**FCC 47 CFR PART 15 SUBPART C**

**CLASS II PERMISSIVE CHANGE**
**(2.4 GHz and 5.8 GHz BAND) TEST REPORT**

**FOR**

**802.11b/g/n/a/ac WLAN + Bluetooth PCI-E NGFF 2230 Card**

**MODEL NUMBER: BCM94350ZAE**

**FCC ID: QDS-BRCM1087**

**REPORT NUMBER: 15U20280-E61 Revision A**

**ISSUE DATE: AUGUST 24, 2015**

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

*Prepared by*
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NVLAP LAB CODE 200065-0

Revision History

| Rev. | Issue Date | Revisions | Revised By |
|---|---|---|---|
| -- | 8/5/15 | Initial Issue | H. Mustapha |
| A | 8/24/15 | Updated section 5.4<br>Updated section 6<br>Removed 99% BW data from entire report<br>Updated section 7 by removing reference to 99% BW | H. Mustapha |

# TABLE OF CONTENTS

# 1. ATTESTATION OF TEST RESULTS

| | |
|---|---|
| **COMPANY NAME:** | BROADCOM CORPORATION<br>190 MATHILDA PLACE<br>SUNNYVALE, CA 94086, U.S.A. |
| **EUT DESCRIPTION:** | 802.11b/g/n/a/ac WLAN + Bluetooth PCI-E NGFF 2230 Card |
| **MODEL:** | BCM94350ZAE |
| **SERIAL NUMBER:** | Radiated: P215, SN: 404<br>Conducted: P215, SN: 398 |
| **DATE TESTED:** | MAY 1, 2015 – JULY 1, 2015 |

| APPLICABLE STANDARDS | |
|---|---|
| **STANDARD** | **TEST RESULTS** |
| CFR 47 Part 15 Subpart C | 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.

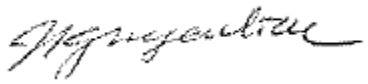
Approved & Released For
UL Verification Services Inc. By:

*Huda Mustapha*

HUDA MUSTAPHA
PROJECT LEAD
UL Verification Services Inc.

FRANK IBRAHIM
PROGRAM MANAGER
UL Verification Services Inc.

Tested By:



LIEU NGUYEN
EMC ENGINEER
UL Verification Services Inc.

# 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15, and KDB 558074 D01 v03r03.

# 3. FACILITIES AND ACCREDITATION

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

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 |
|---|---|
| ☒ Chamber A | ☐ Chamber D |
| ☒ Chamber B | ☐ Chamber E |
| ☐ Chamber C | ☐ Chamber F |
| | ☐ Chamber G |
| | ☐ Chamber H |

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/2000650.htm.

# 4. CALIBRATION AND UNCERTAINTY

## 4.1. MEASURING INSTRUMENT CALIBRATION

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

## 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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

## 4.3. MEASUREMENT UNCERTAINTY

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

| PARAMETER | UNCERTAINTY |
|---|---|
| Conducted Disturbance, 0.15 to 30 MHz | ± 3.52 dB |
| Radiated Disturbance, 30 to 1000 MHz | ± 4.94 dB |
| Radiated Disturbance, 1 to 6 GHz | ± 3.86 dB |
| Radiated Disturbance, 6 to 18 GHz | ± 4.23 dB |
| Radiated Disturbance, 18 to 26 GHz | ± 5.30 dB |
| Radiated Disturbance, 26 to 40 GHz | ± 5.23 dB |

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

# 5. EQUIPMENT UNDER TEST

## 5.1. DESCRIPTION OF EUT

The EUT is an 802.11b/g/n/a/ac WLAN + Bluetooth PCI-E NGFF2230 Card

The radio module is manufactured by Broadcom.

## 5.2. MAXIMUM OUTPUT POWER

| 2400 - 2483.5 MHz Authorized Frequency Band | | | | | |
|---|---|---|---|---|---|
| Frequency Range (MHz) | Mode | Power, Chain 0 (dBm) | Power, Chain 1 (dBm) | Total power (dBm) | Total power (mW) |
| 2412 - 2472 | 802.11b CDD 2TX | 19.50 | 19.70 | 22.61 | 182.45 |
| 2412 - 2472 | 802.11g Legacy 1TX | N/A | 19.47 | 19.47 | 88.51 |
| 2413 - 2472 | 802.11n HT20 CDD 1Tx | N/A | 19.54 | 19.54 | 89.95 |
| 2412 - 2472 | 802.11n HT20 CDD 2TX | 19.00 | 18.90 | 21.96 | 157.06 |
| 2412 - 2472 | 802.11n HT20 TxBF 2TX | 19.00 | 18.90 | 21.96 | 157.06 |
| 2422 - 2462 | 802.11n HT40 CDD 1TX | N/A | 17.40 | 17.40 | 54.95 |
| 2422 - 2462 | 802.11n HT40 CDD 2TX | 18.70 | 19.10 | 21.91 | 155.41 |
| 2422 - 2462 | 802.11n HT40 TxBF 2TX | 18.70 | 19.10 | 21.91 | 155.41 |

**List of test reduction and modes covering other modes:**

| 2400 - 2483.5 MHz Authorized Frequency Band (Antenna Port Testing) | | |
|---|---|---|
| **Band** | **Mode** | **Covered by** |
| 2.4 GHz band | 802.11b Legacy 1TX | 802.11b CDD 2TX |
| 2.4 GHz band | 802.11g CDD 2TX | 802.11n HT20 CDD 2TX |
| 2.4 GHz band | 802.11g BF 2TX | 802.11n HT20 CDD 2TX |
| 2.4 GHz band | 802.11n HT20 BF 2TX | 802.11n HT20 CDD 2TX |
| 2.4 GHz band | 802.11n HT40 BF 2TX | 802.11n HT40 CDD 2TX |

| 2400 - 2483.5 MHz Authorized Frequency Band (Radiated Testing) | | |
|---|---|---|
| **Band** | **Mode** | **Covered by** |
| 2.4 GHz band | 802.11b Legacy 1TX | 802.11b CDD 2TX |
| 2.4 GHz band | 802.11g Legacy 1TX (Harmonics) | 802.11n HT20 CDD 2TX (Harmonics) |
| 2.4 GHz band | 802.11g CDD 2TX | 802.11n HT20 CDD 2TX |
| 2.4 GHz band | 802.11g BF 2TX | 802.11n HT20 BF 2TX |

| Frequency Range (MHz) | Mode | Power, Chain 0 (dBm) | Power, Chain 1 (dBm) | Output Power (dBm) | Output Power (mW) |
|---|---|---|---|---|---|
| **5.8 GHz band, 1TX** | | | | | |
| 5745-5825 | 802.11a Legacy | 19.00 | N/A | 19.00 | 79.43 |
| 5745-5825 | 802.11n HT20 | 19.20 | N/A | 19.20 | 83.18 |
| 5755-5795 | 802.11n HT40 | 19.11 | N/A | 19.11 | 81.47 |
| 5775 | 802.11ac VHT80 | 18.95 | N/A | 18.95 | 78.52 |
| **5.8 GHz band, 2TX** | | | | | |
| 5745-5825 | 802.11n HT20 CDD | 18.90 | 19.05 | 21.99 | 157.98 |
| 5745-5825 | 802.11n HT20 TxBF | 18.90 | 19.05 | 21.99 | 157.98 |
| 5755-5795 | 802.11n HT40 CDD | 19.10 | 19.05 | 22.09 | 161.64 |
| 5755-5795 | 802.11n HT40 TxBF | 19.10 | 19.05 | 22.09 | 161.64 |
| 5775 | 802.11ac VHT80 CDD | 17.98 | 17.79 | 20.90 | 122.92 |
| 5775 | 802.11ac VHT80 TxBF | 17.98 | 17.79 | 20.90 | 122.92 |

## List of test reductions and modes covering other modes

| Antenna Port Testing | | |
|---|---|---|
| **Band** | **Mode** | **Covered by** |
| 5 GHz bands | 802.11a Legacy 1TX | 802.11n HT20 CDD 2TX |
| 5 GHz bands | 802.11a CDD 2TX | 802.11n HT20 CDD 2TX |
| 5 GHz bands | 802.11n HT20 SDM/STBC 2TX | 802.11n HT20 CDD 2TX |
| 5 GHz bands | 802.11n HT40 1TX | 802.11n HT40 CDD 2TX |
| 5 GHz bands | 802.11n HT40 SDM/STBC 2TX | 802.11n HT40 CDD 2TX |
| 5 GHz bands | 802.11ac VHT80 1TX | 802.11ac VHT80 CDD 2TX |
| 5 GHz bands | 802.11ac VHT80 SDM/STBC 2TX | 802.11ac VHT80 CDD 2TX |

| Radiated Testing | | |
|---|---|---|
| **Band** | **Mode** | **Covered by** |
| 5 GHz bands | 802.11a Legacy 1TX (Harmonics) | 802.11n HT20 CDD 2TX (Harmonics) |
| 5 GHz bands | 802.11a CDD 2TX | 802.11n HT20 CDD 2TX |
| 5 GHz bands | 802.11n HT20 SDM/STBC 2TX | 802.11n HT20 CDD 2TX |
| 5 GHz bands | 802.11n HT40 1TX (Harmonics) | 802.11n HT40 CDD 2TX (Harmonics) |
| 5 GHz bands | 802.11ac VHT80 1TX (Harmonics) | 802.11ac VHT80 CDD 2TX (Harmonics) |
| 5 GHz bands | 802.11ac VHT80 SDM/STBC 2TX | 802.11ac VHT80 CDD 2TX |

## 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The EUT utilizes the following antennas:

| Antenna Manufacturer | Antenna Type | Model | Peak Gain (2400-2483.5 MHz) | Peak gain (5150-5250MHz) @5180MHz | Peak gain (5250-5350MHz) @5320MHz | Peak gain (5470-5725MHz) @5580 | Peak gain (5725-5850MHz) @5745MHz |
|---|---|---|---|---|---|---|---|
| Ethertronics | 802.11bgn WLAN Antenna | 1000802 | 3.6 | N/A | N/A | N/A | N/A |
| Ethertronics | 802.11 5GHz WLAN Antenna | 1000615a | N/A | 3.3 | 4.0 | 6.0 | 4.7 |

## 5.4. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The purpose of this C2PC is to test the device described under section 5.1 of this report in accordance with part 15.247 Old Rules in the 5.8 GHz band. All data for the 2.4 GHz band was leveraged from original report no. 15U20280-E56A, as the EUT's firmware and hardware remained unchanged. The original data was tested in accordance with part 15.247 New Rules.

## 5.5. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was Broadcom, rev. 7.35 RC180.50 and Broadcom, rev. 7.35.RC218 (used for HT20 CH13 Radiated BE Testing)

The EUT driver software installed during testing was Broadcom, rev. 7.35.180.50 and Broadcom, rev. 7.35.218 (used for HT20 CH13 Radiated BE Testing)

The test utility software used during testing was Broadcom MTool, rev. 2.0.2.5.

## 5.6. WORST-CASE CONFIGURATION AND MODE

The EUT was tested as an external module installed in a test jig board connected to a host Laptop PC.

The EUT can only be setup in desktop orientation; therefore, all radiated testing was performed with the EUT in desktop orientation.

Radiated emission below 1GHz, above 18GHz, and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

For 2.4 GHz, band edge preliminary investigation showed that antenna port J1, horizontal polarization was worst case for CDD and SISO modes, therefore only horizontal polarization was tested for these modes.

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

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11a mode: 6 Mbps
802.11n HT20 mode: MCS0
802.11n HT40 mode: MCS0
802.11ac VHT80 mode: MCS0

For TxBF mode conducted testing, the bandwidth and duty cycle data were shared with CDD mode; the TxBF mode radiated portion has its own duty cycle.

## 5.7. DESCRIPTION OF TEST SETUP

**SUPPORT EQUIPMENT**

| Support Equipment List | | | |
|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **Serial Number** |
| Laptop | Lenovo | Lenovo G560 | CB08584349 |
| AC / DC Adapter | Lenovo | PA-1650-56LC | N/A |
| Laptop | DELL | Latitude E6400 | 7WCBYH1 |
| AC / DC Adapter | DELL | DA90PM111 | N/A |
| PCIe. Card | Broadcom | N/A | N/A |

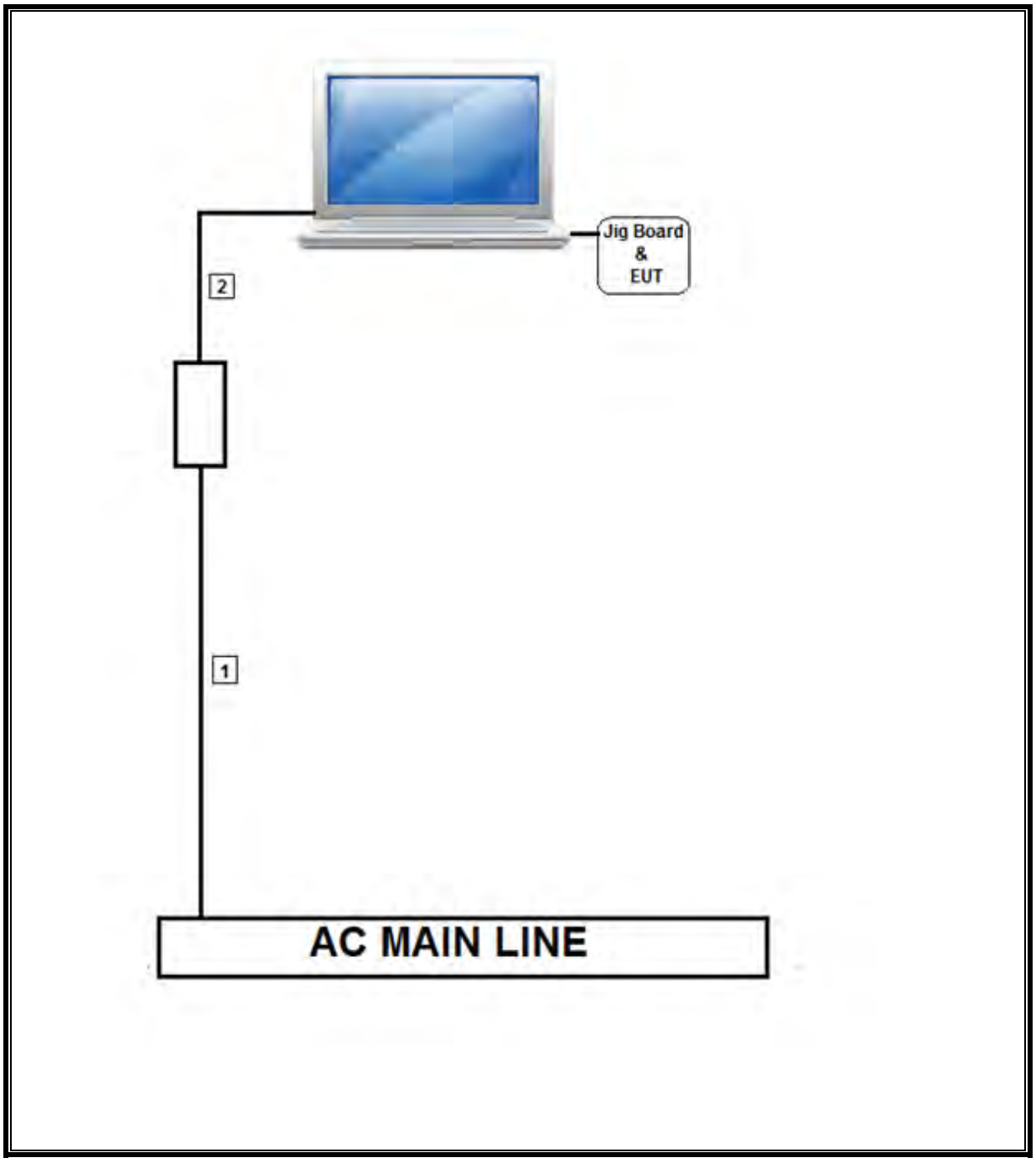
**I/O CABLES**

| I/O Cable List | | | | | | |
|---|---|---|---|---|---|---|
| **Cable No** | **Port** | **# of identical ports** | **Connector Type** | **Cable Type** | **Cable Length (m)** | **Remarks** |
| 1 | AC | 1 | US115V | Unshielded | 1 | |
| 2 | DC | 1 | VDC | Unshielded | 1.5 | Ferrite on laptop end |

**TEST SETUP**

The EUT was connected to a host laptop via PCIE card. Test software exercised the EUT.

**SETUP DIAGRAM FOR TESTS**



# 6. TEST AND MEASUREMENT EQUIPMENT

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

| Test Equipment List | | | | | |
|---|---|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **T No.** | **Cal Date** | **Cal Due** |
| Radiated Software | UL | UL EMC | Ver 9.5, June 6, 2015 | | |
| Conducted Software | UL | UL EMC | Ver 9.5, May 17 2012 | | |
| Bilog Antenna 30-1000MHz | Sunol | JB1 | 130 | 09/10/14 | 09/10/15 |
| Horn Antenna 1-18GHz | ETS | 3117 | 136 | 01/15/15 | 01/15/16 |
| Horn Antenna 1-18GHz | ETS | 3117 | 345 | 03/03/15 | 03/03/16 |
| Horn Antenna 18-26GHz | ARA | SWH-28 | 98 | 12/17/14 | 12/17/15 |
| Horn Antenna 26.5- 40GHz | ARA | MWH-2640/B | 90 | 07/15/14 | 07/15/15 |
| Preamp 10kHz-1000MHz | Sonoma | 310 | 300 | 11/01/14 | 11/01/15 |
| Preamp 1-8GHz | Miteq | AMF-4D-01000 | 782 | 11/18/14 | 11/18/15 |
| Preamp 1-18GHz | Miteq | AFS42-0010180 | 492 | 08/09/14 | 08/09/15 |
| Preamp 1-26.5GHz | Agilent | 8449B | 404 | 04/13/15 | 04/13/16 |
| Amplifier, 26-40GHz | Miteq | NSP4000-SP2 | 88 | 04/07/15 | 04/07/16 |
| Spectrum Analyzer 3kHz - 44GHz | Agilent | N9030A | 908 | 09/05/14 | 09/05/15 |
| Spectrum Analyzer 3kHz - 44GHz | Agilent | N9030A | 907 | 05/15/15 | 05/15/16 |
| Spectrum Analyzer 9kHz - 40GHz | HP | 8564E | 106 | 08/06/14 | 08/06/15 |
| 3GHz HPF | Micro-Tronics | HPM17543 | 487 | 01/31/15 | 01/31/16 |
| EMI Test Receiver | Rohde & Schwarz | ECSI 7 | 212 | 08/04/14 | 08/04/15 |
| Spectrum Analzer 3Hz to 44GHz | Agilent | E4440A | 123 | 10/28/14 | 10/28/15 |
| Power Meter | Agilent | N1911A | 377 | 06/16/15 | 06/16/16 |
| LISN for Conducted Emission | FCC | 50/250-25-2 | 24 | 01/16/15 | 01/16/16 |
| Power Sensor | Agilent | E9323A | 400 | 05/05/15 | 05/05/16 |

# 7. MEASUREMENT METHODS

On Time and Duty Cycle: KDB 558074 D01 v03r03, Section 6.0.

6 dB BW: KDB 558074 D01 v03r03, Section 8.1.

Output Power: KDB 558074 D01 v03r03, Section 9.2.3.2, and KDB 662911 D01 v02r01.

Power Spectral Density: KDB 558074 D01 v03r03, Section 10.3 and 10.5 and KDB 662911 D01 v02r01

Out-of-band emissions in non-restricted bands: KDB 558074 D01 v03r03, Section 11.0.

Out-of-band emissions in restricted bands: KDB 558074 D01 v03r03, Section 12.1.

AC Power Line Conducted Emissions: ANSI C63.10-2009

# 8. ANTENNA PORT TEST RESULTS

## 8.1. ON TIME AND DUTY CYCLE

**LIMITS**

None; for reporting purposes only.

**ON TIME AND DUTY CYCLE RESULTS**

| Mode | ON Time B (msec) | Period (msec) | Duty Cycle x (linear) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | 1/B Minimum VBW (kHz) |
|---|---|---|---|---|---|---|
| **2.4GHz Band** | | | | | | |
| 802.11b CDD 2TX | 10.000 | 10.000 | 1.000 | 100.00% | 0.00 | 0.010 |
| 802.11g 1TX | 2.064 | 2.085 | 0.990 | 98.99% | 0.00 | 0.010 |
| 802.11n HT20 CDD 2TX | 1.920 | 1.941 | 0.989 | 98.92% | 0.00 | 0.010 |
| 802.11ac HT20 TxBF 2TX | 23.450 | 25.590 | 0.916 | 91.64% | 0.38 | 0.043 |
| 802.11n HT40 CDD 2TX | 0.942 | 0.966 | 0.975 | 97.52% | 0.11 | 1.062 |
| 802.11ac HT40 TxBF 2TX | 26.075 | 27.530 | 0.947 | 94.71% | 0.24 | 0.038 |

| Mode | ON Time B (msec) | Period (msec) | Duty Cycle x (linear) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | 1/B Minimum VBW (kHz) |
|---|---|---|---|---|---|---|
| **5GHz Band** | | | | | | |
| 802.11a 1TX | 2.065 | 2.085 | 0.990 | 99.04% | 0.00 | 0.010 |
| 802.11n HT20 CDD 2TX | 1.917 | 1.941 | 0.988 | 98.76% | 0.00 | 0.010 |
| 802.11n HT20 STBC 2TX | 1.917 | 1.941 | 0.988 | 98.76% | 0.00 | 0.010 |
| 802.11n HT20 BF 2TX | 27.235 | 28.520 | 0.955 | 95.49% | 0.20 | 0.037 |
| 802.11n HT40 CDD 2TX | 0.9420 | 0.9620 | 0.979 | 97.92% | 0.09 | 1.062 |
| 802.11n HT40 STBC 2TX | 0.9500 | 0.9720 | 0.977 | 97.74% | 0.10 | 1.053 |
| 802.11n HT40 TxBF 2TX | 28.150 | 29.180 | 0.965 | 96.47% | 0.16 | 0.036 |
| 802.11ac VHT80 CDD 2TX | 0.4590 | 0.4790 | 0.958 | 95.82% | 0.19 | 2.179 |
| 802.11ac VHT80 BF 2TX | 24.1850 | 27.2700 | 0.887 | 88.69% | 0.52 | 0.041 |

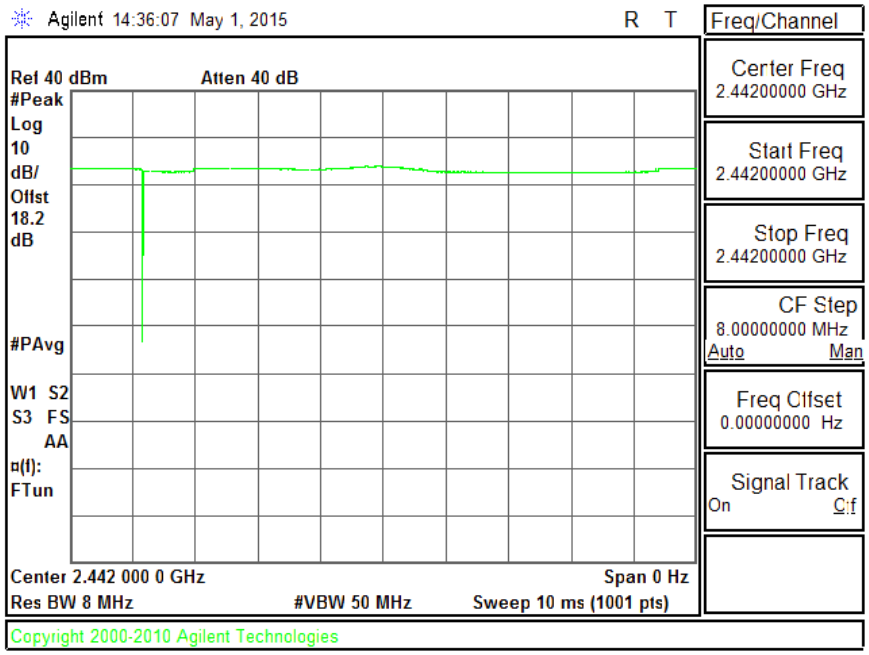
**Note:**

The duty cycle correction factors of CDD modes were used for antenna port beam-forming testing; however, the duty cycle correction factors of beam-forming modes were used for radiated emission of beam-forming modes.

## 8.2. DUTY CYCLE PLOTS

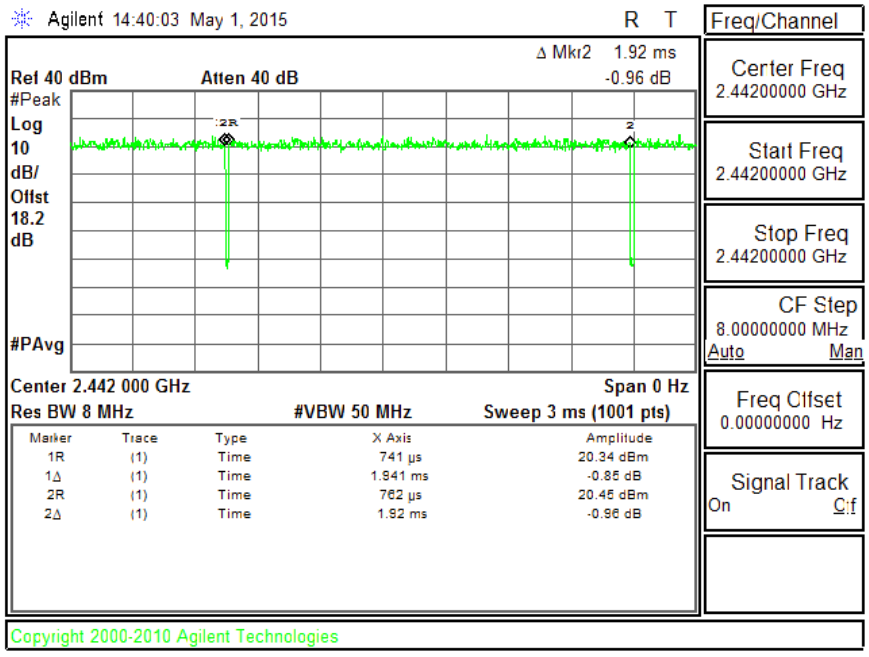
**2.4 GHz BAND**

DUTY CYCLE 802.11b 2TX MODE




DUTY CYCLE 802.11g SISO

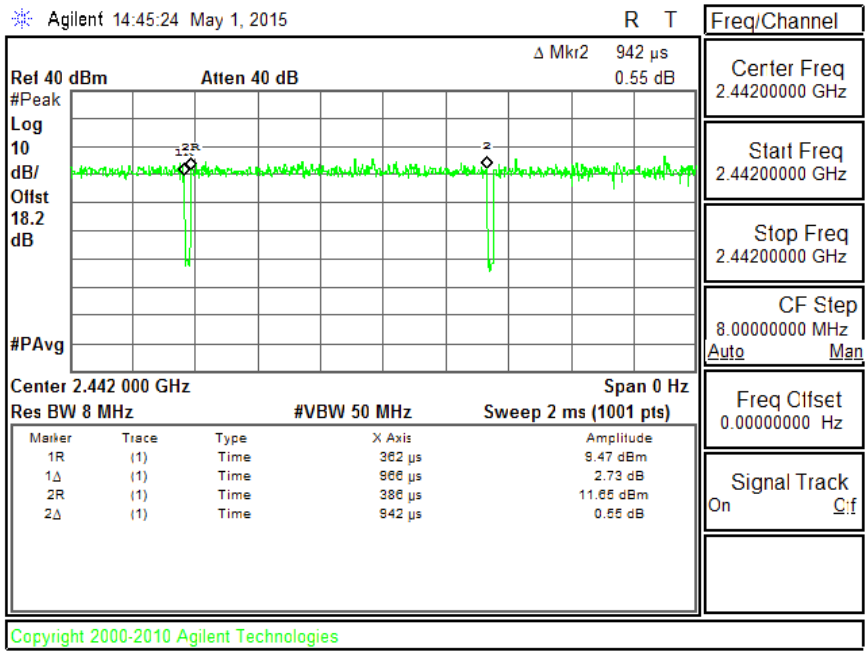
DUTY CYCLE 802.11n HT20 CDD 2TX MODE




DUTY CYCLE 802.11n HT20 TxBF Mode (1 of 2)

DUTY CYCLE 802.11n HT20 TxBF Mode (2 of 2)


DUTY CYCLE 802.11n HT40 CDD 2TX MODE

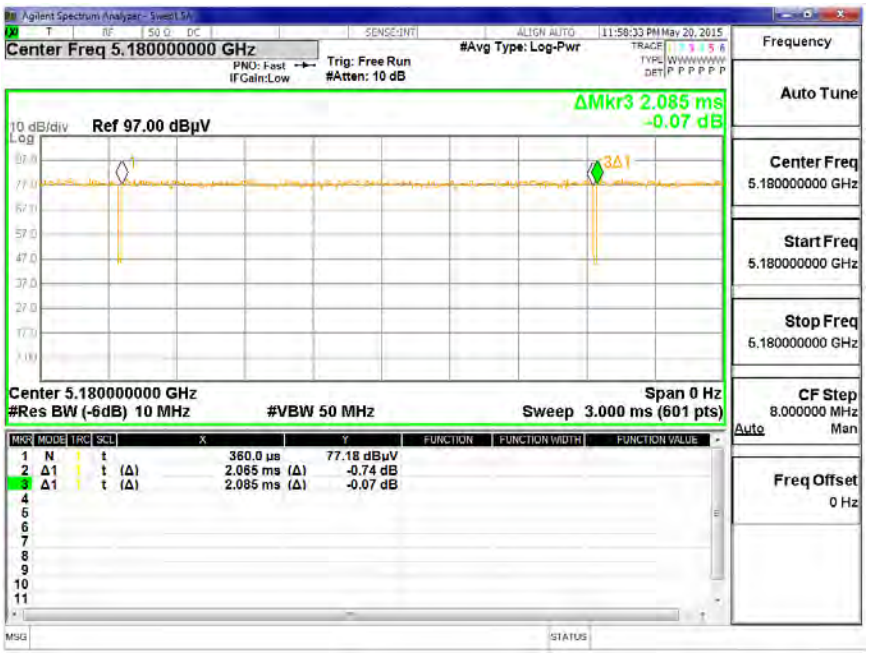


DUTY CYCLE 802.11n HT40 TxBF Mode (1 of 2)

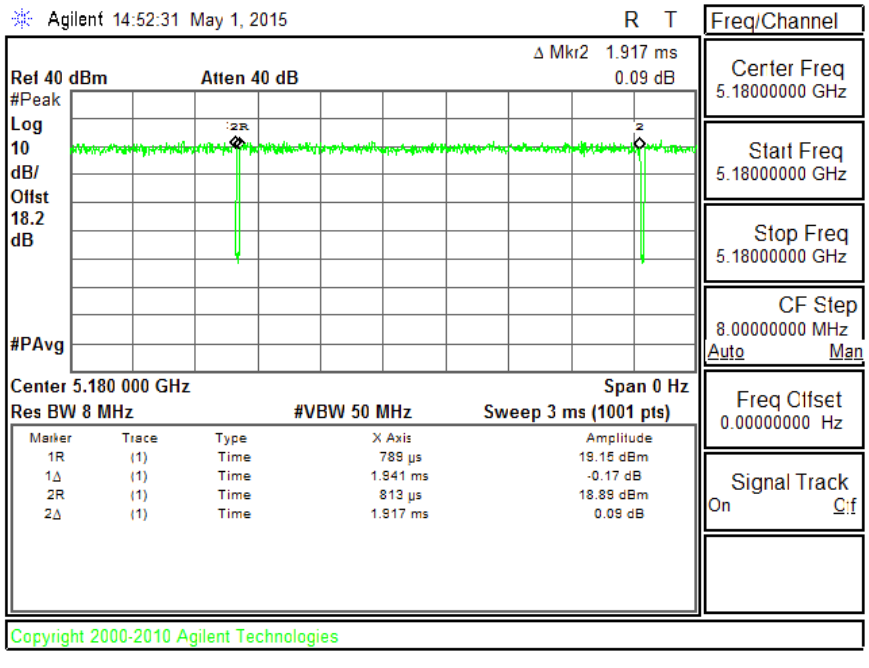

DUTY CYCLE 802.11n HT40 TxBF Mode (2 of 2)

**5 GHz BANDS**

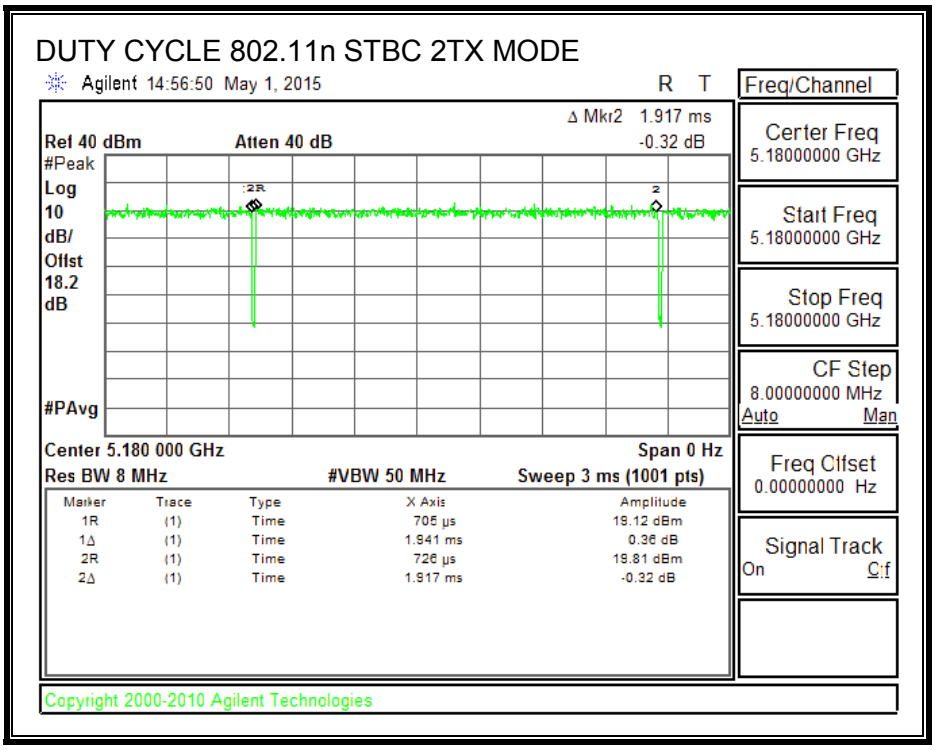
DUTY CYCLE 802.11a 1TX MODE



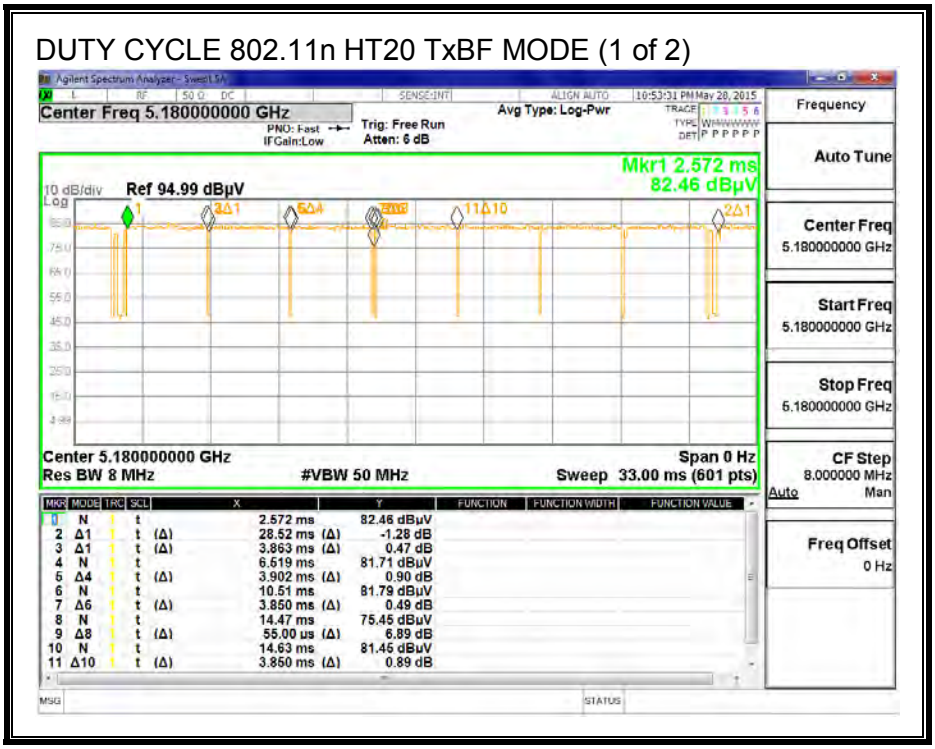

DUTY CYCLE 802.11n HT20 CDD 2TX MODE



DUTY CYCLE 802.11n STBC 2TX MODE

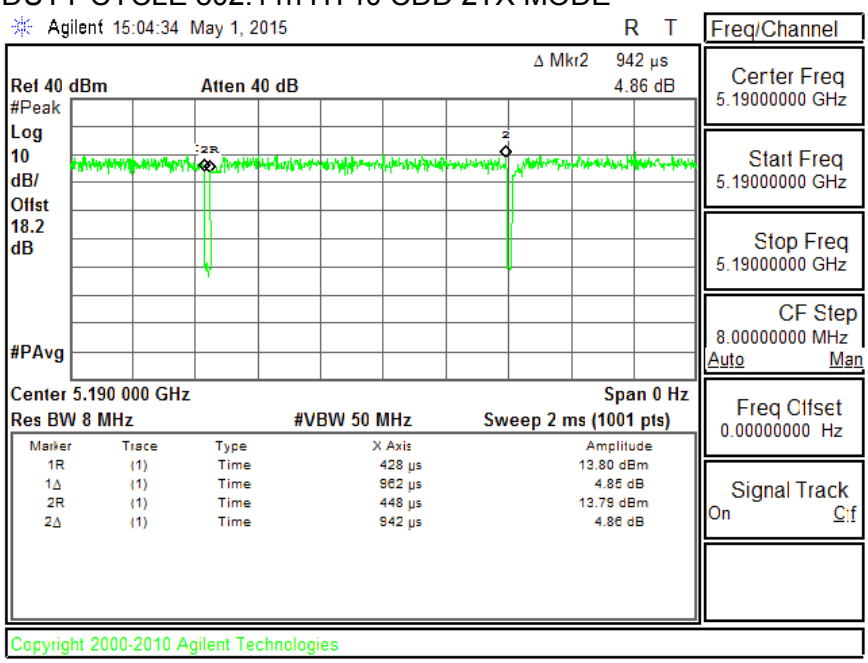



DUTY CYCLE 802.11n HT20 TxBF MODE (1 of 2)

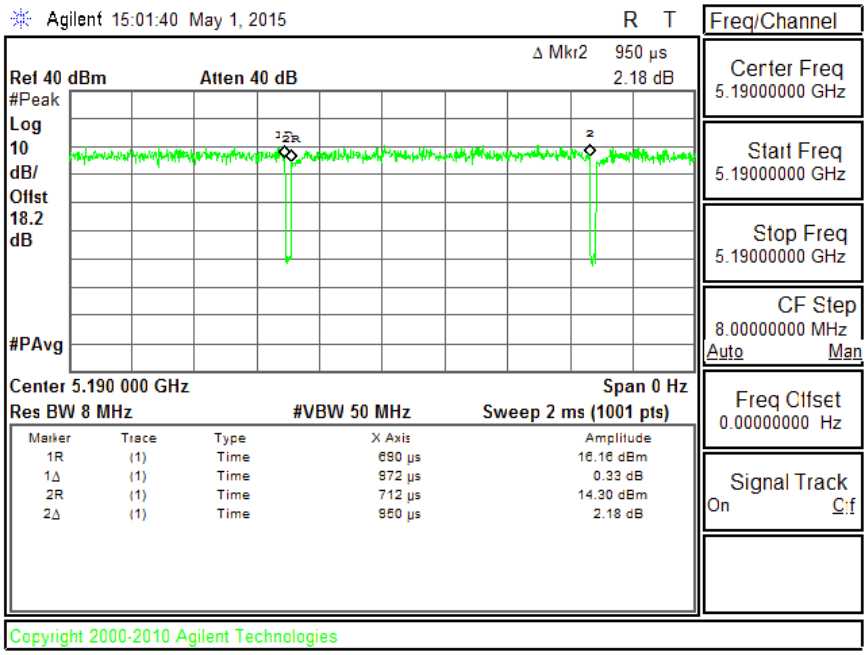


DUTY CYCLE 802.11n HT20 TxBF MODE (2 of 2)

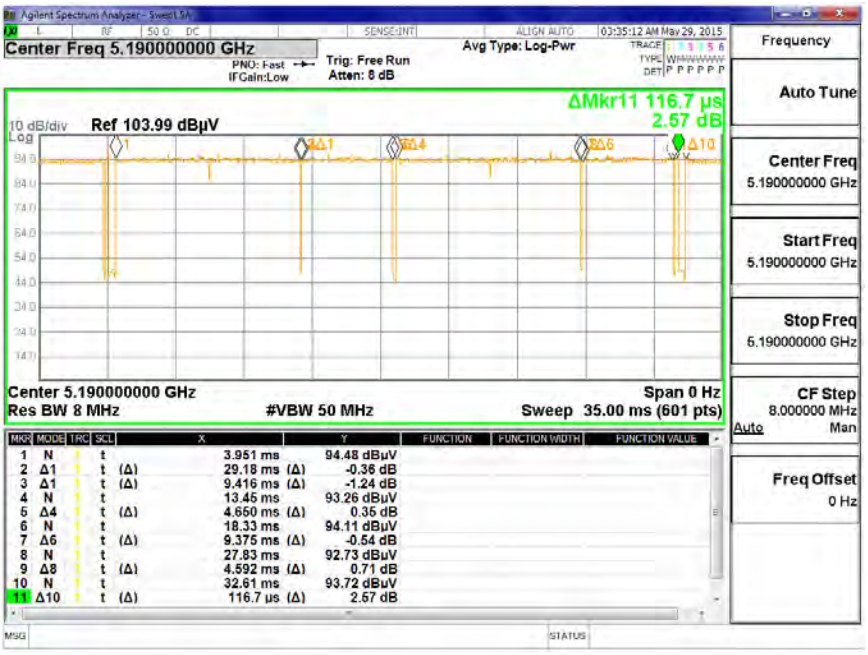

DUTY CYCLE 802.11n HT40 CDD 2TX MODE



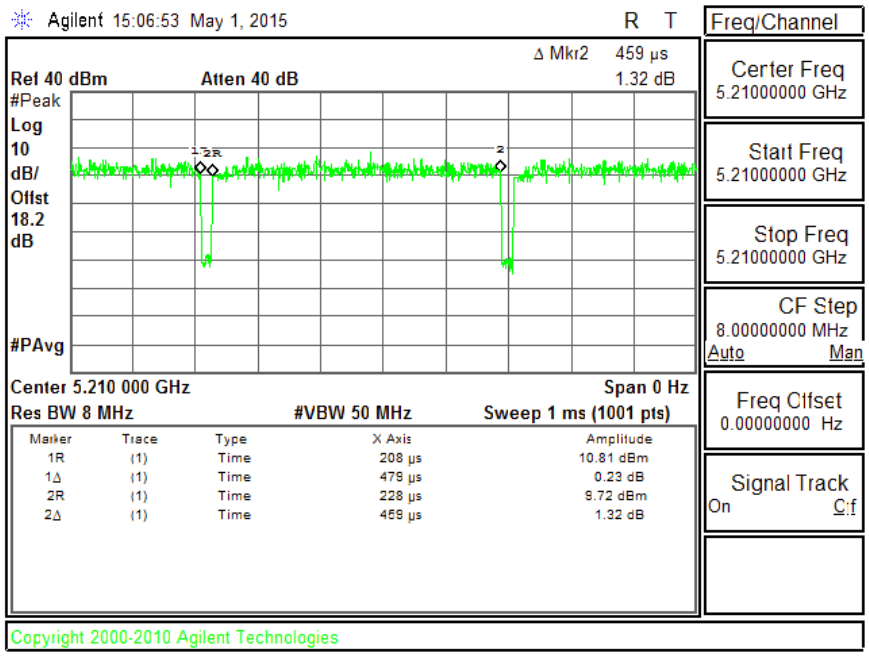
DUTY CYCLE 802.11n HT40 STBC 2TX MODE



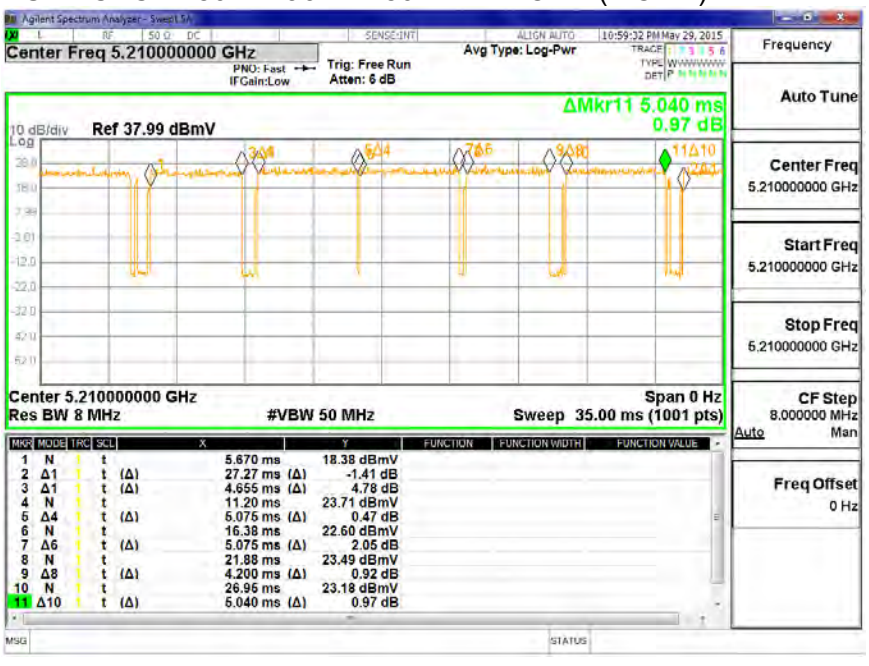

DUTY CYCLE 802.11n HT40 TxBF MODE



DUTY CYCLE 802.11ac VHT80 CDD 2TX MODE




DUTY CYCLE 802.11ac VHT80 TxBF MODE (1 OF 2)



DUTY CYCLE 802.11ac VHT80 TxBF MODE (2 OF 2)

## 8.3. 802.11b CDD 2TX MODE IN THE 2.4 GHz BAND

### 8.3.1. 6 dB BANDWIDTH

**LIMITS**

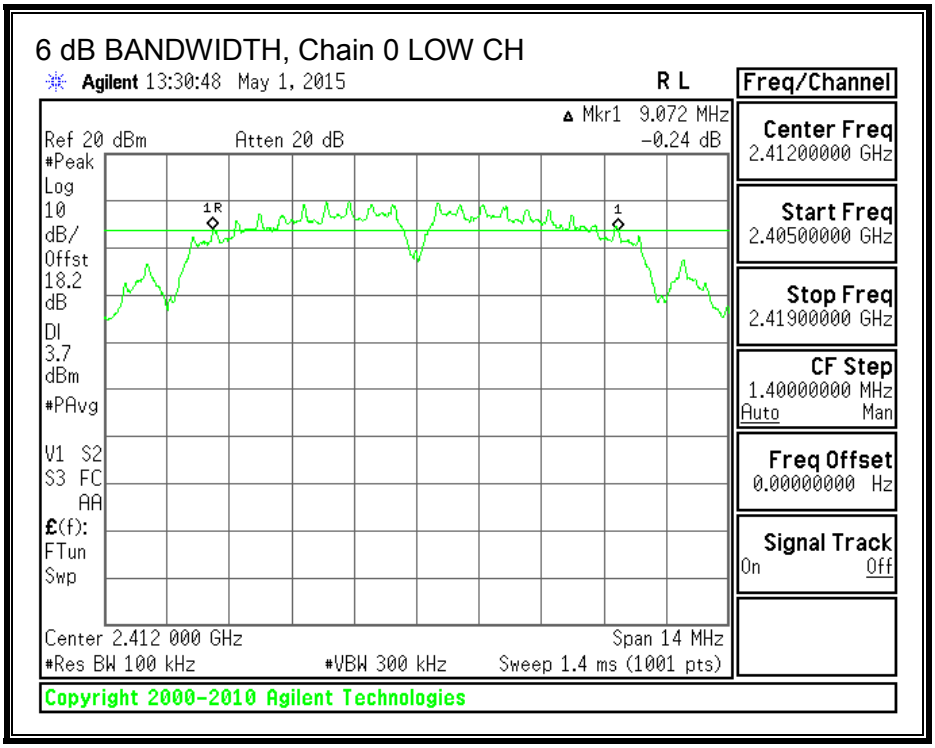
FCC §15.247 (a) (2)

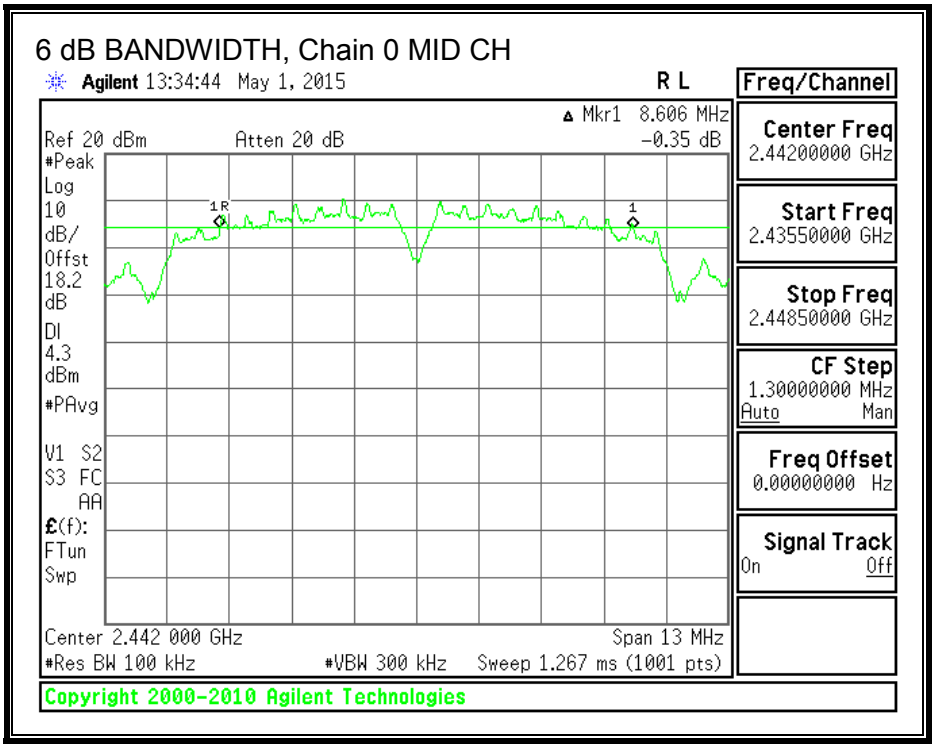
The minimum 6 dB bandwidth shall be at least 500 kHz.

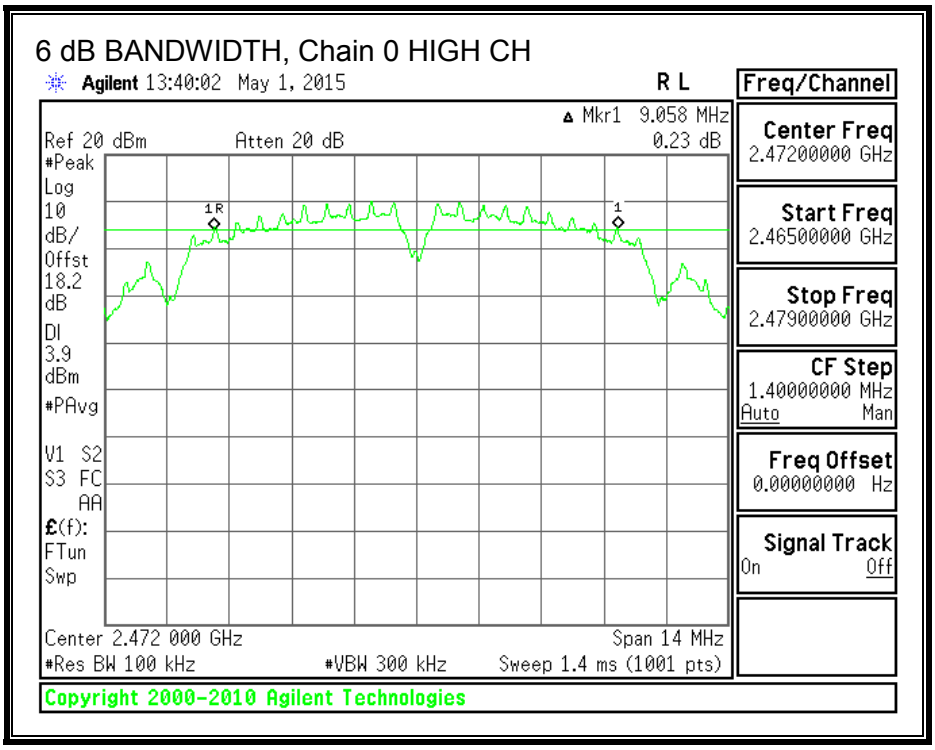
**RESULTS**

| Channel | Frequency (MHz) | 6 dB BW Chain 0 (MHz) | 6 dB BW Chain 1 (MHz) | Minimum Limit (MHz) |
|---|---|---|---|---|
| Low | 2412 | 9.072 | 9.058 | 0.5 |
| Mid | 2442 | 8.606 | 9.061 | 0.5 |
| High | 2472 | 9.058 | 9.086 | 0.5 |

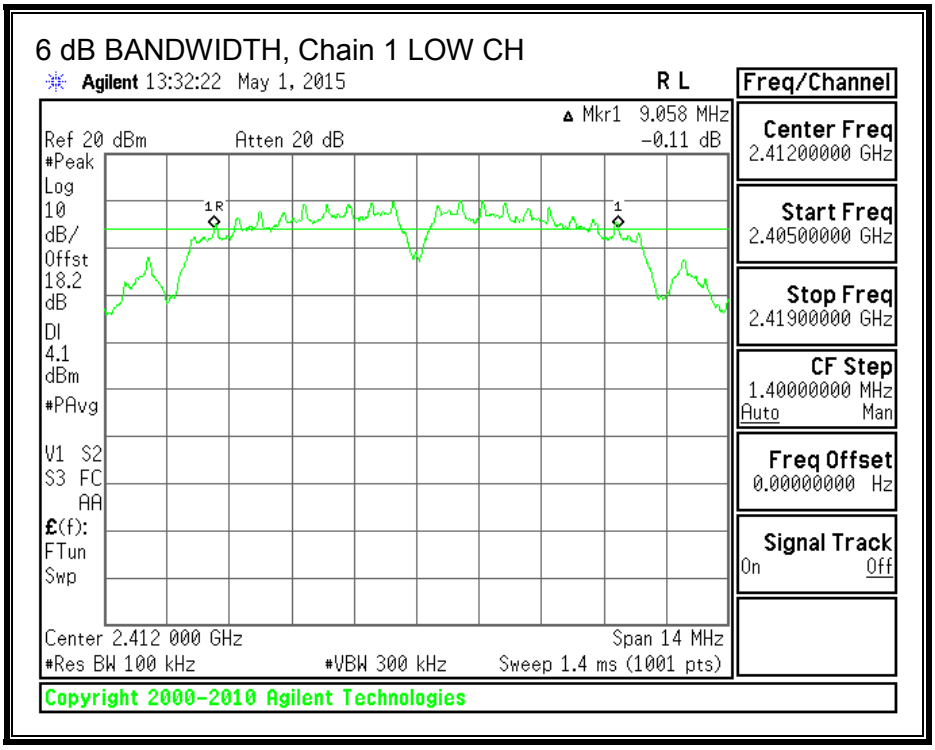
**6 dB BANDWIDTH, Chain 0**



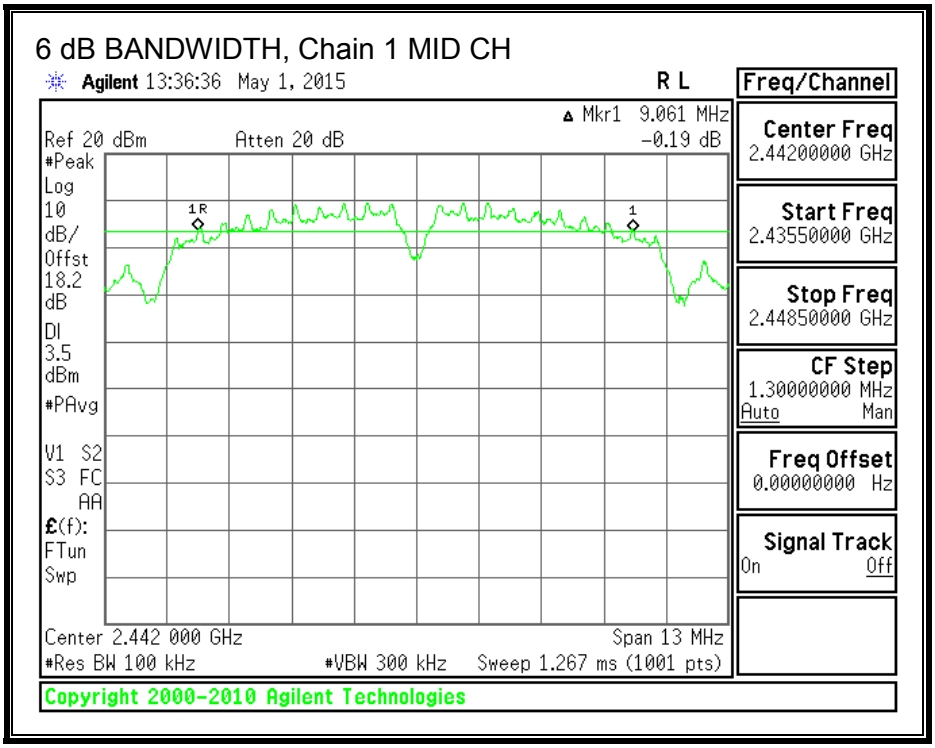





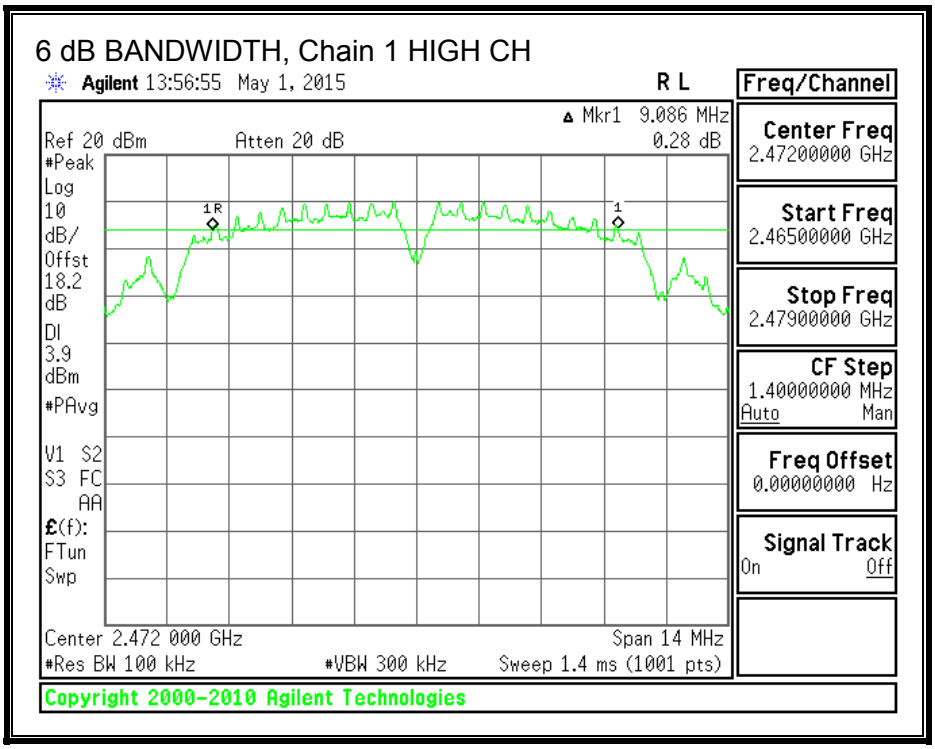

**6 dB BANDWIDTH, Chain 1**



6 dB BANDWIDTH, Chain 1 MID CH




6 dB BANDWIDTH, Chain 1 HIGH CH



## 8.3.2. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section 5.4 (5), the e.i.r.p. shall not exceed 4 W.

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

**DIRECTIONAL ANTENNA GAIN**

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

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|---|---|---|
| 3.60 | 3.60 | 3.60 |

