



CERTIFICATION TEST REPORT

Report Number. : 11740661-E5V4

Applicant : SONY MOBILE COMMUNICATIONS INC.
4-12-3 HIGASHI-SHINAGAWA, SHINAGAWA-KU
TOKYO, 140-0002, JAPAN

FCC ID : PY7-81775I

EUT Description : GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac, GPS & NFC

Test Standard(s) : FCC 47 CFR PART 15 SUBPART E (EXCEPT DFS)

Date Of Issue:

July 17, 2017

Prepared by:

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NVLAP LAB CODE 200065-0

Revision History

| <u>Rev.</u> | <u>Issue Date</u> | <u>Revisions</u> | <u>Revised By</u> |
|-------------|-------------------|--|-------------------|
| V1 | 06/23/17 | Initial Issue | D. Corona |
| V2 | 07/10/17 | Updated Section 2, 5.2, 5.6, 7, 8 & Corrected 5.2/5.3/5.6 GHz 26dB BW, 99% BW test data table and antenna gain | D. Corona |
| V3 | 07/11/17 | Updated Section 11.1 Test Procedure | D. Corona |
| V4 | 07/17/17 | Updated Section 5.6 | D. Corona |

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SONY MOBILE COMMUNICATIONS INC.
4-12-3 HIGASHI-SHINAGAWA, SHINAGAWA-KU
TOKYO, 140-0002, JAPAN

EUT DESCRIPTION: GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac, GPS & NFC

SERIAL NUMBER: CB512DHRYH & CB512DHRXV (CONDUCTED)
CB512DQZU1 & CB512DQZUN (RADIATED)

DATE TESTED: JUNE 6 – 28 , 2017

| APPLICABLE STANDARDS | |
|--------------------------|--------------|
| STANDARD | TEST RESULTS |
| CFR 47 Part 15 Subpart E | Pass |

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

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

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2. TEST METHODOLOGY

FCC: The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 14-30, FCC KDB 662911 D01 v02r01, FCC KDB 905462 D02 v01r02/D03 v01r01/D06 v01, FCC KDB 789033 D02 v01r04, FCC KDB 644545 D03 v01, ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

| 47173 Benicia Street | 47266 Benicia Street |
|--|---|
| <input checked="" type="checkbox"/> Chamber A(IC: 2324B-1) | <input type="checkbox"/> Chamber D(IC: 22541-1) |
| <input checked="" type="checkbox"/> Chamber B(IC: 2324B-2) | <input type="checkbox"/> Chamber E(IC: 22541-2) |
| <input checked="" type="checkbox"/> Chamber C(IC: 2324B-3) | <input type="checkbox"/> Chamber F(IC: 22541-3) |
| | <input type="checkbox"/> Chamber G(IC: 22541-4) |
| | <input type="checkbox"/> Chamber H(IC: 22541-5) |

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. Chambers A through C are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-3, respectively. Chambers D through H are covered under Industry Canada company address code 22541 with site numbers 22541 -1 through 22541-5, respectively.

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:

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

4.3. MEASUREMENT UNCERTAINTY

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

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

| Parameter | Uncertainty |
|---|-------------|
| Worst Case Conducted Disturbance, 9KHz to 0.15 MHz | 3.84 dB |
| Worst Case Conducted Disturbance, 0.15 to 30 MHz | 3.65 dB |
| Worst Case Radiated Disturbance, 9KHz to 30 MHz | 3.15 dB |
| Worst Case Radiated Disturbance, 30 to 1000 MHz | 5.36 dB |
| Worst Case Radiated Disturbance, 1000 to 18000 MHz | 4.32 dB |
| Worst Case Radiated Disturbance, 18000 to 26000 MHz | 4.45 dB |
| Worst Case Radiated Disturbance, 26000 to 40000 MHz | 5.24 dB |

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac, GPS & NFC.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

5.2GHz Band

| Frequency Range (MHz) | Mode | Output Power (dBm) | Output Power (mW) |
|-----------------------|------------------------|--------------------|-------------------|
| 5180 - 5240 | 802.11a CDD 2TX | 15.73 | 37.41 |
| | 802.11n HT20 CDD 2TX | 15.80 | 38.02 |
| 5190 - 5230 | 802.11n HT40 CDD 2TX | 15.73 | 37.41 |
| 5210 | 802.11ac VHT80 CDD 2TX | 15.69 | 37.07 |

5.3GHz Band

| Frequency Range (MHz) | Mode | Output Power (dBm) | Output Power (mW) |
|-----------------------|------------------------|--------------------|-------------------|
| 5260 - 5320 | 802.11a CDD 2TX | 15.74 | 37.50 |
| | 802.11n HT20 CDD 2TX | 15.91 | 38.99 |
| 5270 - 5310 | 802.11n HT40 CDD 2TX | 15.77 | 37.76 |
| 5290 | 802.11ac VHT80 CDD 2TX | 15.99 | 39.72 |

5.6GHz Band

| Frequency Range (MHz) | Mode | Output Power (dBm) | Output Power (mW) |
|-----------------------|------------------------|--------------------|-------------------|
| 5500 - 5720 | 802.11a CDD 2TX | 15.91 | 38.99 |
| 5500 - 5720 | 802.11n HT20 CDD 2TX | 16.28 | 42.46 |
| 5510 - 5710 | 802.11n HT40 CDD 2TX | 16.14 | 41.11 |
| 5530-5710 | 802.11ac VHT80 CDD 2TX | 15.72 | 37.33 |

5.8GHz Band

| Frequency Range (MHz) | Mode | Output Power (dBm) | Output Power (mW) |
|-----------------------|------------------------|--------------------|-------------------|
| 5745 - 5825 | 802.11a CDD 2TX | 15.63 | 36.56 |
| 5745 - 5825 | 802.11n HT20 CDD 2TX | 15.53 | 35.73 |
| 5755 - 5795 | 802.11n HT40 CDD 2TX | 15.48 | 35.32 |
| 5775 | 802.11ac VHT80 CDD 2TX | 15.27 | 33.65 |

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes two integrated antennas, with the following maximum gains:

| Frequency (GHz) | Peak Antenna Gain (dBi) | |
|-----------------|-------------------------|---------------|
| | Main (Chain 0) | Sub (Chain 1) |
| 5180-5320 | -4.4 | -6.7 |
| 5500-5700 | -3.1 | -8.4 |
| 5725-5850 | -3.5 | -8.4 |

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was SONY, s_atp_1_00139_B_10_5.
 The test utility software used during testing was Tera Term Ver 4.79.

5.5. LIST OF TEST REDUCTION AND MODES

| Antenna port & Radiated Testing | |
|---------------------------------|------------------------|
| Mode | Covered by |
| 802.11a Legacy | 802.11a 2TX CDD |
| 802.11HT20 2TX STBC | 802.11n HT20 2TX CDD |
| | 802.11n HT20 2TX CDD |
| 802.11ac VHT20 2TX STBC | 802.11n HT20 2TX CDD |
| | 802.11n HT20 2TX CDD |
| 802.11n HT40 2TX STBC | 802.11n HT40 2TX CDD |
| | 802.11n HT40 2TX CDD |
| 802.11ac VHT40 2TX STBC | 802.11n HT40 2TX CDD |
| | 802.11n HT40 2TX CDD |
| 802.11ac VHT80 2TX STBC | 802.11ac VHT80 2TX CDD |
| | 802.11ac VHT80 2TX CDD |

5.6. WORST-CASE CONFIGURATION AND MODE

Radiated emission below 1GHz and power line conducted emissions were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X, Y, Z, it was determined that X was worst-case orientations. Therefore, all final radiated testing was performed with the EUT in X orientation.

Worst-case data rates as provided by the client were:

802.11a mode: 6 Mbps
802.11n HT20 mode: 13 Mbps (MCS8)
802.11n HT40 mode: 27 Mbps (MCS8)
802.11ac VHT80 mode: 58.5 Mbps (MCS0)

802.11ac VHT20 and VHT40 mode are different from 802.11nHT20 and HT40 only in control messages and have the same power settings.

The simultaneous mode (SISO 2.4GHz Chain 0 and 5GHz chain 1) was checked and stand-alone (MIMO) 2.4 GHz / 5GHz remain worst case.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

| Support Equipment List | | | | |
|------------------------|--------------|-------------|---------------|--------|
| Description | Manufacturer | Model | Serial Number | FCC ID |
| Laptop | Lenovo | 20B7S0A200 | PC015REW | NA |
| AC Adapter | SONY | 1300-7137.1 | 4016W40310044 | NA |
| Headphones | SONY | N/A | N/A | N/A |

I/O CABLES (CONDUCTED TEST)

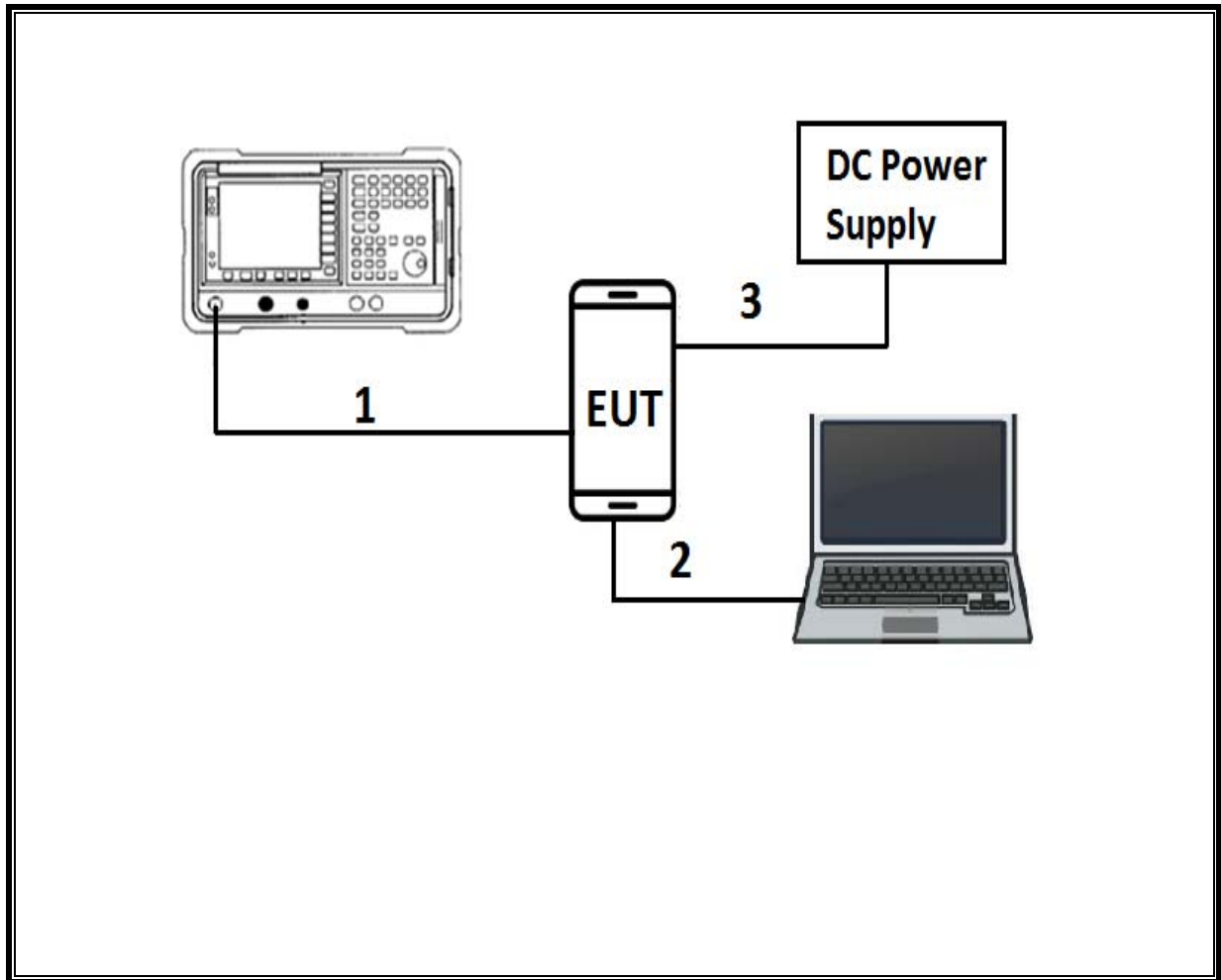
| I/O Cable List | | | | | | |
|----------------|---------|----------------------|----------------|------------|------------------|----------------------|
| Cable No | Port | # of identical ports | Connector Type | Cable Type | Cable Length (m) | Remarks |
| 1 | Antenna | 1 | RF | Shielded | 0.2 | To spectrum Analyzer |
| 2 | USB | 1 | USB | Shielded | 1 | N/A |
| 3 | DC | 1 | DC | Shielded | 0.3 | N/A |

I/O CABLES (RADIATED AND CONDUCTED EMISSIONS)

| I/O Cable List | | | | | | |
|----------------|-------|----------------------|----------------|------------|------------------|---------|
| Cable No | Port | # of identical ports | Connector Type | Cable Type | Cable Length (m) | Remarks |
| 1 | USB | 1 | USB | Shielded | 3 | N/A |
| 2 | Audio | 1 | 3.5mm | Shielded | 1 | N/A |

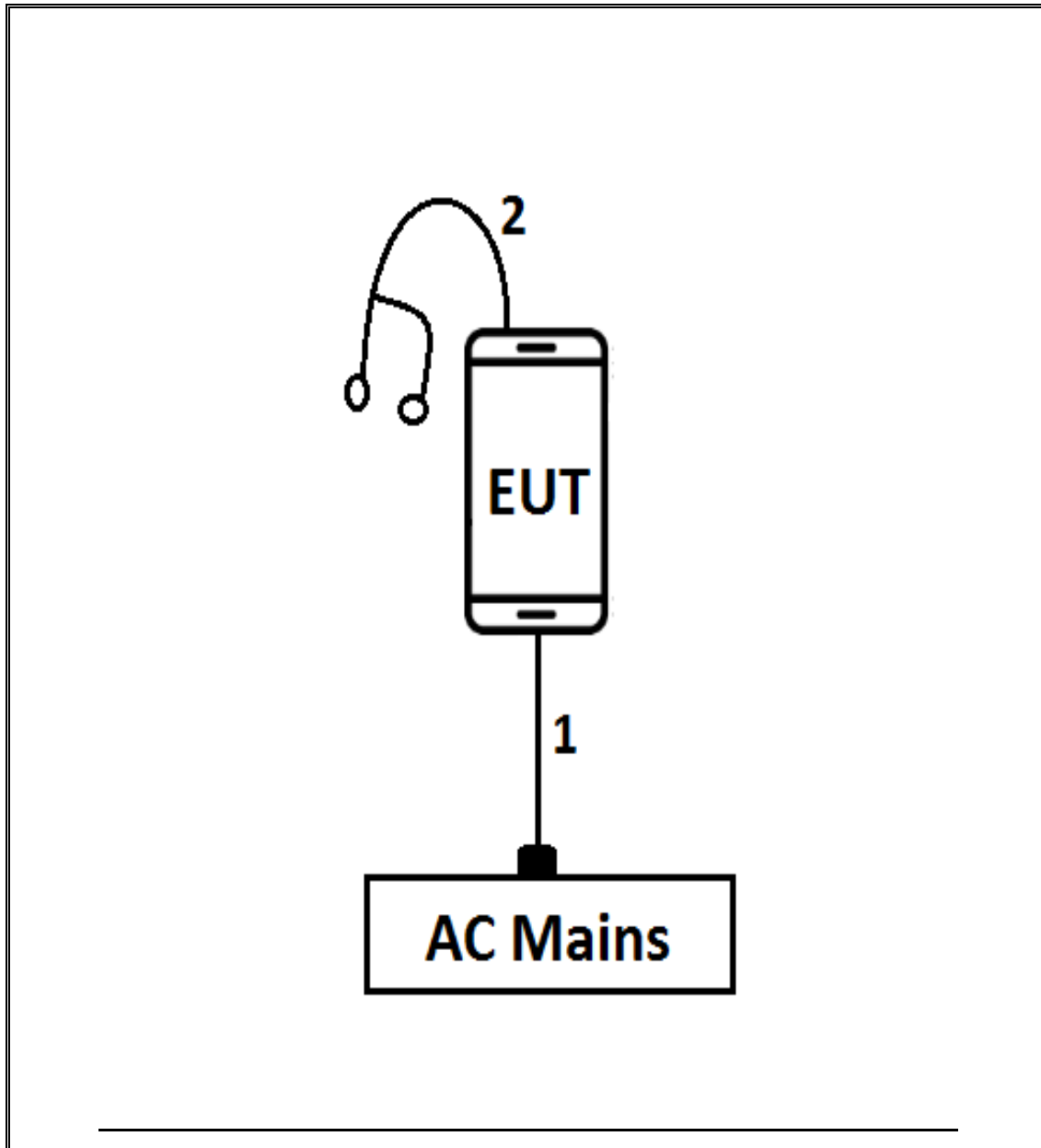
TEST SETUP

CONDCUTED TEST SETUP DIAGRAM



TEST SETUP

RADIATED AND AC LINE CONDUCTED EMISSIONS SETUP DIAGRAM



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 Due |
| Antenna, Broadband Hybrid, 30MHz to 2000MHz w/4dB Pad | Sunol Sciences Corp. | JB3 | T477 | 06/22/2018 |
| Antenna, Active Loop 9kHz-30MHz | ETS-Lindgren | 6502 | T1683 | 02/17/2018 |
| Antenna, Horn 1-18GHz | ETS-Lindgren | 3117 | T345 | 03/07/2018 |
| Antenna, Horn 18-26.5GHz | ARA | MWH-1826/B | T449 | 05/26/2018 |
| Antenna, Horn 26.5 - 40GHz | ARA | MWH-1826/B | T446 | 05/26/2018 |
| Power Meter, P-series single channel | Agilent (Keysight) Technologies | N1911A | T1264 | 07/08/2017 |
| Power Sensor, P – series, 50MHz to 18GHz, Wideband | Agilent (Keysight) Technologies | N1921A | T413 | 06/20/2017 |
| Amplifier, 1-26.5GHz | Agilent (Keysight) Technologies | 8449B | T404 | 07/05/2017 |
| Amplifier, 10kHz-1GHz | Agilent (Keysight) Technologies | 8447D | T15 | 08/26/2017 |
| RF Amplifier | MITEQ | AFS42-00101800-25-S-42 | T493 | 02/15/2018 |
| Spectrum Analyzer, PSA, 3Hz to 26.5GHz | Agilent (Keysight) Technologies | E4440A | T199 | 07/22/2017 |
| Spectrum Analyzer, PXA, 3Hz to 44GHz | Agilent (Keysight) Technologies | N9030A | T907 | 01/23/2018 |
| Spectrum Analyzer, PSA, 3Hz to 26.5GHz | Agilent (Keysight) Technologies | E9030A | T905 | 01/11/2018 |
| LISN | FISCHER | FCC-LISN-50/250-25-2-01 | T1310 | 01/17/2018 |

| Test Software List | | | |
|-----------------------|--------------|--------|--------------------------|
| Description | Manufacturer | Model | Version |
| Radiated Software | UL | UL EMC | Ver 9.5, Apr 26, 2016 |
| Conducted Software | UL | UL EMC | Ver 9.5, May 26, 2015 |
| Antenna Port Software | UL | UL RF | Ver 5.1.1, July 15, 2016 |

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

NOTE: *testing is completed before equipment calibration expiration date.

7. MEASUREMENT METHODS

On Time and Duty Cycle: KDB 789033 D02 v01r04, Section B.

6 dB Emission BW: KDB 789033 D02 v01r04, Section C.2.

26 dB Emission BW: KDB 789033 D02 v01r04, Section C.2.1.

99% Occupied BW: KDB 789033 D02 v01r04, Section D.

Conducted Output Power: KDB 789033 D02 v01r04, Section E.3.b (Method PM-G) and KDB 662911 D01 v02r01.

Power Spectral Density: KDB 789033 D02 v01r04, Section F and KDB 662911 D01 v02r01.

Unwanted emissions in restricted bands: KDB 789033 D02 v01r04, Sections G.3, G.4, G.5, and G.6, and KDB 662911 D01 v02r01.

Unwanted emissions in non-restricted bands: KDB 789033 D02 v01r04, Sections G.3, G.4, and G.5, and KDB 662911 D01 v02r01.

AC Power Line Conducted Emissions: ANSI C63.10-2013, Section 6.2.

8. SUMMARY TABLE

| FCC Part Section | Test Description | Test Limit | Test Condition | Test Result |
|-------------------------------|---|---|----------------|-------------|
| §15.407 (a) | Occupied Band width (26dB) | N/A | Conducted | Pass |
| §15.407 | 6dB Band width (5.8Ghz) | >500KHz | | Pass |
| §15.407 (a)(1) | TX Cond. Power 5.15-5.25 GHz | <24dBm (FCC) / <23 dBm EIRP or <10+10Log(99% BW) EIRP (IC) | | Pass |
| §15.407 (a)(2) | TX Cond. Power 5.25-5.35 & 5.47-5.725 GHz | <24dBm or <11+10log (OBW) (FCC) / <24 dBm or <11+10Log(99% BW) (IC) | | Pass |
| §15.407 (a)(3) | TX Cond. Power 5.725-5.850 GHz | <30dBm | | Pass |
| §15.407 (a)(1) | PSD (5.15-5.25 GHz) | <11dBm/MHz (FCC) <10 dBm/MHz EIRP (IC) | | Pass |
| §15.407 (a)(2) | PSD (5.3,5.5GHz) | <11dBm/MHz | | Pass |
| §15.407 (a)(3) | PSD (5.8GHz) | <30dBm per 500kHz | | Pass |
| §15.207 (a) §15.407(b) (6) | AC Power Line conducted emissions | Section 10 | | Pass |
| §15.407 (b) & 15.209 | Radiated Spurious Emission | <54dBuV/m | | Radiated |

9. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

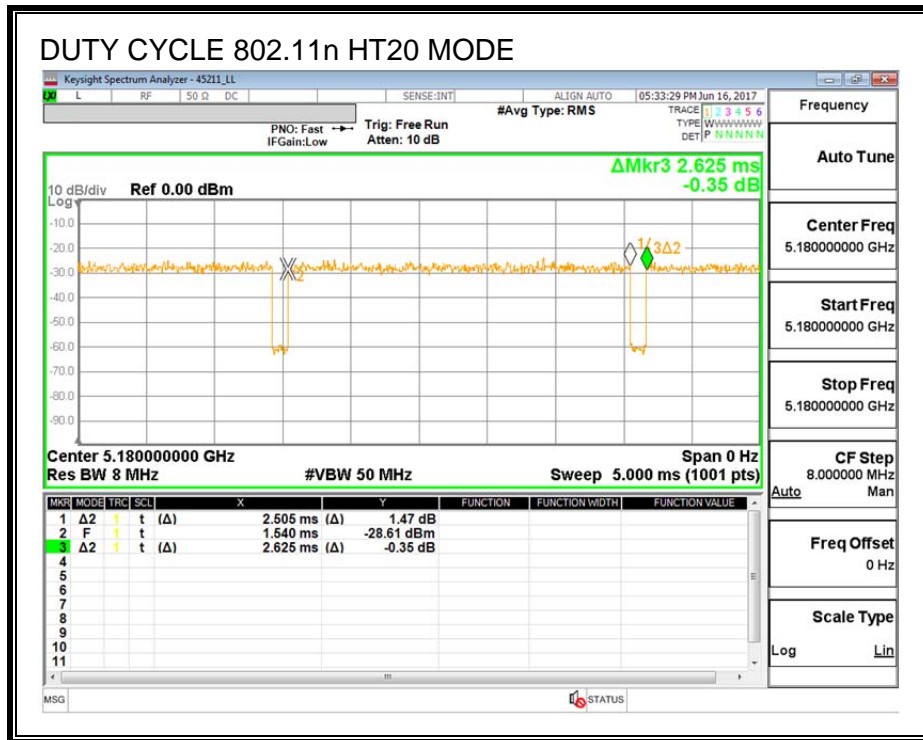
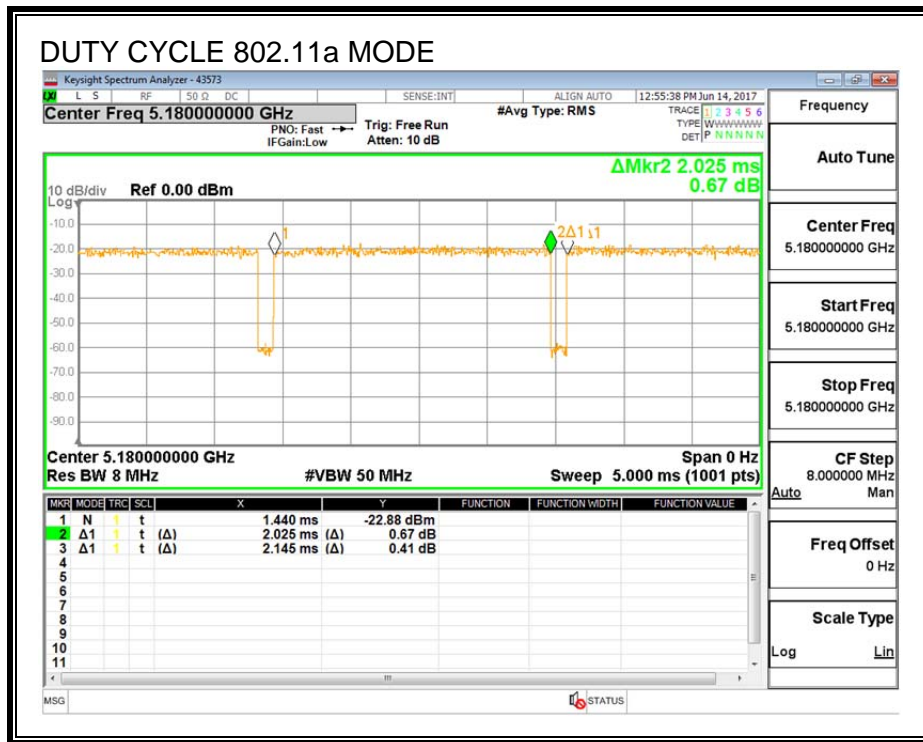
PROCEDURE

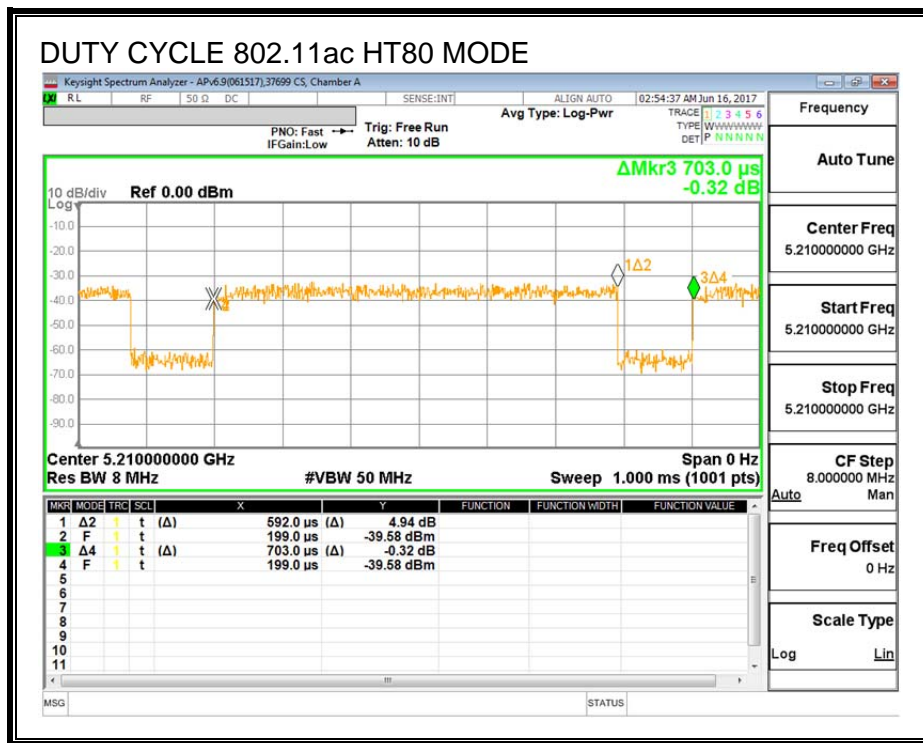
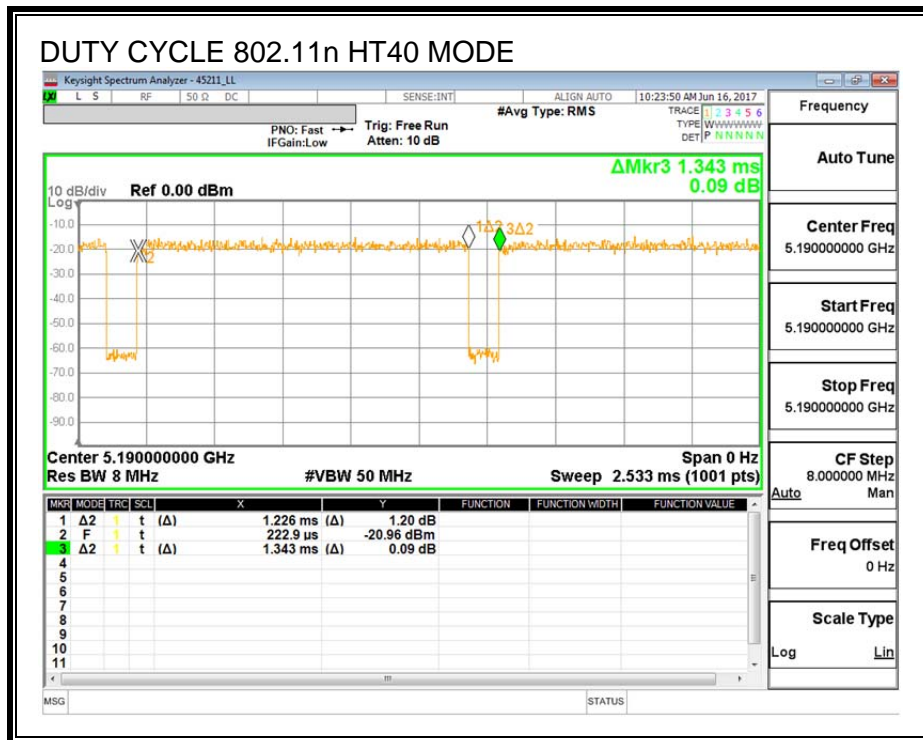
KDB 789033 Zero-Span Spectrum Analyzer Method.

RESULTS

| Mode | ON Time B (msec) | Period (msec) | Duty Cycle x (linear) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | 1/T Minimum VBW (kHz) |
|----------------|------------------------|------------------|-----------------------------|----------------------|---|-----------------------------|
| 802.11a | 2.030 | 2.145 | 0.946 | 94.6% | 0.24 | 0.493 |
| 802.11n HT20 | 2.505 | 2.625 | 0.954 | 95.4% | 0.20 | 0.399 |
| 802.11n HT40 | 1.226 | 1.343 | 0.913 | 91.3% | 0.40 | 0.816 |
| 802.11ac VHT80 | 0.592 | 0.703 | 0.842 | 84.2% | 0.75 | 1.689 |

DUTY CYCLE PLOTS





10. ANTENNA PORT TEST RESULTS

10.1. 11a 2TX CDD MIMO MODE IN THE 5.2GHz BAND

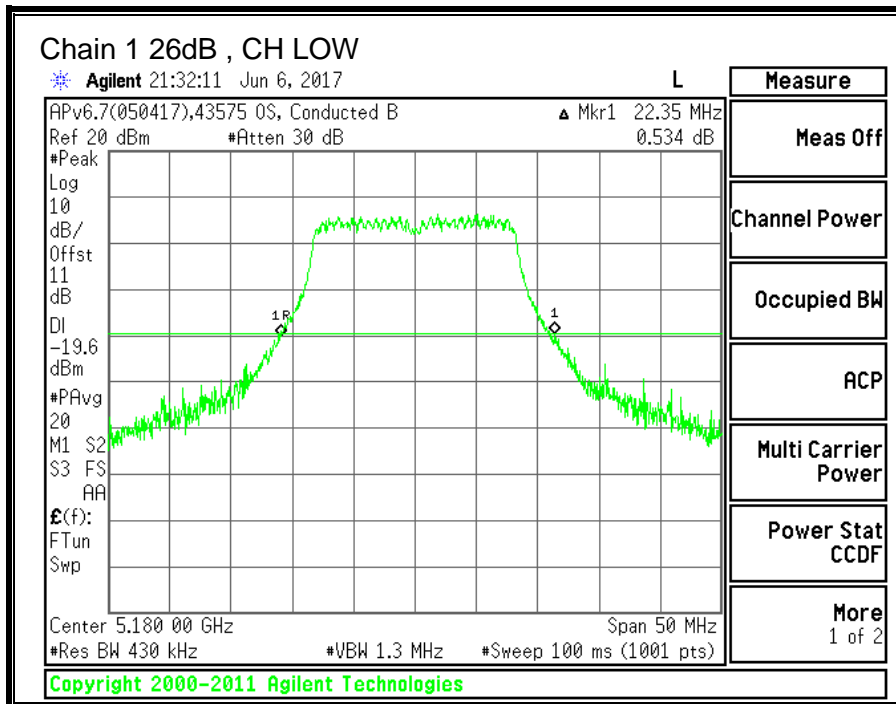
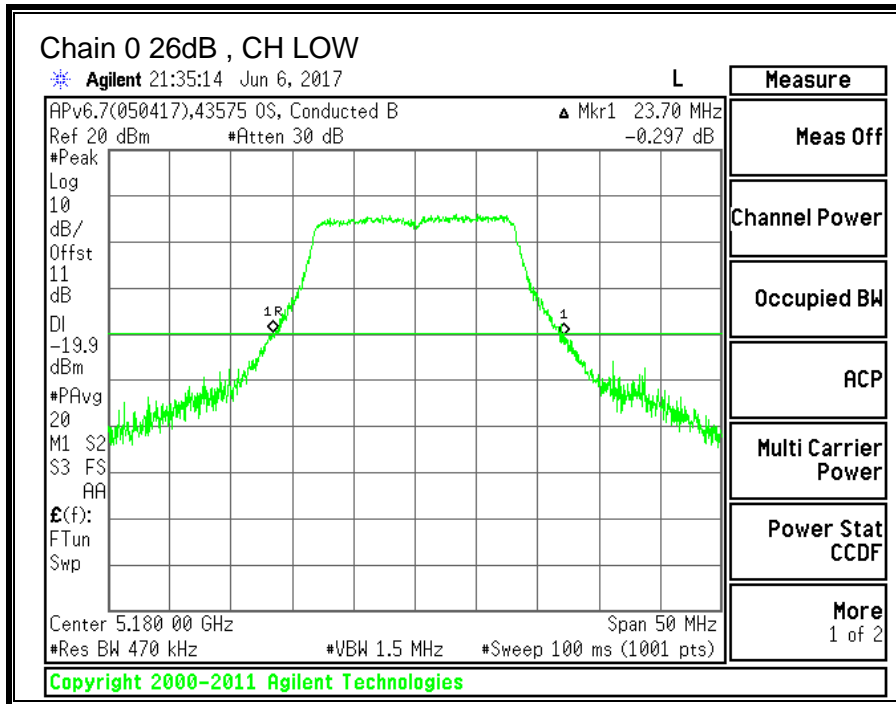
10.1.1. 26 dB BANDWIDTH

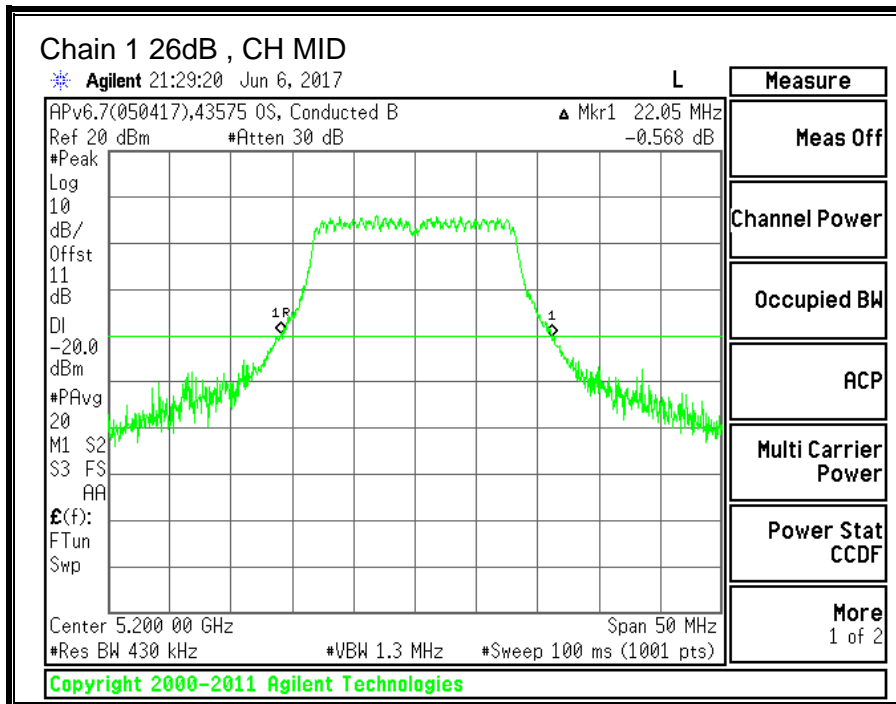
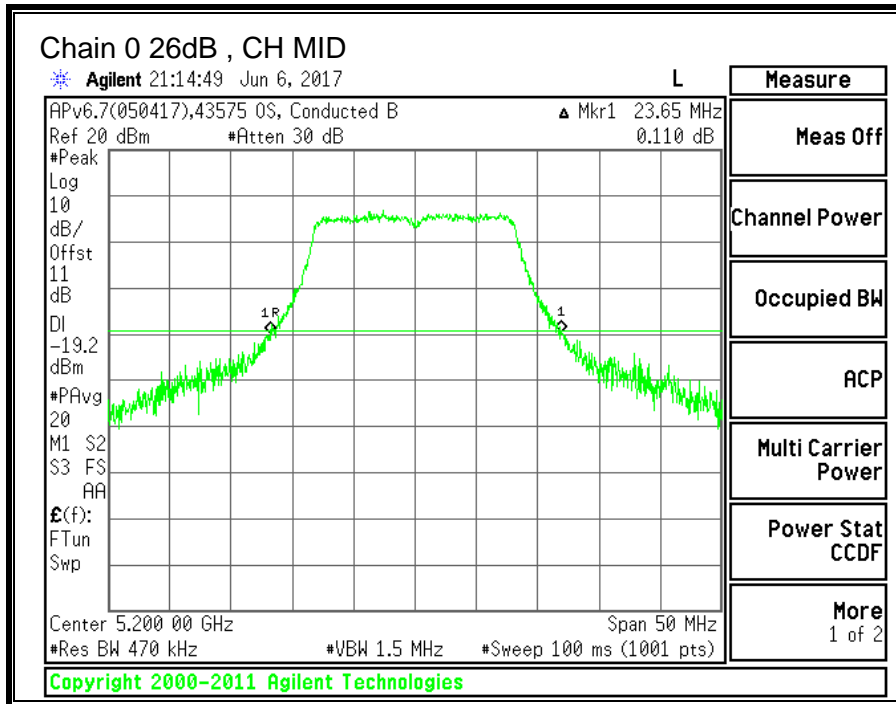
LIMITS

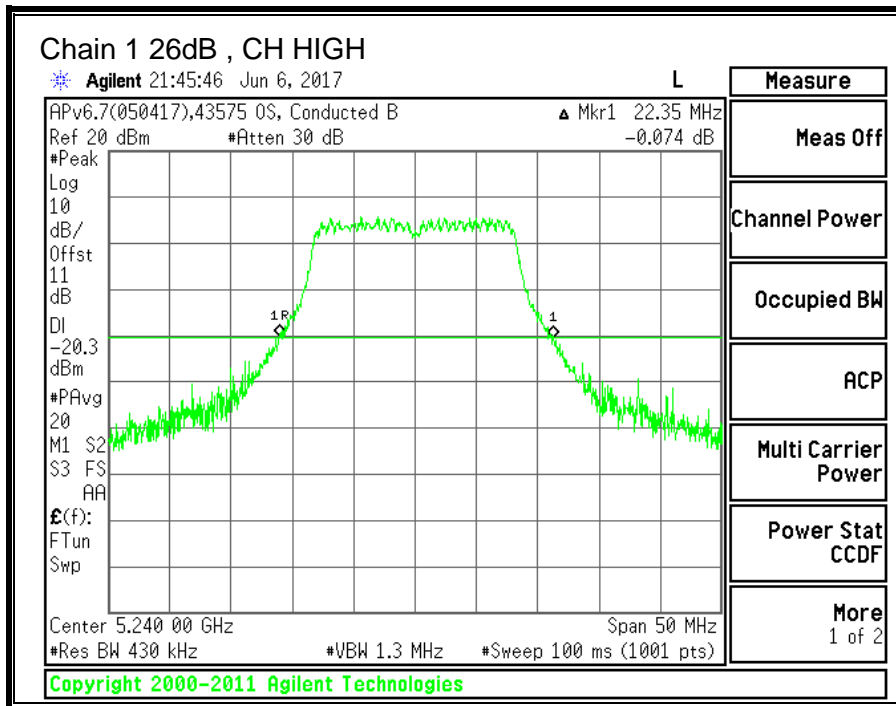
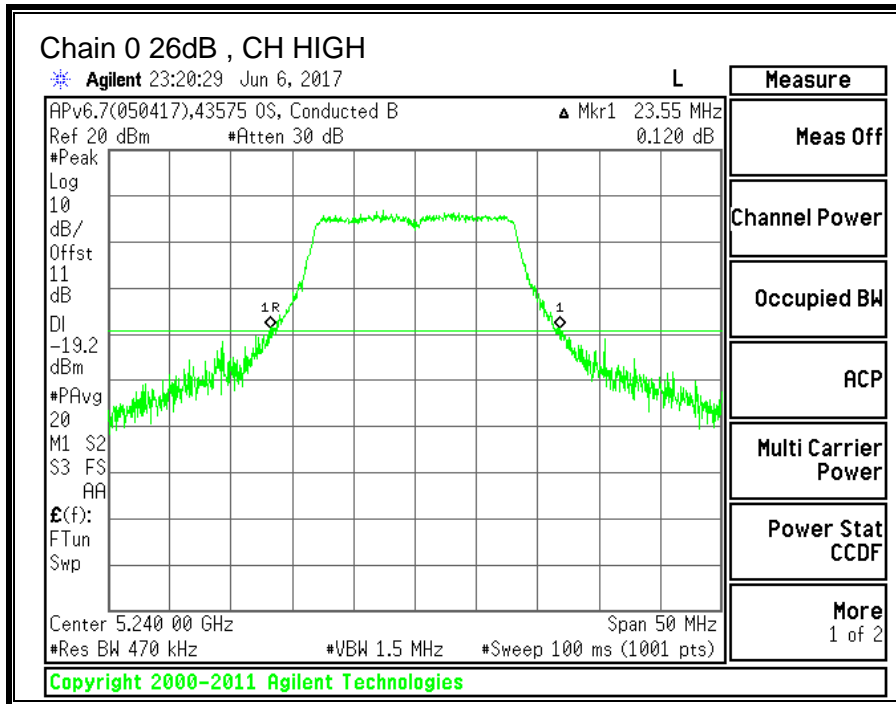
None; for reporting purposes only.

RESULTS

| Channel | Frequency | 26 dB BW Chain 0 (MHz) | 26 dB BW Chain 1 (MHz) |
|---------|-----------|------------------------------|------------------------------|
| Low | 5180 | 23.70 | 22.35 |
| Mid | 5200 | 23.65 | 22.05 |
| High | 5240 | 23.55 | 22.35 |







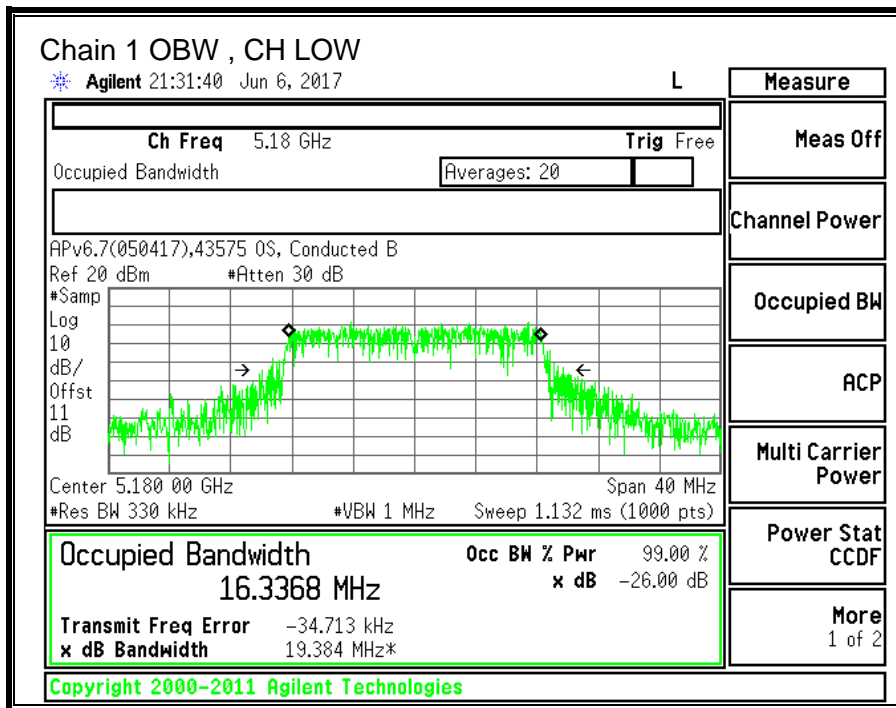
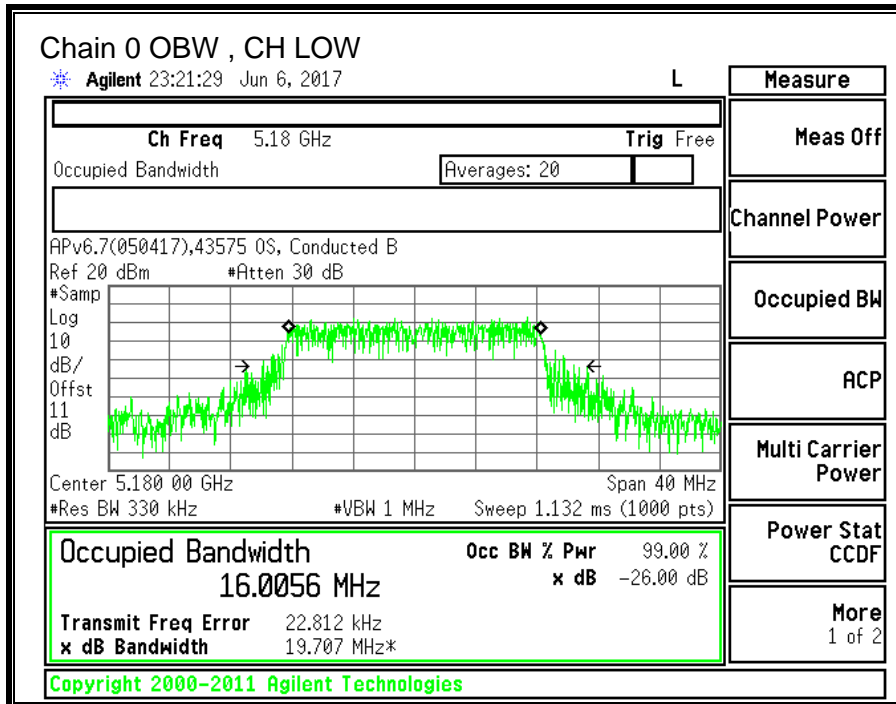
10.1.2. 99% BANDWIDTH

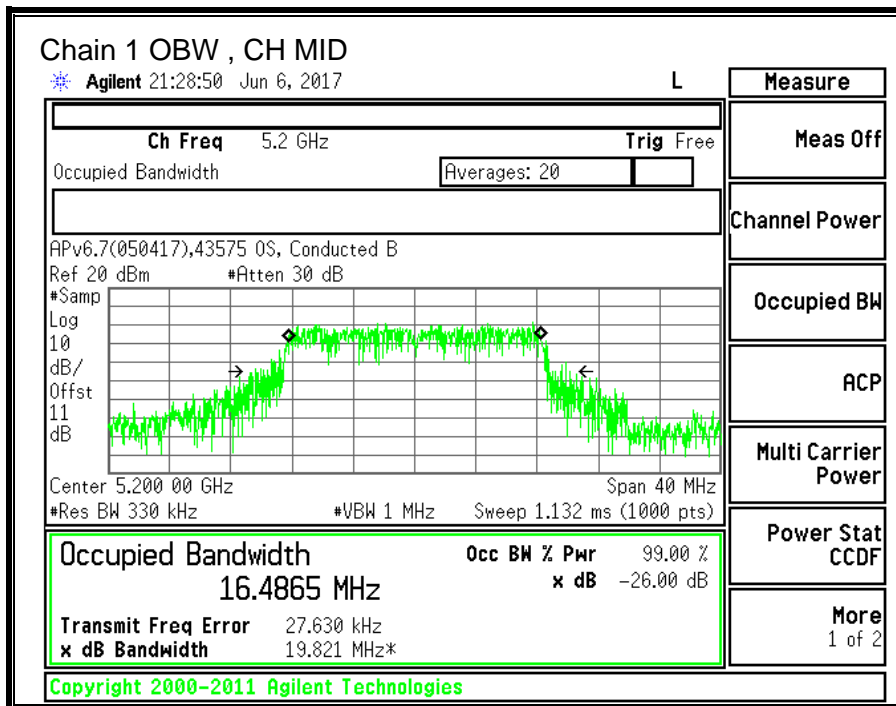
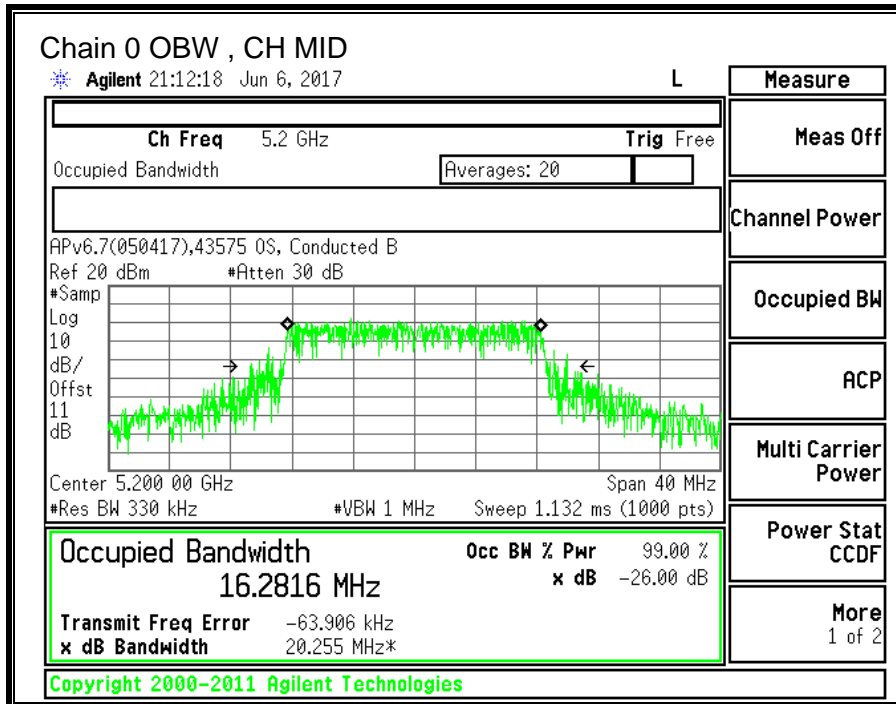
LIMITS

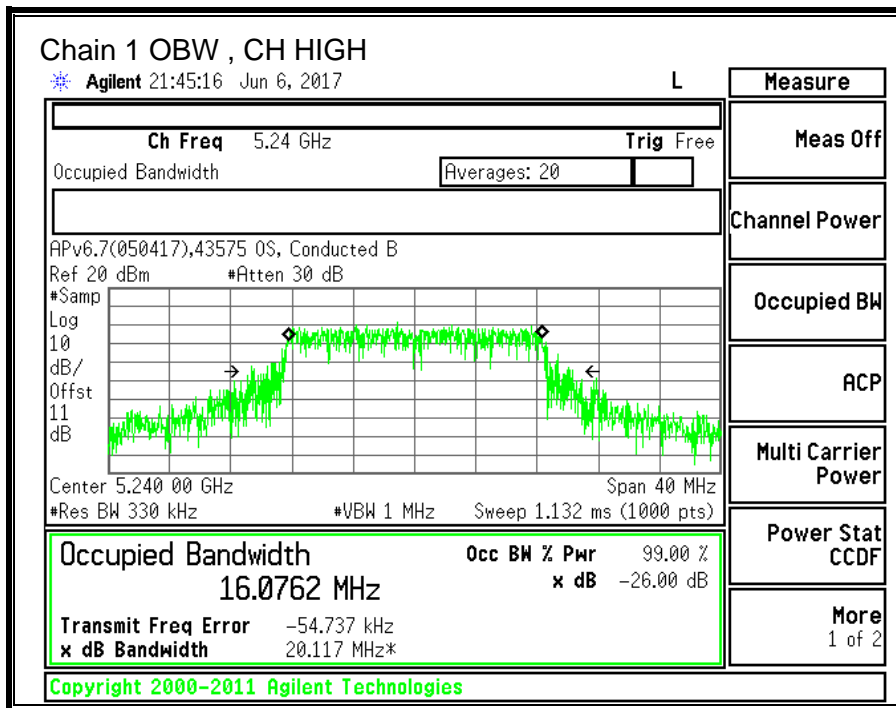
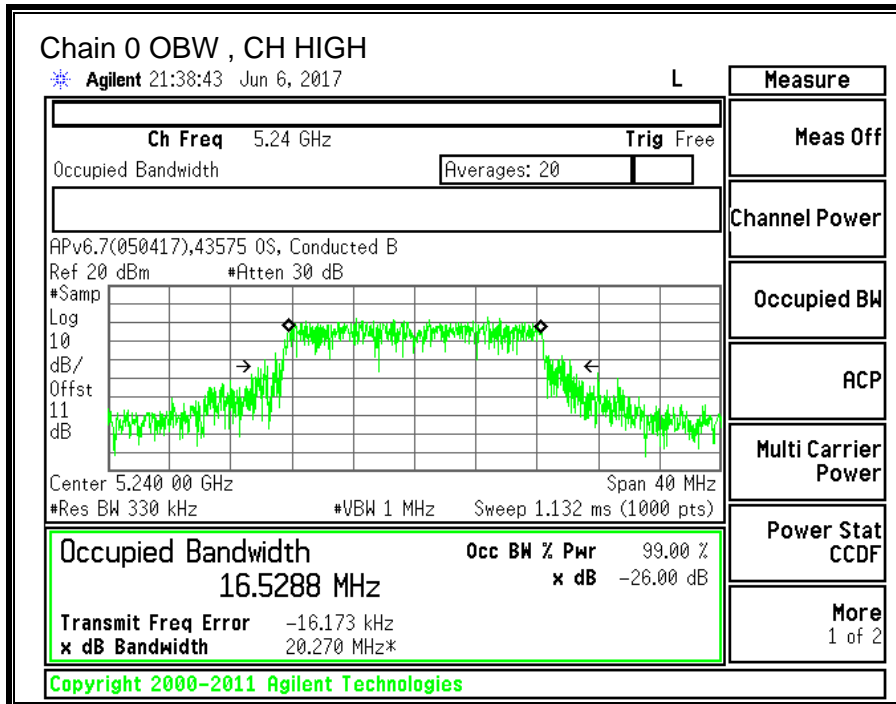
None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|---------|-----------|----------------------|----------------------|
| Low | 5180 | 16.006 | 16.337 |
| Mid | 5200 | 16.282 | 16.487 |
| High | 5240 | 16.529 | 16.076 |







10.1.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

5150-5250 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|---|---|---|
| -4.40 | -6.70 | -5.40 |

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

5150-5250 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Correlated Chains Directional Gain (dBi) |
|---|---|---|
| -4.40 | -6.70 | -2.46 |

RESULTS

| | | | |
|------------|-------|--------------|----------|
| ID: | 43574 | Date: | 06/06/17 |
|------------|-------|--------------|----------|

Bandwidth and Antenna Gain

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Min 99% BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PPSD (dBi) |
|---------|--------------------|-----------------------------|---------------------------|---|--|
| Low | 5180 | 22.35 | 16.006 | -5.40 | -2.46 |
| Mid | 5200 | 22.05 | 16.282 | -5.40 | -2.46 |
| High | 5240 | 22.35 | 16.076 | -5.40 | -2.46 |

Limits

| Channel | Frequency (MHz) | FCC Power Limit (dBm) | IC EIRP Limit (dBm) | Max IC Power (dBm) | Power Limit (dBm) | FCC PPSD Limit (dBm) | IC eirp PSD Limit (dBm) | PPSD Limit (dBm) |
|---------|--------------------|--------------------------------|------------------------------|-----------------------------|-------------------------|-------------------------------|-------------------------------------|------------------------|
| Low | 5180 | 24.00 | 22.04 | 27.44 | 24.00 | 11.00 | 10.00 | 11.00 |
| Mid | 5200 | 24.00 | 22.12 | 27.52 | 24.00 | 11.00 | 10.00 | 11.00 |
| High | 5240 | 24.00 | 22.06 | 27.46 | 24.00 | 11.00 | 10.00 | 11.00 |

| | | |
|---------------------------|------|--|
| Duty Cycle CF (dB) | 0.24 | Included in Calculations of Corr'd PPSD |
|---------------------------|------|--|

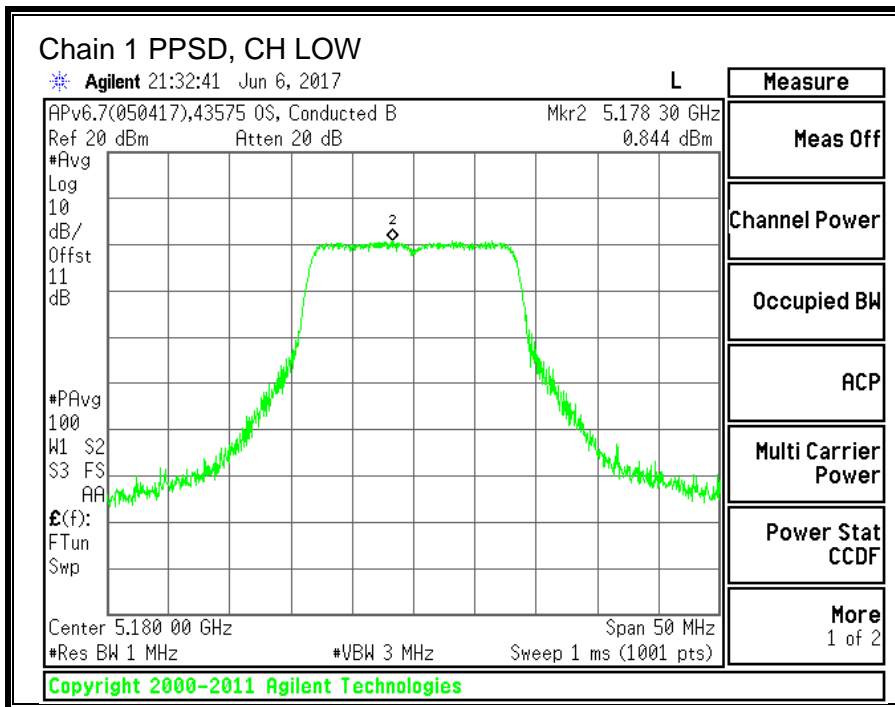
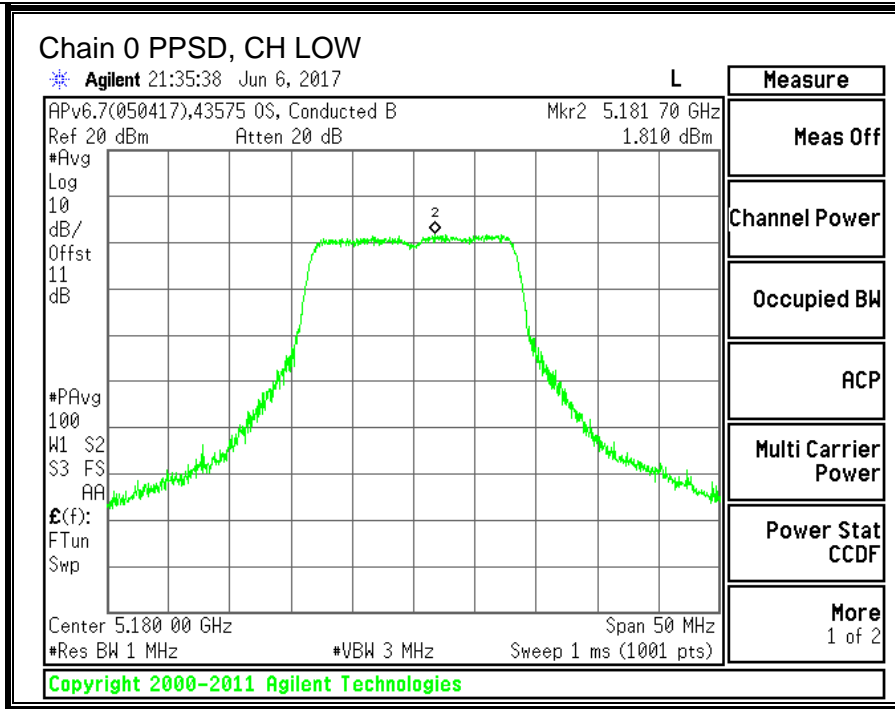
Output Power Results

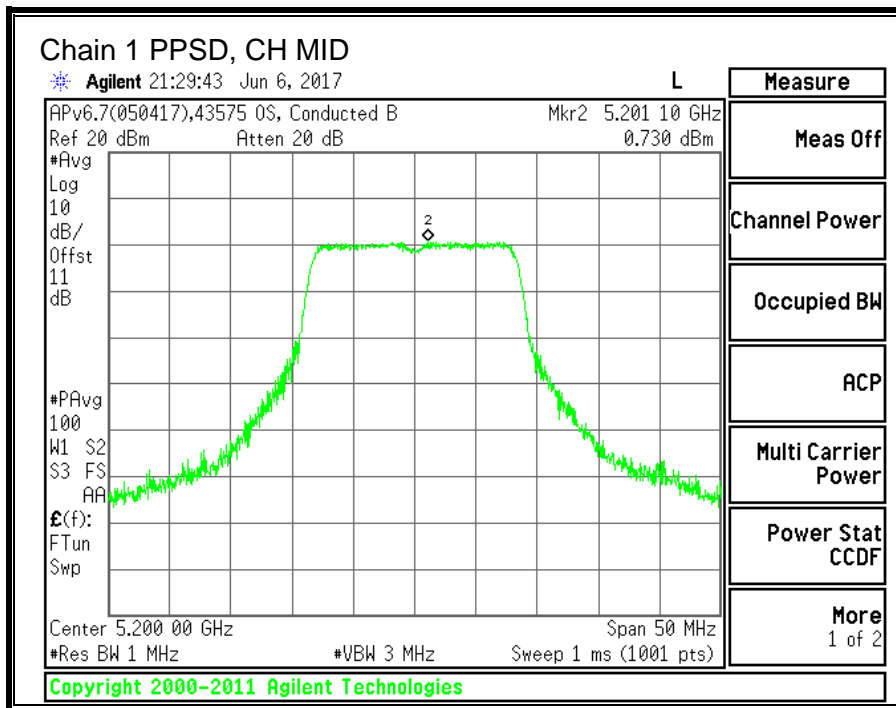
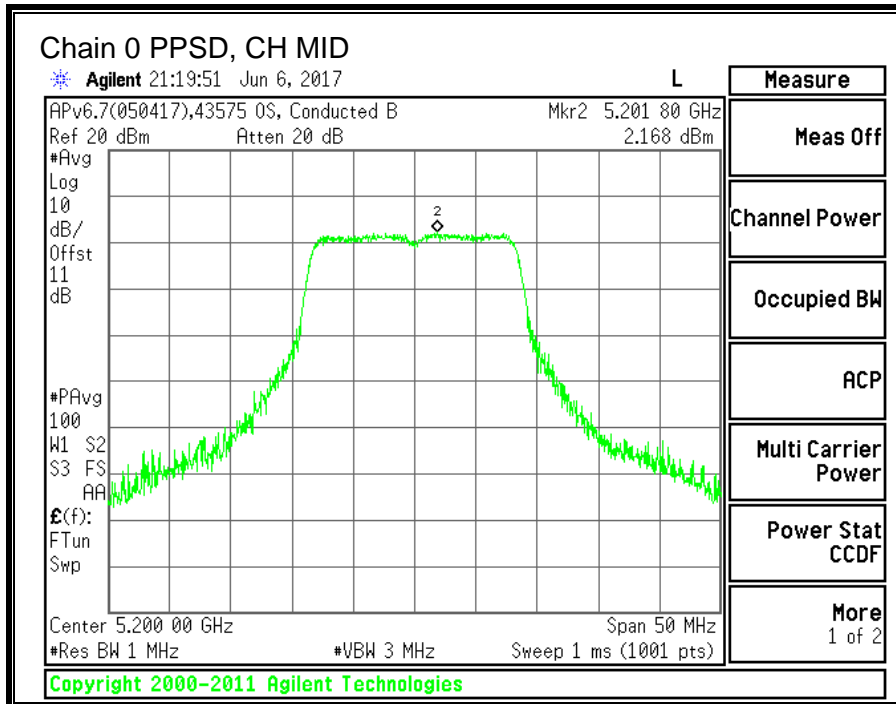
| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low | 5180 | 13.41 | 11.91 | 15.73 | 24.00 | -8.27 |
| Mid | 5200 | 13.38 | 11.95 | 15.73 | 24.00 | -8.27 |
| High | 5240 | 13.29 | 11.85 | 15.64 | 24.00 | -8.36 |

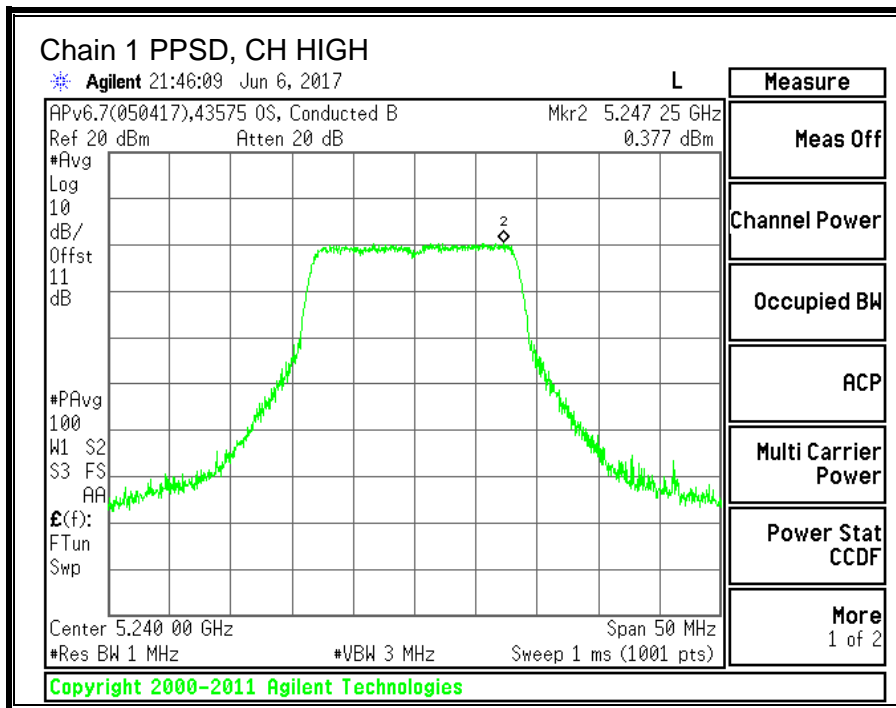
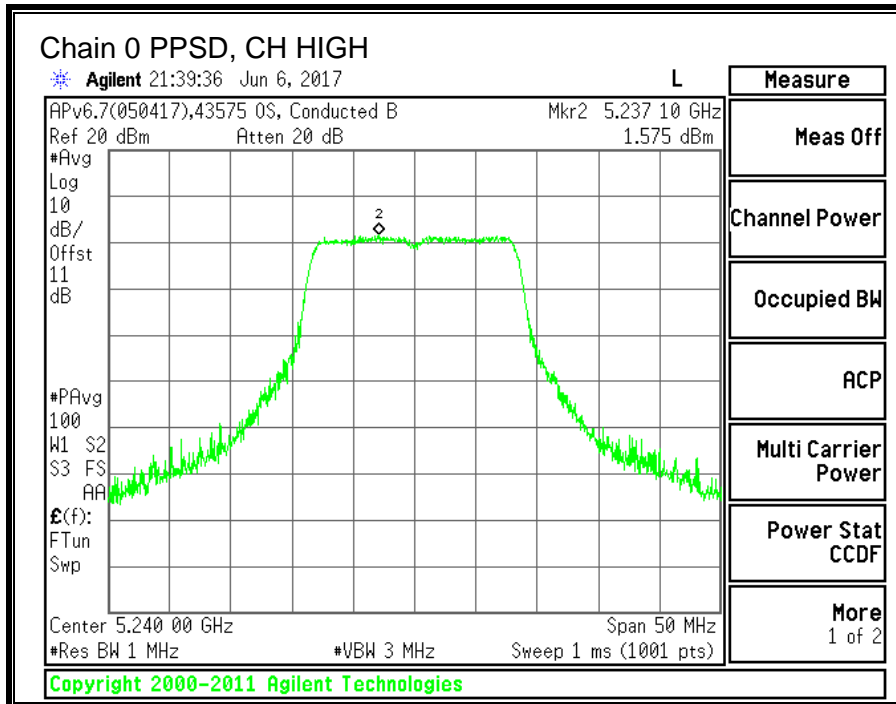
PPSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PPSD (dBm) | Chain 1 Meas PPSD (dBm) | Total Corr'd PPSD (dBm) | PPSD Limit (dBm) | PPSD Margin (dB) |
|---------|--------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|------------------------|
| Low | 5180 | 1.810 | 0.844 | 4.60 | 11.00 | -6.40 |
| Mid | 5200 | 2.168 | 0.730 | 4.76 | 11.00 | -6.24 |
| High | 5240 | 1.575 | 0.377 | 4.27 | 11.00 | -6.73 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.







10.2. 11n HT20 2TX CDD MIMO MODE IN THE 5.2GHz BAND

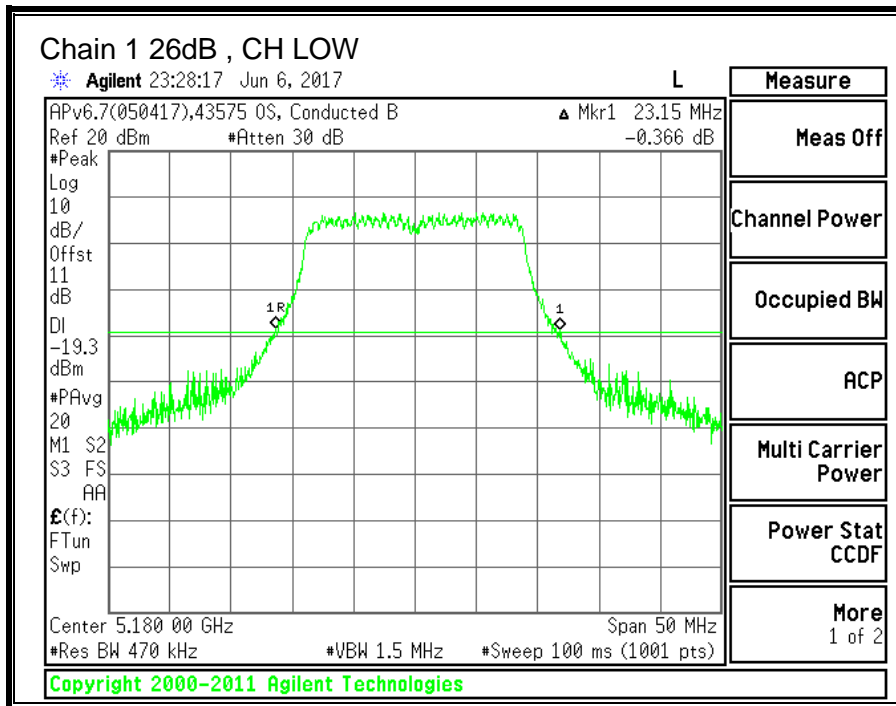
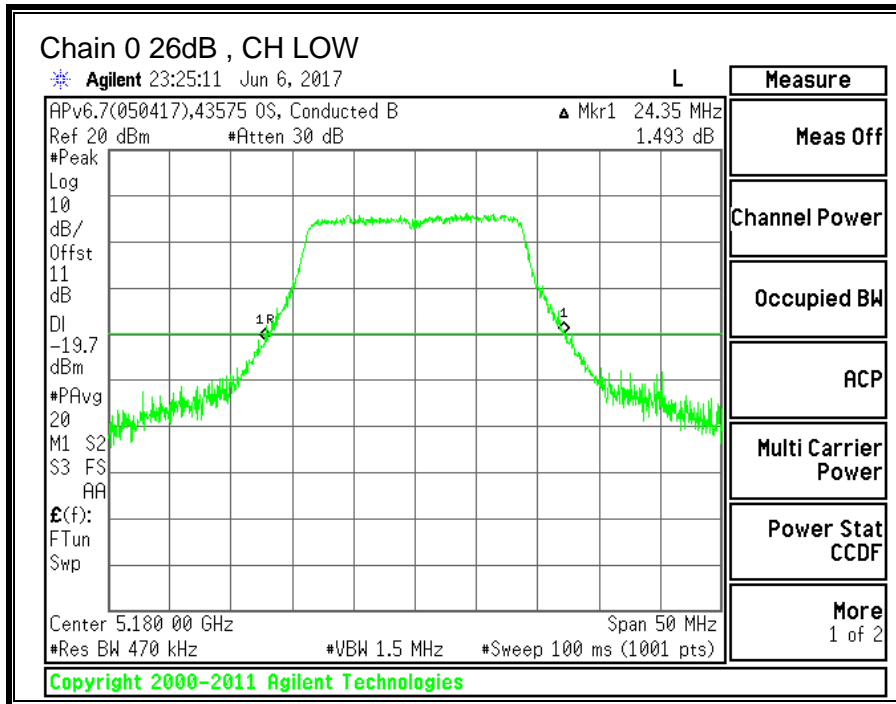
10.2.1. 26 dB BANDWIDTH

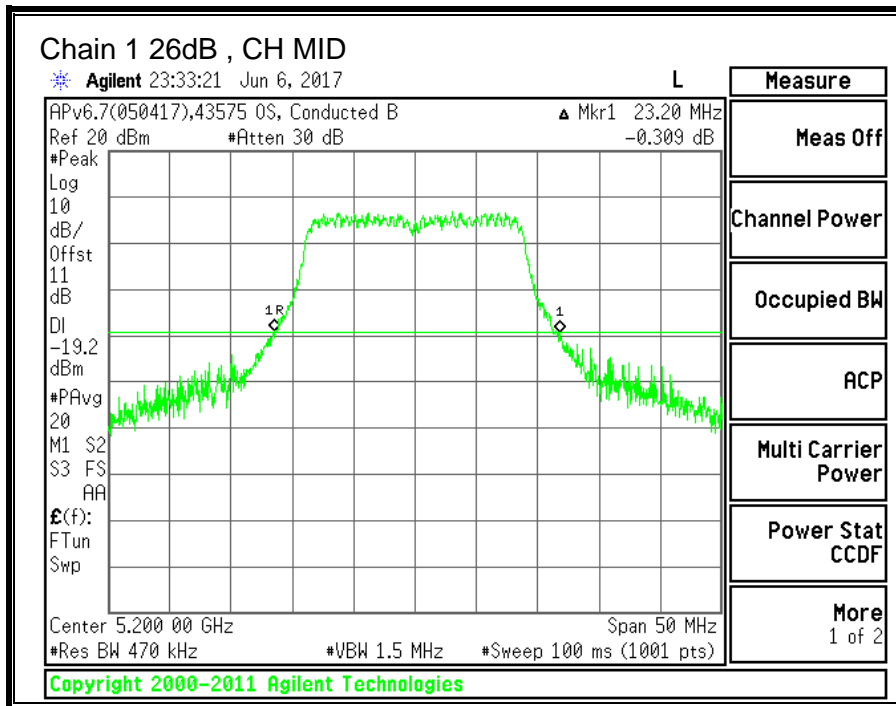
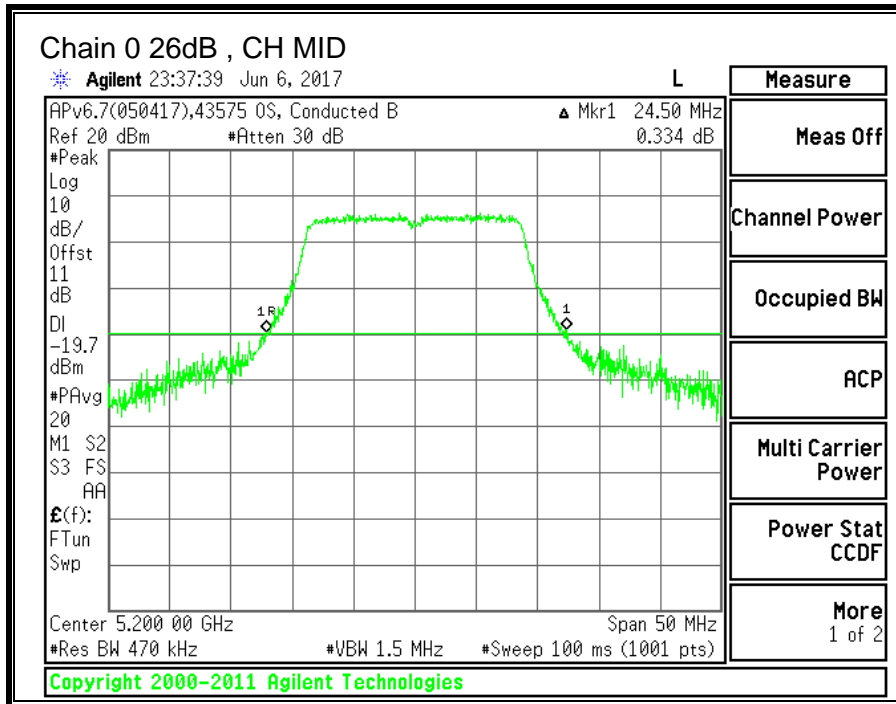
LIMITS

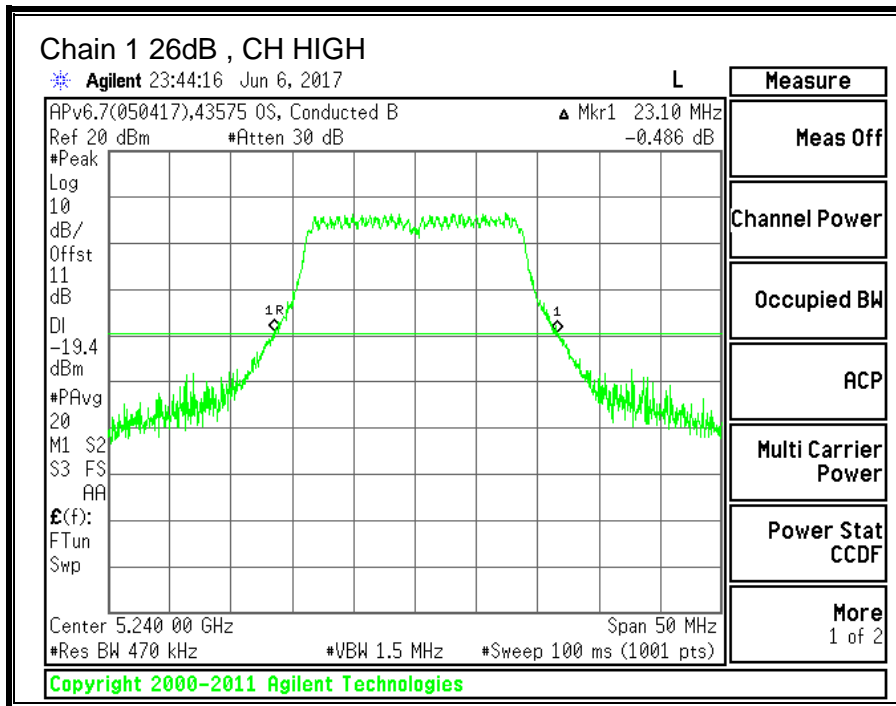
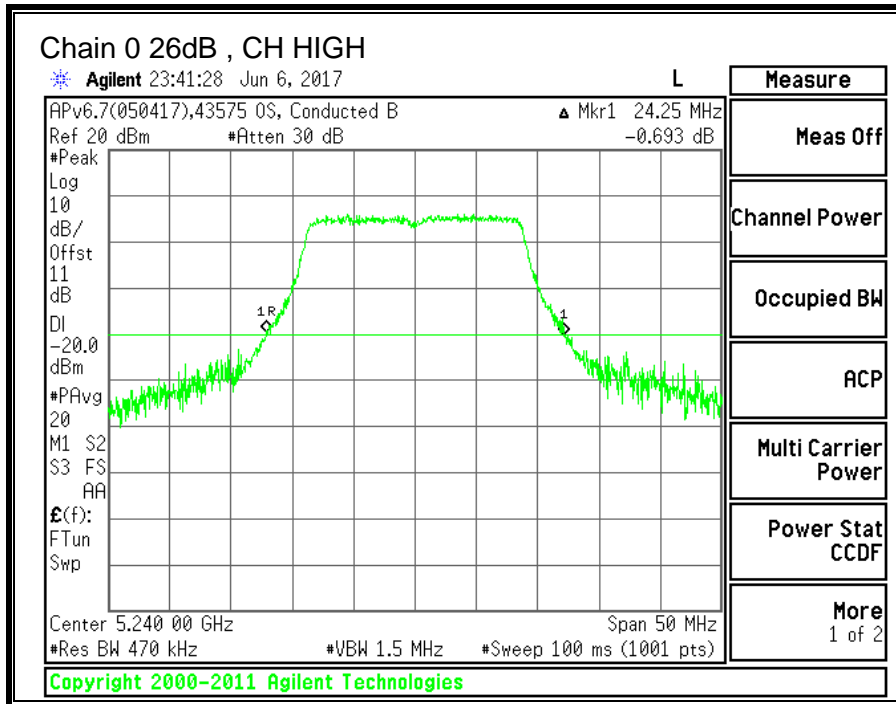
None; for reporting purposes only.

