



**C 47 CFR PART 15 SUBPART E
INDUSTRY CANADA RSS-210 ISSUE 8**

CERTIFICATION TEST REPORT

FOR

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

MODEL NUMBER: BCM94352Z

**FCC ID: QDS-BRCM1076
IC: 4324A-BRCM1076**

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Revision History

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--	07/13/13	Initial Issue	K. Nguyen
A	07/19/13	Corrected/Fixed Data Per Reviewer's comments/feedback during TCB Application Review	K. Nguyen
B	07/22/13	Revised Output Power Table, Section 5.2	K. Nguyen

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1. ATTESTATION OF TEST RESULTS

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

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

MODEL: BCM94352Z

SERIAL NUMBER: P203SN0032 & P203SN0033 ((RF) and 0036 (DFS)

DATE TESTED: April 23, 2013 – June 23, 2013 (RF) and
JULY 01 to 08, 2013 (DFS)

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 Verification Services Inc. 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 Verification Services Inc. 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 Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. 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.

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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 C63.10-2009, 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 Verification Services Inc. 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:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamplifier Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

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

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

5.2 GHz BAND

Frequency Range (MHz)	Mode	Power, Chain 0 (dBm)	Power, Chain 1 (dBm)	Output Power (dBm)	Output Power (mW)
5.2 GHz band, 1TX					
5180 - 5240	802.11a	16.97	N/A	16.97	49.77
5190 - 5230	802.11n HT40	16.72	N/A	16.72	46.99
5210	802.11n AC80	16.23	N/A	16.23	41.98
5.2 GHz band, 2TX					
5180 - 5240	802.11n HT20 CDD	12.98	13.87	16.46	44.239
5180 - 5240	802.11n HT20 STBC	13.71	14.02	16.88	48.731
5190 - 5230	802.11n HT40 CDD	13.55	14.03	16.81	47.939
5210	802.11n AC80 CDD	13.53	14.10	16.83	48.246

5.3 GHz BAND

Frequency Range (MHz)	Mode	Power, Chain 0 (dBm)	Power, Chain 1 (dBm)	Output Power (dBm)	Output Power (mW)
5.3 GHz band, 1TX					
5260 - 5320	802.11a	20.12	N/A	20.12	102.80
5270 - 5310	802.11n HT40	20.04	N/A	20.04	100.93
5290	802.11n AC80	15.01	N/A	15.01	31.70
5.3 GHz band, 2TX					
5260 - 5320	802.11n HT20 CDD	20.04	20.33	23.20	208.82
5260 - 5320	802.11n HT20 STBC	20.02	20.33	23.19	208.36
5270 - 5310	802.11n HT40 CDD	20.22	20.54	23.39	218.44
5290	802.11n AC80 CDD	12.54	13.46	16.03	40.13

5.6 GHz BAND

Frequency Range (MHz)	Mode	Power, Chain 0 (dBm)	Power, Chain 1 (dBm)	Output Power (dBm)	Output Power (mW)
5.6 GHz band, 1TX					
5500-5700	802.11a	20.32	N/A	20.32	107.65
5720	802.11a	20.15	N/A	20.15	103.51
5510-5670	802.11n HT40	20.11	N/A	20.11	102.57
5710	802.11n HT40	20.12	N/A	20.12	102.80
5530	802.11n AC80	15.04	N/A	15.04	31.92
5690	802.11n AC80	20.45	N/A	20.45	110.92
5.6 GHz band, 2TX					
5500-5700	802.11n HT20 CDD	18.15	18.33	21.25	133.39
5720	802.11n HT20 CDD	19.03	19.05	22.05	160.34
5500-5700	802.11n HT20 STBC	19.55	19.89	22.73	187.66
5720	802.11n HT20 STBC	20.21	20.03	23.13	205.65
5510-5670	802.11n HT40 CDD	20.51	20.18	23.36	216.69
5710	802.11n HT40 CDD	20.56	19.89	23.25	211.26
5530	802.11n AC80 CDD	13.43	13.69	16.57	45.42
5690	802.11n AC80 CDD	20.34	20.19	23.28	212.62

List of test reduction and modes covering other modes:

5.2 GHz BAND

5150 - 5250 MHz Authorized Frequency Band (Antenna Port Testing)		
Frequency Range (MHz)	Mode	Covered by
5.2 GHz band, 1TX		
5180 - 5240	802.11n HT20	802.11a Legacy
5.2 GHz band, 2TX		
5180 - 5240	802.11a CDD	802.11n HT20 2TX CDD

5150 - 5250 MHz Authorized Frequency Band (Radiated Testing)		
Frequency Range (MHz)	Mode	Covered by
5.2 GHz band, 1TX		
5180 - 5240	802.11n HT20	802.11a Legacy
5190 - 5230	802.11n HT40 (Harmonics)	802.11n HT40 2TX CDD
5.2 GHz band, 2TX		
5180 - 5240	802.11a CDD	802.11n HT20 2TX CDD
5180 - 5240	802.11n HT20 STBC MCS0	802.11n HT20 2TX CDD

5.3 GHz BAND

5250 - 5350 MHz Authorized Frequency Band (Antenna Port Testing)		
Frequency Range (MHz)	Mode	Covered By
5.3 GHz band, 1TX		
5260 - 5320	802.11n HT20	802.11a Legacy
5.3 GHz band, 2TX		
5260 - 5320	802.11a CDD	802.11n HT20 2TX CDD

5250 - 5350 MHz Authorized Frequency Band (Radiated Testing)		
Frequency Range (MHz)	Mode	Covered By
5.3 GHz band, 1TX		
5260 - 5320	802.11n HT20	802.11a Legacy
5270 - 5310	802.11n HT40 (Harmonics)	802.11n HT40 2TX CDD
5.3 GHz band, 2TX		
5260 - 5320	802.11a CDD	802.11n HT20 2TX CDD
5260 - 5320	802.11n HT20 STBC MCS0	802.11n HT20 2TX CDD

5.6 GHz BAND

5470 - 5725 MHz Authorized Frequency Band (Antenna Port Testing)		
Frequency Range (MHz)	Mode	Covered By
5.6 GHz band, 1TX		
5500-5700	802.11n HT20	802.11a Legacy
5720	802.11n HT20	802.11a Legacy
5.6 GHz band, 2TX		
5500-5700	802.11a CDD	802.11n HT20 2TX CDD

5470 - 5725 MHz Authorized Frequency Band (Radiated Testing)		
Frequency Range (MHz)	Mode	Covered By
5.6 GHz band, 1TX		
5500-5700	802.11n HT20	802.11a Legacy
5720	802.11n HT20	802.11a Legacy
5510-5670	802.11n HT40	802.11n HT40 2TX CDD
5710	802.11n HT40	802.11n HT40 2TX CDD
5.6 GHz band, 2TX		
5500-5700	802.11a CDD	802.11n HT20 2TX CDD
5500-5700	802.11n HT20 STBC MCS0	802.11n HT20 2TX CDD
5720	802.11n HT20 STBC MCS0	802.11n HT20 2TX CDD

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

No.	Antenna Manufacturer	Antenna Type	Model	Peak gain (2400 - 2462 MHz) @2462MHz	Peak gain (5150-5250MHz) @5180MHz	Peak gain (5250-5350MHz) @5320MHz	Peak gain (5470-5725MHz) @5580	Peak gain (5725-5850MHz) @5745MHz
1	Ethertronics	802.11bgn WLAN Antenna	1000802	3.8	N/a	N/a	N/a	N/a
1	Ethertronics	802.11bgn WLAN Antenna	1000802	3.8	N/a	N/a	N/a	N/a
2	Ethertronics	802.11 5 GHz WLAN antenna	1000615a	N/a	4.2	4.5	6.6	5.4
2	Ethertronics	802.11 5 GHz WLAN antenna	1000615a	N/a	4.2	4.5	6.6	5.4

5.4. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was Broadcom, rev. 6.30.118.62.
The test utility software used during testing was BCM Internal, rev. 6.30.RC118.62.

5.1. 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.

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

For 5.3 and 5.6 GHz Bands:

802.11a: 6 Mb/s.

802.11n 20MHz: MCS0.

802.11n 40MHz: MCS0.

802.11n 80MHz: 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 vertical polarization, so some final measurements were performed with vertical polarization only.

For the modes where second low and second high were tested for output power, all other test items at low and high channels were performed with the higher power level between low and second low channels, and between second high and high channels as worst-case scenario.

For MIMO, the 2TX emissions testing are considered as a worst case scenario and were tested at power levels, per transmit chain, greater than or equal to the maximum power in any 1TX mode.

For SISO conducted measurements, the modes tested in this report will be considered as a worst case mode.

For 2TX conducted measurements, the modes tested in this report will be considered as the worst case mode.

For Peak Excursion testing, one channel in each modulation in the 5.6 GHz band was selected to demonstrate compliance.

5.2. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	HP	EliteBook 2730p	2CE848852D	DoC
Laptop	Lenovo	4446	RA-CAD03 98/08	DoC
AC Adapter	Lenovo	ADP-65KH B	11S36001646ZZ10011FKY6	DoC
AC Adapter	HP	PPP09L	592C40CLLUTBUY	DoC
Adapter Board	Broadcom	BCMMONGFF2EC_1	SN0039	N/A

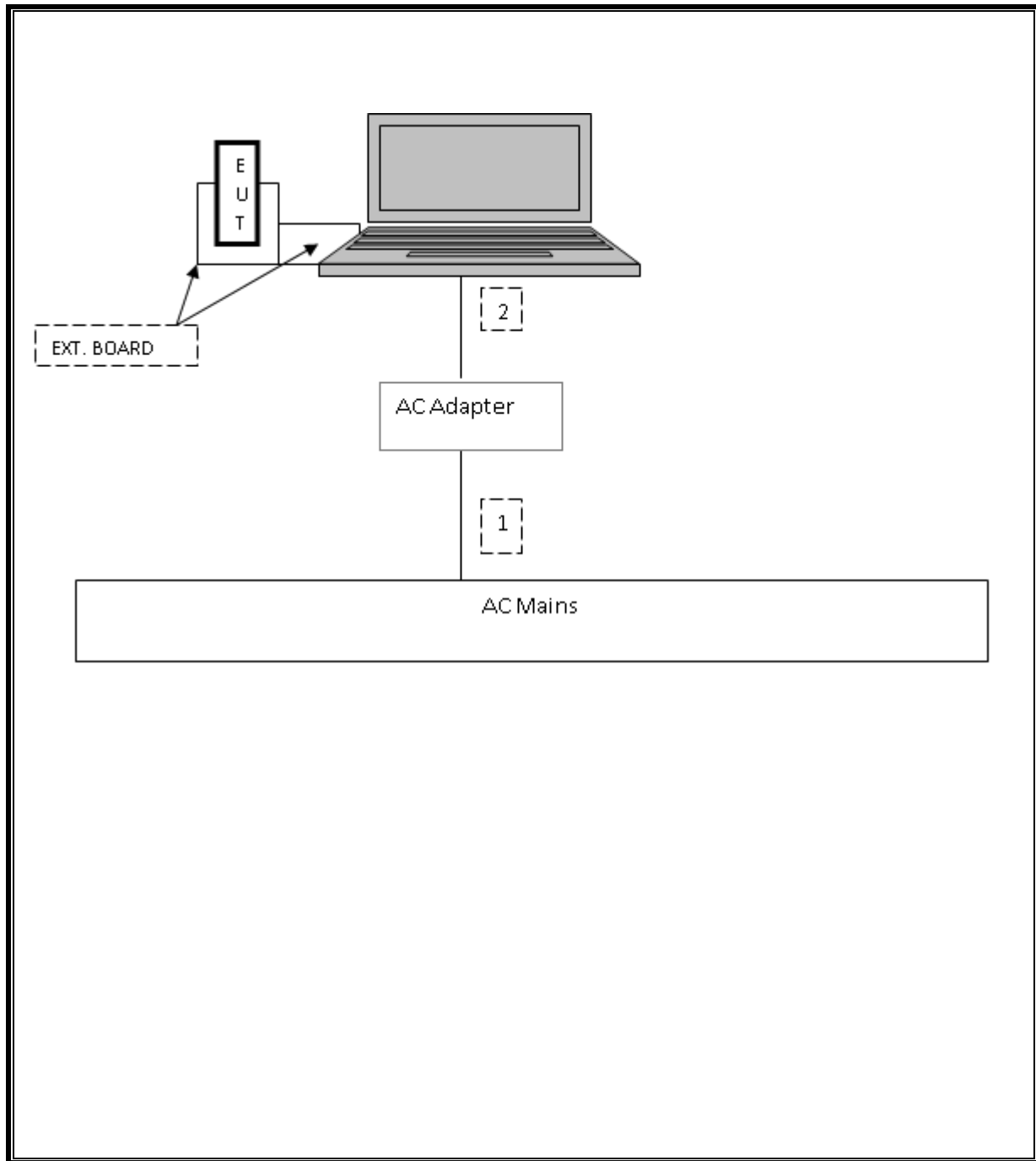
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	2	US 115V	Un-Shielded	1.0m	NA
2	DC	2	DC	Un-Shielded	1.8m	Ferrite at laptop's end

TEST SETUP

The EUT is installed on a jig board to 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	12/13/11	12/13/13
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00986	04/01/13	04/01/14
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	08/08/12	08/08/13
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/11	12/13/13
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/11	12/13/13
Antenna, Horn, 18 GHz	ETS	3117	C01022	02/21/13	02/21/14
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00946	11/12/12	11/12/13
Antenna, Horn, 40 GHz *	ARA	MWH-2640/B	C00981	06/14/12	06/14/13
Antenna, Horn, 40GHz	ARA	MWH-2640/B	F00194	05/14/13	05/14/14
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	C00885	08/14/12	08/14/13
Preamplifier, 1300 MHz	Agilent / HP	8447D	C01016	01/16/13	01/16/14
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	10/22/12	10/22/13
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	C00990	08/02/11	08/02/13
LISN, 30 MHz	FCC	50/250-25-2	N02396	08/08/12	08/08/13
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

* Equipment not used after 6/14/2013

7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.1.1. ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)
5.0 GHz						
802.11a	2.06	2.09	0.987	98.7%	0.00	0.010
802.11n HT20 CDD	2.07	2.09	0.992	99.2%	0.00	0.010
802.11n HT20 STBC	2.07	2.09	0.991	99.1%	0.00	0.010
802.11n HT40 SISO	0.95	0.97	0.983	98.3%	0.00	0.010
802.11n HT40 CDD	0.95	0.96	0.982	98.2%	0.00	0.010
802.11n HT40 STBC	0.95	0.97	0.981	98.1%	0.00	0.010
802.11ac VHT80 SISO	0.46	0.48	0.964	96.4%	0.16	2.082
802.11ac VHT80 CDD	0.46	0.48	0.964	96.4%	0.16	2.082

7.1.2. MEASUREMENT METHOD FOR POWER AND PPSD

For output power measurement, KDB 789033 Method PM as described in section C) f) was used.

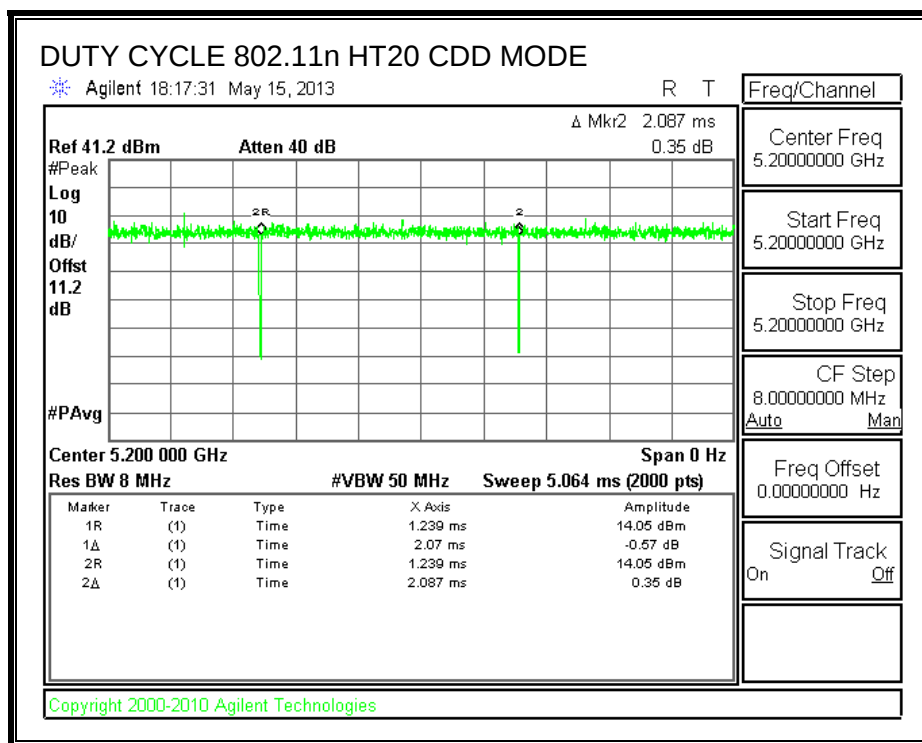
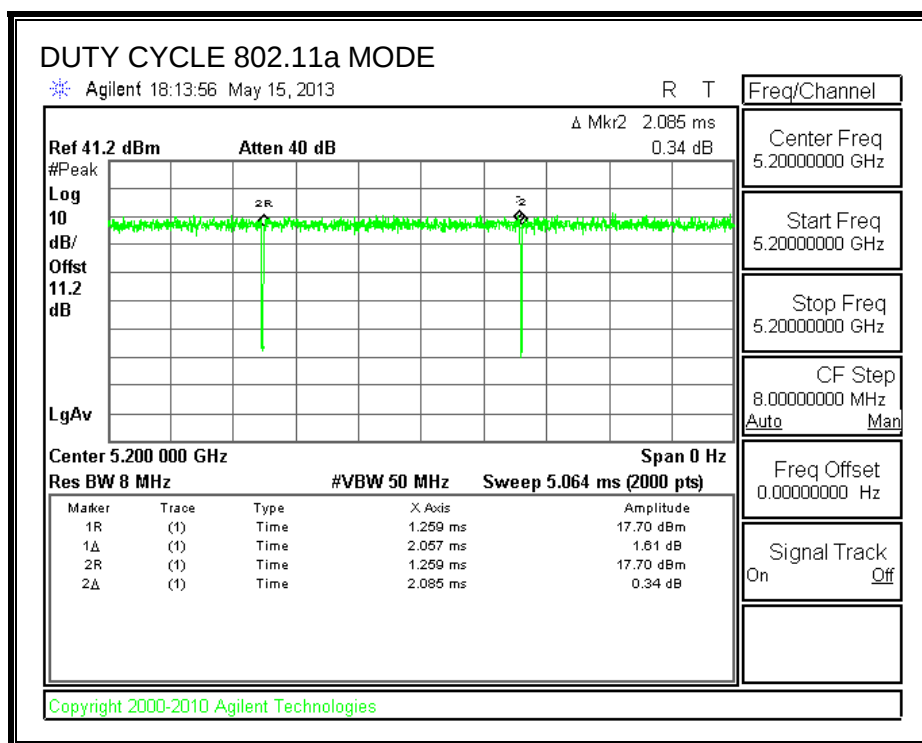
For PSD measurement, KDB 789033 Method SA-1 was used when Duty Cycle is greater than or equal to 98%.

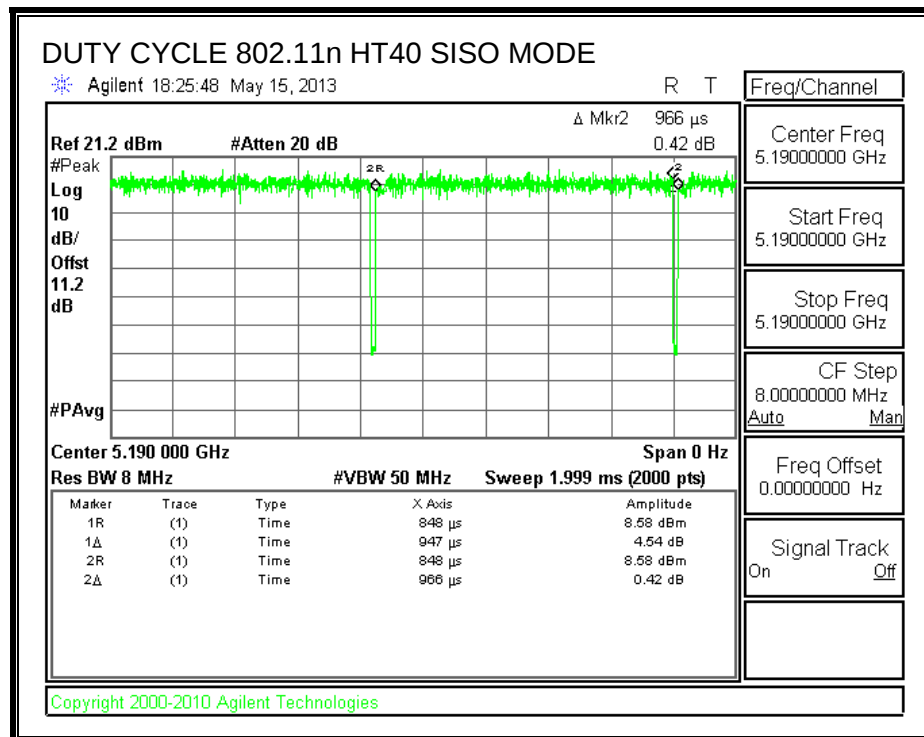
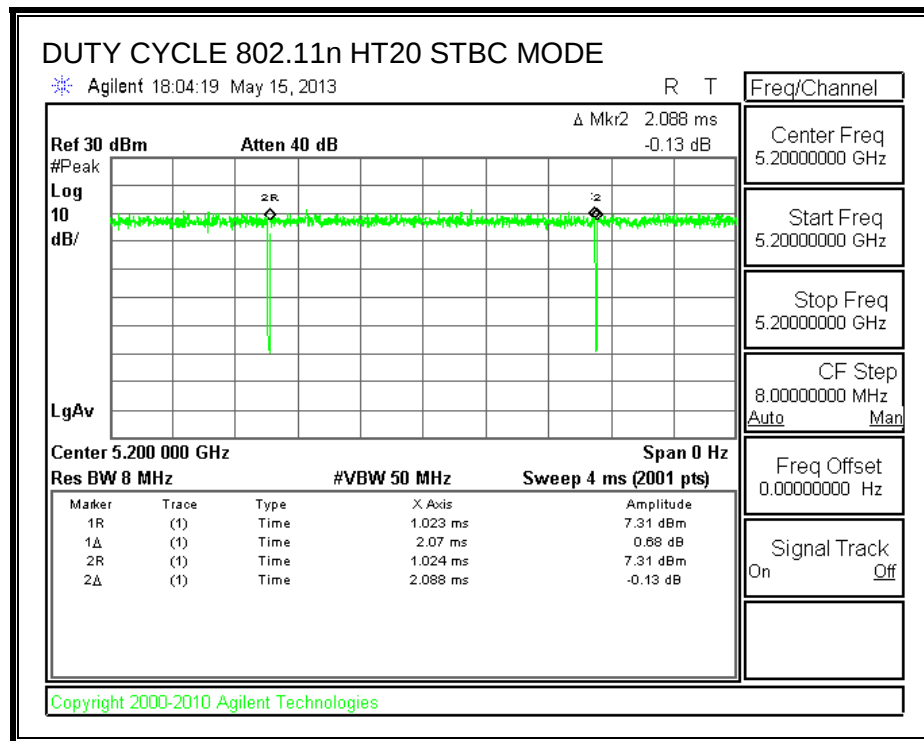
For PSD measurement, KDB 789033 Method SA-2 was used when Duty Cycle is less than 98%.

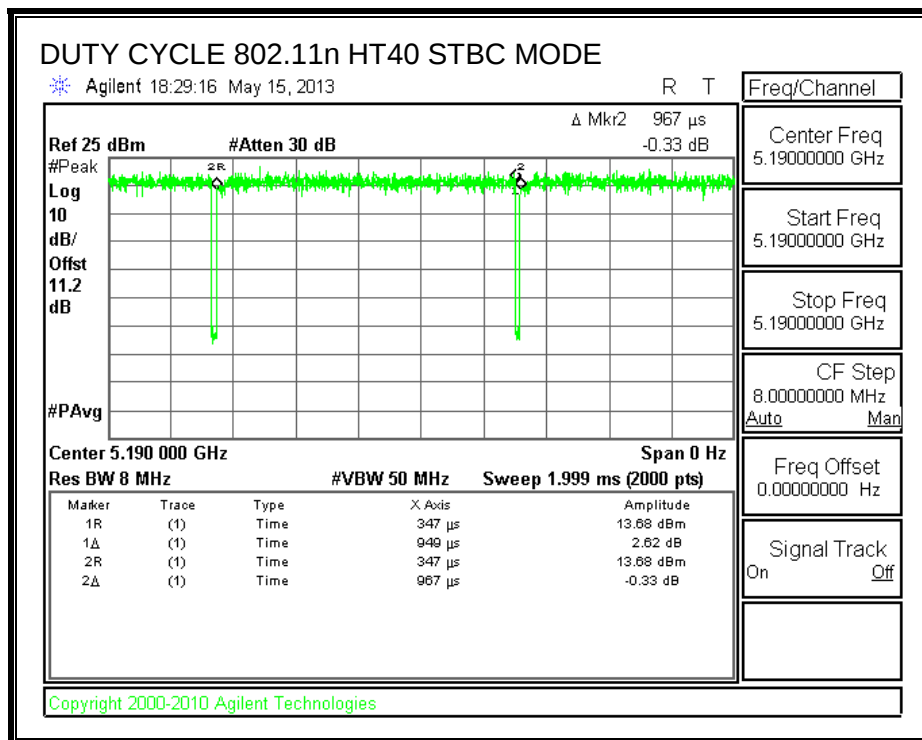
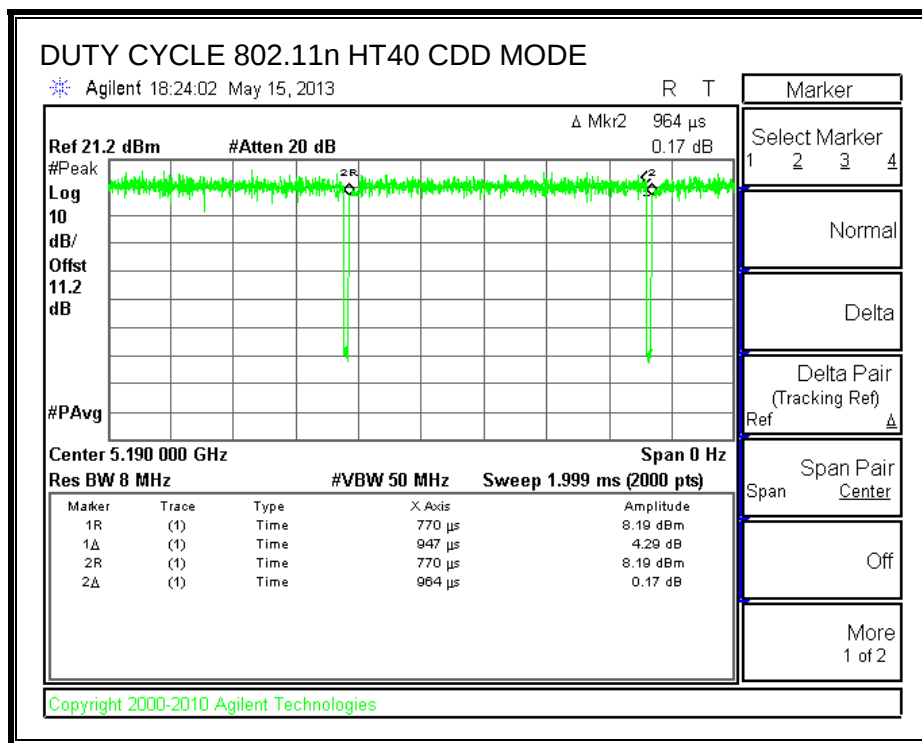
MEASUREMENT METHOD FOR AVERAGE SPURIOUS EMISSIONS ABOVE 1 GHz

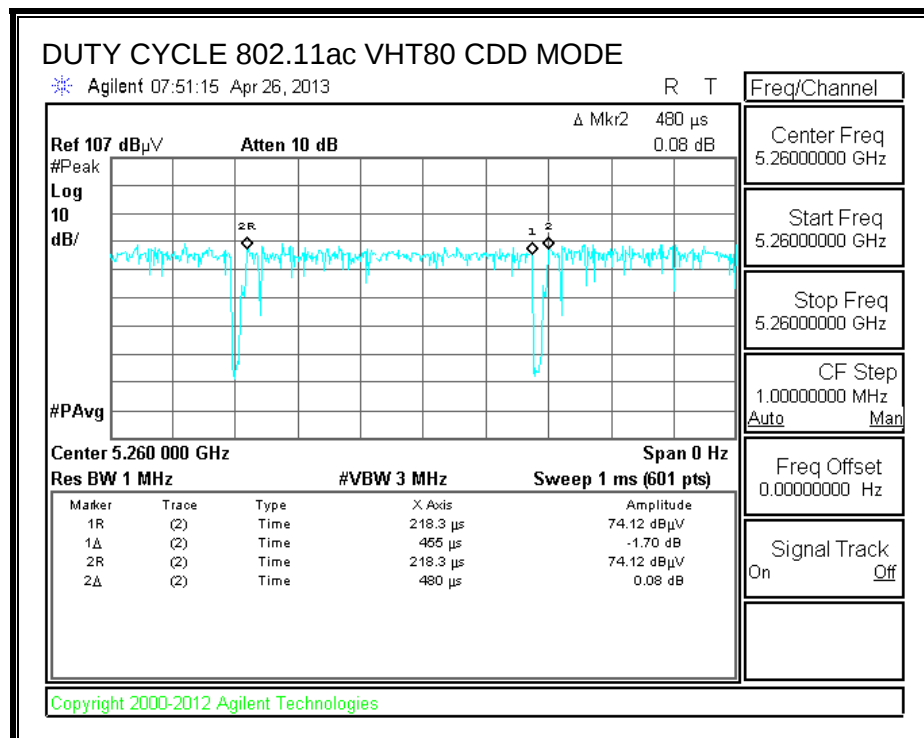
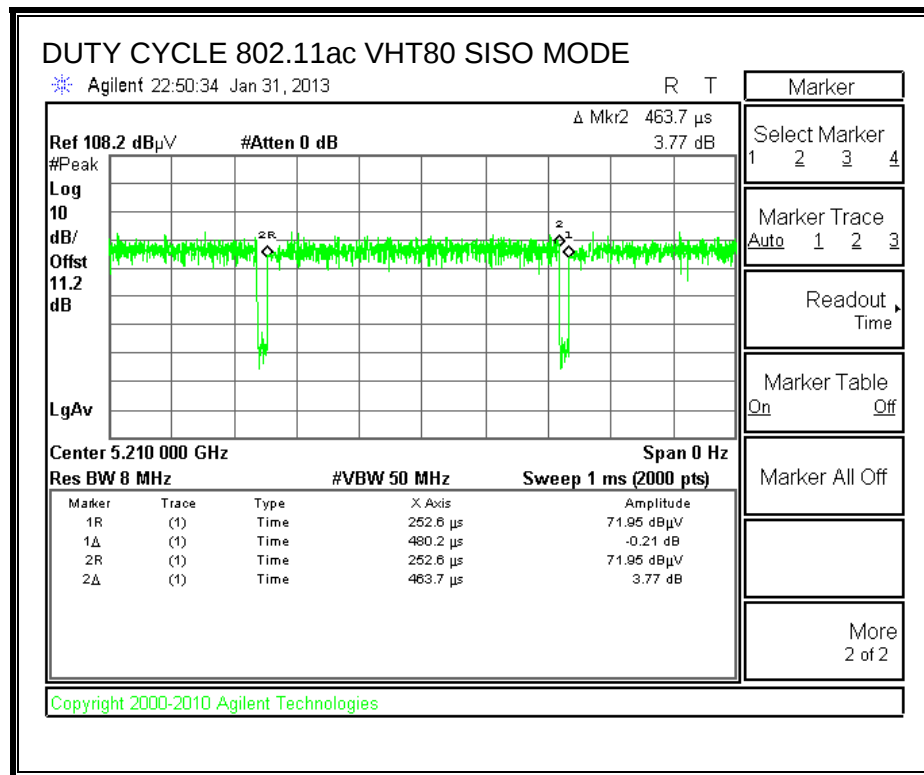
KDB 789033 Method VB with Power RMS Averaging is used.

7.1.3. DUTY CYCLE PLOTS









8. ANTENNA PORT TEST RESULTS

8.1. 802.11a LEGACY MODE IN THE 5.2 GHz BAND

8.1.1. 26 dB BANDWIDTH

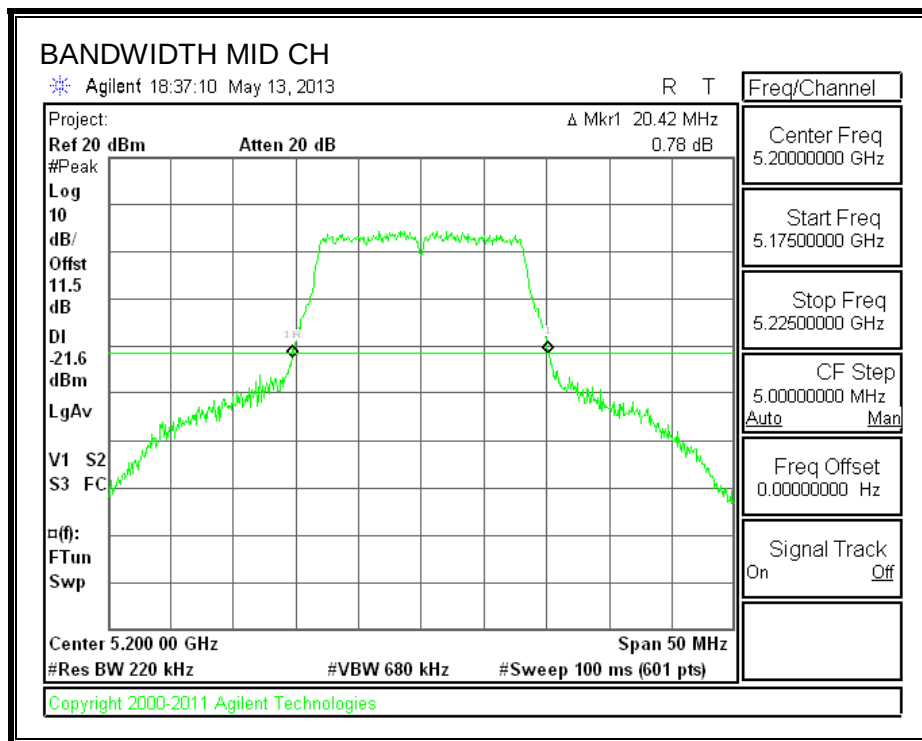
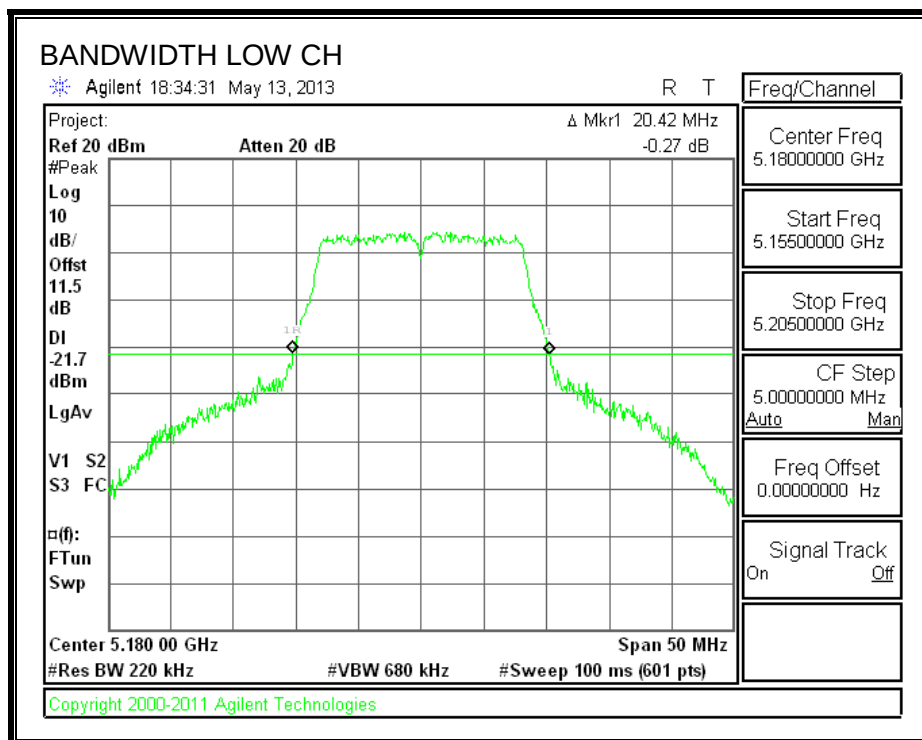
LIMITS

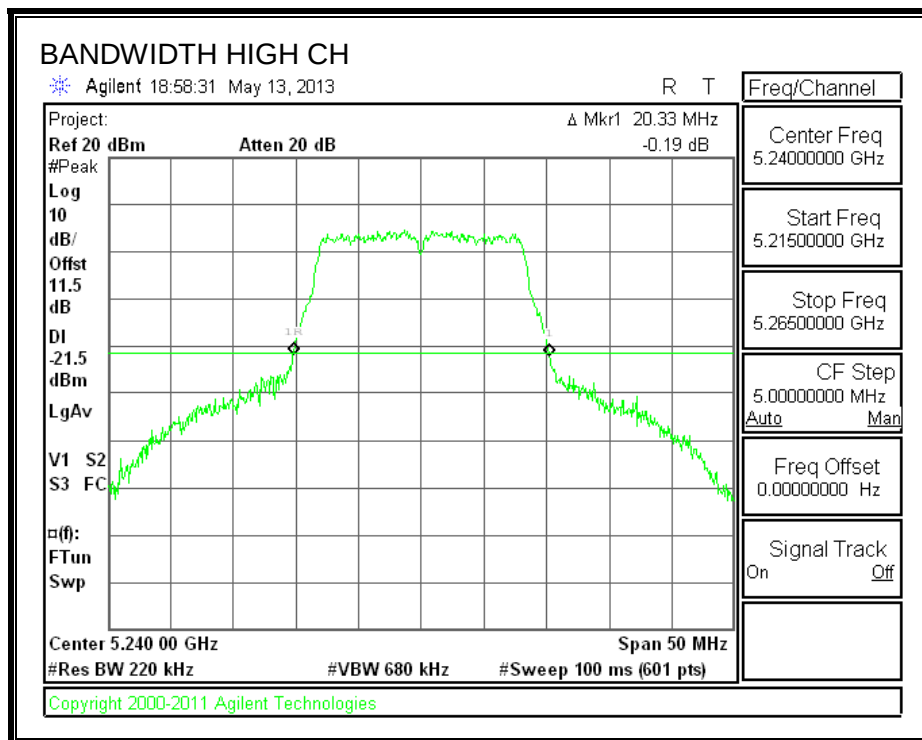
None; for reporting purposes only.

RESULTS

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

26 dB BANDWIDTH





8.1.2. 99% BANDWIDTH

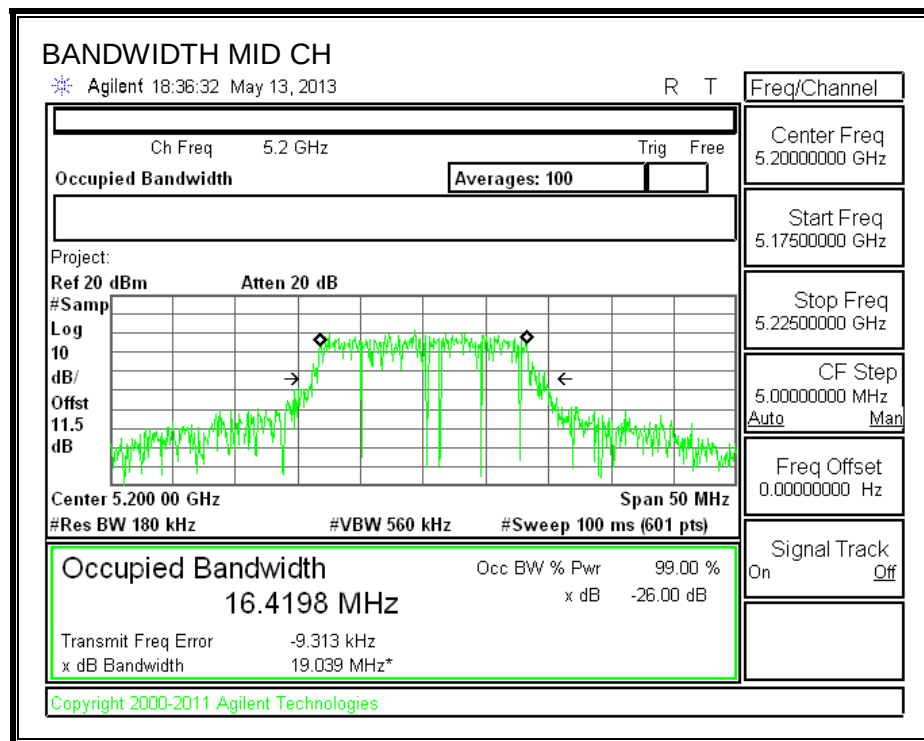
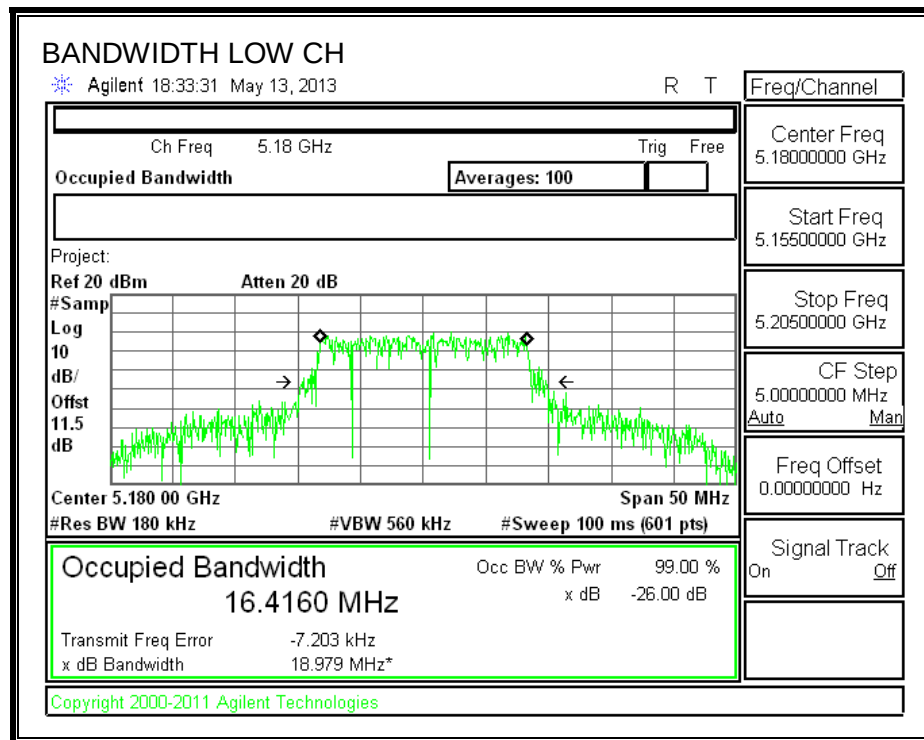
LIMITS

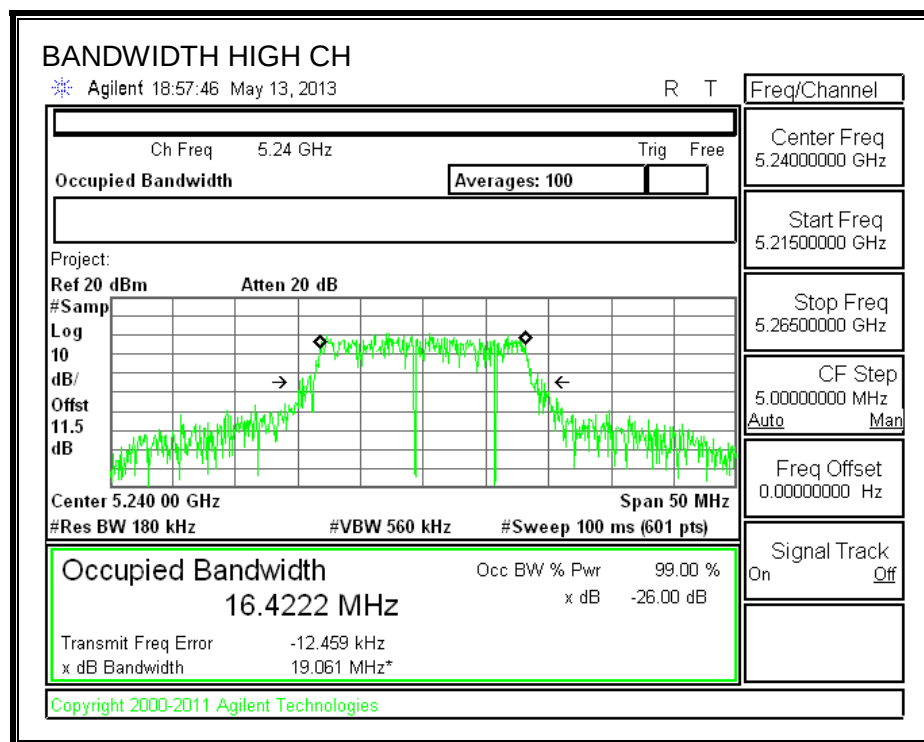
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	16.4160
Mid	5200	16.4198
High	5240	16.4222

99% BANDWIDTH





8.1.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10 \log B$, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	20.42	16.4160	4.20
Mid	5200	20.42	16.4198	4.20
High	5240	20.33	16.4222	4.20

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC eirp PSD Limit (dBm)	PSD Limit (dBm)
Low	5180	17.00	22.15	17.95	17.00	4.00	10.00	4.00
Mid	5200	17.00	22.15	17.95	17.00	4.00	10.00	4.00
High	5240	17.00	22.15	17.95	17.00	4.00	10.00	4.00

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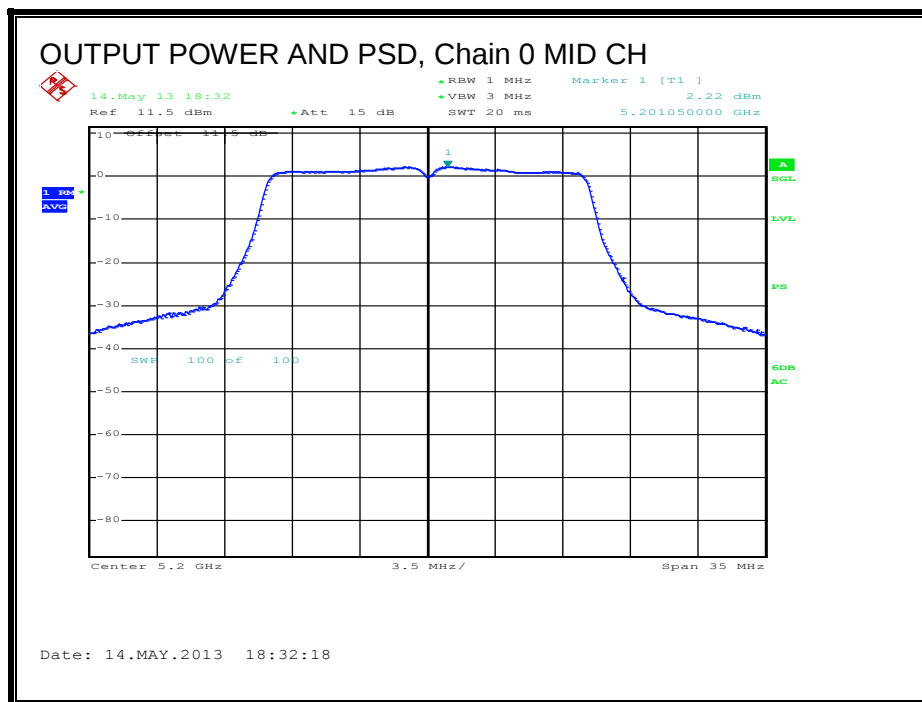
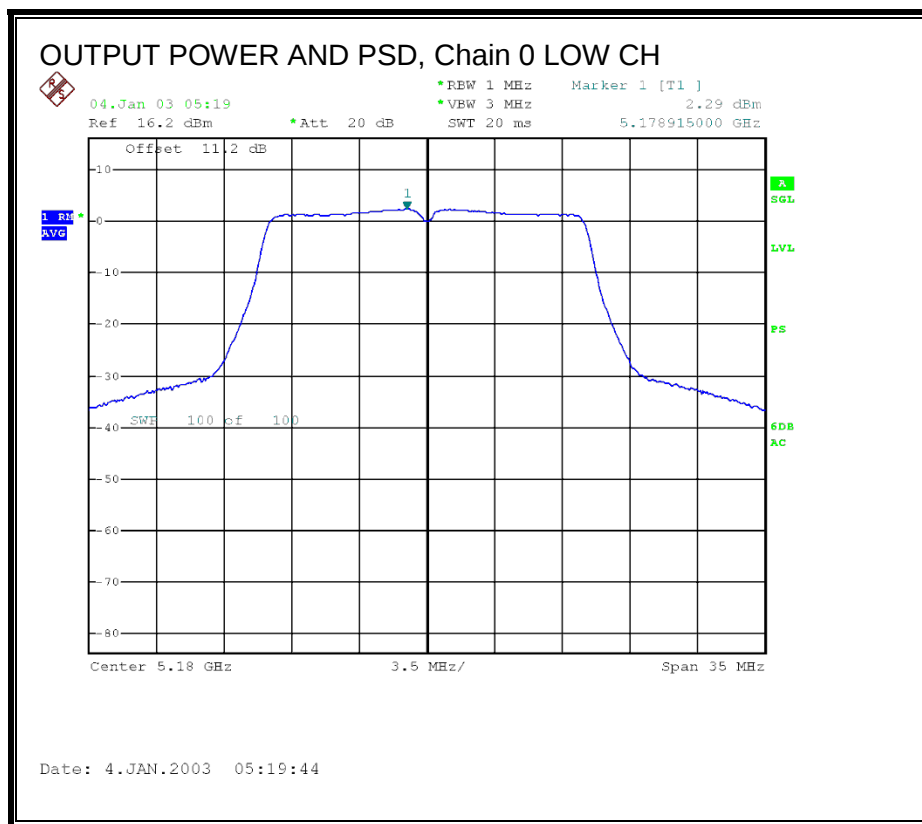
Output Power Results

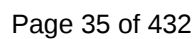
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	16.97	16.97	17.00	-0.03
Mid	5200	16.93	16.93	17.00	-0.07
High	5240	16.91	16.91	17.00	-0.09

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5180	2.29	2.29	4.00	-1.71
Mid	5200	2.22	2.22	4.00	-1.78
High	5240	2.07	2.07	4.00	-1.93

OUTPUT POWER AND PSD, Chain 0





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

8.2.1. 26 dB BANDWIDTH

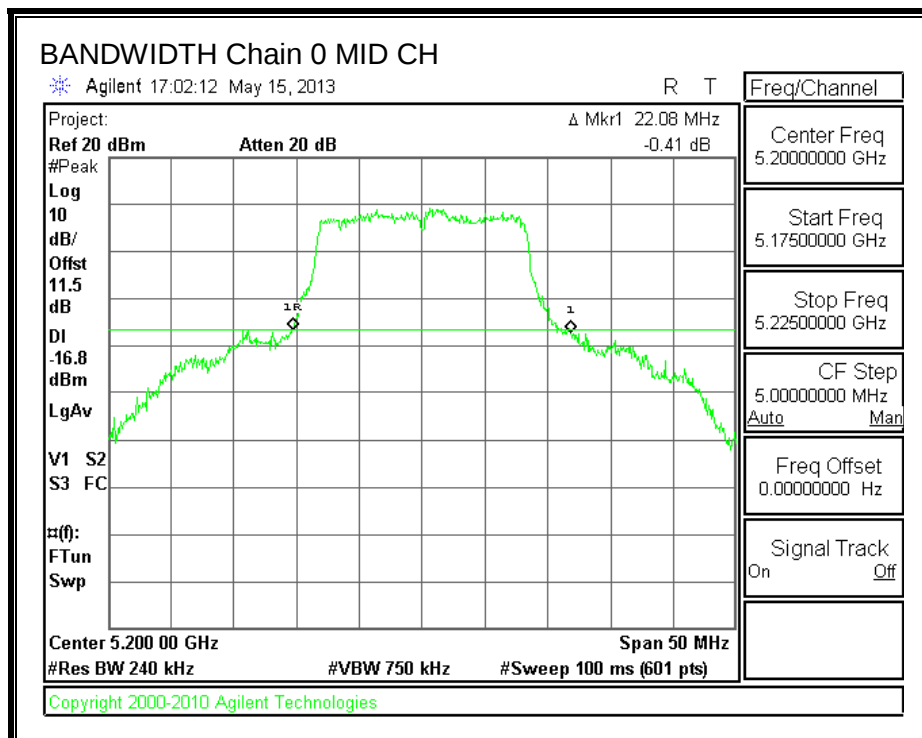
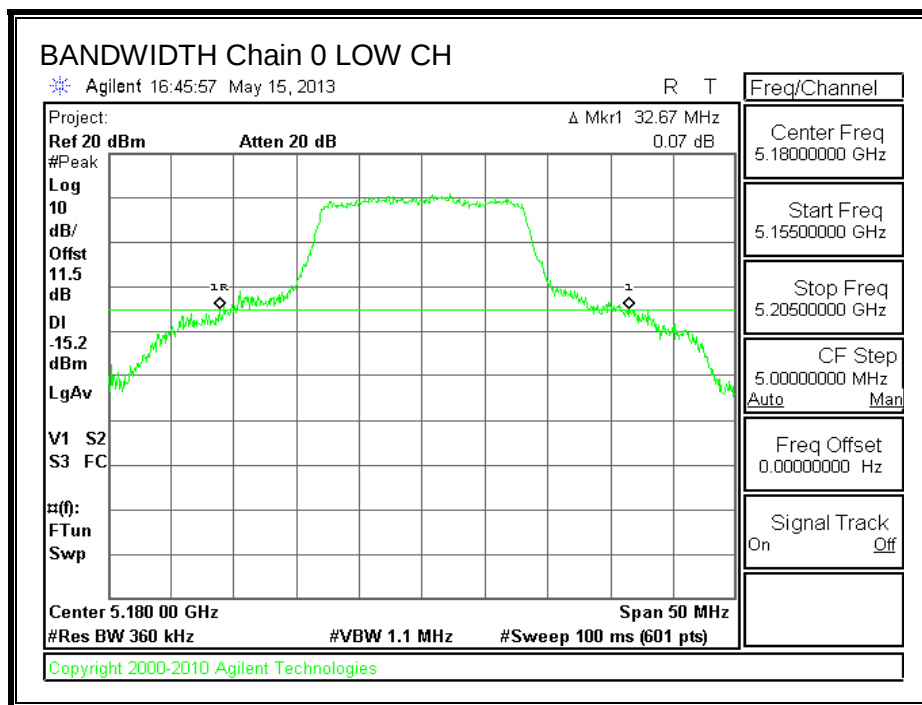
LIMITS

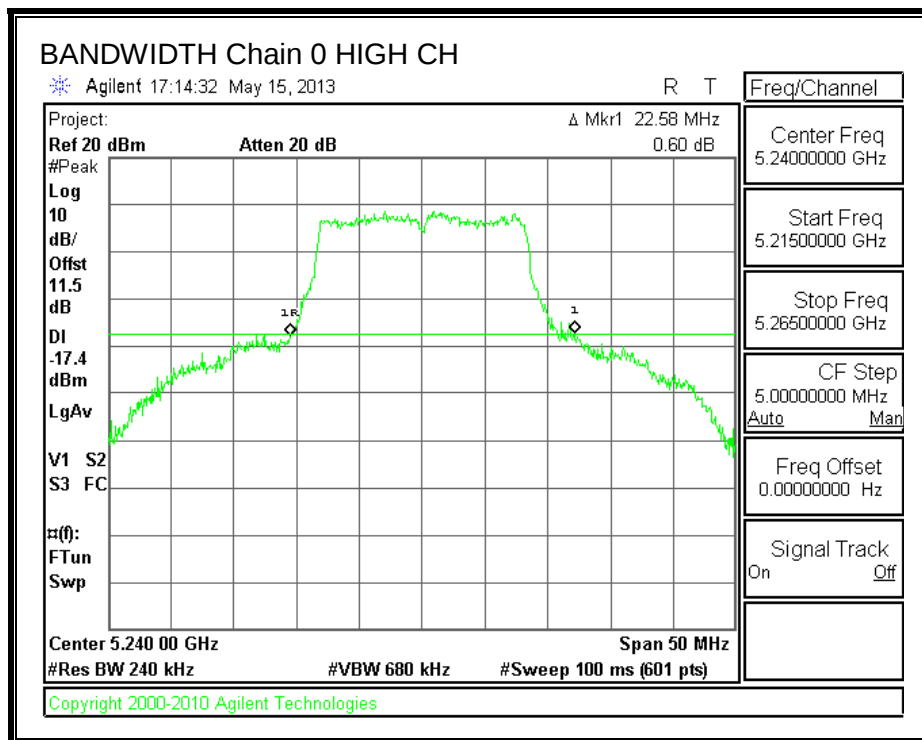
None; for reporting purposes only.