**RESULTS**

**Limits**

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---|---|---|---|---|---|---|
| 1 | 2412 | 3.60 | 30 | 30 | 36 | 30.00 |
| 2 | 2417 | 3.60 | 30 | 30 | 36 | 30.00 |
| 7 | 2442 | 3.60 | 30 | 30 | 36 | 30.00 |
| 11 | 2462 | 3.60 | 30 | 30 | 36 | 30.00 |
| 12 | 2467 | 3.60 | 30 | 30 | 36 | 30.00 |
| 13 | 2472 | 3.60 | 30 | 30 | 36 | 30.00 |

**Results**

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margi (dB) |
|---|---|---|---|---|---|---|
| 1 | 2412 | 19.50 | 19.60 | 22.56 | 30.00 | -7.44 |
| 2 | 2417 | 19.50 | 19.60 | 22.56 | 30.00 | -7.44 |
| 7 | 2442 | 19.50 | 19.70 | 22.61 | 30.00 | -7.39 |
| 11 | 2462 | 19.42 | 19.72 | 22.58 | 30.00 | -7.42 |
| 12 | 2467 | 19.51 | 19.68 | 22.61 | 30.00 | -7.39 |
| 13 | 2472 | 15.52 | 15.43 | 18.49 | 30.00 | -11.51 |

**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.

## 8.3.3. POWER SPECTRAL DENSITY

**LIMITS**

FCC §15.247

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of Section 5.4 (4), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

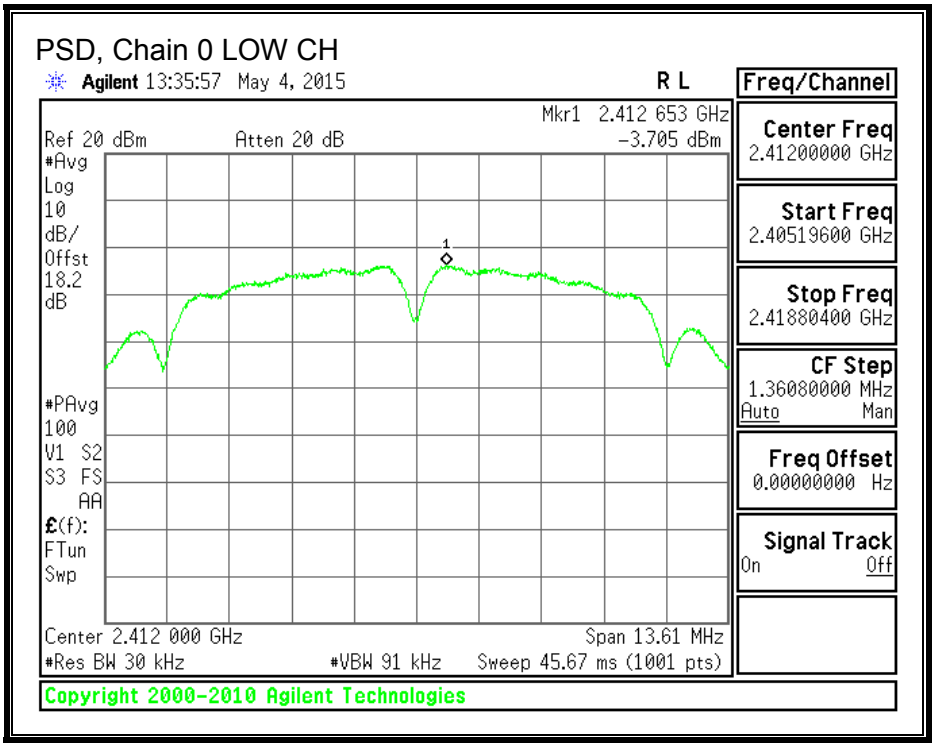
**RESULTS**

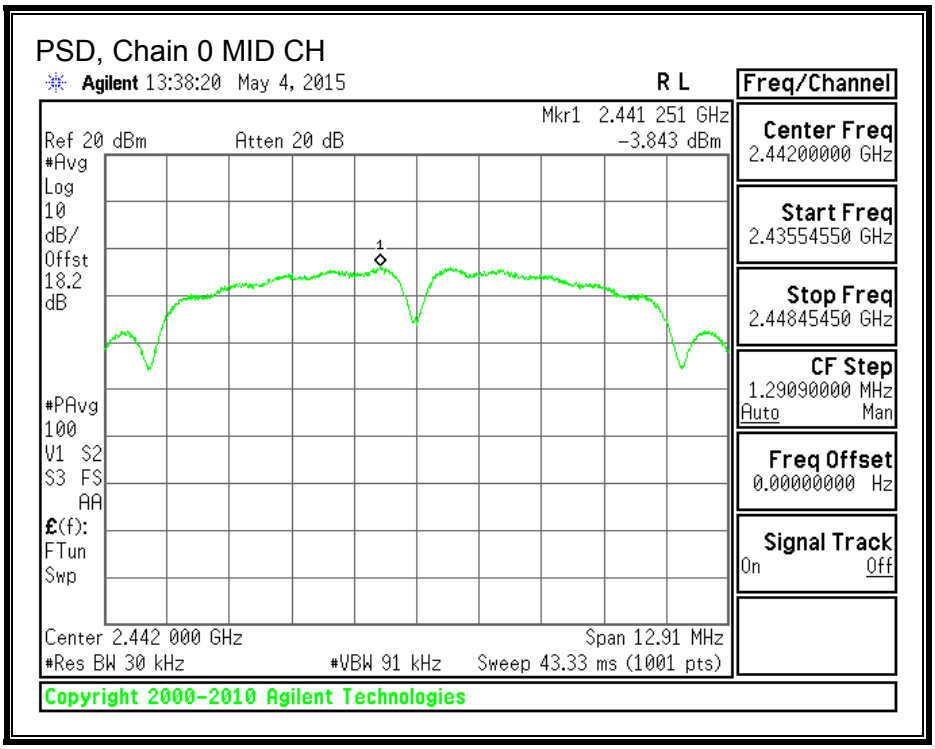
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|---|---|---|

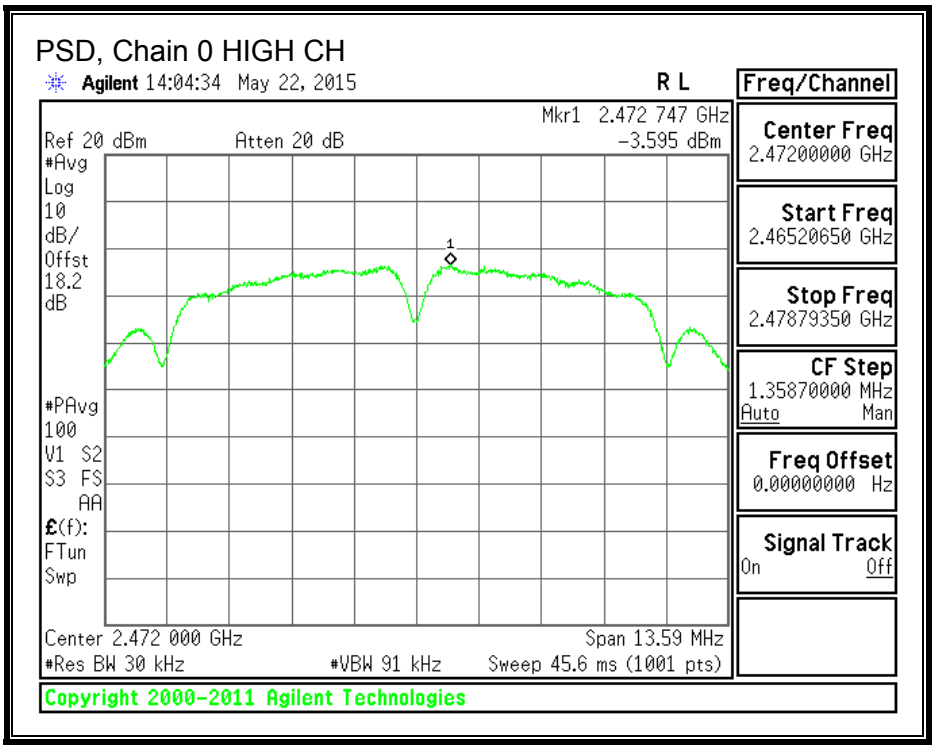
**PSD Results**

| Channel | Frequency (MHz) | Chain 0 Meas (dBm) | Chain 1 Meas (dBm) | Total Corr'd PSD (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| Low | 2412 | -3.705 | -3.792 | -0.74 | 8.0 | -8.7 |
| Mid | 2442 | -3.843 | -3.923 | -0.87 | 8.0 | -8.9 |
| High | 2472 | -3.595 | -2.898 | -0.22 | 8.0 | -8.2 |

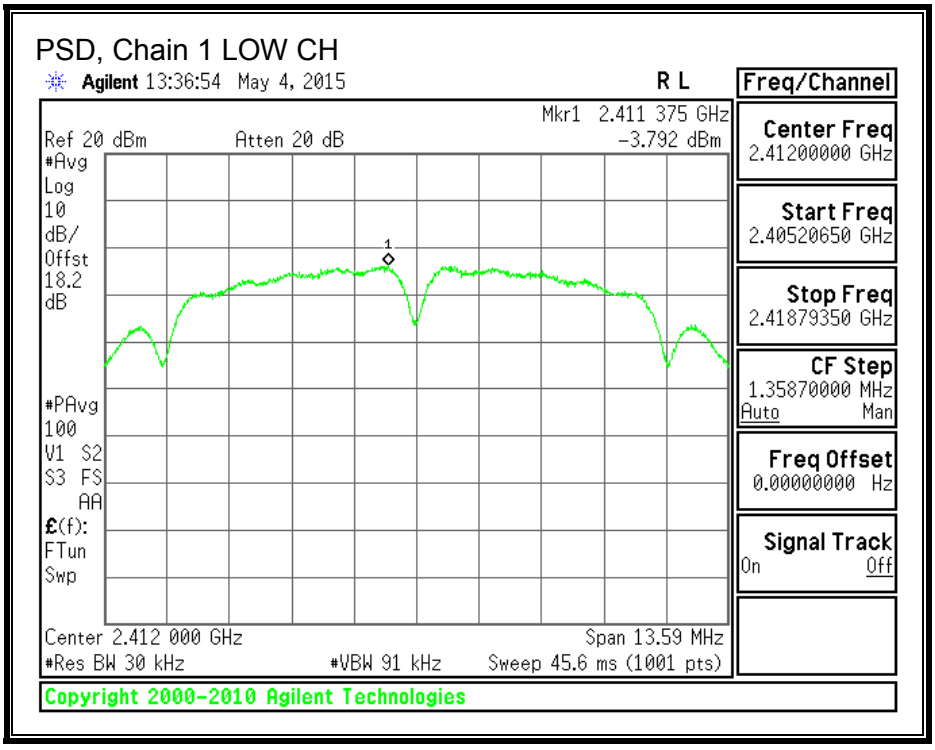
**PSD, Chain 0**



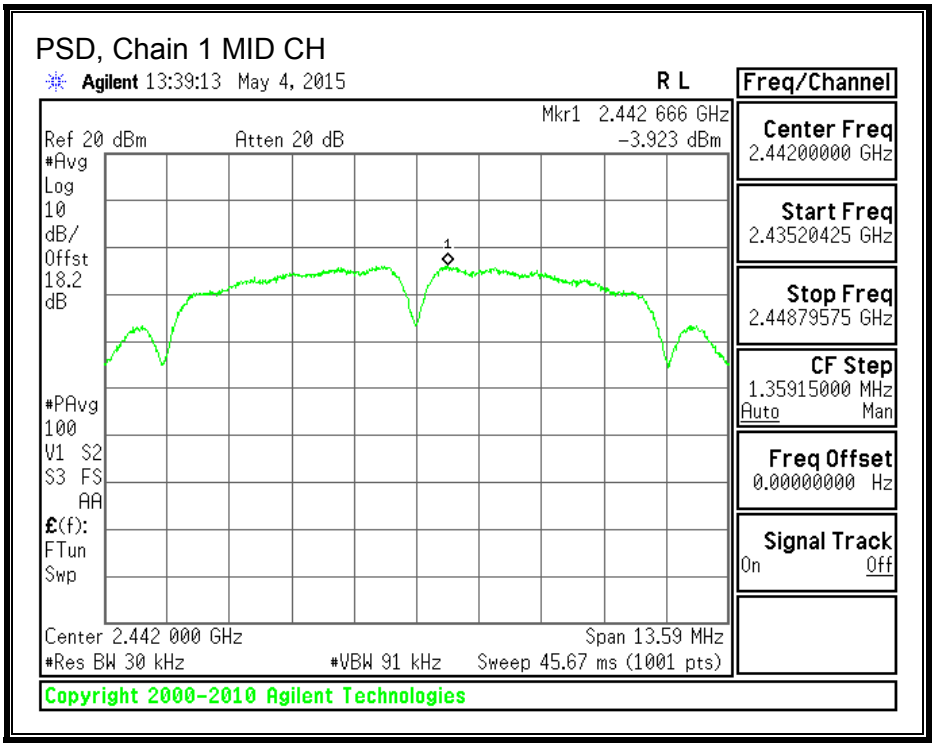





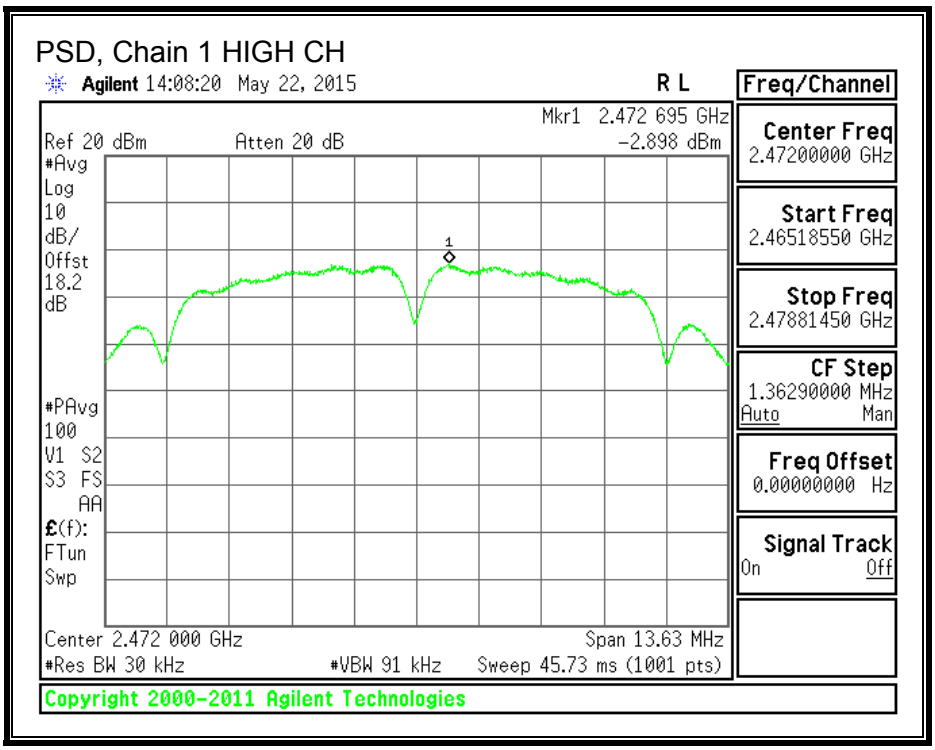

**PSD, Chain 1**



PSD, Chain 1 MID CH




PSD, Chain 1 HIGH CH



## 8.3.4. OUT-OF-BAND EMISSIONS

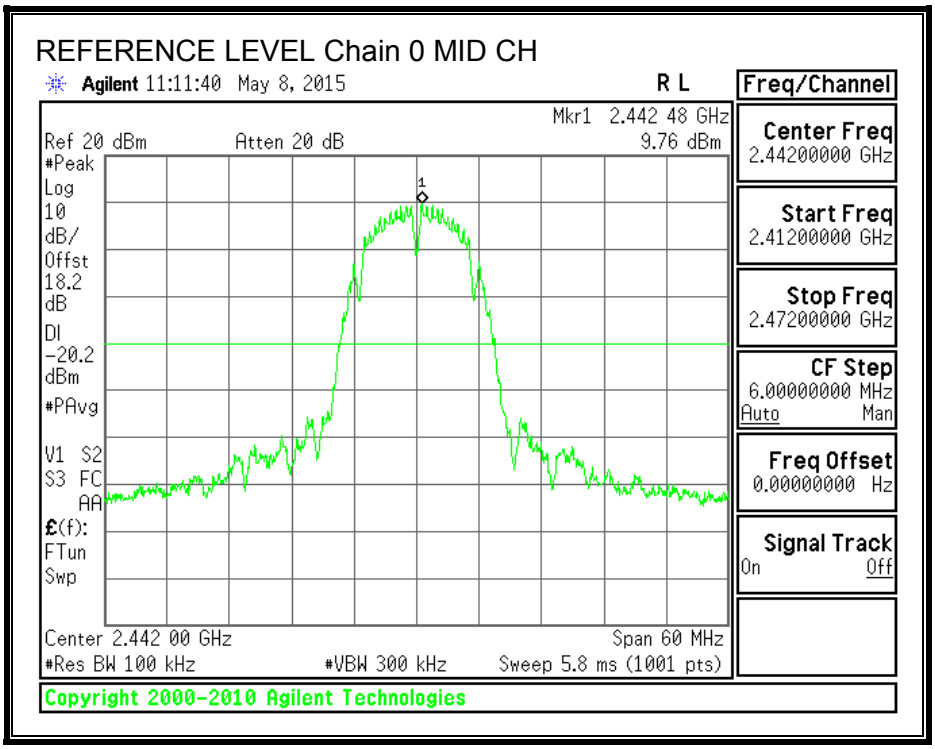
**LIMITS**

FCC §15.247 (d)

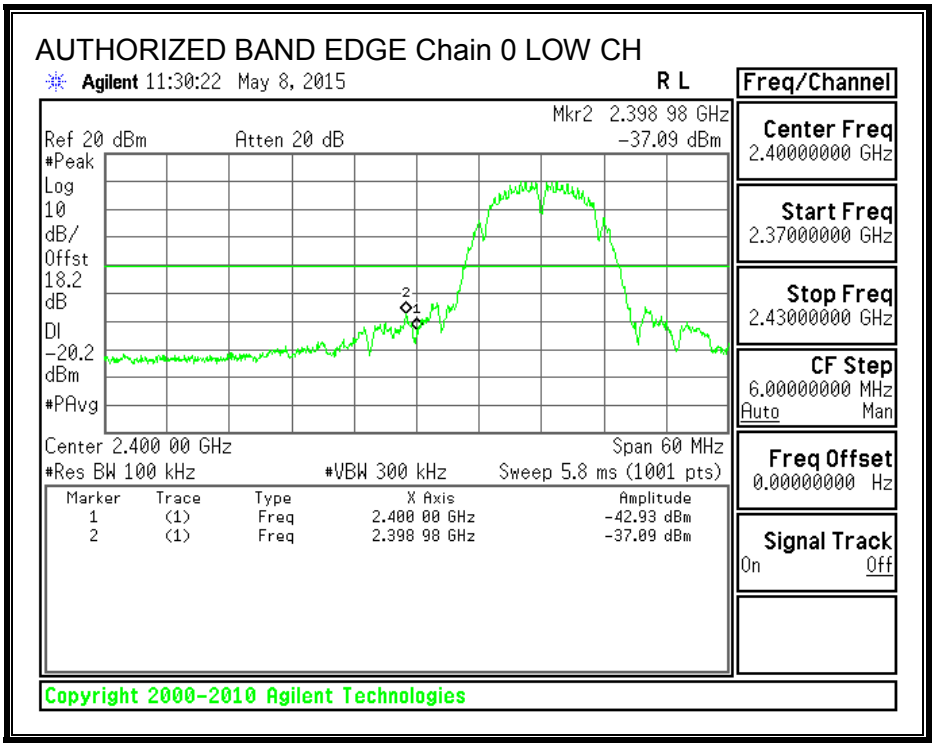
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

**RESULTS**

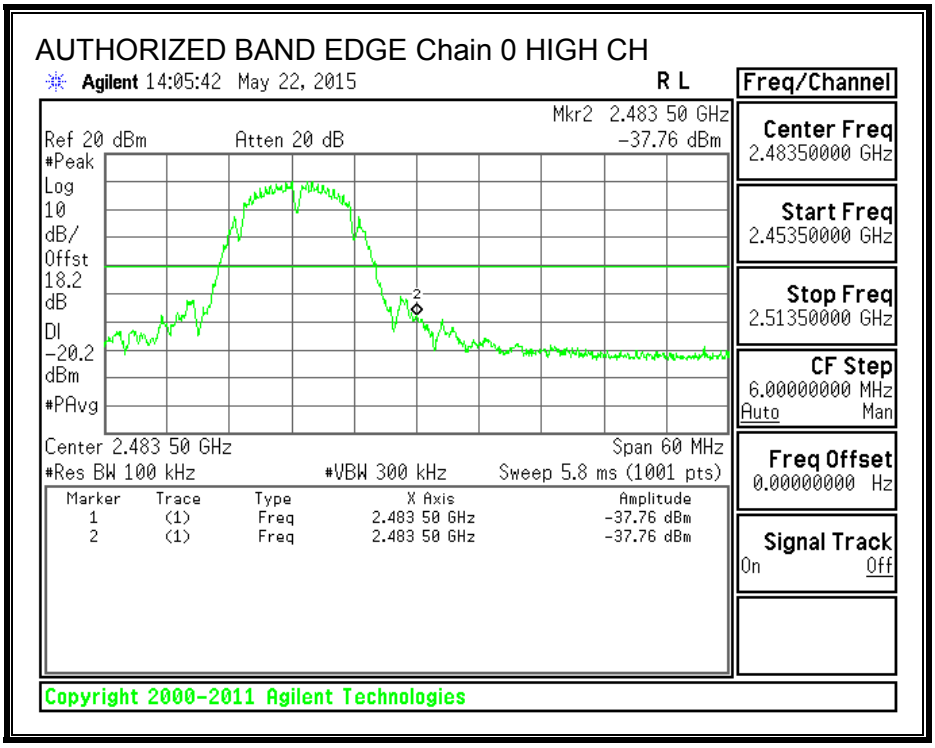
**IN-BAND REFERENCE LEVEL, Chain 0**



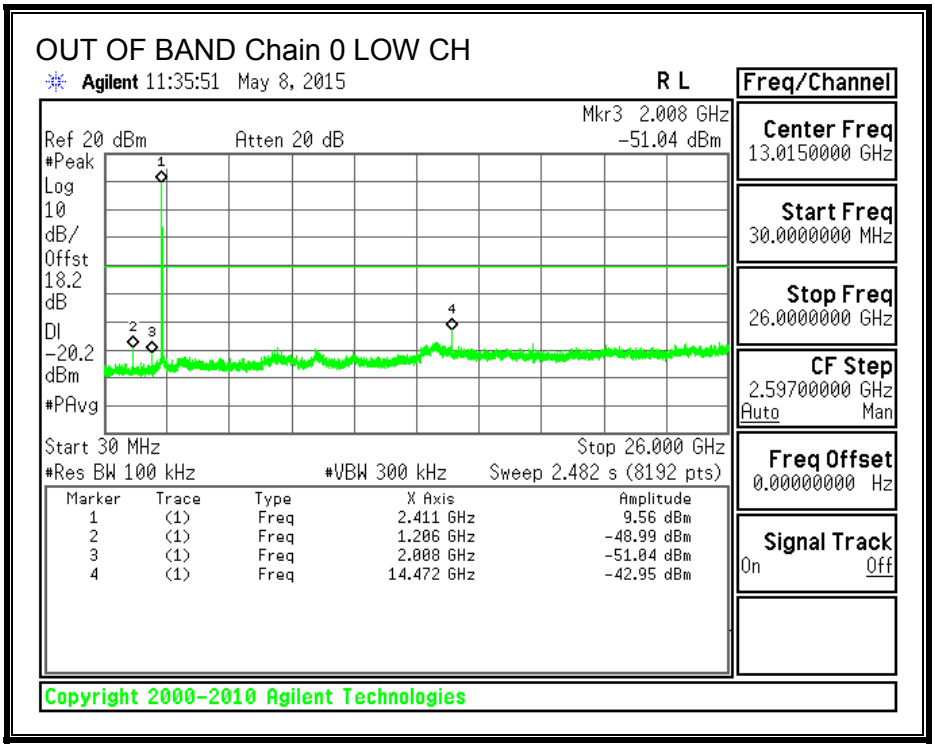
**LOW CHANNEL BANDEDGE, Chain 0**

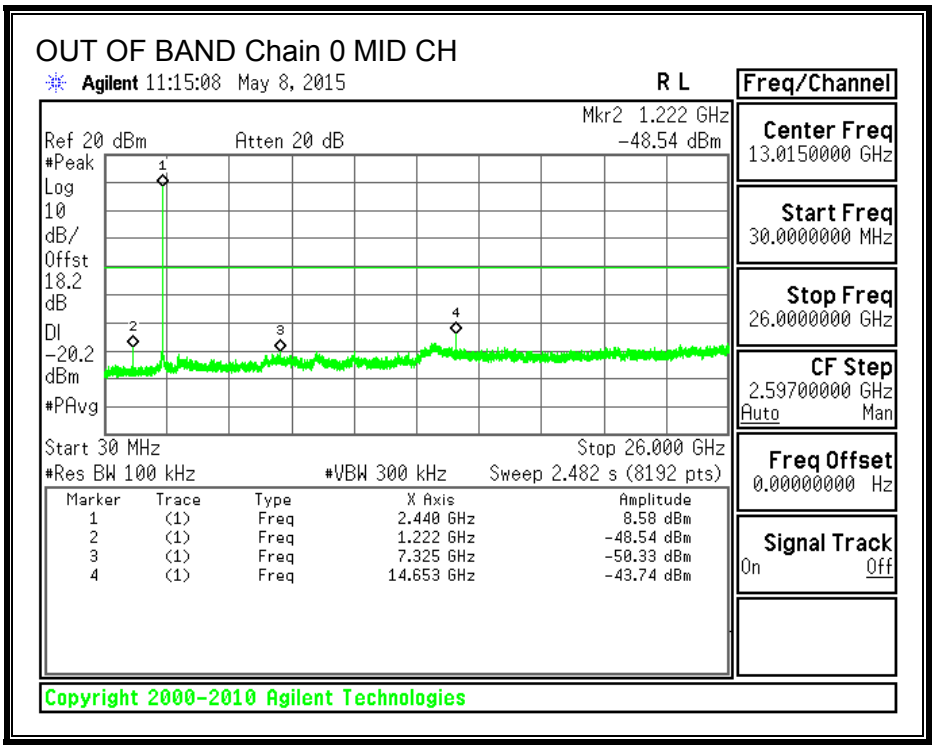


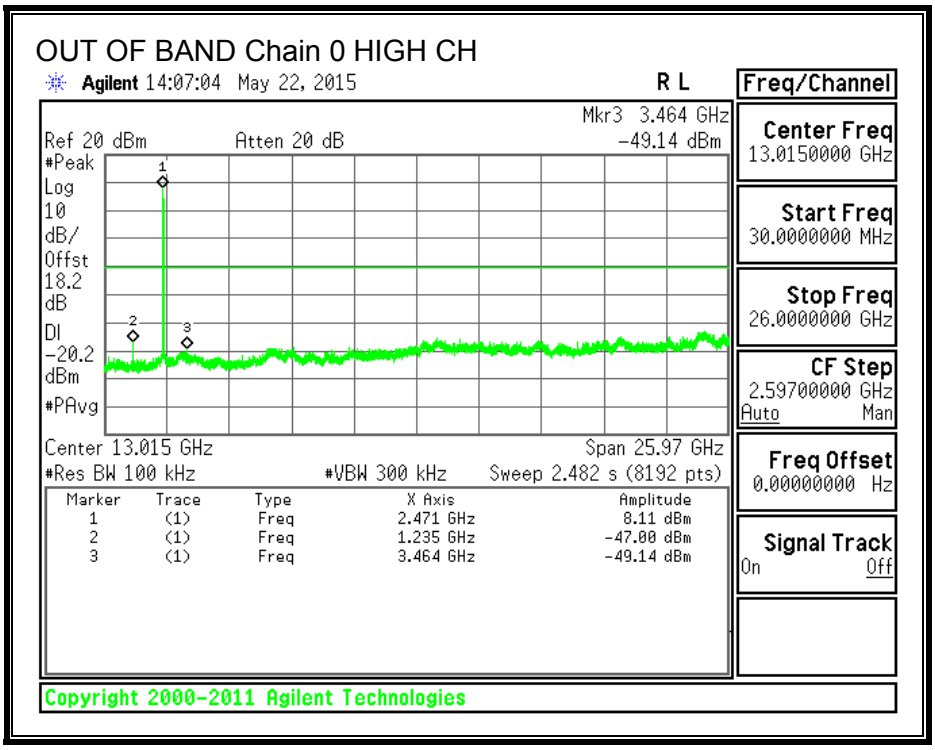

**HIGH CHANNEL BANDEDGE, Chain 0**



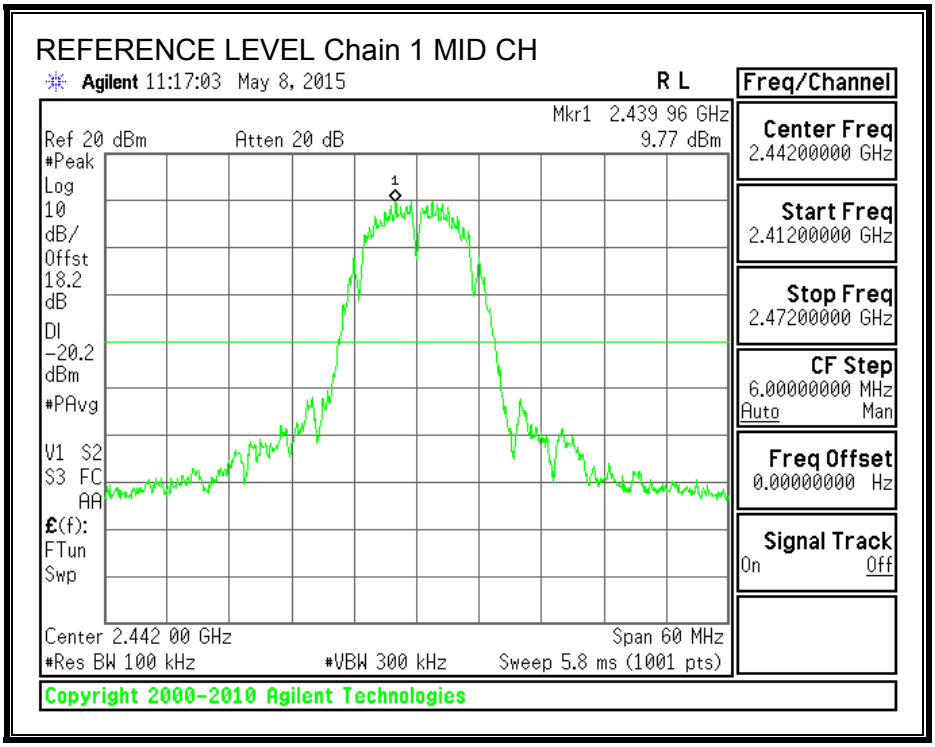
**OUT-OF-BAND EMISSIONS, Chain 0**



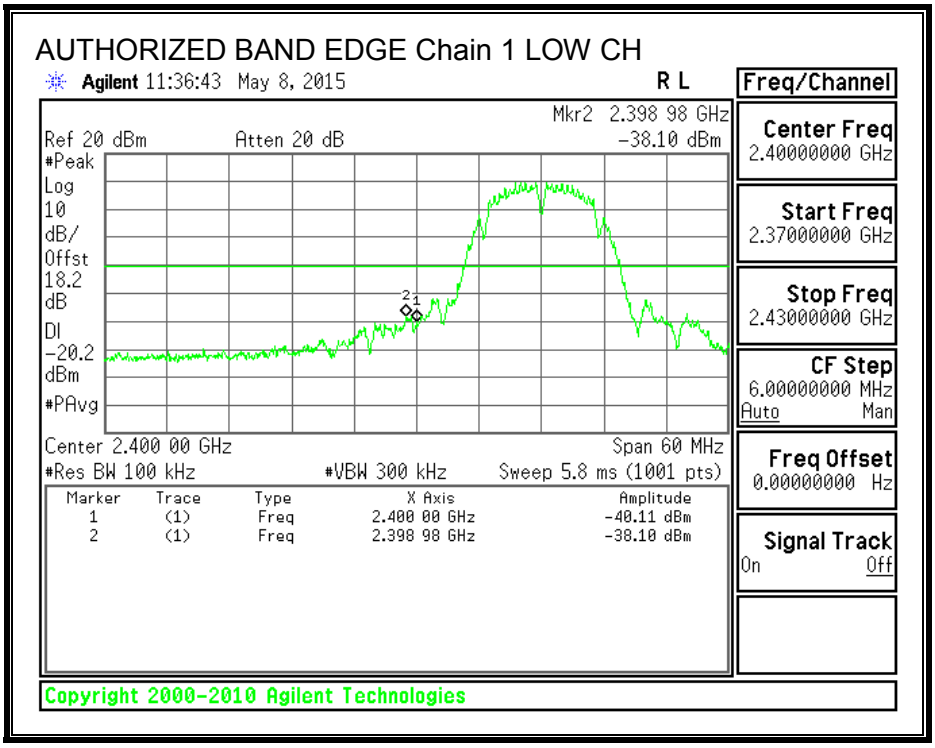





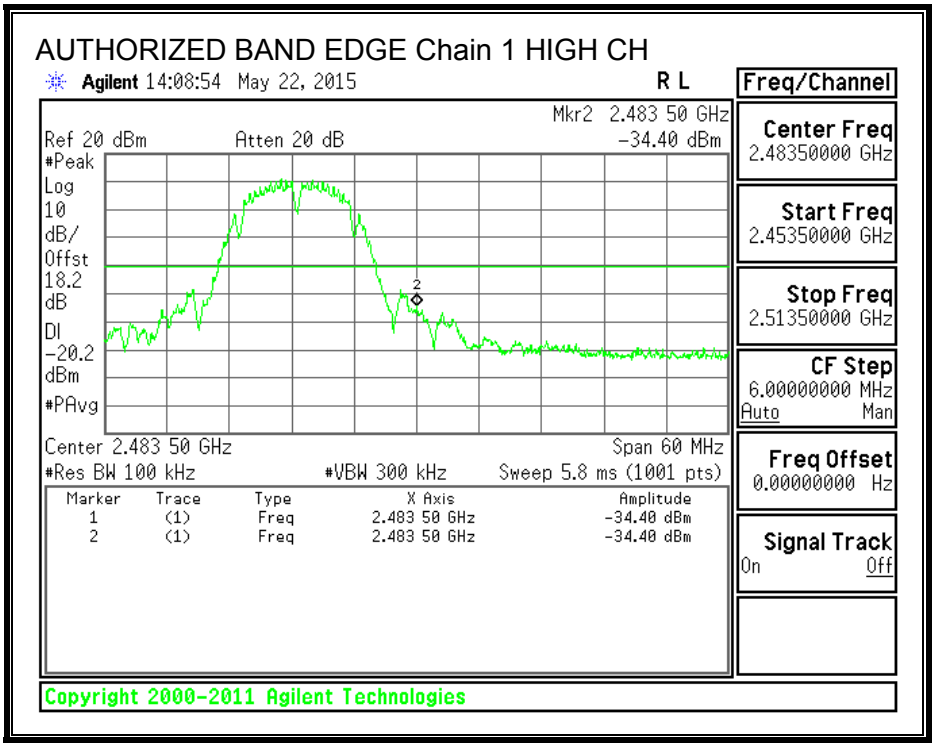
**IN-BAND REFERENCE LEVEL, Chain 1**



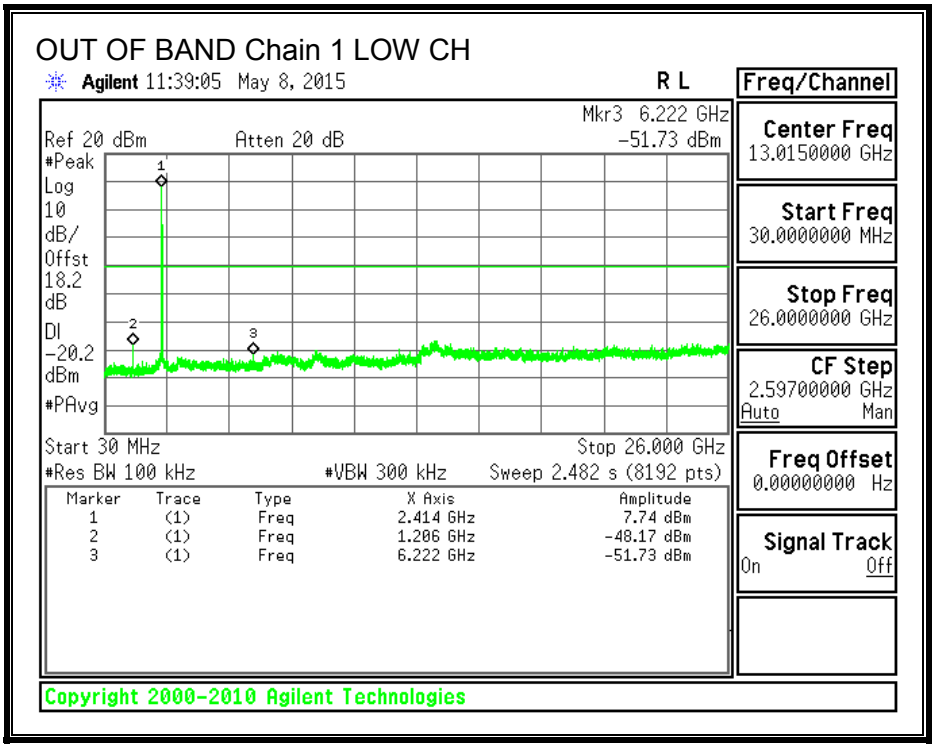
**LOW CHANNEL BANDEDGE, Chain 1**

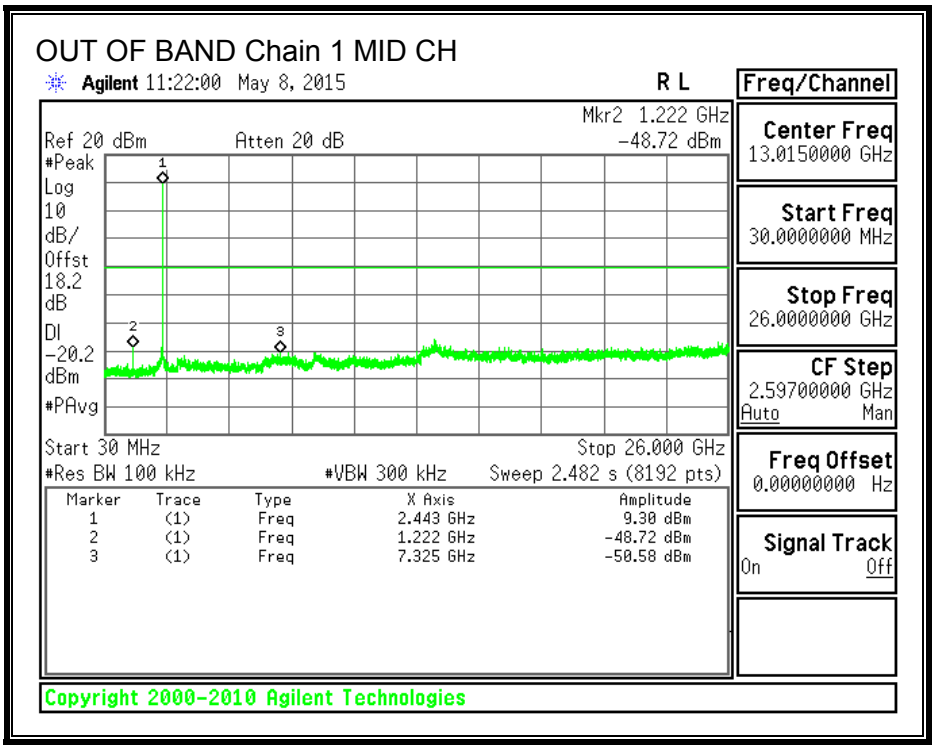


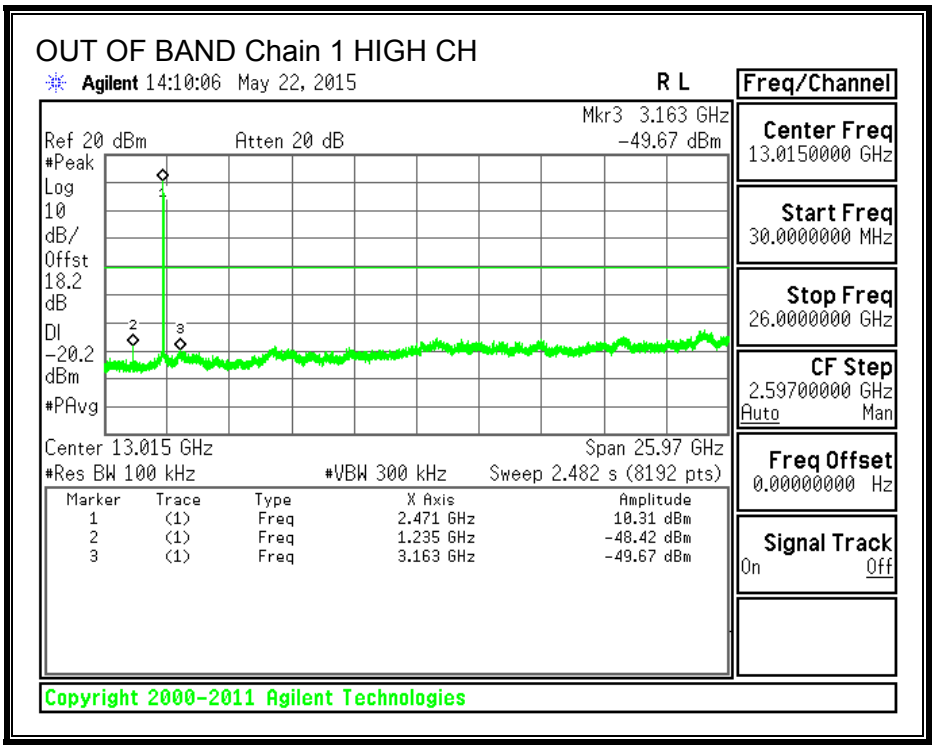

**HIGH CHANNEL BANDEDGE, Chain 1**



**OUT-OF-BAND EMISSIONS, Chain 1**





# 8.4. 802.11g LEGACY 1TX MODE IN THE 2.4 GHz BAND

## 8.4.1. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section A8.4 (5), the e.i.r.p. shall not exceed 4 W.

**DIRECTIONAL ANTENNA GAIN**

This is SISO mode, AG is the highest (worst-case) = 3.6 dBi

**RESULTS**

**Limits**

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---|---|---|---|---|---|---|
| 1 | 2412 | 3.60 | 30 | 30 | 36 | 30 |
| 2 | 2417 | 3.60 | 30 | 30 | 36 | 30 |
| 10 | 2457 | 3.60 | 30 | 30 | 36 | 30 |
| 11 | 2462 | 3.60 | 30 | 30 | 36 | 30 |
| 12 | 2467 | 3.60 | 30 | 30 | 36 | 30 |
| 13 | 2472 | 3.60 | 30 | 30 | 36 | 30 |

**Results**

| Channel | Frequency (MHz) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|
| 1 | 2412 | 19.36 | 19.36 | 30 | -10.64 |
| 2 | 2417 | 19.47 | 19.47 | 30 | -10.53 |
| 10 | 2457 | 19.32 | 19.32 | 30 | -10.68 |
| 11 | 2462 | 18.69 | 18.69 | 30 | -11.31 |
| 12 | 2467 | 17.02 | 17.02 | 30 | -12.98 |
| 13 | 2472 | 10.68 | 10.68 | 30 | -19.32 |

**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.

# 8.5. 802.11n HT20 SISO MODE IN THE 2.4 GHz BAND

## 8.5.1. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section A8.4 (5), the e.i.r.p. shall not exceed 4 W.

**DIRECTIONAL ANTENNA GAIN**

This is SISO mode, AG is the highest (worst-case) = 3.6 dBi

**RESULTS**

**Limits**

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---|---|---|---|---|---|---|
| 1 | 2412 | 3.60 | 30 | 30 | 36 | 30 |
| 2 | 2417 | 3.60 | 30 | 30 | 36 | 30 |
| 10 | 2457 | 3.60 | 30 | 30 | 36 | 30 |
| 11 | 2462 | 3.60 | 30 | 30 | 36 | 30 |
| 12 | 2467 | 3.60 | 30 | 30 | 36 | 30 |
| 13 | 2472 | 3.60 | 30 | 30 | 36 | 30 |

**Results**

| Channel | Frequency (MHz) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|
| 1 | 2412 | 18.91 | 18.91 | 30 | -11.09 |
| 2 | 2417 | 19.43 | 19.43 | 30 | -10.57 |
| 10 | 2457 | 19.54 | 19.54 | 30 | -10.46 |
| 11 | 2462 | 18.09 | 18.09 | 30 | -11.91 |
| 12 | 2467 | 17.01 | 17.01 | 30 | -12.99 |
| 13 | 2472 | 9.30 | 9.30 | 30 | -20.70 |

**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.

# 8.6. 802.11n HT20 CDD 2TX MODE IN THE 2.4 GHz BAND

## 8.6.1. 6 dB BANDWIDTH

**LIMITS**

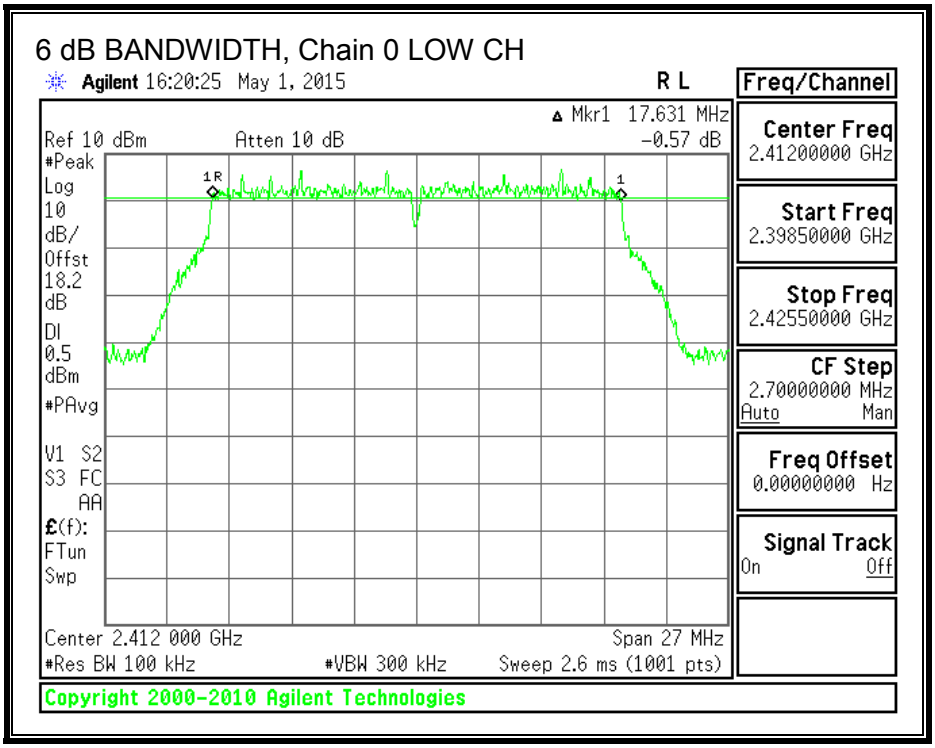
FCC §15.247 (a) (2)

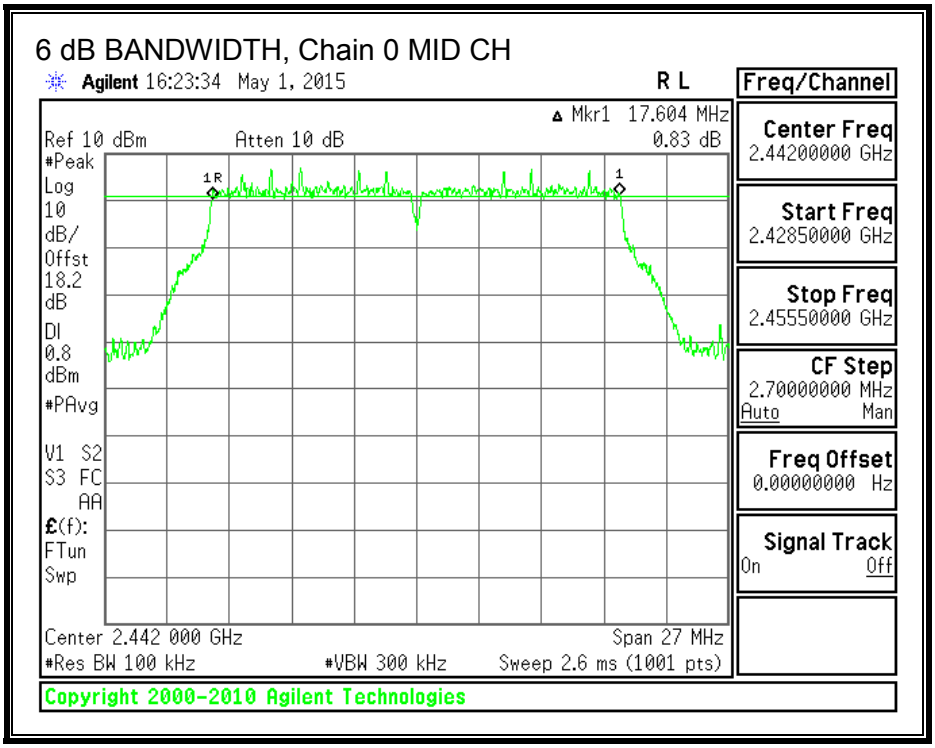
The minimum 6 dB bandwidth shall be at least 500 kHz.

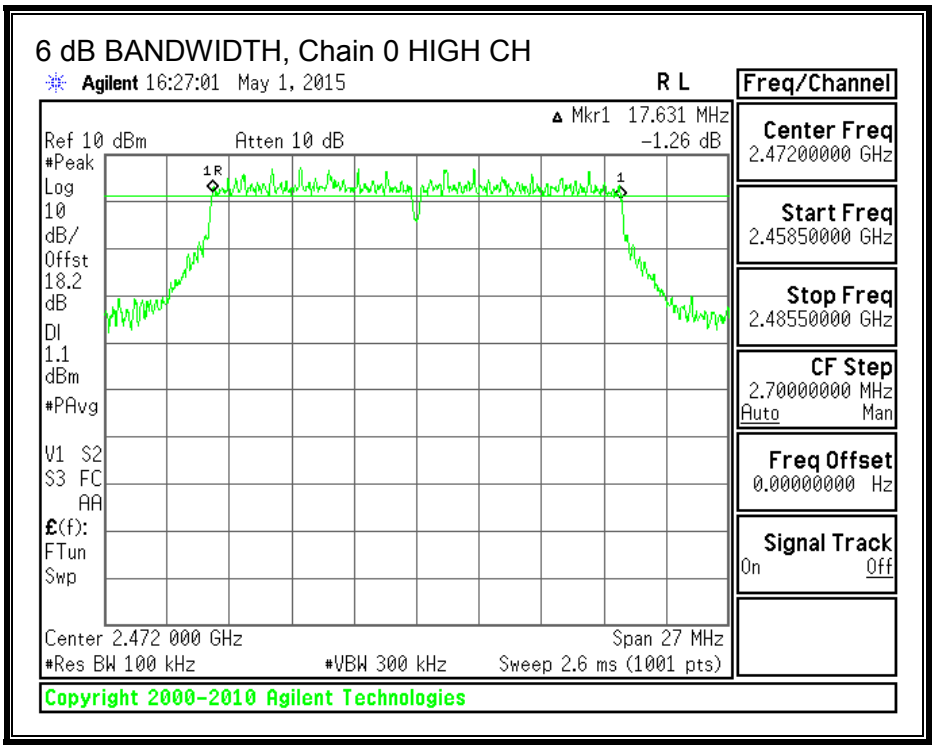
**RESULTS**

| Channel | Frequency (MHz) | 6 dB BW Chain 0 (MHz) | 6 dB BW Chain 1 (MHz) | Minimum Limit (MHz) |
|---|---|---|---|---|
| Low | 2412 | 17.631 | 17.631 | 0.5 |
| Mid | 2442 | 17.604 | 17.631 | 0.5 |
| High | 2472 | 17.631 | 17.631 | 0.5 |

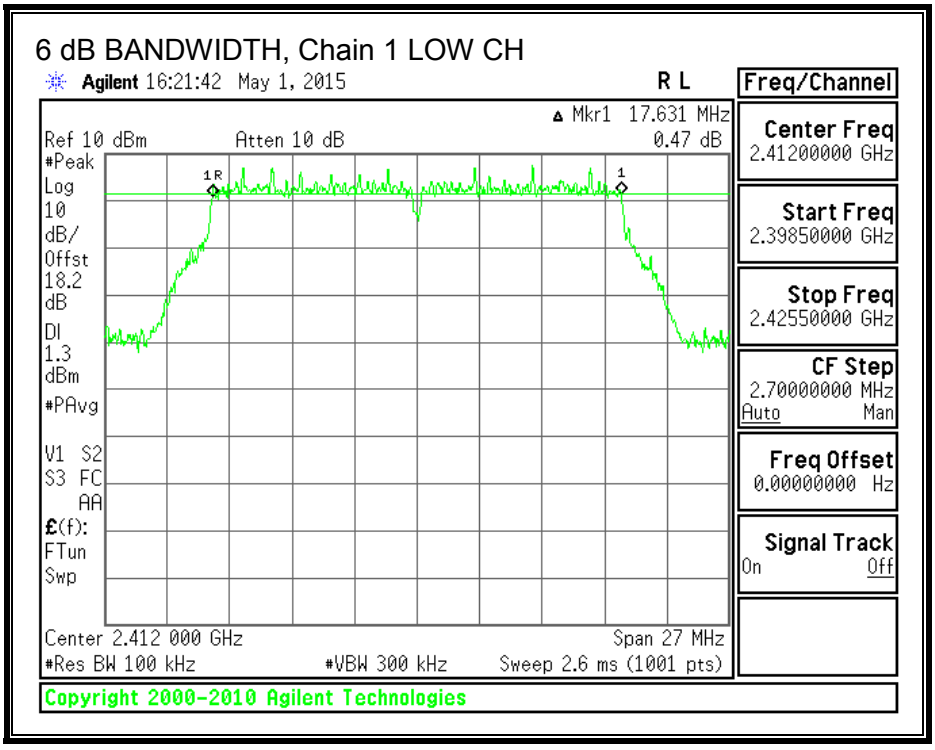
**6 dB BANDWIDTH, Chain 0**



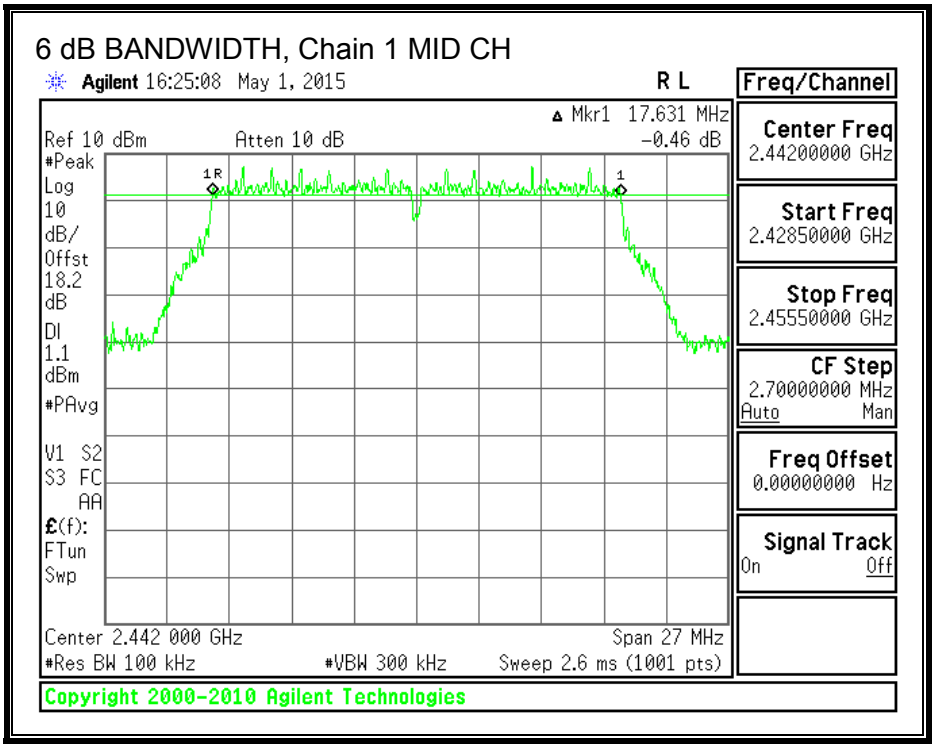





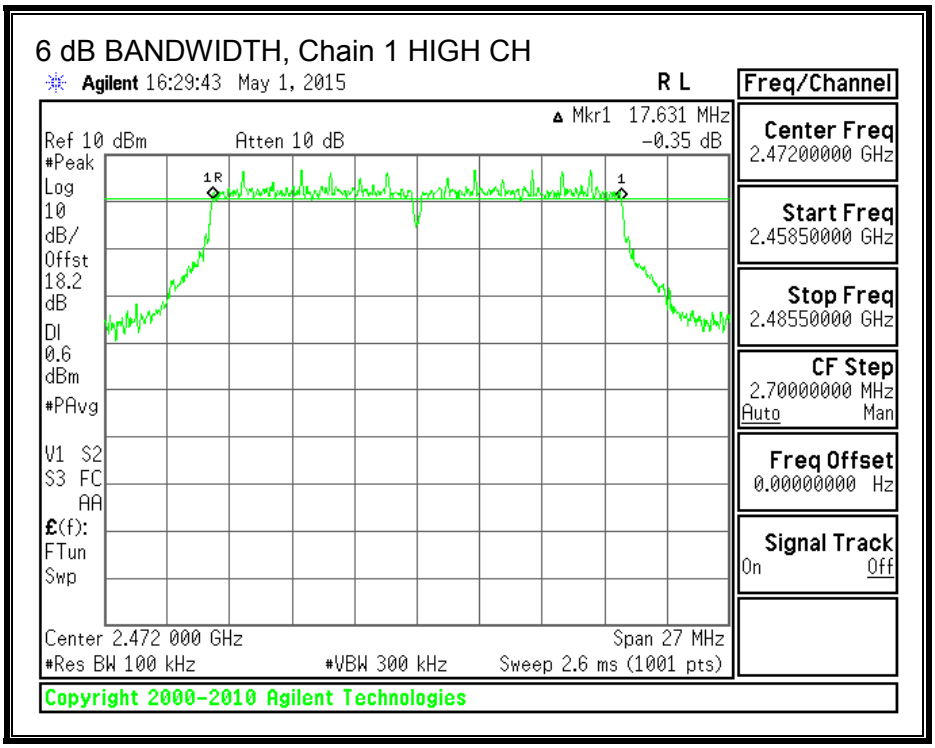

**6 dB BANDWIDTH, Chain 1**



6 dB BANDWIDTH, Chain 1 MID CH




6 dB BANDWIDTH, Chain 1 HIGH CH



## 8.6.2. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section 5.4 (5), the e.i.r.p. shall not exceed 4 W.

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

**DIRECTIONAL ANTENNA GAIN**

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

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|---|---|---|
| 3.60 | 3.60 | 3.60 |

**RESULTS**

**Limits**

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---|---|---|---|---|---|---|
| 1 | 2412 | 3.60 | 30 | 30 | 36 | 30.00 |
| 2 | 2417 | 3.60 | 30 | 30 | 36 | 30.00 |
| 7 | 2442 | 3.60 | 30 | 30 | 36 | 30.00 |
| 10 | 2457 | 3.60 | 30 | 30 | 36 | 30.00 |
| 11 | 2462 | 3.60 | 30 | 30 | 36 | 30.00 |
| 12 | 2467 | 3.60 | 30 | 30 | 36 | 30.00 |
| 13 | 2472 | 3.60 | 30 | 30 | 36 | 30.00 |

**Results**

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| 1 | 2412 | 15.96 | 15.81 | 18.90 | 30.00 | -11.10 |
| 2 | 2417 | 18.48 | 18.26 | 21.38 | 30.00 | -8.62 |
| 7 | 2442 | 19.00 | 18.90 | 21.96 | 30.00 | -8.04 |
| 10 | 2457 | 18.48 | 18.36 | 21.43 | 30.00 | -8.57 |
| 11 | 2462 | 15.46 | 15.38 | 18.43 | 30.00 | -11.57 |
| 12 | 2467 | 12.34 | 12.38 | 15.37 | 30.00 | -14.63 |
| 13 | 2472 | 7.18 | 7.19 | 10.20 | 30.00 | -19.80 |

**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.

## 8.6.3. POWER SPECTRAL DENSITY

**LIMITS**

FCC §15.247

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of Section 5.4 (4), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

