



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

C2PC CERTIFICATION TEST REPORT

FOR

802.11a/g/n/ac WLAN + BLUETOOTH PCI-E CUSTOM COMBINATION CARD

MODEL NUMBER: BCM94360CS2

**FCC ID: QDS-BRCM1072
IC: 4324A-BRCM1072**

REPORT NUMBER: 13U14796-5, Revision F

ISSUE DATE: APRIL 23, 2013

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

Prepared by
**UL CCS
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888**



NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	03/18/13	Initial Issue	F. Ibrahim
A	03/20/13	Revised sections 7.1.1, 9.2.18, 8.14.3, 8.16.3, 8.18.3, 8.20.3, 8.22.3, 8.24.3 and 9.2.18	F. Ibrahim
B	03/21/03	Revised sections 9.2.7, 9.2.9, 9.2.16, 9.2.18, 9.2.30, 9.2.31, 9.2.33, and 9.2.34	F. Ibrahim
C	03/27/13	Added AC80 data and power in the 5.2 GHz band	F. Ibrahim
D	03/27/13	Added the worst-case data rate for AC80 in section 5.5	F. Ibrahim
E	04/18/13	Added AC80 data in the 5.3 and 5.6 GHz UNII bands.	F. Ibrahim
F	04/23/13	Revised sections 5.3 and 8.36.3	F. Ibrahim

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	9
2. TEST METHODOLOGY	10
3. FACILITIES AND ACCREDITATION	10
4. CALIBRATION AND UNCERTAINTY	10
4.1. MEASURING INSTRUMENT CALIBRATION	10
4.2. SAMPLE CALCULATION	10
4.3. MEASUREMENT UNCERTAINTY	10
5. EQUIPMENT UNDER TEST	11
5.1. DESCRIPTION OF EUT	11
5.2. DESCRIPTION OF CLASS II PERMISSIVE CHANGE	11
5.3. MAXIMUM AVERAGE OUTPUT POWER	12
5.4. DESCRIPTION OF AVAILABLE ANTENNAS	18
5.5. SOFTWARE AND FIRMWARE	18
5.6. WORST-CASE CONFIGURATION AND MODE	19
5.7. DESCRIPTION OF TEST SETUP	20
6. TEST AND MEASUREMENT EQUIPMENT	22
7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS	23
7.1.1. ON TIME AND DUTY CYCLE RESULTS	23
7.1.2. MEASUREMENT METHOD FOR POWER AND PPSD	23
7.1.3. MEASUREMENT METHOD FOR AVG SPURIOUS EMISSION ABOVE 1 GHz	23
7.1.4. DUTY CYCLE PLOTS	24
8. ANTENNA PORT TEST RESULTS	28
8.1. 802.11a LEGACY 1TX MODE, 5.2 GHz BAND	28
8.1.1. 26 dB BANDWIDTH	28
8.1.2. 99% BANDWIDTH	31
8.1.3. OUTPUT POWER AND PSD	34
8.2. 802.11n HT20 CDD 2TX MODE, 5.2 GHz BAND	38
8.2.1. 26 dB BANDWIDTH	38
8.2.2. 99% BANDWIDTH	42
8.2.3. OUTPUT POWER AND PSD	46
8.3. 802.11n HT20 STBC 2TX MODE, 5.2 GHz BAND	52
8.3.1. 26 dB BANDWIDTH	52
8.3.2. 99% BANDWIDTH	56
8.3.3. OUTPUT POWER AND PSD	60
8.4. 802.11n HT40 1TX MODE, 5.2 GHz BAND	65
8.4.1. 26 dB BANDWIDTH	65

8.4.2.	99% BANDWIDTH	67
8.4.3.	OUTPUT POWER AND PSD	69
8.5.	<i>802.11n HT40 CDD 2TX MODE, 5.2 GHz BAND</i>	72
8.5.1.	26 dB BANDWIDTH	72
8.5.2.	99% BANDWIDTH	75
8.5.3.	OUTPUT POWER AND PSD	78
8.6.	<i>802.11n AC40 BF 2TX MODE, 5.2 GHz BAND</i>	82
8.6.1.	26 dB BANDWIDTH	82
8.6.2.	99% BANDWIDTH	85
8.6.3.	OUTPUT POWER AND PSD	88
8.7.	<i>802.11n AC80 1TX MODE, 5.2 GHz BAND</i>	92
8.7.1.	26 dB BANDWIDTH	92
8.7.2.	99% BANDWIDTH	94
8.7.3.	OUTPUT POWER AND PSD	96
8.8.	<i>802.11n AC80 CDD 2TX MODE, 5.2 GHz BAND</i>	99
8.8.1.	26 dB BANDWIDTH	99
8.8.2.	99% BANDWIDTH	101
8.8.3.	OUTPUT POWER AND PSD	103
8.9.	<i>802.11n AC80 BF 2TX MODE, 5.2 GHz BAND</i>	107
8.9.1.	26 dB BANDWIDTH	107
8.9.2.	99% BANDWIDTH	109
8.9.3.	OUTPUT POWER AND PSD	111
8.10.	<i>802.11a LEGACY 1TX MODE, 5.3 GHz BAND</i>	114
8.10.1.	26 dB BANDWIDTH	114
8.10.2.	99% BANDWIDTH	117
8.10.3.	OUTPUT POWER AND PSD	120
8.11.	<i>802.11n HT20 CDD 2TX MODE, 5.3 GHz BAND</i>	124
8.11.1.	26 dB BANDWIDTH	124
8.11.2.	99% BANDWIDTH	128
8.11.3.	OUTPUT POWER AND PSD	132
8.12.	<i>802.11n HT20 STBC 2TX MODE, 5.3 GHz BAND</i>	138
8.12.1.	26 dB BANDWIDTH	138
8.12.2.	99% BANDWIDTH	142
8.12.3.	OUTPUT POWER AND PSD	146
8.13.	<i>802.11n HT40 TX MODE, 5.3 GHz BAND</i>	152
8.13.1.	26 dB BANDWIDTH	152
8.13.2.	99% BANDWIDTH	154
8.13.3.	OUTPUT POWER AND PSD	156
8.14.	<i>802.11n HT40 CDD 2TX MODE, 5.3 GHz BAND</i>	159
8.14.1.	26 dB BANDWIDTH	159
8.14.2.	99% BANDWIDTH	162
8.14.3.	OUTPUT POWER AND PSD	165
8.15.	<i>802.11n AC40 BF 2TX MODE, 5.3 GHz BAND</i>	169
8.15.1.	26 dB BANDWIDTH	169
8.15.2.	99% BANDWIDTH	172
8.15.3.	OUTPUT POWER AND PSD	175

8.16.	802.11n AC80 1TX MODE, 5.3 GHz BAND.....	179
8.16.1.	26 dB BANDWIDTH	179
8.16.2.	99% BANDWIDTH	181
8.16.3.	OUTPUT POWER AND PSD	183
8.17.	802.11n AC80 CDD 2TX MODE, 5.3 GHz BAND	186
8.17.1.	26 dB BANDWIDTH	186
8.17.2.	99% BANDWIDTH	188
8.17.3.	OUTPUT POWER AND PSD	190
8.18.	802.11n AC80 BF 2TX MODE, 5.3 GHz BAND	194
8.18.1.	26 dB BANDWIDTH	194
8.18.2.	99% BANDWIDTH	196
8.18.3.	OUTPUT POWER AND PSD	198
8.19.	802.11a LEGACY 1TX MODE, 5.6 GHz BAND	201
8.19.1.	26 dB BANDWIDTH	201
8.19.2.	99% BANDWIDTH	204
8.19.3.	OUTPUT POWER AND PSD	207
8.19.4.	PEAK EXCURSION	211
8.20.	802.11a LEGACY 1TX MODE, CHANNEL 144, 5.6 GHz BAND	213
8.20.1.	26 dB BANDWIDTH	213
8.20.2.	99% BANDWIDTH	215
8.20.3.	OUTPUT POWER AND PSD	217
8.21.	802.11n HT20 CDD 2TX MODE, 5.6 GHz BAND	221
8.21.1.	26 dB BANDWIDTH	221
8.21.2.	99% BANDWIDTH	225
8.21.3.	OUTPUT POWER AND PSD	229
8.21.4.	PEAK EXCURSION	235
8.22.	802.11n HT20 CDD 2TX MODE, CHANNEL 144, 5.6 GHz BAND.....	237
8.22.1.	26 dB BANDWIDTH- UNII	237
8.22.2.	99% BANDWIDTH	239
8.22.3.	OUTPUT POWER AND PSD	241
8.23.	802.11n HT20 STBC 2TX MODE, 5.6 GHz BAND	246
8.23.1.	26 dB BANDWIDTH	246
8.23.2.	99% BANDWIDTH	250
8.23.3.	OUTPUT POWER AND PSD	254
8.23.4.	PEAK EXCURSION	260
8.24.	802.11n HT20 STBC 2TX MODE, CHANNEL 144, 5.6 GHz BAND.....	262
8.24.1.	26 dB BANDWIDTH- UNII	262
8.24.2.	99% BANDWIDTH	264
8.24.3.	OUTPUT POWER AND PSD	266
8.25.	802.11n HT40 1TX MODE, 5.6 GHz BAND	271
8.25.1.	26 dB BANDWIDTH	271
8.25.2.	99% BANDWIDTH	274
8.25.3.	OUTPUT POWER AND PSD	277
8.25.4.	PEAK EXCURSION	281
8.26.	802.11n HT40 1TX MODE, CHANNEL 142, 5.6 GHz BAND	283
8.26.1.	26 dB BANDWIDTH	283
8.26.2.	99% BANDWIDTH	285

8.26.3.	OUTPUT POWER AND PSD	287
8.27.	802.11n HT40 CDD 2TX MODE, 5.6 GHz BAND	292
8.27.1.	26 dB BANDWIDTH	292
8.27.2.	99% BANDWIDTH	296
8.27.3.	OUTPUT POWER AND PSD	300
8.27.4.	PEAK EXCURSION	305
8.28.	802.11n HT40 CDD 2TX MODE, CHANNEL 142, 5.6 GHz BAND.....	307
8.28.1.	26 dB BANDWIDTH- UNII	307
8.28.2.	99% BANDWIDTH	309
8.28.3.	OUTPUT POWER AND PSD	311
8.29.	802.11n AC40 BF 2TX MODE, 5.6 GHz BAND	316
8.29.1.	26 dB BANDWIDTH	316
8.29.2.	99% BANDWIDTH	320
8.29.3.	OUTPUT POWER AND PSD	324
8.30.	802.11n AC40 BF 2TX MODE, CHANNEL 142, 5.6 GHz BAND	329
8.30.1.	26 dB BANDWIDTH- UNII	329
8.30.2.	99% BANDWIDTH	331
8.30.3.	OUTPUT POWER AND PSD	333
8.31.	802.11n AC80 1TX MODE, 5.6 GHz BAND.....	338
8.31.1.	26 dB BANDWIDTH	338
8.31.2.	99% BANDWIDTH	340
8.31.3.	OUTPUT POWER AND PSD	342
8.31.4.	PEAK EXCURSION	345
8.32.	802.11n AC80 1TX MODE, CHANNEL 138, 5.6 GHz BAND	347
8.32.1.	26 dB BANDWIDTH	347
8.32.2.	99% BANDWIDTH	349
8.32.3.	OUTPUT POWER AND PSD	351
8.33.	802.11n AC80 CDD 2TX MODE, 5.6 GHz BAND	355
8.33.1.	26 dB BANDWIDTH	355
8.33.2.	99% BANDWIDTH	357
8.33.3.	OUTPUT POWER AND PSD	359
8.34.	802.11n AC80 CDD 2TX MODE, CHANNEL 138, 5.6 GHz BAND	362
8.34.1.	26 dB BANDWIDTH- UNII	362
8.34.2.	99% BANDWIDTH	364
8.34.3.	OUTPUT POWER AND PSD	366
8.35.	802.11n AC80 BF 2TX MODE, 5.6 GHz BAND	371
8.35.1.	26 dB BANDWIDTH	371
8.35.2.	99% BANDWIDTH	373
8.35.3.	OUTPUT POWER AND PSD	375
8.36.	802.11n AC80 BF 2TX MODE, CHANNEL 138, 5.6 GHz BAND	378
8.36.1.	26 dB BANDWIDTH- UNII	378
8.36.2.	99% BANDWIDTH	380
8.36.3.	OUTPUT POWER AND PSD	382
9.	RADIATED TEST RESULTS.....	387
9.1.	LIMITS AND PROCEDURE	387
9.2.	TRANSMITTER ABOVE 1 GHz	388

9.2.1.	802.11a LEGACY 1TX MODE, 5.2 GHz BAND.....	388
9.2.2.	802.11n HT20 CDD 2TX MODE, 5.2 GHz BAND.....	389
9.2.3.	802.11n HT20 STBC 2TX MODE, 5.2 GHz BAND	391
9.2.4.	802.11n HT20 BF 2TX MODE, 5.2 GHz BAND	391
9.2.5.	802.11n AC20 BF 2TX MODE, 5.2 GHz BAND.....	392
9.2.6.	802.11n HT40 1TX MODE, 5.2 GHz BAND	394
9.2.7.	802.11n HT40 CDD 2TX MODE, 5.2 GHz BAND.....	396
9.2.8.	802.11n HT40 BF 2TX MODE, 5.2 GHz BAND	398
9.2.9.	802.11n AC40 BF 2TX MODE IN THE 5.2 GHz BAND	399
9.2.10.	802.11n AC80 1TX MODE, 5.2 GHz BAND.....	401
9.2.11.	802.11n AC80 CDD 2TX MODE, 5.2 GHz BAND	403
9.2.12.	802.11n AC80 BF 2TX MODE, 5.2 GHz BAND	405
9.2.13.	802.11a LEGACY 1TX MODE, 5.3 GHz BAND	407
9.2.14.	802.11n HT20 CDD 2TX MODE, 5.3 GHz BAND	410
9.2.15.	802.11n HT20 STBC 2TX MODE, 5.3 GHz BAND	412
9.2.16.	802.11n HT20 BF 2TX MODE, 5.3 GHz BAND	412
9.2.17.	802.11n AC20 BF 2TX MODE, 5.3 GHz BAND	413
9.2.18.	802.11n HT40 1TX MODE, 5.3 GHz BAND.....	415
9.2.19.	802.11n HT40 CDD 2TX MODE, 5.3 GHz BAND	417
9.2.20.	802.11n HT40 BF 2TX MODE, 5.3 GHz BAND	419
9.2.21.	802.11n AC40 BF 2TX MODE, 5.3 GHz BAND	420
9.2.22.	802.11n AC80 1TX MODE, 5.3 GHz BAND.....	422
9.2.23.	802.11n AC80 CDD 2TX MODE, 5.3 GHz BAND	424
9.2.24.	802.11n AC80 BF 2TX MODE, 5.3 GHz BAND	426
9.2.25.	802.11a LEGACY 1TX MODE, 5.6 GHz BAND	428
9.2.26.	802.11a LEGACY 1TX MODE, CHANNEL 144, 5.6 GHz BAND	431
9.2.27.	802.11n HT20 CDD 2TX MODE, 5.6 GHz BAND	432
9.2.28.	802.11n HT20 CDD 2TX MODE, CHANNEL 144, 5.6 GHz BAND	435
9.2.29.	802.11n HT20 STBC 2TX MODE, 5.6 GHz BAND	437
9.2.30.	802.11n HT20 STBC 2TX MODE, CHANNEL 144, 5.6 GHz BAND.....	438
9.2.31.	802.11n HT20 BF 2TX MODE, 5.6 GHz BAND	438
9.2.32.	802.11n AC20 BF 2TX MODE, 5.6 GHz BAND	439
9.2.33.	802.11n AC20 BF 2TX MODE, CHANNEL 144, 5.6 GHz BAND	442
9.2.34.	802.11n HT40 MCS0 1TX MODE, 5.6 GHz BAND	444
9.2.35.	802.11n HT40 MCS0 1TX MODE, CHANNEL 142, 5.6 GHz BAND	447
9.2.36.	802.11n HT40 CDD 2TX MODE, 5.6 GHz BAND	448
9.2.37.	802.11n HT40 CDD 2TX MODE, CHANNEL 142 IN THE 5.6 GHz BAND	451
9.2.38.	802.11n HT40 BF 2TX MODE, 5.6 GHz BAND	452
9.2.39.	802.11n AC40 BF 2TX MODE, 5.6 GHz BAND	453
9.2.40.	802.11n AC40 BF 2TX MODE, CHANNEL 142, 5.6 GHz BAND	456
9.2.41.	802.11n AC80 1TX MODE, 5.6 GHz BAND.....	457
9.2.42.	802.11n AC80 CDD MCS0 2TX MODE, 5.6 GHz BAND	459
9.2.43.	802.11n AC80 BF 2TX MODE, 5.6 GHz BAND	462
9.3.	WORST-CASE BELOW 1 GHz.....	465
10.	AC POWER LINE CONDUCTED EMISSIONS	466
11.	DYNAMIC FREQUENCY SELECTION	470
11.1.	OVERVIEW.....	470
11.1.1.	LIMITS	470
11.1.2.	TEST AND MEASUREMENT SYSTEM	473

11.1.3.	SETUP OF EUT (CLIENT MODE).....	476
11.1.4.	SETUP OF EUT (CLIENT-TO-CLIENT COMMUNICATIONS MODE)	477
11.1.5.	DESCRIPTION OF EUT	478
11.2.	<i>CLIENT MODE RESULTS FOR 20 MHz BANDWIDTH.....</i>	<i>480</i>
11.2.1.	TEST CHANNEL	480
11.2.2.	RADAR WAVEFORM AND TRAFFIC	480
11.2.3.	OVERLAPPING CHANNEL TESTS	482
11.2.4.	MOVE AND CLOSING TIME.....	482
11.3.	<i>CLIENT MODE RESULTS FOR 40 MHz BANDWIDTH.....</i>	<i>487</i>
11.3.1.	TEST CHANNEL	487
11.3.2.	RADAR WAVEFORM AND TRAFFIC	487
11.3.3.	OVERLAPPING CHANNEL TESTS	489
11.3.4.	MOVE AND CLOSING TIME.....	489
11.3.5.	NON-OCCUPANCY PERIOD.....	494
11.4.	<i>CLIENT-TO-CLIENT COMMUNICATIONS MODE RESULTS FOR 20 MHz BANDWIDTH.....</i>	<i>495</i>
11.4.1.	TEST CHANNEL	495
11.4.2.	RADAR WAVEFORM AND TRAFFIC	495
11.4.3.	OVERLAPPING CHANNEL TESTS	497
11.4.4.	MOVE AND CLOSING TIME.....	497
11.5.	<i>CLIENT-TO-CLIENT COMMUNICATIONS MODE RESULTS FOR 40 MHz BANDWIDTH.....</i>	<i>502</i>
11.5.1.	TEST CHANNEL	502
11.5.2.	RADAR WAVEFORM AND TRAFFIC	502
11.5.3.	OVERLAPPING CHANNEL TESTS	504
11.5.4.	MOVE AND CLOSING TIME.....	504
13.	SETUP PHOTOS	510
13.1.	ANTENNA PORT CONDUCTED RF MEASUREMENT SETUP.....	510
13.2.	RADIATED RF MEASUREMENT SETUP	511
13.3.	POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP	512
13.4.	DYNAMIC FREQUENCY SELECTION MEASUREMENT SETUP	513

1. ATTESTATION OF TEST RESULTS

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

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

MODEL: BCM94360CS2

SERIAL NUMBER: C8Y2521000NFC31EM & C8Y2521000FC31EK (RF) /
C8Y2521000QFC31EK and C8Y3061002TFC31E0 (DFS
Standard Client Mode AND DFS Client to Client Mode)

DATE TESTED: January 10 - March 12 and March 14-15, 2013

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

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

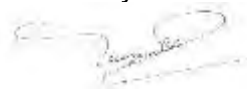
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this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

Approved & Released For UL CCS By:



FRANK IBRAHIM
WiSE PROJECT LEAD
UL CCS

Tested By:



VIEN TRAN
EMC ENGINEER
UL CCS

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 06-96, FCC KDB 789033, ANSI C63.10:2009, 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 CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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 802.11a/g/n/ac WLAN + Bluetooth PCI-E Custom Combination Card.

The radio module is manufactured by Broadcom.

5.2. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

AC80 mode has been added to UNII bands 5.3 and 5.6 GHz.

5.3. MAXIMUM AVERAGE OUTPUT POWER

The transmitter has a maximum conducted average 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	16.17	N/A	16.17	41.40
5190 - 5230	802.11n HT40	16.98	N/A	16.98	49.89
5210	802.11n AC80	15.48	N/A	15.48	35.32
5.2 GHz band, 2TX					
5180 - 5240	802.11n HT20 CDD	11.85	12.06	14.97	31.380
5180 - 5240	802.11n HT20 STBC	13.55	13.59	16.58	45.502
5190 - 5230	802.11n HT40 CDD	13.93	13.98	16.97	49.721
5190 - 5230	802.11n AC40 BF	11.16	11.05	14.12	25.797
5210	802.11n AC80 CDD	13.80	14.10	16.96	49.692
5210	802.11n AC80 BF	11.04	11.06	14.06	25.470

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	20.16	N/A	20.16	103.75
5270 - 5310	802.11n HT40	20.36	N/A	20.36	108.64
5.3 GHz band, 2TX					
5260 - 5320	802.11n HT20 CDD	19.08	19.01	22.06	160.53
5260 - 5320	802.11n HT20 STBC	20.43	20.36	23.41	219.05
5270 - 5310	802.11n HT40 CDD	20.12	20.18	23.16	207.03
5270 - 5310	802.11n AC40 BF	18.03	18.15	21.10	128.85
5290	802.11n AC80 CDD	14.54	14.90	17.73	59.35
5290	802.11n AC80 BF	14.12	15.01	17.60	57.52

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	20.12	N/A	20.12	102.80
5510-5670	802.11n HT40	20.25	N/A	20.25	105.93
5.6 GHz band, 2TX					
5500-5700	802.11n HT20 CDD	18.29	18.53	21.42	138.74
5500-5700	802.11n HT20 STBC	20.21	20.19	23.21	209.43
5510-5670	802.11n HT40 CDD	20.12	20.16	23.15	206.55
5510-5670	802.11n AC40 BF	17.78	17.67	20.74	118.46
5530	802.11n AC80 CDD	14.06	13.95	17.02	50.30
5530	802.11n AC80 BF	12.91	13.27	16.10	40.78

Frequency Range (MHz)	Mode	Power, Chain 0 (dBm)	Power, Chain 1 (dBm)	Output Power (dBm)	Output Power (mW)
5.6 GHz band, 1TX (Channels overlapping UNII and DTS bands)					
5720	802.11a	20.04	N/A	20.04	100.93
5710	802.11n HT40	20.31	N/A	20.31	107.40
5690	802.11n AC80	20.02	N/A	20.02	100.46
5.6 GHz band, 2TX (Channels overlapping UNII and DTS bands)					
5720	802.11n HT20 CDD	18.82	18.70	21.77	150.34
5720	802.11n HT20 STBC	20.02	20.09	23.07	202.56
5710	802.11n HT40 CDD	20.02	20.13	23.09	203.50
5710	802.11n AC40 BF	20.02	20.13	23.09	203.50
5690	802.11n AC80 CDD	20.01	20.56	23.30	213.99
5690	802.11n AC80 BF	20.01	20.56	23.30	213.99

Output power results of straddling channels using spectrum analyzer:

Frequency Range (MHz)	Mode	Power, Chain 0 (dBm)	Power, Chain 1 (dBm)	Power, Chain 2 (dBm)	Output Power (dBm)	Output Power (mW)
5.6 GHz band, 1TX (Channels overlapping UNII and DTS bands)						
5720 (UNII portion)	802.11a 1TX	N/A	16.06	N/A	16.06	40.36
5720 (DTS portion)	802.11a 1TX	N/A	9.71	N/A	9.71	9.35
5720 (Whole signal)	802.11a 1TX	N/A	16.97	N/A	16.97	49.72
5710 (UNII portion)	802.11n HT40 1TX	N/A	16.99	N/A	16.99	50.00
5710 (DTS portion)	802.11n HT40 1TX	N/A	3.62	N/A	3.62	2.30
5710 (Whole signal)	802.11n HT40 1TX	N/A	17.19	N/A	17.19	52.30
5690 (UNII portion)	802.11ac VHT80 1TX	N/A	17.42	N/A	17.42	55.21
5690 (DTS portion)	802.11ac VHT80 1TX	N/A	3.55	N/A	3.55	2.26
5690 (Whole signal)	802.11ac VHT80 1TX	N/A	17.59	N/A	17.59	57.47
5.6 GHz band, 2TX (Channels overlapping UNII and DTS bands)						
5720 (UNII portion)	802.11n HT20 CDD 2TX	14.80	14.74	N/A	17.78	59.98
5720 (DTS portion)	802.11n HT20 CDD 2TX	9.05	9.08	N/A	12.08	16.13
5720 (Whole signal)	802.11n HT20 CDD 2TX	15.82	15.78	N/A	18.81	76.11
5720 (UNII portion)	802.11n HT20 STBC 2TX	16.82	16.92	N/A	19.88	97.29
5720 (DTS portion)	802.11n HT20 STBC 2TX	10.58	10.68	N/A	13.64	23.12
5720 (Whole signal)	802.11n HT20 STBC 2TX	17.75	17.85	N/A	20.81	120.41
5710 (UNII portion)	802.11n HT40 CDD 2TX	17.64	17.58	N/A	20.62	115.36
5710 (DTS portion)	802.11n HT40 CDD 2TX	7.21	7.17	N/A	10.20	10.47
5710 (Whole signal)	802.11n HT40 CDD 2TX	18.02	17.96	N/A	21.00	125.83
5710 (UNII portion)	802.11n HT40 BF 2TX	17.64	17.58	N/A	20.62	115.36
5710 (DTS portion)	802.11n HT40 BF 2TX	7.21	7.17	N/A	10.20	10.47
5710 (Whole signal)	802.11n HT40 BF 2TX	18.02	17.96	N/A	21.00	125.83
5690 (UNII portion)	802.11ac VHT80 CDD 2TX	16.11	16.83	N/A	19.50	89.03
5690 (DTS portion)	802.11ac VHT80 CDD 2TX	1.88	2.88	N/A	5.42	3.48
5690 (Whole signal)	802.11ac VHT80 CDD 2TX	16.27	17.00	N/A	19.66	92.51
5690 (UNII portion)	802.11ac VHT80 BF 2TX	16.11	16.83	N/A	19.50	89.03
5690 (DTS portion)	802.11ac VHT80 BF 2TX	1.88	2.88	N/A	5.42	3.48
5690 (Whole signal)	802.11ac VHT80 BF 2TX	16.27	17.00	N/A	19.66	92.51

List of test reduction and modes covering other modes:

5.2 GHz BAN

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
5180 - 5240	802.11a BF	802.11n AC20 2TX BF
5180 - 5240	802.11n HT20 BF	802.11n HT20 2TX CDD
5180 - 5240	802.11n AC20 BF	802.11n HT20 2TX CDD
5190 - 5230	802.11n HT40 BF	802.11n AC40 2TX BF

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	802.11a BF	802.11n AC20 2TX BF
5180 - 5240	802.11n HT20 STBC MCS0	802.11n HT20 2TX CDD
5180 - 5240	802.11n HT20 BF	802.11n HT20 2TX CDD
5180 - 5240	802.11n AC20 BF	802.11n HT20 2TX CDD
5190 - 5230	802.11n HT40 BF	802.11n AC40 2TX BF

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
5260 - 5320	802.11a BF	802.11n AC20 2TX BF
5260 - 5320	802.11n HT20 BF	802.11n HT20 2TX CDD
5260 - 5320	802.11n AC20 BF	802.11n HT20 2TX CDD
5270 - 5310	802.11n HT40 BF	802.11n AC40 2TX BF

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	802.11a BF	802.11n AC20 2TX BF
5260 - 5320	802.11n HT20 STBC MCS0	802.11n HT20 2TX CDD
5260 - 5320	802.11n HT20 BF	802.11n HT20 2TX CDD
5260 - 5320	802.11n AC20 BF	802.11n HT20 2TX CDD
5270 - 5310	802.11n HT40 BF	802.11n AC40 2TX BF

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
5500-5700	802.11a BF	802.11n AC20 2TX BF
5500-5700	802.11n HT20 BF	802.11n HT20 2TX CDD
5720	802.11n HT20 BF	802.11n HT20 2TX CDD
5500-5700	802.11n AC20 BF	802.11n HT20 2TX CDD
5720	802.11n AC20 BF	802.11n HT20 2TX CDD
5510-5670	802.11n HT40 BF	802.11n AC40 2TX BF
5710	802.11n HT40 BF	802.11n AC40 2TX BF

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	802.11a BF	802.11n AC20 2TX BF
5500-5700	802.11n HT20 STBC MCS0	802.11n HT20 2TX CDD
5720	802.11n HT20 STBC MCS0	802.11n HT20 2TX CDD
5500-5700	802.11n HT20 BF	802.11n HT20 2TX CDD
5720	802.11n HT20 BF	802.11n HT20 2TX CDD
5500-5700	802.11n AC20 BF	802.11n HT20 2TX CDD
5720	802.11n AC20 BF	802.11n HT20 2TX CDD
5510-5670	802.11n HT40 BF	802.11n AC40 2TX BF
5710	802.11n HT40 BF	802.11n AC40 2TX BF

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

No.	Antenna Manufacturer	Antenna Type	Model	Peak gain @ 2412, 2422, 2432MHz	Peak gain (5150-5250MHz) @5200MHz	Peak gain (5250-5350MHz) @5320MHz	Peak gain (5470-5725MHz) @5600, 5700MHz	Peak gain (5725-5850MHz) @5785, 5805MHz	
1	Amphenol Pulse	802.11a/b/gn WLAN BT Antenna	831-1546 WiFi 1	1.67	5.63	5.27	4.38		Horn 1
1	Amphenol Pulse	802.11a/b/gn WLAN Antenna	831-1548 WiFi 2	5.80	5.75	5.07	5.88	1.25	
2	Amphenol Pulse	802.11a/b/gn WLAN BT Antenna	831-1547 WiFi 1	4.87	4.07	4.33	6.17	4.81	Horn 2
2	Amphenol Pulse	802.11a/b/gn WLAN Antenna	831-1547 WiFi 2	4.87	4.74	5.23			
2	Amphenol Pulse	802.11a/b/gn WLAN BT Antenna	831-1547 BT	4.57					

Notes:

- This table includes two sets of antennas, first set is identified by number (1) in the first column, and the second set is identified by number (2) in the first column.
- Red numbers in this table are the highest antenna gain used for SISO antenna port testing as worst-case scenario.
- Blue highlighted cells in this table are the antenna gains that yield the highest composite gain for 2TX modes, these numbers are used for 2TX antenna port testing as worst-case scenario.
- For radiated testing, the antennas with highest gains from first and second sets were selected as worst-case scenario.

5.5. 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.

5.6. 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 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 final measurements were performed with vertical polarization only.

For all modes with single chain, chain 0 (connector J0, Main port) was selected per the software provided by the client. Based on the client a preliminary investigation was performed on the two chains and chain 0 was found to be worst-case.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	HP	EliteBook 2730p	2CE848852D	DoC
Laptop	Lenovo	G560	CBU4473193	DoC
Laptop	Apple	Macbook Pro	C02H124BDV10	DoC
AC Adapter	HP	PPP09L	592C40CLLUTBUY	DoC
AC Adapter	Lenovo	ADP-65KH B	11S36001646ZZ1001FKY6	DoC
AC Adapter	Apple	A1343	C04207625HVDJ92BD	DoC
Adapter Board	Catalyst	MINI2EXP	N/A	N/A
Adapter Board	Catalyst	MINI2EXP	N/A	N/A
Adapter Board	Broadcom	BCM94331CSMFG	1458937	N/A
Adapter Board	Broadcom	BCM94331CSMFG	1504043	N/A

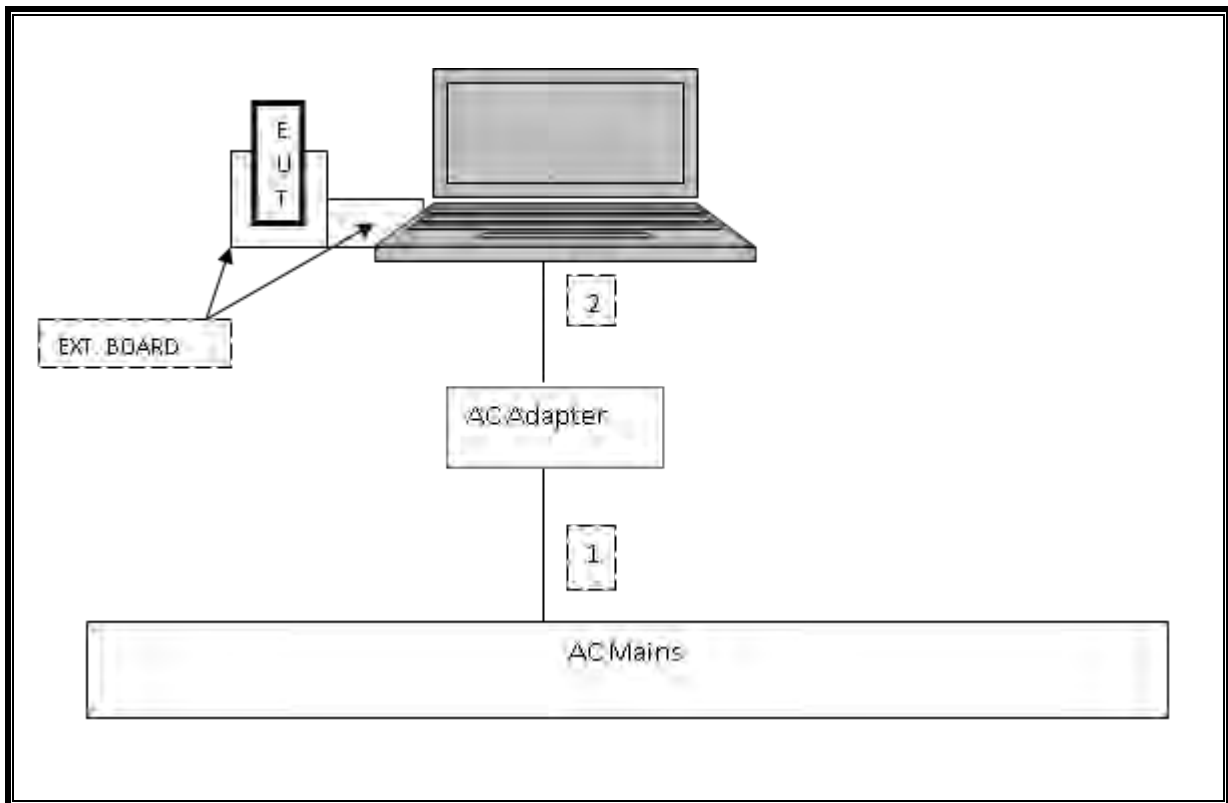
I/O CABLES

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

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List					
Description	Manufacturer	Model	Asset	Cal Date	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/13/11	12/13/13
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	05/11/11	05/11/13
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	EMCO	3115	C00945	11/12/12	11/12/13
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, 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

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/B Minimum VBW (kHz)
5GHz Band						
802.11a	2.07	2.09	0.993	99.3%	0.00	0.010
802.11n HT20 CDD	1.93	1.95	0.989	98.9%	0.00	0.010
802.11n HT20 STBC	1.93	1.95	0.991	99.1%	0.00	0.010
802.11n HT40 SISO	0.95	1.00	0.950	95.0%	0.22	1.000
802.11n HT40 CDD	0.95	1.00	0.950	95.0%	0.22	1.000
802.11n HT40 STBC	0.95	1.00	0.951	95.1%	0.22	1.000
802.11n AC80 SISO	0.46	0.49	0.946	94.6%	0.24	2.040
802.11n AC80 CDD	0.46	0.48	0.962	96.2%	0.17	2.076

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%.

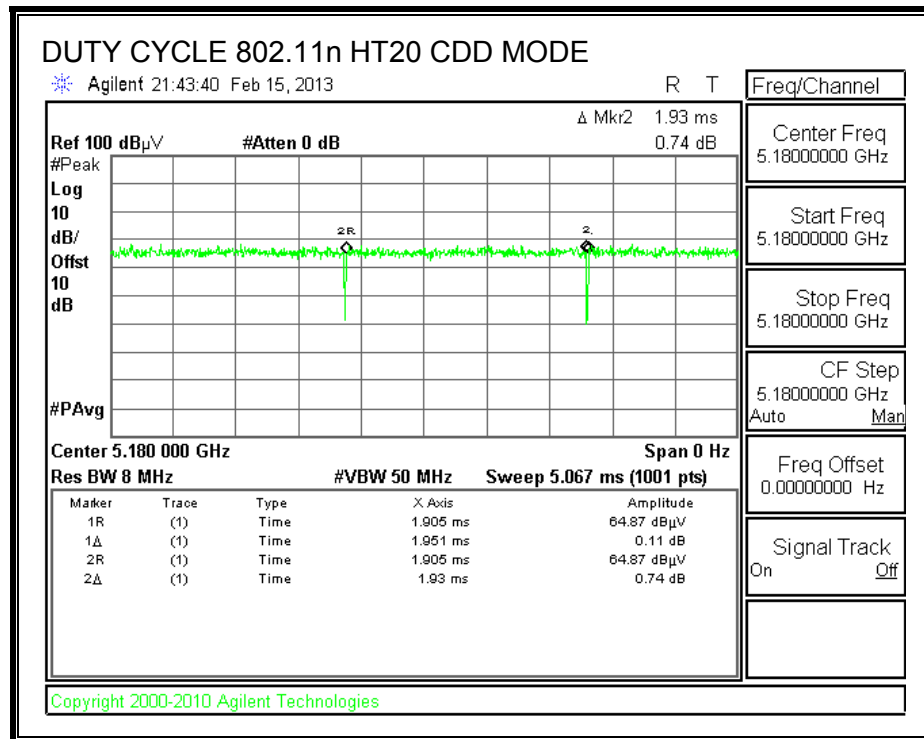
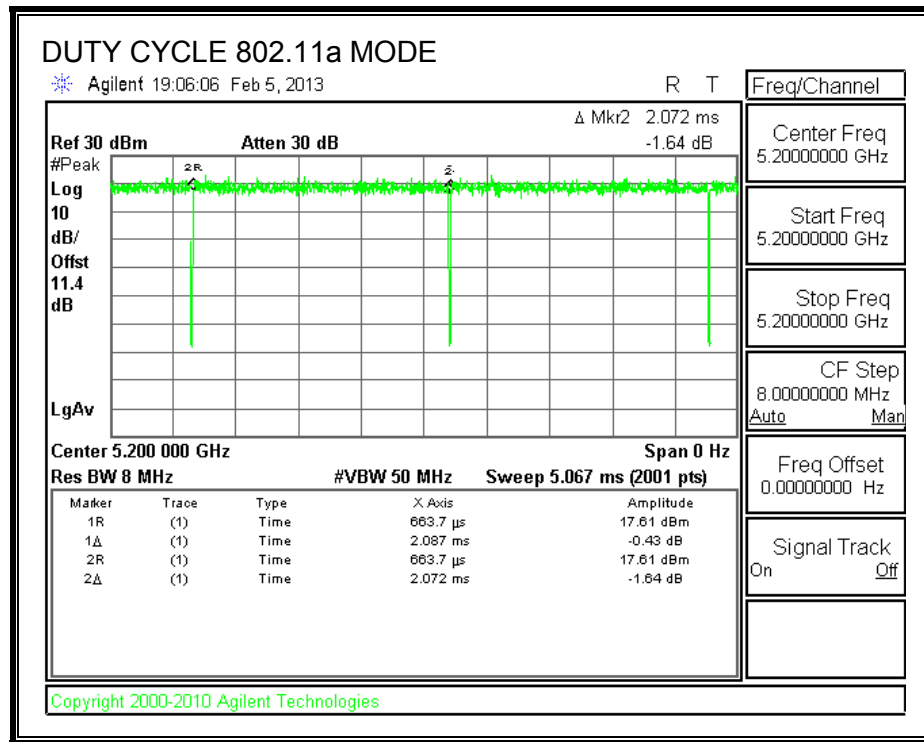
For PSD measurement, KDB 789033 Method SA-2 was used when Duty Cycle is less than 98%.

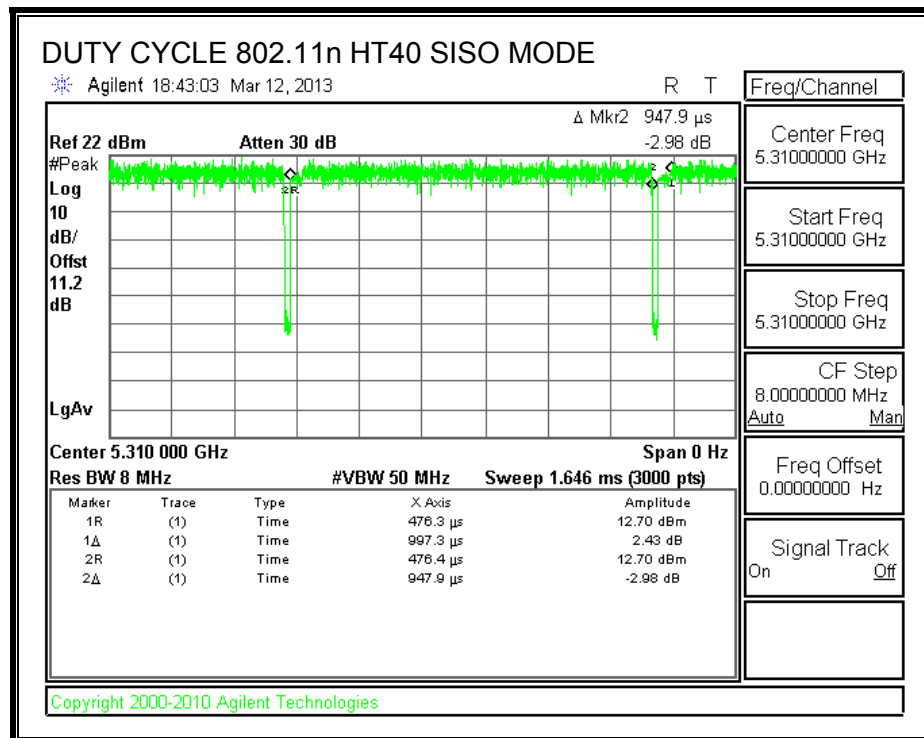
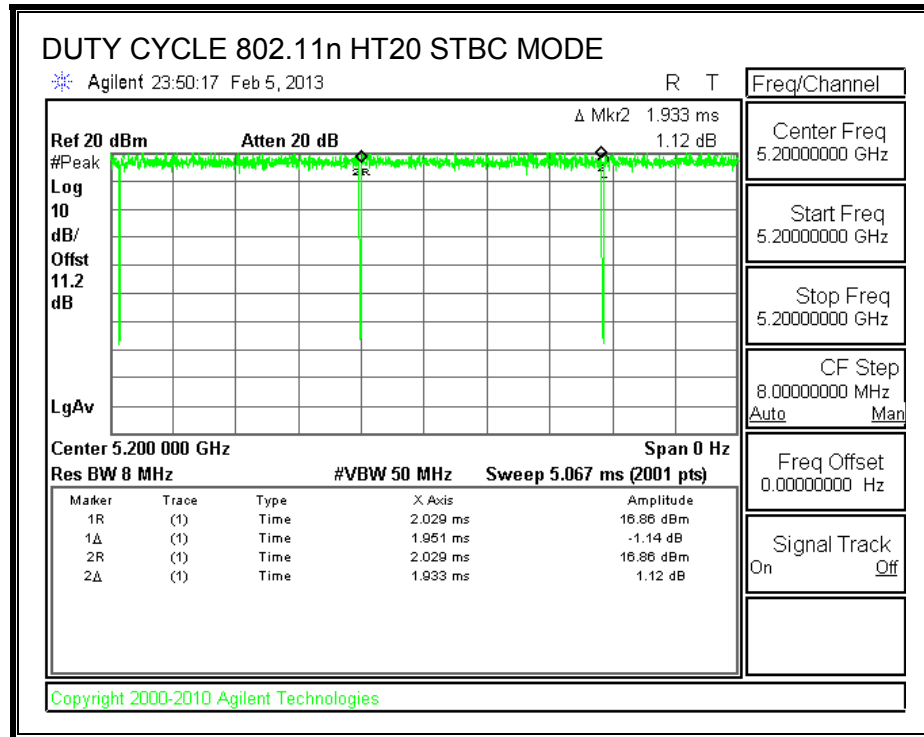
7.1.3. MEASUREMENT METHOD FOR AVG SPURIOUS EMISSION ABOVE 1 GHz

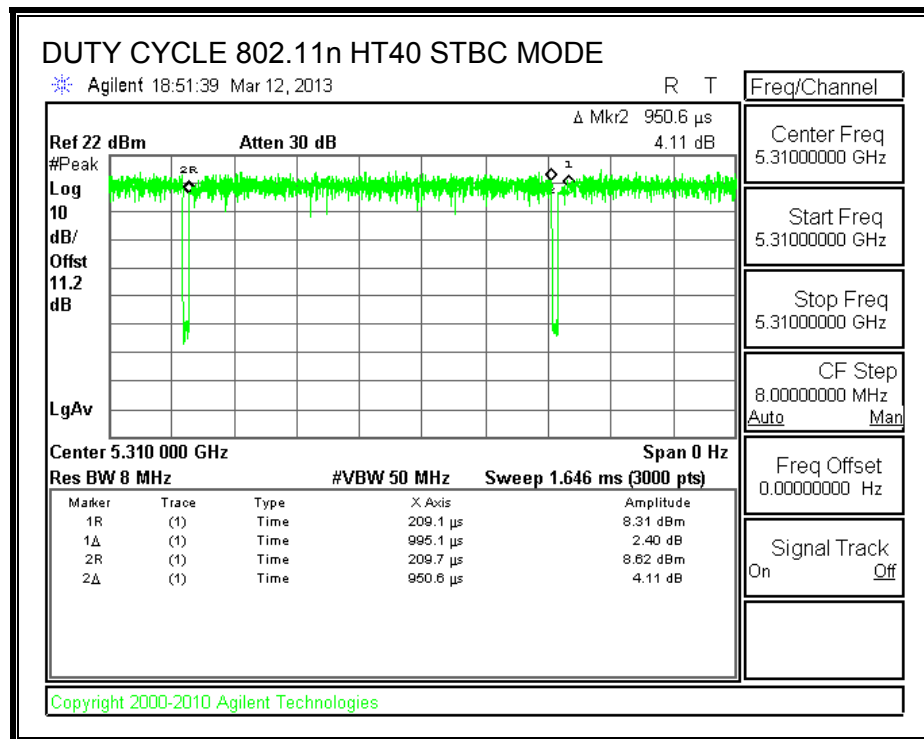
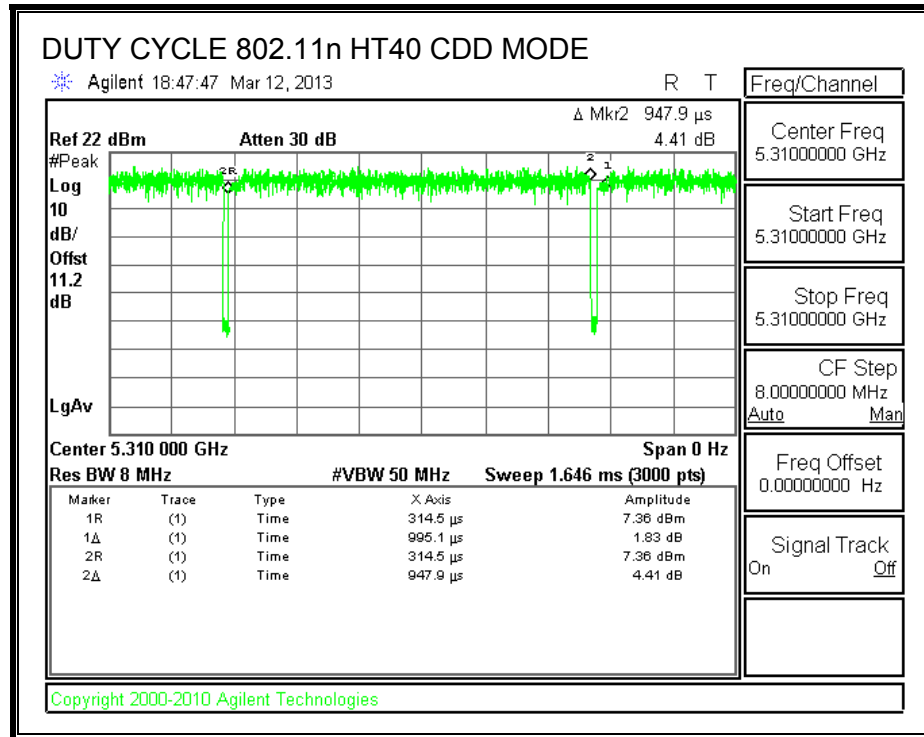
KDB 789033 Method VB with Power RMS Averaging is used.

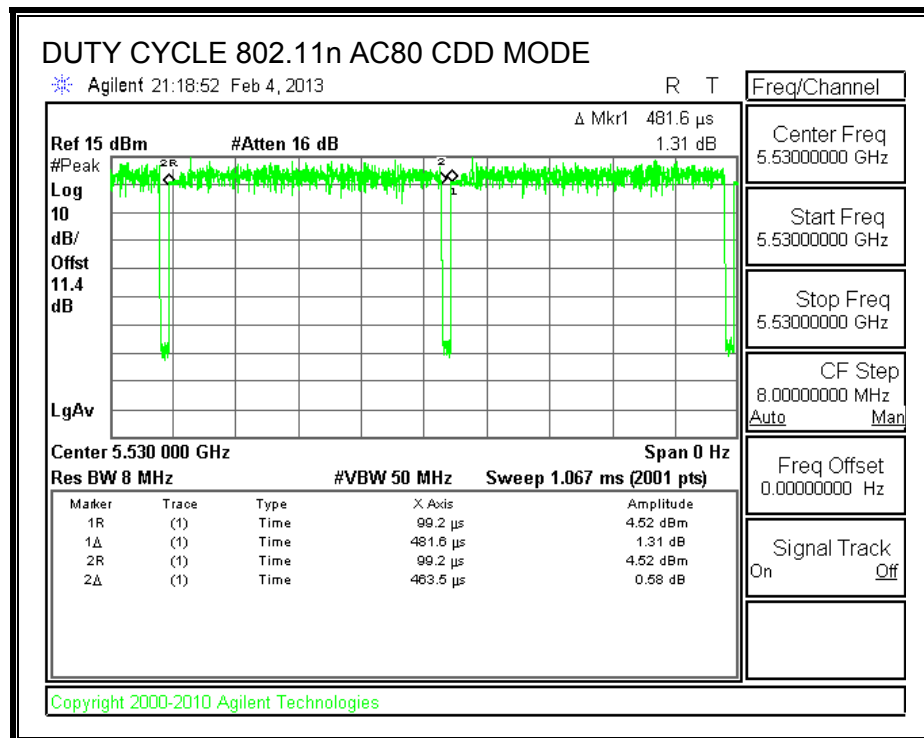
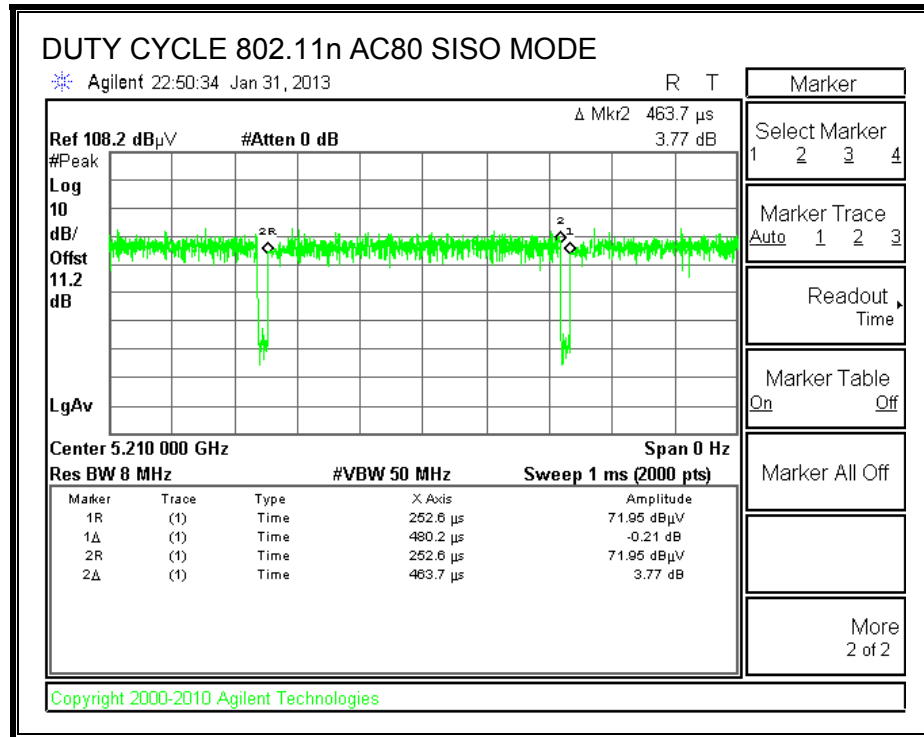
7.1.4. DUTY CYCLE PLOTS

5 GHz









8. ANTENNA PORT TEST RESULTS

8.1. 802.11a LEGACY 1TX MODE, 5.2 GHz BAND

8.1.1. 26 dB BANDWIDTH

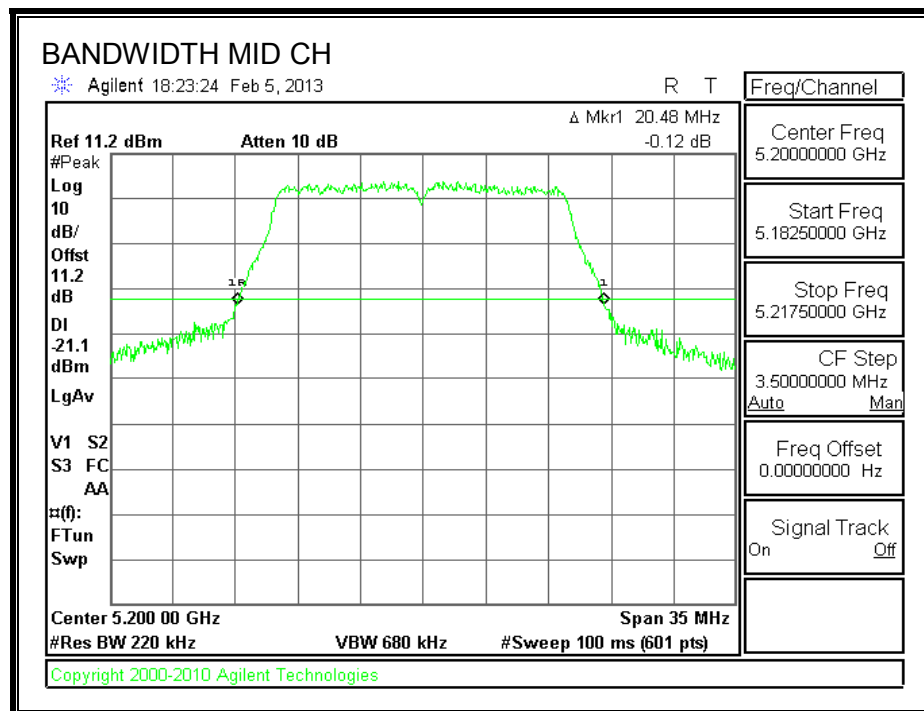
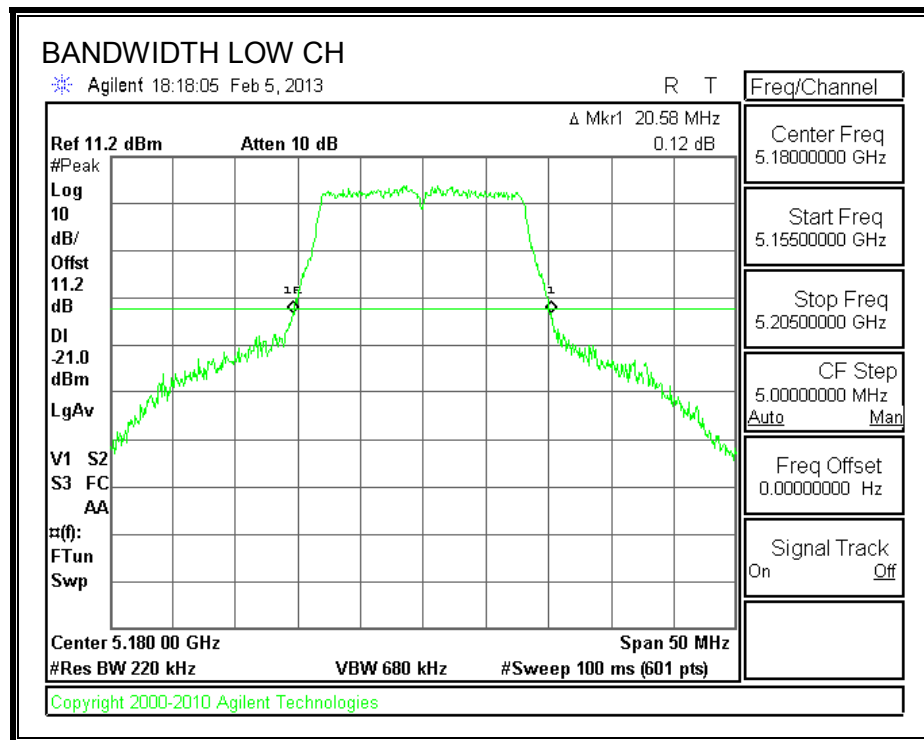
LIMITS

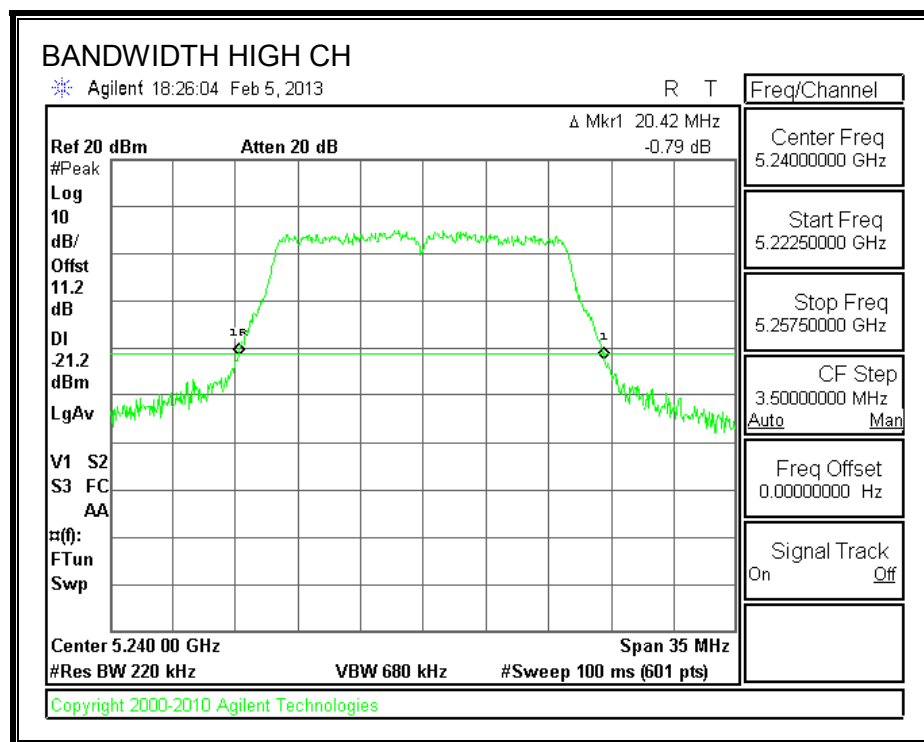
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	20.58
Mid	5200	20.48
High	5240	20.42

26 dB BANDWIDTH





8.1.2. 99% BANDWIDTH

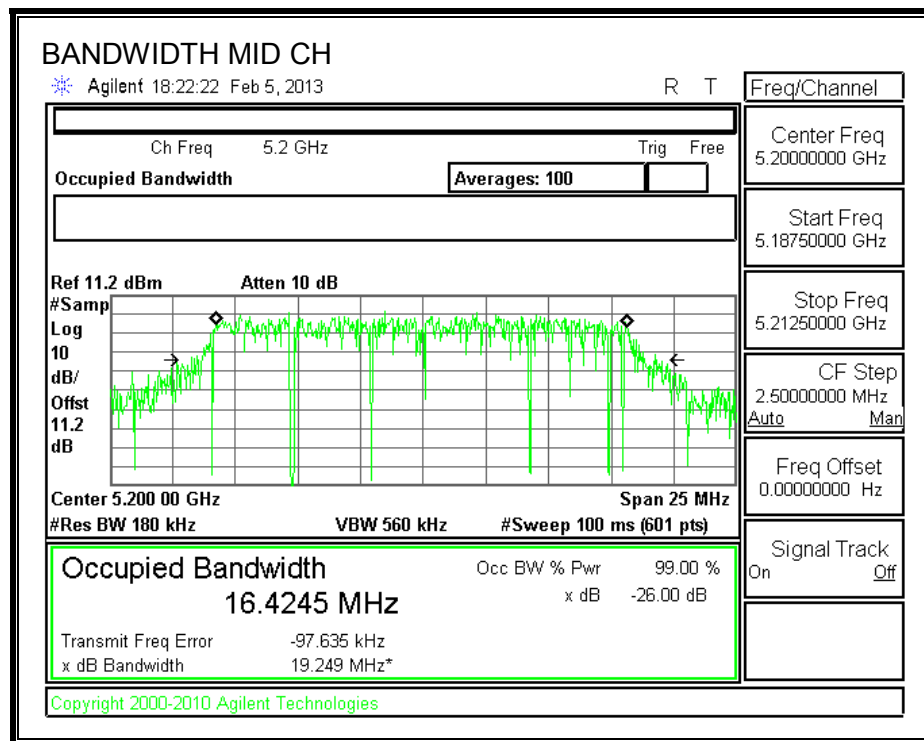
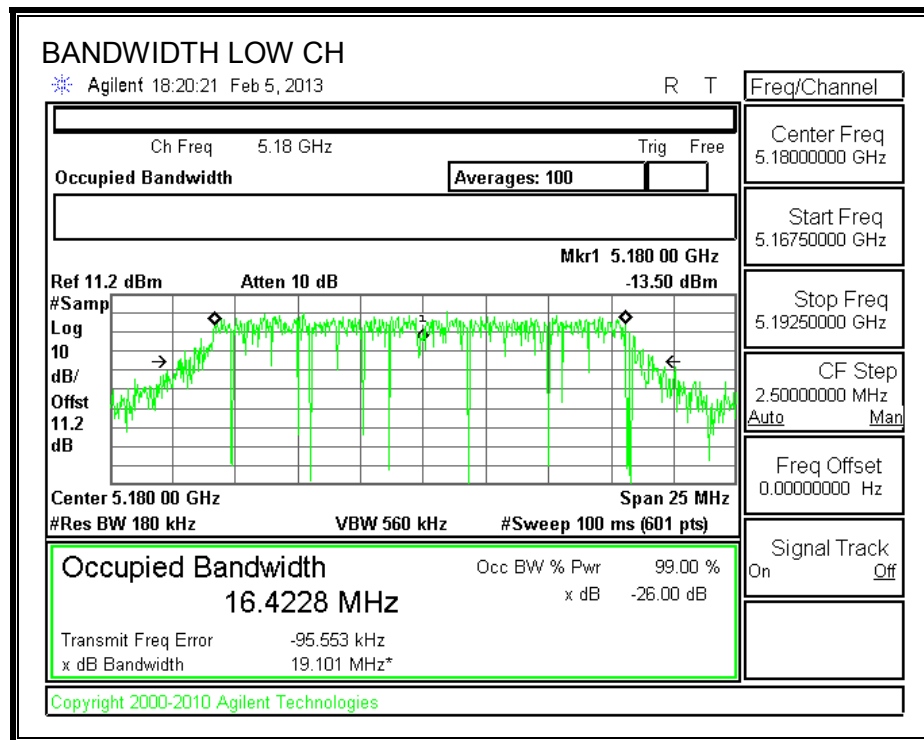
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	16.4228
Mid	5200	16.4245
High	5240	16.4159

99% BANDWIDTH





8.1.3. OUTPUT POWER AND PSD

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	20.58	16.4228	5.93
Mid	5200	20.48	16.4245	5.93
High	5240	20.42	16.4159	5.93

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	16.22	16.22	4.00	10.00	4.00
Mid	5200	17.00	22.15	16.22	16.22	4.00	10.00	4.00
High	5240	17.00	22.15	16.22	16.22	4.00	10.00	4.00

Duty Cycle CF (dB)	0.00	
--------------------	------	--

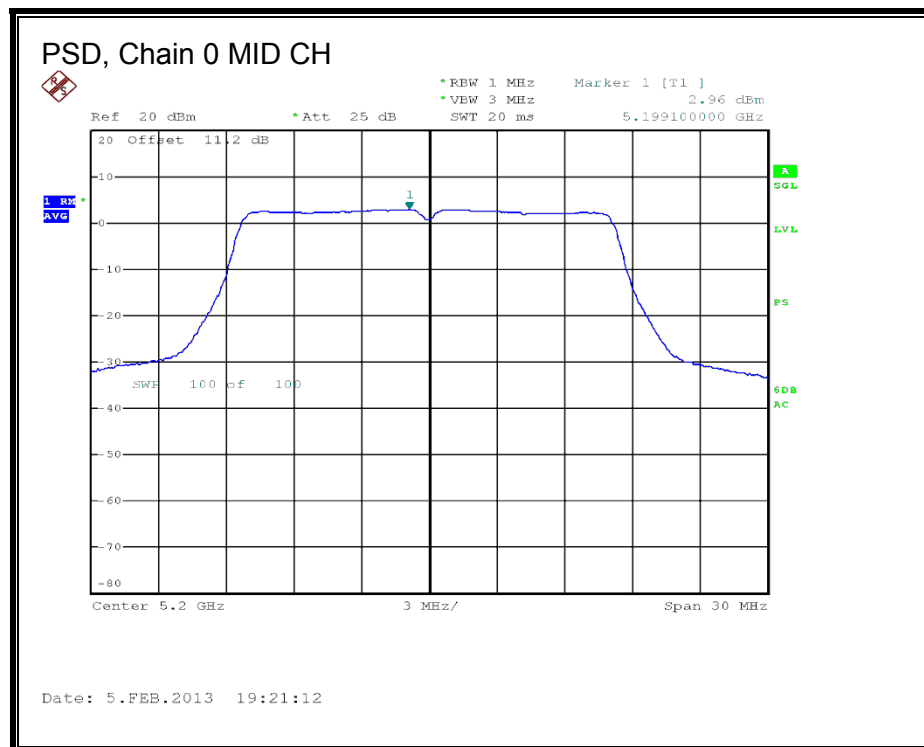
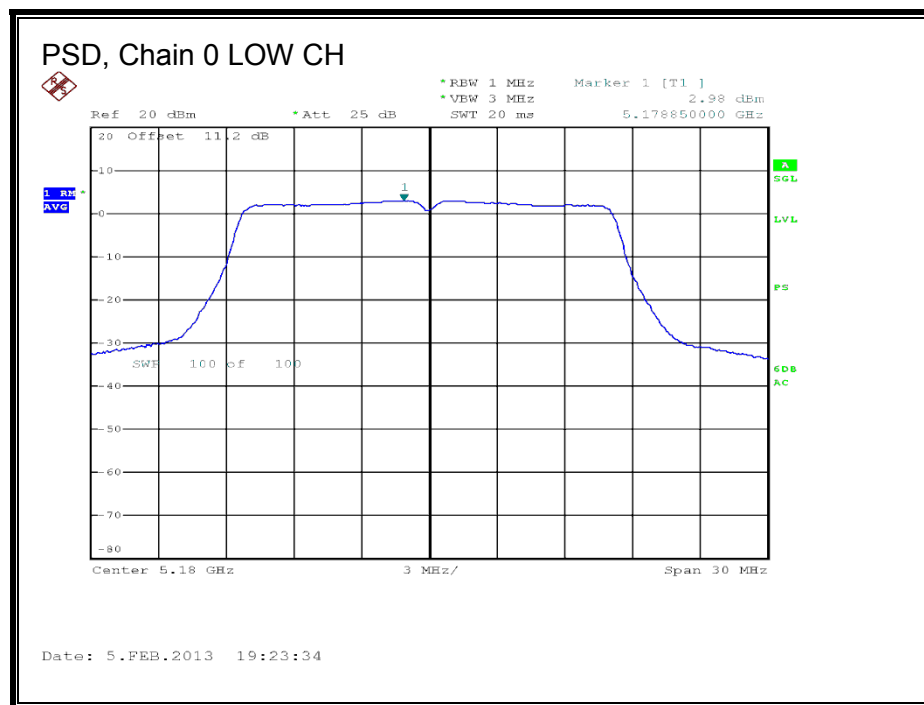
Output Power Results

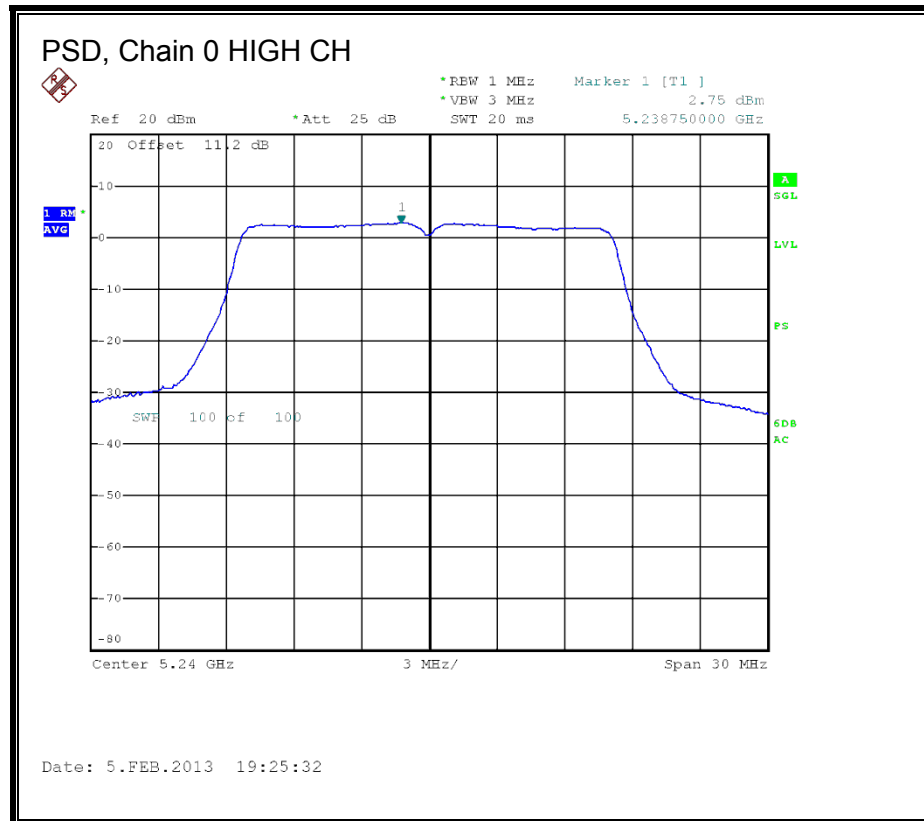
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	16.13	16.13	16.22	-0.09
Mid	5200	16.17	16.17	16.22	-0.05
High	5240	16.15	16.15	16.22	-0.07

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5180	2.98	2.98	4.00	-1.02
Mid	5200	2.96	2.96	4.00	-1.04
High	5240	2.75	2.75	4.00	-1.25

PSD, Chain 0





8.2. 802.11n HT20 CDD 2TX MODE, 5.2 GHz BAND

8.2.1. 26 dB BANDWIDTH

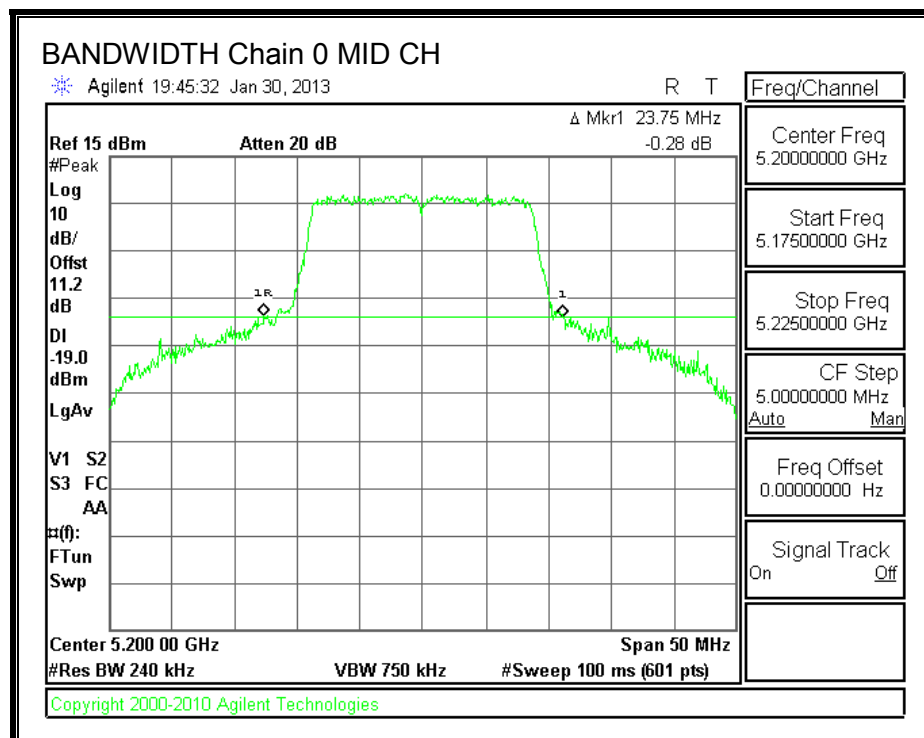
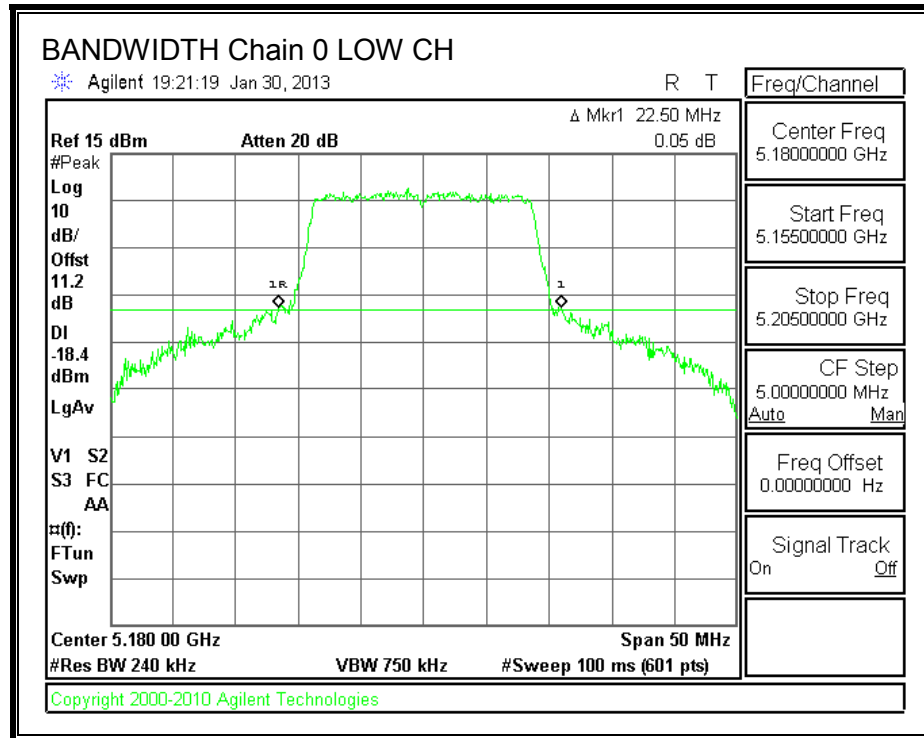
LIMITS

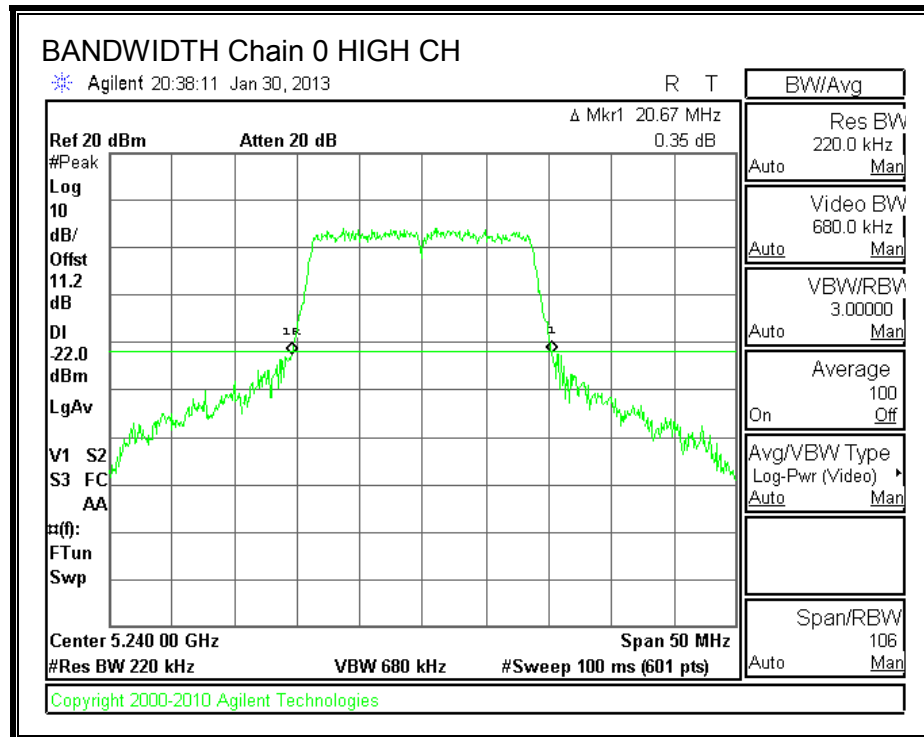
None; for reporting purposes only.

RESULTS

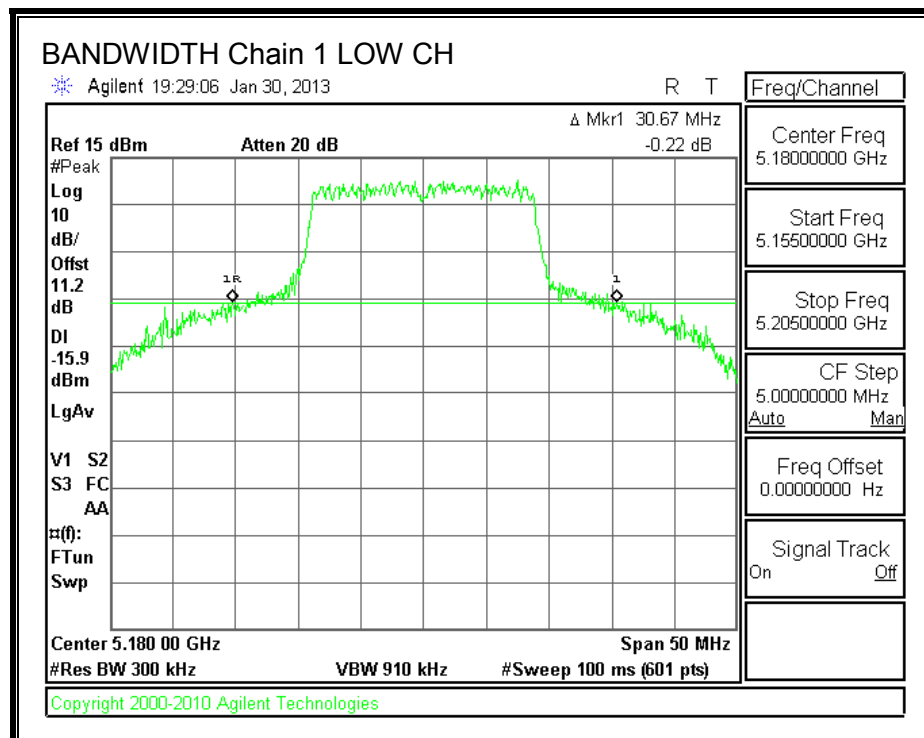
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5180	22.50	30.67
Mid	5200	23.75	29.17
High	5240	20.67	22.17

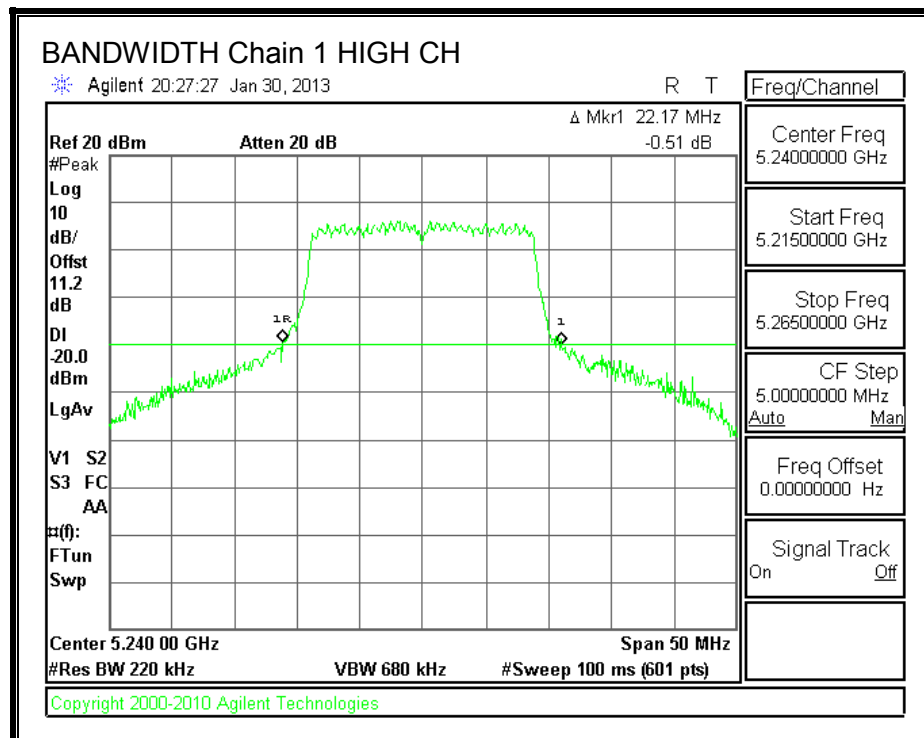
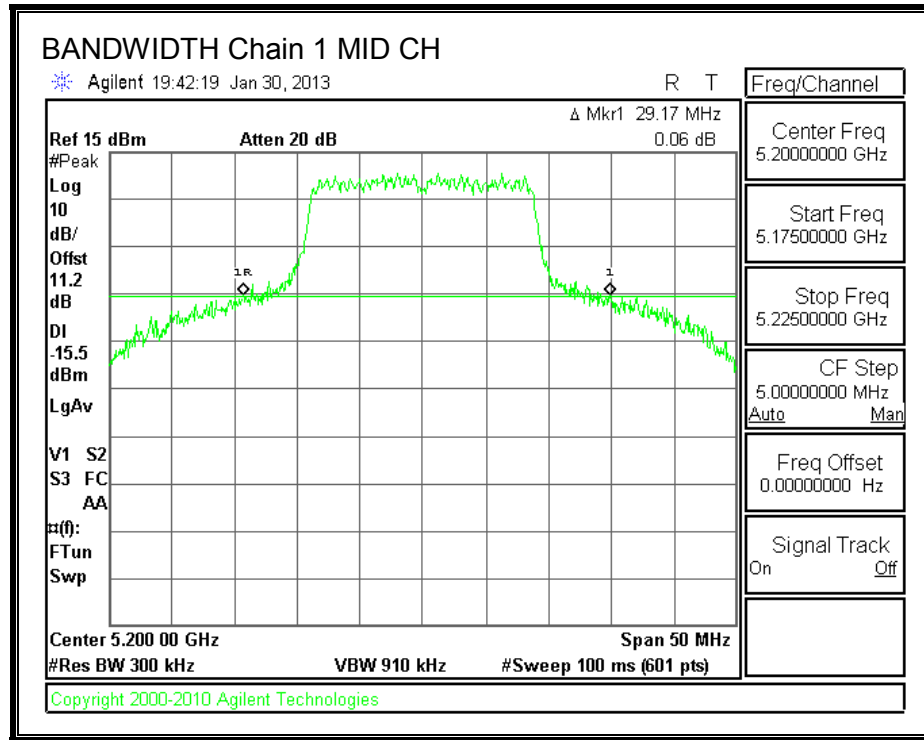
26 dB BANDWIDTH, Chain 0





26 dB BANDWIDTH, Chain 1





8.2.2. 99% BANDWIDTH

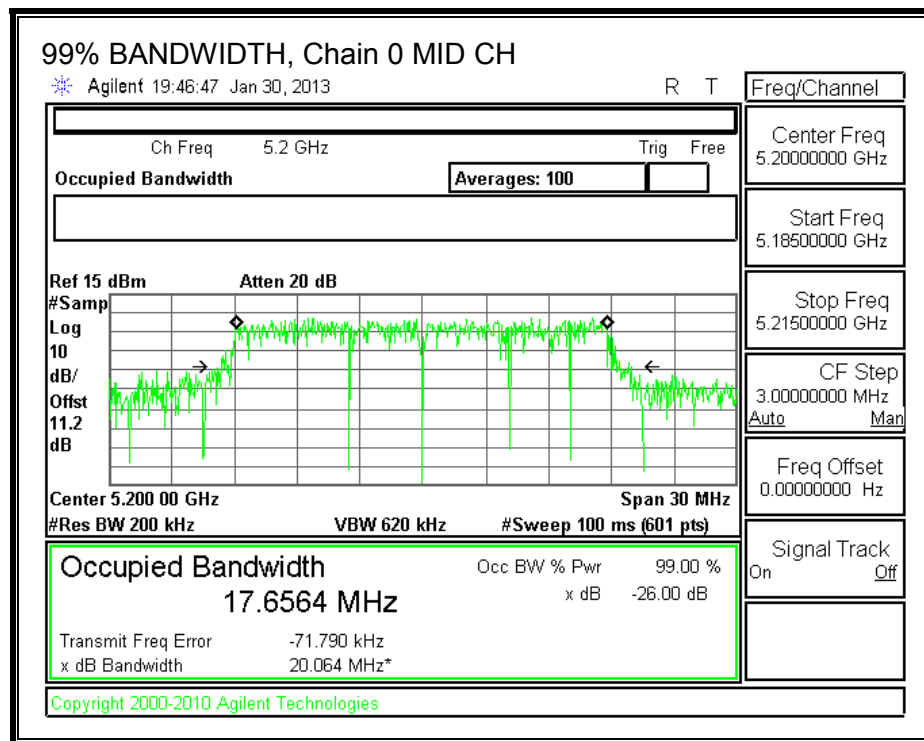
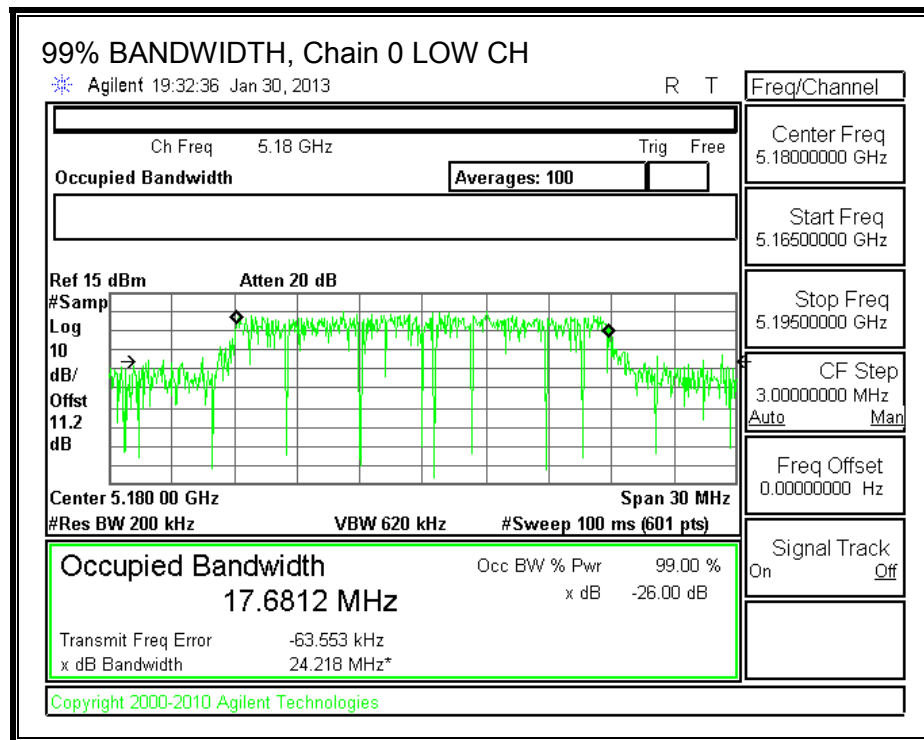
LIMITS

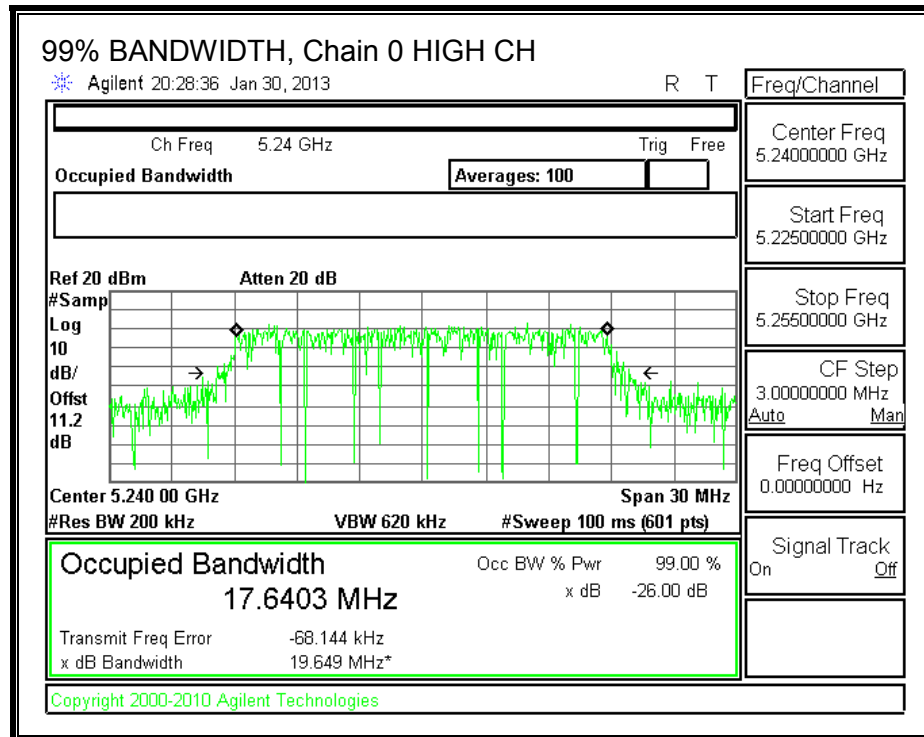
None; for reporting purposes only.

RESULTS

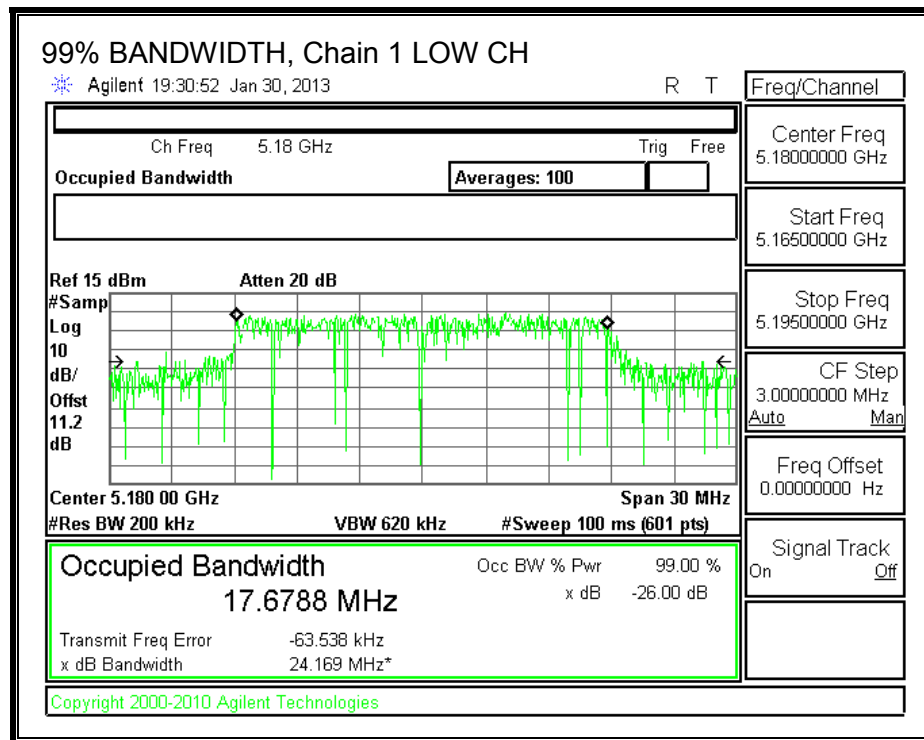
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5180	17.6812	17.6788
Mid	5200	17.6564	17.6547
High	5240	17.6403	17.6380

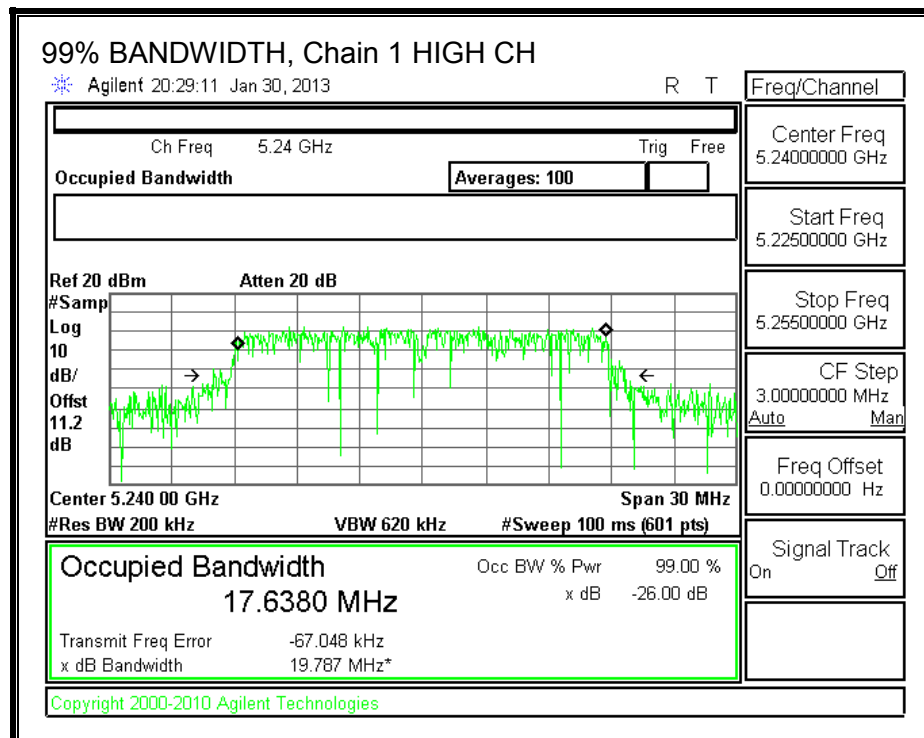
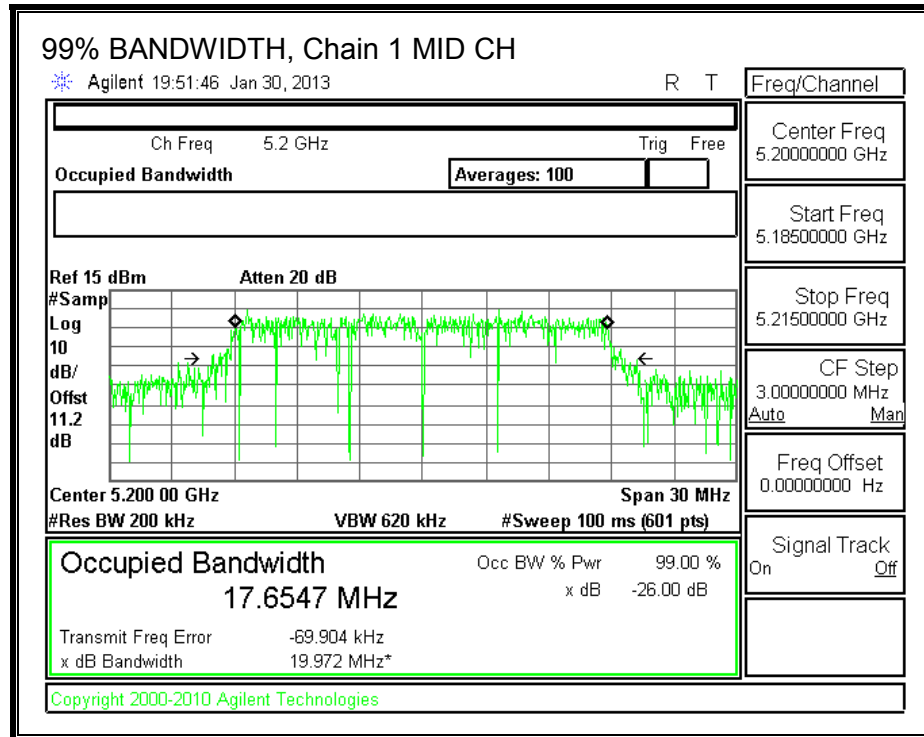
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.2.3. OUTPUT POWER AND PSD

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 two chains are considered 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)
5.93	5.75	5.84

For PSD, the two chains are considered 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)
5.93	5.75	8.85

OUTPUT POWER RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	22.50	17.6788	5.84
Mid	5200	23.75	17.6547	5.84
High	5240	20.67	17.6380	5.84

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)
Low	5180	17.00	22.47	16.63	16.63
Mid	5200	17.00	22.47	16.63	16.63
High	5240	17.00	22.46	16.62	16.62

Duty Cycle CF (dB)	0.00
--------------------	------

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	11.59	11.68	14.65	16.63	-1.99
Mid	5200	11.85	12.06	14.97	16.63	-1.66
High	5240	11.81	12.01	14.92	16.62	-1.70

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	22.50	17.6788	8.85
Mid	5200	23.75	17.6547	8.85
High	5240	20.67	17.6380	8.85

Limits

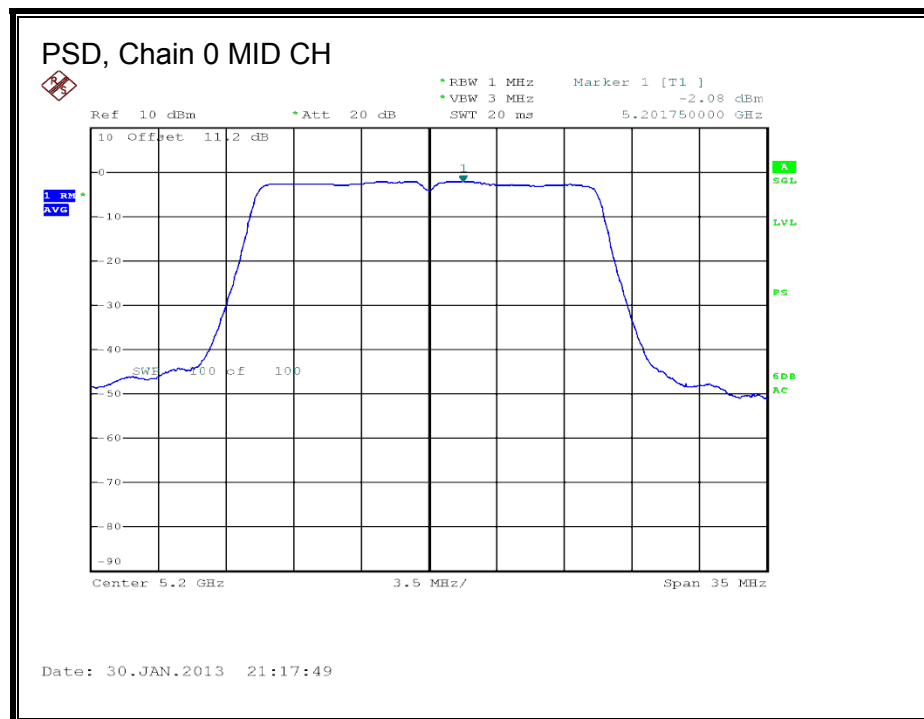
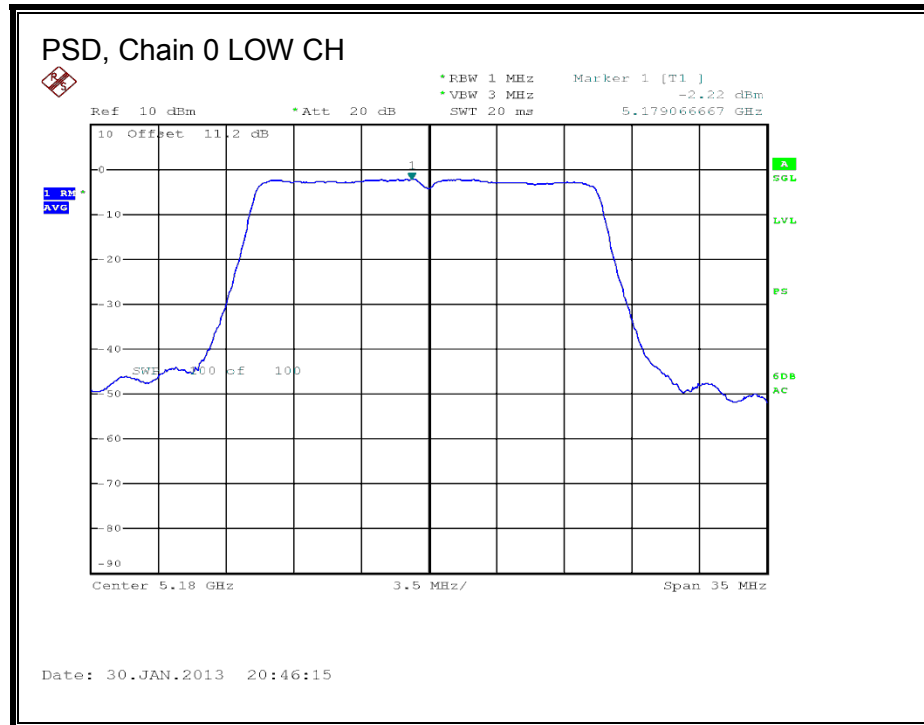
Channel	Frequency (MHz)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PSD Limit (dBm)
Low	5180	1.15	10.00	1.15
Mid	5200	1.15	10.00	1.15
High	5240	1.15	10.00	1.15

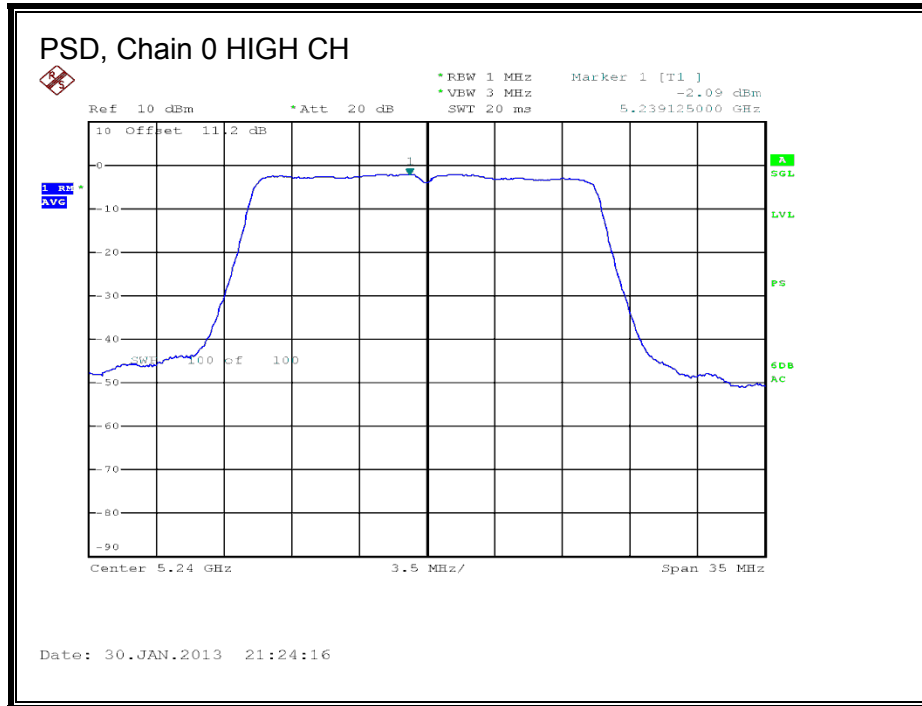
Duty Cycle CF (dB)	0.00	
--------------------	------	--

PPSD Results

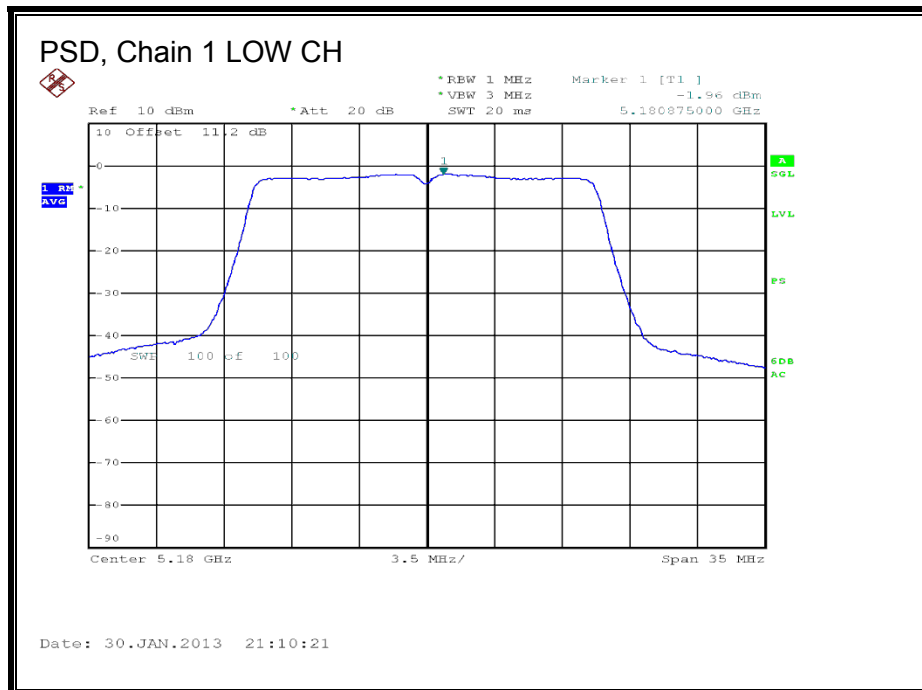
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5180	-2.20	-1.96	0.93	1.15	-0.22
Mid	5200	-2.08	-1.77	1.09	1.15	-0.06
High	5240	-2.09	-1.87	1.03	1.15	-0.12

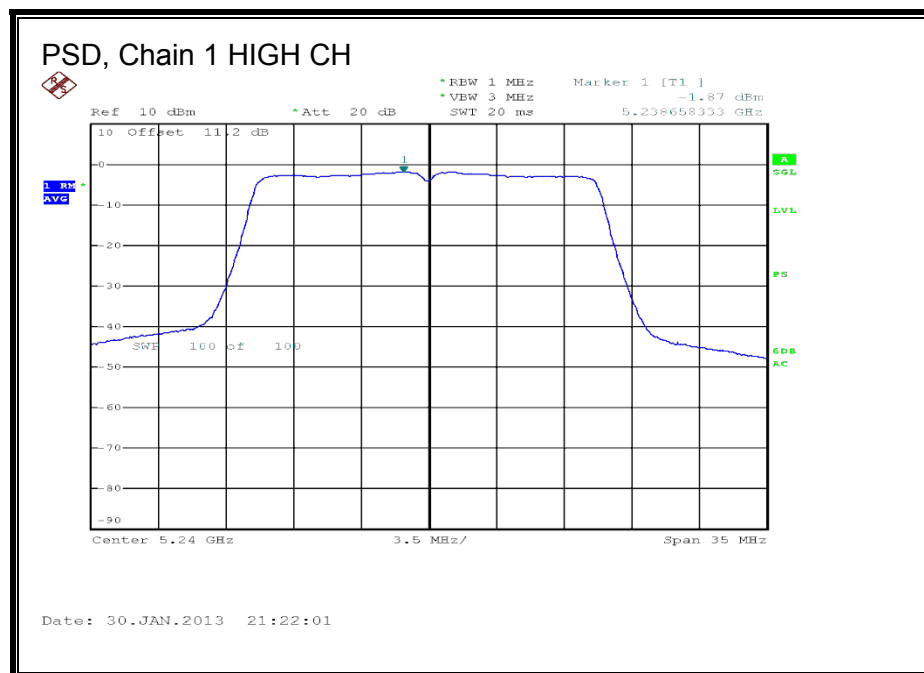
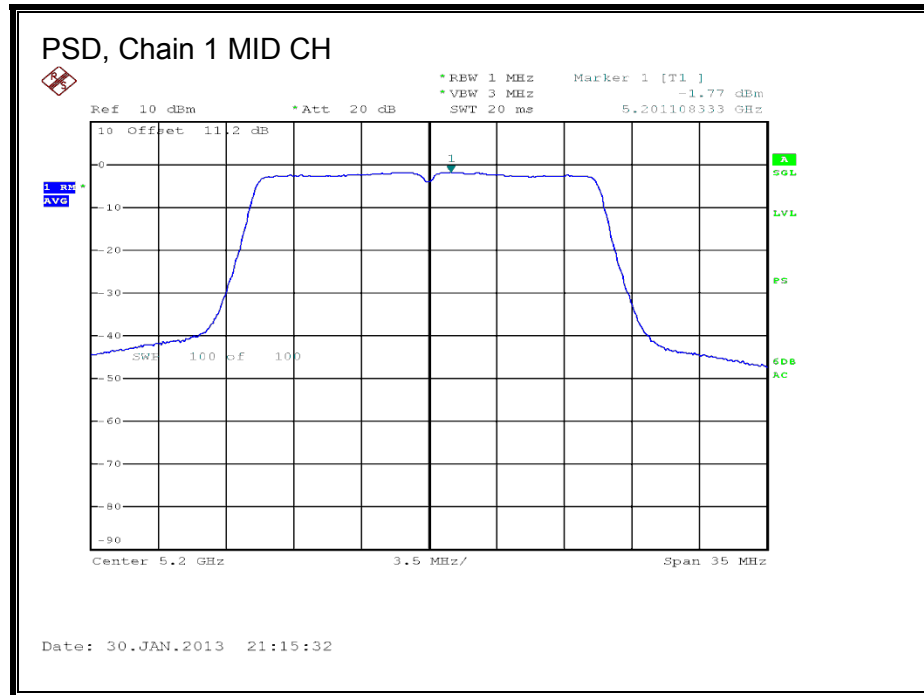
PSD, Chain 0





PSD, Chain 1





8.3. 802.11n HT20 STBC 2TX MODE, 5.2 GHz BAND

8.3.1. 26 dB BANDWIDTH

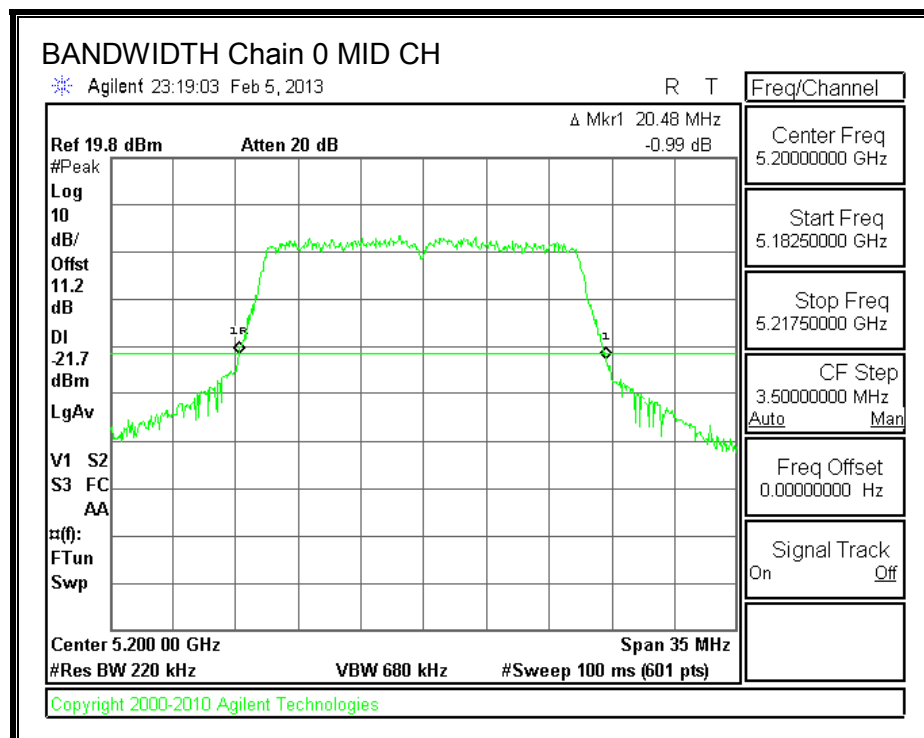
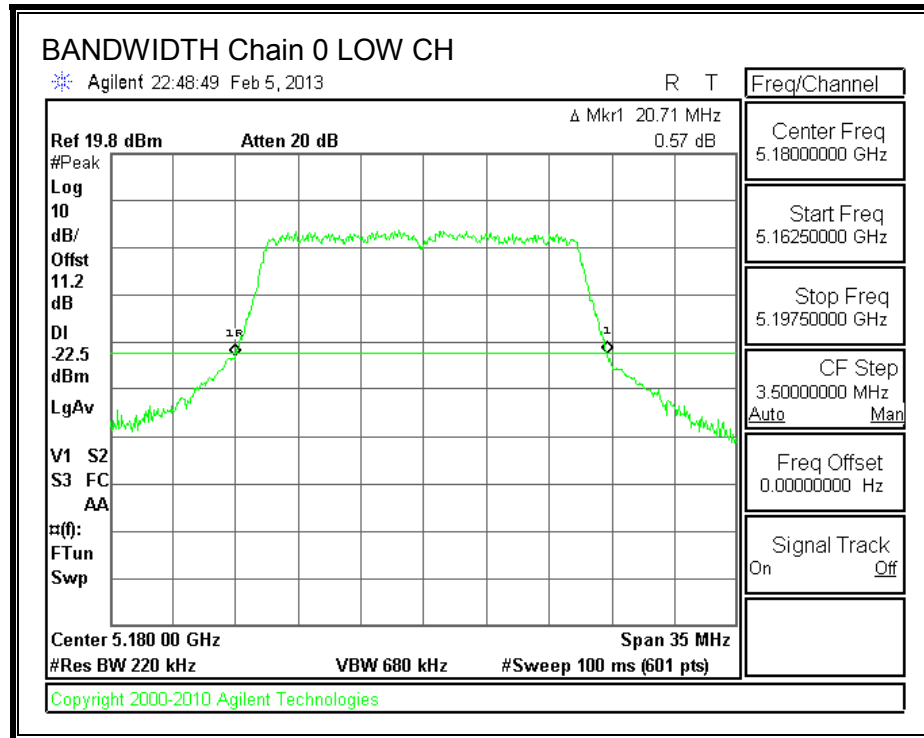
LIMITS

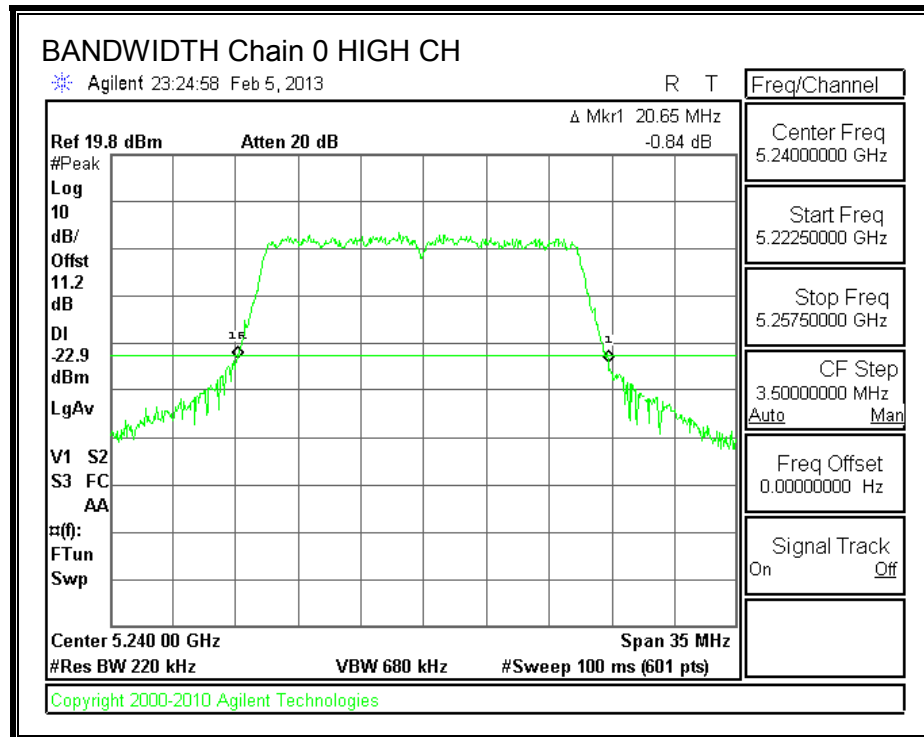
None; for reporting purposes only.

RESULTS

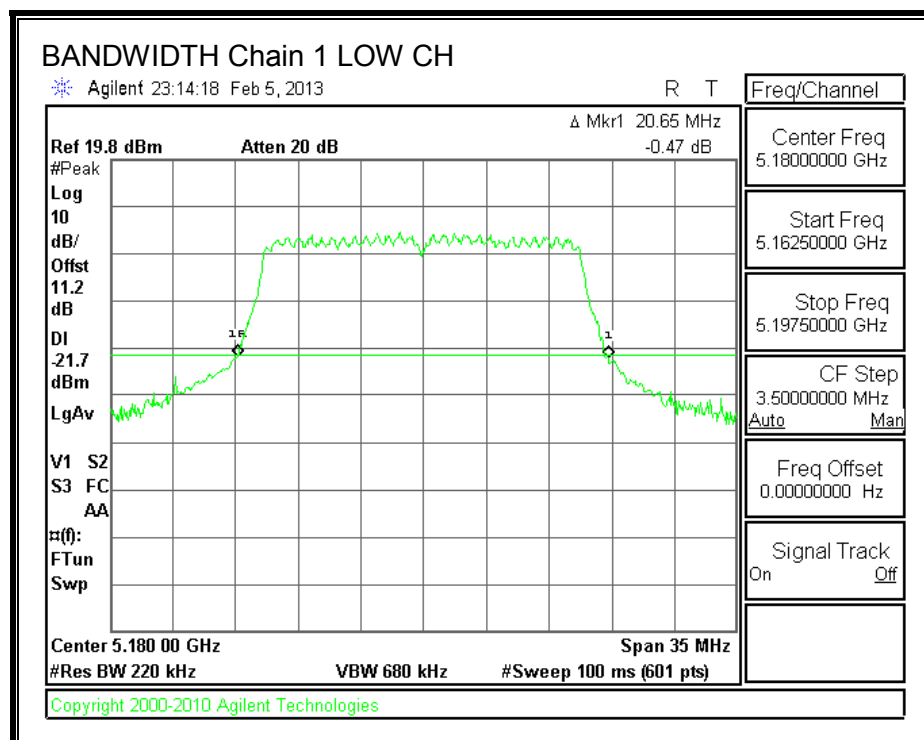
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5180	20.71	20.65
Mid	5200	20.48	20.59
High	5240	20.65	20.65

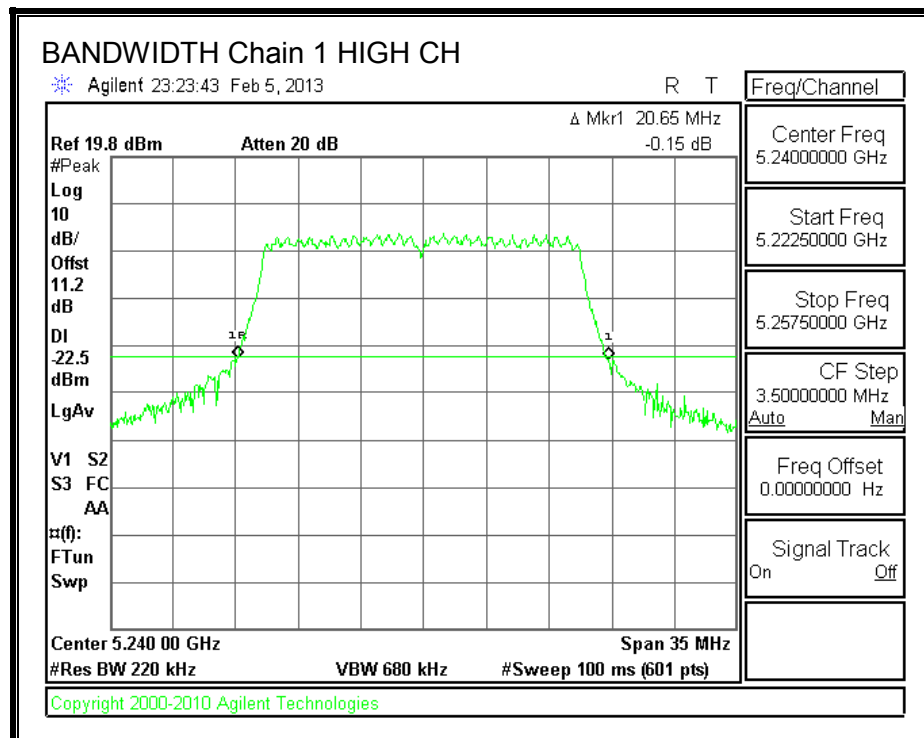
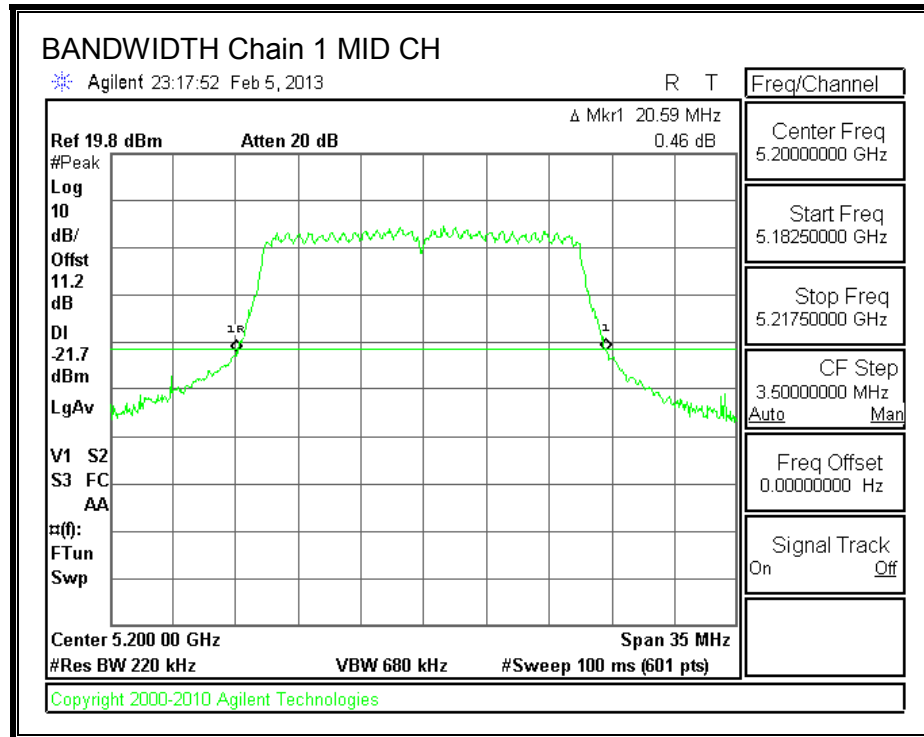
26 dB BANDWIDTH, Chain 0





26 dB BANDWIDTH, Chain 1





8.3.2. 99% BANDWIDTH

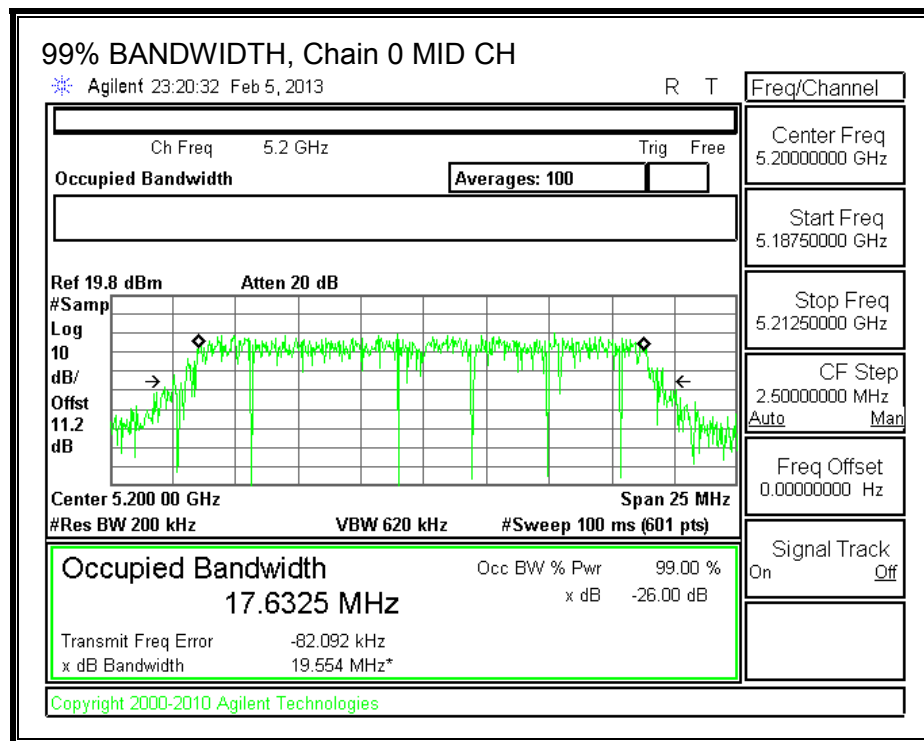
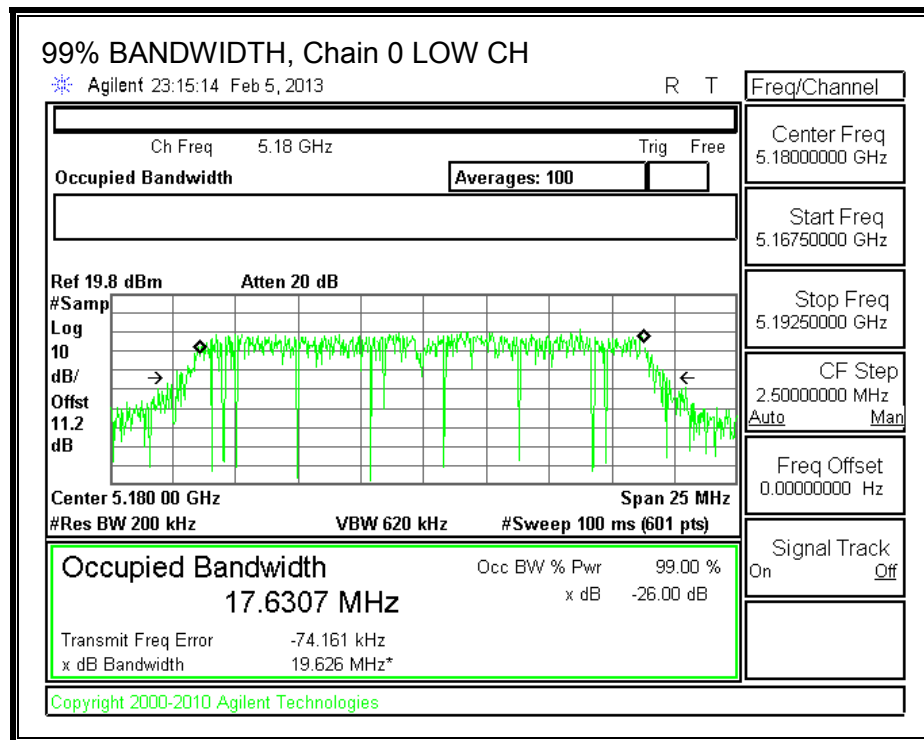
LIMITS

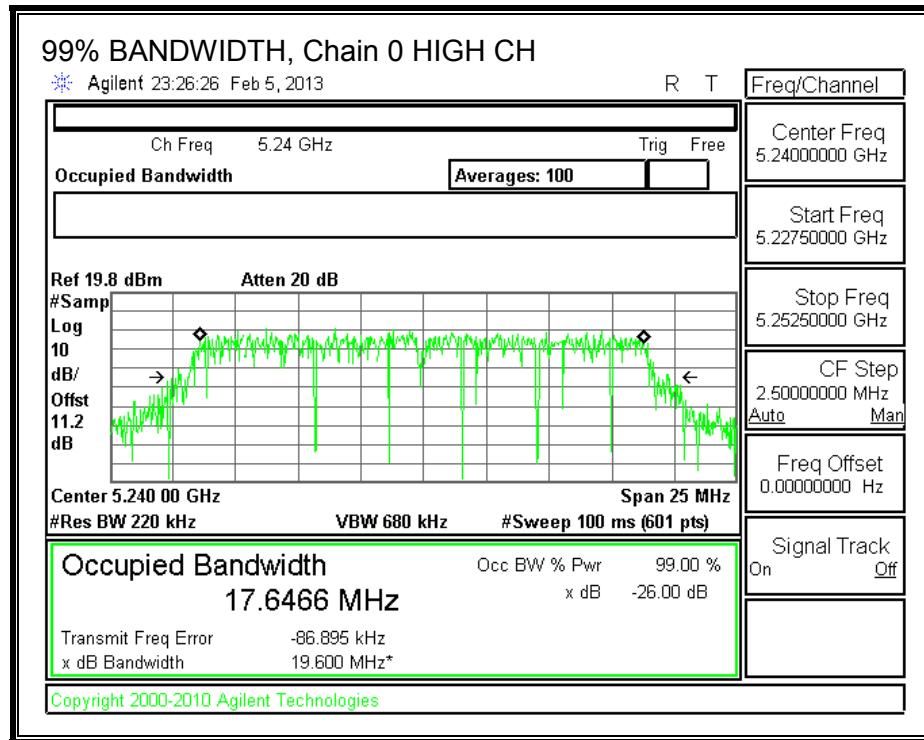
None; for reporting purposes only.