RESULTS

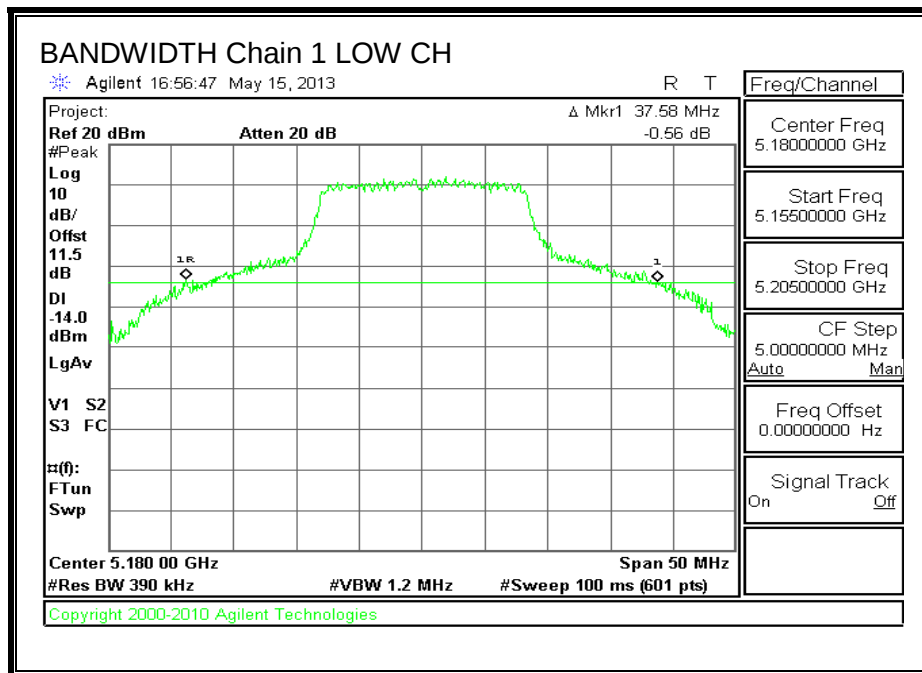
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5180	32.67	37.58
Mid	5200	22.08	35.25
High	5240	22.58	38.08

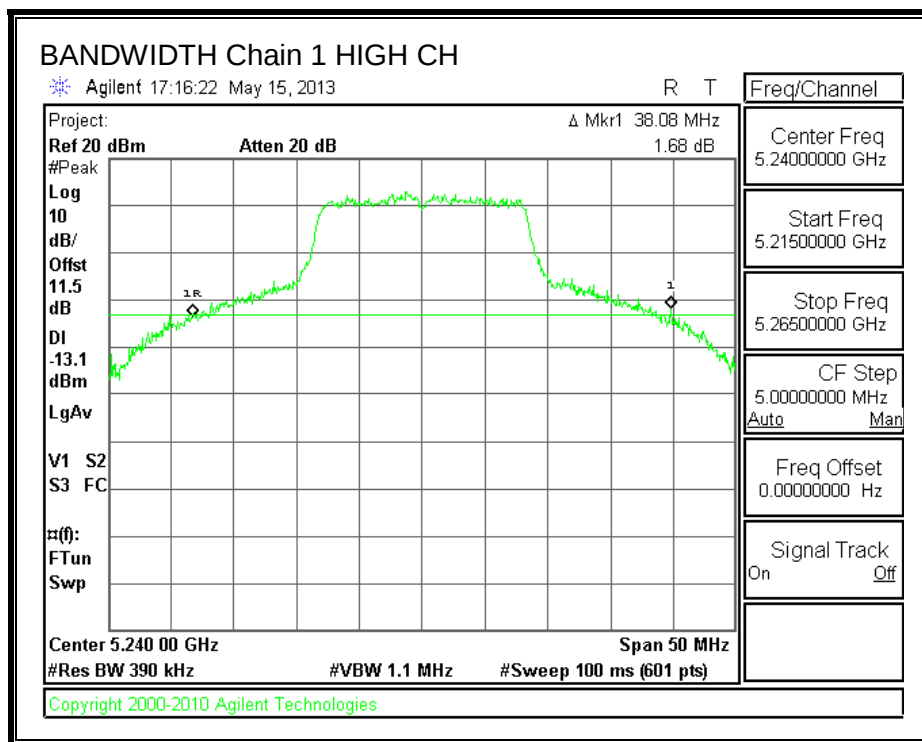
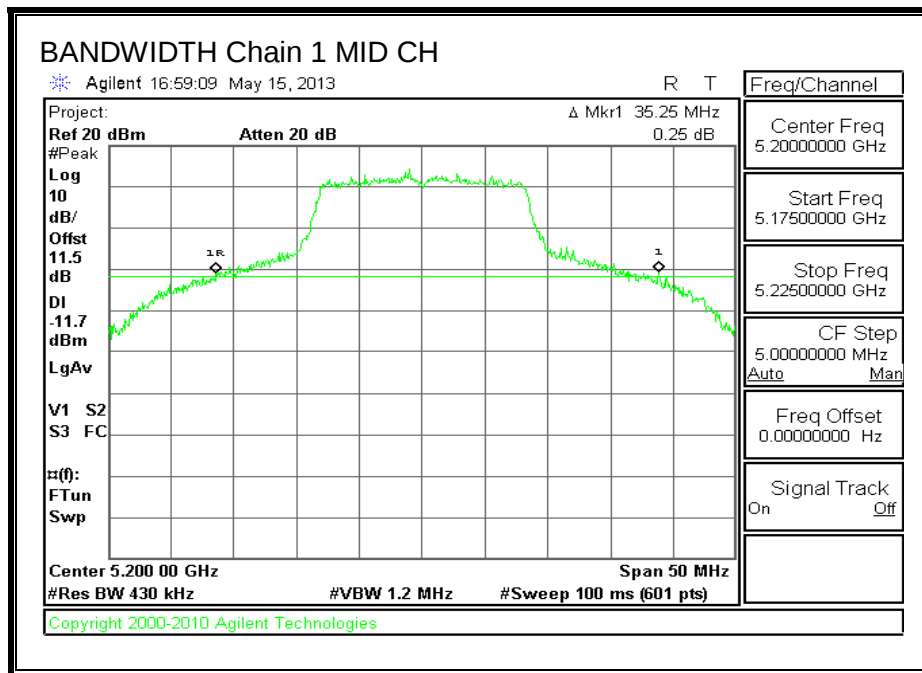
26 dB BANDWIDTH, Chain 0





26 dB BANDWIDTH, Chain 1





8.2.2. 99% BANDWIDTH

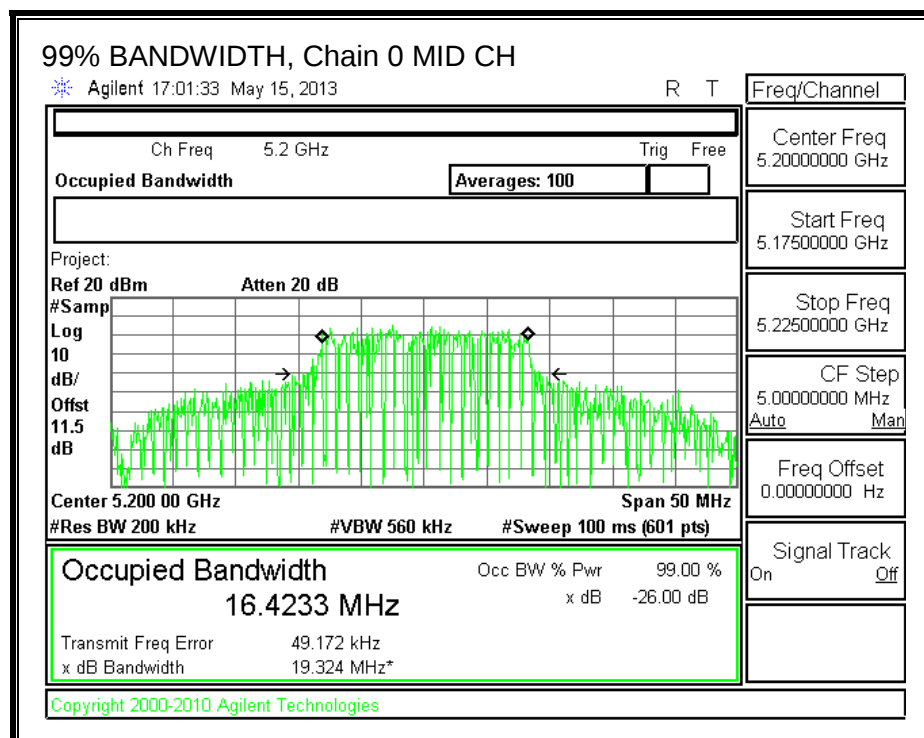
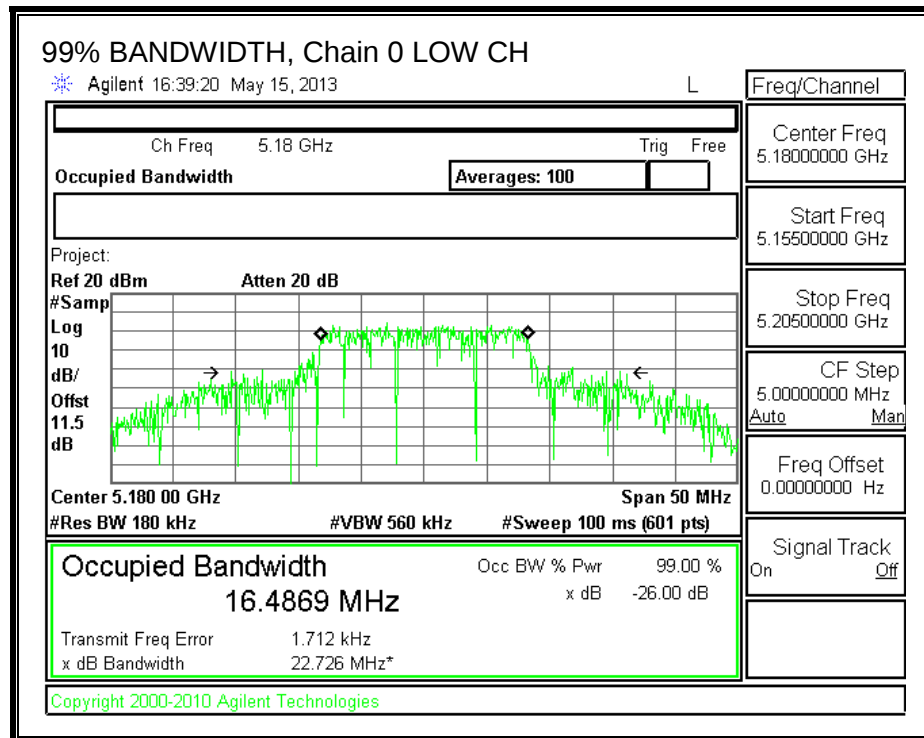
LIMITS

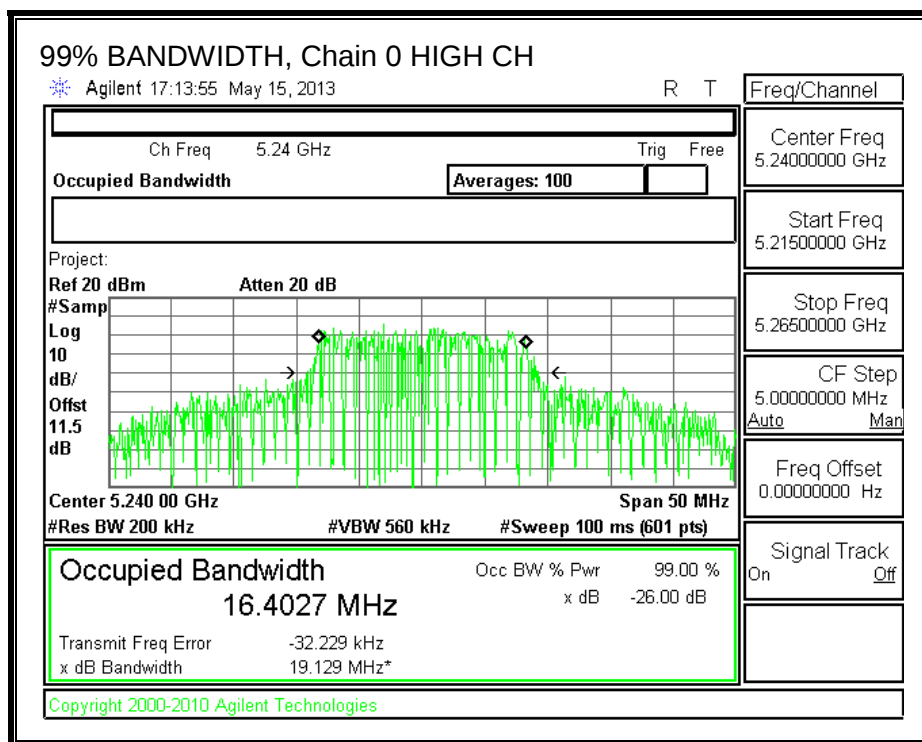
None; for reporting purposes only.

RESULTS

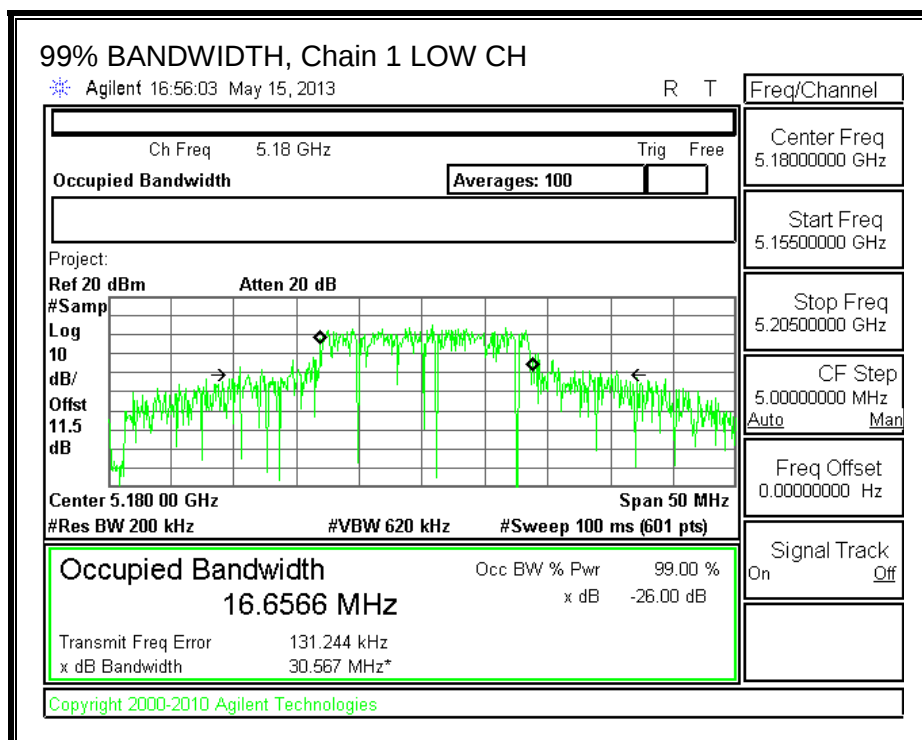
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5180	16.4869	16.6566
Mid	5200	16.4233	17.0367
High	5240	16.4027	17.0655

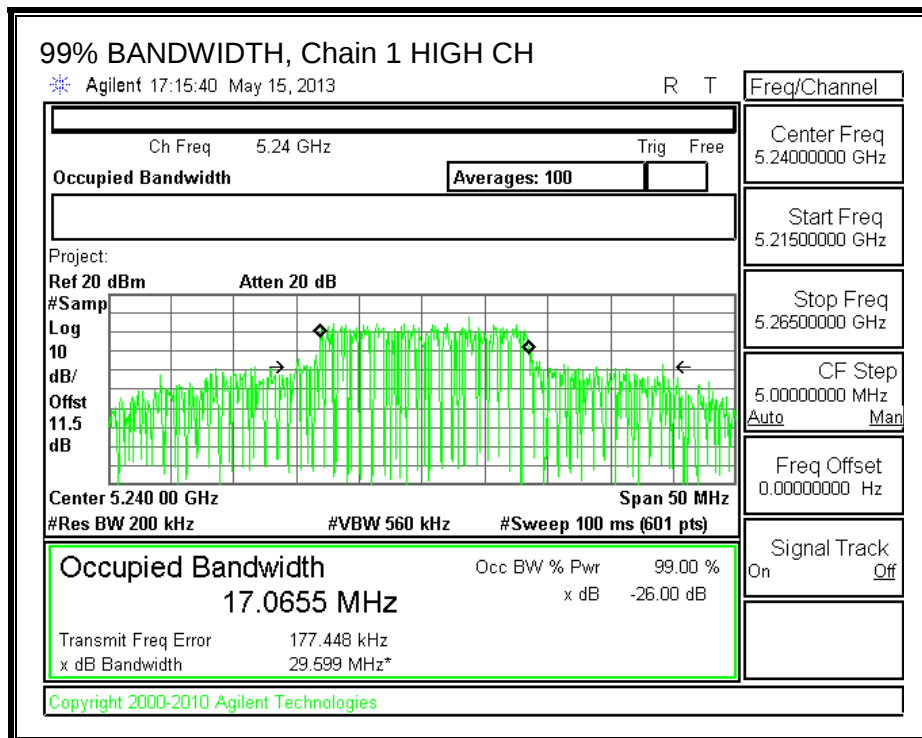
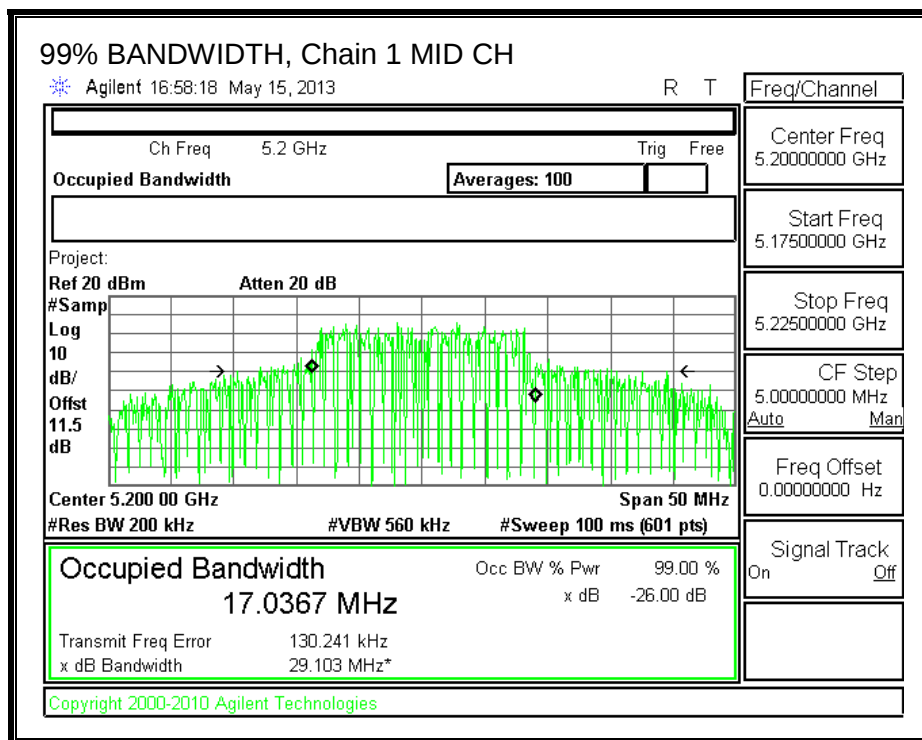
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.2.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10 \log B$, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	32.7	16.4869	4.20
Mid	5200	22.1	16.4233	4.20
High	5240	22.6	16.4027	4.20

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	17.00	22.17	17.97	17.00	4.00	10.00	4.00
Mid	5200	17.00	22.15	17.95	17.00	4.00	10.00	4.00
High	5240	17.00	22.15	17.95	17.00	4.00	10.00	4.00

Duty Cycle CF (dB)	0.00	Included in Calculations of PPSP
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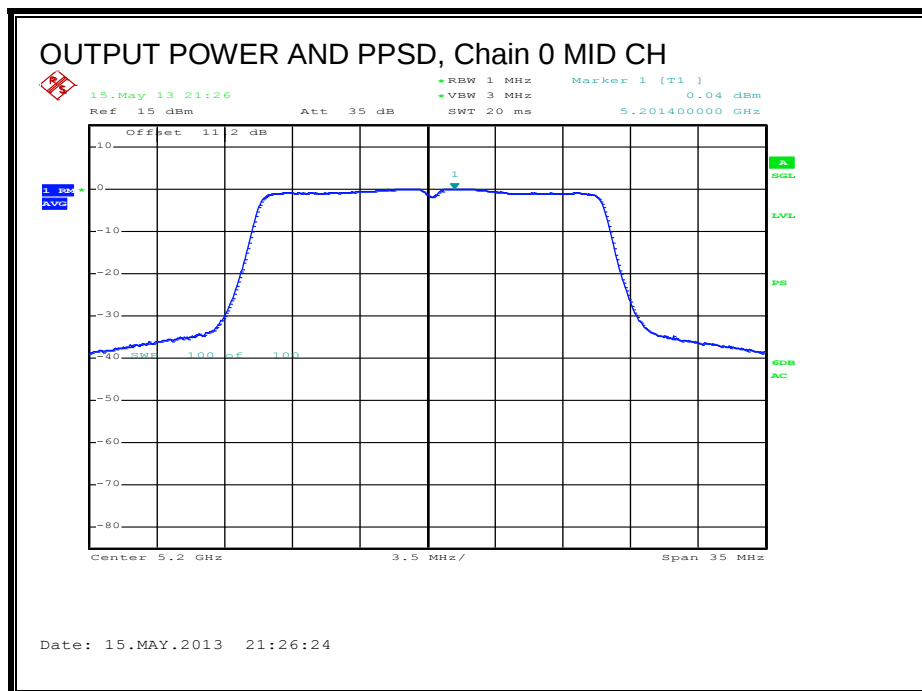
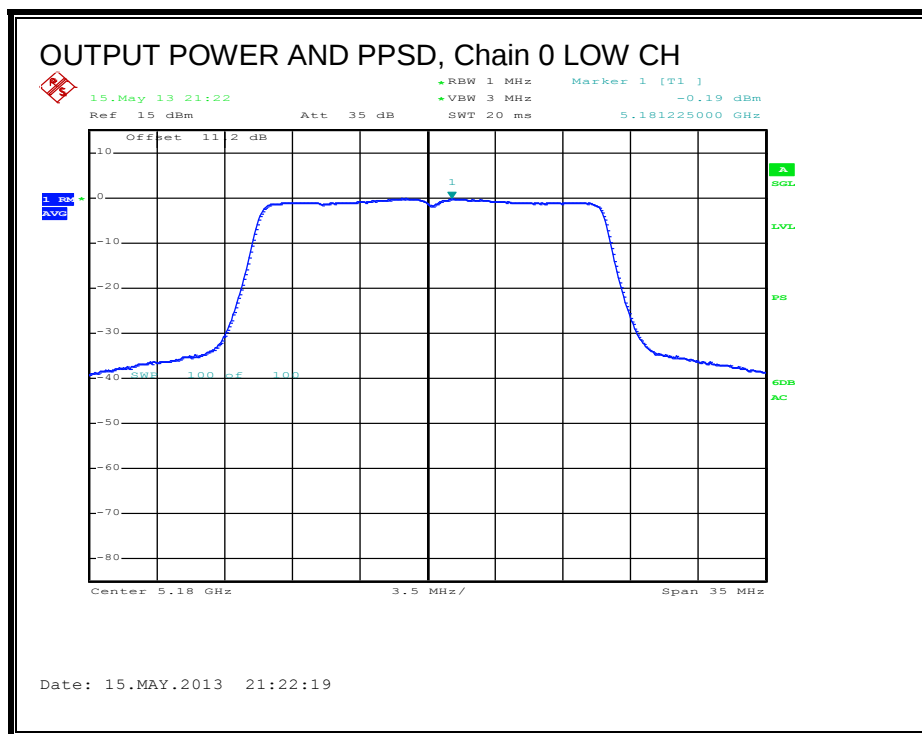
Output Power Results

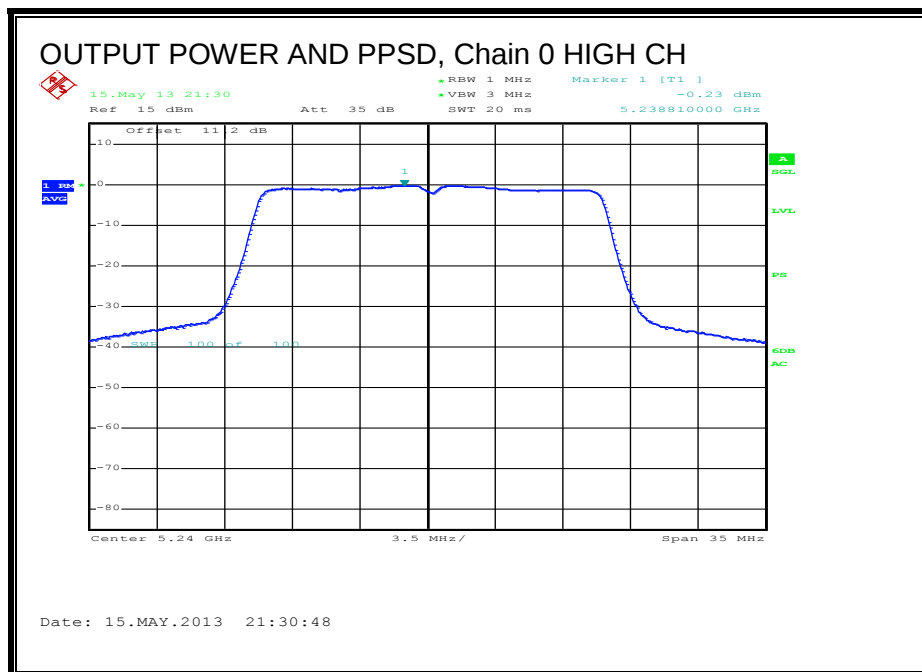
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	13.70	14.00	16.86	17.00	-0.14
Mid	5200	13.56	14.12	16.86	17.00	-0.14
High	5240	13.71	14.02	16.88	17.00	-0.12

PPSD Results

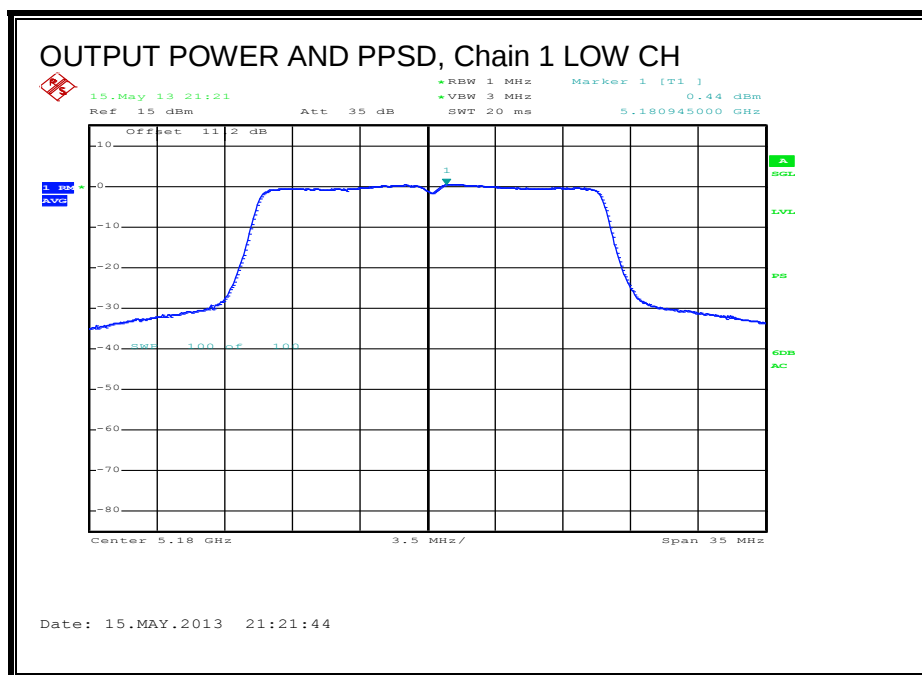
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	-0.19	0.44	3.15	4.00	-0.85
Mid	5200	0.04	0.64	3.36	4.00	-0.64
High	5240	-0.23	0.22	3.01	4.00	-0.99

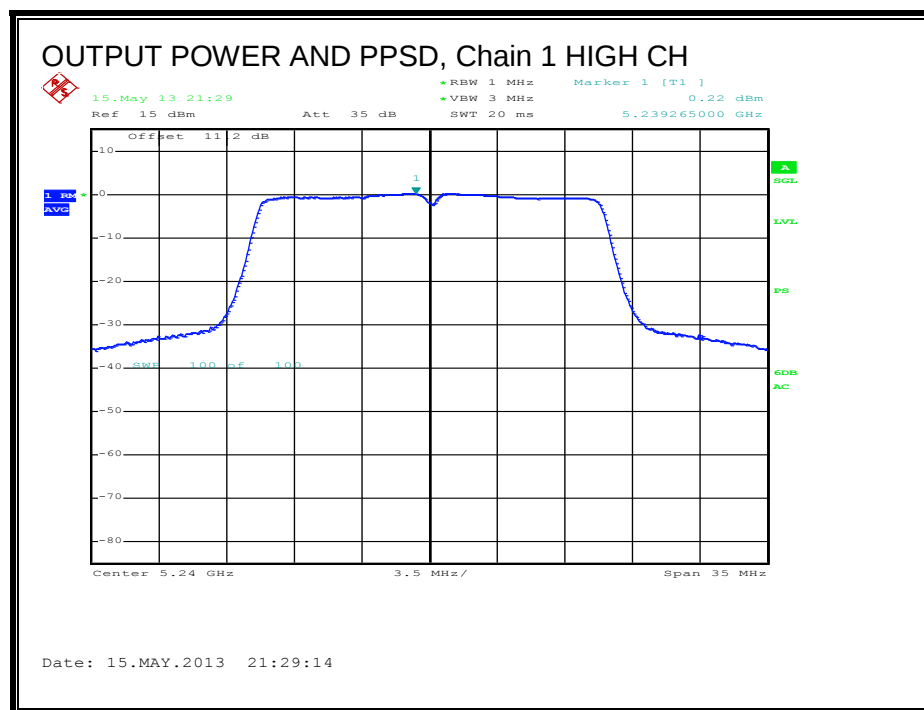
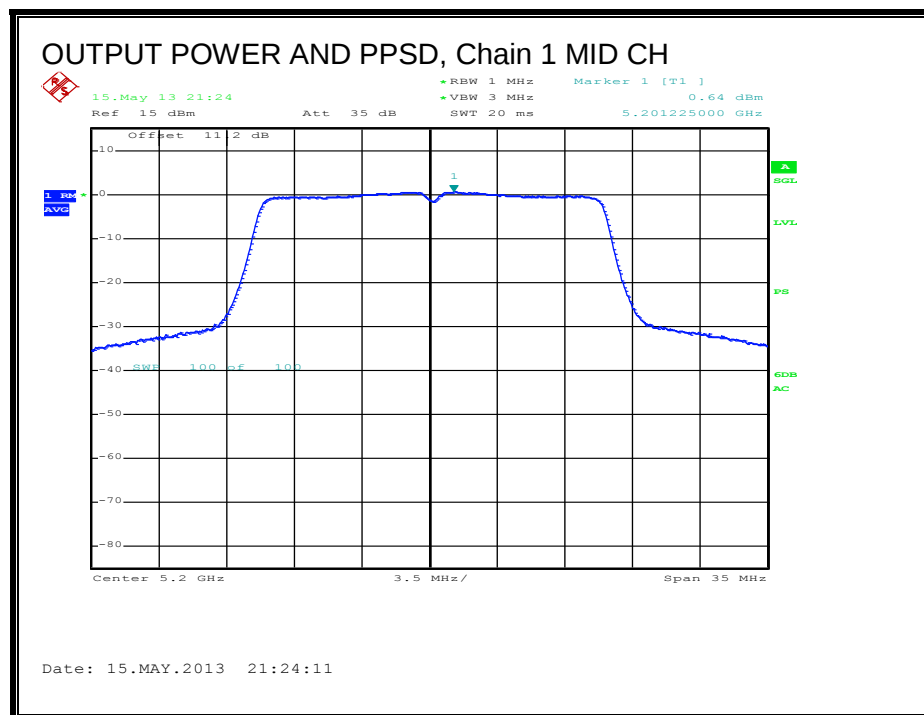
OUTPUT POWER AND PPSD, Chain 0





OUTPUT POWER AND PPSD, Chain 1





8.3. 802.11n HT20 CDD 2TX MODE IN THE 5.2 GHZ BAND

8.3.1. 26 dB BANDWIDTH

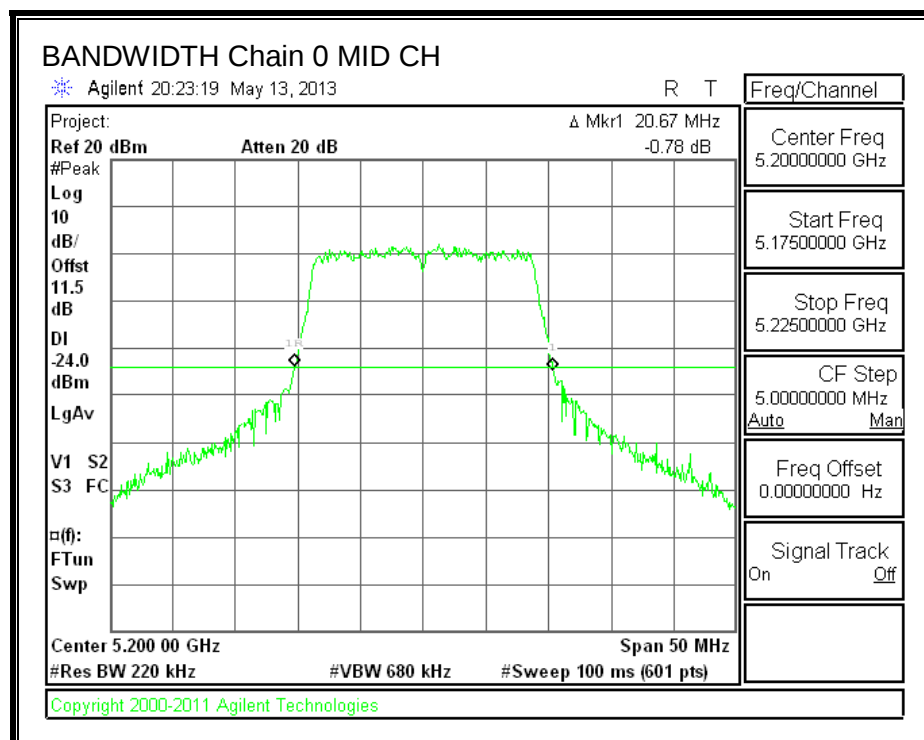
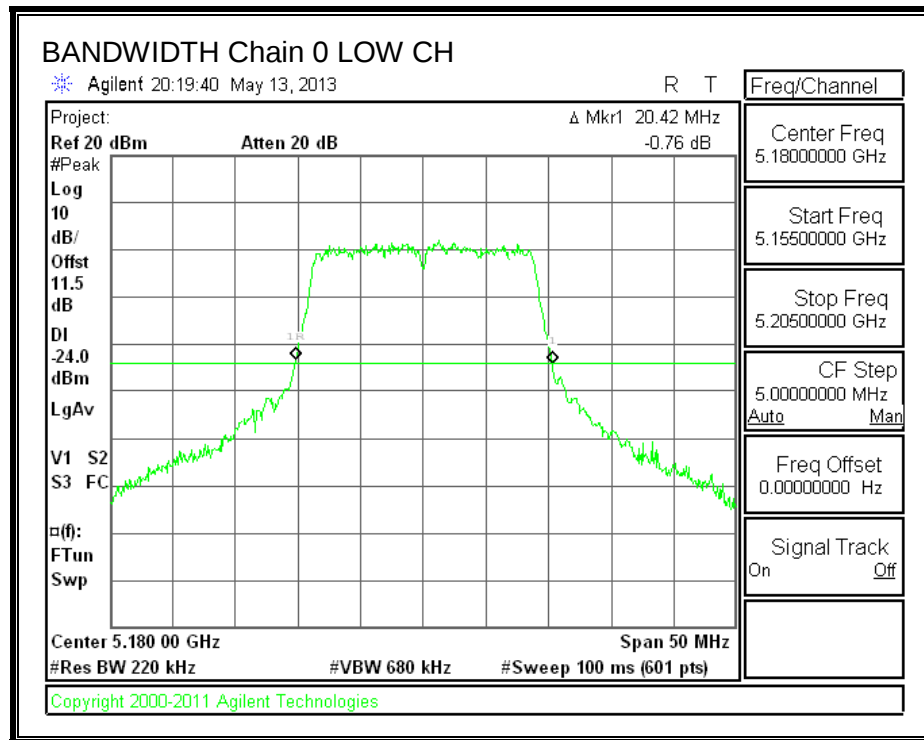
LIMITS

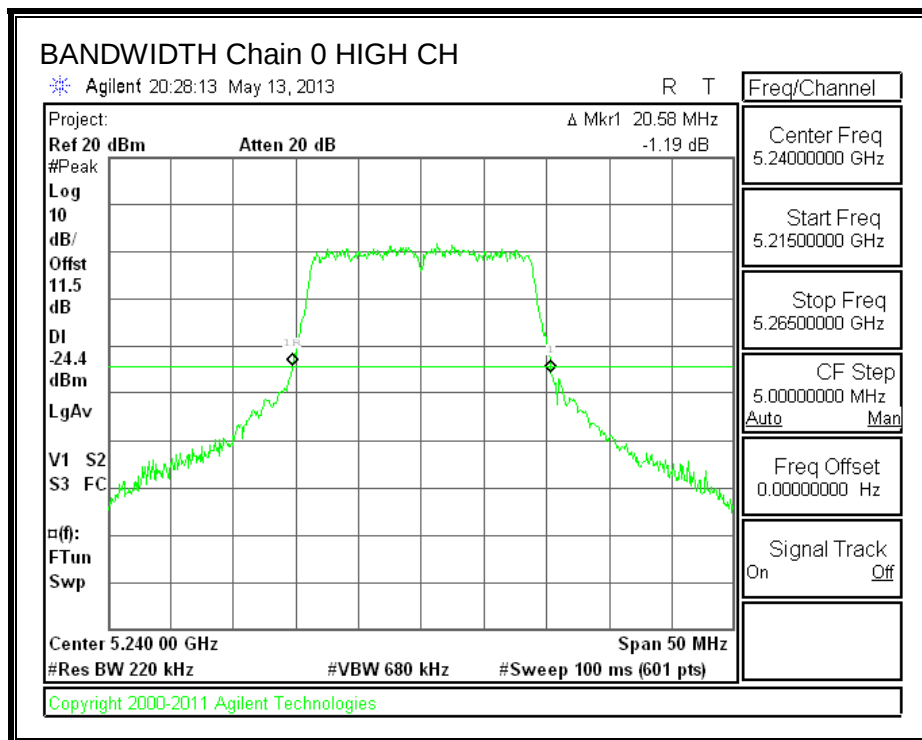
None; for reporting purposes only.

RESULTS

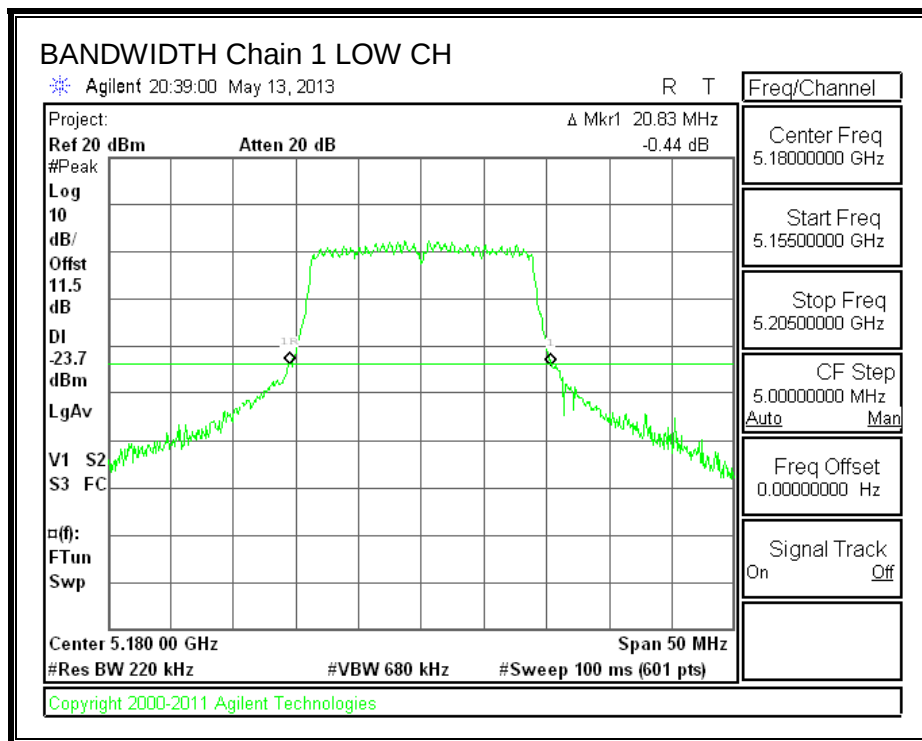
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5180	20.42	20.83
Mid	5200	20.67	20.83
High	5240	20.58	20.92

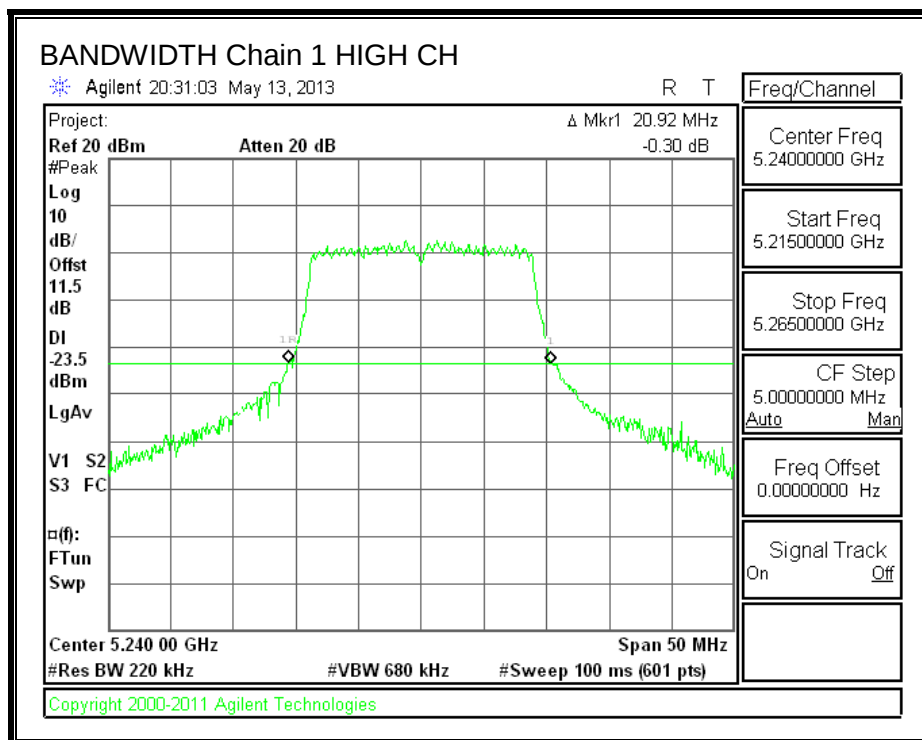
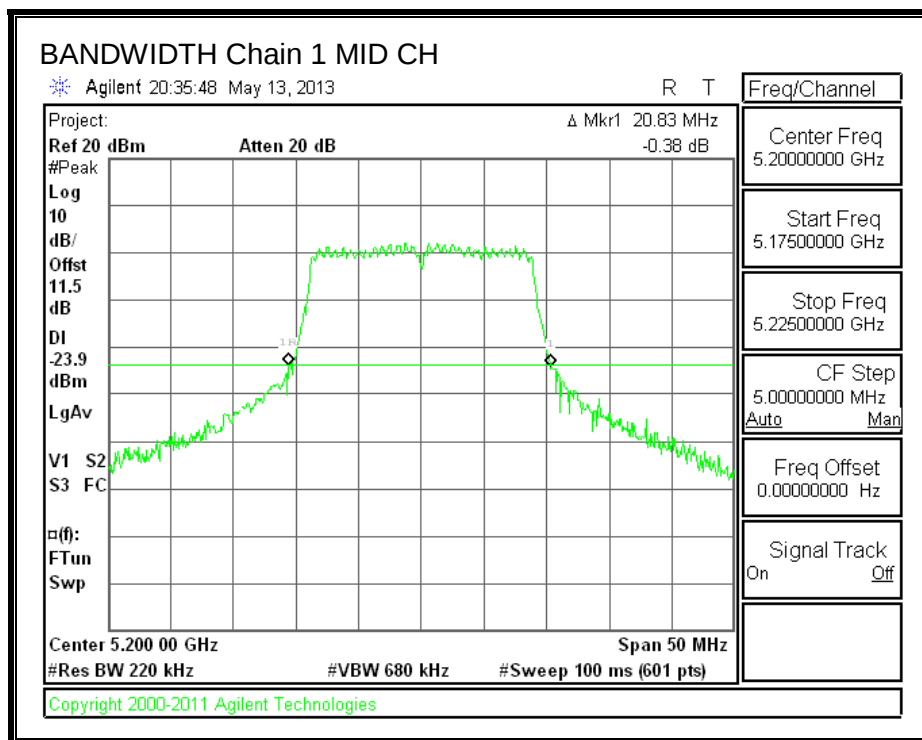
26 dB BANDWIDTH, Chain 0





26 dB BANDWIDTH, Chain 1





8.3.2. 99% BANDWIDTH

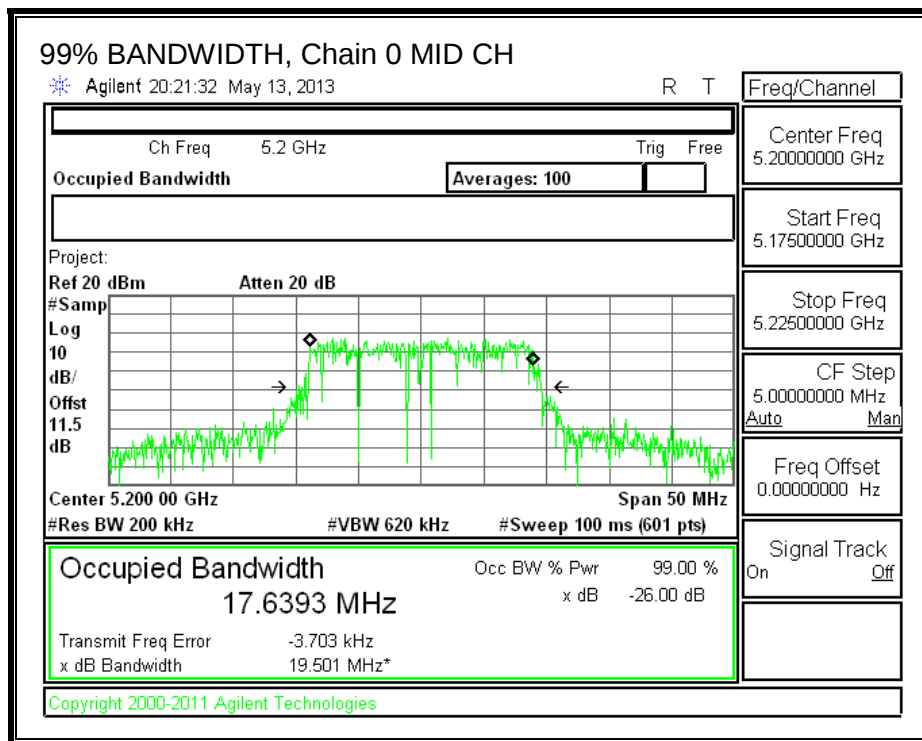
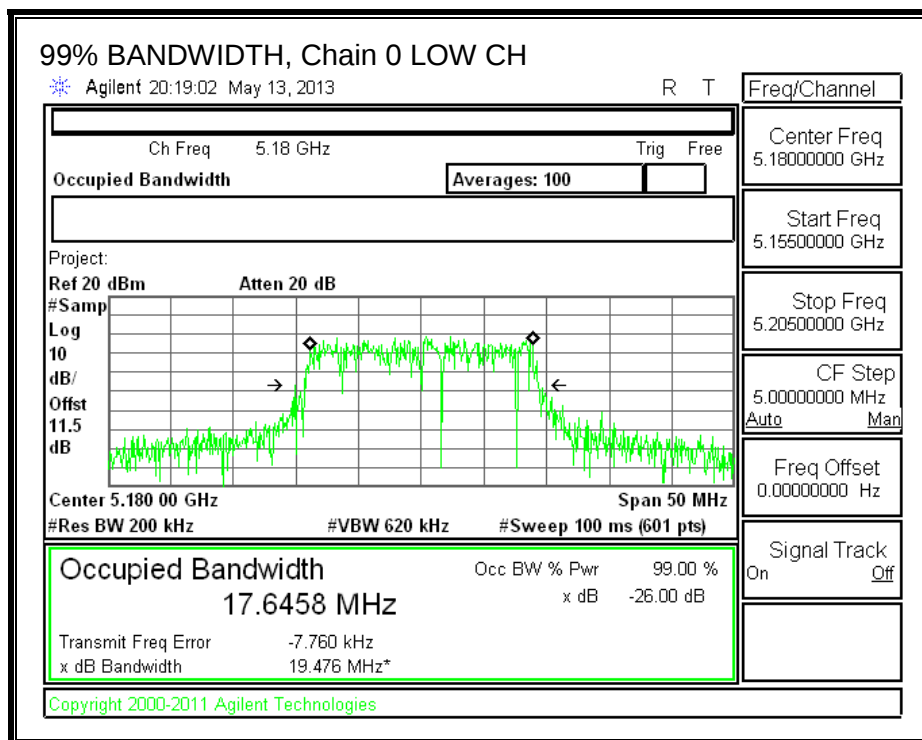
LIMITS

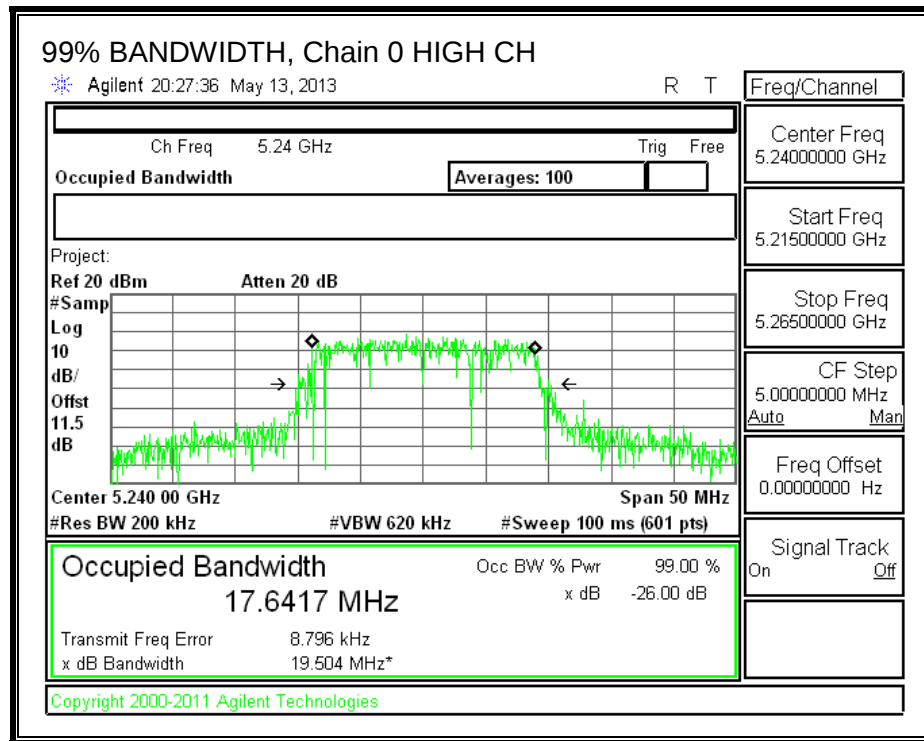
None; for reporting purposes only.