RESULTS

| Channel | Frequency | 26 dB BW Chain 0 (MHz) | 26 dB BW Chain 1 (MHz) |
|---------|-----------|------------------------------|------------------------------|
| Low | 5180 | 24.35 | 23.15 |
| Mid | 5200 | 24.50 | 23.20 |
| High | 5240 | 24.25 | 23.10 |







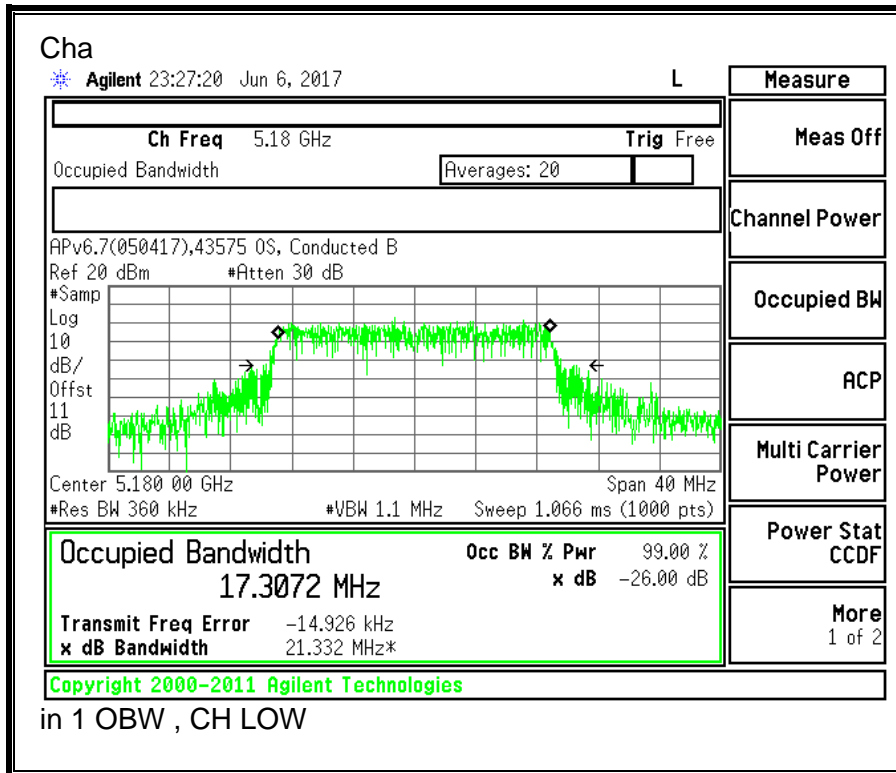
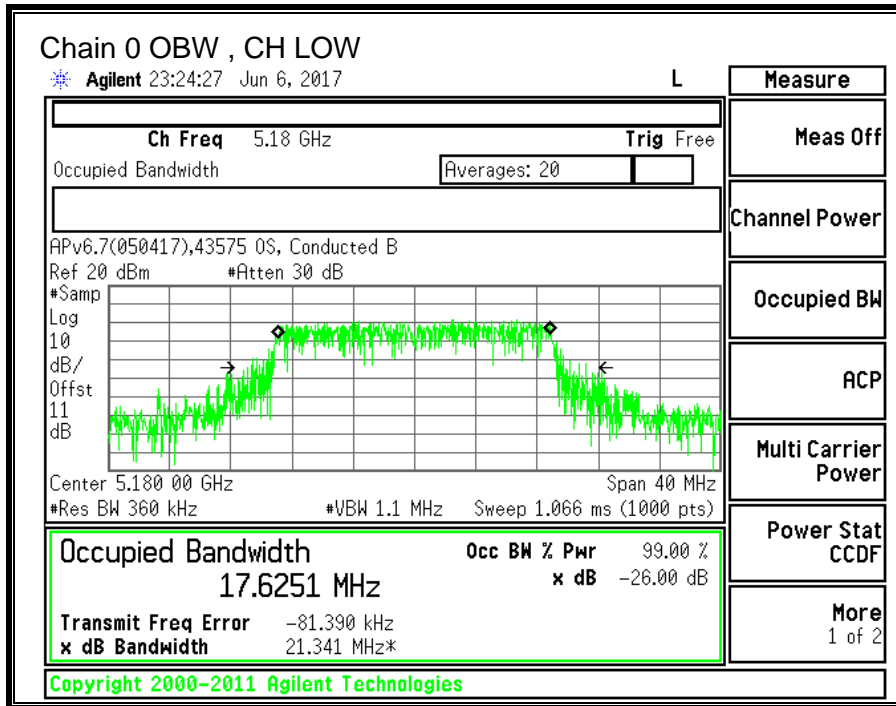
10.2.2. 99% BANDWIDTH

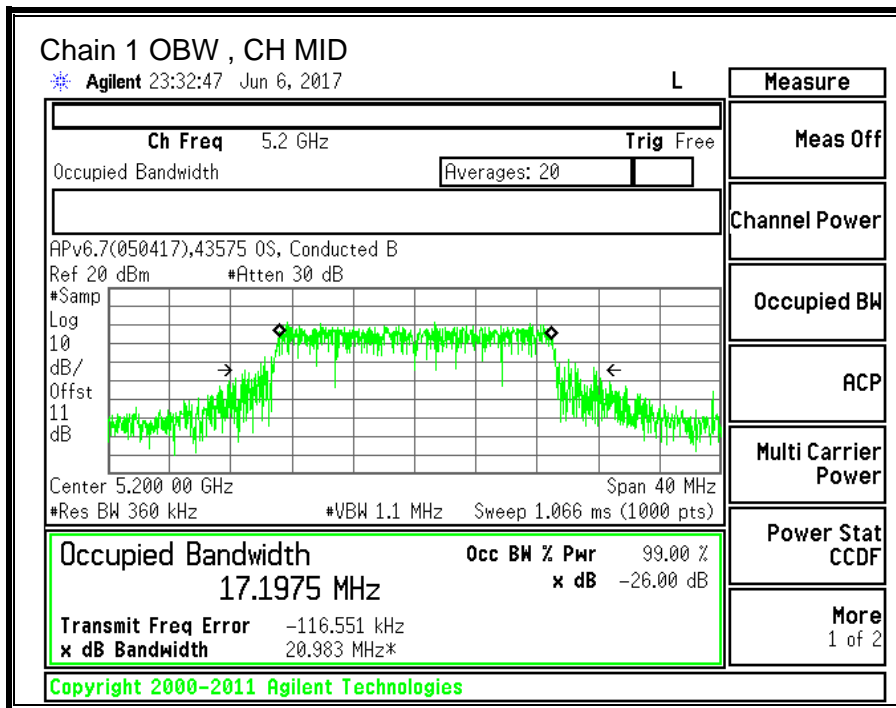
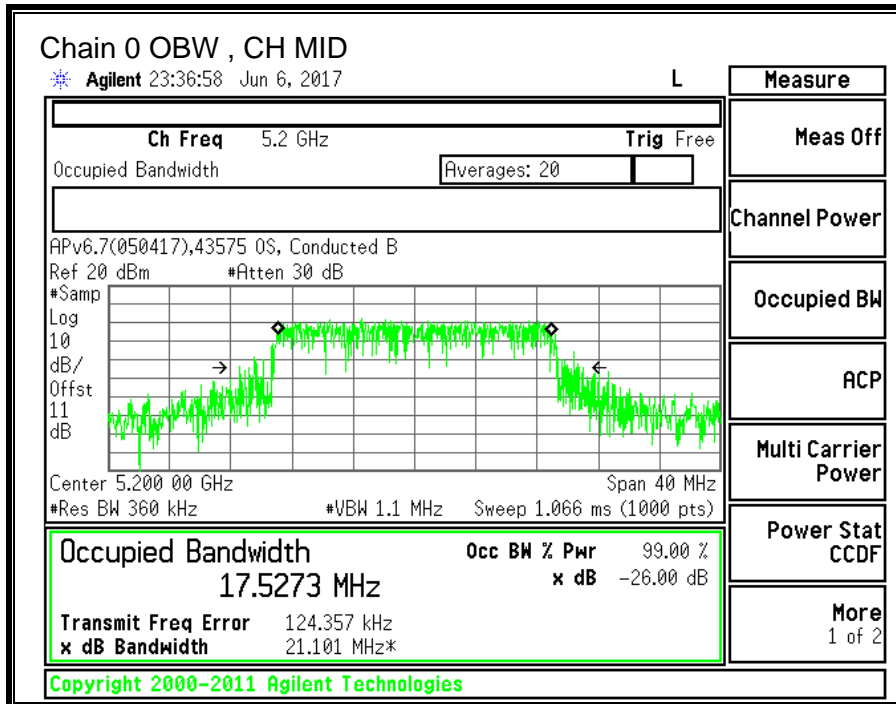
LIMITS

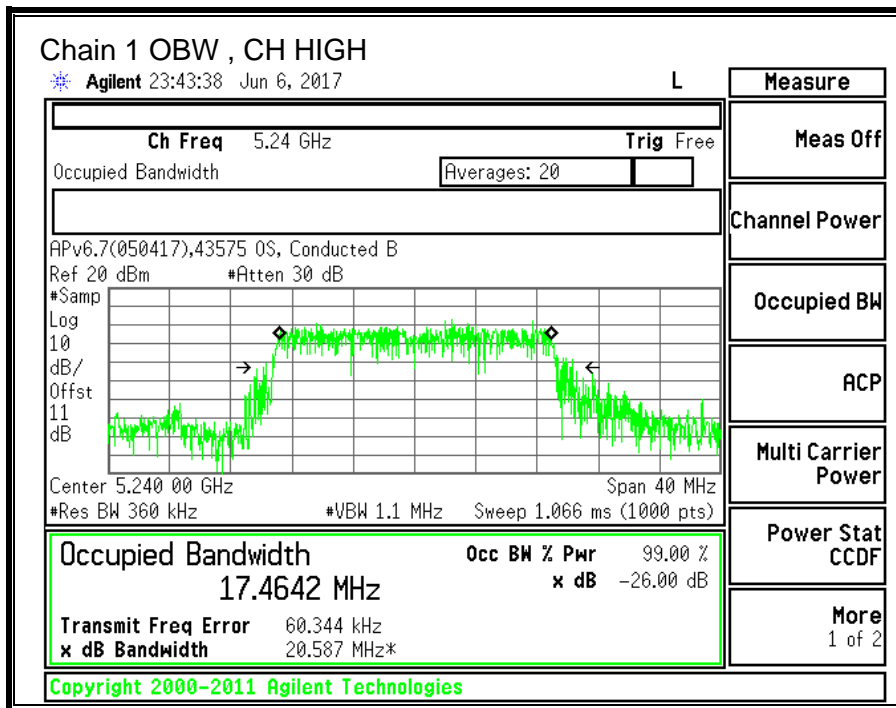
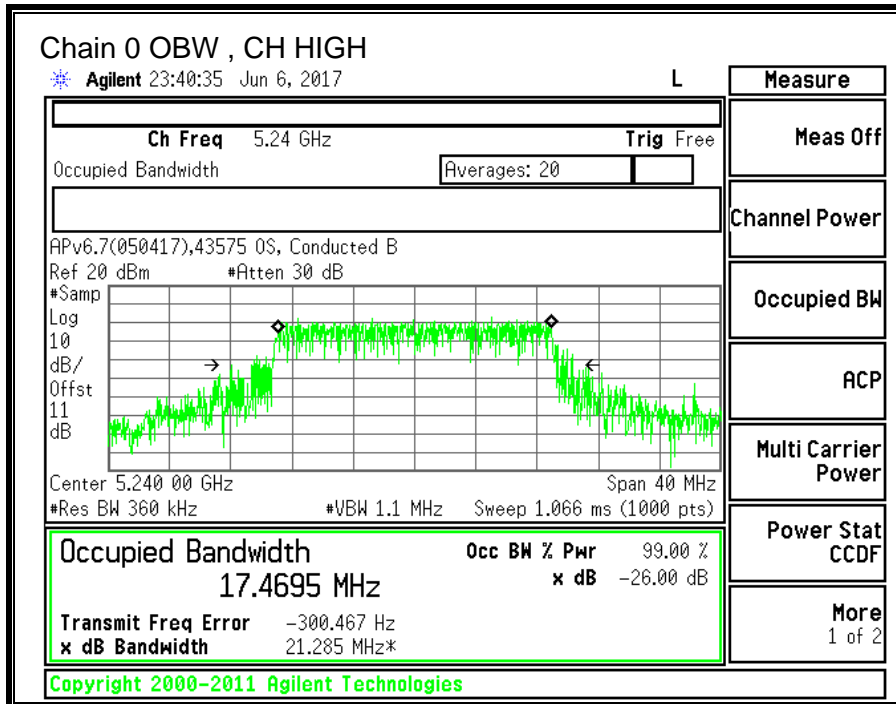
None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|---------|-----------|----------------------|----------------------|
| Low | 5180 | 17.625 | 17.307 |
| Mid | 5200 | 17.527 | 17.197 |
| High | 5240 | 17.469 | 17.464 |







10.2.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

5150-5250 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|---|---|---|
| -4.40 | -6.70 | -5.40 |

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

5150-5250 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Correlated Chains Directional Gain (dBi) |
|---|---|---|
| -4.40 | -6.70 | -2.46 |

RESULTS

| | | | |
|------------|-------|--------------|----------|
| ID: | 43574 | Date: | 06/06/17 |
|------------|-------|--------------|----------|

Bandwidth and Antenna Gain

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Min 99% BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PPSD (dBi) |
|---------|--------------------|-----------------------------|---------------------------|---|--|
| Low | 5180 | 23.15 | 17.307 | -5.40 | -2.46 |
| Mid | 5200 | 23.20 | 17.197 | -5.40 | -2.46 |
| High | 5240 | 23.10 | 17.464 | -5.40 | -2.46 |

Limits

| Channel | Frequency (MHz) | FCC Power Limit (dBm) | IC EIRP Limit (dBm) | Max IC Power (dBm) | Power Limit (dBm) | FCC PPSD Limit (dBm) | IC eirp PSD Limit (dBm) | PPSD Limit (dBm) |
|---------|--------------------|--------------------------------|------------------------------|-----------------------------|-------------------------|-------------------------------|-------------------------------------|------------------------|
| Low | 5180 | 24.00 | 22.38 | 27.78 | 24.00 | 11.00 | 10.00 | 11.00 |
| Mid | 5200 | 24.00 | 22.35 | 27.75 | 24.00 | 11.00 | 10.00 | 11.00 |
| High | 5240 | 24.00 | 22.42 | 27.82 | 24.00 | 11.00 | 10.00 | 11.00 |

| | | |
|---------------------------|------|--|
| Duty Cycle CF (dB) | 0.20 | Included in Calculations of Corr'd PPSD |
|---------------------------|------|--|

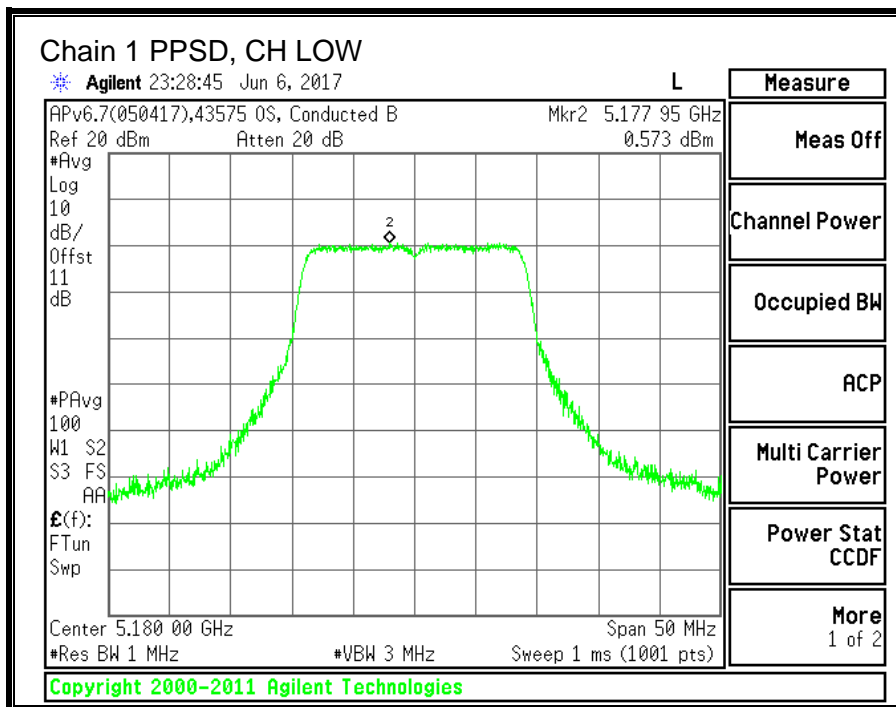
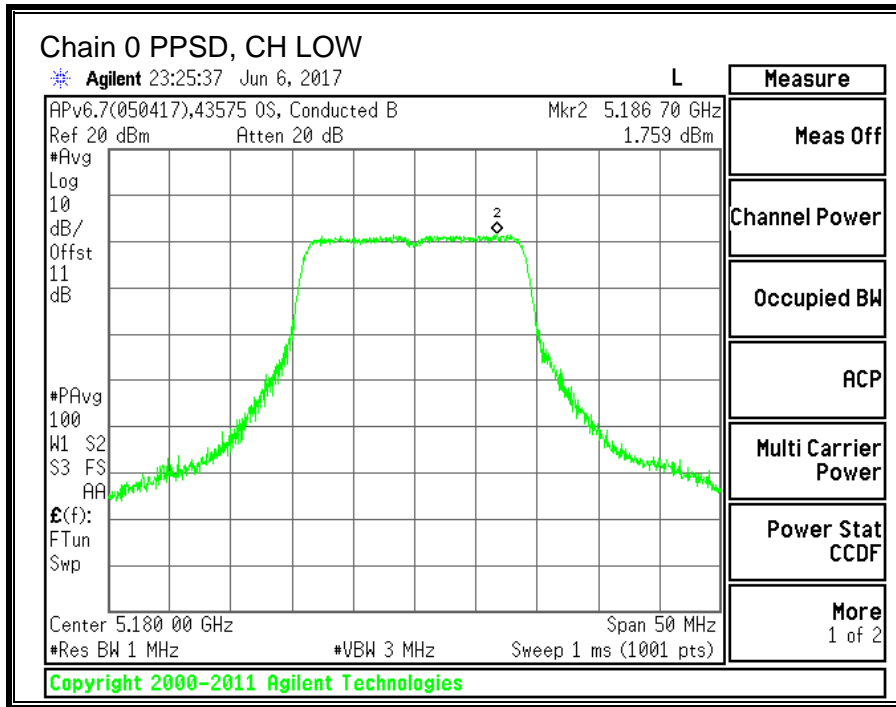
Output Power Results

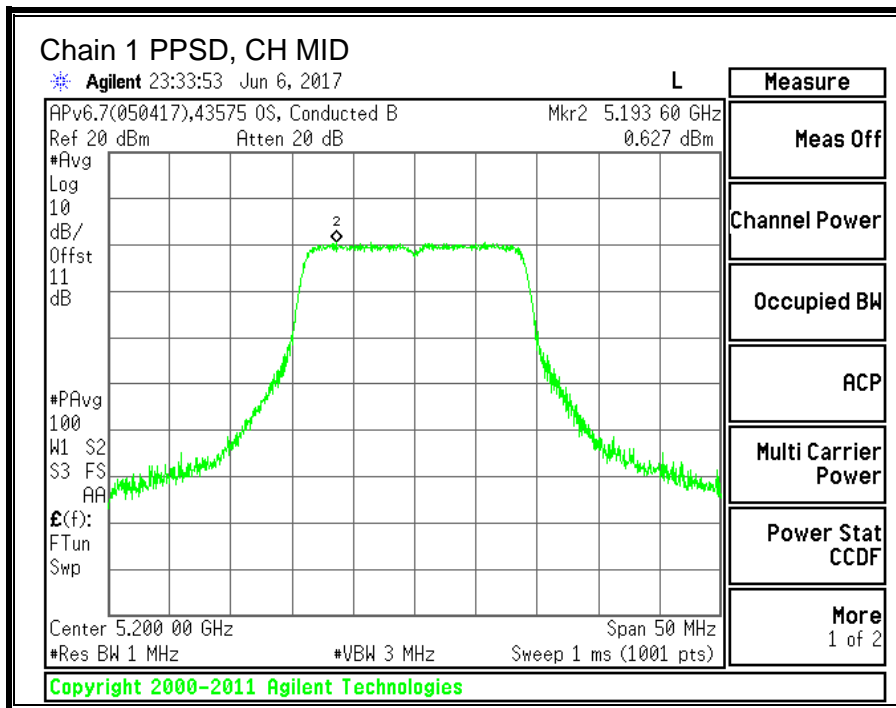
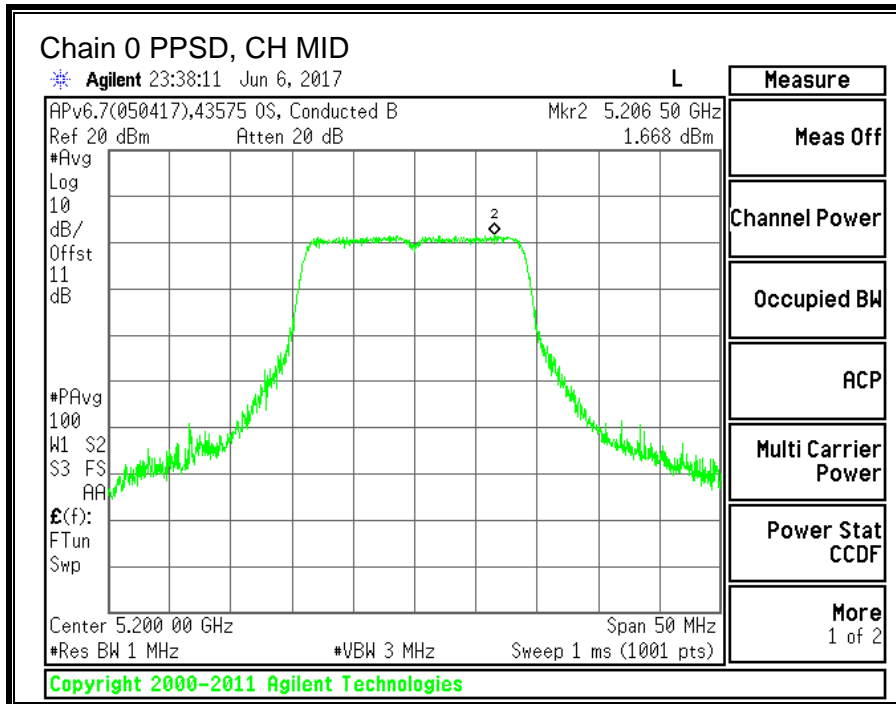
| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low | 5180 | 13.51 | 11.92 | 15.80 | 24.00 | -8.20 |
| Mid | 5200 | 13.37 | 12.02 | 15.76 | 24.00 | -8.24 |
| High | 5240 | 13.43 | 11.96 | 15.77 | 24.00 | -8.23 |

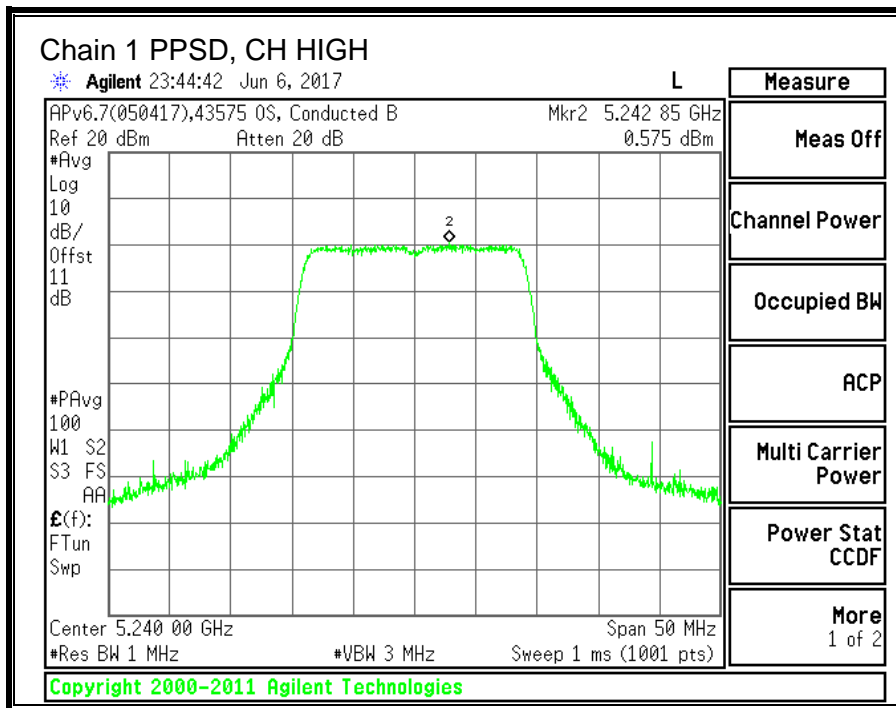
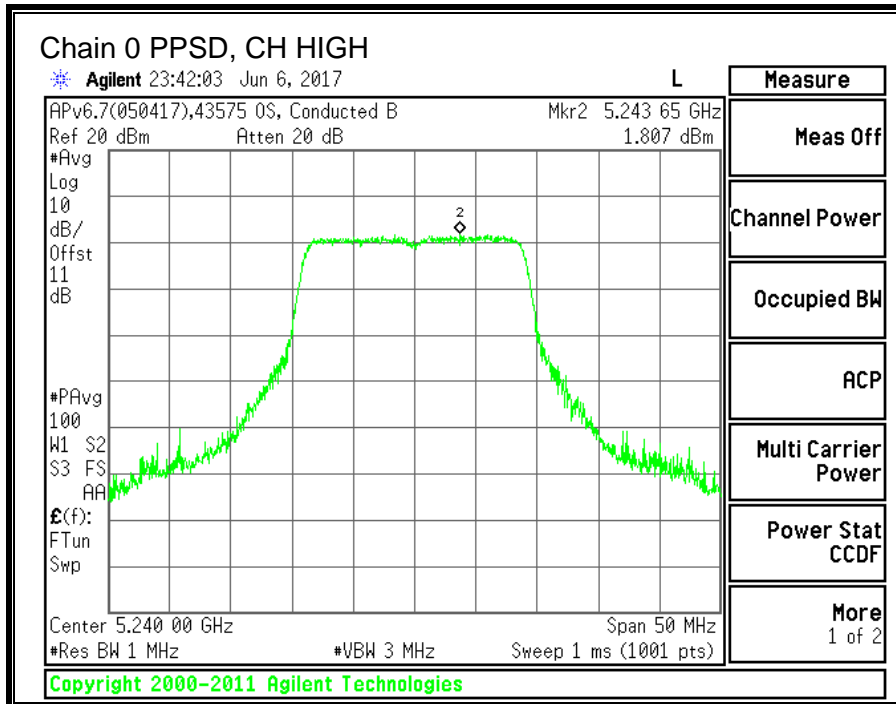
PPSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PPSD (dBm) | Chain 1 Meas PPSD (dBm) | Total Corr'd PPSD (dBm) | PPSD Limit (dBm) | PPSD Margin (dB) |
|---------|--------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|------------------------|
| Low | 5180 | 1.759 | 0.573 | 4.42 | 11.00 | -6.58 |
| Mid | 5200 | 1.668 | 0.627 | 4.39 | 11.00 | -6.61 |
| High | 5240 | 1.807 | 0.575 | 4.44 | 11.00 | -6.56 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.







10.3. 11n HT40 2TX CDD MIMO MODE IN THE 5.2GHz BAND

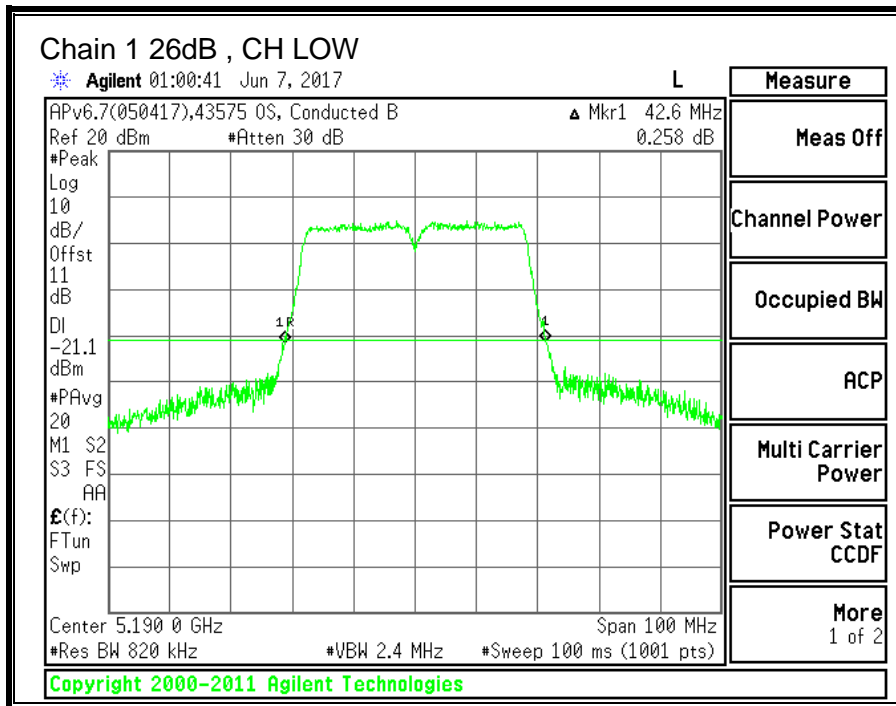
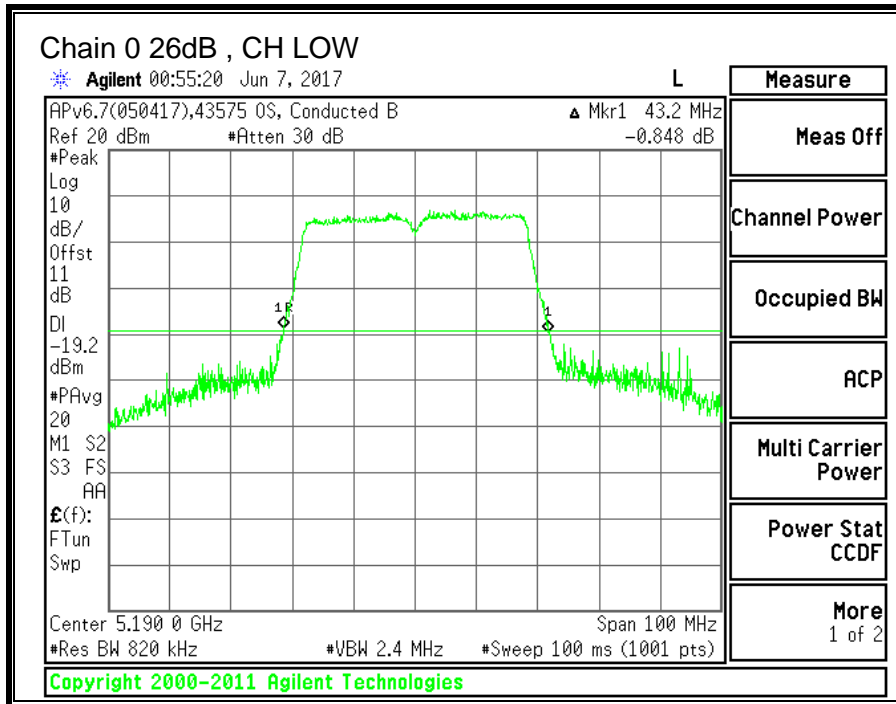
10.3.1. 26 dB BANDWIDTH

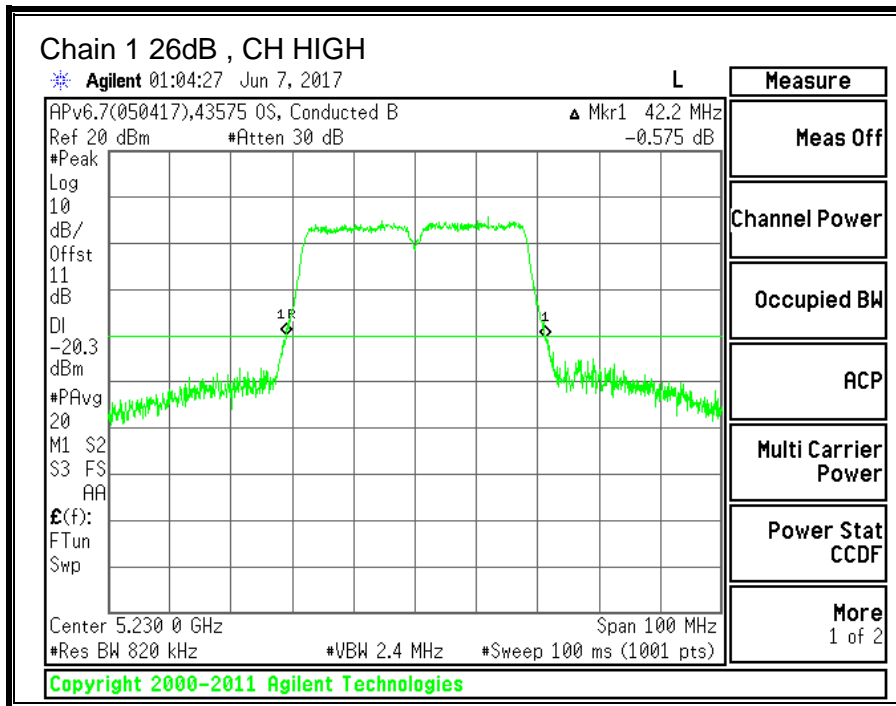
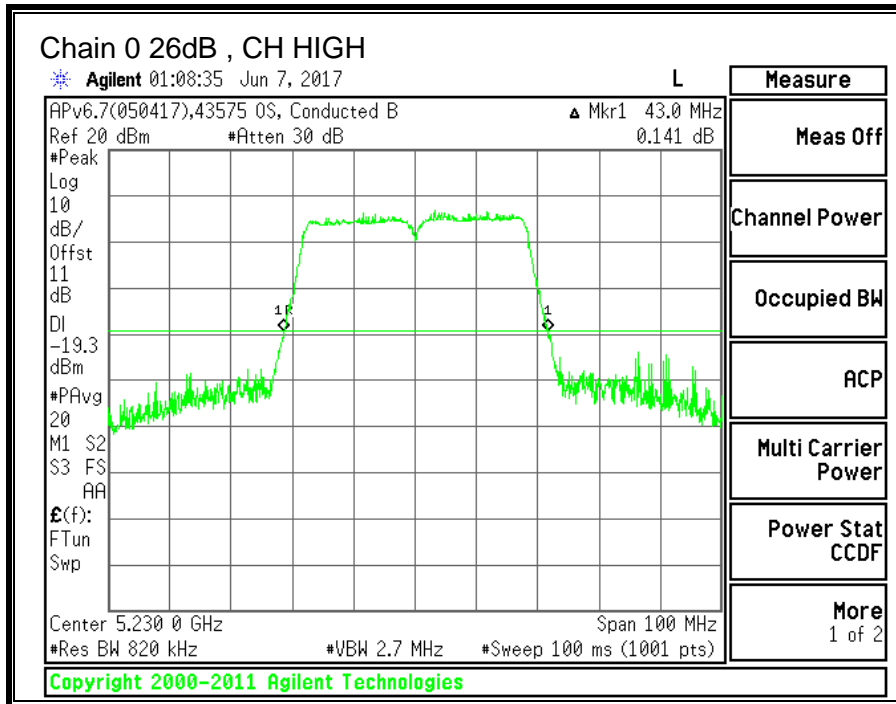
LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 26 dB BW Chain 0 (MHz) | 26 dB BW Chain 1 (MHz) |
|---------|-----------|------------------------------|------------------------------|
| Low | 5190 | 43.2 | 42.6 |
| High | 5230 | 43.0 | 42.2 |





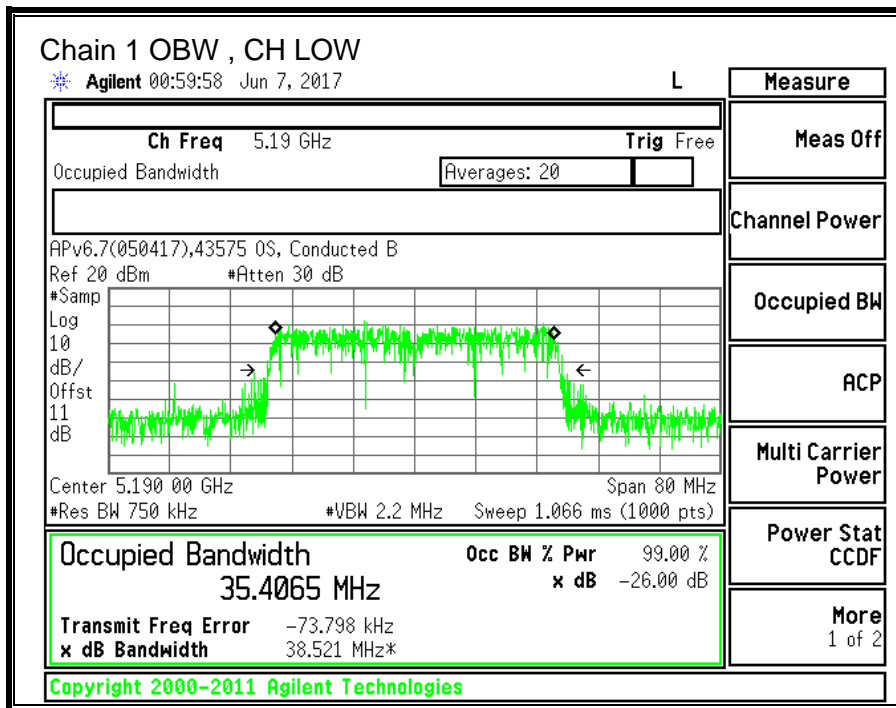
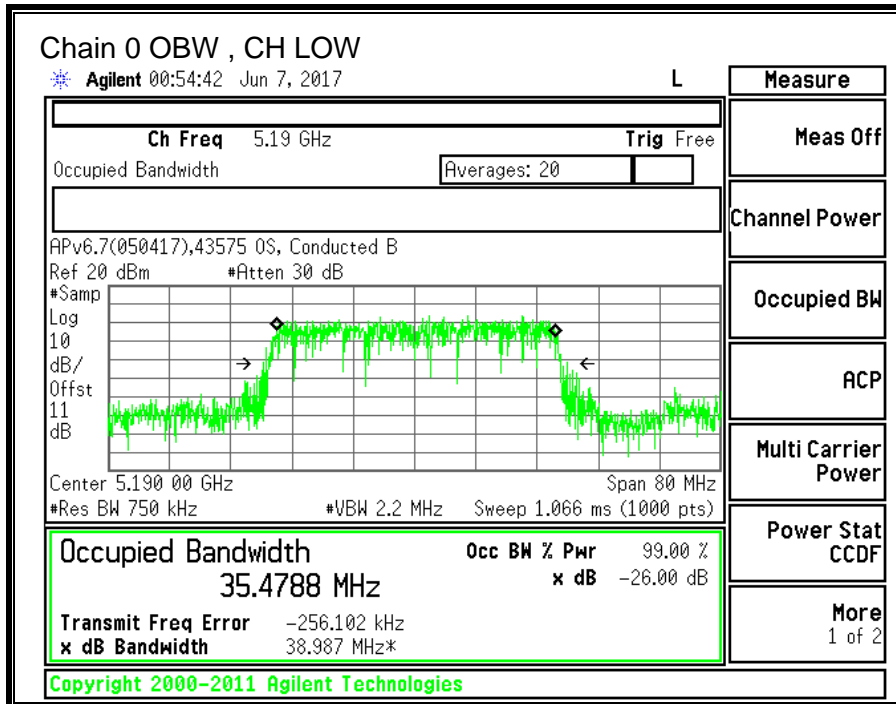
10.3.2. 99% BANDWIDTH

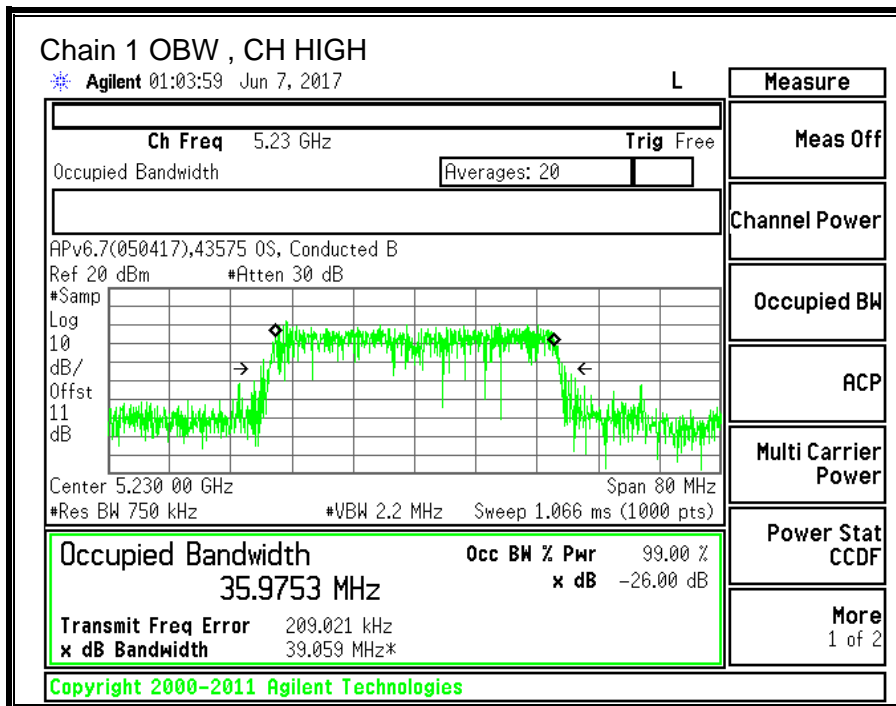
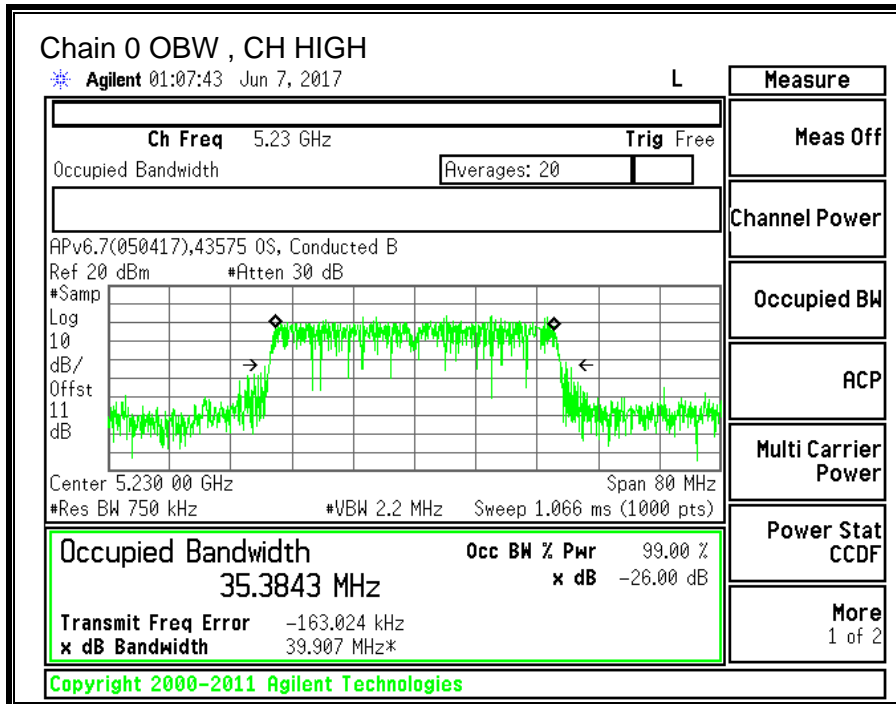
LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|----------------|------------------|-------------------------------------|-------------------------------------|
| Low | 5190 | 35.479 | 35.407 |
| High | 5230 | 35.384 | 35.975 |





10.3.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

5150-5250 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|---|---|---|
| -4.40 | -6.70 | -5.40 |

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

5150-5250 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Correlated Chains Directional Gain (dBi) |
|---|---|---|
| -4.40 | -6.70 | -2.46 |

RESULTS

| | | | |
|------------|-------|--------------|----------|
| ID: | 43574 | Date: | 06/06/17 |
|------------|-------|--------------|----------|

Bandwidth and Antenna Gain

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Min 99% BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PPSD (dBi) |
|---------|--------------------|-----------------------------|---------------------------|---|--|
| Low | 5190 | 42.60 | 35.407 | -5.40 | -2.46 |
| High | 5230 | 42.20 | 35.384 | -5.40 | -2.46 |

Limits

| Channel | Frequency (MHz) | FCC Power Limit (dBm) | IC EIRP Limit (dBm) | Max IC Power (dBm) | Power Limit (dBm) | FCC PPSD Limit (dBm) | IC eirp PSD Limit (dBm) | PPSD Limit (dBm) |
|---------|--------------------|--------------------------------|------------------------------|-----------------------------|-------------------------|-------------------------------|-------------------------------------|------------------------|
| Low | 5190 | 24.00 | 23.00 | 28.40 | 24.00 | 11.00 | 10.00 | 11.00 |
| High | 5230 | 24.00 | 23.00 | 28.40 | 24.00 | 11.00 | 10.00 | 11.00 |

| | | |
|---------------------------|------|--|
| Duty Cycle CF (dB) | 0.40 | Included in Calculations of Corr'd PPSD |
|---------------------------|------|--|

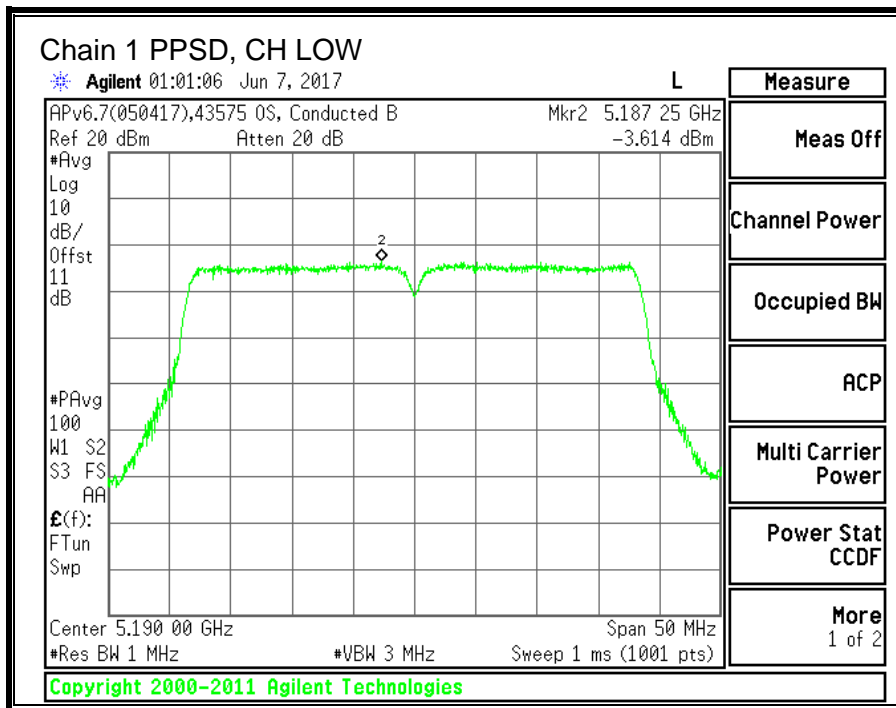
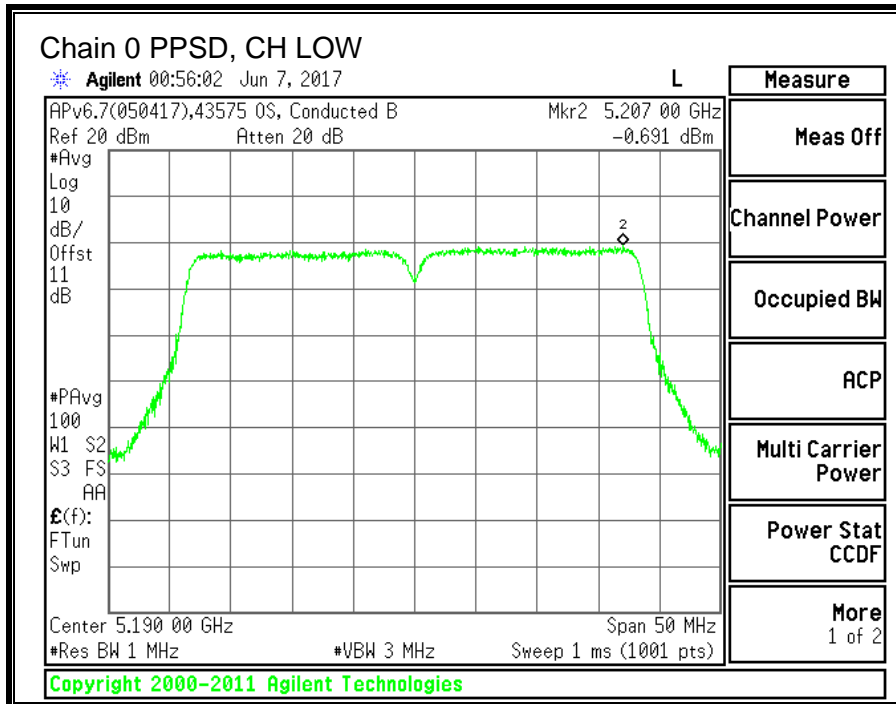
Output Power Results

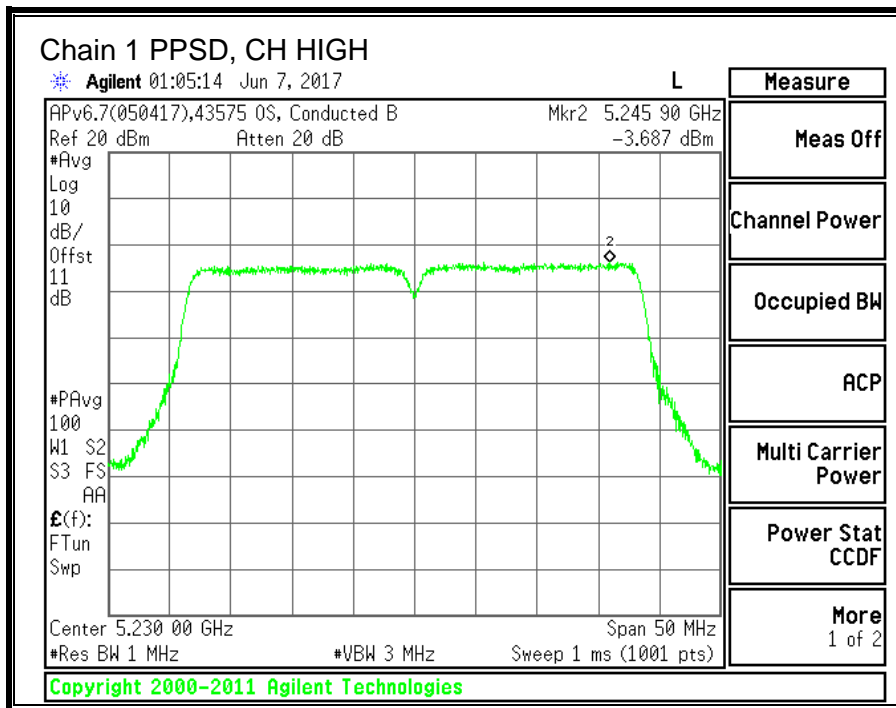
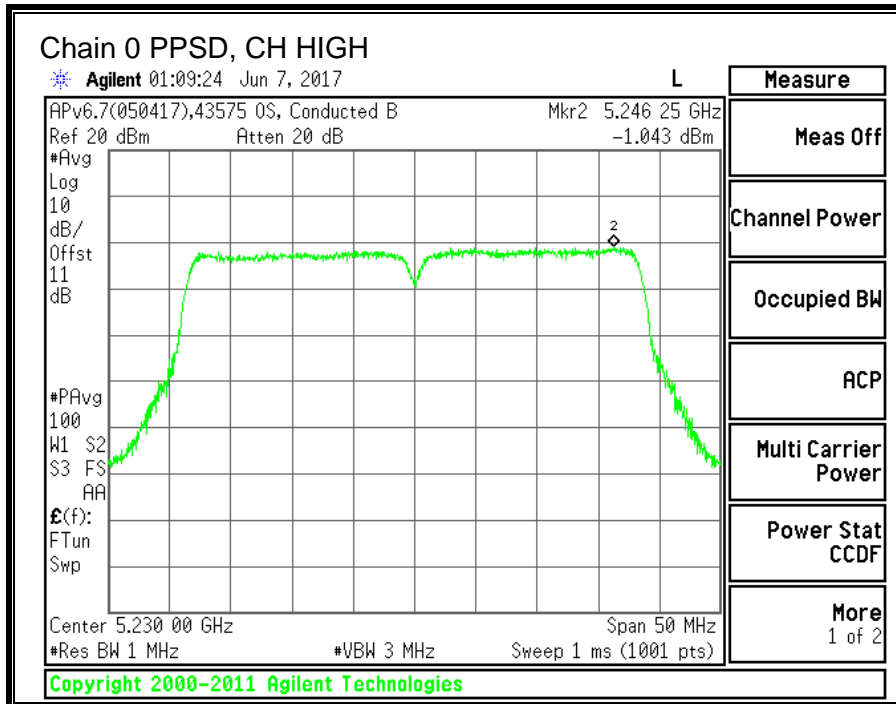
| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low | 5190 | 13.17 | 11.91 | 15.60 | 24.00 | -8.40 |
| High | 5230 | 13.26 | 12.10 | 15.73 | 24.00 | -8.27 |

PPSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PPSD (dBm) | Chain 1 Meas PPSD (dBm) | Total Corr'd PPSD (dBm) | PPSD Limit (dBm) | PPSD Margin (dB) |
|---------|--------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|------------------------|
| Low | 5190 | -0.691 | -3.614 | 1.50 | 11.00 | -9.50 |
| High | 5230 | -1.043 | -3.687 | 1.24 | 11.00 | -9.76 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.





10.4. 11ac HT80 2TX CDD MIMO MODE IN THE 5.2GHz BAND

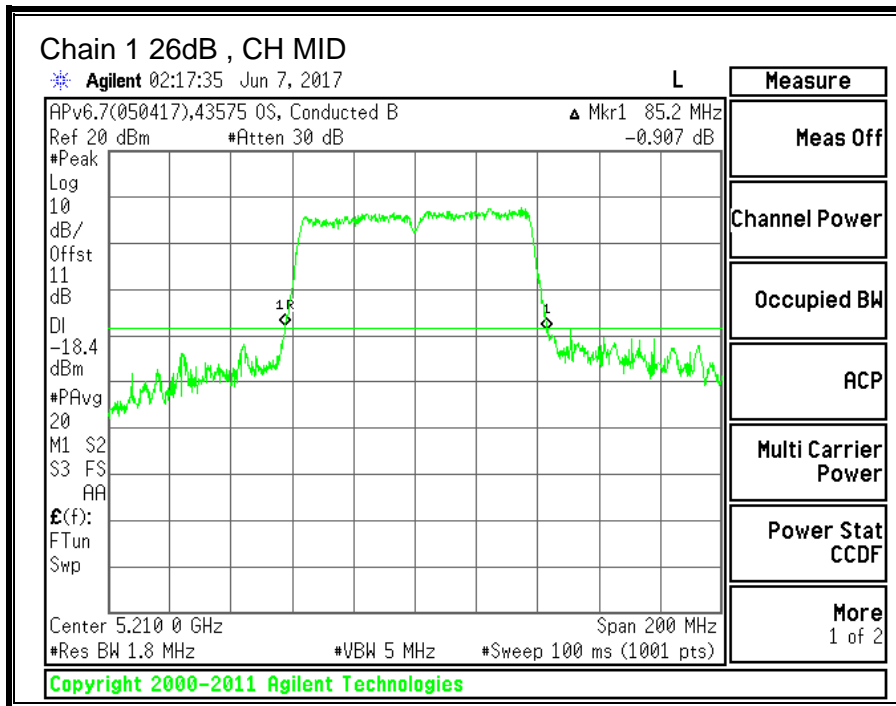
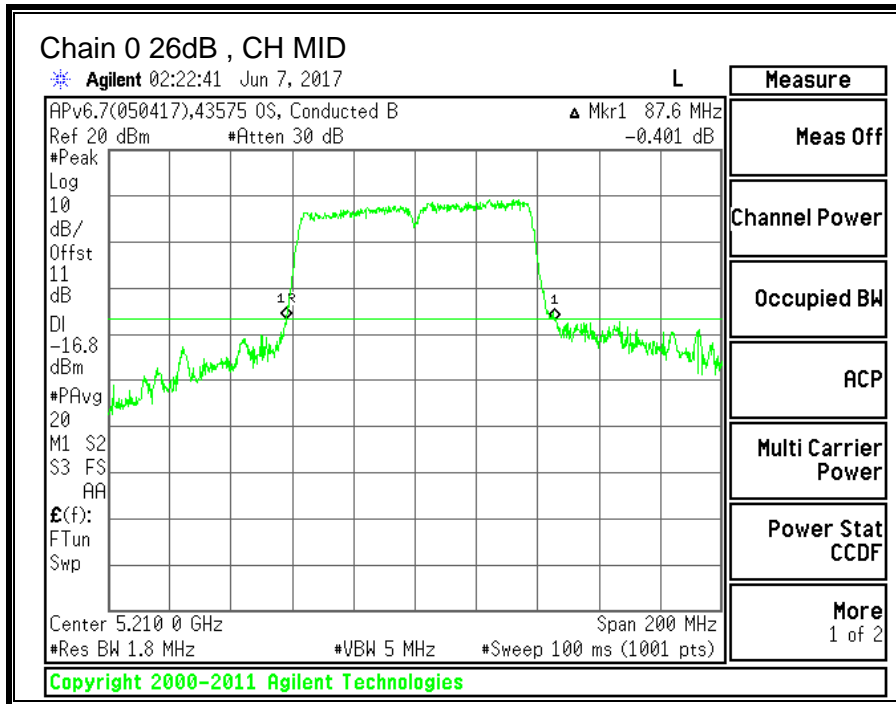
10.4.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 26 dB BW Chain 0 (MHz) | 26 dB BW Chain 1 (MHz) |
|----------------|------------------|---------------------------------------|---------------------------------------|
| Mid | 5210 | 87.6 | 85.2 |



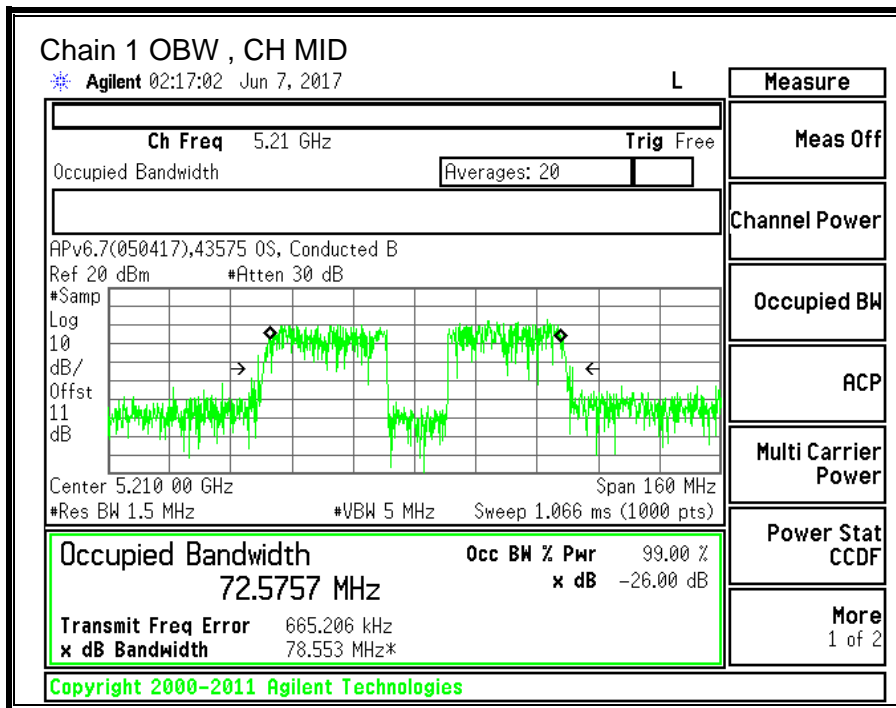
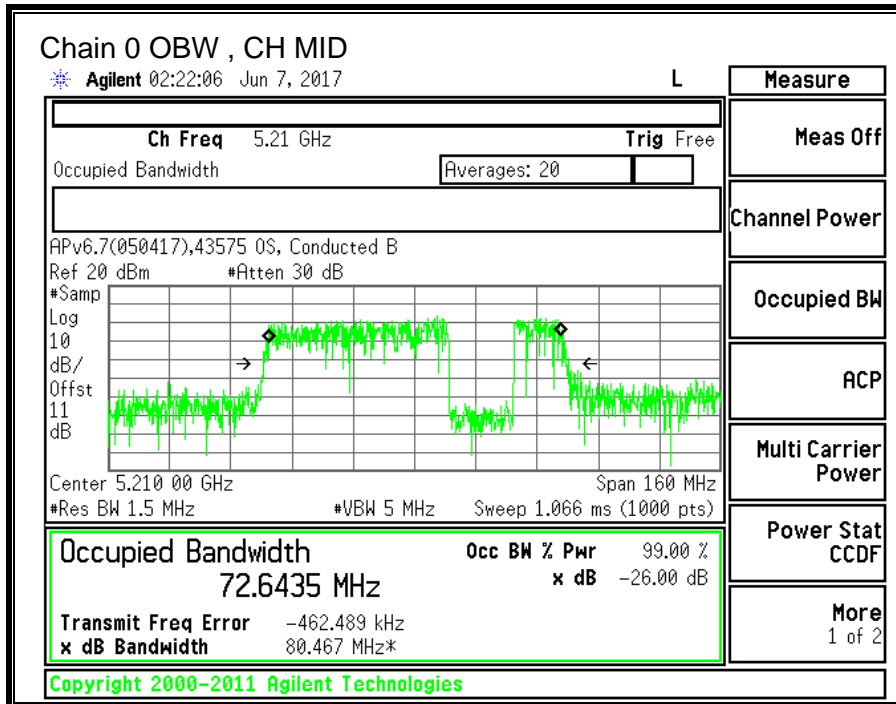
10.4.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|----------------|------------------|-------------------------------------|-------------------------------------|
| Mid | 5210 | 72.644 | 72.576 |



10.4.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

5150-5250 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|---|---|---|
| -4.40 | -6.70 | -5.40 |

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

5150-5250 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Correlated Chains Directional Gain (dBi) |
|---|---|---|
| -4.40 | -6.70 | -2.46 |

RESULTS

| | | | |
|------------|-------|--------------|----------|
| ID: | 43574 | Date: | 06/06/17 |
|------------|-------|--------------|----------|

Bandwidth and Antenna Gain

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Min 99% BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PPSD (dBi) |
|---------|--------------------|-----------------------------|---------------------------|---|--|
| Low | 5210 | 85.20 | 72.576 | -5.40 | -2.46 |

Limits

| Channel | Frequency (MHz) | FCC Power Limit (dBm) | IC EIRP Limit (dBm) | Max IC Power (dBm) | Power Limit (dBm) | FCC PPSD Limit (dBm) | IC eirp PSD Limit (dBm) | PPSD Limit (dBm) |
|---------|--------------------|--------------------------------|------------------------------|-----------------------------|-------------------------|-------------------------------|-------------------------------------|------------------------|
| Low | 5210 | 24.00 | 23.00 | 28.40 | 24.00 | 11.00 | 10.00 | 11.00 |

| | | |
|---------------------------|------|--|
| Duty Cycle CF (dB) | 0.75 | Included in Calculations of Corr'd PPSD |
|---------------------------|------|--|

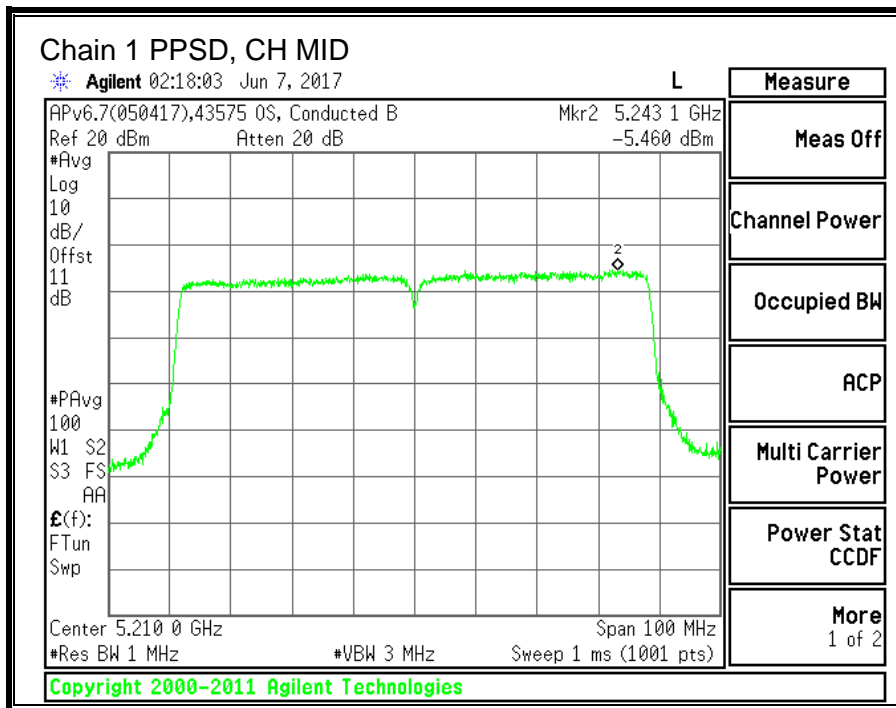
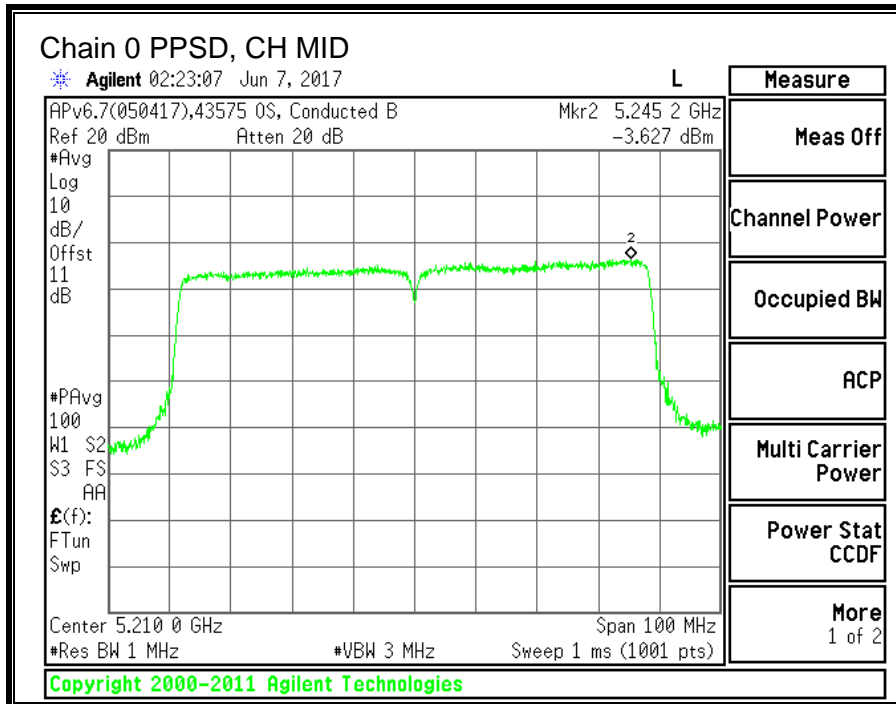
Output Power Results

| 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 | 5210 | 13.35 | 11.89 | 15.69 | 24.00 | -8.31 |

PPSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PPSD (dBm) | Chain 1 Meas PPSD (dBm) | Total Corr'd PPSD (dBm) | PPSD Limit (dBm) | PPSD Margin (dB) |
|---------|--------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|------------------------|
| Low | 5210 | -3.627 | -5.460 | -0.69 | 11.00 | -11.69 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.



10.5. 11a 2TX CDD MIMO MODE IN THE 5.3GHz BAND

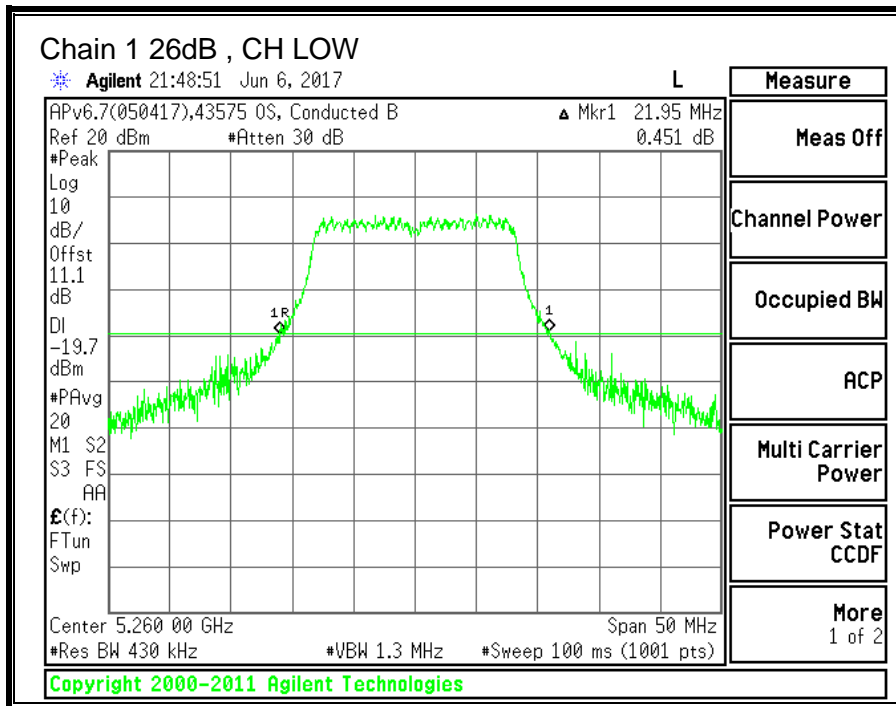
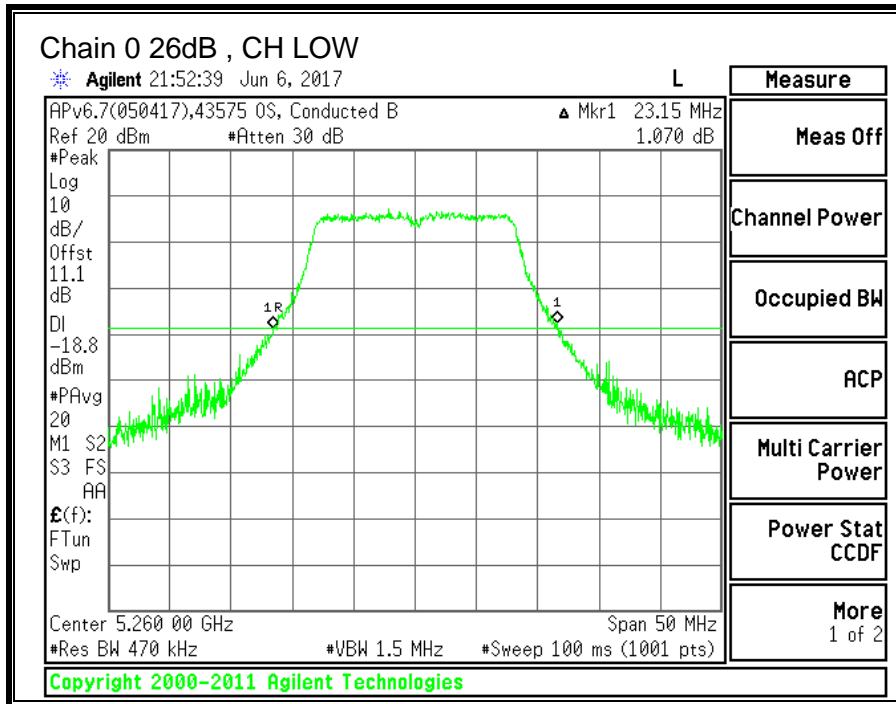
10.5.1. 26 dB BANDWIDTH

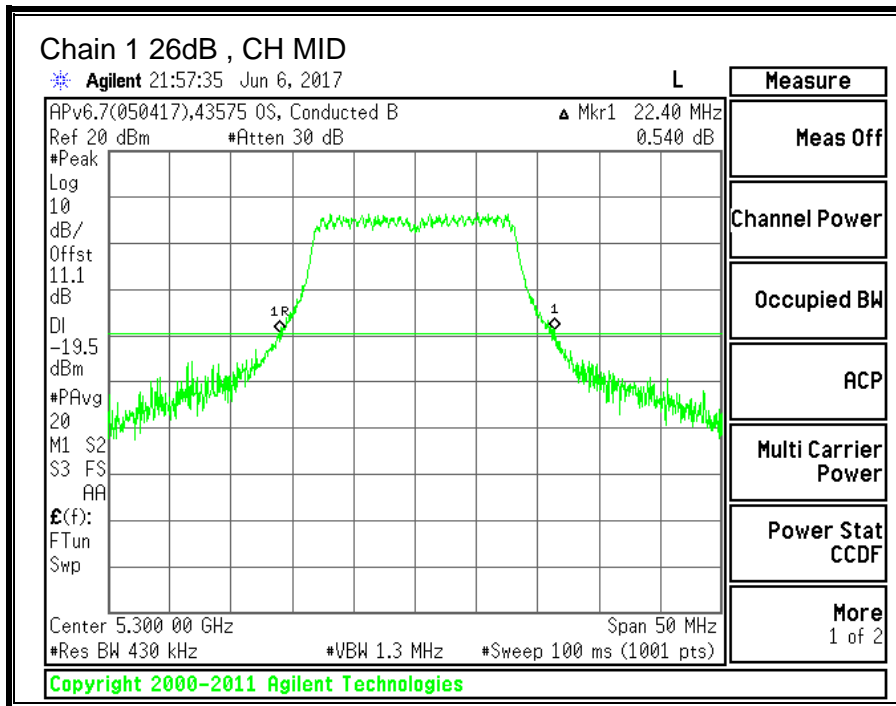
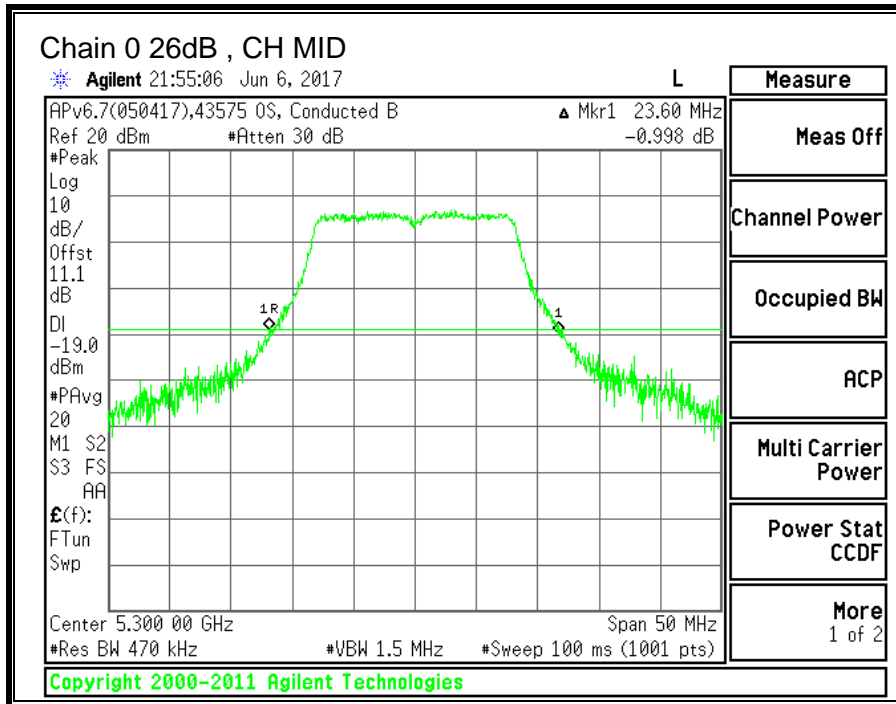
LIMITS

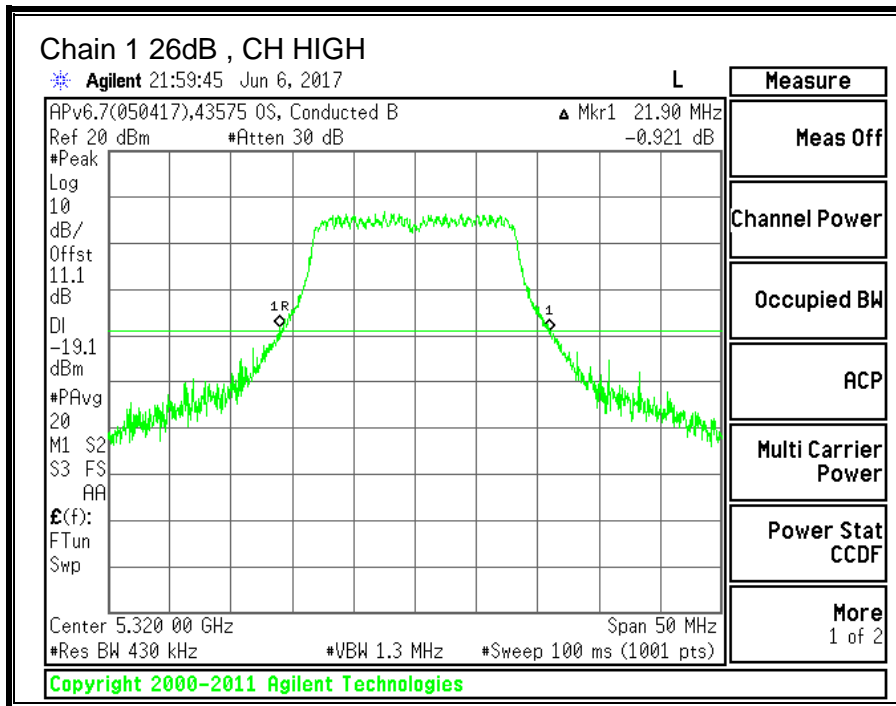
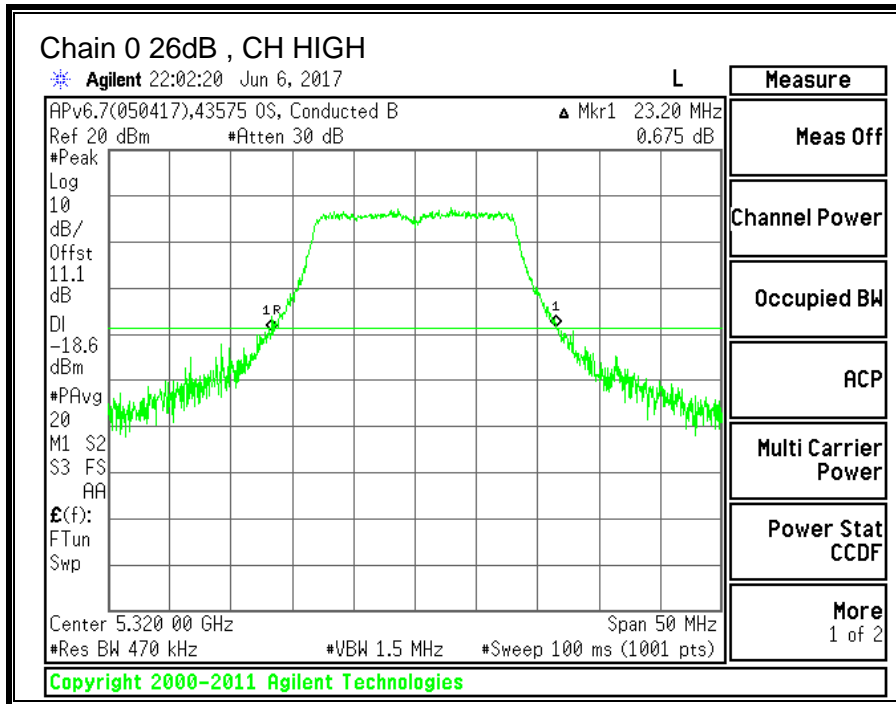
None; for reporting purposes only.

RESULTS

| Channel | Frequency | 26 dB BW Chain 0 (MHz) | 26 dB BW Chain 1 (MHz) |
|----------------|------------------|---------------------------------------|---------------------------------------|
| Low | 5260 | 23.15 | 21.95 |
| Mid | 5300 | 23.60 | 22.40 |
| High | 5320 | 23.20 | 21.90 |







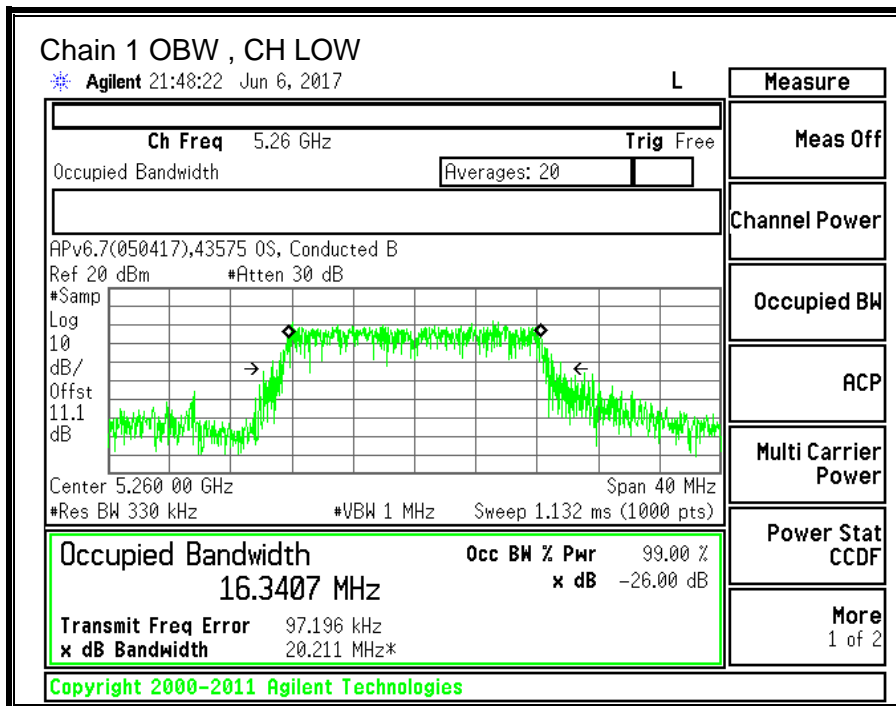
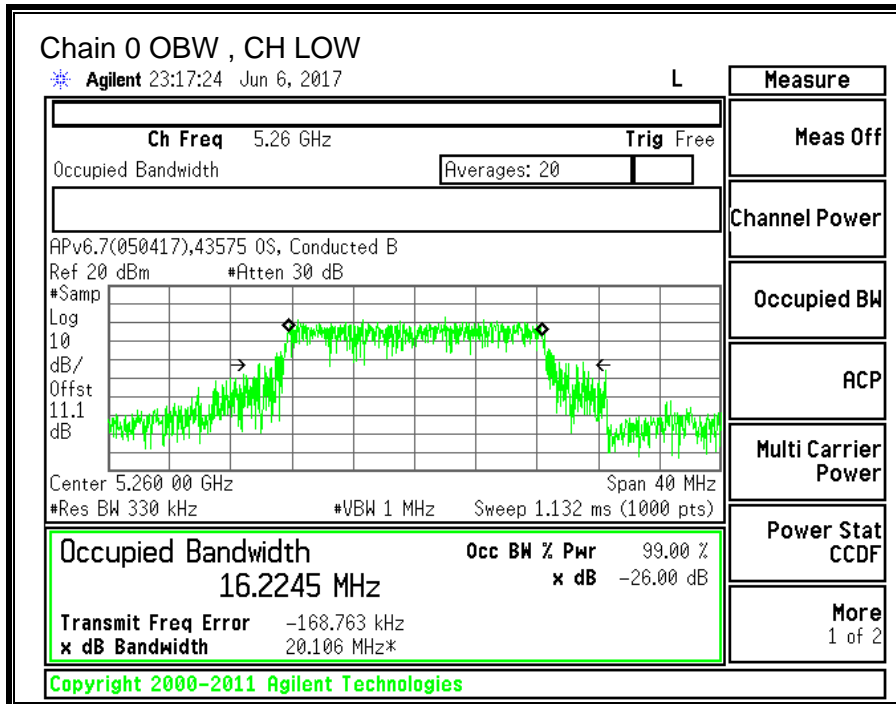
10.5.2. 99% BANDWIDTH

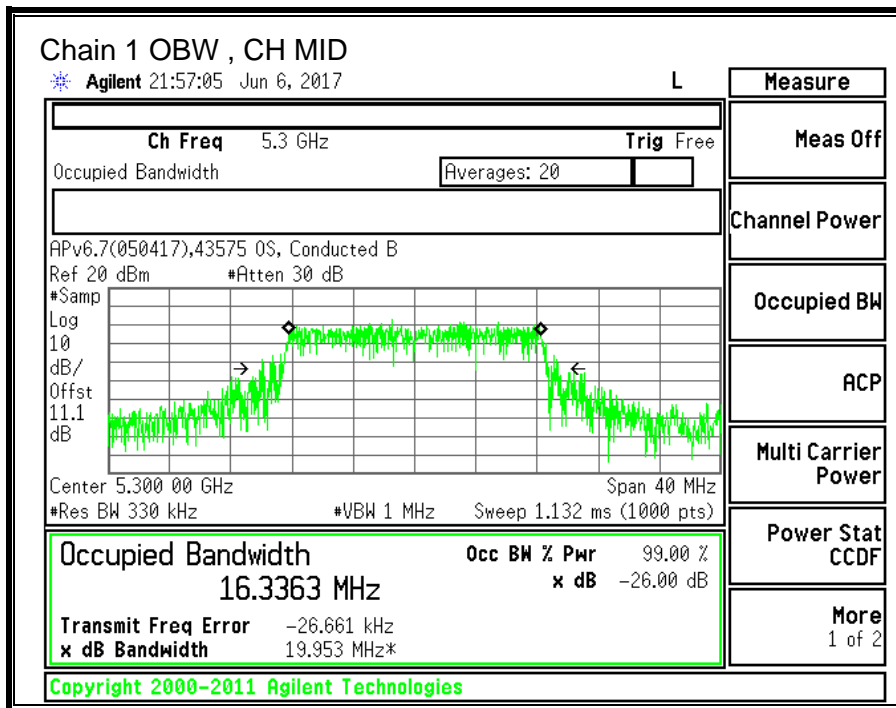
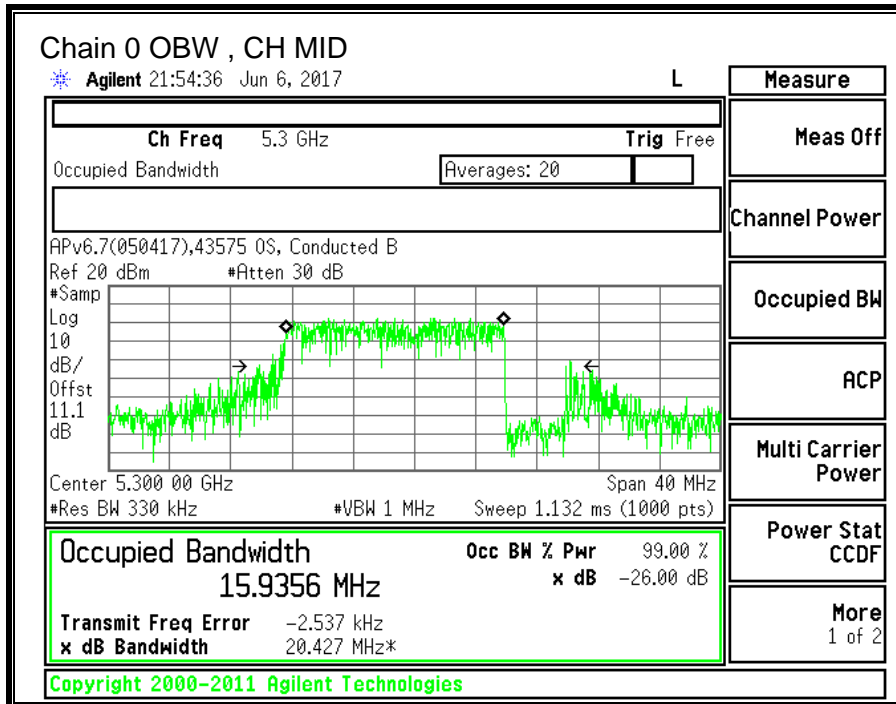
LIMITS

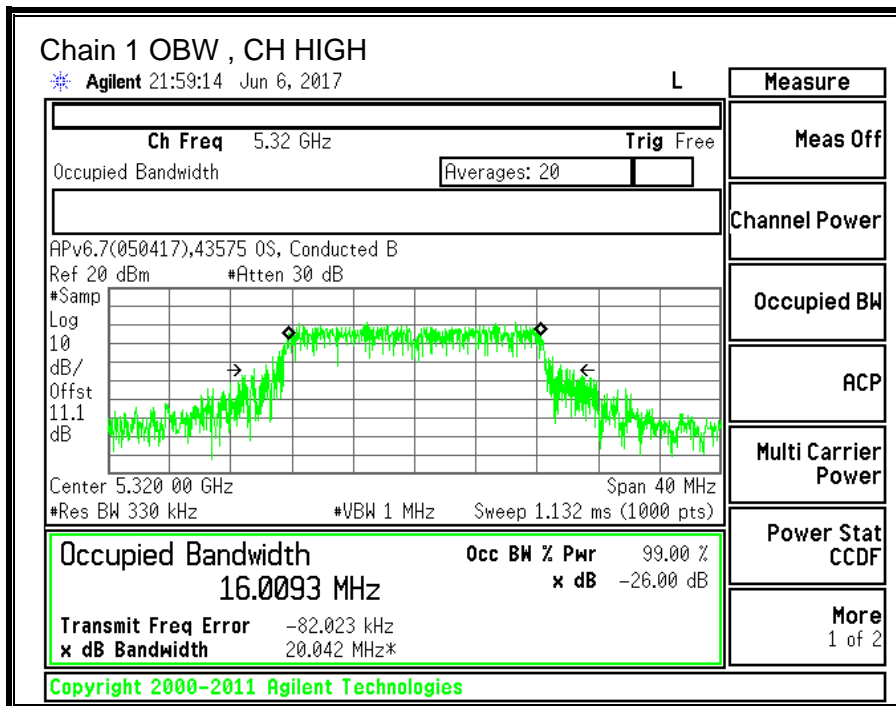
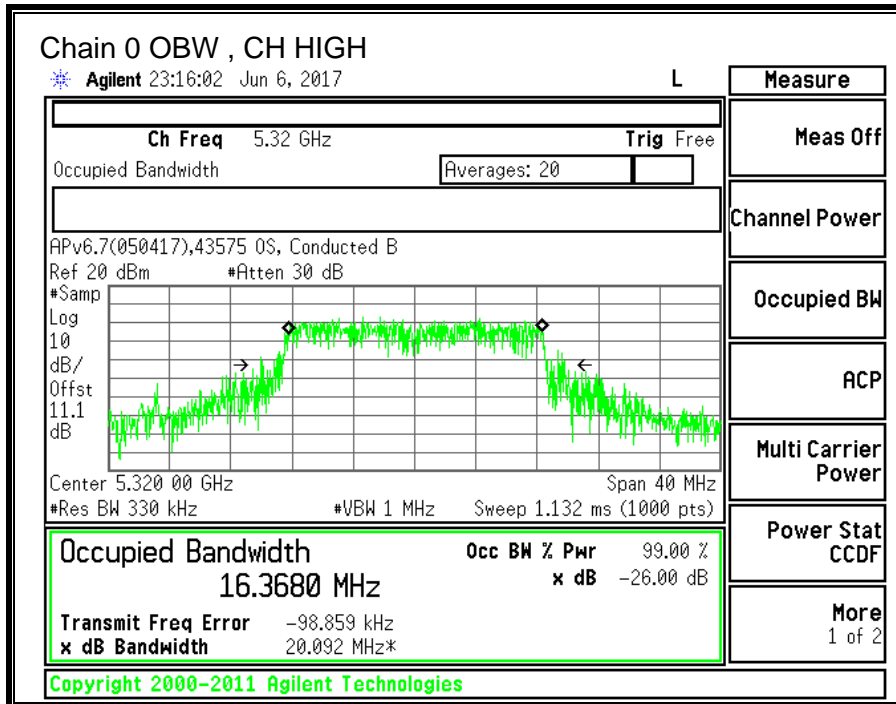
None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|----------------|------------------|-------------------------------------|-------------------------------------|
| Low | 5260 | 16.225 | 16.341 |
| Mid | 5300 | 15.936 | 16.336 |
| High | 5320 | 16.368 | 16.009 |







10.5.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

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 maximum 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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

5250-5350 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|---|---|---|
| -4.40 | -6.70 | -5.40 |

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

5250-5230 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Correlated Chains Directional Gain (dBi) |
|---|---|---|
| -4.40 | -6.70 | -2.46 |

RESULTS

| | | | |
|------------|-------|--------------|----------|
| ID: | 43574 | Date: | 06/06/17 |
|------------|-------|--------------|----------|

Bandwidth and Antenna Gain

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Min 99% BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PPSD (dBi) |
|---------|-----------------|--------------------|------------------|----------------------------------|---------------------------------|
| Low | 5260 | 21.95 | 16.225 | -5.40 | -2.46 |
| Mid | 5300 | 22.40 | 15.936 | -5.40 | -2.46 |
| High | 5320 | 21.90 | 16.009 | -5.40 | -2.46 |

Limits

| Channel | Frequency (MHz) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Power Limit (dBm) | FCC PPSD Limit (dBm) | IC PSD Limit (dBm) | PPSD Limit (dBm) |
|---------|-----------------|-----------------------|----------------------|---------------------|-------------------|----------------------|--------------------|------------------|
| Low | 5260 | 24.00 | 23.10 | 29.10 | 23.10 | 11.00 | 11.00 | 11.00 |
| Mid | 5300 | 24.00 | 23.02 | 29.02 | 23.02 | 11.00 | 11.00 | 11.00 |
| High | 5320 | 24.00 | 23.04 | 29.04 | 23.04 | 11.00 | 11.00 | 11.00 |

| | | |
|---------------------------|------|--|
| Duty Cycle CF (dB) | 0.24 | Included in Calculations of Corr'd PPSD |
|---------------------------|------|--|

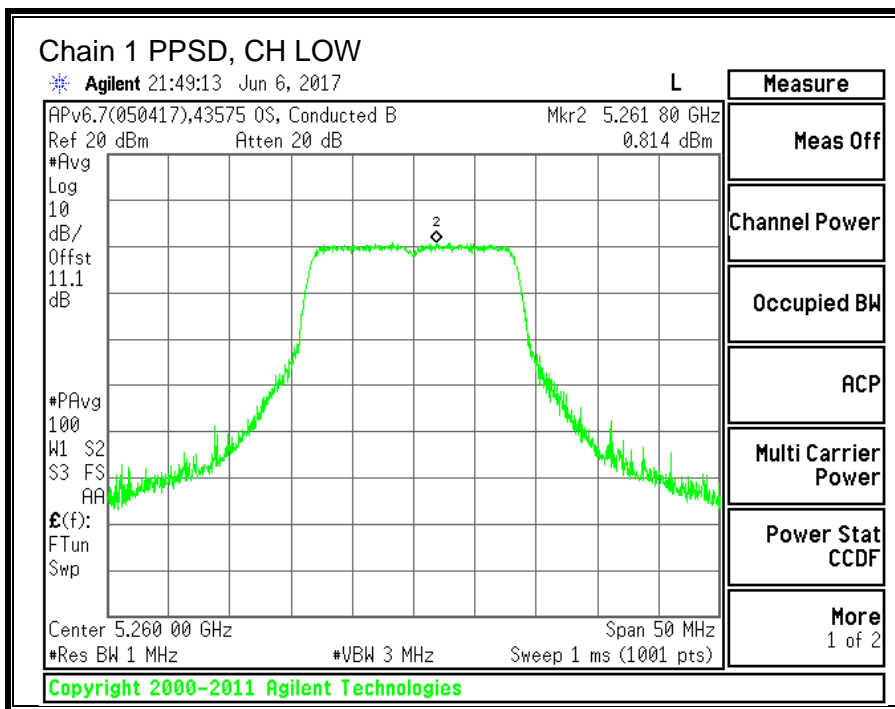
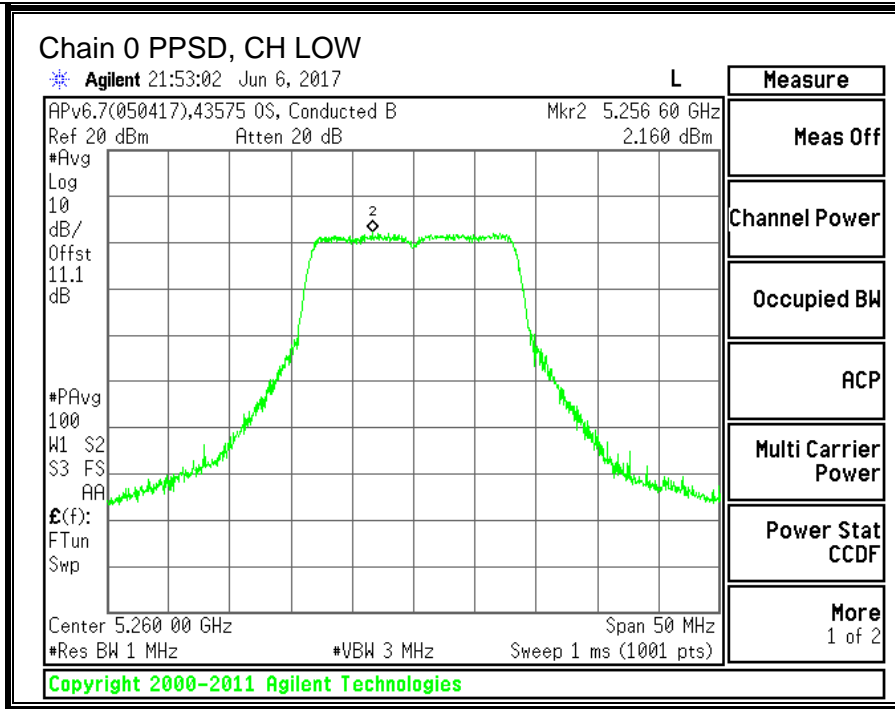
Output Power Results

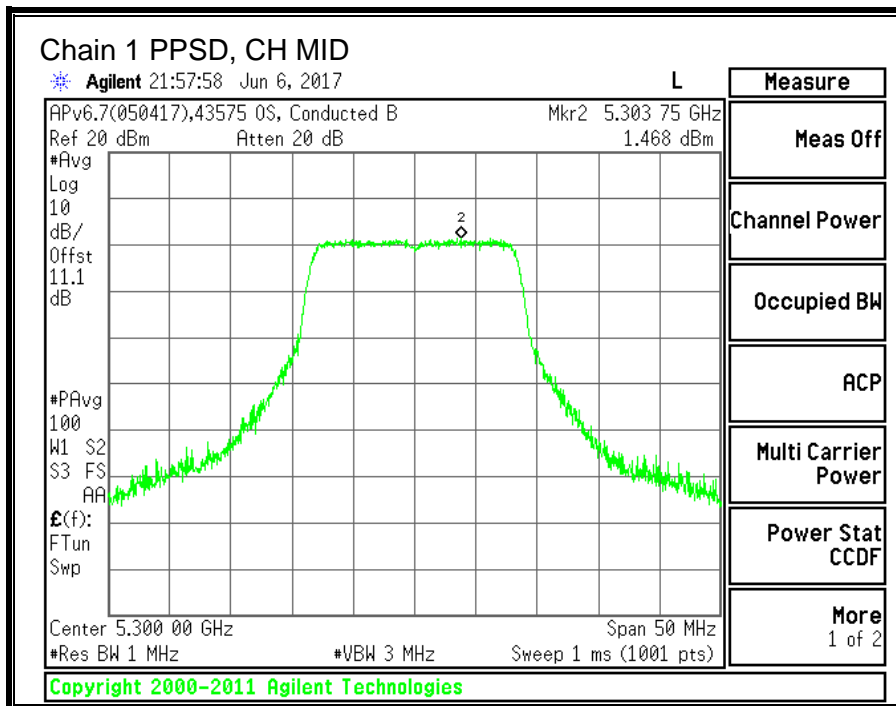
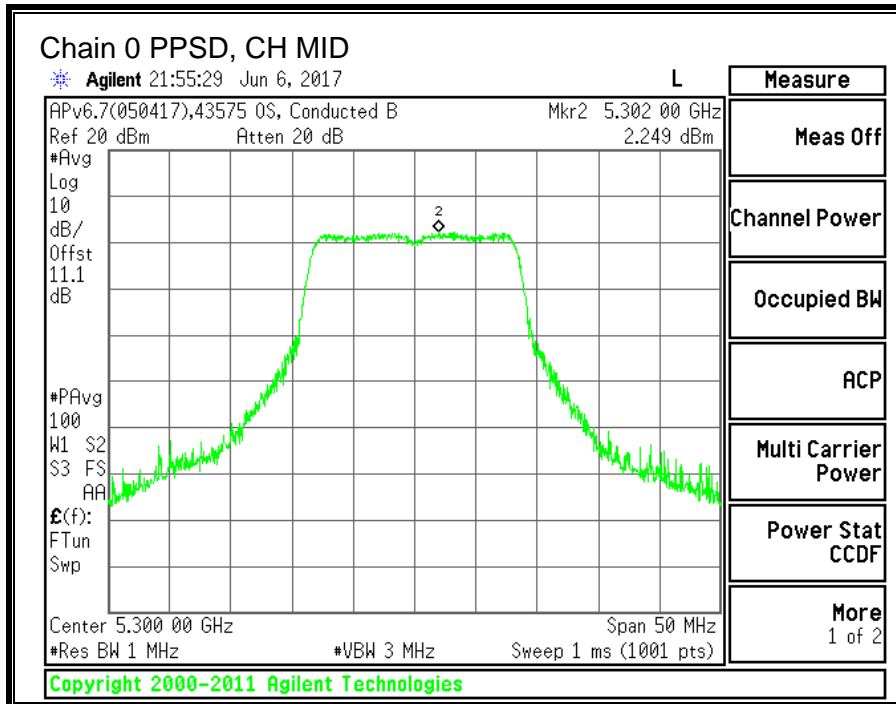
| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|-----------------|--------------------------|--------------------------|--------------------------|-------------------|-------------------|
| Low | 5260 | 13.18 | 11.90 | 15.60 | 23.10 | -7.50 |
| Mid | 5300 | 13.21 | 12.18 | 15.74 | 23.02 | -7.29 |
| High | 5320 | 13.31 | 12.06 | 15.74 | 23.04 | -7.30 |

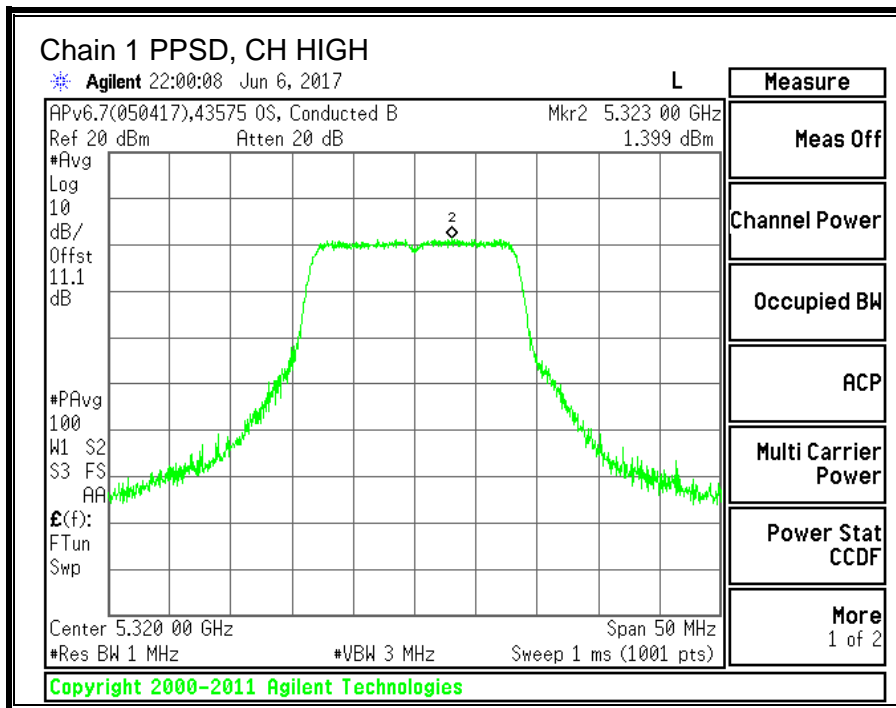
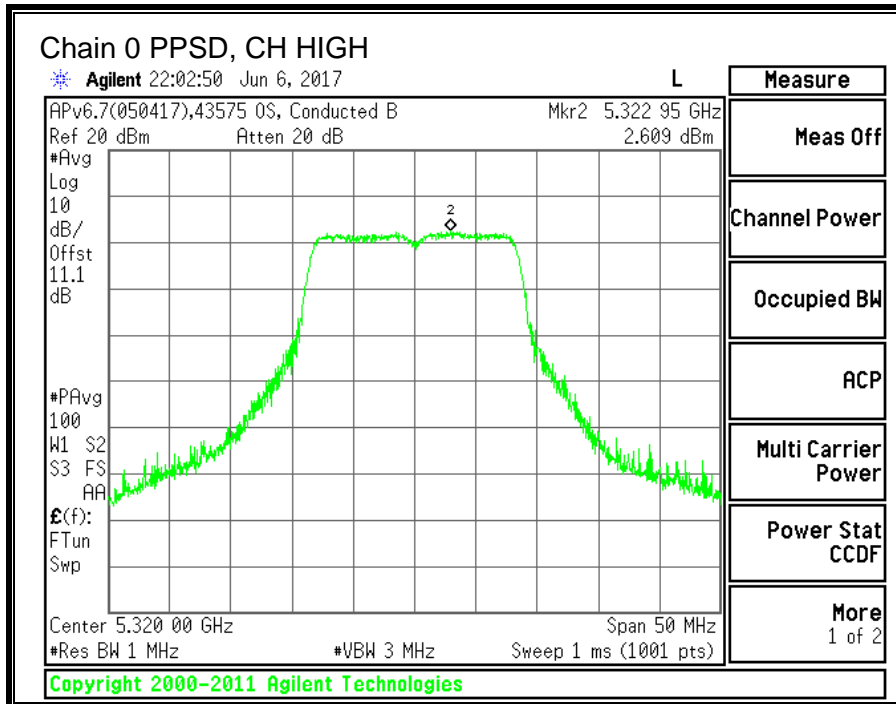
PPSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PPSD (dBm) | Chain 1 Meas PPSD (dBm) | Total Corr'd PPSD (dBm) | PPSD Limit (dBm) | PPSD Margin (dB) |
|---------|-----------------|-------------------------|-------------------------|-------------------------|------------------|------------------|
| Low | 5260 | 2.160 | 0.814 | 4.79 | 11.00 | -6.21 |
| Mid | 5300 | 2.249 | 1.468 | 5.13 | 11.00 | -5.87 |
| High | 5320 | 2.609 | 1.399 | 5.30 | 11.00 | -5.70 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.