RESULTS

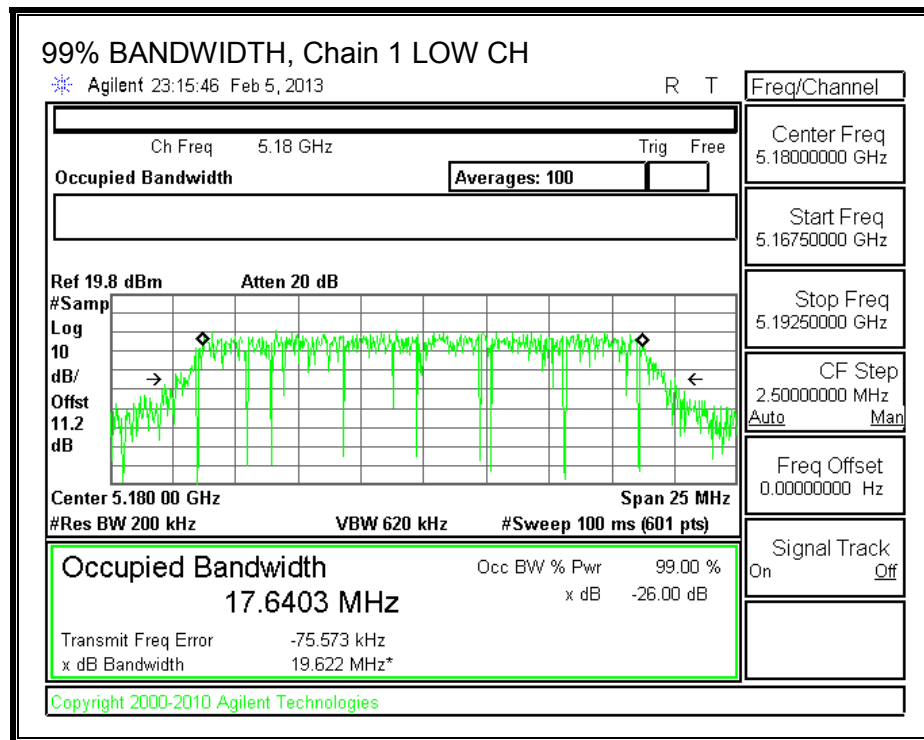
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5180	17.6307	17.6403
Mid	5200	17.6325	17.6274
High	5240	17.6466	17.6631

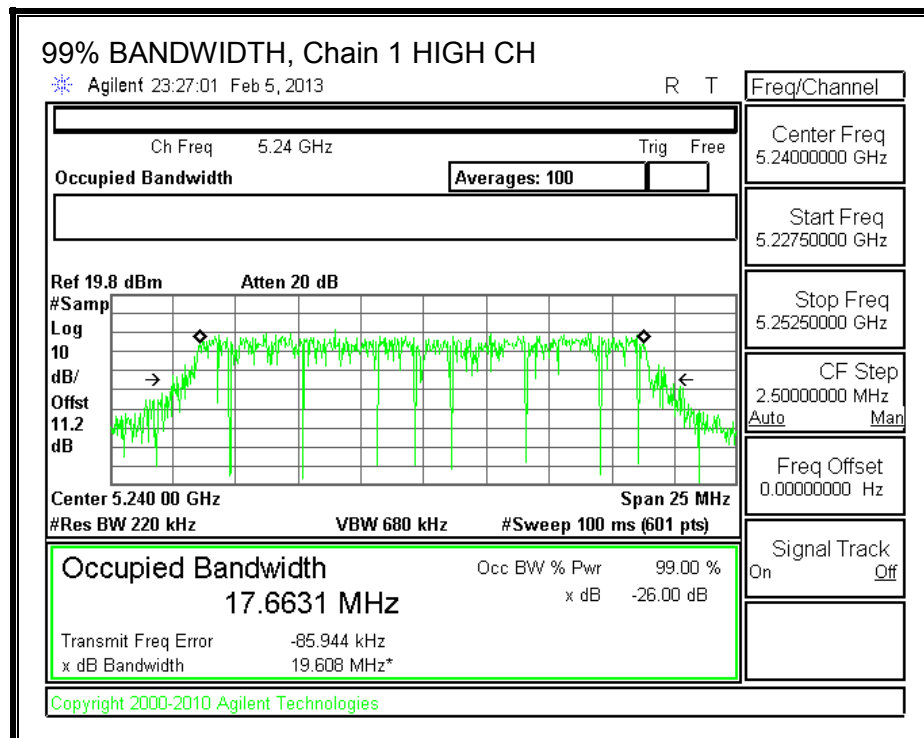
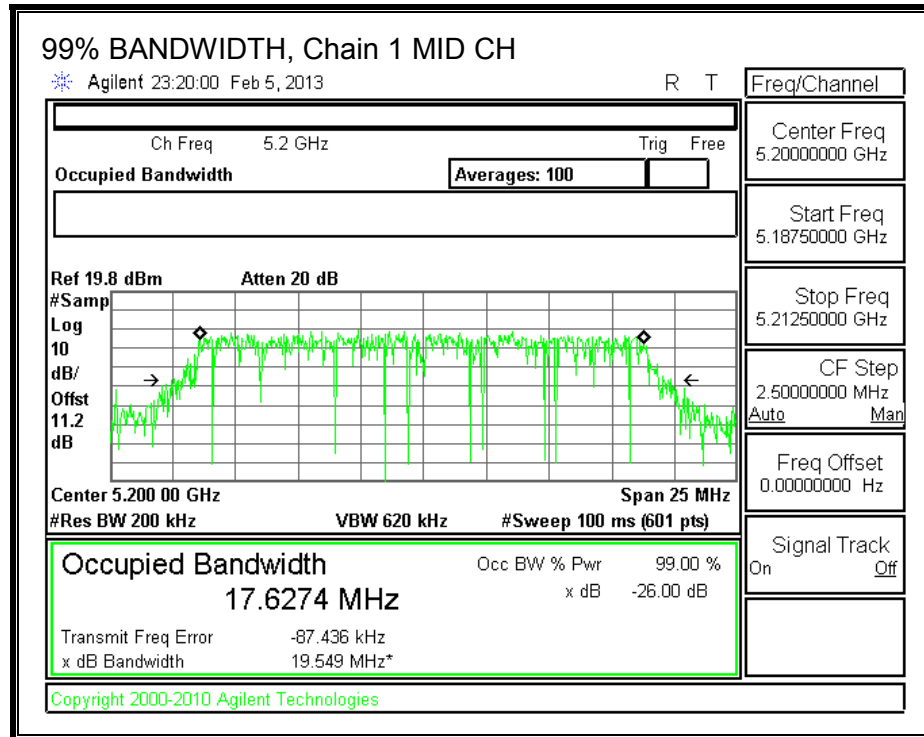
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.3.3. OUTPUT POWER AND PSD

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 unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
5.93	5.75	5.84

OUTPUT POWER RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	20.65	17.6307	5.84
Mid	5200	20.48	17.6274	5.84
High	5240	20.65	17.6466	5.84

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)	PSD Limit (dBm)
Low	5180	17.00	22.46	16.62	16.62	4.00	10.00	4.00
Mid	5200	17.00	22.46	16.62	16.62	4.00	10.00	4.00
High	5240	17.00	22.47	16.63	16.63	4.00	10.00	4.00

Duty Cycle CF (dB)	0.00
--------------------	------

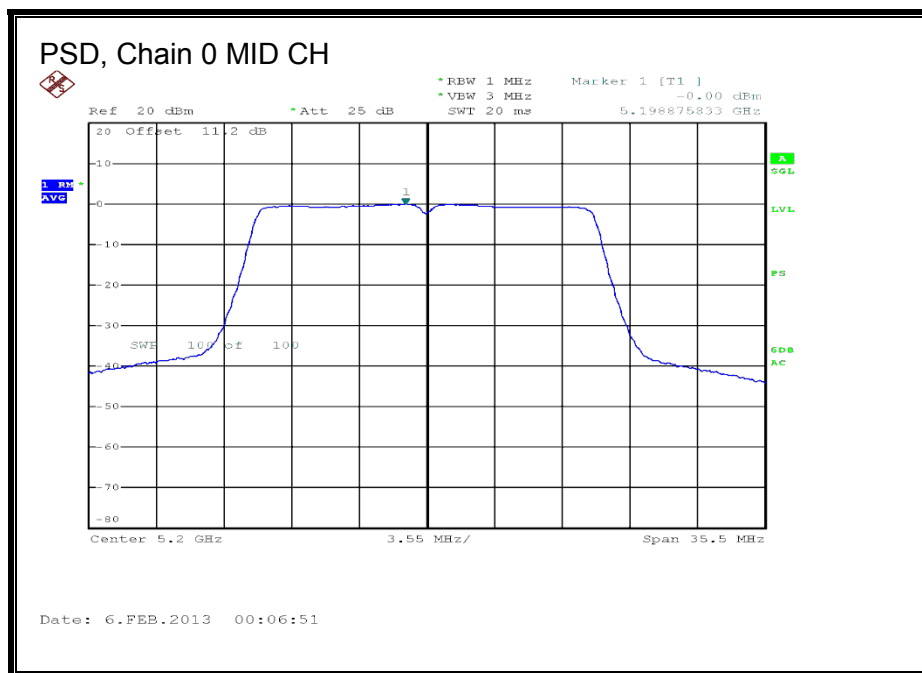
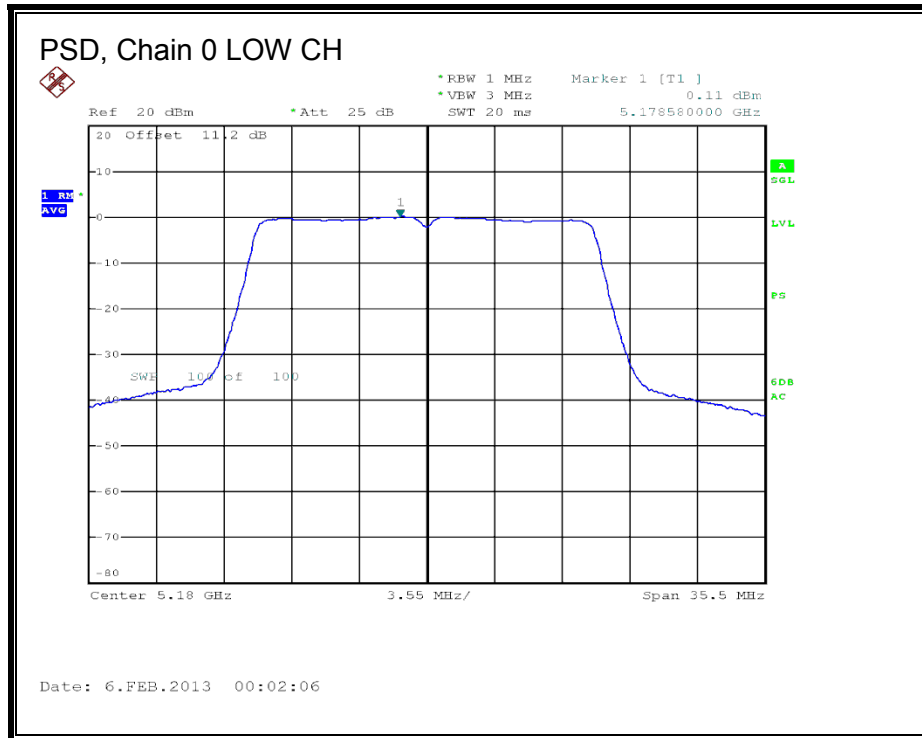
Output Power Results

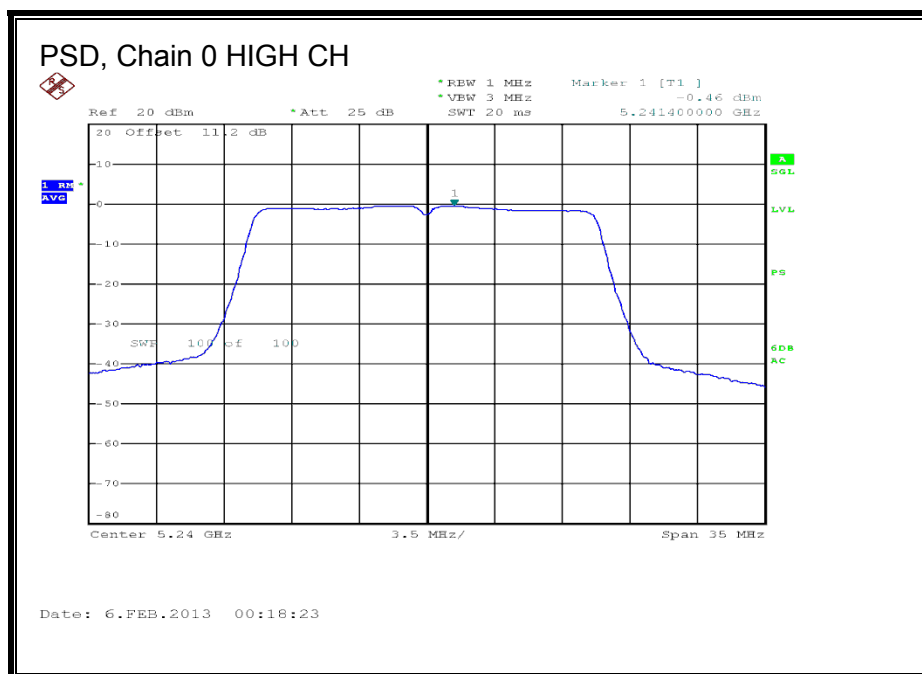
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	13.58	13.52	16.56	16.62	-0.06
Mid	5200	13.52	13.60	16.57	16.62	-0.05
High	5240	13.55	13.59	16.58	16.63	-0.05

PSD Results

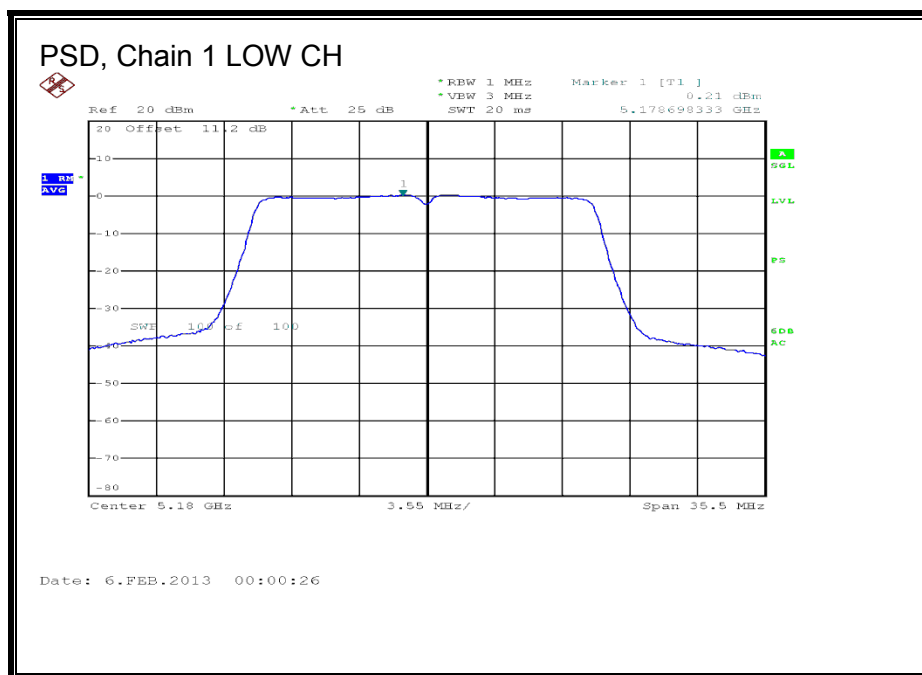
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5180	0.11	0.21	3.17	4.00	-0.83
Mid	5200	0.00	0.08	3.05	4.00	-0.95
High	5240	-0.46	0.07	2.82	4.00	-1.18

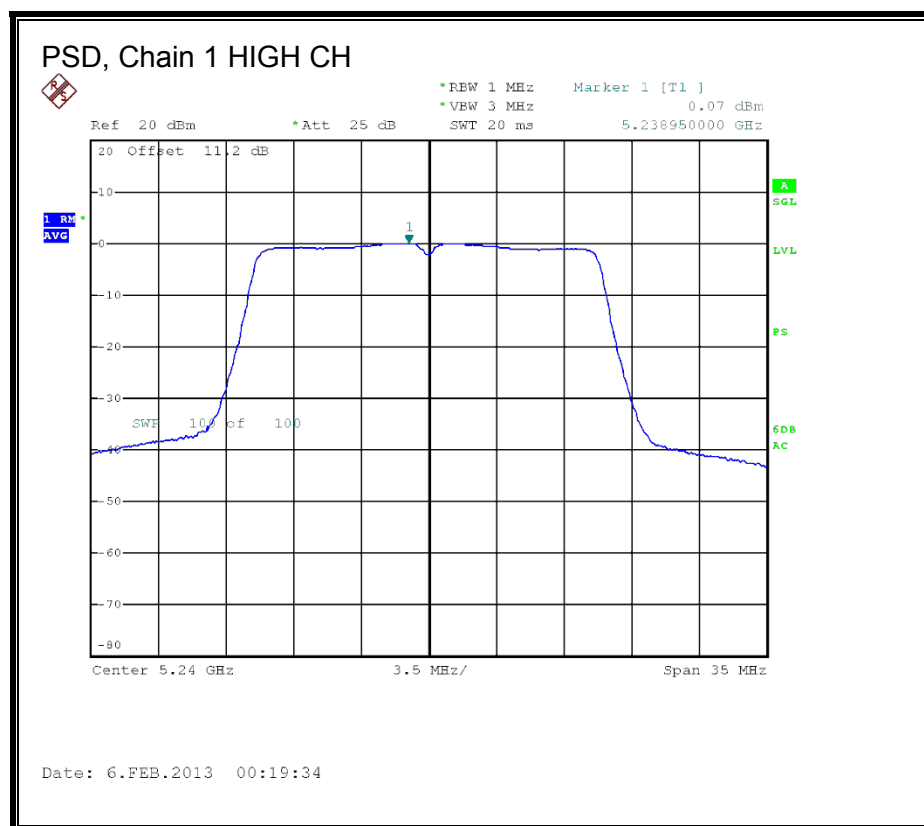
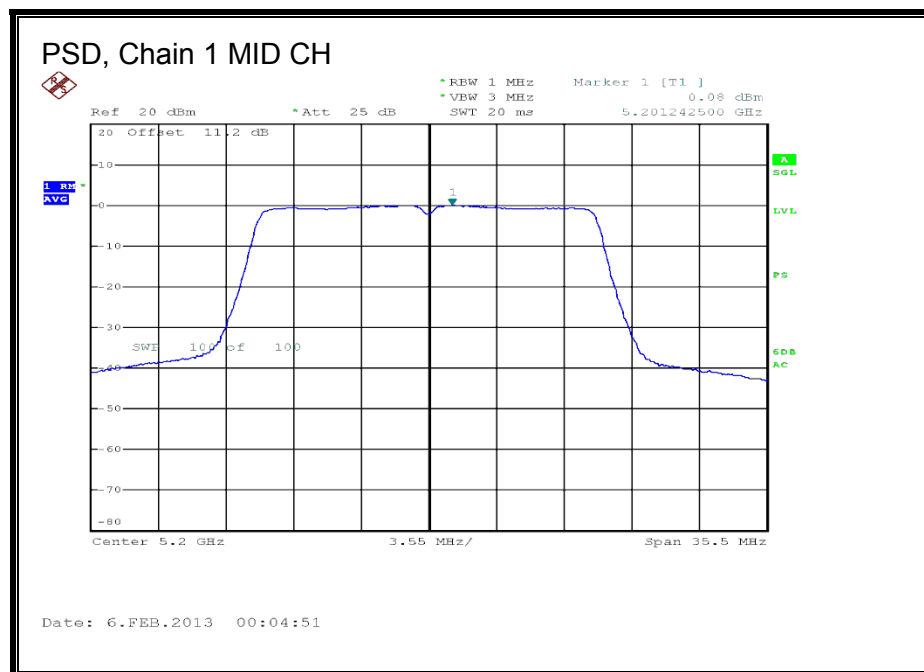
PSD, Chain 0





PSD, Chain 1





8.4. 802.11n HT40 1TX MODE, 5.2 GHz BAND

8.4.1. 26 dB BANDWIDTH

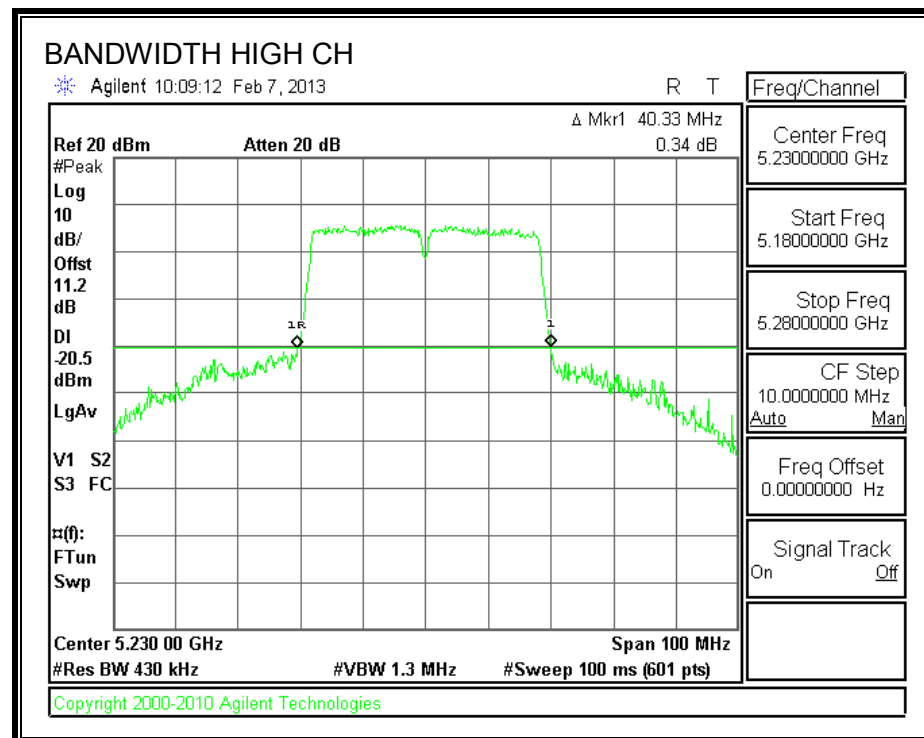
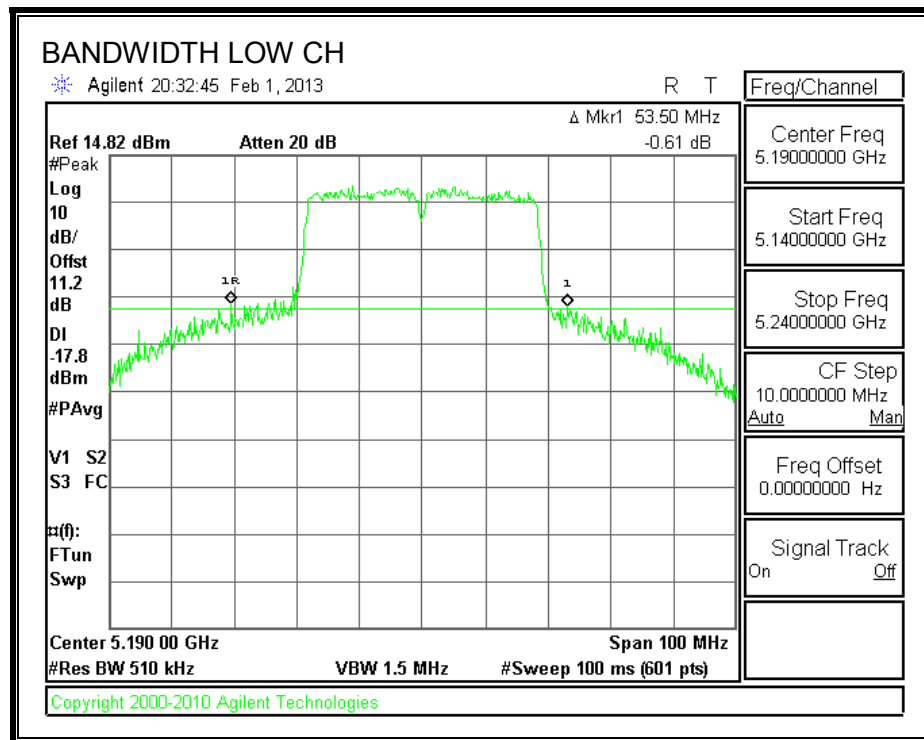
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5190	53.50
High	5230	40.33

26 dB BANDWIDTH



8.4.2. 99% BANDWIDTH

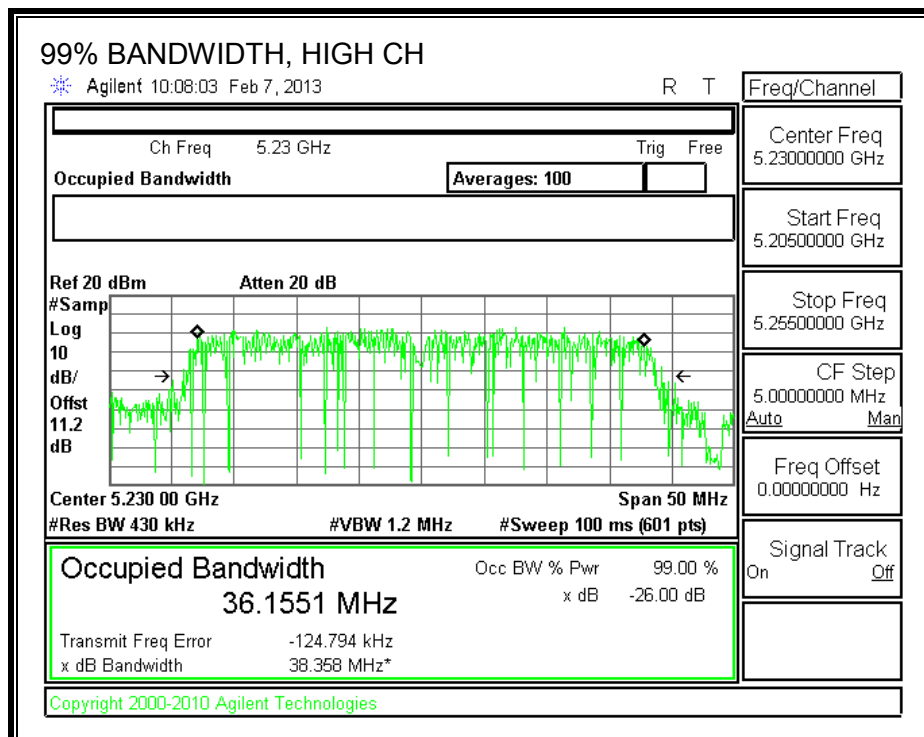
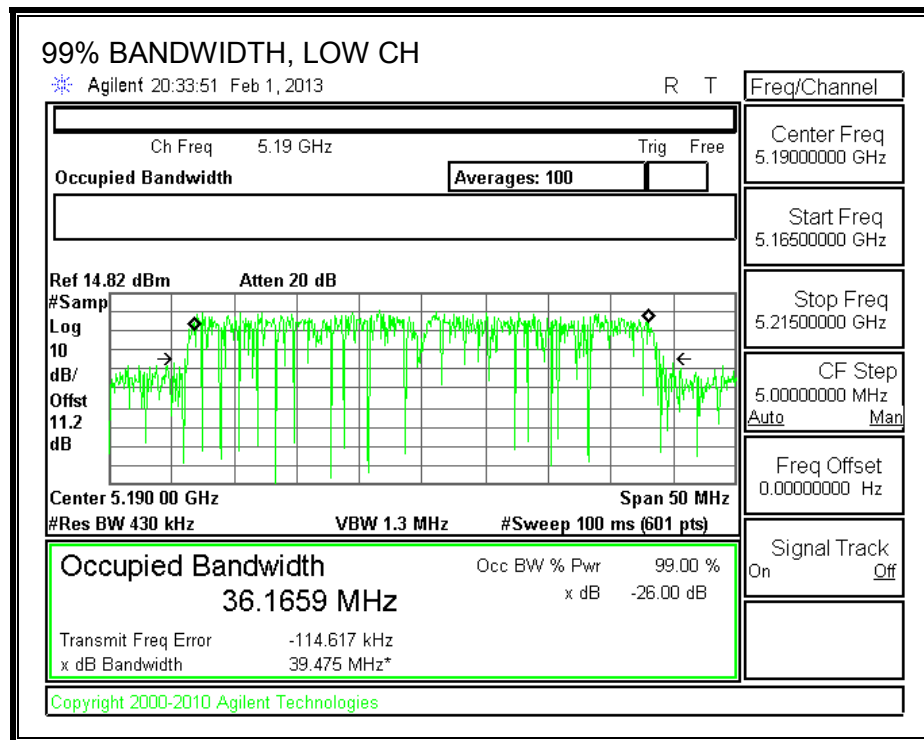
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	36.1659
High	5230	36.1551

99% BANDWIDTH



8.4.3. OUTPUT POWER AND PSD

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	53.50	36.1659	5.93
High	5230	40.33	36.1551	5.93

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)	PSD Limit (dBm)
Low	5190	17.00	23.00	17.07	17.00	4.00	10.00	4.00
High	5230	17.00	23.00	17.07	17.00	4.00	10.00	4.00

Duty Cycle CF (dB)	0.22	
--------------------	------	--

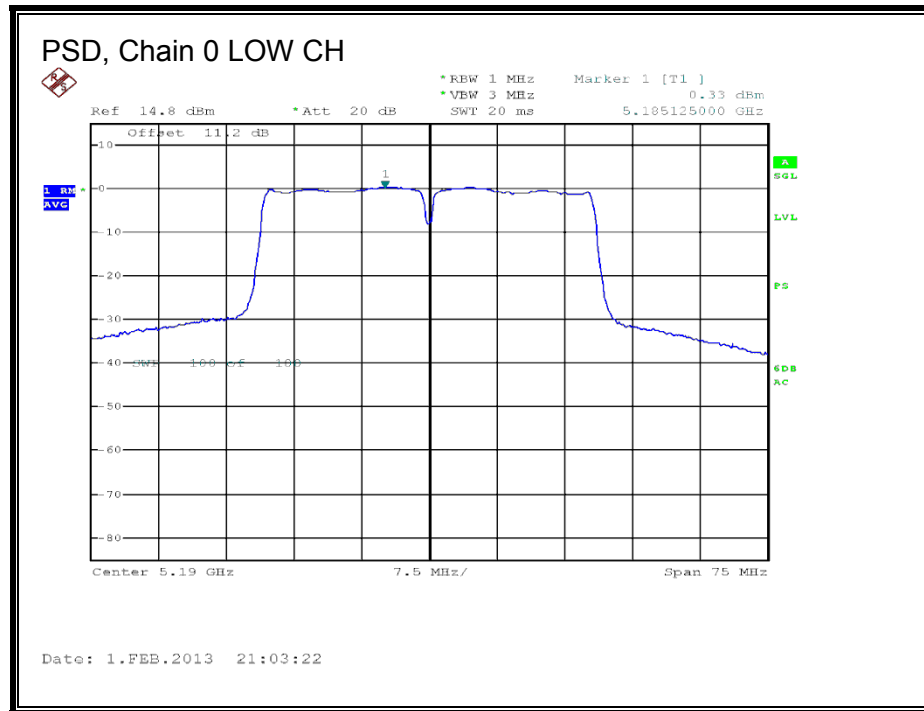
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	16.98	16.98	17.00	-0.02
High	5230	16.96	16.96	17.00	-0.04

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5190	0.33	0.55	4.00	-3.45
High	5230	-0.09	0.13	4.00	-3.87

PSD, Chain 0



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

8.5.1. 26 dB BANDWIDTH

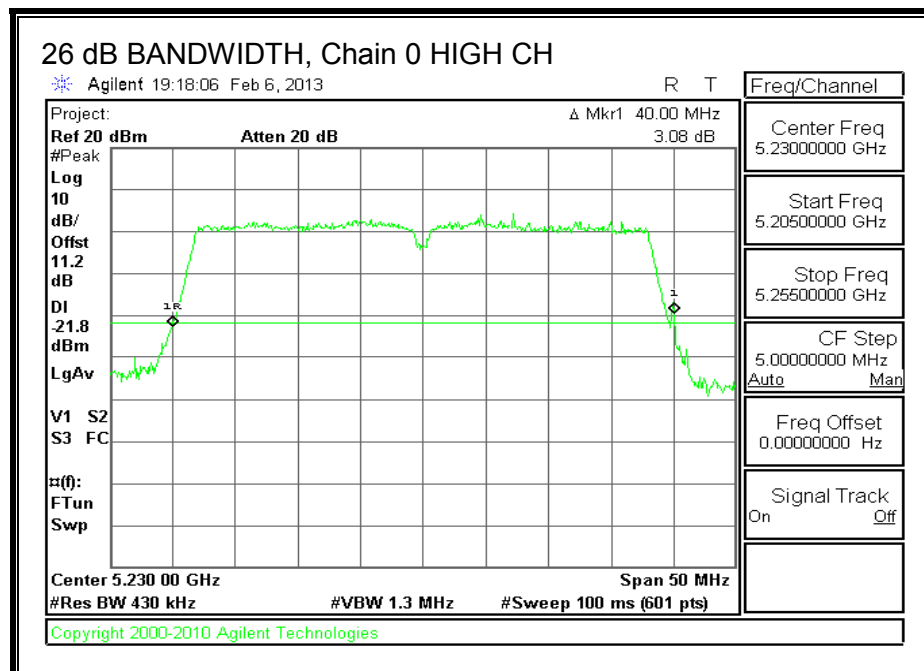
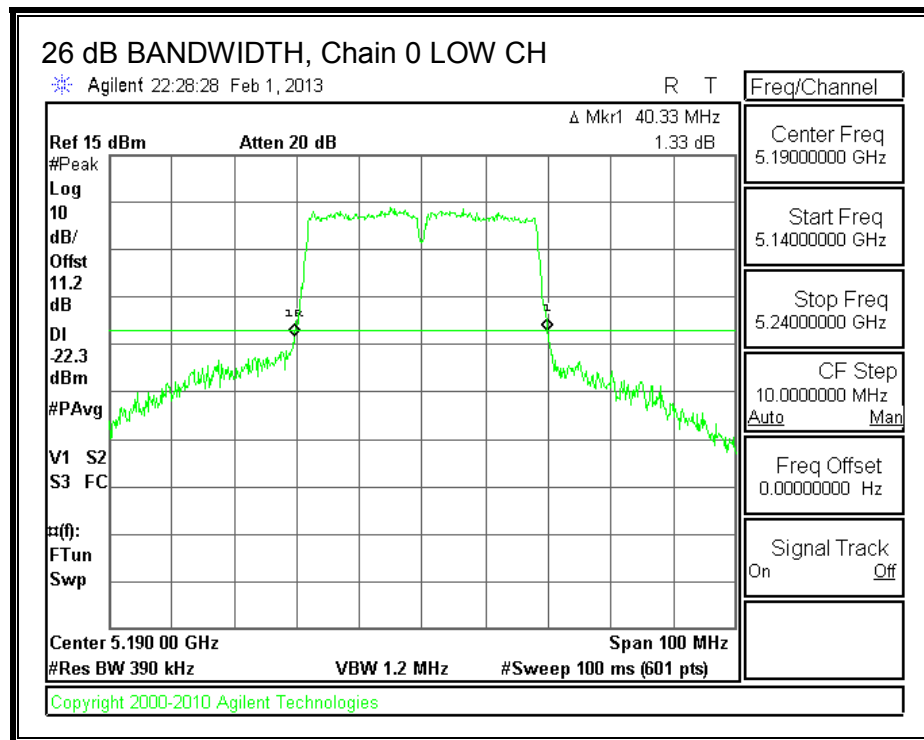
LIMITS

None; for reporting purposes only.

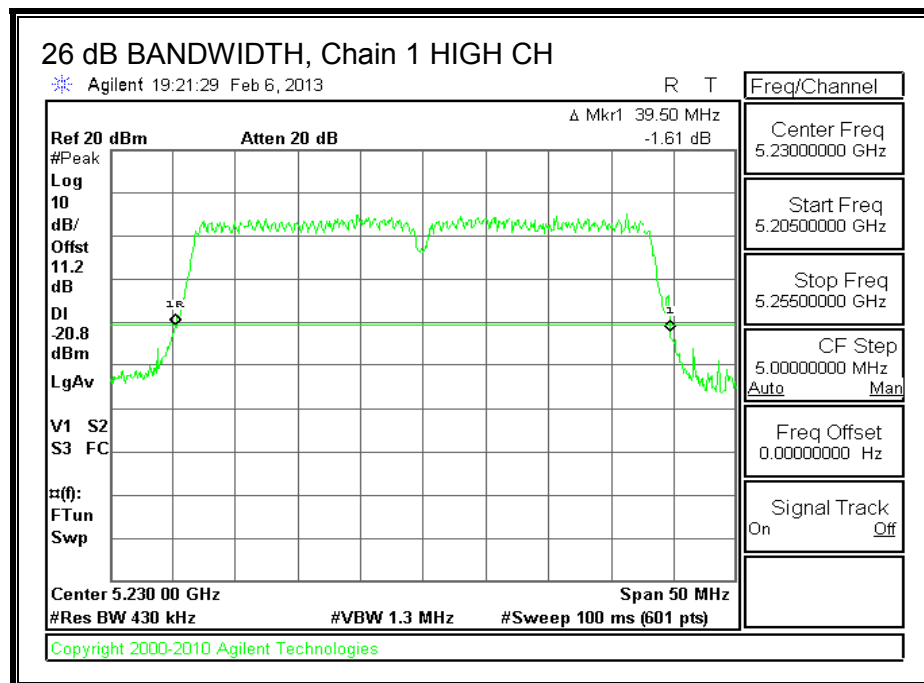
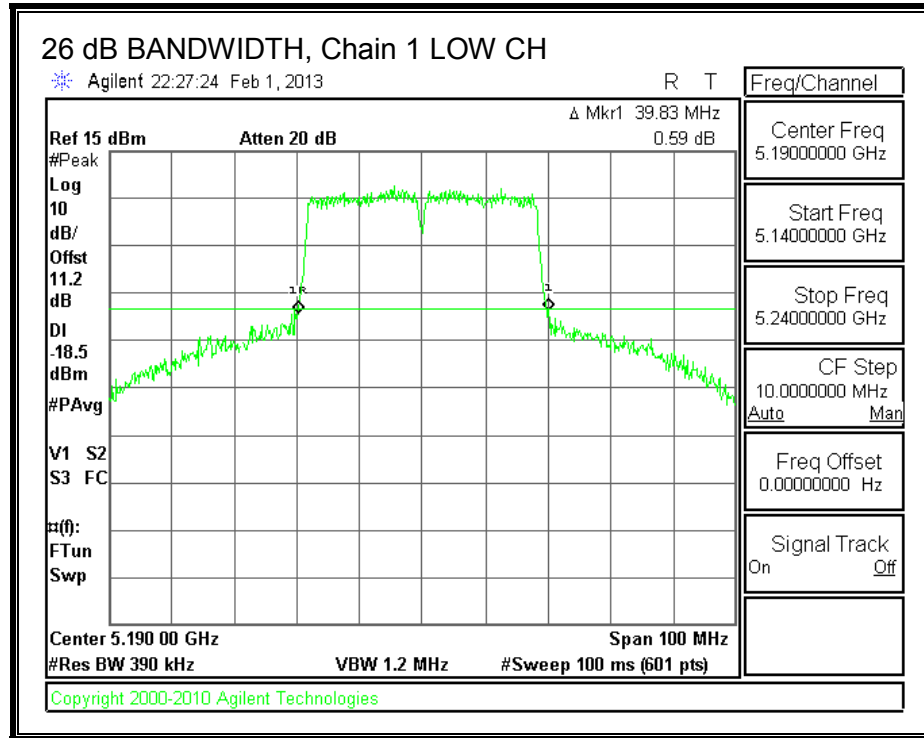
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5190	40.33	39.83
High	5230	40.00	39.50

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.5.2. 99% BANDWIDTH

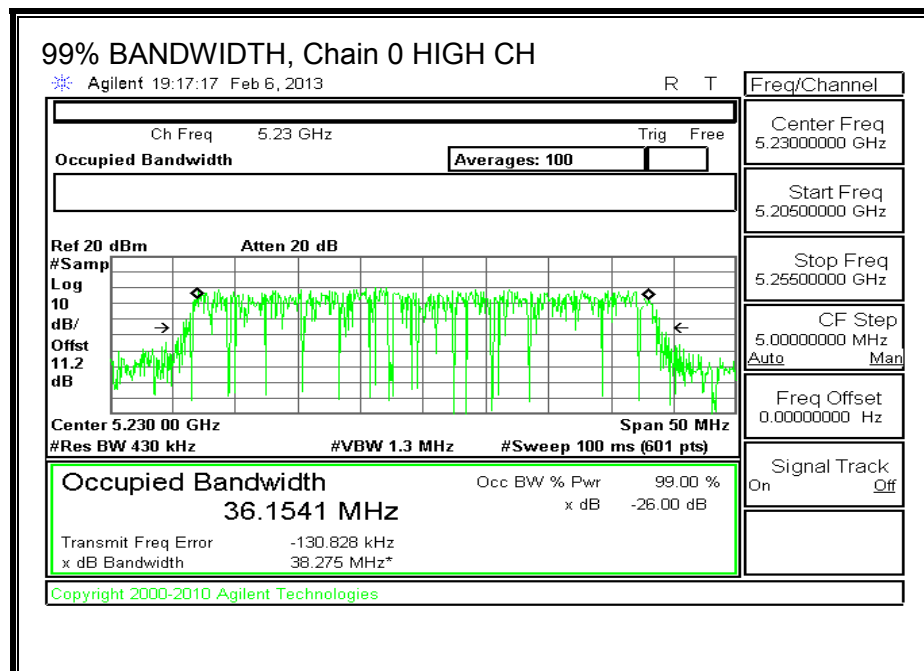
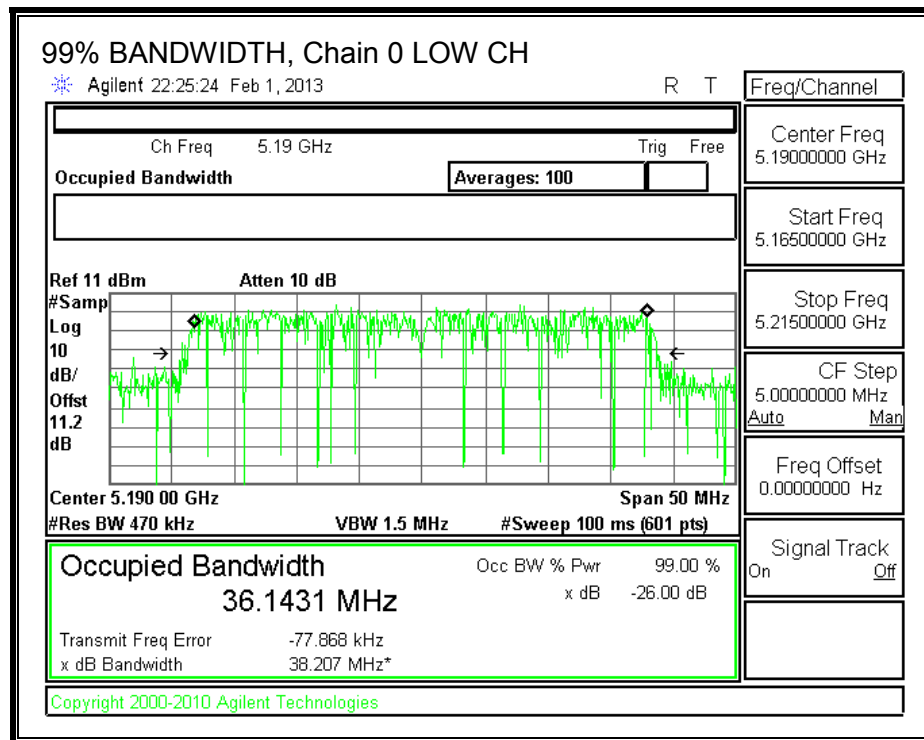
LIMITS

None; for reporting purposes only.

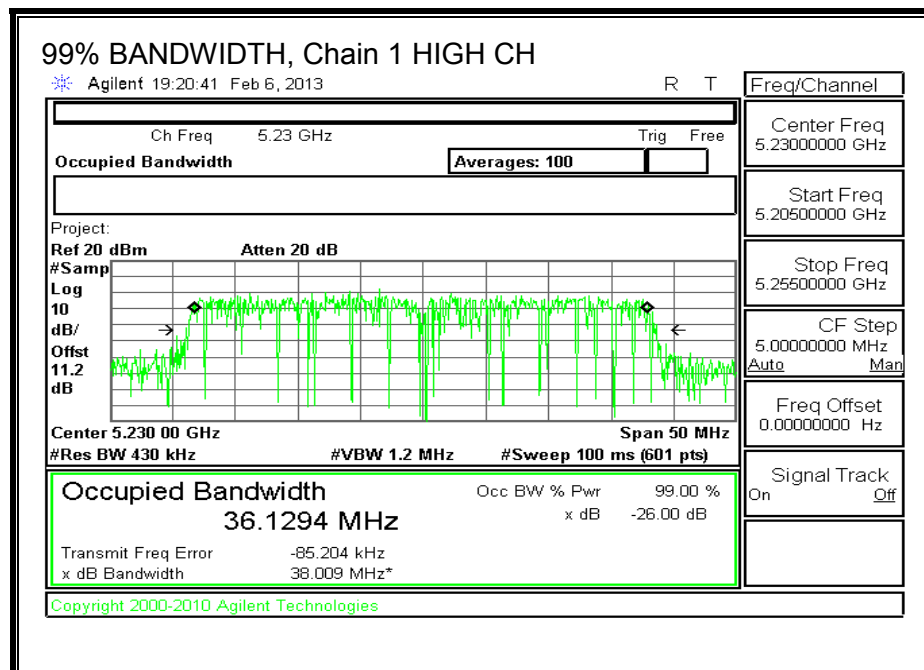
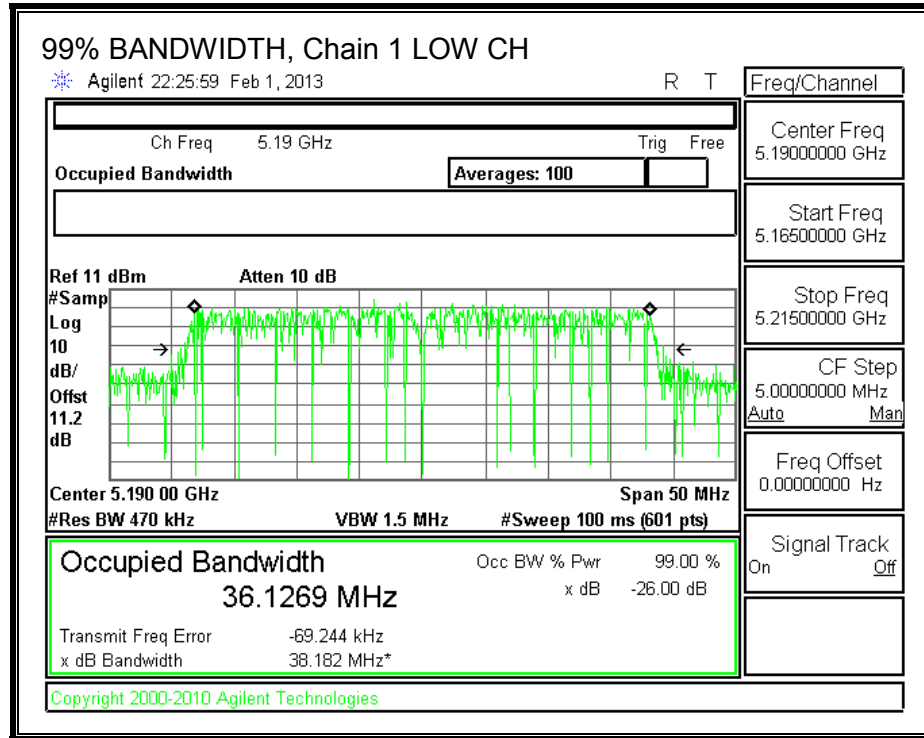
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5190	36.1431	36.1269
High	5230	36.1541	36.1294

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.5.3. OUTPUT POWER AND PSD

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 unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
5.93	5.75	5.84

For PSD, 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)
5.93	5.75	8.85

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	39.83	36.1269	5.84	8.85
High	5230	39.50	36.1294	5.84	8.85

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)	PSD Limit (dBm)
Low	5190	17.00	23.00	17.16	17.00	1.15	10.00	1.15
High	5230	17.00	23.00	17.16	17.00	1.15	10.00	1.15

Duty Cycle CF (dB)	0.22	
--------------------	------	--

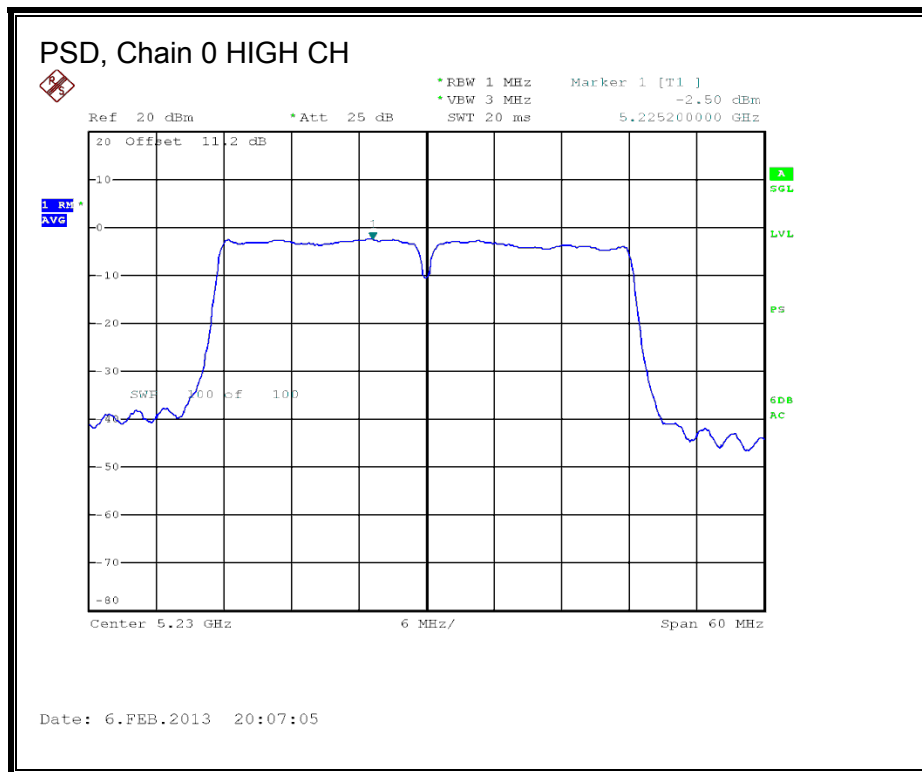
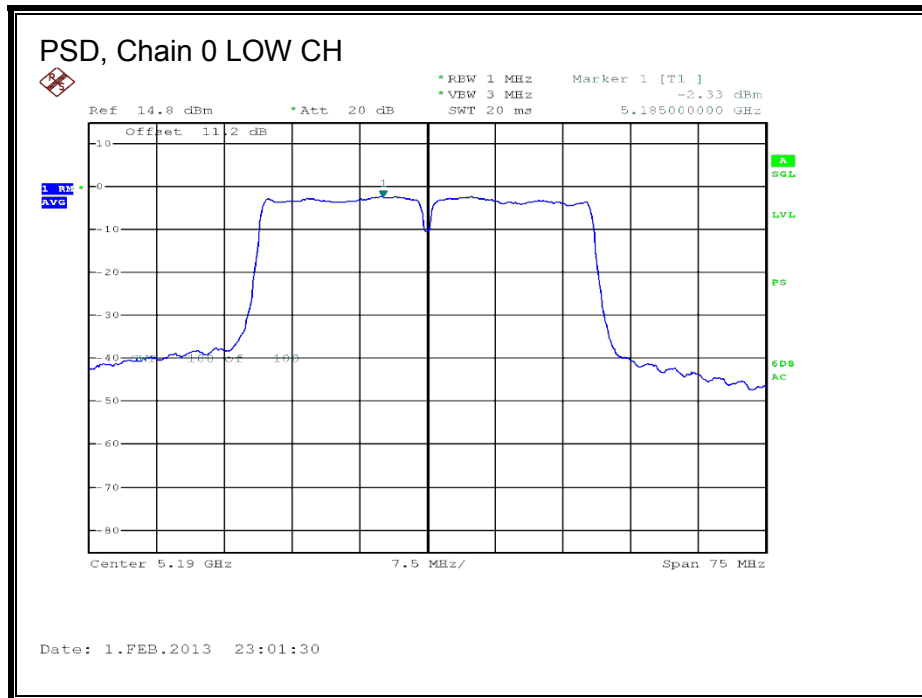
Output Power Results

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	13.93	13.98	16.97	17.00	-0.03
High	5230	13.91	13.95	16.94	17.00	-0.06

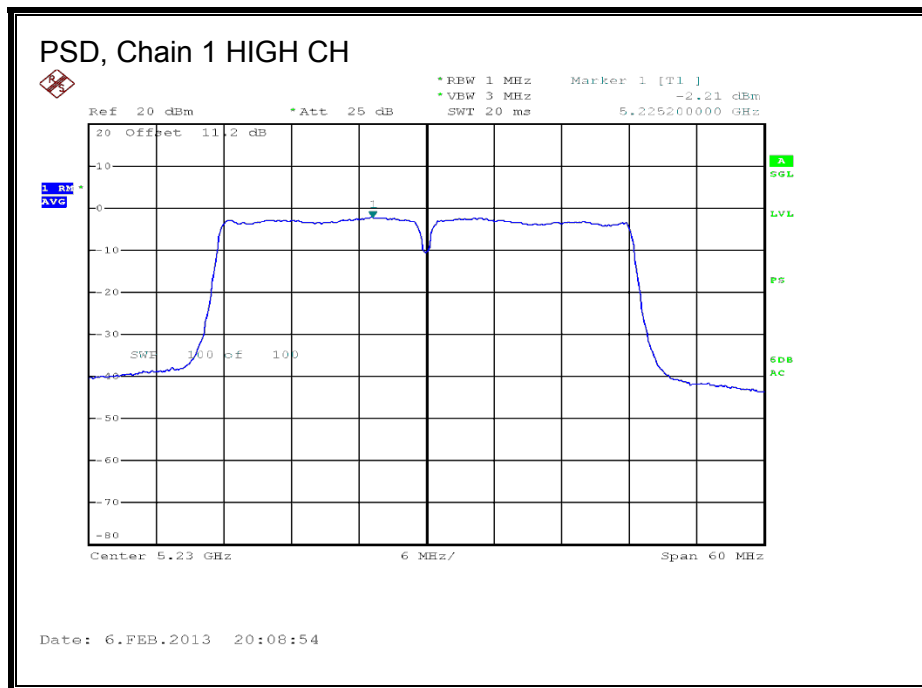
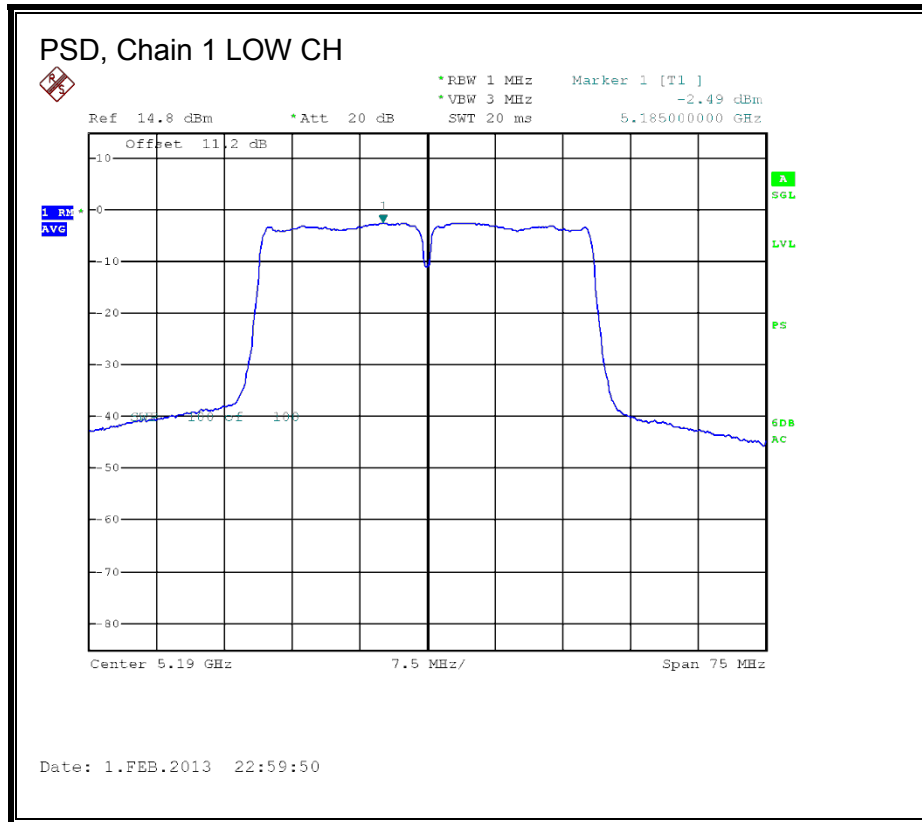
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5190	-2.33	-2.49	0.82	1.15	-0.33
High	5230	-2.50	-2.21	0.88	1.15	-0.27

PSD, Chain 0



PSD, Chain 1



8.6. 802.11n AC40 BF 2TX MODE, 5.2 GHz BAND

8.6.1. 26 dB BANDWIDTH

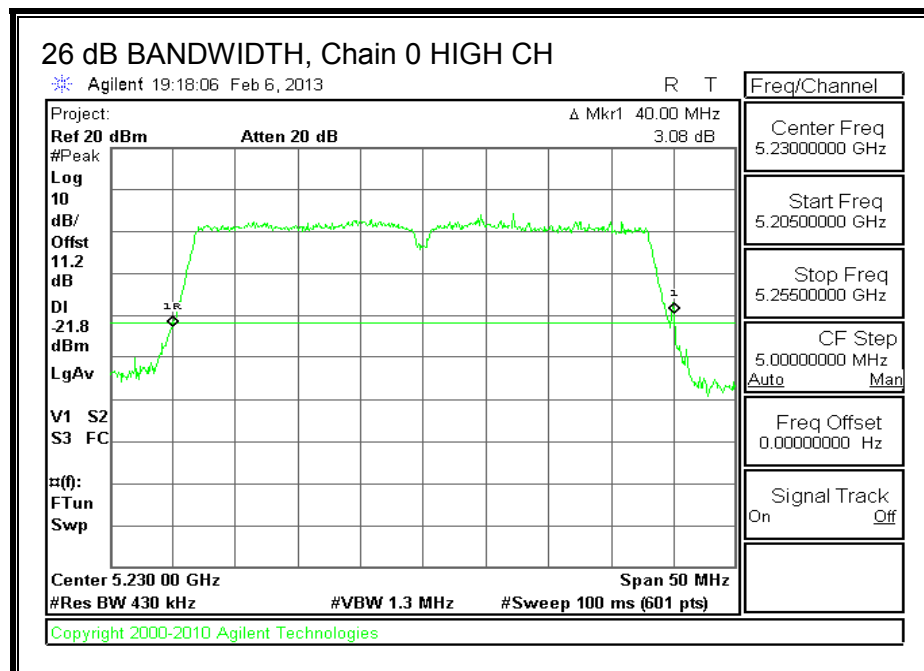
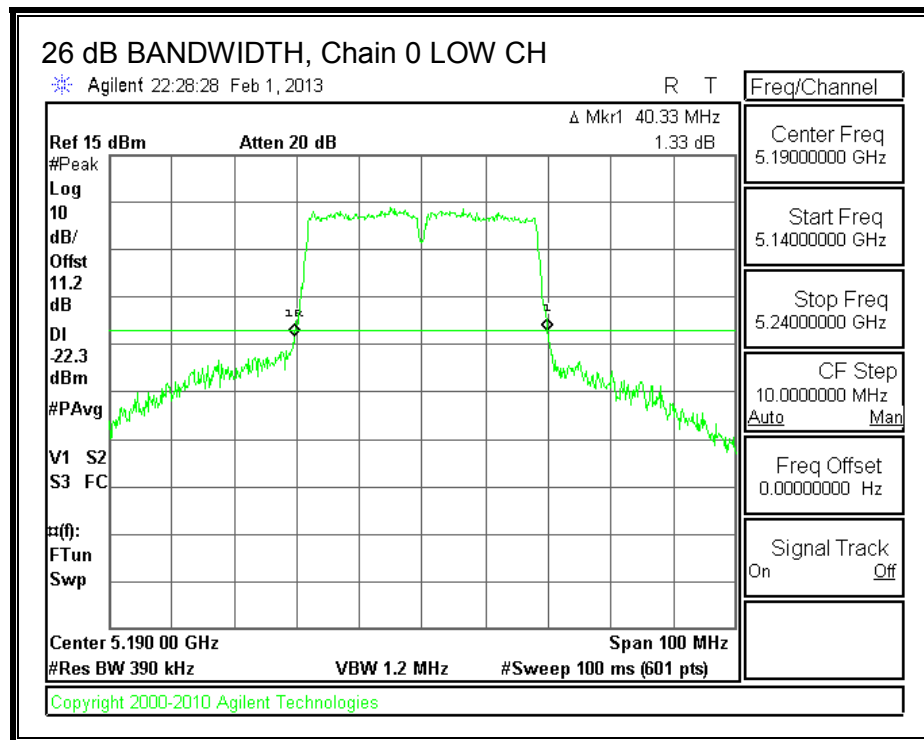
LIMITS

None; for reporting purposes only.

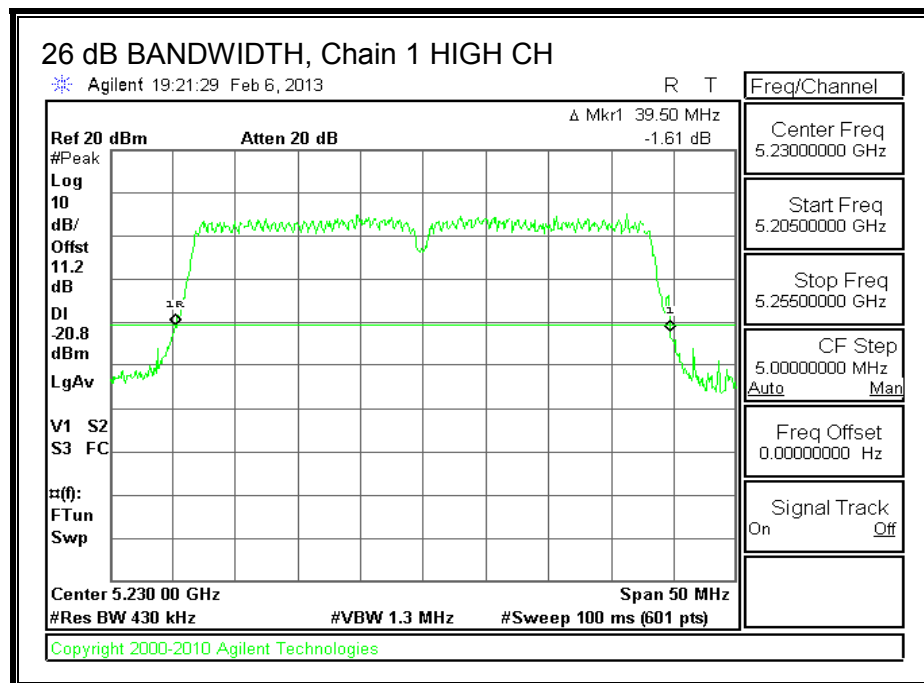
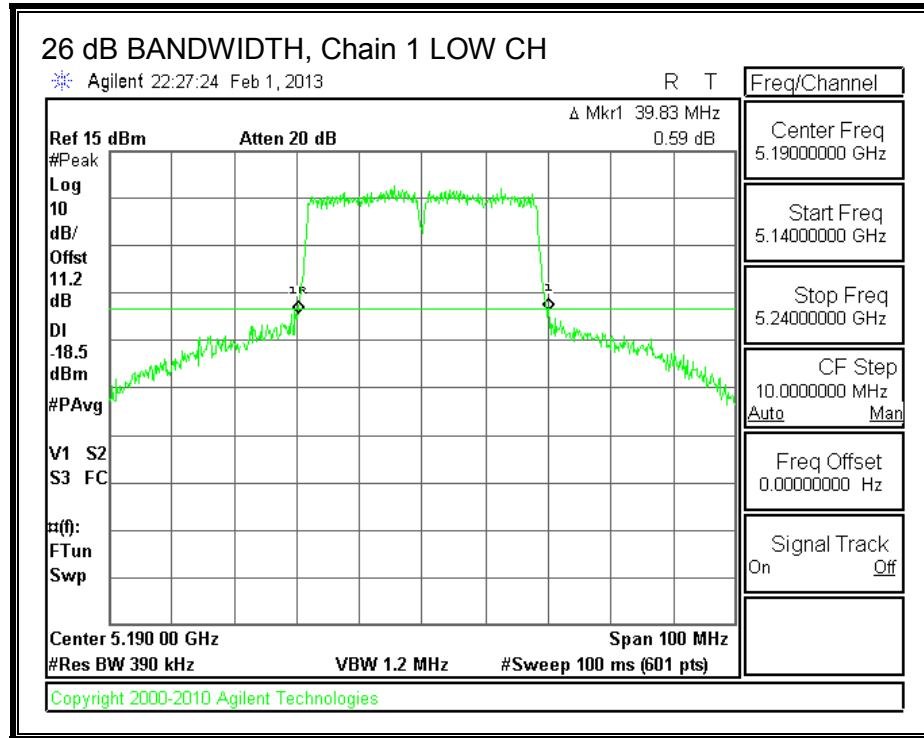
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5190	40.33	39.83
High	5230	40.00	39.50

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.6.2. 99% BANDWIDTH

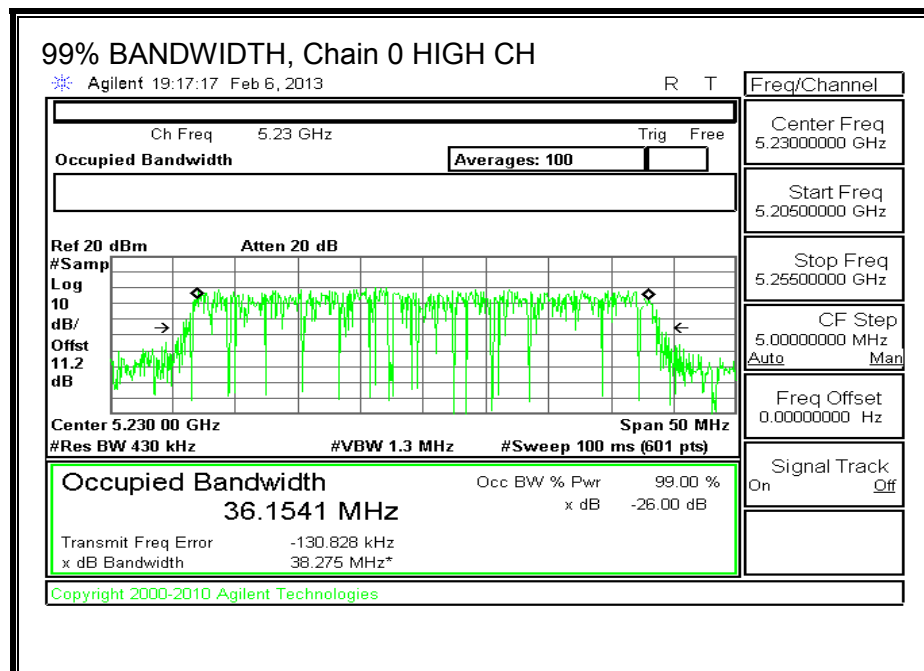
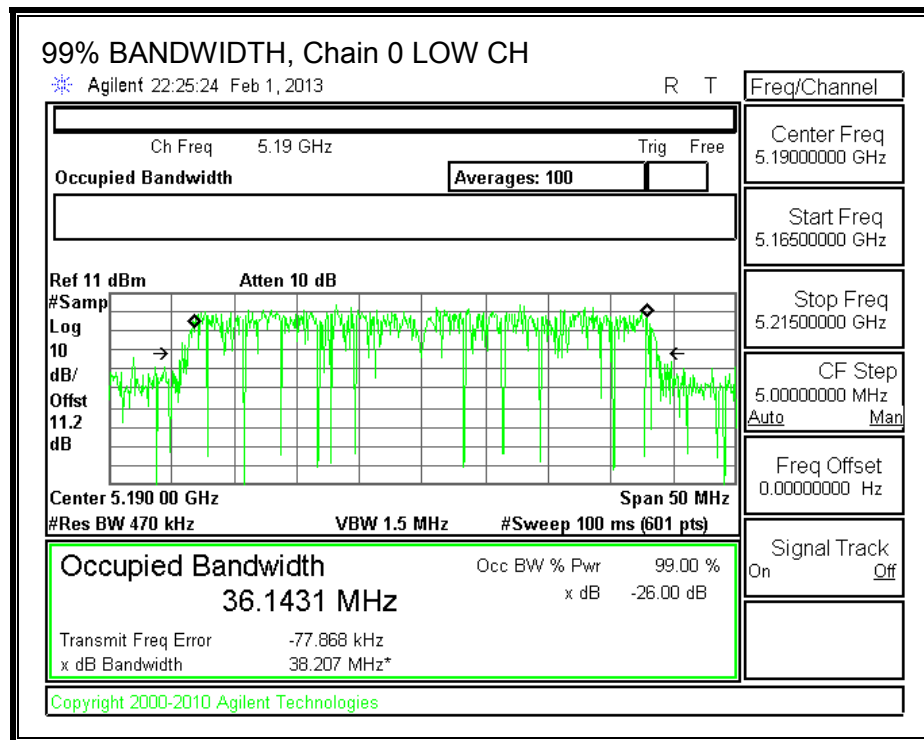
LIMITS

None; for reporting purposes only.

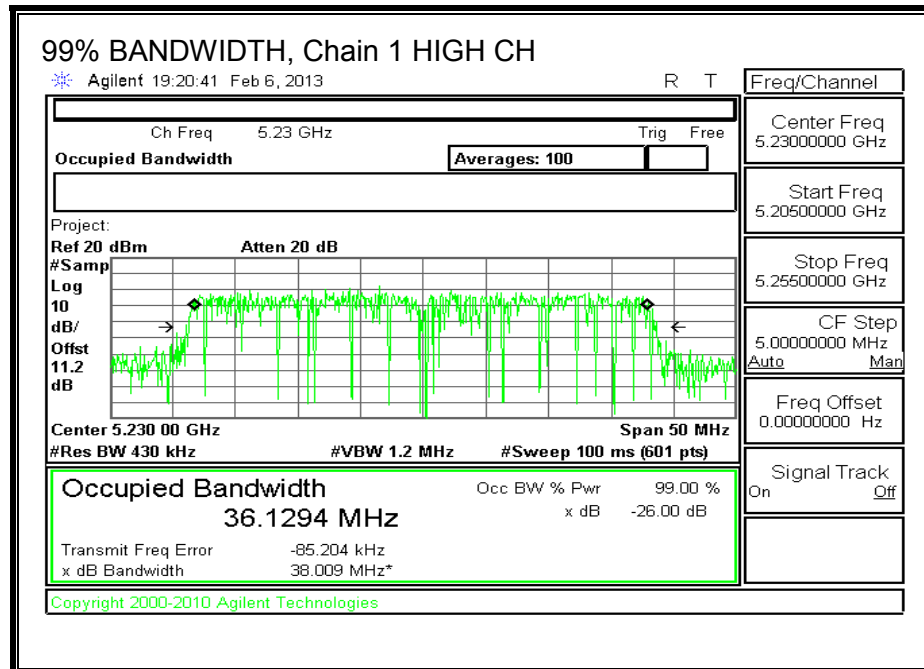
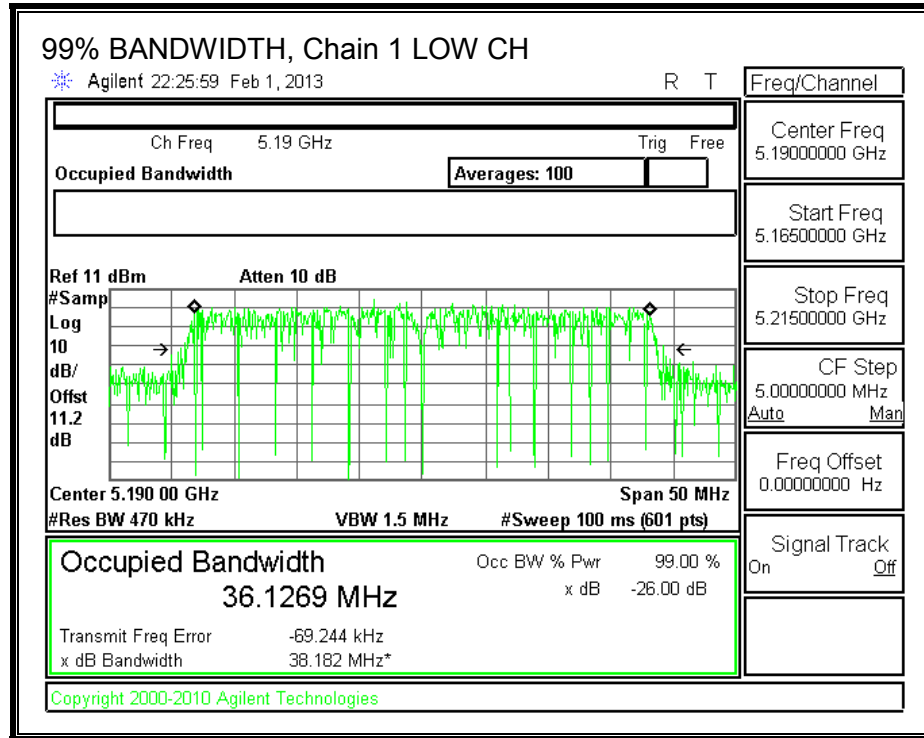
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5190	36.1431	36.1269
High	5230	36.1541	36.1294

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.6.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (1)

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

IC RSS-210 A9.2 (1)

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

DIRECTIONAL ANTENNA GAIN

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

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Correlated Chains Directional Gain (dBi)
5.93	5.75	8.85

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5190	39.83	36.1269	8.85
High	5230	39.50	36.1294	8.85

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)	PSD Limit (dBm)
Low	5190	14.15	23.00	14.15	14.15	1.15	10.00	1.15
High	5230	14.15	23.00	14.15	14.15	1.15	10.00	1.15

Duty Cycle CF (dB)	0.22	Included in Calculations of PPSP
--------------------	------	----------------------------------

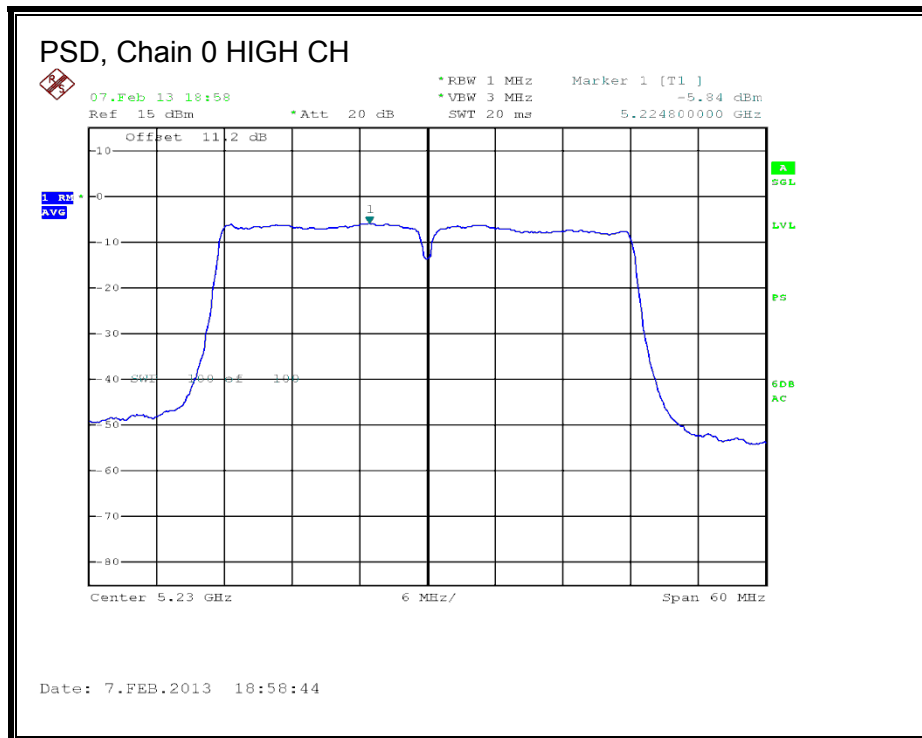
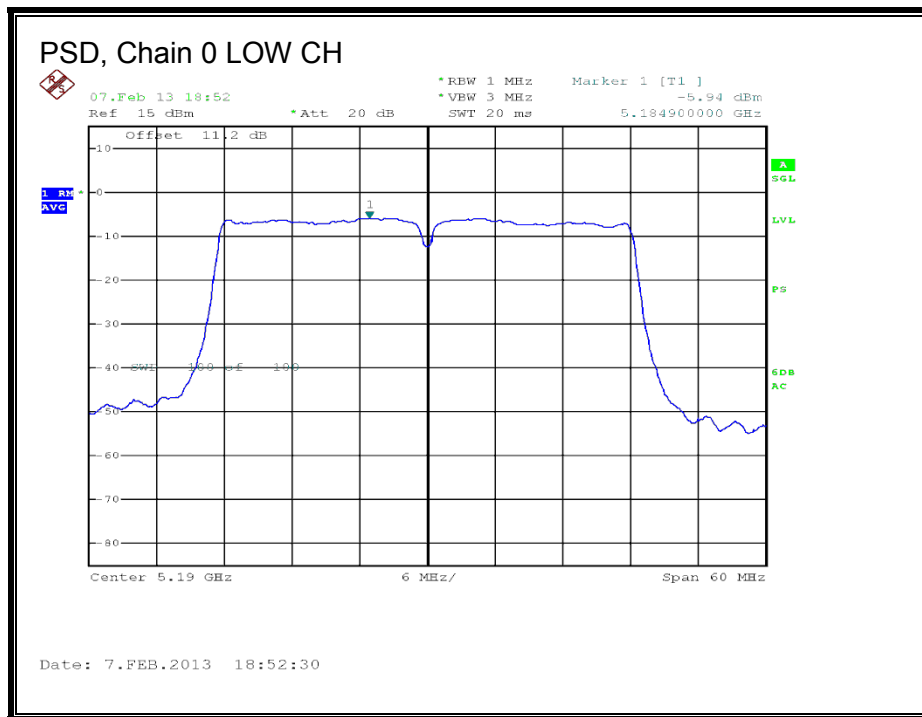
Output Power Results

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	11.13	11.02	14.09	14.15	-0.06
High	5230	11.16	11.05	14.12	14.15	-0.03

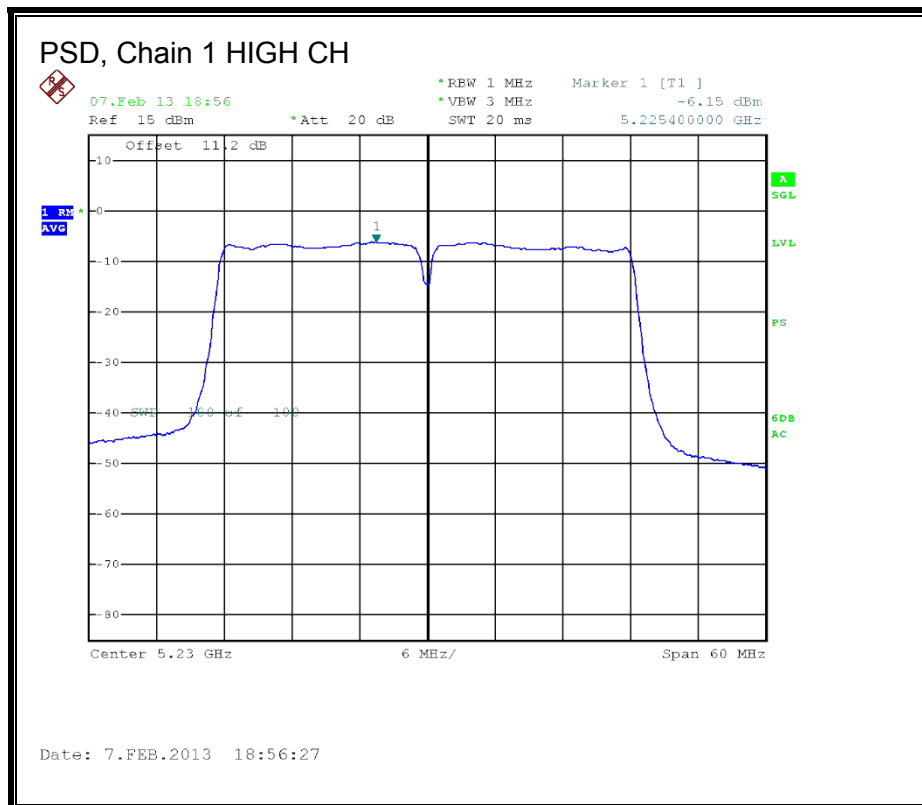
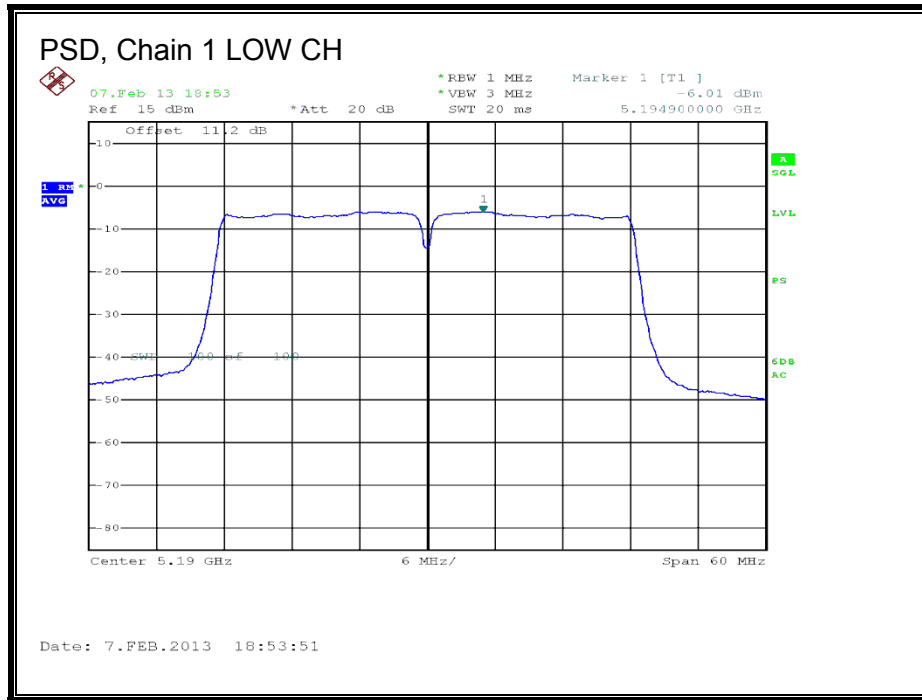
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5190	-5.94	-6.01	-2.74	1.15	-3.89
High	5230	-5.84	-6.15	-2.76	1.15	-3.91

PSD, Chain 0



PSD, Chain 1



8.7. 802.11n AC80 1TX MODE, 5.2 GHz BAND

8.7.1. 26 dB BANDWIDTH

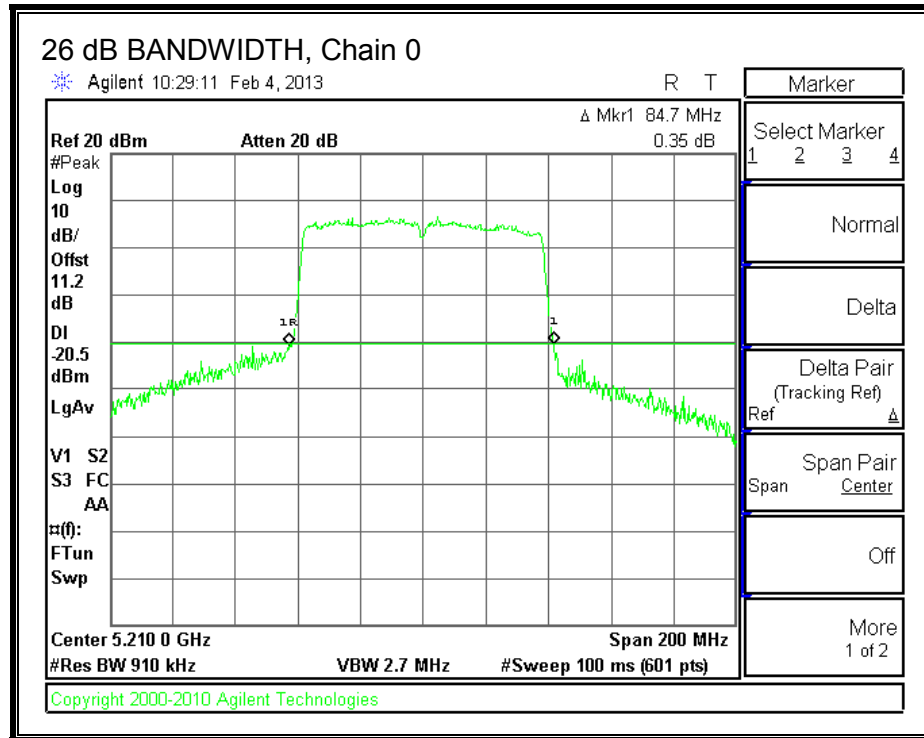
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)
Mid	5210	84.7

26 dB BANDWIDTH, Chain 0



8.7.2. 99% BANDWIDTH

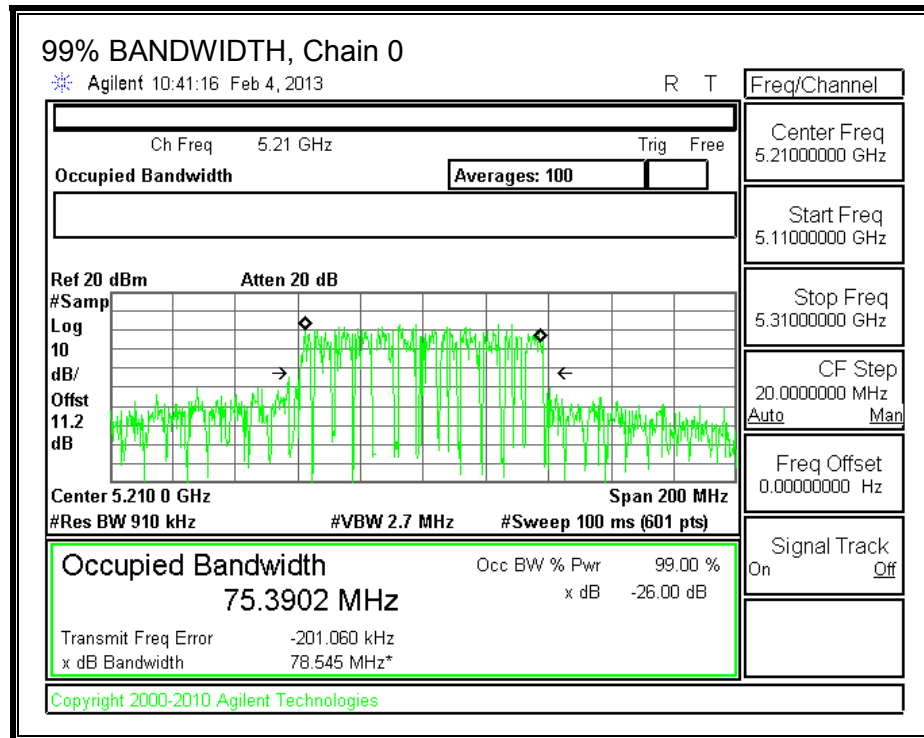
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)
Mid	5210	75.3902

99% BANDWIDTH, Chain 0



8.7.3. OUTPUT POWER AND PSD

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)
Mid	5210	84.7	75.3902	5.93

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)	PSD Limit (dBm)
Mid	5210	17.00	23.00	17.07	17.00	4.00	10.00	4.00

Duty Cycle CF (dB)	0.15
--------------------	------

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5210	15.48	15.48	17.00	-1.52

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Mid	5210	-3.26	-3.11	4.00	-7.11

PSD, Chain 0



8.8. 802.11n AC80 CDD 2TX MODE, 5.2 GHz BAND

8.8.1. 26 dB BANDWIDTH

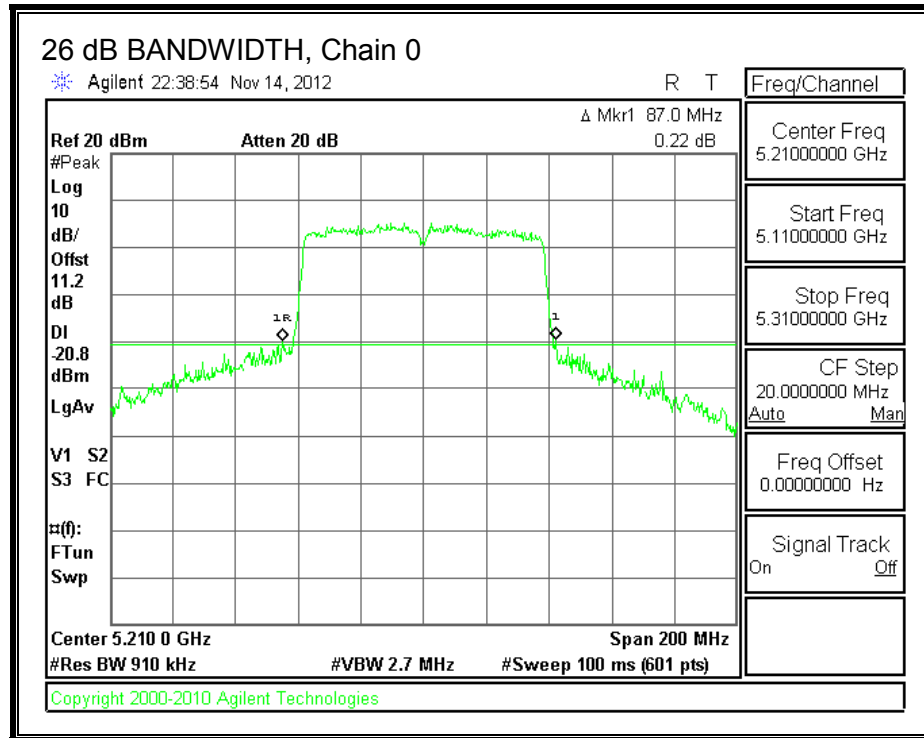
LIMITS

None; for reporting purposes only.

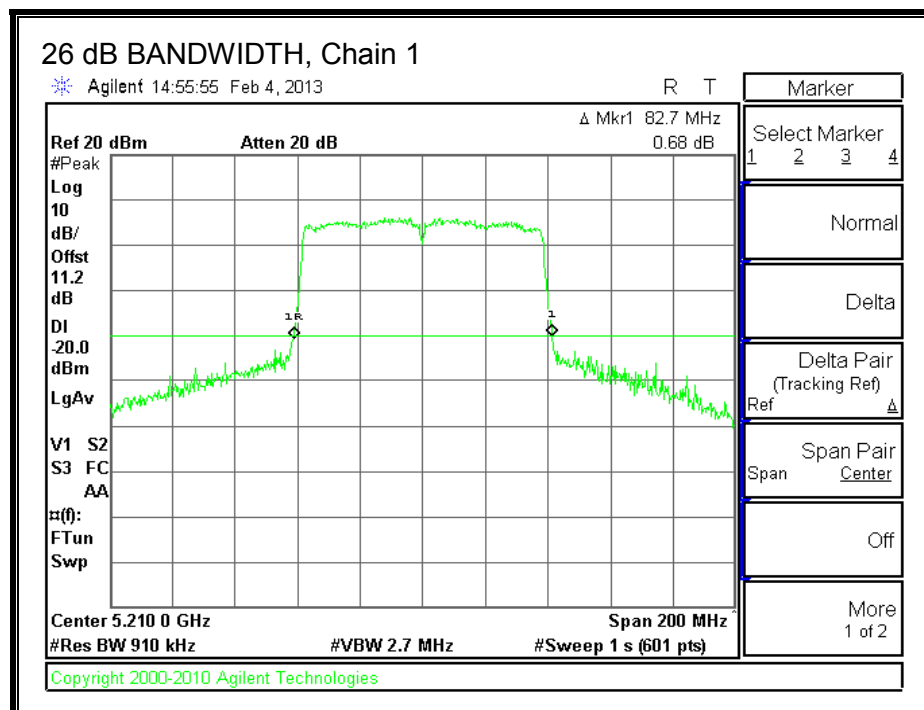
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Mid	5210	87.0	82.7

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.8.2. 99% BANDWIDTH

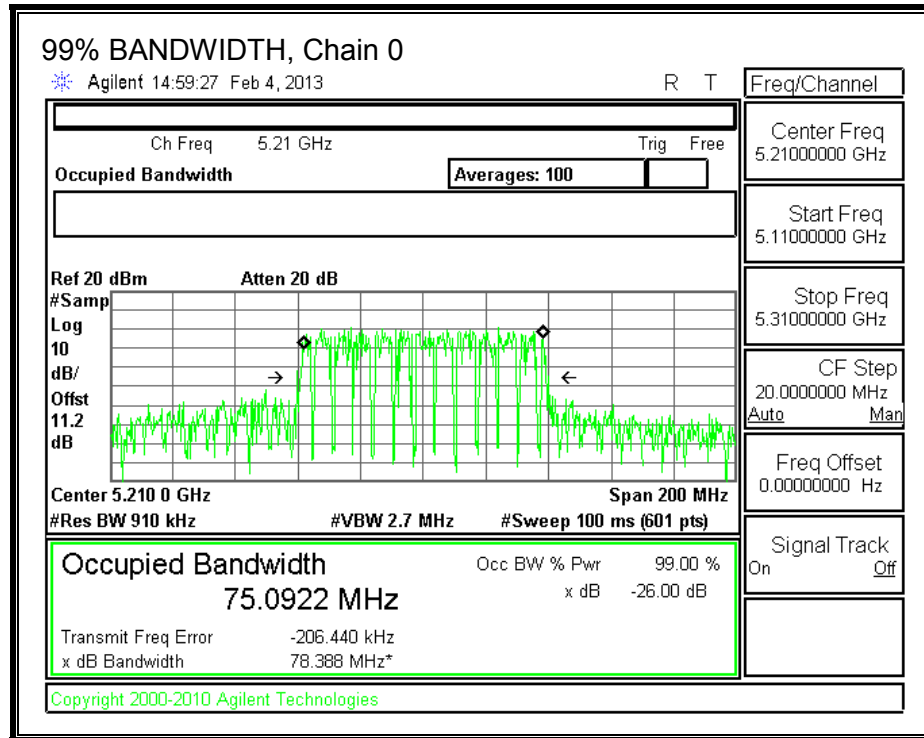
LIMITS

None; for reporting purposes only.

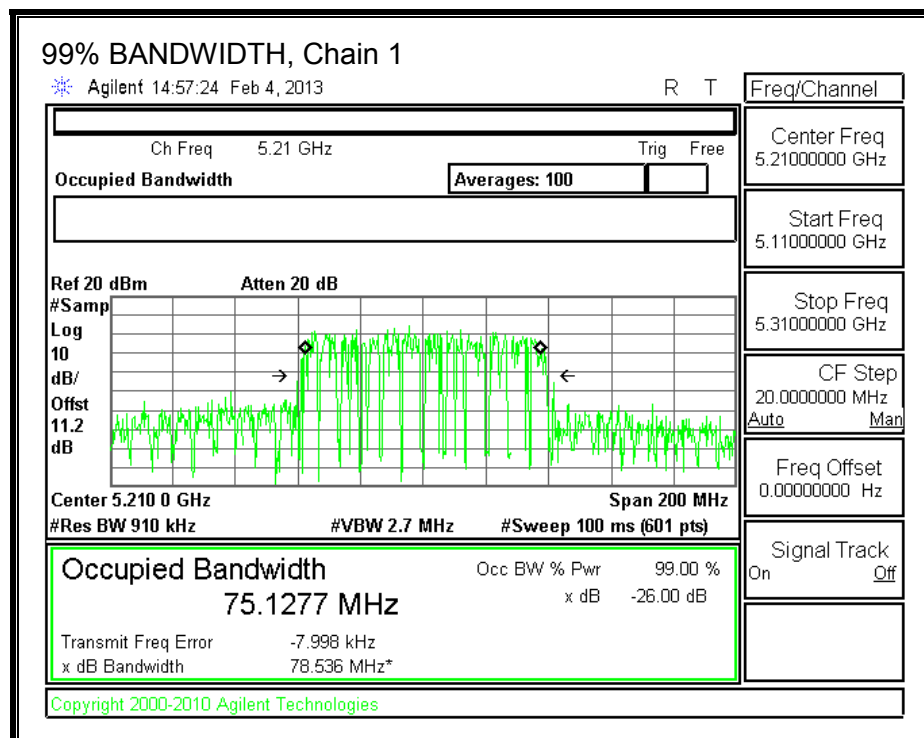
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Mid	5210	75.0922	75.1277

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.8.3. OUTPUT POWER AND PSD

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 unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
5.93	5.75	5.84

For PSD, 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)
5.93	5.75	8.85

OUTPUT POWER RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
MID	5210	82.70	75.0922	5.84

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)
MID	5210	17.00	23.00	17.16	17.00

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	13.80	14.10	16.96	17.00	-0.04

PSD RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
MID	5210	82.70	75.0922	8.85

Limits

Channel	Frequency (MHz)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PSD Limit (dBm)
MID	5210	1.15	10.00	1.15

Duty Cycle CF (dB)	0.17	Included in Calculations of PPSD
--------------------	------	----------------------------------

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
MID	5210	-6.41	-6.34	-3.19	1.15	-4.34

PSD, Chain 0



PSD, Chain 1



8.9. 802.11n AC80 BF 2TX MODE, 5.2 GHz BAND

8.9.1. 26 dB BANDWIDTH

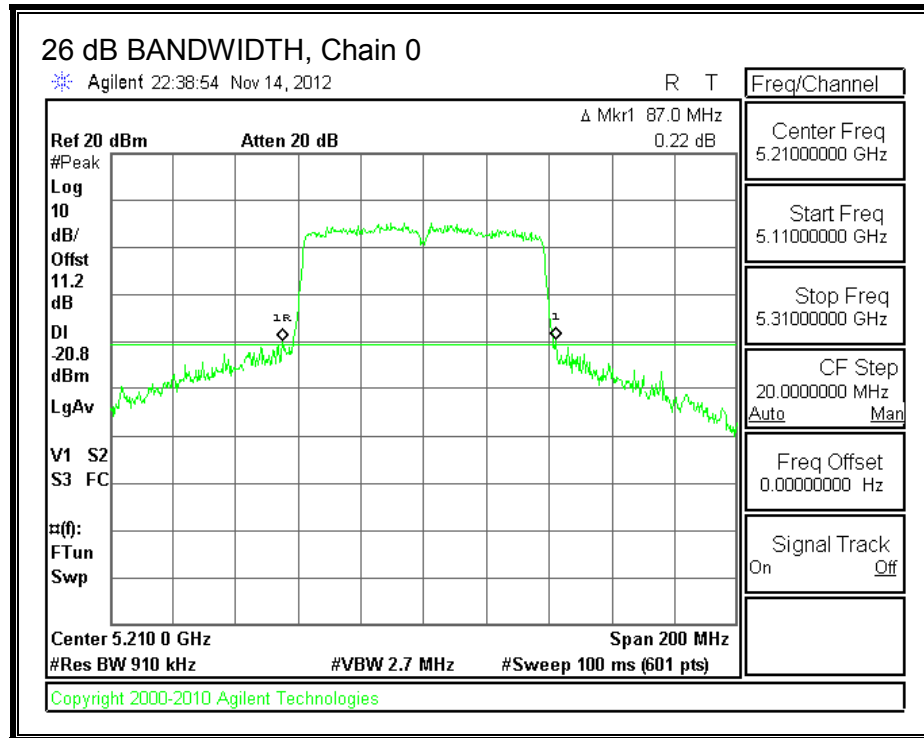
LIMITS

None; for reporting purposes only.

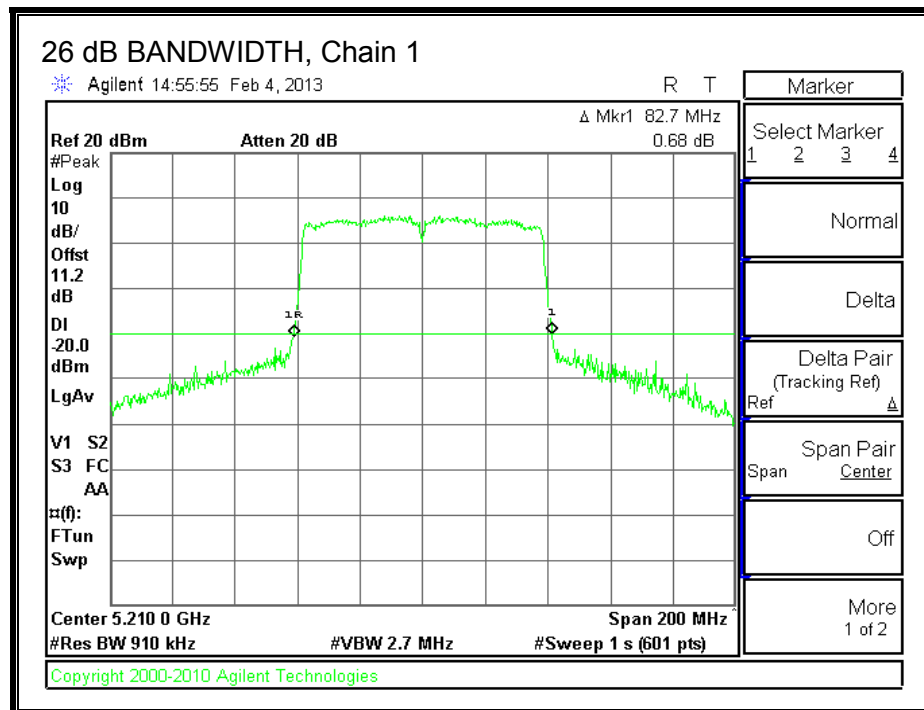
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Mid	5210	87.0	82.7

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.9.2. 99% BANDWIDTH

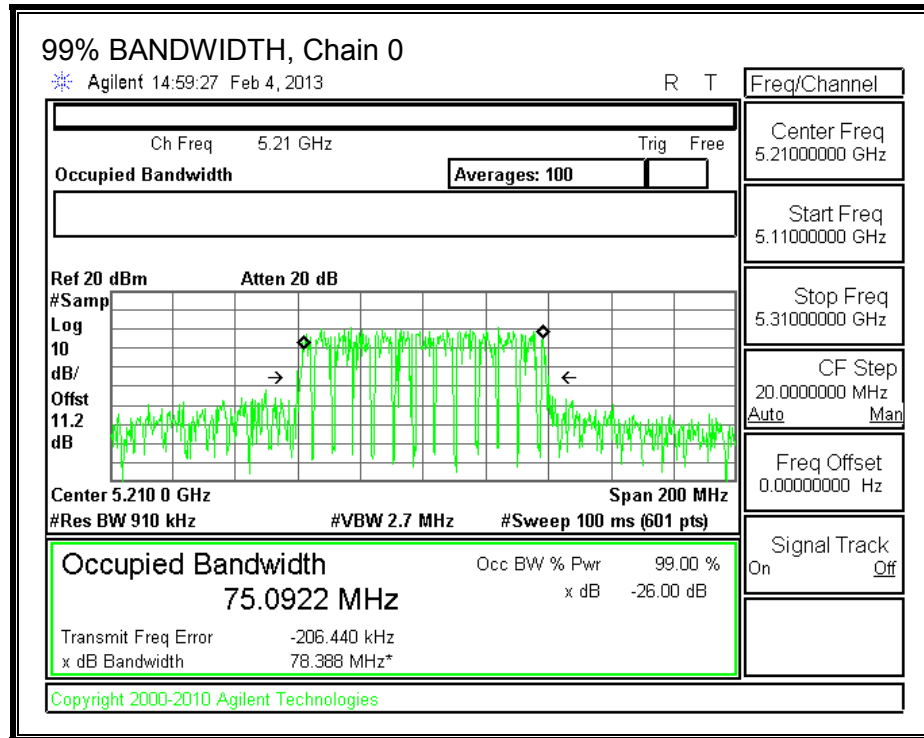
LIMITS

None; for reporting purposes only.

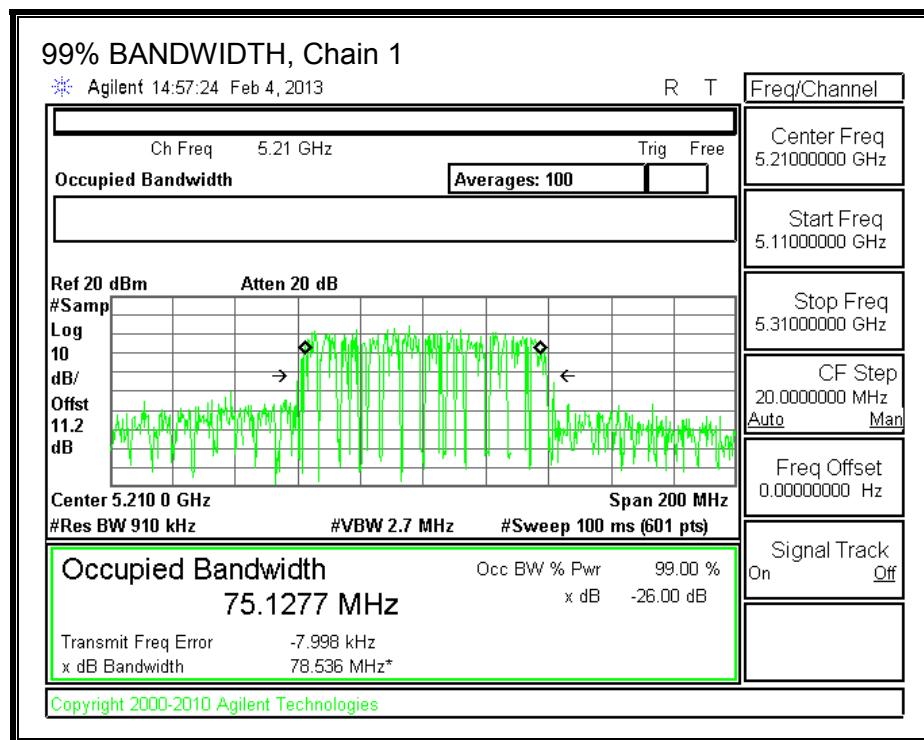
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Mid	5210	75.0922	75.1277

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.9.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (1)

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

IC RSS-210 A9.2 (1)

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

DIRECTIONAL ANTENNA GAIN

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

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Correlated Chains Directional Gain (dBi)
5.93	5.75	8.85

OUTPUT POWER RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Mid	5210	82.70	75.1277	8.85

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)	PSD Limit (dBm)
Mid	5210	14.15	23.00	14.15	14.15	1.15	10.00	1.15

Duty Cycle CF (dB)	0.17	
--------------------	------	--

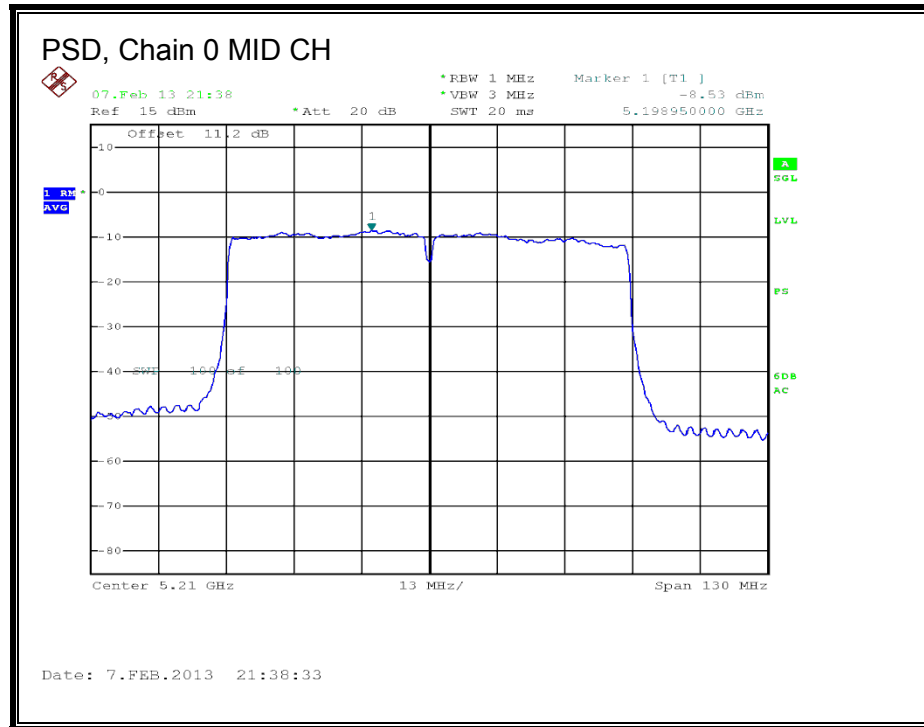
Output Power Results

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	11.04	11.06	14.06	14.15	-0.09

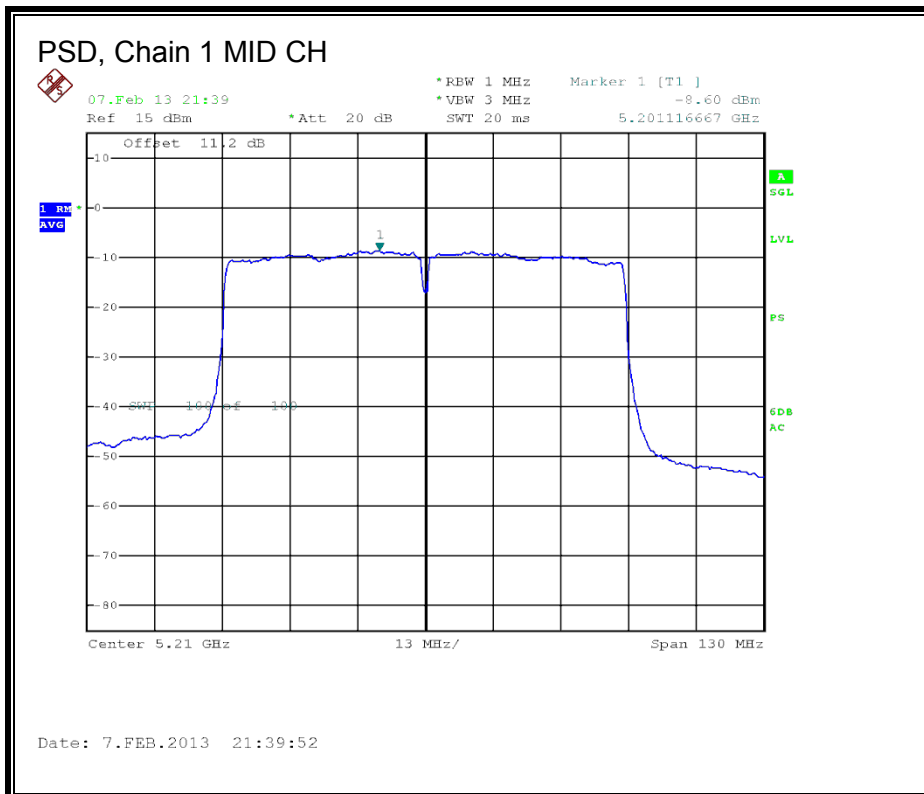
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Mid	5210	-8.53	-8.60	-5.38	1.15	-6.53

PSD, Chain 0



PSD, Chain 1



8.10. 802.11a LEGACY 1TX MODE, 5.3 GHz BAND

8.10.1. 26 dB BANDWIDTH

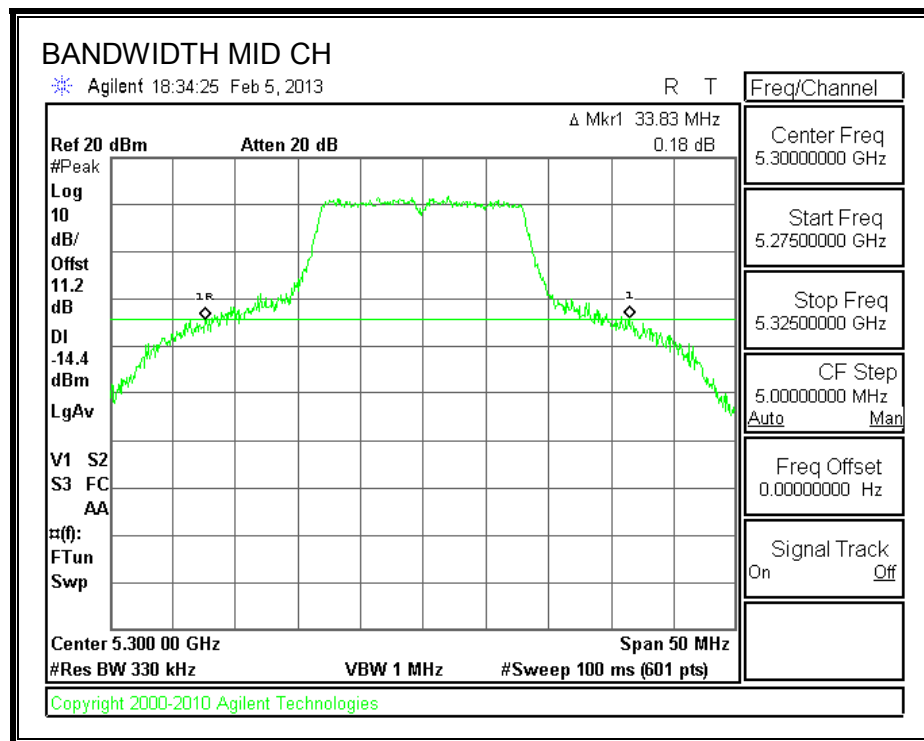
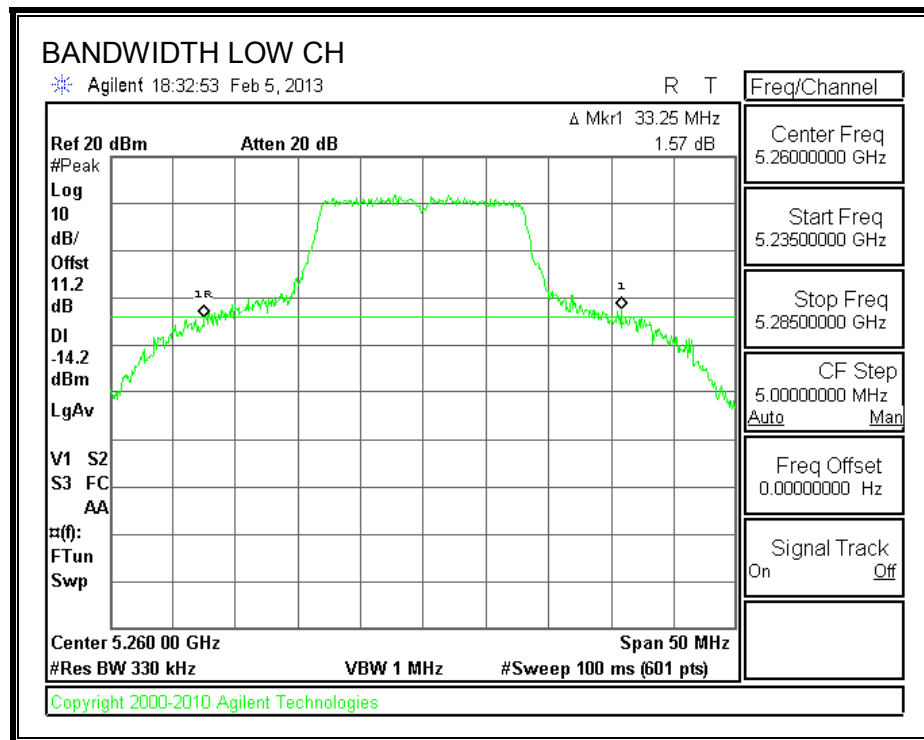
LIMITS

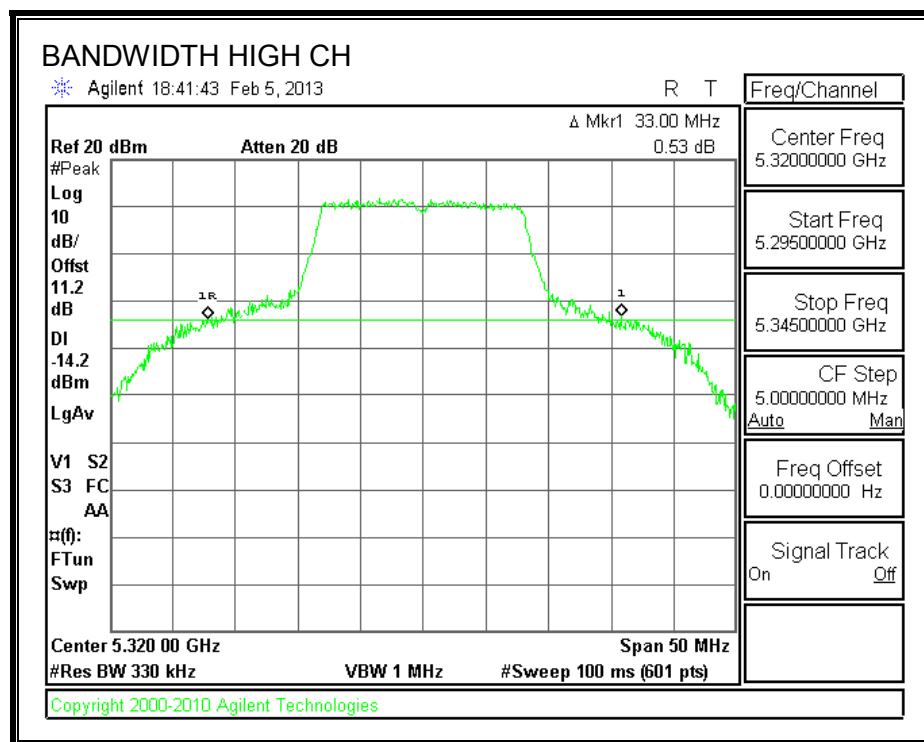
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	33.25
Mid	5300	33.83
High	5320	33.00

26 dB BANDWIDTH





8.10.2. 99% BANDWIDTH

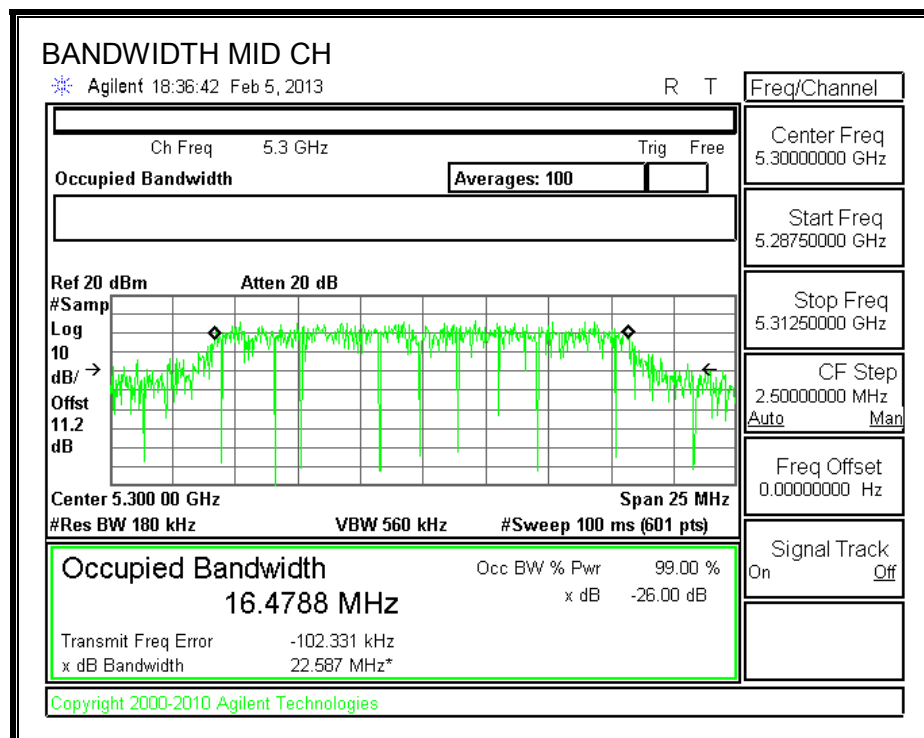
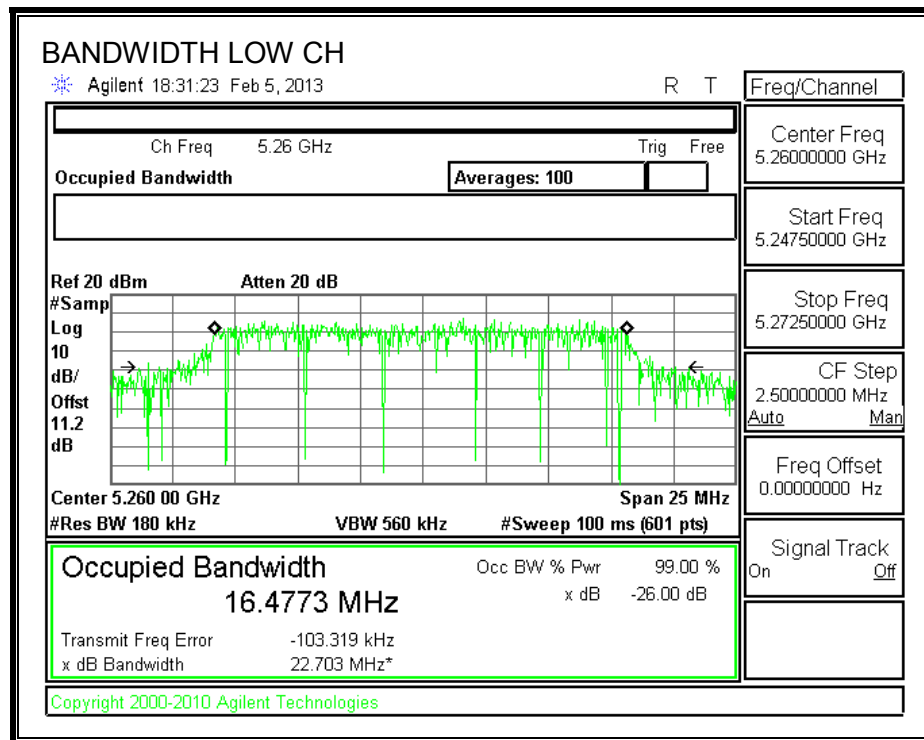
LIMITS

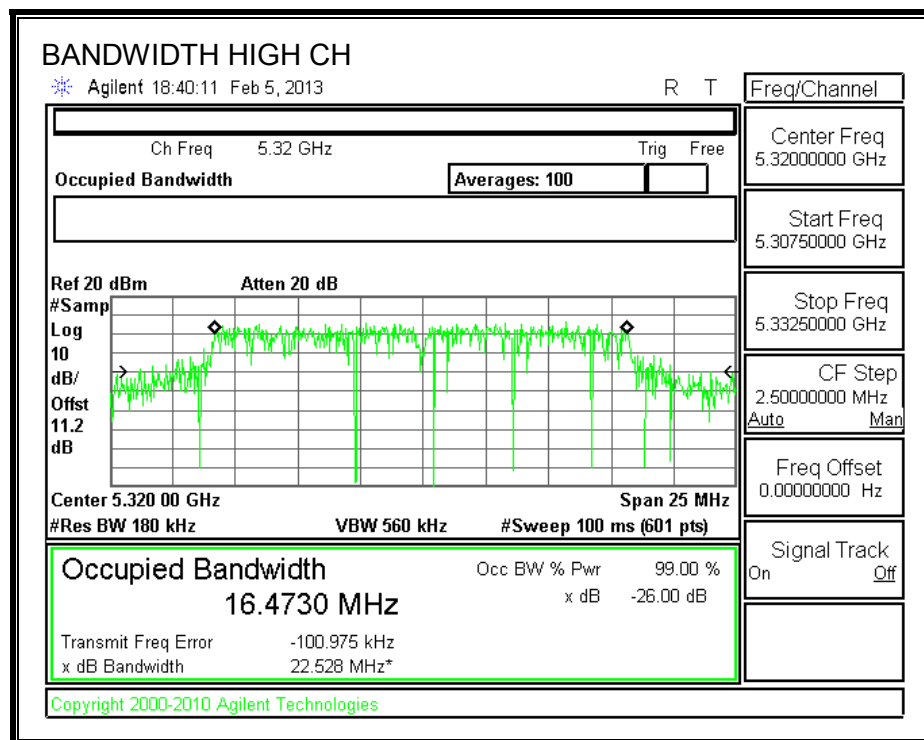
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	16.4773
Mid	5300	16.4788
High	5320	16.4730

99% BANDWIDTH





8.10.3. OUTPUT POWER AND PSD

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	33.25	16.4773	6.12
Mid	5300	33.83	16.4788	6.12
High	5320	33.00	16.4730	6.12

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Low	5260	23.88	23.17	29.17	23.05	10.88	11.00	10.88
Mid	5300	23.88	23.17	29.17	23.05	10.88	11.00	10.88
High	5320	23.88	23.17	29.17	23.05	10.88	11.00	10.88

Duty Cycle CF (dB)	0.00	
--------------------	------	--

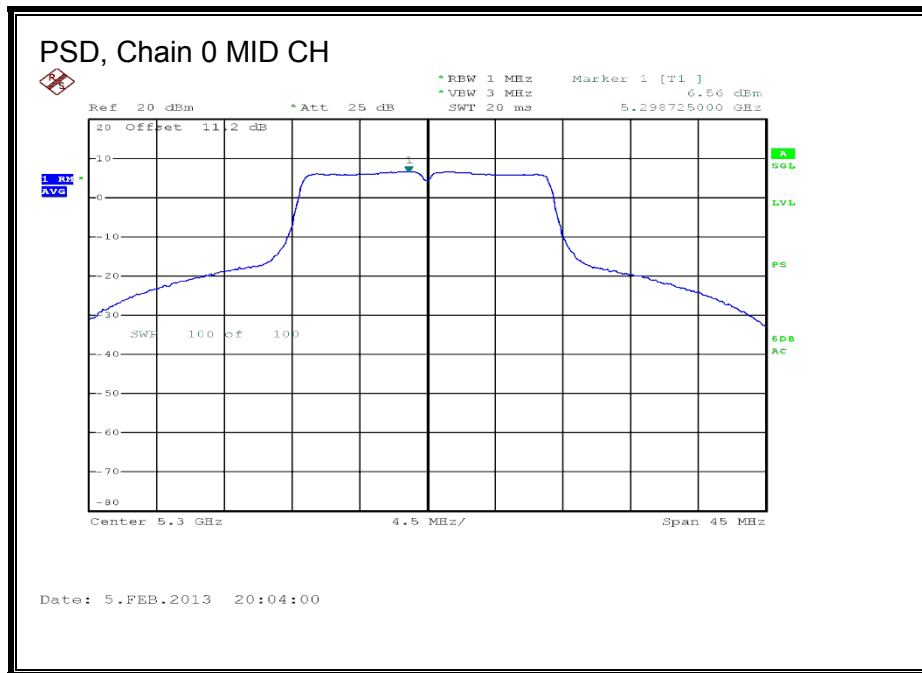
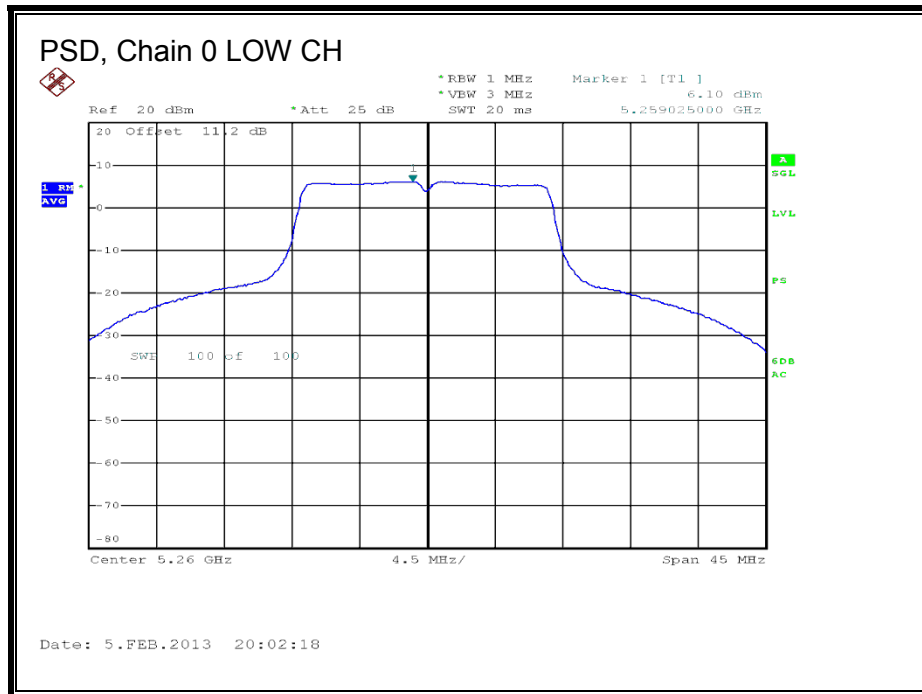
Output Power Results

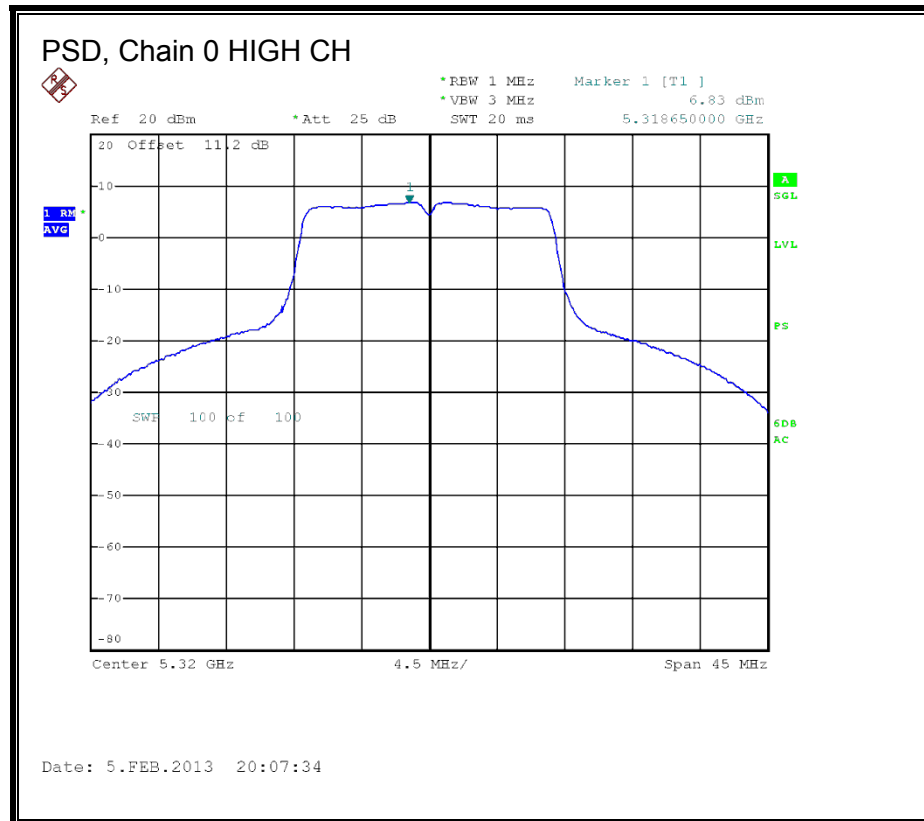
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	20.12	20.12	23.05	-2.93
Mid	5300	20.03	20.03	23.05	-3.02
High	5320	20.16	20.16	23.05	-2.89

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5260	6.10	6.10	10.88	-4.78
Mid	5300	6.56	6.56	10.88	-4.32
High	5320	6.83	6.83	10.88	-4.05

PSD, Chain 0





8.11. 802.11n HT20 CDD 2TX MODE, 5.3 GHz BAND

8.11.1. 26 dB BANDWIDTH

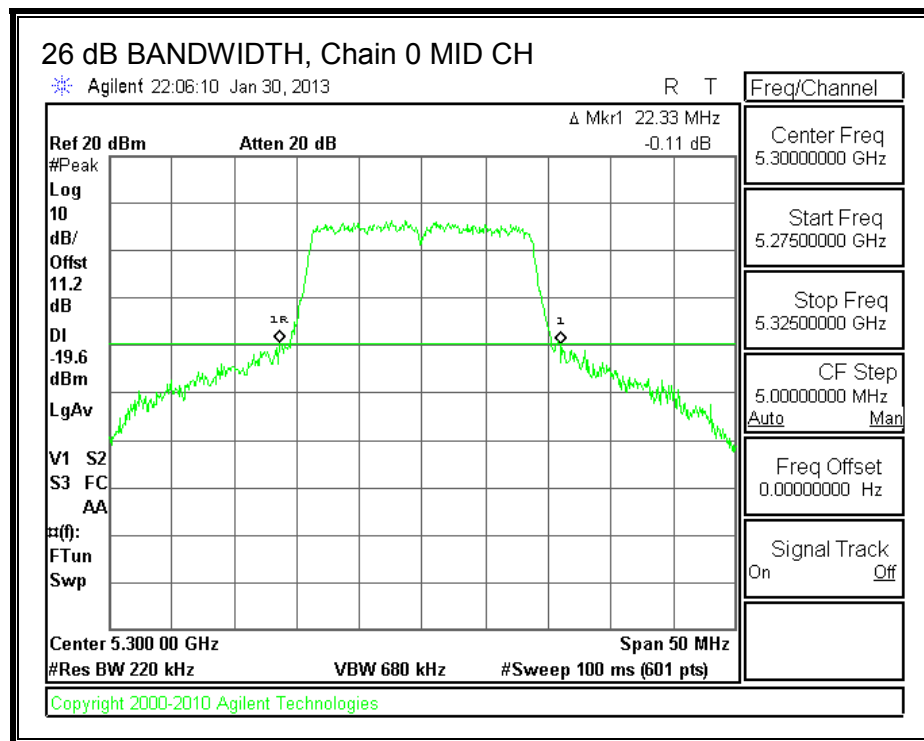
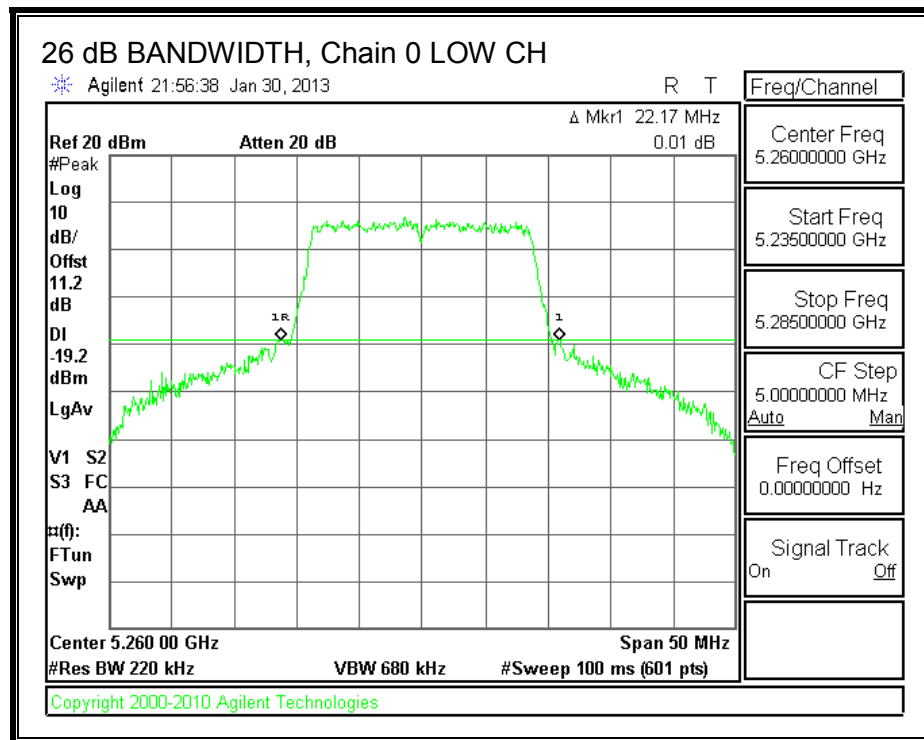
LIMITS

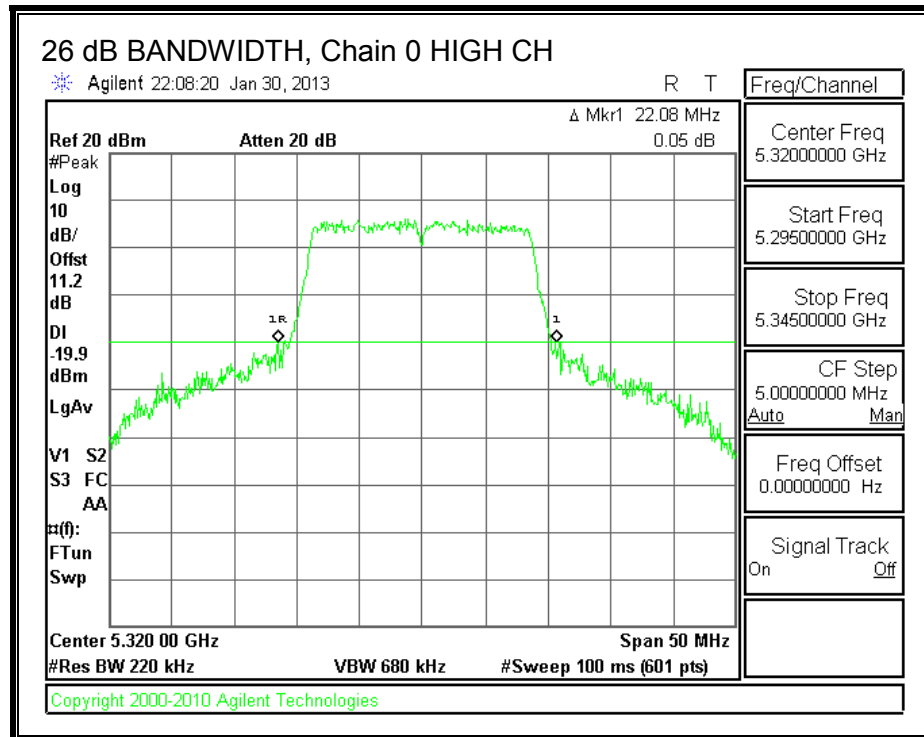
None; for reporting purposes only.