RESULTS

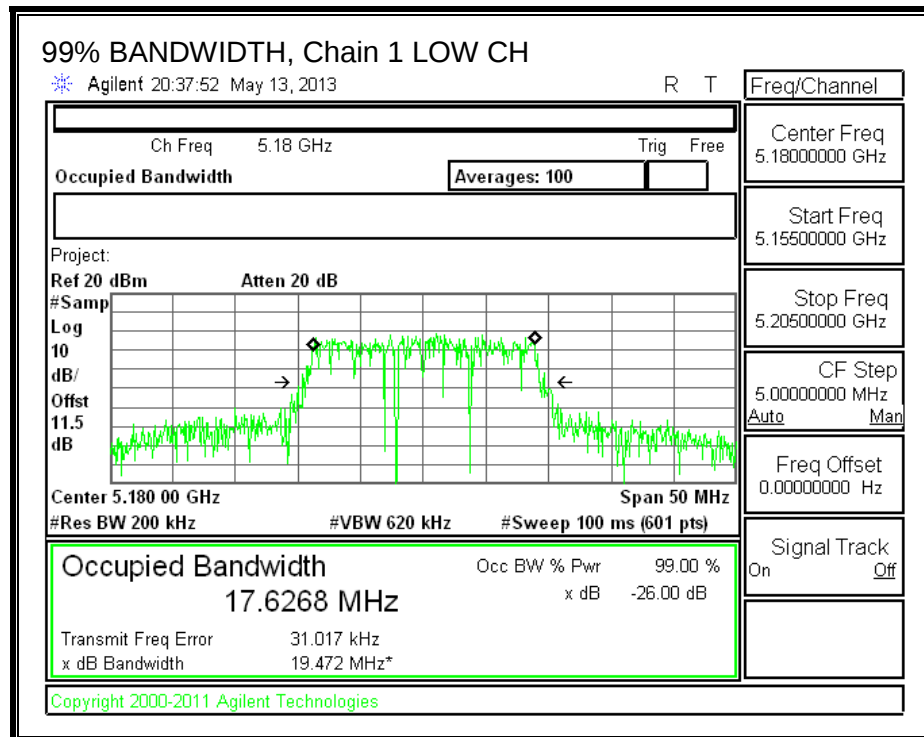
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5180	17.6458	17.6268
Mid	5200	17.6393	17.5864
High	5240	17.6417	17.6417

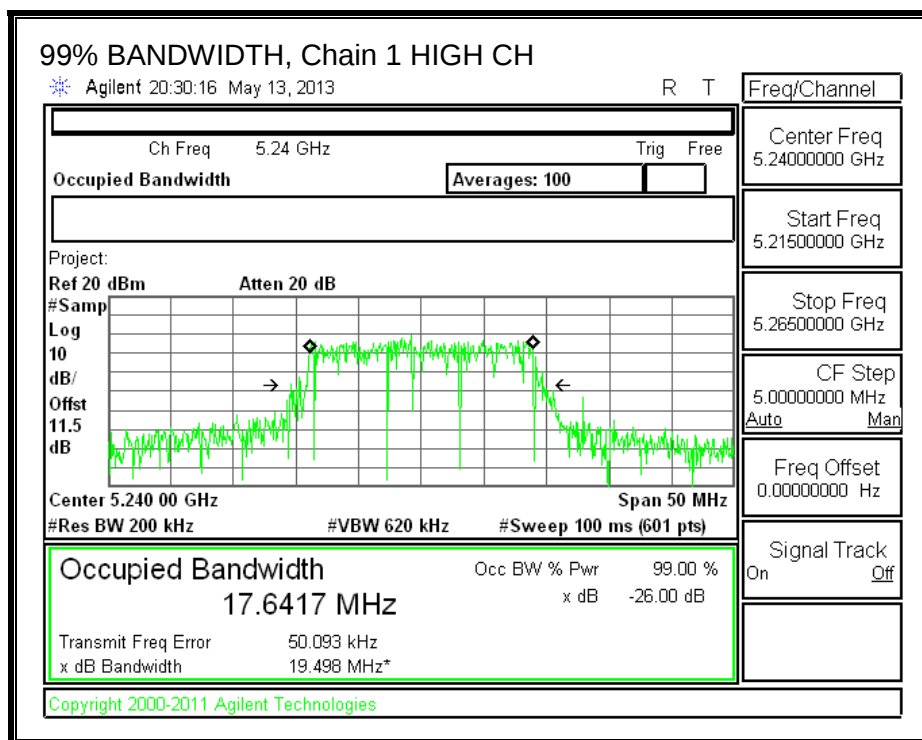
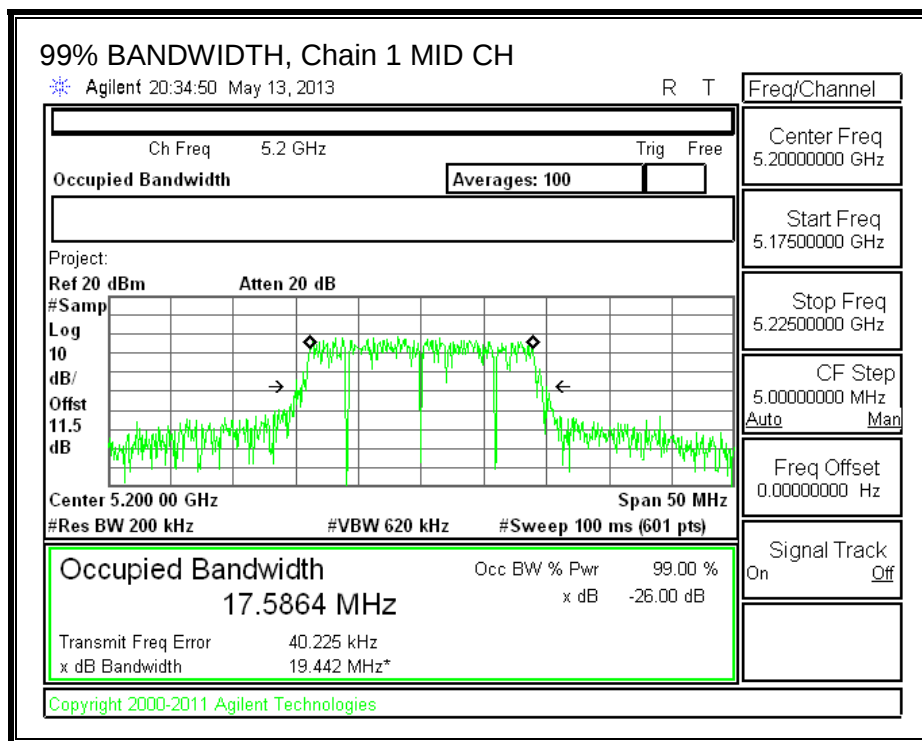
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.3.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log₁₀ B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

For PPSD, 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

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Uncorrelated Directional Gain (dBi)	Correlated Directional Gain (dBi)
Low	5180	20.42	17.6268	4.20	7.21
Mid	5200	20.67	17.5864	4.20	7.21
High	5240	20.58	17.6417	4.20	7.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	17.00	22.46	18.26	17.00	2.79	10.00	2.79
Mid	5200	17.00	22.45	18.25	17.00	2.79	10.00	2.79
High	5240	17.00	22.47	18.27	17.00	2.79	10.00	2.79

Duty Cycle CF (dB)	0.00	Included in Calculations of PPSP
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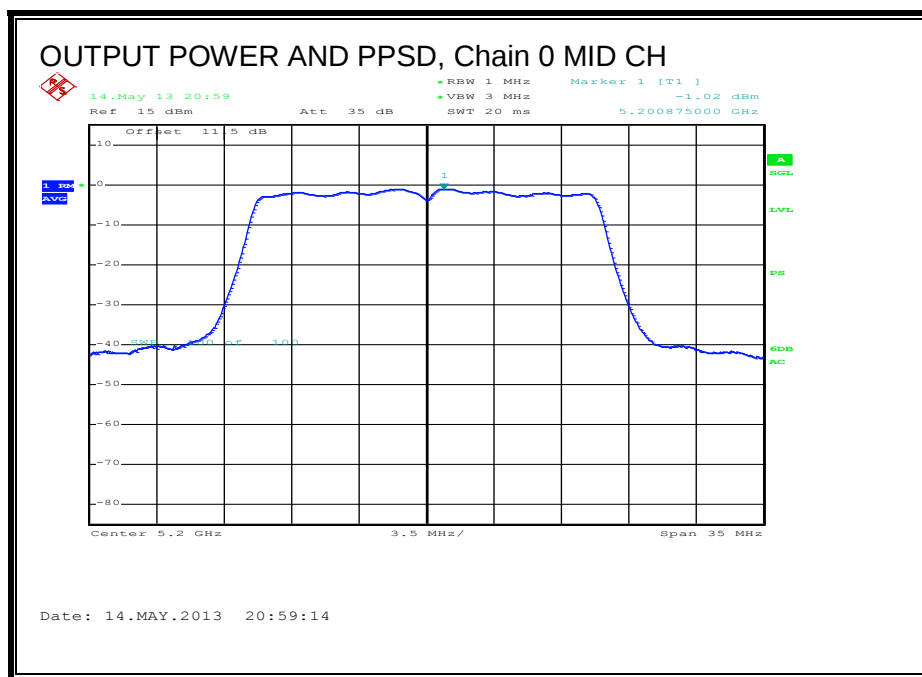
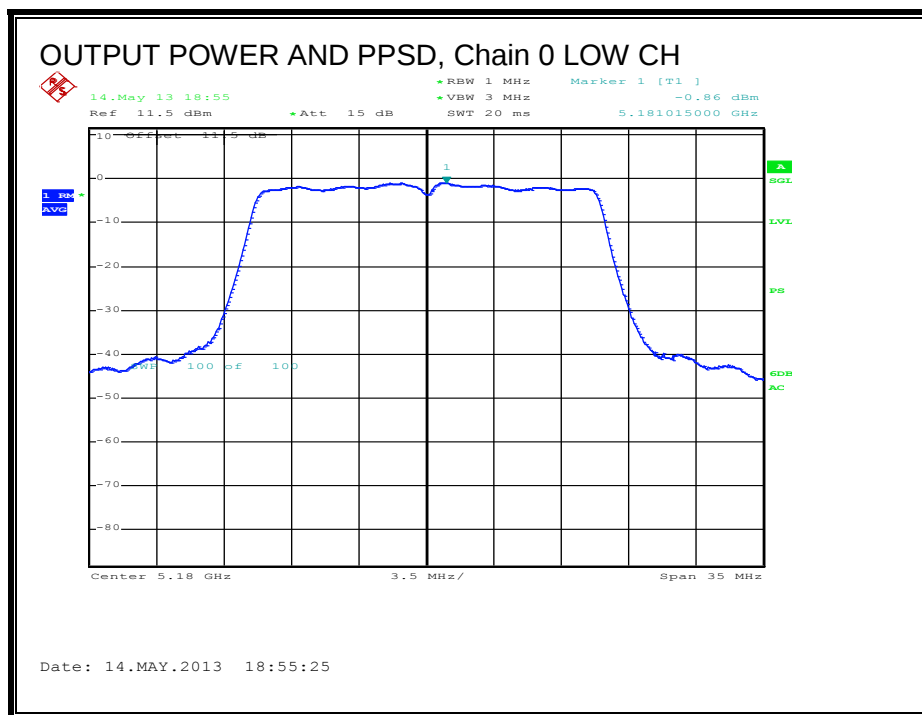
Output Power Results

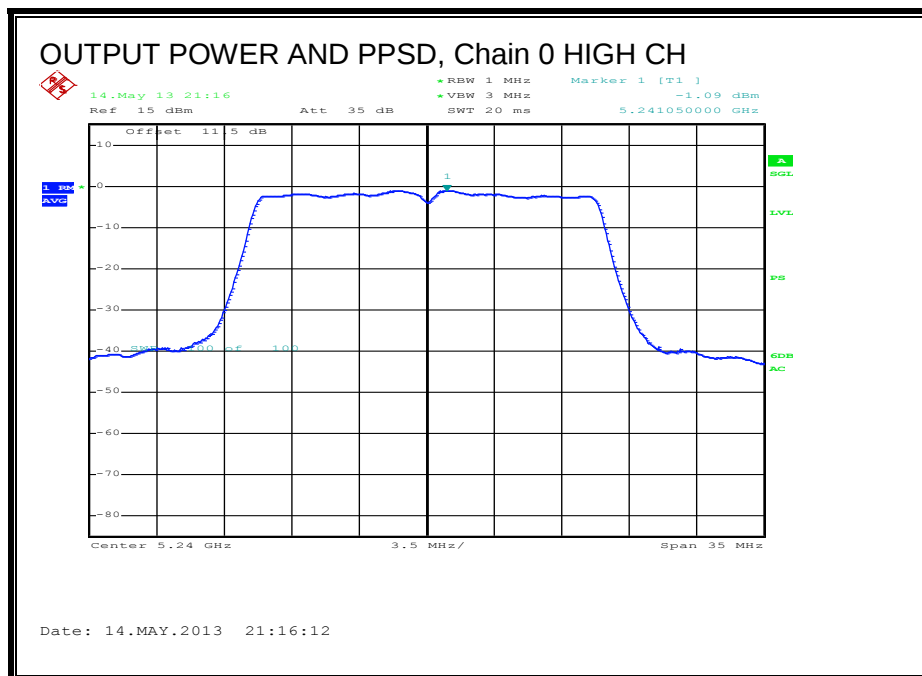
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	12.81	13.63	16.25	17.00	-0.75
Mid	5200	12.57	13.34	15.98	17.00	-1.02
High	5240	12.98	13.87	16.46	17.00	-0.54

PPSD Results

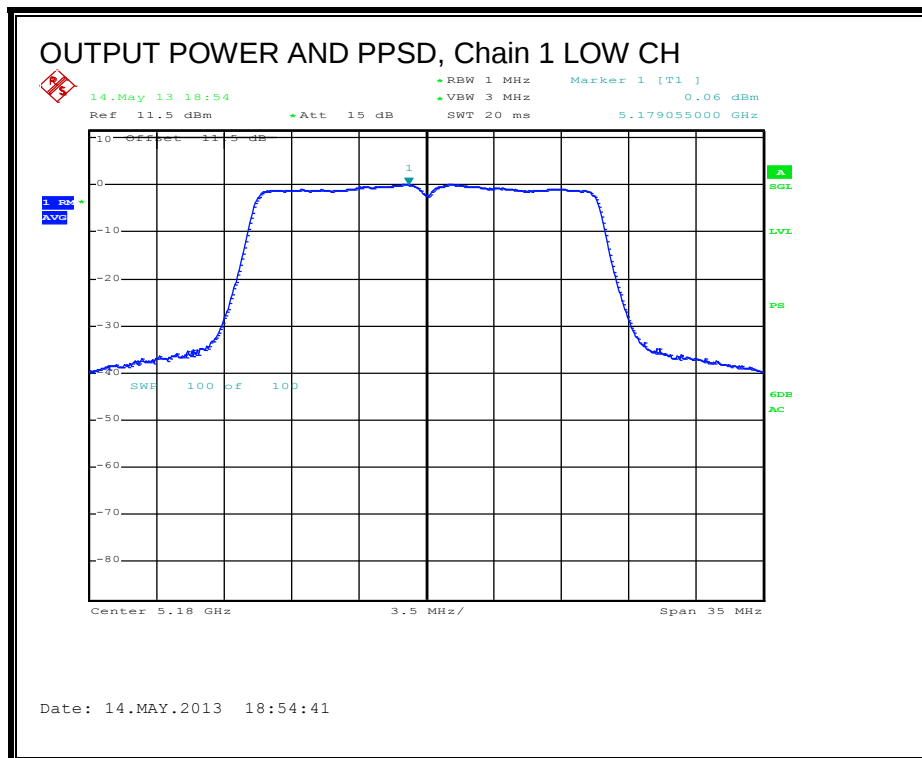
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	-0.86	0.06	2.63	2.79	-0.16
Mid	5200	-1.02	0.09	2.58	2.79	-0.21
High	5240	-1.09	0.21	2.62	2.79	-0.17

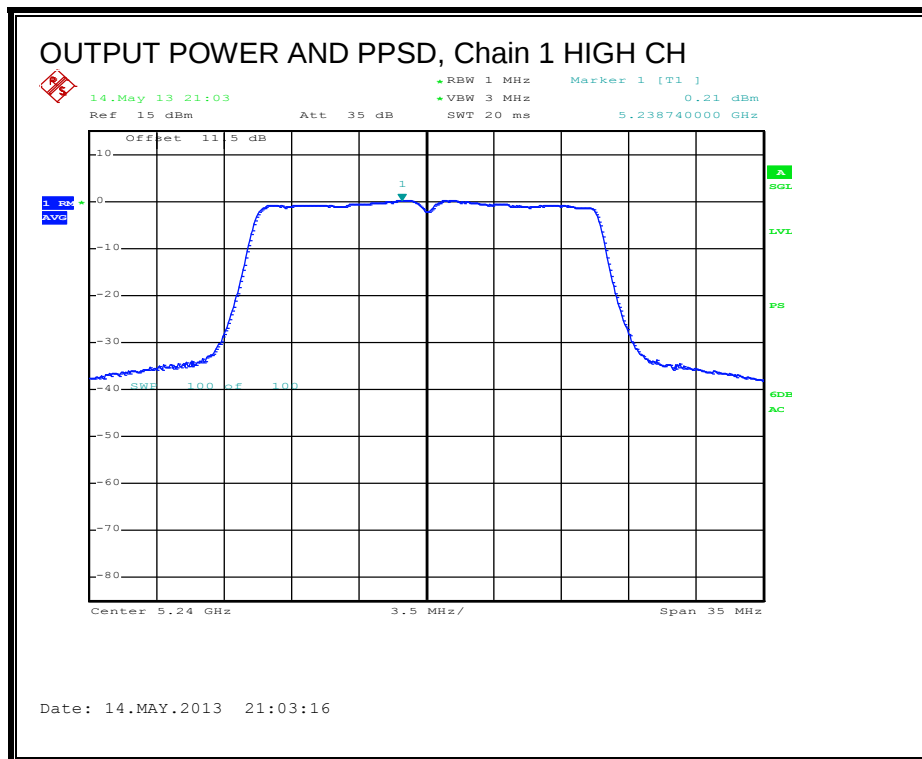
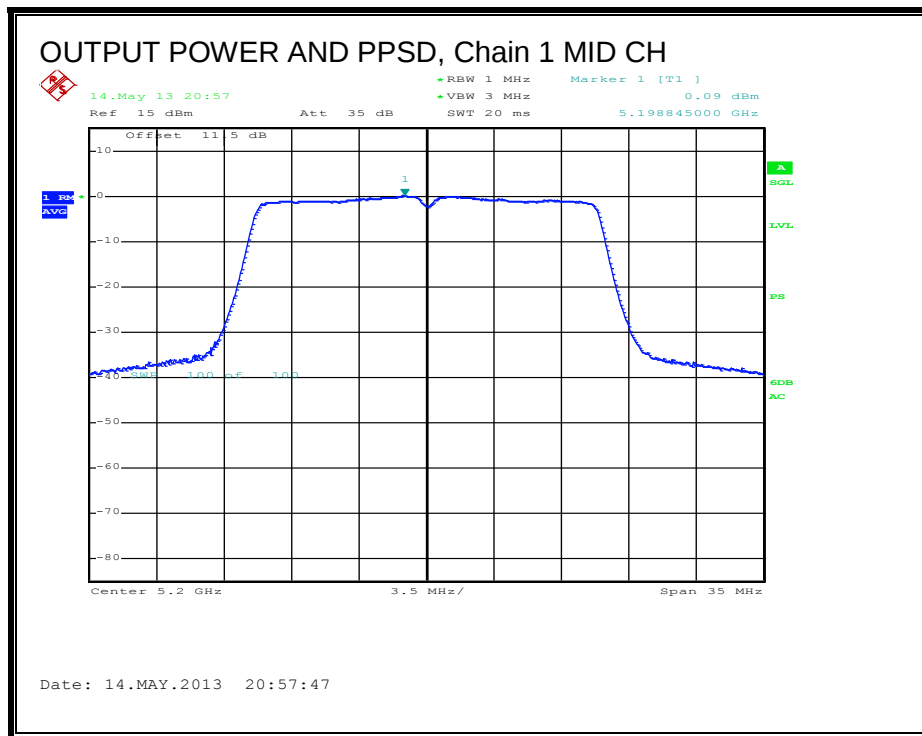
OUTPUT POWER AND PPSD, Chain 0





OUTPUT POWER AND PPSD, Chain 1





8.4. 802.11n HT40 SISO MODE IN THE 5.2 GHz BAND

8.4.1. 26 dB BANDWIDTH

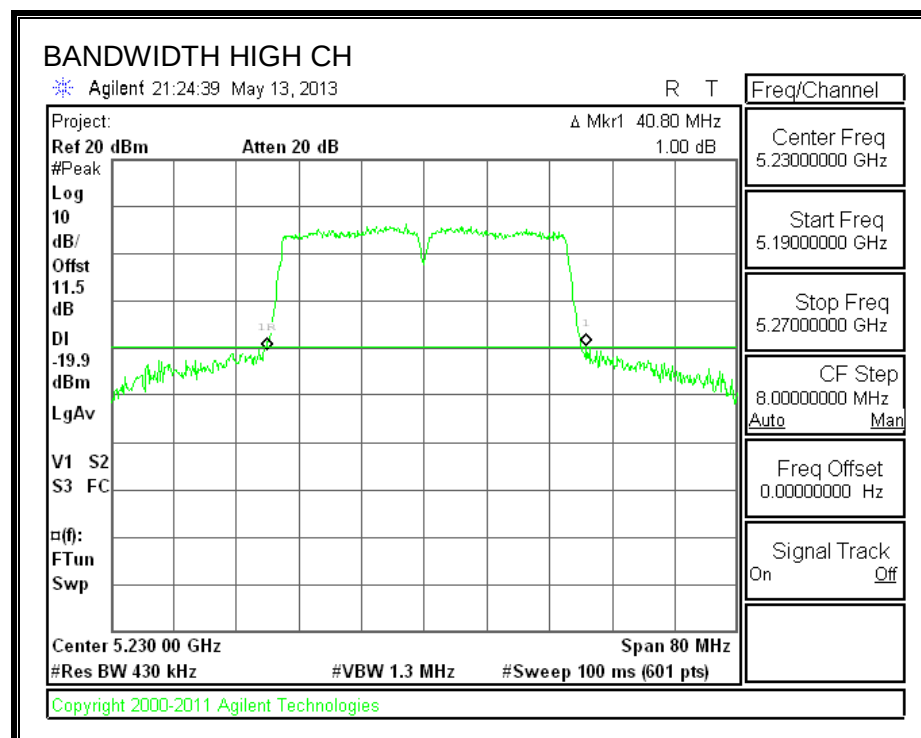
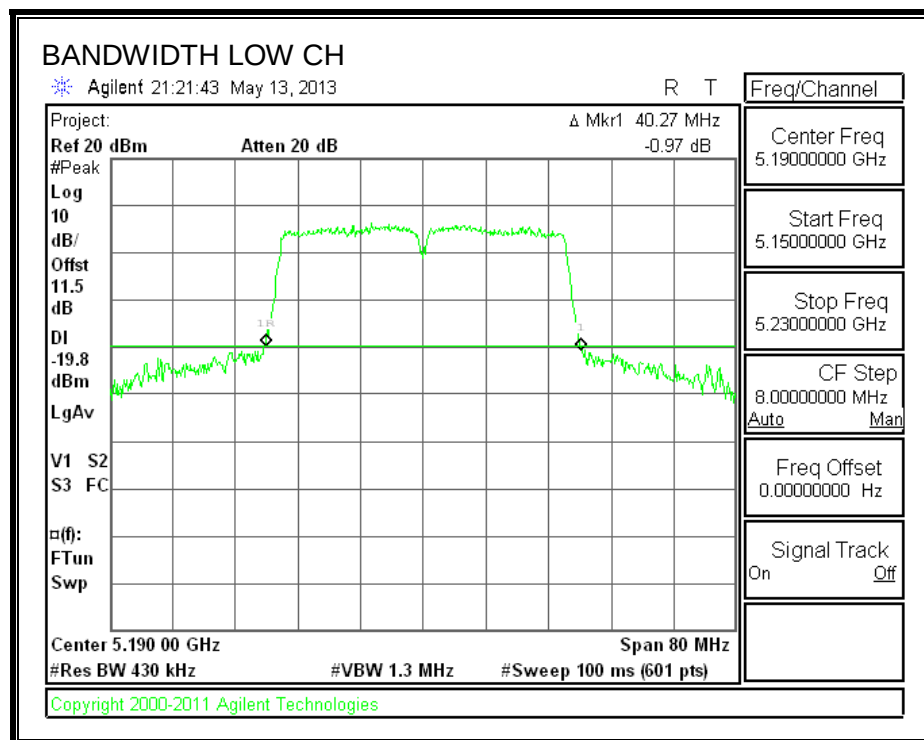
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5190	40.27
High	5230	40.80

26 dB BANDWIDTH



8.4.2. 99% BANDWIDTH

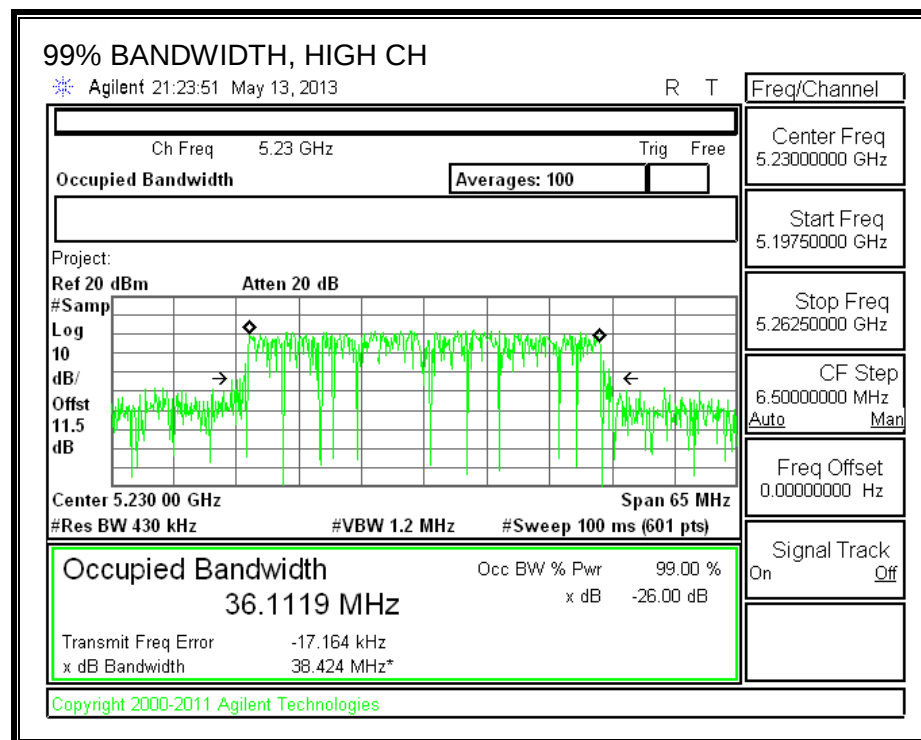
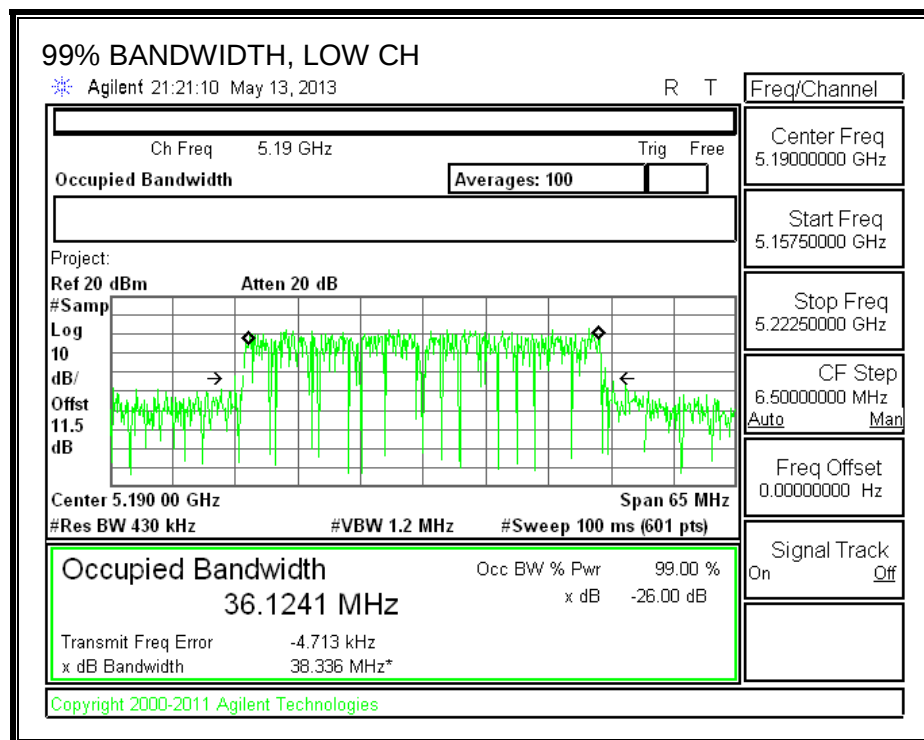
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	36.1241
High	5230	36.1119

99% BANDWIDTH



8.4.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10 \log B$, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5190	40.27	36.1241	4.20
High	5230	40.80	36.1119	4.20

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5190	17.00	23.00	18.80	17.00	4.00	10.00	4.00
High	5230	17.00	23.00	18.80	17.00	4.00	10.00	4.00

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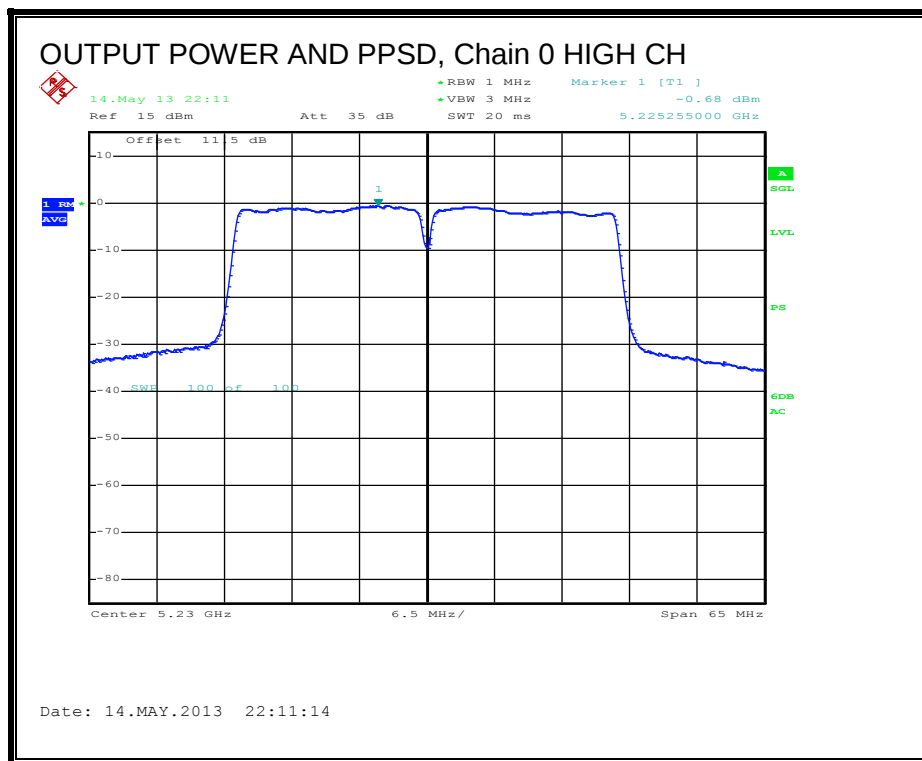
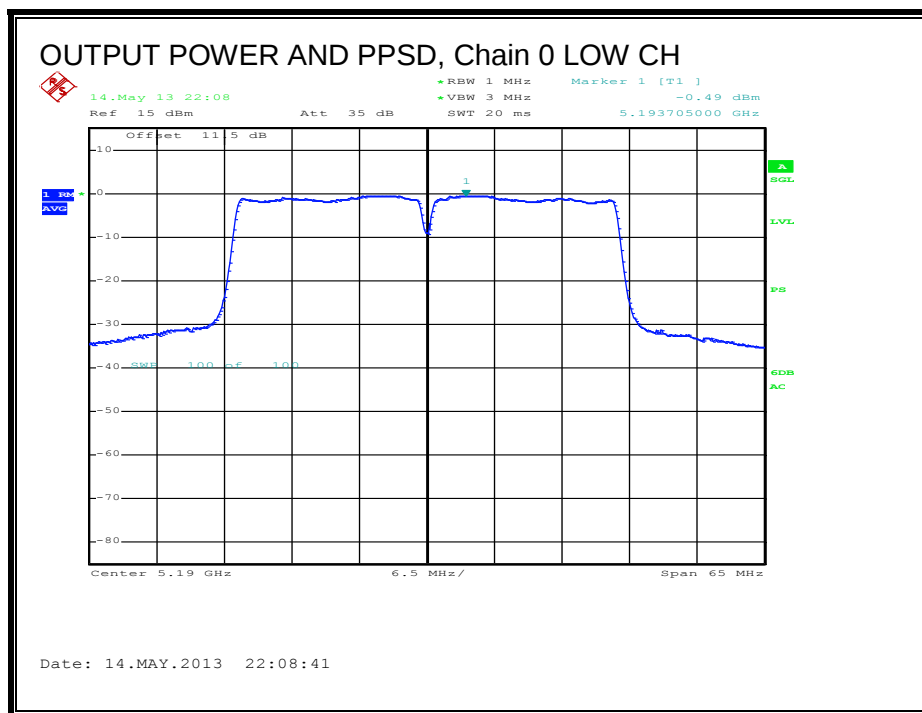
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	14.97	14.97	17.00	-2.03
High	5230	16.72	16.72	17.00	-0.28

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5190	-0.49	-0.49	4.00	-4.49
High	5230	-0.68	-0.68	4.00	-4.68

OUTPUT POWER AND PPSD, Chain 0



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

8.5.1. 26 dB BANDWIDTH

LIMITS

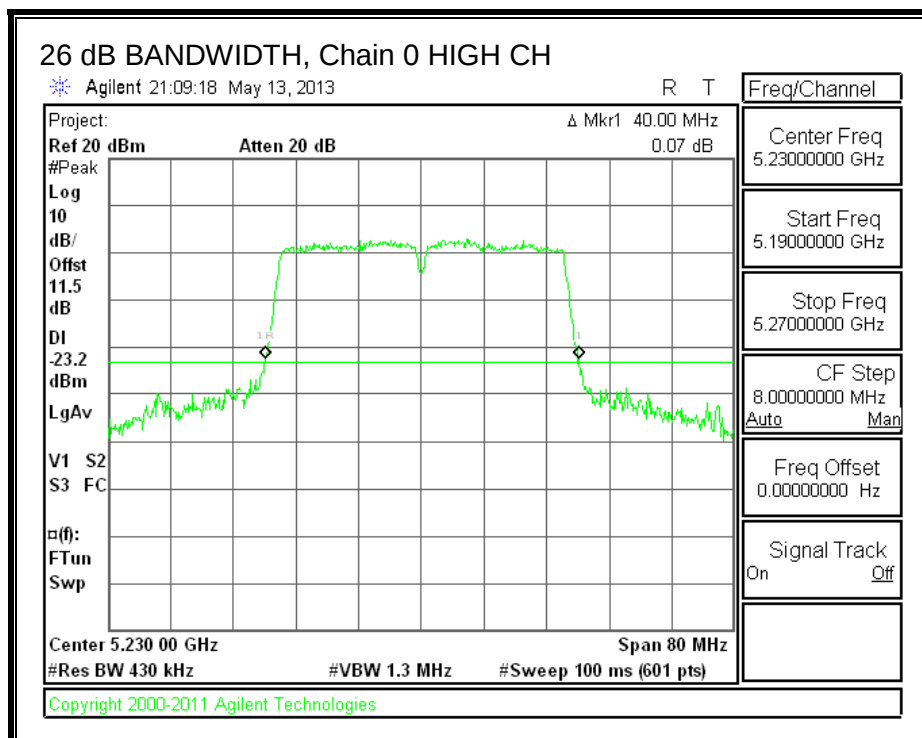
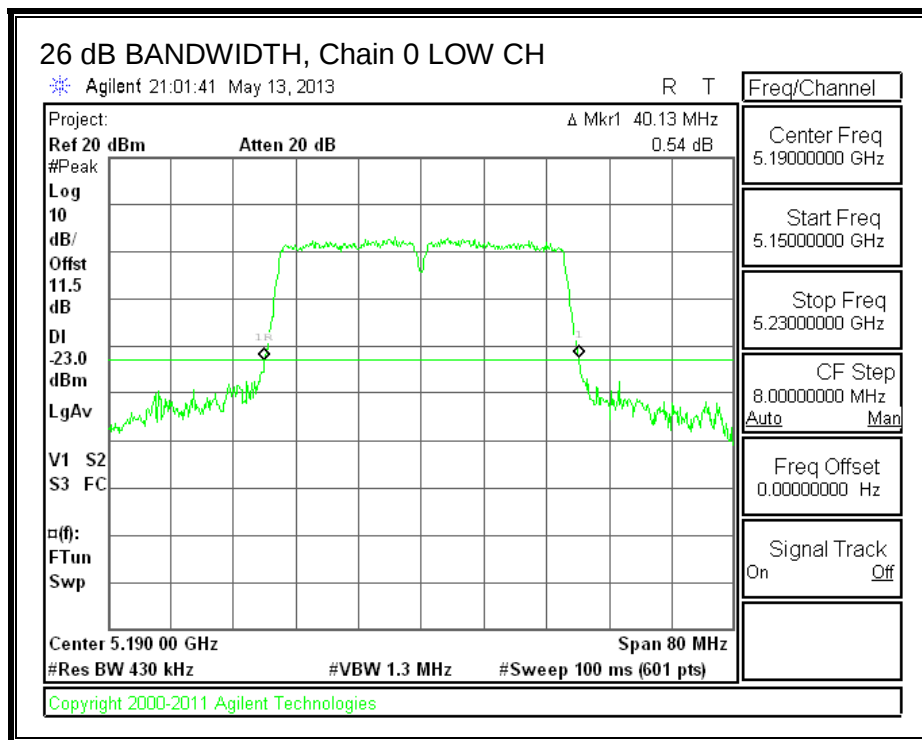
None; for reporting purposes only.

RESULTS

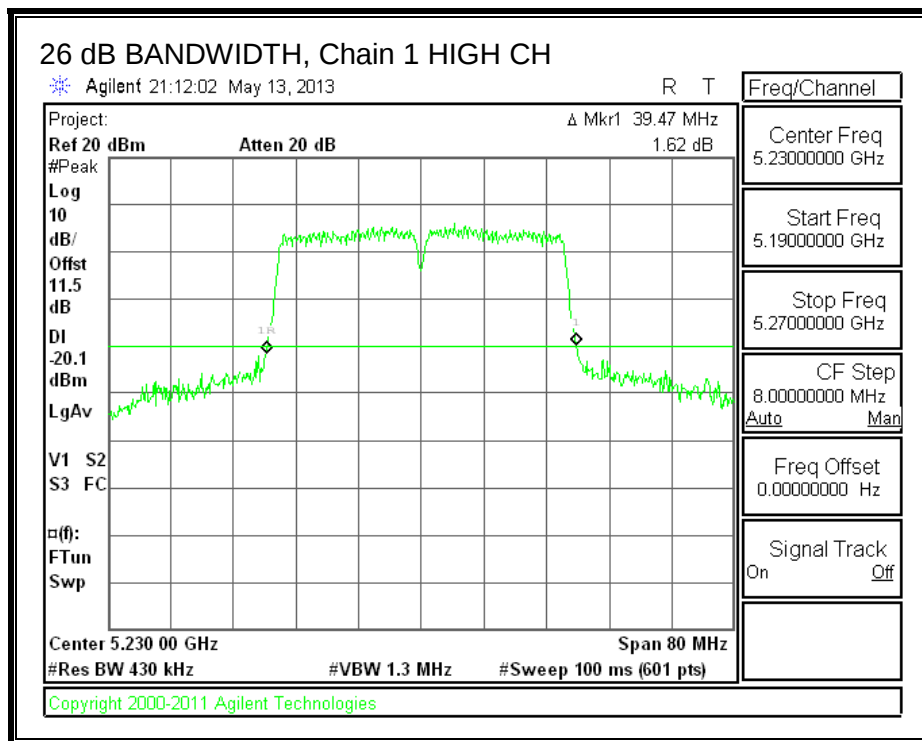
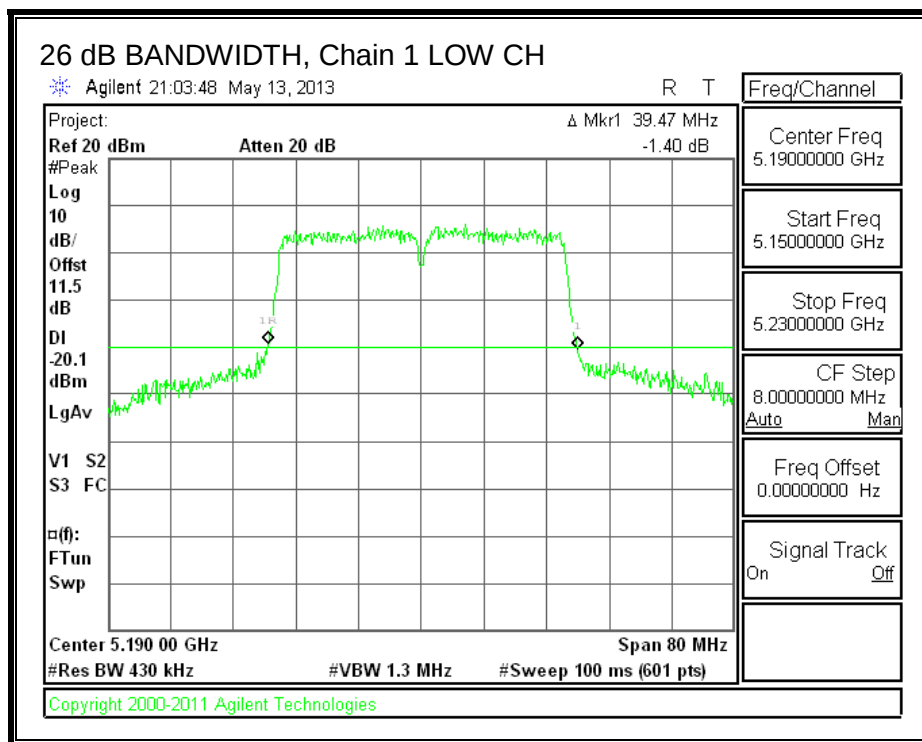
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5190	40.13	39.47
High	5230	40.00	39.47

26 dB BANDWIDTH

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.5.2. 99% BANDWIDTH

LIMITS

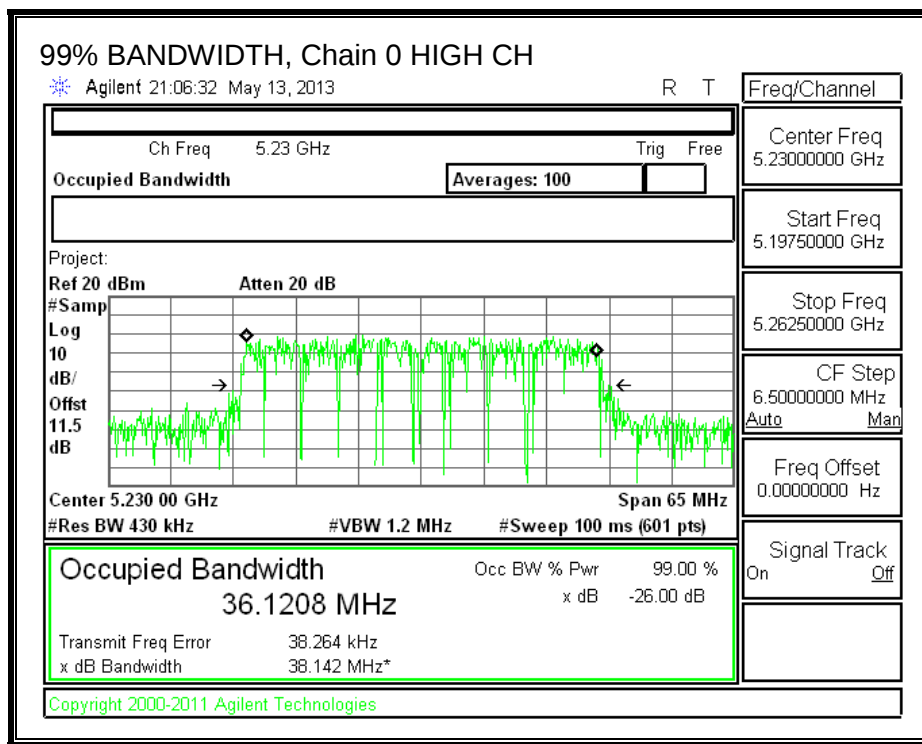
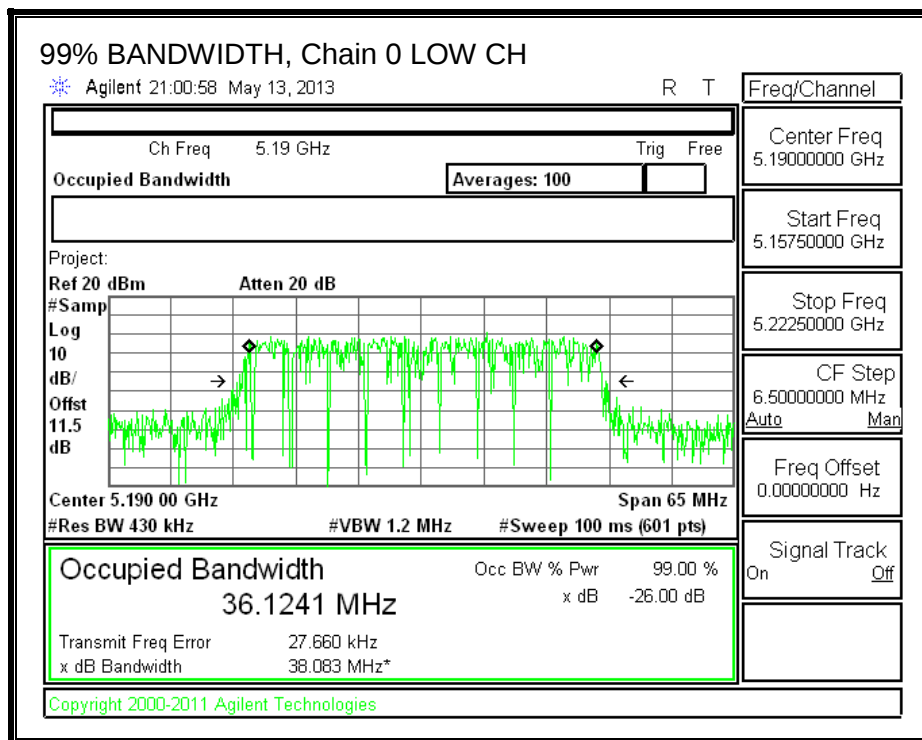
None; for reporting purposes only.

RESULTS

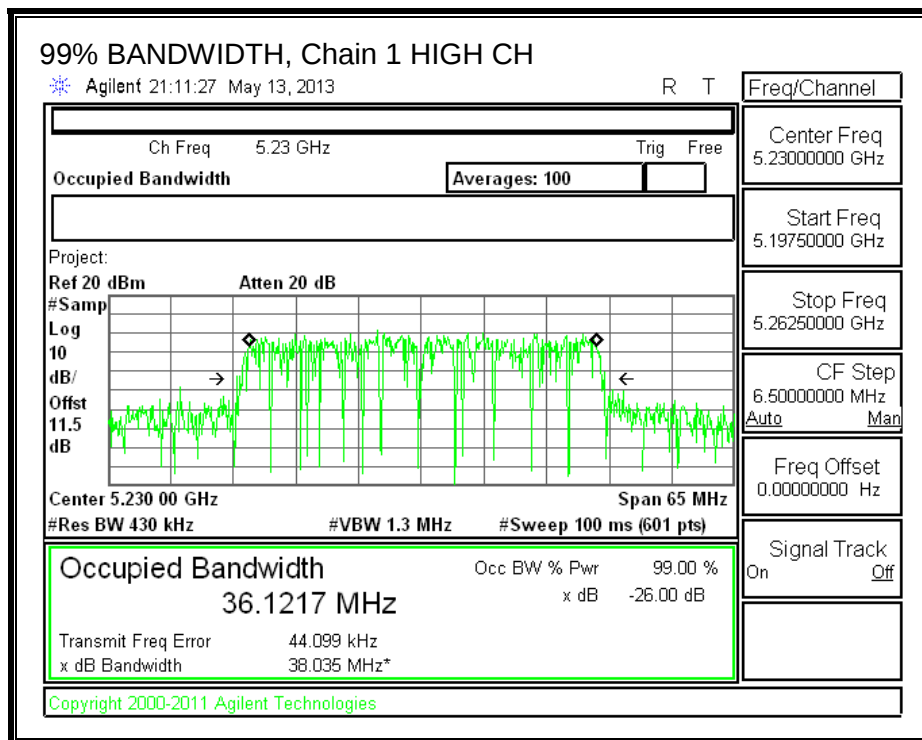
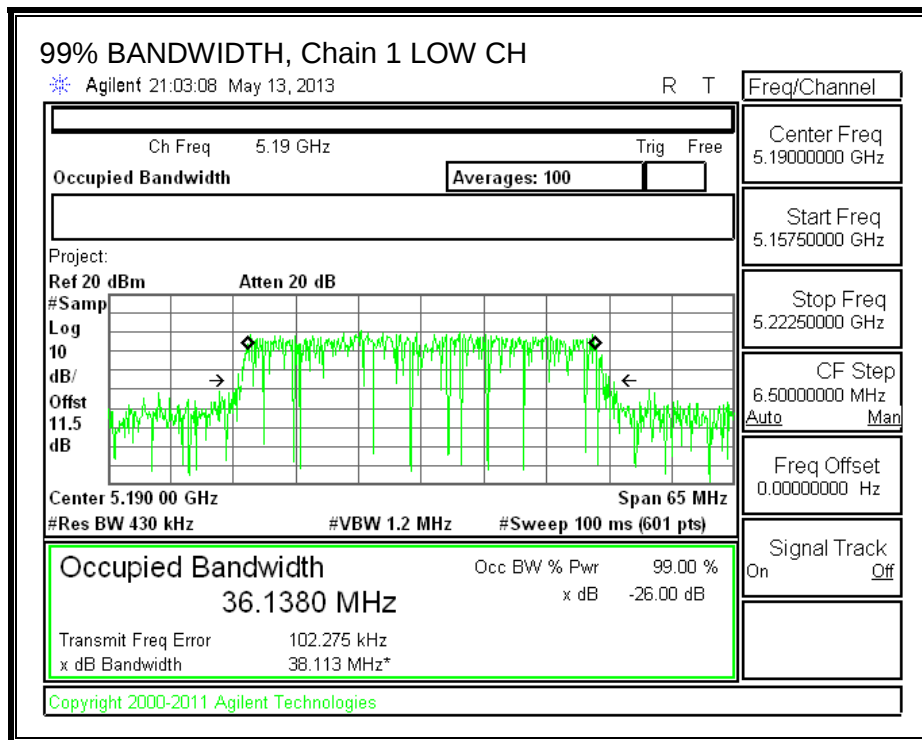
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5190	36.1241	36.1380
High	5230	36.1208	36.1217

99% BANDWIDTH

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.5.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10 \log B$, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

For PPSD, 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

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Uncorrelated Directional Gain (dBi)	Correlated Directional Gain (dBi)
Low	5190	39.47	36.1241	4.20	7.21
High	5230	39.47	36.1208	4.20	7.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5190	17.00	23.00	18.80	17.00	2.79	10.00	2.79
High	5230	17.00	23.00	18.80	17.00	2.79	10.00	2.79

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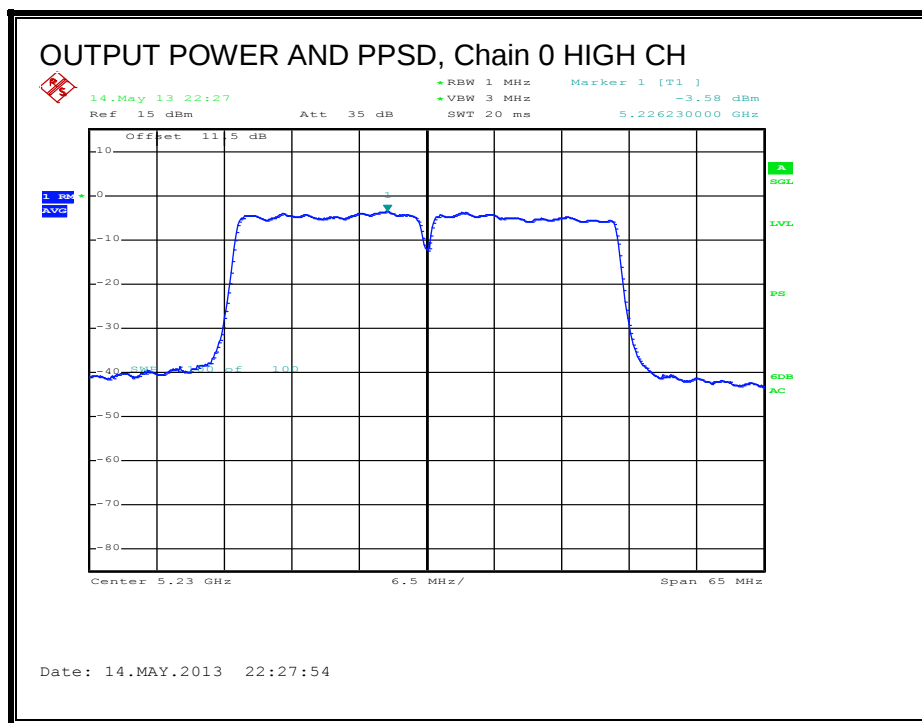
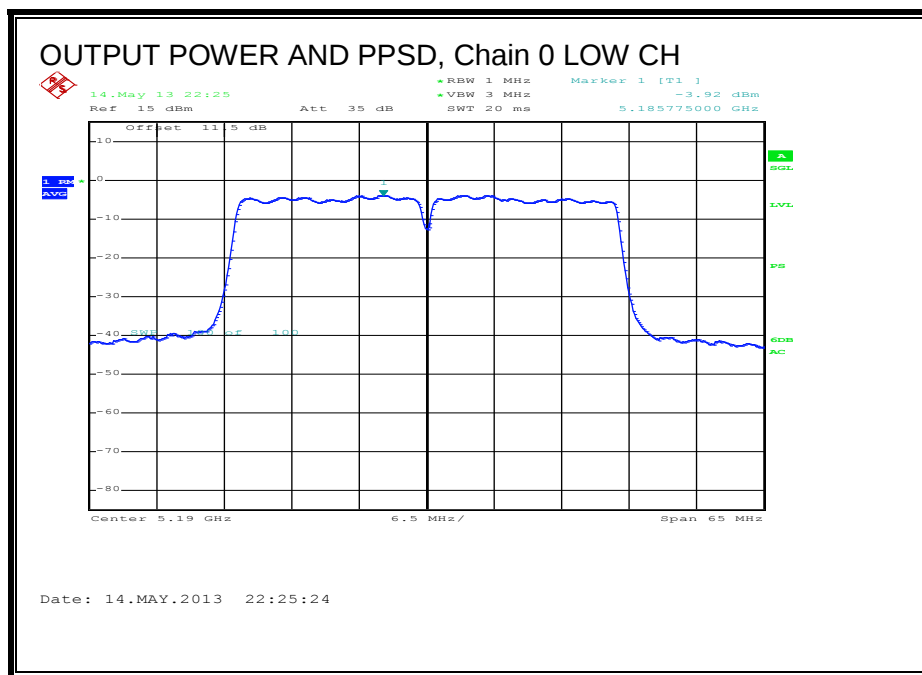
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	13.55	14.03	16.81	17.00	-0.19
High	5230	13.52	13.98	16.77	17.00	-0.23

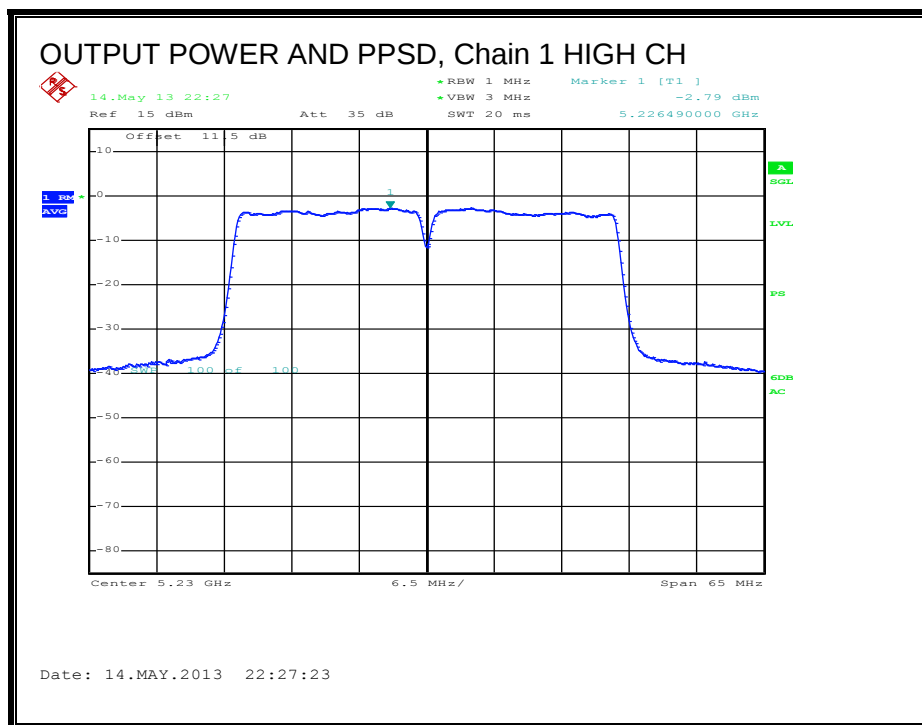
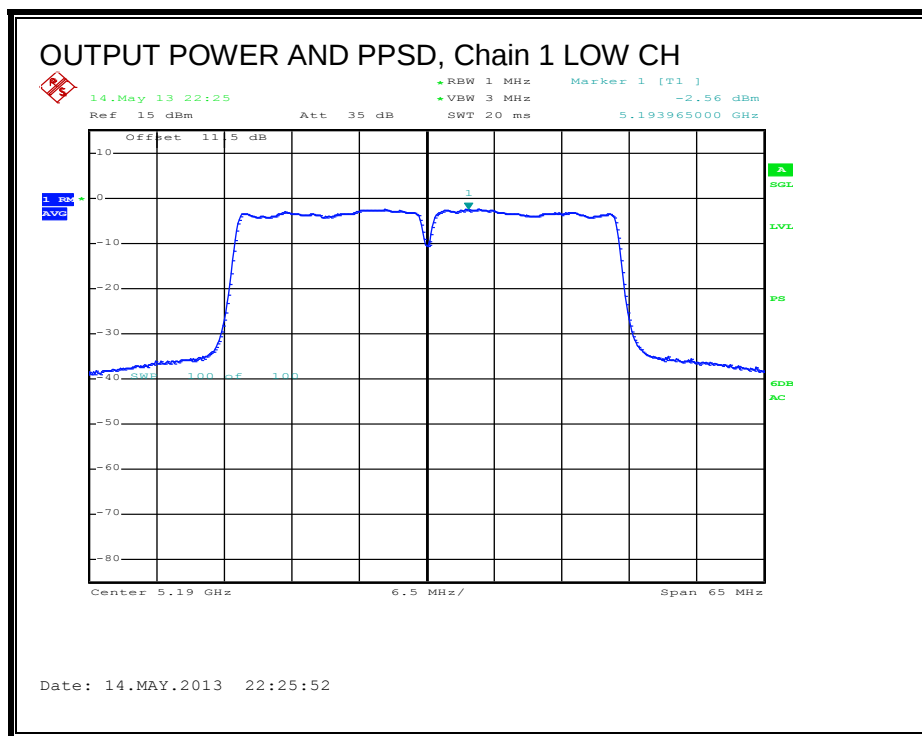
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5190	-3.92	-2.56	-0.18	2.79	-2.97
High	5230	-3.58	-2.79	-0.16	2.79	-2.95

OUTPUT POWER AND PPSD, Chain 0



OUTPUT POWER AND PPSD, Chain 1



8.6. 802.11ac VHT80 SISO MODE IN THE 5.2 GHz BAND

8.6.1. 26 dB BANDWIDTH

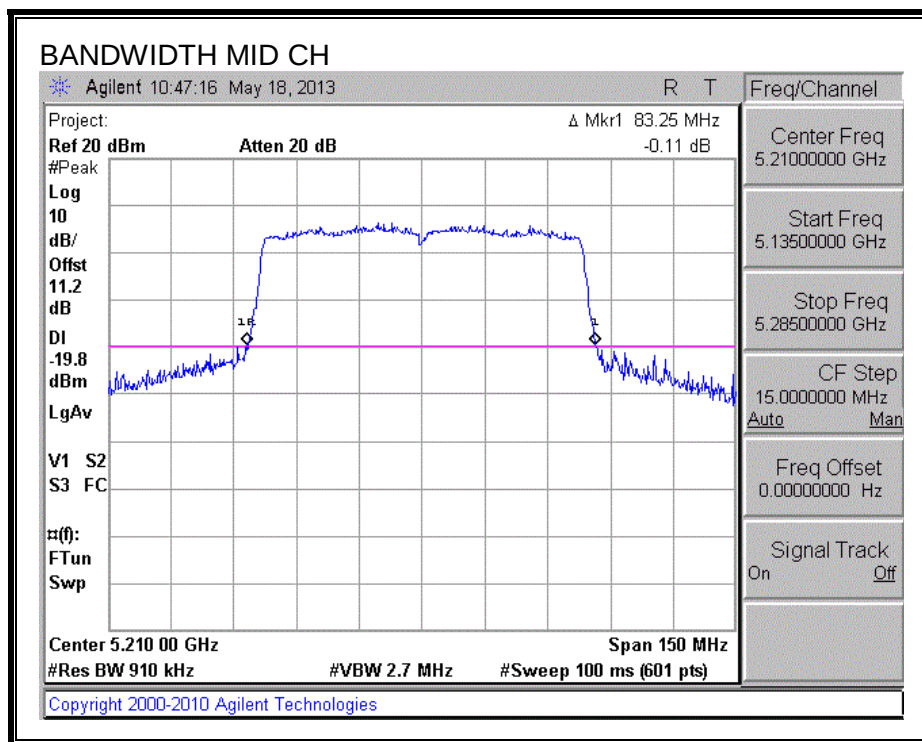
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Mid	5210	83.25

26 dB BANDWIDTH



8.6.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5210	75.3920

99% BANDWIDTH



8.6.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10 \log B$, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5210	80.3	75.4	4.20

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5210	17.00	23.00	18.80	17.00	4.00	10.00	4.00

Duty Cycle CF (dB)	0.16	Included in Calculations of PPSP
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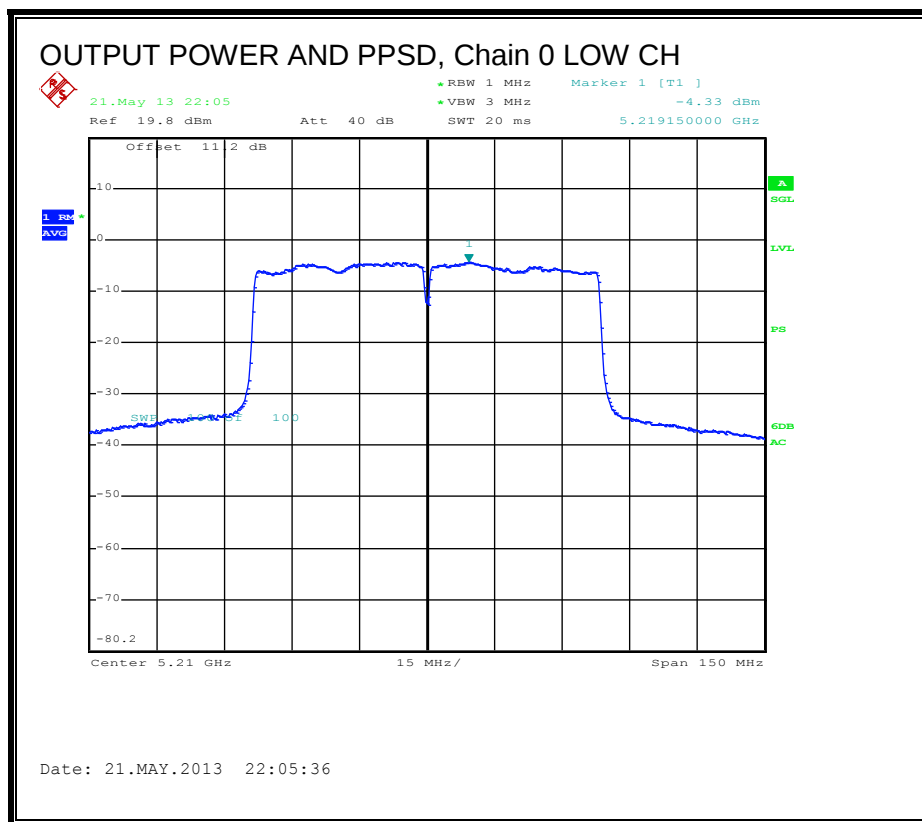
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5210	16.23	16.23	17.00	-0.77

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5210	-4.33	-4.17	4.00	-8.17

OUTPUT POWER AND PPSD, Chain 0



8.7. 802.11ac VHT80 CDD 2TX MODE IN THE 5.2 GHz BAND

8.7.1. 26 dB BANDWIDTH

LIMITS

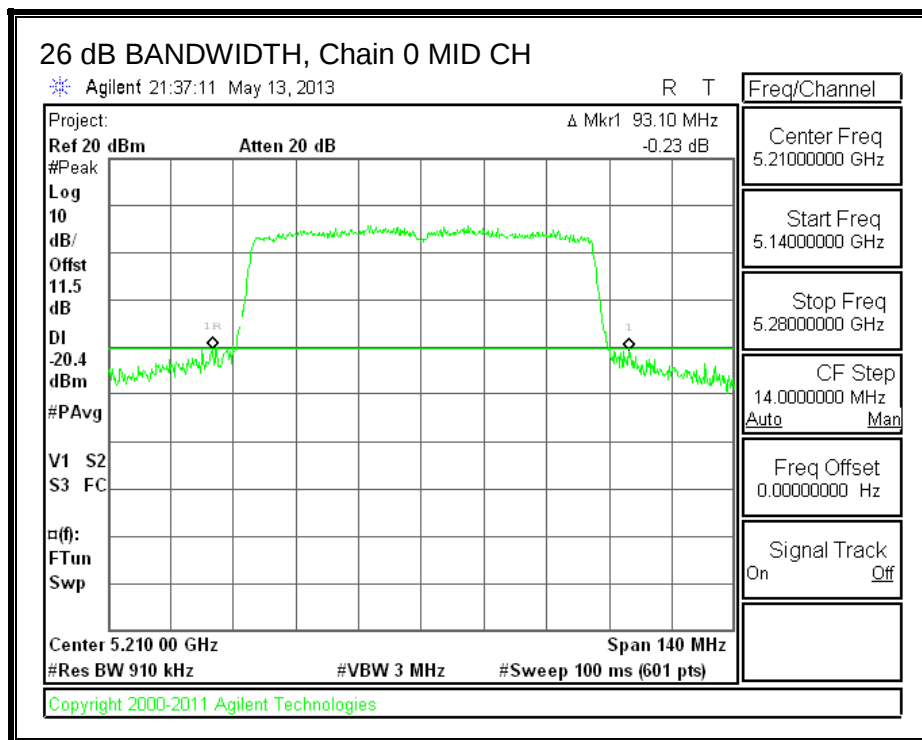
None; for reporting purposes only.