10.6. 11n HT20 2TX CDD MIMO MODE IN THE 5.3GHz BAND

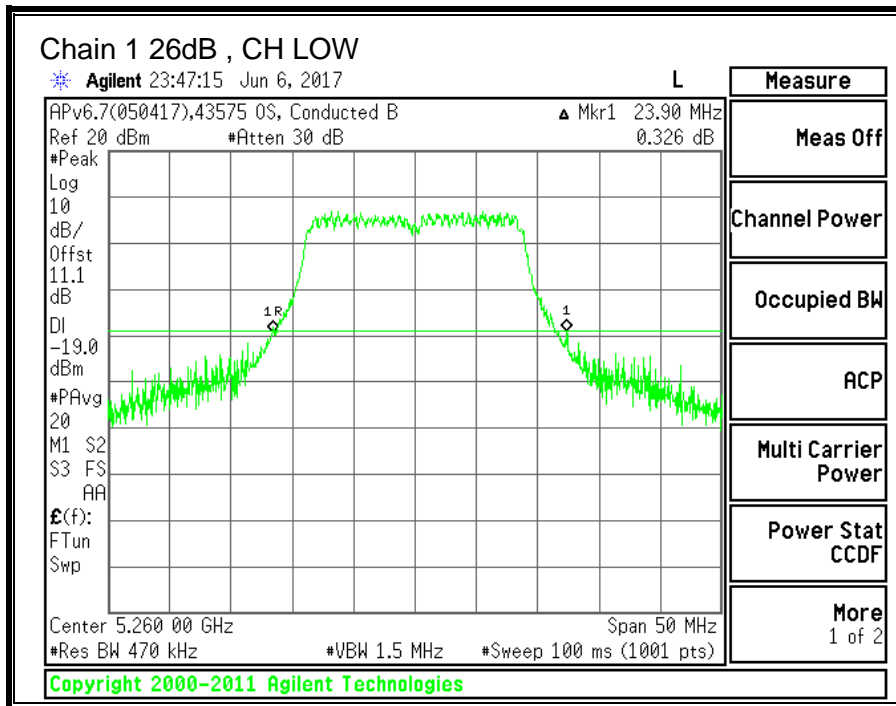
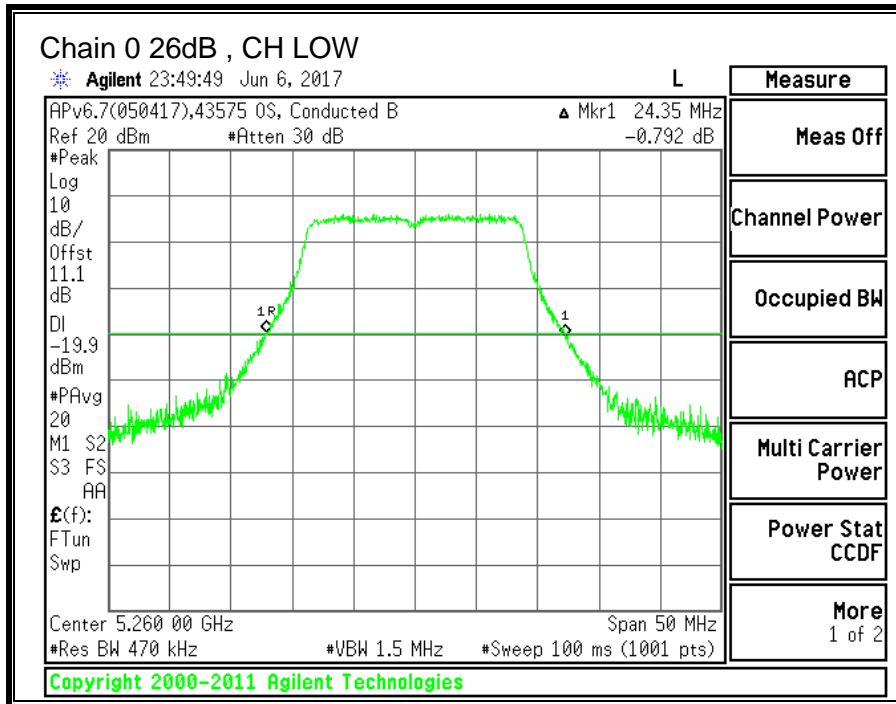
10.6.1. 26 dB BANDWIDTH

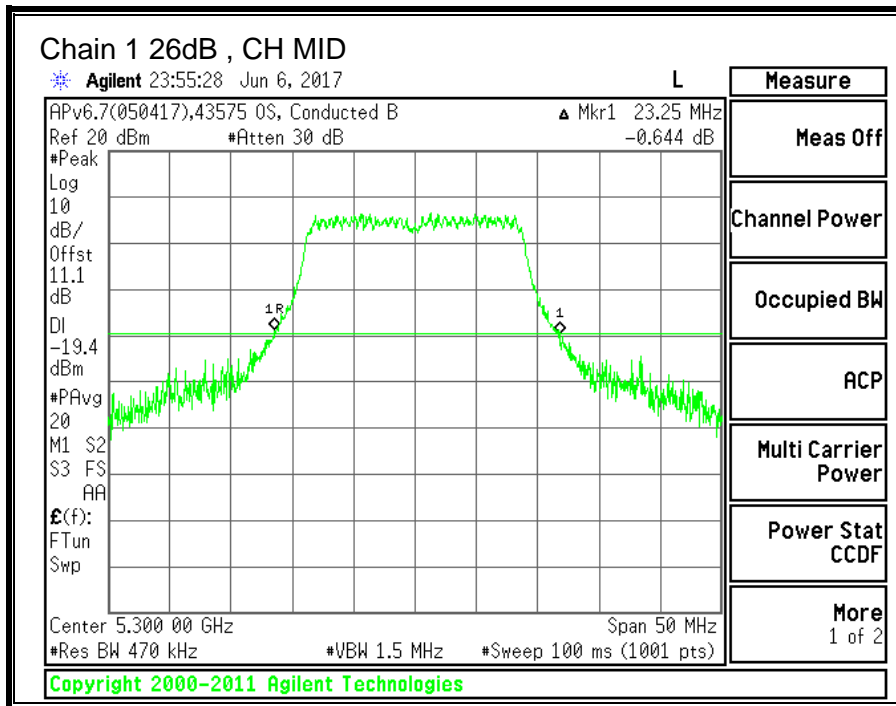
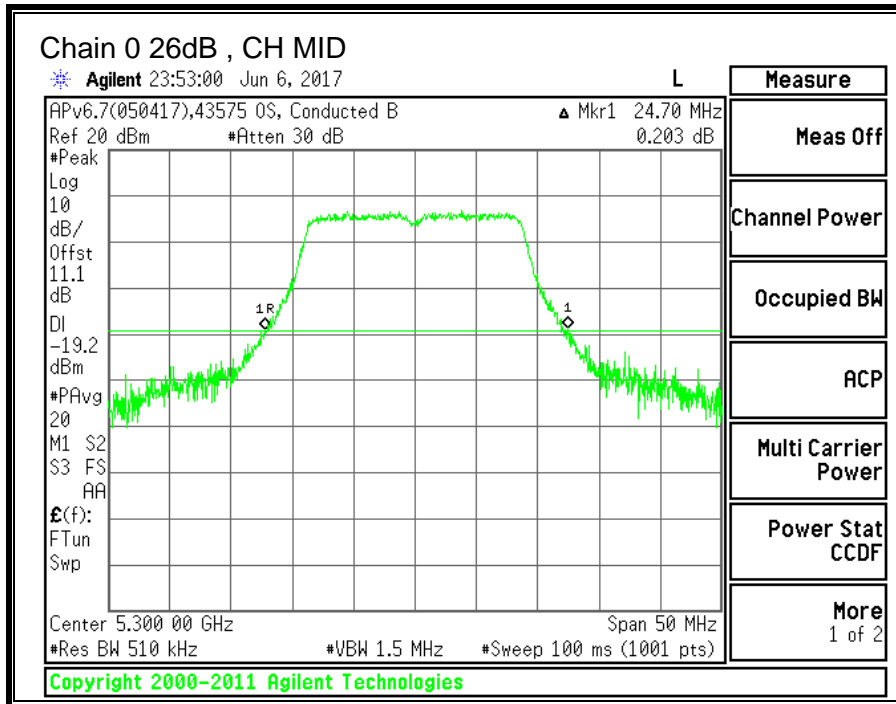
LIMITS

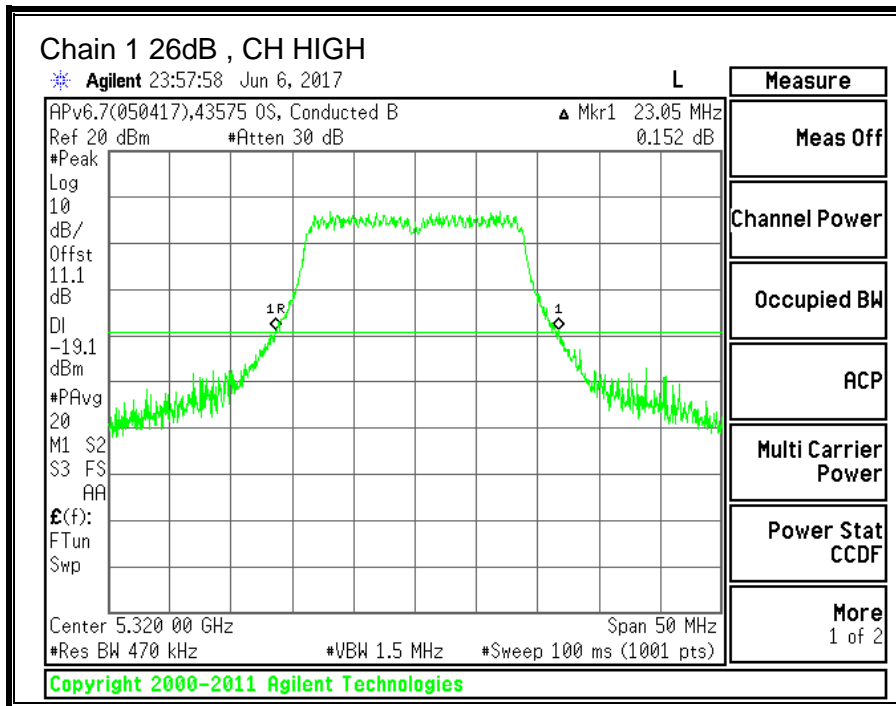
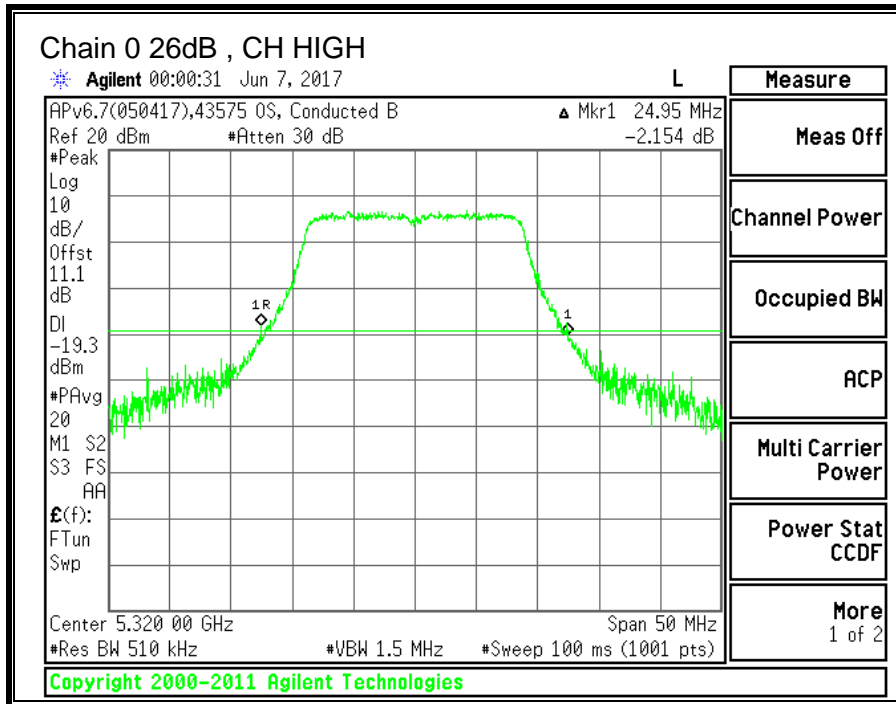
None; for reporting purposes only.

RESULTS

| Channel | Frequency | 26 dB BW Chain 0 (MHz) | 26 dB BW Chain 1 (MHz) |
|----------------|------------------|---------------------------------------|---------------------------------------|
| Low | 5260 | 24.35 | 23.90 |
| Mid | 5300 | 24.70 | 23.25 |
| High | 5320 | 24.95 | 23.05 |







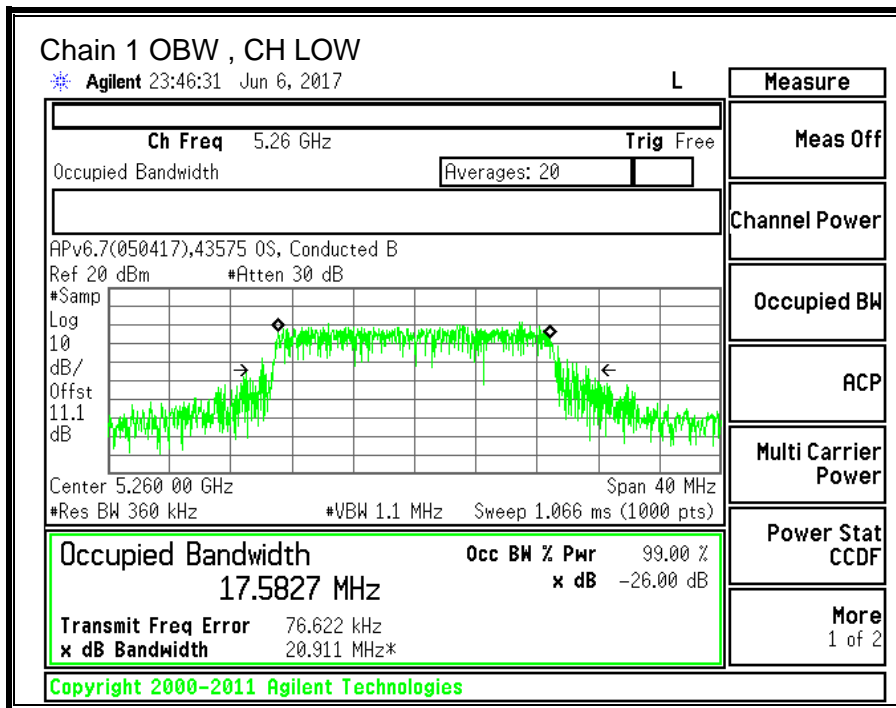
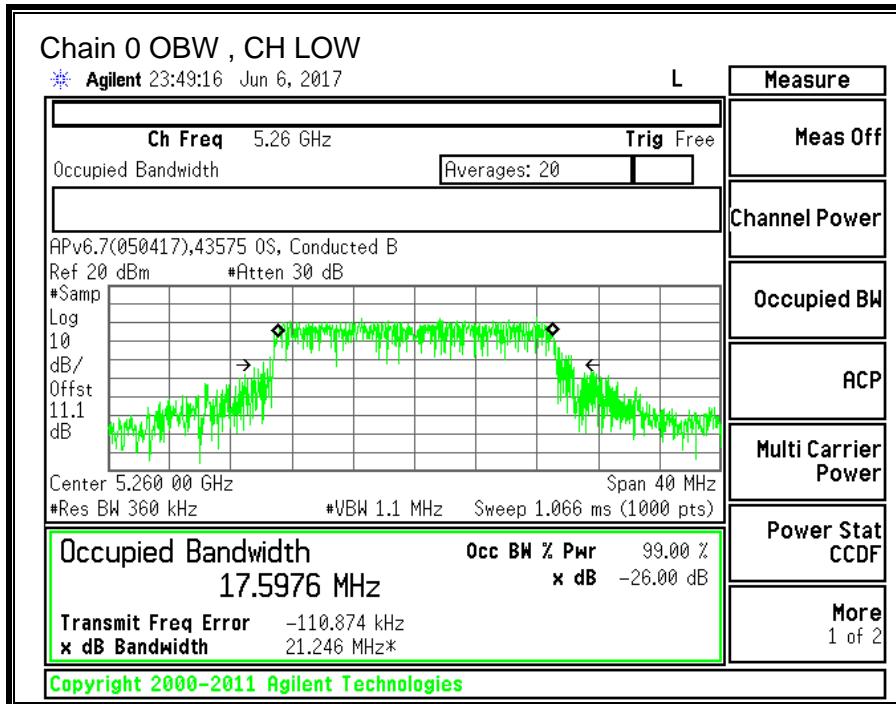
10.6.2. 99% BANDWIDTH

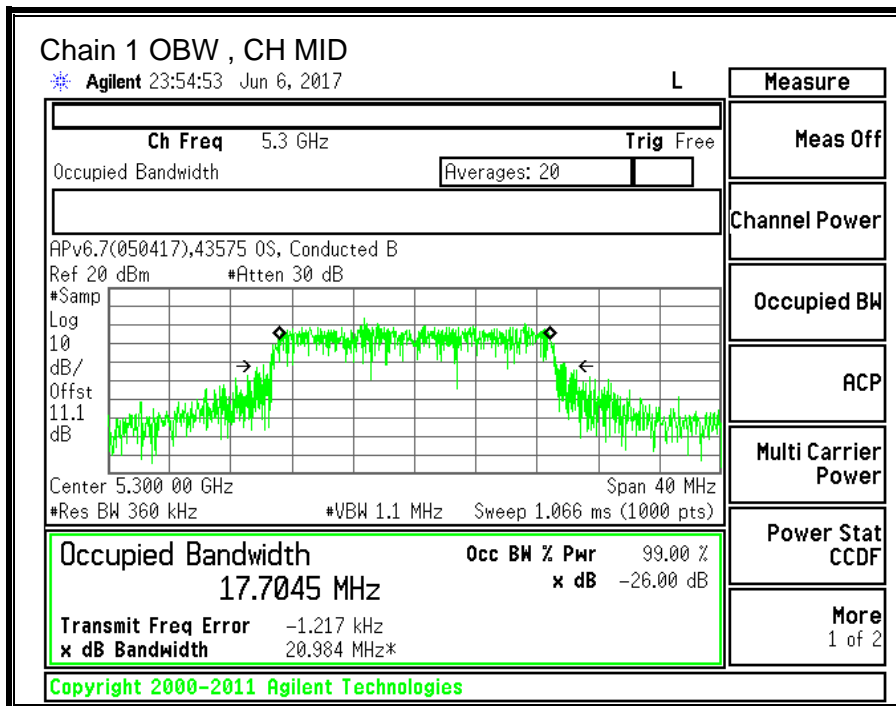
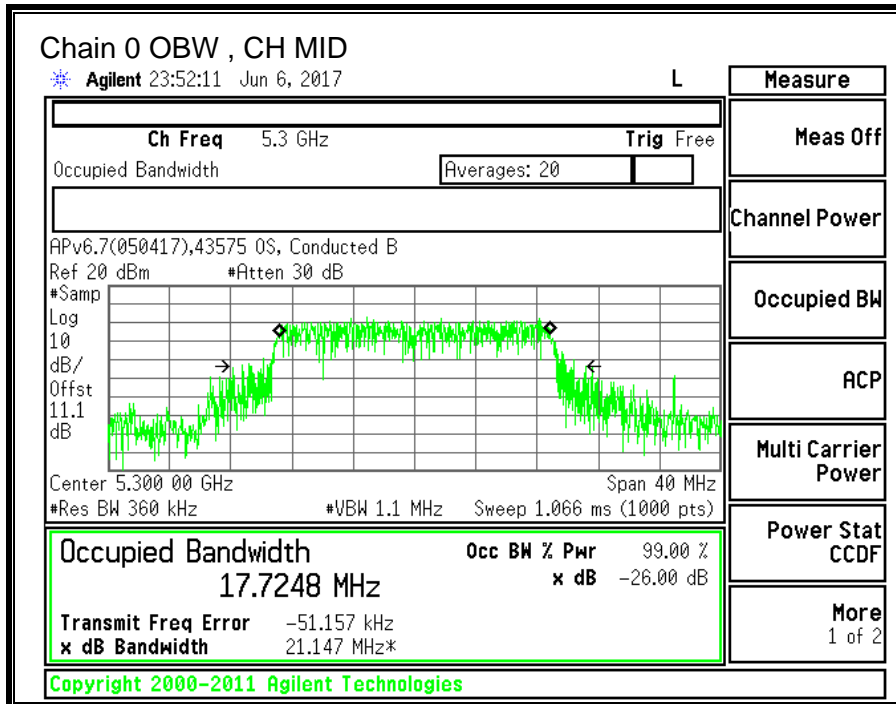
LIMITS

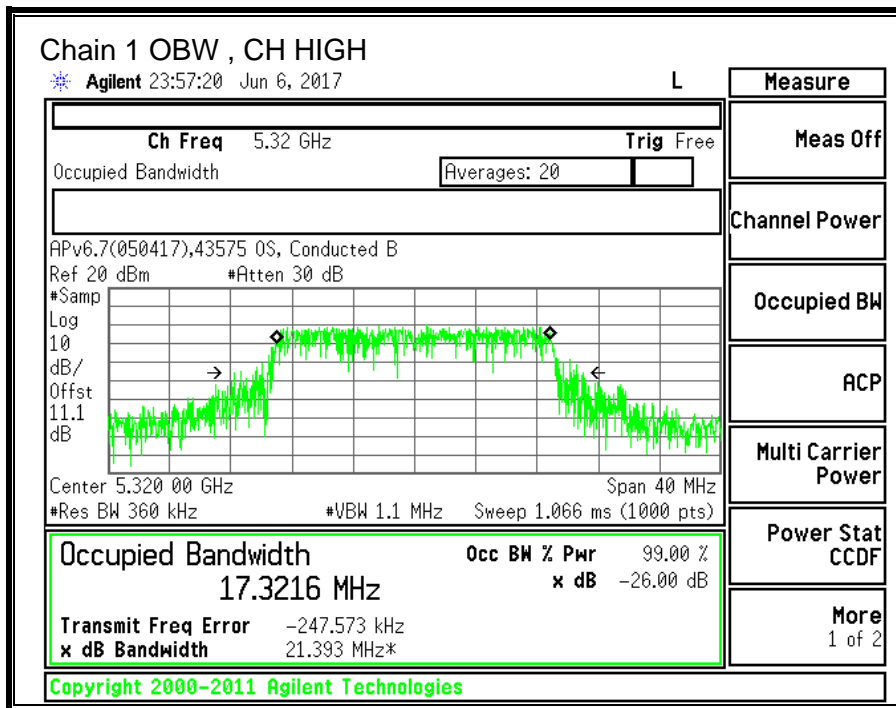
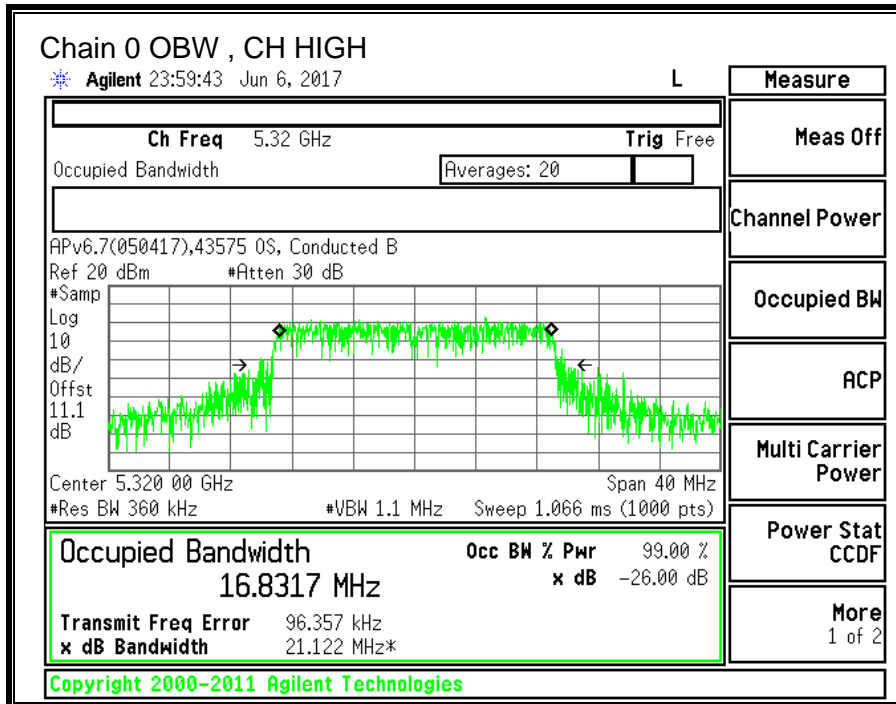
None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|----------------|------------------|-------------------------------------|-------------------------------------|
| Low | 5260 | 17.598 | 17.583 |
| Mid | 5300 | 17.725 | 17.704 |
| High | 5320 | 16.832 | 17.322 |







10.6.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

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 maximum 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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

5250-5350 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|---|---|---|
| -4.40 | -6.70 | -5.40 |

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

5250-5230 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Correlated Chains Directional Gain (dBi) |
|---|---|---|
| -4.40 | -6.70 | -2.46 |

RESULTS

| | | | |
|------------|-------|--------------|----------|
| ID: | 43574 | Date: | 06/06/17 |
|------------|-------|--------------|----------|

Bandwidth and Antenna Gain

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Min 99% BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PPSD (dBi) |
|---------|-----------------|--------------------|------------------|----------------------------------|---------------------------------|
| Low | 5260 | 23.90 | 17.583 | -5.40 | -2.46 |
| Mid | 5300 | 23.25 | 17.704 | -5.40 | -2.46 |
| High | 5320 | 23.05 | 16.832 | -5.40 | -2.46 |

Limits

| Channel | Frequency (MHz) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Power Limit (dBm) | FCC PPSD Limit (dBm) | IC PSD Limit (dBm) | PPSD Limit (dBm) |
|---------|-----------------|-----------------------|----------------------|---------------------|-------------------|----------------------|--------------------|------------------|
| Low | 5260 | 24.00 | 23.45 | 29.45 | 23.45 | 11.00 | 11.00 | 11.00 |
| Mid | 5300 | 24.00 | 23.48 | 29.48 | 23.48 | 11.00 | 11.00 | 11.00 |
| High | 5320 | 24.00 | 23.26 | 29.26 | 23.26 | 11.00 | 11.00 | 11.00 |

| | | |
|---------------------------|------|--|
| Duty Cycle CF (dB) | 0.20 | Included in Calculations of Corr'd PPSD |
|---------------------------|------|--|

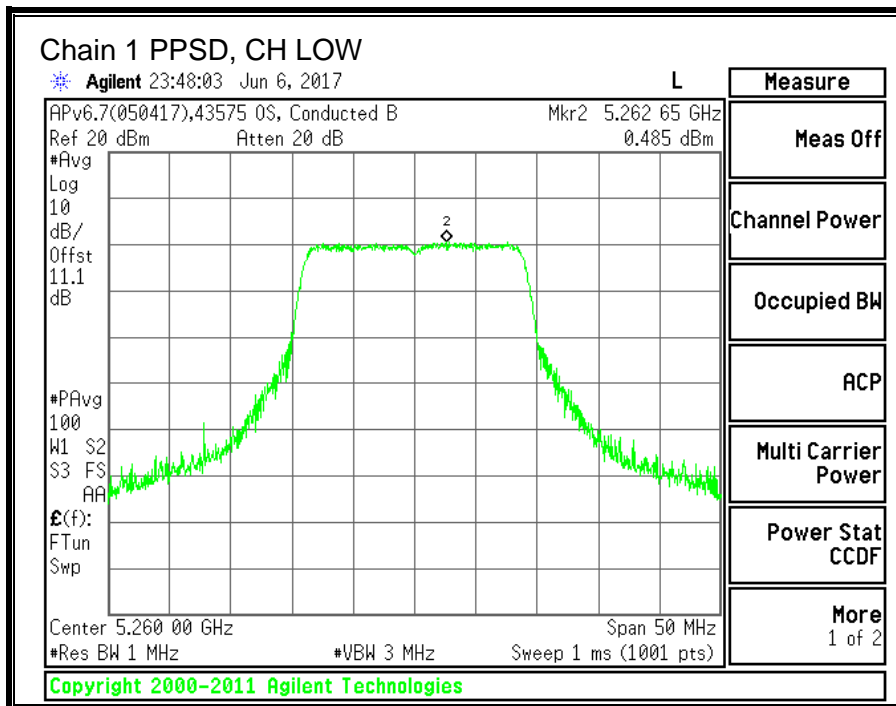
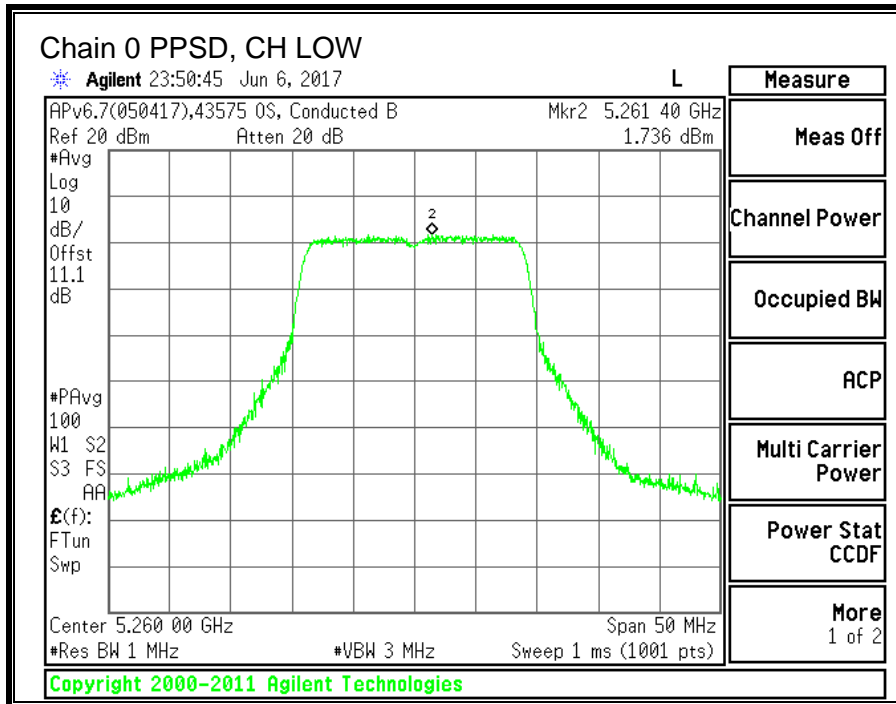
Output Power Results

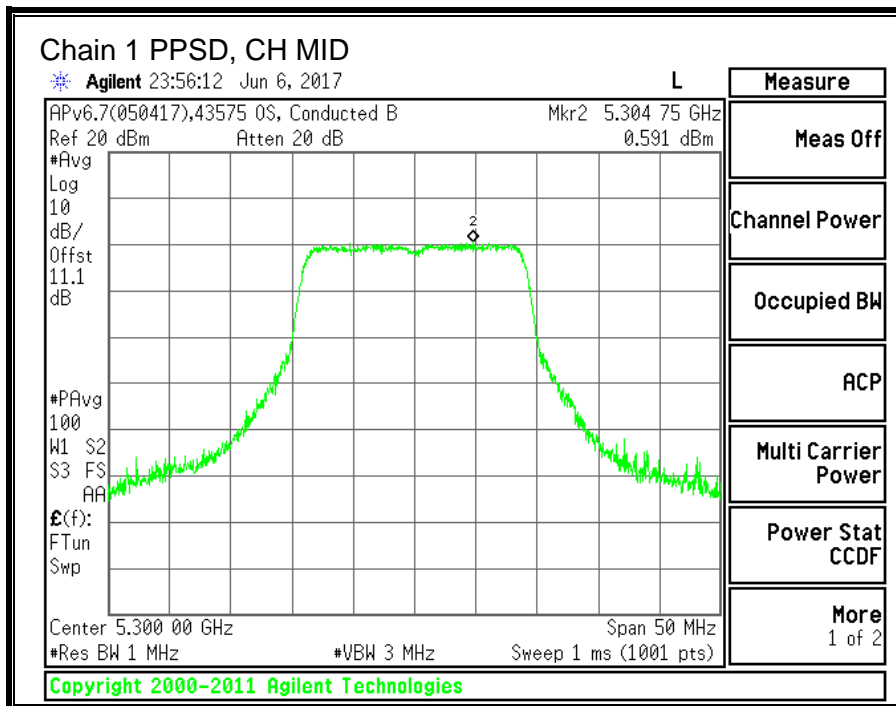
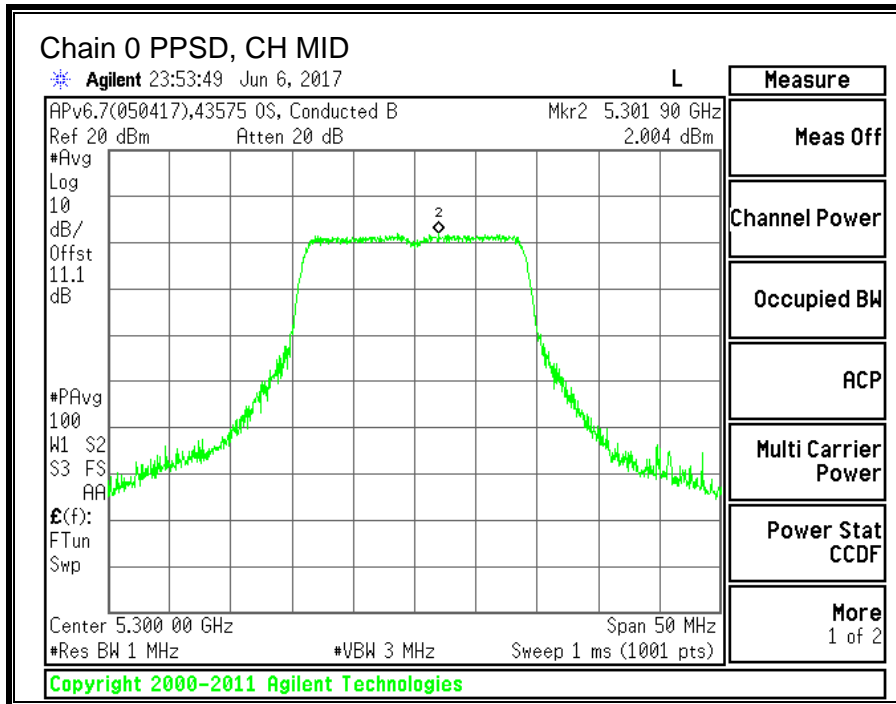
| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|-----------------|--------------------------|--------------------------|--------------------------|-------------------|-------------------|
| Low | 5260 | 13.24 | 11.96 | 15.66 | 23.45 | -7.79 |
| Mid | 5300 | 13.26 | 12.32 | 15.83 | 23.48 | -7.66 |
| High | 5320 | 13.46 | 12.25 | 15.91 | 23.26 | -7.35 |

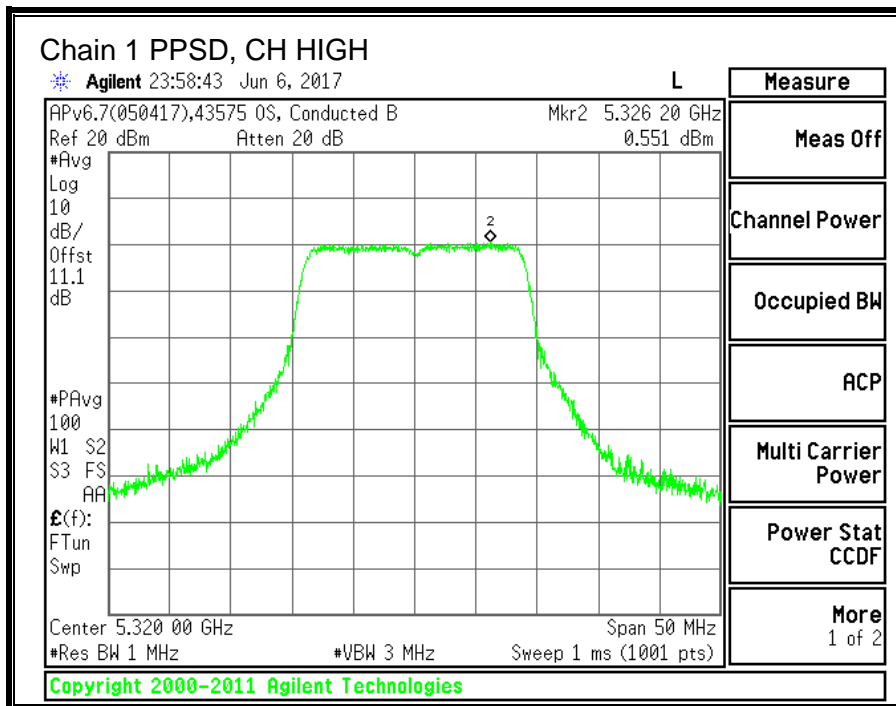
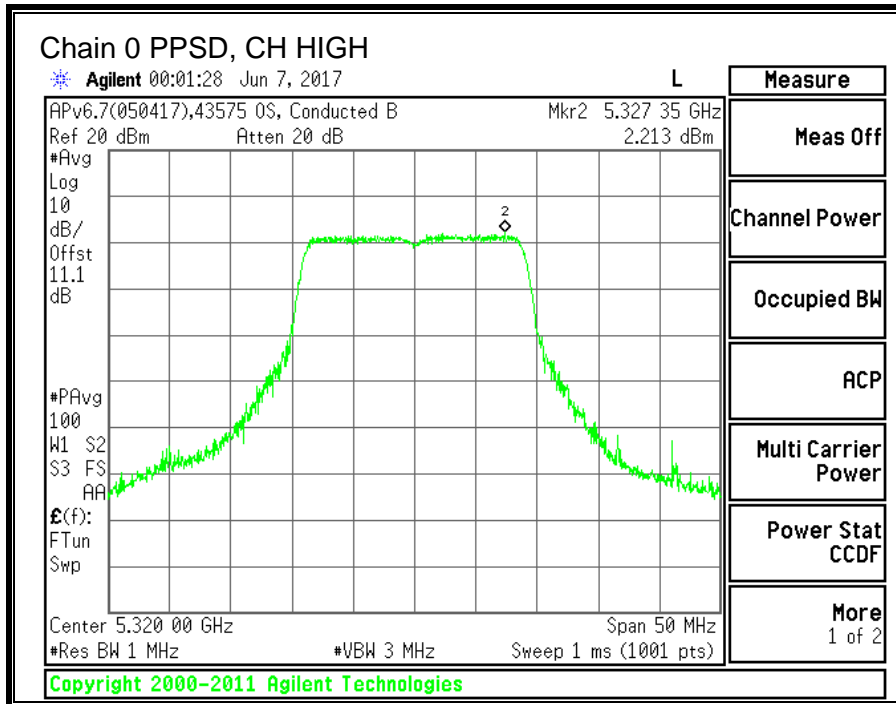
PPSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PPSD (dBm) | Chain 1 Meas PPSD (dBm) | Total Corr'd PPSD (dBm) | PPSD Limit (dBm) | PPSD Margin (dB) |
|---------|-----------------|-------------------------|-------------------------|-------------------------|------------------|------------------|
| Low | 5260 | 1.736 | 0.485 | 4.37 | 11.00 | -6.63 |
| Mid | 5300 | 2.004 | 0.591 | 4.57 | 11.00 | -6.43 |
| High | 5320 | 2.213 | 0.551 | 4.67 | 11.00 | -6.33 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.







10.7. 11n HT40 2TX CDD MIMO MODE IN THE 5.3GHz BAND

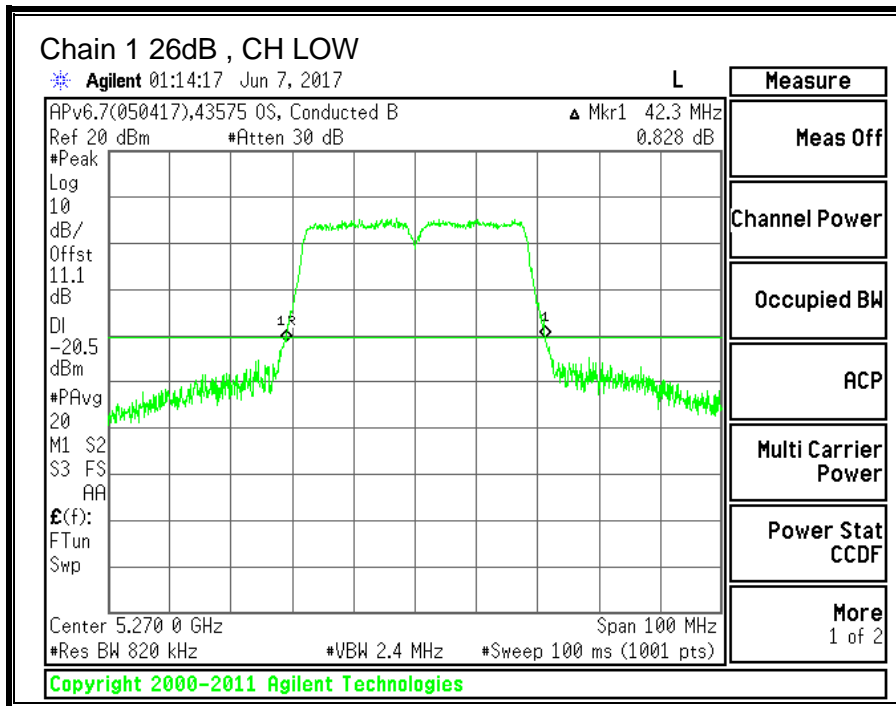
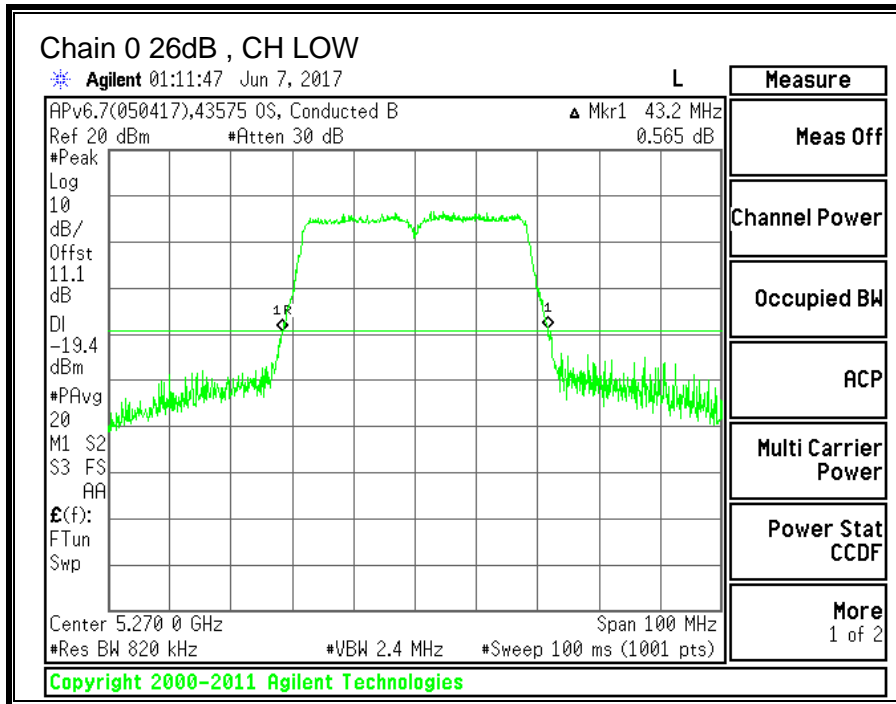
10.7.1. 26 dB BANDWIDTH

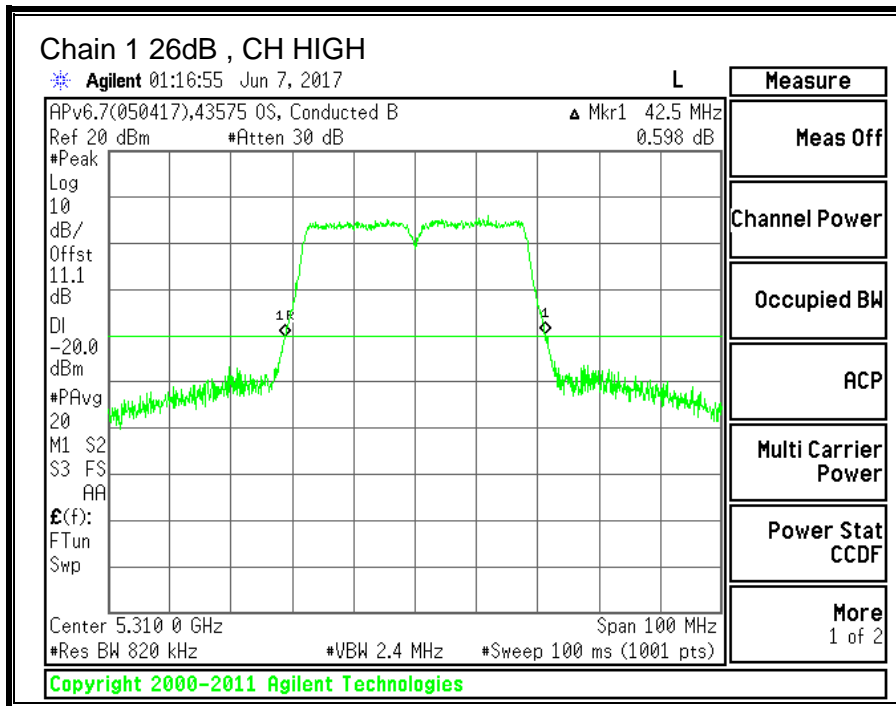
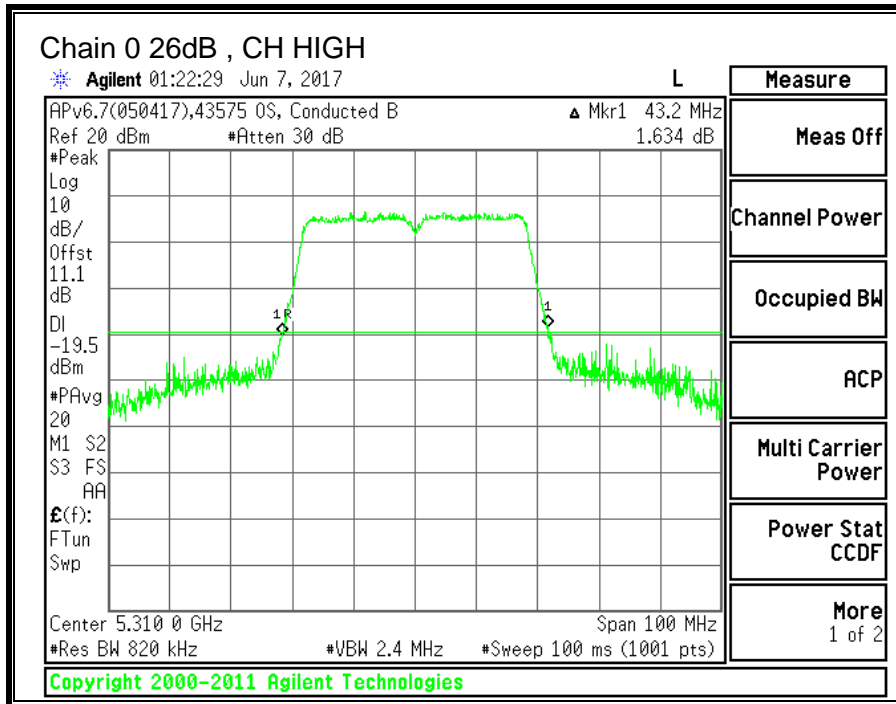
LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 26 dB BW Chain 0 (MHz) | 26 dB BW Chain 1 (MHz) |
|----------------|------------------|---------------------------------------|---------------------------------------|
| Low | 5270 | 43.2 | 42.3 |
| High | 5310 | 43.2 | 42.5 |





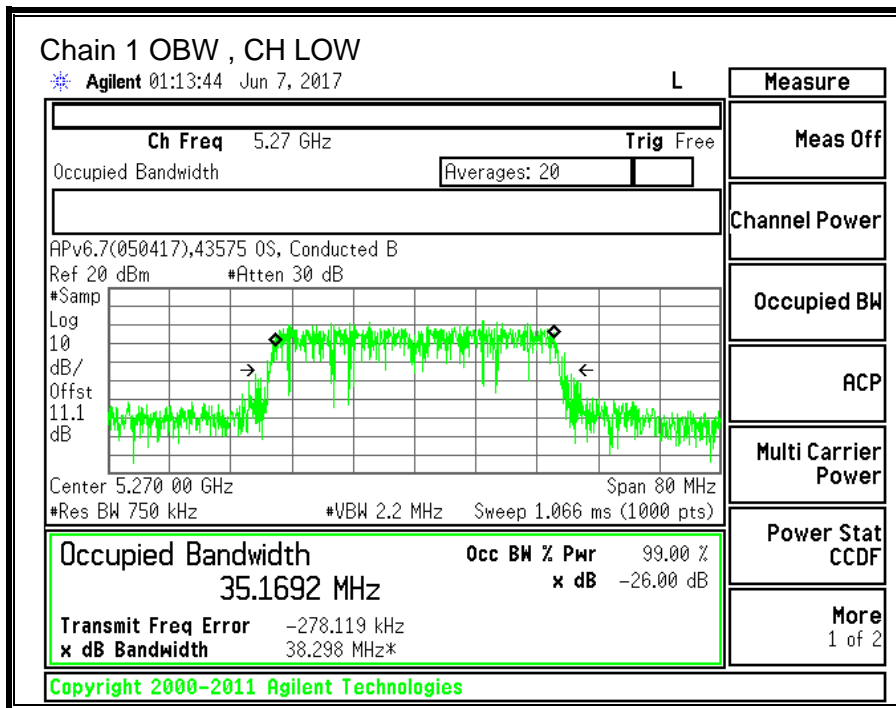
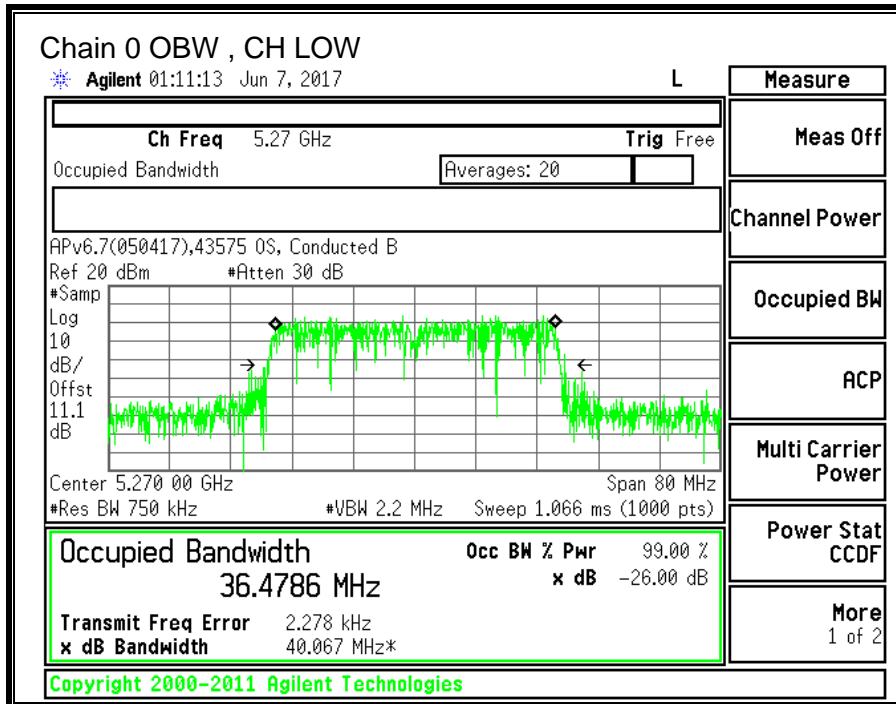
10.7.2. 99% BANDWIDTH

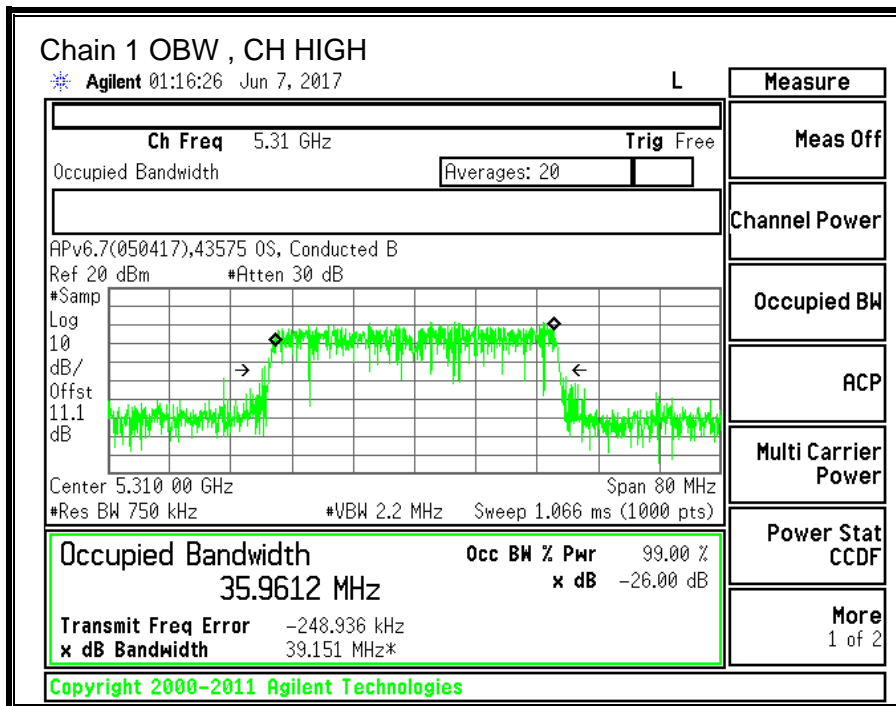
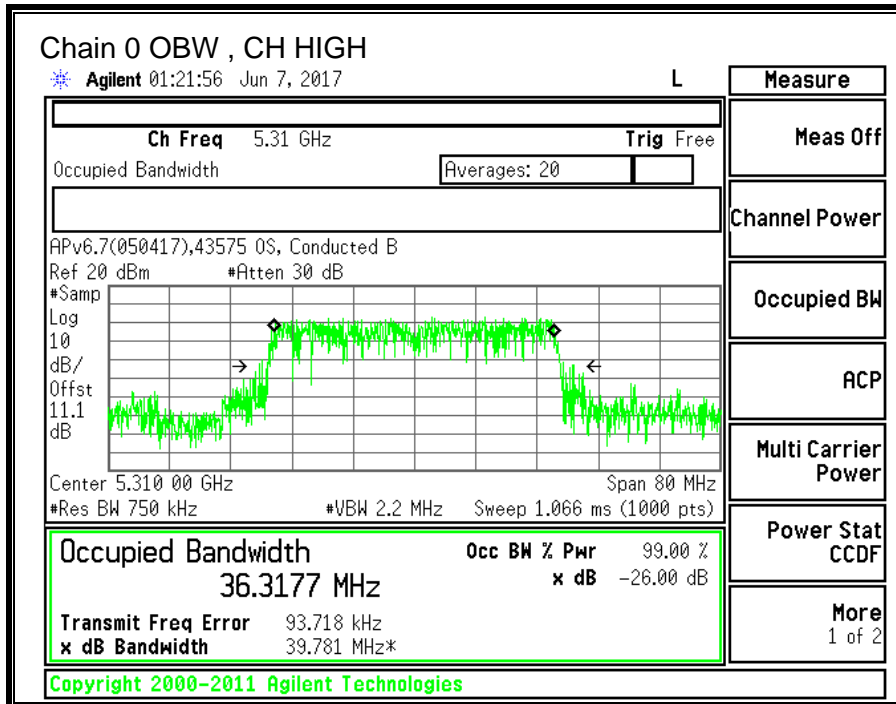
LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|---------|-----------|----------------------|----------------------|
| Low | 5270 | 36.479 | 35.169 |
| High | 5310 | 36.318 | 35.961 |





10.7.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

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 maximum 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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

5250-5350 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|---|---|---|
| -4.40 | -6.70 | -5.40 |

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

5250-5230 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Correlated Chains Directional Gain (dBi) |
|---|---|---|
| -4.40 | -6.70 | -2.46 |

RESULTS

| | | | |
|------------|-------|--------------|----------|
| ID: | 43574 | Date: | 06/06/17 |
|------------|-------|--------------|----------|

Bandwidth and Antenna Gain

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Min 99% BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PPSD (dBi) |
|---------|--------------------|-----------------------------|---------------------------|---|--|
| Low | 5270 | 42.30 | 35.169 | -5.40 | -2.46 |
| High | 5310 | 42.50 | 35.961 | -5.40 | -2.46 |

Limits

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

| | | |
|---------------------------|------|--|
| Duty Cycle CF (dB) | 0.40 | Included in Calculations of Corr'd PPSD |
|---------------------------|------|--|

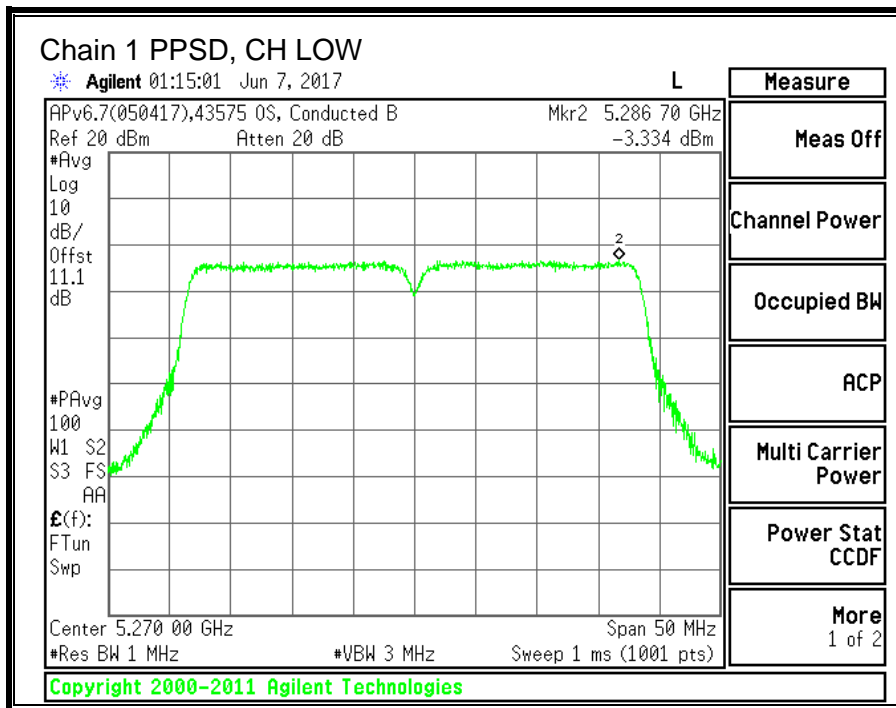
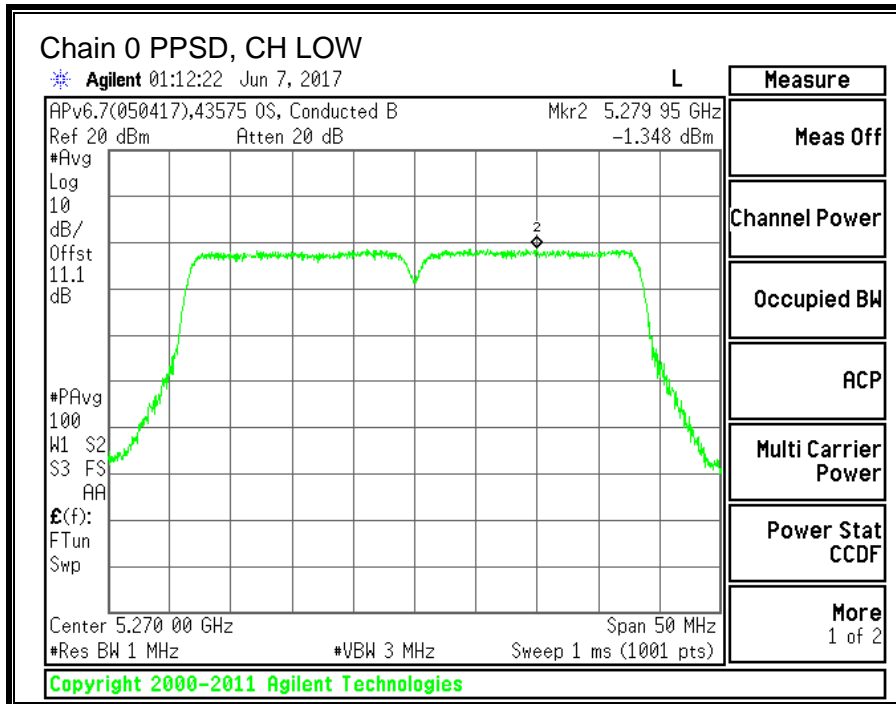
Output Power Results

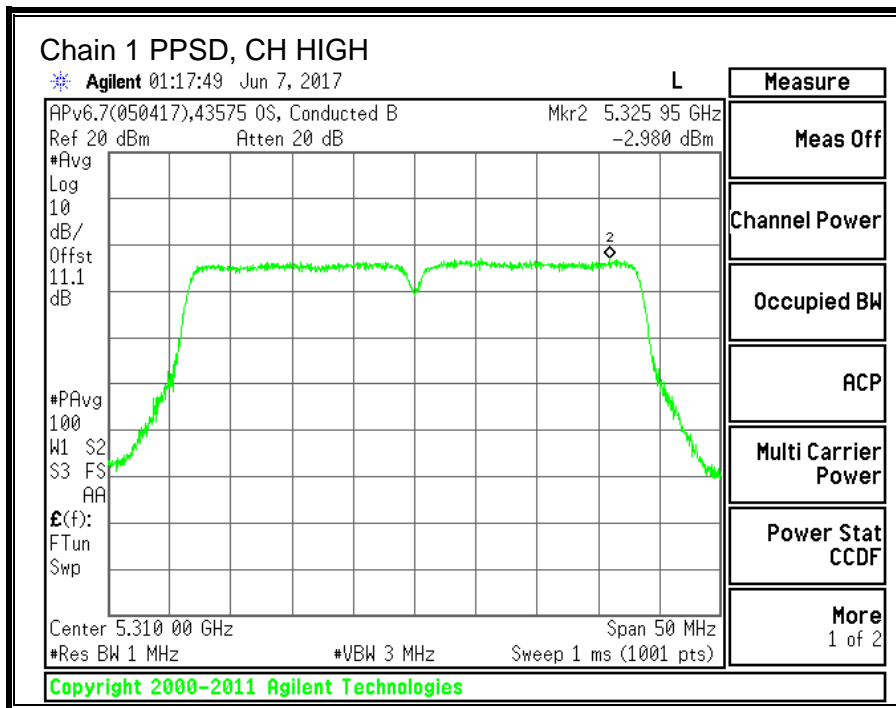
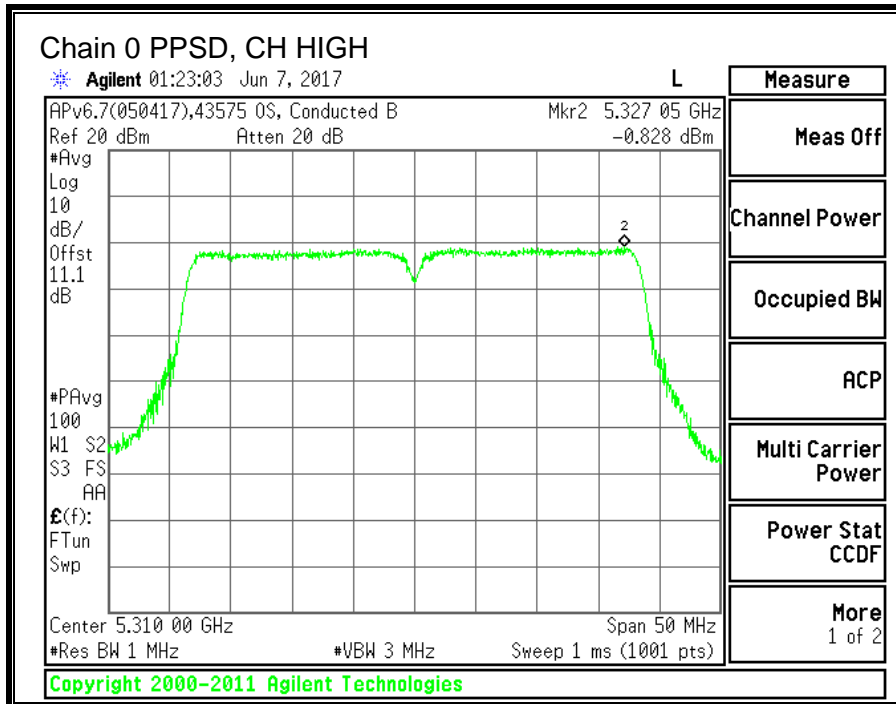
| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low | 5270 | 13.05 | 11.81 | 15.48 | 24.00 | -8.52 |
| High | 5310 | 13.28 | 12.17 | 15.77 | 24.00 | -8.23 |

PPSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PPSD (dBm) | Chain 1 Meas PPSD (dBm) | Total Corr'd PPSD (dBm) | PPSD Limit (dBm) | PPSD Margin (dB) |
|---------|--------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|------------------------|
| Low | 5270 | -1.348 | -3.334 | 1.18 | 11.00 | -9.82 |
| High | 5310 | -0.828 | -2.980 | 1.64 | 11.00 | -9.36 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.





10.8. 11ac HT80 2TX CDD MIMO MODE IN THE 5.3GHz BAND

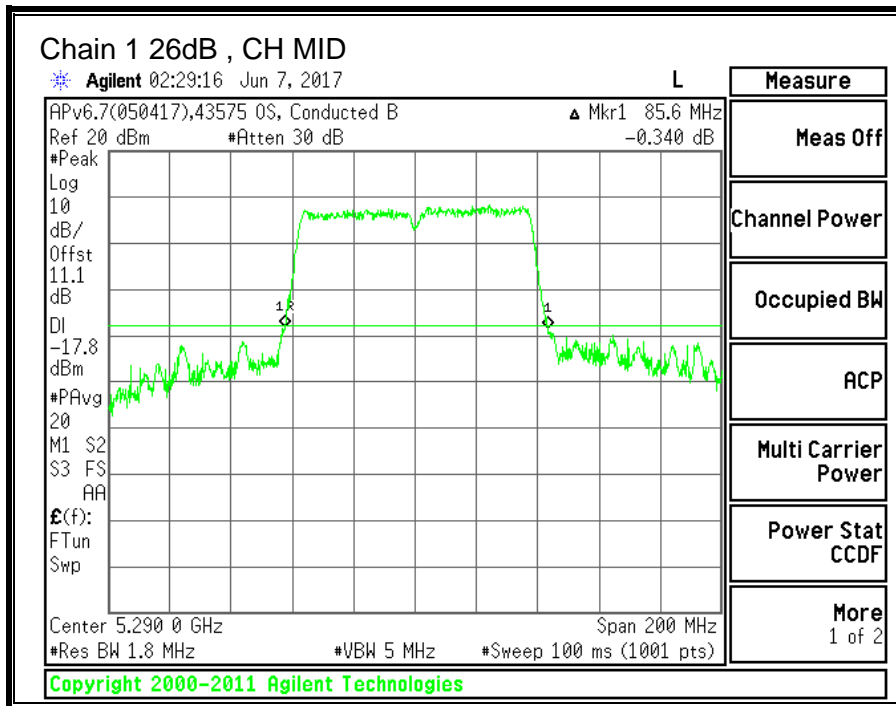
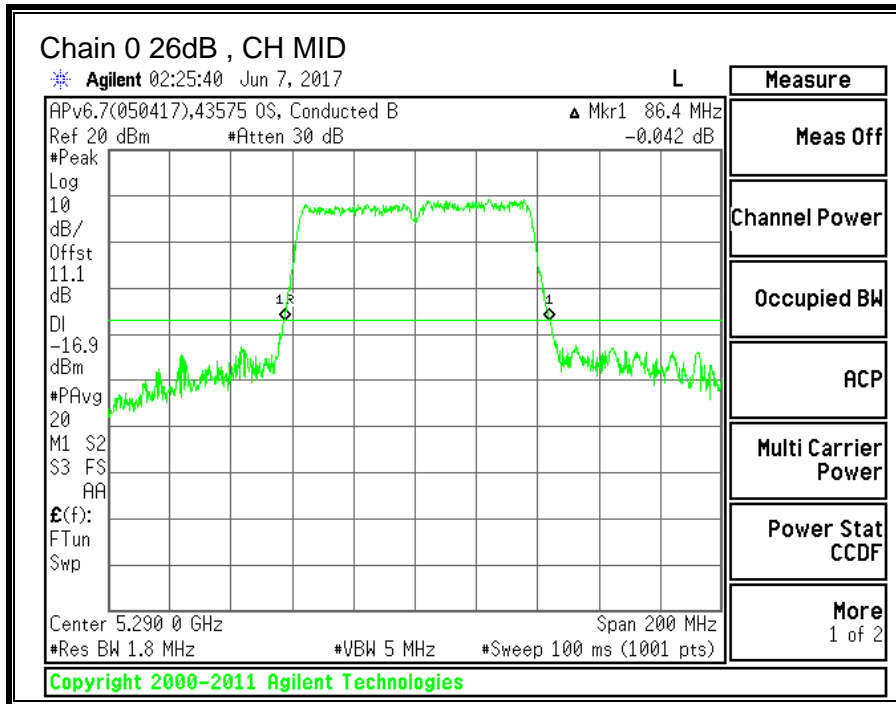
10.8.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 26 dB BW Chain 0 (MHz) | 26 dB BW Chain 1 (MHz) |
|---------|-----------|------------------------------|------------------------------|
| Mid | 5290 | 86.4 | 85.6 |



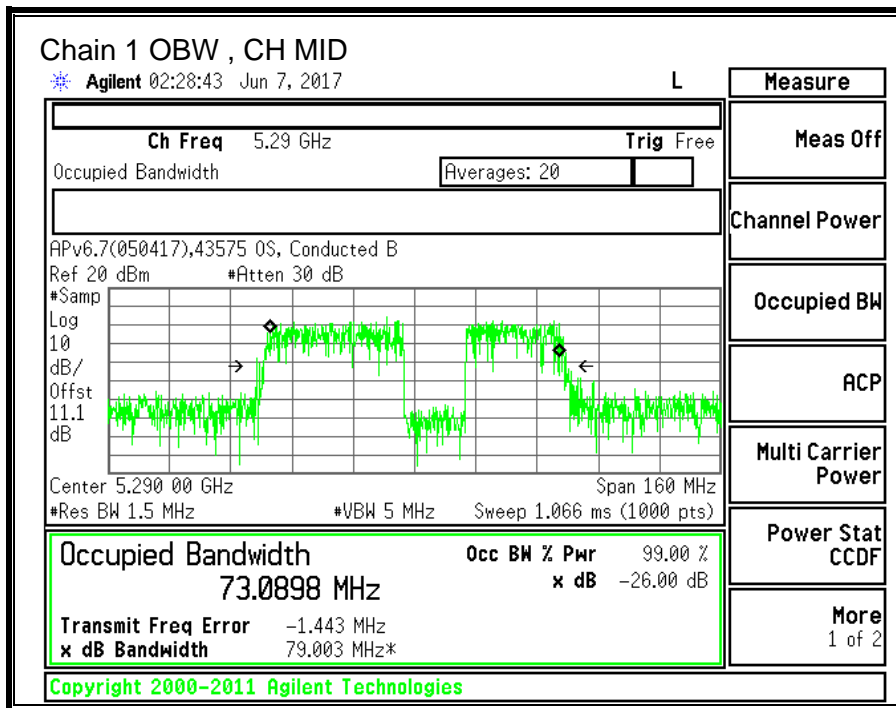
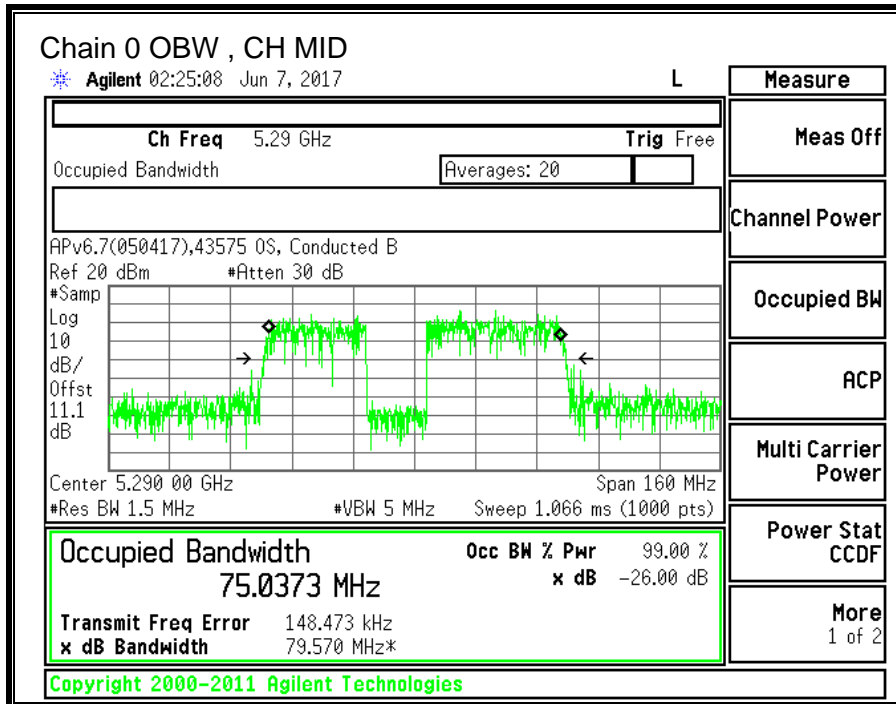
10.8.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|----------------|------------------|-------------------------------------|-------------------------------------|
| Mid | 5290 | 75.037 | 73.090 |



10.8.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the maximum 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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

5250-5350 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -4.40 | -6.70 | -5.40 |

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

5250-5230 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Correlated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -4.40 | -6.70 | -2.46 |

RESULTS

| | | | |
|------------|-------|--------------|----------|
| ID: | 43574 | Date: | 06/06/17 |
|------------|-------|--------------|----------|

Bandwidth and Antenna Gain

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Min 99% BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PPSD (dBi) |
|---------|--------------------|-----------------------------|---------------------------|---|--|
| Low | 5290 | 85.60 | 73.090 | -5.40 | -2.46 |

Limits

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

| | | |
|---------------------------|------|--|
| Duty Cycle CF (dB) | 0.75 | Included in Calculations of Corr'd PPSD |
|---------------------------|------|--|

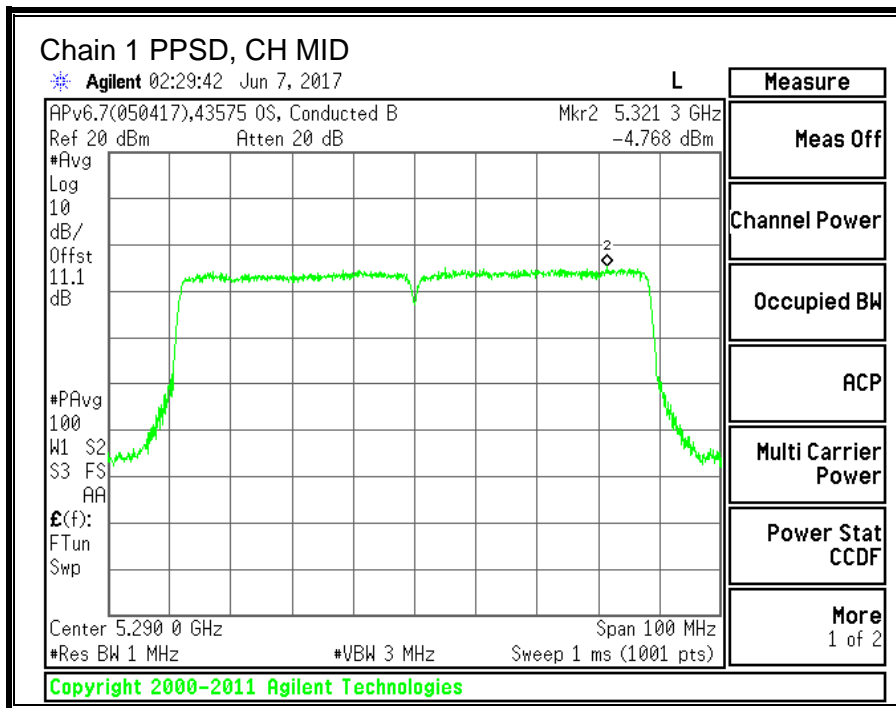
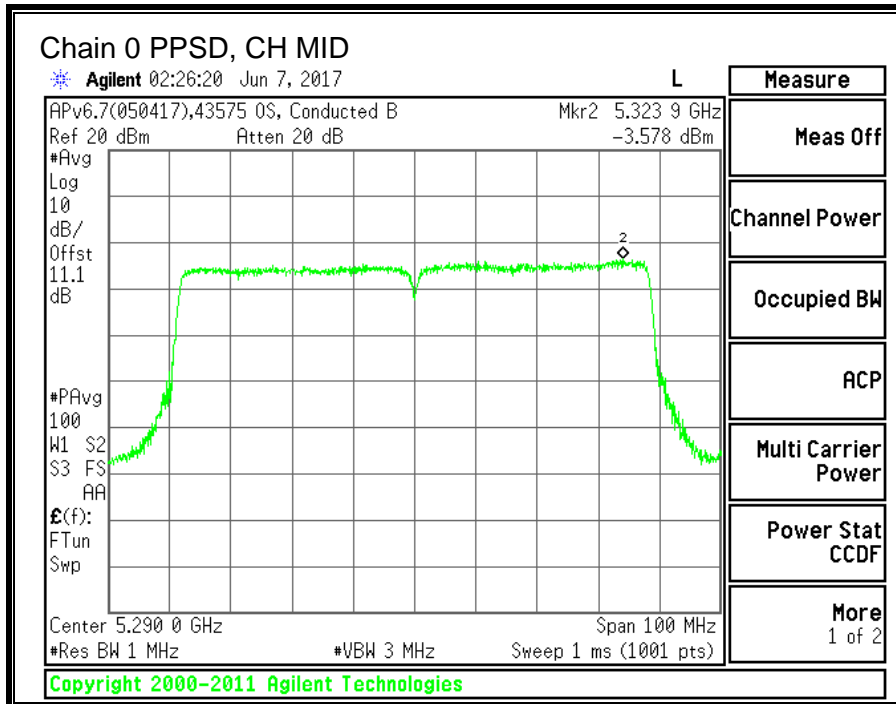
Output Power Results

| 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 | 5290 | 13.35 | 12.57 | 15.99 | 24.00 | -8.01 |

PPSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PPSD (dBm) | Chain 1 Meas PPSD (dBm) | Total Corr'd PPSD (dBm) | PPSD Limit (dBm) | PPSD Margin (dB) |
|---------|--------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|------------------------|
| Low | 5290 | -3.578 | -4.768 | -0.37 | 11.00 | -11.37 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.