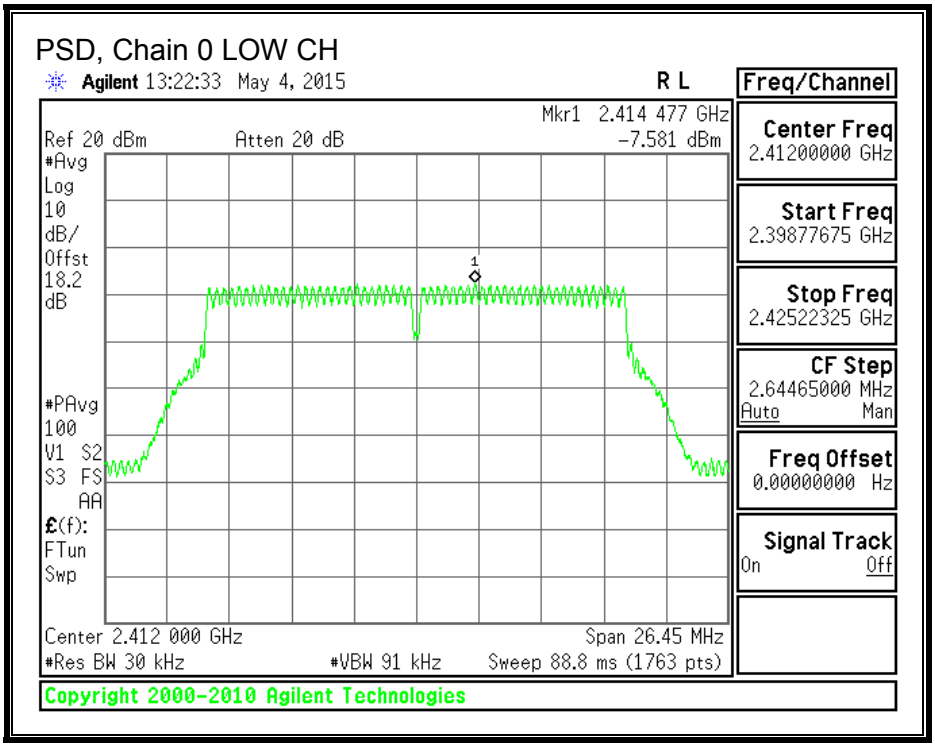
**RESULTS**

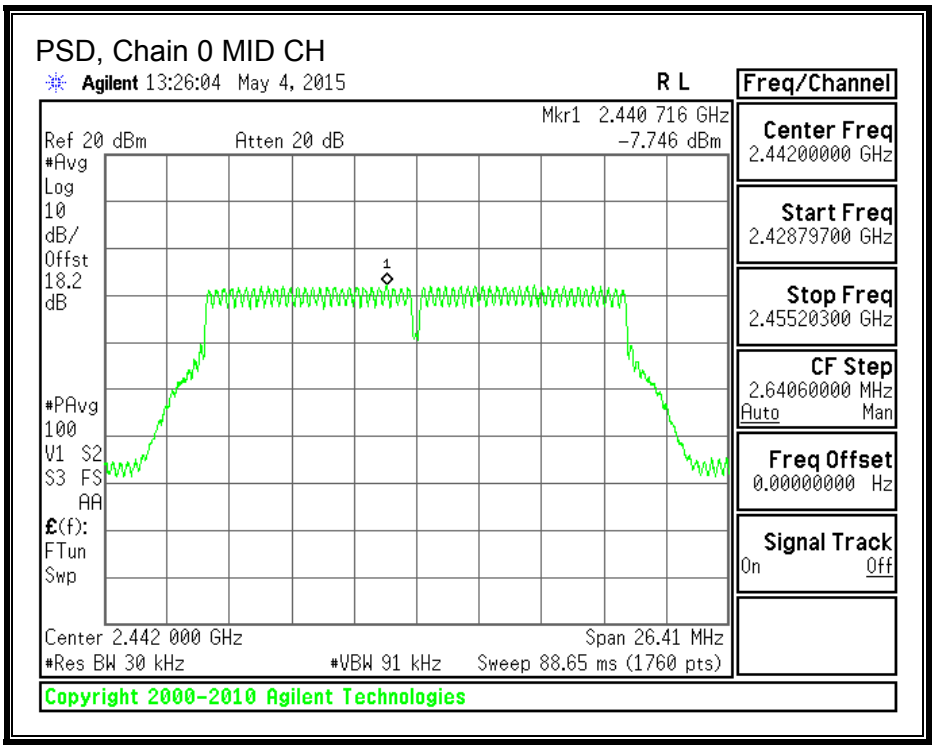
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|---|---|---|

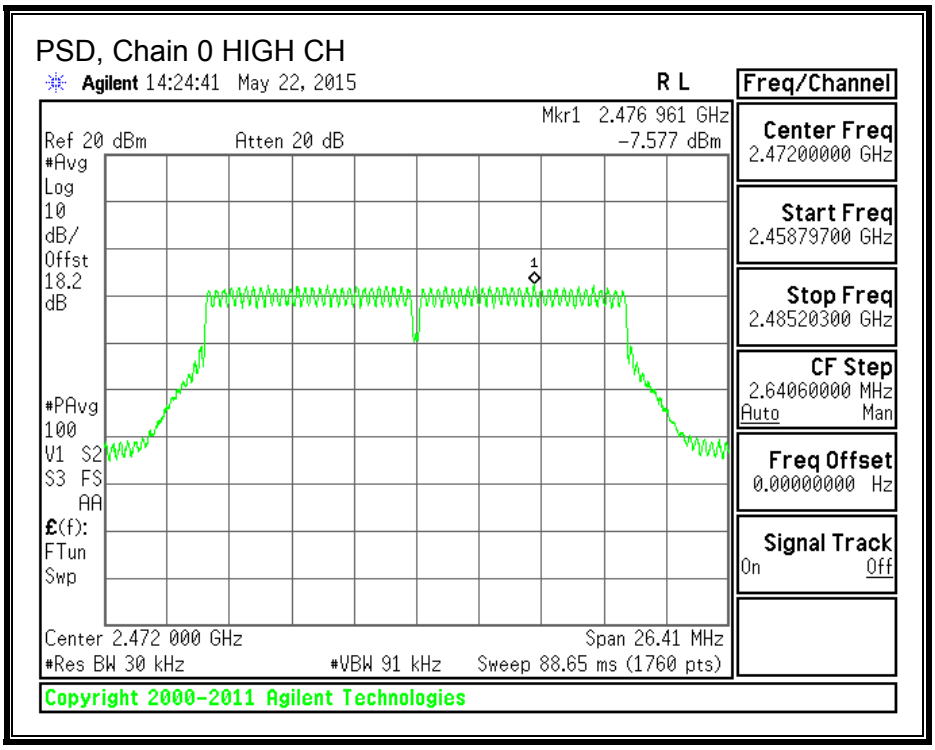
**PSD Results**

| Channel | Frequency (MHz) | Chain 0 Meas (dBm) | Chain 1 Meas (dBm) | Total Corr'd PSD (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| Low | 2412 | -7.581 | -7.610 | -4.59 | 8.0 | -12.6 |
| Mid | 2442 | -7.746 | -7.089 | -4.39 | 8.0 | -12.4 |
| High | 2472 | -7.577 | -7.239 | -4.39 | 8.0 | -12.4 |

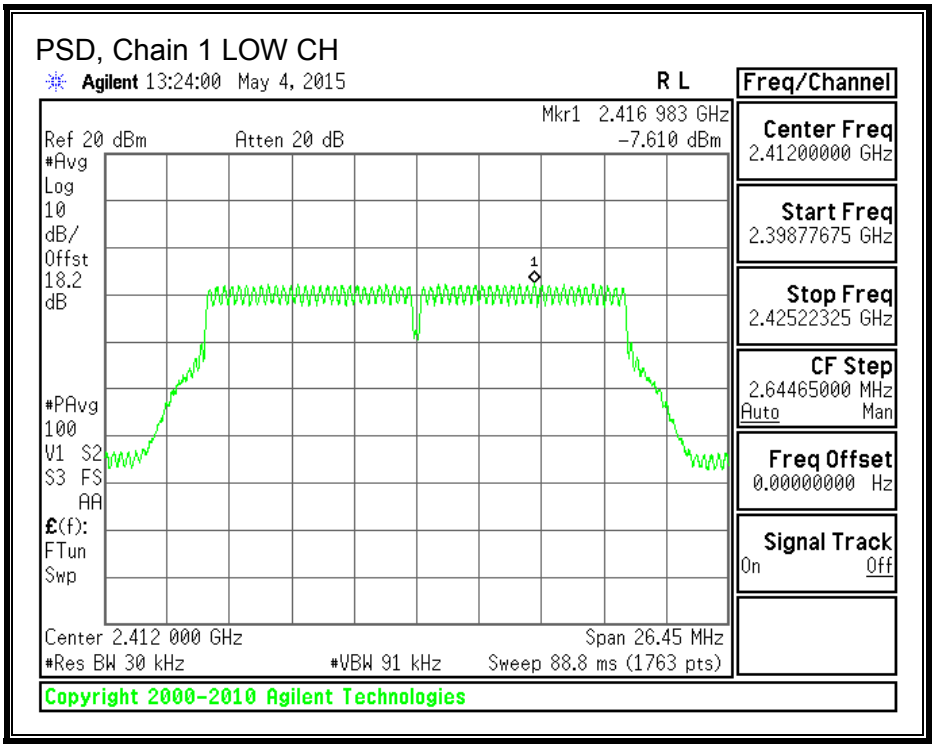
**PSD, Chain 0**



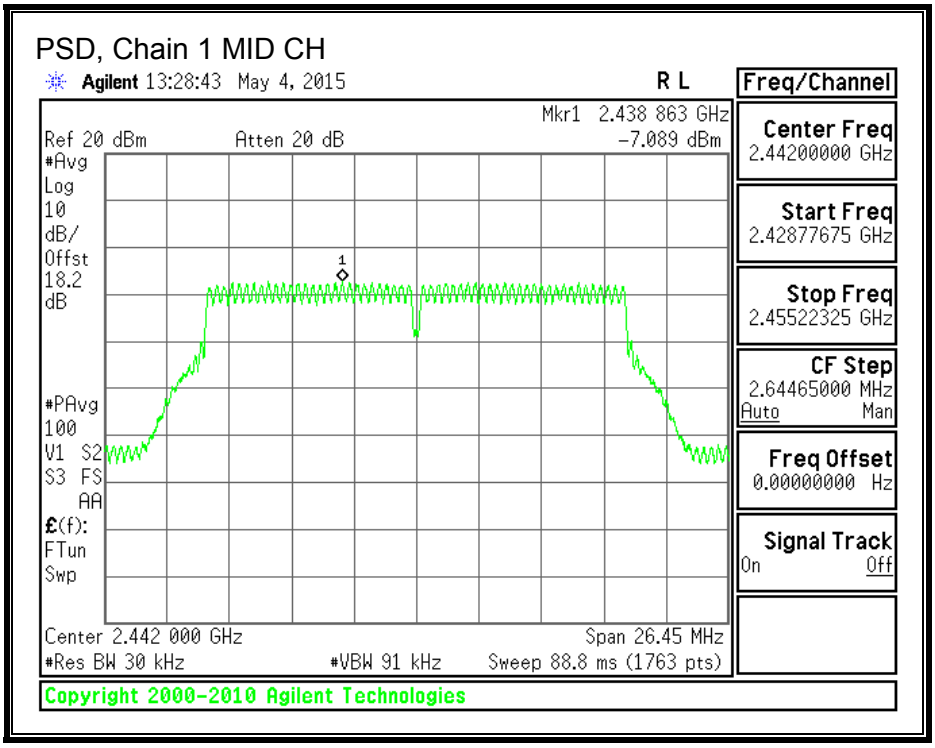





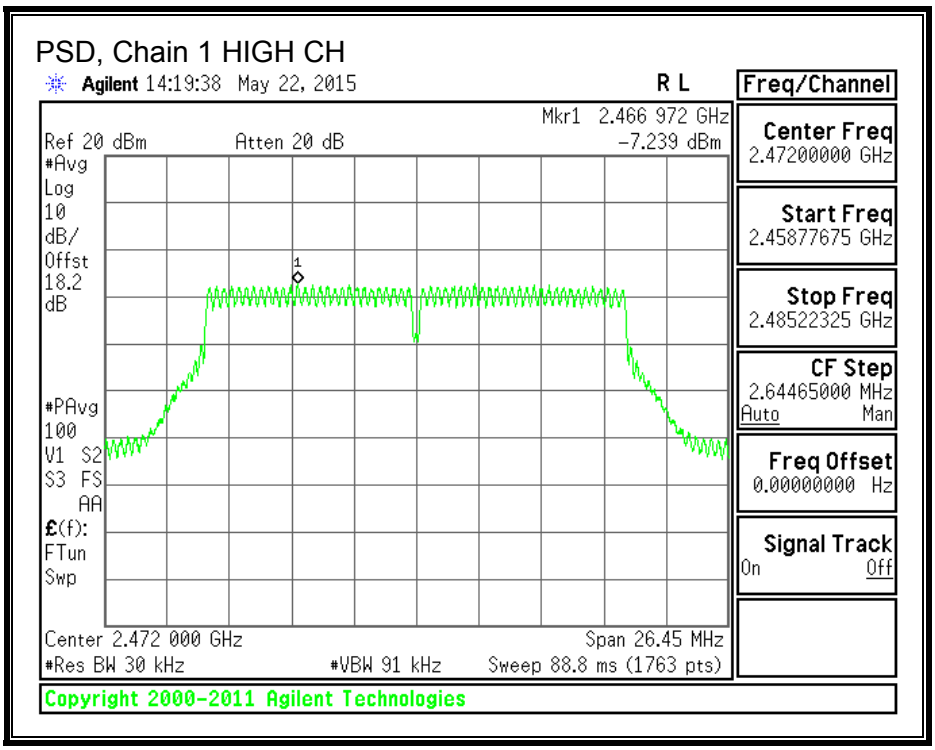

**PSD, Chain 1**



PSD, Chain 1 MID CH




PSD, Chain 1 HIGH CH



## 8.6.4. OUT-OF-BAND EMISSIONS

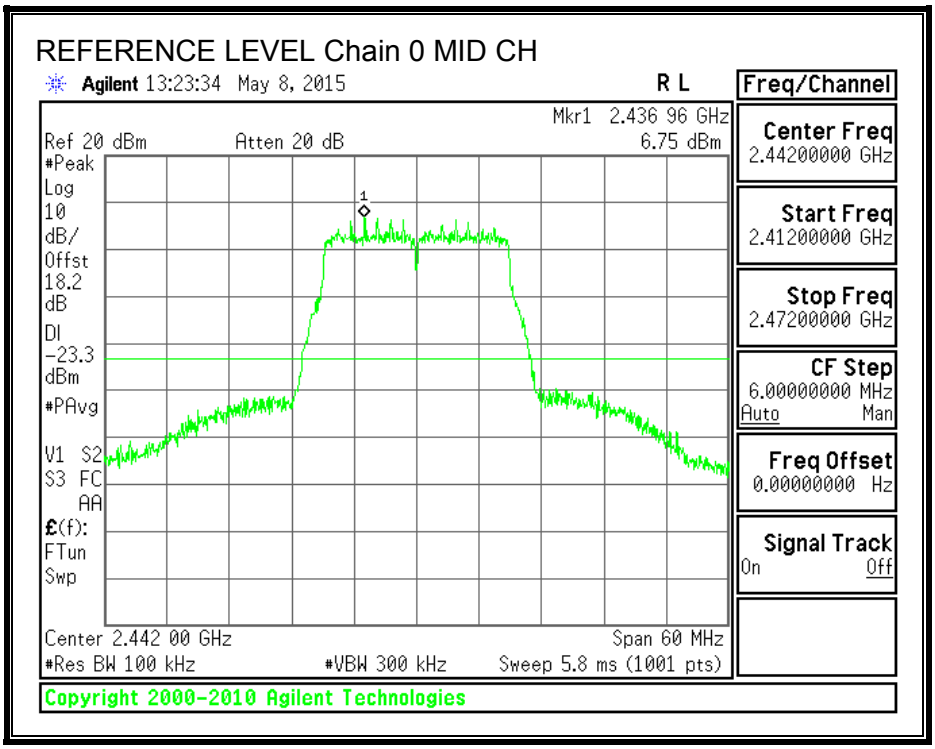
**LIMITS**

FCC §15.247 (d)

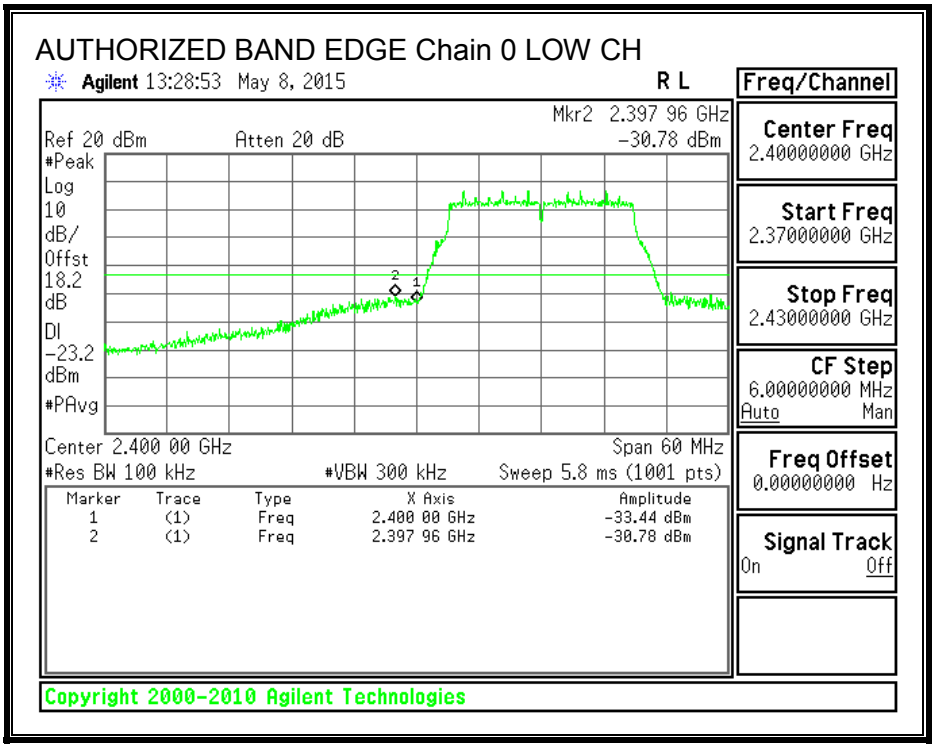
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

**RESULTS**

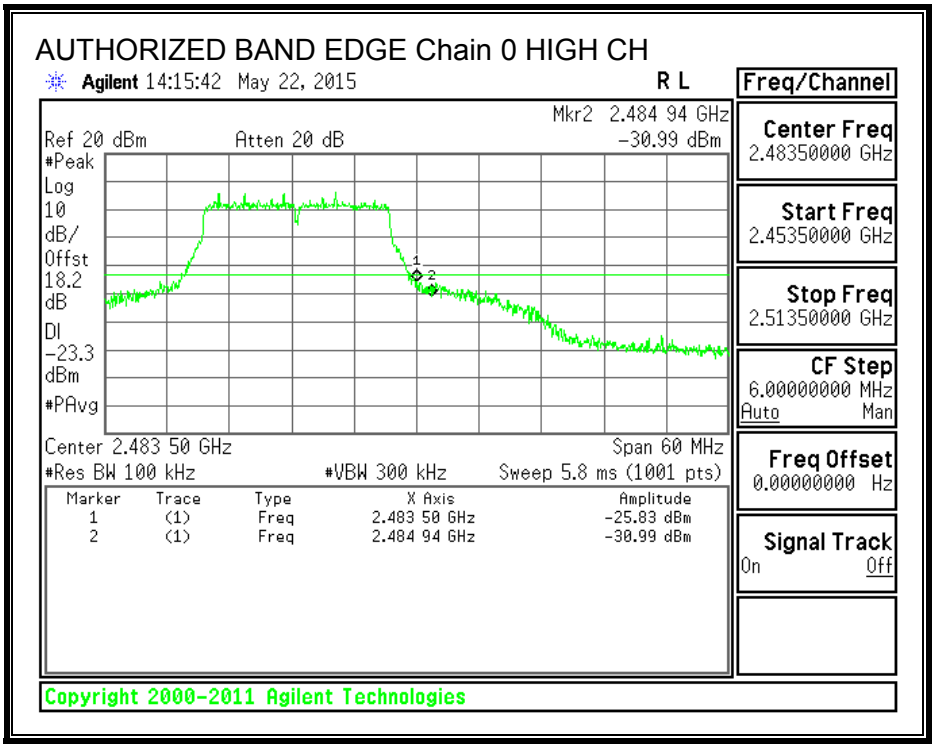
**IN-BAND REFERENCE LEVEL, Chain 0**



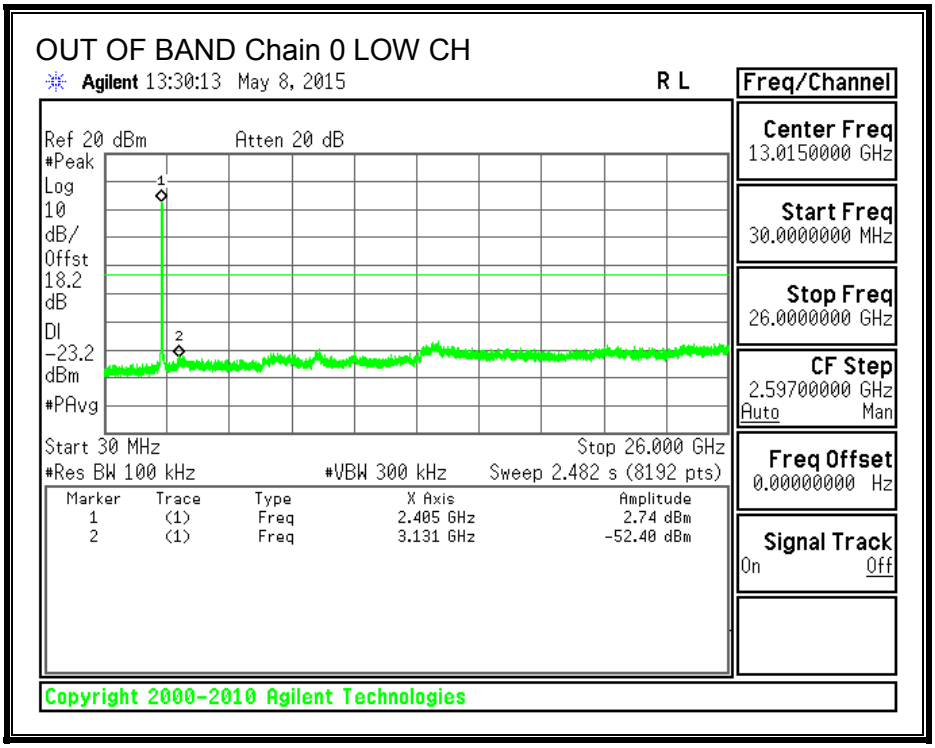
**LOW CHANNEL BANDEDGE, Chain 0**

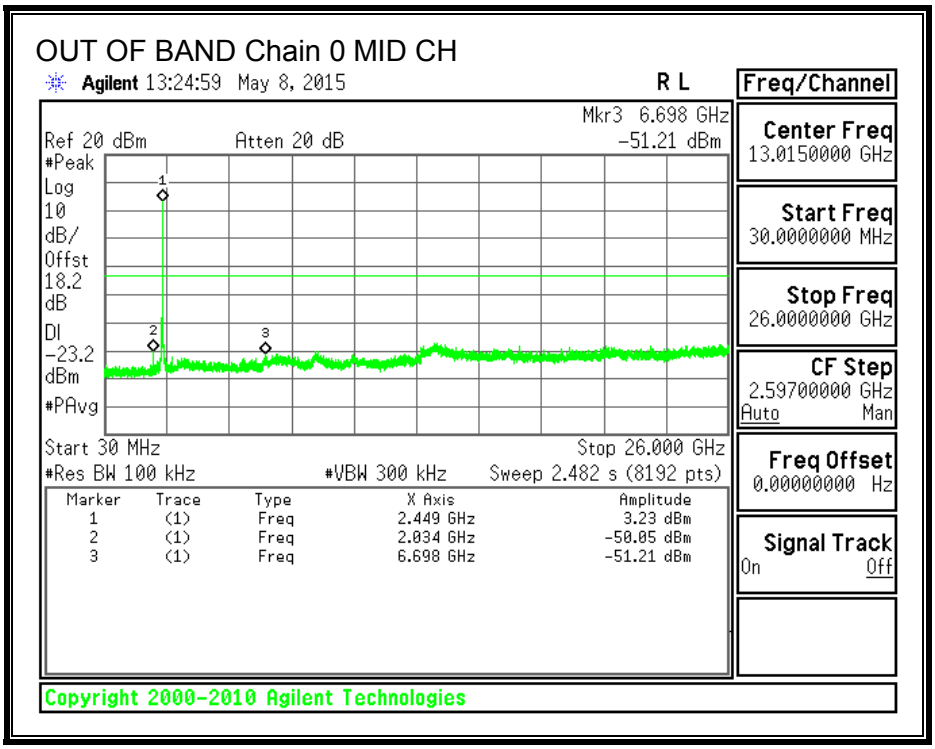


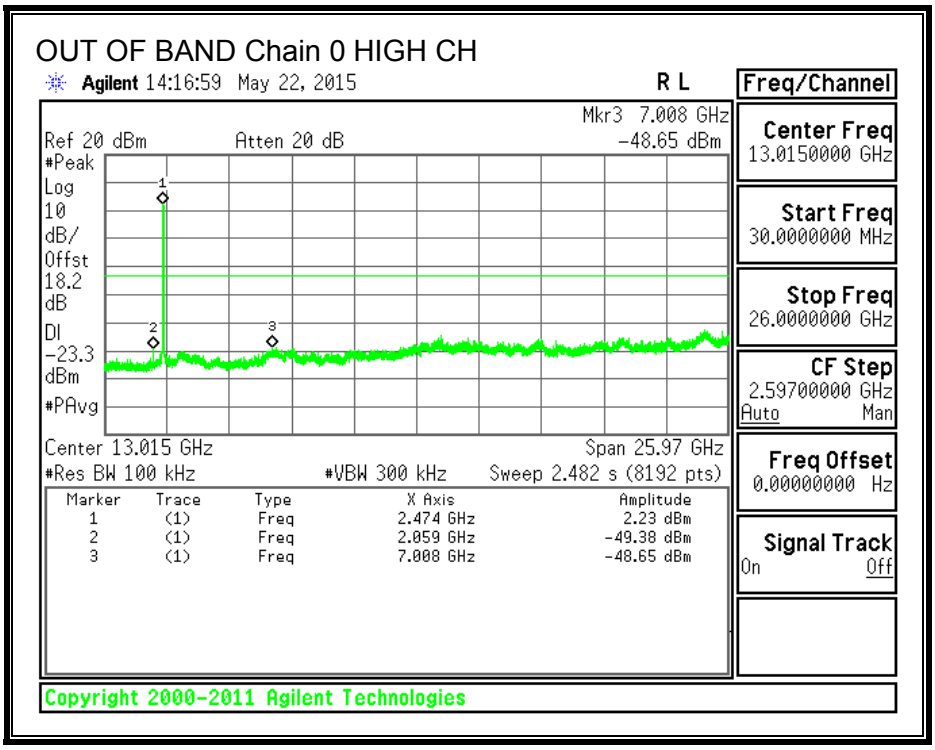

**HIGH CHANNEL BANDEDGE, Chain 0**



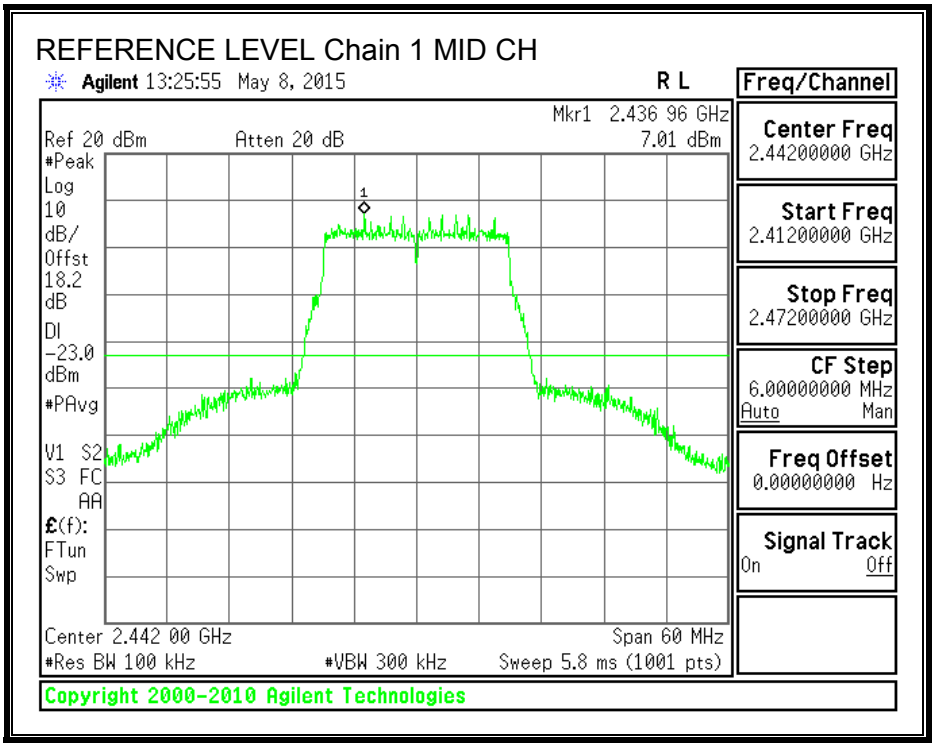
**OUT-OF-BAND EMISSIONS, Chain 0**



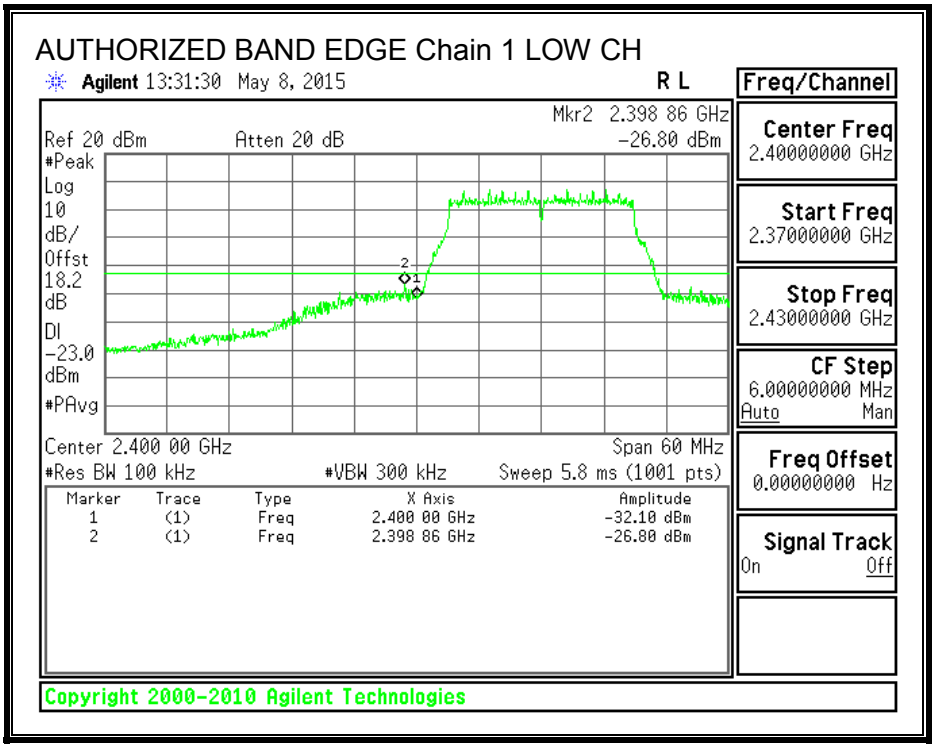





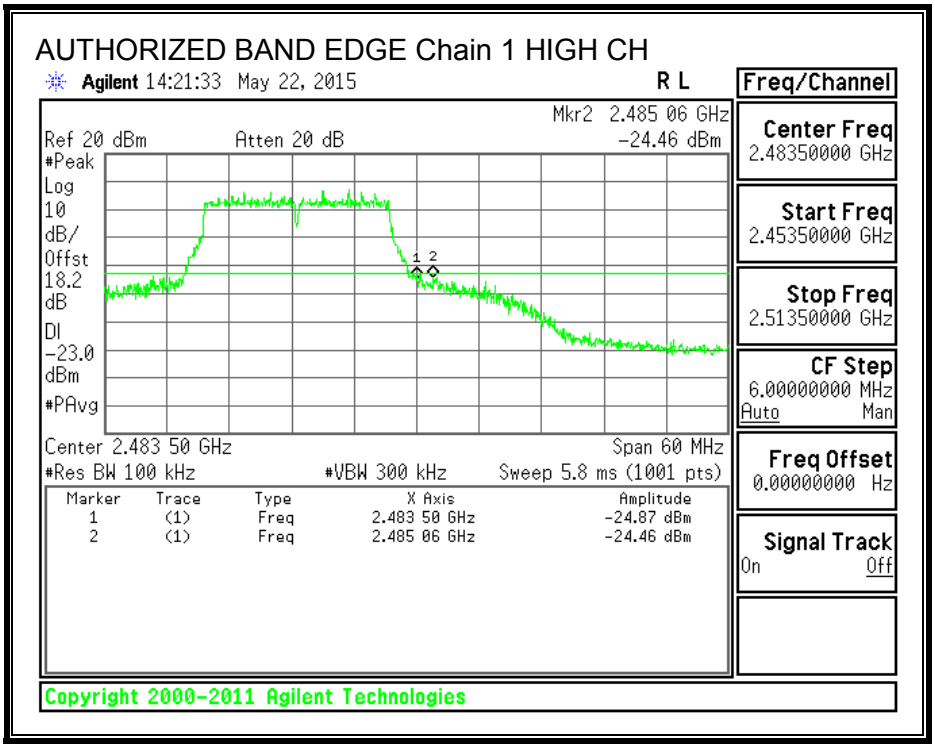
**IN-BAND REFERENCE LEVEL, Chain 1**



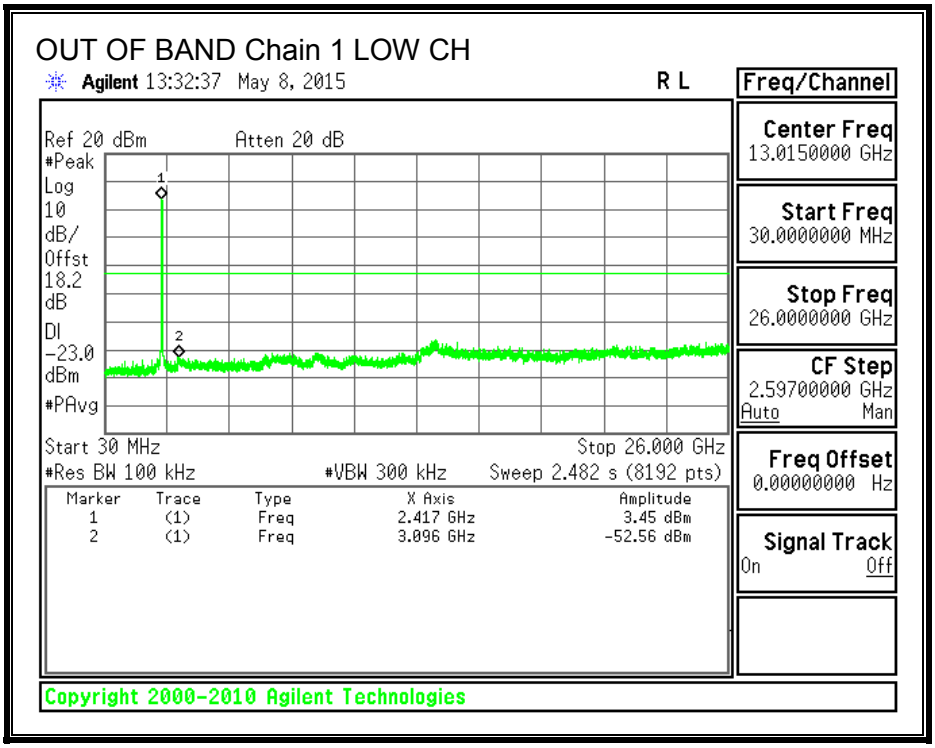
**LOW CHANNEL BANDEDGE, Chain 1**

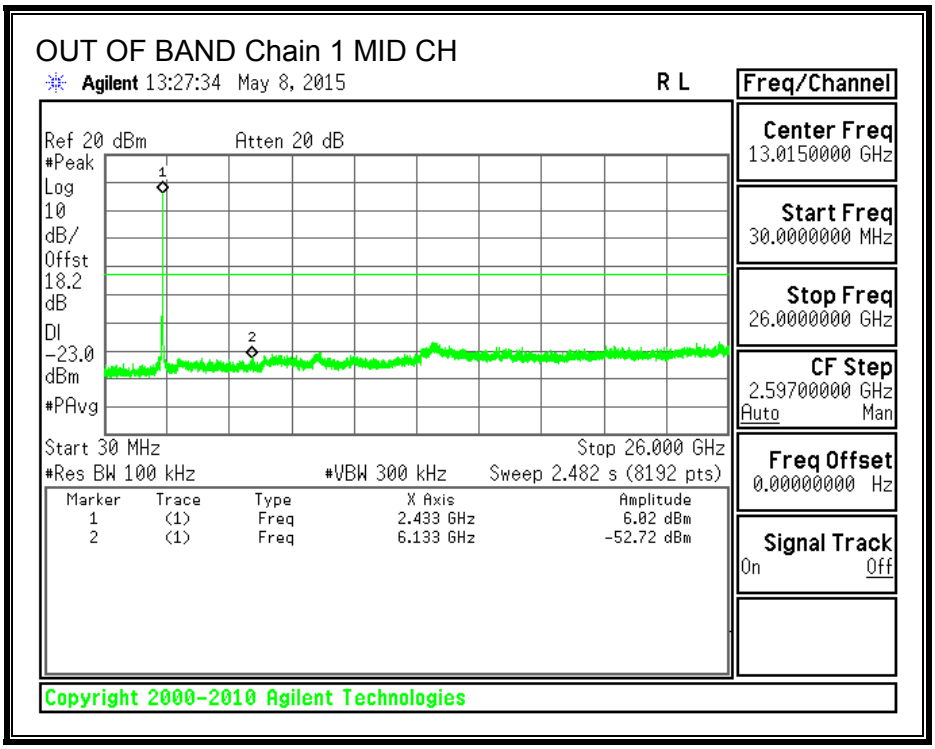


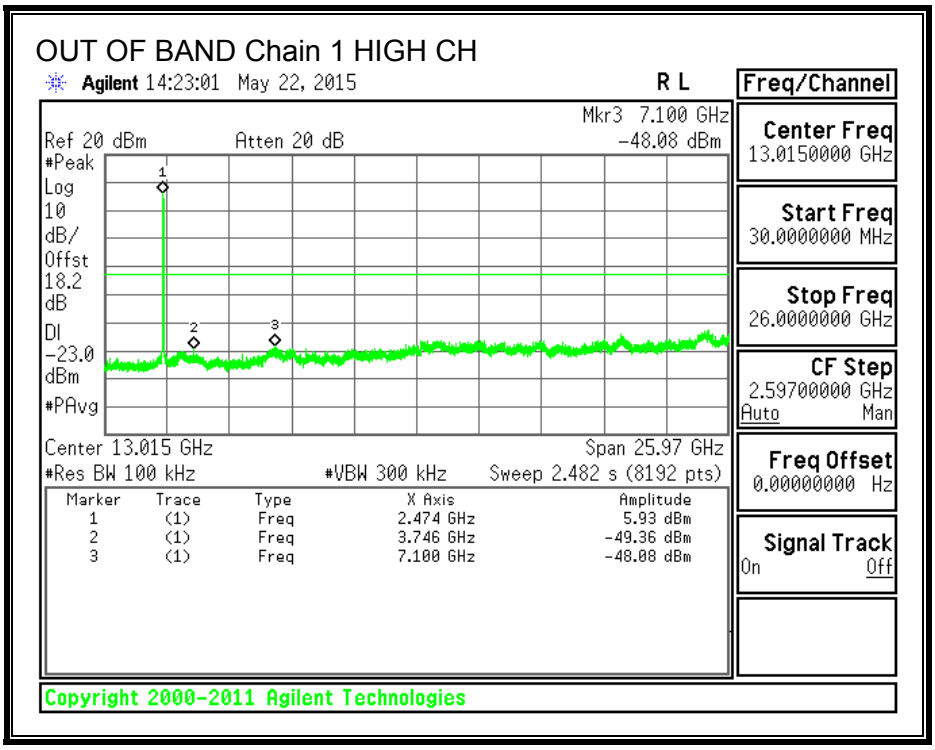

**HIGH CHANNEL BANDEDGE, Chain 1**



**OUT-OF-BAND EMISSIONS, Chain 1**





# 8.7. 802.11n HT20 TxBF 2TX MODE IN THE 2.4 GHz BAND

## 8.7.1. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section 5.4 (5), the e.i.r.p. shall not exceed 4 W.

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

**DIRECTIONAL ANTENNA GAIN**

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

| Antenna Gain (dBi) | 10 * Log (2 chains) (dB) | Correlated Chains Directional Gain (dBi) |
|---|---|---|
| 3.60 | 3.01 | 6.61 |

**RESULTS**

**Limits**

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---|---|---|---|---|---|---|
| 1 | 2412 | 6.61 | 30 | 30 | 36 | 29.39 |
| 2 | 2417 | 6.61 | 30 | 30 | 36 | 29.39 |
| 7 | 2442 | 6.61 | 30 | 30 | 36 | 29.39 |
| 10 | 2452 | 6.61 | 30 | 30 | 36 | 29.39 |
| 11 | 2462 | 6.61 | 30 | 30 | 36 | 29.39 |
| 12 | 2467 | 6.61 | 30 | 30 | 36 | 29.39 |
| 13 | 2472 | 6.61 | 30 | 30 | 36 | 29.39 |

**Results**

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margi (dB) |
|---|---|---|---|---|---|---|
| 1 | 2412 | 15.32 | 15.39 | 18.37 | 29.39 | -11.02 |
| 2 | 2417 | 18.25 | 18.48 | 21.38 | 29.39 | -8.01 |
| 7 | 2442 | 19.00 | 18.90 | 21.96 | 29.39 | -7.43 |
| 10 | 2452 | 18.11 | 18.02 | 21.08 | 29.39 | -8.31 |
| 11 | 2462 | 14.98 | 15.20 | 18.10 | 29.39 | -11.29 |
| 12 | 2467 | 12.22 | 12.13 | 15.19 | 29.39 | -14.20 |
| 13 | 2472 | 5.50 | 4.90 | 8.22 | 29.39 | -21.17 |

**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.

# 8.8. 802.11n HT40 SISO MODE IN THE 2.4 GHz BAND

## 8.8.1. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section A8.4 (5), the e.i.r.p. shall not exceed 4 W.

**DIRECTIONAL ANTENNA GAIN**

This is SISO mode, AG is the highest (worst-case) = 3.6 dBi

**RESULTS**

**Limits**

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---|---|---|---|---|---|---|
| 3 | 2422 | 3.60 | 30 | 30 | 36 | 30 |
| 4 | 2427 | 3.60 | 30 | 30 | 36 | 30 |
| 8 | 2447 | 3.60 | 30 | 30 | 36 | 30 |
| 9 | 2452 | 3.60 | 30 | 30 | 36 | 30 |
| 10 | 2457 | 3.60 | 30 | 30 | 36 | 30 |
| 11 | 2462 | 3.60 | 30 | 30 | 36 | 30 |

**Results**

| Channel | Frequency (MHz) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|
| 3 | 2422 | 12.90 | 12.90 | 30 | -17.10 |
| 4 | 2427 | 13.50 | 13.50 | 30 | -16.50 |
| 8 | 2447 | 17.40 | 17.40 | 30 | -12.60 |
| 9 | 2452 | 16.92 | 16.92 | 30 | -13.08 |
| 10 | 2457 | 16.93 | 16.93 | 30 | -13.07 |
| 11 | 2462 | 15.00 | 15.00 | 30 | -15.00 |

**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.

# 8.9. 802.11n HT40 CDD 2TX MODE IN THE 2.4 GHz BAND

## 8.9.1. 6 dB BANDWIDTH

**LIMITS**

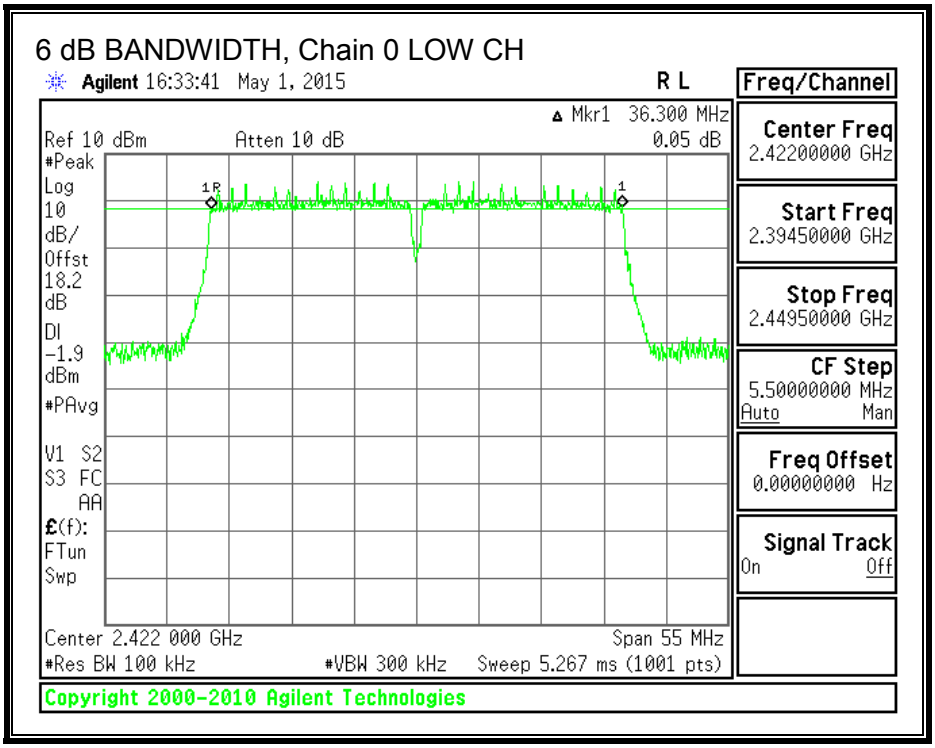
FCC §15.247 (a) (2)

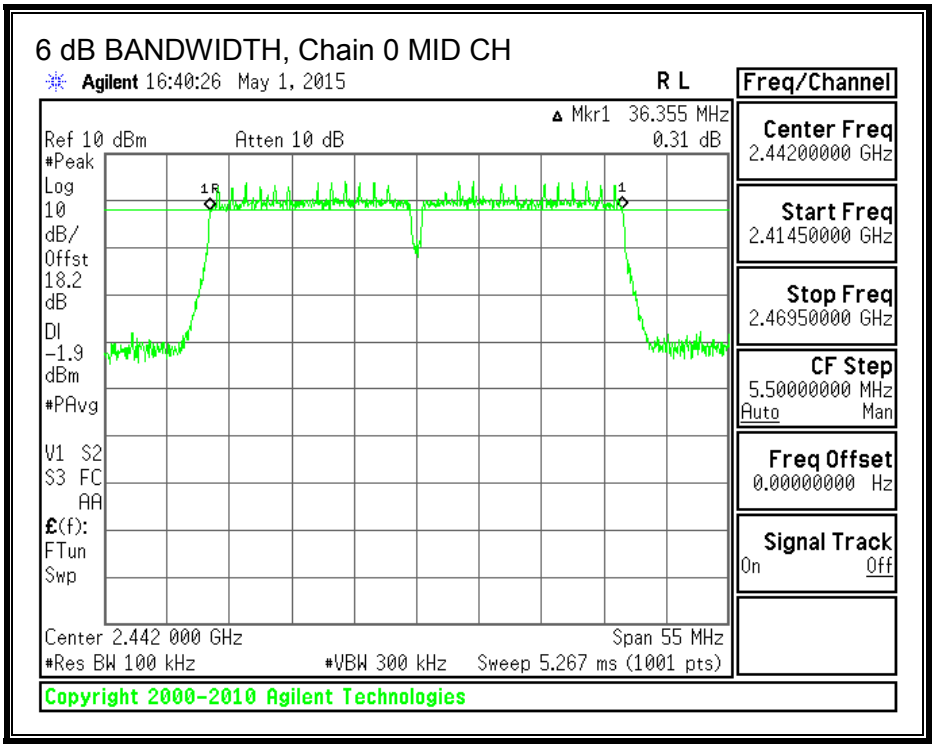
The minimum 6 dB bandwidth shall be at least 500 kHz.

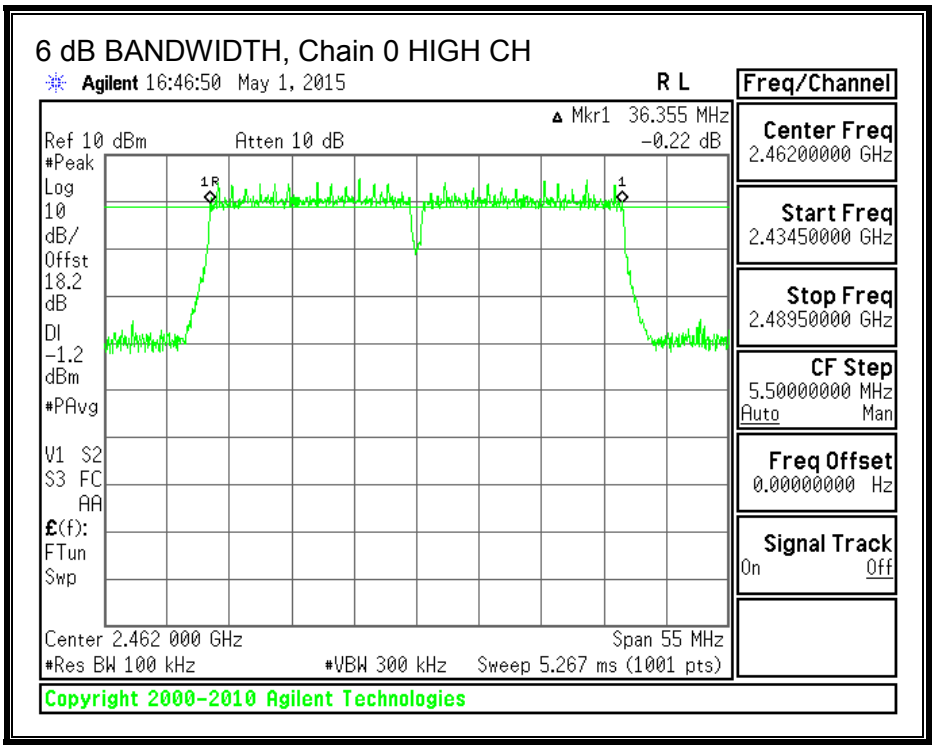
**RESULTS**

| Channel | Frequency (MHz) | 6 dB BW Chain 0 (MHz) | 6 dB BW Chain 1 (MHz) | Minimum Limit (MHz) |
|---|---|---|---|---|
| Low | 2422 | 36.300 | 36.355 | 0.5 |
| Mid | 2442 | 36.355 | 36.355 | 0.5 |
| High | 2462 | 36.355 | 36.355 | 0.5 |

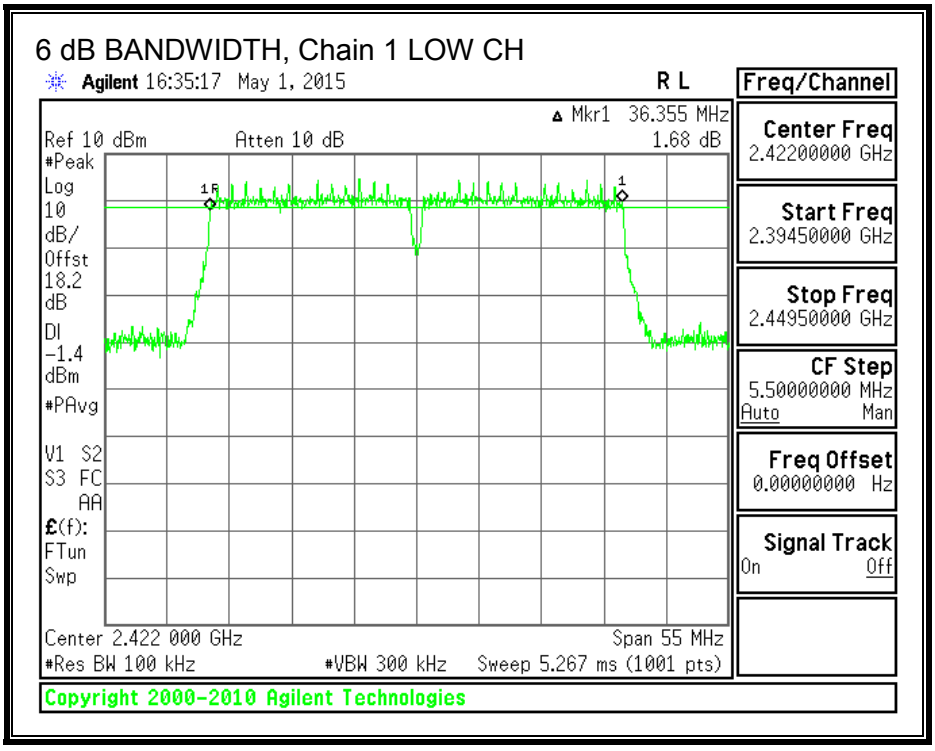
**6 dB BANDWIDTH, Chain 0**



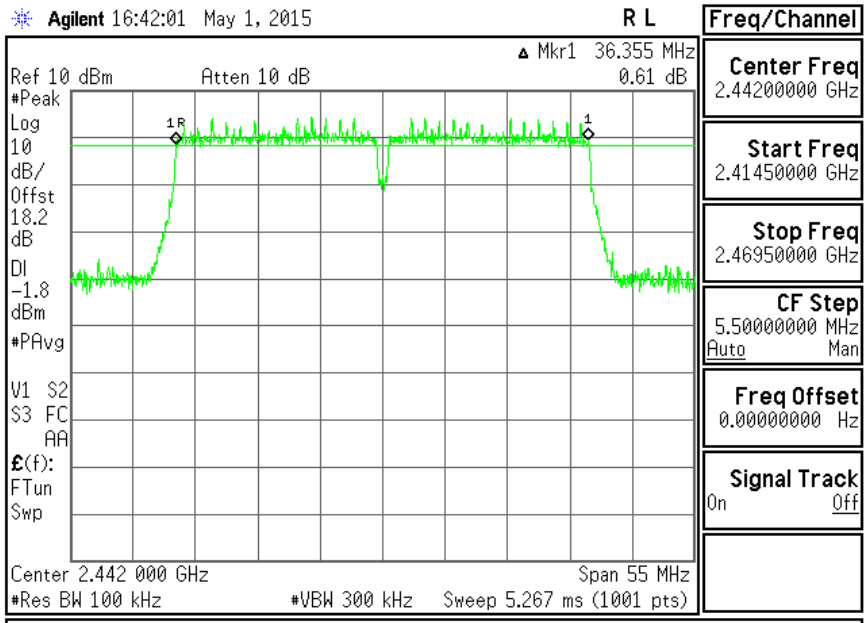





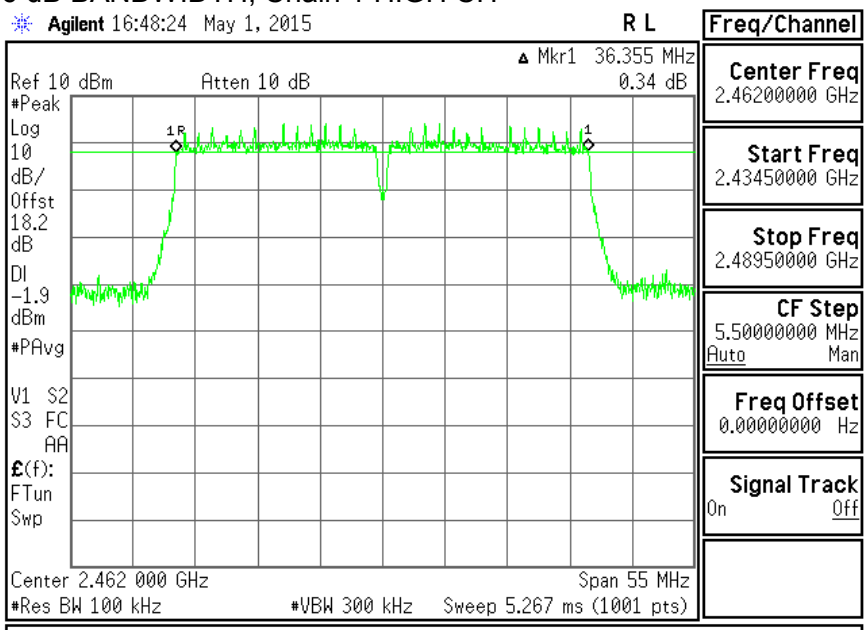

**6 dB BANDWIDTH, Chain 1**



6 dB BANDWIDTH, Chain 1 MID CH




6 dB BANDWIDTH, Chain 1 HIGH CH



## 8.9.2. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section 5.4 (5), the e.i.r.p. shall not exceed 4 W.

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

**DIRECTIONAL ANTENNA GAIN**

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

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Uncorrelated Chains Directional Gain (dBi) |
|---|---|---|
| 3.60 | 3.60 | 3.60 |

**RESULTS**

**Limits**

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---|---|---|---|---|---|---|
| 3 | 2422 | 3.60 | 30 | 30 | 36 | 30.00 |
| 4 | 2427 | 3.60 | 30 | 30 | 36 | 30.00 |
| 7 | 2442 | 3.60 | 30 | 30 | 36 | 30.00 |
| 8 | 2447 | 3.60 | 30 | 30 | 36 | 30.00 |
| 9 | 2452 | 3.60 | 30 | 30 | 36 | 30.00 |
| 10 | 2457 | 3.60 | 30 | 30 | 36 | 30.00 |
| 11 | 2462 | 3.60 | 30 | 30 | 36 | 30.00 |

**Results**

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| 3 | 2422 | 13.14 | 13.15 | 16.16 | 30.00 | -13.84 |
| 4 | 2427 | 15.18 | 15.22 | 18.21 | 30.00 | -11.79 |
| 7 | 2442 | 18.70 | 19.10 | 21.91 | 30.00 | -8.09 |
| 8 | 2447 | 17.22 | 17.19 | 20.22 | 30.00 | -9.78 |
| 9 | 2452 | 14.83 | 14.99 | 17.92 | 30.00 | -12.08 |
| 10 | 2457 | 12.71 | 12.69 | 15.71 | 30.00 | -14.29 |
| 11 | 2462 | 11.62 | 11.85 | 14.75 | 30.00 | -15.25 |

**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.

## 8.9.3. POWER SPECTRAL DENSITY

**LIMITS**

FCC §15.247

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of Section 5.4 (4), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