RESULTS

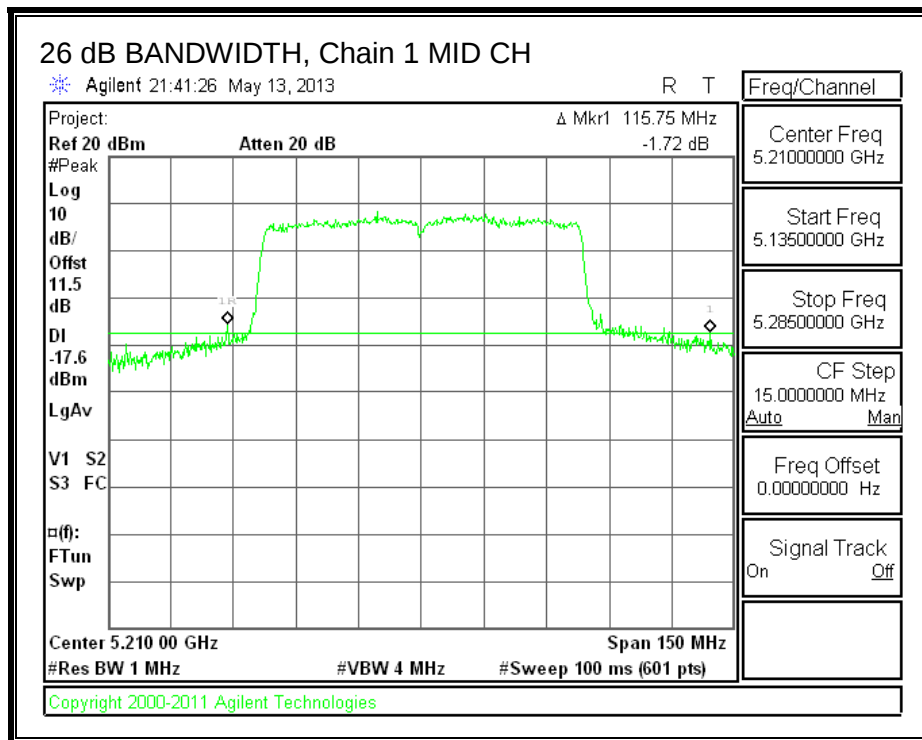
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Mid	5210	93.10	115.75

26 dB BANDWIDTH

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.7.2. 99% BANDWIDTH

LIMITS

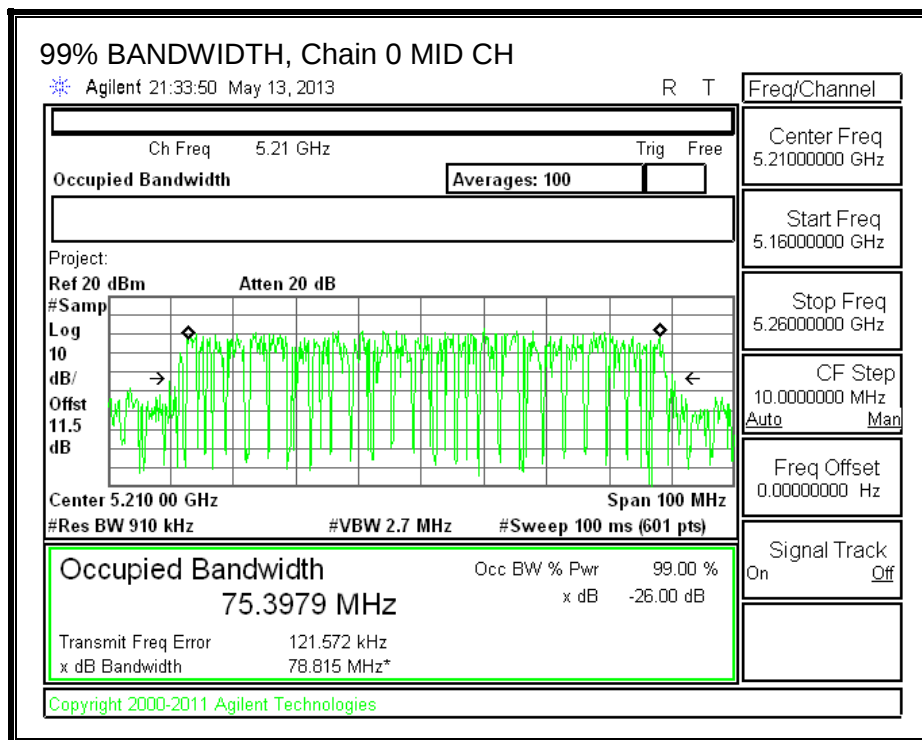
None; for reporting purposes only.

RESULTS

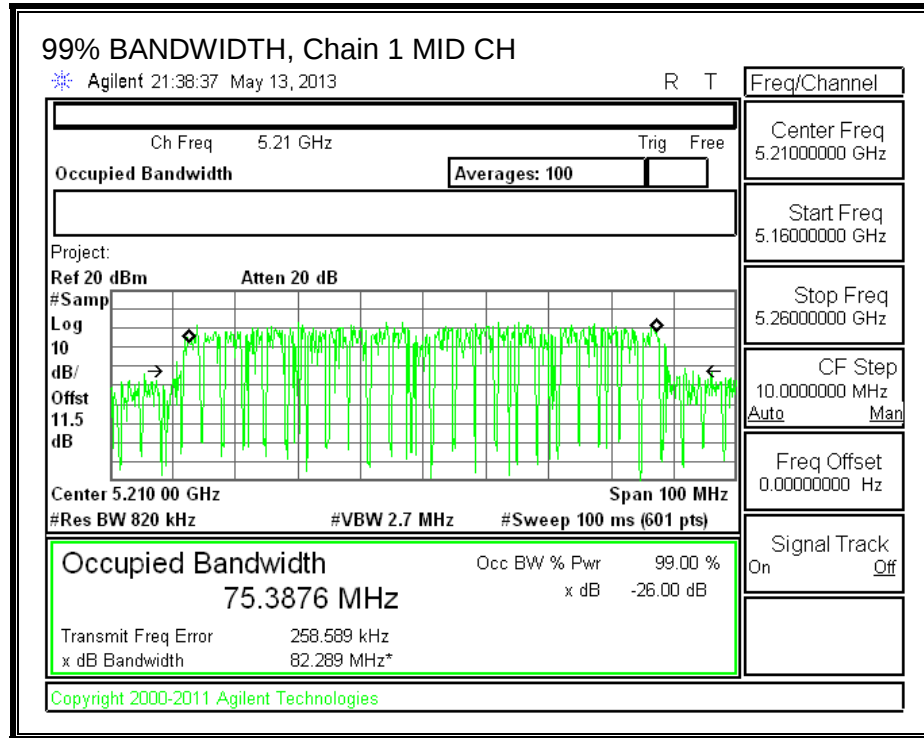
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Mid	5210	75.3979	75.3876

99% BANDWIDTH

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.7.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10 \log B$, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

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

Antenna Gain (dBi)	$10 * \log (2 \text{ chains})$ (dB)	Correlated Chains Directional Gain (dBi)
4.20	3.01	7.21

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Uncorrelated Directional Gain (dBi)	Correlated Directional Gain (dBi)
Mid	5210	93.10	75.3876	4.20	7.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Mid	5210	17.00	23.00	18.80	17.00	2.79	10.00	2.79

Duty Cycle CF (dB)	0.16	Included in Calculations of Corr'd Power & PPSP
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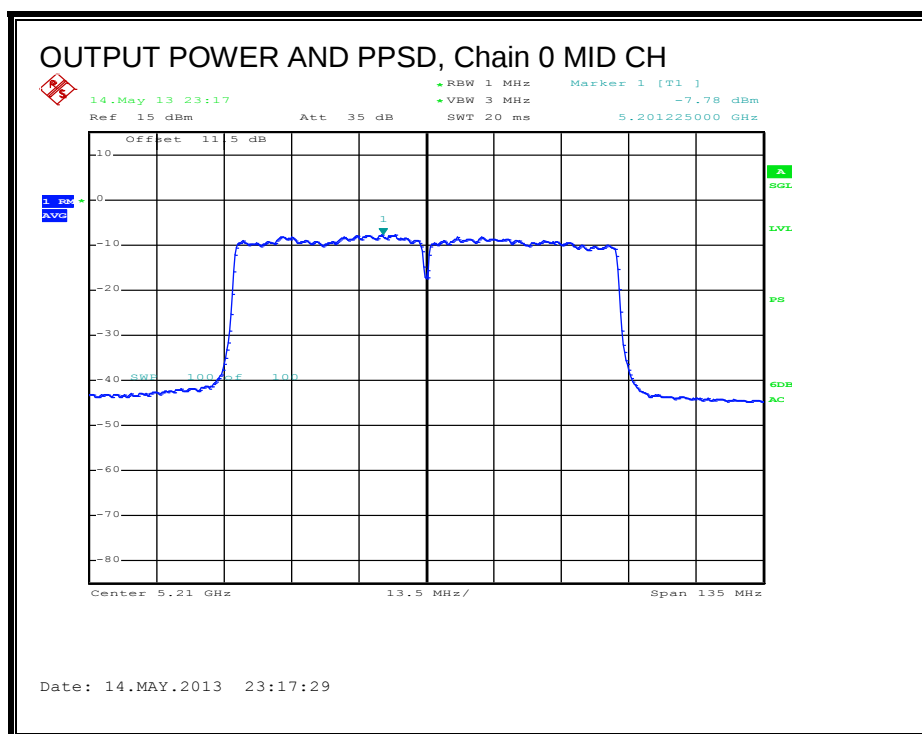
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5210	13.53	14.10	16.83	17.00	-0.17

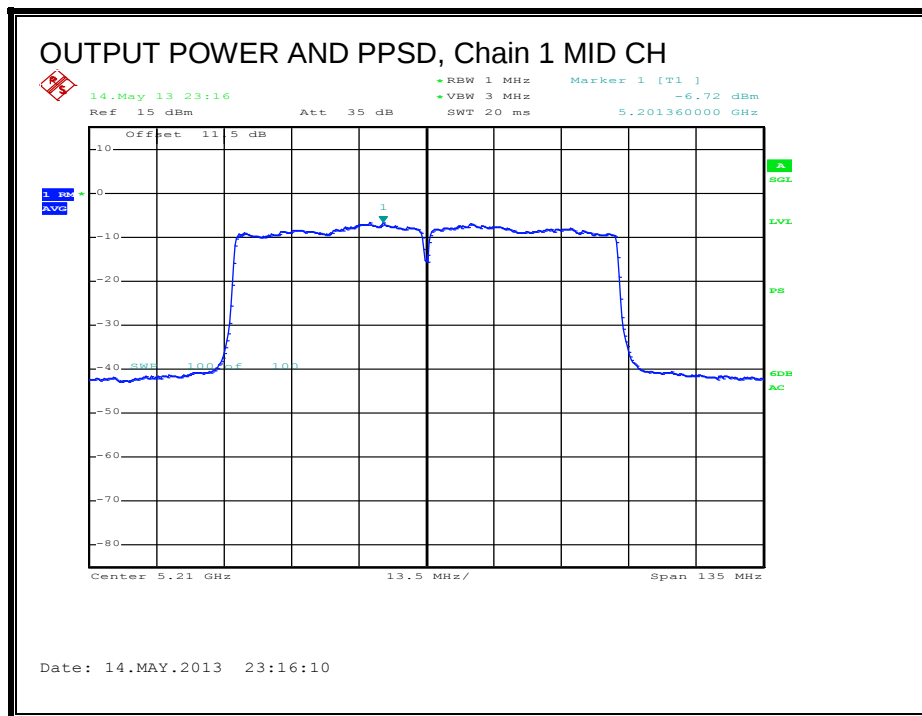
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Mid	5210	-7.78	-6.72	-4.05	2.79	-6.84

OUTPUT POWER AND PPSD, Chain 0



OUTPUT POWER AND PPSD, Chain 1



8.8. 802.11a LEGACY MODE IN THE 5.3 GHz BAND

8.8.1. 26 dB BANDWIDTH

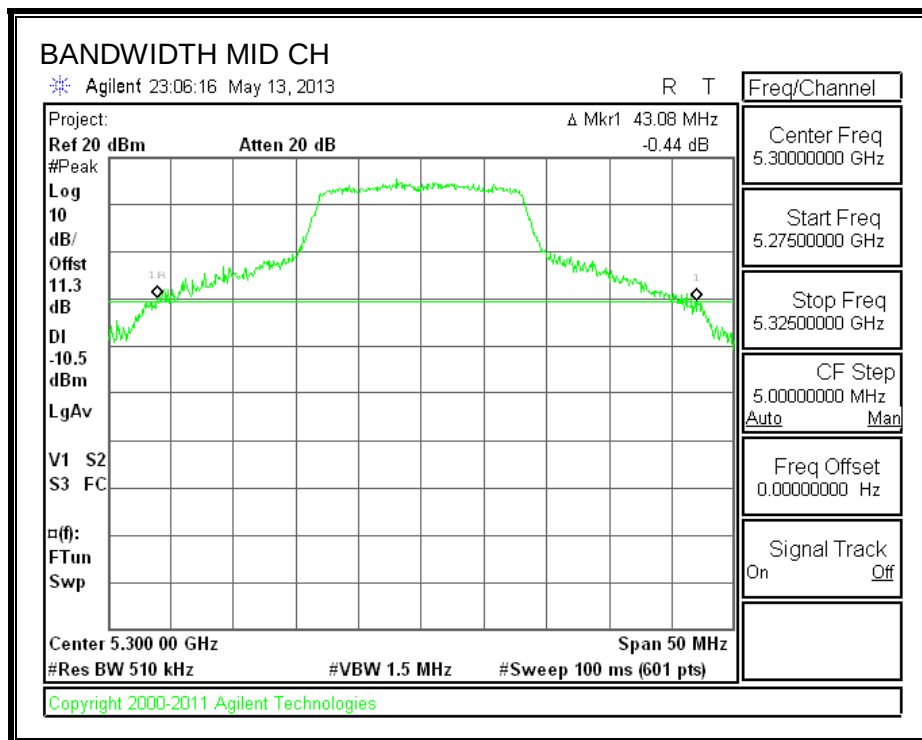
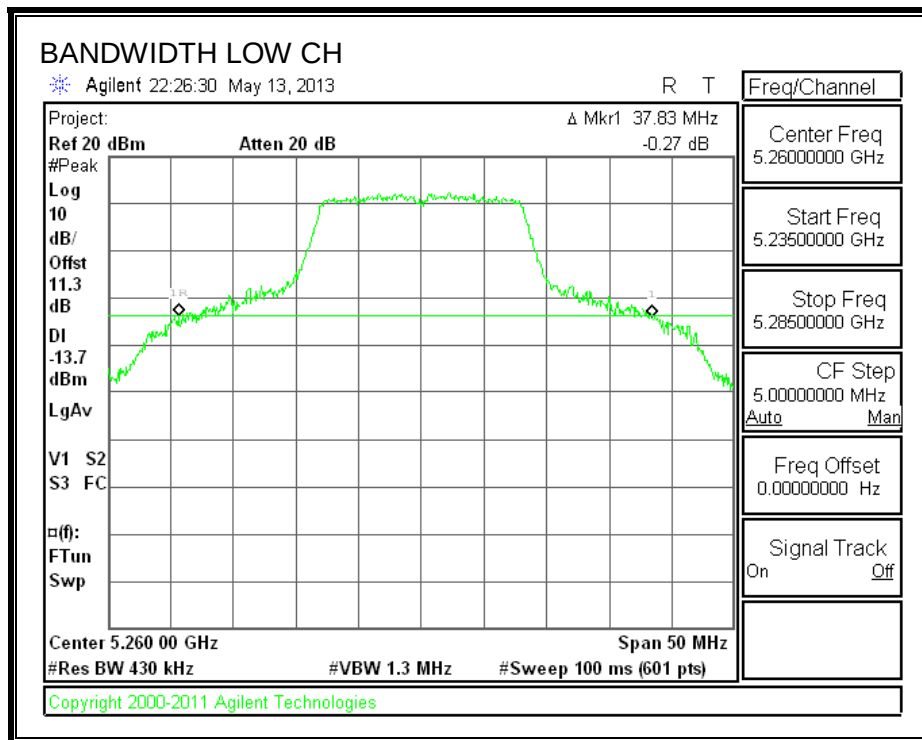
LIMITS

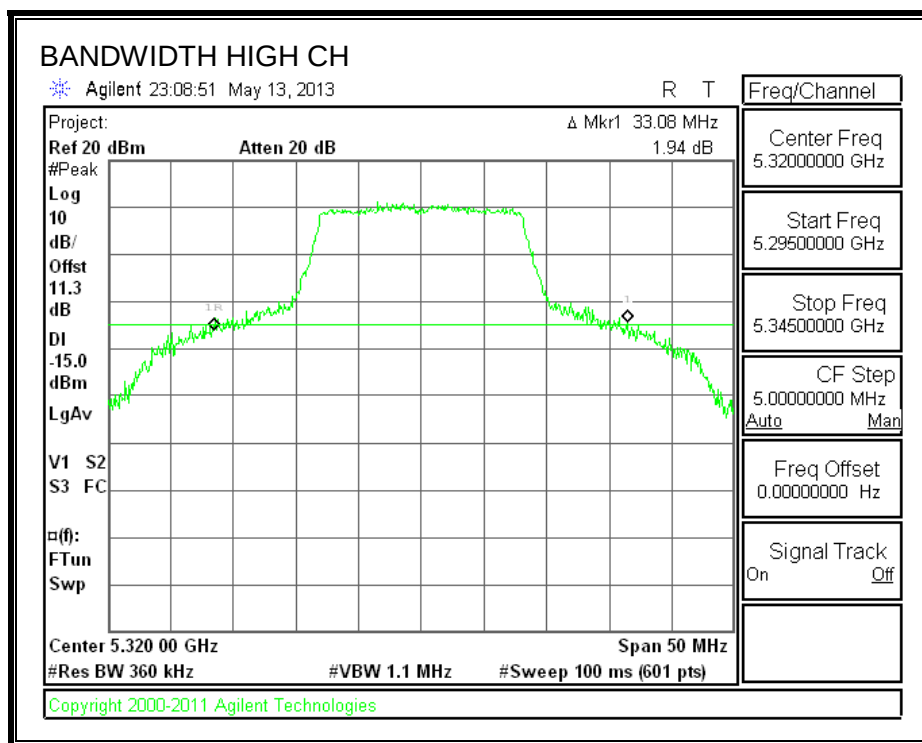
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	37.83
Mid	5300	43.08
High	5320	33.08

26 dB BANDWIDTH





8.8.2. 99% BANDWIDTH

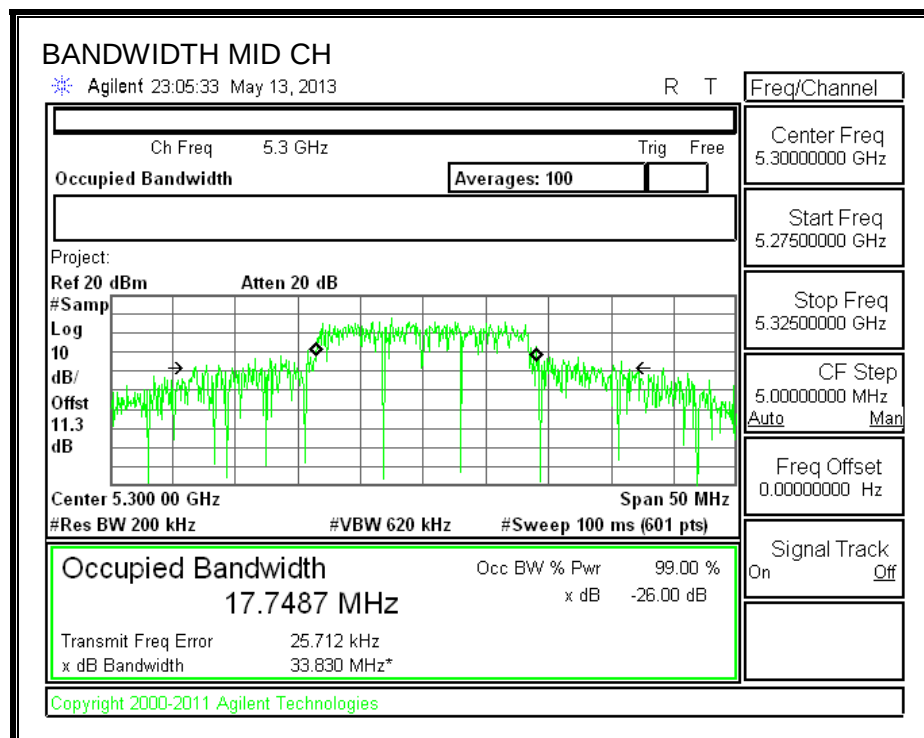
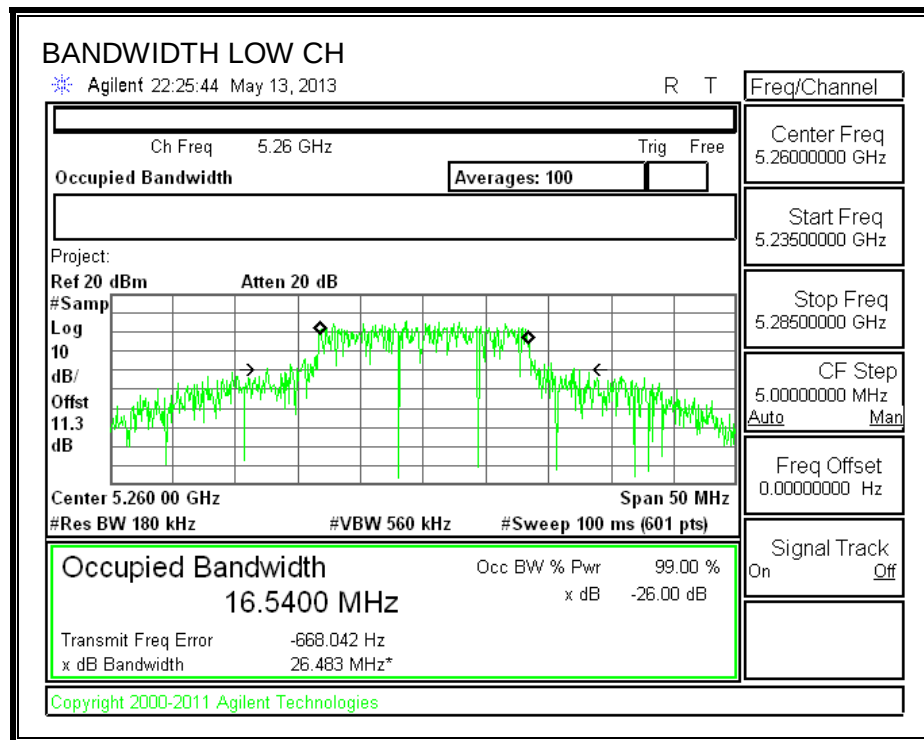
LIMITS

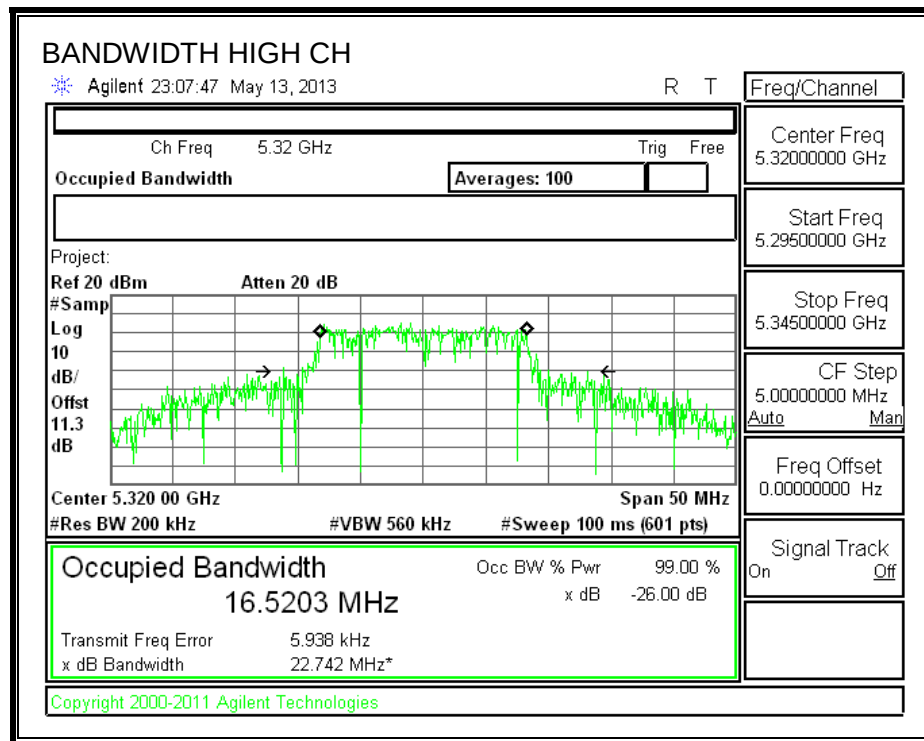
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	16.5400
Mid	5300	17.7487
High	5320	16.5203

99% BANDWIDTH





8.8.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	37.83	16.5400	4.50
Mid	5300	43.08	17.7487	4.50
High	5320	33.08	16.5203	4.50

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.19	29.19	23.19	11.00	11.00	11.00
Mid	5300	24.00	23.49	29.49	23.49	11.00	11.00	11.00
High	5320	24.00	23.18	29.18	23.18	11.00	11.00	11.00

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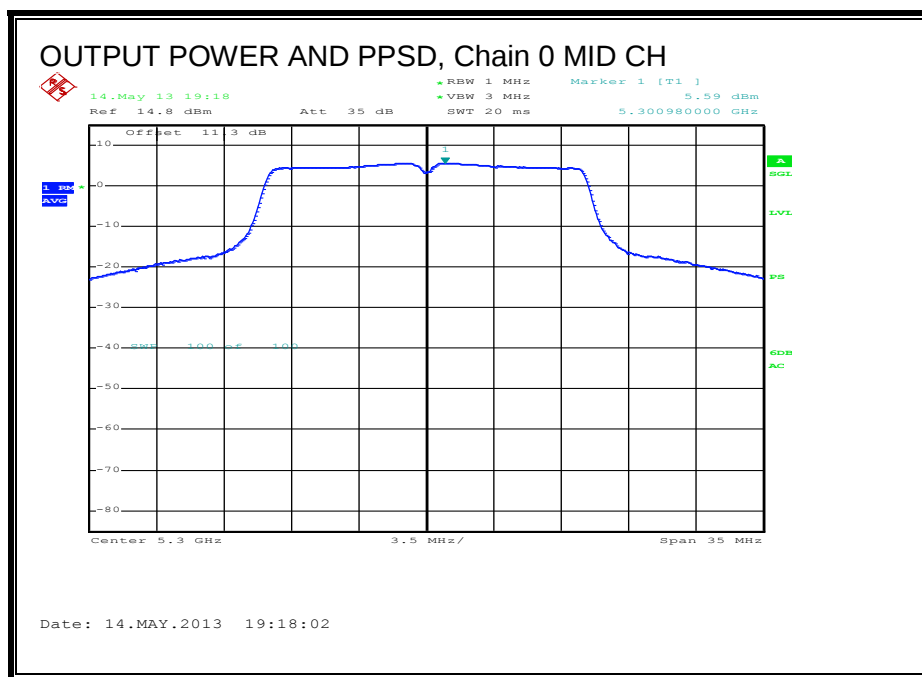
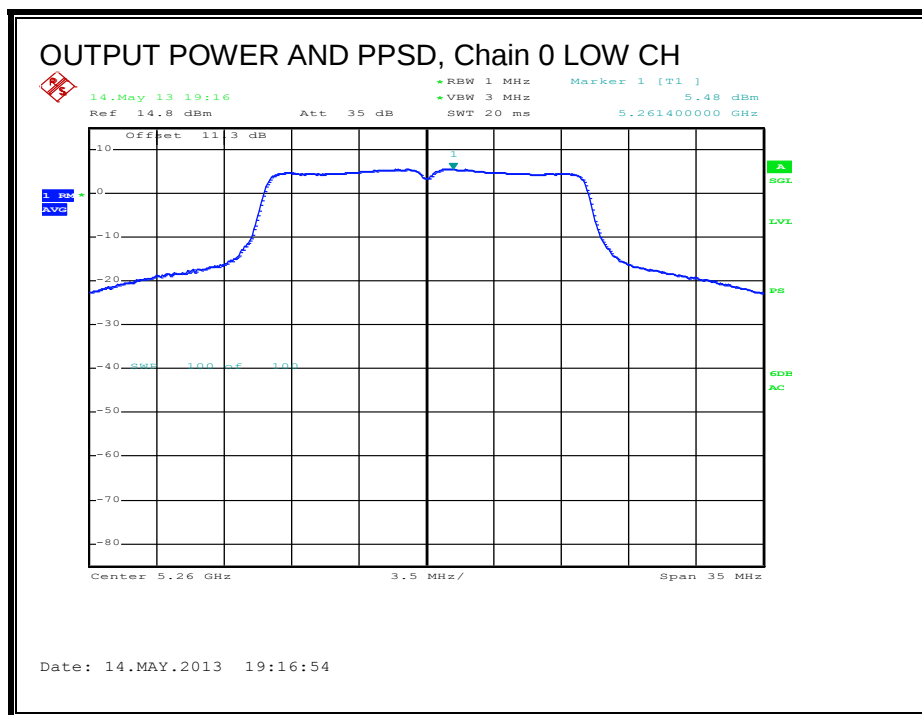
Output Power Results

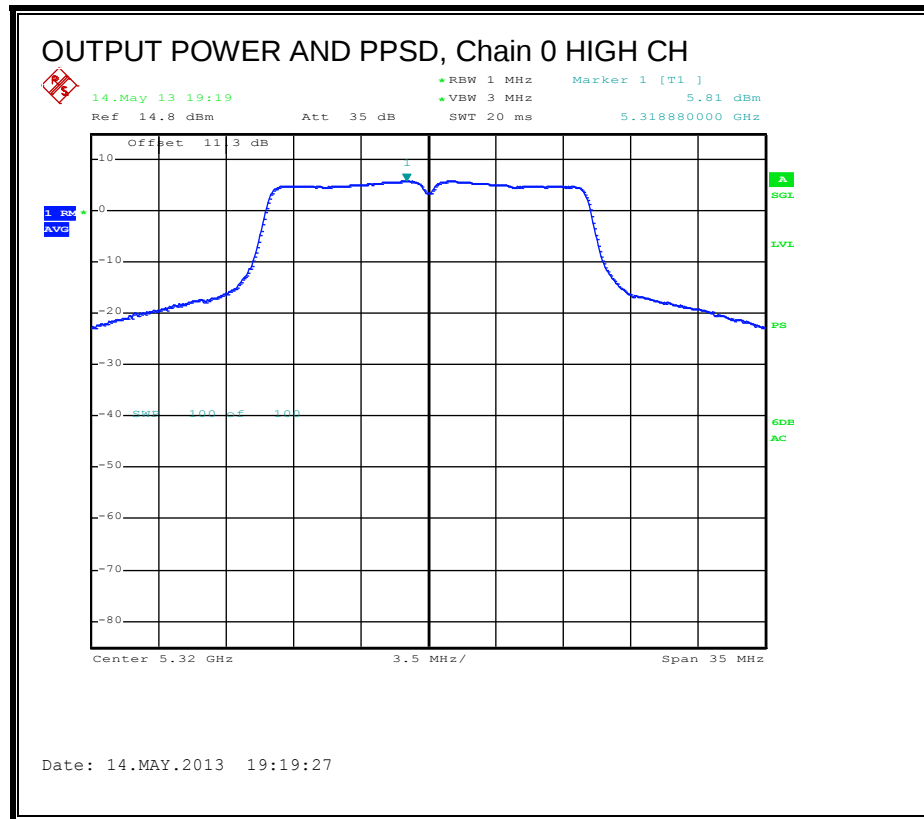
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	20.01	20.01	23.19	-3.18
Mid	5300	20.12	20.12	23.49	-3.37
High	5320	18.82	18.82	23.18	-4.36

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	5.48	5.48	11.00	-5.52
Mid	5300	5.59	5.59	11.00	-5.41
High	5320	5.81	5.81	11.00	-5.19

OUTPUT POWER AND PPSD, Chain 0





8.9. 802.11n HT20 STBC 2TX MODE IN THE 5.3 GHz BAND

8.9.1. 26 dB BANDWIDTH

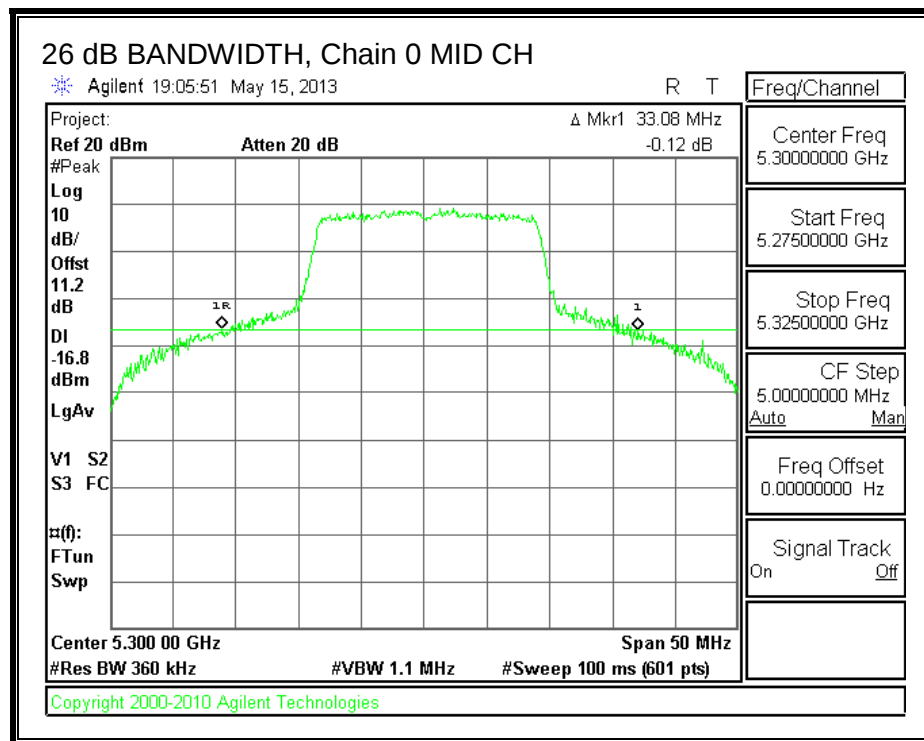
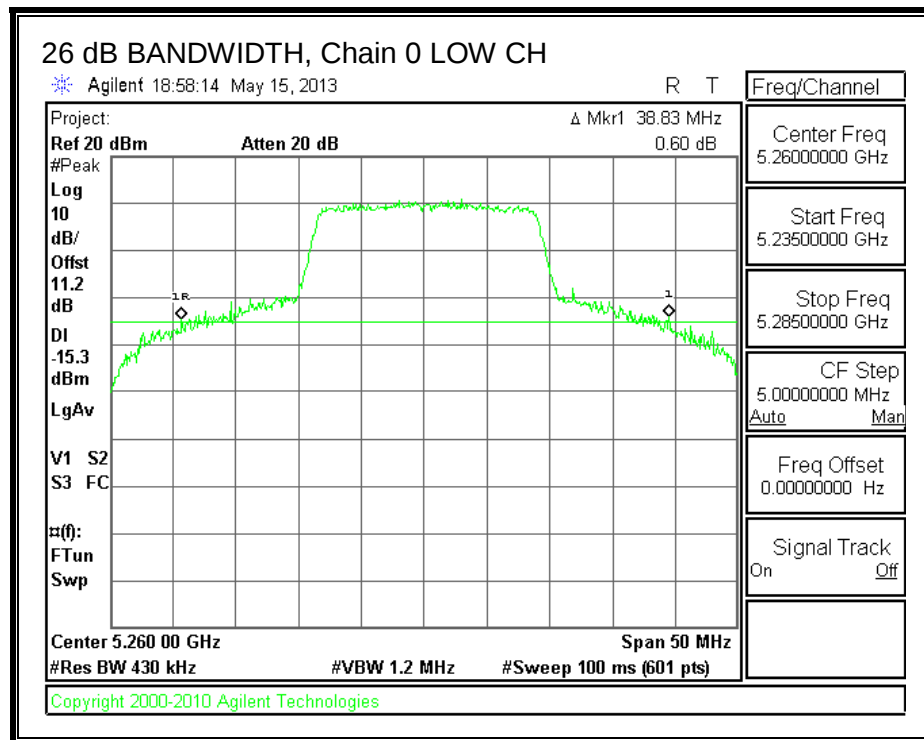
LIMITS

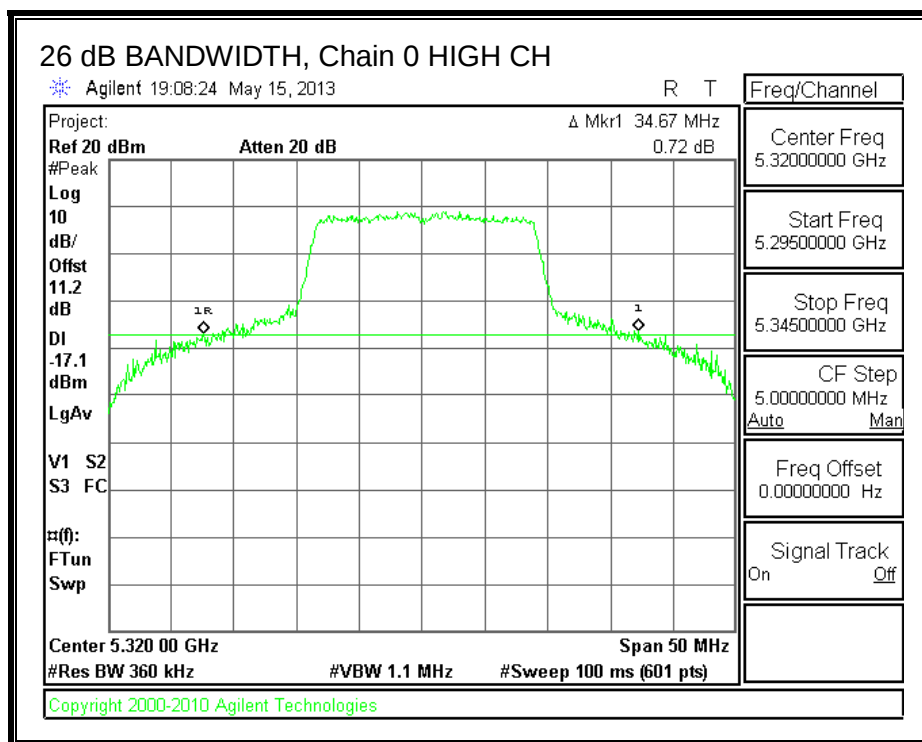
None; for reporting purposes only.

RESULTS

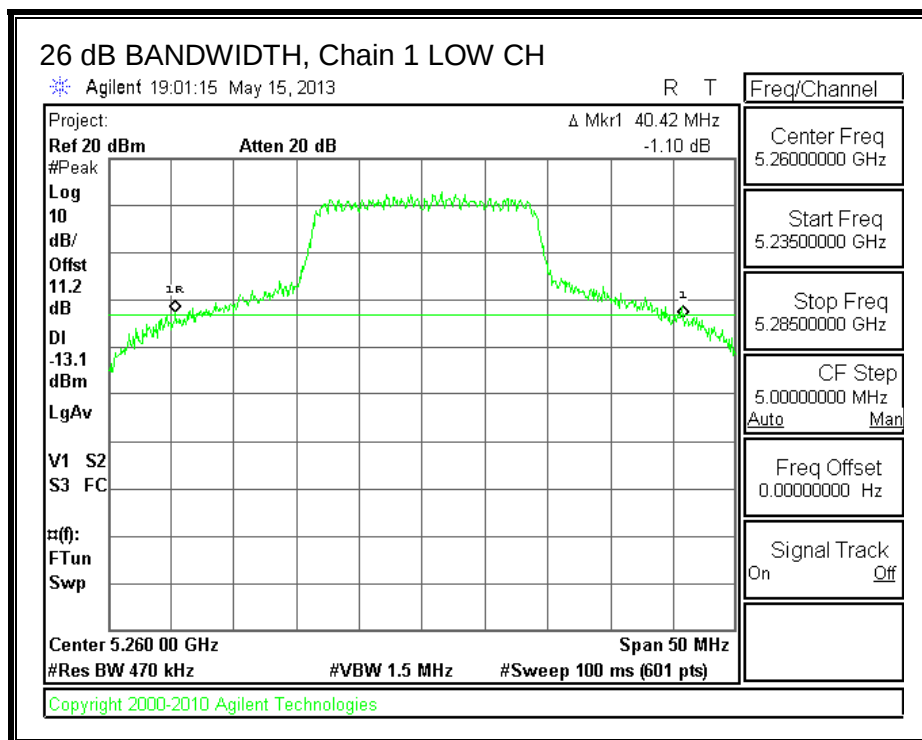
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5260	38.83	40.42
Mid	5300	33.08	44.08
High	5320	34.67	43.42

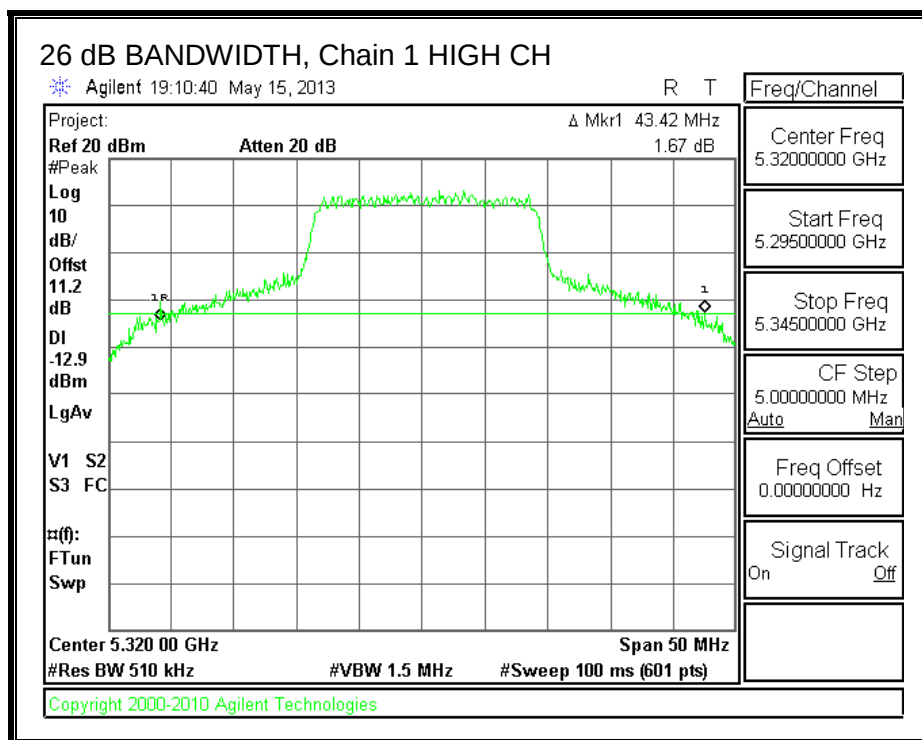
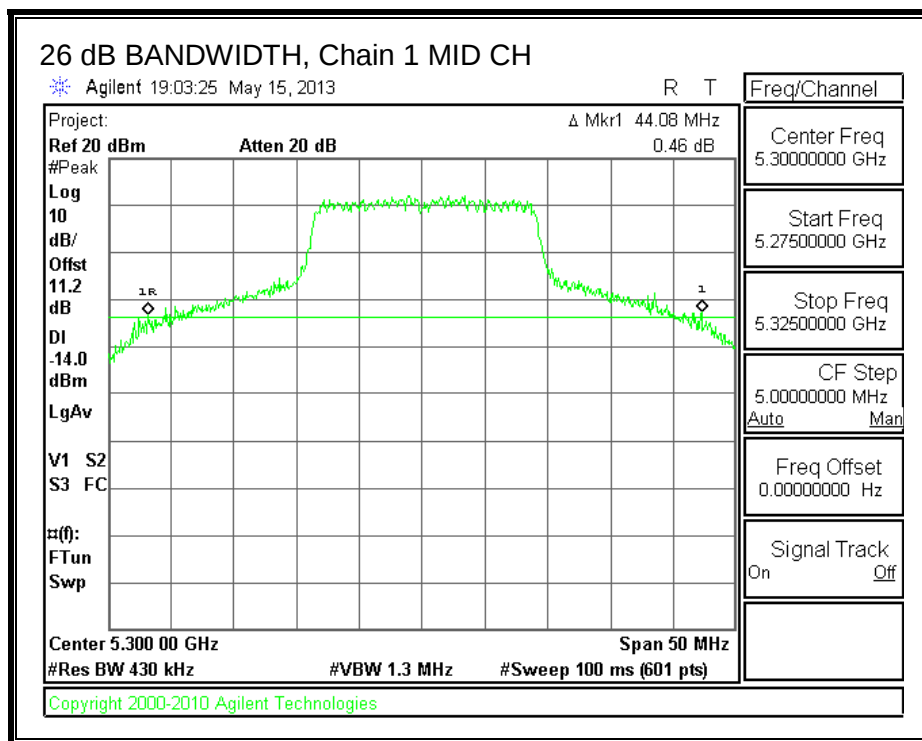
26 dB BANDWIDTH, Chain 0





26 dB BANDWIDTH, Chain 1





8.9.2. 99% BANDWIDTH

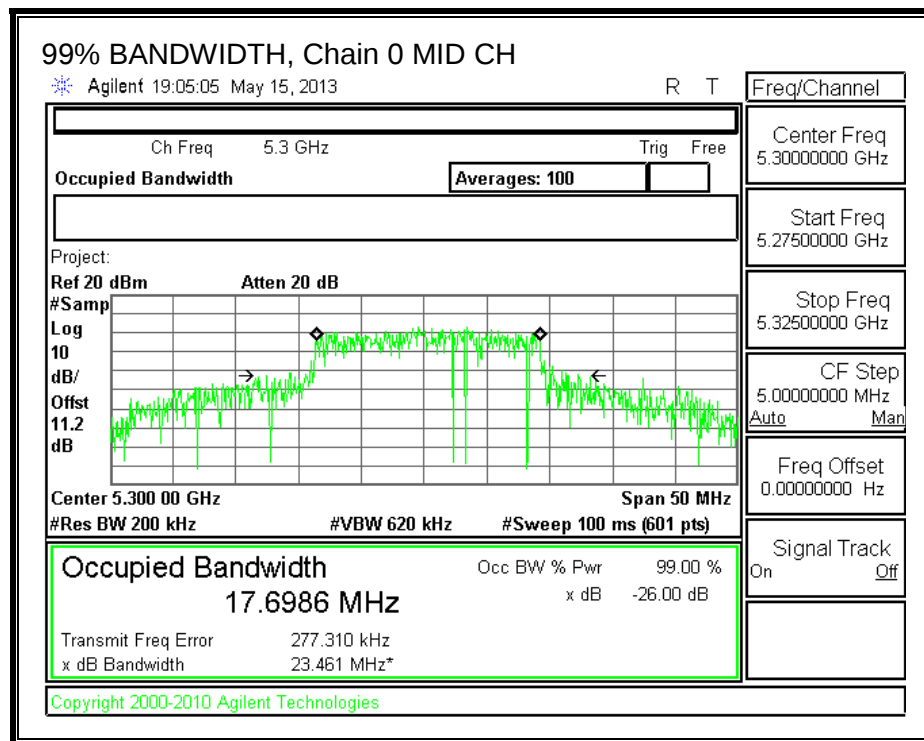
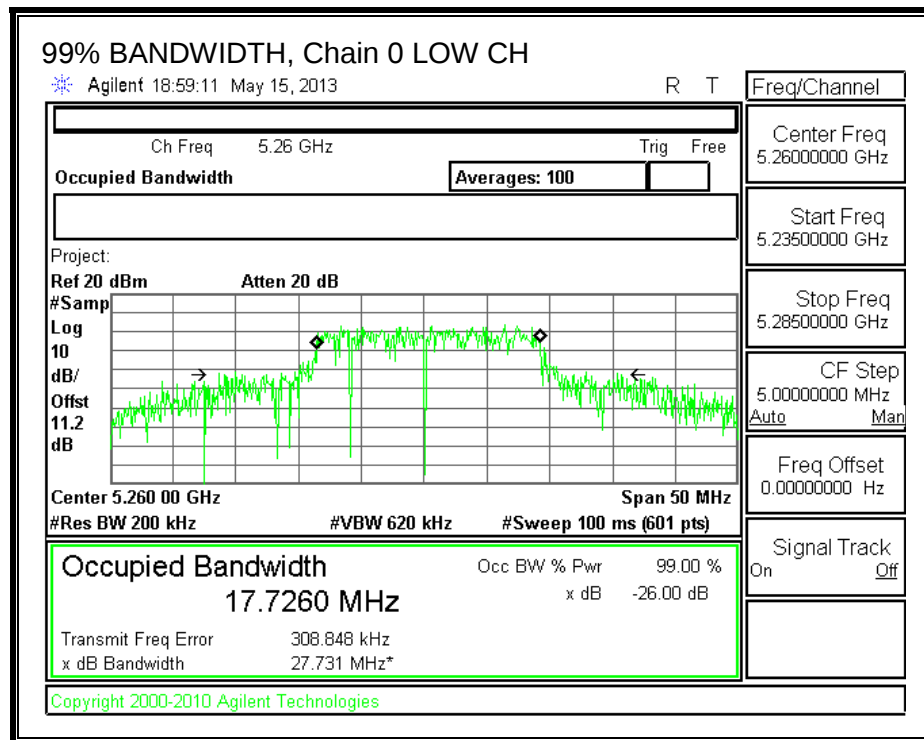
LIMITS

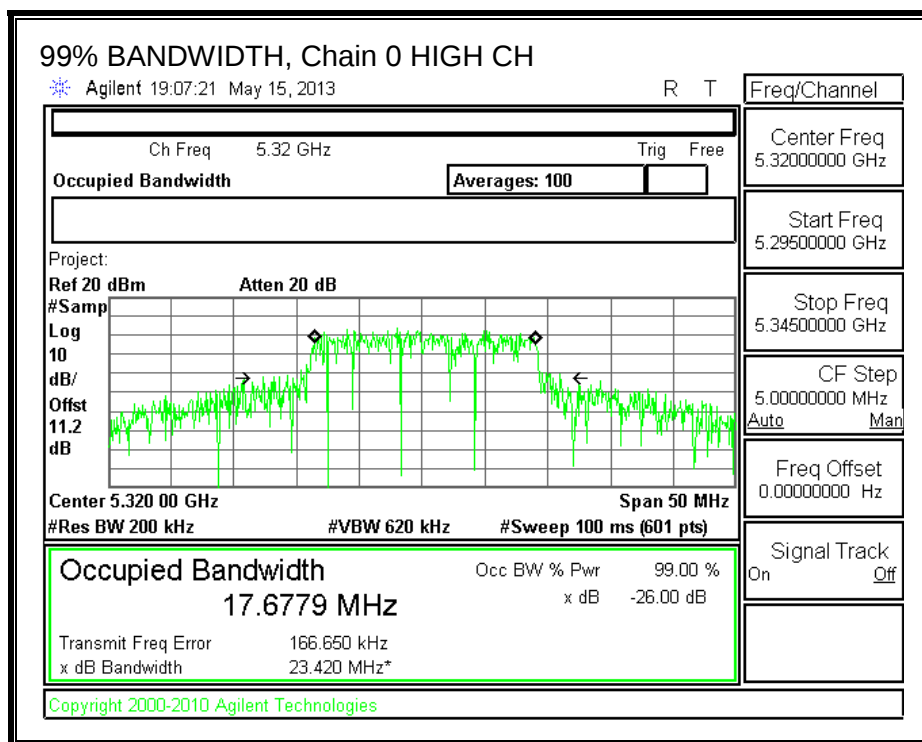
None; for reporting purposes only.