RESULTS

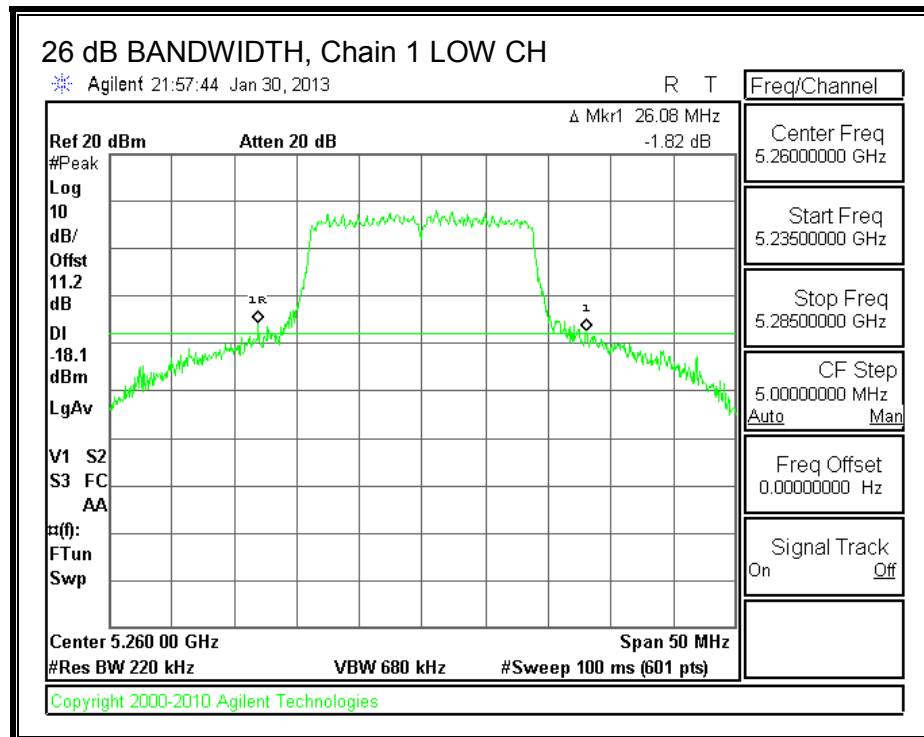
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5260	22.17	26.08
Mid	5300	22.33	25.67
High	5320	22.08	25.25

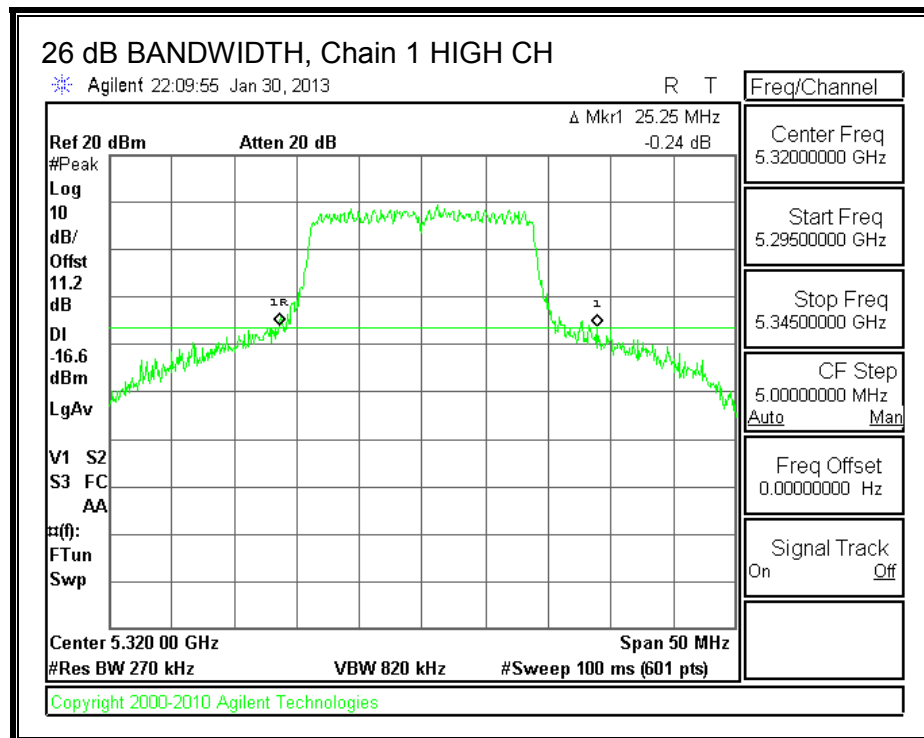
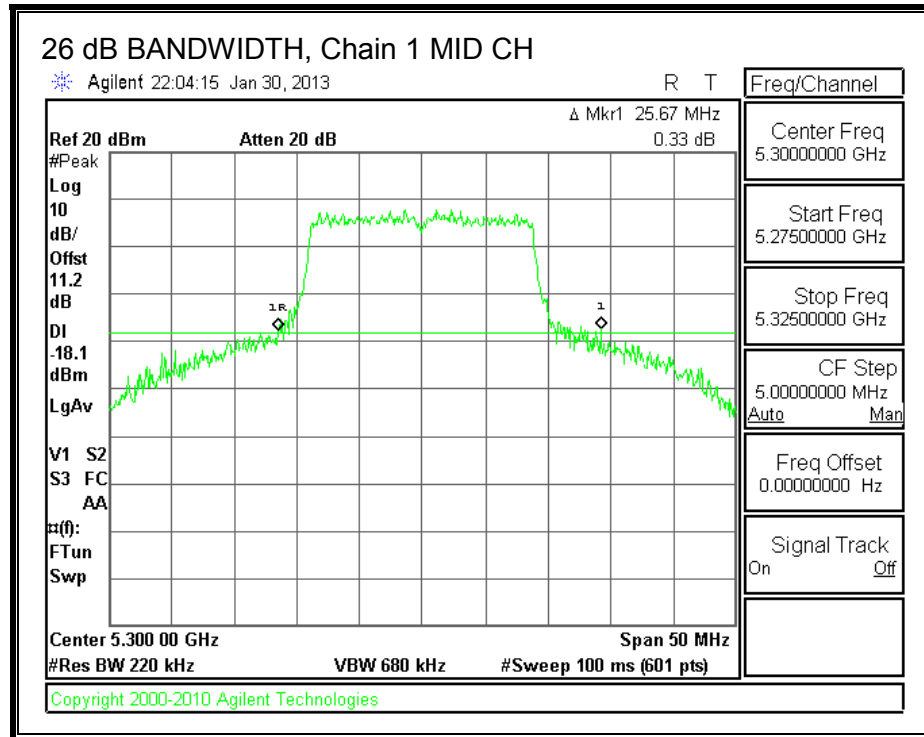
26 dB BANDWIDTH, Chain 0





26 dB BANDWIDTH, Chain 1





8.11.2. 99% BANDWIDTH

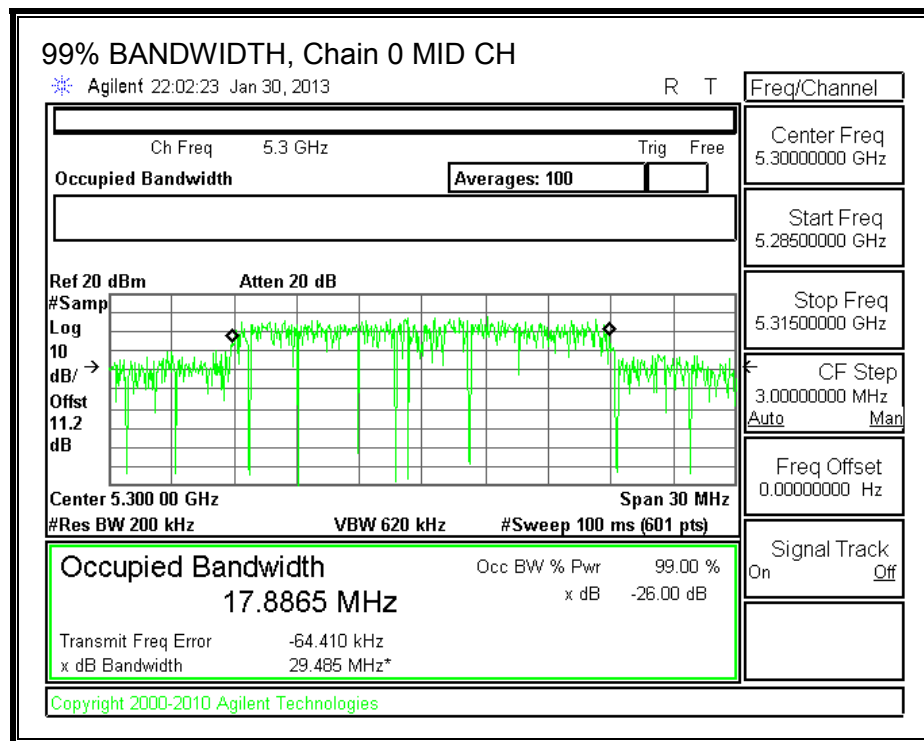
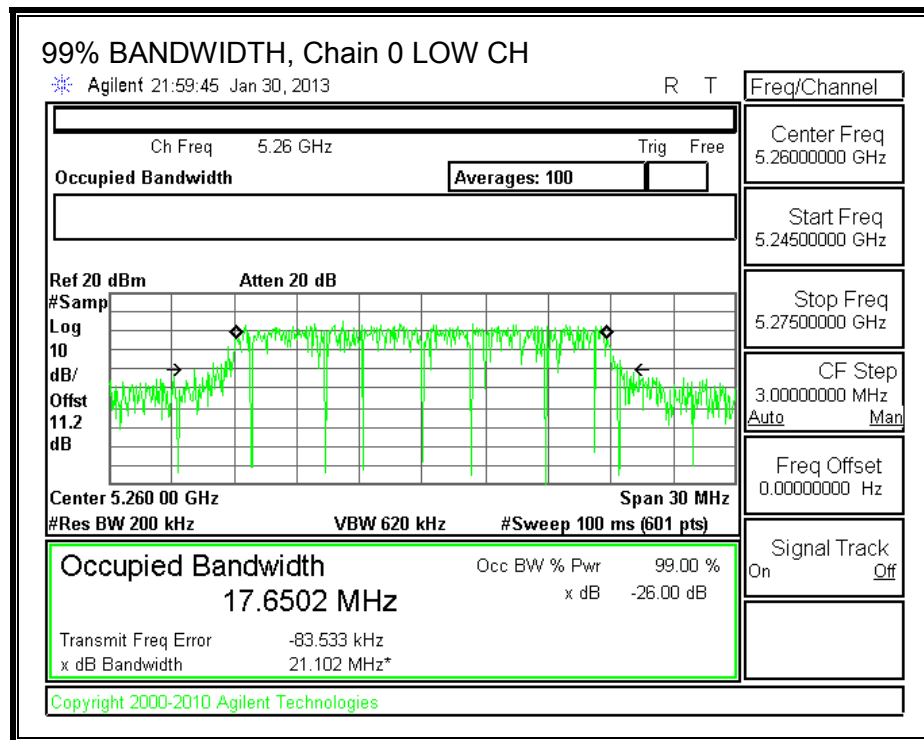
LIMITS

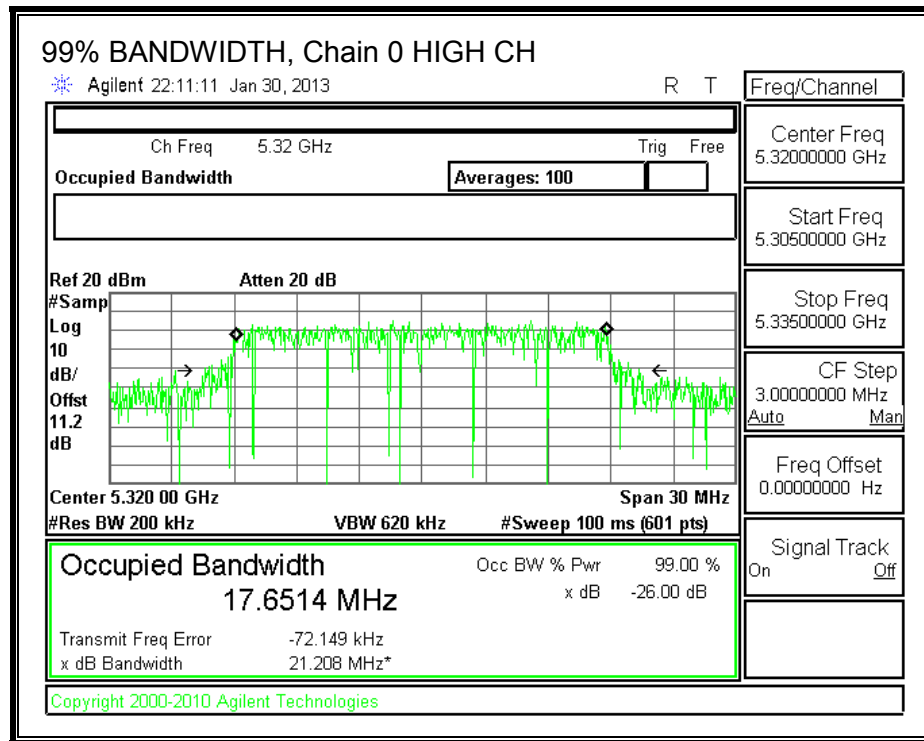
None; for reporting purposes only.

RESULTS

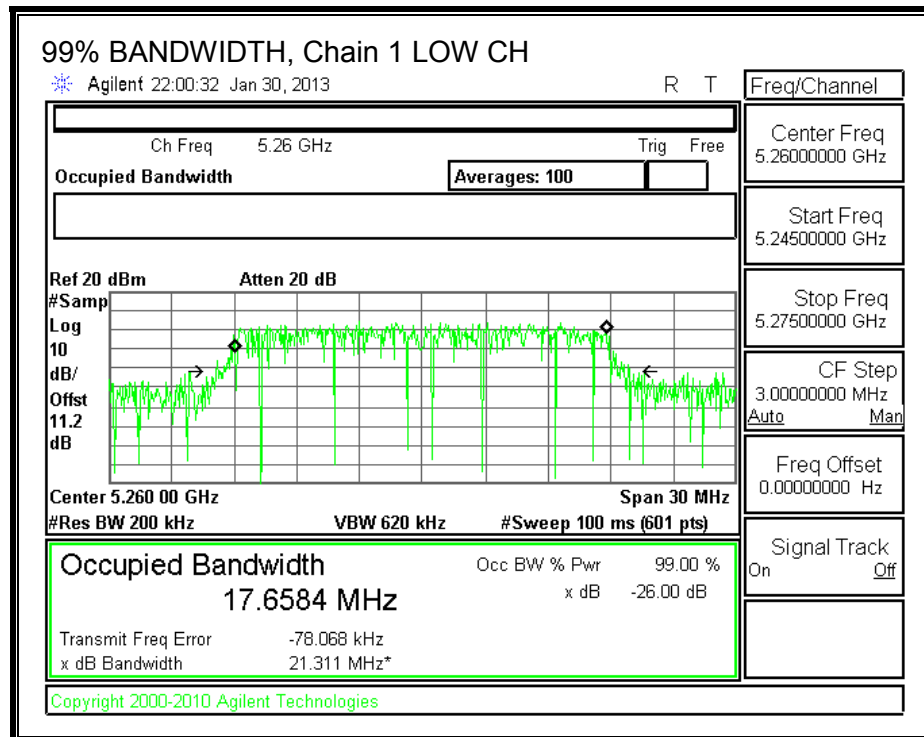
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5260	17.6502	17.6584
Mid	5300	17.8865	17.8522
High	5320	17.6514	17.6585

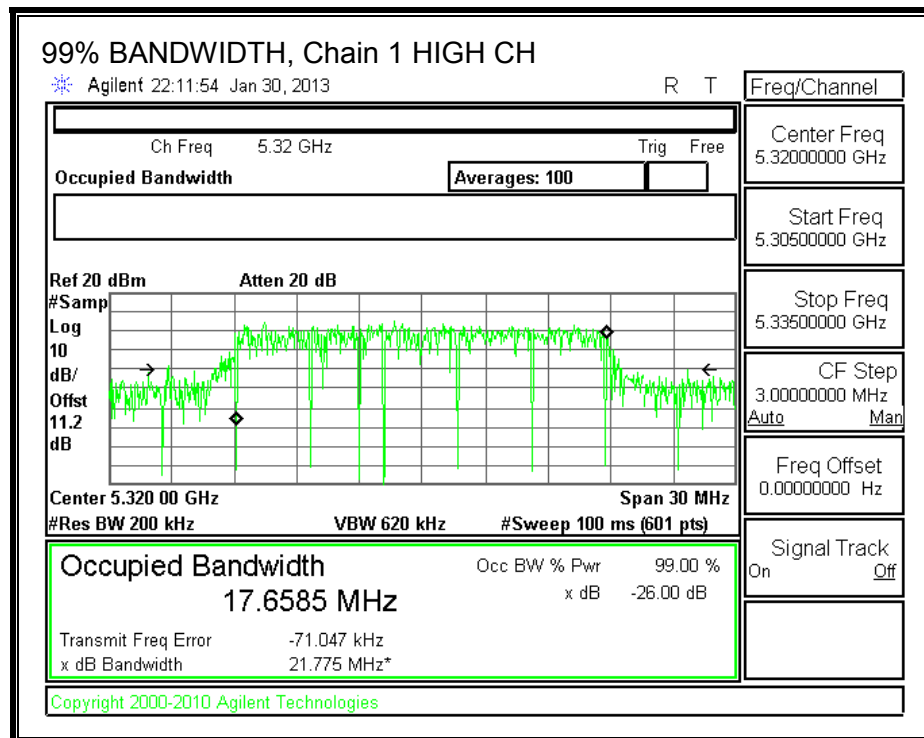
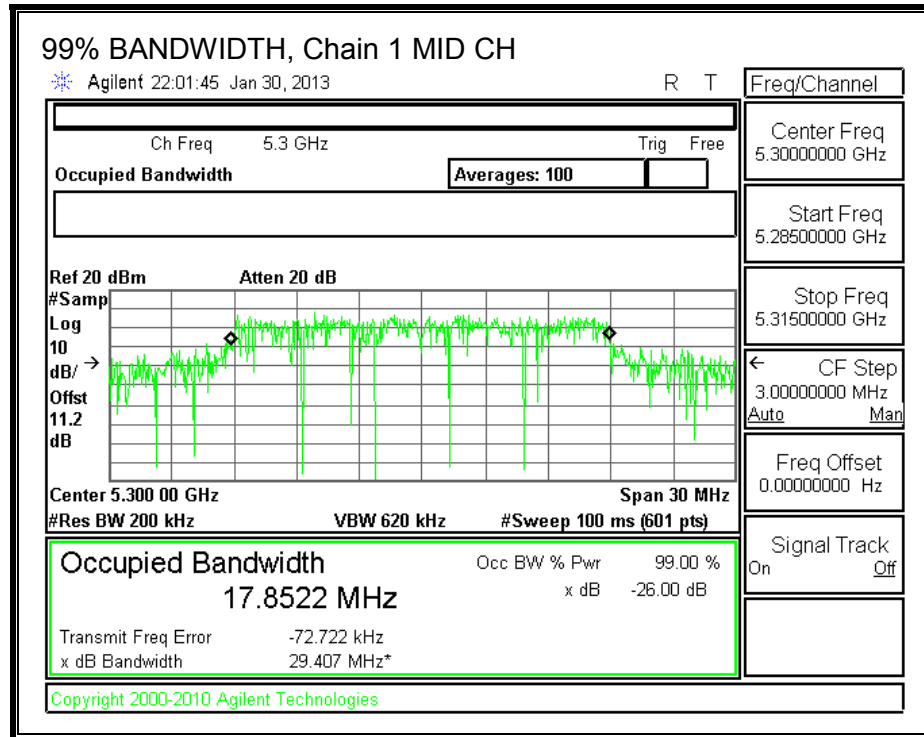
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.11.3. OUTPUT POWER AND PSD

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 unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
6.12	5.57	5.85

For PSD, 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)
6.12	5.57	8.86

OUTPUT POWER RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	22.17	17.6502	5.85
Mid	5300	22.33	17.8522	5.85
High	5320	22.08	17.6514	5.85

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)
Low	5260	24.00	23.47	29.47	23.47
Mid	5300	24.00	23.52	29.52	23.52
High	5320	24.00	23.47	29.47	23.47

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	19.08	19.01	22.06	23.47	-1.41
Mid	5300	18.91	18.85	21.89	23.52	-1.63
High	5320	18.71	18.42	21.58	23.47	-1.89

PSD RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	22.17	17.6502	8.86
Mid	5300	22.33	17.8522	8.86
High	5320	22.08	17.6514	8.86

Limits

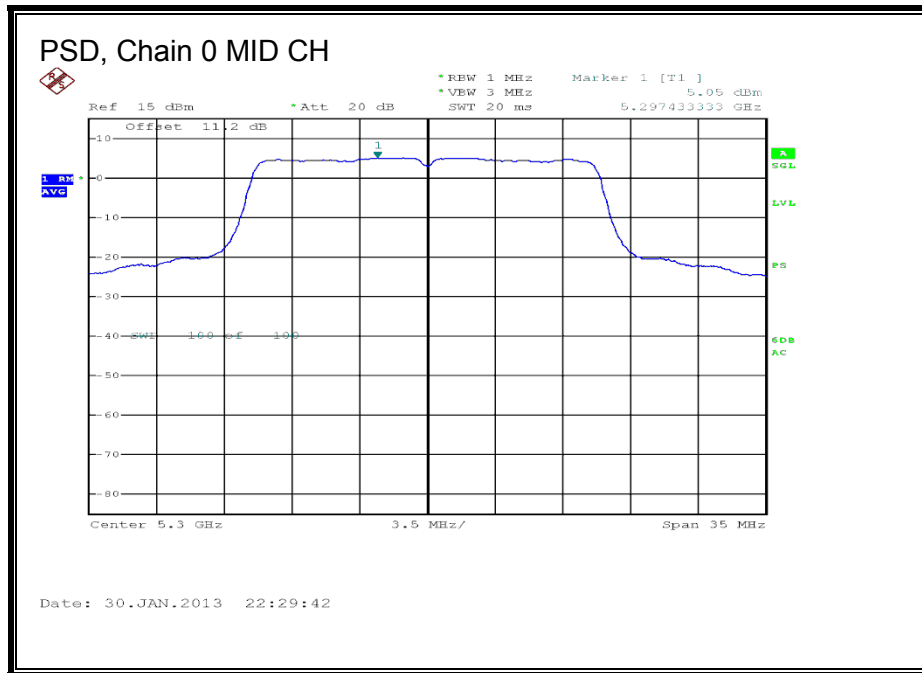
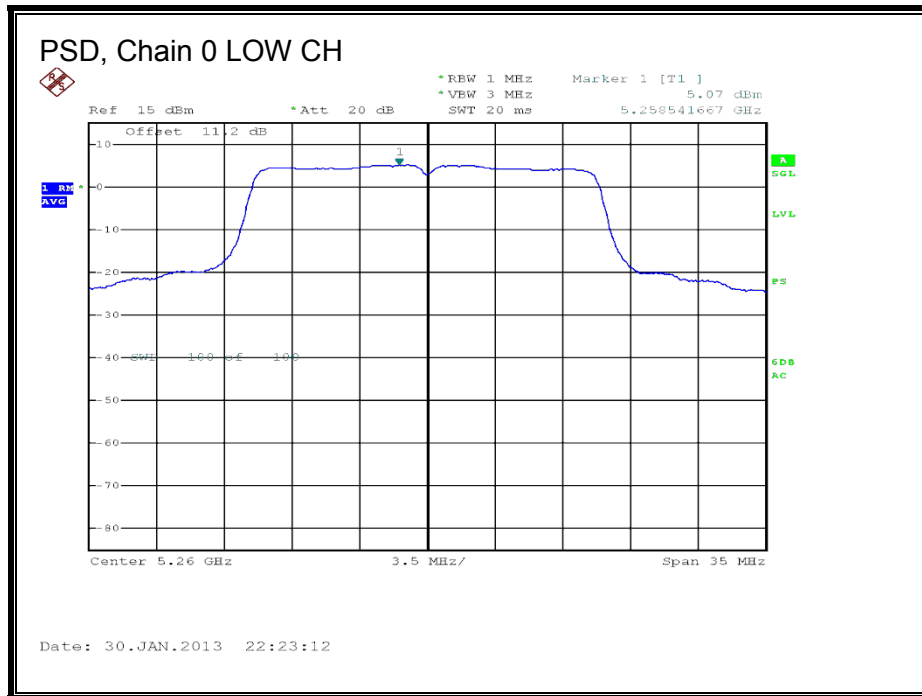
Channel	Frequency (MHz)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Low	5260	8.14	11.00	8.14
Mid	5300	8.14	11.00	8.14
High	5320	8.14	11.00	8.14

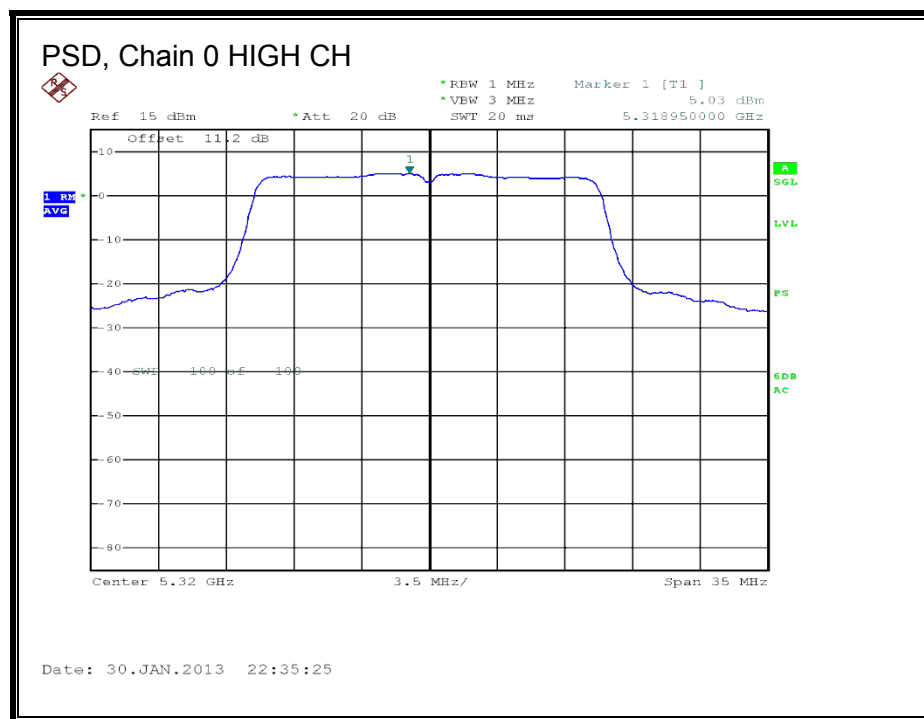
Duty Cycle CF (dB)	0.00
---------------------------	------

PSD Results

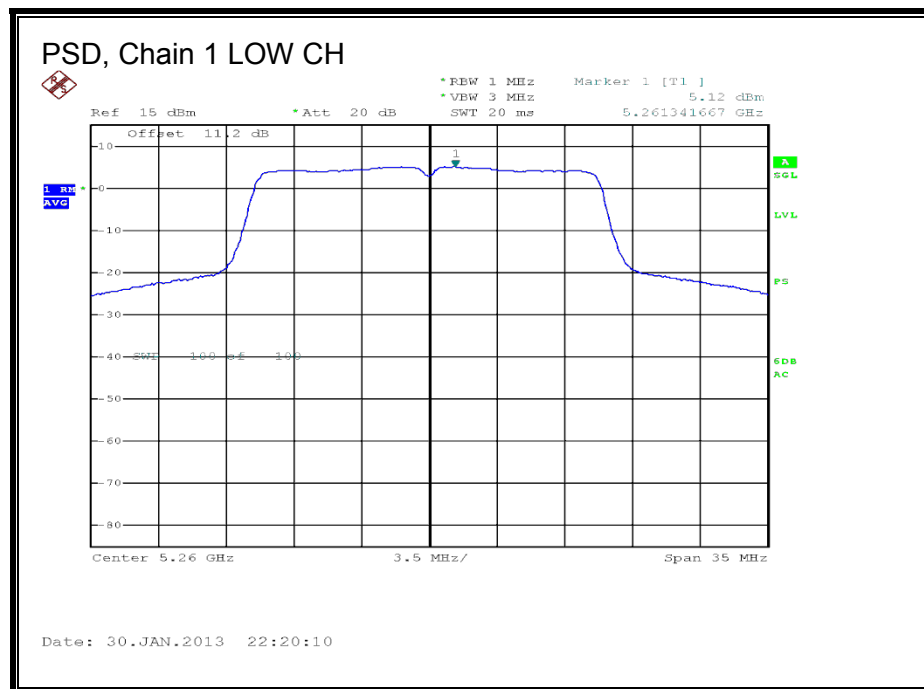
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5260	5.07	5.12	8.11	8.14	-0.03
Mid	5300	5.05	5.07	8.07	8.14	-0.07
High	5320	5.03	4.96	8.01	8.14	-0.13

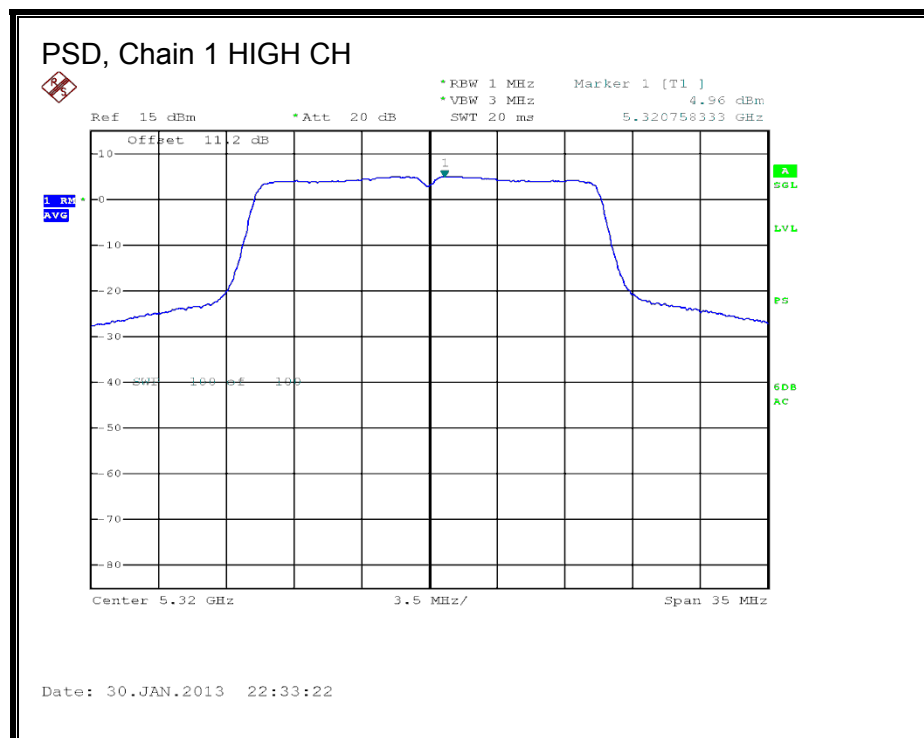
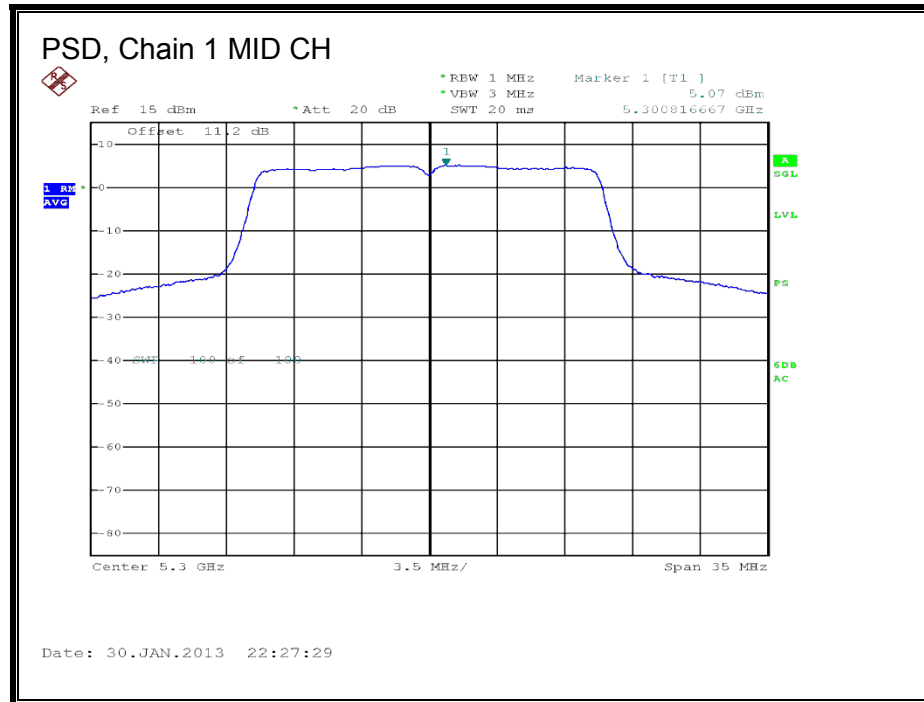
PSD, Chain 0





PSD, Chain 1





8.12. 802.11n HT20 STBC 2TX MODE, 5.3 GHz BAND

8.12.1. 26 dB BANDWIDTH

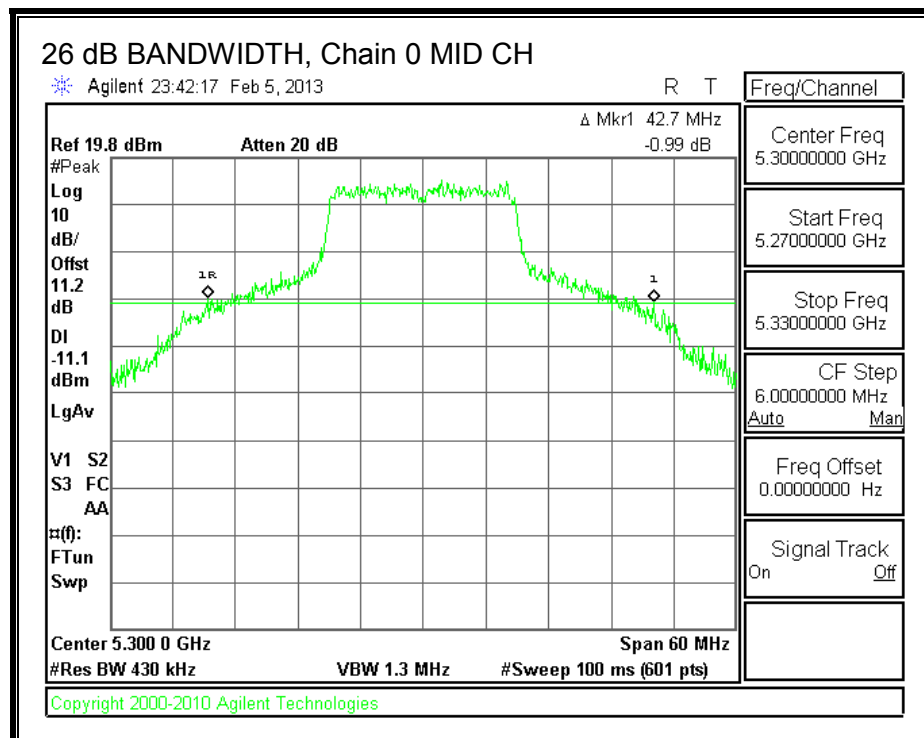
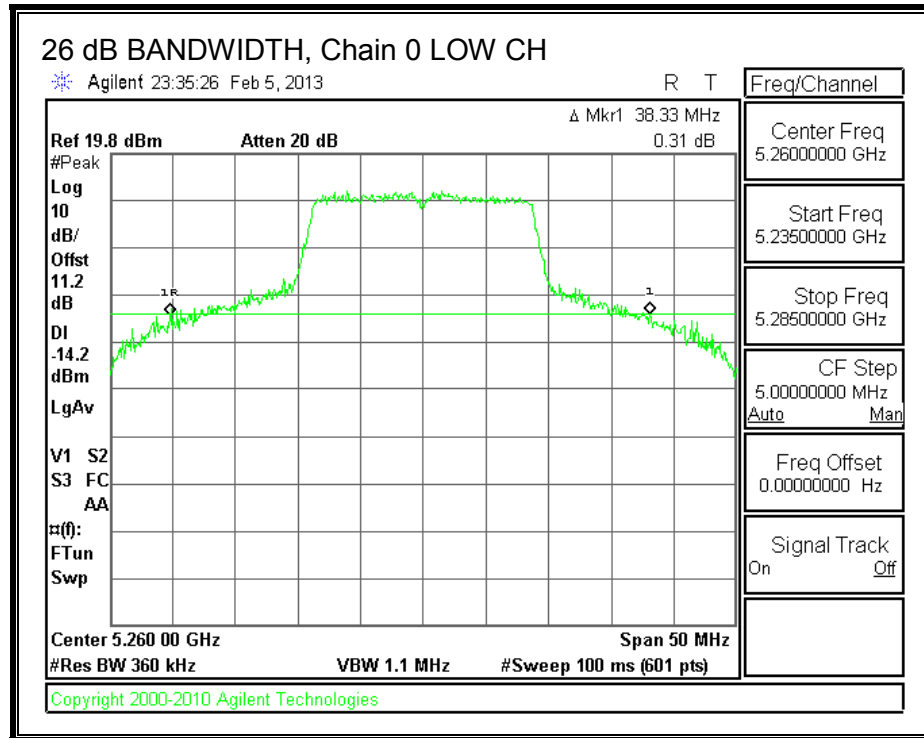
LIMITS

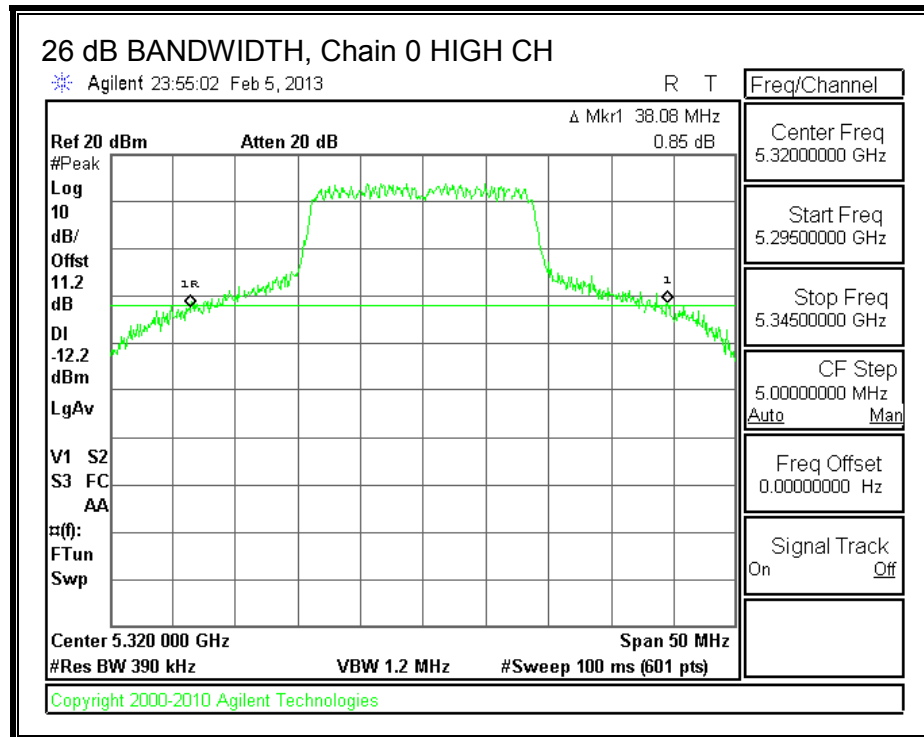
None; for reporting purposes only.

RESULTS

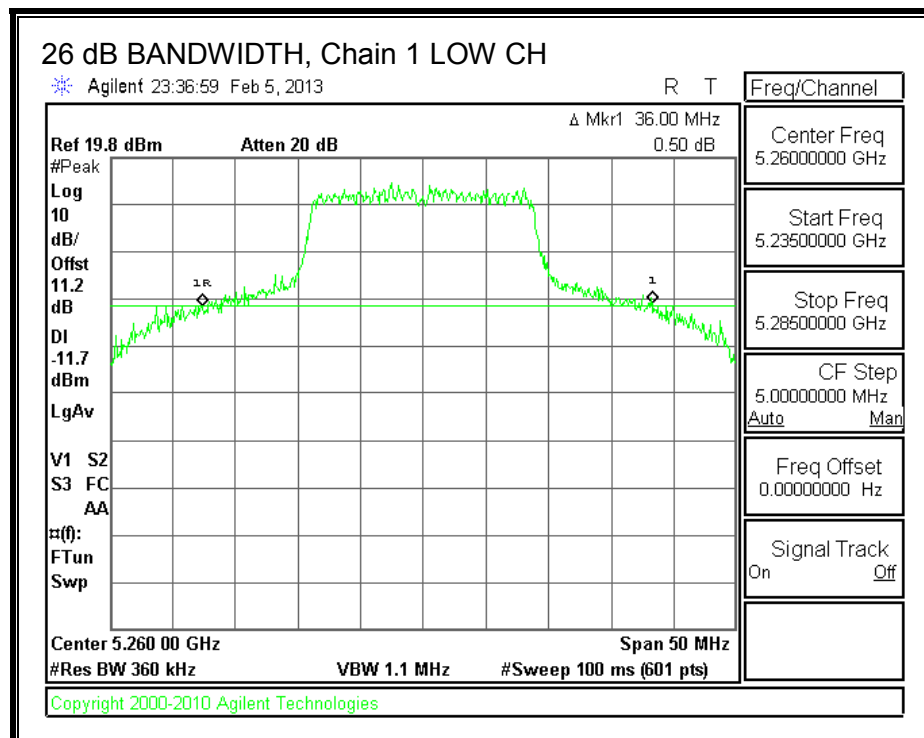
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5260	38.33	36.00
Mid	5300	42.70	41.90
High	5320	38.08	37.17

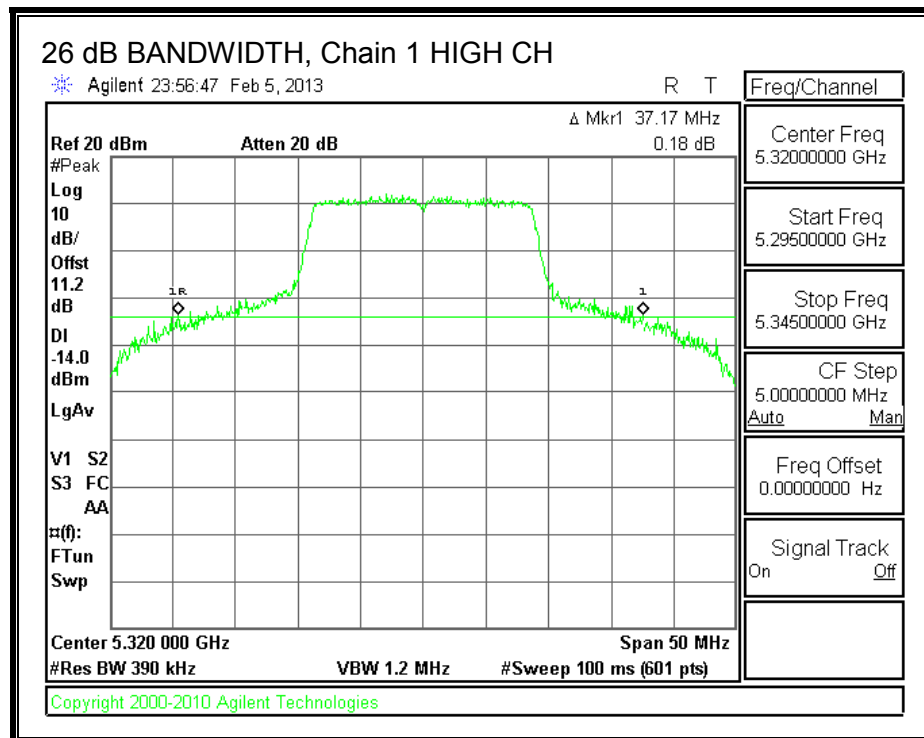
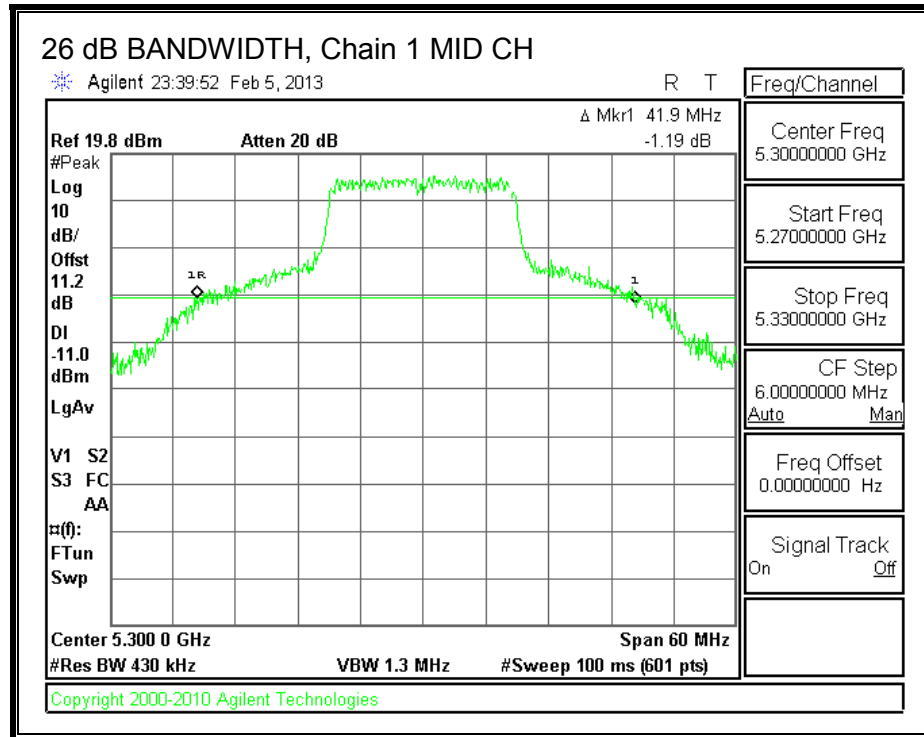
26 dB BANDWIDTH, Chain 0





26 dB BANDWIDTH, Chain 1





8.12.2. 99% BANDWIDTH

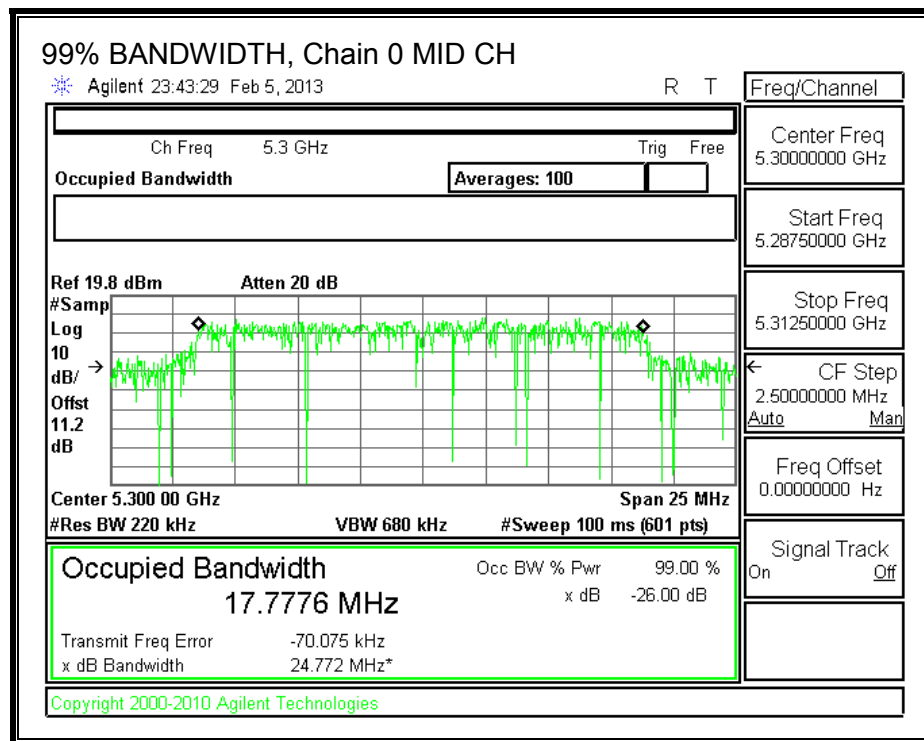
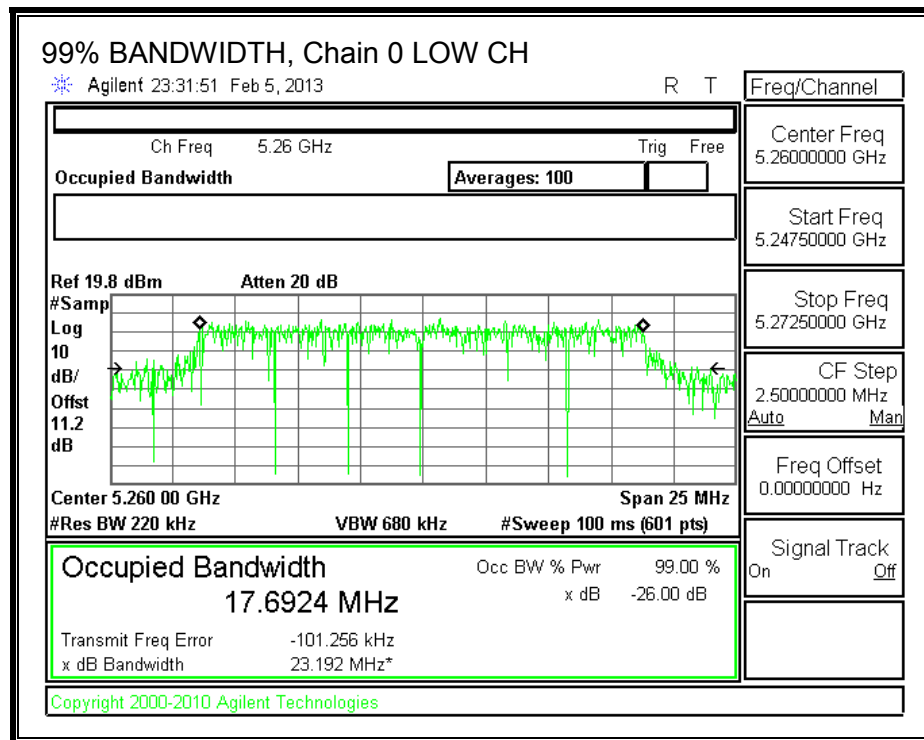
LIMITS

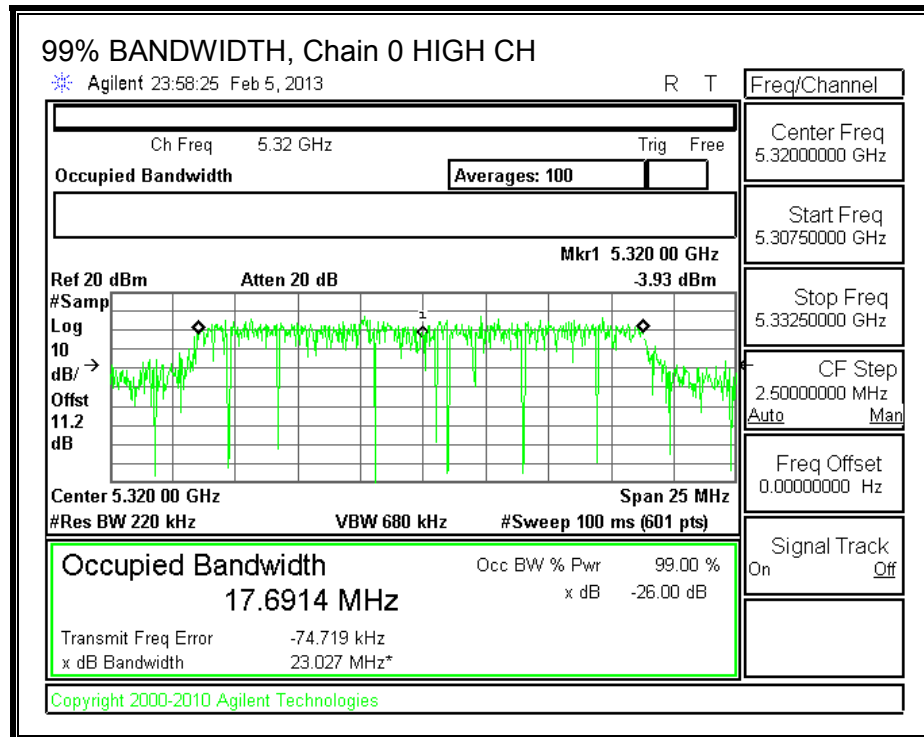
None; for reporting purposes only.

RESULTS

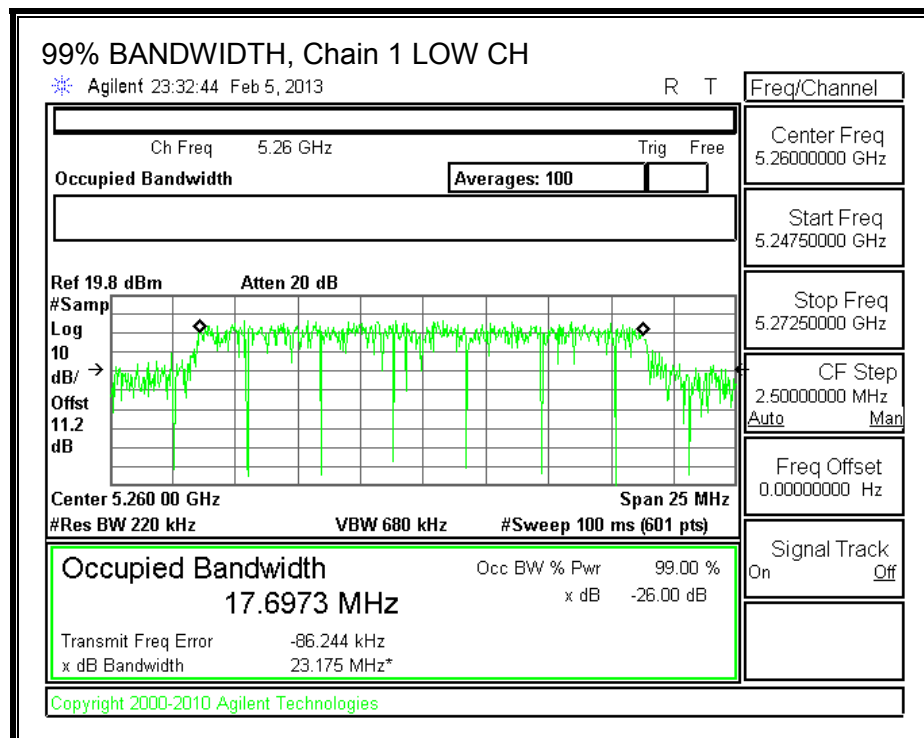
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5260	17.6924	17.6973
Mid	5300	17.7776	17.7772
High	5320	17.6914	17.6877

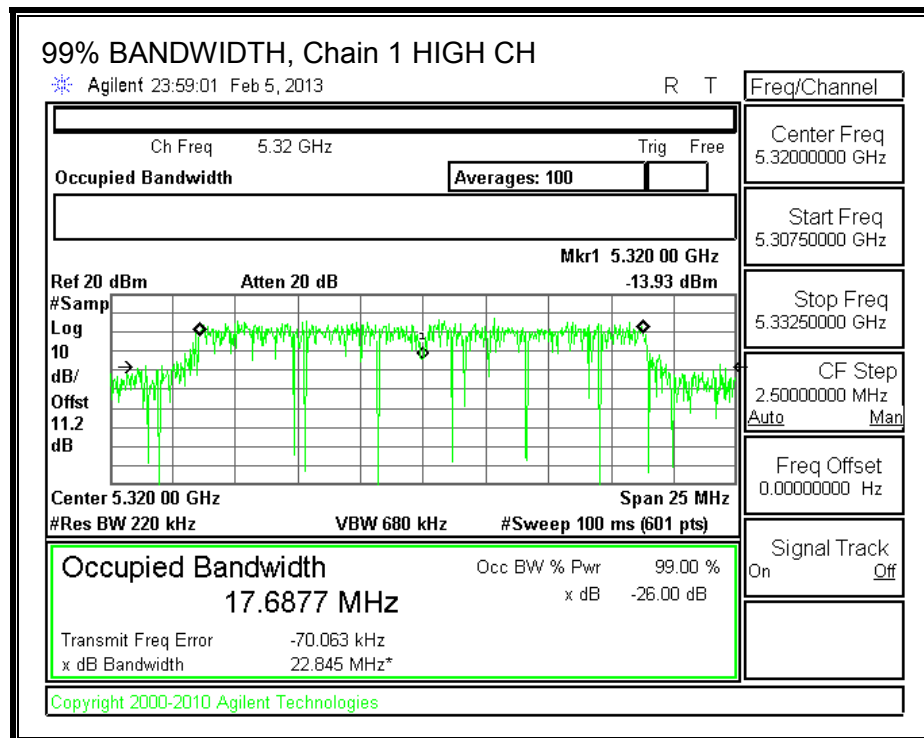
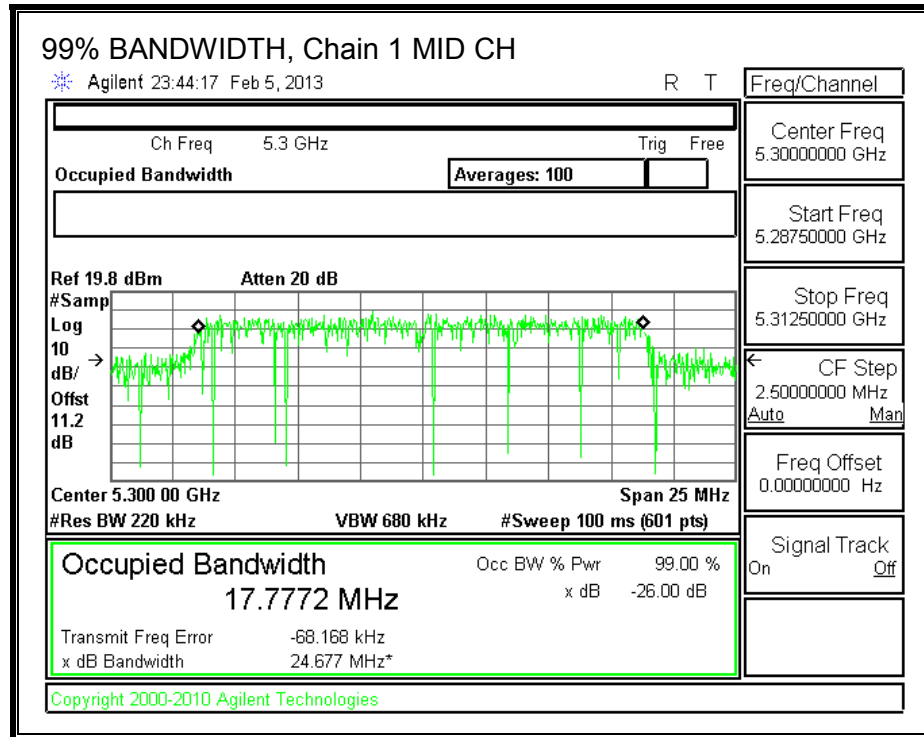
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.12.3. OUTPUT POWER AND PSD

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 unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
6.12	5.57	5.85

OUTPUT POWER RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	36.00	17.6924	5.85
Mid	5300	41.90	17.7772	5.85
High	5320	37.17	17.6877	5.85

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)
Low	5260	24.00	23.48	29.48	23.48
Mid	5300	24.00	23.50	29.50	23.50
High	5320	24.00	23.48	29.48	23.48

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	20.25	20.05	23.16	23.48	-0.32
Mid	5300	20.43	20.36	23.41	23.50	-0.09
High	5320	20.28	20.13	23.22	23.48	-0.26

PSD RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	36.00	17.6924	5.85
Mid	5300	41.90	17.7772	5.85
High	5320	37.17	17.6877	5.85

Limits

Channel	Frequency (MHz)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Low	5260	11.00	11.00	11.00
Mid	5300	11.00	11.00	11.00
High	5320	11.00	11.00	11.00

Duty Cycle CF (dB)	0.00
---------------------------	------

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5260	6.56	6.38	9.48	11.00	-1.52
Mid	5300	7.00	7.18	10.10	11.00	-0.90
High	5320	7.07	6.93	10.01	11.00	-0.99

PSD, Chain 0





PSD, Chain 1



PSD, Chain 1 MID CH



Date: 6.FEB.2013 10:51:02

PSD, Chain 1 HIGH CH



Date: 6.FEB.2013 11:12:58

8.13. 802.11n HT40 TX MODE, 5.3 GHz BAND

8.13.1. 26 dB BANDWIDTH

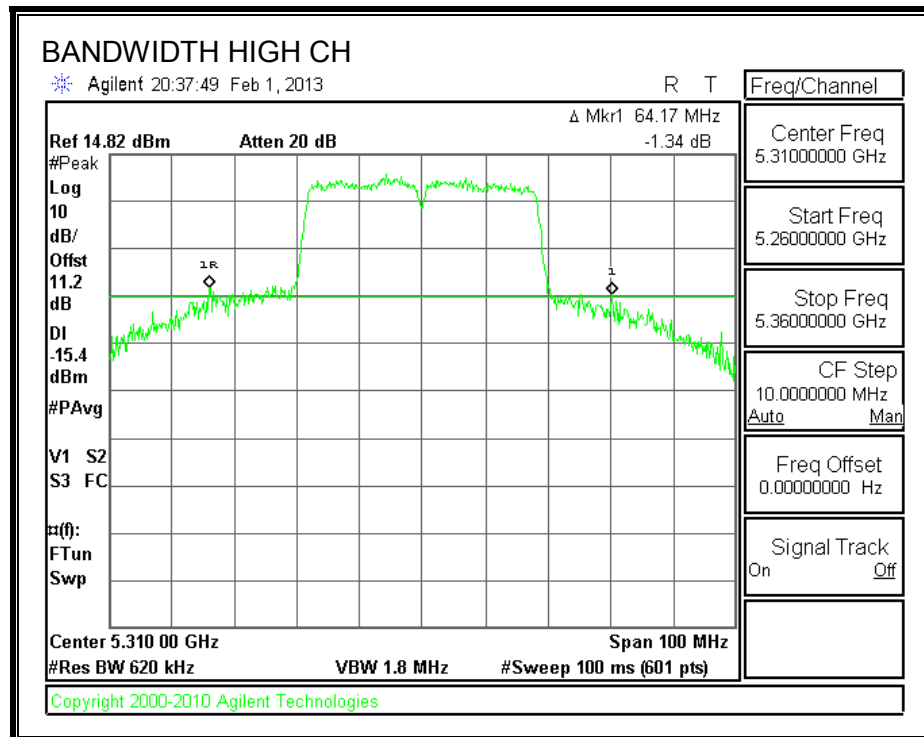
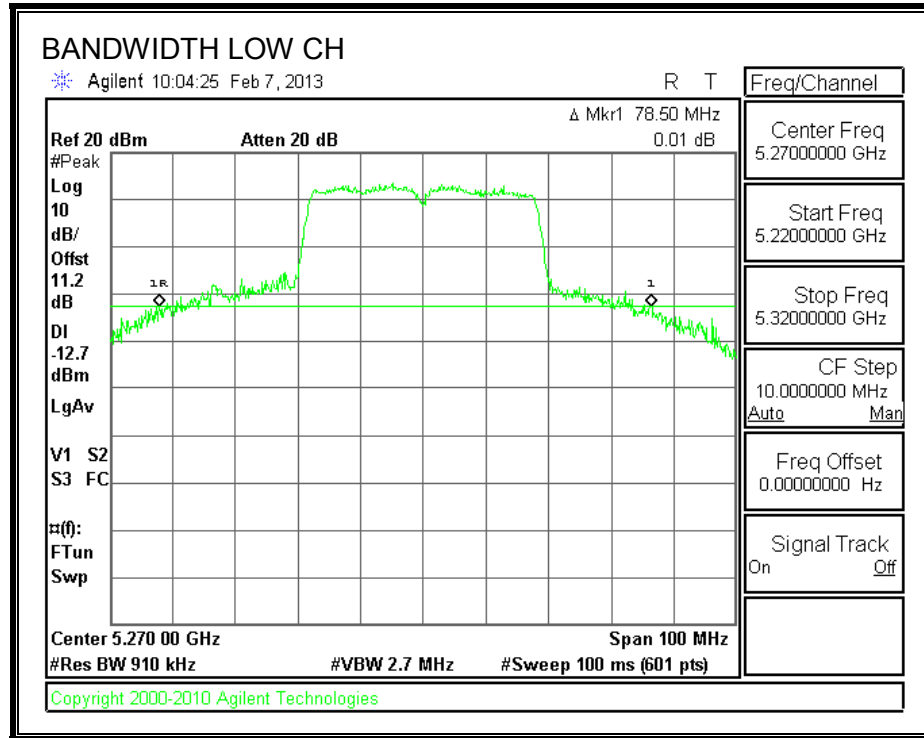
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5270	78.50
High	5310	64.17

26 dB BANDWIDTH



8.13.2. 99% BANDWIDTH

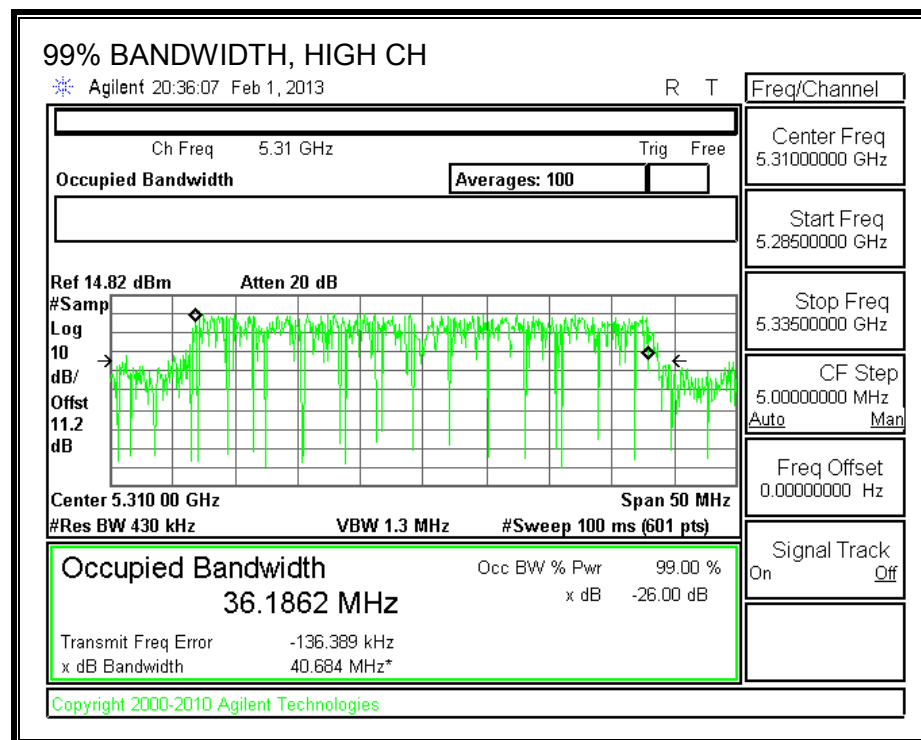
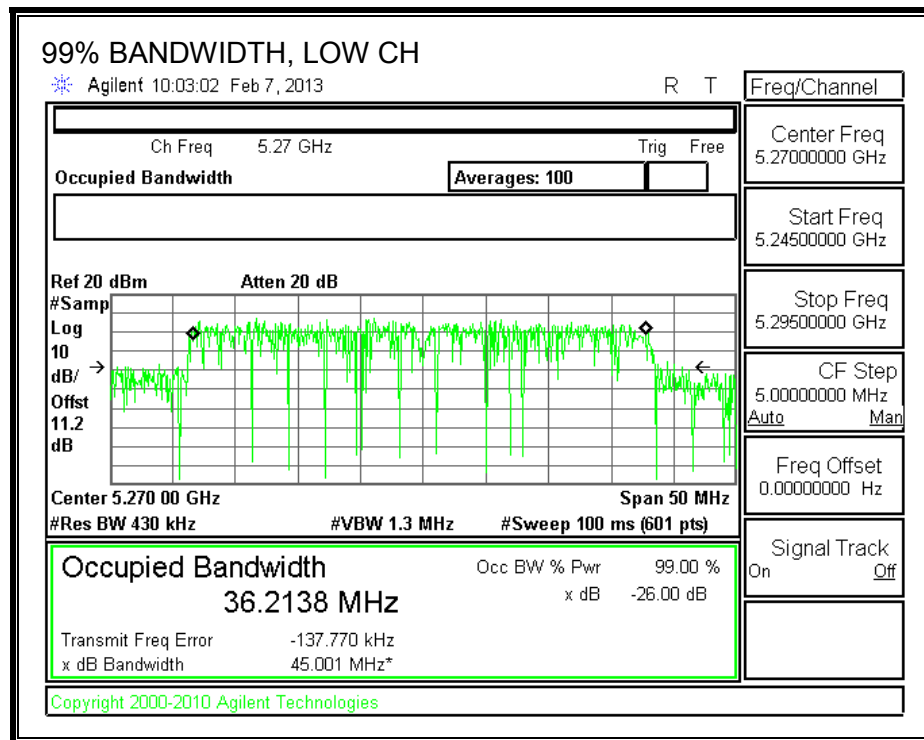
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5270	36.2138
High	5310	36.1862

99% BANDWIDTH



8.13.3. OUTPUT POWER AND PSD

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	78.50	36.2138	6.12
High	5310	64.17	36.1862	6.12

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Low	5270	23.88	24.00	30.00	23.88	10.88	11.00	10.88
High	5310	23.88	24.00	30.00	23.88	10.88	11.00	10.88

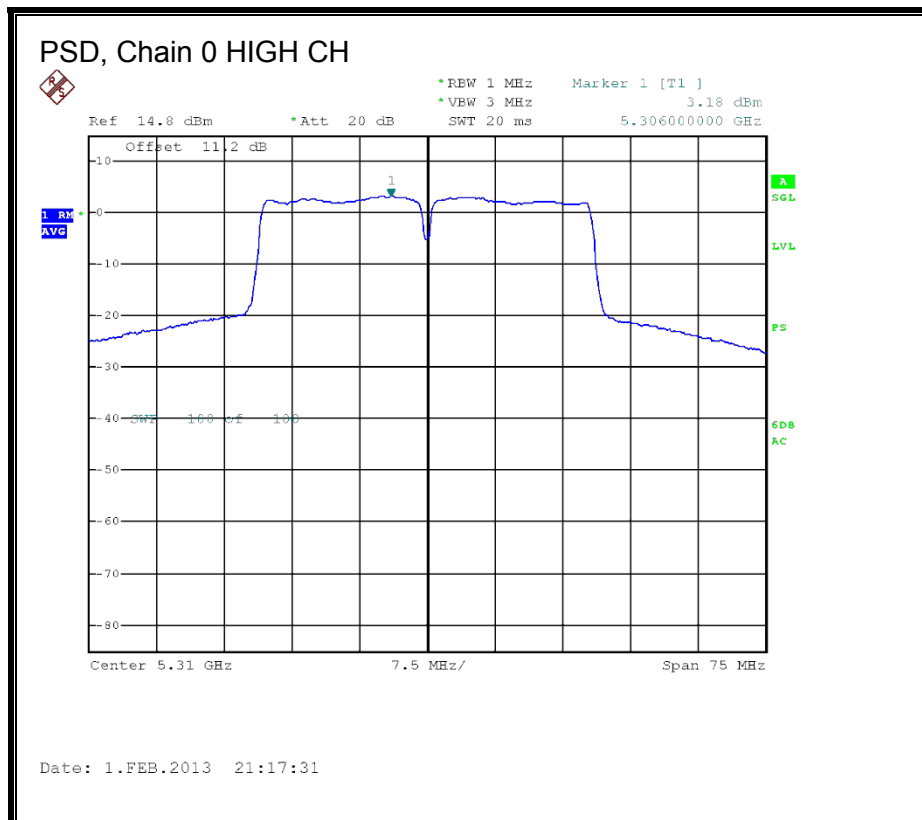
Duty Cycle CF (dB)	0.22	
---------------------------	------	--

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	20.36	20.36	23.88	-3.52
High	5310	18.31	18.31	23.88	-5.57

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5270	2.78	3.00	10.88	-7.88
High	5310	3.18	3.40	10.88	-7.48

PSD, Chain 0



8.14. 802.11n HT40 CDD 2TX MODE, 5.3 GHz BAND

8.14.1. 26 dB BANDWIDTH

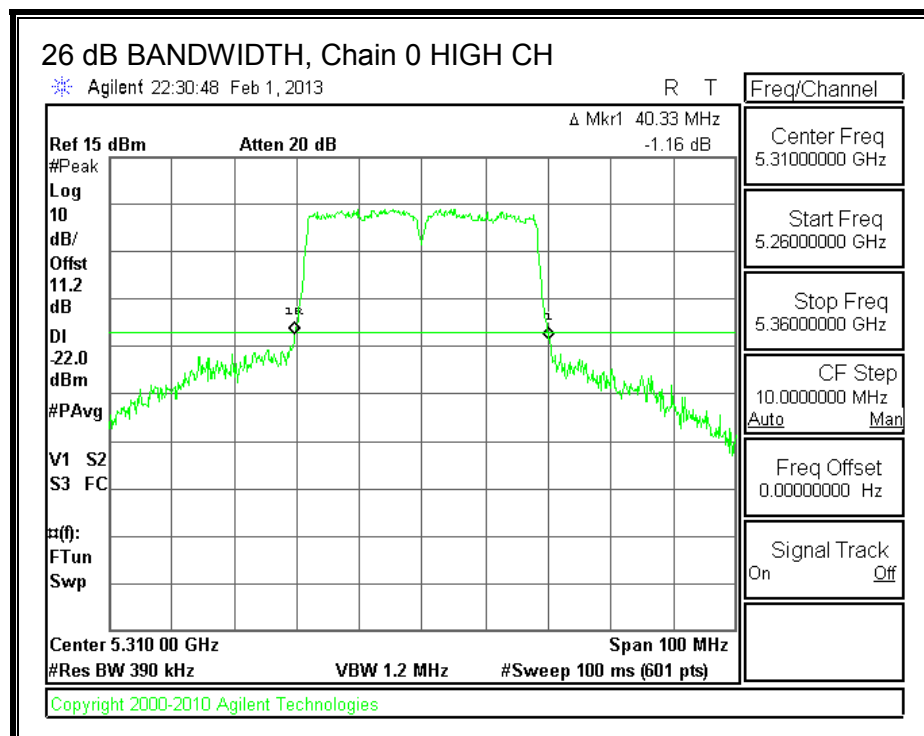
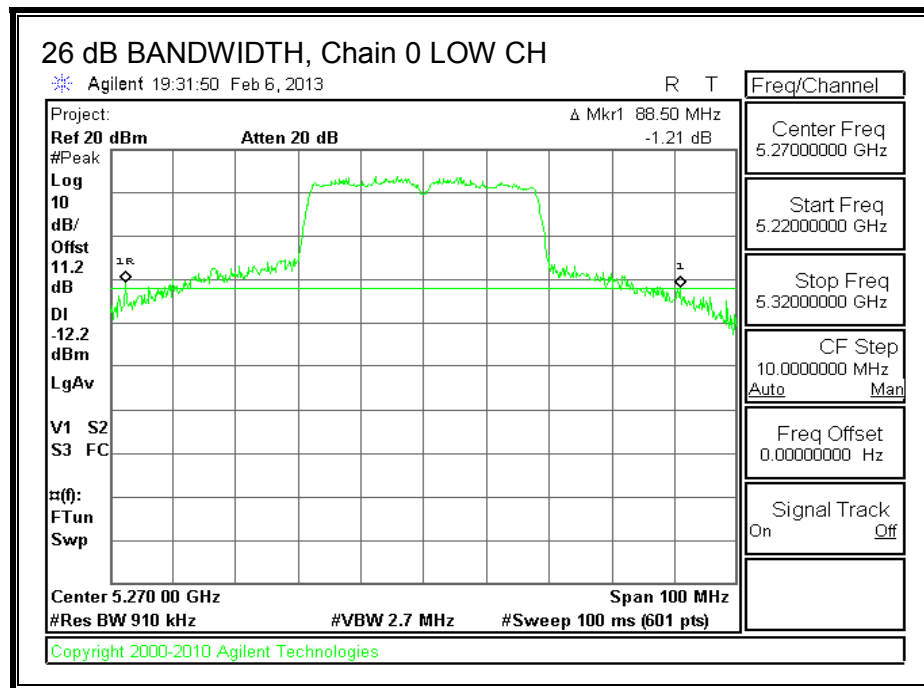
LIMITS

None; for reporting purposes only.

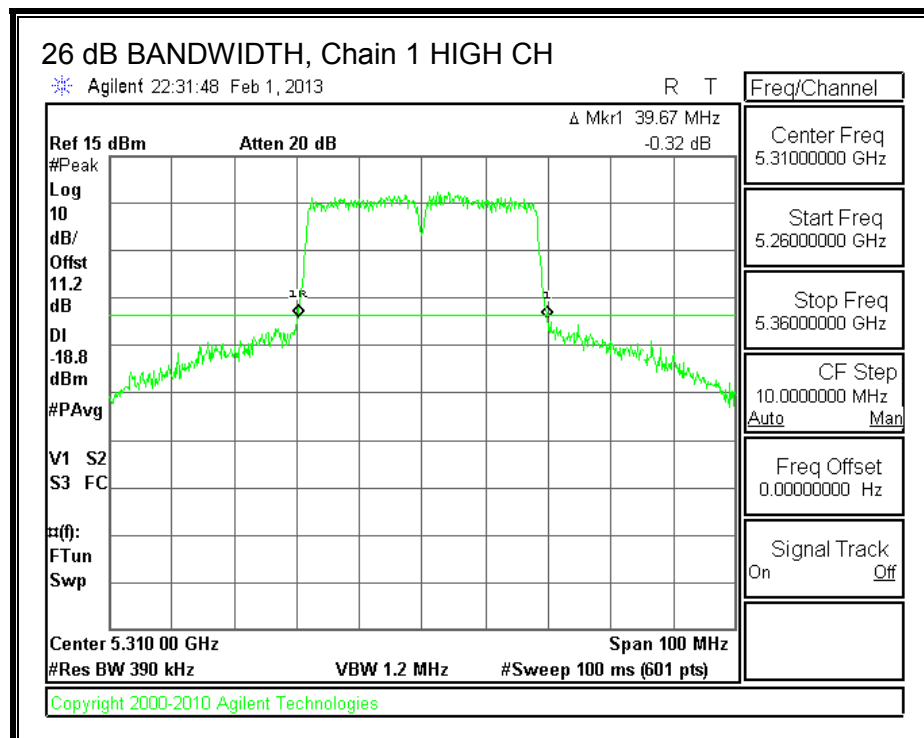
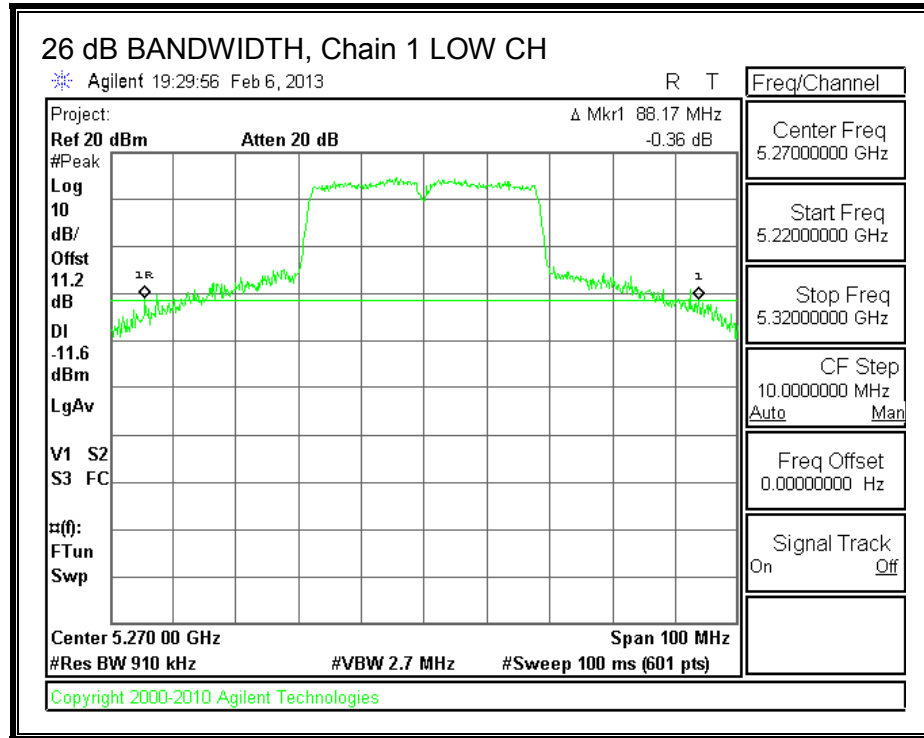
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5270	88.50	88.17
High	5310	40.33	39.67

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.14.2. 99% BANDWIDTH

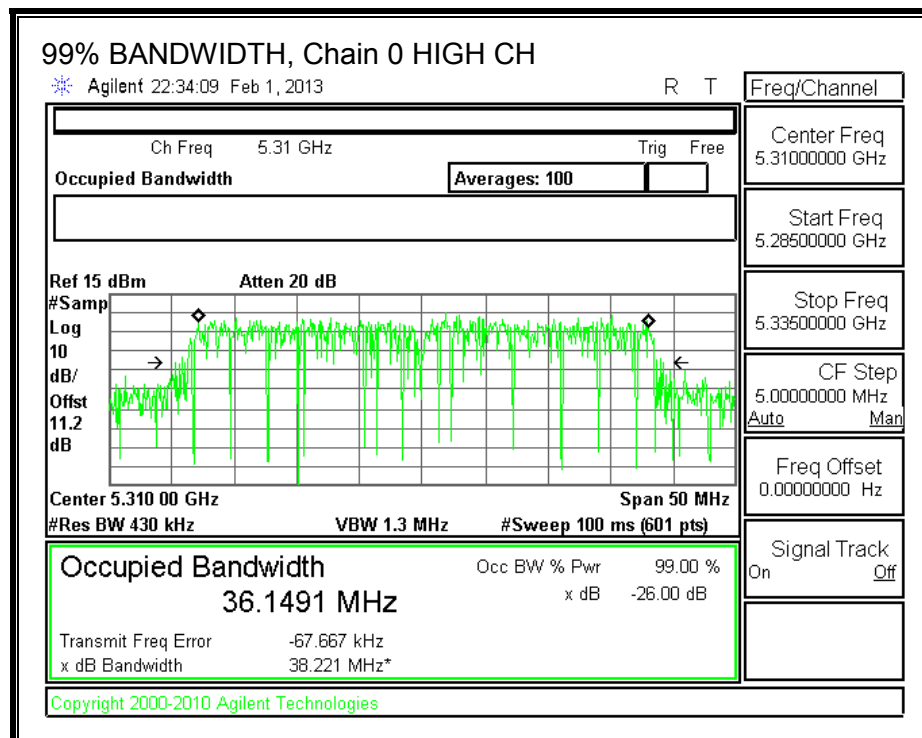
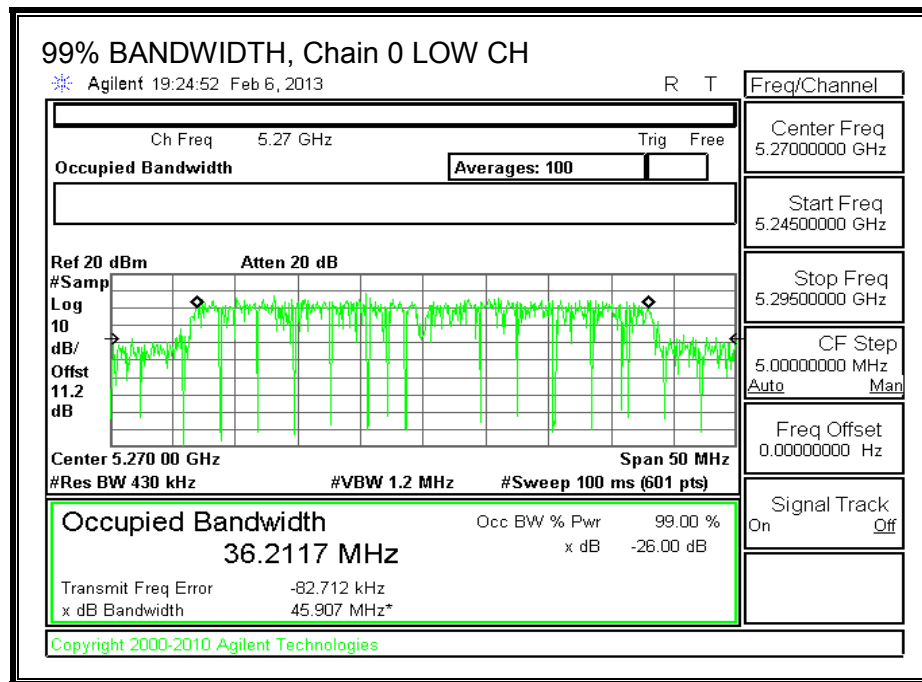
LIMITS

None; for reporting purposes only.

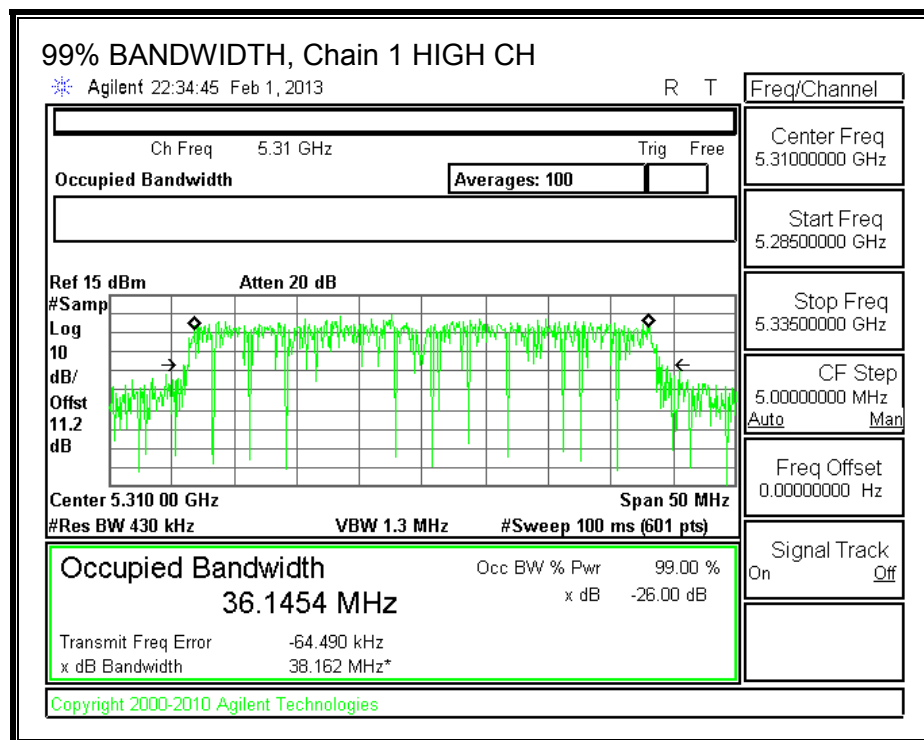
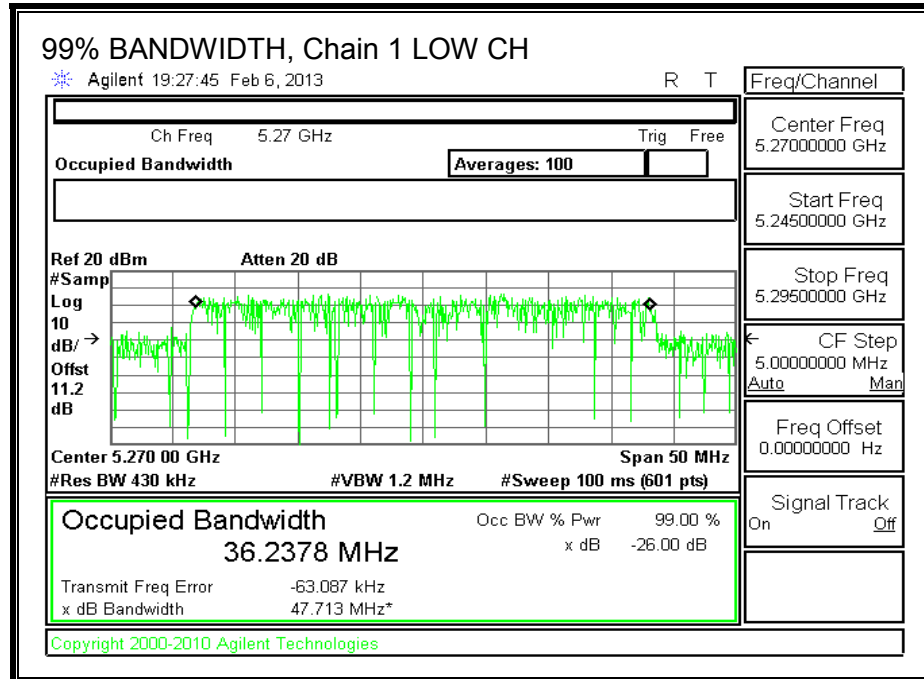
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5270	36.2117	36.2378
High	5310	36.1491	36.1454

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.14.3. OUTPUT POWER AND PSD

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 unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
6.12	5.57	5.85

For PSD, 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)
6.12	5.57	8.86

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	88.17	36.2117	5.85	8.86
High	5310	39.67	36.1454	5.85	8.86

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Low	5270	24.00	24.00	30.00	24.00	8.14	11.00	8.14
High	5310	24.00	24.00	30.00	24.00	8.14	11.00	8.14

Duty Cycle CF (dB)	0.22	
--------------------	------	--

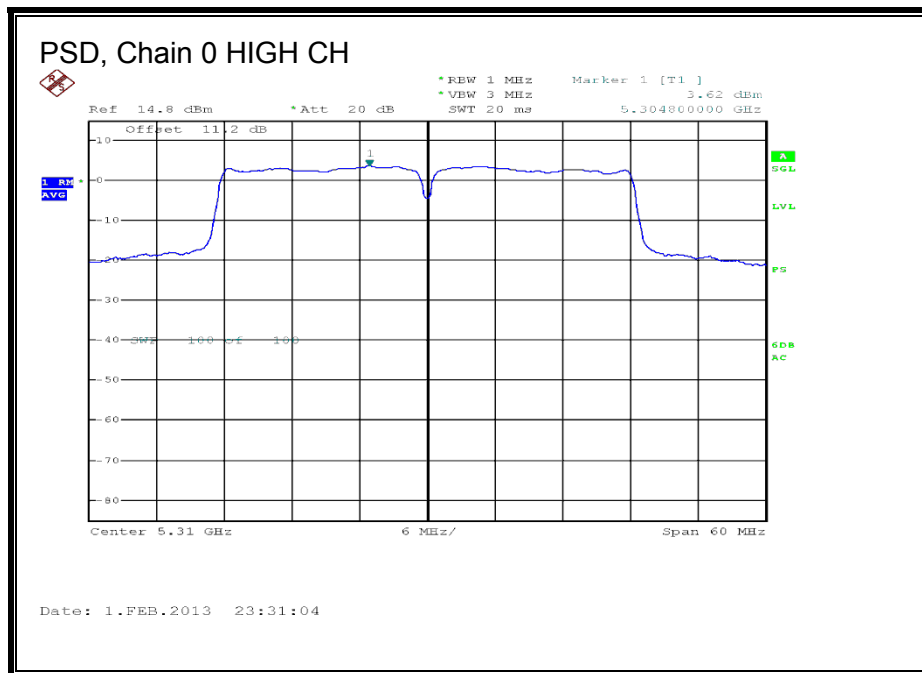
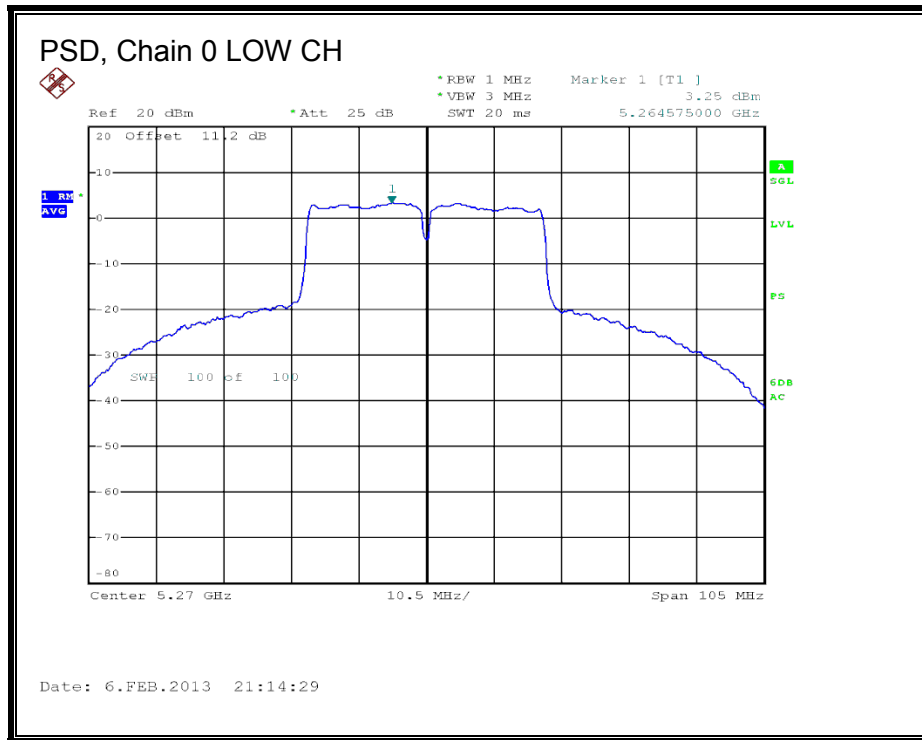
Output Power Results

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	20.12	20.18	23.16	24.00	-0.84
High	5310	14.61	15.31	17.98	24.00	-6.02

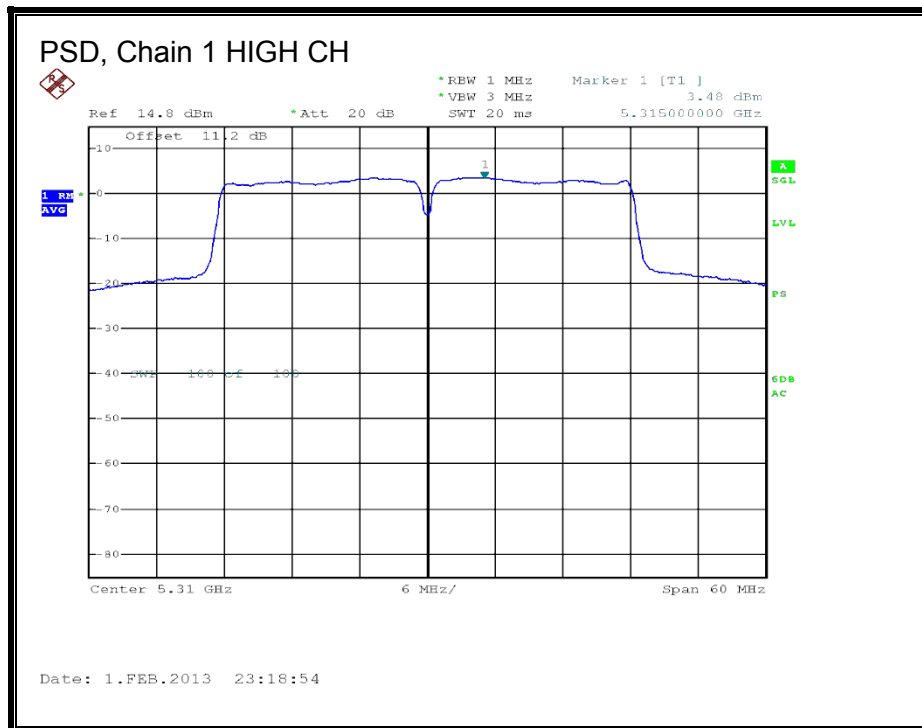
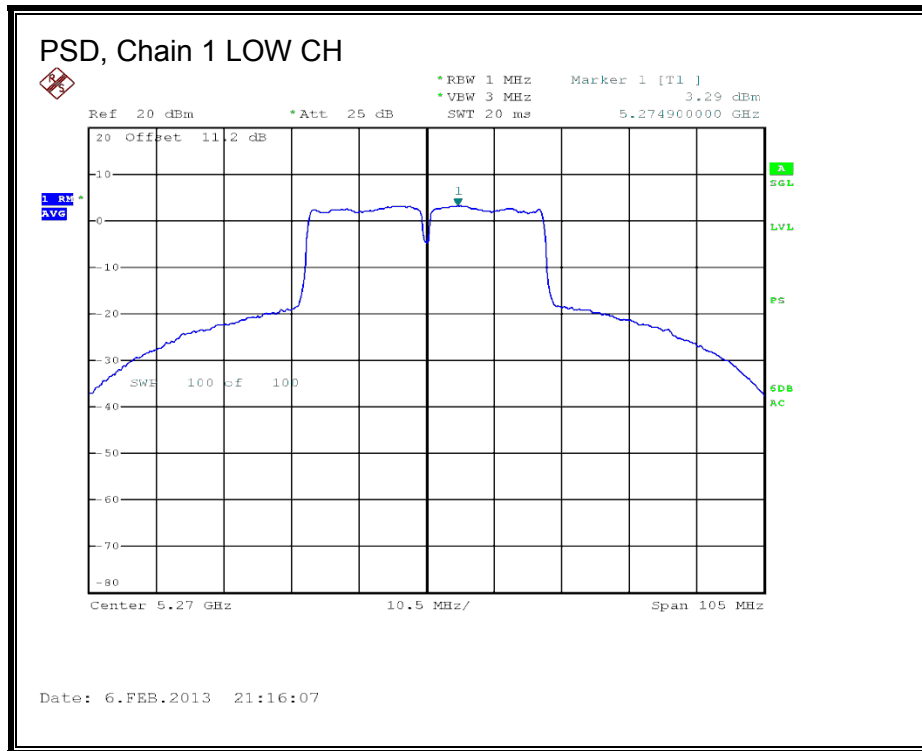
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5270	3.25	3.29	6.50	8.14	-1.64
High	5310	3.62	3.48	6.78	8.14	-1.36

PSD, Chain 0



PSD, Chain 1



8.15. 802.11n AC40 BF 2TX MODE, 5.3 GHz BAND

8.15.1. 26 dB BANDWIDTH

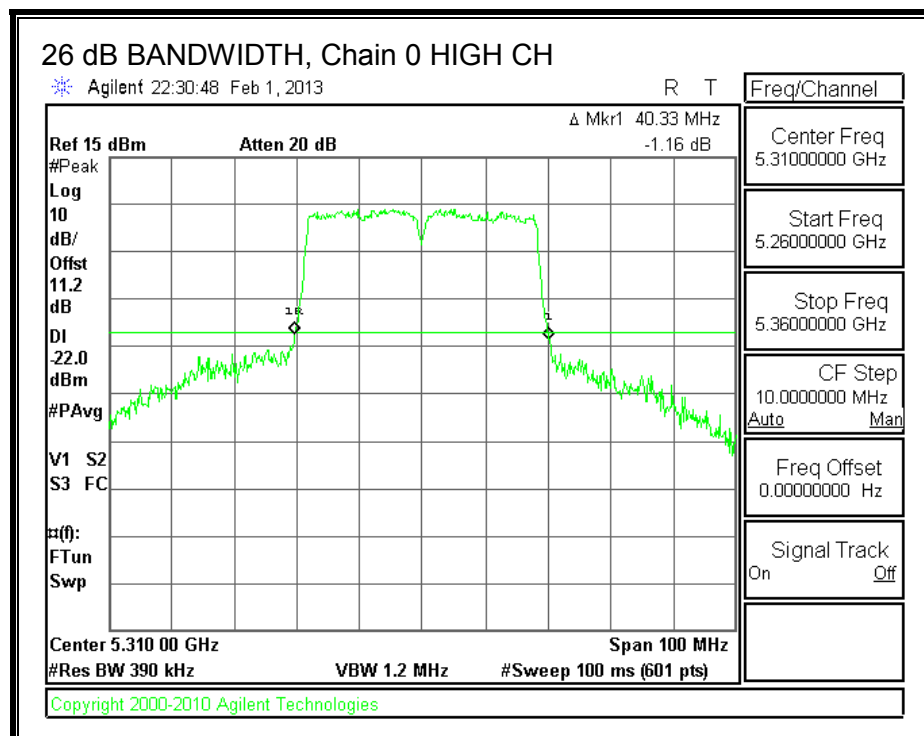
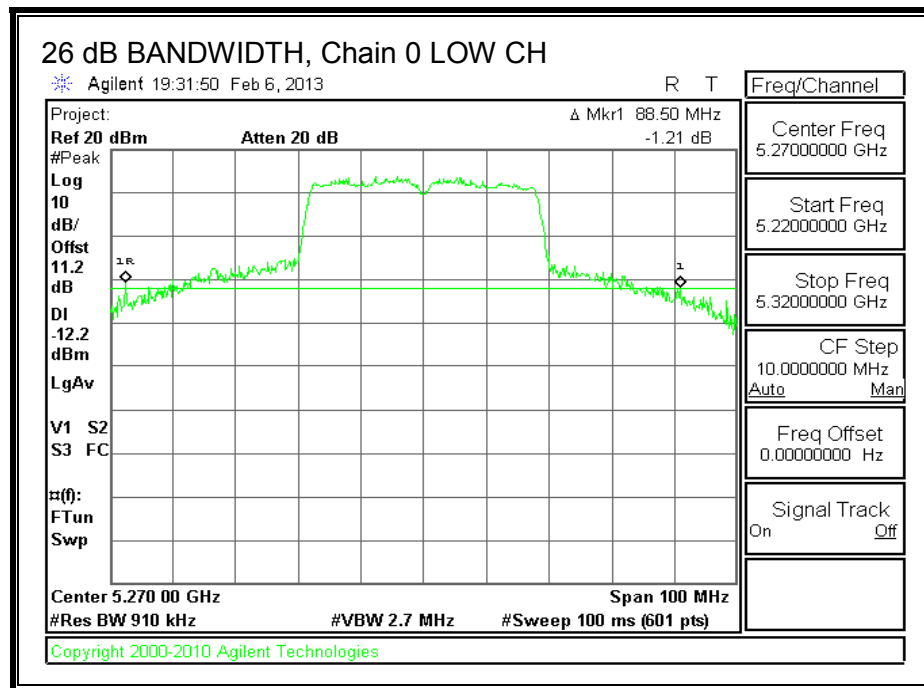
LIMITS

None; for reporting purposes only.

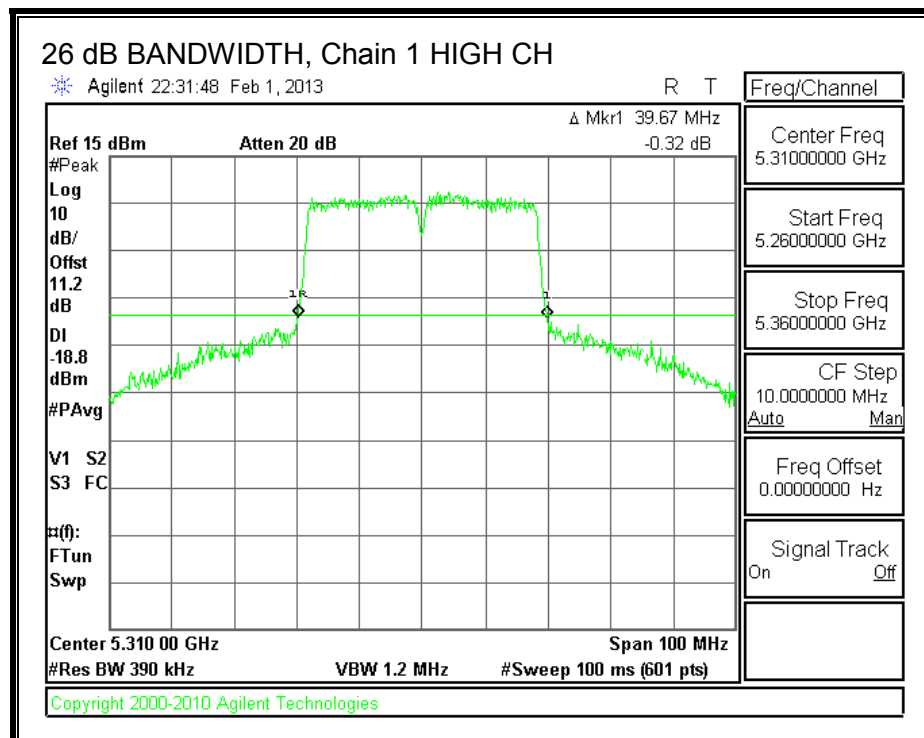
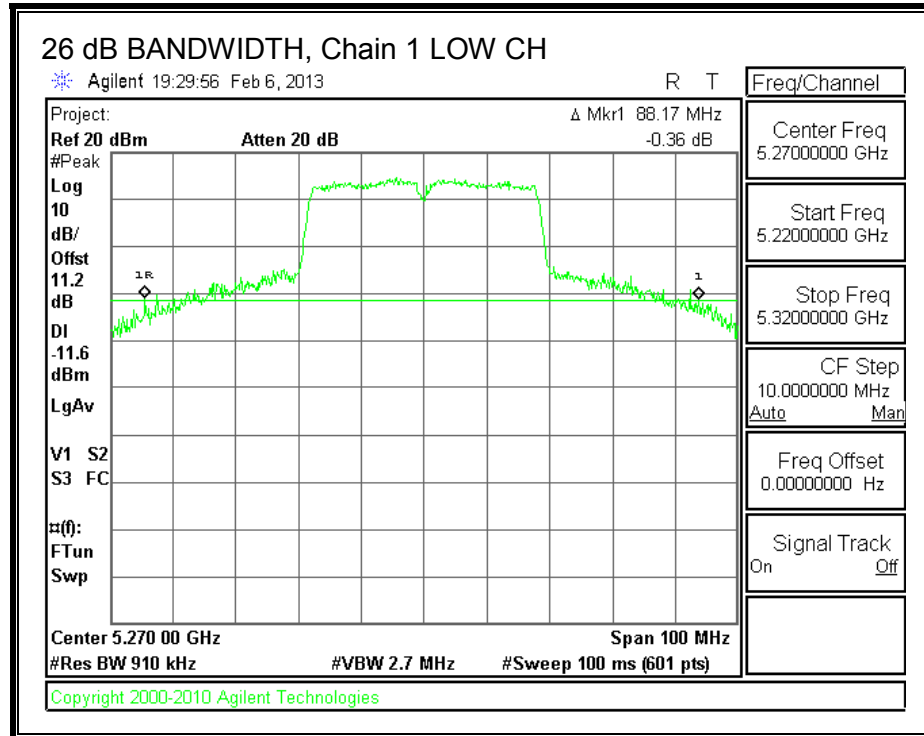
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5270	88.50	88.17
High	5310	40.33	39.67

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.15.2. 99% BANDWIDTH

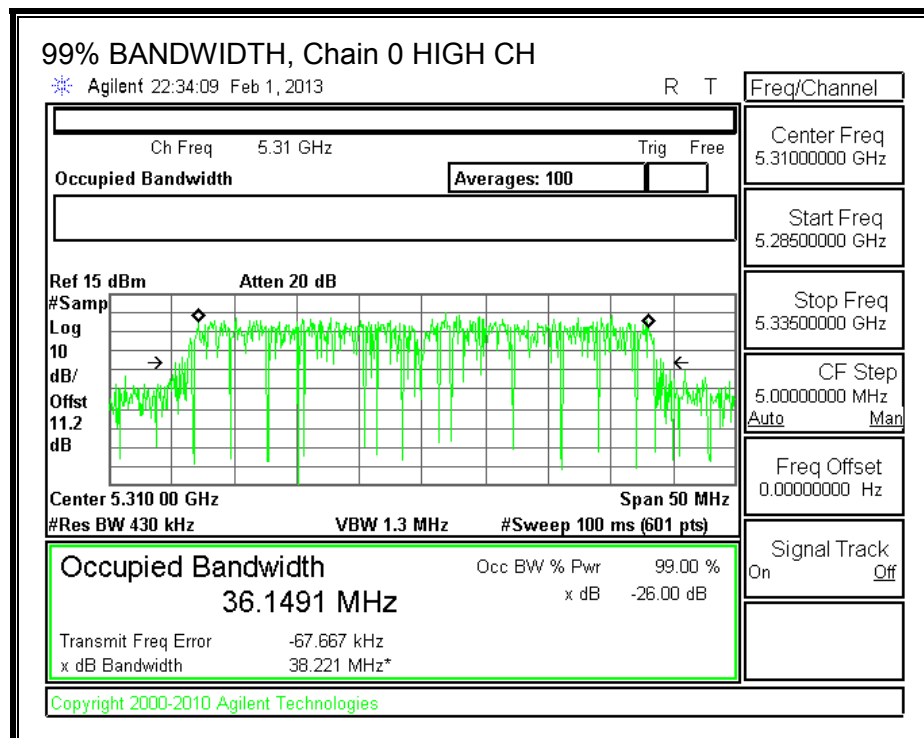
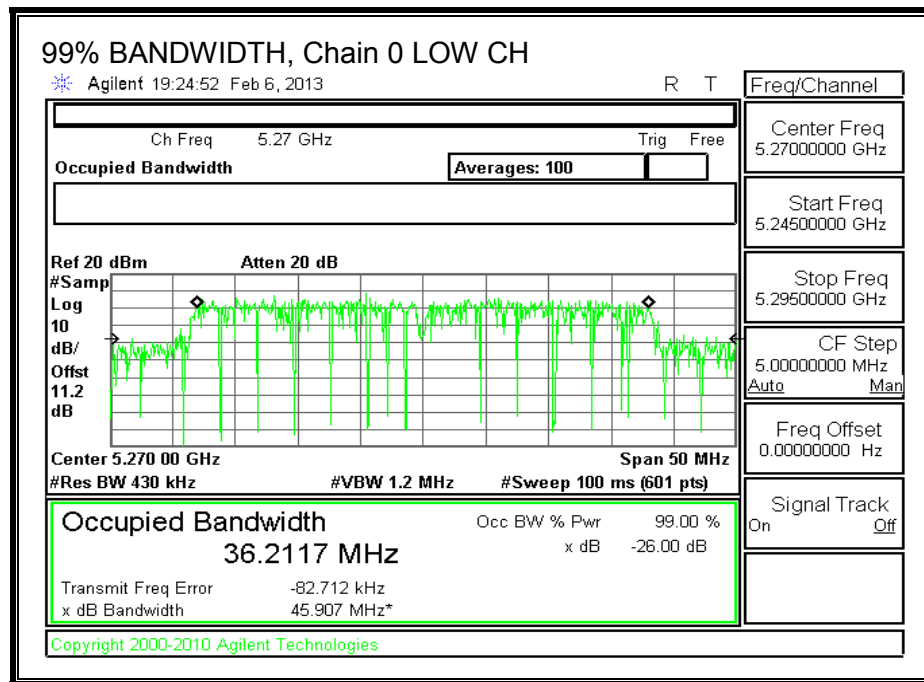
LIMITS

None; for reporting purposes only.

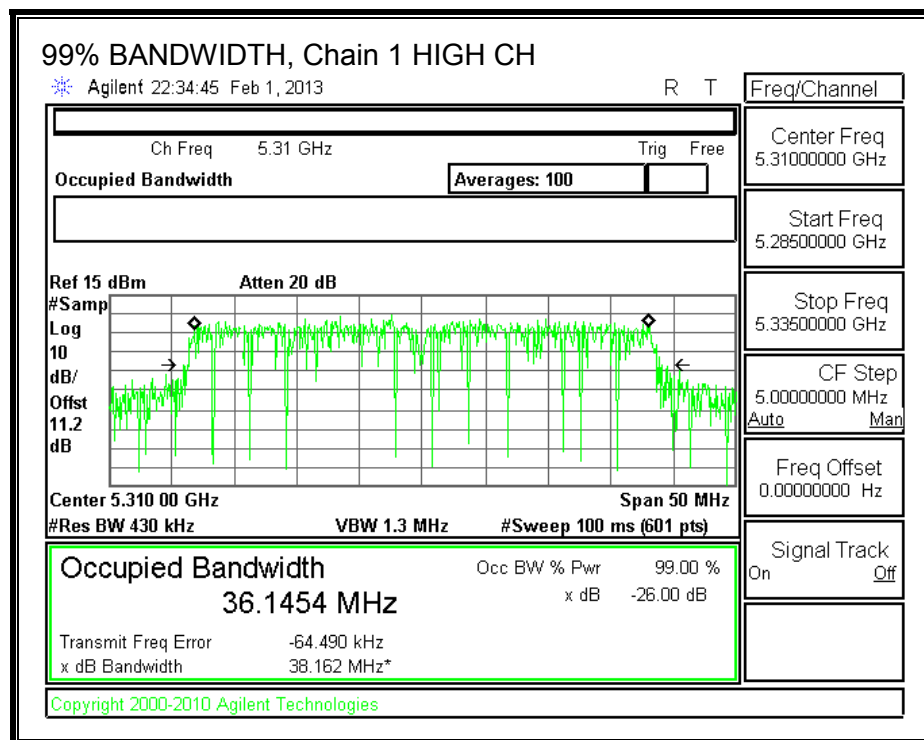
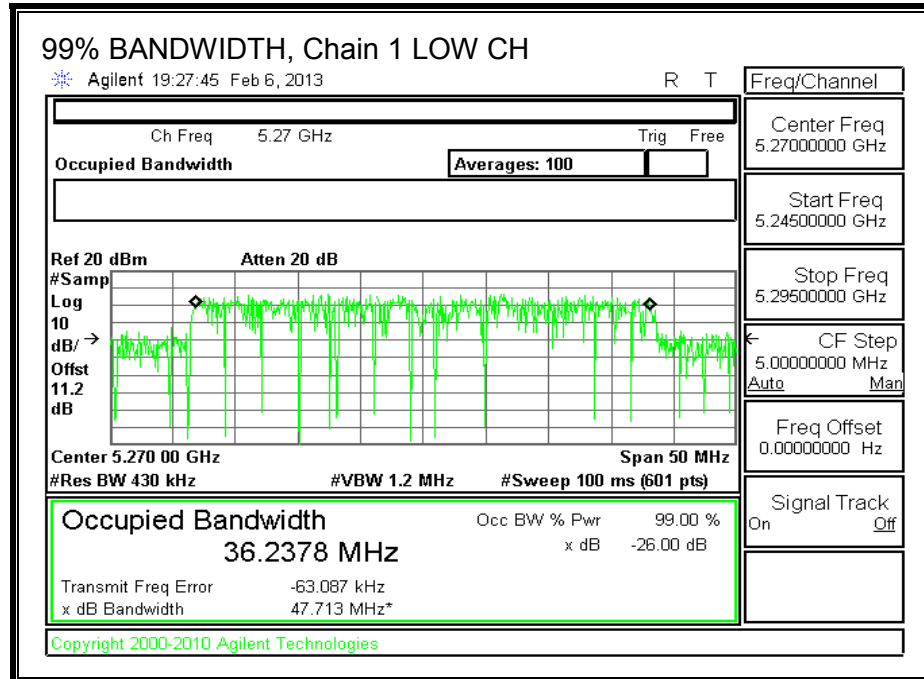
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5270	36.2117	36.2378
High	5310	36.1491	36.1454

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.15.3. OUTPUT POWER AND PSD

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 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)
6.12	5.57	8.86

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5270	88.17	36.2117	8.86
High	5310	39.67	36.1454	8.86

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Low	5270	21.14	24.00	30.00	21.14	8.14	11.00	8.14
High	5310	21.14	24.00	30.00	21.14	8.14	11.00	8.14

Duty Cycle CF (dB)	0.22	
--------------------	------	--

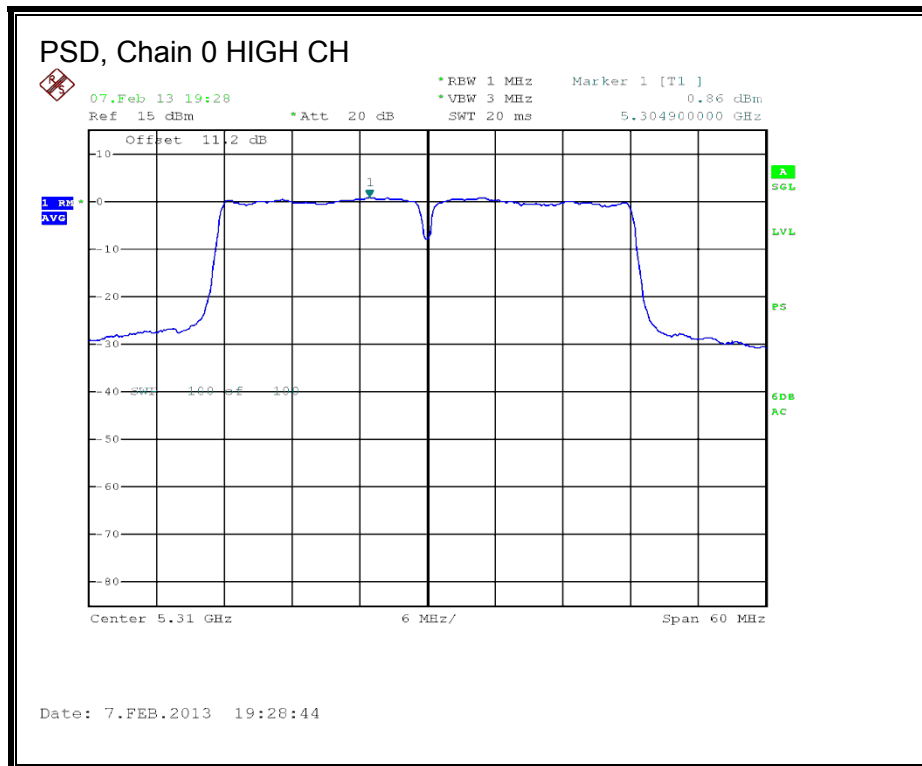
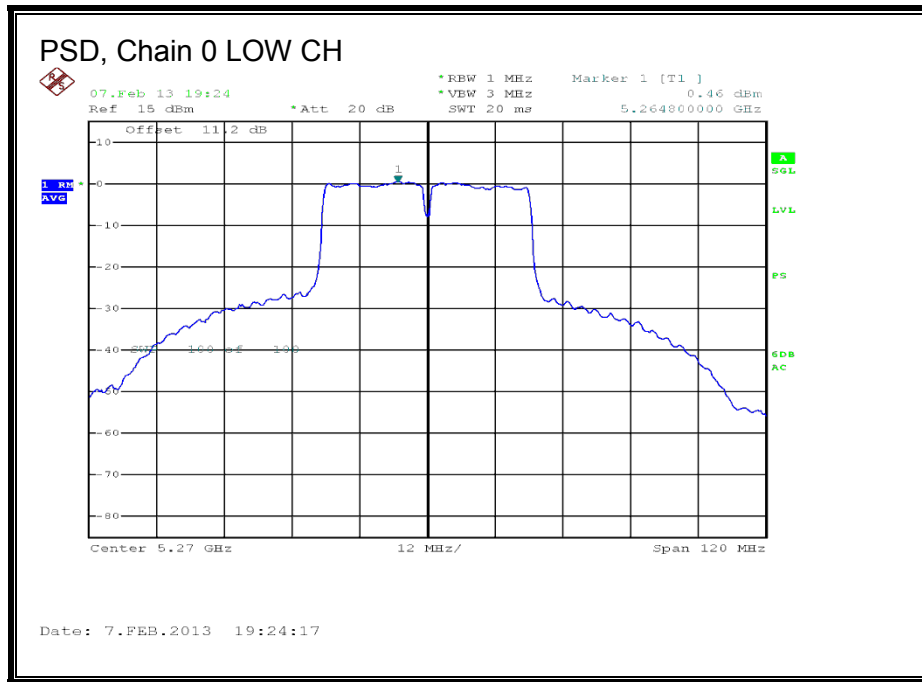
Output Power Results

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	18.03	18.15	21.10	21.14	-0.04
High	5310	15.08	15.80	18.47	21.14	-2.67

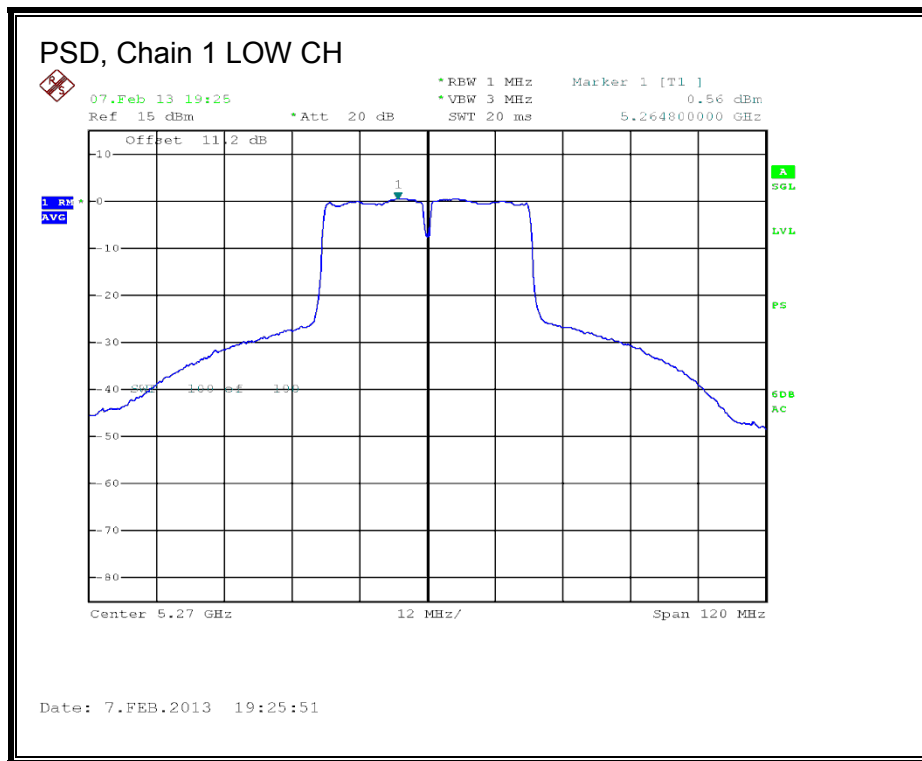
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5270	0.46	0.56	3.74	8.14	-4.40
High	5310	0.86	1.12	4.22	8.14	-3.92

PSD, Chain 0



PSD, Chain 1



8.16. 802.11n AC80 1TX MODE, 5.3 GHz BAND

8.16.1. 26 dB BANDWIDTH

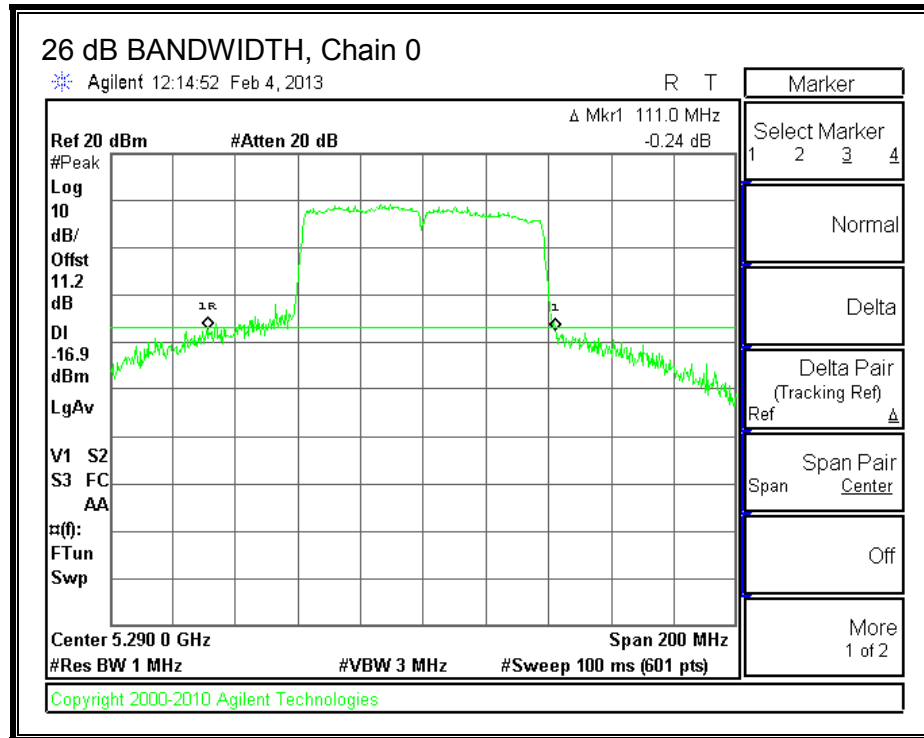
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)
Mid	5290	111.0

26 dB BANDWIDTH, Chain 0



8.16.2. 99% BANDWIDTH

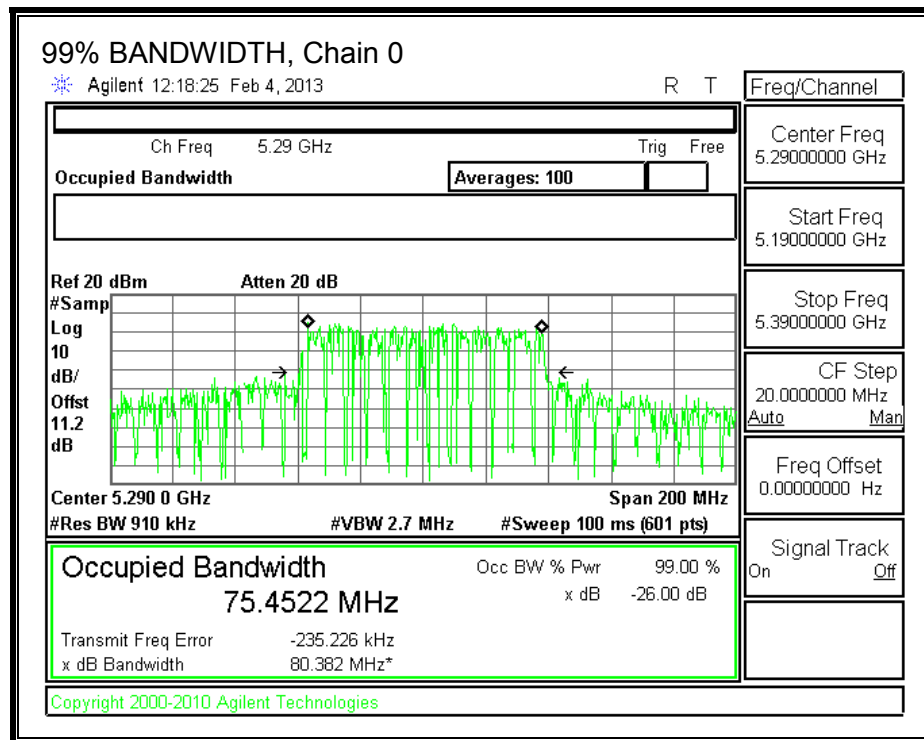
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)
Mid	5290	75.4522

99% BANDWIDTH, Chain 0



8.16.3. OUTPUT POWER AND PSD

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)
Mid	5290	111.0	75.4522	6.12

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Mid	5290	23.88	24.00	30.00	23.88	10.88	11.00	10.88

Duty Cycle CF (dB)	0.15
--------------------	------

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5290	17.84	17.84	23.88	-6.04

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Mid	5290	0.37	0.52	10.88	-10.36

PSD, Chain 0



8.17. 802.11n AC80 CDD 2TX MODE, 5.3 GHz BAND

8.17.1. 26 dB BANDWIDTH

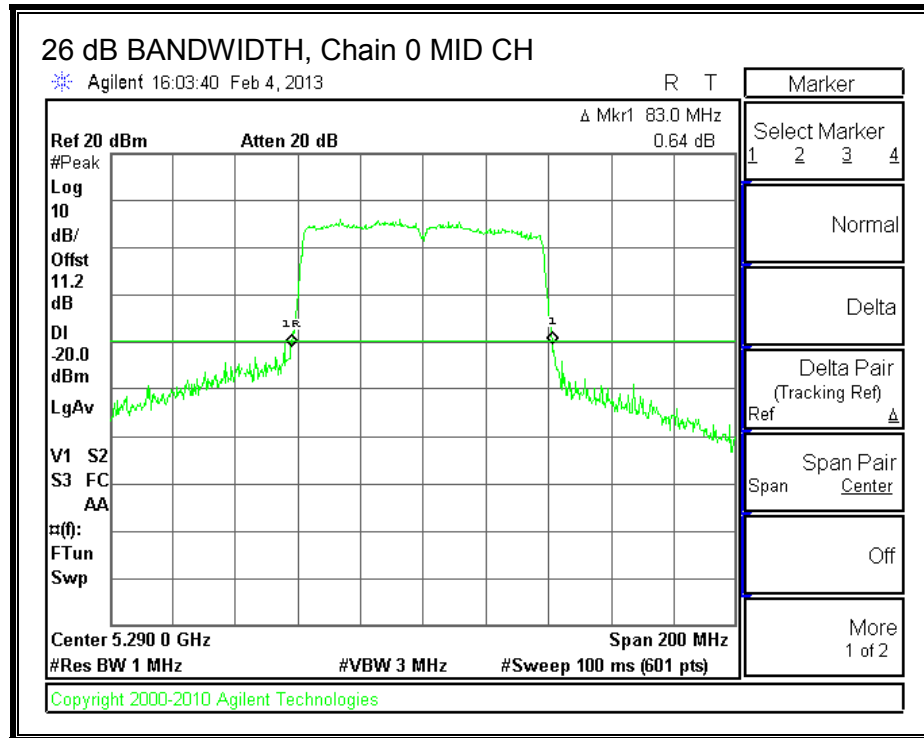
LIMITS

None; for reporting purposes only.