10.9. 11a 2TX CDD MIMO MODE IN THE 5.6GHz BAND

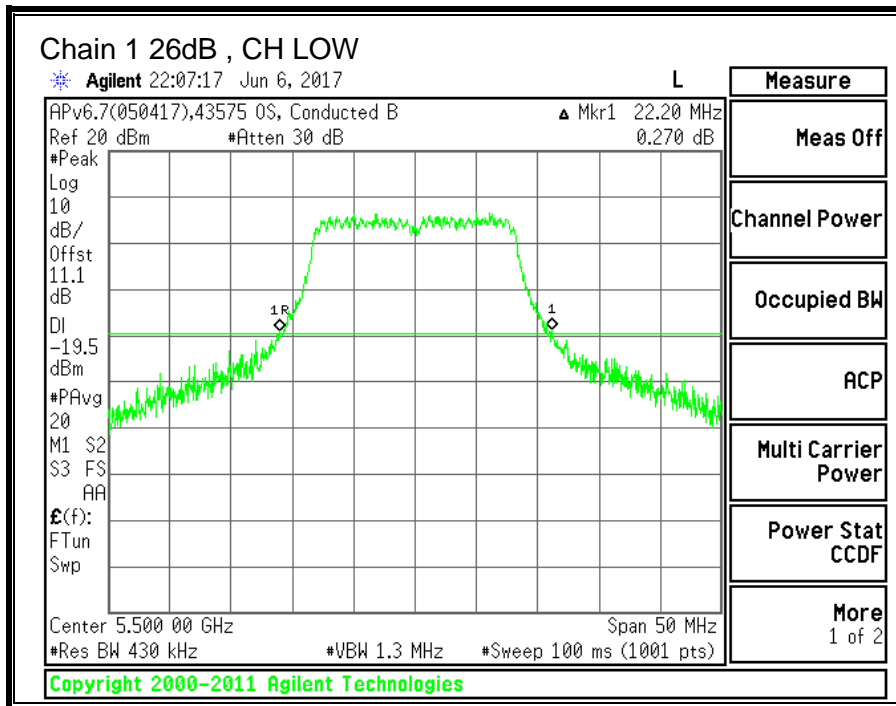
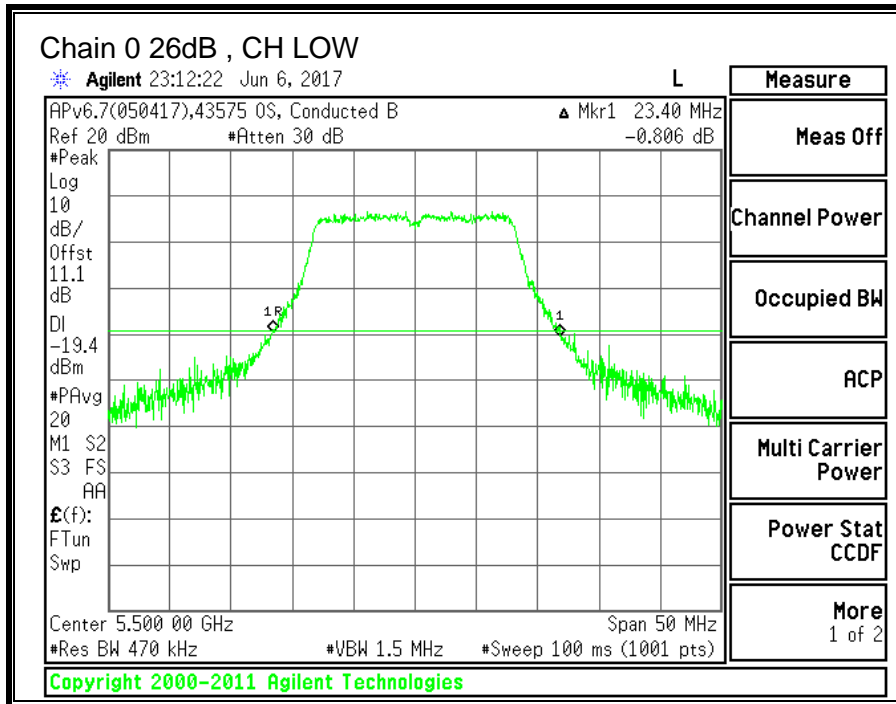
10.9.1. 26 dB BANDWIDTH

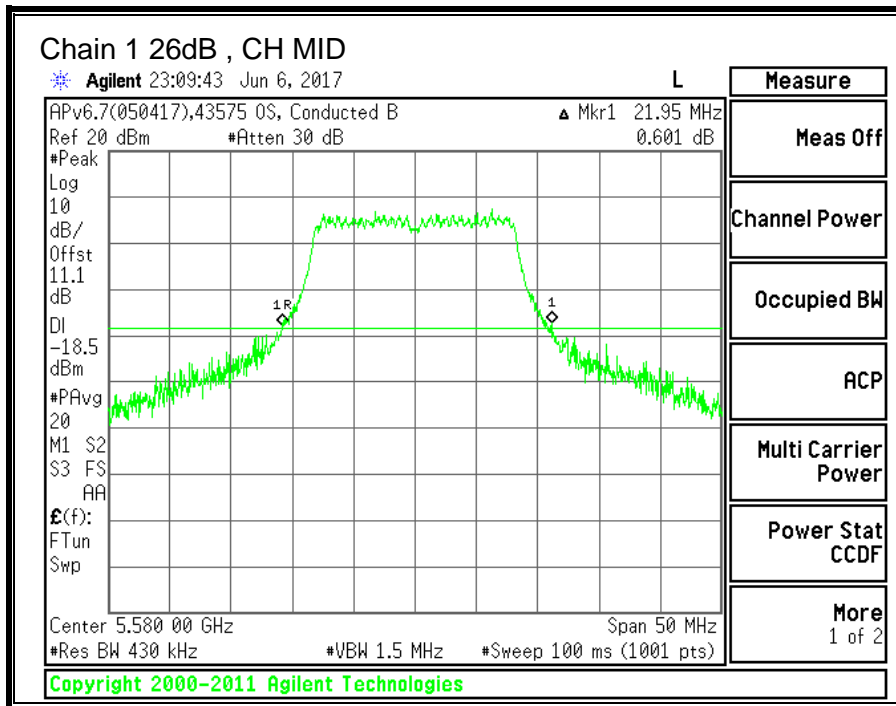
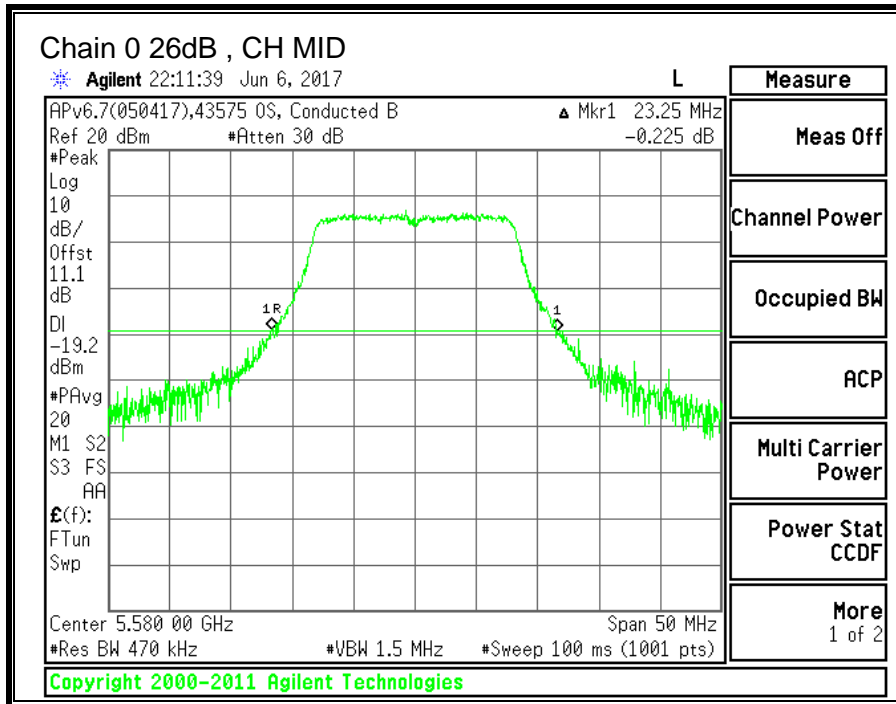
LIMITS

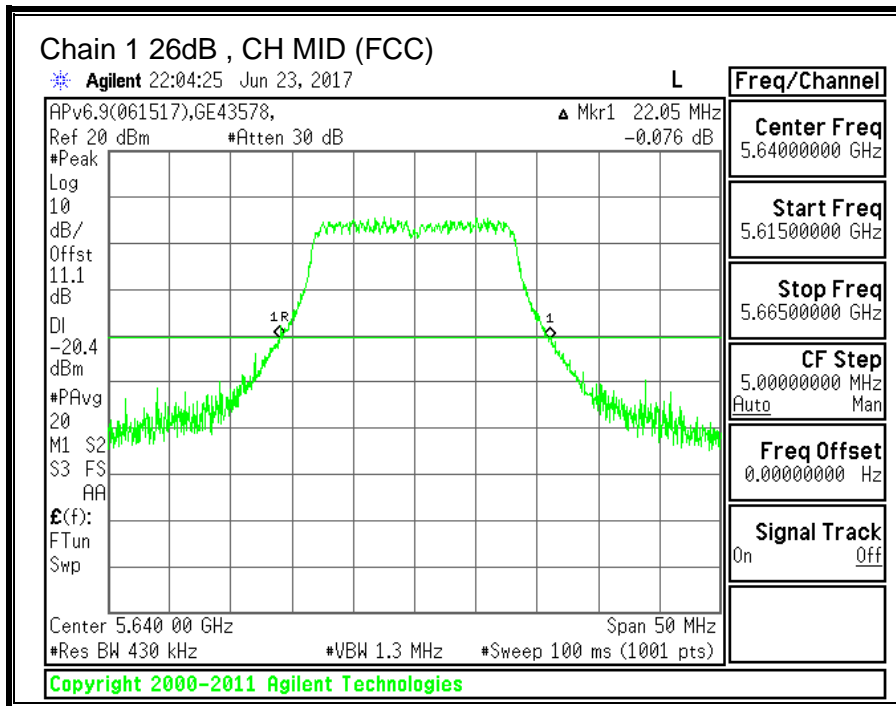
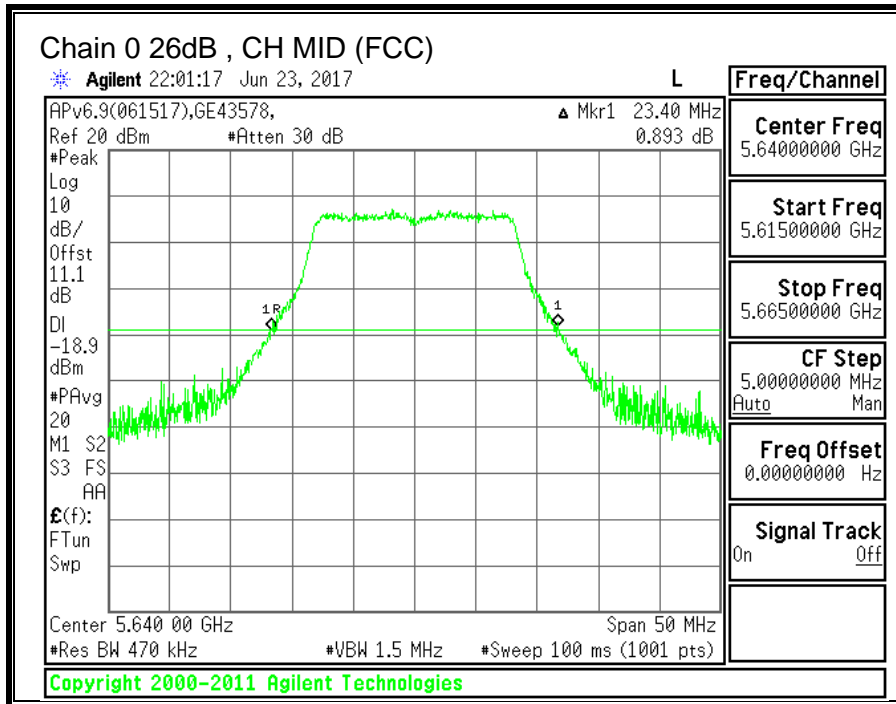
None; for reporting purposes only.

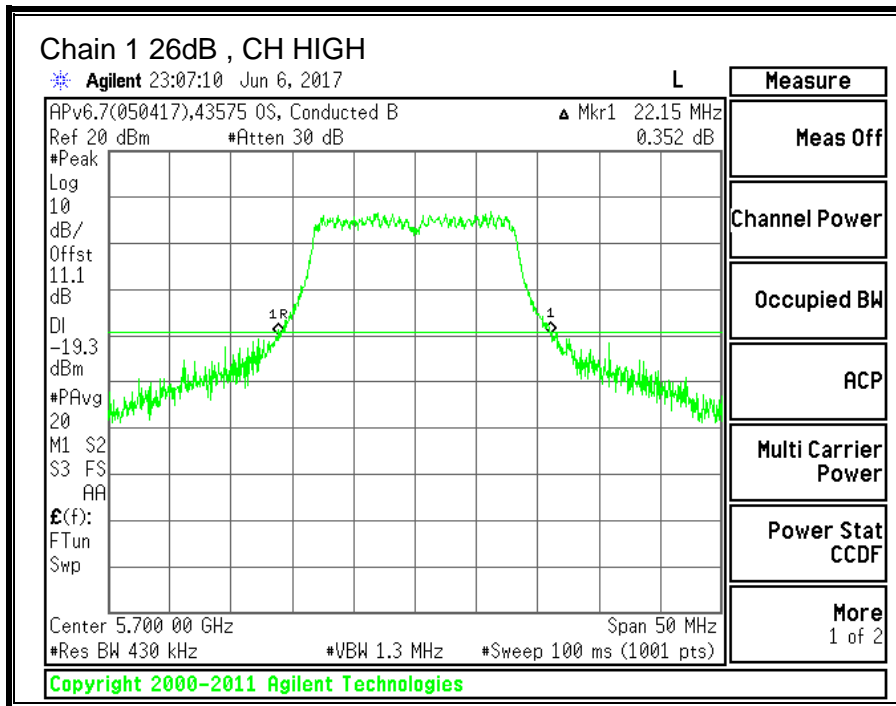
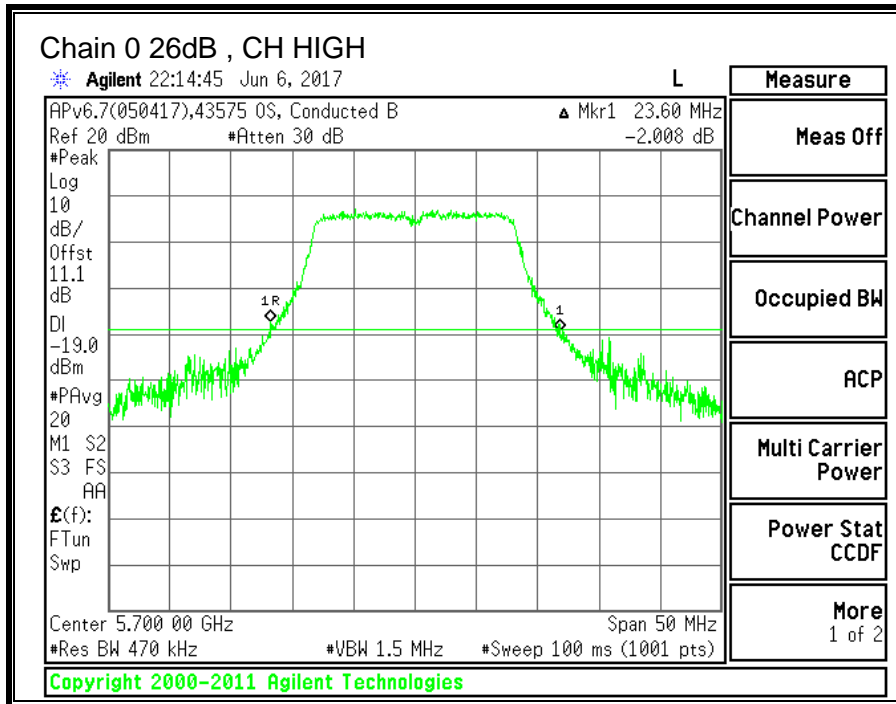
RESULTS

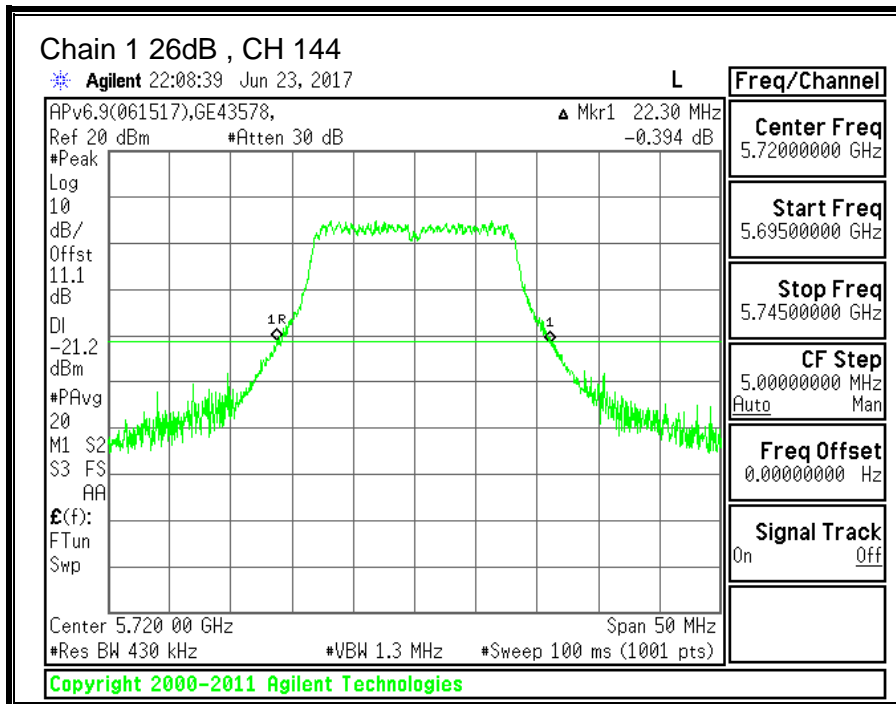
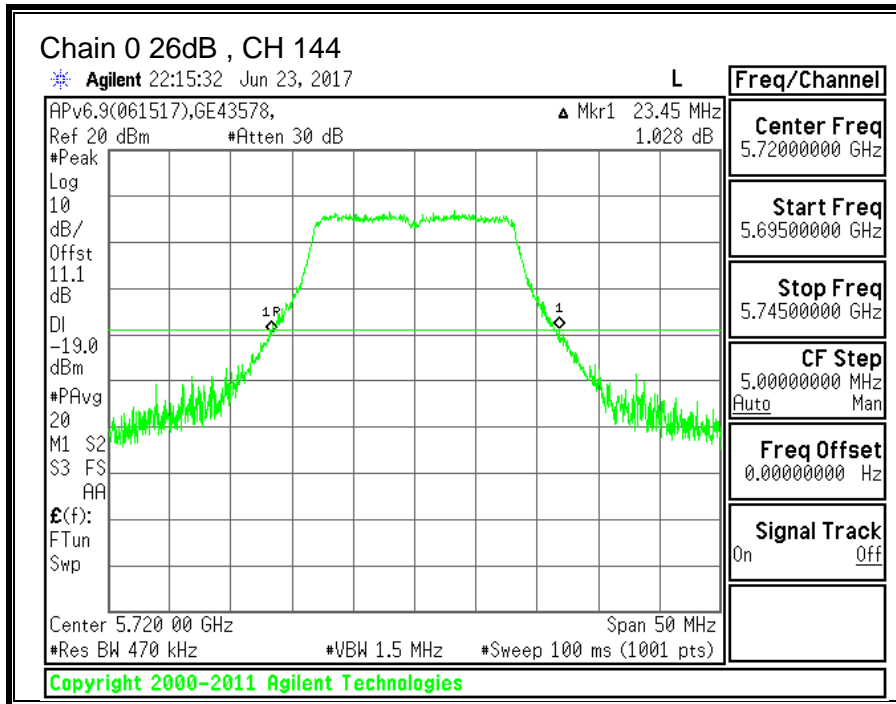
| Channel | Frequency | 26 dB BW Chain 0 (MHz) | 26 dB BW Chain 1 (MHz) |
|-----------|-----------|------------------------------|------------------------------|
| Low | 5500 | 23.40 | 22.20 |
| Mid | 5580 | 23.25 | 21.95 |
| Mid (FCC) | 5640 | 23.40 | 22.05 |
| High | 5700 | 23.60 | 22.15 |
| 144 | 5720 | 23.45 | 22.30 |











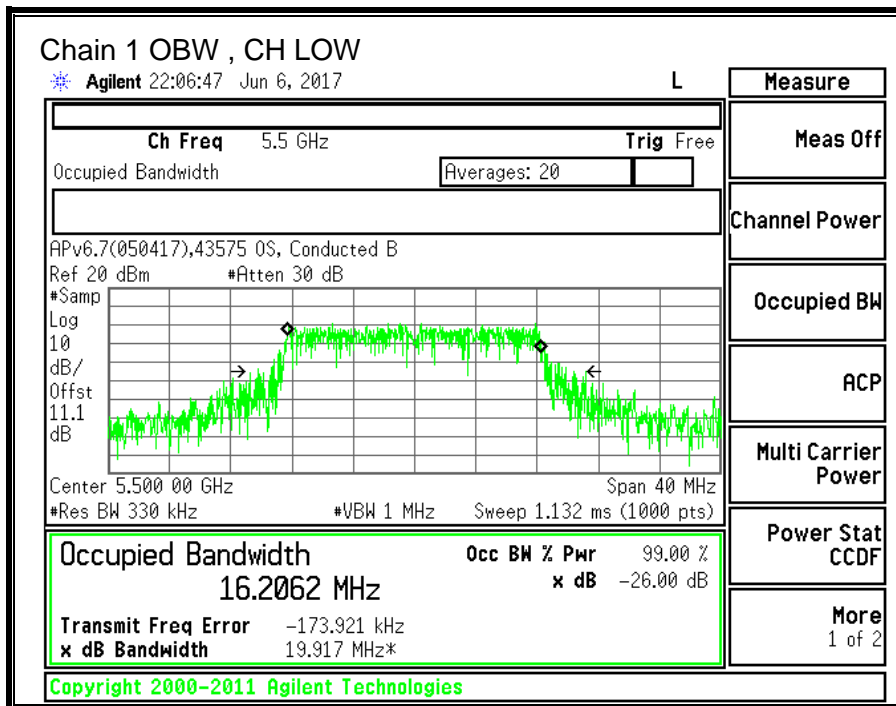
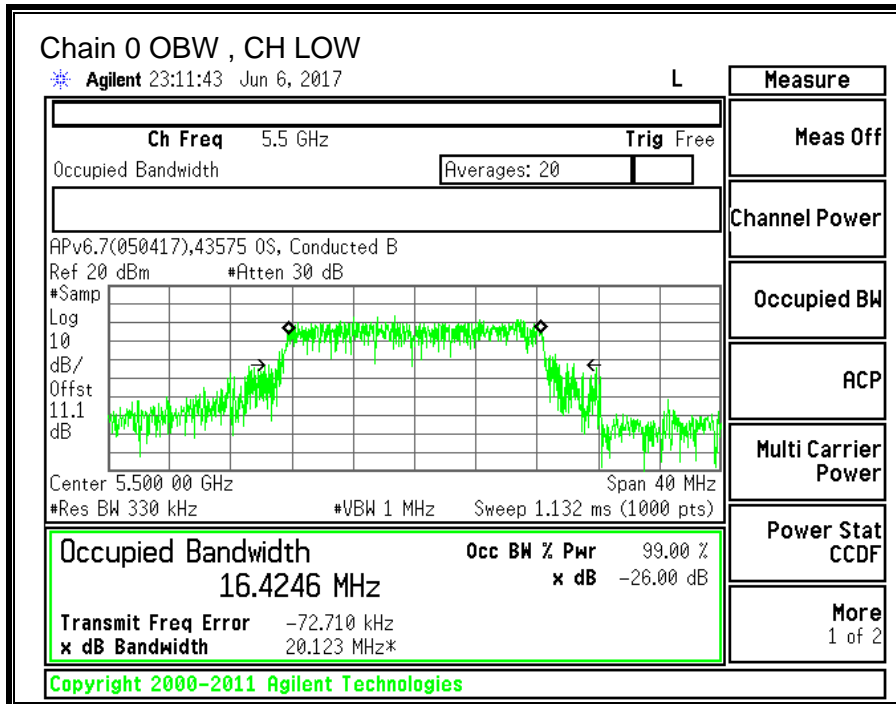
10.9.2. 99% BANDWIDTH

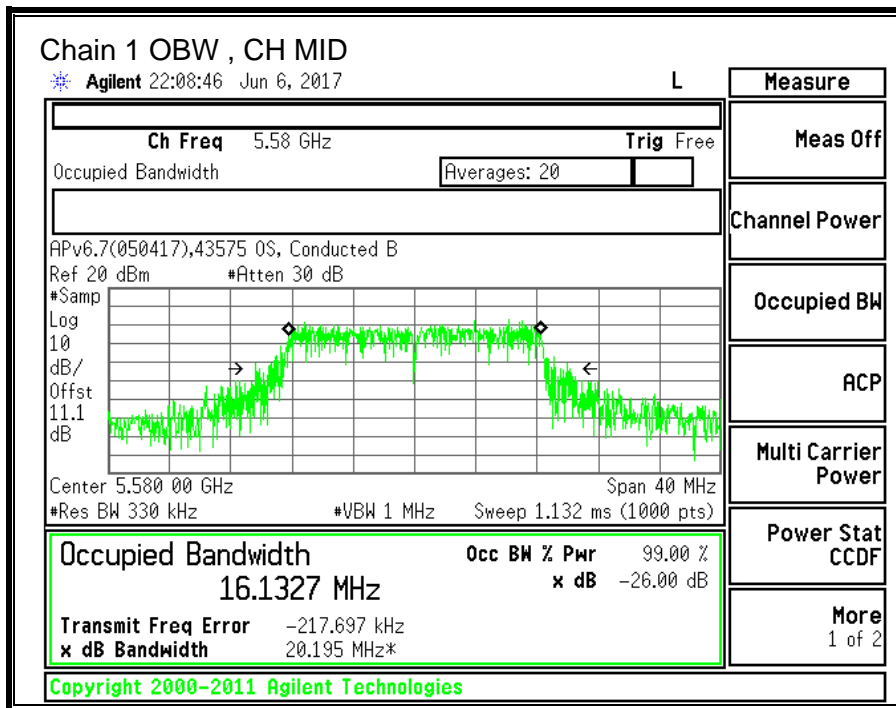
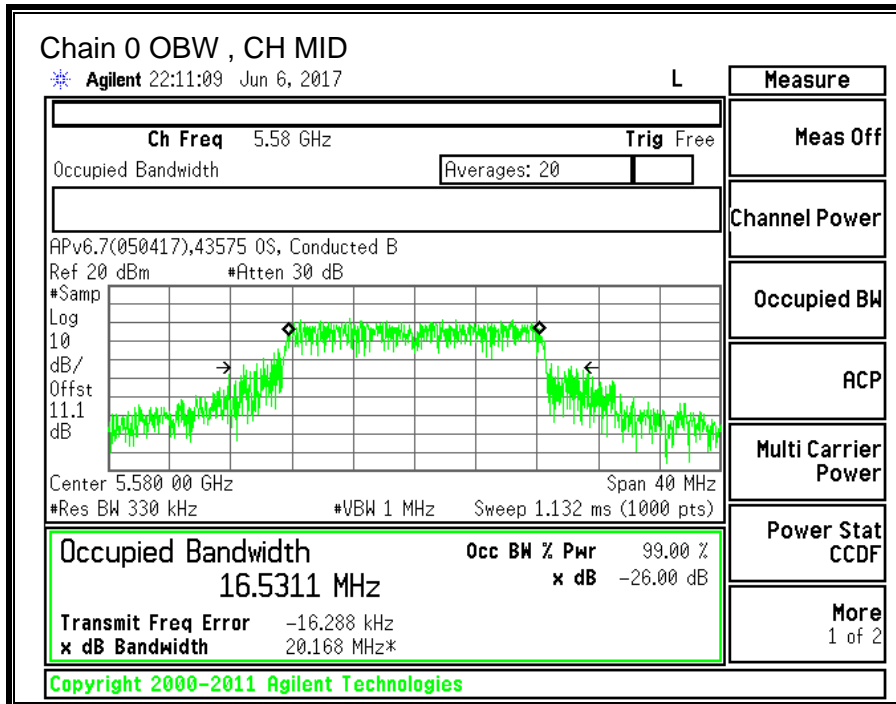
LIMITS

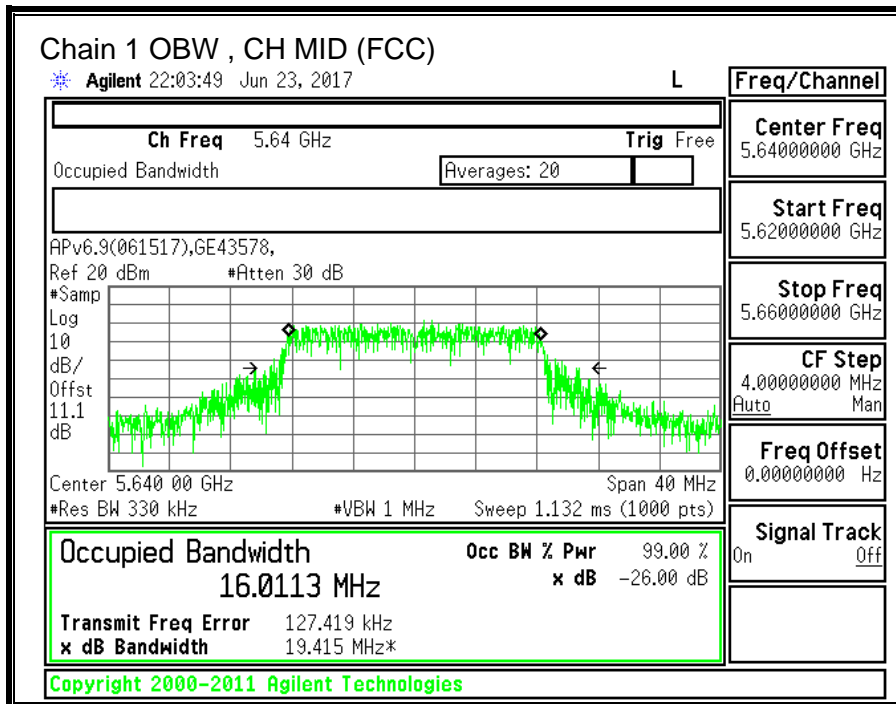
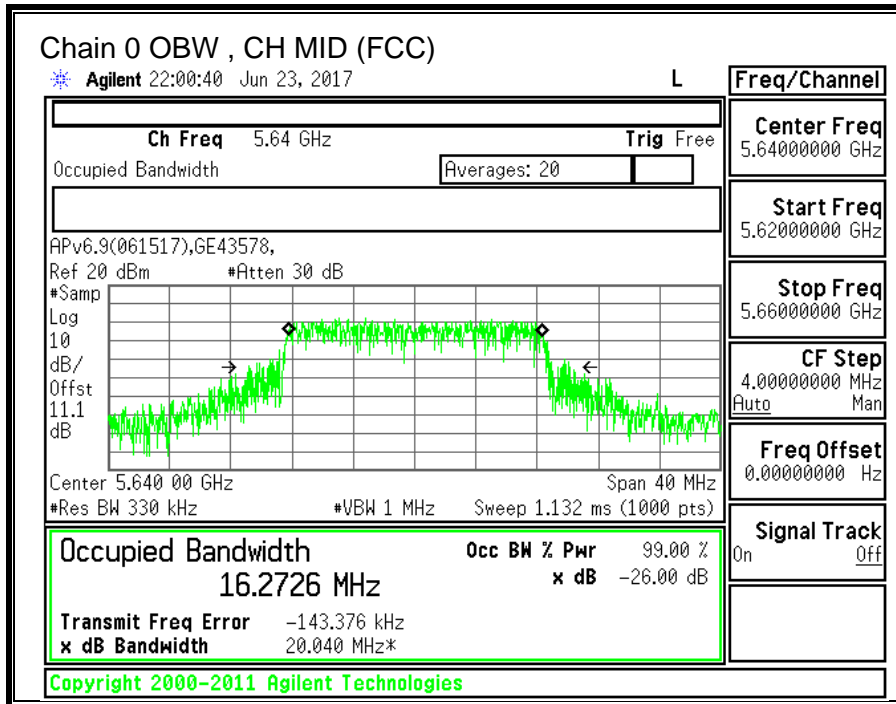
None; for reporting purposes only.

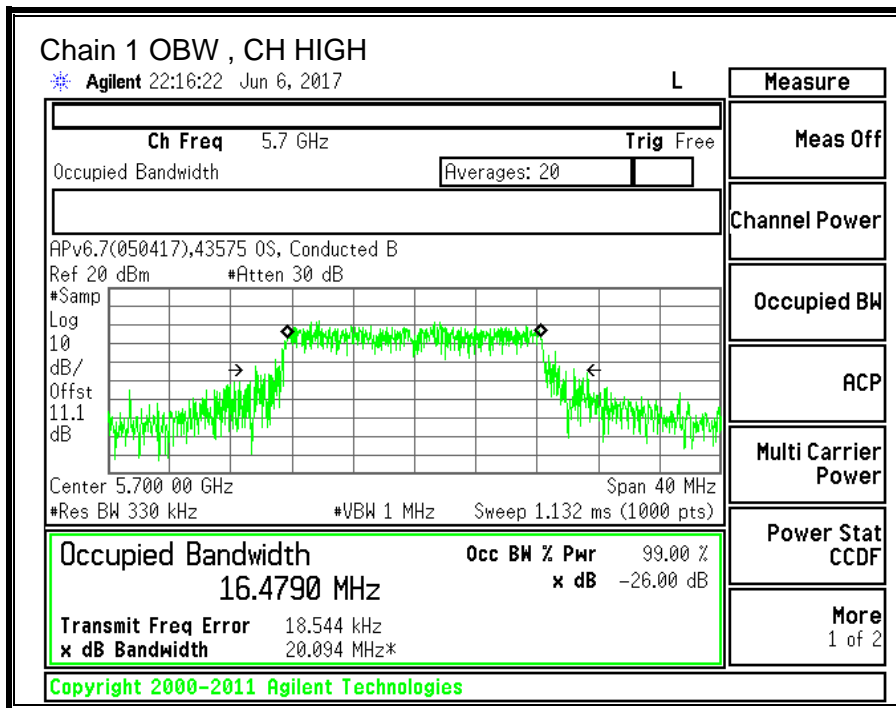
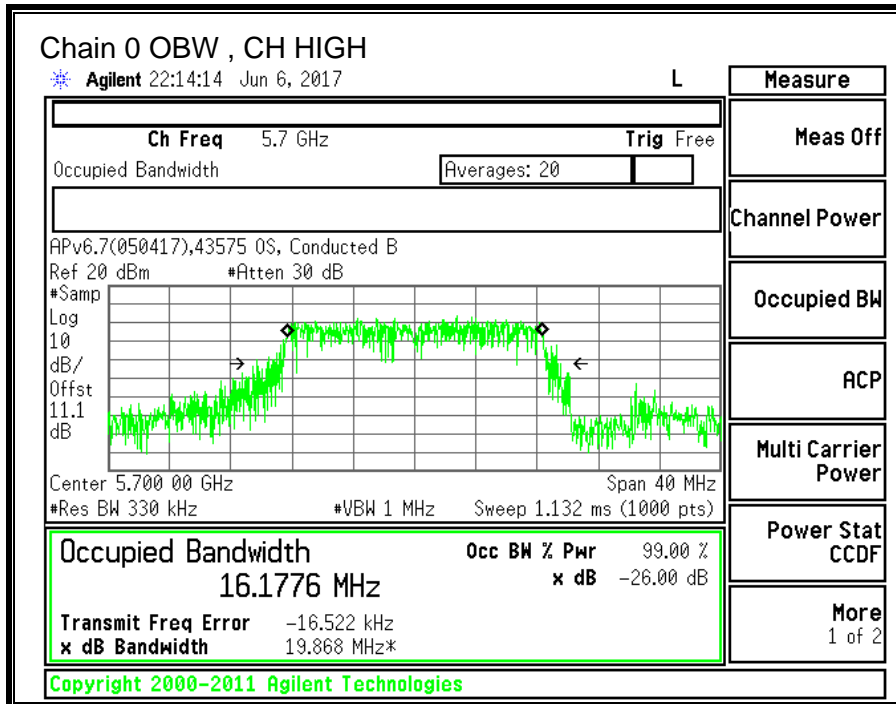
RESULTS

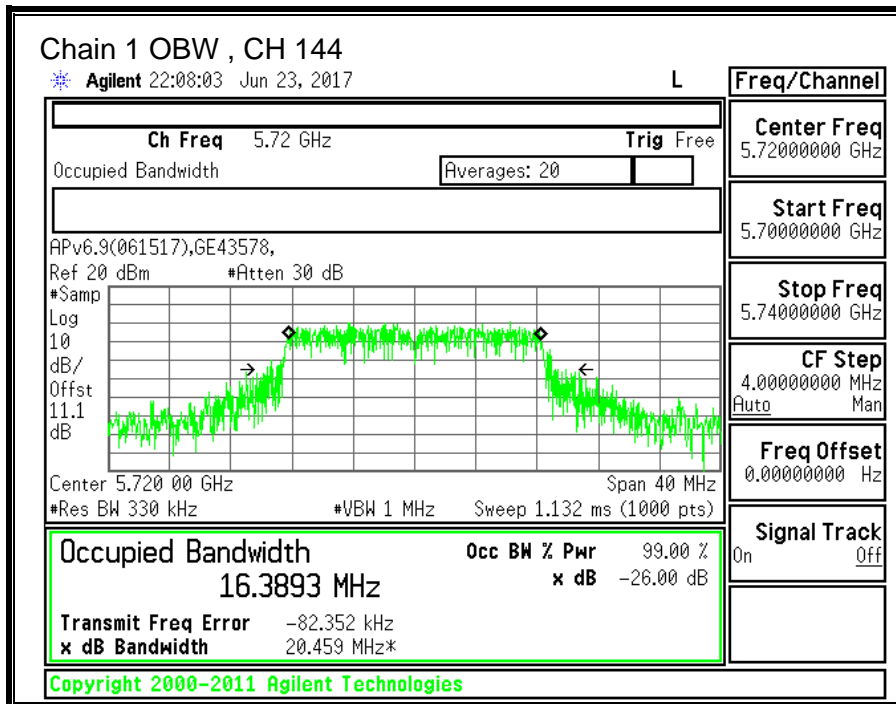
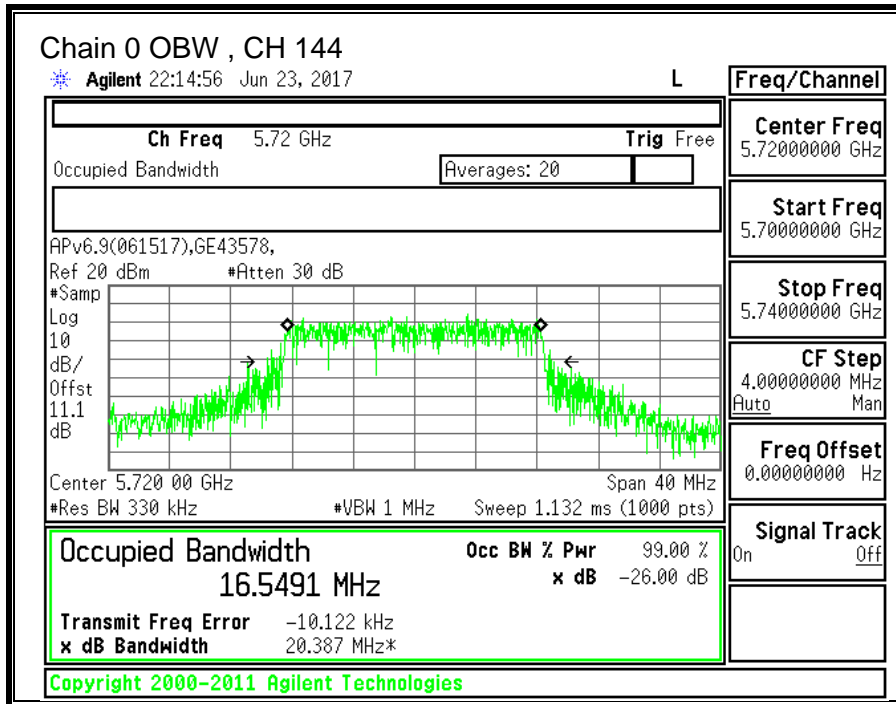
| Channel | Frequency | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|----------------|------------------|-------------------------------------|-------------------------------------|
| Low | 5500 | 16.4246 | 16.2062 |
| Mid | 5580 | 16.5311 | 16.1327 |
| Mid (FCC) | 5640 | 16.2726 | 16.0113 |
| High | 5700 | 16.1776 | 16.4790 |
| 144 | 5720 | 16.5491 | 16.3893 |











10.9.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 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 maximum 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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Straddle channel power is measured using PXA spectrum analyzer, duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

5470-5725 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -3.10 | -8.40 | -4.99 |

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

5470-5725 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Correlated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -3.10 | -8.40 | -2.34 |

RESULTS

| | | | |
|------------|-------|--------------|----------|
| ID: | 43574 | Date: | 06/06/17 |
|------------|-------|--------------|----------|

Bandwidth and Antenna Gain

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Min 99% BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PPSD (dBi) |
|-----------|--------------------|-----------------------------|---------------------------|---|--|
| Low | 5500 | 22.20 | 16.2062 | -4.99 | -2.34 |
| Mid | 5580 | 21.95 | 16.1327 | -4.99 | -2.34 |
| Mid (FCC) | 5640 | 22.05 | 16.0113 | -4.99 | -2.34 |
| High | 5700 | 22.15 | 16.1776 | -4.99 | -2.34 |
| 144 | 5720 | 22.30 | 16.3893 | -4.99 | -2.34 |

Limits

| Channel | Frequency (MHz) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Power Limit (dBm) | FCC PPSD Limit (dBm) | IC PSD Limit (dBm) | PPSD Limit (dBm) |
|-----------|--------------------|--------------------------------|-------------------------------|------------------------------|-------------------------|-------------------------------|-----------------------------|------------------------|
| Low | 5500 | 24.00 | 23.10 | 29.10 | 23.10 | 11.00 | 11.00 | 11.00 |
| Mid | 5580 | 24.00 | 23.08 | 29.08 | 23.08 | 11.00 | 11.00 | 11.00 |
| Mid (FCC) | 5640 | 24.00 | 23.04 | 29.04 | 23.04 | 11.00 | 11.00 | 11.00 |
| High | 5700 | 24.00 | 23.09 | 29.09 | 23.09 | 11.00 | 11.00 | 11.00 |
| 144 | 5720 | 24.00 | 23.15 | 29.15 | 23.15 | 11.00 | 11.00 | 11.00 |

| | | |
|---------------------------|------|--|
| Duty Cycle CF (dB) | 0.24 | Included in Calculations of Corr'd PPSD |
|---------------------------|------|--|

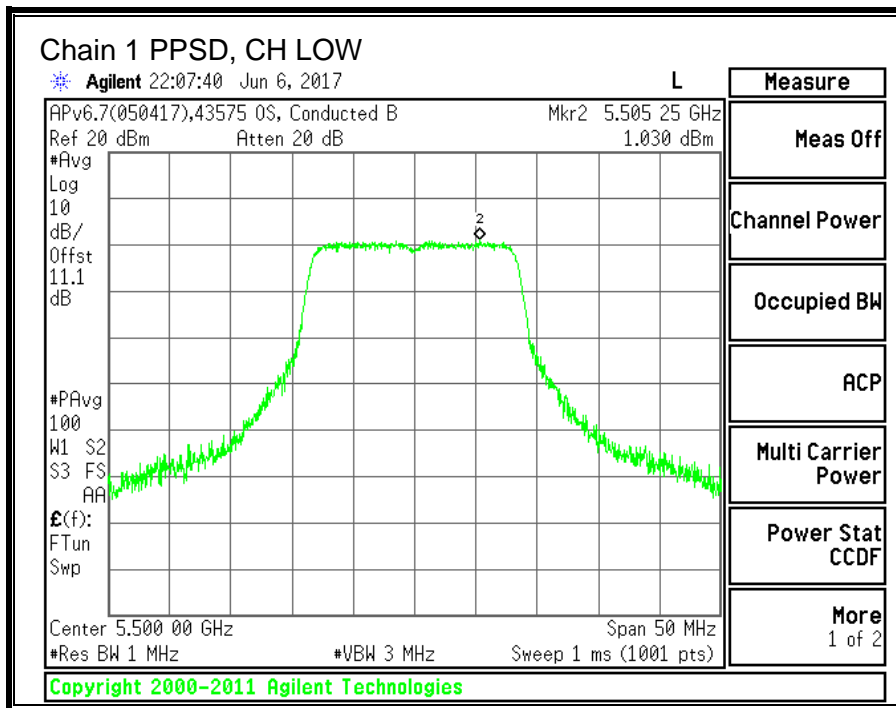
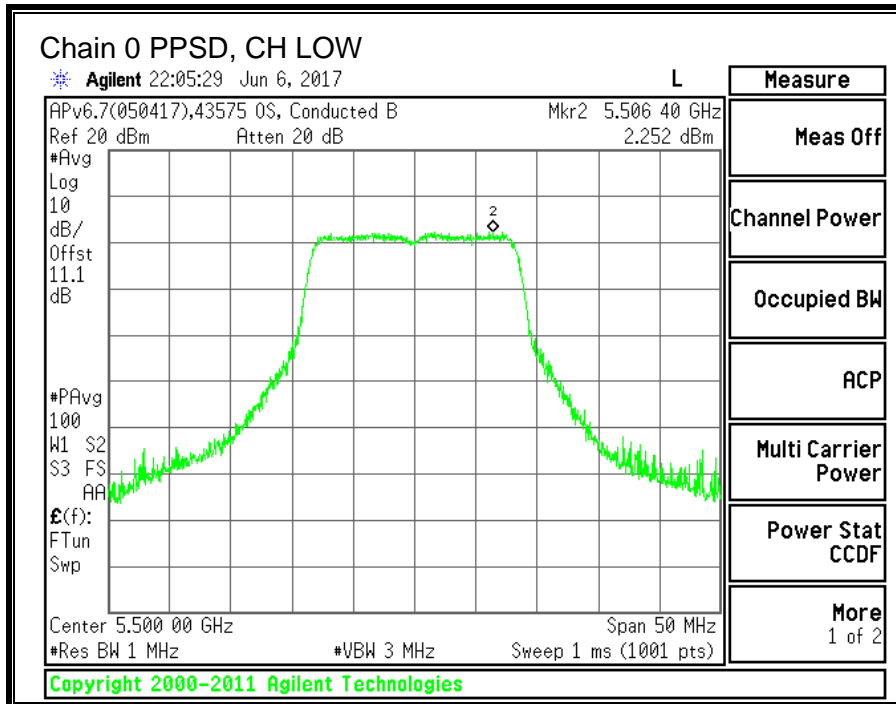
Output Power Results

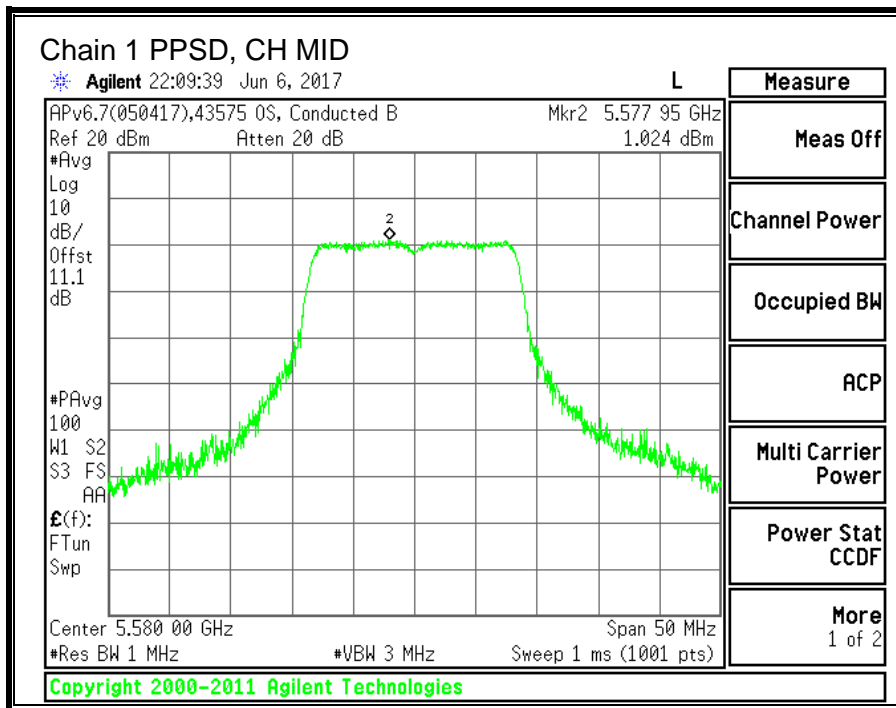
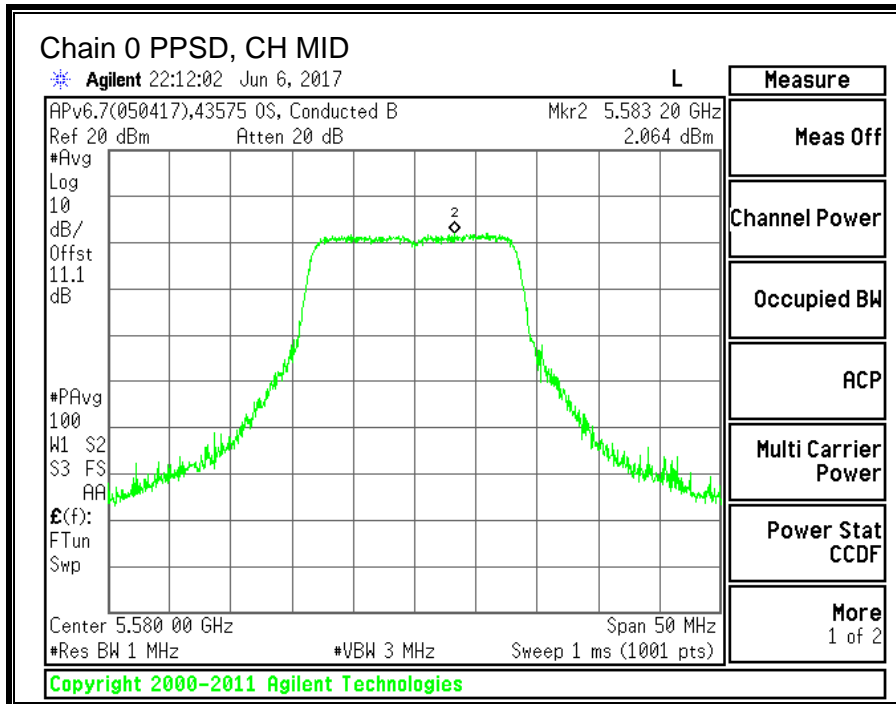
| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|-----------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low | 5500 | 13.07 | 12.34 | 15.73 | 23.10 | -7.37 |
| Mid | 5580 | 13.09 | 12.40 | 15.77 | 23.08 | -7.31 |
| Mid (FCC) | 5640 | 13.27 | 12.23 | 15.79 | 23.04 | -7.25 |
| High | 5700 | 13.51 | 12.19 | 15.91 | 23.09 | -7.18 |
| 144 | 5720 | 13.44 | 12.16 | 15.86 | 23.15 | -7.29 |

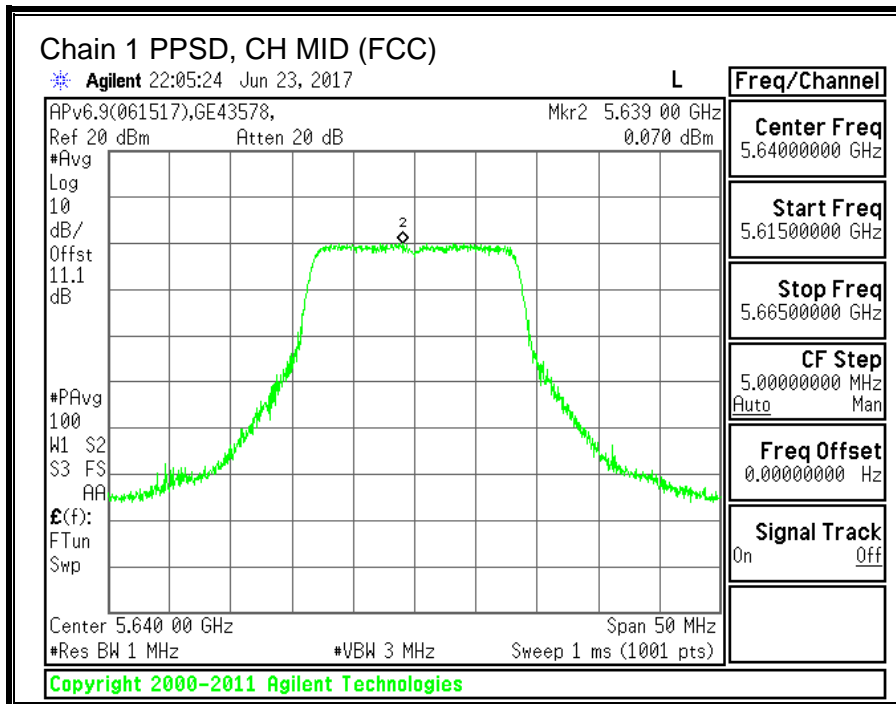
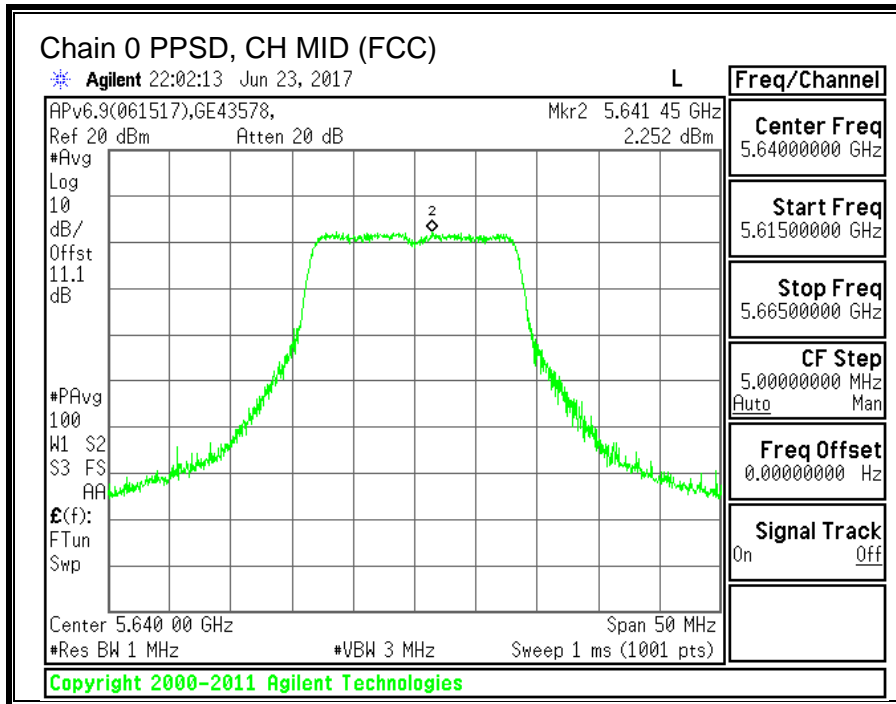
PPSD Results

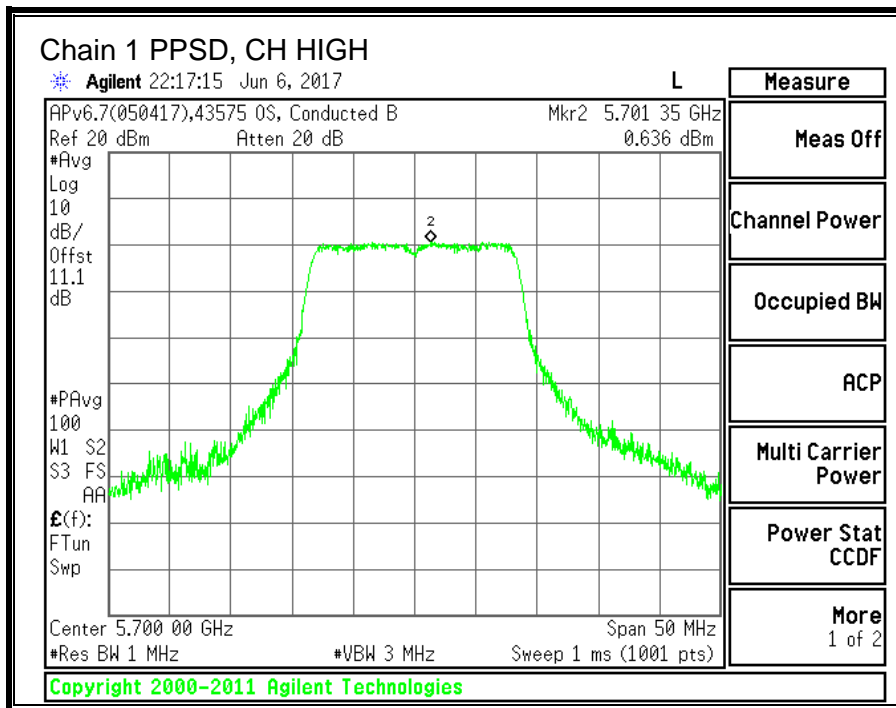
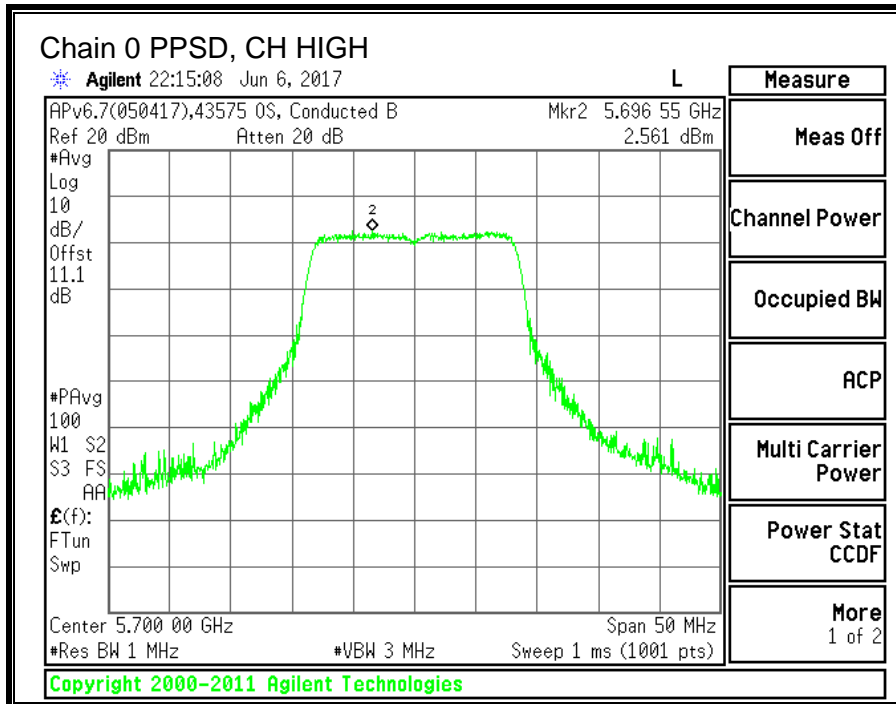
| Channel | Frequency (MHz) | Chain 0 Meas PPSD (dBm) | Chain 1 Meas PPSD (dBm) | Total Corr'd PPSD (dBm) | PPSD Limit (dBm) | PPSD Margin (dB) |
|-----------|--------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|------------------------|
| Low | 5500 | 2.252 | 1.030 | 4.93 | 11.00 | -6.07 |
| Mid | 5580 | 2.064 | 1.024 | 4.83 | 11.00 | -6.17 |
| Mid (FCC) | 5640 | 2.252 | 0.070 | 4.55 | 11.00 | -6.45 |
| High | 5700 | 2.561 | 0.636 | 4.95 | 11.00 | -6.05 |
| 144 | 5720 | 1.873 | -0.001 | 4.29 | 11.00 | -6.71 |

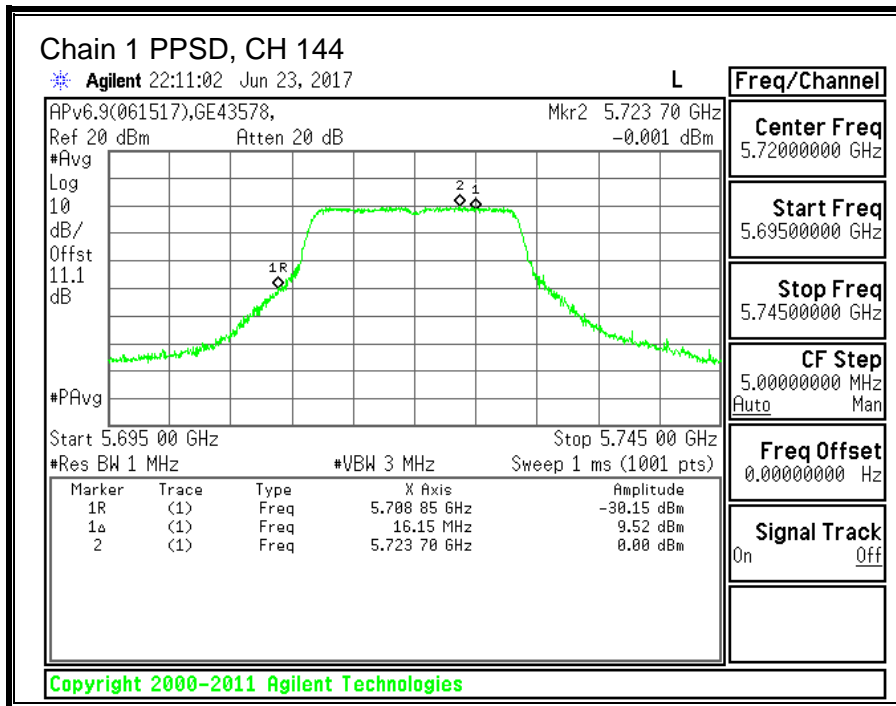
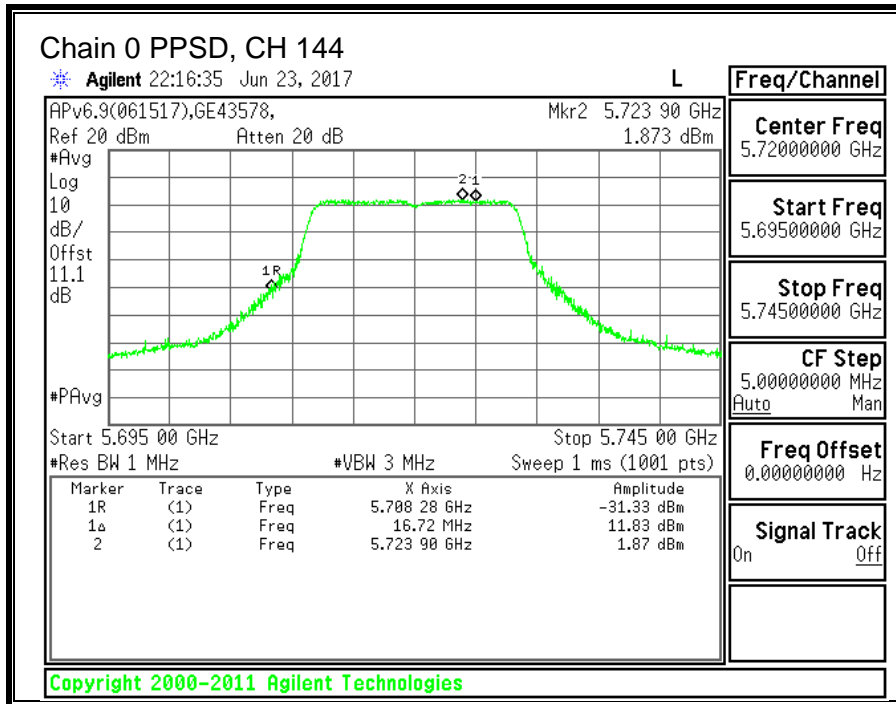
Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.











10.10. 11n HT20 2TX CDD MIMO MODE IN THE 5.6GHz BAND

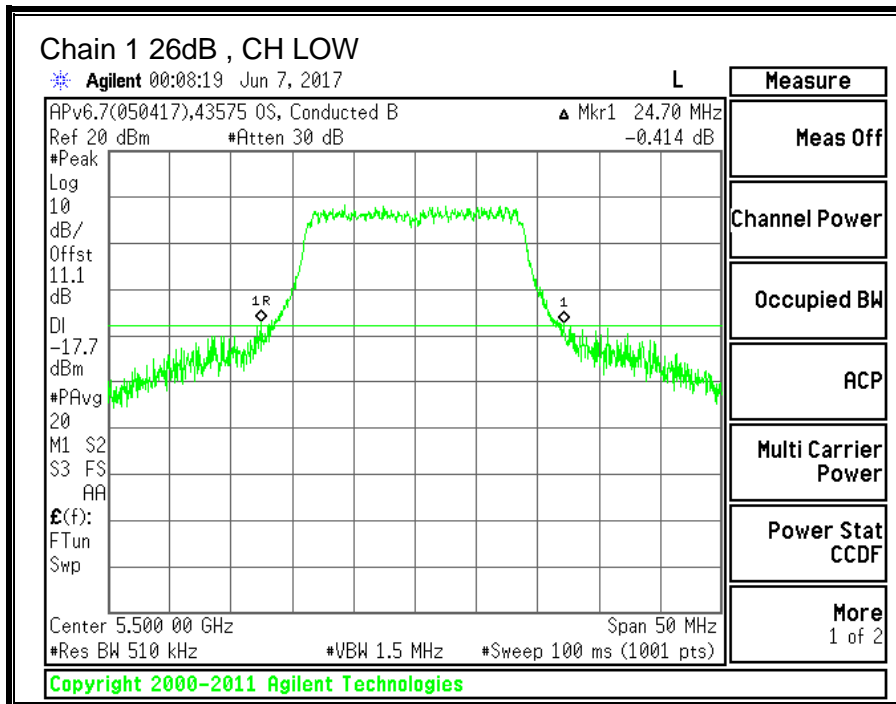
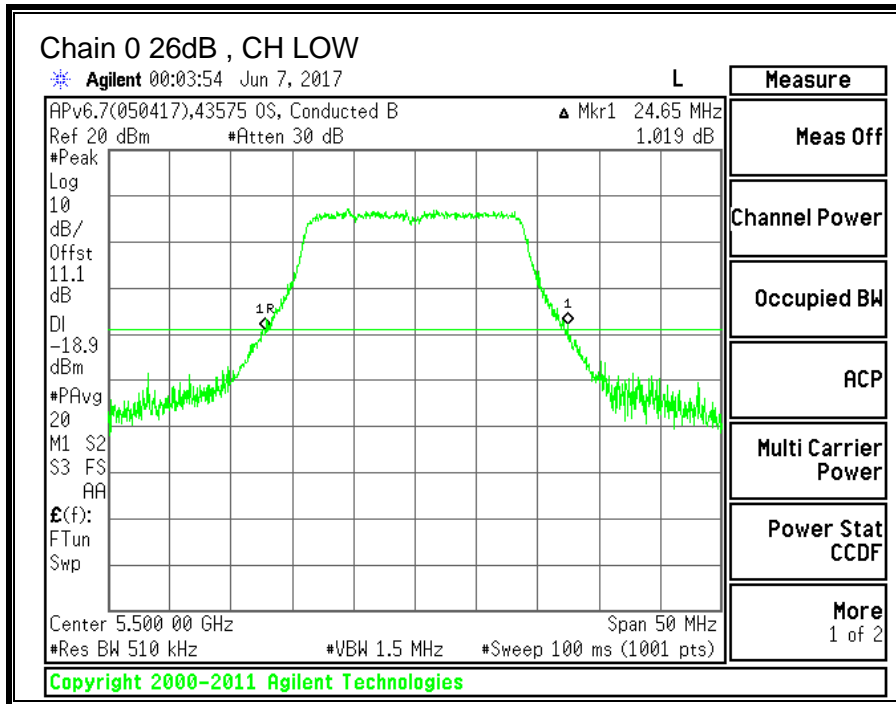
10.10.1. 26 dB BANDWIDTH

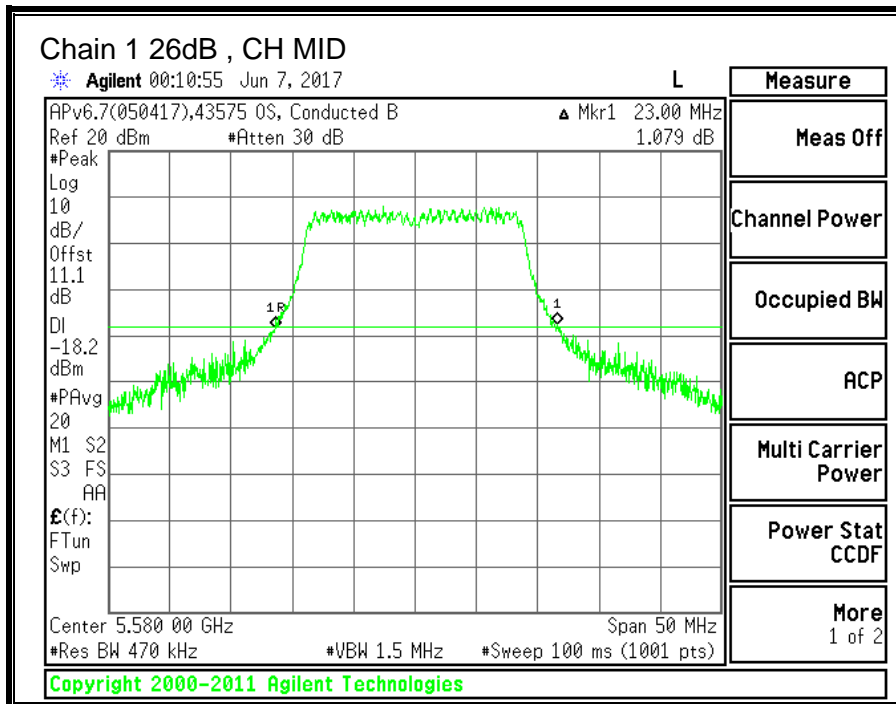
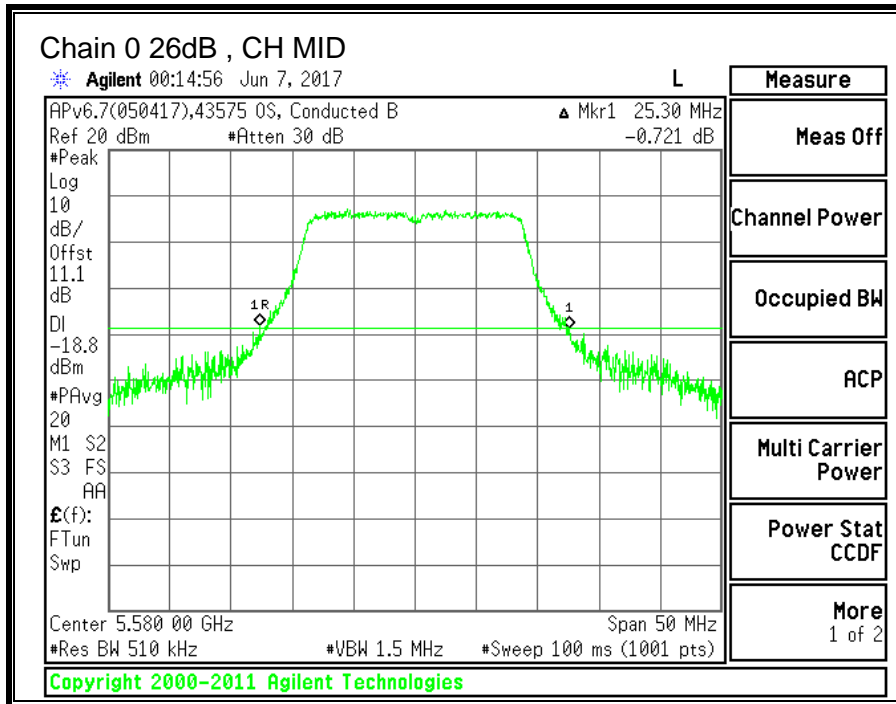
LIMITS

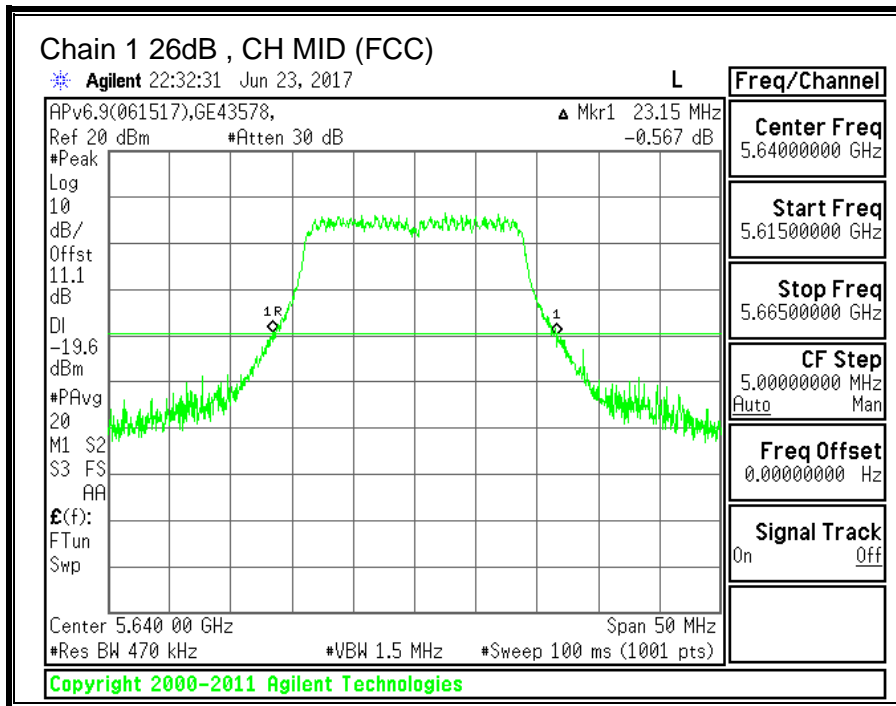
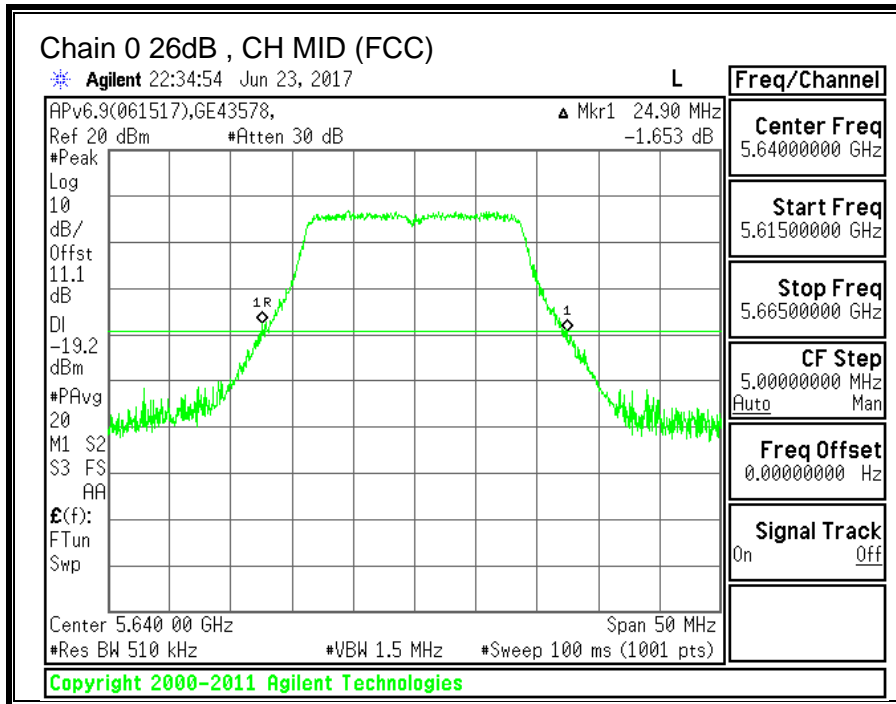
None; for reporting purposes only.

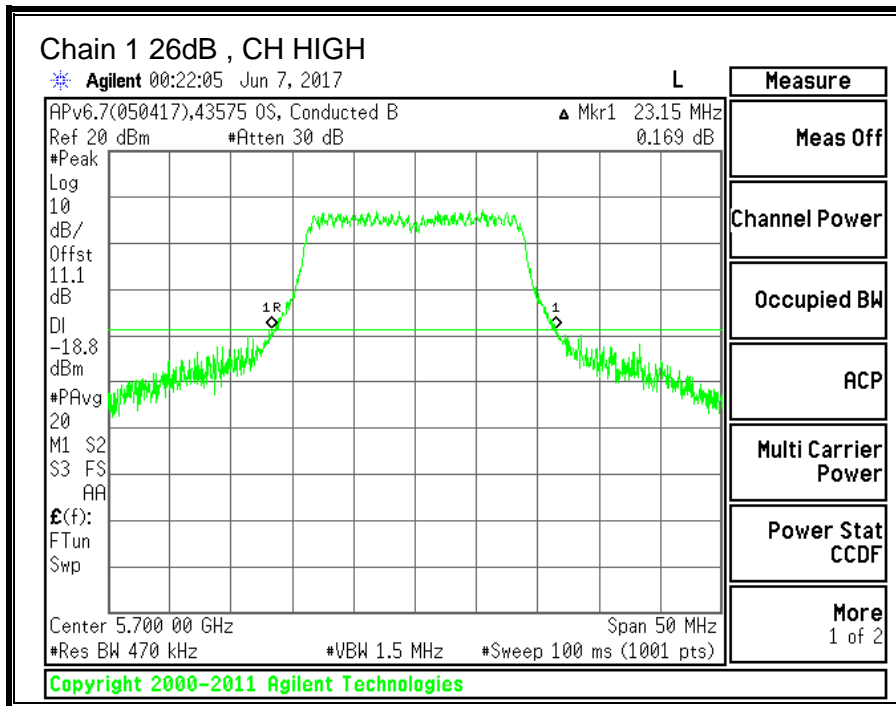
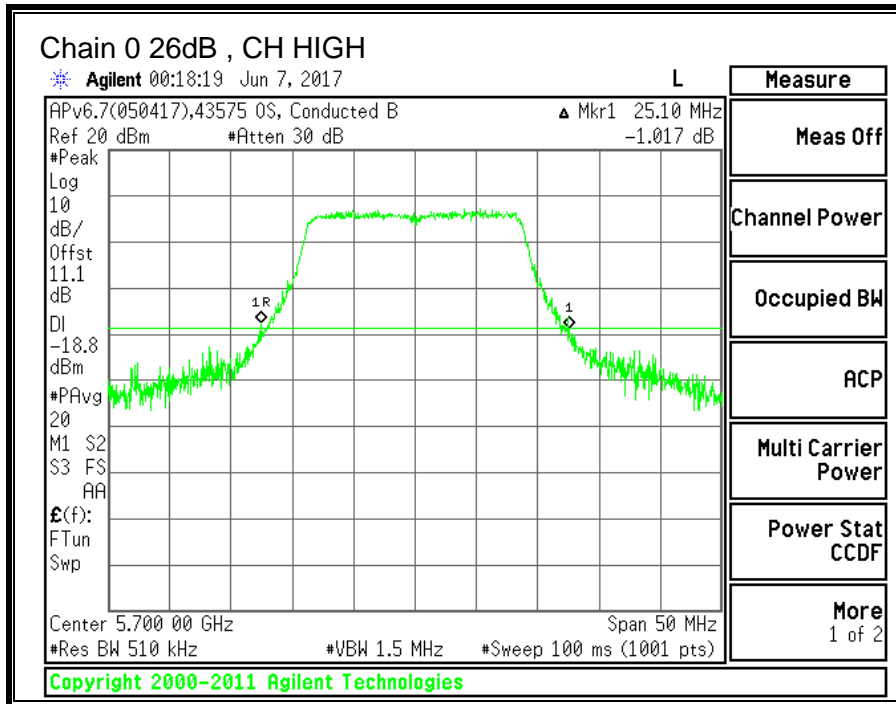
RESULTS

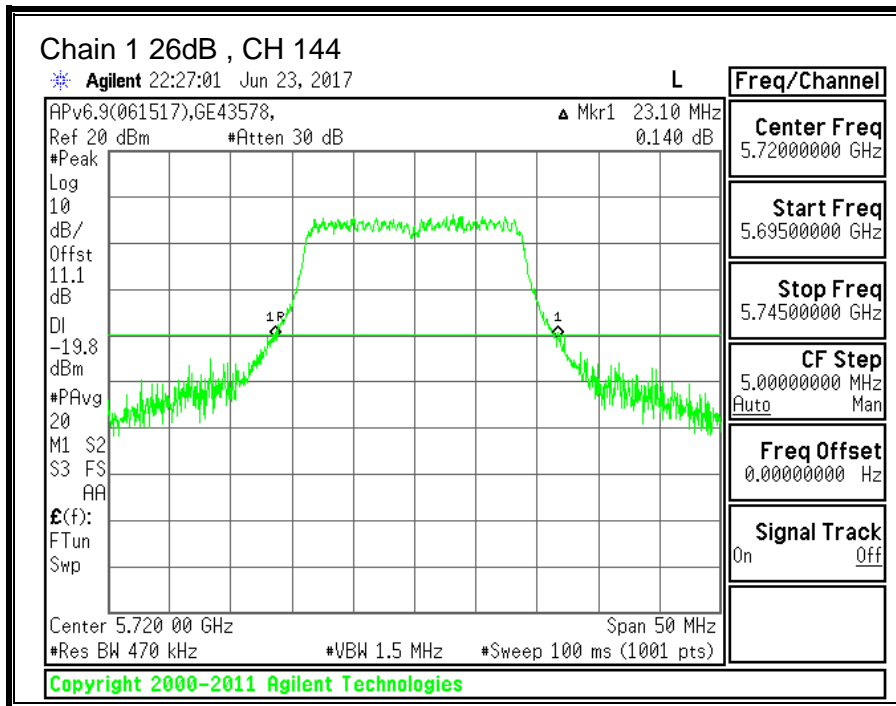
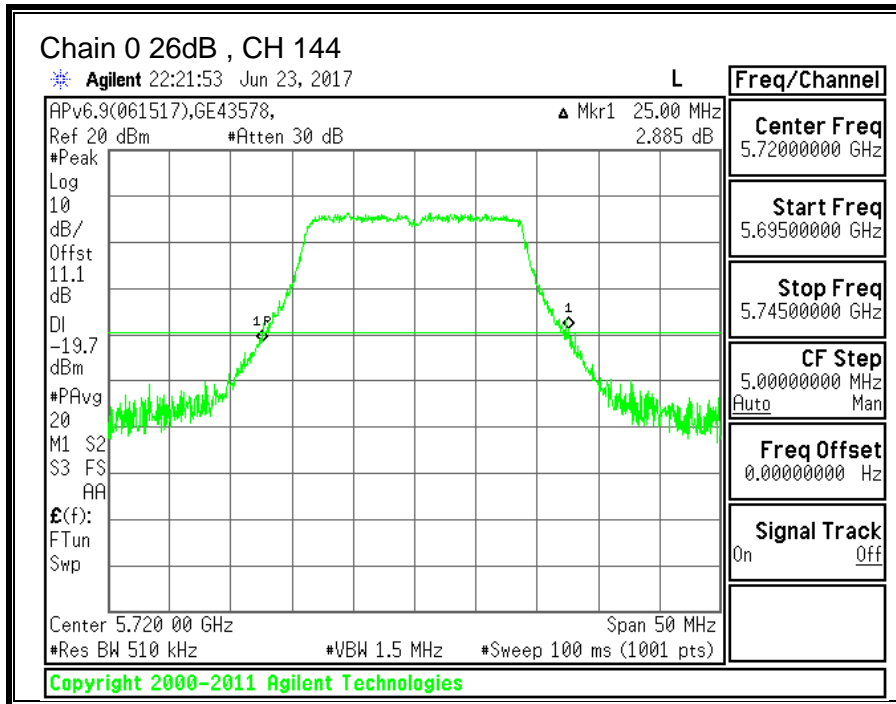
| Channel | Frequency | 26 dB BW Chain 0 (MHz) | 26 dB BW Chain 1 (MHz) |
|-----------|-----------|------------------------------|------------------------------|
| Low | 5500 | 24.65 | 24.70 |
| Mid | 5580 | 25.30 | 23.00 |
| Mid (FCC) | 5640 | 24.90 | 23.15 |
| High | 5700 | 25.10 | 23.15 |
| 144 | 5720 | 25.00 | 23.10 |











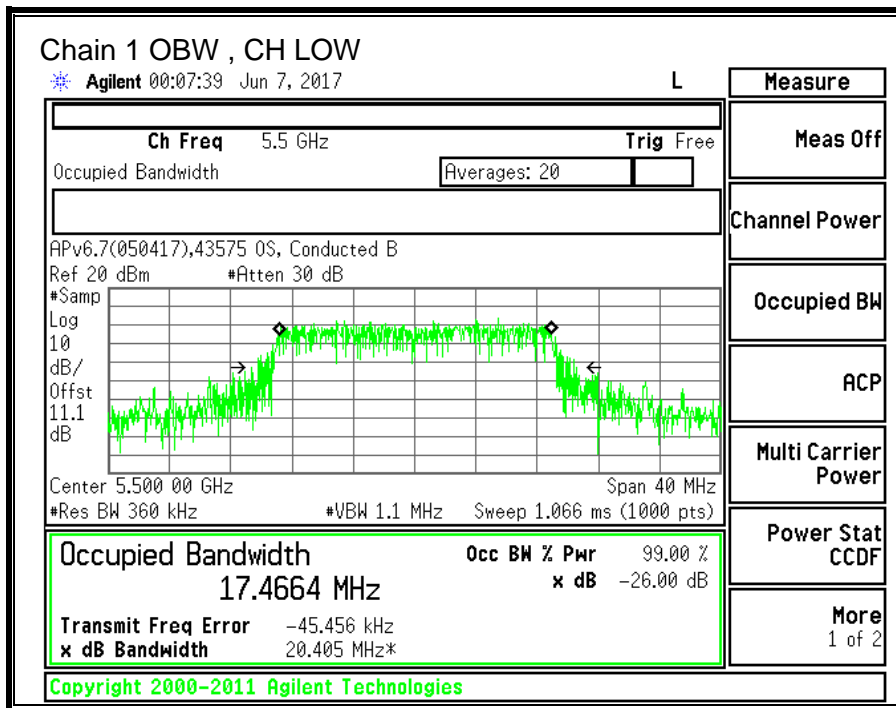
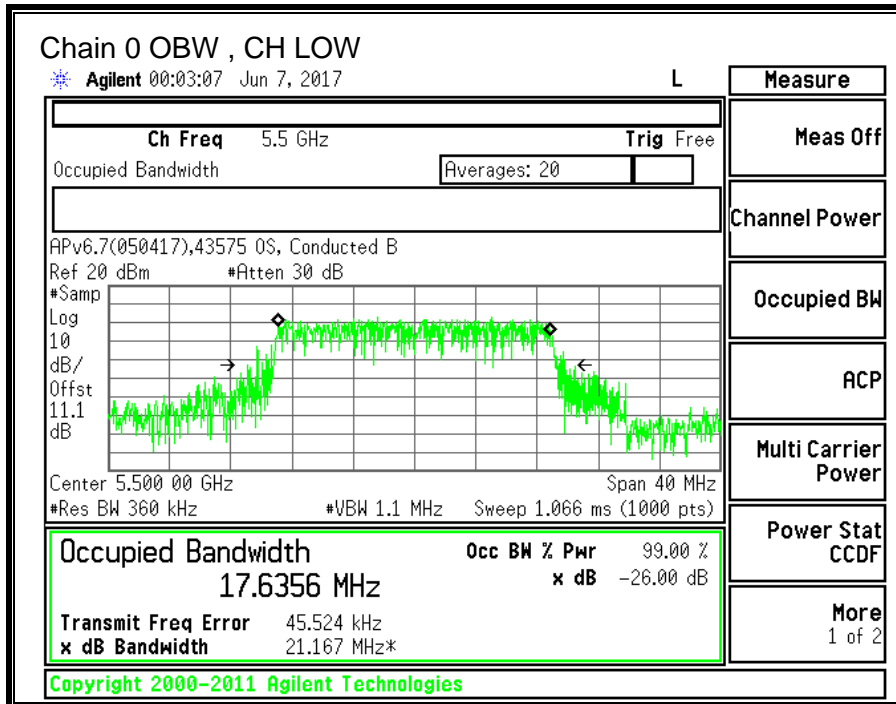
10.10.2. 99% BANDWIDTH

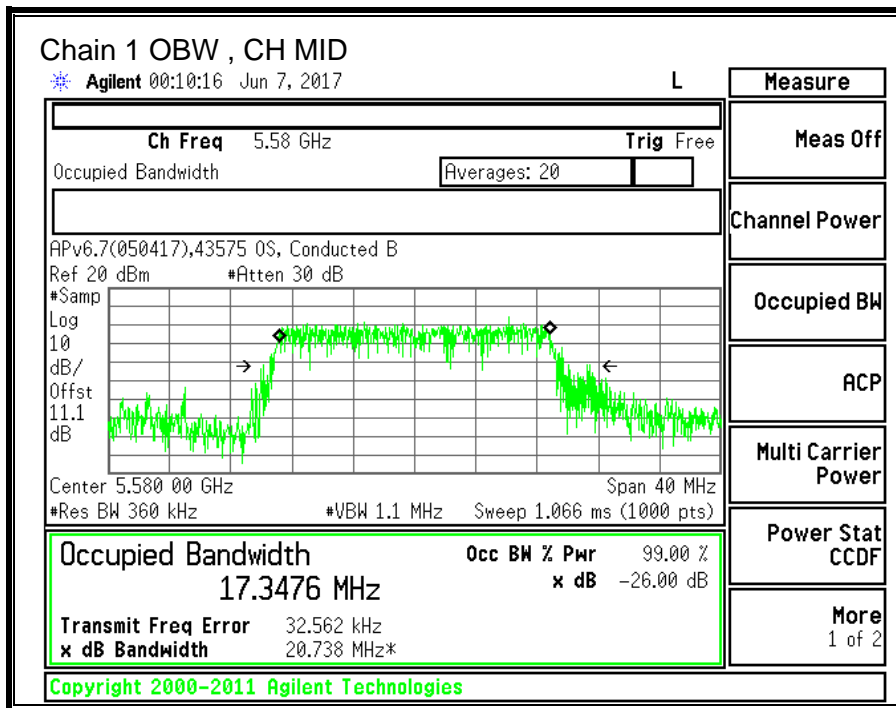
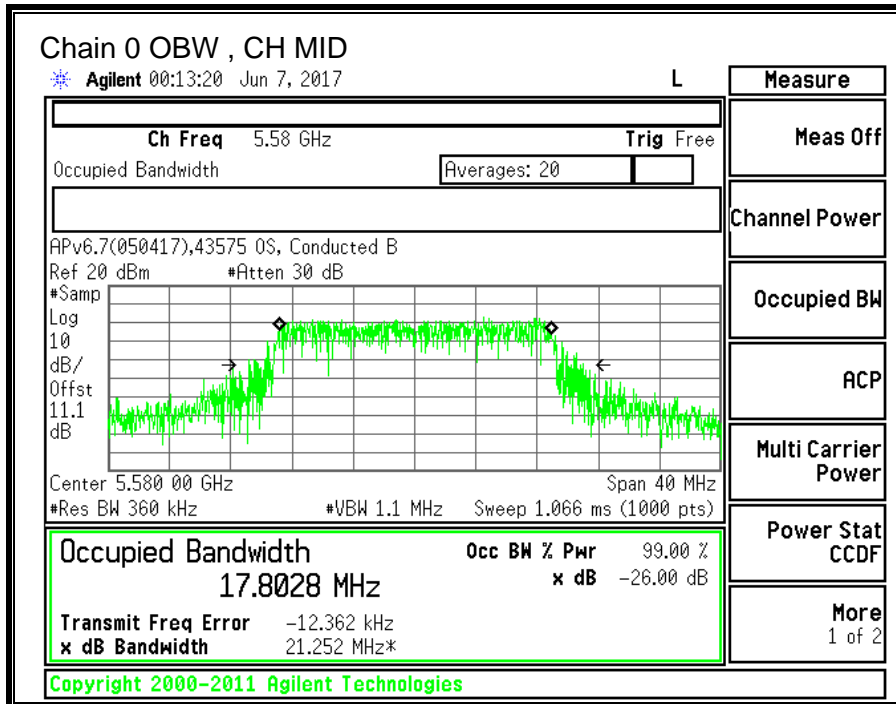
LIMITS

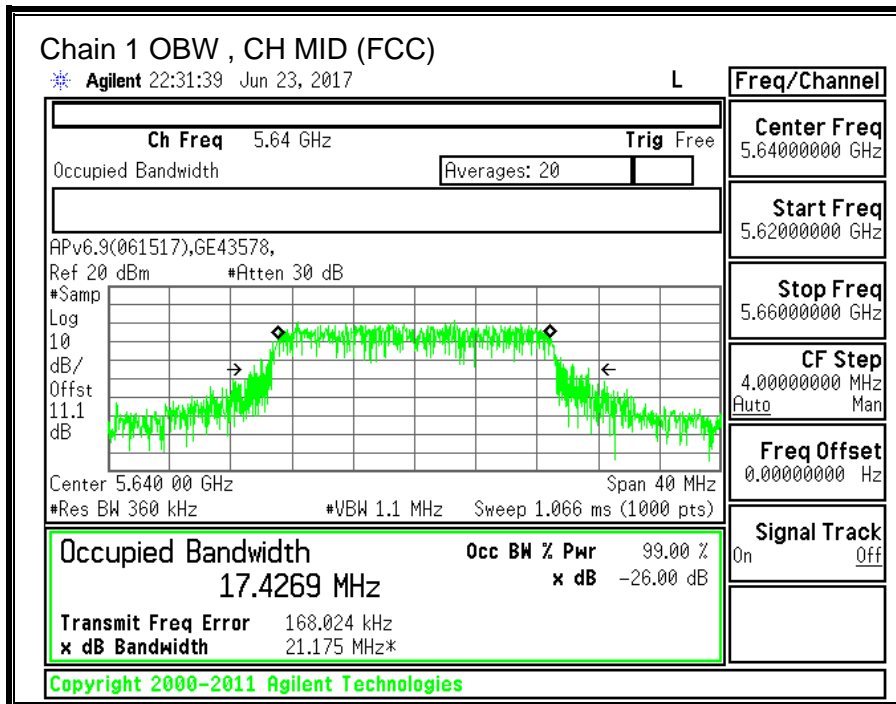
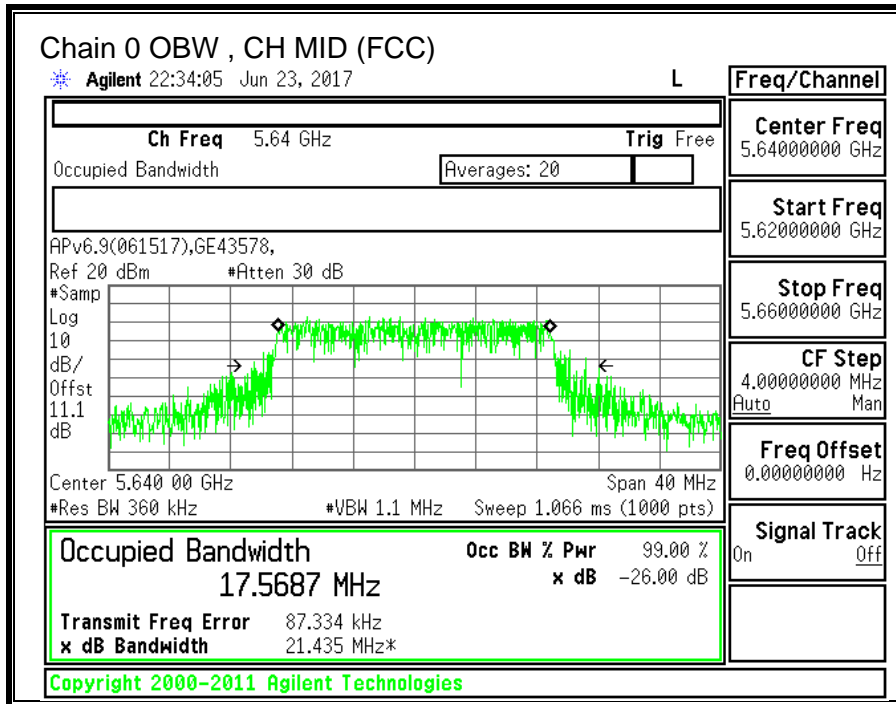
None; for reporting purposes only.