RESULTS

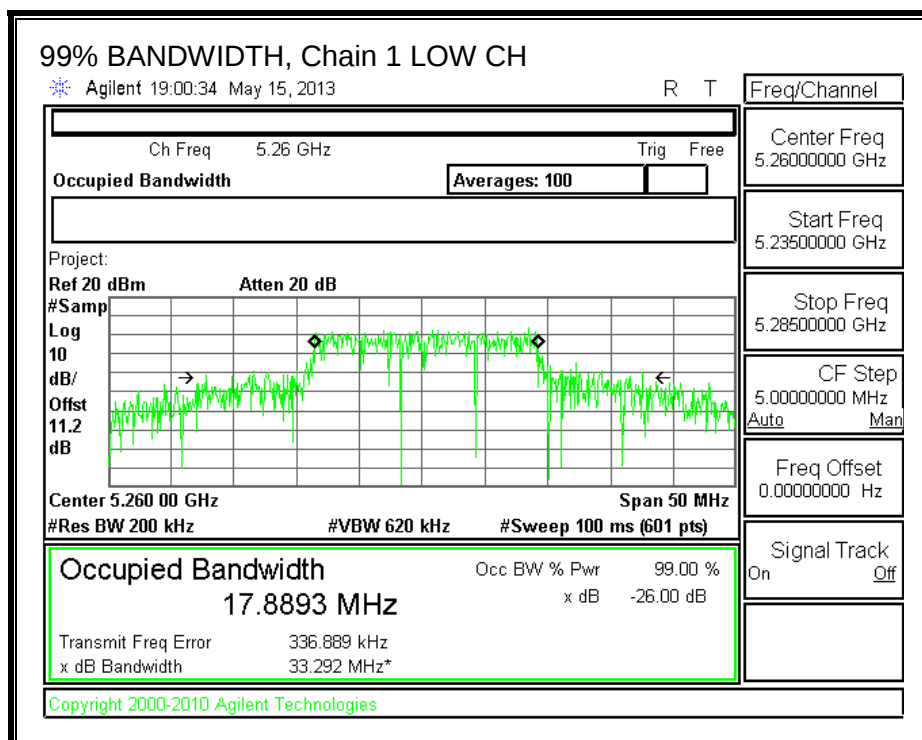
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5260	17.7260	17.8893
Mid	5300	17.6986	18.6977
High	5320	17.6779	18.0740

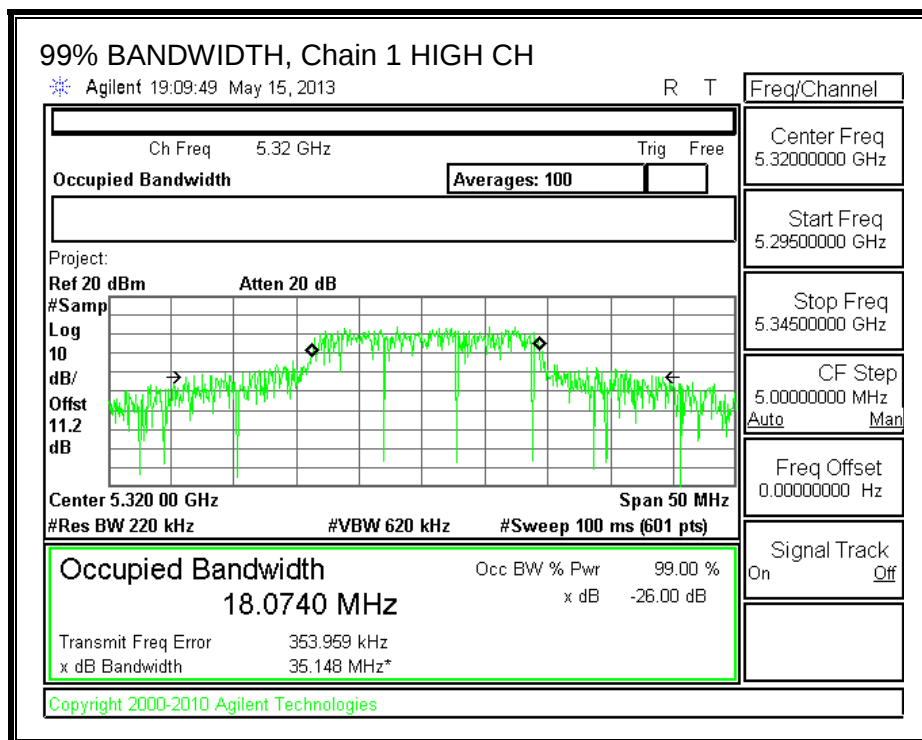
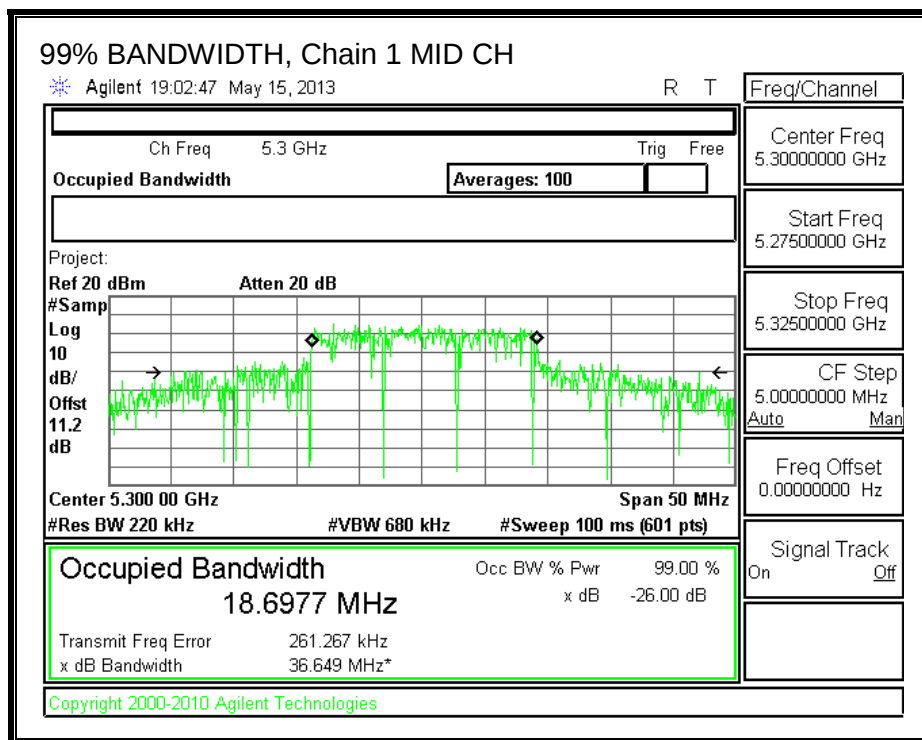
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.9.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	38.8	17.7260	4.50
Mid	5300	33.1	17.6986	4.50
High	5320	34.7	17.6779	4.50

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.49	29.49	23.49	11.00	11.00	11.00
Mid	5300	24.00	23.48	29.48	23.48	11.00	11.00	11.00
High	5320	24.00	23.47	29.47	23.47	11.00	11.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of PPSP
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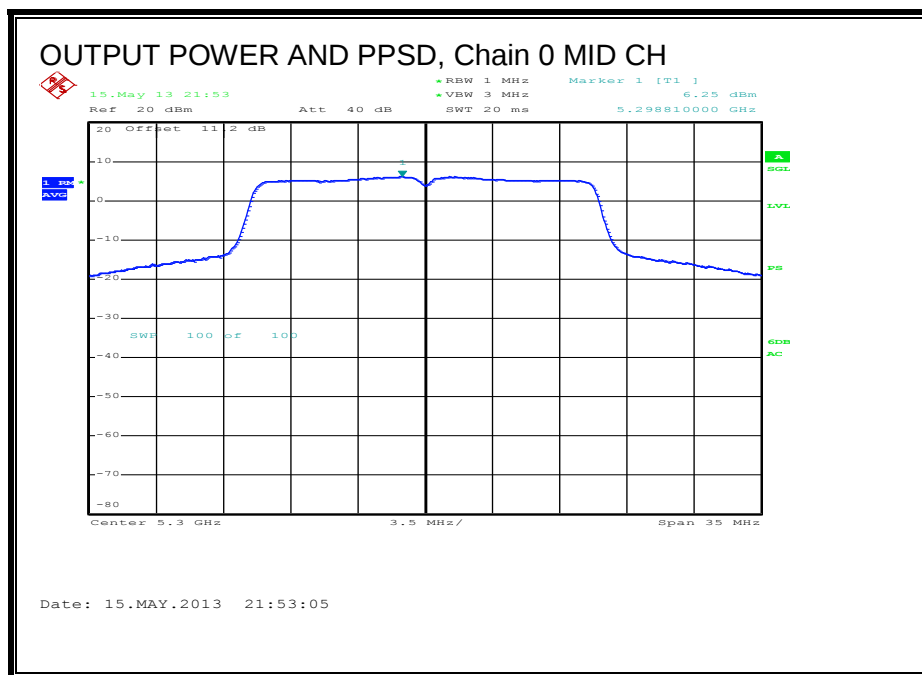
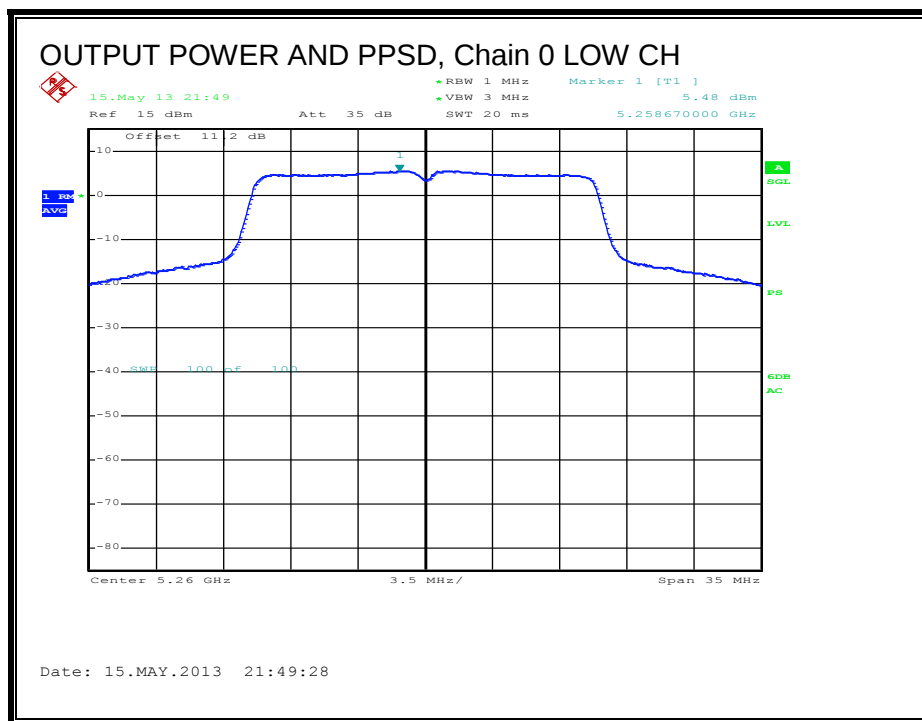
Output Power Results

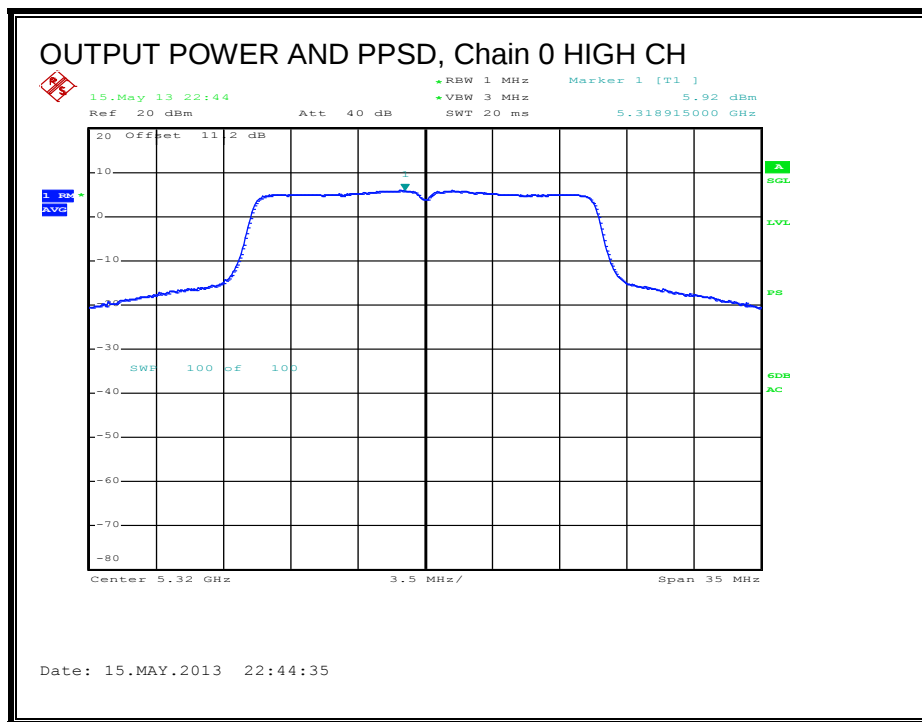
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	19.89	20.35	23.14	23.49	-0.35
Mid	5300	20.02	20.33	23.19	23.48	-0.29
High	5320	19.64	20.04	22.85	23.47	-0.62

PPSD Results

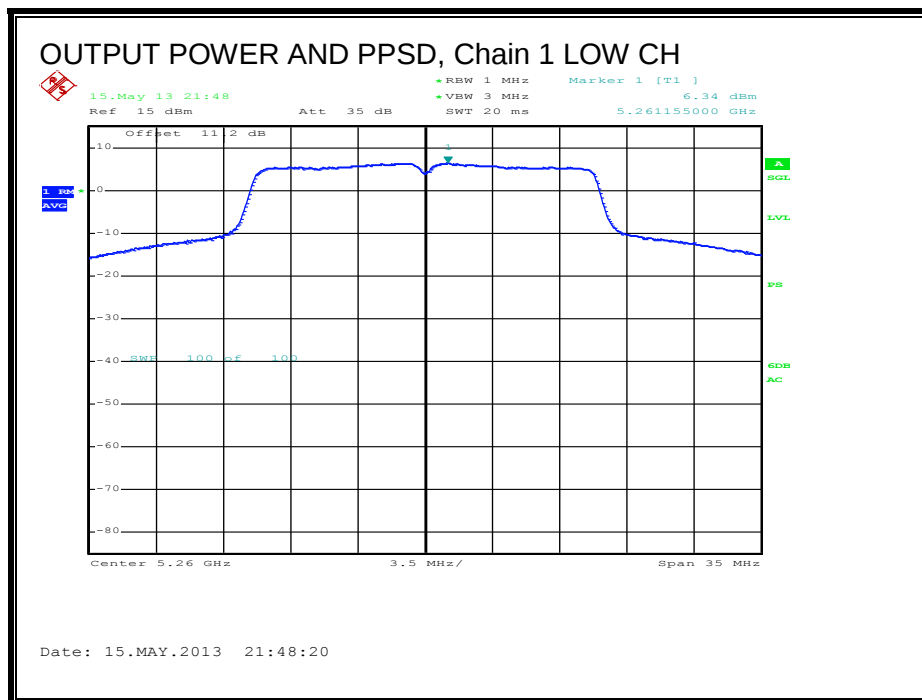
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	5.48	6.34	8.94	11.00	-2.06
Mid	5300	6.25	6.54	9.41	11.00	-1.59
High	5320	5.92	6.84	9.41	11.00	-1.59

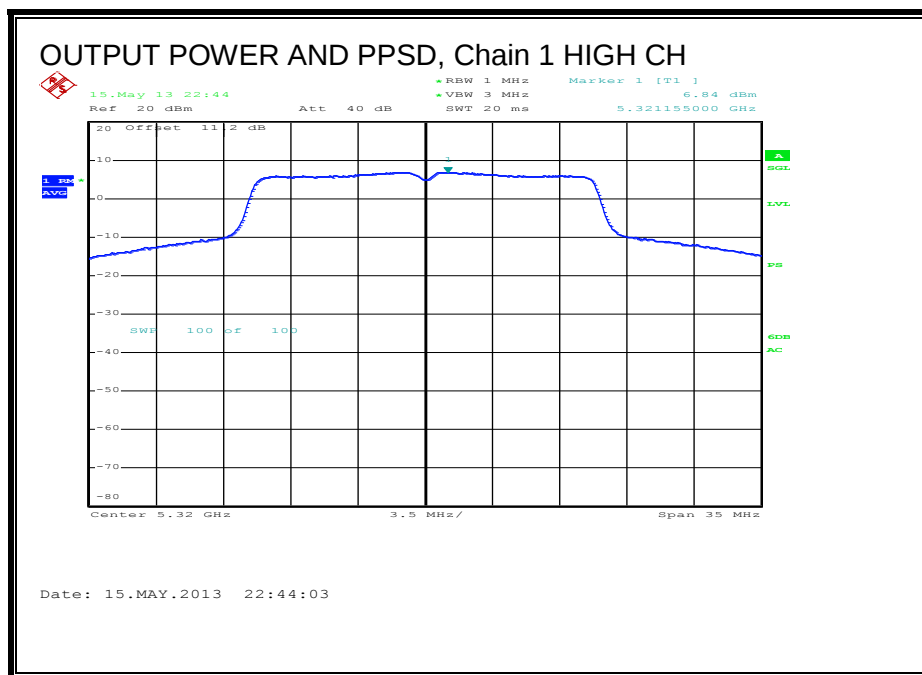
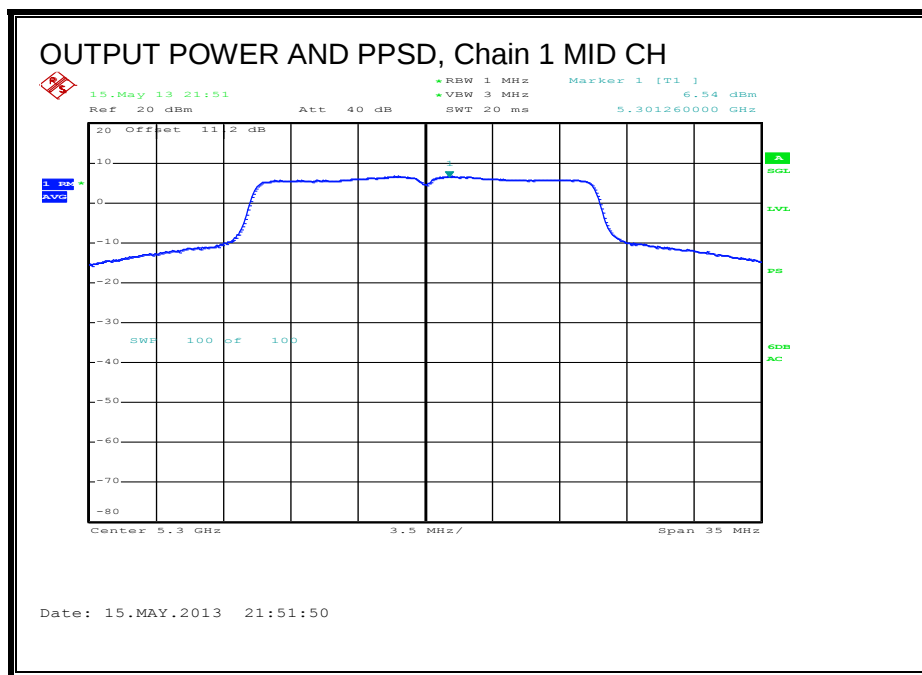
OUTPUT POWER AND PPSD, Chain 0





OUTPUT POWER AND PPSD, Chain 1





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

8.10.1. 26 dB BANDWIDTH

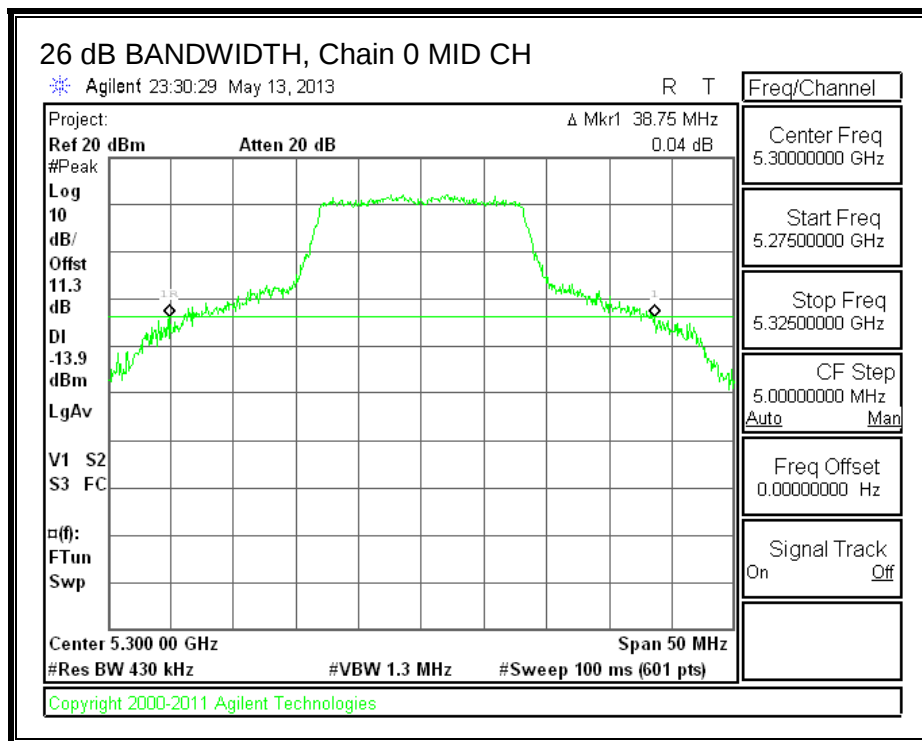
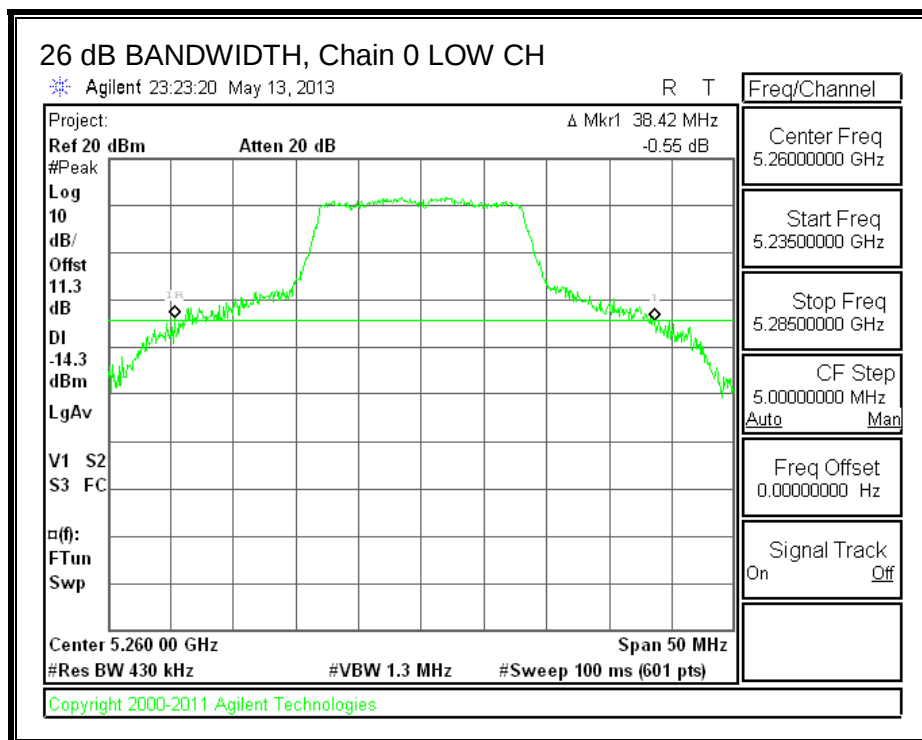
LIMITS

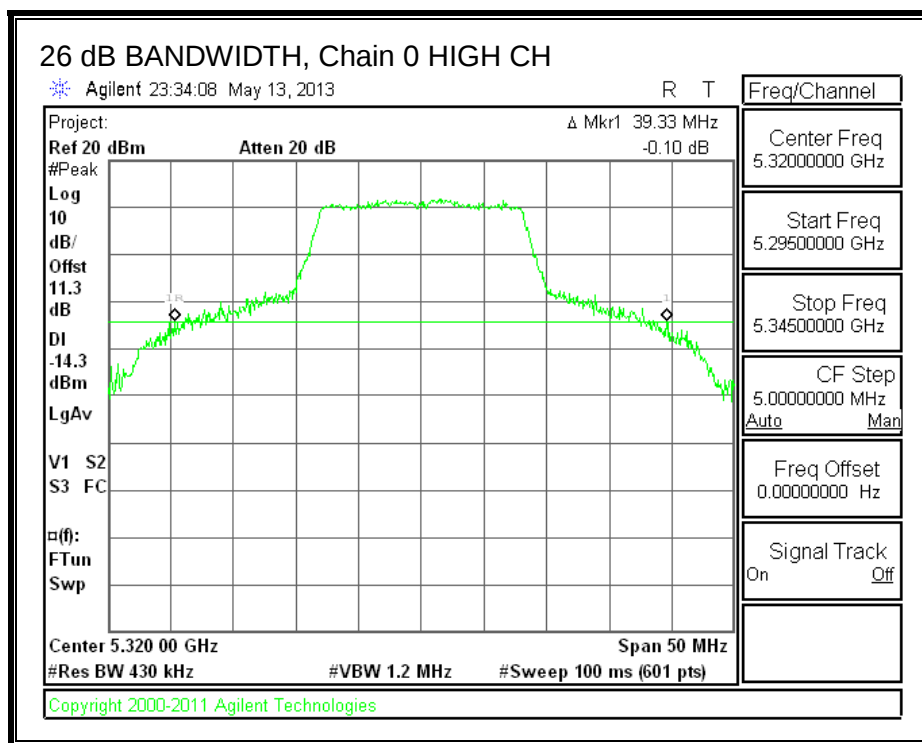
None; for reporting purposes only.

RESULTS

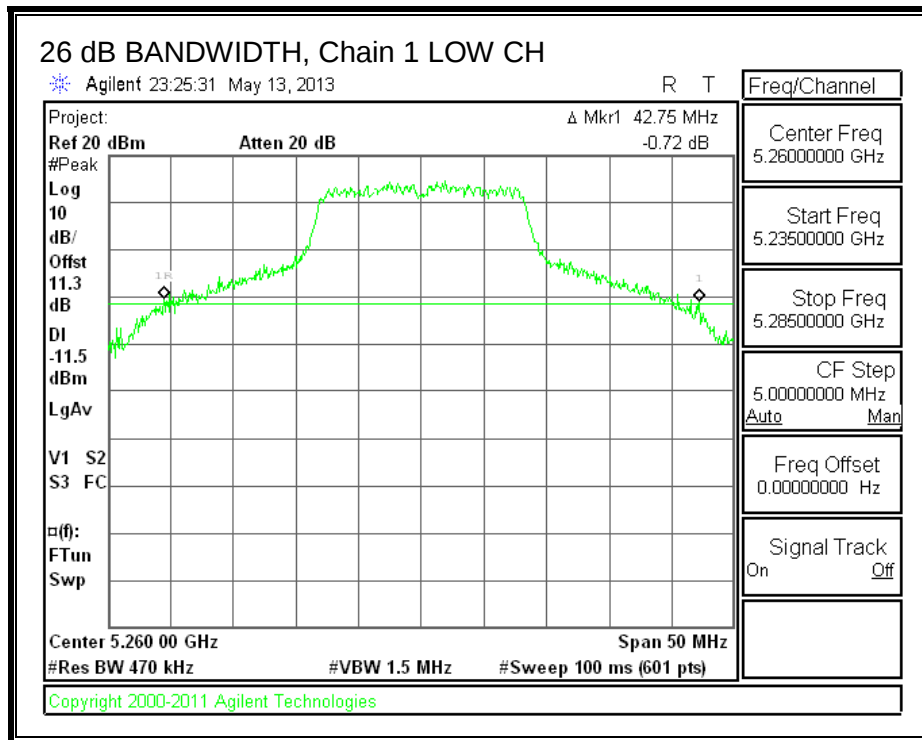
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5260	38.42	42.75
Mid	5300	38.75	43.08
High	5320	39.33	41.83

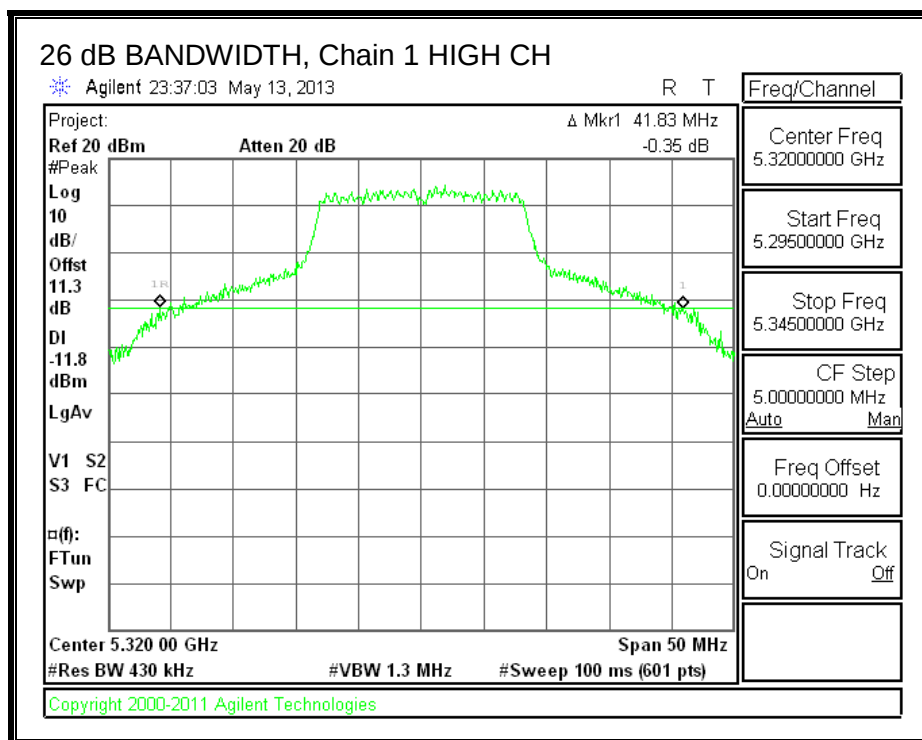
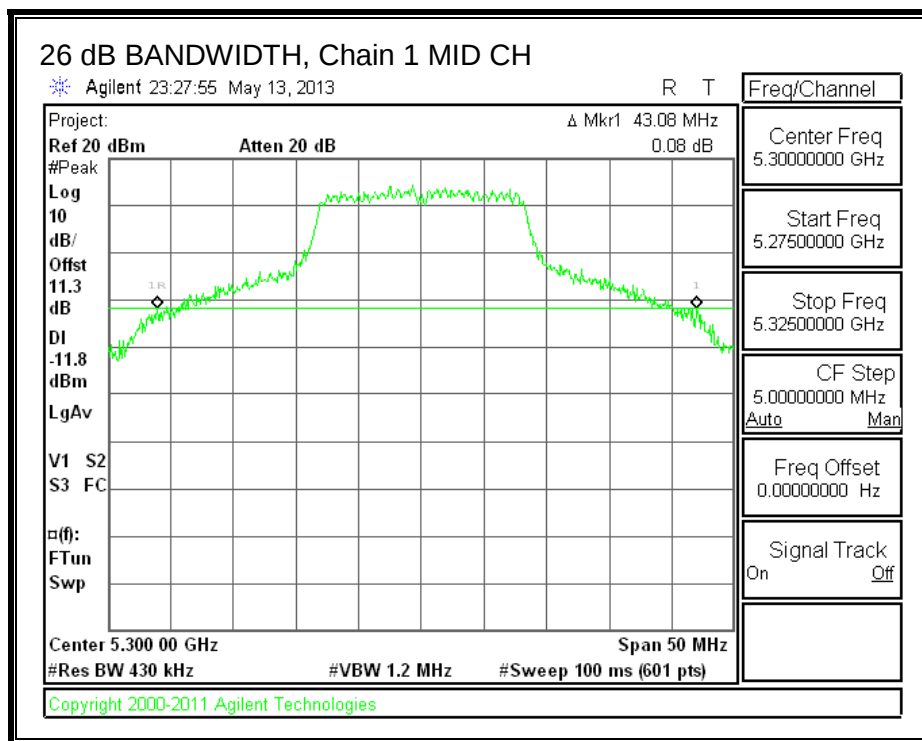
26 dB BANDWIDTH, Chain 0





26 dB BANDWIDTH, Chain 1





8.10.2. 99% BANDWIDTH

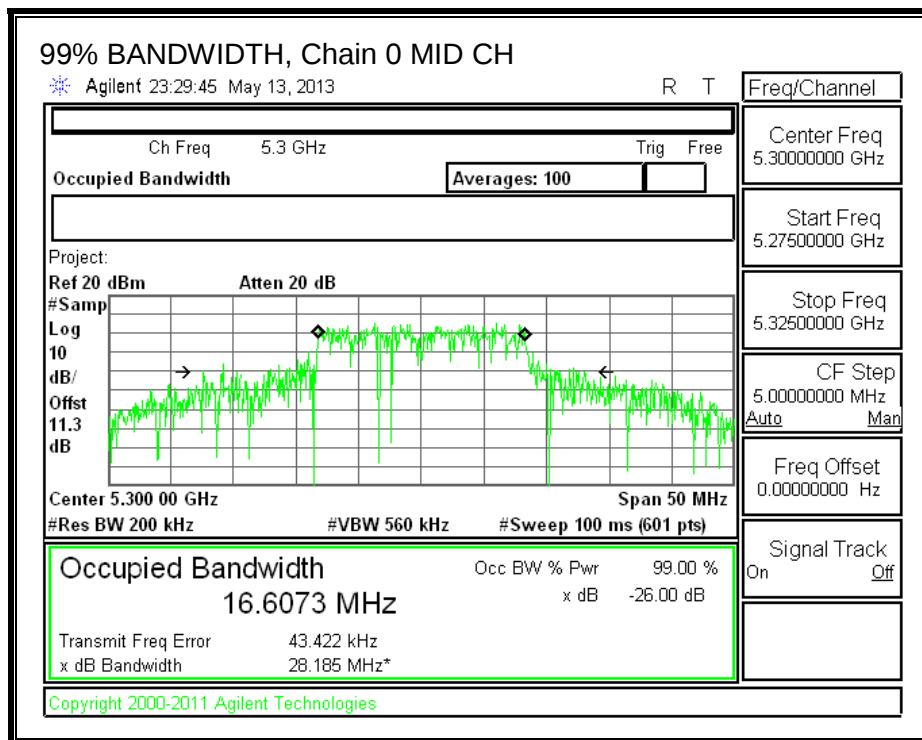
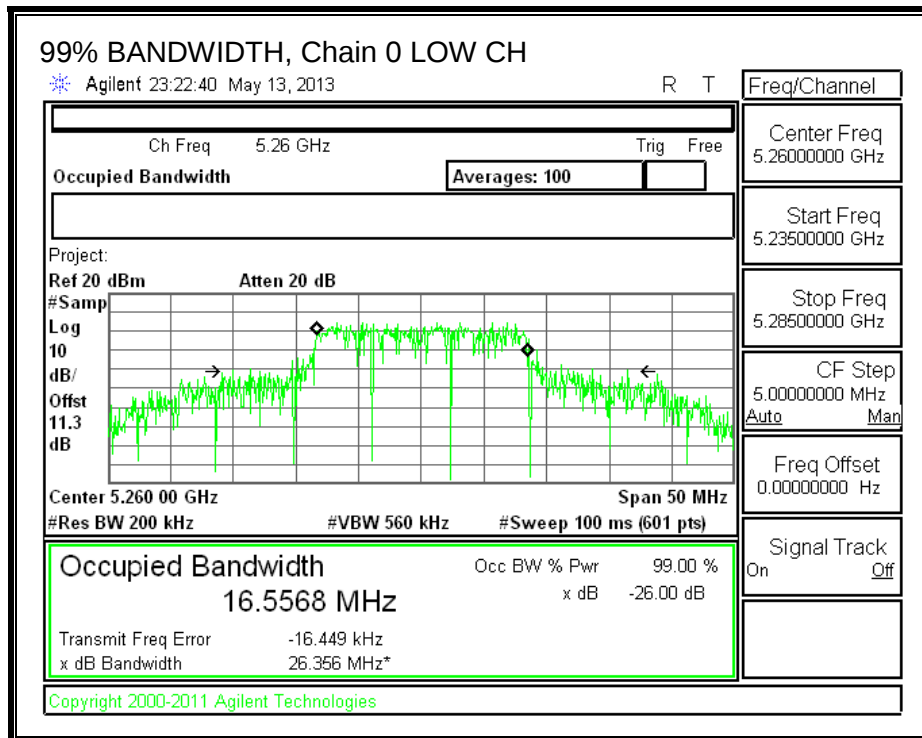
LIMITS

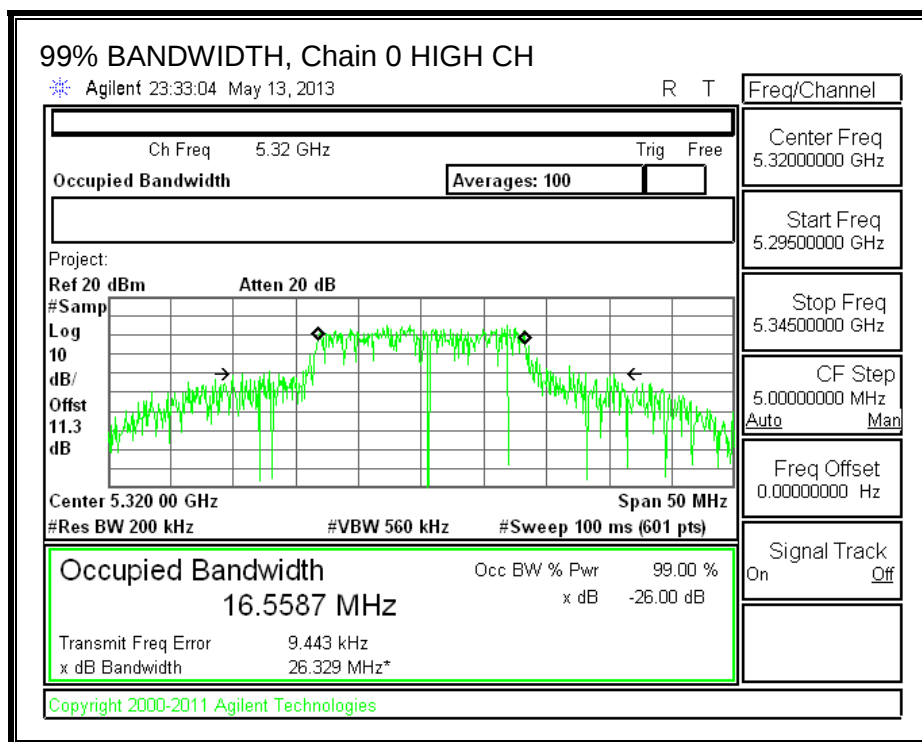
None; for reporting purposes only.

RESULTS

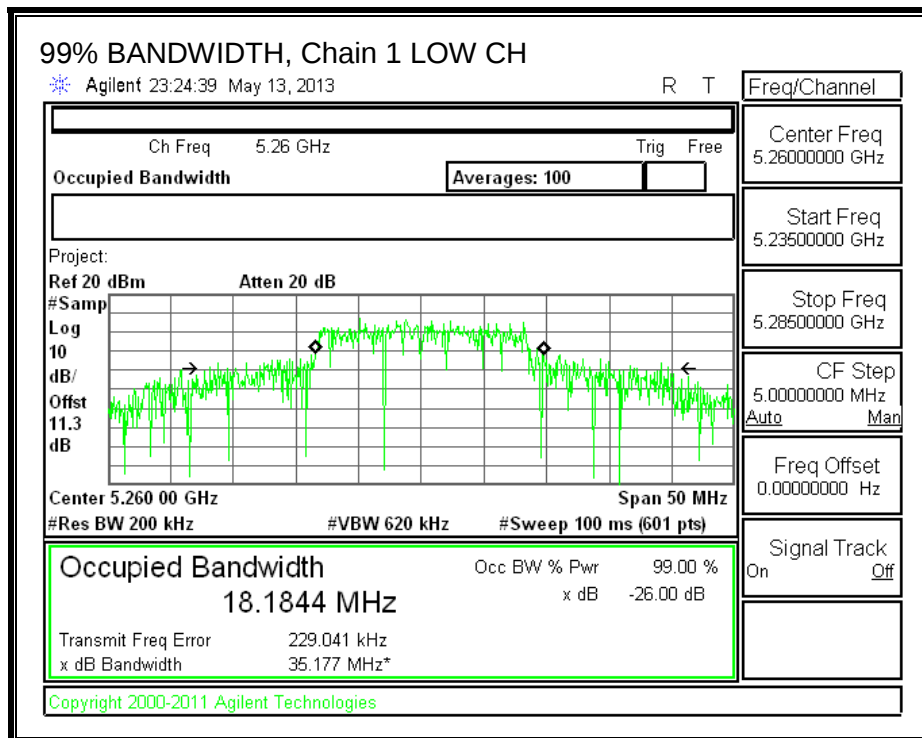
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5260	16.5568	18.1844
Mid	5300	16.6073	17.5032
High	5320	16.5587	17.5250

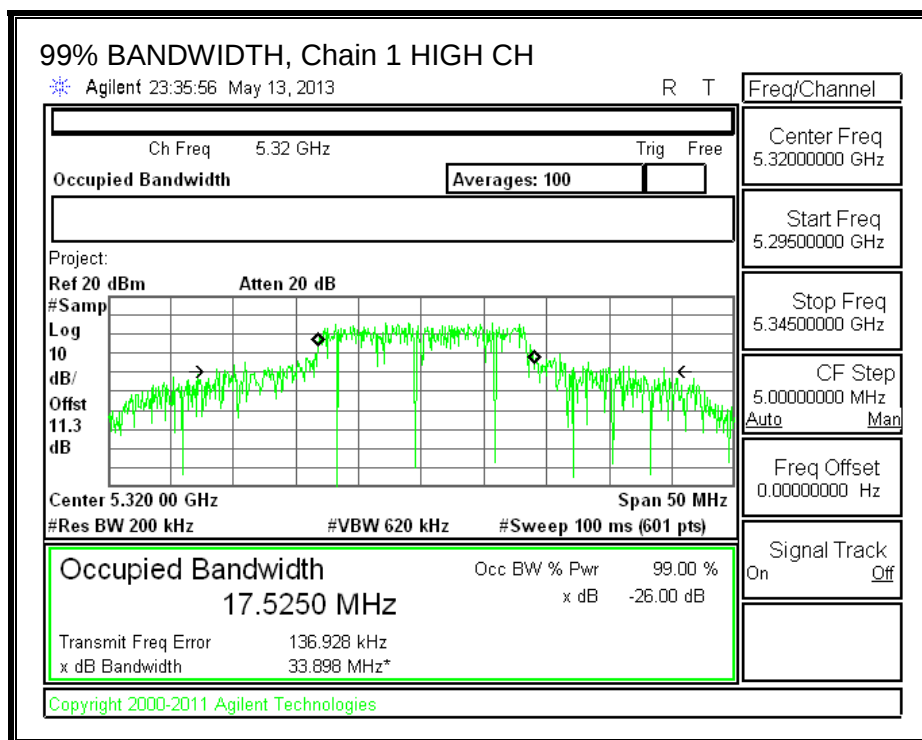
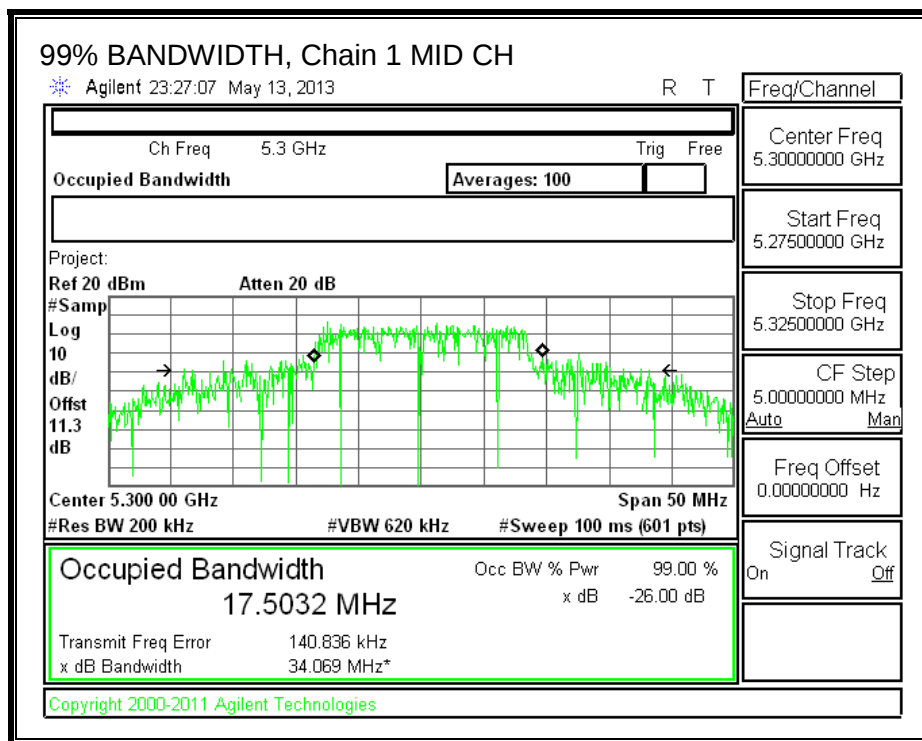
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.10.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log₁₀ B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

For PPSD, 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)
4.50	3.01	7.51

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Uncorrelated Directional Gain (dBi)	Correlated Directional Gain (dBi)
Low	5260	38.42	16.5568	4.50	7.51
Mid	5300	38.75	16.6073	4.50	7.51
High	5320	39.33	16.5587	4.50	7.51

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.19	29.19	23.19	9.49	11.00	9.49
Mid	5300	24.00	23.20	29.20	23.20	9.49	11.00	9.49
High	5320	24.00	23.19	29.19	23.19	9.49	11.00	9.49

Duty Cycle CF (dB)	0.00	Included in Calculations of PPSP
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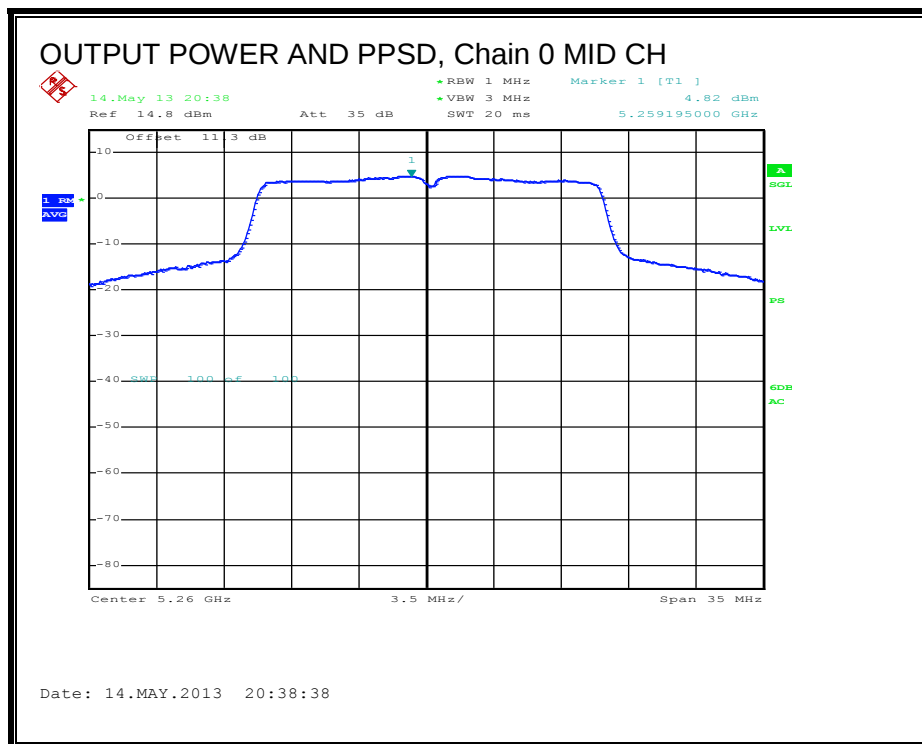
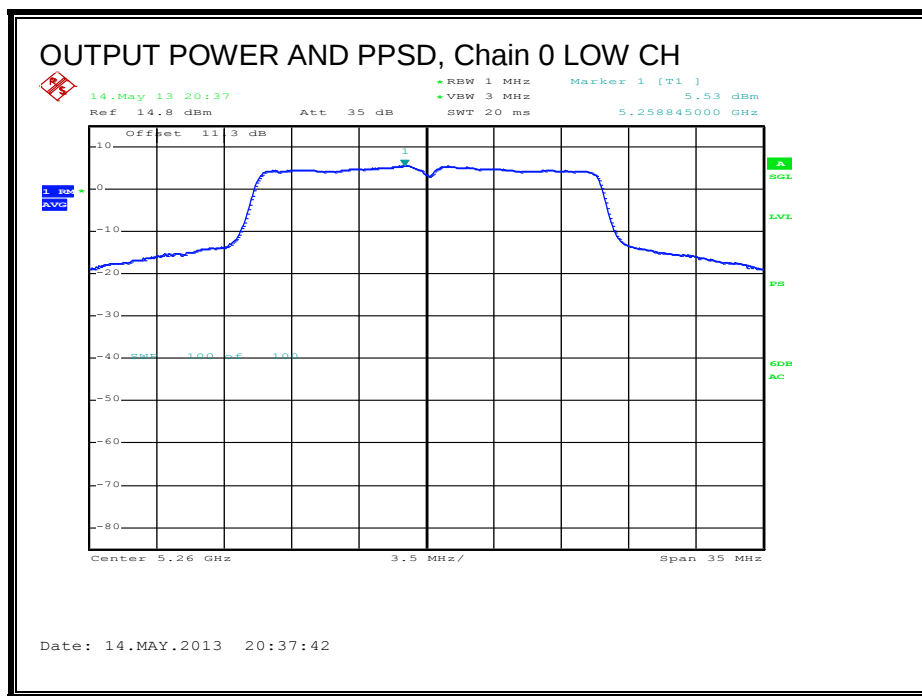
Output Power Results

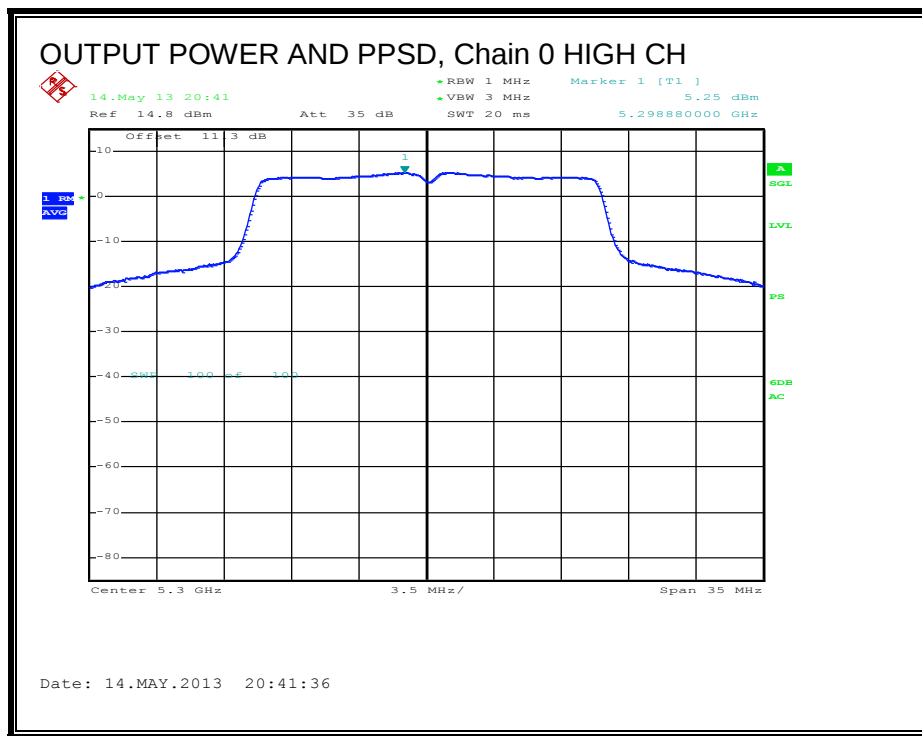
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	20.01	20.28	23.16	23.19	-0.03
Mid	5300	20.04	20.32	23.19	23.20	-0.01
High	5320	19.64	20.04	22.85	23.19	-0.34