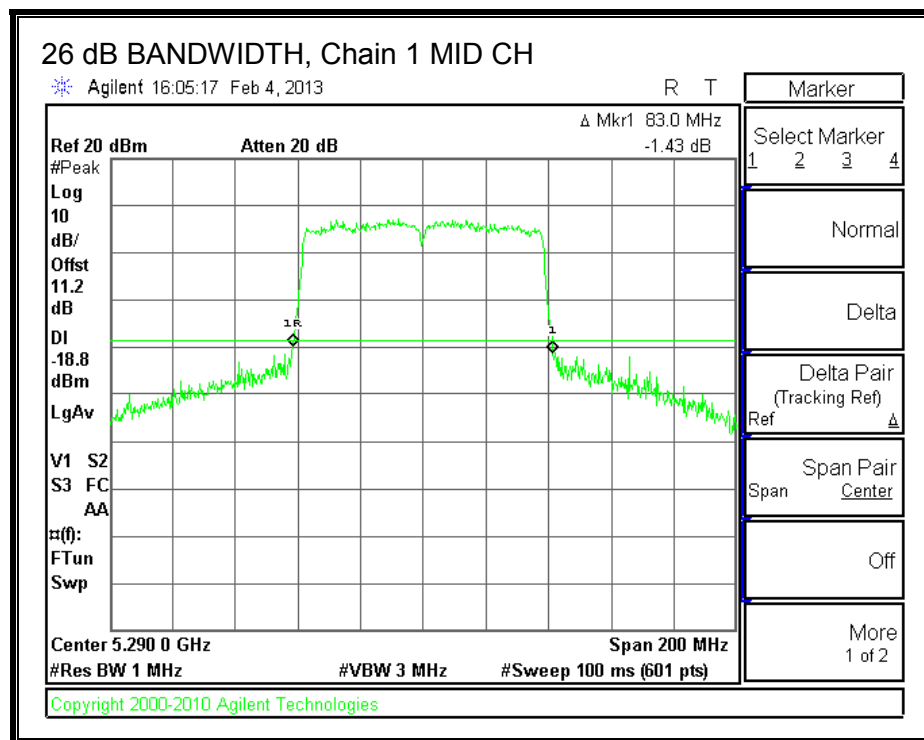
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Mid	5290	83.0	83.0

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.17.2. 99% BANDWIDTH

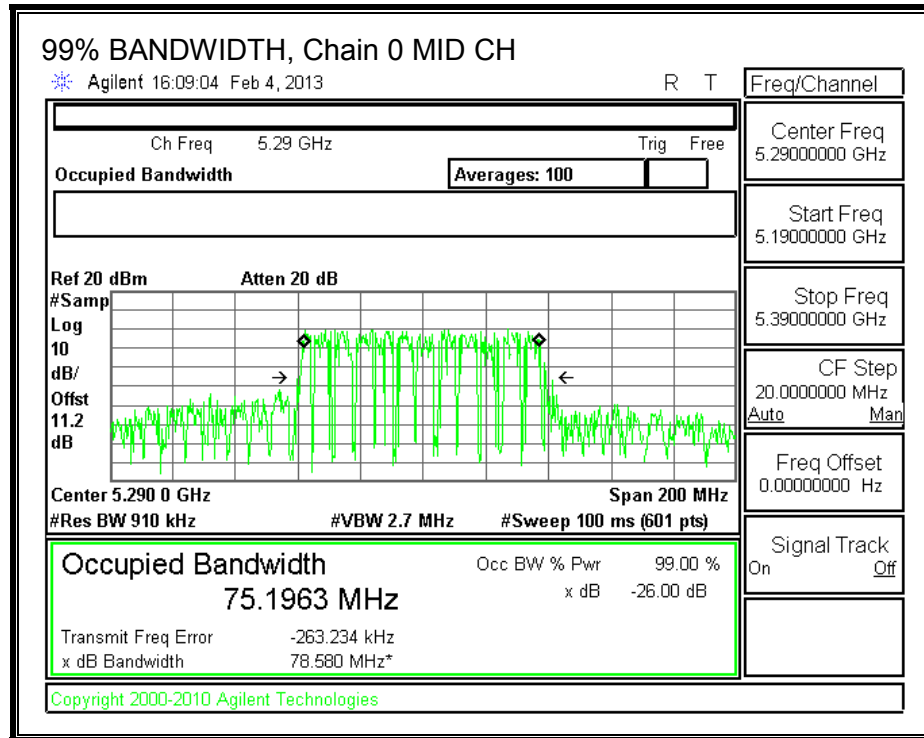
LIMITS

None; for reporting purposes only.

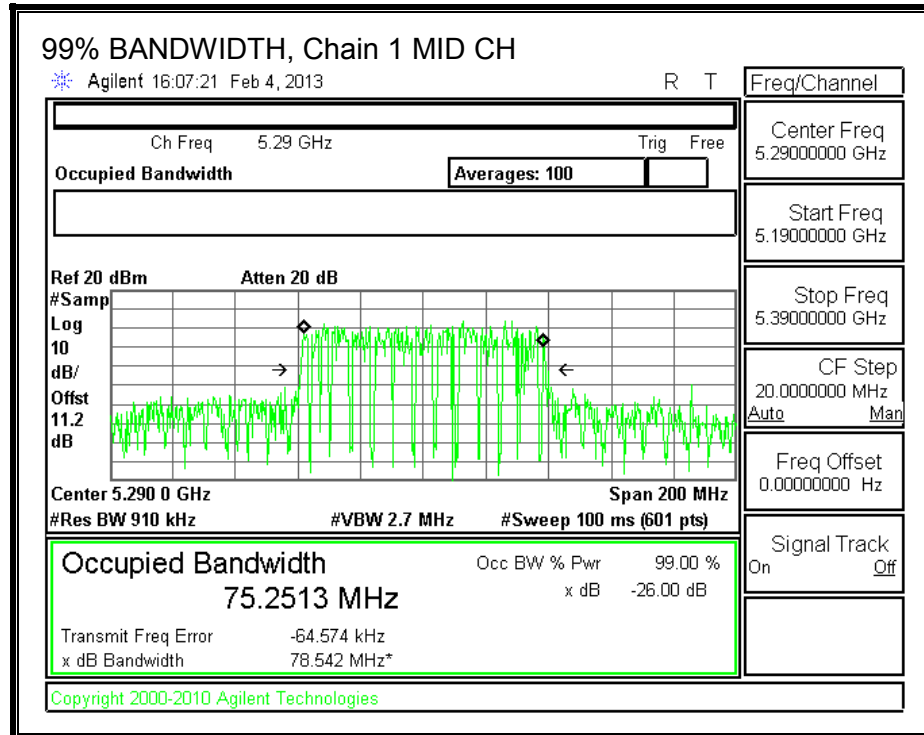
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Mid	5290	75.1963	75.2513

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.17.3. OUTPUT POWER AND PSD

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 unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
6.12	5.57	5.85

For PSD, 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)
6.12	5.57	8.86

OUTPUT POWER RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Mid	5290	83.0	75.1963	5.85

Limits

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

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	14.54	14.90	17.73	24.00	-6.27

PSD RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Mid	5290	83.0	75.1963	8.86

Limits

Channel	Frequency (MHz)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Mid	5290	8.14	11.00	8.14

Duty Cycle CF (dB)	0.17	
--------------------	------	--

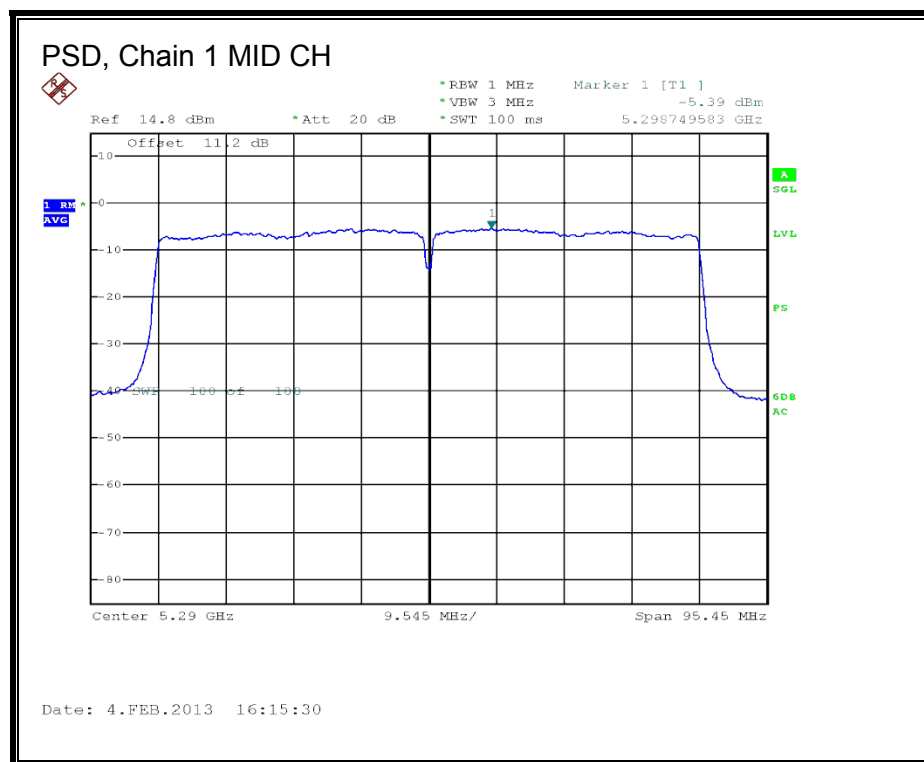
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Mid	5290	-6.74	-5.39	-2.83	8.14	-10.97

PSD, Chain 0



PSD, Chain 1



8.18. 802.11n AC80 BF 2TX MODE, 5.3 GHz BAND

8.18.1. 26 dB BANDWIDTH

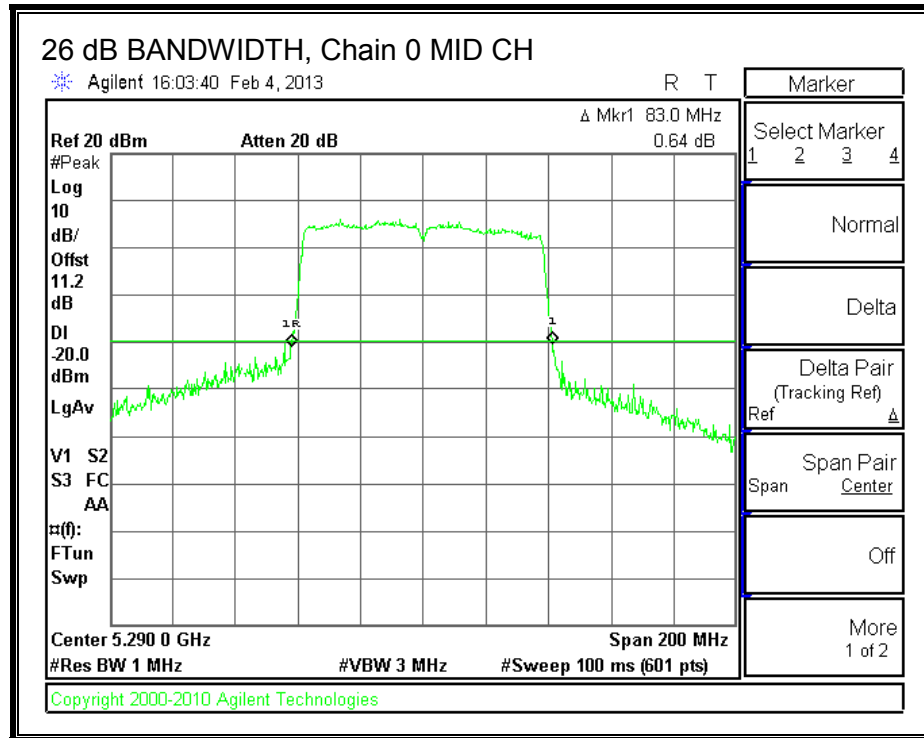
LIMITS

None; for reporting purposes only.

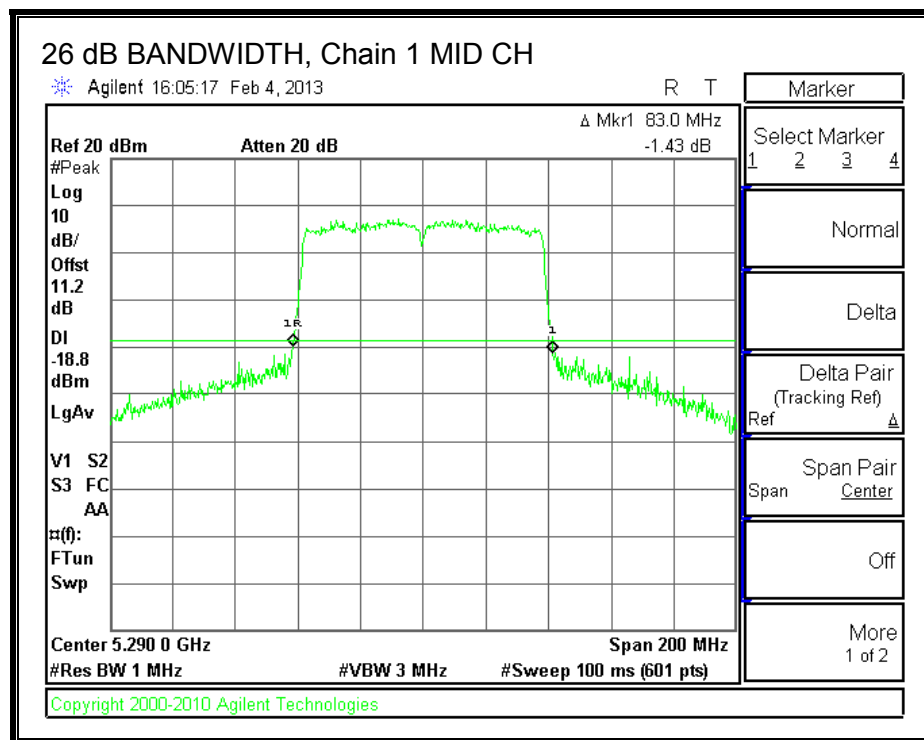
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Mid	5290	83.0	83.0

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.18.2. 99% BANDWIDTH

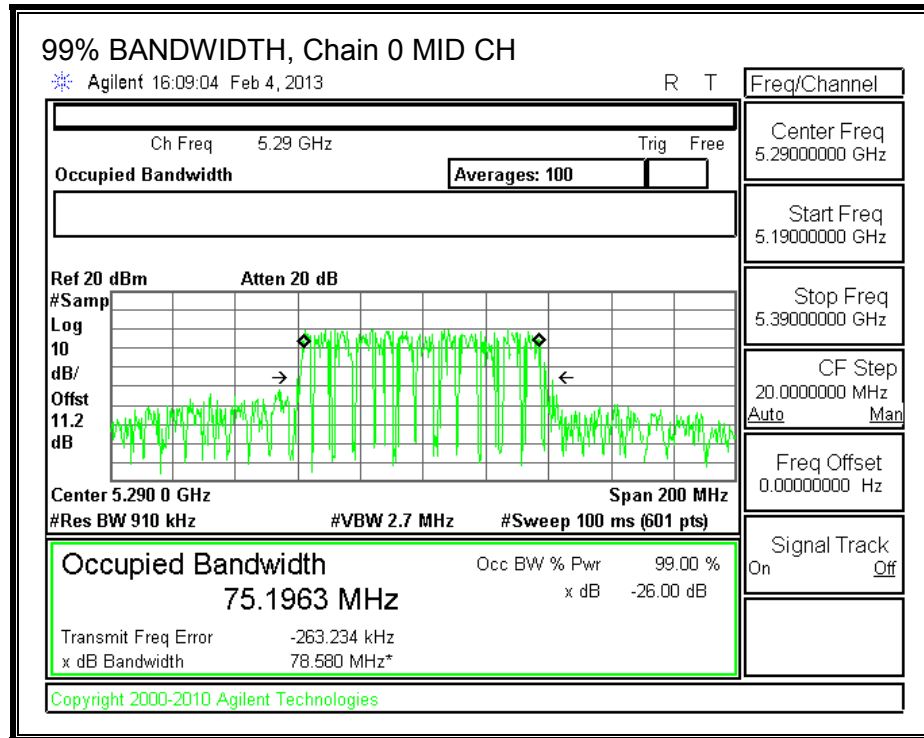
LIMITS

None; for reporting purposes only.

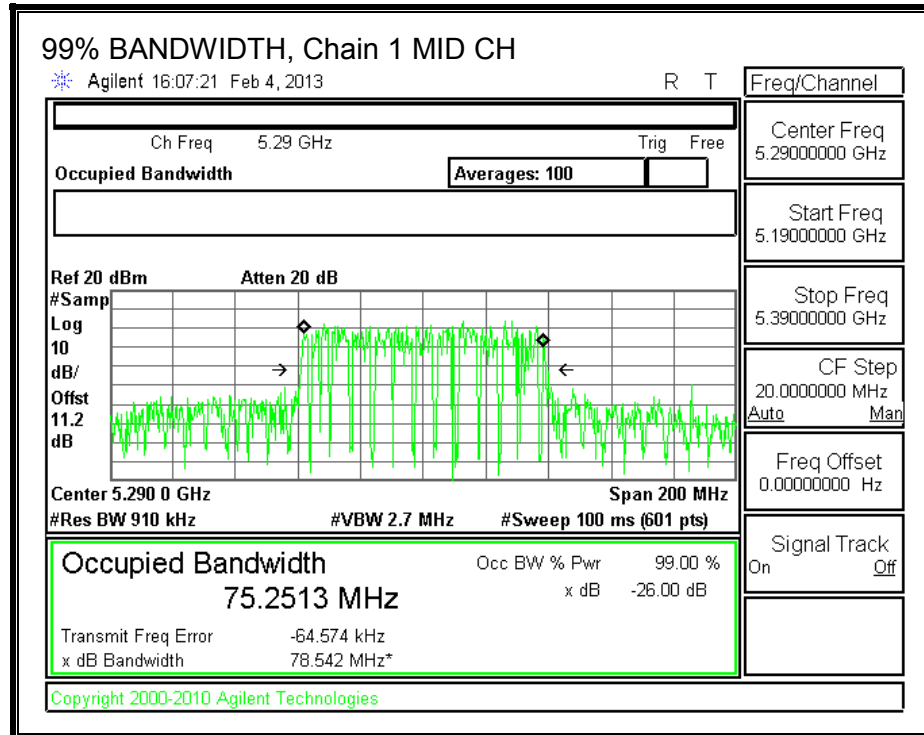
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Mid	5290	75.1963	75.2513

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.18.3. OUTPUT POWER AND PSD

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 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)
6.12	5.57	8.86

OUTPUT POWER RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Mid	5290	83.0	75.1963	8.86

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Mid	5290	21.14	24.00	30.00	21.14	8.14	11.00	8.14

Duty Cycle CF (dB)	0.17	
--------------------	------	--

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	14.12	15.01	17.60	21.14	-3.54

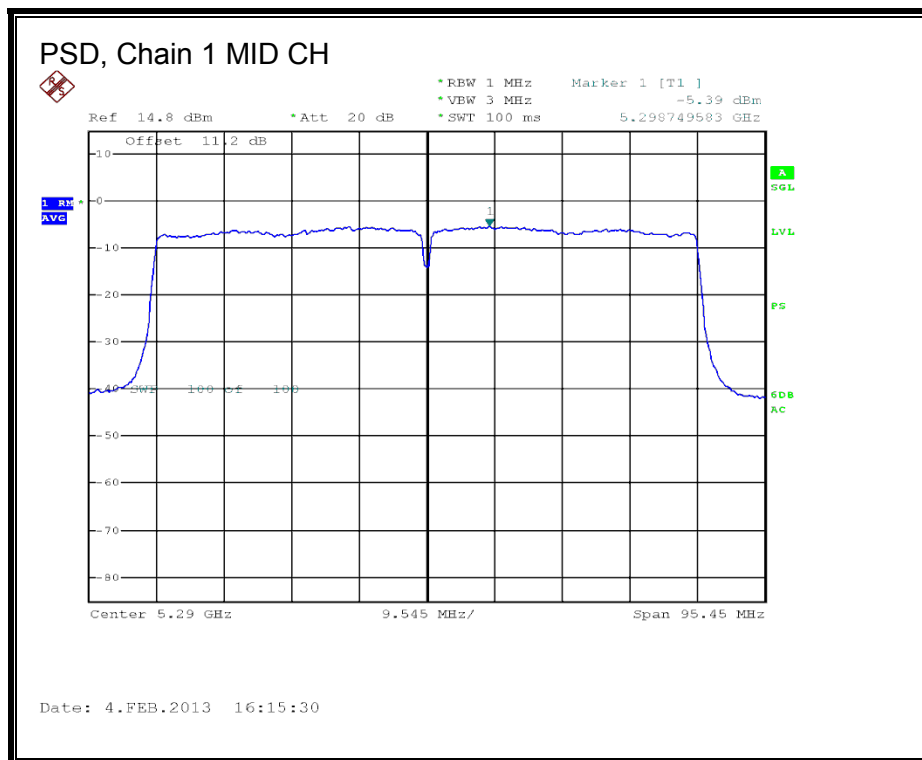
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Mid	5290	-6.74	-5.39	-2.83	8.14	-10.97

PSD, Chain 0



PSD, Chain 1



8.19. 802.11a LEGACY 1TX MODE, 5.6 GHz BAND

8.19.1. 26 dB BANDWIDTH

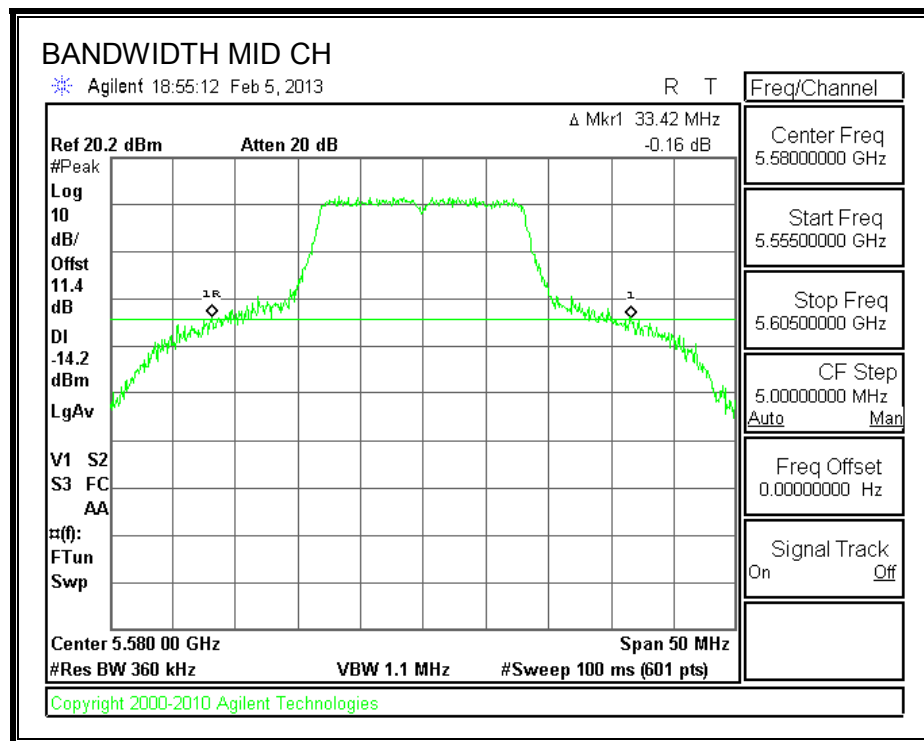
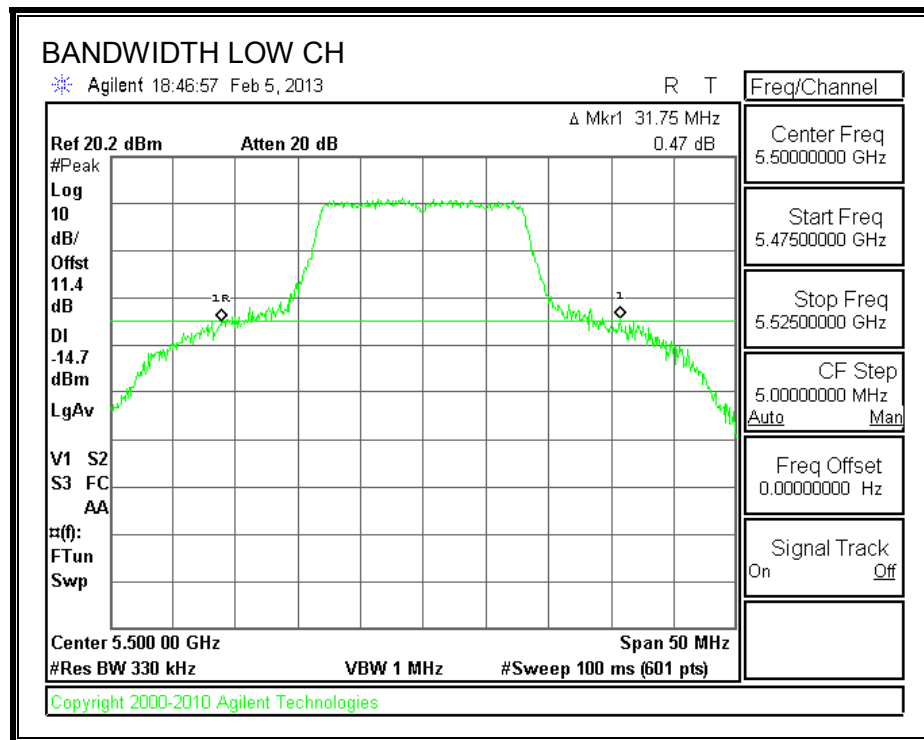
LIMITS

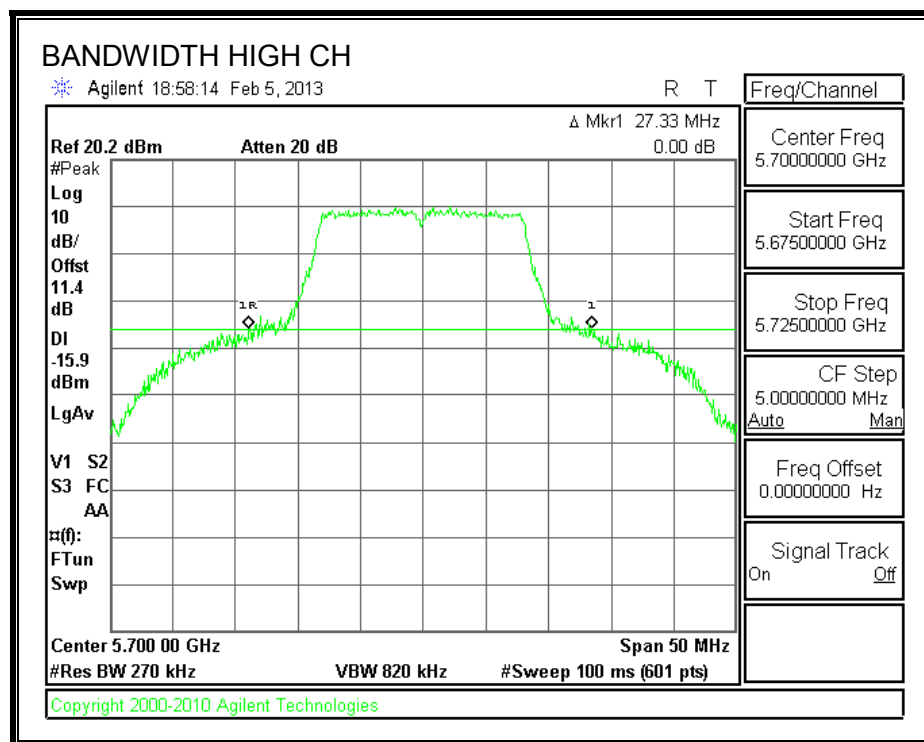
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	31.75
Mid	5580	33.42
High	5700	27.33

26 dB BANDWIDTH





8.19.2. 99% BANDWIDTH

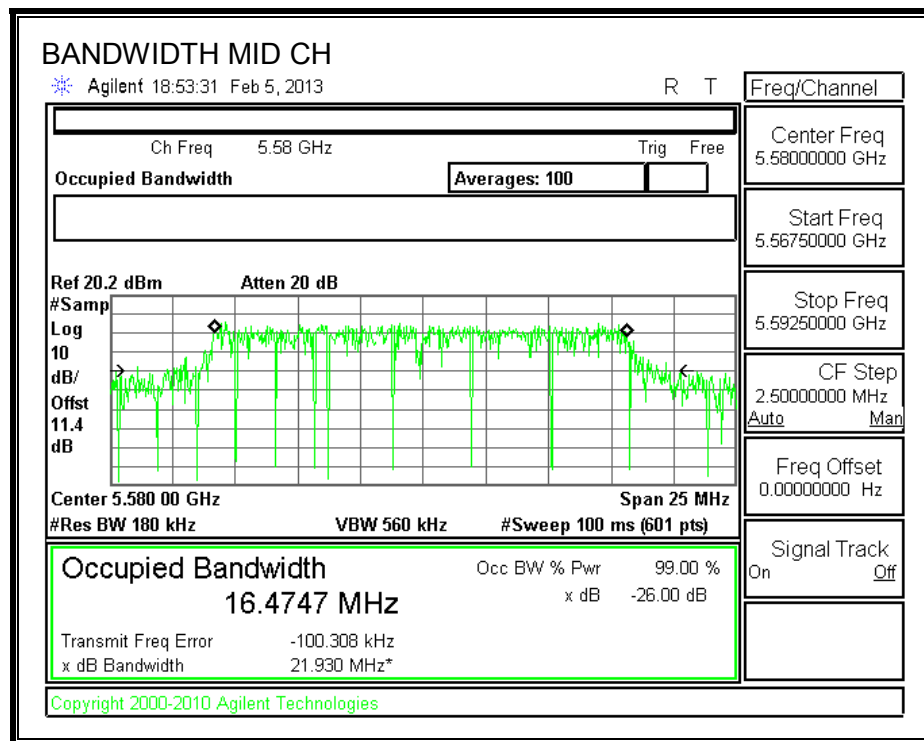
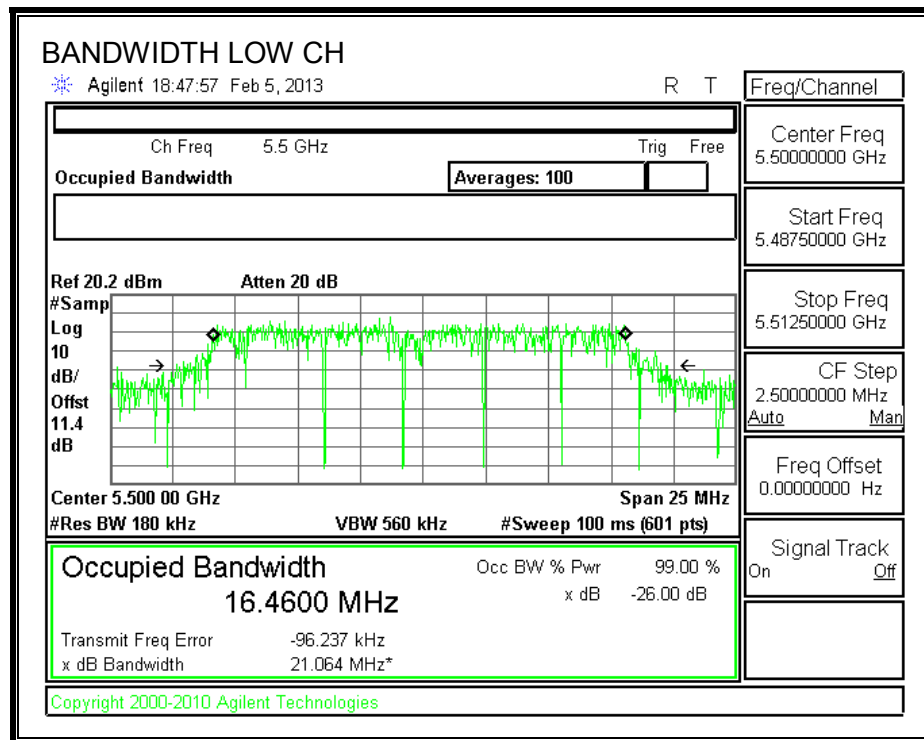
LIMITS

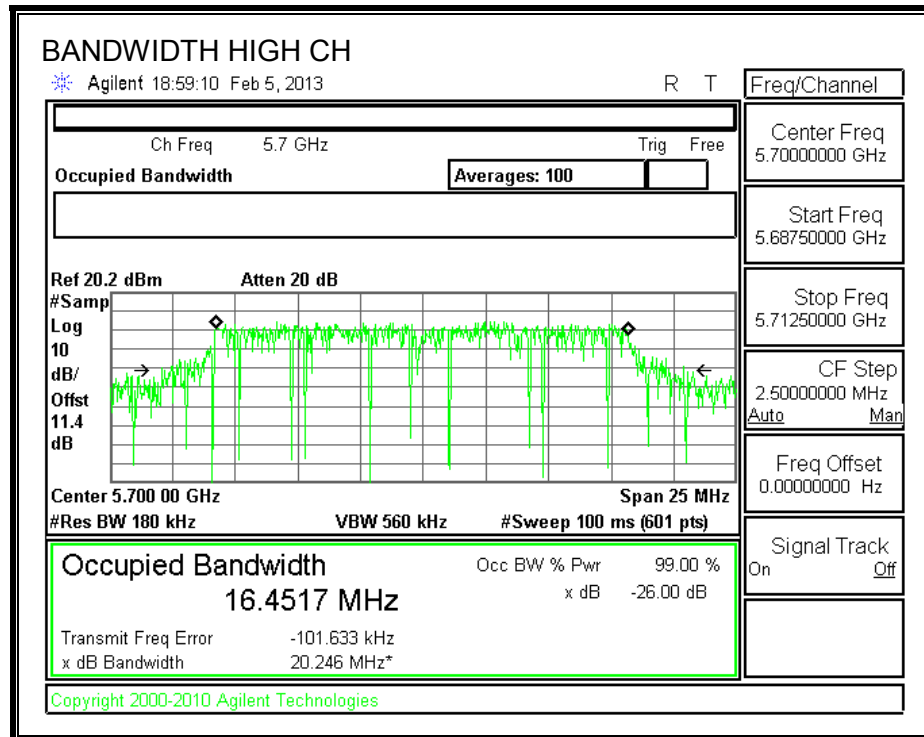
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	16.4600
Mid	5580	16.4747
High	5700	16.4517

99% BANDWIDTH





8.19.3. OUTPUT POWER AND PSD

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	31.75	16.4600	6.61
Mid	5580	33.42	16.4747	6.61
High	5700	27.33	16.4517	6.61

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Low	5500	23.39	23.16	29.16	22.55	10.39	11.00	10.39
Mid	5580	23.39	23.17	29.17	22.56	10.39	11.00	10.39
High	5700	23.39	23.16	29.16	22.55	10.39	11.00	10.39

Duty Cycle CF (dB)	0.00	
--------------------	------	--

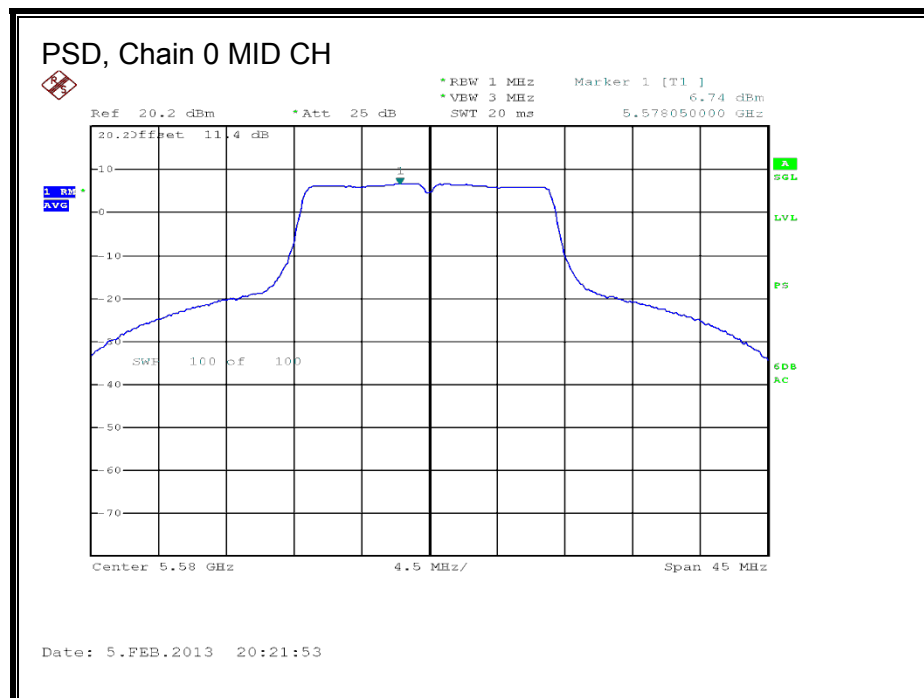
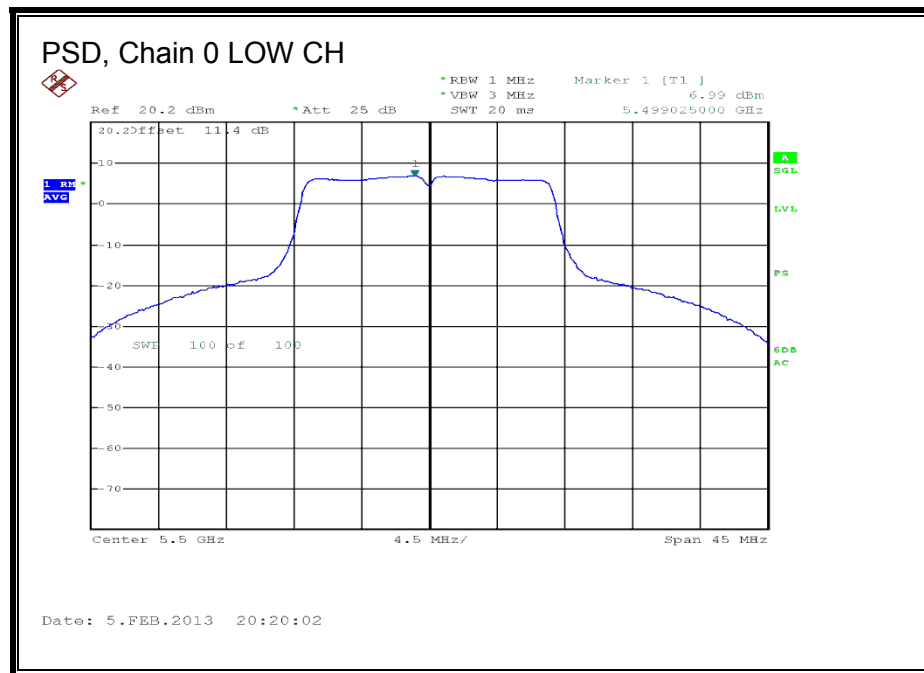
Output Power Results

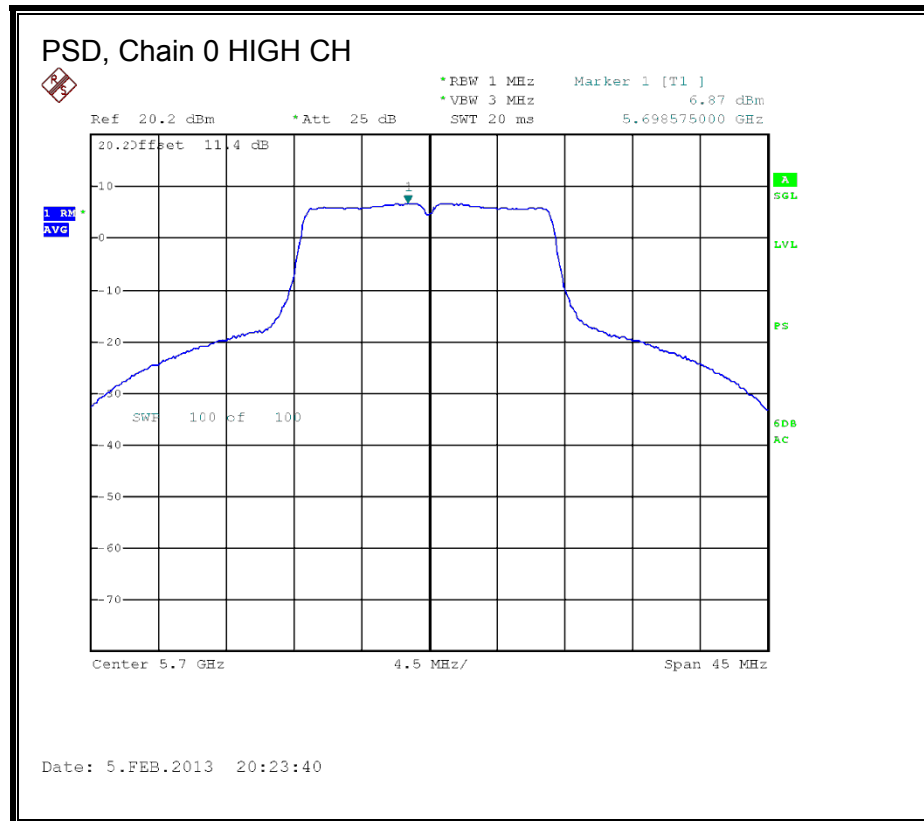
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	20.03	20.03	22.55	-2.52
Mid	5580	20.12	20.12	22.56	-2.44
High	5700	20.02	20.02	22.55	-2.53

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5500	6.99	6.99	10.39	-3.40
Mid	5580	6.74	6.74	10.39	-3.65
High	5700	6.87	6.87	10.39	-3.52

PSD, Chain 0





8.19.4. PEAK EXCURSION

LIMITS

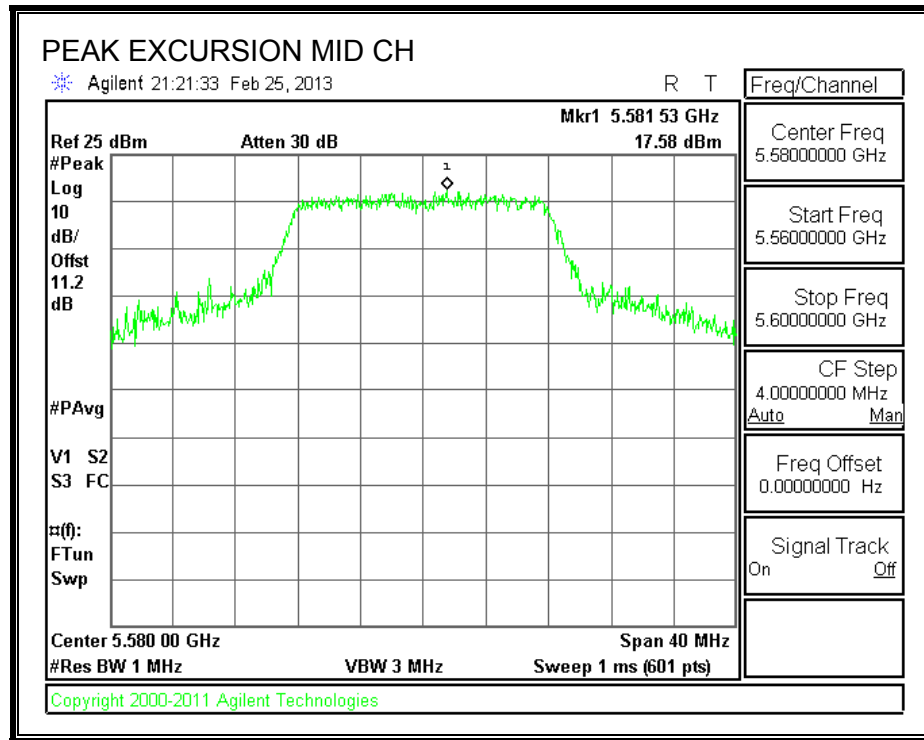
FCC §15.407 (a) (6)

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

RESULTS

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5580	17.58	6.74	0.00	10.84	13	-2.16

PEAK EXCURSION



8.20. 802.11a LEGACY 1TX MODE, CHANNEL 144, 5.6 GHz BAND

8.20.1. 26 dB BANDWIDTH

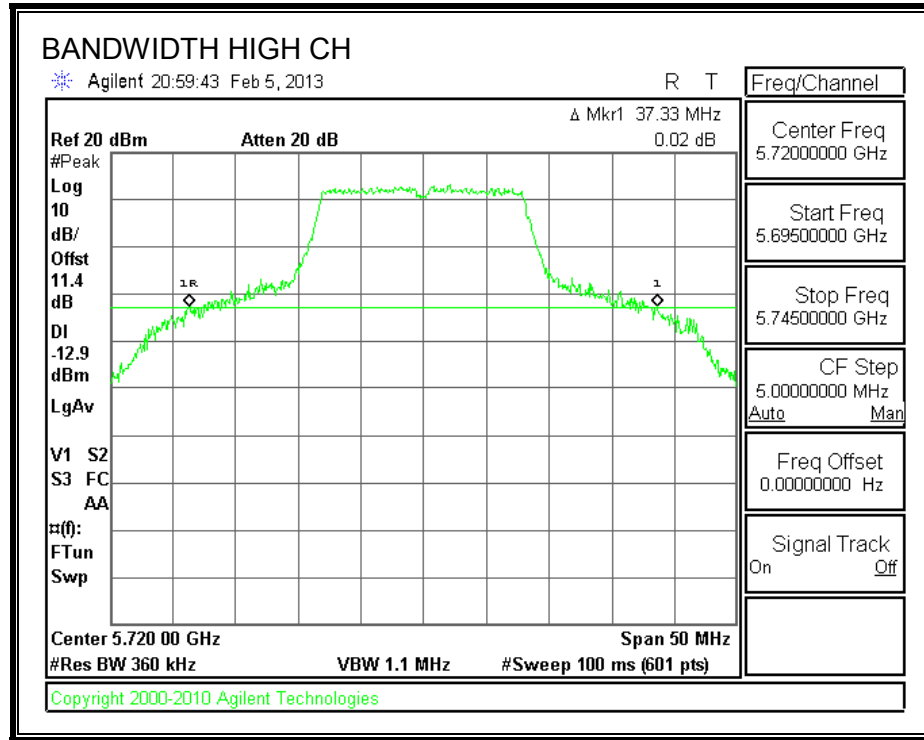
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
High	5720	37.33

26 dB BANDWIDTH



8.20.2. 99% BANDWIDTH

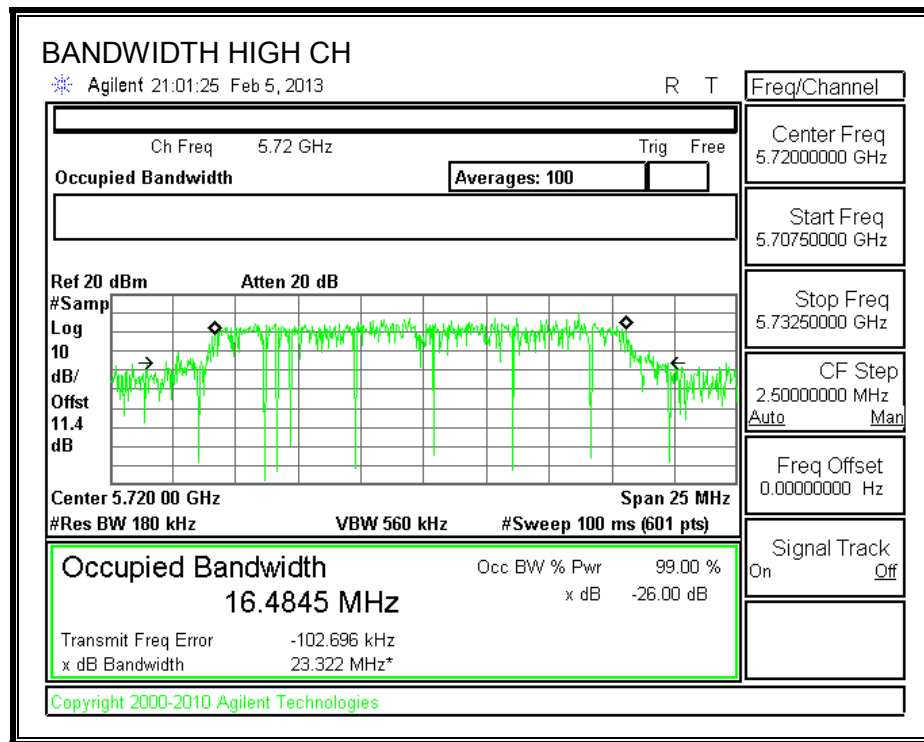
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
High	5720	16.4845

99% BANDWIDTH



8.20.3. OUTPUT POWER AND PSD

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

Limits (FCC), portion in UNII 2 ext band

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
High	5720	23.67	13.2423	6.61

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
High	5720	24.00	22.22	28.22	22.22	10.39	11.00	10.39

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5720	16.06	16.06	22.22	-6.16

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
High	5720	6.120	6.12	10.39	-4.27

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

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
High	5720	13.67	3.2423	6.61

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
High	5720	22.36	16.11	22.11	16.11	10.39	11.00	10.39

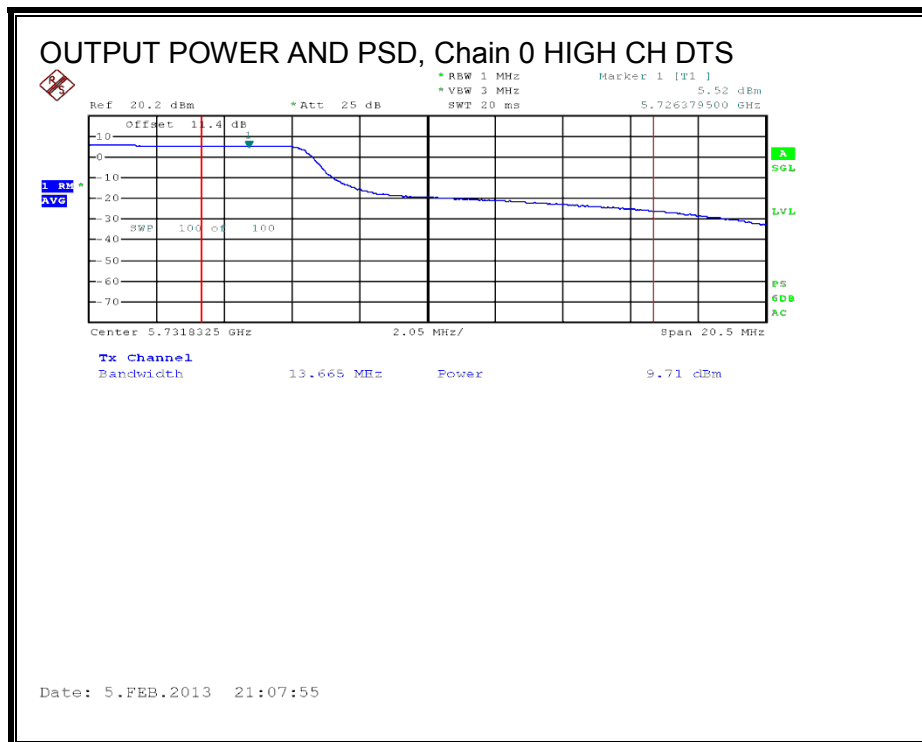
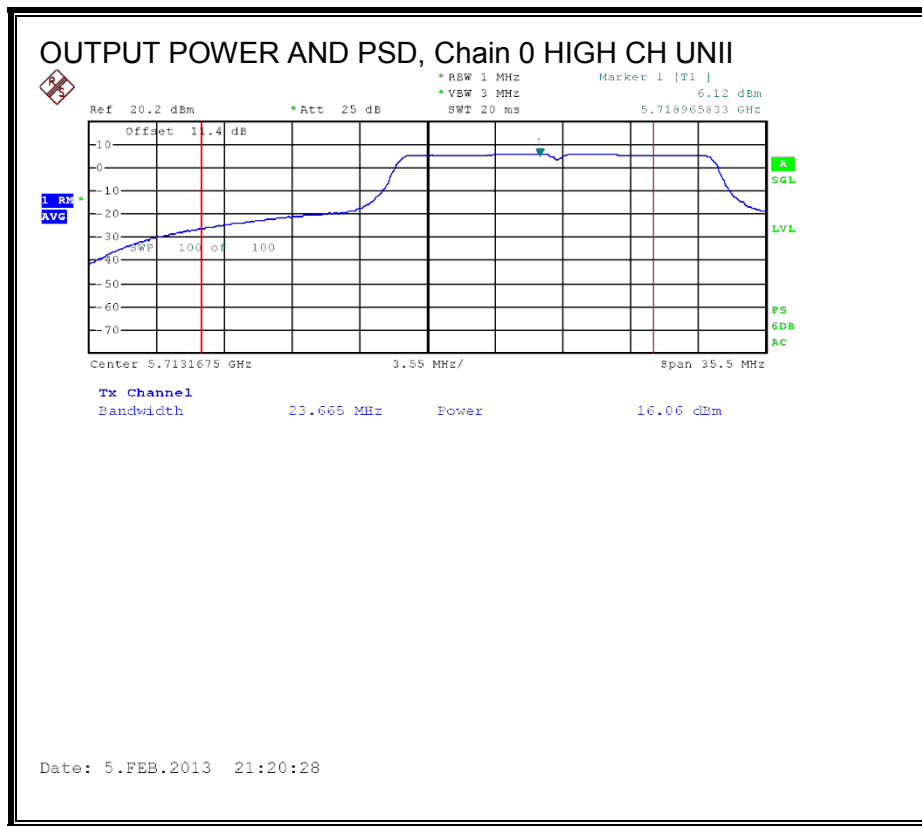
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5720	9.71	9.71	16.11	-6.40

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
High	5720	5.520	5.52	10.39	-4.87

OUTPUT POWER AND PSD, Chain 0



8.21. 802.11n HT20 CDD 2TX MODE, 5.6 GHz BAND

8.21.1. 26 dB BANDWIDTH

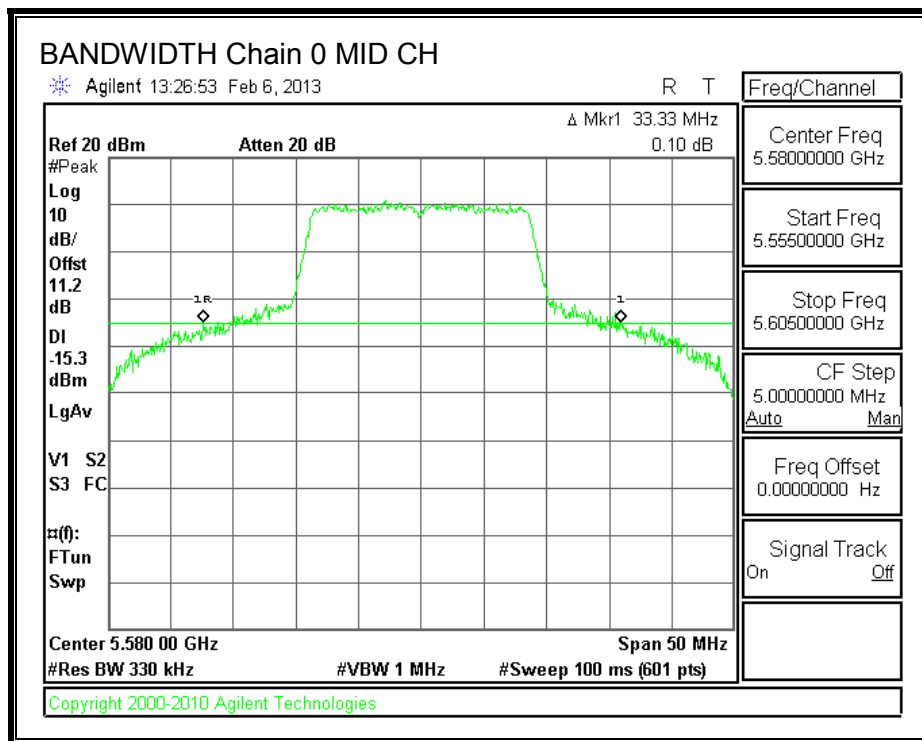
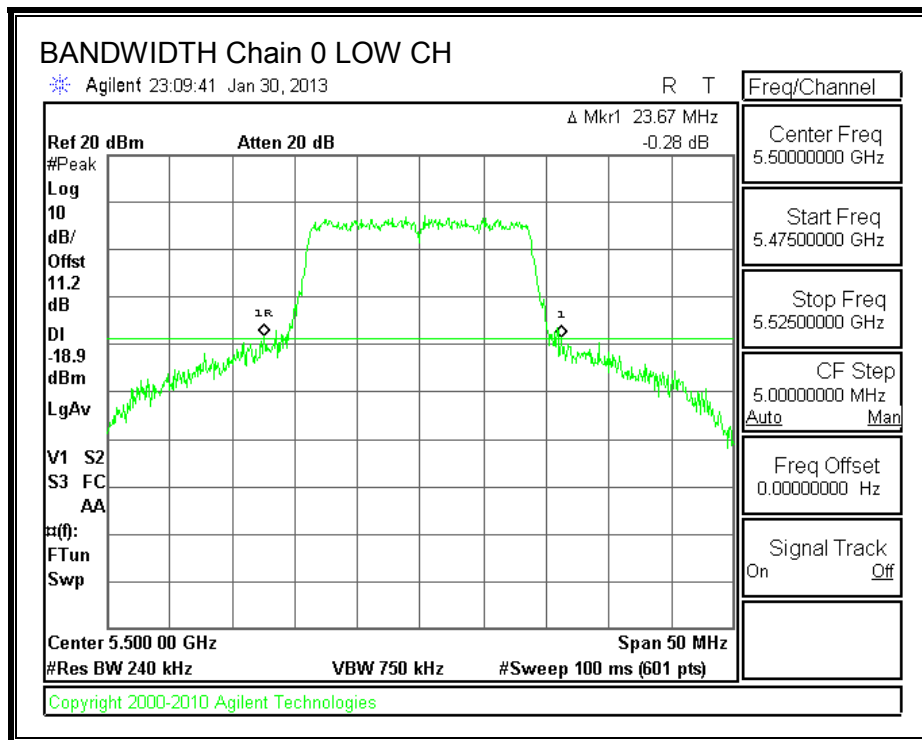
LIMITS

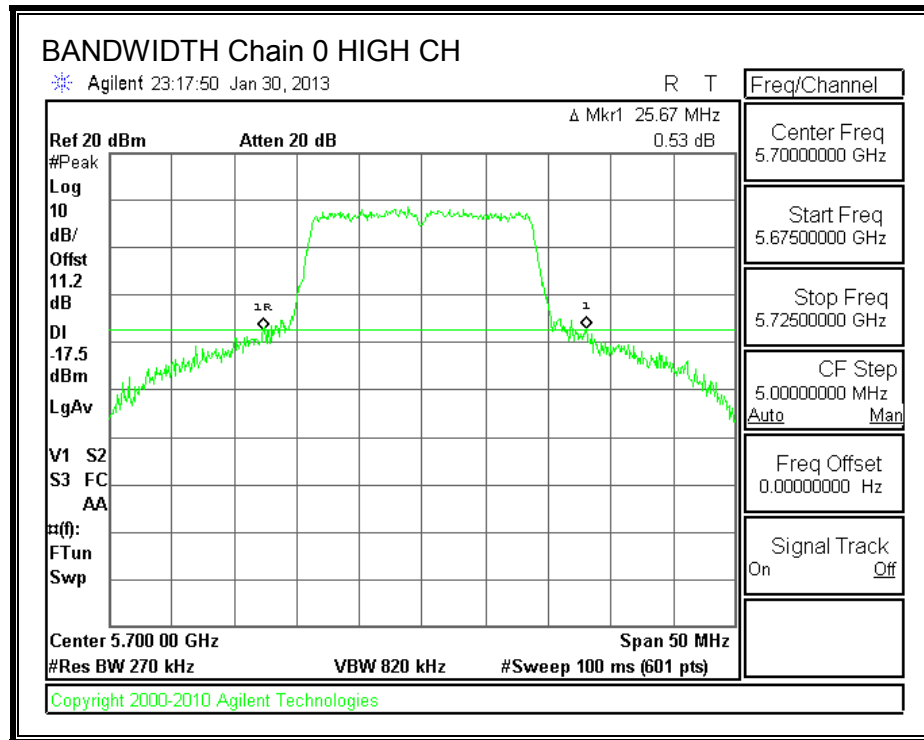
None; for reporting purposes only.

RESULTS

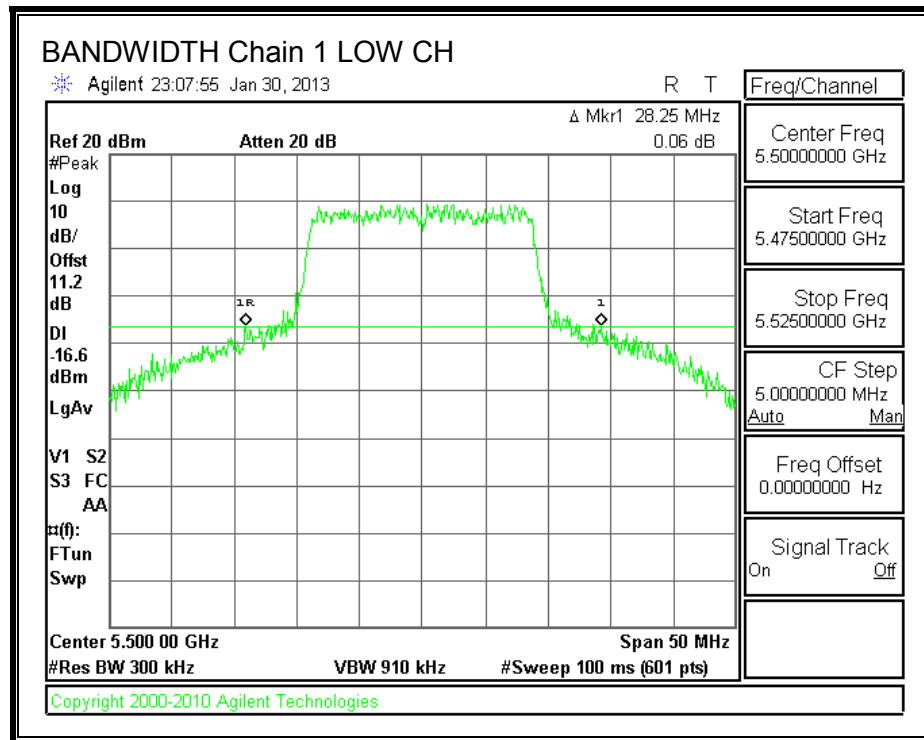
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5500	23.67	28.25
Mid	5580	33.33	35.42
High	5700	25.67	28.25

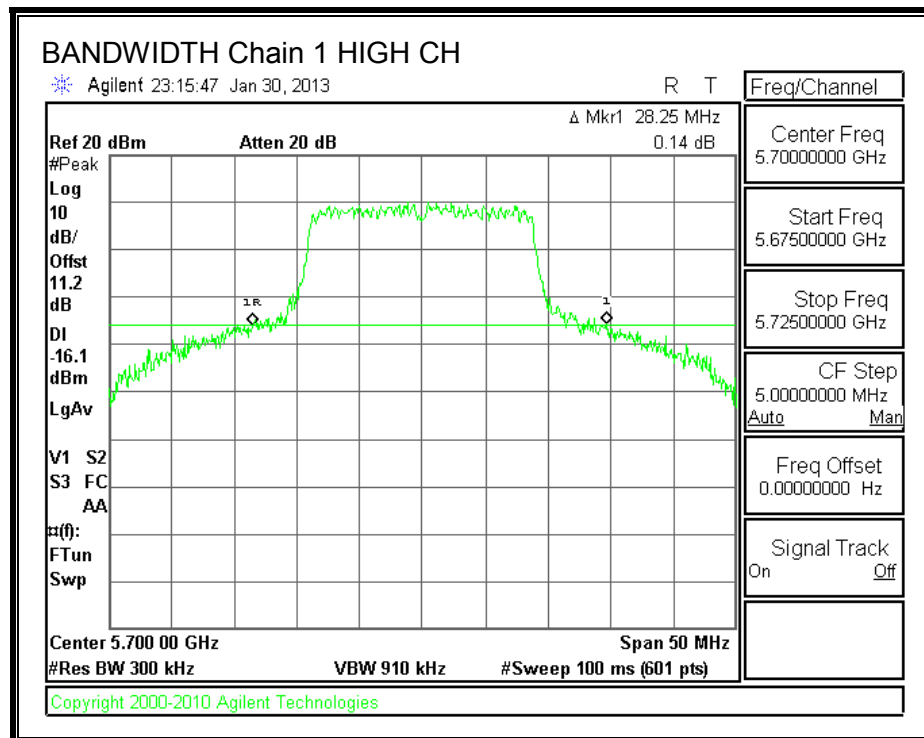
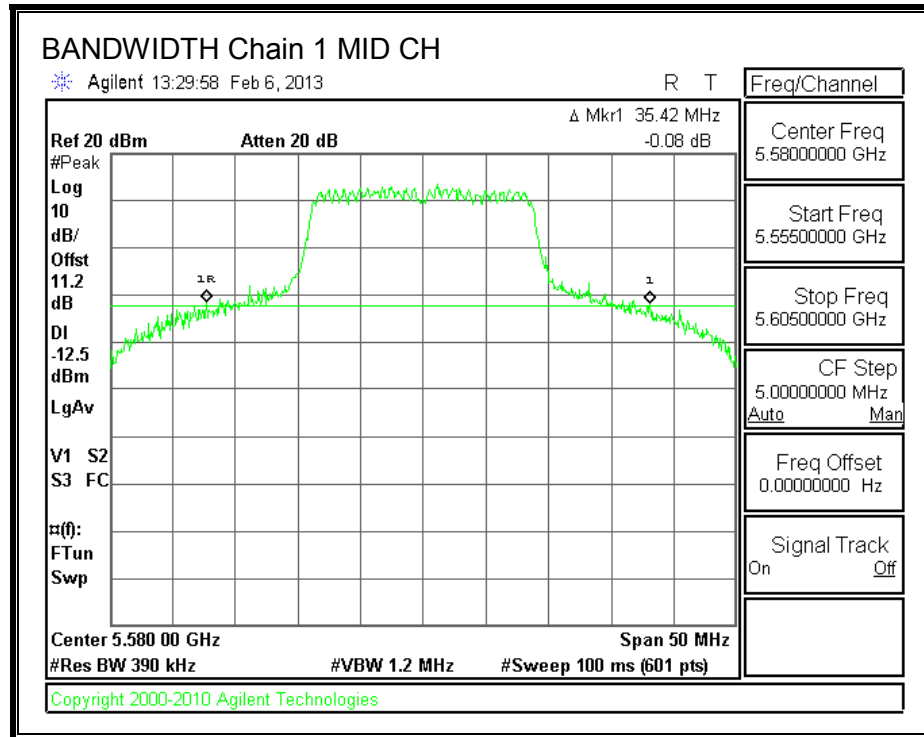
26 dB BANDWIDTH, Chain 0





26 dB BANDWIDTH, Chain 1





8.21.2. 99% BANDWIDTH

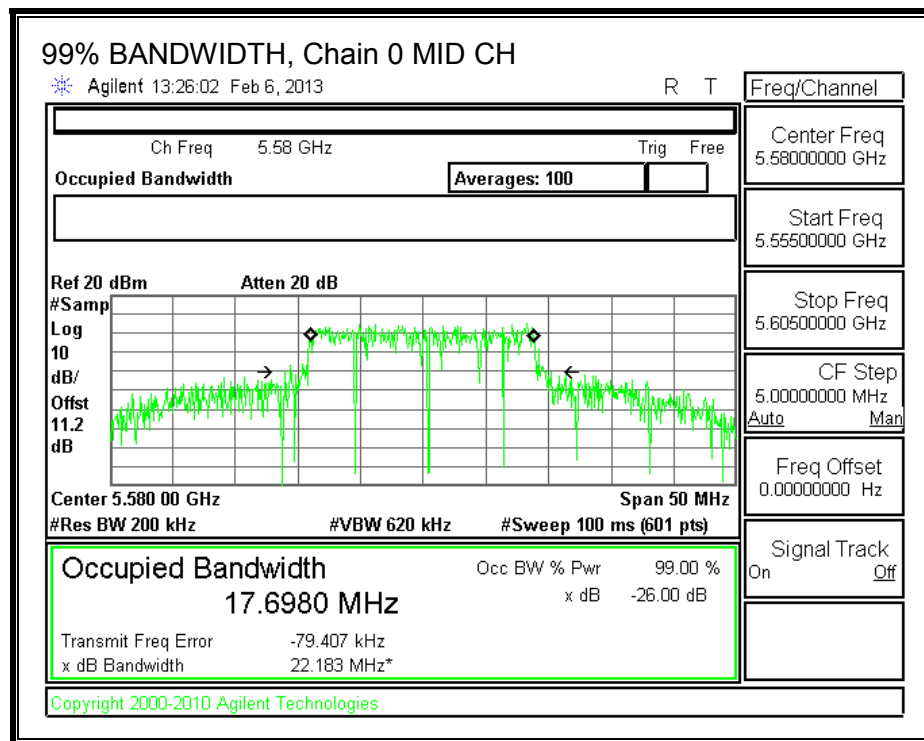
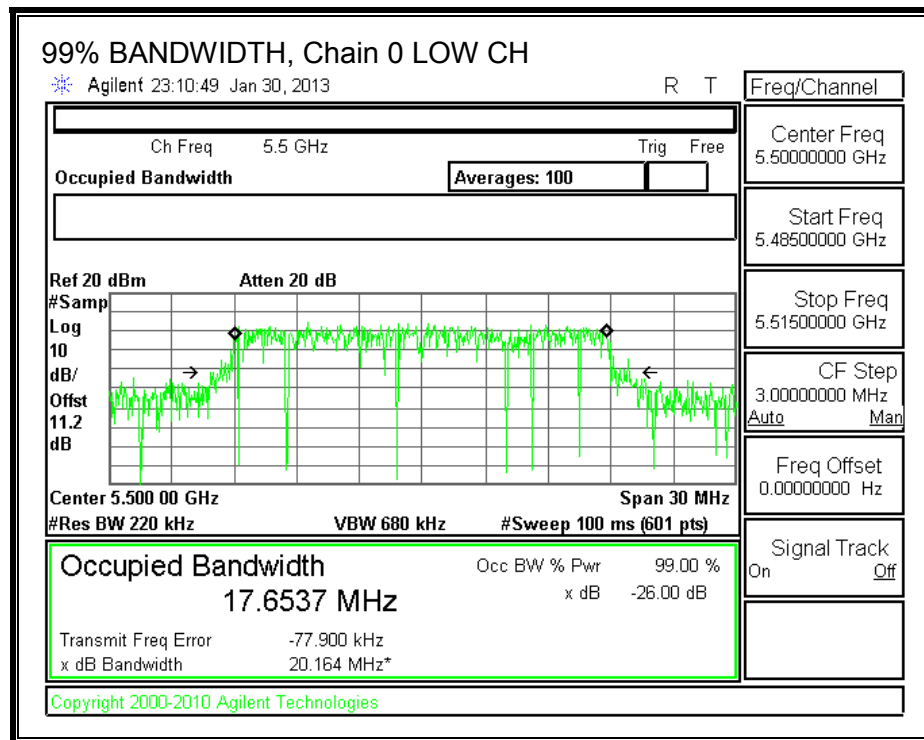
LIMITS

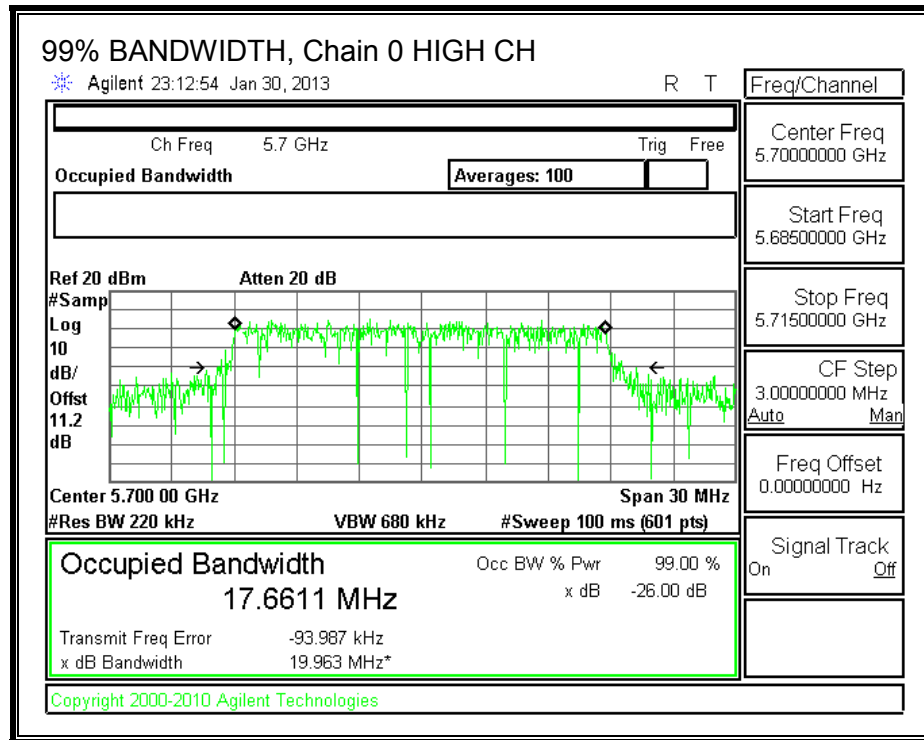
None; for reporting purposes only.

RESULTS

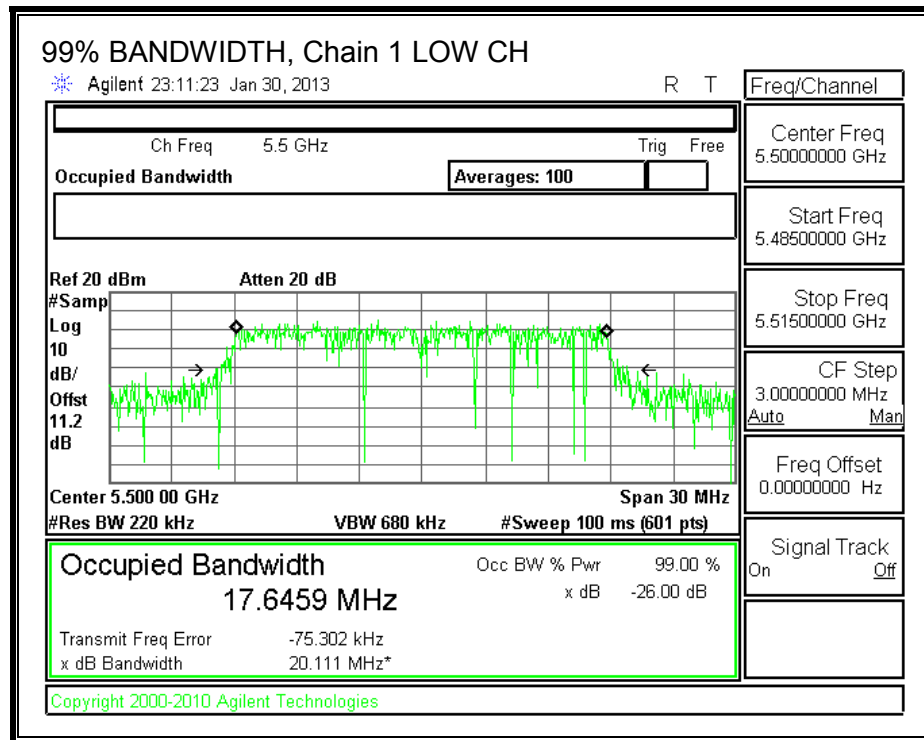
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5500	17.6537	17.6459
Mid	5580	17.6980	17.7260
High	5700	17.6611	17.6747

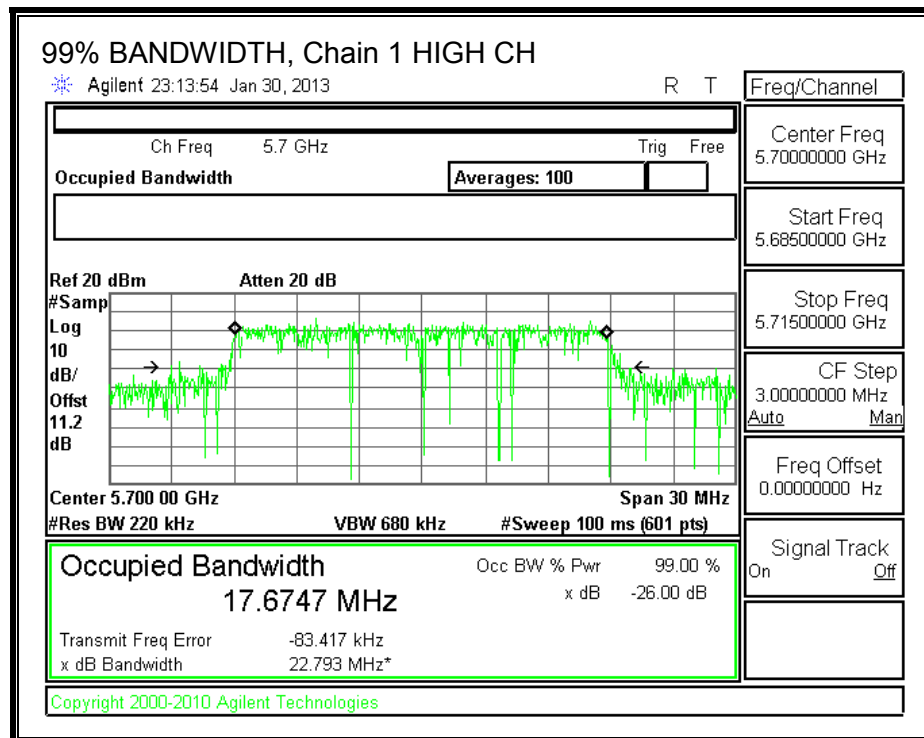
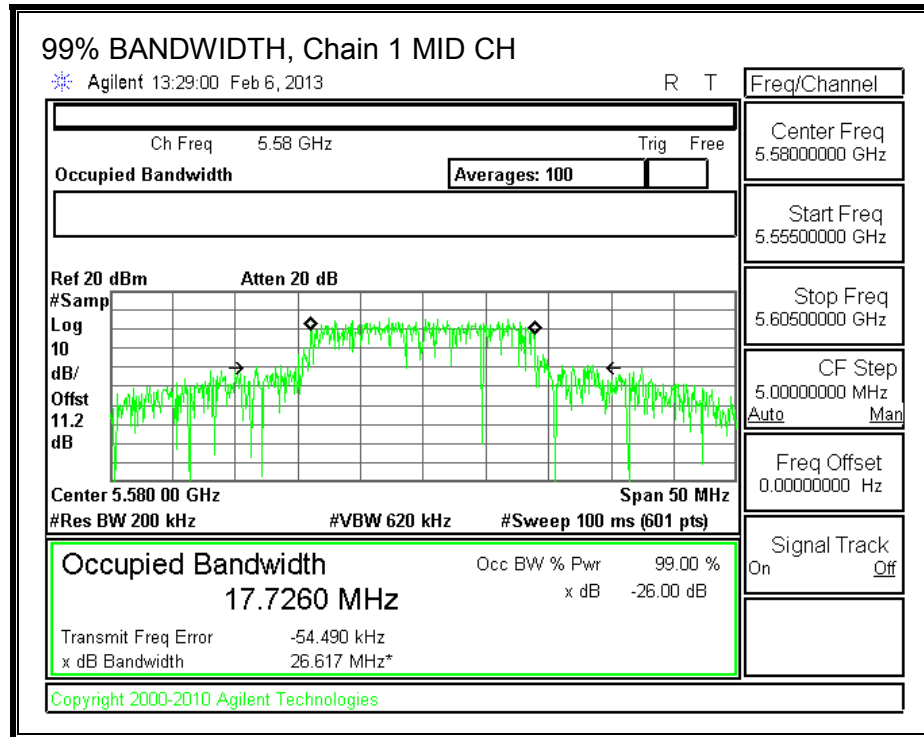
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.21.3. OUTPUT POWER AND PSD

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 unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
6.61	5.77	6.21

For PSD, 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)
6.61	5.77	9.21

OUTPUT POWER RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	23.67	17.6459	6.21
Mid	5580	33.33	17.6980	6.21
High	5700	25.67	17.6611	6.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)
Low	5500	23.79	23.47	29.47	23.26
Mid	5580	23.79	23.48	29.48	23.27
High	5700	23.79	23.47	29.47	23.26

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	18.29	18.53	21.42	23.26	-1.83
Mid	5580	17.68	17.42	20.56	23.27	-2.71
High	5700	15.15	15.97	18.59	23.26	-4.67

PSD RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	23.67	17.6459	9.21
Mid	5580	33.33	17.6980	9.21
High	5700	25.67	17.6611	9.21

Limits

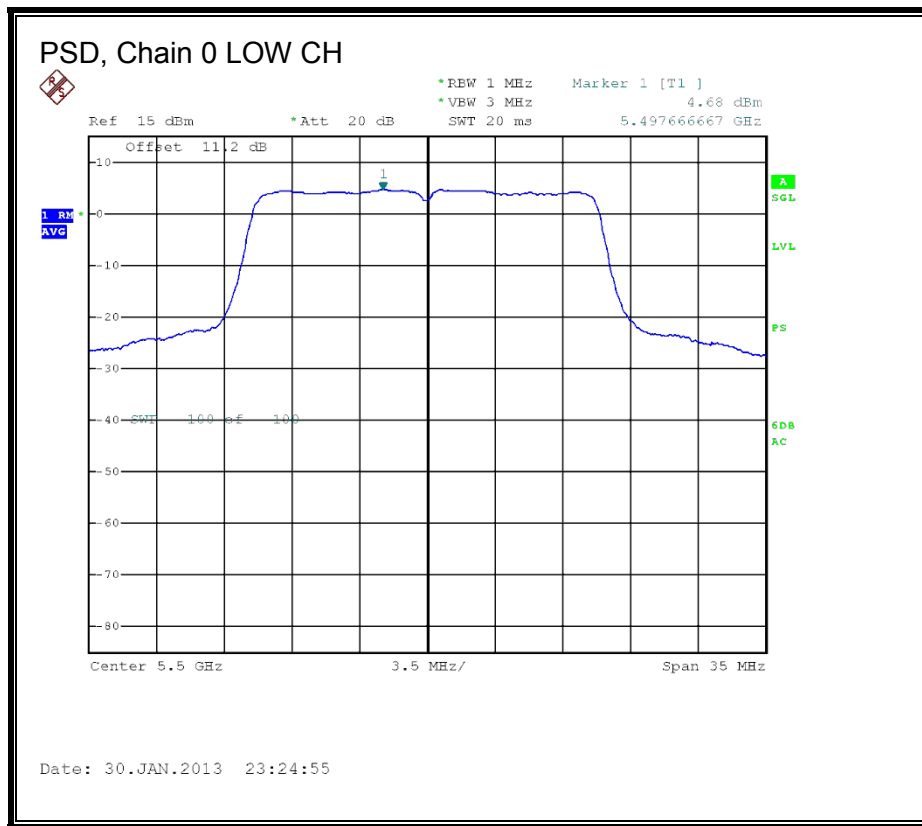
Channel	Frequency (MHz)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Low	5500	7.79	11.00	7.79
Mid	5580	7.79	11.00	7.79
High	5700	7.79	11.00	7.79

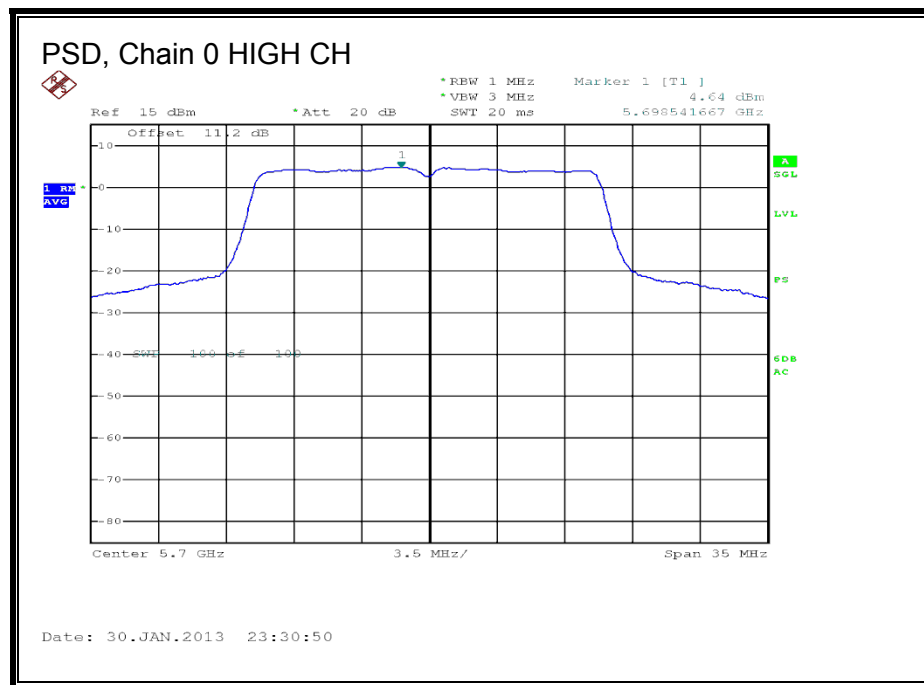
Duty Cycle CF (dB)	0.00	
--------------------	------	--

PSD Results

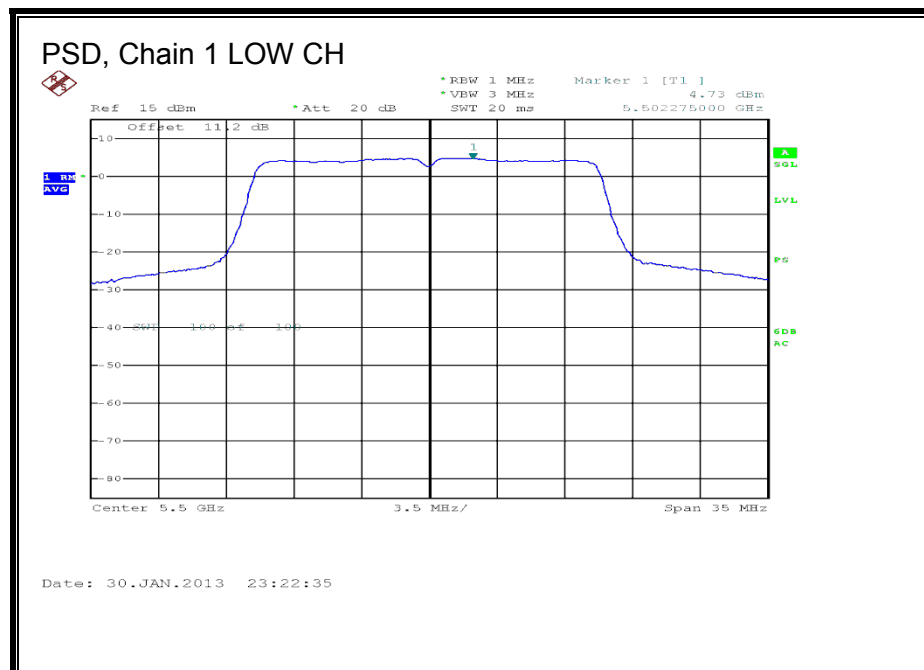
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5500	4.68	4.73	7.72	7.79	-0.07
Mid	5580	4.58	4.52	7.56	7.79	-0.23
High	5700	4.64	4.78	7.72	7.79	-0.07

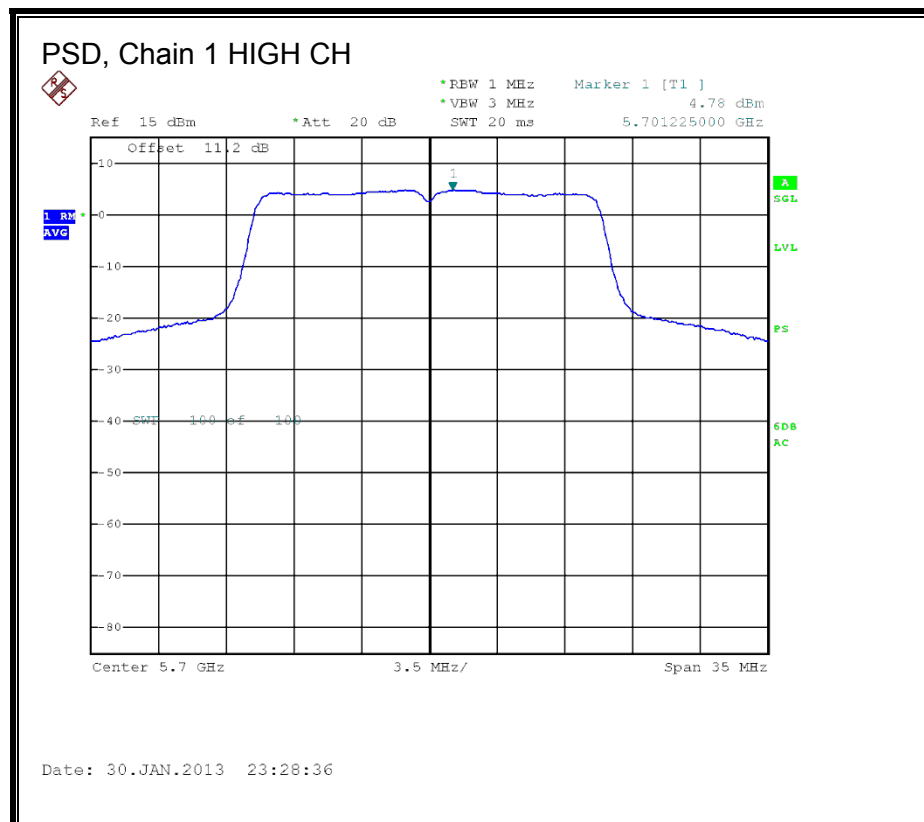
PSD, Chain 0





PSD, Chain 1





8.21.4. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

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

RESULTS

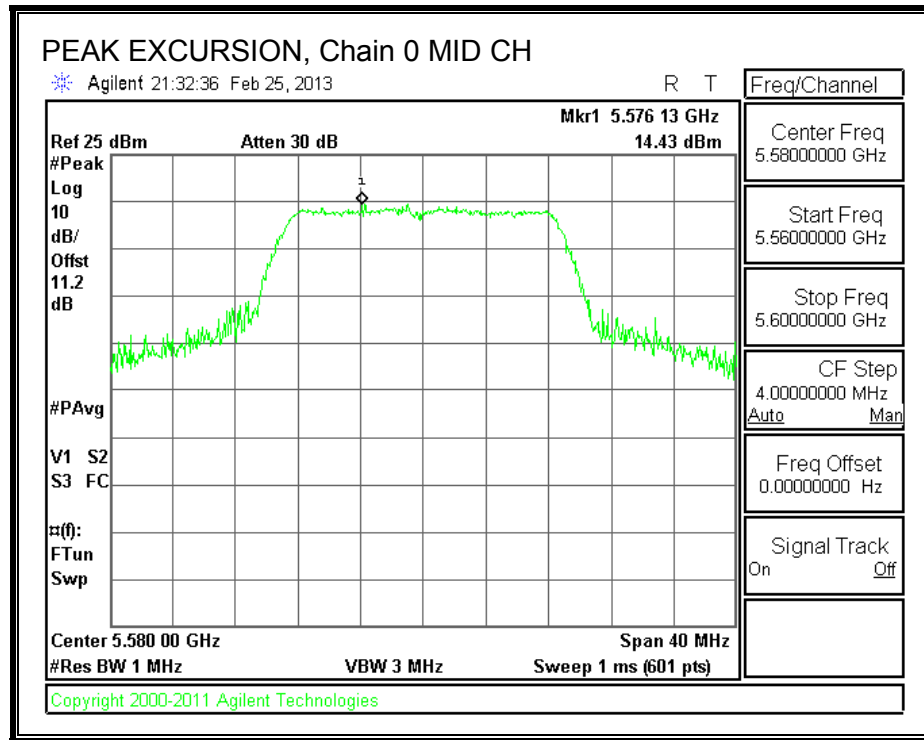
Chain 0

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5200	14.43	4.58	0.00	9.85	13	-3.15

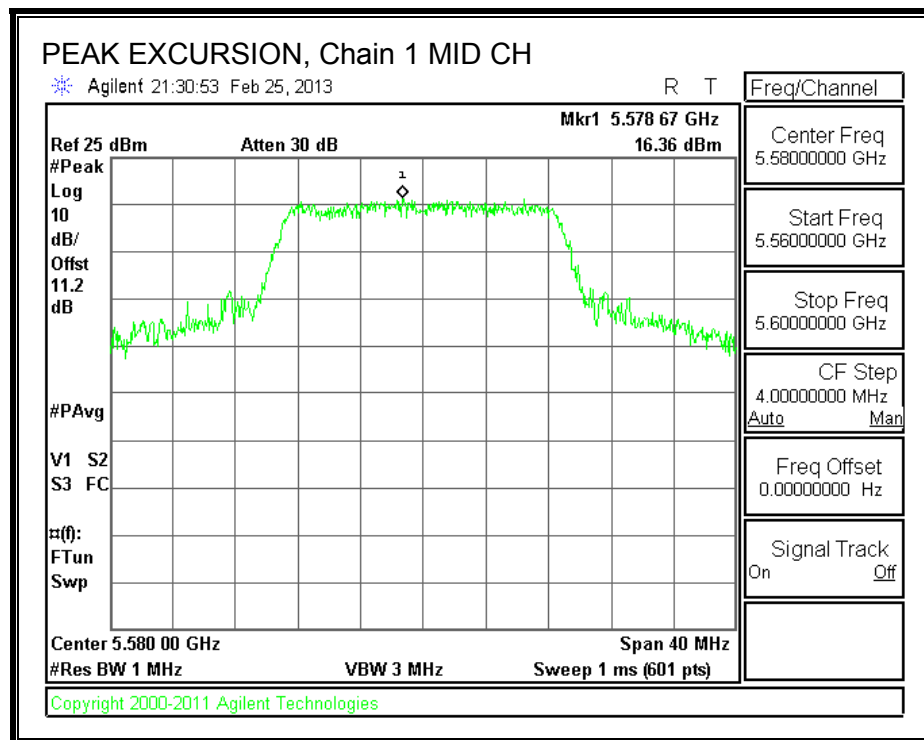
Chain 1

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5200	16.36	4.52	0.00	11.84	13	-1.16

PEAK EXCURSION, Chain 0



PEAK EXCURSION, Chain 1



8.22. 802.11n HT20 CDD 2TX MODE, CHANNEL 144, 5.6 GHz BAND

8.22.1. 26 dB BANDWIDTH- UNII

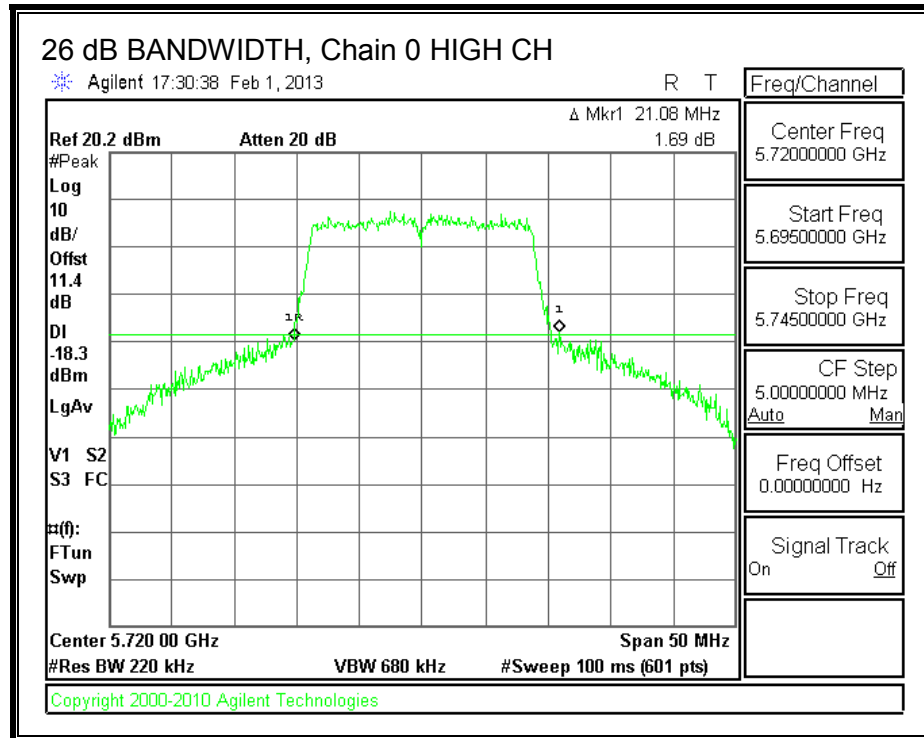
LIMITS

None; for reporting purposes only.

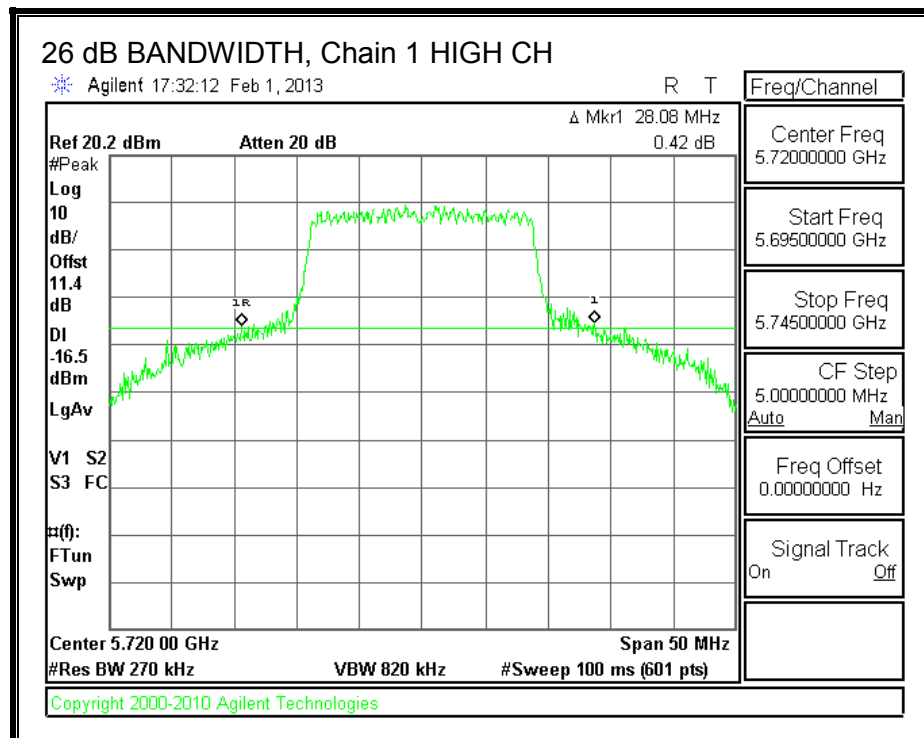
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
High	5720	15.54	19.04

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.22.2. 99% BANDWIDTH

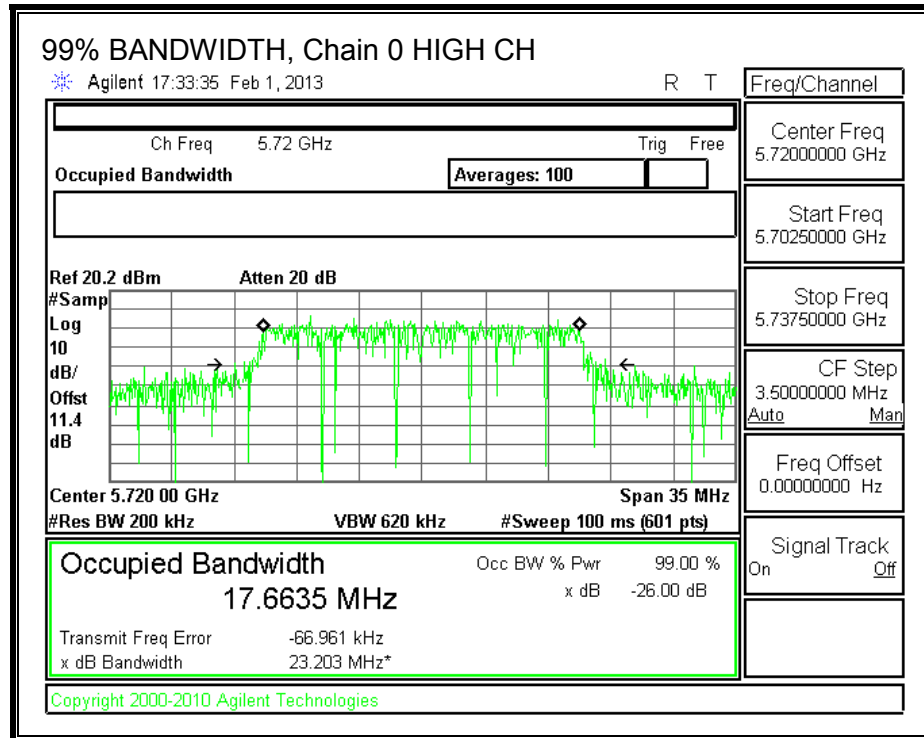
LIMITS

None; for reporting purposes only.

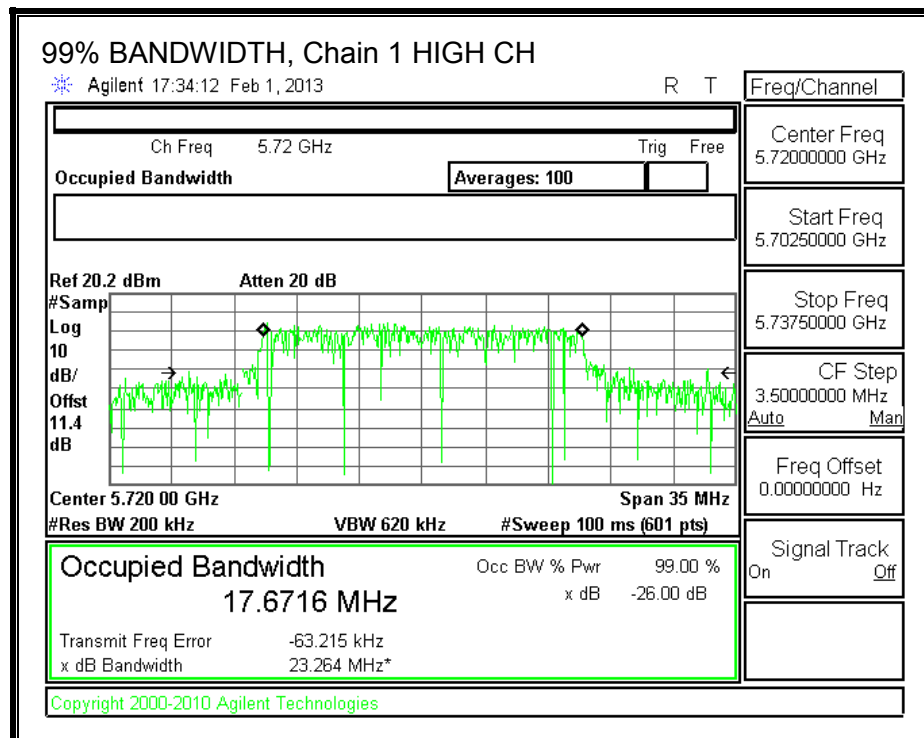
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
High	5720	13.8318	13.8358

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.22.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.247

IC RSS-210 A8.4

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

DIRECTIONAL ANTENNA GAIN

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)
6.61	5.77	6.21

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)
6.61	5.77	9.21

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	15.54	13.8318	9.21	6.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
High	5720	22.70	22.41	28.41	22.20	7.79	11.00	7.79

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	14.80	14.74	17.78	22.20	-4.42

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
High	5720	4.670	4.710	7.70	7.79	-0.09

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

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Correlated Gain (dBi)	Uncorrelated Gain (dBi)
High	5720	5.54	3.8318	9.21	6.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
High	5720	18.23	16.83	22.83	16.62	7.79	11.00	7.79

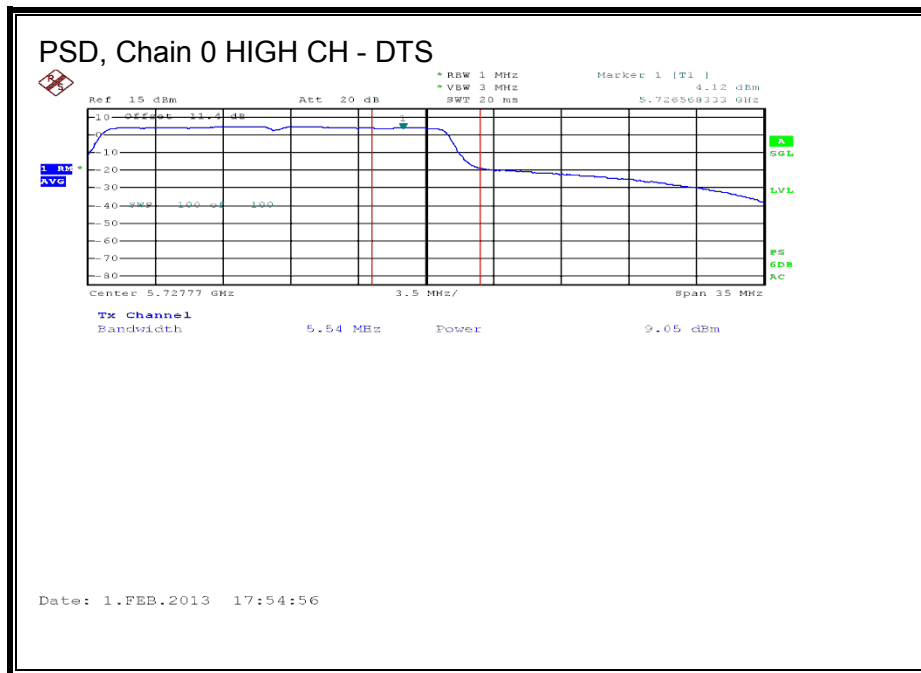
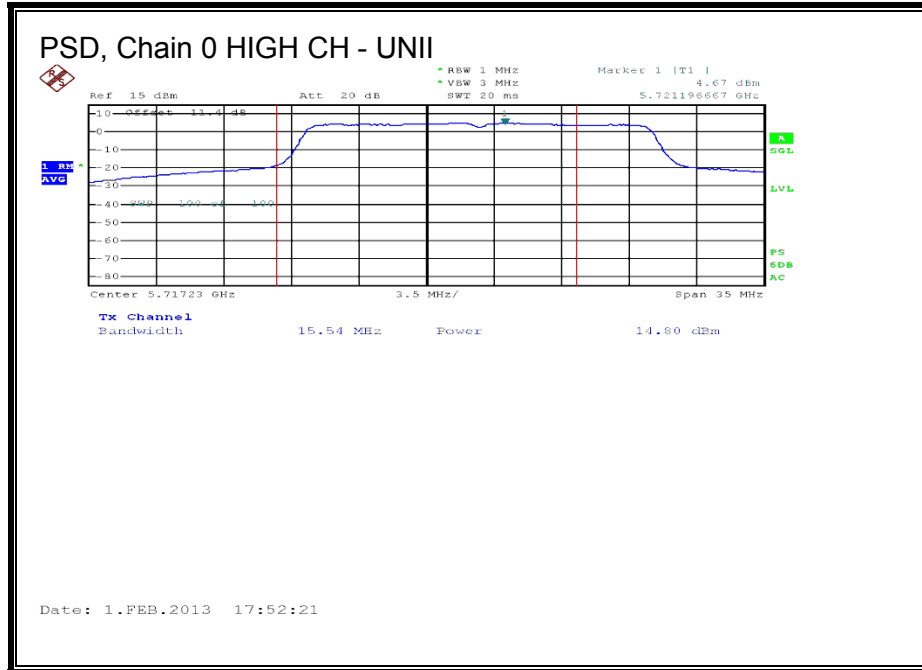
Output Power Results

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	9.05	9.08	12.08	16.62	-4.55

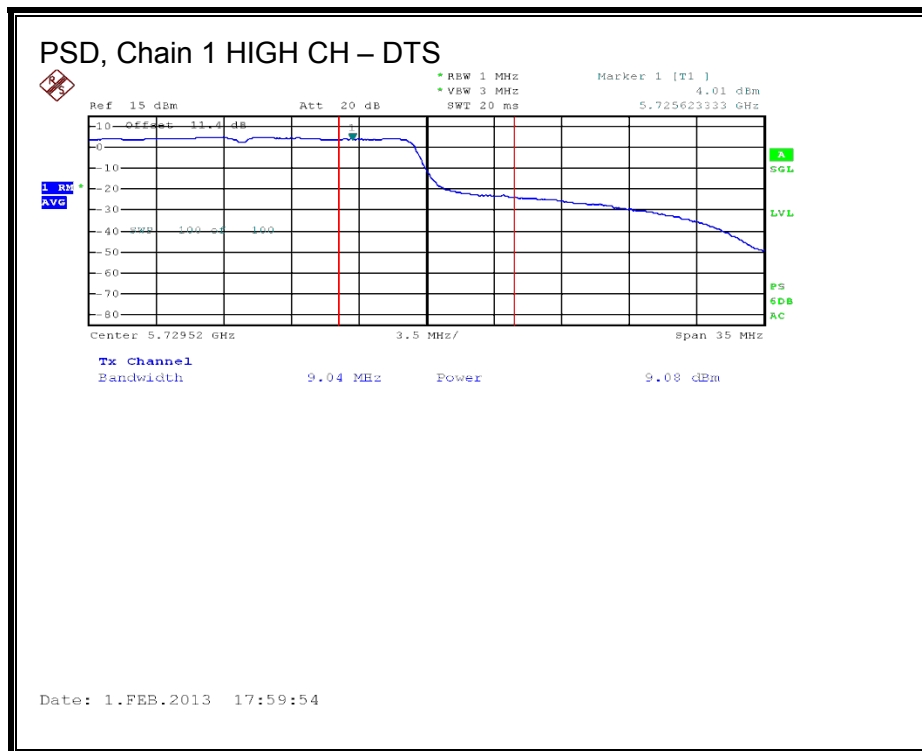
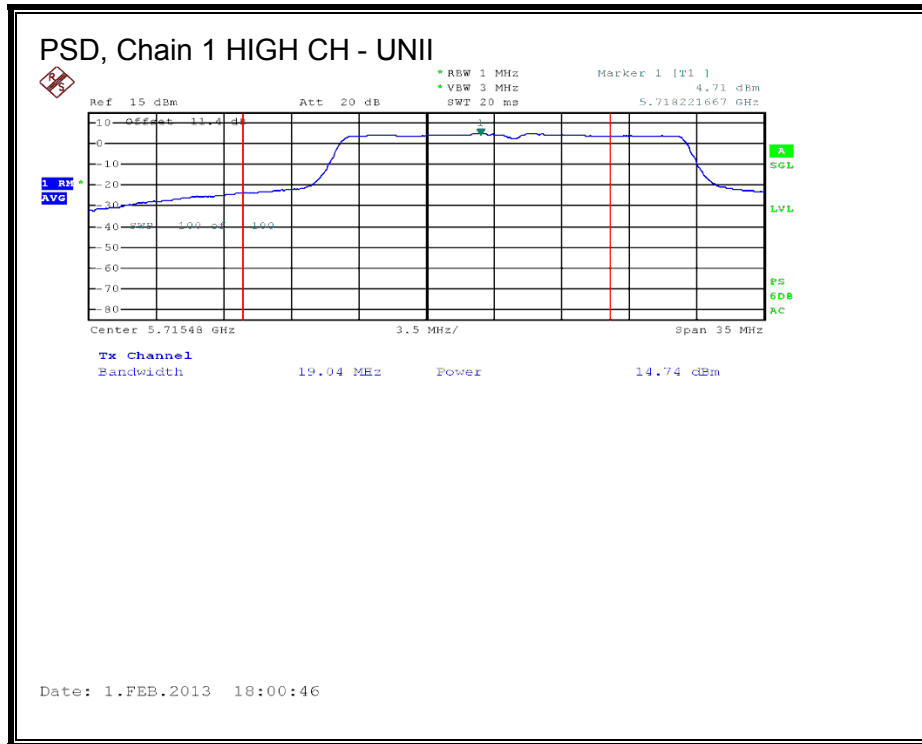
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	Margin (dB)
High	5720	4.120	4.010	7.08	7.79	-0.71

PSD, Chain 0



PSD, Chain 1



8.23. 802.11n HT20 STBC 2TX MODE, 5.6 GHz BAND

8.23.1. 26 dB BANDWIDTH

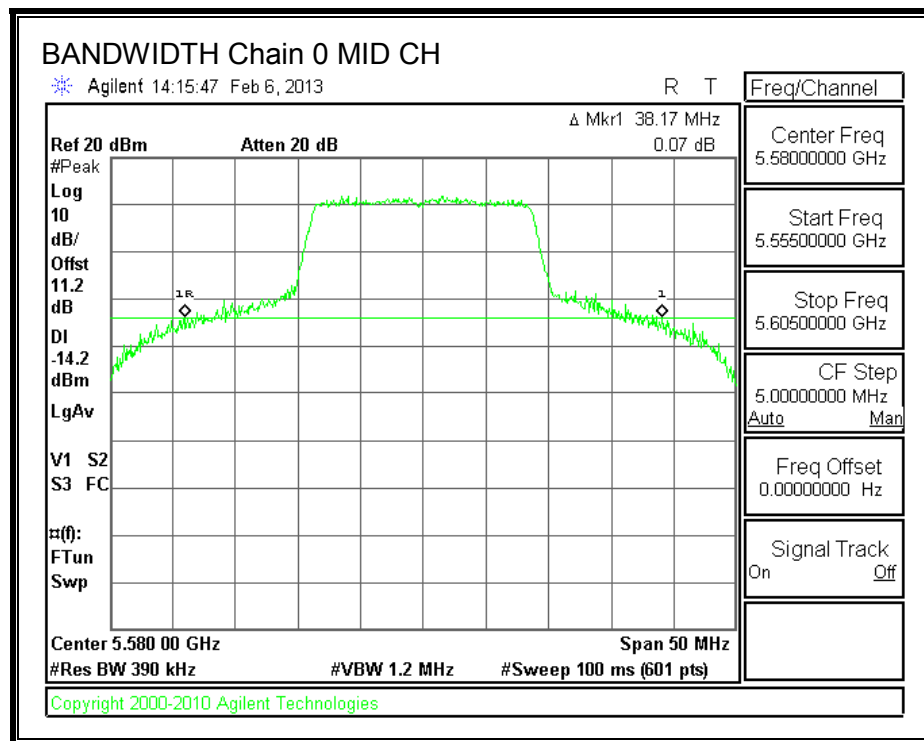
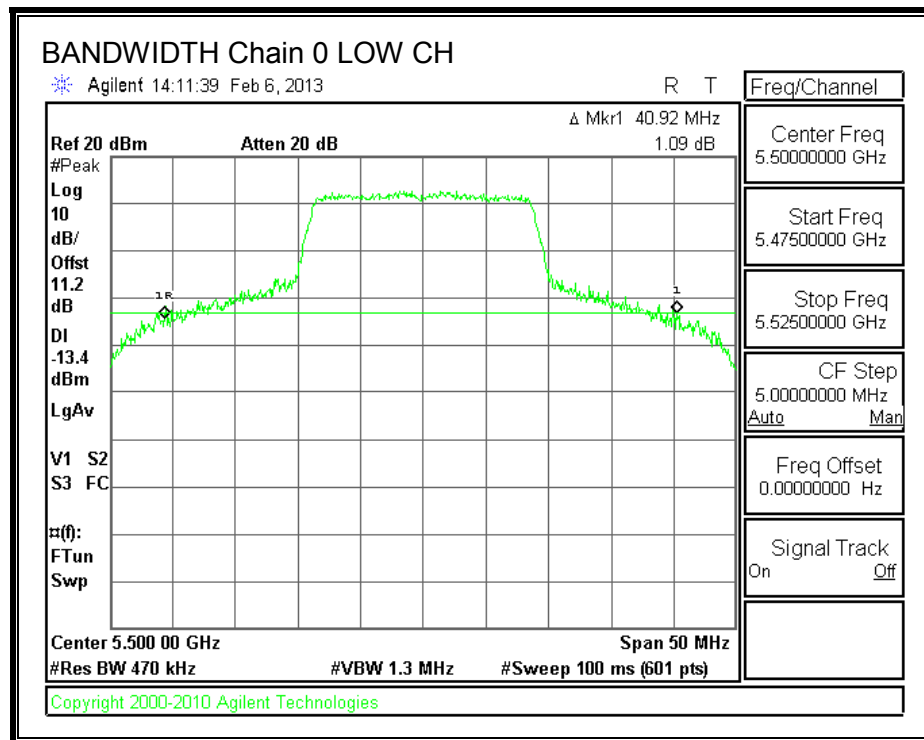
LIMITS

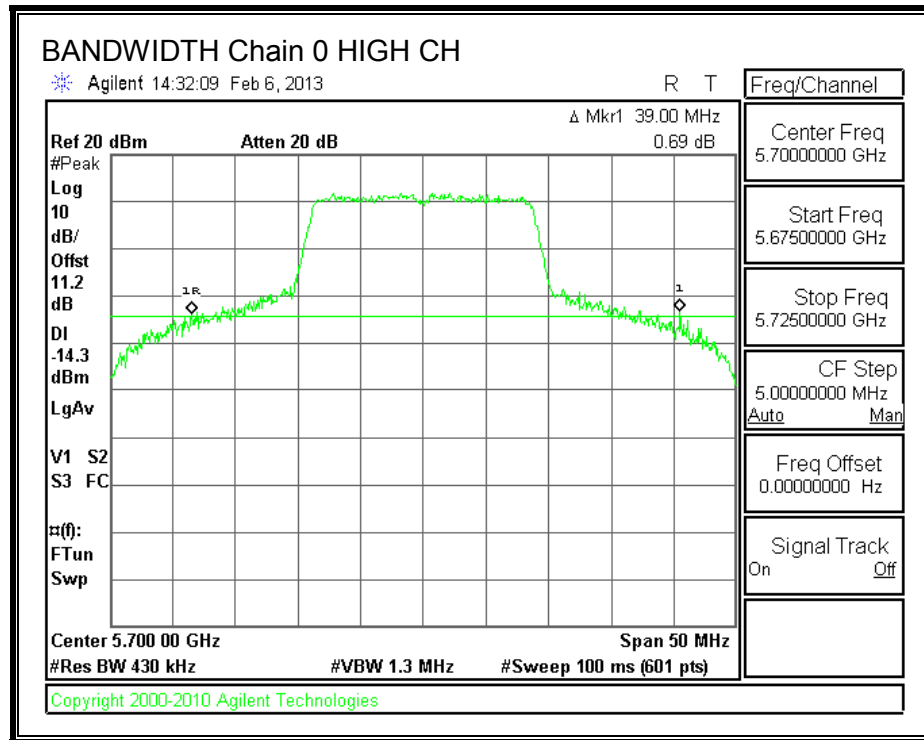
None; for reporting purposes only.

