664	17.00	-0.336
High	5230	13.326	14.165	16.776	17.00	-0.224

PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5190	-1.15	-0.52	2.19	4.00	-1.81
High	5230	-1.18	-0.27	2.31	4.00	-1.69

IC RSS-210 A9.2 (1)

Limits

Channel	Frequency (MHz)	Fixed EIRP Limit (dBm)	B 99% (MHz)	10 + 10 Log B EIRP Limit (dBm)	Directional Gain (dBi)	Power EIRP Limit (dBm)	PPSD EIRP Limit (dBm)
Low	5190	23	36.1609	25.5824	5.60	23.00	10.00
High	5230	23	36.1724	25.5838	5.60	23.00	10.00

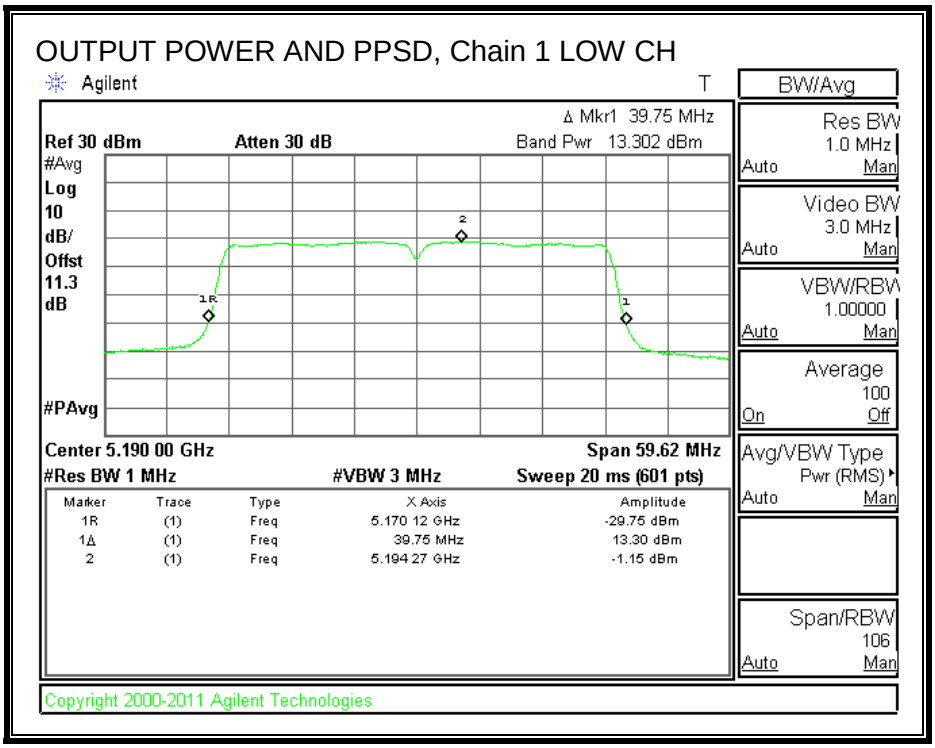
Output Power Results

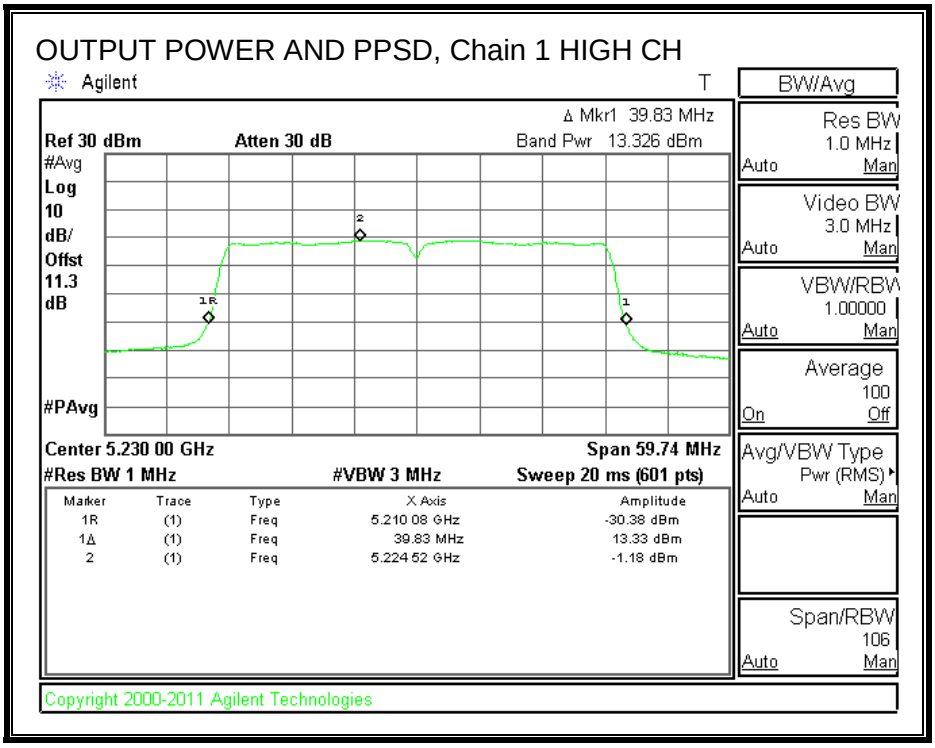
Channel	Frequency (MHz)	Meas Power (dBm)	Meas Power (dBm)	Corr'd Power (dBm)	Meas EIRP Power (dBm)	Power EIRP Limit (dBm)	Power Margin (dB)
Low	5190	13.302	13.979	16.664	22.26	23.00	-0.74
High	5230	13.326	14.165	16.776	22.38	23.00	-0.62

PPSD Results

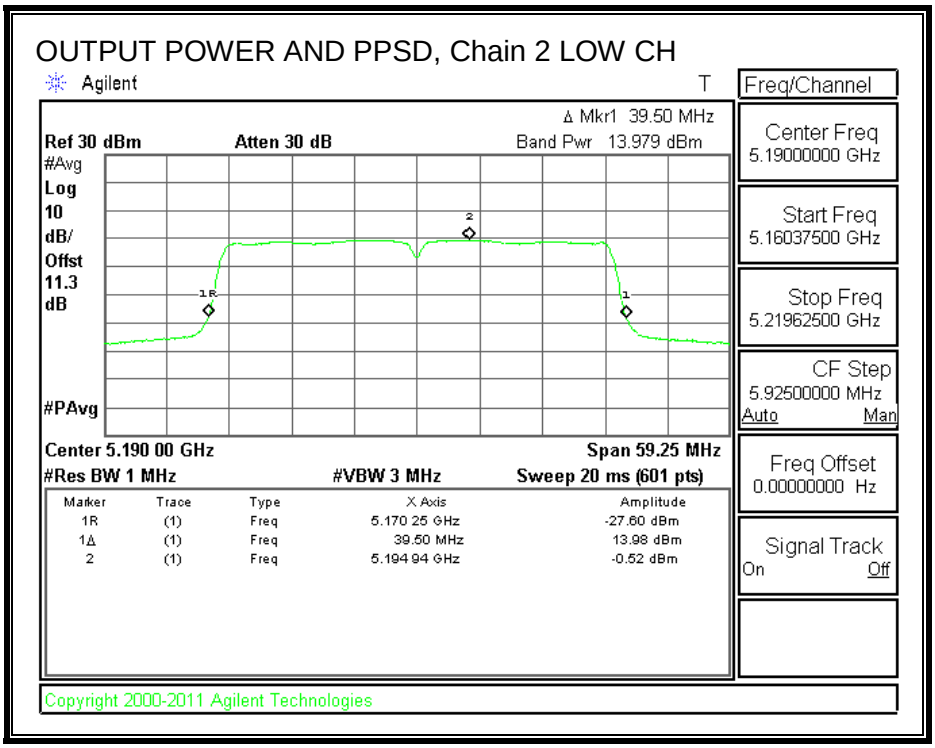
Channel	Frequency (MHz)	Meas PPSD (dBm)	Meas PPSD (dBm)	Corr'd PPSD (dBm)	Meas EIRP Power (dBm)	PPSD EIRP Limit (dBm)	PPSD Margin (dB)
Low	5190	-1.15	-0.52	2.187	7.79	10.00	-2.21
High	5230	-1.18	-0.27	2.309	7.91	10.00	-2.09

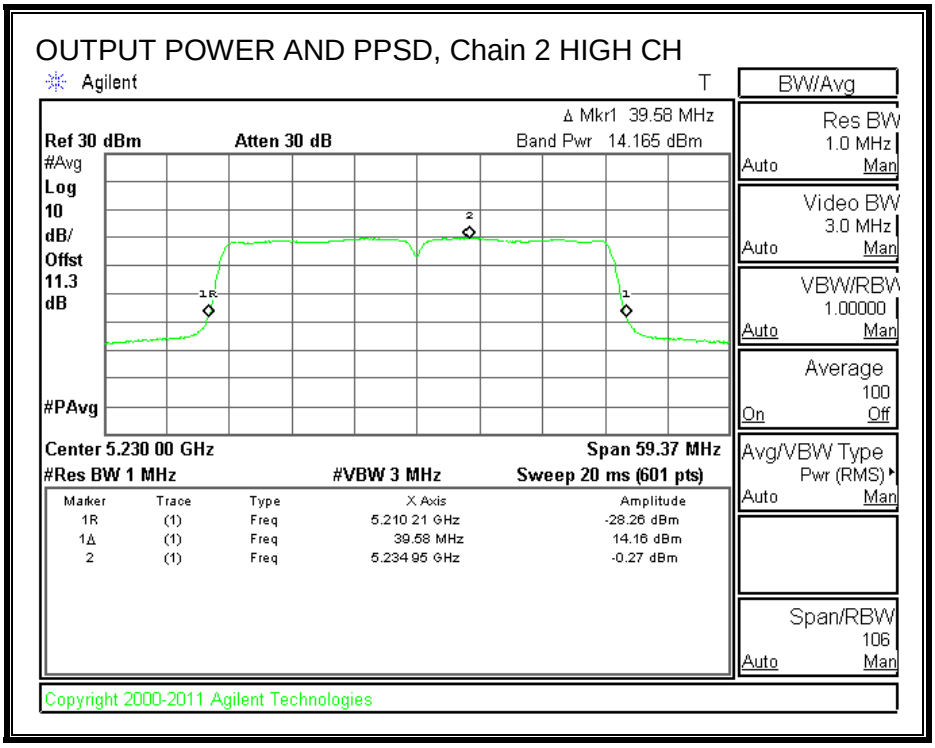
OUTPUT POWER AND PPSD, Chain 1





OUTPUT POWER AND PPSD, Chain 2





8.6.4. **PEAK EXCURSION**

LIMITS

FCC §15.407 (a) (6)

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

RESULTS

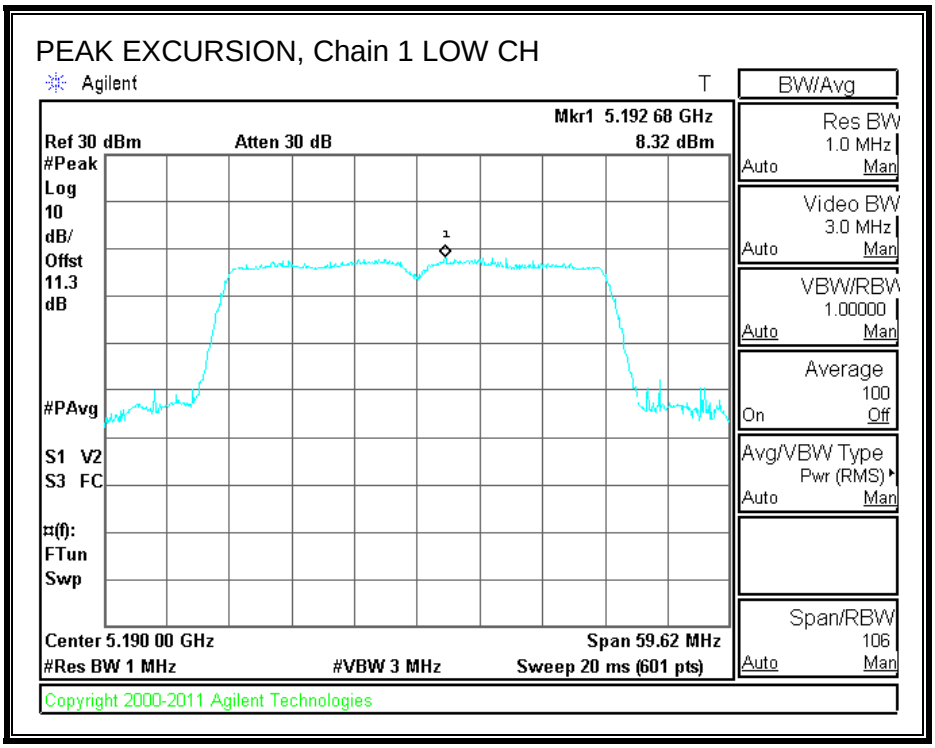
Chain 1

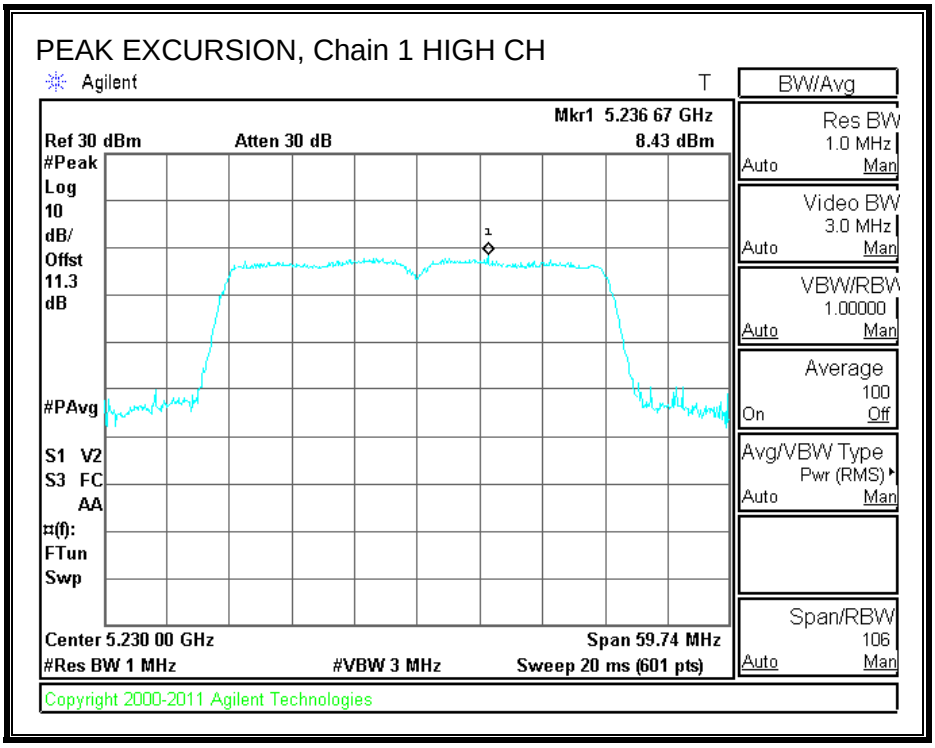
Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5190	8.32	-1.52	0.08	9.76	13	-3.24
High	5230	8.43	-1.18	0.08	9.53	13	-3.47

Chain 2

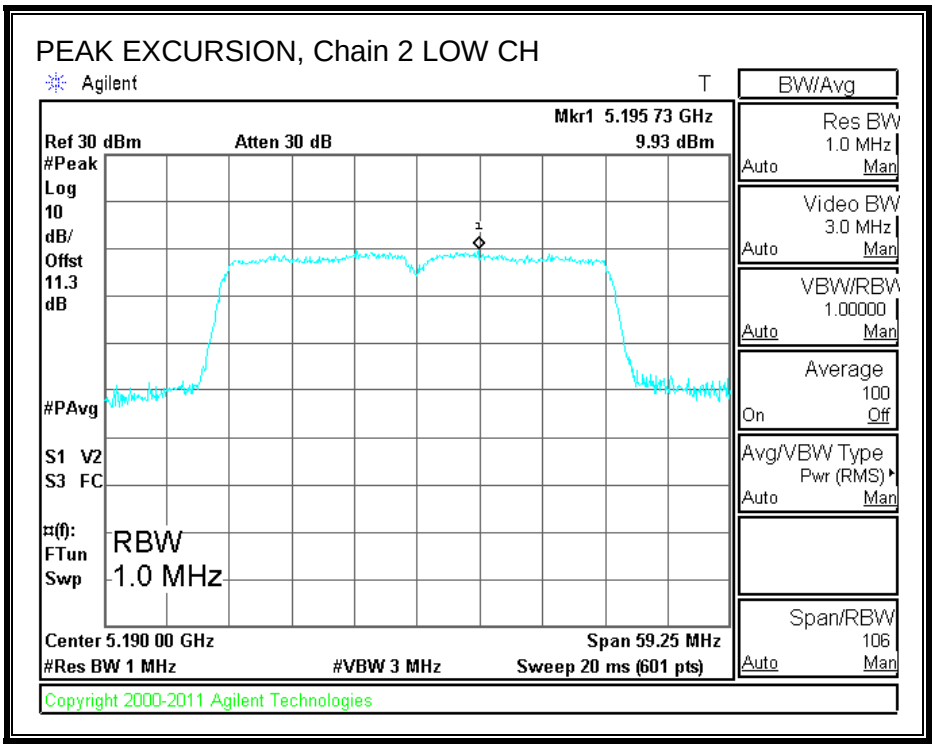
Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5190	9.93	-0.52	0.08	10.37	13	-2.63
High	5230	9.99	-0.27	0.08	10.18	13	-2.82

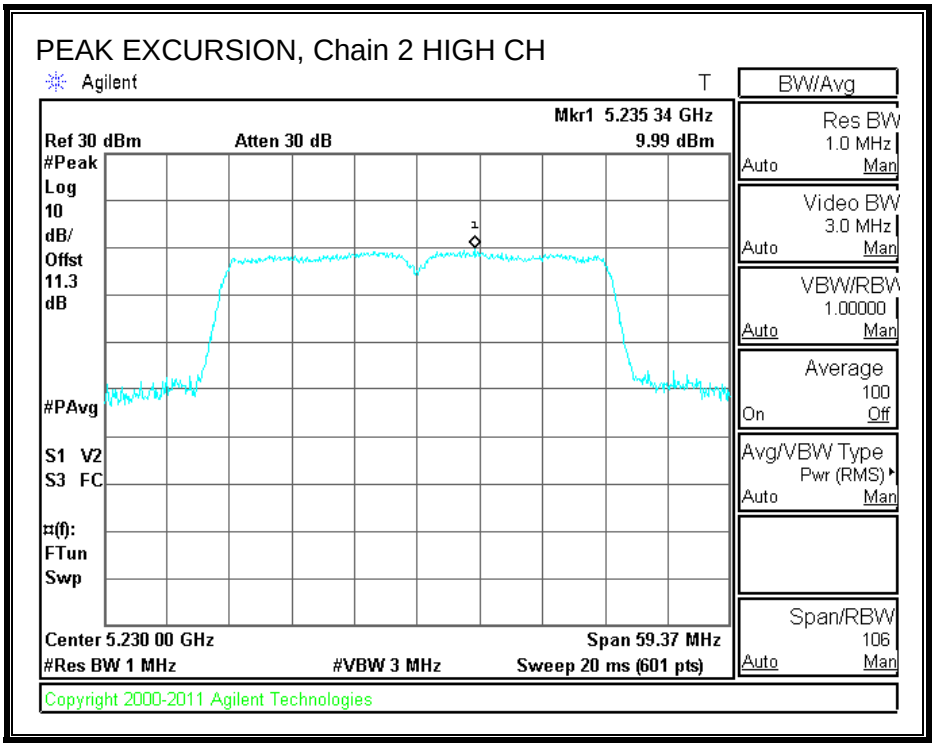
PEAK EXCURSION, Chain 1





PEAK EXCURSION, Chain 2





8.7. 802.11n HT80 CDD MCS0 1TX MODE IN THE 5.2 GHz BAND

Covered by testing to HT80 CDD MCS0 2TX

8.8. 802.11n HT80 CDD MCS0 2TX MODE IN THE 5.2 GHz BAND

8.8.1. 26 dB BANDWIDTH

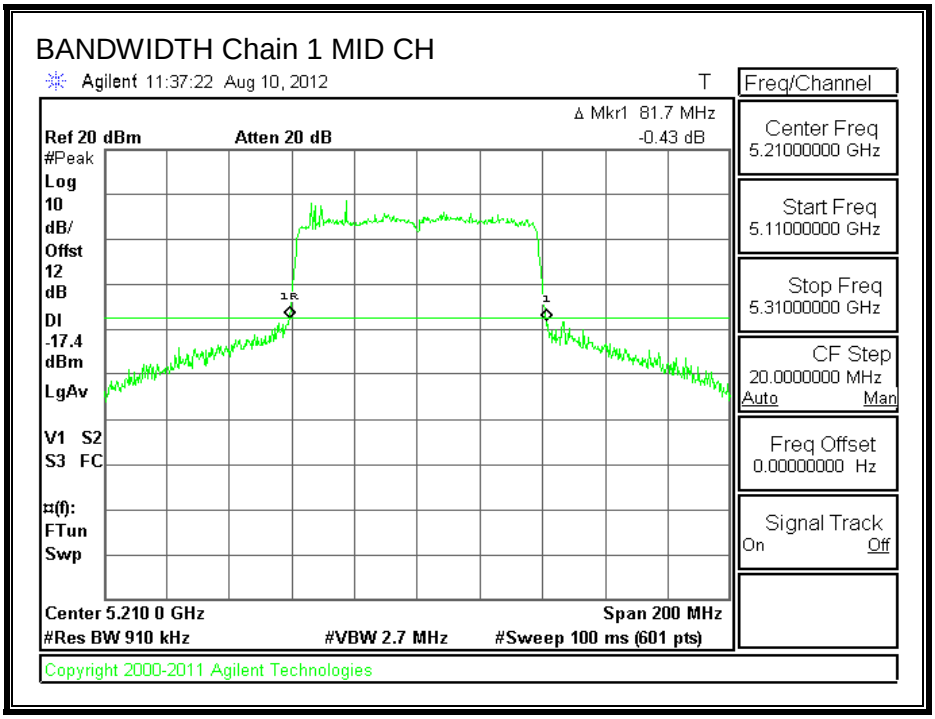
LIMITS

None; for reporting purposes only.

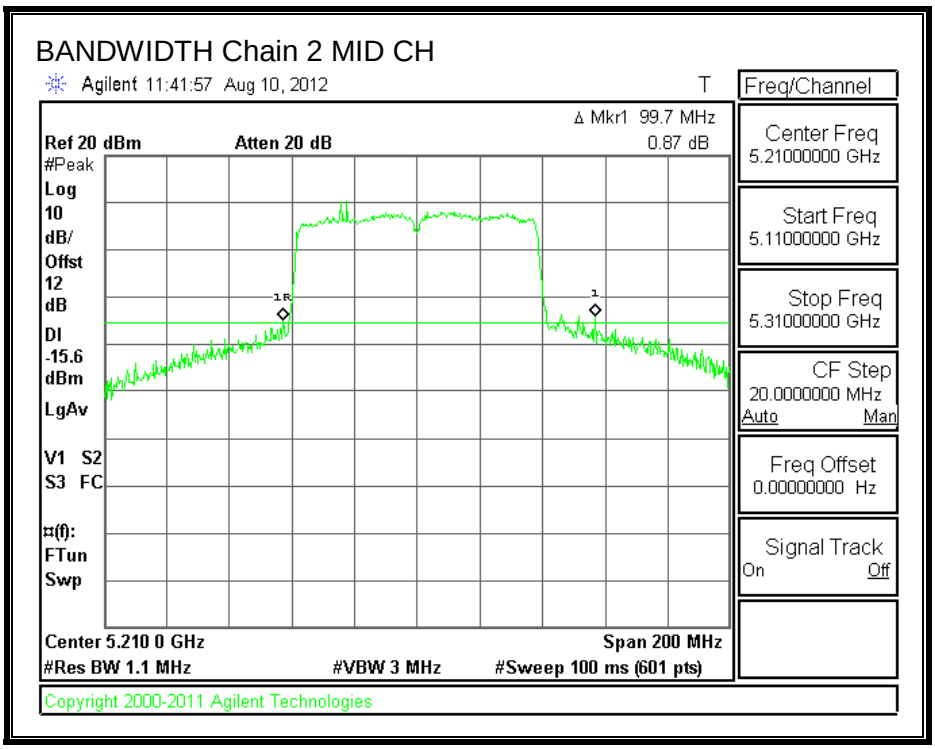
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 1 (MHz)	26 dB BW Chain 2 (MHz)
Mid	5210	81.70	99.70

26 dB BANDWIDTH, Chain 1



26 dB BANDWIDTH, Chain 2



8.8.2. **99% BANDWIDTH**

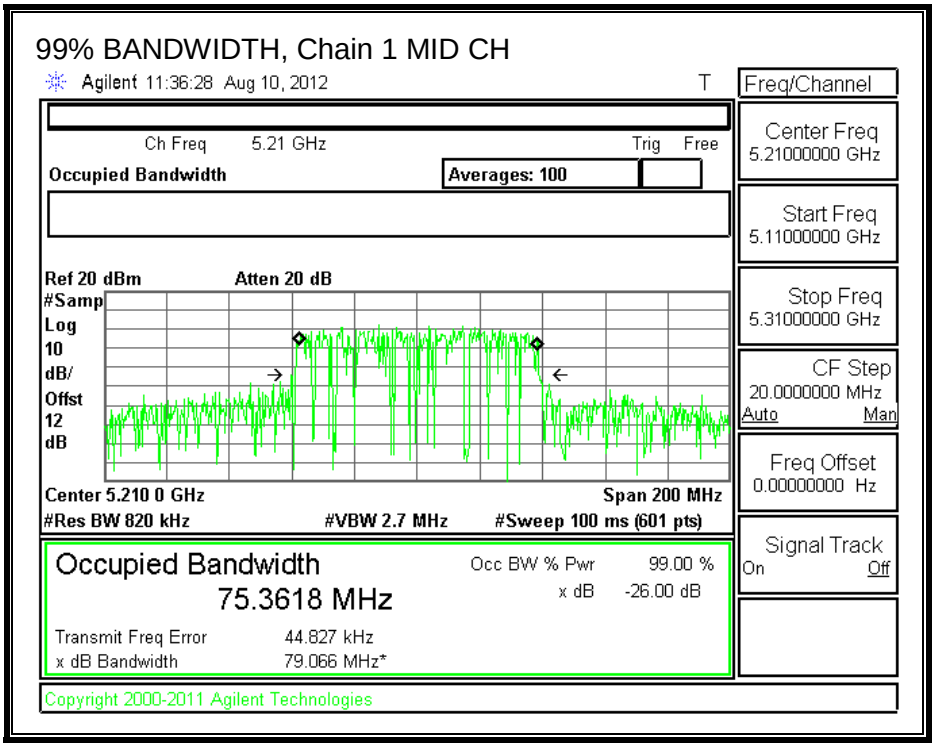
LIMITS

None; for reporting purposes only.

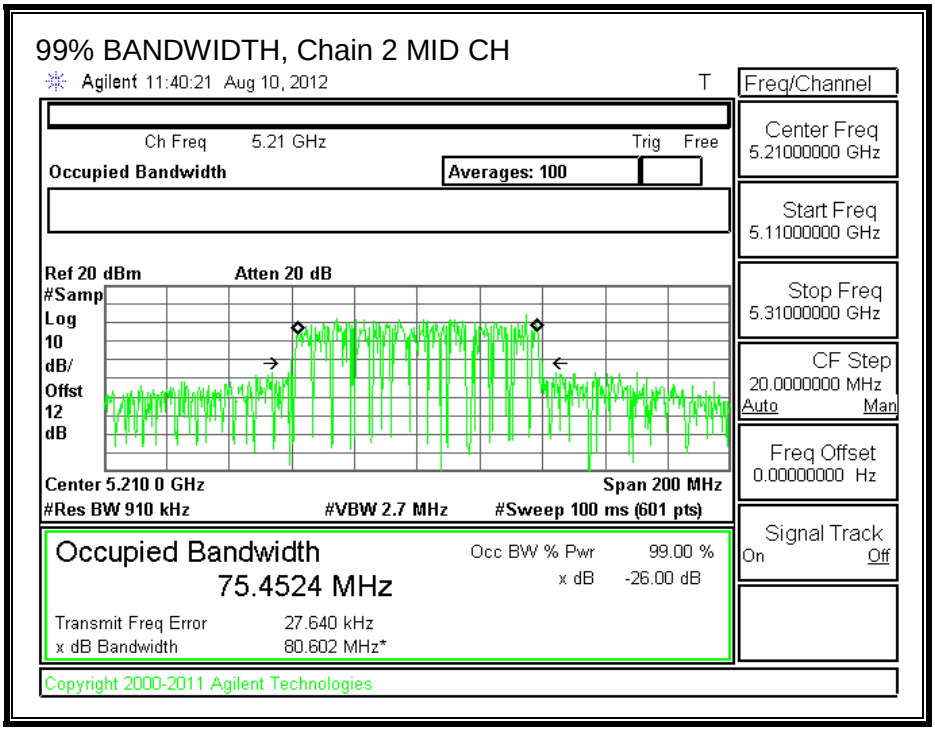
RESULTS

Channel	Frequency (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Mid	5210	75.3618	75.4524

99% BANDWIDTH, Chain 1



99% BANDWIDTH, Chain 2



8.8.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

IC RSS-210 A9.2 (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.

DIRECTIONAL ANTENNA GAIN

The TX chains are correlated and the antenna gain is the same for each chain. The directional gain is:

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
5.60	3.01	8.61

RESULTS

FCC §15.407 (a) (1)

Limits

Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	4 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Mid	5210	17	81.70	23.12	8.61	14.39	1.39

Duty Cycle CF (dB)	0.14	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5210	10.601	11.478	14.212	14.39	-0.178

PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Mid	5210	-7.11	-5.99	-3.36	1.39	-4.75

IC RSS-210 A9.2 (1)

Limits

Channel	Frequency (MHz)	Fixed EIRP Limit (dBm)	B 99% (MHz)	10 + 10 Log B EIRP Limit (dBm)	Directional Gain (dBi)	Power EIRP Limit (dBm)	PPSD EIRP Limit (dBm)
Mid	5210	23	75.3618	28.7715	8.61	23.00	10.00

Duty Cycle CF (dB)	0.14	Included in Calculations of Corr'd Power & PPSD

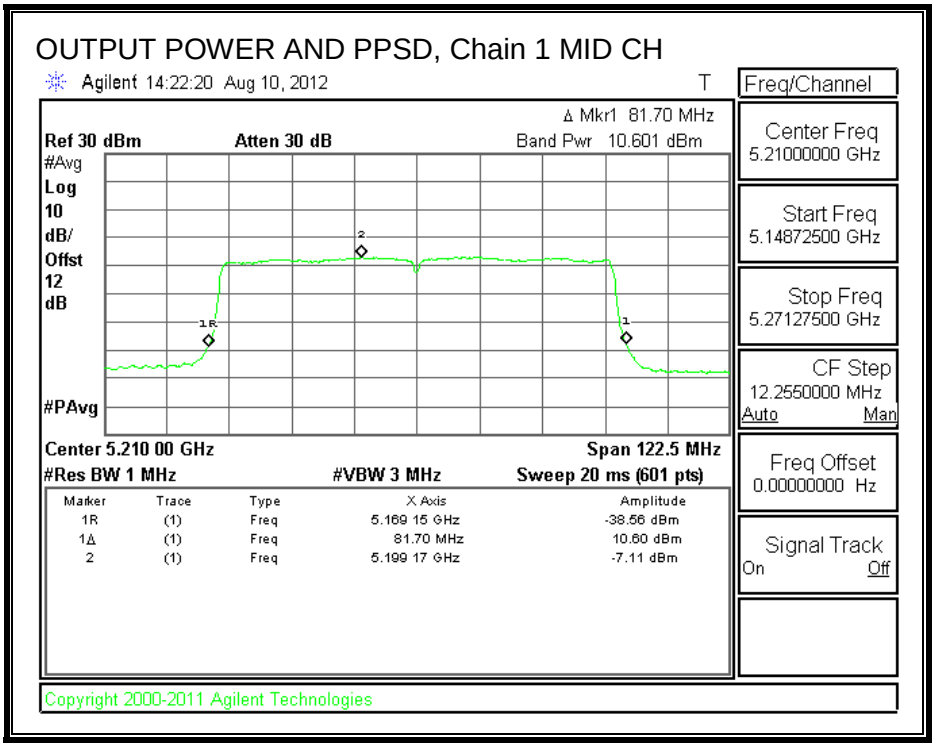
Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Meas Power (dBm)	Corr'd Power (dBm)	Meas EIRP Power (dBm)	Power EIRP Limit (dBm)	Power Margin (dB)
Mid	5210	10.601	11.478	14.212	22.82	23.00	-0.18

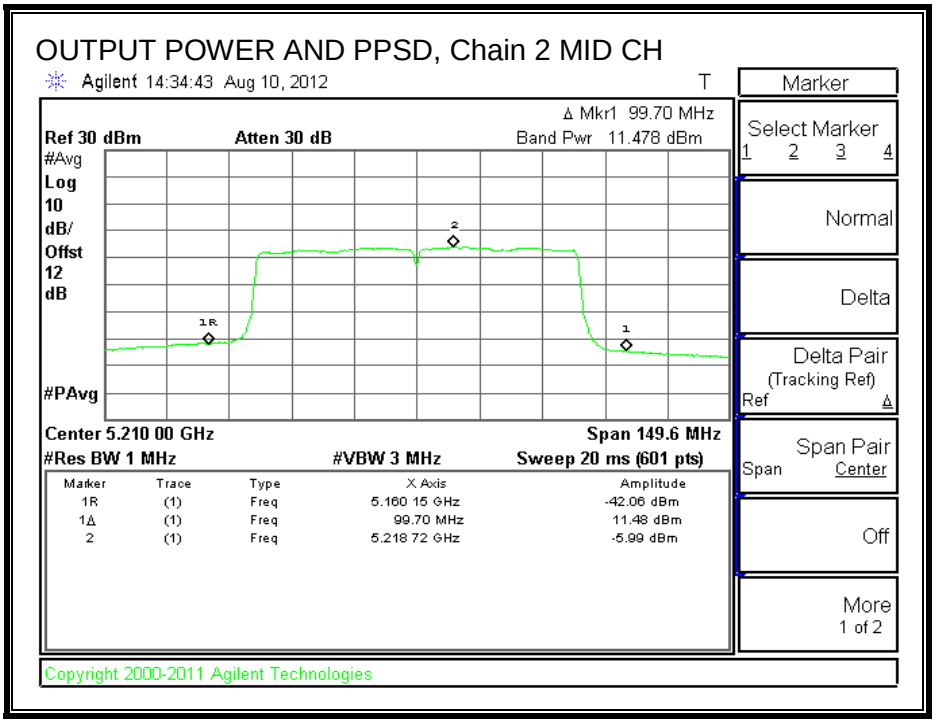
PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Meas PPSD (dBm)	Corr'd PPSD (dBm)	Meas EIRP Power (dBm)	PPSD EIRP Limit (dBm)	PPSD Margin (dB)
Mid	5210	-7.11	-5.99	-3.364	5.25	10.00	-4.75

OUTPUT POWER AND PPSD, Chain 1



OUTPUT POWER AND PPSD, Chain 2



8.8.4. **PEAK EXCURSION**

LIMITS

FCC §15.407 (a) (6)

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

RESULTS

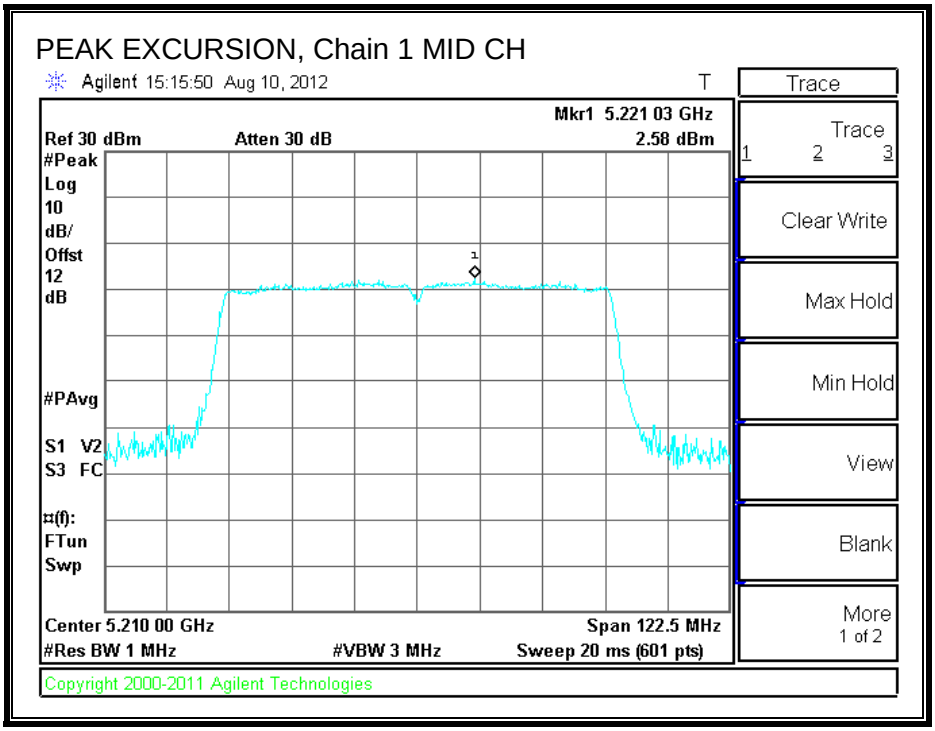
Chain 1

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5210	2.58	-7.11	0.14	9.55	13	-3.45

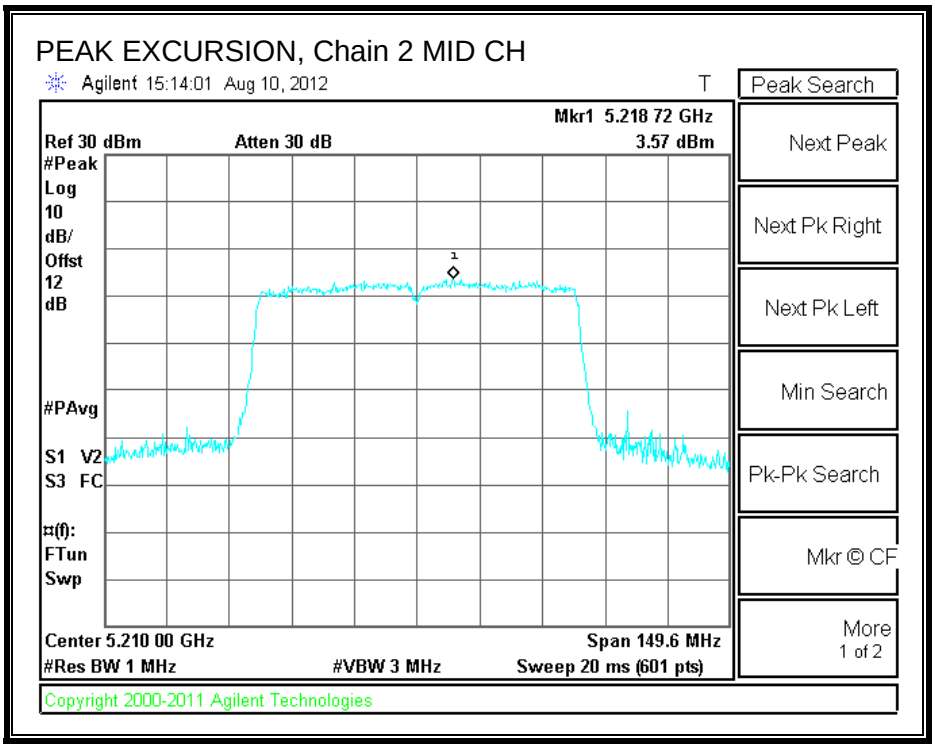
Chain 2

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5210	3.57	-5.66	0.14	9.09	13	-3.91

PEAK EXCURSION, Chain 1



PEAK EXCURSION, Chain 2



8.9. 802.11a LEGACY 1TX MODE IN THE 5.3 GHz BAND

8.9.1. **26 dB BANDWIDTH**

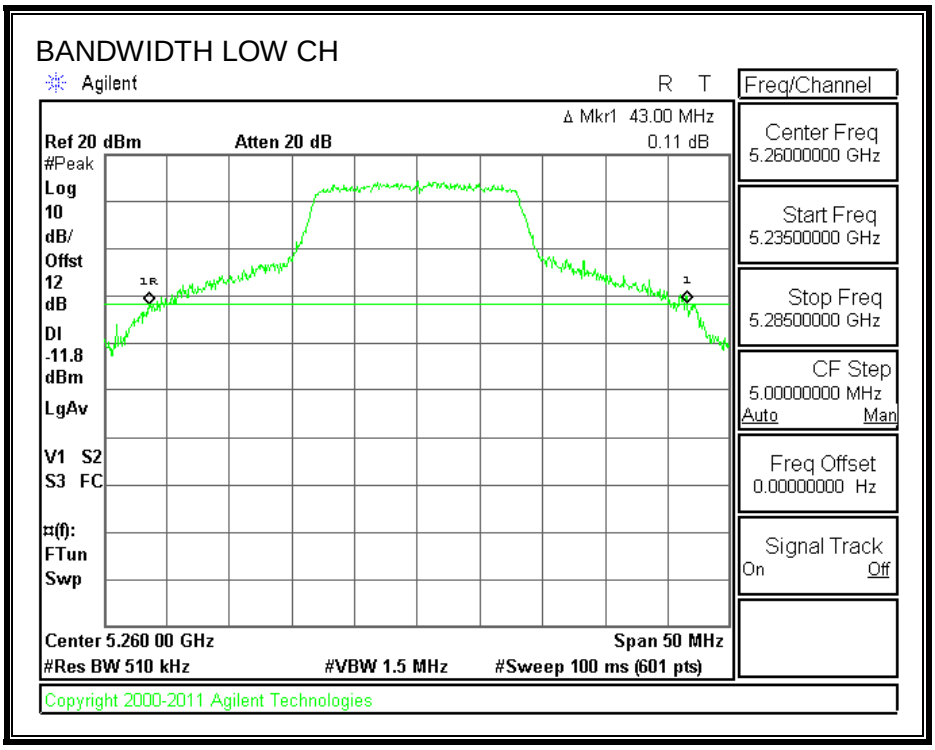
LIMITS

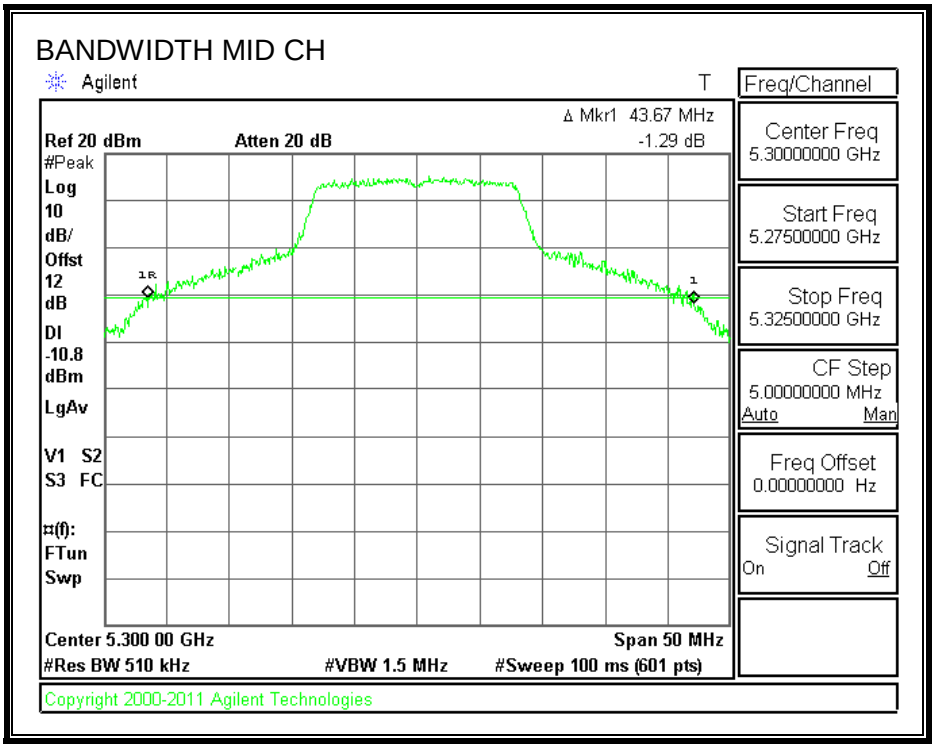
None; for reporting purposes only.

RESULTS

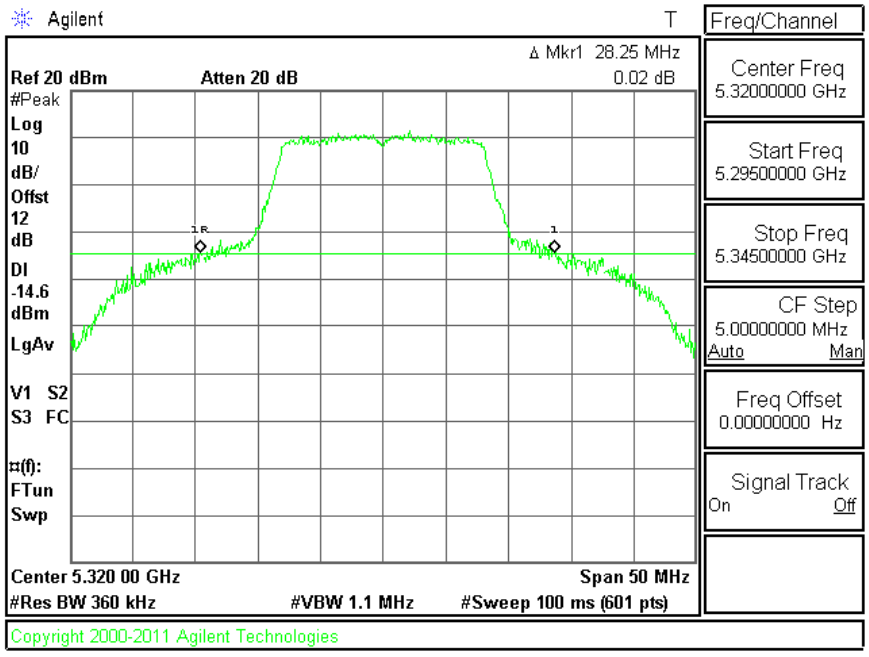
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	43.00
Mid	5300	43.67
High	5320	28.25

26 dB BANDWIDTH





BANDWIDTH HIGH CH



8.9.2. **99% BANDWIDTH**

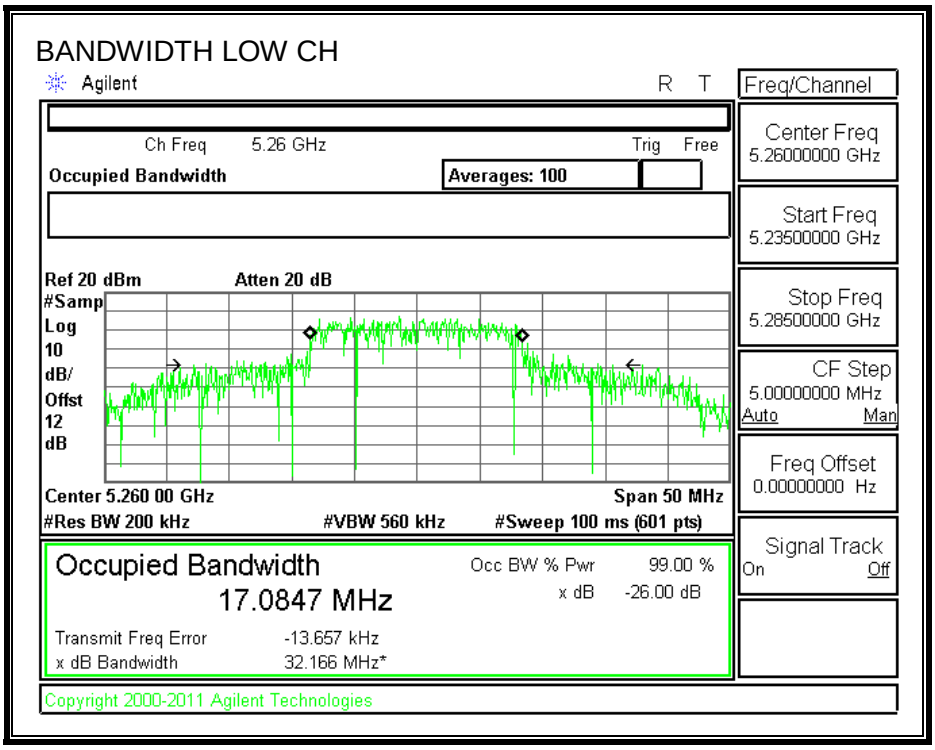
LIMITS

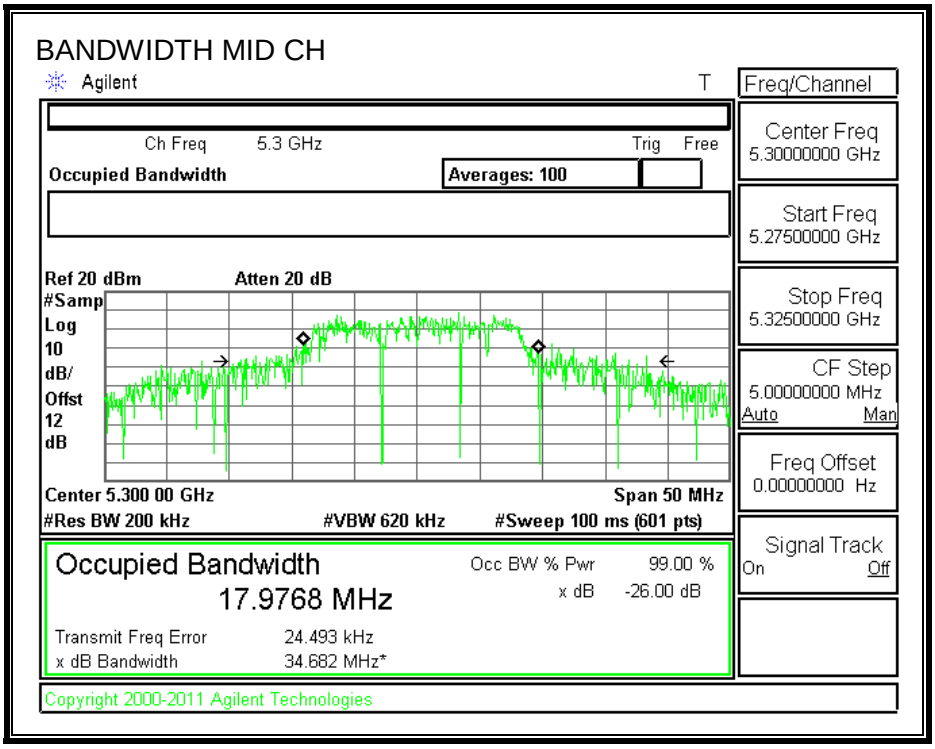
None; for reporting purposes only.

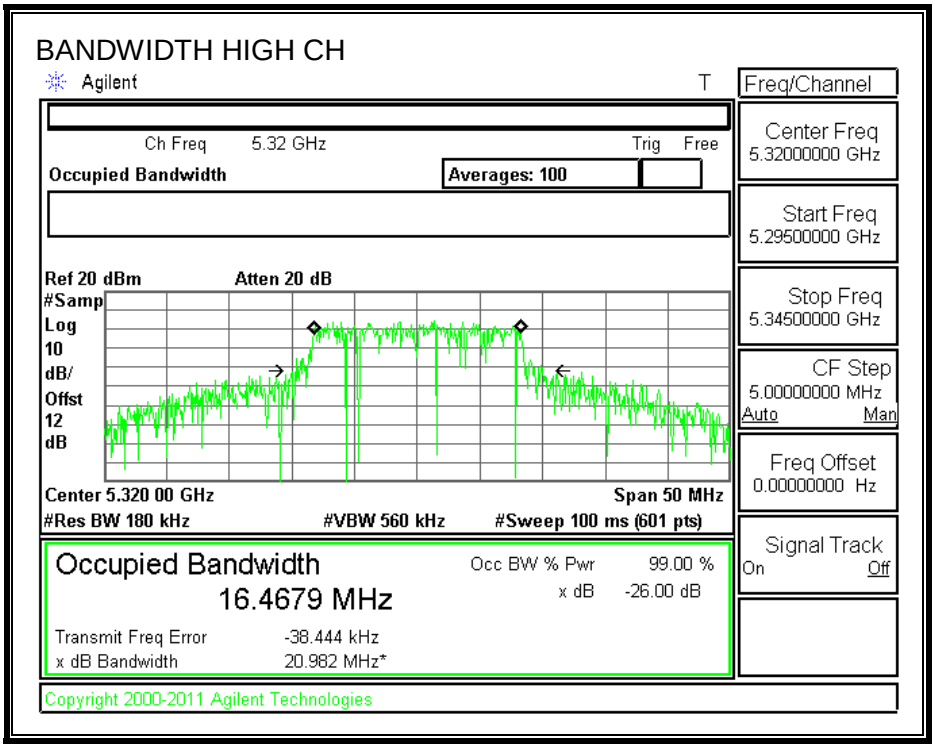
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	17.0847
Mid	5300	17.9768
High	5320	16.4679

99% BANDWIDTH







8.9.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz 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.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Limits

Channel	Frequency (MHz)	Fixed Limit (dBm)	99% BW (MHz)	11 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Low	5260	24	17.0847	23.33	5.60	23.33	11.00
Mid	5300	24	17.9768	23.55	5.60	23.55	11.00
High	5320	24	16.4679	23.17	5.60	23.17	11.00

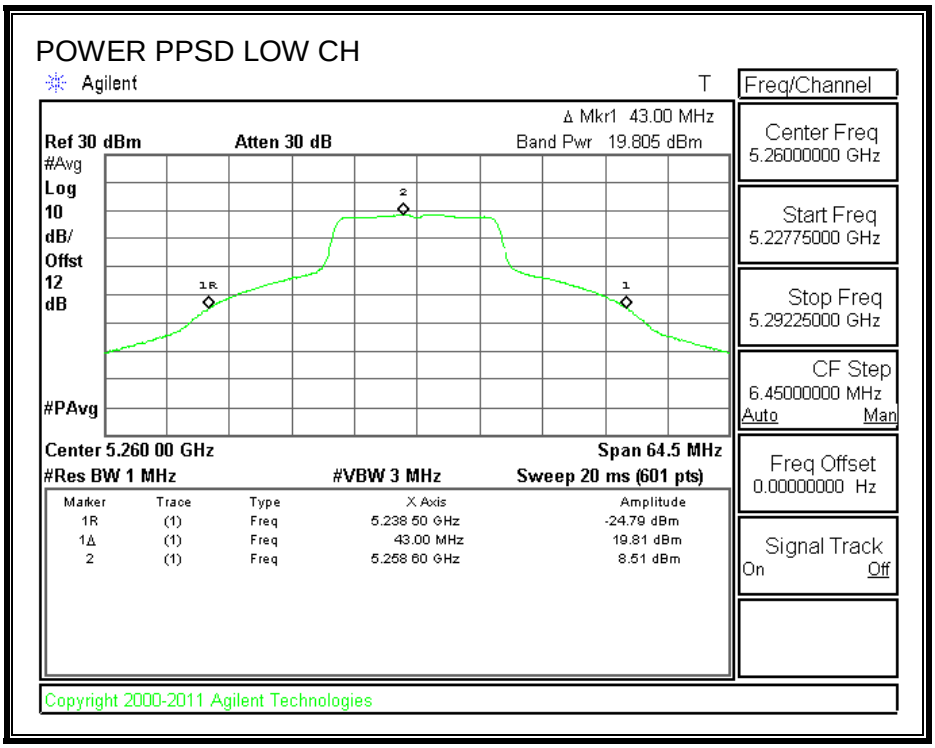
Output Power Results

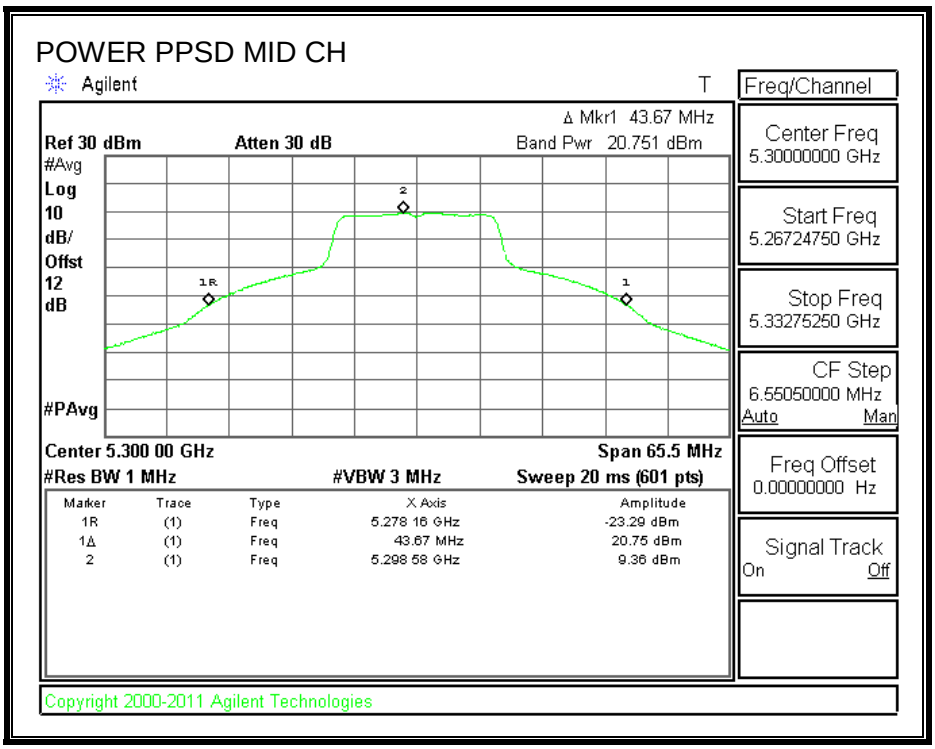
Channel	Frequency (MHz)	Meas Power (dBm)	Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	19.805	19.805	23.33	-3.521
Mid	5300	20.751	20.751	23.55	-2.796
High	5320	18.139	18.139	23.17	-5.027

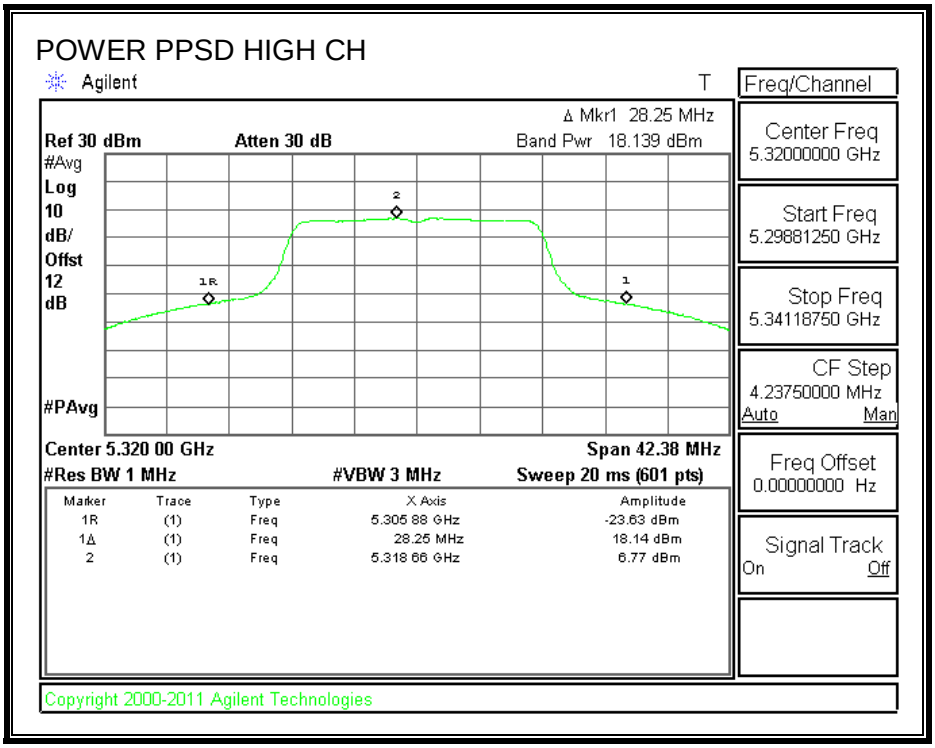
PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	8.51	8.51	11.00	-2.49
Mid	5300	9.36	9.36	11.00	-1.64
High	5320	6.77	6.77	11.00	-4.23

OUTPUT POWER AND PPSD







8.9.4. **PEAK EXCURSION**

LIMITS

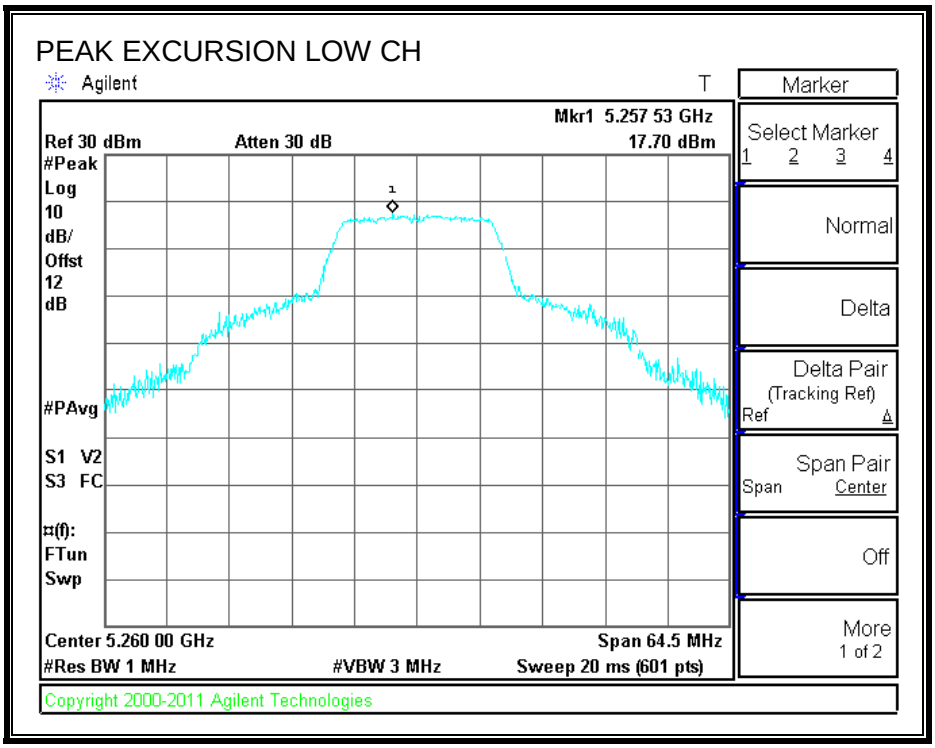
FCC §15.407 (a) (6)

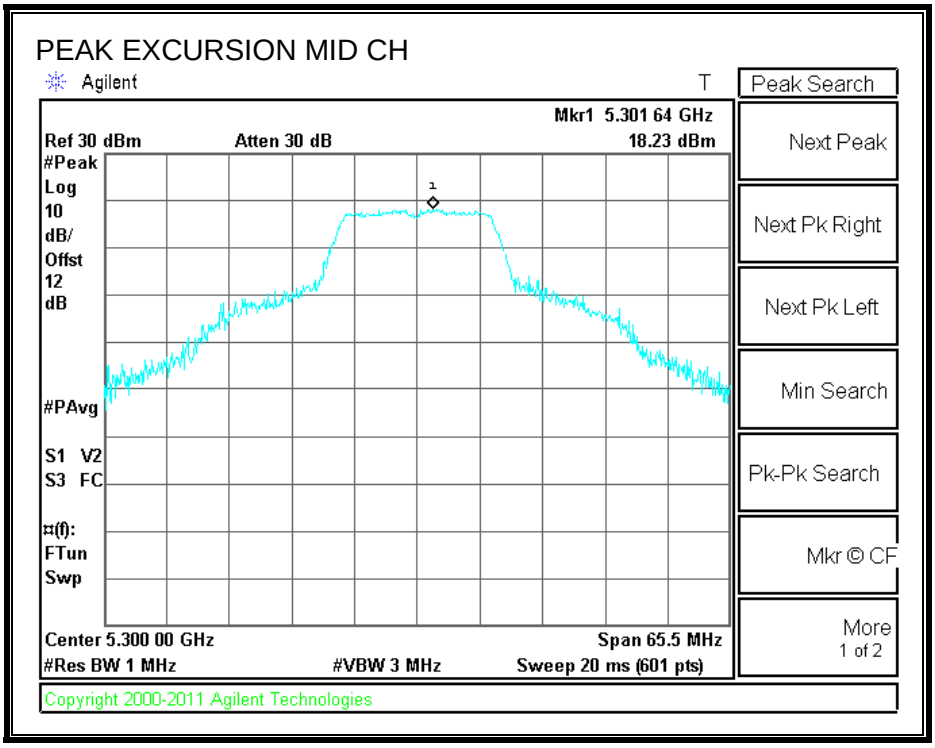
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

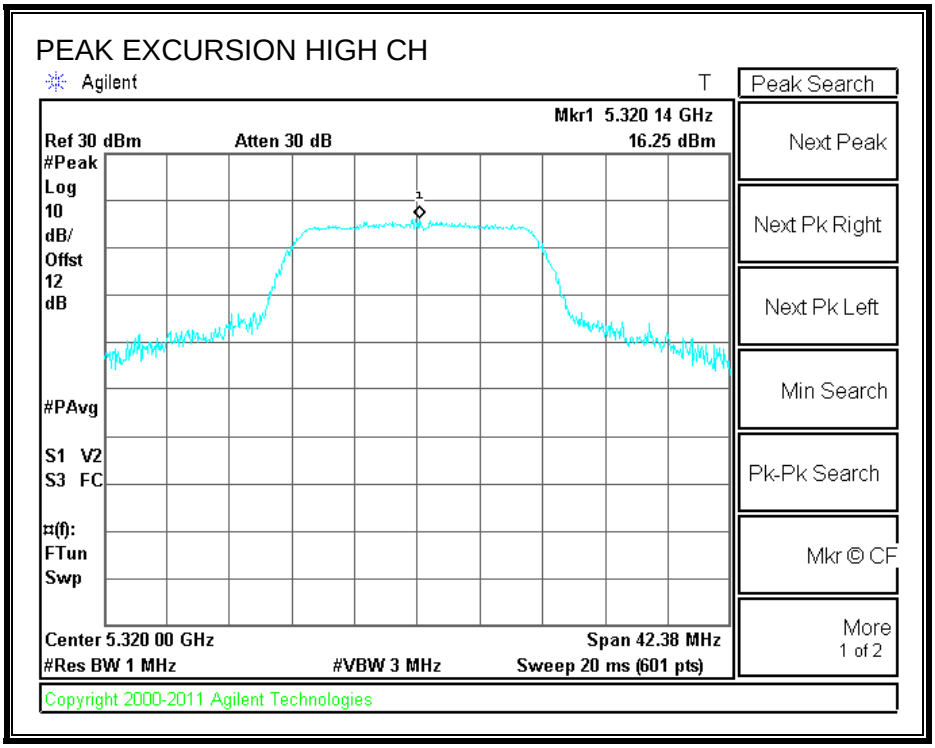
Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5260	17.70	8.51	0.03	9.16	13	-3.84
Mid	5300	18.23	9.36	0.03	8.84	13	-4.16
High	5320	16.25	6.77	0.03	9.45	13	-3.55

PEAK EXCURSION





PEAK EXCURSION HIGH CH



8.10. 802.11n HT20 CDD MCS0 2TX MODE IN THE 5.3 GHz BAND

8.10.1. 26 dB BANDWIDTH

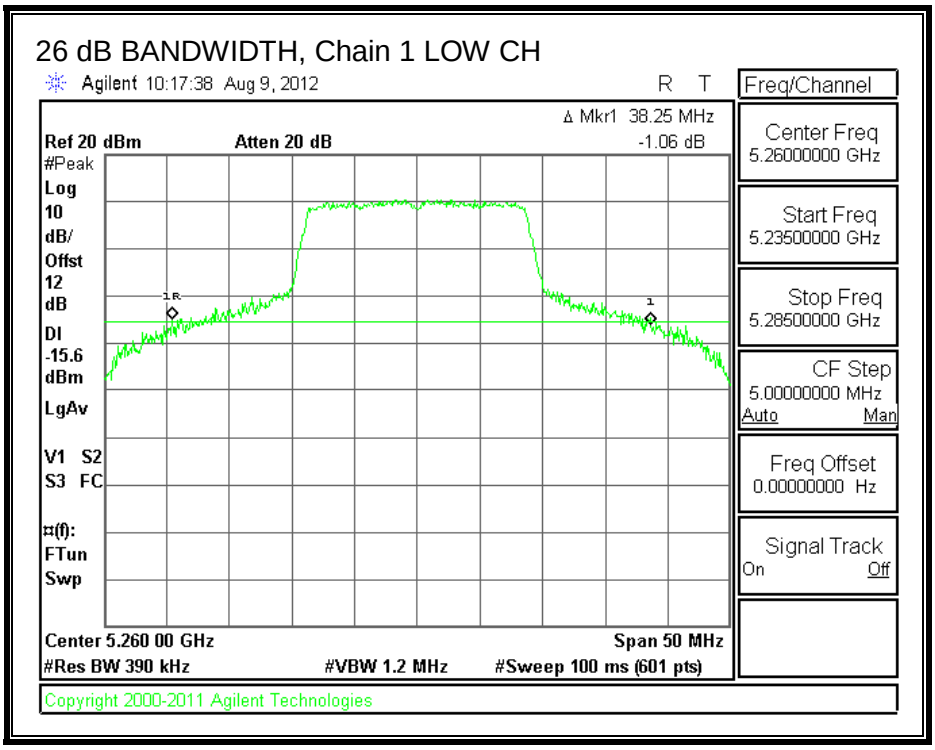
LIMITS

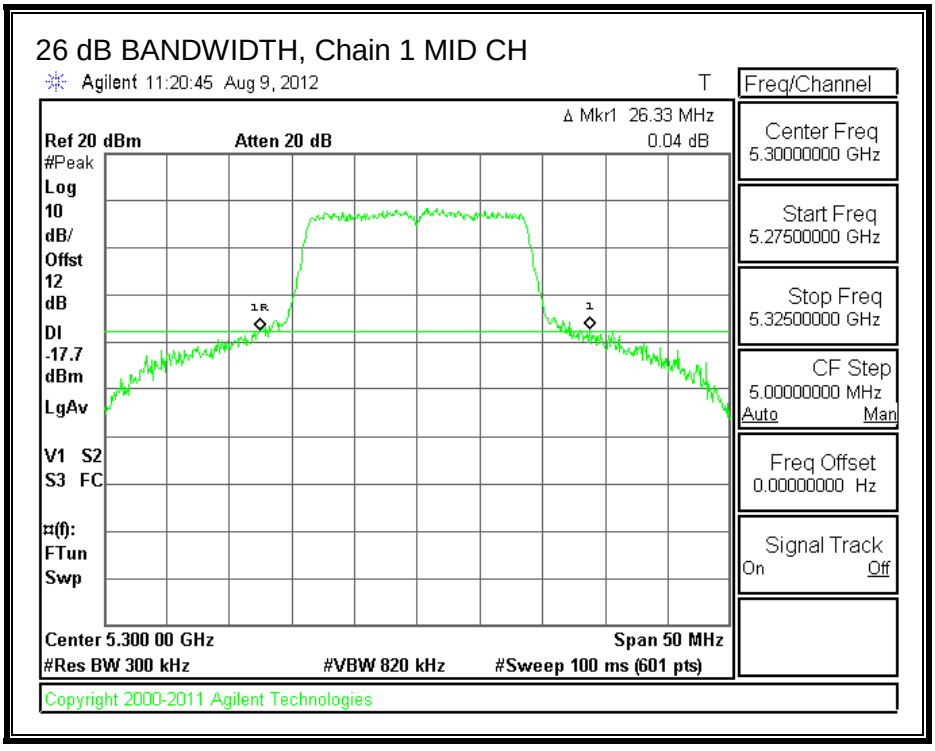
None; for reporting purposes only.

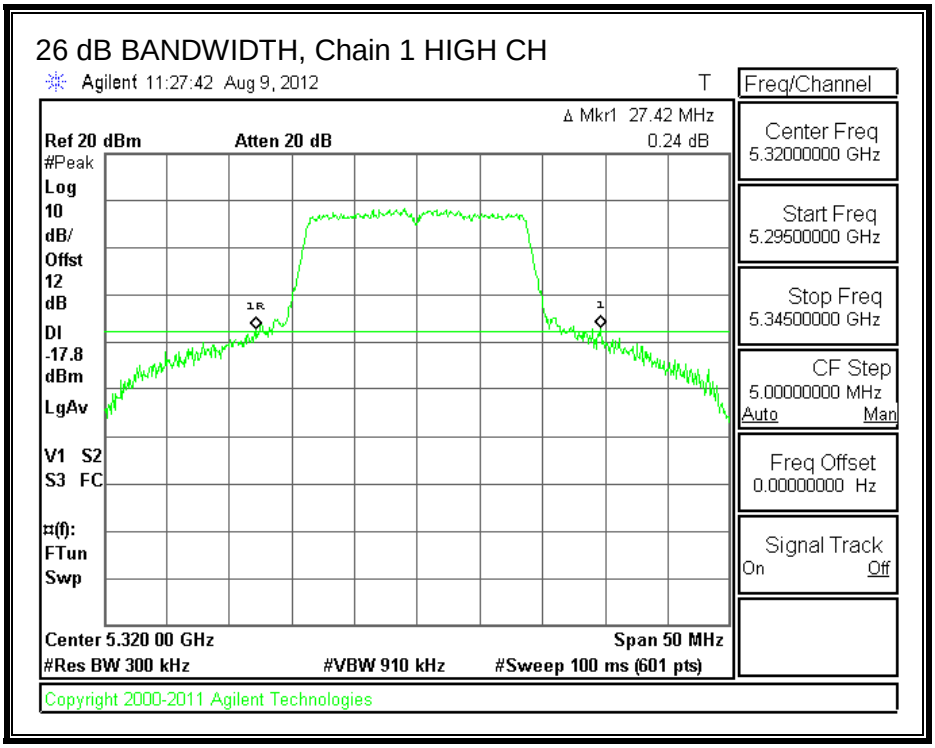
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 1 (MHz)	26 dB BW Chain 2 (MHz)
Low	5260	38.25	36.42
Mid	5300	26.33	28.25
High	5320	27.42	27.83

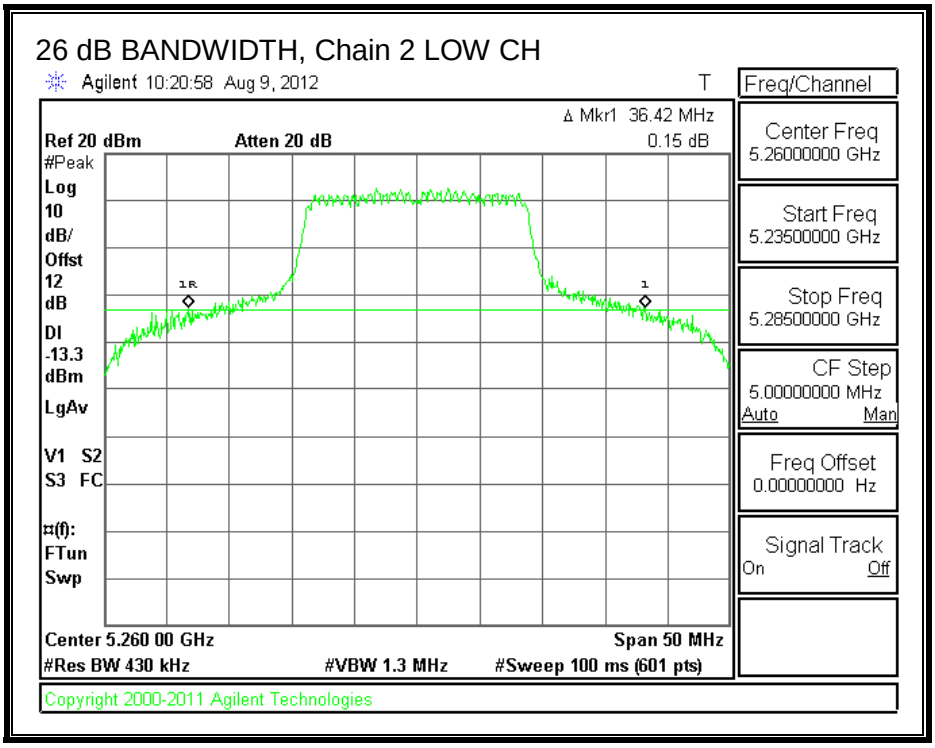
26 dB BANDWIDTH, Chain 1

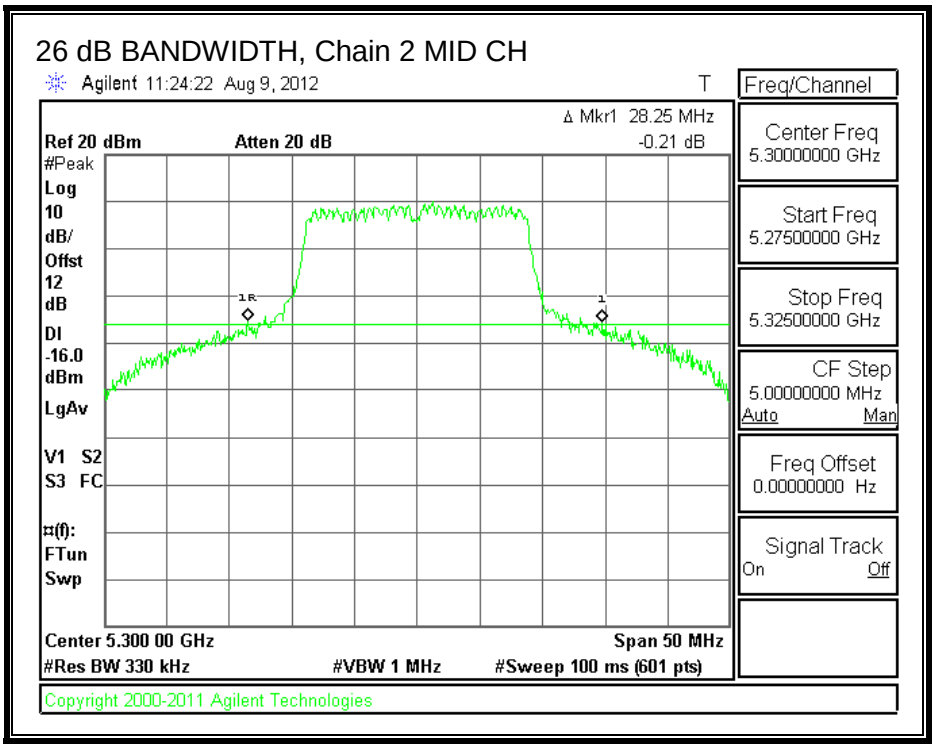


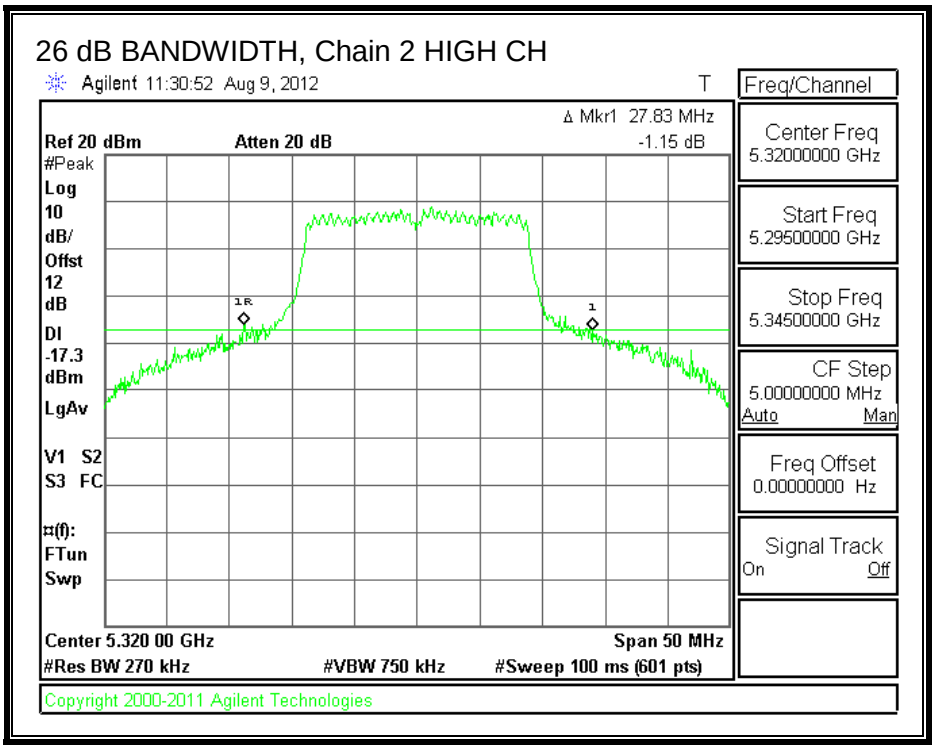




26 dB BANDWIDTH, Chain 2







8.10.2. **99% BANDWIDTH**

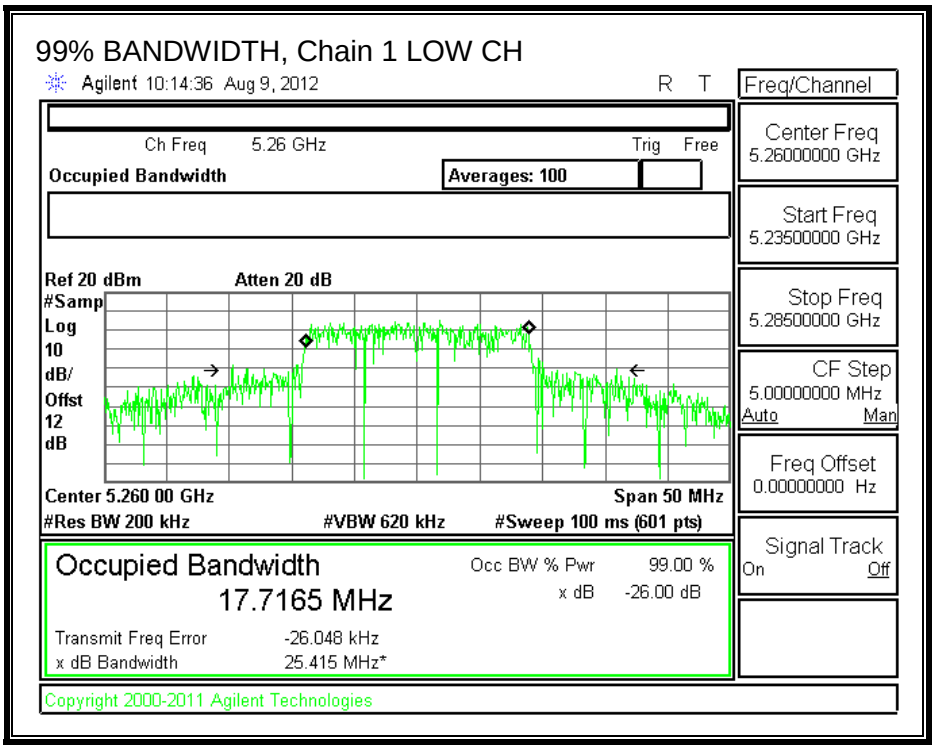
LIMITS

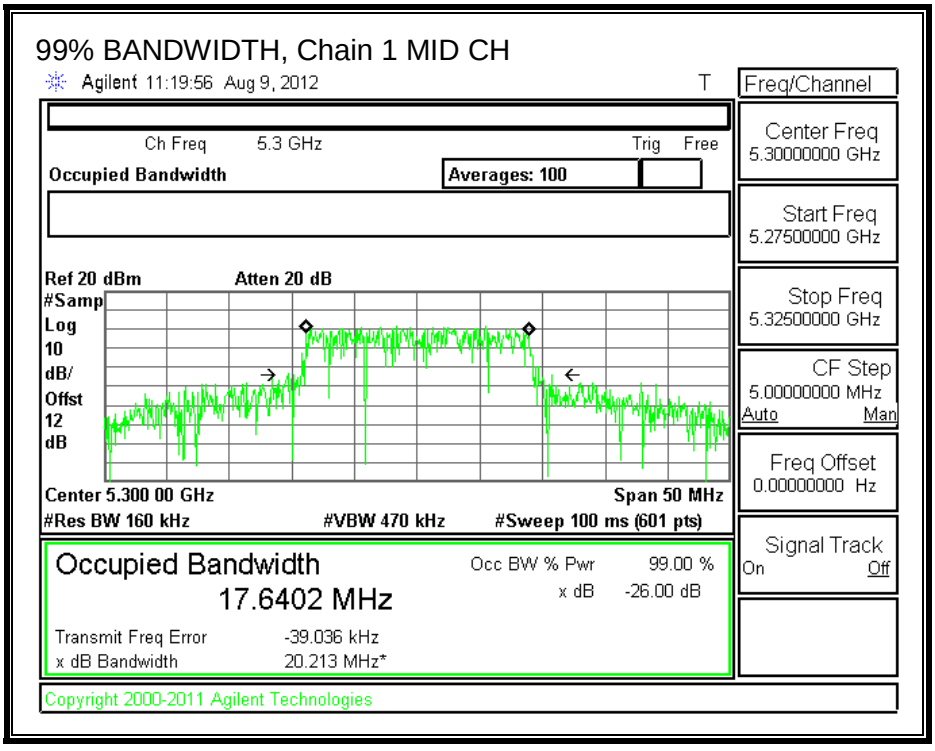
None; for reporting purposes only.

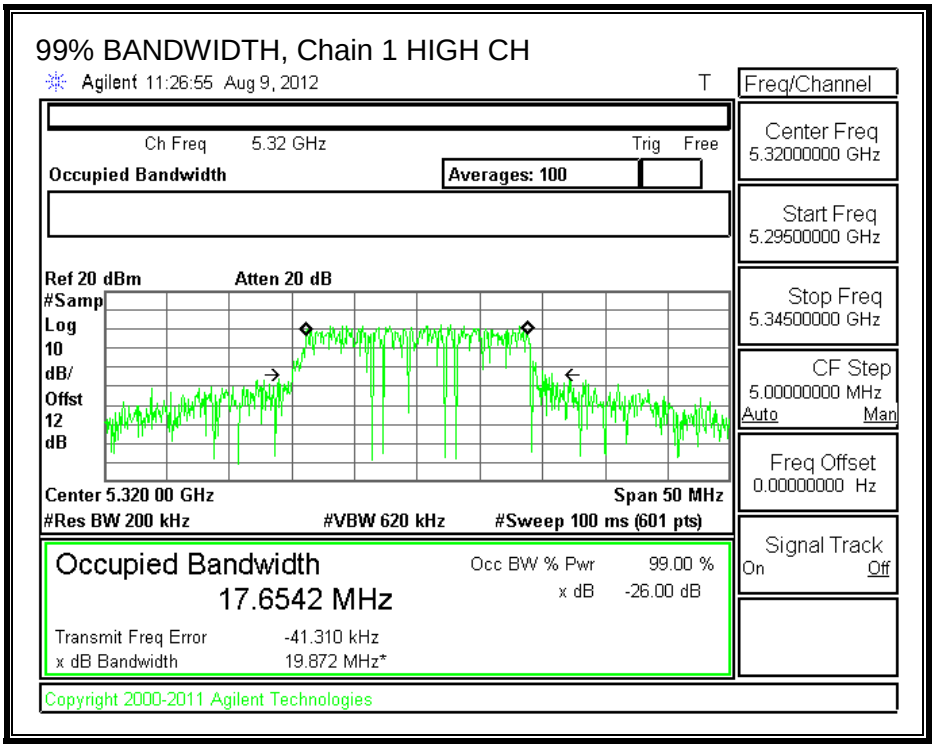
RESULTS

Channel	Frequency (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Low	5260	17.7165	17.7427
Mid	5300	17.6402	17.6737
High	5320	17.6542	17.6759

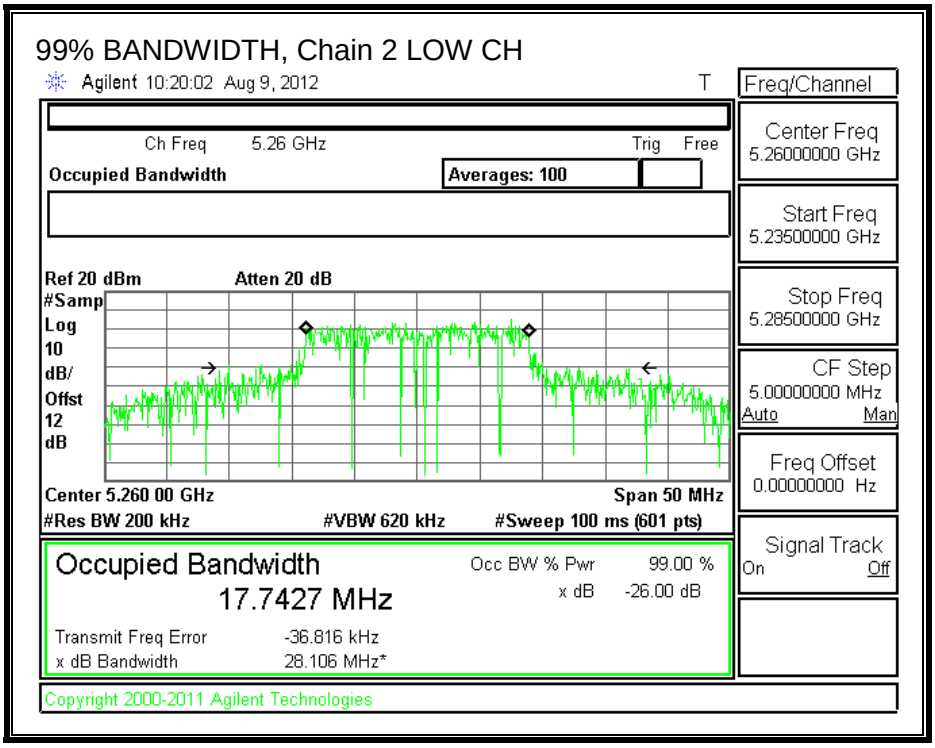
99% BANDWIDTH, Chain 1

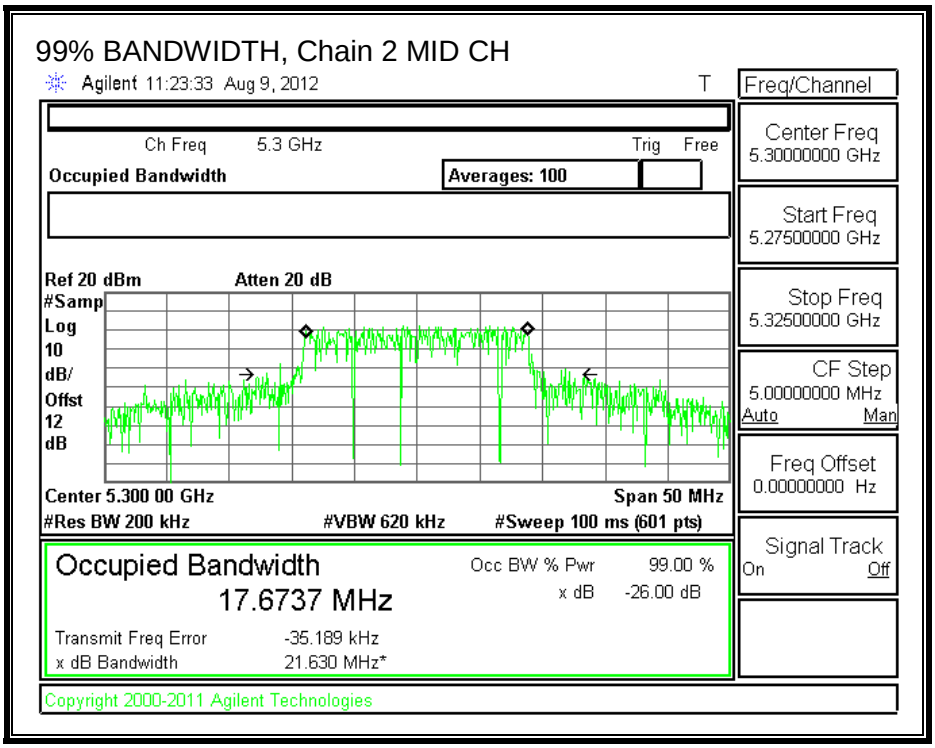


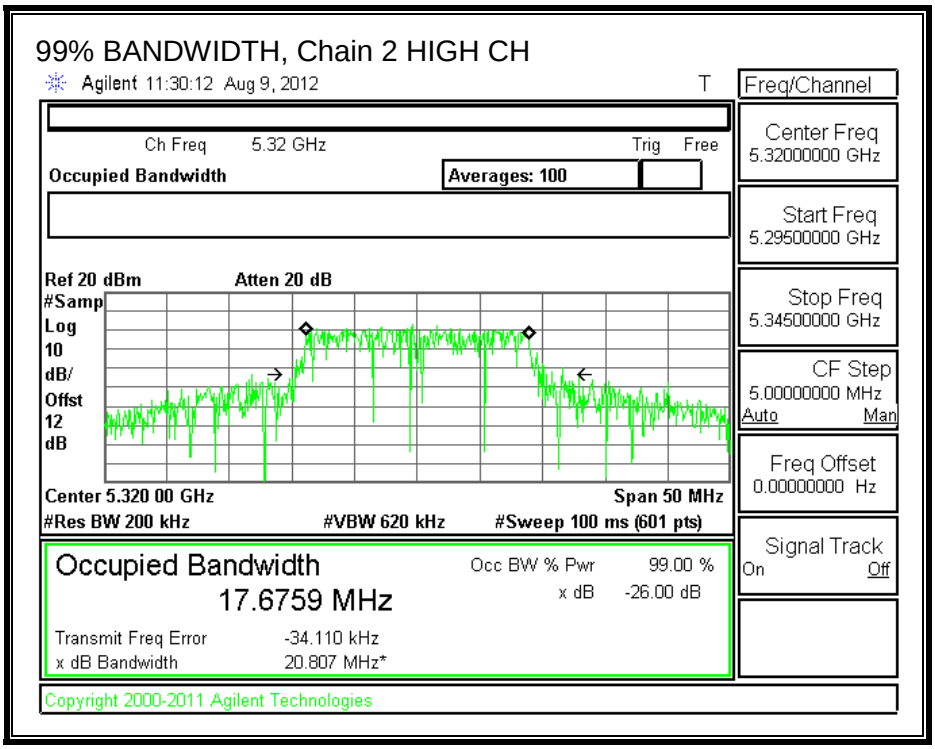




99% BANDWIDTH, Chain 2







8.10.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz 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.

DIRECTIONAL ANTENNA GAIN

The TX chains are correlated and the antenna gain is the same for each chain. The directional gain is:

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
5.60	3.01	8.61

RESULTS

Limits

Channel	Frequency (MHz)	Fixed Limit (dBm)	99% BW (MHz)	11 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Low	5260	24	17.7165	23.48	8.61	20.87	8.39
Mid	5300	24	17.6402	23.47	8.61	20.86	8.39
High	5320	24	17.6542	23.47	8.61	20.86	8.39

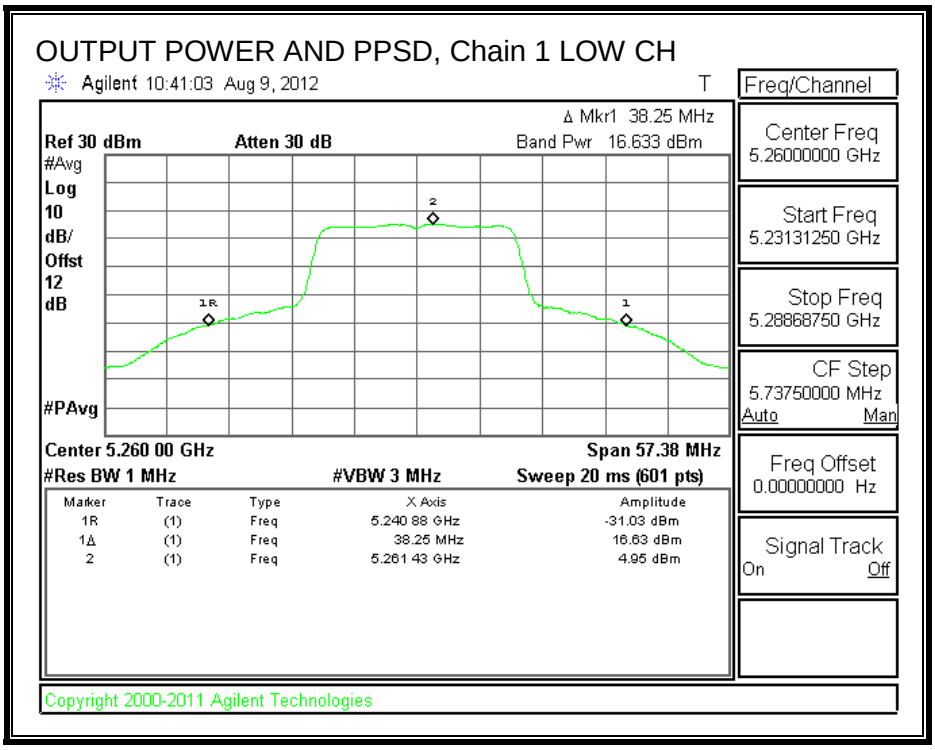
Output Power Results

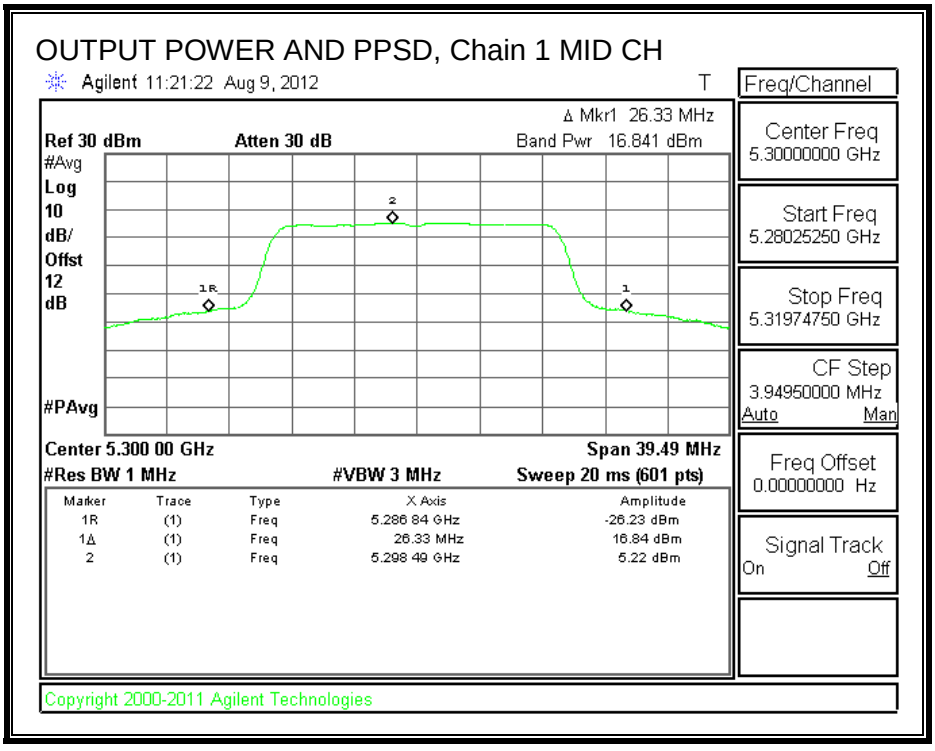
Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	16.633	16.609	19.631	20.87	-1.242
Mid	5300	16.841	16.539	19.703	20.86	-1.152
High	5320	16.749	16.608	19.689	20.86	-1.169

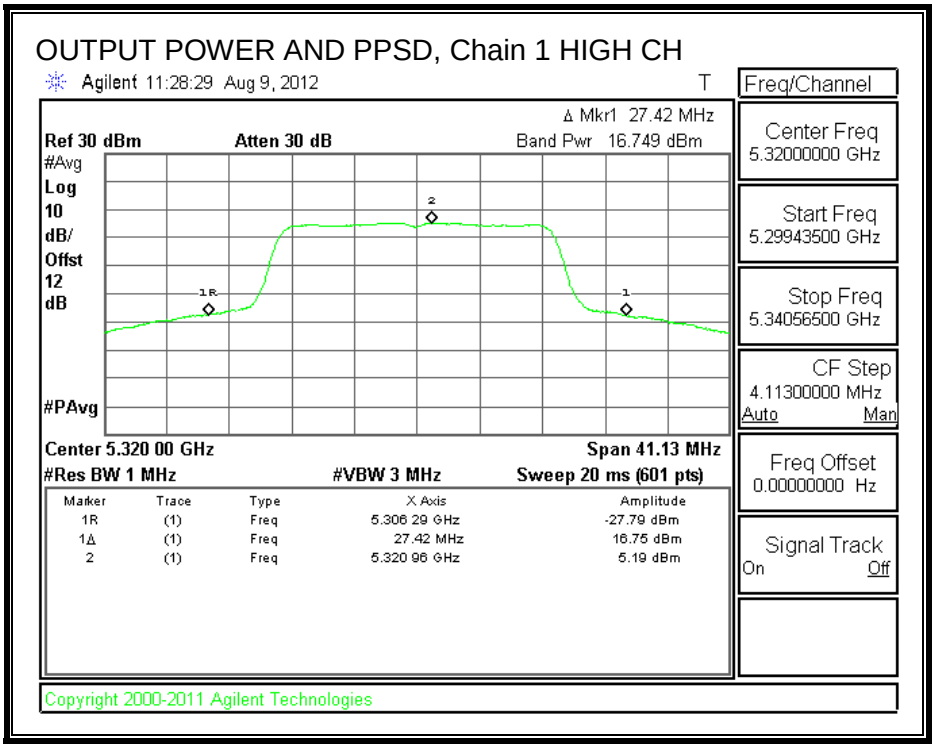
PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	4.95	5.16	8.07	8.39	-0.32
Mid	5300	5.22	5.04	8.14	8.39	-0.25
High	5320	5.19	5.13	8.17	8.39	-0.22

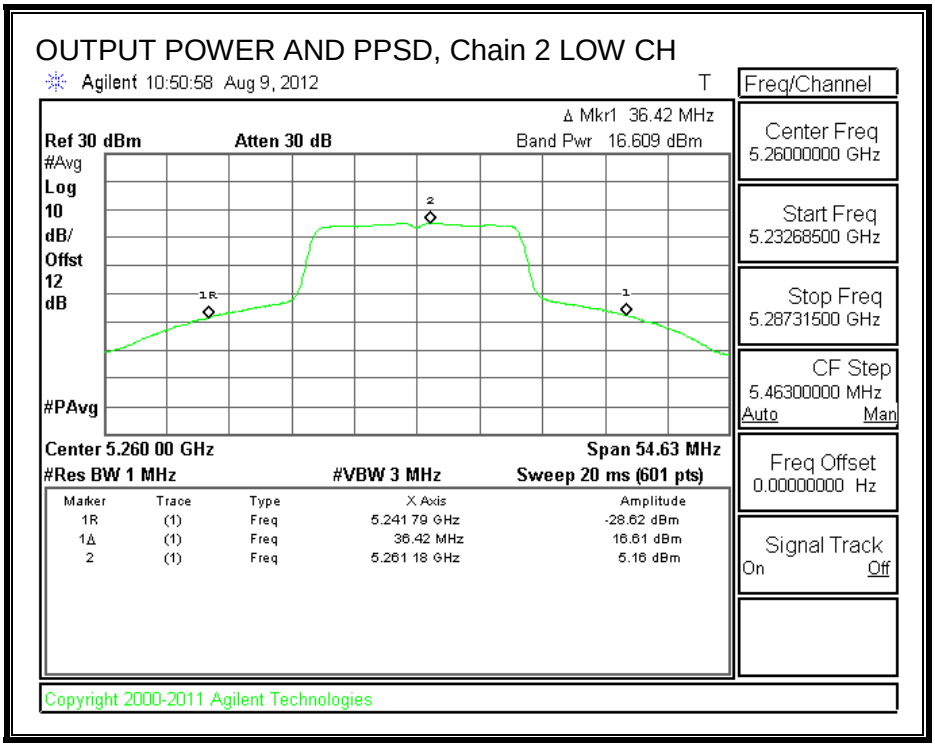
OUTPUT POWER AND PPSD, Chain 1

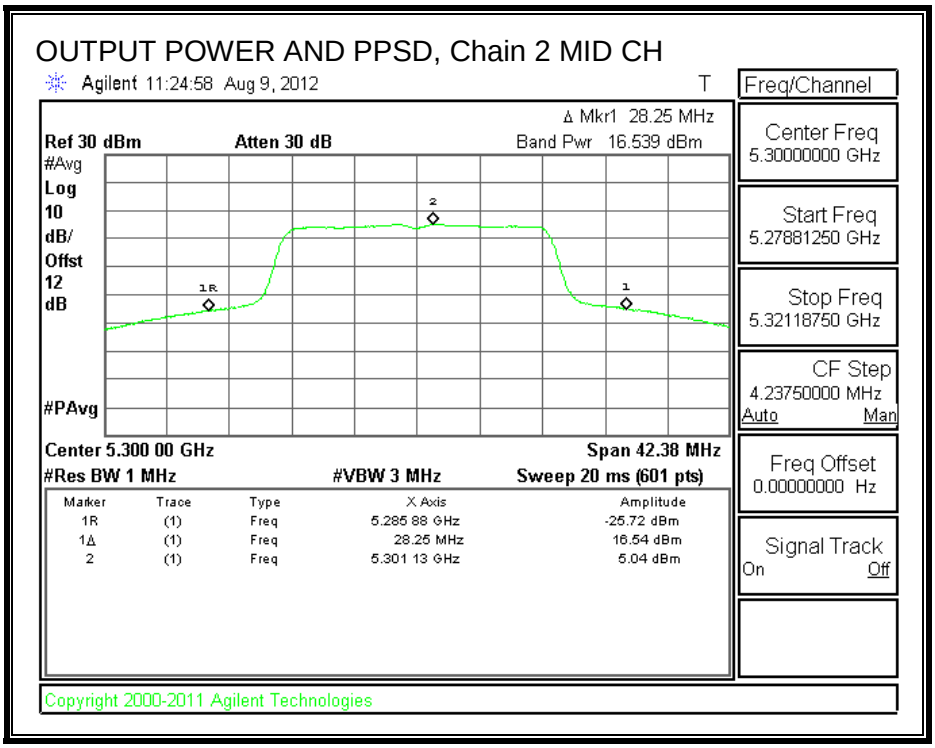


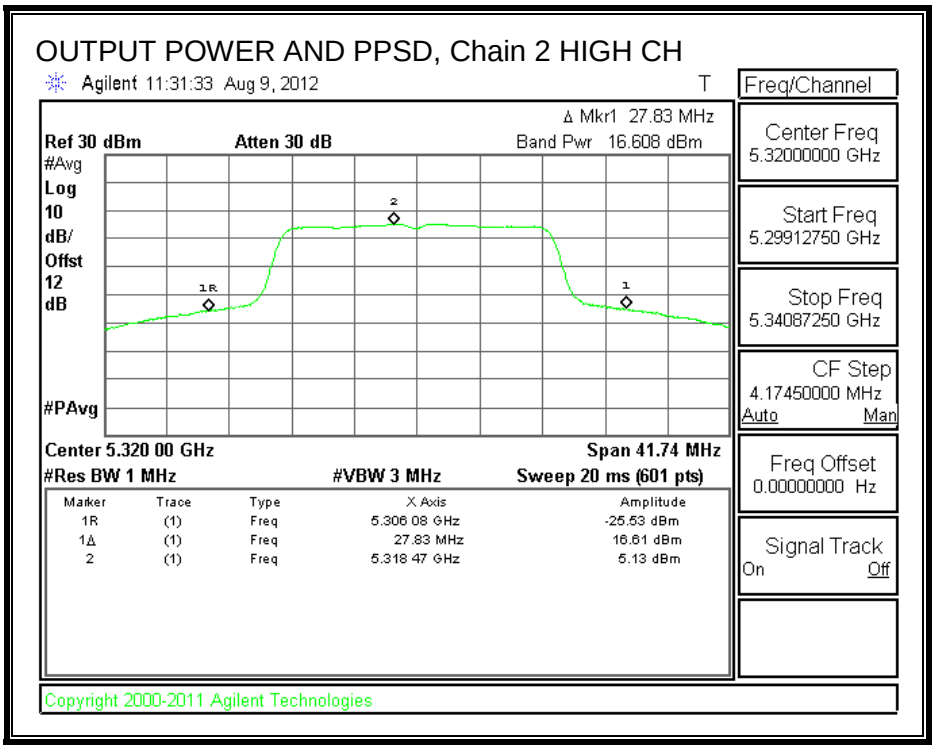




OUTPUT POWER AND PPSD, Chain 2







8.10.4. **PEAK EXCURSION**

LIMITS

FCC §15.407 (a) (6)

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

RESULTS

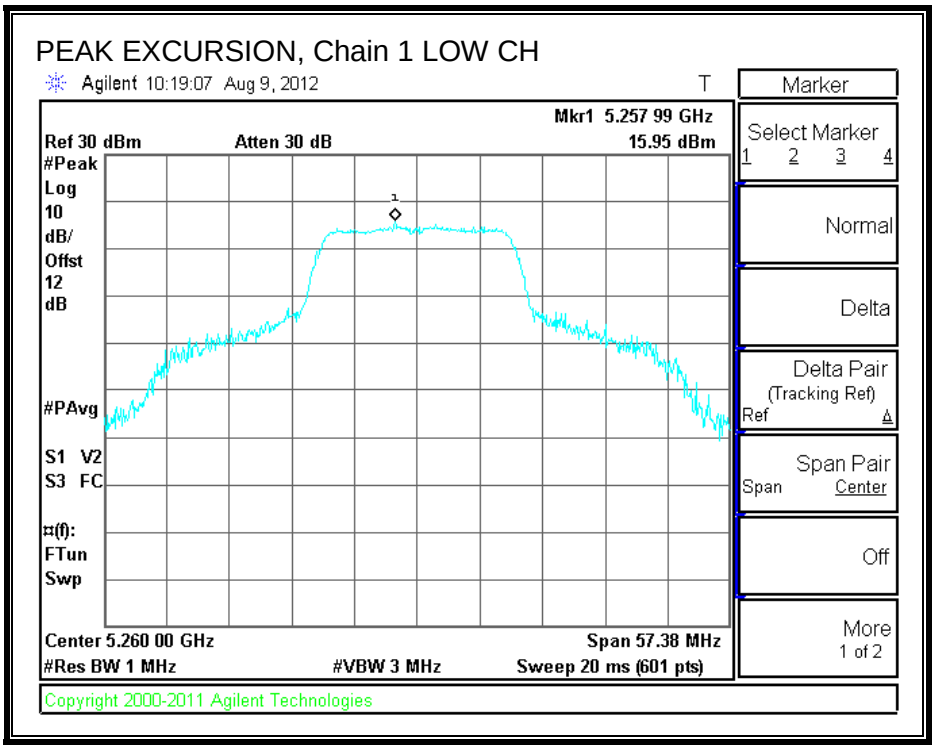
Chain 1

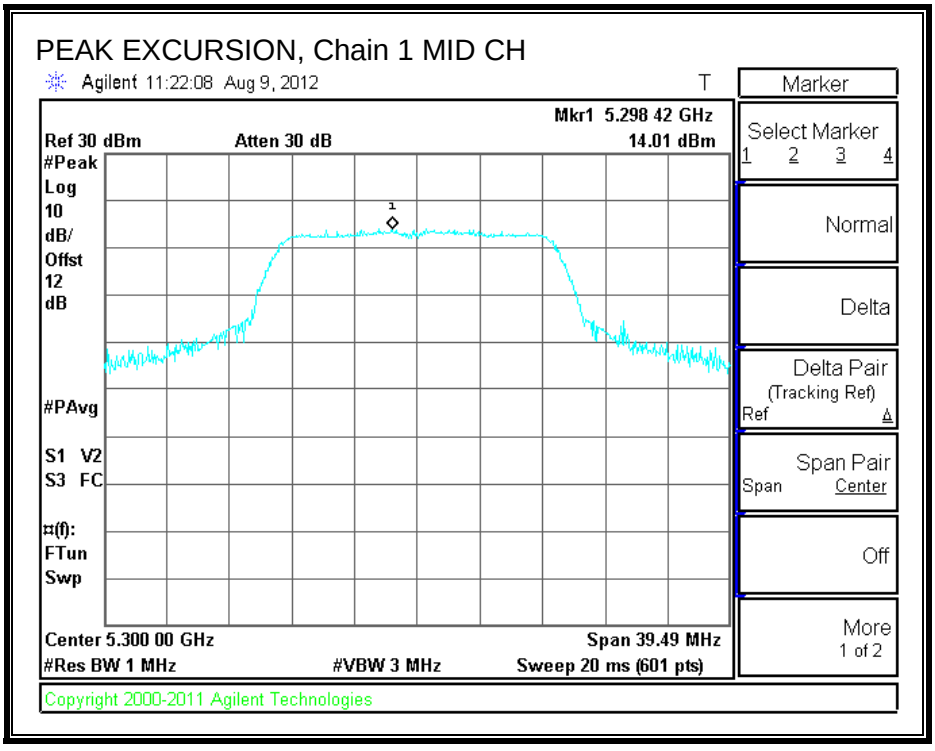
Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5260	15.95	4.95	0.05	10.95	13	-2.05
Mid	5300	14.01	5.22	0.05	8.74	13	-4.26
High	5320	14.40	5.19	0.05	9.16	13	-3.84

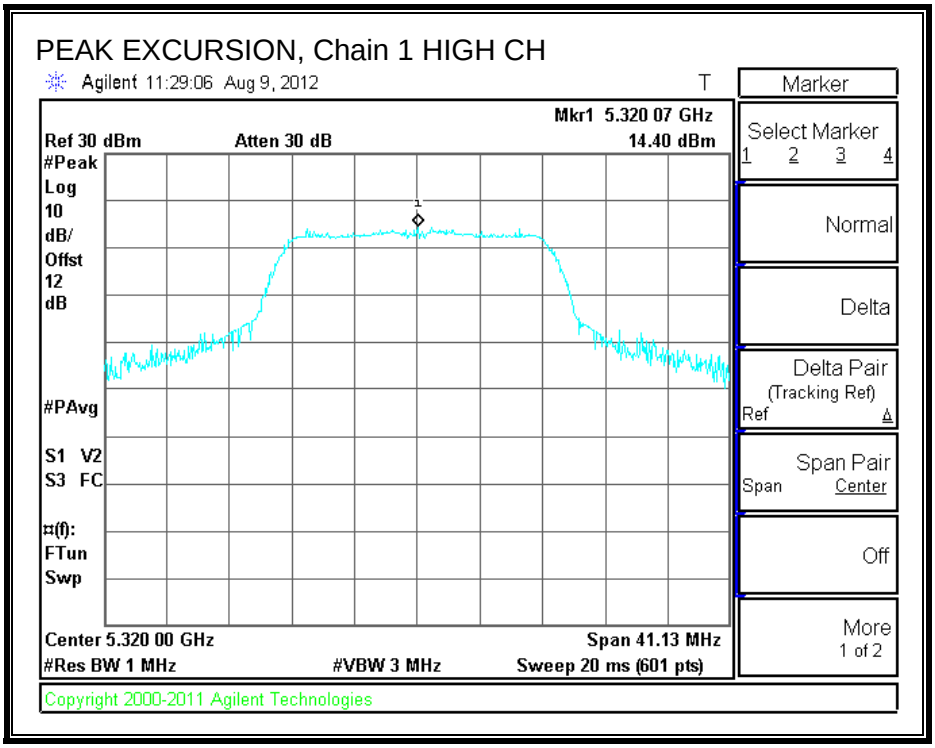
Chain 2

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5260	15.72	5.16	0.05	10.51	13	-2.49
Mid	5300	14.60	5.04	0.05	9.51	13	-3.49
High	5320	14.77	5.13	0.05	9.59	13	-3.41

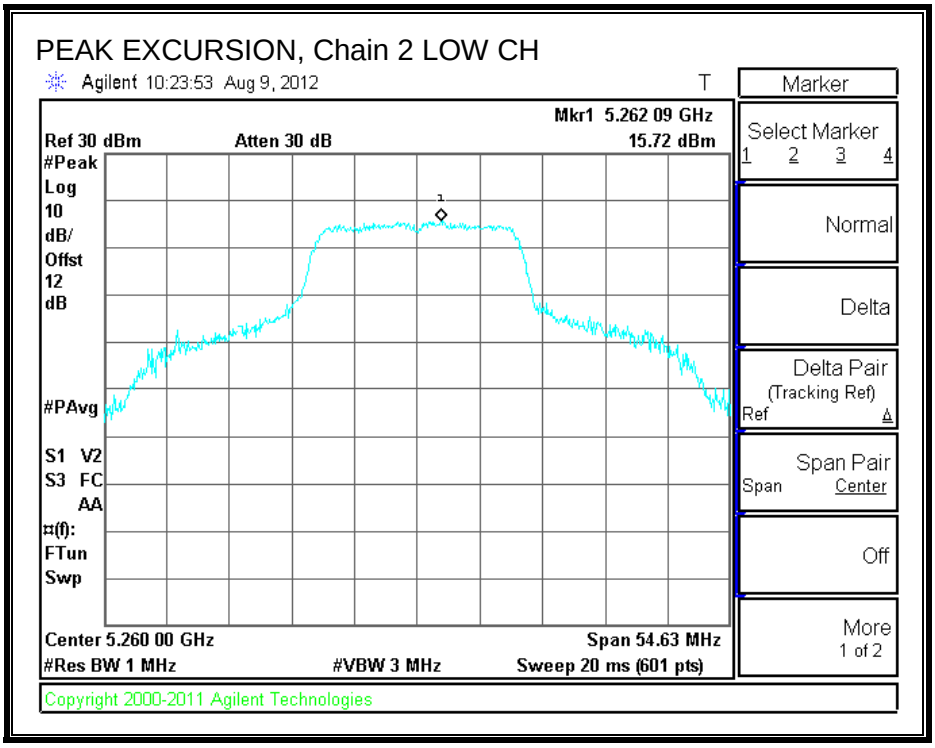
PEAK EXCURSION, Chain 1



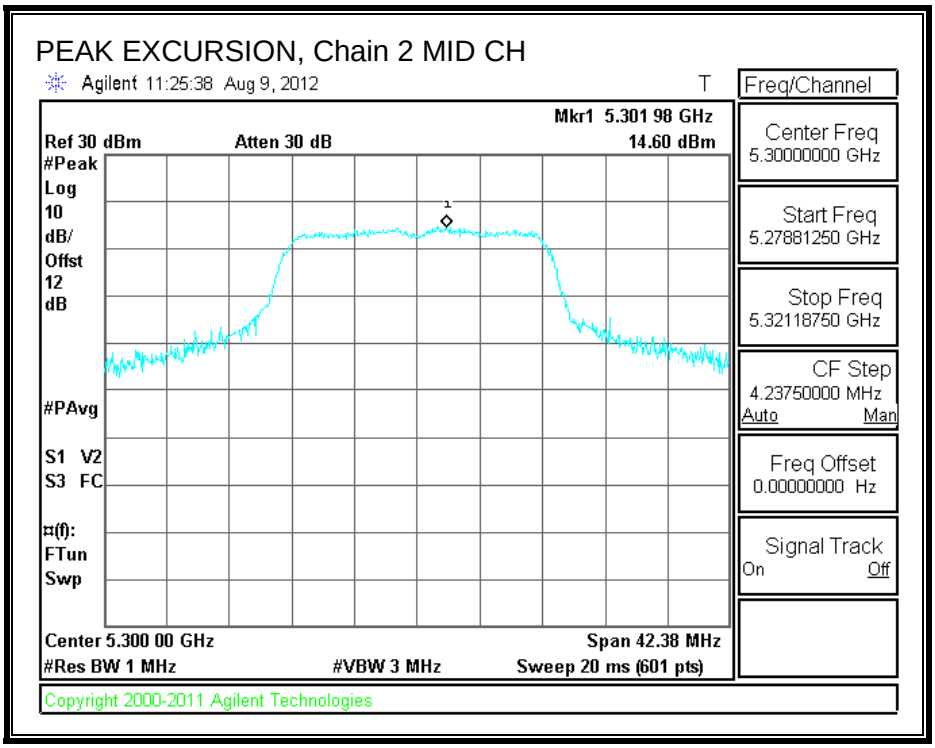




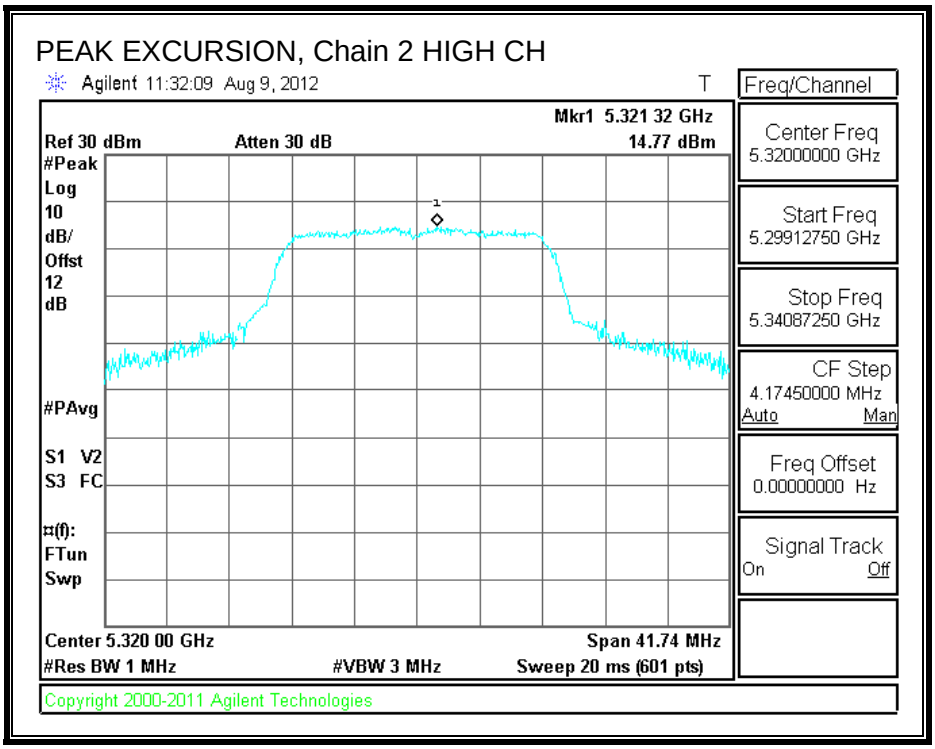
PEAK EXCURSION, Chain 2



PEAK EXCURSION, Chain 2 MID CH



PEAK EXCURSION, Chain 2 HIGH CH



8.11. 802.11n HT40 CDD MCS0 1TX MODE IN THE 5.3 GHz BAND

Covered by testing to HT40 CDD MCS0 2TX

8.12. 802.11n HT40 CDD MCS0 2TX MODE IN THE 5.3 GHz BAND

8.12.1. 26 dB BANDWIDTH

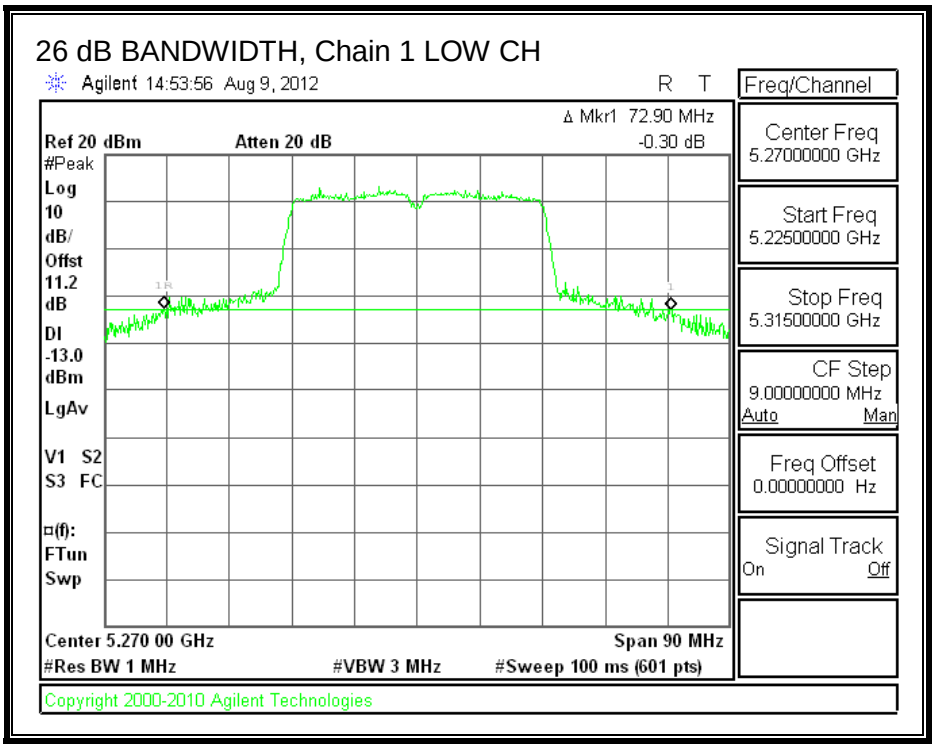
LIMITS

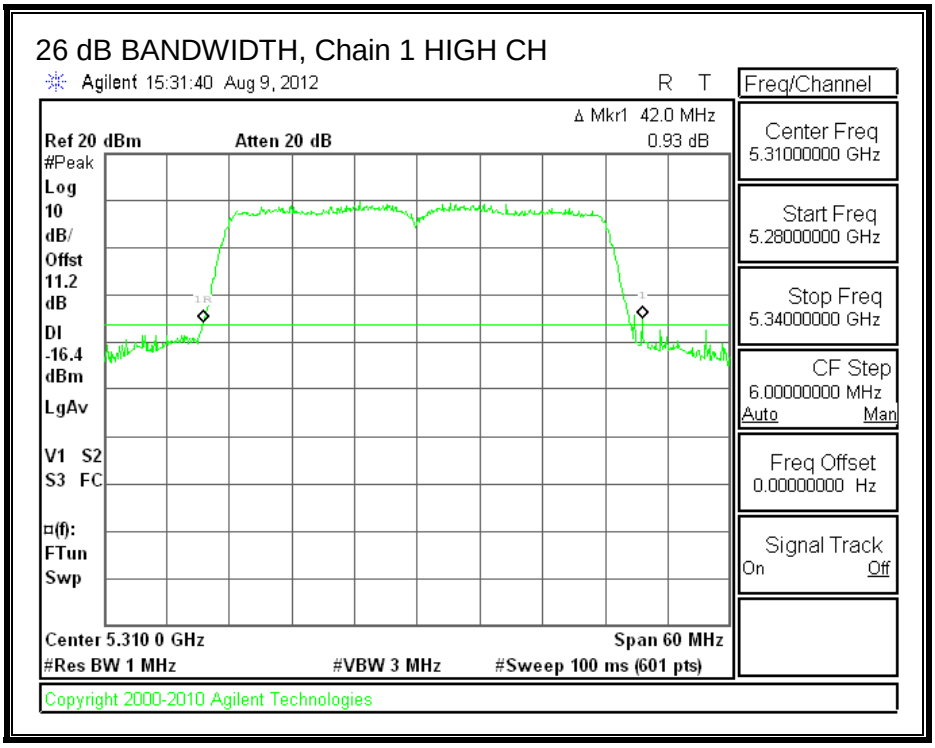
None; for reporting purposes only.

RESULTS

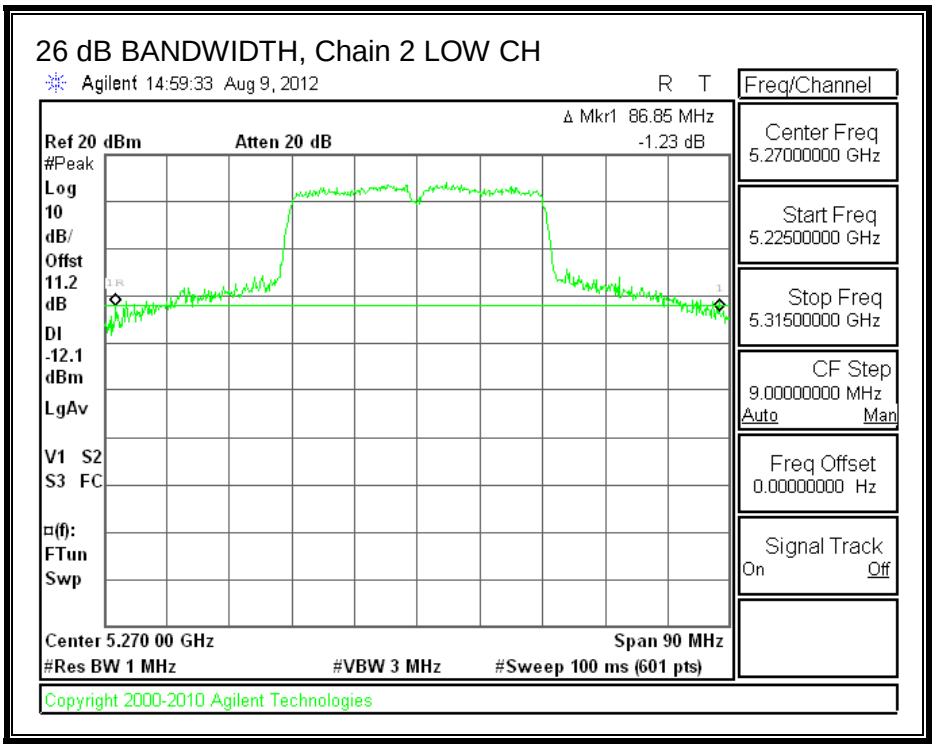
Channel	Frequency (MHz)	26 dB BW Chain 1 (MHz)	26 dB BW Chain 2 (MHz)
Low	5270	72.90	86.85
High	5310	42.00	51.50

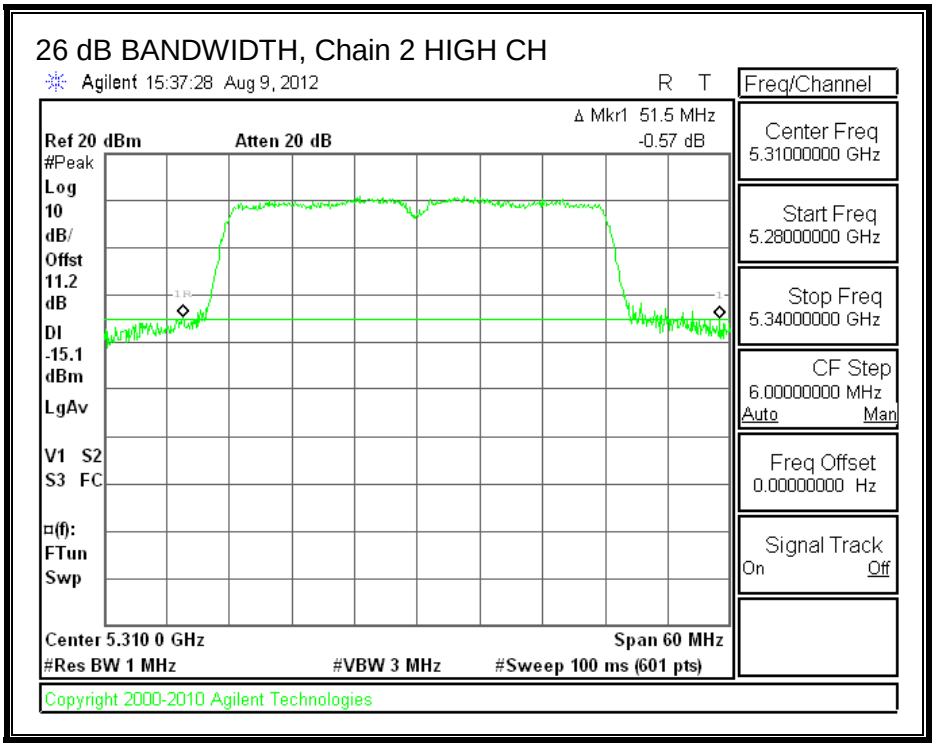
26 dB BANDWIDTH, Chain 1





26 dB BANDWIDTH, Chain 2





8.12.2. **99% BANDWIDTH**

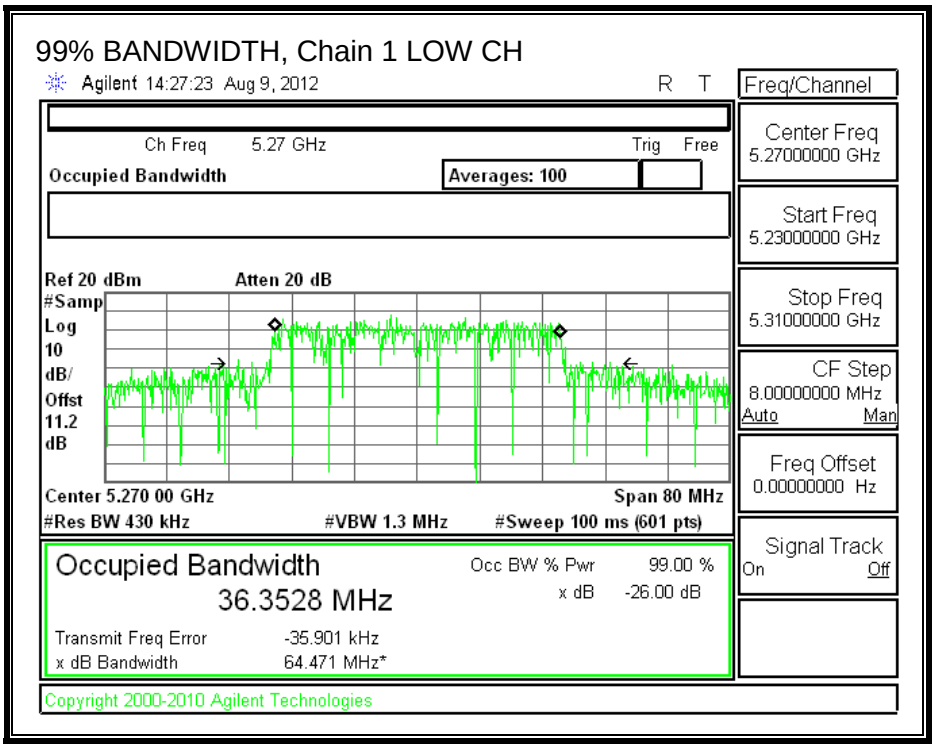
LIMITS

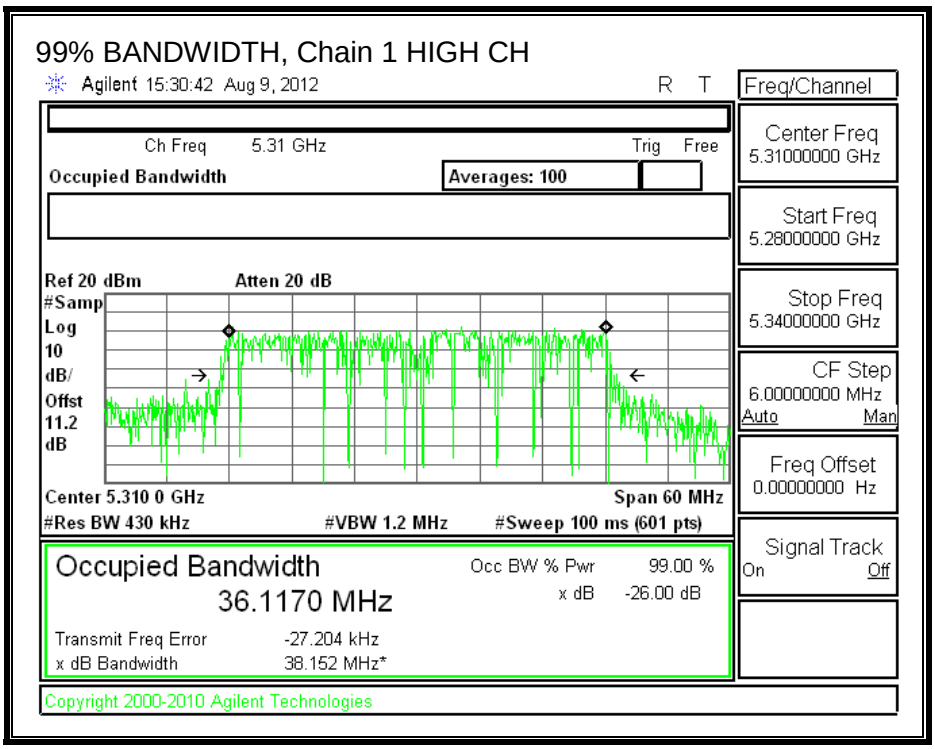
None; for reporting purposes only.

RESULTS

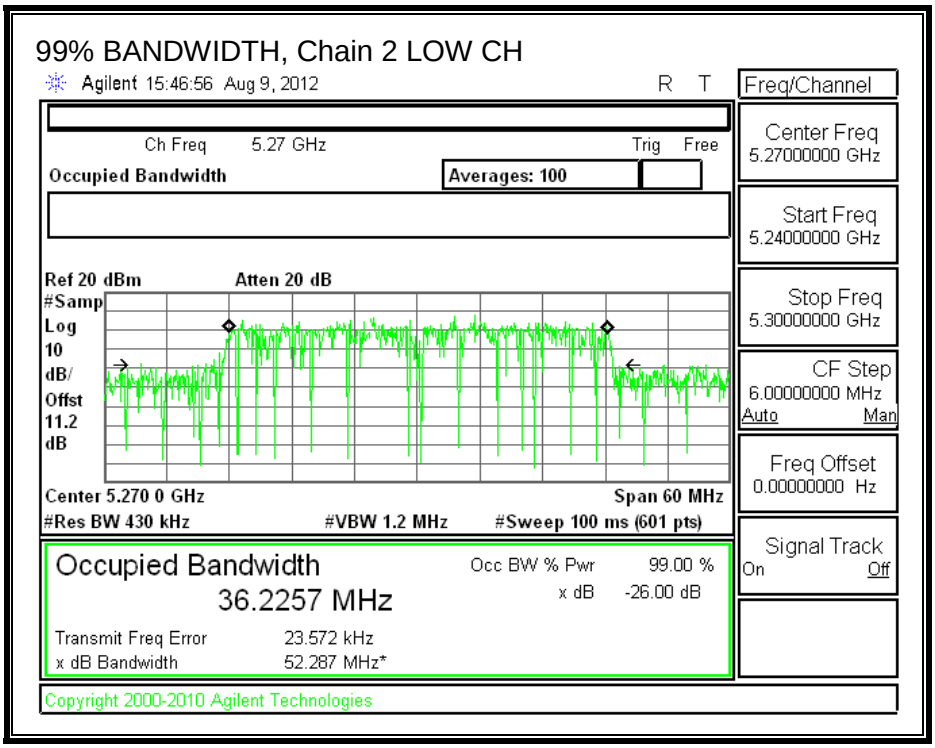
Channel	Frequency (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Low	5270	36.3528	36.2257
High	5310	36.1170	36.1361

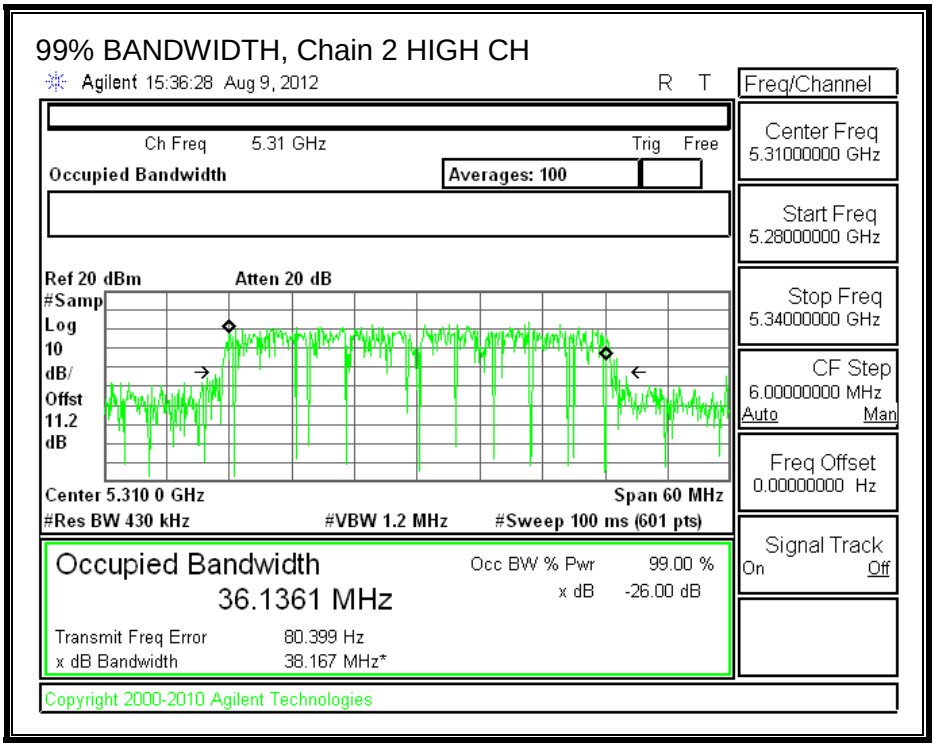
99% BANDWIDTH, Chain 1





99% BANDWIDTH, Chain 2





8.12.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz 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.

DIRECTIONAL ANTENNA GAIN

The TX chains are correlated and the antenna gain is the same for each chain. The directional gain is:

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
5.60	3.01	8.61

RESULTS

Limits

Channel	Frequency (MHz)	Fixed Limit (dBm)	99% BW (MHz)	11 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Low	5270	24	36.2257	26.59	8.61	21.39	8.39
High	5310	24	36.1170	26.58	8.61	21.39	8.39

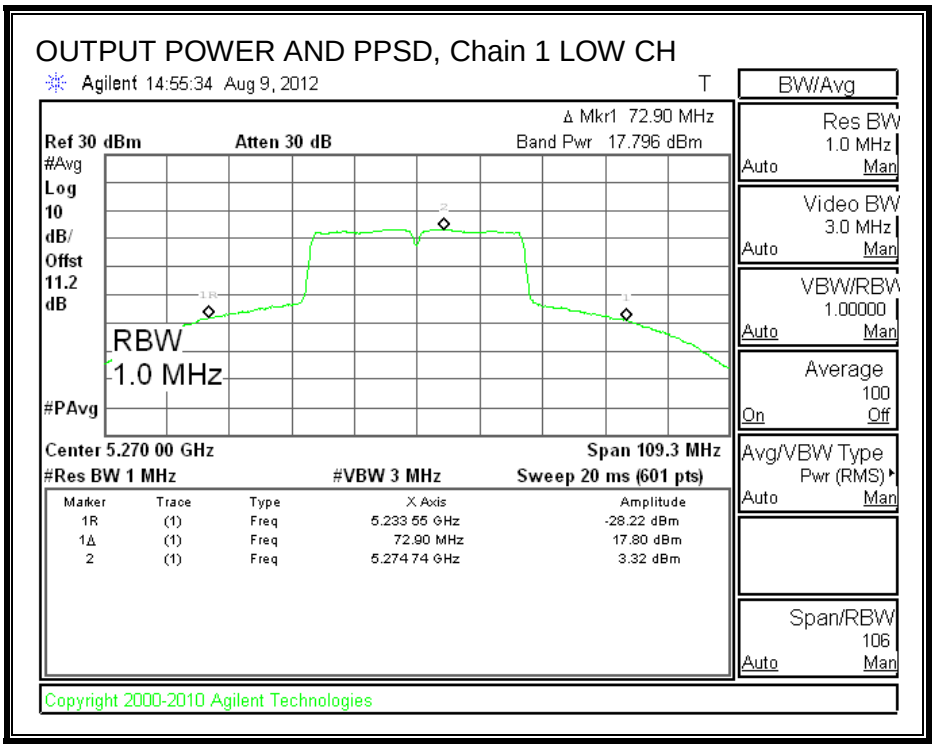
Output Power Results

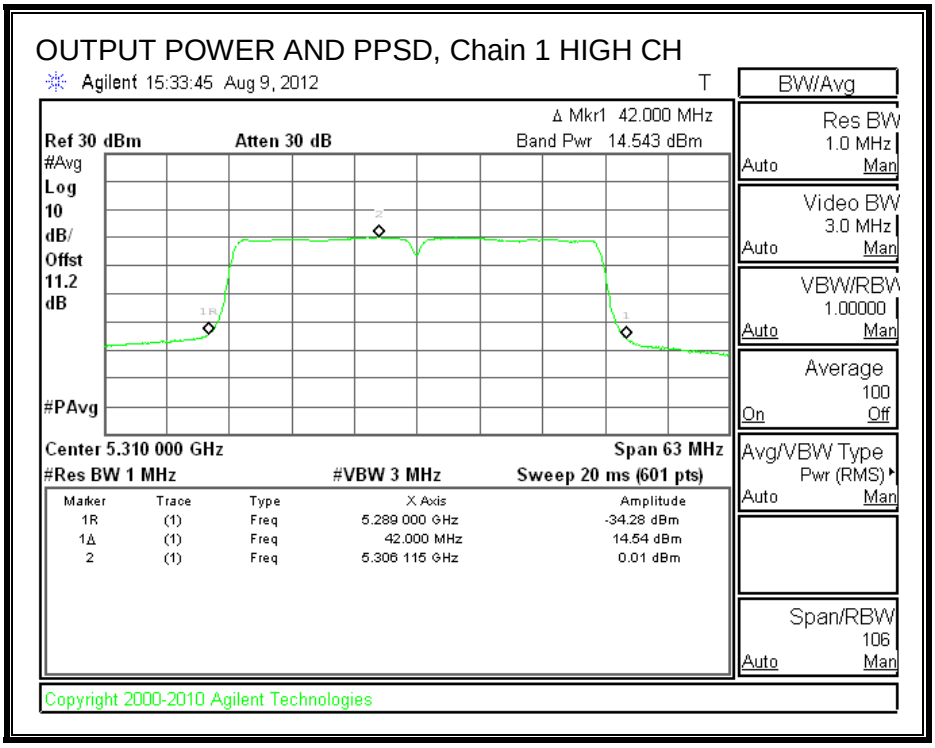
Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	17.796	18.231	21.029	21.39	-0.361
High	5310	14.543	15.446	18.028	21.39	-3.362

PPSD Results

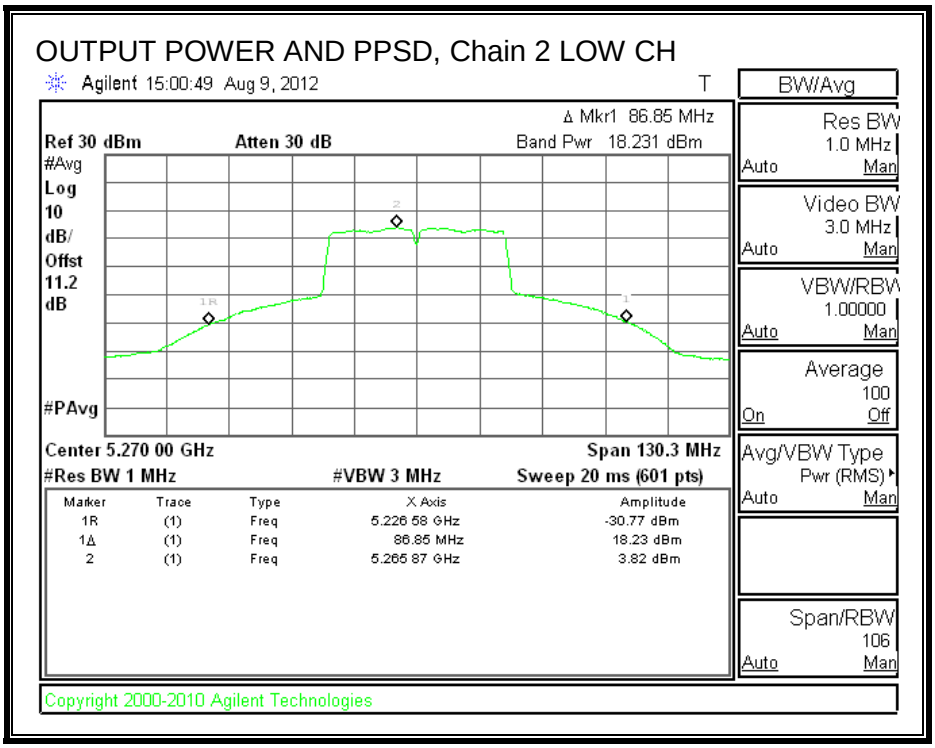
Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5270	3.32	3.82	6.59	8.39	-1.80
High	5310	0.01	0.98	3.53	8.39	-4.86

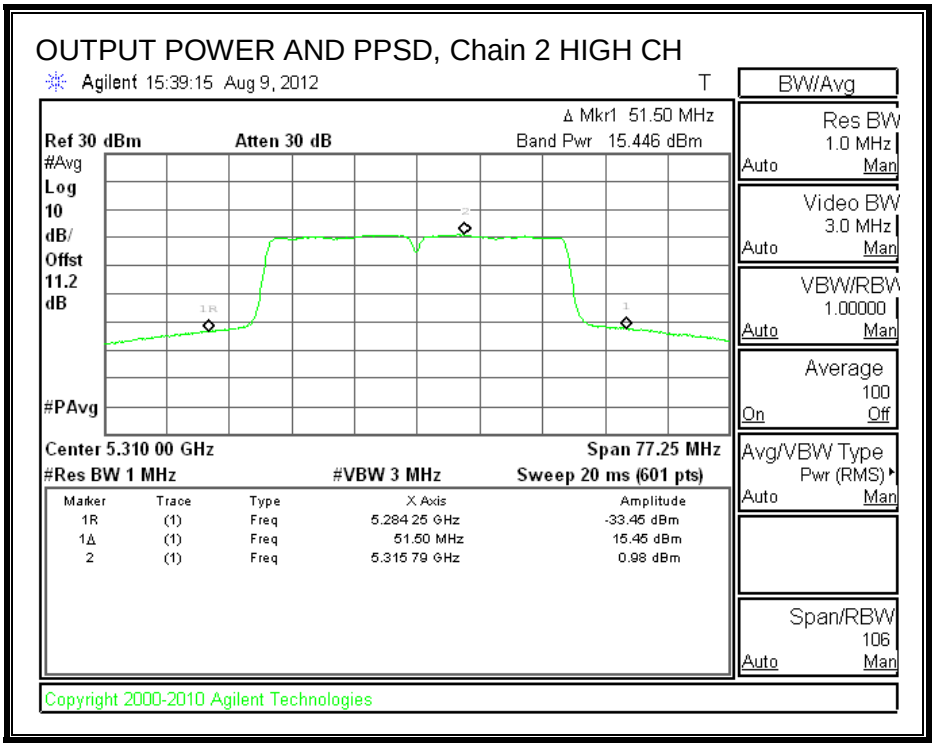
OUTPUT POWER AND PPSD, Chain 1





OUTPUT POWER AND PPSD, Chain 2





8.12.4. **PEAK EXCURSION**

LIMITS

FCC §15.407 (a) (6)

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

RESULTS

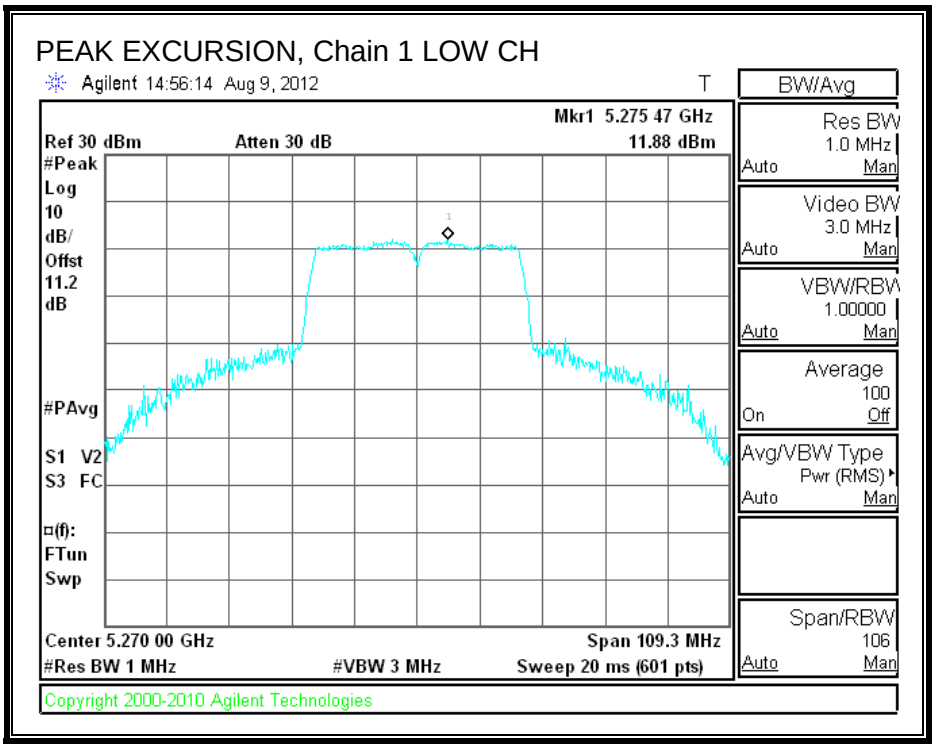
Chain 1

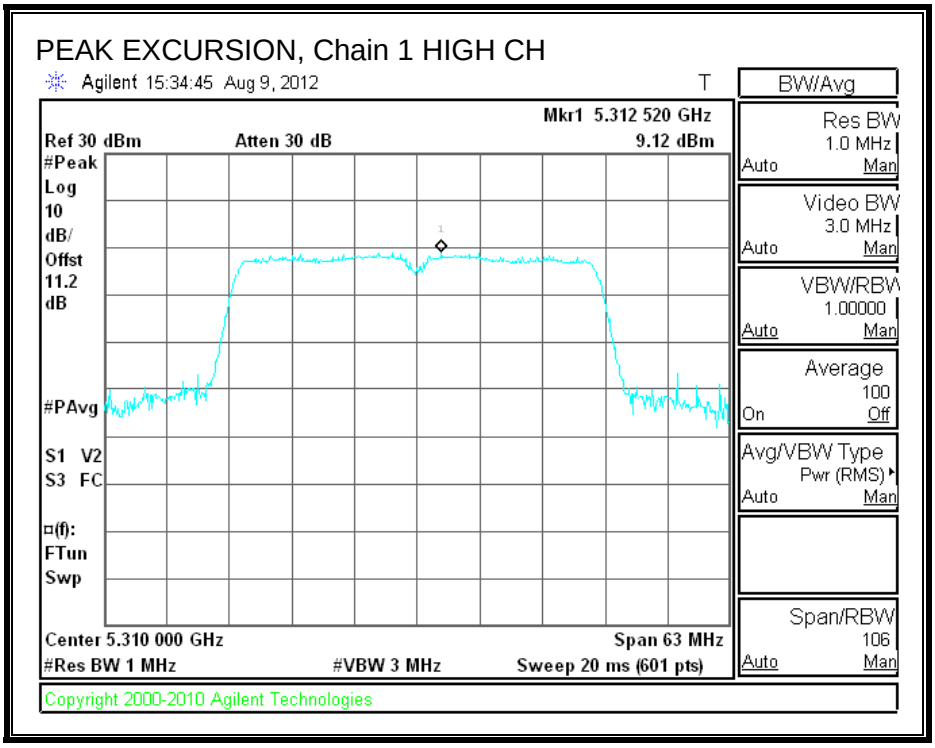
Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5270	11.88	3.32	0.08	8.48	13	-4.52
High	5310	9.12	0.01	0.08	9.03	13	-3.97

Chain 2

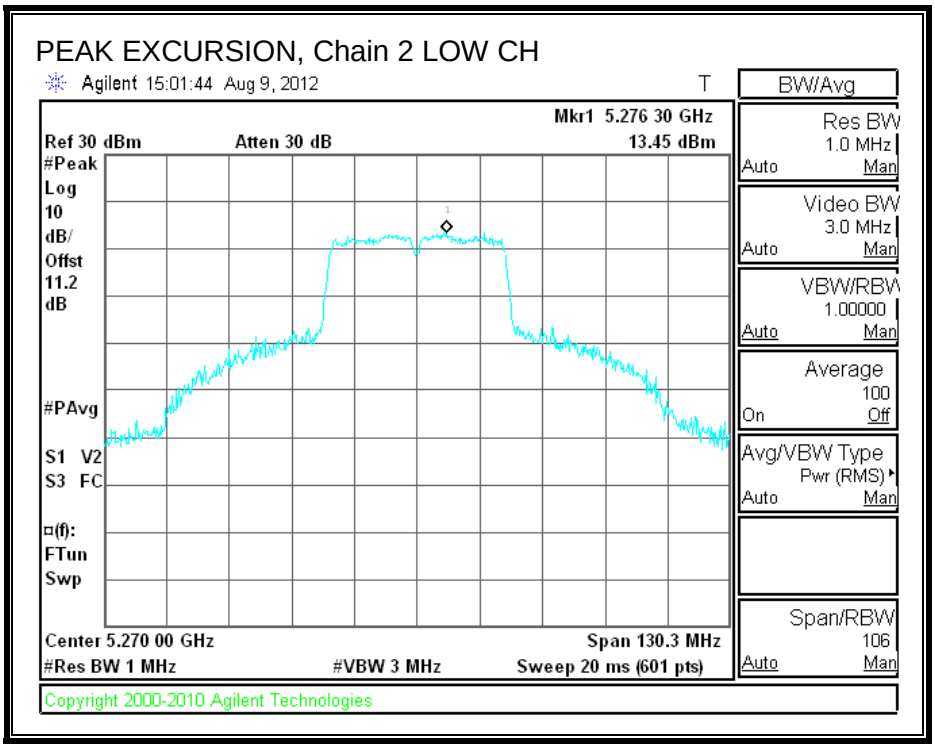
Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5270	13.45	3.82	0.08	9.55	13	-3.45
High	5310	10.68	0.98	0.08	9.62	13	-3.38

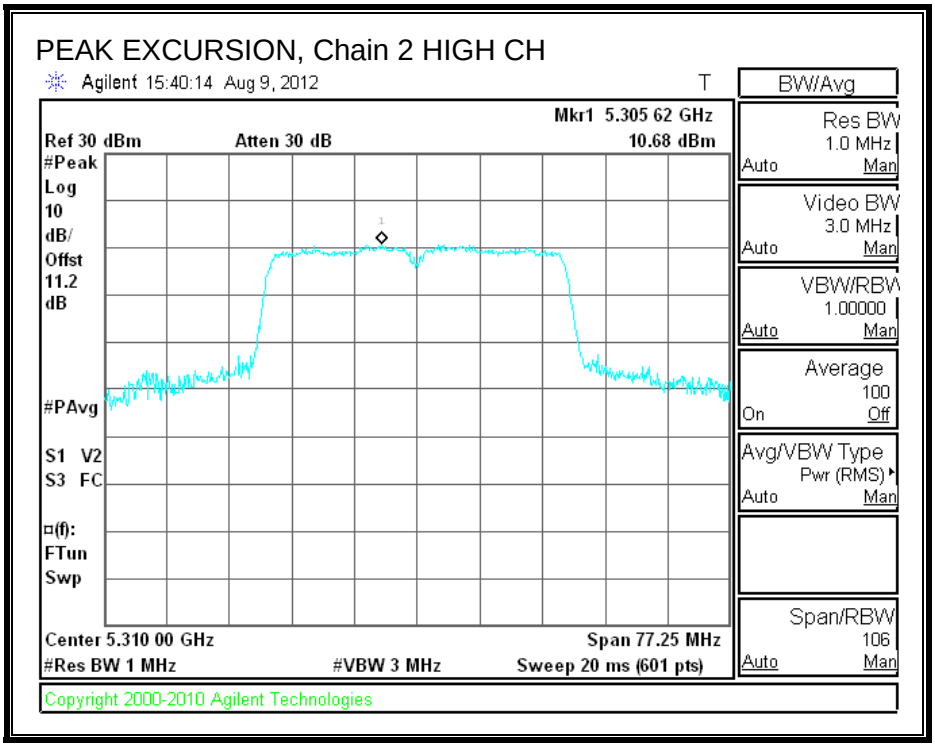
PEAK EXCURSION, Chain 1





PEAK EXCURSION, Chain 2





8.13. 802.11a LEGACY 1TX MODE IN THE 5.6 GHz BAND

8.13.1. 26 dB BANDWIDTH

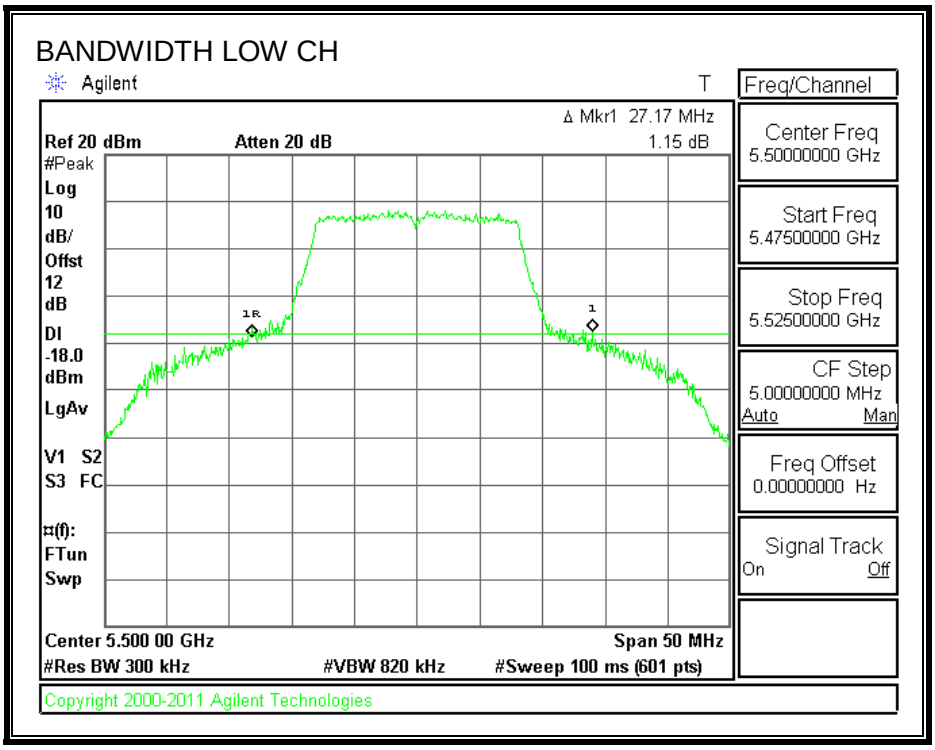
LIMITS

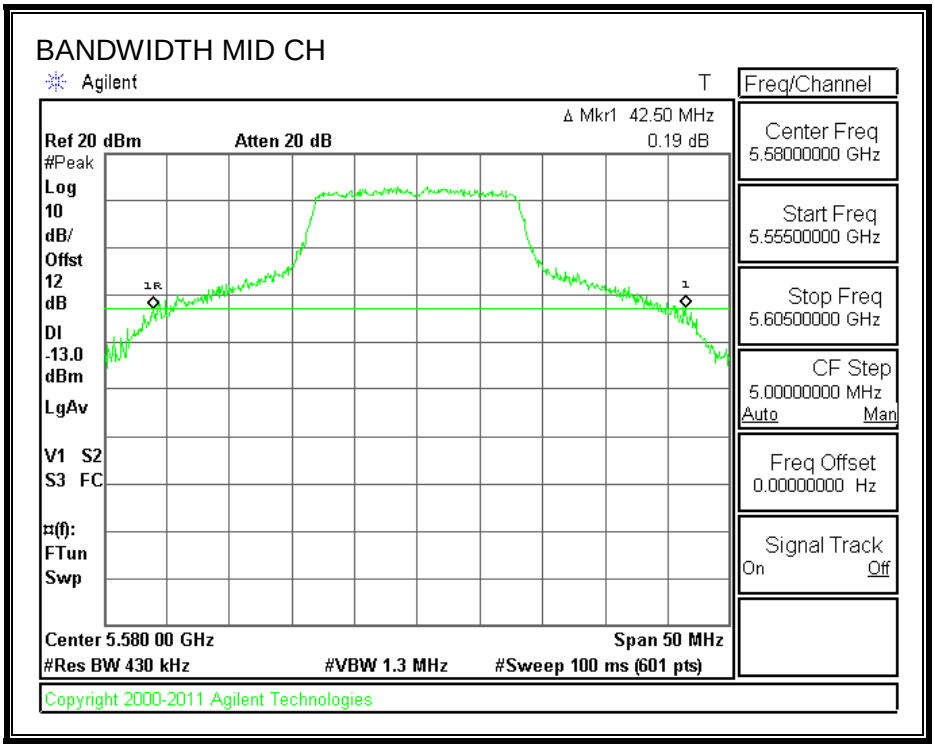
None; for reporting purposes only.

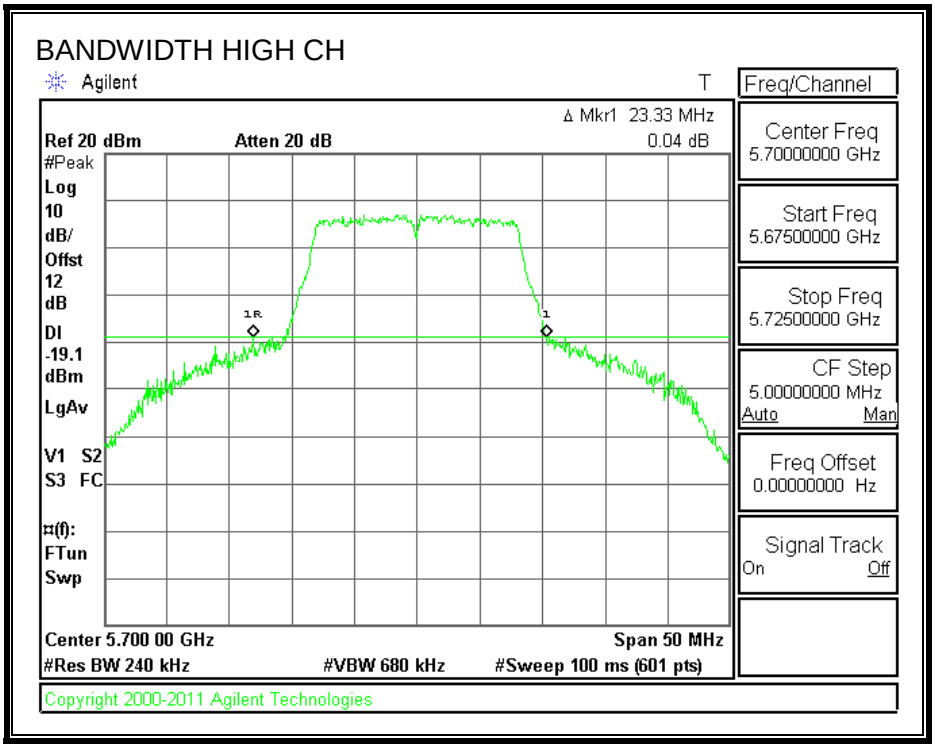
RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	27.17
Mid	5580	42.50
High	5700	23.33

26 dB BANDWIDTH







8.13.2. **99% BANDWIDTH**

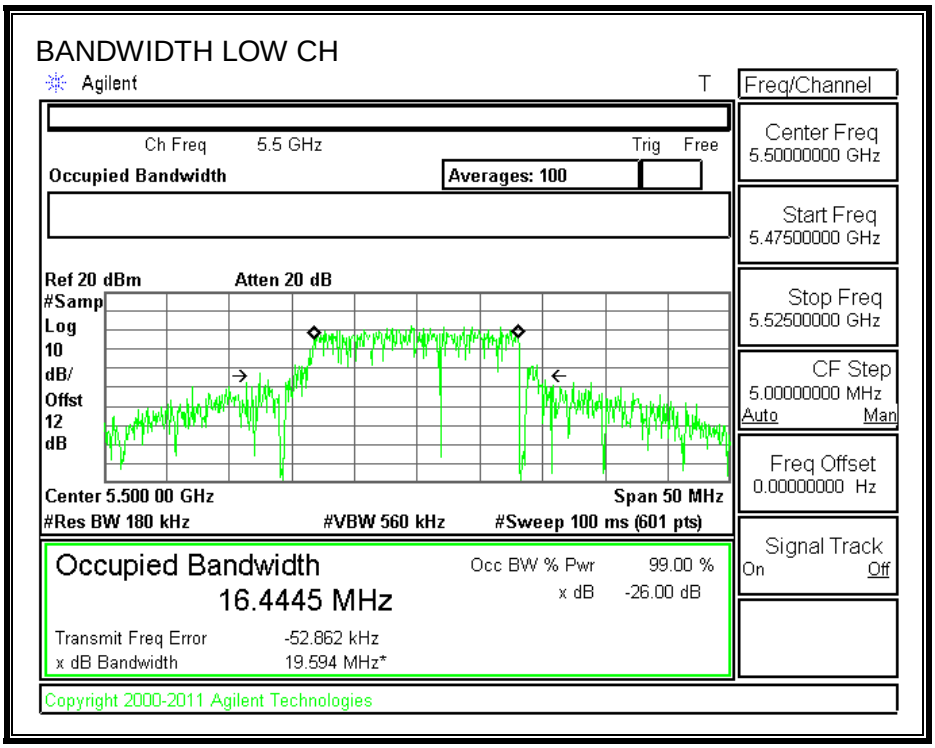
LIMITS

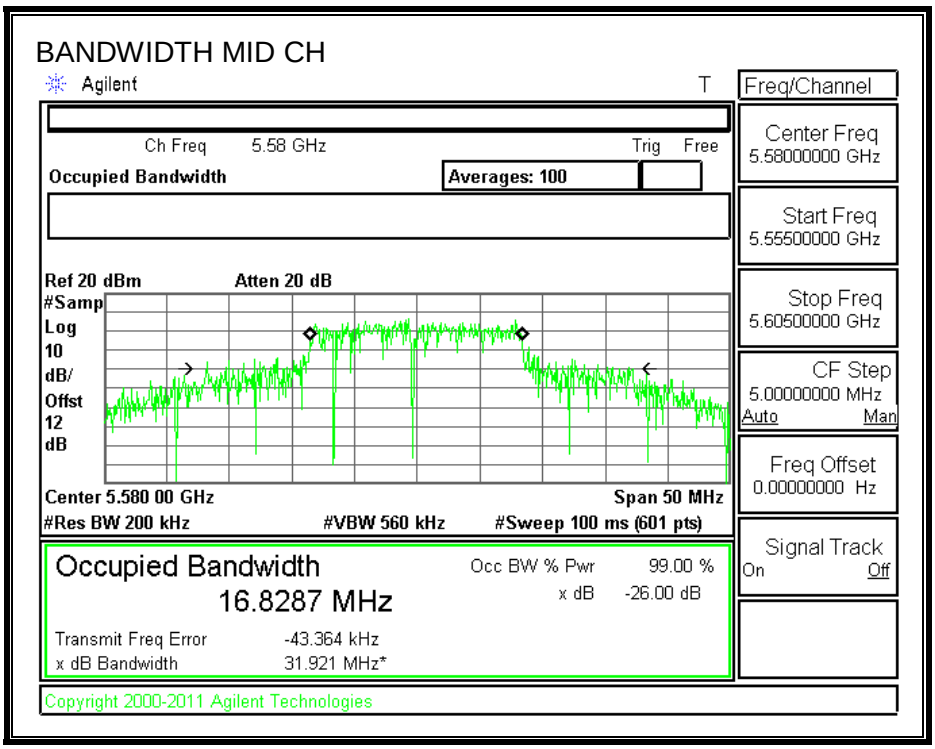
None; for reporting purposes only.

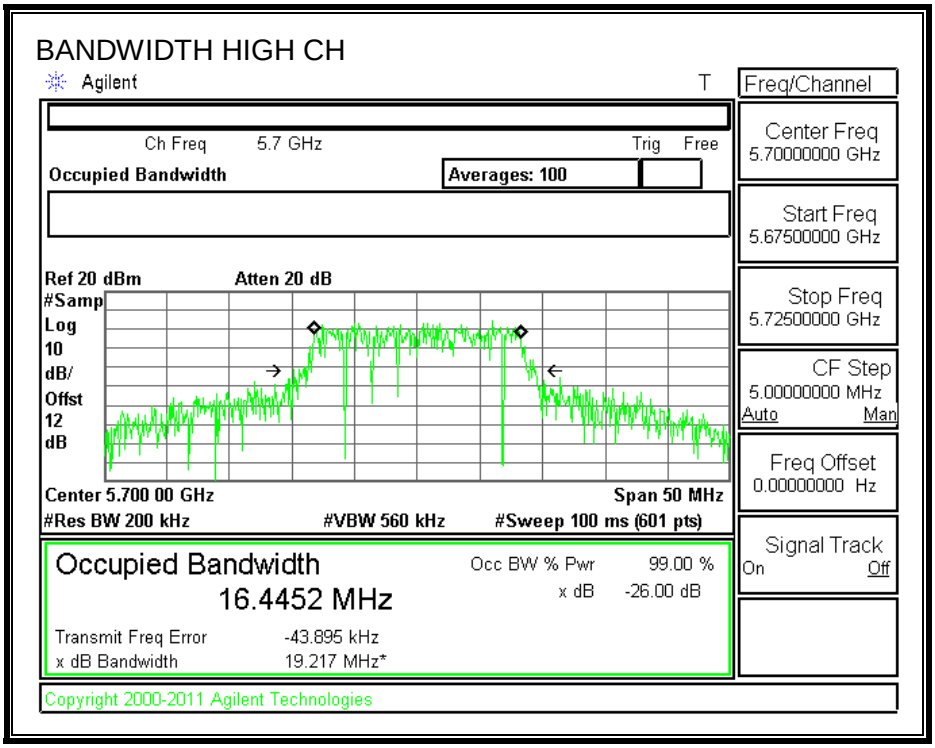
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	16.4445
Mid	5580	16.8287
High	5700	16.4452

99% BANDWIDTH







8.13.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (3)

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz 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.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Limits

Channel	Frequency (MHz)	Fixed Limit (dBm)	99% BW (MHz)	11 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Low	5500	24	16.4445	23.16	4.20	23.16	11.00
Mid	5580	24	16.8287	23.26	4.20	23.26	11.00
High	5700	24	16.4452	23.16	4.20	23.16	11.00

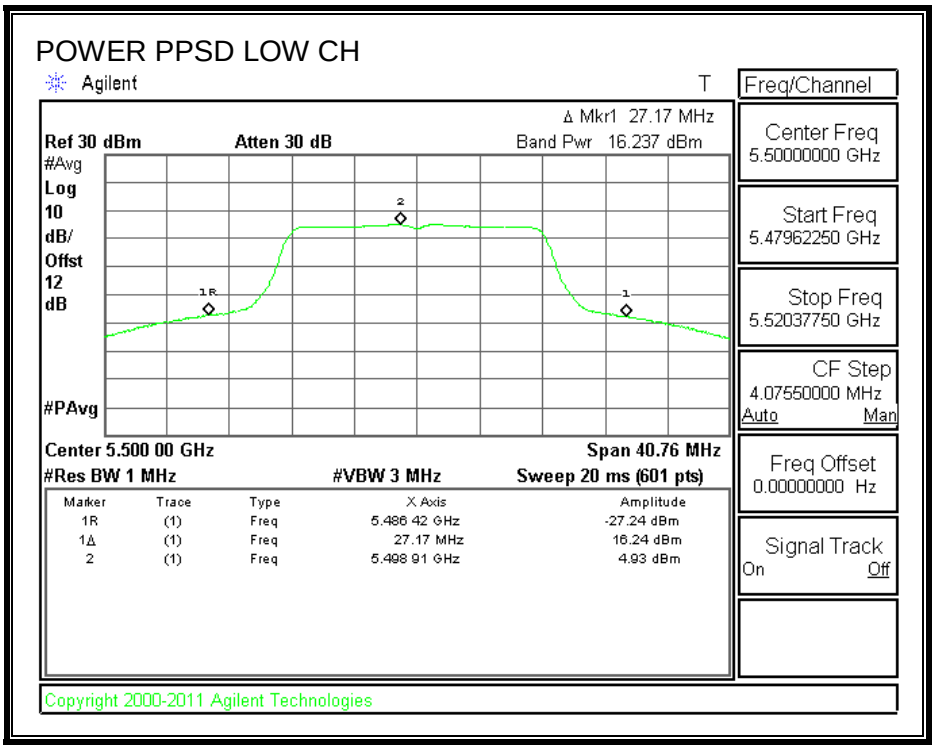
Output Power Results

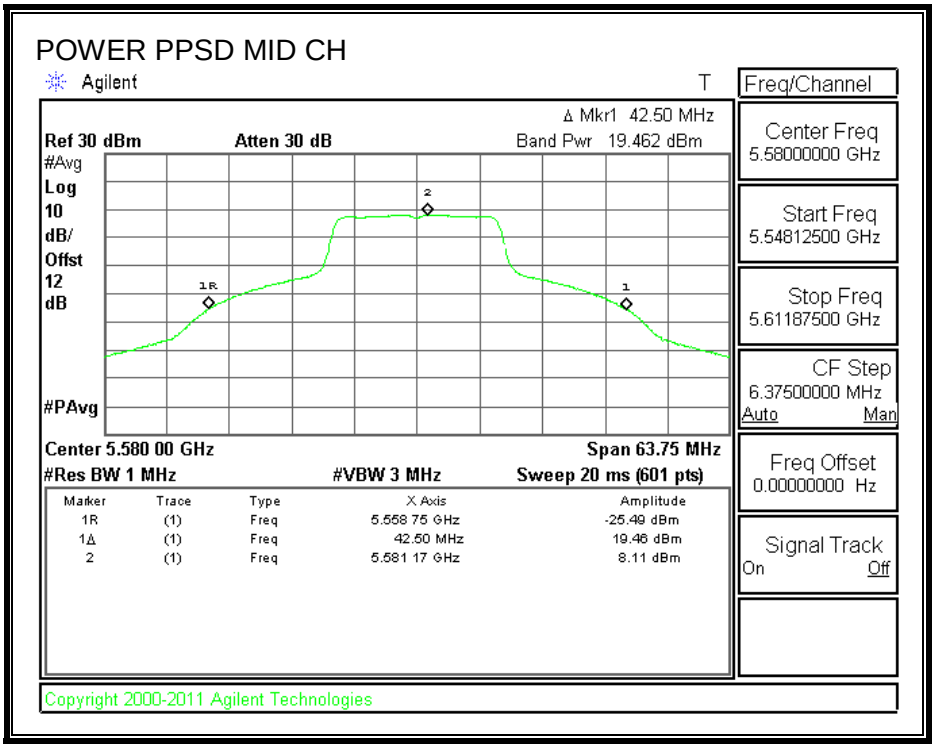
Channel	Frequency (MHz)	Meas Power (dBm)	Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	16.237	16.237	23.16	-6.923
Mid	5580	19.462	19.462	23.26	-3.799
High	5700	16.497	16.497	23.16	-6.663

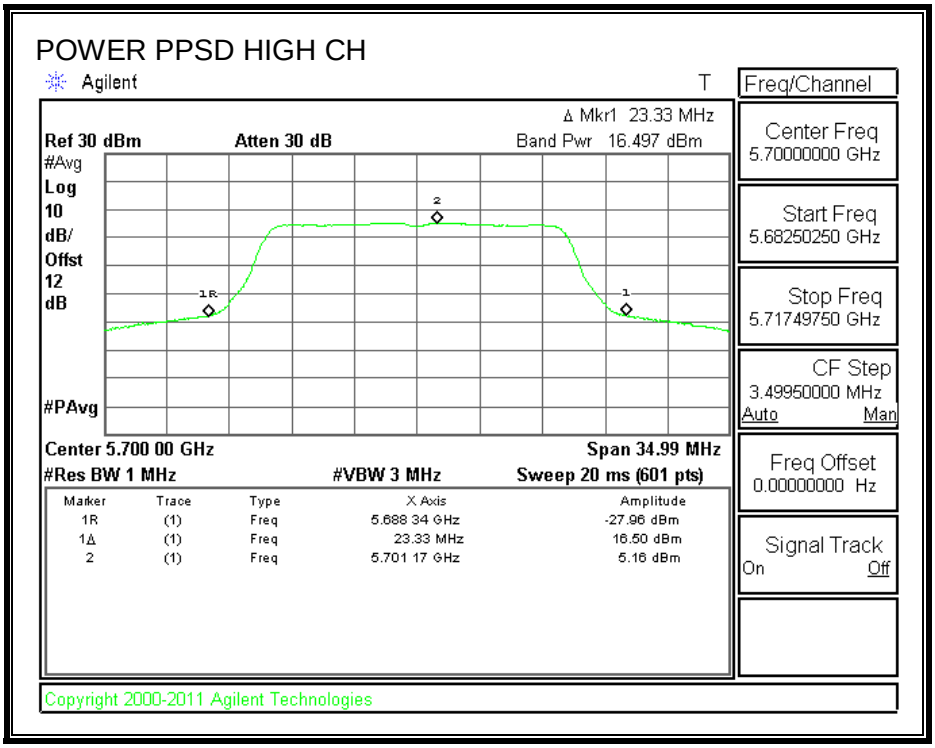
PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	4.93	4.93	11.00	-6.07
Mid	5580	8.11	8.11	11.00	-2.89
High	5700	5.16	5.16	11.00	-5.84

OUTPUT POWER AND PPSD







8.13.4. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

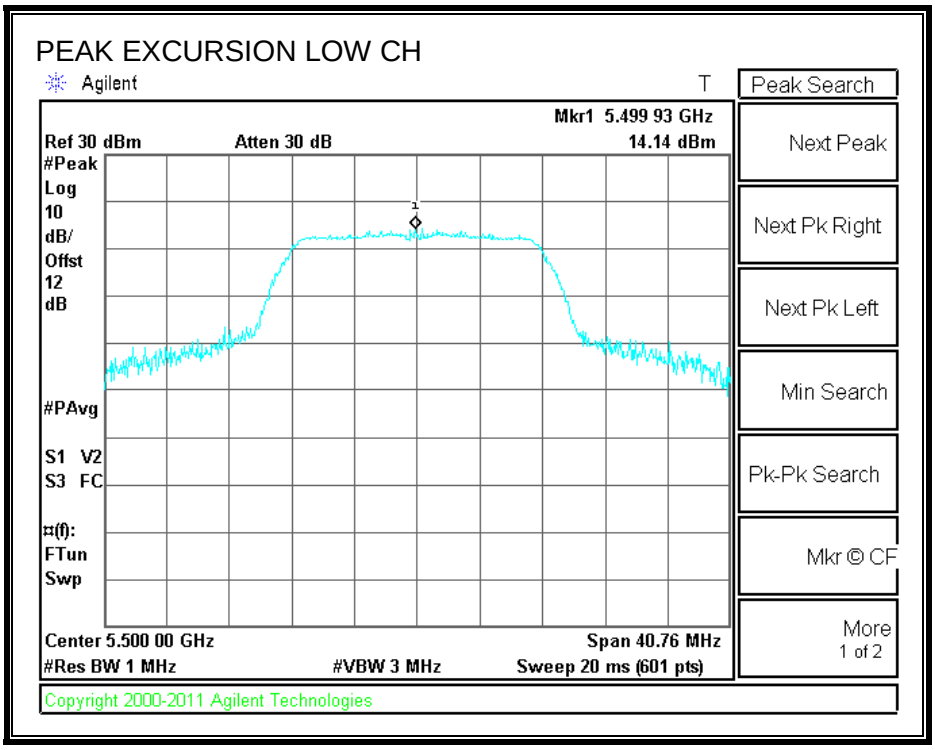
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

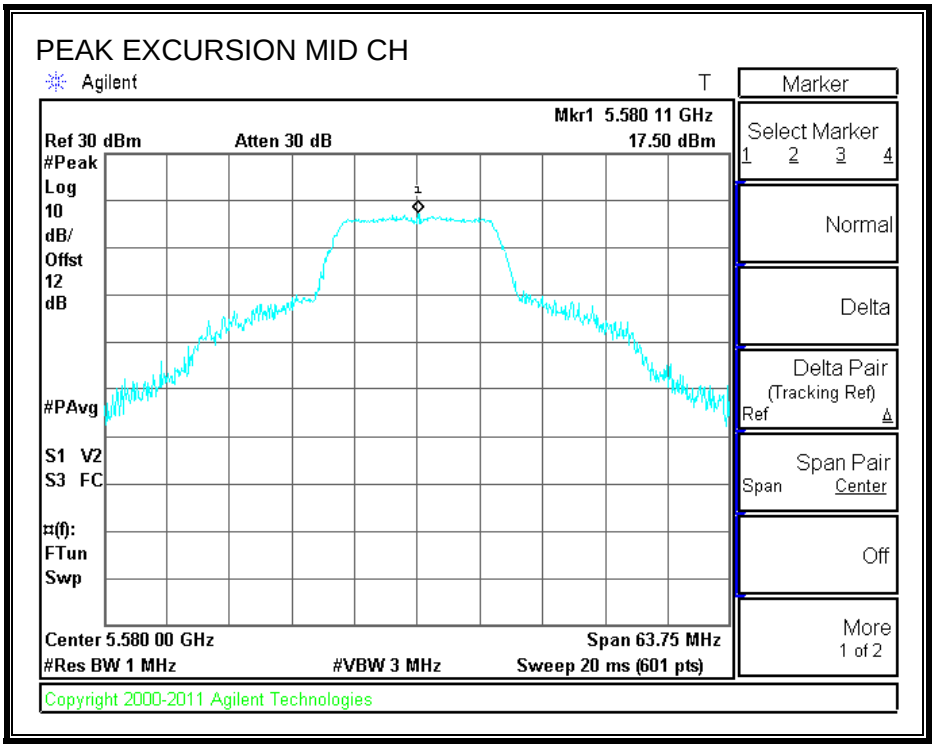
Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5500	14.14	4.93	0.03	9.18	13	-3.82
Mid	5580	17.50	8.11	0.03	9.36	13	-3.64
High	5700	14.04	5.16	0.03	8.85	13	-4.15

PEAK EXCURSION

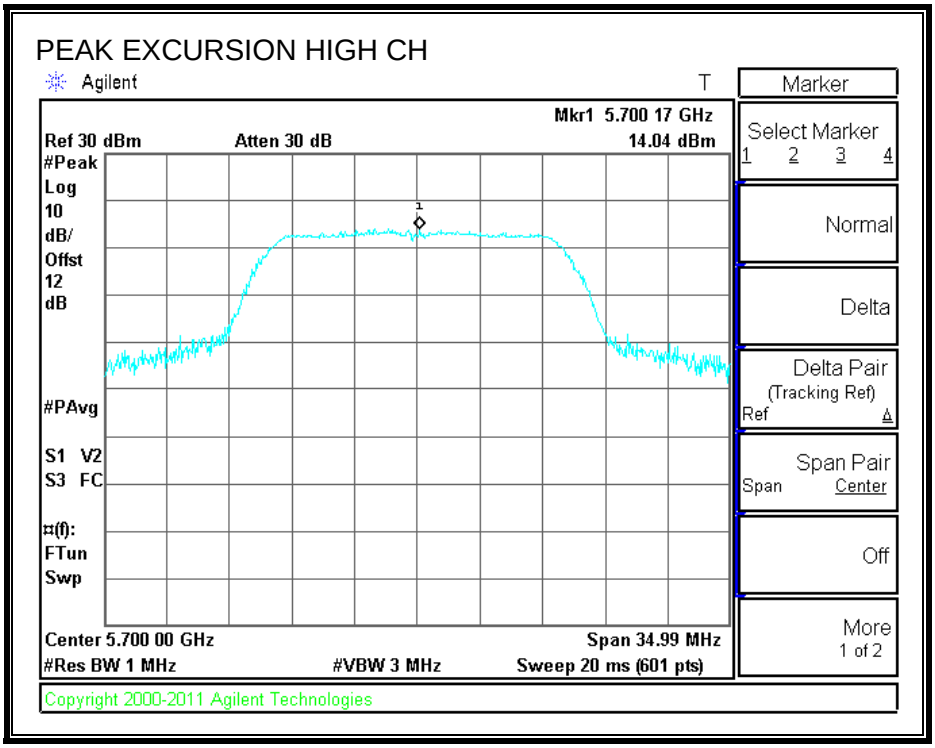
PEAK EXCURSION LOW CH



PEAK EXCURSION MID CH



PEAK EXCURSION HIGH CH



8.14. 802.11n HT20 CDD MCS0 2TX MODE IN THE 5.6 GHz BAND

8.14.1. 26 dB BANDWIDTH

LIMITS

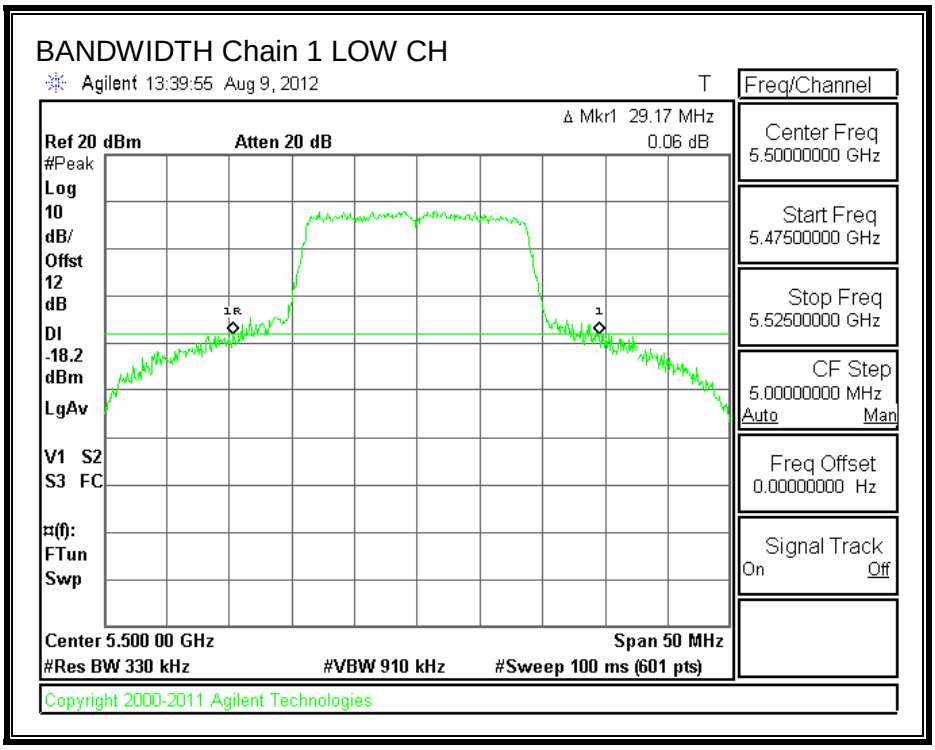
None; for reporting purposes only.

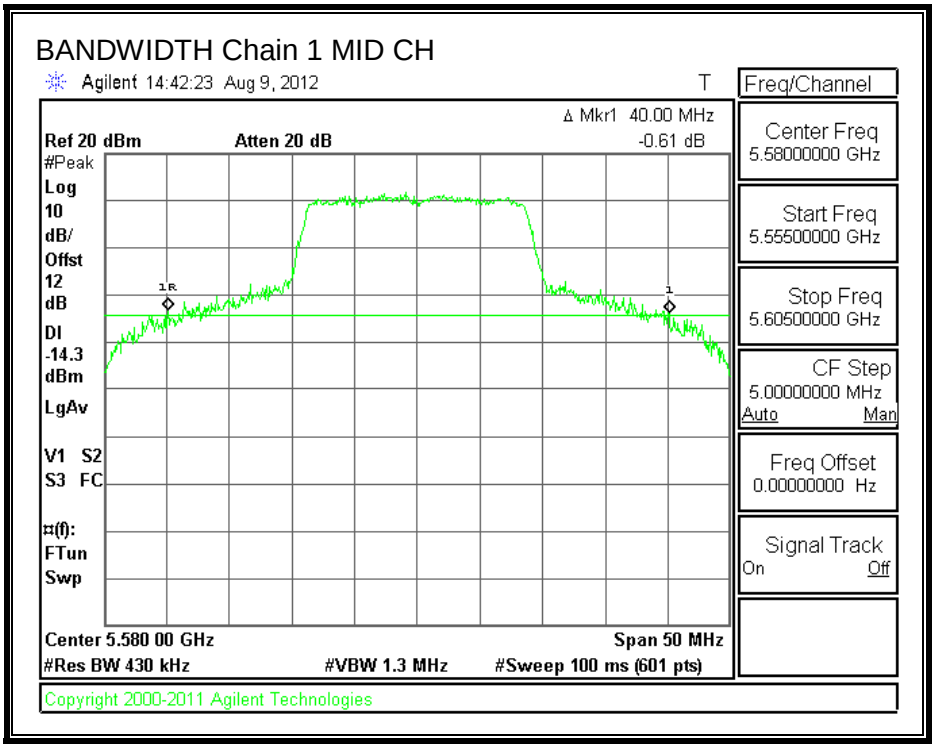
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 1 (MHz)	26 dB BW Chain 2 (MHz)
Low	5500	29.17	33.75
Mid	5580	40.00	44.33

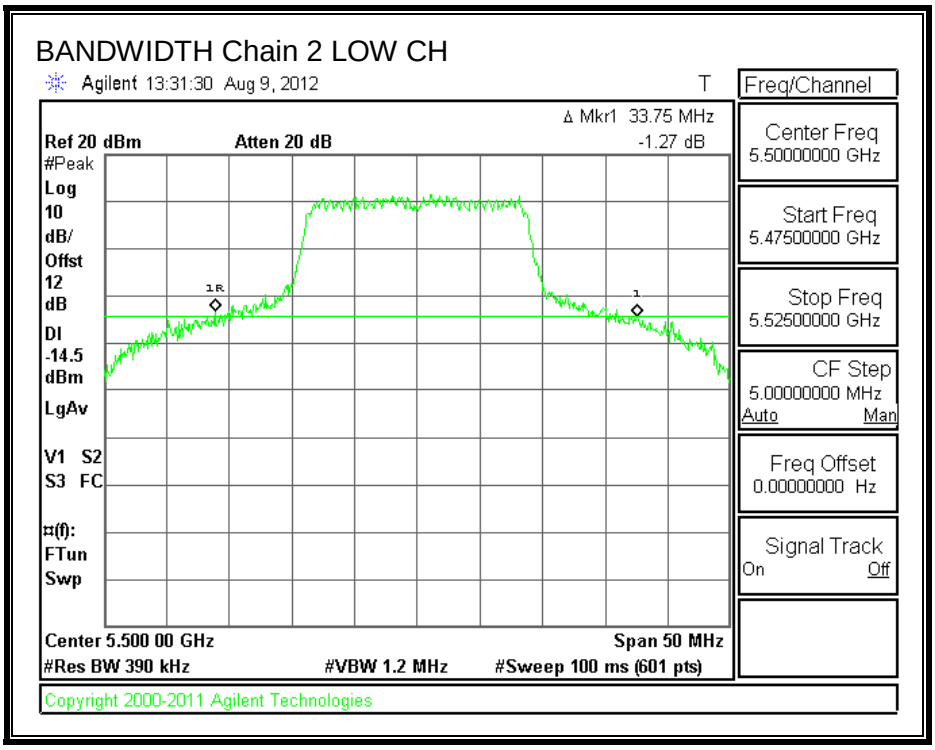
Note: Data for the high channel is contained in a separate section of this report as this channel straddles the 5470- 5725Mhz and 5725- 5825MHz bands – please refer to section 8.15

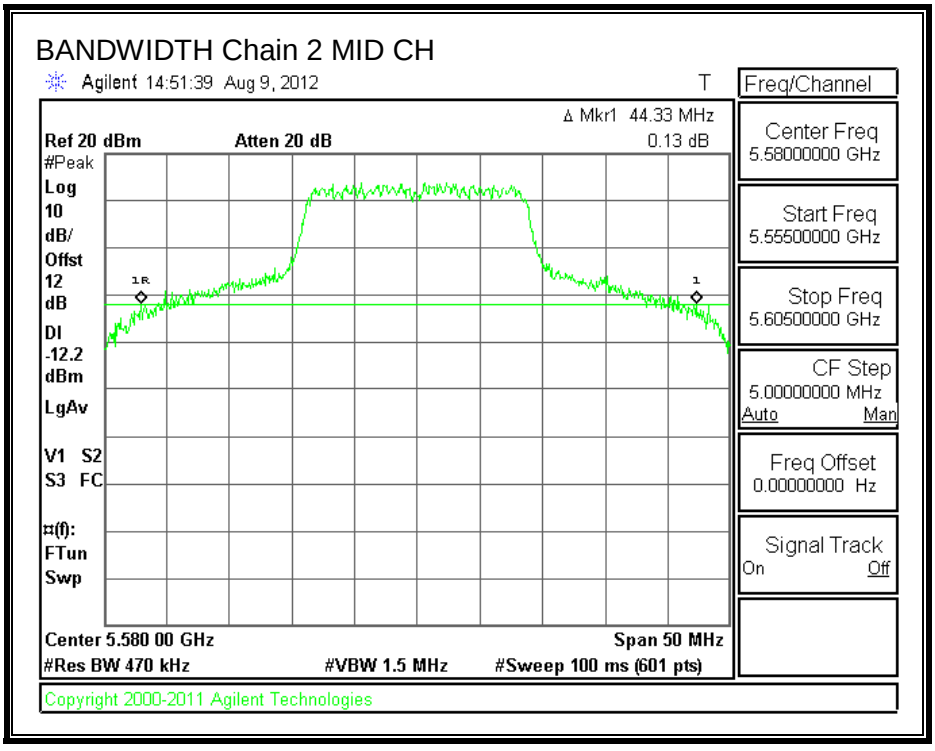
26 dB BANDWIDTH, Chain 1





26 dB BANDWIDTH, Chain 2





8.14.2. **99% BANDWIDTH**

LIMITS

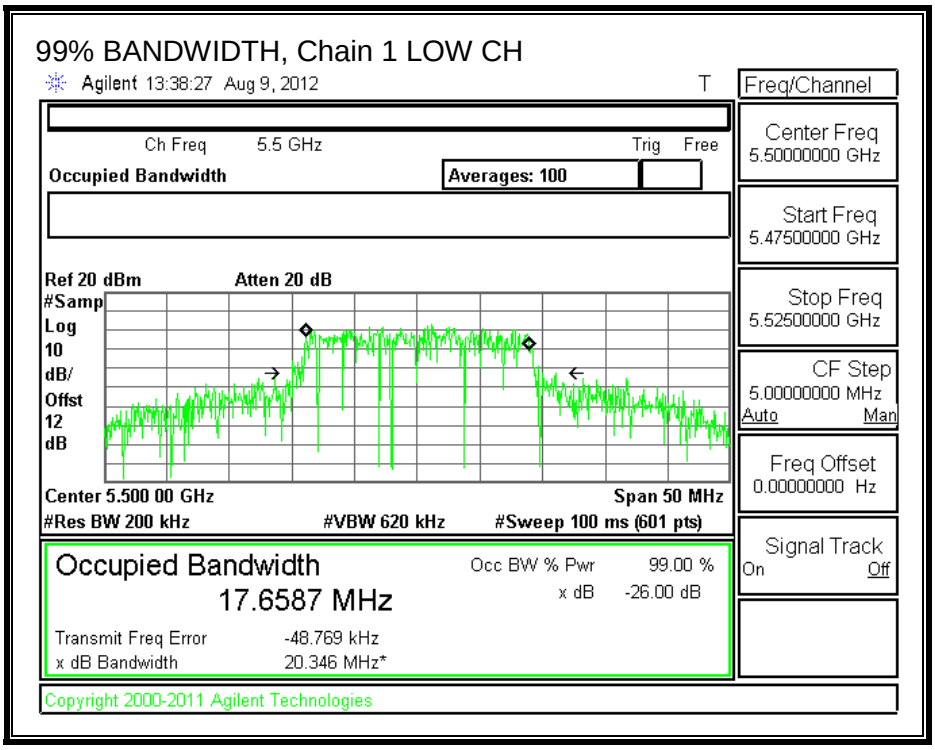
None; for reporting purposes only.

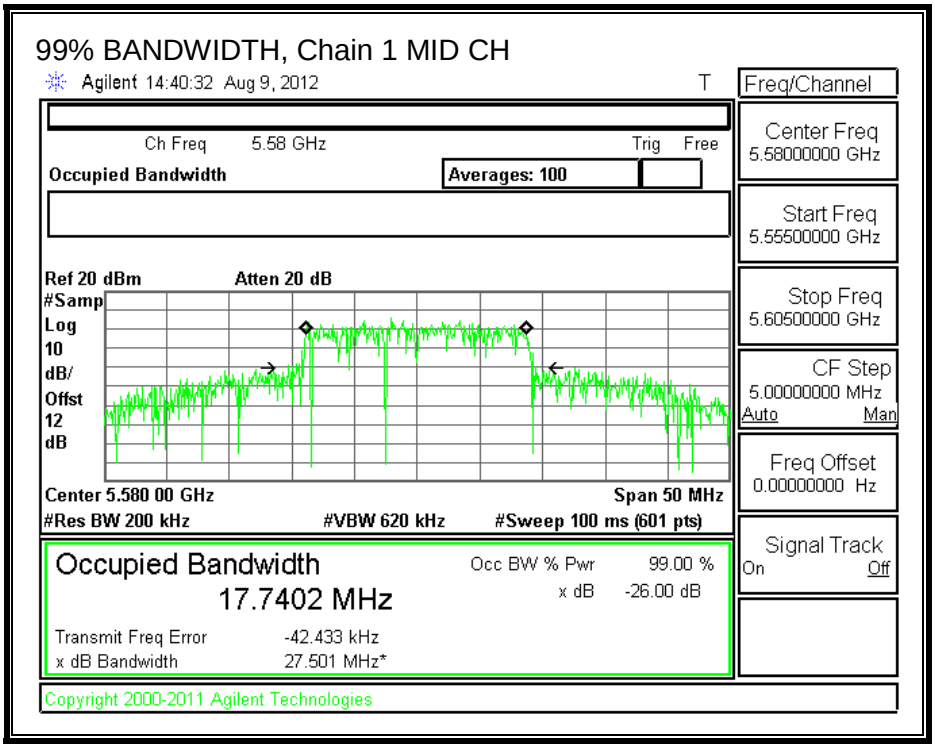
RESULTS

Channel	Frequency (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Low	5500	17.6587	17.6871
Mid	5580	17.7402	17.8729

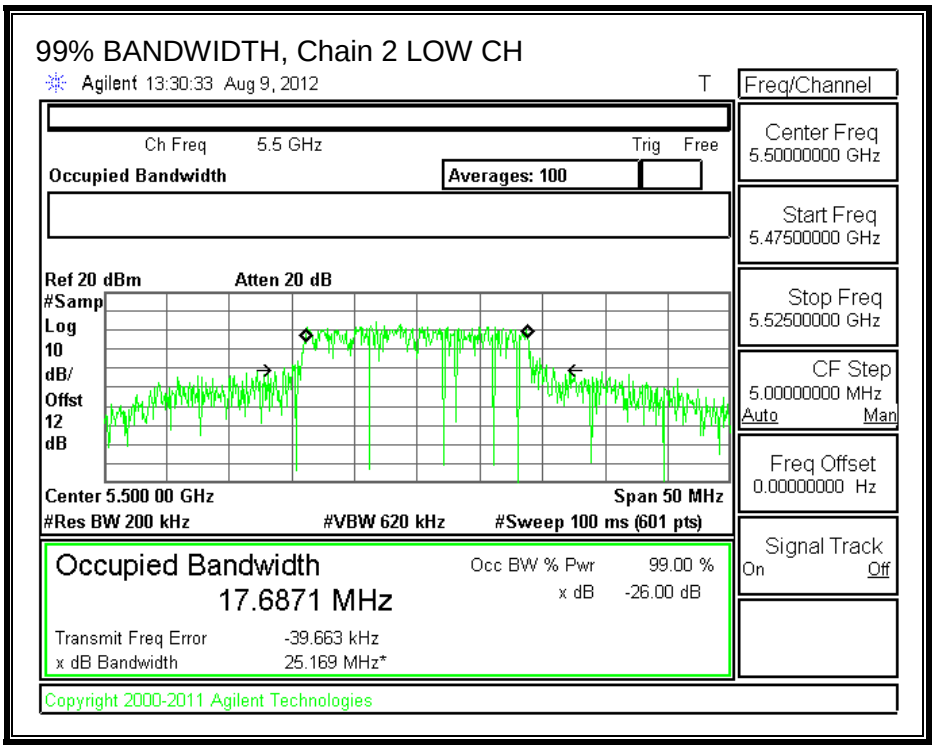
Note: Data for the high channel is contained in a separate section of this report as this channel straddles the 5470-5725Mhz and 5725-5825MHz bands – please refer to section 8.15

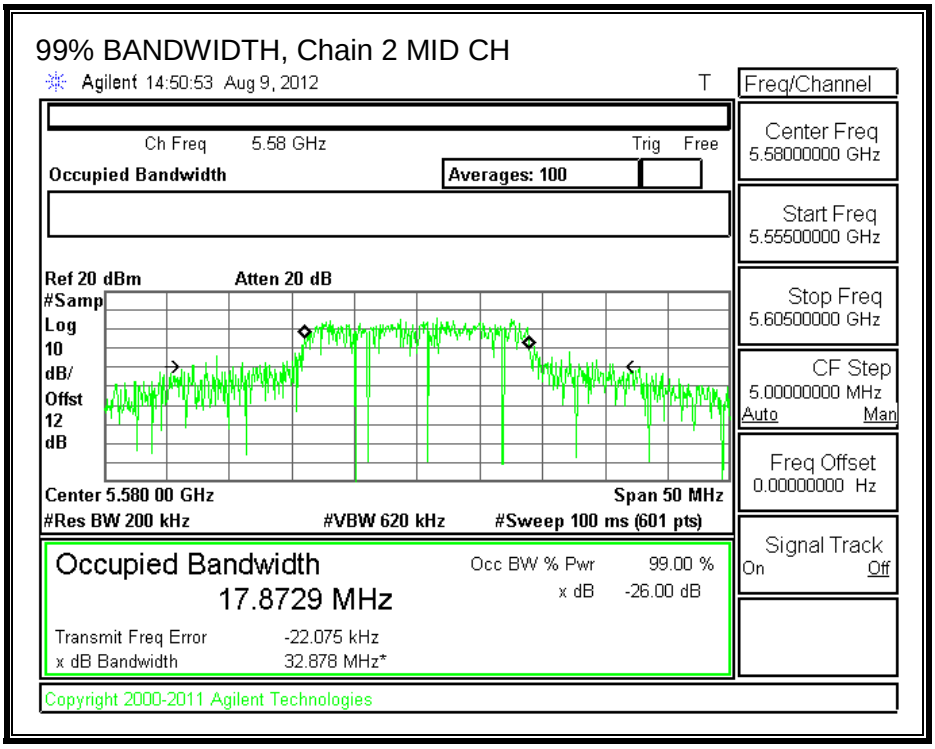
99% BANDWIDTH, Chain 1





99% BANDWIDTH, Chain 2





8.14.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (3)

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz 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.

DIRECTIONAL ANTENNA GAIN

The TX chains are correlated and the antenna gain is the same for each chain. The directional gain is:

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
4.20	3.01	7.21

RESULTS

Limits

Channel	Frequency (MHz)	Fixed Limit (dBm)	99% BW (MHz)	11 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Low	5500	24	17.6587	23.47	7.21	22.26	9.79
Mid	5580	24	17.7402	23.49	7.21	22.28	9.79

Output Power Results

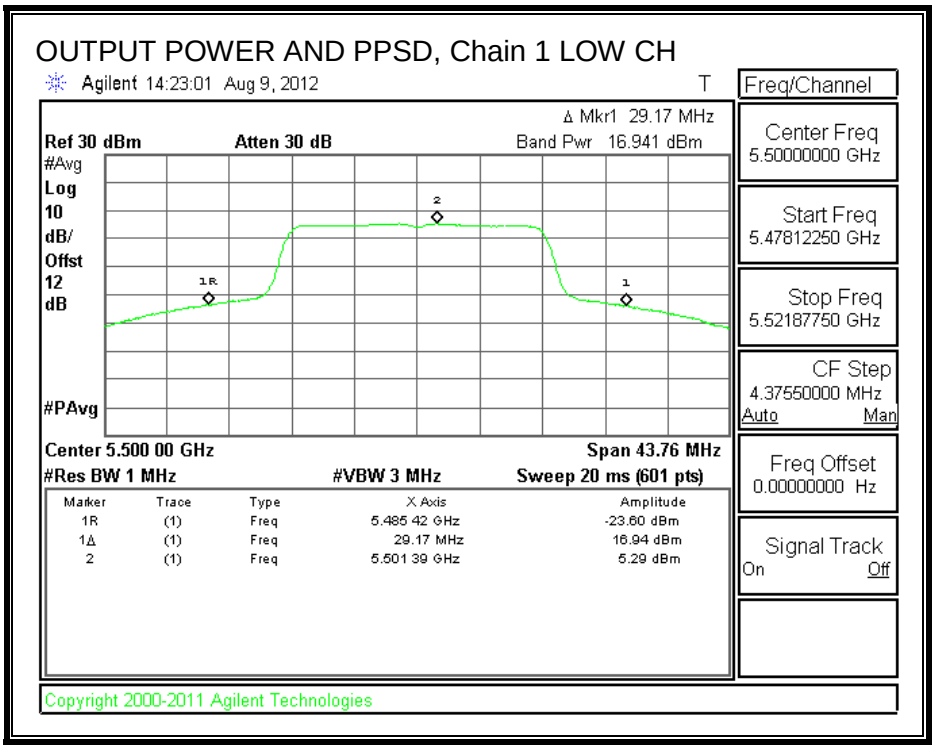
Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	16.941	18.242	20.650	22.26	-1.609
Mid	5580	17.579	18.618	21.140	22.28	-1.140

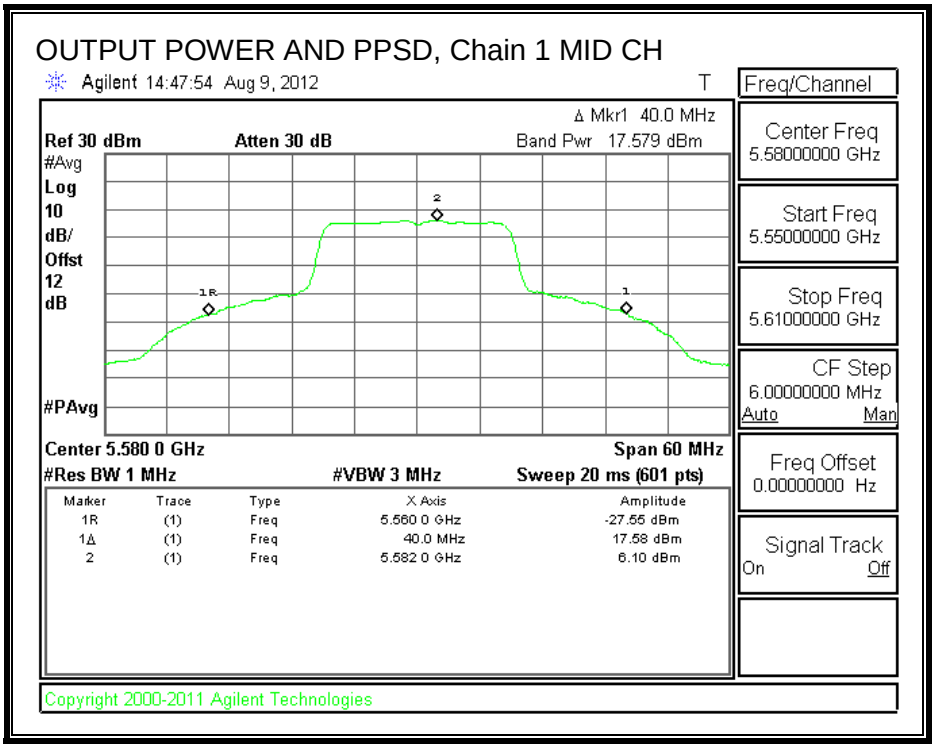
PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	5.29	6.70	9.06	9.79	-0.73
Mid	5580	6.10	7.11	9.64	9.79	-0.15

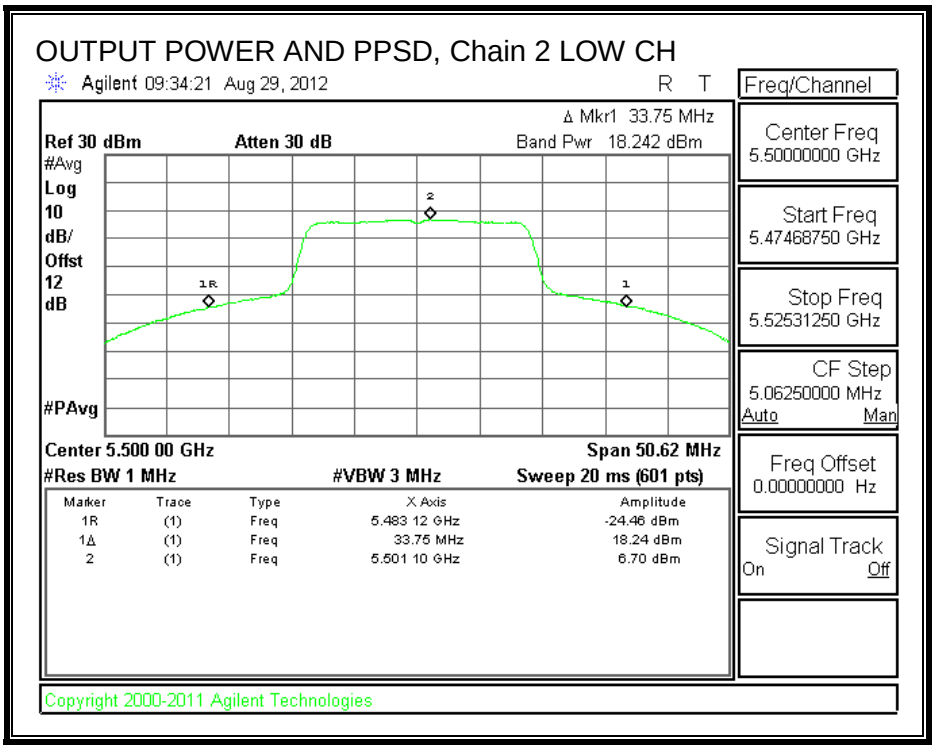
Note: Data for the high channel is contained in a separate section of this report as this channel straddles the 5470-5725Mhz and 5725-5825MHz bands – please refer to section 8.15

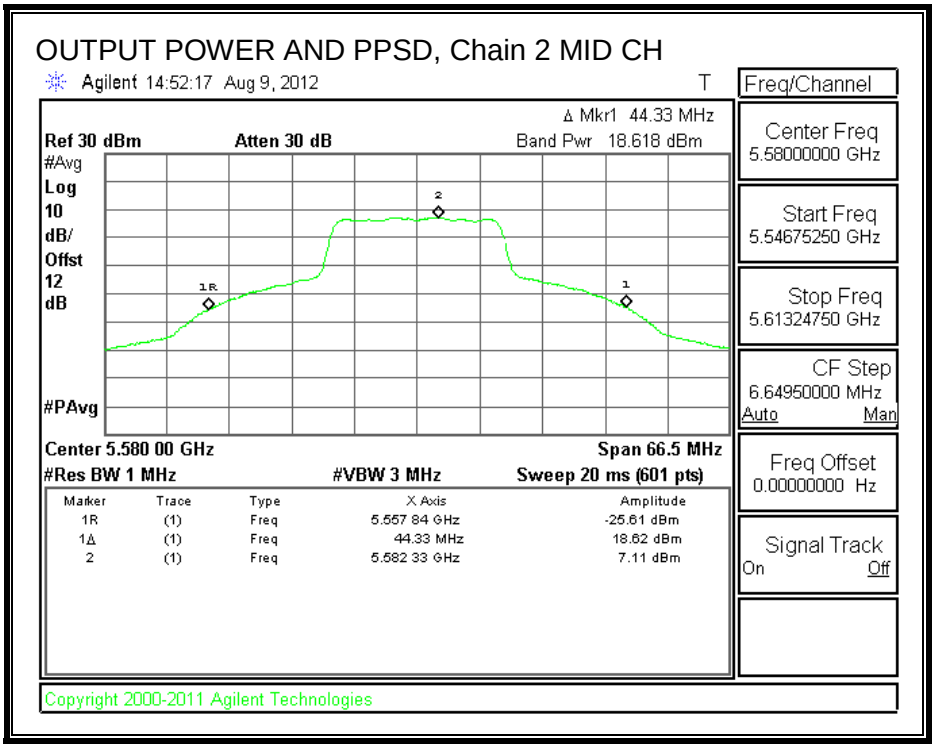
OUTPUT POWER AND PPSD, Chain 1





OUTPUT POWER AND PPSD, Chain 2





8.14.4. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

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

RESULTS

Chain 1

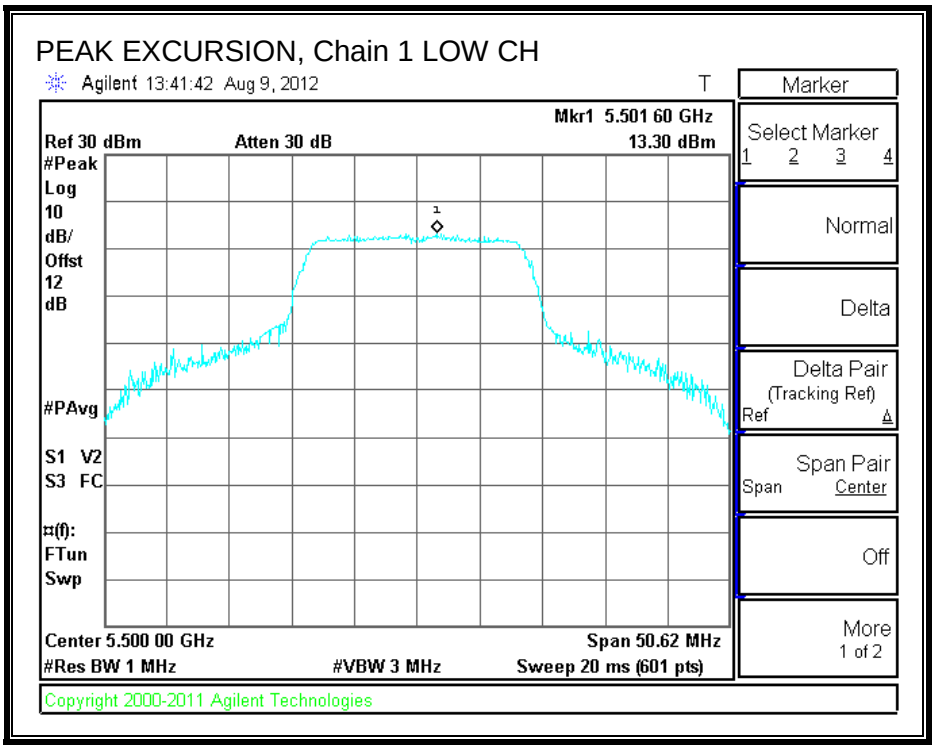
Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5500	13.30	5.29	0.05	7.96	13	-5.04
Mid	5580	15.48	6.10	0.05	9.33	13	-3.67

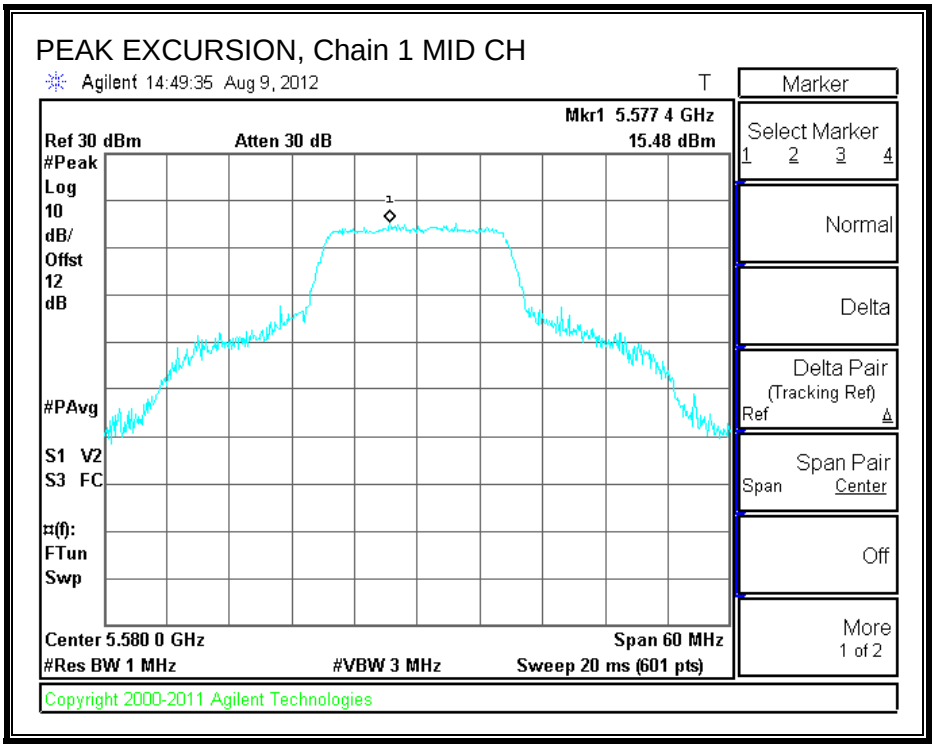
Chain 2

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5500	15.66	6.70	0.05	8.91	13	-4.09
Mid	5580	16.96	7.11	0.05	9.80	13	-3.20

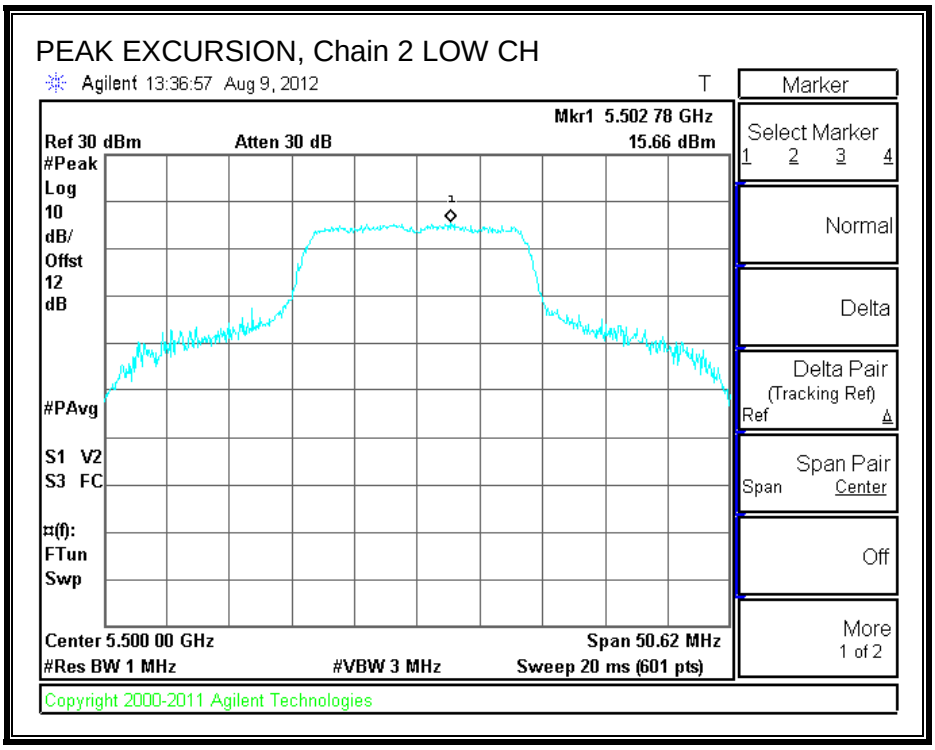
Note: Data for the high channel is contained in a separate section of this report as this channel straddles the 5470-5725Mhz and 5725-5825MHz bands – please refer to section 8.15

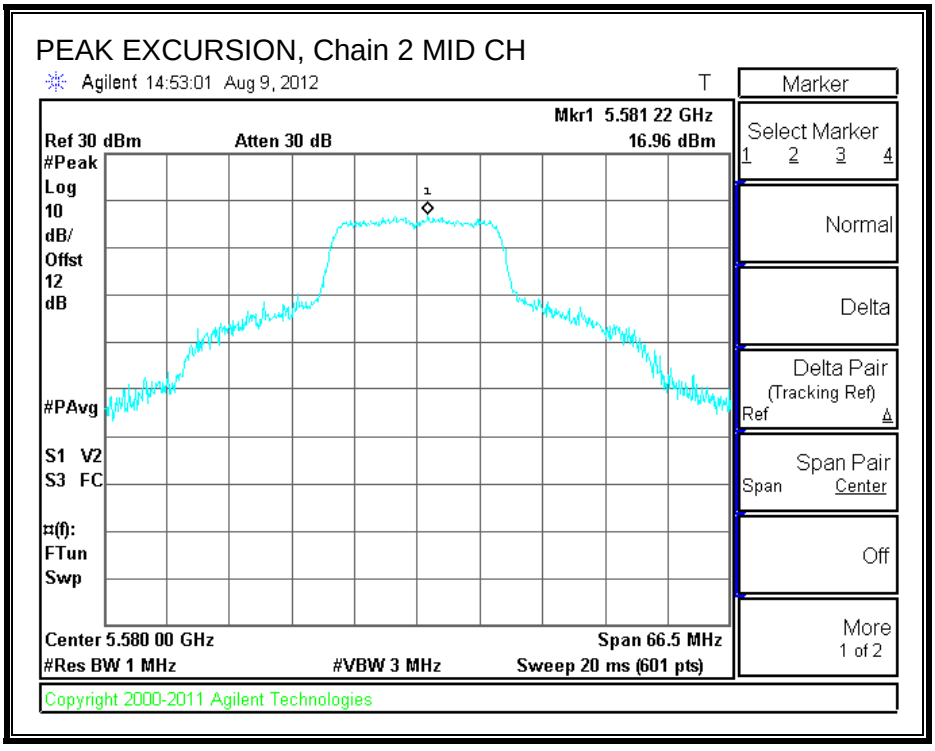
PEAK EXCURSION, Chain 1





PEAK EXCURSION, Chain 2





8.15. 802.11n AC20 CDD MCS0 2TX MODE, 5.6 GHz BAND, CH144 (5720MHz)

8.15.1. **26 dB BANDWIDTH**

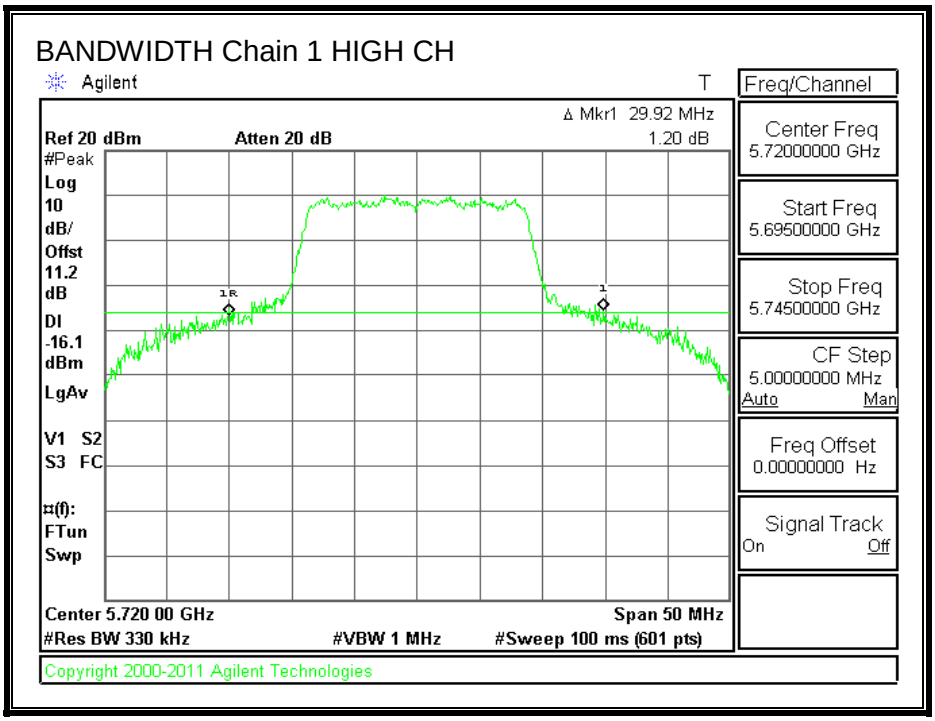
LIMITS

None; for reporting purposes only.

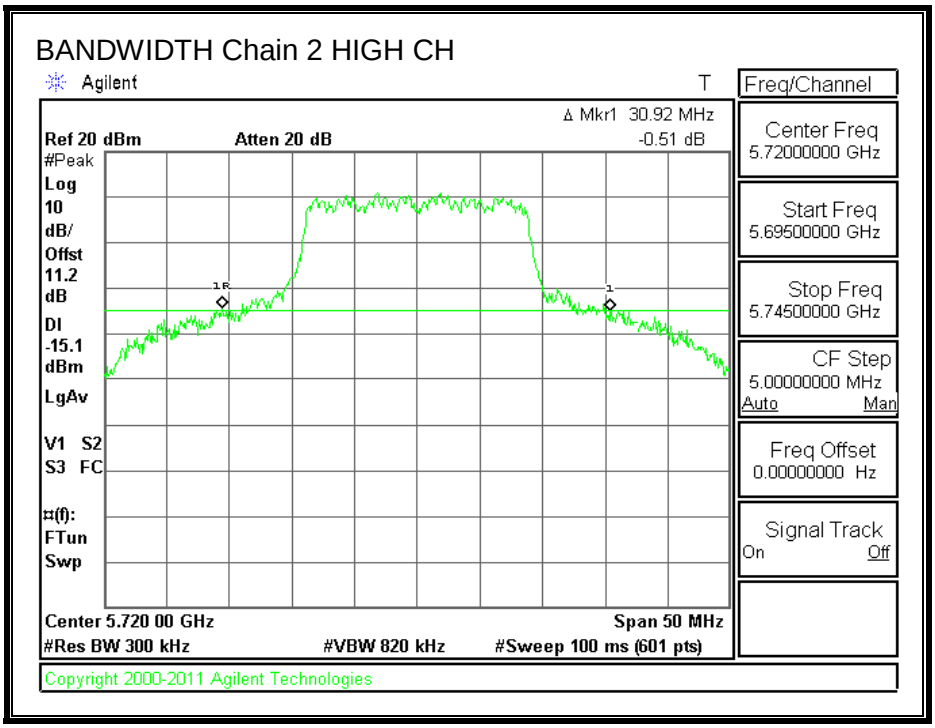
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 1 (MHz)	26 dB BW Chain 2 (MHz)
High	5720	29.92	30.92

26 dB BANDWIDTH, Chain 1



26 dB BANDWIDTH, Chain 2



8.15.2. **99% BANDWIDTH**

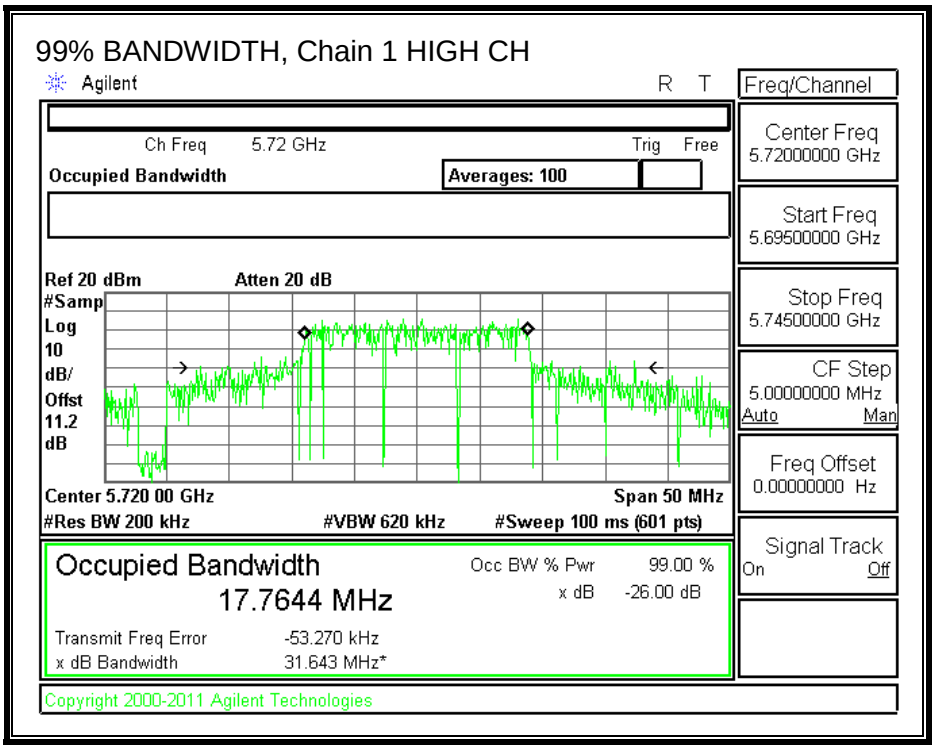
LIMITS

None; for reporting purposes only.

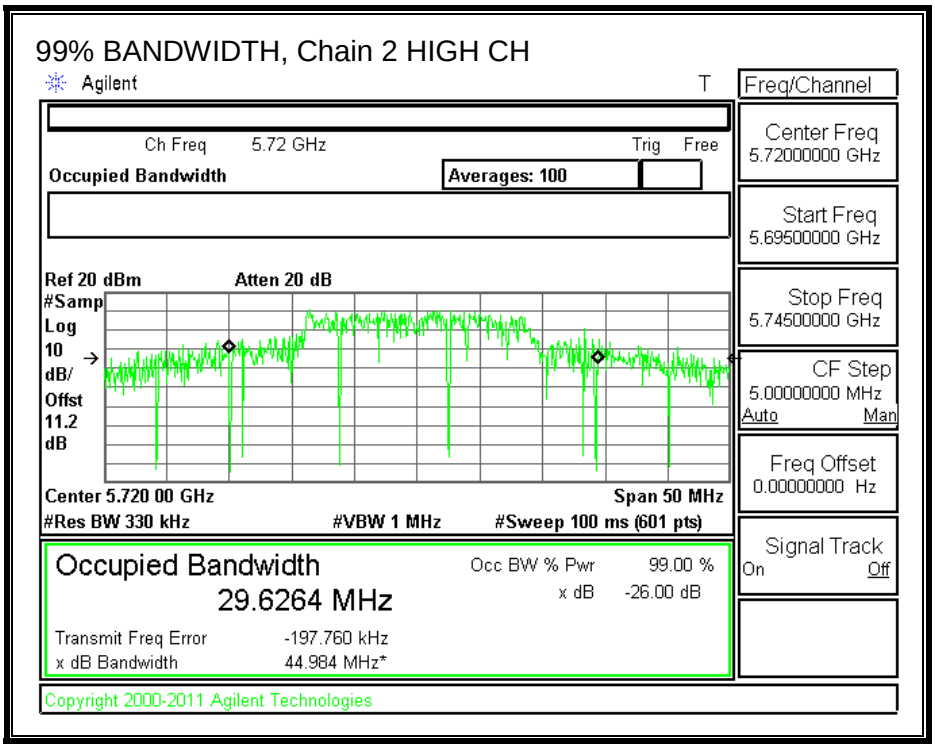
RESULTS

Channel	Frequency (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
High	5720	17.7644	29.6264

99% BANDWIDTH, Chain 1



99% BANDWIDTH, Chain 2



8.15.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (3)

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz 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.

The limit for the upper NII band : For the band 5.725–5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17 dBm in any 1–MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are correlated and the antenna gain is the same for each chain. The directional gain is:

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
4.20	3.01	7.21

RESULTS

Limits (FCC), portion in UNII 2 ext band

Channel	Frequency (MHz)	Fixed Limit (dBm)	26 dB BW (MHz)	11 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
High	5720	24	20.4600	24.11	7.21	22.79	9.79

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5720	14.507	15.241	17.900	22.79	-4.890

PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
High	5720	4.01	5.17	7.64	9.79	-2.15

Limits (FCC), portion in 5.8 GHz band

Channel	Frequency (MHz)	Fixed Limit (dBm)	26 dB BW (MHz)	17 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
High	5720	30	10.4600	27.20	7.21	25.99	15.79

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5720	8.543	8.951	11.762	25.99	-14.223

PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
High	5720	3.81	4.89	7.39	15.79	-8.40

Limits (IC), portion in UNII 2 ext band

Channel	Frequency (MHz)	Fixed Limit (dBm)	99% BW (MHz)	11 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
High	5720	24	11.7547	21.70	7.21	20.49	9.79

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5720	14.507	15.241	17.900	20.49	-2.592

PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
High	5720	4.01	5.17	7.64	9.79	-2.15

Limits (IC), portion in 5.8 GHz band

Channel	Frequency (MHz)	Fixed Limit (dBm)	99% BW (MHz)	17 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
High	5720	30	6.0097	24.79	7.21	23.58	15.79

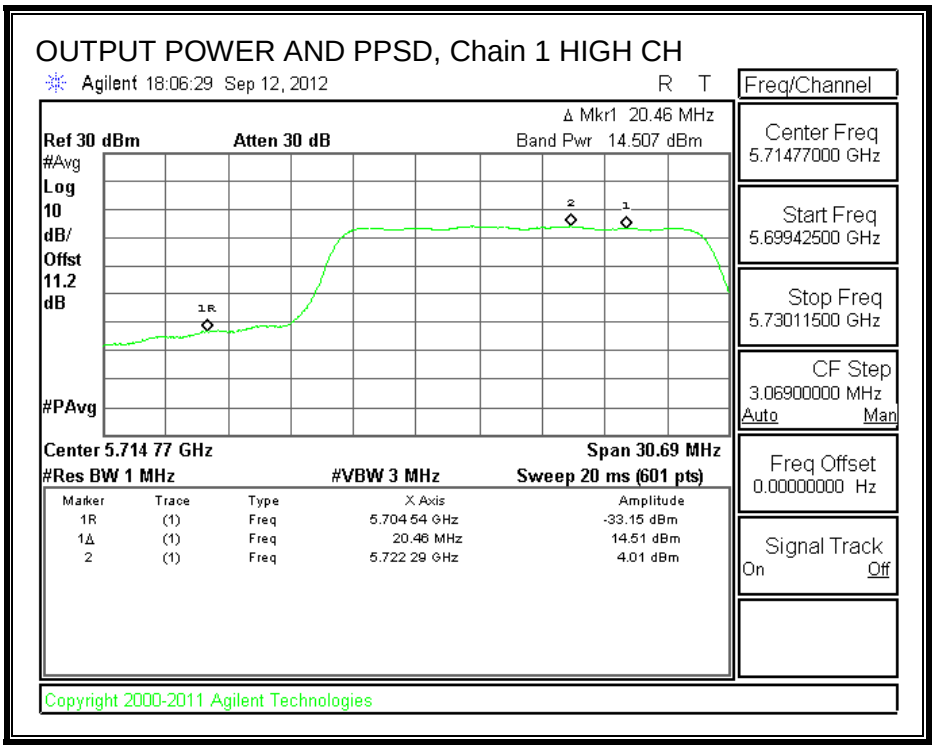
Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5720	8.543	8.951	11.762	23.58	-11.816

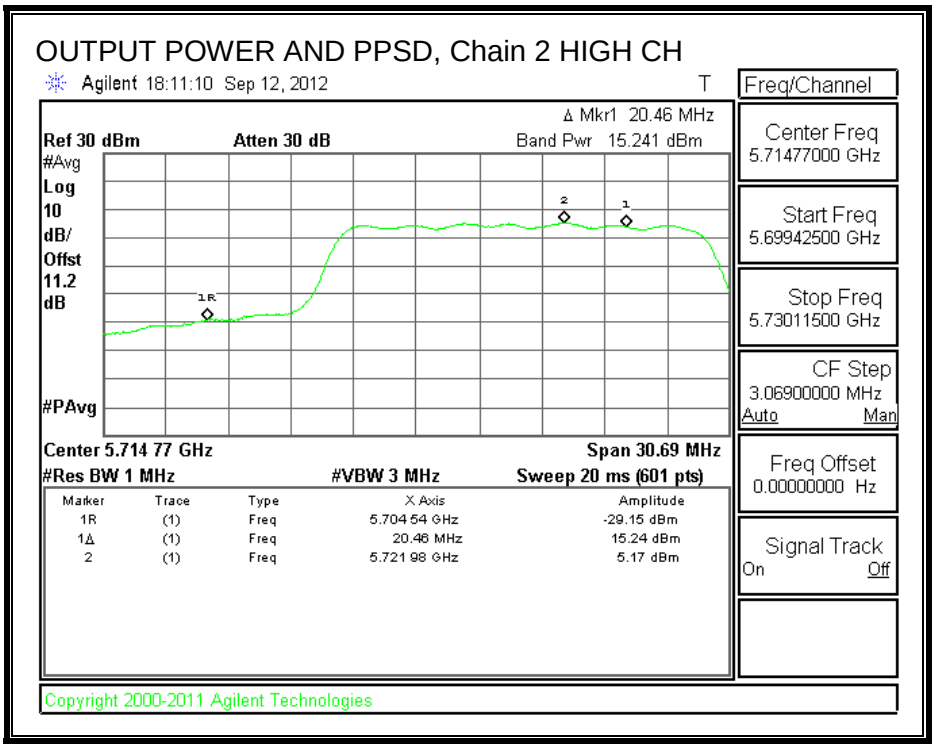
PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
High	5720	3.81	4.89	7.39	15.79	-8.40

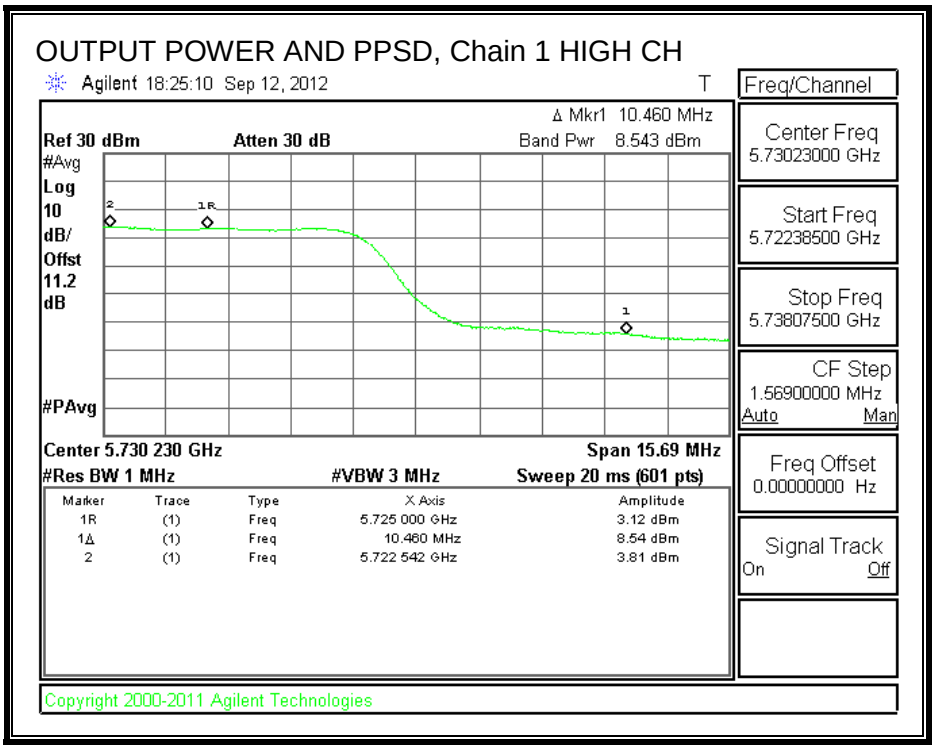
OUTPUT POWER AND PPSD, Chain 1 (portion in UNII 2 ext band)



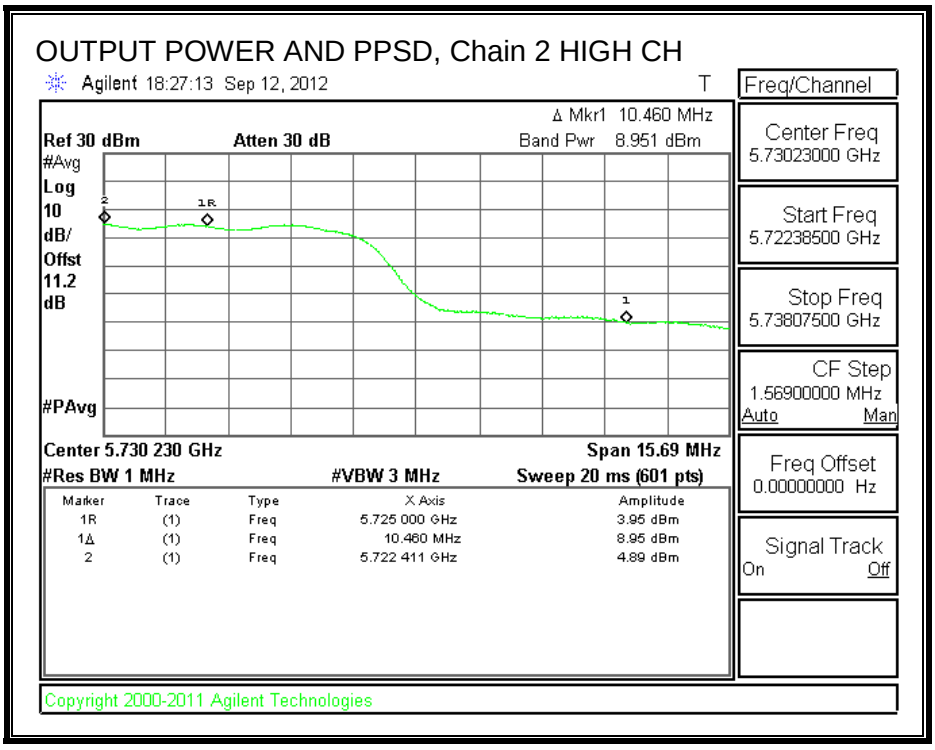
OUTPUT POWER AND PPSD, Chain 2 (portion in UNII 2 ext band)



OUTPUT POWER AND PPSD, Chain 1 (portion in 5.8 GHz band)



OUTPUT POWER AND PPSD, Chain 2 (portion in 5.8 GHz band)



8.15.4. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

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

RESULTS

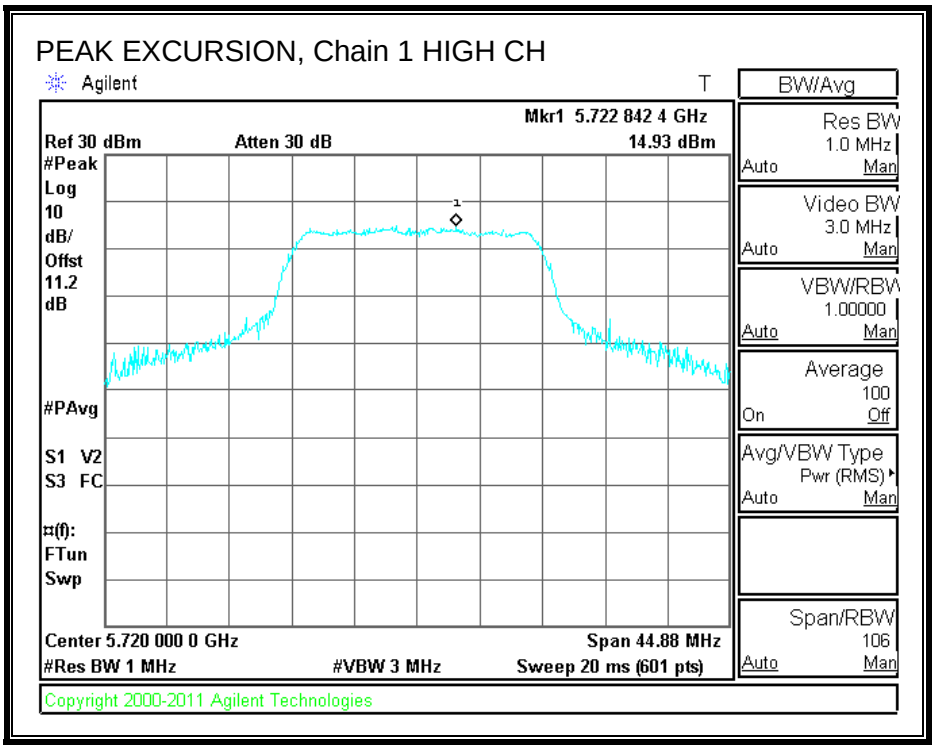
Chain 1

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
High	5720	14.93	6.04	0.05	8.84	13	-4.16

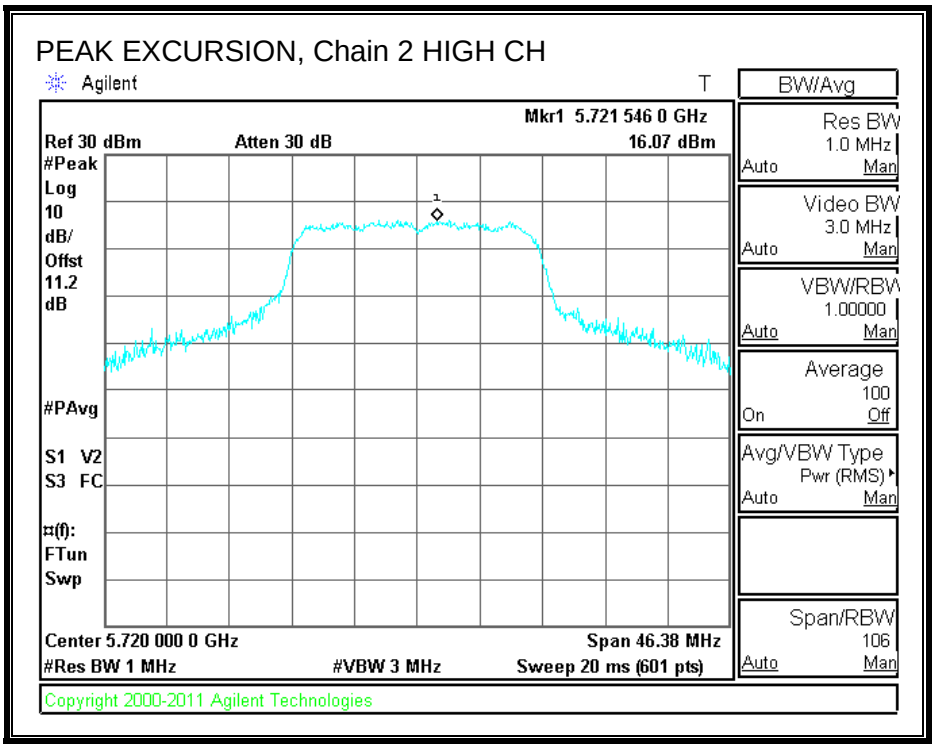
Chain 2

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
High	5720	16.07	6.97	0.05	9.05	13	-3.95

PEAK EXCURSION, Chain 1



PEAK EXCURSION, Chain 2



8.16. 802.11n HT40, CDD MCS0, 1TX MODE IN THE 5.6 GHz BAND

Covered by testing to HT40 CDD MCS0 2TX

8.17. 802.11n HT40, CDD MCS0, 2TX MODE IN THE 5.6 GHz BAND

8.17.1. 26 dB BANDWIDTH

LIMITS

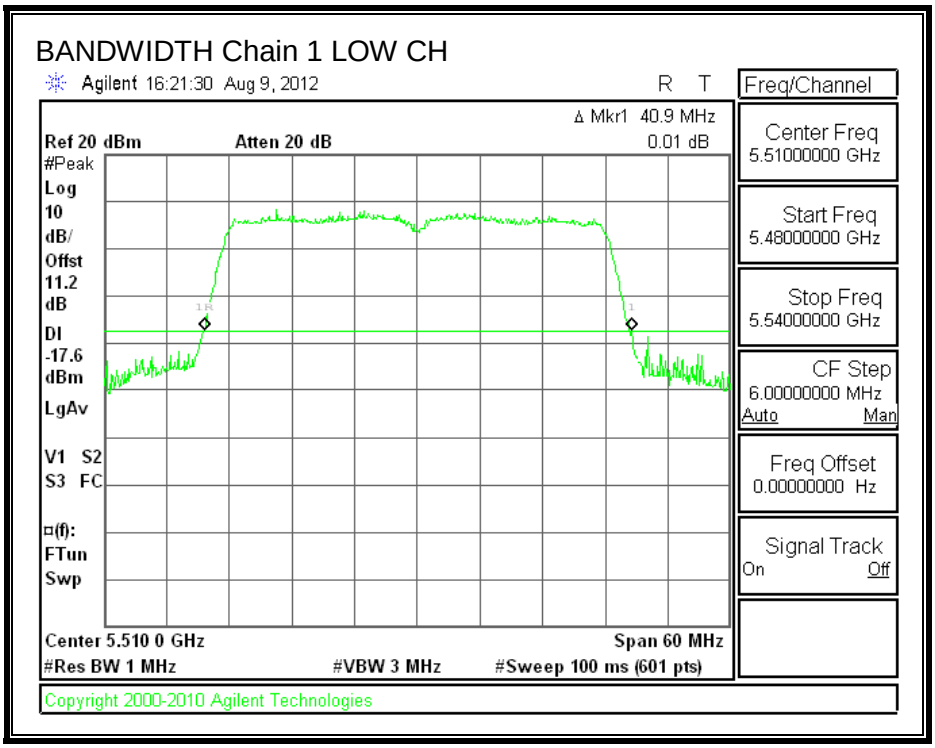
None; for reporting purposes only.

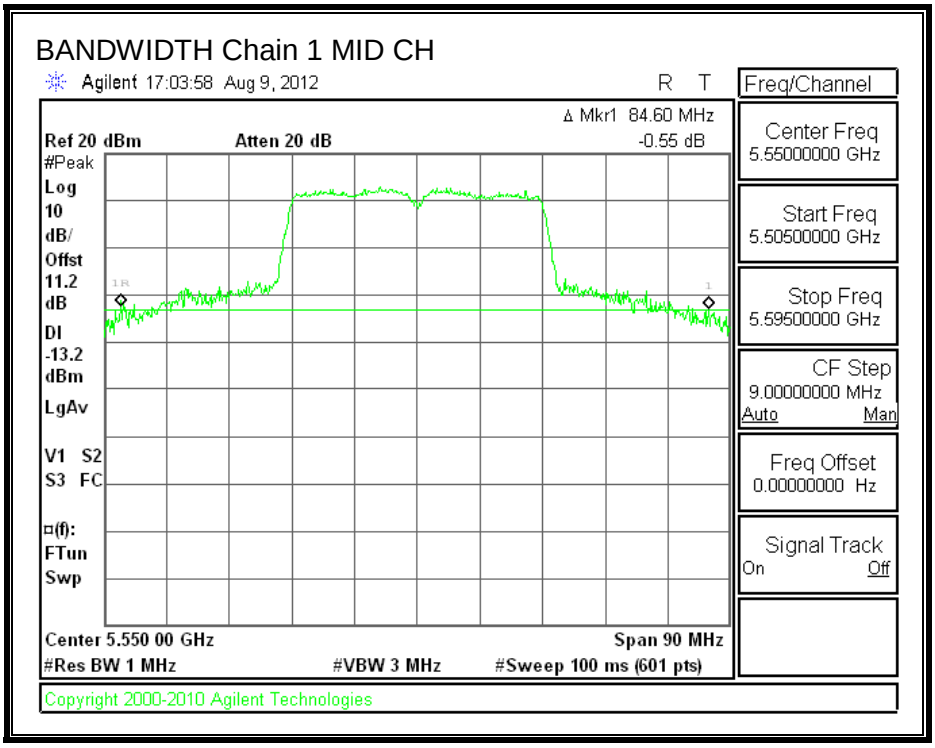
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 1 (MHz)	26 dB BW Chain 2 (MHz)
Low	5510	40.90	43.20
Mid	5550	84.60	95.67

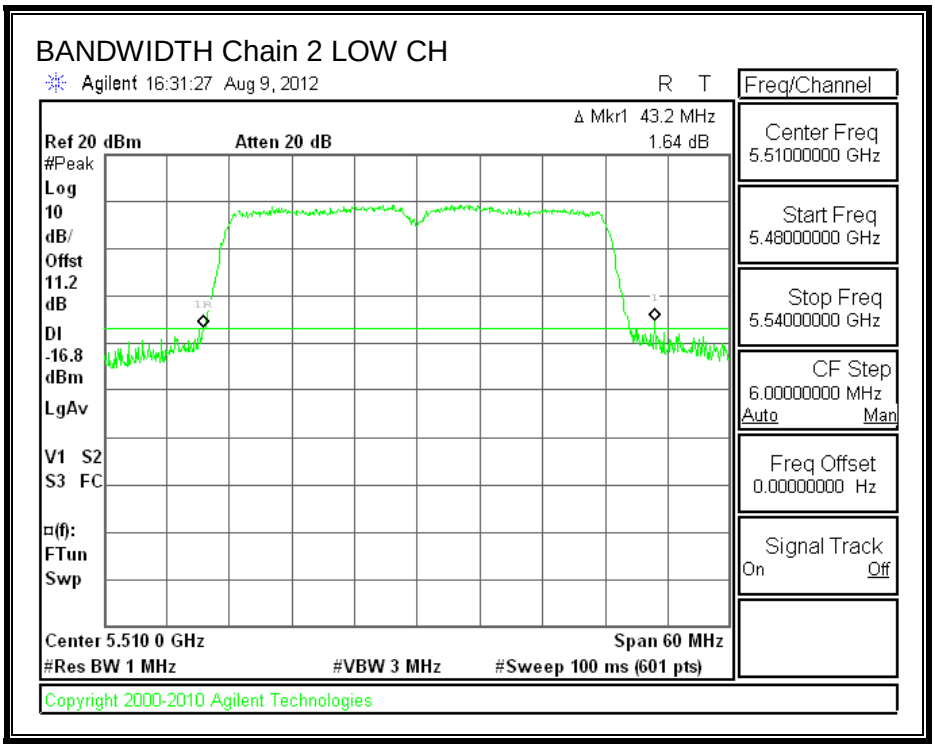
Note: Data for the high channel is contained in a separate section of this report as this channel straddles the 5470-5725Mhz and 5725-5825MHz bands – please refer to section 8.18

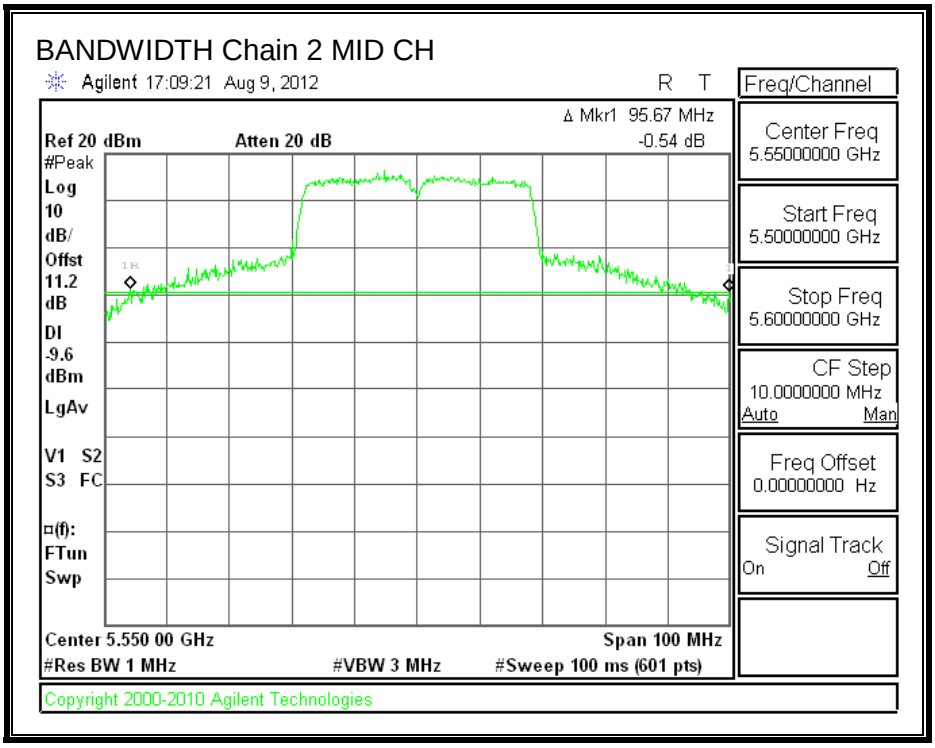
26 dB BANDWIDTH, Chain 1





26 dB BANDWIDTH, Chain 2





8.17.2. **99% BANDWIDTH**

LIMITS

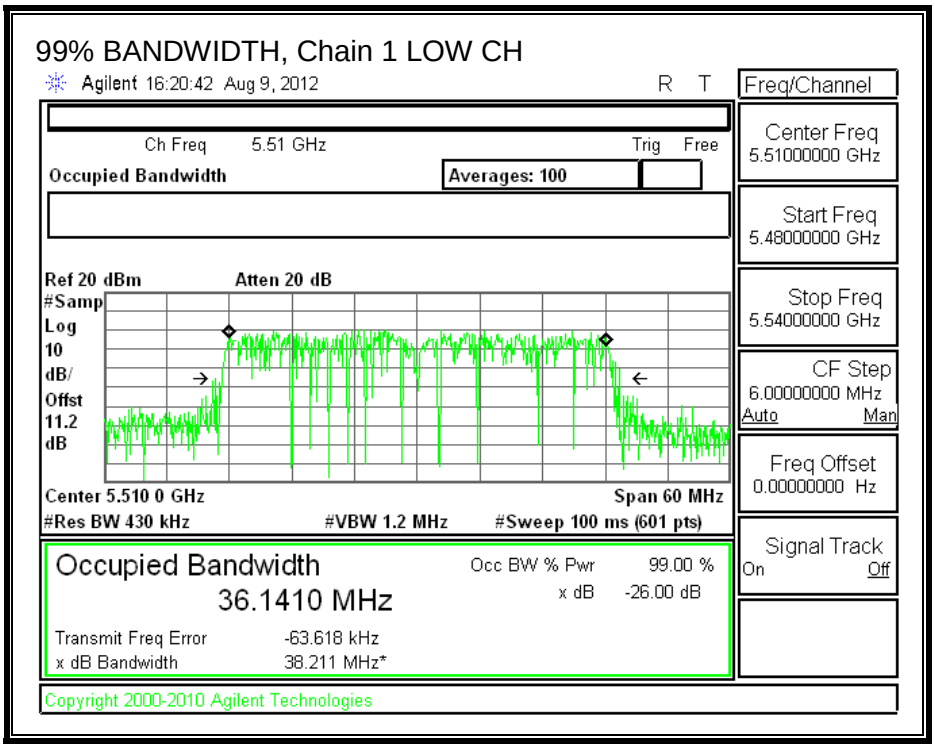
None; for reporting purposes only.

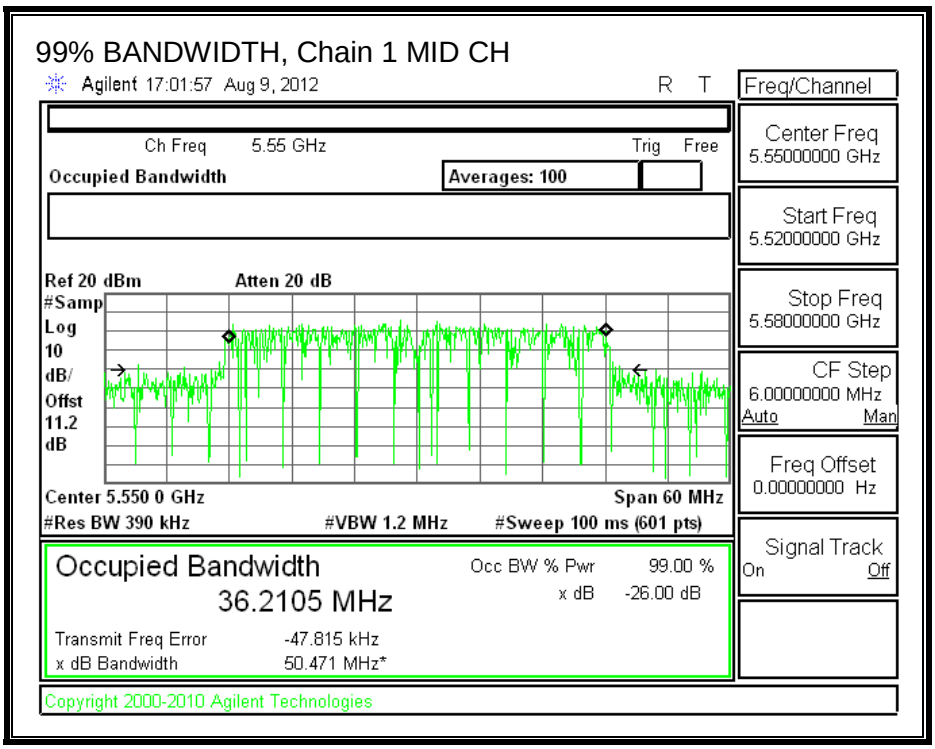
RESULTS

Channel	Frequency (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Low	5510	36.1410	36.1438
Mid	5550	36.2105	36.6192

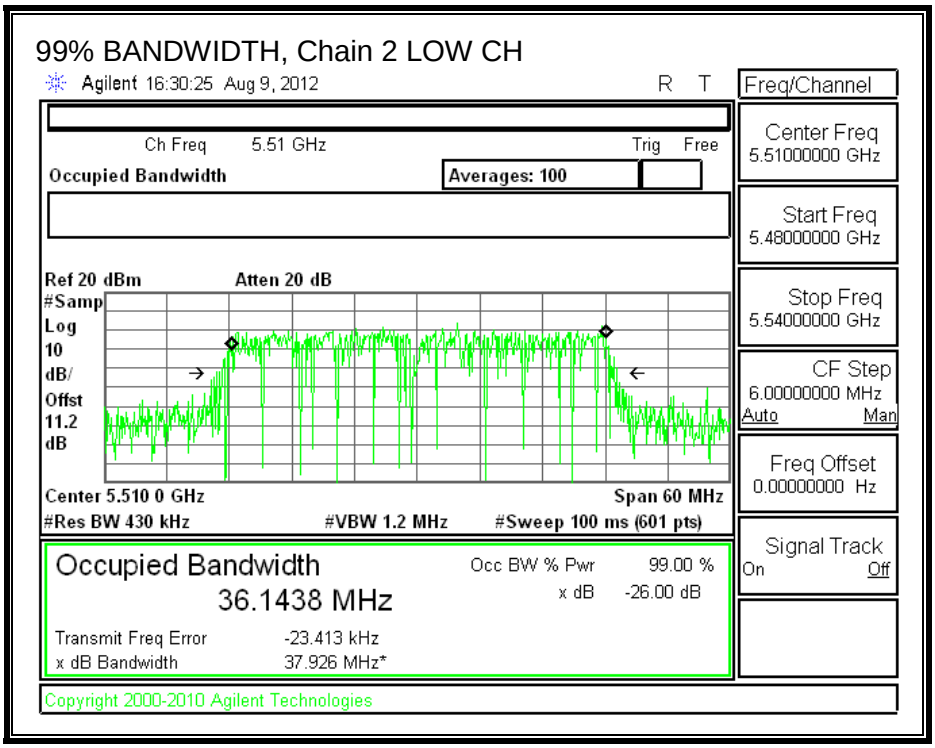
Note: Data for the high channel is contained in a separate section of this report as this channel straddles the 5470-5725Mhz and 5725-5825MHz bands – please refer to section 8.18

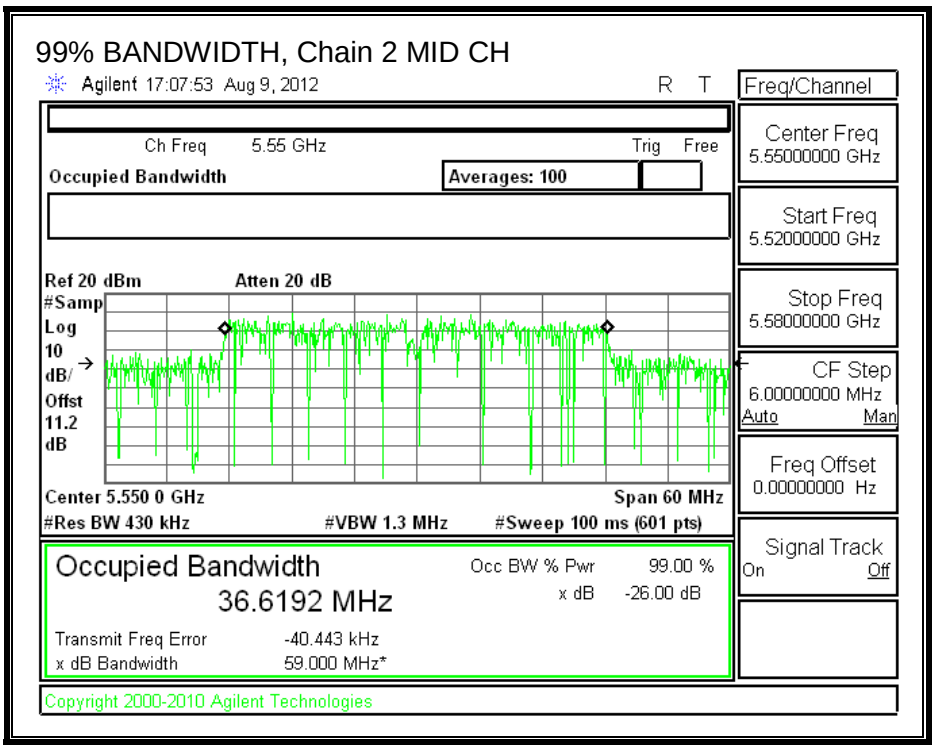
99% BANDWIDTH, Chain 1





99% BANDWIDTH, Chain 2





8.17.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (3)

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz 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.

DIRECTIONAL ANTENNA GAIN

The TX chains are correlated and the antenna gain is the same for each chain. The directional gain is:

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
4.20	3.01	7.21

RESULTS

Limits

Channel	Frequency (MHz)	Fixed Limit (dBm)	99% BW (MHz)	11 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Low	5510	24	36.1410	26.58	7.21	22.79	9.79
Mid	5550	24	36.2105	26.59	7.21	22.79	9.79

Output Power Results

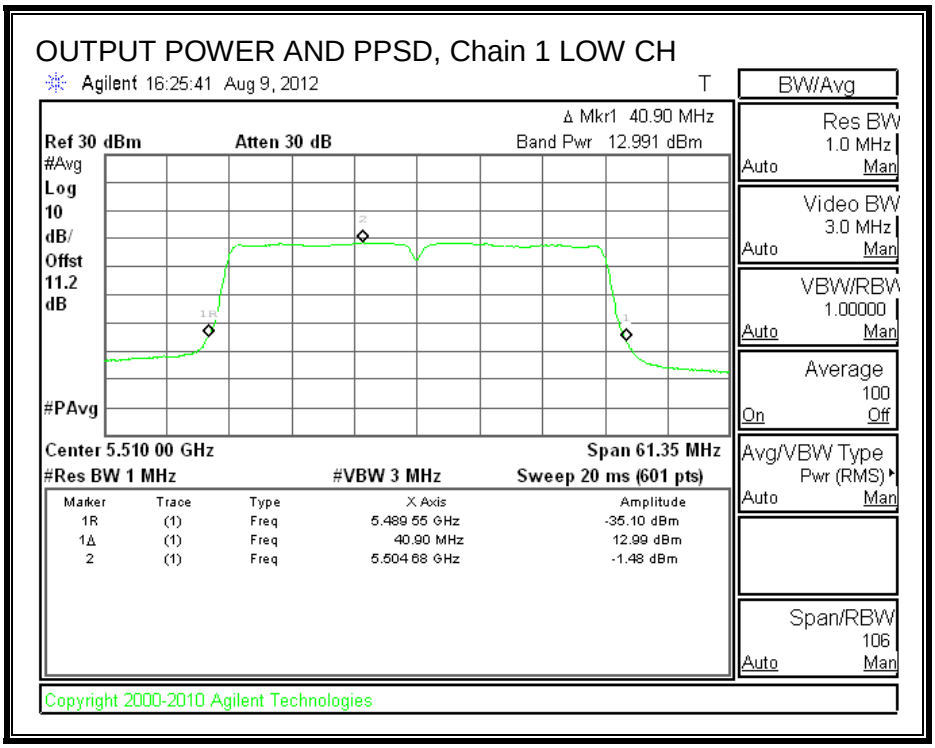
Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	12.991	14.028	16.551	22.79	-6.239
Mid	5550	18.205	20.214	22.335	22.79	-0.455

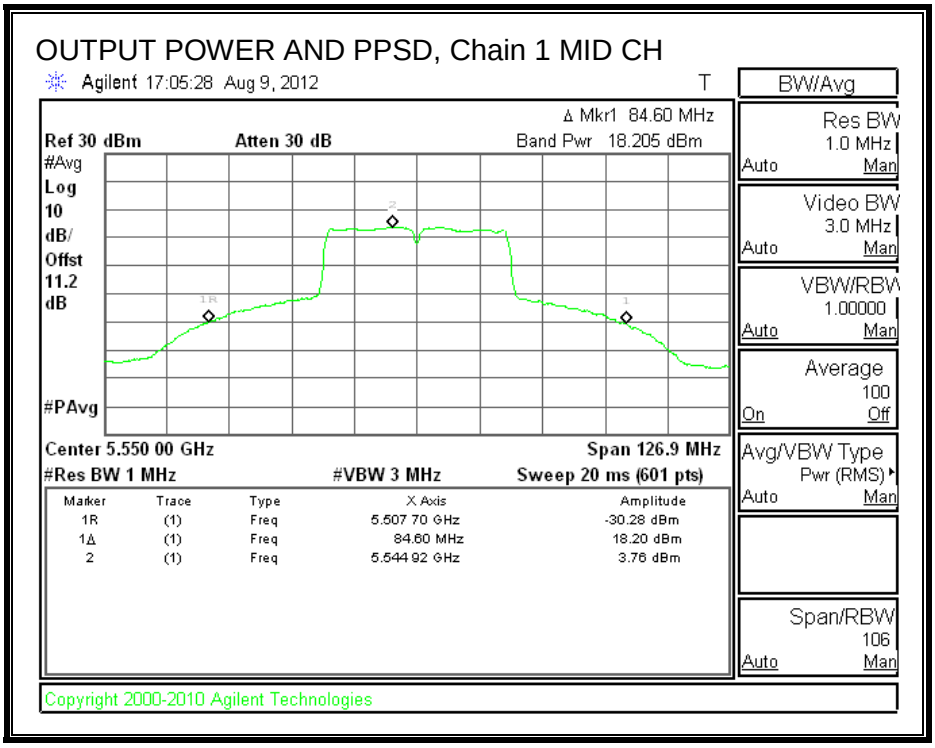
PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5510	-1.48	-0.37	2.12	9.79	-7.67
Mid	5550	3.76	5.78	7.90	9.79	-1.89

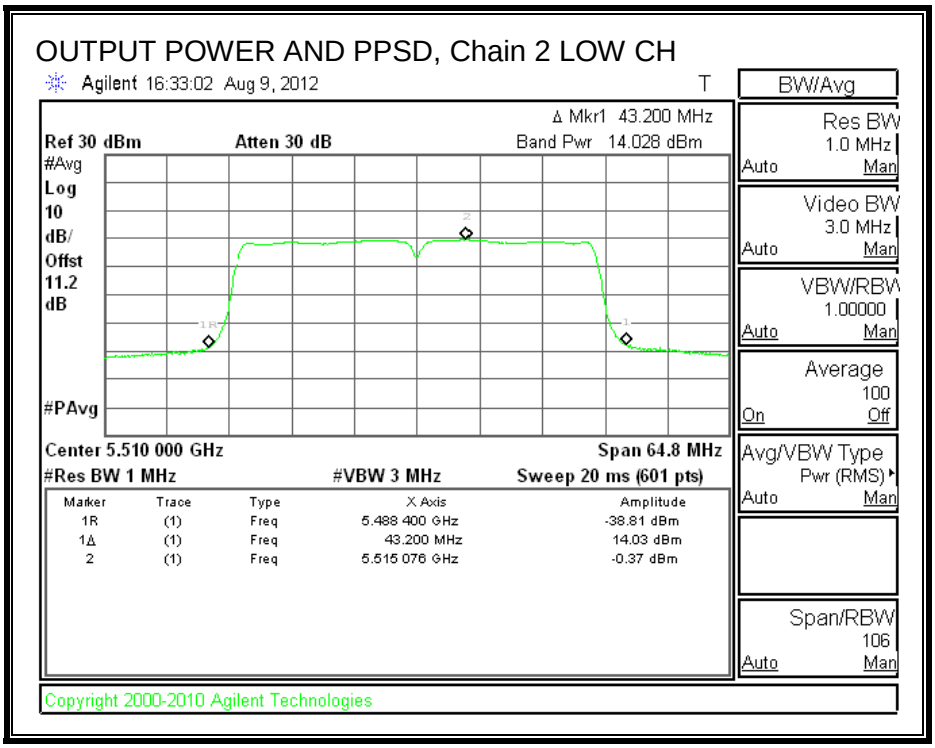
Note: Data for the high channel is contained in a separate section of this report as this channel straddles the 5470-5725Mhz and 5725-5825MHz bands – please refer to section 8.18

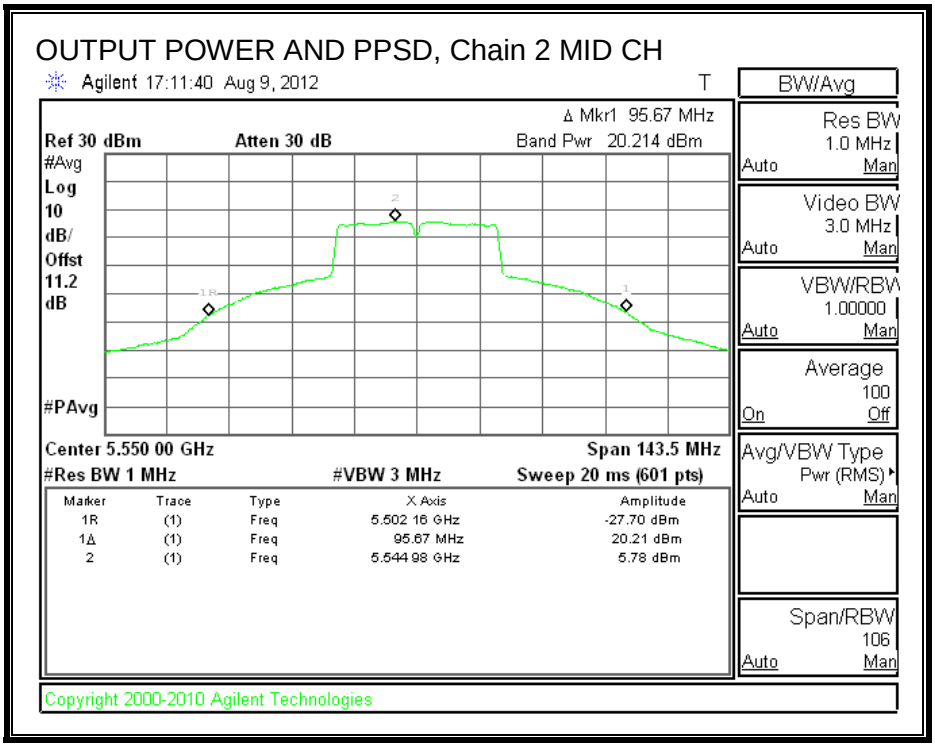
OUTPUT POWER AND PPSD, Chain 1





OUTPUT POWER AND PPSD, Chain 2





8.17.4. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

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

RESULTS

Chain 1

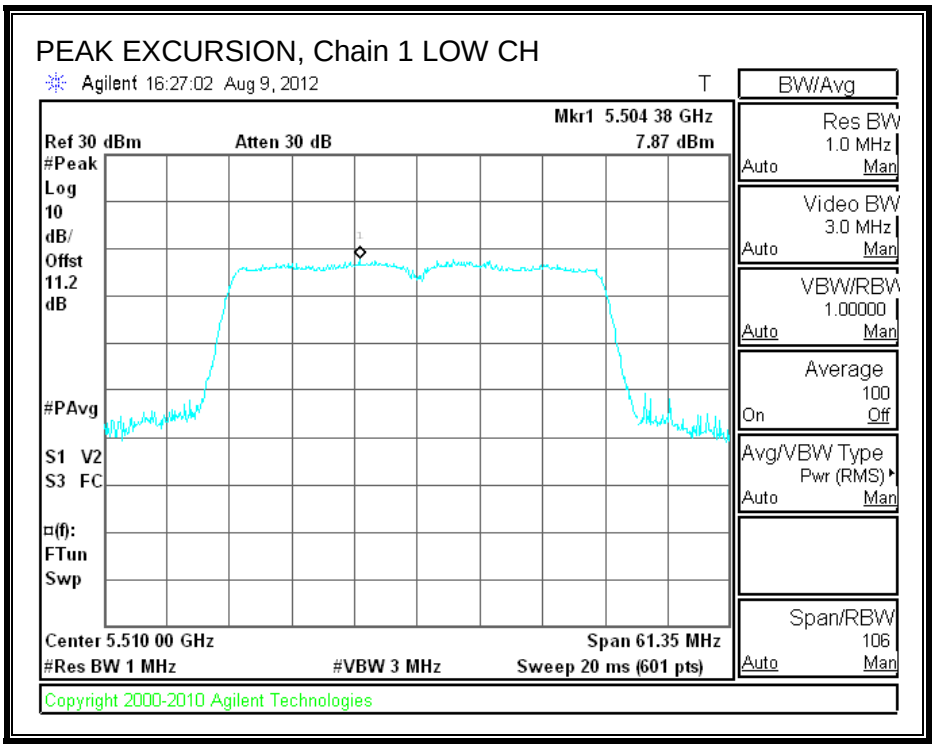
Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5510	7.87	-1.48	0.08	9.27	13	-3.73
Mid	5550	13.03	3.76	0.08	9.19	13	-3.81

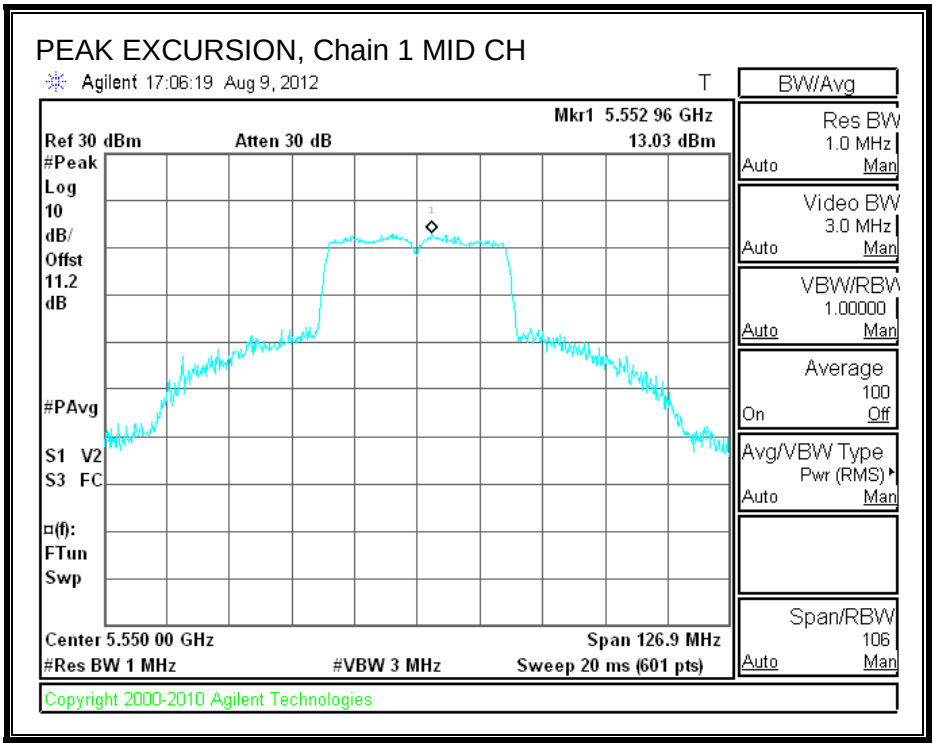
Chain 2

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5510	9.24	-0.37	0.08	9.53	13	-3.47
Mid	5550	15.63	5.78	0.08	9.77	13	-3.23

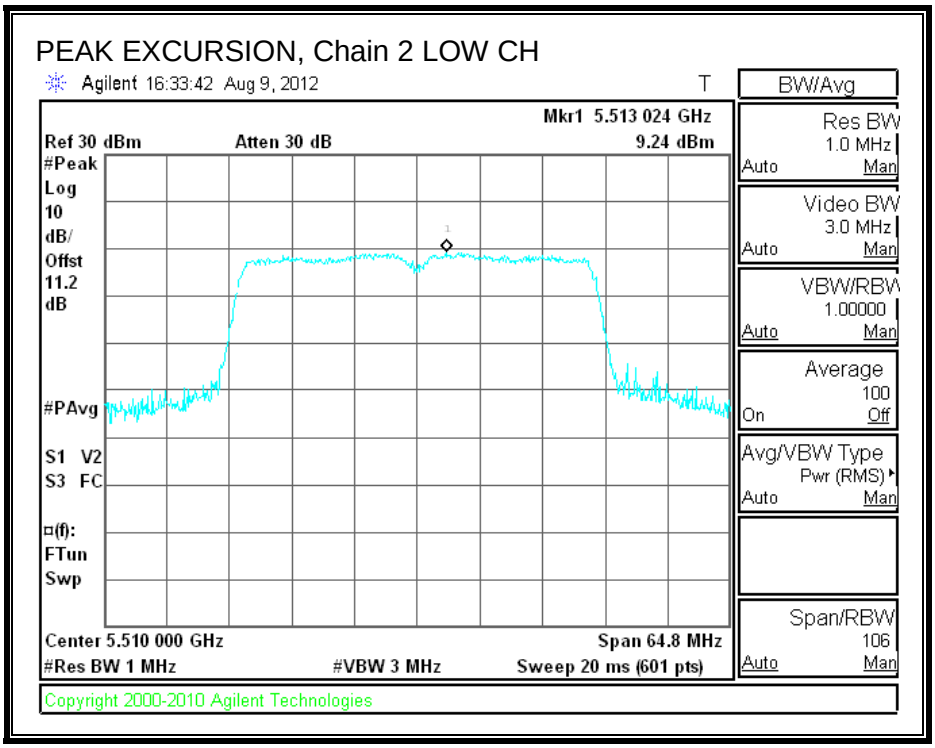
Note: Data for the high channel is contained in a separate section of this report as this channel straddles the 5470-5725Mhz and 5725-5825MHz bands – please refer to section 8.18

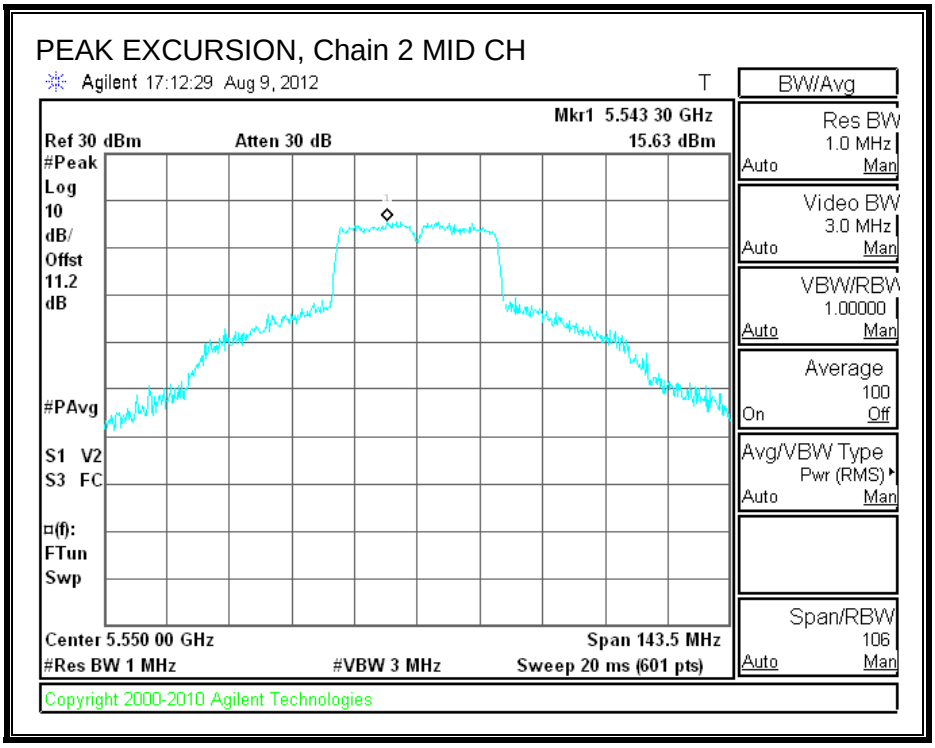
PEAK EXCURSION, Chain 1





PEAK EXCURSION, Chain 2





8.18. 802.11n AC40 CDD MCS0 2TX, 5.6 GHz BAND, CHANNEL 142(5710MHz)

8.18.1. 26 dB BANDWIDTH

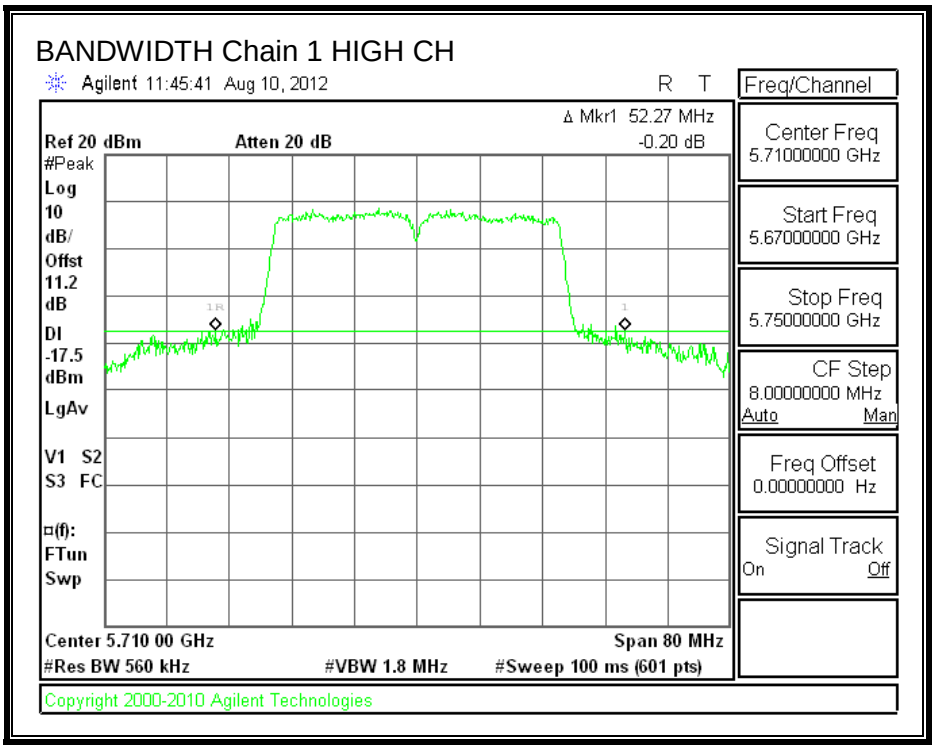
LIMITS

None; for reporting purposes only.

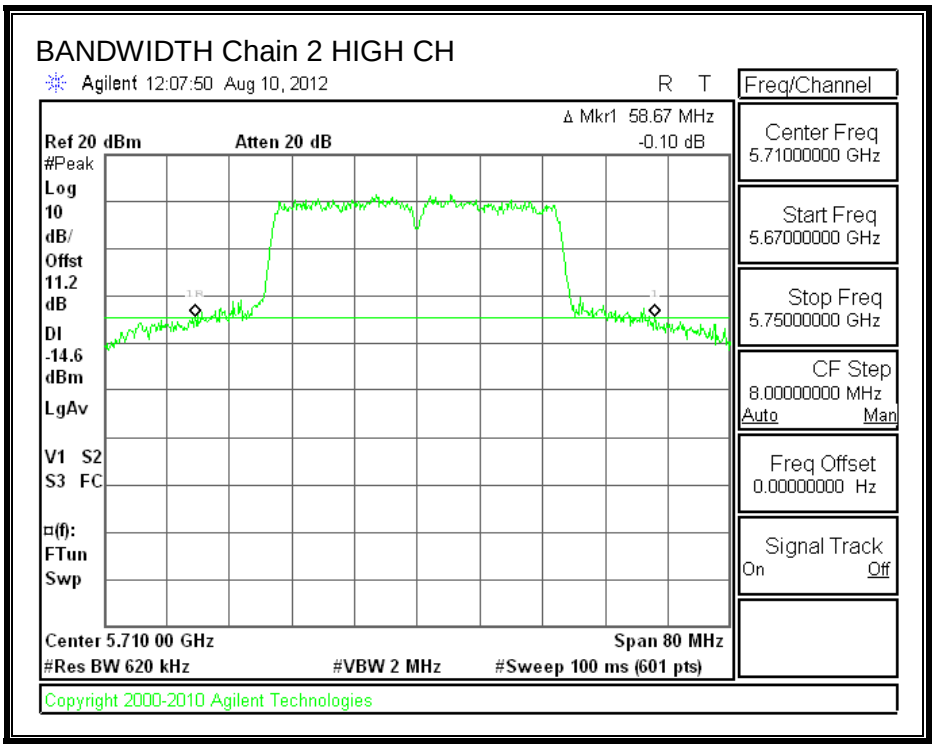
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 1 (MHz)	26 dB BW Chain 2 (MHz)
High	5710	52.27	58.67

26 dB BANDWIDTH, Chain 1



26 dB BANDWIDTH, Chain 2



8.18.2. **99% BANDWIDTH**

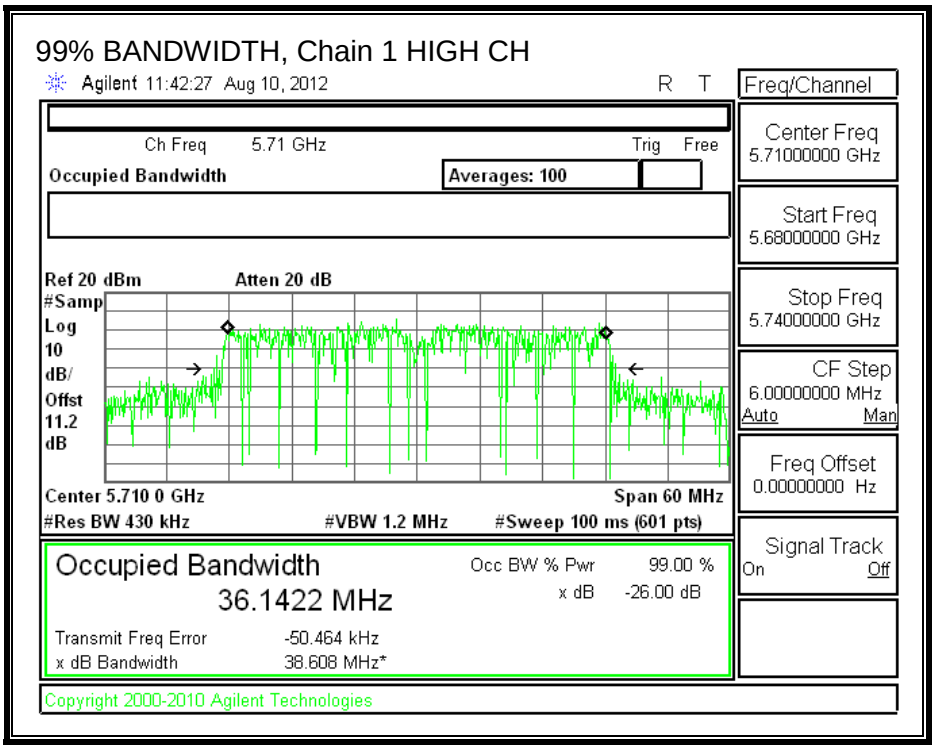
LIMITS

None; for reporting purposes only.

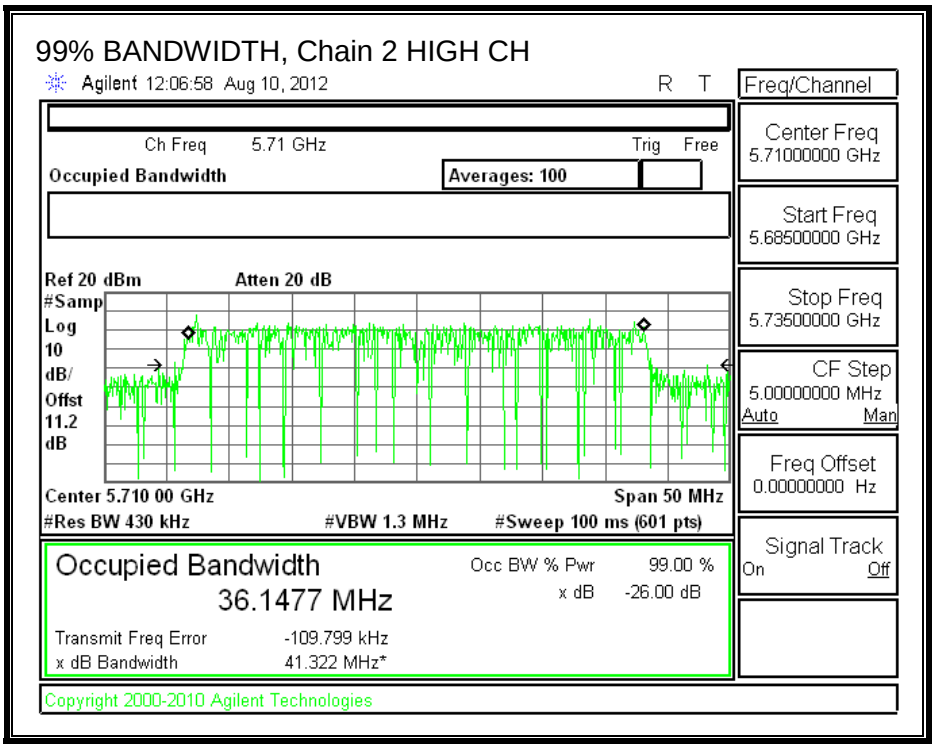
RESULTS

Channel	Frequency (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
High	5710	36.1422	36.1477

99% BANDWIDTH, Chain 1



99% BANDWIDTH, Chain 2



8.18.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (3)

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz 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.

The limit for the upper NII band : For the band 5.725–5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17 dBm in any 1–MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are correlated and the antenna gain is the same for each chain. The directional gain is:

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
4.20	3.01	7.21

RESULTS

Limits (FCC), portion in UNII 2 ext band

Channel	Frequency (MHz)	Fixed Limit (dBm)	26 dB BW (MHz)	11 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Mid	5710	24	34.335	26.36	7.21	22.79	9.79

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5710	15.453	16.470	19.002	22.79	-3.788

PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Mid	5710	1.67	3.15	5.48	9.79	-4.31

Limits (FCC), portion in 5.8 GHz band

Channel	Frequency (MHz)	Fixed Limit (dBm)	26 dB BW (MHz)	17 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Mid	5710	30	24.335	30.86	7.21	28.79	15.79

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5710	4.856	5.819	8.374	28.79	-20.416

PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Mid	5710	0.77	2.07	4.48	15.79	-11.31

Limits (IC), portion in UNII 2 ext band

Channel	Frequency (MHz)	Fixed Limit (dBm)	99% BW (MHz)	11 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Mid	5710	24	21.1504	24.25	7.21	22.79	9.79

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5710	15.453	16.470	19.002	22.79	-3.788

PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Mid	5710	1.67	3.15	5.48	9.79	-4.31

Limits (IC), portion in 5.8 GHz band

Channel	Frequency (MHz)	Fixed Limit (dBm)	99% BW (MHz)	17 + 10 Log B Limit (dBm)	Directional Gain (dBi)	Power Limit (dBm)	PPSD Limit (dBm)
Mid	5710	30	14.9918	28.76	7.21	27.55	15.79

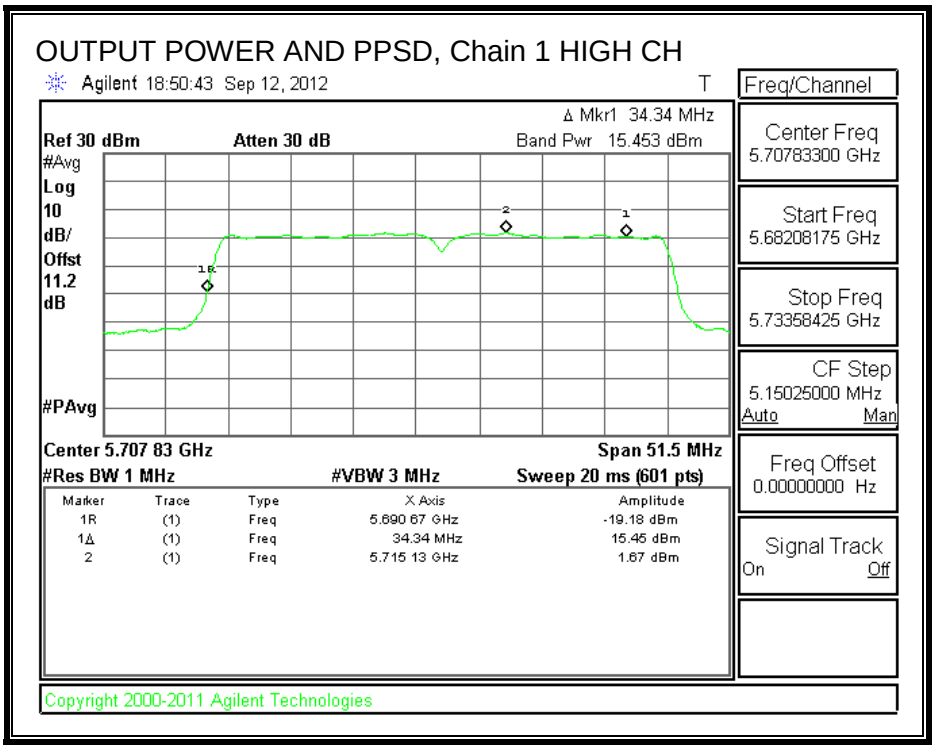
Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5710	4.856	5.819	8.374	27.55	-19.174

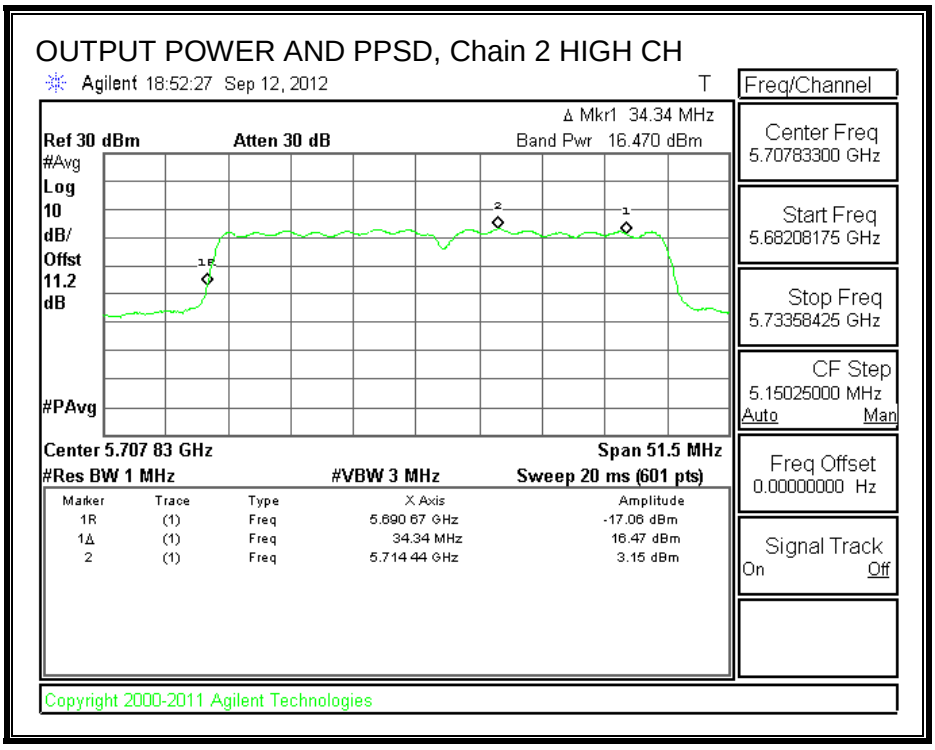
PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Mid	5710	0.77	2.07	4.48	15.79	-11.31

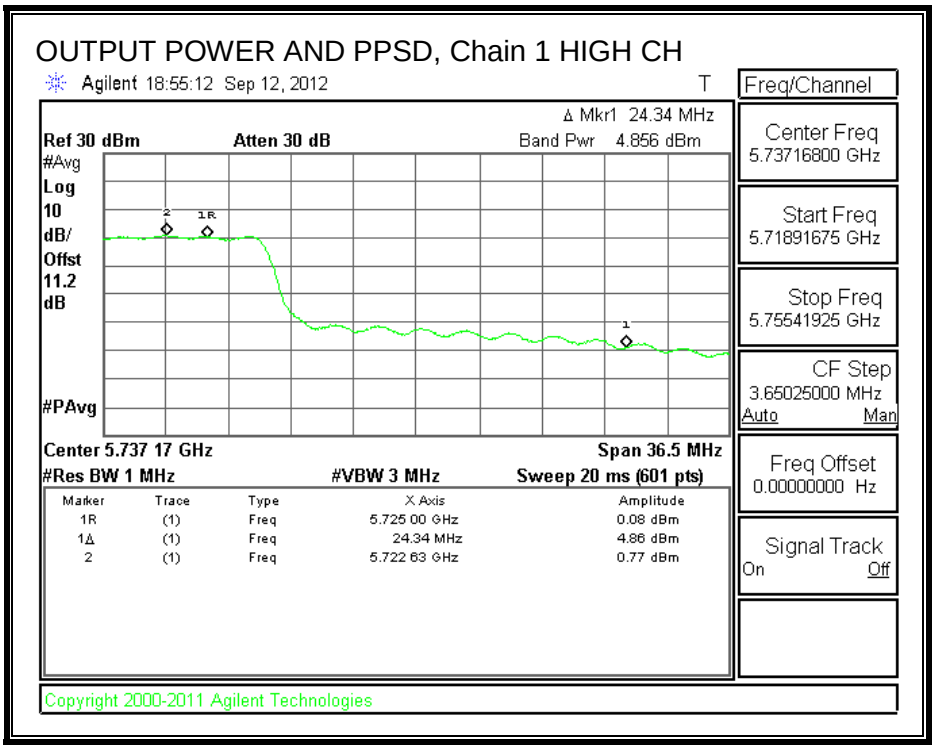
OUTPUT POWER AND PPSD, Chain 1 (portion in UNII 2 ext band)



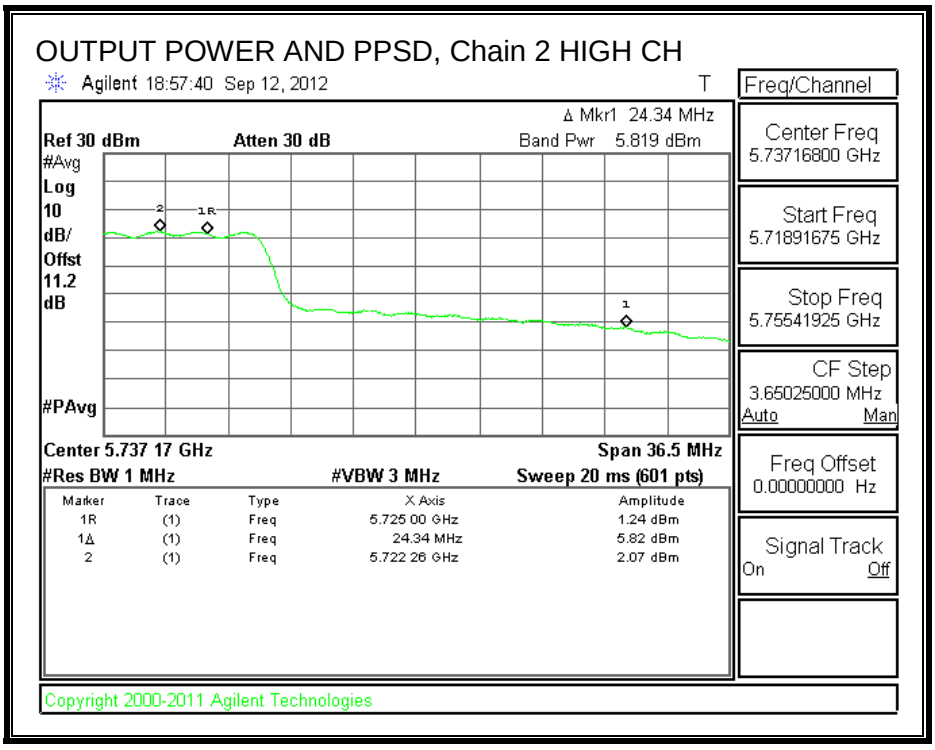
OUTPUT POWER AND PPSD, Chain 2 (portion in UNII 2 ext band)



OUTPUT POWER AND PPSD, Chain 1 (portion in 5.8 GHz band)



OUTPUT POWER AND PPSD, Chain 2 (portion in 5.8 GHz band)



8.18.4. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

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

RESULTS

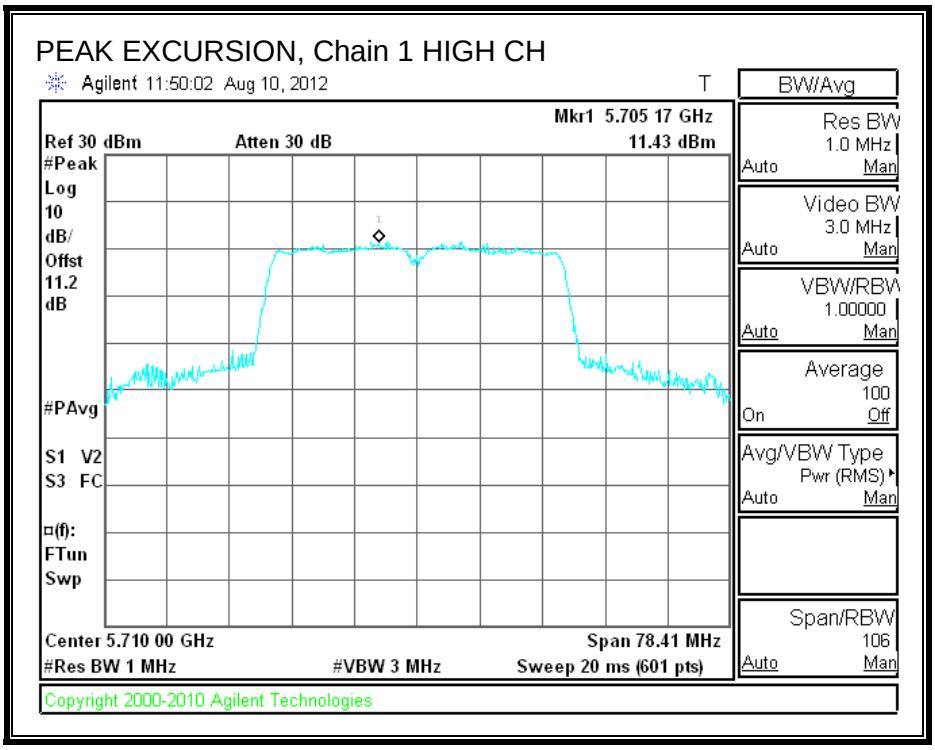
Chain 1

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5720	11.43	2.41	0.08	8.94	13	-4.06

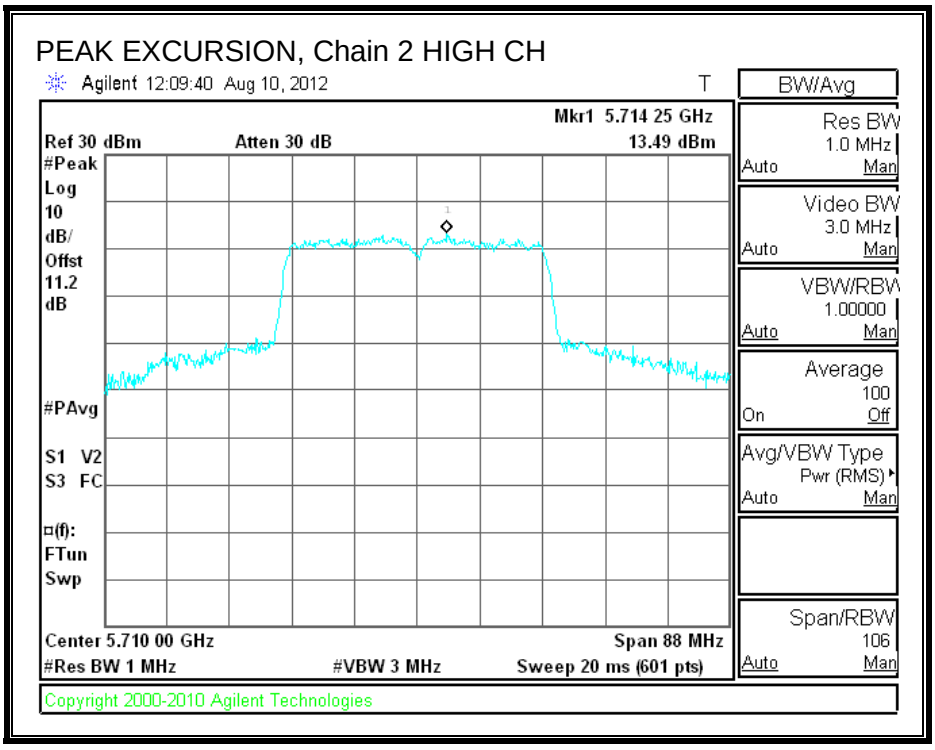
Chain 2

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5720	13.49	3.34	0.08	10.07	13	-2.93

PEAK EXCURSION, Chain 1



PEAK EXCURSION, Chain 2



9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

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

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters.

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

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

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

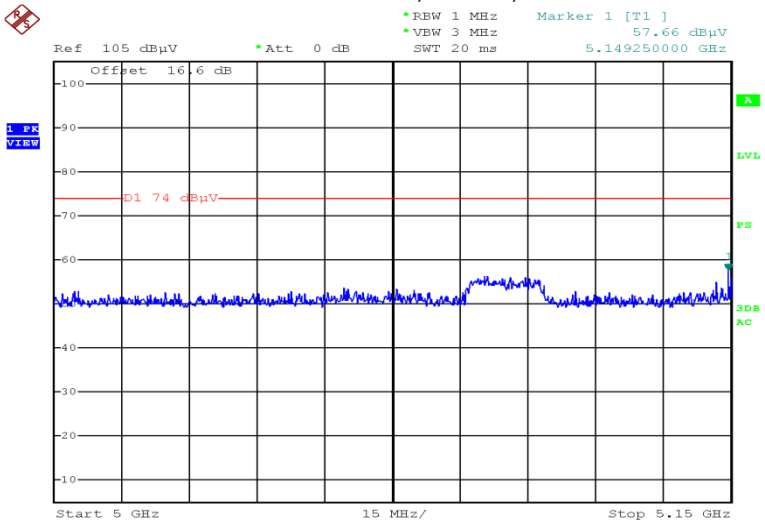
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

9.2. TRANSMITTER ABOVE 1 GHz

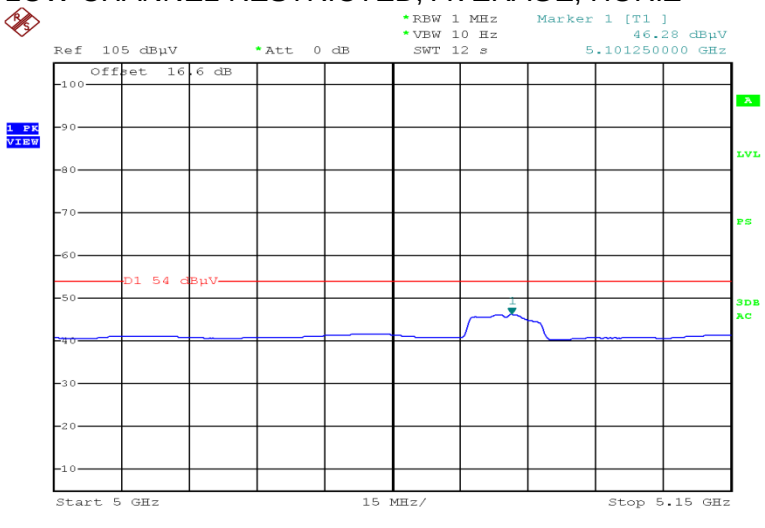
9.2.1. 802.11a LEGACY 1TX MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, PEAK, HORIZ



LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



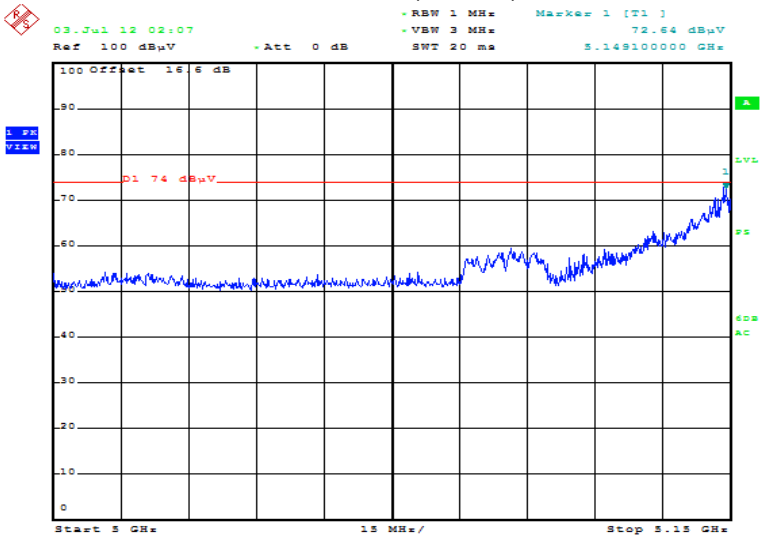
HARMONICS AND SPURIOUS EMISSIONS

Covered by testing to 11n HT20, CCD MCS0, 2TX

9.2.2. 802.11n HT20 CDD MCS0 2TX MODE IN THE 5.2 GHz BAND

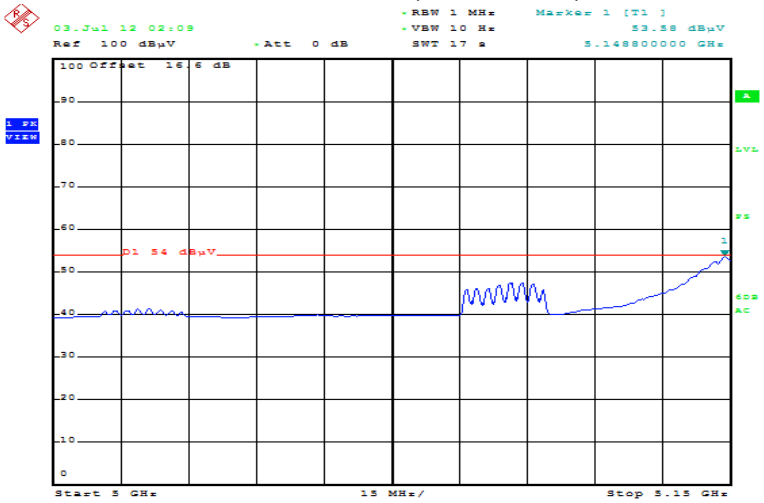
RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, PEAK, HORIZ



Date: 3.JUL.2012 02:07:16

LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



Date: 3.JUL.2012 02:09:07

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Vien Tran
Date: 08/01/12
Project #: 12U14473
Company: Broadcom
Test Target: FCC 15.407
Mode Oper: Tx HT20 2x2 CDD Mode_5.2GHz Band

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

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

f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
LOW CHANNEL (36), 5180MHz															
15.540	3.0	36.2	39.1	13.0	-31.9	0.0	0.0	56.3	74.0	-17.7	V	P	176.0	235.0	
15.540	3.0	25.3	39.1	13.0	-31.9	0.0	0.0	45.4	54.0	-8.6	V	A	176.0	235.0	
15.540	3.0	34.8	39.1	13.0	-31.9	0.0	0.0	54.9	74.0	-19.1	H	P	195.0	73.0	
15.540	3.0	24.5	39.1	13.0	-31.9	0.0	0.0	44.6	54.0	-9.4	H	A	195.0	73.0	
MID CHANNEL (40), 5200MHz															
15.600	3.0	34.0	38.8	13.0	-31.9	0.0	0.0	53.9	74.0	-20.1	H	P	194.0	331.0	
15.600	3.0	24.4	38.8	13.0	-31.9	0.0	0.0	44.3	54.0	-9.7	H	A	194.0	331.0	
15.600	3.0	35.3	38.8	13.0	-31.9	0.0	0.0	55.2	74.0	-18.8	V	P	129.0	5.0	
15.600	3.0	25.9	38.8	13.0	-31.9	0.0	0.0	45.8	54.0	-8.2	V	A	129.0	5.0	
HIGH CHANNEL (48), 5240MHz															
15.720	3.0	34.1	38.4	13.1	-31.9	0.0	0.0	53.7	74.0	-20.4	V	P	139.0	110.0	
15.720	3.0	24.2	38.4	13.1	-31.9	0.0	0.0	43.8	54.0	-10.2	V	A	139.0	110.0	
15.720	3.0	34.5	38.4	13.1	-31.9	0.0	0.0	54.1	74.0	-19.9	H	P	99.0	0.0	
15.720	3.0	24.1	38.4	13.1	-31.9	0.0	0.0	43.7	54.0	-10.3	H	A	99.0	0.0	

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

Note: tested with highest output powers at 16dBm to cover 1TX.

9.2.3. **802.11n HT20 STBC MCS0 2TX MODE IN THE 5.2 GHz BAND**

Covered by testing to 11n HT20 CCD MCS0 2TX

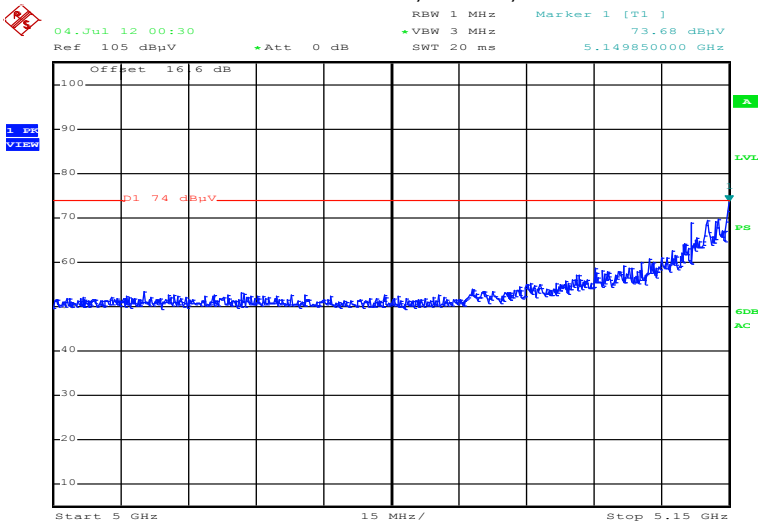
9.2.4. **802.11n HT40 CDD MCS0 1TX MODE IN THE 5.2 GHz BAND**

Covered by testing to 11n HT40 CCD MCS0 2TX

9.2.5. 802.11n HT40 CDD MCS0 2TX MODE IN THE 5.2 GHz BAND

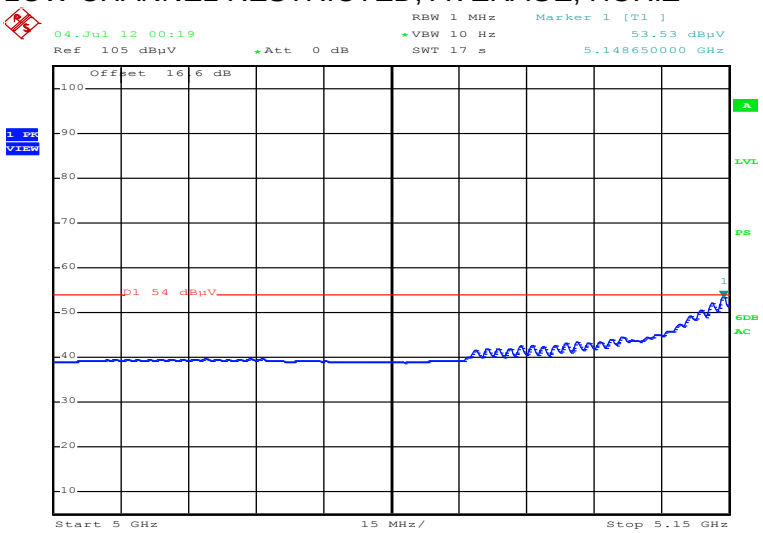
RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, PEAK, HORIZ



Date: 4.JUL.2012 00:30:48

LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



Date: 4.JUL.2012 00:19:51

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Vien Tran
Date: 07/30/12
Project #: 12U14473
Company: Broadcom
Test Target: FCC 15.407
Mode Oper: Tx HT40 2x2 CDD Mode_5.2GHz Band

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

f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
LOW CHANNEL (38), 5190MHz															
15.570	3.0	37.6	38.9	13.0	-31.9	0.0	0.0	57.6	74.0	-16.4	V	P	115.0	250.0	
15.570	3.0	27.5	38.9	13.0	-31.9	0.0	0.0	47.5	54.0	-6.5	V	A	115.0	250.0	
15.570	3.0	34.4	38.9	13.0	-31.9	0.0	0.0	54.4	74.0	-19.6	H	P	100.0	275.0	
15.570	3.0	24.6	38.9	13.0	-31.9	0.0	0.0	44.6	54.0	-9.4	H	A	100.0	275.0	
HIGH CHANNEL (46), 5230MHz															
15.690	3.0	35.7	38.5	13.0	-31.9	0.0	0.0	55.4	74.0	-18.6	V	P	145.0	264.0	
15.690	3.0	24.7	38.5	13.0	-31.9	0.0	0.0	44.4	54.0	-9.6	V	A	145.0	264.0	
15.690	3.0	34.8	38.5	13.0	-31.9	0.0	0.0	54.4	74.0	-19.6	H	P	100.0	360.0	
15.690	3.0	22.2	38.5	13.0	-31.9	0.0	0.0	41.9	54.0	-12.1	H	A	100.0	360.0	

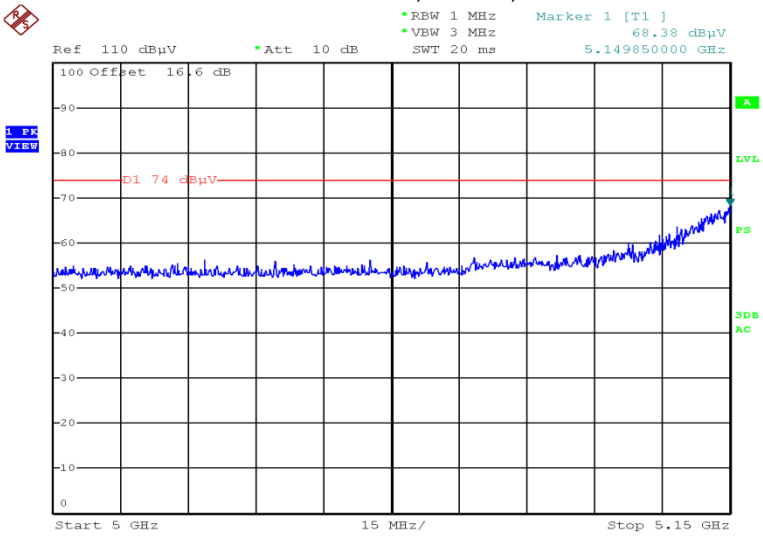
Rev. 4.1.2.7
Note: No other emissions were detected above the system noise floor.

Note: tested with highest output powers at 17dBm to cover 1TX and STBC 2TX.

9.2.6. 802.11n HT40 STBC MCS0 2TX MODE IN THE 5.2 GHz BAND

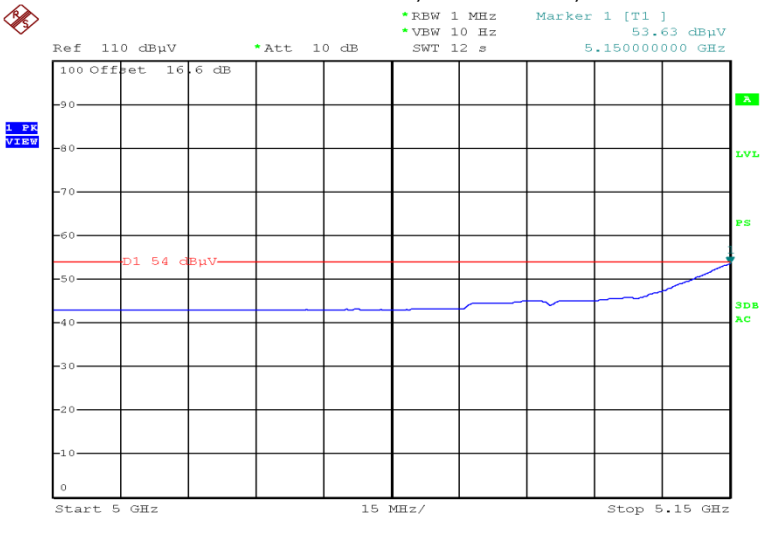
RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, PEAK, HORIZ



Date: 25.JUL.2012 13:30:42

LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



Date: 25.JUL.2012 13:29:46

HARMONICS AND SPURIOUS EMISSIONS

Covered by testing to HT40 CDD 2TX

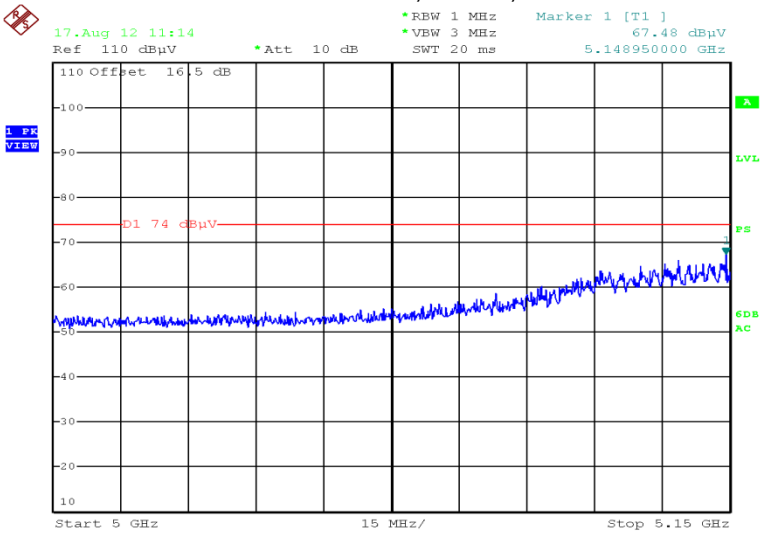
9.2.7. **802.11n HT80 CDD MCS0 1TX MODE IN THE 5.2 GHz BAND**

Covered by testing to 11n HT80 CCD MCS0 2TX

9.2.8. **802.11n HT80 CDD MCS0 2TX MODE IN THE 5.2 GHz BAND**

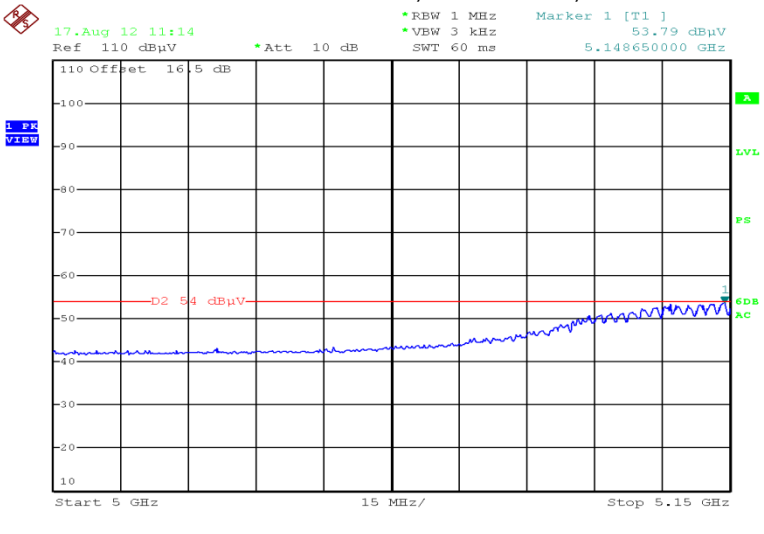
RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, PEAK, HORIZ



Date: 17.AUG.2012 11:14:06

LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



Date: 17.AUG.2012 11:14:39

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Vien Tran
Date: 07/31/12
Project #: 12U14473
Company: Broadcom
Test Target: FCC 15.407
Mode Oper: Tx HT80 2x2 CDD Mode_5.2GHz Band

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

f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
MID CHANNEL (42), 5210MHz															
15.630	3.0	36.2	38.7	13.0	-31.9	0.0	0.0	56.1	74.0	-17.9	V	P	133.0	357.0	
15.630	3.0	26.8	38.7	13.0	-31.9	0.0	0.0	46.6	54.0	-7.4	V	A	133.0	357.0	
15.630	3.0	34.9	38.7	13.0	-31.9	0.0	0.0	54.8	74.0	-19.2	H	P	140.0	123.0	
15.630	3.0	25.9	38.7	13.0	-31.9	0.0	0.0	45.7	54.0	-8.3	H	A	140.0	123.0	

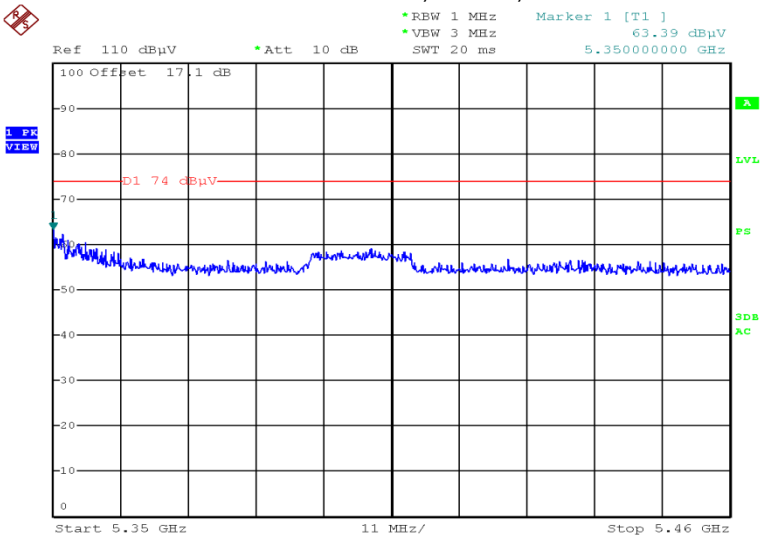
Rev. 4.1.2.7
Note: No other emissions were detected above the system noise floor.

Note: tested with highest output powers at 17dBm to cover 1TX.

9.2.9. 802.11a LEGACY 1TX MODE IN THE 5.3 GHz BAND

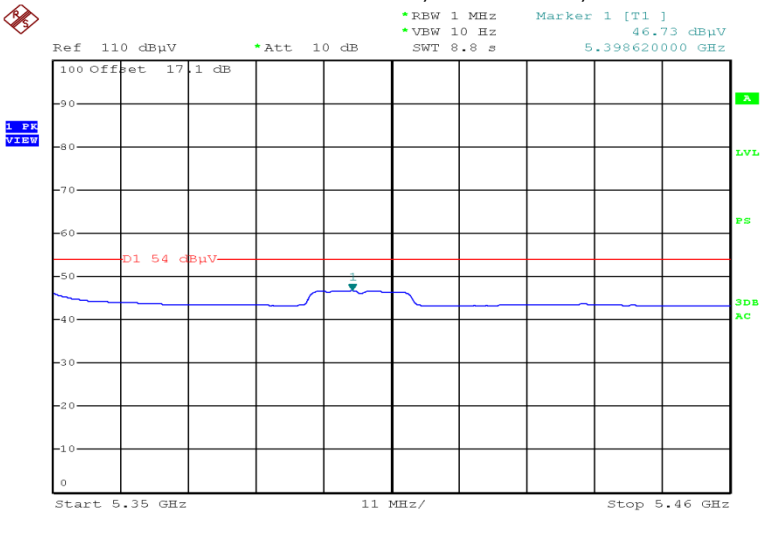
RESTRICTED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ



Date: 27.JUL.2012 10:01:04

HIGH CHANNEL RESTRICTED, AVERAGE, HORIZ



Date: 27.JUL.2012 10:02:38

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Vien Tran
Date: 07/27/12
Project #: 12U14473
Company: Broadcom
Test Target: FCC 14.247
Mode Oper: Tx 11a Mode_5.3GHz Band

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

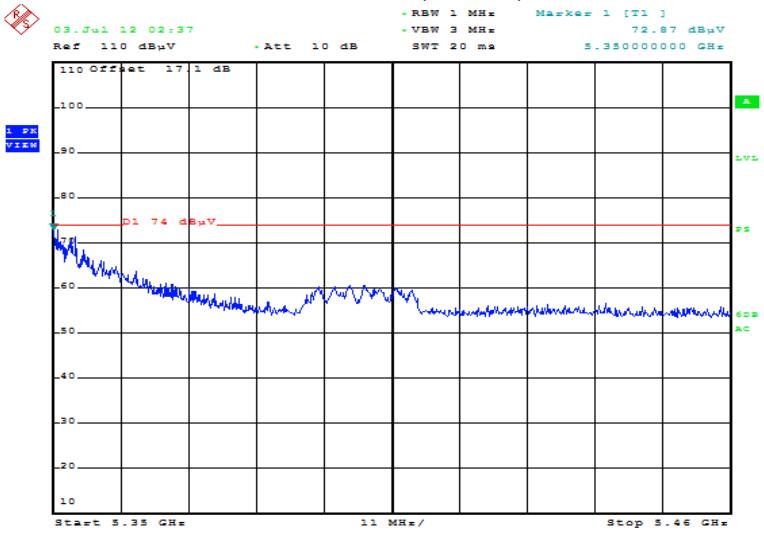
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
LOW CHANNEL (52), 5260MHz															
15.780	3.0	34.2	38.2	13.1	-31.9	0.0	0.0	53.6	74.0	-20.4	H	P	183.0	333.0	
15.780	3.0	21.1	38.2	13.1	-31.9	0.0	0.0	40.6	54.0	-13.4	H	A	183.0	333.0	
15.780	3.0	34.4	38.2	13.1	-31.9	0.0	0.0	53.8	74.0	-20.2	V	P	163.0	266.0	
15.780	3.0	21.4	38.2	13.1	-31.9	0.0	0.0	40.8	54.0	-13.2	V	A	163.0	266.0	
MID CHANNEL (60), 5300MHz															
10.600	3.0	47.1	38.4	9.9	-34.0	0.0	0.0	61.4	74.0	-12.6	H	P	103.0	350.0	
10.600	3.0	32.8	38.4	9.9	-34.0	0.0	0.0	47.0	54.0	-7.0	H	A	103.0	350.0	
15.900	3.0	34.8	37.8	13.2	-31.8	0.0	0.0	53.9	74.0	-20.1	H	P	144.0	130.0	
15.900	3.0	21.5	37.8	13.2	-31.8	0.0	0.0	40.6	54.0	-13.4	H	A	144.0	130.0	
10.600	3.0	48.5	38.4	9.9	-34.0	0.0	0.0	62.8	74.0	-11.2	V	P	137.0	341.0	
10.600	3.0	36.2	38.4	9.9	-34.0	0.0	0.0	50.5	54.0	-3.5	V	A	136.0	338.0	
15.900	3.0	35.9	37.8	13.2	-31.8	0.0	0.0	55.0	74.0	-19.0	V	P	178.0	66.0	
15.900	3.0	22.3	37.8	13.2	-31.8	0.0	0.0	41.4	54.0	-12.6	V	A	178.0	66.0	
HIGH CHANNEL (64), 5320MHz															
Covered by Testing to HT20 CDD MCS0 2TX															

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

9.2.10. 802.11n HT20 CDD MCS0 2TX MODE IN THE 5.3 GHz BAND

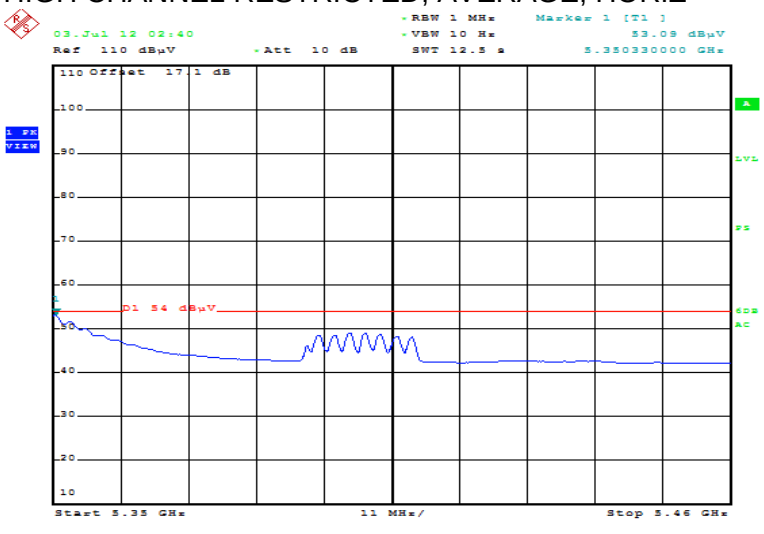
RESTRICTED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ



Date: 3.JUL.2012 02:37:50

HIGH CHANNEL RESTRICTED, AVERAGE, HORIZ



Date: 3.JUL.2012 02:40:21

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 3m Chamber

Company:	**Broadcom**
Project #:	**12U12473**
Date:	**7/4/2012**
Test Engineer:	**Mengistu Mekuria**
Configuration:	**EUT/ Laptop/Extender Card**
Mode:	**Tx HT20 2TX**
	With 5GHz Reject Filter

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B	T88 Miteq 26-40GHz	T39; ARA 18-26GHz; S/N:1013	FCC 15.205

Hi Frequency Cables

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

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

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
CHANNEL 52 , 5260MHz															
15.780	3.0	35.4	25.1	38.2	13.1	-31.9	0.0	0.0	54.8	44.5	74	54	-19.2	-9.5	V
15.780	3.0	35.0	24.2	38.2	13.1	-31.9	0.0	0.0	54.4	43.6	74	54	-19.6	-10.4	H
CHANNEL 60, 5300MHz															
10.600	3.0	48.5	37.7	38.4	9.9	-32.5	0.0	0.0	64.3	53.5	74	54	-9.7	-0.5	V
15.900	3.0	38.4	25.4	37.8	13.2	-31.8	0.0	0.0	57.4	44.5	74	54	-16.6	-9.5	V
10.600	3.0	43.2	30.8	38.4	9.9	-32.5	0.0	0.0	59.0	46.6	74	54	-15.0	-7.4	H
15.900	3.0	38.6	25.6	37.8	13.2	-31.8	0.0	0.0	57.7	44.6	74	54	-16.3	-9.4	H
CHANNEL 64, 5320MHz															
10.640	3.0	50.5	37.8	38.4	10.0	-32.5	0.0	0.0	66.4	53.6	74	54	-7.6	-0.4	V
15.960	3.0	38.7	26.0	37.6	13.2	-31.8	0.0	0.0	57.6	44.9	74	54	-16.4	-9.1	V
10.640	3.0	46.1	32.4	38.4	10.0	-32.5	0.0	0.0	62.0	48.3	74	54	-12.0	-5.7	H
15.960	3.0	37.9	25.4	37.6	13.2	-31.8	0.0	0.0	56.8	44.4	74	54	-17.2	-9.6	H

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

Note: The high channel was tested with highest output powers at 17dBm to cover 1TX.

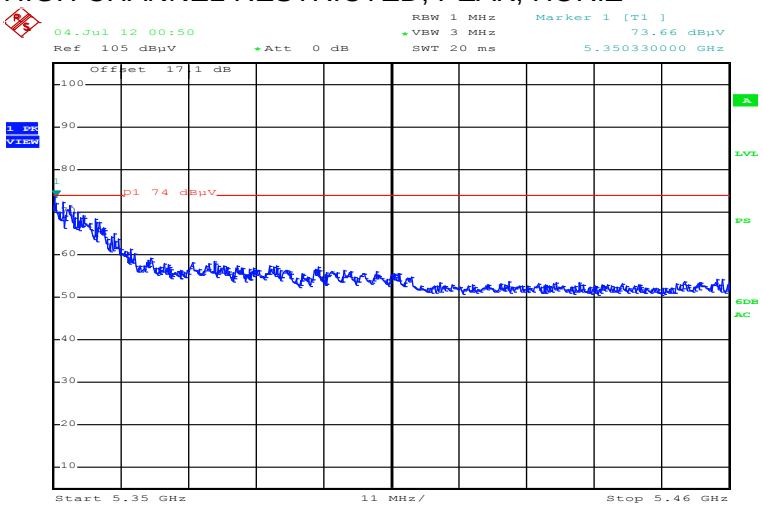
9.2.11. **802.11n HT40 CDD MCS0 1TX MODE IN THE 5.3 GHz BAND**

Covered by testing to 11n HT40 CCD MCS0 2TX

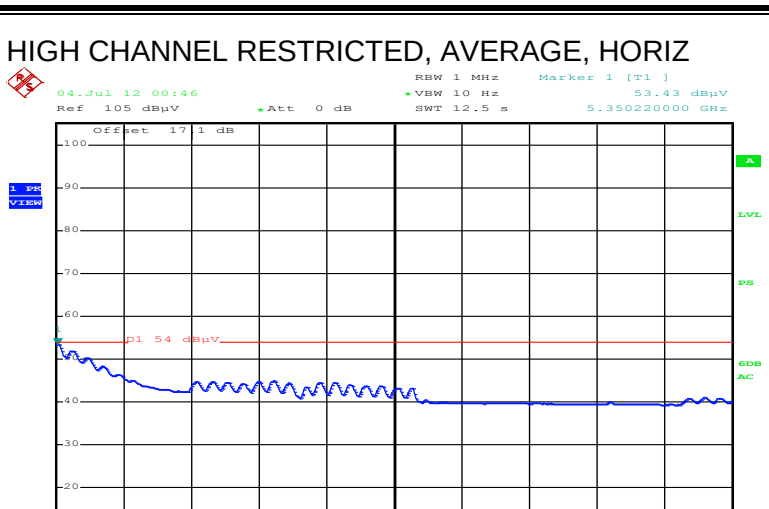
9.2.12. 802.11n HT40 CDD MCS0 2TX MODE IN THE 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ



HIGH CHANNEL RESTRICTED, AVERAGE, HORIZ



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Vien Tran
Date: 07/30/12
Project #: 12U14473
Company: Broadcom
Test Target: FCC 15.407
Mode Oper: Tx HT40 2x2 CDD Mode_5.3GHz Band

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

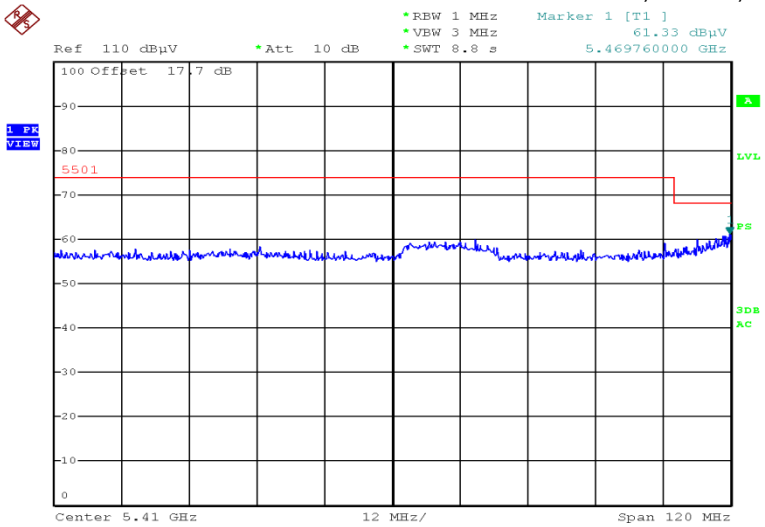
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
LOW CHANNEL (54), 5270MHz															
15.810	3.0	36.7	38.1	13.1	-31.9	0.0	0.0	56.0	74.0	-18.0	V	P	105.0	357.0	
15.810	3.0	26.8	38.1	13.1	-31.9	0.0	0.0	46.1	54.0	-7.9	V	A	105.0	357.0	
15.810	3.0	36.1	38.1	13.1	-31.9	0.0	0.0	55.4	74.0	-18.6	H	P	98.0	362.0	
15.810	3.0	25.1	38.1	13.1	-31.9	0.0	0.0	44.5	54.0	-9.5	H	A	98.0	362.0	
HIGH CHANNEL (62), 5310MHz															
15.930	3.0	38.3	37.7	13.2	-31.8	0.0	0.0	57.3	74.0	-16.7	V	P	106.0	8.0	
15.930	3.0	27.9	37.7	13.2	-31.8	0.0	0.0	46.9	54.0	-7.1	V	A	106.0	8.0	
15.930	3.0	36.4	37.7	13.2	-31.8	0.0	0.0	55.4	74.0	-18.6	H	P	100.0	360.0	
15.930	3.0	25.5	37.7	13.2	-31.8	0.0	0.0	44.5	54.0	-9.5	H	A	100.0	360.0	

Rev. 4.1.2.7

9.2.13. 802.11a LEGACY 1TX MODE IN THE 5.6 GHz BAND

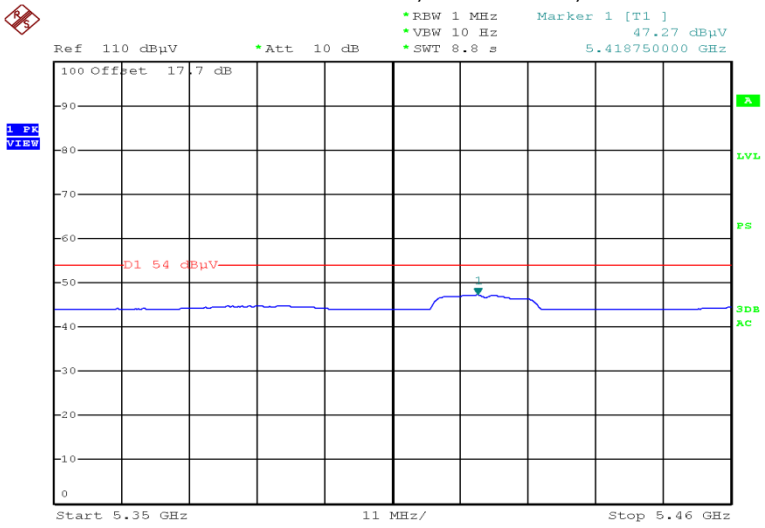
RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED & AUTHORIZED, PEAK, HORIZ



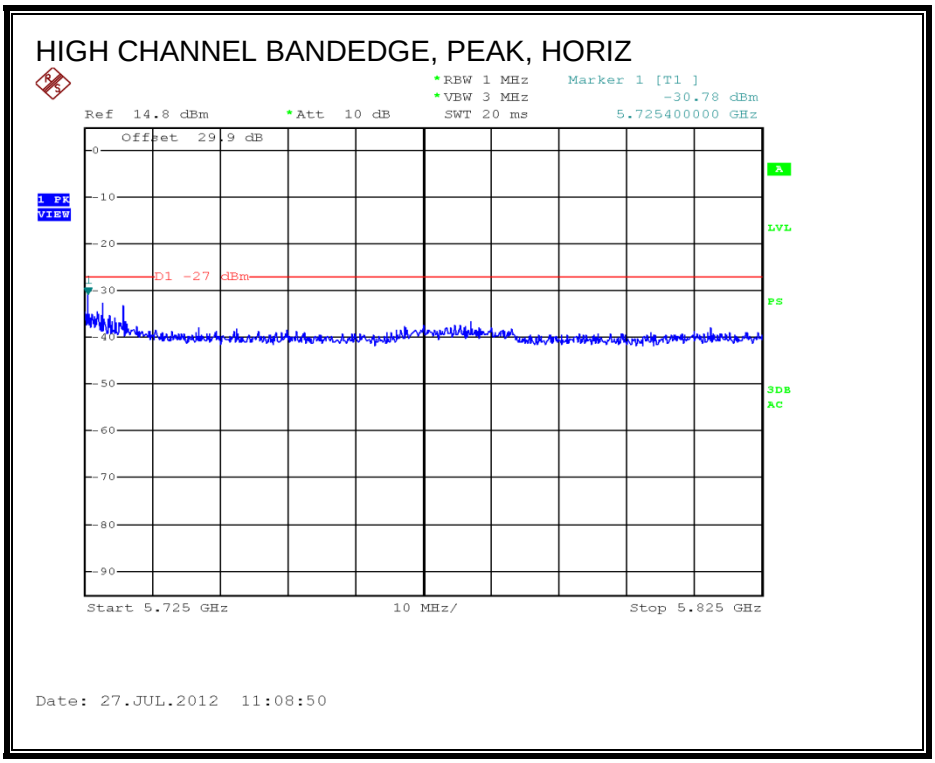
Date: 27.JUL.2012 10:26:54

LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



Date: 27.JUL.2012 10:29:04

AUTHORIZED BANDEDGE (HIGH CHANNEL)



Note:

Antenna Factor + Cable Loss – Amplifier Gain was entered into the analyzer offset to change the conducted voltage in dBuV to field strength unit in dBuV/m.
A factor of 107 was also included in the analyzer offset since the unit used is dBm and not dBuV.
But since EIRP = E field strength – 95.2, a factor of -95.2 was included in the analyzer offset as well, in essence 107-95.2 = +11.8 was added along with AF, Cable loss and amplifier gain numbers into the analyzer offset.

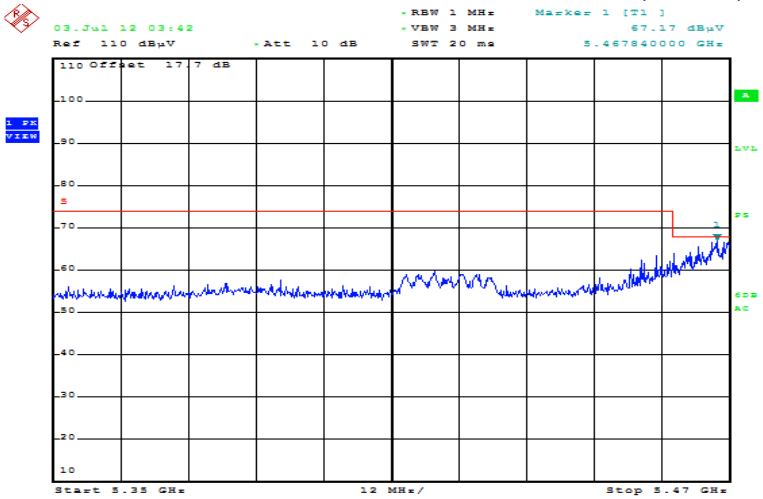
HARMONICS AND SPURIOUS EMISSIONS

Covered by testing to 11n HT20 CDD MCS0 2TX

9.2.14. 802.11n HT20 CDD MCS0 2TX MODE IN THE 5.6 GHz BAND

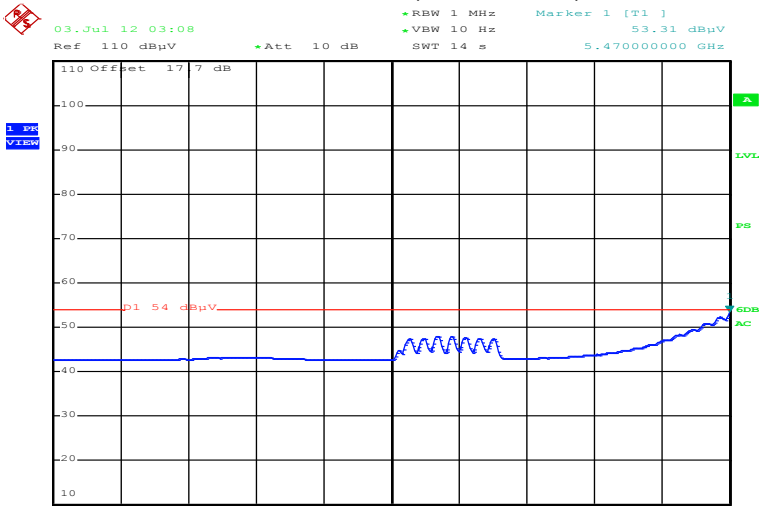
RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED & AUTHORIZED, PEAK, HORIZ



Date: 3.JUL.2012 03:42:42

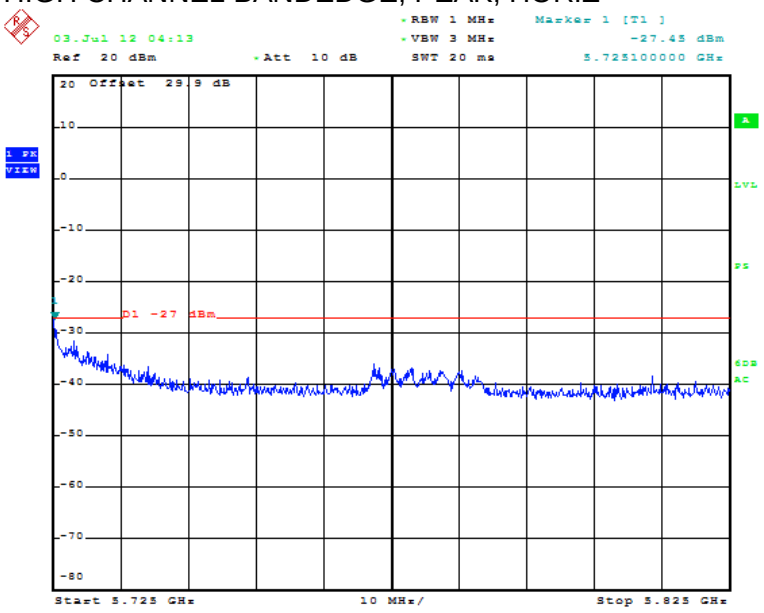
LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



Date: 3.JUL.2012 03:08:16

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL BANDEDGE, PEAK, HORIZ



Date: 3.JUL.2012 04:13:03

Note:

Antenna Factor + Cable Loss – Amplifier Gain was entered into the analyzer offset to change the conducted voltage in dBuV to field strength unit in dBuV/m.
A factor of 107 was also included in the analyzer offset since the unit used is dBm and not dBuV.
But since EIRP = E field strength – 95.2, a factor of -95.2 was included in the analyzer offset as well, in essence 107-95.2 = +11.8 was added along with AF, Cable loss and amplifier gain numbers into the analyzer offset.

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 3m Chamber

Company:	**Broadcom**
Project #:	**12U12473**
Date:	**7/4/2012**
Test Engineer:	**Mengistu Mekuria**
Configuration:	**EUT/ Laptop/Extender Card**
Mode:	**Tx HT20 2TX**
	With 5GHz Reject Filter

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B	T88 Miteq 26-40GHz	T39; ARA 18-26GHz; S/N:1013	FCC 15.205

Hi Frequency Cables

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

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

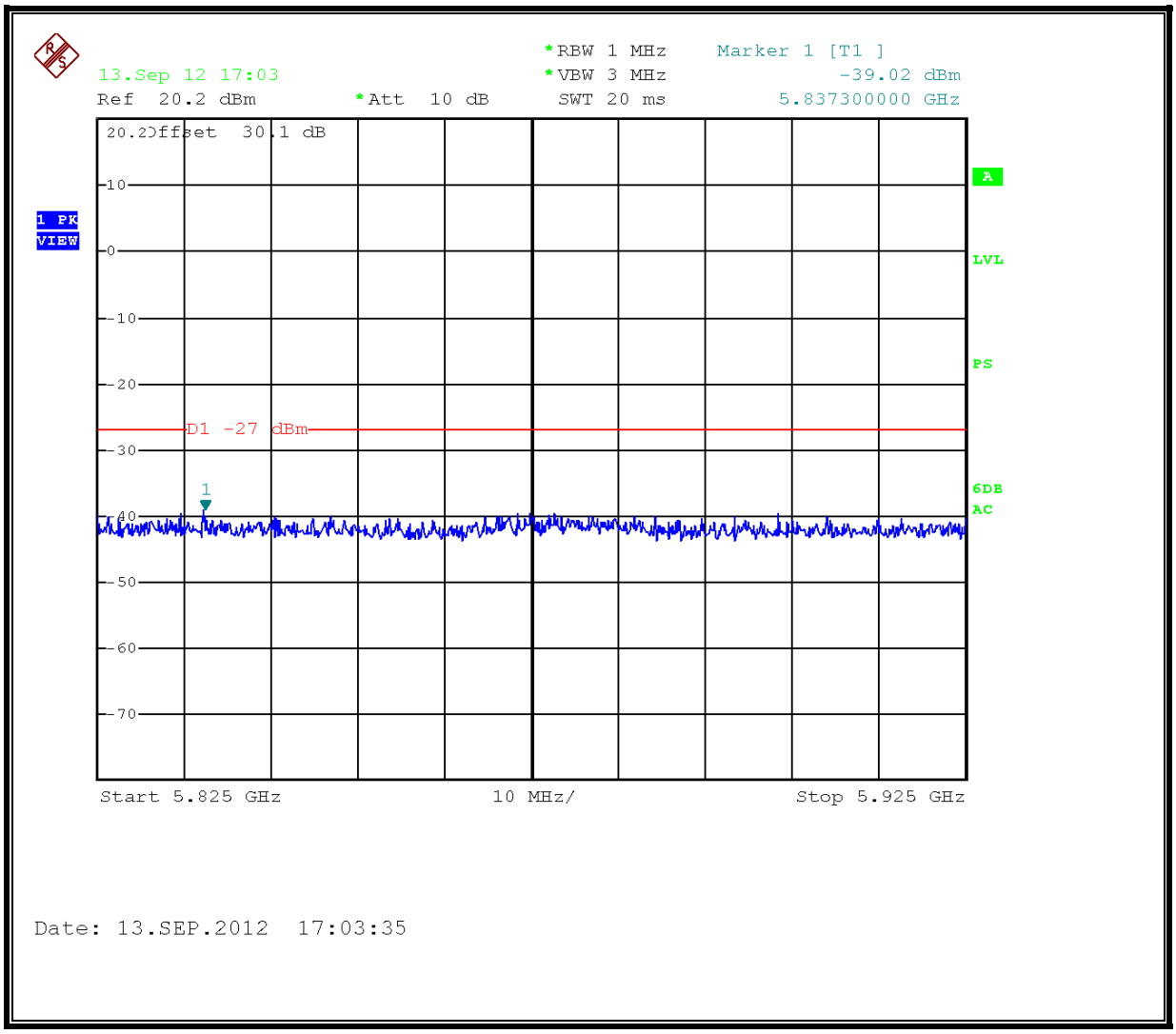
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
CHANNEL 100, 5500MHz															
11.000	3.0	42.7	29.3	38.4	10.5	-32.4	0.0	0.0	59.1	45.7	74	54	-14.9	-8.3	H
11.000	3.0	44.6	33.6	38.4	10.5	-32.4	0.0	0.0	61.1	50.0	74	54	-12.9	-4.0	V
CHANNEL 116, 5580MHz															
11.000	3.0	42.6	31.4	38.4	10.5	-32.4	0.0	0.0	59.0	47.8	74	54	-15.0	-6.2	H
11.000	3.0	46.1	35.8	38.4	10.5	-32.4	0.0	0.0	62.5	52.2	74	54	-11.5	-1.8	V
CHANNEL 140, 5700MHz															
11.400	3.0	41.6	29.4	38.8	11.1	-32.4	0.0	0.0	59.0	46.9	74	54	-15.0	-7.1	H
11.400	3.0	45.2	31.5	38.8	11.1	-32.4	0.0	0.0	62.7	49.0	74	54	-11.3	-5.0	V

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

Note: tested with highest output powers at 19dBm to cover 1TX.

9.2.15. 802.11n HT20 CDD MCS0 2TX, 5.6 GHz BAND, CHANNEL 144 (5720MHz)

RADIATED BE AT 5825 MHz (worst-case Horizontal)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Vien Tran
Date: 07/26/12
Project #: 12U14473
Company: Broadcom
Test Target: FCC 15.407
Mode Oper: Tx HT20 2x2 CDD Mode, High Channel 144, 5720MHz

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

f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
11.440	3.0	40.7	38.8	11.1	-33.1	0.0	0.0	57.6	74.0	-16.4	V	P	115.0	76.0	
11.440	3.0	29.1	38.8	11.1	-33.1	0.0	0.0	45.9	54.0	-8.1	V	A	115.0	76.0	
11.440	3.0	37.6	38.8	11.1	-33.1	0.0	0.0	54.4	74.0	-19.6	H	P	184.0	217.0	
11.440	3.0	24.9	38.8	11.1	-33.1	0.0	0.0	41.7	54.0	-12.3	H	A	184.0	217.0	

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

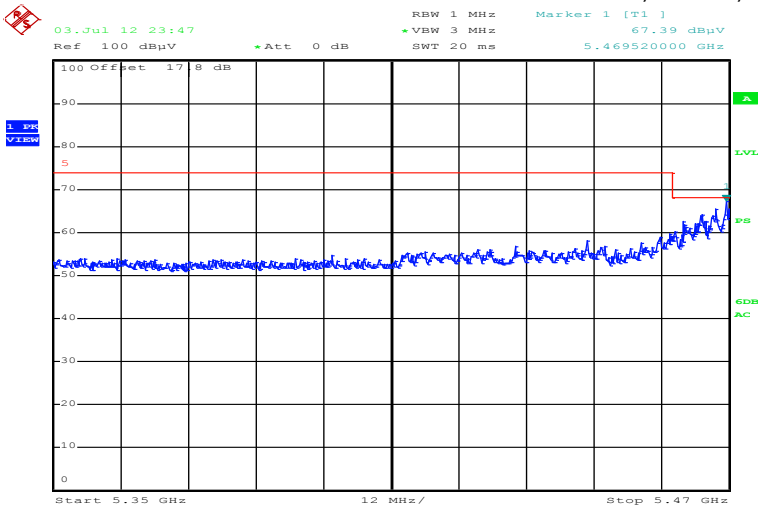
9.2.16. **802.11n HT40 CDD MCS0 1TX MODE IN THE 5.6 GHz BAND**

Covered by testing to 11n HT40 CDD MCS0 2TX

9.2.17. 802.11n HT40 CDD MCS0 2TX MODE IN THE 5.6 GHz BAND

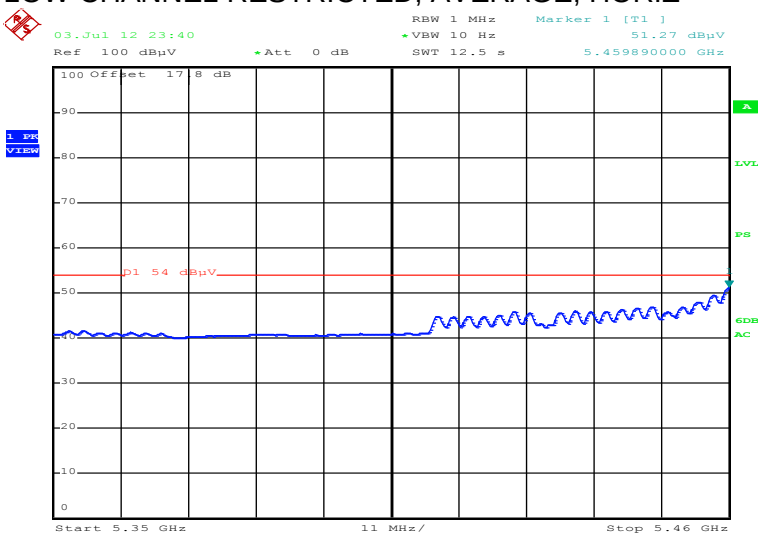
RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED & AUTHORIZED, PEAK, HORIZ



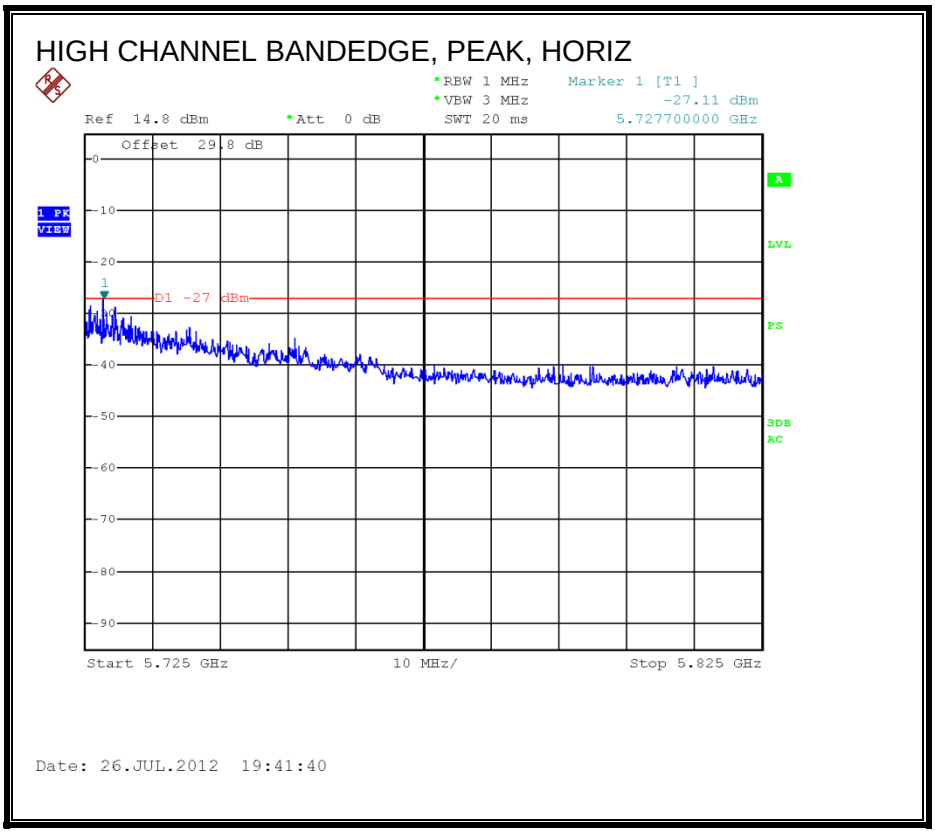
Date: 3.JUL.2012 23:48:00

LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



Date: 3.JUL.2012 23:40:53

AUTHORIZED BANDEDGE (HIGH CHANNEL)



Note:

Antenna Factor + Cable Loss – Amplifier Gain was entered into the analyzer offset to change the conducted voltage in dBuV to field strength unit in dBuV/m.
A factor of 107 was also included in the analyzer offset since the unit used is dBm and not dBuV.
But since EIRP = E field strength – 95.2, a factor of -95.2 was included in the analyzer offset as well, in essence 107-95.2 = +11.8 was added along with AF, Cable loss and amplifier gain numbers into the analyzer offset.

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Vien Tran
Date: 07/31/12
Project #: 12U14473
Company: Broadcom
Test Target: FCC 15.407
Mode Oper: Tx HT40 2x2 CDD Mode_5.5GHz Band

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

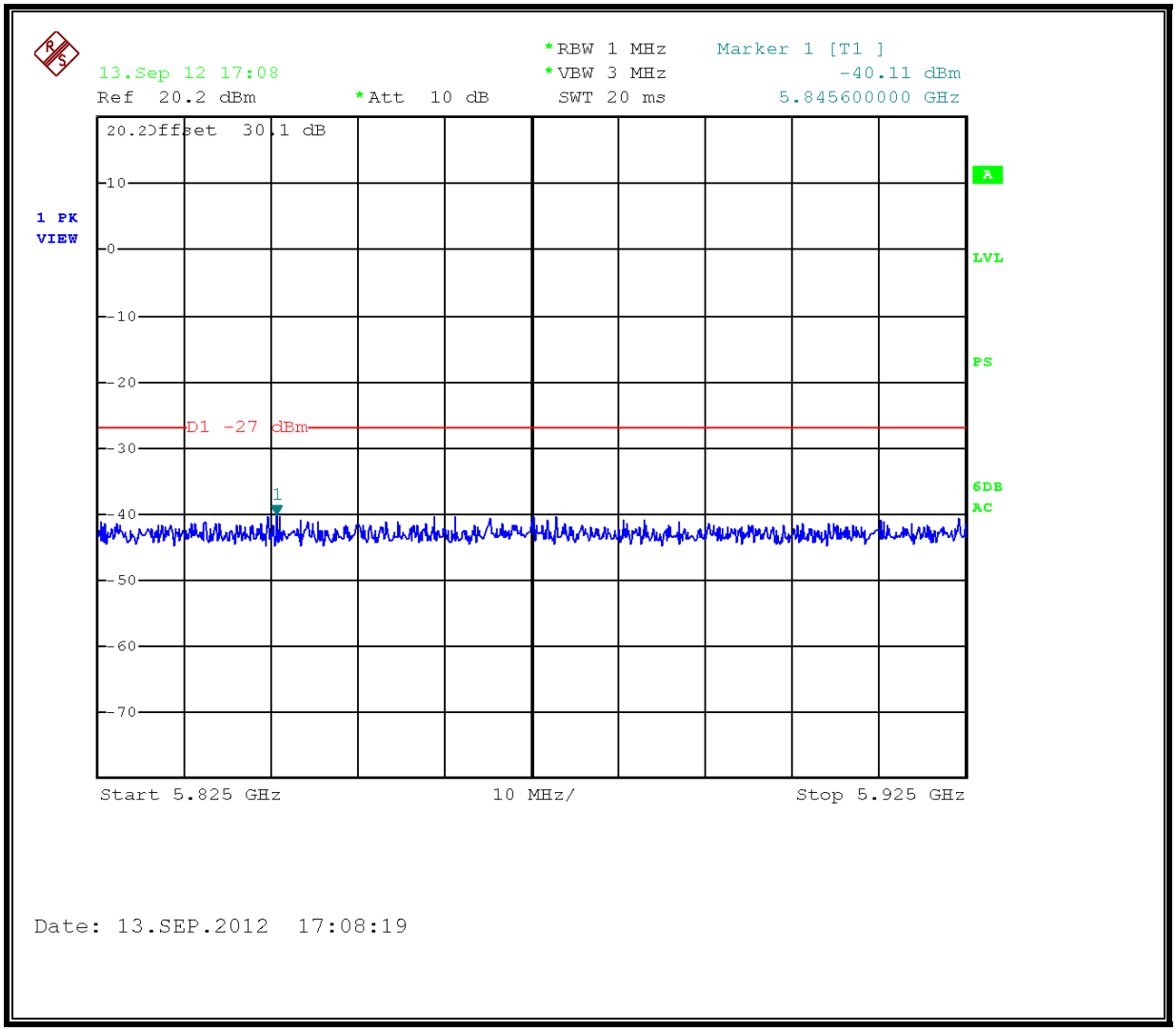
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
LOW CHANNEL (102), 5510MHz															
11.020	3.0	40.2	38.4	10.5	-33.6	0.0	0.0	55.6	74.0	-18.4	V	P	98.0	32.0	
11.020	3.0	26.7	38.4	10.5	-33.6	0.0	0.0	42.1	54.0	-11.9	V	A	98.0	32.0	
11.020	3.0	39.3	38.4	10.5	-33.6	0.0	0.0	54.6	74.0	-19.4	H	P	100.0	58.0	
11.020	3.0	29.1	38.4	10.5	-33.6	0.0	0.0	44.4	54.0	-9.6	H	A	100.0	58.0	
MID CHANNEL (110), 5550MHz															
11.100	3.0	48.2	38.5	10.6	-33.5	0.0	0.0	63.8	74.0	-10.2	V	P	141.0	237.0	
11.100	3.0	37.5	38.5	10.6	-33.5	0.0	0.0	53.1	54.0	-0.9	V	A	141.0	237.0	
11.100	3.0	37.9	38.5	10.6	-33.5	0.0	0.0	53.5	74.0	-20.5	H	P	100.0	216.0	
11.100	3.0	27.9	38.5	10.6	-33.5	0.0	0.0	43.5	54.0	-10.5	H	A	100.0	216.0	
HIGH CHANNEL (134), 5670MHz															
11.340	3.0	39.1	38.7	11.0	-33.2	0.0	0.0	55.6	74.0	-18.4	V	P	131.0	216.0	
11.340	3.0	30.2	38.7	11.0	-33.2	0.0	0.0	46.7	54.0	-7.3	V	A	131.0	216.0	
11.340	3.0	36.7	38.7	11.0	-33.2	0.0	0.0	53.2	74.0	-20.8	H	P	149.0	163.0	
11.340	3.0	27.7	38.7	11.0	-33.2	0.0	0.0	44.2	54.0	-9.8	H	A	149.0	163.0	

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

Note: tested with highest output powers at 19dBm to cover 1TX.

9.2.18. 802.11n HT40 CDD MCS0 2TX, 5.6 GHz BAND, CHANNEL 142 (5710MHz)

RADIATED BE AT 5825 MHz (worst-case Horizontal)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Vien Tran
Date: 07/31/12
Project #: 12U14473
Company: Broadcom
Test Target: FCC 15.407
Mode Oper: Tx HT40 2x2 CDD Mode, High Channel 142, 5710MHz

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

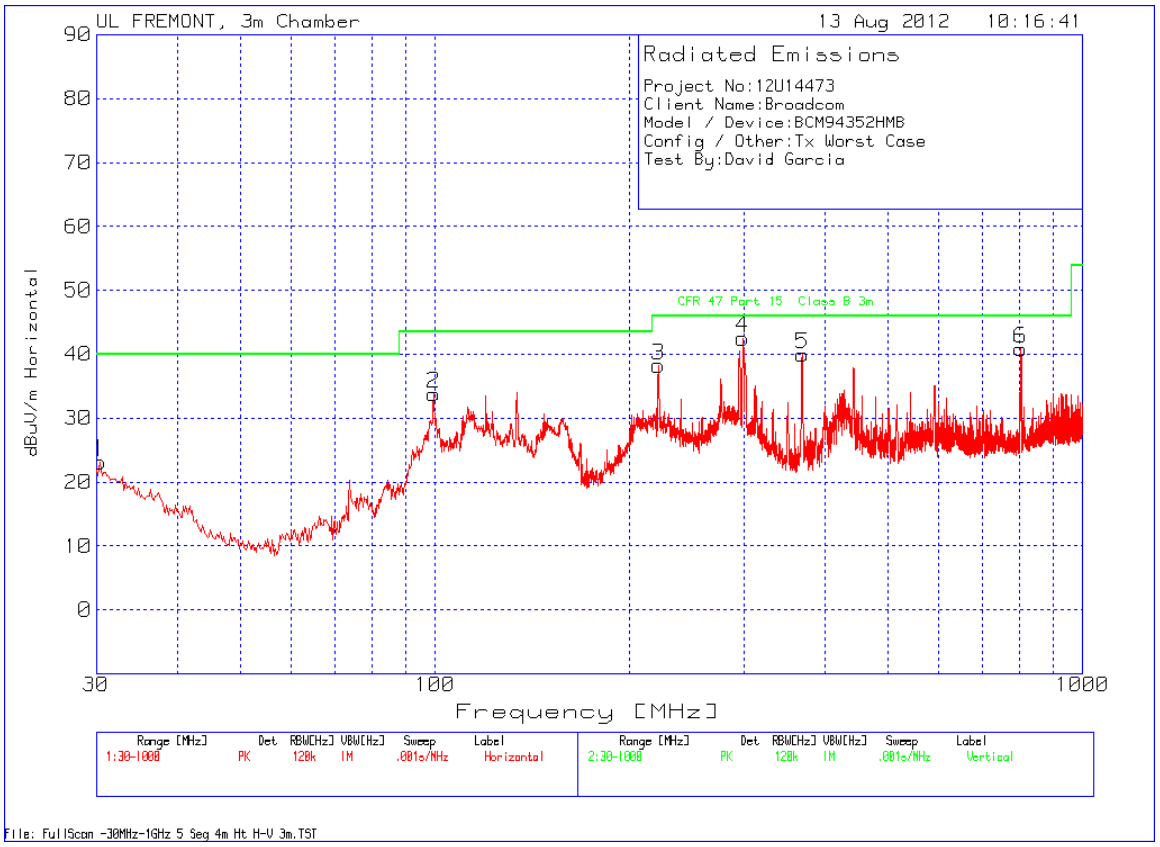
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
HIGH CHANNEL (142), 5710MHz															
11.420	3.0	39.0	38.8	11.1	-33.1	0.0	0.0	55.8	74.0	-18.2	V	P	124.0	222.0	
11.420	3.0	29.6	38.8	11.1	-33.1	0.0	0.0	46.4	54.0	-7.6	V	A	124.0	222.0	
11.420	3.0	35.7	38.8	11.1	-33.1	0.0	0.0	52.5	74.0	-21.5	H	P	173.0	360.0	
11.420	3.0	26.1	38.8	11.1	-33.1	0.0	0.0	42.8	54.0	-11.2	H	A	173.0	360.0	

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

9.3. WORST-CASE BELOW 1 GHz

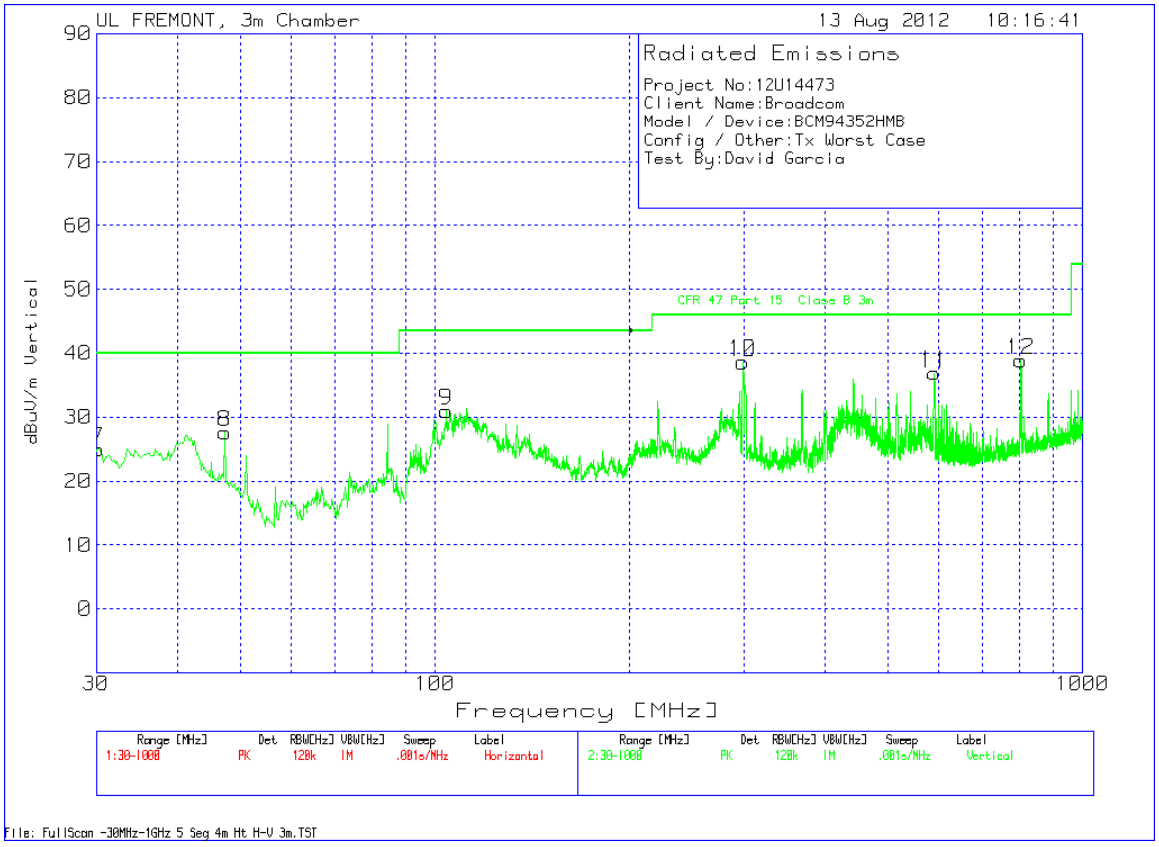
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



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

VERTICAL PLOT



Project No:12U14473
Client Name:Broadcom
Model / Device:BCM94352HMB
Config / Other:Tx Worst Case
Test By:David Garcia

Horizontal 30 - 1000MHz

Test Frequency	Meter Reading	Detector	25MHz-1GHz Chambr 3m Amplified (dB)	Antenna T185 (dB)	dBuV/m	CFR 47 Part 15 Class B 3m	Margin	Height [cm]	Polarity
30.3877	29.74	PK	-27.5	20.9	23.14	40.0	-16.86	400	Horz
99.5903	50.90	PK	-26.8	9.7	33.80	43.5	-9.70	201	Horz
221.3249	53.16	PK	-25.7	10.8	38.26	46.0	-7.74	100	Horz
298.8629	54.43	PK	-25.2	13.3	42.53	46.0	-3.47	100	Horz
369.0348	50.46	PK	-25.5	15.0	39.96	46.0	-6.04	100	Horz
803.2474	44.23	PK	-24.6	21.2	40.83	46.0	-5.17	100	Horz

Vertical 30 - 1000MHz

Test Frequency	Meter Reading	Detector	25MHz-1GHz Chambr 3m Amplified (dB)	Antenna T185 (dB)	dBuV/m	CFR 47 Part 15 Class B 3m	Margin	Height [cm]	Polarity
30.1938	31.40	PK	-27.5	21.1	25.00	40.0	-15.00	101	Vert
47.446	45.97	PK	-27.3	9.0	27.67	40.0	-12.33	101	Vert
104.2426	46.67	PK	-26.8	11.1	30.97	43.5	-12.53	101	Vert
298.8629	50.54	PK	-25.2	13.3	38.64	46.0	-7.36	200	Vert
590.5995	44.22	PK	-25.7	18.4	36.92	46.0	-9.08	101	Vert
803.4412	42.30	PK	-24.6	21.2	38.90	46.0	-7.10	101	Vert

PK - Peak detector
QP - Quasi-Peak detector
LnAv - Linear Average detector
LgAv - Log Average detector
Av - Average detector
CAV - CISPR Average detector
RMS - RMS detection
CRMS - CISPR RMS detection
Text File: Project No12U14473_Tx_Worst_Case.TXT
File: FullScan -30MHz-1GHz 5 Seg 4m Ht H-V 3m.TST

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

ANSI C63.4

RESULTS

RESULTS

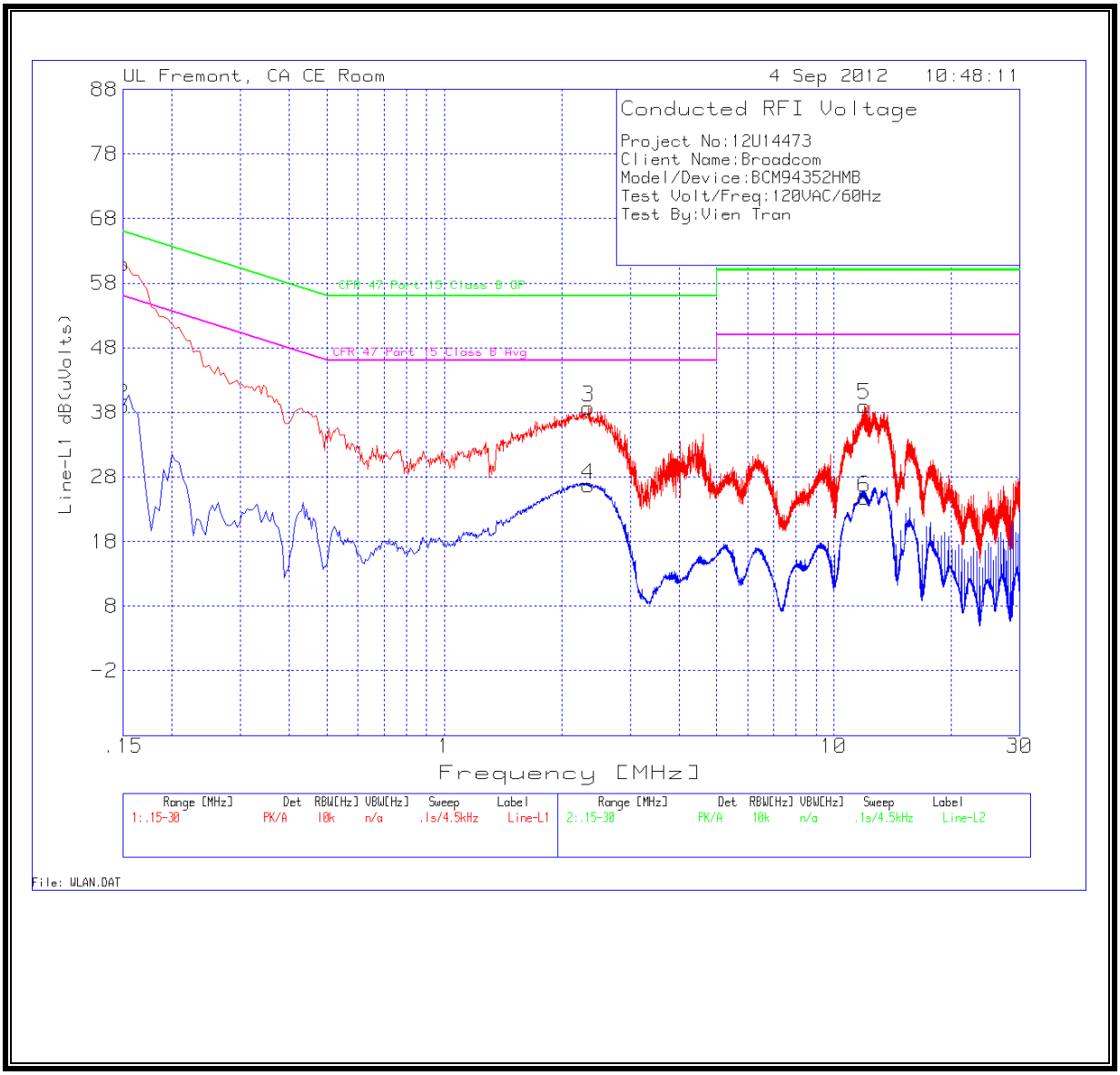
6 WORST EMISSIONS

Project No:12U14473
Client Name:Broadcom
Model/Device:BCM94352HMB
Test Volt/Freq:120VAC/60Hz
Test By:Vien Tran

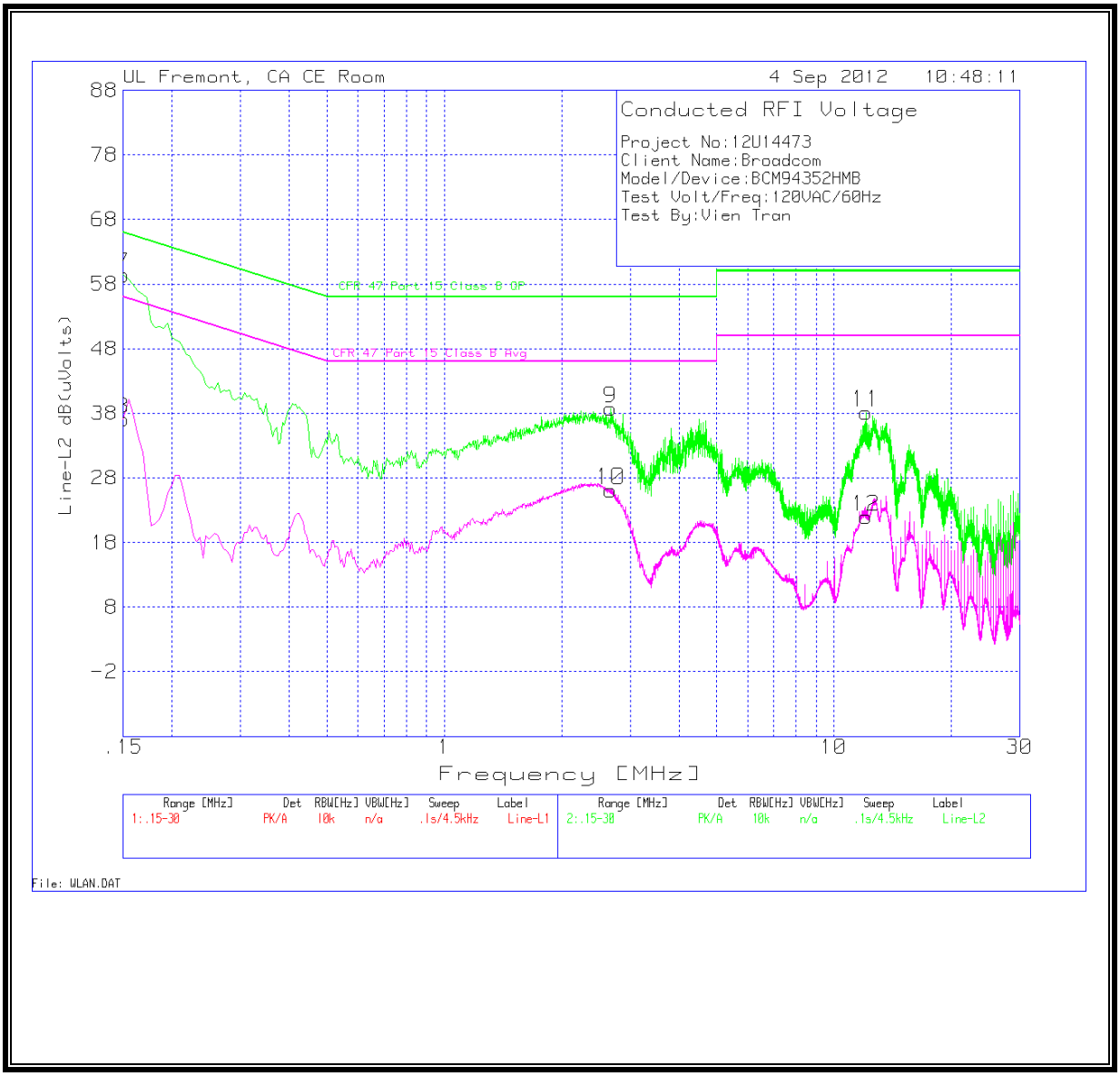
Frequency MHz	Reading dB(µV)	Detector	T24 LISN dB	Cables dB	Corrected dB(µV)	Class B QP Limit dB(µV)	QP Margin dB	Class B Av Limit dB(µV)	Av Margin dB
Line-L1 .15 - 30MHz									
0.15	60.88	PK	0.1	0	60.98	66	-5.02	-	-
0.15	38.86	Av	0.1	0	38.96	-	-	56	-17.04
2.3415	38.6	PK	0.1	0.1	38.8	56	-17.2	-	-
2.3415	26.55	Av	0.1	0.1	26.75	-	-	46	-19.25
12.003	38.67	PK	0.2	0.2	39.07	60	-20.93	-	-
12.003	24.42	Av	0.2	0.2	24.82	-	-	50	-25.18
Line-L2 .15 - 30MHz									
0.15	59.32	PK	0.1	0	59.42	66	-6.58	-	-
0.15	37.04	Av	0.1	0	37.14	-	-	56	-18.86
2.679	38.52	PK	0.1	0.1	38.72	56	-17.28	-	-
2.679	25.94	Av	0.1	0.1	26.14	-	-	46	-19.86
12.1155	37.77	PK	0.2	0.2	38.17	60	-21.83	-	-
12.1155	21.56	Av	0.2	0.2	21.96	-	-	50	-28.04

PK - Peak detector
QP - Quasi-Peak detector
Av - Average detector
Text File: WLAN.TXT
File: WLAN.DAT

LINE 1 RESULTS



LINE 2 RESULTS



11. DYNAMIC FREQUENCY SELECTION

11.1. OVERVIEW

11.1.1. LIMITS

INDUSTRY CANADA

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

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

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

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

FCC

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

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

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

Table 2: Applicability of DFS requirements during normal operation

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

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

Maximum Transmit Power	Value (see note)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.		

Table 4: DFS Response requirement values

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

Table 5 – Short Pulse Radar Test Waveforms

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

Table 6 – Long Pulse Radar Test Signal

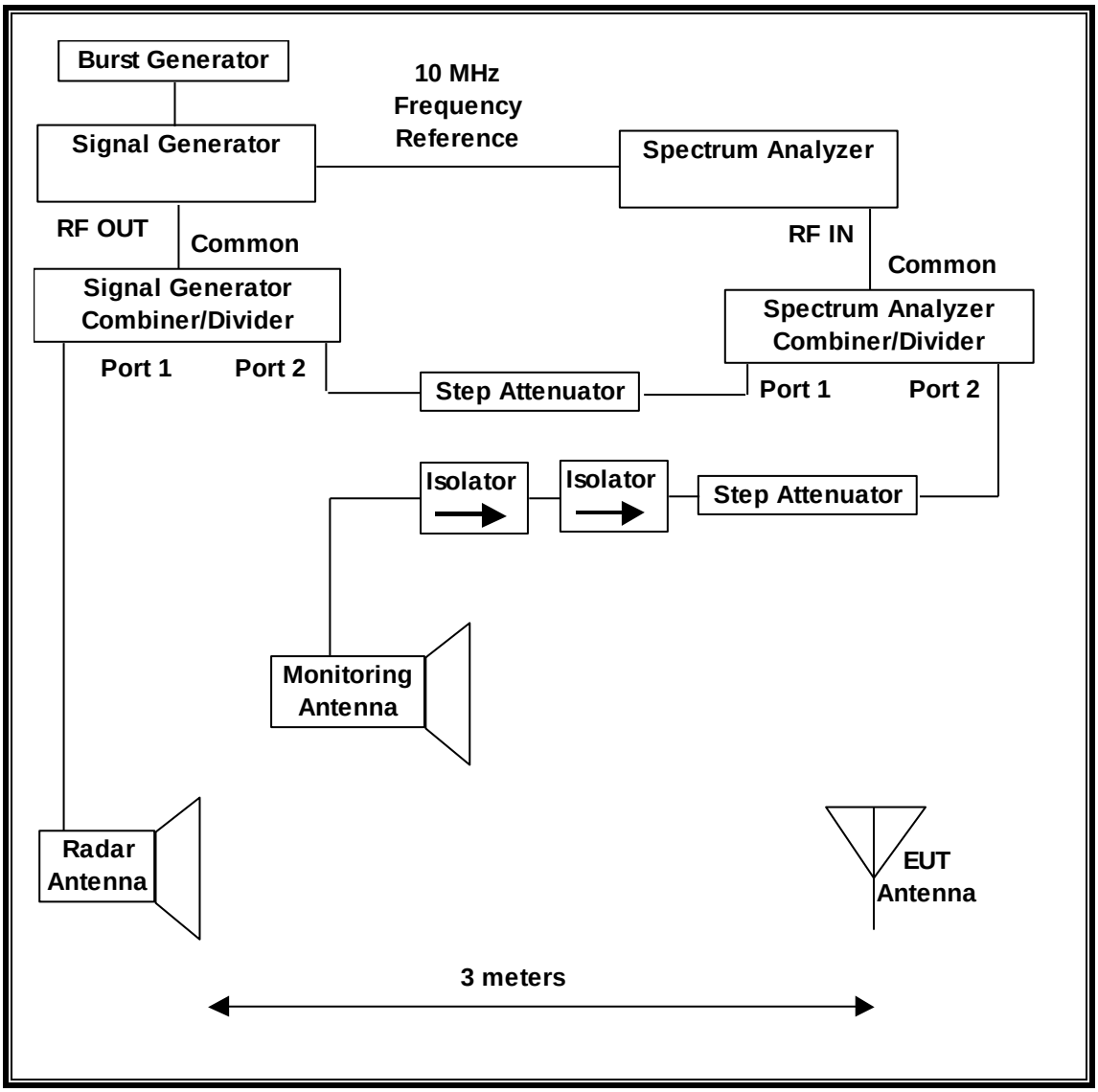
Radar Waveform	Bursts	Pulses per Burst	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Minimum Percentage of Successful Detection	Minimum Trials
5	8-20	1-3	50-100	5-20	1000-2000	80%	30

Table 7 – Frequency Hopping Radar Test Signal

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

11.1.2. TEST AND MEASUREMENT SYSTEM

RADIATED METHOD SYSTEM BLOCK DIAGRAM



SYSTEM OVERVIEW

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

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

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

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

SYSTEM CALIBRATION

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

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

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

ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL

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

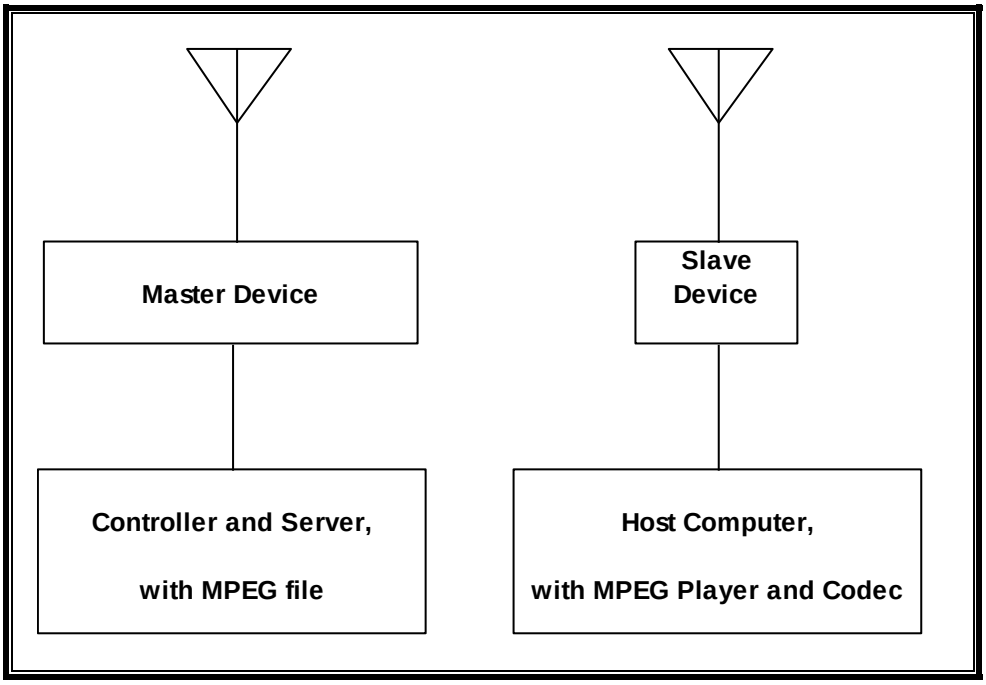
TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**Cal Due**
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	08/18/13
Vector Signal Generator, 20GHz	Agilent / HP	E8267C	C01066	11/17/12

11.1.3. SETUP OF EUT

RADIATED METHOD EUT TEST SETUP



SUPPORT EQUIPMENT

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

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Wireless Access Point	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)	HP	Pavilion dv9000	CNF7120G34	DoC
AC Adapter (Host PC)	HP	PA-1900-08R1	599830ALLUB6N1	DoC

11.1.4. **DESCRIPTION OF EUT**

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

The EUT is a Slave Device without Radar Detection.

The highest power level within these bands is 26.63 dBm EIRP in the 5250-5350 MHz band and 26.53 dBm EIRP in the 5470-5725 MHz band.

The only antenna assembly utilized with the EUT has a gain of 5.6 dBi in the 5250-5350 MHz band and 4.2 dBi in the 5470-5725 MHz band.

Two identical 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 two 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 not required since the maximum EIRP is less than 500 mW (27 dBm).

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

The software installed in the EUT is revision 6.33.77.

The DFS software installed in the access point is Linux revision 5.22.84.0

UNIFORM CHANNEL SPREADING

This requirement is not applicable to Slave radio 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.

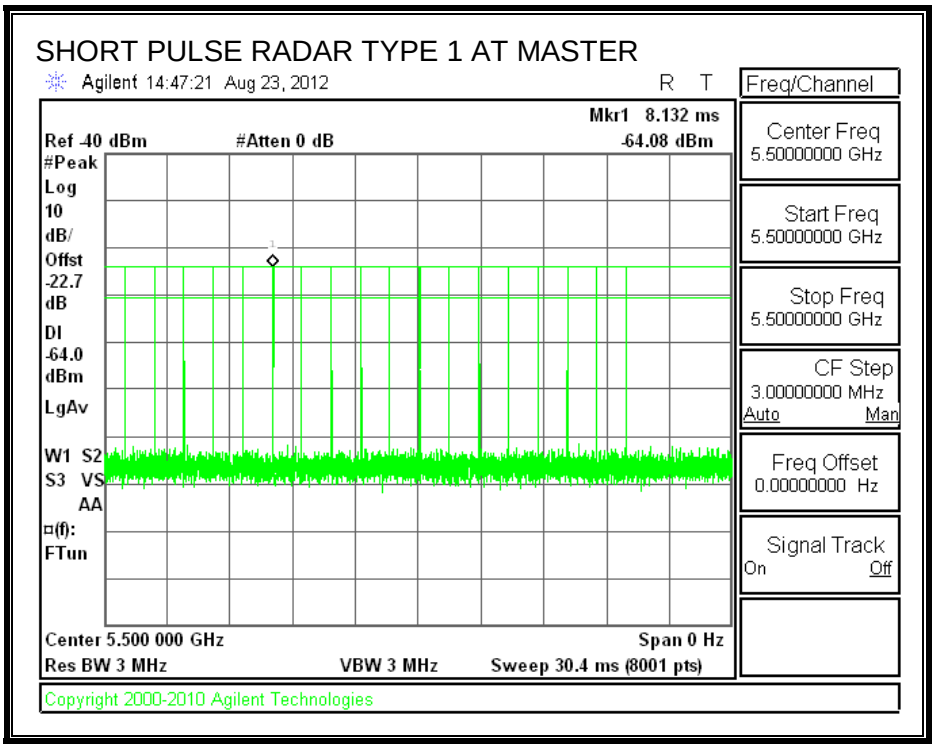
11.2. RESULTS FOR 20 MHz BANDWIDTH

11.2.1. TEST CHANNEL

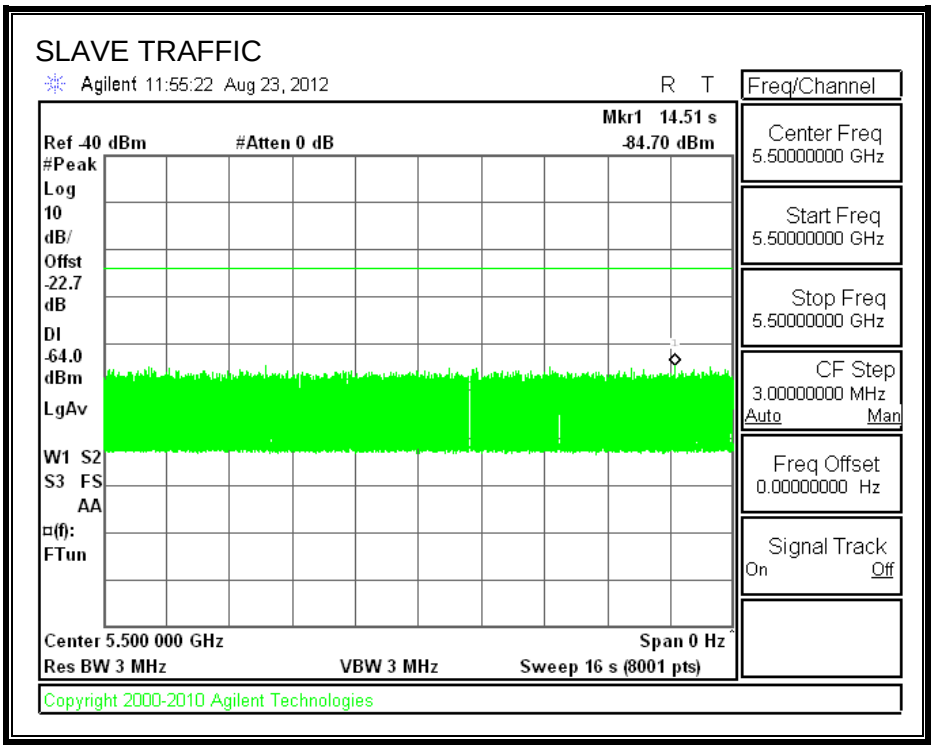
All tests were performed at a channel center frequency of 5500 MHz.

11.2.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



11.2.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

11.2.4. MOVE AND CLOSING TIME

REPORTING NOTES

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

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

The aggregate channel closing transmission time is calculated as follows:

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

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

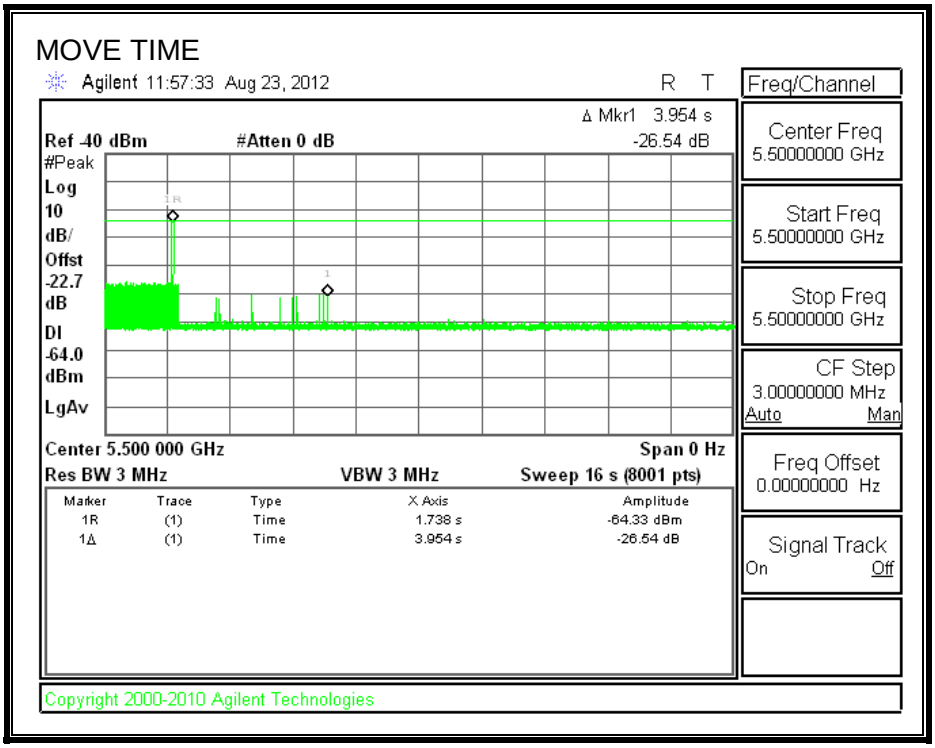
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

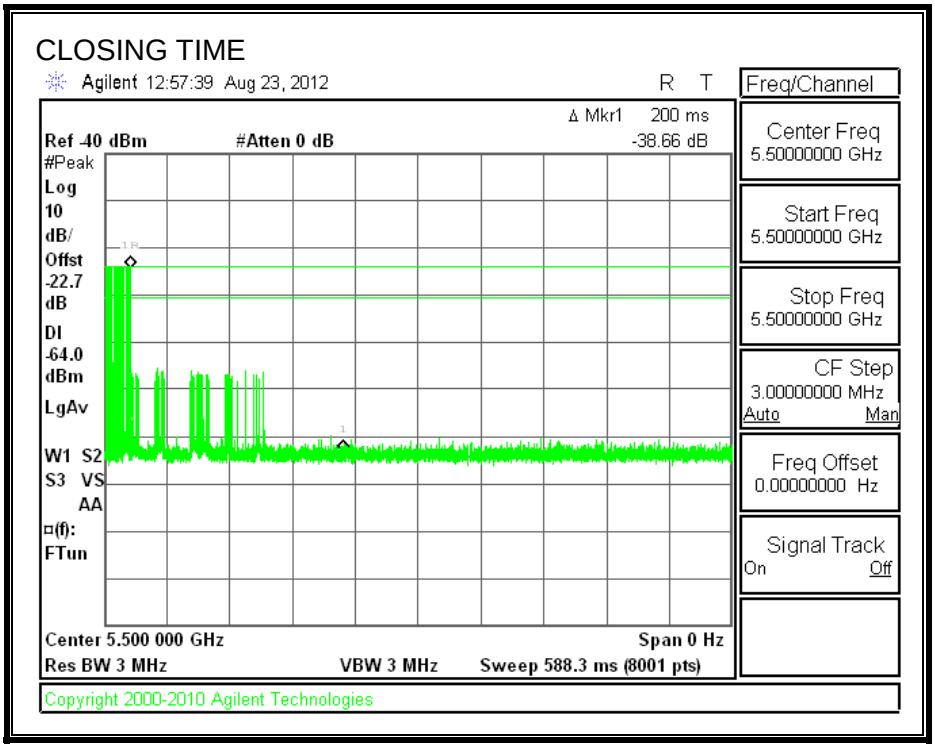
Agency	Channel Move Time (sec)	Limit (sec)
FCC / IC	3.954	10

Agency	Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
FCC	18.0	60
IC	66.0	260

MOVE TIME



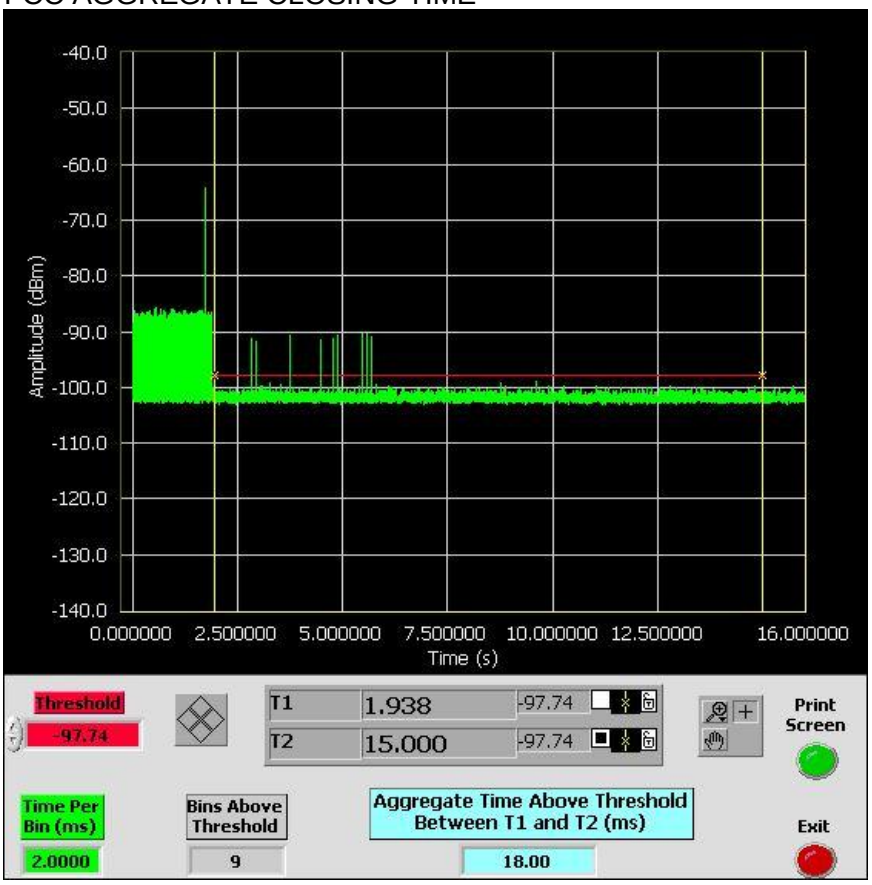
CHANNEL CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

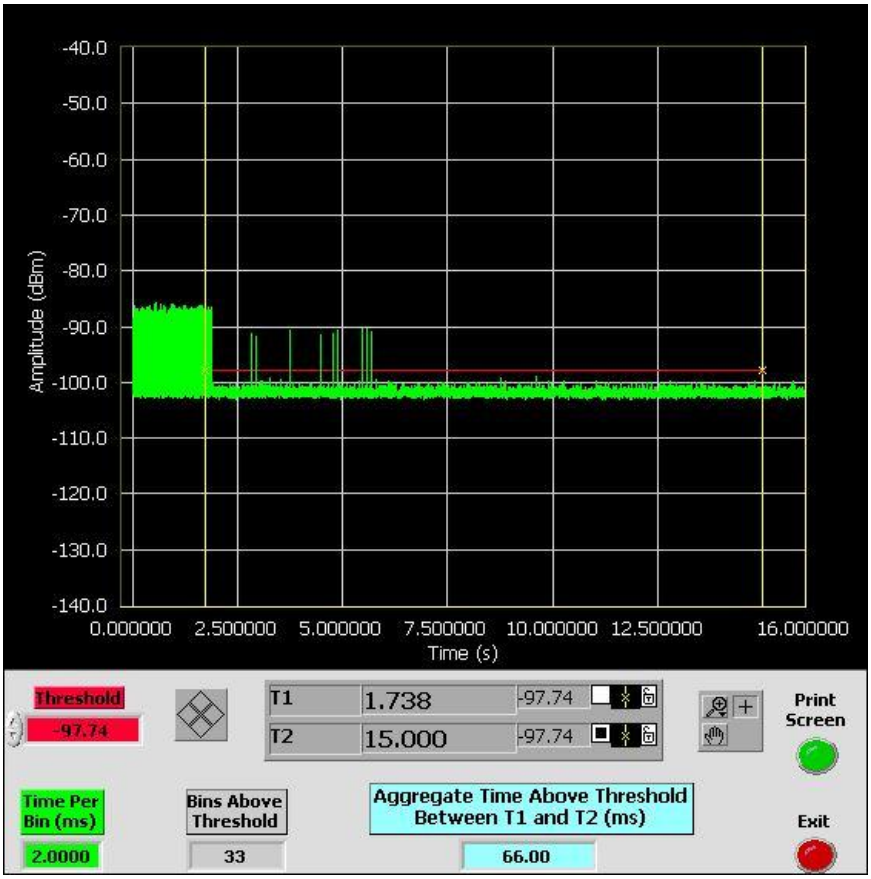
Only intermittent transmissions are observed during the FCC aggregate monitoring period.

FCC AGGREGATE CLOSING TIME



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

IC AGGREGATE CLOSING TIME



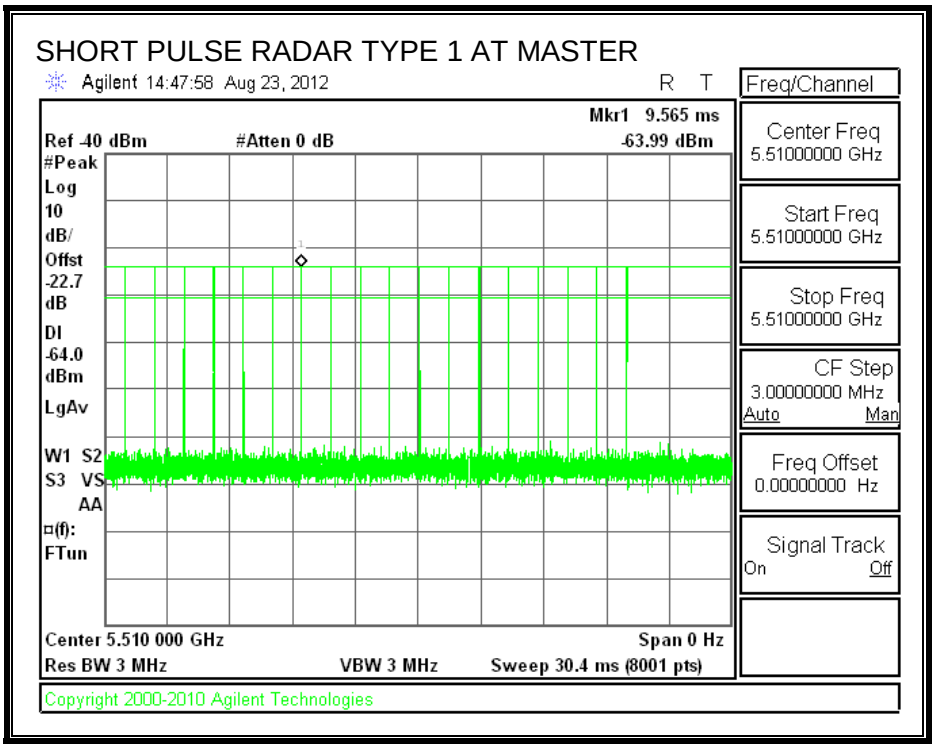
11.3. RESULTS FOR 40 MHz BANDWIDTH

11.3.1. TEST CHANNEL

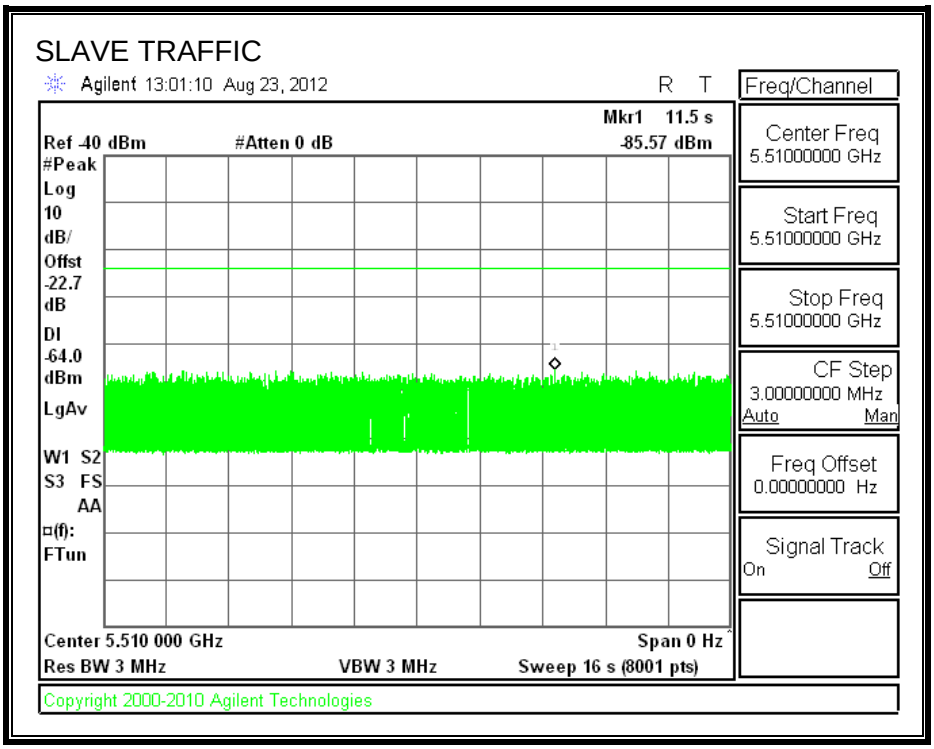
All tests were performed at a channel center frequency of 5510 MHz.

11.3.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



11.3.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

11.3.4. MOVE AND CLOSING TIME

REPORTING NOTES

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

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

The aggregate channel closing transmission time is calculated as follows:

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

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

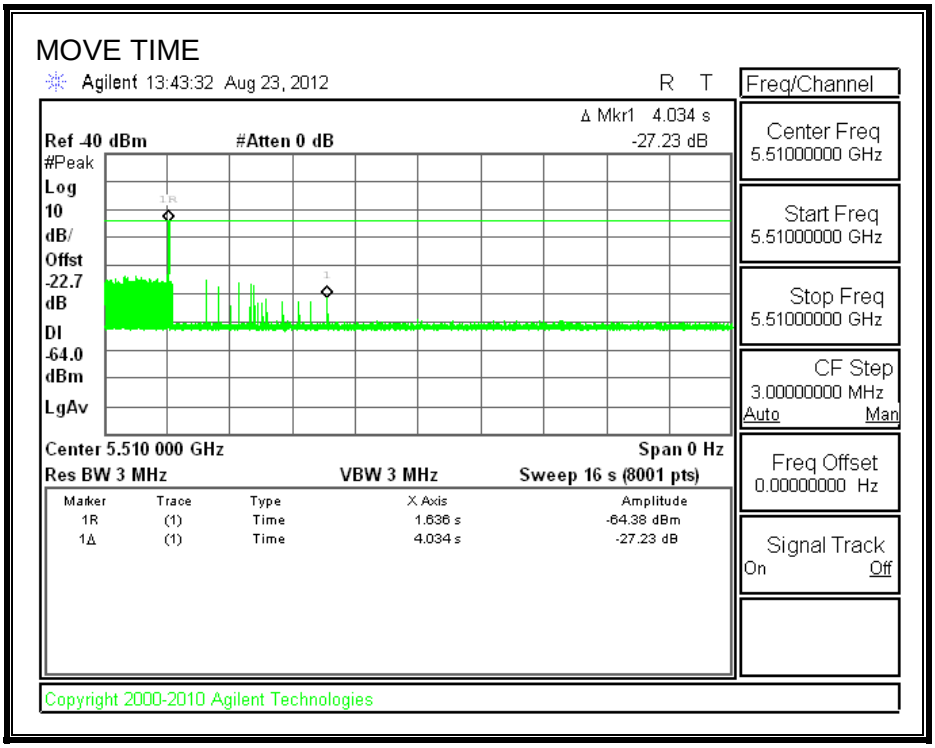
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

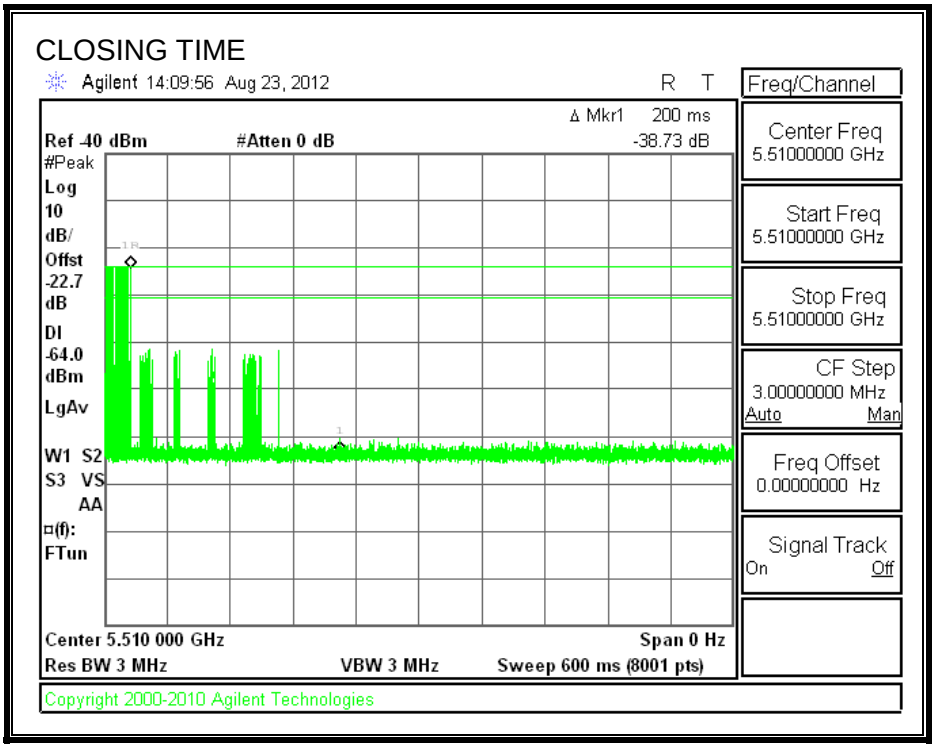
Agency	Channel Move Time (sec)	Limit (sec)
FCC / IC	4.034	10

Agency	Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
FCC	26.0	60
IC	54.0	260

MOVE TIME

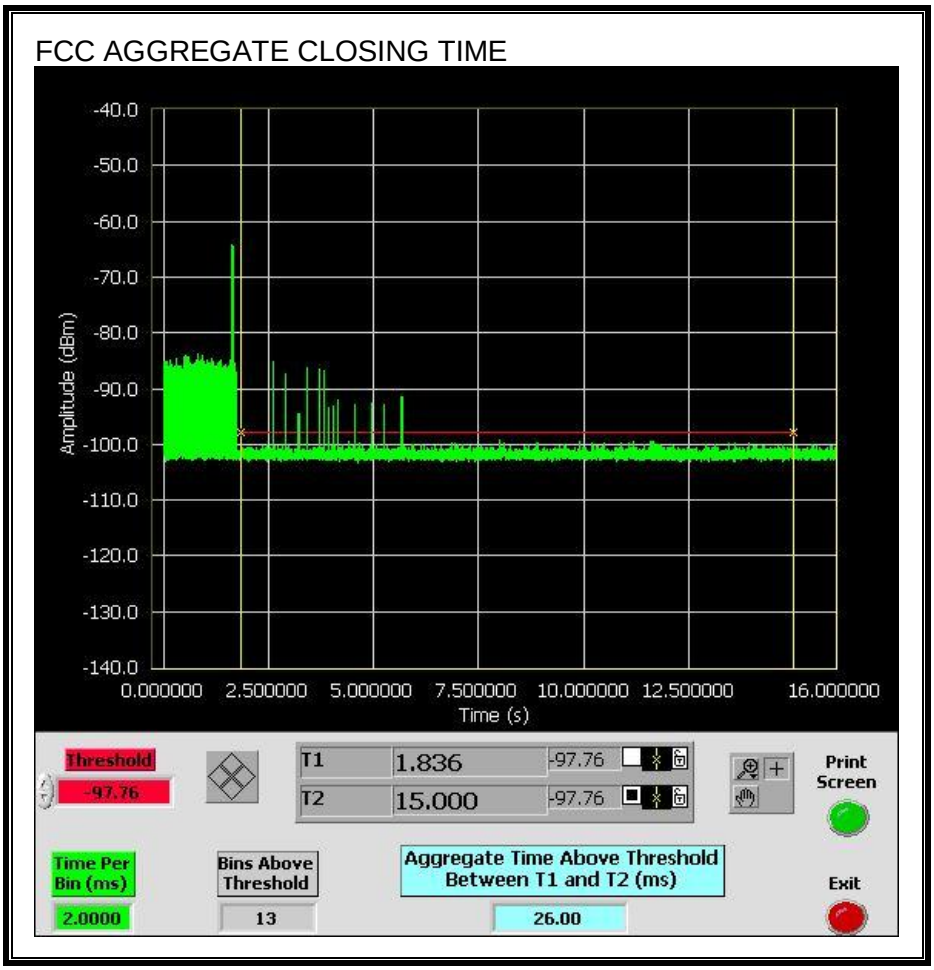


CHANNEL CLOSING TIME



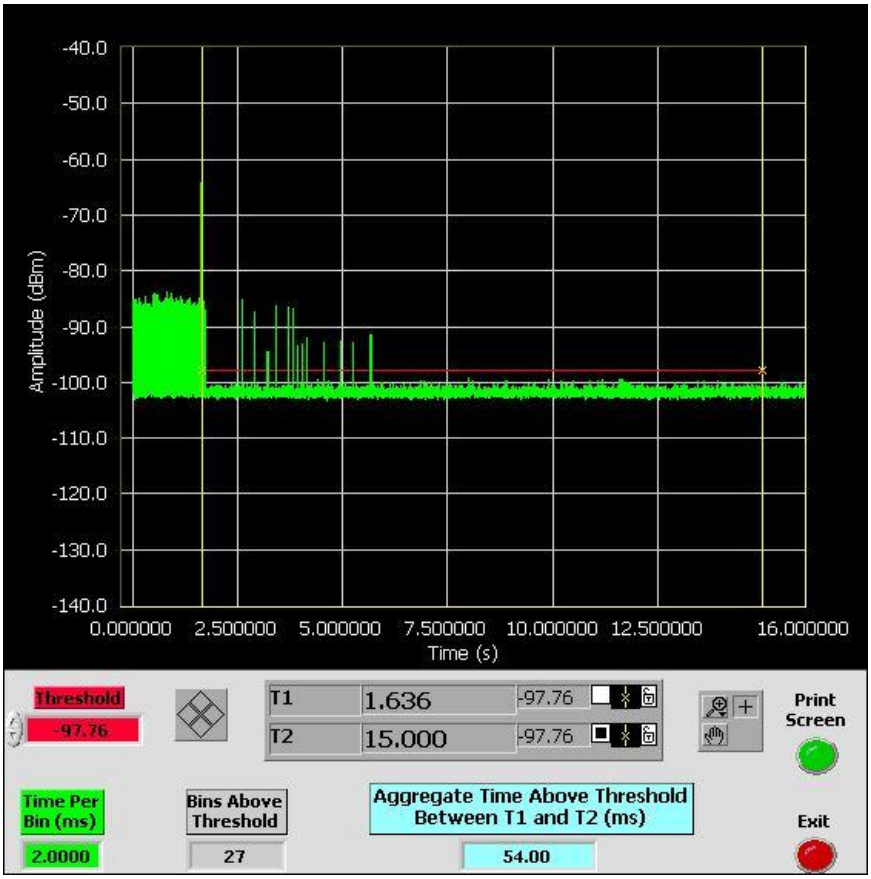
AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

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



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

IC AGGREGATE CLOSING TIME



11.3.5. **NON-OCCUPANCY PERIOD**

RESULTS

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