PPSD Results

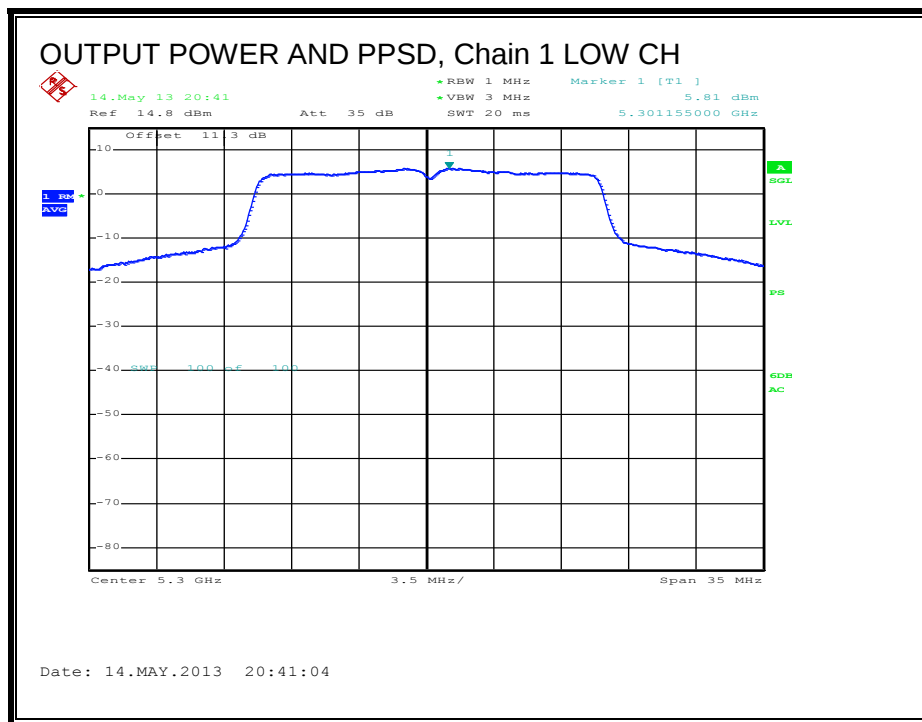
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	5.53	5.81	8.68	9.49	-0.81
Mid	5300	4.82	5.43	8.15	9.49	-1.34
High	5320	5.25	5.69	8.49	9.49	-1.00

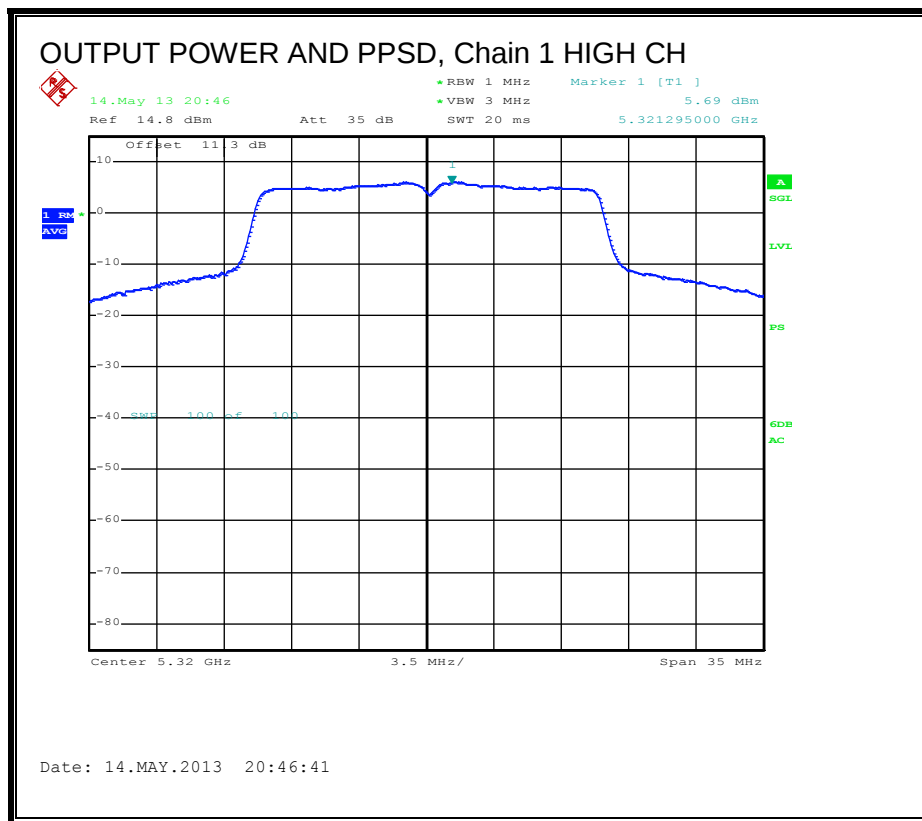
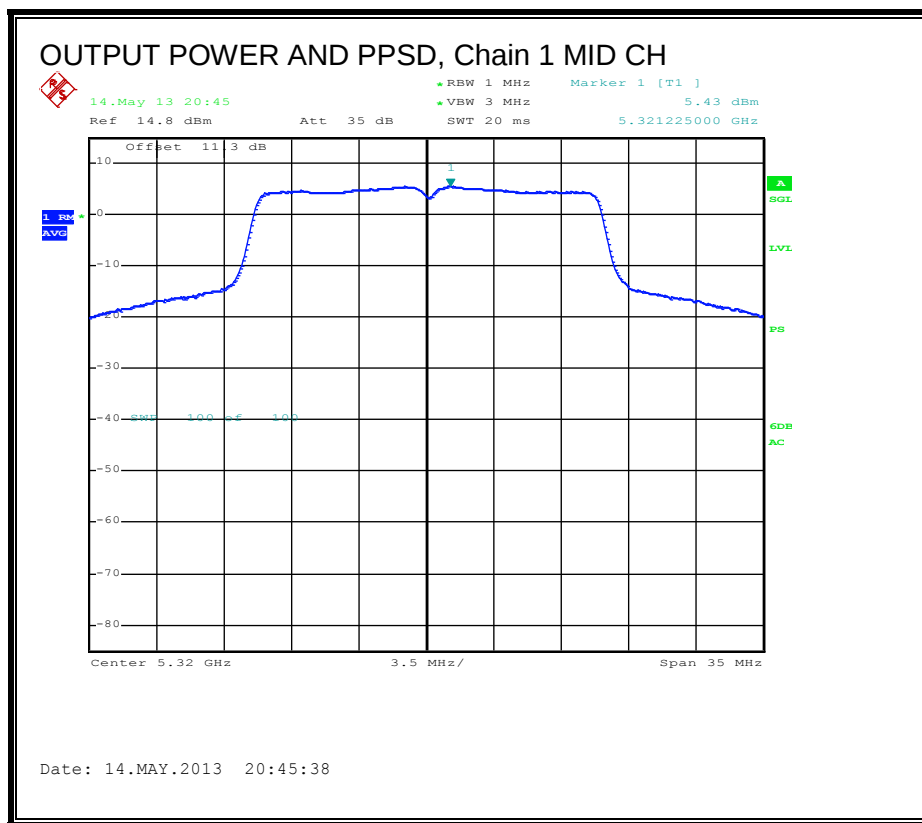
OUTPUT POWER AND PPSD, Chain 0





OUTPUT POWER AND PPSD, Chain 1





8.11. 802.11n HT40 SISO MODE IN THE 5.3 GHz BAND

8.11.1. 26 dB BANDWIDTH

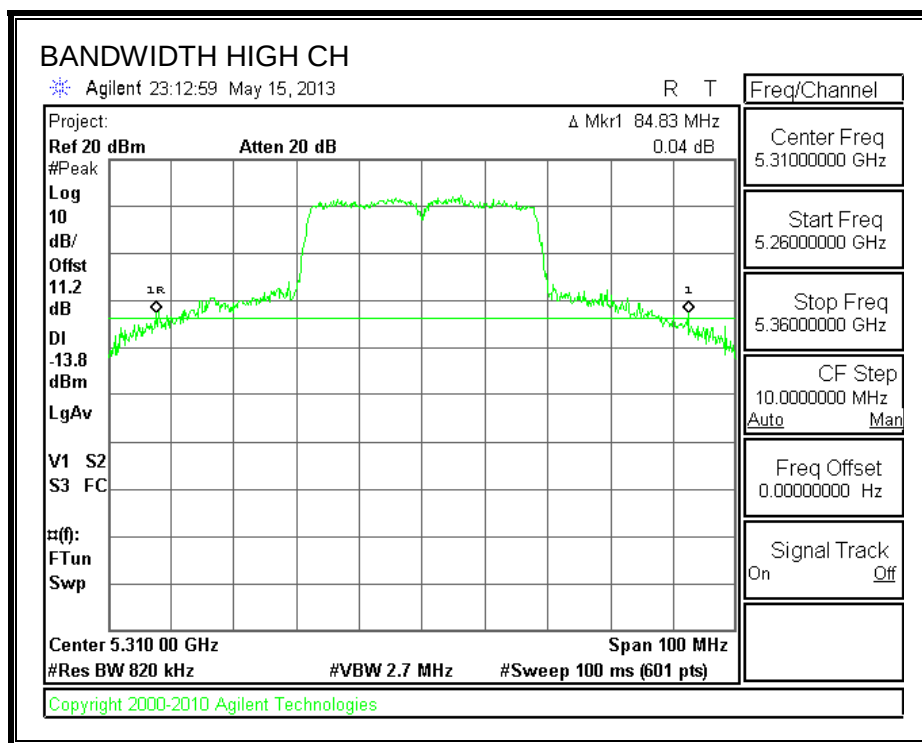
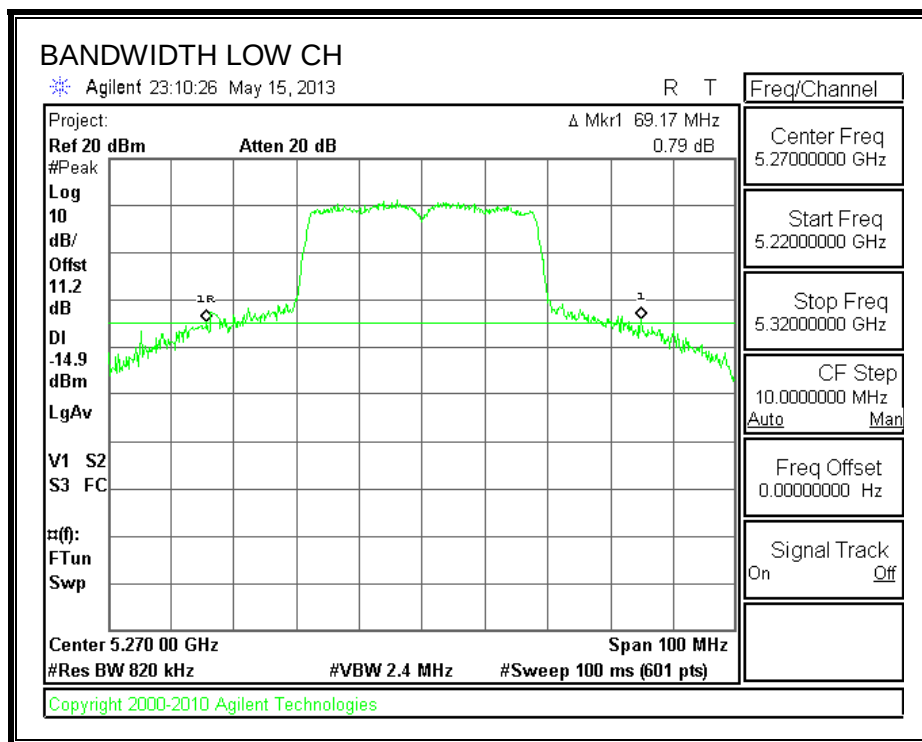
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5270	69.17
High	5310	84.83

26 dB BANDWIDTH



8.11.2. 99% BANDWIDTH

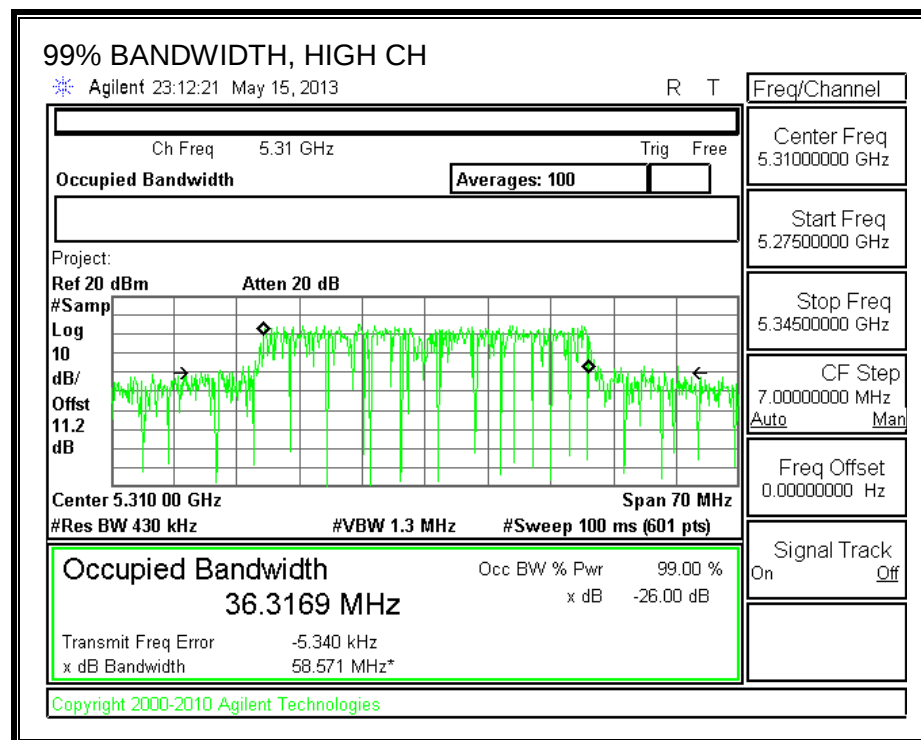
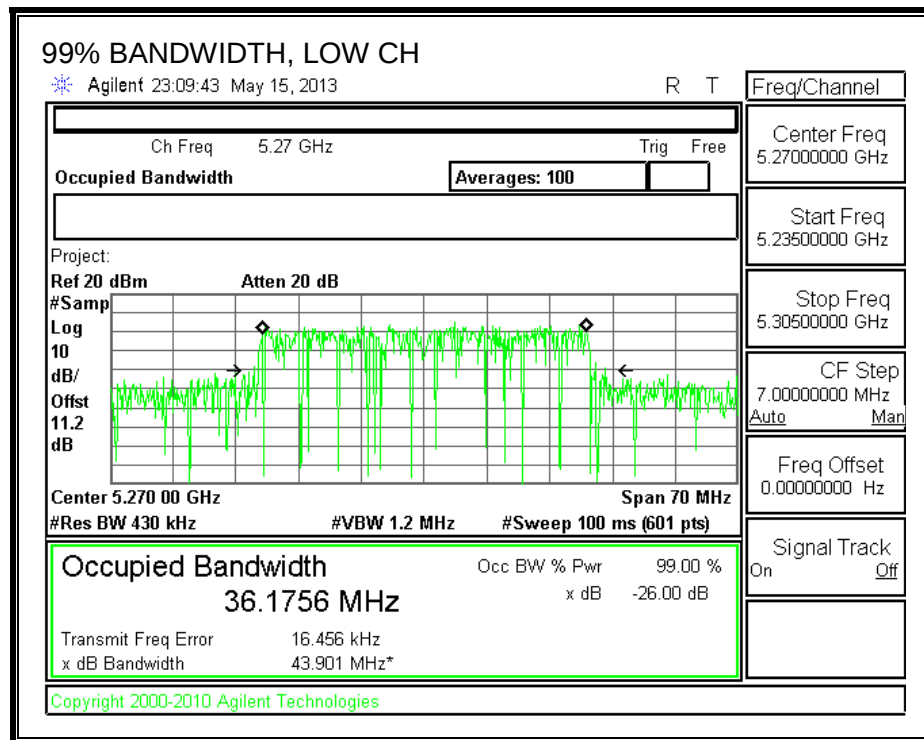
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5270	36.1756
High	5310	36.3169

99% BANDWIDTH



8.11.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5270	69.17	36.1756	4.50
High	5310	84.83	36.3169	4.50

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5270	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5310	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of PSD
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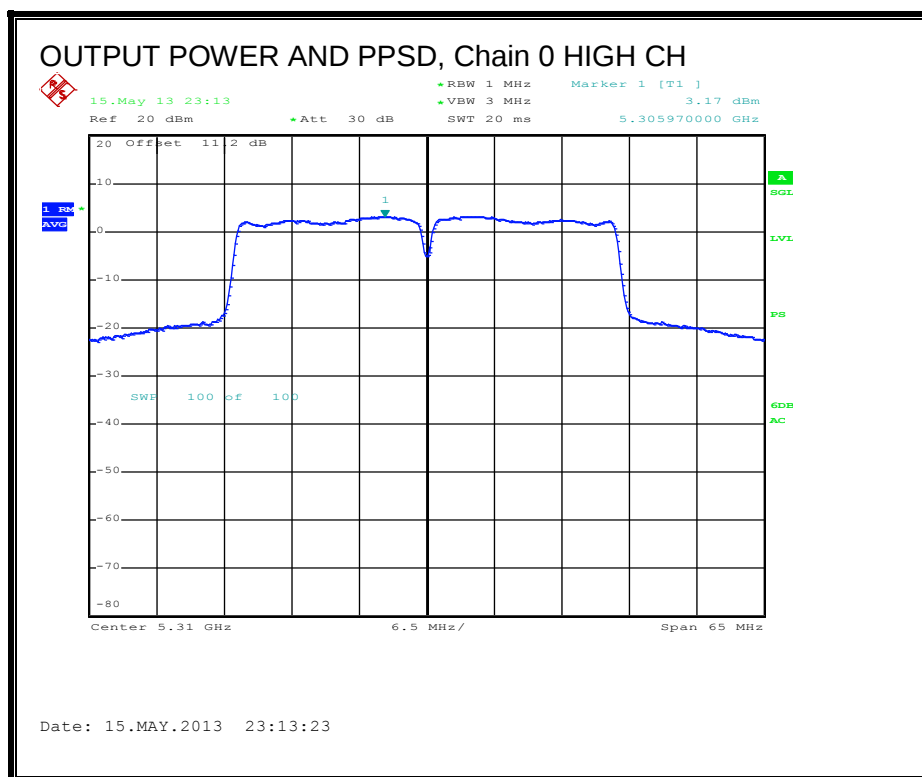
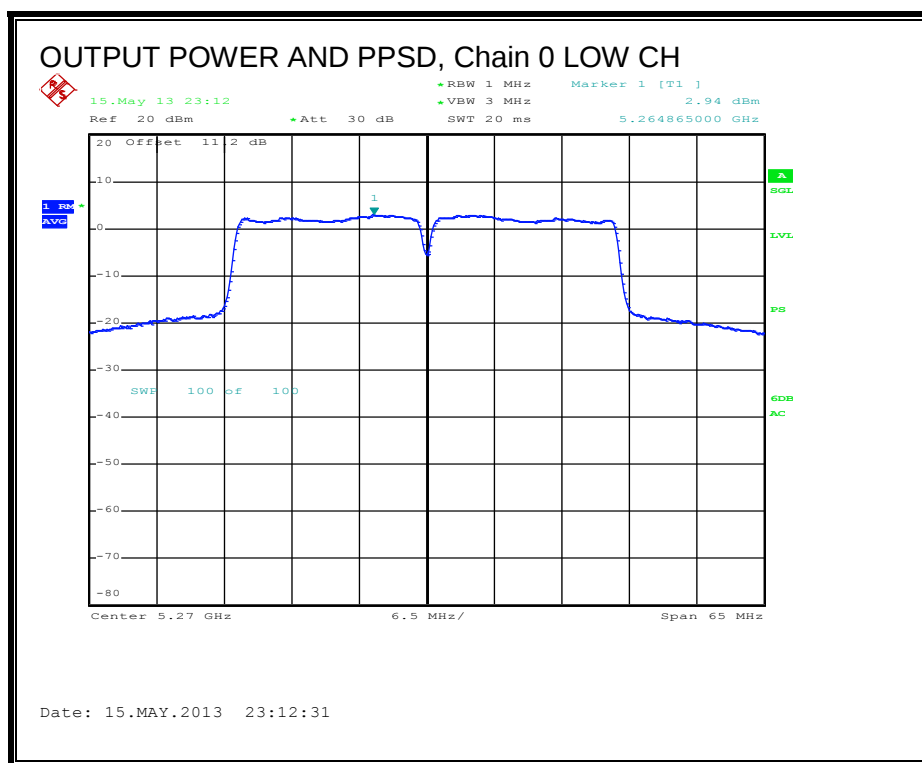
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	20.04	20.04	24.00	-3.96
High	5310	14.97	14.97	24.00	-9.03

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5270	2.94	2.94	11.00	-8.06
High	5310	3.17	3.17	11.00	-7.83

OUTPUT POWER AND PPSD, Chain 0



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

8.12.1. 26 dB BANDWIDTH

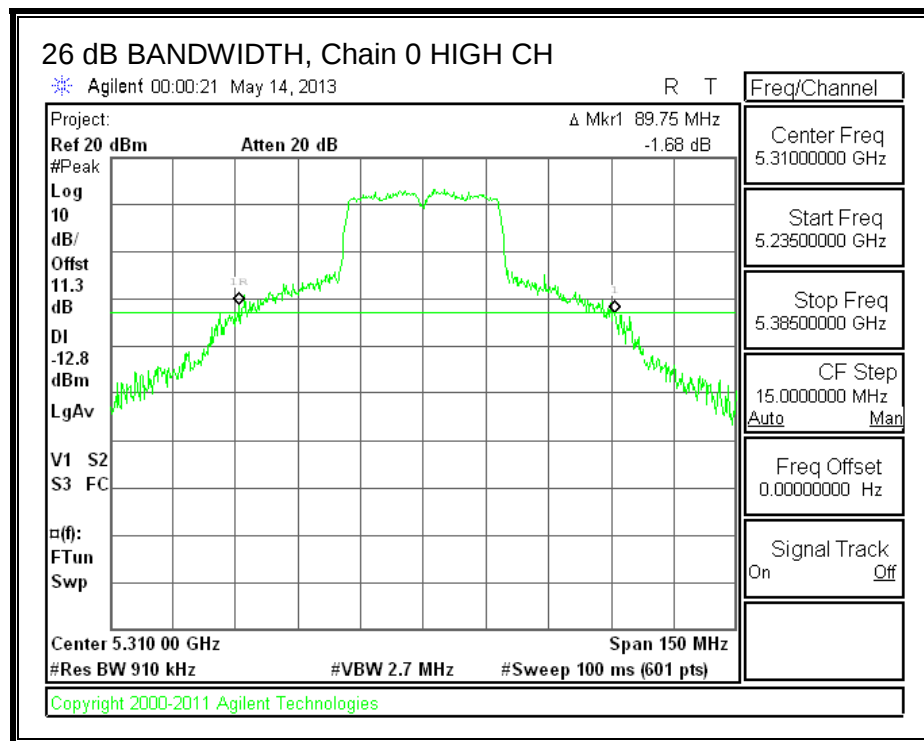
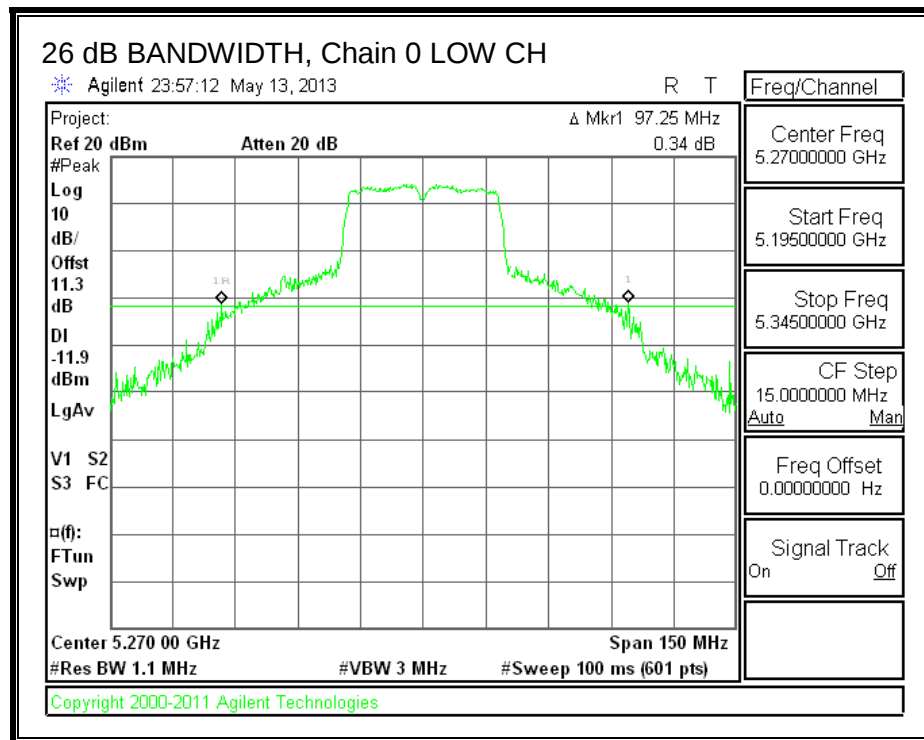
LIMITS

None; for reporting purposes only.

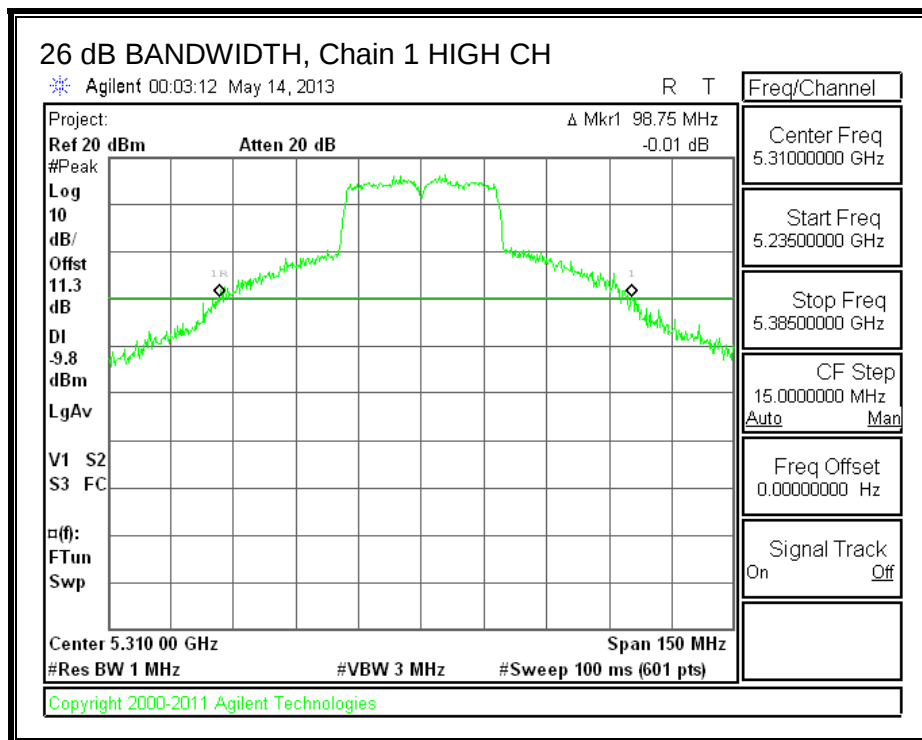
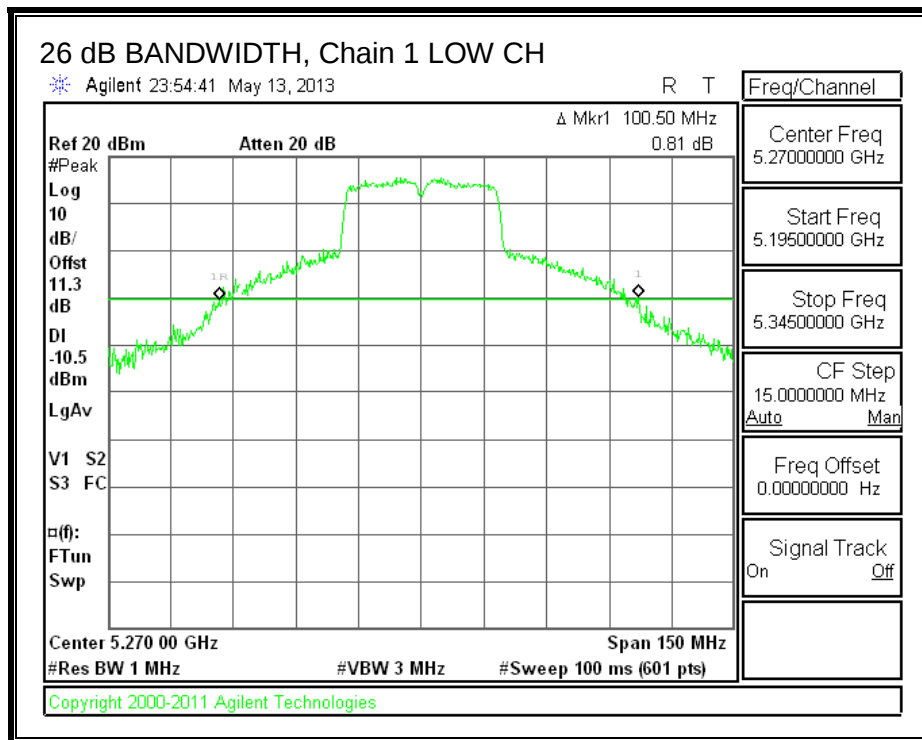
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5270	97.25	100.50
High	5310	89.75	98.75

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.12.2. 99% BANDWIDTH

LIMITS

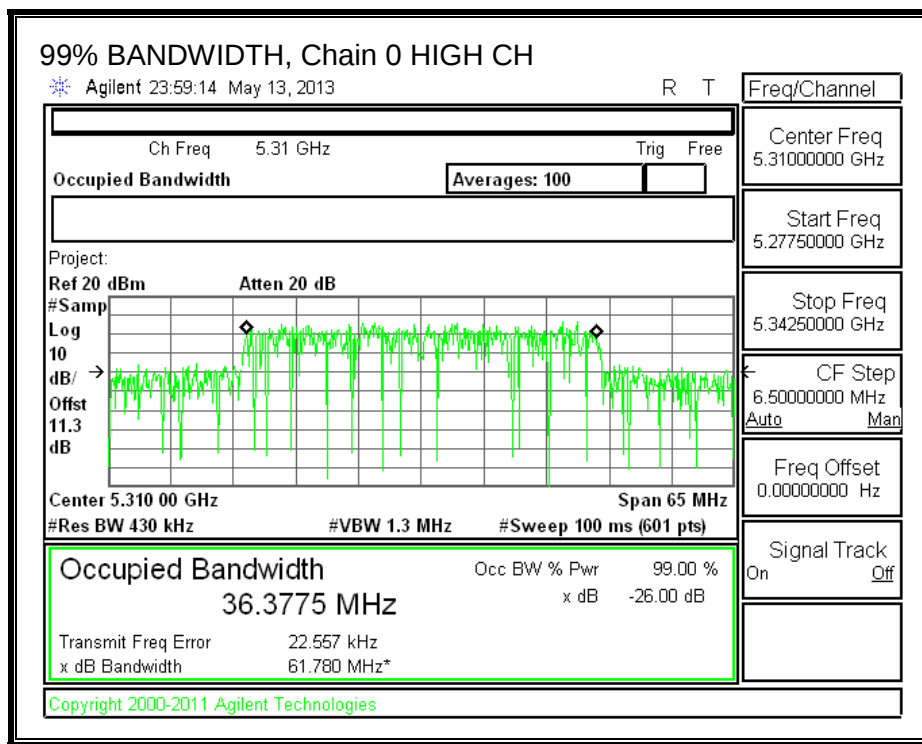
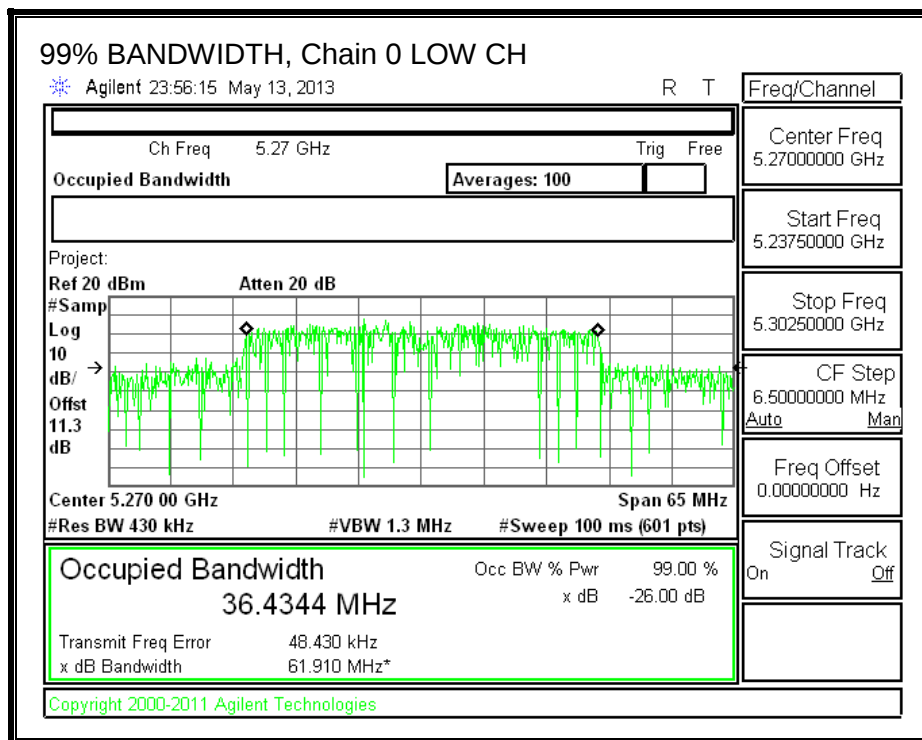
None; for reporting purposes only.

RESULTS

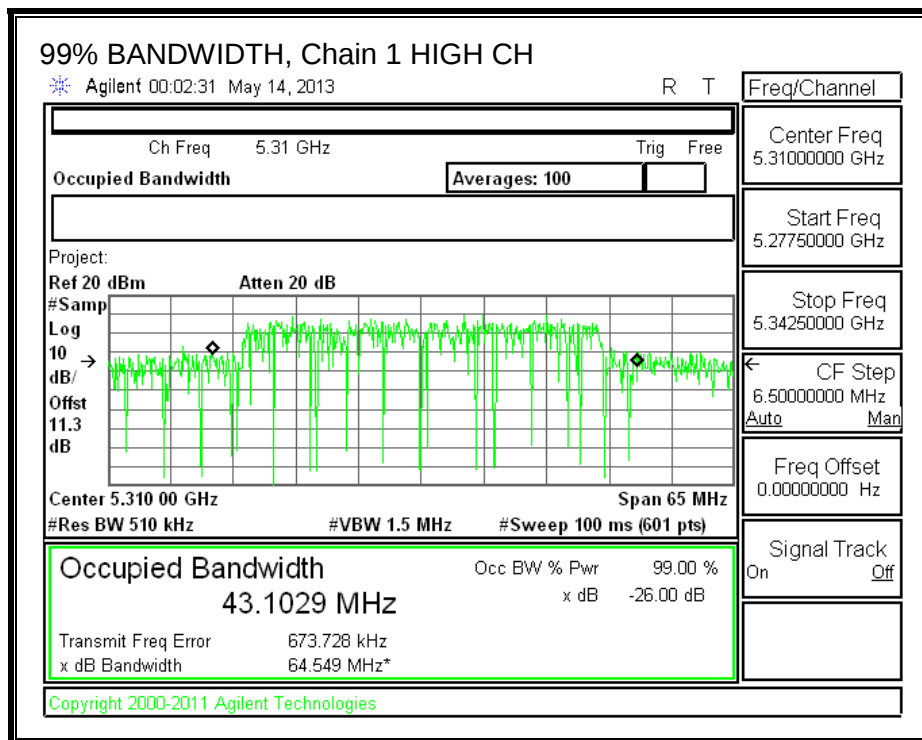
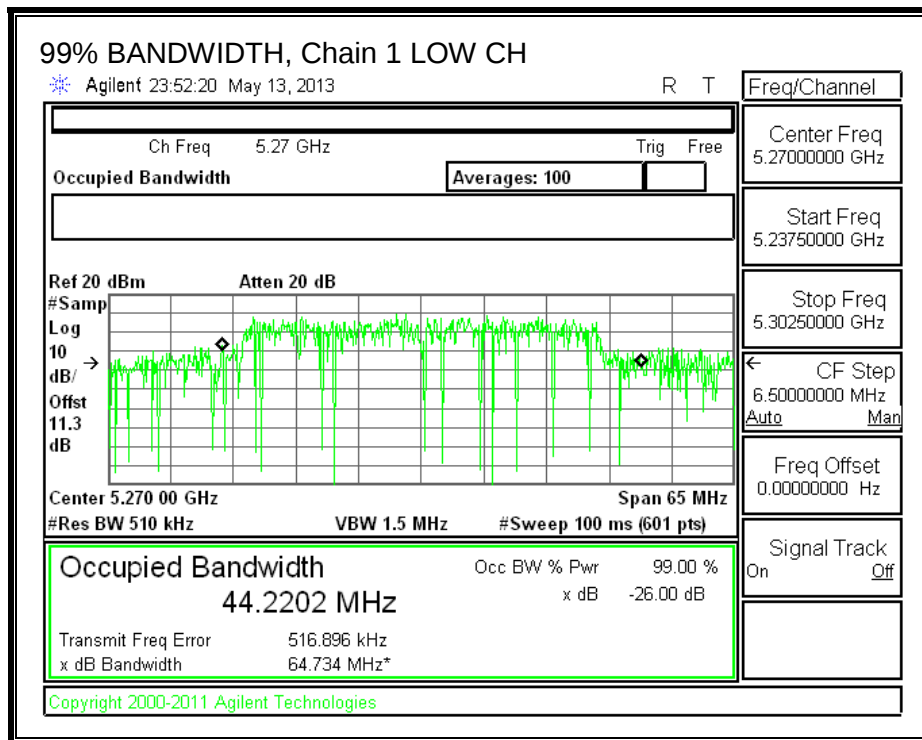
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5270	36.4344	44.2202
High	5310	36.3775	43.1029

99% BANDWIDTH

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.12.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

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

Antenna Gain (dBi)	$10 * \log (2 \text{ chains})$ (dB)	Correlated Chains Directional Gain (dBi)
4.50	3.01	7.51

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Uncorrelated Directional Gain (dBi)	Correlated Directional Gain (dBi)
Low	5270	97.25	36.4344	4.50	7.51
High	5310	89.75	36.3775	4.50	7.51

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5270	24.00	24.00	30.00	24.00	9.49	11.00	9.49
High	5310	24.00	24.00	30.00	24.00	9.49	11.00	9.49

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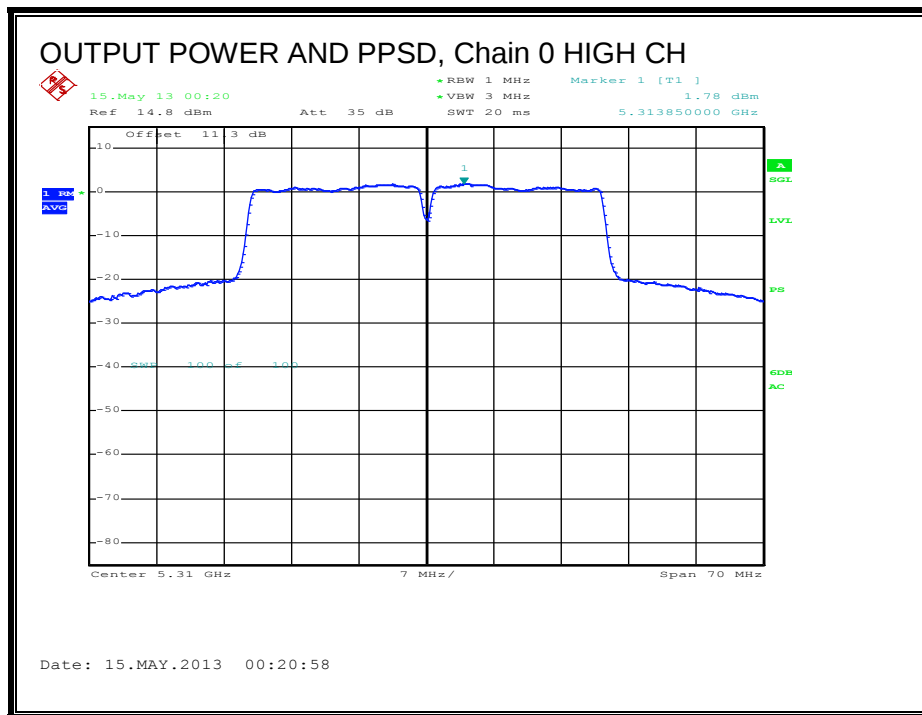
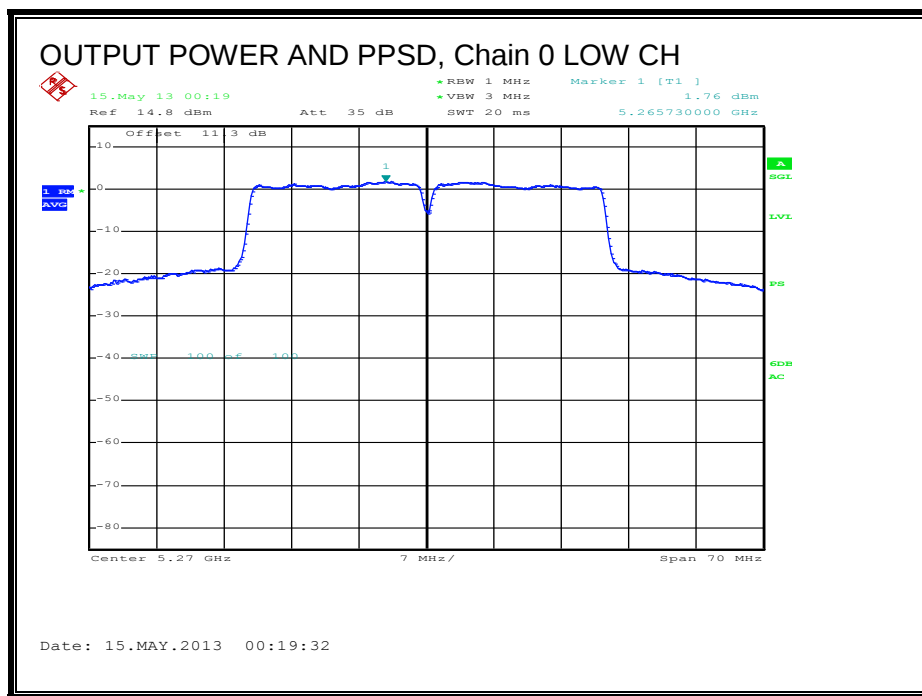
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	20.22	20.54	23.39	24.00	-0.61
High	5310	14.21	14.59	17.41	24.00	-6.59

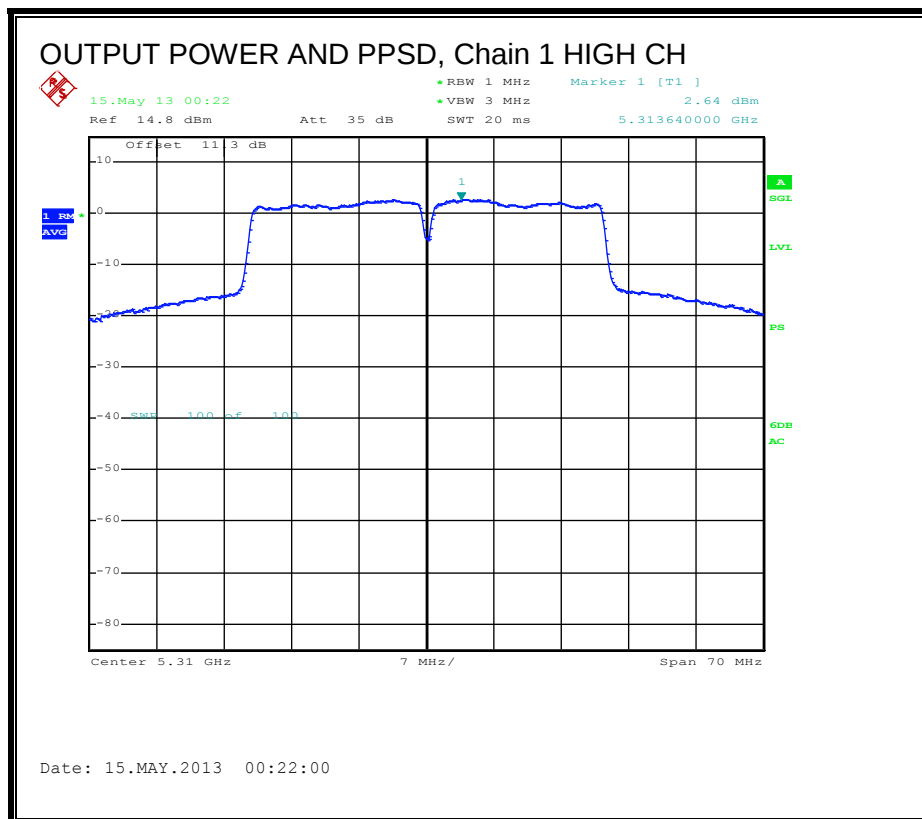
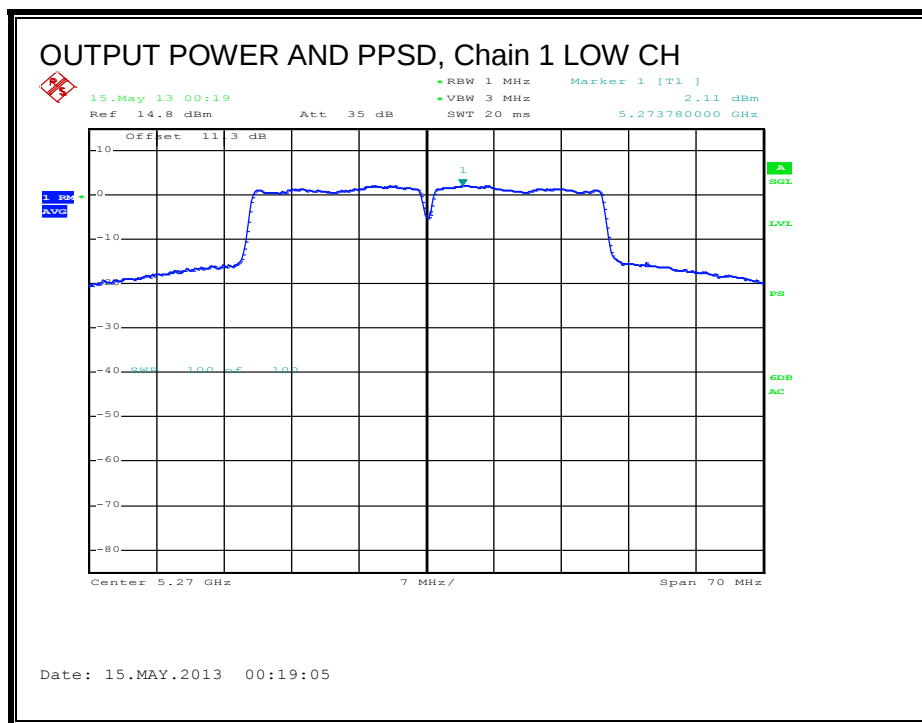
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5270	1.76	2.11	4.95	9.49	-4.54
High	5310	1.78	2.64	5.24	9.49	-4.25

OUTPUT POWER AND PPSD, Chain 0



OUTPUT POWER AND PPSD, Chain 1



8.13. 802.11ac VHT80 SISO MODE IN THE 5.3 GHz BAND

8.13.1. 26 dB BANDWIDTH

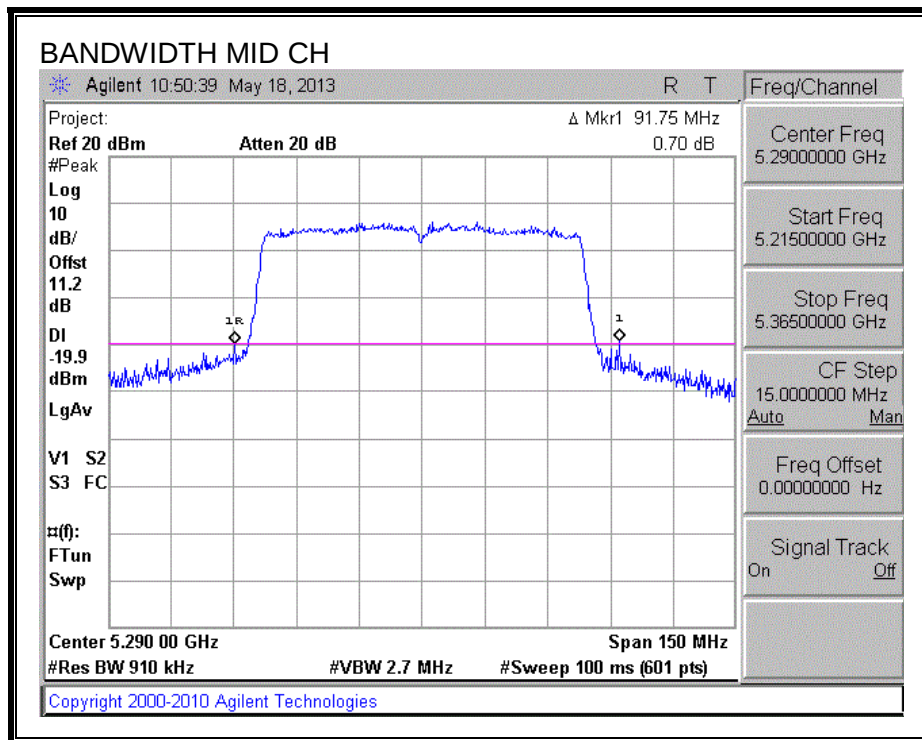
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Mid	5290	91.75

26 dB BANDWIDTH



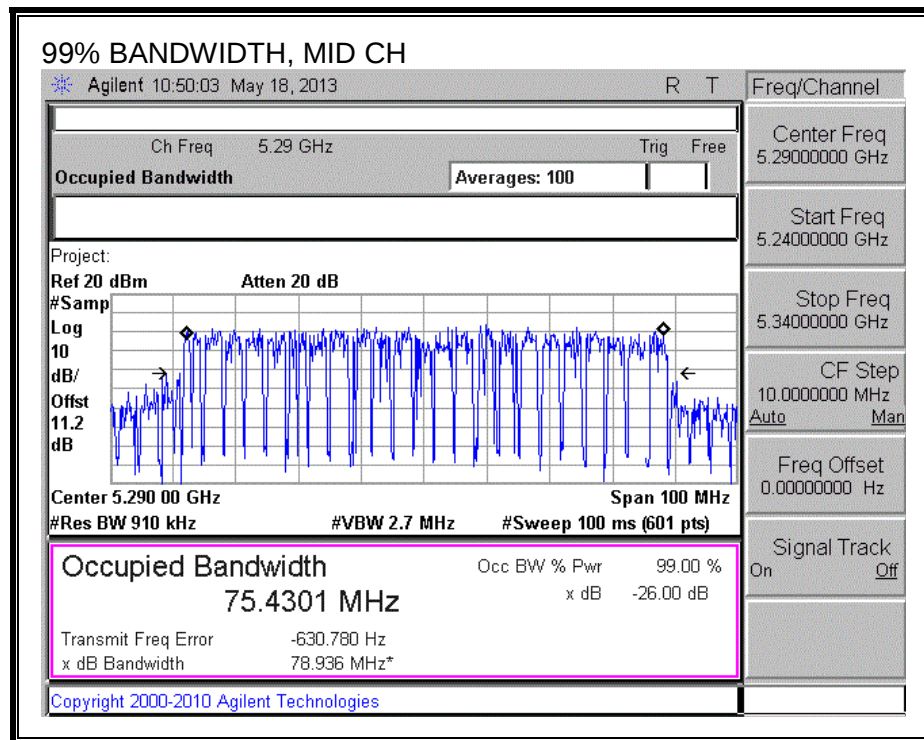
8.13.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5290	75.4301



8.13.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Mid	5290	91.8	75.4	4.50

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Mid	5290	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.16	Included in Calculations of Corr'd Power & PPSP
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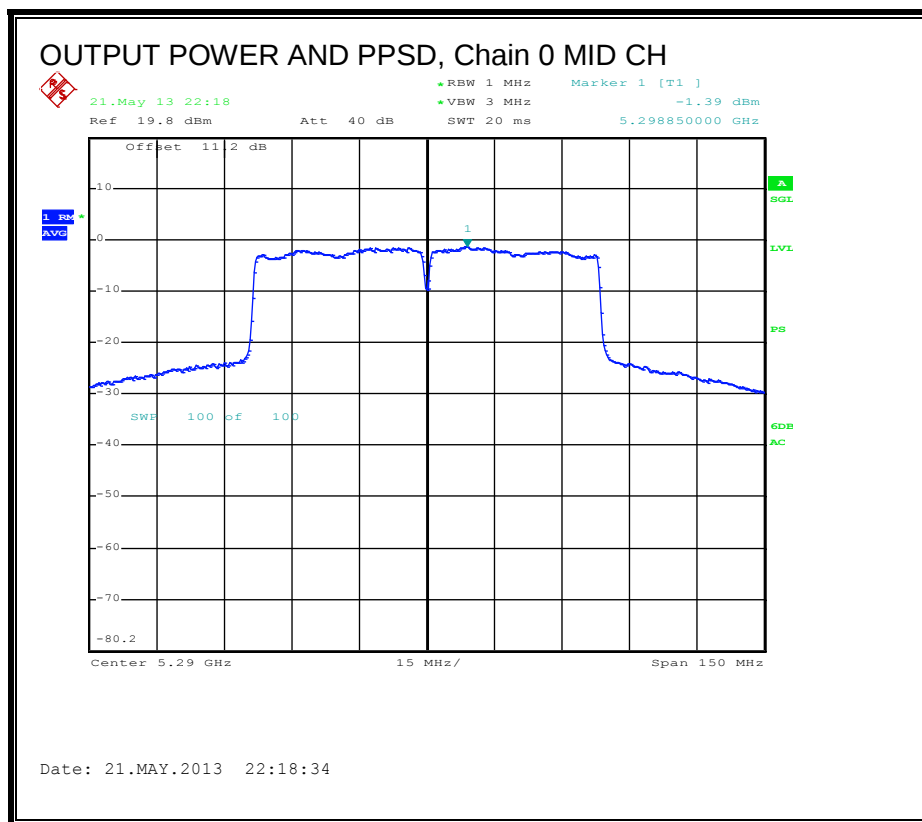
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5290	15.01	15.01	24.00	-8.99

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Mid	5290	-1.39	-1.23	11.00	-12.23

OUTPUT POWER AND PPSD, Chain 0



8.14. 802.11n HT80 CDD 2TX MODE IN THE 5.3 GHz BAND

8.14.1. 26 dB BANDWIDTH

LIMITS

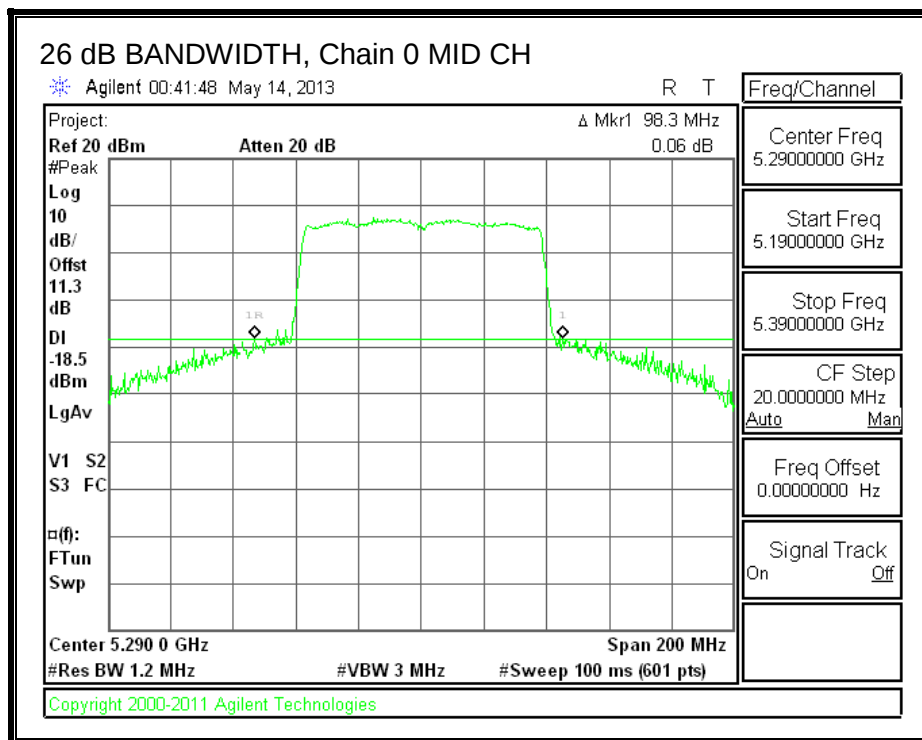
None; for reporting purposes only.