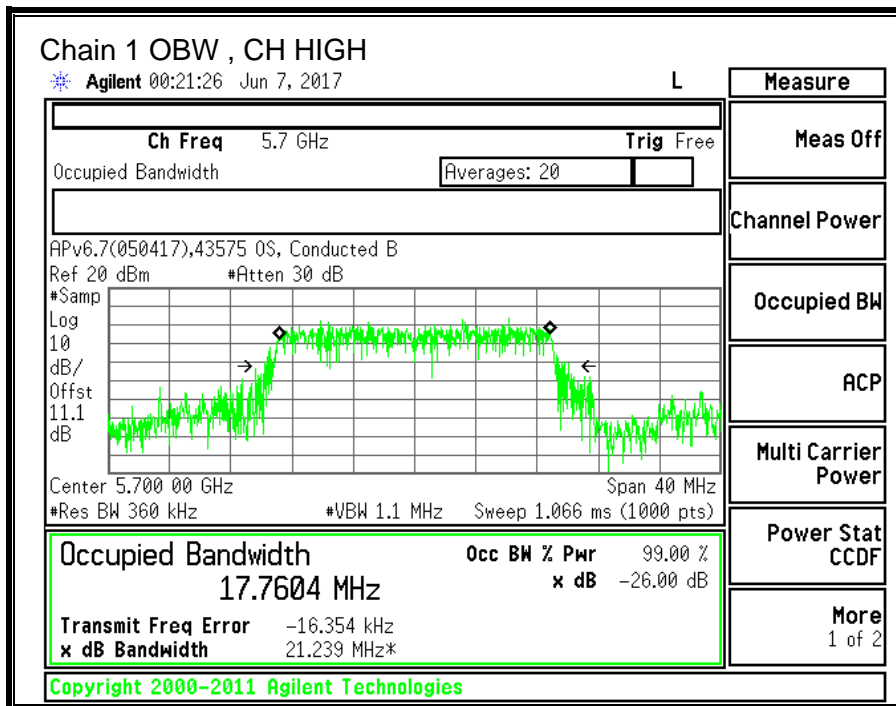
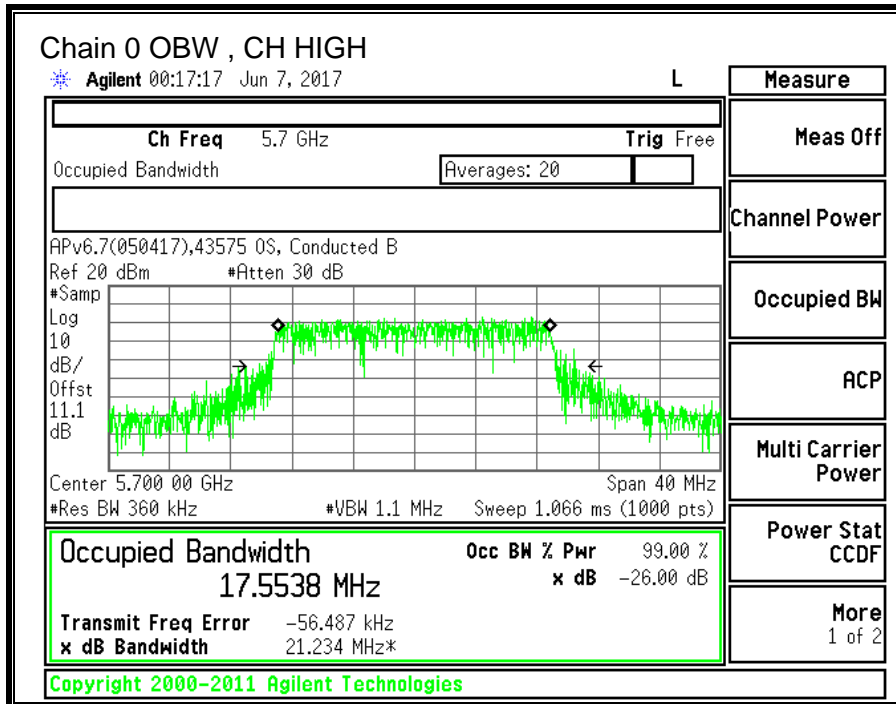
RESULTS

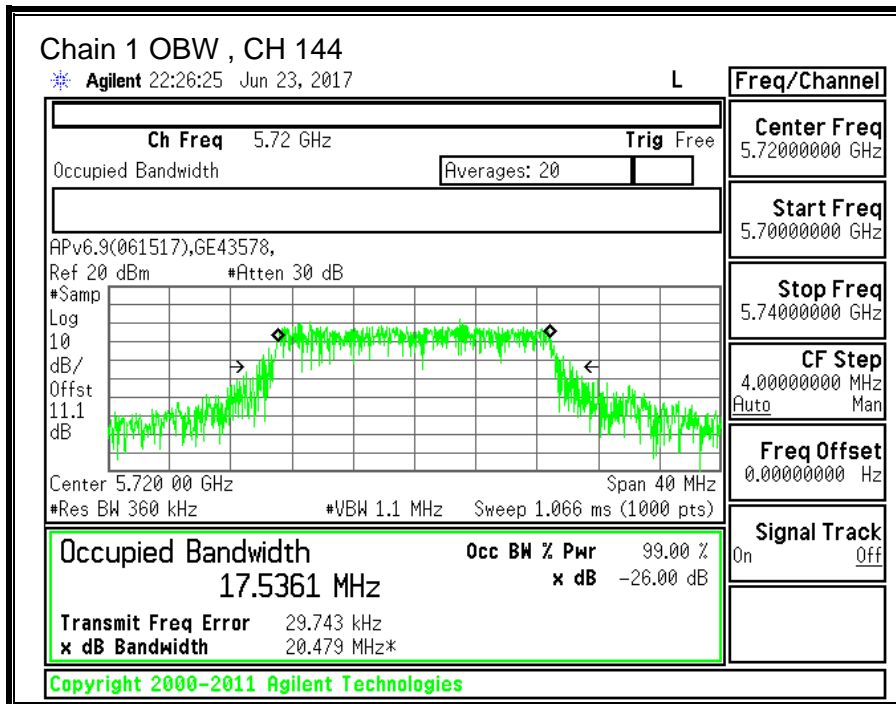
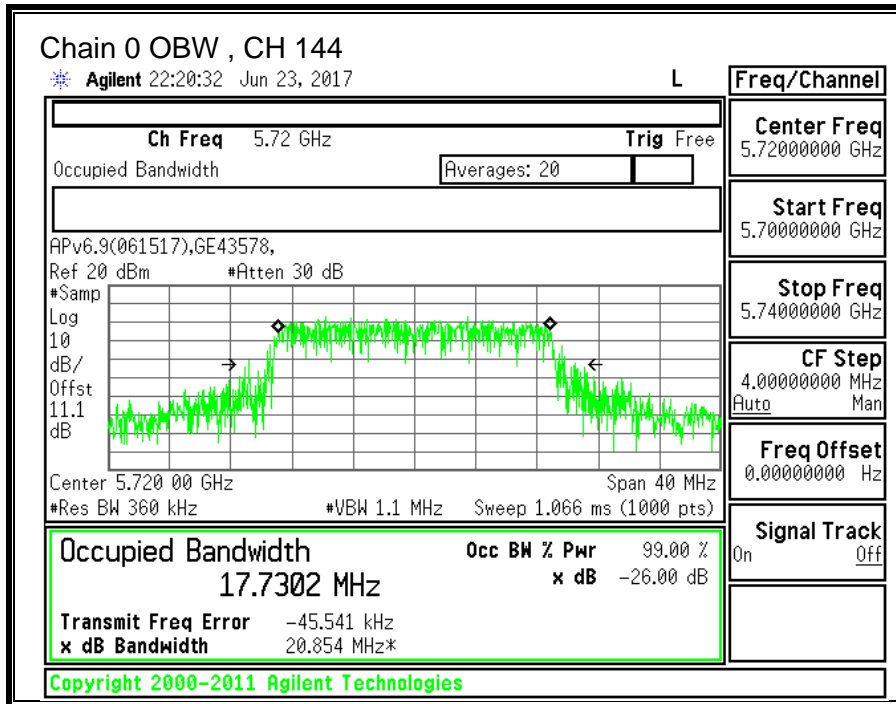
| Channel | Frequency | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|-----------|-----------|----------------------|----------------------|
| Low | 5500 | 17.6356 | 17.4664 |
| Mid | 5580 | 17.8028 | 17.3476 |
| Mid (FCC) | 5640 | 17.5687 | 17.4269 |
| High | 5700 | 17.5538 | 17.7604 |
| 144 | 5720 | 17.7302 | 17.5361 |











10.10.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 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 maximum 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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Straddle channel power is measured using PXA spectrum analyzer, duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

5470-5725 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -3.10 | -8.40 | -4.99 |

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

5470-5725 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Correlated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -3.10 | -8.40 | -2.34 |

RESULTS

| | | | |
|------------|-------|--------------|----------|
| ID: | 43574 | Date: | 06/06/17 |
|------------|-------|--------------|----------|

Bandwidth and Antenna Gain

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Min 99% BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PPSD (dBi) |
|-----------|--------------------|-----------------------------|---------------------------|---|--|
| Low | 5500 | 24.65 | 17.466 | -4.99 | -2.34 |
| Mid | 5580 | 23.00 | 17.348 | -4.99 | -2.34 |
| Mid (FCC) | 5640 | 23.15 | 17.427 | -4.99 | -2.34 |
| High | 5700 | 23.15 | 17.554 | -4.99 | -2.34 |
| 144 | 5720 | 23.10 | 17.536 | -4.99 | -2.34 |

Limits

| Channel | Frequency (MHz) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Power Limit (dBm) | FCC PPSD Limit (dBm) | IC PSD Limit (dBm) | PPSD Limit (dBm) |
|-----------|--------------------|--------------------------------|-------------------------------|------------------------------|-------------------------|-------------------------------|-----------------------------|------------------------|
| Low | 5500 | 24.00 | 23.42 | 29.42 | 23.42 | 11.00 | 11.00 | 11.00 |
| Mid | 5580 | 24.00 | 23.39 | 29.39 | 23.39 | 11.00 | 11.00 | 11.00 |
| Mid (FCC) | 5640 | 24.00 | 23.41 | 29.41 | 23.41 | 11.00 | 11.00 | 11.00 |
| High | 5700 | 24.00 | 23.44 | 29.44 | 23.44 | 11.00 | 11.00 | 11.00 |
| 144 | 5720 | 24.00 | 23.44 | 29.44 | 23.44 | 11.00 | 11.00 | 11.00 |

| | | |
|---------------------------|------|--|
| Duty Cycle CF (dB) | 0.20 | Included in Calculations of Corr'd PPSD |
|---------------------------|------|--|

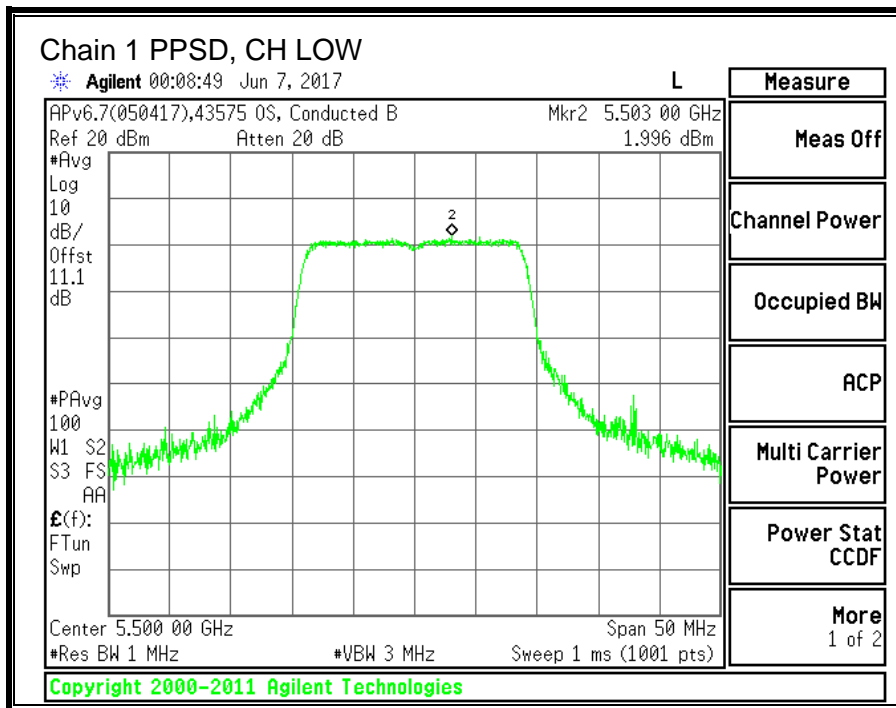
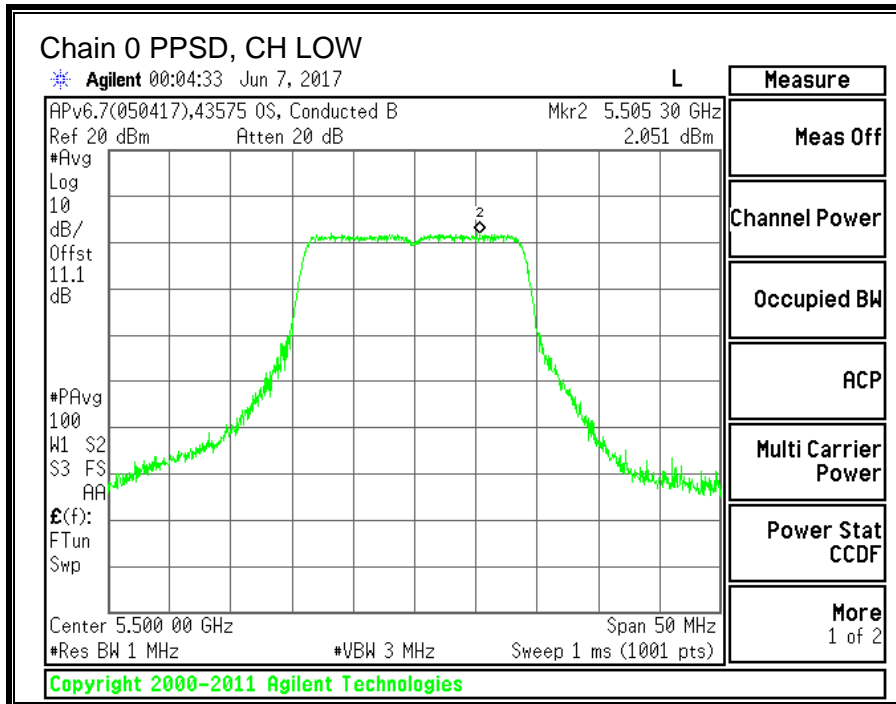
Output Power Results

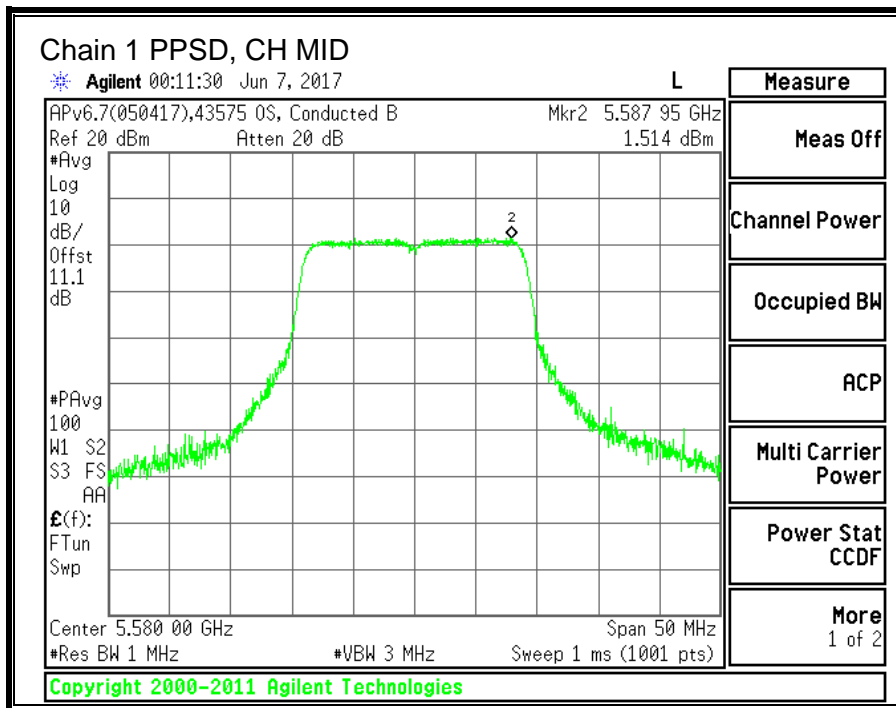
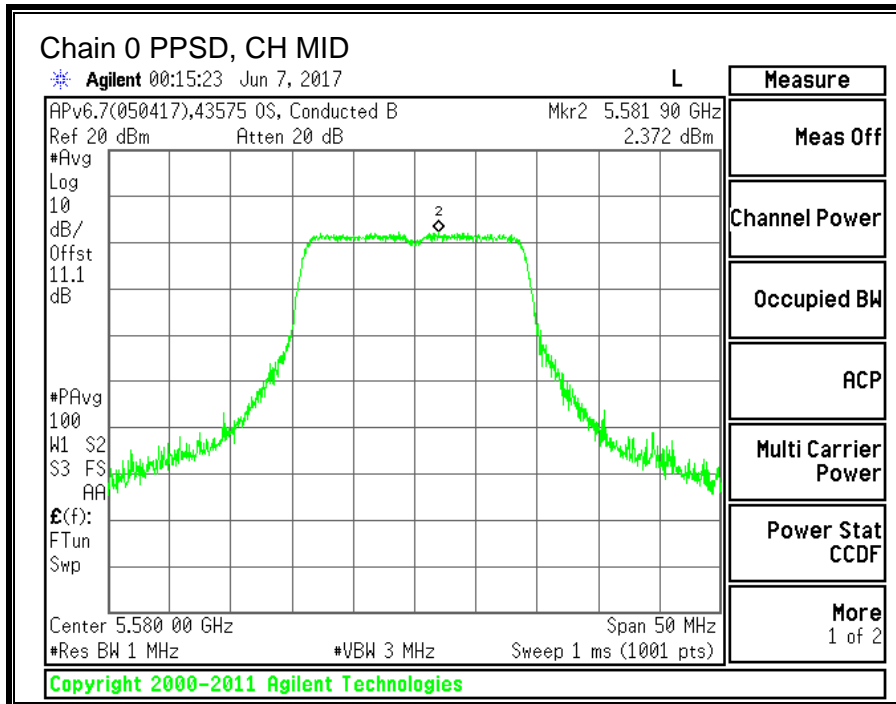
| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|-----------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low | 5500 | 13.56 | 12.95 | 16.28 | 23.42 | -7.15 |
| Mid | 5580 | 13.45 | 12.83 | 16.16 | 23.39 | -7.23 |
| Mid (FCC) | 5640 | 13.21 | 12.31 | 15.79 | 23.41 | -7.62 |
| High | 5700 | 13.33 | 12.06 | 15.75 | 23.44 | -7.69 |
| 144 | 5720 | 13.40 | 12.12 | 15.82 | 23.44 | -7.62 |

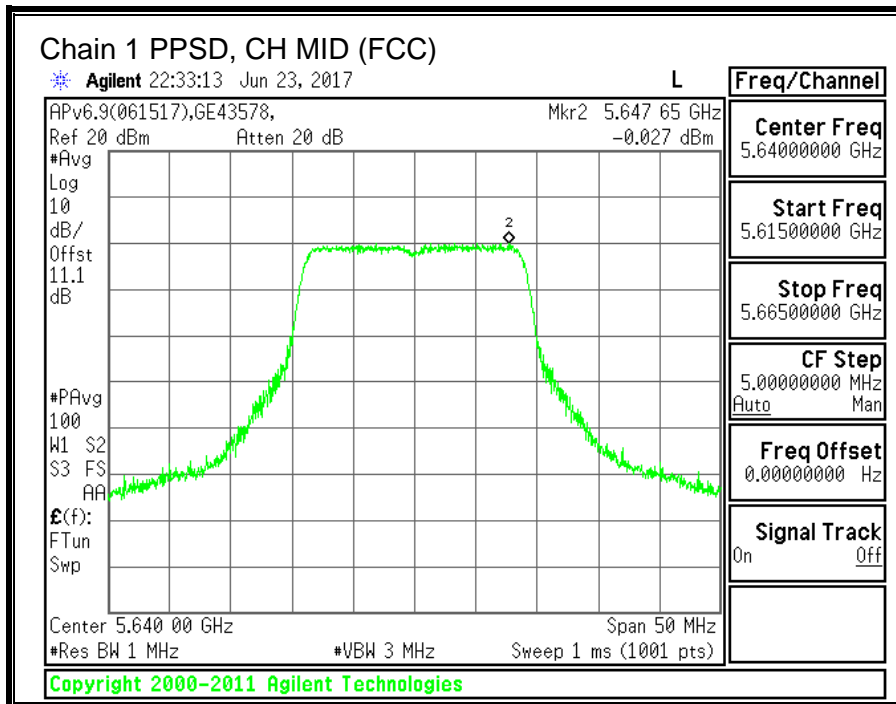
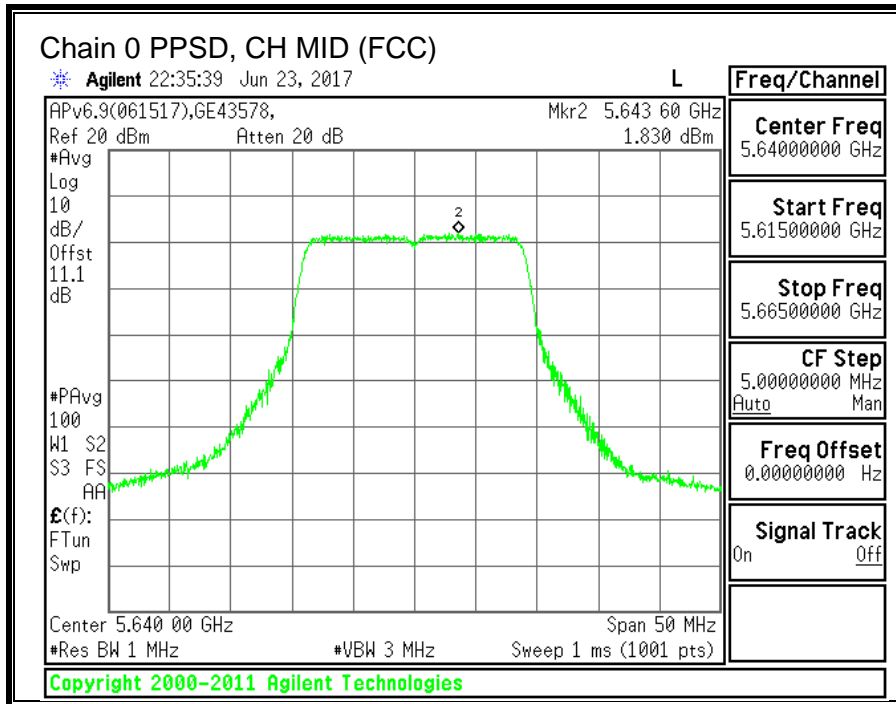
PPSD Results

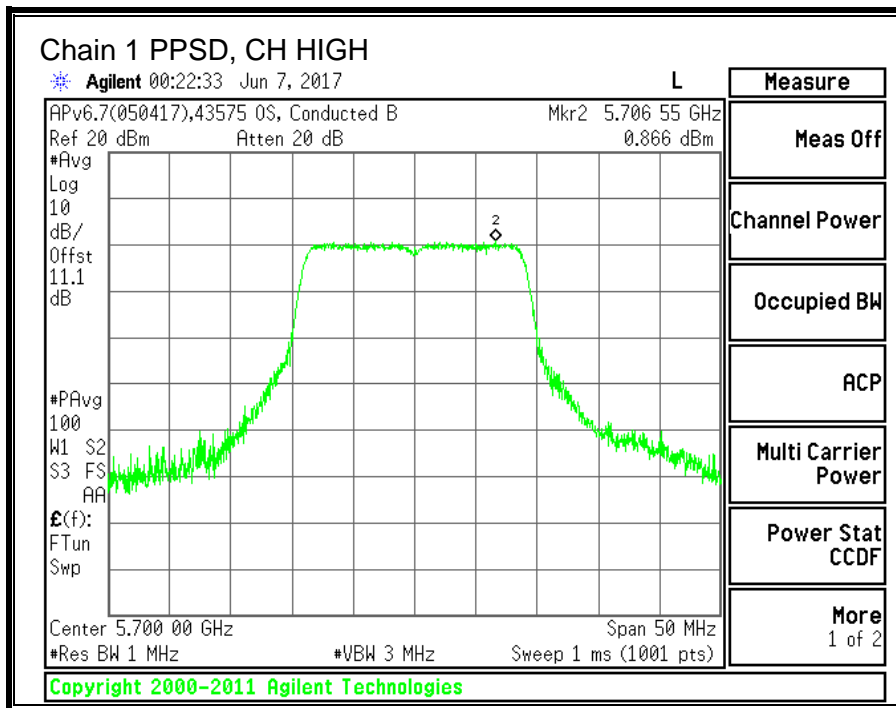
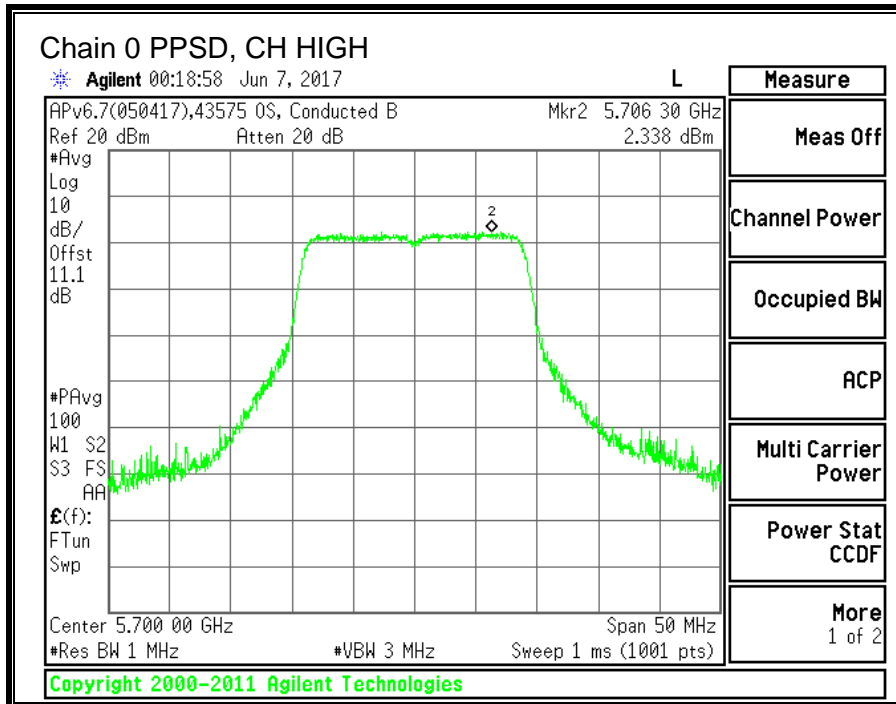
| Channel | Frequency (MHz) | Chain 0 Meas PPSD (dBm) | Chain 1 Meas PPSD (dBm) | Total Corr'd PPSD (dBm) | PPSD Limit (dBm) | PPSD Margin (dB) |
|-----------|--------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|------------------------|
| Low | 5500 | 2.051 | 1.996 | 5.23 | 11.00 | -5.77 |
| Mid | 5580 | 2.372 | 1.514 | 5.17 | 11.00 | -5.83 |
| Mid (FCC) | 5640 | 1.830 | -0.027 | 4.21 | 11.00 | -6.79 |
| High | 5700 | 2.338 | 0.866 | 4.87 | 11.00 | -6.13 |
| 144 | 5720 | 1.677 | -0.203 | 4.05 | 11.00 | -6.95 |

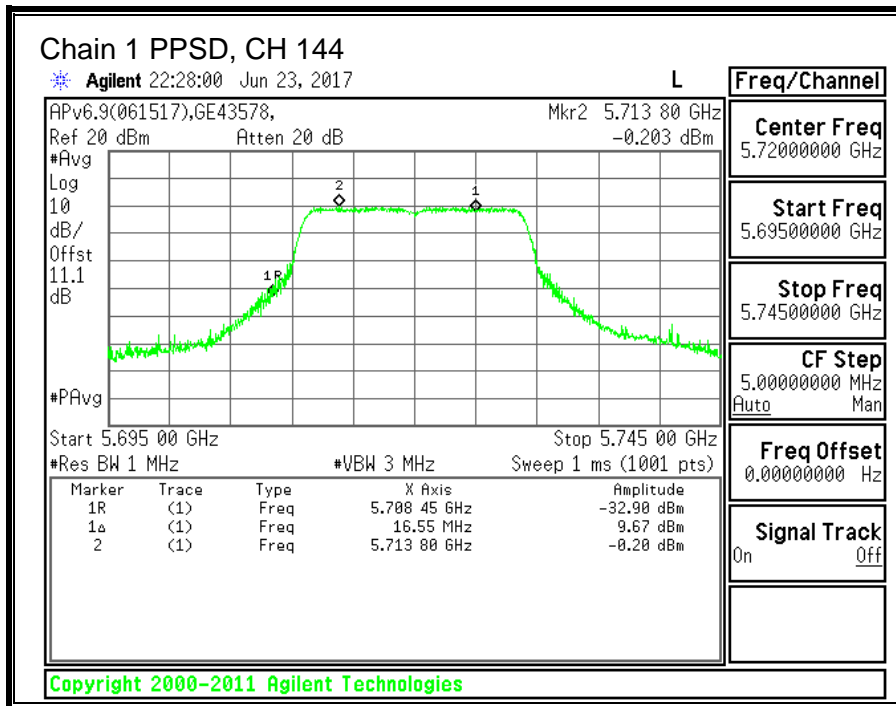
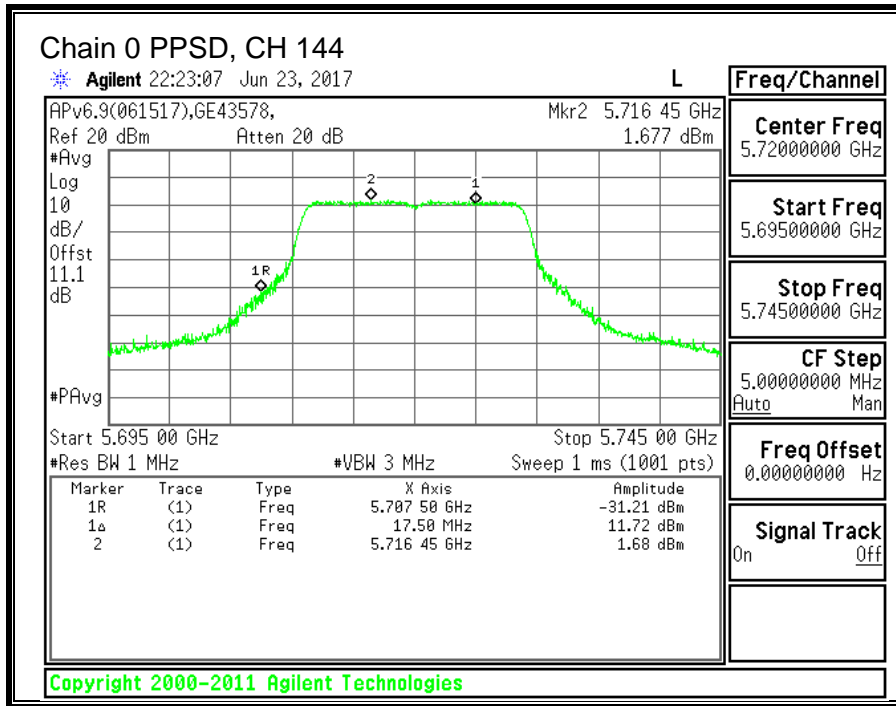
Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.











10.11. 11n HT40 2TX CDD MIMO MODE IN THE 5.6GHz BAND

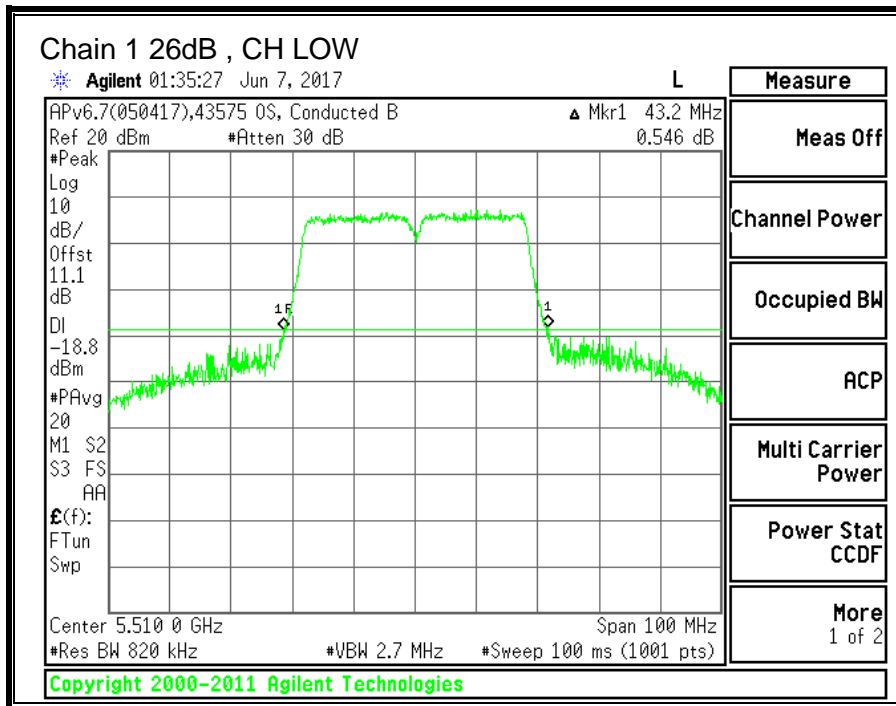
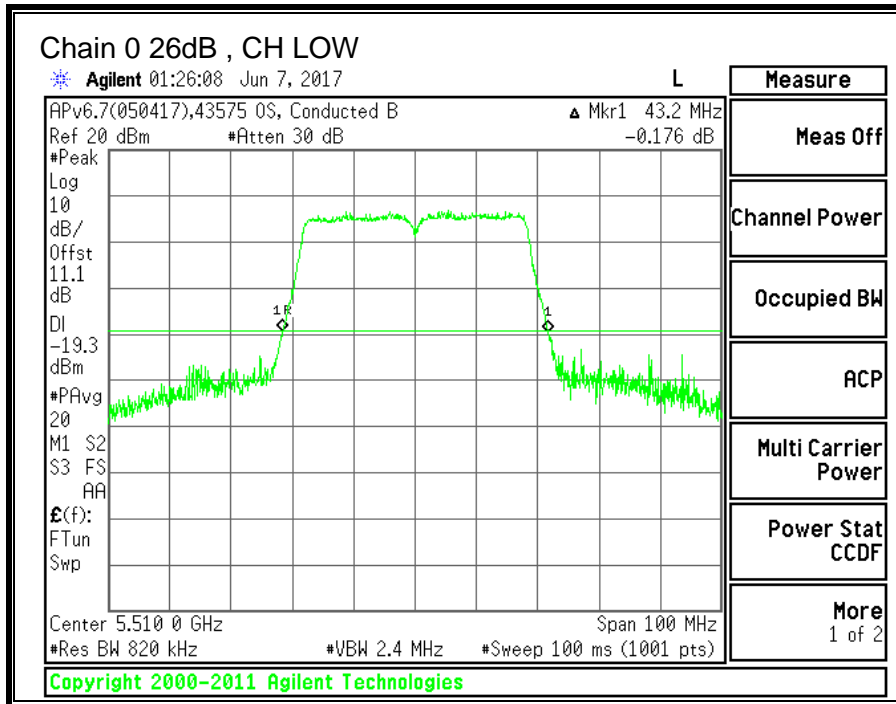
10.11.1. 26 dB BANDWIDTH

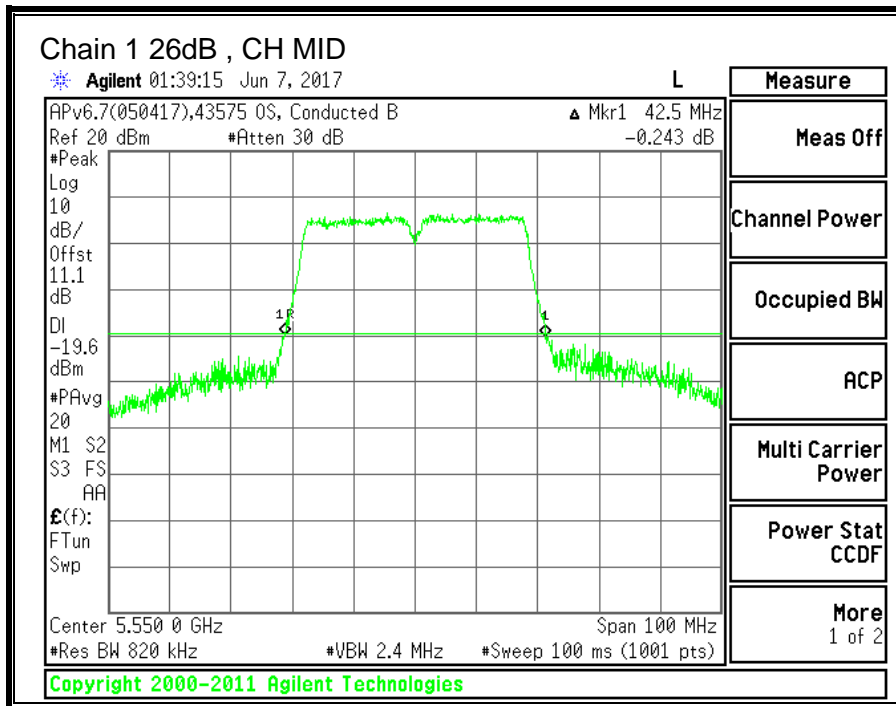
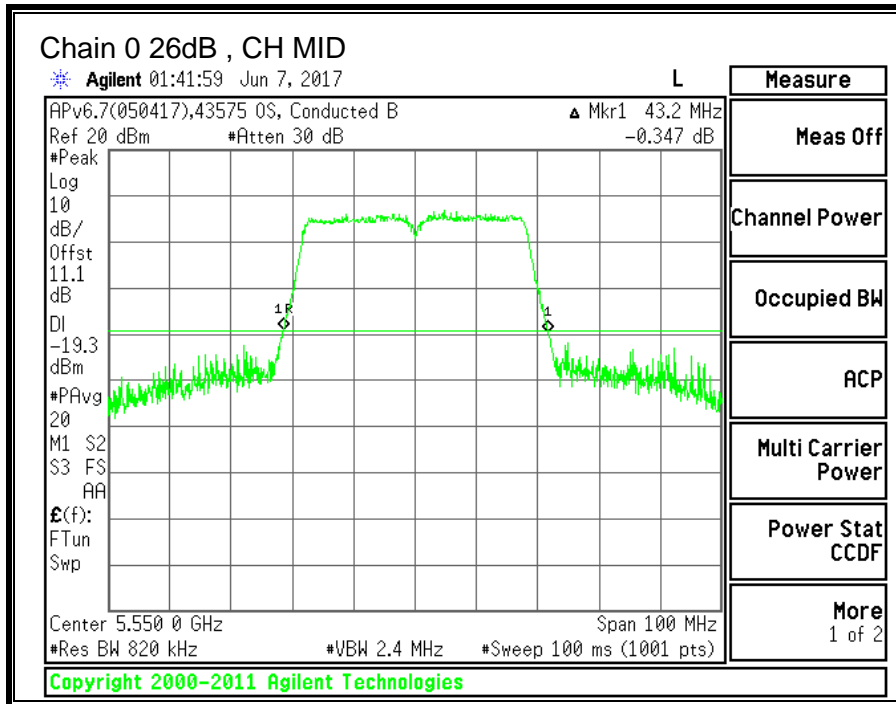
LIMITS

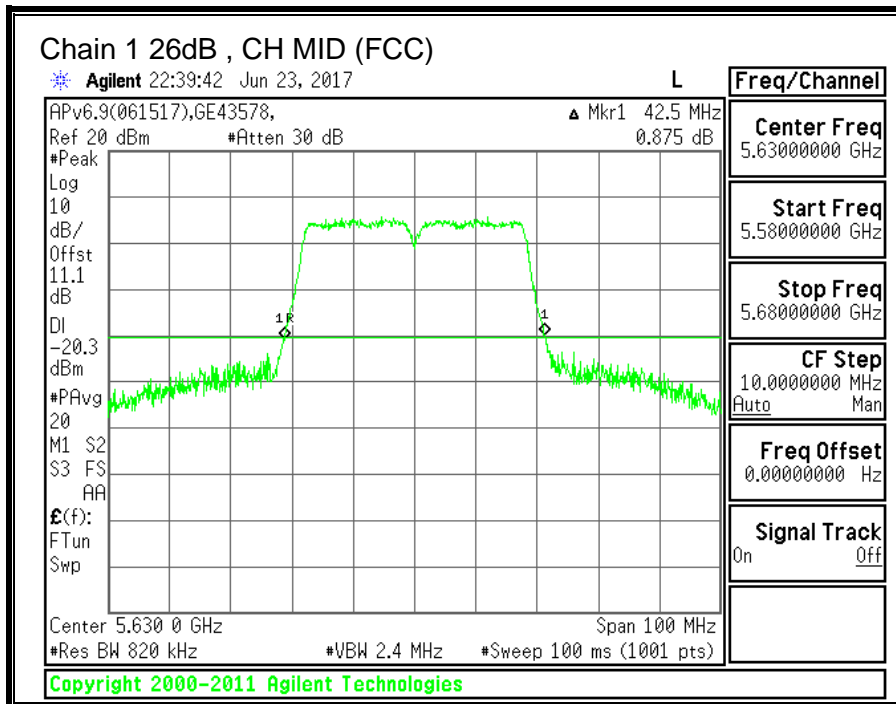
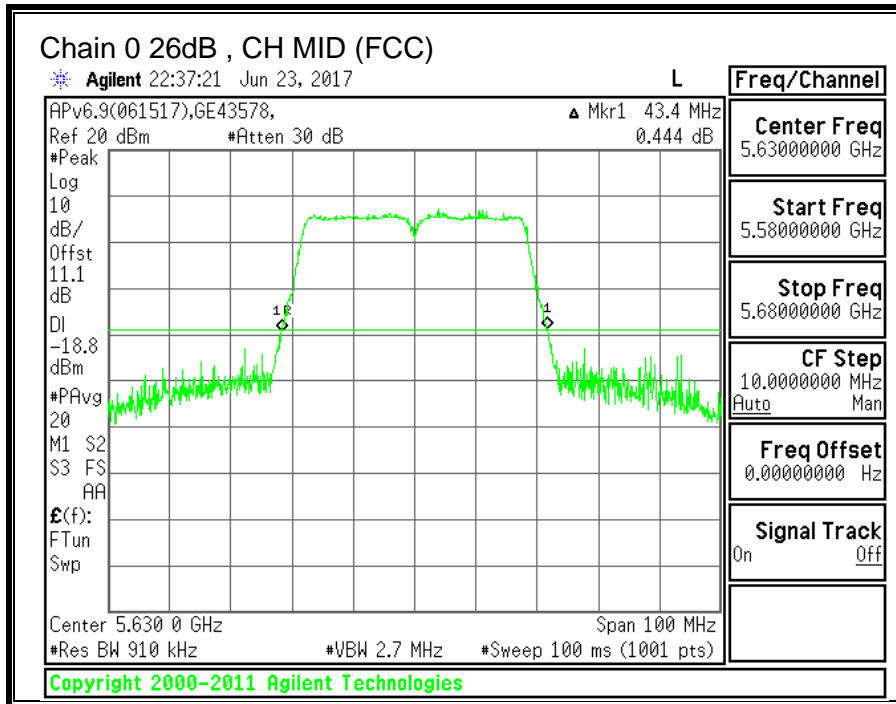
None; for reporting purposes only.

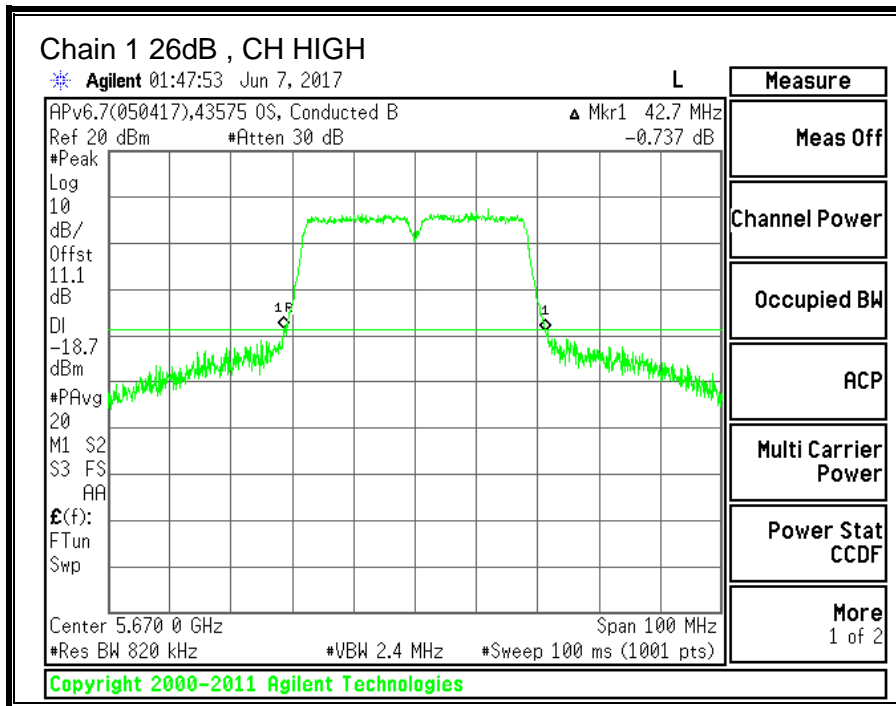
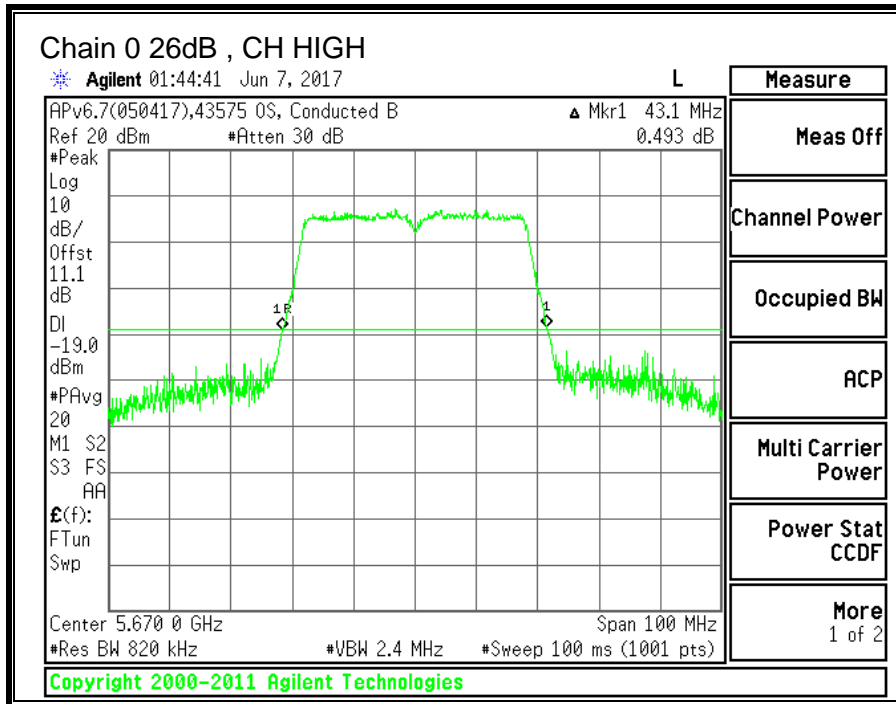
RESULTS

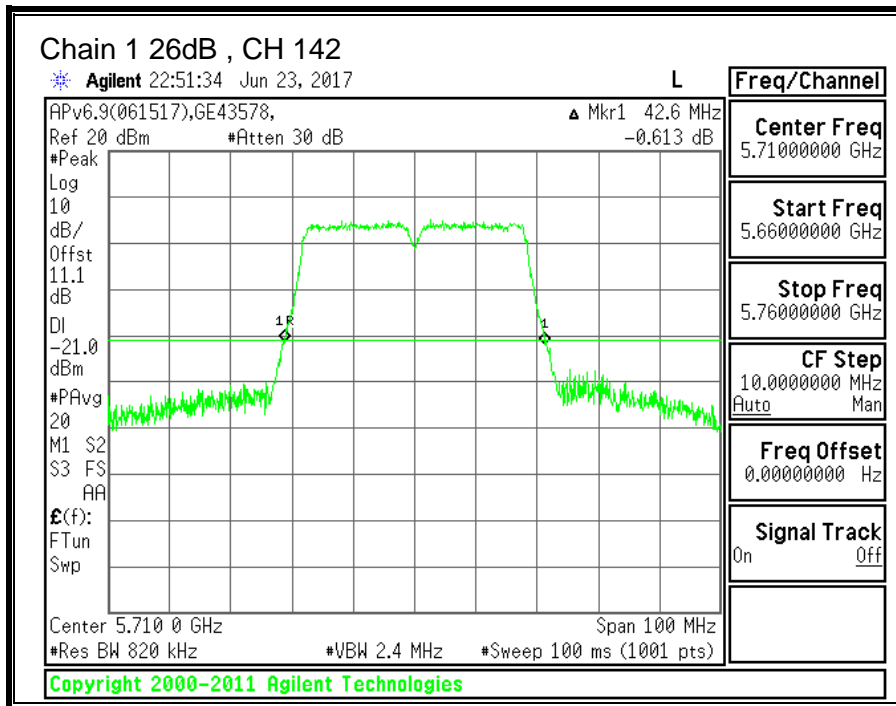
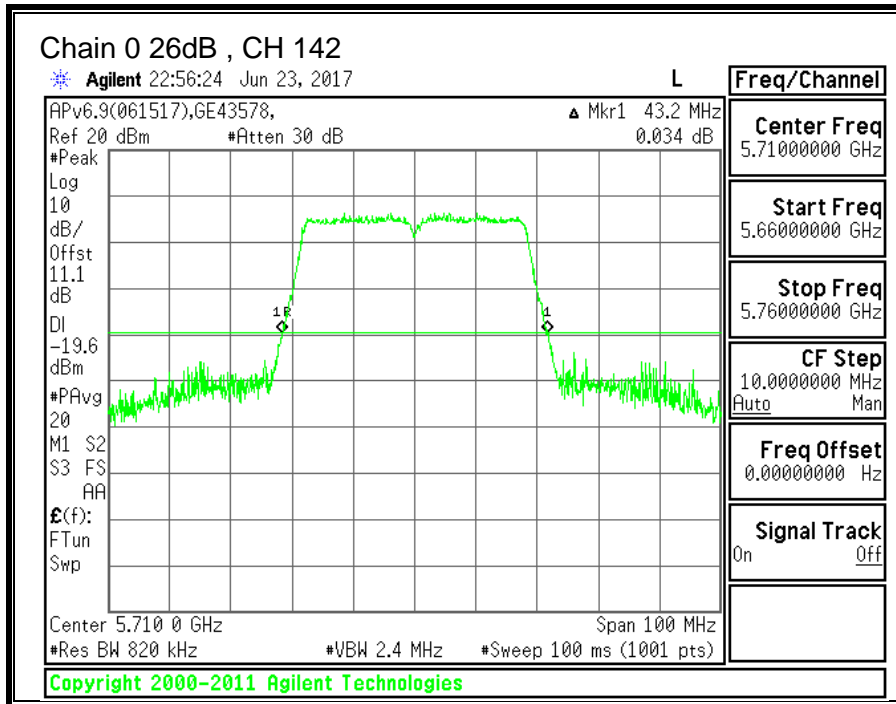
| Channel | Frequency | 26 dB BW Chain 0 (MHz) | 26 dB BW Chain 1 (MHz) |
|-----------|-----------|------------------------------|------------------------------|
| Low | 5510 | 43.2 | 43.2 |
| Mid | 5550 | 43.2 | 42.5 |
| Mid (FCC) | 5630 | 43.4 | 42.5 |
| High | 5670 | 43.1 | 42.7 |
| 142 | 5710 | 43.2 | 42.6 |











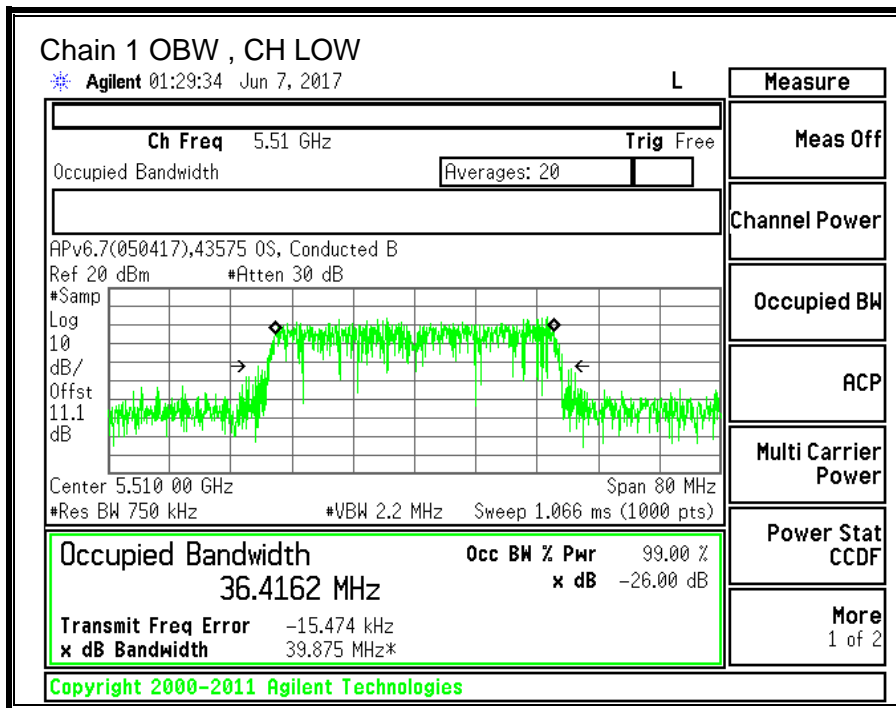
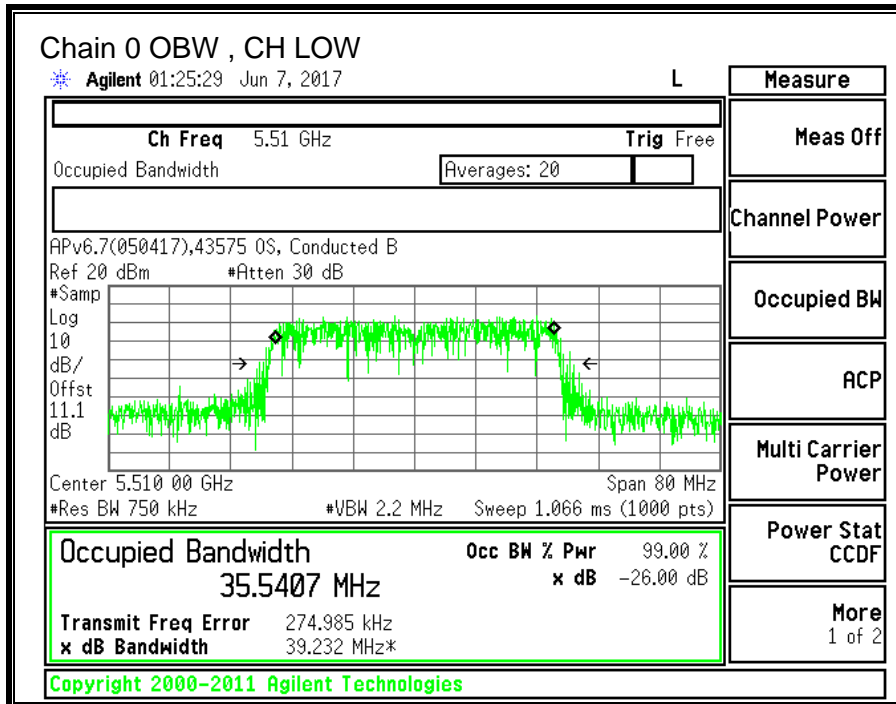
10.11.2. 99% BANDWIDTH

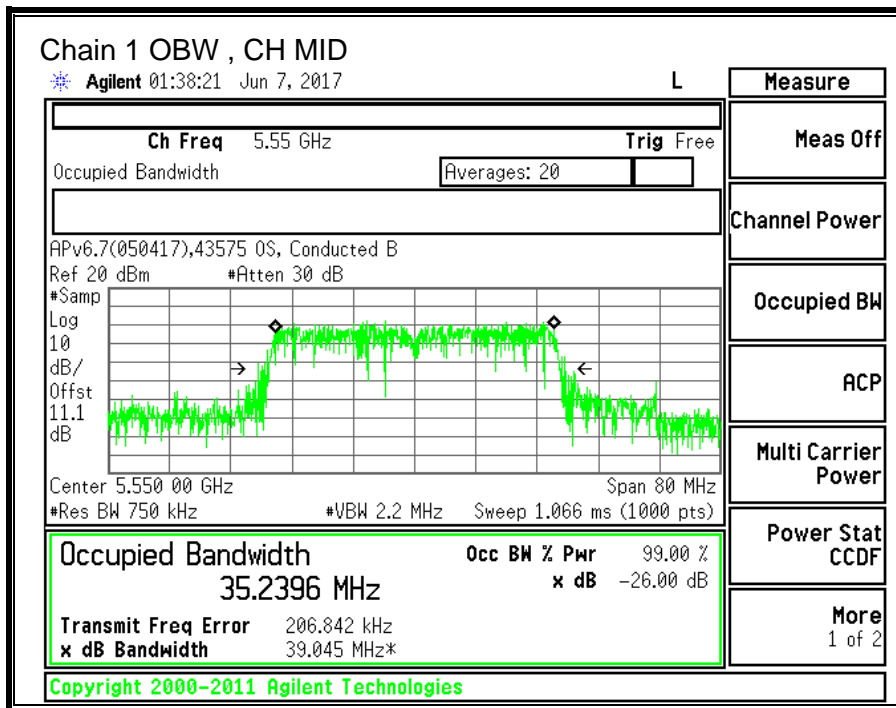
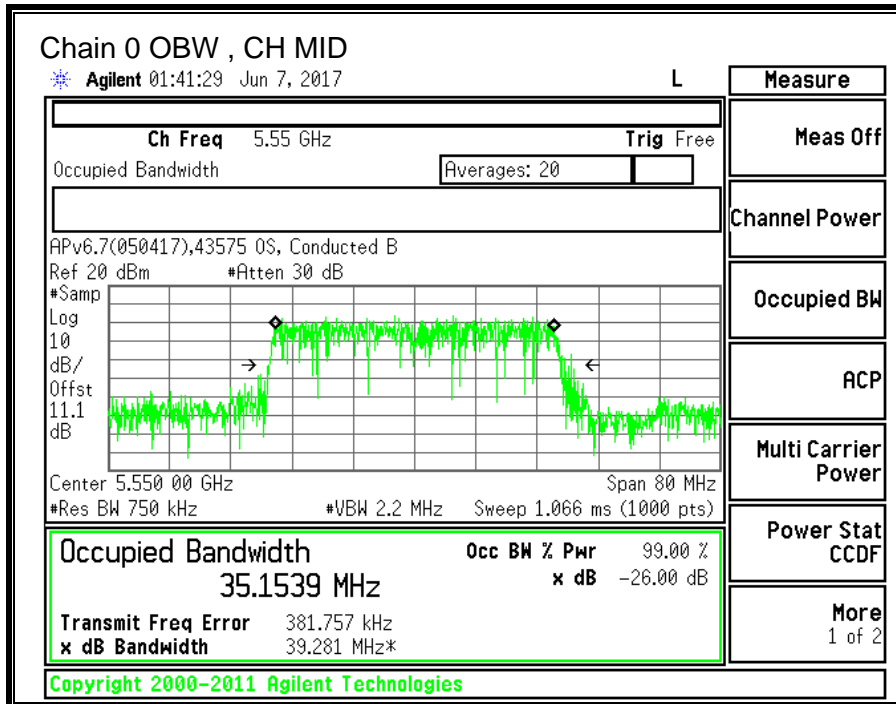
LIMITS

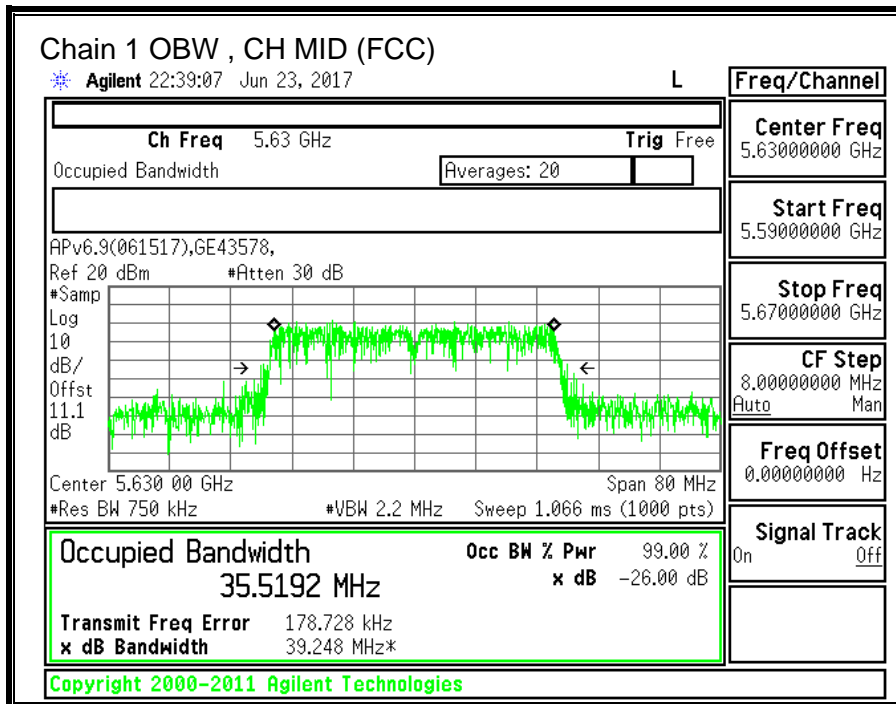
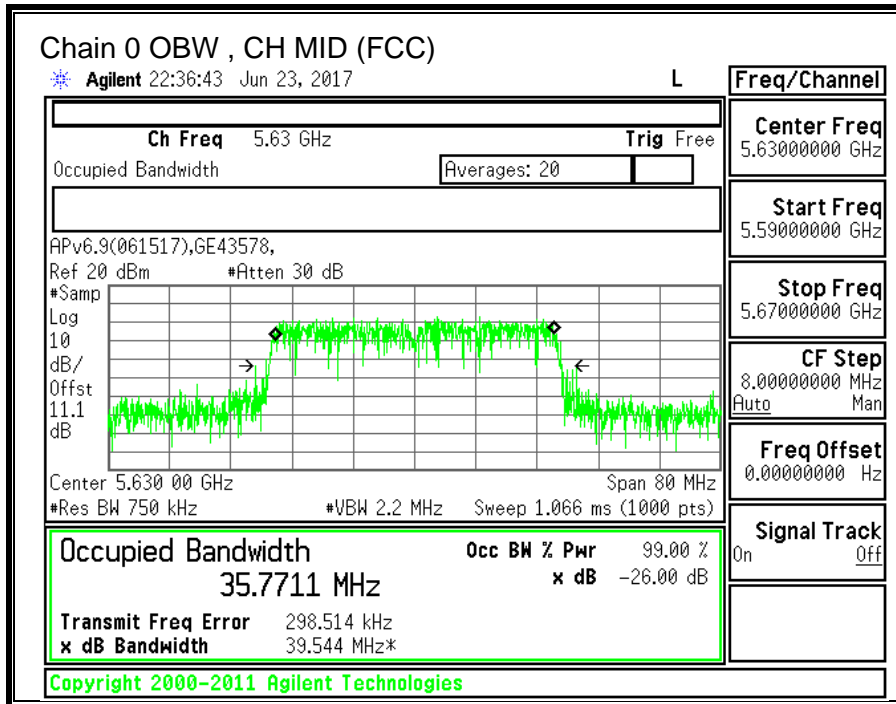
None; for reporting purposes only.

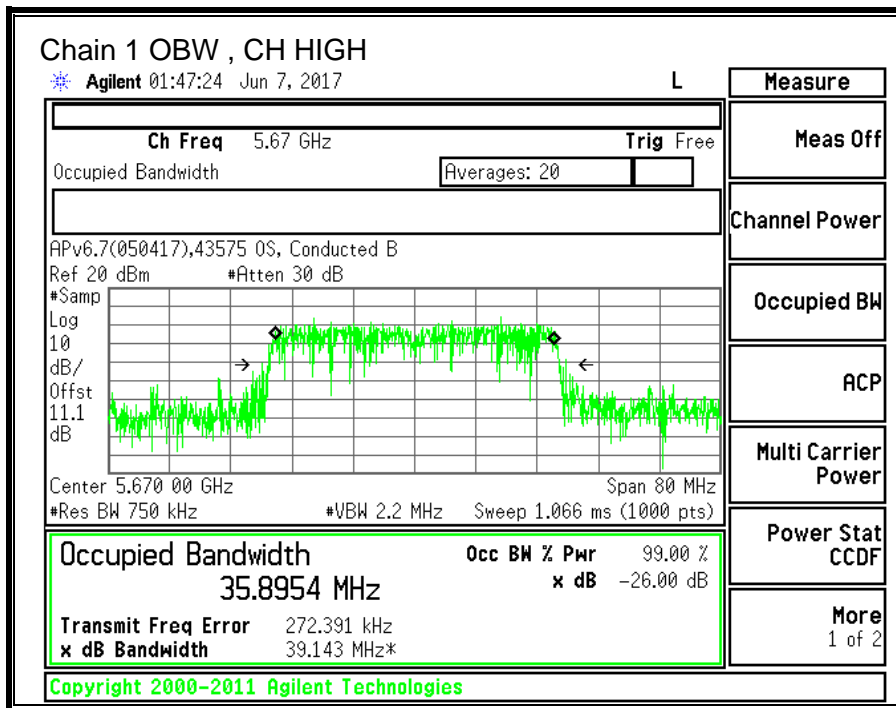
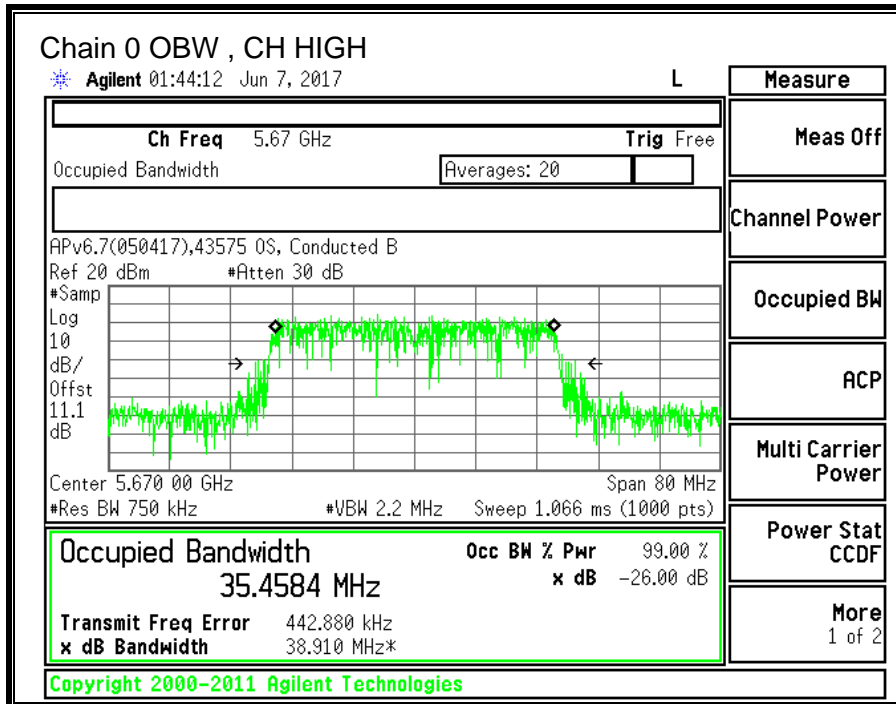
RESULTS

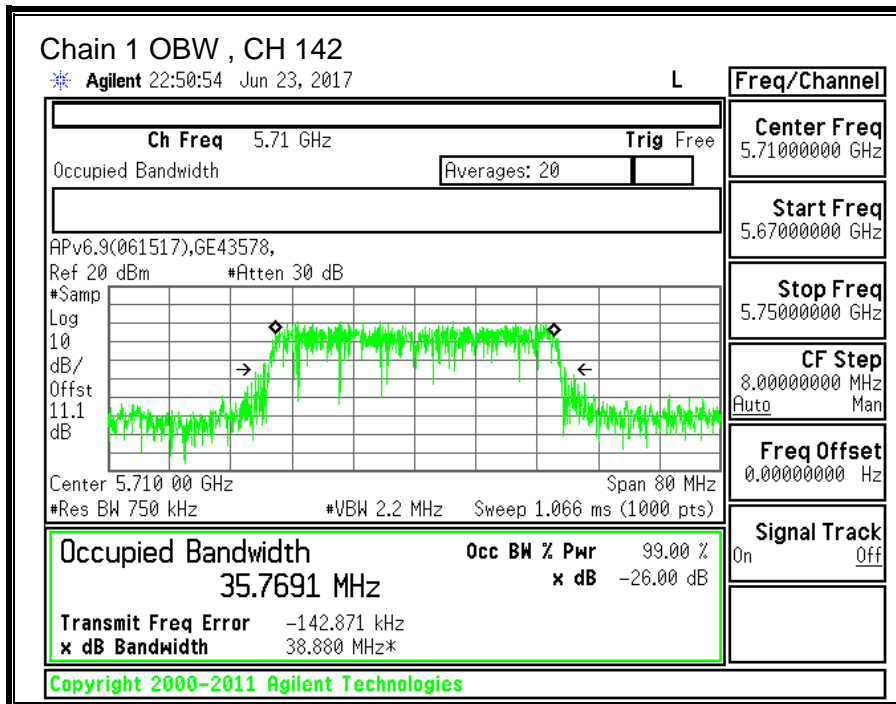
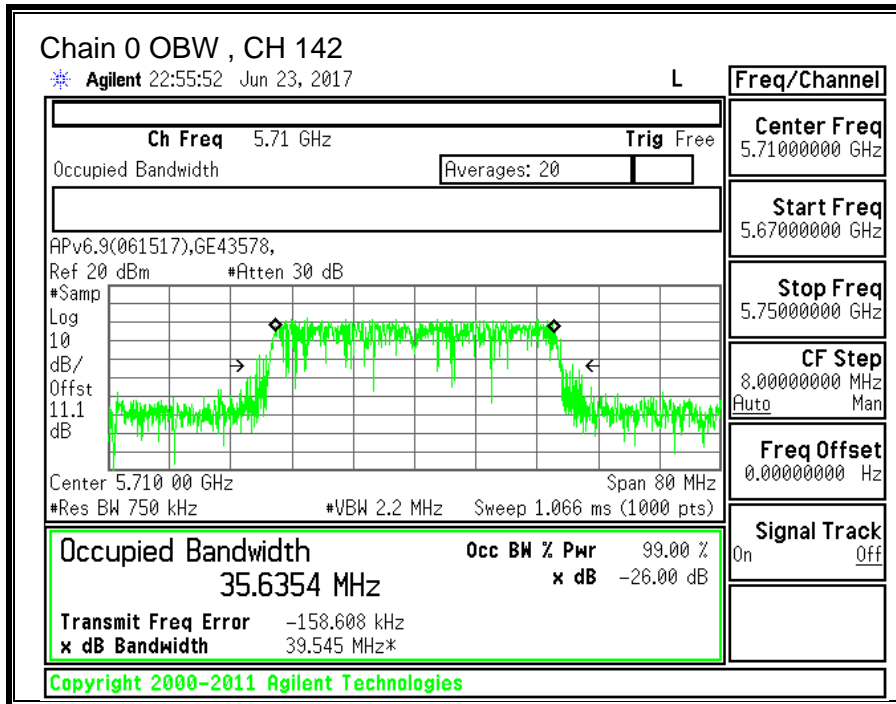
| Channel | Frequency | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|-----------|-----------|----------------------|----------------------|
| Low | 5510 | 35.5407 | 36.4162 |
| Mid | 5550 | 35.1539 | 35.2396 |
| Mid (FCC) | 5630 | 35.7711 | 35.5192 |
| High | 5670 | 35.4584 | 35.8954 |
| 142 | 5710 | 35.6354 | 35.7691 |











10.11.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 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 maximum 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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Straddle channel power is measured using PXA spectrum analyzer, duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

5470-5725 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -3.10 | -8.40 | -4.99 |

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

5470-5725 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Correlated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -3.10 | -8.40 | -2.34 |

RESULTS

| | | | |
|------------|-------|--------------|----------|
| ID: | 43574 | Date: | 06/06/17 |
|------------|-------|--------------|----------|

Bandwidth and Antenna Gain

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Min 99% BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PPSD (dBi) |
|-----------|-----------------|--------------------|------------------|----------------------------------|---------------------------------|
| Low | 5510 | 43.20 | 35.541 | -4.99 | -2.34 |
| Mid | 5550 | 42.50 | 35.154 | -4.99 | -2.34 |
| Mid (FCC) | 5630 | 42.50 | 35.519 | -4.99 | -2.34 |
| High | 5670 | 42.70 | 35.458 | -4.99 | -2.34 |
| 142 | 5710 | 42.60 | 35.635 | -4.99 | -2.34 |

Limits

| Channel | Frequency (MHz) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Power Limit (dBm) | FCC PPSD Limit (dBm) | IC PSD Limit (dBm) | PPSD Limit (dBm) |
|-----------|-----------------|-----------------------|----------------------|---------------------|-------------------|----------------------|--------------------|------------------|
| Low | 5510 | 24.00 | 24.00 | 30.00 | 24.00 | 11.00 | 11.00 | 11.00 |
| Mid | 5550 | 24.00 | 24.00 | 30.00 | 24.00 | 11.00 | 11.00 | 11.00 |
| Mid (FCC) | 5630 | 24.00 | 24.00 | 30.00 | 24.00 | 11.00 | 11.00 | 11.00 |
| High | 5670 | 24.00 | 24.00 | 30.00 | 24.00 | 11.00 | 11.00 | 11.00 |
| 142 | 5710 | 24.00 | 24.00 | 30.00 | 24.00 | 11.00 | 11.00 | 11.00 |

| | | |
|---------------------------|------|--|
| Duty Cycle CF (dB) | 0.40 | Included in Calculations of Corr'd PPSD |
|---------------------------|------|--|

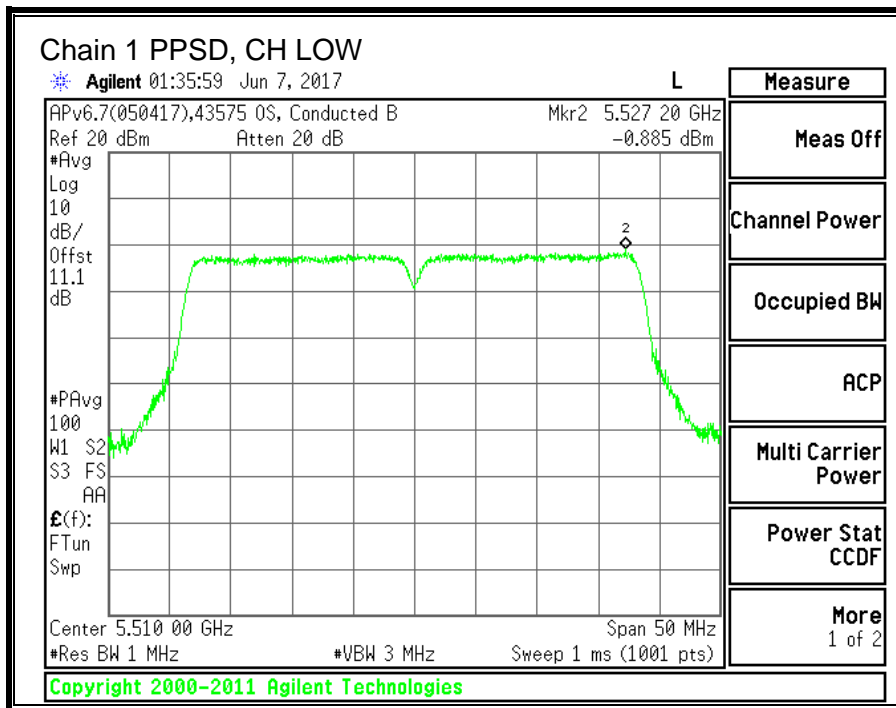
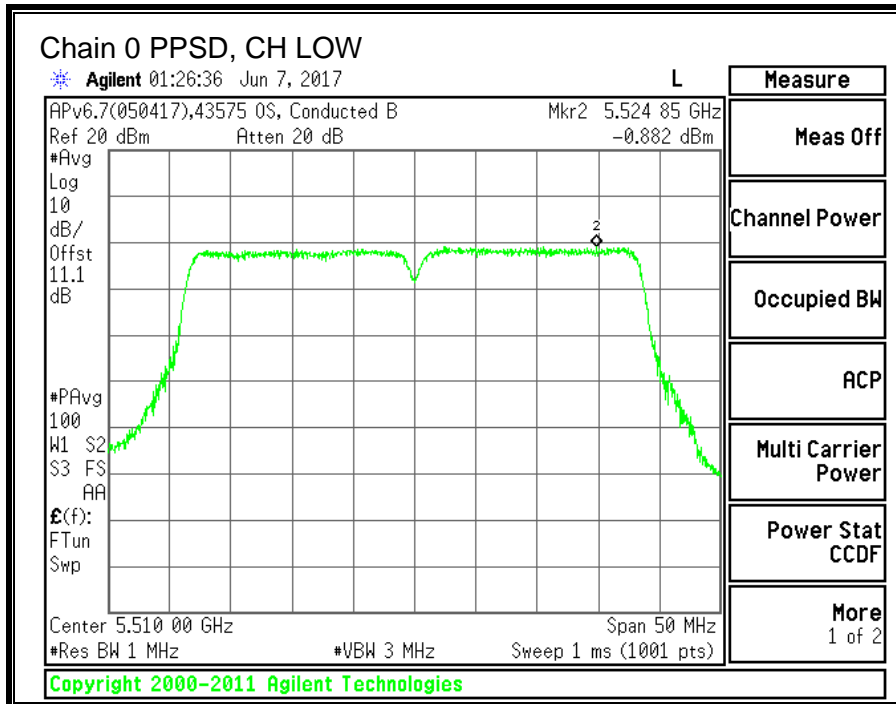
Output Power Results

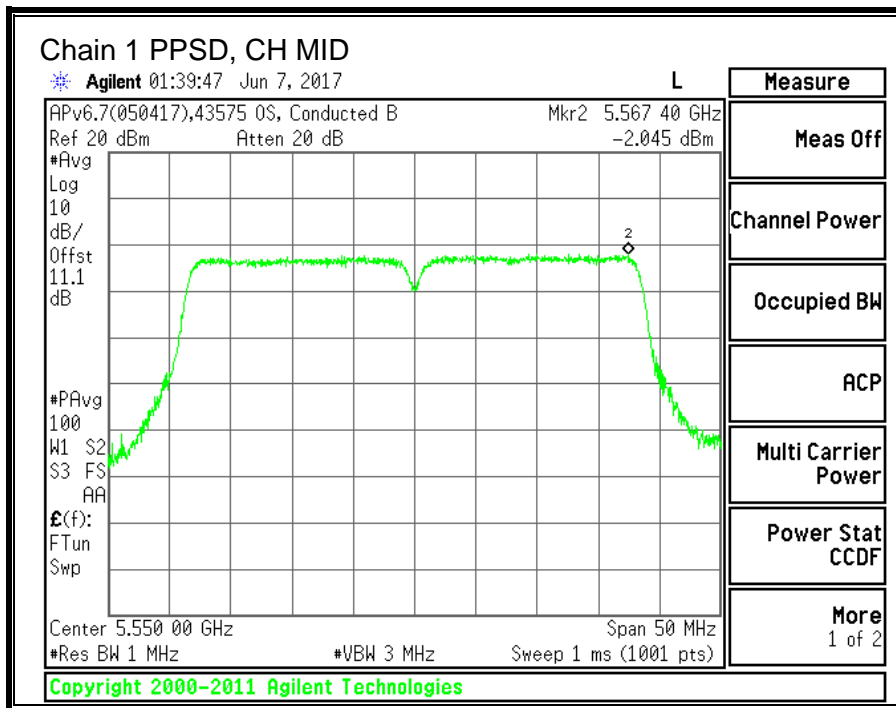
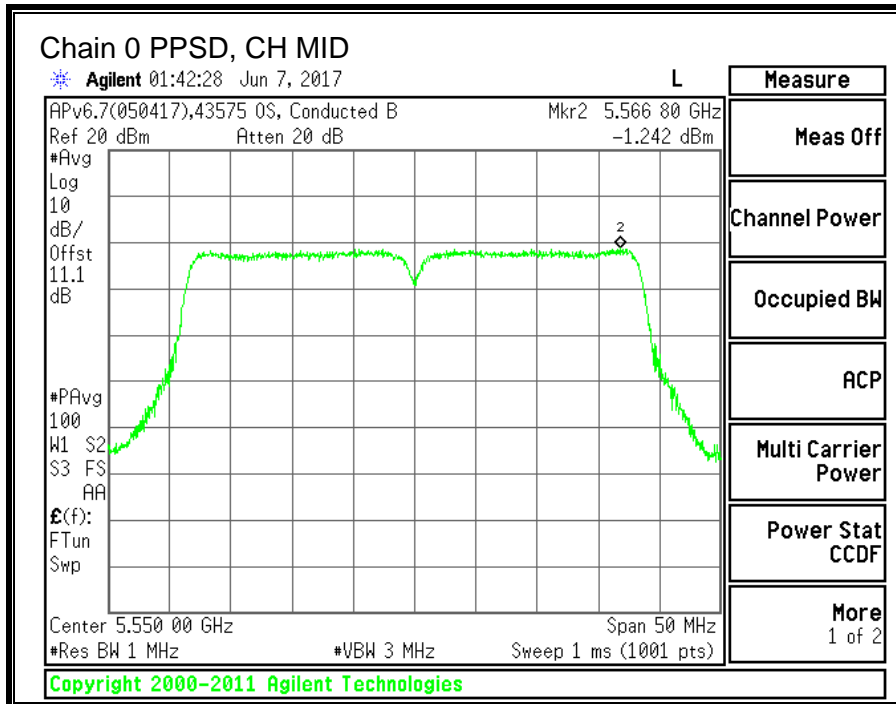
| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|-----------|-----------------|--------------------------|--------------------------|--------------------------|-------------------|-------------------|
| Low | 5510 | 13.49 | 12.74 | 16.14 | 24.00 | -7.86 |
| Mid | 5550 | 13.05 | 12.14 | 15.63 | 24.00 | -8.37 |
| Mid (FCC) | 5630 | 13.00 | 12.01 | 15.54 | 24.00 | -8.46 |
| High | 5670 | 13.54 | 12.22 | 15.94 | 24.00 | -8.06 |
| 142 | 5710 | 13.23 | 12.24 | 15.77 | 24.00 | -8.23 |