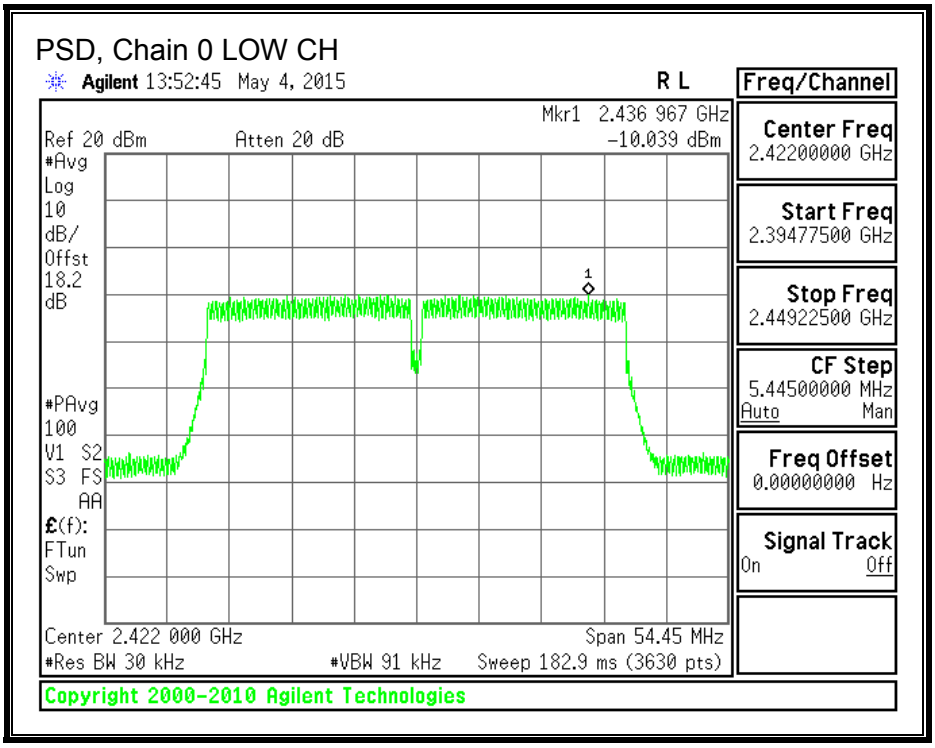
**RESULTS**

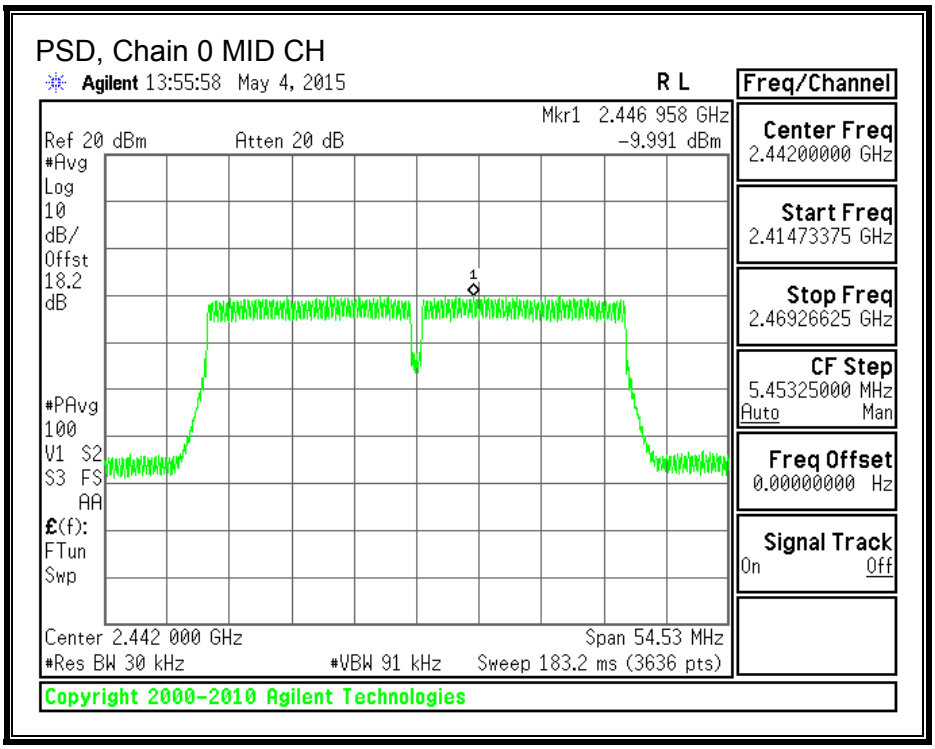
| Duty Cycle CF (dB) | 0.11 | Included in Calculations of Corr'd PSD |
|---|---|---|

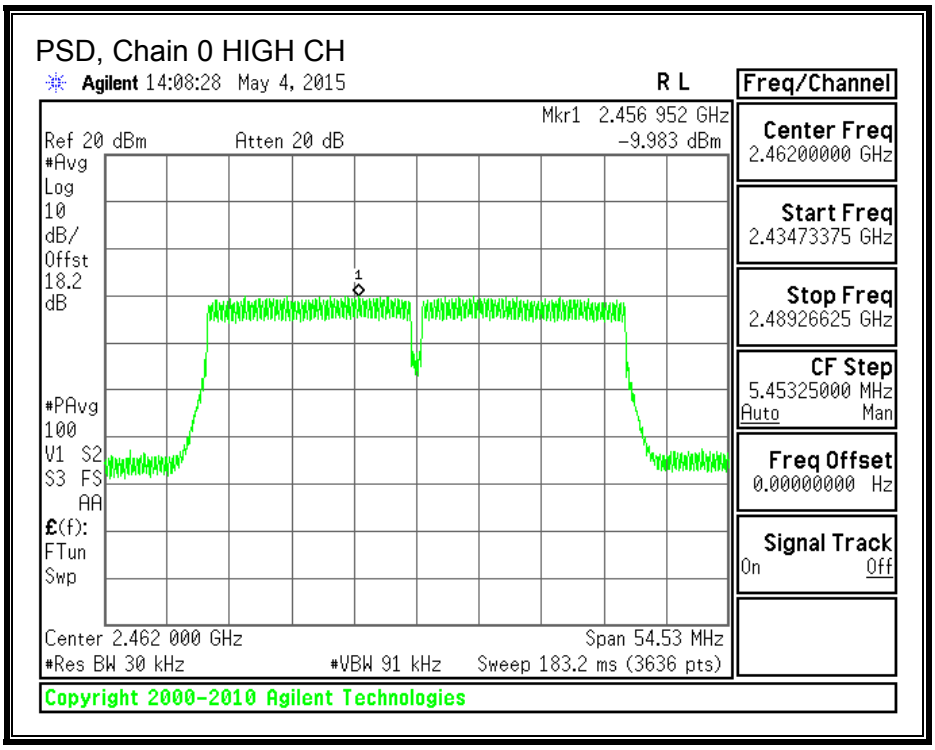
**PSD Results**

| Channel | Frequency (MHz) | Chain 0 Meas (dBm) | Chain 1 Meas (dBm) | Total Corr'd PSD (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| Low | 2422 | -10.039 | -9.534 | -6.66 | 8.0 | -14.7 |
| Mid | 2442 | -9.991 | -9.348 | -6.54 | 8.0 | -14.5 |
| High | 2462 | -9.983 | -9.652 | -6.69 | 8.0 | -14.7 |

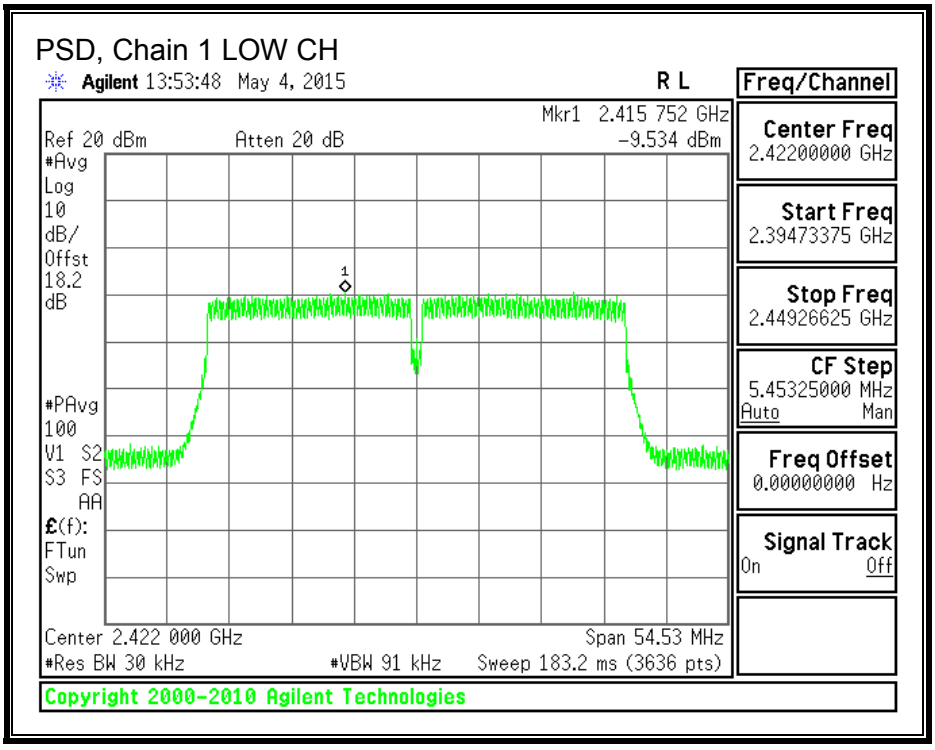
**PSD, Chain 0**



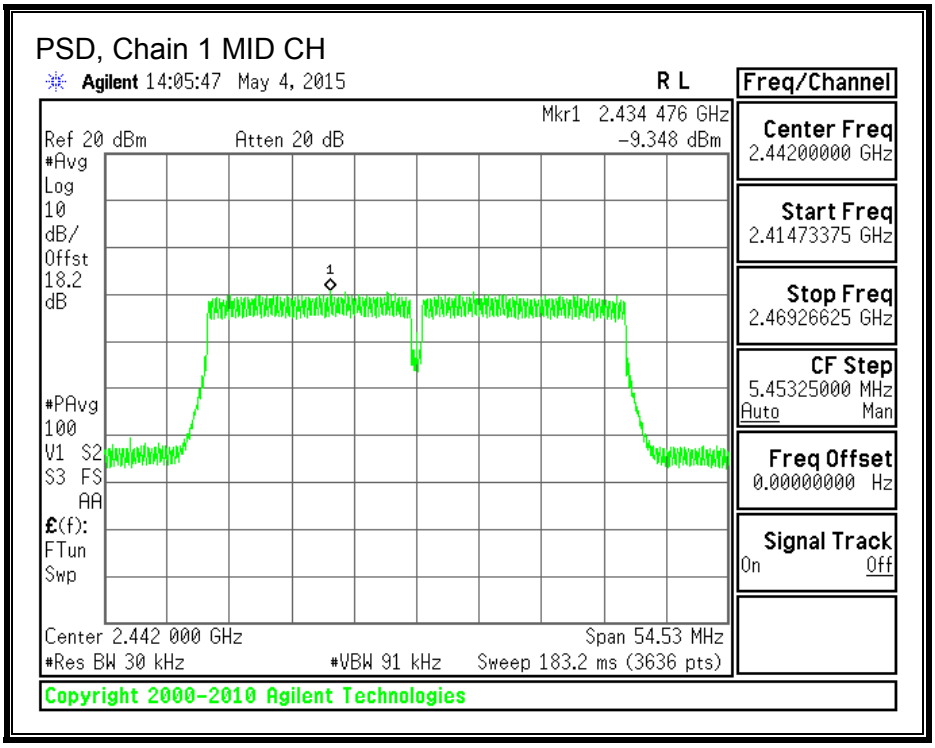





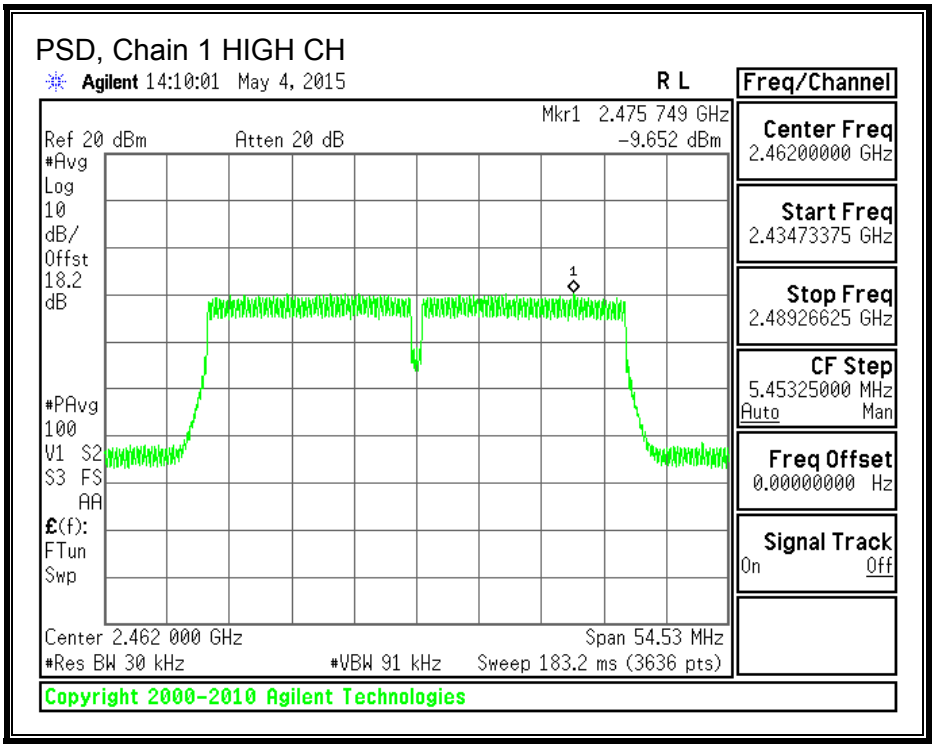

**PSD, Chain 1**



PSD, Chain 1 MID CH




PSD, Chain 1 HIGH CH



## 8.9.4. OUT-OF-BAND EMISSIONS

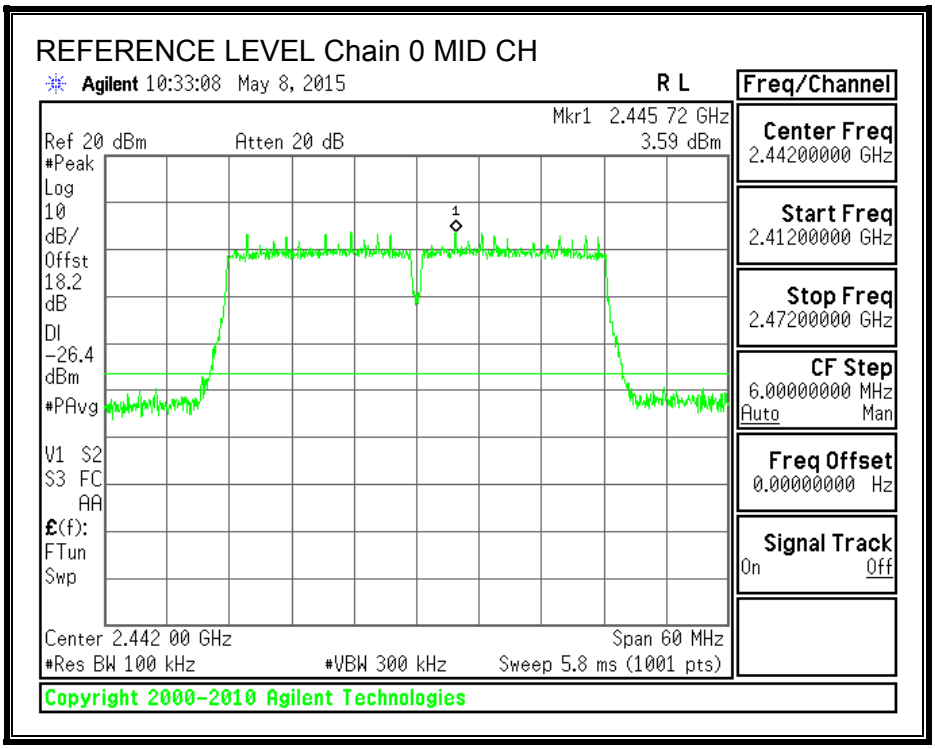
**LIMITS**

FCC §15.247 (d)

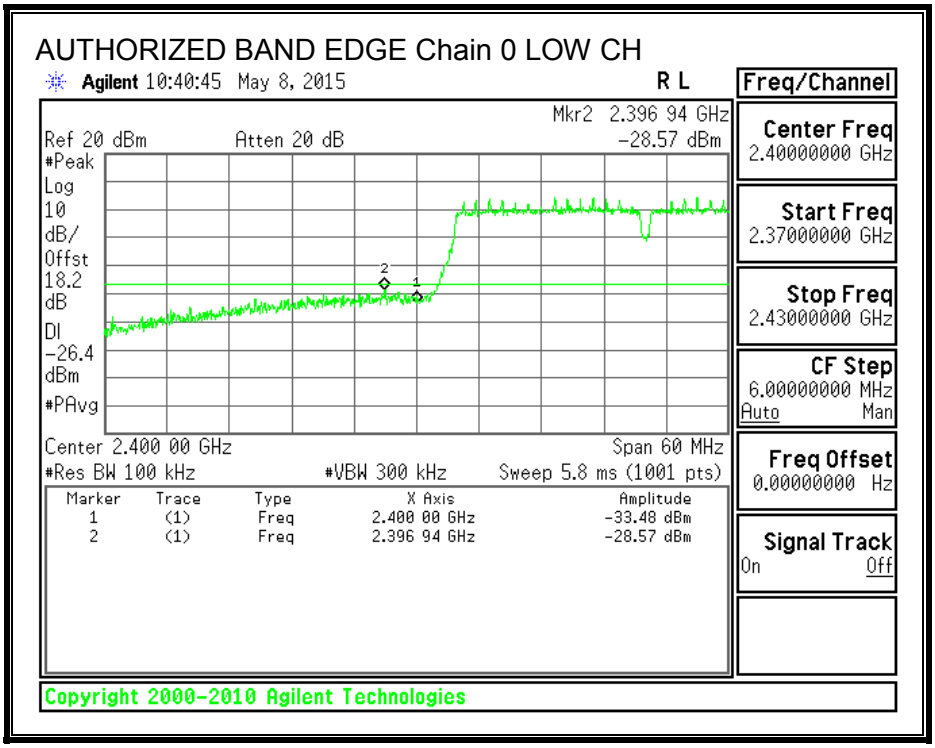
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

**RESULTS**

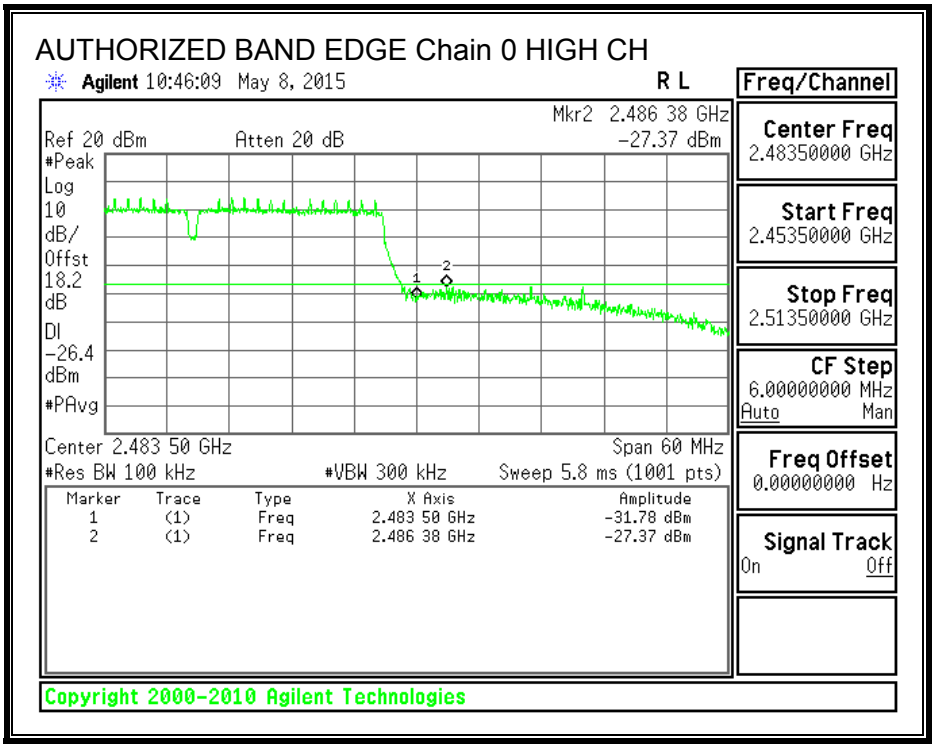
**IN-BAND REFERENCE LEVEL, Chain 0**



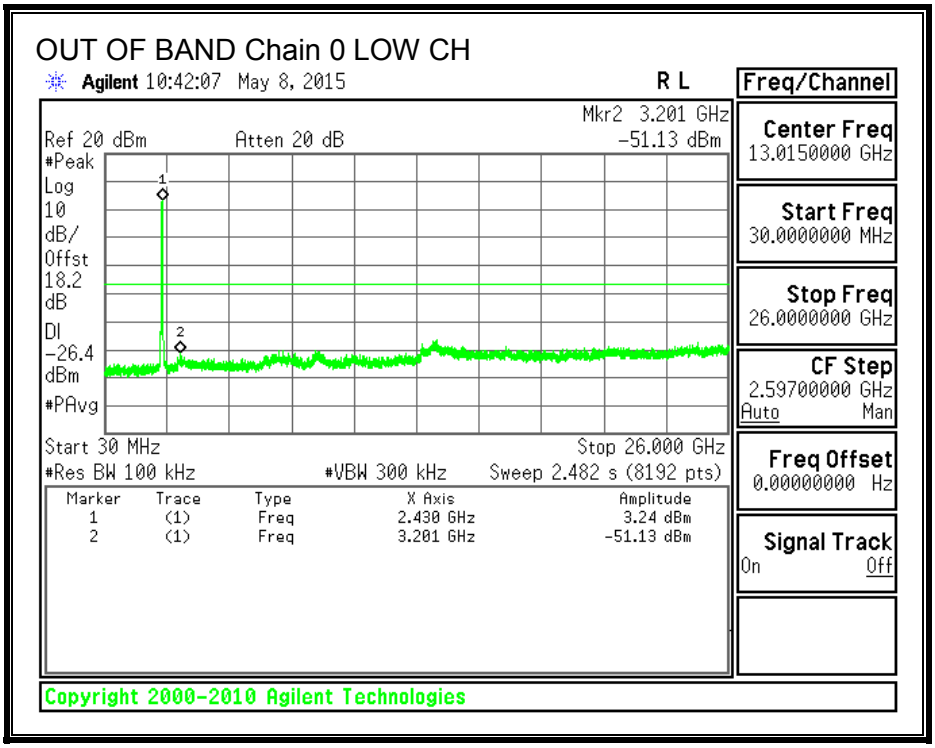
**LOW CHANNEL BANDEDGE, Chain 0**

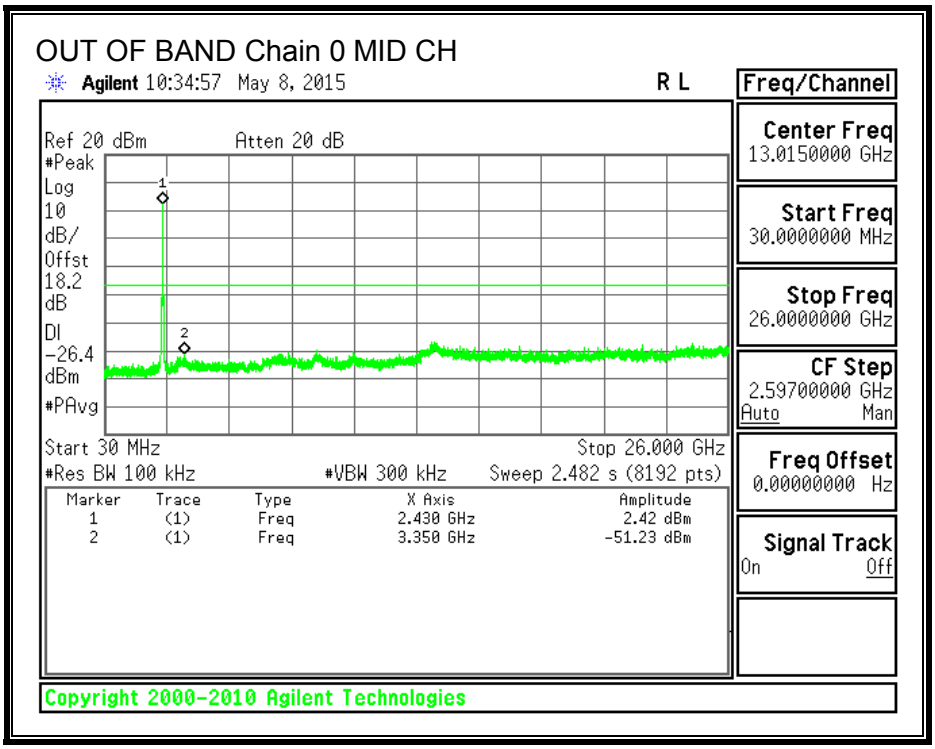


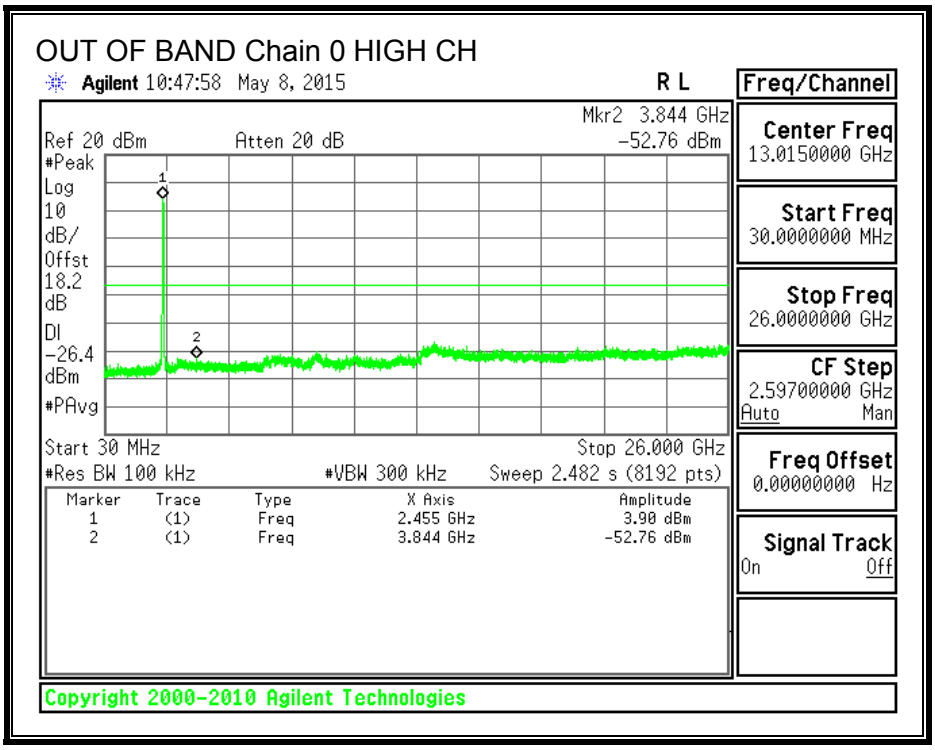

**HIGH CHANNEL BANDEDGE, Chain 0**



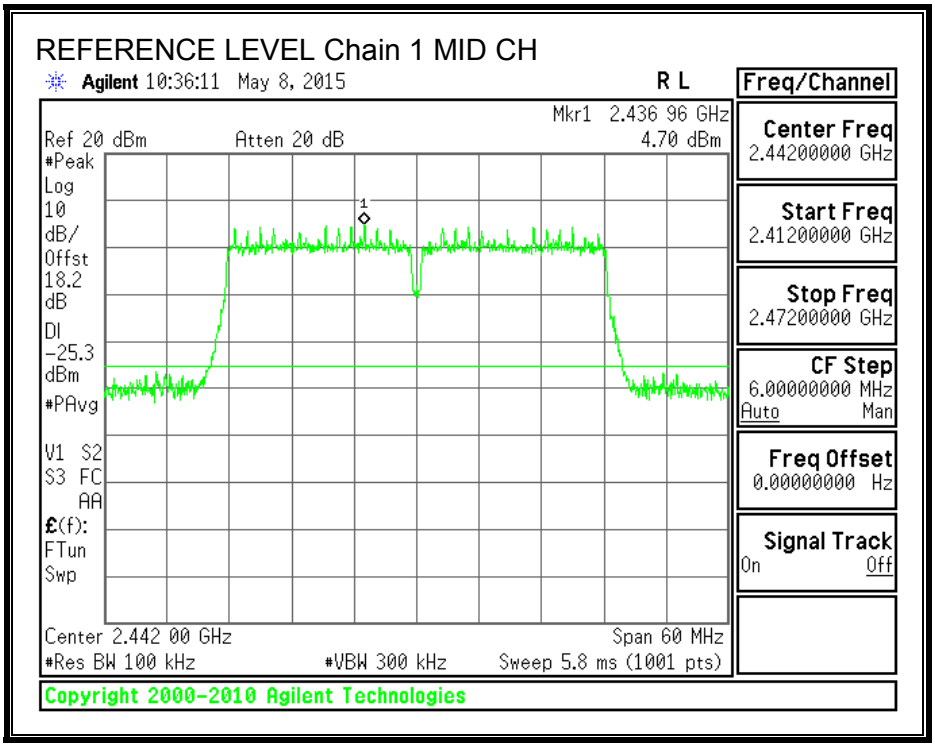
**OUT-OF-BAND EMISSIONS, Chain 0**



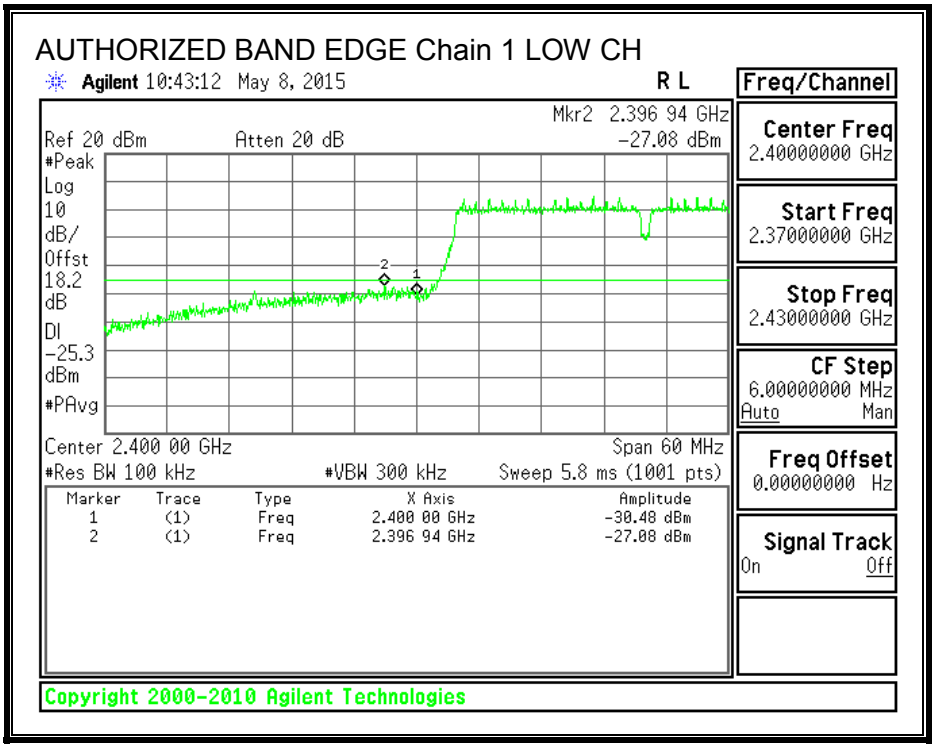





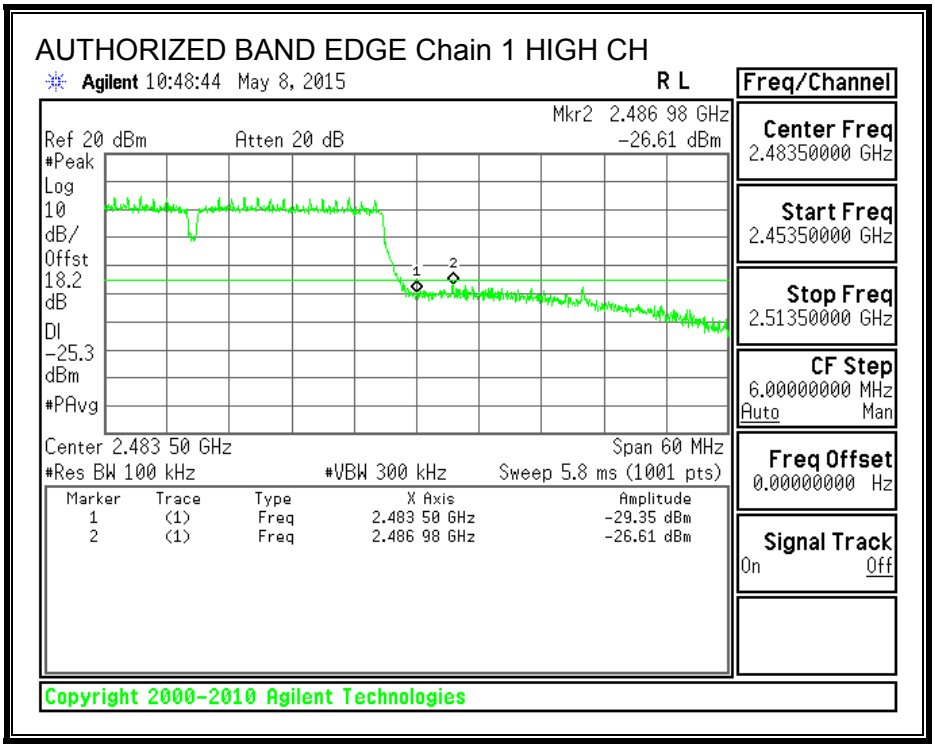
**IN-BAND REFERENCE LEVEL, Chain 1**



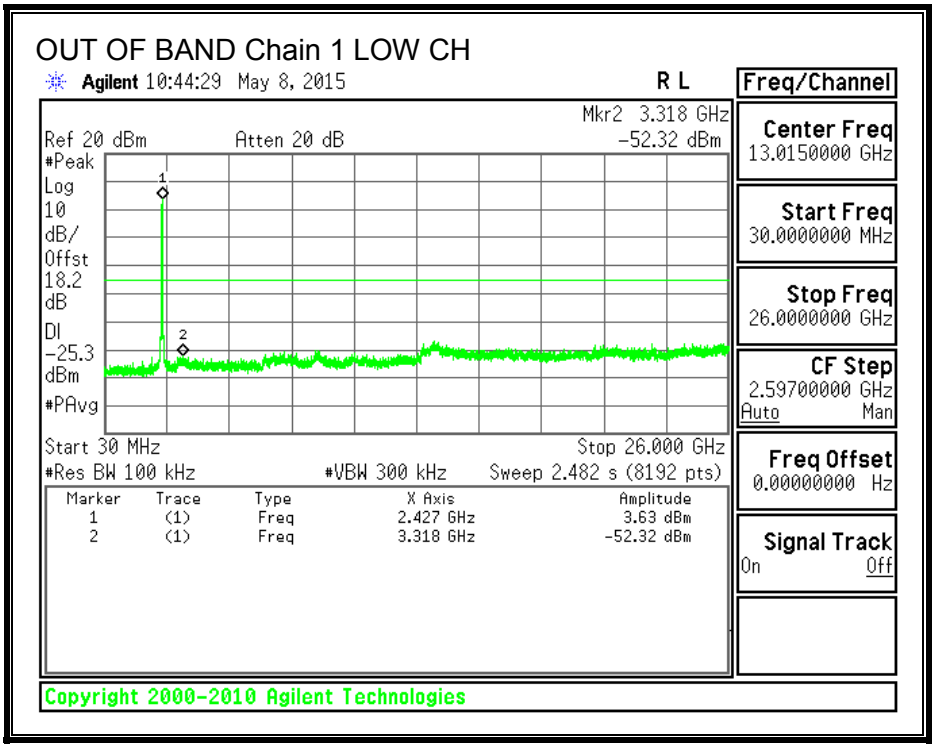
**LOW CHANNEL BANDEDGE, Chain 1**

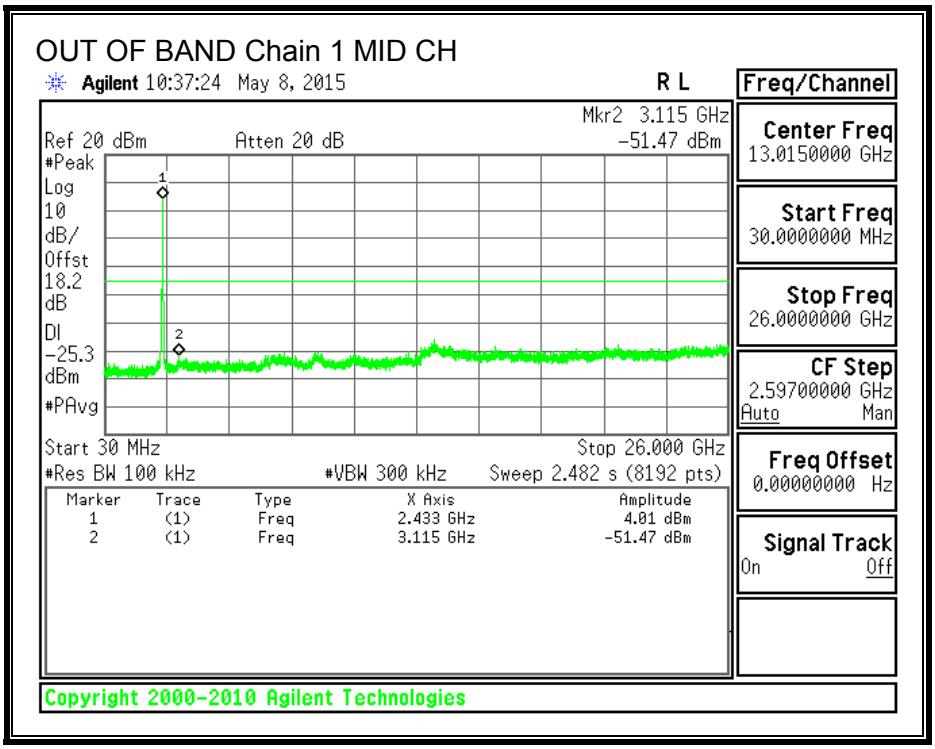


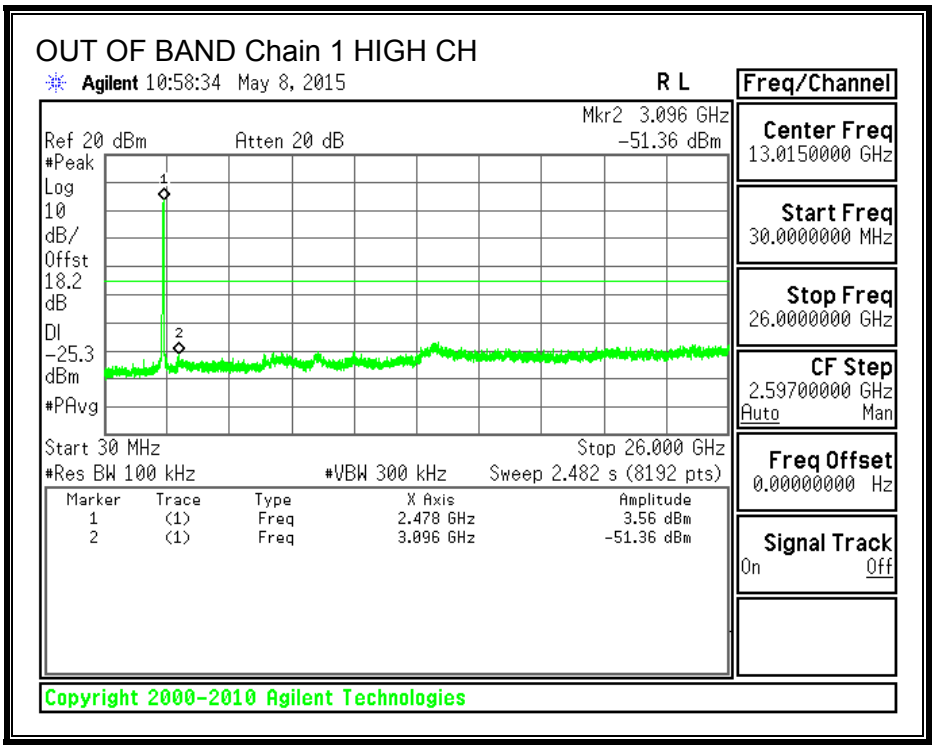

**HIGH CHANNEL BANDEDGE, Chain 1**



**OUT-OF-BAND EMISSIONS, Chain 1**





# 8.10. 802.11n HT40 TxBF 2TX MODE IN THE 2.4 GHz BAND

## 8.10.1. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section 5.4 (5), the e.i.r.p. shall not exceed 4 W.

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

**DIRECTIONAL ANTENNA GAIN**

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

| Antenna Gain (dBi) | 10 * Log (2 chains) (dB) | Correlated Chains Directional Gain (dBi) |
|---|---|---|
| 3.60 | 3.01 | 6.61 |

**RESULTS**

**Limits**

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---|---|---|---|---|---|---|
| 3 | 2422 | 6.61 | 30 | 30 | 36 | 29.39 |
| 4 | 2427 | 6.61 | 30 | 30 | 36 | 29.39 |
| 7 | 2442 | 6.61 | 30 | 30 | 36 | 29.39 |
| 8 | 2447 | 6.61 | 30 | 30 | 36 | 29.39 |
| 9 | 2452 | 6.61 | 30 | 30 | 36 | 29.39 |
| 10 | 2457 | 6.61 | 30 | 30 | 36 | 29.39 |
| 11 | 2462 | 6.61 | 30 | 30 | 36 | 29.39 |

**Results**

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| 3 | 2422 | 13.20 | 13.25 | 16.24 | 29.39 | -13.15 |
| 4 | 2427 | 14.44 | 14.53 | 17.50 | 29.39 | -11.89 |
| 7 | 2442 | 18.70 | 19.10 | 21.91 | 29.39 | -7.48 |
| 8 | 2447 | 14.51 | 14.48 | 17.51 | 29.39 | -11.88 |
| 9 | 2452 | 12.97 | 13.05 | 16.02 | 29.39 | -13.37 |
| 10 | 2457 | 11.86 | 11.95 | 14.92 | 29.39 | -14.47 |
| 11 | 2462 | 8.00 | 7.90 | 10.96 | 29.39 | -18.43 |

**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.

# 8.11. 802.11a LEGACY MODE IN THE 5.8 GHz BAND

## 8.11.1. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section 5.4 (5), the e.i.r.p. shall not exceed 4 W.

**DIRECTIONAL ANTENNA GAIN**

This is SISO mode, AG is the highest (worst-case) = 4.7 dBi

**RESULTS**

**Limits**

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---|---|---|---|---|---|---|
| Low | 5745 | 4.70 | N/A | 30 | 36 | 30.00 |

**Results**

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|
| Low | 5745 | 19.00 | 19.00 | 30.00 | -11.00 |

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

## 8.11.2. OUT-OF-BAND EMISSIONS

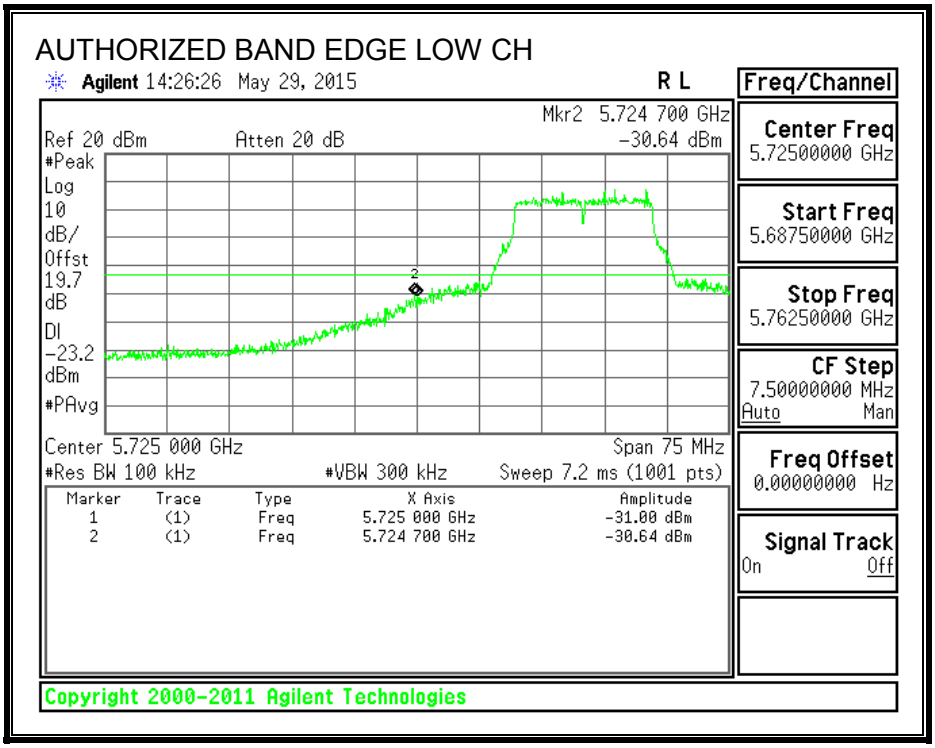
**LIMITS**

IC RSS-210 A8.5

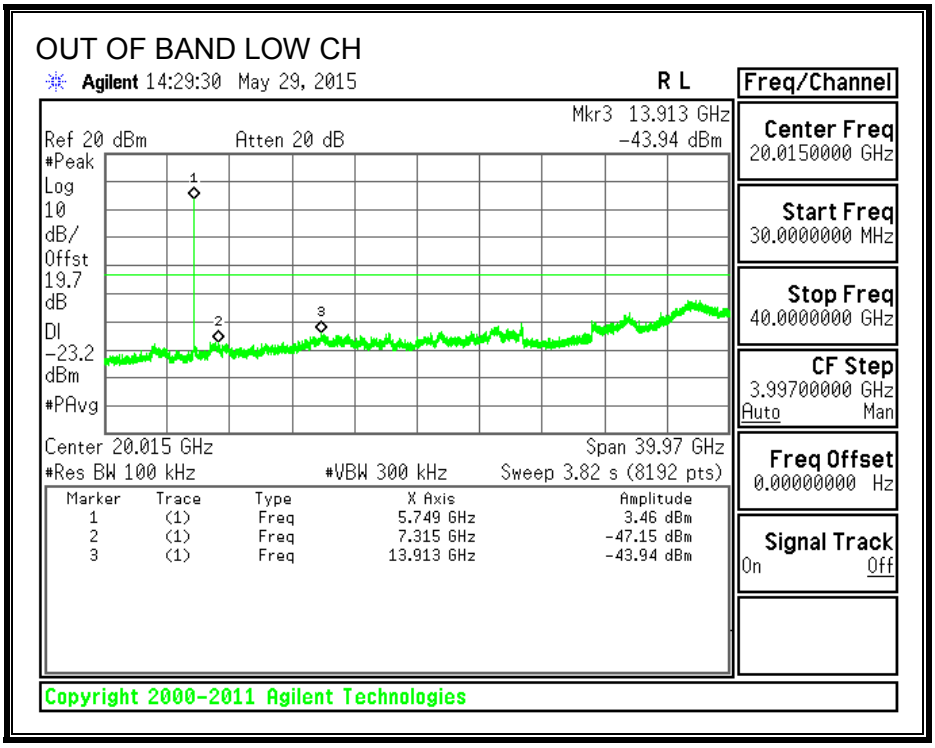
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in RSS-Gen is not required.

## RESULTS

### LOW CHANNEL BANDEDGE




### OUT-OF-BAND EMISSIONS



# 8.12. 802.11n HT20 CDD 1TX MODE IN THE 5.8 GHz BAND

## 8.12.1. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section 5.4 (5), the e.i.r.p. shall not exceed 4 W.

**DIRECTIONAL ANTENNA GAIN**

This is SISO mode, AG is the highest (worst-case) = 4.7 dBi

**RESULTS**

**Limits**

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---|---|---|---|---|---|---|
| Low | 5745 | 4.70 | N/A | 30 | 36 | 30.00 |

**Results**

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|
| Low | 5745 | 19.20 | 19.20 | 30.00 | -10.80 |

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

## 8.12.2. OUT-OF-BAND EMISSIONS

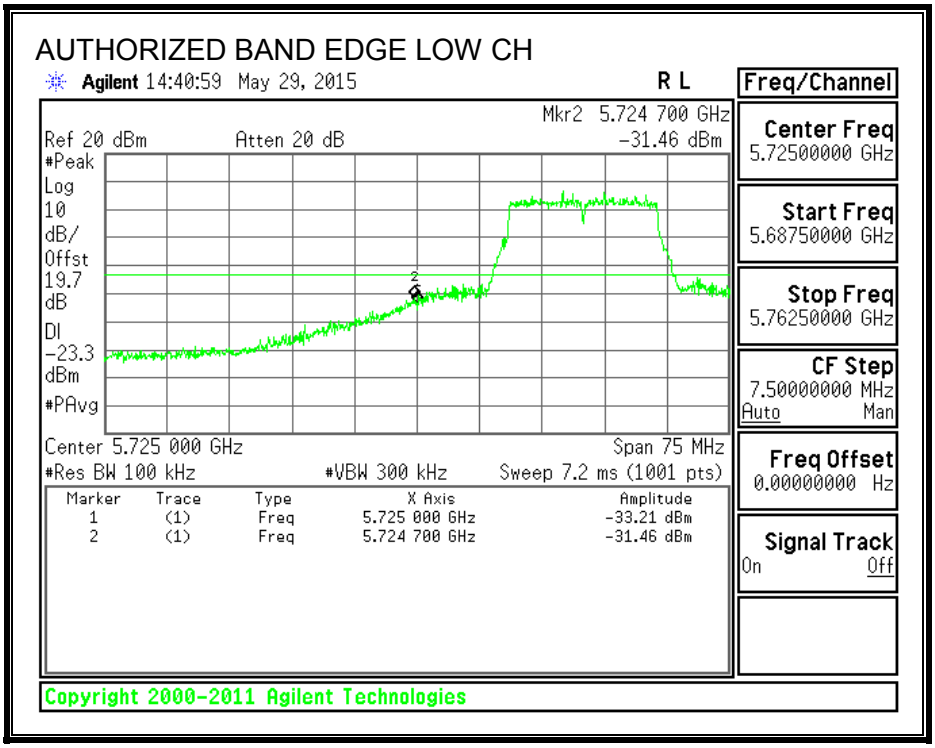
**LIMITS**

IC RSS-210 A8.5

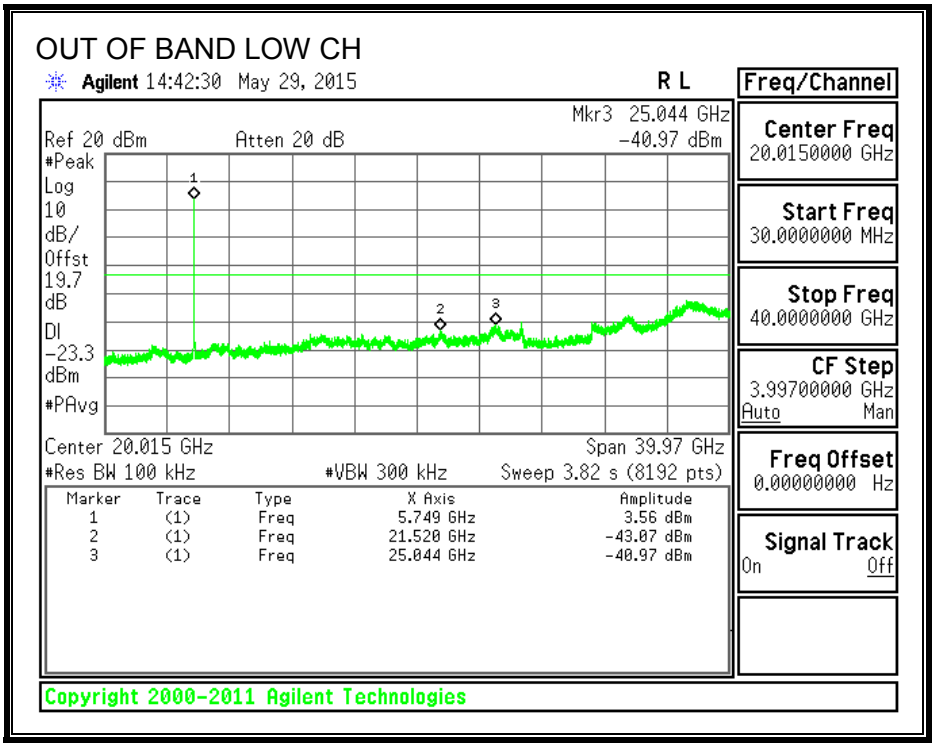
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in RSS-Gen is not required.

## RESULTS

### LOW CHANNEL BANDEDGE




### OUT-OF-BAND EMISSIONS



# 8.13. 802.11n HT20 CDD 2TX MODE IN THE 5.8 GHz BAND

## 8.13.1. 6 dB BANDWIDTH

**LIMITS**

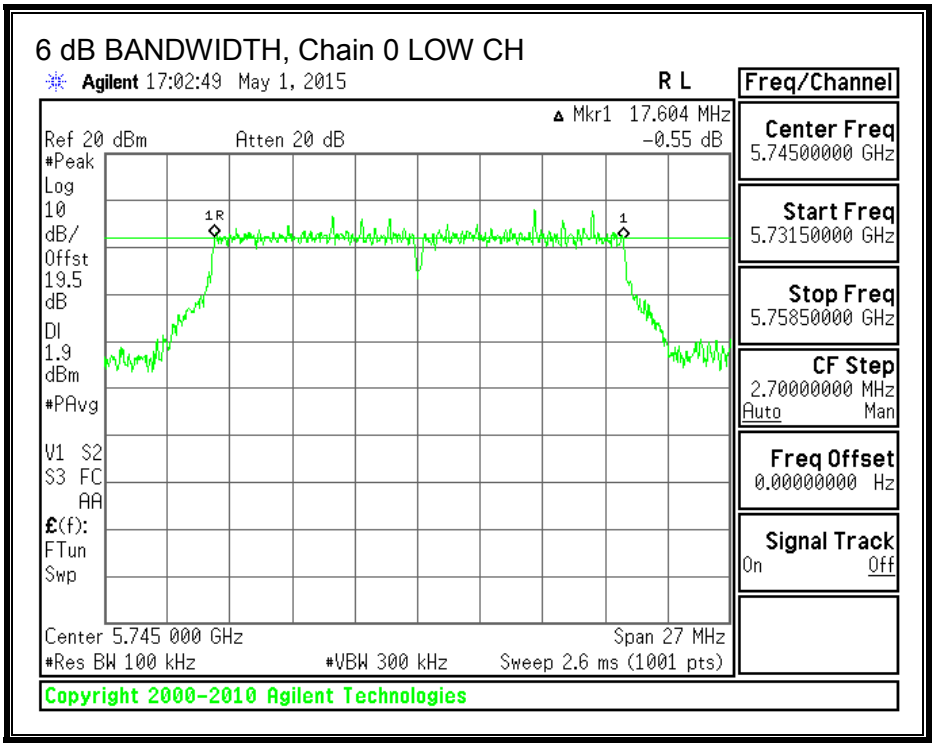
IC RSS-210 A8.2 (a)

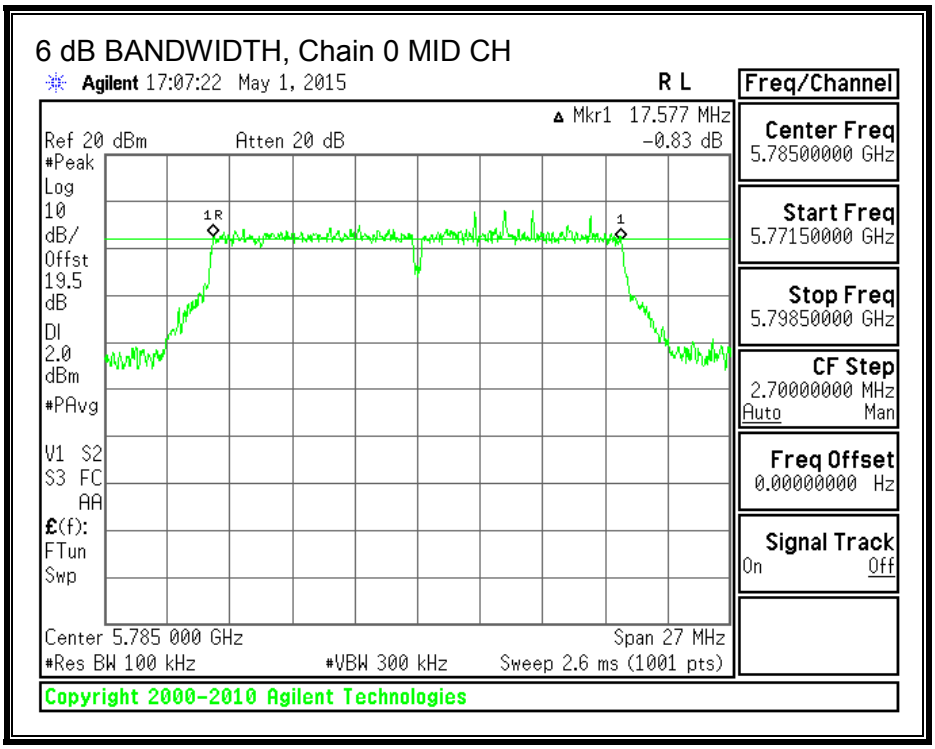
The minimum 6 dB bandwidth shall be at least 500 kHz.

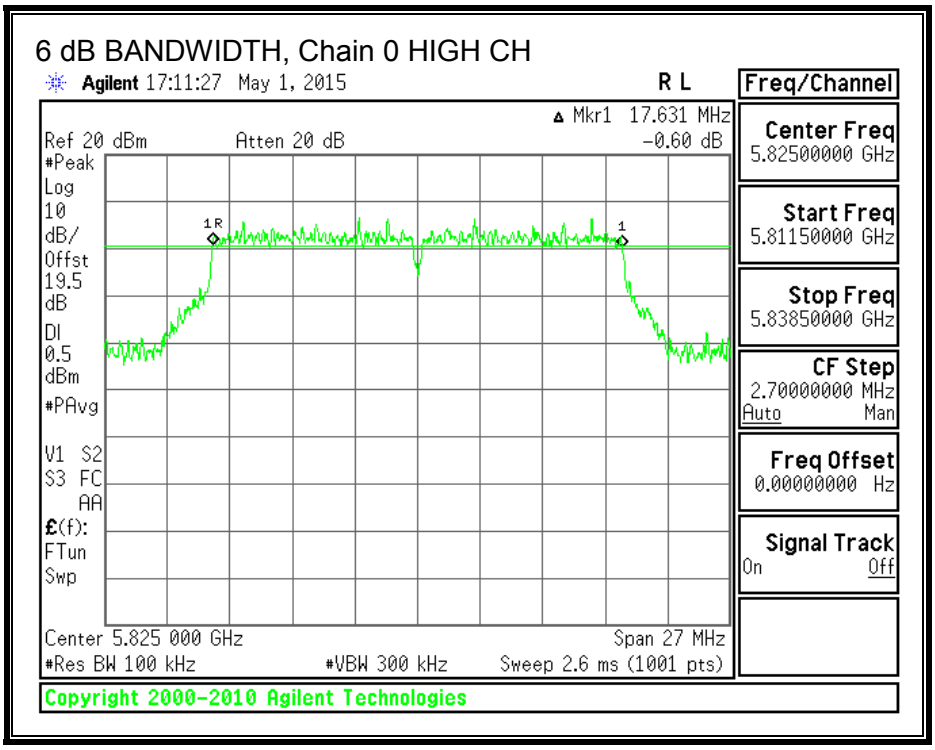
**RESULTS**

| Channel | Frequency (MHz) | 6 dB BW Chain 0 (MHz) | 6 dB BW Chain 1 (MHz) | Minimum Limit (MHz) |
|---|---|---|---|---|
| Low | 5745 | 17.604 | 17.550 | 0.5 |
| Mid | 5785 | 17.577 | 17.604 | 0.5 |
| High | 5825 | 17.631 | 17.394 | 0.5 |

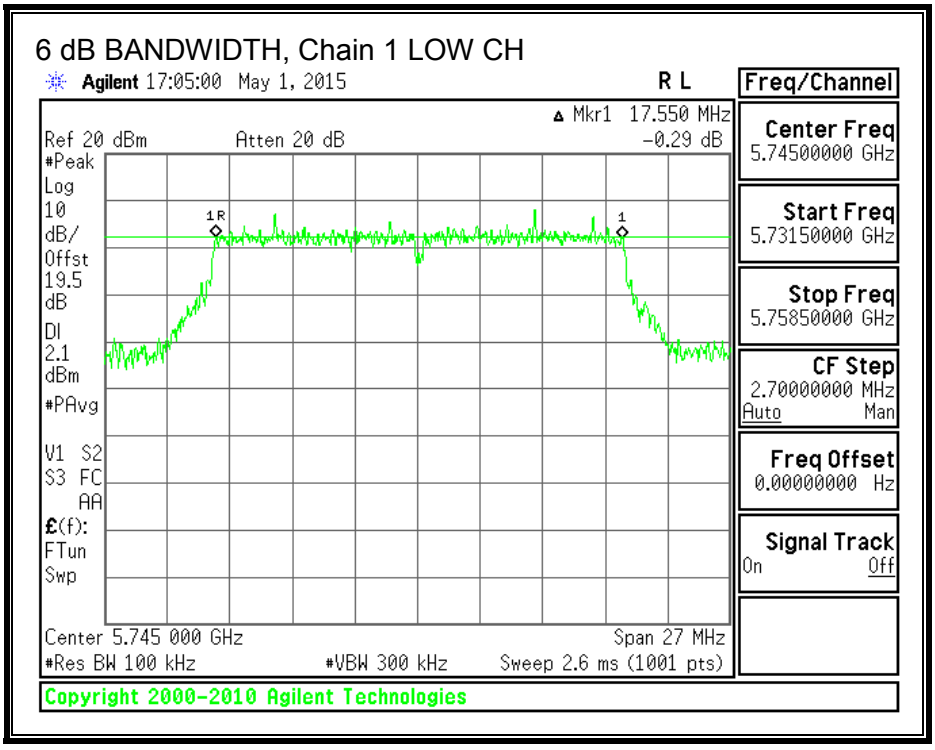
**6 dB BANDWIDTH, Chain 0**



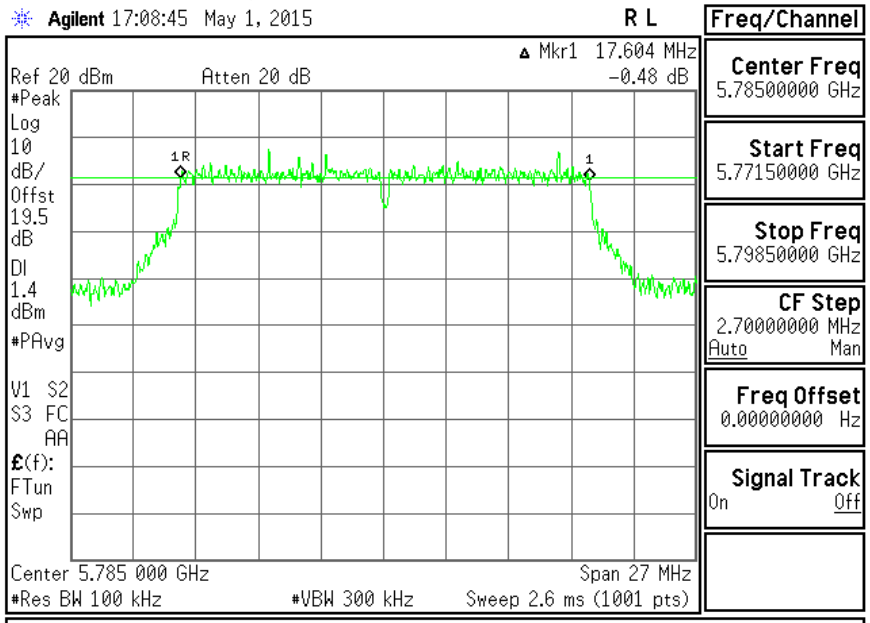





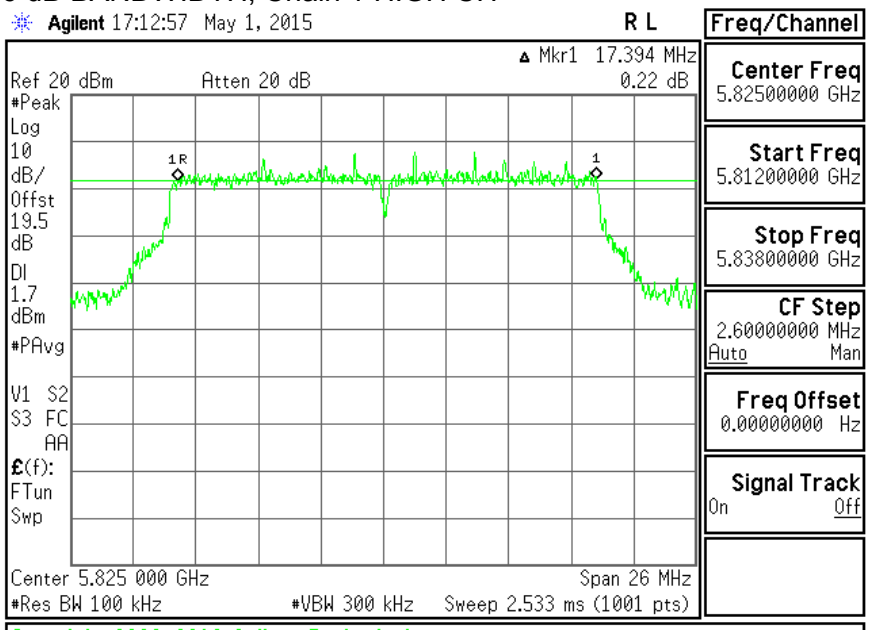

**6 dB BANDWIDTH, Chain 1**



6 dB BANDWIDTH, Chain 1 MID CH




6 dB BANDWIDTH, Chain 1 HIGH CH



## 8.13.2. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section 5.4 (5), the e.i.r.p. shall not exceed 4 W.

**DIRECTIONAL ANTENNA GAIN**

The TX chains are uncorrelated and the antenna gain is the same for each chain. The directional gain is equal to the antenna gain, 4.7 dBi.

**RESULTS**

**Antenna Gain and Limit**

| Channel | Frequency (MHz) | Directional Gain (dBi) | Power Limit (dBm) |
|---|---|---|---|
| Low | 5745 | 4.70 | 30.00 |
| Mid | 5785 | 4.70 | 30.00 |
| High | 5825 | 4.70 | 30.00 |

**Output Power Results**

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---|---|---|---|---|---|---|
| Low | 5745 | 18.90 | 19.05 | 21.99 | 30.00 | -8.01 |
| Mid | 5785 | 18.80 | 19.00 | 21.91 | 30.00 | -8.09 |
| High | 5825 | 18.76 | 19.00 | 21.89 | 30.00 | -8.11 |

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

## 8.13.3. POWER SPECTRAL DENSITY

**LIMITS**

IC RSS-210 A8.2

For digitally modulated systems, the power spectral density conducted form the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band during any time interval of continuous transmissions.

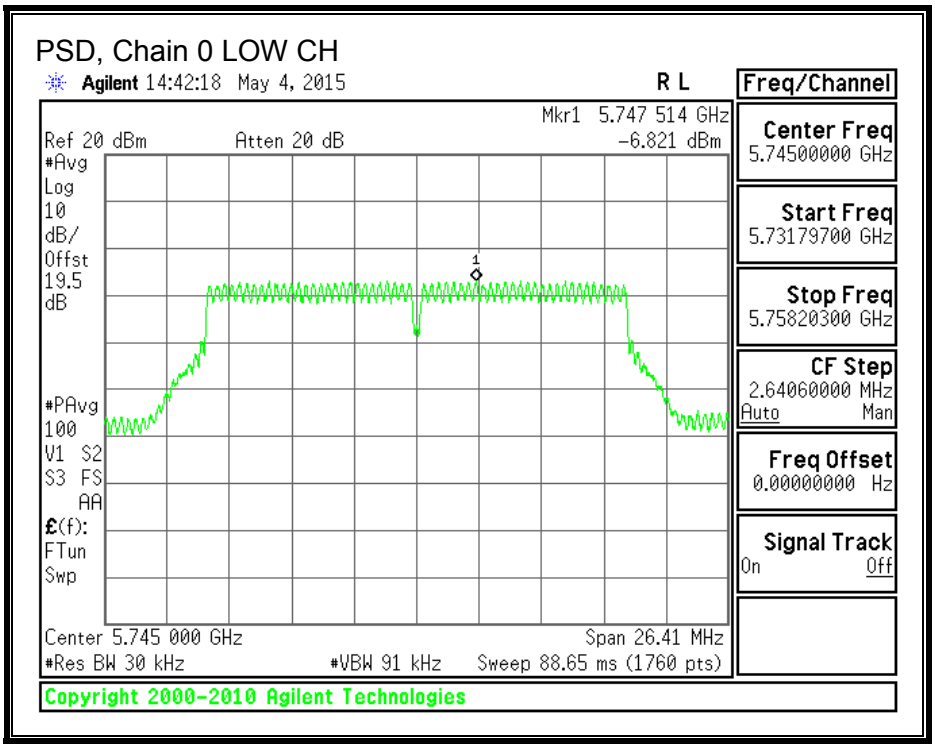
**RESULTS**

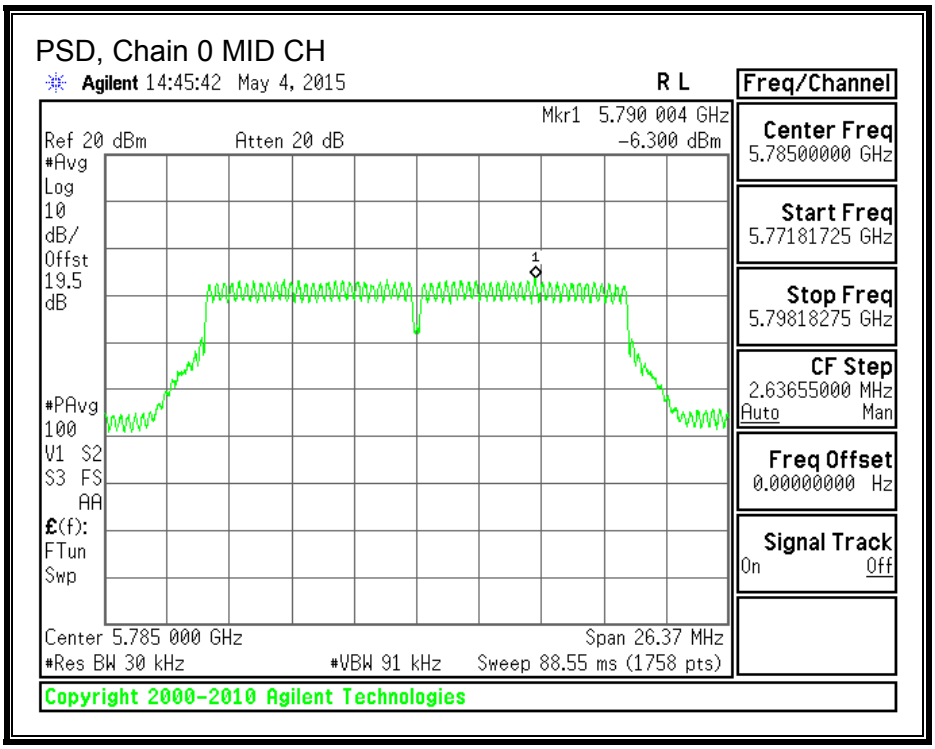
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|---|---|---|

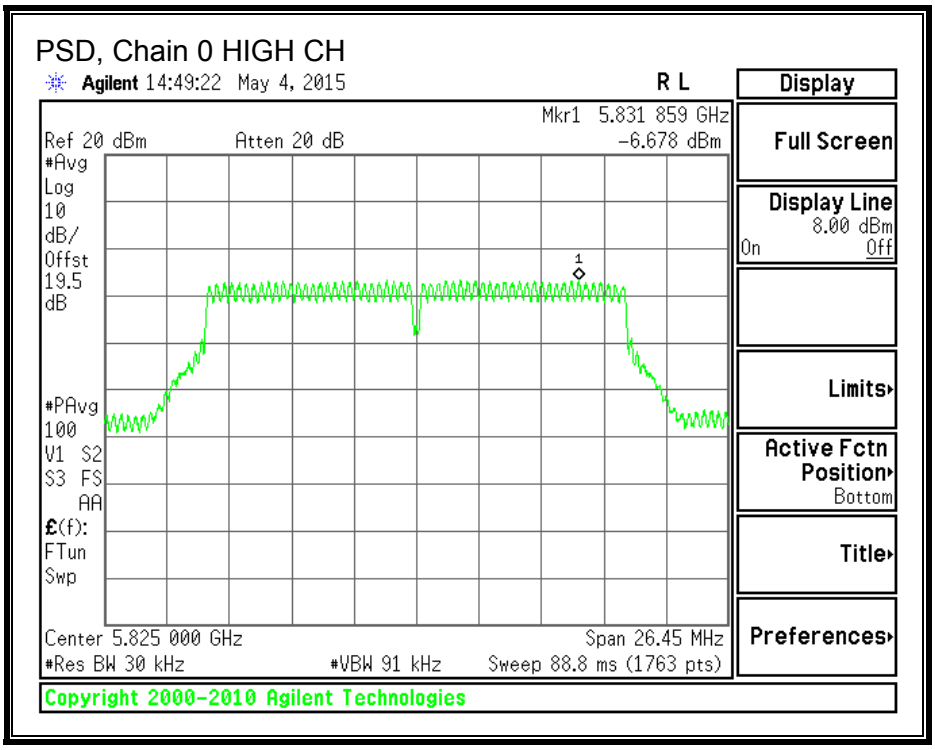
**PSD Results**

| Channel | Frequency (MHz) | Chain 0 Meas (dBm) | Chain 1 Meas (dBm) | Total Corr'd PSD (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| Low | 5745 | -6.821 | -6.793 | -3.80 | 8.0 | -11.8 |
| Mid | 5785 | -6.300 | -7.061 | -3.65 | 8.0 | -11.7 |
| High | 5825 | -6.678 | -6.887 | -3.77 | 8.0 | -11.8 |

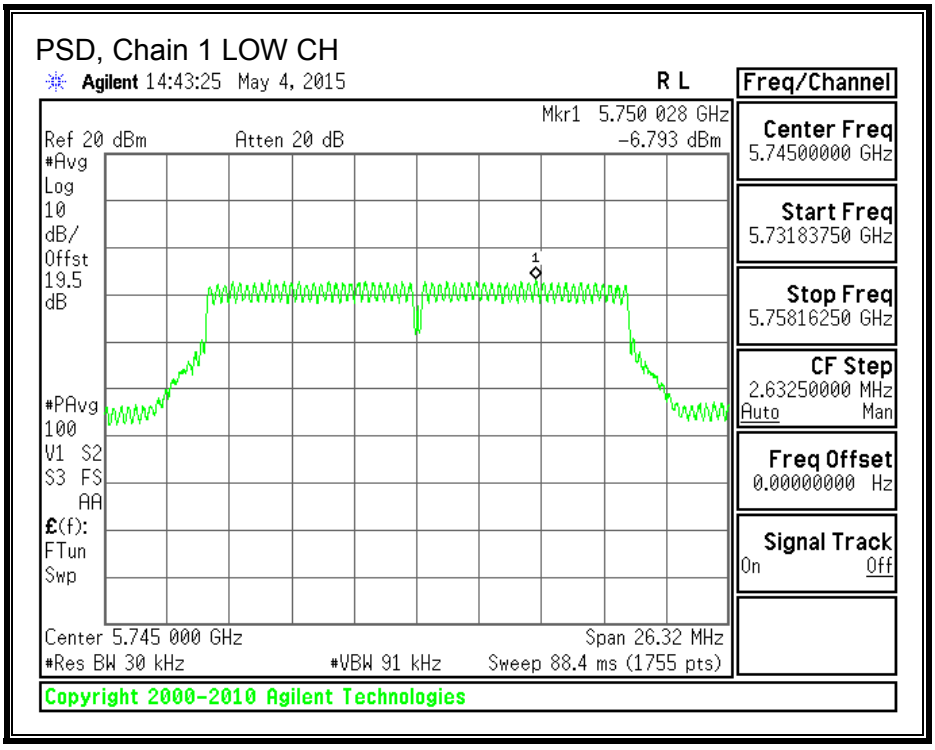
**PSD, Chain 0**



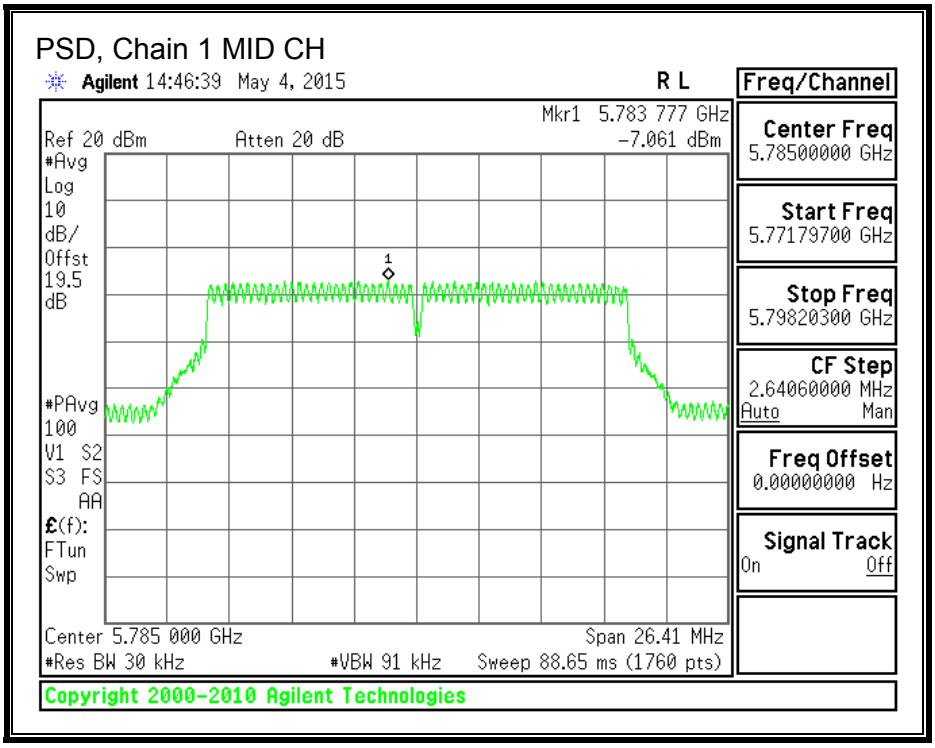





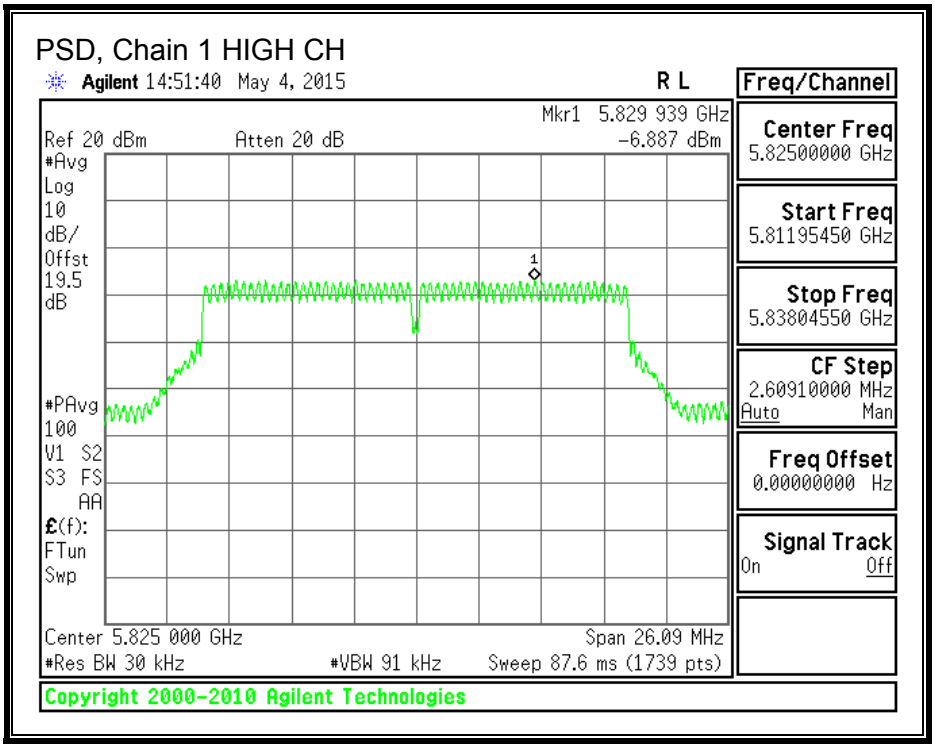

**PSD, Chain 1**



PSD, Chain 1 MID CH




PSD, Chain 1 HIGH CH



## 8.13.4. OUT-OF-BAND EMISSIONS

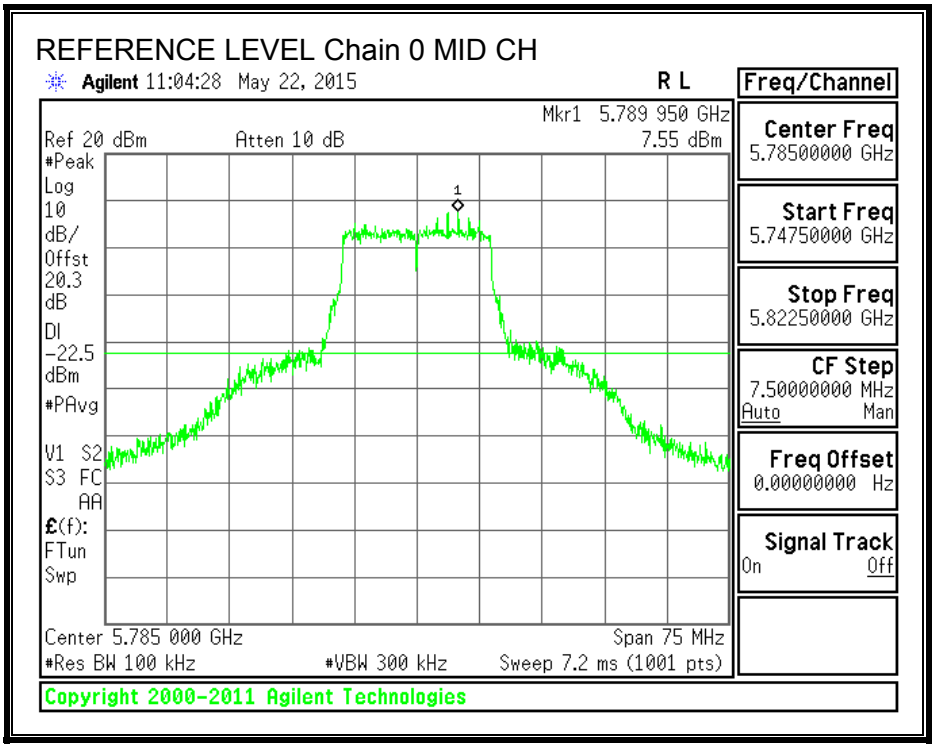
**LIMITS**

IC RSS-210 A8.5

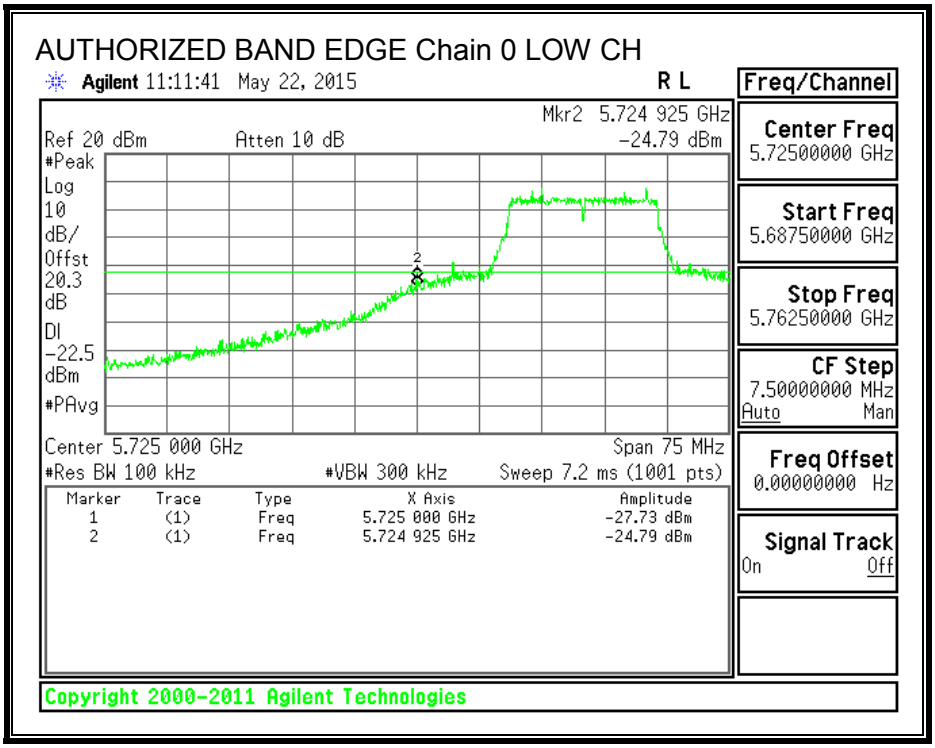
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

## RESULTS

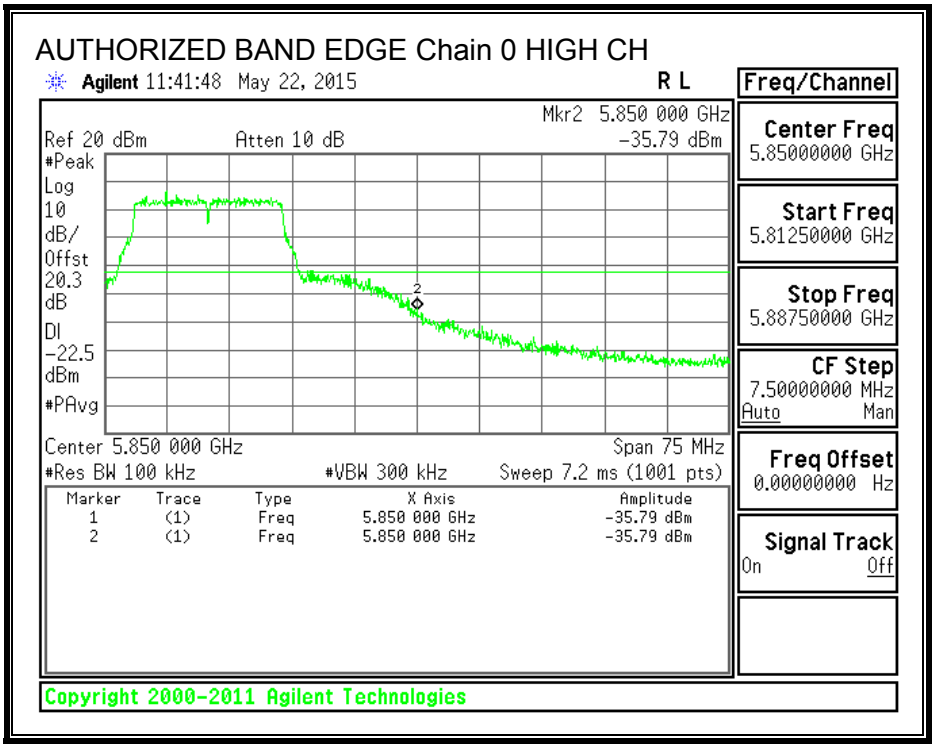
### IN-BAND REFERENCE LEVEL, Chain 0



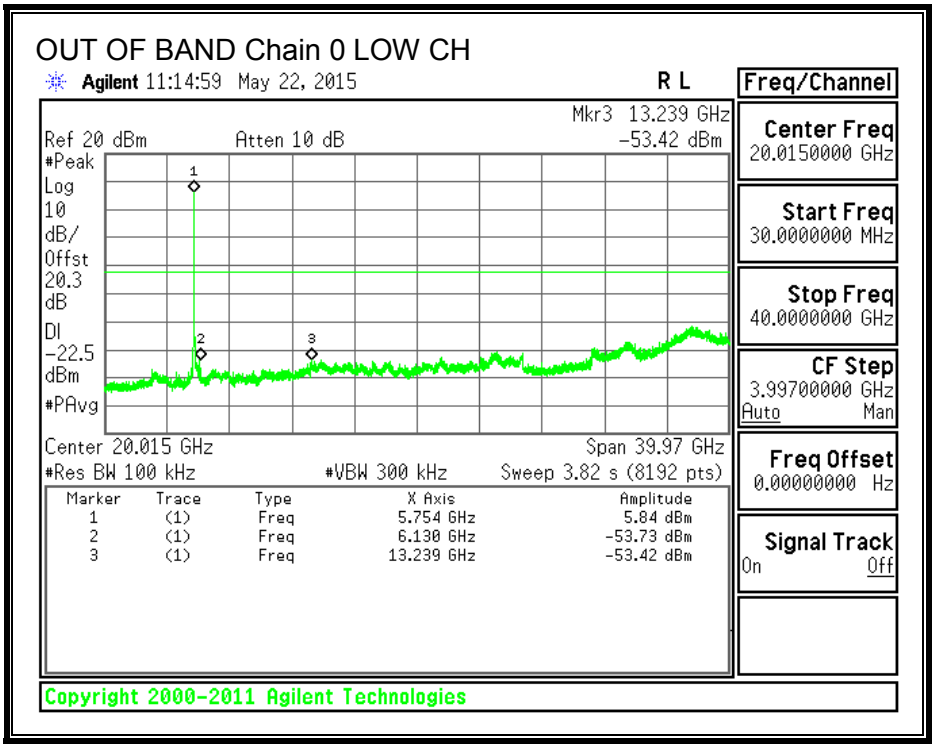
**LOW CHANNEL BANDEDGE, Chain 0**

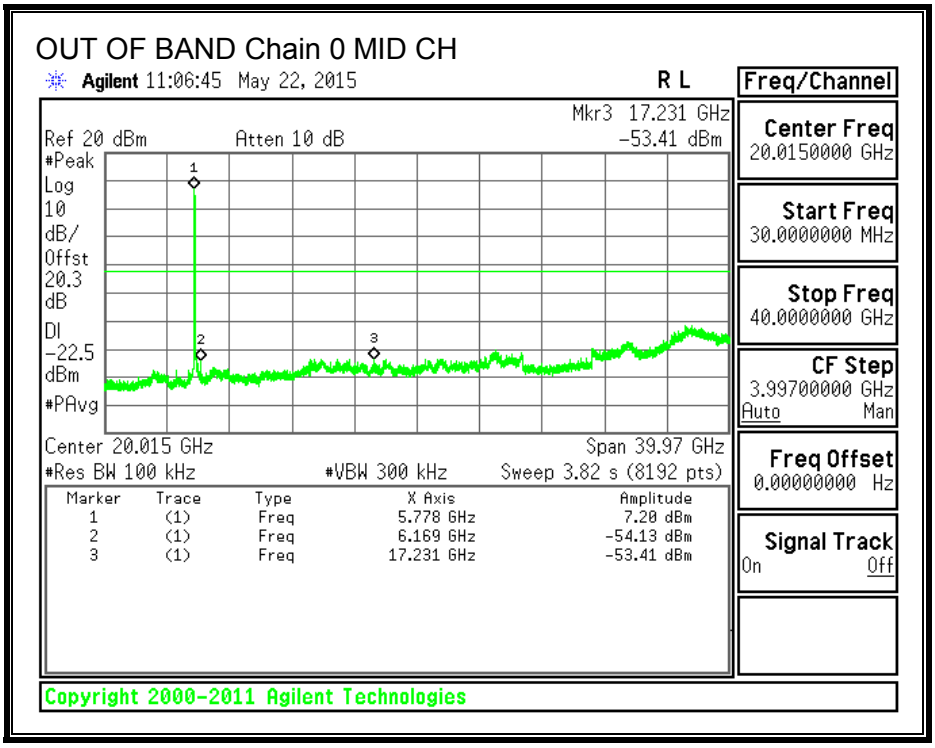


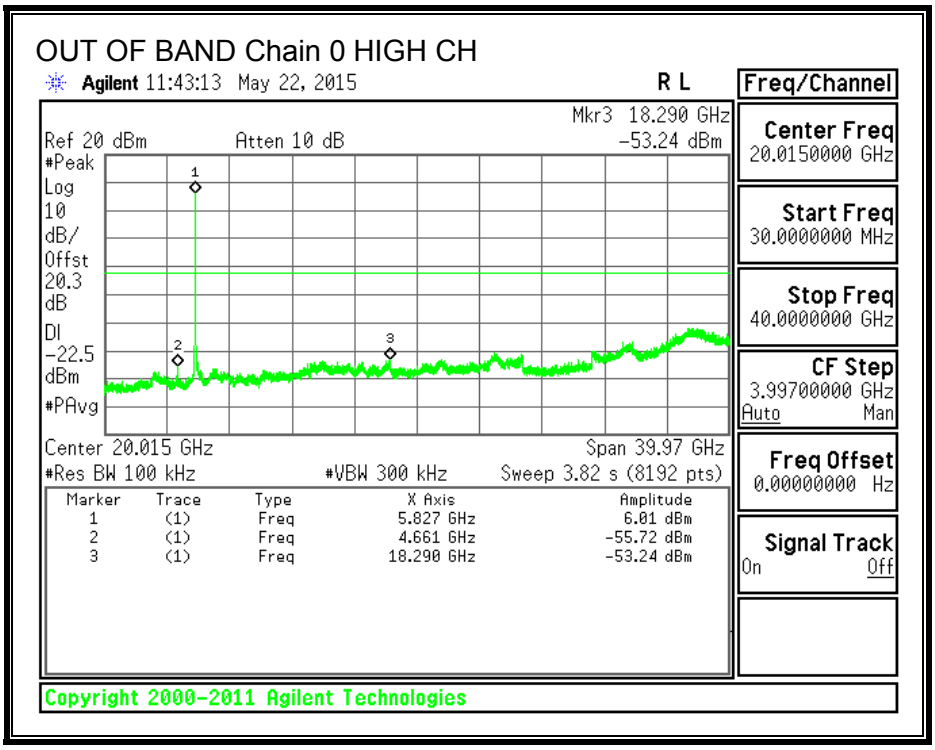

**HIGH CHANNEL BANDEDGE, Chain 0**



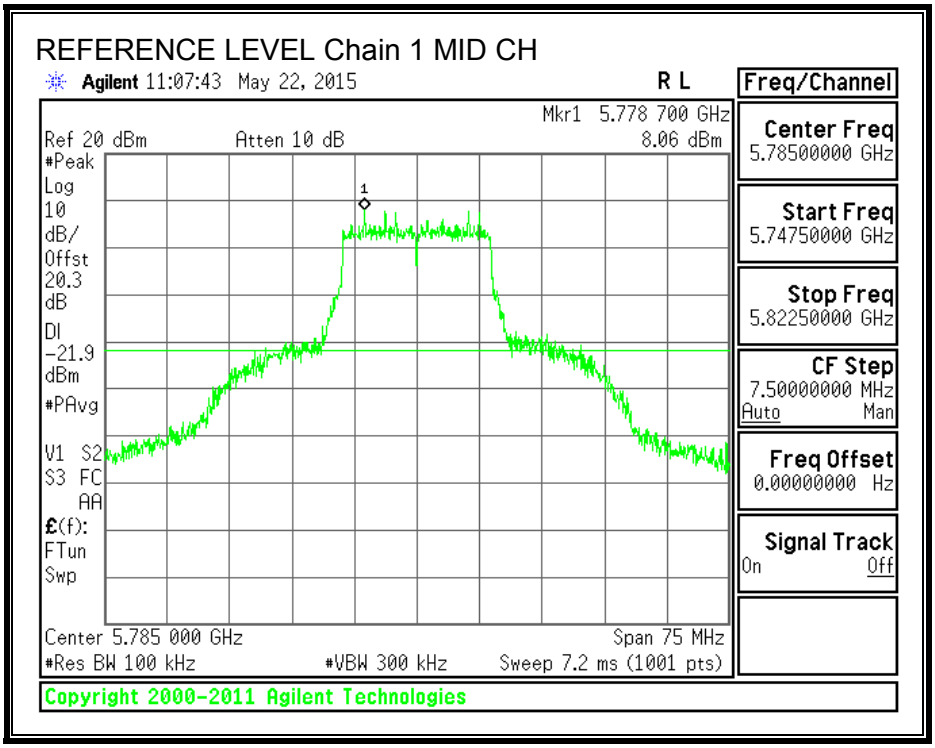
**OUT-OF-BAND EMISSIONS, Chain 0**



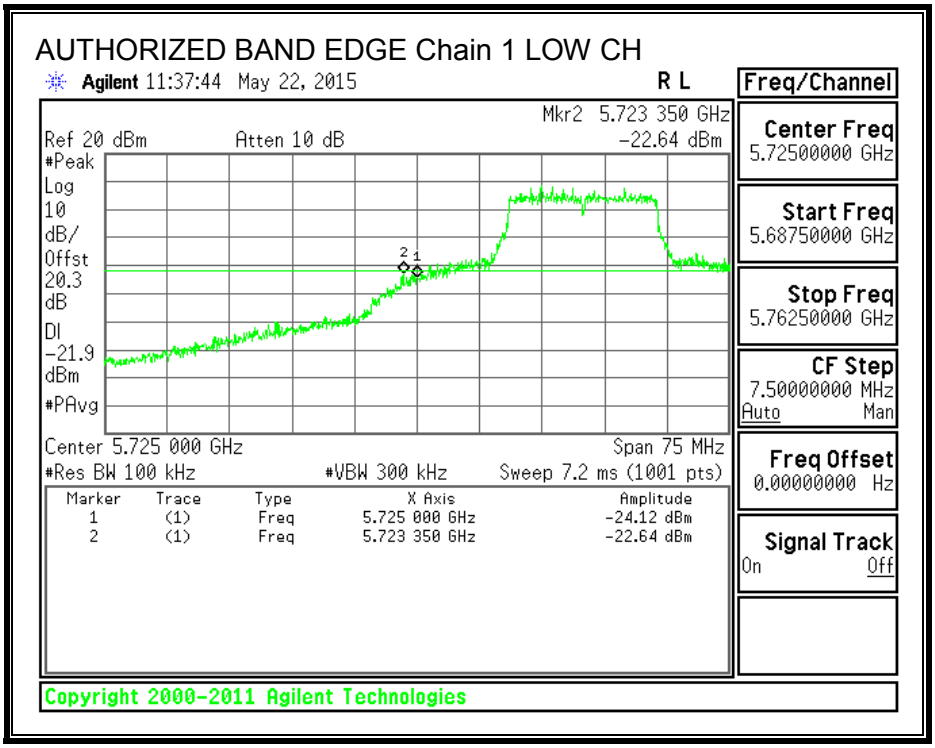





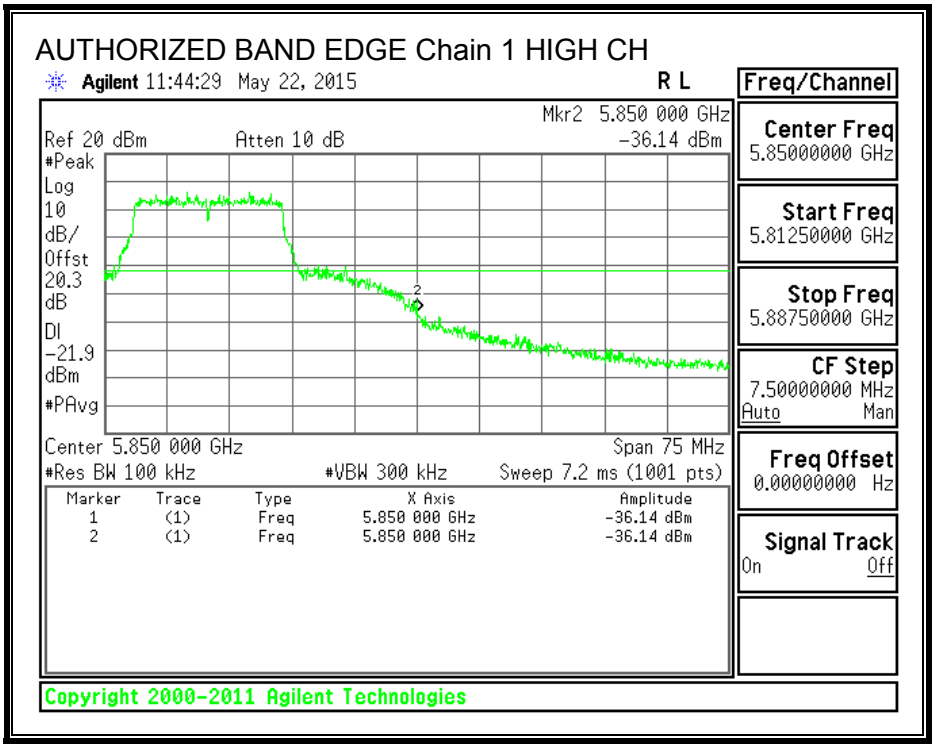
**IN-BAND REFERENCE LEVEL, Chain 1**



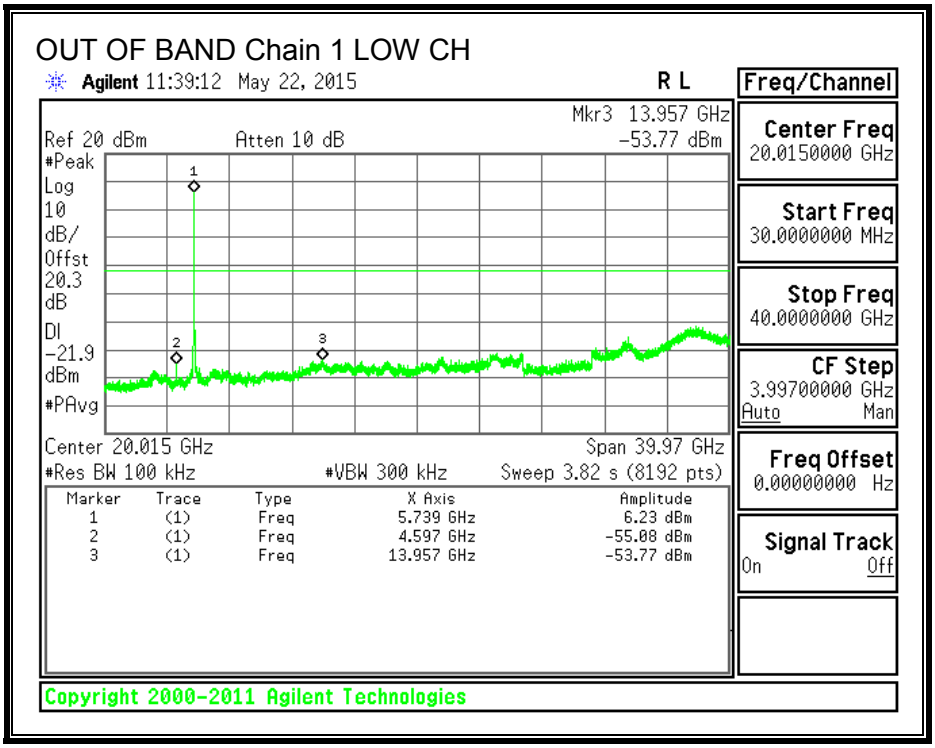
**LOW CHANNEL BANDEDGE, Chain 1**

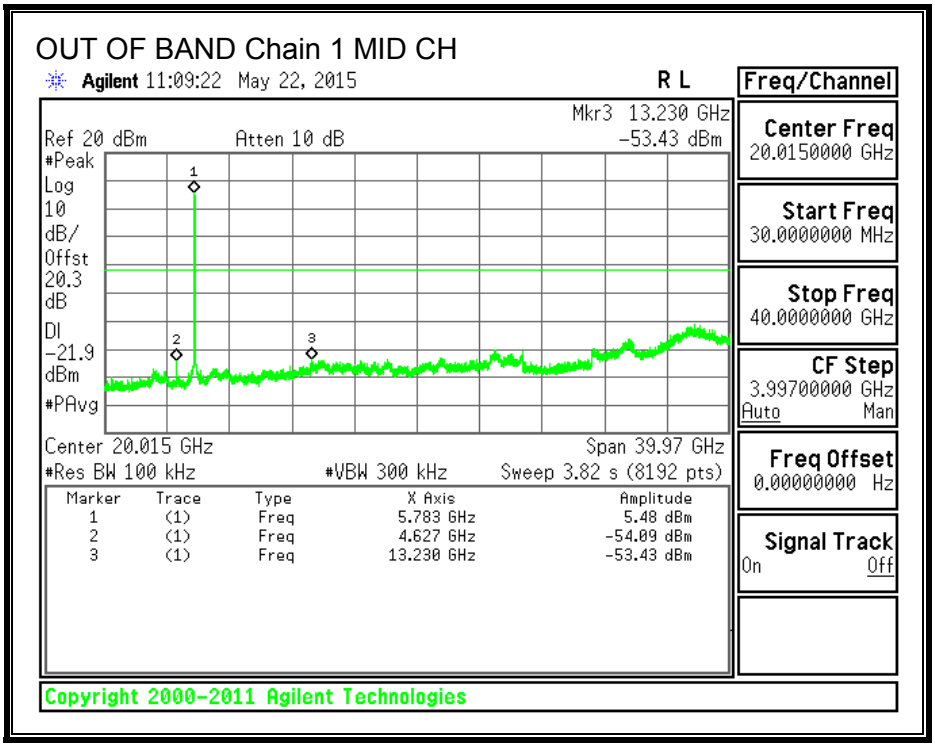


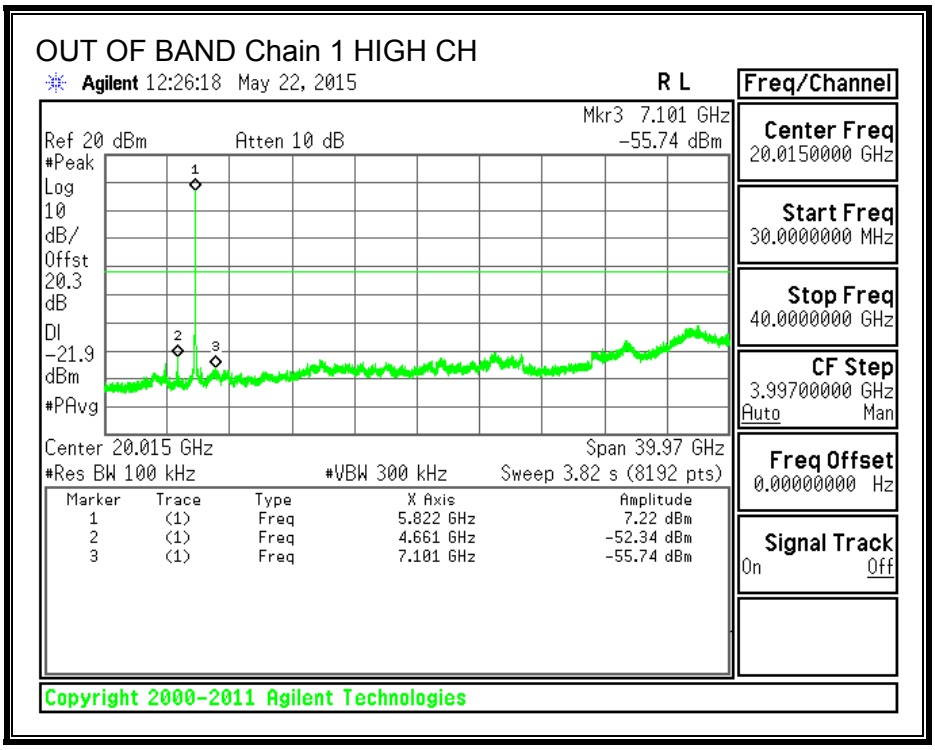

**HIGH CHANNEL BANDEDGE, Chain 1**



**OUT-OF-BAND EMISSIONS, Chain 1**





# 8.14. 802.11n HT20 TXBF 2TX MODE IN THE 5.8 GHz BAND

## 8.14.1. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section 5.4 (5), the e.i.r.p. shall not exceed 4 W.

**DIRECTIONAL ANTENNA GAIN**

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

| Antenna Gain (dBi) | 10 * Log (2 chains) (dB) | Correlated Chains Directional Gain (dBi) |
|---|---|---|
| 4.70 | 3.01 | 7.71 |

**RESULTS**

**Antenna Gain and Limit**

| Channel | Frequency (MHz) | Directional Gain (dBi) | Power Limit (dBm) |
|---|---|---|---|
| Low | 5745 | 7.71 | 28.29 |
| Mid | 5785 | 7.71 | 28.29 |
| High | 5825 | 7.71 | 28.29 |

**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 | 18.90 | 19.05 | 21.99 | 28.29 | -6.30 |
| Mid | 5785 | 18.80 | 19.00 | 21.91 | 28.29 | -6.38 |
| High | 5825 | 18.76 | 19.00 | 21.89 | 28.29 | -6.40 |

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

## 8.14.2. POWER SPECTRAL DENSITY

**LIMITS**

IC RSS-210 A8.2

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band during any time interval of continuous transmissions.

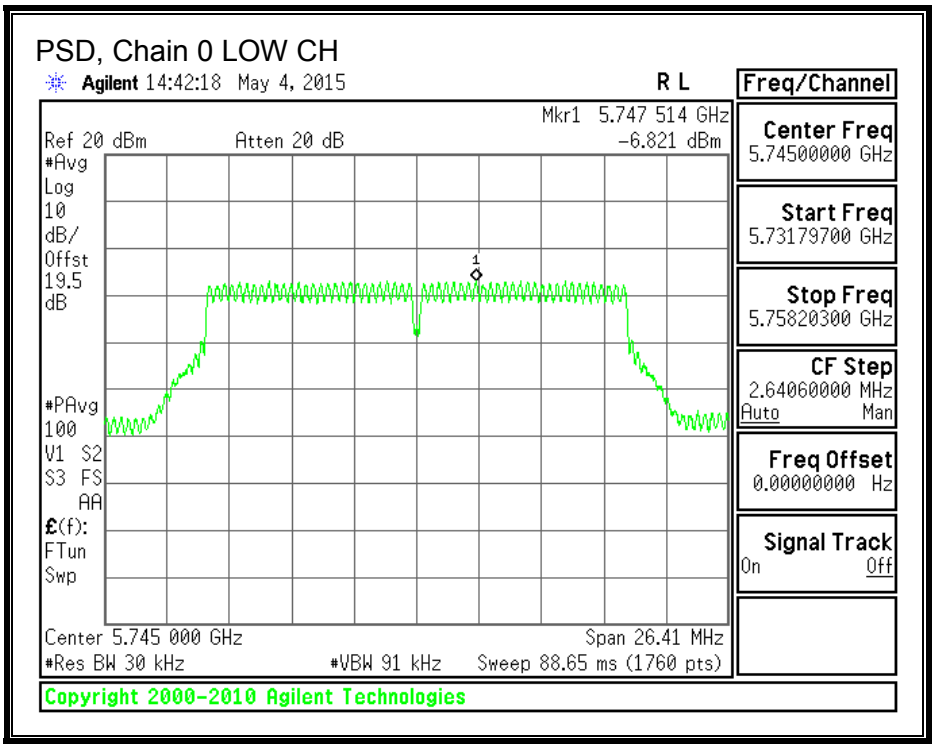
**RESULTS**

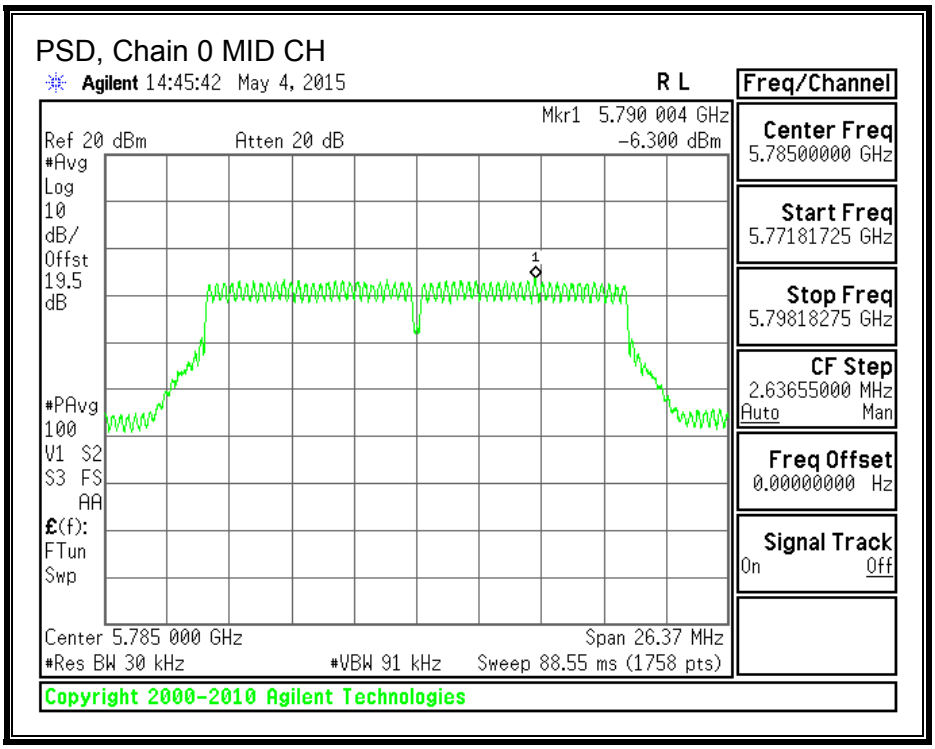
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|---|---|---|

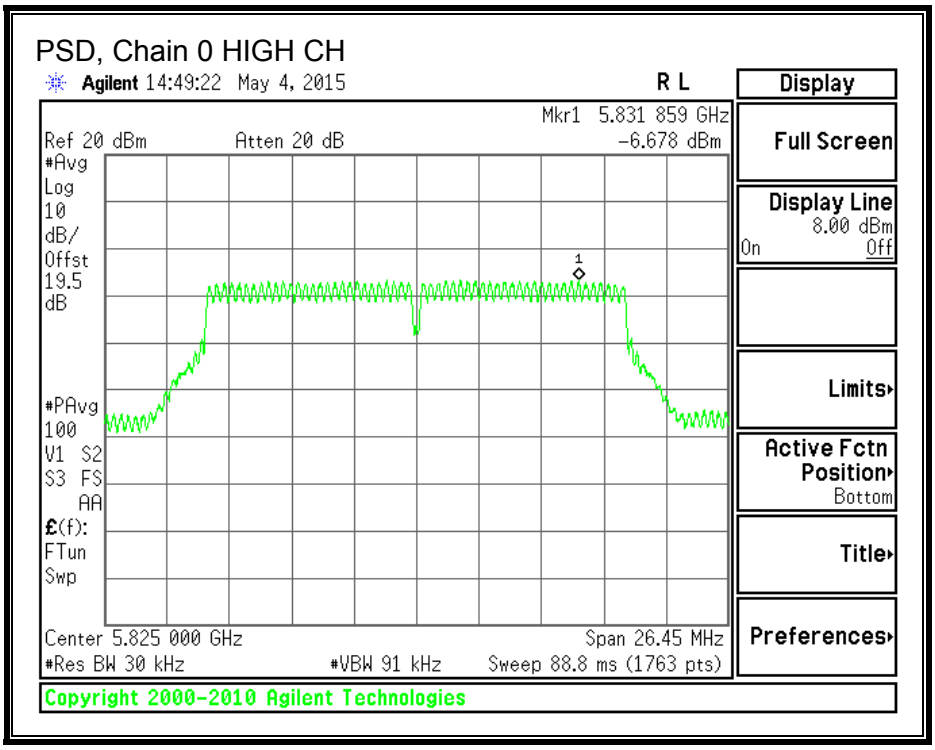
**PSD Results**

| Channel | Frequency (MHz) | Chain 0 Meas (dBm) | Chain 1 Meas (dBm) | Total Corr'd PSD (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| Low | 5745 | -6.821 | -6.793 | -3.80 | 8.0 | -11.8 |
| Mid | 5785 | -6.300 | -7.061 | -3.65 | 8.0 | -11.7 |
| High | 5825 | -6.678 | -6.887 | -3.77 | 8.0 | -11.8 |

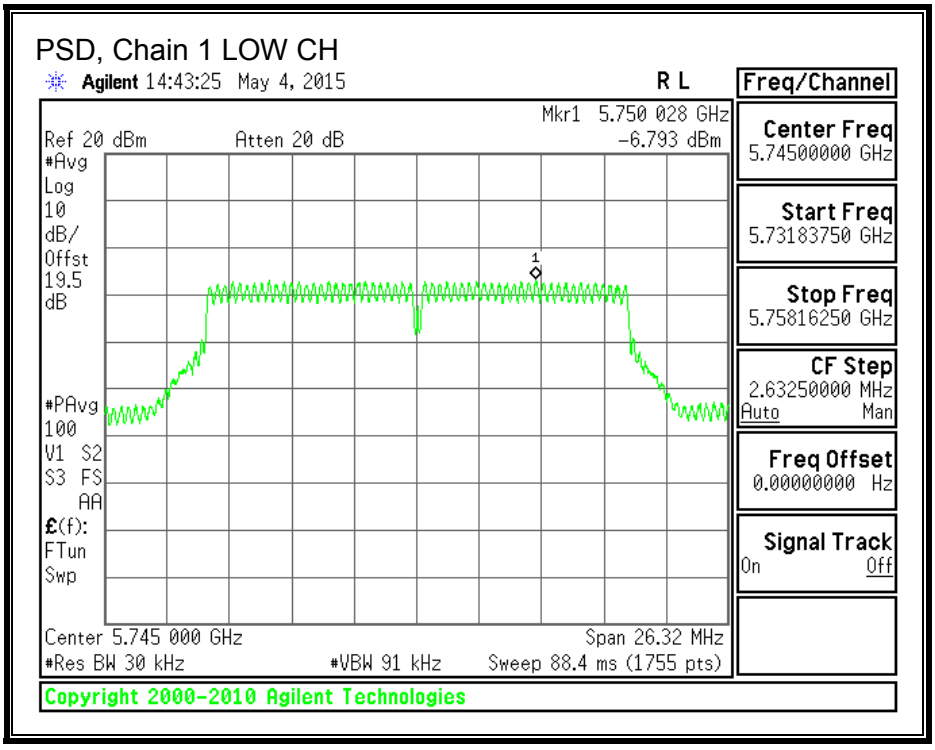
**PSD, Chain 0**



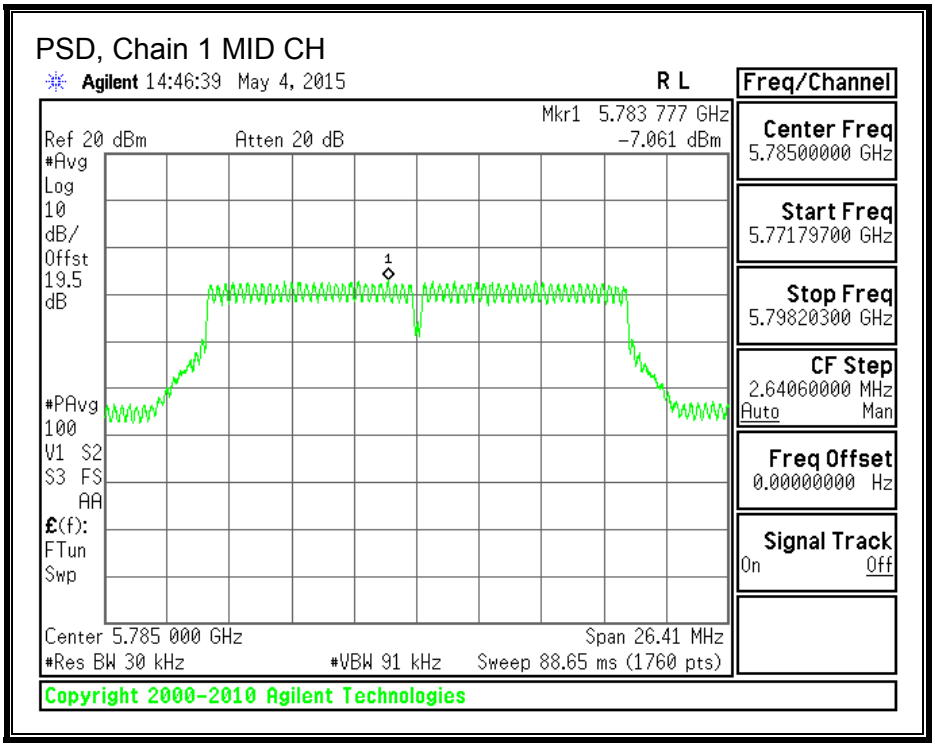





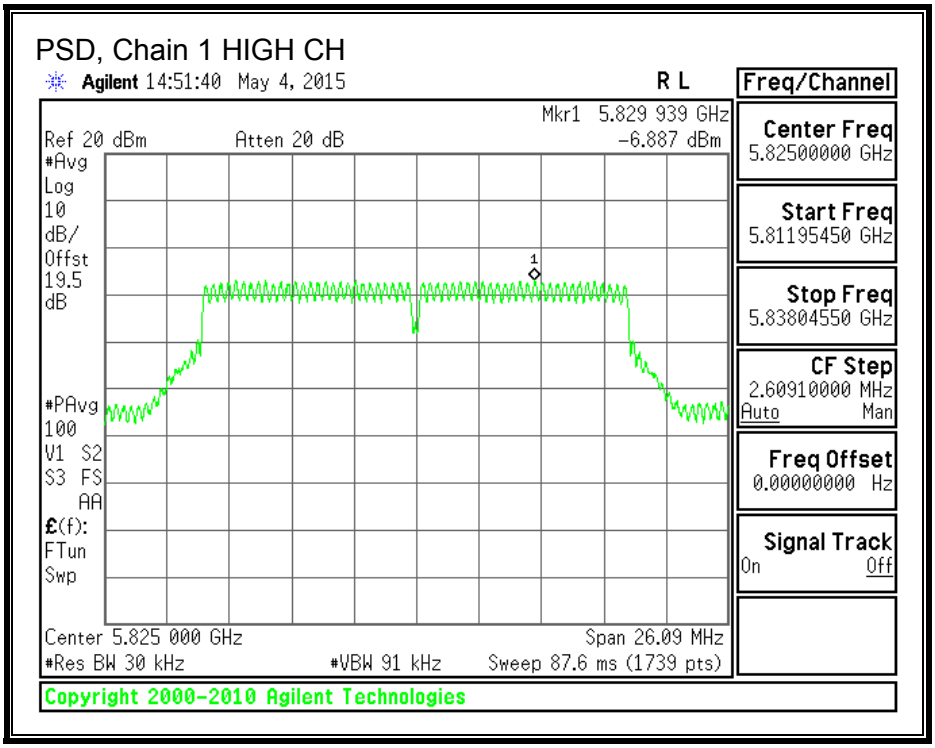

**PSD, Chain 1**



PSD, Chain 1 MID CH




PSD, Chain 1 HIGH CH



# 8.15. 802.11n HT40 CDD 1TX MODE IN THE 5.8 GHz BAND

## 8.15.1. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section 5.4 (5), the e.i.r.p. shall not exceed 4 W.

**DIRECTIONAL ANTENNA GAIN**

This is SISO mode, AG is the highest (worst-case) = 4.7 dBi

**RESULTS**

**Limits**

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---|---|---|---|---|---|---|
| Low | 5755 | 4.70 | N/A | 30 | 36 | 30.00 |

**Results**

| Channel | Frequency (MHz) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|
| Low | 5755 | 19.11 | 19.11 | 30.00 | -10.89 |

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

## 8.15.2. OUT-OF-BAND EMISSIONS

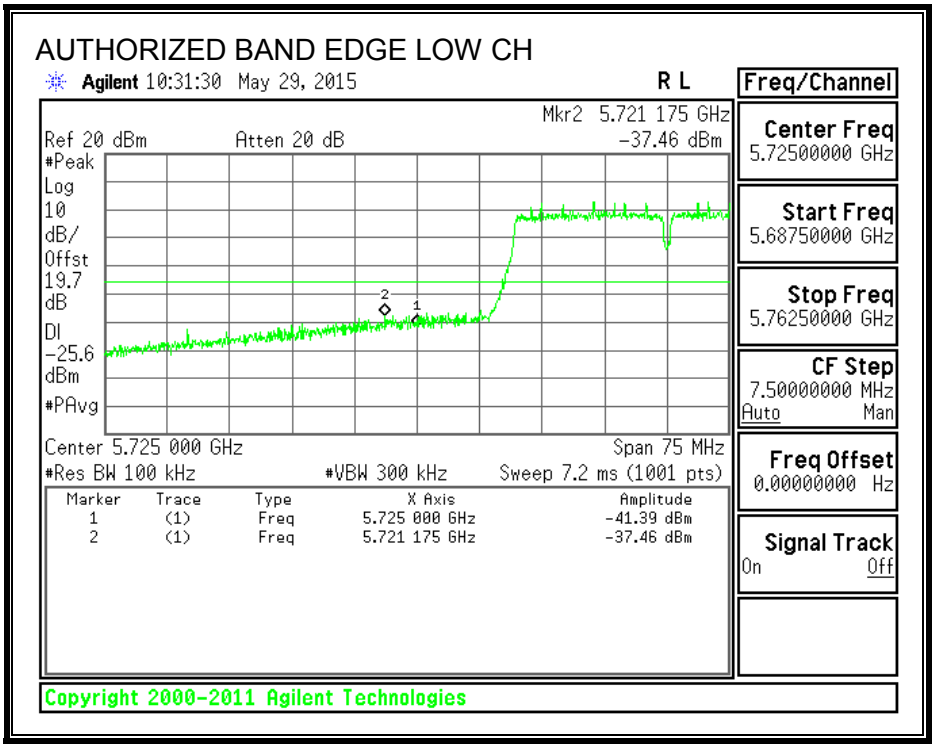
**LIMITS**

IC RSS-210 A8.5

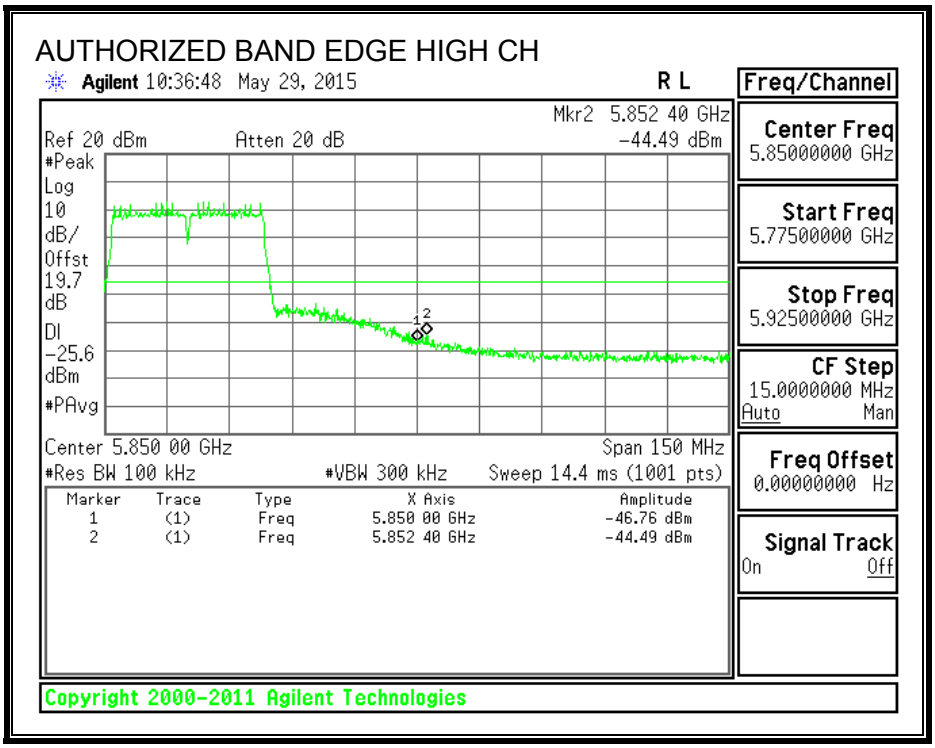
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in RSS-Gen is not required.

## RESULTS

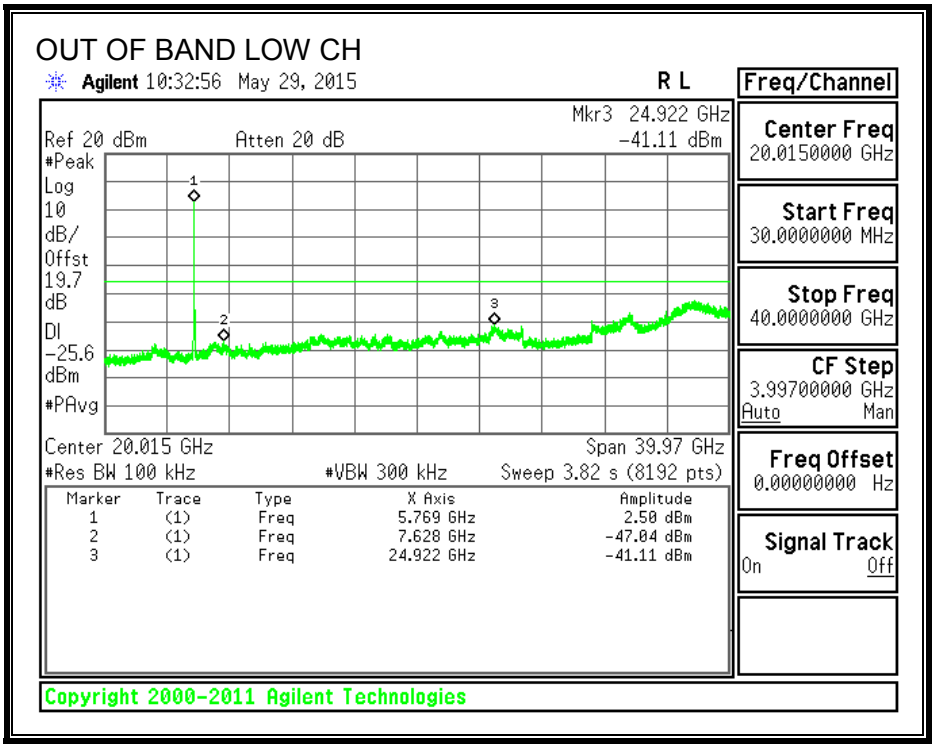
### LOW CHANNEL BANDEDGE

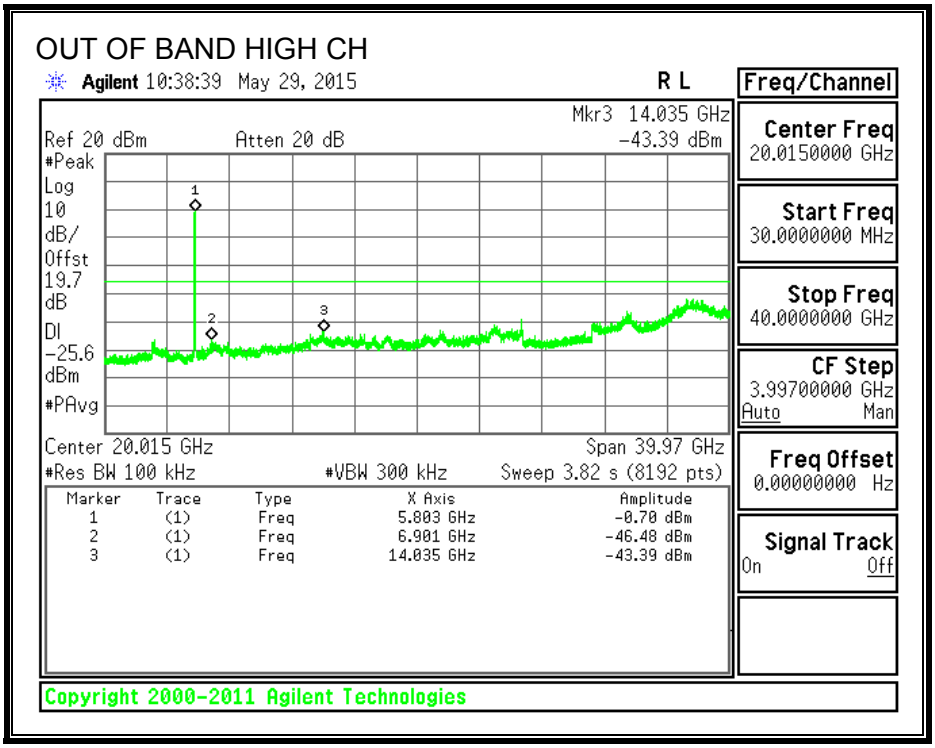



### HIGH CHANNEL BANDEDGE



**OUT-OF-BAND EMISSIONS**



# 8.16. 802.11n HT40 CDD 2TX MODE IN THE 5.8 GHz BAND

## 8.16.1. 6 dB BANDWIDTH

**LIMITS**

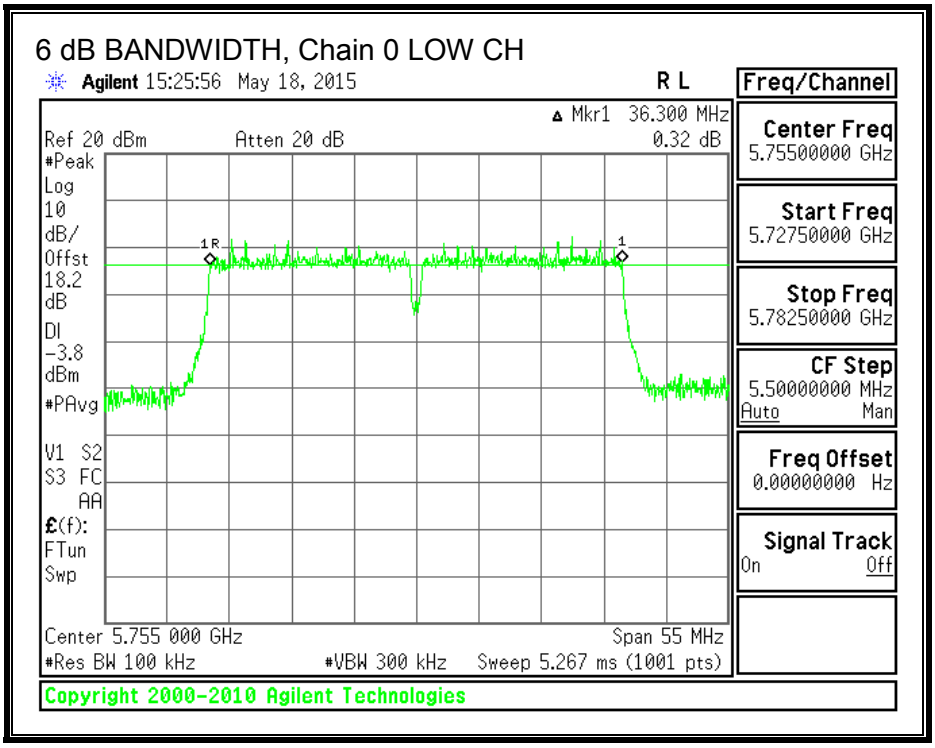
IC RSS-210 A8.2 (a)

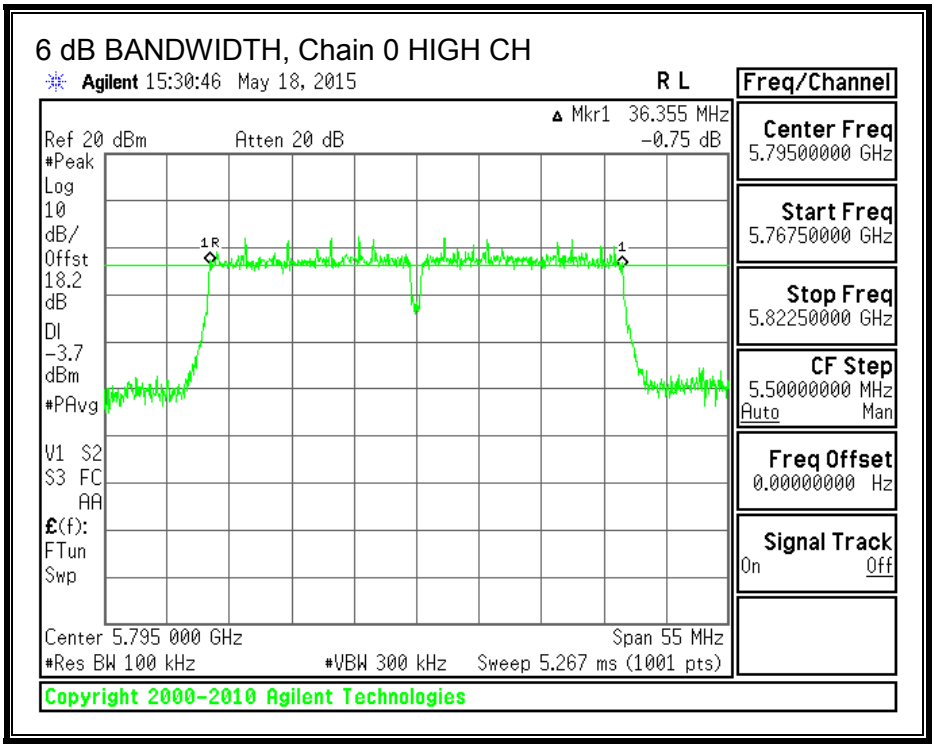
The minimum 6 dB bandwidth shall be at least 500 kHz.

**RESULTS**

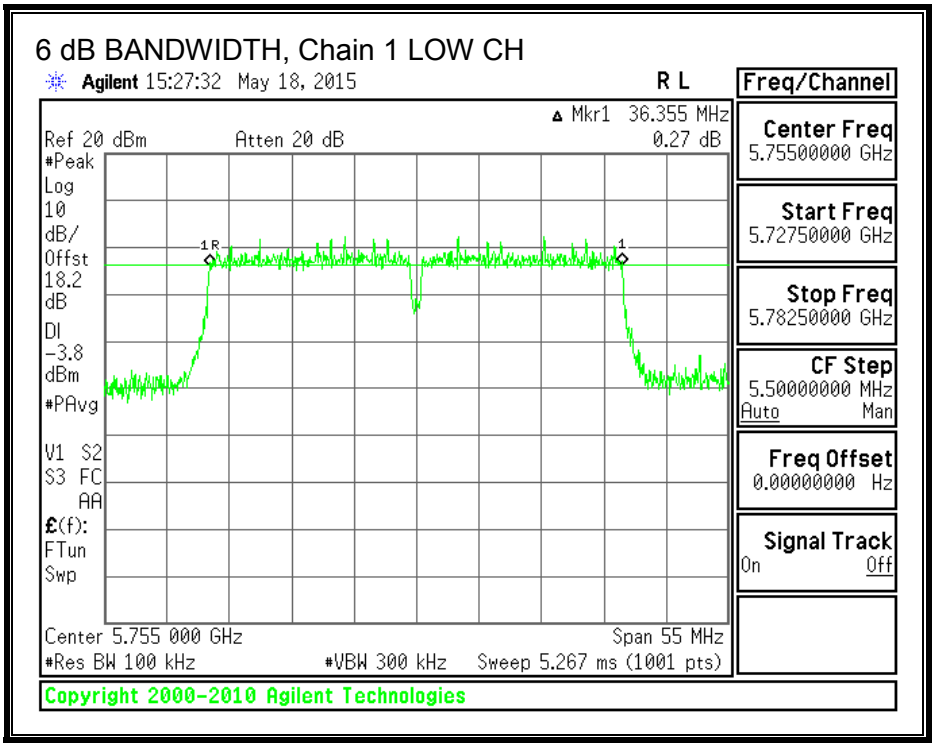
| Channel | Frequency (MHz) | 6 dB BW Chain 0 (MHz) | 6 dB BW Chain 1 (MHz) | Minimum Limit (MHz) |
|---|---|---|---|---|
| Low | 5755 | 36.3000 | 36.3550 | 0.5 |
| High | 5795 | 36.3550 | 36.3000 | 0.5 |

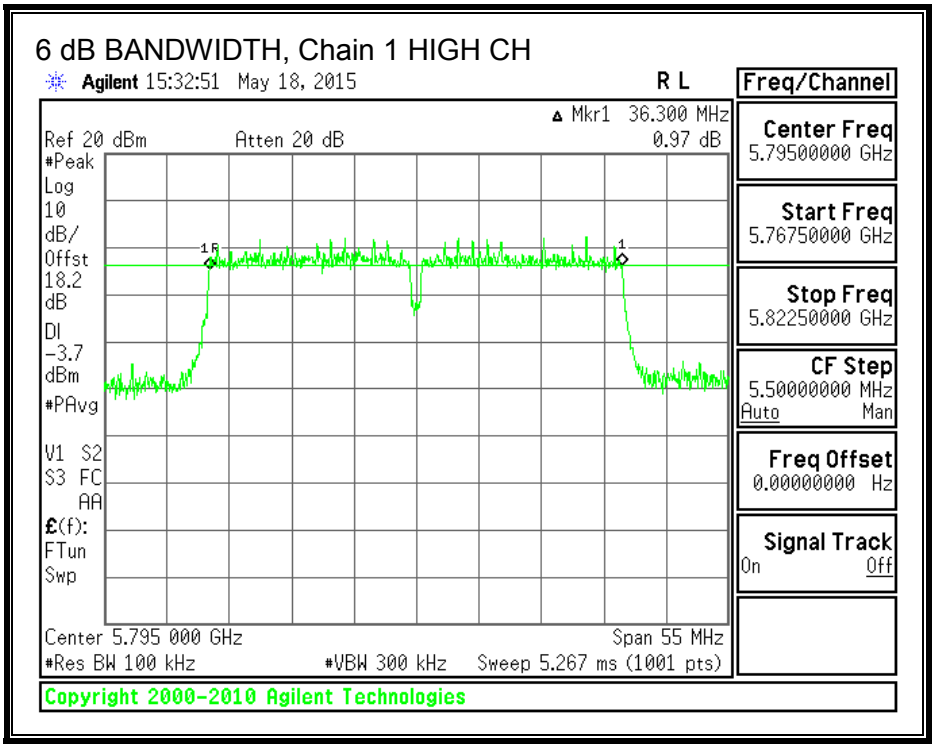
**6 dB BANDWIDTH, Chain 0**



**6 dB BANDWIDTH, Chain 1**



## 8.16.2. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section 5.4 (5), the e.i.r.p. shall not exceed 4 W.

**DIRECTIONAL ANTENNA GAIN**

The TX chains are uncorrelated and the antenna gain is the same for each chain. The directional gain is equal to the antenna gain, 4.7 dBi.

**RESULTS**

**Antenna Gain and Limit**

| Channel | Frequency (MHz) | Directional Gain (dBi) | Power Limit (dBm) |
|---|---|---|---|
| Low | 5755 | 4.70 | 30.00 |
| High | 5795 | 4.70 | 30.00 |

**Output Power Results**

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---|---|---|---|---|---|---|
| Low | 5755 | 18.12 | 18.01 | 21.08 | 30.00 | -8.92 |
| High | 5795 | 19.10 | 19.05 | 22.09 | 30.00 | -7.91 |

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

## 8.16.3. POWER SPECTRAL DENSITY

**LIMITS**

IC RSS-210 A8.2

For digitally modulated systems, the power spectral density conducted form the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band during any time interval of continuous transmissions.

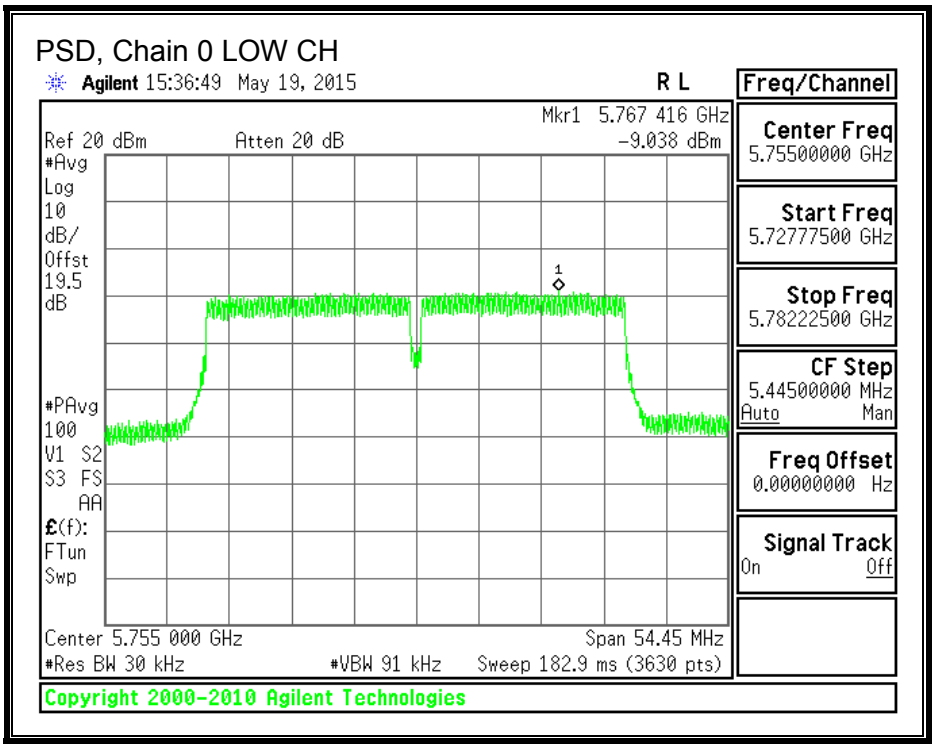
**RESULTS**

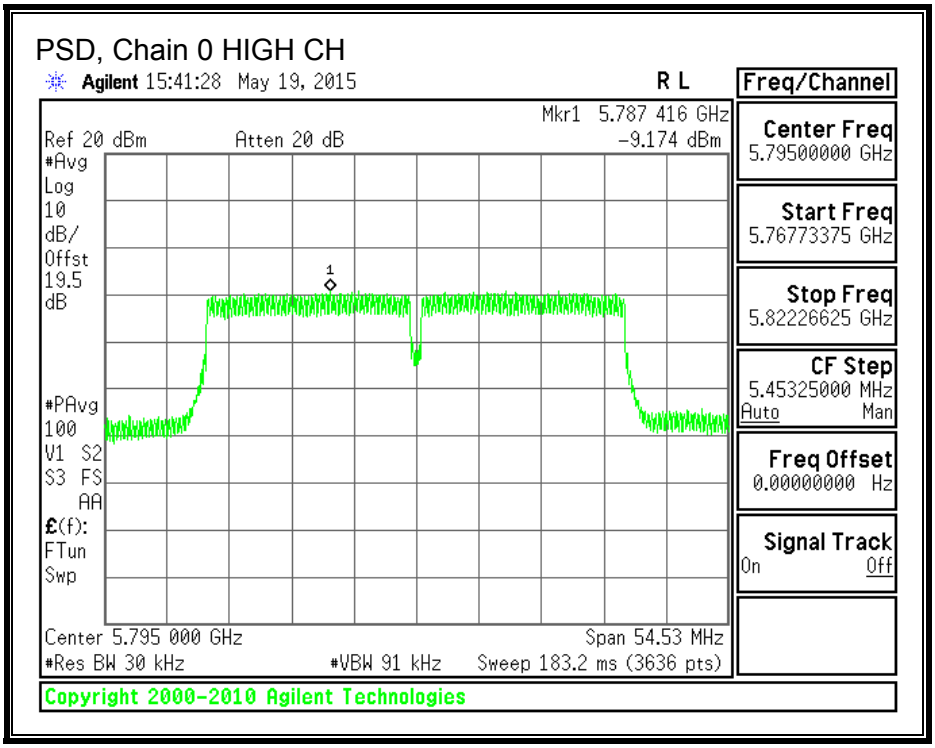
| Duty Cycle CF (dB) | 0.09 | Included in Calculations of Corr'd PSD |
|---|---|---|

**PSD Results**

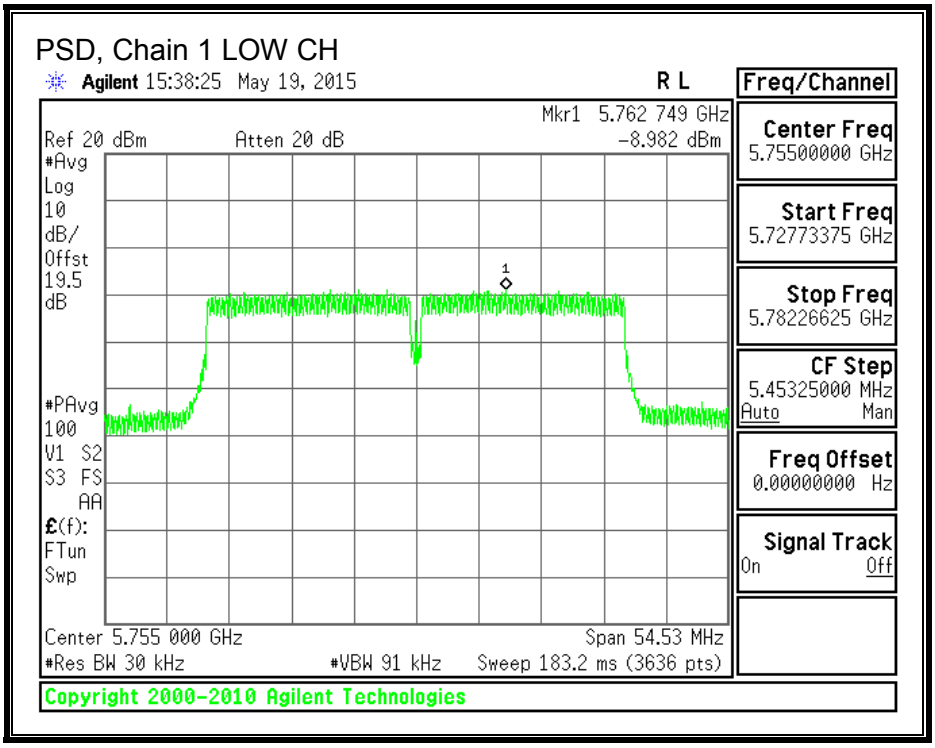
| Channel | Frequency (MHz) | Chain 0 Meas (dBm) | Chain 1 Meas (dBm) | Total Corr'd PSD (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| Low | 5755 | -9.04 | -8.98 | -5.91 | 8.0 | -13.9 |
| High | 5795 | -9.17 | -9.19 | -6.08 | 8.0 | -14.1 |

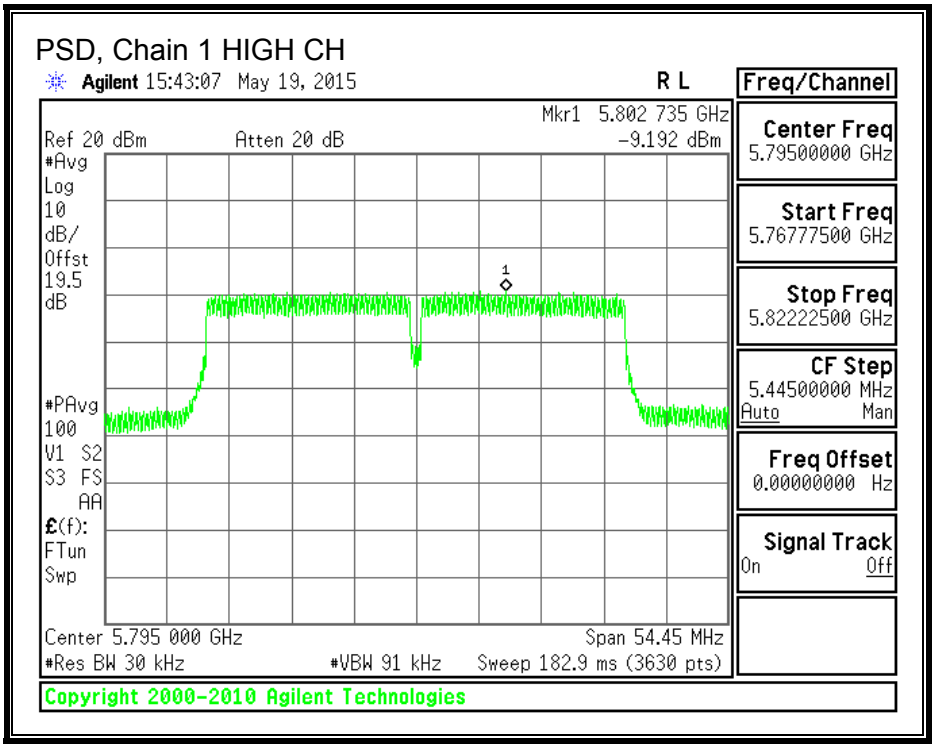
**PSD, Chain 0**



**PSD, Chain 1**



## 8.16.4. OUT-OF-BAND EMISSIONS

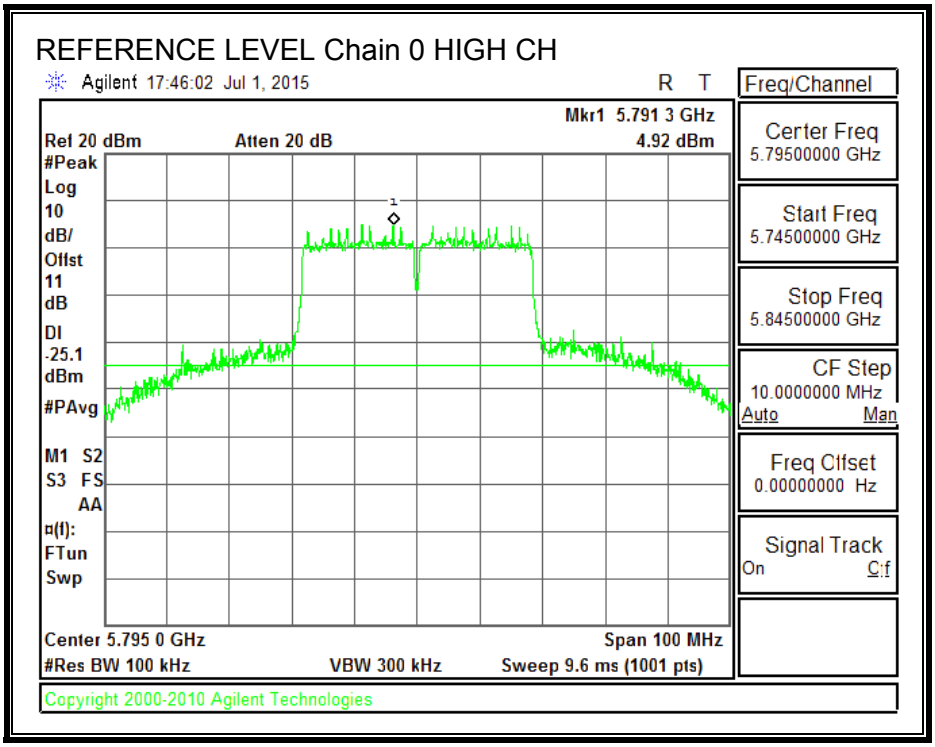
**LIMITS**

IC RSS-210 A8.5

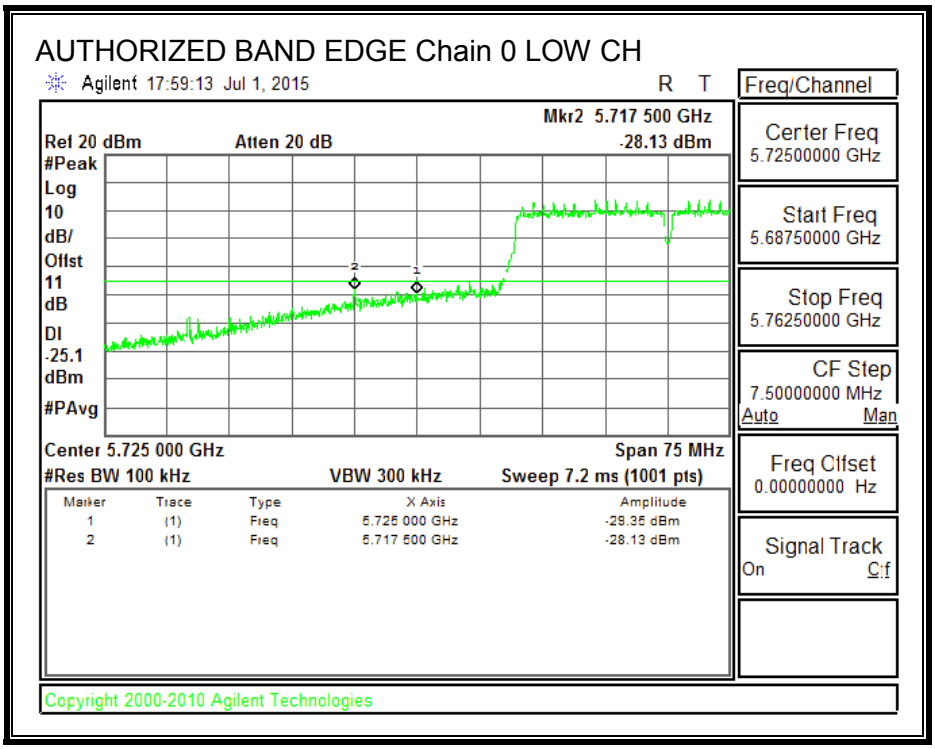
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

## RESULTS

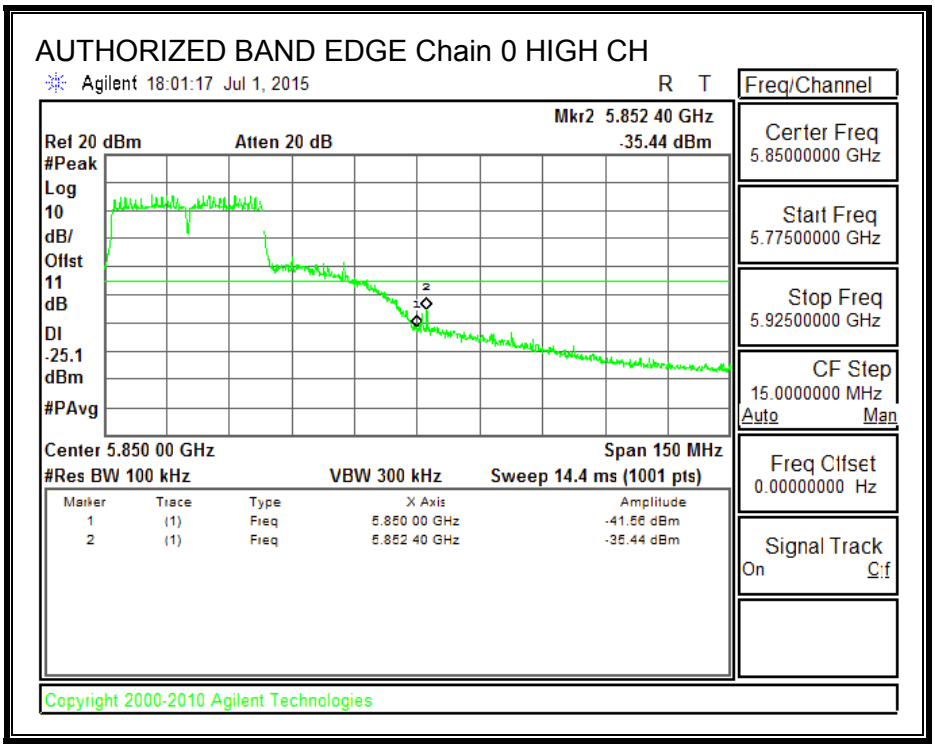
### IN-BAND REFERENCE LEVEL, Chain 0



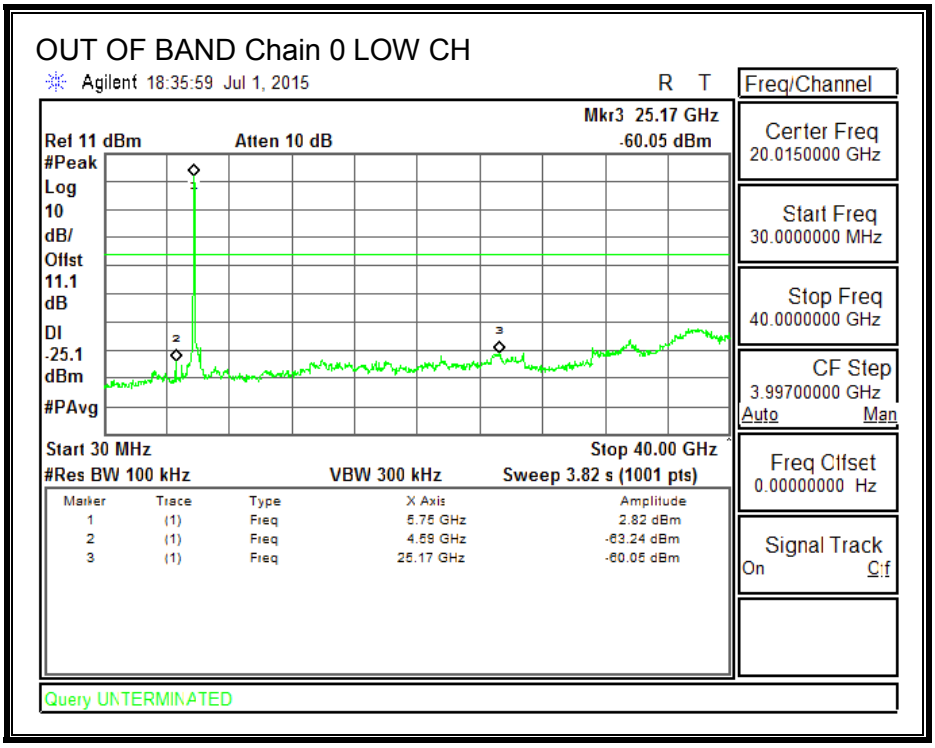

### LOW CHANNEL BANDEDGE, Chain 0

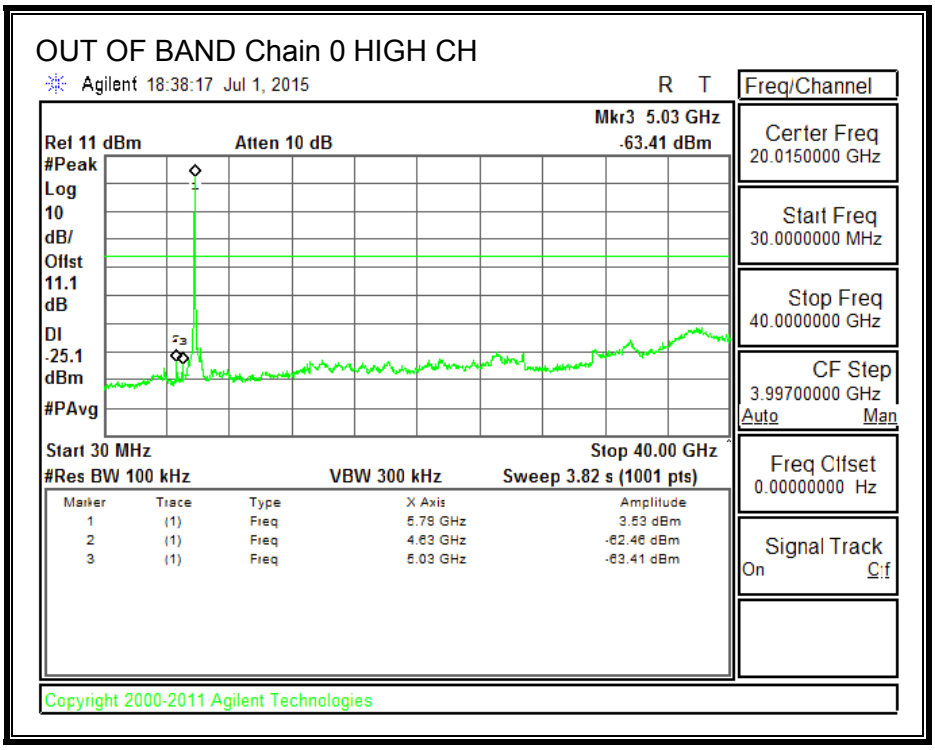


**HIGH CHANNEL BANDEDGE, Chain 0**

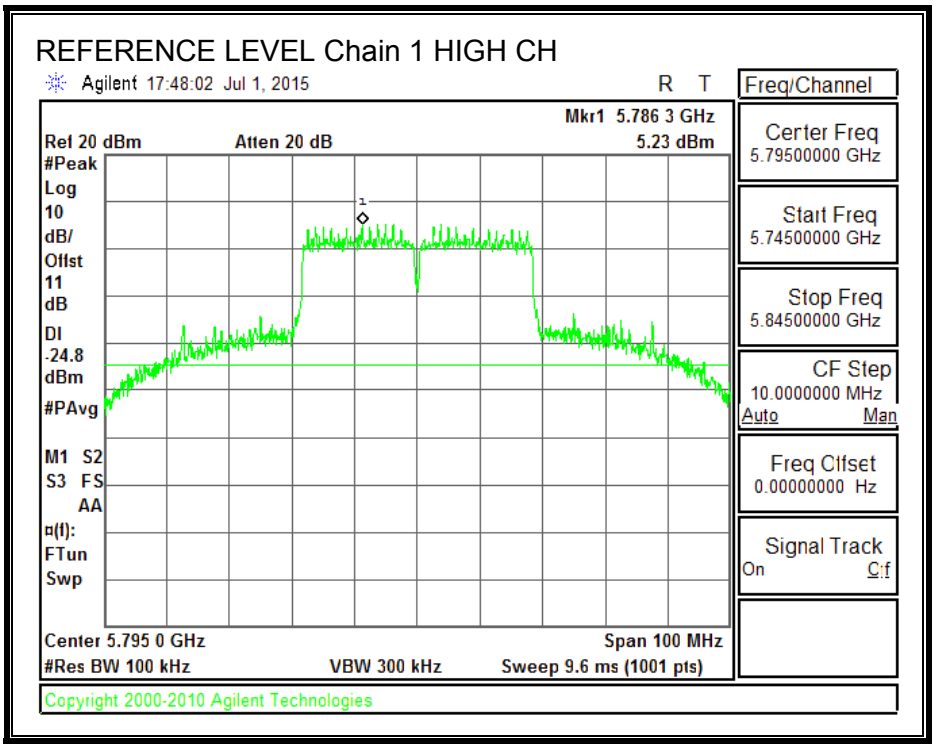



**OUT-OF-BAND EMISSIONS, Chain 0**

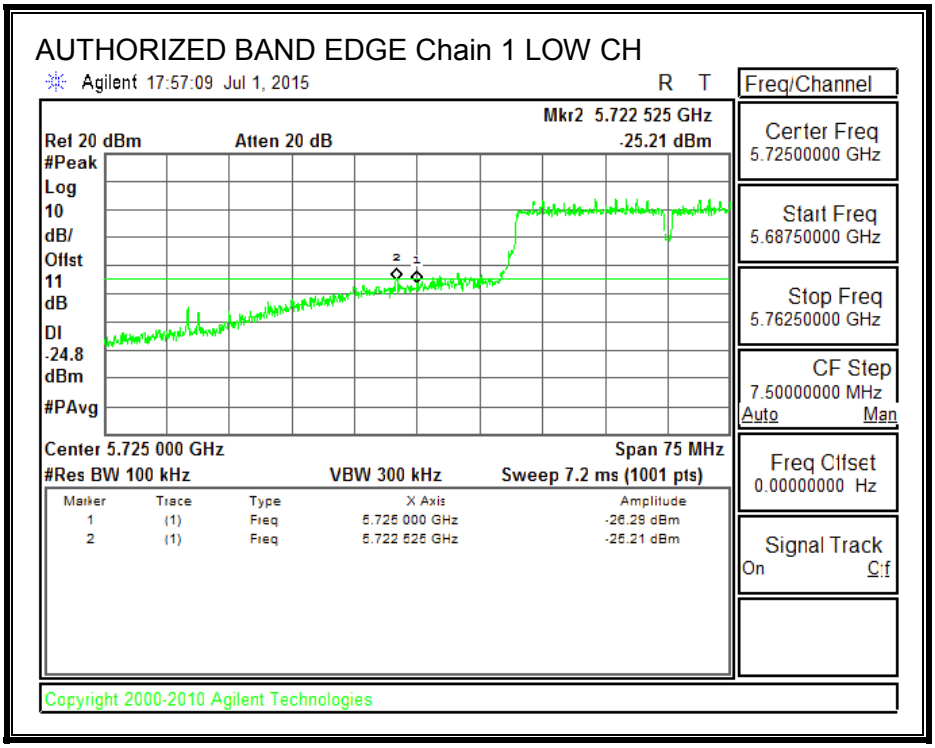




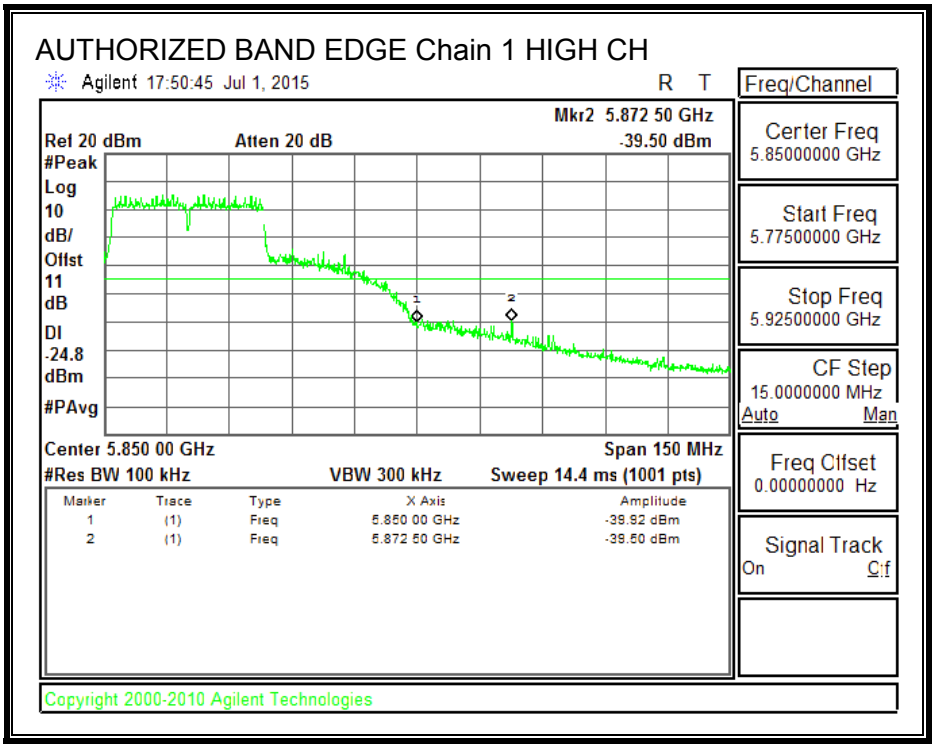

**IN-BAND REFERENCE LEVEL, Chain 1**



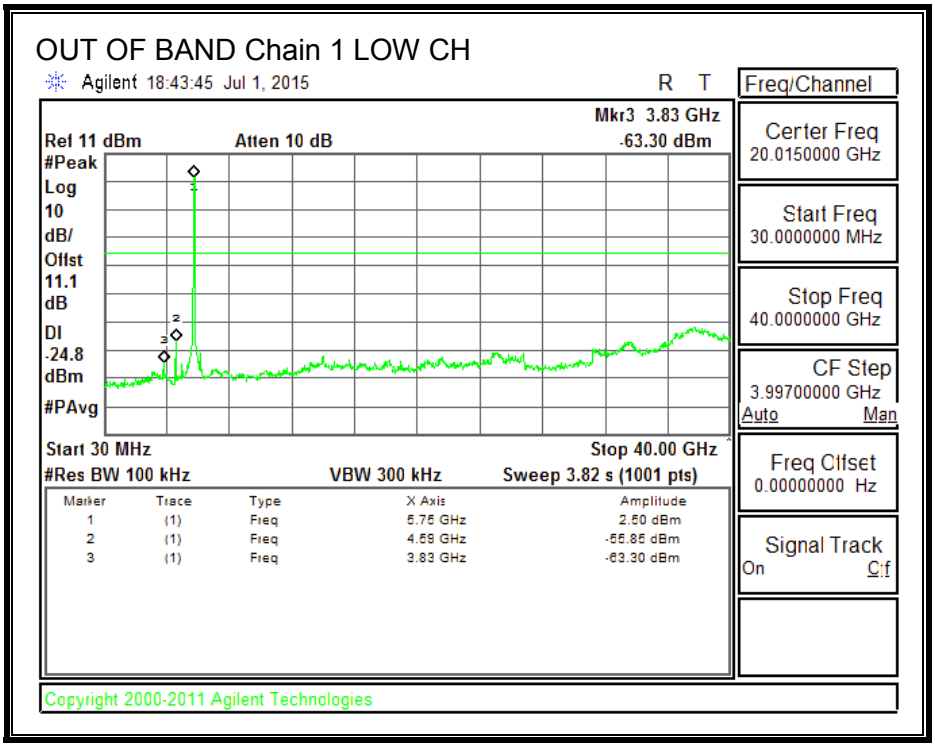
**LOW CHANNEL BANDEDGE, Chain 1**

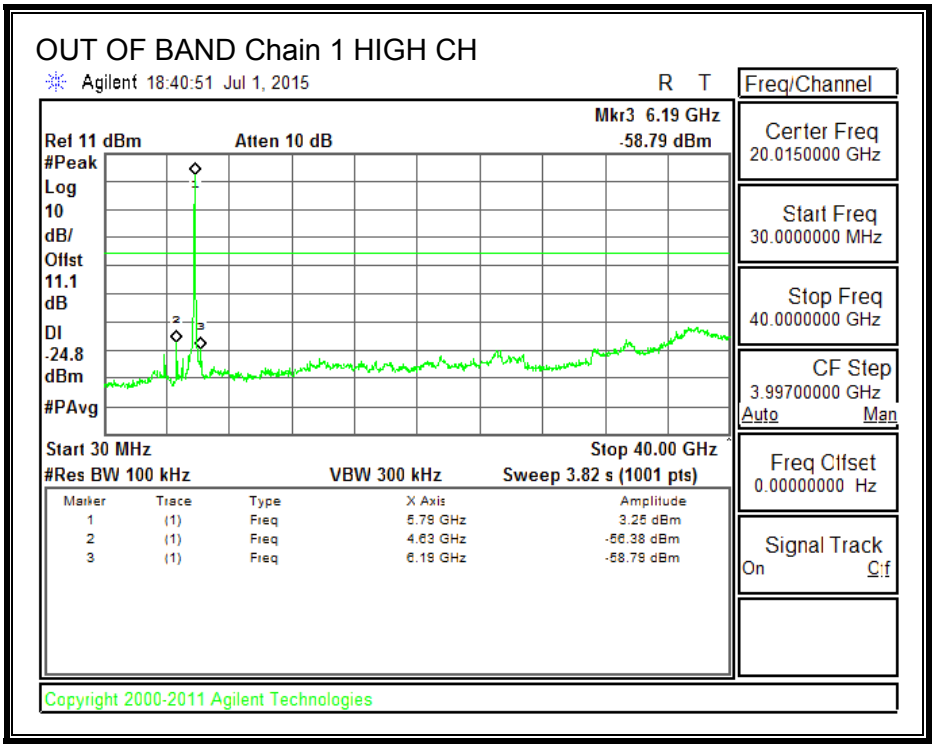



**HIGH CHANNEL BANDEDGE, Chain 1**



**OUT-OF-BAND EMISSIONS, Chain 1**



# 8.17. 802.11n HT40 TxBF 2TX MODE IN THE 5.8 GHz BAND

## 8.17.1. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section 5.4 (5), the e.i.r.p. shall not exceed 4 W.

**DIRECTIONAL ANTENNA GAIN**

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

| Antenna Gain (dBi) | 10 * Log (2 chains) (dB) | Correlated Chains Directional Gain (dBi) |
|---|---|---|
| 4.70 | 3.01 | 7.71 |

**RESULTS**

**Antenna Gain and Limit**

| Channel | Frequency (MHz) | Directional Gain (dBi) | Power Limit (dBm) |
|---|---|---|---|
| Low | 5755 | 7.71 | 28.29 |
| High | 5795 | 7.71 | 28.29 |

**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 | 18.12 | 18.01 | 21.08 | 28.29 | -7.21 |
| High | 5795 | 19.10 | 19.05 | 22.09 | 28.29 | -6.20 |

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

## 8.17.2. POWER SPECTRAL DENSITY

**LIMITS**

IC RSS-210 A8.2

For digitally modulated systems, the power spectral density conducted form the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band during any time interval of continuous transmissions.

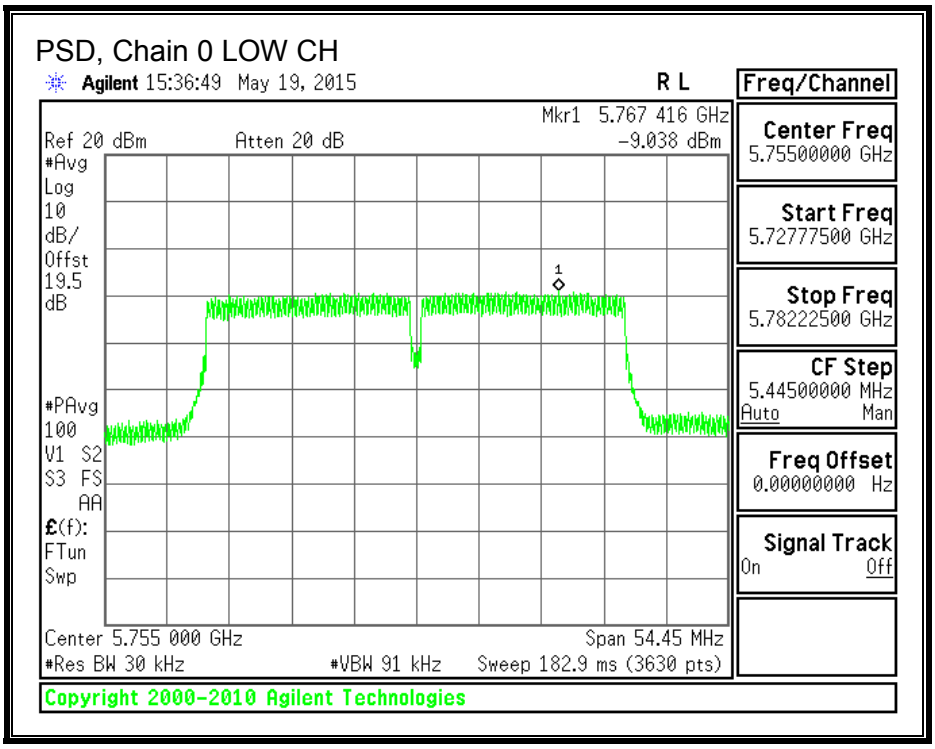
**RESULTS**

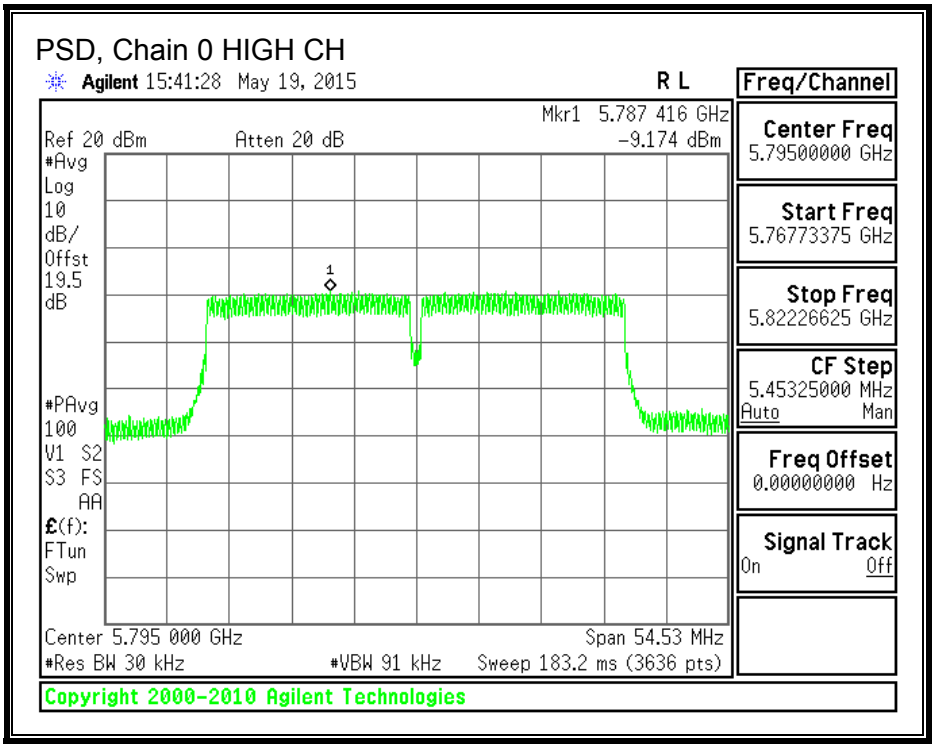
| Duty Cycle CF (dB) | 0.09 | Included in Calculations of Corr'd PSD |
|---|---|---|

**PSD Results**

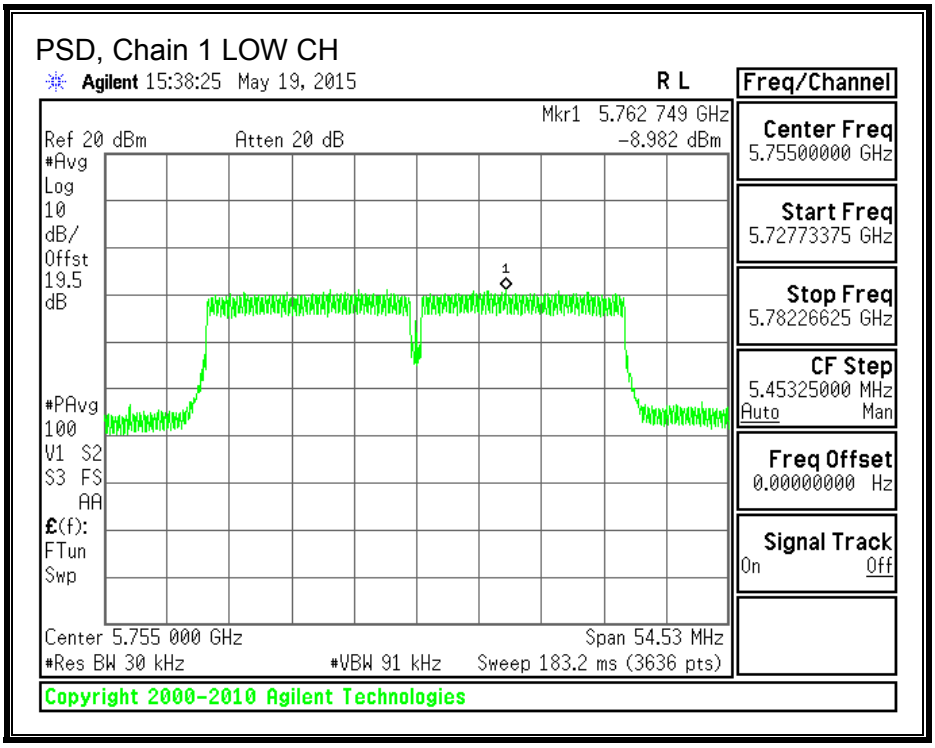
| Channel | Frequency (MHz) | Chain 0 Meas (dBm) | Chain 1 Meas (dBm) | Total Corr'd PSD (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| Low | 5755 | -9.04 | -8.89 | -5.86 | 8.0 | -13.9 |
| High | 5795 | -9.17 | -9.19 | -6.08 | 8.0 | -14.1 |

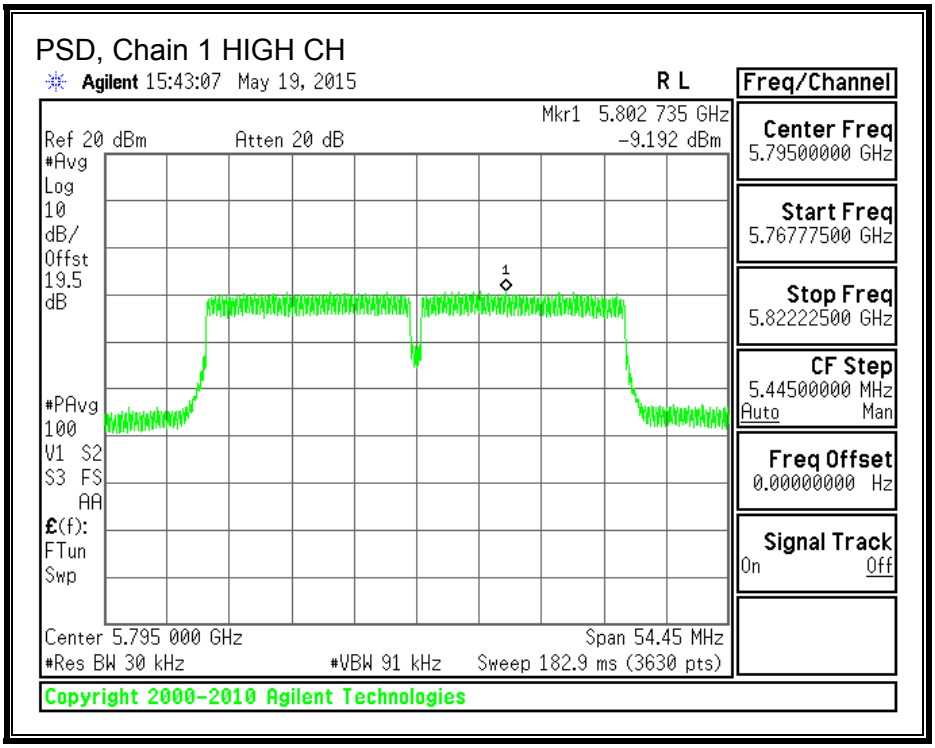
**PSD, Chain 0**



**PSD, Chain 1**



# 8.18. 802.11ac VHT80 CDD 1TX MODE IN THE 5.8 GHz BAND

## 8.18.1. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section 5.4 (5), the e.i.r.p. shall not exceed 4 W.

**DIRECTIONAL ANTENNA GAIN**

This is SISO mode, AG is the highest (worst-case) = 4.7 dBi.

**RESULTS**

**Limits**

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---|---|---|---|---|---|---|
| Mid | 5775 | 4.70 | 30.00 | 30 | 36 | 30.00 |

**Results**

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|
| Mid | 5775 | 18.95 | 18.95 | 30.00 | -11.05 |

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

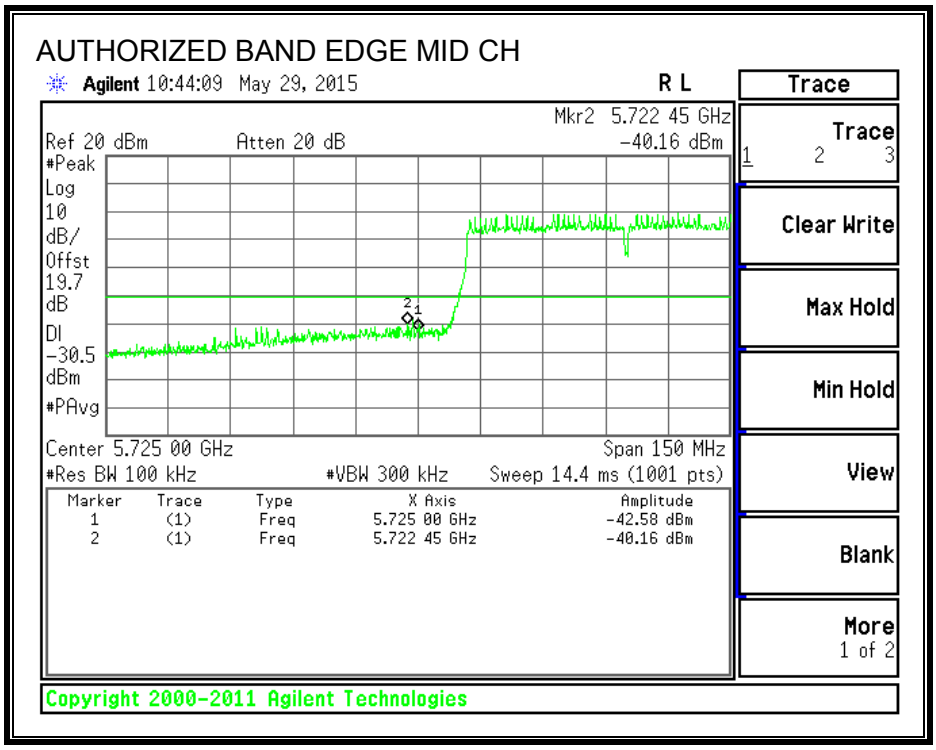
## 8.18.2. OUT-OF-BAND EMISSIONS

**LIMITS**

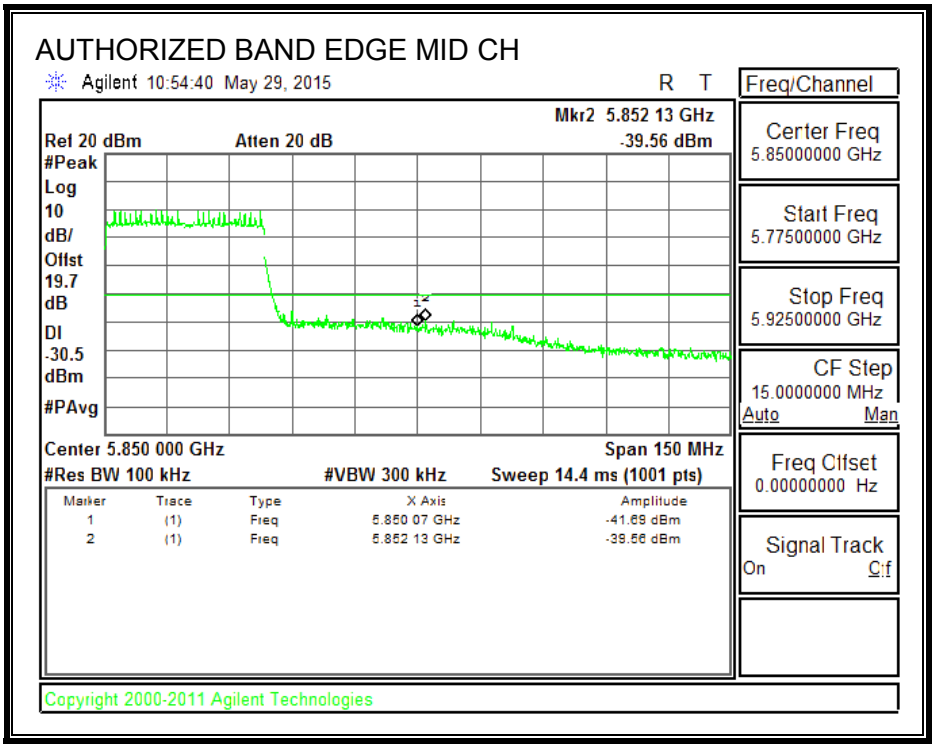
IC RSS-210 A8.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in RSS-Gen is not required.

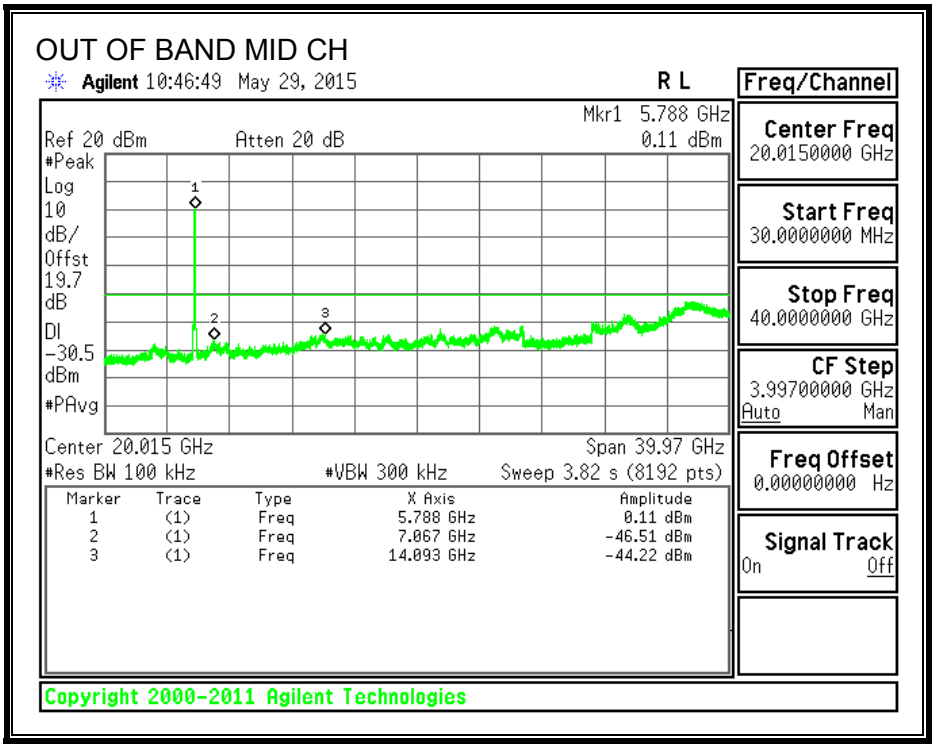
**MID CHANNEL LOWER BANDEDGE**




**MID CHANNEL HIGHER BANDEDGE**



**OUT-OF-BAND EMISSIONS**



# 8.19. 802.11ac VHT80 CDD 2TX MODE IN THE 5.8 GHz BAND

## 8.19.1. 6 dB BANDWIDTH

**LIMITS**

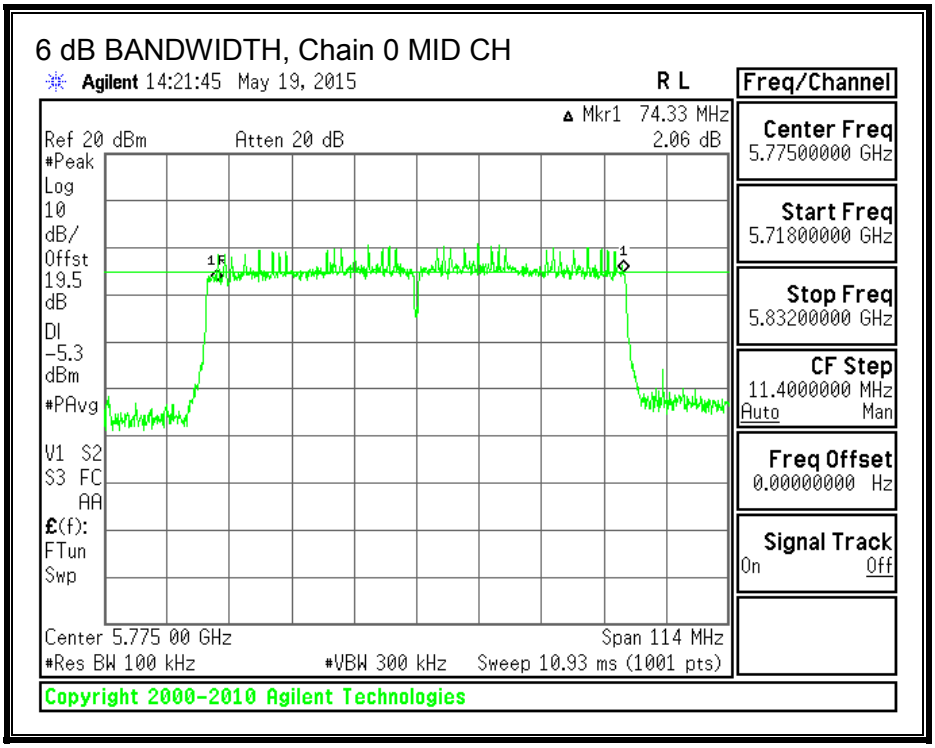
IC RSS-210 A8.2 (a)

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

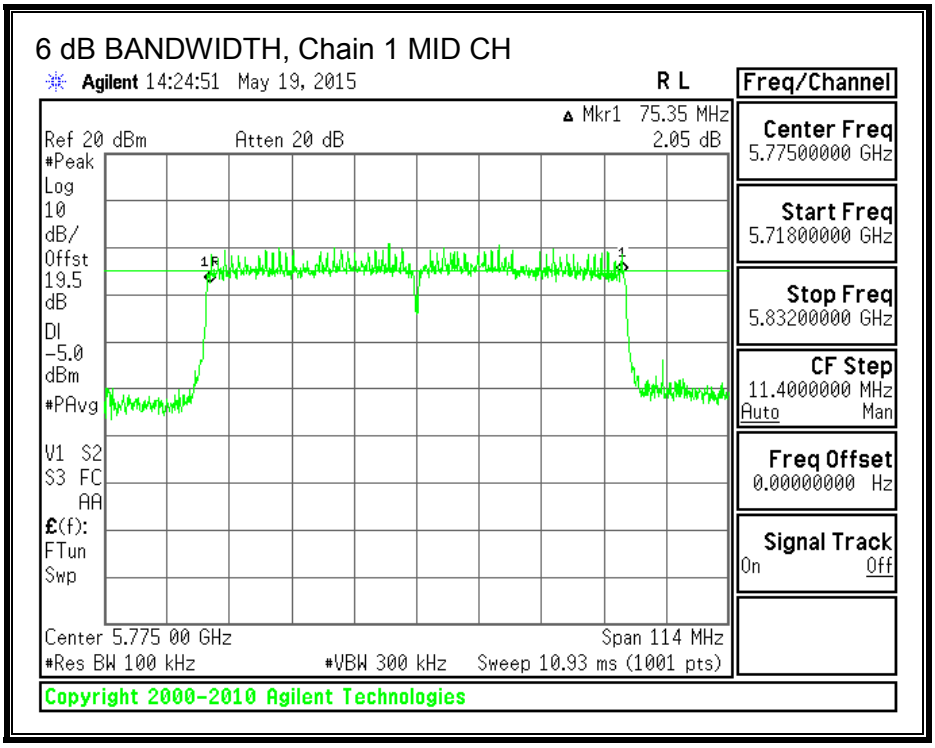
**RESULTS**

| Channel | Frequency (MHz) | 6 dB BW Chain 0 (MHz) | 6 dB BW Chain 1 (MHz) | Minimum Limit (MHz) |
|---|---|---|---|---|
| Mid | 5775 | 74.330 | 75.350 | 0.5 |

**6 dB BANDWIDTH, Chain 0**




**6 dB BANDWIDTH, Chain 1**



## 8.19.2. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section 5.4 (5), the e.i.r.p. shall not exceed 4 W.

**DIRECTIONAL ANTENNA GAIN**

The TX chains are uncorrelated and the antenna gain is the same for each chain. The directional gain is equal to the antenna gain, 4.7 dBi.

**RESULTS**

**Antenna Gain and Limit**

| Channel | Frequency (MHz) | Directional Gain (dBi) | Power Limit (dBm) |
|---|---|---|---|
| Mid | 5775 | 4.70 | 30.00 |

**Output Power Results**

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---|---|---|---|---|---|---|
| Mid | 5775 | 17.98 | 17.79 | 20.90 | 30.00 | -9.10 |

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

## 8.19.3. POWER SPECTRAL DENSITY

**LIMITS**

IC RSS-210 A8.2

For digitally modulated systems, the power spectral density conducted form the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band during any time interval of continuous transmissions.

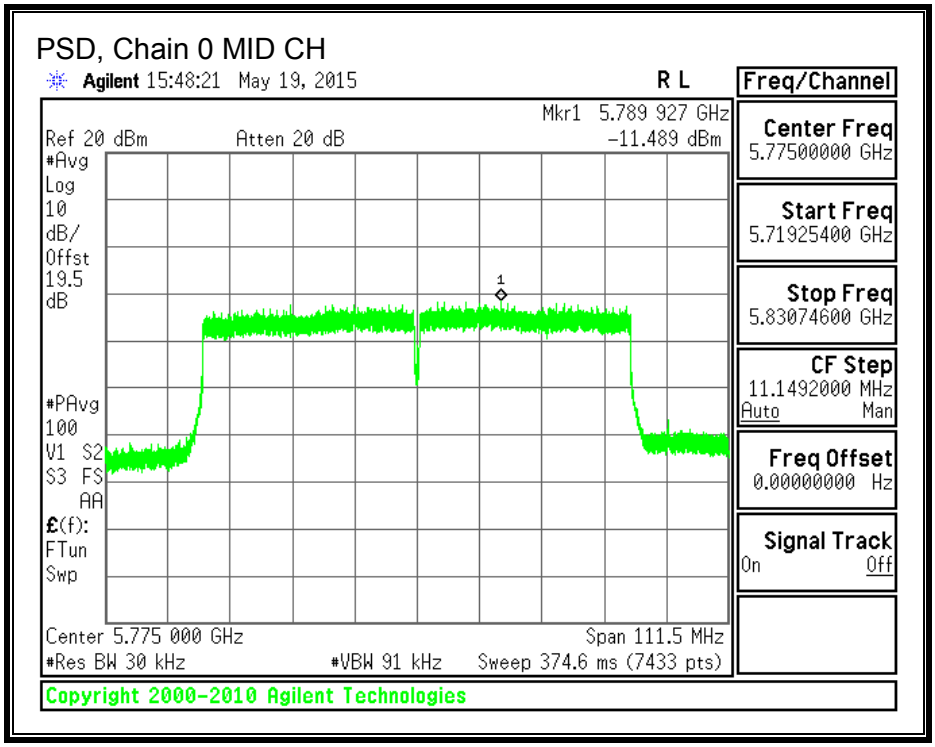
**RESULTS**

| Duty Cycle CF (dB) | 0.19 | Included in Calculations of Corr'd PSD |
|---|---|---|

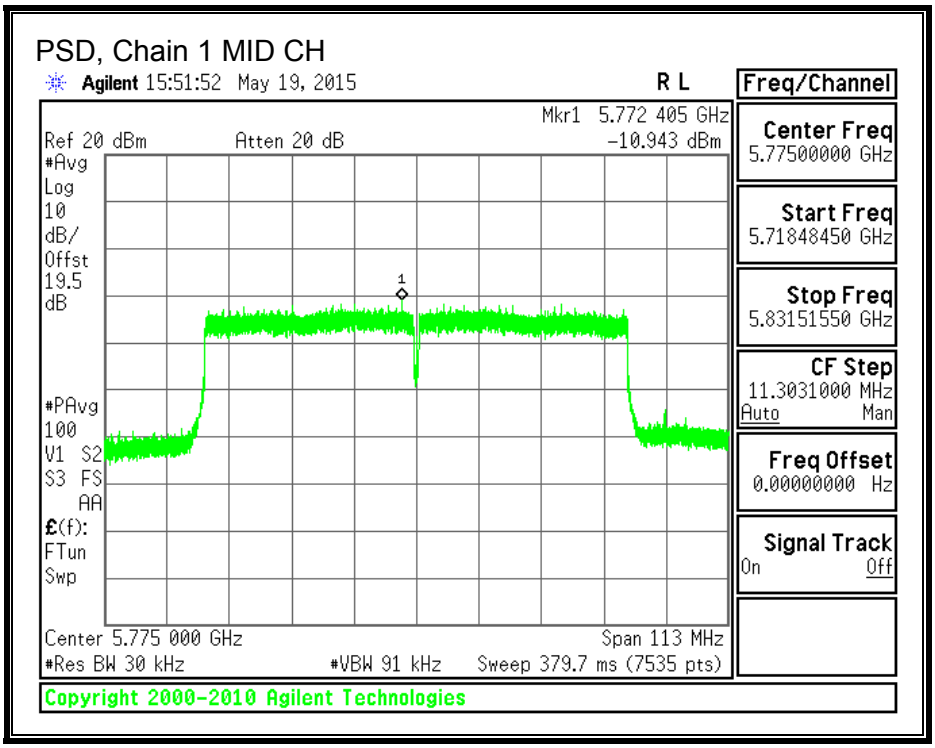
**PSD Results**

| Channel | Frequency (MHz) | Chain 0 Meas (dBm) | Chain 1 Meas (dBm) | Total Corr'd PSD (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| Mid | 5775 | -11.49 | -10.94 | -8.01 | 8.0 | -16.0 |

**PSD, Chain 0**



**PSD, Chain 1**



## 8.19.4. OUT-OF-BAND EMISSIONS

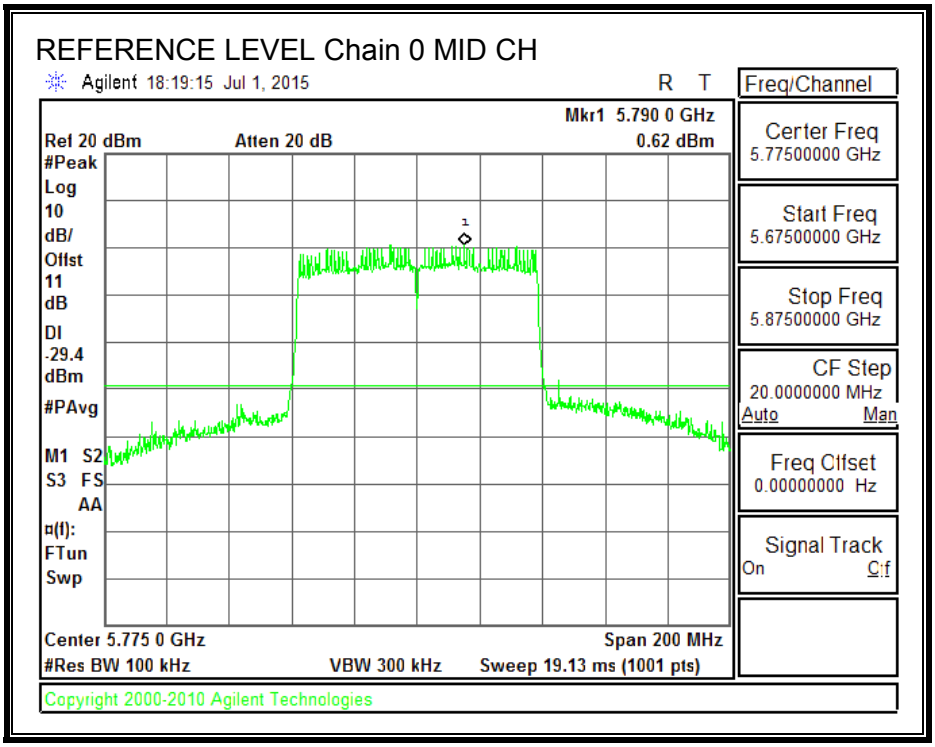
**LIMITS**

IC RSS-210 A8.5

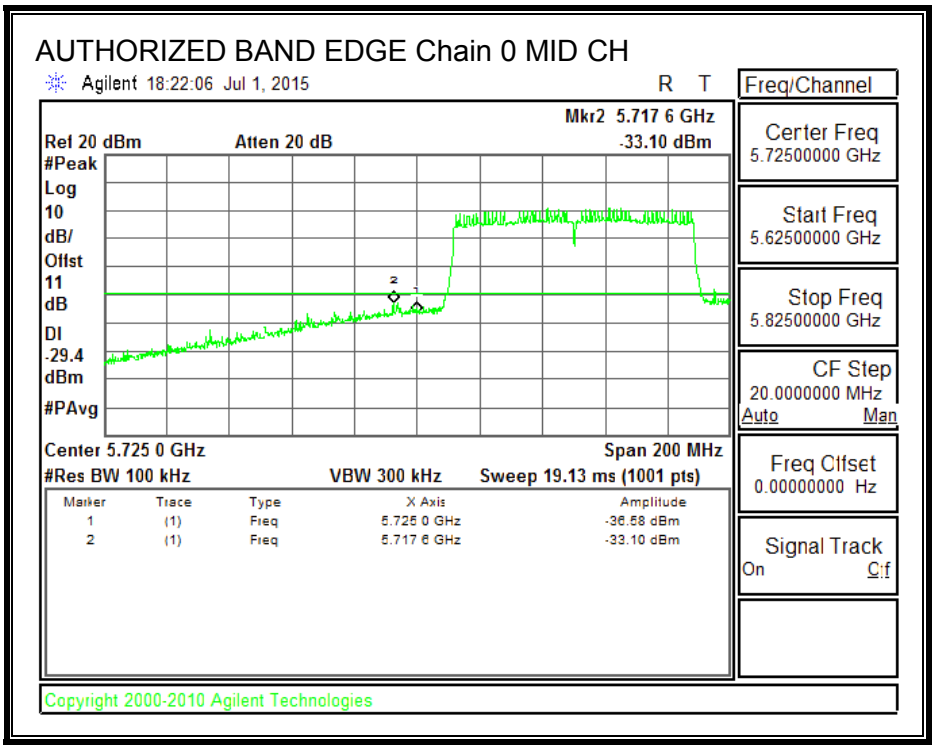
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

## RESULTS

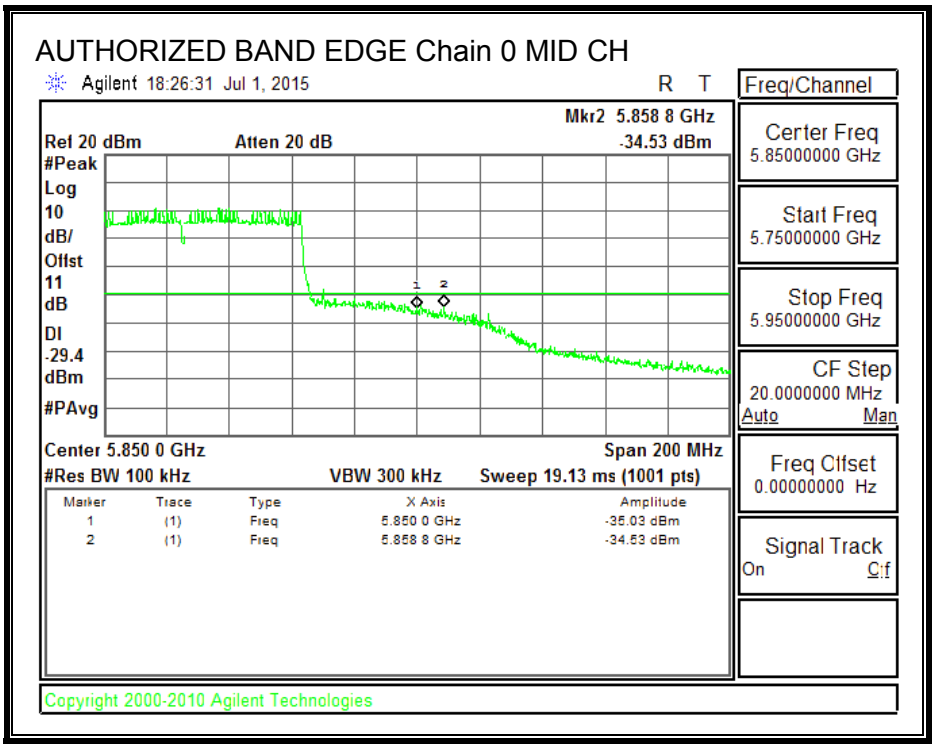
### IN-BAND REFERENCE LEVEL, Chain 0



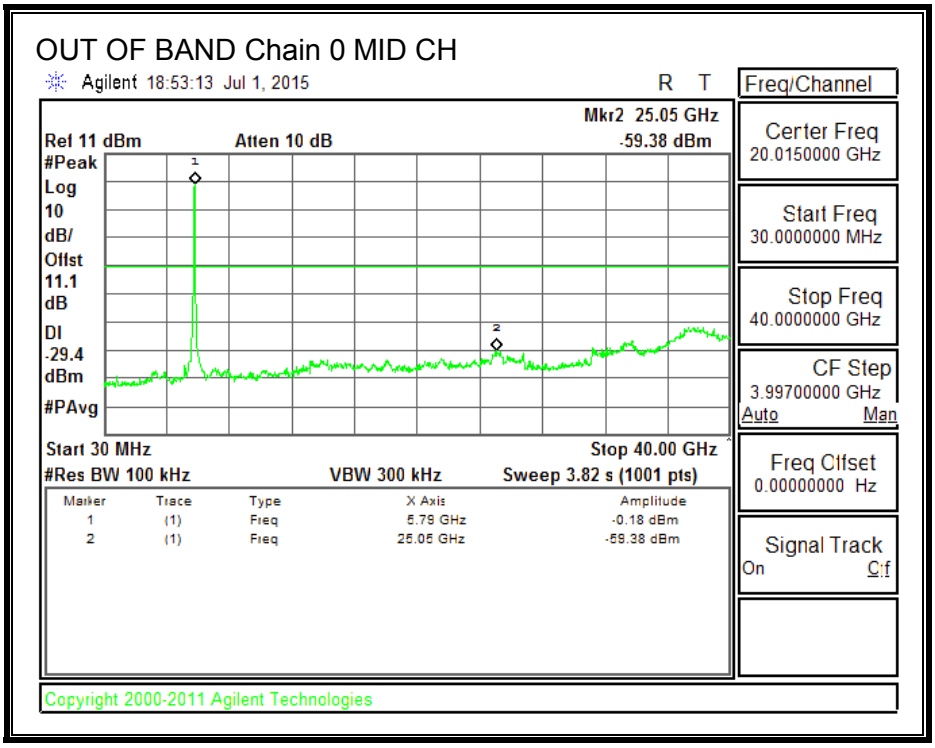

### MID CHANNEL LOWER BANDEDGE, Chain 0



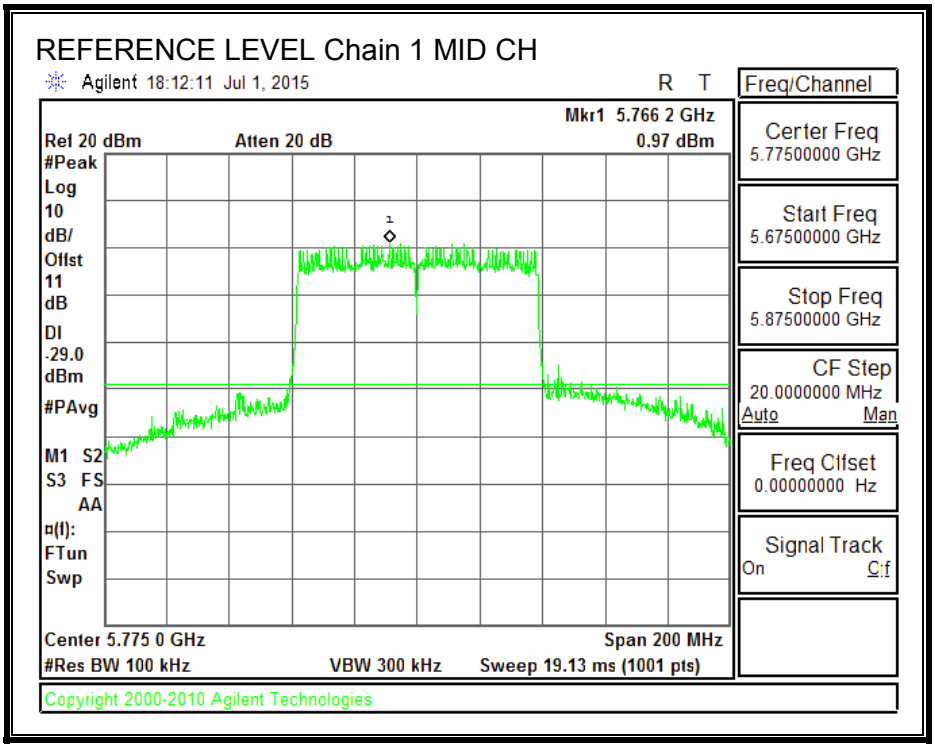
**MID CHANNEL HIGHER BANDEDGE, Chain 0**



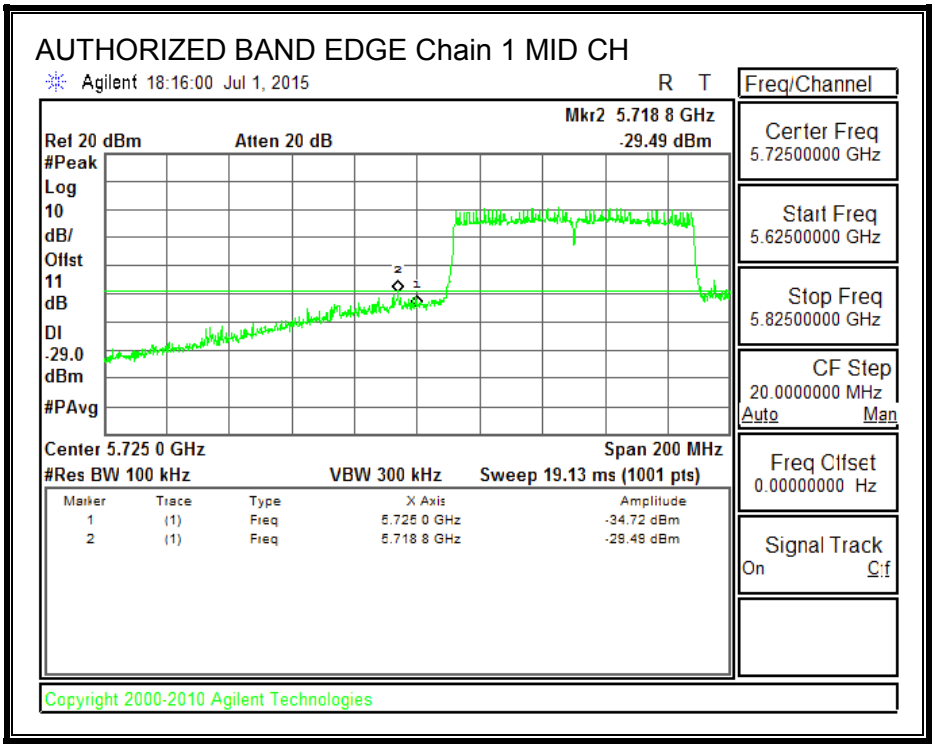

**OUT-OF-BAND EMISSIONS, Chain 0**



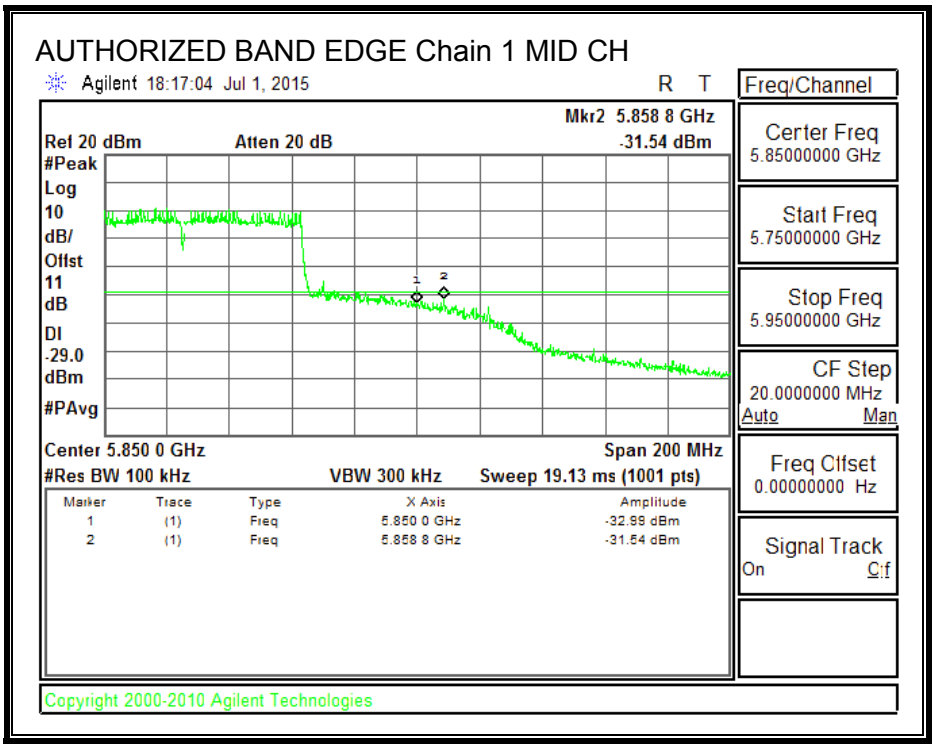
**IN-BAND REFERENCE LEVEL, Chain 1**



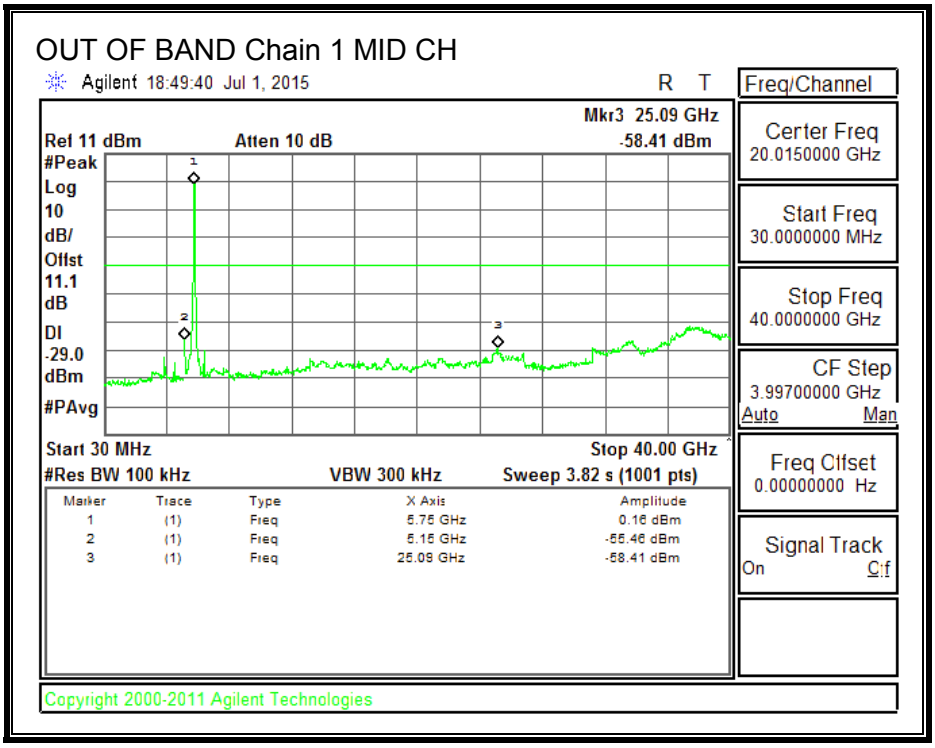

**MID CHANNEL LOWER BANDEDGE, Chain 1**



**MID CHANNEL HIGHER BANDEDGE, Chain 1**




**OUT-OF-BAND EMISSIONS, Chain 1**



# 8.20. 802.11ac VHT80 TXBF 2TX MODE IN THE 5.8 GHz BAND

## 8.20.1. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section 5.4 (5), the e.i.r.p. shall not exceed 4 W.

**DIRECTIONAL ANTENNA GAIN**

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

| Antenna Gain (dBi) | 10 * Log (2 chains) (dB) | Correlated Chains Directional Gain (dBi) |
|---|---|---|
| 4.70 | 3.01 | 7.71 |

**RESULTS**

**Antenna Gain and Limit**

| Channel | Frequency (MHz) | Directional Gain (dBi) | Power Limit (dBm) |
|---|---|---|---|
| Mid | 5775 | 7.71 | 28.29 |

**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 | 17.98 | 17.79 | 20.90 | 28.29 | -7.39 |

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

## 8.20.2. POWER SPECTRAL DENSITY

**LIMITS**

IC RSS-210 A8.2

For digitally modulated systems, the power spectral density conducted form the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band during any time interval of continuous transmissions.

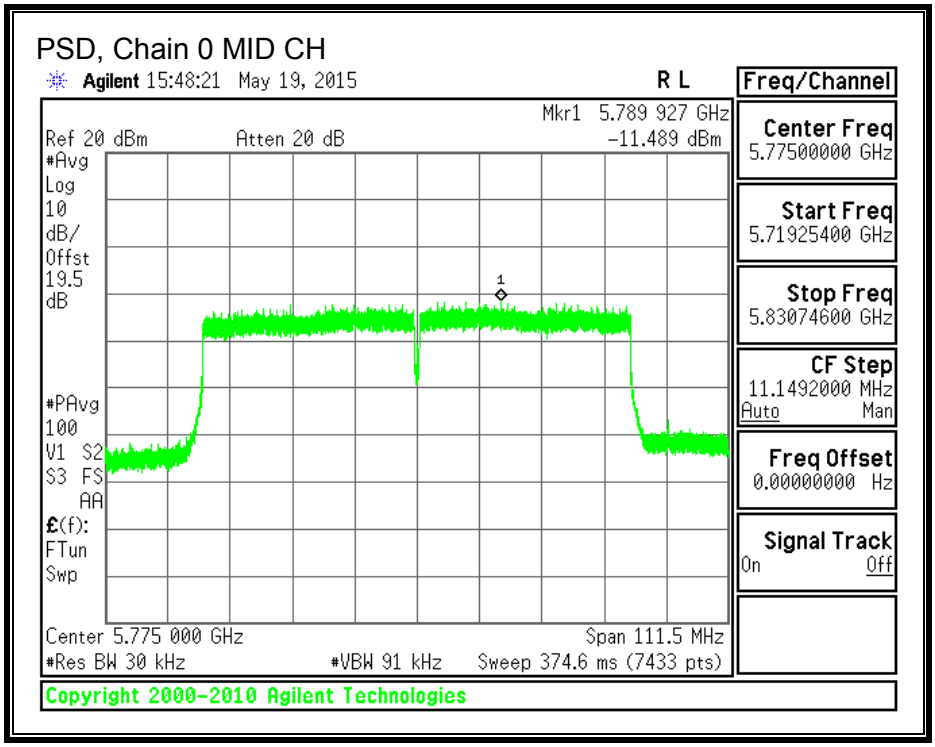
**RESULTS**

| Duty Cycle CF (dB) | 0.19 | Included in Calculations of Corr'd PSD |
|---|---|---|

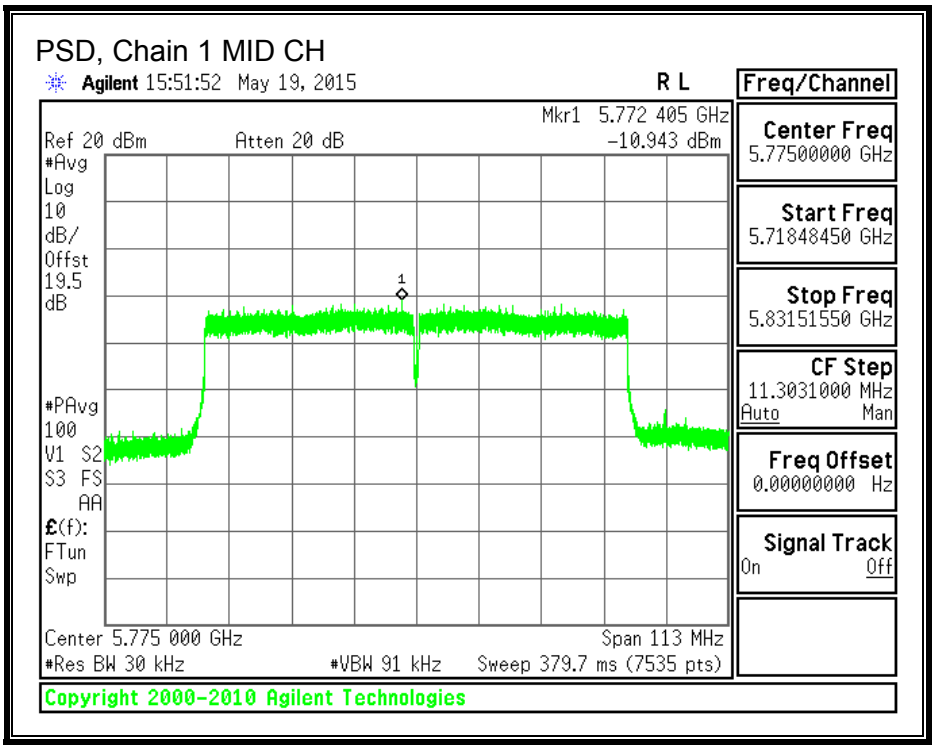
**PSD Results**

| Channel | Frequency (MHz) | Chain 0 Meas (dBm) | Chain 1 Meas (dBm) | Total Corr'd PSD (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| Mid | 5775 | -11.49 | -10.94 | -8.01 | 8.0 | -16.0 |

**PSD, Chain 0**




**PSD, Chain 1**



# 9. RADIATED TEST RESULTS

## 9.1. LIMITS AND PROCEDURE

**LIMITS**

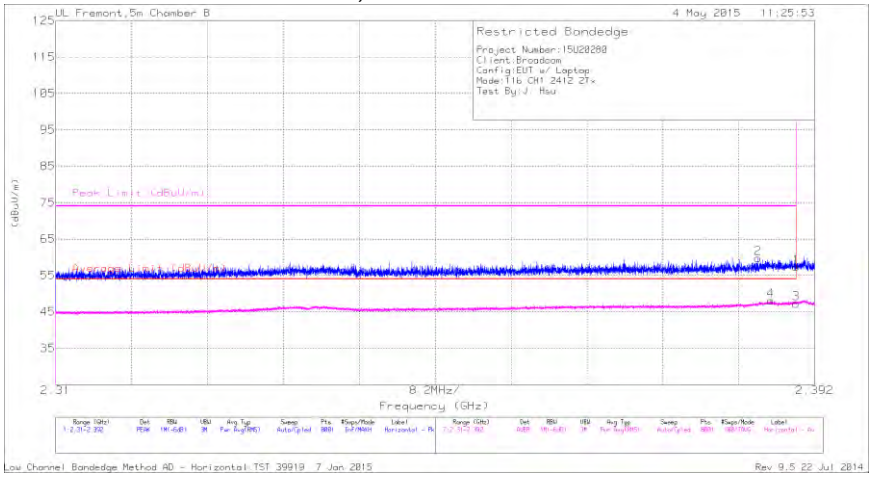
FCC §15.205 and §15.209

| 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 |

## 9.2. TX ABOVE 1 GHz 802.11b 2Tx MODE IN THE 2.4 GHz BAND

**RESTRICTED BANDEDGE (CHANNEL 1)**

CHANNEL1 RESTRICTED, HORIZ



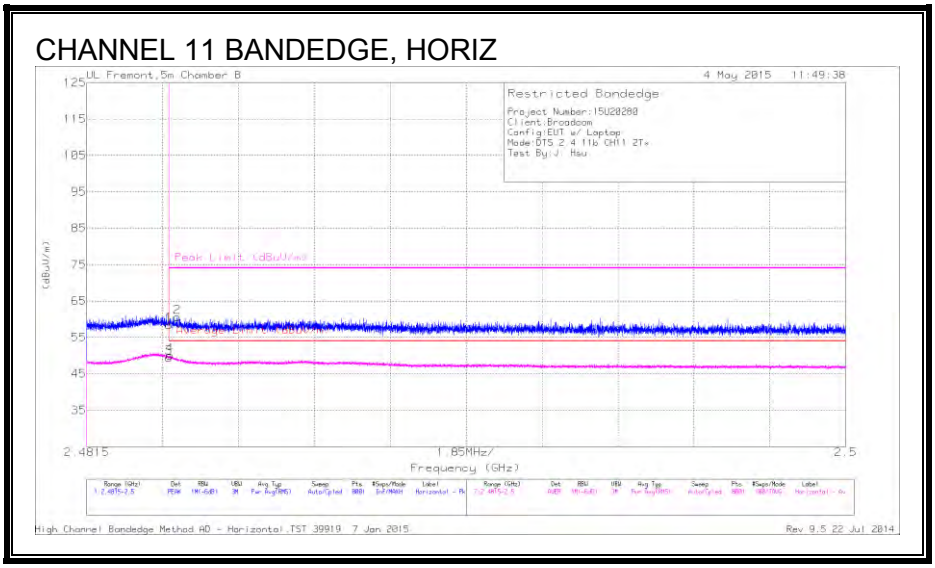

## Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T345 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 2.386 | 22.25 | PK | 32 | 5.5 | 59.75 | - | - | 74 | -14.25 | 267 | 318 | H |
| 4 | 2.387 | 10.5 | RMS | 32 | 5.5 | 48 | 54 | -6 | - | - | 267 | 318 | H |
| 1 | 2.39 | 19.86 | PK | 32 | 5.5 | 57.36 | - | - | 74 | -16.64 | 267 | 318 | H |
| 3 | 2.39 | 9.75 | RMS | 32 | 5.5 | 47.25 | 54 | -6.75 | - | - | 267 | 318 | H |

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

PK - Peak detector
RMS - RMS detection

**AUTHORIZED BANDEDGE (CHANNEL 11)**




## Trace Markers

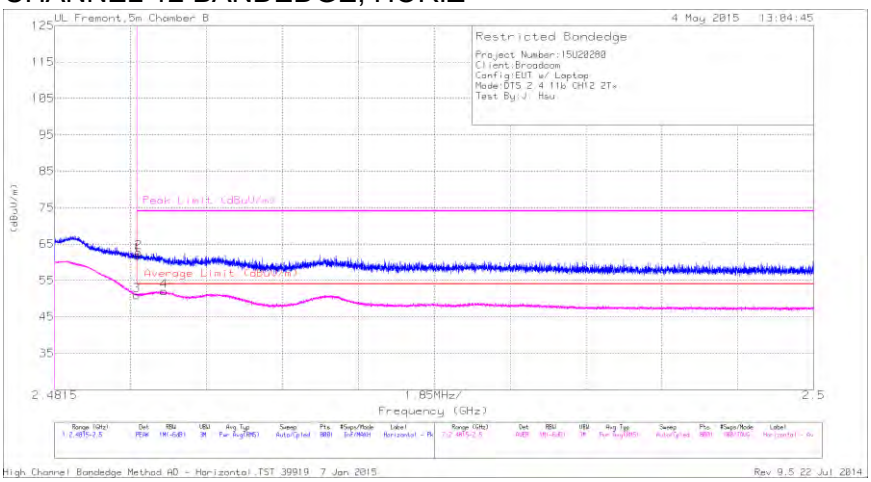
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T345 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.484 | 20.22 | PK | 32.5 | 5.7 | 58.42 | - | - | 74 | -15.58 | 316 | 226 | H |
| 2 | 2.484 | 22.42 | PK | 32.5 | 5.7 | 60.62 | - | - | 74 | -13.38 | 316 | 226 | H |
| 3 | 2.484 | 11.23 | RMS | 32.5 | 5.7 | 49.43 | 54 | -4.57 | - | - | 316 | 226 | H |
| 4 | 2.484 | 11.81 | RMS | 32.5 | 5.7 | 50.01 | 54 | -3.99 | - | - | 316 | 226 | H |

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

PK - Peak detector
RMS - RMS detection

**AUTHORIZED BANDEDGE (CHANNEL 12)**

CHANNEL 12 BANDEDGE, HORIZ




## Trace Markers

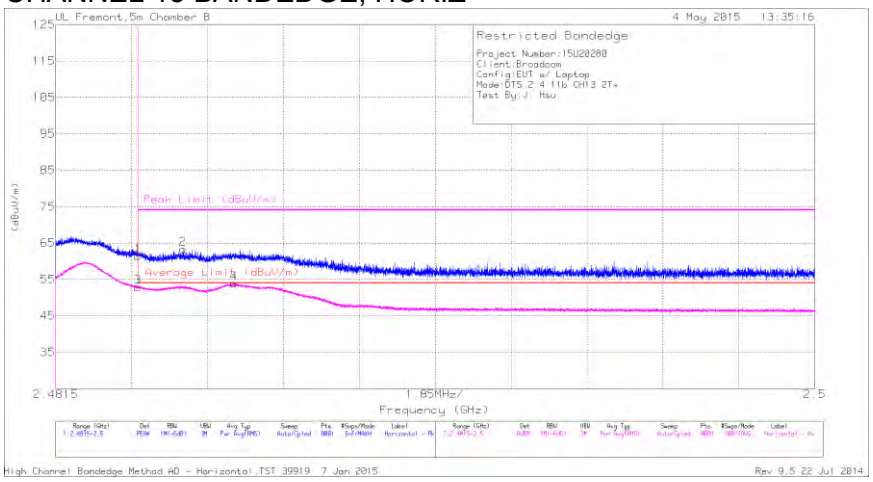
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T345 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.484 | 23.72 | PK | 32.5 | 5.7 | 61.92 | - | - | 74 | -12.08 | 256 | 279 | H |
| 2 | 2.484 | 24.45 | PK | 32.5 | 5.7 | 62.65 | - | - | 74 | -11.35 | 256 | 279 | H |
| 3 | 2.484 | 12.74 | RMS | 32.5 | 5.7 | 50.94 | 54 | -3.06 | - | - | 256 | 279 | H |
| 4 | 2.484 | 13.83 | RMS | 32.5 | 5.7 | 52.03 | 54 | -1.97 | - | - | 256 | 279 | H |

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

PK - Peak detector
RMS - RMS detection

**AUTHORIZED BANDEDGE (CHANNEL 13)**

CHANNEL 13 BANDEDGE, HORIZ




## Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T345 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.484 | 23.21 | PK | 32.5 | 5.7 | 61.41 | - | - | 74 | -12.59 | 320 | 341 | H |
| 3 | 2.484 | 14.67 | RMS | 32.5 | 5.7 | 52.87 | 54 | -1.13 | - | - | 320 | 341 | H |
| 2 | 2.485 | 25.11 | PK | 32.5 | 5.7 | 63.31 | - | - | 74 | -10.69 | 320 | 341 | H |
| 4 | 2.486 | 15.7 | RMS | 32.5 | 5.7 | 53.9 | 54 | -.1 | - | - | 320 | 341 | H |

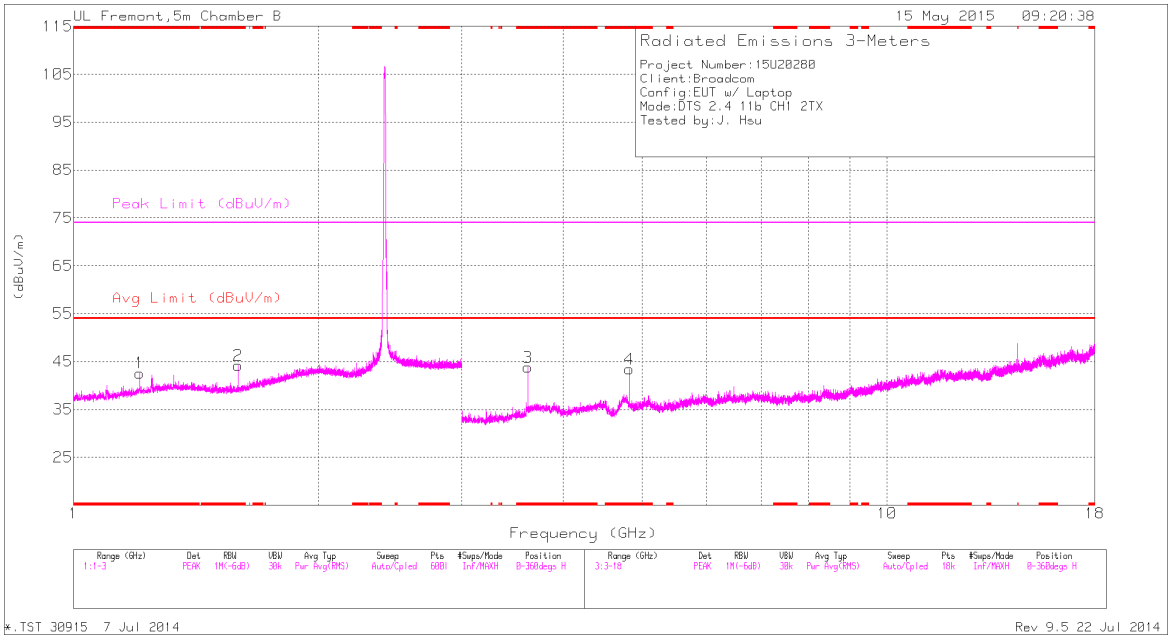
* - indicates frequency in CFR15.205/IC8.10 Restricted Band

PK - Peak detector
RMS - RMS detection

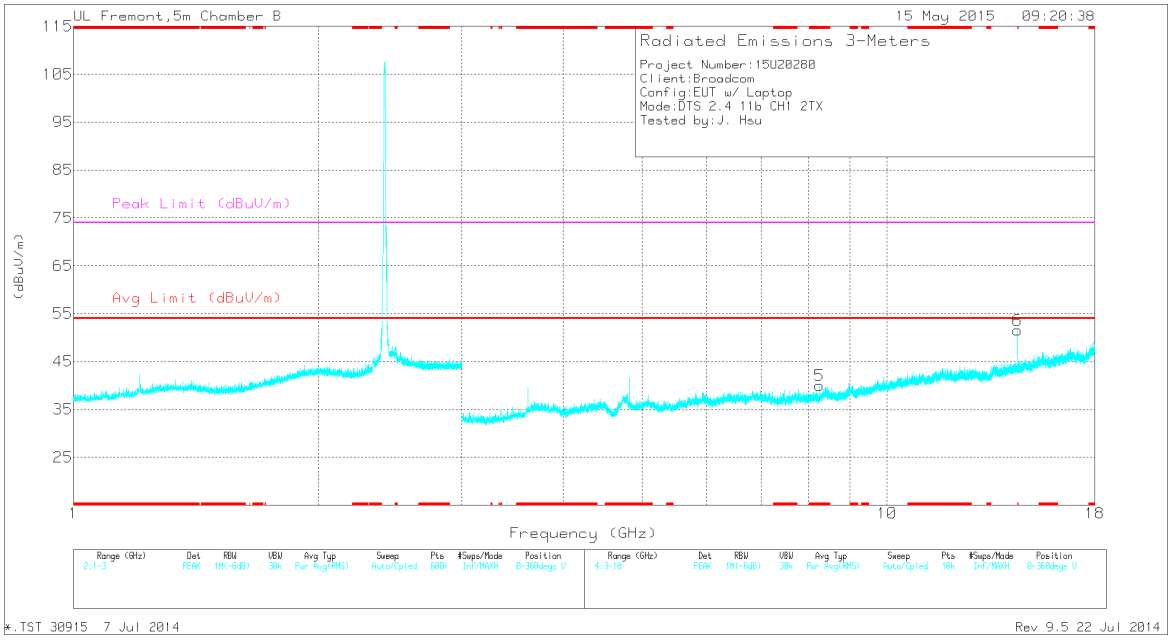
## HARMONICS AND SPURIOUS EMISSIONS

## LOW CHANNEL

HORIZONTAL




VERTICAL



## Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T345 (dB/m) | Amp/Cbl/Fltr/Pad (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 1.206 | 45.06 | PK2 | 28.5 | -24.3 | 49.26 | - | - | 74 | -24.74 | 227 | 193 | H |
| | * 1.206 | 35.49 | MAv1 | 28.5 | -24.3 | 39.69 | 54 | -14.31 | - | - | 227 | 193 | H |
| 2 | * 1.593 | 53.94 | PK2 | 28.8 | -23.7 | 59.04 | - | - | 74 | -14.96 | 39 | 137 | H |
| | * 1.593 | 31.02 | MAv1 | 28.8 | -23.7 | 36.12 | 54 | -17.88 | - | - | 39 | 137 | H |
| 3 | * 3.618 | 45.66 | PK2 | 33.8 | -30.7 | 48.76 | - | - | 74 | -25.24 | 273 | 233 | H |
| | * 3.618 | 41.07 | MAv1 | 33.8 | -30.7 | 44.17 | 54 | -9.83 | - | - | 273 | 233 | H |
| 4 | * 4.824 | 43.33 | PK2 | 34.3 | -29.7 | 47.93 | - | - | 74 | -26.07 | 108 | 270 | H |
| | * 4.824 | 37.7 | MAv1 | 34.3 | -29.7 | 42.3 | 54 | -11.7 | - | - | 108 | 270 | H |
| 5 | * 8.265 | 37.18 | PK2 | 35.7 | -26.5 | 46.38 | - | - | 74 | -27.62 | 109 | 252 | V |
| | * 8.264 | 26.4 | MAv1 | 35.7 | -26.6 | 35.5 | 54 | -18.5 | - | - | 109 | 252 | V |
| 6 | * 14.472 | 39.91 | PK2 | 39.6 | -22.1 | 57.41 | - | - | 74 | -16.59 | 27 | 205 | V |
| | * 14.472 | 34.23 | MAv1 | 39.6 | -22.1 | 51.73 | 54 | -2.27 | - | - | 27 | 205 | V |

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

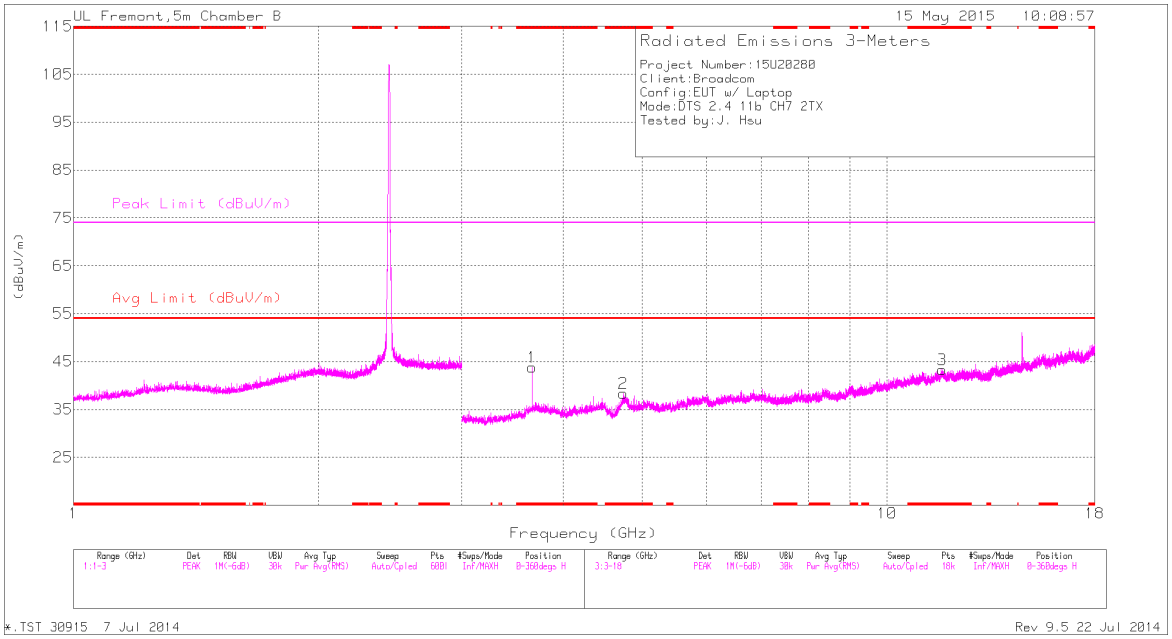
** - indicates frequency covered by BE measurement

-Compliance for emissions in non-restricted bands is shown in conducted out of band testing

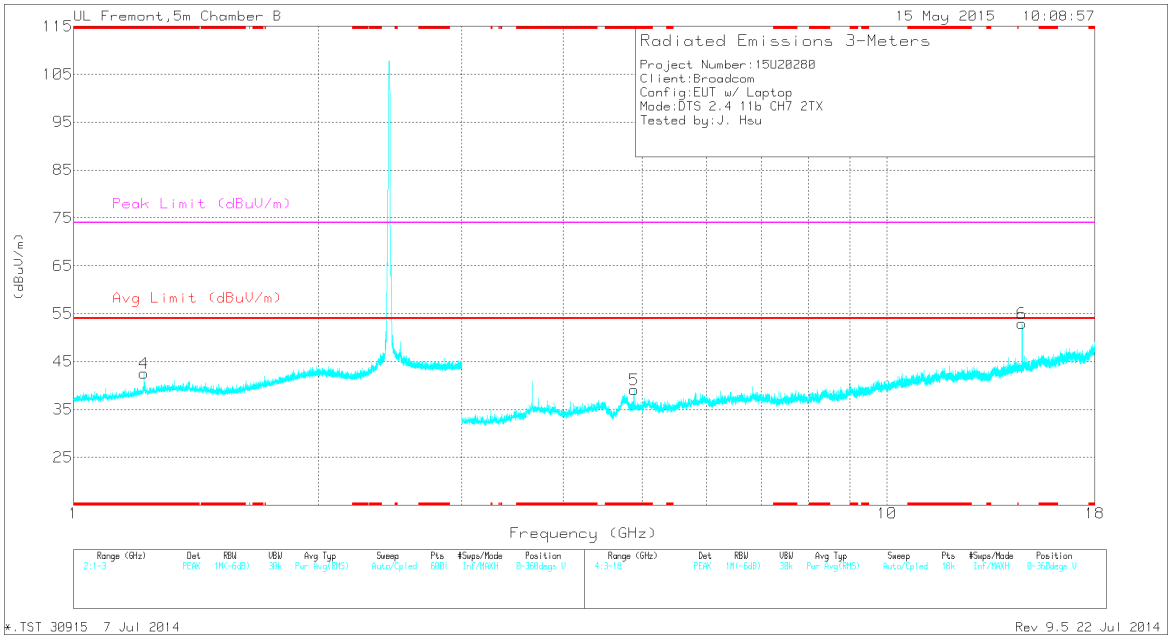
PK - Peak detector
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

**MID CHANNEL**

HORIZONTAL




VERTICAL



## Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T345 (dB/m) | Amp/Cbl/Fltr/Pad (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | * 1.221 | 45.29 | PK2 | 28.7 | -24.3 | 49.69 | - | - | 74 | -24.31 | 252 | 111 | V |
| | * 1.221 | 35.17 | MAv1 | 28.7 | -24.3 | 39.57 | 54 | -14.43 | - | - | 252 | 111 | V |
| 1 | * 3.663 | 46.15 | PK2 | 33.7 | -30.8 | 49.05 | - | - | 74 | -24.95 | 272 | 204 | H |
| | * 3.663 | 41.19 | MAv1 | 33.7 | -30.8 | 44.09 | 54 | -9.91 | - | - | 272 | 204 | H |
| 2 | * 4.739 | 39.43 | PK2 | 34.3 | -29.1 | 44.63 | - | - | 74 | -29.37 | 360 | 400 | H |
| | * 4.74 | 28.48 | MAv1 | 34.3 | -29.1 | 33.68 | 54 | -20.32 | - | - | 360 | 400 | H |
| 3 | * 11.695 | 34.72 | PK2 | 38.5 | -21.8 | 51.42 | - | - | 74 | -22.58 | 350 | 353 | H |
| | * 11.695 | 23.4 | MAv1 | 38.5 | -21.7 | 40.2 | 54 | -13.8 | - | - | 350 | 353 | H |
| 5 | * 4.884 | 42.43 | PK2 | 34.2 | -30.4 | 46.23 | - | - | 74 | -27.77 | 214 | 282 | V |
| | * 4.884 | 35.33 | MAv1 | 34.2 | -30.4 | 39.13 | 54 | -14.87 | - | - | 214 | 282 | V |
| 6 | 14.652 | 40.37 | PK2 | 39.8 | -21.3 | 58.87 | - | - | - | - | 24 | 105 | V |

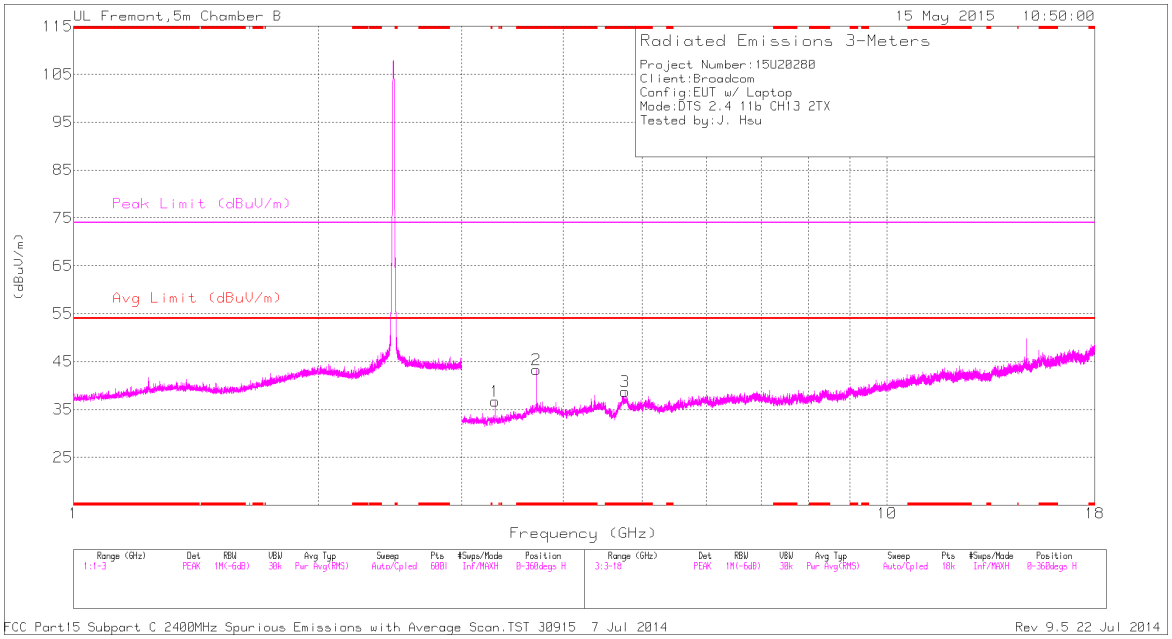
* - indicates frequency in CFR15.205/IC8.10 Restricted Band

-Compliance for emissions in non-restricted bands is shown in conducted out of band testing

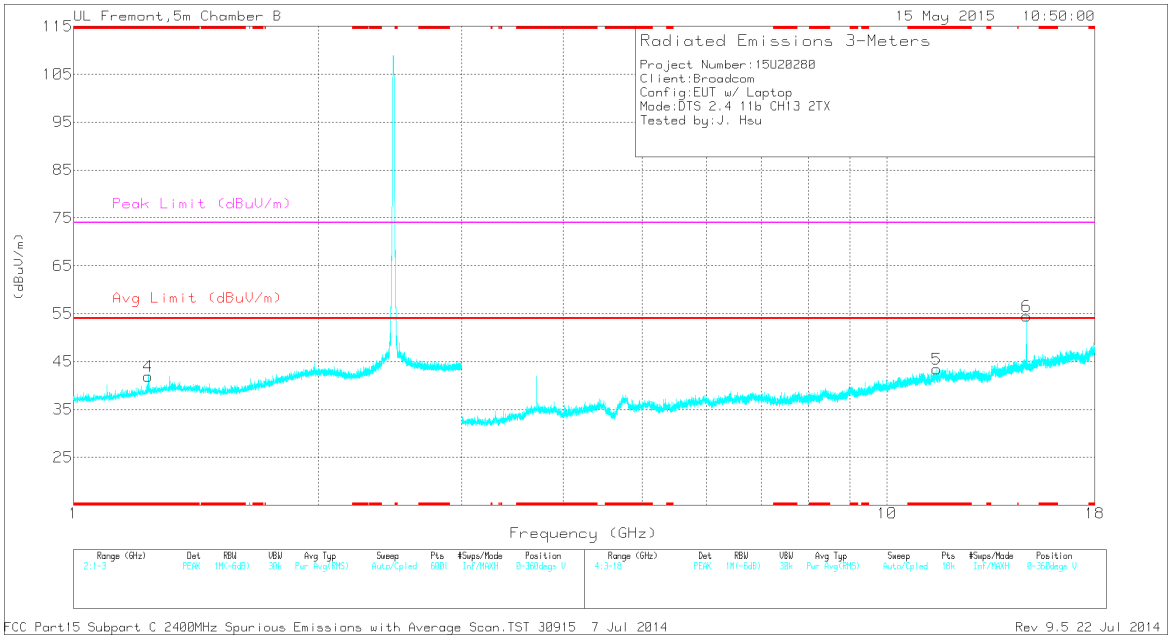
PK - Peak detector
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

**HIGH CHANNEL**

HORIZONTAL




VERTICAL



## Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T345 (dB/m) | Amp/Cbl/Fltr/Pad (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | * 1.236 | 44.62 | PK2 | 28.8 | -24.2 | 49.22 | - | - | 74 | -24.78 | 232 | 185 | V |
| | * 1.236 | 35.06 | MAv1 | 28.8 | -24.2 | 39.66 | 54 | -14.34 | - | - | 232 | 185 | V |
| 2 | * 3.708 | 45.61 | PK2 | 33.6 | -31.2 | 48.01 | - | - | 74 | -25.99 | 296 | 264 | H |
| | * 3.708 | 40.41 | MAv1 | 33.6 | -31.2 | 42.81 | 54 | -11.19 | - | - | 296 | 264 | H |
| 3 | * 4.762 | 39.3 | PK2 | 34.3 | -29 | 44.6 | - | - | 74 | -29.4 | 300 | 244 | H |
| | * 4.761 | 28.41 | MAv1 | 34.3 | -29 | 33.71 | 54 | -20.29 | - | - | 300 | 244 | H |
| 5 | * 11.517 | 34.33 | PK2 | 38.3 | -22.5 | 50.13 | - | - | 74 | -23.87 | 298 | 230 | V |
| | * 11.515 | 23.68 | MAv1 | 38.3 | -22.5 | 39.48 | 54 | -14.52 | - | - | 298 | 230 | V |
| 1 | 3.296 | 41.71 | PK2 | 32.8 | -30.8 | 43.71 | - | - | - | - | 273 | 229 | H |
| | 3.296 | 33.58 | MAv1 | 32.8 | -30.8 | 35.58 | - | - | - | - | 273 | 229 | H |
| 6 | 14.832 | 39.82 | PK2 | 39.8 | -21.5 | 58.12 | - | - | - | - | 13 | 105 | V |

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

** - indicates frequency covered by BE measurement

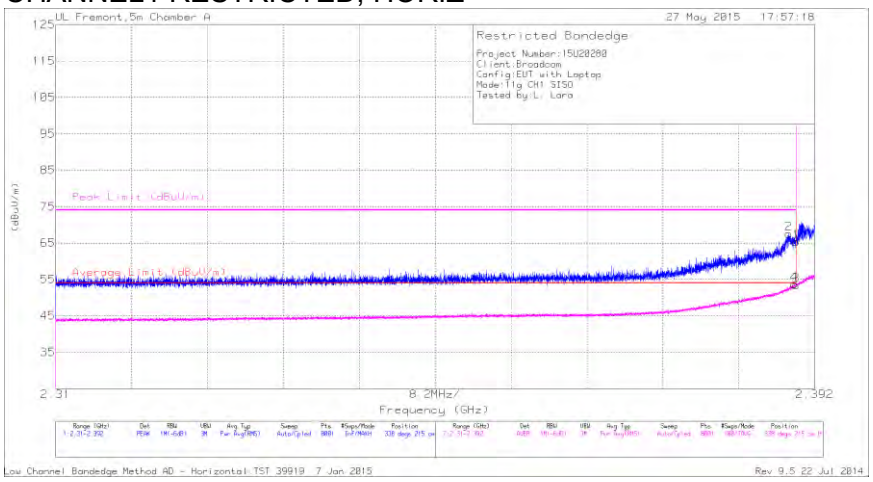
-Compliance for emissions in non-restricted bands is shown in conducted out of band testing

PK - Peak detector
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

## 9.3. TX ABOVE 1 GHz 802.11g LEGACY MODE IN THE 2.4 GHz BAND

**RESTRICTED BANDEDGE (CHANNEL 1)**

CHANNEL1 RESTRICTED, HORIZ



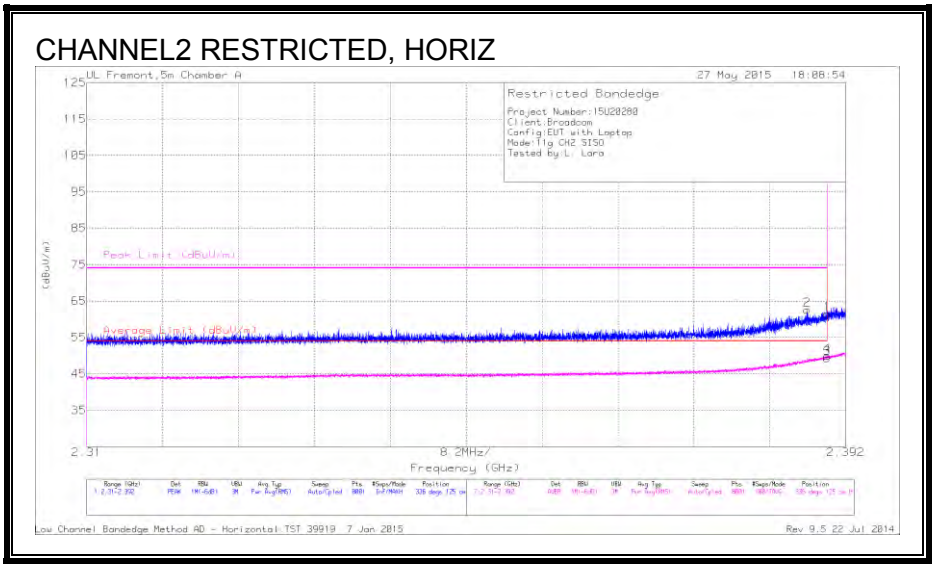

Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T136 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.39 | 28.37 | PK | 32 | 4.9 | 65.27 | - | - | 74 | -8.73 | 338 | 215 | H |
| 2 | * 2.389 | 30.64 | PK | 32 | 4.9 | 67.54 | - | - | 74 | -6.46 | 338 | 215 | H |
| 3 | * 2.39 | 16.48 | RMS | 32 | 4.9 | 53.38 | 54 | -.62 | - | - | 338 | 215 | H |
| 4 | * 2.39 | 16.74 | RMS | 32 | 4.9 | 53.64 | 54 | -.36 | - | - | 338 | 215 | H |

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

PK - Peak detector
RMS - RMS detection

**RESTRICTED BANDEDGE (CHANNEL 2)**



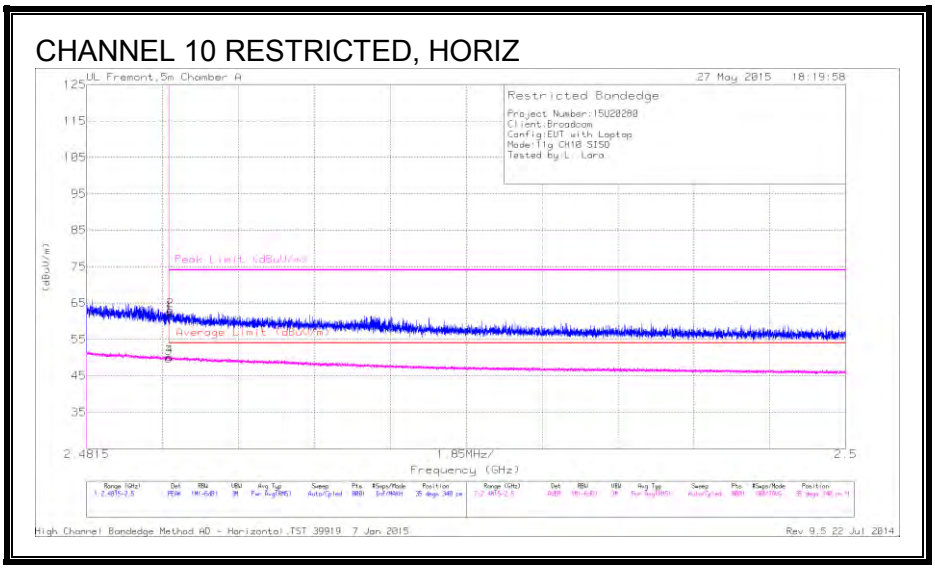

## Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T136 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | * 2.388 | 25.67 | PK | 32 | 4.9 | 62.57 | - | - | 74 | -11.43 | 336 | 125 | H |
| 1 | * 2.39 | 24.51 | PK | 32 | 4.9 | 61.41 | - | - | 74 | -12.59 | 336 | 125 | H |
| 3 | * 2.39 | 12.37 | RMS | 32 | 4.9 | 49.27 | 54 | -4.73 | - | - | 336 | 125 | H |
| 4 | * 2.39 | 12.97 | RMS | 32 | 4.9 | 49.87 | 54 | -4.13 | - | - | 336 | 125 | H |

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

PK - Peak detector
RMS - RMS detection

**RESTRICTED BANDEDGE (CHANNEL 10)**



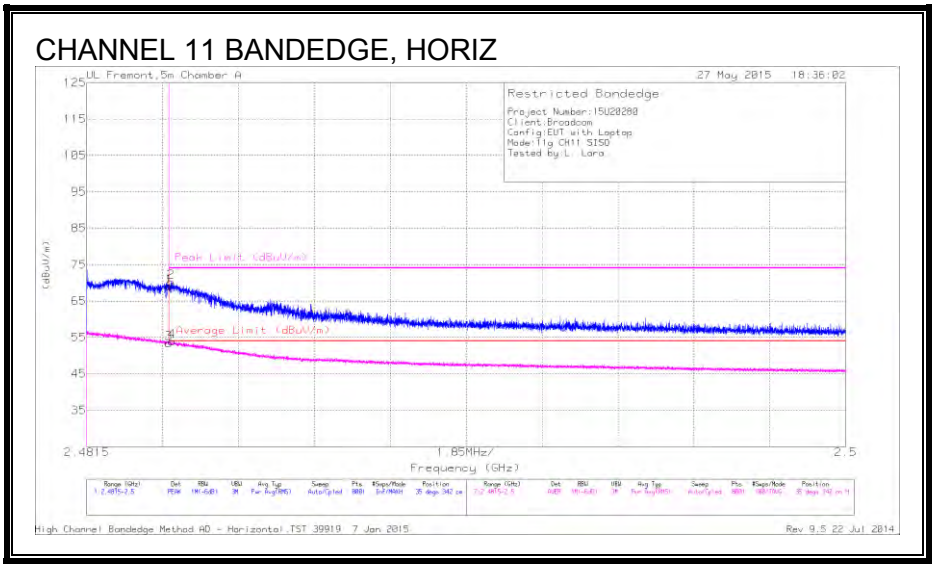

## Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T136 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.484 | 25.18 | PK | 32.1 | 5 | 62.28 | - | - | 74 | -11.72 | 35 | 340 | H |
| 2 | * 2.484 | 25.87 | PK | 32.1 | 5 | 62.97 | - | - | 74 | -11.03 | 35 | 340 | H |
| 3 | * 2.484 | 12.76 | RMS | 32.1 | 5 | 49.86 | 54 | -4.14 | - | - | 35 | 340 | H |
| 4 | * 2.484 | 13.09 | RMS | 32.1 | 5 | 50.19 | 54 | -3.81 | - | - | 35 | 340 | H |

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

PK - Peak detector
RMS - RMS detection

**AUTHORIZED BANDEDGE (CHANNEL 11)**




## Trace Markers

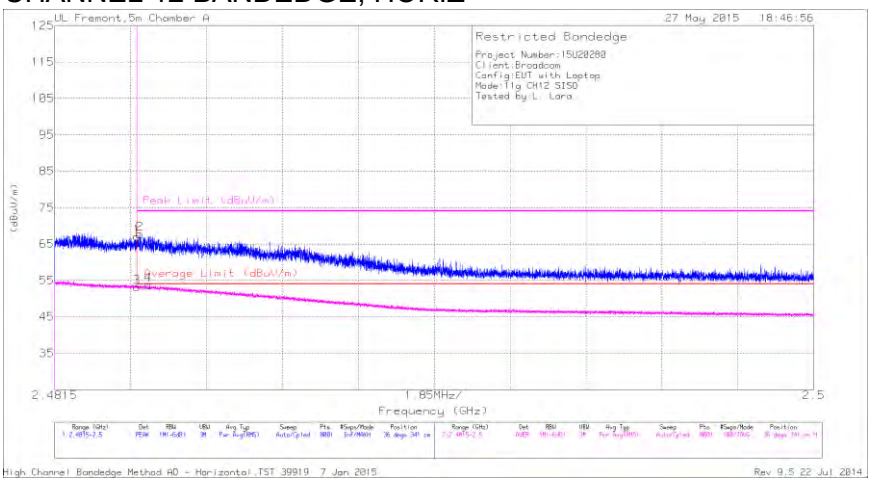
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T136 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.484 | 31.95 | PK | 32.1 | 5 | 69.05 | - | - | 74 | -4.95 | 35 | 342 | H |
| 2 | * 2.484 | 33.15 | PK | 32.1 | 5 | 70.25 | - | - | 74 | -3.75 | 35 | 342 | H |
| 3 | * 2.484 | 16.28 | RMS | 32.1 | 5 | 53.38 | 54 | -.62 | - | - | 35 | 342 | H |
| 4 | * 2.484 | 16.85 | RMS | 32.1 | 5 | 53.95 | 54 | -.05 | - | - | 35 | 342 | H |

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

PK - Peak detector
RMS - RMS detection

**AUTHORIZED BANDEDGE (CHANNEL 12)**

CHANNEL 12 BANDEDGE, HORIZ




## Trace Markers

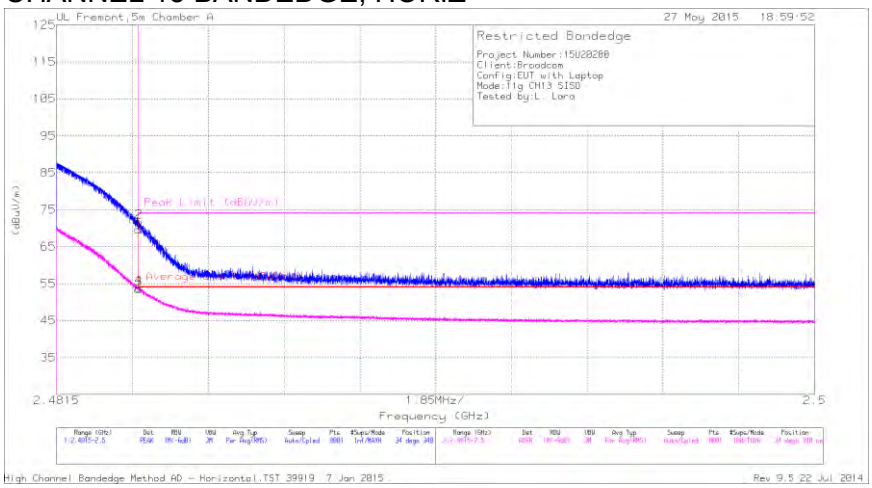
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T136 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.484 | 29.91 | PK | 32.1 | 5 | 67.01 | - | - | 74 | -6.99 | 36 | 341 | H |
| 2 | * 2.484 | 30.64 | PK | 32.1 | 5 | 67.74 | - | - | 74 | -6.26 | 36 | 341 | H |
| 3 | * 2.484 | 16.03 | RMS | 32.1 | 5 | 53.13 | 54 | -.87 | - | - | 36 | 341 | H |
| 4 | * 2.484 | 16.62 | RMS | 32.1 | 5 | 53.72 | 54 | -.28 | - | - | 36 | 341 | H |

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

PK - Peak detector
RMS - RMS detection

**AUTHORIZED BANDEDGE (CHANNEL 13)**

CHANNEL 13 BANDEDGE, HORIZ




## Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T136 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.484 | 32.56 | PK | 32.1 | 5 | 69.66 | - | - | 74 | -4.34 | 34 | 340 | H |
| 2 | * 2.484 | 34.57 | PK | 32.1 | 5 | 71.67 | - | - | 74 | -2.33 | 34 | 340 | H |
| 3 | * 2.484 | 16.46 | RMS | 32.1 | 5 | 53.56 | 54 | -.44 | - | - | 34 | 340 | H |
| 4 | * 2.484 | 16.76 | RMS | 32.1 | 5 | 53.86 | 54 | -.14 | - | - | 34 | 340 | H |

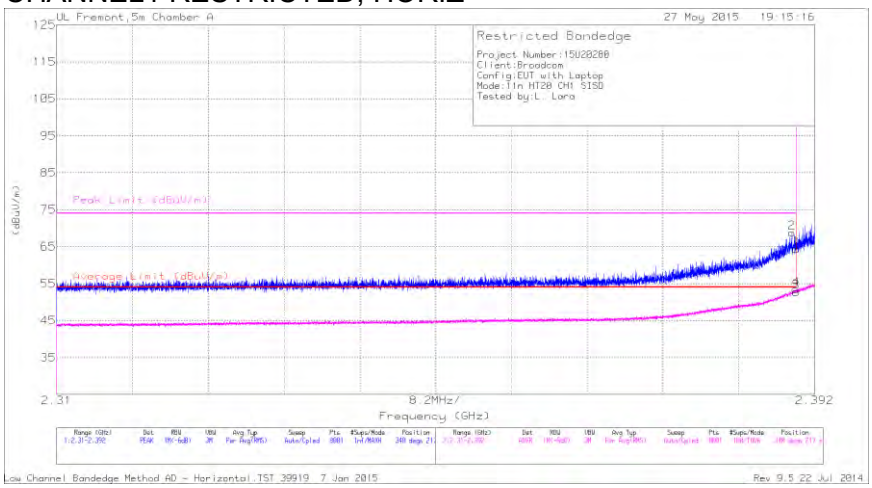
* - indicates frequency in CFR15.205/IC8.10 Restricted Band

PK - Peak detector
RMS - RMS detection

## 9.4. TX ABOVE 1 GHz 802.11n HT20 CDD SISO MODE IN THE 2.4 GHz BAND

**RESTRICTED BANDEDGE (CHANNEL 1)**

CHANNEL1 RESTRICTED, HORIZ



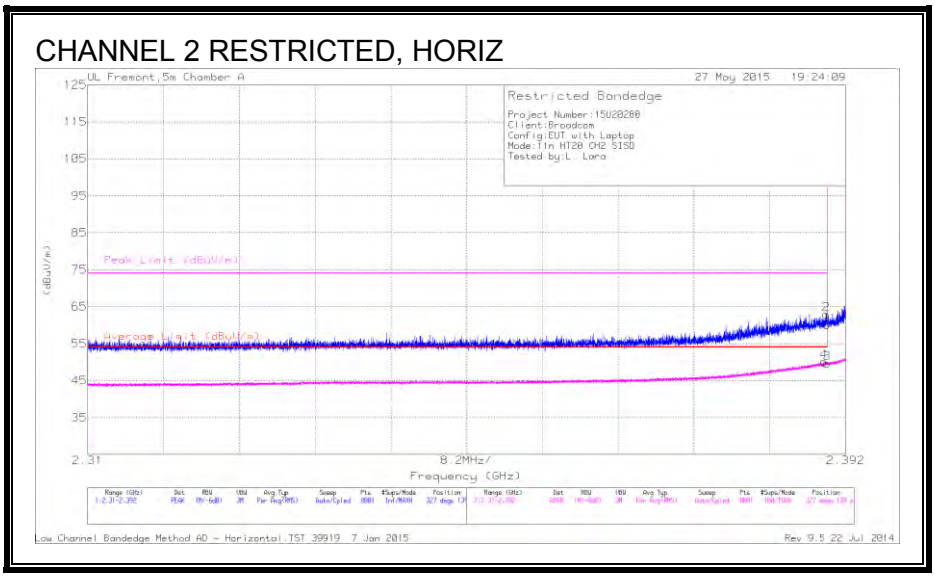

## Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T136 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.39 | 27.54 | PK | 32 | 4.9 | 64.44 | - | - | 74 | -9.56 | 340 | 217 | H |
| 2 | * 2.39 | 31.85 | PK | 32 | 4.9 | 68.75 | - | - | 74 | -5.25 | 340 | 217 | H |
| 3 | * 2.39 | 15.83 | RMS | 32 | 4.9 | 52.73 | 54 | -1.27 | - | - | 340 | 217 | H |
| 4 | * 2.39 | 16.58 | RMS | 32 | 4.9 | 53.48 | 54 | -.52 | - | - | 340 | 217 | H |

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

PK - Peak detector
RMS - RMS detection

**RESTRICTED BANDEDGE (CHANNEL 2)**



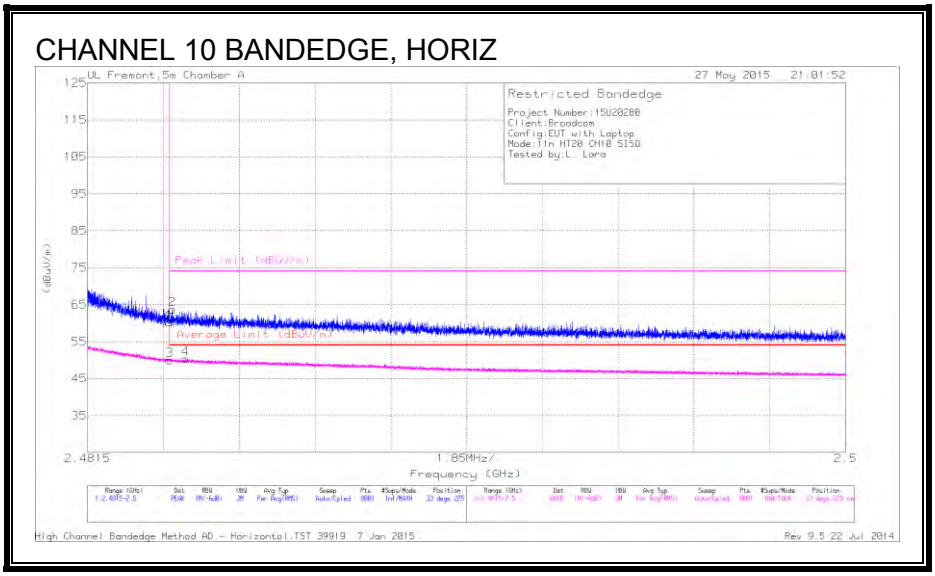

## Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T136 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.39 | 23.2 | PK | 32 | 4.9 | 60.1 | - | - | 74 | -13.9 | 327 | 139 | H |
| 2 | * 2.39 | 25.98 | PK | 32 | 4.9 | 62.88 | - | - | 74 | -11.12 | 327 | 139 | H |
| 3 | * 2.39 | 12.78 | RMS | 32 | 4.9 | 49.68 | 54 | -4.32 | - | - | 327 | 139 | H |
| 4 | * 2.39 | 13.13 | RMS | 32 | 4.9 | 50.03 | 54 | -3.97 | - | - | 327 | 139 | H |

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

PK - Peak detector
RMS - RMS detection

**AUTHORIZED BANDEDGE (CHANNEL 10)**




## Trace Markers

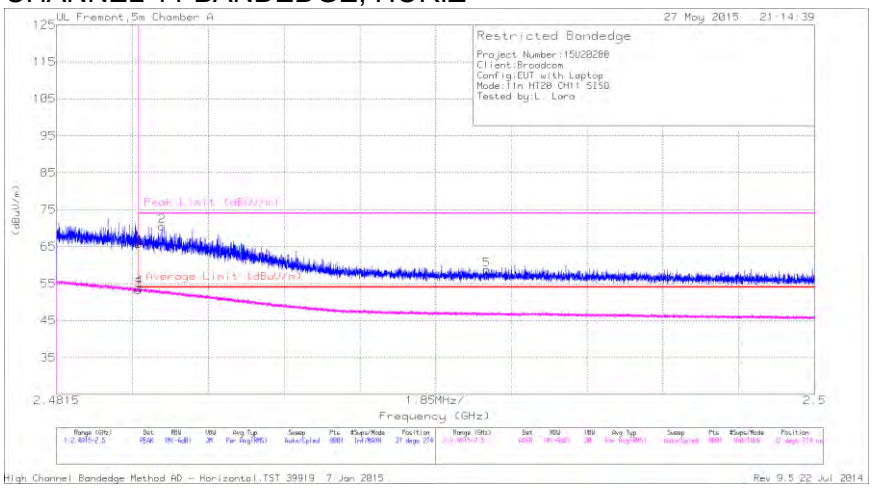
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T136 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.484 | 23.14 | PK | 32.1 | 5 | 60.24 | - | - | 74 | -13.76 | 33 | 225 | H |
| 2 | * 2.484 | 26.61 | PK | 32.1 | 5 | 63.71 | - | - | 74 | -10.29 | 33 | 225 | H |
| 3 | * 2.484 | 12.88 | RMS | 32.1 | 5 | 49.98 | 54 | -4.02 | - | - | 33 | 225 | H |
| 4 | * 2.484 | 13.24 | RMS | 32.1 | 5 | 50.34 | 54 | -3.66 | - | - | 33 | 225 | H |

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

PK - Peak detector
RMS - RMS detection

**AUTHORIZED BANDEDGE (CHANNEL 11)**

CHANNEL 11 BANDEDGE, HORIZ




## Trace Markers

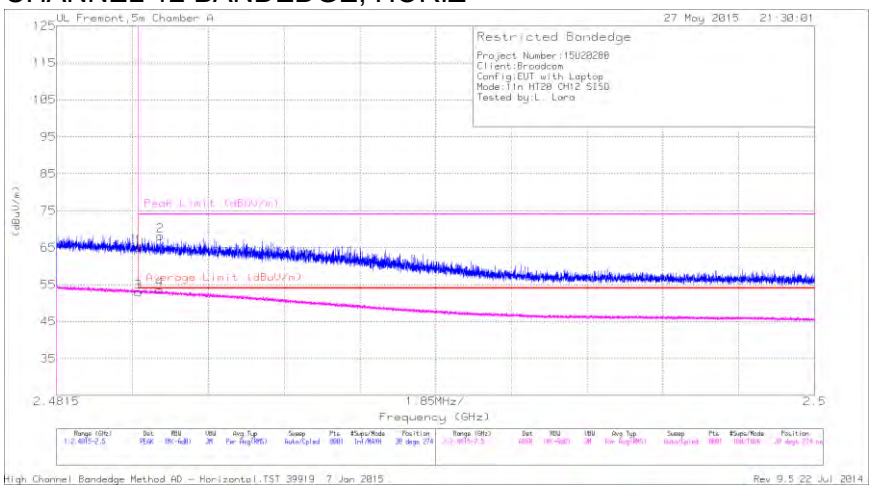
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T136 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.484 | 28.7 | PK | 32.1 | 5 | 65.8 | - | - | 74 | -8.2 | 37 | 274 | H |
| 2 | * 2.484 | 33.4 | PK | 32.1 | 5 | 70.5 | - | - | 74 | -3.5 | 37 | 274 | H |
| 3 | * 2.484 | 16.14 | RMS | 32.1 | 5 | 53.24 | 54 | -.76 | - | - | 37 | 274 | H |
| 4 | * 2.484 | 16.81 | RMS | 32.1 | 5 | 53.91 | 54 | -.09 | - | - | 37 | 274 | H |
| 5 | * 2.492 | 21.52 | PK | 32.1 | 5.1 | 58.72 | - | - | 74 | -15.28 | 37 | 274 | H |

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

PK - Peak detector
RMS - RMS detection

**AUTHORIZED BANDEDGE (CHANNEL 12)**

CHANNEL 12 BANDEDGE, HORIZ




## Trace Markers

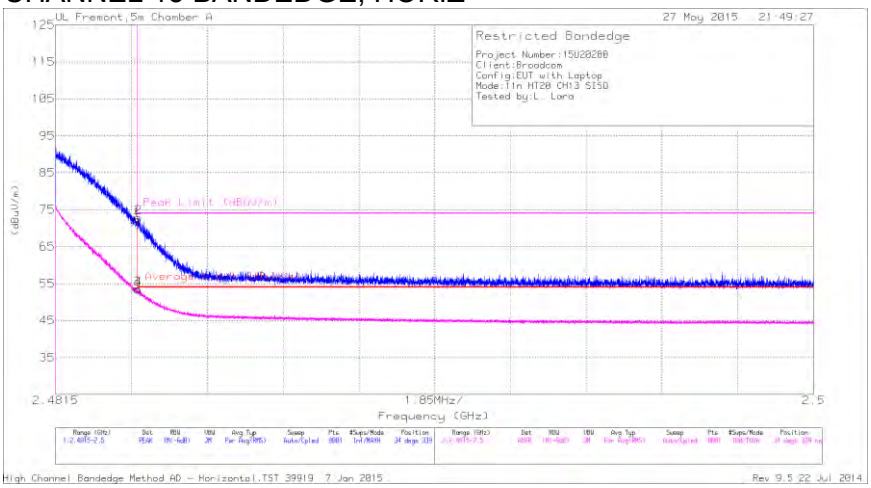
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T136 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.484 | 27.94 | PK | 32.1 | 5 | 65.04 | - | - | 74 | -8.96 | 38 | 274 | H |
| 2 | * 2.484 | 31.12 | PK | 32.1 | 5 | 68.22 | - | - | 74 | -5.78 | 38 | 274 | H |
| 3 | * 2.484 | 15.87 | RMS | 32.1 | 5 | 52.97 | 54 | -1.03 | - | - | 38 | 274 | H |
| 4 | * 2.484 | 16.53 | RMS | 32.1 | 5 | 53.63 | 54 | -.37 | - | - | 38 | 274 | H |

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

PK - Peak detector
RMS - RMS detection

**AUTHORIZED BANDEDGE (CHANNEL 13)**

CHANNEL 13 BANDEDGE, HORIZ




## Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T136 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.484 | 35.32 | PK | 32.1 | 5 | 72.42 | - | - | 74 | -1.58 | 34 | 339 | H |
| 2 | * 2.484 | 35.77 | PK | 32.1 | 5 | 72.87 | - | - | 74 | -1.13 | 34 | 339 | H |
| 3 | * 2.484 | 16.53 | RMS | 32.1 | 5 | 53.63 | 54 | -.37 | - | - | 34 | 339 | H |
| 4 | * 2.484 | 16.32 | RMS | 32.1 | 5 | 53.42 | 54 | -.58 | - | - | 34 | 339 | H |

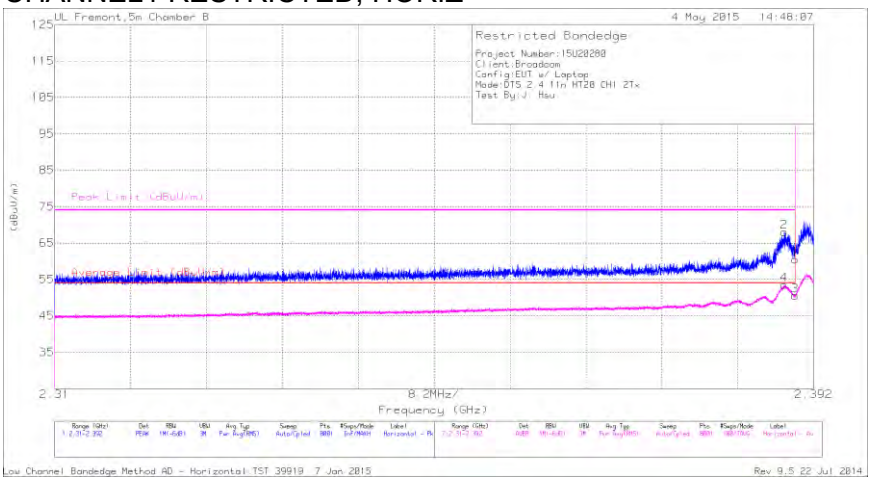
* - indicates frequency in CFR15.205/IC8.10 Restricted Band

PK - Peak detector
RMS - RMS detection

## 9.5. TX ABOVE 1 GHz 802.11n HT20 CDD 2Tx MODE IN THE 2.4 GHz BAND

**RESTRICTED BANDEDGE (CHANNEL 1)**

CHANNEL1 RESTRICTED, HORIZ



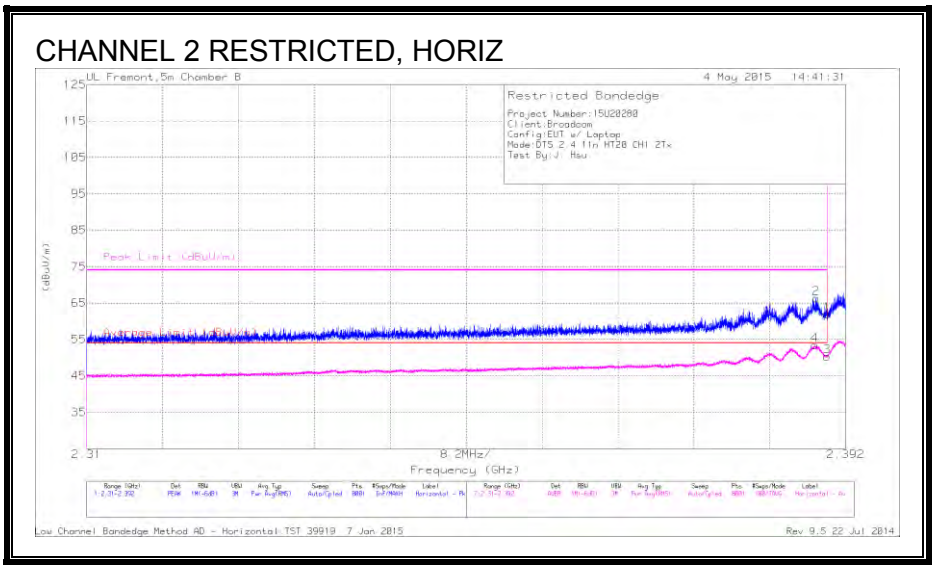

Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T345 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 2.389 | 30.6 | PK | 32 | 5.5 | 68.1 | - | - | 74 | -5.9 | 302 | 319 | H |
| 4 | 2.389 | 15.98 | RMS | 32 | 5.5 | 53.48 | 54 | -.52 | - | - | 302 | 319 | H |
| 1 | 2.39 | 23.01 | PK | 32 | 5.5 | 60.51 | - | - | 74 | -13.49 | 302 | 319 | H |
| 3 | 2.39 | 13.01 | RMS | 32 | 5.5 | 50.51 | 54 | -3.49 | - | - | 302 | 319 | H |

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

PK - Peak detector
RMS - RMS detection

**RESTRICTED BANDEDGE (CHANNEL 2)**



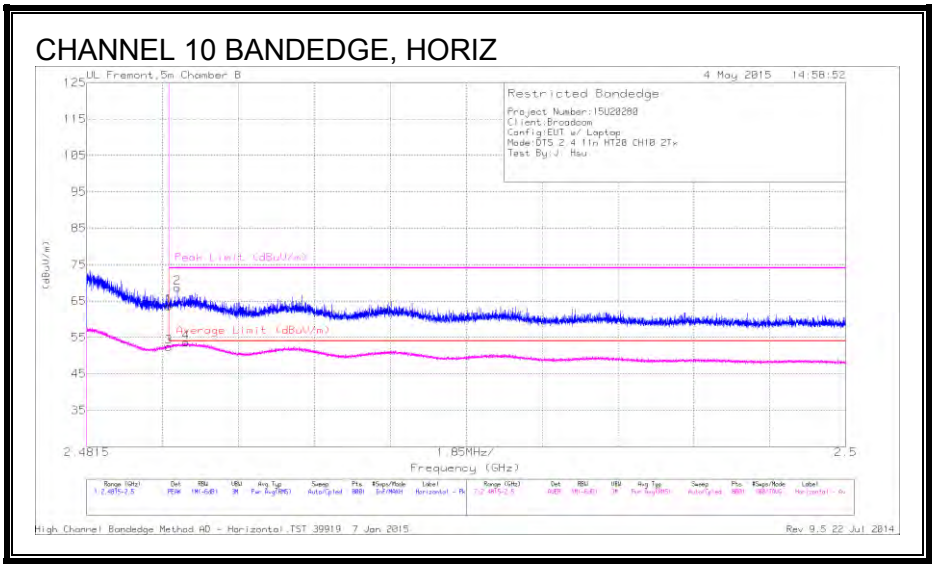

## Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T345 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 2.389 | 28.78 | PK | 32 | 5.5 | 66.28 | - | - | 74 | -7.72 | 302 | 319 | H |
| 4 | 2.389 | 15.85 | RMS | 32 | 5.5 | 53.35 | 54 | -.65 | - | - | 302 | 319 | H |
| 1 | 2.39 | 24.32 | PK | 32 | 5.5 | 61.82 | - | - | 74 | -12.18 | 302 | 319 | H |
| 3 | 2.39 | 12.75 | RMS | 32 | 5.5 | 50.25 | 54 | -3.75 | - | - | 302 | 319 | H |

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

PK - Peak detector
RMS - RMS detection

**AUTHORIZED BANDEDGE (CHANNEL 10)**



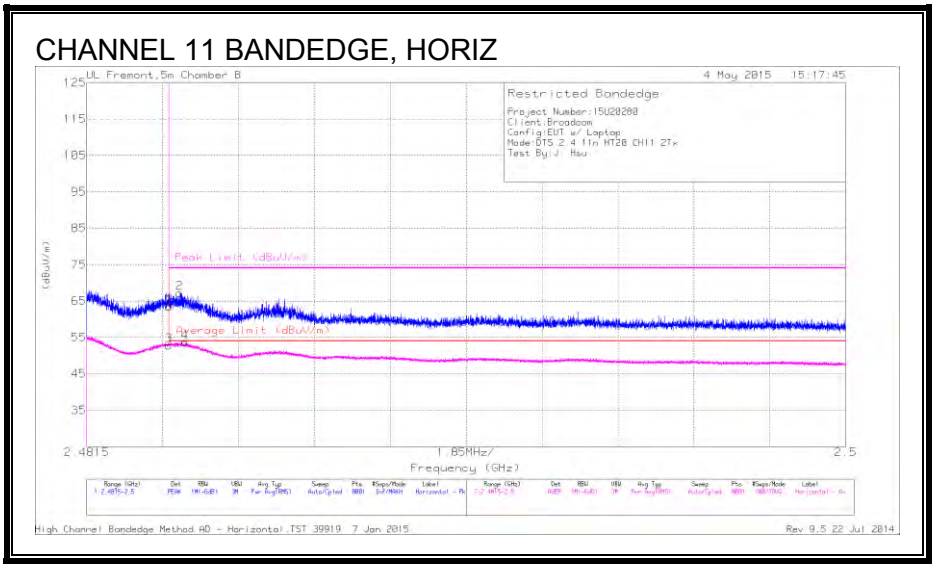

## Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T345 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.484 | 25.39 | PK | 32.5 | 5.7 | 63.59 | - | - | 74 | -10.41 | 312 | 279 | H |
| 2 | 2.484 | 30.48 | PK | 32.5 | 5.7 | 68.68 | - | - | 74 | -5.32 | 312 | 279 | H |
| 3 | 2.484 | 14.15 | RMS | 32.5 | 5.7 | 52.35 | 54 | -1.65 | - | - | 312 | 279 | H |
| 4 | 2.484 | 15.4 | RMS | 32.5 | 5.7 | 53.6 | 54 | -.4 | - | - | 312 | 279 | H |

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

PK - Peak detector
RMS - RMS detection

**AUTHORIZED BANDEDGE (CHANNEL 11)**




## Trace Markers

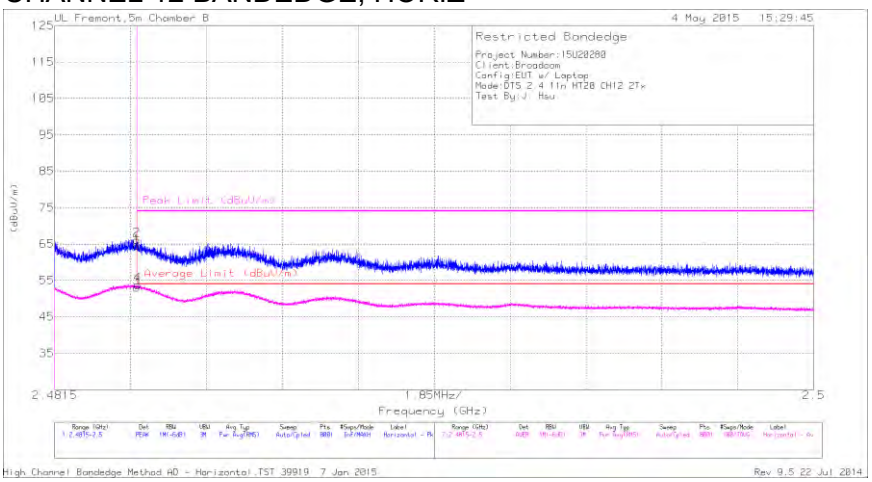
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T345 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.484 | 25.28 | PK | 32.5 | 5.7 | 63.48 | - | - | 74 | -10.52 | 303 | 353 | H |
| 2 | 2.484 | 29.03 | PK | 32.5 | 5.7 | 67.23 | - | - | 74 | -6.77 | 303 | 353 | H |
| 3 | 2.484 | 14.59 | RMS | 32.5 | 5.7 | 52.79 | 54 | -1.21 | - | - | 303 | 353 | H |
| 4 | 2.484 | 15.5 | RMS | 32.5 | 5.7 | 53.7 | 54 | -.3 | - | - | 303 | 353 | H |

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

PK - Peak detector
RMS - RMS detection

**AUTHORIZED BANDEDGE (CHANNEL 12)**

CHANNEL 12 BANDEDGE, HORIZ



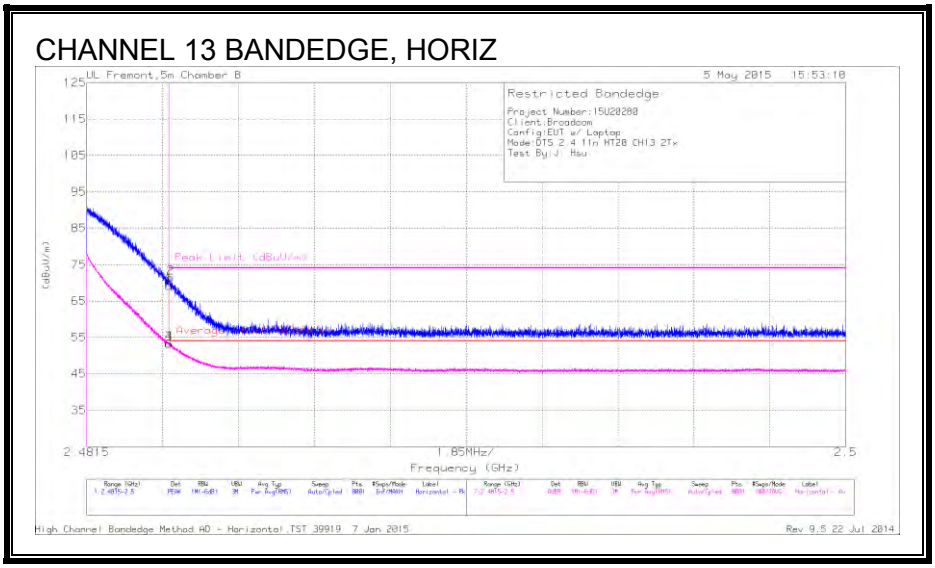

## Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T345 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.484 | 26.22 | PK | 32.5 | 5.7 | 64.42 | - | - | 74 | -9.58 | 291 | 353 | H |
| 2 | 2.484 | 27.92 | PK | 32.5 | 5.7 | 66.12 | - | - | 74 | -7.88 | 291 | 353 | H |
| 3 | 2.484 | 14.84 | RMS | 32.5 | 5.7 | 53.04 | 54 | -.96 | - | - | 291 | 353 | H |
| 4 | 2.484 | 15.52 | RMS | 32.5 | 5.7 | 53.72 | 54 | -.28 | - | - | 291 | 353 | H |

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

PK - Peak detector
RMS - RMS detection

**AUTHORIZED BANDEDGE (CHANNEL 13)**




## Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T345 (dB/m) | Bypass (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.484 | 31.03 | PK | 32.5 | 5.7 | 69.23 | - | - | 74 | -4.77 | 292 | 235 | H |
| 2 | 2.484 | 33.18 | PK | 32.5 | 5.7 | 71.38 | - | - | 74 | -2.62 | 292 | 235 | H |
| 3 | 2.484 | 15.09 | RMS | 32.5 | 5.7 | 53.29 | 54 | -.71 | - | - | 292 | 235 | H |
| 4 | 2.484 | 15.13 | RMS | 32.5 | 5.7 | 53.33 | 54 | -.67 | - | - | 292 | 235 | H |

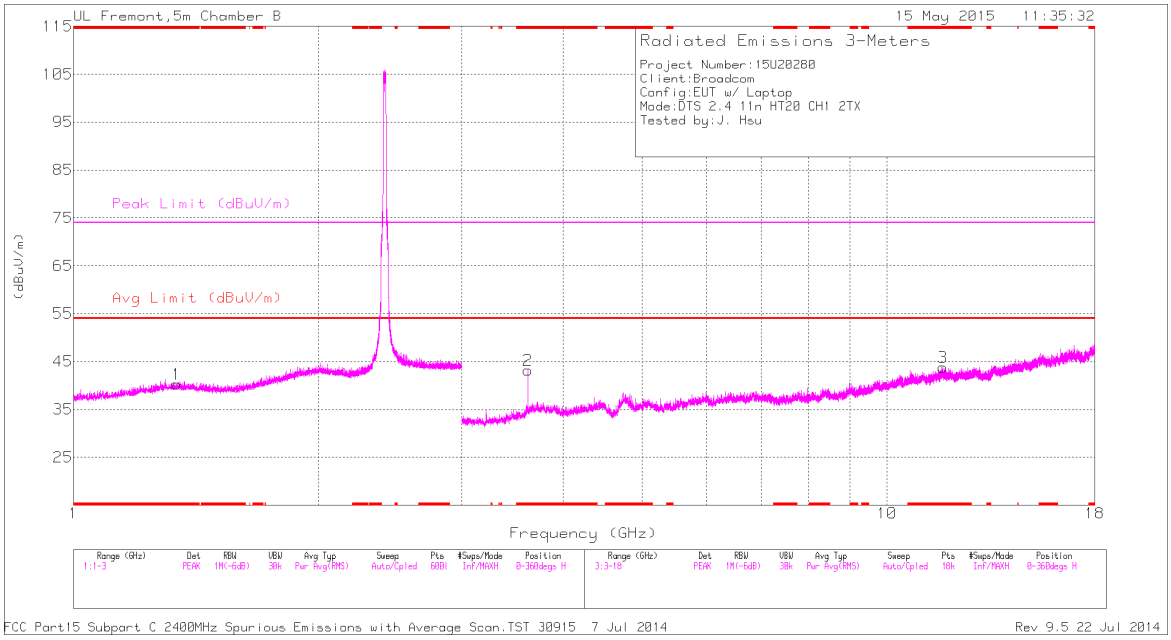
* - indicates frequency in CFR15.205/IC8.10 Restricted Band

PK - Peak detector
RMS - RMS detection

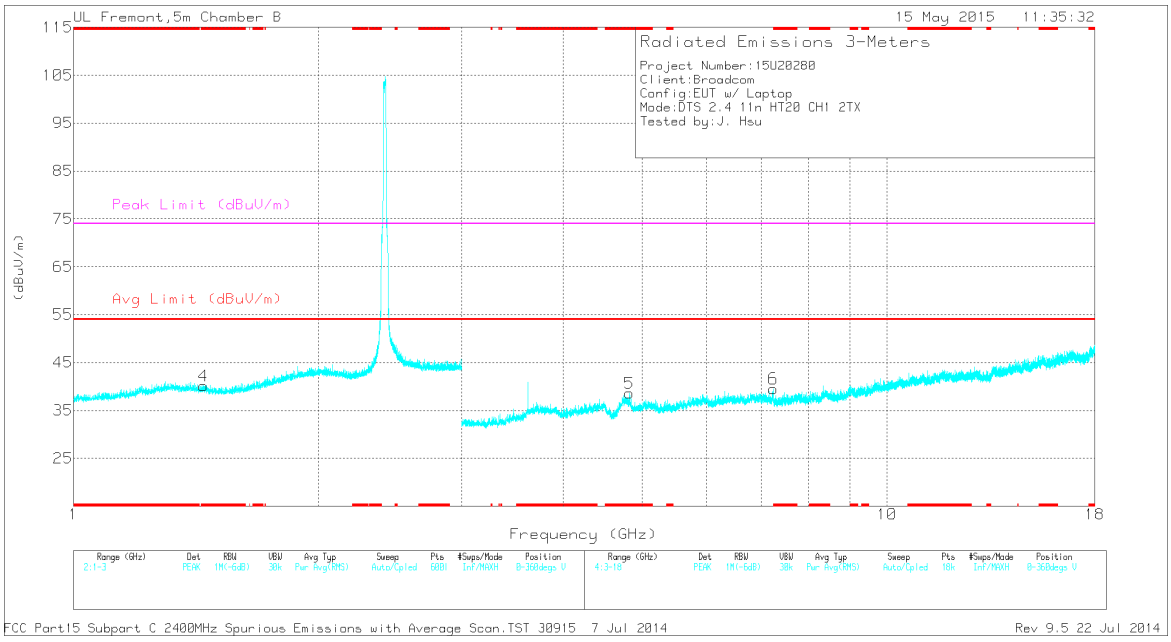
## HARMONICS AND SPURIOUS EMISSIONS

## LOW CHANNEL

HORIZONTAL




VERTICAL



## Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T345 (dB/m) | Amp/Cbl/Fltr/Pad (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 1.337 | 43.03 | PK2 | 29.4 | -24.1 | 48.33 | - | - | 74 | -25.67 | 7 | 114 | H |
| | * 1.337 | 31.78 | MAv1 | 29.4 | -24.2 | 36.98 | 54 | -17.02 | - | - | 7 | 114 | H |
| 4 | * 1.443 | 42.68 | PK2 | 29 | -24 | 47.68 | - | - | 74 | -26.32 | 10 | 123 | V |
| | * 1.443 | 31.49 | MAv1 | 29 | -24 | 36.49 | 54 | -17.51 | - | - | 10 | 123 | V |
| 2 | * 3.618 | 45.93 | PK2 | 33.8 | -30.7 | 49.03 | - | - | 74 | -24.97 | 275 | 238 | H |
| | * 3.618 | 41.63 | MAv1 | 33.8 | -30.7 | 44.73 | 54 | -9.27 | - | - | 275 | 238 | H |
| 3 | * 11.707 | 33.66 | PK2 | 38.5 | -21.7 | 50.46 | - | - | 74 | -23.54 | 273 | 250 | H |
| | * 11.71 | 23.26 | MAv1 | 38.5 | -21.8 | 39.96 | 54 | -14.04 | - | - | 273 | 250 | H |
| 5 | * 4.821 | 39.51 | PK2 | 34.3 | -29.7 | 44.11 | - | - | 74 | -29.89 | 266 | 241 | V |
| | * 4.823 | 28.94 | MAv1 | 34.3 | -29.7 | 33.54 | 54 | -20.46 | - | - | 266 | 241 | V |
| 6 | 7.241 | 38.4 | PK2 | 35.3 | -27.8 | 45.9 | - | - | - | - | 268 | 271 | V |

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

-Compliance for emissions in non-restricted bands shown in conducted out of band testing

PK - Peak detector
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average