RESULTS

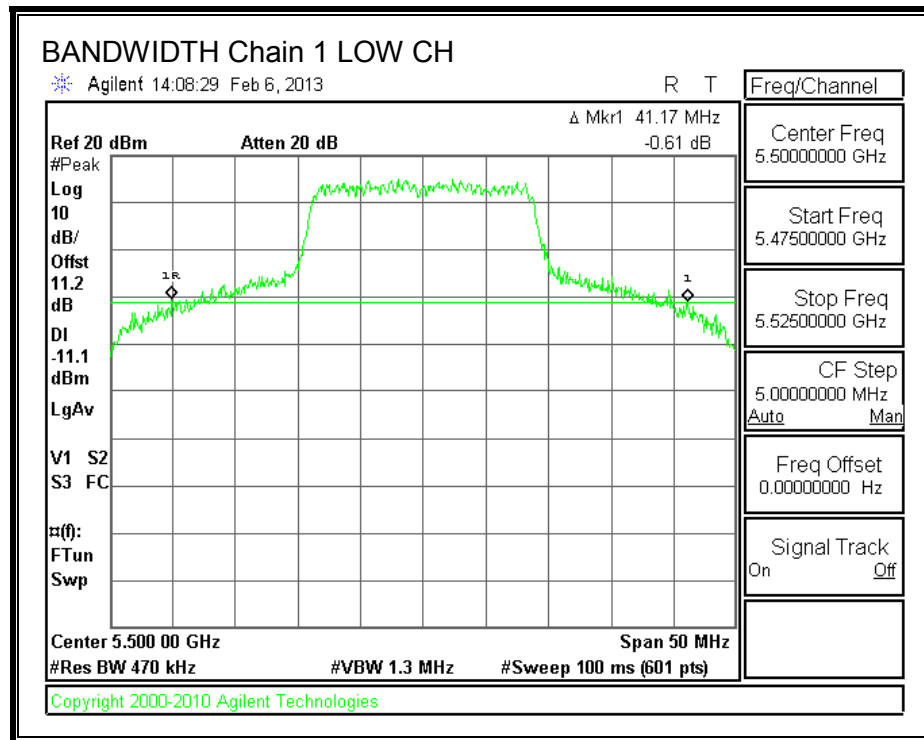
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5500	40.92	41.17
Mid	5580	38.17	37.75
High	5700	39.00	40.75

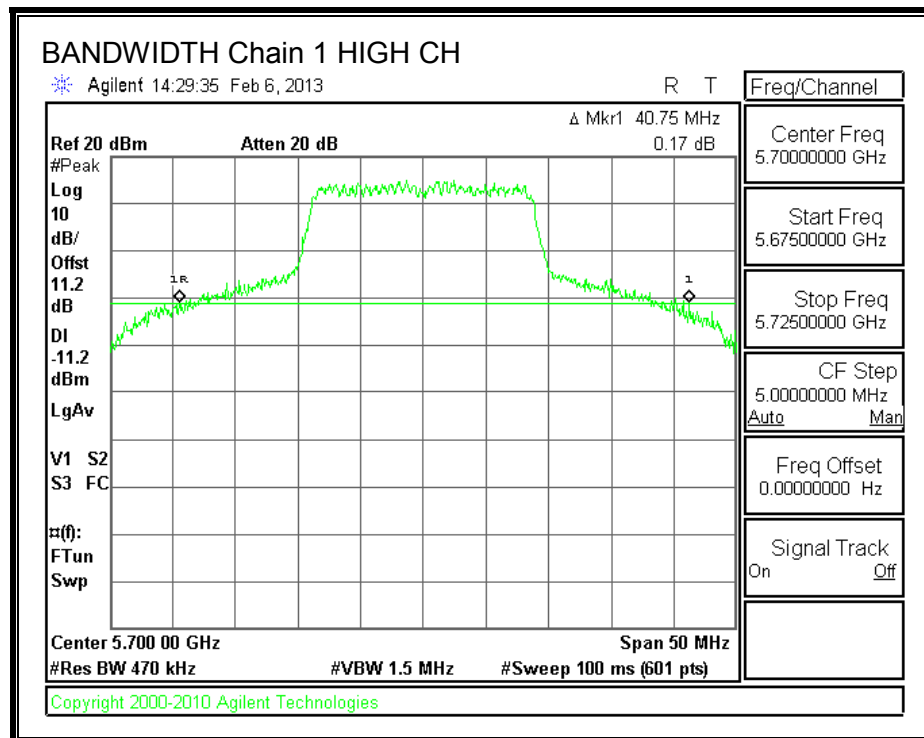
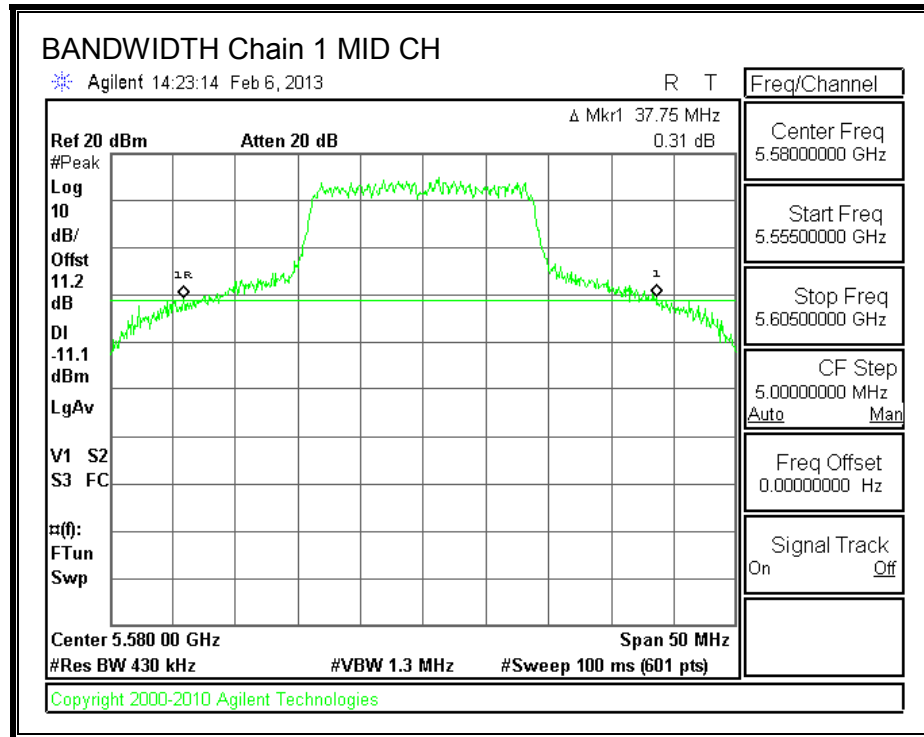
26 dB BANDWIDTH, Chain 0





26 dB BANDWIDTH, Chain 1





8.23.2. 99% BANDWIDTH

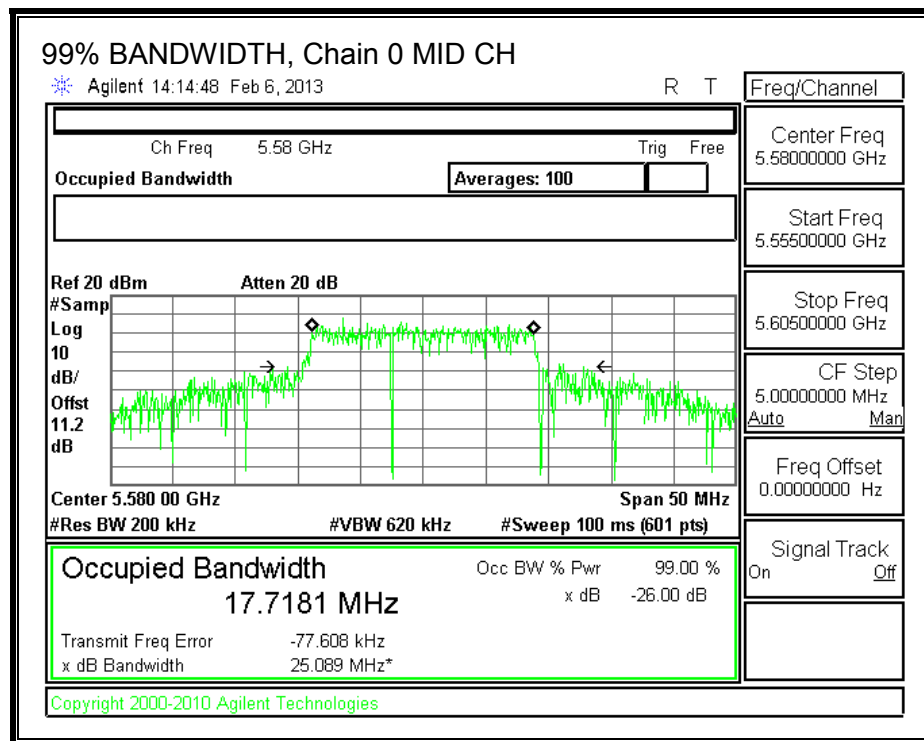
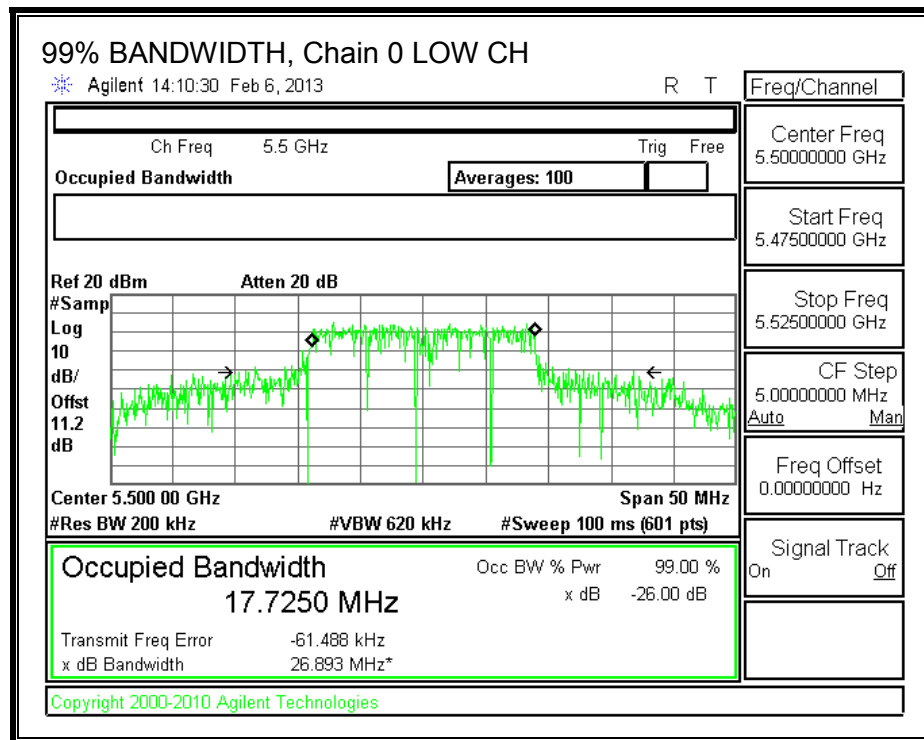
LIMITS

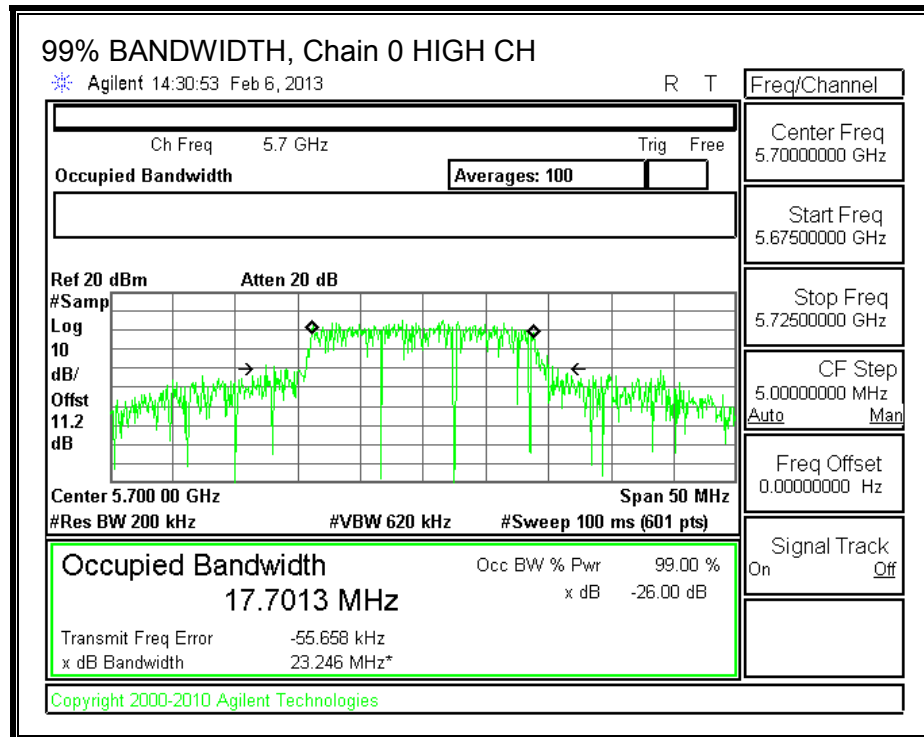
None; for reporting purposes only.

RESULTS

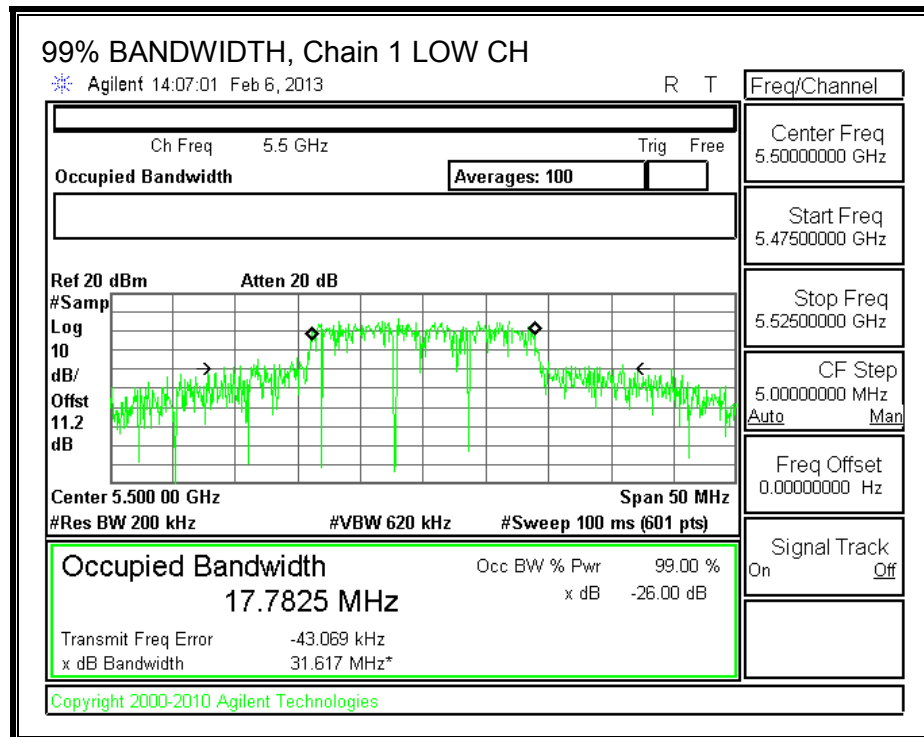
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5500	17.7250	17.7825
Mid	5580	17.7181	17.7836
High	5700	17.7013	17.7955

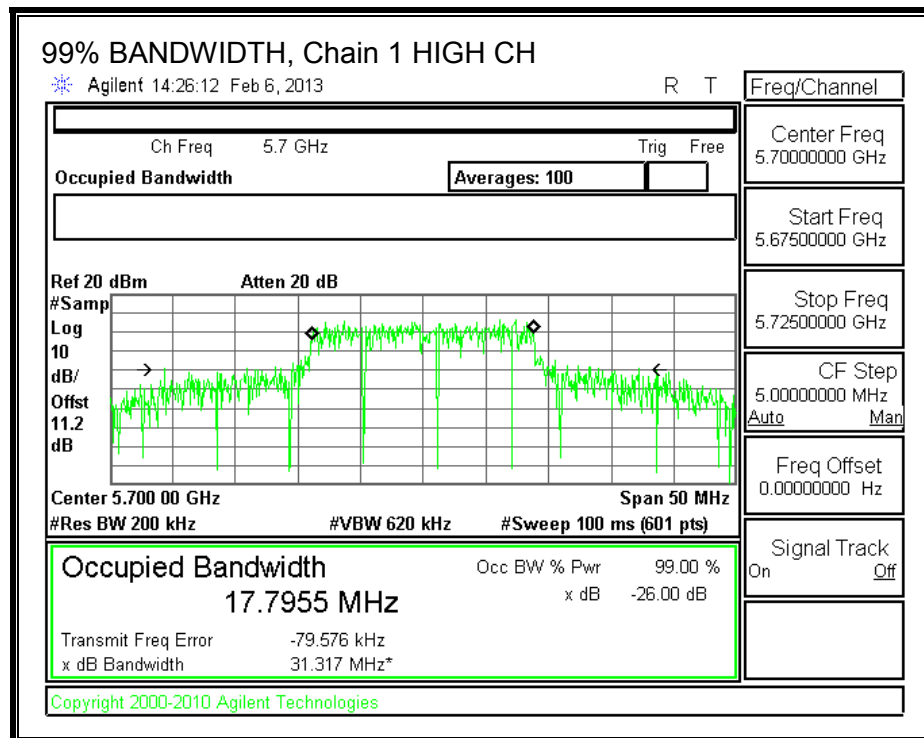
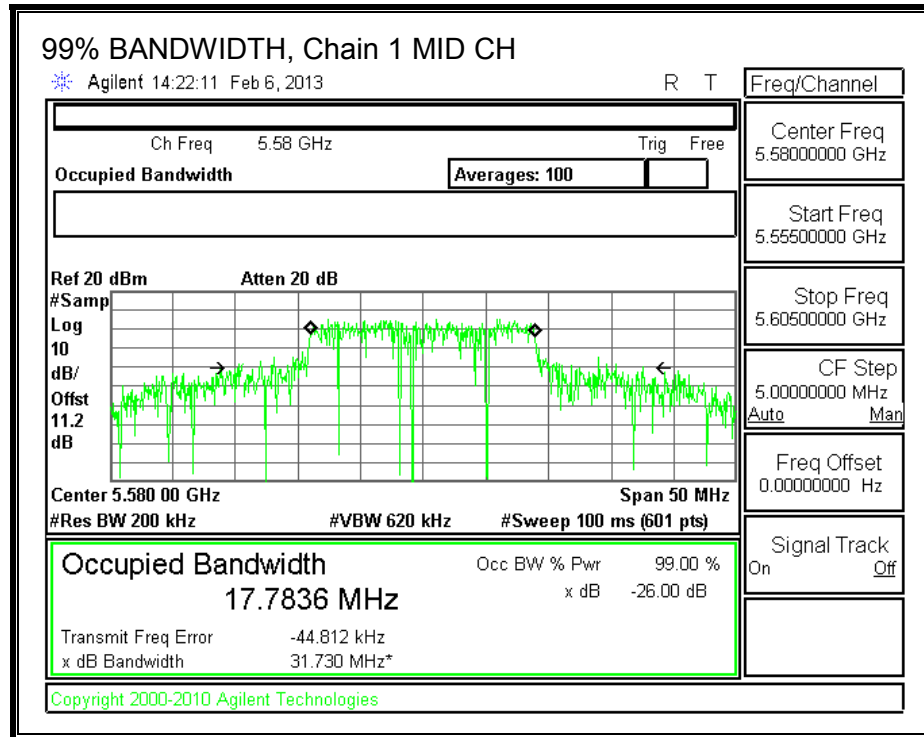
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.23.3. OUTPUT POWER AND PSD

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

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)
6.61	5.77	6.21

OUTPUT POWER RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	40.92	17.7250	6.21
Mid	5580	37.75	17.7181	6.21
High	5700	39.00	17.7013	6.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)
Low	5500	23.79	23.49	29.49	23.28
Mid	5580	23.79	23.48	29.48	23.27
High	5700	23.79	23.48	29.48	23.27

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	20.01	20.21	23.12	23.28	-0.15
Mid	5580	20.21	20.19	23.21	23.27	-0.06
High	5700	17.01	17.15	20.09	23.27	-3.18

PSD RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	40.92	17.7250	6.21
Mid	5580	37.75	17.7181	6.21
High	5700	39.00	17.7013	6.21

Limits

Channel	Frequency (MHz)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Low	5500	10.79	11.00	10.79
Mid	5580	10.79	11.00	10.79
High	5700	10.79	11.00	10.79

Duty Cycle CF (dB)	0.00	
---------------------------	------	--

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5500	6.73	6.96	9.86	10.79	-0.93
Mid	5580	7.13	7.40	10.28	10.79	-0.51
High	5700	6.72	6.75	9.75	10.79	-1.04

PSD, Chain 0





PSD, Chain 1



PSD, Chain 1 MID CH



Date: 6.FEB.2013 15:20:05

PSD, Chain 1 HIGH CH



Date: 6.FEB.2013 15:17:42

8.23.4. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

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

RESULTS

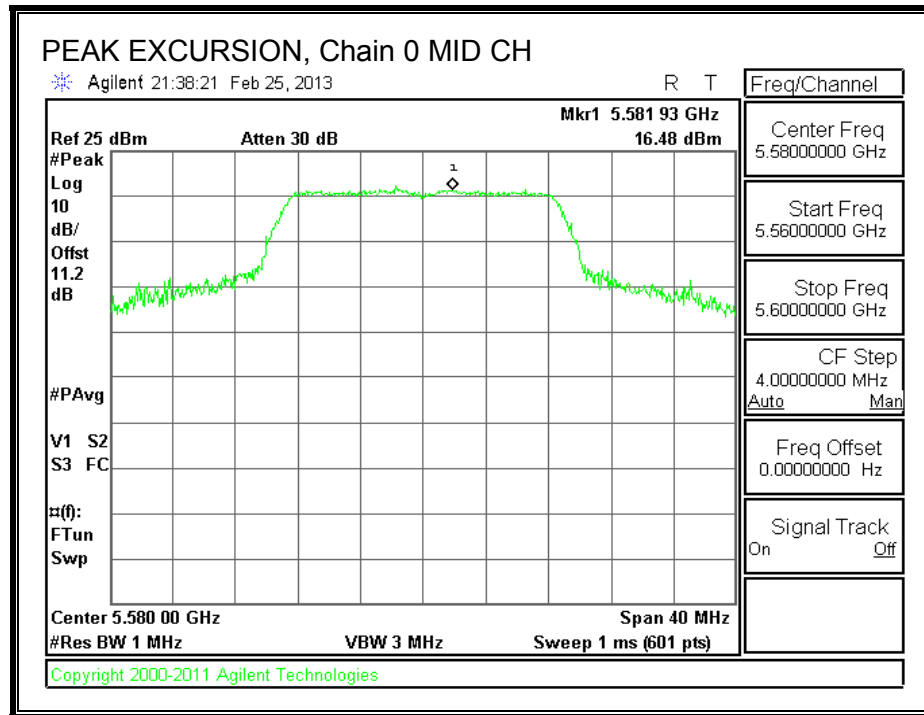
Chain 0

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5580	16.48	7.13	0.00	9.35	13	-3.65

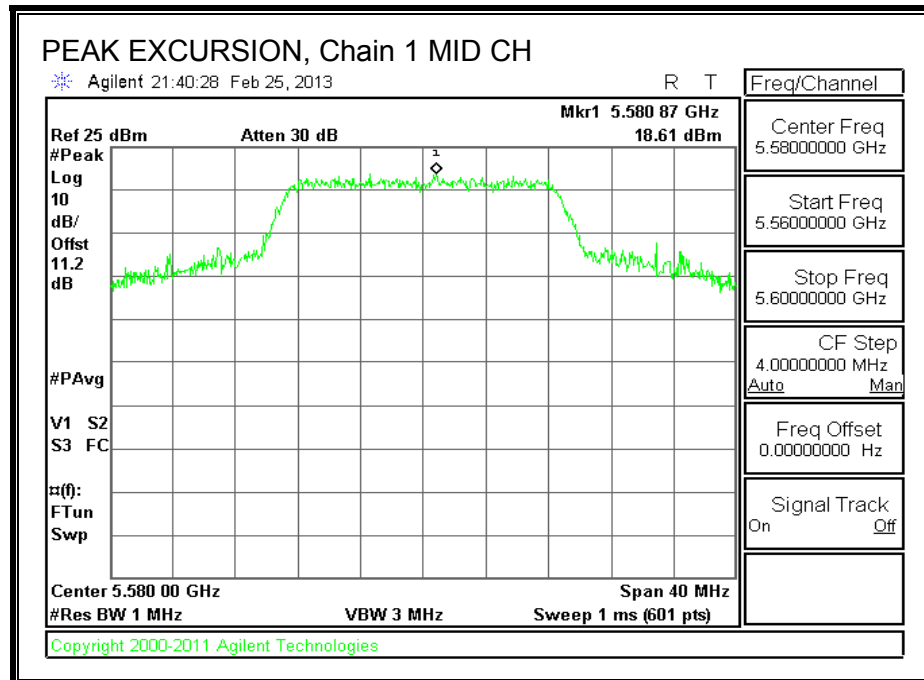
Chain 1

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5580	18.61	7.40	0.00	11.21	13	-1.79

PEAK EXCURSION, Chain 0



PEAK EXCURSION, Chain 1



8.24. 802.11n HT20 STBC 2TX MODE, CHANNEL 144, 5.6 GHz BAND

8.24.1.26 dB BANDWIDTH- UNII

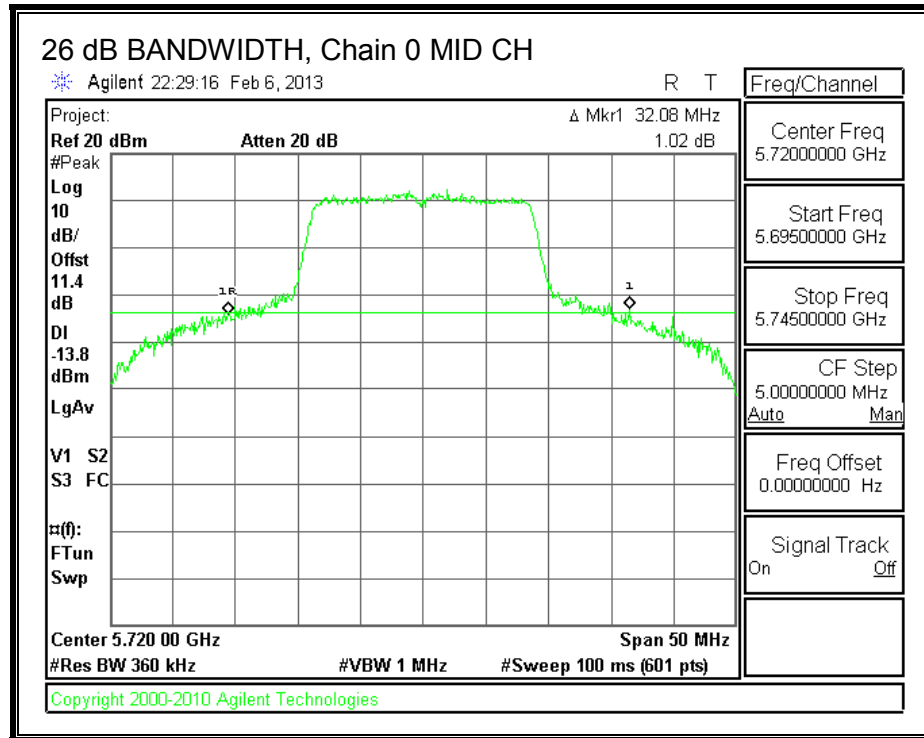
LIMITS

None; for reporting purposes only.

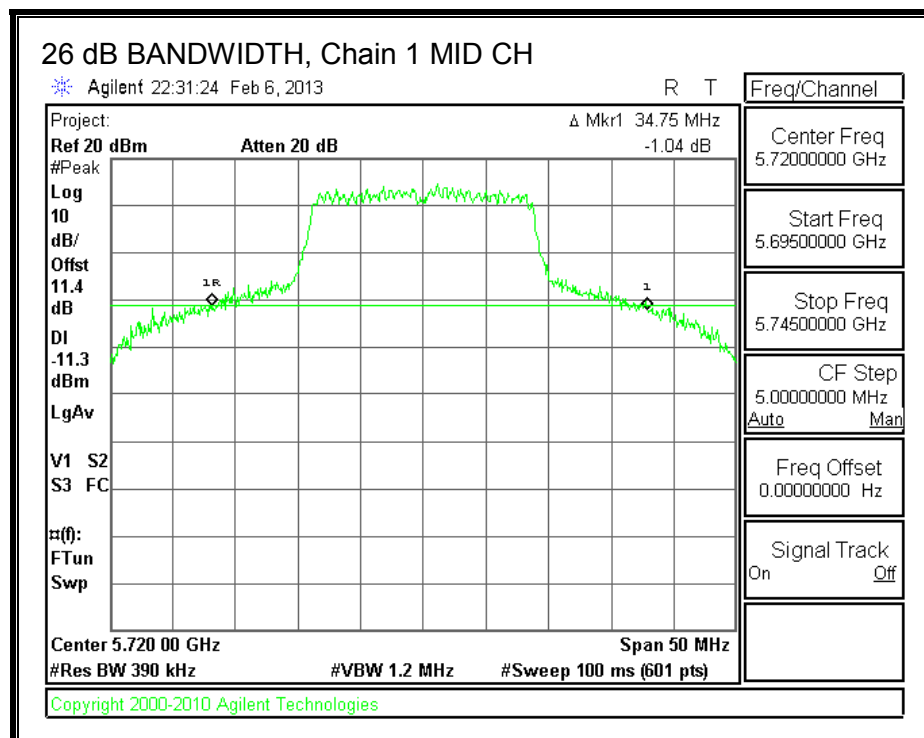
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
High	5720	21.04	22.38

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.24.2.99% BANDWIDTH

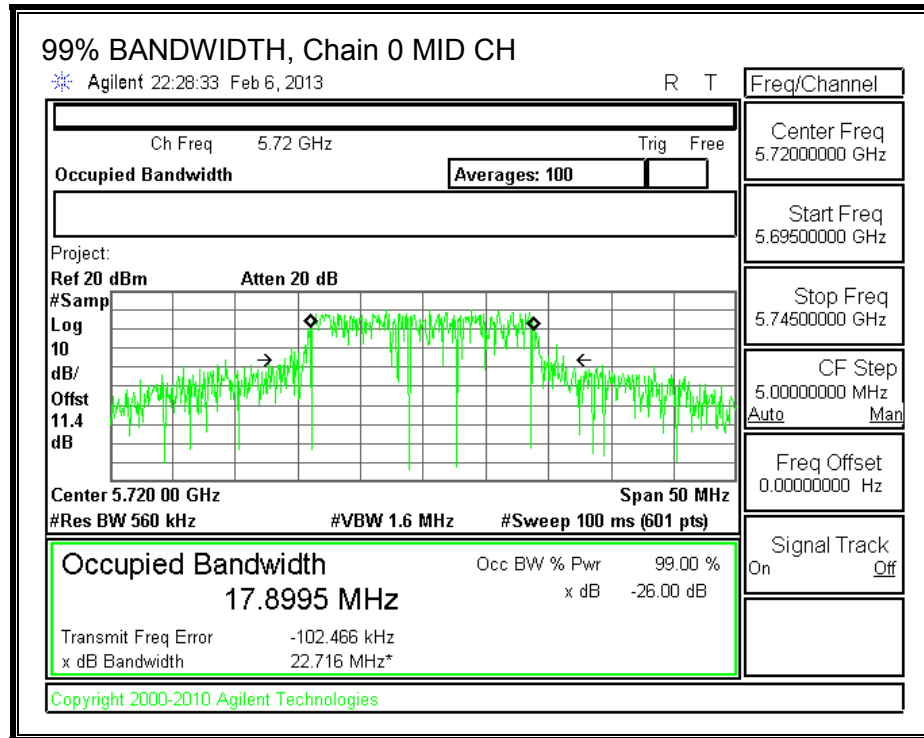
LIMITS

None; for reporting purposes only.

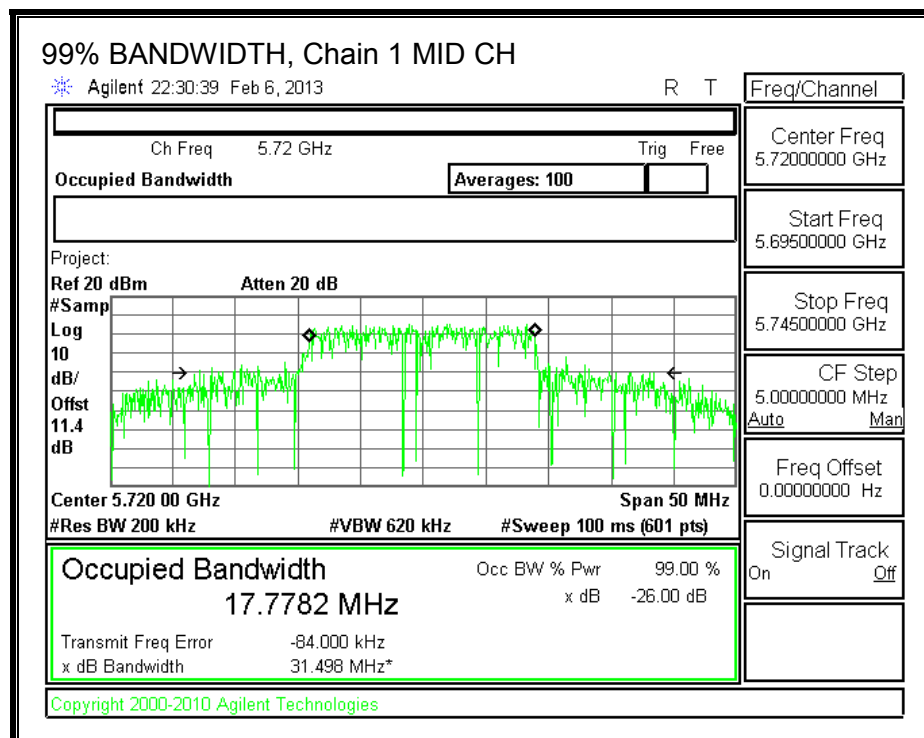
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
High	5720	13.9497	13.8891

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.24.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.247

IC RSS-210 A8.4

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

DIRECTIONAL ANTENNA GAIN

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

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
6.61	5.77	6.21

RESULTS

Limits (FCC), portion in UNII 2 ext band

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Uncorrelated Gain (dBi)
Mid	5720	21.040	13.8891	6.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Mid	5720	24.00	22.43	28.43	22.43	10.79	11.00	10.79

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	5720	16.82	16.92	19.88	22.43	-2.55

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Mid	5720	6.770	6.940	9.87	10.79	-0.92

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

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Uncorrelated Gain (dBi)
Mid	5710	11.04	3.8891	6.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Mid	5710	21.43	16.90	22.90	16.90	10.79	11.00	10.79

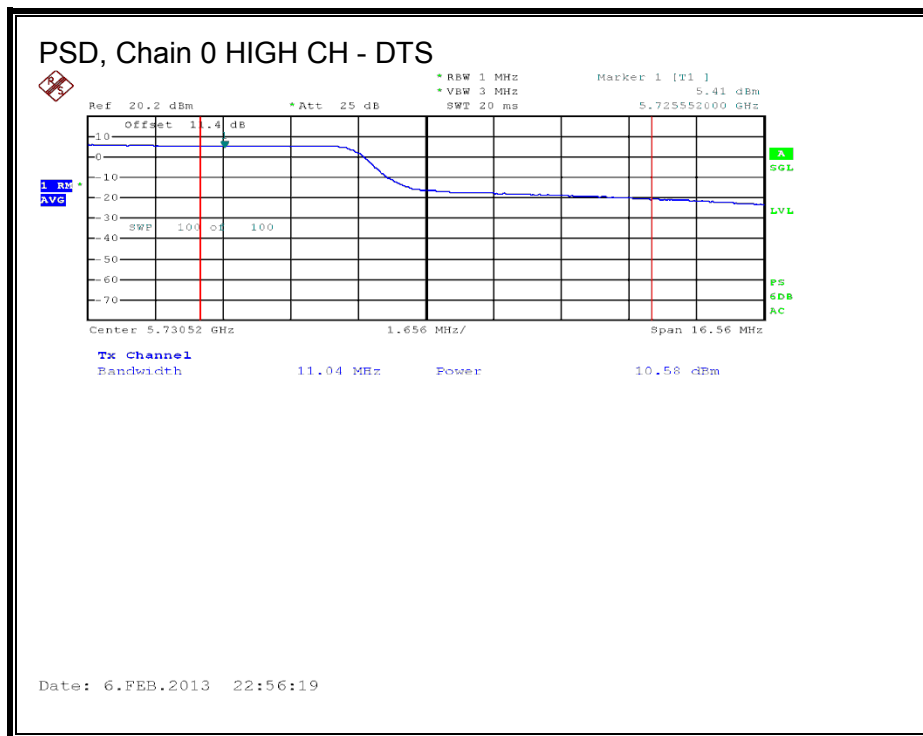
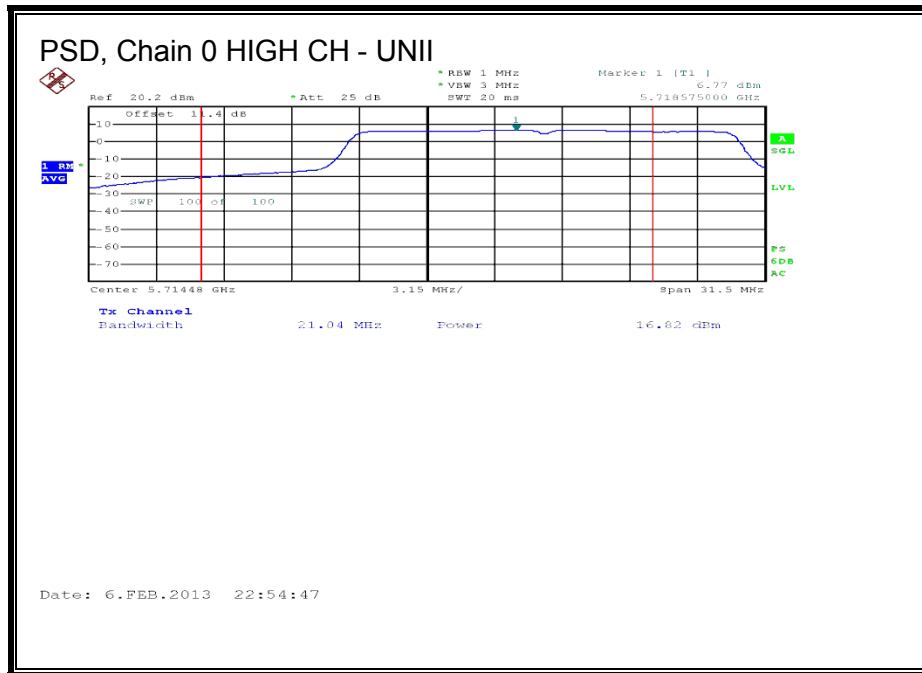
Output Power Results

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	5710	10.58	10.68	13.64	16.90	-3.26

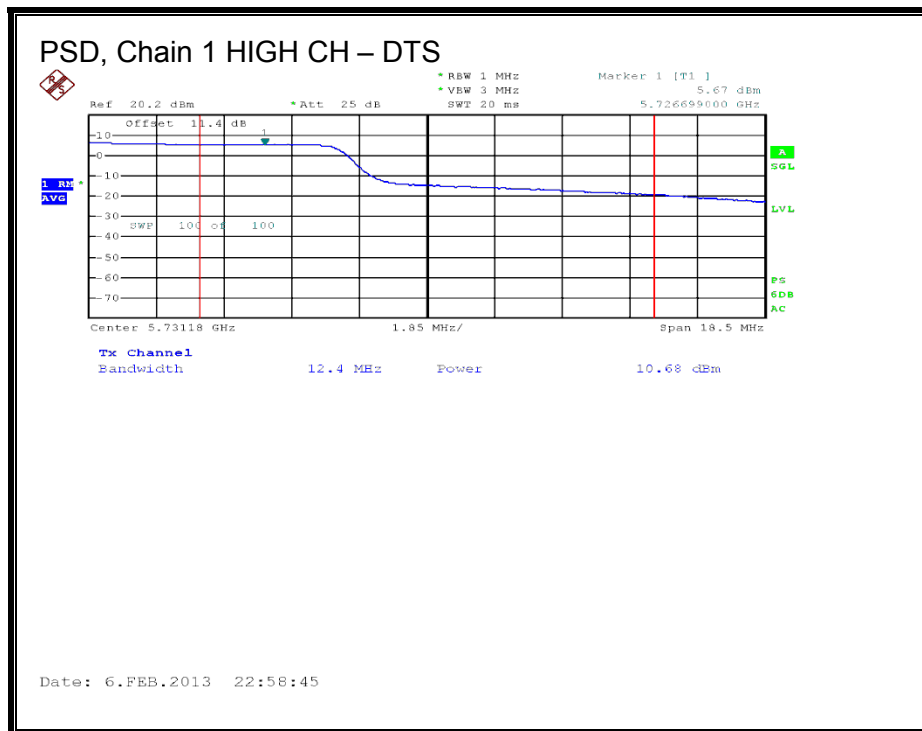
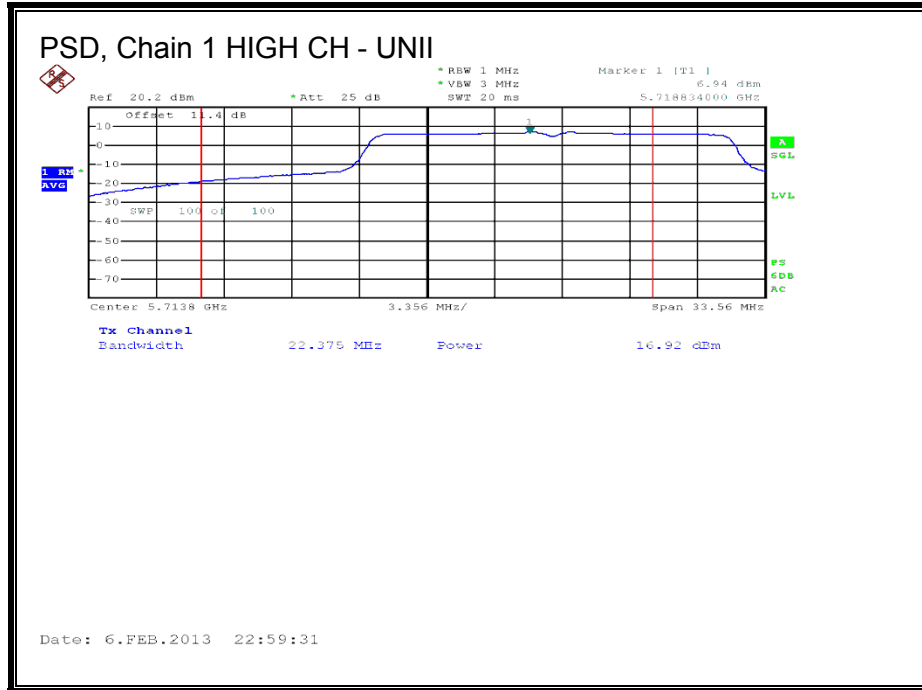
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Mid	5710	5.410	5.670	8.55	10.79	-2.24

PSD, Chain 0



PSD, Chain 1



8.25. 802.11n HT40 1TX MODE, 5.6 GHz BAND

8.25.1. 26 dB BANDWIDTH

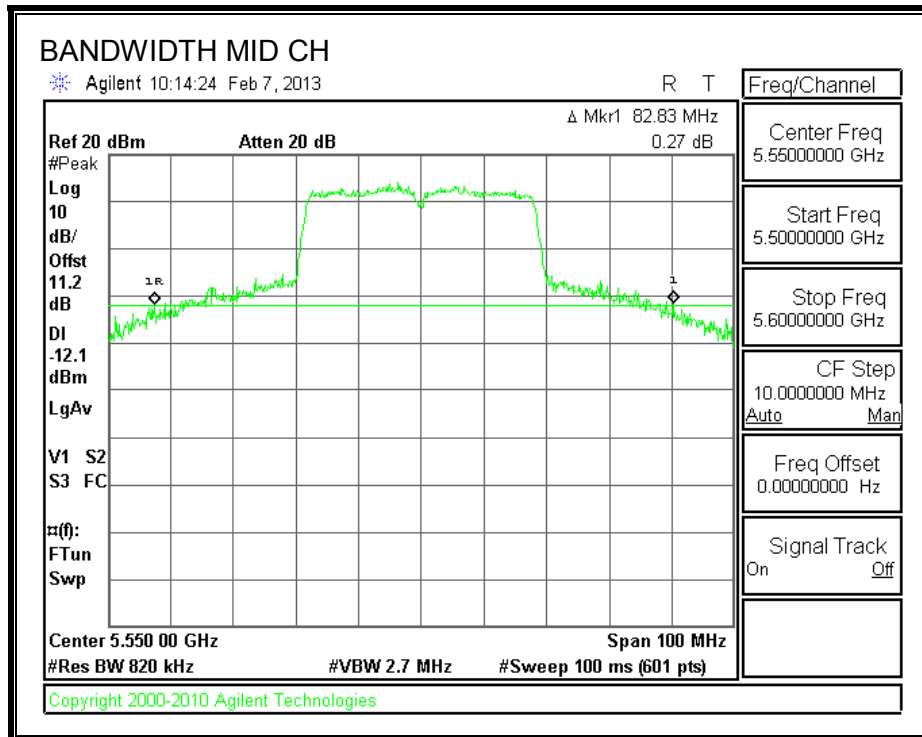
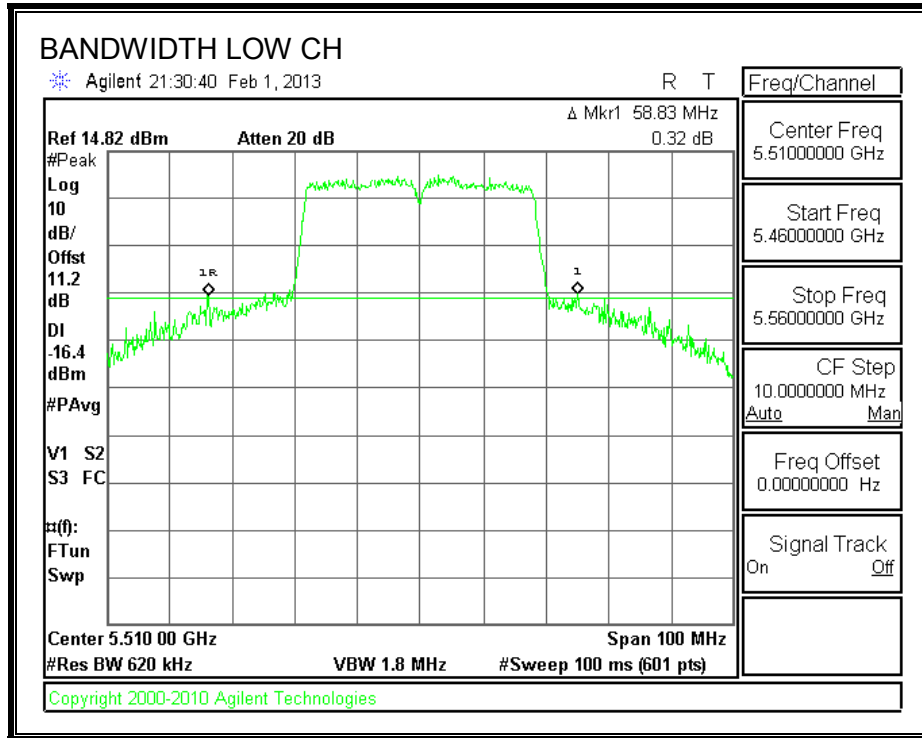
LIMITS

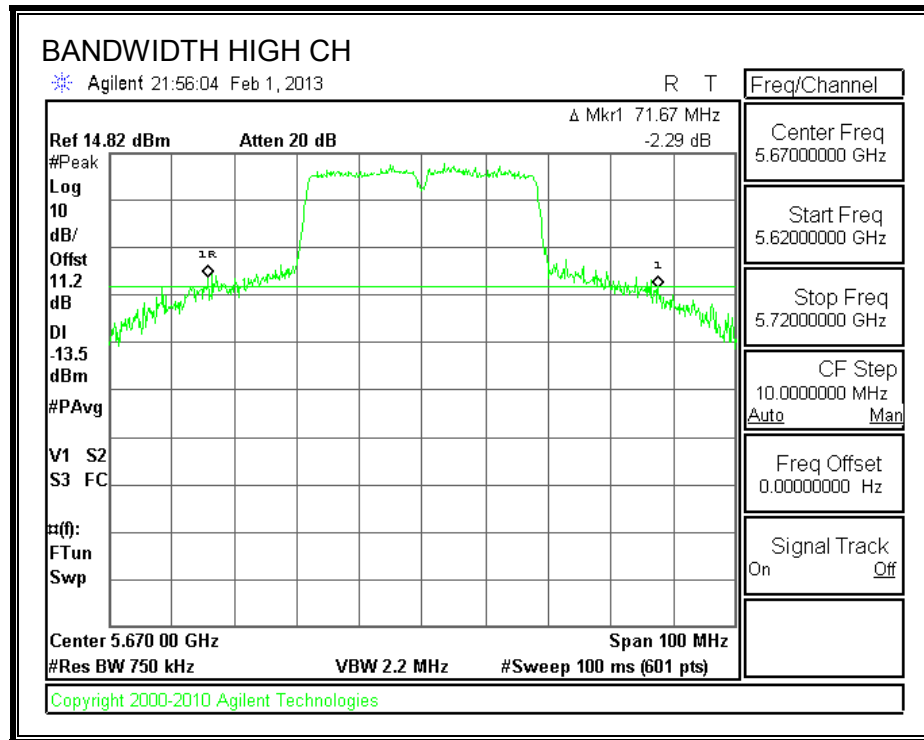
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5510	58.83
Mid	5550	82.83
High	5670	71.67

26 dB BANDWIDTH





8.25.2. 99% BANDWIDTH

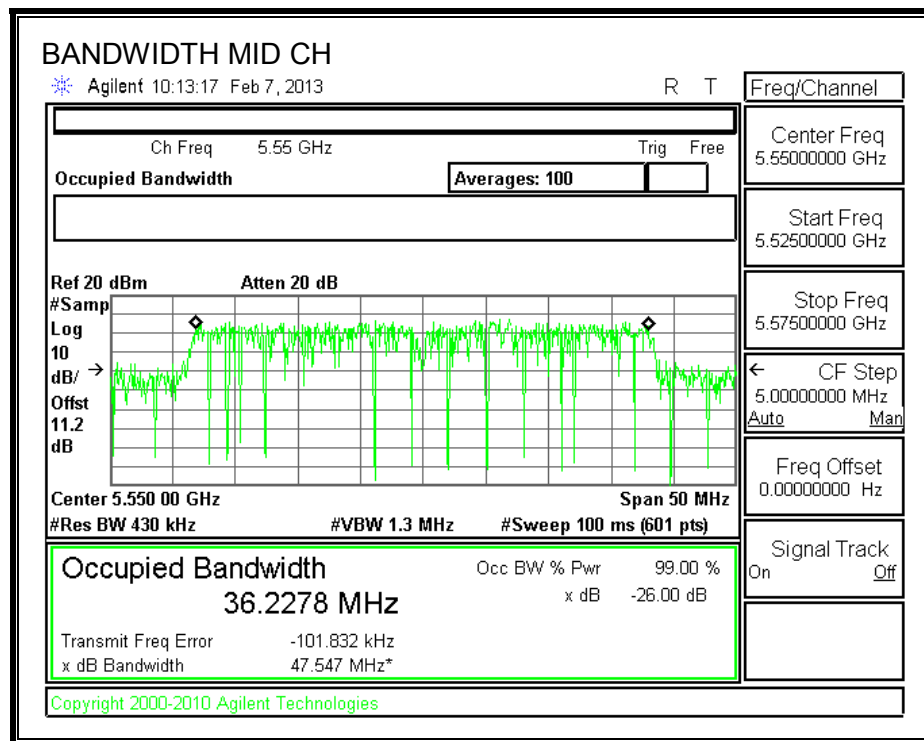
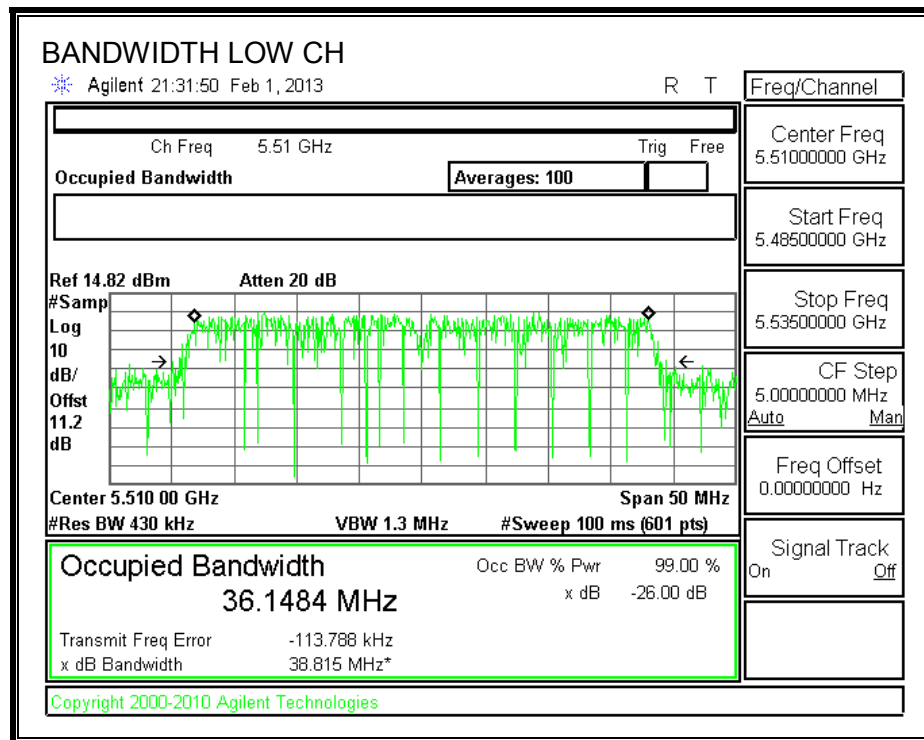
LIMITS

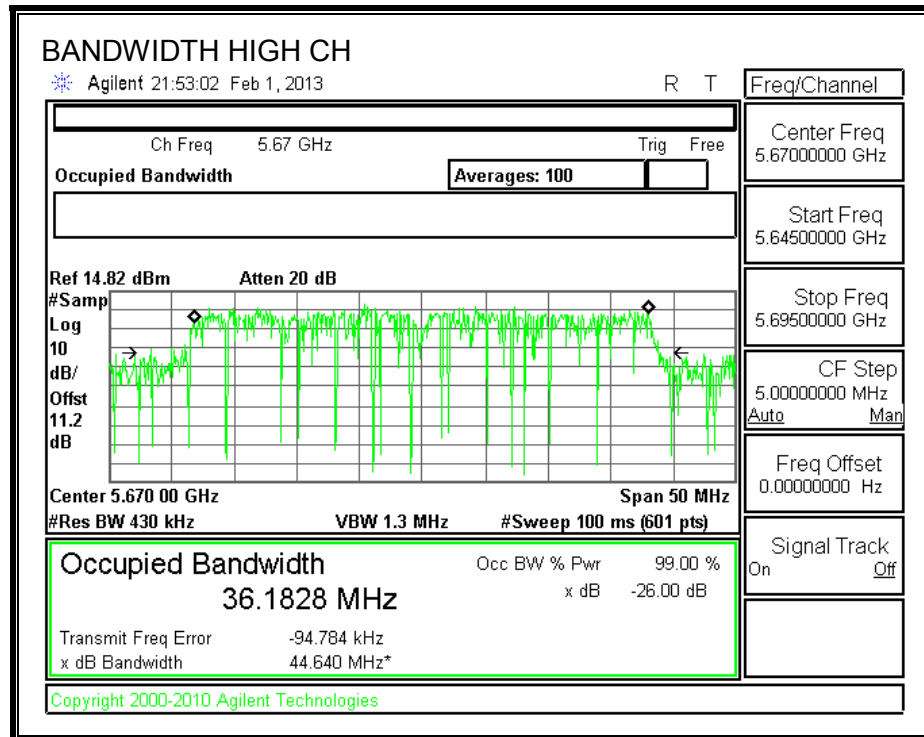
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	36.1484
Mid	5550	36.2278
High	5670	36.1828

99% BANDWIDTH





8.25.3. OUTPUT POWER AND PSD

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	5510	58.83	36.1484	6.61
Mid	5550	82.83	36.2278	6.61
High	5670	71.67	36.1828	6.61

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5510	23.39	24.00	30.00	23.39	10.39	11.00	10.39
Mid	5550	23.39	24.00	30.00	23.39	10.39	11.00	10.39
High	5670	23.39	24.00	30.00	23.39	10.39	11.00	10.39

Duty Cycle CF (dB)	0.22	
--------------------	------	--

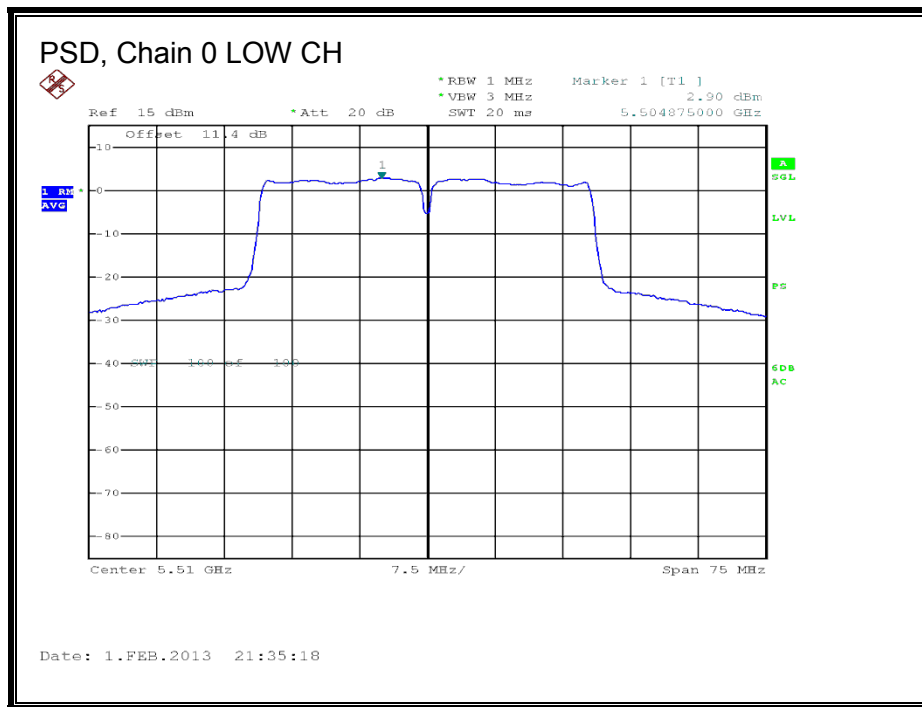
Output Power Results

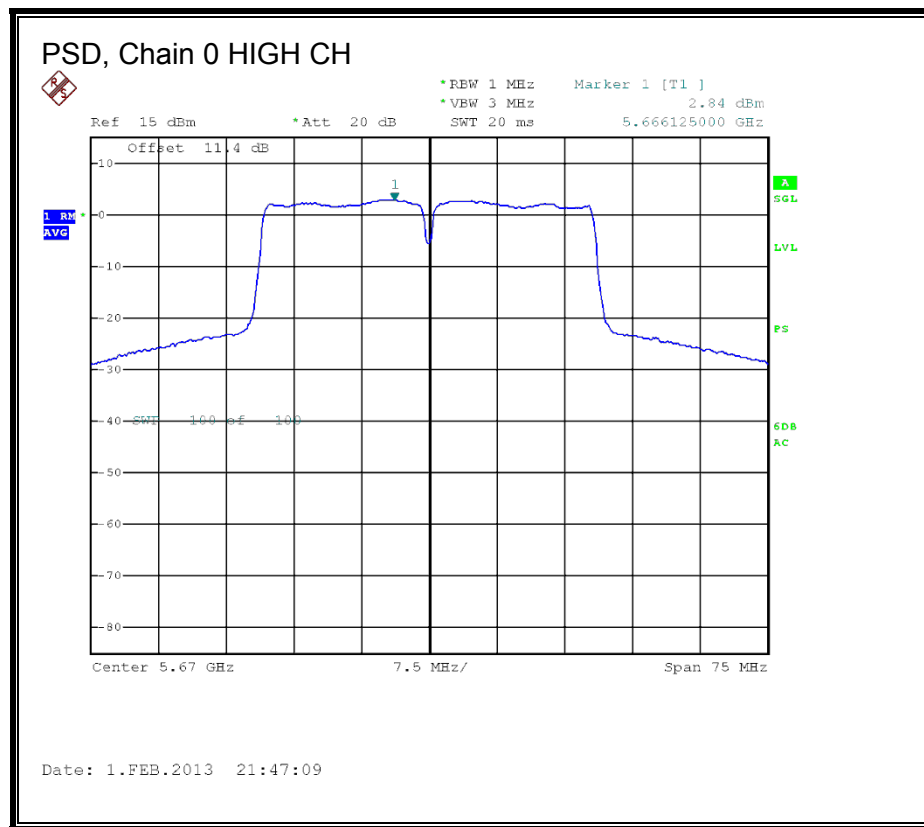
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	17.79	17.79	23.39	-5.60
Mid	5550	20.25	20.25	23.39	-3.14
High	5670	20.10	20.10	23.39	-3.29

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5510	2.90	3.12	10.39	-7.27
Mid	5550	2.98	3.20	10.39	-7.19
High	5670	2.84	3.06	10.39	-7.33

PSD, Chain 0





8.25.4. PEAK EXCURSION

LIMITS

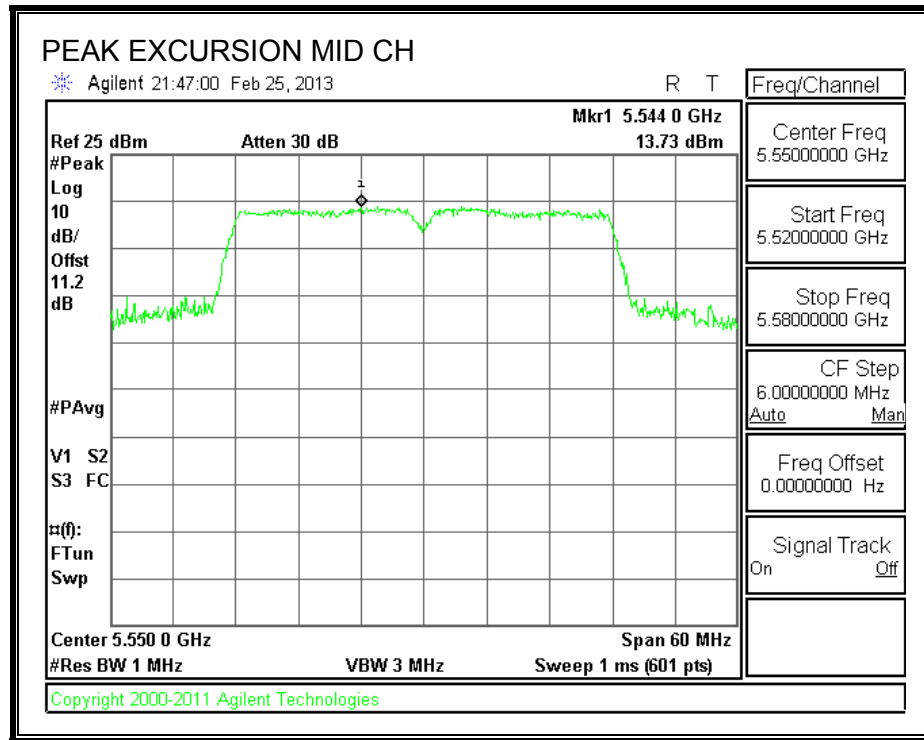
FCC §15.407 (a) (6)

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

RESULTS

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5550	13.73	2.98	0.24	10.51	13	-2.49

PEAK EXCURSION



8.26. 802.11n HT40 1TX MODE, CHANNEL 142, 5.6 GHz BAND

8.26.1. 26 dB BANDWIDTH

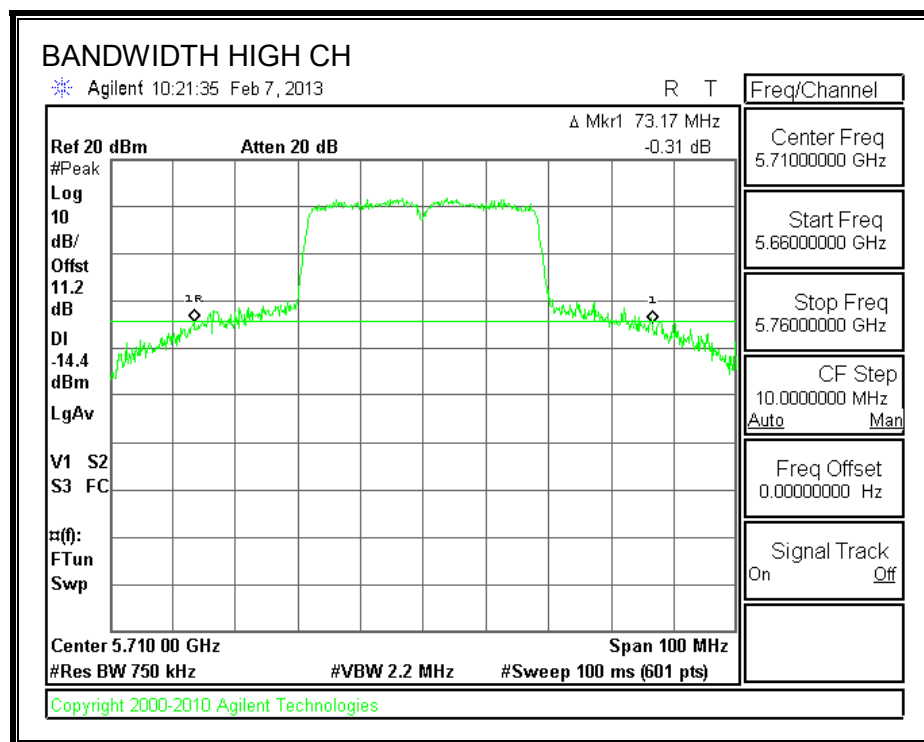
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
High	5710	73.17

26 dB BANDWIDTH



8.26.2. 99% BANDWIDTH

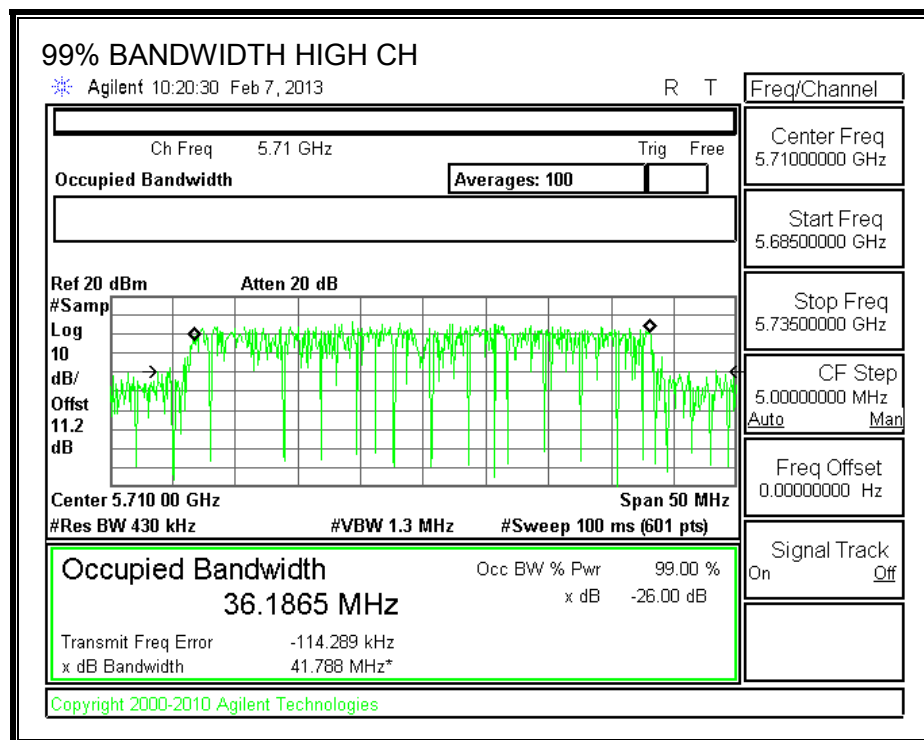
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
High	5710	36.1865

99% BANDWIDTH



8.26.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.247

IC RSS-210 A8.4

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

DIRECTIONAL ANTENNA GAIN

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

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)	Directional Gain (dBi)
High	5710	51.6	33.0932	6.61

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
High	5710	24.00	24.00	30.00	24.00	10.39	11.00	10.39

Duty Cycle CF (dB)	0.22	
--------------------	------	--

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5710	16.77	16.99	24.00	-7.01

PSD Results

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
High	5710	3.050	3.27	10.39	-7.12

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

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
High	5710	21.6	3.0932	6.61

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
High	5710	24.00	15.90	21.90	15.90	10.39	11.00	10.39

Duty Cycle CF (dB)	0.22	
--------------------	------	--

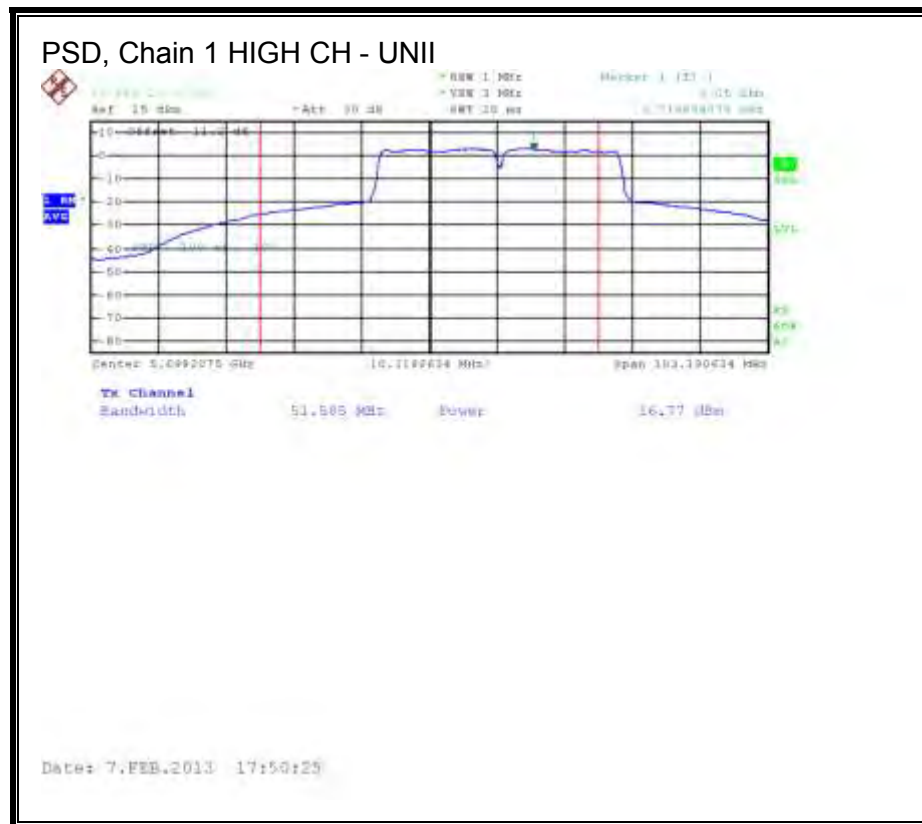
Output Power Results

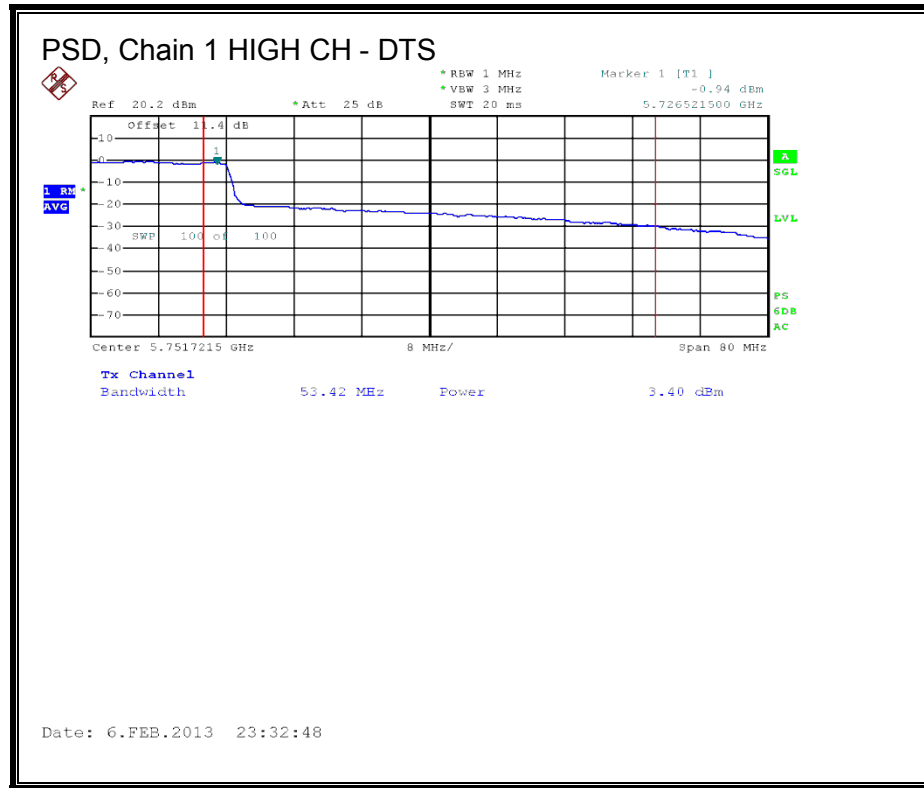
Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5710	3.40	3.62	15.90	-12.28

PSD Results

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
High	5710	-0.940	-0.72	10.39	-11.11

PSD, Chain 1





8.27. 802.11n HT40 CDD 2TX MODE, 5.6 GHz BAND

8.27.1. 26 dB BANDWIDTH

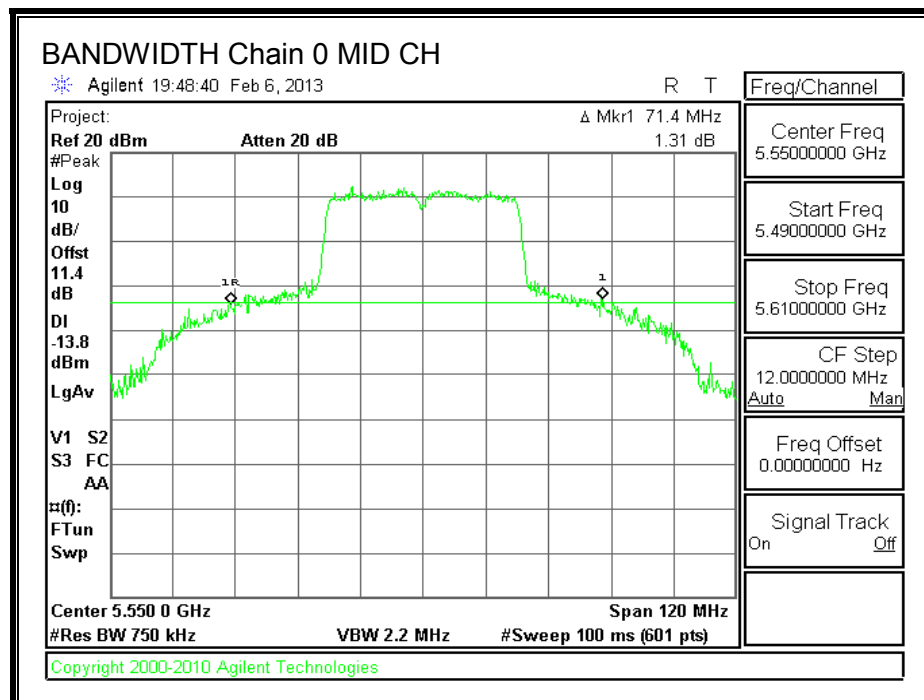
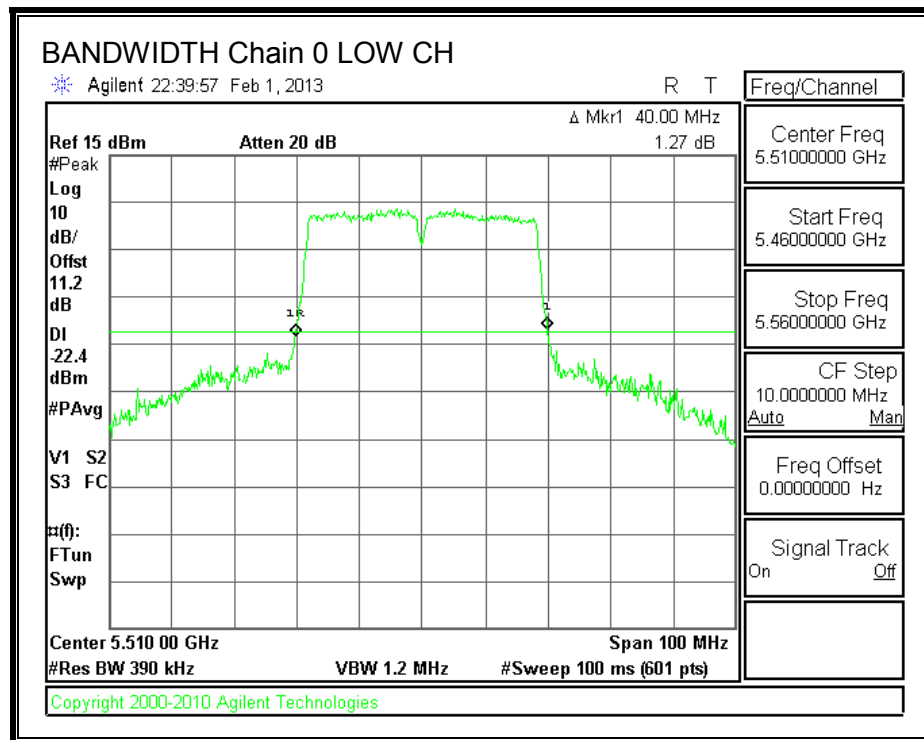
LIMITS

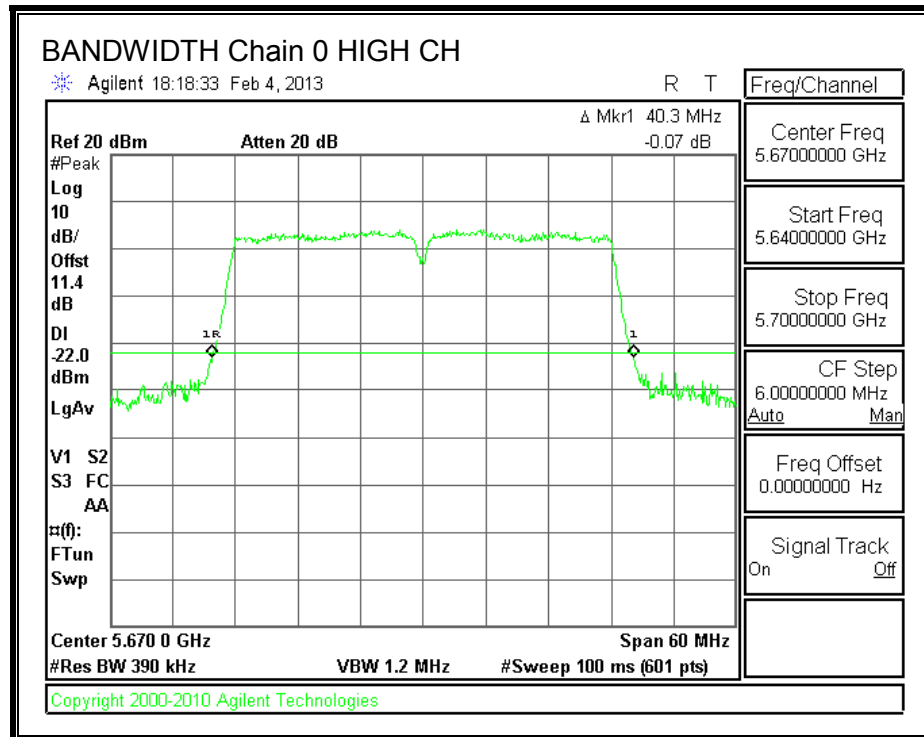
None; for reporting purposes only.

RESULTS

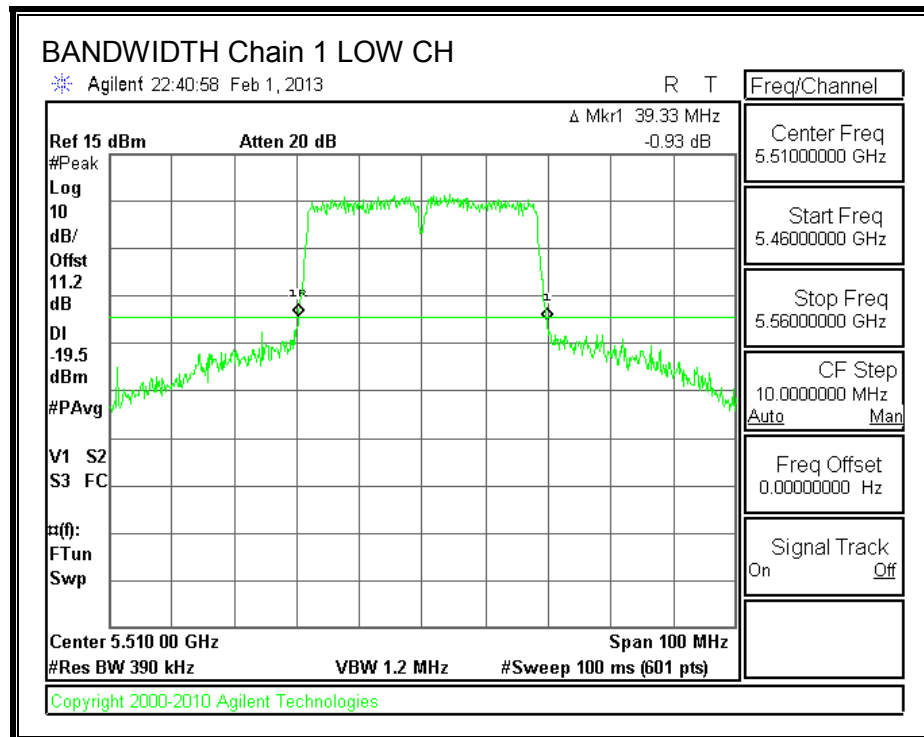
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5510	40.00	39.33
Mid	5550	71.40	75.20
High	5670	40.30	39.50

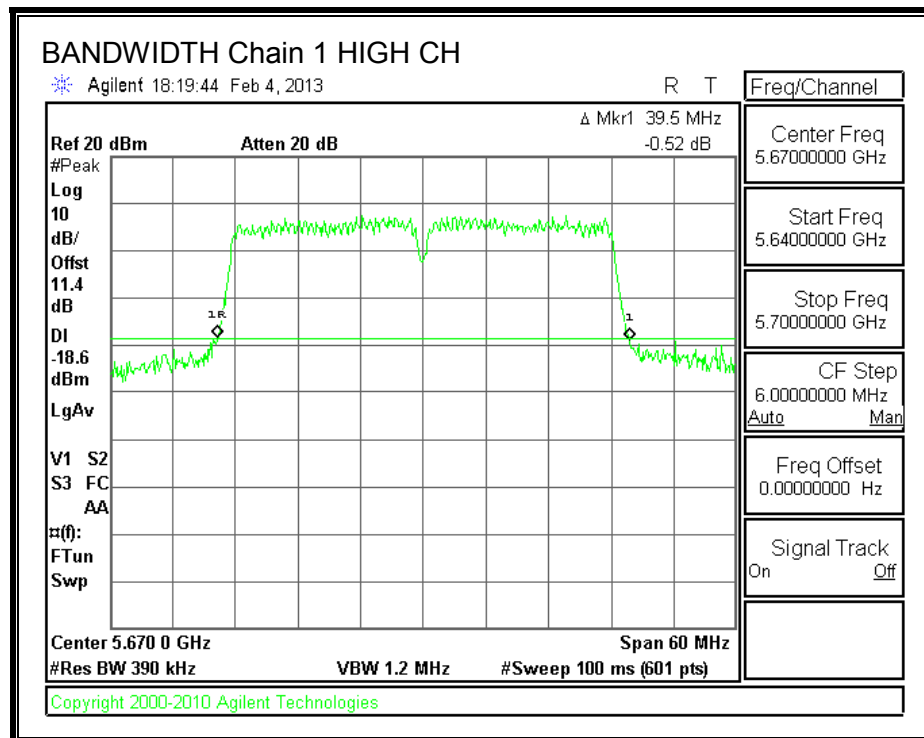
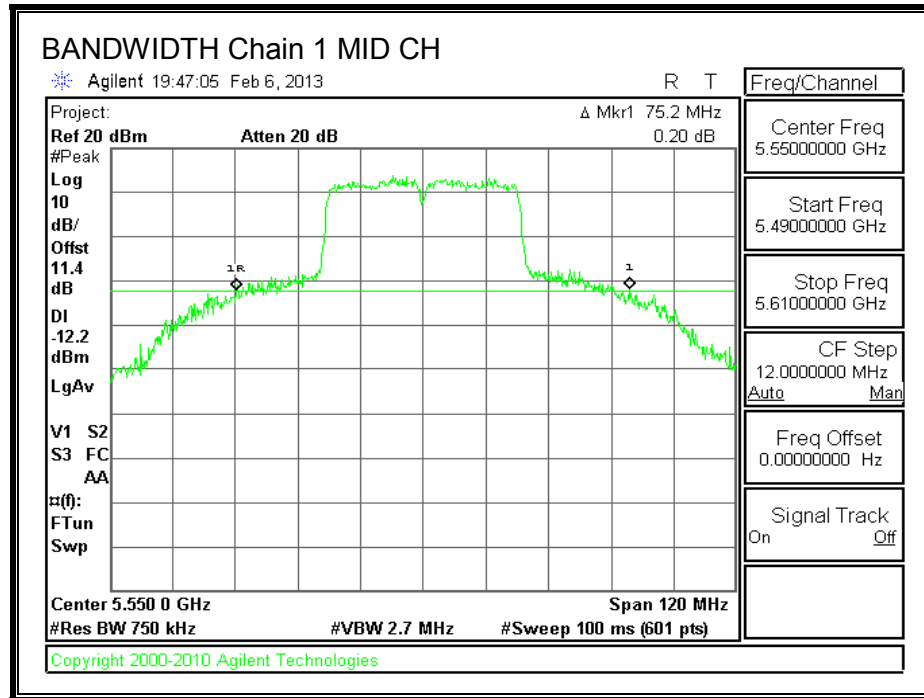
26 dB BANDWIDTH, Chain 0





26 dB BANDWIDTH, Chain 1





8.27.2. 99% BANDWIDTH

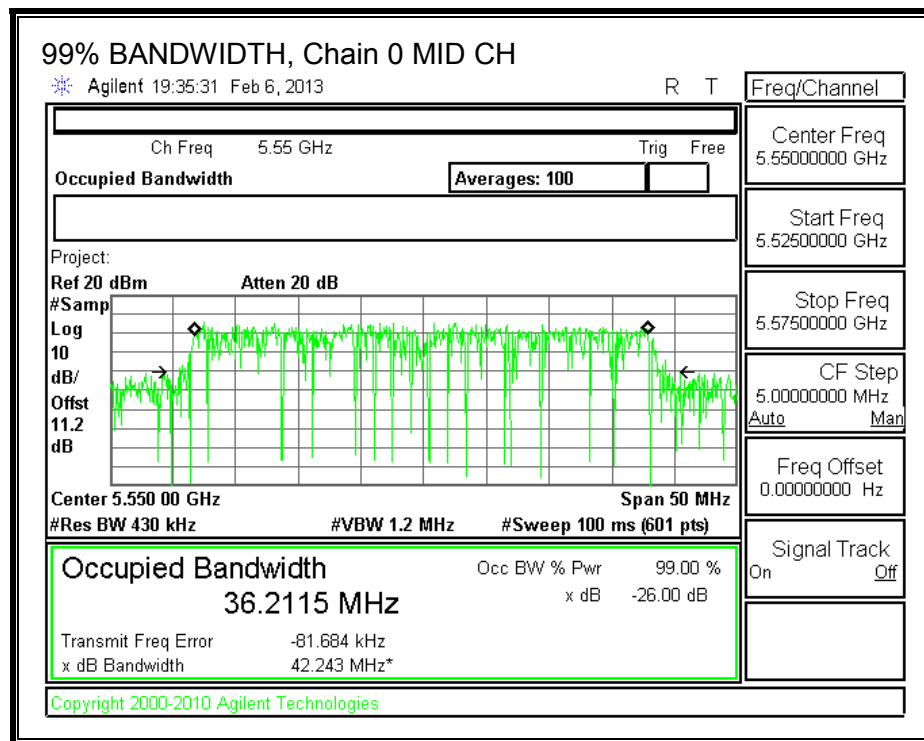
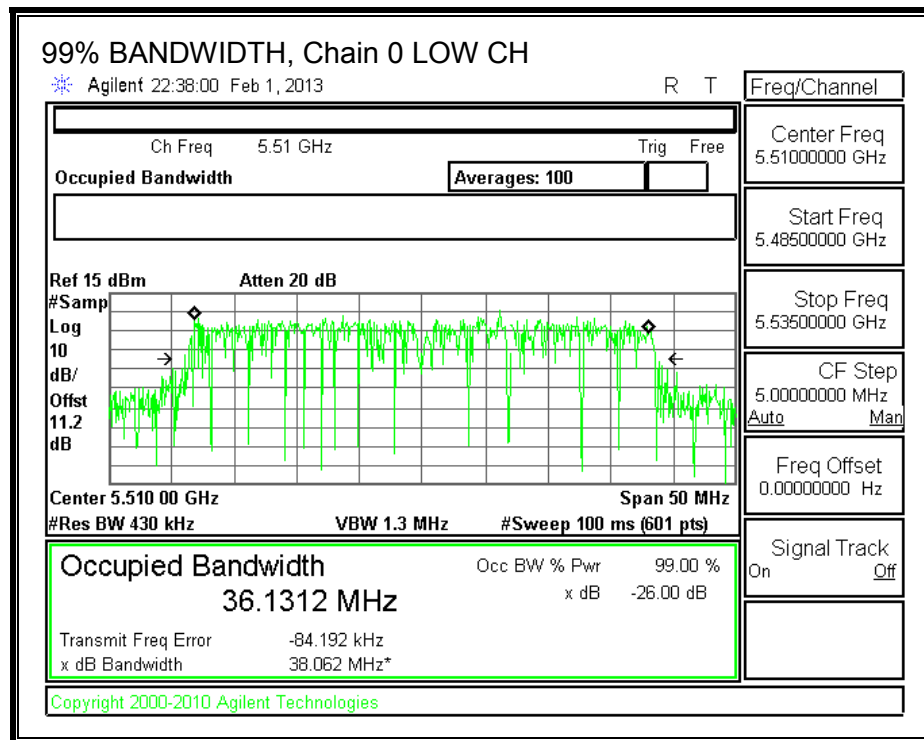
LIMITS

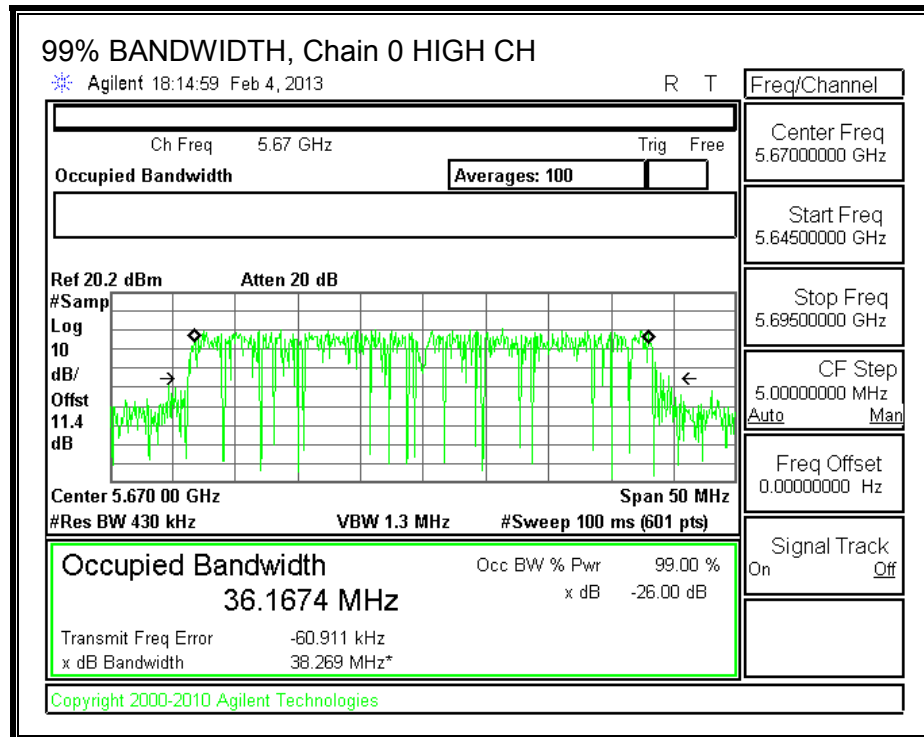
None; for reporting purposes only.

RESULTS

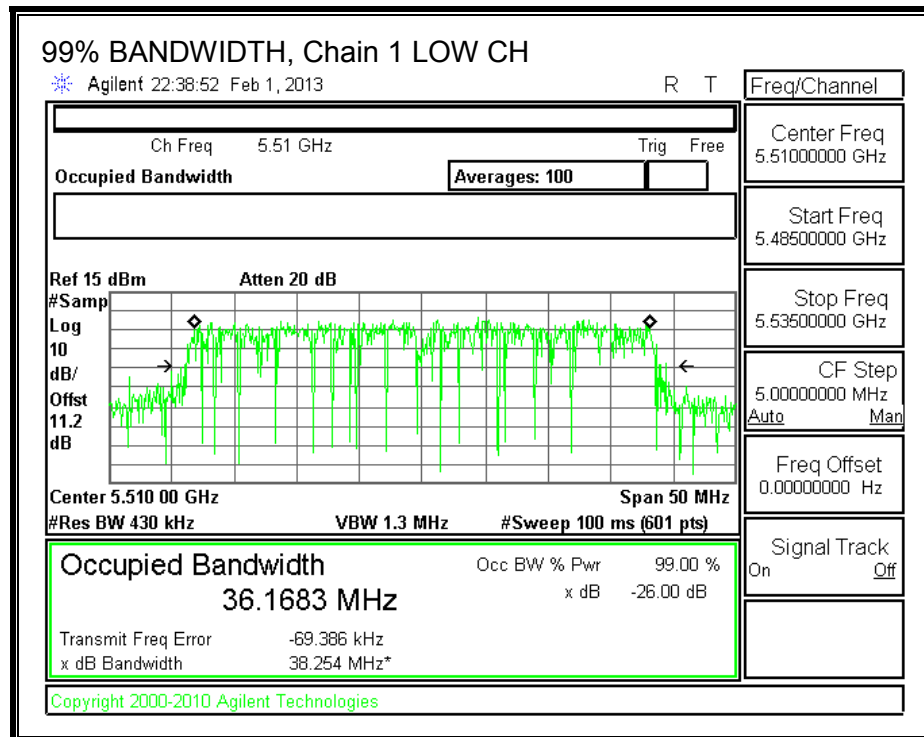
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5510	36.1312	36.1683
Mid	5550	36.2115	36.2298
High	5670	36.1674	36.1513

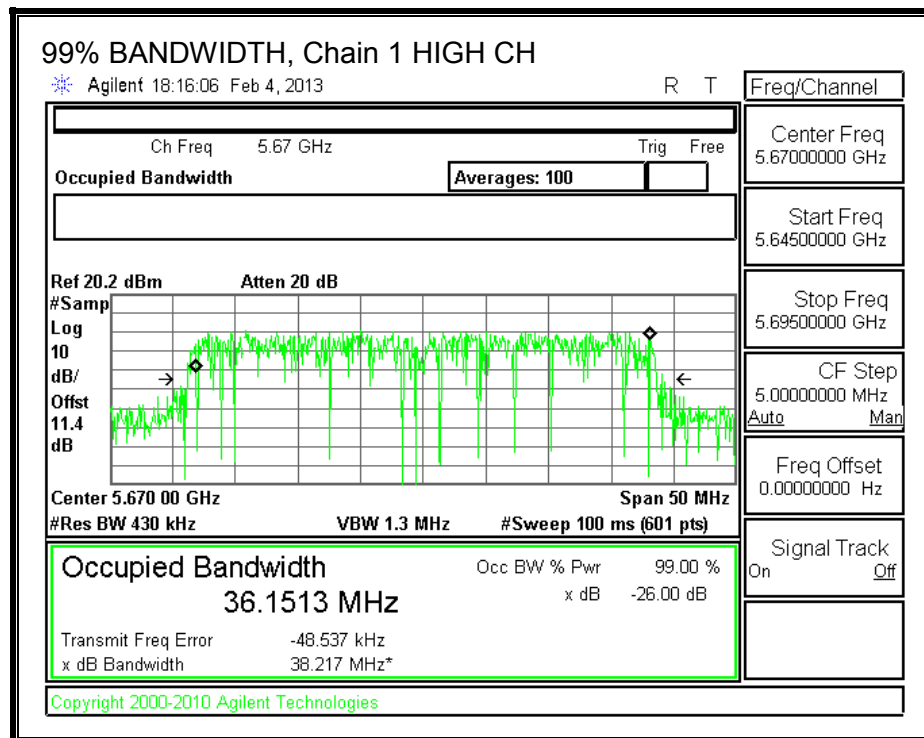
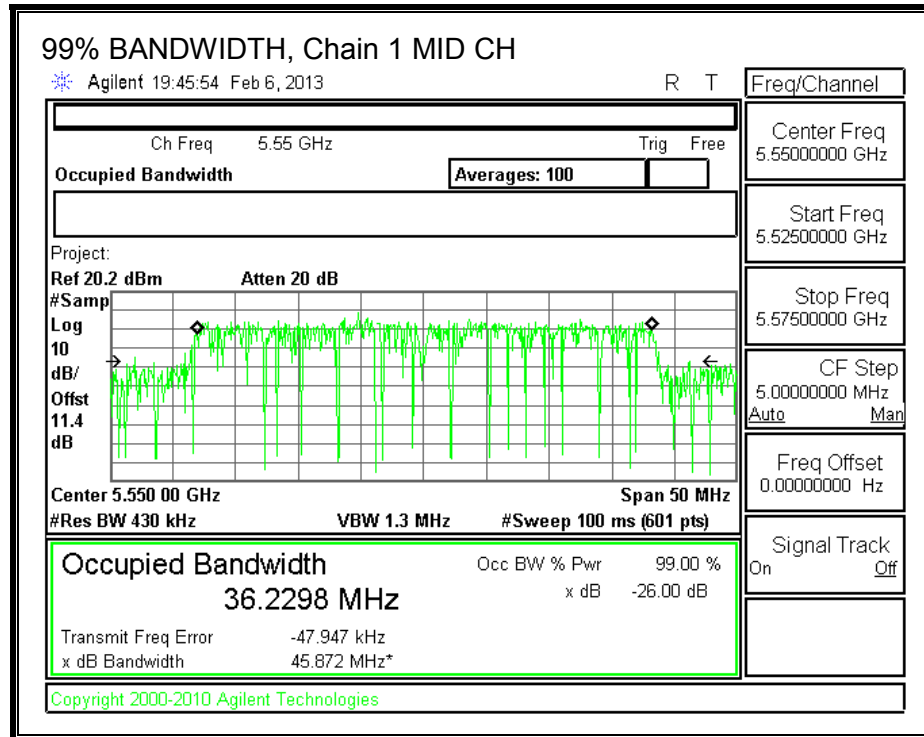
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.27.3. OUTPUT POWER AND PSD

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 unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
5.77	6.61	6.21

For PSD, 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)
5.77	6.61	9.21

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	5510	39.33	36.1312	6.21	9.21
Mid	5550	71.44	36.2115	6.21	9.21
High	5670	39.50	36.1513	6.21	9.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Low	5510	23.79	24.00	30.00	23.79	7.79	11.00	7.79
Mid	5550	23.79	24.00	30.00	23.79	7.79	11.00	7.79
High	5670	23.79	24.00	30.00	23.79	7.79	11.00	7.79

Duty Cycle CF (dB)	0.22	
--------------------	------	--

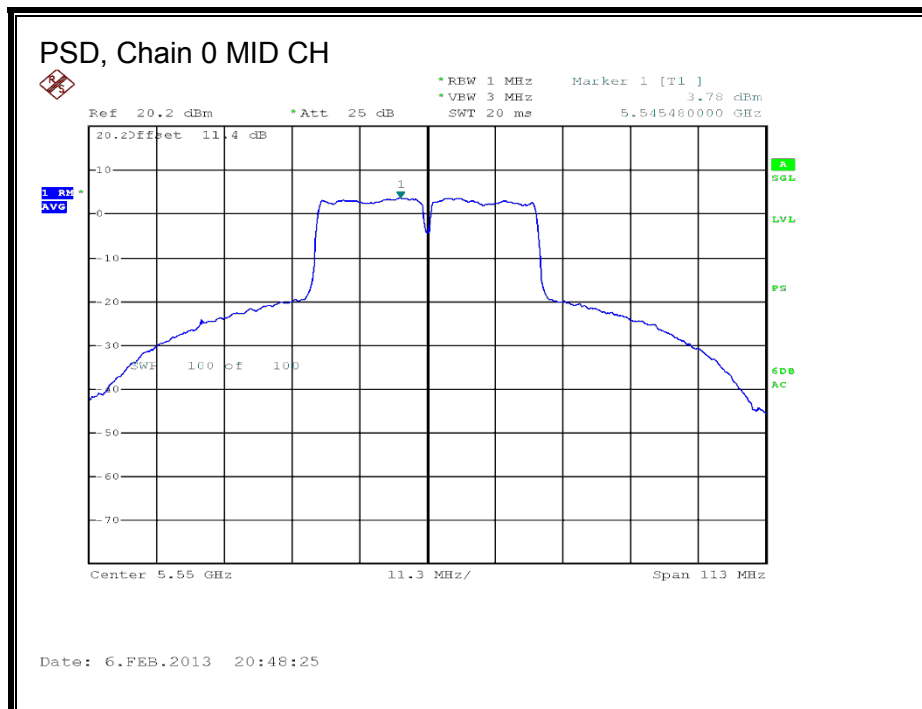
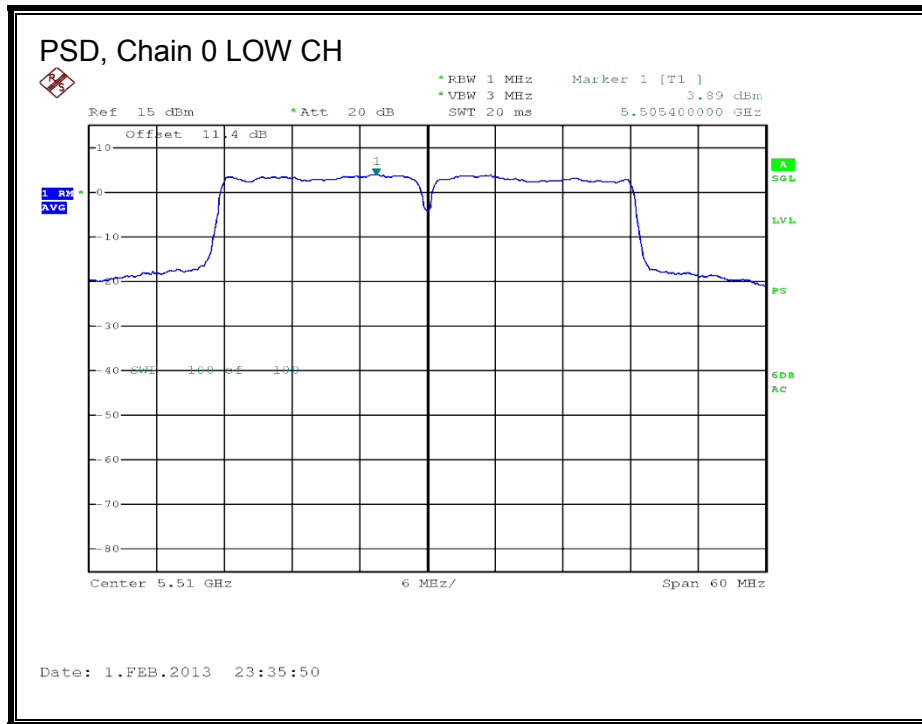
Output Power Results

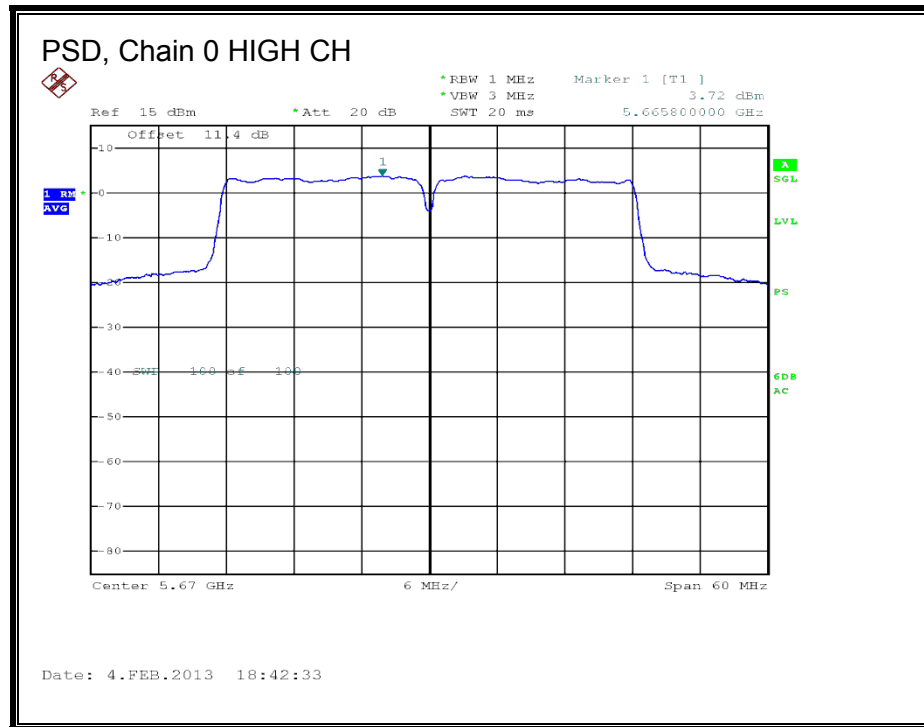
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	14.69	15.31	18.02	23.79	-5.77
Mid	5550	20.12	20.16	23.15	23.79	-0.64
High	5670	20.15	20.12	23.15	23.79	-0.64

PSD Results

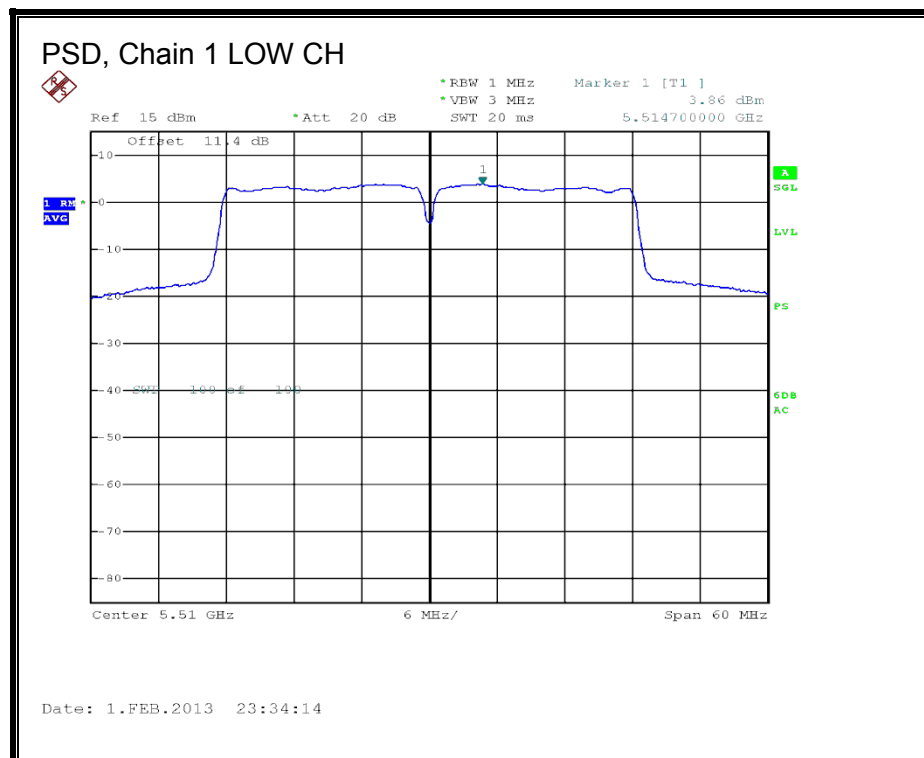
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5510	3.89	3.86	7.11	7.79	-0.68
Mid	5550	3.78	3.97	7.11	7.79	-0.68
High	5670	3.72	3.70	6.94	7.79	-0.85

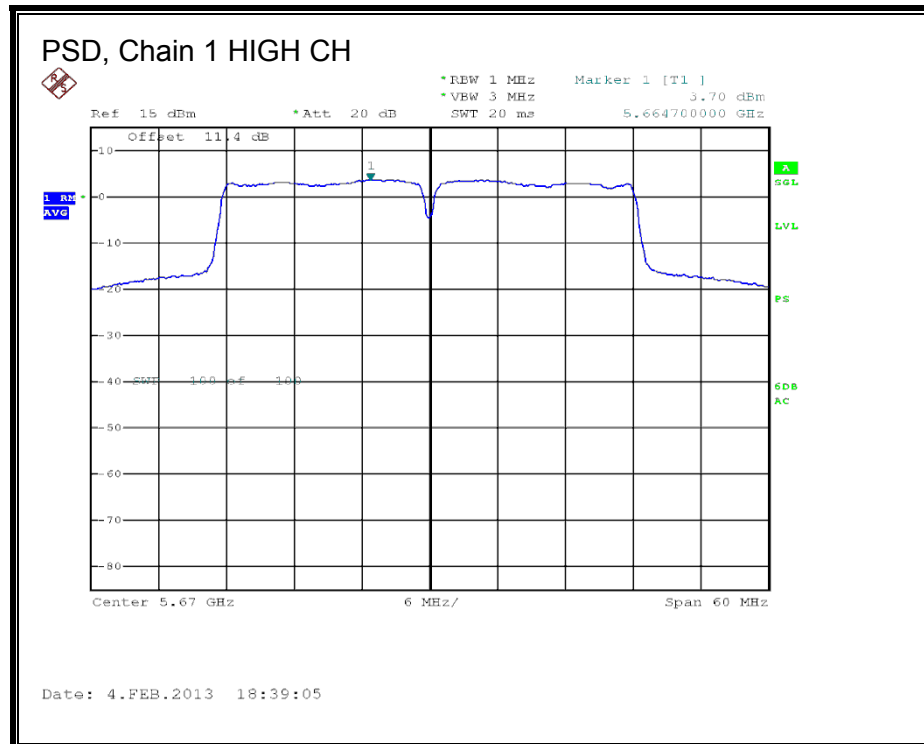
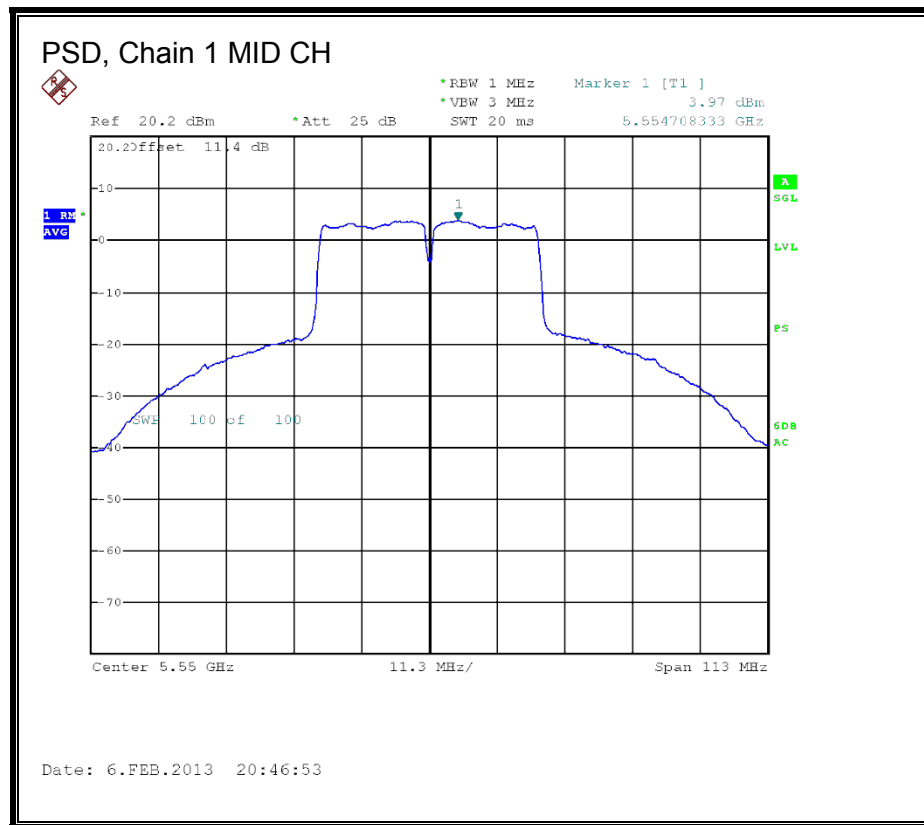
PSD, Chain 0





PSD, Chain 1





8.27.4. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

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

RESULTS

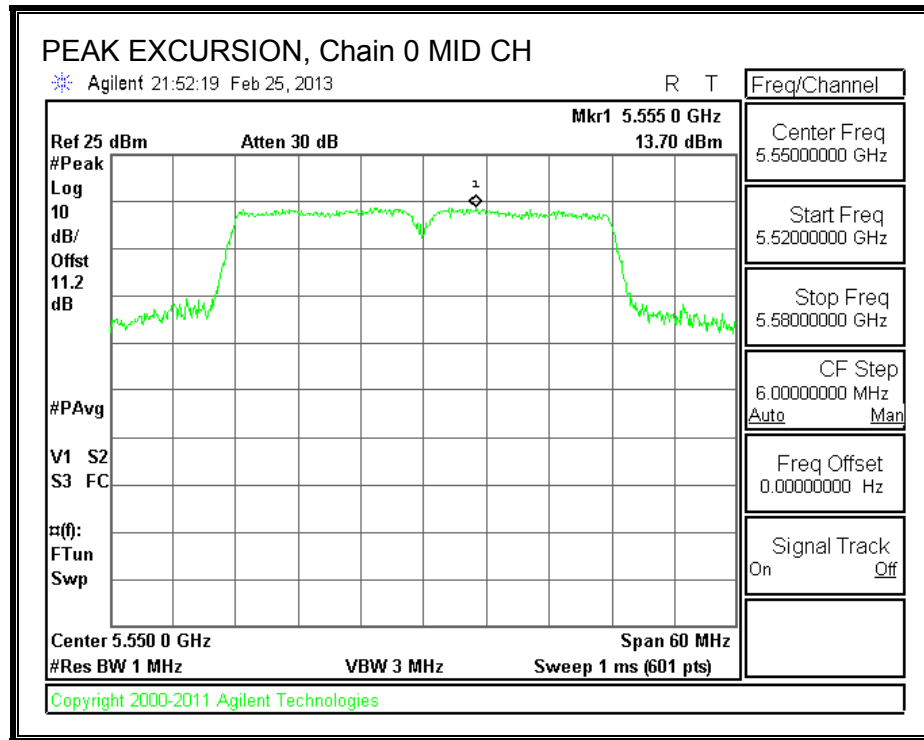
Chain 0

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5550	13.70	3.78	0.25	9.67	13	-3.33

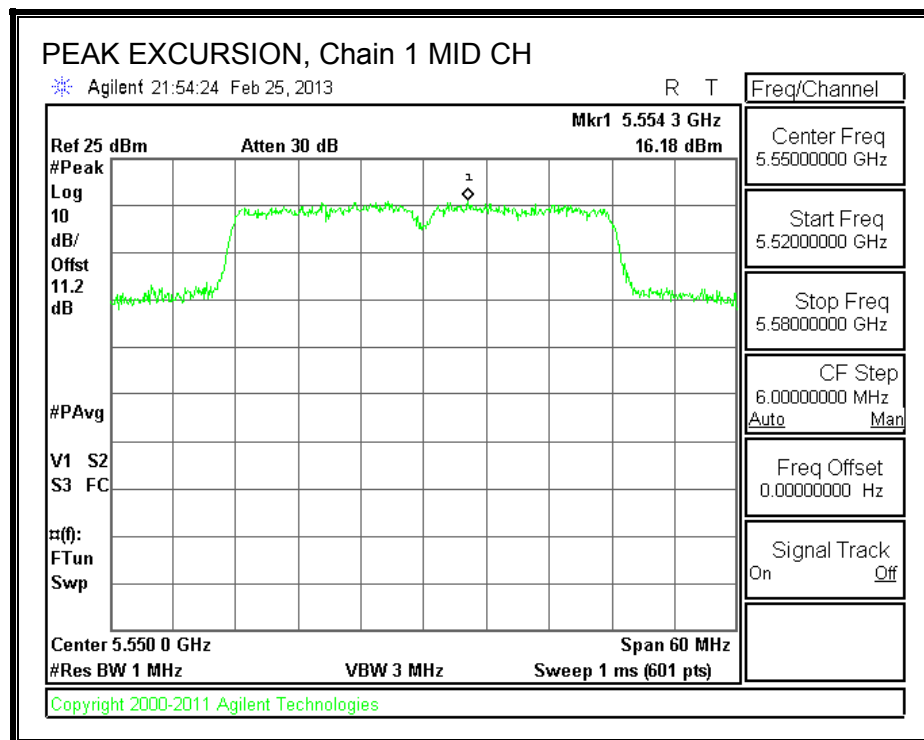
Chain 1

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5550	16.18	3.97	0.25	11.96	13	-1.04

PEAK EXCURSION, Chain 0



PEAK EXCURSION, Chain 1



8.28. 802.11n HT40 CDD 2TX MODE, CHANNEL 142, 5.6 GHz BAND

8.28.1.26 dB BANDWIDTH- UNII

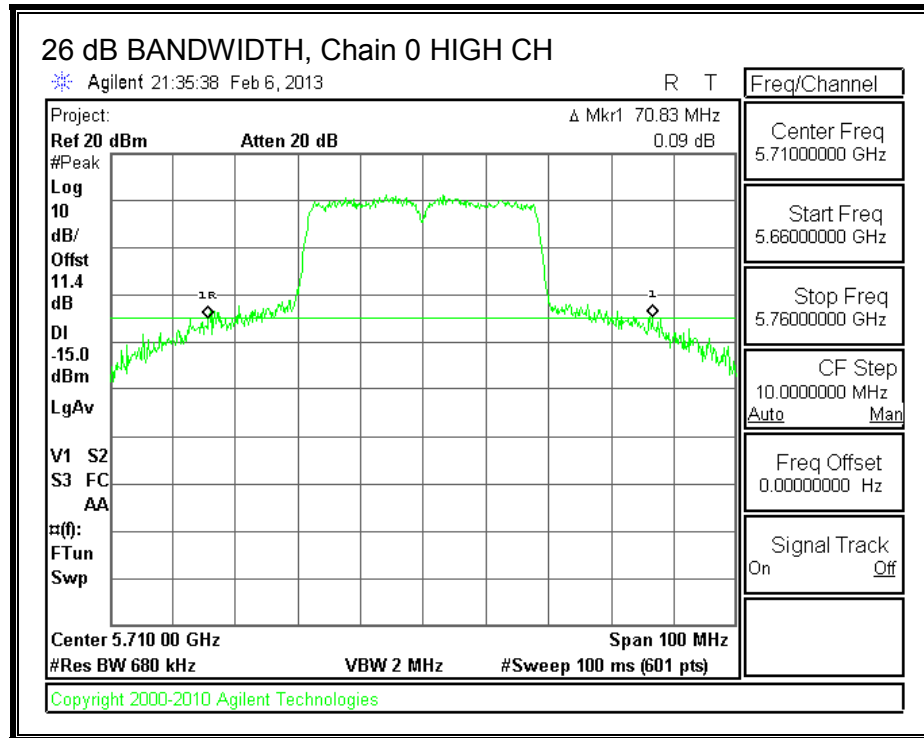
LIMITS

None; for reporting purposes only.

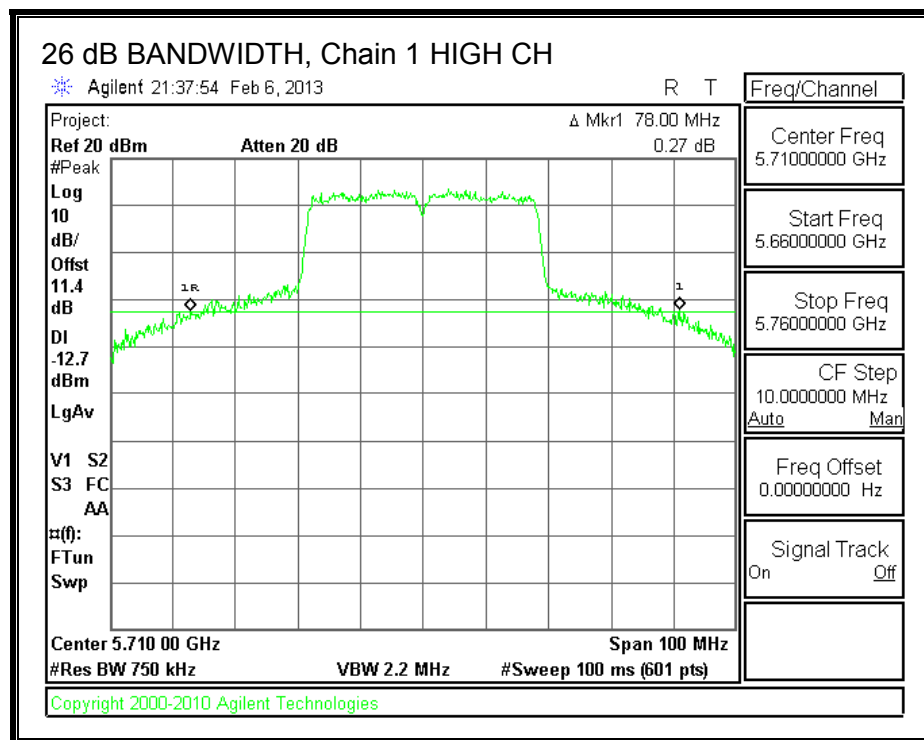
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
High	5710	50.42	54.00

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.28.2.99% BANDWIDTH

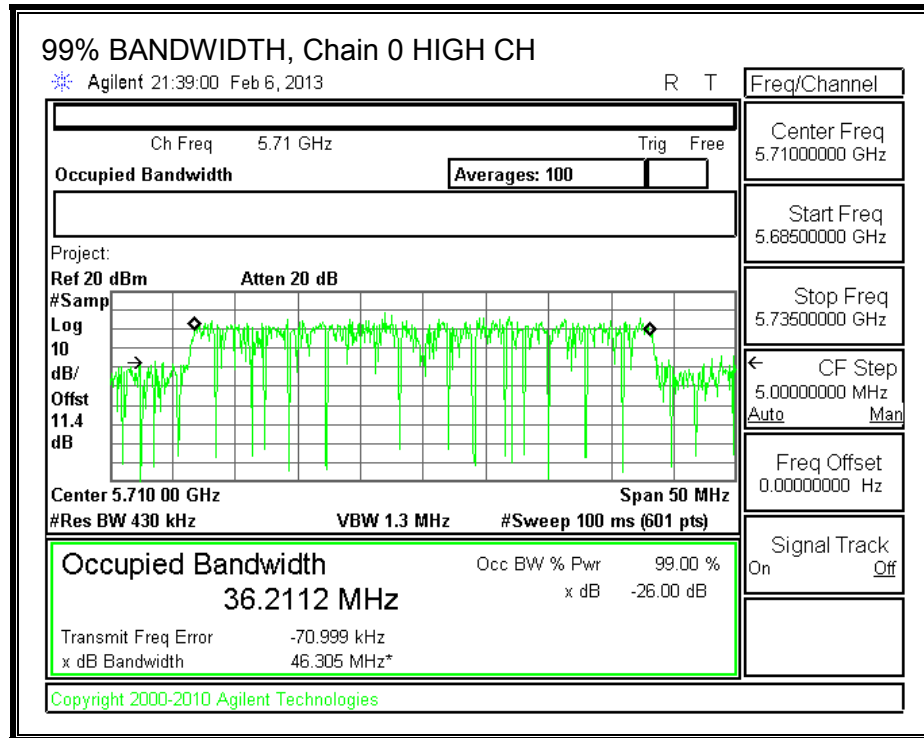
LIMITS

None; for reporting purposes only.

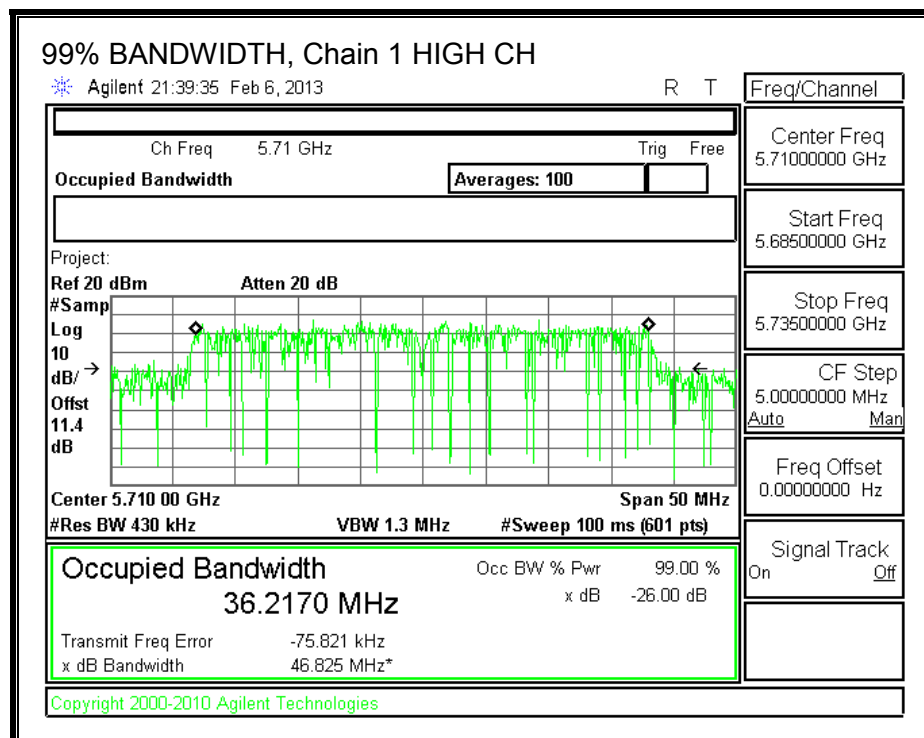
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
High	5710	36.2112	36.2170

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.28.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.247

IC RSS-210 A8.4

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

DIRECTIONAL ANTENNA GAIN

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)
6.61	5.77	6.21

For PSD, 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)
6.61	5.77	9.21

RESULTS

Limits (FCC), portion in UNII 2 ext band

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Correlated Gain (dBi)	Uncorrelated Gain (dBi)
High	5710	50.45	33.1056	9.21	6.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
High	5710	23.79	24.00	30.00	23.79	7.79	11.00	7.79

Duty Cycle CF (dB)	0.22	
--------------------	------	--

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5710	17.42	17.36	20.62	23.79	-3.17

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
High	5710	3.700	3.740	6.95	7.79	-0.84

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

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Correlated Gain (dBi)	Uncorrelated Gain (dBi)
High	5710	20.4	3.1056	9.21	6.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
High	5710	23.79	15.92	21.92	15.71	7.79	11.00	7.79

Duty Cycle CF (dB)	0.22	
--------------------	------	--

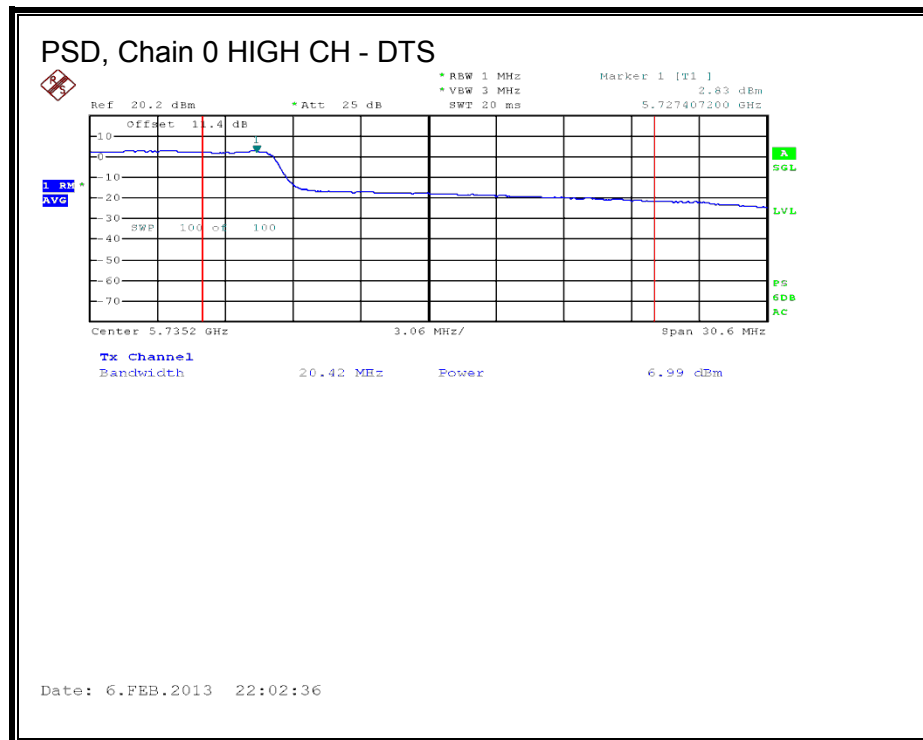
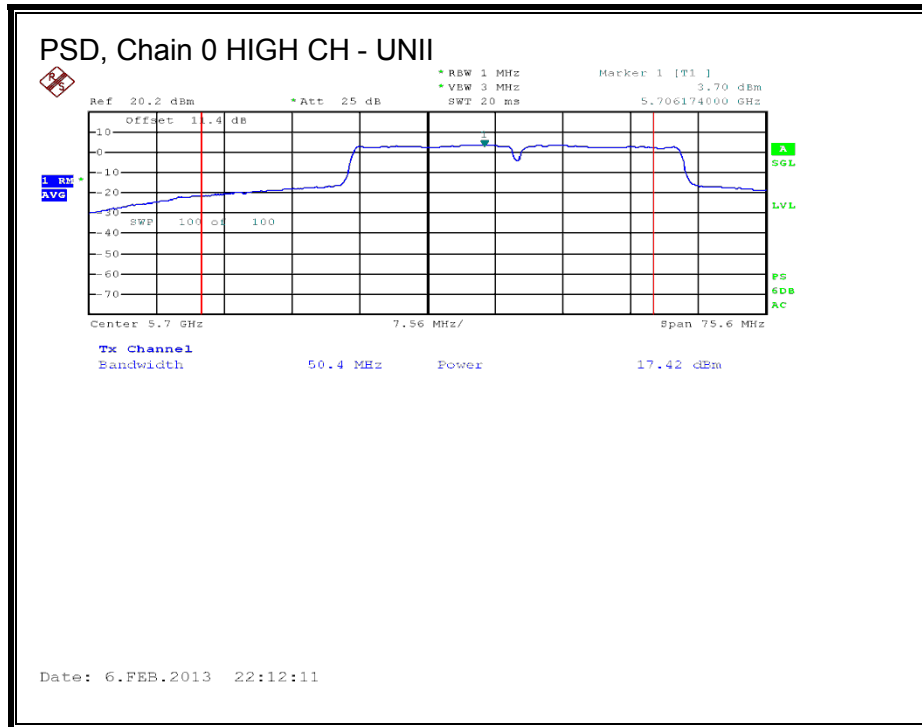
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5710	6.99	6.95	10.20	15.71	-5.51

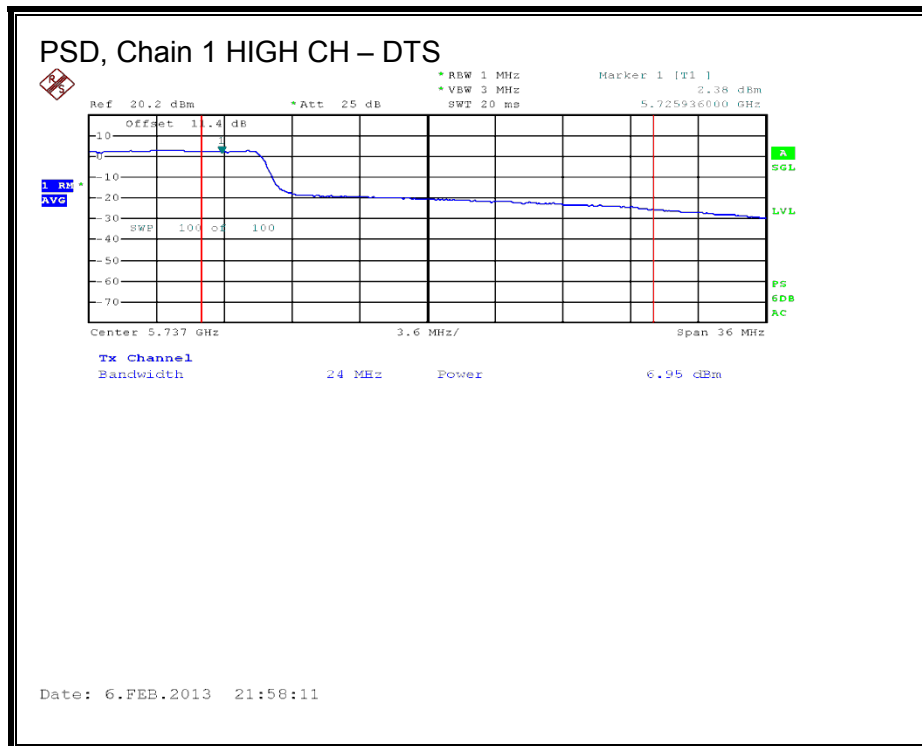
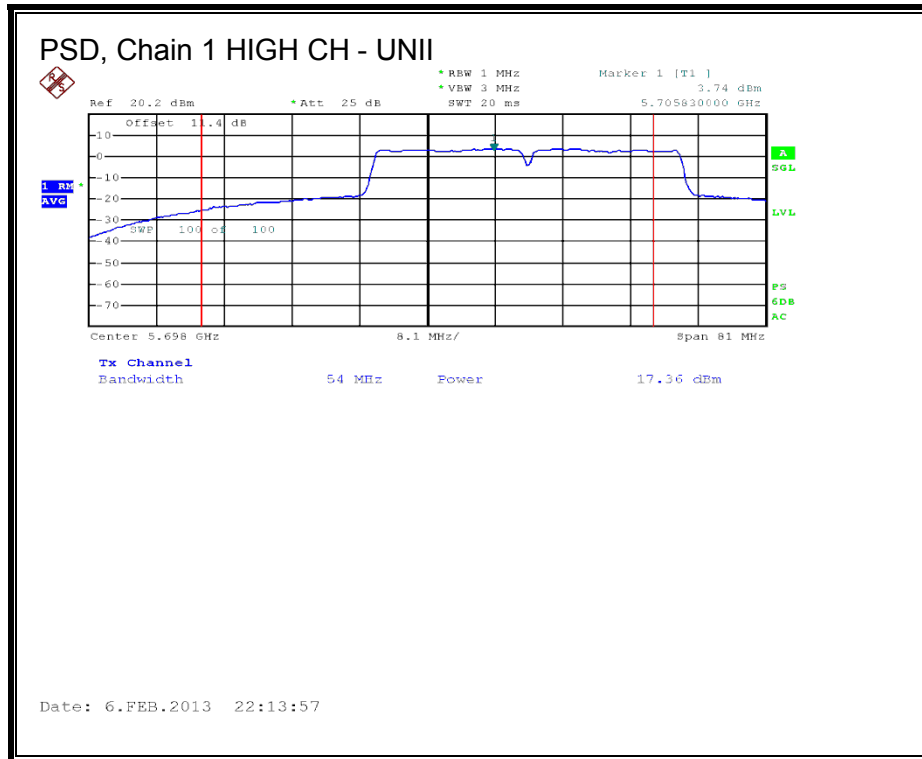
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
High	5710	2.830	2.380	5.84	7.79	-1.95

PSD, Chain 0



PSD, Chain 1



8.29. 802.11n AC40 BF 2TX MODE, 5.6 GHz BAND

8.29.1. 26 dB BANDWIDTH

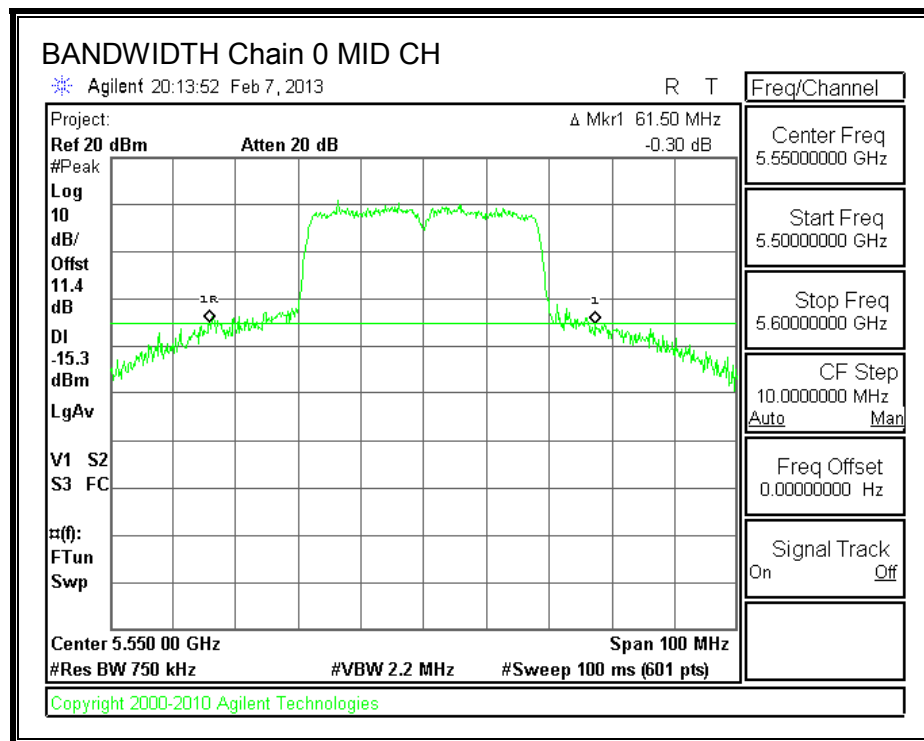
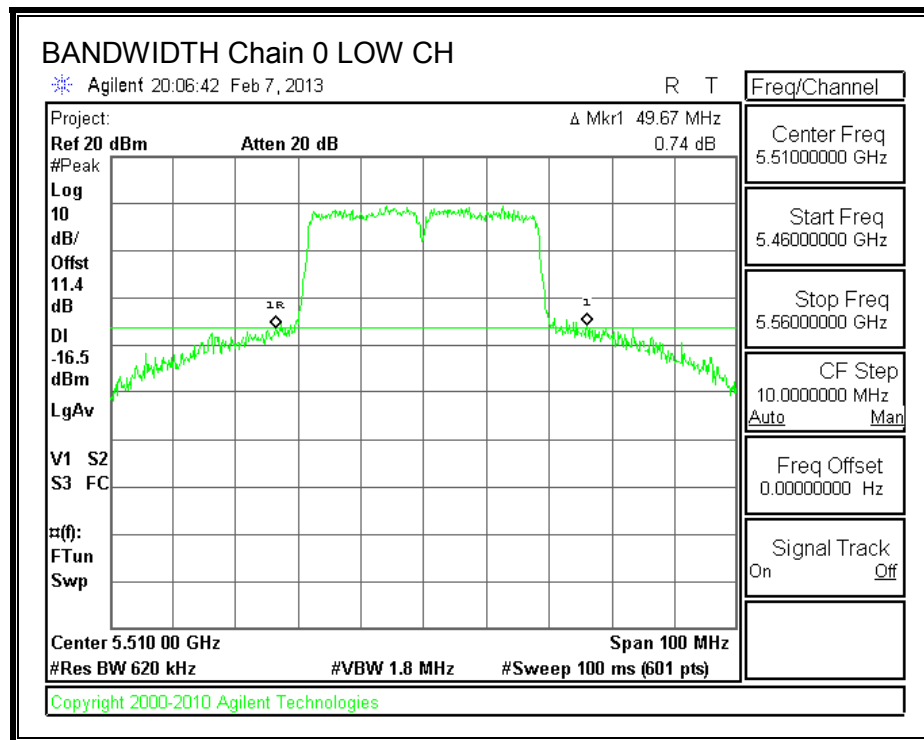
LIMITS

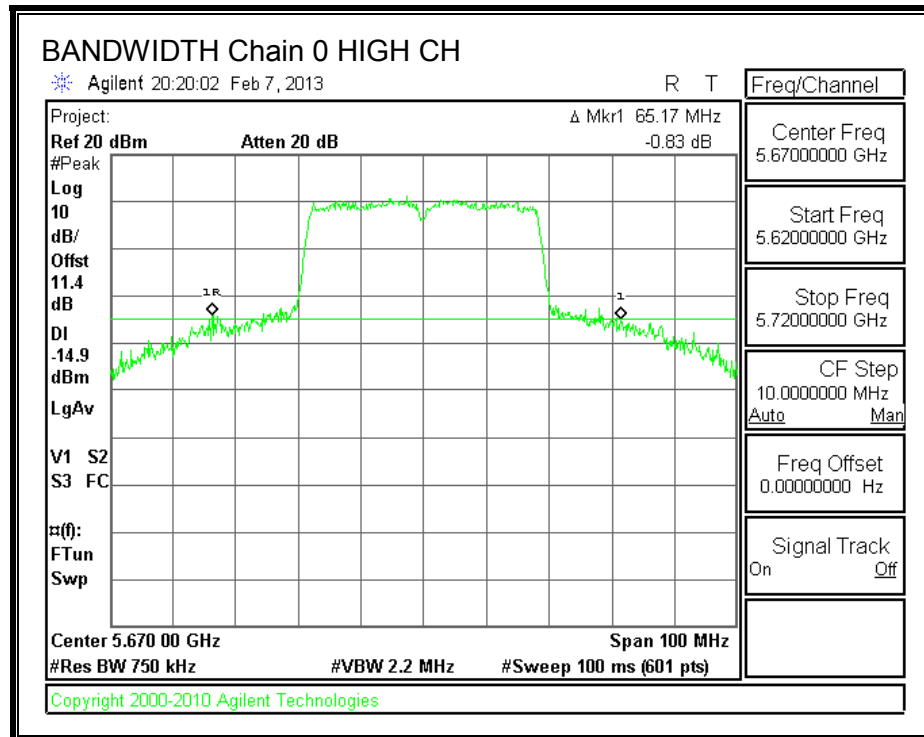
None; for reporting purposes only.