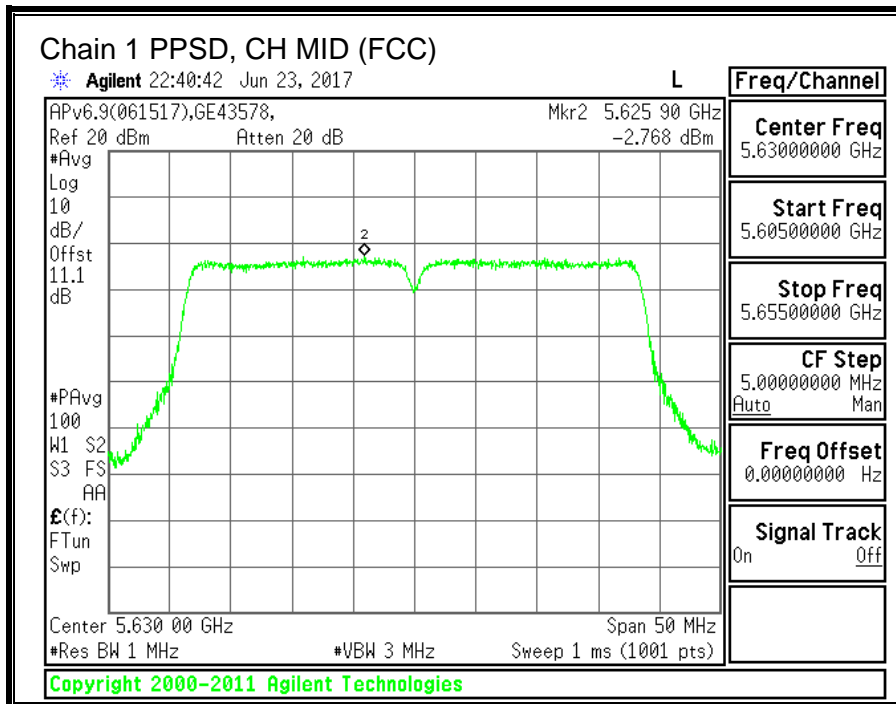
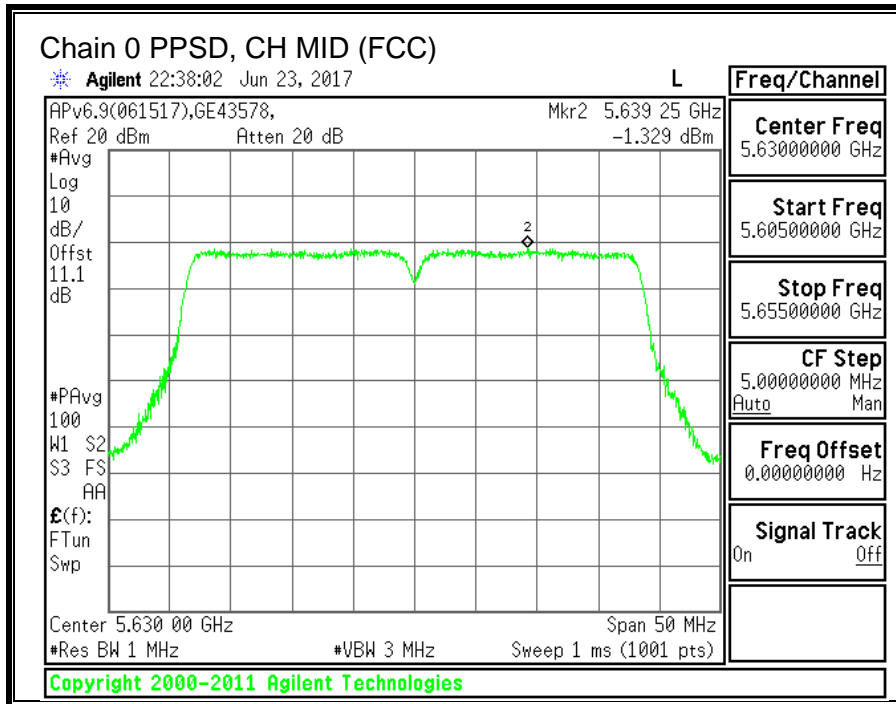
PPSD Results

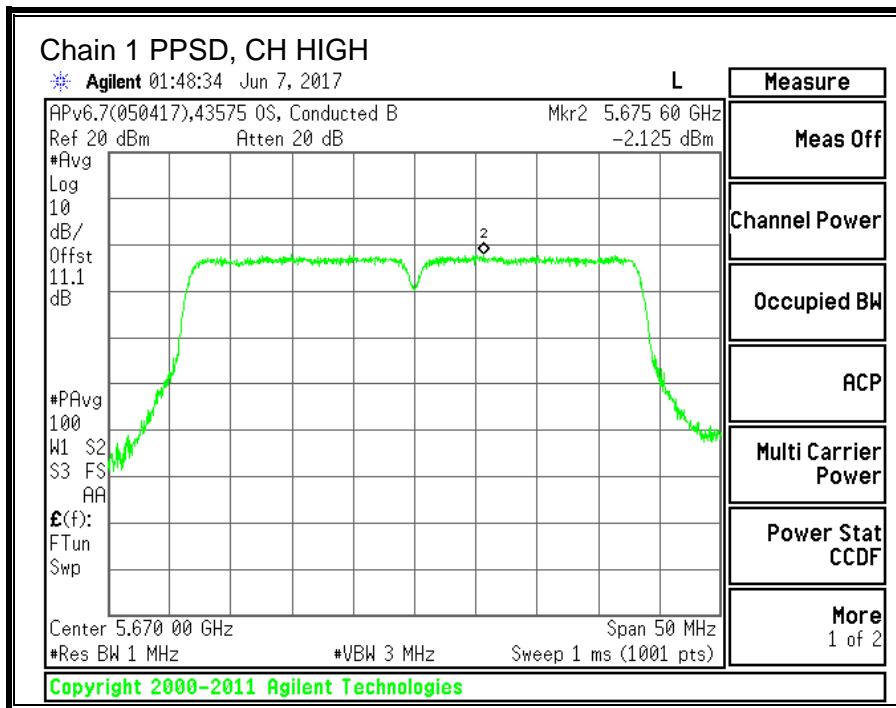
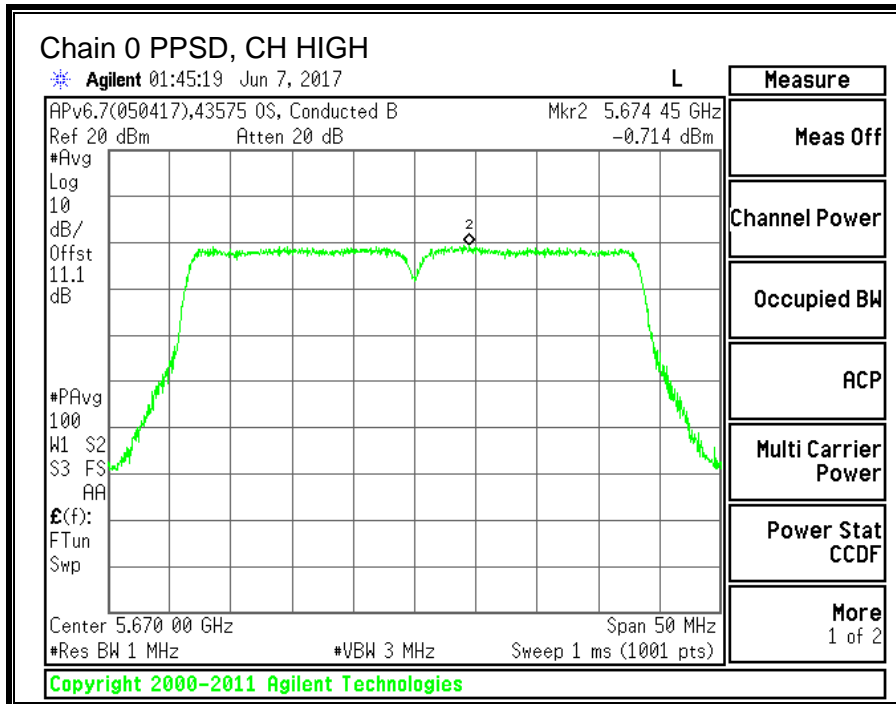
| Channel | Frequency (MHz) | Chain 0 Meas PPSD (dBm) | Chain 1 Meas PPSD (dBm) | Total Corr'd PPSD (dBm) | PPSD Limit (dBm) | PPSD Margin (dB) |
|-----------|-----------------|-------------------------|-------------------------|-------------------------|------------------|------------------|
| Low | 5510 | -0.882 | -0.885 | 2.53 | 11.00 | -8.47 |
| Mid | 5550 | -1.242 | -2.045 | 1.79 | 11.00 | -9.21 |
| Mid (FCC) | 5630 | -1.329 | -2.768 | 1.42 | 11.00 | -9.58 |
| High | 5670 | -0.714 | -2.125 | 2.05 | 11.00 | -8.95 |
| 142 | 5710 | -1.483 | -3.780 | 0.93 | 11.00 | -10.07 |

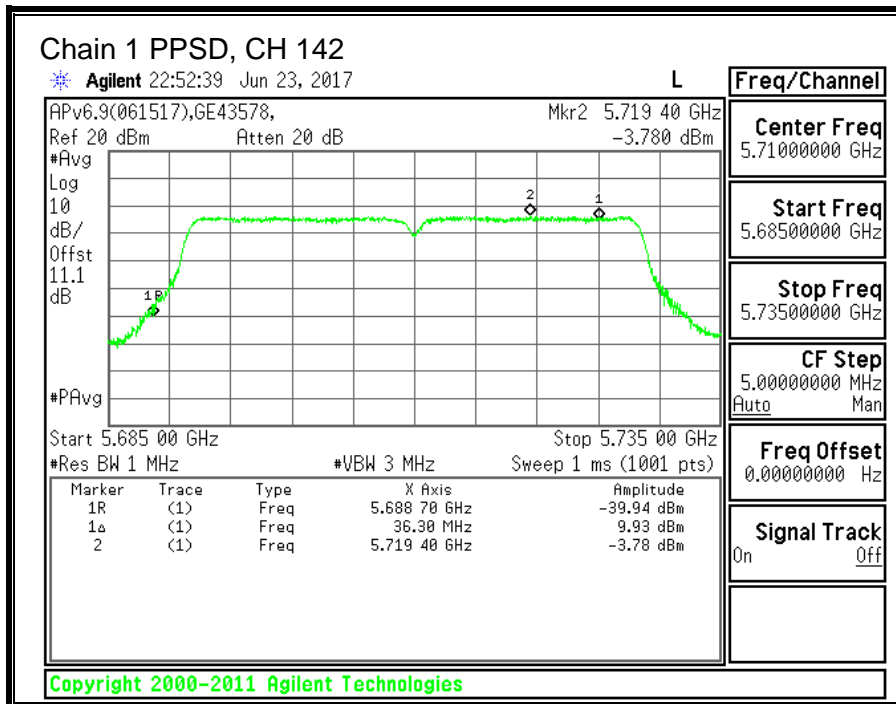
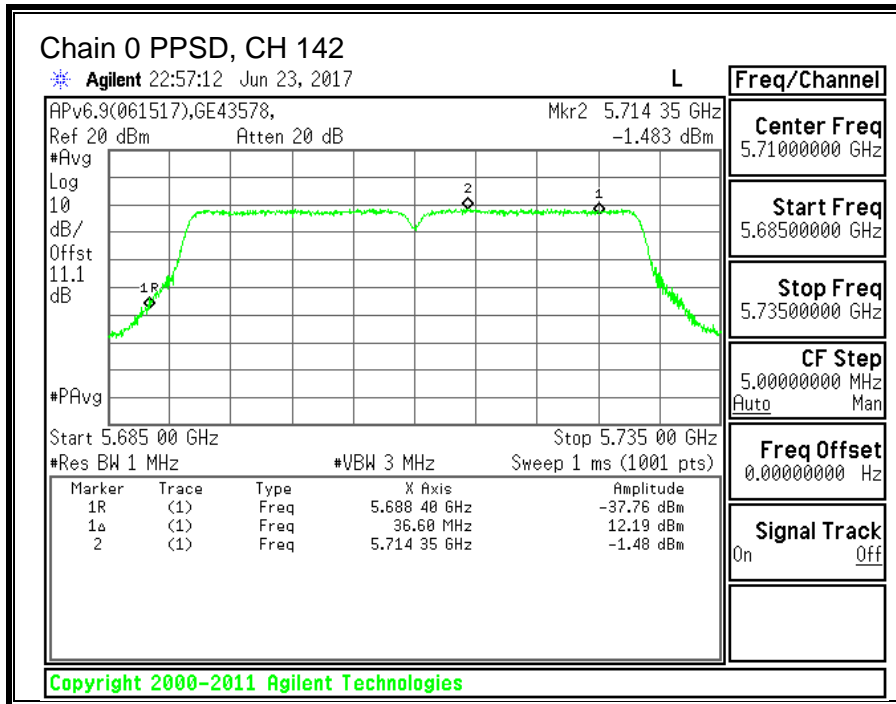
Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.











10.12. 11ac HT80 2TX CDD MIMO MODE IN THE 5.6GHz BAND

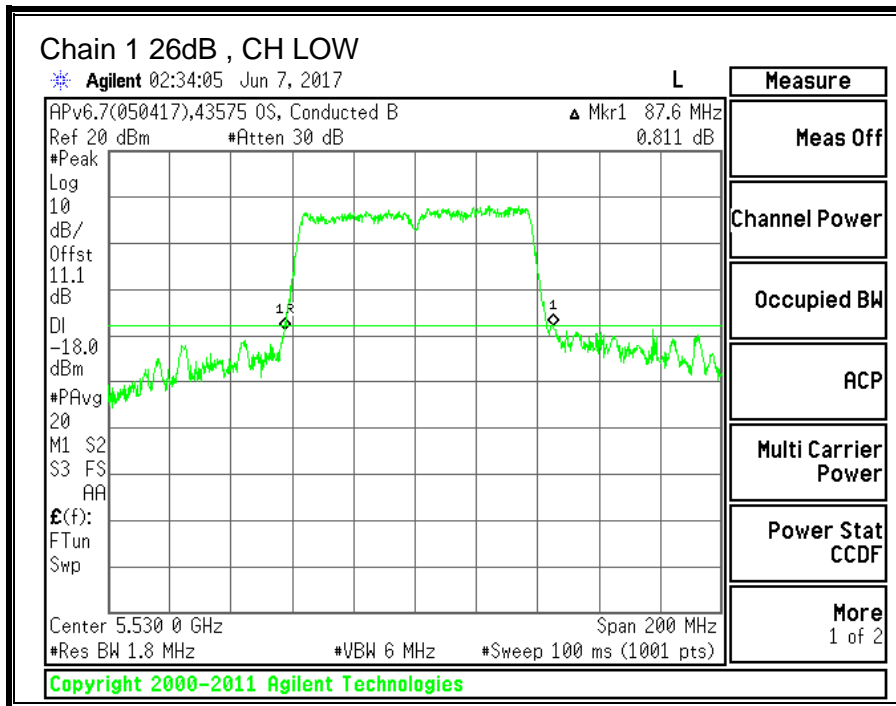
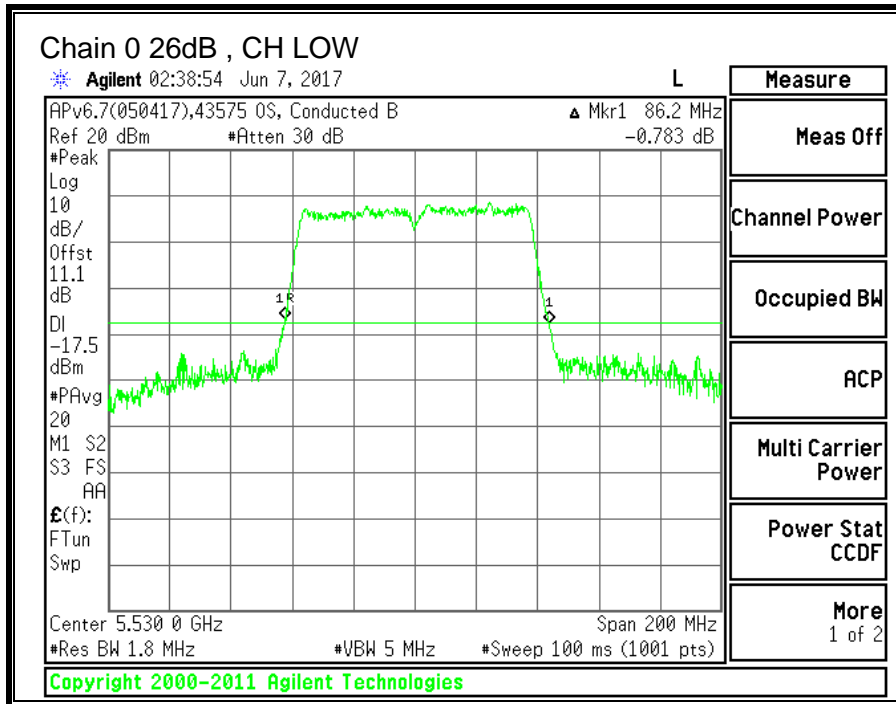
10.12.1.26 dB BANDWIDTH

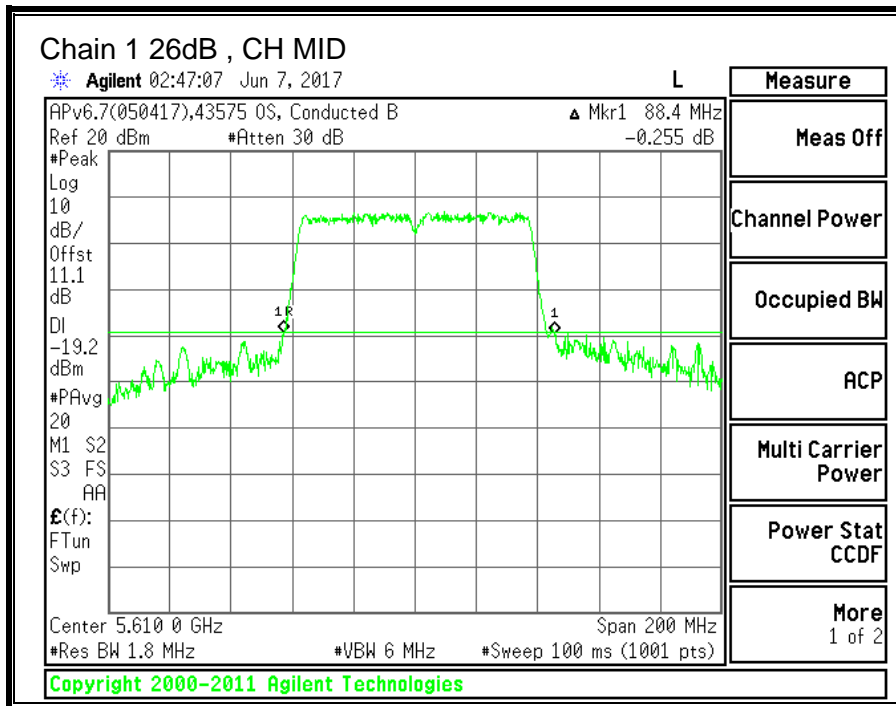
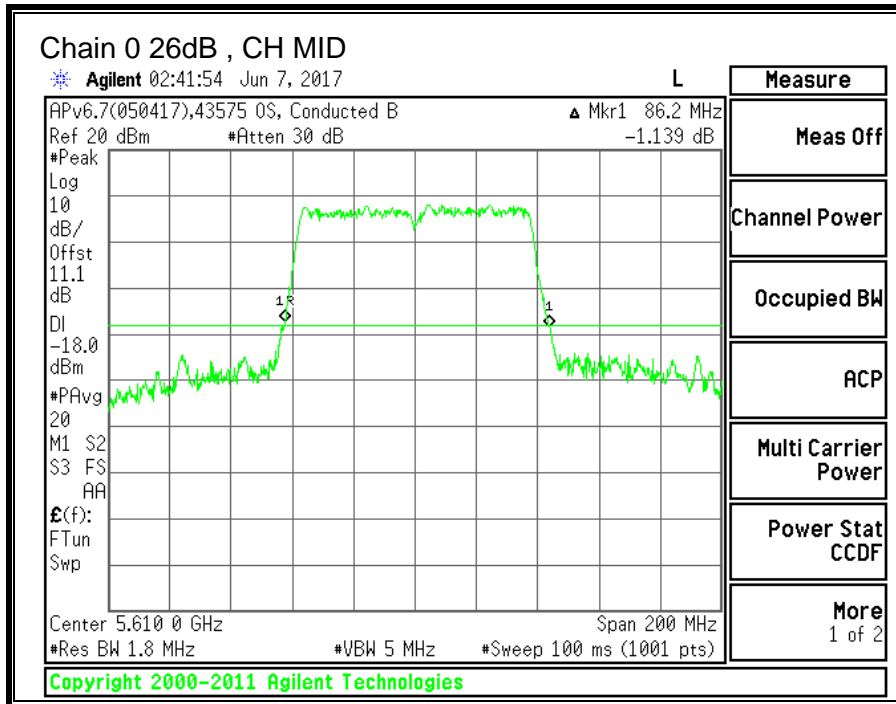
LIMITS

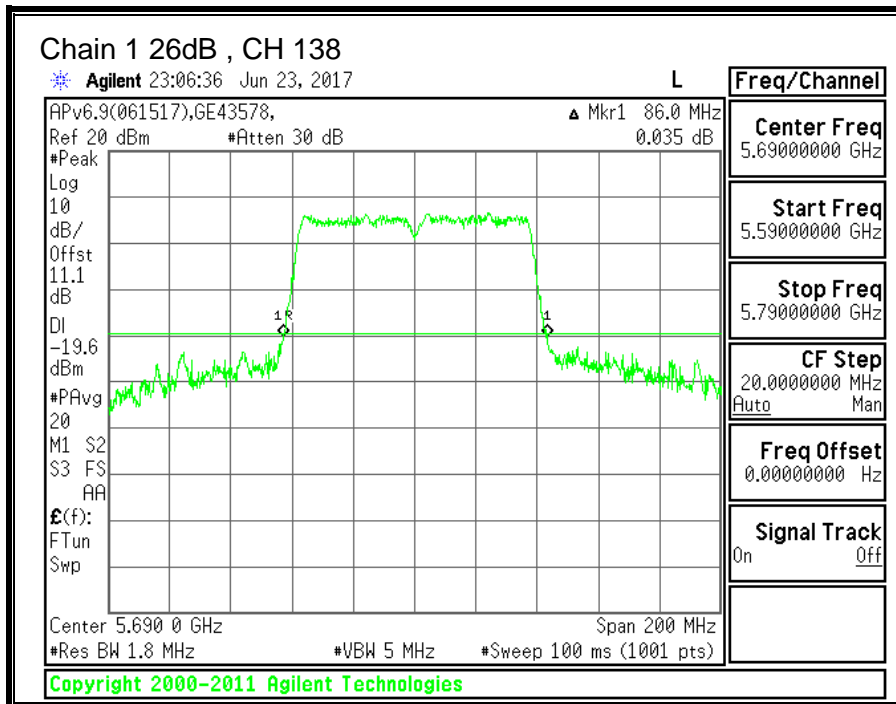
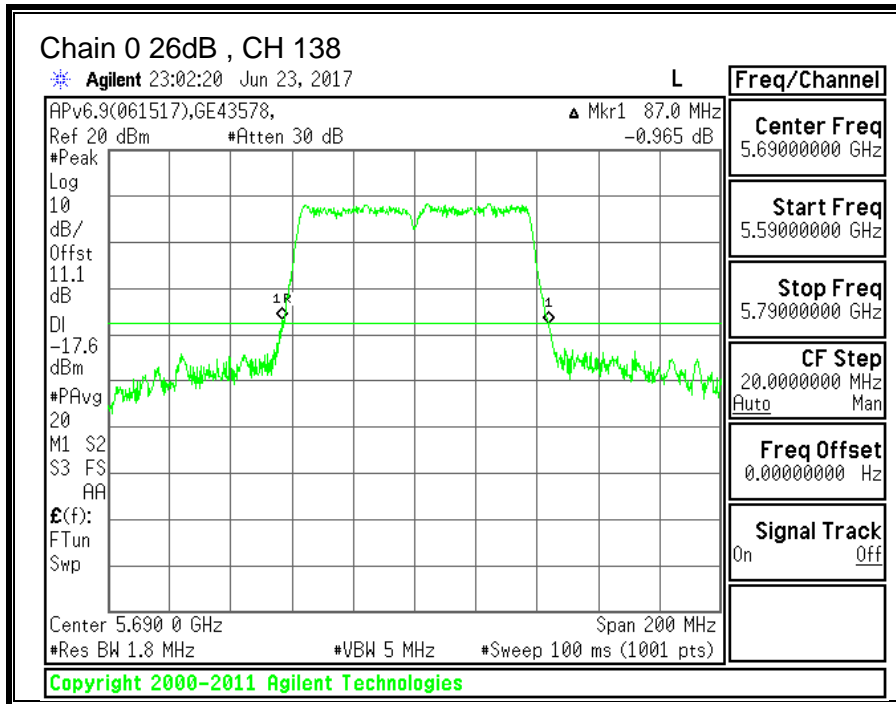
None; for reporting purposes only.

RESULTS

| Channel | Frequency | 26 dB BW Chain 0 (MHz) | 26 dB BW Chain 1 (MHz) |
|---------|-----------|------------------------------|------------------------------|
| Low | 5530 | 86.2 | 87.6 |
| Mid | 5610 | 86.2 | 88.4 |
| 138 | 5690 | 87.0 | 86.0 |







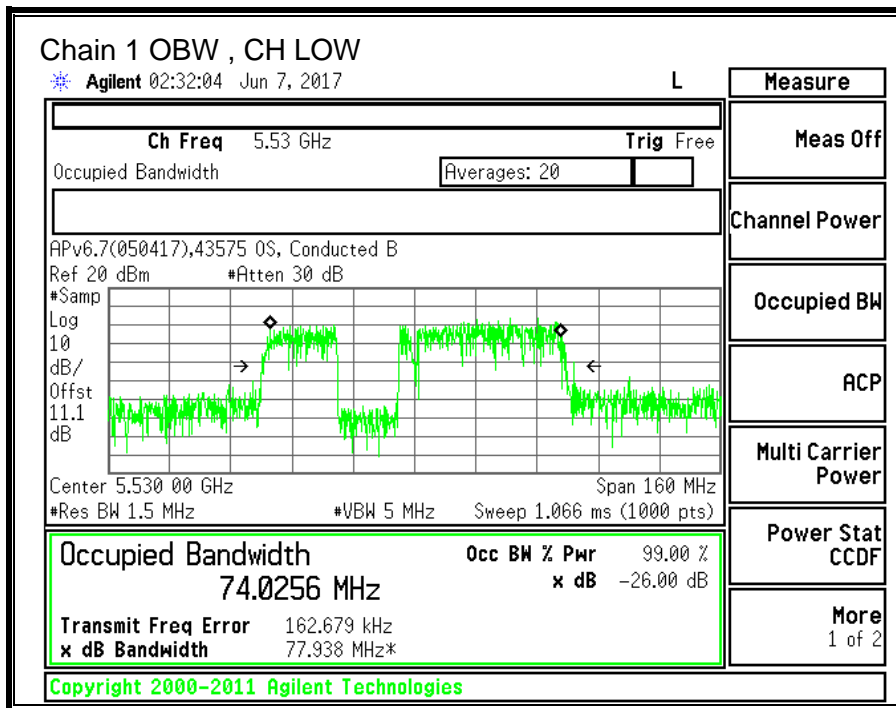
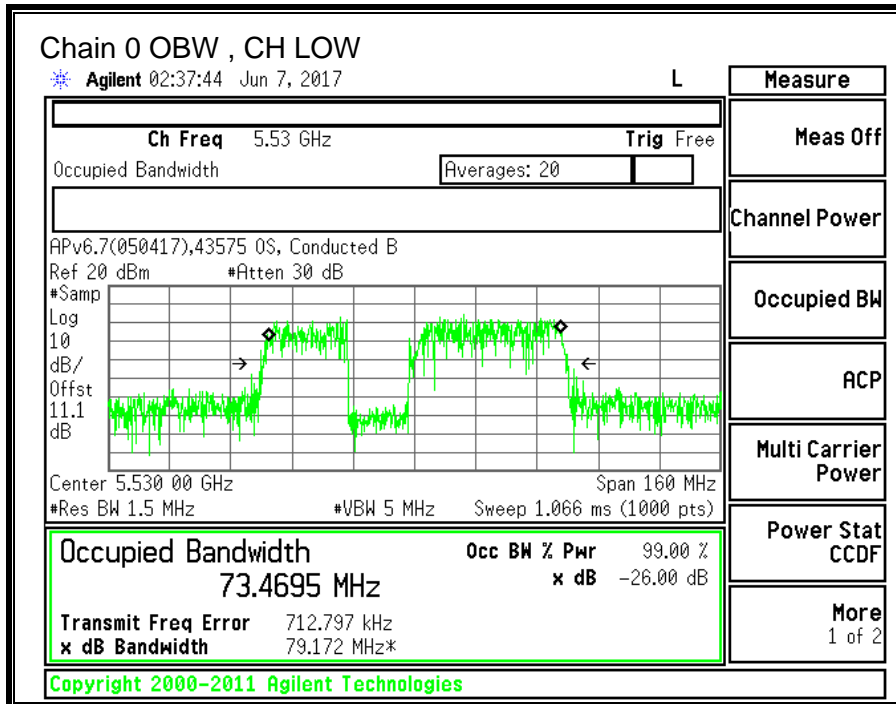
10.12.2. 99% BANDWIDTH

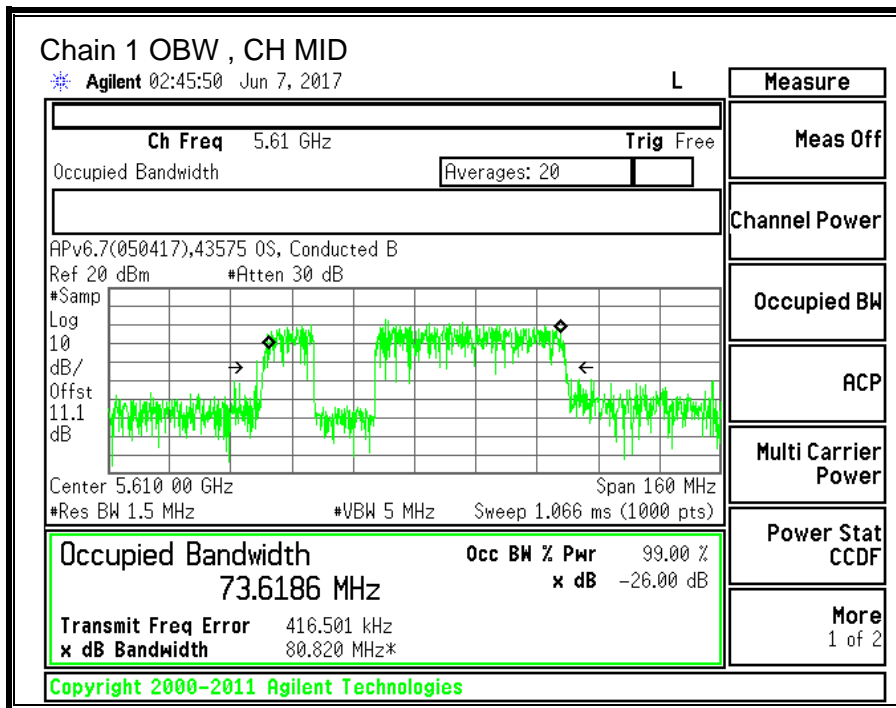
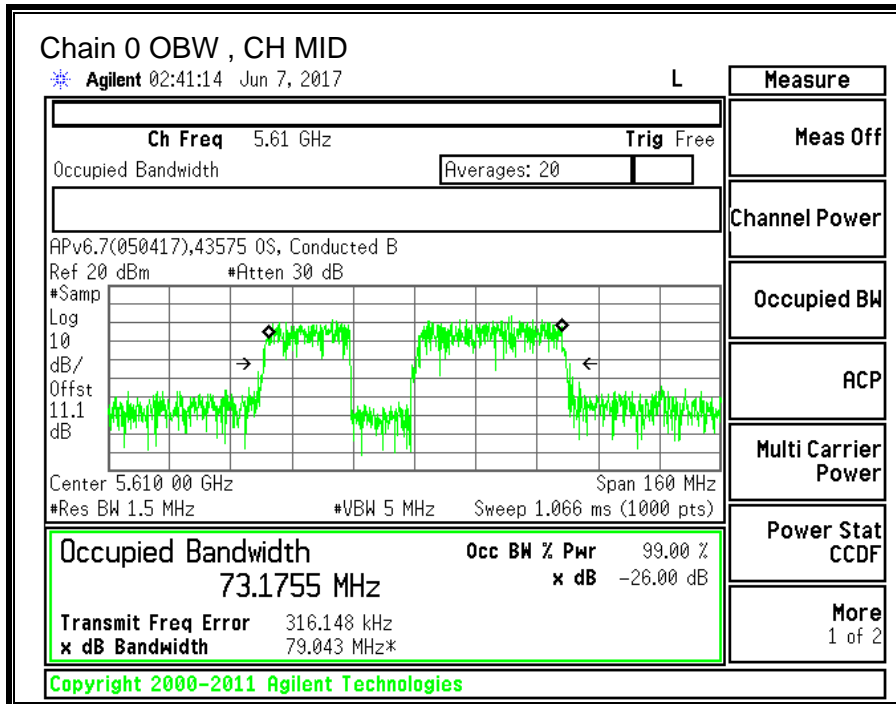
LIMITS

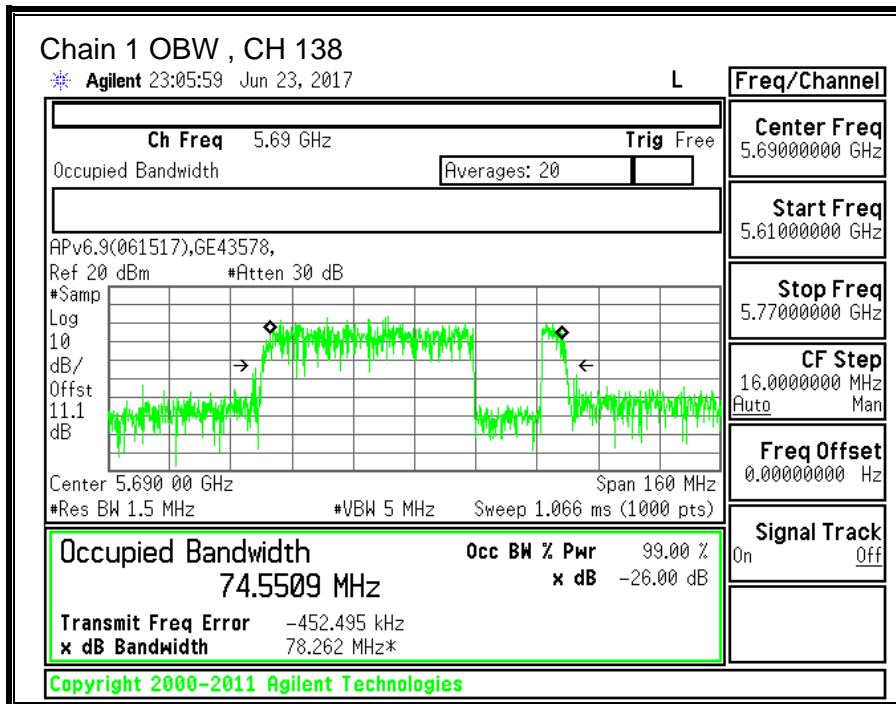
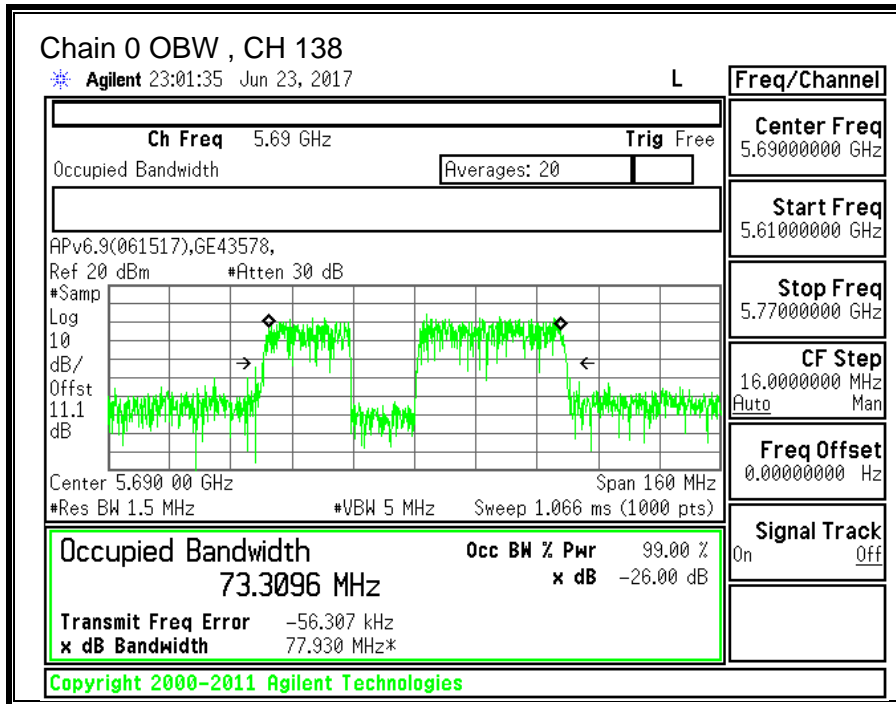
None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|---------|-----------|----------------------|----------------------|
| Low | 5530 | 73.4695 | 74.0256 |
| Mid | 5610 | 73.1755 | 73.6186 |
| 138 | 5690 | 73.3096 | 74.5509 |







10.12.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 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 maximum 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.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Straddle channel power is measured using PXA spectrum analyzer, duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

5470-5725 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -3.10 | -8.40 | -4.99 |

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

5470-5725 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Correlated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -3.10 | -8.40 | -2.34 |

RESULTS

| | | | |
|------------|-------|--------------|----------|
| ID: | 43574 | Date: | 06/06/17 |
|------------|-------|--------------|----------|

Bandwidth and Antenna Gain

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Min 99% BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PPSD (dBi) |
|---------|--------------------|-----------------------------|---------------------------|---|--|
| Low | 5530 | 86.20 | 73.470 | -4.99 | -2.34 |
| Mid | 5610 | 86.20 | 73.176 | -4.99 | -2.34 |
| 138 | 5690 | 86.00 | 17.310 | -4.99 | -2.34 |

Limits

| Channel | Frequency (MHz) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Power Limit (dBm) | FCC PPSD Limit (dBm) | IC PSD Limit (dBm) | PPSD Limit (dBm) |
|---------|--------------------|--------------------------------|-------------------------------|------------------------------|-------------------------|-------------------------------|-----------------------------|------------------------|
| Low | 5530 | 24.00 | 24.00 | 30.00 | 24.00 | 11.00 | 11.00 | 11.00 |
| Mid | 5610 | 24.00 | 24.00 | 30.00 | 24.00 | 11.00 | 11.00 | 11.00 |
| 138 | 5690 | 24.00 | 23.38 | 29.38 | 23.38 | 11.00 | 11.00 | 11.00 |

| | | |
|---------------------------|------|--|
| Duty Cycle CF (dB) | 0.75 | Included in Calculations of Corr'd PPSD |
|---------------------------|------|--|

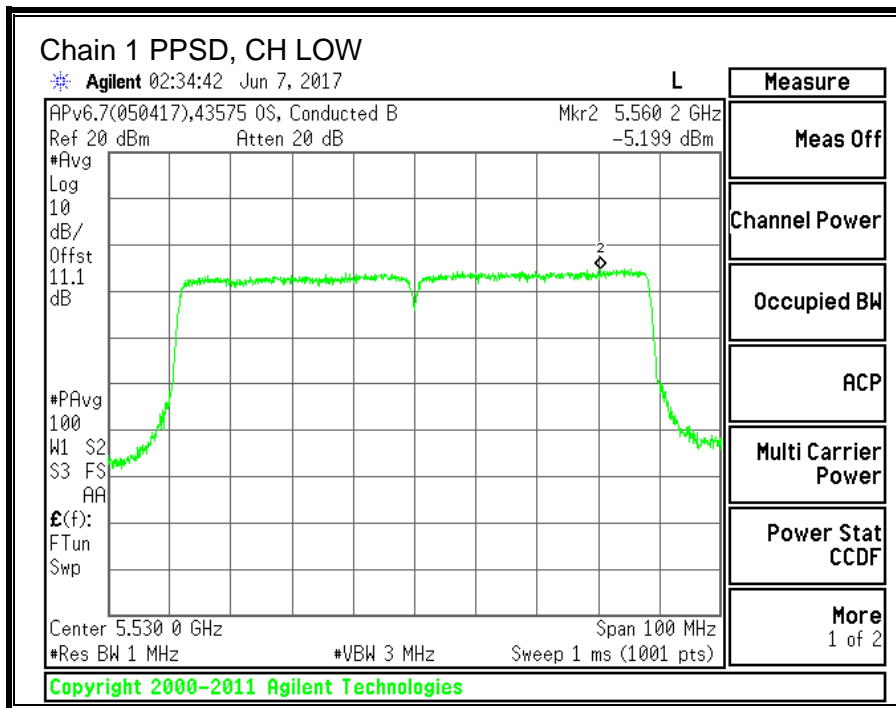
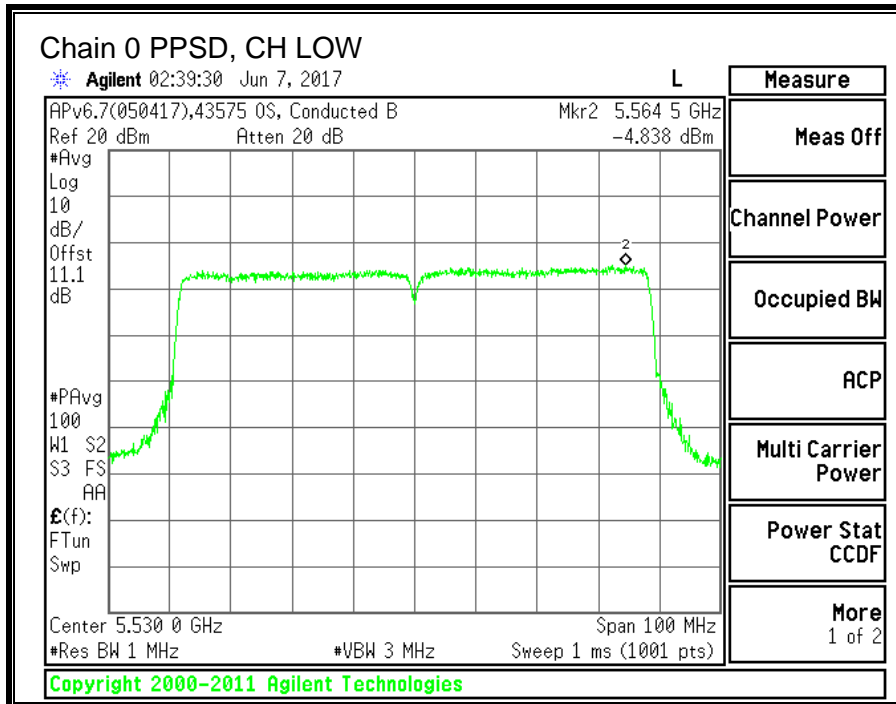
Output Power Results

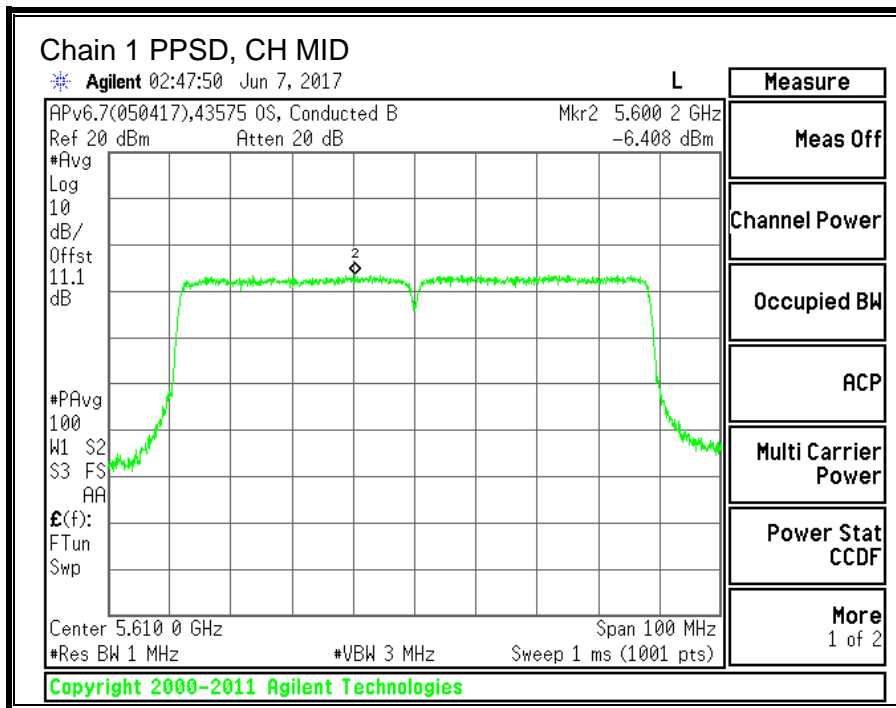
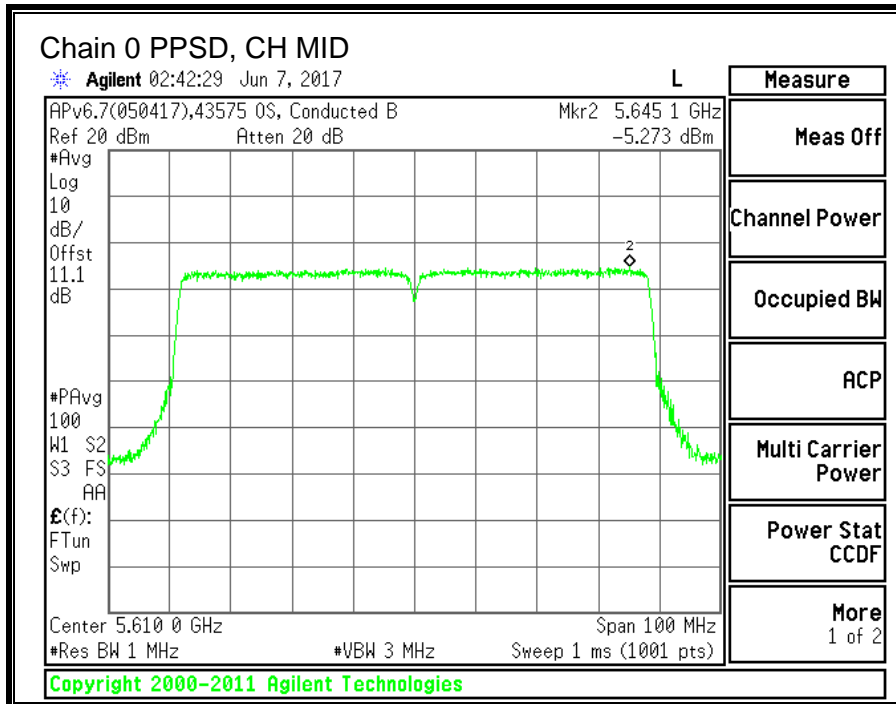
| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low | 5530 | 13.04 | 12.16 | 15.63 | 24.00 | -8.37 |
| Mid | 5610 | 12.85 | 12.05 | 15.48 | 24.00 | -8.52 |
| 138 | 5690 | 13.16 | 12.20 | 15.72 | 23.38 | -7.67 |

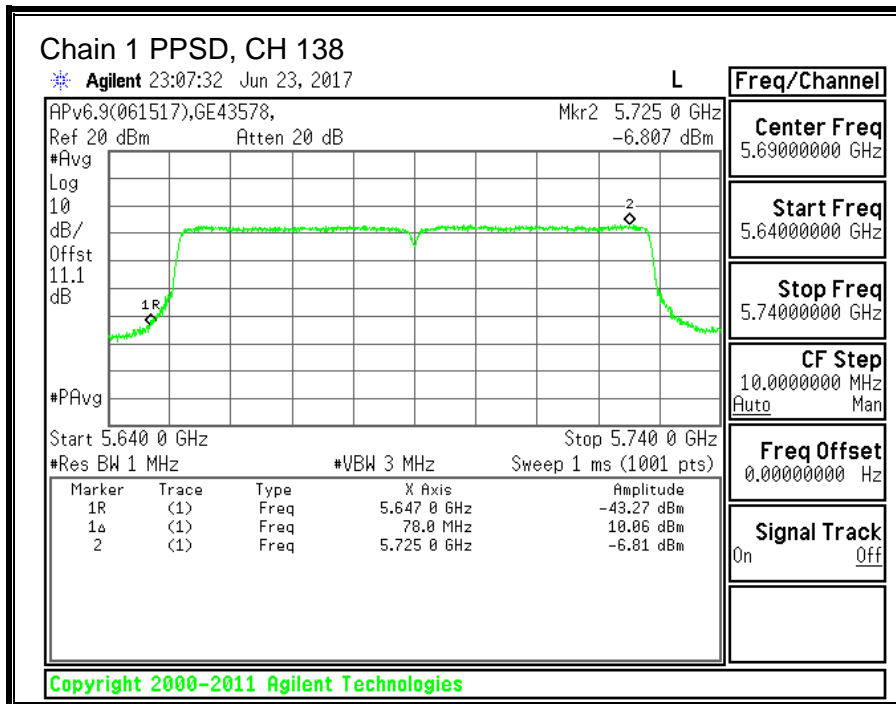
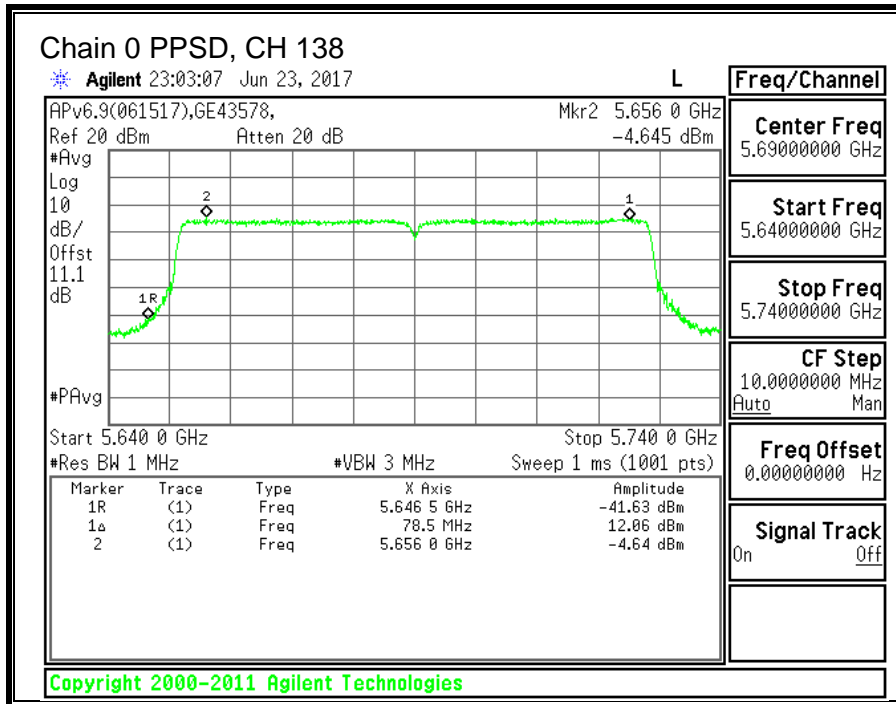
PPSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PPSD (dBm) | Chain 1 Meas PPSD (dBm) | Total Corr'd PPSD (dBm) | PPSD Limit (dBm) | PPSD Margin (dB) |
|---------|--------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|------------------------|
| Low | 5530 | -4.838 | -5.199 | -1.25 | 11.00 | -12.25 |
| Mid | 5610 | -5.273 | -6.408 | -2.04 | 11.00 | -13.04 |
| 138 | 5690 | -4.645 | -6.807 | -1.83 | 11.00 | -12.83 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.







10.13. 11a 2TX CDD MIMO MODE IN THE 5.8GHz BAND

10.13.1. 6 dB BANDWIDTH

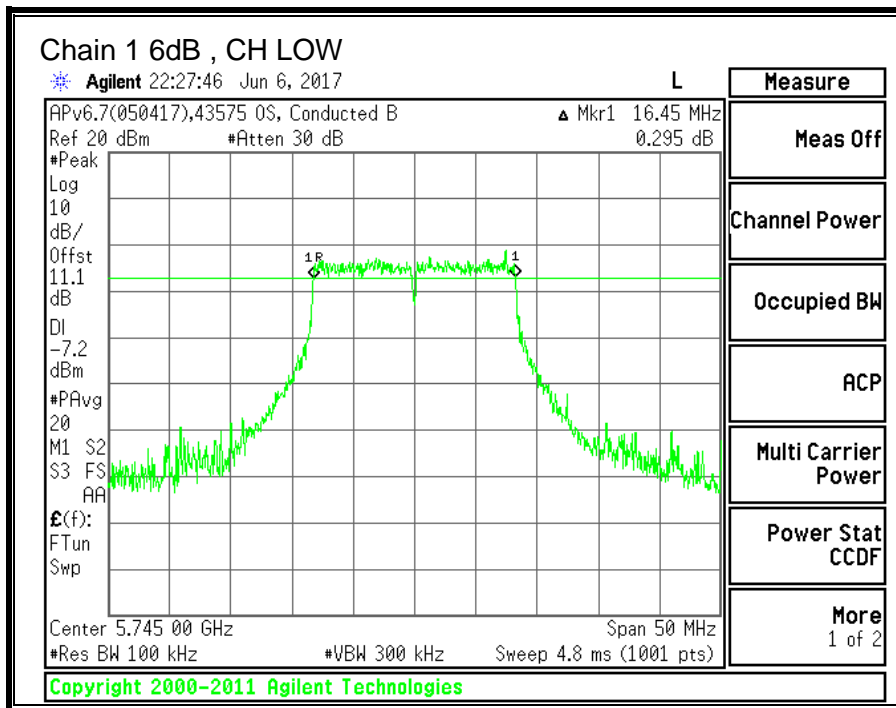
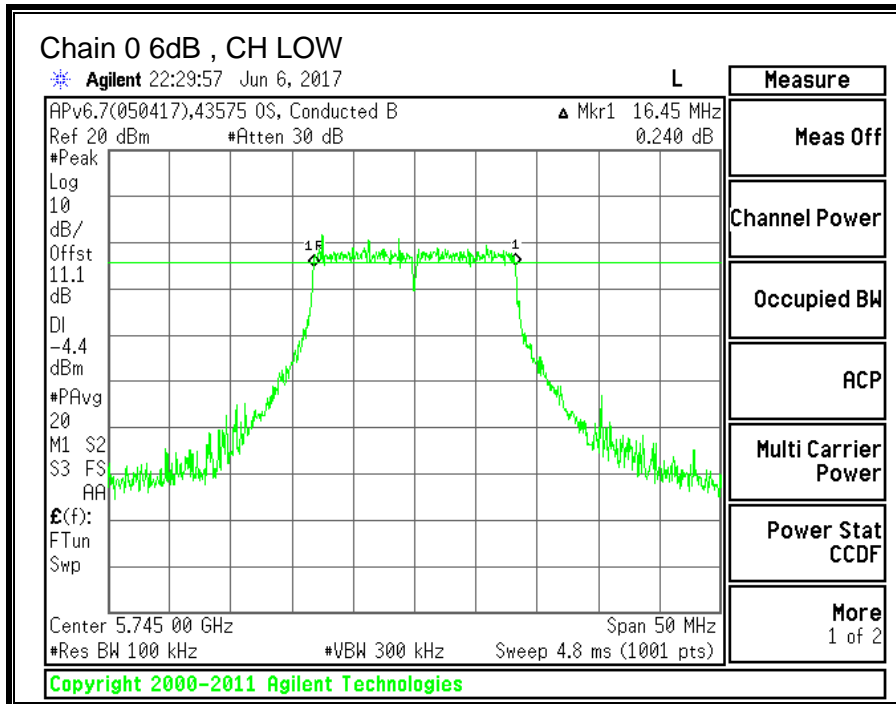
LIMITS

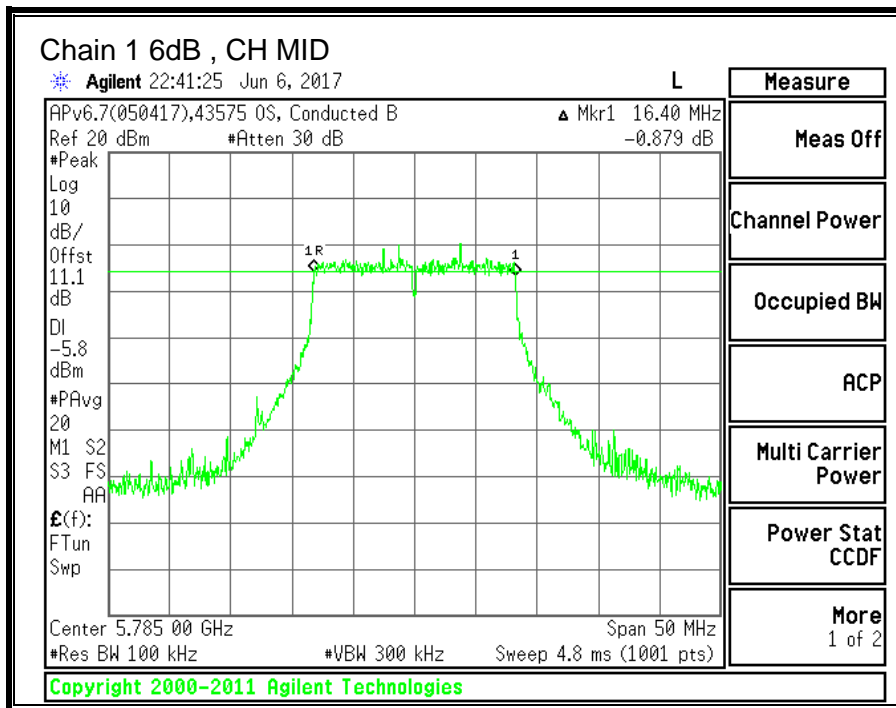
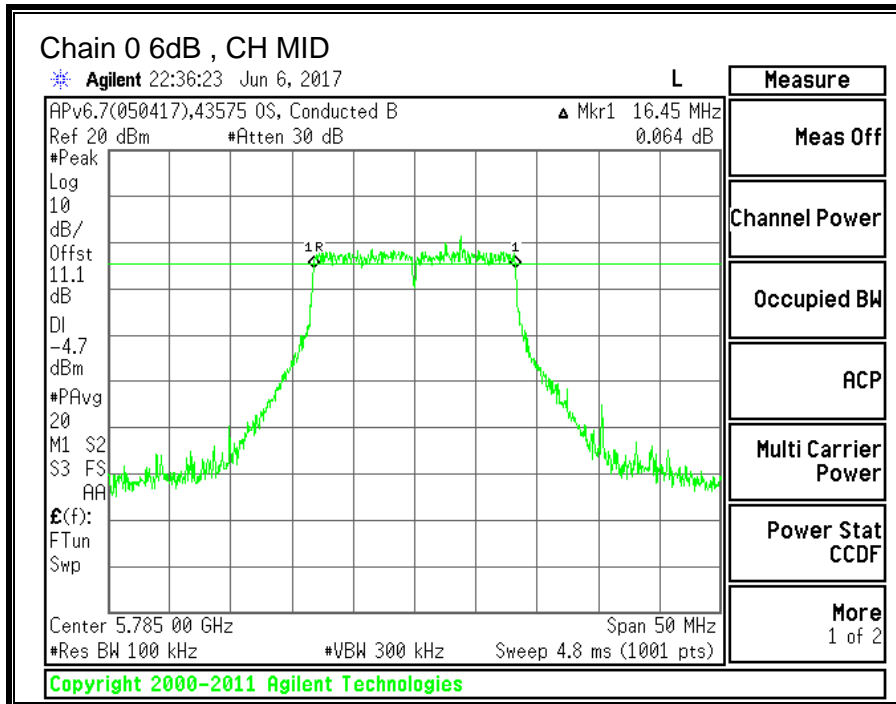
FCC §15.407 (e)

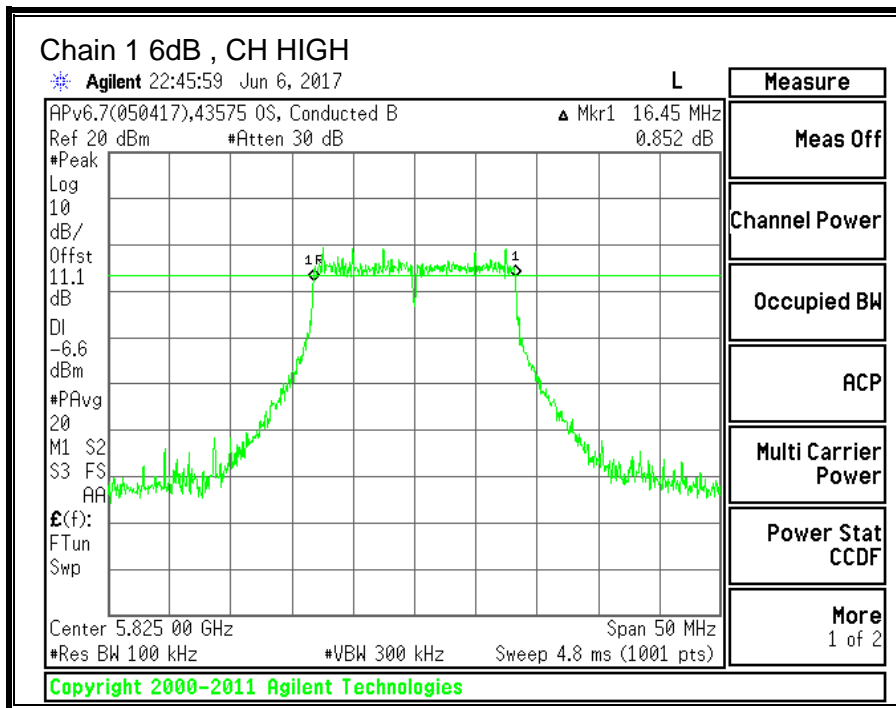
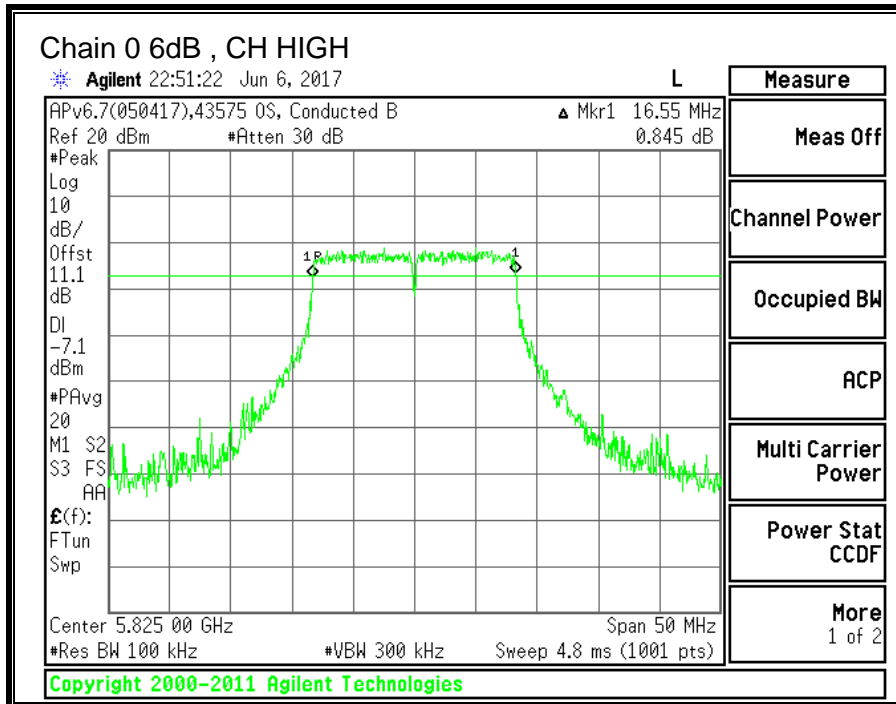
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

| Channel | Frequency | 6 dB BW Chain 0 (MHz) | 6 dB BW Chain 1 (MHz) | Minimum Limit (MHz) |
|---------|-----------|-----------------------|-----------------------|---------------------|
| Low | 5745 | 16.45 | 16.45 | 0.5 |
| Mid | 5785 | 16.45 | 16.40 | 0.5 |
| High | 5825 | 16.55 | 16.45 | 0.5 |







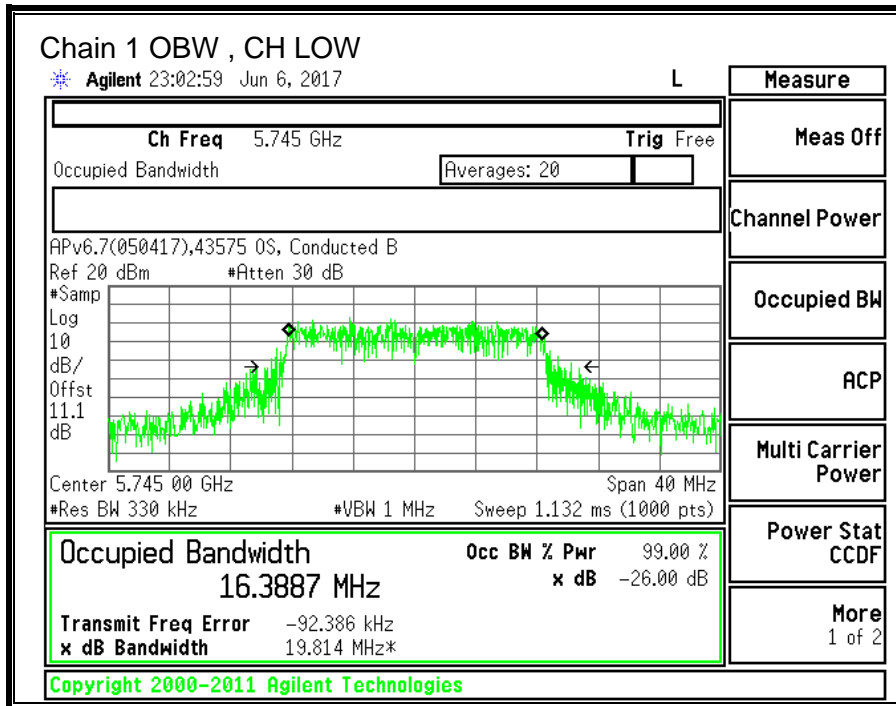
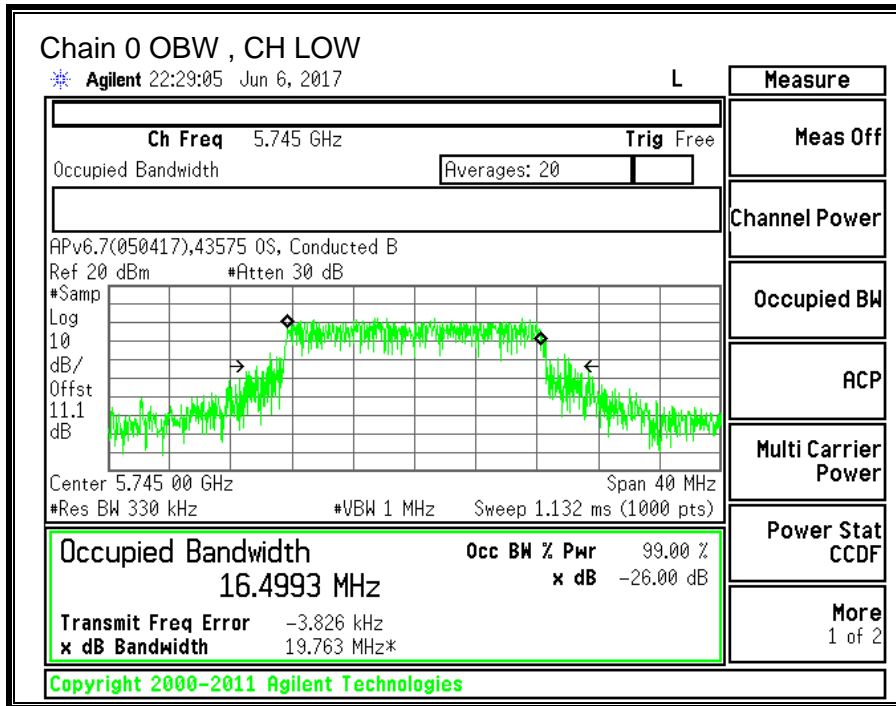
10.13.2. 99% BANDWIDTH

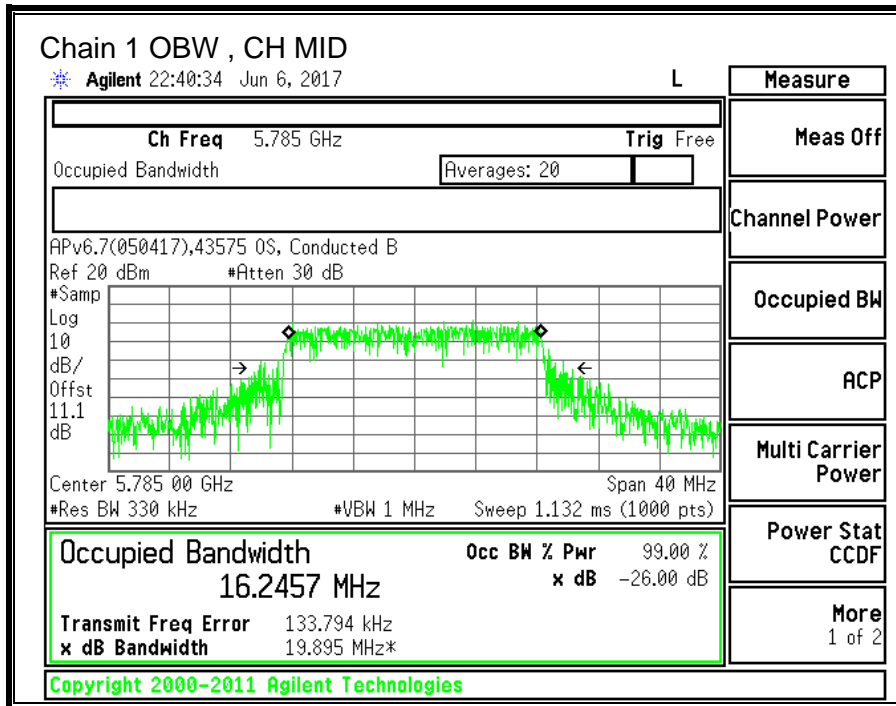
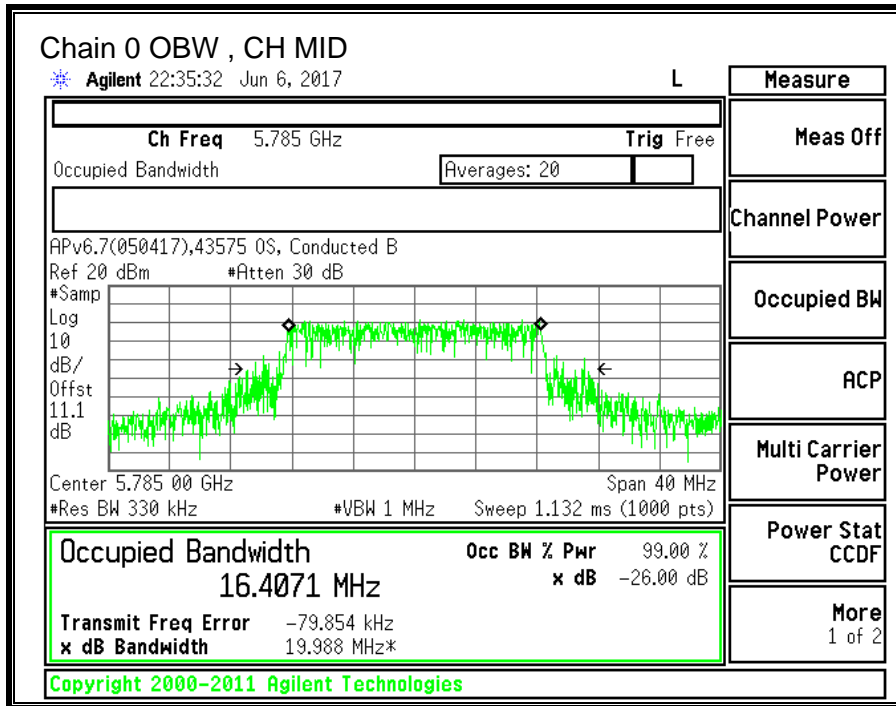
LIMITS

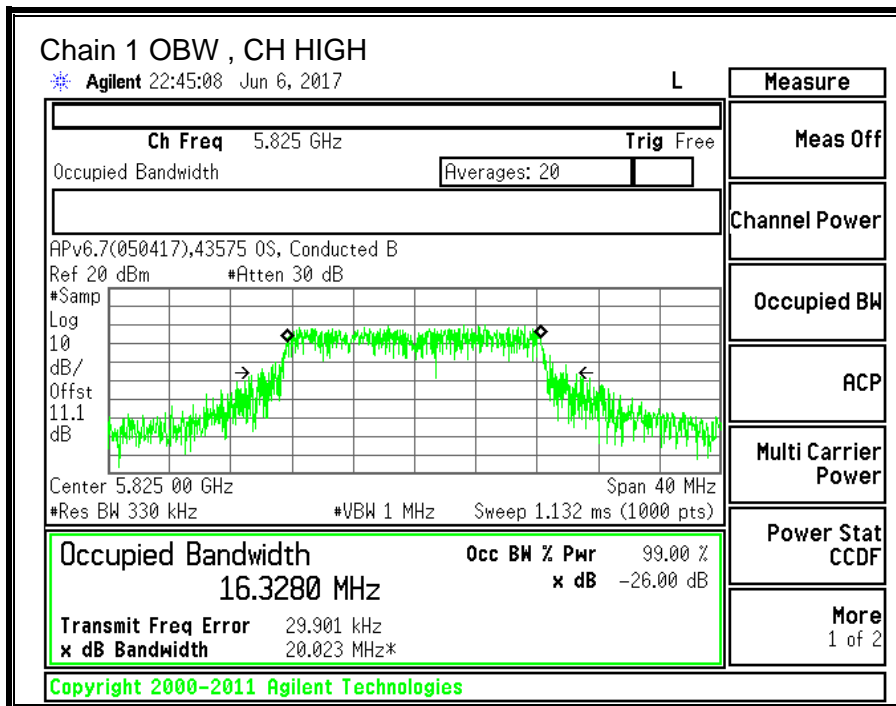
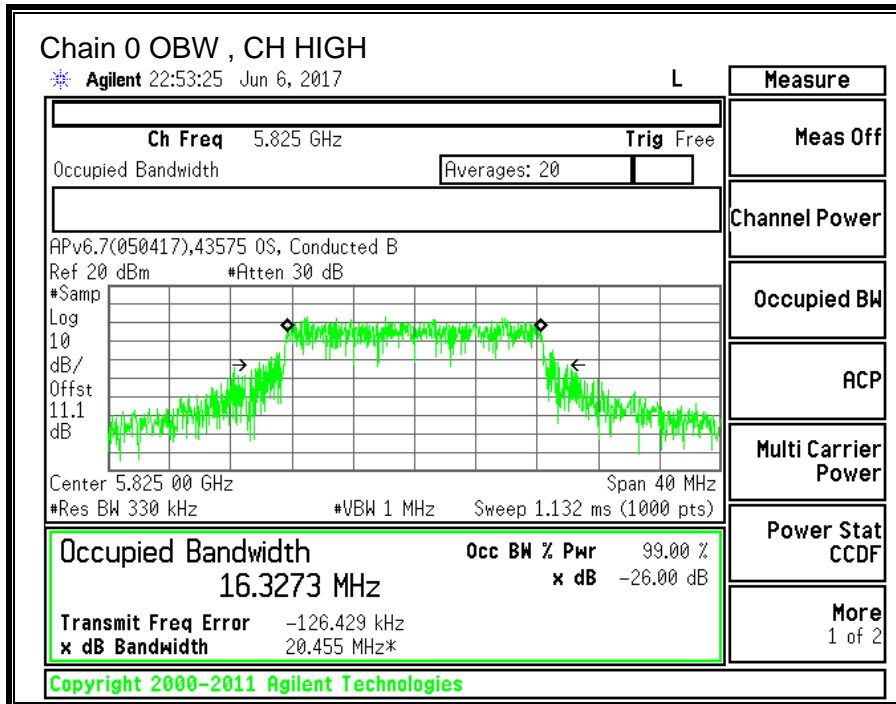
None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|----------------|------------------|-------------------------------------|-------------------------------------|
| Low | 5745 | 16.499 | 16.389 |
| Mid | 5785 | 16.407 | 16.246 |
| High | 5825 | 16.327 | 16.328 |







10.13.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

5725-5850 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -3.50 | -8.40 | -5.29 |

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

5725-5850 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Correlated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -3.50 | -8.40 | -2.60 |

RESULTS

| | | | |
|------------|-------|--------------|----------|
| ID: | 43574 | Date: | 06/06/17 |
|------------|-------|--------------|----------|

Antenna Gain and Limit

| Channel | Frequency (MHz) | Directional Gain for Power (dBi) | Directional Gain for PSD (dBi) | Power Limit (dBm) | Power Limit (dBm) |
|---------|-----------------|----------------------------------|--------------------------------|-------------------|-------------------|
| Low | 5745 | -5.29 | -2.60 | 30.00 | 30.00 |
| Mid | 5785 | -5.29 | -2.60 | 30.00 | 30.00 |
| High | 5825 | -5.29 | -2.60 | 30.00 | 30.00 |

| | | |
|---------------------------|------|---|
| Duty Cycle CF (dB) | 0.24 | Included in Calculations of Corr'd PSD |
|---------------------------|------|---|

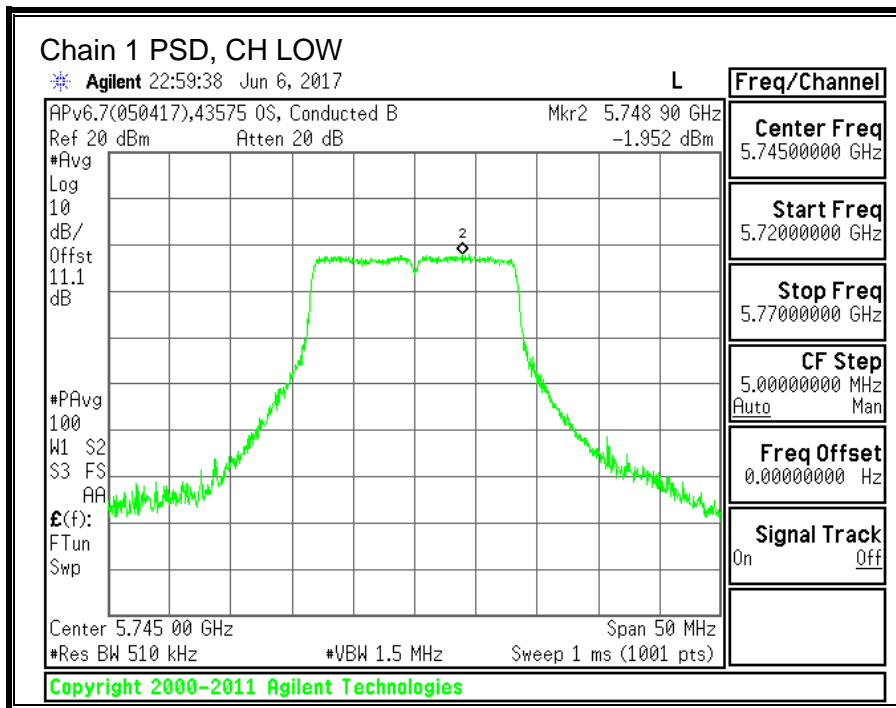
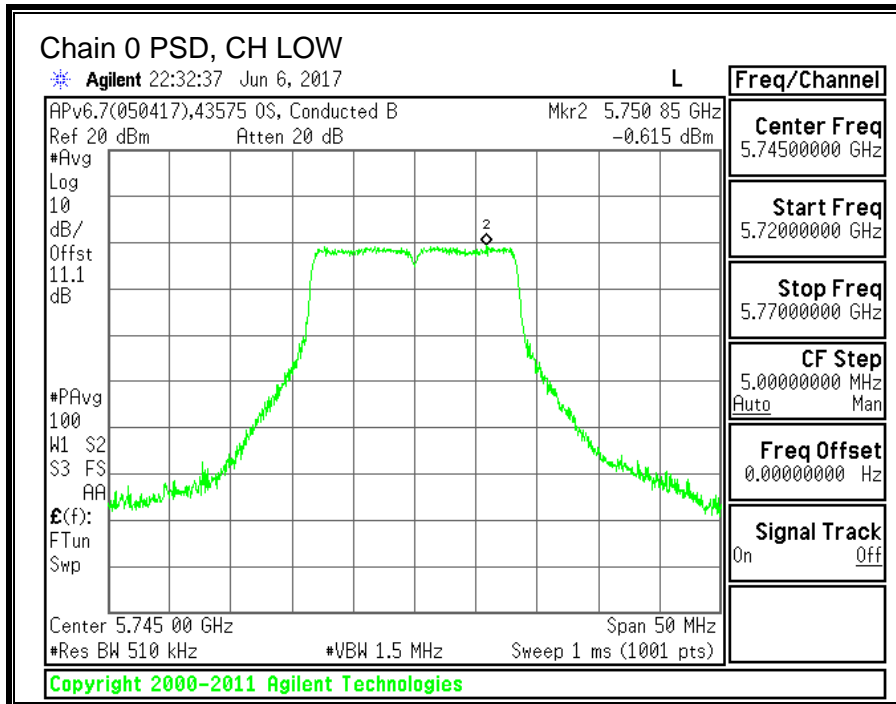
Output Power Results

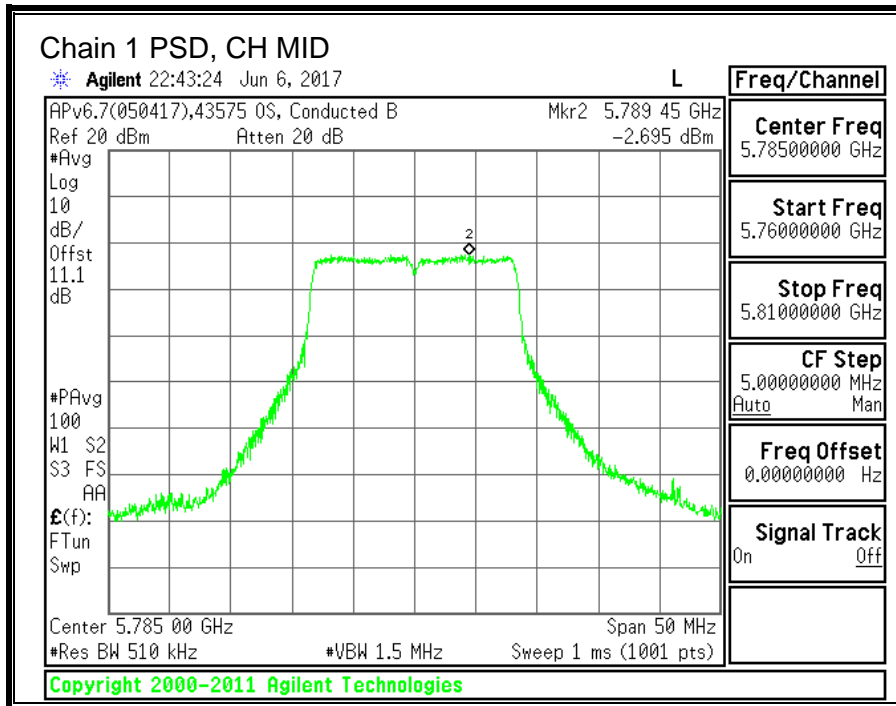
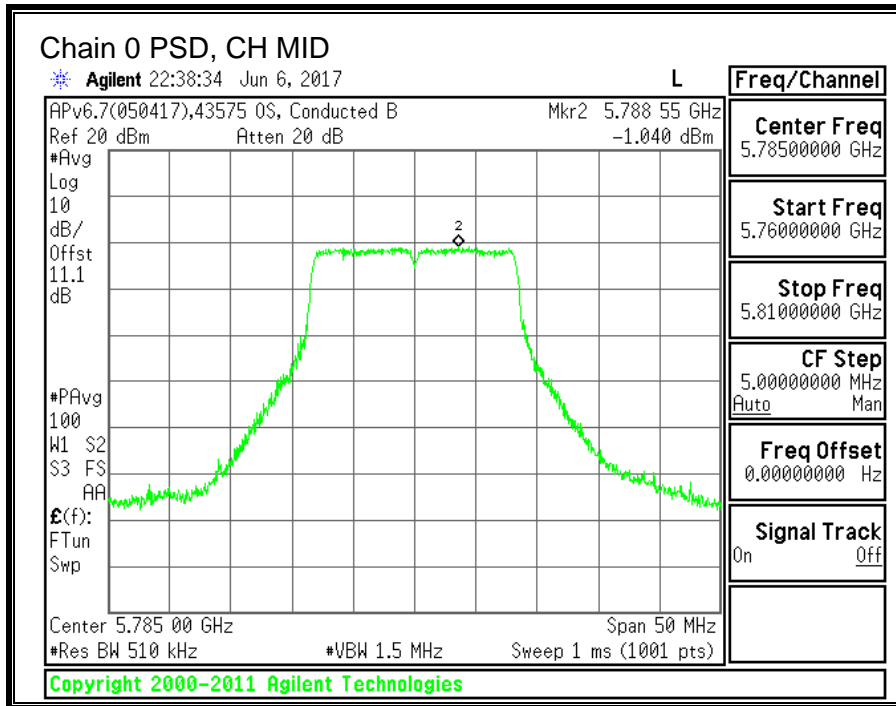
| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|-----------------|--------------------------|--------------------------|--------------------------|-------------------|-------------------|
| Low | 5745 | 13.33 | 11.53 | 15.53 | 30.00 | -14.47 |
| Mid | 5785 | 13.43 | 11.62 | 15.63 | 30.00 | -14.37 |
| High | 5825 | 13.13 | 11.05 | 15.22 | 30.00 | -14.78 |

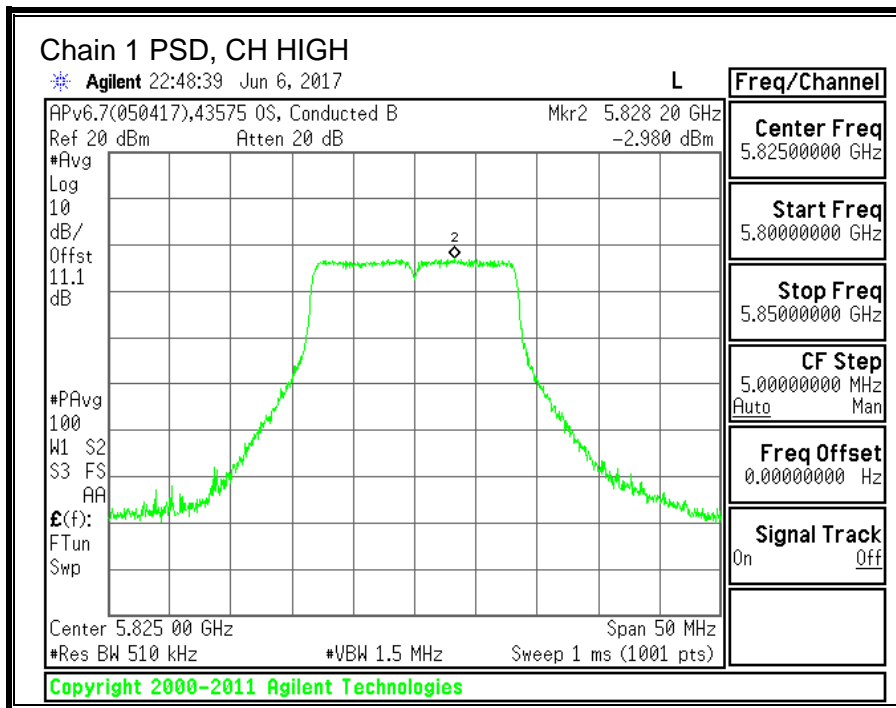
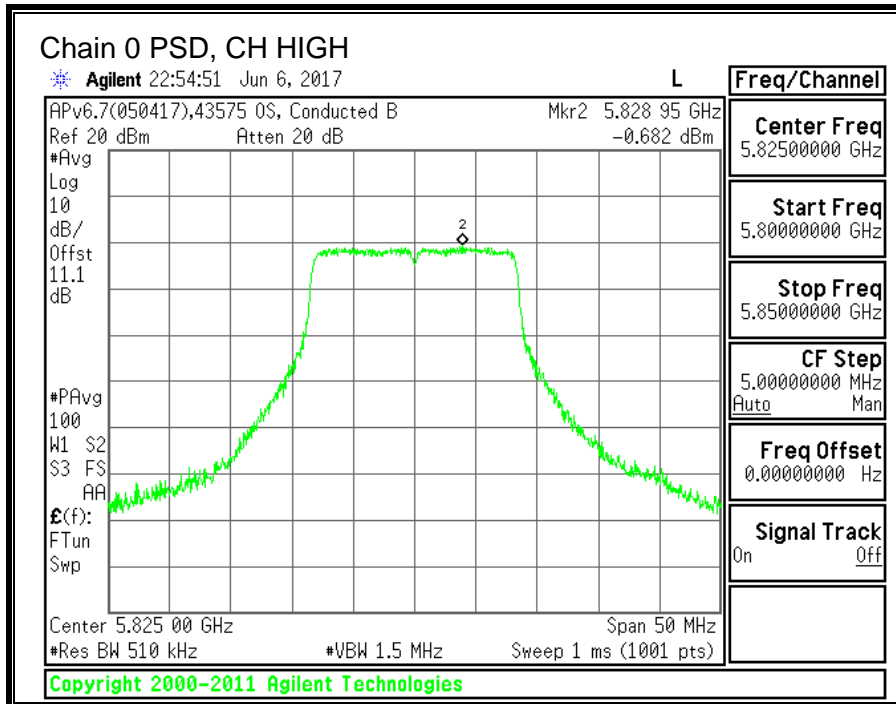
PSD Results

| 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 | 5745 | -0.615 | -1.952 | 2.02 | 30.00 | -27.98 |
| Mid | 5785 | -1.040 | -2.695 | 1.46 | 30.00 | -28.54 |
| High | 5825 | -0.682 | -2.980 | 1.57 | 30.00 | -28.43 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.