RESULTS

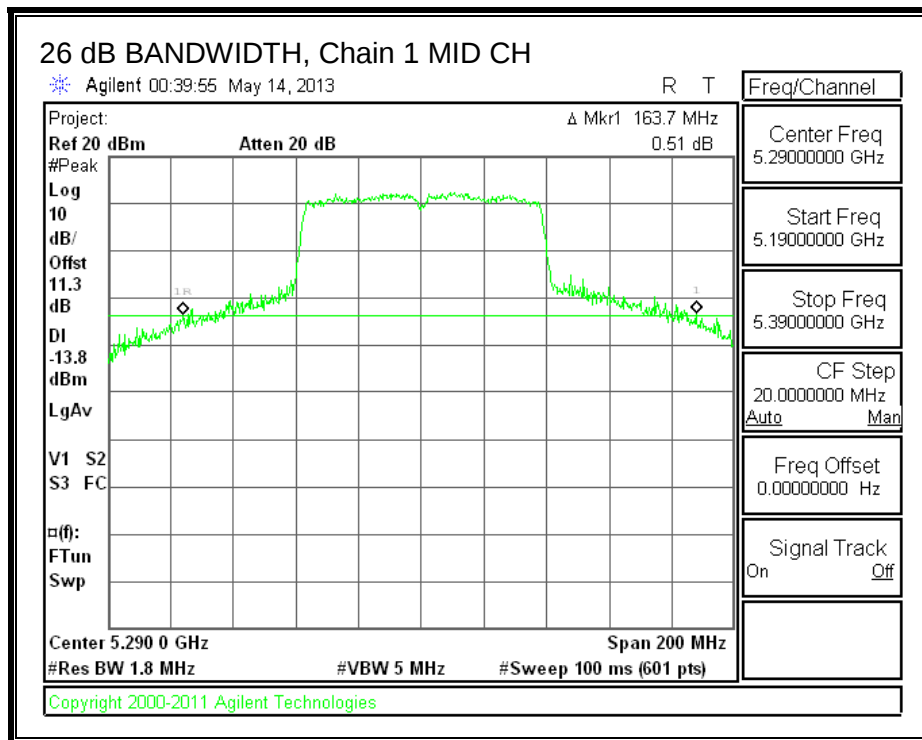
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Mid	5290	98.3	163.7

26 dB BANDWIDTH

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.14.2. 99% BANDWIDTH

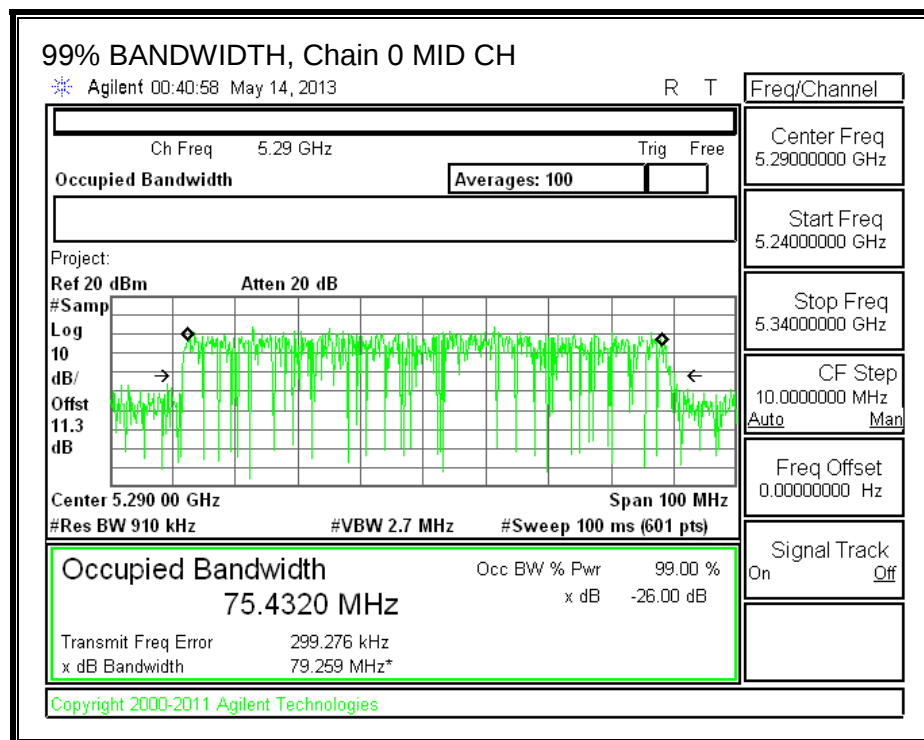
LIMITS

None; for reporting purposes only.

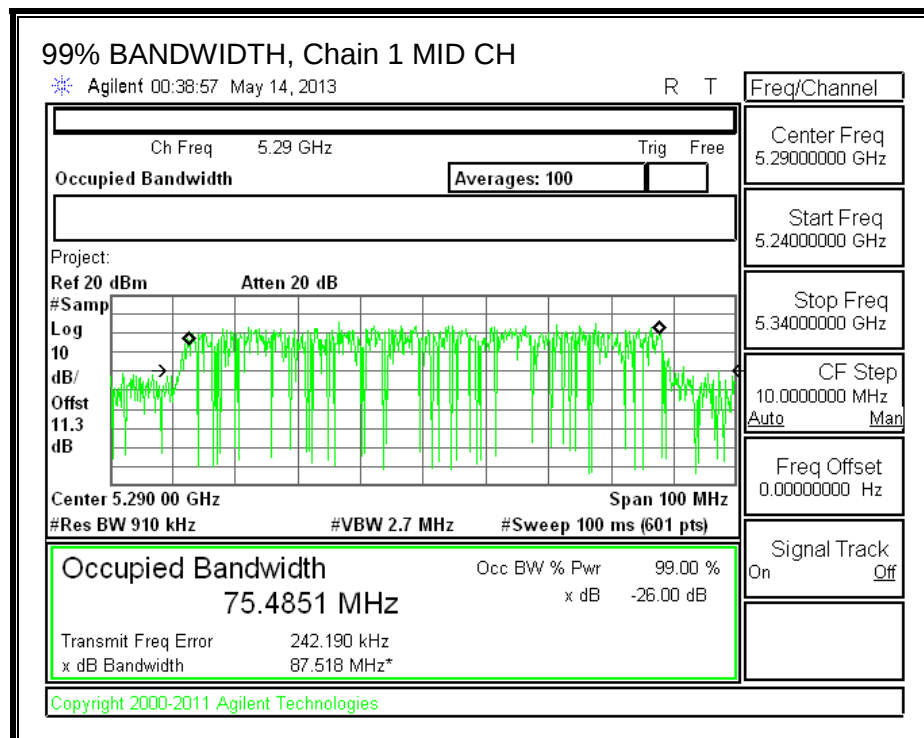
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Mid	5290	75.4320	75.4851

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.14.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log₁₀ B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

For PPSD, 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)
4.50	3.01	7.51

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Uncorrelated Directional Gain (dBi)	Correlated Directional Gain (dBi)
Mid	5290	98.3	75.4321	4.50	7.51

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Mid	5290	24.00	24.00	30.00	24.00	9.49	11.00	9.49

Duty Cycle CF (dB)	0.16	Included in Calculations of PSD
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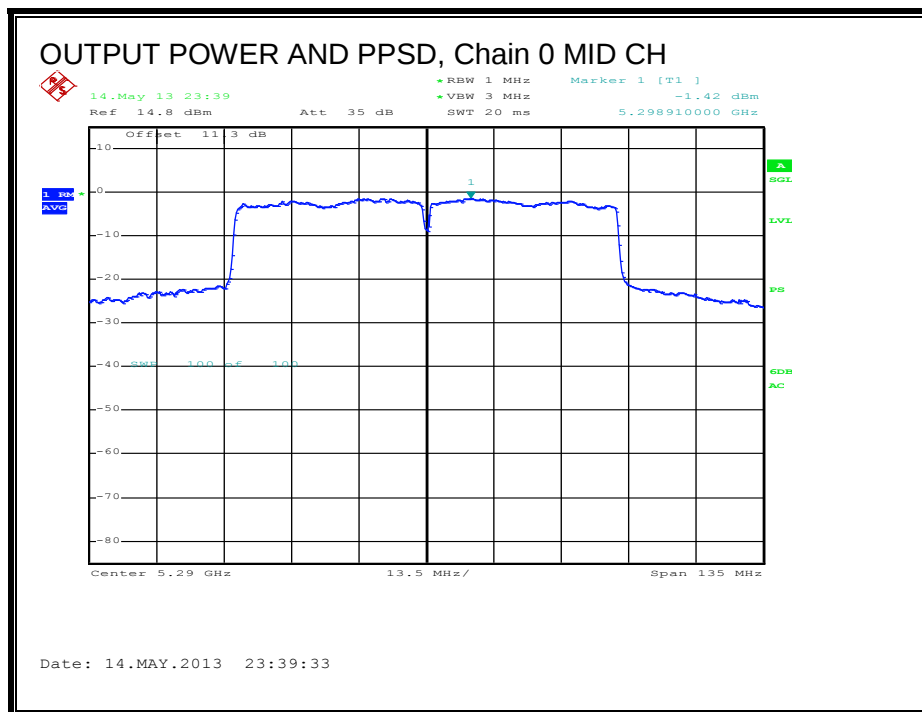
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5290	12.54	13.46	16.03	24.00	-7.97

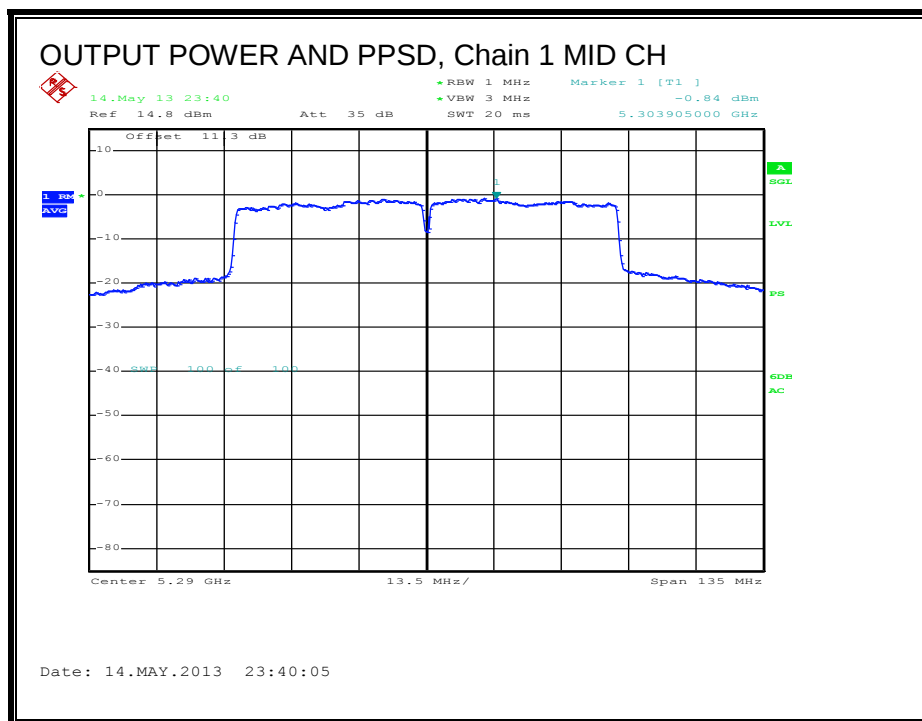
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Mid	5290	-1.42	-0.84	2.05	9.49	-7.44

OUTPUT POWER AND PPSD, Chain 0



OUTPUT POWER AND PPSD, Chain 1



8.15. 802.11a LEGACY MODE IN THE 5.6 GHz BAND

8.15.1. 26 dB BANDWIDTH

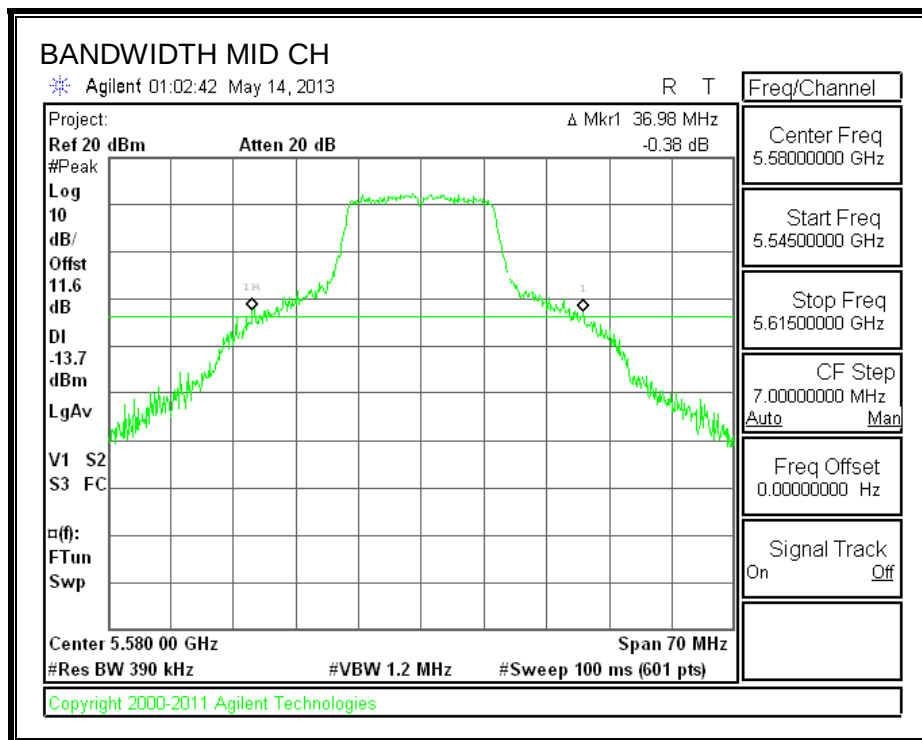
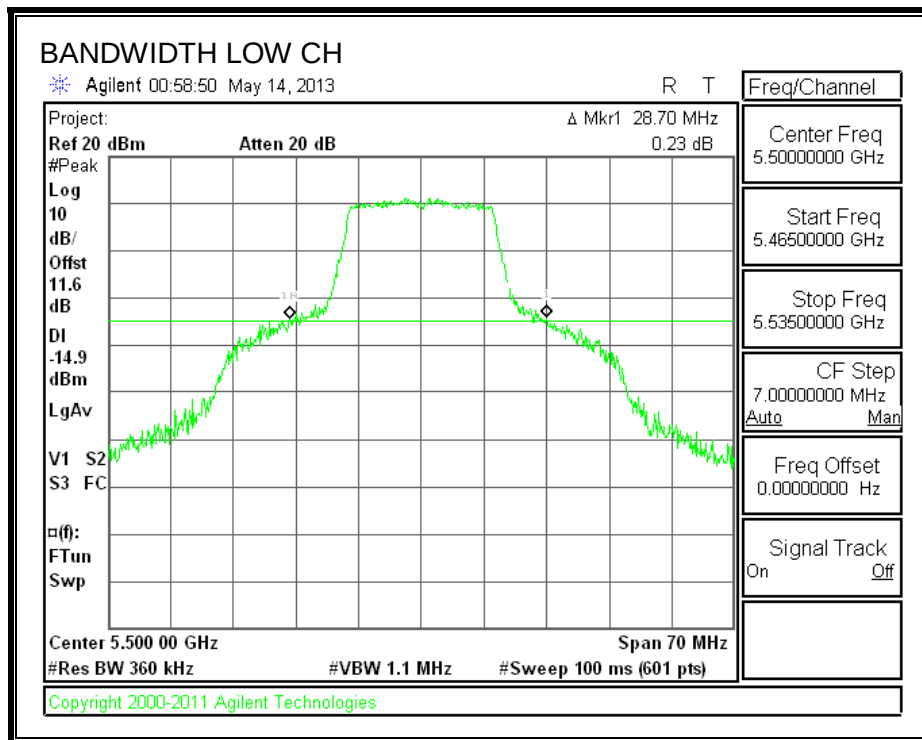
LIMITS

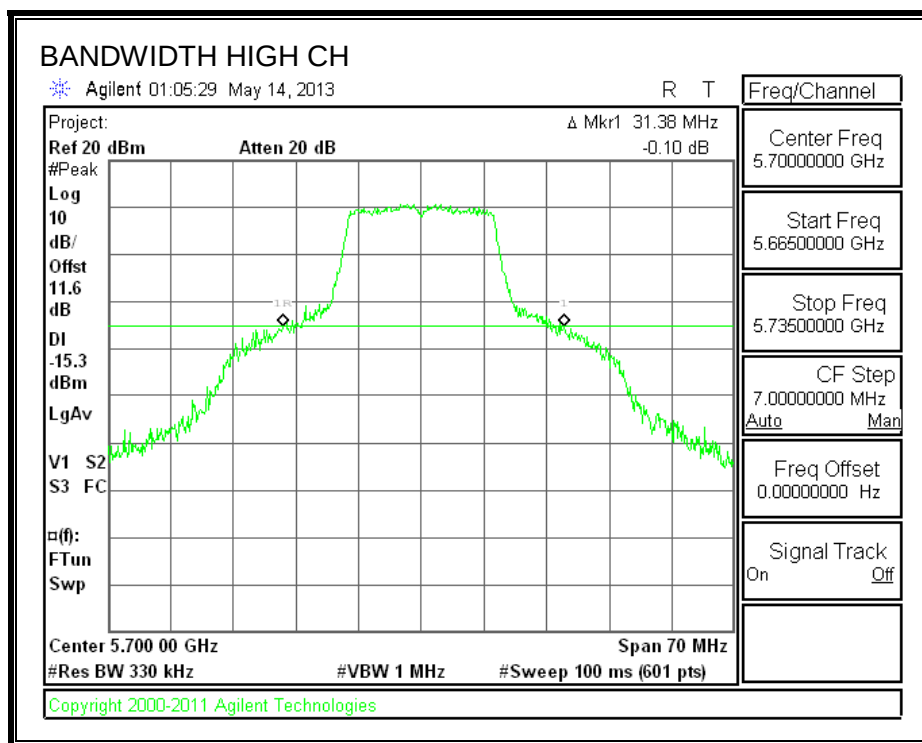
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	28.70
Mid	5580	36.96
High	5700	31.38

26 dB BANDWIDTH





8.15.2. 99% BANDWIDTH

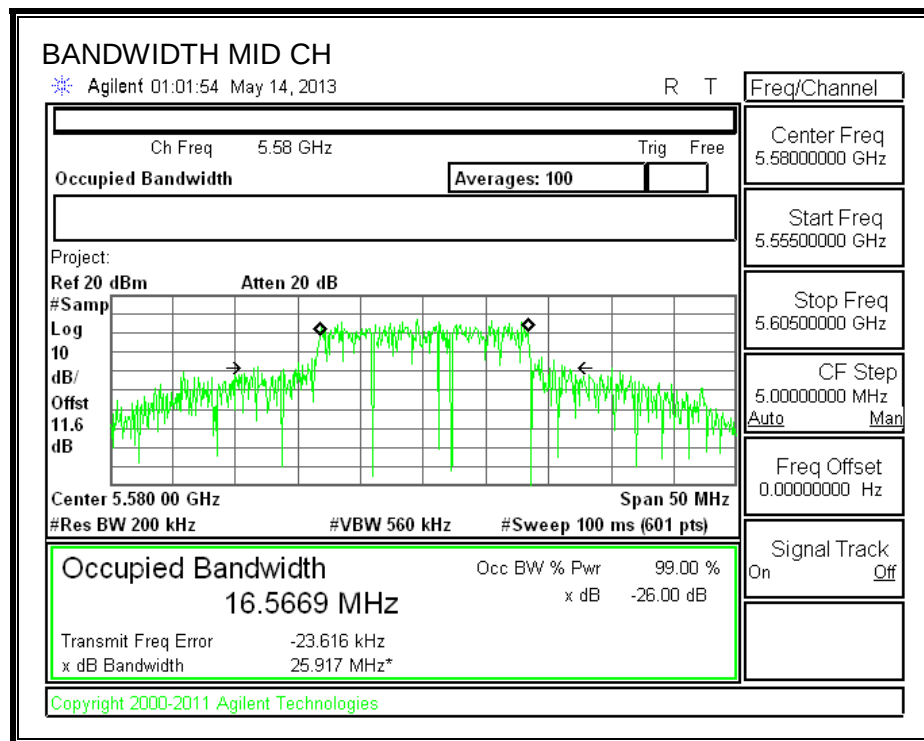
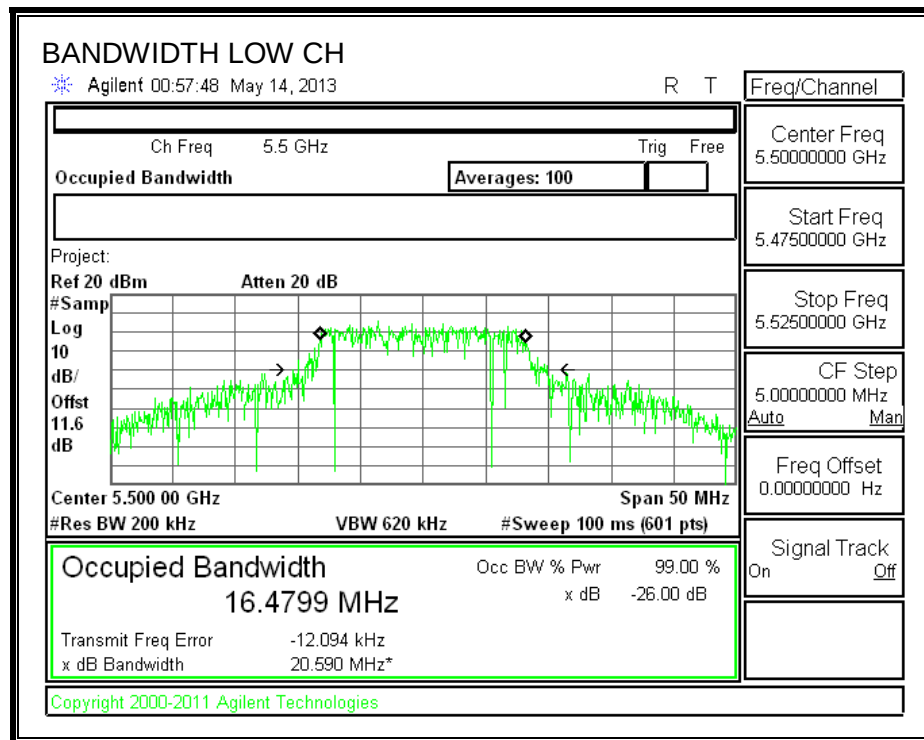
LIMITS

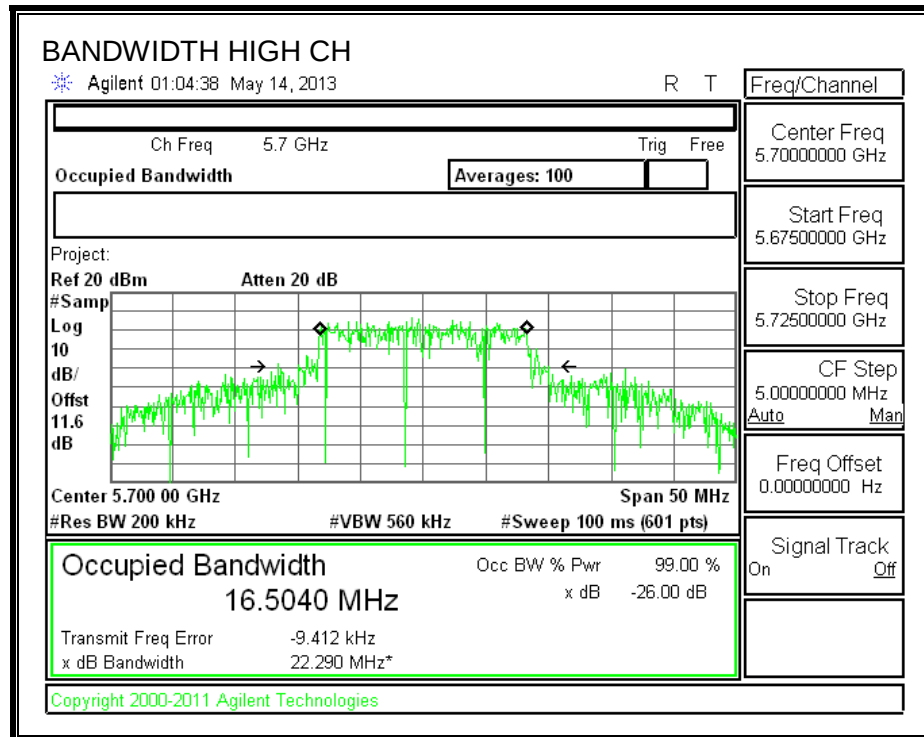
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	16.4799
Mid	5580	16.5669
High	5700	16.5040

99% BANDWIDTH





8.15.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.5–5.7 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	28.70	16.4799	6.60
Mid	5580	36.96	16.5669	6.60
High	5700	31.38	16.5040	6.60

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	23.40	23.17	29.17	22.57	10.40	11.00	10.40
Mid	5580	23.40	23.19	29.19	22.59	10.40	11.00	10.40
High	5700	23.40	23.18	29.18	22.58	10.40	11.00	10.40

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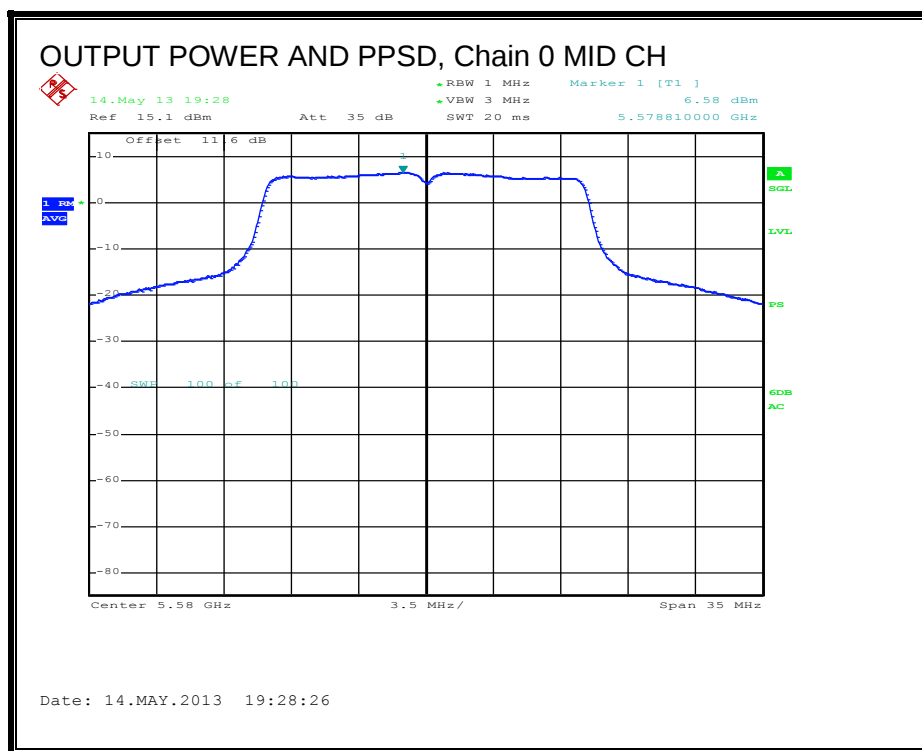
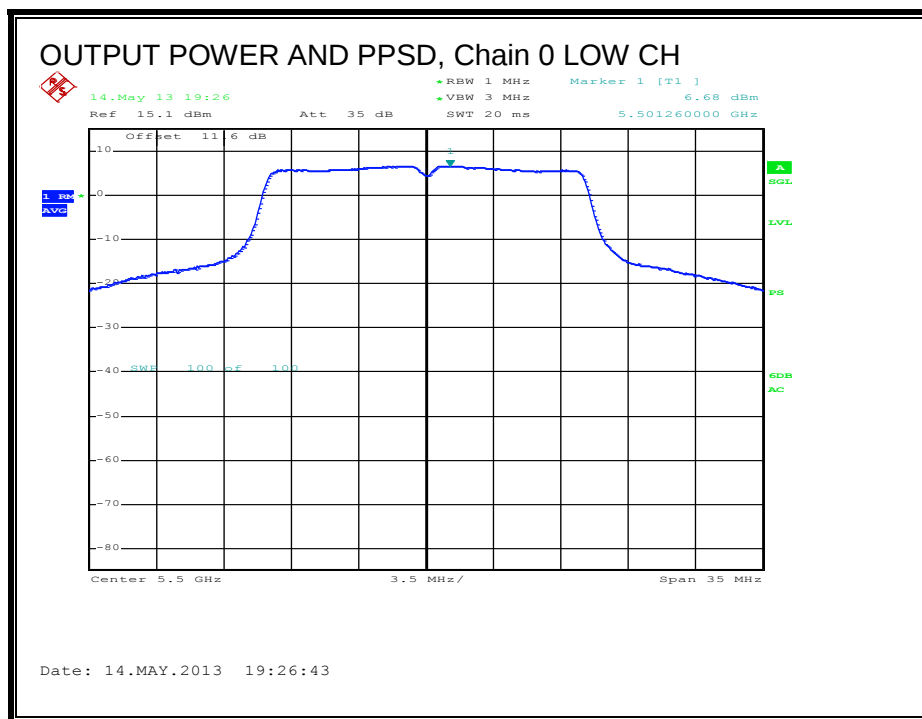
Output Power Results

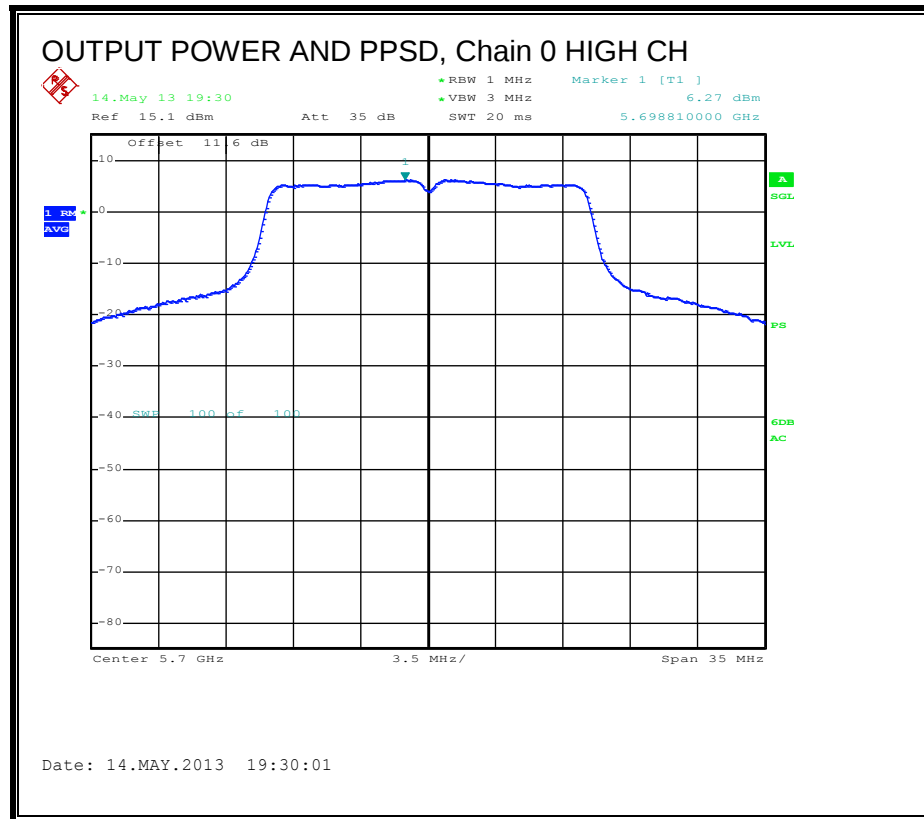
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	18.63	18.63	22.57	-3.94
Mid	5580	20.32	20.32	22.59	-2.27
High	5700	17.85	17.85	22.58	-4.73

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	6.68	6.68	10.40	-3.72
Mid	5580	6.58	6.58	10.40	-3.82
High	5700	6.27	6.27	10.40	-4.13

OUTPUT POWER AND PPSD, Chain 0





8.15.1. PEAK EXCURSION

LIMITS

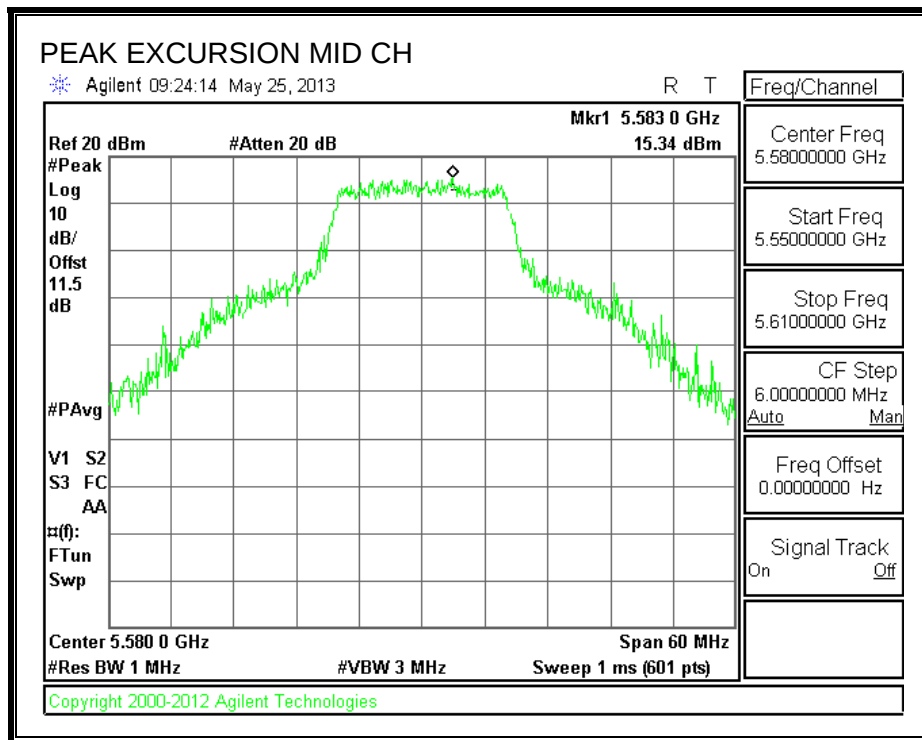
FCC §15.407 (a) (6)

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)
Mid	5580	15.34	6.58	0.00	8.76	13	-4.24

PEAK EXCURSION



8.16. 802.11a LEGACY MODE CHANNEL 144 IN THE 5.6 GHz BAND

8.16.1. 26 dB BANDWIDTH

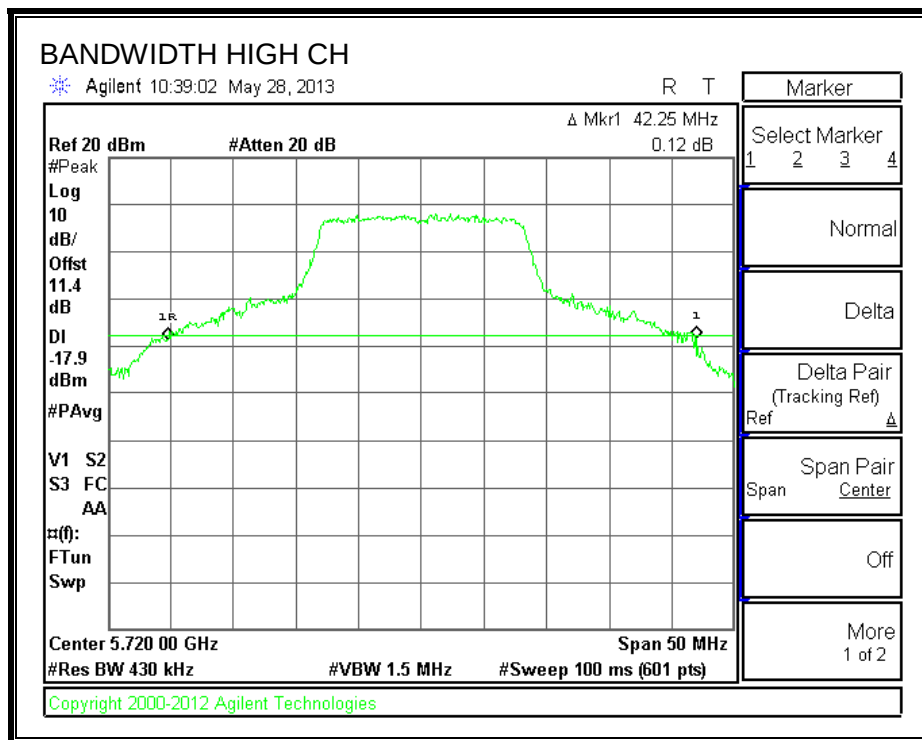
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
High	5720	42.250

26 dB BANDWIDTH



8.16.2. 99% BANDWIDTH

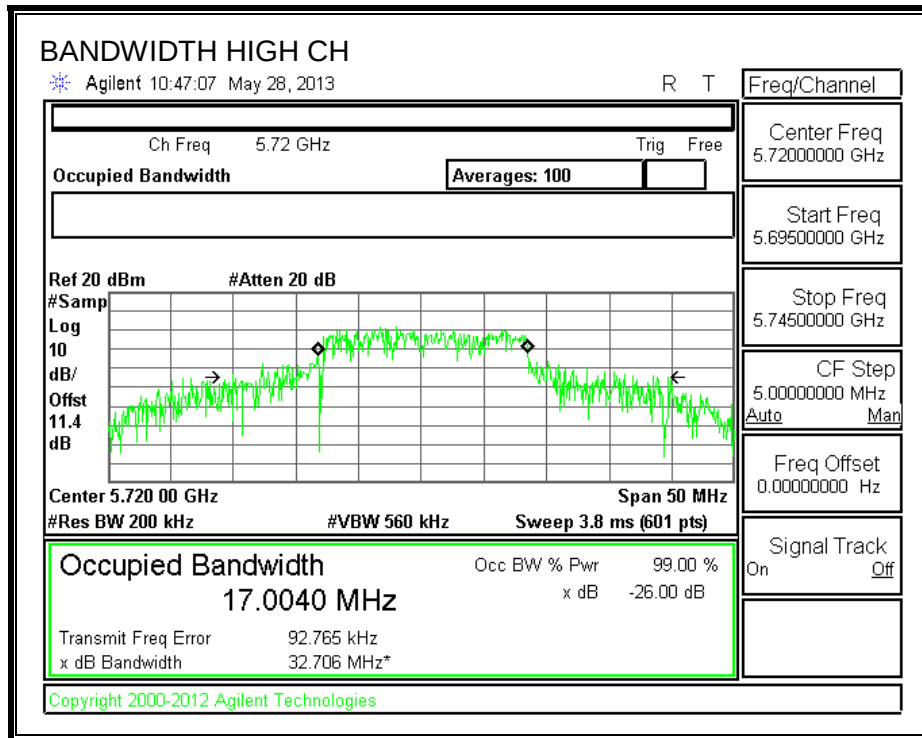
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
High	5720	17.0040

99% BANDWIDTH



8.16.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.4 dB (including 10 dB pad and 1.4 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Power (dBm)
High	5720	20.15

8.16.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.5–5.7 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

UNII 2ext RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
High	5720	26.1	13.5	6.60

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
High	5720	23.40	22.30	28.30	21.70	10.40	11.00	10.40

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

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5720	10.90	10.90	21.70	-10.80

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
High	5720	1.97	1.97	10.40	-8.43

UNII 3 RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
High	5720	16.1250	13.5020	6.60

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
High	5720	22.47	22.30	28.30	21.70	10.40	11.00	10.40

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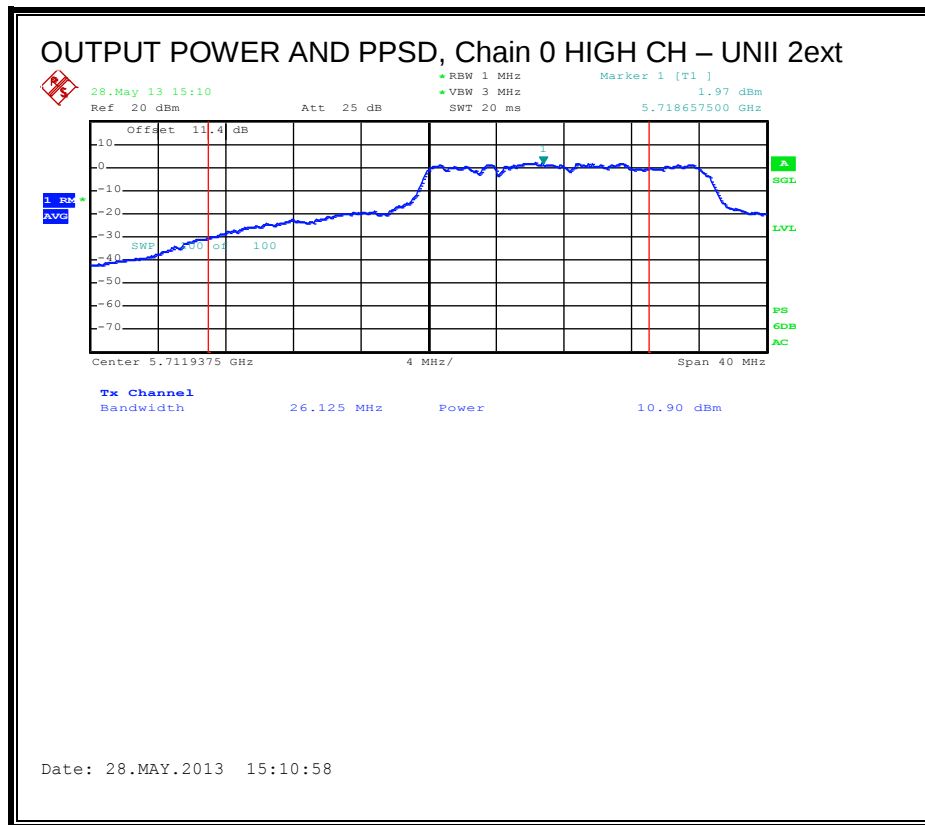
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5720	5.04	5.04	21.70	-16.66

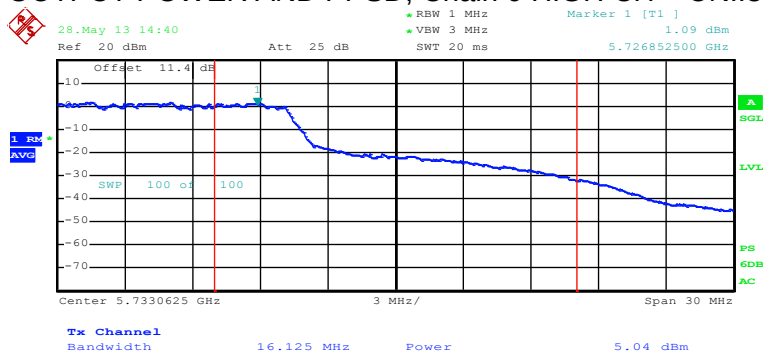
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
High	5720	1.09	1.09	10.40	-9.31

OUTPUT POWER AND PPSD, Chain 0



OUTPUT POWER AND PPSD, Chain 0 HIGH CH – UNII3



Date: 28.MAY.2013 14:40:54

8.17. 802.11n HT20 CDD 2TX MODE IN THE 5.6 GHz BAND

8.17.1. 26 dB BANDWIDTH

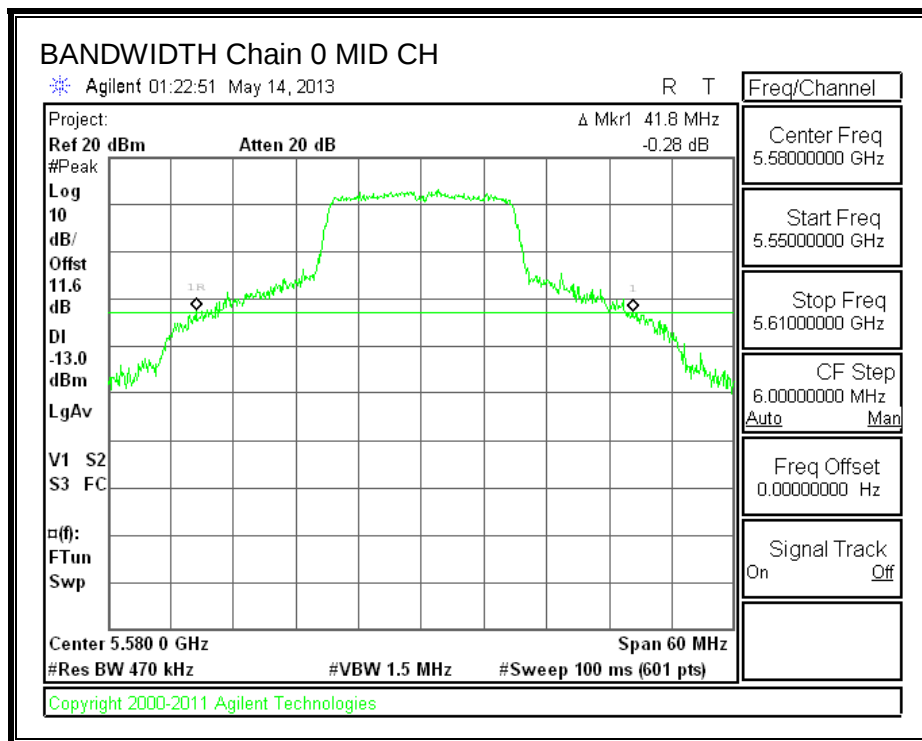
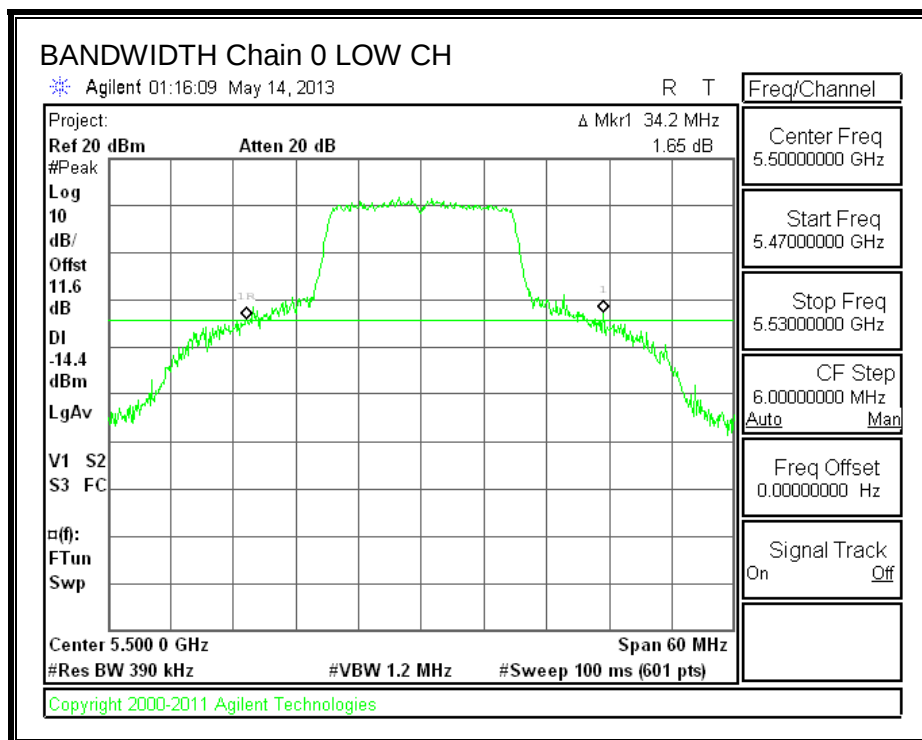
LIMITS

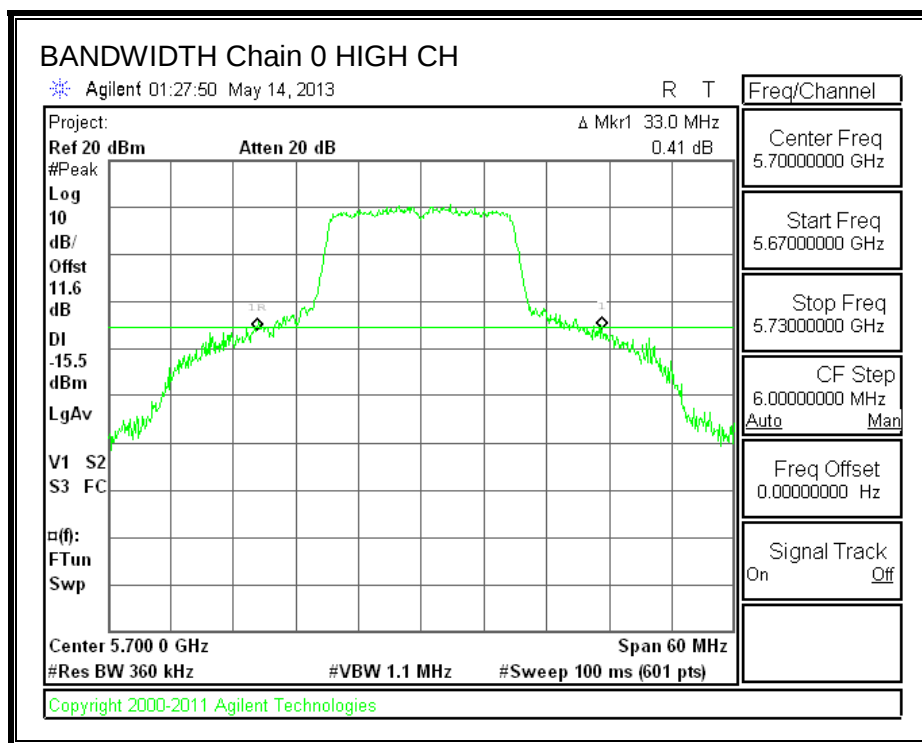
None; for reporting purposes only.

RESULTS

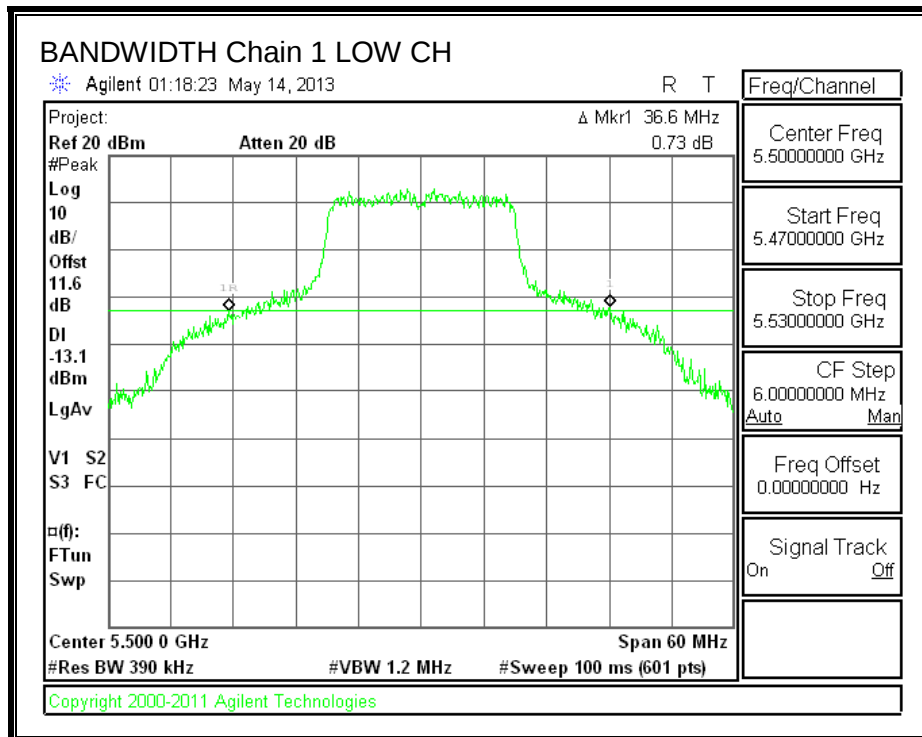
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5500	34.20	36.60
Mid	5580	41.80	43.40
High	5700	33.00	32.60

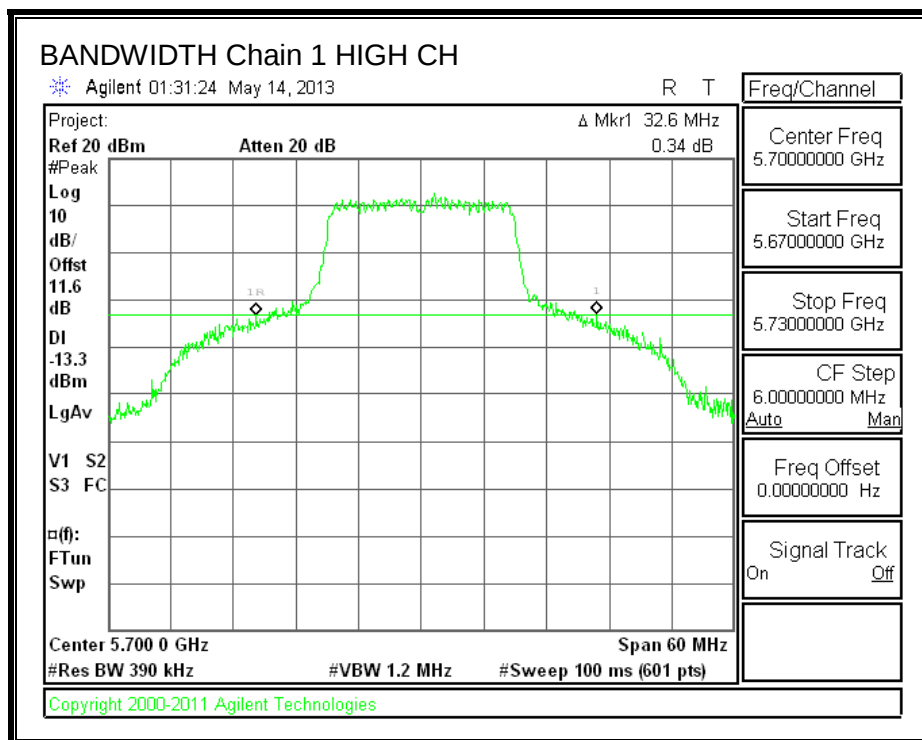
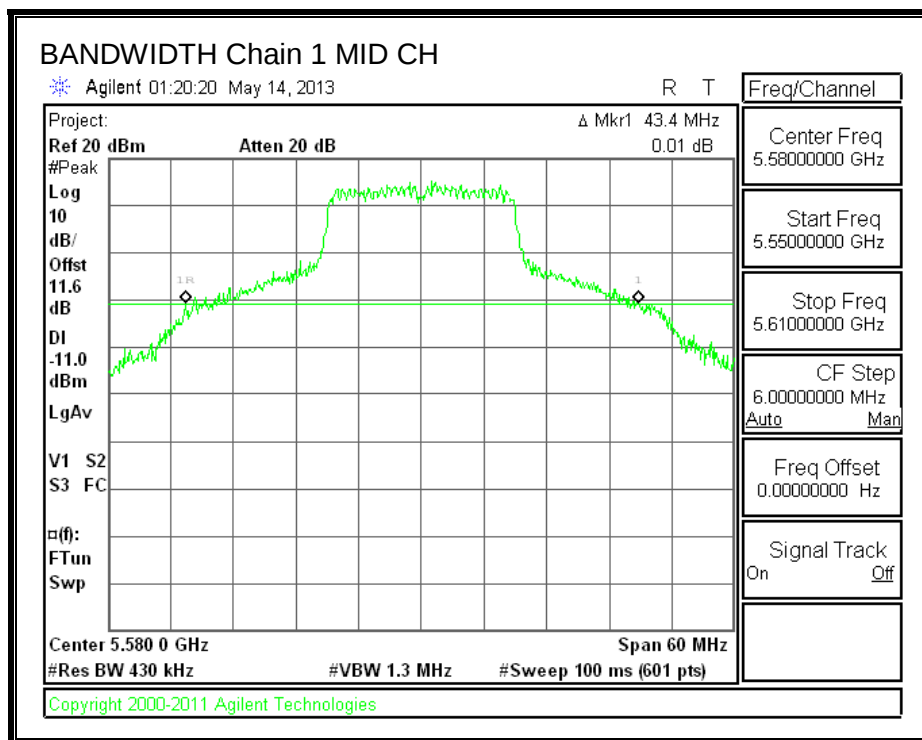
26 dB BANDWIDTH, Chain 0





26 dB BANDWIDTH, Chain 1





8.17.2. 99% BANDWIDTH

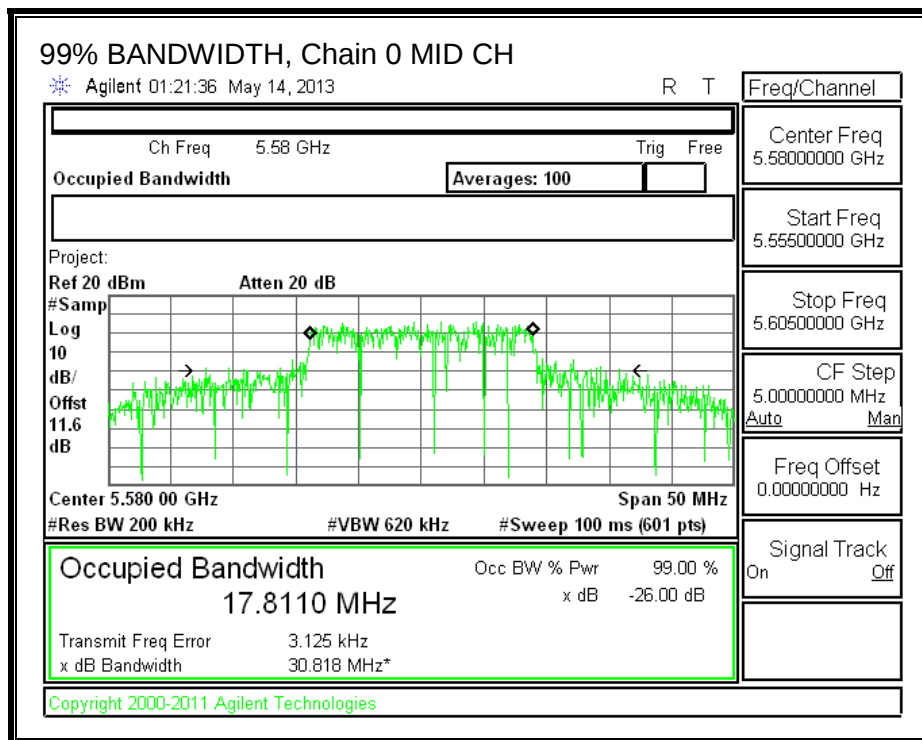
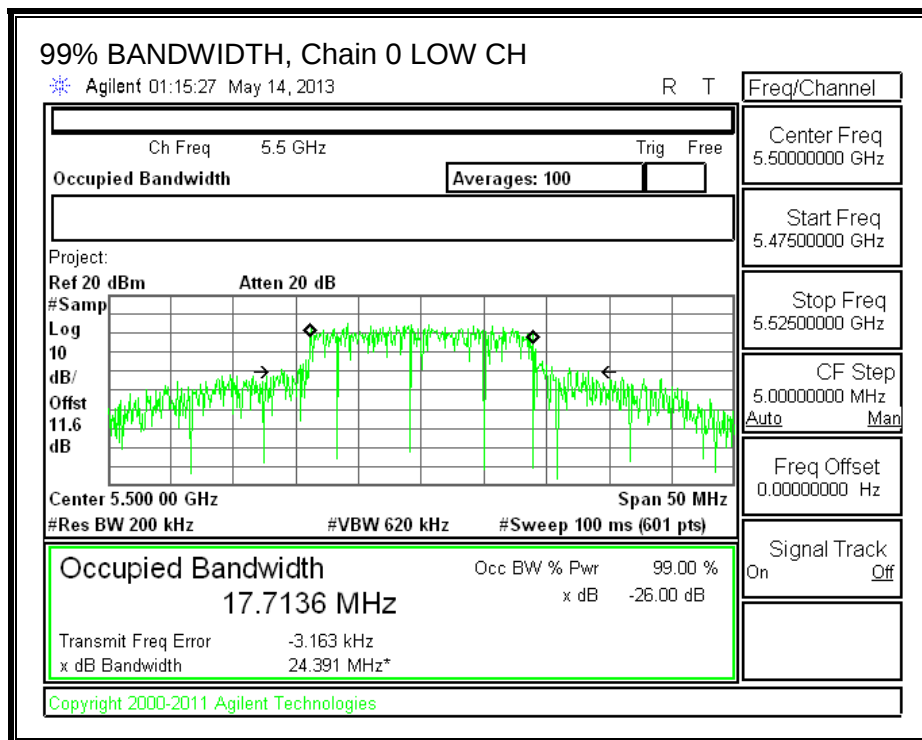
LIMITS

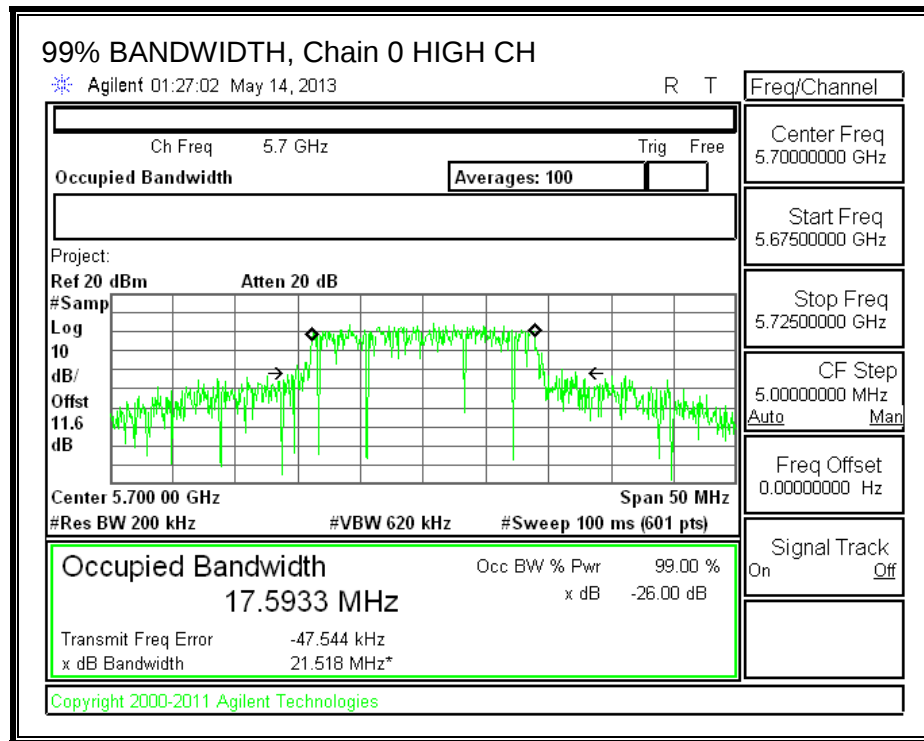
None; for reporting purposes only.