RESULTS

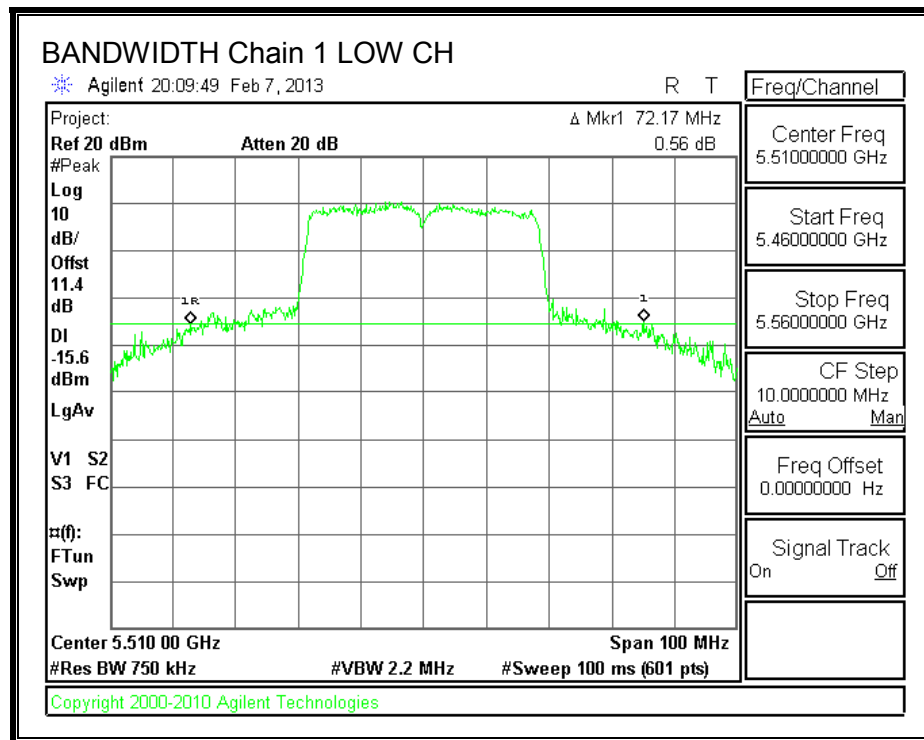
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5510	49.67	72.17
Mid	5550	61.50	63.17
High	5670	65.17	69.67

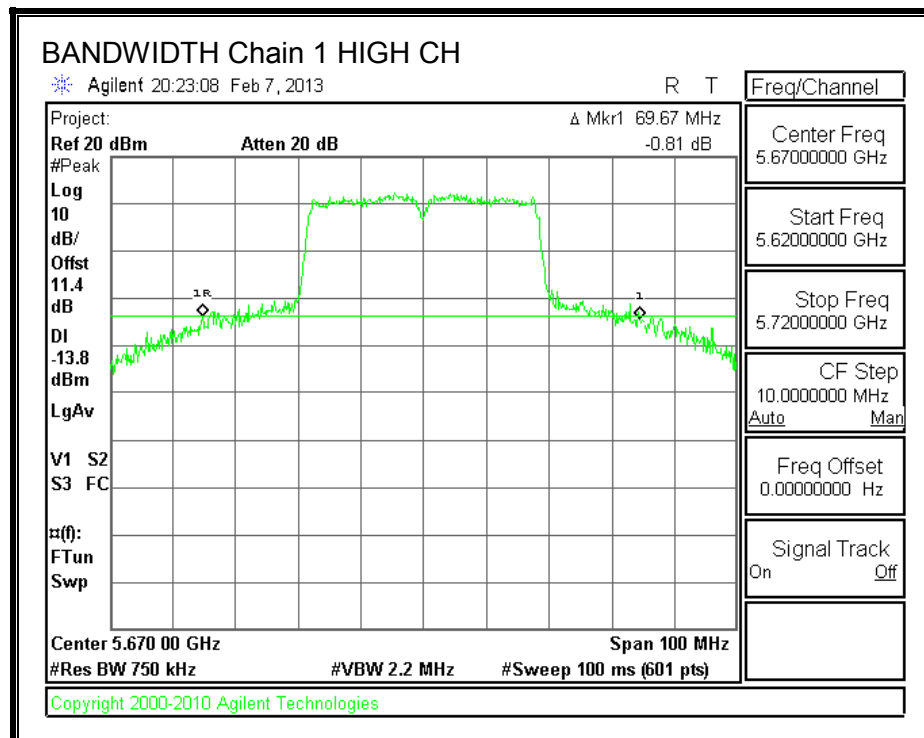
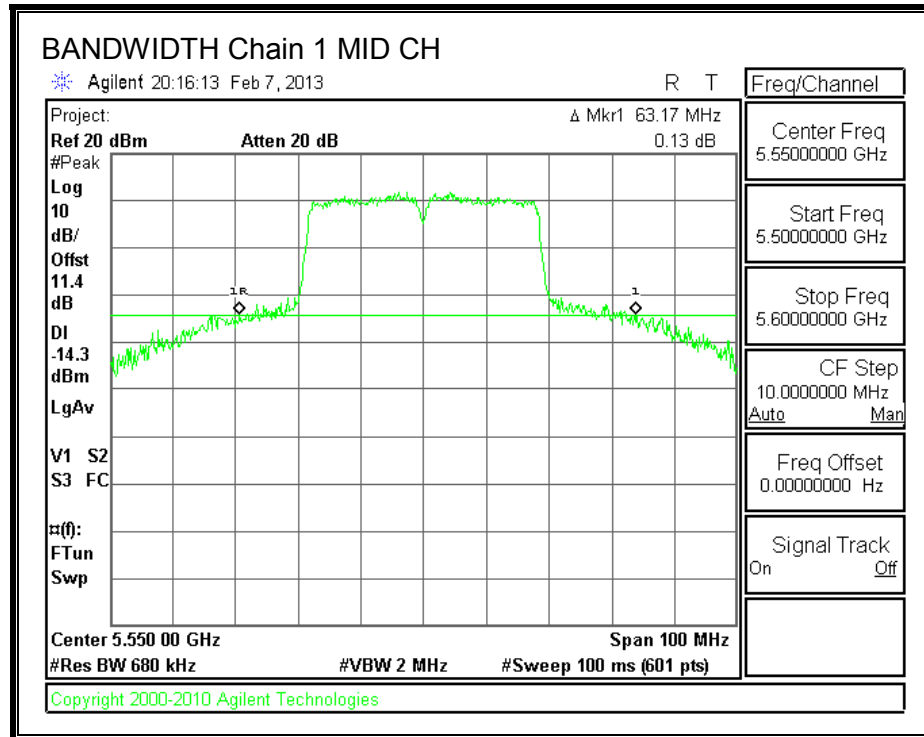
26 dB BANDWIDTH, Chain 0





26 dB BANDWIDTH, Chain 1





8.29.2. 99% BANDWIDTH

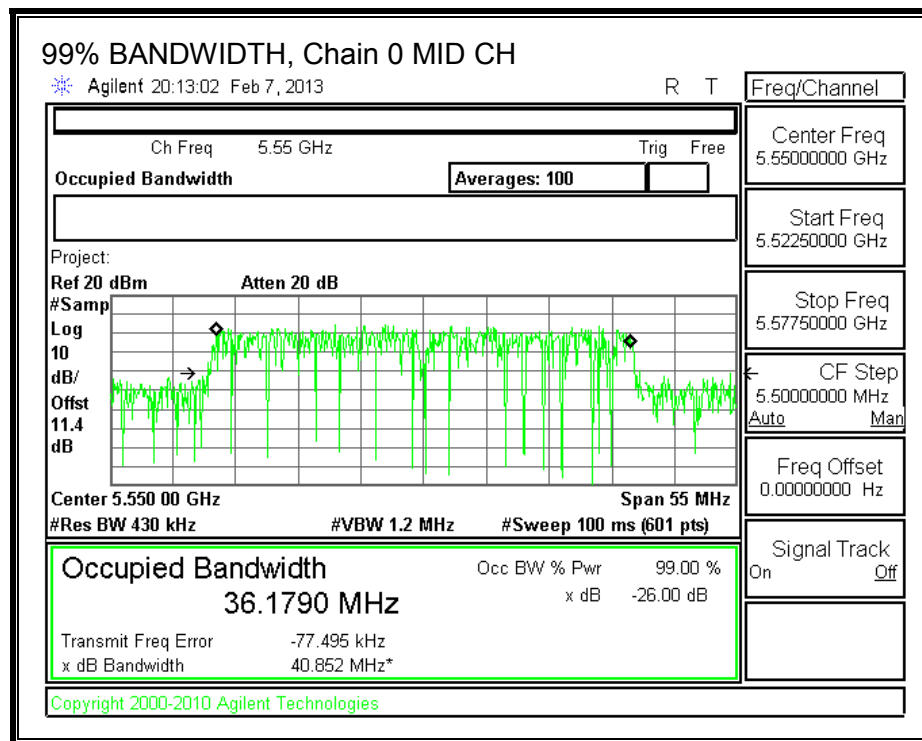
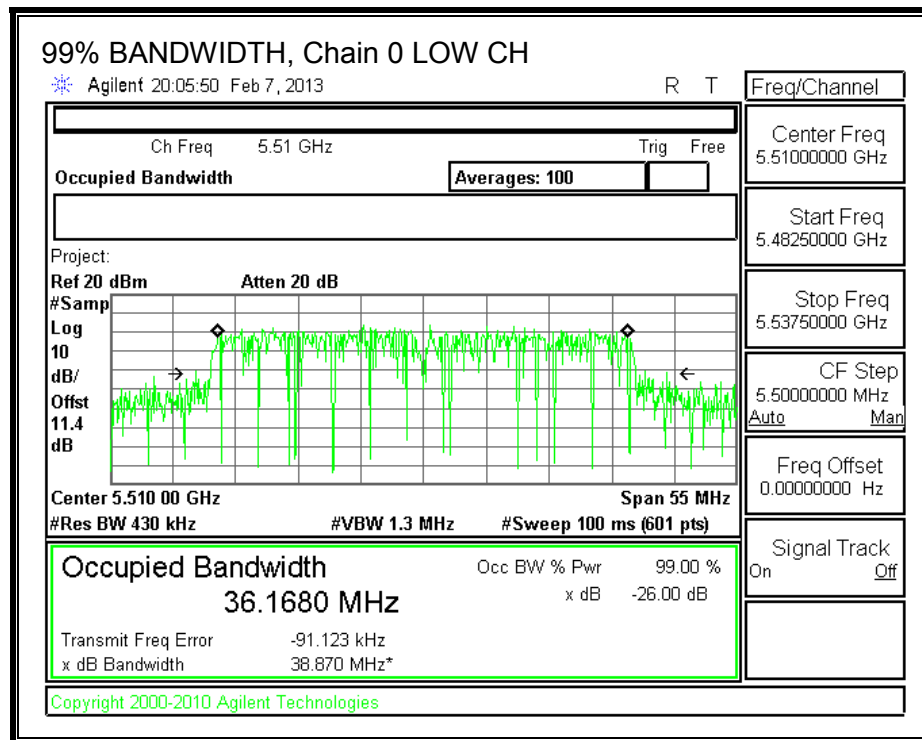
LIMITS

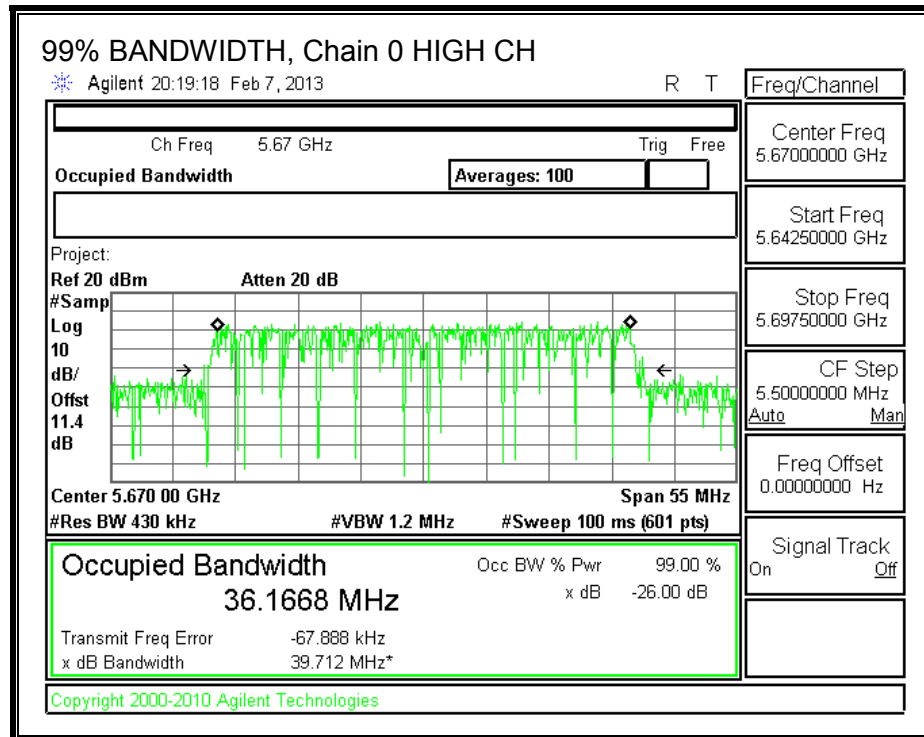
None; for reporting purposes only.

RESULTS

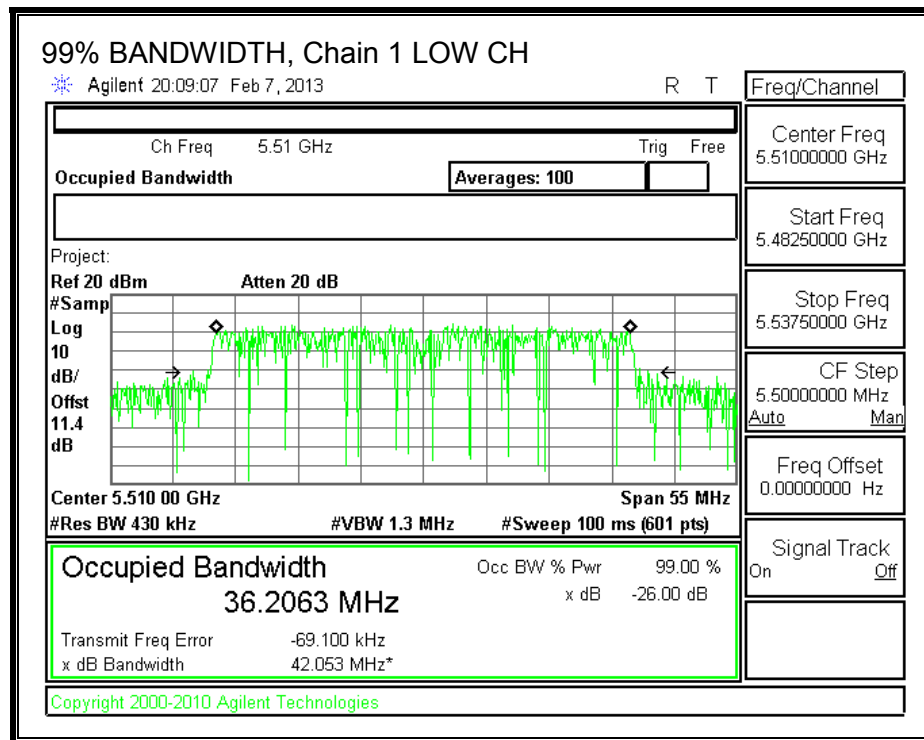
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5510	36.1680	36.2063
Mid	5550	36.1790	36.1805
High	5670	36.1668	36.1870

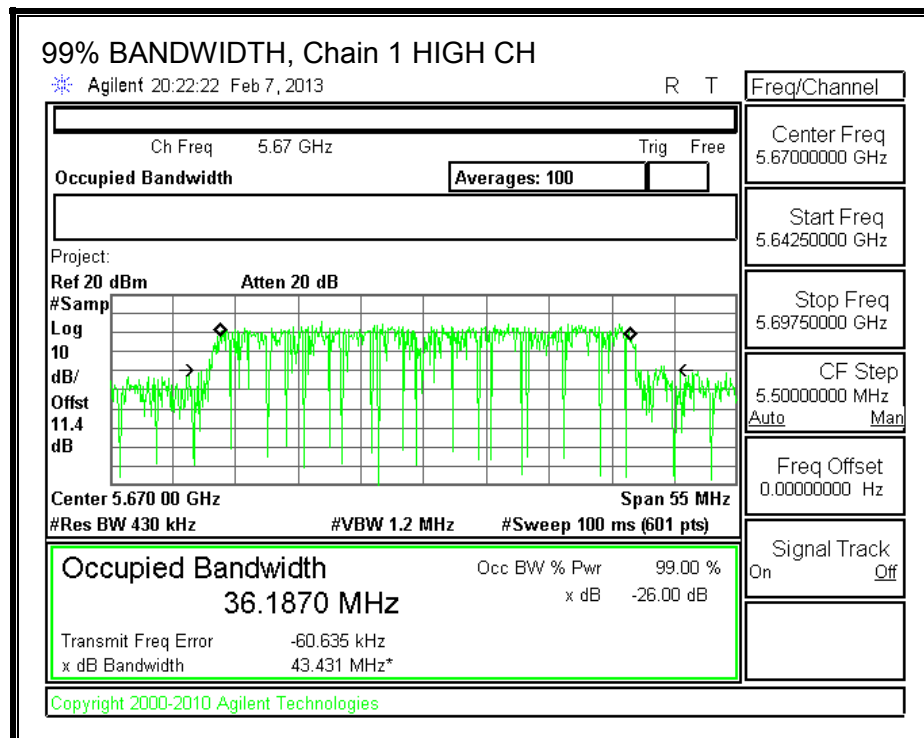
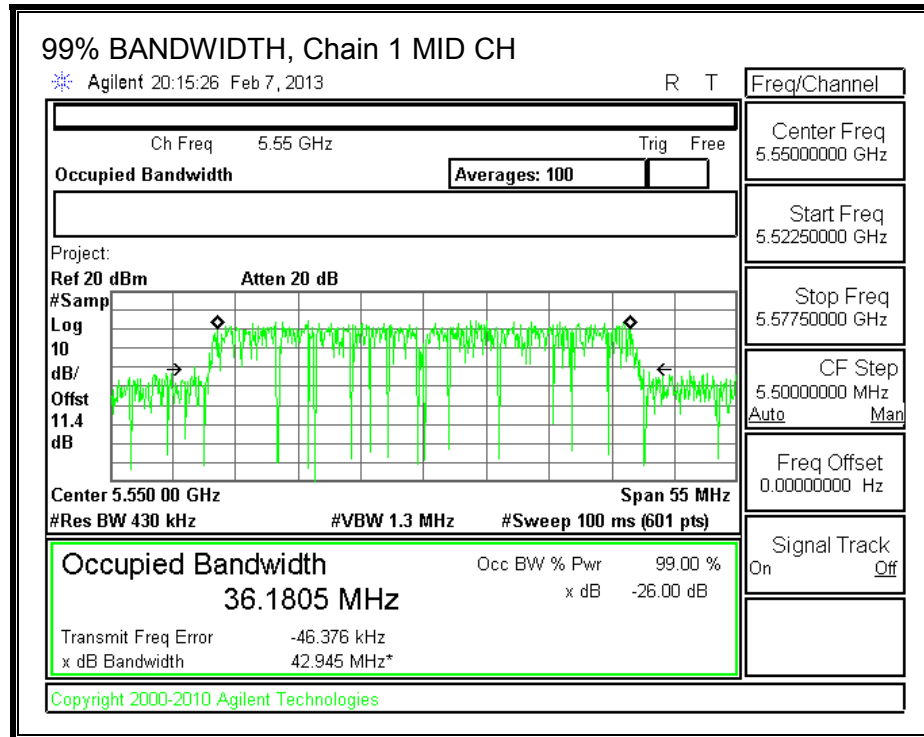
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.29.3. OUTPUT POWER AND PSD

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

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)
6.61	5.77	9.21

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5510	49.67	36.1680	9.21
Mid	5550	61.50	36.1790	9.21
High	5670	65.17	36.1668	9.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Low	5510	20.79	24.00	30.00	20.79	7.79	11.00	7.79
Mid	5550	20.79	24.00	30.00	20.79	7.79	11.00	7.79
High	5670	20.79	24.00	30.00	20.79	7.79	11.00	7.79

Duty Cycle CF (dB)	0.22	
--------------------	------	--

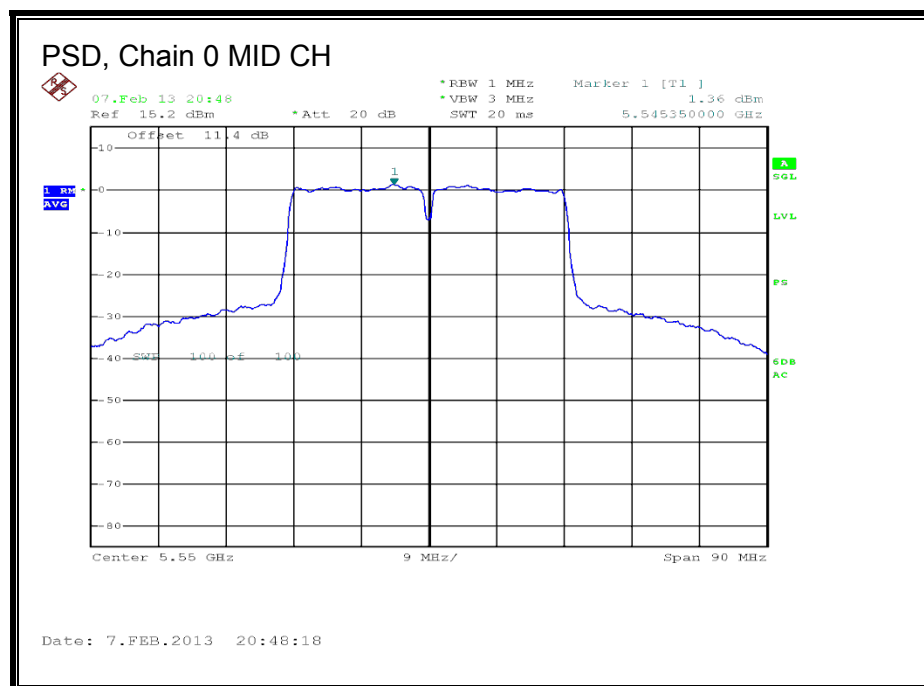
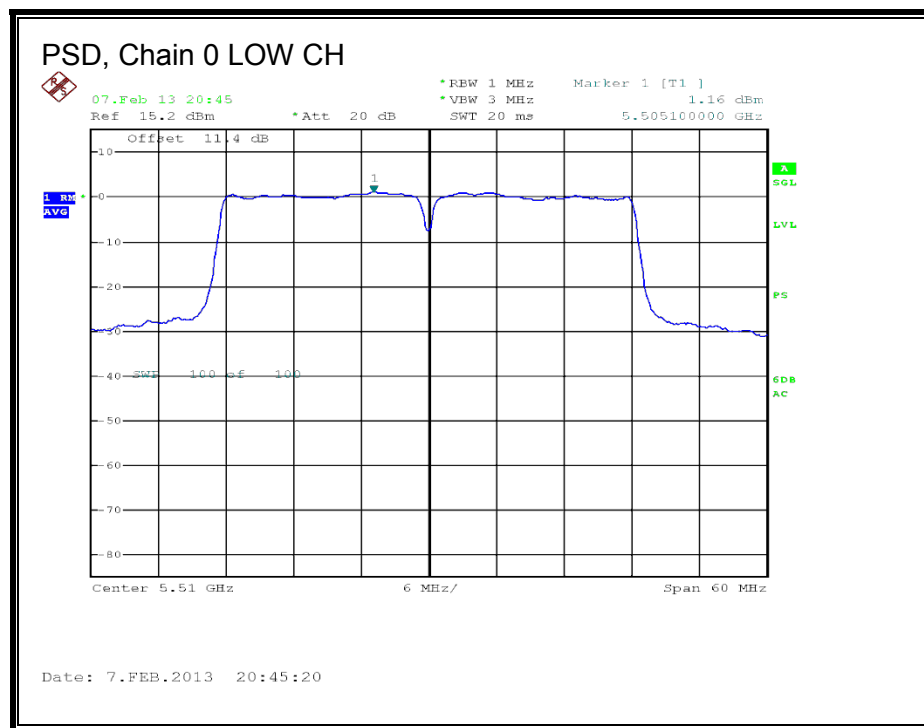
Output Power Results

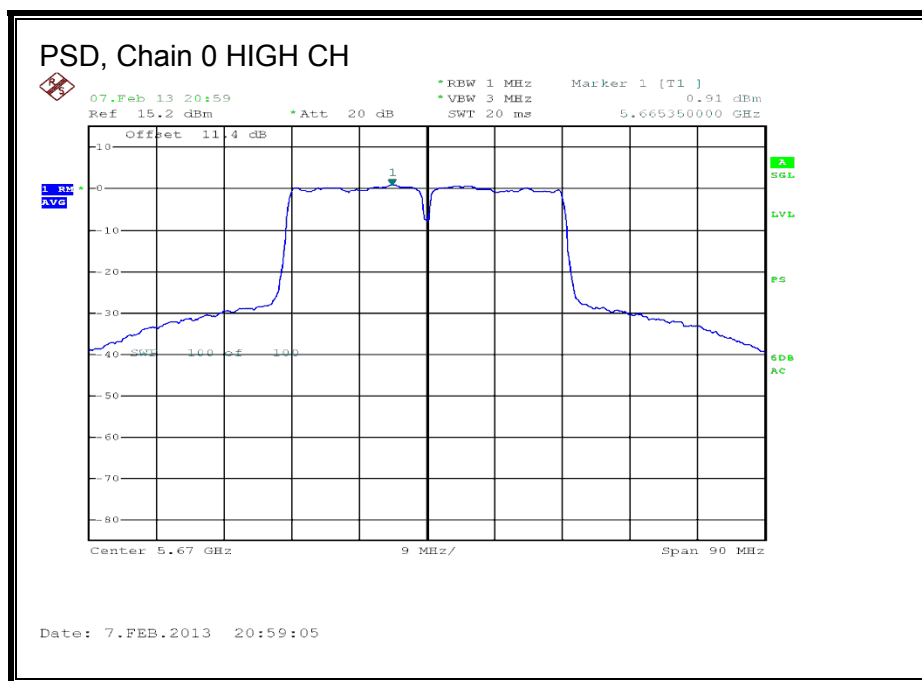
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	13.86	14.71	17.32	20.79	-3.47
Mid	5550	17.78	17.67	20.74	20.79	-0.05
High	5670	17.75	17.65	20.71	20.79	-0.08

PSD Results

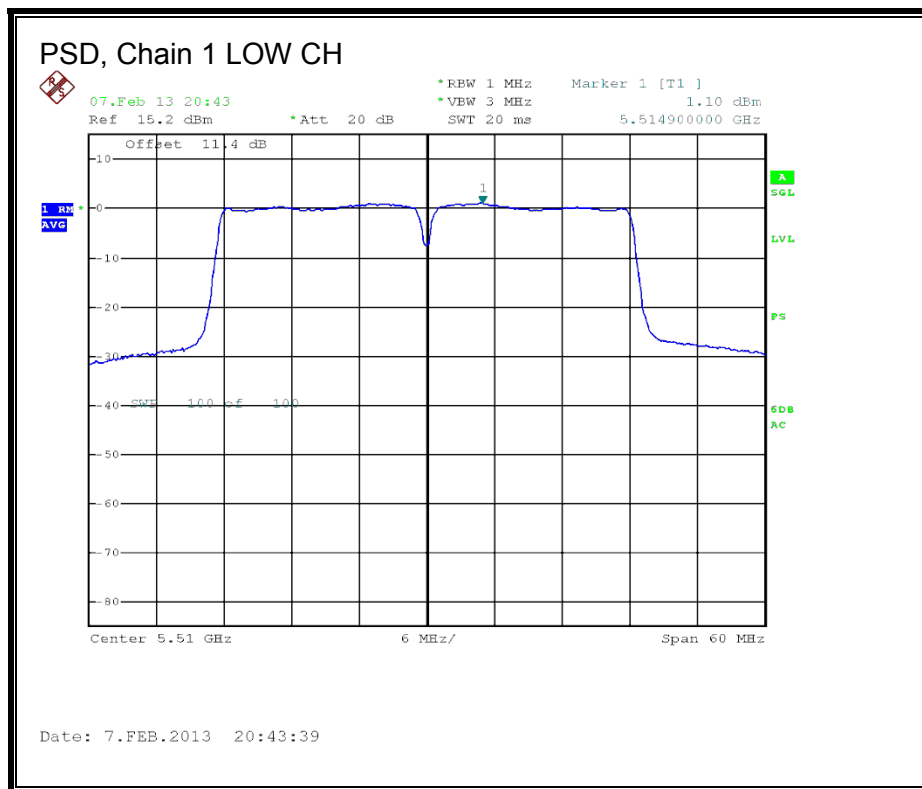
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5510	1.16	1.10	4.36	7.79	-3.43
Mid	5550	1.36	1.25	4.54	7.79	-3.25
High	5670	0.91	0.85	4.11	7.79	-3.68

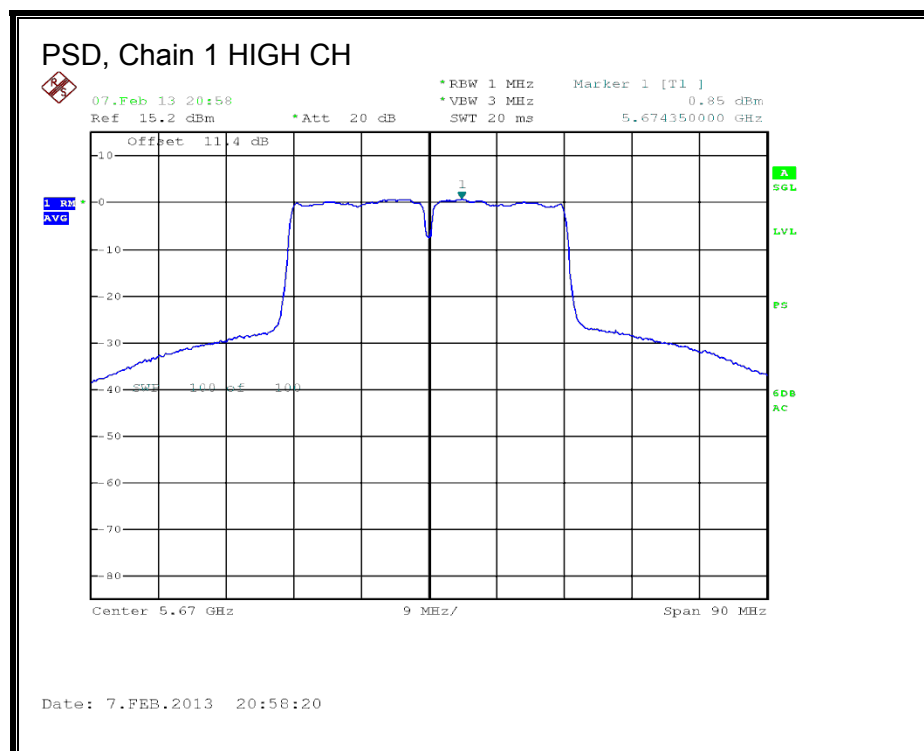
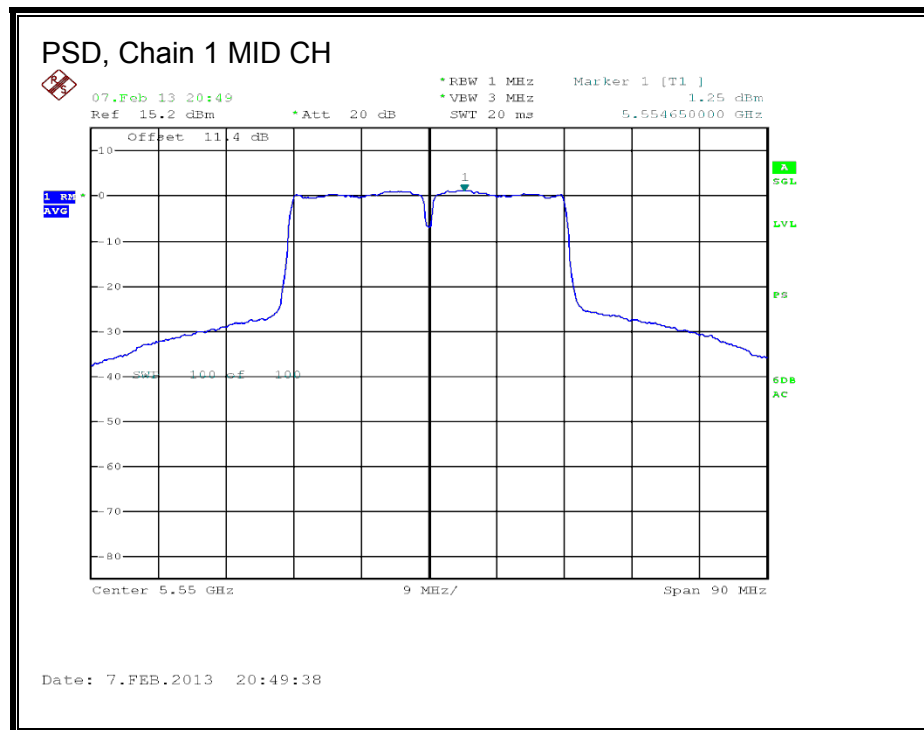
PSD, Chain 0





PSD, Chain 1





8.30. 802.11n AC40 BF 2TX MODE, CHANNEL 142, 5.6 GHz BAND

8.30.1.26 dB BANDWIDTH- UNII

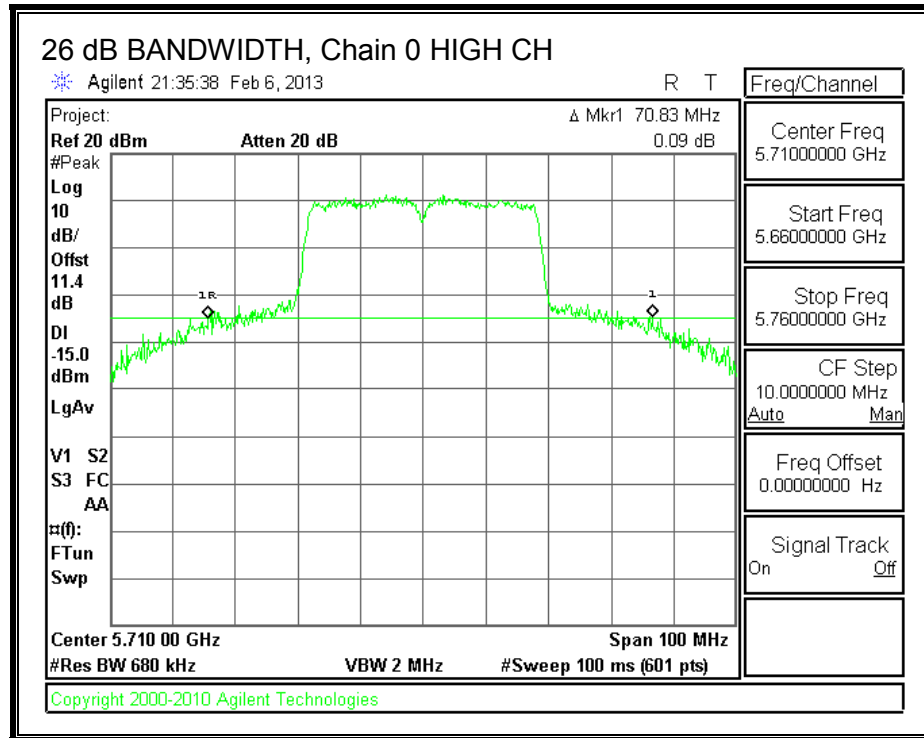
LIMITS

None; for reporting purposes only.

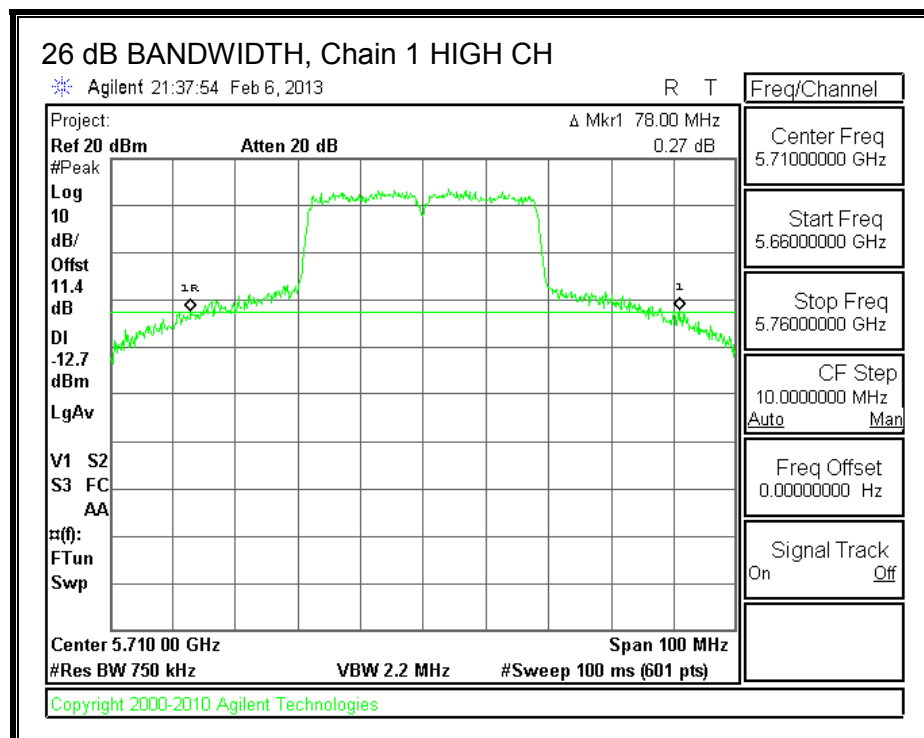
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
High	5710	70.83	78.00

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.30.2.99% BANDWIDTH

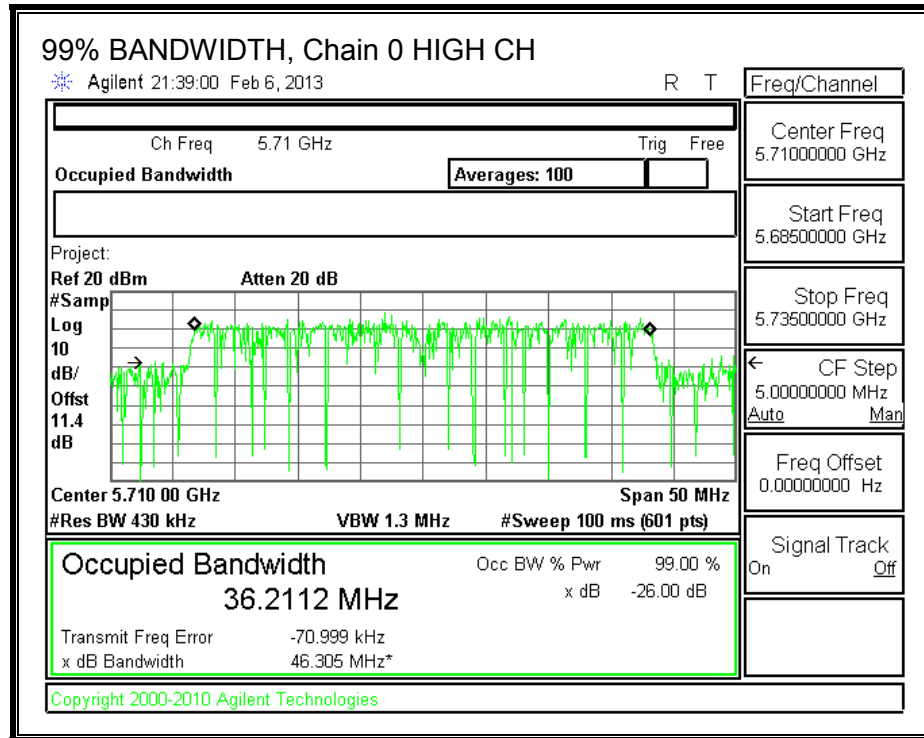
LIMITS

None; for reporting purposes only.

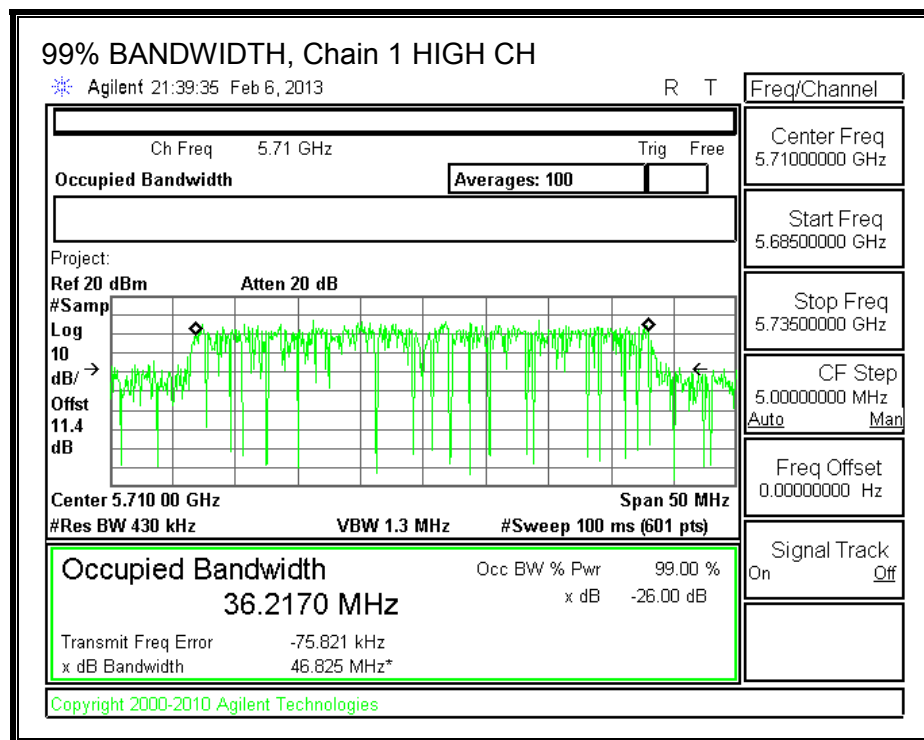
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
High	5710	36.2112	36.2170

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.30.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.247

IC RSS-210 A8.4

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

DIRECTIONAL ANTENNA GAIN

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

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Correlated Chains Directional Gain (dBi)
6.61	5.77	9.21

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)
Mid	5710	50.45	33.1056	9.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Mid	5710	20.79	24.00	30.00	20.79	7.79	11.00	7.79

Duty Cycle CF (dB)	0.22		
--------------------	------	--	--

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	5710	17.42	17.36	20.62	20.79	-0.17

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Mid	5710	3.700	3.740	6.95	7.79	-0.84

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

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Correlated Gain (dBi)
Mid	5710	20.4	3.1056	9.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Mid	5710	20.79	15.92	21.92	12.71	7.79	11.00	7.79

Duty Cycle CF (dB)	0.22	
--------------------	------	--

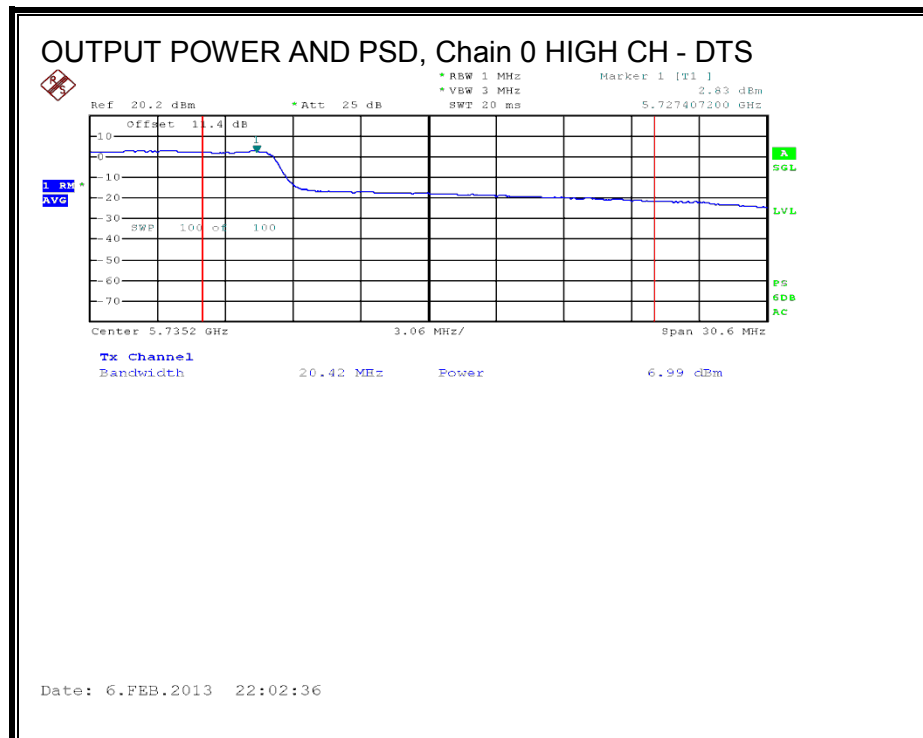
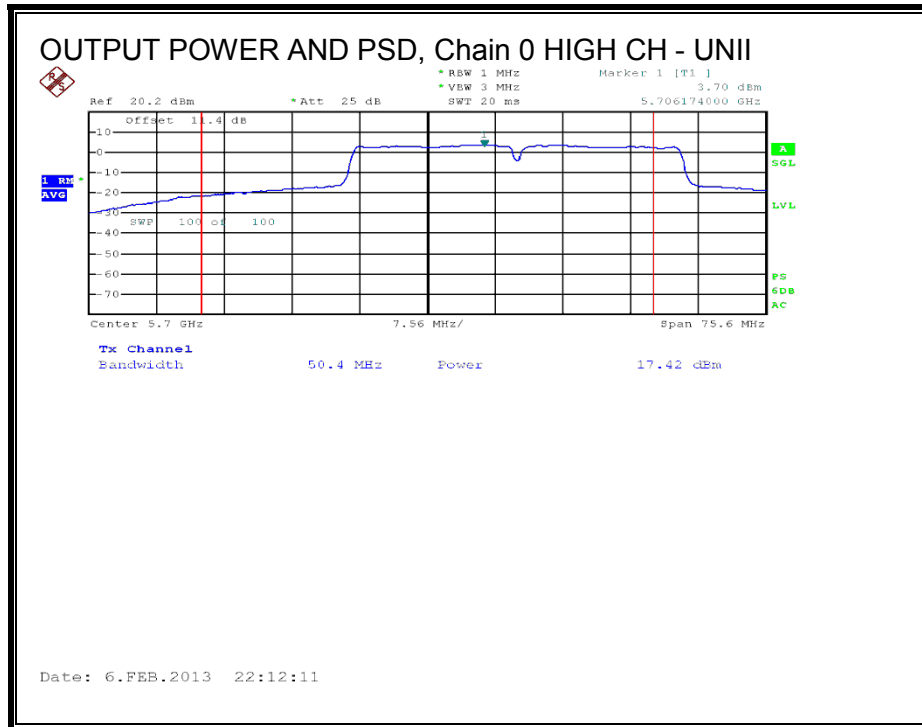
Output Power Results

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	5710	6.99	6.95	10.20	12.71	-2.51

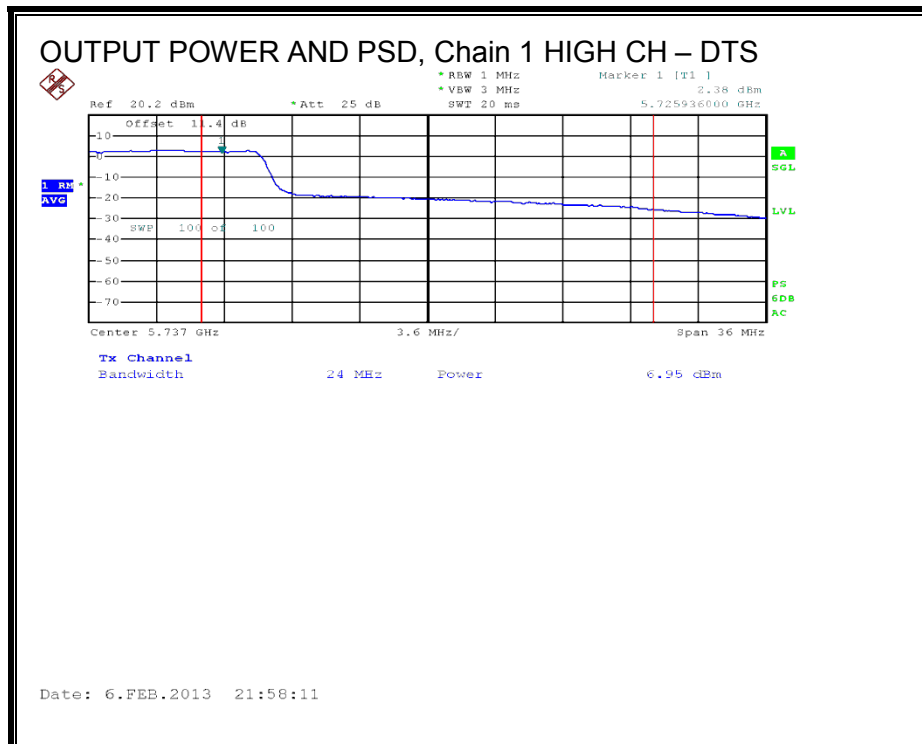
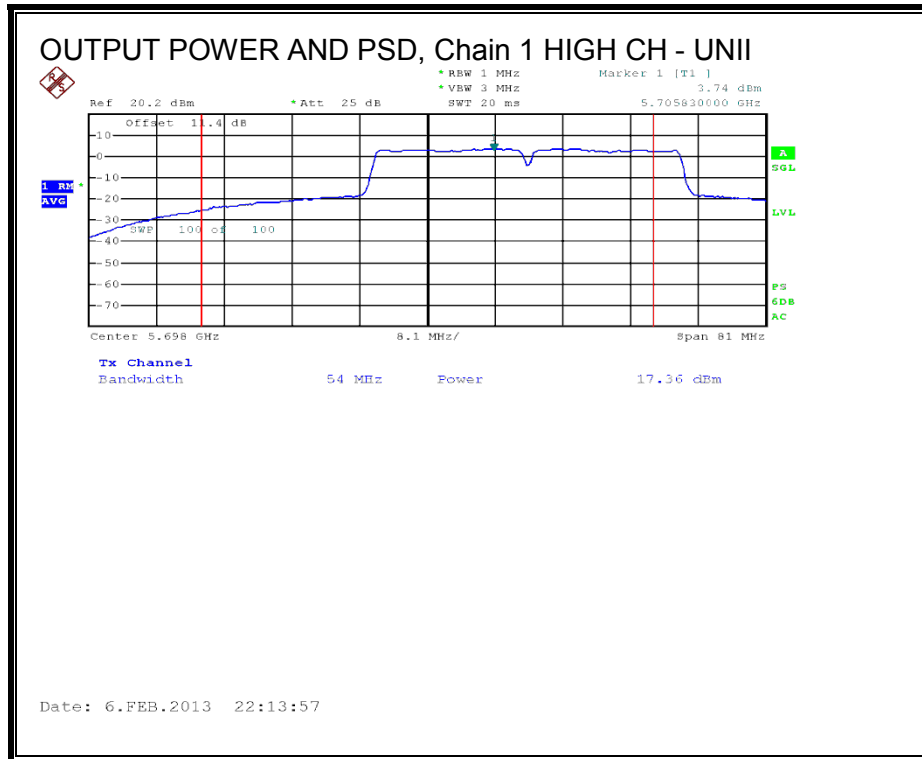
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Mid	5710	2.830	2.380	5.84	7.79	-1.95

OUTPUT POWER AND PSD, Chain 0



OUTPUT POWER AND PSD, Chain 1



8.31. 802.11n AC80 1TX MODE, 5.6 GHz BAND

8.31.1. 26 dB BANDWIDTH

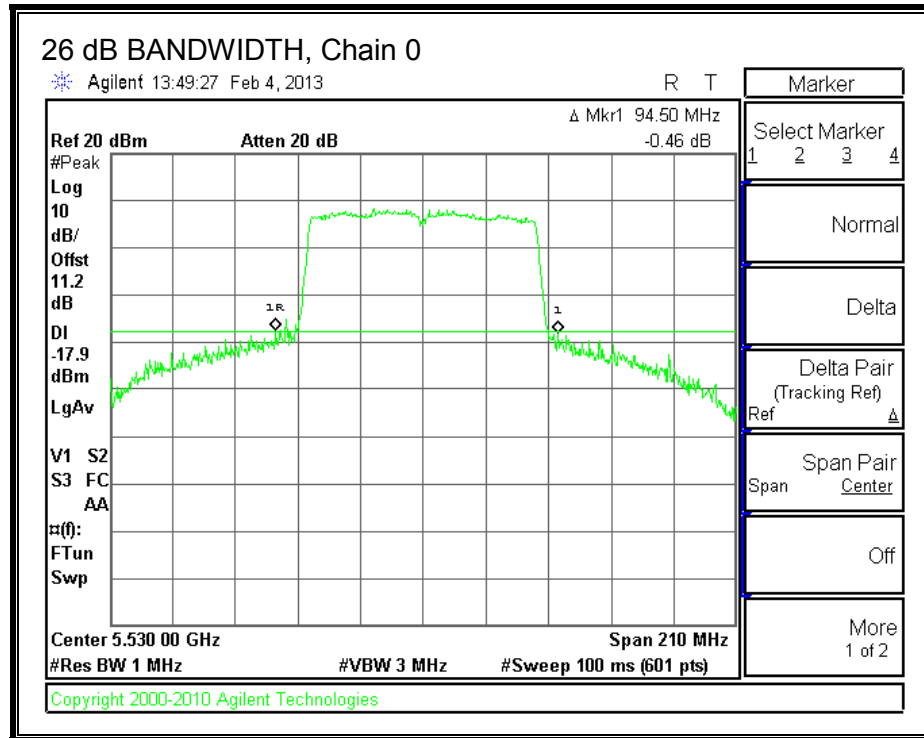
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)
Mid	5530	94.5

26 dB BANDWIDTH, Chain 0



8.31.2. 99% BANDWIDTH

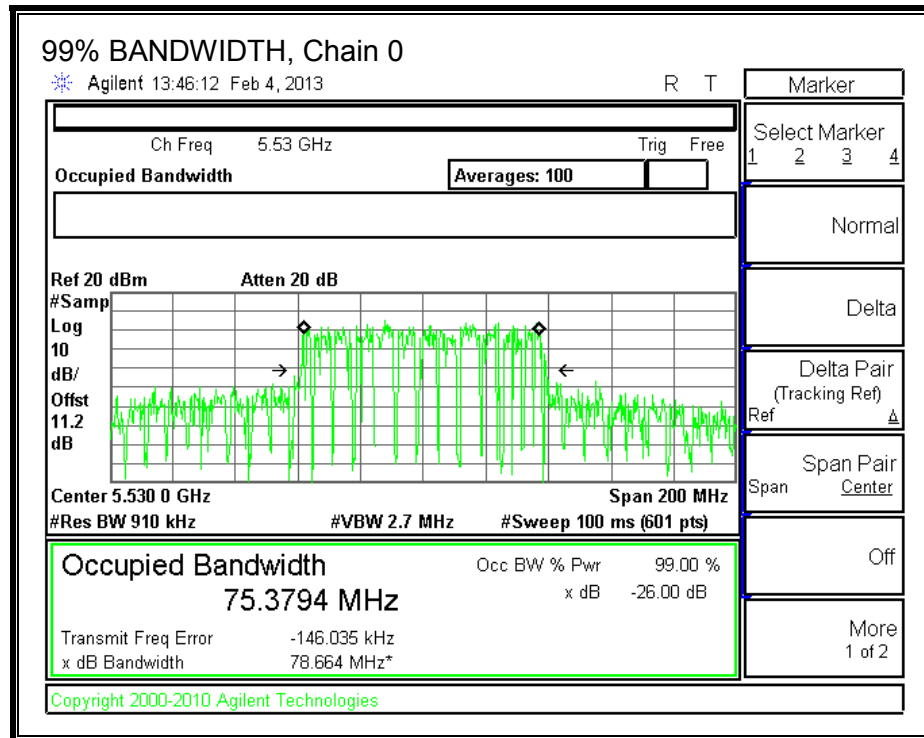
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)
Mid	5530	75.3794

99% BANDWIDTH, Chain 0



8.31.3. OUTPUT POWER AND PSD

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)
Mid	5530	94.5	75.3794	6.61

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Mid	5530	23.39	24.00	30.00	23.39	10.39	11.00	10.39

Duty Cycle CF (dB)	0.15
--------------------	------

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5530	16.93	16.93	23.39	-6.46

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Mid	5530	-3.25	-3.10	10.39	-13.49

PSD, Chain 0



8.31.4. PEAK EXCURSION

LIMITS

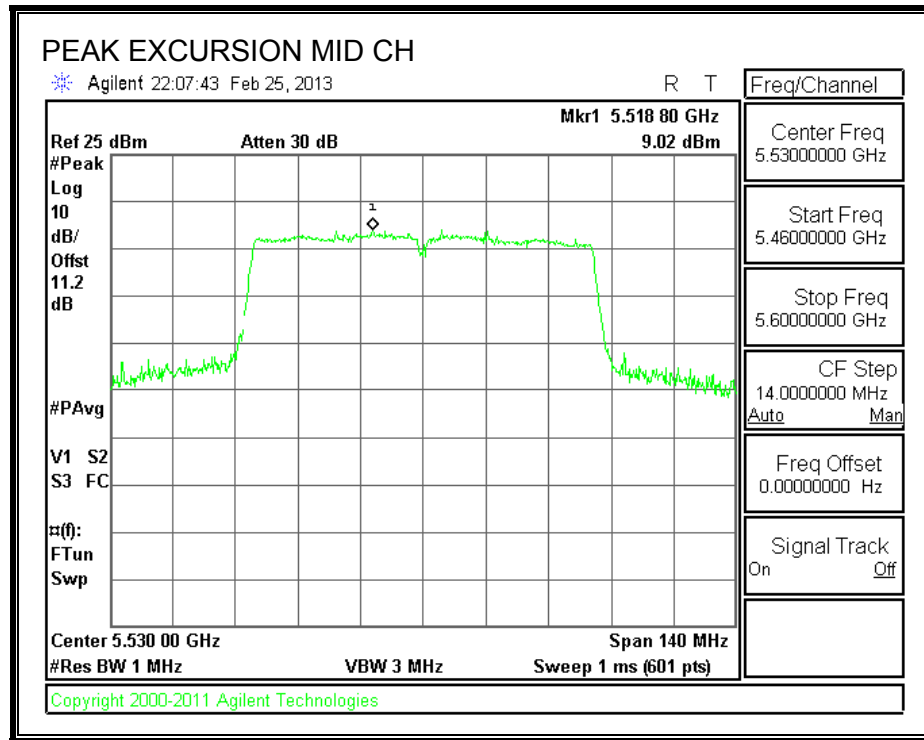
FCC §15.407 (a) (6)

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

RESULTS

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5530	9.02	-3.25	0.15	12.12	13	-0.88

PEAK EXCURSION



8.32. 802.11n AC80 1TX MODE, CHANNEL 138, 5.6 GHz BAND

8.32.1. 26 dB BANDWIDTH

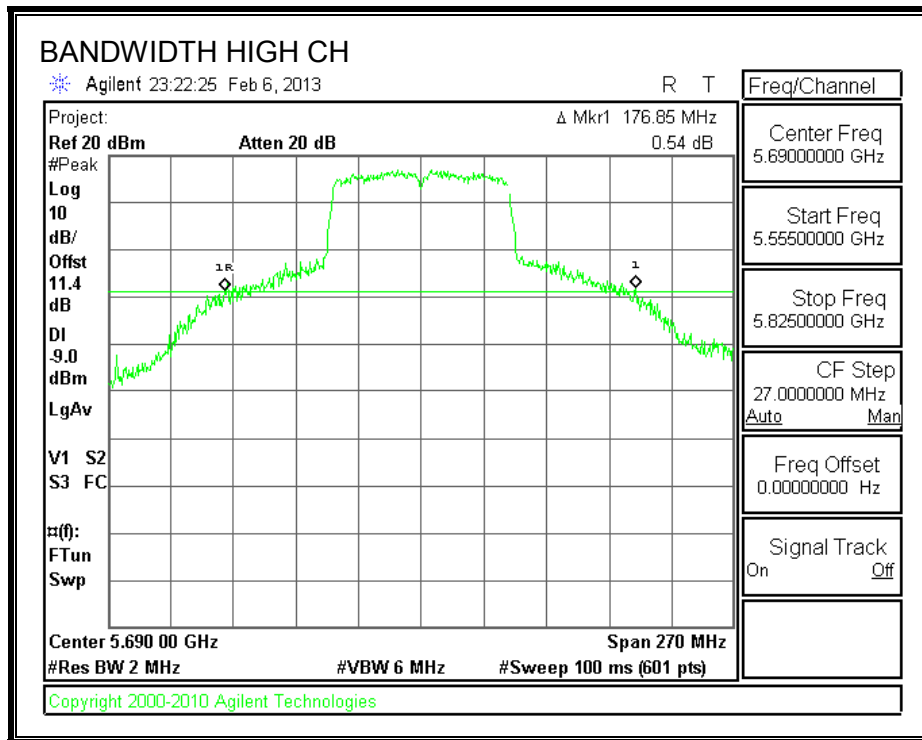
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
High	5690	176.85

26 dB BANDWIDTH



8.32.2. 99% BANDWIDTH

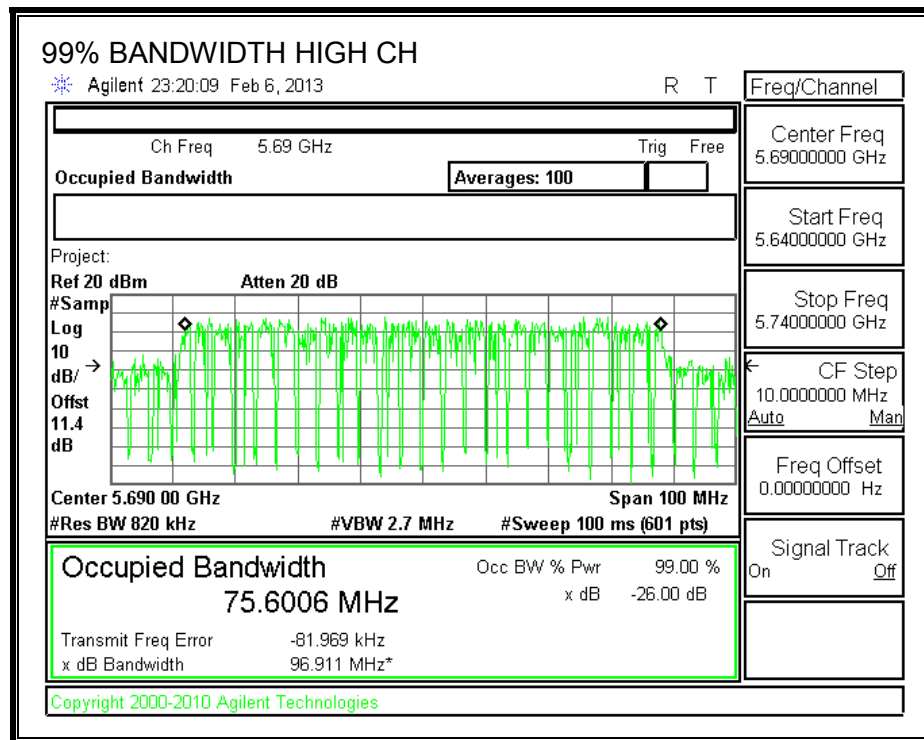
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
High	5690	75.6006

99% BANDWIDTH



8.32.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.247

IC RSS-210 A8.4

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

DIRECTIONAL ANTENNA GAIN

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

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)	Directional Gain (dBi)
High	5690	123.4	72.8000	6.61

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
High	5690	24.00	24.00	30.00	24.00	10.39	11.00	10.39

Duty Cycle CF (dB)	0.15	
--------------------	------	--

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5690	17.27	17.42	24.00	-6.58

PSD Results

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
High	5690	0.270	0.42	10.39	-9.97

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)	Directional Gain (dBi)
High	5690	53.4	2.8000	6.61

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
High	5690	24.00	15.47	21.47	15.47	10.39	11.00	10.39

Duty Cycle CF (dB)	0.15	
---------------------------	------	--

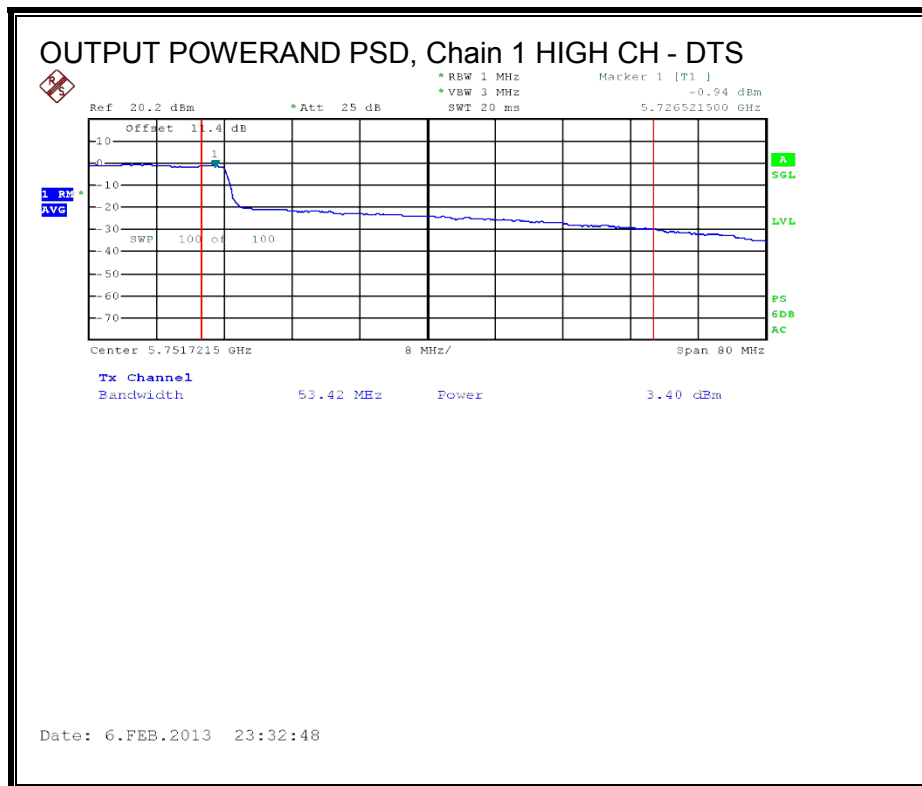
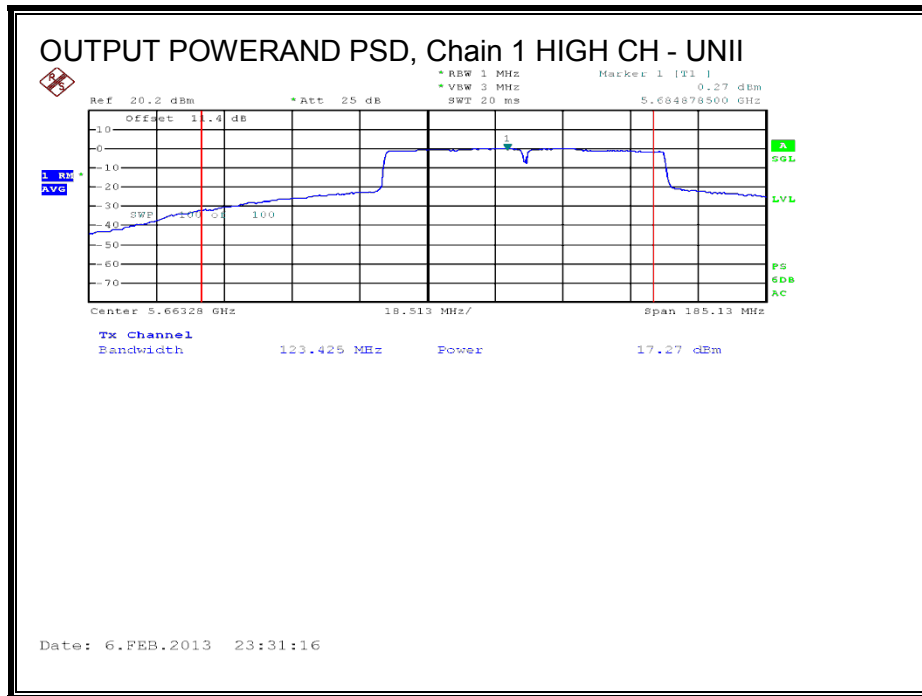
Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5690	3.40	3.55	15.47	-11.92

PSD Results

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
High	5690	-0.940	-0.79	10.39	-11.18

OUTPUT POWER AND PSD, Chain 1



8.33. 802.11n AC80 CDD 2TX MODE, 5.6 GHz BAND

8.33.1. 26 dB BANDWIDTH

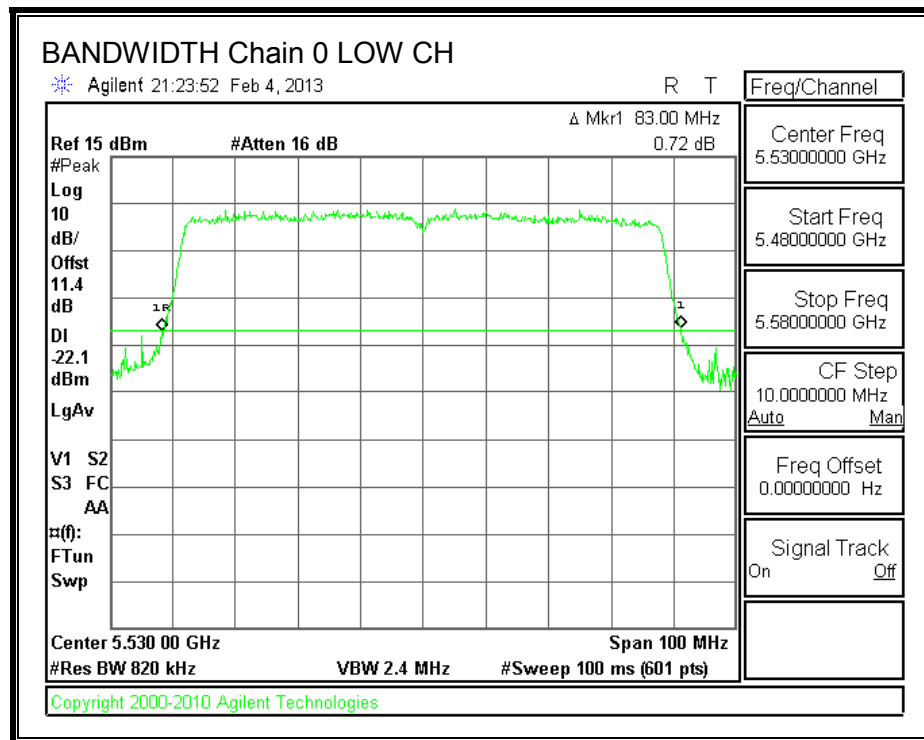
LIMITS

None; for reporting purposes only.

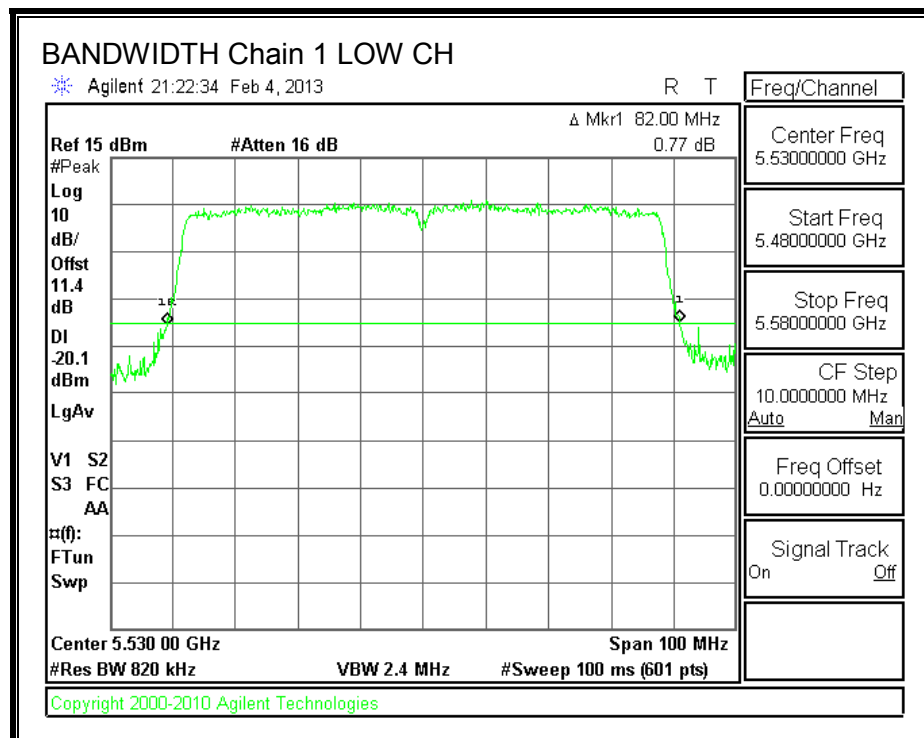
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5530	83.00	82.00

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.33.2. 99% BANDWIDTH

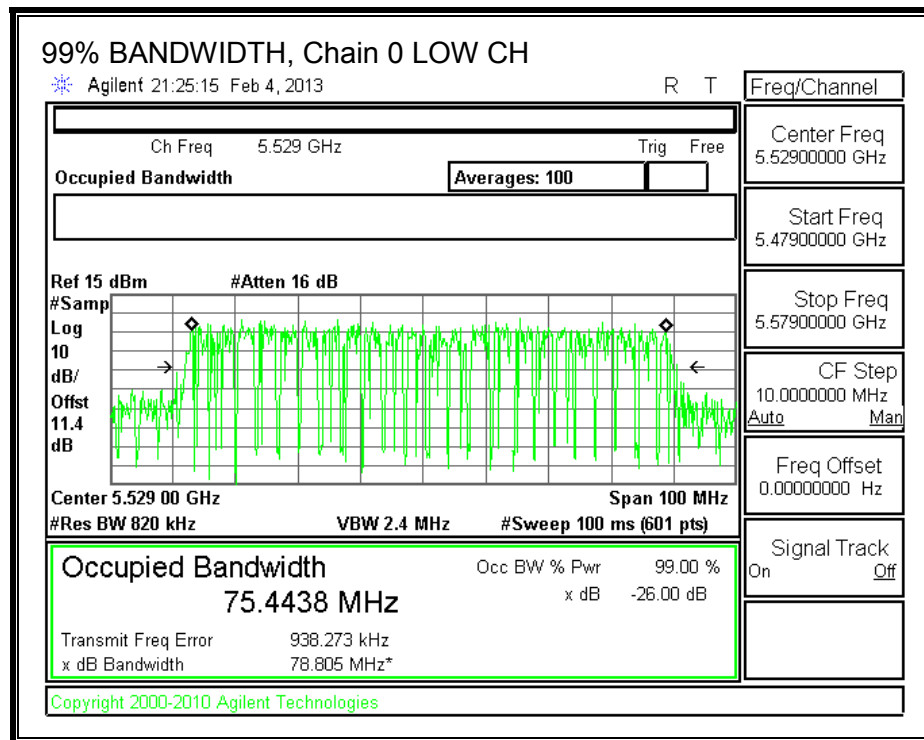
LIMITS

None; for reporting purposes only.

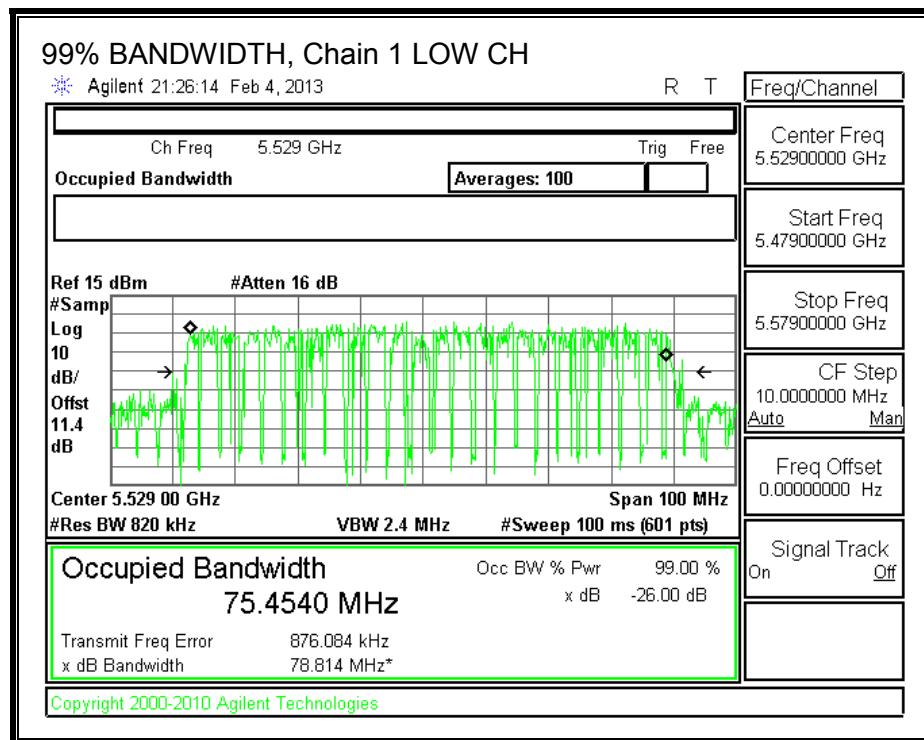
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5530	75.4438	75.4540

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.33.3. OUTPUT POWER AND PSD

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

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)
6.61	5.77	6.21

For PSD, 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)
6.61	5.77	9.21

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	5530	82.00	75.4438	6.21	9.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Low	5530	23.79	24.00	30.00	23.79	7.79	11.00	7.79

Duty Cycle CF (dB)	0.17	
--------------------	------	--

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	5530	14.06	13.95	17.02	23.79	-6.77

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5530	-6.19	-5.92	-2.87	7.79	-10.66

[illegible]

PSD, Chain 1 LOW CH

Ref 15 dBm *Att 20 dB *REW 1 MHz Marker 1 [T1] *VEW 3 MHz -5.92 dBm 5.539000000 GHz
 SWT 20 ms

Offset 11.4 dB

1. RM
AVG

1

SGL
LVL
PS
GDB
AC

Center 5.53 GHz 12 MHz/ Span 120 MHz

Date: 4.FEB.2013 21:35:39

8.34. 802.11n AC80 CDD 2TX MODE, CHANNEL 138, 5.6 GHz BAND

8.34.1.26 dB BANDWIDTH- UNII

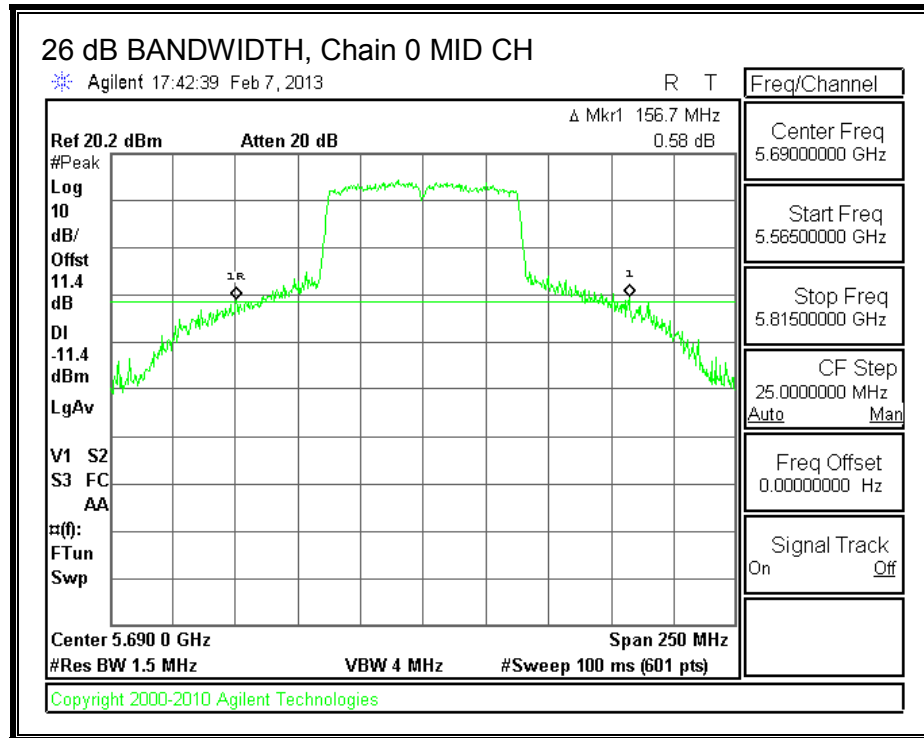
LIMITS

None; for reporting purposes only.

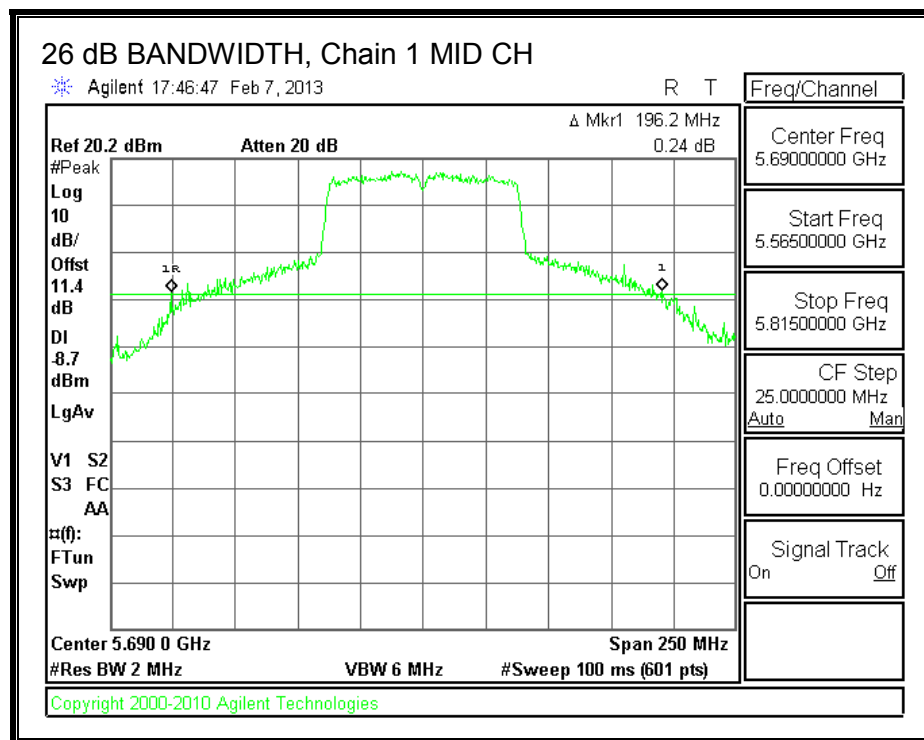
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Mid	5690	113.35	133.10

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.34.2.99% BANDWIDTH

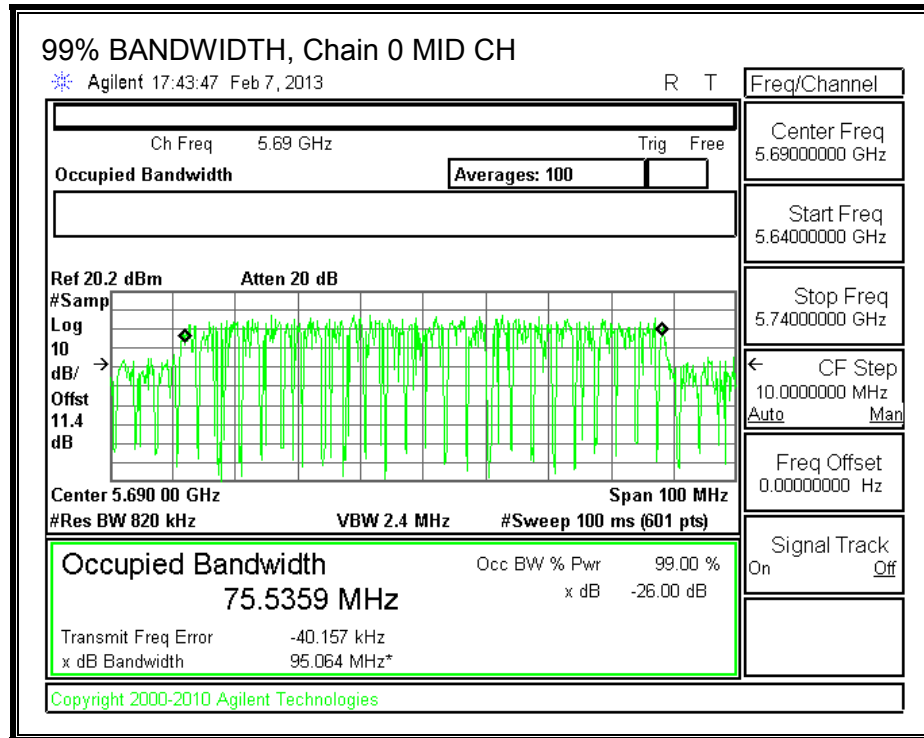
LIMITS

None; for reporting purposes only.

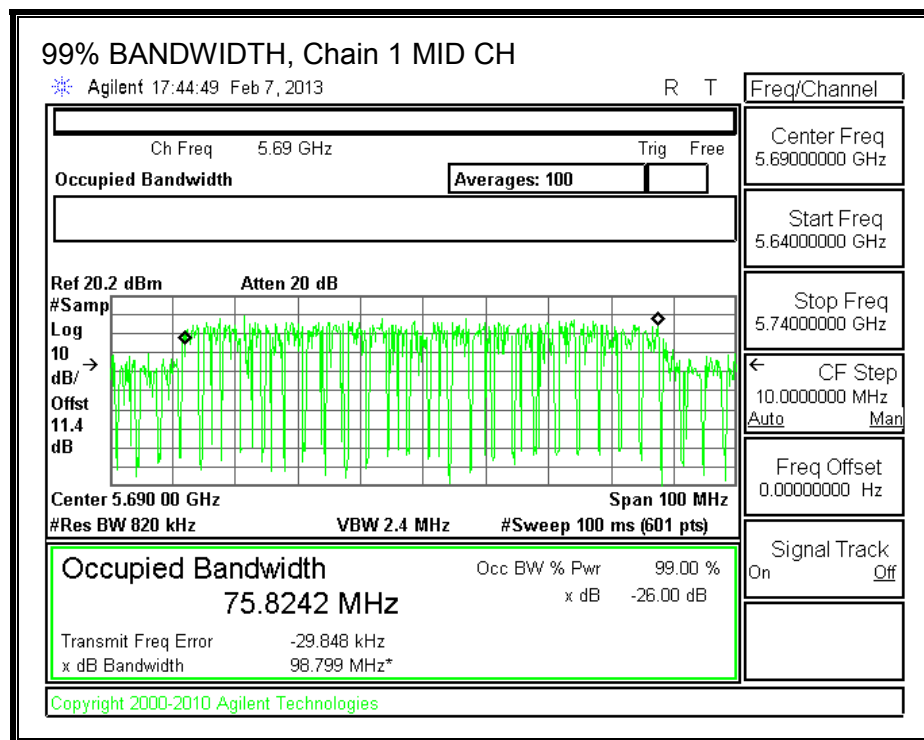
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Mid	5690	7.7680	72.9121

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.34.3. OUTPUT POWER AND PSD

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

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)
6.61	5.77	6.21

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)
6.61	5.77	9.21

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	5690	113.4	71.7680	9.21	6.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
High	5690	23.79	24.00	30.00	23.79	7.79	11.00	7.79

Duty Cycle CF (dB)	0.17	
--------------------	------	--

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	5690	15.94	16.66	19.50	23.79	-4.29

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
High	5690	-0.83	-0.19	2.68	7.79	-5.11

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	5690	43.4	1.7600	9.21	6.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
High	5690	23.79	13.46	19.46	13.25	7.79	11.00	7.79

Duty Cycle CF (dB)	0.17	
--------------------	------	--

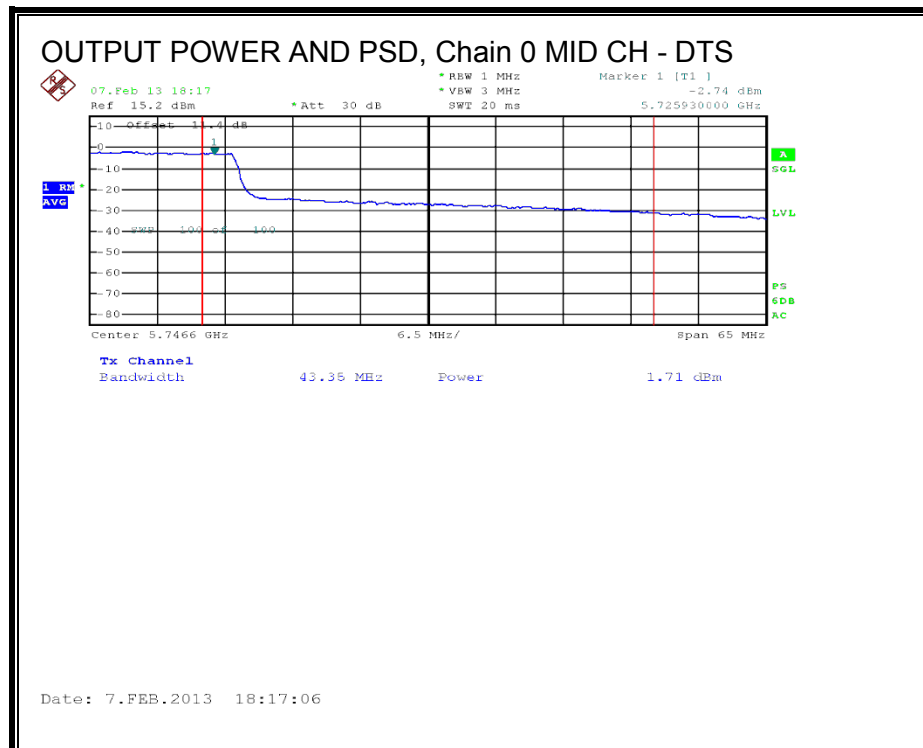
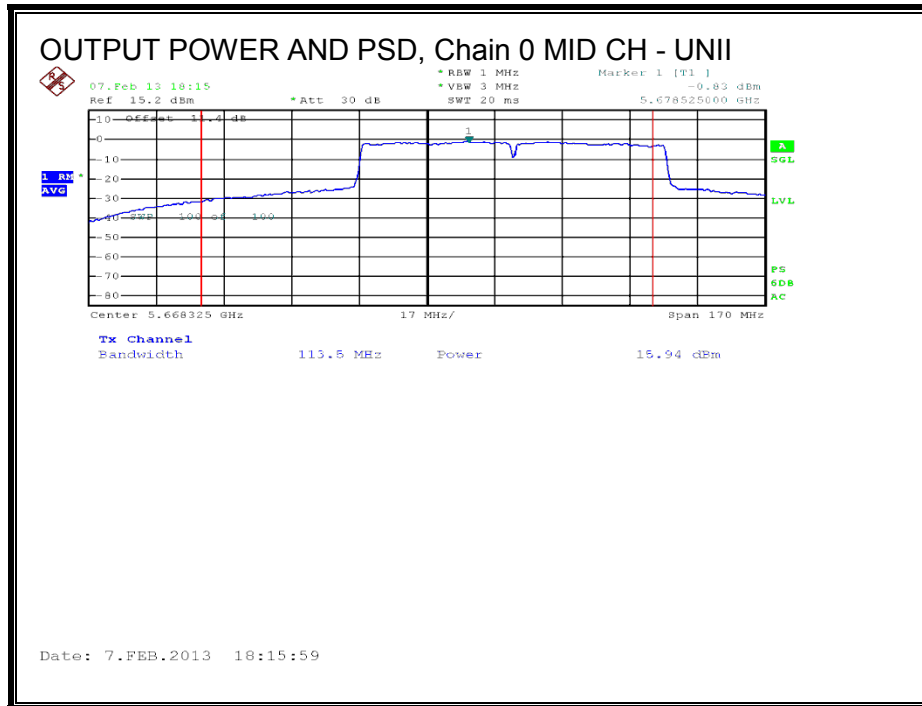
Output Power Results

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	5690	1.71	2.71	5.42	13.25	-7.83

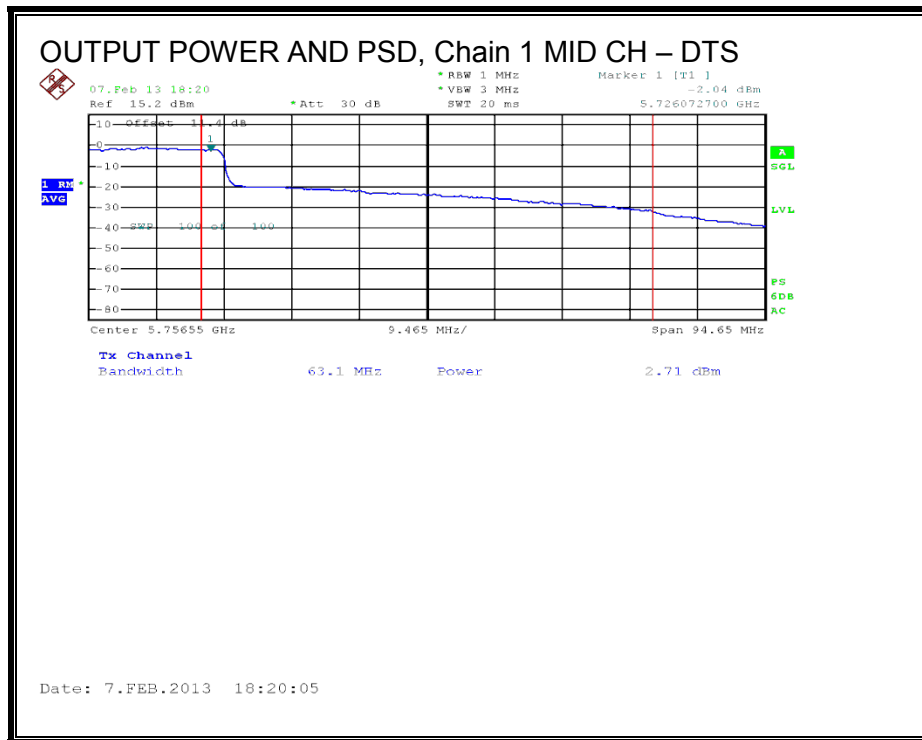
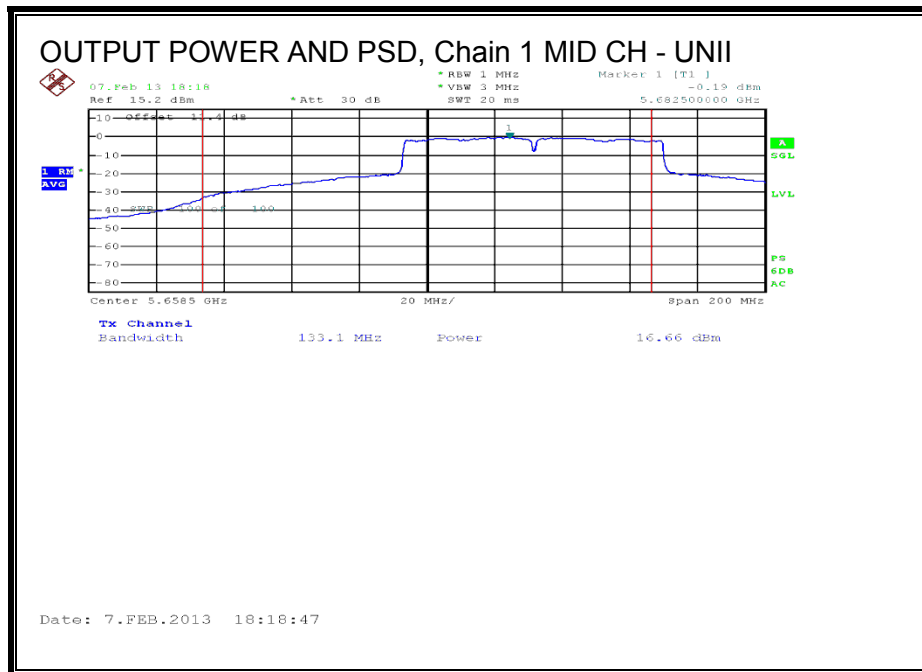
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
High	5690	-2.740	-2.04	0.80	7.79	-6.99

OUTPUT POWER AND PSD, Chain 0



OUTPUT POWER AND PSD, Chain 1



8.35. 802.11n AC80 BF 2TX MODE, 5.6 GHz BAND

8.35.1. 26 dB BANDWIDTH

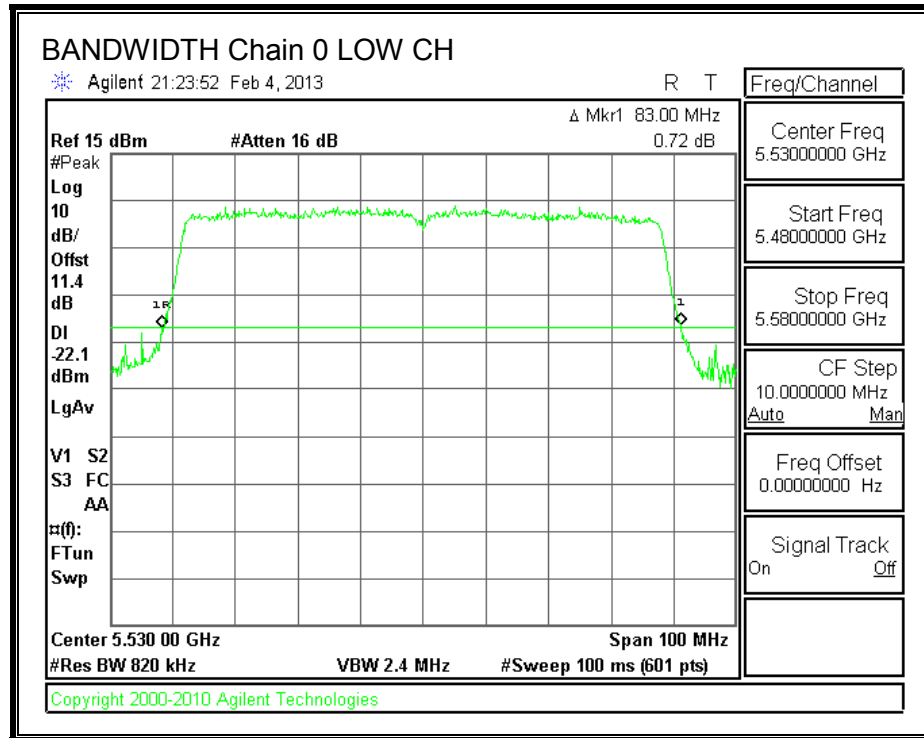
LIMITS

None; for reporting purposes only.

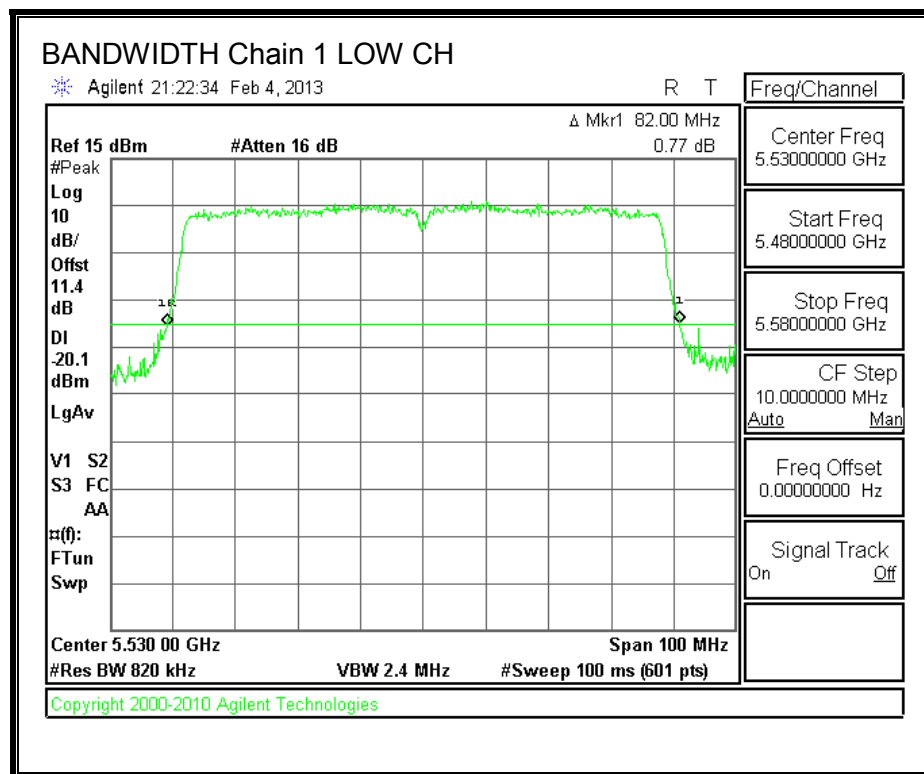
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5530	83.00	82.00

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.35.2. 99% BANDWIDTH

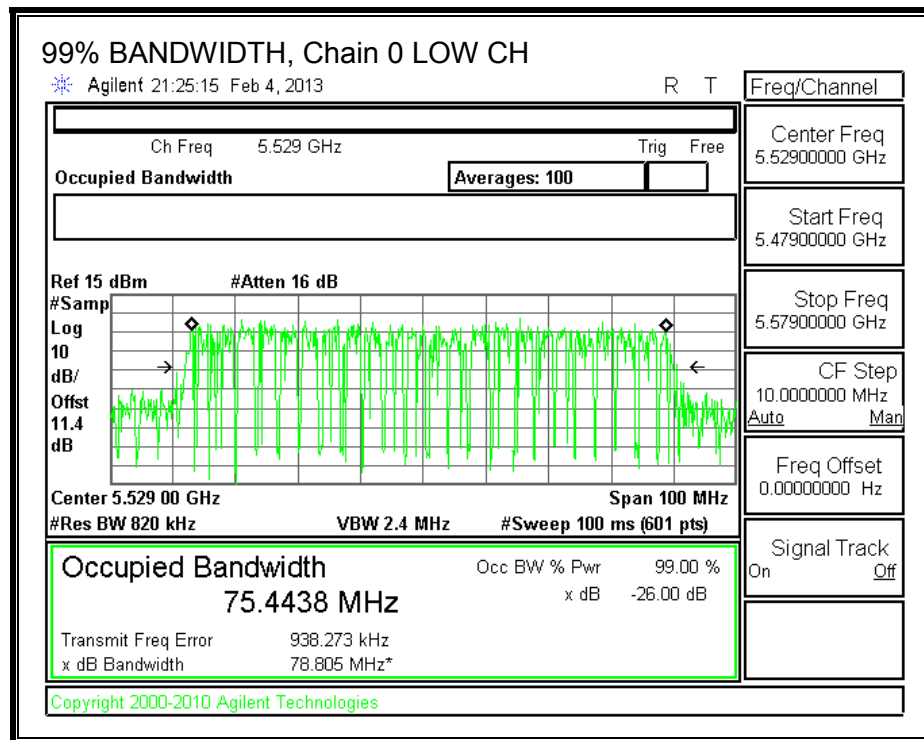
LIMITS

None; for reporting purposes only.

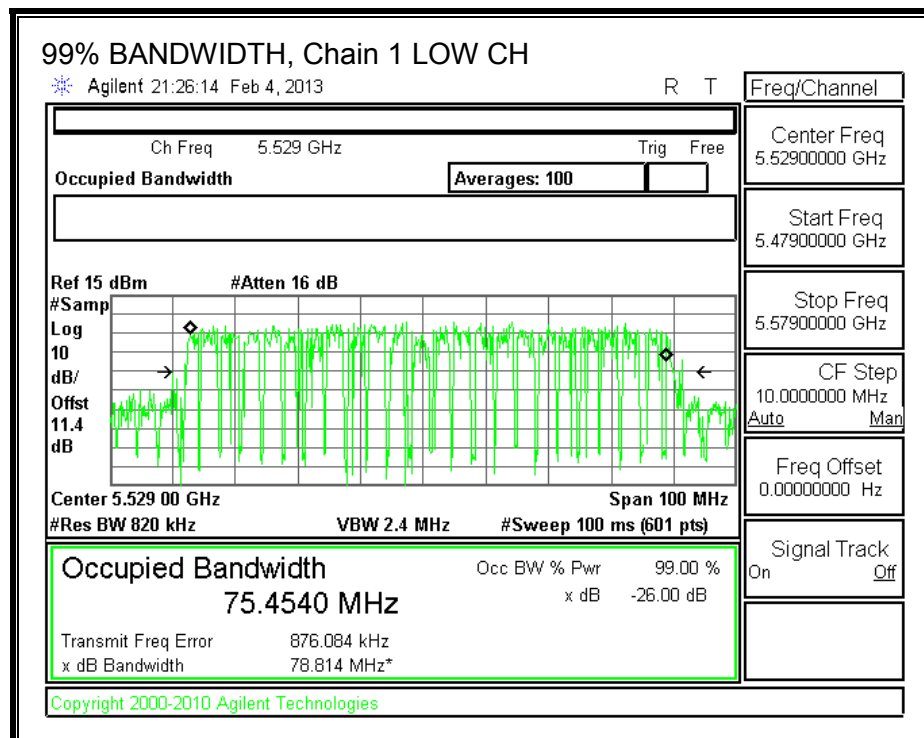
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5530	75.4438	75.4540

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.35.3. OUTPUT POWER AND PSD

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

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)
6.61	5.77	9.21

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5530	82.00	75.4438	9.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Low	5530	20.79	24.00	30.00	20.79	7.79	11.00	7.79

Duty Cycle CF (dB)	0.17	
--------------------	------	--

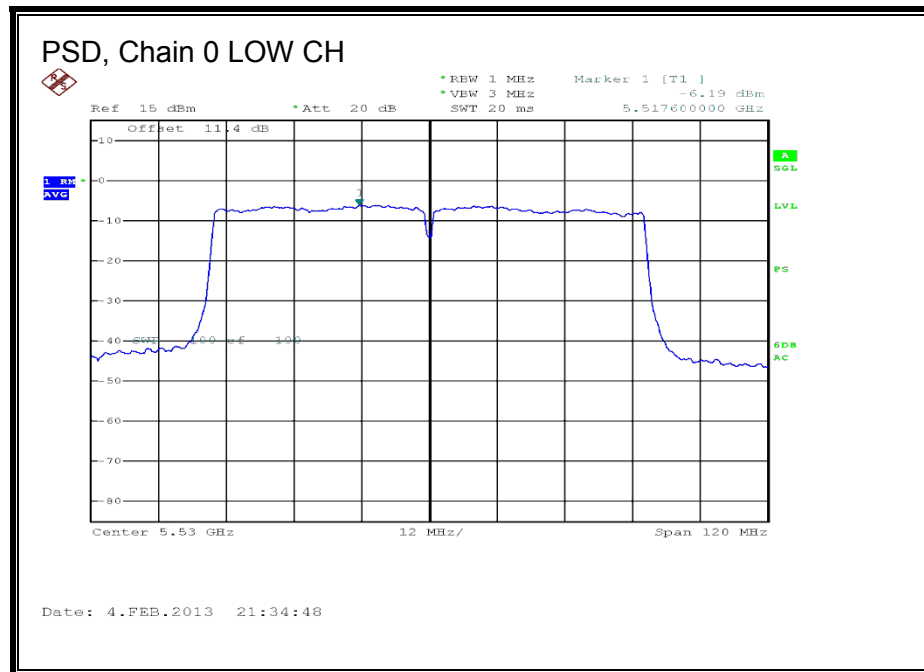
Output Power Results

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	5530	12.91	13.27	16.10	20.79	-4.69

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5530	-6.19	-5.92	-2.87	7.79	-10.66

PSD, Chain 0



PSD, Chain 1



8.36. 802.11n AC80 BF 2TX MODE, CHANNEL 138, 5.6 GHz BAND

8.36.1.26 dB BANDWIDTH- UNII

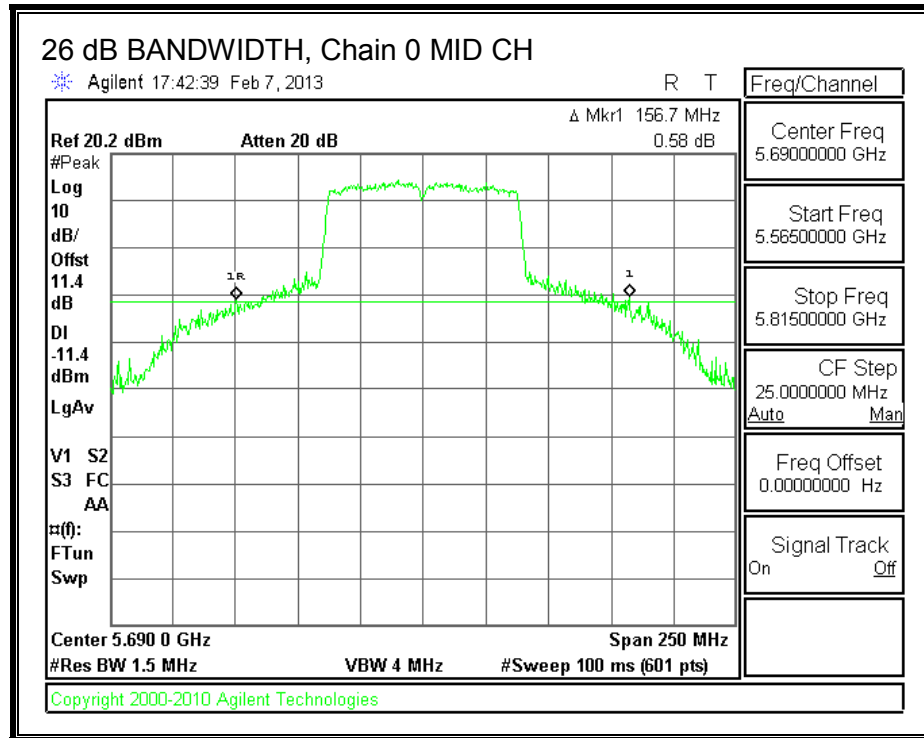
LIMITS

None; for reporting purposes only.

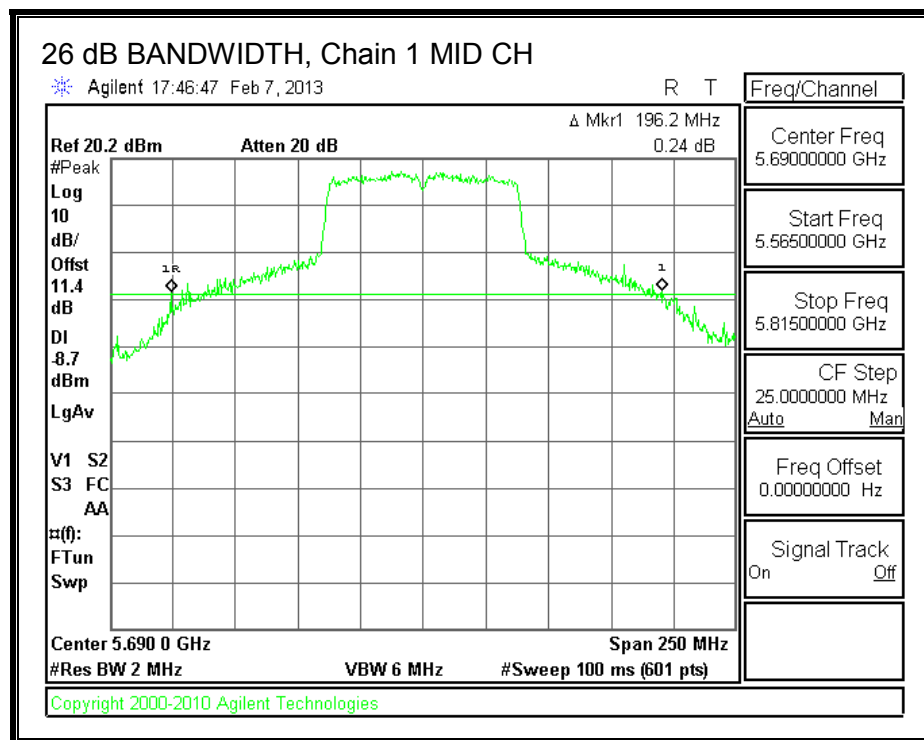
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Mid	5690	113.35	133.10

26 dB BANDWIDTH, Chain 0



26 dB BANDWIDTH, Chain 1



8.36.2.99% BANDWIDTH

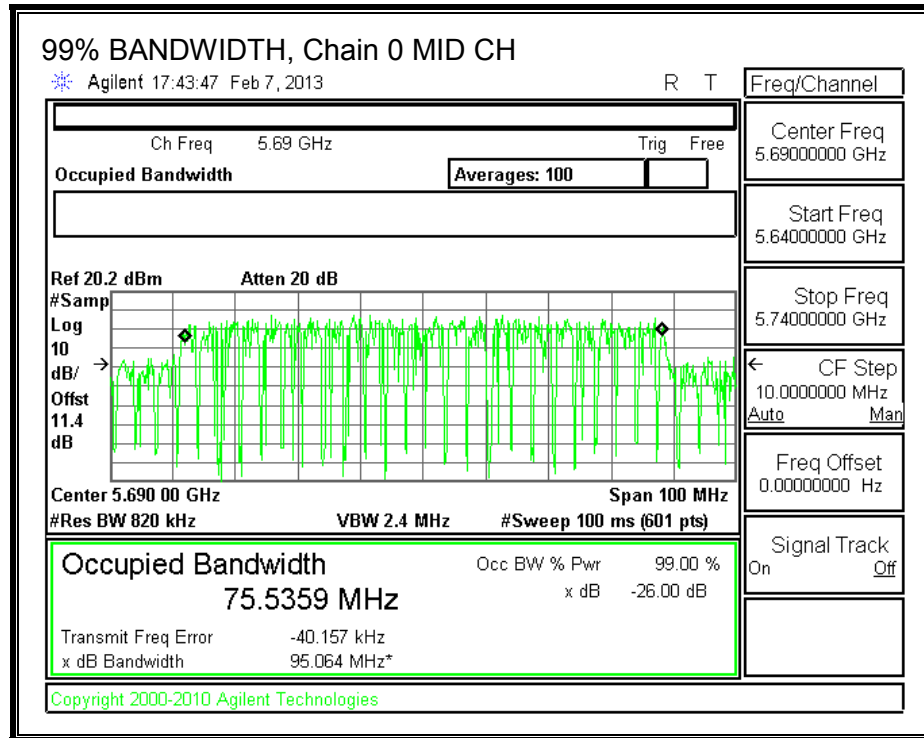
LIMITS

None; for reporting purposes only.

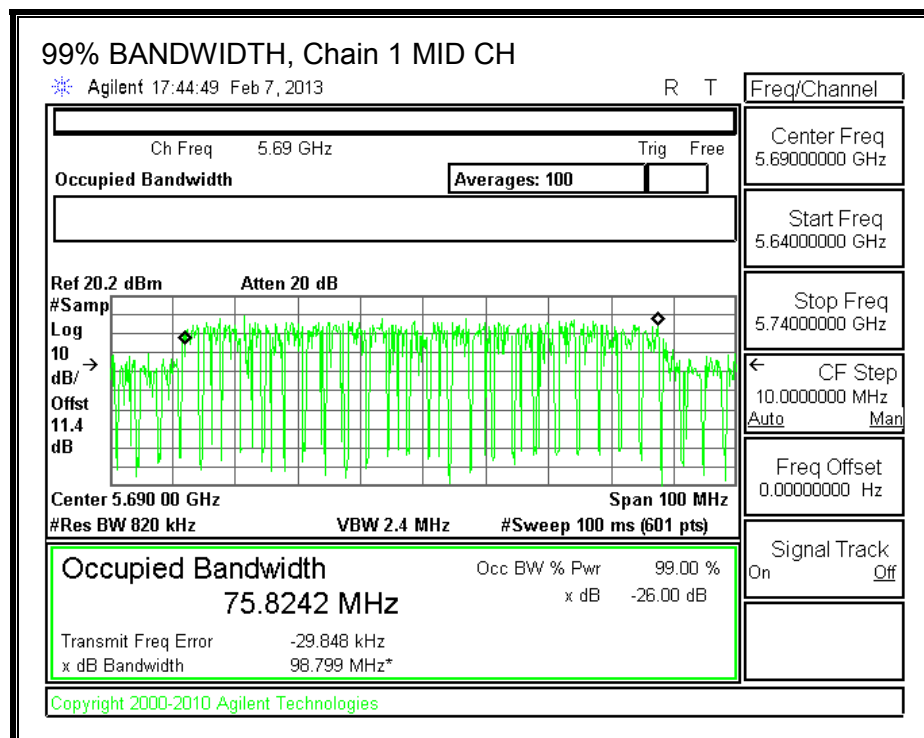
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Mid	5690	7.7680	72.9121

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.36.3. OUTPUT POWER AND PSD

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

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)
6.61	5.77	9.21

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)
Mid	5690	113.4	71.7680	9.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Mid	5690	20.79	24.00	30.00	20.79	7.79	11.00	7.79

Duty Cycle CF (dB)	0.17		
--------------------	------	--	--

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	5690	15.94	16.66	19.50	20.79	-1.29

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Mid	5690	-0.83	-0.19	2.68	7.79	-5.11

Limits (FCC), portion in 5.8 GHz UNII 3 Band

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Correlated Gain (dBi)
Mid	5690	43.4	1.7600	9.21

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm)	IC PSD Limit (dBm)	PSD Limit (dBm)
Mid	5690	20.79	13.46	19.46	10.25	7.79	11.00	7.79

Duty Cycle CF (dB)	0.17	
--------------------	------	--

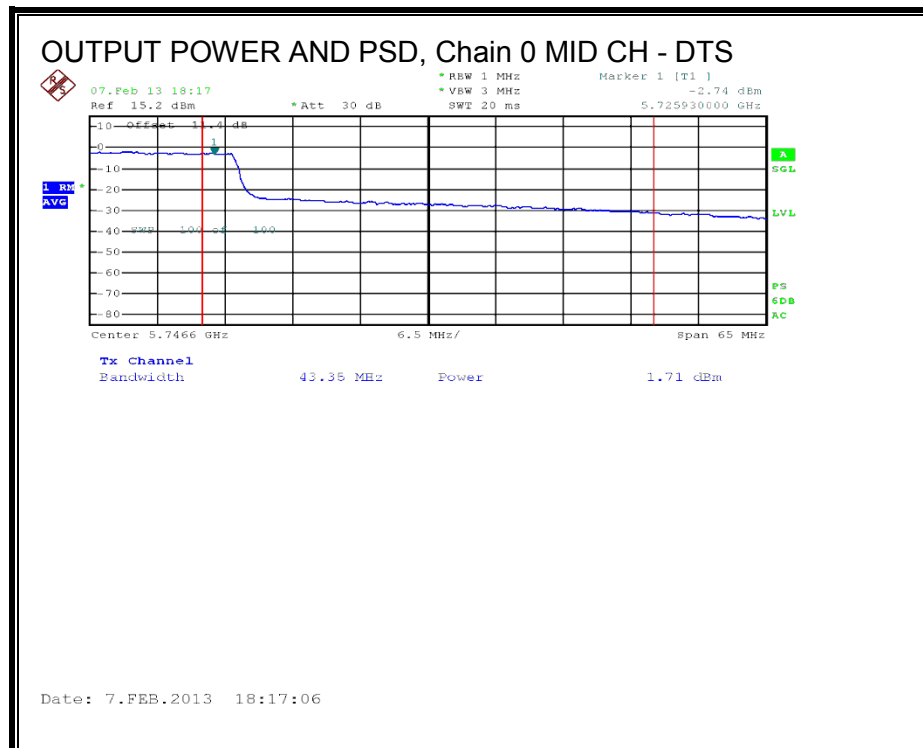
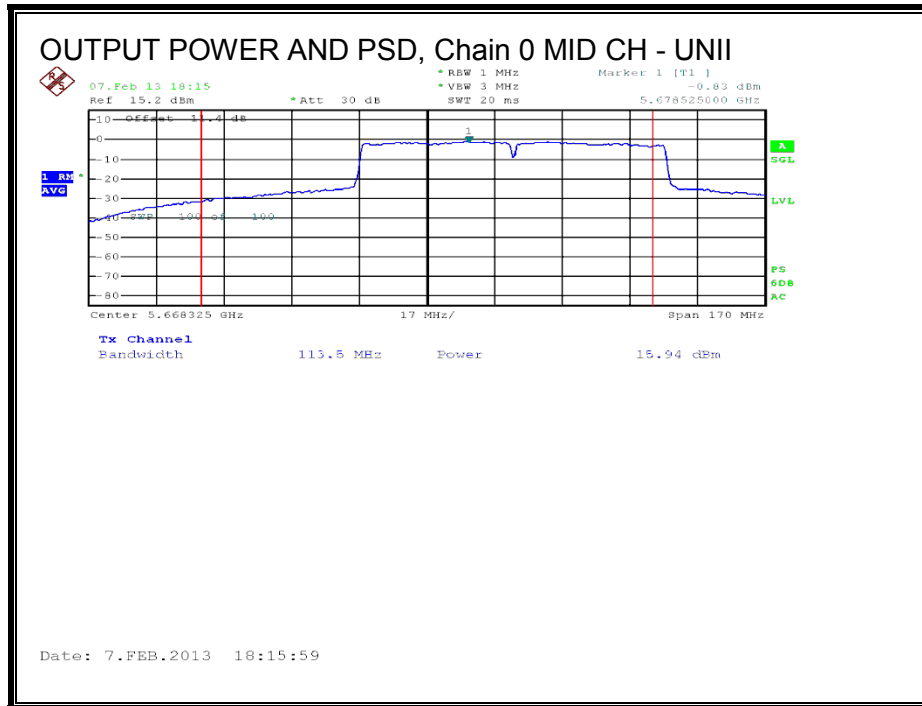
Output Power Results

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	5690	1.71	2.71	5.42	10.25	-4.83

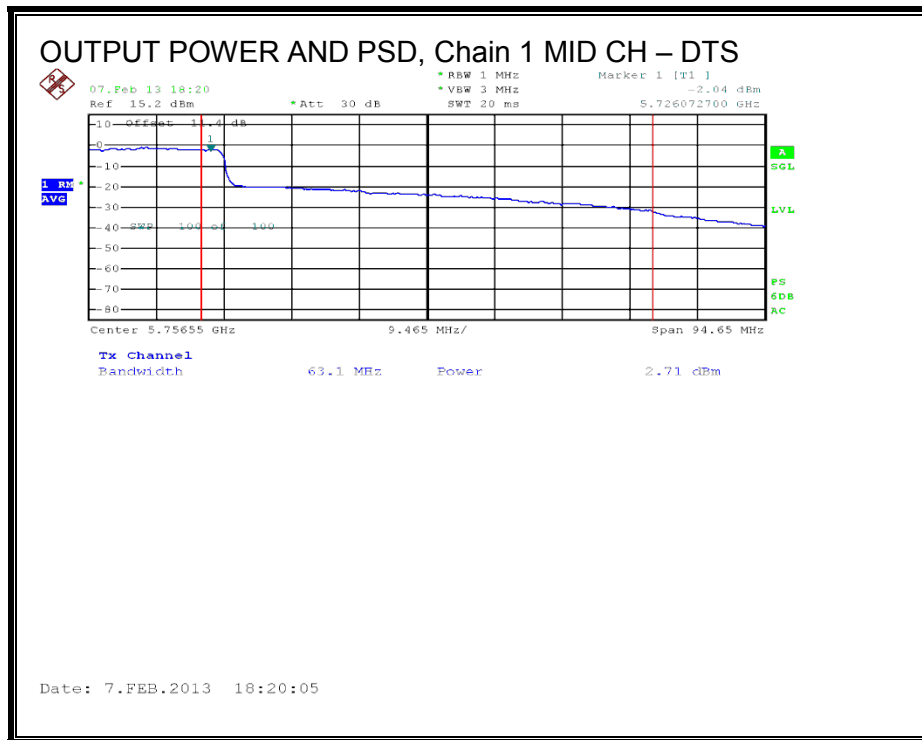
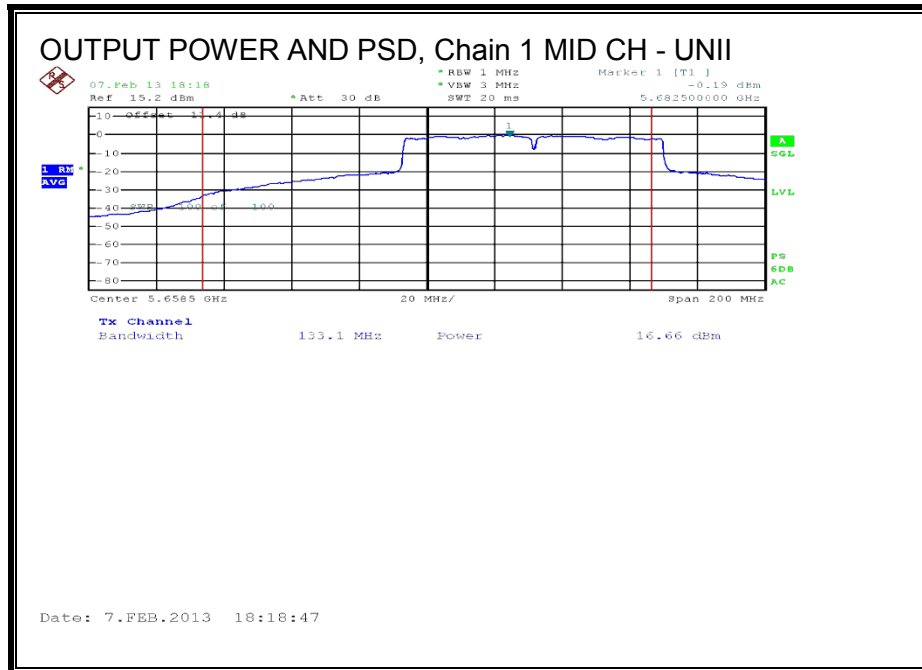
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Mid	5690	-2.740	-2.04	0.80	7.79	-6.99

OUTPUT POWER AND PSD, Chain 0



OUTPUT POWER AND PSD, Chain 1



9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

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

TEST PROCEDURE

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

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

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

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

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

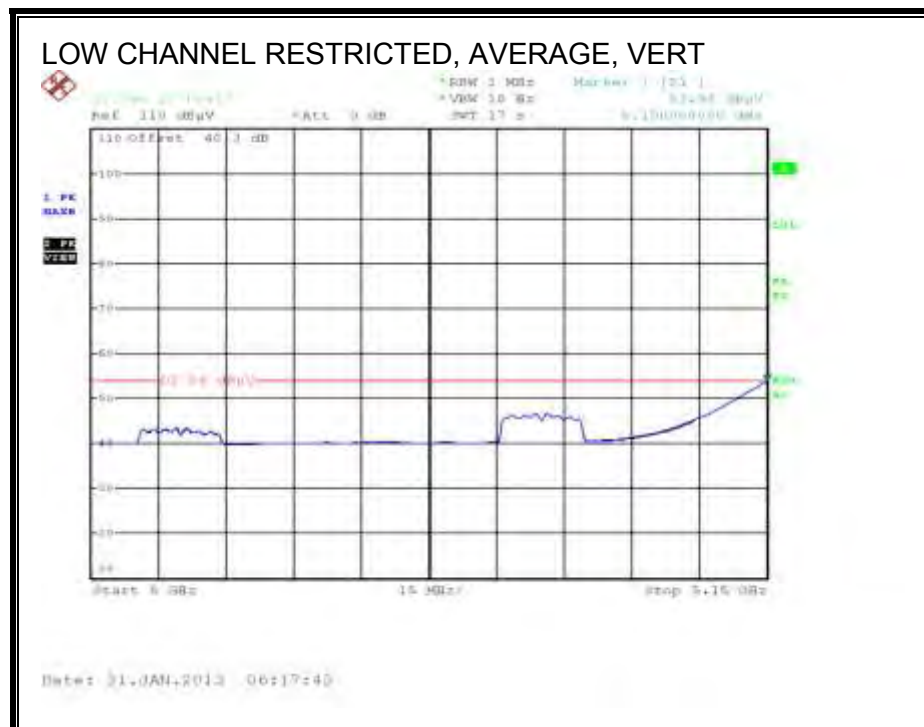
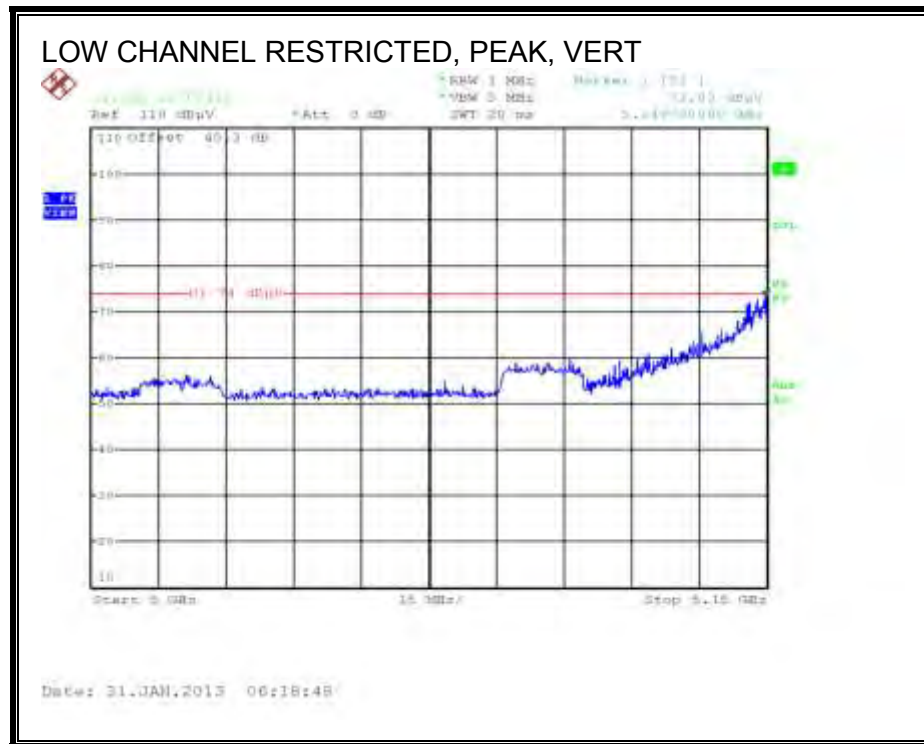
9.2. TRANSMITTER ABOVE 1 GHz

9.2.1. 802.11a LEGACY 1TX MODE, 5.2 GHz BAND

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is higher than the power level the device will operate at.

9.2.2. 802.11n HT20 CDD 2TX MODE, 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber-A																
Company:		Broadcom Corporation														
Project #:		13U14796														
Date:		2/14/2013														
Test Engineer:		K. Nguyen														
Configuration:		BCM94360CS2 with Laptop and AC adapter														
Mode:		11n HT20 Mode 2TX; 5.2 GHz Band														
Test Equipment:																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit				
T73; S/N: 6717 @3m			T144 Miteq 3008A00931			T88 Miteq 26-40GHz			T89; ARA 18-26GHz; S/N:1049			FCC 45.285				
Hi Frequency Cables																
3' cable 22807700			12' cable 22807800			20' cable 22807500			HPF			Reject Filter			Peak Measurements RBW=1 MHz; VBW=3MHz	
3' cable 22807700			12' cable 22807800			20' cable 22807500			HPF_7.6GHz						Average Measurements RBW=1MHz; VBW=10Hz	
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filt dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)	
Channel 36 (5180 MHz)																
15.540	3.0	40.9	38.7	39.5	13.2	-34.7	0.0	0.7	59.5	48.3	74	54	-14.5	-4.7	V	
15.540	3.0	40.2	29.8	39.3	13.2	-34.7	0.0	0.7	58.8	48.4	74	54	-15.2	-5.6	H	
Channel 40 (5200 MHz)																
15.600	3.0	43.6	33.4	39.1	13.3	-34.6	0.0	0.7	62.1	51.8	74	54	-11.9	-2.1	V	
15.600	3.0	41.5	30.6	39.1	13.3	-34.6	0.0	0.7	59.9	49.1	74	54	-14.1	-4.9	H	
Channel 48 (5240 MHz)																
15.720	3.0	40.0	28.6	38.8	13.3	-34.6	0.0	0.7	58.2	46.8	74	54	-15.0	-7.2	V	
15.720	3.0	39.5	29.5	38.8	13.3	-34.6	0.0	0.7	57.8	47.7	74	54	-16.2	-6.3	H	
Rev. 01.30.13																
f	Measurement Frequency		Amp	Preamp Gain		Avg Lim	Average Field Strength Limit									
Dist	Distance to Antenna		D Corr	Distance Correct to 3 meters		Pk Lim	Peak Field Strength Limit									
Read	Analyzer Reading		Avg	Average Field Strength @ 3 m		Avg Mar	Margin vs. Average Limit									
AF	Antenna Factor		Peak	Calculated Peak Field Strength		Pk Mar	Margin vs. Peak Limit									
CL	Cable Loss		HPF	High Pass Filter												

9.2.3. 802.11n HT20 STBC 2TX MODE, 5.2 GHz BAND

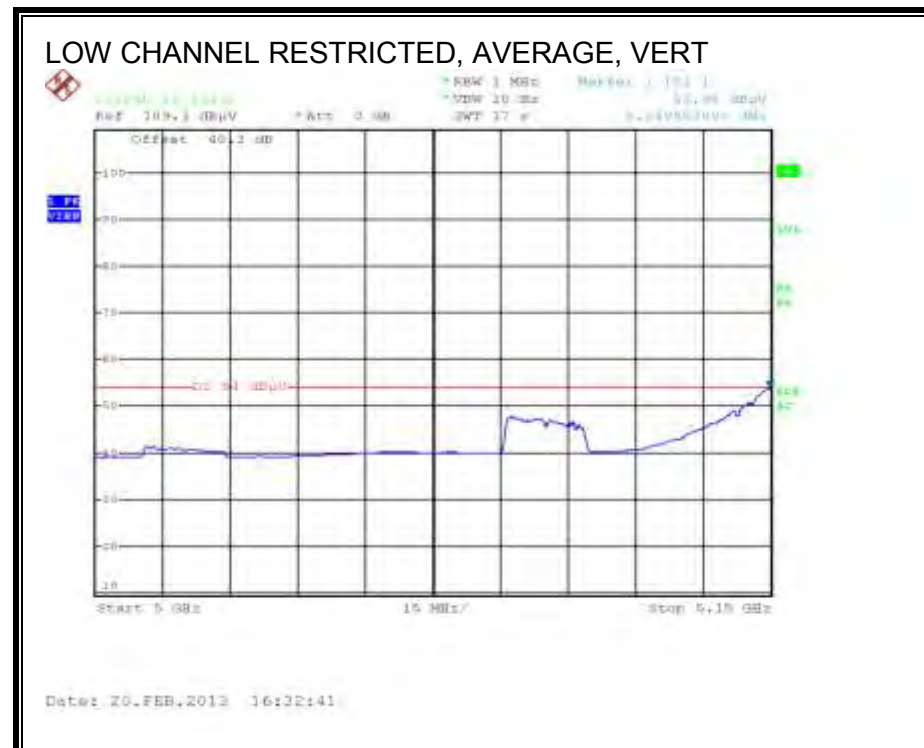
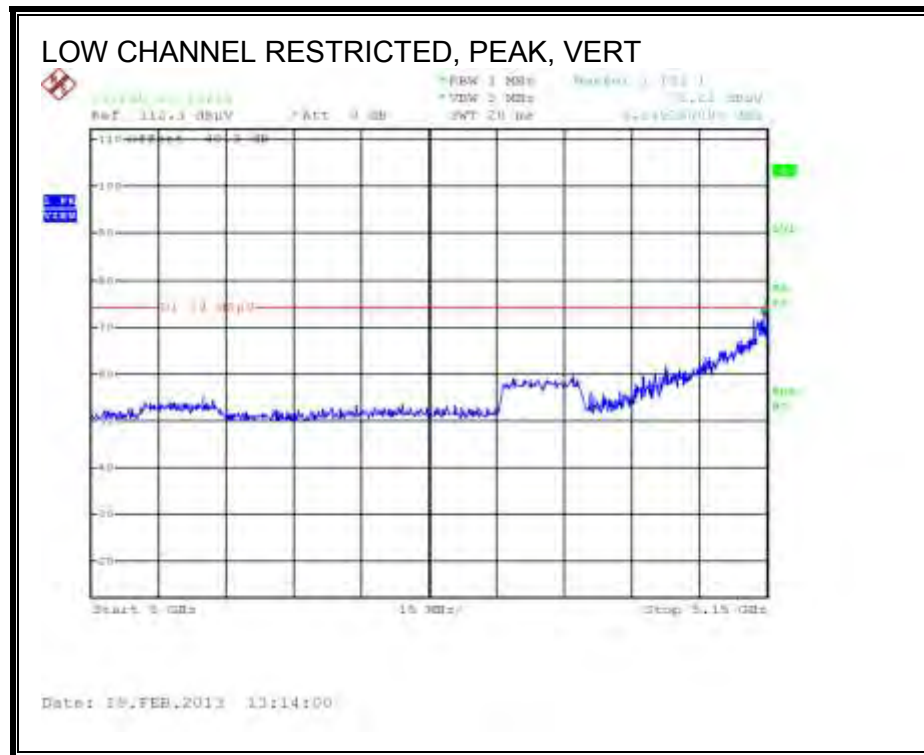
Covered by testing 11n HT20 CDD 2TX, total power across the two chains is higher than the power level the device will operate at.

9.2.4. 802.11n HT20 BF 2TX MODE, 5.2 GHz BAND

Covered by testing 11n AC20 BF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.5. 802.11n AC20 BF 2TX MODE, 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

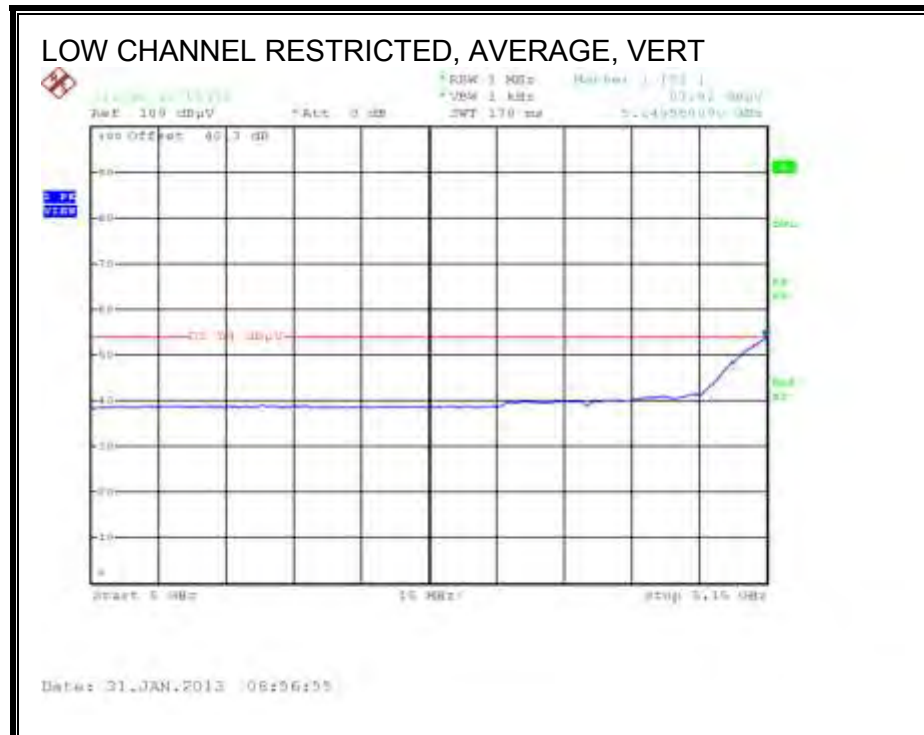
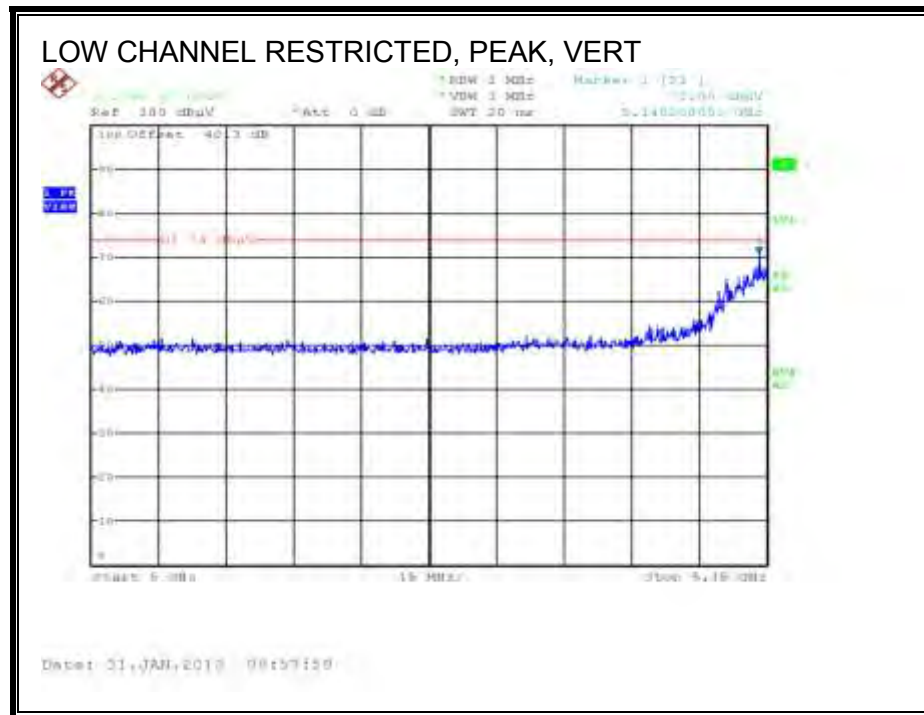


HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber-A															
Company:		Broadcom Corporation													
Project #:		13U14796													
Date:		2/23/2013													
Test Engineer:		K. Nguyen													
Configuration:		EUT w/ laptop, AC adapter, & Antenna													
Mode:		Tx 5.2GHz Band_11a AC20 TXBF 2TX													
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T73; S/N: 6717 @3m		T144 Miteq 3000A00931		T88 Miteq 26-40GHz		T89; ARA 18-26GHz; S/N:1049		FCC 15.205							
Hi Frequency Cables:															
3' cable 22807700		12' cable 22807600		20' cable 22807500		HPF		Reject Filter		Peak Measurements RBW=VBW=3MHz Average Measurements RBW=1MHz VBW=10Hz					
3' cable 22807700		12' cable 22807600		20' cable 22807500		HPF_7.6GHz									
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fitr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel 36 (5180 MHz)															
15.540	3.0	44.2	33.6	39.3	13.2	-34.7	0.0	0.7	62.8	52.2	74	54	-11.2	-1.8	V
15.540	3.0	47.0	34.6	39.3	13.2	-34.7	0.0	0.7	65.6	53.1	74	54	-8.4	0.9	H
Channel 40 (5200 MHz)															
15.600	3.0	45.8	34.6	39.1	13.3	-34.6	0.0	0.7	64.3	53.1	74	54	-9.7	-0.9	V
15.600	3.0	45.4	34.6	39.1	13.3	-34.6	0.0	0.7	63.9	53.0	74	54	-10.1	-1.0	H
Channel 46 (5240 MHz)															
15.720	3.0	44.9	33.9	38.8	13.3	-34.6	0.0	0.7	63.1	52.1	74	54	-10.9	-1.9	V
15.720	3.0	45.0	33.5	38.8	13.3	-34.6	0.0	0.7	63.3	51.7	74	54	-10.7	-2.3	H
Rev: 013011															
f	Measurement Frequency		Amp	Preamp Gain		Avg Lim	Average Field Strength Limit								
Dist	Distance to Antenna		D Corr	Distance Correct to 3 meters		Pk Lim	Peak Field Strength Limit								
Read	Analyzer Reading		Avg	Average Field Strength @ 3 m		Avg Mar	Margin vs. Average Limit								
AF	Antenna Factor		Peak	Calculated Peak Field Strength		Pk Mar	Margin vs. Peak Limit								
CL	Cable Loss		HPF	High Pass Filter											

9.2.6. 802.11n HT40 1TX MODE, 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

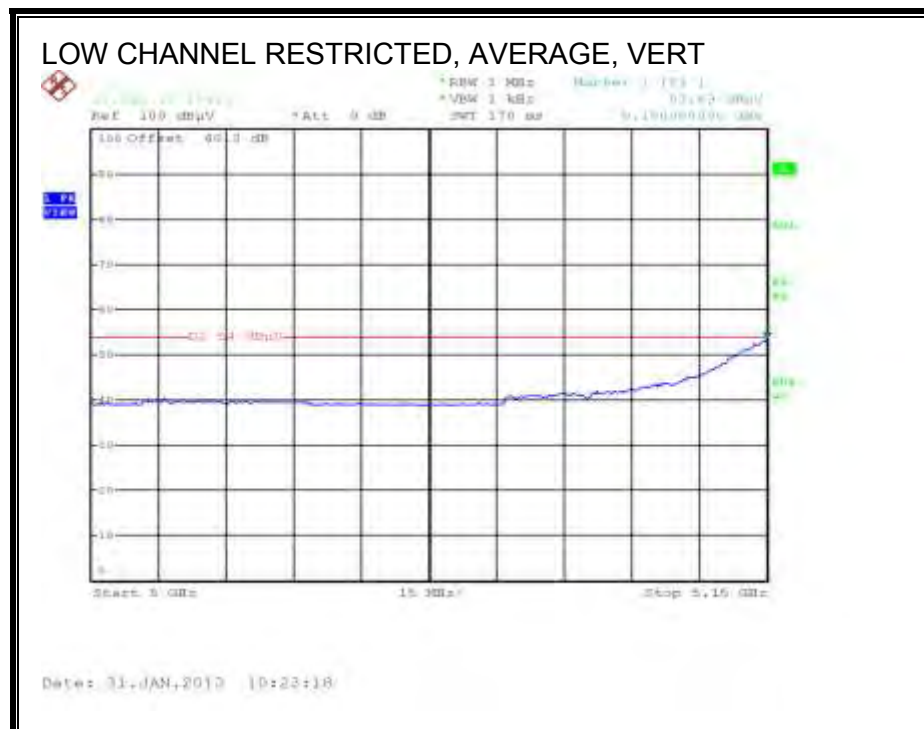
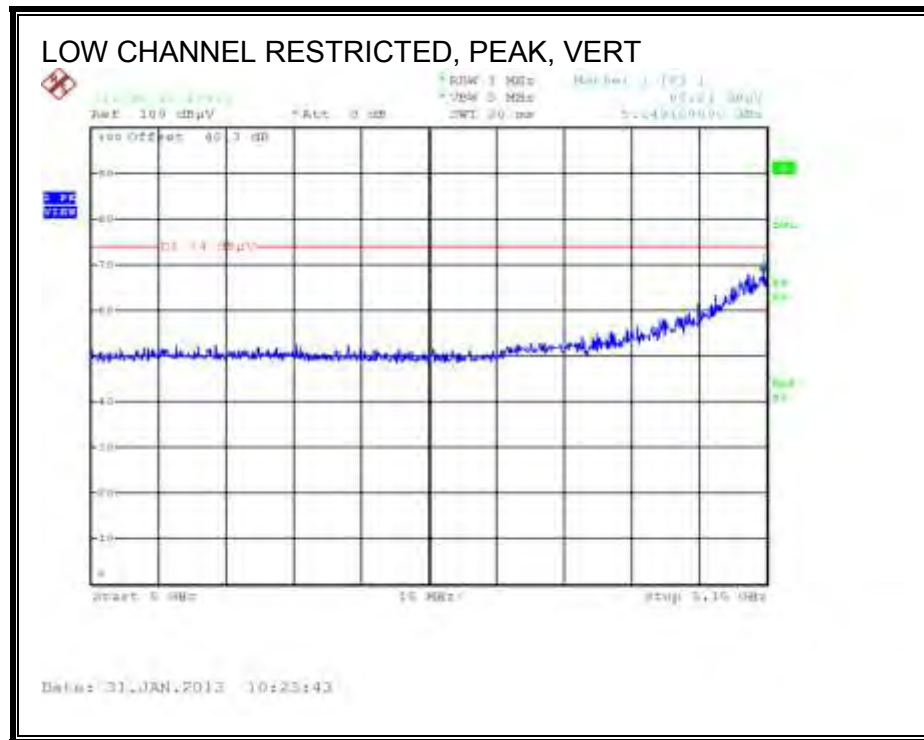


HARMONICS AND SPURIOUS EMISSIONS

Covered by testing 11n HT40 CDD 2TX, total power across the two chains is higher than the power level the device will operate at.

9.2.7. 802.11n HT40 CDD 2TX MODE, 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber-A															
Company:		Broadcom Corporation													
Project #:		13U14796													
Date:		2/20/2013													
Test Engineer:		K. Nguyen													
Configuration:		BCM94360CS2 with laptop and AC adapter													
Mode:		Tx 11a HT40 CDD 2TX													
Test Equipment:															
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit			
T73; S/N: 6717 @3m			T144 Miteq 3008A00931			T88 Miteq 26-40GHz			T89; ARA 18-26GHz; S/N:1049			FCC 45.205			
10 Frequency Cables															
3' cable 22807700			12' cable 22807800			20' cable 22807500			HPF			Reject Filter			
3' cable 22807700			12' cable 22807800			20' cable 22807500						R 001			
Peak Measurements RBW=1MHz; VBW=3MHz Average Measurements RBW=1MHz; VBW=10Hz															
f GHz	Dist (m)	Read Pk dBuV	Read Avg dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fitr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel 38 (8190 MHz)															
15.570	3.0	37.7	26.3	39.2	13.2	-34.6	0.0	0.0	55.5	44.1	74	54	-18.5	-9.9	V
15.570	3.0	36.5	25.8	39.2	13.2	-34.6	0.0	0.0	54.3	43.6	74	54	-19.7	-10.4	H
Channel 40 (8230 MHz)															
15.690	3.0	35.8	26.2	38.9	13.3	-34.6	0.0	0.0	53.1	43.8	74	54	-20.6	-10.2	V
15.690	3.0	34.4	23.9	38.9	13.3	-34.6	0.0	0.0	52.0	41.5	74	54	-22.0	-12.5	H
Rev. 01.30.13															
f	Measurement Frequency		Amp	Preamp Gain		Avg Lim	Average Field Strength Limit								
Dist	Distance to Antenna		D Corr	Distance Correct to 3 meters		Pk Lim	Peak Field Strength Limit								
Read	Analyzer Reading		Avg	Average Field Strength @ 3 m		Avg Mar	Margin vs. Average Limit								
AF	Antenna Factor		Peak	Calculated Peak Field Strength		Pk Mar	Margin vs. Peak Limit								
CL	Cable Loss		HPF	High Pass Filter											

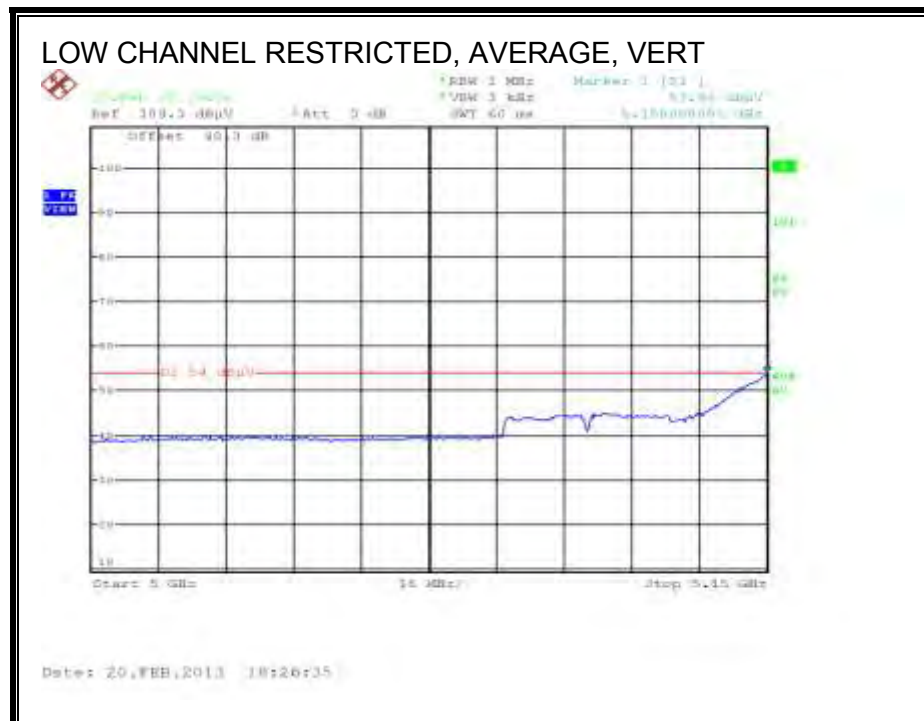
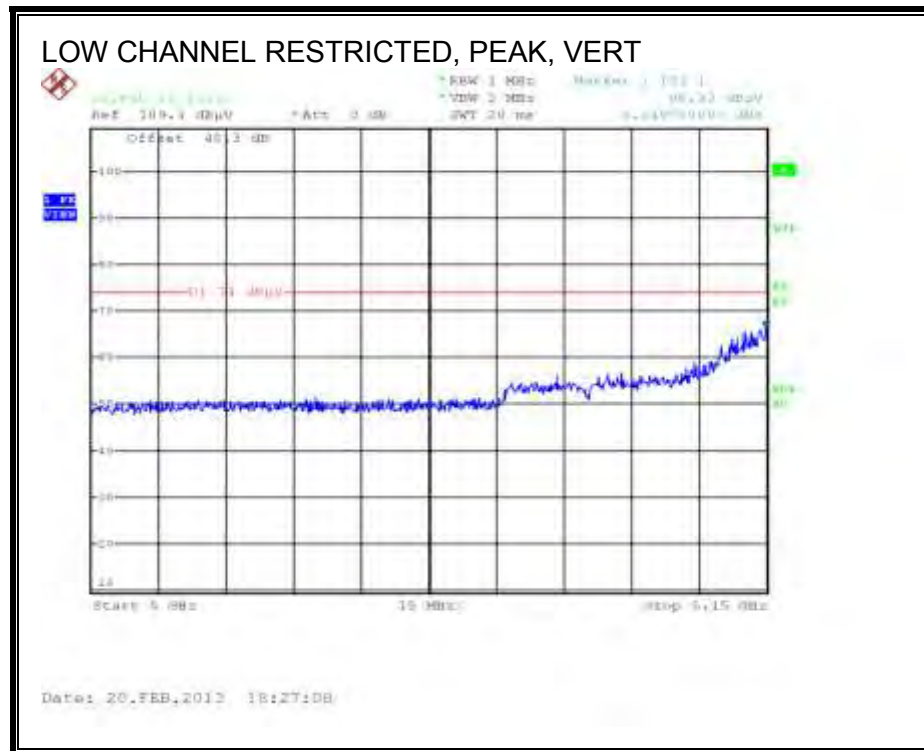
Note: the VBW used for the AVG measurements was 1 kHz. The 10 Hz shown the tabular data above this note is a typo.

9.2.8. 802.11n HT40 BF 2TX MODE, 5.2 GHz BAND

Covered by testing 11n AC40 BF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.9. 802.11n AC40 BF 2TX MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company: Broadcom Corporation
Project #: 13U14796
Date: 2/24/2013
Test Engineer: K. Nguyen
Configuration: EUT with Laptop, AC adaptor, and antenna
Mode: Tx 5.2GHz Broad_11a AC40 TxBF 2TX

Test Equipment:

Horn 1-18GHz T73; S/N: 6717 @3m	Pre-amplifier 1-26GHz T144 Miteq 3008A00931	Pre-amplifier 26-40GHz T88 Miteq 26-40GHz	Horn > 18GHz T89; ARA 18.26GHz; S/N: 1049	Limit FCC 45.205
---	---	---	--	----------------------------

RF Frequency Cables

3' cable 22807700 3' cable 22807700	12' cable 22807600 12' cable 22807600	20' cable 22807500 20' cable 22807500
--	--	--

HPF HFF_7.6GHz
Reject Filter

Peak Measurements RBW=VBW=3MHz
Average Measurements RBW=1MHz VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fitr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel 38 (5190 MHz)															
18.570	3.0	35.6	26.2	39.2	13.2	-34.6	0.0	0.7	54.1	44.7	74	54	19.9	-9.3	V
18.570	3.0	35.2	26.0	39.2	13.2	-34.6	0.0	0.7	53.7	44.5	74	54	-20.3	-9.5	H
Channel 46 (5230 MHz)															
18.690	3.0	35.2	26.4	38.9	13.3	-34.6	0.0	0.7	53.6	44.7	74	54	-20.4	-9.3	V
18.690	3.0	35.3	26.6	38.9	13.3	-34.6	0.0	0.7	53.6	44.9	74	54	-20.4	-9.1	H

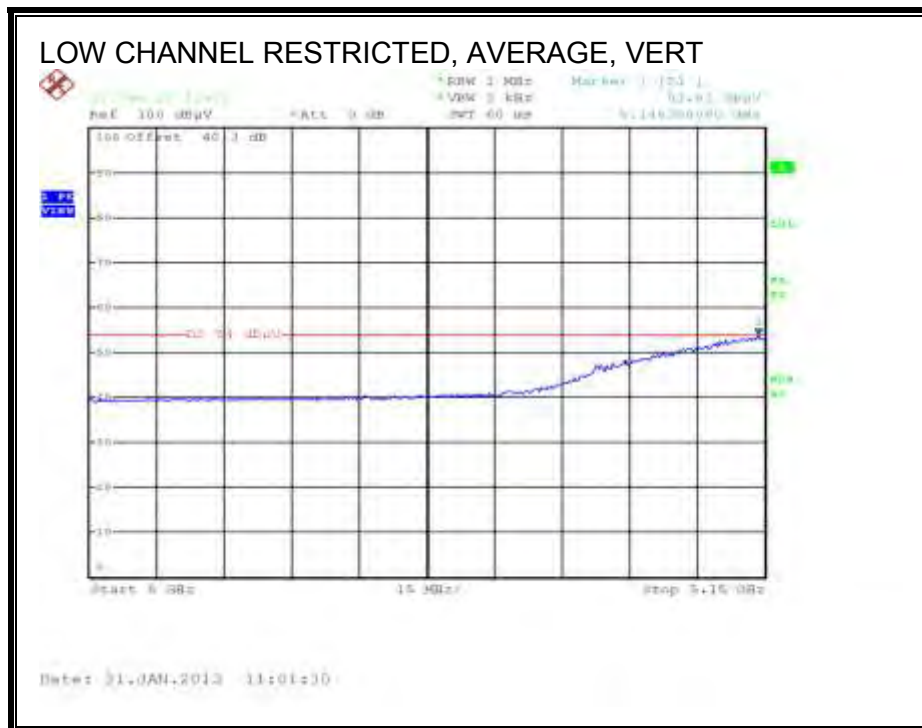
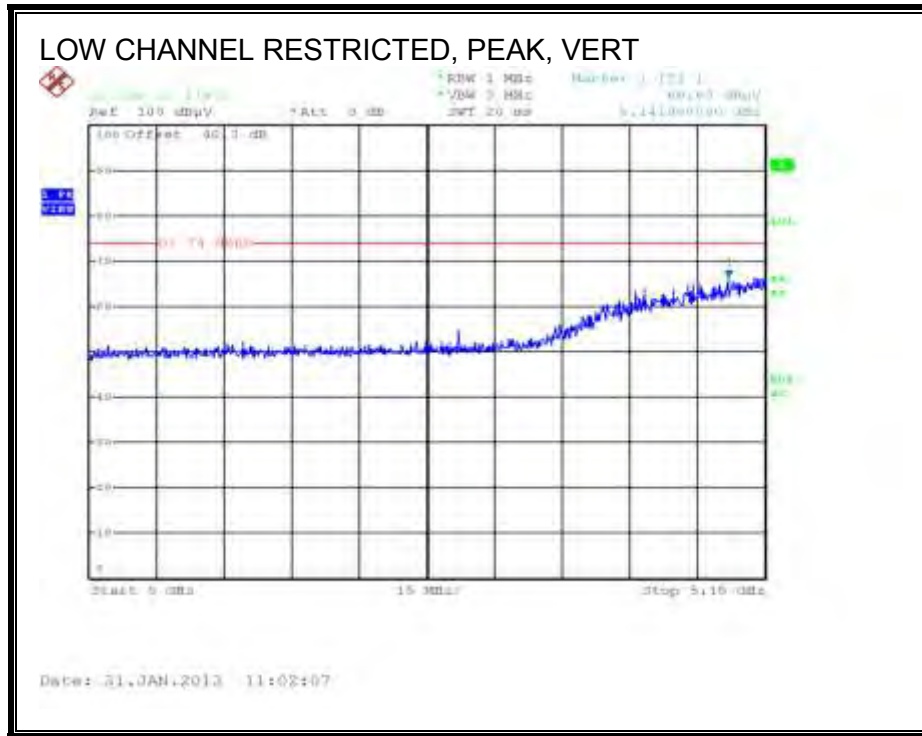
Rev: 0130.13

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

Note: the VBW used for the AVG measurements was 1 kHz. The 10 Hz shown the tabular data above this note is a typo.

9.2.10. 802.11n AC80 1TX MODE, 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

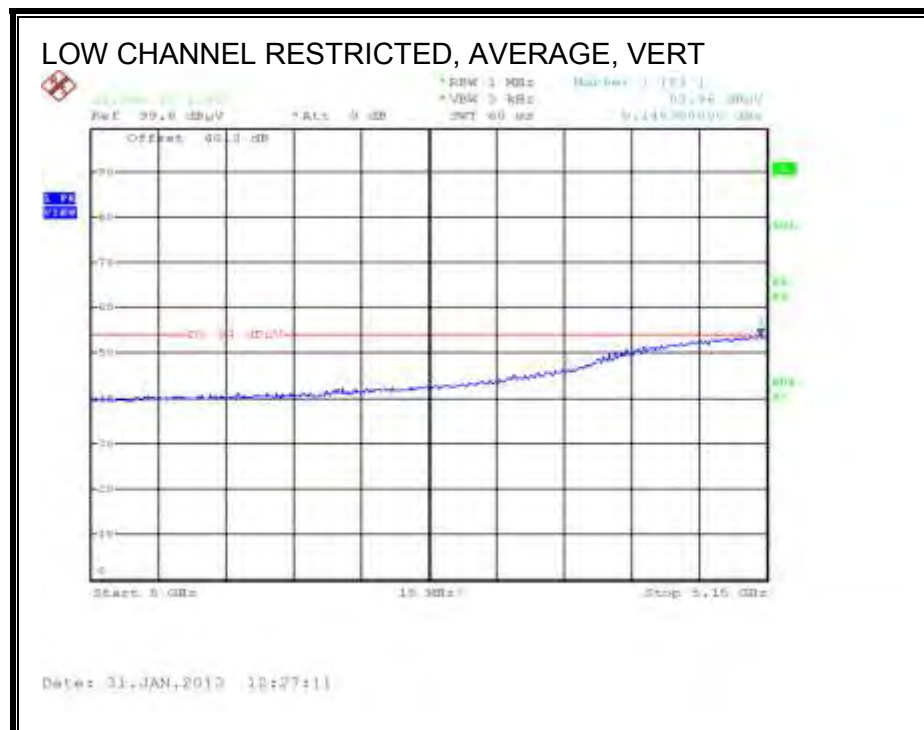
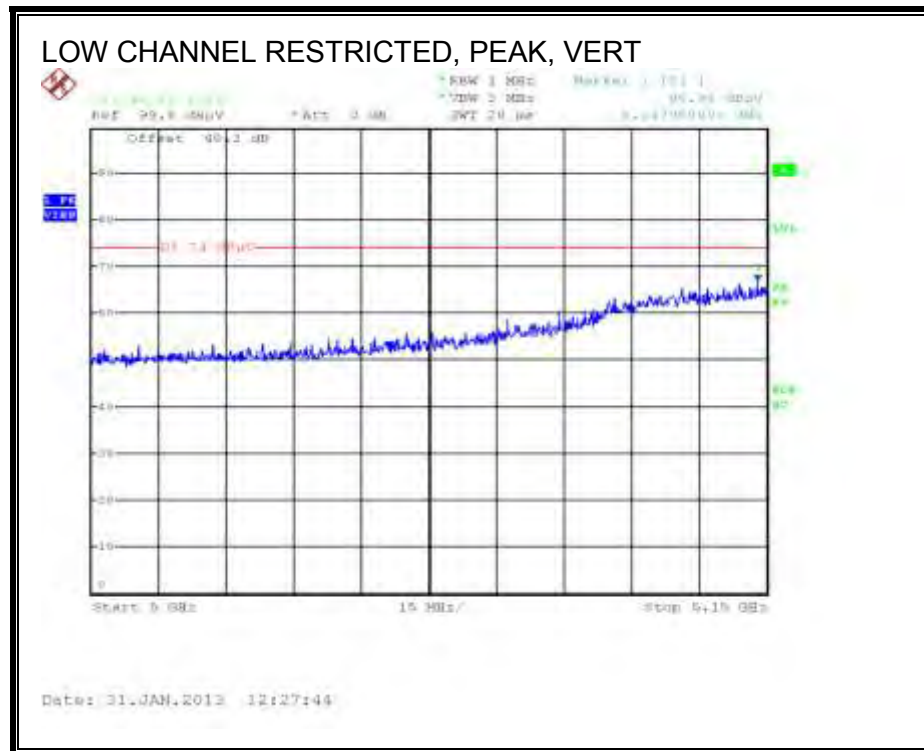


HARMONICS AND SPURIOUS EMISSIONS

Covered by testing 11n AC80 CDD 2TX, total power across the two chains is higher than the power level the device will operate at.

9.2.11. 802.11n AC80 CDD 2TX MODE, 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

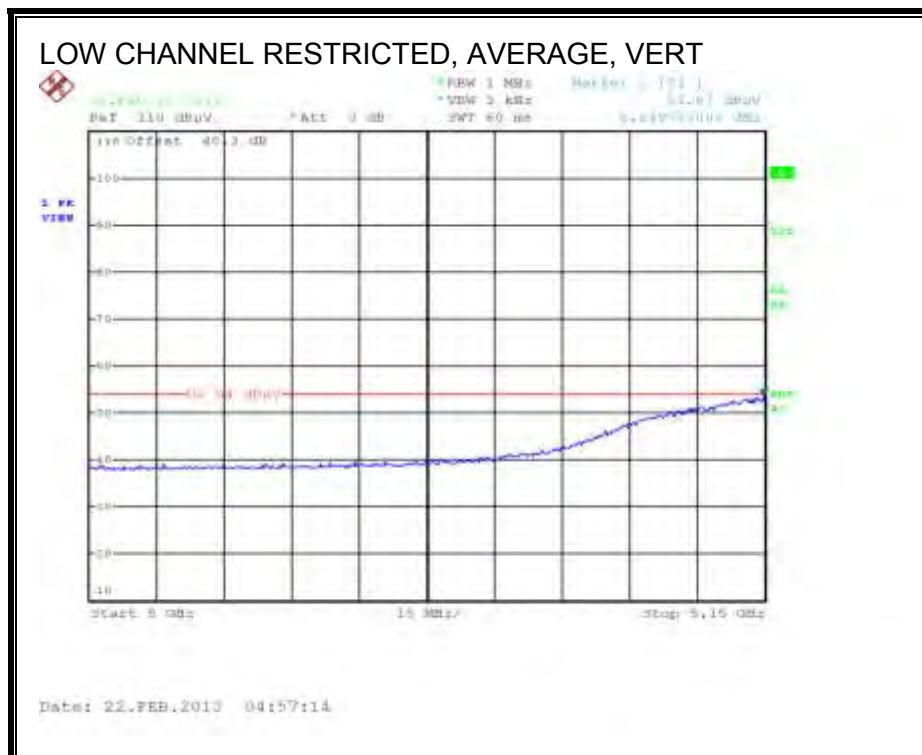
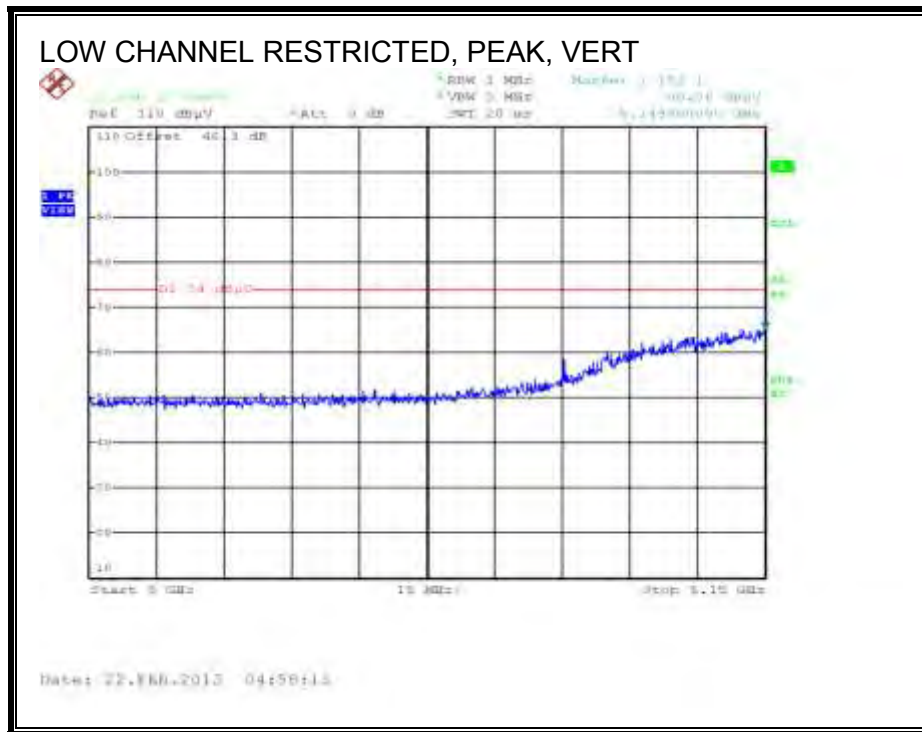


HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber-A																
Company:		Broadcom														
Project #:		13U14796														
Date:		1/30/2013														
Test Engineer:		Kris Nguyen/Danny Vu														
Configuration:		EUT / Laptop														
Mode:		Tx 5.2GHz Band_11a AC80 2TX_Channel 42														
Test Equipment:																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit				
T73; S/N: 6717 @3m			T144 Miteq 3008A00931			T88 Miteq 26-40GHz			T89; ARA 18.26GHz; S/N:1049			FCC 15.205				
RF Frequency Cables																
3' cable 22807700			12' cable 22807800			20' cable 22807500			HPF			Reject Filter				
3' cable 22807700			12' cable 22807800			20' cable 22807500			HPF_7.6GHz							
f	Dist	Read Pk	Read Avg	AF	CL	Amp	D Corr	Ftr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes	
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)	
Channel 42, 5210MHz																
15.690	3.0	35.9	29.5	38.9	13.3	-34.6	0.0	0.0	53.5	47.0	74	54	-20.5	-7.0	V	
15.690	3.0	36.2	27.0	38.9	13.3	-34.6	0.0	0.0	53.8	44.6	74	54	-20.2	-9.4	H	
Rev: 01/30/13																
f	Measurement Frequency		Amp	Preamp Gain		Avg Lim	Average Field Strength Limit									
Dist	Distance to Antenna		D Corr	Distance Correct to 3 meters		Pk Lim	Peak Field Strength Limit									
Read	Analyzer Reading		Avg	Average Field Strength @ 3 m		Avg Mar	Margin vs. Average Limit									
AF	Antenna Factor		Peak	Calculated Peak Field Strength		Pk Mar	Margin vs. Peak Limit									
CL	Cable Loss		HPF	High Pass Filter												

9.2.12. 802.11n AC80 BF 2TX MODE, 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



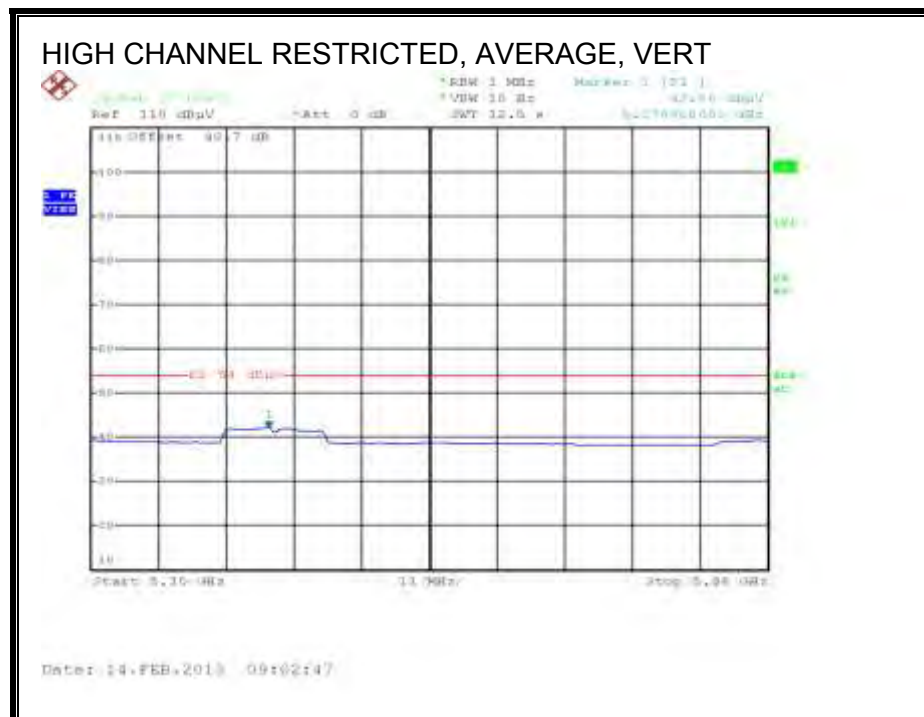
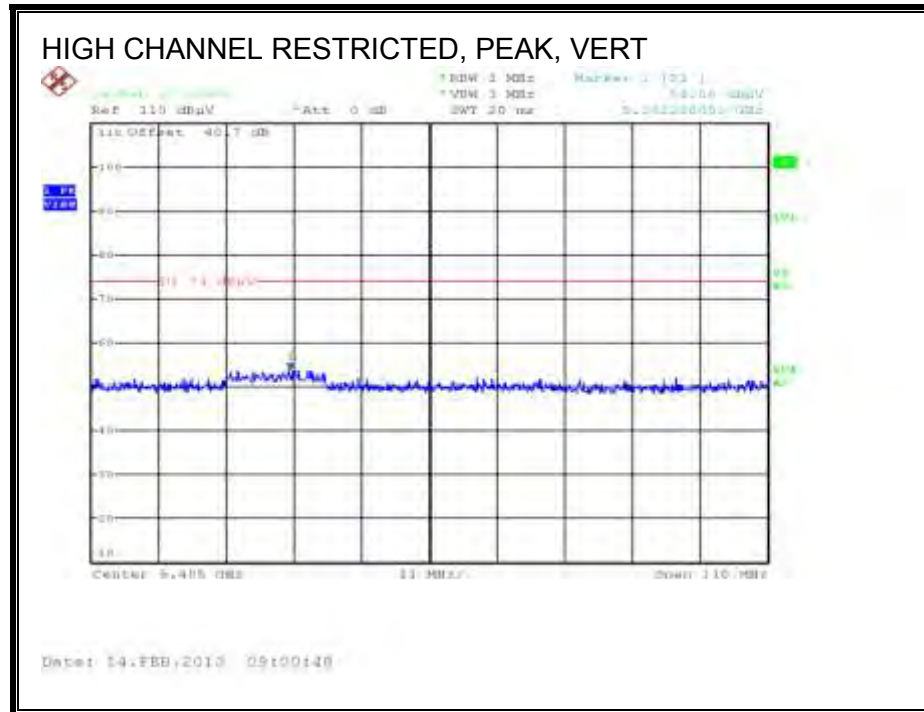
HARMONICS AND SPURIOUS EMISSIONS

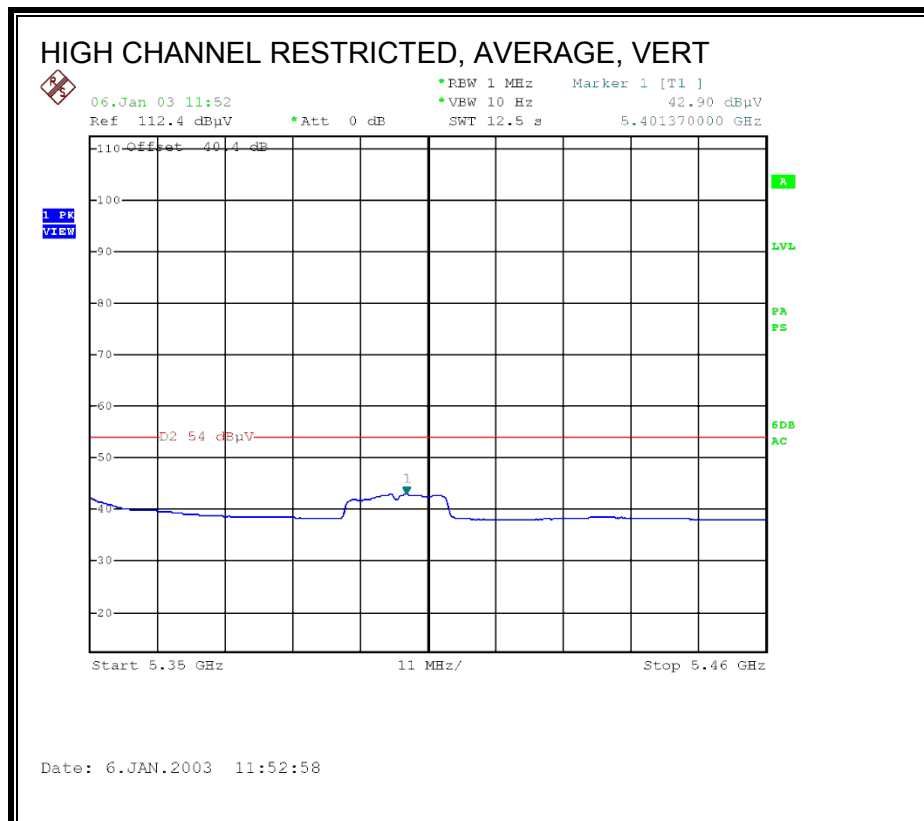
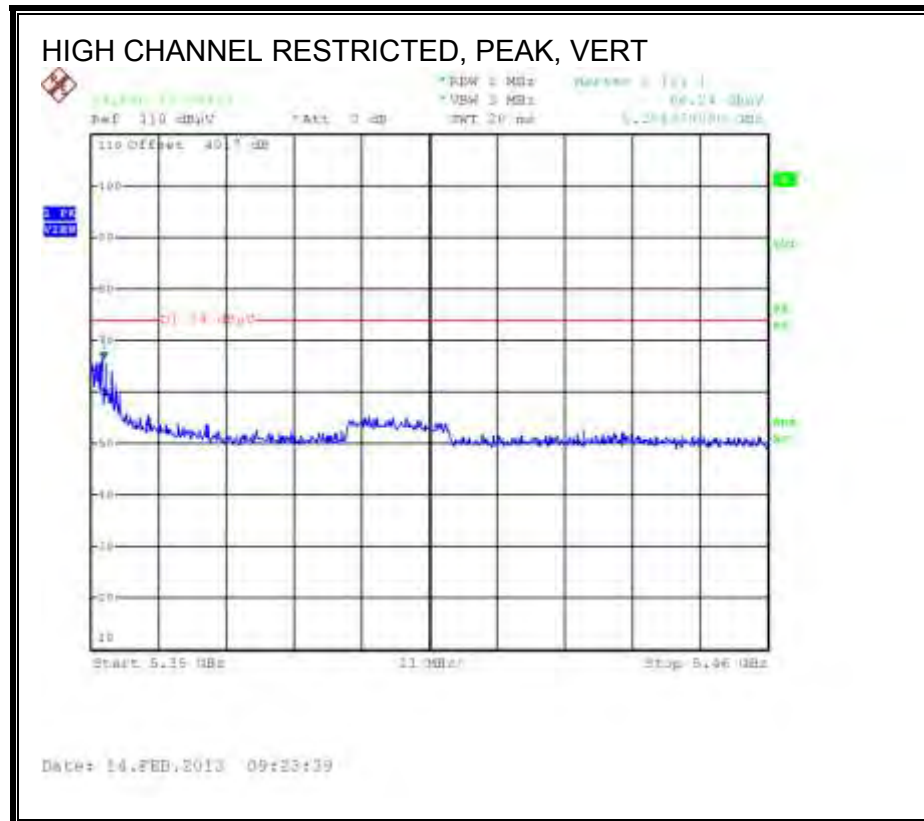
High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber-A															
Company:		Broadcom Corporation													
Project #:		13U14796													
Date:		2/24/2013													
Test Engineer:		K. Nguyen													
Configuration:		EUT with Laptop, AC adaptor, and antenna													
Mode:		Tx 5.2GHz Band_11a AC80 TxBF 2TX													
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz				Limit					
T73; S/N: 6717 @3m		T144 Miteq 3008A00931		T88 Miteq 26.40GHz		T89; ARA 18.26GHz; S/N:1049				FCC 45.205					
RF Frequency Cables															
3' cable 22807700		12' cable 22807600		20' cable 22807500		HPF		Reject Filter		Peak Measurements RBW=VBW=3MHz Average Measurements RBW=1MHz; VBW=10Hz					
3' cable 22807700		12' cable 22807600		20' cable 22807500		HPF_7 6GHz									
f	Dist	Read Pk	Read Avg	AF	CL	Amp	D Corr	Ftr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
Channel 42 (5210 MHz)															
16.630	3.0	38.3	26.3	39.0	13.3	-34.6	0.0	0.7	53.8	44.7	74	54	-20.3	-9.3	V
15.630	3.0	35.1	26.5	39.0	13.3	-34.6	0.0	0.7	53.5	44.8	74	54	-20.5	-9.1	H
Rev: 01_30_13															
f	Measurement Frequency					Amp	Preamp Gain					Avg Lim	Average Field Strength Limit		
Dist	Distance to Antenna					D Corr	Distance Correct to 3 meters					Pk Lim	Peak Field Strength Limit		
Read	Analyzer Reading					Avg	Average Field Strength @ 3 m					Avg Mar	Margin vs. Average Limit		
AF	Antenna Factor					Peak	Calculated Peak Field Strength					Pk Mar	Margin vs. Peak Limit		
CL	Cable Loss					HPF	High Pass Filter								

9.2.13. 802.11a LEGACY 1TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)

Channel 60



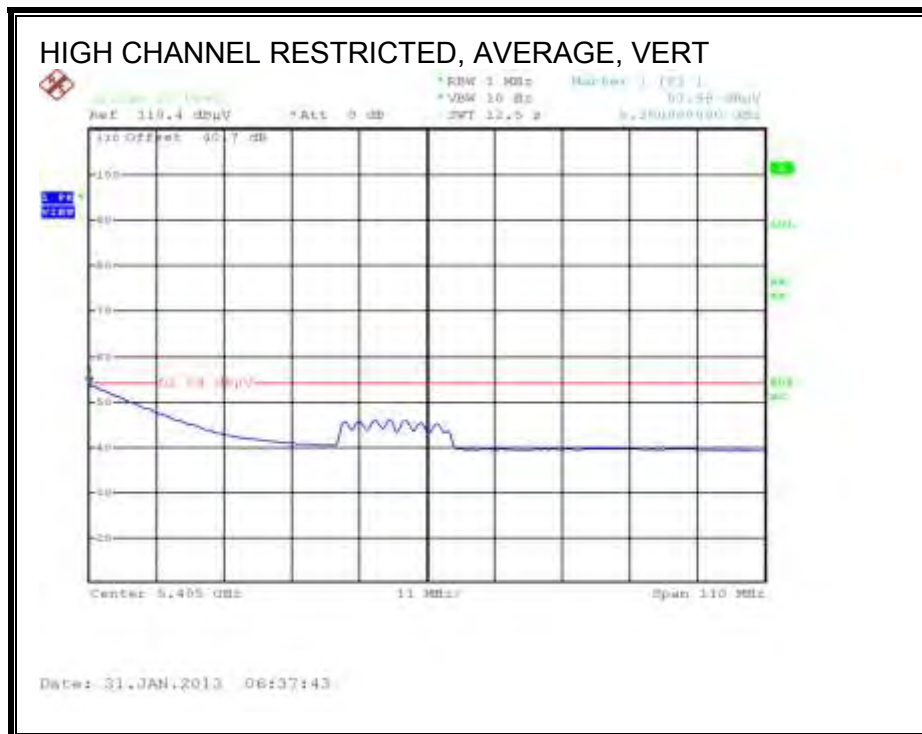
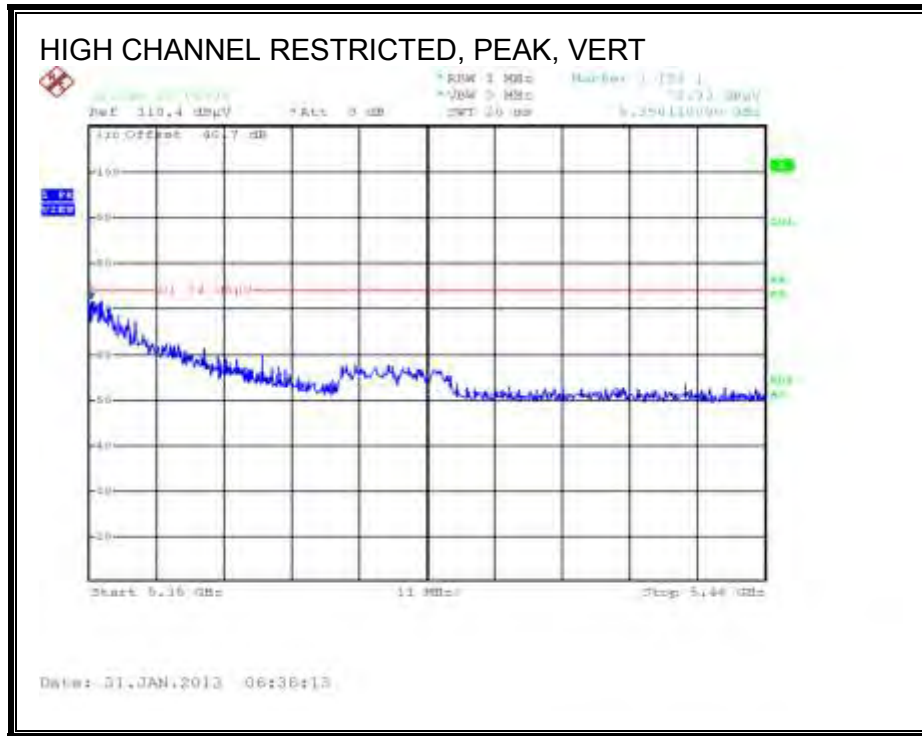


HARMONICS AND SPURIOUS EMISSIONS

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is higher than the power level the device will operate at.

9.2.14. 802.11n HT20 CDD 2TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company: Broadcom Corporation
Project #: 13U14796
Date: 2/14/2013
Test Engineer: K. Nguyen
Configuration: BCM94360CS2 with Laptop and AC adapter
Mode: 11n HT20 CDD Mode 2TX; 5.3 GHz Band

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Mitreq 3008A00931	T88 Mitreq 26-40GHz	T89; ARA 18-26GHz; S/N:1049	FCC 15.205

Hi Frequency Cables:

3' cable 22807700	12' cable 22807600	20' cable 22807500
3' cable 22807700	12' cable 22807600	20' cable 22807500

HPF	Reject Filter
HPF_7.6GHz	

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filt dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel 52 (5260 MHz)															
15.780	3.0	40.9	29.9	38.6	13.4	-34.6	0.0	0.7	59.1	48.1	74	54	-14.9	-8.9	V
15.780	3.0	38.4	27.9	38.6	13.4	-34.6	0.0	0.7	56.5	46.0	74	54	-17.5	-8.0	H
Channel 60 (8300 MHz)															
10.604	3.0	39.5	28.0	38.5	10.7	-36.2	0.0	0.8	53.3	43.8	74	54	-20.7	-10.2	V
10.604	3.0	37.4	27.2	38.5	10.7	-36.2	0.0	0.8	51.2	41.1	74	54	-22.8	-12.9	H
15.900	3.0	39.2	29.6	38.3	13.4	-34.5	0.0	0.7	57.1	47.5	74	54	-16.9	-6.5	V
15.900	3.0	37.7	27.6	38.3	13.4	-34.5	0.0	0.7	55.6	45.5	74	54	-18.4	-8.5	H
Channel 64 (8320 MHz)															
10.640	3.0	41.2	30.6	38.5	10.7	-36.1	0.0	0.8	55.1	44.4	74	54	-18.9	-9.6	V
10.640	3.0	39.5	27.4	38.5	10.7	-36.1	0.0	0.8	53.3	41.2	74	54	-20.7	-12.9	H
15.960	3.0	43.9	32.8	38.2	13.4	-34.5	0.0	0.7	61.7	50.6	74	54	-12.3	-3.1	V
15.960	3.0	40.7	30.2	38.2	13.4	-34.5	0.0	0.7	58.6	48.0	74	54	-15.4	-6.0	H

Rev: 01/30/11

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

9.2.15. 802.11n HT20 STBC 2TX MODE, 5.3 GHz BAND

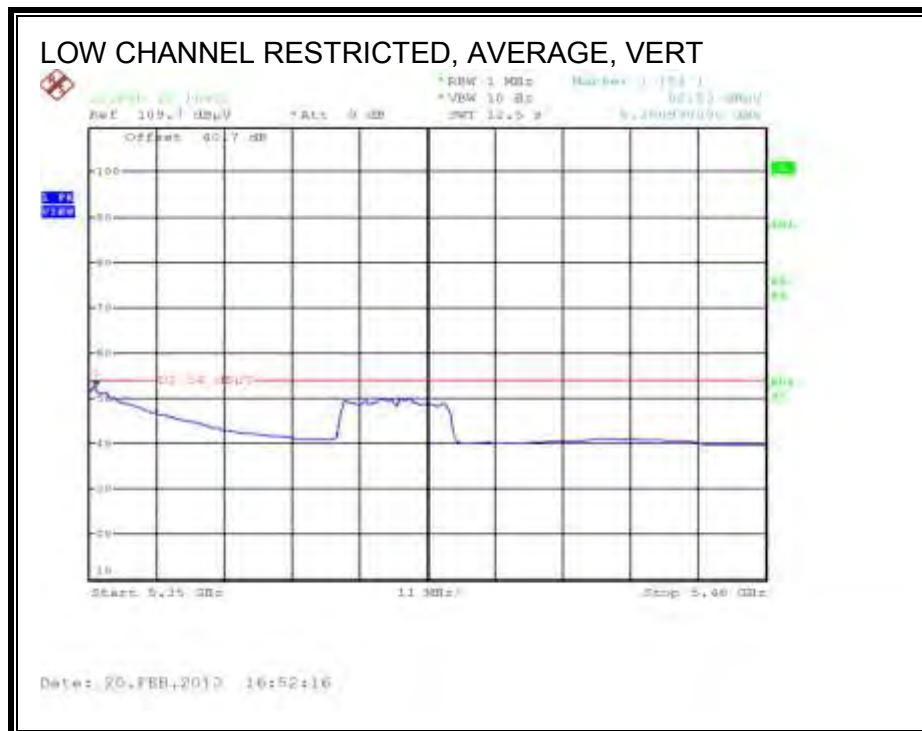
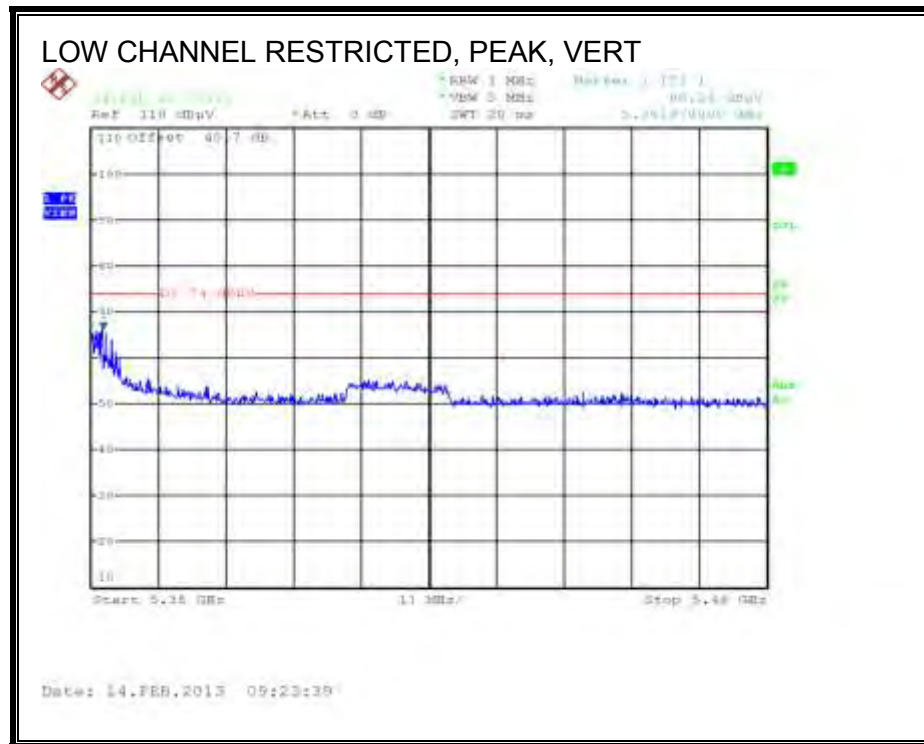
Covered by testing 11n HT20 CDD 2TX, total power across the two chains is higher than the power level the device will operate at.

9.2.16. 802.11n HT20 BF 2TX MODE, 5.3 GHz BAND

Covered by testing 11n AC20 BF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.17. 802.11n AC20 BF 2TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber A

Company: Broadcom Corporation
Project #: 13U14796
Date: 02/23/13
Test Engineer: K. Nguyen
Configuration: EUT with laptop, AC adapter, and antenna
Mode: Tx 5.3GHz Band_11a AC20 TxBF 2TX

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 5717 @3m	T144 Miteq 3008A00931	T88 Miteq 26-40GHz	T89; ARA 18-26GHz; S/N:1049	FCC 15.205

Hi Frequency Cables:

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=1MHz; VBW=1MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF_7.6GHz		Average Measurements RBW=1MHz; VBW=10Hz

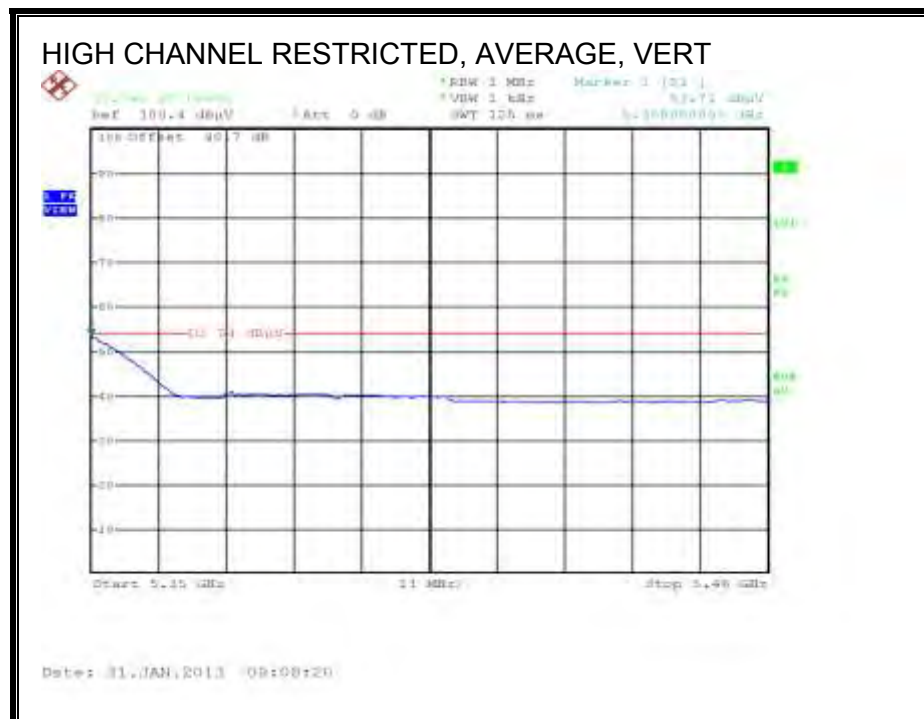
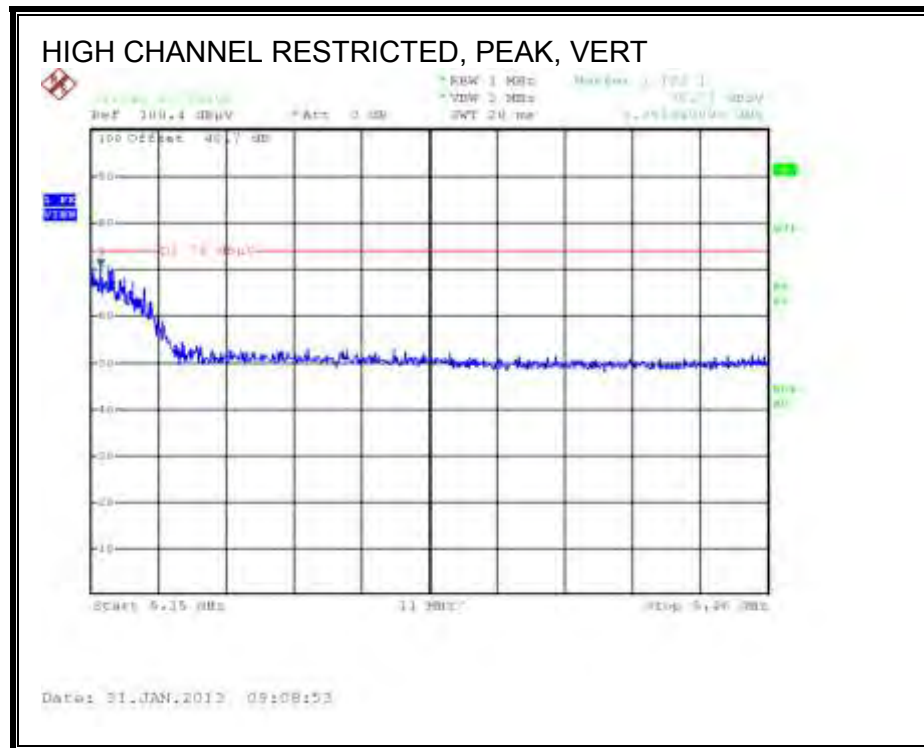
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filt dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel 52 (5240 MHz)															
15.780	3.0	45.4	34.2	38.6	13.4	-34.6	0.0	0.7	63.6	52.3	74	54	-10.4	-1.7	V
15.780	3.0	41.7	33.6	38.6	13.4	-34.6	0.0	0.7	59.9	51.8	74	54	-14.1	-2.2	H
Channel 60 (5300 MHz)															
10.600	3.0	41.3	30.7	38.5	10.7	-36.2	0.0	0.8	55.1	44.5	74	54	-18.9	-9.5	V
10.600	3.0	41.1	30.8	38.5	10.7	-36.2	0.0	0.8	54.9	44.6	74	54	-19.1	-9.4	H
15.900	3.0	45.2	33.6	38.3	13.4	-34.5	0.0	0.7	63.1	51.5	74	54	-10.9	-2.5	V
15.900	3.0	43.8	32.9	38.3	13.4	-34.5	0.0	0.7	61.7	50.9	74	54	-12.3	-3.1	H
Channel 64 (5320 MHz)															
10.640	3.0	39.9	28.8	38.5	10.7	-36.1	0.0	0.8	53.8	42.6	74	54	-20.2	-11.4	V
10.640	3.0	38.9	29.3	38.5	10.7	-36.1	0.0	0.8	52.8	43.2	74	54	-21.2	-10.8	H
15.690	3.0	46.8	35.0	38.9	13.3	-34.6	0.0	0.7	65.1	53.3	74	54	-8.9	-0.7	V
15.690	3.0	43.1	32.4	38.9	13.3	-34.6	0.0	0.7	61.4	50.7	74	54	-12.6	-3.3	H

Rev: 01.30.13

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

9.2.18. 802.11n HT40 1TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)

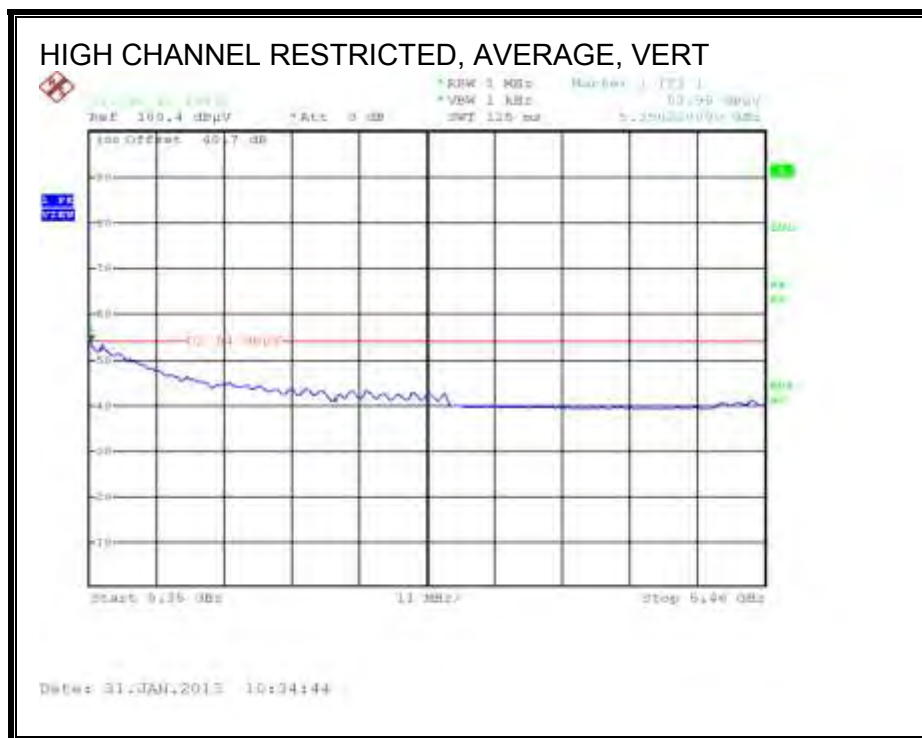
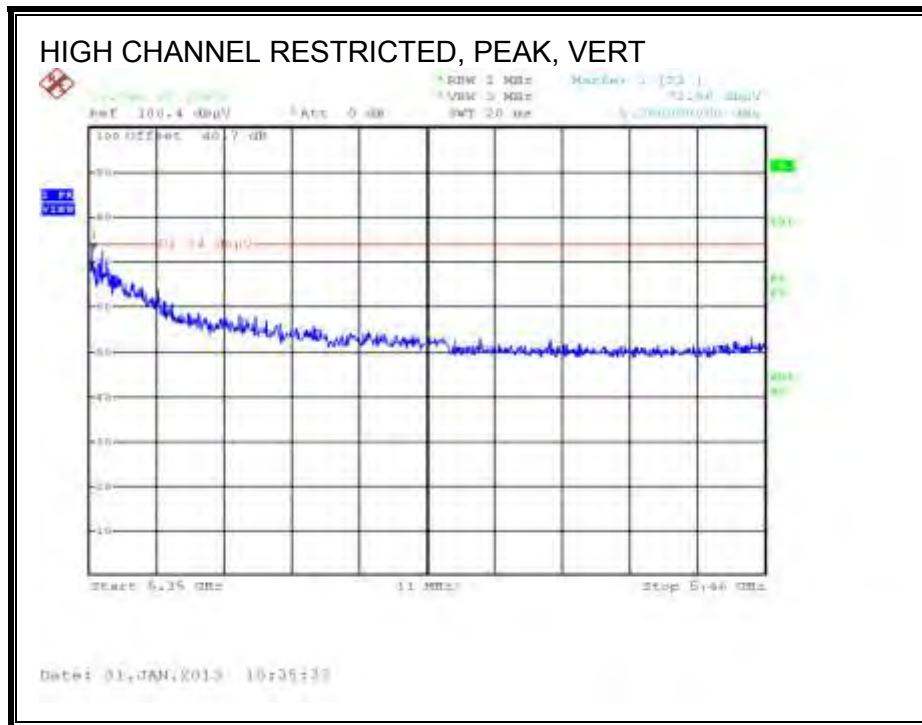


HARMONICS AND SPURIOUS EMISSIONS

Covered by testing 11n HT40 CDD 2TX, total power across the chains is higher than the power level the device will operate at.

9.2.19. 802.11n HT40 CDD 2TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber A																
Company:		Broadcom Corporation														
Project #:		13U14796														
Date:		2/20/2013														
Test Engineer:		K. Nguyen														
Configuration:		EUT with Laptop and AC Adapter														
Mode:		11a HT40 CDD 2TX; 5.3 GHz Band														
Test Equipment:																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit				
T73; S/N: 5717 @3m			T144 Miteq 3008A00931			T88 Miteq 26-40GHz			T89; ARA 18-26GHz; S/N:1049			FCC 15.205				
In Frequency Cables																
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF			Reject Filter				
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF_7.6GHz							
f	Dist	Read Pk	Read Avg	AF	CL	Amp	D Corr	Filt	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes	
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)	
Channel 54 (5270 MHz)																
15.810	3.0	38.9	29.2	38.6	13.4	-34.6	0.0	0.7	57.0	47.3	74	54	-17.0	-6.7	V	
15.810	3.0	36.3	26.8	38.6	13.4	-34.6	0.0	0.7	54.4	44.8	74	54	-19.6	-9.2	H	
Channel 62 (5310 MHz)																
10.620	3.0	38.3	29.8	38.5	10.7	-36.2	0.0	0.8	52.1	43.6	74	54	-21.9	-10.4	V	
10.620	3.0	36.1	26.7	38.5	10.7	-36.2	0.0	0.8	50.0	40.6	74	54	-24.0	-13.4	H	
15.930	3.0	39.1	30.3	38.2	13.4	-34.5	0.0	0.7	56.9	48.2	74	54	-17.1	-9.8	V	
15.930	3.0	39.0	29.9	38.2	13.4	-34.5	0.0	0.7	56.9	47.7	74	54	-17.1	-9.3	H	
Rev: 01.30.13																
f	Measurement Frequency		Amp	Preamp Gain		Avg Lim	Average Field Strength Limit									
Dist	Distance to Antenna		D Corr	Distance Correct to 3 meters		Pk Lim	Peak Field Strength Limit									
Read	Analyzer Reading		Avg	Average Field Strength @ 3 m		Avg Mar	Margin vs. Average Limit									
AF	Antenna Factor		Peak	Calculated Peak Field Strength		Pk Mar	Margin vs. Peak Limit									
CL	Cable Loss		HPF	High Pass Filter												

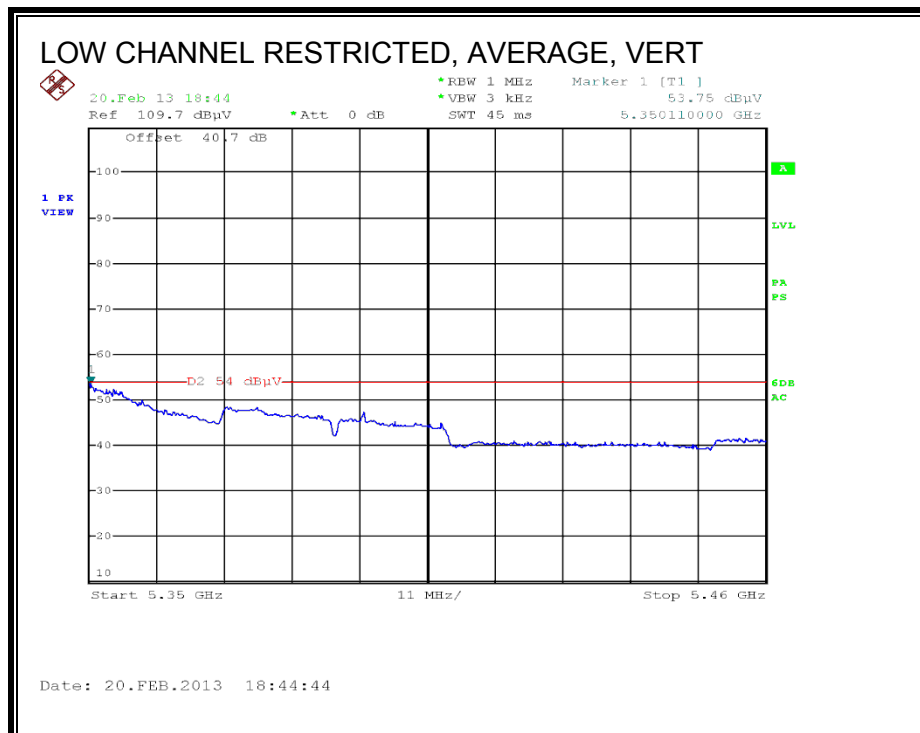
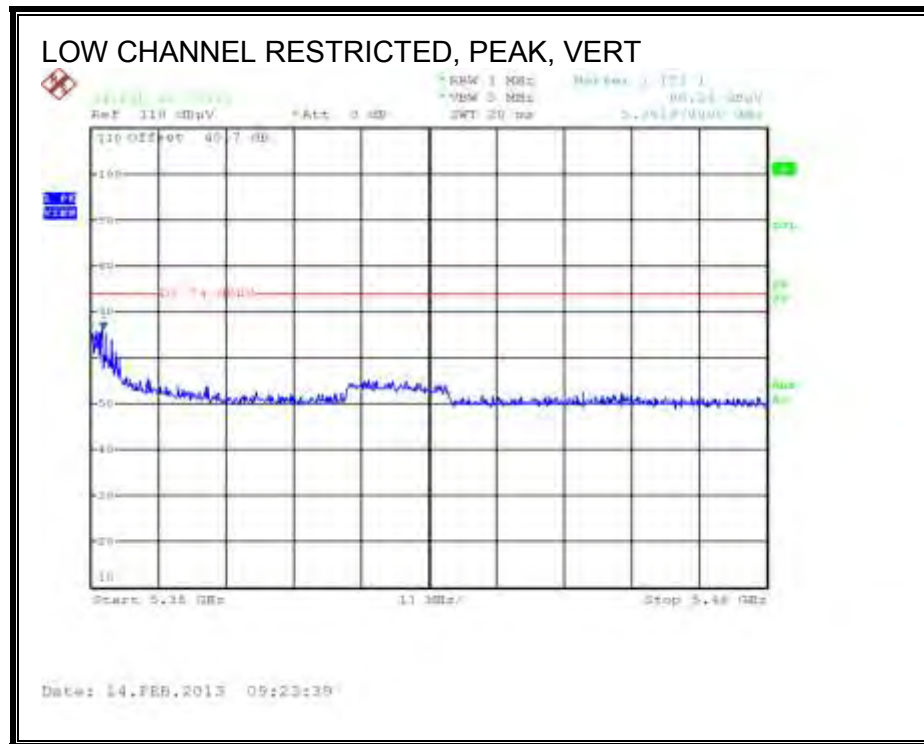
Note: the VBW used for the AVG measurements was 1 kHz. The 10 Hz shown the tabular data above this note is a typo.

9.2.20. 802.11n HT40 BF 2TX MODE, 5.3 GHz BAND

Covered by testing 11n AC40 BF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.21. 802.11n AC40 BF 2TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company: Broadcom Corporation
Project #: 13U14796
Date: 2/24/2013
Test Engineer: K. Nguyen
Configuration: BCM94160CS2 with Laptop, AC adapter, and antennas
Mode: Tx 11m AC40 MHz ITX Beamforming, 5.3GHz Band

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T72; S/N: 6717 @3m	T144 Mitreq 3008A00931	T88 Mitreq 26-40GHz	T89; ARA 18-26GHz; S/N: 1049	FCC 15.205

Hi Frequency Cables:

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=1 MHz; VBW=3MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF_7.6GHz		Average Measurements RBW=1MHz; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filt dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel 64 (5270 MHz)															
15.810	3.0	40.7	31.3	38.6	13.4	-34.6	0.0	0.7	58.8	49.4	74	54	-15.2	-4.6	V
15.810	3.0	40.4	31.9	38.6	13.4	-34.6	0.0	0.7	58.4	50.0	74	54	-15.6	-4.0	H
Channel 62 (5310 MHz)															
10.620	3.0	41.8	33.9	38.5	10.7	-36.2	0.0	0.8	55.6	47.7	74	54	-18.4	-6.3	V
10.620	3.0	40.9	31.1	38.5	10.7	-36.2	0.0	0.8	54.8	45.0	74	54	-19.2	-9.0	H
15.930	3.0	41.9	31.1	38.2	13.4	-34.5	0.0	0.7	59.8	49.0	74	54	-14.2	-5.0	V
15.930	3.0	40.3	31.2	38.2	13.4	-34.5	0.0	0.7	58.1	48.1	74	54	-15.9	-4.9	H

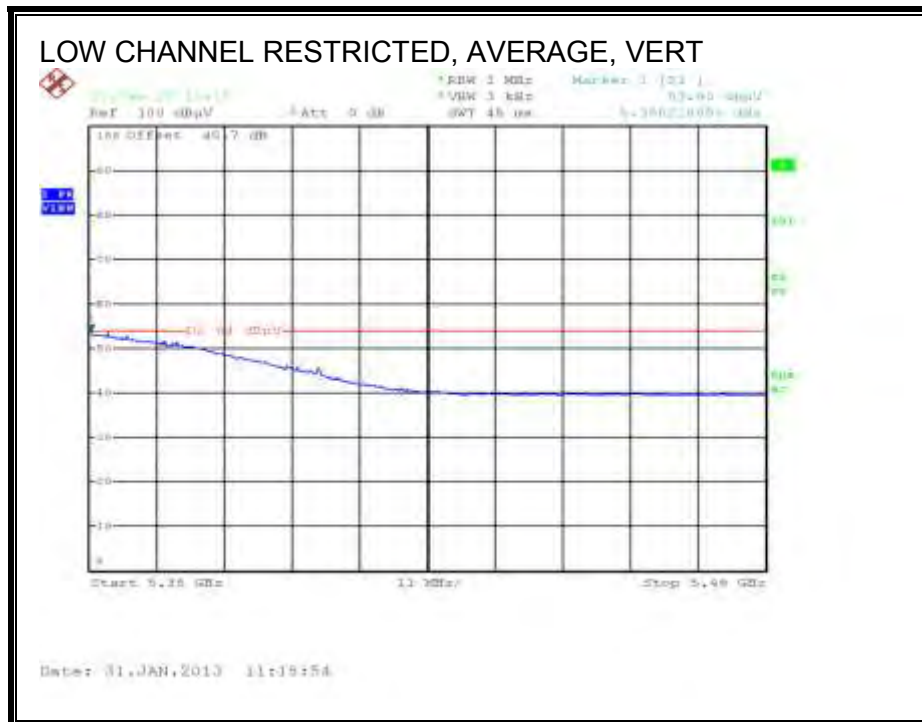
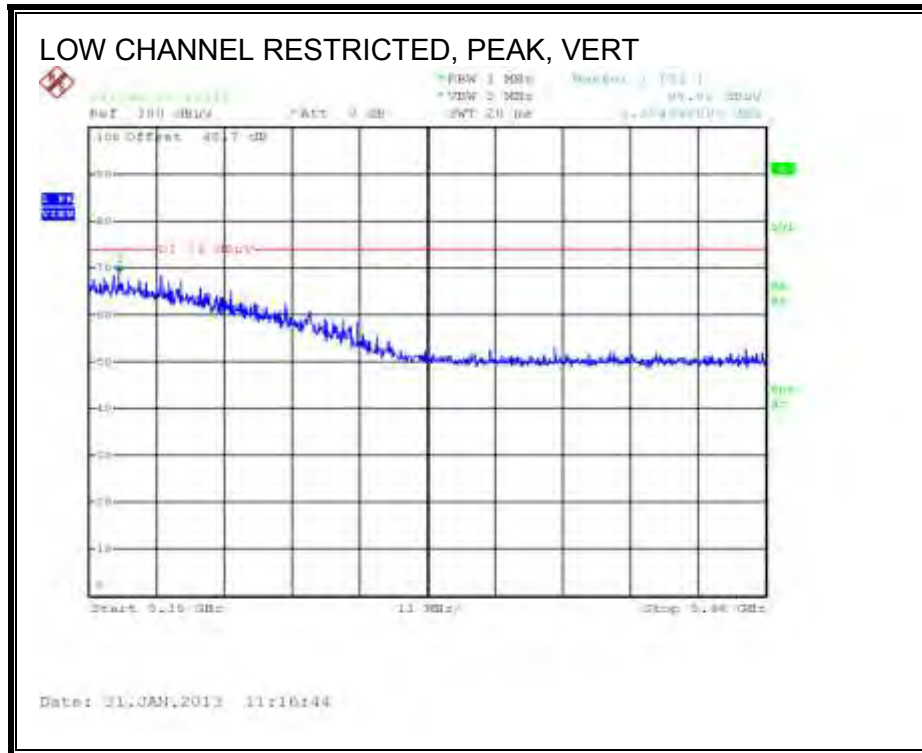
Rev: 01.30.11

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

Note: the VBW used for the AVG measurements was 1 kHz. The 10 Hz shown the tabular data above this note is a typo.

9.2.22. 802.11n AC80 1TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

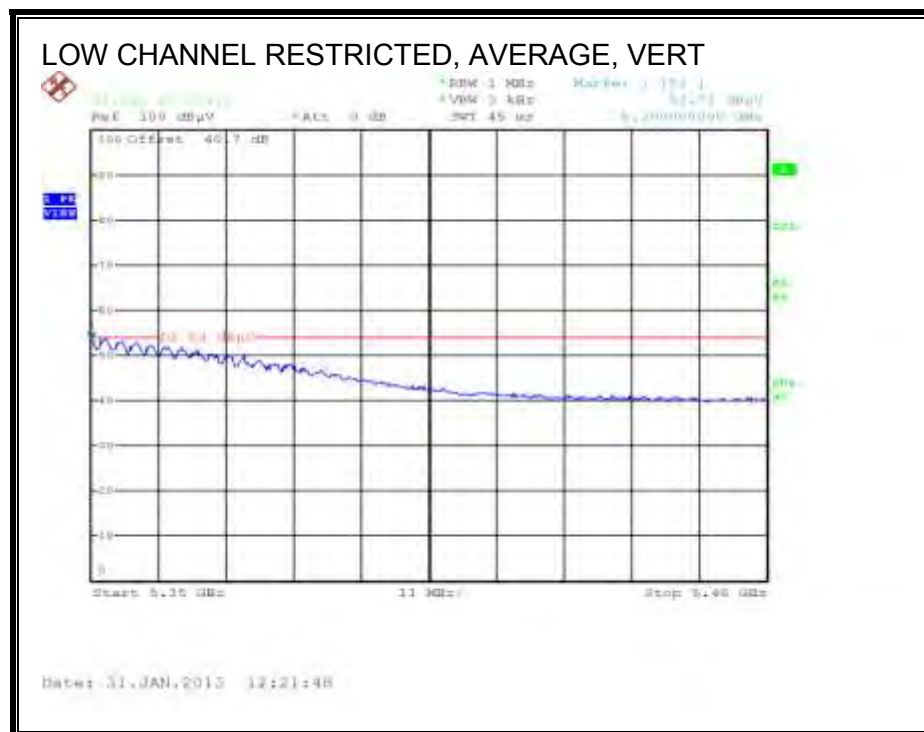
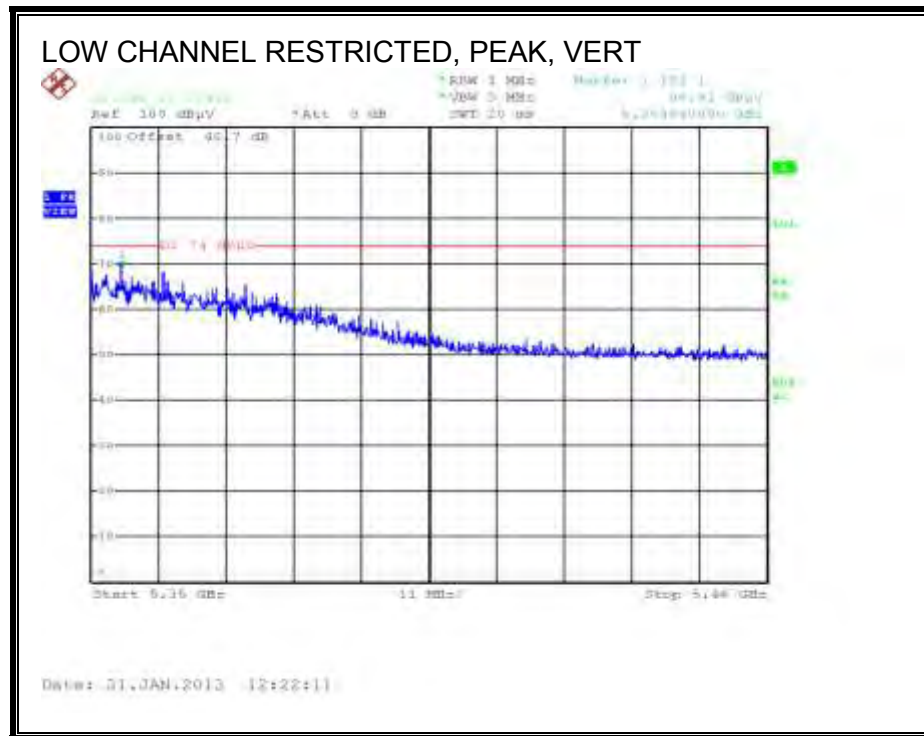


HARMONICS AND SPURIOUS EMISSIONS

Covered by testing 11n AC80 CDD 2TX, total power across the two chains is higher than the power level the device will operate at.

9.2.23. 802.11n AC80 CDD 2TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

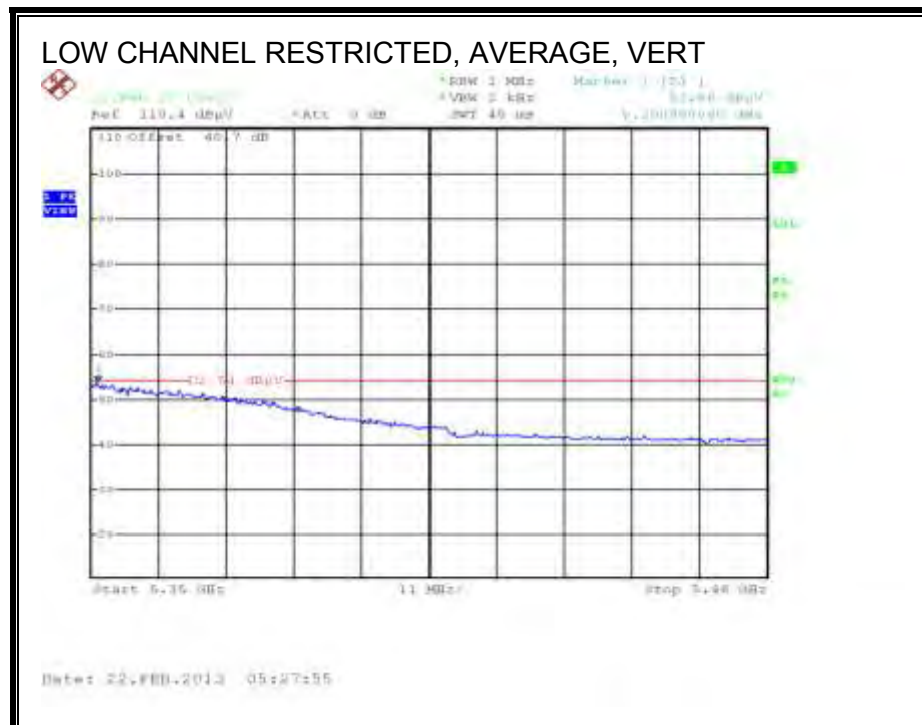
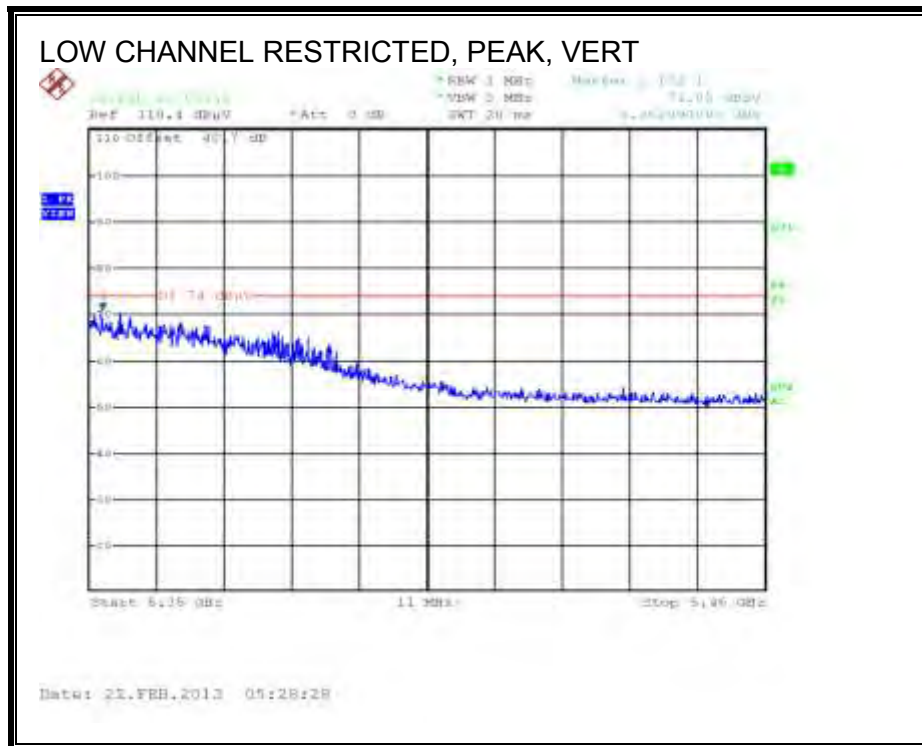


HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber-A																
Company:		Broadcom														
Project #:		13U14796														
Date:		1/30/2013														
Test Engineer:		Kris Nguyen/Danny Vu														
Configuration:		EUT / Laptop														
Mode:		Tx 5.3GHz Band_11a AC80 2TX_Channel 58														
<u>Test Equipment:</u>																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit				
T73; S/N: 6717 @3m			T144 Miteq 3008A00931			T88 Miteq 26.40GHz			T89; ARA 18.26GHz; S/N:1049			FCC 15.205				
<u>Hi Frequency Cables</u>																
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF			Reject Filter				
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF_7 6GHz							
f	Dist	Read Pk	Read Avg	AF	CL	Amp	D Corr	Filtr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes	
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)	
Channel 58, 5290MHz																
15.870	3.0	37.7	27.6	38.4	13.4	-34.8	0.0	0.0	55.0	44.8	74	54	-19.0	-8.2	V	
15.870	3.0	35.4	26.4	38.4	13.4	-34.5	0.0	0.0	52.7	43.7	74	54	-21.3	-10.3	H	
Rev: 01_30_13																
f	Measurement Frequency		Amp	Preamp Gain		Avg Lim	Average Field Strength Limit									
Dist	Distance to Antenna		D Corr	Distance Correct to 3 meters		Pk Lim	Peak Field Strength Limit									
Read	Analyzer Reading		Avg	Average Field Strength @ 3 m		Avg Mar	Margin vs. Average Limit									
AF	Antenna Factor		Peak	Calculated Peak Field Strength		Pk Mar	Margin vs. Peak Limit									
CL	Cable Loss		HPF	High Pass Filter												

9.2.24. 802.11n AC80 BF 2TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company: Broadcom Corporation
Project #: 13U14796
Date: 2/24/2013
Test Engineer: K. Nguyen
Configuration: EUT with Laptop, AC adaptor, and antenna
Mode: Tx 5.3GHz Band_11a AC80 TxBF 2TX_Channel S8

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931	T88 Miteq 26.40GHz	T89; ARA 18.26GHz; S/N:1049	FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500
3' cable 22807700	12' cable 22807600	20' cable 22807500

HPF		Reject Filter	
HPF_7 6GHz			

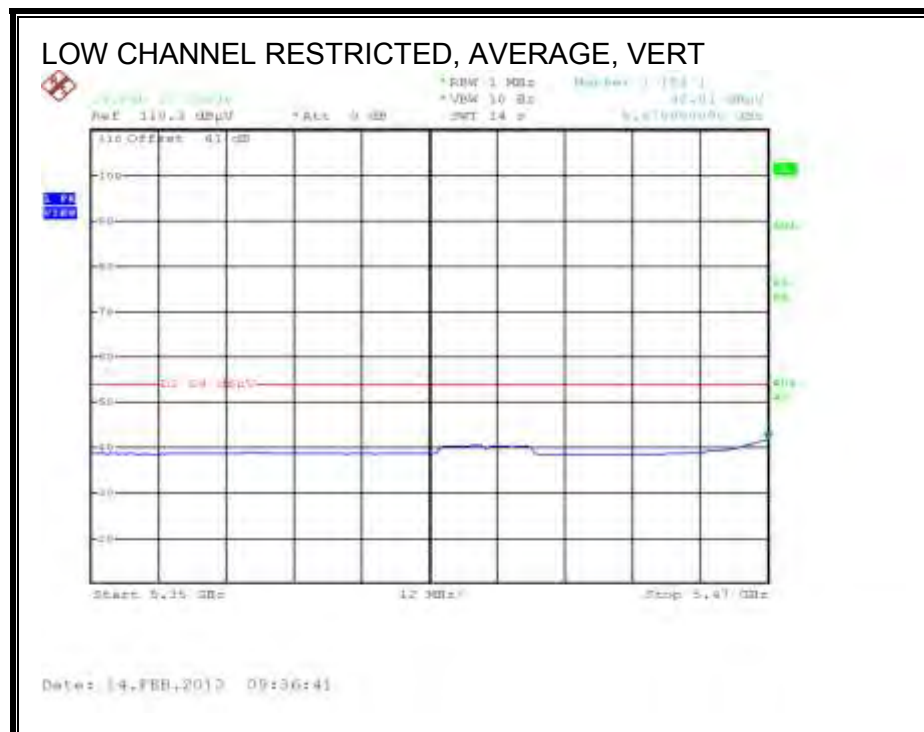
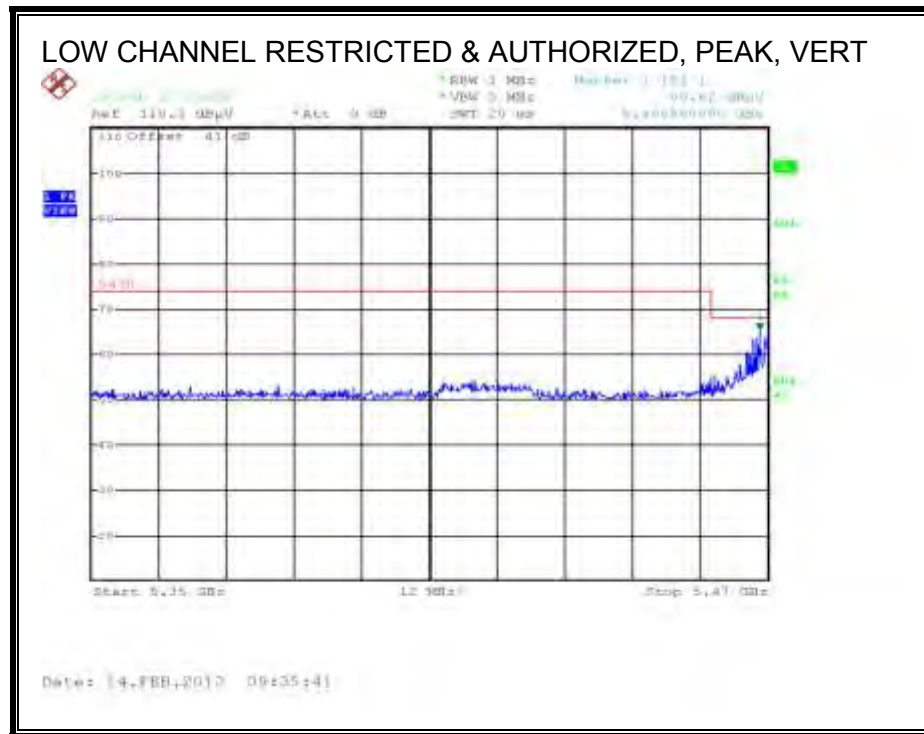
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fitr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel 58 (5290 MHz)															
15.870	3.0	36.2	27.0	38.4	13.4	-34.8	0.0	0.7	84.2	45.0	74	54	19.8	-9.0	V
15.870	3.0	35.2	26.3	38.4	13.4	-34.5	0.0	0.7	83.2	44.3	74	54	20.8	-9.7	H

Rev. 01.30.13

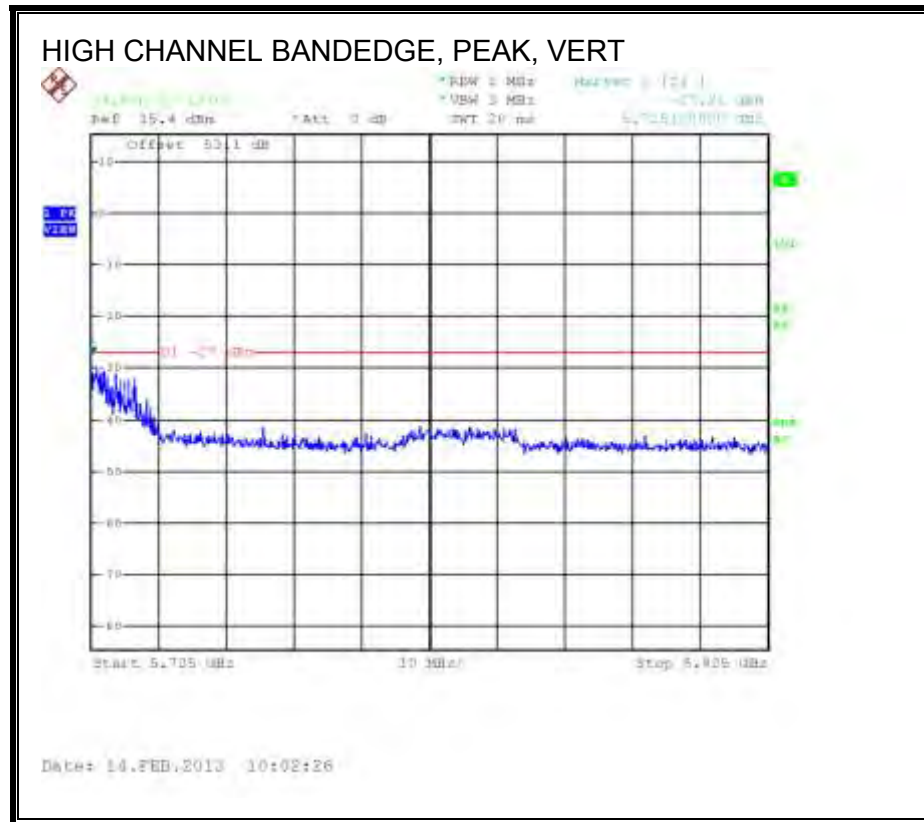
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field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

9.2.25. 802.11a LEGACY 1TX MODE, 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)



AUTHORIZED BANDEDGE (HIGH CHANNEL)



HARMONICS AND SPURIOUS EMISSIONS

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is higher than the power level the device will operate at.

9.2.26. 802.11a LEGACY 1TX MODE, CHANNEL 144, 5.6 GHz BAND

BANDEDGE

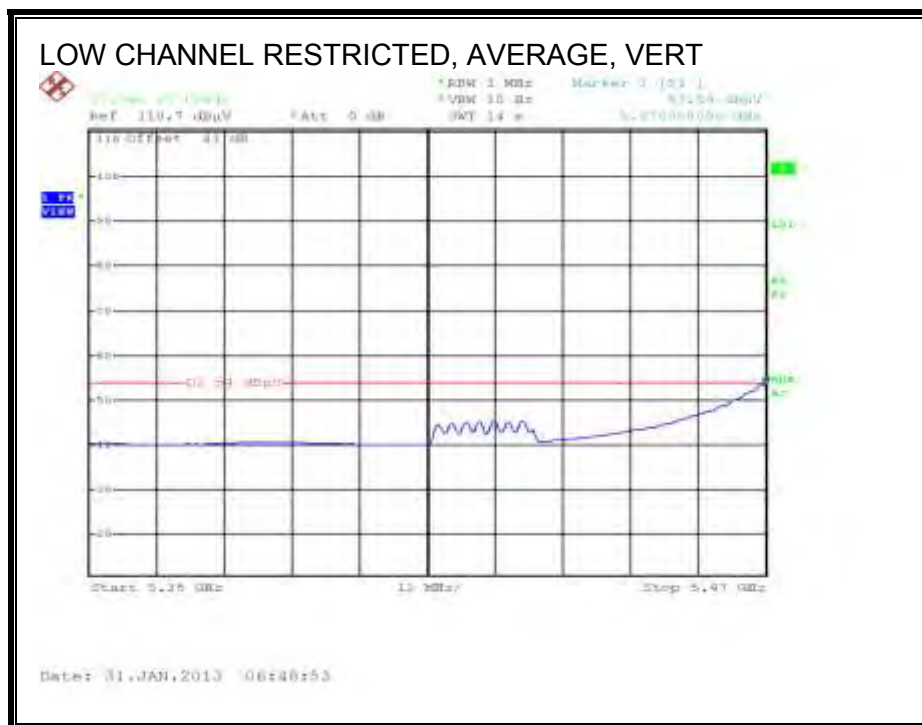
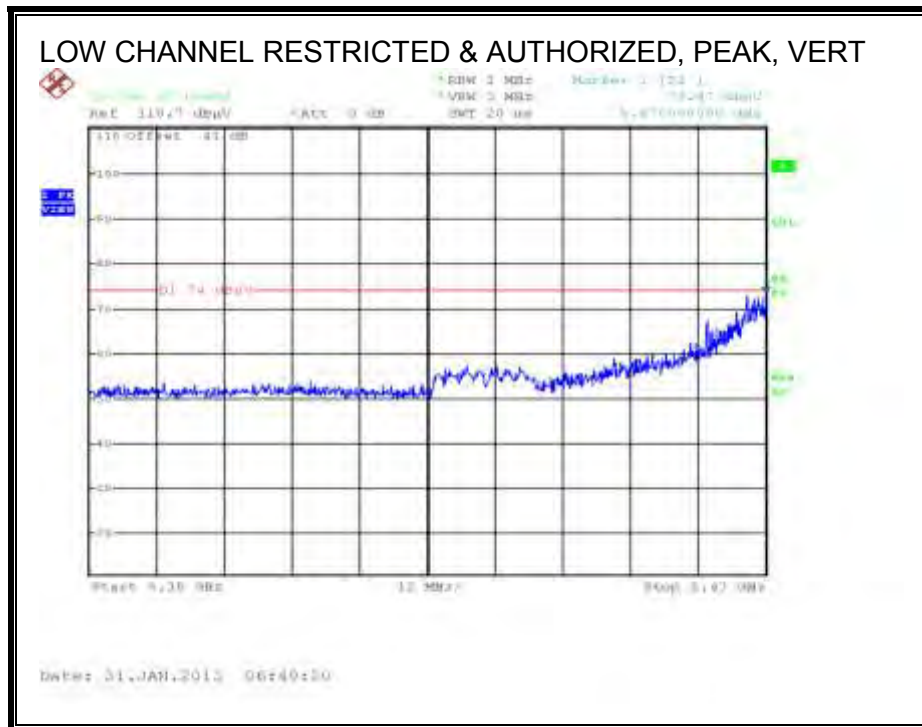
Not Applicable.

HARMONICS AND SPURIOUS EMISSIONS

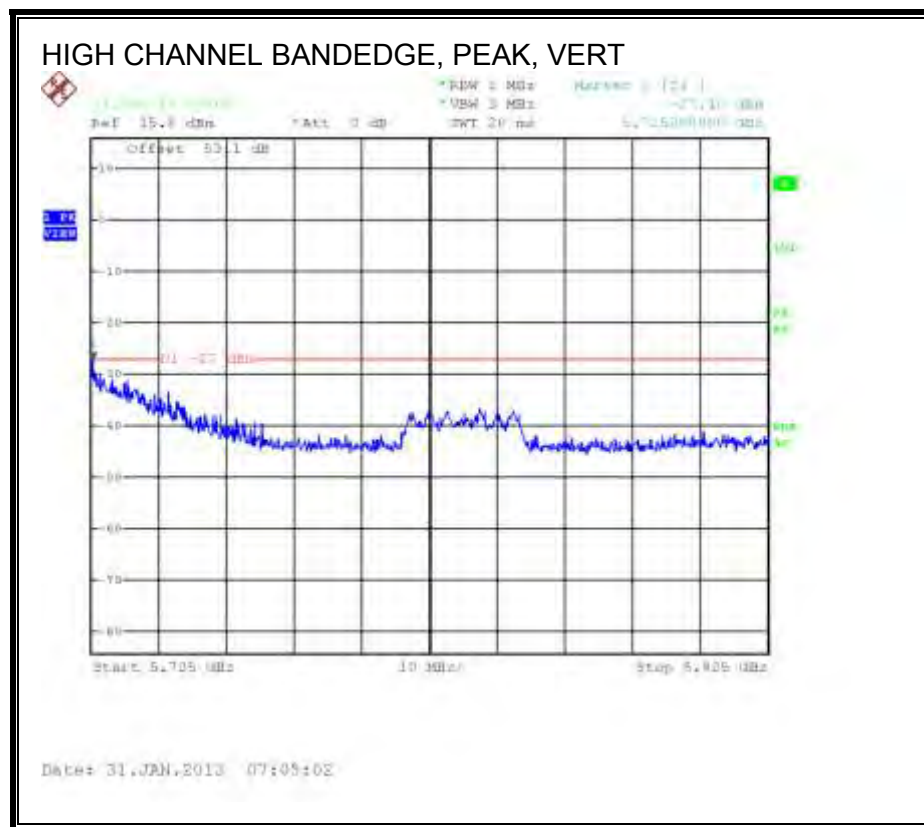
Covered by testing 11n HT20 CDD 2TX, total power across the two chains is higher than the power level the device will operate at.

9.2.27. 802.11n HT20 CDD 2TX MODE, 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)



AUTHORIZED BANDEDGE (HIGH CHANNEL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company: Broadcom
Project #: 13U14796
Date: 2/22/2013
Test Engineer: Kris N/Danny Vu
Configuration: EUT, Adapter, laptop, Antenna
Mode: HT20 2TX CDD, 5.5GHz

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931	T88 Miteq 26-40GHz	T89; ARA 18-26GHz; S/N:1049	FCC 15.205

Hi Frequency Cables:

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=VBW=3MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF_7.6GHz		Average Measurements RBW=1MHz VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fitr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel: 5500MHz															
11.000	3.0	39.5	29.6	38.7	10.9	-36.0	0.0	0.7	53.8	44.0	74	54	-20.2	-10.0	V
11.000	3.0	38.9	28.5	38.7	10.9	-36.0	0.0	0.7	53.2	42.8	74	54	-20.8	-11.2	H
Channel: 5580MHz															
11.160	3.0	41.0	32.1	38.9	11.0	-36.0	0.0	0.7	55.6	46.7	74	54	-18.4	-7.5	V
11.160	3.0	39.7	29.5	38.9	11.0	-36.0	0.0	0.7	54.3	44.1	74	54	-19.7	-9.9	H
Channel 140: 5700MHz															
11.400	3.0	41.9	31.9	39.1	11.1	-35.9	0.0	0.7	56.9	46.9	74	54	-17.1	-7.1	V
11.400	3.0	36.4	26.7	39.1	11.1	-35.9	0.0	0.7	51.4	41.7	74	54	-22.0	-12.3	H

Rev: 01.30.11

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

9.2.28. 802.11n HT20 CDD 2TX MODE, CHANNEL 144, 5.6 GHz BAND

BANDEDGE

Not Applicable.

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company: Broadcom
Project #: 13U14796
Date: 2/22/2013
Test Engineer: Kris N/Danny Vu
Configuration: EUT, Adapter, laptop, Antenna
Mode: HT20 2TX CDD, 5.5GHz, Channel 144

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931	T88 Miteq 26.40GHz	T89; ARA 18.26GHz; S/N:1049	FCC 45.205

RF Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500
3' cable 22807700	12' cable 22807600	20' cable 22807500

Peak Measurements
RBW=VBW=3MHz
Average Measurements
RBW=1MHz; VBW=10Hz

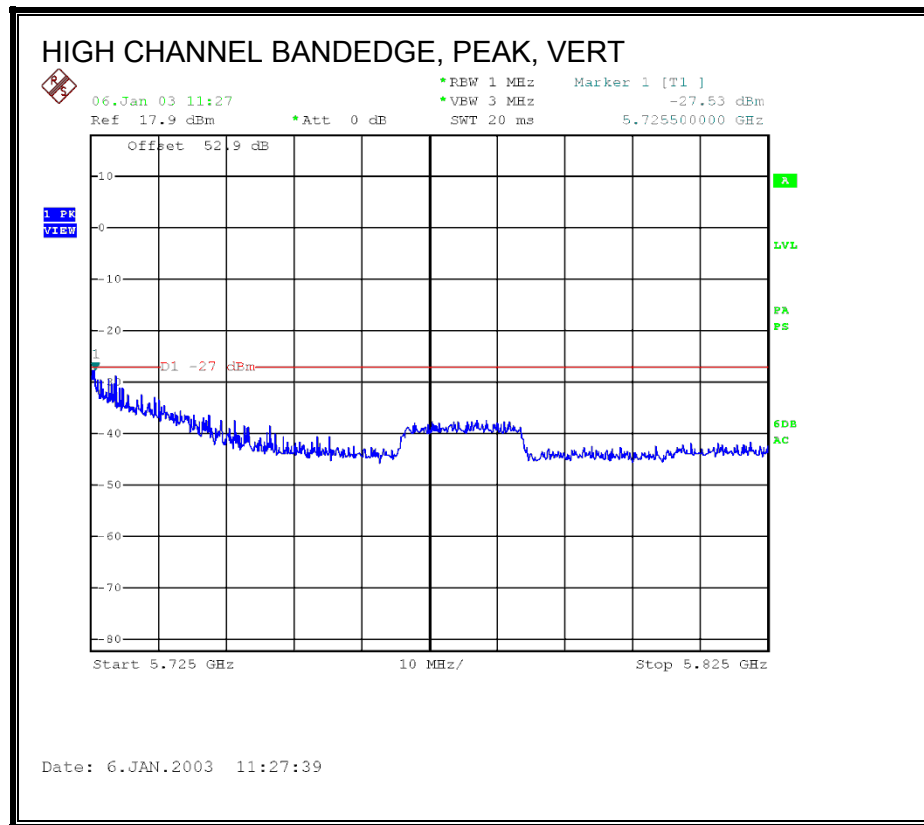
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Ftr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel 144: 5720MHz															
11.440	3.0	42.6	30.8	39.1	11.1	-35.9	0.0	0.7	87.6	45.9	74	54	-16.4	-8.1	V
11.440	3.0	36.4	26.5	39.1	11.1	-35.9	0.0	0.7	51.5	41.6	74	54	-22.5	-12.4	H

Rev: 01_30_13

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

9.2.29. 802.11n HT20 STBC 2TX MODE, 5.6 GHz BAND

AUTHORIZED BANDEDGE (HIGH CHANNEL)



9.2.30. 802.11n HT20 STBC 2TX MODE, CHANNEL 144, 5.6 GHz BAND

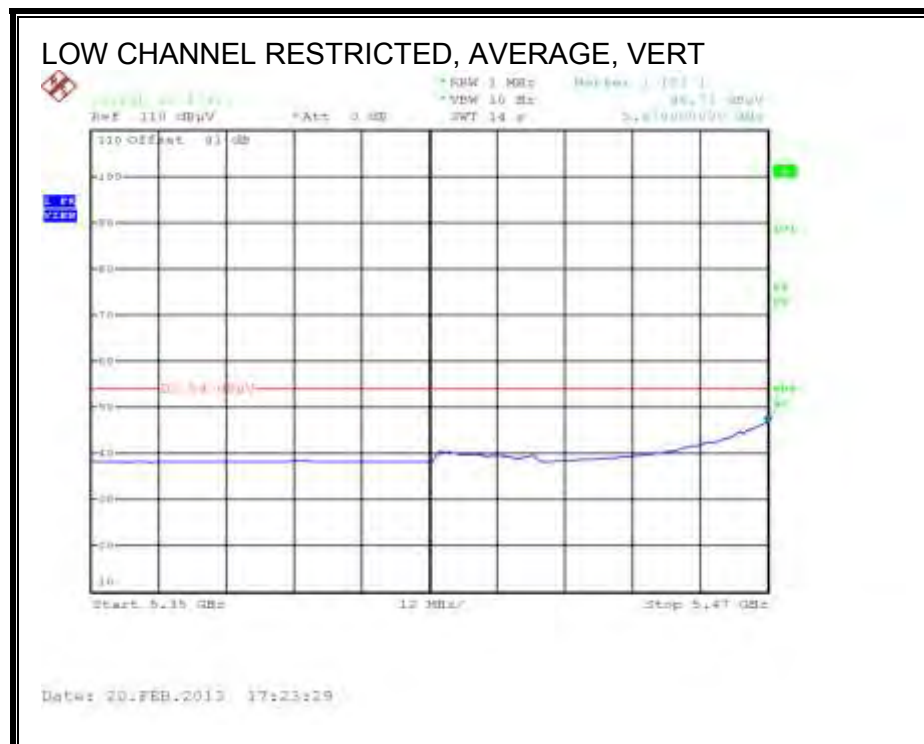
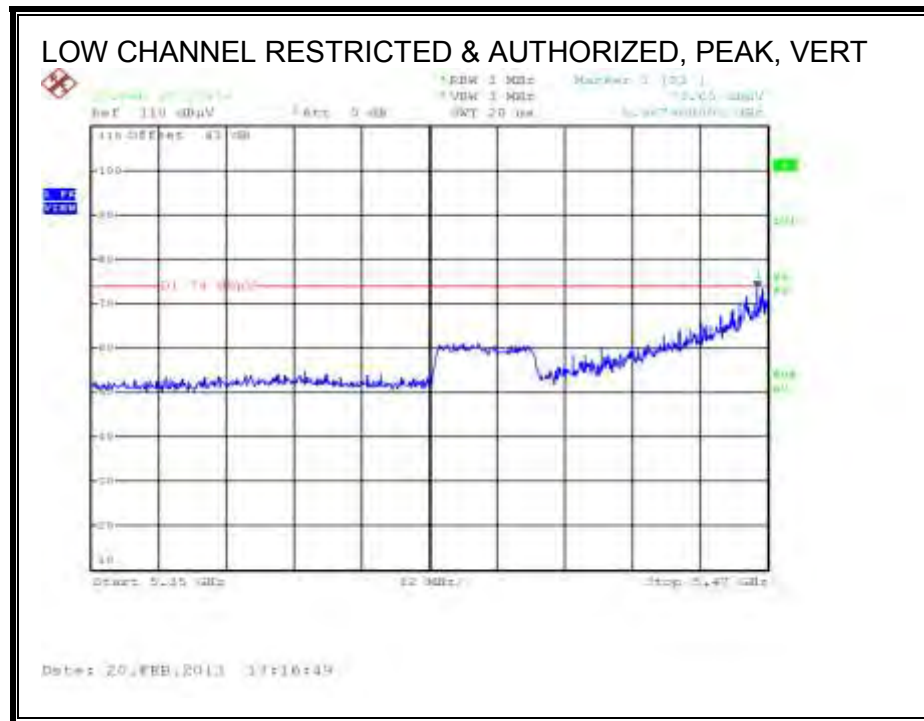
Covered by testing 11n HT20 CDD 2TX CHANNEL 144, total power across the two chains is higher than the power level the device will operate at.

9.2.31. 802.11n HT20 BF 2TX MODE, 5.6 GHz BAND

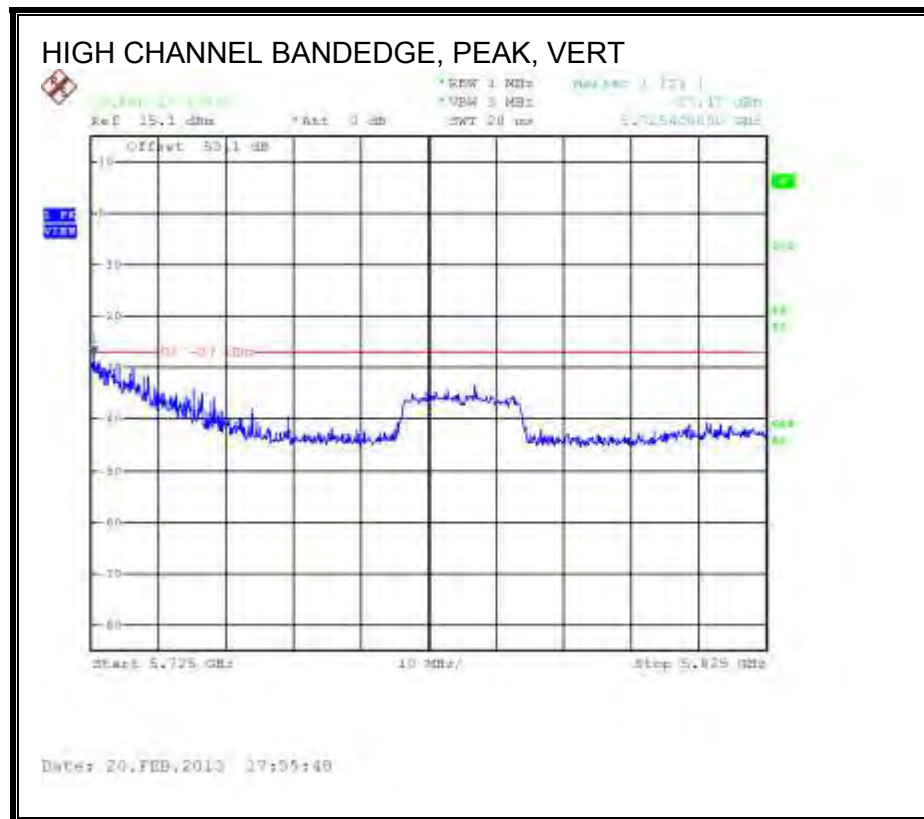
Covered by testing 11n AC20 BF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.32. 802.11n AC20 BF 2TX MODE, 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)



AUTHORIZED BANDEDGE (HIGH CHANNEL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber-A															
Company:		Broadcom													
Project #:		13U14796													
Date:		2/25/2013													
Test Engineer:		Vien Tran													
Configuration:		EUT / Laptop / Antenna													
Mode:		Tx 5.6GHz Band_11n AC20 TxBF 2TX													
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T73; S/N: 6717 @3m		T144 Miteq 3000A00931		T88 Miteq 26-40GHz		T89; ARA 18-26GHz; S/N:1049		FCC 15.205							
Hi Frequency Cables:															
3' cable 22807700		12' cable 22807600		20' cable 22807500		HPF		Reject Filter		Peak Measurements RBW=1MHz, VBW=1MHz Average Measurements RBW=1MHz VBW=10Hz					
3' cable 22807700		12' cable 22807600		20' cable 22807500		HPF_7.6GHz									
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fitr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CHANNEL (100), 5500MHz															
11.000	3.0	39.9	29.5	38.7	10.9	-36.0	0.0	0.7	54.2	43.8	74	54	-19.8	-10.2	V
11.000	3.0	37.6	28.4	38.7	10.9	-36.0	0.0	0.7	51.9	42.7	74	54	-22.1	-11.3	H
MID CHANNEL (116), 5580MHz															
11.160	3.0	40.5	31.4	38.9	11.0	-36.0	0.0	0.7	55.1	46.0	74	54	-18.9	-8.9	V
11.160	3.0	38.7	29.1	38.9	11.0	-36.0	0.0	0.7	53.5	43.7	74	54	-20.7	-10.3	H
HIGH CHANNEL (140), 5700MHz															
11.400	3.0	41.1	30.8	39.1	11.1	-35.9	0.0	0.7	56.1	45.8	74	54	-17.9	-8.2	V
11.400	3.0	39.5	29.8	39.1	11.1	-35.9	0.0	0.7	54.5	44.8	74	54	-19.5	-9.2	H
Rev: 01.30.11															
f	Measurement Frequency		Amp	Preamp Gain		Avg Lim	Average Field Strength Limit								
Dist	Distance to Antenna		D Corr	Distance Correct to 3 meters		Pk Lim	Peak Field Strength Limit								
Read	Analyzer Reading		Avg	Average Field Strength @ 3 m		Avg Mar	Margin vs. Average Limit								
AF	Antenna Factor		Peak	Calculated Peak Field Strength		Pk Mar	Margin vs. Peak Limit								
CL	Cable Loss		HPF	High Pass Filter											

9.2.33. 802.11n AC20 BF 2TX MODE, CHANNEL 144, 5.6 GHz BAND

BANDEDGE

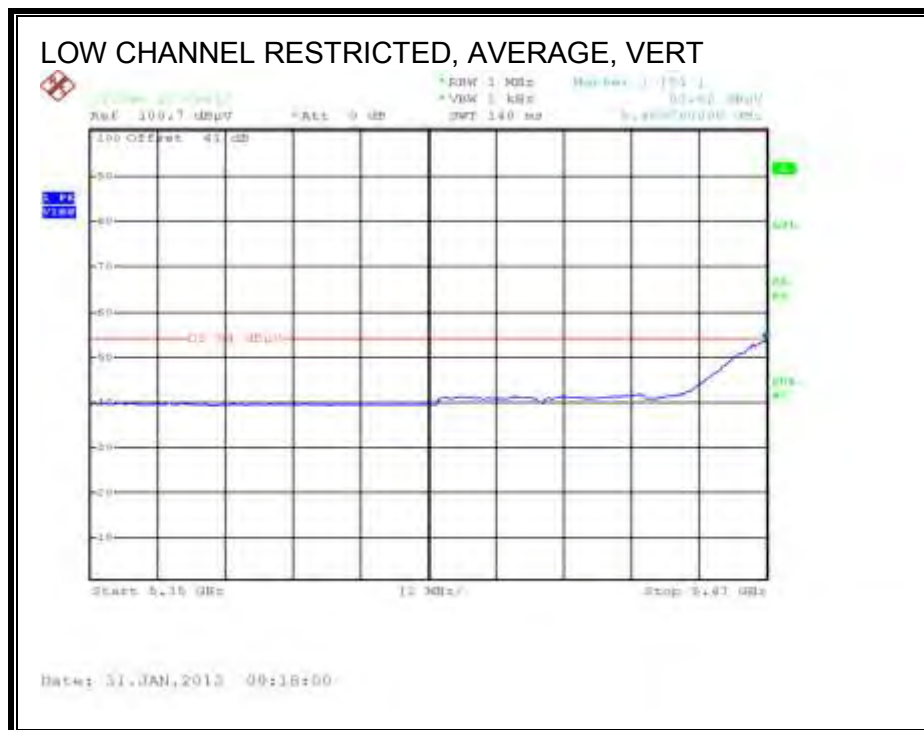
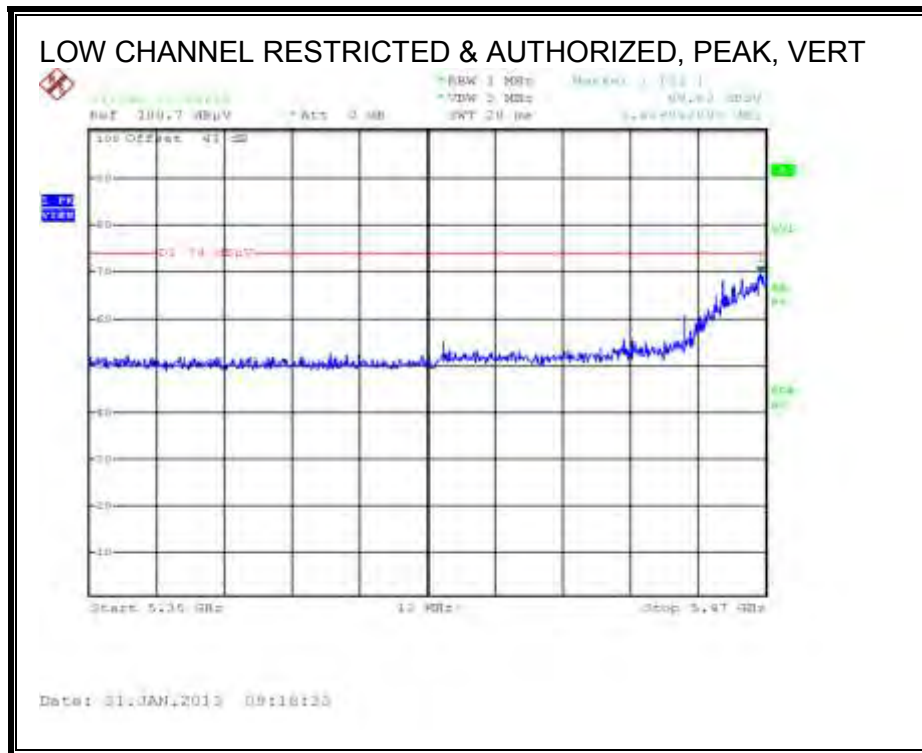
Not Applicable.

HARMONICS AND SPURIOUS EMISSIONS

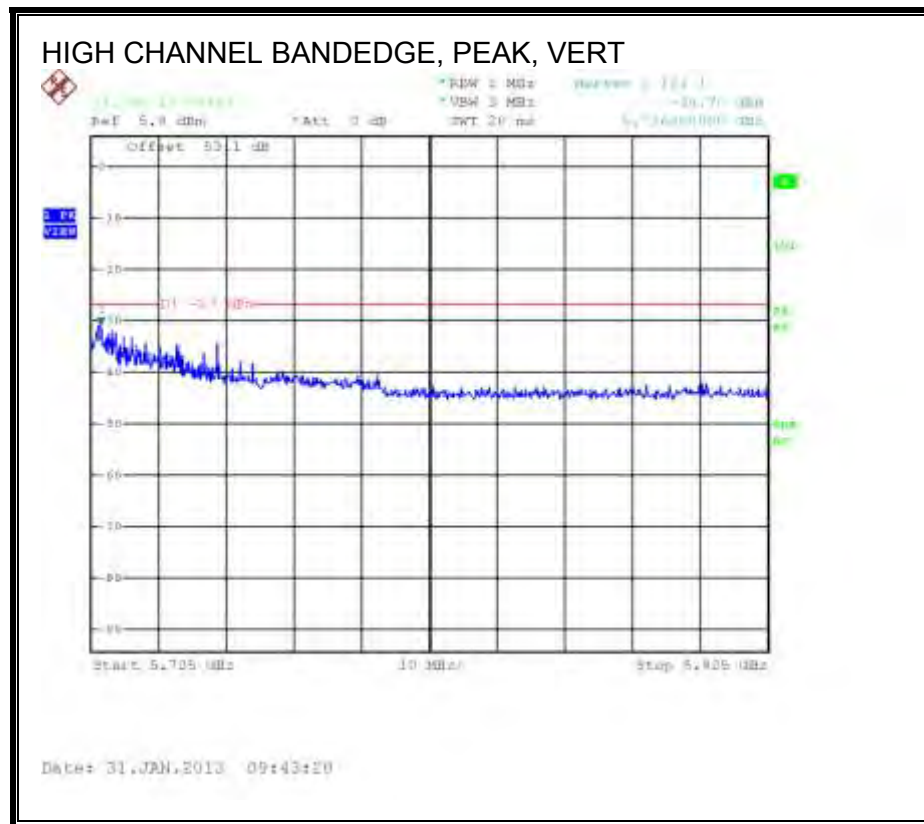
High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber-A															
Company:		Broadcom													
Project #:		13U14796													
Date:		2/25/2013													
Test Engineer:		Vien Tran													
Configuration:		EUT / Laptop / Antenna													
Mode:		Tx 5.6GHz Band_11a AC20 TxBF 2TX_Channel 144													
Test Equipment:															
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit			
T73; S/N: 6717 @3m			T144 Miteq 3008A00931			T88 Miteq 26.40GHz			T89; ARA 18.26GHz; S/N:1049			FCC 45.205			
RF Frequency Cables															
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF			Reject Filter			
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF_7 6GHz						
Peak Measurements RBW=1MHz; VBW=1MHz															
Average Measurements RBW=1MHz; VBW=10Hz															
f	Dist	Read Pk	Read Avg	AF	CL	Amp	D Corr	Ftr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
MID CHANNEL (144), 5720MHz															
11.440	3.0	43.2	33.4	39.1	11.1	-35.9	0.0	0.7	58.3	48.6	74	54	-15.7	-8.6	V
11.440	3.0	37.8	27.2	39.1	11.1	-35.9	0.0	0.7	52.9	42.3	74	54	-21.1	-11.7	H
Rev: 01_30_13															
f	Measurement Frequency		Amp	Preamp Gain		Avg Lim	Average Field Strength Limit								
Dist	Distance to Antenna		D Corr	Distance Correct to 3 meters		Pk Lim	Peak Field Strength Limit								
Read	Analyzer Reading		Avg	Average Field Strength @ 3 m		Avg Mar	Margin vs. Average Limit								
AF	Antenna Factor		Peak	Calculated Peak Field Strength		Pk Mar	Margin vs. Peak Limit								
CL	Cable Loss		HPF	High Pass Filter											

9.2.34. 802.11n HT40 MCS0 1TX MODE, 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)



AUTHORIZED BANDEDGE (HIGH CHANNEL)



HARMONICS AND SPURIOUS EMISSIONS

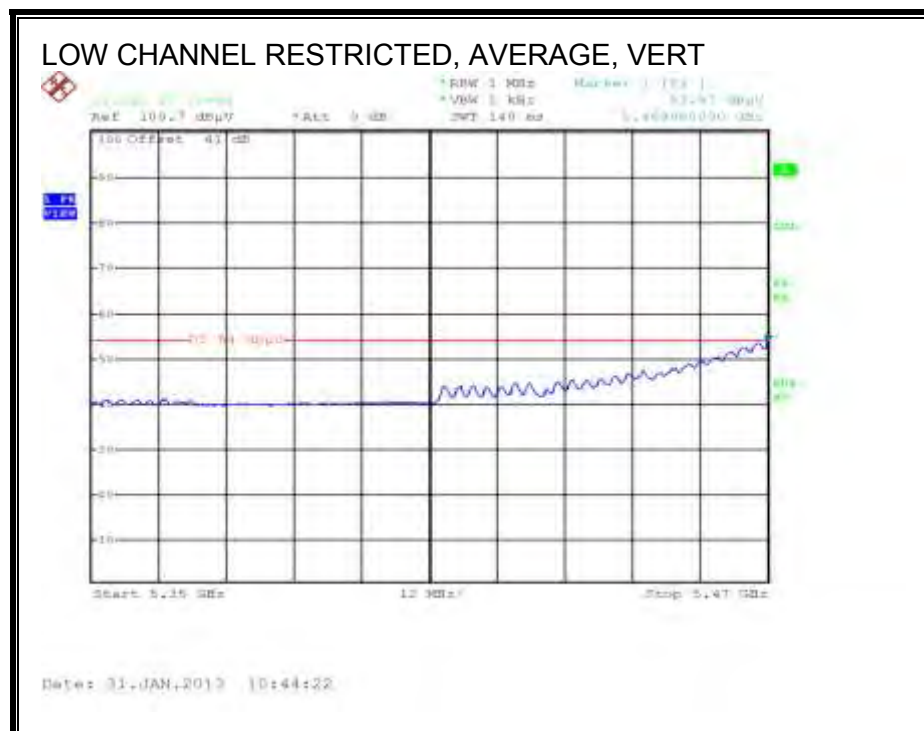
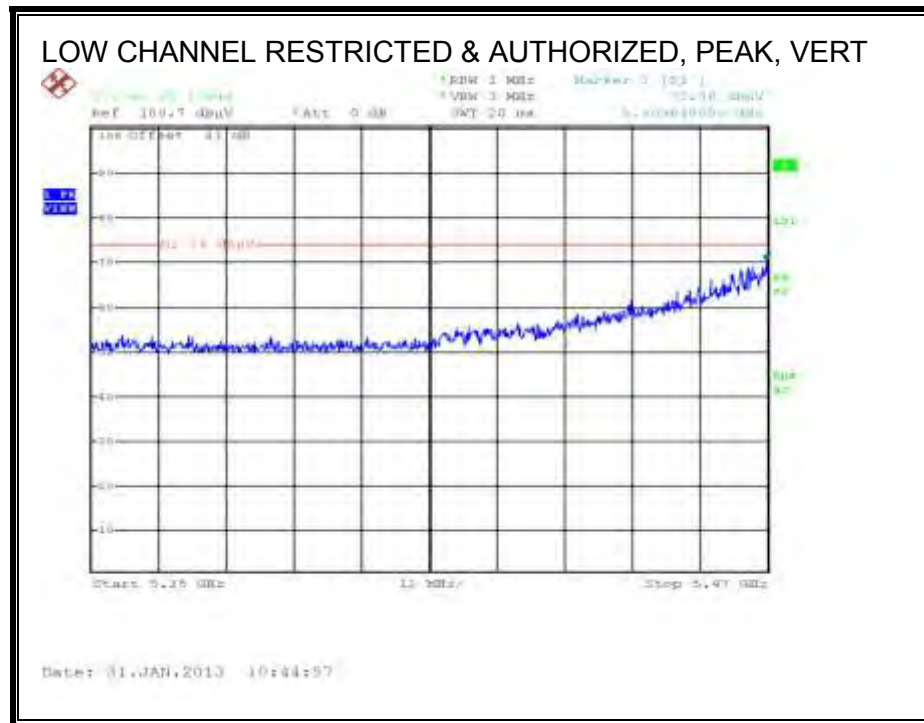
Covered by testing 11n HT40 CDD 2TX, total power across the two chains is higher than the power level the device will operate at.

9.2.35. 802.11n HT40 MCS0 1TX MODE_CHANNEL 142, 5.6 GHz BAND

Covered by testing 11n HT40 CDD 2TX, total power across the two chains is higher than the power level the device will operate at.

9.2.36. 802.11n HT40 CDD 2TX MODE, 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)



HIGH CHANNEL BANDEDGE, PEAK, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company: Broadcom Corporation
Project #: 13U14796
Date: 2/20/2013
Test Engineer: K. Nguyen
Configuration: EUT with Laptop and AC Adapter
Mode: 11u HT40 CDD MCS0 2TX; 5.6 GHz Band

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3000A00931	T88 Miteq 26-40GHz	T89; ARA 18-26GHz; S/N:1049	FCC 15.205

Hi Frequency Cables:

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=1MHz, VBW=3MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF_7.6GHz		Average Measurements RBW=1MHz, VBW=3 kHz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fitr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel 102 (5510 MHz)															
11.020	3.0	37.7	36.2	38.7	10.9	-36.0	0.0	0.7	52.1	44.6	74	54	-21.9	-9.4	V
11.020	3.0	39.5	31.0	38.7	10.9	-36.0	0.0	0.7	53.8	45.4	74	54	-20.2	8.6	H
Channel 110 (5550 MHz)															
11.100	3.0	40.1	31.2	38.8	11.0	-36.0	0.0	0.7	54.6	45.6	74	54	-19.4	-8.4	H
11.100	3.0	38.1	30.4	38.8	11.0	-36.0	0.0	0.7	52.6	44.5	74	54	-21.4	-9.1	V
Channel 134 (5670 MHz)															
11.340	3.0	36.7	28.3	39.0	11.1	-35.9	0.0	0.7	51.6	43.2	74	54	-22.4	-10.8	V
11.340	3.0	35.9	27.2	39.0	11.1	-35.9	0.0	0.7	50.8	42.1	74	54	-23.2	-11.9	H

Rev: 01.30.11

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

Note: the VBW used for the AVG measurements was 1 kHz. The 10 Hz shown the tabular data above this note is a typo.

9.2.37. 802.11n HT40 CDD 2TX MODE, CHANNEL 142 IN THE 5.6 GHz BAND

BANDEDGE

Not Applicable.

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber-A																
Company:		Broadcom Corporation														
Project #:		13U14796														
Date:		2/20/2013														
Test Engineer:		K. Nguyen														
Configuration:		EUT with Laptop and AC Adaptor														
Mode:		11n HT40 CDD 2TX; 5.6 GHz Band, Channel 142														
Test Equipment:																
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit								
T73; S/N: 6717 @3m		T144 Miteq 3008A00931		T88 Miteq 26.40GHz		T89; ARA 18.26GHz; S/N:1049		FCC 15.205								
10 Frequency Cables																
3' cable 22807700		12' cable 22807600		20' cable 22807500		HPF		Reject Filter		Peak Measurements RBW=1MHz, VBW=3MHz Average Measurements RBW=1MHz, VBW=1kHz						
3' cable 22807700		12' cable 22807600		20' cable 22807500		HPF_7.6GHz										
f	Dist	Read Pk	Read Avg	AF	CL	Amp	D Corr	Filtr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes	
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)	
Channel 142 (5710 MHz)																
11.420	3.0	37.7	27.7	39.1	11.1	-35.9	0.0	0.7	52.7	42.8	74	54	-21.3	-11.2	V	
11.420	3.0	36.2	26.8	39.1	11.1	-35.9	0.0	0.7	51.3	41.8	74	54	-22.7	-12.2	H	
Rev. 01_30.13																
f	Measurement Frequency					Amp	Preamp Gain					Avg Lim	Average Field Strength Limit			
Dist	Distance to Antenna					D Corr	Distance Correct to 3 meters					Pk Lim	Peak Field Strength Limit			
Read	Analyzer Reading					Avg	Average Field Strength @ 3 m					Avg Mar	Margin vs. Average Limit			
AF	Antenna Factor					Peak	Calculated Peak Field Strength					Pk Mar	Margin vs. Peak Limit			
CL	Cable Loss					HPF	High Pass Filter									

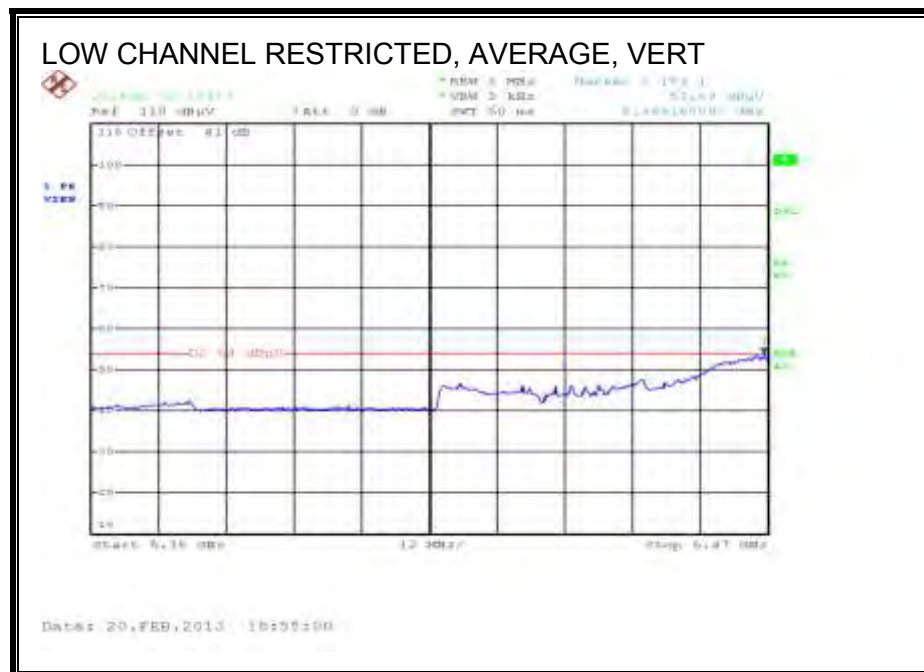
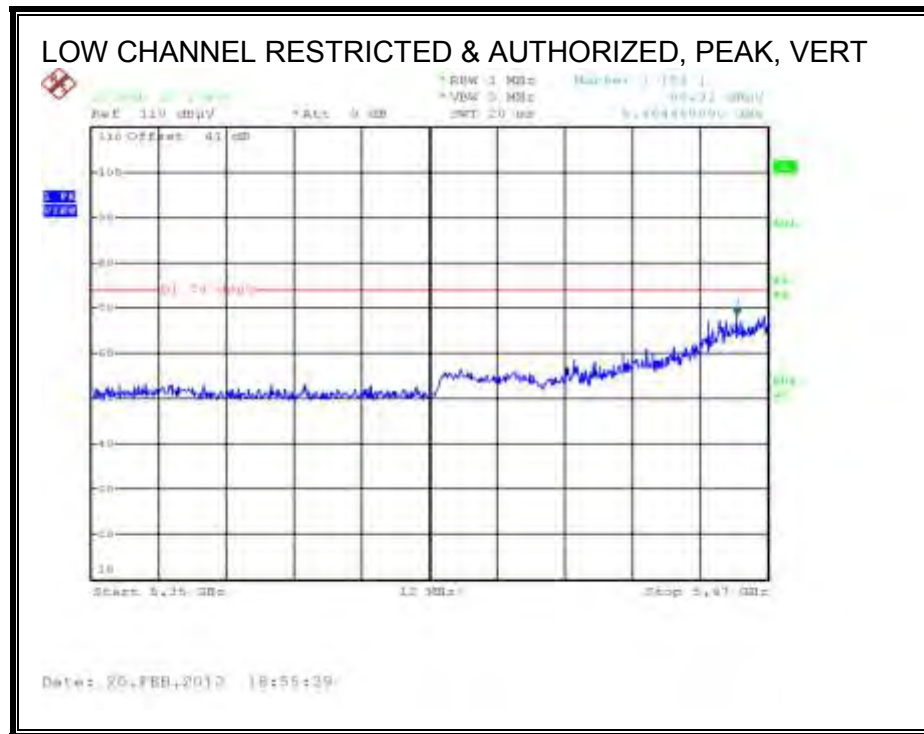
Note: the VBW used for the AVG measurements was 1 kHz. The 10 Hz shown the tabular data above this note is a typo.

9.2.38. 802.11n HT40 BF 2TX MODE, 5.6 GHz BAND

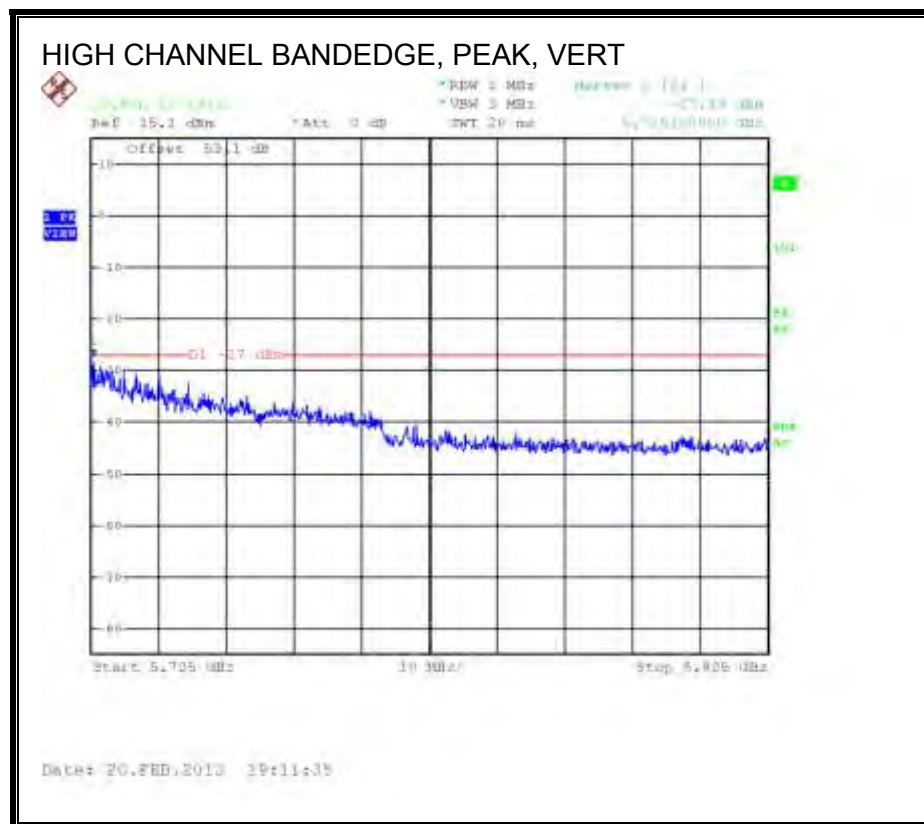
Covered by testing 11n AC40 BF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.39. 802.11n AC40 BF 2TX MODE, 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)



AUTHORIZED BANDEDGE (HIGH CHANNEL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company: Broadcom Corporation
Project #: 13U14796
Date: 2/24/2013
Test Engineer: K. Nguyen
Configuration: BCM94360C52 with Laptop, AC adapter, and antenna
Mode: Tx 5.6GHz Band 11n AC40 TxBF 2TX

Test Equipment:

Horn 1-18GHz T72; S/N: 6717 @3m	Pre-amplifier 1-26GHz T144 Miteq 3008A00931	Pre-amplifier 26-40GHz T88 Miteq 26-40GHz	Horn > 18GHz T89; ARA 18-26GHz; S/N: 1049	Limit FCC 15.205
------------------------------------	--	--	--	---------------------

Hi Frequency Cables:

3' cable 22807700 3' cable 22807700	12' cable 22807600 12' cable 22807600	20' cable 22807500 20' cable 22807500
--	--	--

HPF: HPF_7.6GHz
Reject Filter:
Peak Measurements: RBW=1MHz; VBW=1MHz
Average Measurements: RBW=1MHz; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filt dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel 102 (5510 MHz)															
11.020	3.0	44.0	34.7	35.7	10.9	-36.0	0.0	0.7	58.4	49.1	74	54	-15.6	-4.9	V
11.020	3.0	40.8	31.3	38.7	10.9	-36.0	0.0	0.7	55.2	45.7	74	54	-18.8	-8.3	H
Channel 110 (5550 MHz)															
11.100	3.0	39.7	31.7	38.8	11.0	-36.0	0.0	0.7	54.2	46.2	74	54	-10.8	-7.8	V
11.100	3.0	37.8	28.8	38.8	11.0	-36.0	0.0	0.7	52.4	43.3	74	54	-21.6	-10.7	H
Channel 134 (5670 MHz)															
11.340	3.0	43.0	33.7	39.0	11.1	-35.9	0.0	0.7	57.9	48.6	74	54	-16.1	-5.4	V
11.340	3.0	38.5	29.9	39.0	11.1	-35.9	0.0	0.7	53.4	44.8	74	54	-20.6	-9.2	H

Rev: 01.30.11

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

Note: the VBW used for the AVG measurements was 1 kHz. The 10 Hz shown the tabular data above this note is a typo.

9.2.40. 802.11n AC40 BF 2TX MODE, CHANNEL 142, 5.6 GHz BAND

BANDEDGE

Not Applicable.

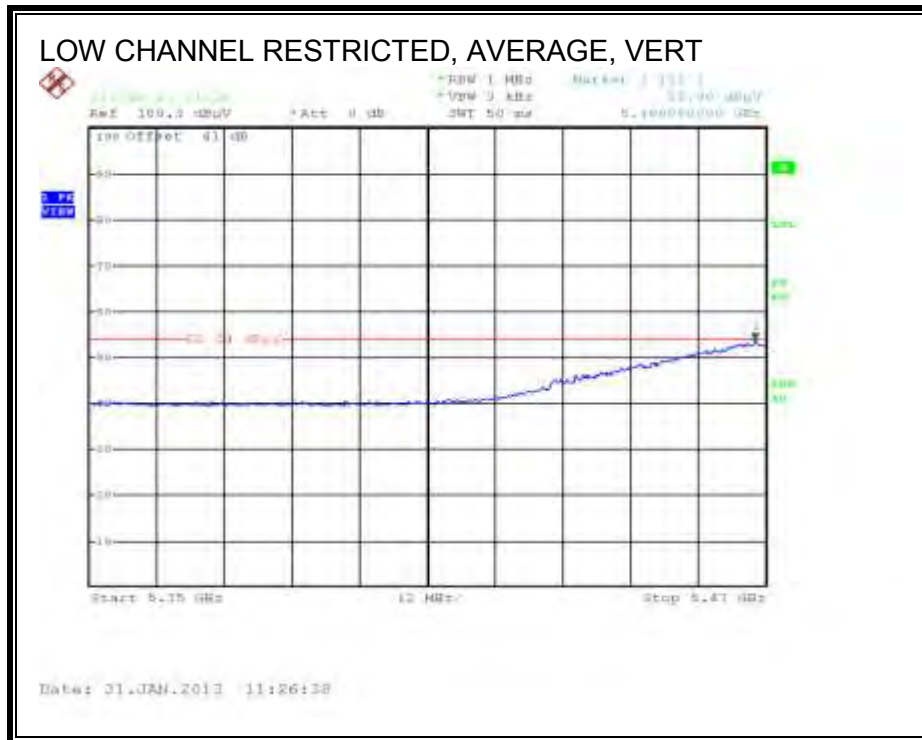
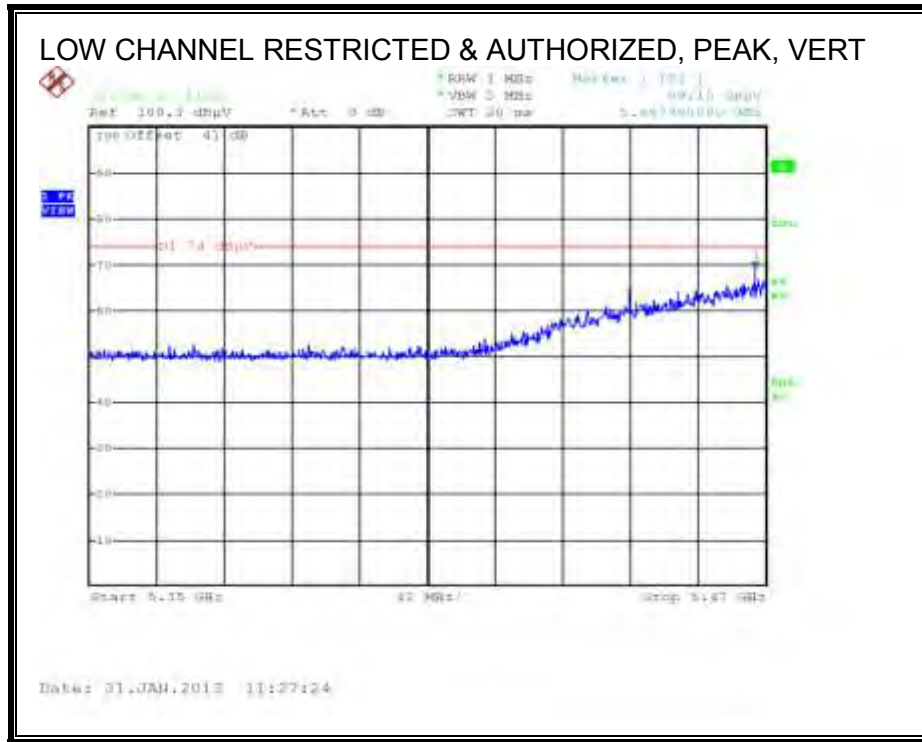
HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber-A																
Company:		Broadcom Corporation														
Project #:		13U14796														
Date:		2/24/2013														
Test Engineer:		K. Nguyen														
Configuration:		EUT with Laptop, AC adaptor, and antenna														
Mode:		Tx 5.6GHz Band_11n AC40 TxBF 2TX_Channel 142														
<u>Test Equipment:</u>																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit				
T73; S/N: 6717 @3m			T144 Miteq 3008A00931			T88 Miteq 26.40GHz			T89; ARA 18.26GHz; S/N:1049			FCC 15.205				
<u>Hi Frequency Cables</u>																
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF			Reject Filter			Peak Measurements RBW=1MHz; VBW=1MHz	
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF_7 6GHz						Average Measurements RBW=1MHz; VBW=10Hz	
f	Dist	Read Pk	Read Avg	AF	CL	Amp	D Corr	Ftr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes	
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)	
Channel 142 (MHz)																
11.420	3.0	43.8	34.6	39.1	11.1	-35.9	0.0	0.7	58.5	49.6	74	54	-15.5	-4.4	V	
11.420	3.0	40.6	32.2	39.1	11.1	-35.9	0.0	0.7	55.6	47.3	74	54	-18.4	-6.7	H	
Rev: 01/30/13																
f	Measurement Frequency					Amp	Preamp Gain					Avg Lim	Average Field Strength Limit			
Dist	Distance to Antenna					D Corr	Distance Correct to 3 meters					Pk Lim	Peak Field Strength Limit			
Read	Analyzer Reading					Avg	Average Field Strength @ 3 m					Avg Mar	Margin vs. Average Limit			
AF	Antenna Factor					Peak	Calculated Peak Field Strength					Pk Mar	Margin vs. Peak Limit			
CL	Cable Loss					HPF	High Pass Filter									

Note: the VBW used for the AVG measurements was 1 kHz. The 10 Hz shown in the tabular data above this note is a typo.

9.2.41. 802.11n AC80 1TX MODE, 5.6 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



RESTRICTED BANDEDGE (HIGH CHANNEL)

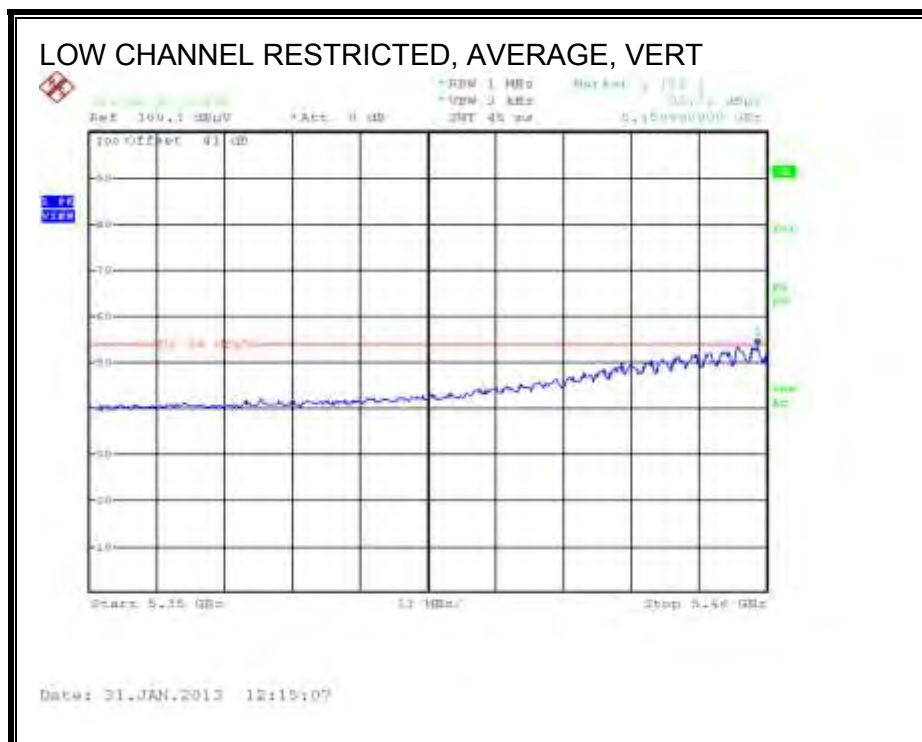
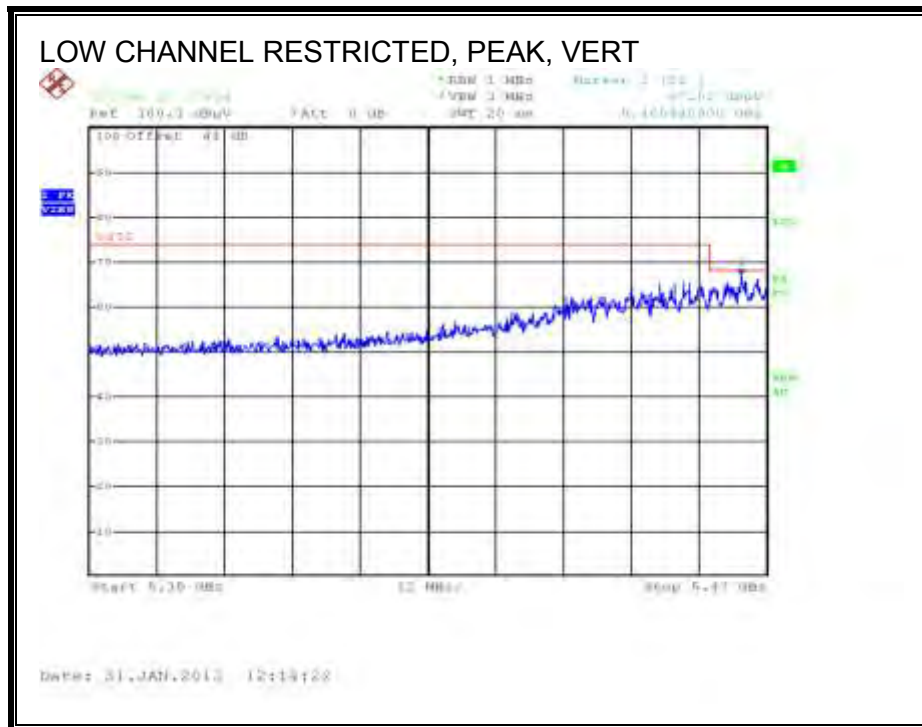
Not Applicable

HARMONICS AND SPURIOUS EMISSIONS

Covered by testing 11n AC80 CDD 2TX, total power across the two chains is higher than the power level the device will operate at.

9.2.42. 802.11n AC80 CDD MCS0 2TX MODE, 5.6 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



RESTRICTED BANEDGE (HIGH CHANNEL)

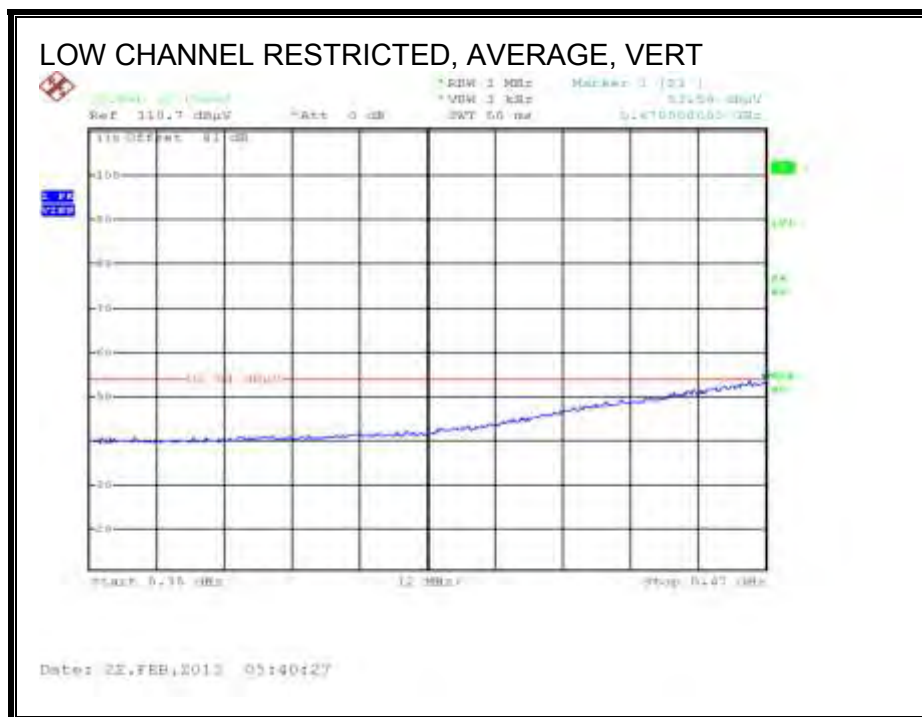
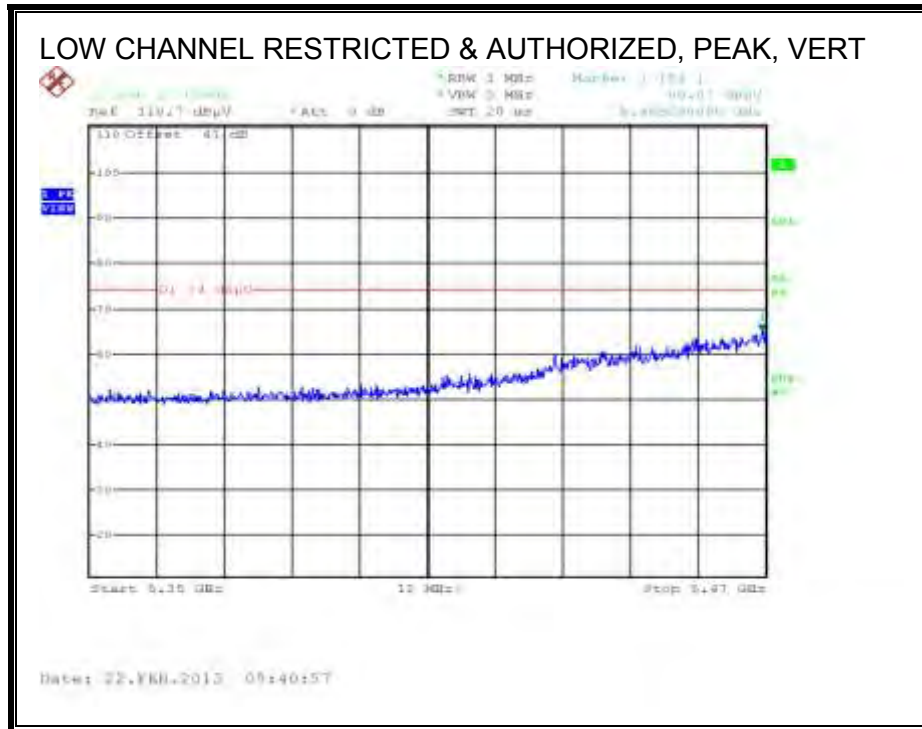
Not Applicable.

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber-A															
Company:		Broadcom													
Project #:		13U14796													
Date:		1/30/2013													
Test Engineer:		Kris Nguyen/Danny Yu													
Configuration:		EUT / Laptop													
Mode:		Tx 5.6GHz Band_11a AC80 2TX_Channel 106 & 138													
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz				Limit					
T73; S/N: 6717 @3m		T144 Miteq 3008A00931		T88 Miteq 26-40GHz		T89; ARA 18-26GHz; S/N:1049				FCC 15.205					
NA Frequency Cables															
3' cable 22807700		12' cable 22807800		20' cable 22807500		HPF				Reject Filter					
3' cable 22807700		12' cable 22807800		20' cable 22807500		HPF_7.6GHz									
f	Dist	Read Pk	Read Avg	AF	CL	Amp	D Corr	Fitr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
Channel 106															
11.060	3.0	37.0	27.9	38.8	10.9	-36.8	0.0	0.7	51.4	42.3	74	54	-22.6	-11.7	V
11.360	3.0	36.4	26.6	38.8	10.9	-36.8	0.0	0.7	50.9	41.1	74	54	-23.1	-12.9	H
Channel 138															
11.380	3.0	41.6	31.8	39.0	11.1	-35.9	0.0	0.7	55.9	46.8	74	54	-18.1	-7.2	V
11.380	3.0	35.6	26.6	39.0	11.1	-35.9	0.0	0.7	50.5	41.6	74	54	-23.5	-12.4	H
Rev: 01/30/13															
f	Measurement Frequency			Amp	Preamp Gain			Avg Lim	Average Field Strength Limit						
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters			Pk Lim	Peak Field Strength Limit						
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m			Avg Mar	Margin vs. Average Limit						
AF	Antenna Factor			Peak	Calculated Peak Field Strength			Pk Mar	Margin vs. Peak Limit						
CL	Cable Loss			HPF	High Pass Filter										

9.2.43. 802.11n AC80 BF 2TX MODE, 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)



AUTHORIZED BANDEDGE (HIGH CHANNEL)

Not Applicable.

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber-A															
Company:		Broadcom Corporation													
Project #:		13U14796													
Date:		2/24/2013													
Test Engineer:		K. Nguyen													
Configuration:		EUT with Laptop, AC adaptor, and antenna													
Mode:		Tx 5.6GHz Band_11a AC80 TxBF 2TX													
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T73; S/N: 6717 @3m		T144 Miteq 3008A00931		T88 Miteq 26-40GHz		T89; ARA 18.26GHz; S/N:1049		FCC 45.205							
NA Frequency Cables															
3' cable 22807700		12' cable 22807800		20' cable 22807500		HPF		Reject Filter		Peak Measurements RBW=1MHz; VBW=3MHz Average Measurements RBW=1MHz; VBW=10Hz					
3' cable 22807700		12' cable 22807800		20' cable 22807500		HPF_7.6GHz									
f GHz	Dist (m)	Read Pk dBuV	Read Avg dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Ftr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel 106 (5530 MHz)															
11.060	3.0	38.9	28.9	38.8	10.9	-36.6	0.0	0.7	50.3	40.3	74	54	-23.7	-13.7	V
11.060	3.0	36.3	26.1	38.8	10.9	-36.0	0.0	0.7	50.7	40.6	74	54	-23.3	-13.4	H
Channel 138 (5690 MHz)															
11.380	3.0	46.2	36.2	39.0	11.1	-35.9	0.0	0.7	61.1	51.2	74	54	-12.9	-2.9	V
11.380	3.0	46.6	36.4	39.0	11.1	-35.9	0.0	0.7	61.6	51.4	74	54	-12.4	-2.6	H
Rev: 0130.13															
f	Measurement Frequency			Amp	Preamp Gain			Avg Lim	Average Field Strength Limit						
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters			Pk Lim	Peak Field Strength Limit						
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m			Avg Mar	Margin vs. Average Limit						
AF	Antenna Factor			Peak	Calculated Peak Field Strength			Pk Mar	Margin vs. Peak Limit						
CL	Cable Loss			HPF	High Pass Filter										

9.3. WORST-CASE BELOW 1 GHz

6 WORST EMISSIONS

Project : 13U14796
Company Name: Broadcom
Model / Config: BCM94360CS2
Mode: Tx Worst Case
Test By: Vien Tran

Horizontal 30 - 1000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T185 Antenna Factor (dB)	T64 preamp/cable loss loop (dB)	dB (uVolts/meter)	FCC Part 15B Class B 3m	Margin	Height [cm]	Polarity
1	85.25	52.75	PK	7.5	-27.1	33.15	40.0	-6.85	300	Horz
3	128.87	50.11	PK	14.1	-26.8	37.41	43.5	-6.09	200	Horz
5	276.68	46.21	PK	13.3	-26	33.51	46.0	-12.49	100	Horz
8	415.29	47.33	PK	16.1	-25.3	38.13	46.0	-7.87	100	Horz
9	443.88	45.80	PK	16.7	-25.1	37.40	46.0	-8.60	200	Horz
15	960.02	31.16	PK	22.7	-22.5	31.36	54.0	-22.64	100	Horz

Vertical 30 - 1000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T185 Antenna Factor (dB)	T64 preamp/cable loss loop (dB)	dB (uVolts/meter)	FCC Part 15B Class B 3m	Margin	Height [cm]	Polarity
16	84.76	52.16	PK	7.5	-27.1	32.56	40.0	-7.44	200	Vert
18	128.87	47.12	PK	14.1	-26.8	34.42	43.5	-9.08	100	Vert
20	275.71	43.83	PK	13.3	-26.1	31.03	46.0	-14.97	200	Vert
23	415.29	39.80	PK	16.1	-25.3	30.60	46.0	-15.40	100	Vert
24	443.88	39.83	PK	16.7	-25.1	31.43	46.0	-14.57	100	Vert
30	966.80	30.62	PK	22.8	-22.8	30.62	54.0	-23.38	100	Vert

PK - Peak detector
QP - Quasi-Peak detector
LnAv - Linear Average detector
LgAv - Log Average detector
Av - Average detector
CAV - CISPR Average detector
RMS - RMS detection
CRMS - CISPR RMS detection
PK1 - KDB 789033 v01r02 G)5) Method: Peak
AD1 - KDB 789033 v01r02 G)6) Method: AD Primary Power Average
VB1 - KDB 789033 v01r02 G)6) Method: VB Alternative Reduced Video
PK2 - KDB558074 v02 10.2.3.2/8.1.1 Method: Maximum Peak
MAV1 - KDB558074 v02 10.2.3.2/8.2.1 Option 1 Maximum RMS Average
MAV2 - KDB558074 v02 10.2.3.3/8.2.2 Option 2 Slow Sweep RMS Average

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

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

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

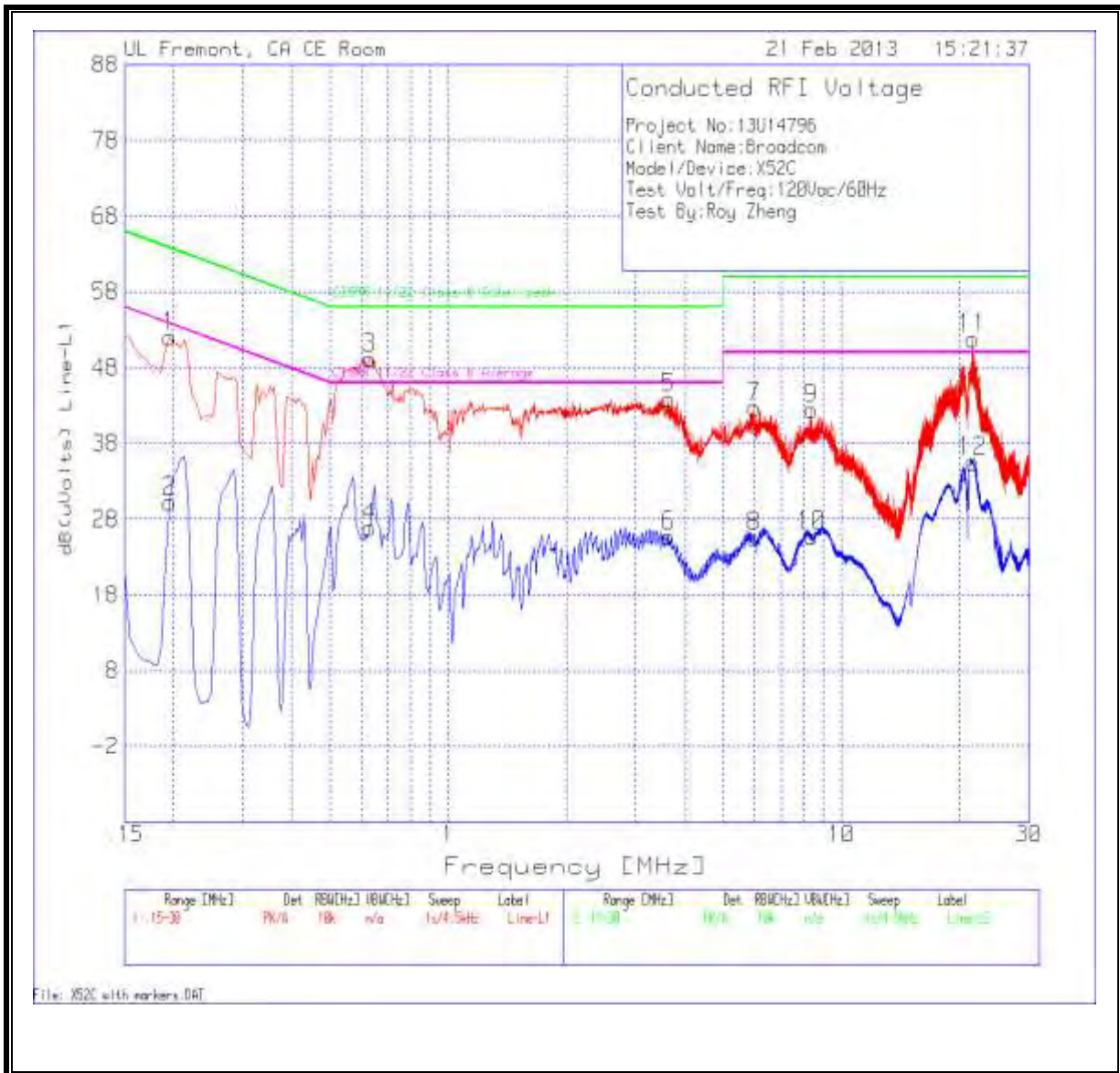
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

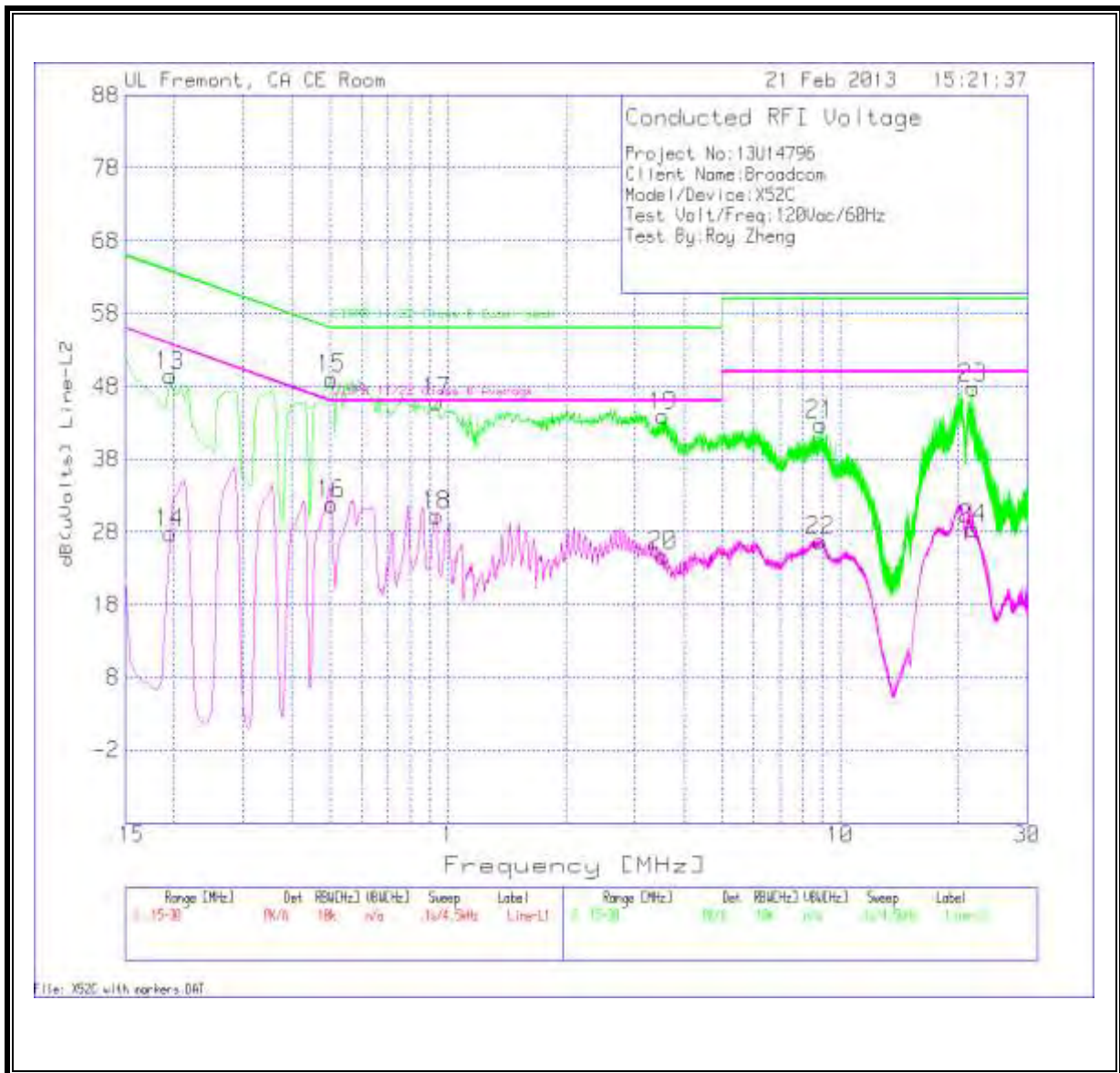
6 WORST EMISSIONS

Project No:		13U14796							
Client Name:		Broadcom							
Model/Device:		BCM94360CS2							
Test Volt/Freq:		120Vac/60Hz							
Test By:		Roy Zheng							
Test Frequency	Meter Reading	Detector	T24 IL L1.TXT (dB)	LC Cables 1&3.TXT (dB)	dB(uVolts)	CISPR 11/22 Class B Quasi-peak	Margin	CISPR 11/22 Class B Average	Margin
Line-L1 .15 - 30MHz									
0.195	51.88	PK	0.1	0	51.98	63.8	-11.82	-	-
0.195	30.16	Av	0.1	0	30.26	-	-	53.8	-23.54
0.6315	49.11	PK	0.1	0	49.21	56	-6.79	-	-
0.6315	26.73	Av	0.1	0	26.83	-	-	46	-19.17
3.6375	43.58	PK	0.2	0.1	43.88	56	-12.12	-	-
3.6375	25.42	Av	0.2	0.1	25.72	-	-	46	-20.28
6.0045	42.6	PK	0.1	0.1	42.8	60	-17.2	-	-
6.0045	25.42	Av	0.1	0.1	25.62	-	-	50	-24.38
8.394	42.24	PK	0.1	0.1	42.44	60	-17.56	-	-
8.394	25.52	Av	0.1	0.1	25.72	-	-	50	-24.28
21.5655	51.23	PK	0.3	0.2	51.73	60	-8.27	-	-
21.5655	35.07	Av	0.3	0.2	35.57	-	-	50	-14.43
Line-L2 .15 - 30MHz									
0.195	49.4	PK	0.1	0	49.5	63.8	-14.3	-	-
0.195	27.74	Av	0.1	0	27.84	-	-	53.8	-25.96
0.5055	48.99	PK	0.1	0	49.09	56	-6.91	-	-
0.5055	31.69	Av	0.1	0	31.79	-	-	46	-14.21
0.9375	45.71	PK	0.1	0	45.81	56	-10.19	-	-
0.9375	30.11	Av	0.1	0	30.21	-	-	46	-15.79
3.534	43.72	PK	0.1	0.1	43.92	56	-12.08	-	-
3.534	24.45	Av	0.1	0.1	24.65	-	-	46	-21.35
8.907	42.59	PK	0.1	0.1	42.79	60	-17.21	-	-
8.907	26.6	Av	0.1	0.1	26.8	-	-	50	-23.2
21.759	47.25	PK	0.3	0.2	47.75	60	-12.25	-	-
21.759	27.99	Av	0.3	0.2	28.49	-	-	50	-21.51
PK - Peak detector QP - Quasi-Peak detector Av - Average detector									

LINE 1 RESULTS



LINE 2 RESULTS



11. DYNAMIC FREQUENCY SELECTION

11.1. OVERVIEW

11.1.1. LIMITS

INDUSTRY CANADA

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

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

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

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

FCC

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

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

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

Table 2: Applicability of DFS requirements during normal operation

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

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

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

Table 4: DFS Response requirement values

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

Table 5 – Short Pulse Radar Test Waveforms

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

Table 6 – Long Pulse Radar Test Signal

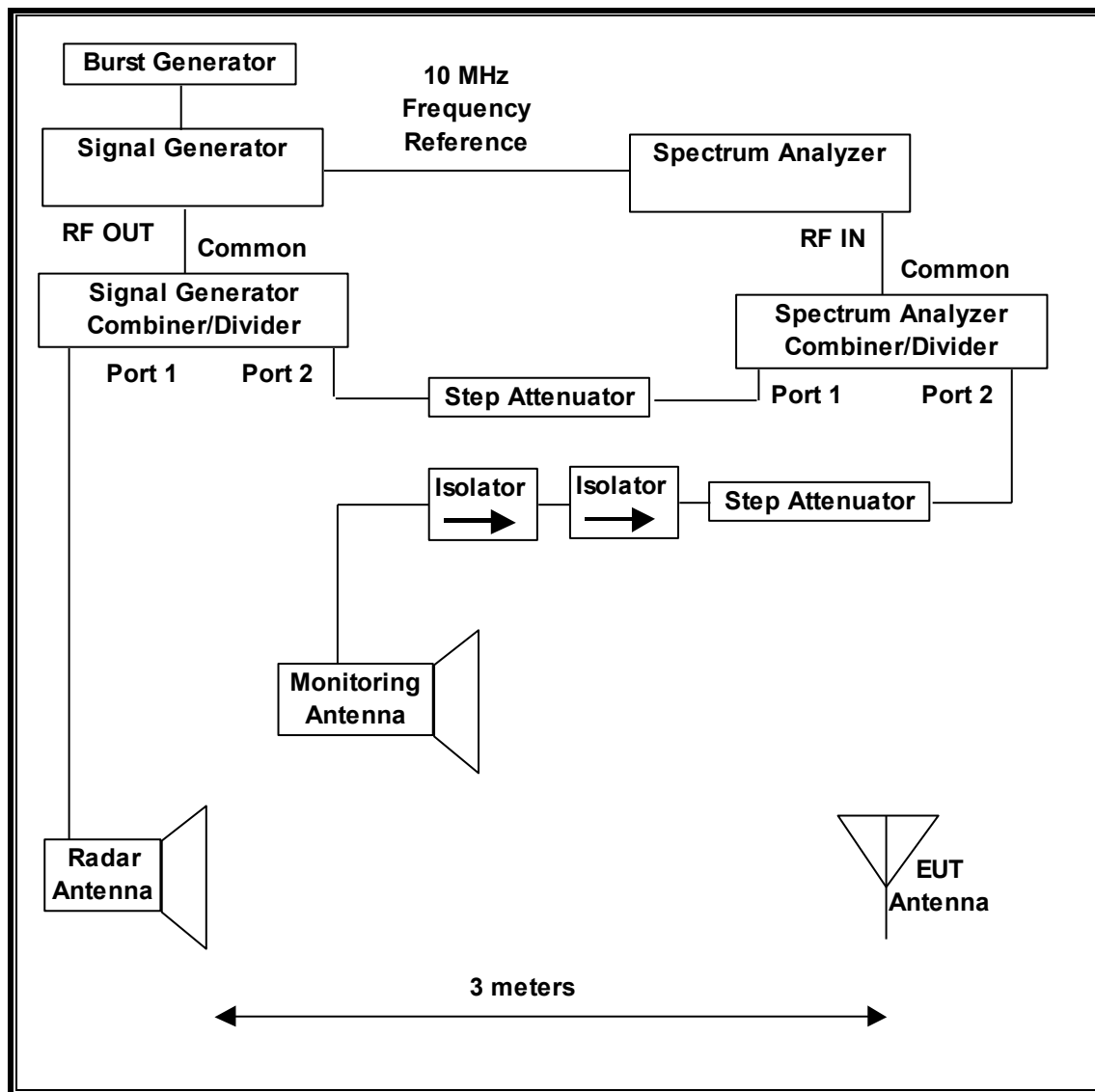
Radar Waveform	Bursts	Pulses per Burst	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Minimum Percentage of Successful Detection	Minimum Trials
5	8-20	1-3	50-100	5-20	1000-2000	80%	30

Table 7 – Frequency Hopping Radar Test Signal

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

11.1.2. TEST AND MEASUREMENT SYSTEM

RADIATED METHOD SYSTEM BLOCK DIAGRAM



SYSTEM OVERVIEW

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

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

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

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

SYSTEM CALIBRATION

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

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

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

ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL

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

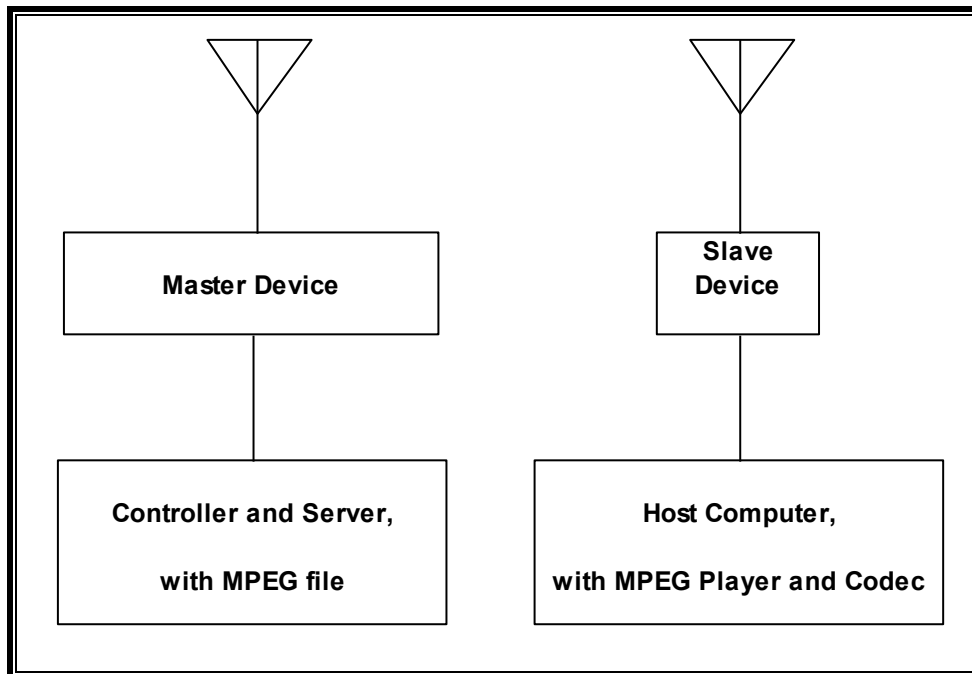
TEST AND MEASUREMENT EQUIPMENT

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

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

11.1.3. SETUP OF EUT (CLIENT MODE)

RADIATED METHOD EUT TEST SETUP



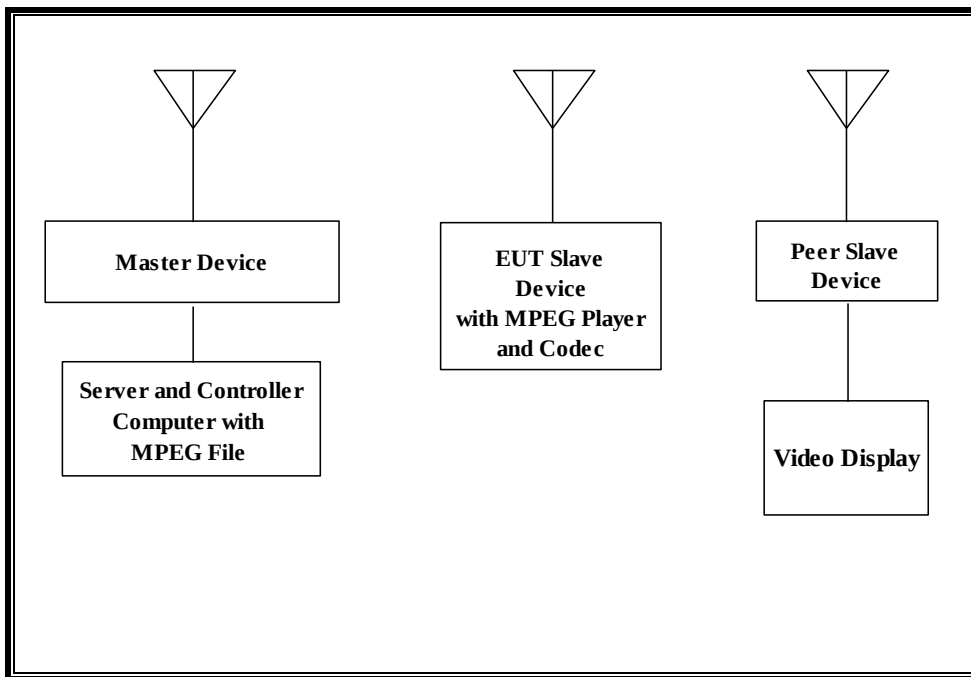
SUPPORT EQUIPMENT

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

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
N600 Wireless Dual Band Router	Netgear	WNDR3400	2BK311730FF6B	PY309300116
AC Adapter (AP)	Netgear	FA-1201500SJA / FA-1201500SUA	4F105116T10209045B	DoC
Notebook PC (Controller/Server)	HP	Pavilion zv6000	CND5290401	DoC
AC Adapter	HP	PA-1121-12HD	58B240ALLRK0HU	DoC
Notebook PC (Host)	Lenovo	0679	CBU4473193	DoC
AC Adapter (Host PC)	Lite On	PA-1650-56LC	11S36001615ZZ400	DoC

11.1.4. SETUP OF EUT (CLIENT-TO-CLIENT COMMUNICATIONS MODE)

RADIATED METHOD EUT TEST SETUP



SUPPORT EQUIPMENT

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

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
N600 Wireless Dual Band Router	Netgear	WNDR3400	2BK311730FF6B	PY309300116
AC Adapter (AP)	Netgear	FA-1201500SJA / FA-1201500SUA	4F105116T10209045B	DoC
Notebook PC (Controller/Server)	HP	Pavilion zv6000	CND5290401	DoC
AC Adapter (Controller/Server PC)	HP	PA-1121-12HD	58B240ALLRK0HU	DoC
Notebook PC (EUT Host)	Apple	MacBook Air A1465	C02JF8GSDRV6	DoC
AC Adapter (Host PC)	Lite On Technology	PA-1450-8	C0623350GF4F6V7AR	DoC
Apple TV	Apple	A1427	DY3J8RZ3DRHN	BCGA1427
Video Display	Coby Electronics	LEDVD1596	LGWH4XXXT07T02S01	DoC

11.1.5. DESCRIPTION OF EUT

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

The EUT is a Slave Device without radar detection capability.

The EUT is a Slave Device without Radar Detection.

The highest power level within these bands is 29.26 dBm EIRP in the 5250-5350 MHz band and 29.42 dBm EIRP in the 5470-5725 MHz band.

The highest gain antenna assembly consists of 2 antennas with individual gains of 6.12 dBi, and 5.57 dBi in the 5250-5350 MHz band and 5.77 dBi and 6.61 dBi in the 5470-5725 MHz band. The lowest gain antenna assembly consists of 2 antennas with individual gains of 5.27 dBi and 5.89 dBi in the 5250-5350 MHz band and 4.93 dBi, and 5.21 dBi in the 5470-5725 MHz band.

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

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

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

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

WLAN traffic exceeding the transmitter minimum activity ratio of 30% is generated by streaming the compressed video file "6 ½ Magic Hours" from the Master to the Slave in full motion video using the Microsoft Media Player version 11.0.5721.5280 for Standard Client mode and Quick Time Media Player version 10.2 (603.6) for Client to Client Communications mode..

TPC is required since the maximum EIRP is greater than 500 mW (27 dBm).

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

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

UNIFORM CHANNEL SPREADING

This requirement is not applicable to Slave radio devices.

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

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

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

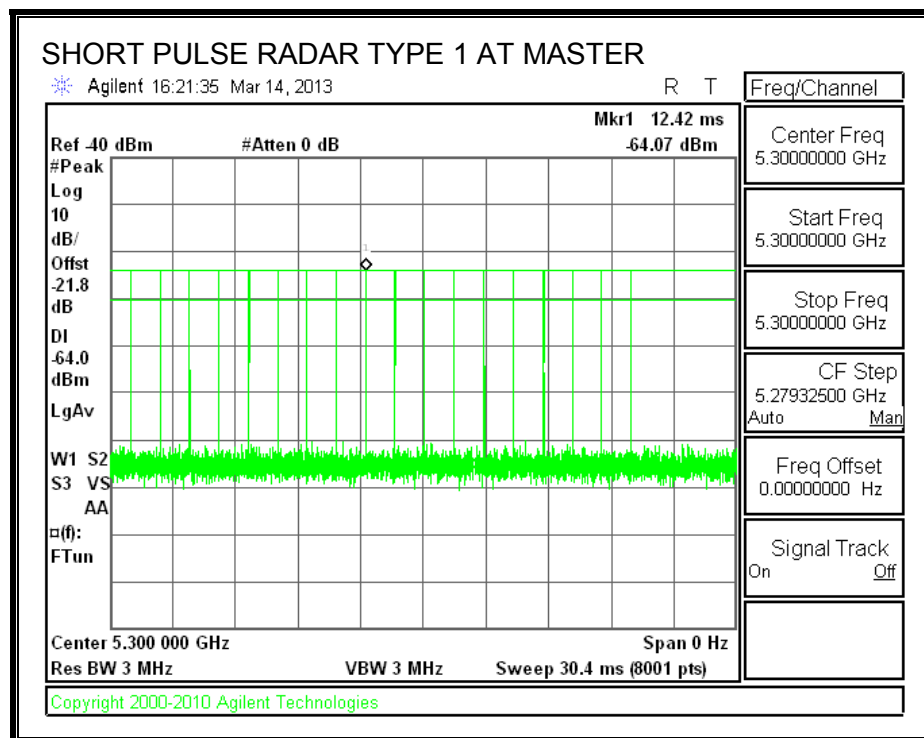
11.2. CLIENT MODE RESULTS FOR 20 MHz BANDWIDTH

11.2.1. TEST CHANNEL

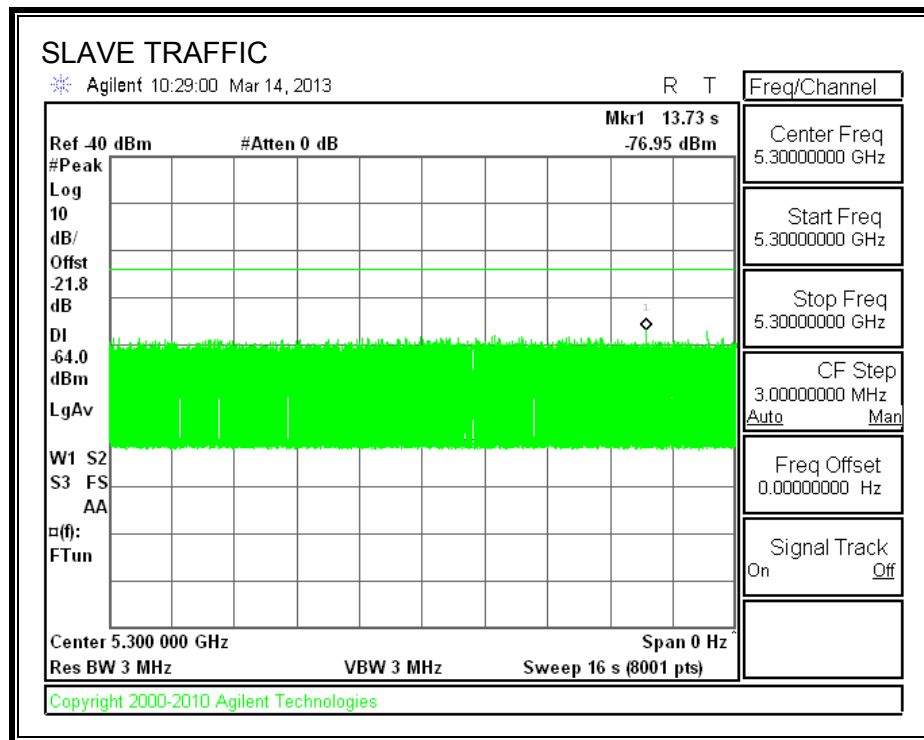
All tests were performed at a channel center frequency of 5300 MHz.

11.2.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



11.2.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

11.2.4. MOVE AND CLOSING TIME

REPORTING NOTES

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

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

The aggregate channel closing transmission time is calculated as follows:

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

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

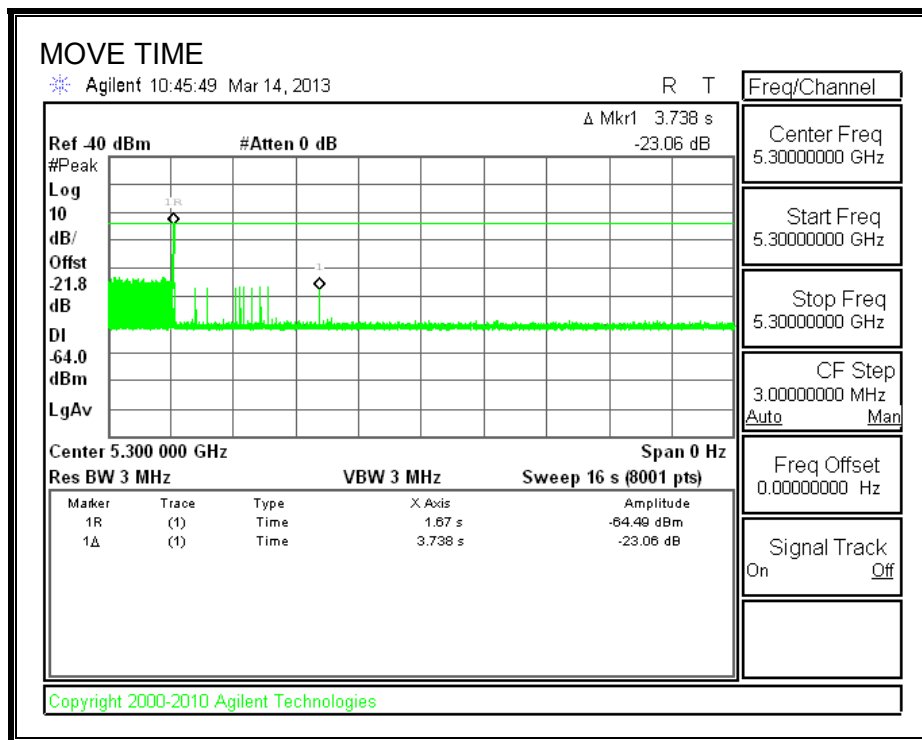
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

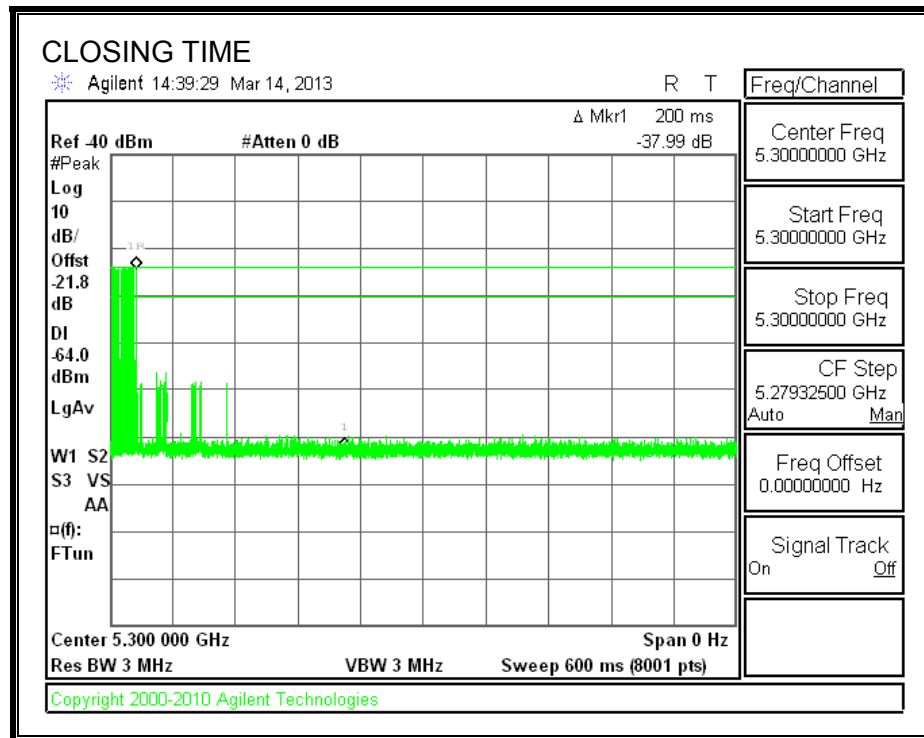
Agency	Channel Move Time (sec)	Limit (sec)
FCC / IC	3.738	10

Agency	Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
FCC	18.0	60
IC	28.0	260

MOVE TIME

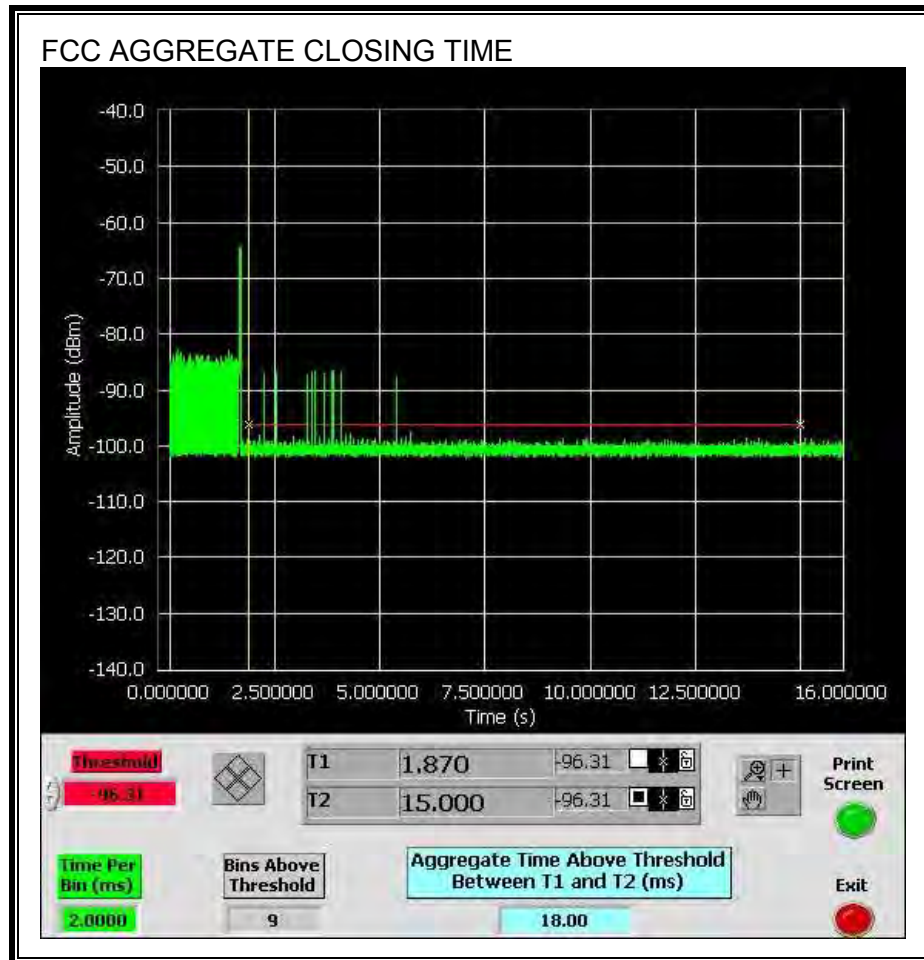


CHANNEL CLOSING TIME

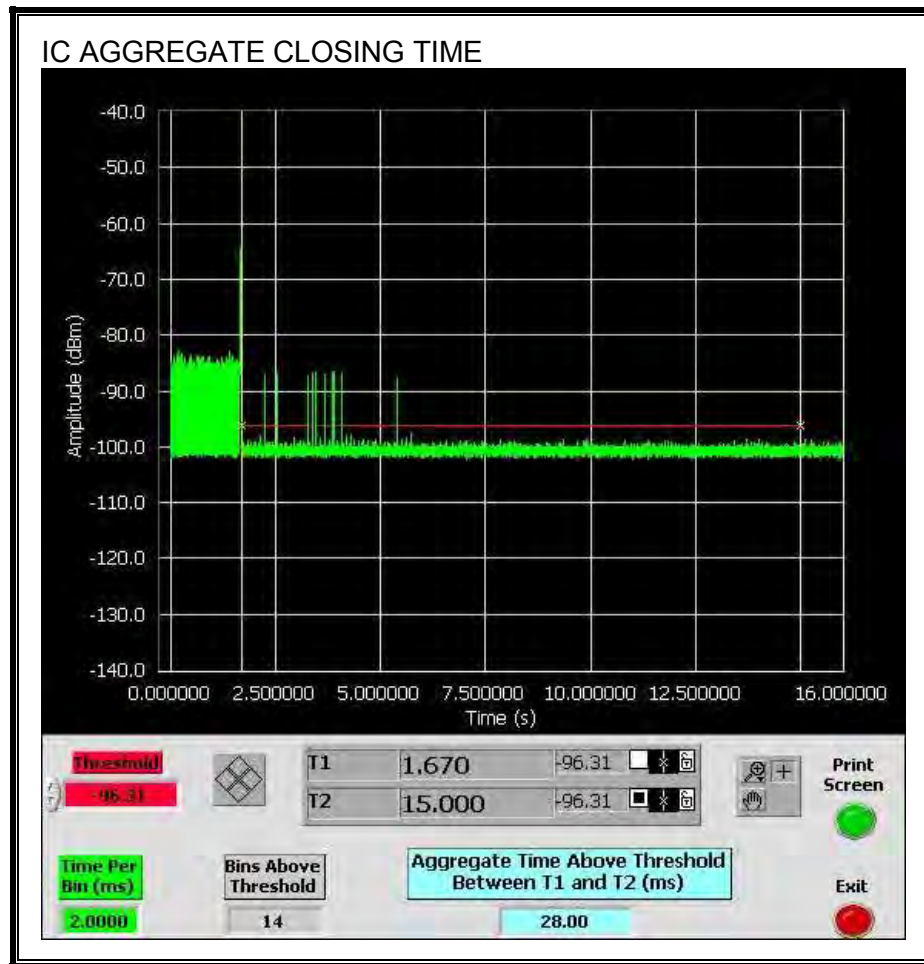


AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

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



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



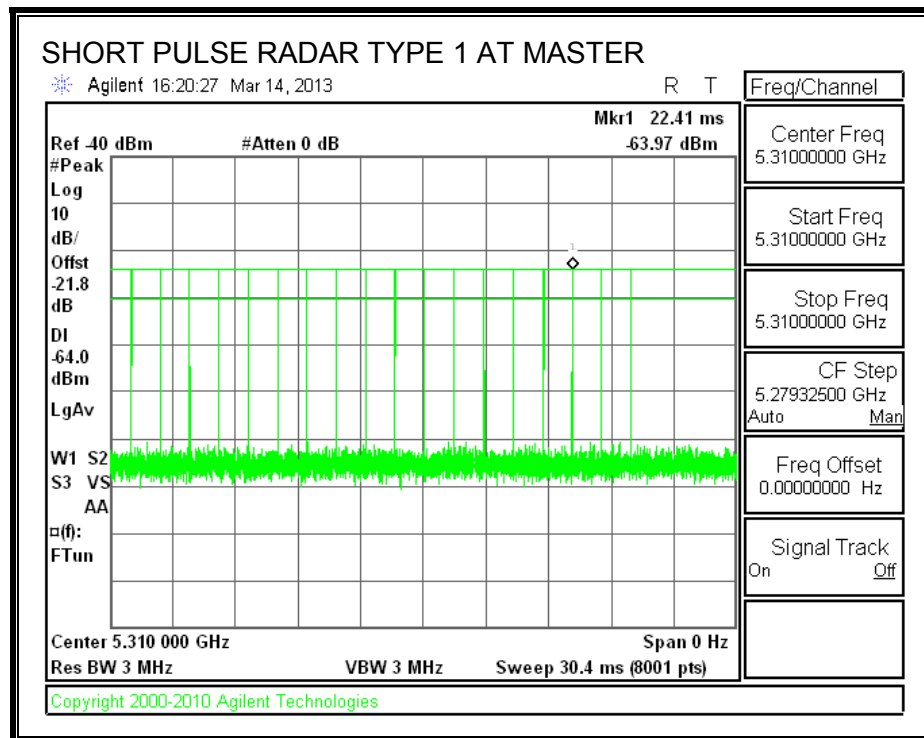
11.3. CLIENT MODE RESULTS FOR 40 MHz BANDWIDTH

11.3.1. TEST CHANNEL

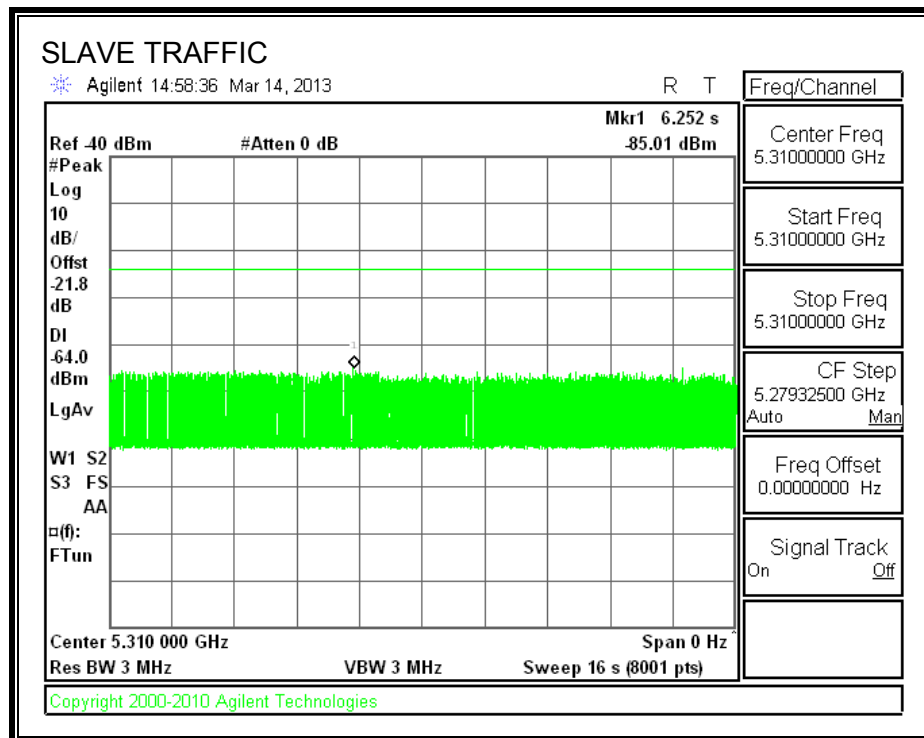
All tests were performed at a channel center frequency of 5310 MHz.

11.3.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



11.3.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

11.3.4. MOVE AND CLOSING TIME

REPORTING NOTES

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

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

The aggregate channel closing transmission time is calculated as follows:

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

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

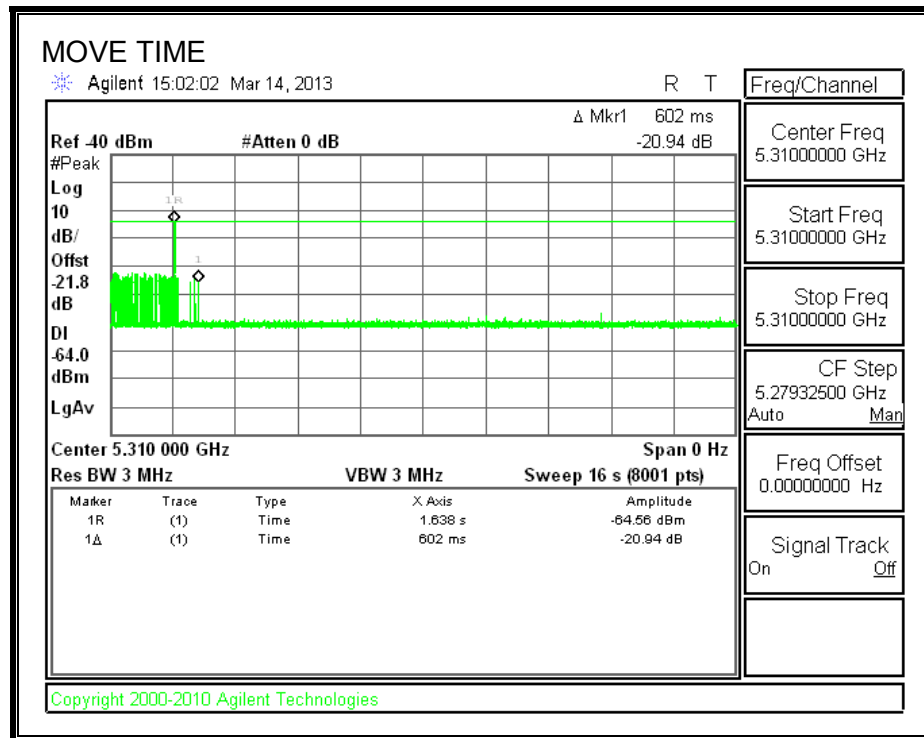
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

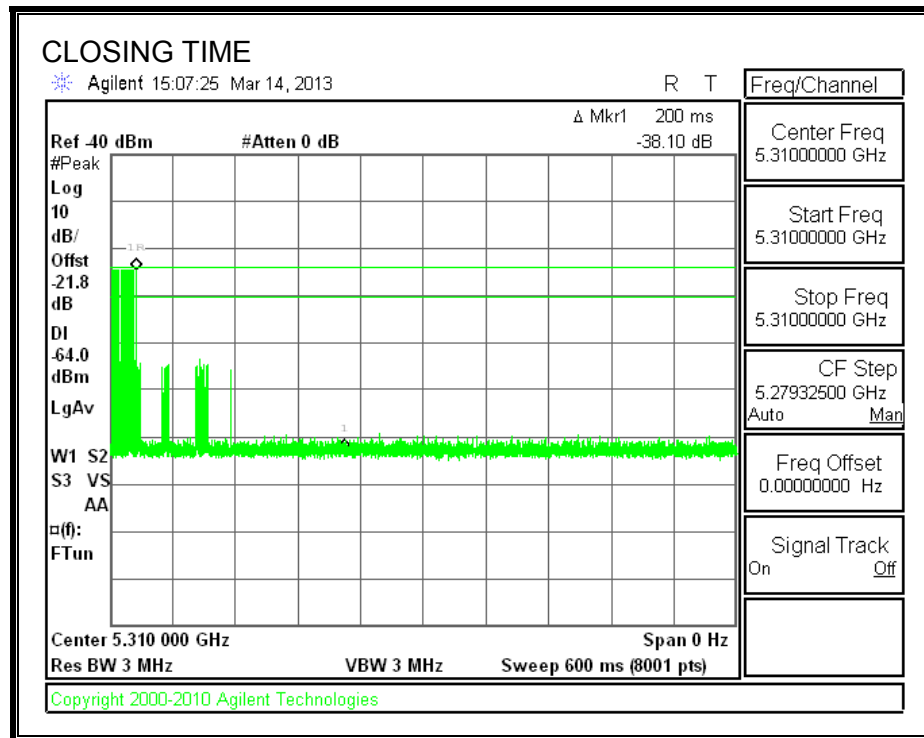
Agency	Channel Move Time (sec)	Limit (sec)
FCC / IC	0.602	10

Agency	Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
FCC	6.0	60
IC	30.0	260

MOVE TIME

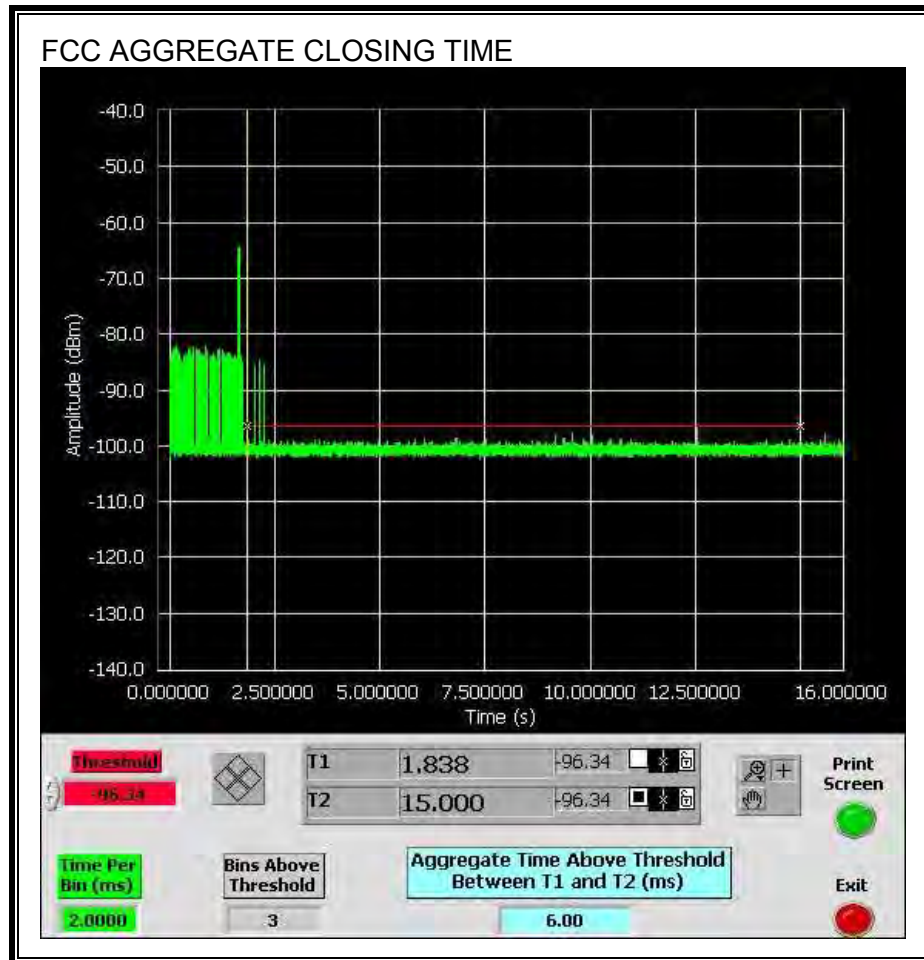


CHANNEL CLOSING TIME

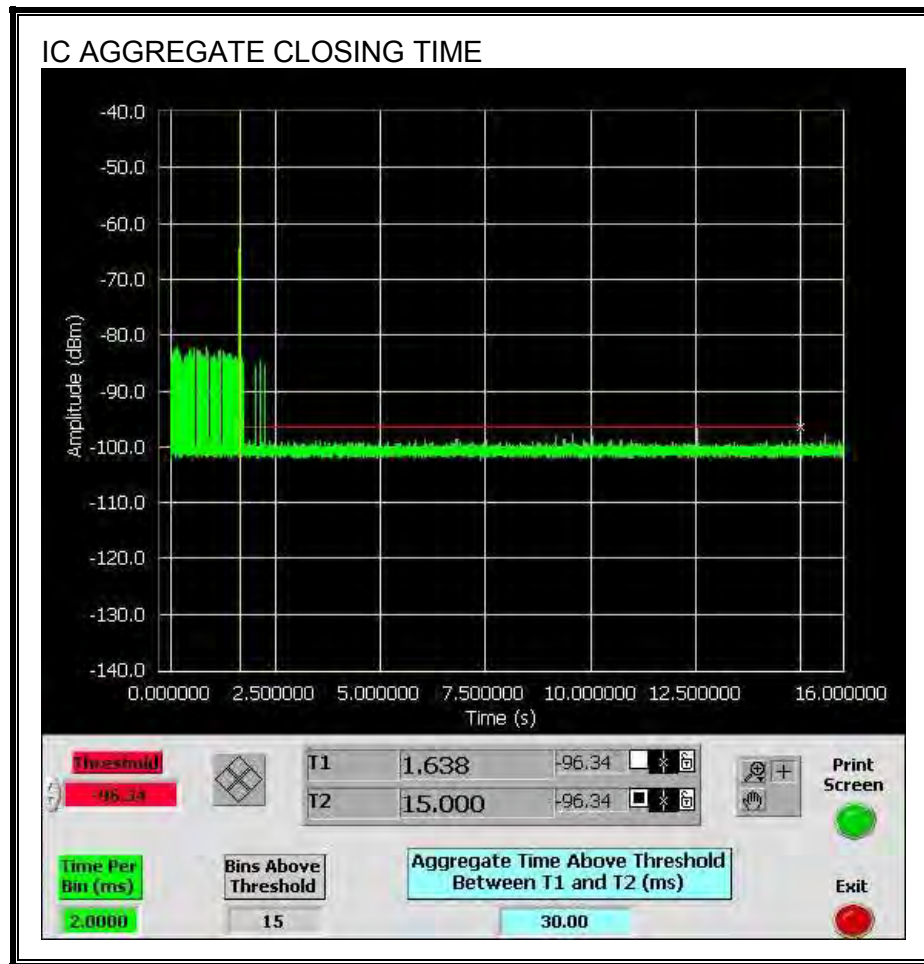


AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

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



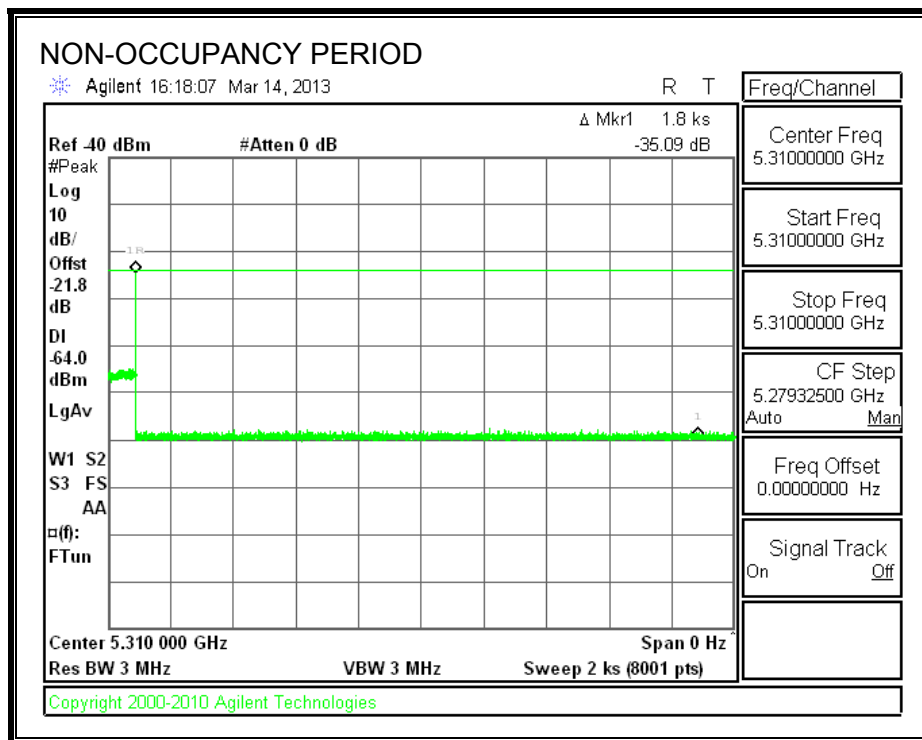
Only intermittent transmissions are observed during the IC aggregate monitoring period.



11.3.5. NON-OCCUPANCY PERIOD

RESULTS

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



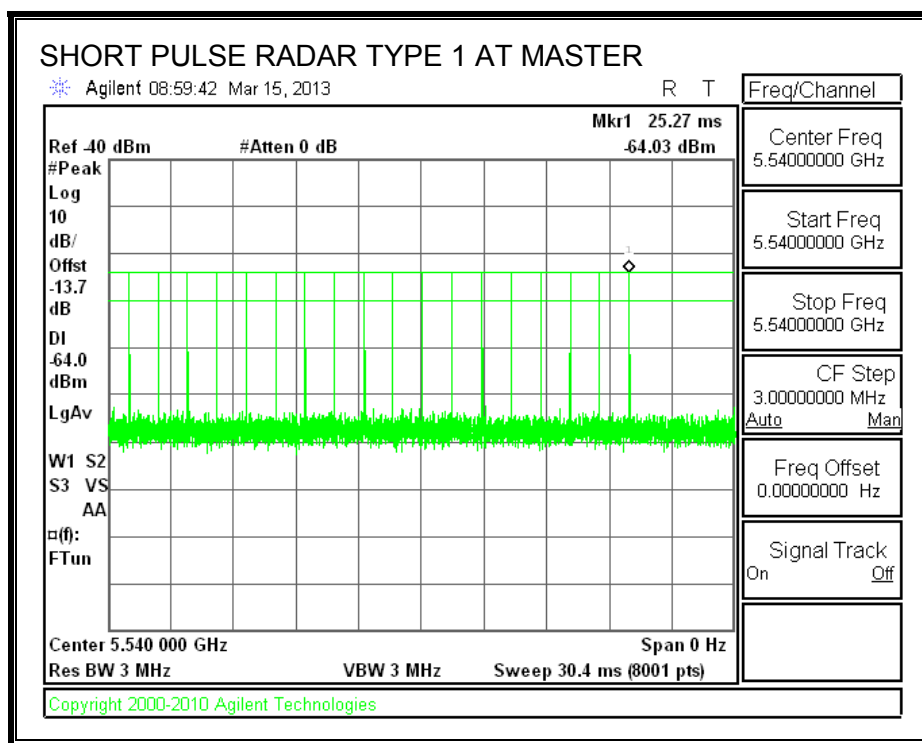
11.4. CLIENT-TO-CLIENT COMMUNICATIONS MODE RESULTS FOR 20 MHz BANDWIDTH

11.4.1. TEST CHANNEL

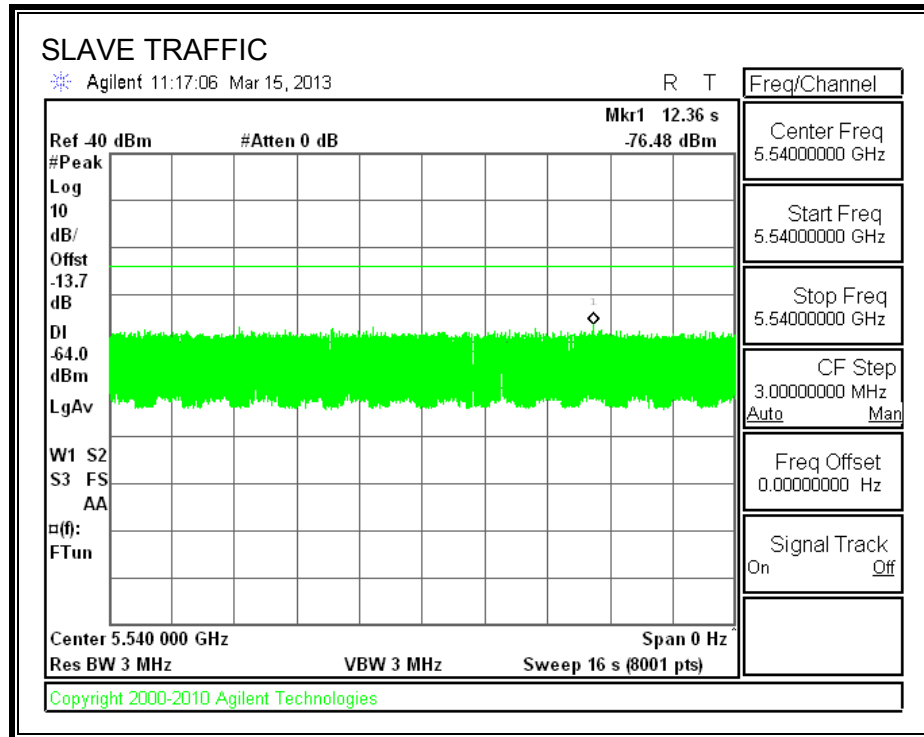
All tests were performed at a channel center frequency of 5540 MHz.

11.4.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



11.4.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

11.4.4. MOVE AND CLOSING TIME

REPORTING NOTES

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

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

The aggregate channel closing transmission time is calculated as follows:

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

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

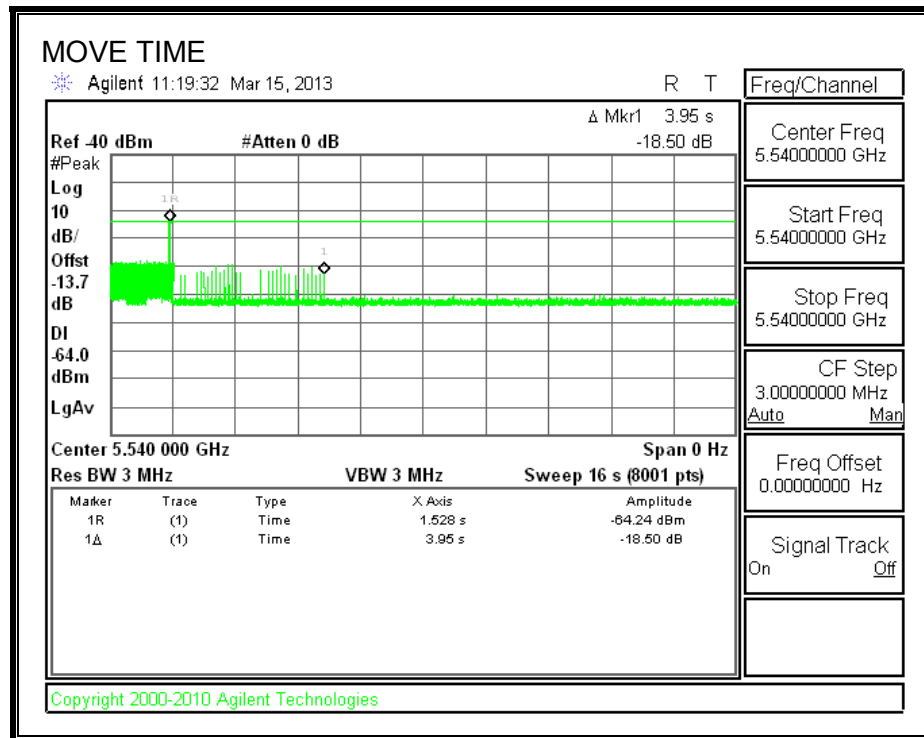
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

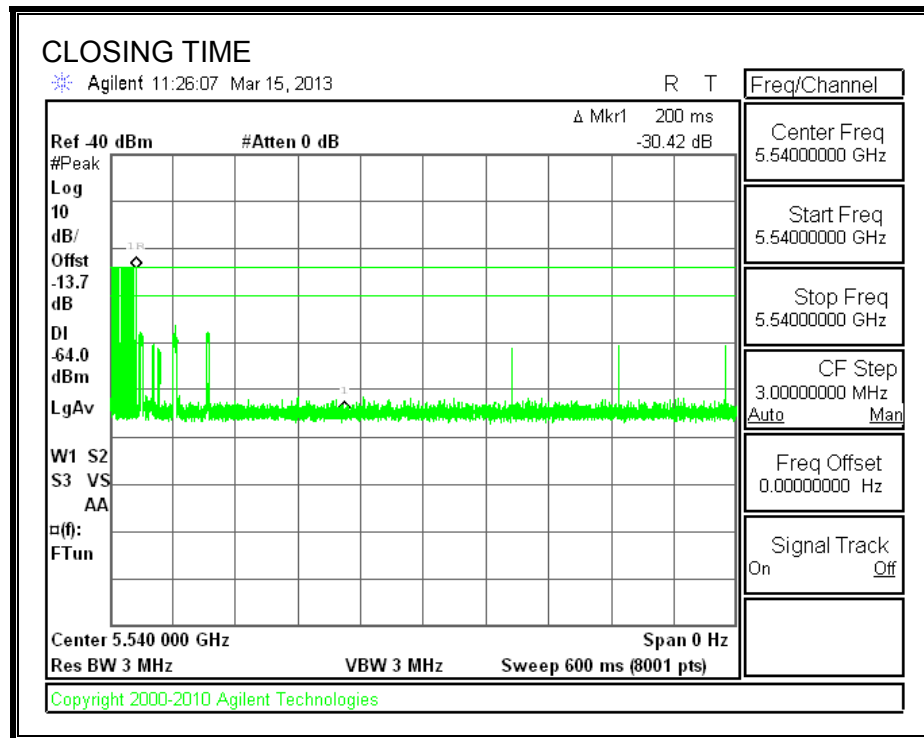
Agency	Channel Move Time (sec)	Limit (sec)
FCC / IC	3.950	10

Agency	Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
FCC	58.0	60
IC	100.0	260

MOVE TIME

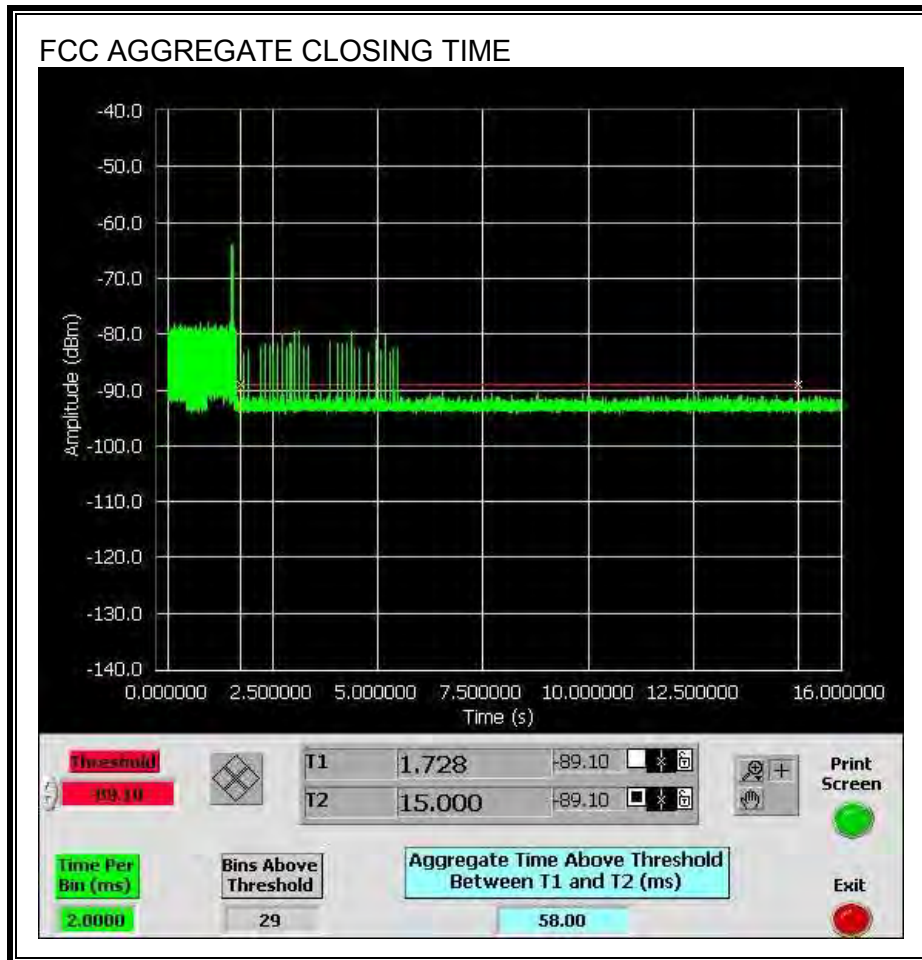


CHANNEL CLOSING TIME

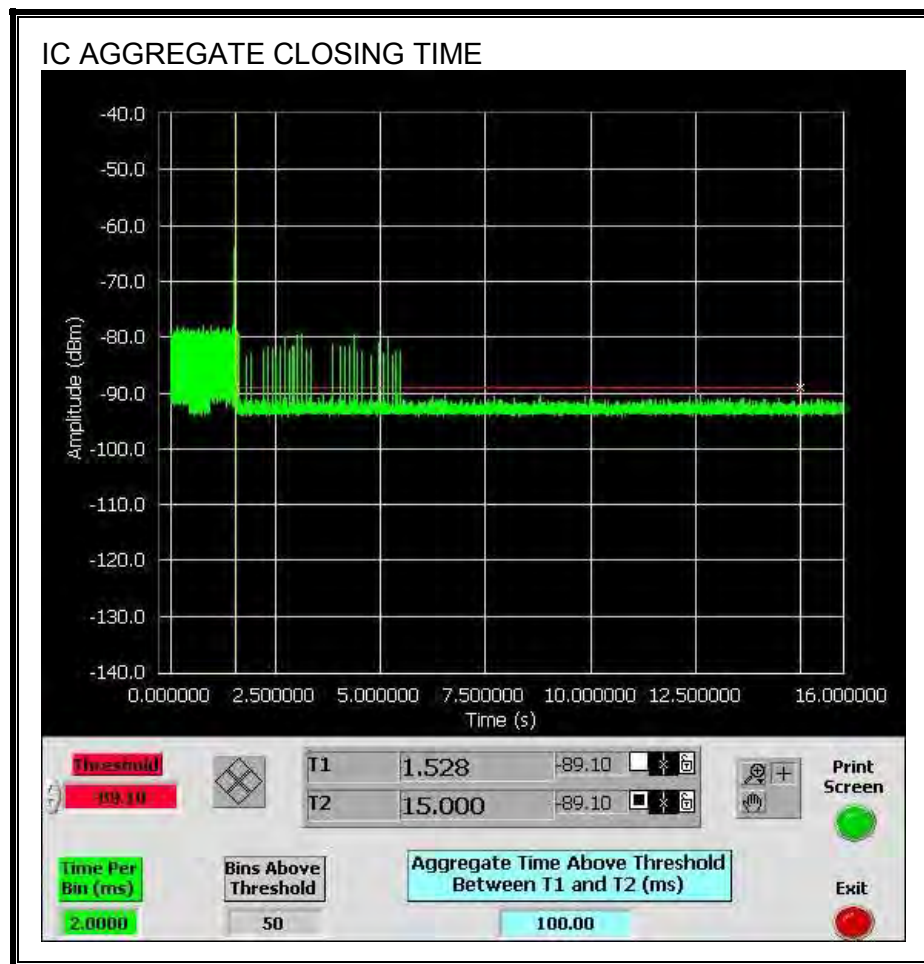


AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

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



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



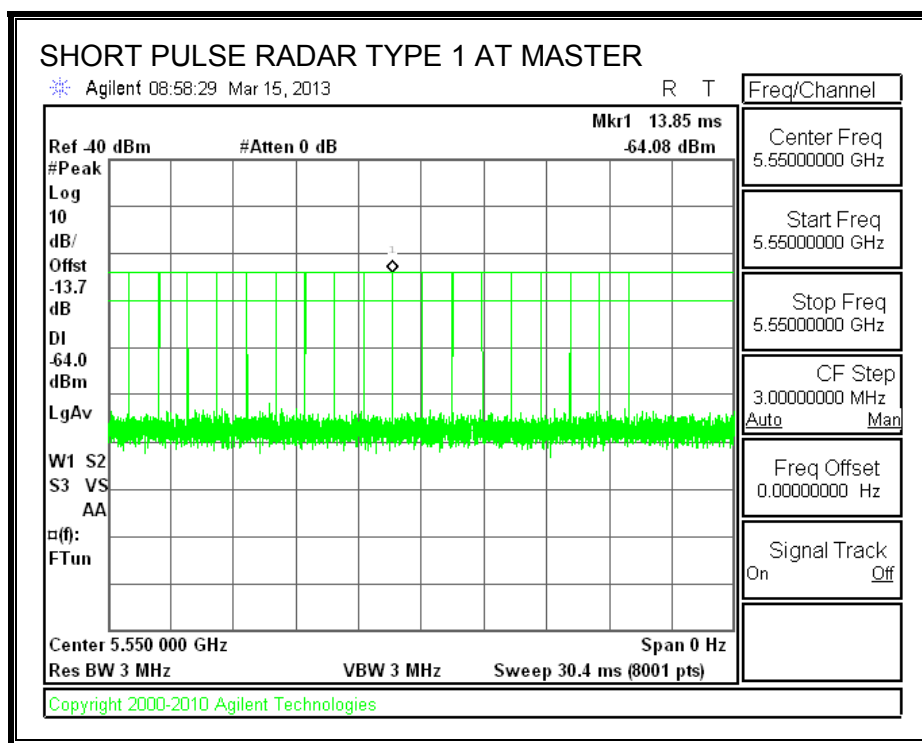
11.5. CLIENT-TO-CLIENT COMMUNICATIONS MODE RESULTS FOR 40 MHz BANDWIDTH

11.5.1. TEST CHANNEL

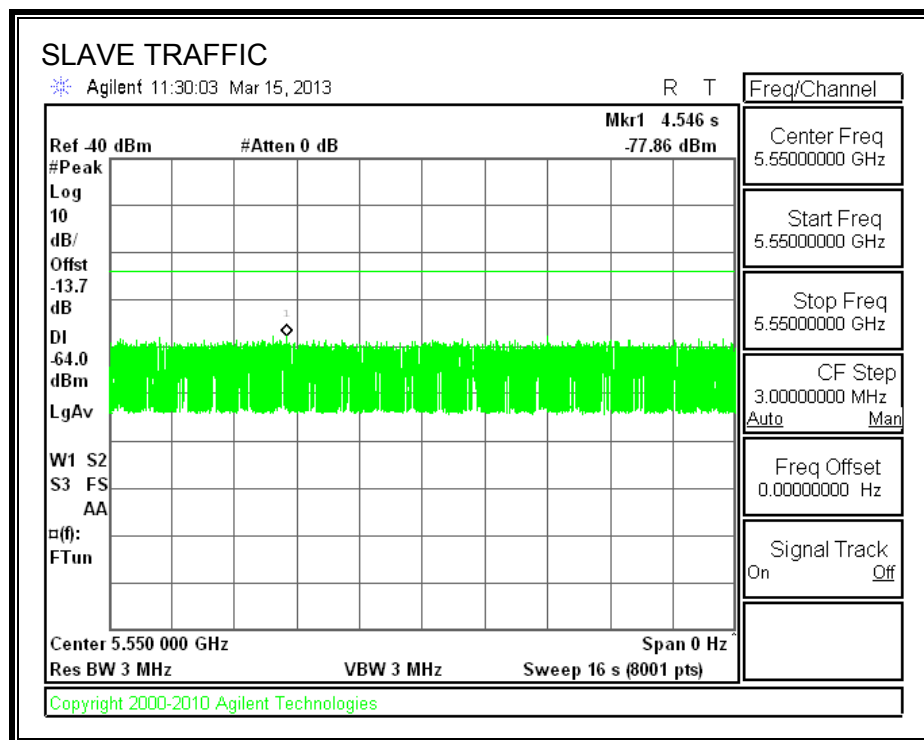
All tests were performed at a channel center frequency of 5540 MHz.

11.5.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



11.5.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

11.5.4. MOVE AND CLOSING TIME

REPORTING NOTES

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

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

The aggregate channel closing transmission time is calculated as follows:

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

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

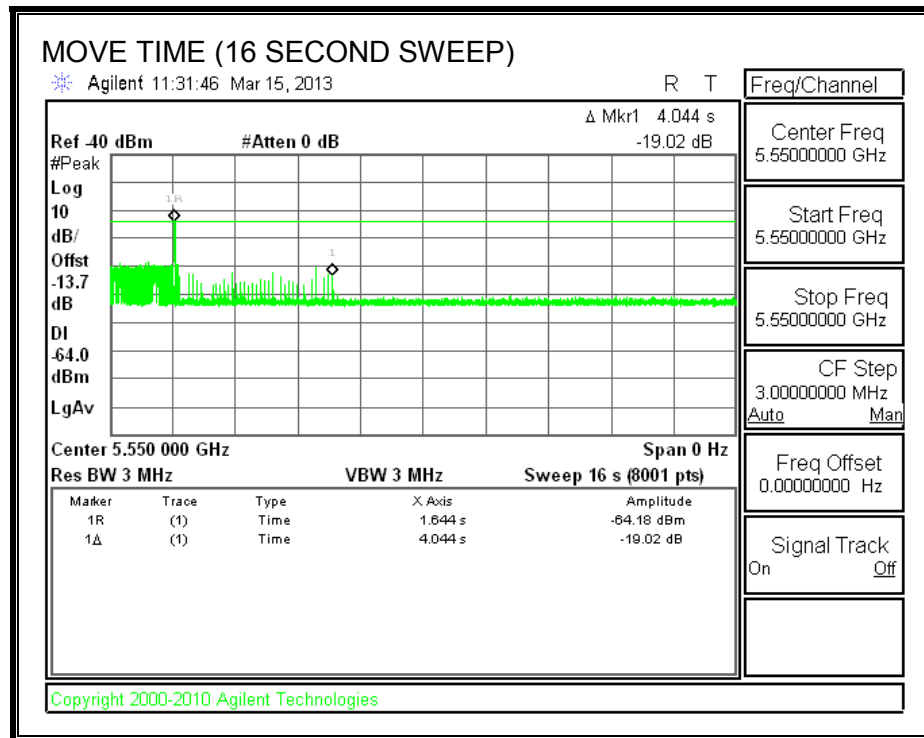
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

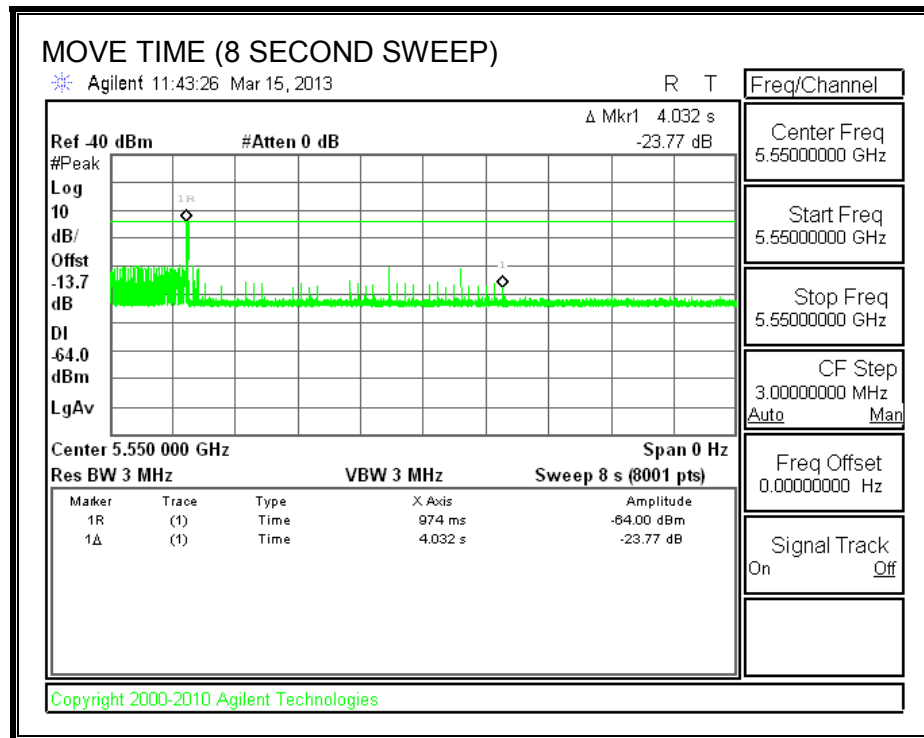
Agency	Channel Move Time (sec)	Limit (sec)
FCC / IC	4.032	10

Agency	Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
FCC	29.0	60
IC	61.0	260

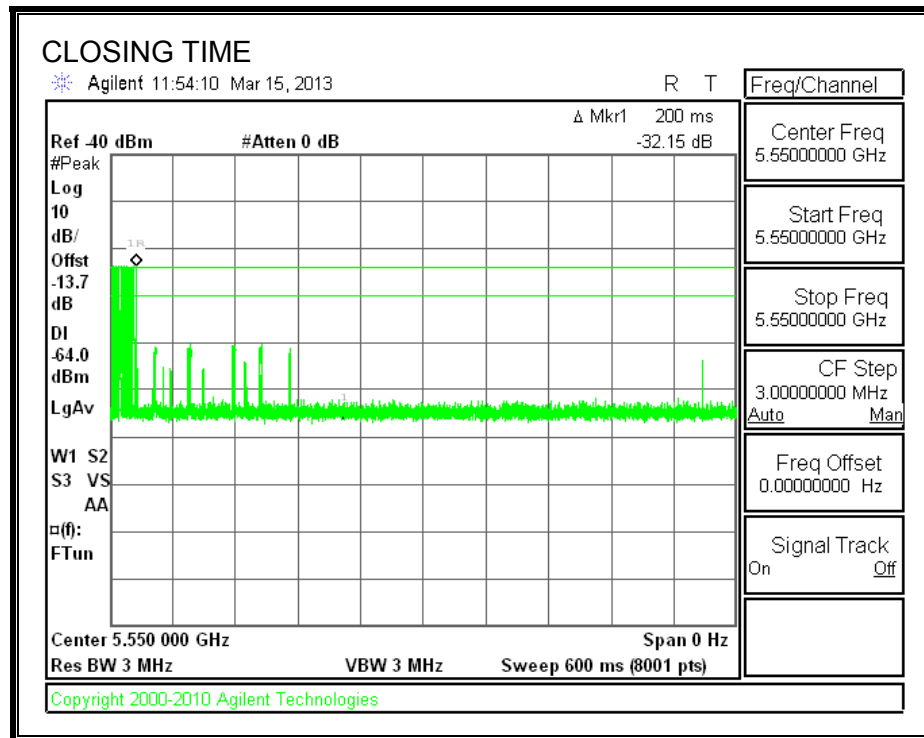
MOVE TIME (16 SECOND SWEEP)



MOVE TIME (8 SECOND SWEEP)

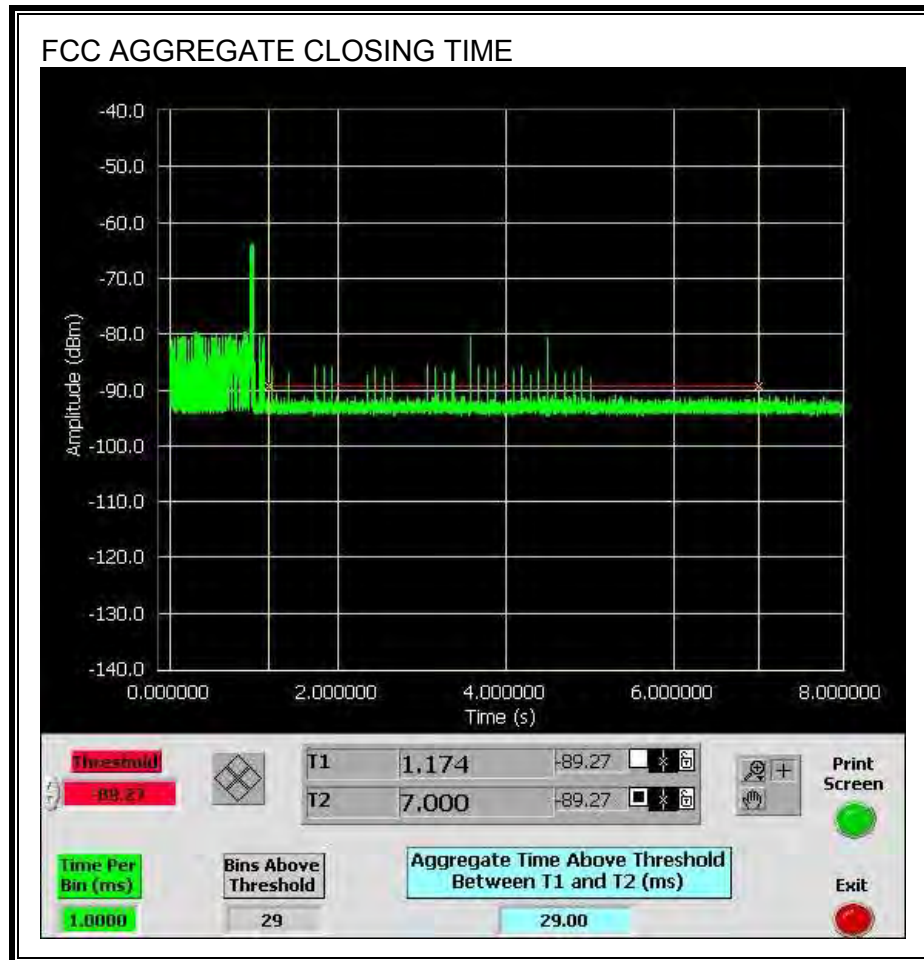


CHANNEL CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

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



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