10.14. 11n HT20 2TX CDD MIMO MODE IN THE 5.8GHz BAND

10.14.1. 6 dB BANDWIDTH

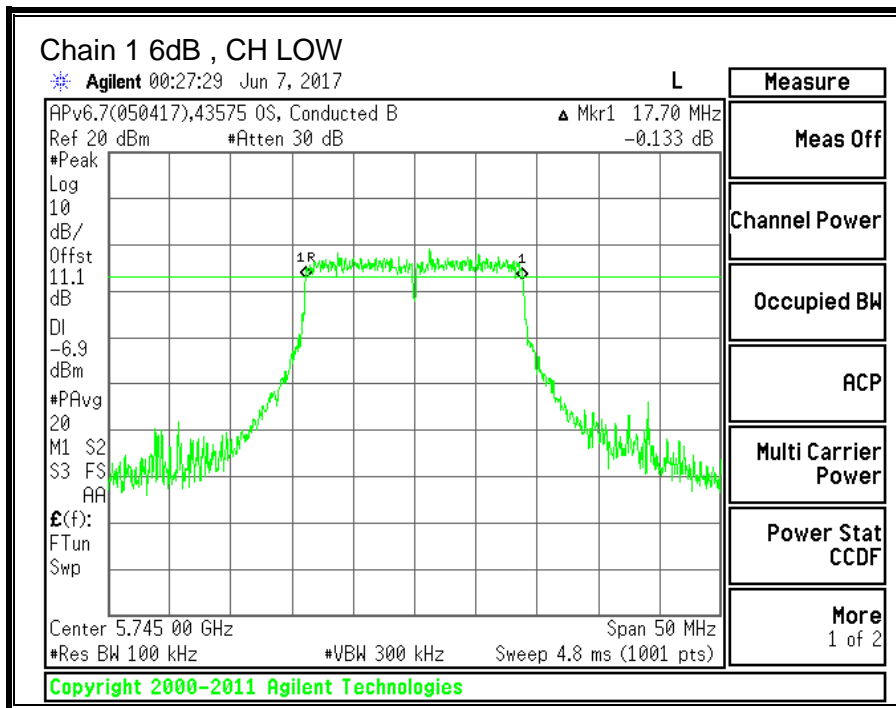
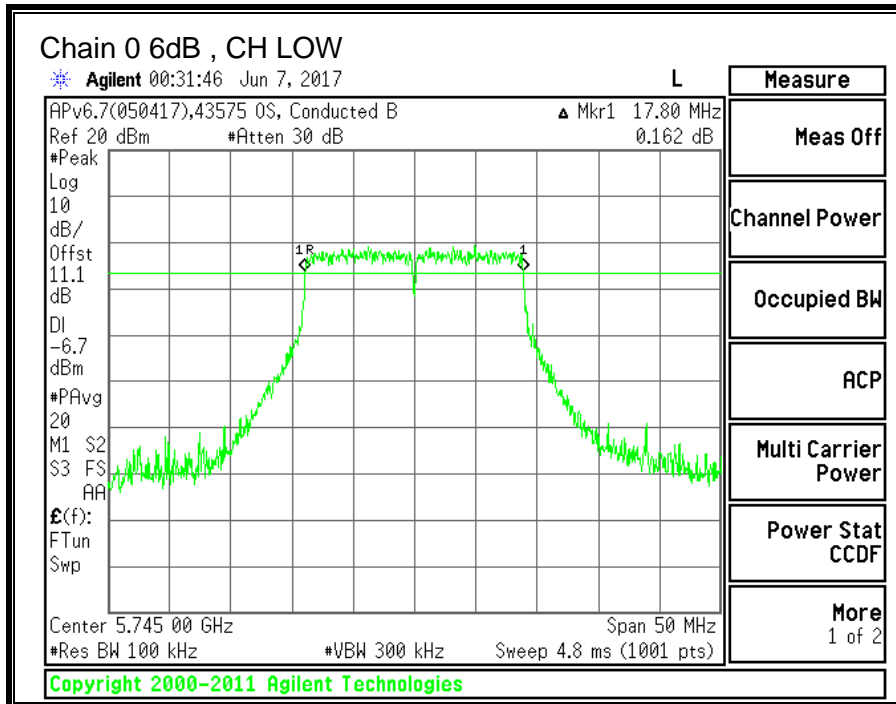
LIMITS

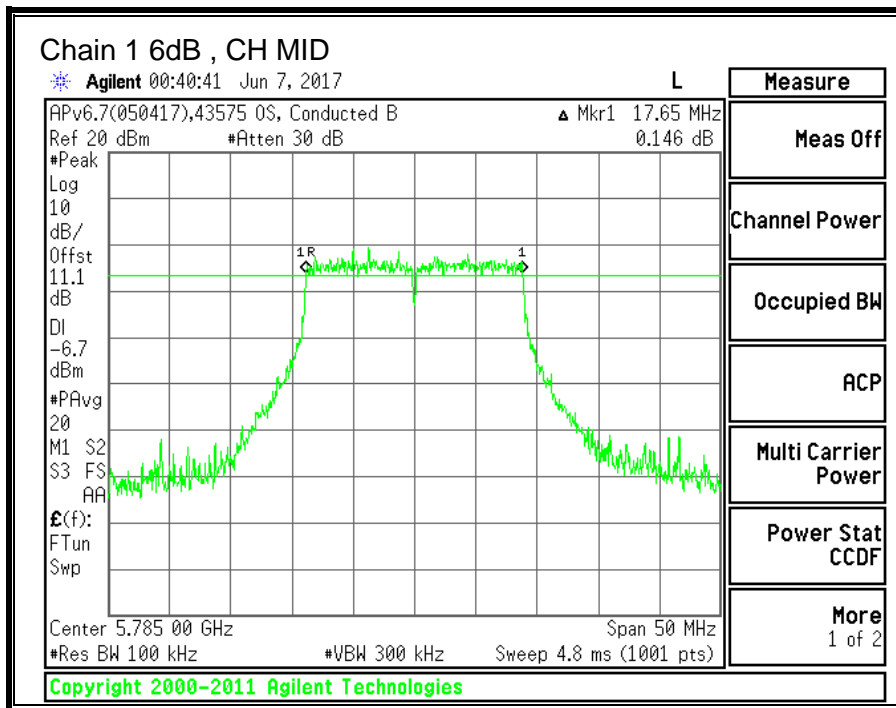
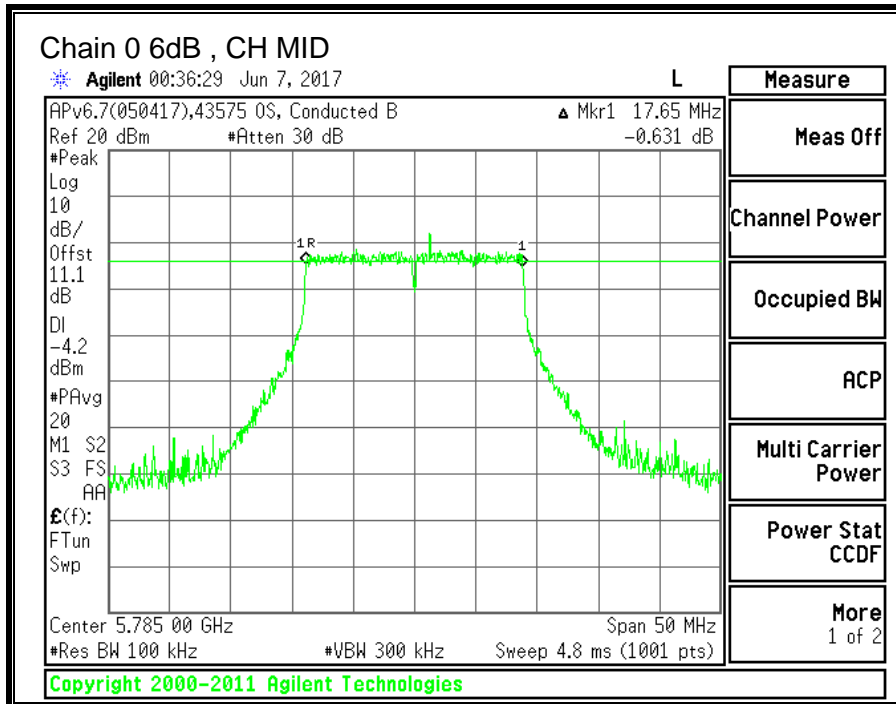
FCC §15.407 (e)

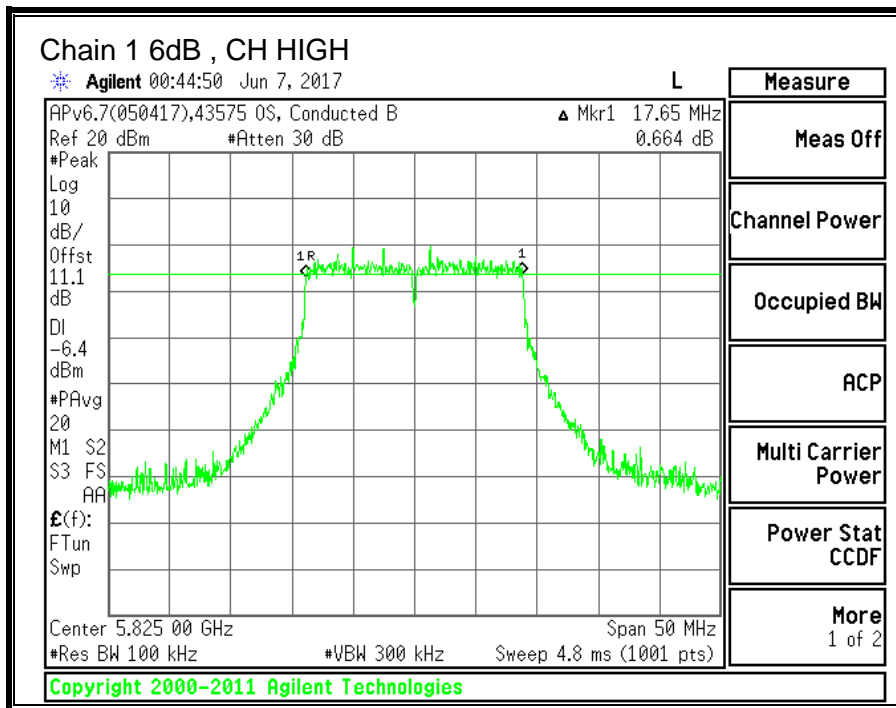
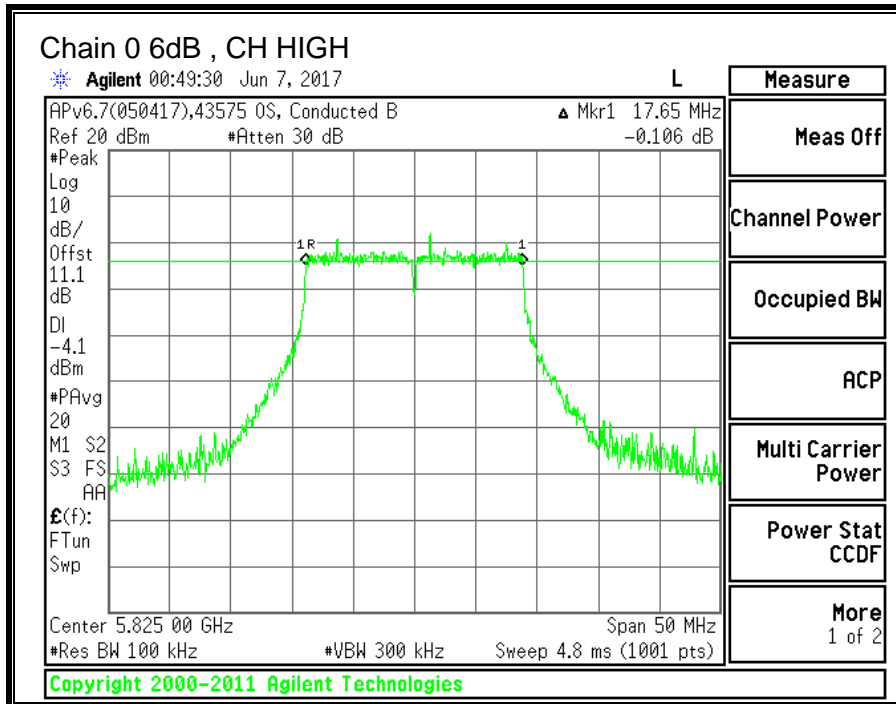
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

| Channel | Frequency | 6 dB BW Chain 0 (MHz) | 6 dB BW Chain 1 (MHz) | Minimum Limit (MHz) |
|---------|-----------|-----------------------|-----------------------|---------------------|
| Low | 5745 | 17.80 | 17.70 | 0.5 |
| Mid | 5785 | 17.65 | 17.65 | 0.5 |
| High | 5825 | 17.65 | 17.65 | 0.5 |







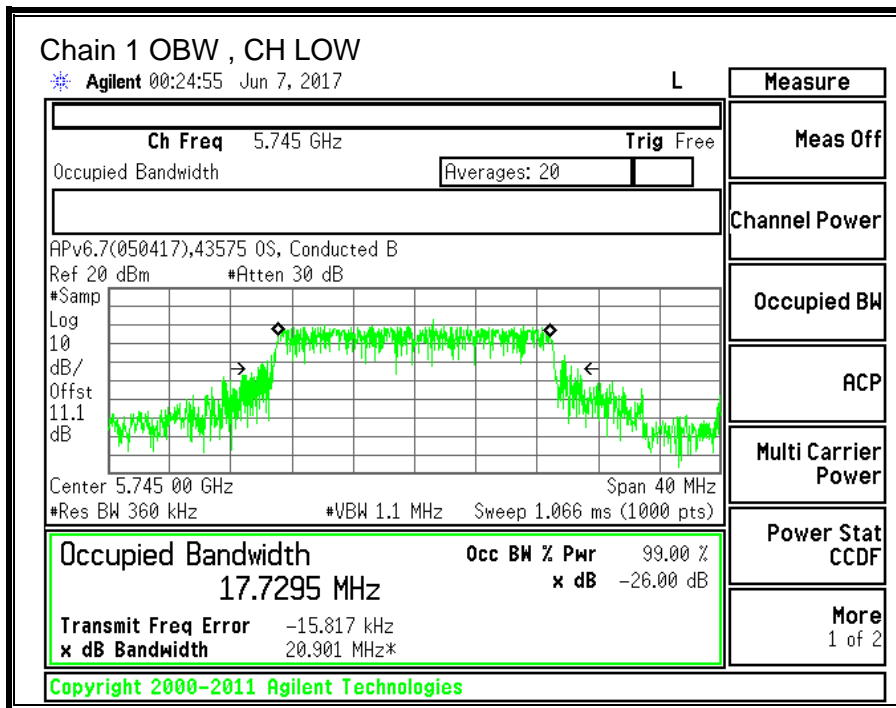
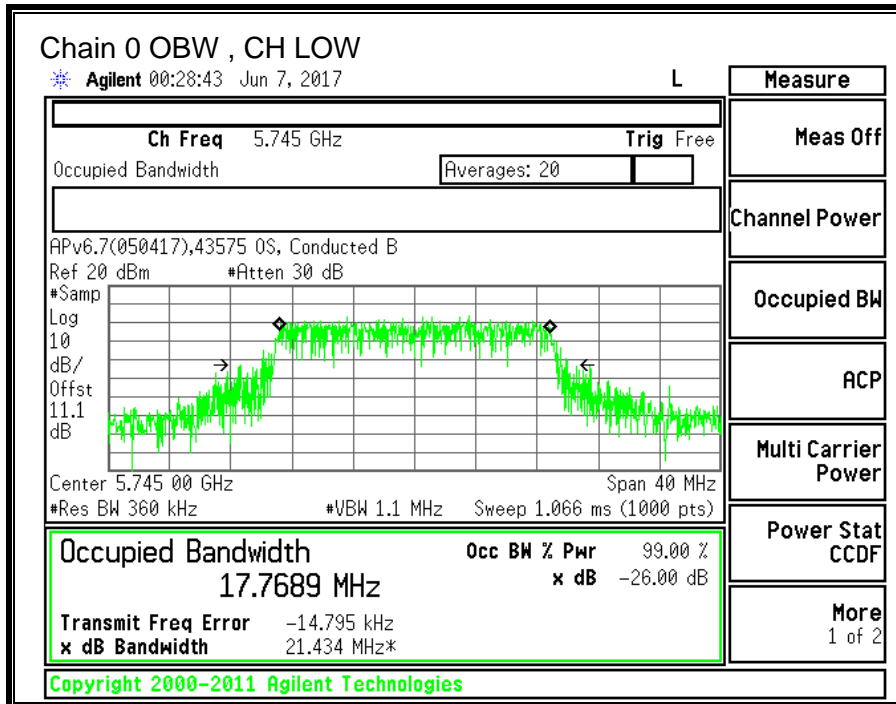
10.14.2. 99% BANDWIDTH

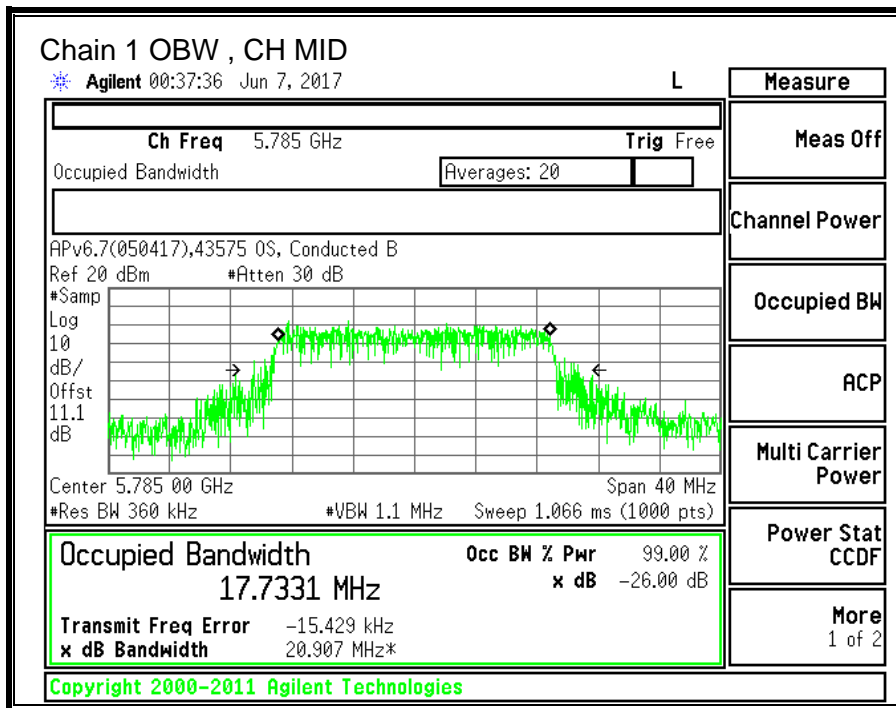
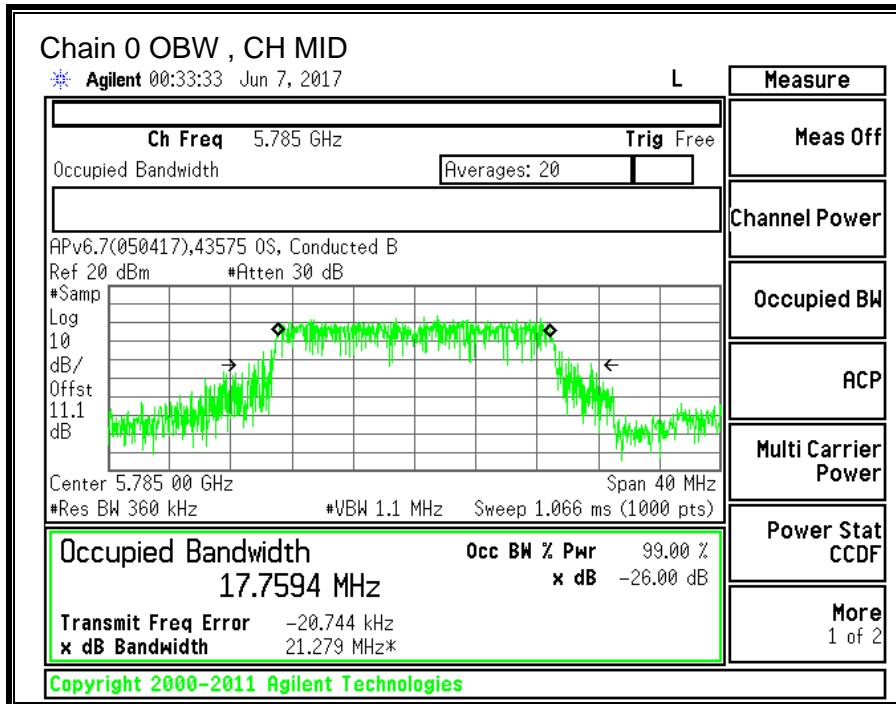
LIMITS

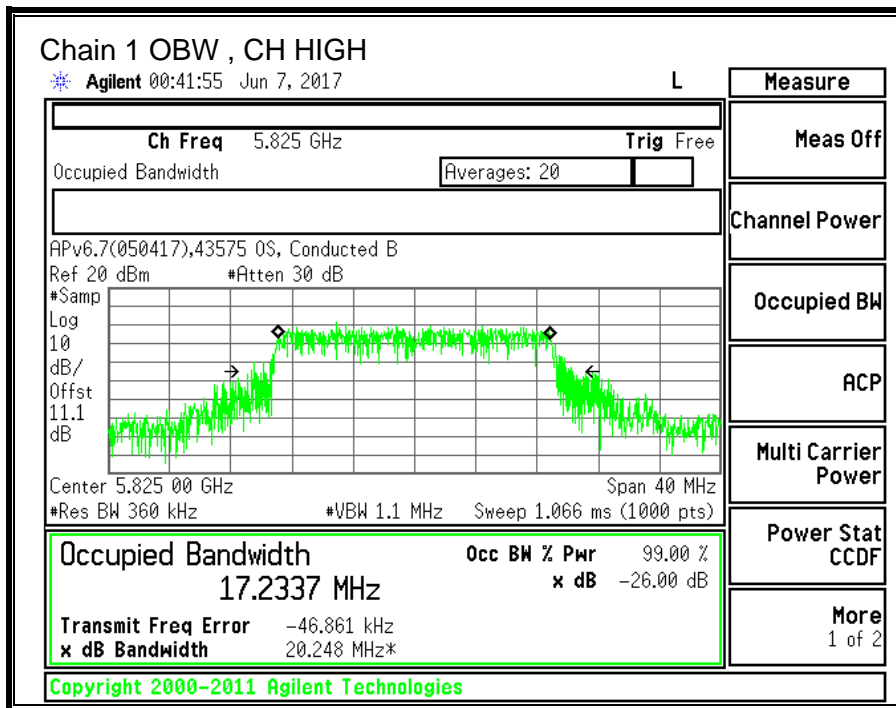
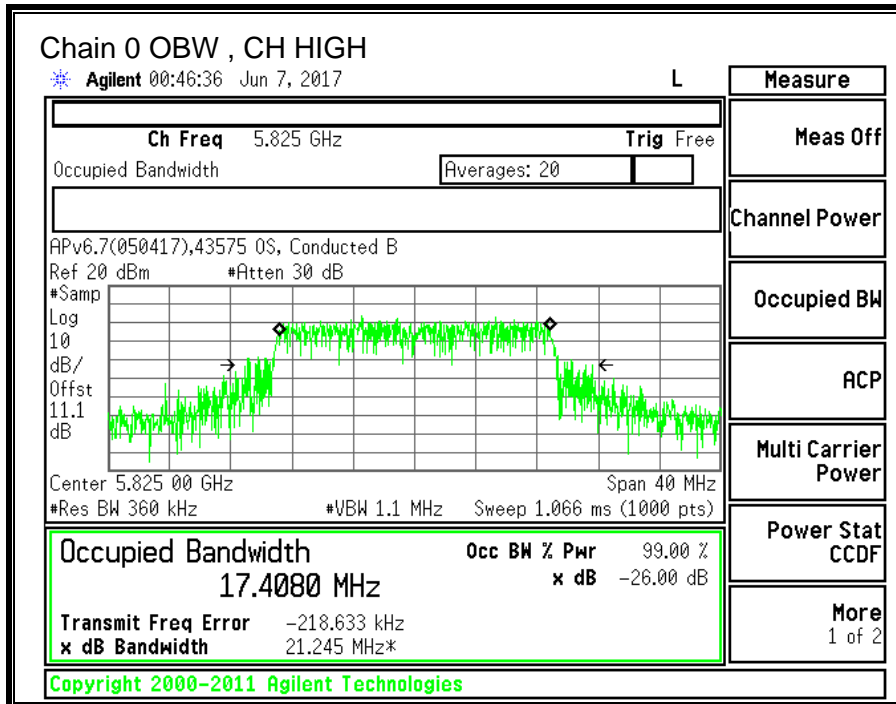
None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|----------------|------------------|-------------------------------------|-------------------------------------|
| Low | 5745 | 17.769 | 17.729 |
| Mid | 5785 | 17.759 | 17.733 |
| High | 5825 | 17.408 | 17.234 |







10.14.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

5725-5850 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -3.50 | -8.40 | -5.29 |

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

5725-5850 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Correlated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -3.50 | -8.40 | -2.60 |

RESULTS

| | | | |
|------------|-------|--------------|----------|
| ID: | 43574 | Date: | 06/06/17 |
|------------|-------|--------------|----------|

Antenna Gain and Limit

| Channel | Frequency (MHz) | Directional Gain for Power (dBi) | Directional Gain for PSD (dBi) | Power Limit (dBm) | Power Limit (dBm) |
|---------|-----------------|----------------------------------|--------------------------------|-------------------|-------------------|
| Low | 5745 | -5.29 | -2.60 | 30.00 | 30.00 |
| Mid | 5785 | -5.29 | -2.60 | 30.00 | 30.00 |
| High | 5825 | -5.29 | -2.60 | 30.00 | 30.00 |

| | | |
|---------------------------|------|---|
| Duty Cycle CF (dB) | 0.20 | Included in Calculations of Corr'd PSD |
|---------------------------|------|---|

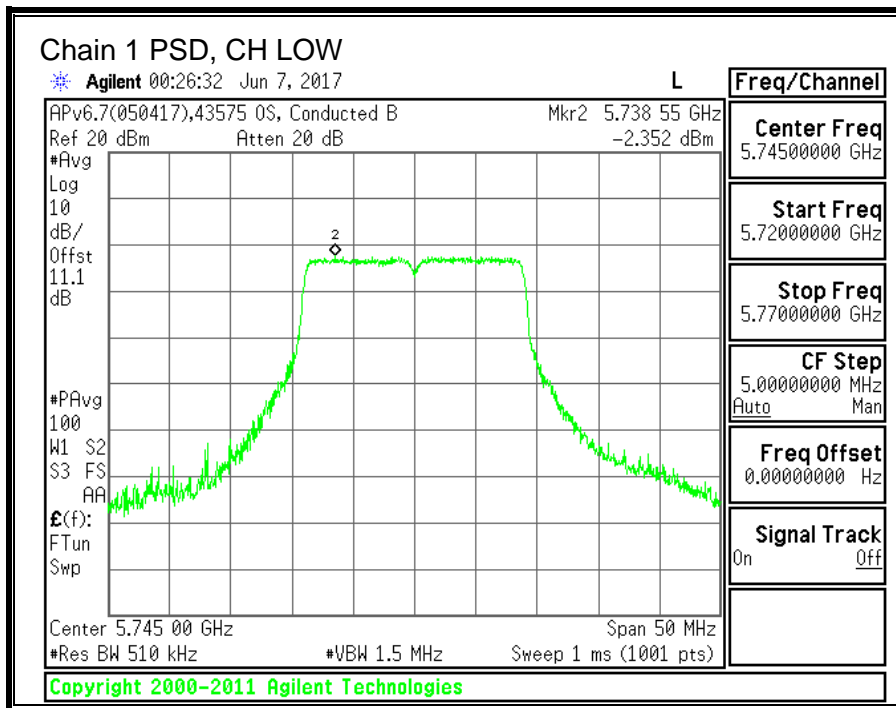
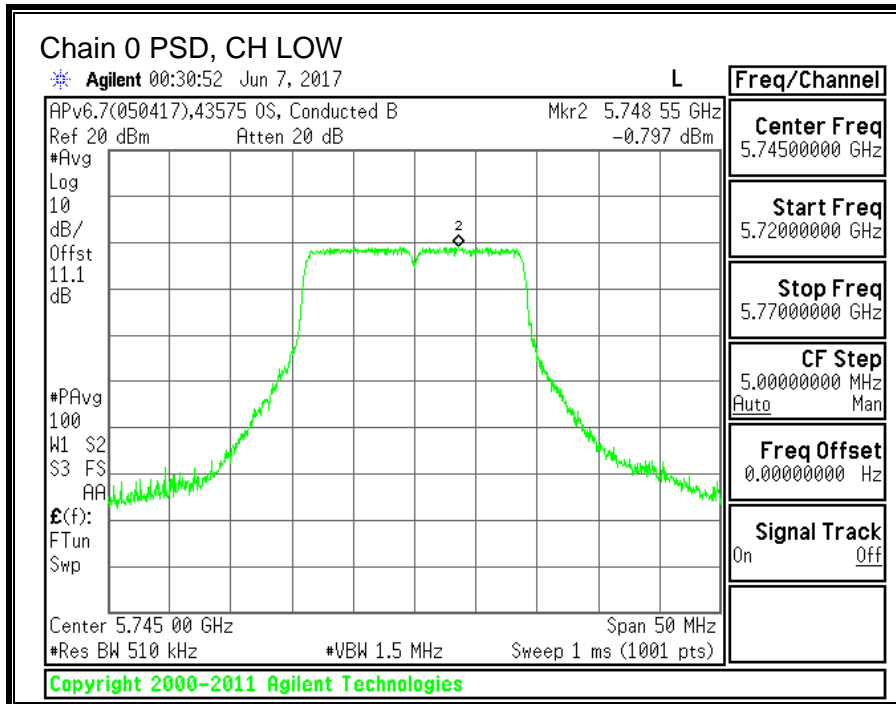
Output Power Results

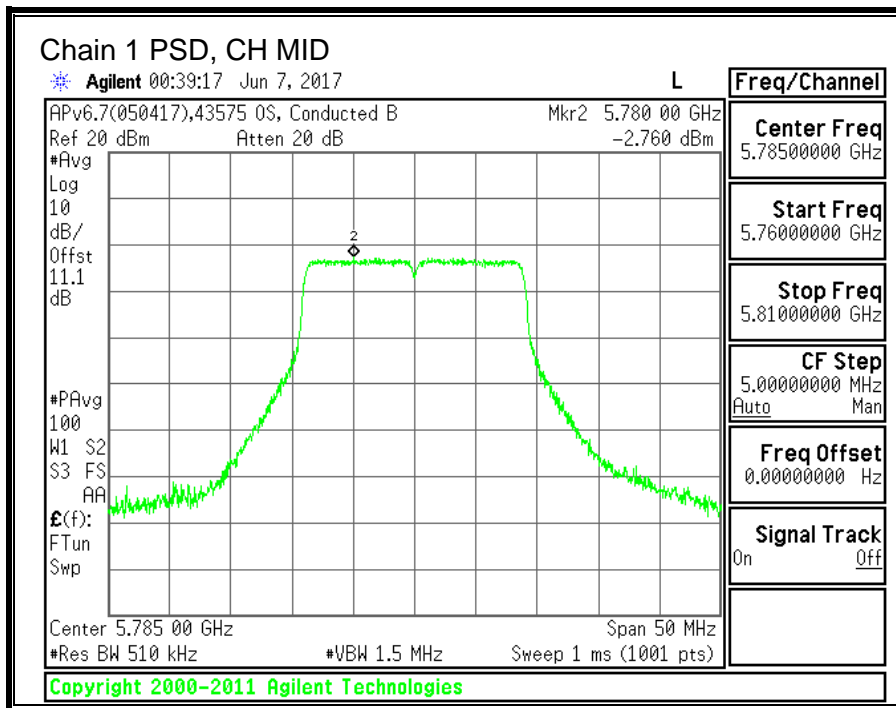
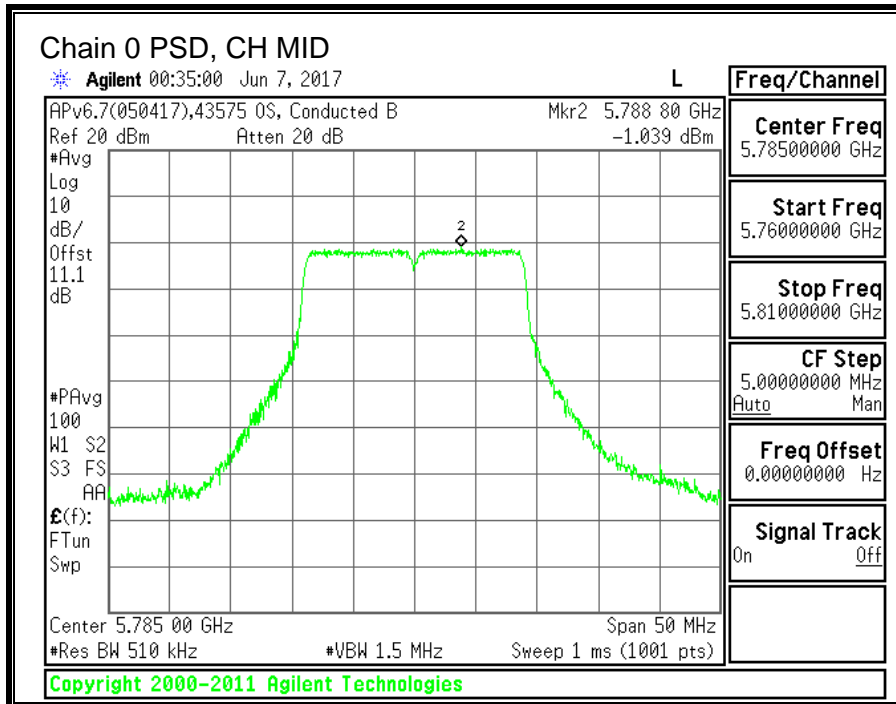
| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|-----------------|--------------------------|--------------------------|--------------------------|-------------------|-------------------|
| Low | 5745 | 13.18 | 11.62 | 15.48 | 30.00 | -14.52 |
| Mid | 5785 | 13.33 | 11.53 | 15.53 | 30.00 | -14.47 |
| High | 5825 | 13.12 | 11.07 | 15.23 | 30.00 | -14.77 |

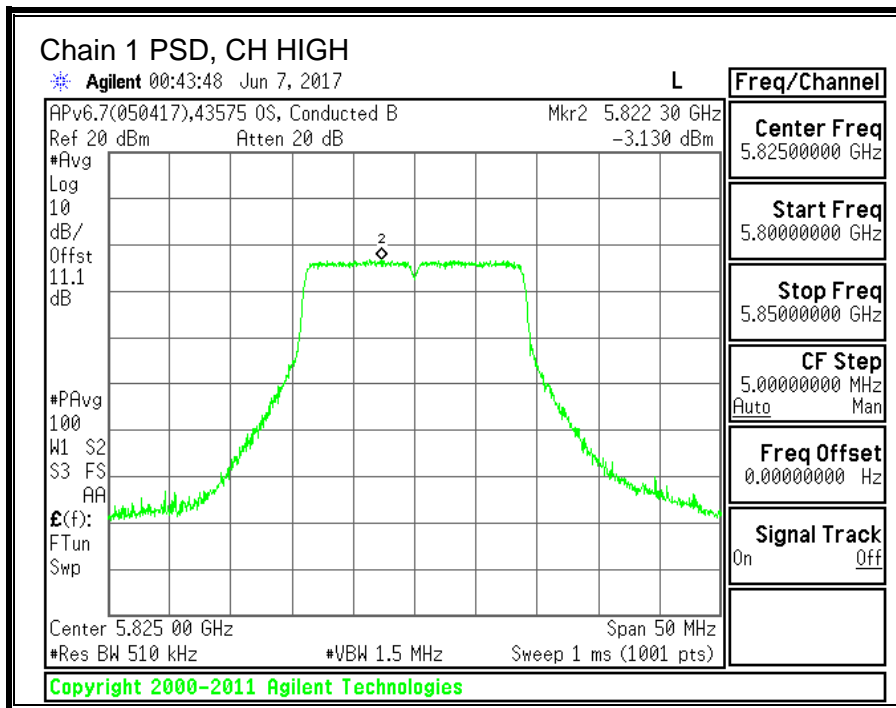
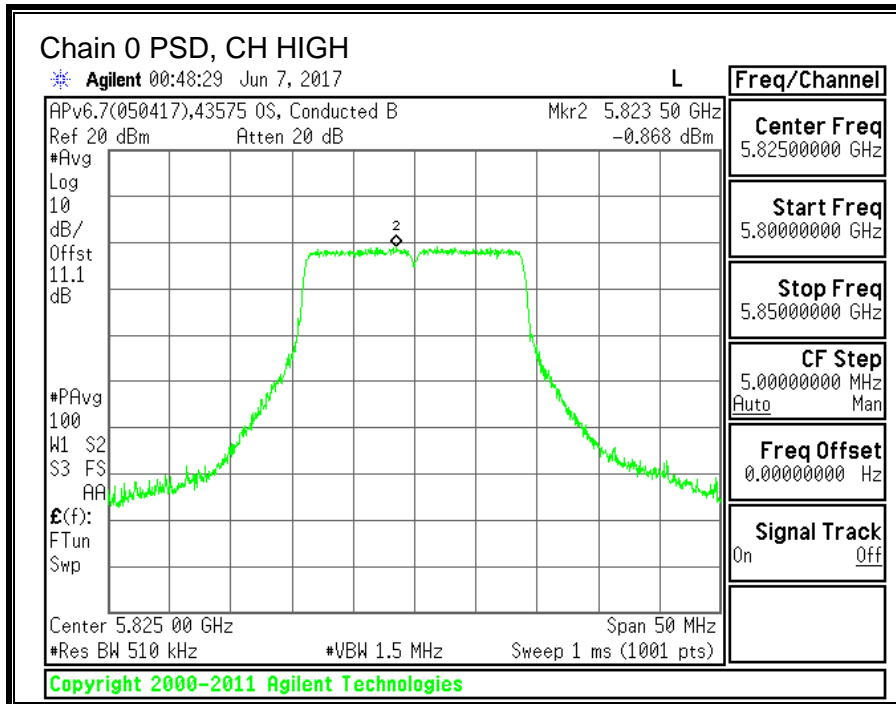
PSD Results

| 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 | 5745 | -0.797 | -2.352 | 1.71 | 30.00 | -28.29 |
| Mid | 5785 | -1.039 | -2.760 | 1.40 | 30.00 | -28.60 |
| High | 5825 | -0.868 | -3.130 | 1.36 | 30.00 | -28.64 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.







10.15. 11n HT40 2TX CDD MIMO MODE IN THE 5.8GHz BAND

10.15.1.6 dB BANDWIDTH

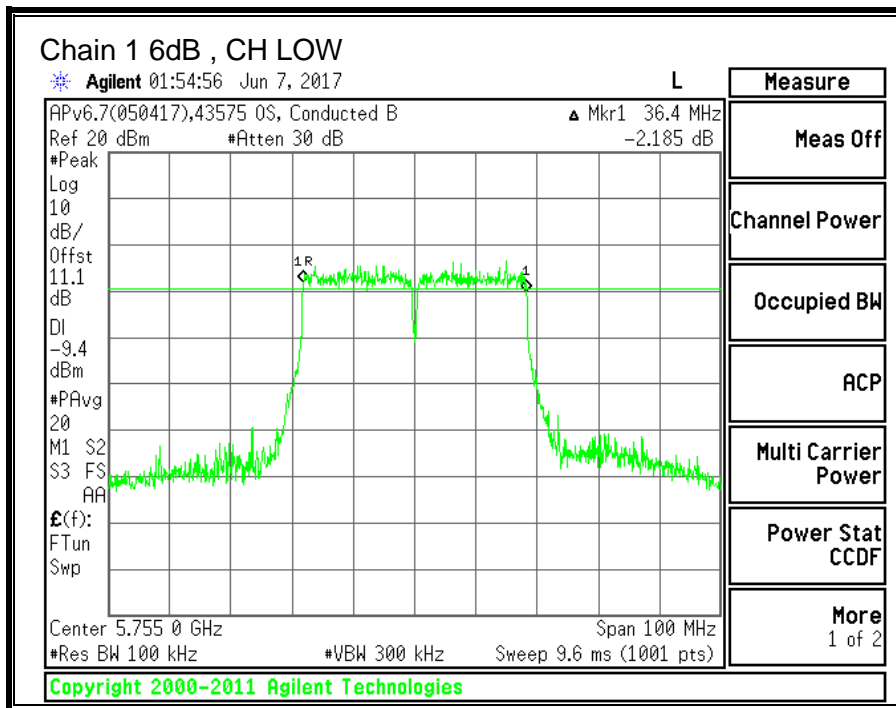
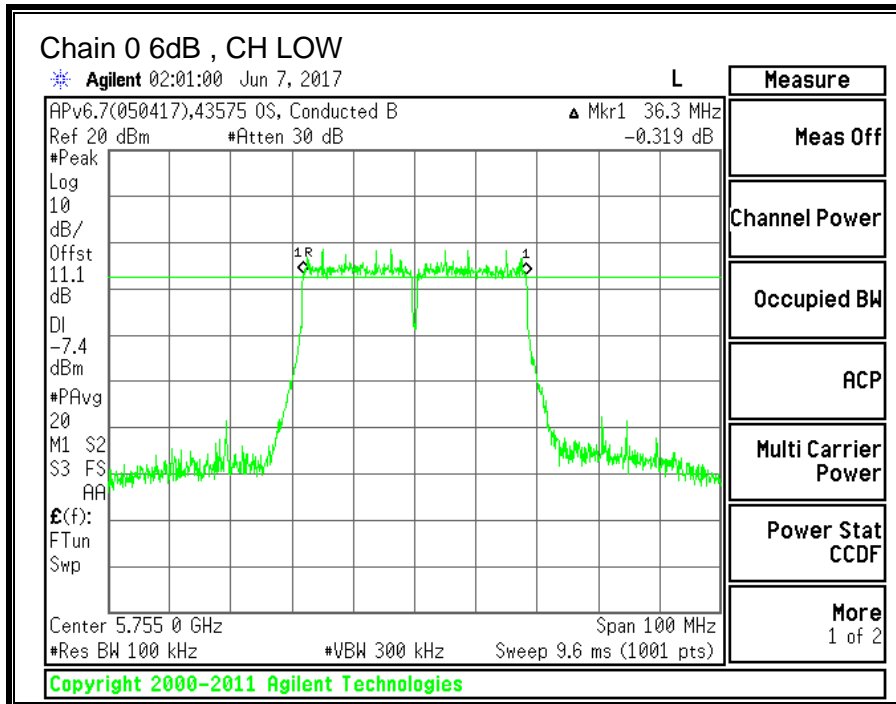
LIMITS

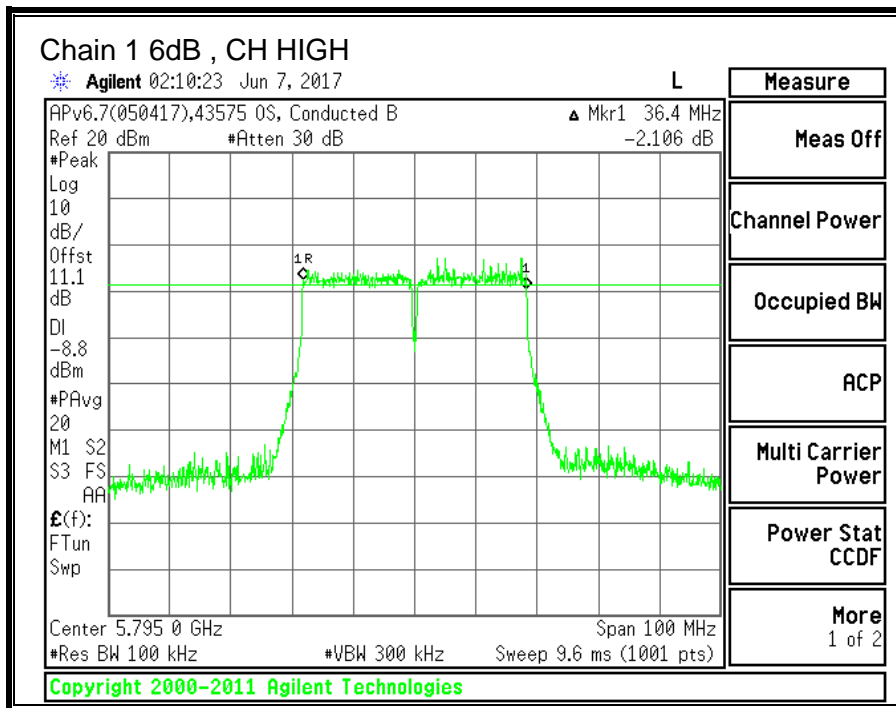
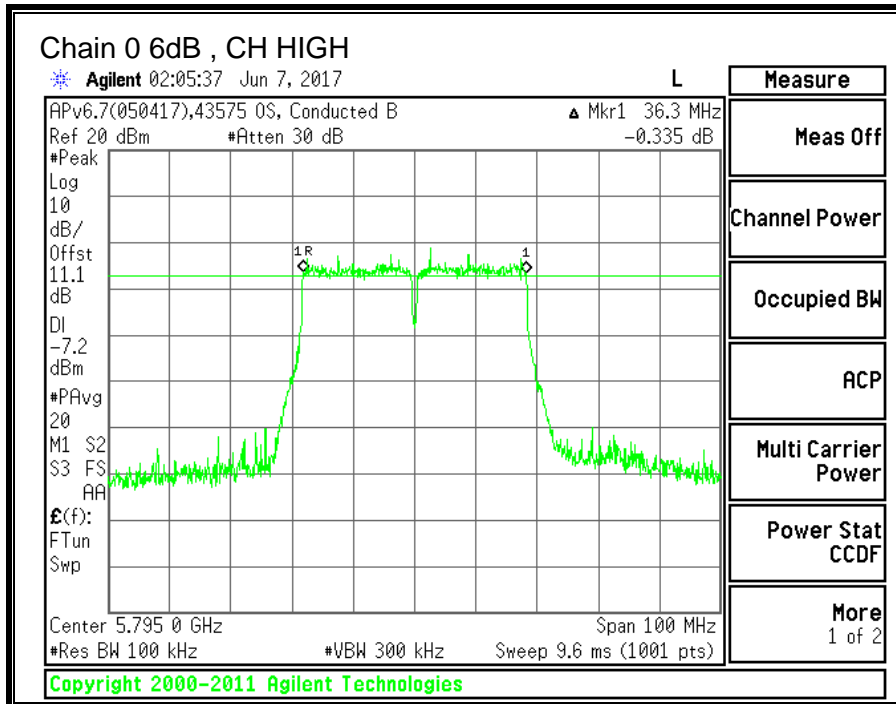
FCC §15.407 (e)

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

| Channel | Frequency | 6 dB BW Chain 0 (MHz) | 6 dB BW Chain 1 (MHz) | Minimum Limit (MHz) |
|---------|-----------|-----------------------|-----------------------|---------------------|
| Low | 5755 | 36.3 | 36.4 | 0.5 |
| High | 5795 | 36.3 | 36.4 | 0.5 |





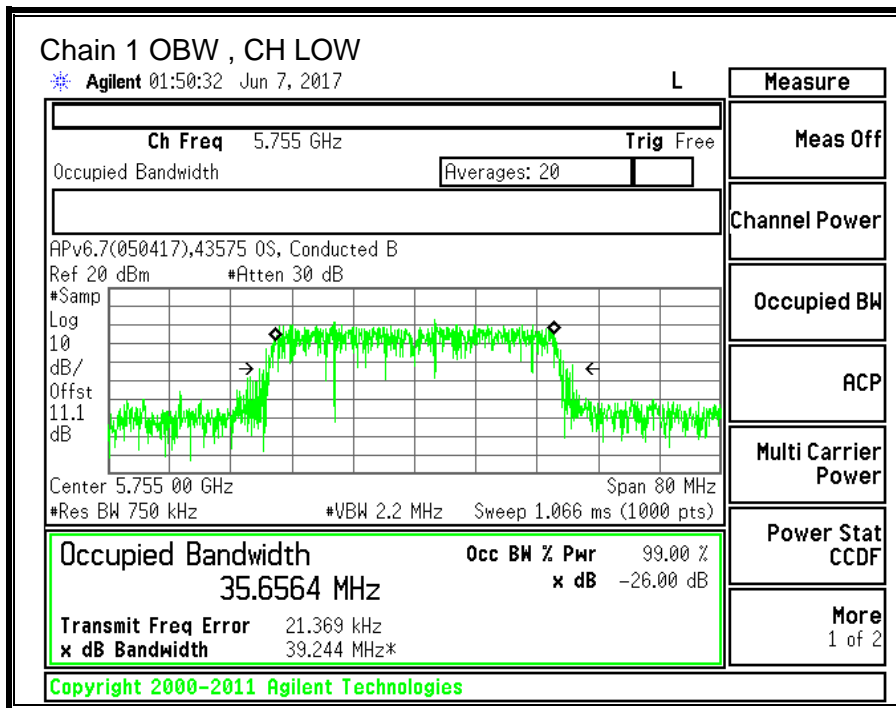
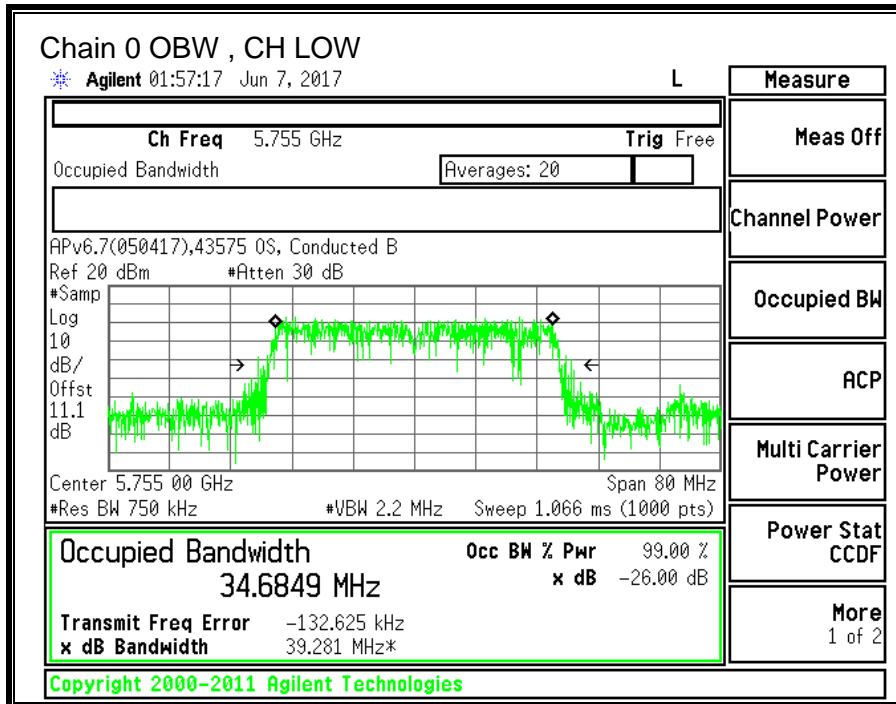
10.15.2. 99% BANDWIDTH

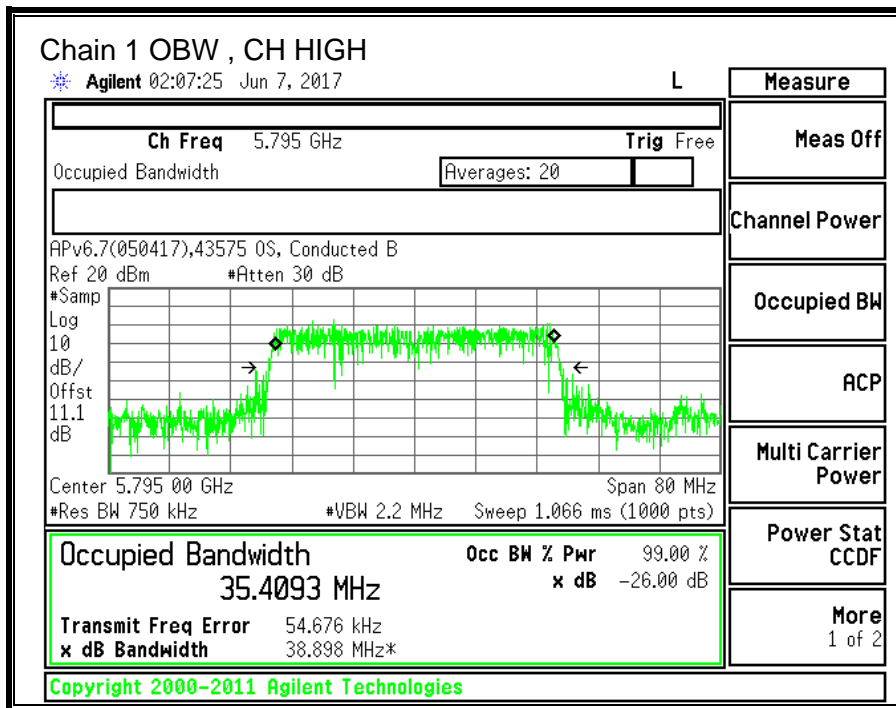
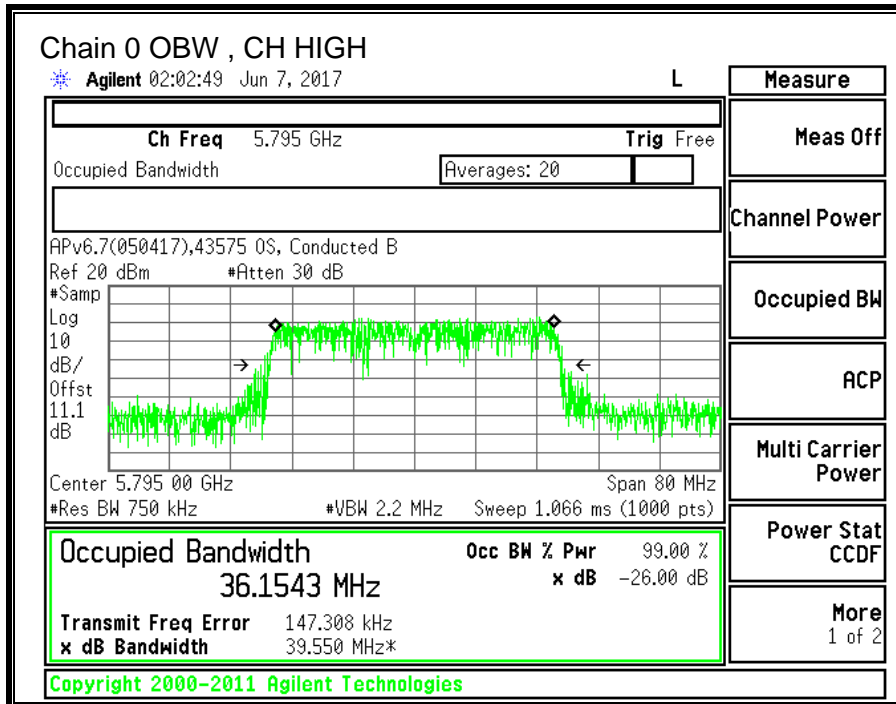
LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|----------------|------------------|-------------------------------------|-------------------------------------|
| Low | 5755 | 34.685 | 35.656 |
| High | 5795 | 36.154 | 35.409 |





10.15.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

5725-5850 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -3.50 | -8.40 | -5.29 |

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

5725-5850 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Correlated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -3.50 | -8.40 | -2.60 |

RESULTS

| | | | |
|------------|-------|--------------|----------|
| ID: | 43574 | Date: | 06/06/17 |
|------------|-------|--------------|----------|

Antenna Gain and Limit

| Channel | Frequency (MHz) | Directional Gain For Power (dBi) | Directional Gain For PSD (dBi) | Power Limit (dBm) | Power Limit (dBm) |
|---------|--------------------|---|---|-------------------------|-------------------------|
| Low | 5755 | -5.29 | -2.60 | 30.00 | 30.00 |
| High | 5795 | -5.29 | -2.60 | 30.00 | 30.00 |

| | | |
|---------------------------|------|---|
| Duty Cycle CF (dB) | 0.40 | Included in Calculations of Corr'd PSD |
|---------------------------|------|---|

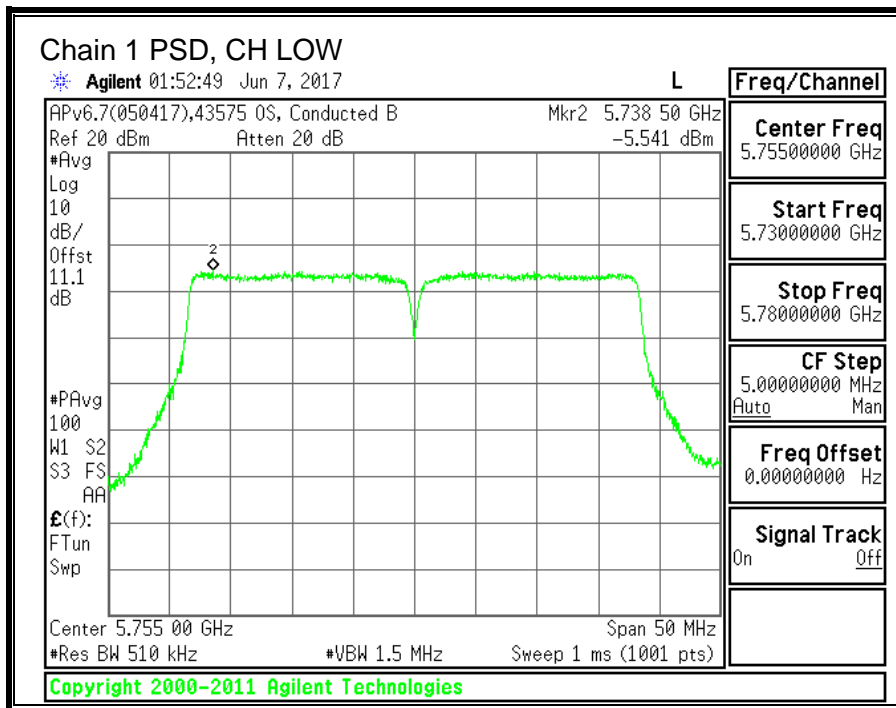
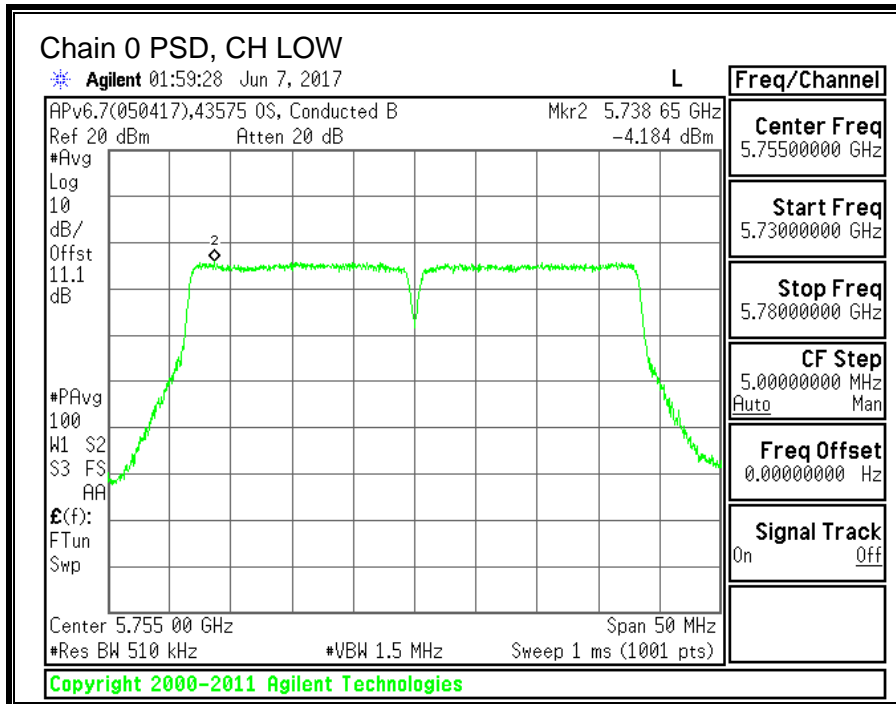
Output Power Results

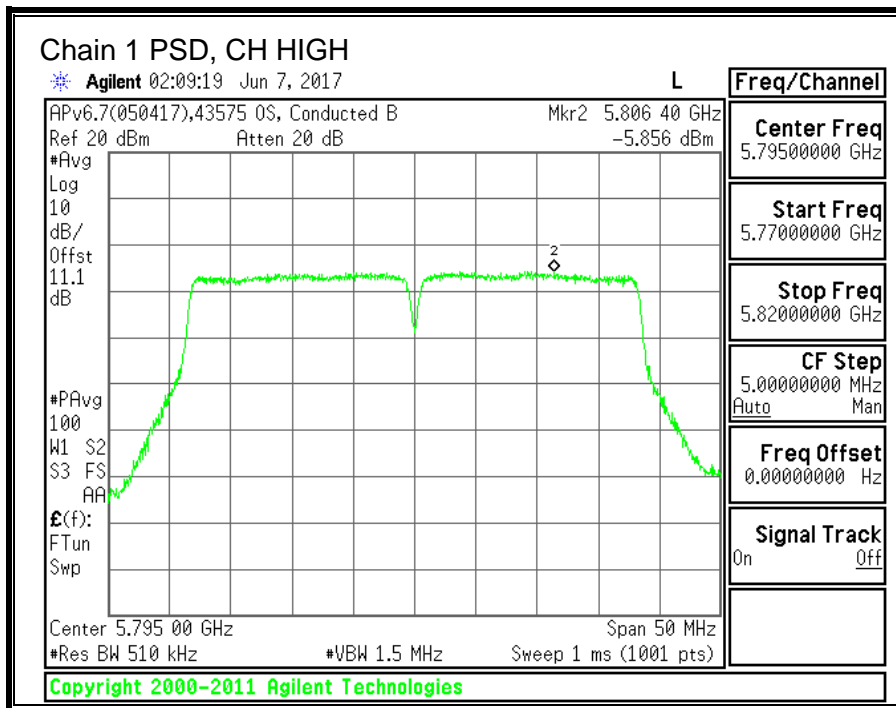
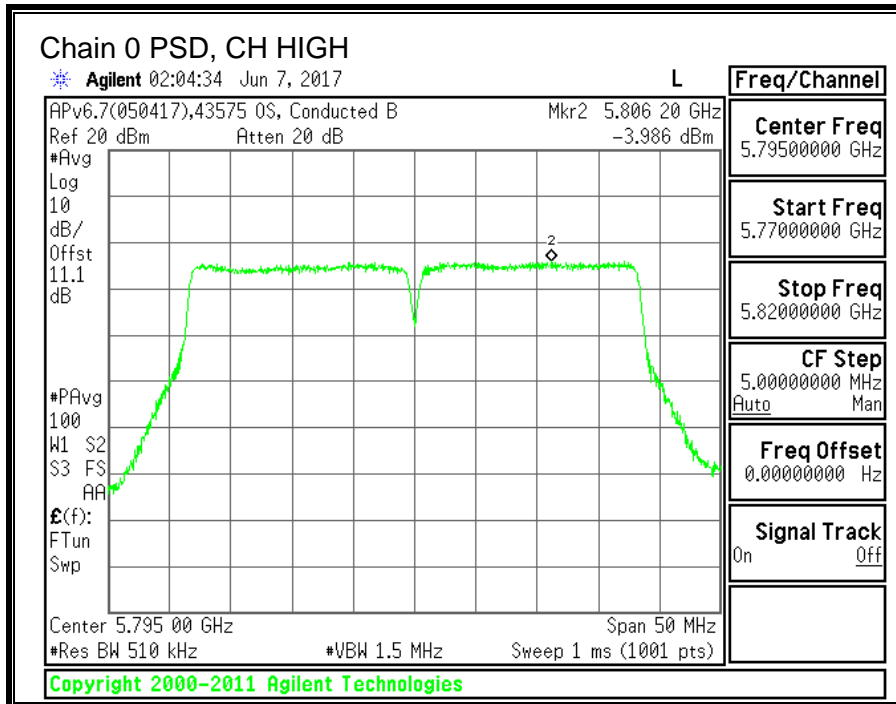
| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low | 5755 | 13.17 | 11.59 | 15.46 | 30.00 | -14.54 |
| High | 5795 | 13.26 | 11.51 | 15.48 | 30.00 | -14.52 |

Output Power 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 | 5755 | -4.184 | -5.541 | -1.40 | 30.00 | -31.40 |
| High | 5795 | -3.986 | -5.856 | -1.41 | 30.00 | -31.41 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.





10.16. 11ac HT80 2TX CDD MIMO MODE IN THE 5.8GHz BAND

10.16.1.6 dB BANDWIDTH

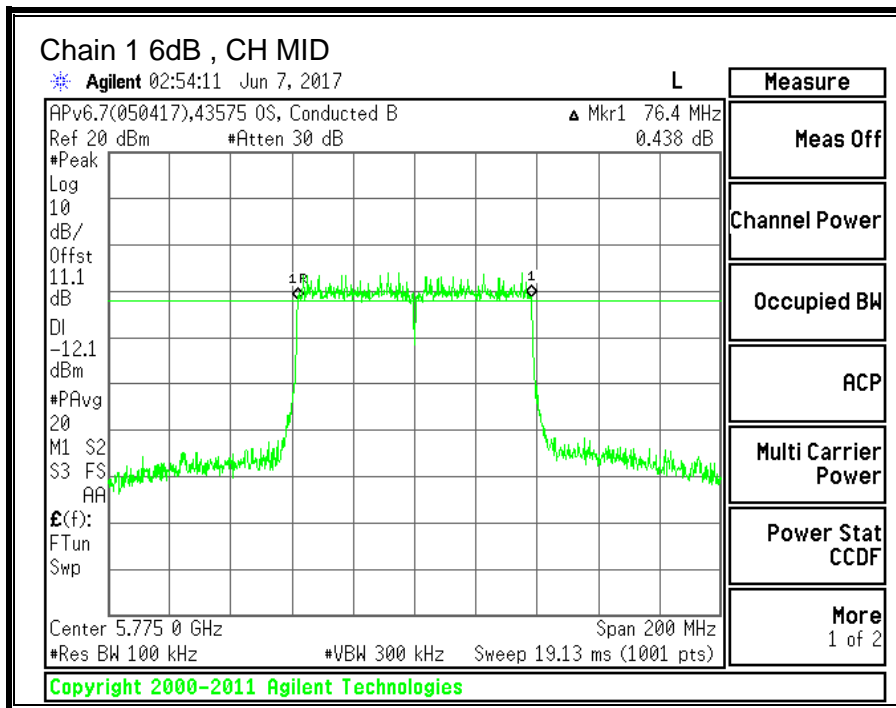
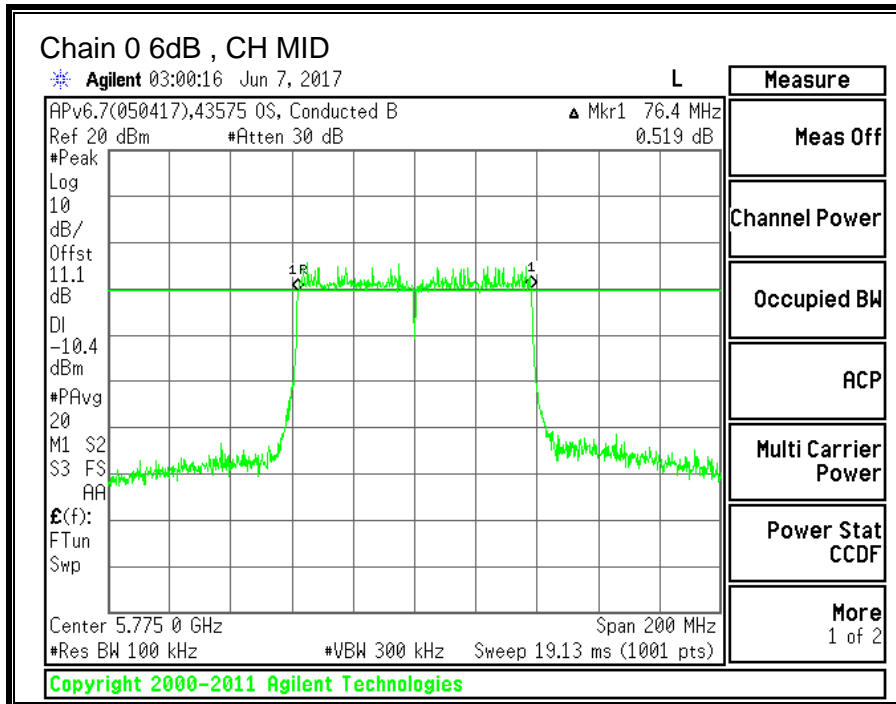
LIMITS

FCC §15.407 (e)

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

| Channel | Frequency | 6 dB BW Chain 0 (MHz) | 6 dB BW Chain 1 (MHz) | Minimum Limit (MHz) |
|----------------|------------------|--------------------------------------|--------------------------------------|--------------------------------|
| Mid | 5775 | 76.4 | 76.4 | 0.5 |



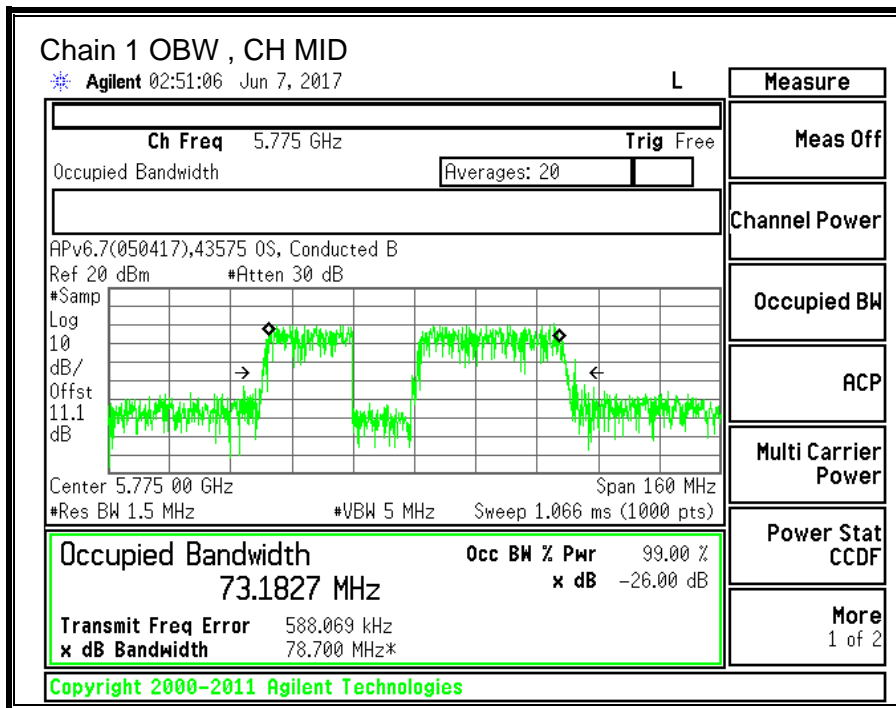
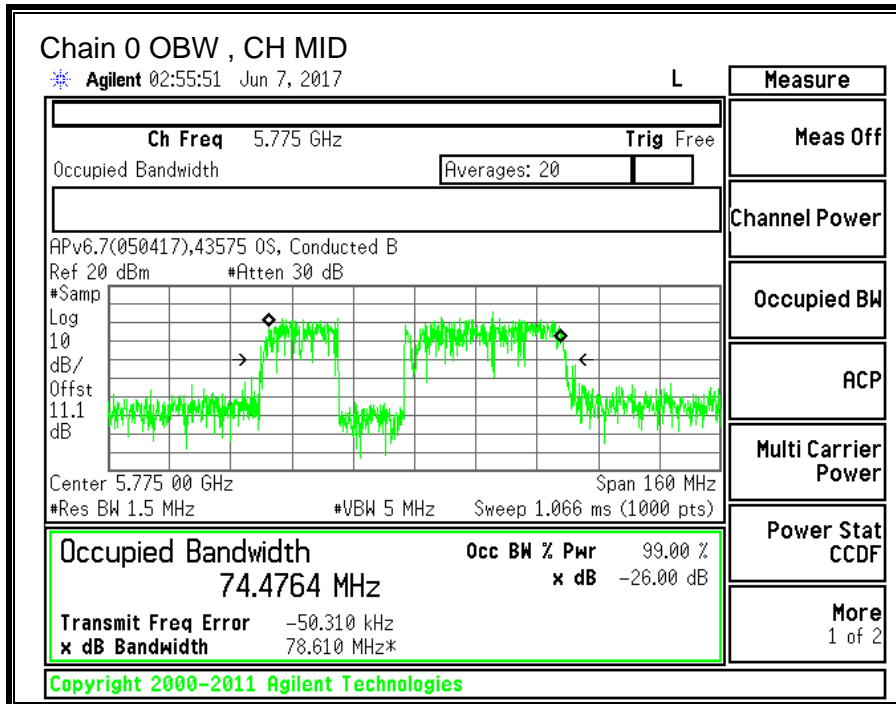
10.16.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

| Channel | Frequency | 99% BW Chain 0 (MHz) | 99% BW Chain 1 (MHz) |
|----------------|------------------|-------------------------------------|-------------------------------------|
| Mid | 5775 | 74.476 | 73.183 |



10.16.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

5725-5850 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -3.50 | -8.40 | -5.29 |

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

5725-5850 MHz

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Correlated Chains Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|---|
| -3.50 | -8.40 | -2.60 |

RESULTS

| | | | |
|------------|-------|--------------|----------|
| ID: | 43574 | Date: | 06/06/17 |
|------------|-------|--------------|----------|

Antenna Gain and Limit

| Channel | Frequency (MHz) | Directional Gain for Power (dBi) | Power Limit for PSD (dBi) | Power Limit (dBm) | PSD Limit (dBm) |
|---------|--------------------|---|------------------------------------|-------------------------|-----------------------|
| Mid | 5775 | -5.29 | -2.60 | 30.00 | 30.00 |

| | | |
|---------------------------|------|---|
| Duty Cycle CF (dB) | 0.75 | Included in Calculations of Corr'd PSD |
|---------------------------|------|---|

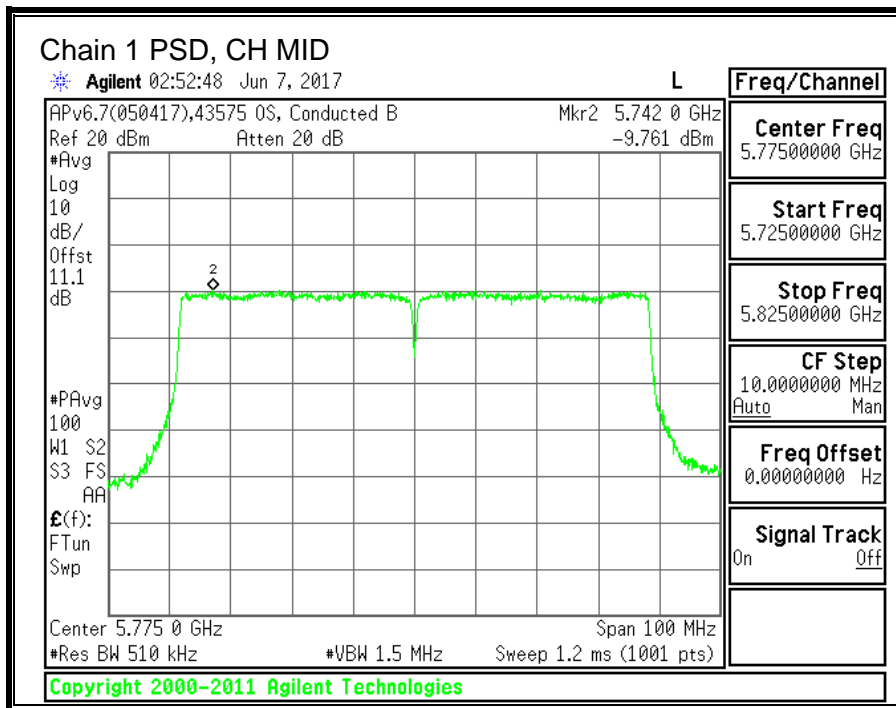
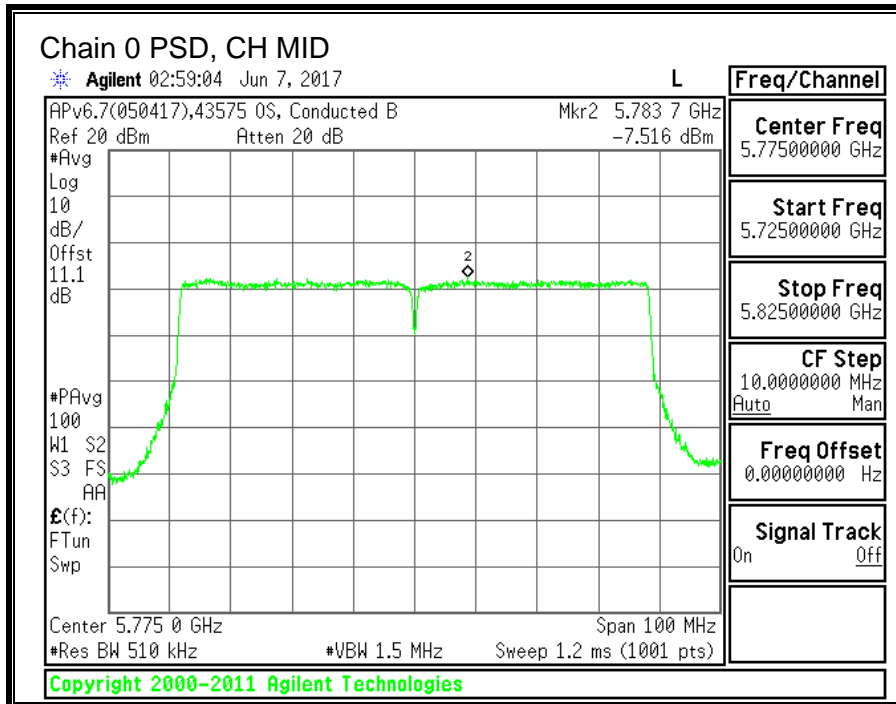
Output Power Results

| 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 | 5775 | 12.93 | 11.47 | 15.27 | 30.00 | -14.73 |

PSD 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 | 5775 | -7.516 | -9.761 | -4.73 | 30.00 | -34.73 |

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.



11. RADIATED TEST RESULTS

11.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

| 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 for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

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 pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements.

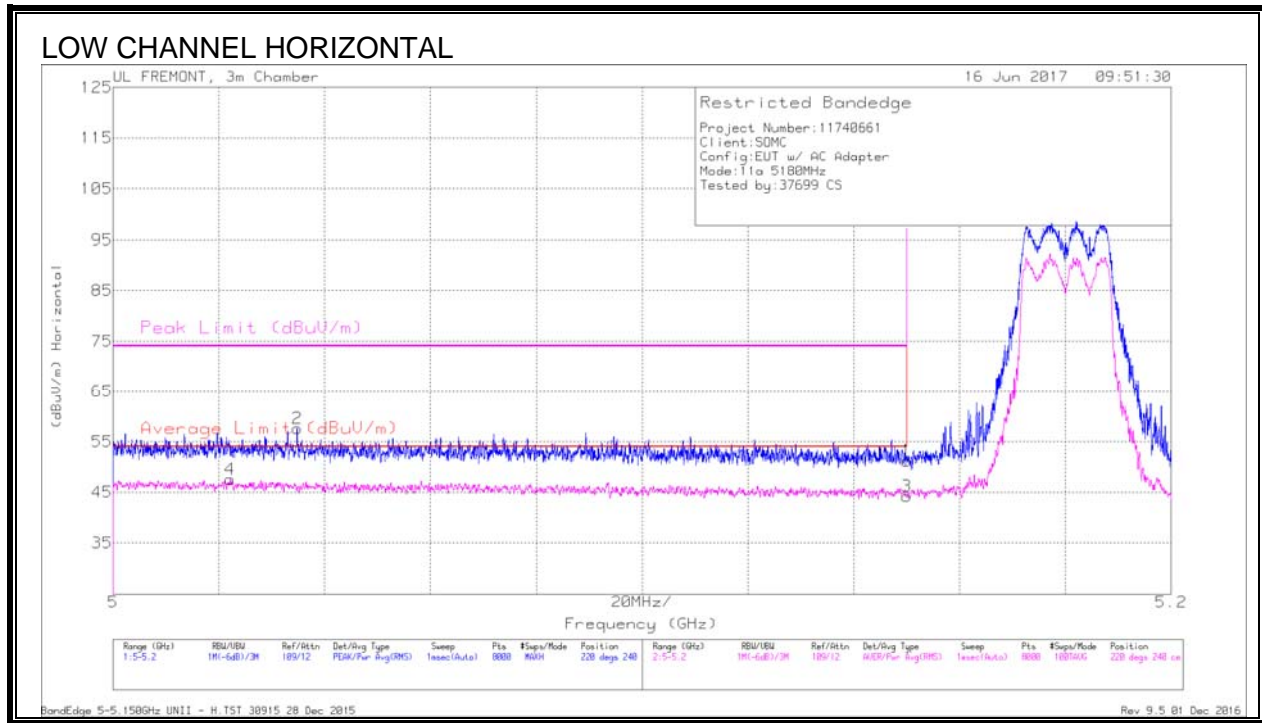
The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest output power was tested.

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.