RESULTS

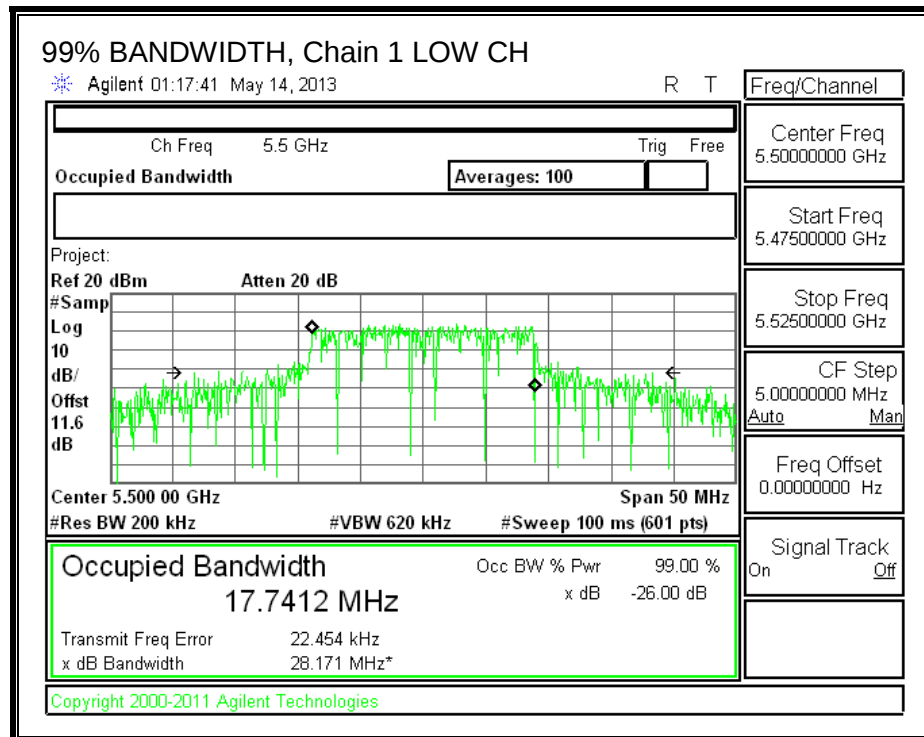
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5500	17.7136	17.7412
Mid	5580	17.8110	18.3108
High	5700	17.5933	17.5592

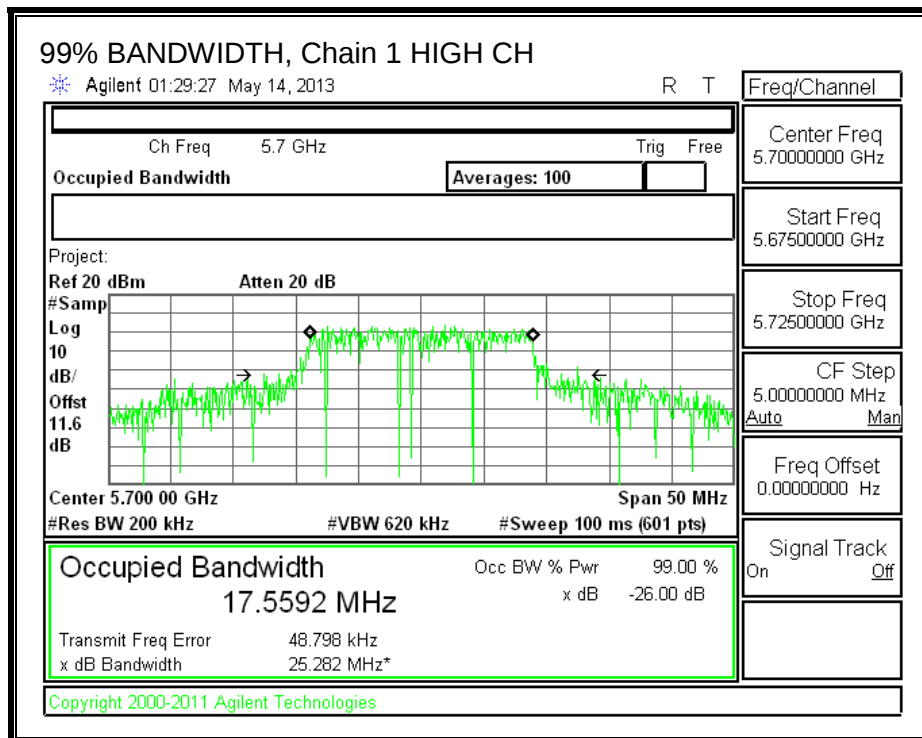
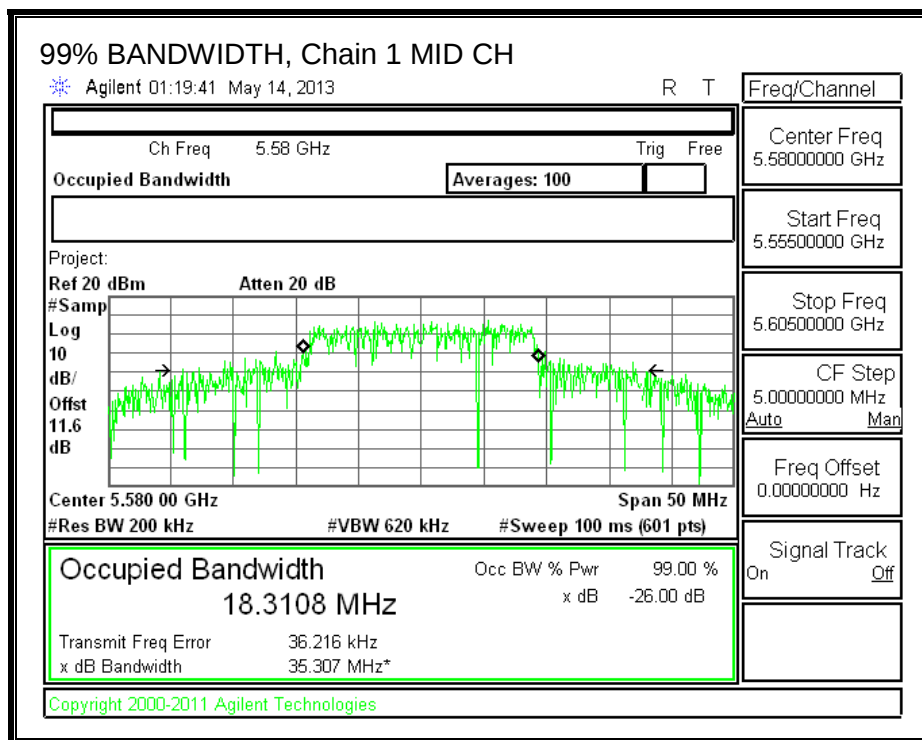
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.17.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.5–5.7 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log₁₀ B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

For PPSD, 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)
6.60	3.01	9.61

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Uncorrelated Directional Gain (dBi)	Correlated Directional Gain (dBi)
Low	5500	34.20	17.7136	6.60	9.61
Mid	5580	41.80	17.8110	6.60	9.61
High	5700	32.60	17.5592	6.60	9.61

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	23.40	23.48	29.48	22.88	7.39	11.00	7.39
Mid	5580	23.40	23.51	29.51	22.91	7.39	11.00	7.39
High	5700	23.40	23.45	29.45	22.85	7.39	11.00	7.39

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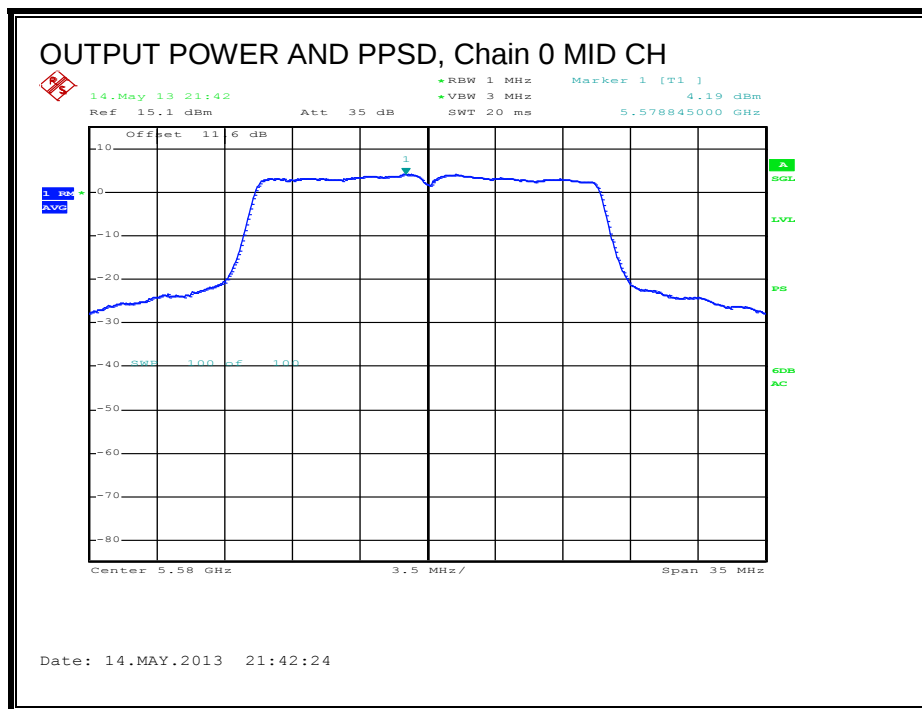
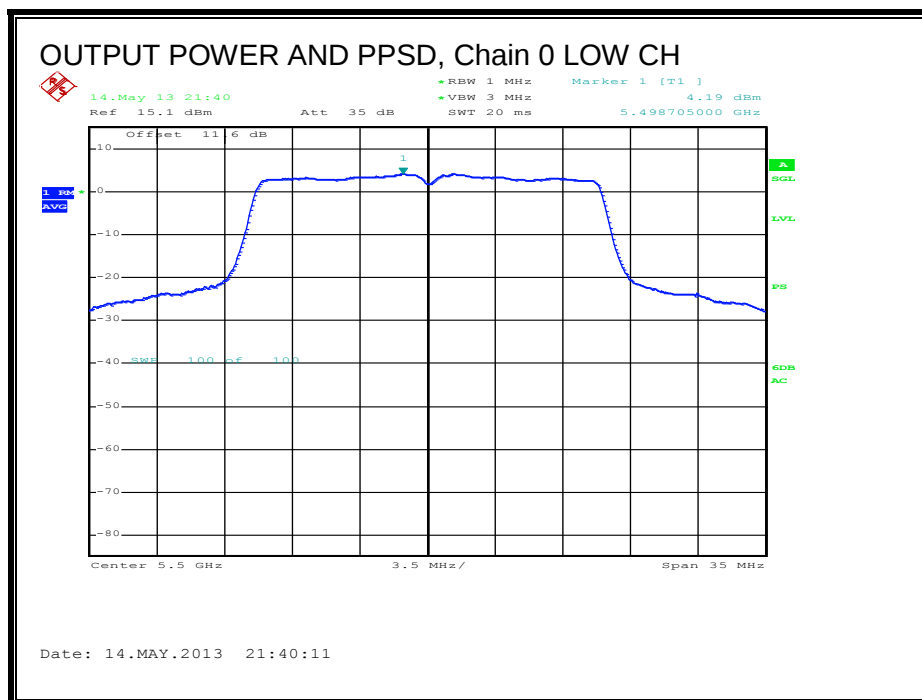
Output Power Results

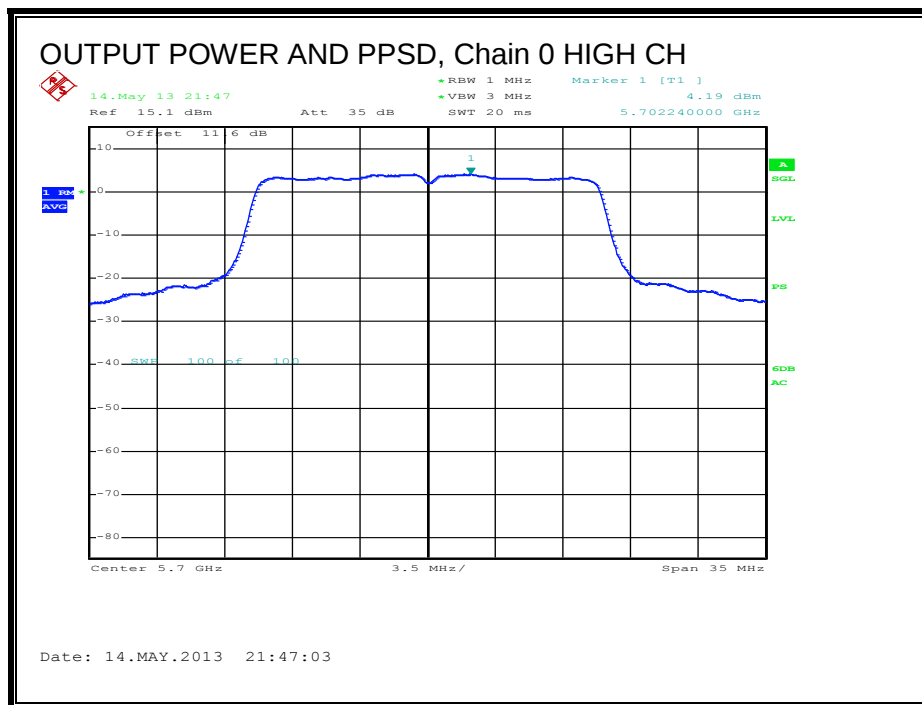
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	18.15	18.33	21.25	22.88	-1.63
Mid	5580	18.02	18.13	21.09	22.91	-1.82
High	5700	15.89	16.33	19.13	22.85	-3.72

PPSD Results

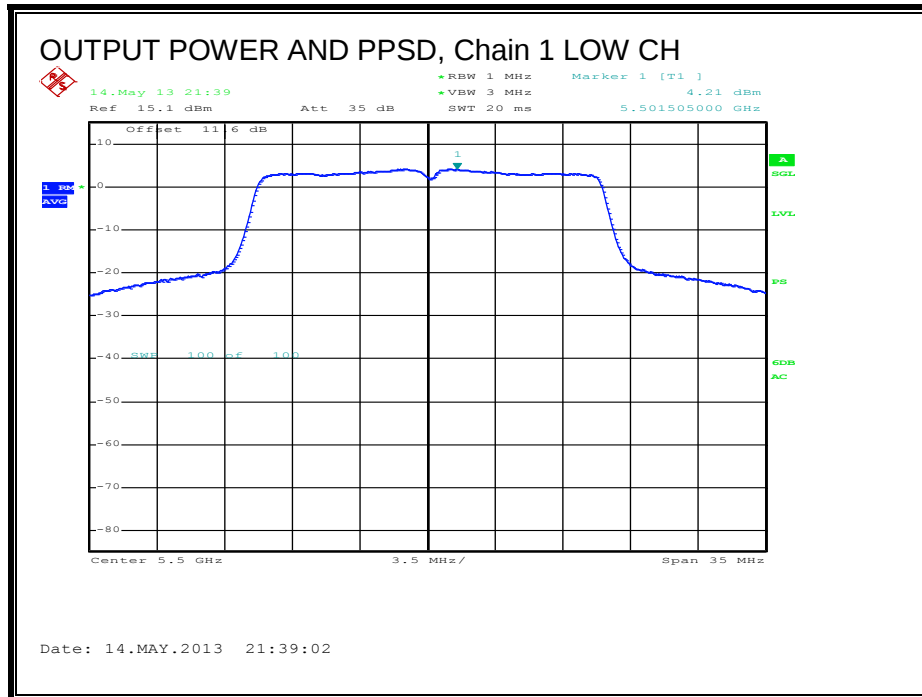
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	4.19	4.21	7.21	7.39	-0.18
Mid	5580	4.19	4.30	7.26	7.39	-0.13
High	5700	4.19	4.46	7.34	7.39	-0.05

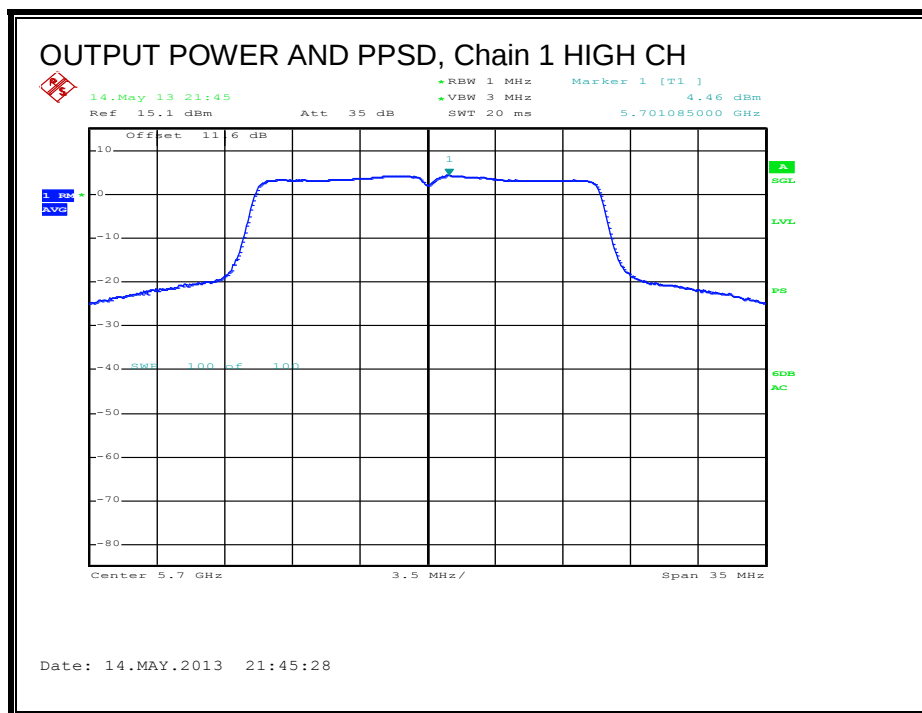
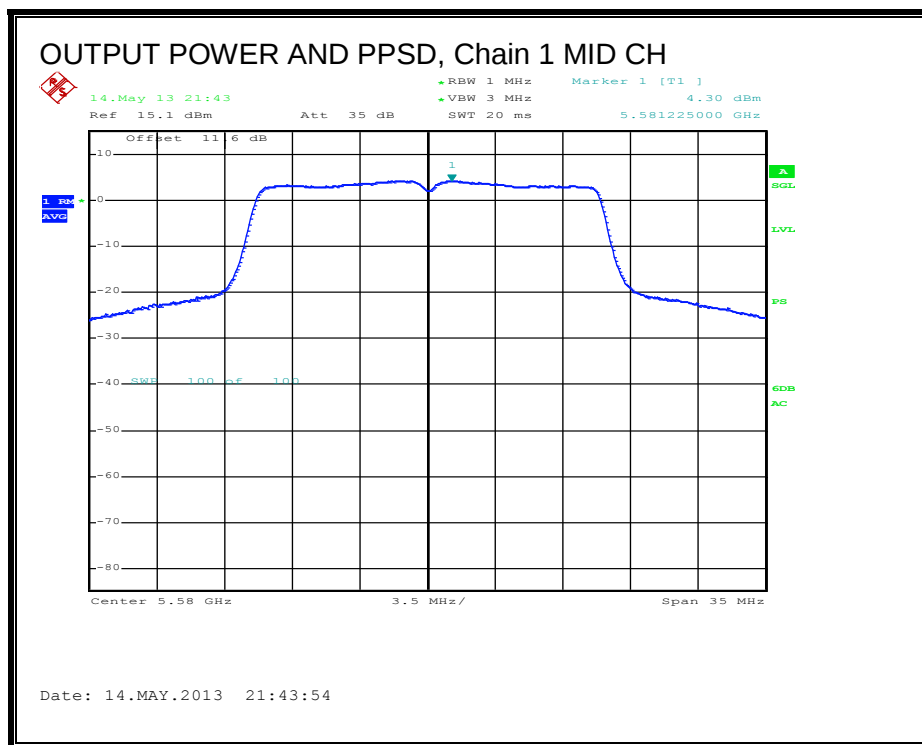
OUTPUT POWER AND PPSD, Chain 0





OUTPUT POWER AND PPSD, Chain 1





8.17.1. 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

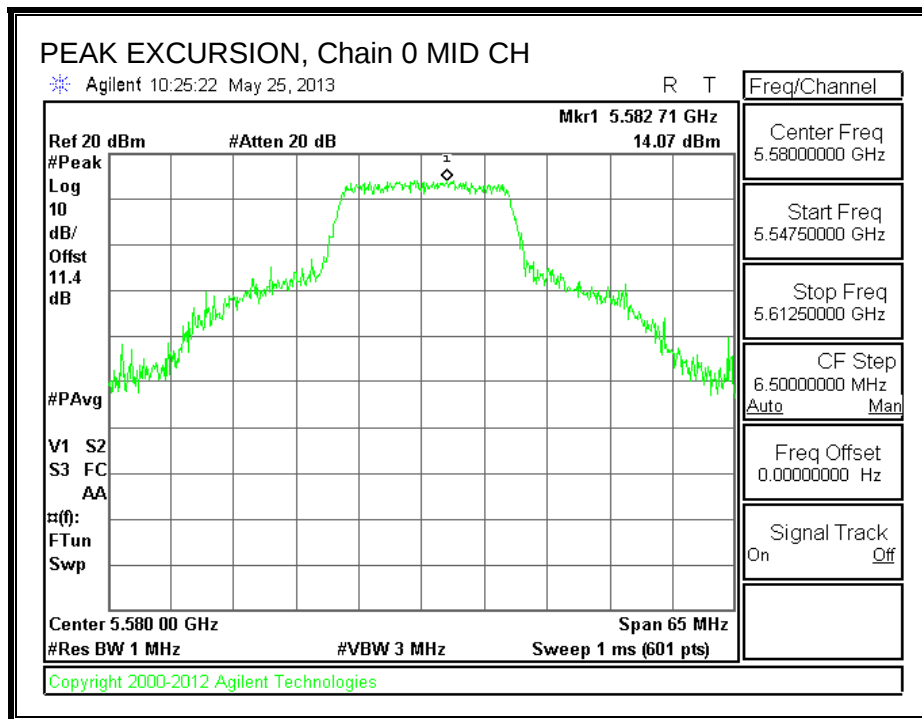
Chain 0

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5580	14.07	4.19	0.00	9.88	13	-3.12

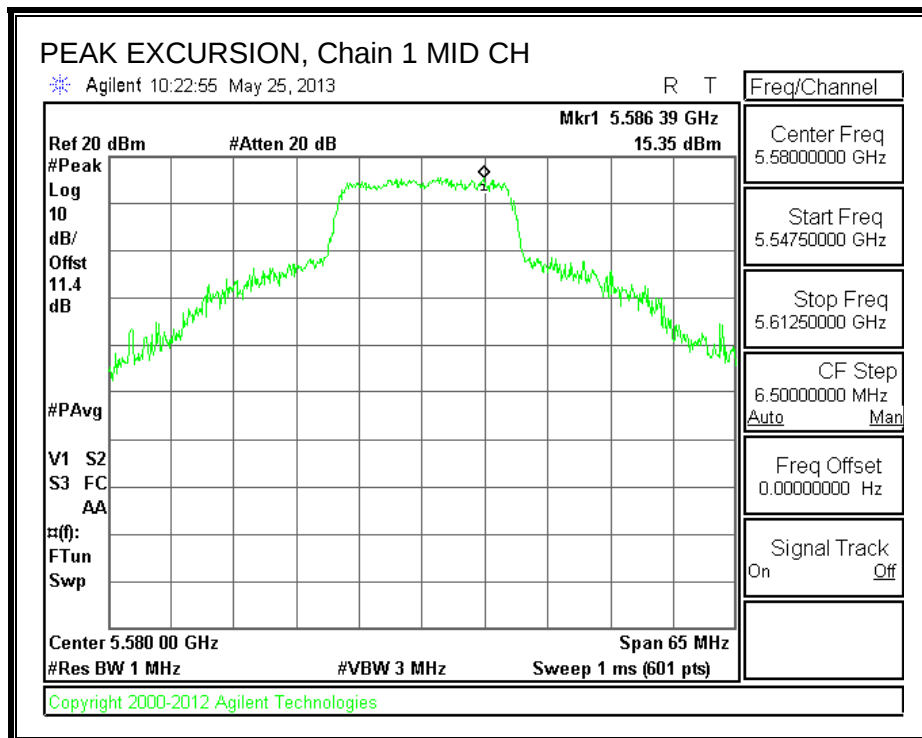
Chain 1

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5580	15.35	4.30	0.00	11.05	13	-1.95

PEAK EXCURSION, Chain 0



PEAK EXCURSION, Chain 1



8.18. 802.11n HT20 CDD 2TX MODE CHANNEL 144 IN THE 5.6 GHz BAND

8.18.1.26 dB BANDWIDTH- UNII

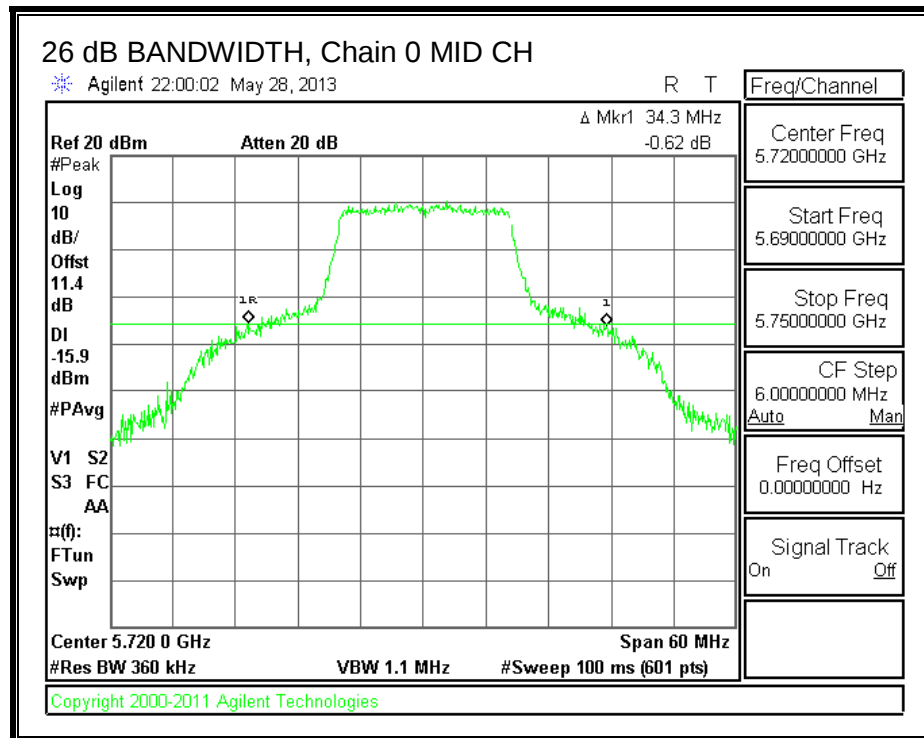
LIMITS

None; for reporting purposes only.

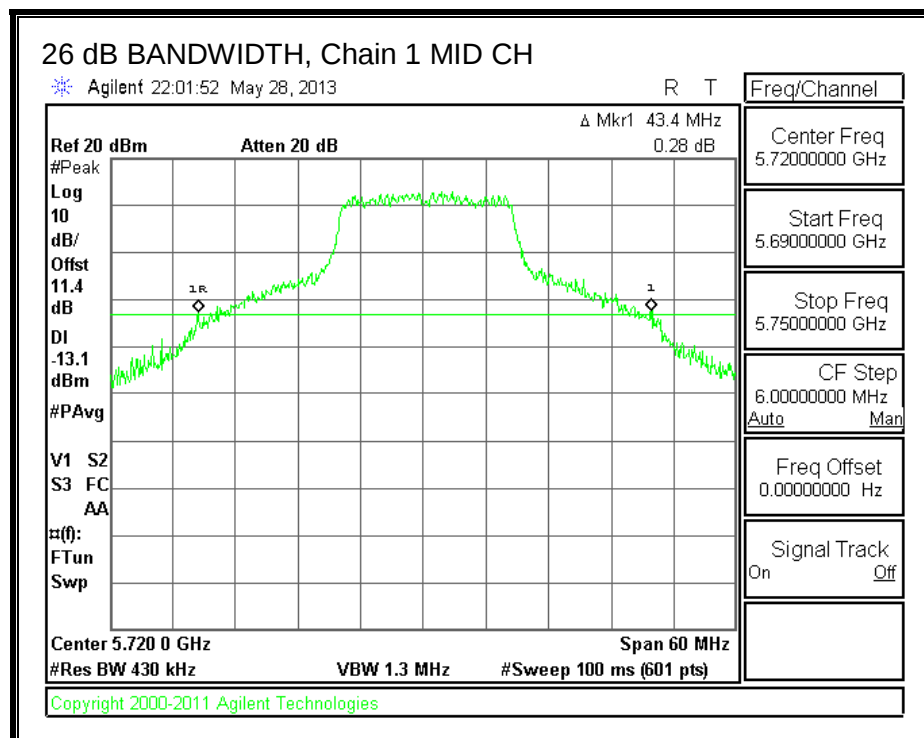
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
High	5720	22.15	26.70

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.18.2.99% BANDWIDTH

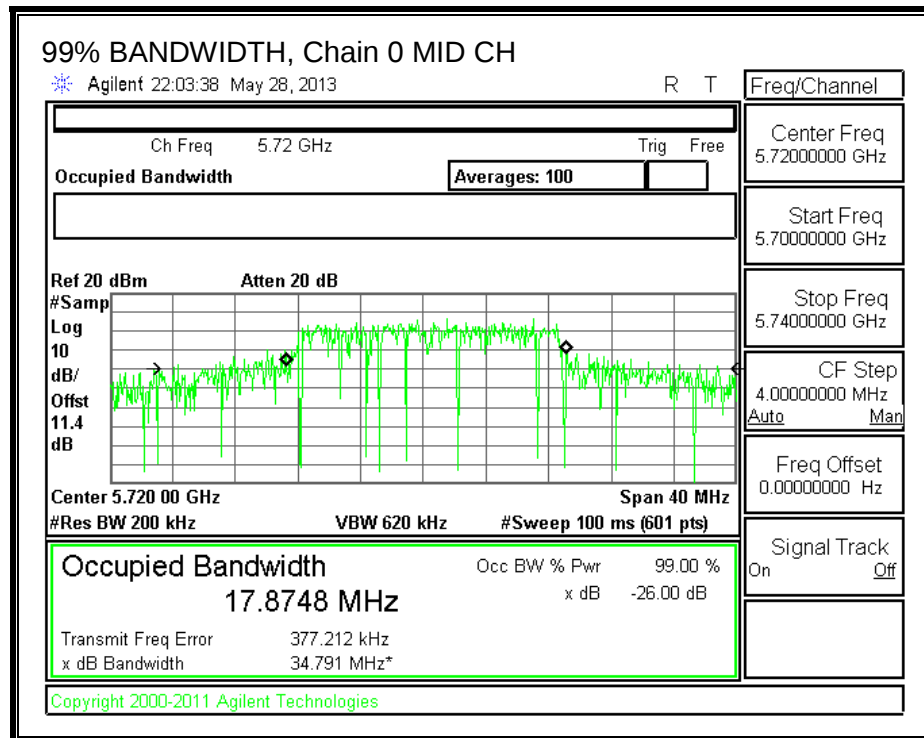
LIMITS

None; for reporting purposes only.

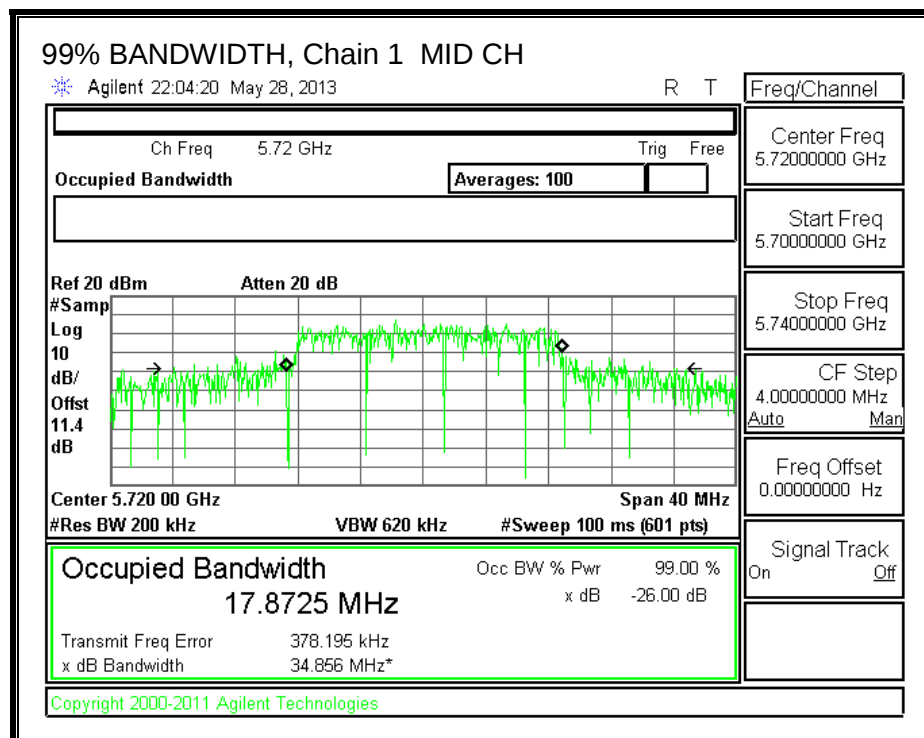
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
High	5720	13.9374	13.9362

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.18.1. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.4 dB (including 10 dB pad and 1.4 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Power (dBm)	Power (dBm)
High	5720	19.03	19.05

8.18.2. OUTPUT POWER AND PSD

LIMITS

FCC §15.247

IC RSS-210 A8.4

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

DIRECTIONAL ANTENNA GAIN

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

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
6.60	6.60	6.60

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

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Correlated Chains Directional Gain (dBi)
6.60	6.60	9.61

RESULTS

Limits (FCC), portion in UNII 2 ext band

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Correlated Gain (dBi)	Uncorrelated Gain (dBi)
High	5720	22.15	13.9362	9.83	6.60

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
High	5720	23.40	22.44	28.44	21.84	7.17	11.00	7.17

Duty Cycle CF (dB)	0.00	Included in Calculations of PPSP
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5720	13.49	13.54	16.53	21.84	-5.32

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
High	5720	4.110	4.100	7.12	7.17	-0.05

Limits (FCC), portion in 5.8 GHz DTS band

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Correlated Gain (dBi)	Uncorrelated Gain (dBi)
High	5720	12.15	3.9362	9.83	6.60

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
High	5720	21.25	16.95	22.95	16.35	7.17	11.00	7.17

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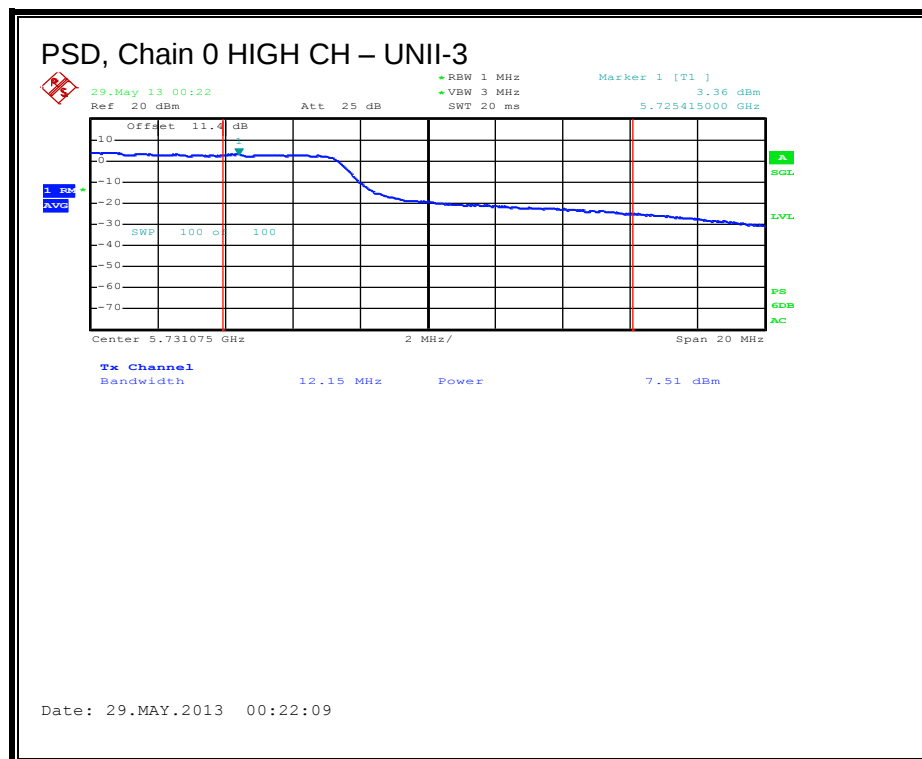
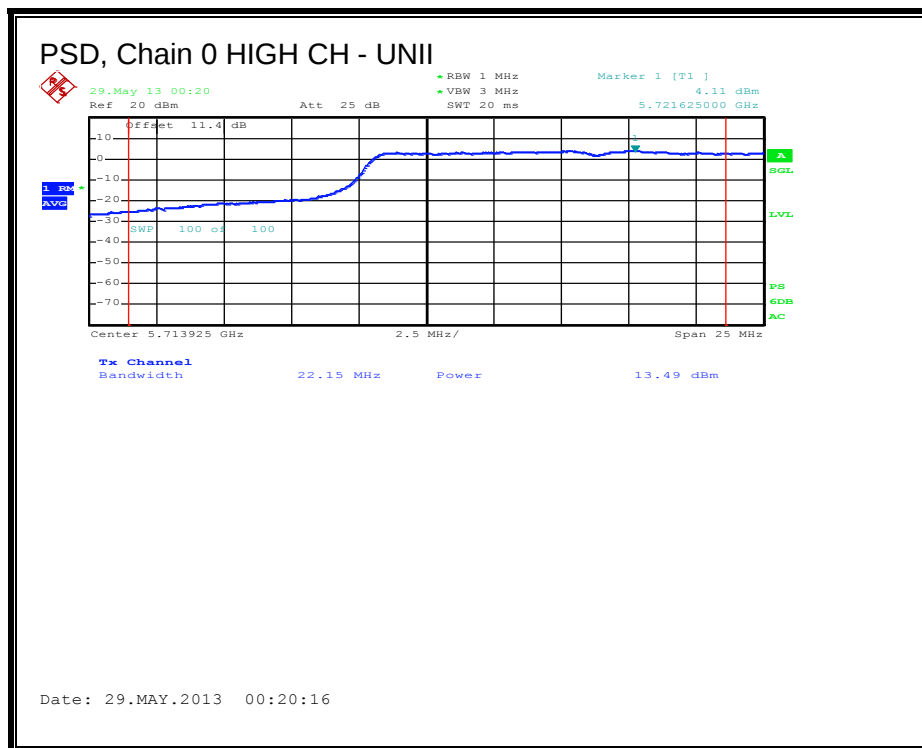
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5720	7.51	7.49	10.51	16.35	-5.84

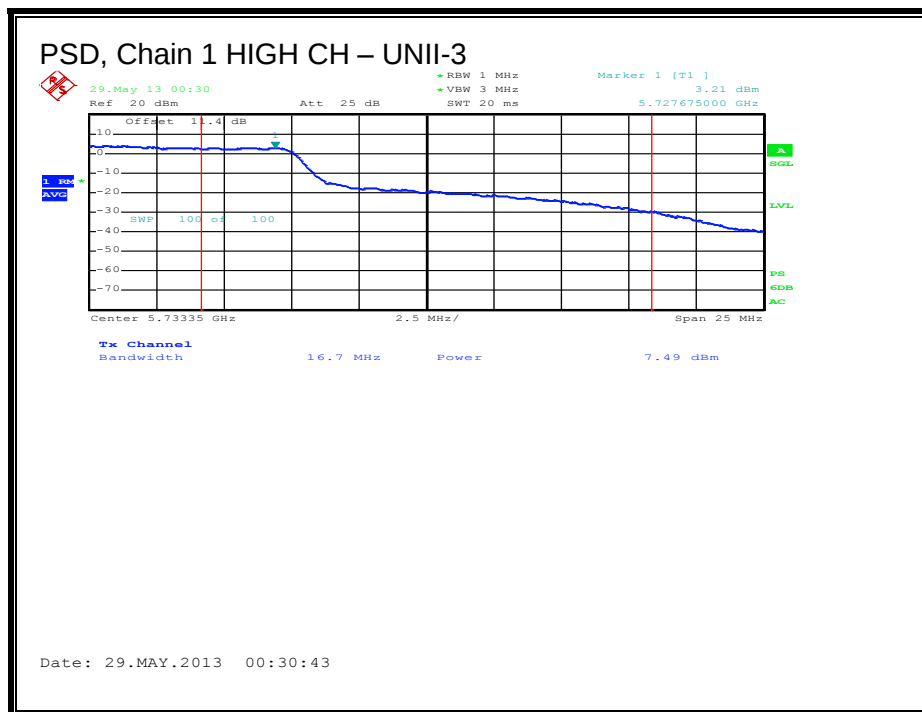
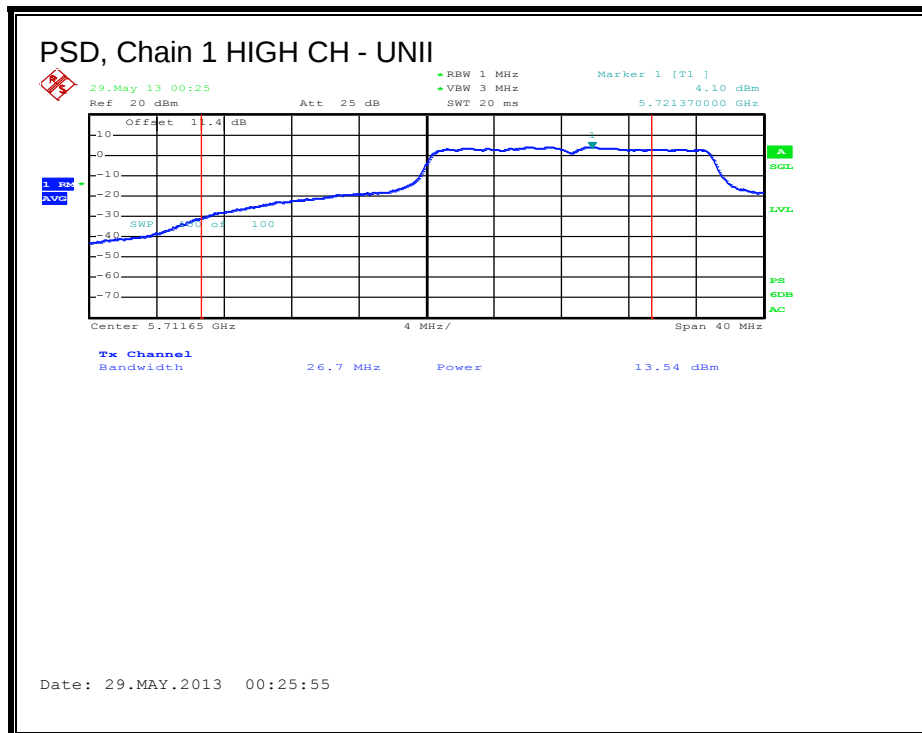
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
High	5720	3.360	3.210	6.30	7.17	-0.87

PSD, Chain 0



PSD, Chain 1



8.19. 802.11n HT20 STBC 2TX MODE IN THE 5.6 GHz BAND

8.19.1. 26 dB BANDWIDTH

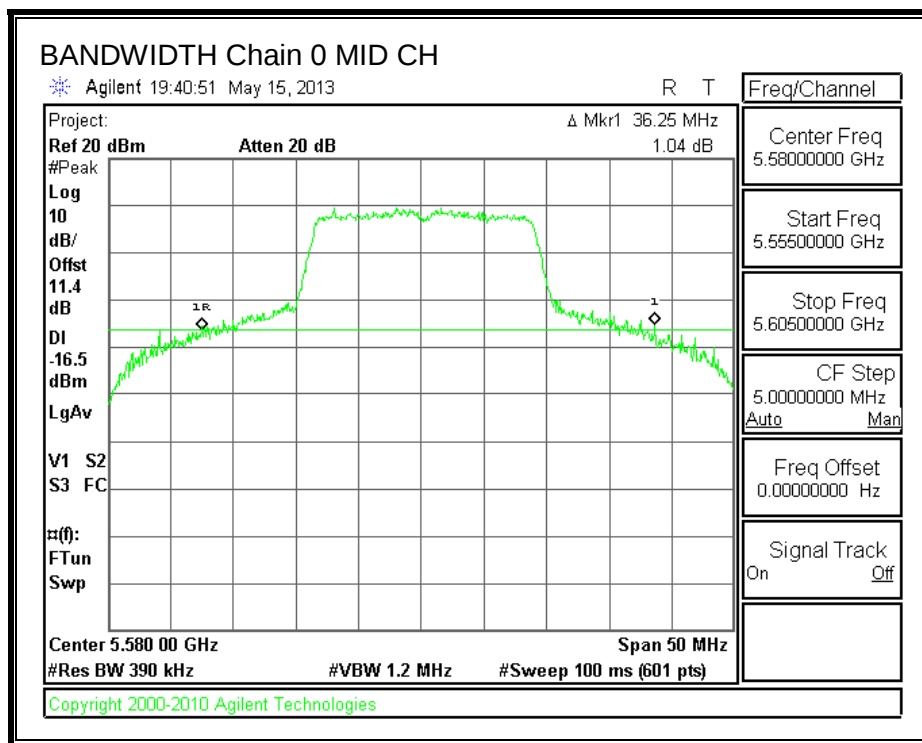
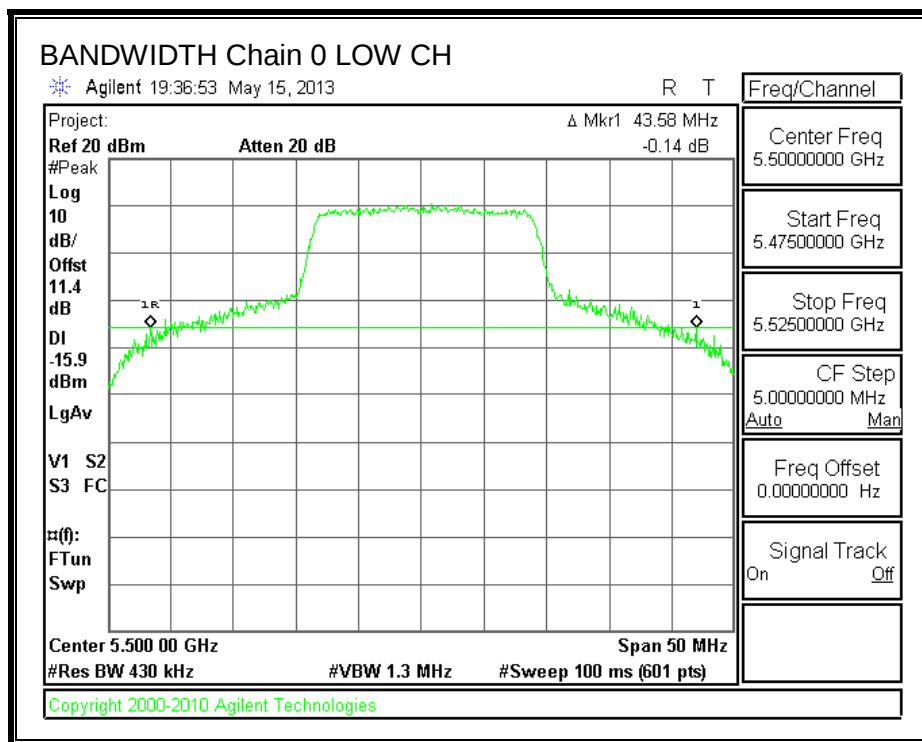
LIMITS

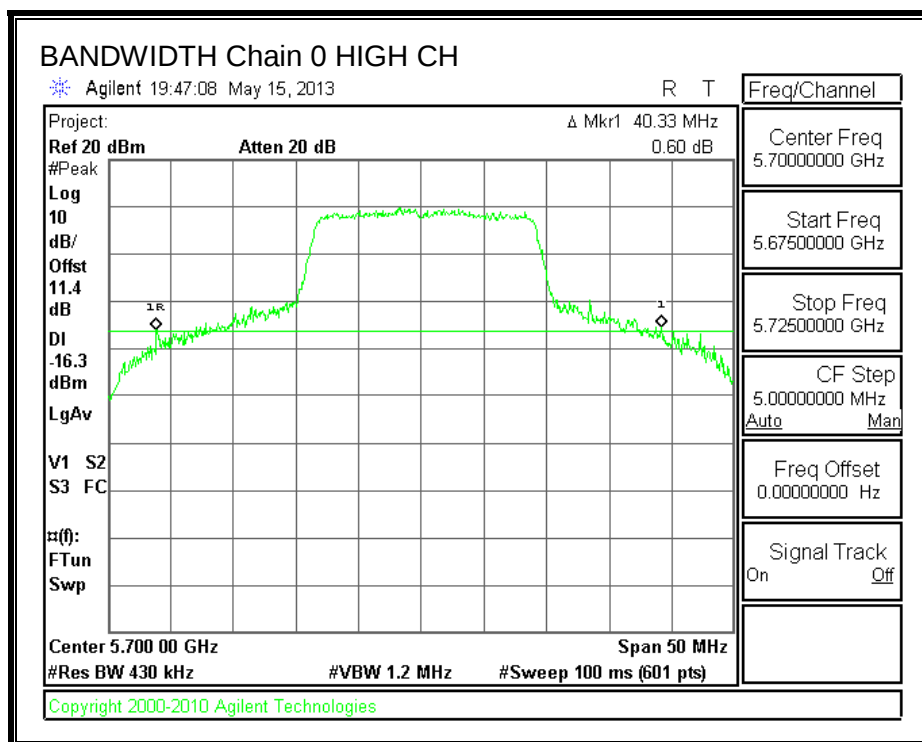
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5500	43.58	40.92
Mid	5580	36.25	46.42
High	5700	40.33	45.50

26 dB BANDWIDTH, Chain 0





26 dB BANDWIDTH, Chain 1