Radiated emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

11.1.1. 11a 2TX CDD MIMO MODE IN THE 5.2GHZ BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



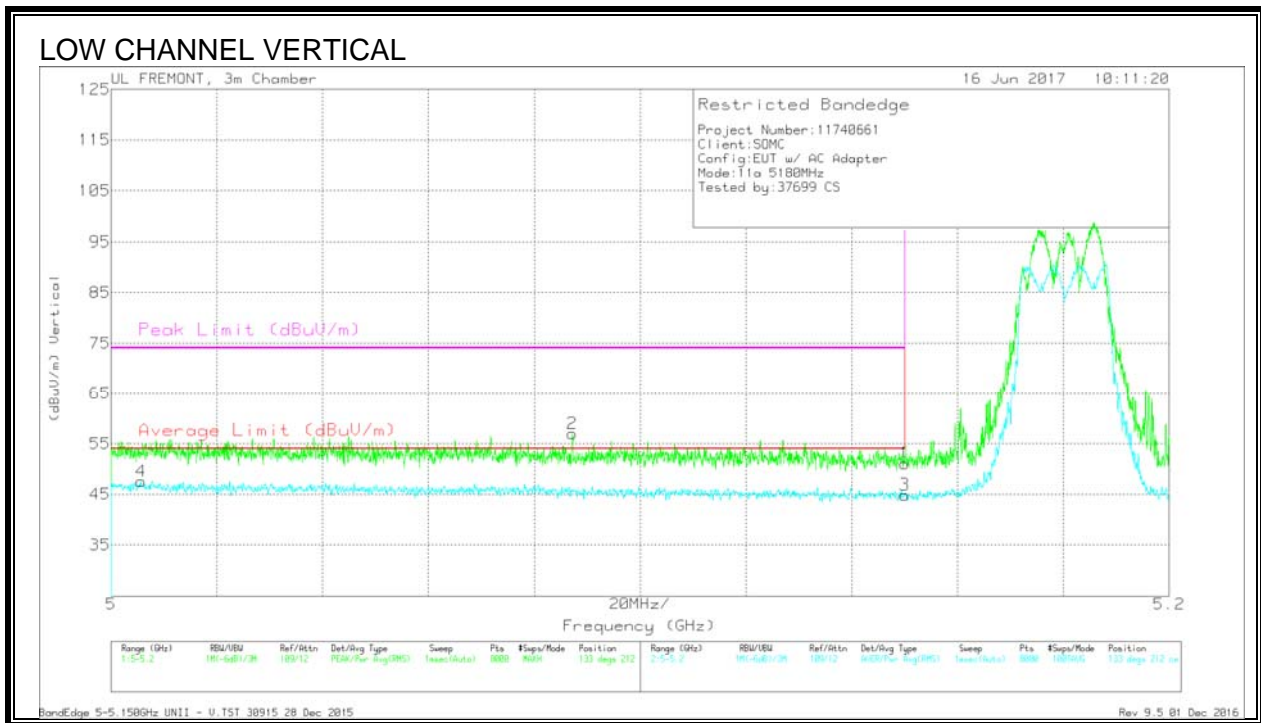
Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T712 (dB/m) | Amp/Cb/Ftr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|---------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 4 | 5.022 | 32.52 | RMS | 34.1 | -19.3 | .24 | 47.57 | 54 | -6.43 | - | - | 220 | 240 | H |
| 2 | 5.035 | 42.66 | Pk | 34.1 | -19.2 | 0 | 57.56 | - | - | 74 | -16.44 | 220 | 240 | H |
| 1 | 5.15 | 36.62 | Pk | 34.2 | -19.6 | 0 | 51.22 | - | - | 74 | -22.78 | 220 | 240 | H |
| 3 | 5.15 | 29.31 | RMS | 34.2 | -19.6 | .24 | 44.16 | 54 | -9.84 | - | - | 220 | 240 | H |

* - indicates frequency in CFR15.205/IC8.10 RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



Trace Markers

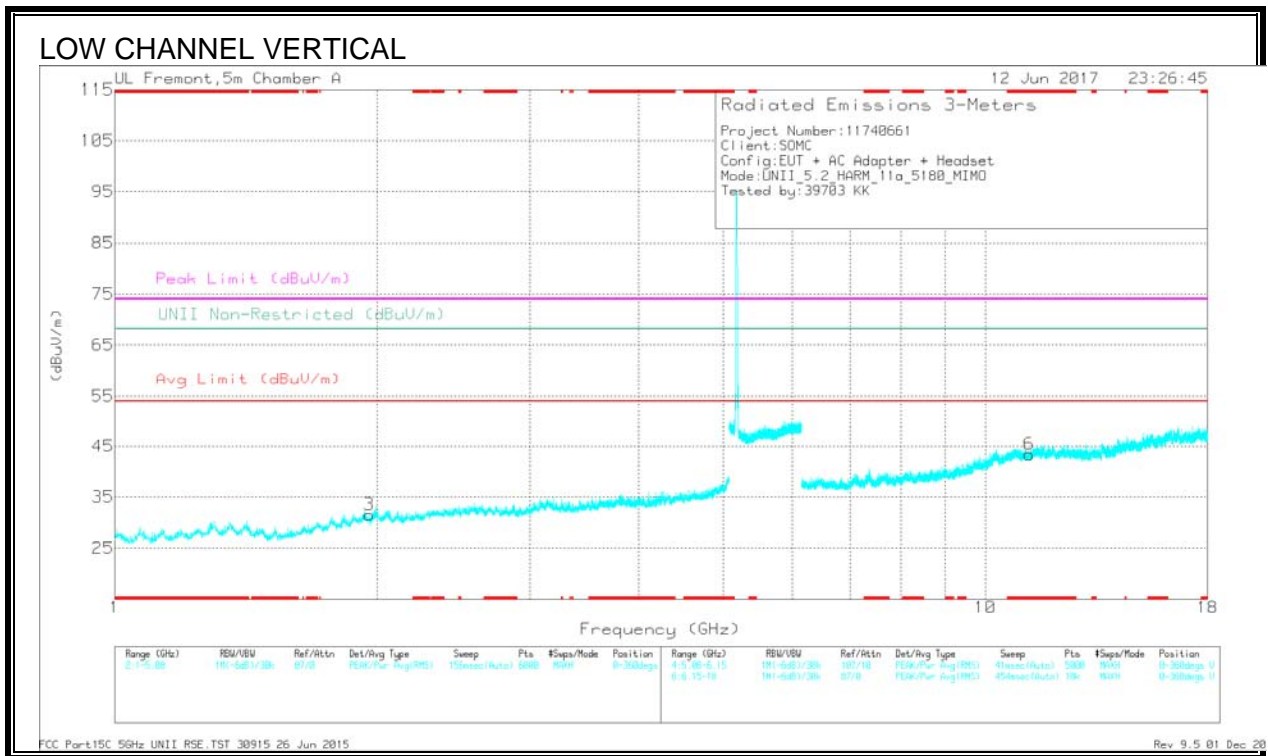
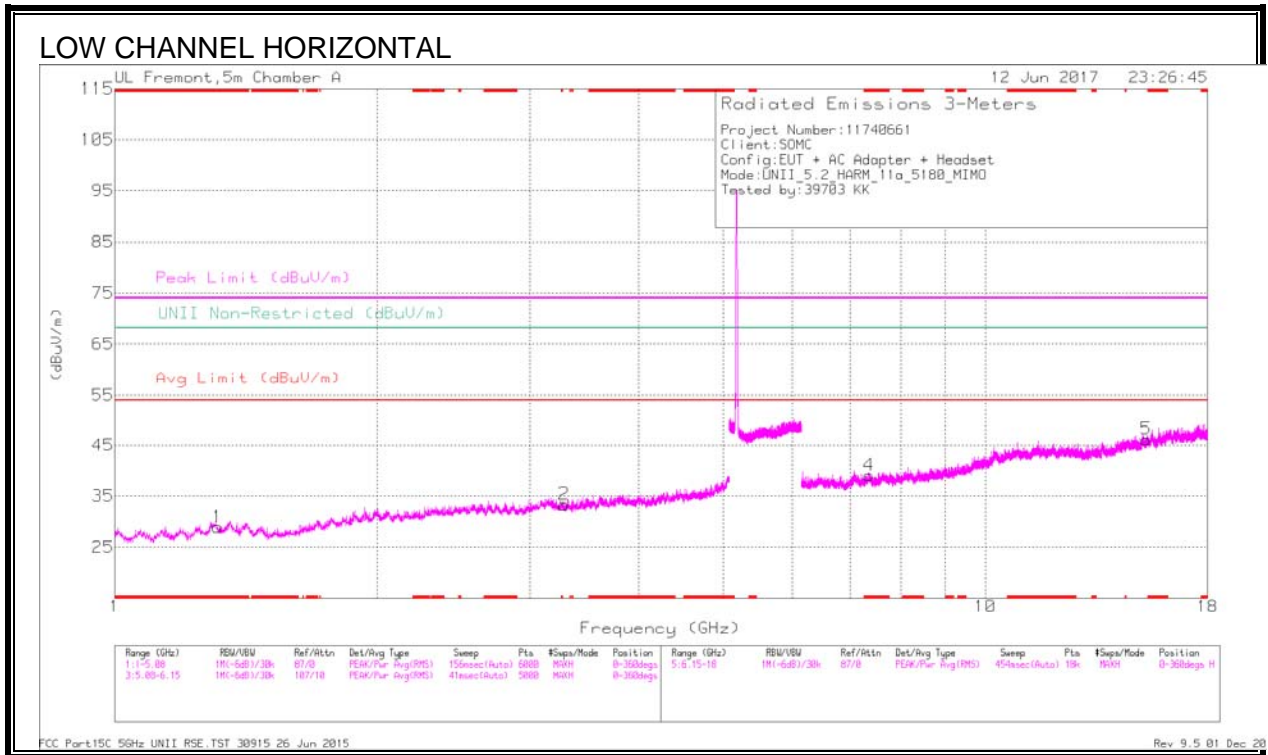
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AFT712 (dB/m) | Amp/Cb/Filt/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|----------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 4 | 5.006 | 32.36 | RMS | 34.1 | -19.1 | .24 | 47.61 | 54 | -6.39 | - | - | 133 | 212 | V |
| 2 | 5.087 | 42.16 | Pk | 34.1 | -19.3 | 0 | 56.96 | - | - | 74 | -17.04 | 133 | 212 | V |
| 1 | 5.15 | 36.5 | Pk | 34.2 | -19.6 | 0 | 51.1 | - | - | 74 | -22.9 | 133 | 212 | V |
| 3 | 5.15 | 30.04 | RMS | 34.2 | -19.6 | .24 | 44.89 | 54 | -9.11 | - | - | 133 | 212 | V |

* - indicates frequency in CFR15.205/IC8.10 RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS



Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T711 (dB/m) | Amp/CM/Ftr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | U/NII Non-Restricted (dBuV/m) | PK Margin (dB) | Altitude (Daps) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|---------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|-------------------------------|----------------|-----------------|-------------|----------|
| 1 | * 1.313 | 33.25 | Pk | 29.5 | -33.8 | 0 | 28.95 | - | - | 74 | -45.05 | - | - | 0-360 | 199 | H |
| 4 | * 7.351 | 26.77 | Pk | 35.5 | -23.2 | 0 | 39.07 | - | - | 74 | -34.93 | - | - | 0-360 | 199 | H |
| 6 | * 11.231 | 25.67 | Pk | 37.8 | -20.1 | 0 | 43.37 | - | - | 74 | -30.63 | - | - | 0-360 | 200 | V |
| 3 | 1.962 | 32.91 | Pk | 31.4 | -32.8 | 0 | 31.51 | - | - | - | - | 68.2 | -36.69 | 0-360 | 200 | V |
| 2 | 3.283 | 31.86 | Pk | 32.8 | -31.3 | 0 | 33.36 | - | - | - | - | 68.2 | -34.84 | 0-360 | 100 | H |
| 5 | 15.309 | 26.97 | Pk | 40 | -20.8 | 0 | 46.17 | - | - | - | - | 68.2 | -22.03 | 0-360 | 199 | H |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

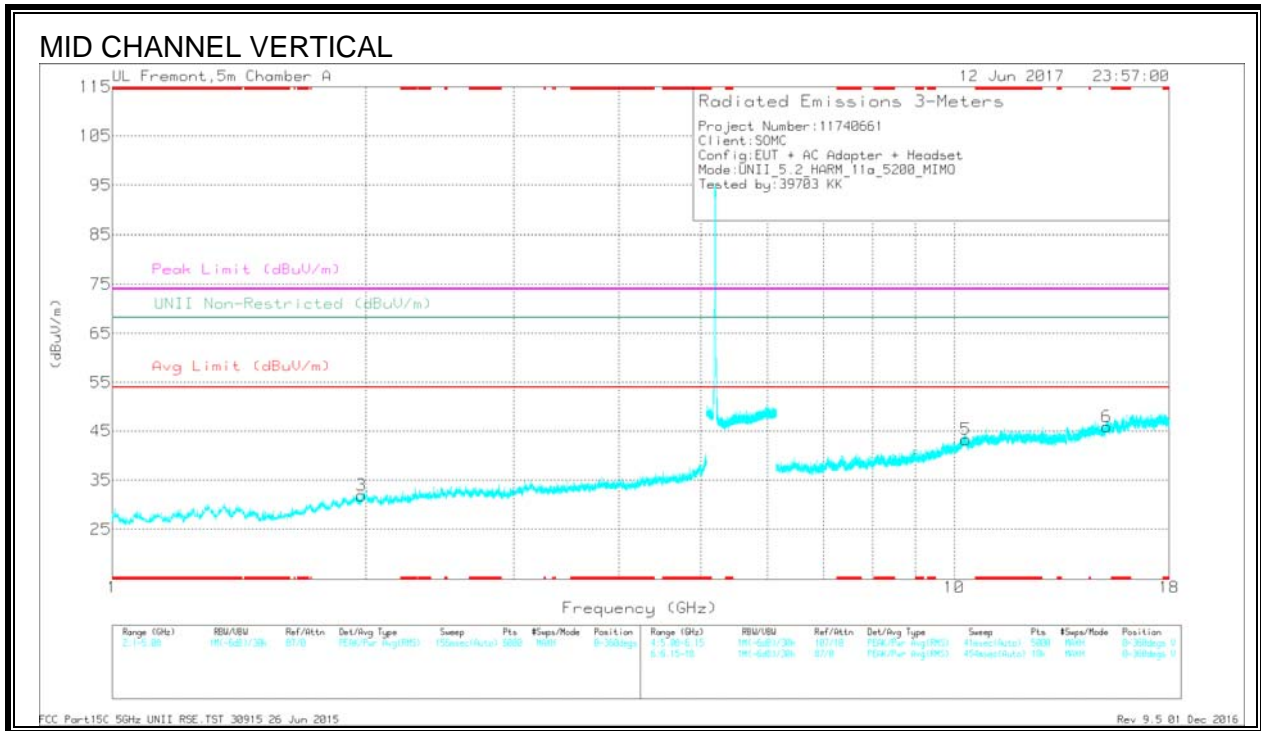
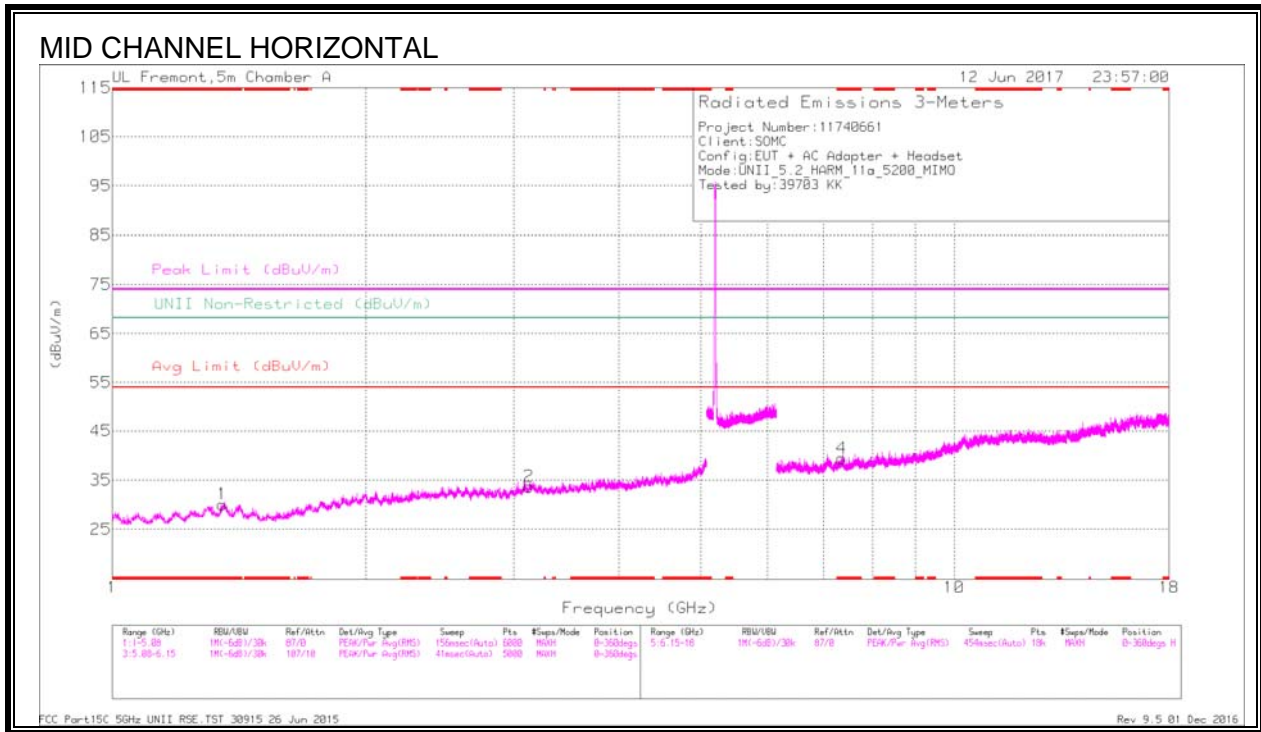
Radiated Emissions

| Frequency (GHz) | Meter Reading (dBuV) | Det | AF T711 (dB/m) | Amp/CM/Ftr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | U/NII Non-Restricted (dBuV/m) | PK Margin (dB) | Altitude (Daps) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|---------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|-------------------------------|----------------|-----------------|-------------|----------|
| * 1.313 | 40.16 | PK-U | 29.5 | -33.8 | 0 | 35.86 | - | - | 74 | -38.14 | - | - | 360 | 200 | H |
| * 1.312 | 29.15 | ADR | 29.5 | -33.8 | .24 | 25.1 | 54 | -28.9 | - | - | - | - | 360 | 200 | H |
| * 7.352 | 33.4 | PK-U | 35.5 | -23.2 | 0 | 45.7 | - | - | 74 | -28.3 | - | - | 63 | 200 | H |
| * 7.351 | 22.44 | ADR | 35.5 | -23.2 | .24 | 34.99 | 54 | -19.01 | - | - | - | - | 63 | 200 | H |
| * 11.23 | 32 | PK-U | 37.8 | -20 | 0 | 49.8 | - | - | 74 | -24.2 | - | - | 63 | 200 | V |
| * 11.23 | 21.2 | ADR | 37.8 | -20 | .24 | 39.25 | 54 | -14.75 | - | - | - | - | 63 | 200 | V |
| 1.96 | 28.02 | ADR | 31.4 | -32.8 | .24 | 26.87 | - | - | - | - | - | - | 63 | 200 | V |
| 1.962 | 39.44 | PK-U | 31.4 | -32.8 | 0 | 38.04 | - | - | - | - | 68.2 | -30.16 | 63 | 200 | V |
| 3.282 | 38.31 | PK-U | 32.8 | -31.3 | 0 | 39.81 | - | - | - | - | 68.2 | -28.39 | 63 | 180 | H |
| 3.284 | 26.71 | ADR | 32.8 | -31.3 | .24 | 28.46 | - | - | - | - | - | - | 63 | 180 | H |
| 15.307 | 22.15 | ADR | 40 | -20.8 | .24 | 41.6 | - | - | - | - | - | - | 63 | 200 | H |
| 15.311 | 33.07 | PK-U | 40 | -20.8 | 0 | 52.27 | - | - | - | - | 68.2 | -15.93 | 63 | 200 | H |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average



Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T711 (dB/m) | Amp/Cbl/Ftr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Altitude (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|----------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|-----------------|-------------|----------|
| 1 | * 1.352 | 34.28 | Pk | 29.4 | -33.6 | 0 | 30.08 | - | - | 74 | -43.92 | - | - | 0-360 | 101 | H |
| 4 | * 7.35 | 27.12 | Pk | 35.5 | -23.2 | 0 | 39.42 | - | - | 74 | -34.58 | - | - | 0-360 | 199 | H |
| 3 | 1.977 | 33.28 | Pk | 31.4 | -32.8 | 0 | 31.88 | - | - | - | - | 68.2 | -36.32 | 0-360 | 200 | V |
| 2 | 3.126 | 31.07 | Pk | 33 | -30.4 | 0 | 33.67 | - | - | - | - | 68.2 | -34.53 | 0-360 | 199 | H |
| 5 | 10.319 | 25.85 | Pk | 37.3 | -19.9 | 0 | 43.25 | - | - | - | - | 68.2 | -24.95 | 0-360 | 101 | V |
| 6 | 15.178 | 25.63 | Pk | 39.9 | -19.7 | 0 | 45.83 | - | - | - | - | 68.2 | -22.37 | 0-360 | 200 | V |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

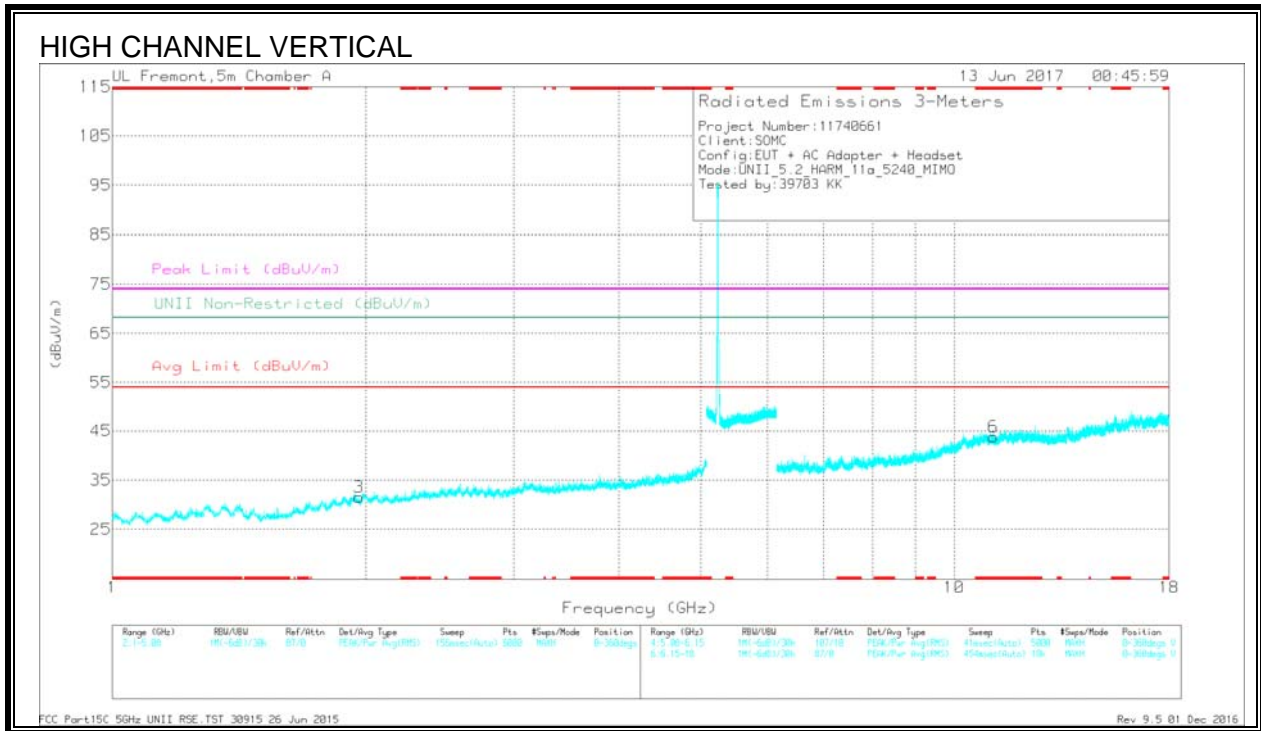
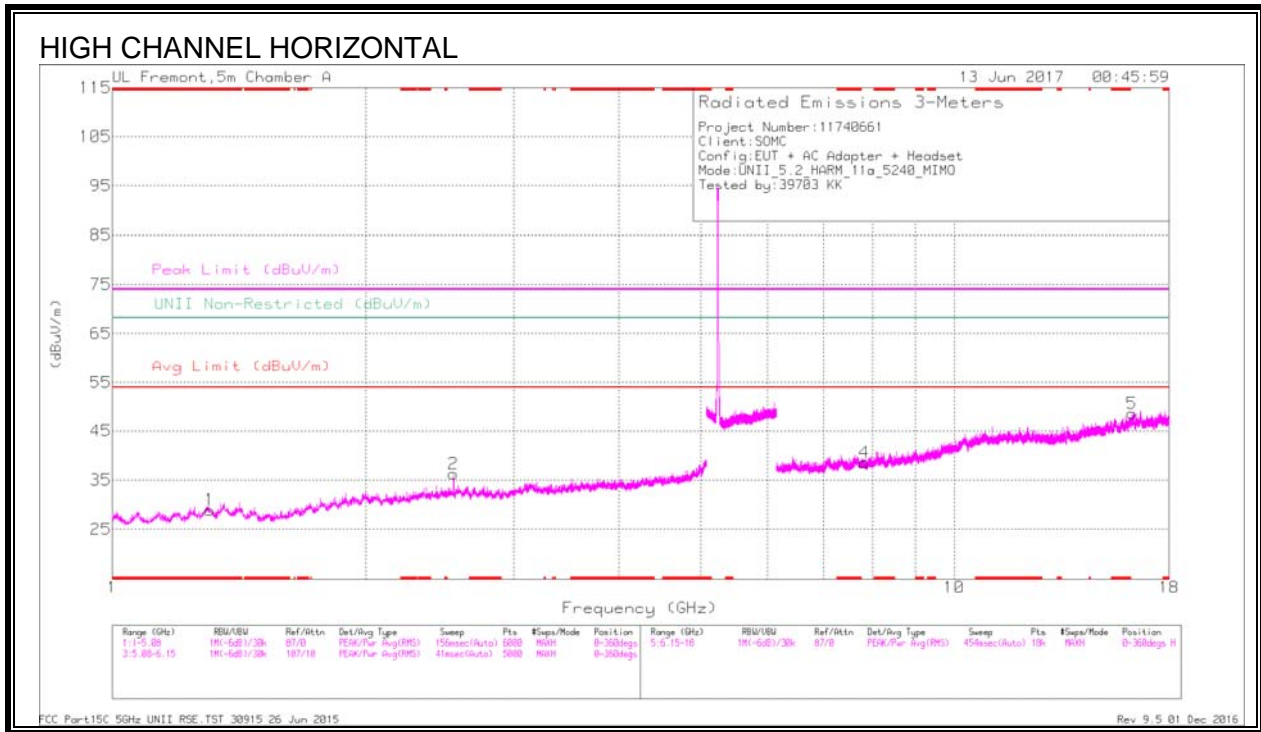
Radiated Emissions

| Frequency (GHz) | Meter Reading (dBuV) | Det | AF T711 (dB/m) | Amp/Cbl/Ftr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Altitude (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|----------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|-----------------|-------------|----------|
| * 1.352 | 41.14 | PK-U | 29.4 | -33.6 | 0 | 36.94 | - | - | 74 | -37.06 | - | - | 0 | 100 | H |
| * 1.353 | 29.31 | ADR | 29.4 | -33.5 | -24 | 25.46 | 54 | -28.54 | - | - | - | - | 0 | 100 | H |
| * 7.35 | 33.7 | PK-U | 35.5 | -23.2 | 0 | 46 | - | - | 74 | -28 | - | - | 0 | 199 | H |
| * 7.348 | 22.51 | ADR | 35.5 | -23.2 | -24 | 35.06 | 54 | -18.94 | - | - | - | - | 0 | 199 | H |
| 1.977 | 39.76 | PK-U | 31.4 | -32.8 | 0 | 38.36 | - | - | - | - | 68.2 | -29.84 | 0 | 199 | V |
| 1.978 | 28.23 | ADR | 31.4 | -32.8 | -24 | 27.08 | - | - | - | - | - | - | 0 | 199 | V |
| 3.127 | 26.7 | ADR | 33 | -30.4 | -24 | 29.55 | - | - | - | - | - | - | 0 | 199 | H |
| 3.128 | 38.09 | PK-U | 33 | -30.4 | 0 | 40.69 | - | - | - | - | 68.2 | -27.51 | 0 | 199 | H |
| 10.319 | 21.36 | ADR | 37.3 | -19.9 | -24 | 39.01 | - | - | - | - | - | - | 0 | 102 | V |
| 10.321 | 31.86 | PK-U | 37.3 | -20 | 0 | 49.16 | - | - | - | - | 68.2 | -19.04 | 0 | 102 | V |
| 15.176 | 32.46 | PK-U | 39.9 | -19.8 | 0 | 52.56 | - | - | - | - | 68.2 | -15.64 | 0 | 200 | V |
| 15.179 | 21.82 | ADR | 39.9 | -19.6 | -24 | 42.37 | - | - | - | - | - | - | 0 | 200 | V |

* - indicates frequency in CFR15.205/IC8.10 RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average



Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T711 (dBm) | Amp/CbI/Ftr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|----------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| 1 | * 1.306 | 33.29 | Pk | 29.5 | -33.9 | 0 | 28.89 | - | - | 74 | -45.11 | - | - | 0-360 | 199 | H |
| 6 | * 11.133 | 25.92 | Pk | 37.8 | -19.9 | 0 | 43.82 | - | - | 74 | -30.18 | - | - | 0-360 | 200 | V |
| 3 | 1.965 | 33.05 | Pk | 31.4 | -32.9 | 0 | 31.55 | - | - | - | - | 68.2 | -36.65 | 0-360 | 199 | V |
| 2 | 2.541 | 35.98 | Pk | 32.6 | -32.3 | 0 | 36.28 | - | - | - | - | 68.2 | -31.92 | 0-360 | 101 | H |
| 4 | 7.822 | 27.06 | Pk | 35.6 | -24.1 | 0 | 38.56 | - | - | - | - | 68.2 | -29.64 | 0-360 | 101 | H |
| 5 | 16.257 | 27.32 | Pk | 41.3 | -20.1 | 0 | 48.52 | - | - | - | - | 68.2 | -18.68 | 0-360 | 199 | H |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

Radiated Emissions

| Frequency (GHz) | Meter Reading (dBuV) | Det | AF T711 (dBm) | Amp/CbI/Ftr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|---------------|----------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| * 1.305 | 40.73 | PK-U | 29.5 | -33.9 | 0 | 36.33 | - | - | 74 | -37.67 | - | - | 0 | 200 | H |
| * 1.304 | 29.57 | ADR | 29.6 | -33.9 | 24 | 25.52 | 54 | -28.48 | - | - | - | - | 0 | 200 | H |
| * 11.134 | 32.18 | PK-U | 37.8 | -19.9 | 0 | 50.06 | - | - | 74 | -23.92 | - | - | 0 | 199 | V |
| * 11.133 | 21.36 | ADR | 37.8 | -19.9 | 24 | 39.51 | 54 | -14.49 | - | - | - | - | 0 | 199 | V |
| 1.963 | 28.05 | ADR | 31.4 | -32.9 | 24 | 26.8 | - | - | - | - | - | - | 0 | 199 | V |
| 1.964 | 39.75 | PK-U | 31.4 | -32.9 | 0 | 38.25 | - | - | - | - | 68.2 | -29.95 | 0 | 199 | V |
| 2.541 | 27.46 | ADR | 32.6 | -32.3 | 24 | 28.01 | - | - | - | - | - | - | 0 | 102 | H |
| 2.542 | 39.15 | PK-U | 32.6 | -32.3 | 0 | 39.45 | - | - | - | - | 68.2 | -28.75 | 0 | 102 | H |
| 7.821 | 33.46 | PK-U | 35.6 | -24.2 | 0 | 44.86 | - | - | - | - | 68.2 | -23.34 | 0 | 102 | H |
| 7.821 | 22.29 | ADR | 35.6 | -24.2 | 24 | 33.94 | - | - | - | - | - | - | 0 | 102 | H |
| 16.255 | 32.81 | PK-U | 41.3 | -20.1 | 0 | 54.01 | - | - | - | - | 68.2 | -14.19 | 0 | 199 | H |
| 16.258 | 22.17 | ADR | 41.3 | -20.1 | 24 | 43.62 | - | - | - | - | - | - | 0 | 199 | H |

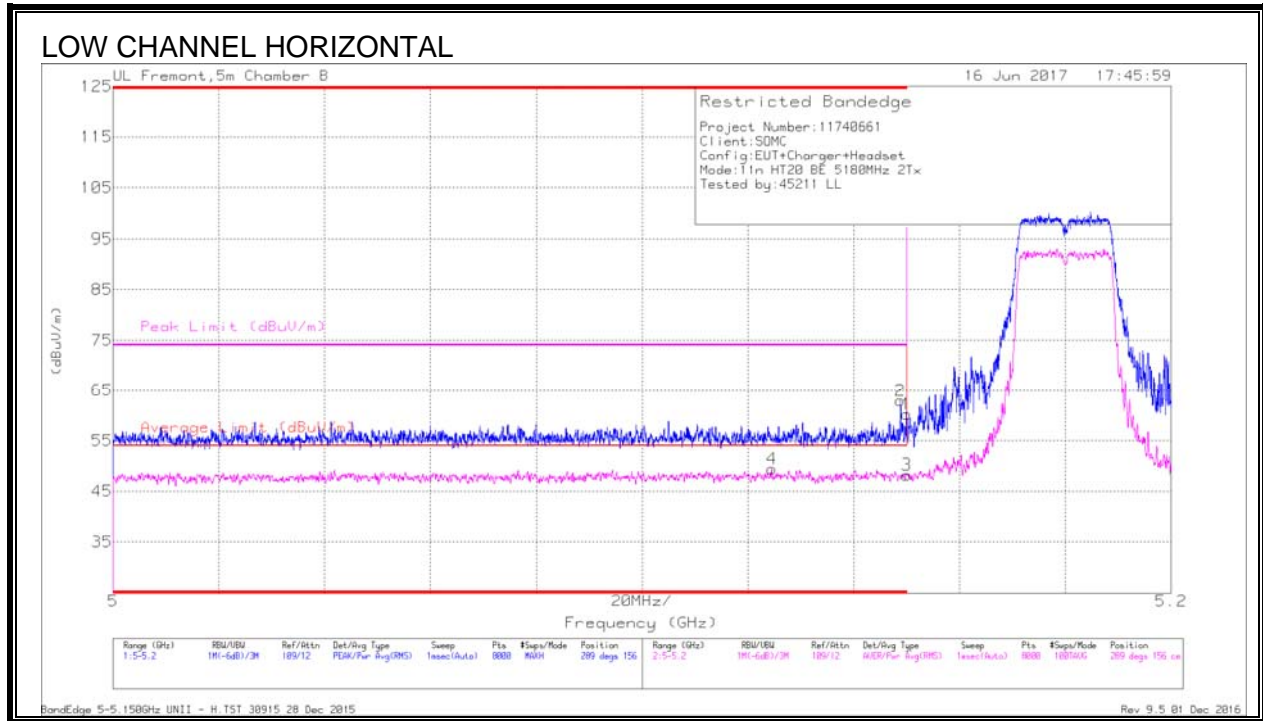
* - indicates frequency in CFR15.205/IC8.10 RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

11.1.2. 11n HT20 2TX CDD MIMO MODE IN THE 5.2GHZ BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



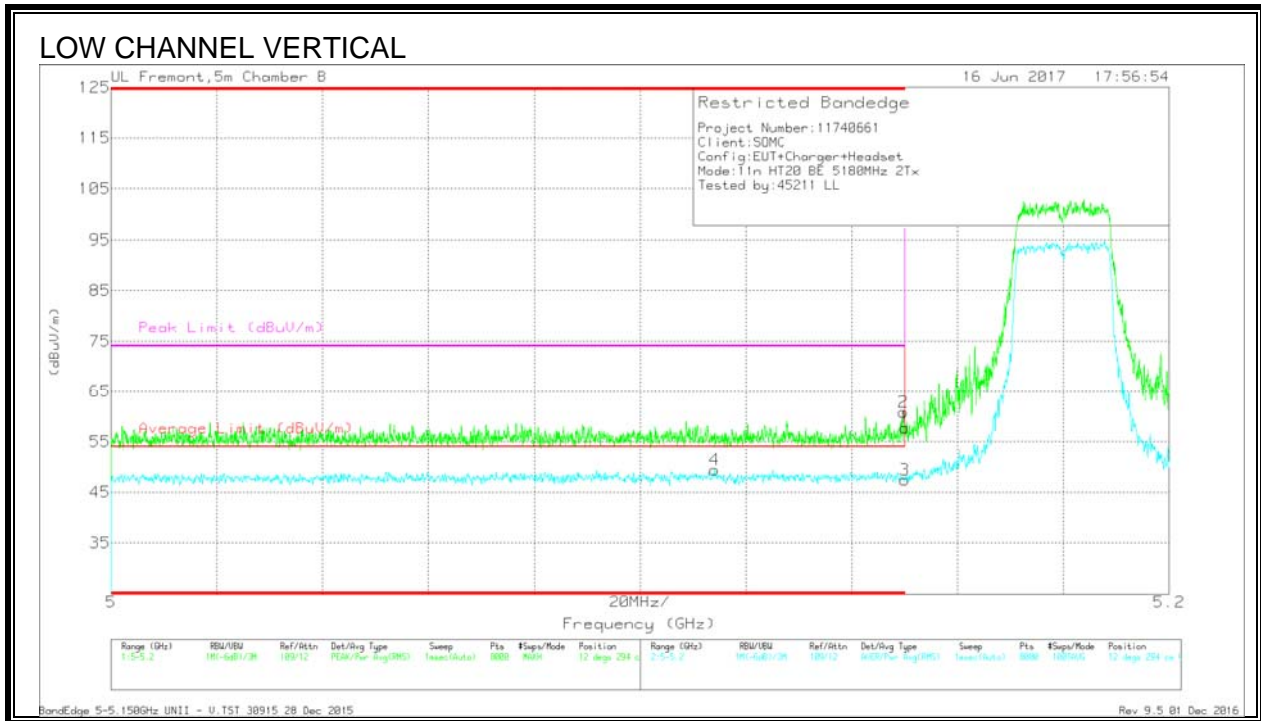
Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AFT346 (dB/m) | Amp/Cb/Ftr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|---------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.15 | 43.57 | Pk | 34.8 | -18.1 | 0 | 60.27 | - | - | 74 | -13.73 | 289 | 156 | H |
| 2 | * 5.149 | 46.23 | Pk | 34.8 | -18.1 | 0 | 62.93 | - | - | 74 | -11.07 | 289 | 156 | H |
| 3 | * 5.15 | 31.34 | RMS | 34.8 | -18.1 | .2 | 48.24 | 54 | -5.76 | - | - | 289 | 156 | H |
| 4 | * 5.125 | 32.22 | RMS | 34.7 | -17.7 | .2 | 49.42 | 54 | -4.58 | - | - | 289 | 156 | H |

* - indicates frequency in CFR15.205/IC8.10 RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



Trace Markers

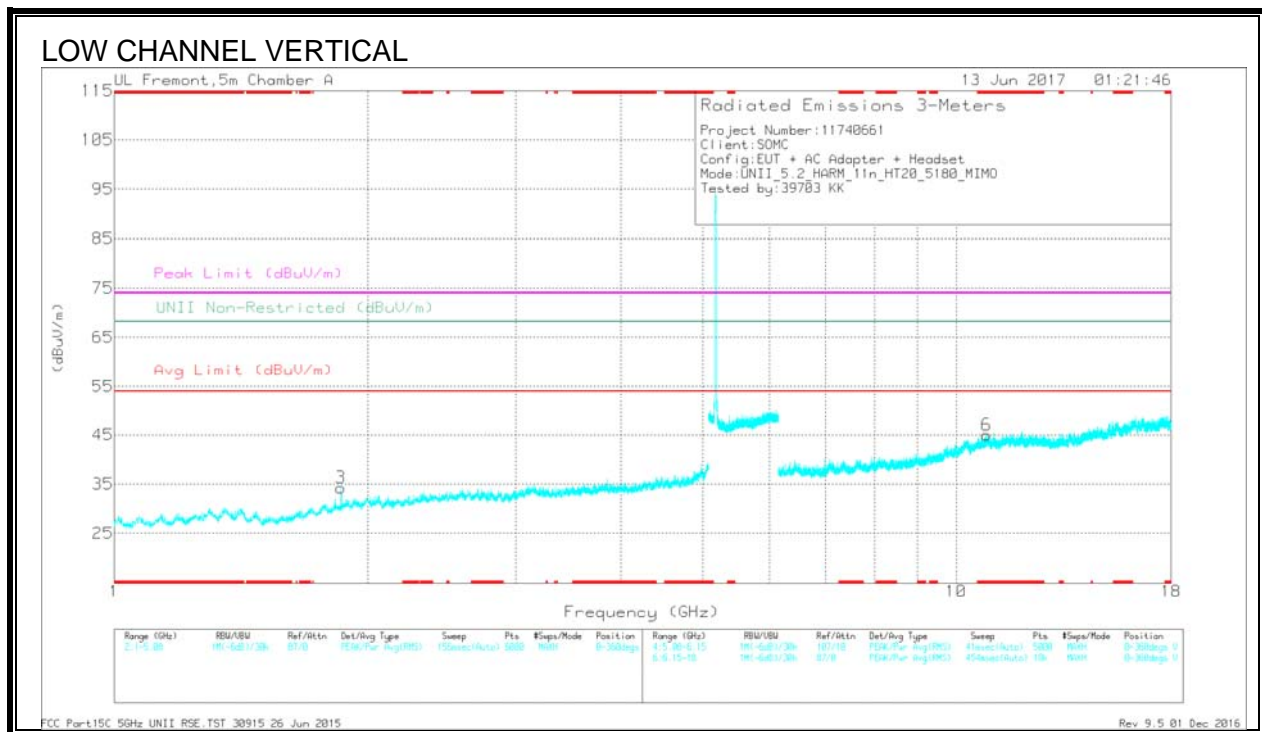
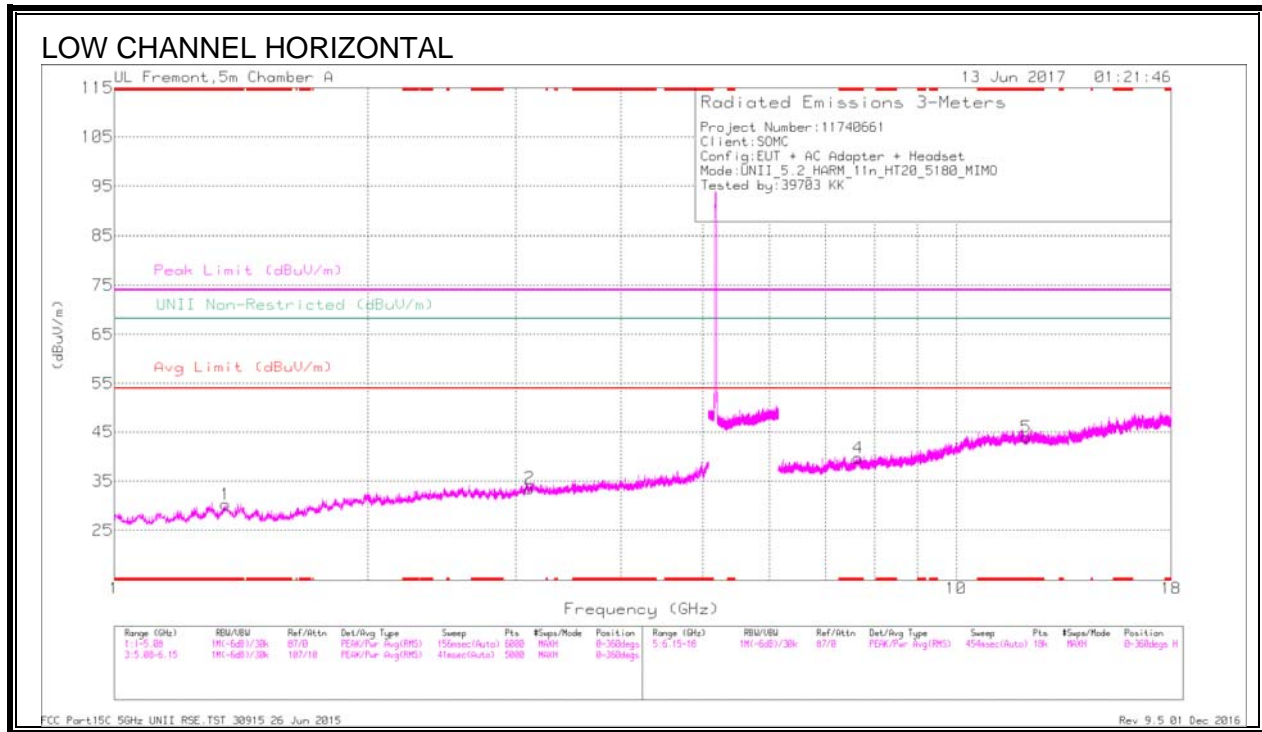
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T346 (dB/m) | Amp/Cb/Ftr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Altitude (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|---------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|-----------------|-------------|----------|
| 1 | * 5.15 | 41.06 | Pk | 34.8 | -18.1 | 0 | 57.76 | - | - | 74 | -16.24 | 12 | 294 | V |
| 2 | * 5.15 | 44.09 | Pk | 34.8 | -18.1 | 0 | 60.79 | - | - | 74 | -13.21 | 12 | 294 | V |
| 3 | * 5.15 | 30.48 | RMS | 34.8 | -18.1 | .2 | 47.38 | 54 | -6.62 | - | - | 12 | 294 | V |
| 4 | * 5.114 | 32.4 | RMS | 34.7 | -17.9 | .2 | 49.4 | 54 | -4.6 | - | - | 12 | 294 | V |

* - indicates frequency in CFR15.205/IC8.10 RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS



Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF 1711 (dB/m) | Amp/CS/Flo/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|---------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| 1 | * 1.357 | 34.35 | Pk | 29.4 | -33.5 | 0 | 30.25 | - | - | 74 | -43.75 | - | - | 0-360 | 199 | H |
| 4 | * 7.648 | 27.4 | Pk | 35.6 | -23.3 | 0 | 39.7 | - | - | 74 | -34.3 | - | - | 0-360 | 199 | H |
| 5 | * 12.114 | 25.81 | Pk | 38.7 | -20.6 | 0 | 43.91 | - | - | 74 | -30.09 | - | - | 0-360 | 101 | H |
| 6 | * 10.869 | 26.58 | Pk | 37.9 | -19.5 | 0 | 44.58 | - | - | 74 | -29.02 | - | - | 0-360 | 200 | V |
| 3 | 1.86 | 36.96 | Pk | 30.9 | -33.6 | 0 | 34.26 | - | - | - | - | 68.2 | -33.94 | 0-360 | 200 | V |
| 2 | 3.113 | 31.01 | Pk | 33 | -30.5 | 0 | 33.51 | - | - | - | - | 68.2 | -34.69 | 0-360 | 199 | H |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

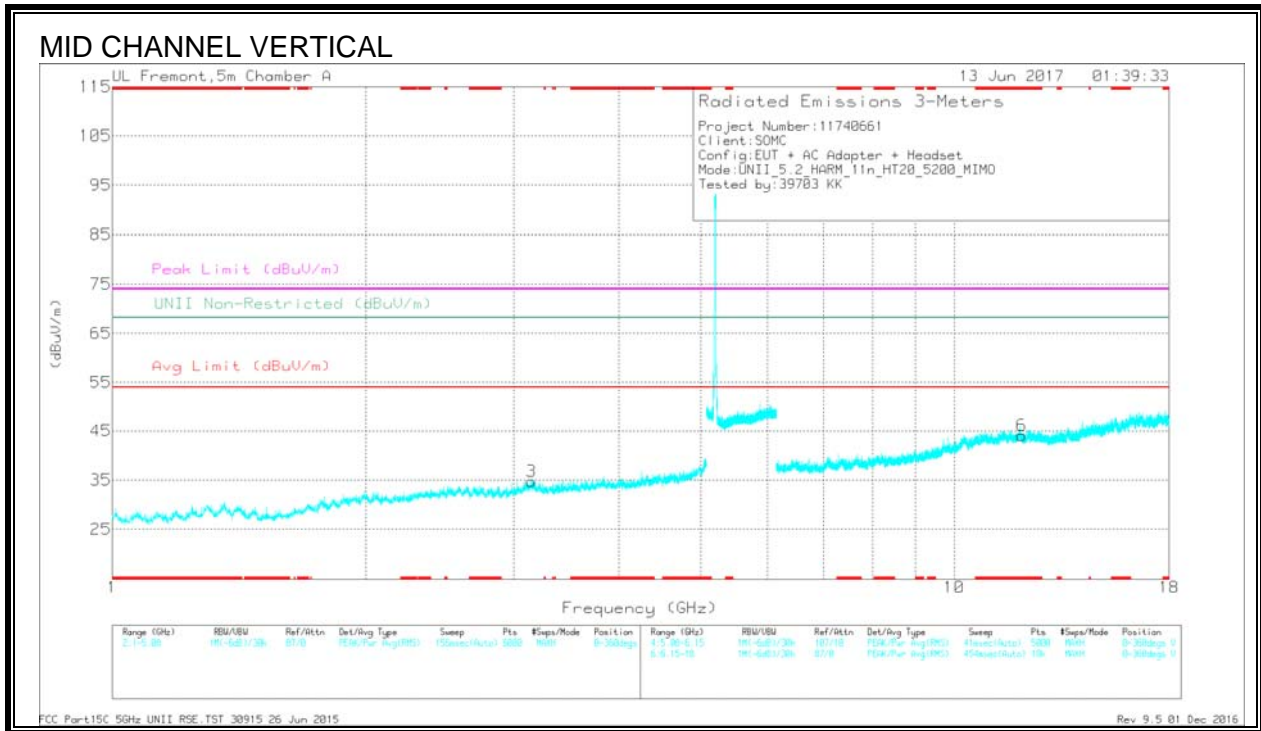
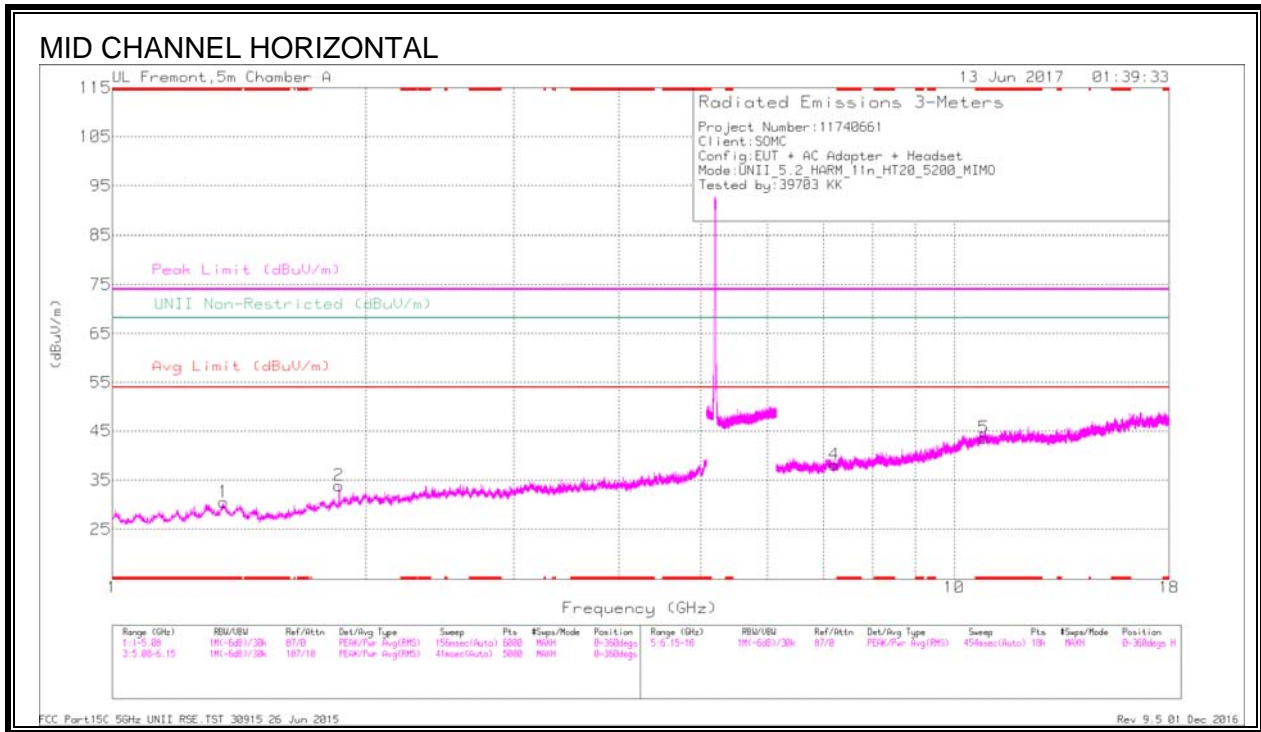
Radiated Emissions

| Frequency (GHz) | Meter Reading (dBuV) | Det | AF 1711 (dB/m) | Amp/CS/Flo/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|---------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| * 1.359 | 41.61 | PK-U | 29.4 | -33.6 | 0 | 37.41 | - | - | 74 | -36.59 | - | - | 0 | 199 | H |
| * 1.356 | 29.55 | ADR | 29.4 | -33.4 | .2 | 25.77 | 54 | -28.23 | - | - | - | - | 0 | 199 | H |
| * 7.648 | 33.66 | PK-U | 35.6 | -23.3 | 0 | 45.96 | - | - | 74 | -28.04 | - | - | 0 | 199 | H |
| * 7.647 | 22.85 | ADR | 35.6 | -23.3 | .2 | 35.37 | 54 | -18.63 | - | - | - | - | 0 | 199 | H |
| * 12.112 | 32.28 | PK-U | 38.7 | -20.6 | 0 | 50.38 | - | - | 74 | -23.62 | - | - | 0 | 102 | H |
| * 12.114 | 21.16 | ADR | 38.7 | -20.5 | .2 | 39.58 | 54 | -14.42 | - | - | - | - | 0 | 102 | H |
| * 10.869 | 31.6 | PK-U | 37.9 | -19.5 | 0 | 50 | - | - | 74 | -24 | - | - | 0 | 200 | V |
| * 10.867 | 21.18 | ADR | 37.9 | -19.5 | .2 | 39.8 | 54 | -14.2 | - | - | - | - | 0 | 200 | V |
| 1.859 | 52.57 | PK-U | 30.9 | -33.6 | 0 | 49.87 | - | - | - | - | 68.2 | -18.33 | 0 | 199 | V |
| 1.86 | 28.53 | ADR | 30.9 | -33.6 | .2 | 26.05 | - | - | - | - | - | - | 0 | 199 | V |
| 3.111 | 38.23 | PK-U | 33 | -30.6 | 0 | 40.63 | - | - | - | - | 68.2 | -27.57 | 0 | 199 | H |
| 3.113 | 26.61 | ADR | 33 | -30.5 | .2 | 29.33 | - | - | - | - | - | - | 0 | 199 | H |

* - indicates frequency in CFR15.205/IC8.10 RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average



Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF 1711 (dB/m) | Amp/CS/Flt/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|---------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| 1 | * 1.357 | 34.66 | Pk | 29.4 | -33.5 | 0 | 30.56 | - | - | 74 | -43.44 | - | - | 0-360 | 101 | H |
| 5 | * 10.846 | 25.32 | Pk | 37.9 | -19.6 | 0 | 43.62 | - | - | 74 | -30.38 | - | - | 0-360 | 101 | H |
| 6 | * 12.023 | 25.43 | Pk | 38.7 | -20.1 | 0 | 44.03 | - | - | 74 | -29.97 | - | - | 0-360 | 200 | V |
| 2 | 1.86 | 36.61 | Pk | 30.9 | -33.6 | 0 | 33.91 | - | - | - | - | 68.2 | -34.29 | 0-360 | 199 | H |
| 3 | 3.149 | 32.11 | Pk | 33 | -30.4 | 0 | 34.71 | - | - | - | - | 68.2 | -33.49 | 0-360 | 200 | V |
| 4 | 7.207 | 27.92 | Pk | 35.5 | -25.3 | 0 | 38.12 | - | - | - | - | 68.2 | -30.08 | 0-360 | 101 | H |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

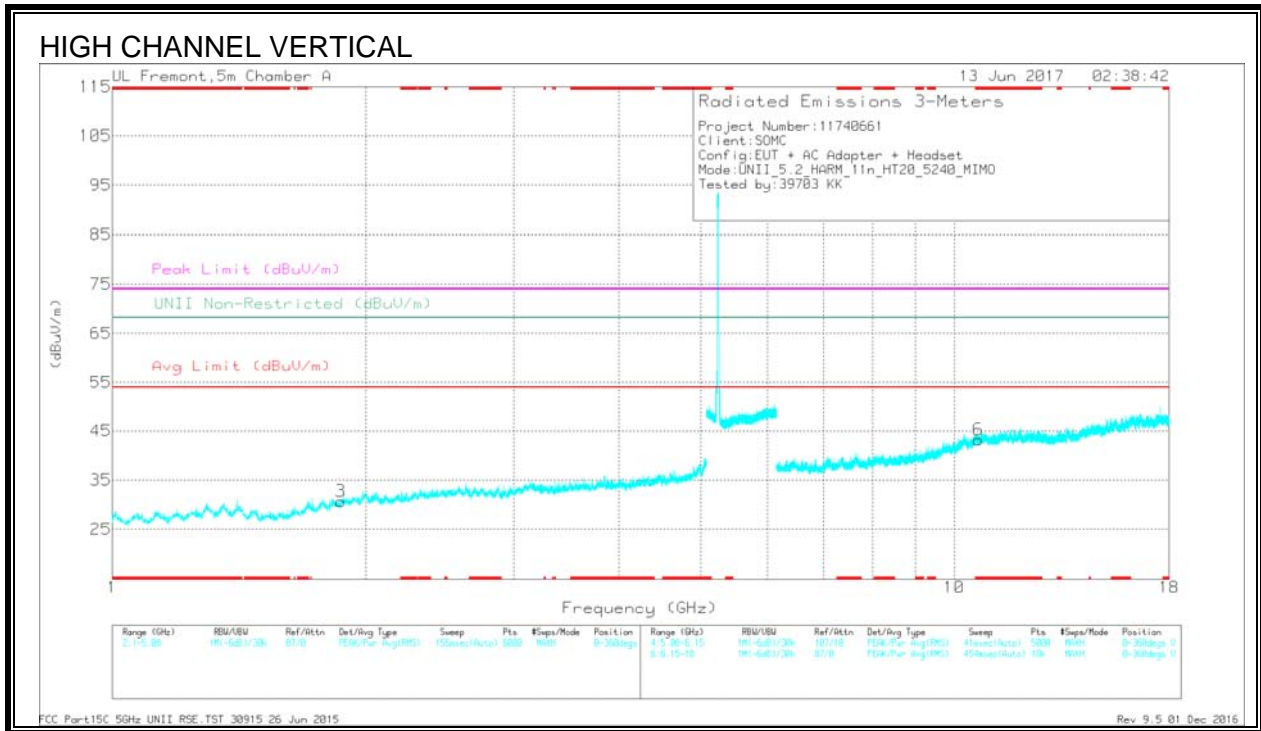
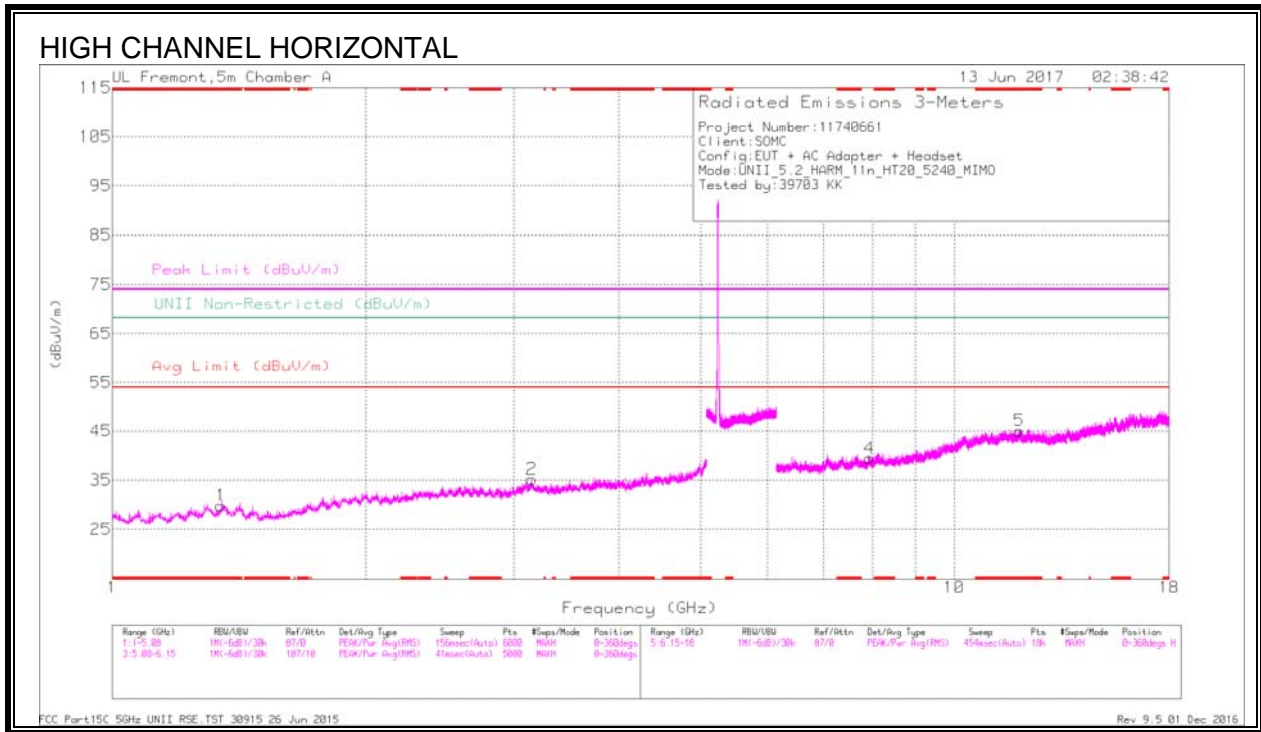
Radiated Emissions

| Frequency (GHz) | Meter Reading (dBuV) | Det | AF 1711 (dB/m) | Amp/CS/Flt/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|---------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| * 1.356 | 40.89 | PK-U | 29.4 | -33.4 | 0 | 36.89 | - | - | 74 | -37.11 | - | - | 0 | 100 | H |
| * 1.355 | 29.51 | ADR | 29.4 | -33.4 | .2 | 25.73 | 54 | -28.27 | - | - | - | - | 0 | 100 | H |
| * 10.847 | 32.02 | PK-U | 37.9 | -19.7 | 0 | 50.22 | - | - | 74 | -23.78 | - | - | 0 | 102 | H |
| * 10.845 | 21.01 | ADR | 37.9 | -19.6 | .2 | 39.53 | 54 | -14.47 | - | - | - | - | 0 | 102 | H |
| * 12.021 | 32.15 | PK-U | 38.7 | -20.1 | 0 | 50.75 | - | - | 74 | -23.25 | - | - | 0 | 200 | V |
| * 12.024 | 21.14 | ADR | 38.7 | -20.1 | .2 | 39.96 | 54 | -14.04 | - | - | - | - | 0 | 200 | V |
| 1.859 | 60.22 | PK-U | 30.9 | -33.6 | 0 | 57.52 | - | - | - | - | 68.2 | -10.68 | 0 | 199 | H |
| 1.862 | 28.46 | ADR | 30.9 | -33.6 | .2 | 25.98 | - | - | - | - | - | - | 0 | 199 | H |
| 3.149 | 27.29 | ADR | 33 | -30.4 | .2 | 30.11 | - | - | - | - | - | - | 0 | 199 | V |
| 3.15 | 38.95 | PK-U | 33 | -30.4 | 0 | 41.55 | - | - | - | - | 68.2 | -26.65 | 0 | 199 | V |
| 7.206 | 23.39 | ADR | 35.5 | -25.3 | .2 | 33.81 | - | - | - | - | - | - | 0 | 102 | H |
| 7.207 | 33.95 | PK-U | 35.5 | -25.3 | 0 | 44.15 | - | - | - | - | 68.2 | -24.05 | 0 | 102 | H |

* - indicates frequency in CFR15.205/IC8.10 RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average



Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF 1711 (dB/m) | Amp/CS/Fltr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|----------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| 1 | * 1.346 | 33.92 | Pk | 29.4 | -33.5 | 0 | 29.82 | - | - | 74 | -44.18 | - | - | 0-360 | 199 | H |
| 5 | * 11.95 | 26.22 | Pk | 38.6 | -19.8 | 0 | 45.02 | - | - | 74 | -28.98 | - | - | 0-360 | 101 | H |
| 6 | * 10.684 | 26.1 | Pk | 37.8 | -20.7 | 0 | 43.2 | - | - | 74 | -30.8 | - | - | 0-360 | 200 | V |
| 3 | 1.868 | 33.29 | Pk | 31 | -33.6 | 0 | 30.69 | - | - | - | - | 68.2 | -37.51 | 0-360 | 200 | V |
| 2 | 3.15 | 32.57 | Pk | 33 | -30.4 | 0 | 35.17 | - | - | - | - | 68.2 | -33.03 | 0-360 | 101 | H |
| 4 | 7.932 | 27.23 | Pk | 35.6 | -23.4 | 0 | 39.43 | - | - | - | - | 68.2 | -28.77 | 0-360 | 199 | H |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

Radiated Emissions

| Frequency (GHz) | Meter Reading (dBuV) | Det | AF 1711 (dB/m) | Amp/CS/Fltr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|----------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| * 1.347 | 40.57 | PK-U | 29.4 | -33.5 | 0 | 36.47 | - | - | 74 | -37.53 | - | - | 0 | 199 | H |
| * 1.348 | 28.98 | ADR | 29.4 | -33.5 | .2 | 25.1 | 54 | -28.9 | - | - | - | - | 0 | 199 | H |
| * 11.95 | 31.52 | PK-U | 38.6 | -19.8 | 0 | 50.32 | - | - | 74 | -23.68 | - | - | 0 | 102 | H |
| * 11.95 | 21 | ADR | 38.6 | -19.8 | .2 | 40.02 | 54 | -13.98 | - | - | - | - | 0 | 102 | H |
| * 10.685 | 32.86 | PK-U | 37.8 | -20.8 | 0 | 49.86 | - | - | 74 | -24.14 | - | - | 0 | 200 | V |
| * 10.684 | 21.55 | ADR | 37.8 | -20.7 | .2 | 38.87 | 54 | -15.13 | - | - | - | - | 0 | 200 | V |
| 1.866 | 28.74 | ADR | 31 | -33.6 | .2 | 26.36 | - | - | - | - | - | - | 0 | 200 | V |
| 1.87 | 41.28 | PK-U | 31 | -33.6 | 0 | 38.68 | - | - | - | - | 68.2 | -29.52 | 0 | 200 | V |
| 3.15 | 38.72 | PK-U | 33 | -30.4 | 0 | 41.32 | - | - | - | - | 68.2 | -26.88 | 0 | 102 | H |
| 3.152 | 27.01 | ADR | 33 | -30.5 | .2 | 29.73 | - | - | - | - | - | - | 0 | 102 | H |
| 7.93 | 33.81 | PK-U | 35.6 | -23.4 | 0 | 46.01 | - | - | - | - | 68.2 | -22.19 | 0 | 200 | H |
| 7.931 | 22.76 | ADR | 35.6 | -23.4 | .2 | 35.18 | - | - | - | - | - | - | 0 | 200 | H |

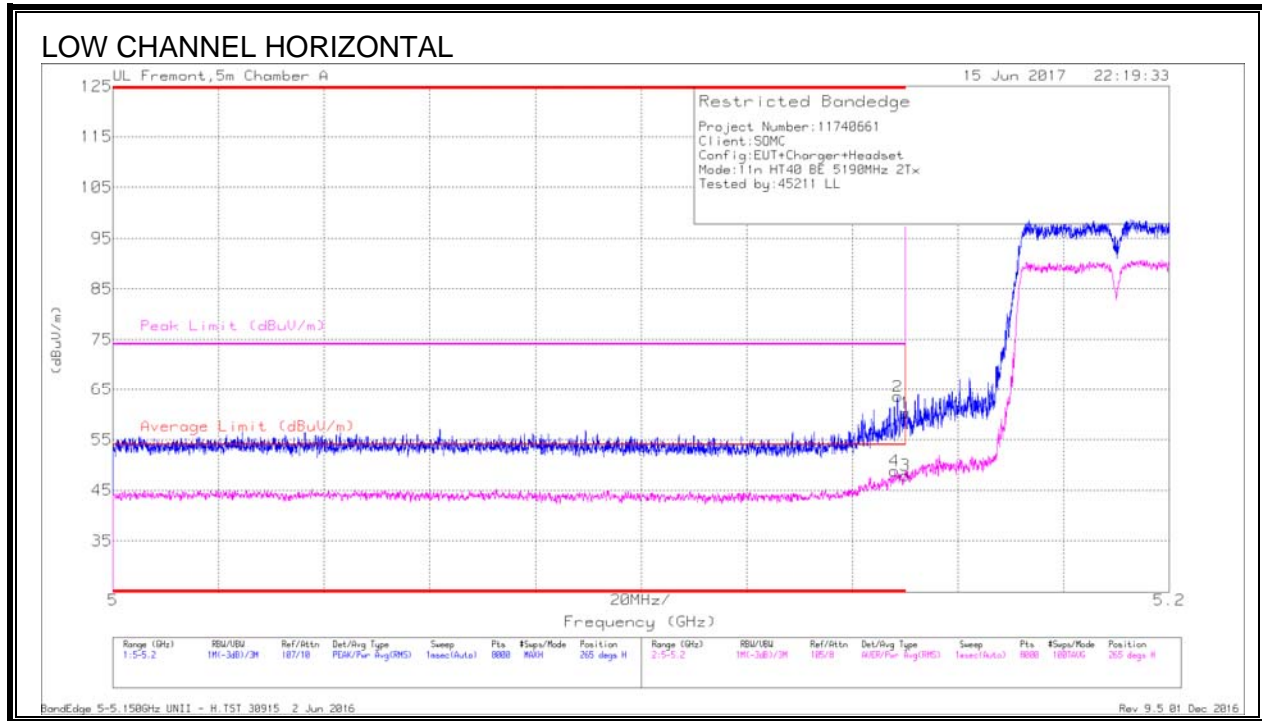
* - indicates frequency in CFR15.205/IC8.10 RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

11.1.3. 11n HT40 2TX CDD MIMO MODE IN THE 5.2GHz BAND

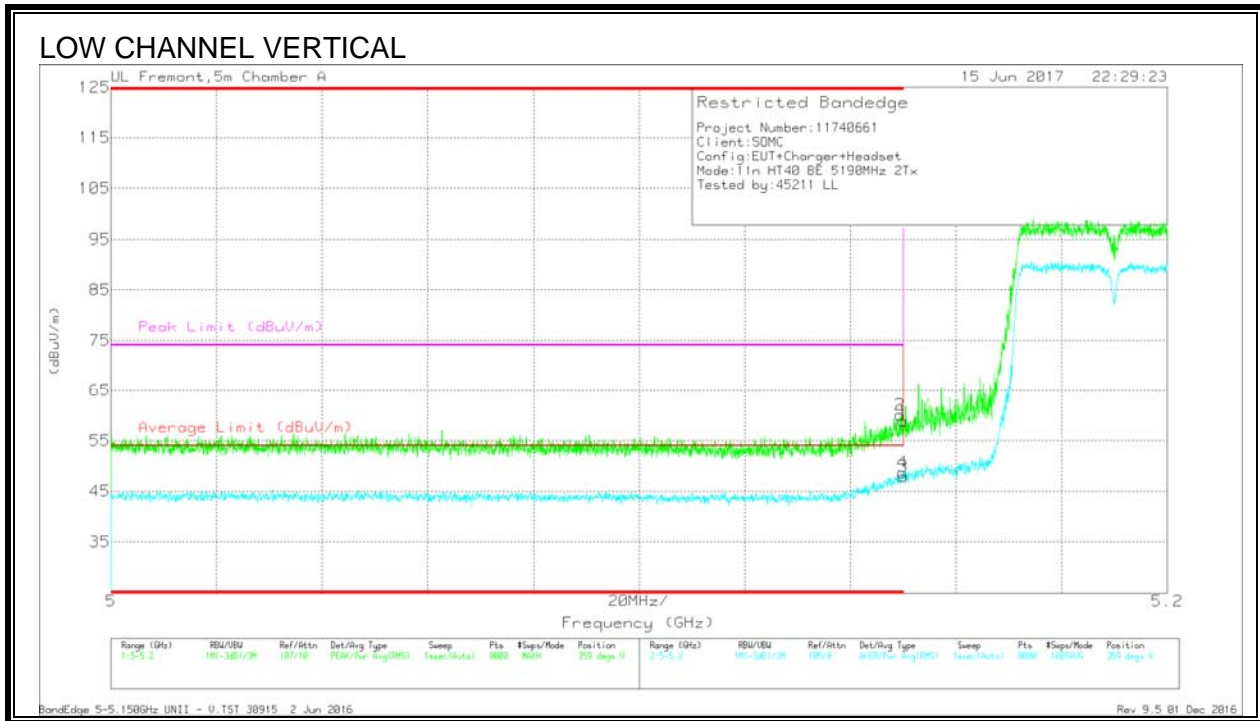
RESTRICTED BANDEDGE (LOW CHANNEL)



Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AFT711 (dB/m) | Amp/Cb/Ftr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|---------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 4 | * 5.148 | 32.91 | RMS | 34.1 | -18.6 | .4 | 48.81 | 54 | -5.19 | - | - | 265 | 124 | H |
| 2 | * 5.149 | 48.05 | Pk | 34.1 | -18.6 | 0 | 63.55 | - | - | 74 | -10.45 | 265 | 124 | H |
| 1 | * 5.15 | 44.81 | Pk | 34.1 | -18.7 | 0 | 60.21 | - | - | 74 | -13.79 | 265 | 124 | H |
| 3 | * 5.15 | 32.08 | RMS | 34.1 | -18.7 | .4 | 47.88 | 54 | -6.12 | - | - | 265 | 124 | H |

* - indicates frequency in CFR15.205/IC8.10 RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection



Trace Markers

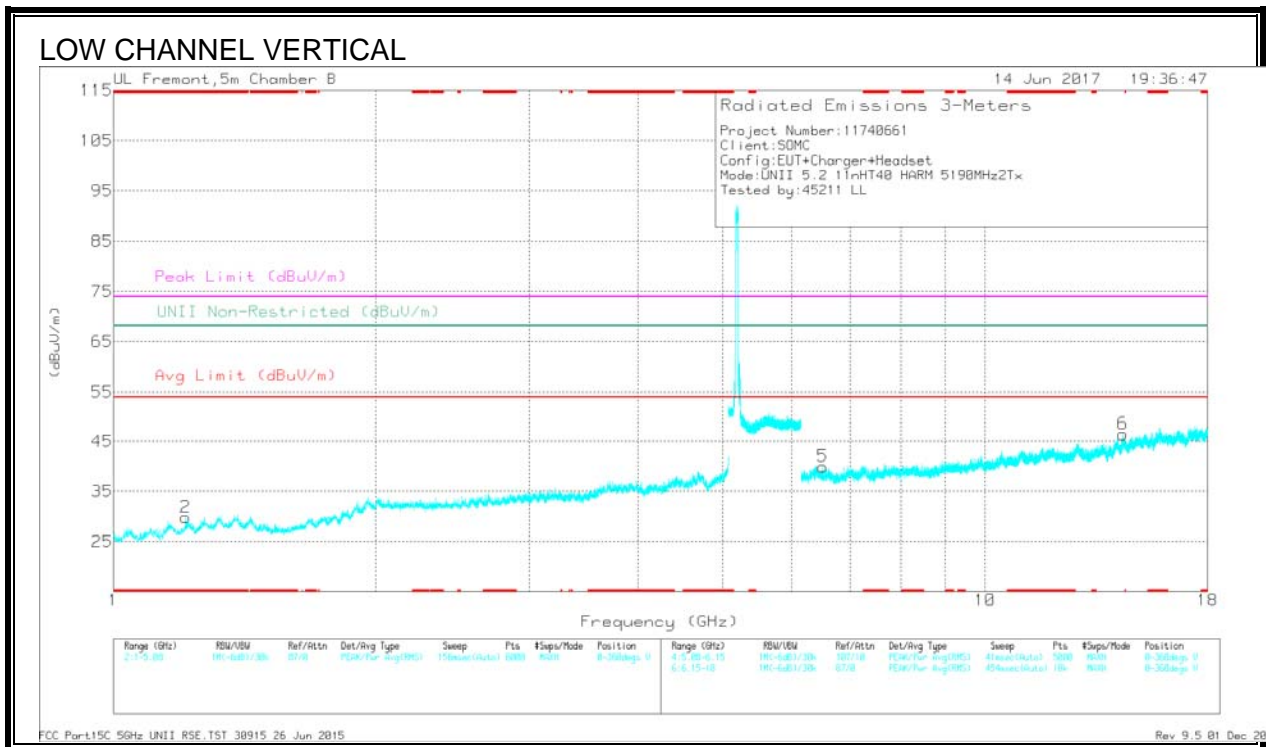
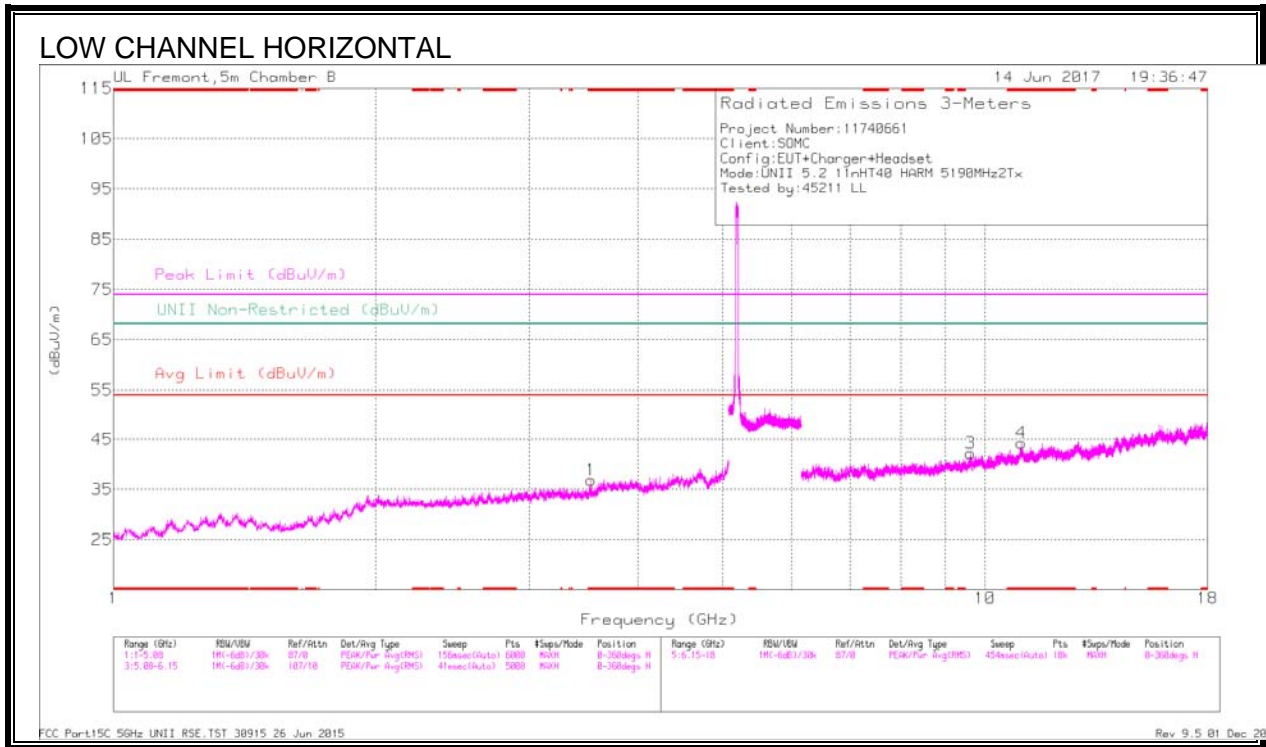
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AFT711 (dB/m) | Amp/Cb/Ftr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Altitude (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|---------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|-----------------|-------------|----------|
| 2 | * 5.149 | 44.61 | Pk | 34.1 | -18.6 | 0 | 60.11 | - | - | 74 | -13.89 | 359 | 294 | V |
| 1 | * 5.15 | 43.42 | Pk | 34.1 | -18.7 | 0 | 58.82 | - | - | 74 | -15.18 | 359 | 294 | V |
| 3 | * 5.15 | 32.1 | RMS | 34.1 | -18.7 | .4 | 47.9 | 54 | -6.1 | - | - | 359 | 294 | V |
| 4 | * 5.15 | 32.89 | RMS | 34.1 | -18.7 | .4 | 48.69 | 54 | -5.31 | - | - | 359 | 294 | V |

* - indicates frequency in CFR15.205/IC8.10 RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS



Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T346 (dB/m) | Amp/Ch/Filt/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|----------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| 1 | * 3.535 | 34.38 | Pk | 33.2 | -30.7 | 0 | 36.88 | - | - | 74 | -37.12 | - | - | 0-360 | 199 | H |
| 2 | * 1.211 | 36.05 | Pk | 28.1 | -34.3 | 0 | 29.85 | - | - | 74 | -44.15 | - | - | 0-360 | 102 | V |
| 4 | * 11.008 | 28.12 | Pk | 38.5 | -22.4 | 0 | 44.22 | - | - | 74 | -29.78 | - | - | 0-360 | 102 | H |
| 5 | 6.509 | 32.8 | Pk | 36.1 | -28.9 | 0 | 40 | - | - | - | - | 68.2 | -28.2 | 0-360 | 199 | V |
| 3 | 9.619 | 29.08 | Pk | 37.3 | -24.2 | 0 | 42.18 | - | - | - | - | 68.2 | -26.02 | 0-360 | 199 | H |
| 6 | 14.401 | 27.82 | Pk | 40.9 | -22.3 | 0 | 46.42 | - | - | - | - | 68.2 | -21.78 | 0-360 | 199 | V |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

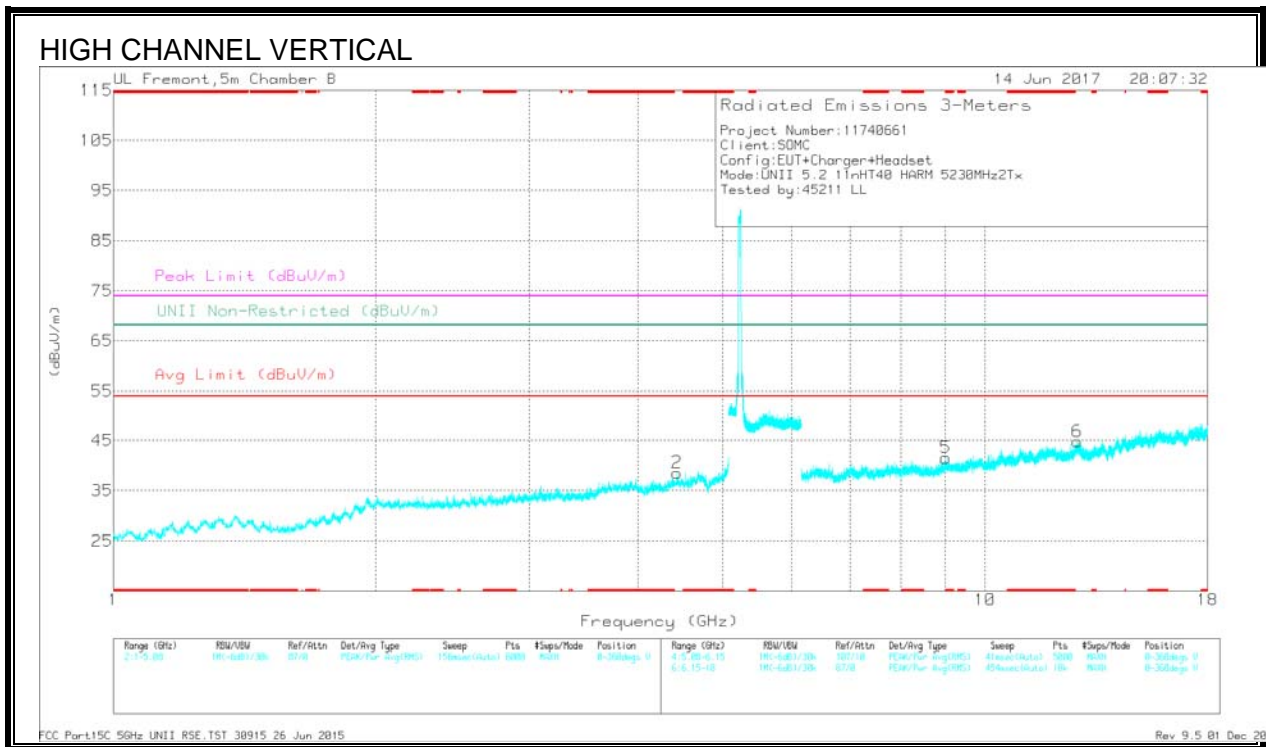
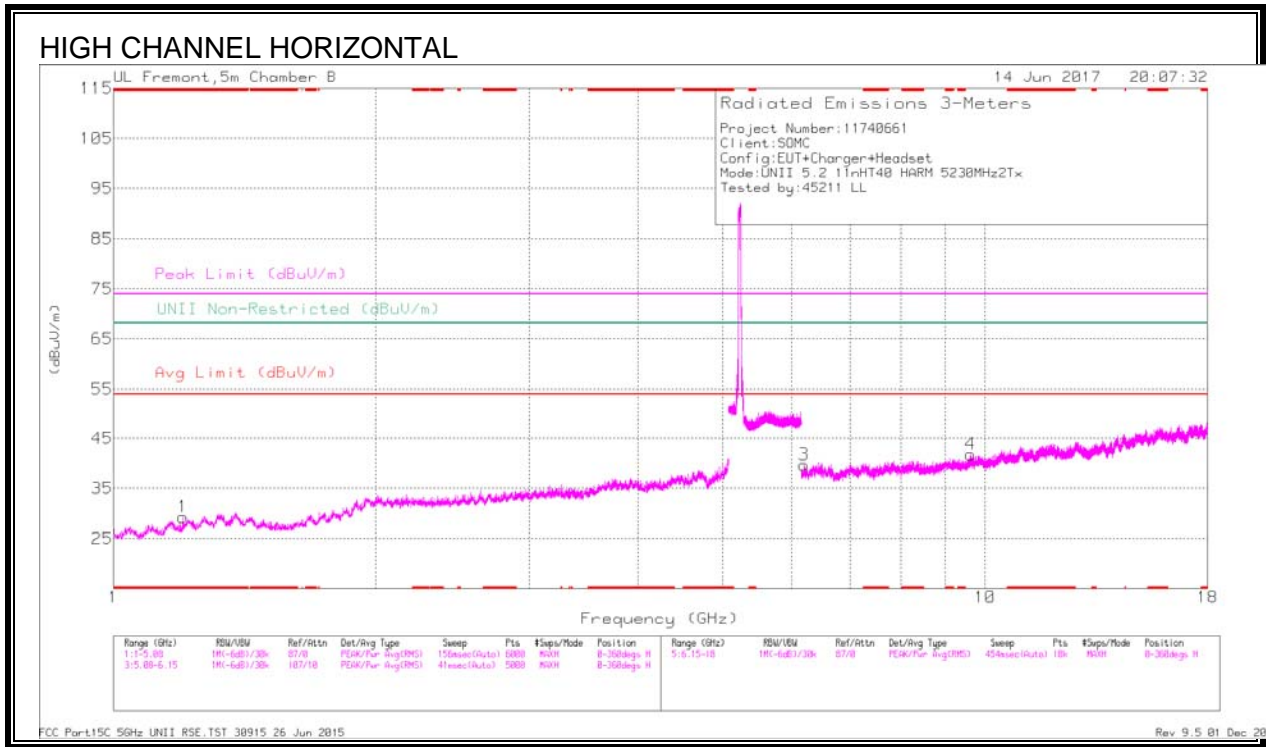
Radiated Emissions

| Frequency (GHz) | Meter Reading (dBuV) | Det | AF T346 (dB/m) | Amp/Ch/Filt/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|----------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| * 3.536 | 39.17 | PK-U | 33.2 | -30.6 | 0 | 41.77 | - | - | 74 | -32.23 | - | - | 277 | 199 | H |
| * 3.533 | 27.59 | ADR | 33.2 | -30.7 | .4 | 30.51 | 54 | -23.49 | - | - | - | - | 277 | 199 | H |
| * 1.213 | 41.16 | PK-U | 28.1 | -34.3 | 0 | 34.96 | - | - | 74 | -39.04 | - | - | 307 | 104 | V |
| * 1.213 | 30.19 | ADR | 28.1 | -34.3 | .4 | 24.41 | 54 | -29.59 | - | - | - | - | 307 | 104 | V |
| * 11.006 | 32.93 | PK-U | 38.5 | -22.4 | 0 | 49.03 | - | - | 74 | -24.97 | - | - | 203 | 104 | H |
| * 11.008 | 22.2 | ADR | 38.5 | -22.4 | .4 | 38.72 | 54 | -15.28 | - | - | - | - | 203 | 104 | H |
| 6.508 | 39.09 | PK-U | 36.1 | -28.8 | 0 | 46.39 | - | - | - | - | 68.2 | -21.81 | 165 | 199 | V |
| 9.619 | 34.25 | PK-U | 37.3 | -24.2 | 0 | 47.35 | - | - | - | - | 68.2 | -20.85 | 246 | 198 | H |
| 14.4 | 32.49 | PK-U | 40.9 | -22.3 | 0 | 51.09 | - | - | - | - | 68.2 | -17.11 | 200 | 199 | V |

* - indicates frequency in CFR15.205/IC8.10 RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average



Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T346 (dB/m) | Amp/Chl/Fbr/Psd (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|----------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| 1 | * 1.201 | 35.48 | Pk | 28 | -34.2 | 0 | 29.28 | - | - | 74 | -44.72 | - | - | 0-360 | 102 | H |
| 5 | * 9.02 | 29.91 | Pk | 36.9 | -25.3 | 0 | 41.51 | - | - | 74 | -32.49 | - | - | 0-360 | 102 | V |
| 2 | 4.433 | 33.28 | Pk | 34.2 | -28.9 | 0 | 38.58 | - | - | - | - | 68.2 | -29.62 | 0-360 | 102 | V |
| 3 | 6.201 | 32.4 | Pk | 35.9 | -28.6 | 0 | 39.7 | - | - | - | - | 68.2 | -28.5 | 0-360 | 102 | H |
| 4 | 9.63 | 28.83 | Pk | 37.3 | -24.3 | 0 | 41.83 | - | - | - | - | 68.2 | -26.37 | 0-360 | 199 | H |
| 6 | 12.755 | 27.39 | Pk | 39.7 | -22.3 | 0 | 44.79 | - | - | - | - | 68.2 | -23.41 | 0-360 | 102 | V |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

Radiated Emissions

| Frequency (GHz) | Meter Reading (dBuV) | Det | AF T346 (dB/m) | Amp/Chl/Fbr/Psd (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|----------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| * 1.203 | 40.74 | PK-U | 28 | -34.2 | 0 | 34.54 | - | - | 74 | -39.46 | - | - | 304 | 101 | H |
| * 1.203 | 29.23 | ADR | 28 | -34.2 | .4 | 23.45 | 54 | -30.55 | - | - | - | - | 304 | 101 | H |
| * 9.022 | 35.32 | PK-U | 36.9 | -25.3 | 0 | 46.92 | - | - | 74 | -27.08 | - | - | 188 | 104 | V |
| * 9.022 | 24.38 | ADR | 36.9 | -25.3 | .4 | 36.4 | 54 | -17.6 | - | - | - | - | 188 | 104 | V |
| 4.433 | 39.18 | PK-U | 34.2 | -28.9 | 0 | 44.48 | - | - | - | - | 68.2 | -23.72 | 286 | 101 | V |
| 6.201 | 38.67 | PK-U | 35.9 | -28.6 | 0 | 45.97 | - | - | - | - | 68.2 | -22.23 | 216 | 101 | H |
| 9.628 | 35.43 | PK-U | 37.3 | -24.3 | 0 | 48.43 | - | - | - | - | 68.2 | -19.77 | 265 | 199 | H |
| 12.754 | 33.03 | PK-U | 39.7 | -22.3 | 0 | 50.43 | - | - | - | - | 68.2 | -17.77 | 218 | 104 | V |

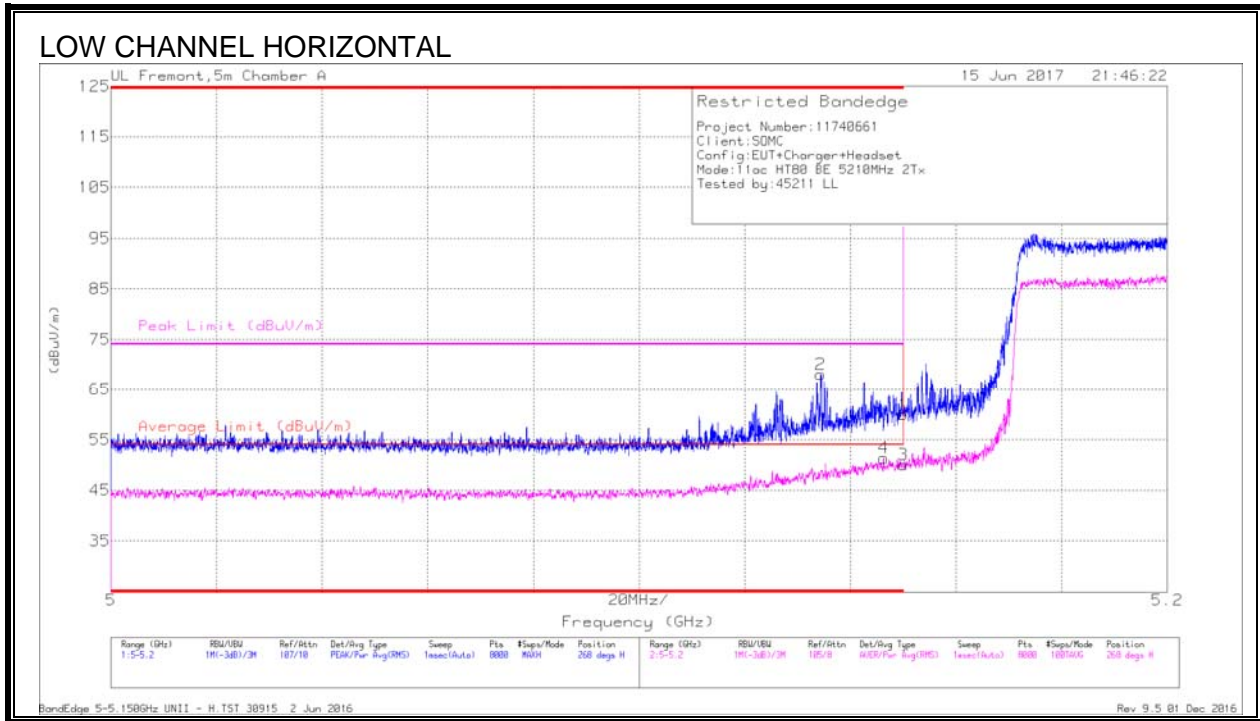
* - indicates frequency in CFR15.205/IC8.10 RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

11.1.4. 11ac HT80 2TX CDD MIMO MODE IN THE 5.2GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AFT711 (dB/m) | Amp/Cb/Ftr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|---------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 2 | * 5.134 | 52.51 | Pk | 34.1 | -18.6 | 0 | 68.01 | - | - | 74 | -5.99 | 268 | 266 | H |
| 4 | * 5.146 | 35.1 | RMS | 34.1 | -18.6 | .75 | 51.35 | 54 | -2.65 | - | - | 268 | 266 | H |
| 1 | * 5.15 | 44.57 | Pk | 34.1 | -18.7 | 0 | 59.97 | - | - | 74 | -14.03 | 268 | 266 | H |
| 3 | * 5.15 | 33.95 | RMS | 34.1 | -18.7 | .75 | 50.1 | 54 | -3.9 | - | - | 268 | 266 | H |

* - indicates frequency in CFR15.205/IC8.10 RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection