



**FCC 47 CFR PART 15 SUBPART E
ISED CANADA RSS-247 ISSUE 2**

CLASS 2 PERMISSIVE CHANGE REPORT

FOR

WIRELESS ACCESS POINT

MODEL NUMBER: E71-308-01

**FCC ID: 2AL4H-E7130801
IC: 22737-E7130801**

REPORT NUMBER: R11669553-E3

ISSUE DATE: 2017-09-05

**Prepared for
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NVLAP LAB CODE 200246-0

Revision History

| Ver. | Issue Date | Revisions | Revised By |
|------|---------------------------|--|--------------|
| 1 | 2017-09-05 | Initial Issue | Brian Kiewra |
| 2 | 2017-11-08 and 2017-11-15 | Corrected reported maximum output power in Section 6.2. Added MIMO KDB and corrected straddle channel references in Section 8. Relabeled Sections 10.1 through 10.4 for clarity. Added simultaneous transmission evaluation statement in Section 5.5. | Brian Kiewra |
| 3 | 2017-11-30 and 2017-12-04 | Corrected array gain for power measurements in Sections 10.2.1, 10.2.2, 10.4.1, and 10.4.2. Added 802.11nHT40 Power and PSD measurement Sections 10.3 and 10.6. | Brian Kiewra |

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1. DATA REUSE

1.1. INTRODUCTION

The 15.407 antenna port test results for E71-308-01 are represented by Aruba APIN0324 and APIN0325 report ARUB198-U3a (FCC ID: Q9DAPIN0324325, IC: 4675A-APIN0324325). This report for FCC ID: Q9DAPIN0324325, IC: 4675A-APIN0324325 contains conducted power measurements and full Radiated Emissions measurements.

Telefonix takes full responsibility that the data as referenced in report ARUB198-U3a (FCC ID: Q9DAPIN0324325, IC: 4675A-APIN0324325) represent compliance for this FCC ID.

1.2. DIFFERENCES

Telefonix device E71-308-01 and Aruba device APIN0324/APIN0325 have identical RF circuit boards and antennas; just the enclosures are different. Therefore, APIN0324/APIN0325 antenna port test results are used in this report to represent how E71-308-01 operates from a conducted perspective. The exception to this is the conducted power and PSD measurements made on E71-308-01. Conducted power measurements were made on E71-308-01 to ensure that the output power is aligned between the E71-308-01 and APIN0324 and APIN0325 EUT's. Power was required to be lowered for 802.11a mode for compliancy. **Note:** Performed radiated spurious emissions spot checks on modes that did not require power to be lowered.

1.3. TESTING PERFORMED

Testing performed under this report (R11669553-E1) are Conducted Output power, PSD, and Radiated Emissions. All other data is referenced to report ARUB198-U3a (FCC ID: Q9DAPIN0324325, IC: 4675A-APIN0324325)

1.4. REFERENCE DETAIL SECTION

| Equipment Class | Reference FCC ID | Type Grant | Grant Date | Report Number |
|-----------------|--|------------|------------|---------------|
| WLAN | FCC ID: Q9DAPIN0324325, IC: 4675A-APIN0324325 | New | 2015-07-21 | ARUB198-U3a |

2. ATTESTATION OF TEST RESULTS

COMPANY NAME: Telefonix, Inc.
2340 Ernie Krueger Circle
Waukegan, IL 60097-3442 USA

EUT DESCRIPTION: Wireless Access Point

MODEL: E71-308-01

SERIAL NUMBER: 0000000068

DATE TESTED: 2017-06-09 to 2017-06-26

| APPLICABLE STANDARDS | |
|---------------------------------|--------------|
| STANDARD | TEST RESULTS |
| CFR 47 Part 15 Subpart E | Pass |
| INDUSTRY CANADA RSS-247 Issue 1 | Pass |
| INDUSTRY CANADA RSS-GEN Issue 4 | Pass |

UL LLC 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 LLC 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.

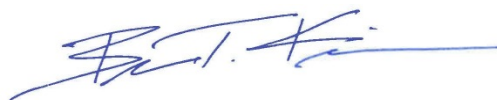
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC 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, or any agency of the U.S. Government.

Approved & Released
For UL LLC By:



Jeffrey Moser
Operations Leader
UL – Consumer Technology Division

Prepared By:



Brian T. Kiewra
Project Engineer
UL – Consumer Technology Division

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, RSS-GEN Issue 4 and RSS-247 Issue 2.

4. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 12 Laboratory Dr., Research Triangle Park, NC 27709, USA.

| |
|------------------------------------|
| 12 Laboratory Dr., RTP, NC 27709 |
| <input type="checkbox"/> Chamber A |
| <input type="checkbox"/> Chamber C |

| |
|---|
| 2800 Suite B Perimeter Park Dr., Morrisville, NC 27560 |
| <input type="checkbox"/> Chamber NORTH |
| <input checked="" type="checkbox"/> Chamber SOUTH |

The onsite chambers are covered under Industry Canada company address code 2180C with site numbers 2180C -1 through 2180C-4, respectively.

UL LLC (RTP) is accredited by NVLAP, Laboratory Code 200246-0. The full scope of accreditation can be viewed at <http://www.nist.gov/nvlap/>.

5. CALIBRATION AND UNCERTAINTY

5.1. 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.

5.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

5.3. MEASUREMENT UNCERTAINTY

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

| PARAMETER | UNCERTAINTY | Required by standard |
|-----------------------------------|-------------|----------------------|
| Occupied Channel Bandwidth | 2.00% | ±5 % |
| RF output power, conducted | 1.3 dB | ±1,5 dB |
| Power Spectral Density, conducted | 2.47 dB | ±3 dB |
| Unwanted Emissions, conducted | 2.94 dB | ±3 dB |
| All emissions, radiated | 5.36 dB | ±6 dB |
| Temperature | 2.26 °C | ±3 °C |
| Supply voltages | 2.40% | ±3 % |
| Time | 3.39% | ±5 % |

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

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The EUT is an 802.11a/b/g/n/ac transceiver. EUT is strictly non TxBF in 802.11a/b/g modes and strictly TxBF in 802.11n/ac modes.

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

| Frequency Range (MHz) | Mode | Output Power (dBm) | Output Power (mW) |
|-----------------------|----------------------------|--------------------|-------------------|
| 5260-5320 | 802.11a | 14.39 | 27.48 |
| 5260-5320 | 802.11n HT20 | 11.28 | 13.43 |
| 5270-5310 | 802.11n HT40 ¹ | 21.98 | 157.76 |
| 5290 | 802.11ac HT80 ¹ | 22.13 | 163.31 |
| 5500-5720 | 802.11a | 14.98 | 31.48 |
| 5500-5720 | 802.11n HT20 | 11.74 | 14.93 |
| 5510-5710 | 802.11n HT40 ¹ | 21.9 | 154.88 |
| 5530-5690 | 802.11ac HT80 ¹ | 22.22 | 166.72 |

Note 1: Original power from report numbers ARUB198-U3a of MICOM Labs.

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes 4 omnidirectional antennas, with a maximum gain of 5.5 dBi.

6.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was ipq806xqdart_csu3_evm_dpd_fixes_bdf v6.4.4.4-4.2.3.2_54910.

The test utility software used during testing was QSPR, ver. 5.0.0.

6.5. WORST-CASE CONFIGURATION AND MODE

Spot checks were tested 1-18GHz for modes where power was not required to be lowered. For modes requiring lowered powered full power, PSD, and radiated testing was performed. Worst-case was tested 1-18GHz, below 1GHz, and above 18GHz. Worst-case radiated emissions were performed with the EUT set to transmit at the channel with the highest output power as worst-case scenario.

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

| Band | Mode | Orientation |
|------|------|-------------|
| 5.3 | 11a | Z |
| 5.3 | 11n | X |
| 5.6 | 11a | X |
| 5.6 | 11n | Z |

Based on the baseline scan, the worst-case data rates were:

802.11a mode: 6 Mbps
802.11n HT20mode: MCS0
802.11n HT40mode: MCS0
802.11ac HT80mode: MCS0

For simultaneous transmission of channels in the 2.4GHz WLAN and 5GHz bands, a radiated scan was conducted. No noticeable new emissions were found.

6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

| Support Equipment List | | | | |
|------------------------|--------------|-------------|------------------------|--------|
| Description | Manufacturer | Model | Serial Number | FCC ID |
| Laptop | Lenovo | T450s | PC-0A2UQS 16/01 | NA |
| Power Supply | Lenovo | ADLX65NLC2A | 11S45N0259Z1ZS97597WTW | NA |

I/O CABLES

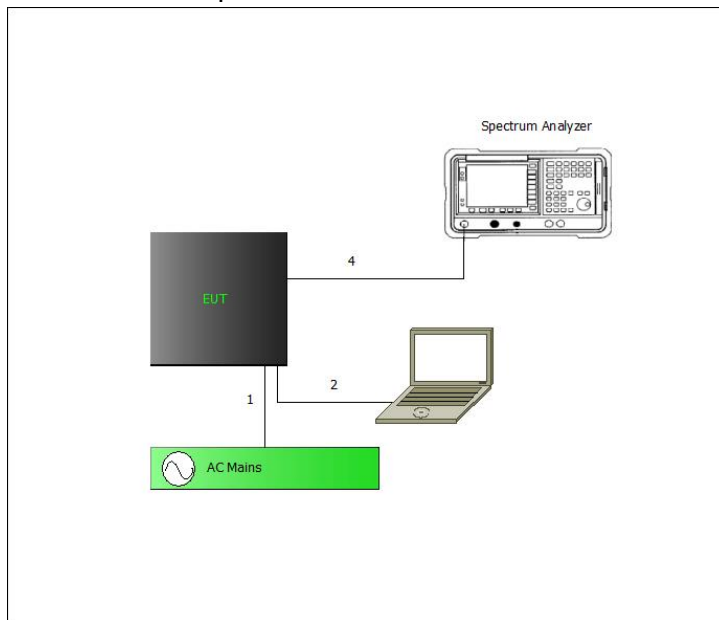
| I/O Cable List | | | | | | |
|----------------|-----------|----------------------|----------------|-------------|------------------|-------------------------------|
| Cable No. | Port | # of Identical Ports | Connector Type | Cable Type | Cable Length (m) | Remarks |
| 1 | DMC-MD20A | 3 | Banana | 3 conductor | >3m | AC Mains |
| 2 | DMC-MD20A | 3 | RJ45 | ENET | >3m | Used to configure EUT |
| 3 | DMC-MD20A | 3 | D-Sub | Stranded | >3m | Terminated w/ D-Sub Connector |
| 4 | Antenna | 3 | SMA | RF | <3m | None |

TEST SETUP

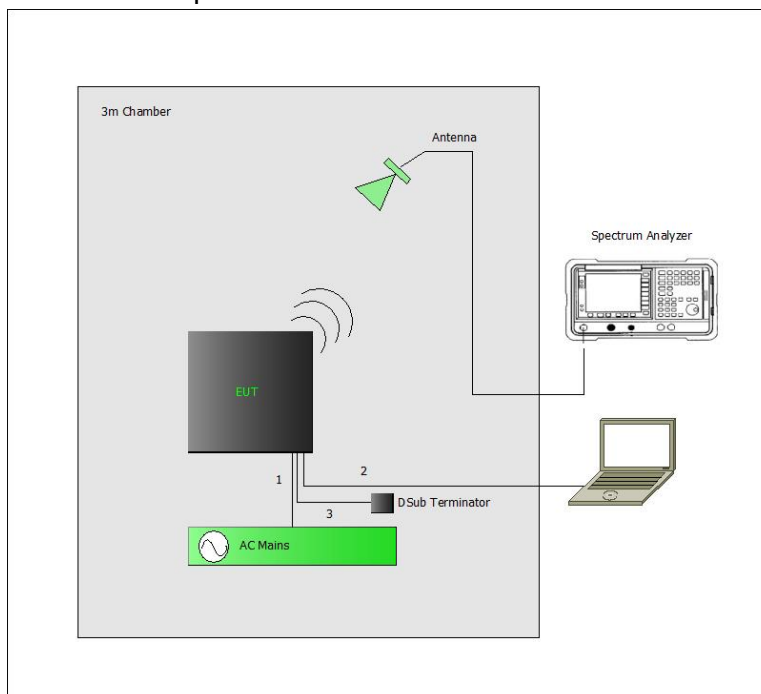
The EUT is installed as a standalone device.

SETUP DIAGRAM FOR TESTS

Conducted Setup



Radiated Setup



7. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville - South Chamber)

| Equip. ID | Description | Manufacturer | Model Number | Last Cal. | Next Cal. |
|-----------------------|---|----------------------|--------------|------------|------------|
| | 30-1000 MHz | | | | |
| AT0074 | Hybrid Broadband Antenna | Sunol Sciences Corp. | JB3 | 2016-06-07 | 2017-06-30 |
| | 1-18 GHz | | | | |
| AT0069 | Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz | ETS Lindgren | 3117 | 2017-04-05 | 2018-04-05 |
| | 18-40 GHz | | | | |
| AT0076 | Horn Antenna, 18-26.5GHz | ARA | MWH-1826/B | 2016-09-06 | 2017-09-06 |
| AT0077 | Horn Antenna, 26-40GHz | ARA | MWH-2640/B | 2016-09-06 | 2017-09-06 |
| | Gain-Loss Chains | | | | |
| S-SAC02 | Gain-loss string: 30-1000MHz | Various | Various | 2016-06-26 | 2017-06-30 |
| S-SAC03 | Gain-loss string: 1-18GHz | Various | Various | 2016-08-28 | 2017-08-28 |
| S-SAC04 | Gain-loss string: 18-40GHz | Various | Various | 2017-03-03 | 2018-03-03 |
| | Receiver & Software | | | | |
| SA0025 | Spectrum Analyzer | Agilent | N9030A | 2017-04-10 | 2018-04-10 |
| SA0026 (18-40GHz RSE) | Spectrum Analyzer | Agilent | N9030A | 2017-02-17 | 2018-02-28 |
| SOFTEMI | EMI Software | UL | Version 9.5 | NA | NA |
| | Additional Equipment used | | | | |
| s/n 161024887 | Environmental Meter | Fisher Scientific | 15-077-963 | 2016-12-23 | 2018-12-23 |

Test Equipment Used - Wireless Conducted Measurement Equipment

| Equipment ID | Description | Manufacturer | Model Number | Last Cal. | Next Cal. |
|--------------|--|-----------------------|--------------|------------|------------|
| | Conducted Room 1 | | | | |
| SA0020 | Spectrum Analyzer | Agilent Technologies | E4446A | 2017-04-25 | 2018-04-25 |
| PWM005 | RF Power Meter | Keysight Technologies | N1911A | 2017-05-18 | 2018-05-18 |
| PWS005 | Peak and Avg Power Sensor, 50MHz to 6GHz | Keysight Technologies | E9323A | 2017-05-18 | 2018-05-18 |
| SN 161024885 | Environmental Meter | Fisher Scientific | 15-077-963 | 2016-12-23 | 2018-12-23 |

8. MEASUREMENT METHODS

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

Power Spectral Density: KDB 789033 D02 v01r04, Section F.

Unwanted emissions in restricted bands: KDB 789033 D02 v01r04, Section G.1, G.3, G.4, G.5, G.6

Unwanted emissions in non-restricted bands: KDB 789033 D02 v01r04, Section G.2, G.3, G.4, G.5, G.6

Use of IEEE 802.11 channels that straddle the UNII-2C and UNII-3 bands at 5725 MHz: KDB 789033 D02 v01r04, Section III

MIMO KDB 662911

9. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

9.1. ON TIME AND DUTY CYCLE RESULTS

| Mode | ON Time B (msec) | Period (msec) | Duty Cycle x (linear) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | 1/B Minimum VBW (kHz) |
|--------------------|------------------------|------------------|-----------------------------|----------------------|---|-----------------------------|
| 5.3Band | | | | | | |
| 802.11a CDD | 2.030 | 2.095 | 0.969 | 96.90% | 0.14 | 0.493 |
| 802.11n HT20 CDD | 4.960 | 5.030 | 0.986 | 98.61% | 0.00 | 0.010 |
| 802.11n HT40 CDD | 2.4020 | 2.4740 | 0.971 | 97.09% | 0.13 | 0.416 |
| 802.11ac VHT80 CDD | 1.1340 | 1.2040 | 0.942 | 94.19% | 0.26 | 0.882 |
| 5.6Band | | | | | | |
| 802.11a CDD | 2.030 | 2.095 | 0.969 | 96.90% | 0.14 | 0.493 |
| 802.11n HT20 CDD | 4.960 | 5.030 | 0.986 | 98.61% | 0.00 | 0.010 |
| 802.11n HT40 CDD | 2.402 | 2.479 | 0.969 | 96.89% | 0.14 | 0.416 |
| 802.11ac VHT80 CDD | 1.1310 | 1.2010 | 0.942 | 94.17% | 0.26 | 0.884 |

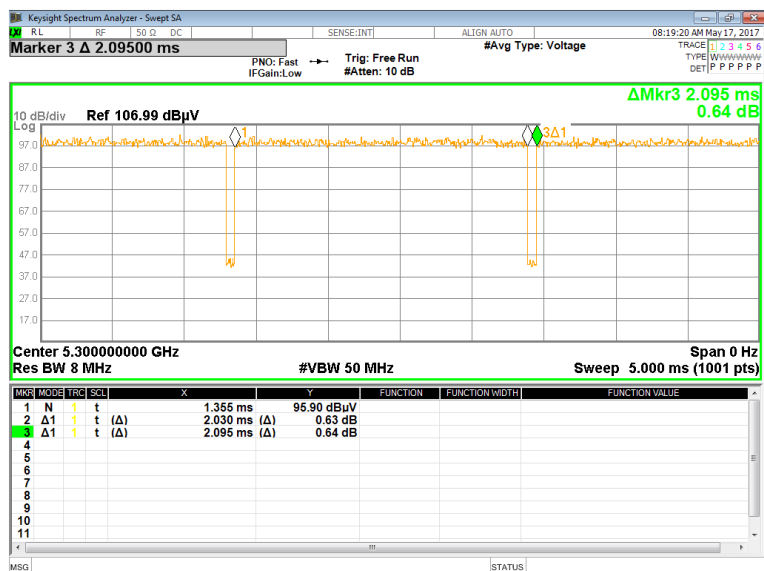
Test Information

Date: 2017-05-16

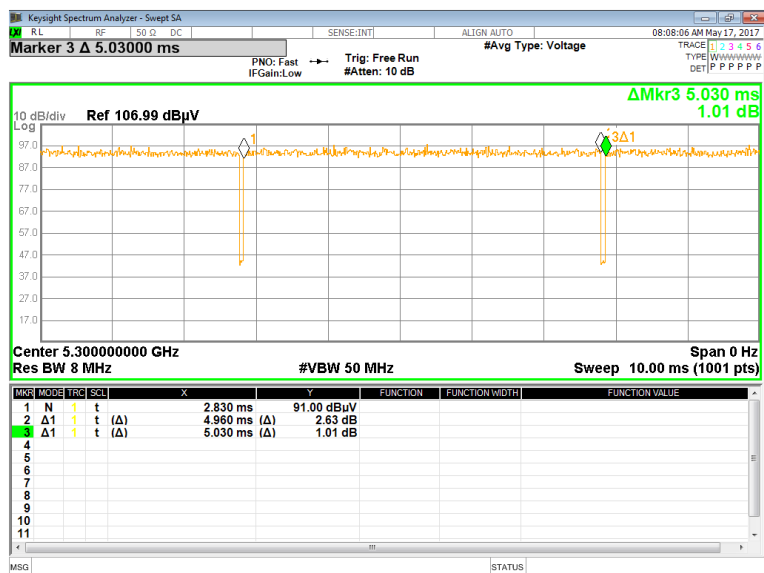
Tester: John Manser

5.3 Band

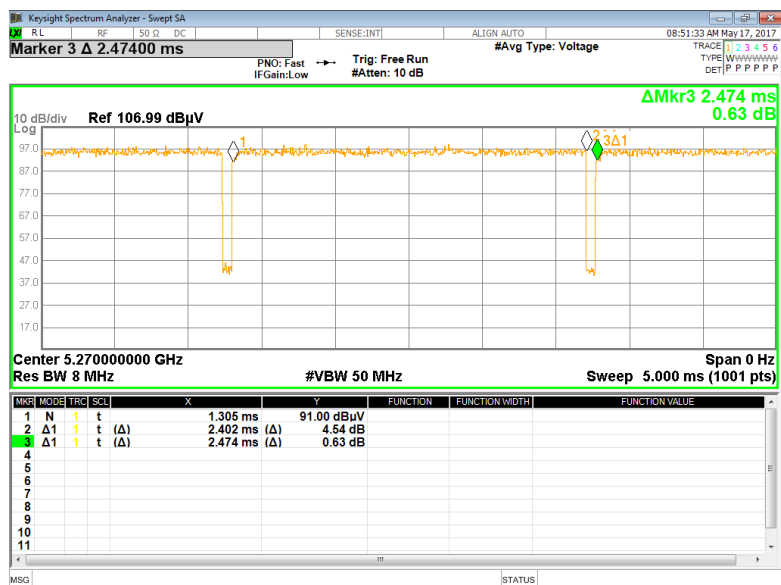
DUTY CYCLE 802.11a MODE



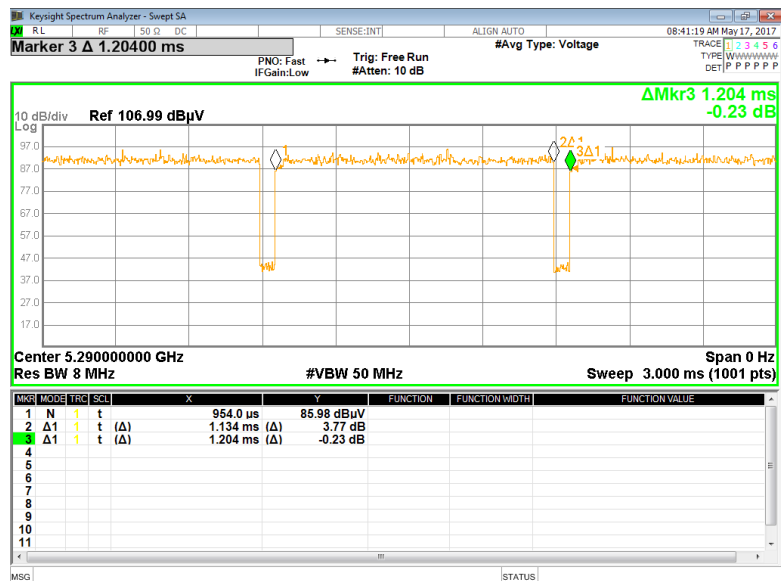
DUTY CYCLE 802.11n HT20 MODE



DUTY CYCLE 802.11n HT40 MODE

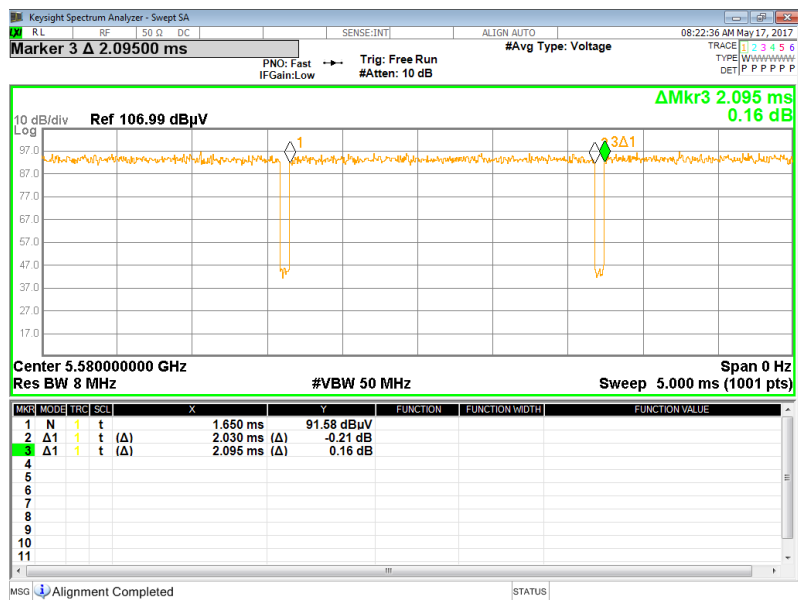


DUTY CYCLE 802.11ac VHT80 MODE

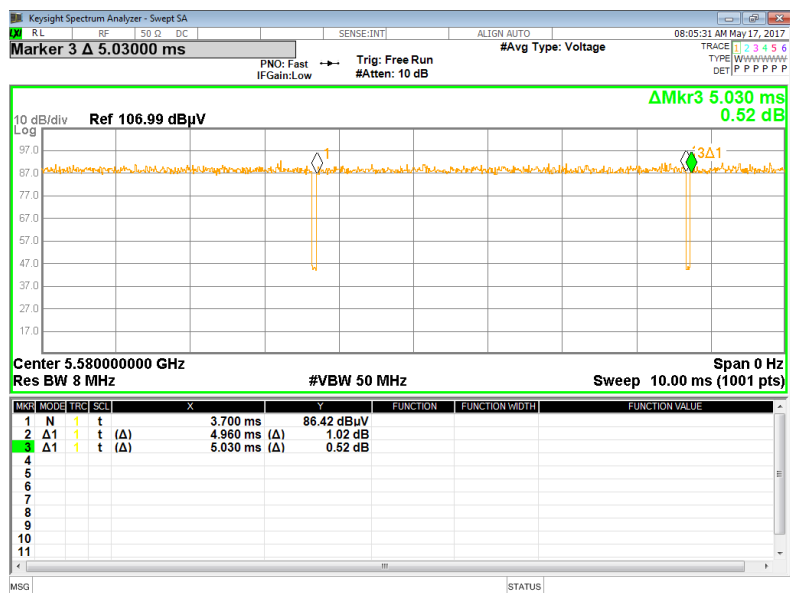


5.6 Band

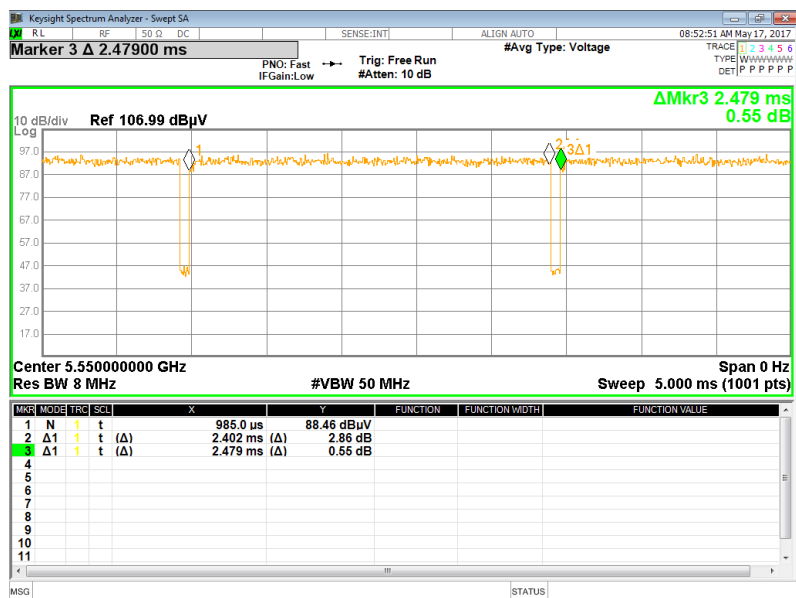
DUTY CYCLE 802.11a MODE



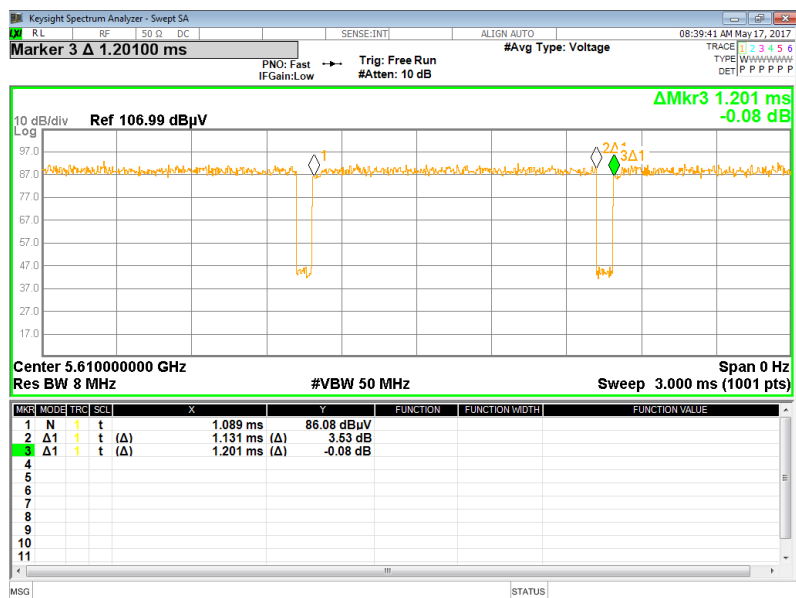
DUTY CYCLE 802.11n HT20 MODE



DUTY CYCLE 802.11n HT40 MODE



DUTY CYCLE 802.11ac VHT80 MODE



10. ANTENNA PORT TEST RESULTS

10.1. 802.11a MODE IN THE 5.3 GHz BAND

10.1.1. FCC OUTPUT POWER AND PSD LIMITS

FCC §15.407 (a) (2)

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

DIRECTIONAL ANTENNA GAIN

This EUT mode is 802.11a. No beamforming but cyclic delay diversity operation is assumed for this mode. However, acc. to KDB 66911, with $N_{ant} \leq 4$ the array gain is zero. Total directional gain is equal to single antenna gain.

Output Power

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Chain 2 Antenna Gain (dBi) | Chain 3 Antenna Gain (dBi) | Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|------------------------------|
| 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |

PSD

| Antenna Gain (dBi) | 10 * Log (4 chains) (dB) | Correlated Chains Directional Gain (dBi) |
|--------------------------|-----------------------------|--|
| 5.50 | 6.02 | 11.52 |

RESULTS

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PSD (dBi) | Power Limit (dBm) | PSD Limit (dBm) |
|---------|--------------------|-----------------------------|---|---|-------------------------|-----------------------|
| Low | 5260 | 18.42 | 5.50 | 11.52 | 23.65 | 5.48 |
| Mid | 5300 | 18.75 | 5.50 | 11.52 | 23.73 | 5.48 |
| High | 5320 | 18.67 | 5.50 | 11.52 | 23.71 | 5.48 |

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

Output Power Results

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low | 5260 | 8.38 | 8.23 | 8.13 | 8.18 | 14.39 | 23.65 | -9.26 |
| Mid | 5300 | 8.20 | 8.36 | 8.28 | 7.79 | 14.32 | 23.73 | -9.41 |
| High | 5320 | 8.33 | 8.42 | 8.34 | 7.73 | 14.37 | 23.71 | -9.34 |

PSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PSD (dBm) | Chain 1 Meas PSD (dBm) | Chain 2 Meas PSD (dBm) | Chain 3 Meas PSD (dBm) | Total Corr'd PSD (dBm) | PSD Limit (dBm) | PSD Margin (dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low | 5260 | -2.55 | -1.32 | -1.96 | -2.08 | 4.21 | 5.48 | -1.27 |
| Mid | 5300 | -2.79 | -1.67 | -1.61 | -2.30 | 4.10 | 5.48 | -1.38 |
| High | 5320 | -2.86 | -1.48 | -1.57 | -2.86 | 4.02 | 5.48 | -1.46 |

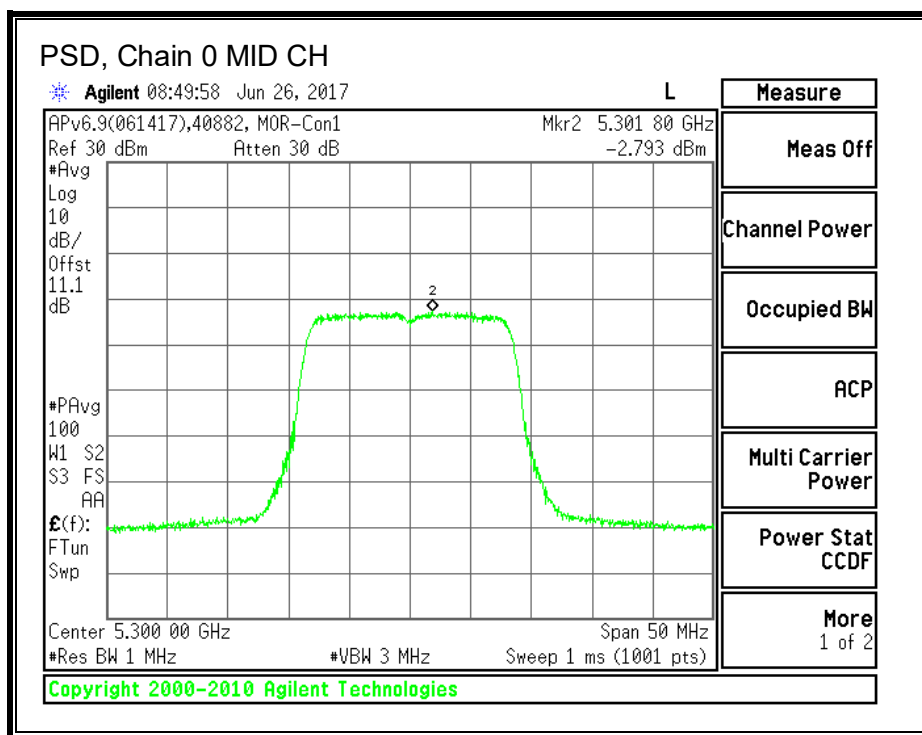
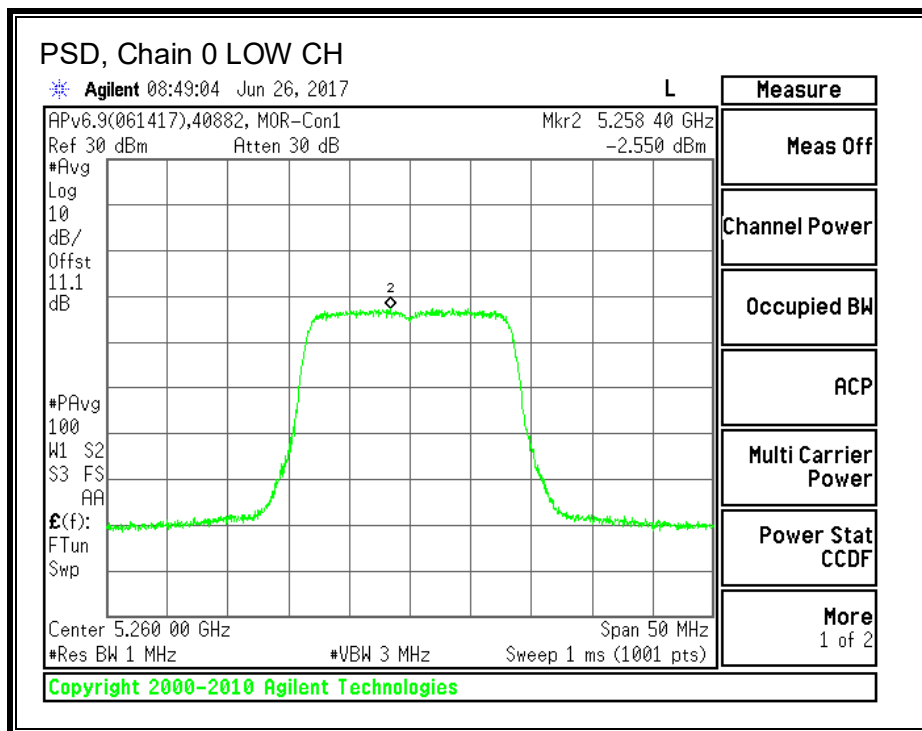
Power was lowered from original Aruba grant for Bandedge compliancy.

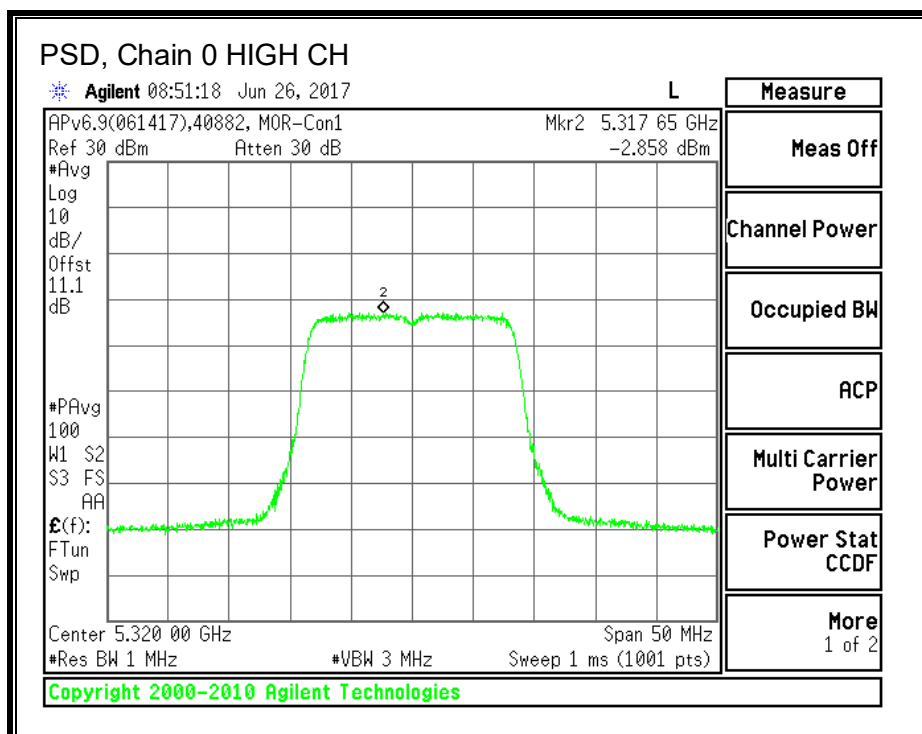
TEST INFORMATION

Date: 2017-06-09 and 2017-06-26

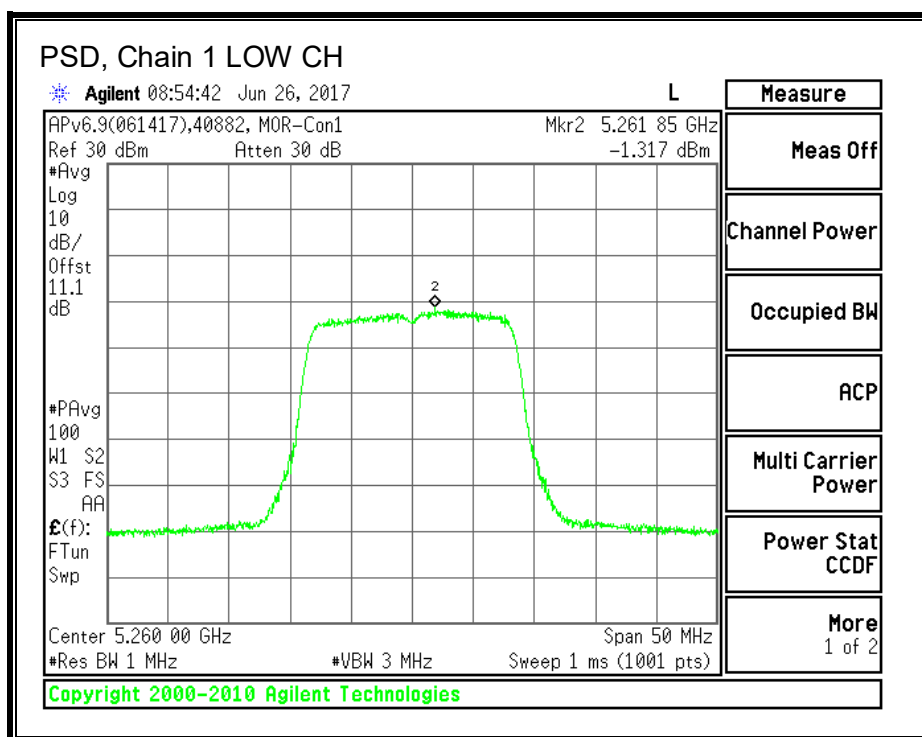
Tester: John Manser and Jeffrey Cabrera

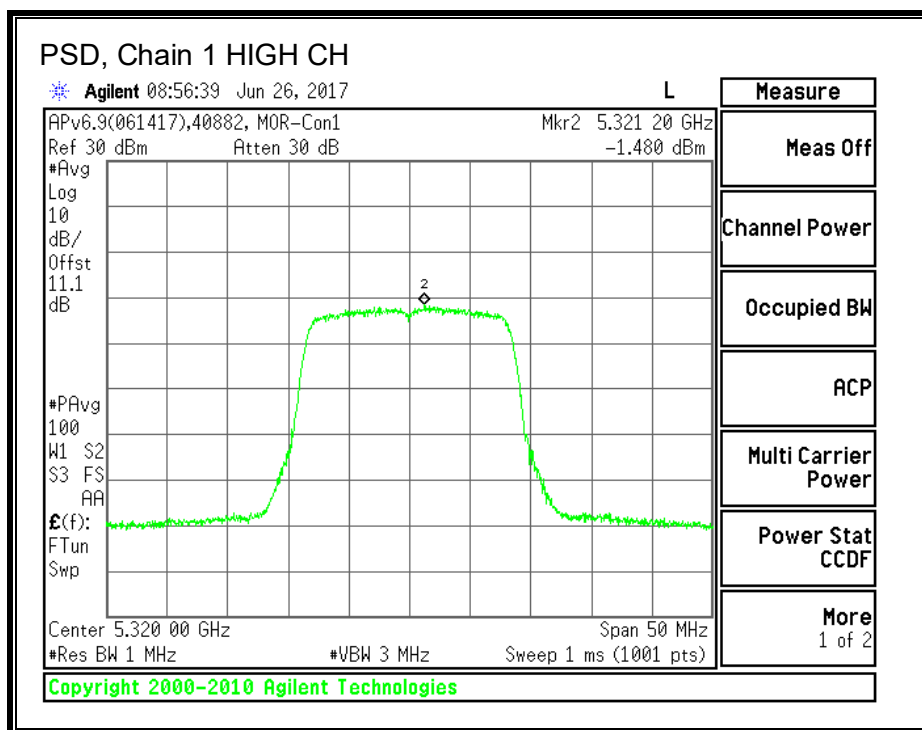
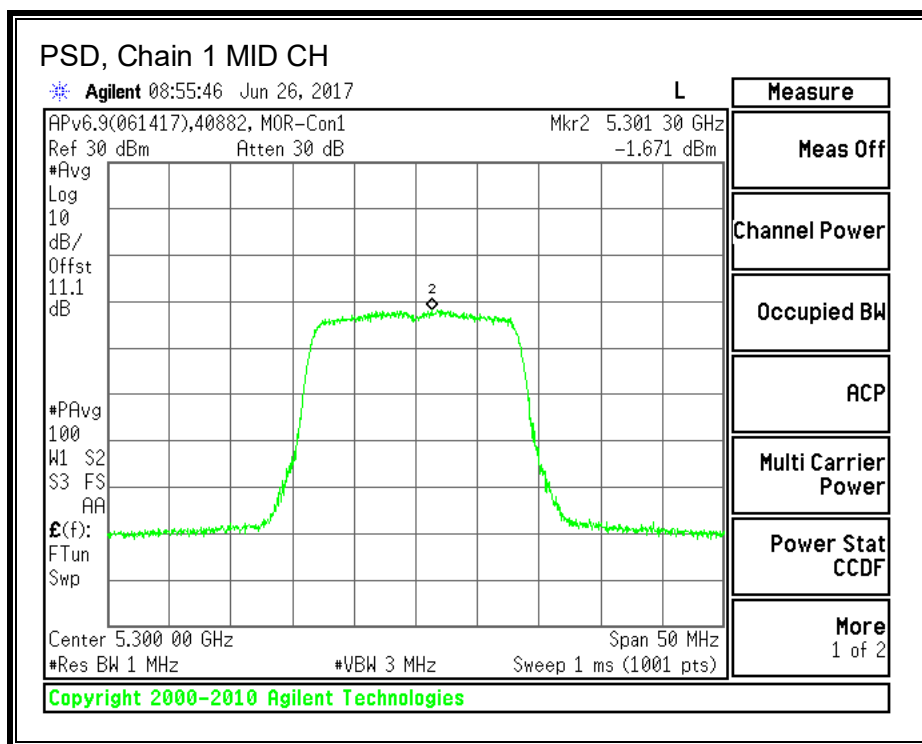
PSD, Chain 0



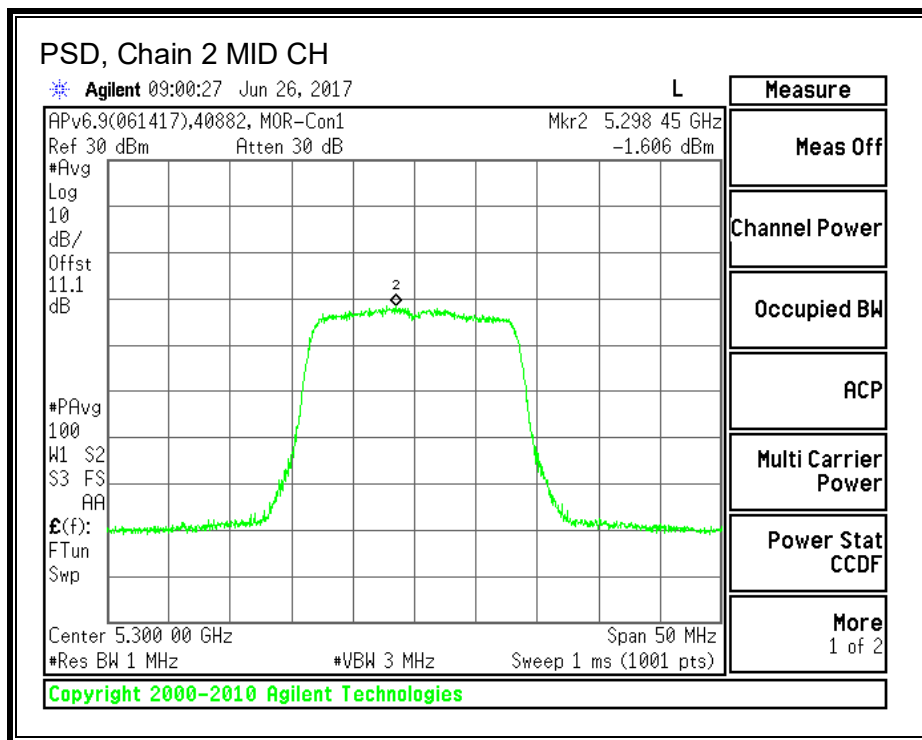
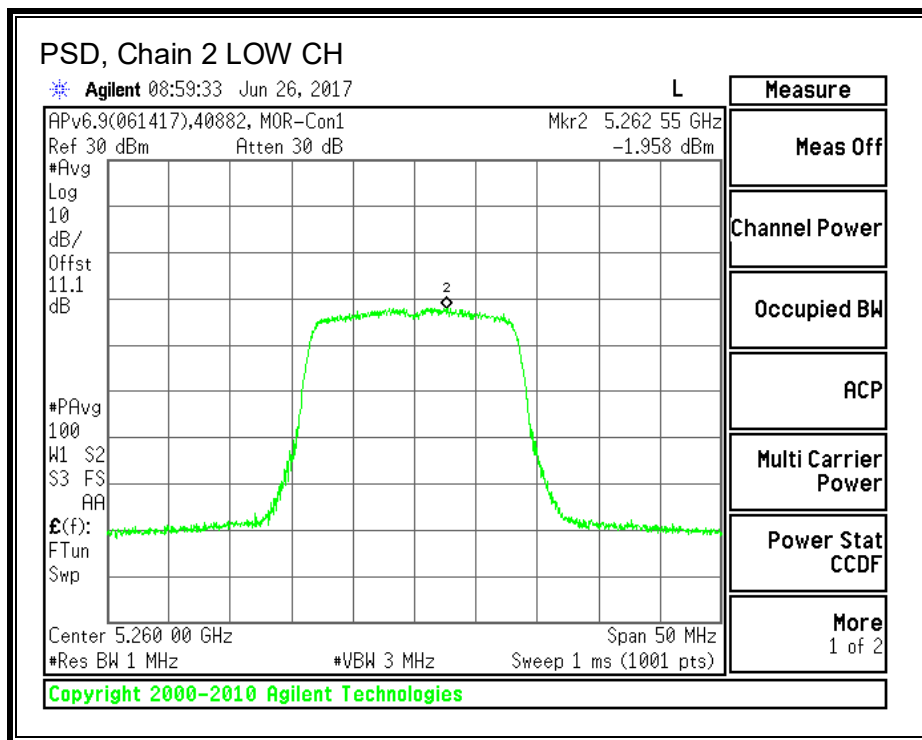


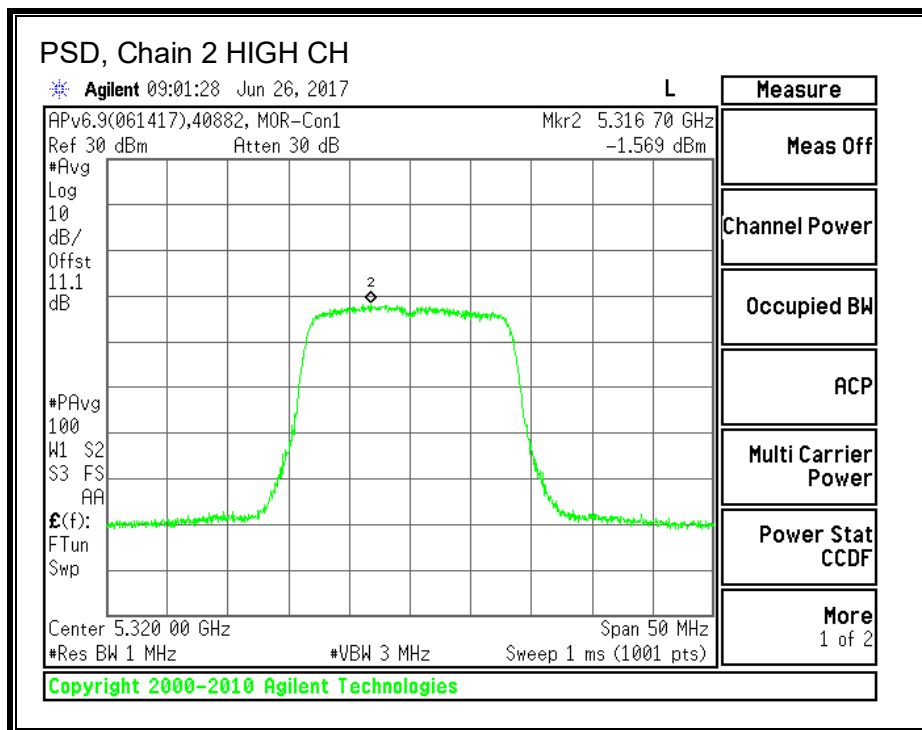
PSD, Chain 1



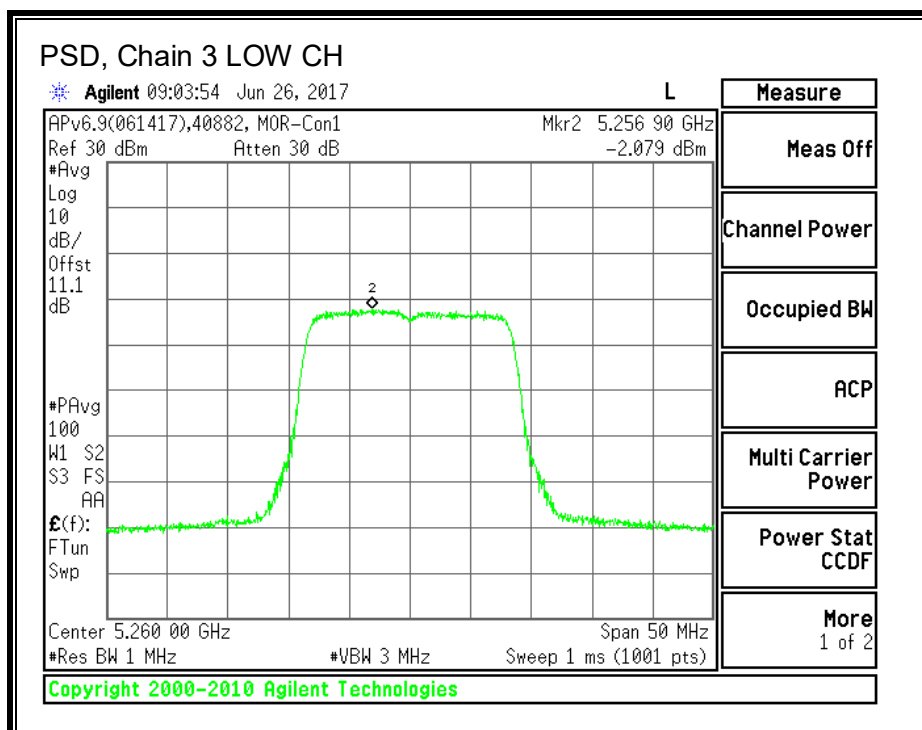


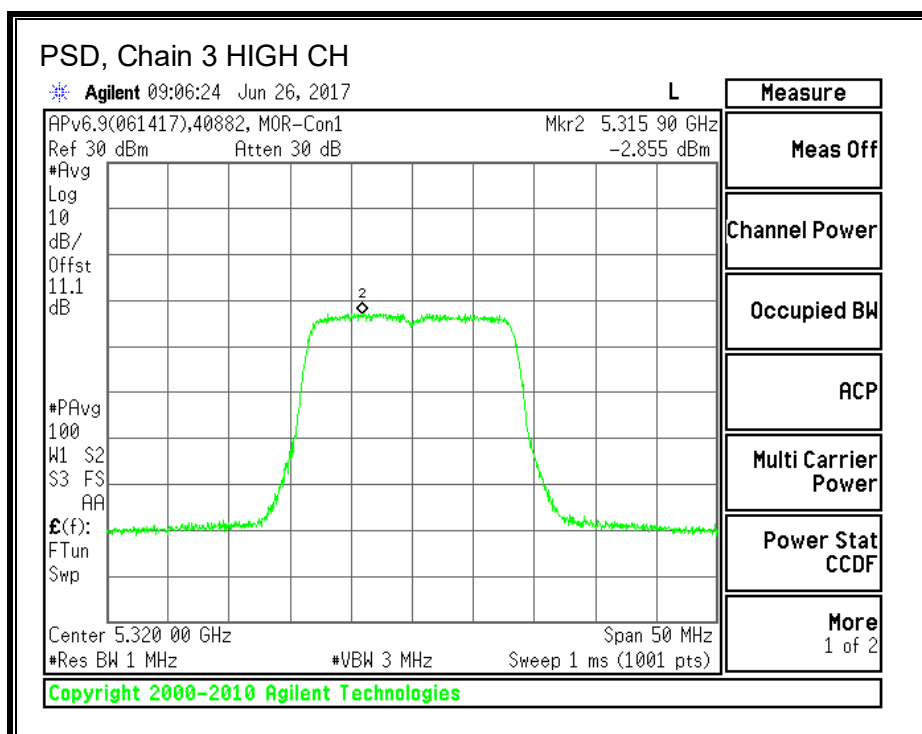
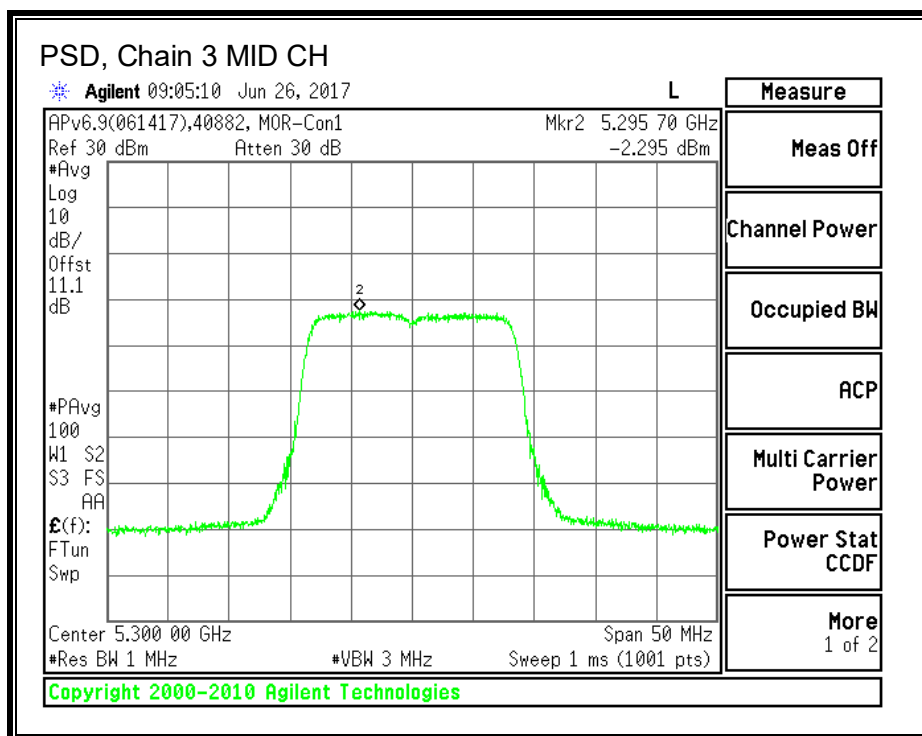
PSD, Chain 2





PSD, Chain 3





10.1.2. IC OUTPUT POWER AND PSD

LIMITS

IC RSS-247 (6.2.2 [1])

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10} B$, dBm, whichever power is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

DIRECTIONAL ANTENNA GAIN

This EUT mode is 802.11a. No beamforming but cyclic delay diversity operation is assumed for this mode. However, acc. to KDB 66911, with $N_{ant} \leq 4$ the array gain is zero. Total directional gain is equal to single antenna gain.

Output Power

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Chain 2 Antenna Gain (dBi) | Chain 3 Antenna Gain (dBi) | Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|------------------------------|
| 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |

PSD

| Antenna Gain (dBi) | 10 * Log (4 chains) (dB) | Correlated Chains Directional Gain (dBi) |
|--------------------------|-----------------------------|--|
| 5.50 | 6.02 | 11.52 |

TEST INFORMATION

Date: 2017-06-09 and 2017-06-26

Tester: John Manser and Jeffrey Cabrera

Note - Power was lowered from original Aruba grant for Bandedge compliancy.

RESULTS

Bandwidth and Antenna Gain

| Channel | Freq. (MHz) | Min 99% BW (MHz) | Direct. Gain for Power (dBi) | Direct. Gain for PPSD (dBi) |
|---------|----------------|---------------------------|--|---|
| Low | 5260 | 16.2430 | 5.50 | 11.52 |
| Mid | 5300 | 16.3350 | 5.50 | 11.52 |
| High | 5320 | 16.3360 | 5.50 | 11.52 |

Limits

| Channel | Freq. (MHz) | IC EIRP Limit (dBm) | IC PSD Limit (dBm) | IC Output Power Limit (dBm) |
|---------|----------------|------------------------------|-----------------------------|---|
| Low | 5260 | 29.11 | 11.00 | 23.11 |
| Mid | 5300 | 29.13 | 11.00 | 23.13 |
| High | 5320 | 29.13 | 11.00 | 23.13 |

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

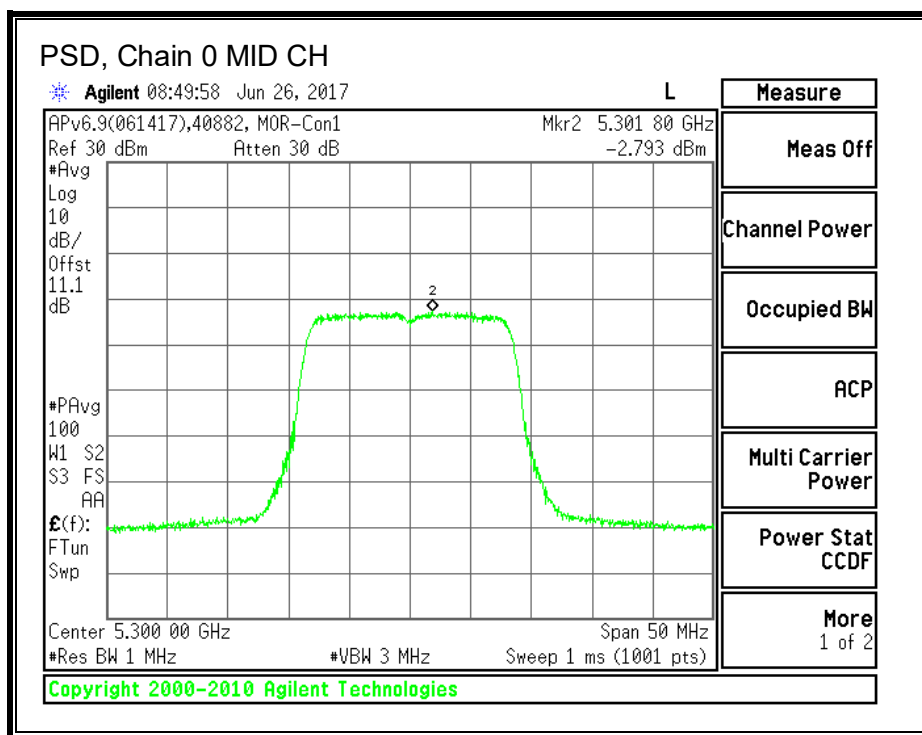
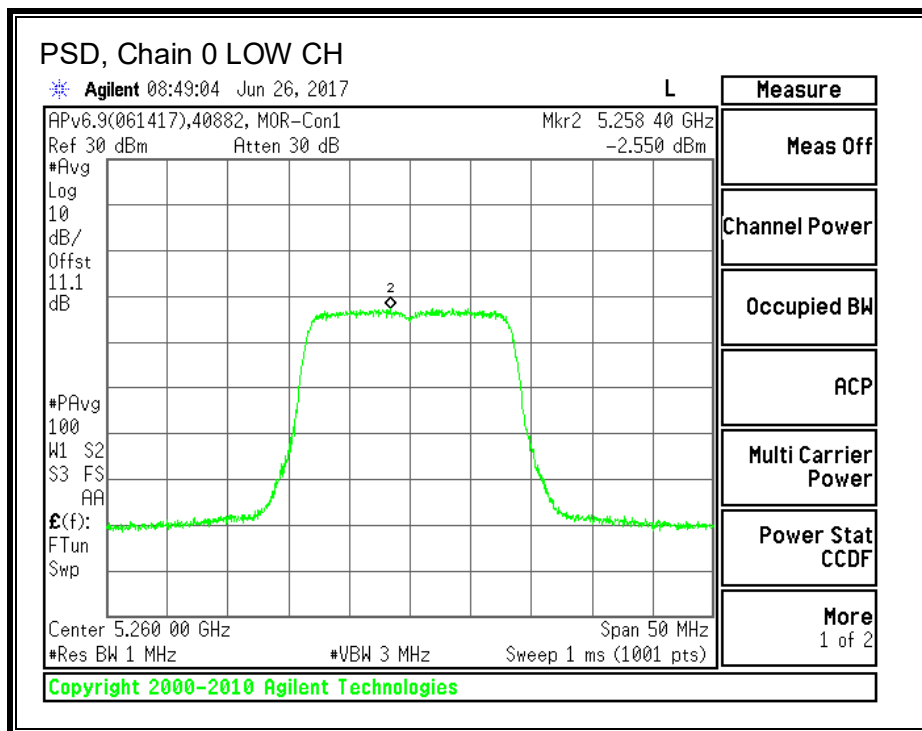
Output Power Results

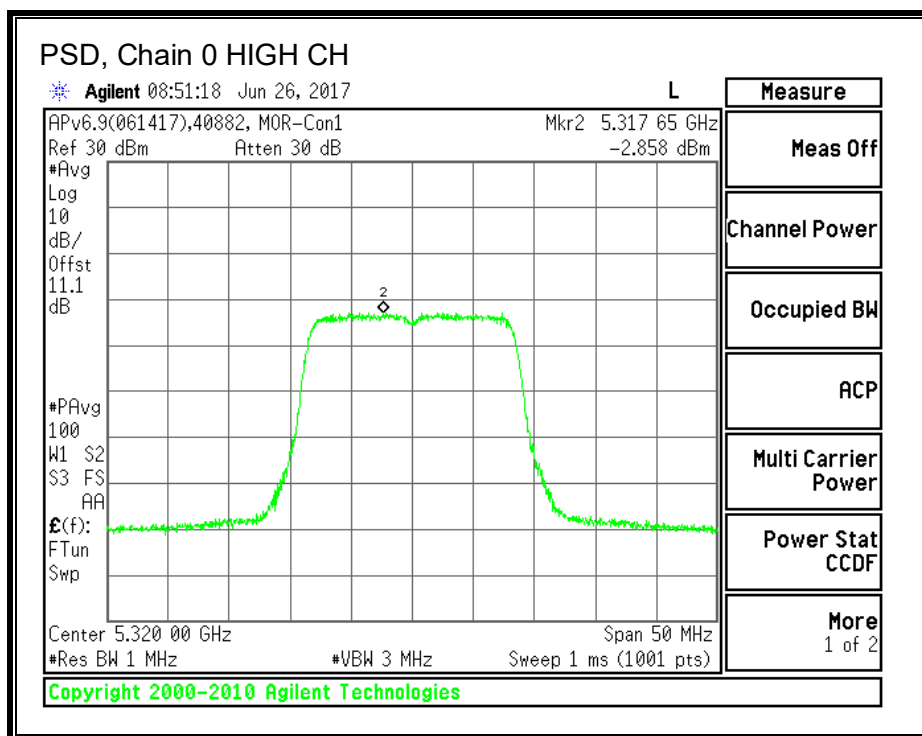
| Channel | Freq. (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd EIRP (dBm) | EIRP Limit (dBm) | EIRP Margin (dB) | Power Limit (dBm) | Power Margin (dB) |
|---------|----------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|----------------------------------|------------------------|------------------------|-------------------------|-------------------------|
| Low | 5260 | 8.38 | 8.23 | 8.13 | 8.18 | 19.89 | 29.11 | -9.22 | 23.11 | -8.72 |
| Mid | 5300 | 8.20 | 8.36 | 8.28 | 7.79 | 19.82 | 29.13 | -9.31 | 23.13 | -8.81 |
| High | 5320 | 8.33 | 8.42 | 8.34 | 7.73 | 19.87 | 29.13 | -9.26 | 23.13 | -8.76 |
| | | | | | | Power | | | | |
| | | | | | | 14.39 | | | | |
| | | | | | | 14.32 | | | | |
| | | | | | | 14.37 | | | | |

PPSD Results

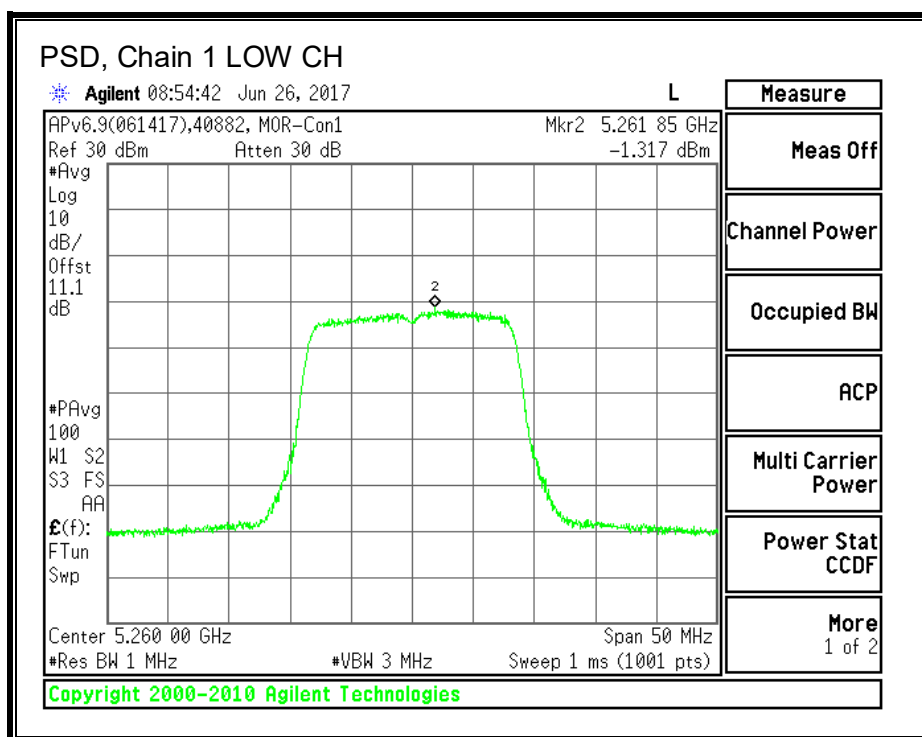
| Channel | Freq. (MHz) | Chain 0 Meas PPSD (dBm) | Chain 1 Meas PPSD (dBm) | Chain 2 Meas PPSD (dBm) | Chain 3 Meas PPSD (dBm) | Total Corr'd PPSD (dBm) | PPSD Limit (dBm) | PPSD Margin (dB) |
|---------|----------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|------------------------|
| Low | 5260 | -2.55 | -1.32 | -1.96 | -2.08 | 4.21 | 11.00 | -6.79 |
| Mid | 5300 | -2.79 | -1.67 | -1.61 | -2.30 | 4.09 | 11.00 | -6.91 |
| High | 5320 | -2.86 | -1.48 | -1.57 | -2.86 | 4.02 | 11.00 | -6.98 |

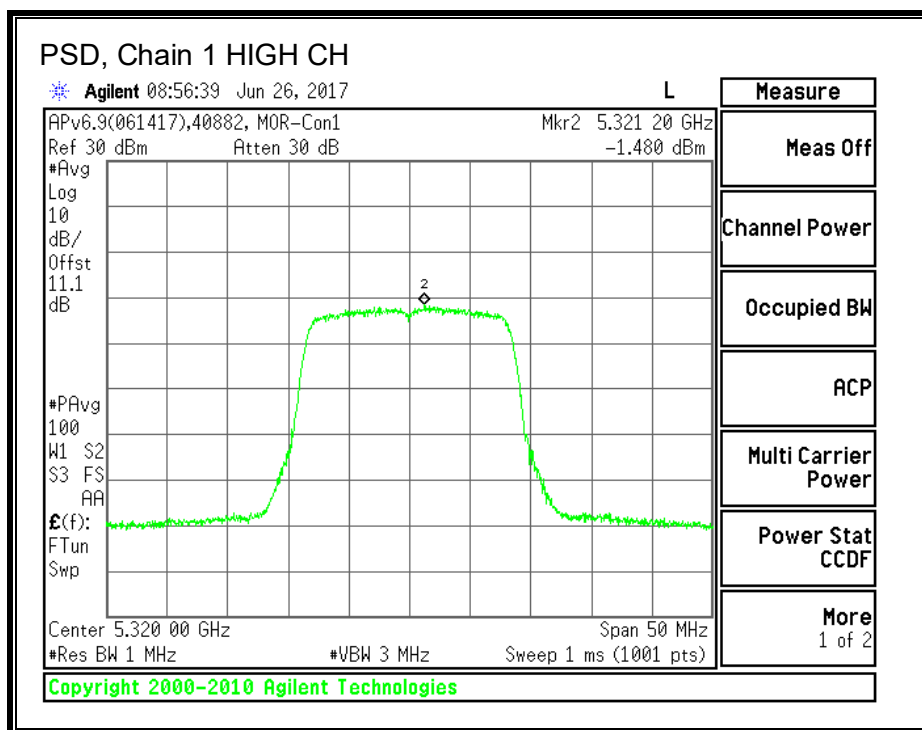
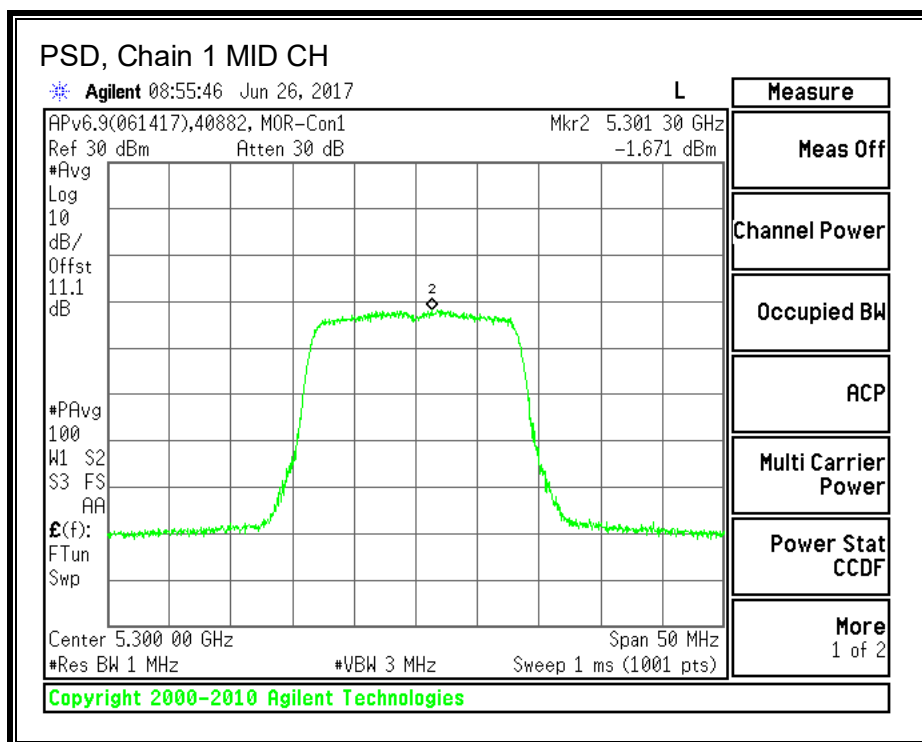
PSD, Chain 0



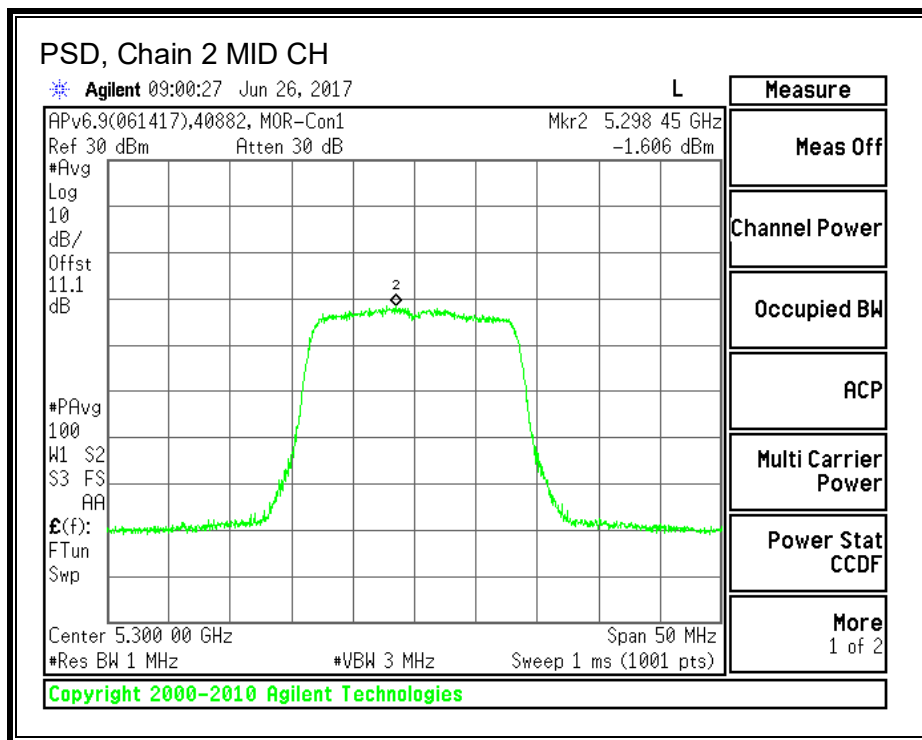
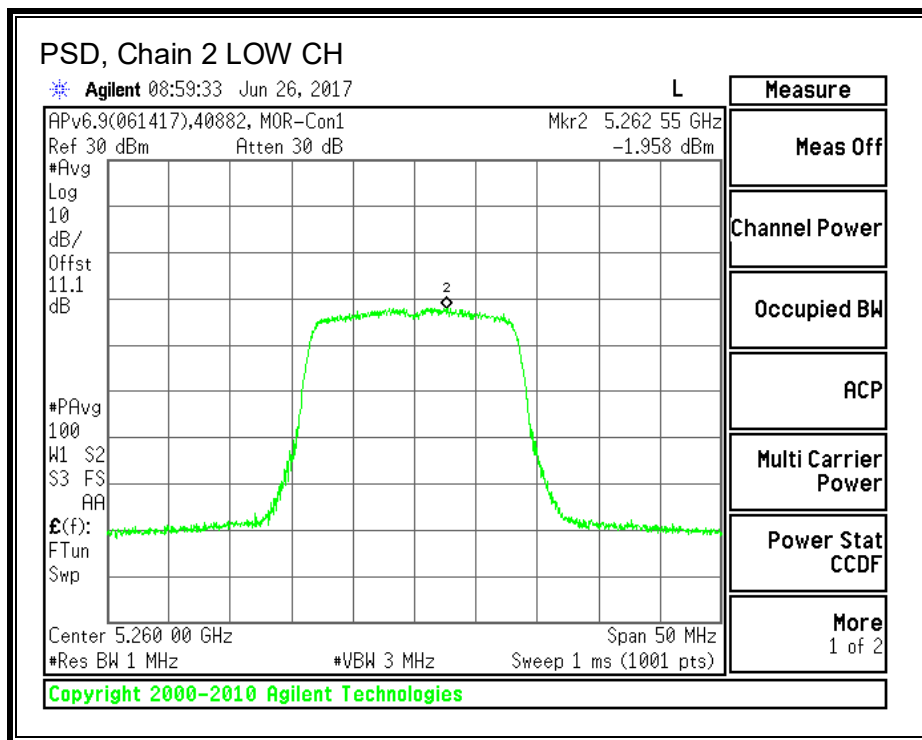


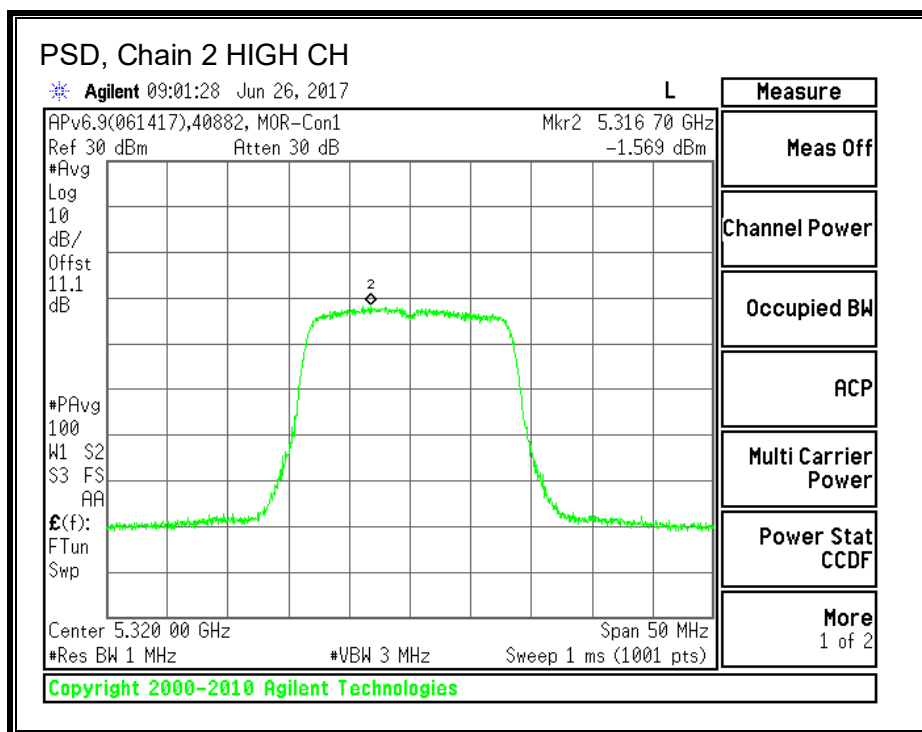
PSD, Chain 1



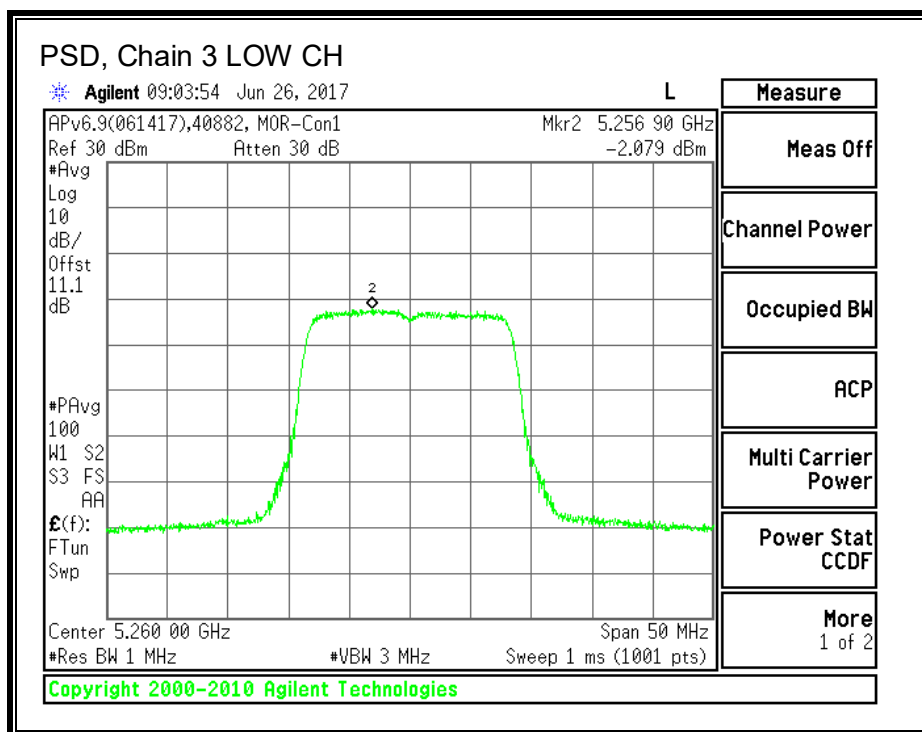


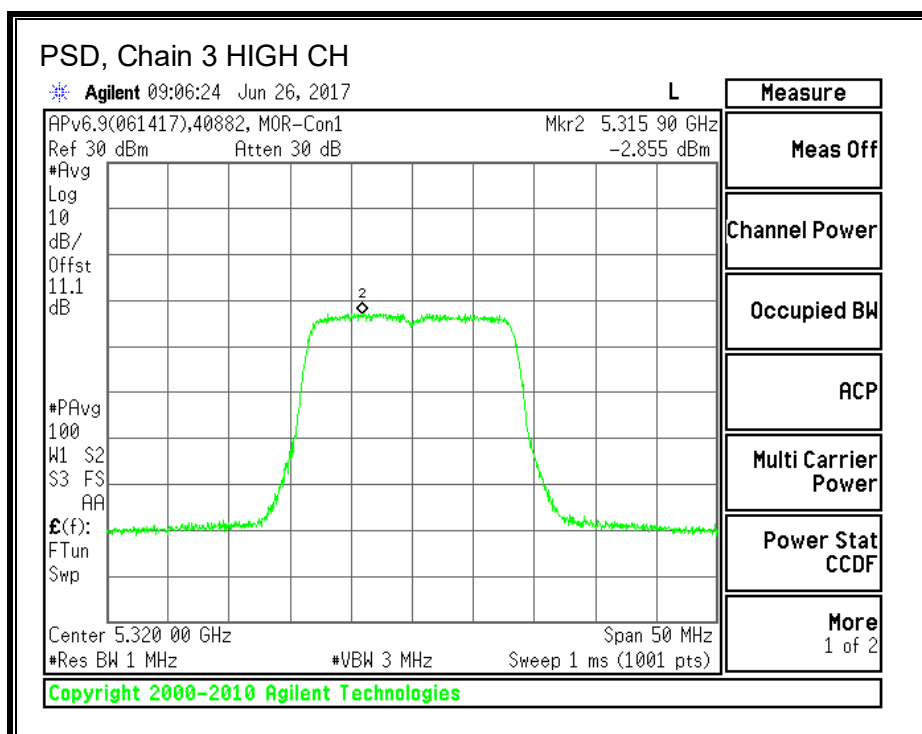
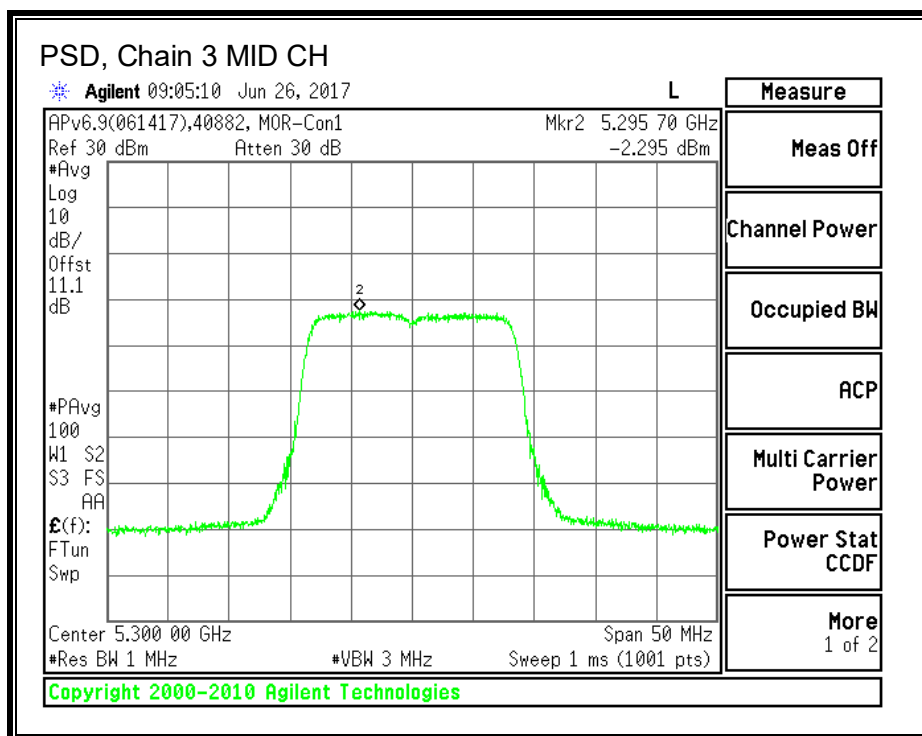
PSD, Chain 2





PSD, Chain 3





10.2. 802.11n HT20 MODE IN THE 5.3 GHz BAND

10.2.1. FCC OUTPUT POWER AND PSD LIMITS

FCC §15.407 (a) (2)

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

DIRECTIONAL ANTENNA GAIN

This EUT mode is 802.11nHT20. This mode is TxBF, therefore array gain (antenna gain + $10 \log(n_{\text{ant}})$) is used.

Output Power

| Antenna Gain (dBi) | $10 * \log(4 \text{ chains})$ (dB) | Array Gain (dBi) |
|--------------------|------------------------------------|------------------|
| 5.50 | 6.02 | 11.52 |

PSD

| Antenna Gain (dBi) | $10 * \log(4 \text{ chains})$ (dB) | Correlated Chains Directional Gain (dBi) |
|--------------------|------------------------------------|--|
| 5.50 | 6.02 | 11.52 |

RESULTS

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PSD (dBi) | Power Limit (dBm) | PSD Limit (dBm) |
|---------|--------------------|-----------------------------|---|---|-------------------------|-----------------------|
| Low | 5260 | 19.33 | 11.02 | 11.02 | 18.84 | 5.98 |
| Mid | 5300 | 19.75 | 11.02 | 11.02 | 18.94 | 5.98 |
| High | 5320 | 19.83 | 11.02 | 11.02 | 18.95 | 5.98 |

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

Output Power Results

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low | 5260 | 5.20 | 5.38 | 5.37 | 5.07 | 11.28 | 18.84 | -7.56 |
| Mid | 5300 | 5.28 | 5.43 | 5.43 | 4.70 | 11.24 | 18.94 | -7.69 |
| High | 5320 | 5.25 | 5.26 | 5.39 | 4.40 | 11.11 | 18.95 | -7.84 |

PSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PSD (dBm) | Chain 1 Meas PSD (dBm) | Chain 2 Meas PSD (dBm) | Chain 3 Meas PSD (dBm) | Total Corr'd PSD (dBm) | PSD Limit (dBm) | PSD Margin (dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low | 5260 | -5.37 | -5.67 | -4.85 | -5.49 | 0.69 | 5.98 | -5.29 |
| Mid | 5300 | -5.36 | -5.42 | -4.99 | -5.84 | 0.63 | 5.98 | -5.35 |
| High | 5320 | -5.96 | -5.34 | -5.24 | -5.83 | 0.44 | 5.98 | -5.54 |

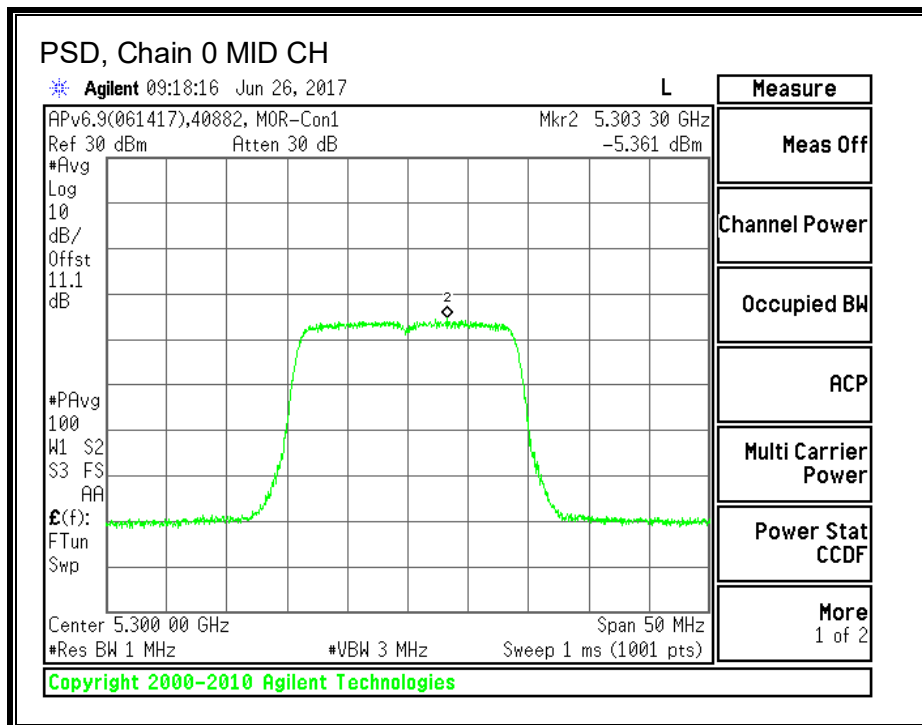
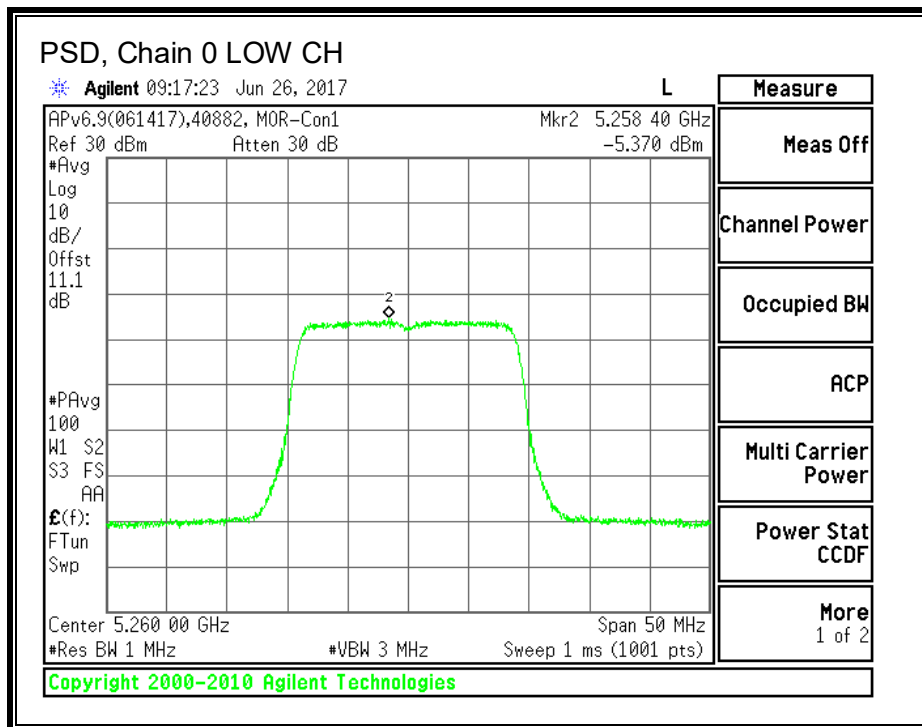
Power was lowered from original Aruba grant for Bandedge compliancy.

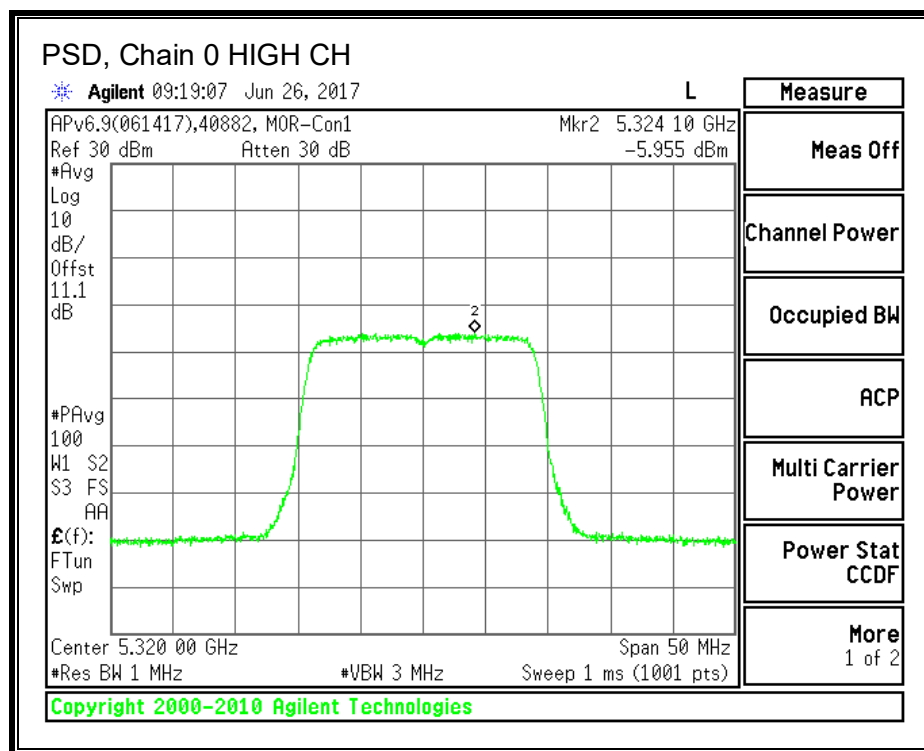
TEST INFORMATION

Date: 2017-06-09 and 2017-06-26

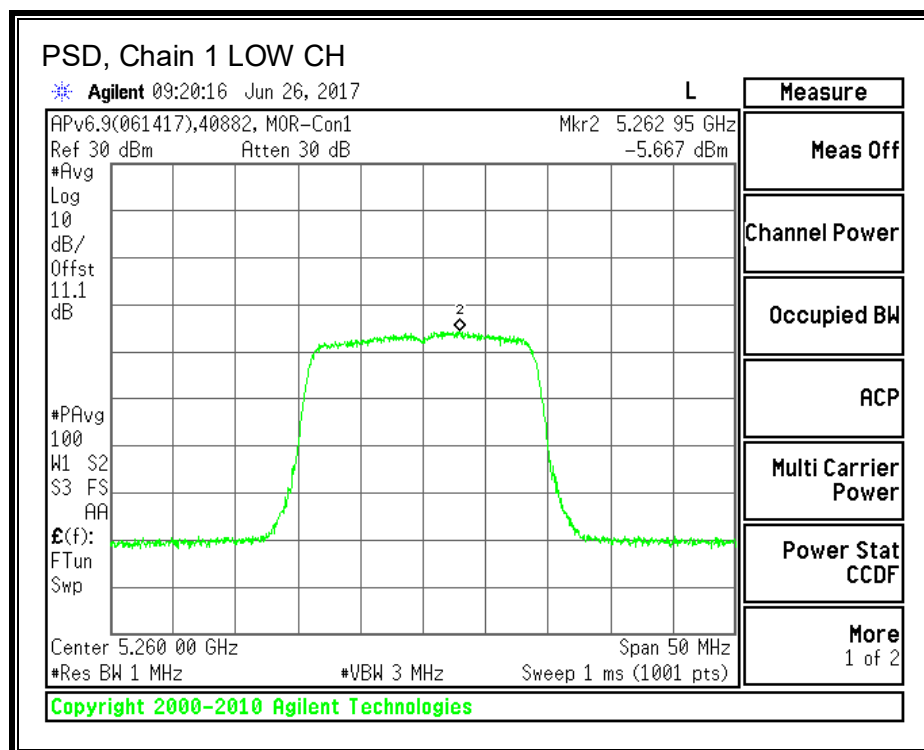
Tester: John Manser and Jeffrey Cabrera

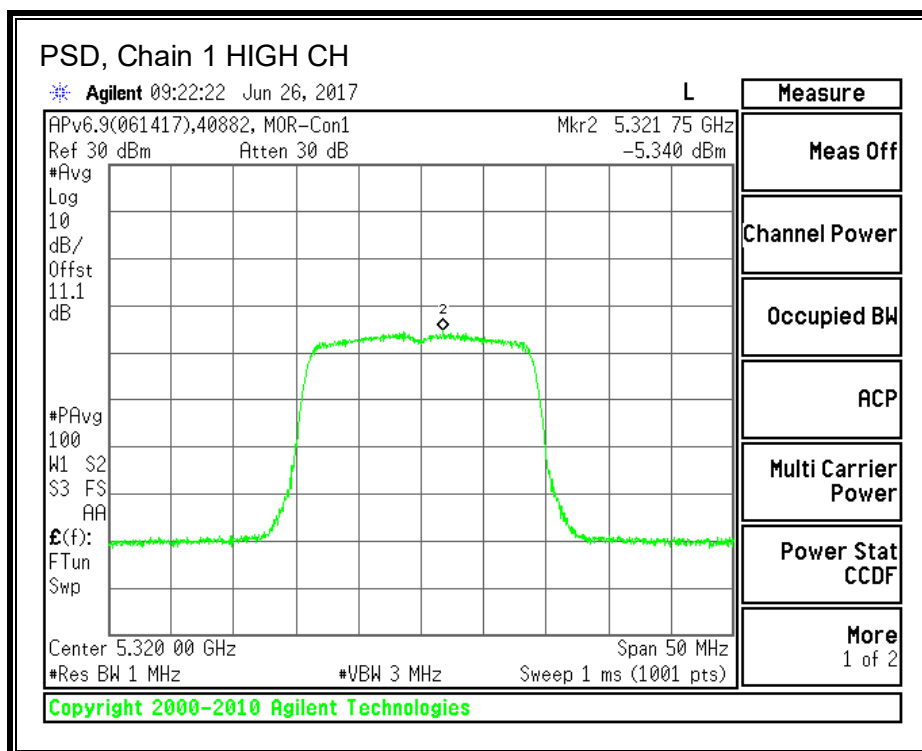
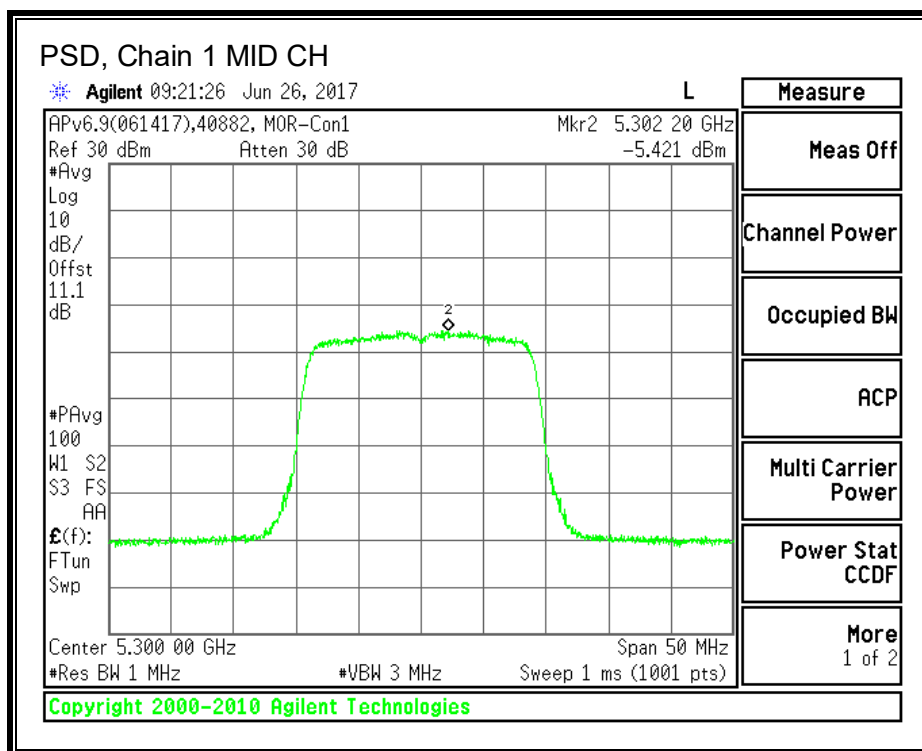
PSD, Chain 0



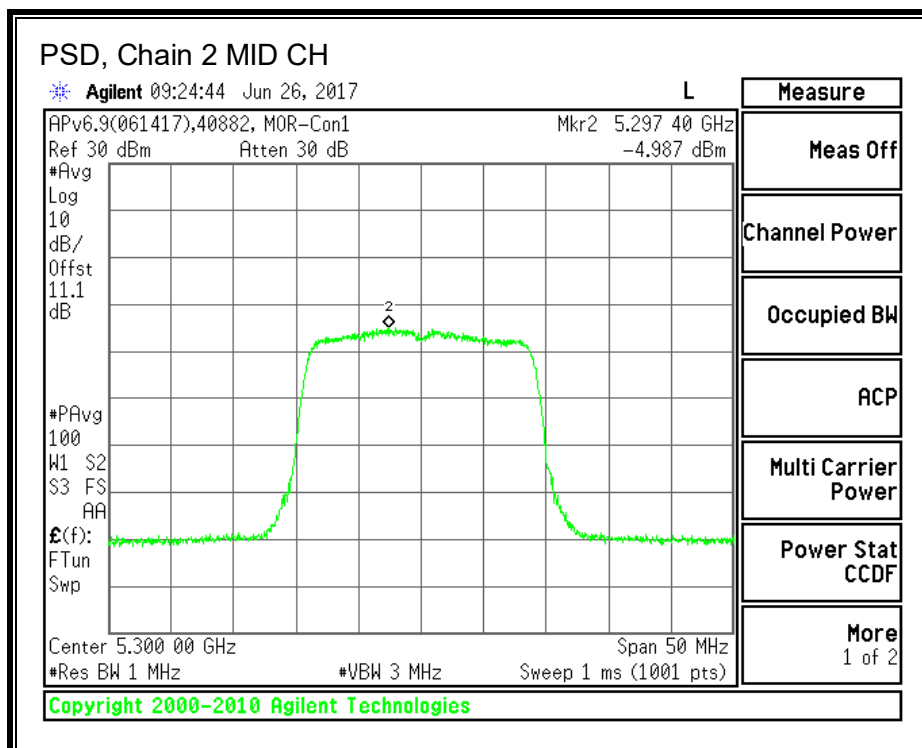
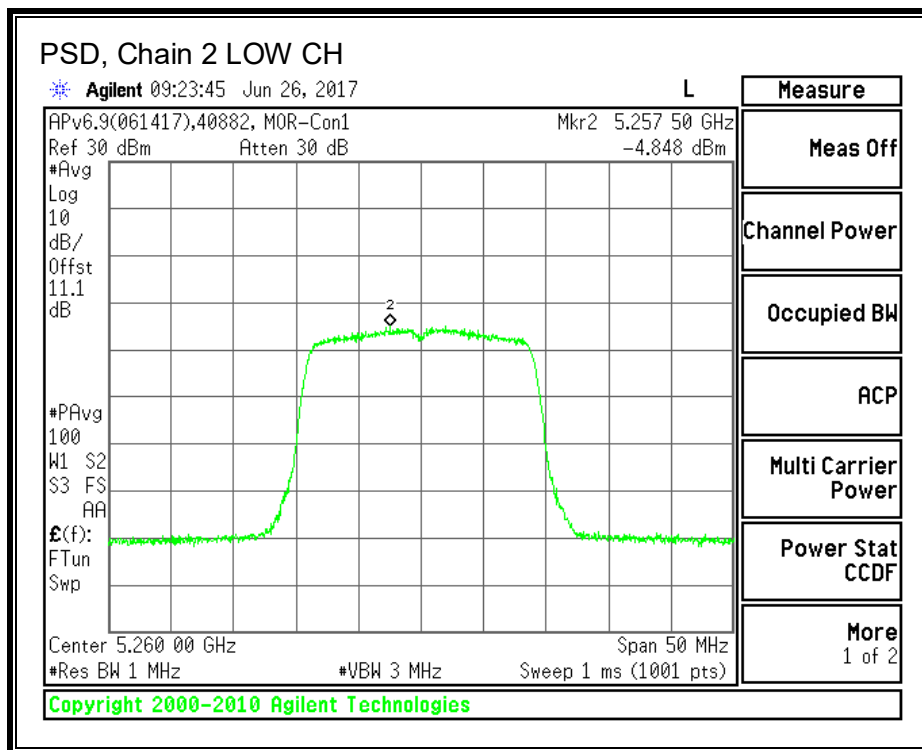


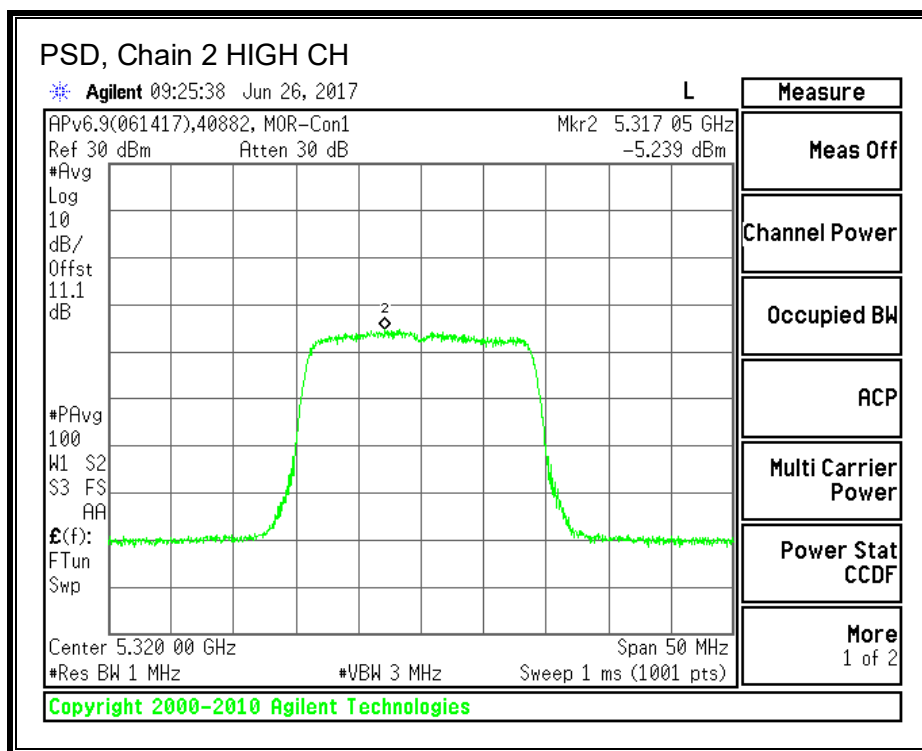
PSD, Chain 1



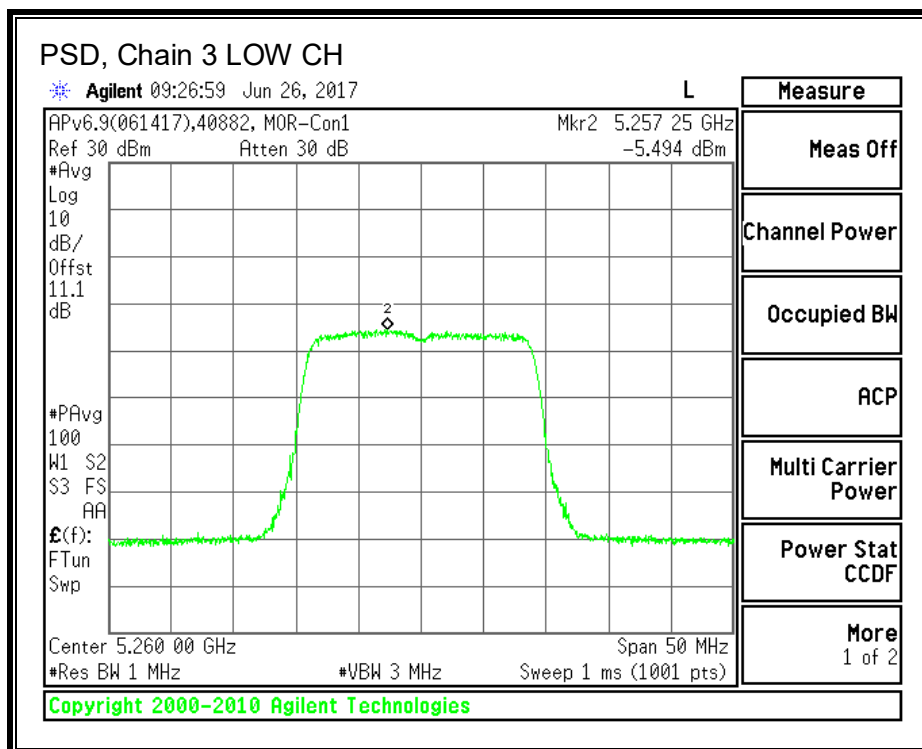


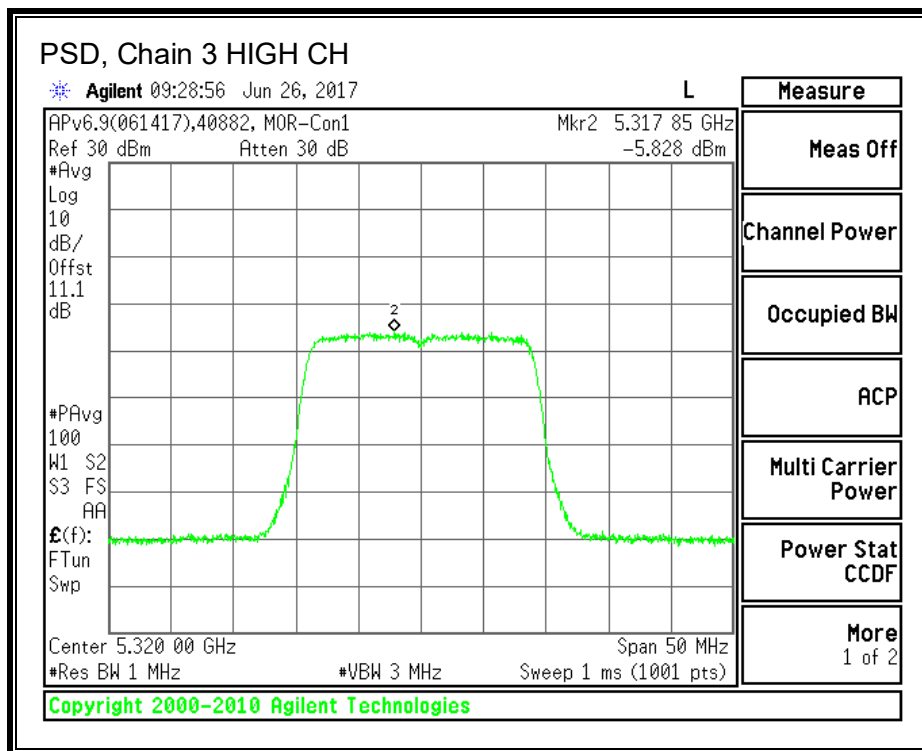
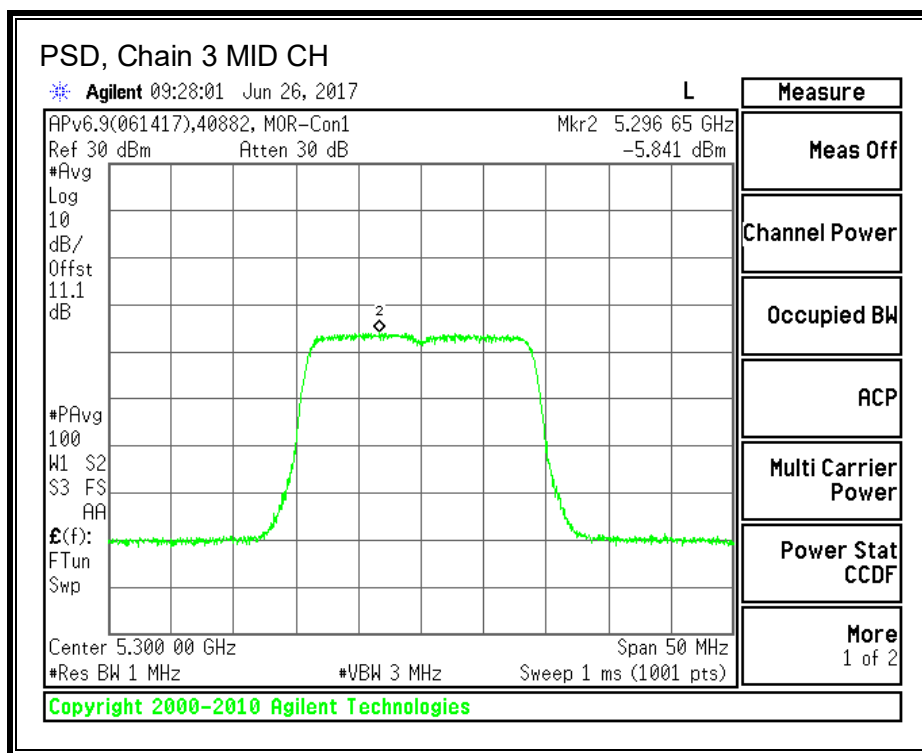
PSD, Chain 2





PSD, Chain 3





10.2.2. IC OUTPUT POWER AND PSD

LIMITS

IC RSS-247 (6.2.2 [1])

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10} B$, dBm, whichever power is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

DIRECTIONAL ANTENNA GAIN

This EUT mode is 802.11nHT20. This mode is TxBF, therefore array gain (antenna gain + $10 \log(n_{\text{ant}})$) is used.

Output Power

| Antenna Gain (dBi) | $10 * \log(4 \text{ Chains})$ (dB) | Array Gain (dBi) |
|--------------------|------------------------------------|------------------|
| 5.50 | 6.02 | 11.52 |

PSD

| Antenna Gain (dBi) | $10 * \log(4 \text{ chains})$ (dB) | Correlated Chains Directional Gain (dBi) |
|--------------------|------------------------------------|--|
| 5.50 | 6.02 | 11.52 |

TEST INFORMATION

Date: 2017-06-09 and 2017-06-26

Tester: John Manser and Jeffrey Cabrera

Power was lowered from original Aruba grant for Bandedge compliancy.

RESULTS

Bandwidth and Antenna Gain

| Channel | Freq. (MHz) | Min 99% BW (MHz) | Direct. Gain for Power (dBi) | Direct. Gain for PPSD (dBi) |
|---------|----------------|---------------------------|--|--------------------------------------|
| Low | 5260 | 17.4550 | 11.52 | 11.52 |
| Mid | 5300 | 17.5130 | 11.52 | 11.52 |
| High | 5320 | 17.5350 | 11.52 | 11.52 |

Limits

| Channel | Freq. (MHz) | IC EIRP Limit (dBm) | IC PSD Limit (dBm) | IC Output Power Limit (dBm) |
|---------|----------------|------------------------------|-----------------------------|---|
| Low | 5260 | 29.42 | 11.00 | 23.42 |
| Mid | 5300 | 29.43 | 11.00 | 23.43 |
| High | 5320 | 29.44 | 11.00 | 23.44 |

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

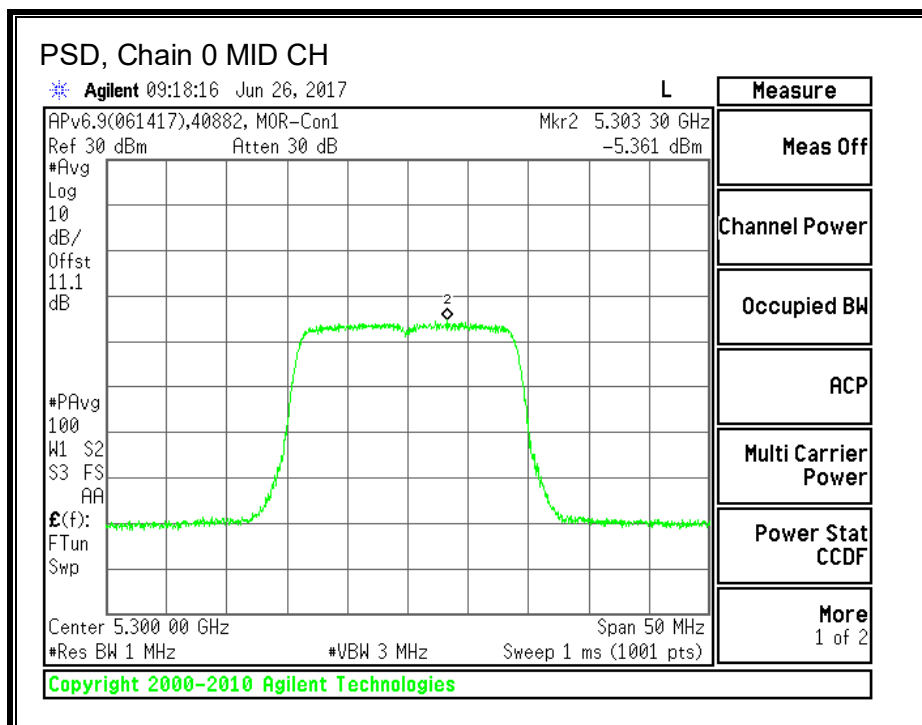
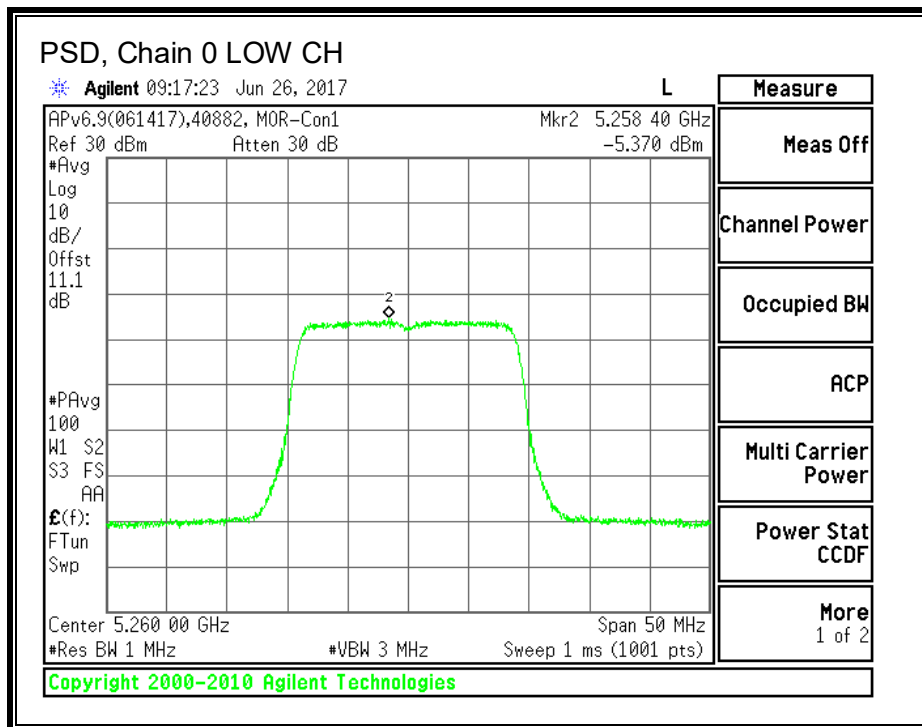
Output Power Results

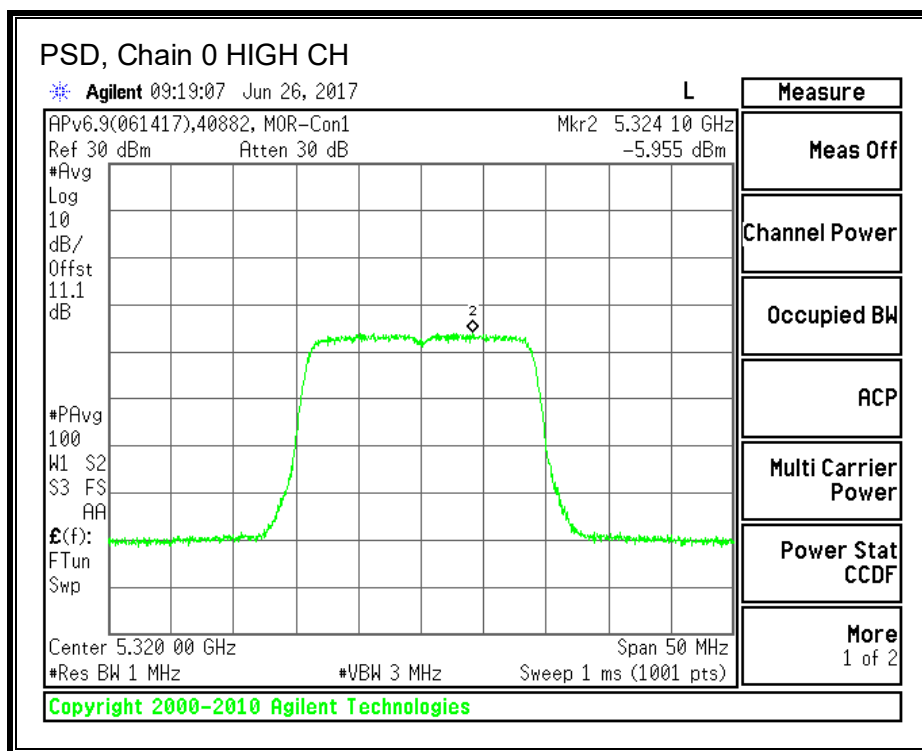
| Channel | Freq. (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd EIRP (dBm) | EIRP Limit (dBm) | EIRP Margin (dB) | Power Limit (dBm) | Power Margin (dB) |
|---------|----------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|----------------------------------|------------------------|------------------------|-------------------------|-------------------------|
| Low | 5260 | 5.20 | 5.38 | 5.37 | 5.07 | 22.80 | 29.42 | -6.62 | 23.42 | -12.14 |
| Mid | 5300 | 5.28 | 5.43 | 5.43 | 4.70 | 22.76 | 29.43 | -6.67 | 23.43 | -12.19 |
| High | 5320 | 5.25 | 5.26 | 5.39 | 4.40 | 22.63 | 29.44 | -6.81 | 23.44 | -12.33 |
| | | | | | | Power | | | | |
| | | | | | | 11.28 | | | | |
| | | | | | | 11.24 | | | | |
| | | | | | | 11.11 | | | | |

PPSD Results

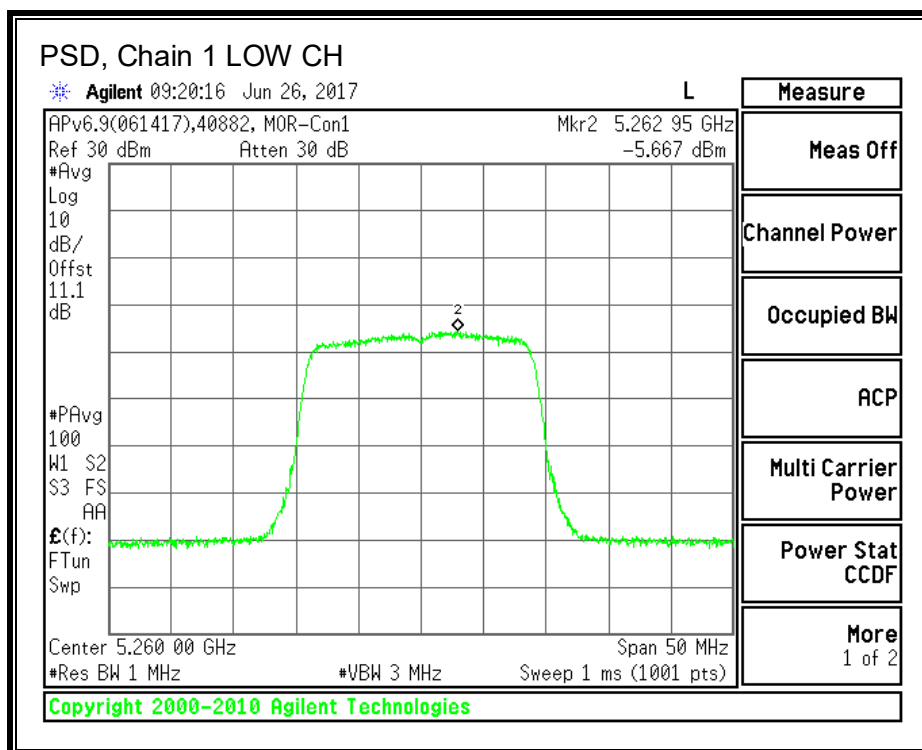
| Channel | Freq. (MHz) | Chain 0 Meas PPSD (dBm) | Chain 1 Meas PPSD (dBm) | Chain 2 Meas PPSD (dBm) | Chain 3 Meas PPSD (dBm) | Total Corr'd PPSD (dBm) | PPSD Limit (dBm) | PPSD Margin (dB) |
|---------|----------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|------------------------|
| Low | 5260 | -5.37 | -5.67 | -4.85 | -5.49 | 0.69 | 11.00 | -10.31 |
| Mid | 5300 | -5.36 | -5.42 | -4.99 | -5.84 | 0.63 | 11.00 | -10.37 |
| High | 5320 | -5.96 | -5.34 | -5.24 | -5.83 | 0.44 | 11.00 | -10.56 |

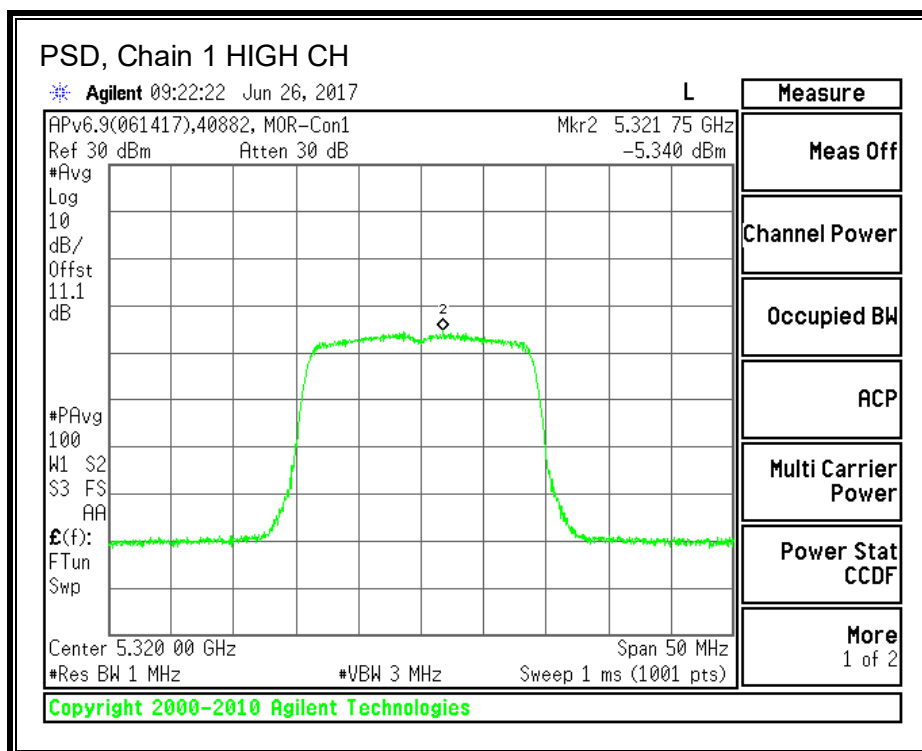
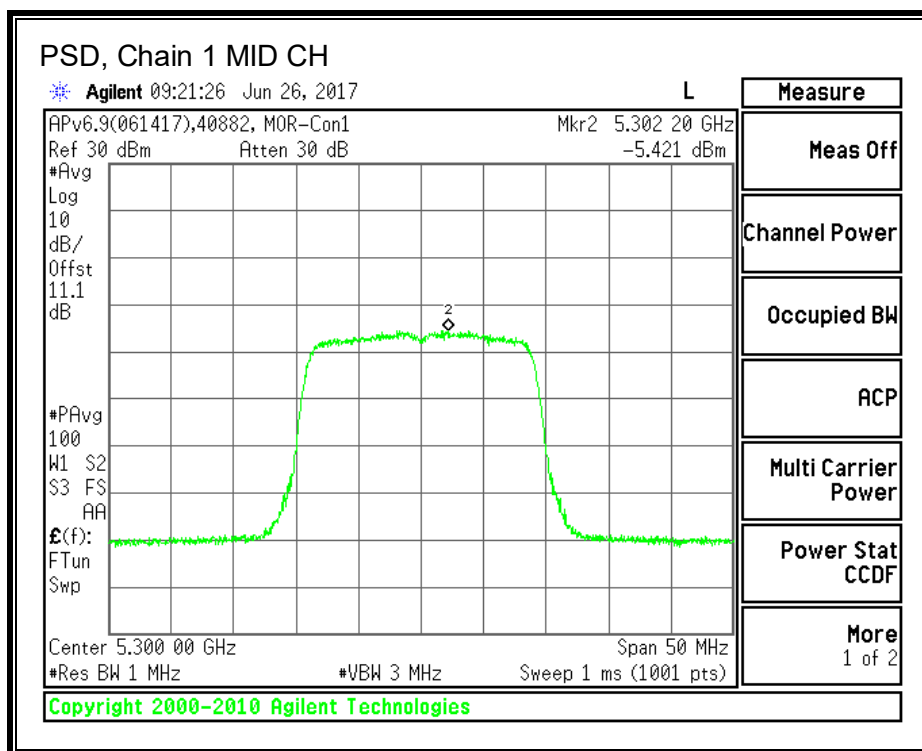
PSD, Chain 0



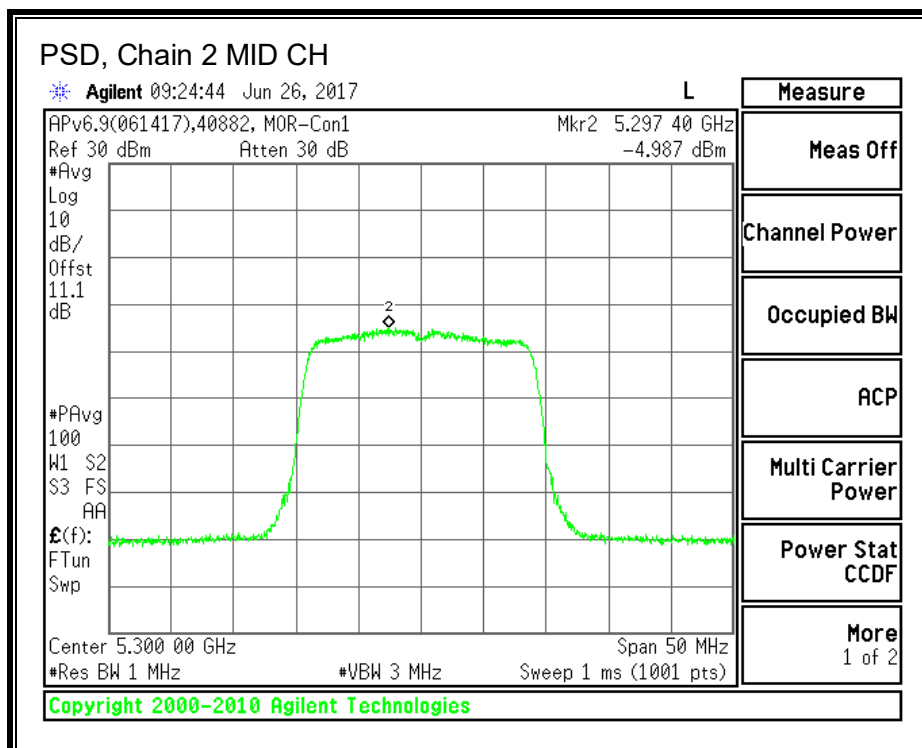
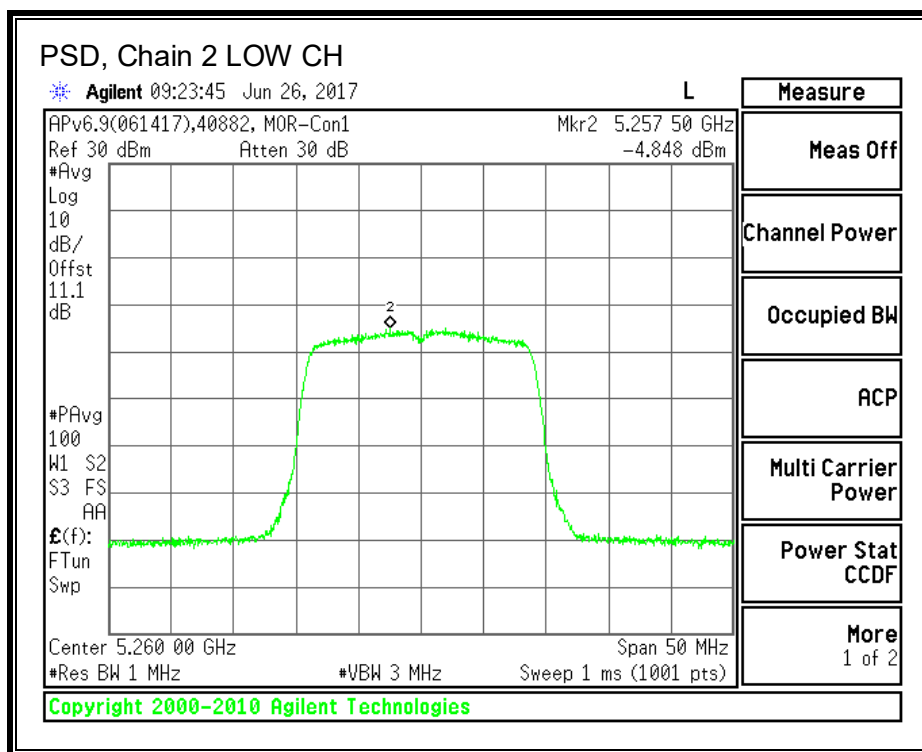


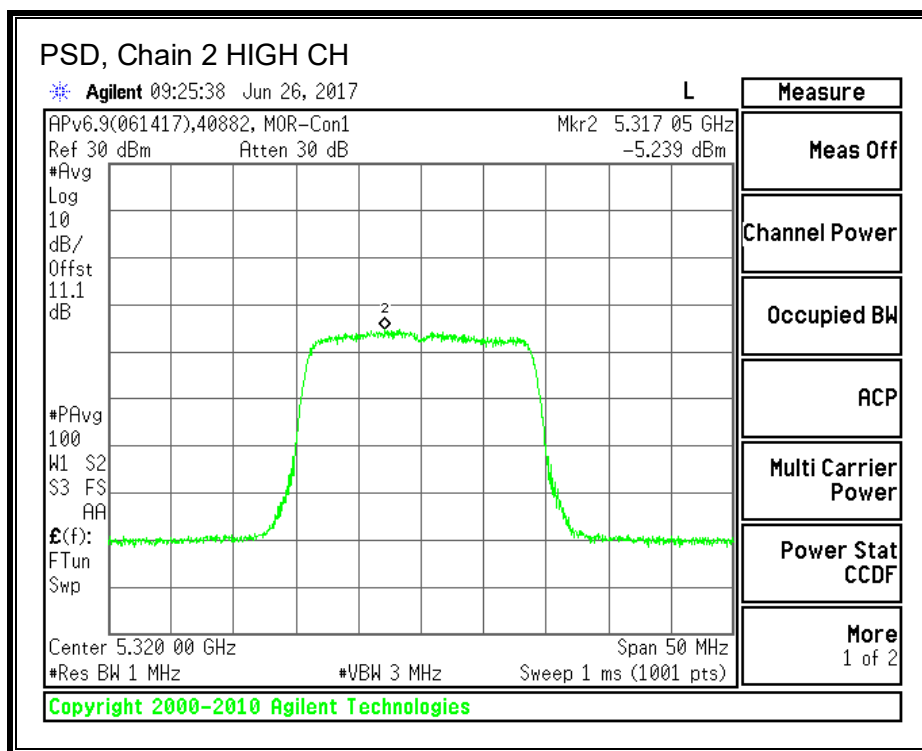
PSD, Chain 1



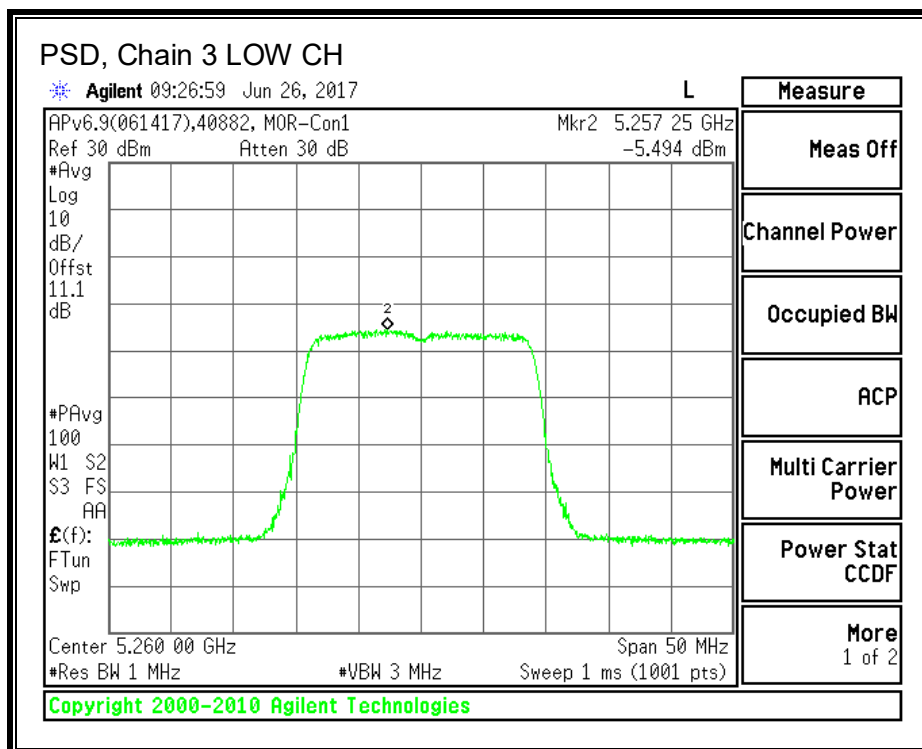


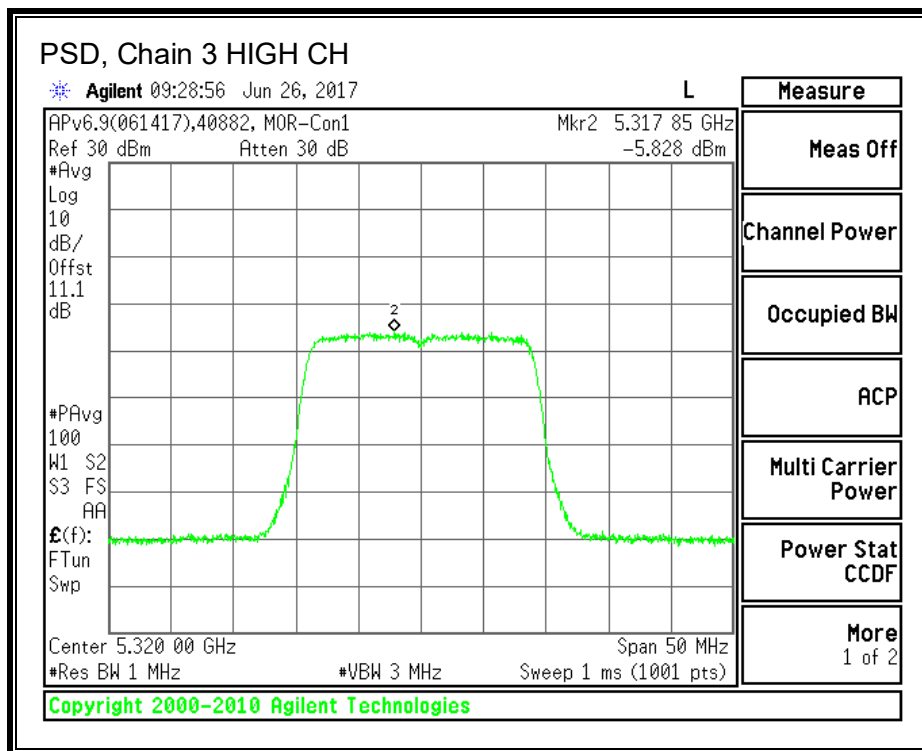
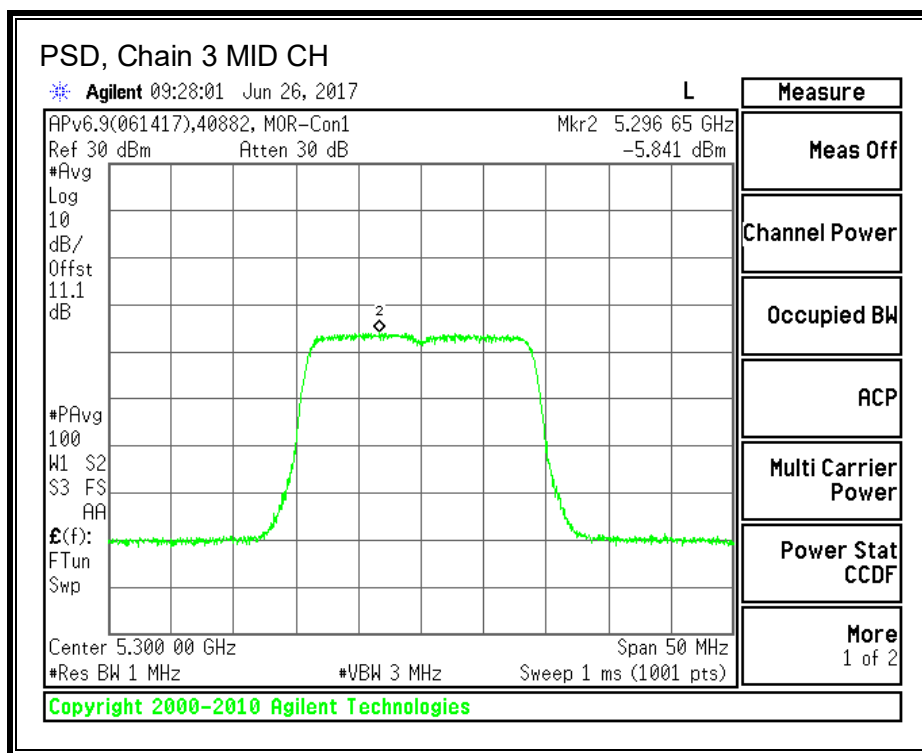
PSD, Chain 2





PSD, Chain 3





10.3. 802.11nHT40 MODE IN THE 5.3 GHz BAND

10.3.1. FCC OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

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

DIRECTIONAL ANTENNA GAIN

This EUT mode is 802.11nHT20. This mode is TxBF, therefore array gain is used.

Output Power

| Antenna Gain (dBi) | $10 \cdot \log(4 \text{ chains})$ (dB) | Directional Gain (dBi) |
|--------------------|--|------------------------|
| 5.50 | 6.02 | 11.52 |

PSD

| Antenna Gain (dBi) | $10 \cdot \log(4 \text{ chains})$ (dB) | Correlated Chains Directional Gain (dBi) |
|--------------------|--|--|
| 5.50 | 6.02 | 11.52 |

TEST INFORMATION

Test Date: 2017-12-01

Tested By: Jeffrey Cabrera

RESULTS

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PSD (dBi) | Power Limit (dBm) | PSD Limit (dBm) |
|---------|--------------------|-----------------------------|---|---|-------------------------|-----------------------|
| Low | 5270 | 39.17 | 11.52 | 11.52 | 18.48 | 5.48 |
| High | 5310 | 39.17 | 11.52 | 11.52 | 18.48 | 5.48 |

| | | |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.12 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|

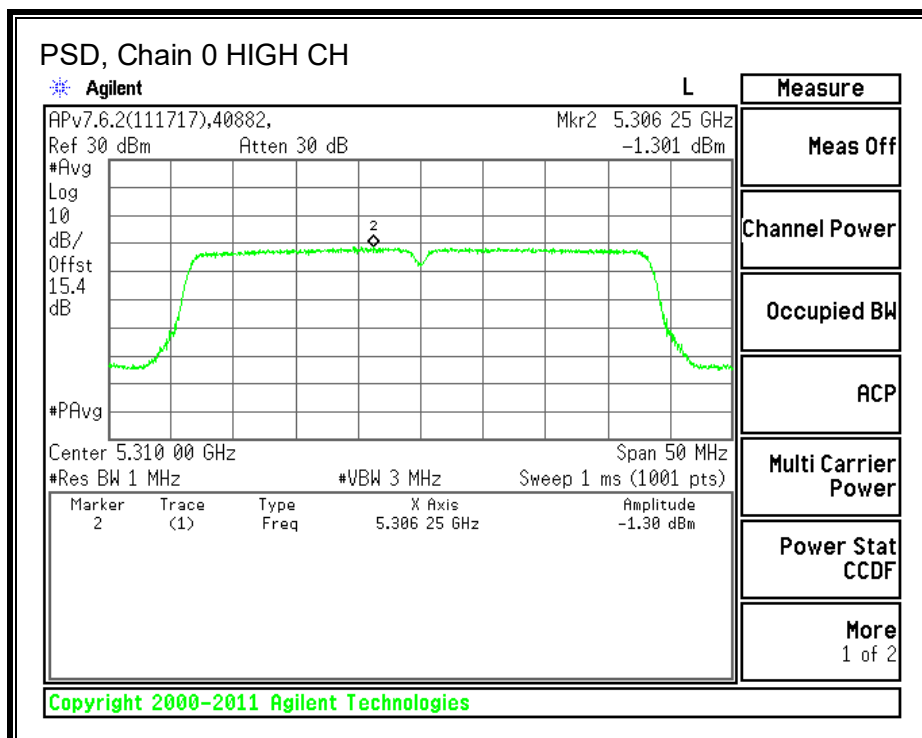
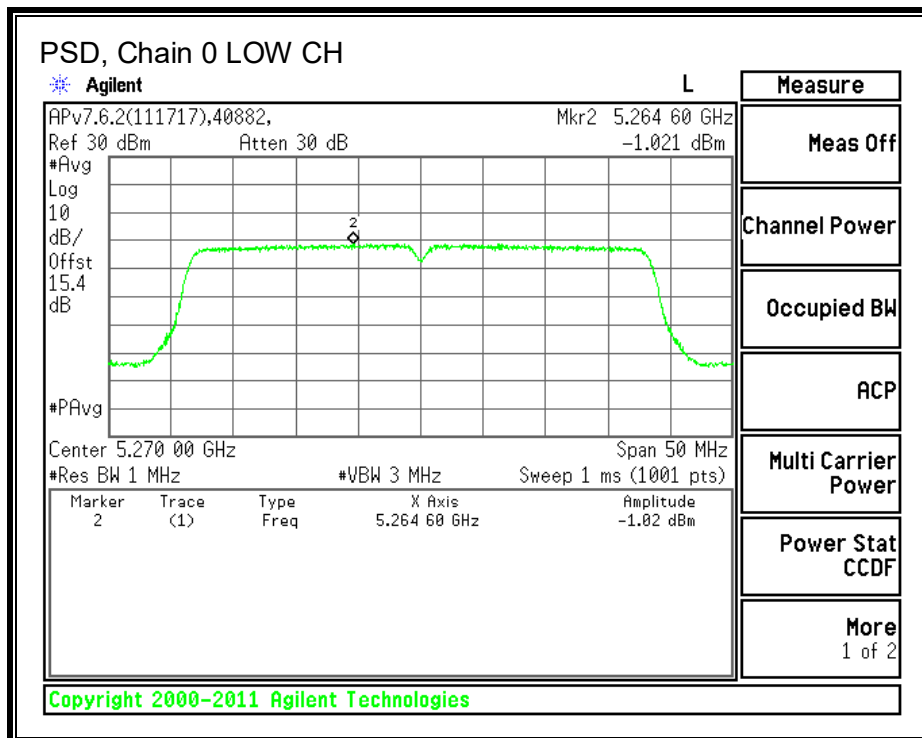
Output Power Results

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low | 5270 | -4.29 | -4.79 | -4.21 | -4.23 | 1.77 | 18.48 | -16.71 |
| High | 5310 | -4.52 | -4.96 | -4.28 | -4.54 | 1.57 | 18.48 | -16.91 |

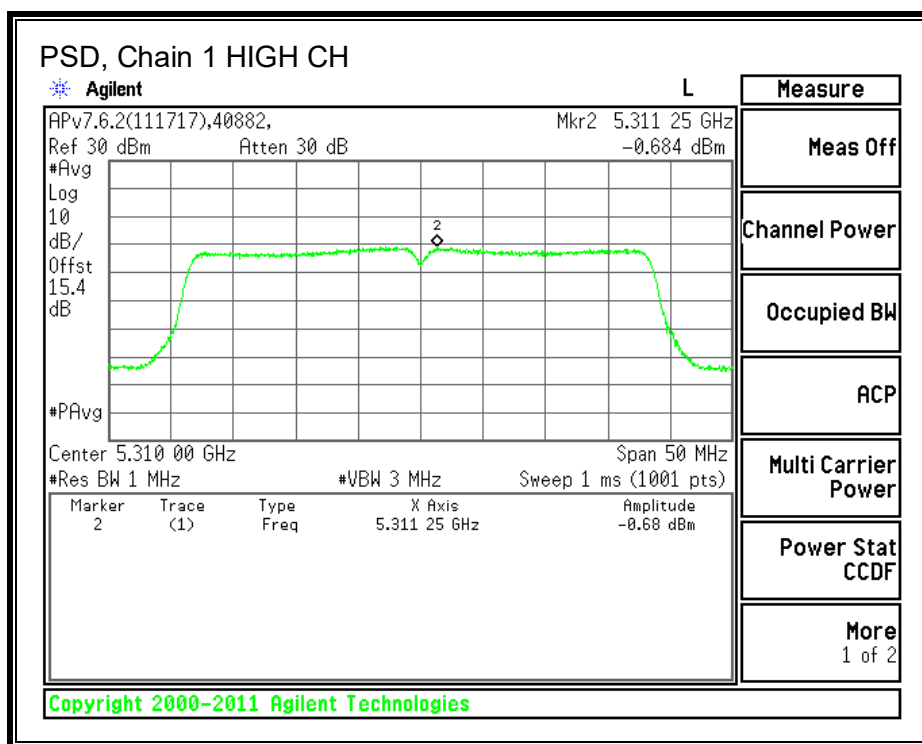
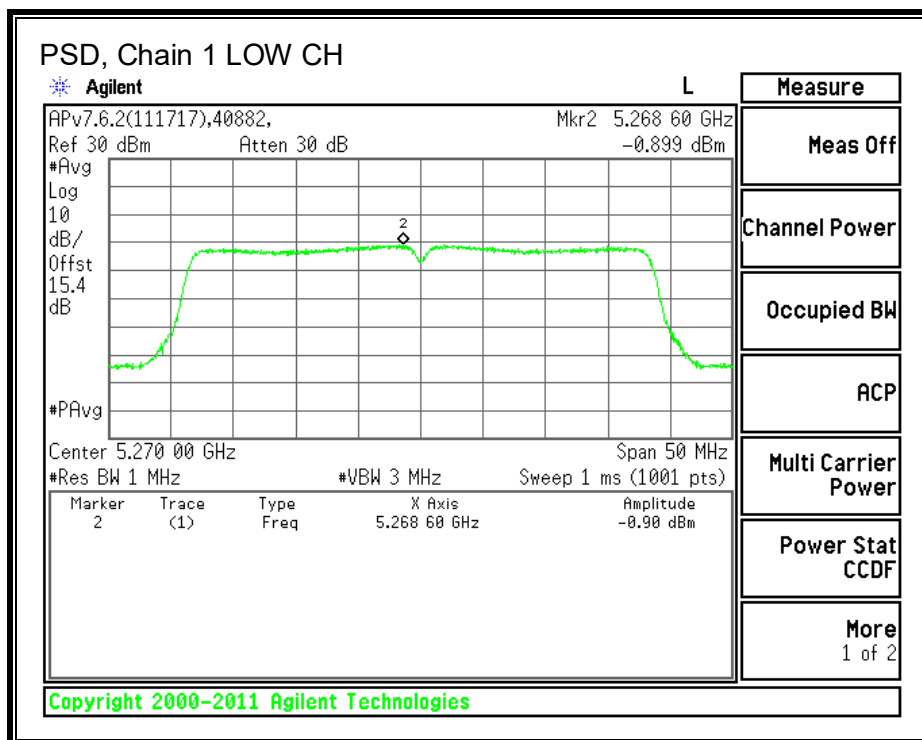
PSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PSD (dBm) | Chain 1 Meas PSD (dBm) | Chain 2 Meas PSD (dBm) | Chain 3 Meas PSD (dBm) | Total Corr'd PSD (dBm) | PSD Limit (dBm) | PSD Margin (dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low | 5270 | -1.02 | -0.90 | -0.47 | -0.65 | 5.39 | 5.48 | -0.09 |
| High | 5310 | -1.30 | -0.68 | -0.97 | -0.75 | 5.22 | 5.48 | -0.26 |

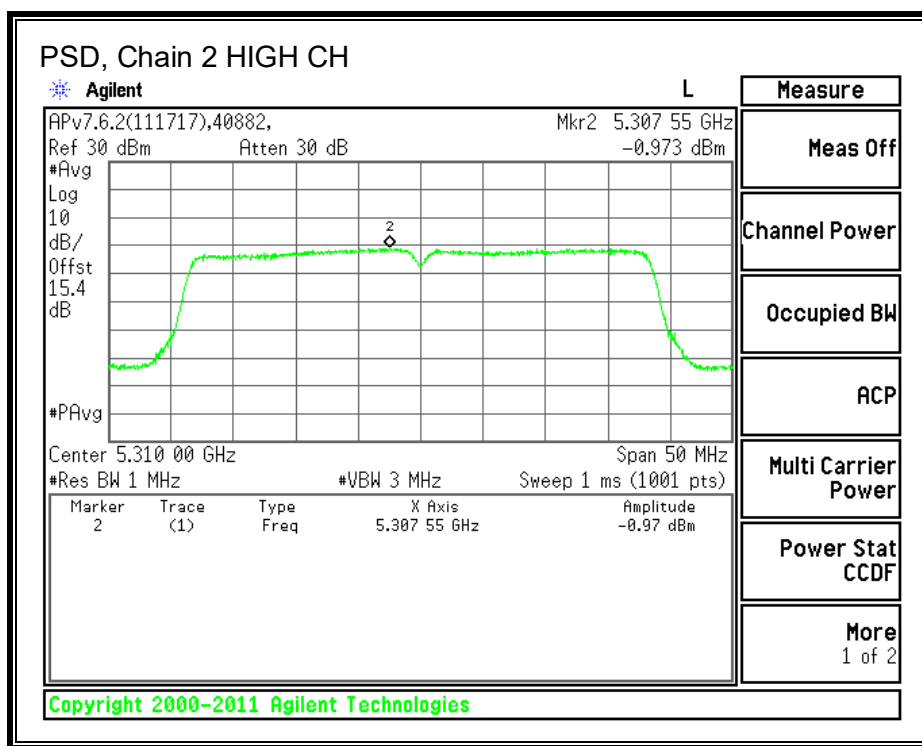
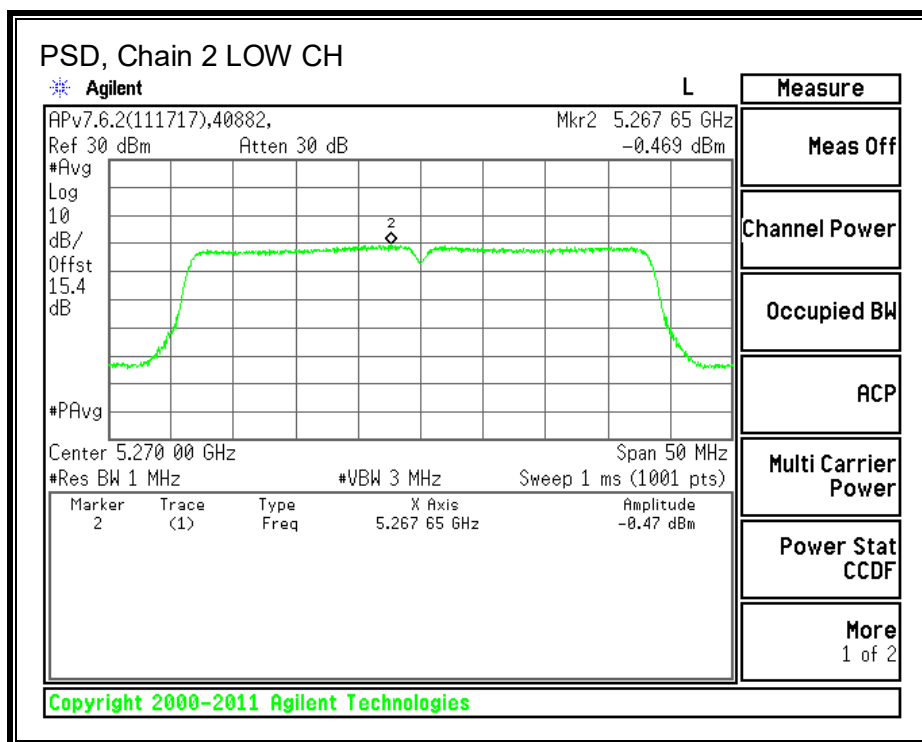
PSD, Chain 0



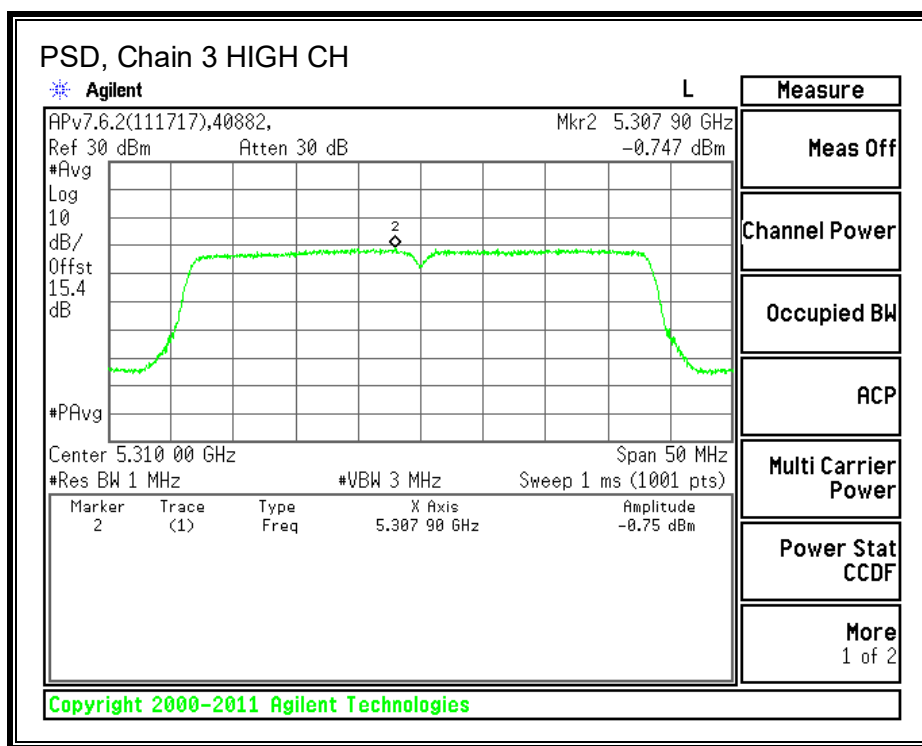
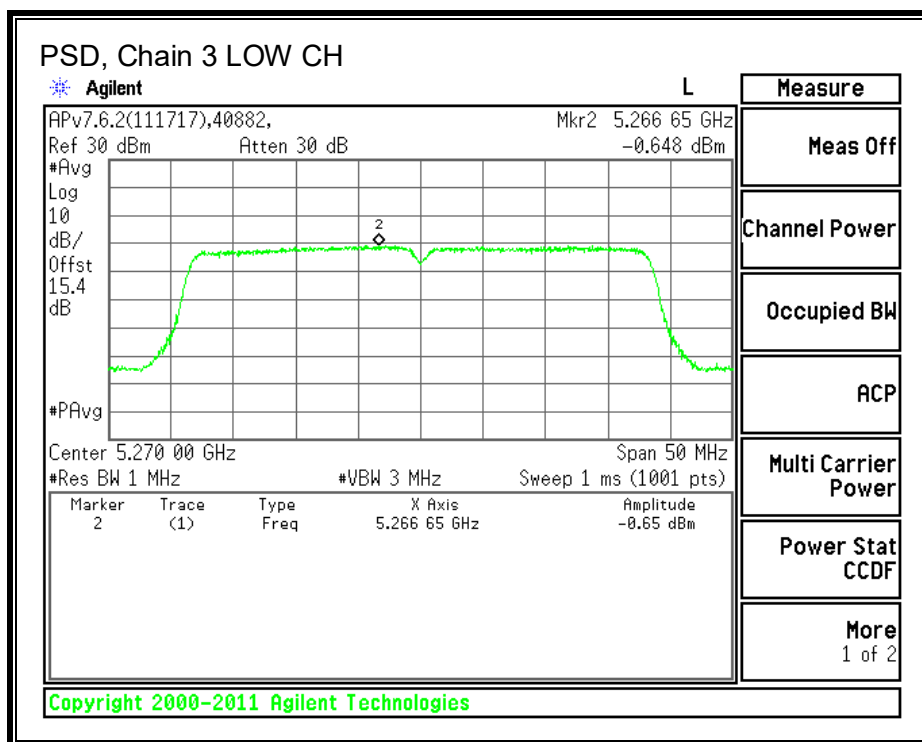
PSD, Chain 1



PSD, Chain 2



PSD, Chain 3



10.3.2. IC OUTPUT POWER AND PSD

LIMITS

IC RSS-247 (6.2.2 [1])

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10} B$, dBm, whichever power is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

DIRECTIONAL ANTENNA GAIN

This EUT mode is 802.11nHT20. This mode is TxBF, therefore array gain (antenna gain + $10 \log(n_{\text{ant}})$) is used.

Output Power

| Antenna Gain (dBi) | $10 * \log(4 \text{ Chains})$ (dB) | Array Gain (dBi) |
|--------------------|------------------------------------|------------------|
| 5.50 | 6.02 | 11.52 |

PSD

| Antenna Gain (dBi) | $10 * \log(4 \text{ chains})$ (dB) | Correlated Chains Directional Gain (dBi) |
|--------------------|------------------------------------|--|
| 5.50 | 6.02 | 11.52 |

TEST INFORMATION

Test Date: 2017-12-01

Tested By: Jeffrey Cabrera

RESULTS

| Channel | Freq. (MHz) | Min 99% BW (MHz) | Direct. Gain for Power (dBi) | Direct. Gain for PPSP (dBi) |
|---------|----------------|---------------------------|--|--------------------------------------|
| Low | 5270 | 35.9440 | 11.52 | 11.52 |
| High | 5310 | 35.9410 | 11.52 | 11.52 |

Limits

| Channel | Freq. (MHz) | IC EIRP Limit (dBm) | IC PSD Limit (dBm) | IC Output Power Limit (dBm) |
|---------|----------------|------------------------------|-----------------------------|---|
| Low | 5270 | 30.00 | 11.00 | 24.00 |
| High | 5310 | 30.00 | 11.00 | 24.00 |

| | | |
|--------------------|------|---|
| Duty Cycle CF (dB) | 0.12 | Included in Calculations of Corr'd Power & PPSP |
|--------------------|------|---|

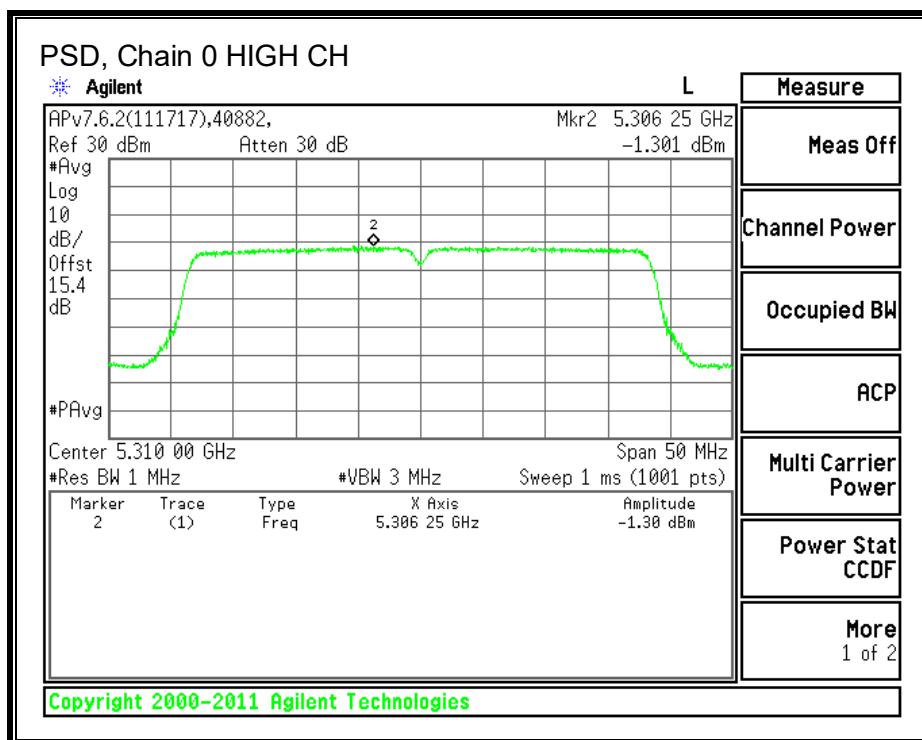
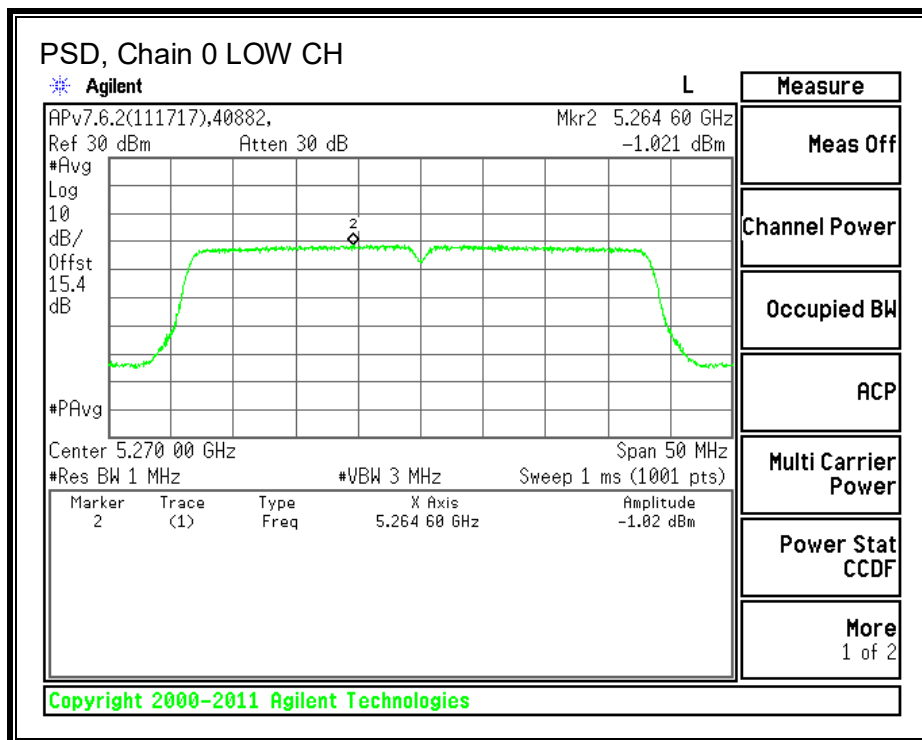
Output Power Results

| Channel | Freq. (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd EIRP (dBm) | EIRP Limit (dBm) | EIRP Margin (dB) | Power Limit (dBm) | Power Margin (dB) |
|---------|----------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|----------------------------------|------------------------|------------------------|-------------------------|-------------------------|
| Low | 5270 | -4.29 | -4.79 | -4.21 | -4.23 | 13.29 | 30.00 | -16.71 | 24.00 | -22.23 |
| High | 5310 | -4.52 | -4.96 | -4.28 | -4.54 | 13.09 | 30.00 | -16.91 | 24.00 | -22.43 |
| | | | | | | Power | | | | |
| | | | | | | 1.77 | | | | |
| | | | | | | 1.57 | | | | |

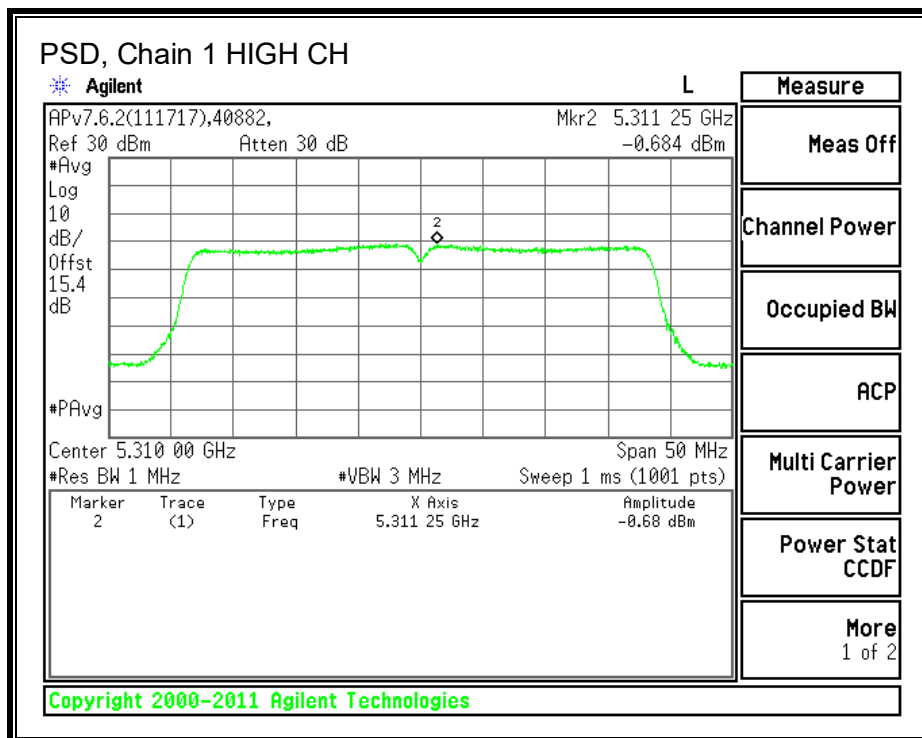
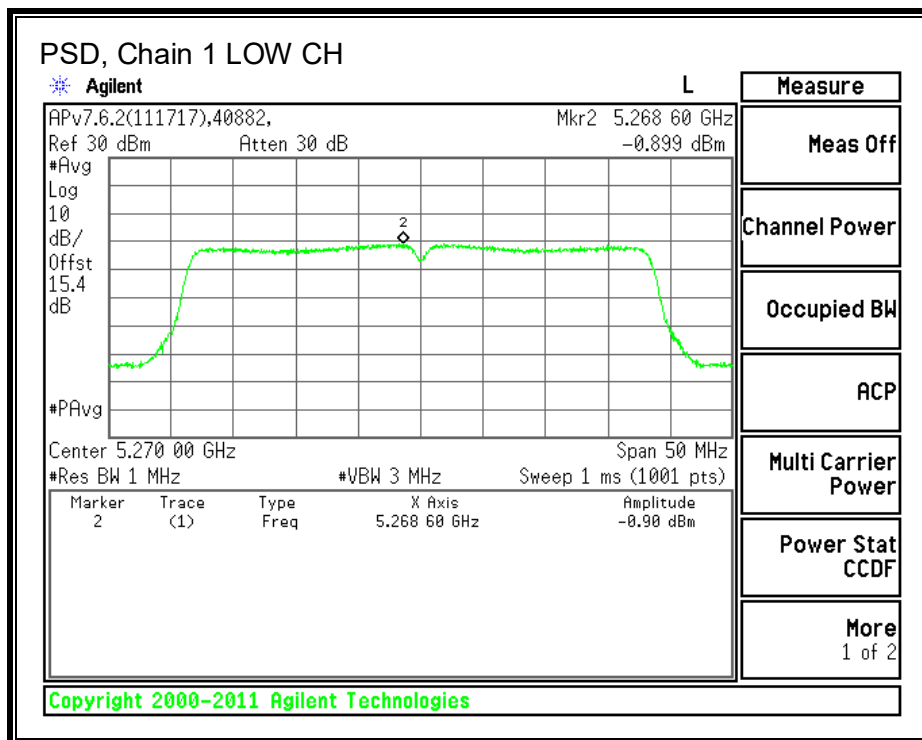
PPSP Results

| Channel | Freq. (MHz) | Chain 0 Meas PPSP (dBm) | Chain 1 Meas PPSP (dBm) | Chain 2 Meas PPSP (dBm) | Chain 3 Meas PPSP (dBm) | Total Corr'd PPSP (dBm) | PPSP Limit (dBm) | PPSP Margin (dB) |
|---------|----------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|------------------------|
| Low | 5270 | -1.02 | -0.90 | -0.47 | -0.65 | 5.39 | 11.00 | -5.61 |
| High | 5310 | -1.30 | -0.68 | -0.97 | -0.75 | 5.22 | 11.00 | -5.78 |

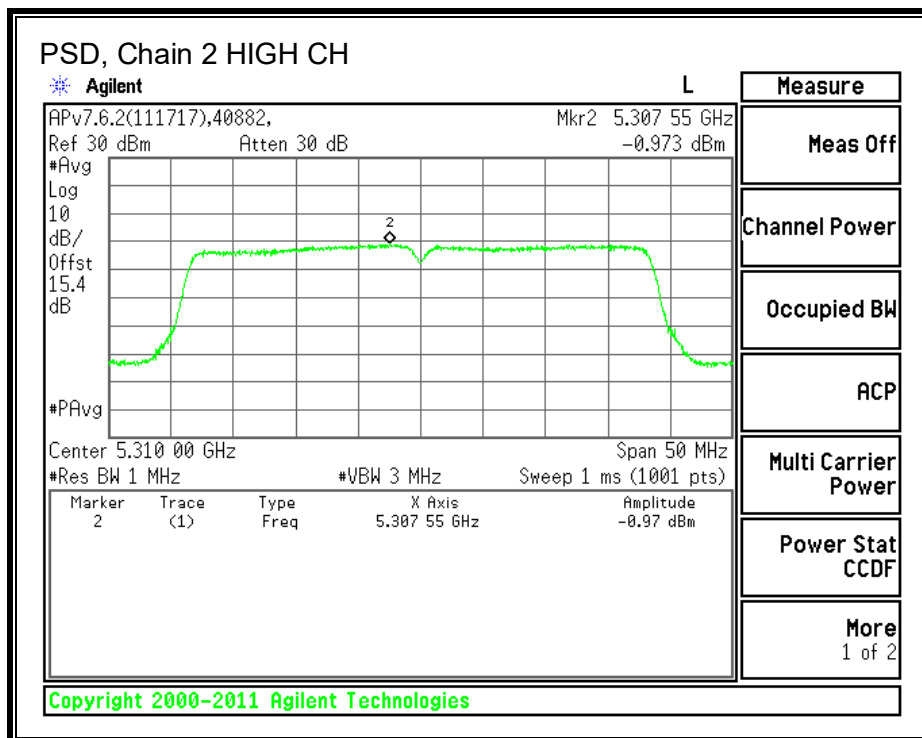
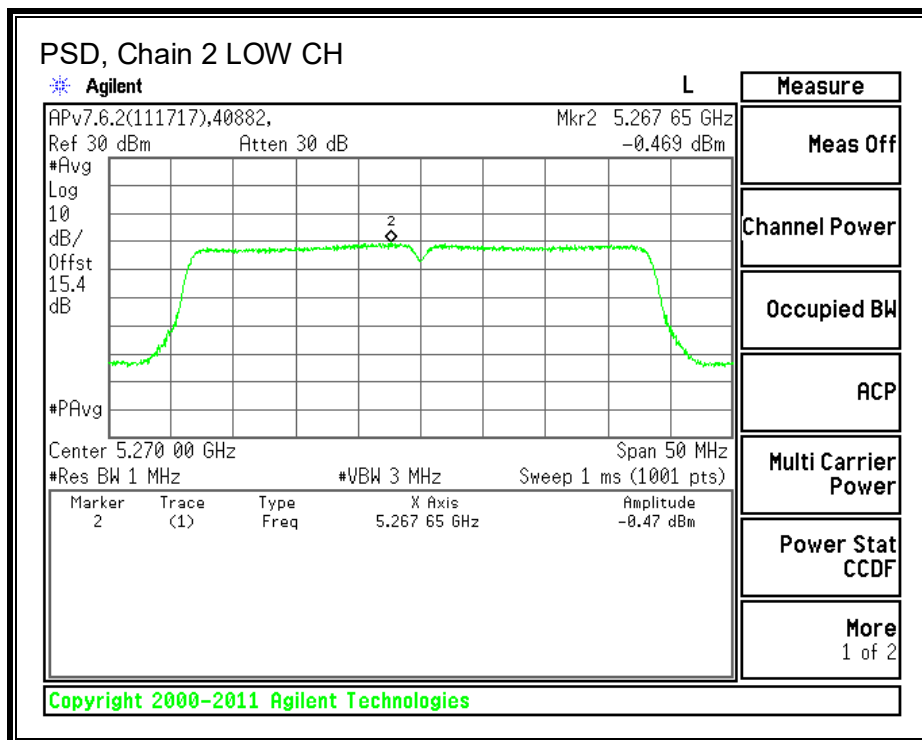
PSD, Chain 0



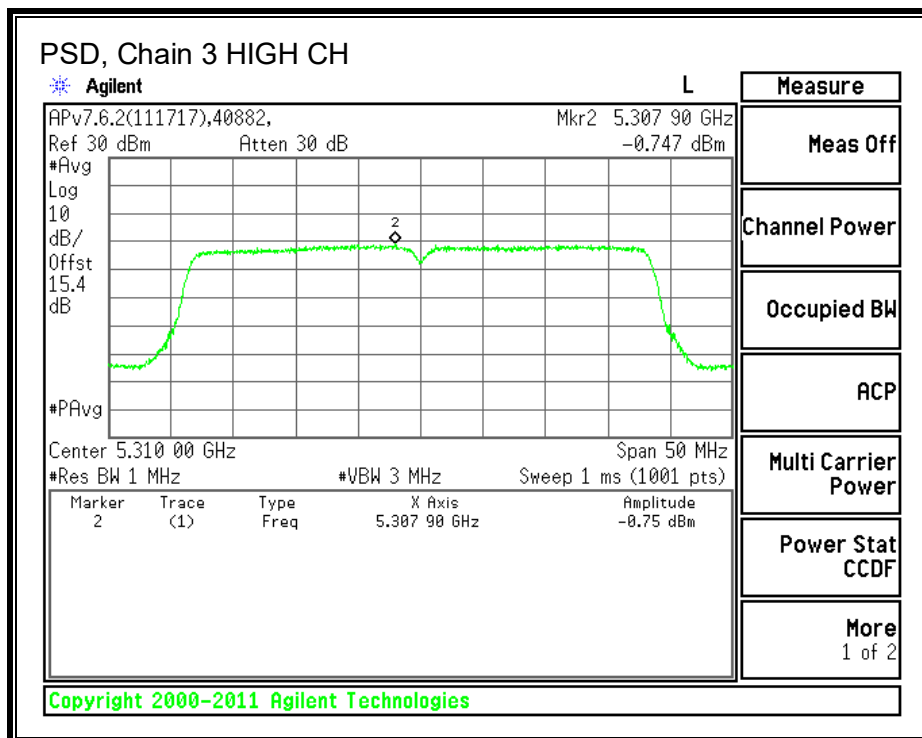
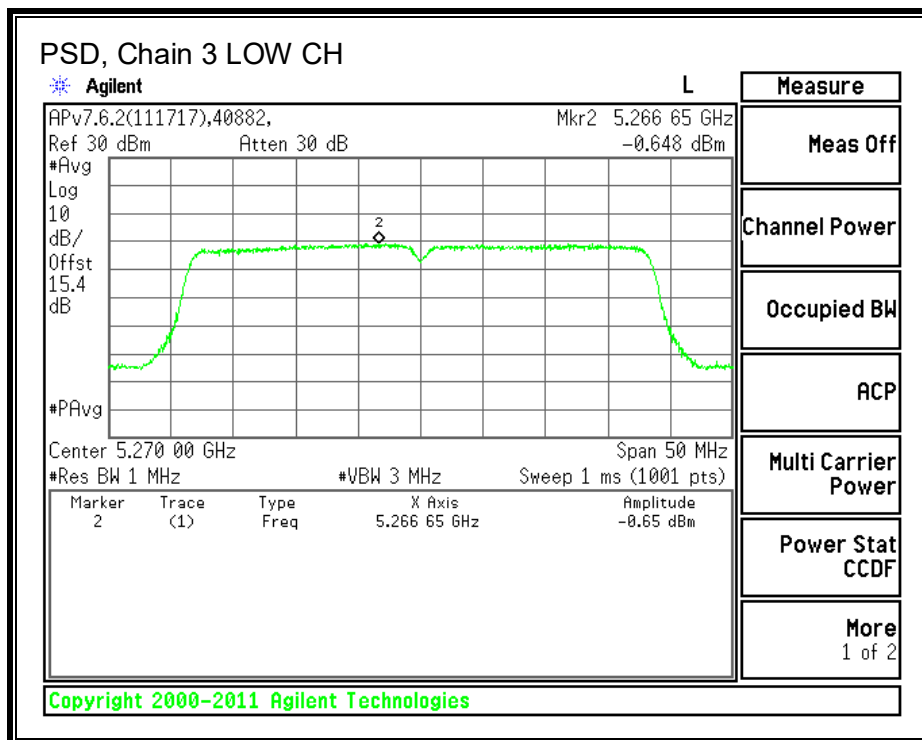
PSD, Chain 1



PSD, Chain 2



PSD, Chain 3



10.4. 802.11a MODE IN THE 5.6 GHz BAND

10.4.1. FCC OUTPUT POWER AND PSD LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26-dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

This EUT mode is 802.11a. Per KDB 662911, no array gain is added for power when $N_{\text{ANT}} \leq 4$. Therefore, the directional gains are as follows:

Output Power

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Chain 2 Antenna Gain (dBi) | Chain 3 Antenna Gain (dBi) | Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|------------------------------|
| 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |

PSD

| Antenna Gain (dBi) | 10 * Log (4 chains) (dB) | Correlated Chains Directional Gain (dBi) |
|--------------------------|-----------------------------|--|
| 5.50 | 6.02 | 11.52 |

RESULTS

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PSD (dBi) | Power Limit (dBm) | PSD Limit (dBm) |
|---------|--------------------|-----------------------------|---|---|-------------------------|-----------------------|
| Low | 5500 | 18.75 | 5.50 | 11.52 | 23.73 | 5.48 |
| Mid | 5580 | 18.58 | 5.50 | 11.52 | 23.69 | 5.48 |
| High | 5700 | 18.58 | 5.50 | 11.52 | 23.69 | 5.48 |

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

Output Power Results

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low | 5500 | 8.16 | 8.36 | 8.39 | 8.23 | 14.45 | 23.73 | -9.28 |
| Mid | 5580 | 8.44 | 9.12 | 9.18 | 8.47 | 14.98 | 23.69 | -8.71 |
| High | 5700 | 9.02 | 8.26 | 8.29 | 8.86 | 14.78 | 23.69 | -8.91 |

PSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PSD (dBm) | Chain 1 Meas PSD (dBm) | Chain 2 Meas PSD (dBm) | Chain 3 Meas PSD (dBm) | Total Corr'd PSD (dBm) | PSD Limit (dBm) | PSD Margin (dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low | 5500 | -2.34 | -1.19 | -2.20 | -2.36 | 4.17 | 5.48 | -1.31 |
| Mid | 5580 | -2.08 | -0.85 | -1.78 | -2.02 | 4.51 | 5.48 | -0.97 |
| High | 5700 | -1.56 | -1.75 | -1.20 | -1.35 | 4.70 | 5.48 | -0.78 |

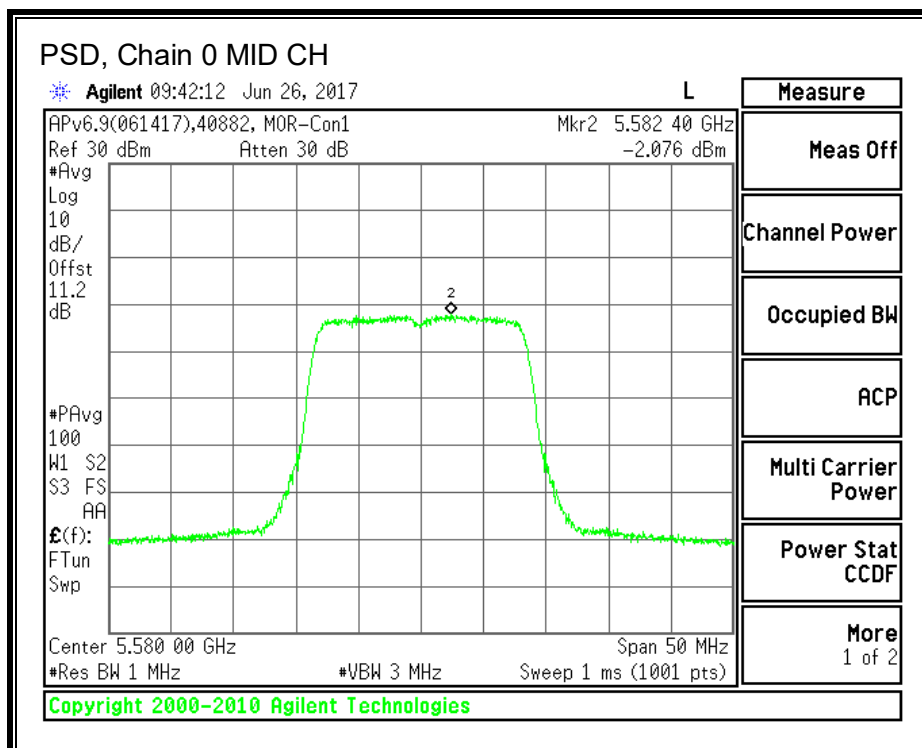
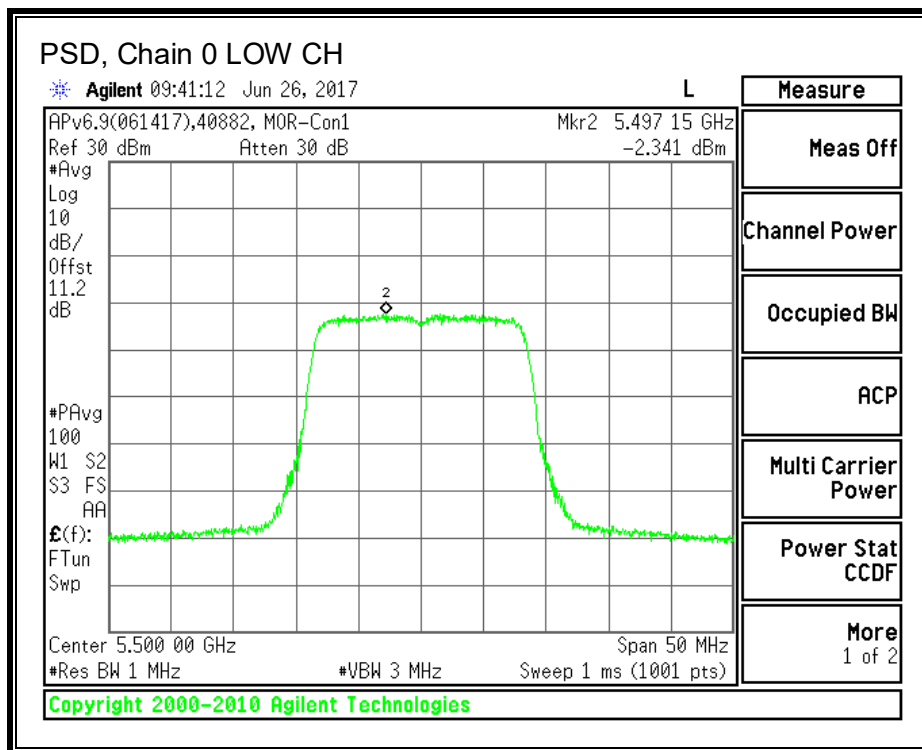
Power was lowered from original Aruba grant for Bandedge compliancy.

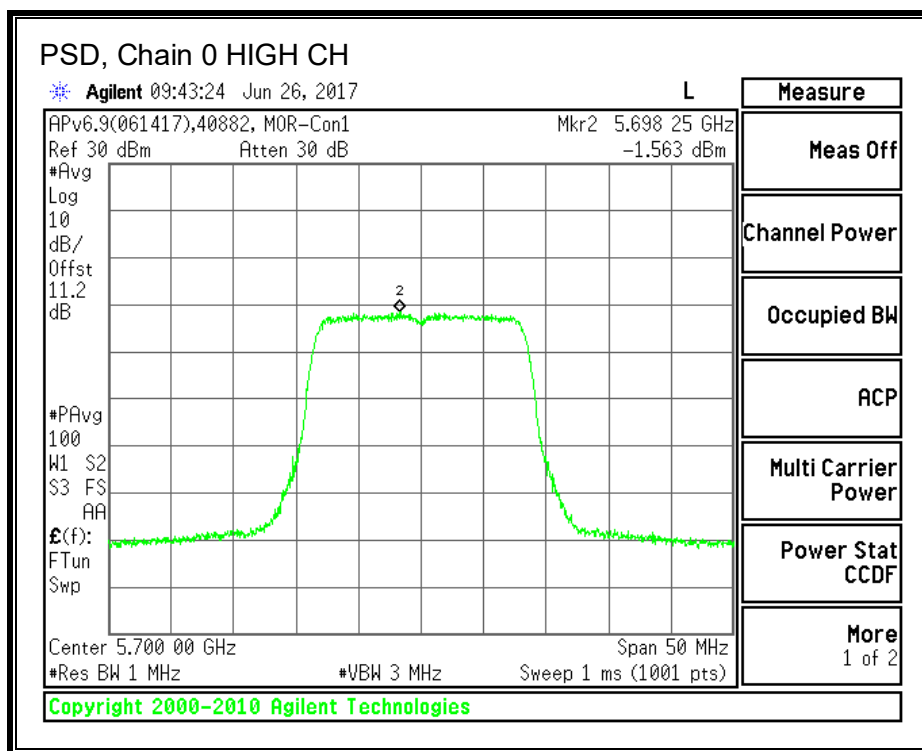
TEST INFORMATION

Date: 2017-06-09 and 2017-06-26

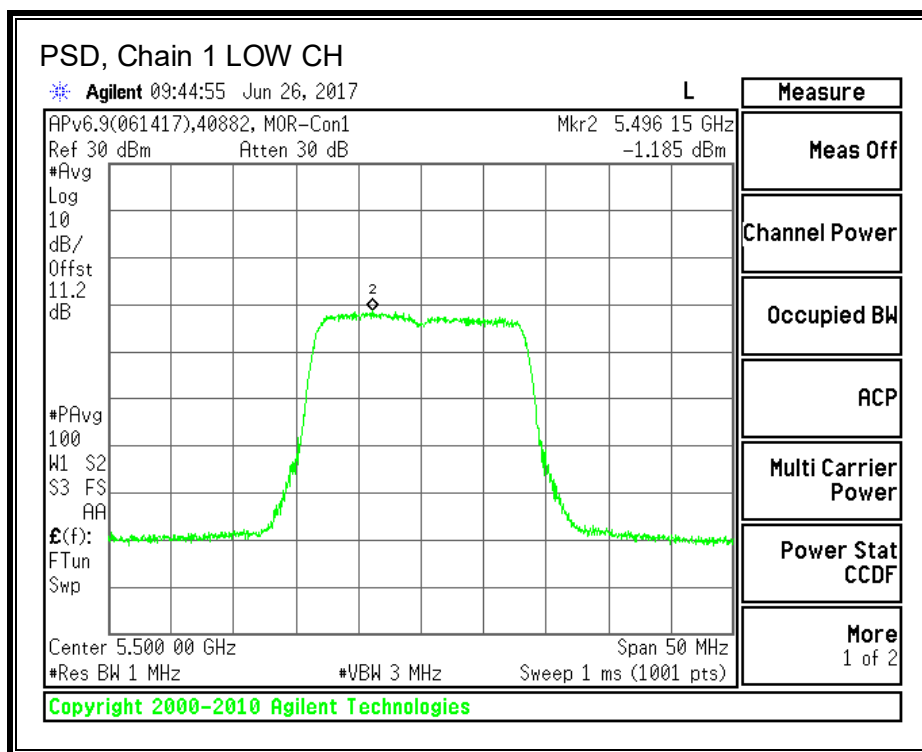
Tester: John Manser and Jeffrey Cabrera

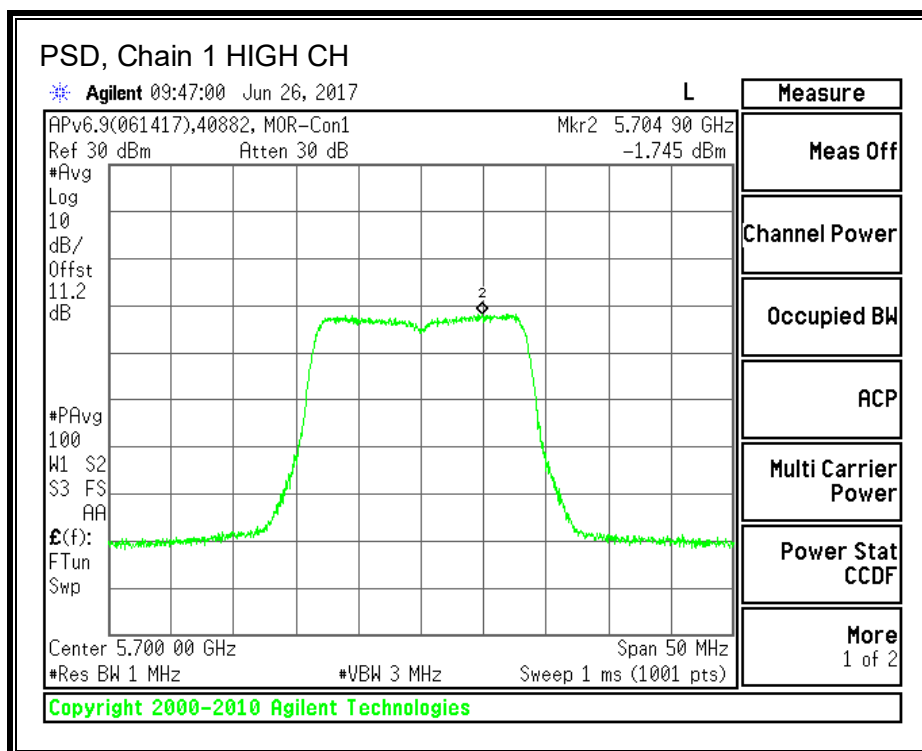
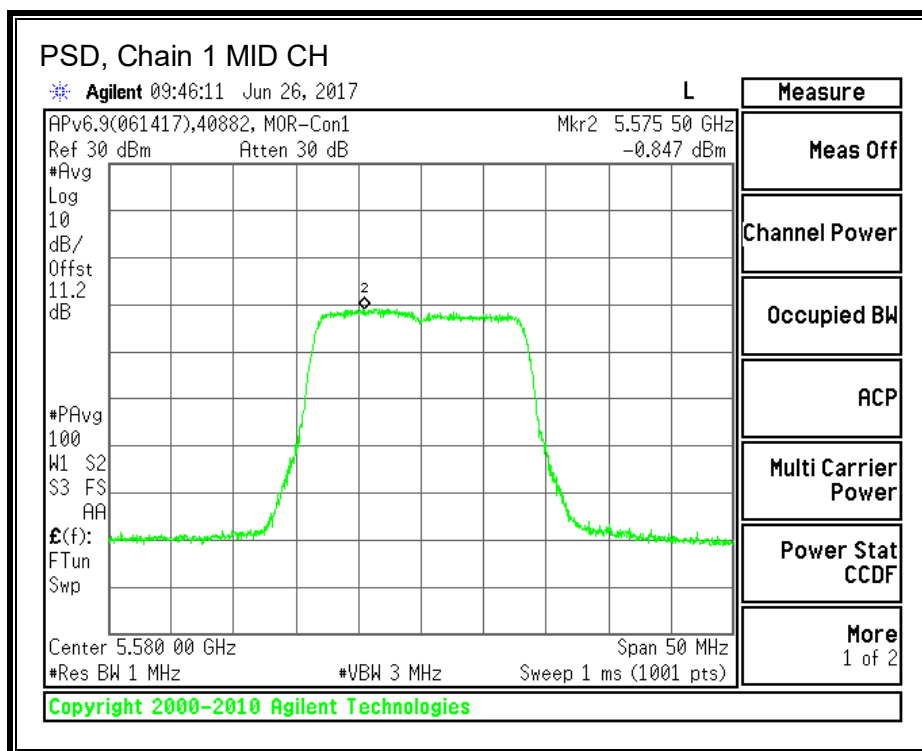
PSD, Chain 0



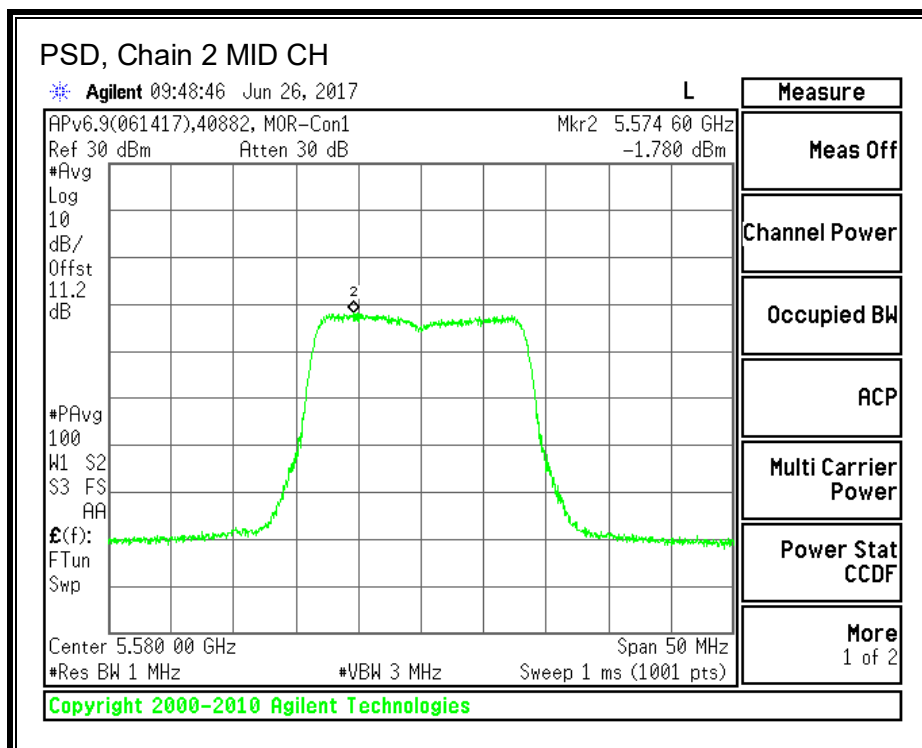
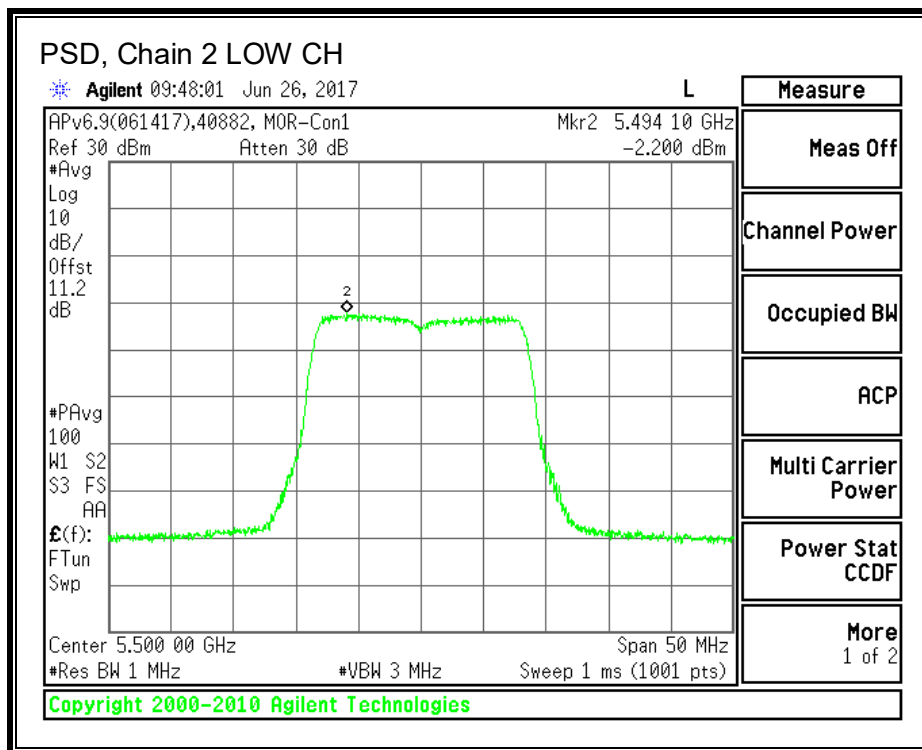


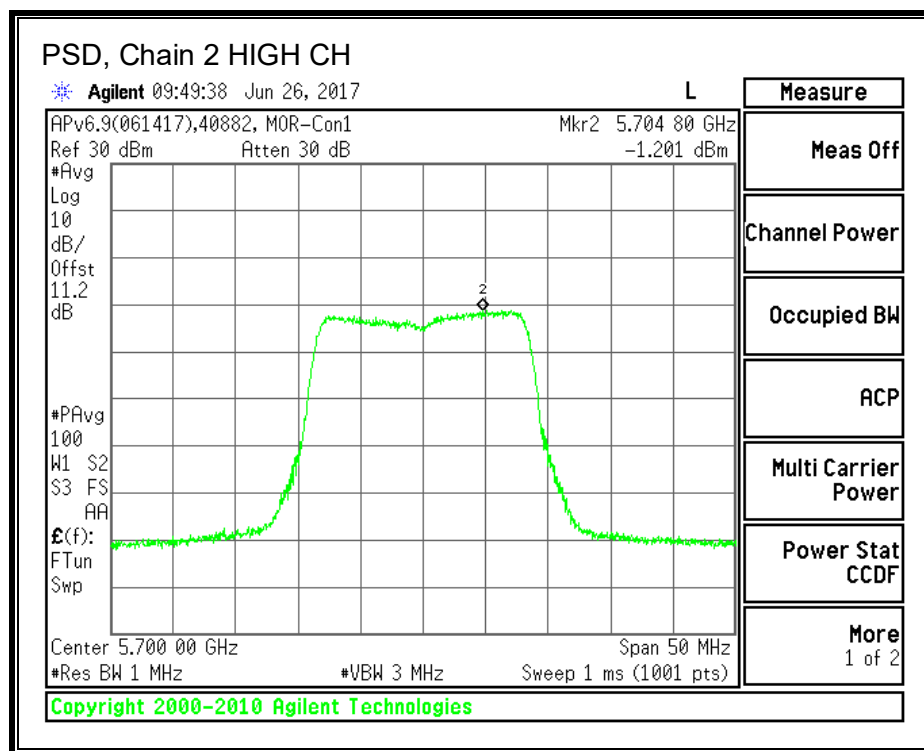
PSD, Chain 1



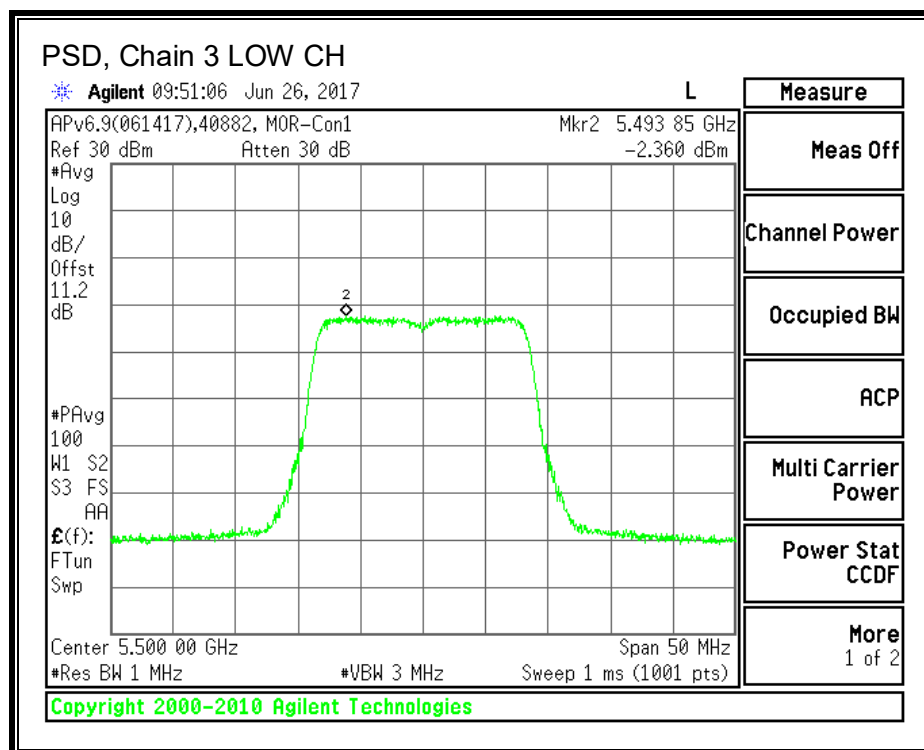


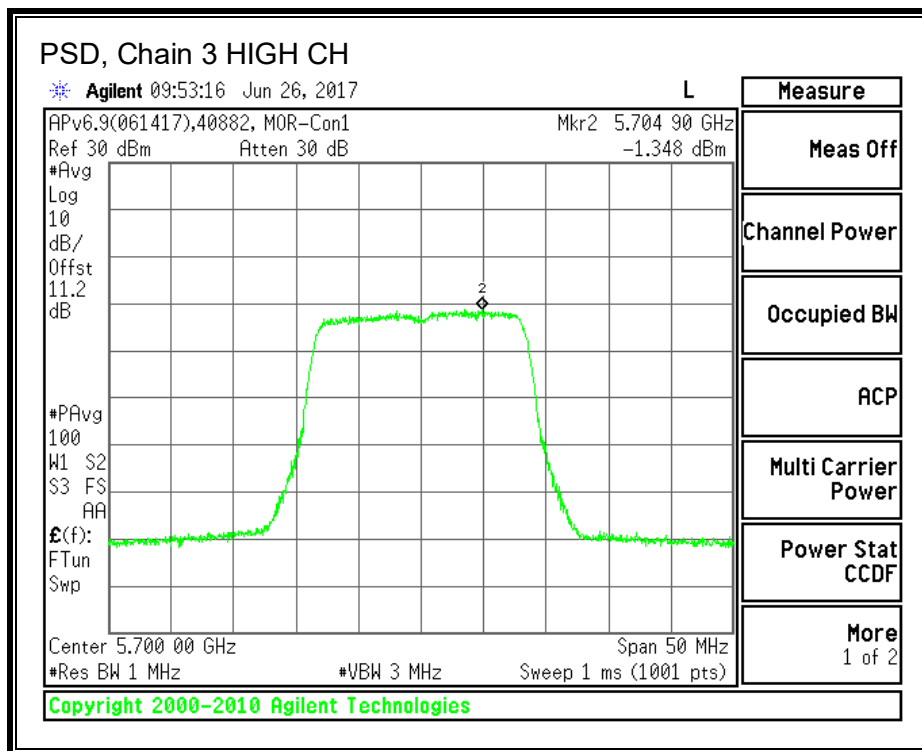
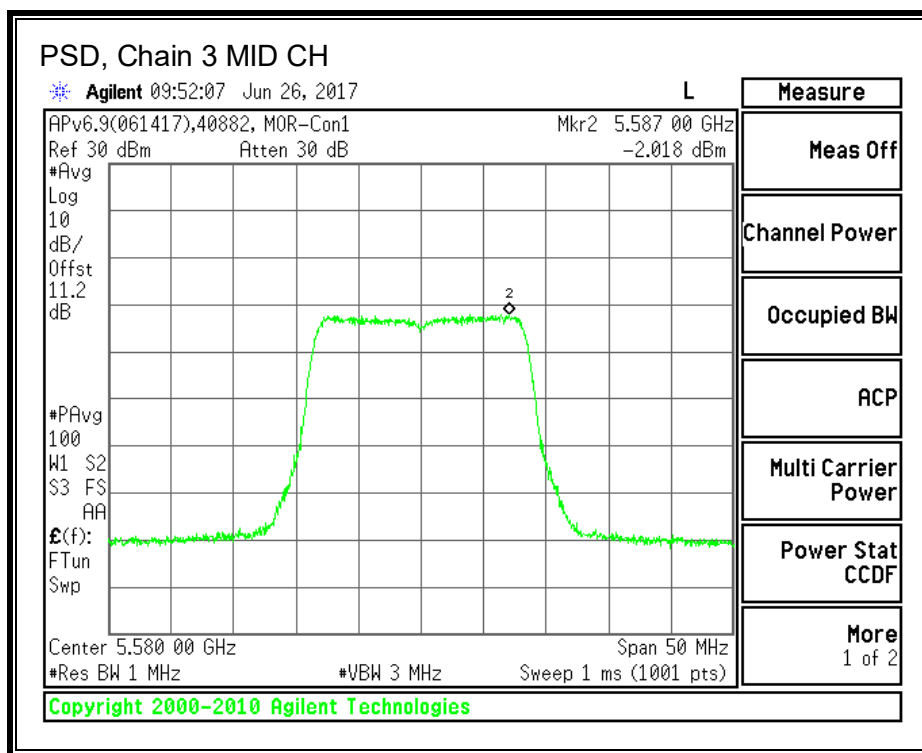
PSD, Chain 2





PSD, Chain 3





STRADDLE CHANNEL 144 RESULTS
UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PSD (dBi) | Power Limit (dBm) | PSD Limit (dBm) |
|---------|--------------------|-----------------------------|---|---|-------------------------|-----------------------|
| 144 | 5720 | 19.90 | 5.50 | 11.52 | 23.99 | 5.48 |

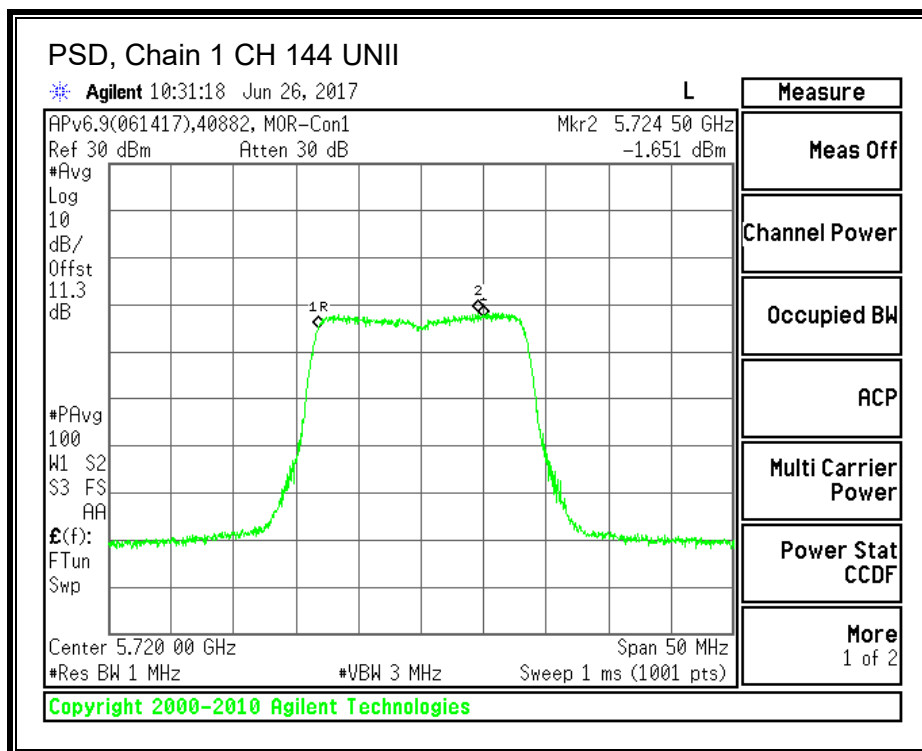
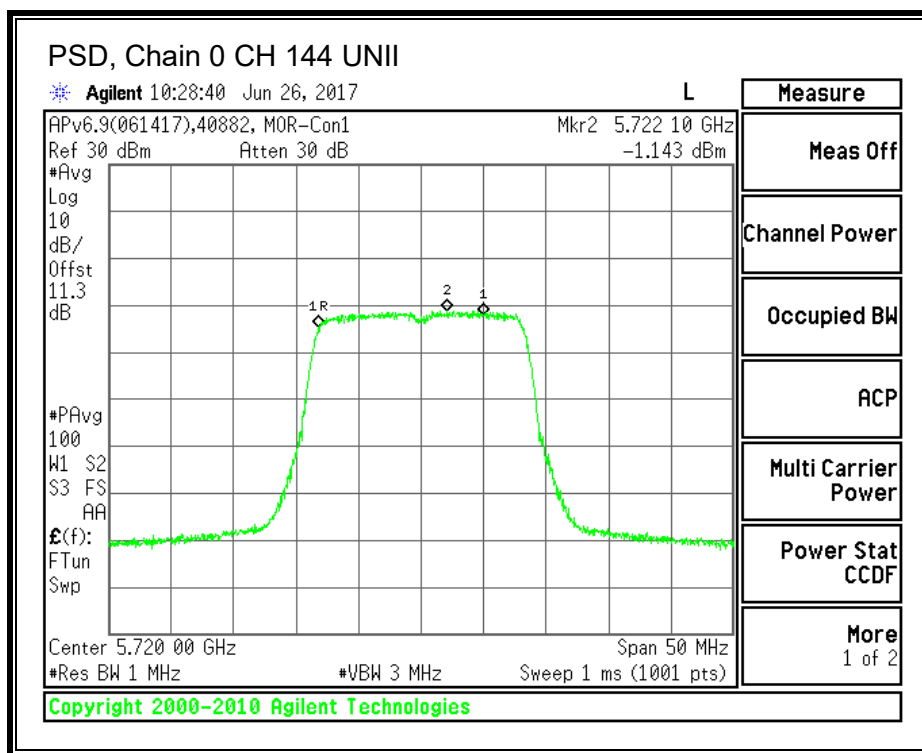
| | | |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.14 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|

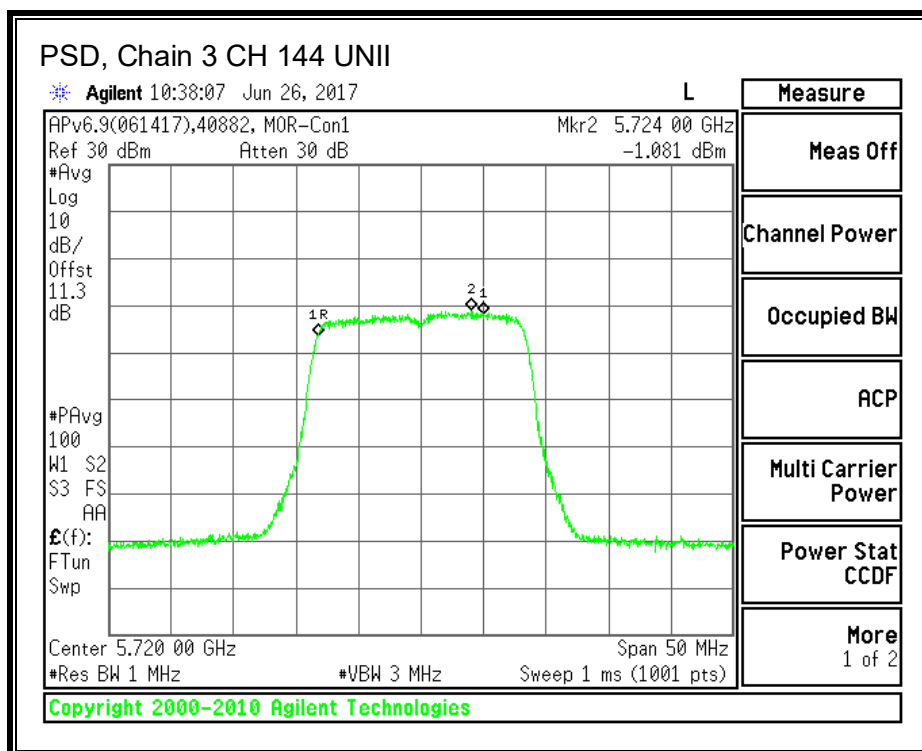
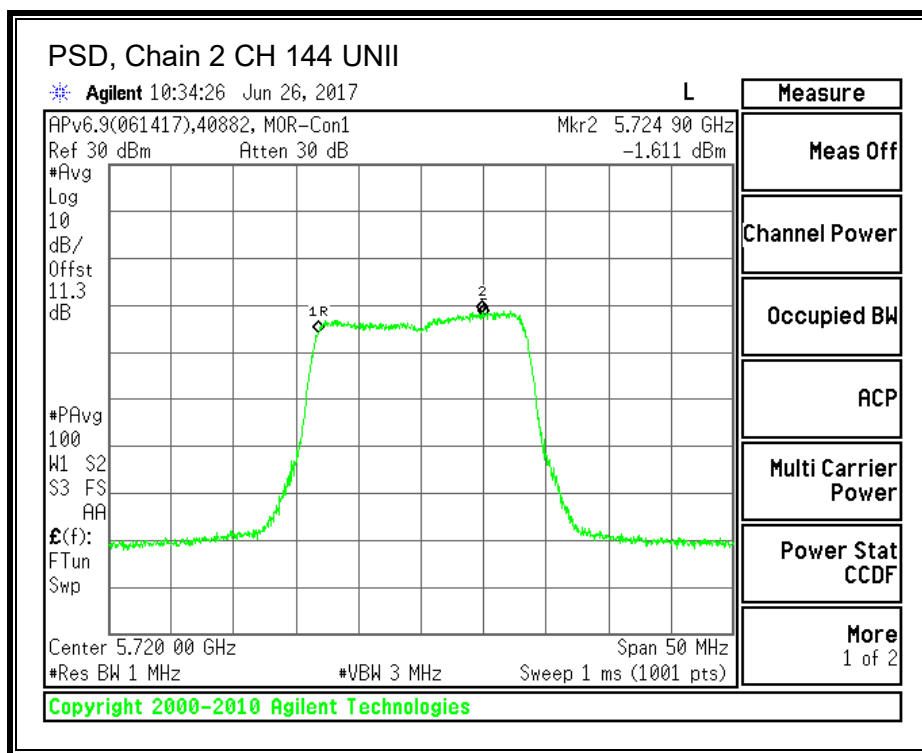
Output Power Results

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 144 | 5720 | 8.9 | 8.26 | 8.28 | 8.83 | 14.74 | 23.99 | -9.25 |

PSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PSD (dBm) | Chain 1 Meas PSD (dBm) | Chain 2 Meas PSD (dBm) | Chain 3 Meas PSD (dBm) | Total Corr'd PSD (dBm) | PSD Limit (dBm) | PSD Margin (dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 144 | 5720 | -1.14 | -1.65 | -1.61 | -1.08 | 4.80 | 5.48 | -0.68 |





UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional Gain | Directional Gain | Power Limit | PSD Limit |
|---------|-----------|------------------|------------------|-------------|-----------|
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 144 | 5720.00 | 5.50 | 11.52 | 30.00 | 24.48 |

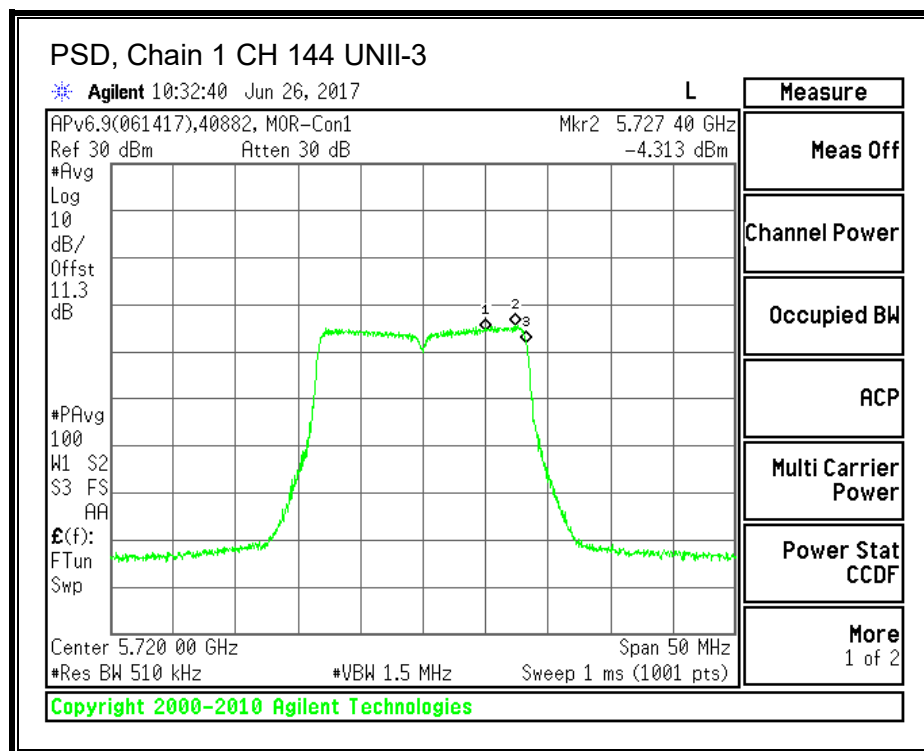
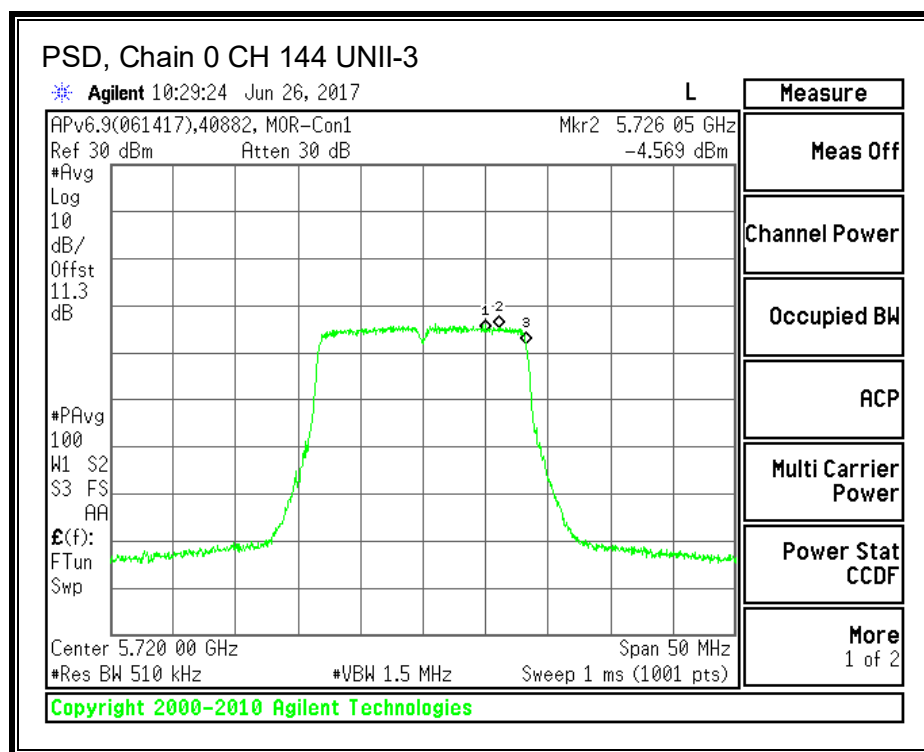
| | | |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.14 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|

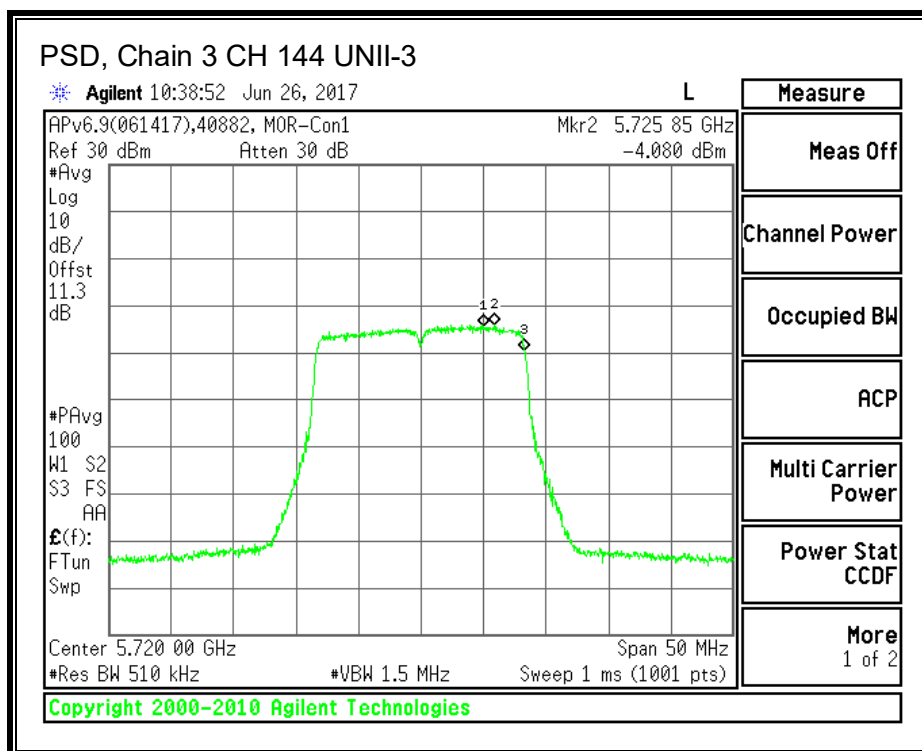
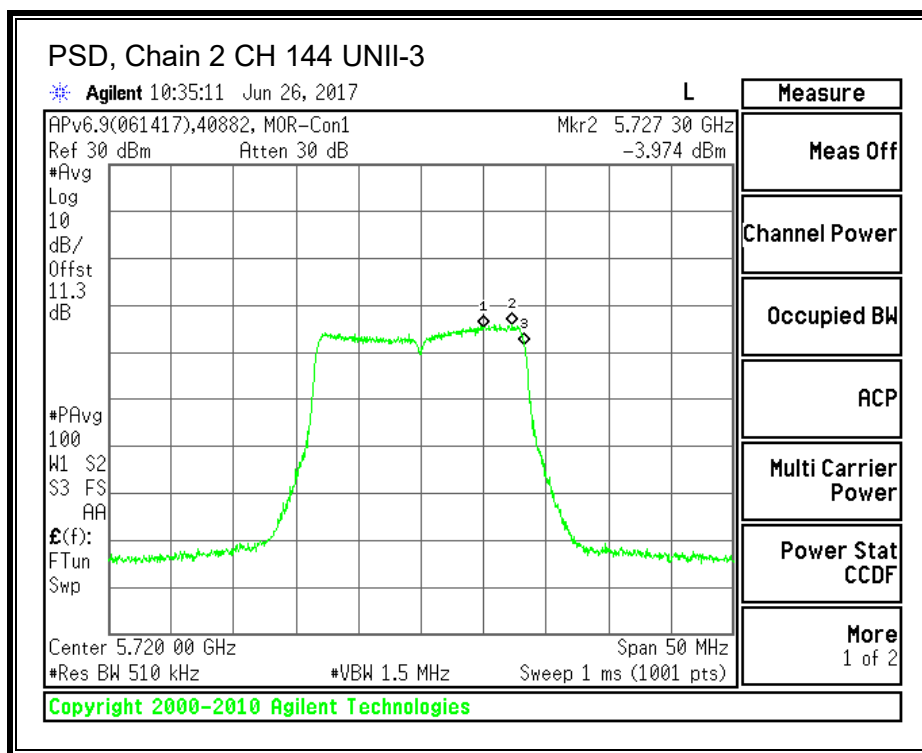
Output Power Results

| Channel | Frequency | Chain 0 Meas Power | Chain 1 Meas Power | Chain 2 Meas Power | Chain 3 Meas Power | Total Corr'd Power | Power Limit | Power Margin |
|---------|-----------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------|--------------|
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 8.9 | 8.26 | 8.28 | 8.83 | 14.74 | 30.00 | -15.26 |

PSD Results

| Channel | Frequency | Chain 0 Meas PSD | Chain 1 Meas PSD | Chain 2 Meas PSD | Chain 3 Meas PSD | Total Corr'd PSD | PSD Limit | PSD Margin |
|---------|-----------|------------------|------------------|------------------|------------------|------------------|-----------|------------|
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | -4.57 | -4.31 | -3.97 | -4.08 | 1.93 | 24.48 | -22.55 |





10.4.2. IC OUTPUT POWER AND PSD

LIMITS

IC RSS-247 (6.2.3 [1])

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10} B$, dBm, whichever power is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

DIRECTIONAL ANTENNA GAIN

This EUT mode is 802.11a. Per KDB 662911, no array gain is added for power when $N_{ANT} \leq 4$. Therefore, the directional gains are as follows:

Output Power

| Chain 0 Antenna Gain (dBi) | Chain 1 Antenna Gain (dBi) | Chain 2 Antenna Gain (dBi) | Chain 3 Antenna Gain (dBi) | Directional Gain (dBi) |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|------------------------------|
| 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |

PSD

| Antenna Gain (dBi) | 10 * Log (4 chains) (dB) | Correlated Chains Directional Gain (dBi) |
|--------------------------|-----------------------------|--|
| 5.50 | 6.02 | 11.52 |

TEST INFORMATION

Date: 2017-06-09 and 2017-06-26

Tester: John Manser and Jeffrey Cabrera

Power was lowered from original Aruba grant for Bandedge compliancy.

RESULTS

Bandwidth and Antenna Gain

| Channel | Freq. (MHz) | Min 99% BW (MHz) | Direct. Gain for Power (dBi) | Direct. Gain for PPSD (dBi) |
|---------|----------------|---------------------------|--|--------------------------------------|
| Low | 5500 | 16.3530 | 5.50 | 11.52 |
| Mid | 5580 | 16.3440 | 5.50 | 11.52 |
| High | 5700 | 16.3260 | 5.50 | 11.52 |

Limits

| Channel | Freq. (MHz) | IC EIRP Limit (dBm) | IC eirp PSD Limit (dBm) | IC Output Power Limit (dBm) |
|---------|----------------|------------------------------|-------------------------------------|---|
| Low | 5500 | 29.14 | 11.00 | 23.14 |
| Mid | 5580 | 29.13 | 11.00 | 23.13 |
| High | 5700 | 29.13 | 11.00 | 23.13 |

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

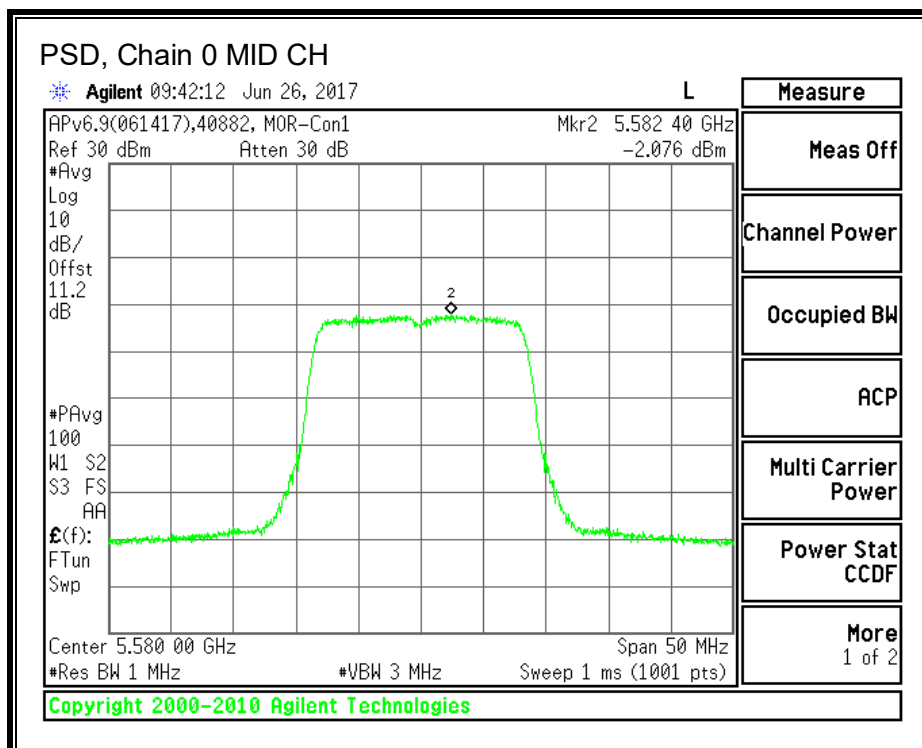
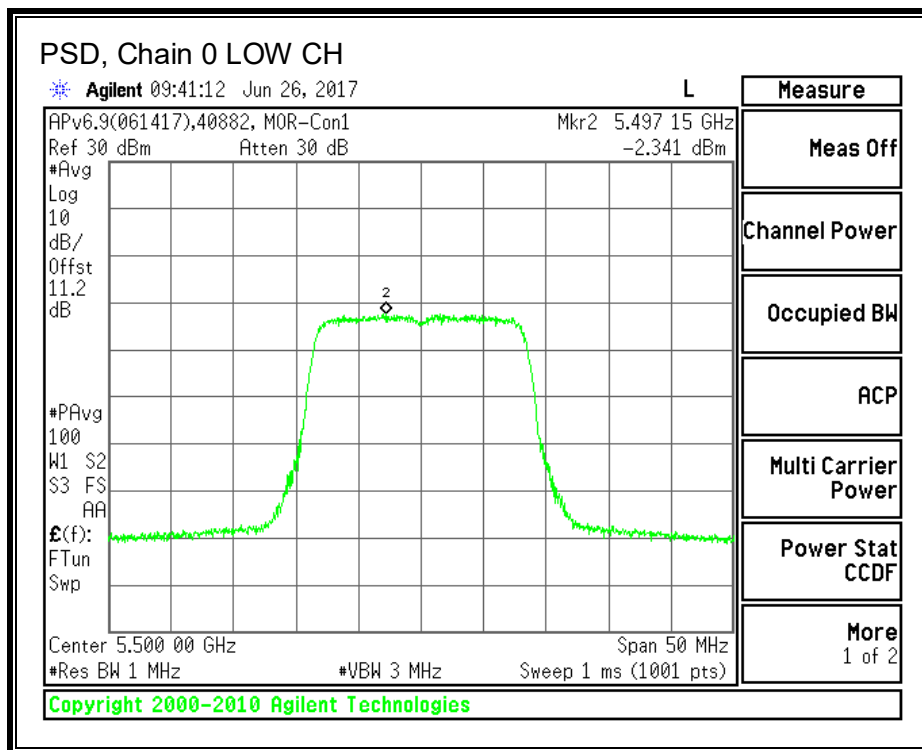
Output Power Results

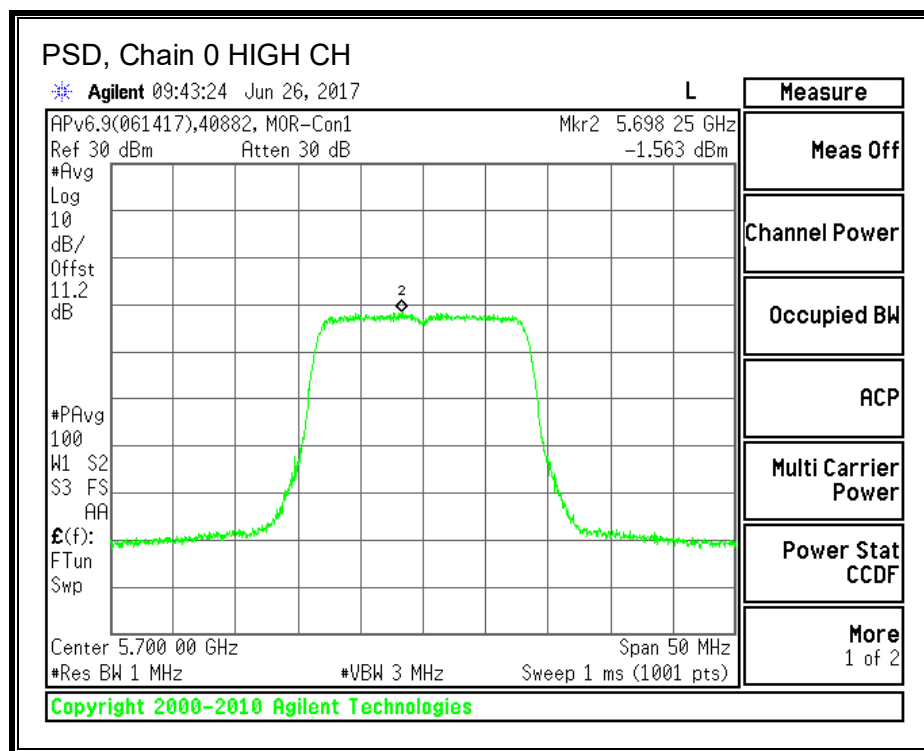
| Channel | Freq. (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd EIRP (dBm) | EIRP Limit (dBm) | EIRP Margin (dB) | Power Limit (dBm) | Power Margin (dB) |
|---------|----------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|----------------------------------|------------------------|------------------------|-------------------------|-------------------------|
| Low | 5500 | 8.16 | 8.36 | 8.39 | 8.23 | 19.95 | 29.14 | -9.19 | 23.14 | -8.69 |
| Mid | 5580 | 8.44 | 9.12 | 9.18 | 8.47 | 20.48 | 29.13 | -8.66 | 23.13 | -8.16 |
| High | 5700 | 9.02 | 8.26 | 8.29 | 8.86 | 20.28 | 29.13 | -8.85 | 23.13 | -8.35 |
| | | | | | | Power | | | | |
| | | | | | | 14.45 | | | | |
| | | | | | | 14.98 | | | | |
| | | | | | | 14.78 | | | | |

PPSD Results

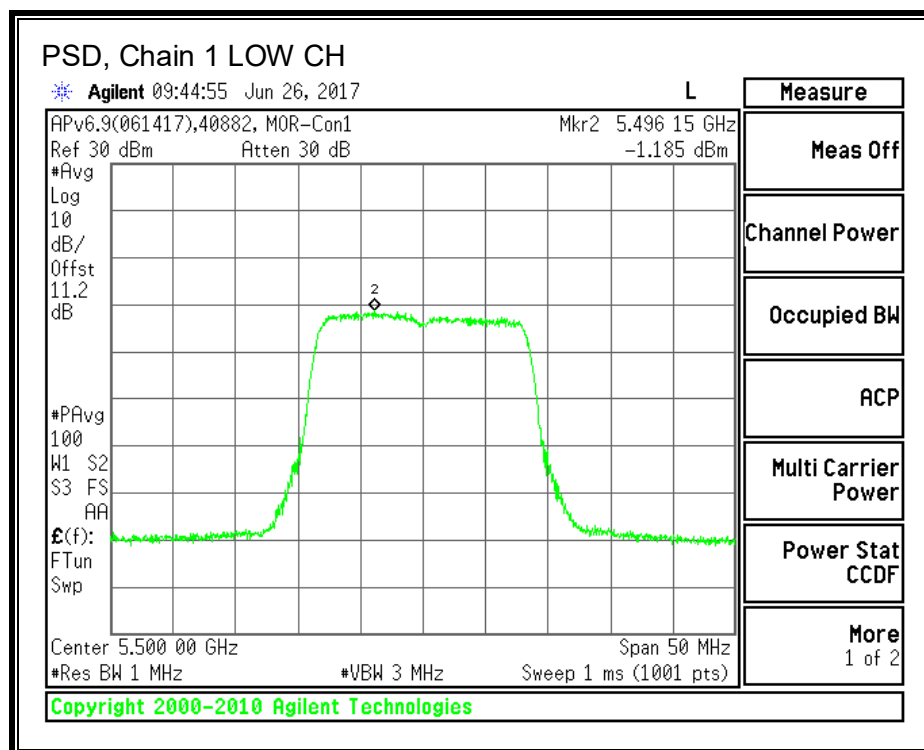
| Channel | Freq. (MHz) | Chain 0 Meas PPSD (dBm) | Chain 1 Meas PPSD (dBm) | Chain 2 Meas PPSD (dBm) | Chain 3 Meas PPSD (dBm) | Total Corr'd PPSD (dBm) | PPSD Limit (dBm) | PPSD Margin (dB) |
|---------|----------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|------------------------|
| Low | 5500 | -2.34 | -1.19 | -2.20 | -2.36 | 4.17 | 11.00 | -6.83 |
| Mid | 5580 | -2.08 | -0.85 | -1.78 | -2.02 | 4.51 | 11.00 | -6.49 |
| High | 5700 | -1.56 | -1.75 | -1.20 | -1.35 | 4.70 | 11.00 | -6.30 |

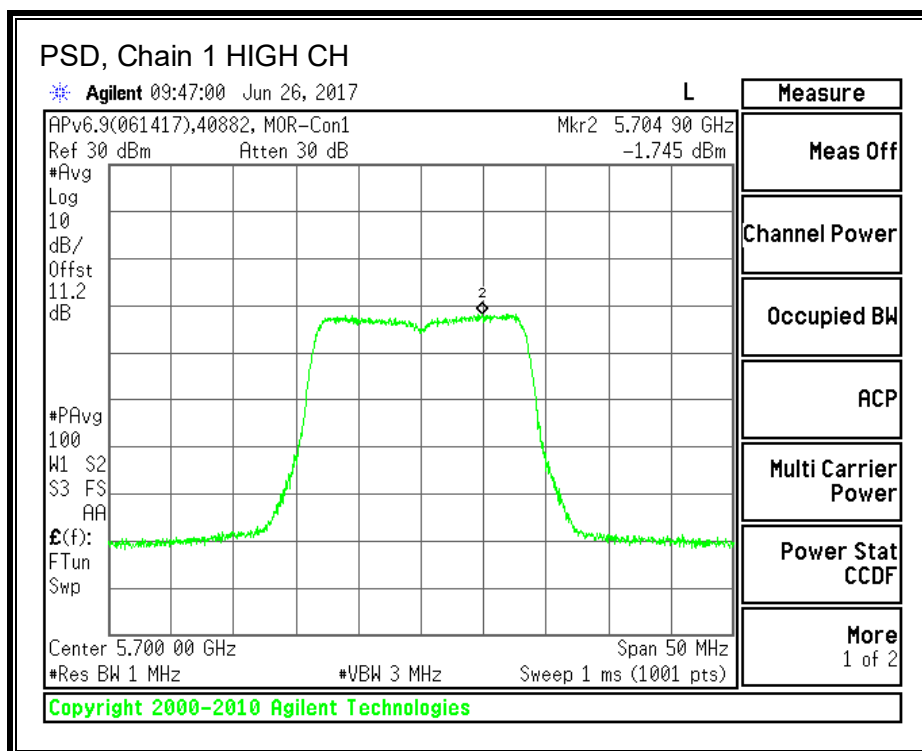
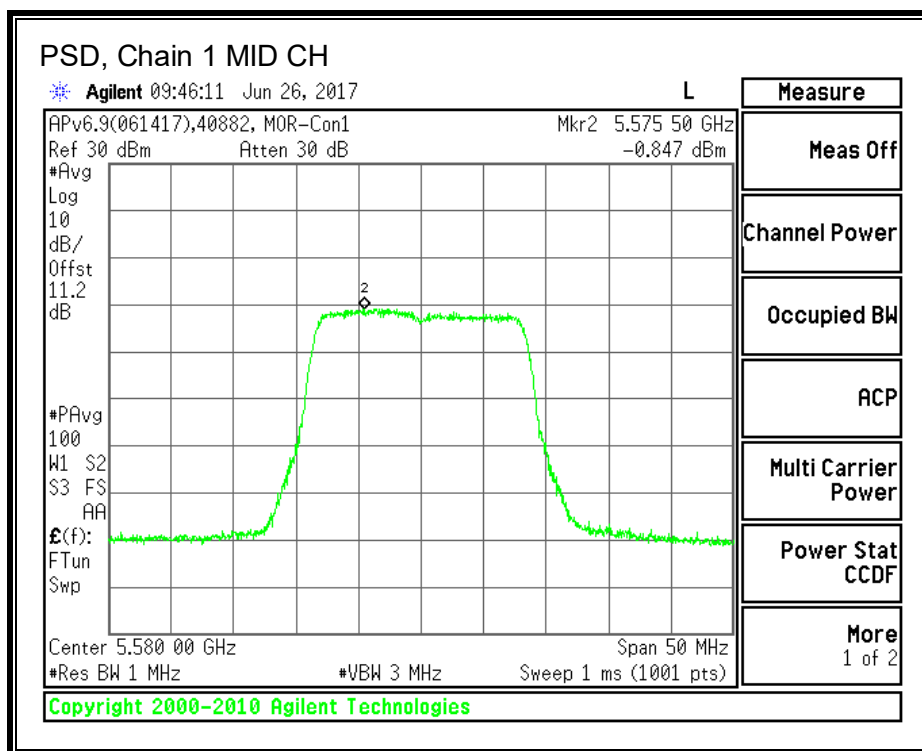
PSD, Chain 0



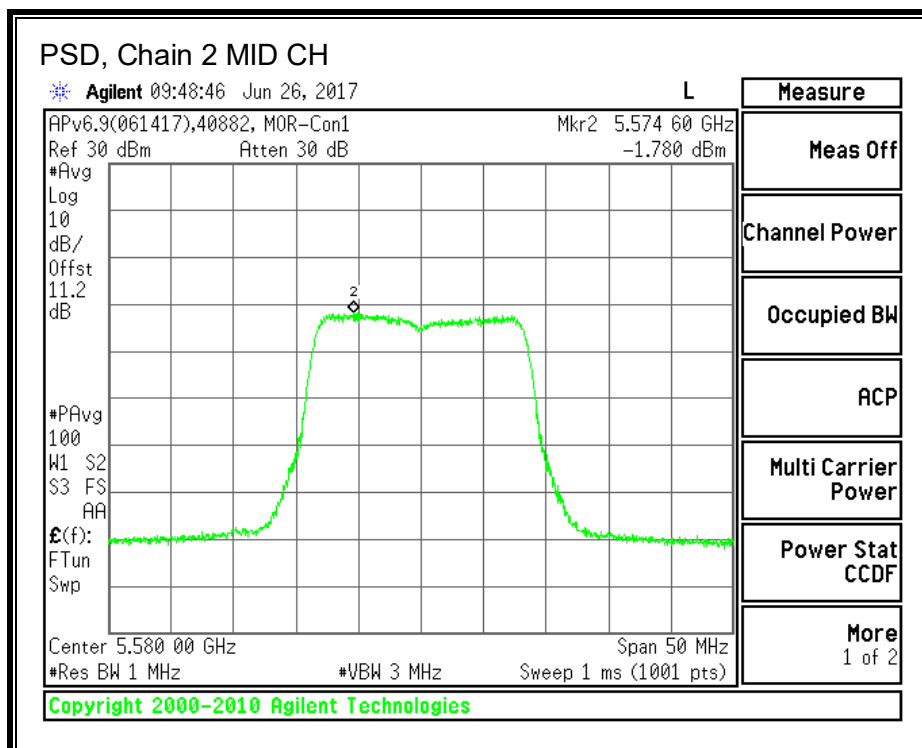
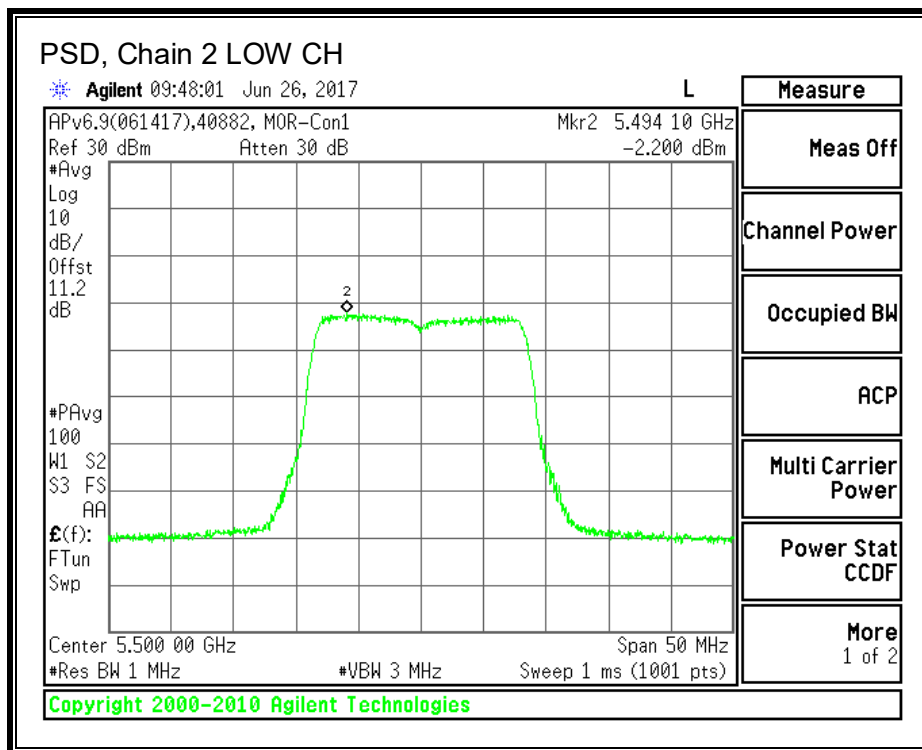


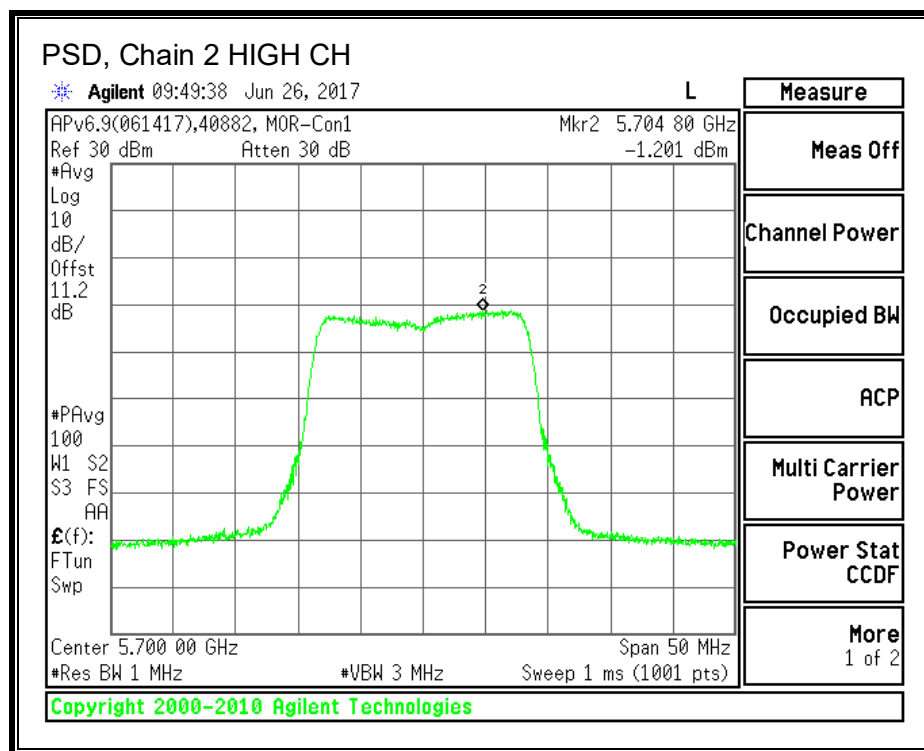
PSD, Chain 1



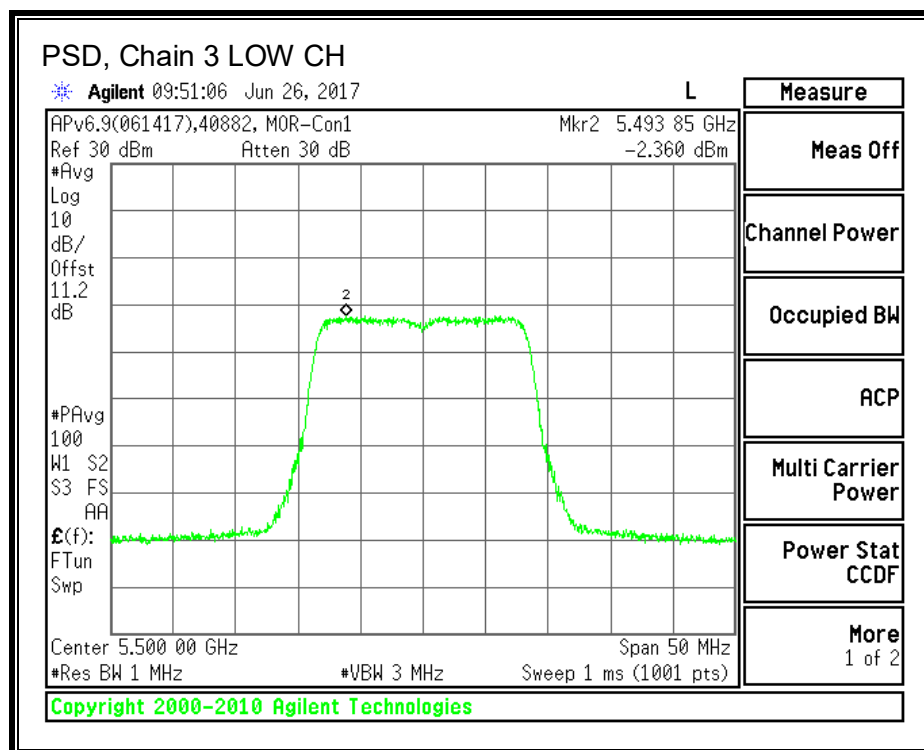


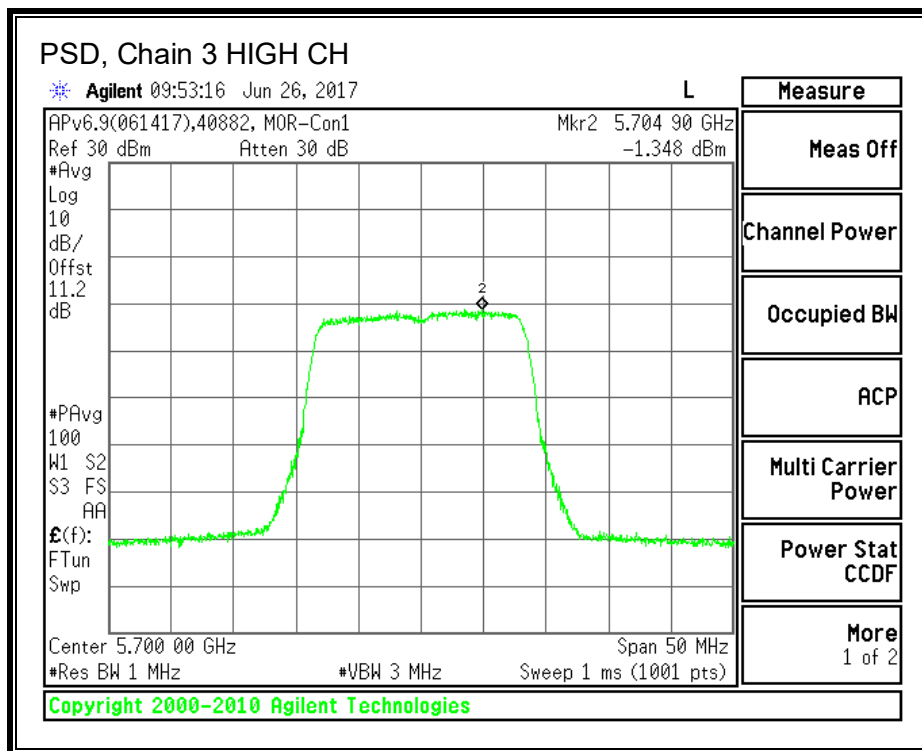
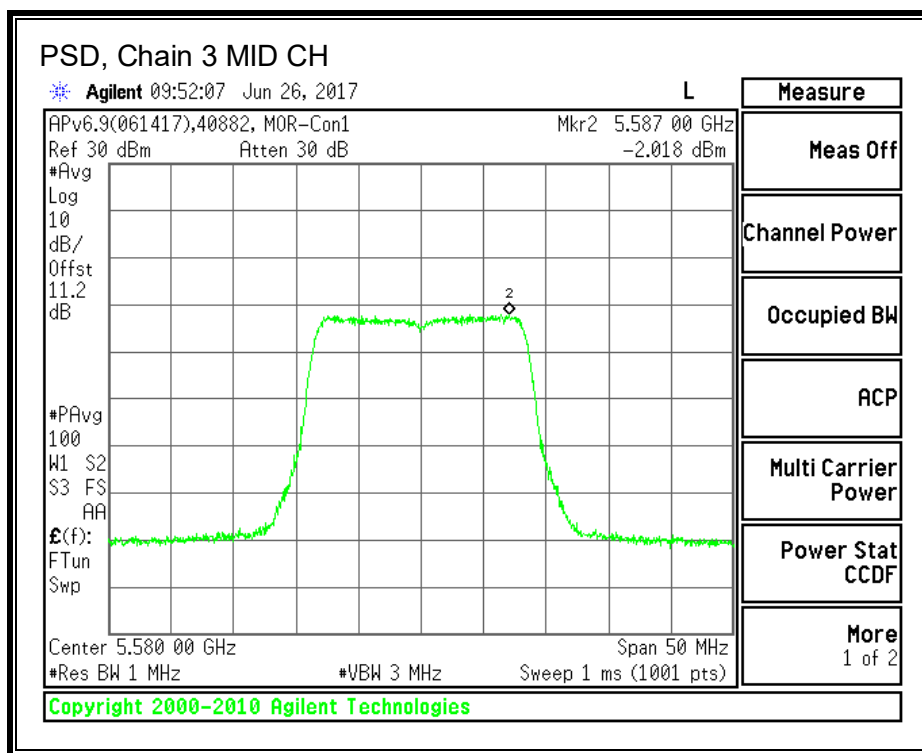
PSD, Chain 2





PSD, Chain 3





STRADDLE CHANNEL 144 RESULTS
UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency (MHz) | Min 99% BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PSD (dBi) | Power Limit (dBm) | PSD Limit (dBm) | EIRP Limit (dBm) |
|---------|--------------------|---------------------------|---|---|-------------------------|-----------------------|------------------------|
| 144 | 5720 | 16.33 | 5.50 | 11.52 | 23.13 | 11.00 | 29.13 |

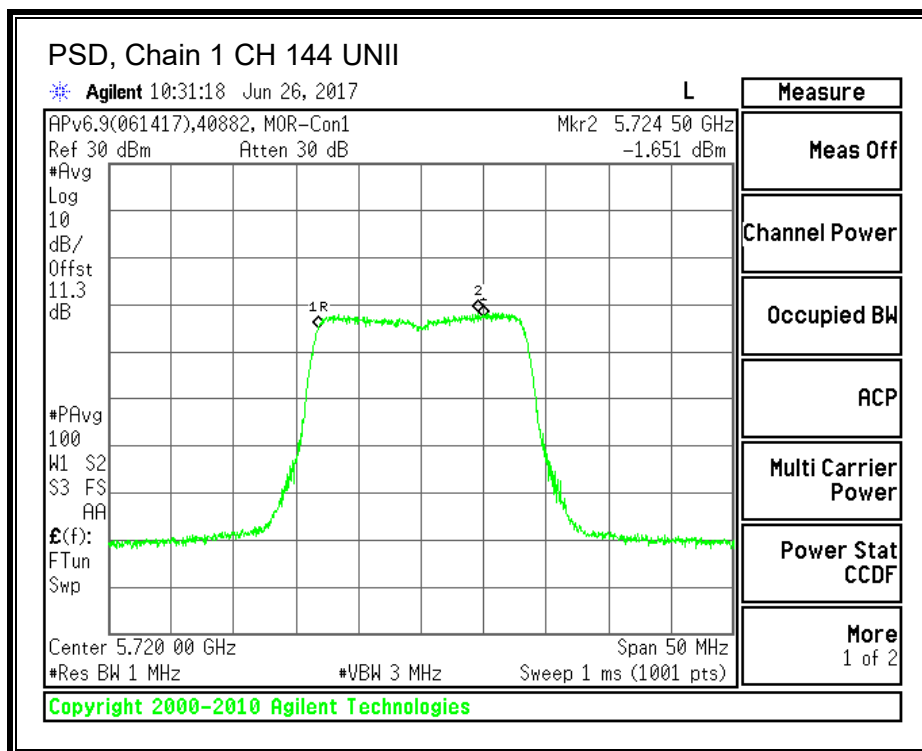
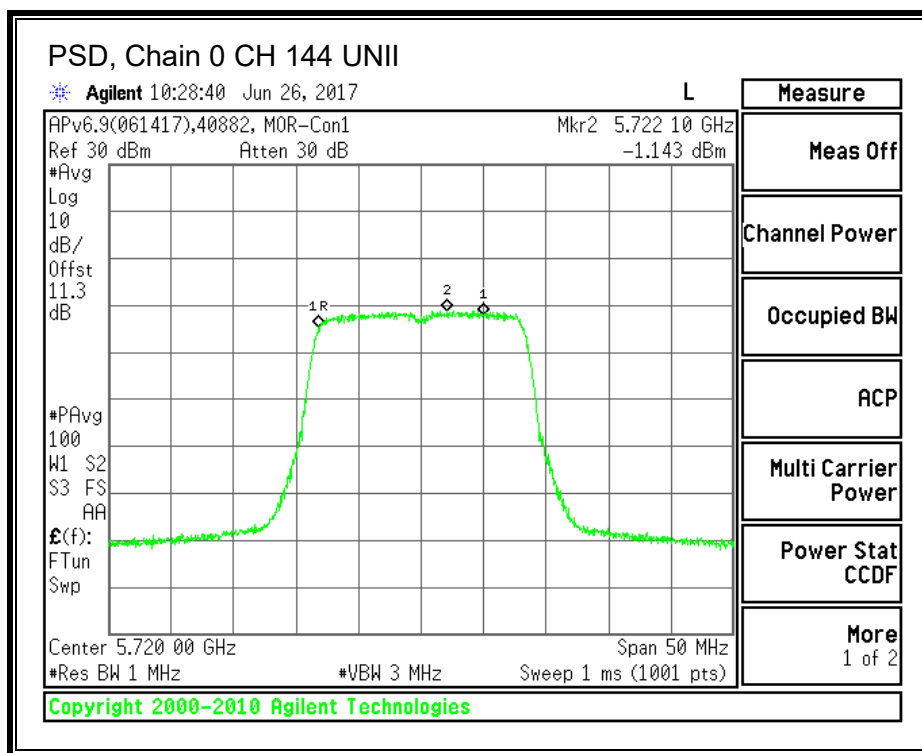
| | | |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.14 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|

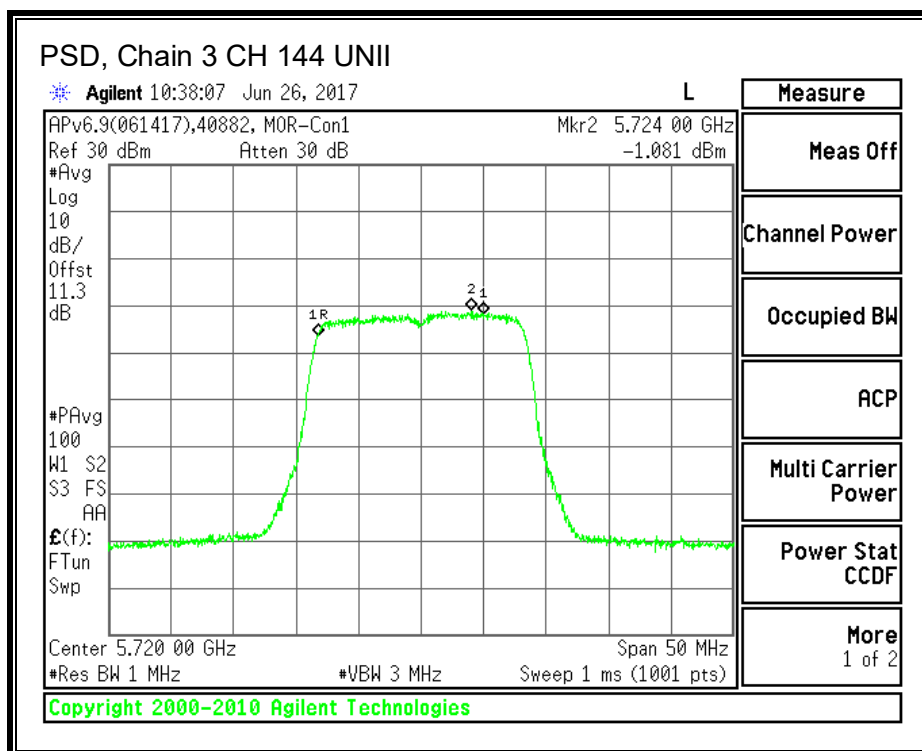
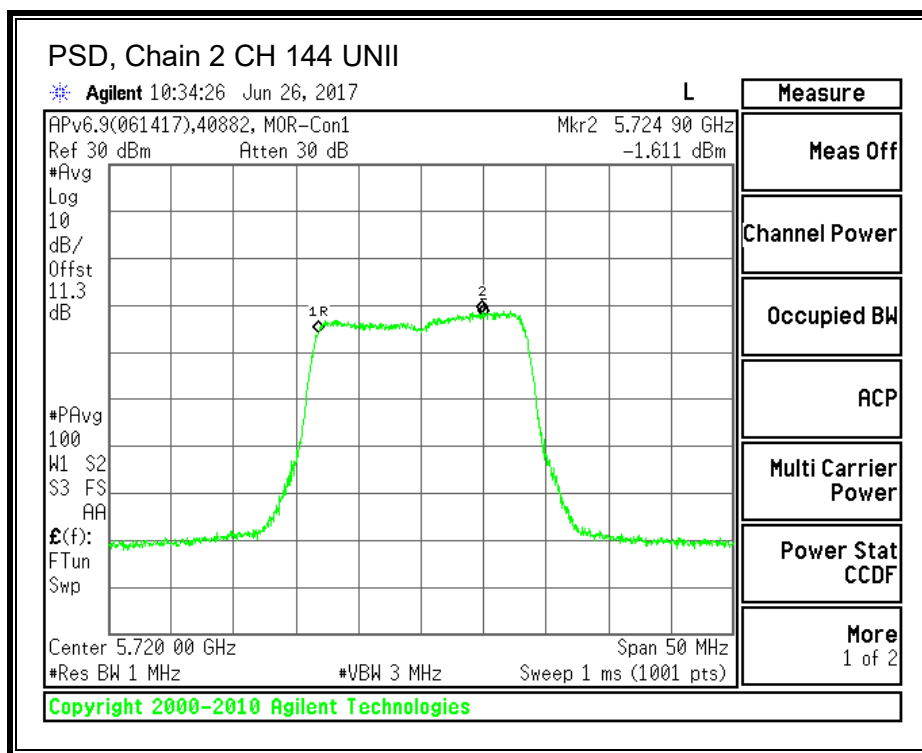
Output Power Results

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 144 | 5720 | 8.9 | 8.26 | 8.28 | 8.83 | 14.74 | 23.13 | -8.39 |
| | | | | | | EIRP | EIRP Limit | EIRP Margin |
| | | | | | | 20.24 | 29.13 | -8.89 |

PSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PSD (dBm) | Chain 1 Meas PSD (dBm) | Chain 2 Meas PSD (dBm) | Chain 3 Meas PSD (dBm) | Total Corr'd PSD (dBm) | PSD Limit (dBm) | PSD Margin (dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 144 | 5720 | -1.14 | -1.65 | -1.61 | -1.08 | 4.80 | 11.00 | -6.20 |





UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional Gain | Directional Gain | Power Limit | PSD Limit |
|---------|-----------|---------------------|---------------------|----------------|--------------|
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 144 | 5720.00 | 5.50 | 11.52 | 30.00 | 24.48 |

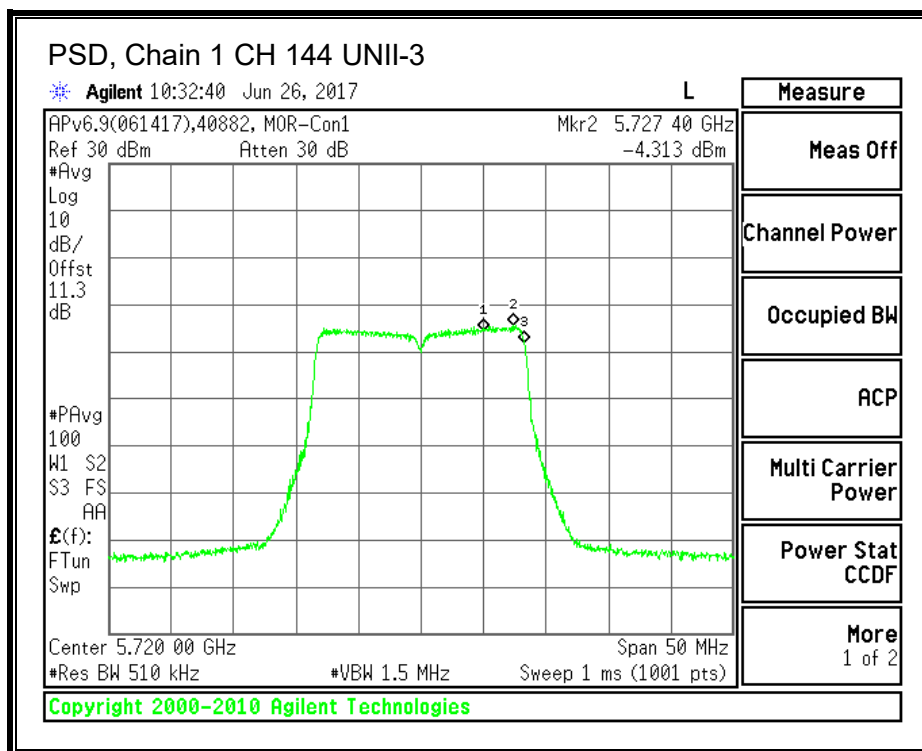
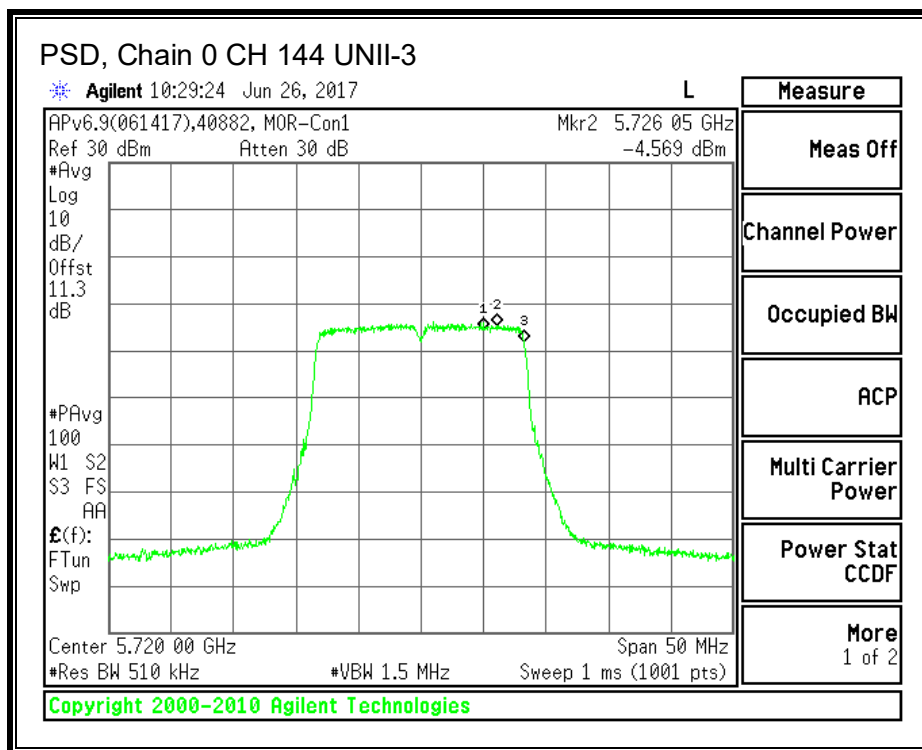
| | | |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.14 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|

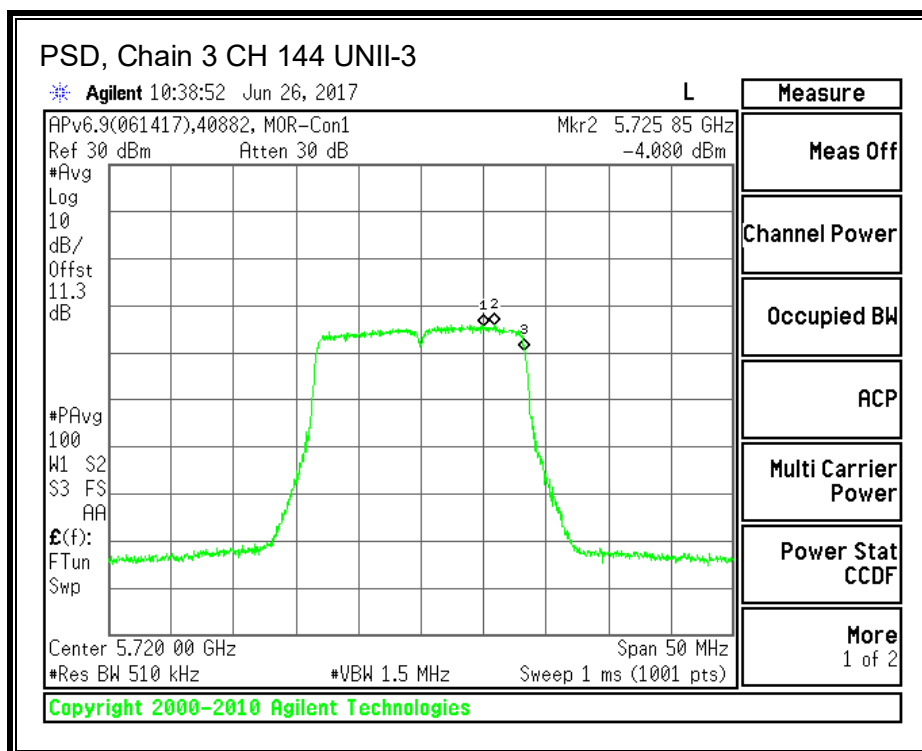
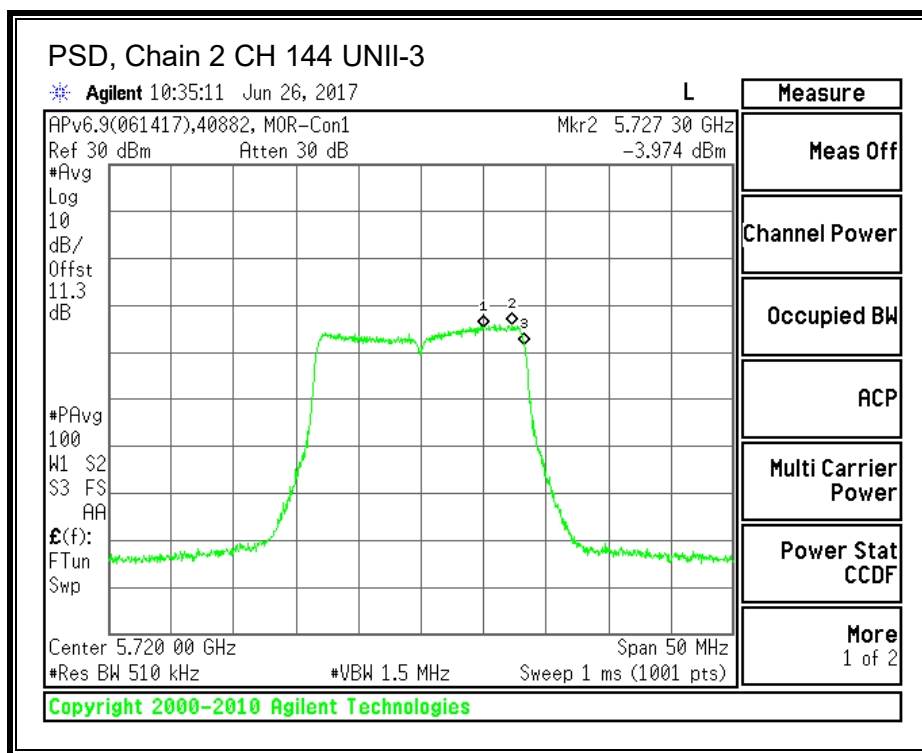
Output Power Results

| Channel | Frequency | Chain 0 Meas Power | Chain 1 Meas Power | Chain 2 Meas Power | Chain 3 Meas Power | Total Corr'd Power | Power Limit | Power Margin |
|---------|-----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|----------------|-----------------|
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 8.9 | 8.26 | 8.28 | 8.83 | 14.74 | 30.00 | -15.26 |

PSD Results

| Channel | Frequency | Chain 0 Meas PSD | Chain 1 Meas PSD | Chain 2 Meas PSD | Chain 3 Meas PSD | Total Corr'd PSD | PSD Limit | PSD Margin |
|---------|-----------|------------------------|------------------------|------------------------|------------------------|------------------------|--------------|---------------|
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | -4.57 | -4.31 | -3.97 | -4.08 | 1.93 | 24.48 | -22.55 |





10.5. 802.11n HT20 MODE IN THE 5.6 GHz BAND

10.5.1. FCC OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26-dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

This EUT mode is 802.11nHT20. This mode is TxBF, therefore array gain (antenna gain + $10 \log(n_{\text{ant}})$) is used.

Output Power

| Antenna Gain (dBi) | $10 * \log(4 \text{ chains})$ (dB) | Directional Gain (dBi) |
|--------------------|------------------------------------|------------------------|
| 5.50 | 6.02 | 11.52 |

PSD

| Antenna Gain (dBi) | $10 * \log(4 \text{ chains})$ (dB) | Correlated Chains Directional Gain (dBi) |
|--------------------|------------------------------------|--|
| 5.50 | 6.02 | 11.52 |

RESULTS

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PSD (dBi) | Power Limit (dBm) | PSD Limit (dBm) |
|---------|--------------------|-----------------------------|---|---|-------------------------|-----------------------|
| Low | 5500 | 19.83 | 11.52 | 11.52 | 18.45 | 5.48 |
| Mid | 5580 | 19.75 | 11.52 | 11.52 | 18.44 | 5.48 |
| High | 5700 | 19.50 | 11.52 | 11.52 | 18.38 | 5.48 |

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

Output Power Results

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low | 5500 | 5.05 | 5.20 | 5.24 | 5.18 | 11.19 | 18.45 | -7.26 |
| Mid | 5580 | 5.40 | 6.01 | 6.03 | 5.39 | 11.74 | 18.44 | -6.70 |
| High | 5700 | 5.89 | 5.26 | 5.28 | 5.76 | 11.58 | 18.38 | -6.80 |

PSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PSD (dBm) | Chain 1 Meas PSD (dBm) | Chain 2 Meas PSD (dBm) | Chain 3 Meas PSD (dBm) | Total Corr'd PSD (dBm) | PSD Limit (dBm) | PSD Margin (dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low | 5500 | -5.52 | -4.58 | -5.75 | -5.76 | 0.65 | 5.48 | -4.83 |
| Mid | 5580 | -5.39 | -4.14 | -5.58 | -5.43 | 0.93 | 5.48 | -4.55 |
| High | 5700 | -4.82 | -4.94 | -4.83 | -4.75 | 1.19 | 5.48 | -4.29 |

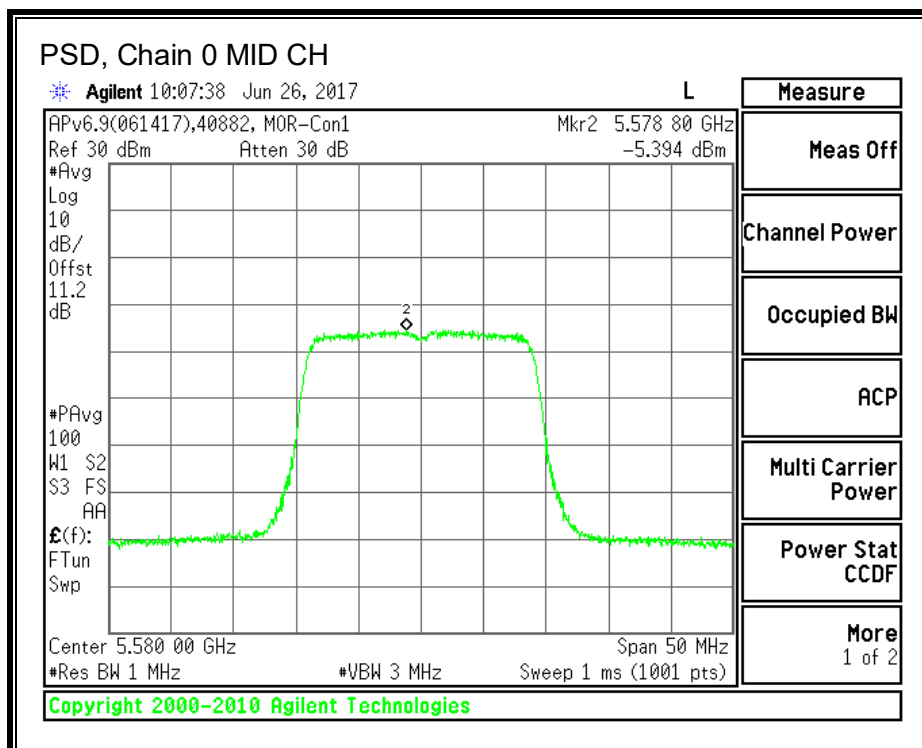
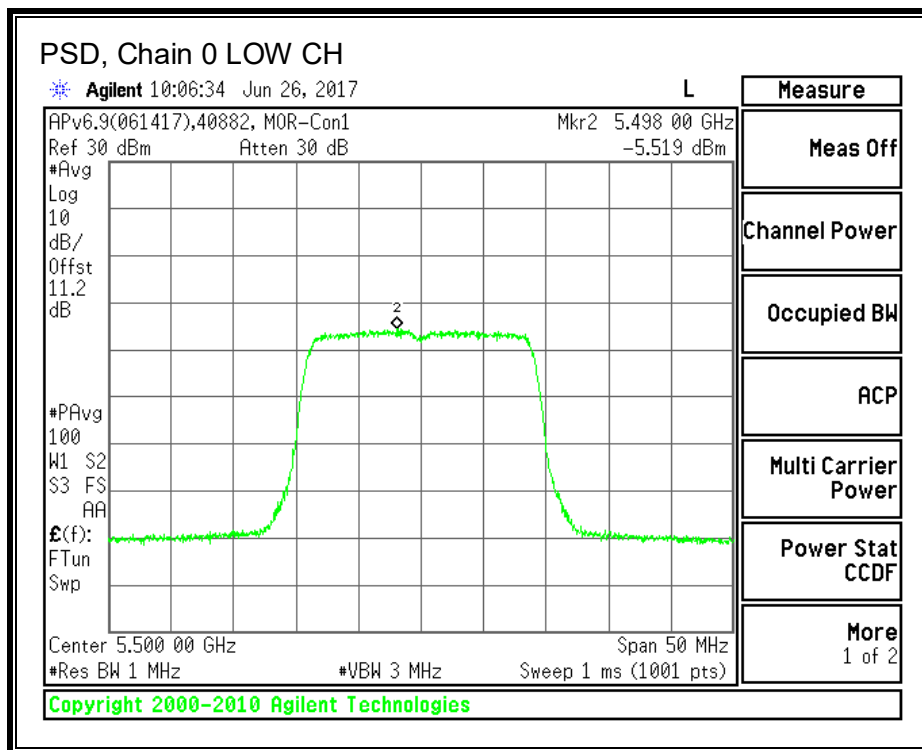
Power was lowered from original Aruba grant for Bandedge compliancy.

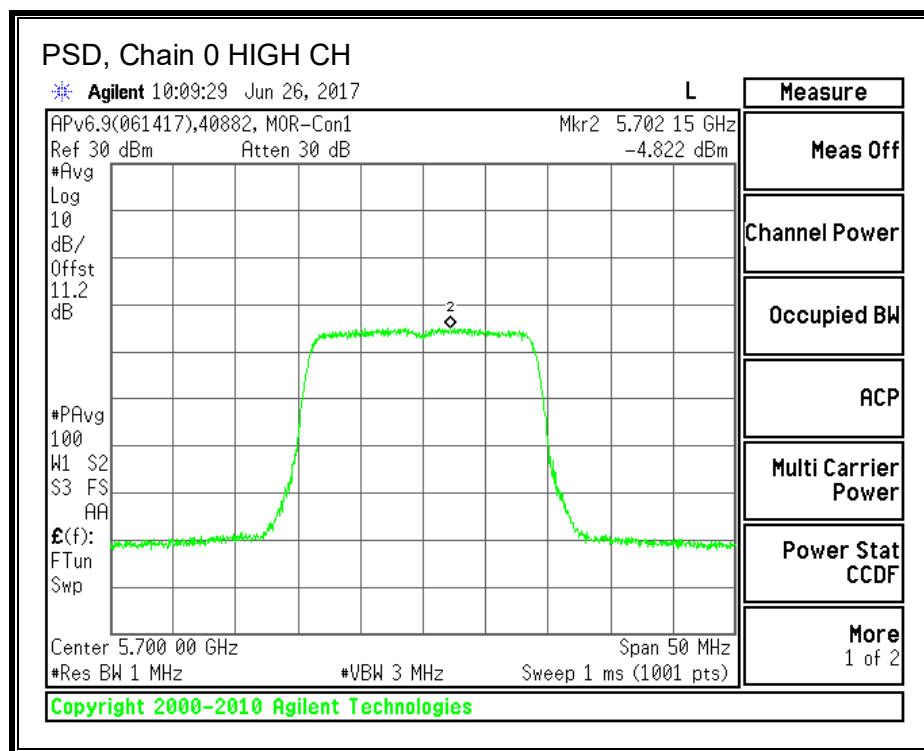
TEST INFORMATION

Date: 2017-06-09 and 2017-06-26

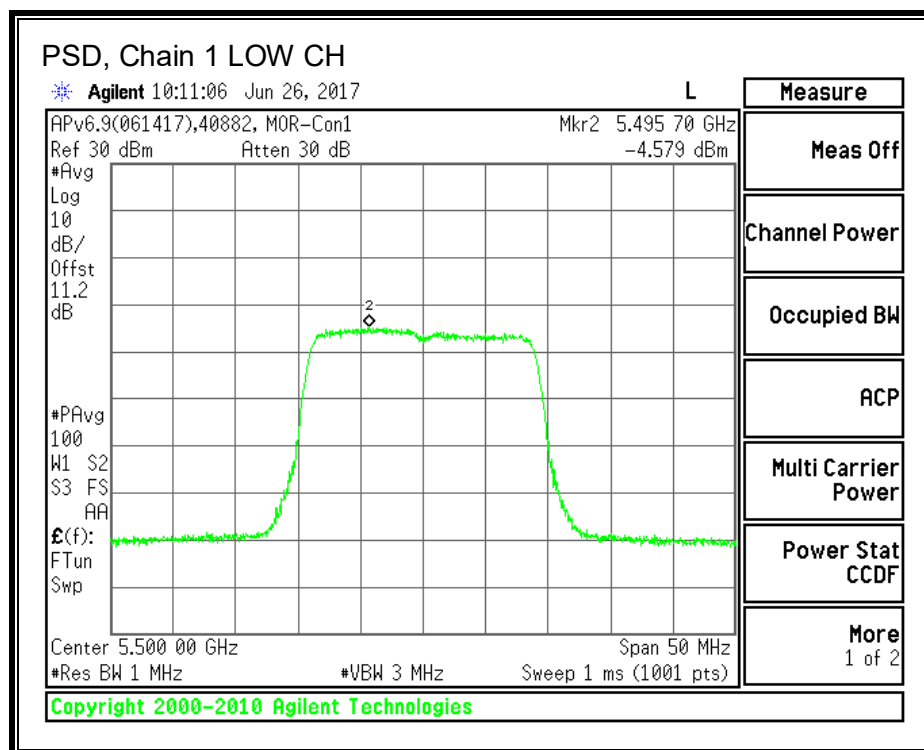
Tester: John Manser and Jeffrey Cabrera

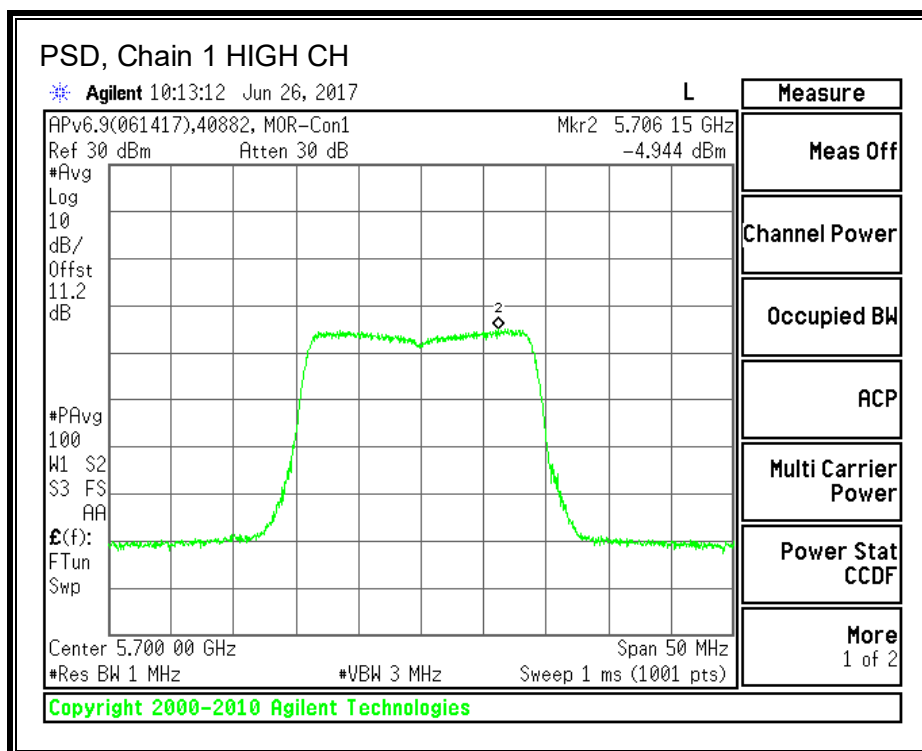
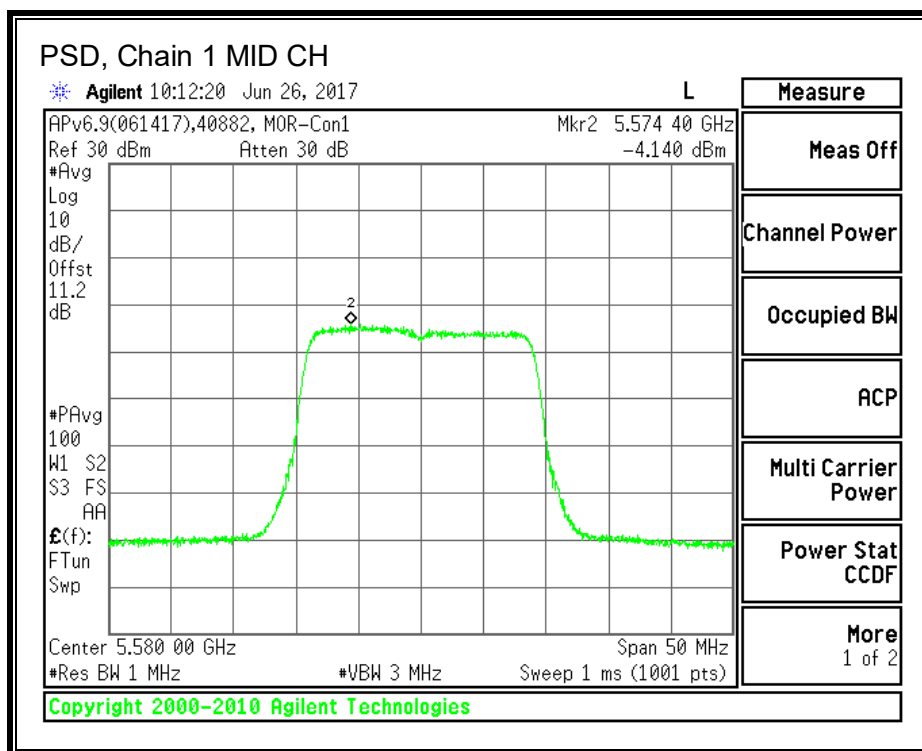
PSD, Chain 0



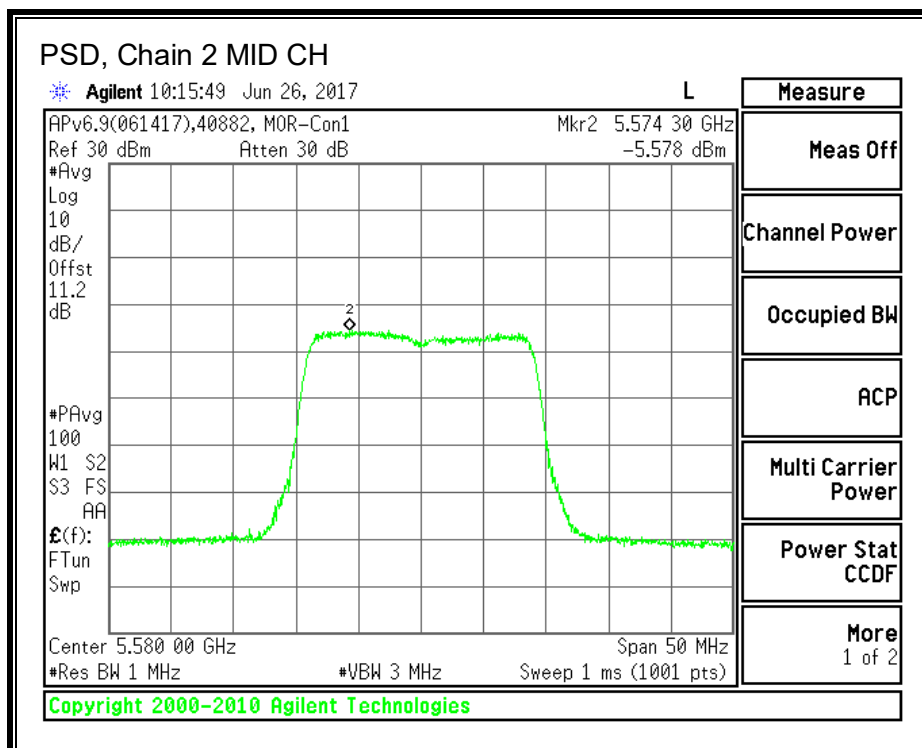
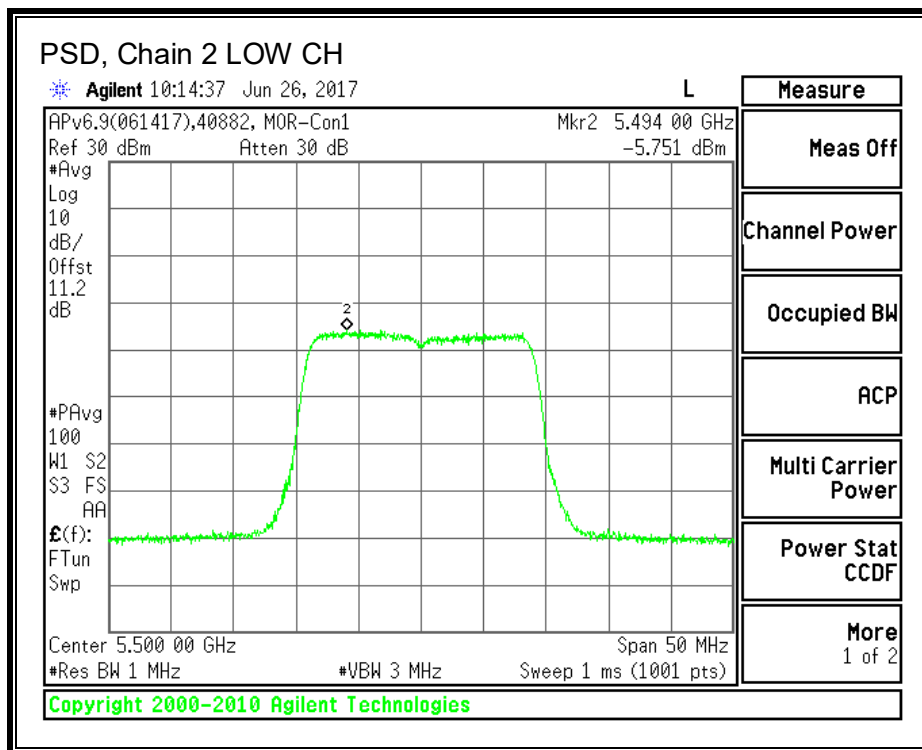


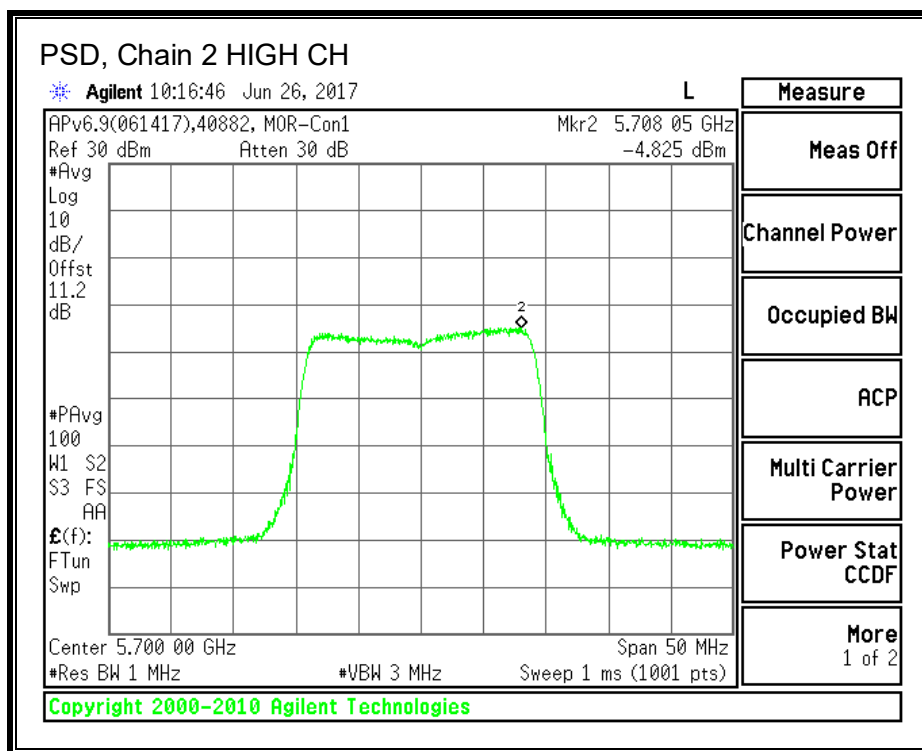
PSD, Chain 1



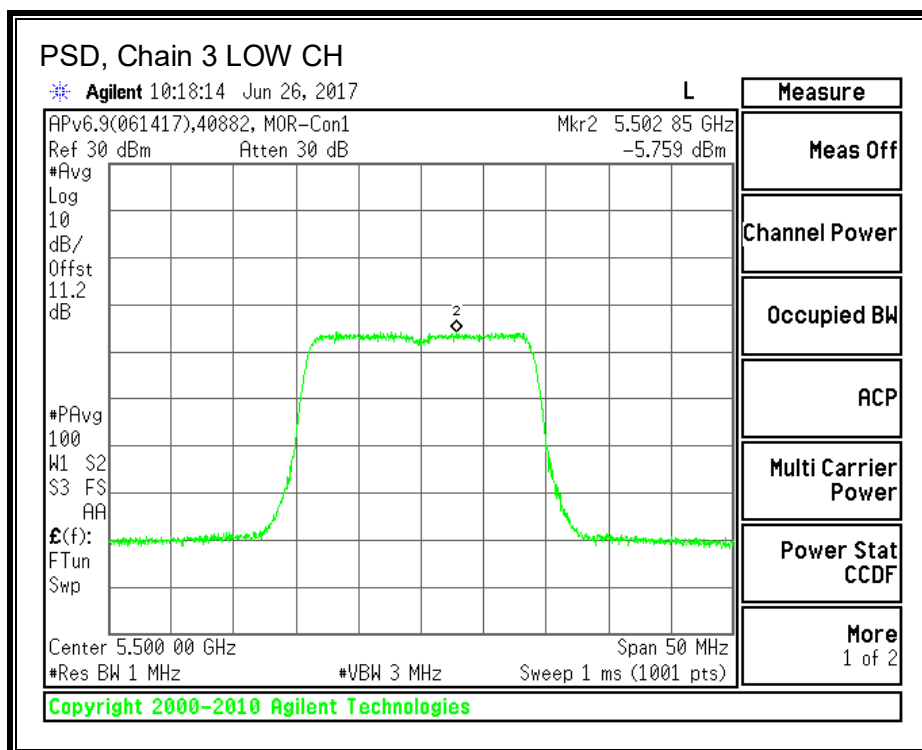


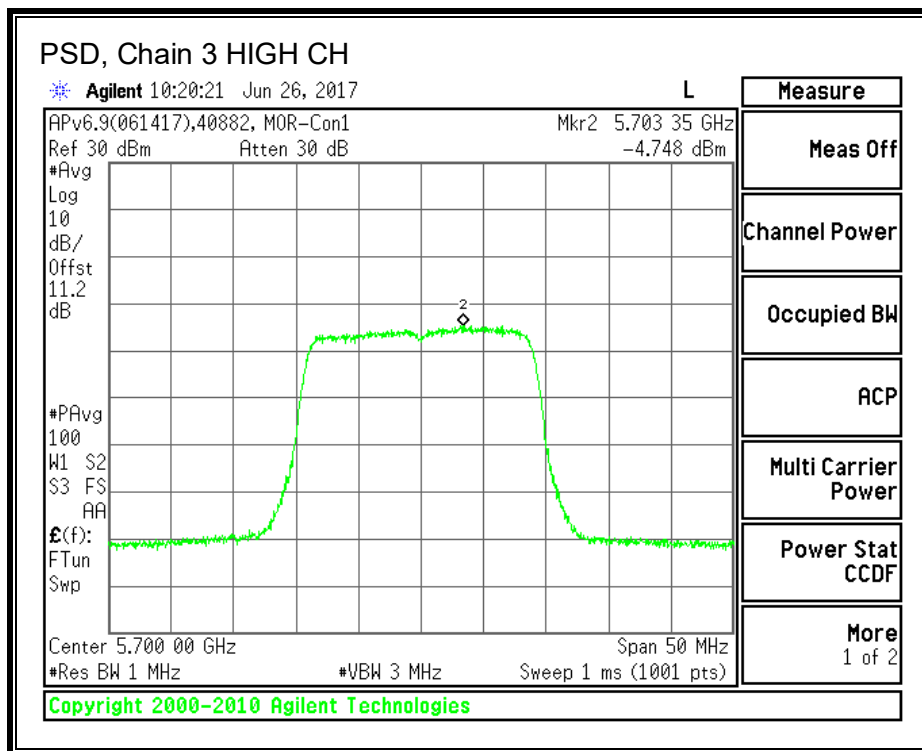
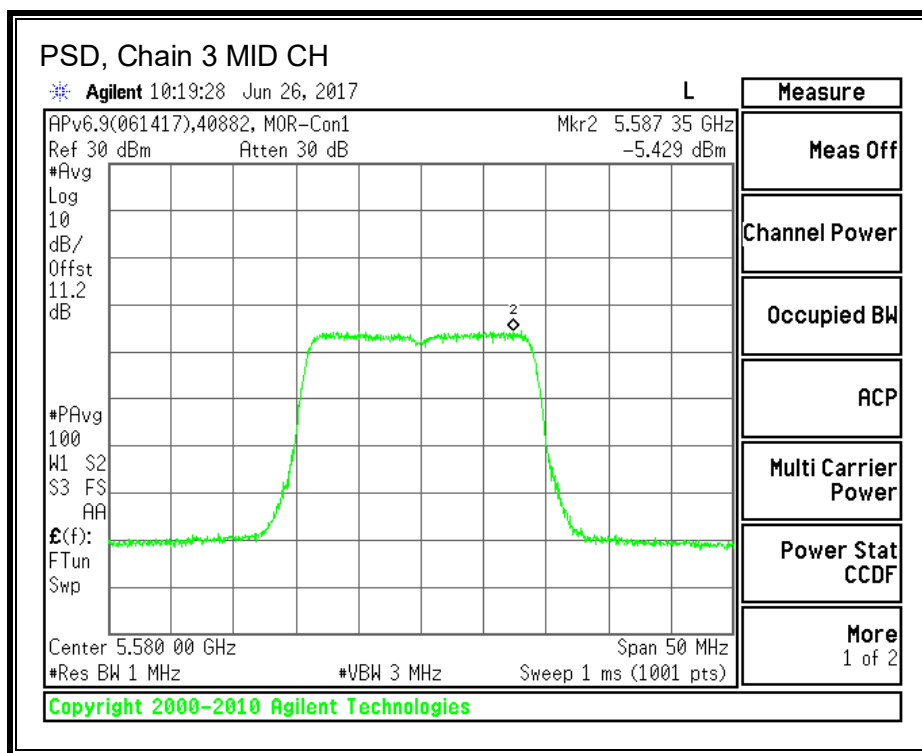
PSD, Chain 2





PSD, Chain 3





STRADDLE CHANNEL 144 RESULTS
UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency (MHz) | Min 26 dB BW/2 + 5MHz (MHz) | Directional Gain for Power (dBi) | Directional Gain for PSD (dBi) | Power Limit (dBm) | PSD Limit (dBm) |
|---------|--------------------|---|---|---|-------------------------|-----------------------|
| 144 | 5720 | 15.28 | 5.50 | 15.02 | 22.84 | 1.98 |

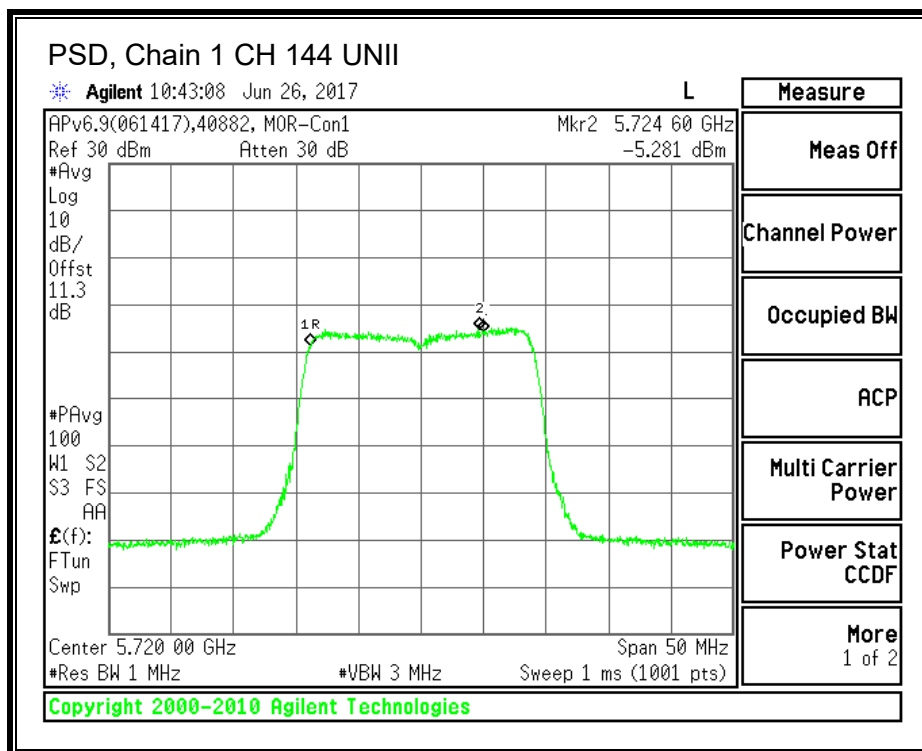
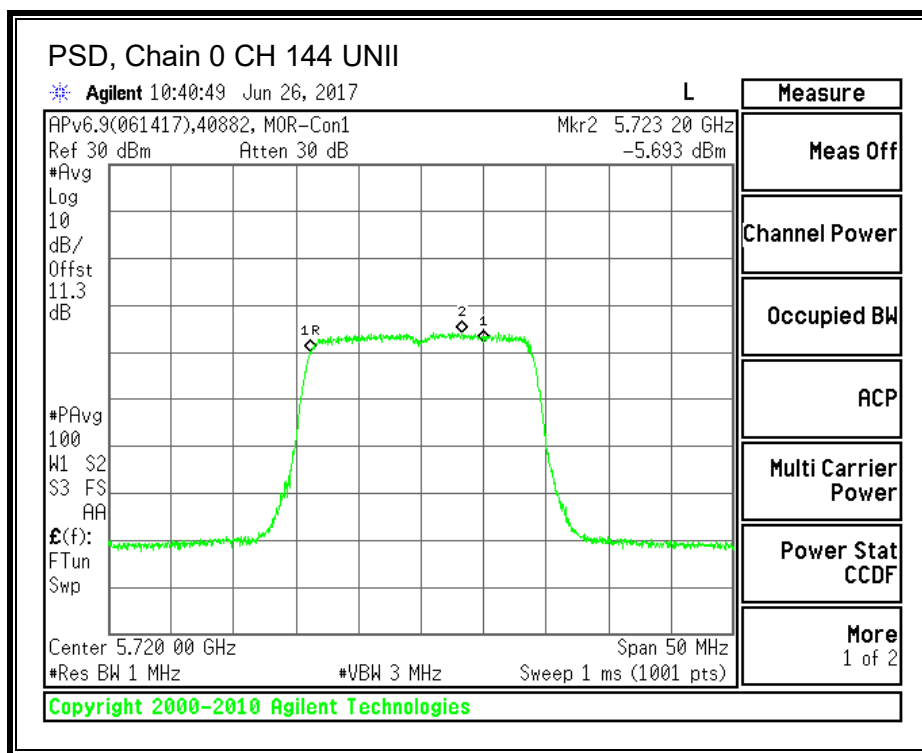
| | | |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|

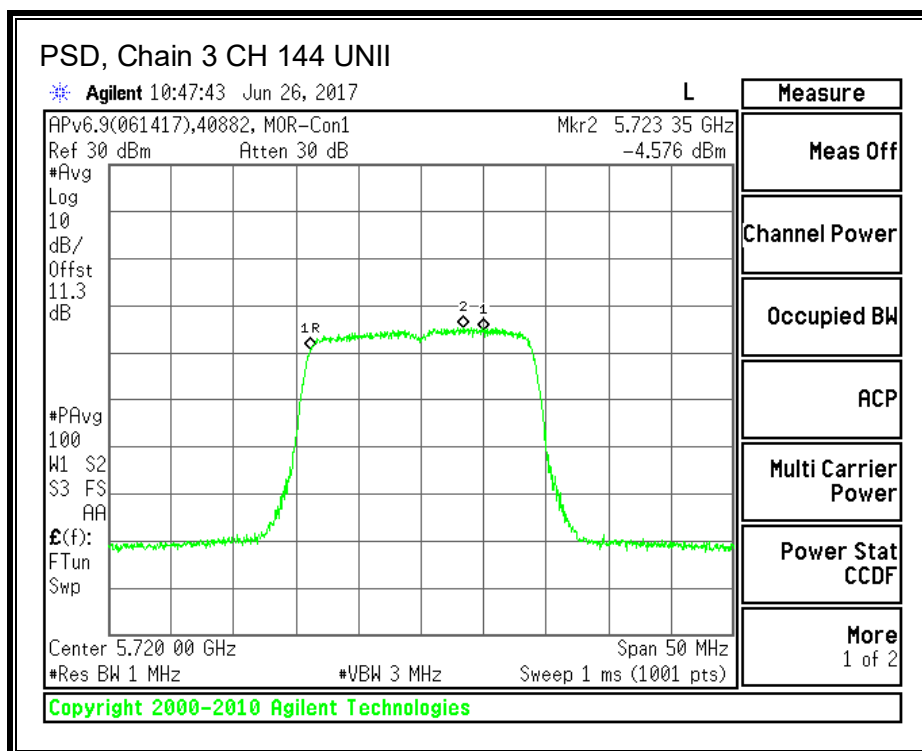
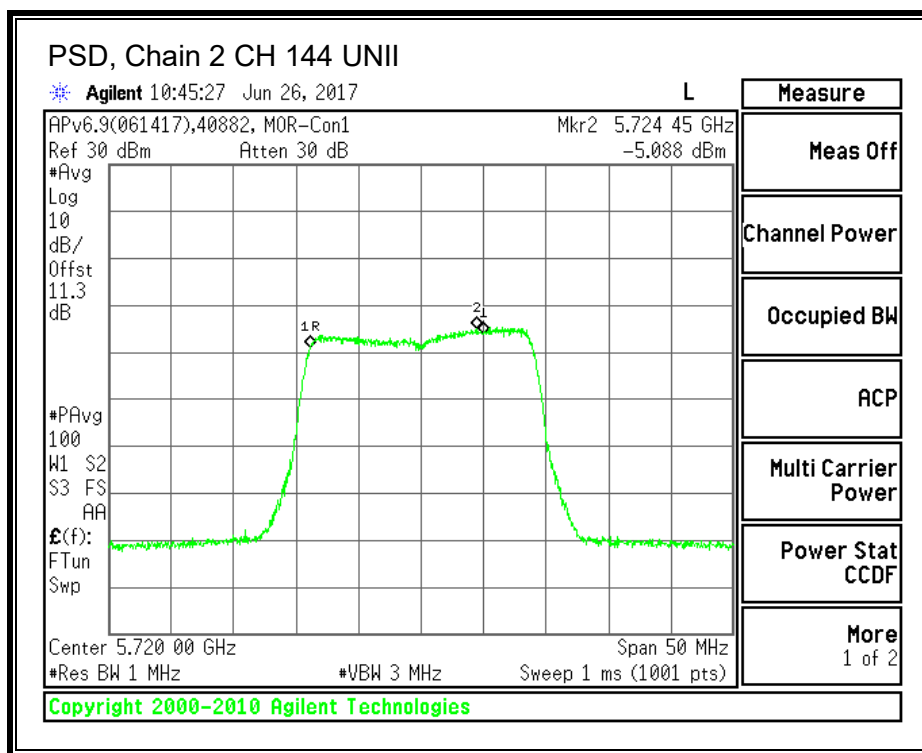
Output Power Results

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 144 | 5720 | 5.75 | 5.20 | 5.25 | 5.75 | 11.52 | 22.84 | -11.32 |

PSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PSD (dBm) | Chain 1 Meas PSD (dBm) | Chain 2 Meas PSD (dBm) | Chain 3 Meas PSD (dBm) | Total Corr'd PSD (dBm) | PSD Limit (dBm) | PSD Margin (dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 144 | 5720 | -5.69 | -5.28 | -5.09 | -4.58 | 0.88 | 1.98 | -1.10 |





UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional Gain | Directional Gain | Power Limit | PSD Limit |
|---------|-----------|------------------|------------------|-------------|-----------|
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 144 | 5720 | 5.50 | 15.02 | 30.00 | 20.98 |

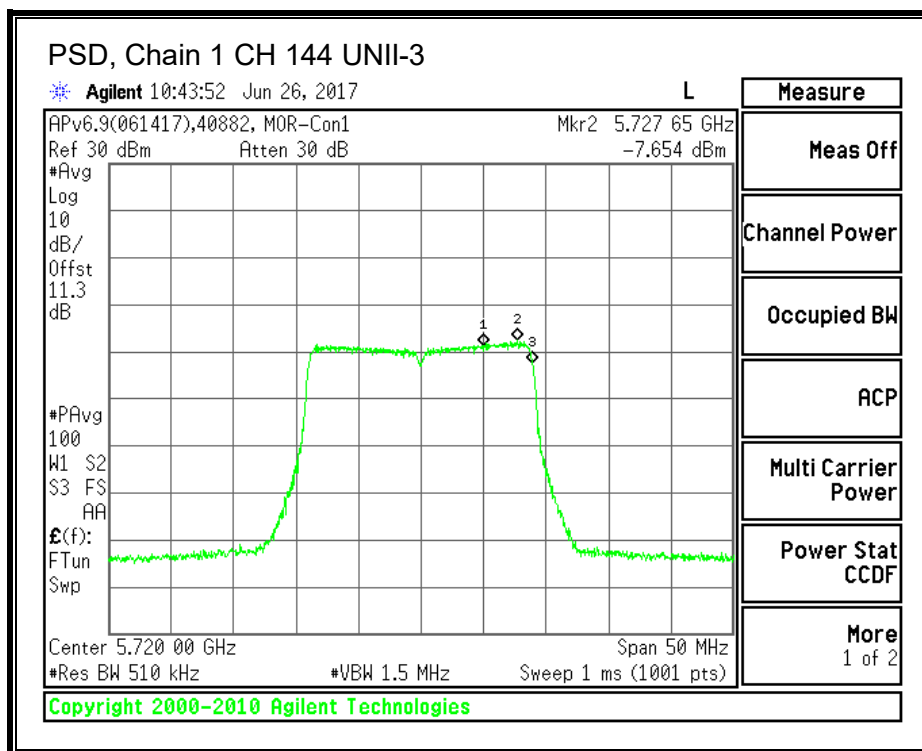
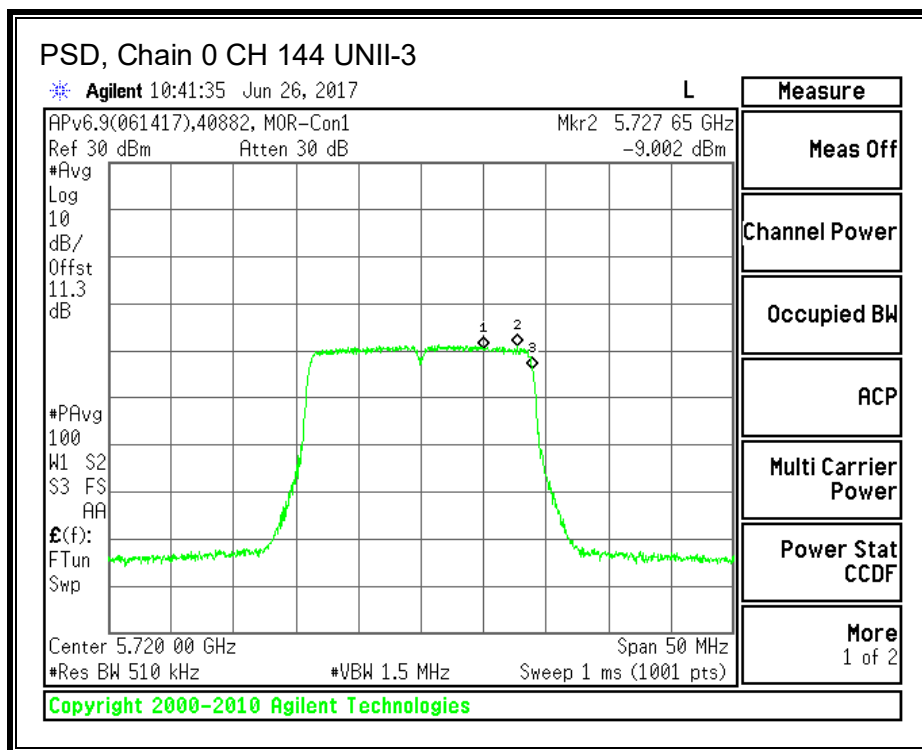
| | | |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|

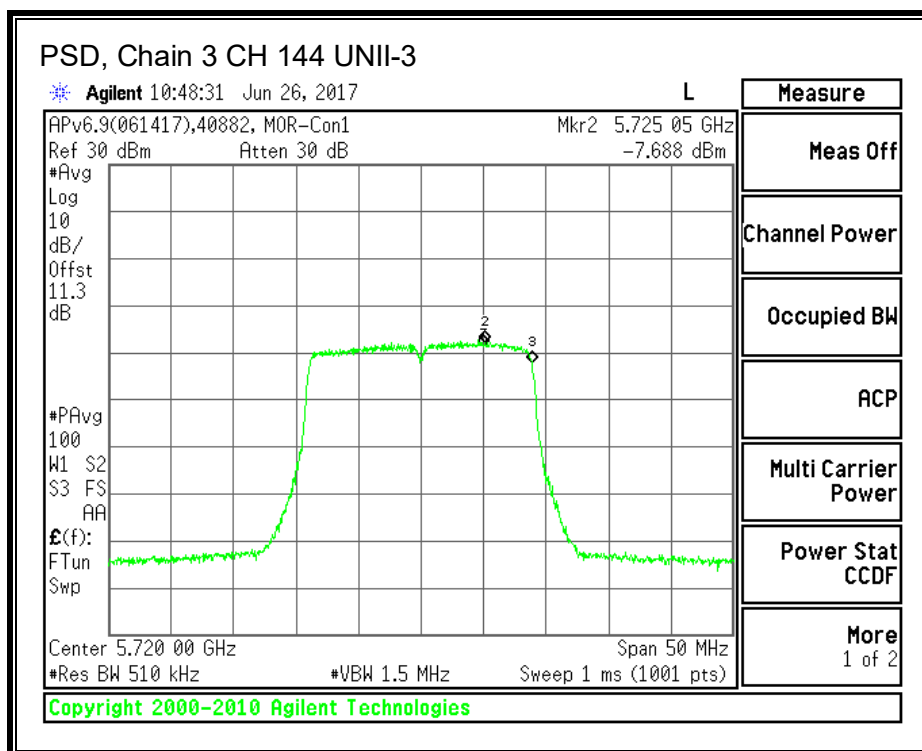
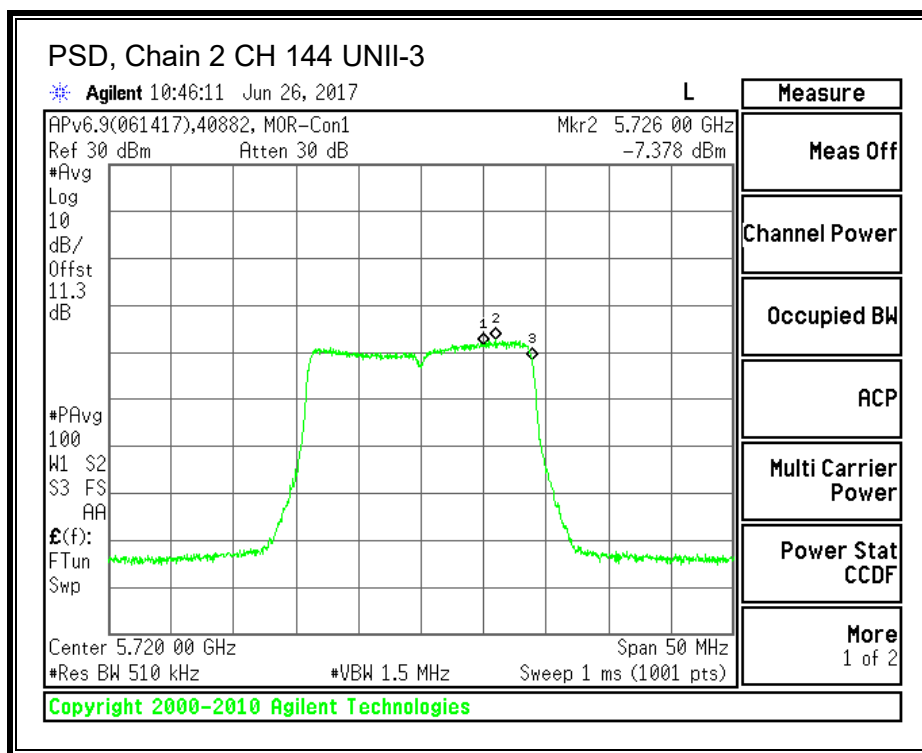
Output Power Results

| Channel | Frequency | Chain 0 Meas Power | Chain 1 Meas Power | Chain 2 Meas Power | Chain 3 Meas Power | Total Corr'd Power | Power Limit | Power Margin |
|---------|-----------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------|--------------|
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 5.75 | 5.20 | 5.25 | 5.75 | 11.52 | 30.00 | -18.48 |

PSD Results

| Channel | Frequency | Chain 0 Meas PSD | Chain 1 Meas PSD | Chain 2 Meas PSD | Chain 3 Meas PSD | Total Corr'd PSD | PSD Limit | PSD Margin |
|---------|-----------|------------------|------------------|------------------|------------------|------------------|-----------|------------|
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | -9.00 | -7.65 | -7.38 | -7.69 | -1.87 | 20.98 | -22.85 |





10.5.2. IC OUTPUT POWER AND PSD

LIMITS

IC RSS-247 (6.2.3 [1])

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10} B$, dBm, whichever power is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

DIRECTIONAL ANTENNA GAIN

This EUT mode is 802.11nHT20. This mode is TxBF, therefore array gain (antenna gain + $10 \log(n_{ant})$) is used.

Output Power

| Antenna Gain (dBi) | $10 * \log(4 \text{ chains})$ (dB) | Array Gain (dBi) |
|--------------------|------------------------------------|------------------|
| 5.50 | 6.02 | 11.52 |

PSD

| Antenna Gain (dBi) | $10 * \log(4 \text{ chains})$ (dB) | Correlated Chains Directional Gain (dBi) |
|--------------------|------------------------------------|--|
| 5.50 | 6.02 | 11.52 |

TEST INFORMATION

Date: 2017-06-09 and 2017-06-26

Tester: John Manser and Jeffrey Cabrera

Power was lowered from original Aruba grant for Bandedge compliancy.

RESULTS

Bandwidth and Antenna Gain

| Channel | Freq. (MHz) | Min 99% BW (MHz) | Direct. Gain for Power (dBi) | Direct. Gain for PPSD (dBi) |
|---------|----------------|---------------------------|--|--------------------------------------|
| Low | 5500 | 17.5570 | 11.52 | 11.52 |
| Mid | 5580 | 17.5420 | 11.52 | 11.52 |
| High | 5700 | 17.4960 | 11.52 | 11.52 |

Limits

| Channel | Freq. (MHz) | IC EIRP Limit (dBm) | IC eirp PSD Limit (dBm) | IC Output Power Limit (dBm) |
|---------|----------------|------------------------------|-------------------------------------|---|
| Low | 5500 | 29.44 | 11.00 | 23.44 |
| Mid | 5580 | 29.44 | 11.00 | 23.44 |
| High | 5700 | 29.43 | 11.00 | 23.43 |

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

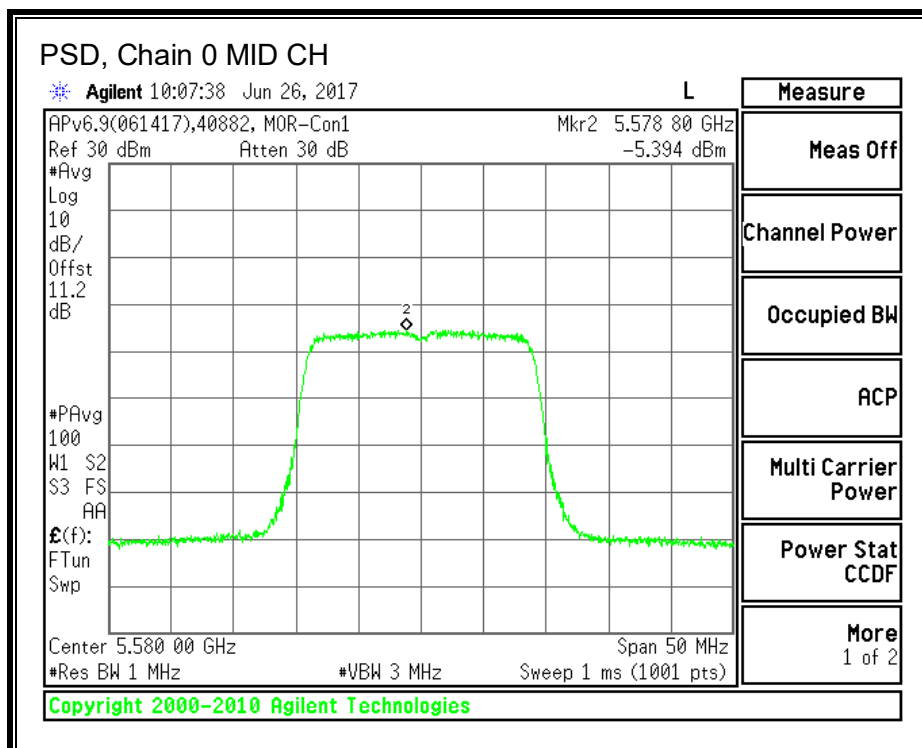
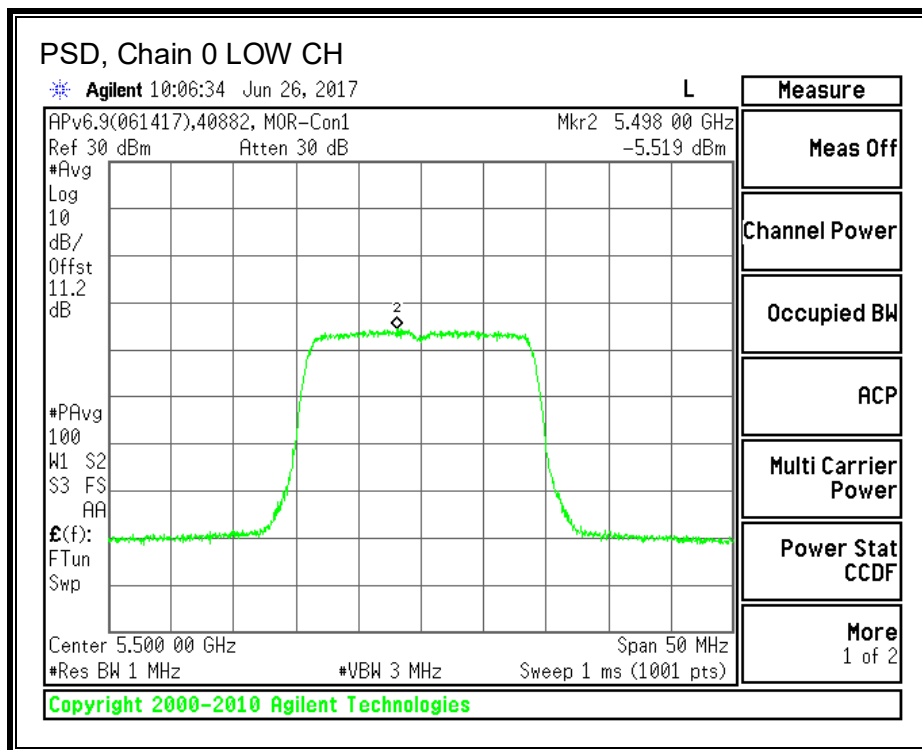
Output Power Results

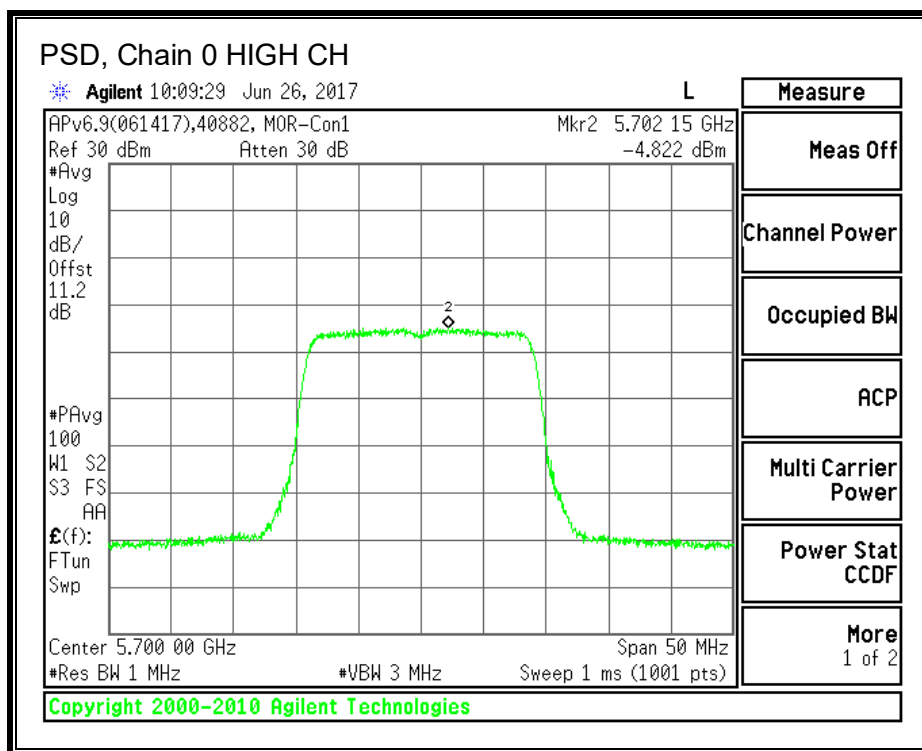
| Channel | Freq. (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd EIRP (dBm) | EIRP Limit (dBm) | EIRP Margin (dB) | Power Limit (dBm) | Power Margin (dB) |
|---------|----------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|----------------------------------|------------------------|------------------------|-------------------------|-------------------------|
| Low | 5500 | 5.05 | 5.20 | 5.24 | 5.18 | 22.71 | 29.44 | -6.74 | 23.44 | -12.26 |
| Mid | 5580 | 5.40 | 6.01 | 6.03 | 5.39 | 23.26 | 29.44 | -6.18 | 23.44 | -11.70 |
| High | 5700 | 5.89 | 5.26 | 5.28 | 5.76 | 23.10 | 29.43 | -6.33 | 23.43 | -11.85 |
| | | | | | | Power | | | | |
| | | | | | | 11.19 | | | | |
| | | | | | | 11.74 | | | | |
| | | | | | | 11.58 | | | | |

PPSD Results

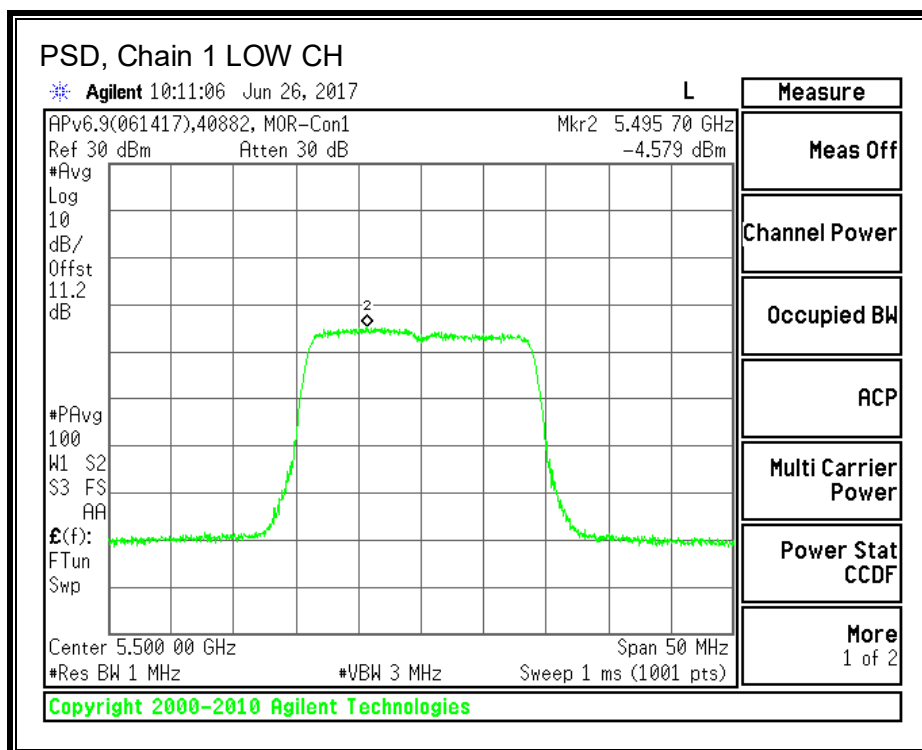
| Channel | Freq. (MHz) | Chain 0 Meas PPSD (dBm) | Chain 1 Meas PPSD (dBm) | Chain 2 Meas PPSD (dBm) | Chain 3 Meas PPSD (dBm) | Total Corr'd PPSD (dBm) | PPSD Limit (dBm) | PPSD Margin (dB) |
|---------|----------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|------------------------|
| Low | 5500 | -5.52 | -4.58 | -5.75 | -5.76 | 0.65 | 11.00 | -10.35 |
| Mid | 5580 | -5.39 | -4.14 | -5.58 | -5.43 | 0.93 | 11.00 | -10.07 |
| High | 5700 | -4.82 | -4.94 | -4.83 | -4.75 | 1.19 | 11.00 | -9.81 |

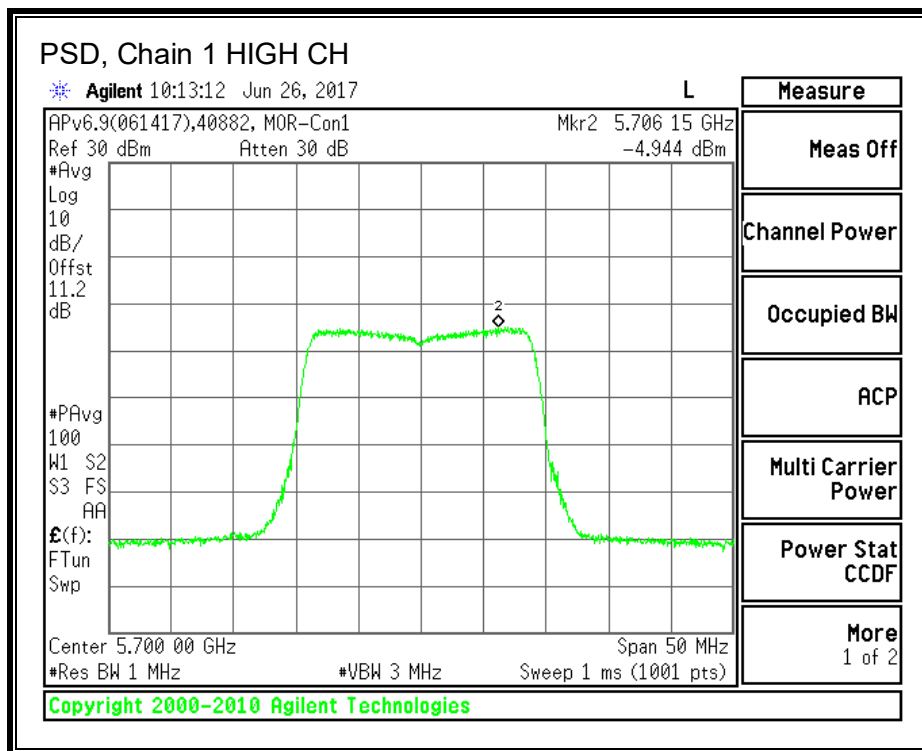
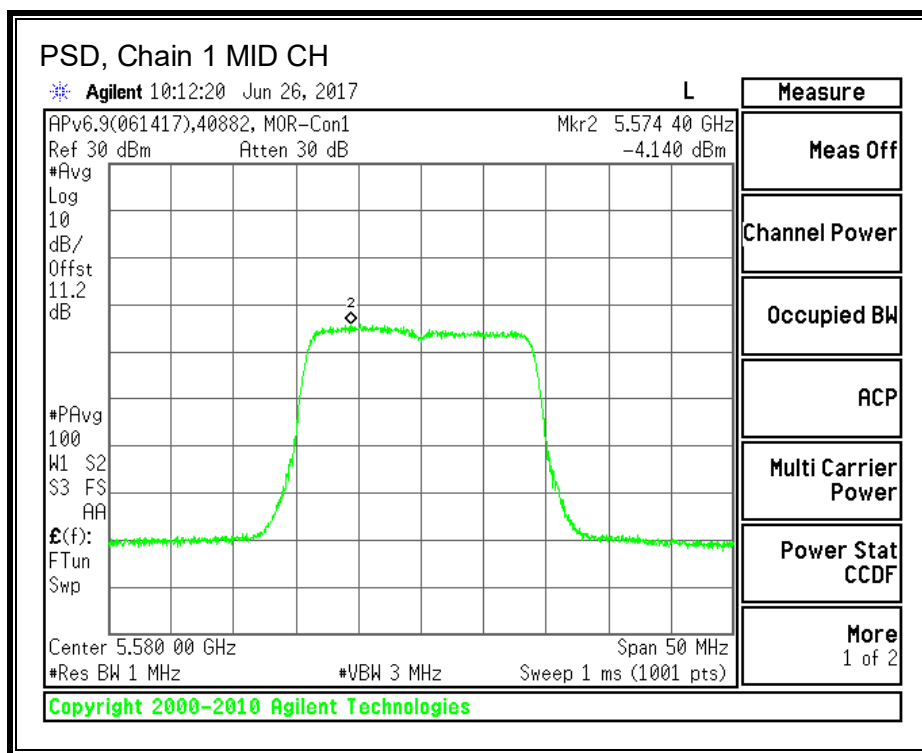
PSD, Chain 0



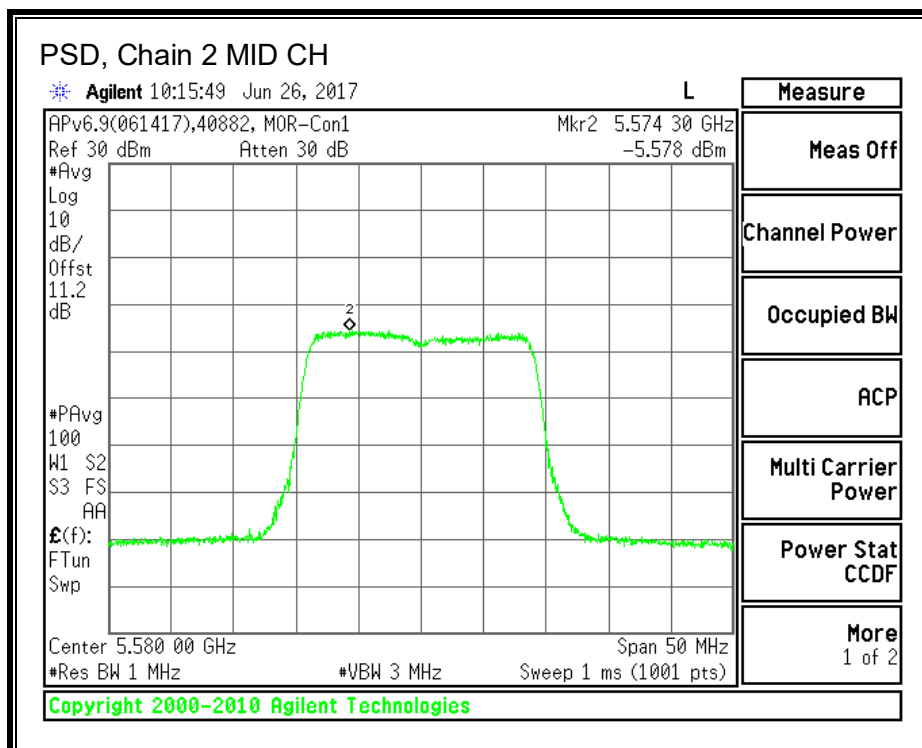
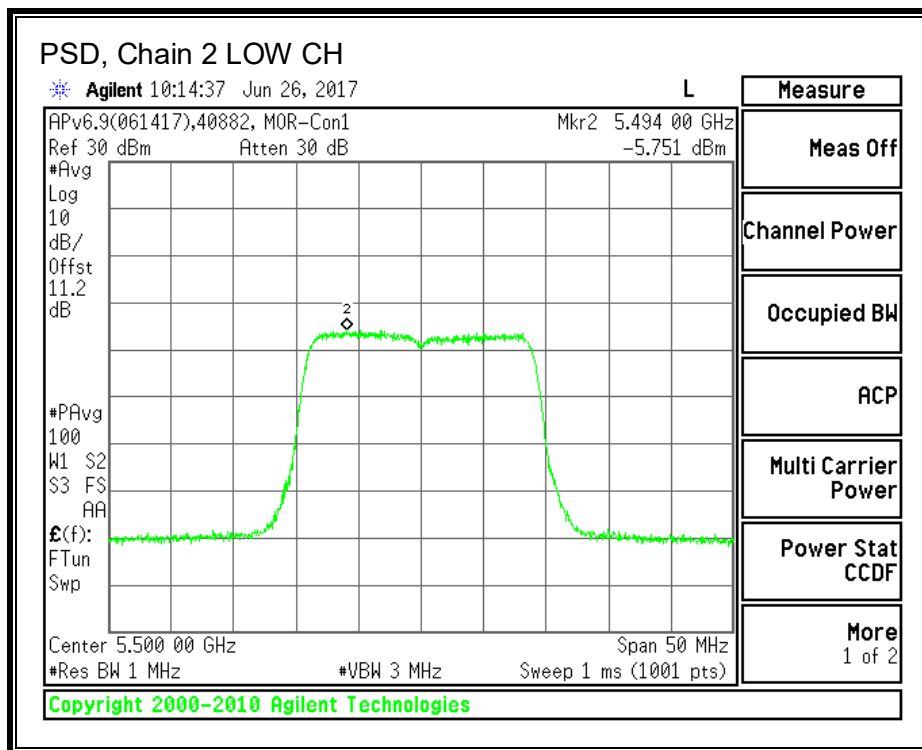


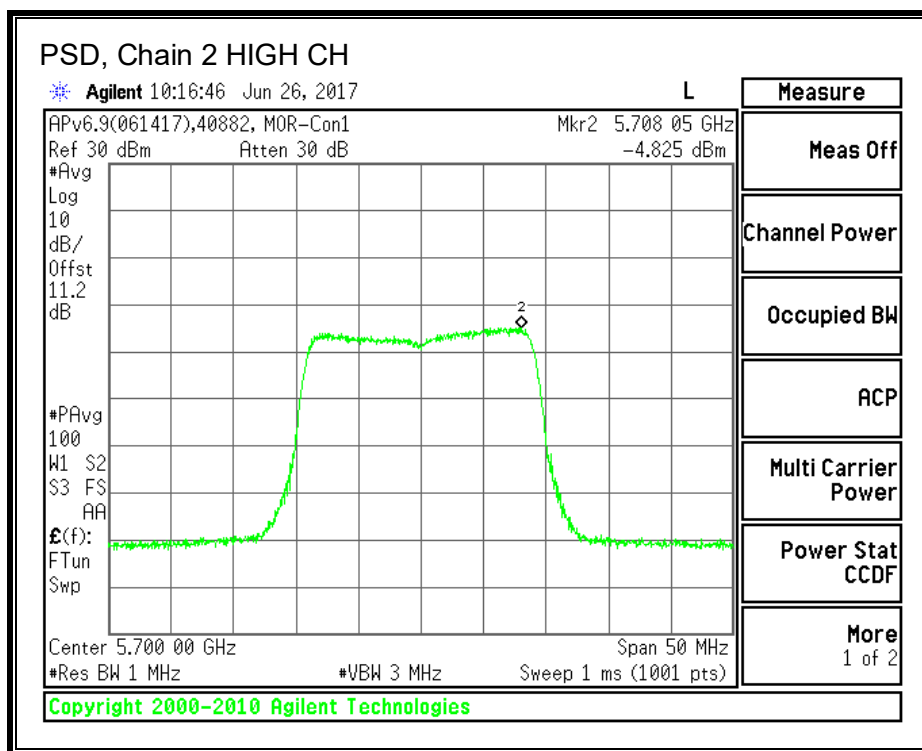
PSD, Chain 1



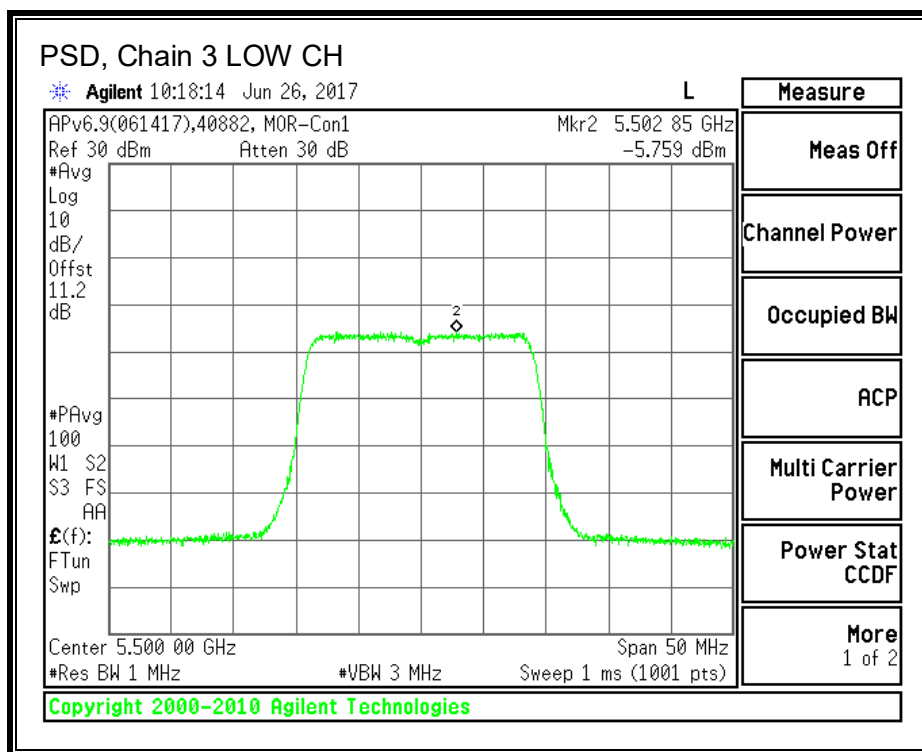


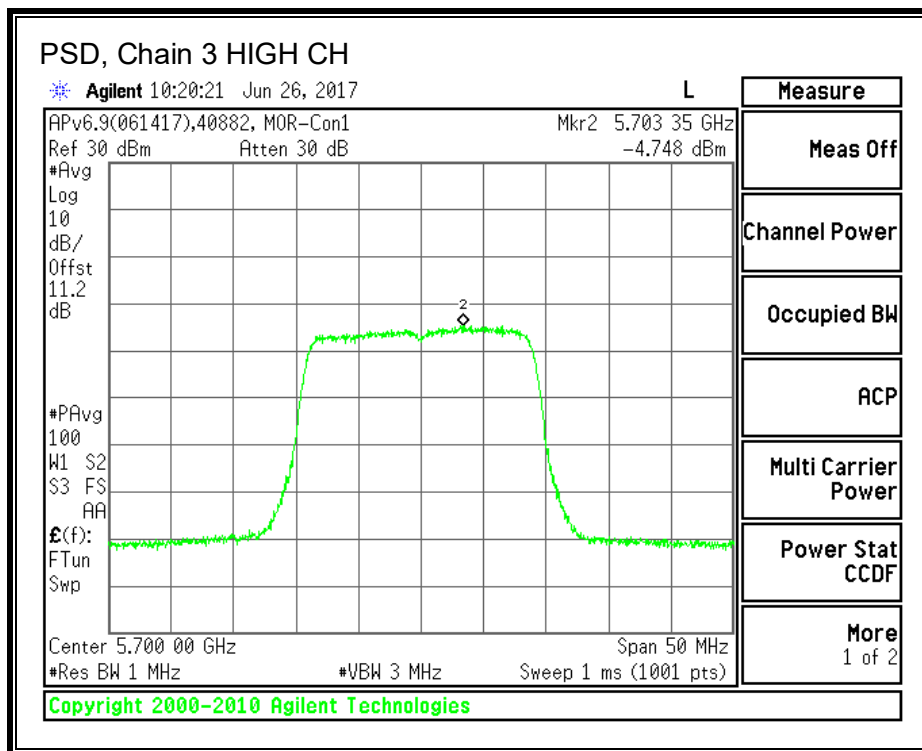
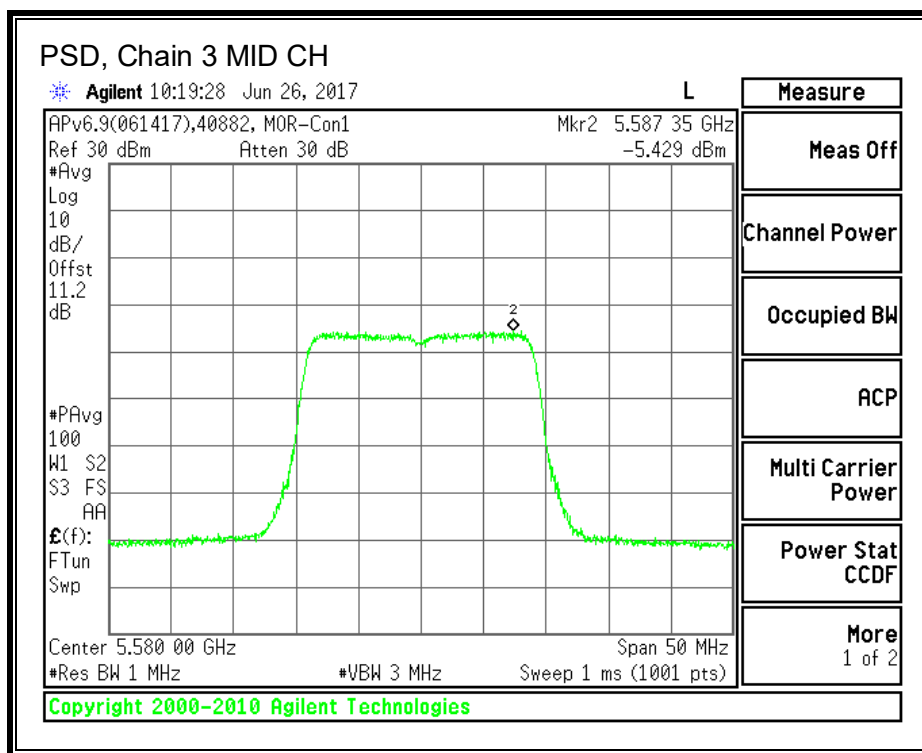
PSD, Chain 2





PSD, Chain 3





STRADDLE CHANNEL 144 RESULTS
UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency (MHz) | Min 99% BW/2 + 5MHz BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PSD (dBi) | Power Limit (dBm) | PSD Limit (dBm) | EIRP Limit (dBm) |
|---------|--------------------|--|---|---|-------------------------|-----------------------|------------------------|
| 144 | 5720 | 13.75 | 5.50 | 15.02 | 22.38 | 11.00 | 28.38 |

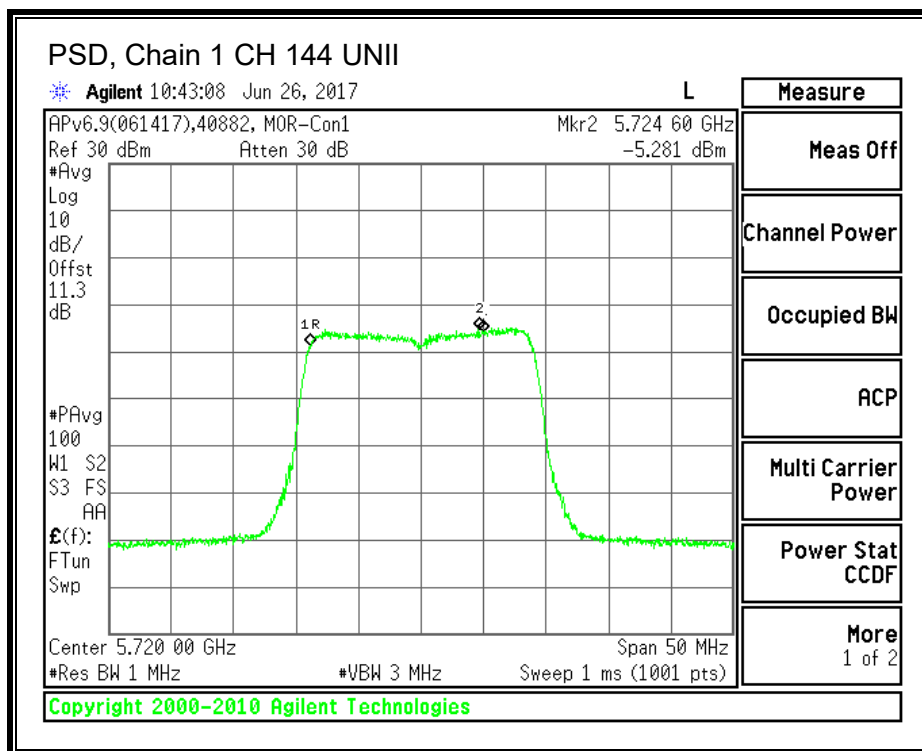
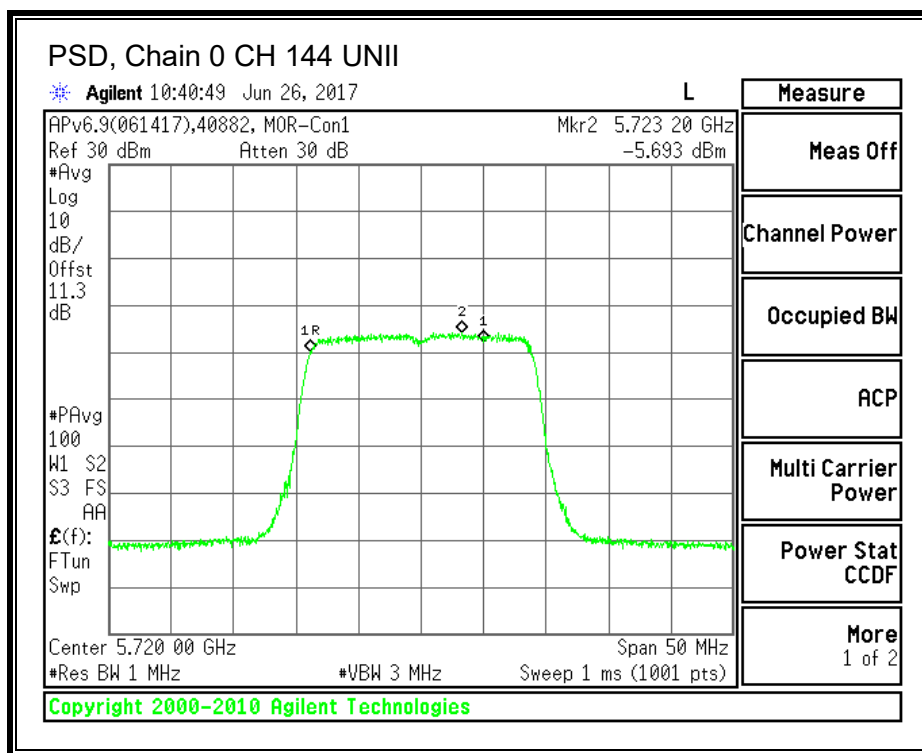
| | | |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|

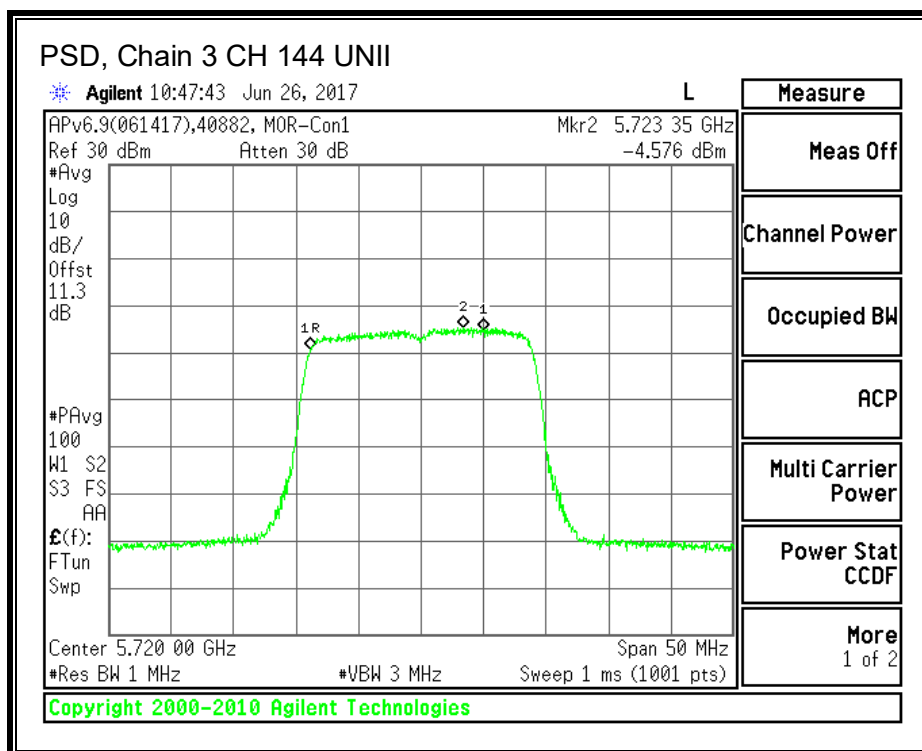
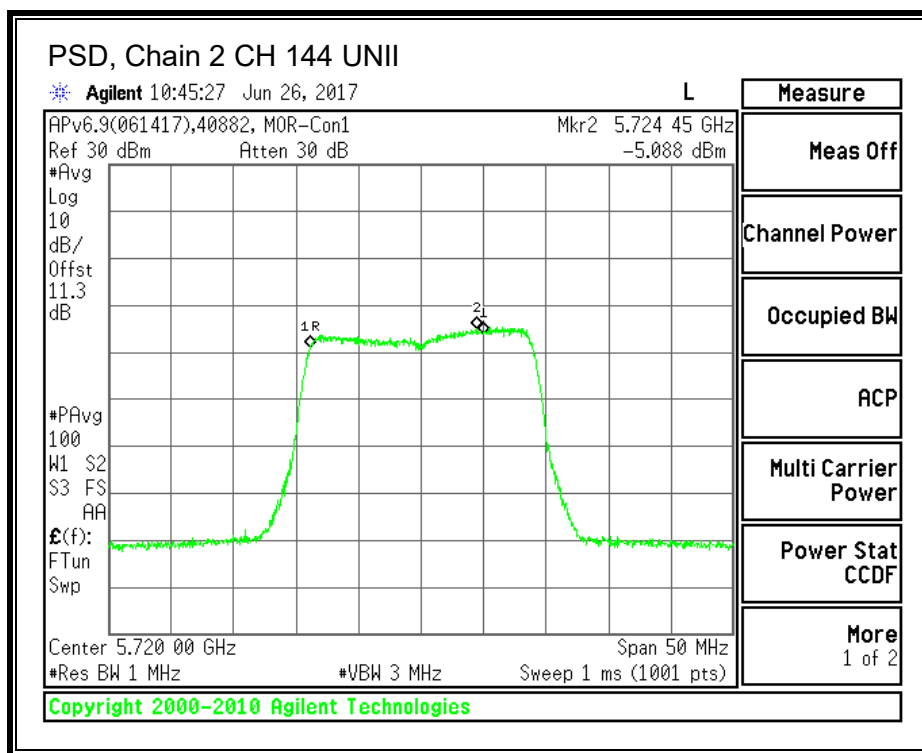
Output Power Results

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 144 | 5720 | 5.75 | 5.20 | 5.25 | 5.75 | 11.52 | 22.38 | -10.87 |
| | | | | | | EIRP | EIRP Limit | EIRP Margin |
| | | | | | | 17.02 | 28.38 | -11.37 |

PSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PSD (dBm) | Chain 1 Meas PSD (dBm) | Chain 2 Meas PSD (dBm) | Chain 3 Meas PSD (dBm) | Total Corr'd PSD (dBm) | PSD Limit (dBm) | PSD Margin (dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 144 | 5720 | -5.69 | -5.28 | -5.09 | -4.58 | 0.88 | 11.00 | -10.12 |





UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional Gain | Directional Gain | Power Limit | PSD Limit |
|---------|-----------|---------------------|---------------------|----------------|--------------|
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 144 | 5720 | 5.50 | 15.02 | 30.00 | 20.98 |

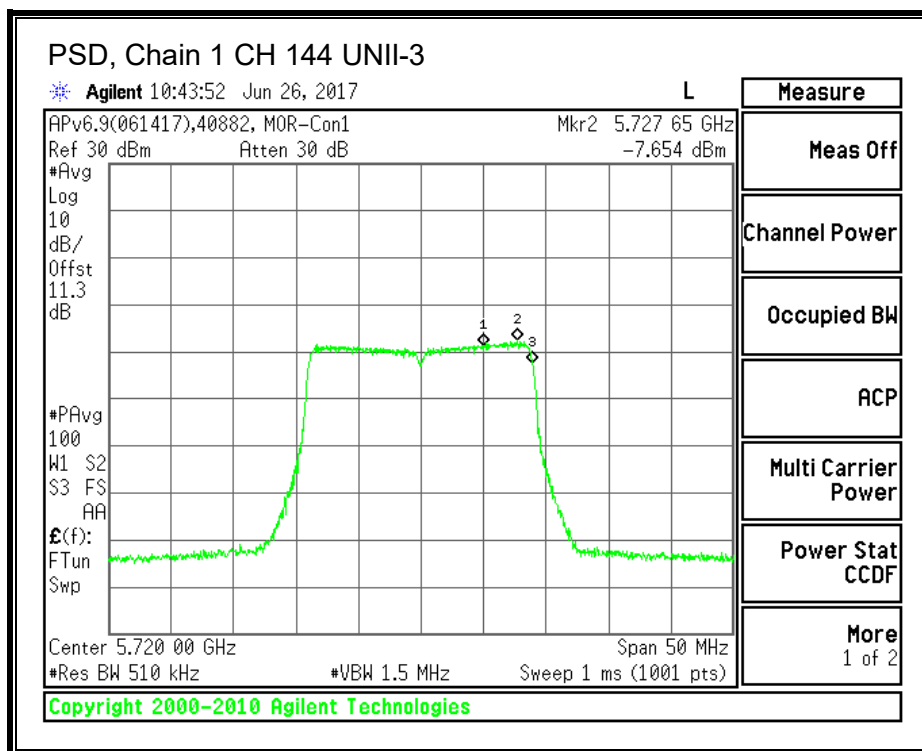
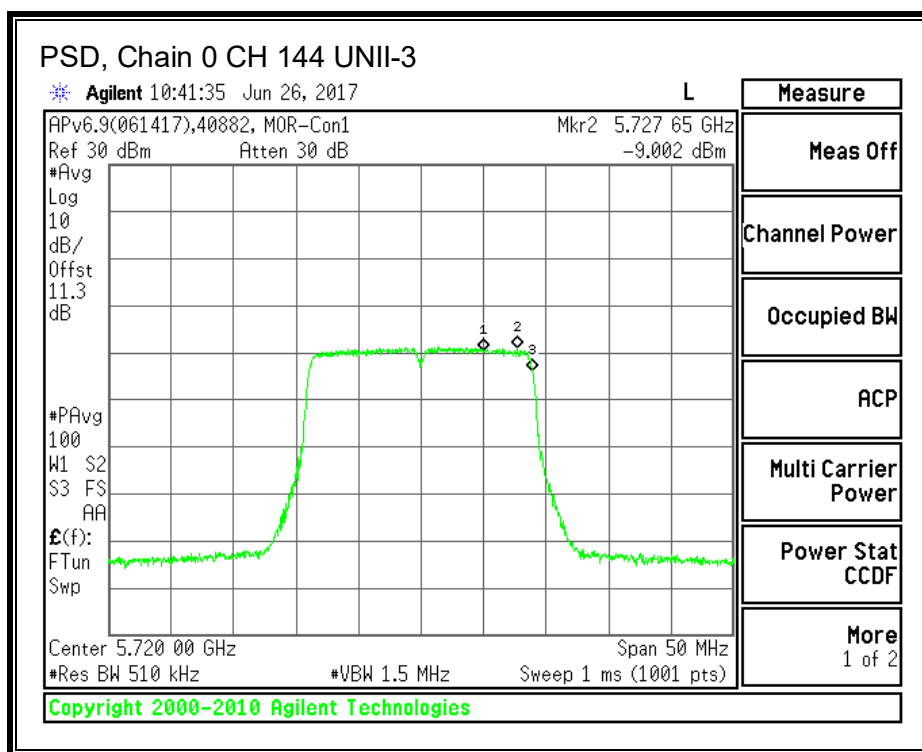
| | | |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|

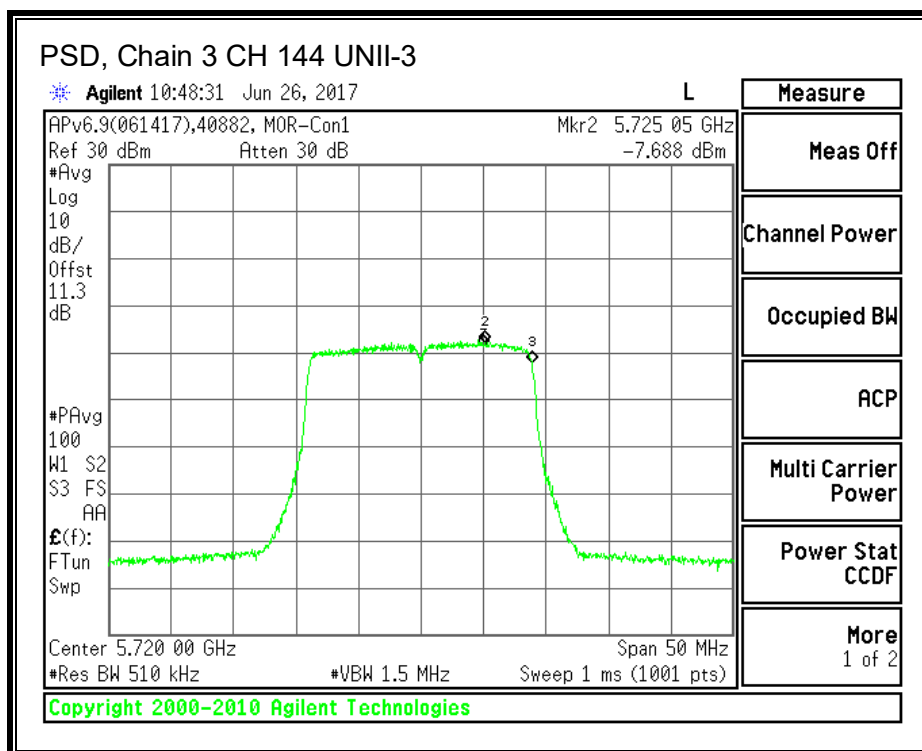
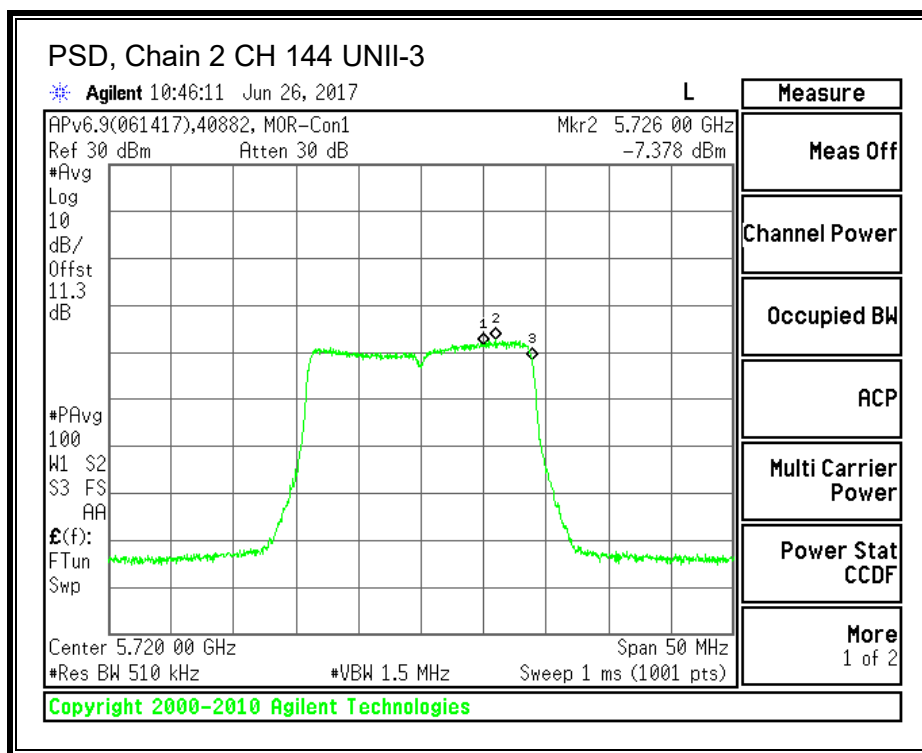
Output Power Results

| Channel | Frequency | Chain 0 Meas Power | Chain 1 Meas Power | Chain 2 Meas Power | Chain 3 Meas Power | Total Corr'd Power | Power Limit | Power Margin |
|---------|-----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|----------------|-----------------|
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | 5.75 | 5.20 | 5.25 | 5.75 | 11.52 | 30.00 | -18.48 |

PSD Results

| Channel | Frequency | Chain 0 Meas PSD | Chain 1 Meas PSD | Chain 2 Meas PSD | Chain 3 Meas PSD | Total Corr'd PSD | PSD Limit | PSD Margin |
|---------|-----------|------------------------|------------------------|------------------------|------------------------|------------------------|--------------|---------------|
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 144 | 5720 | -9.00 | -7.65 | -7.38 | -7.69 | -1.87 | 20.98 | -22.85 |





10.6. 802.11nHT40 MODE IN THE 5.6 GHz BAND

10.6.1. FCC OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26-dB emission bandwidth in MHz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

This EUT mode is 802.11nHT20. This mode is TxBF, therefore array gain (antenna gain + $10\log(n_{\text{ant}})$) is used.

Output Power

| Antenna Gain (dBi) | $10*\log(4 \text{ chains})$ (dB) | Directional Gain (dBi) |
|--------------------|----------------------------------|------------------------|
| 5.50 | 6.02 | 11.52 |

PSD

| Antenna Gain (dBi) | $10 * \log (4 \text{ chains})$ (dB) | Correlated Chains Directional Gain (dBi) |
|--------------------|-------------------------------------|--|
| 5.50 | 6.02 | 11.52 |

TEST INFORMATION

Test Date: 2017-12-01

Tested By: Jeffrey Cabrera

RESULTS

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PSD (dBi) | Power Limit (dBm) | PSD Limit (dBm) |
|---------|--------------------|-----------------------------|---|---|-------------------------|-----------------------|
| Low | 5510 | 39.17 | 11.52 | 11.52 | 18.48 | 5.48 |
| Mid | 5590 | 39.17 | 11.52 | 11.52 | 18.48 | 5.48 |
| High | 5670 | 39.17 | 11.52 | 11.52 | 18.48 | 5.48 |

| | | |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.12 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|

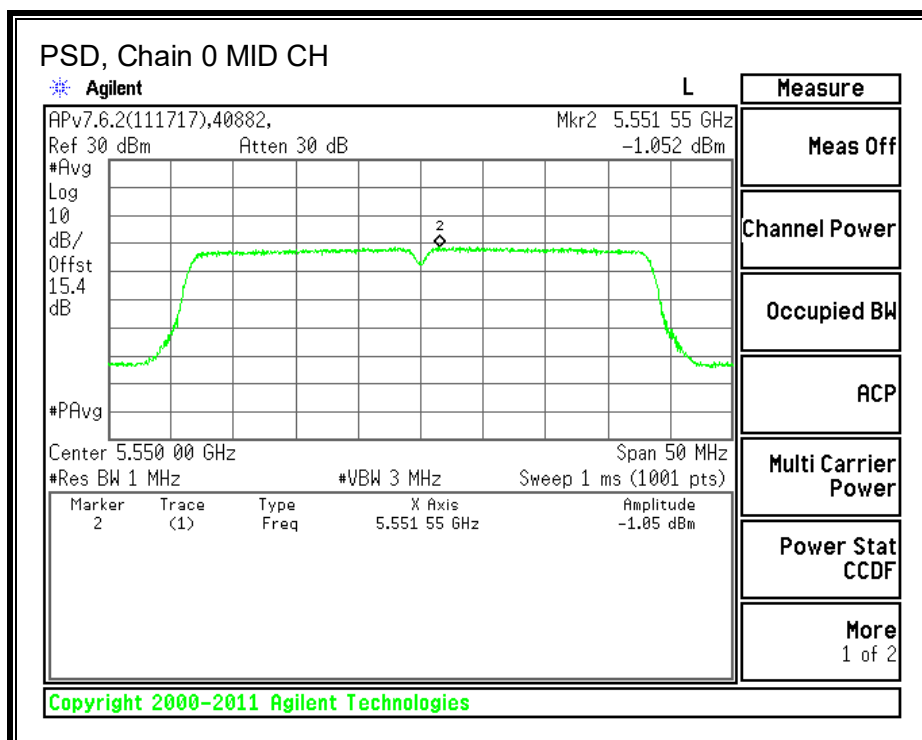
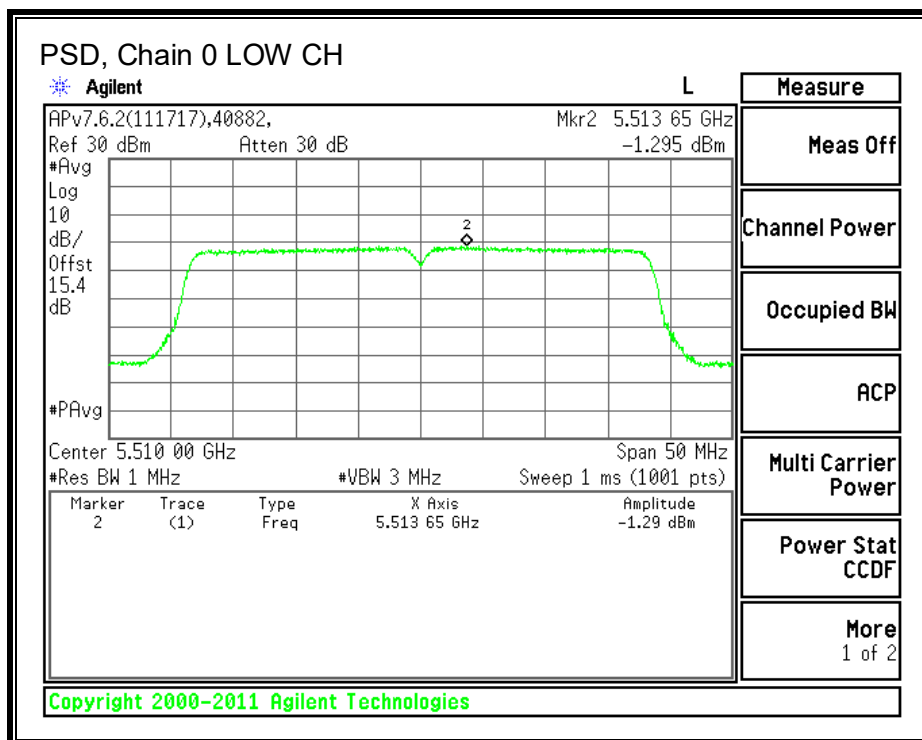
Output Power Results

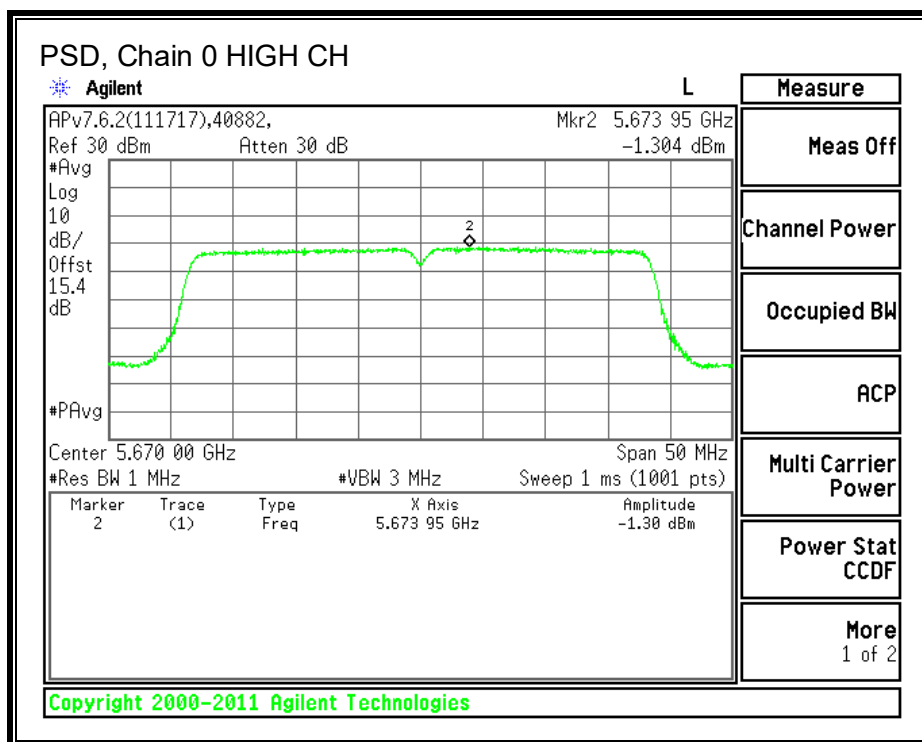
| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| Low | 5510 | -4.32 | -4.42 | -4.86 | -3.98 | 1.76 | 18.48 | -16.72 |
| Mid | 5590 | -4.40 | -3.90 | -4.71 | -3.98 | 1.91 | 18.48 | -16.57 |
| High | 5670 | -3.41 | -3.90 | -4.19 | 3.64 | 5.63 | 18.48 | -12.85 |

PSD Results

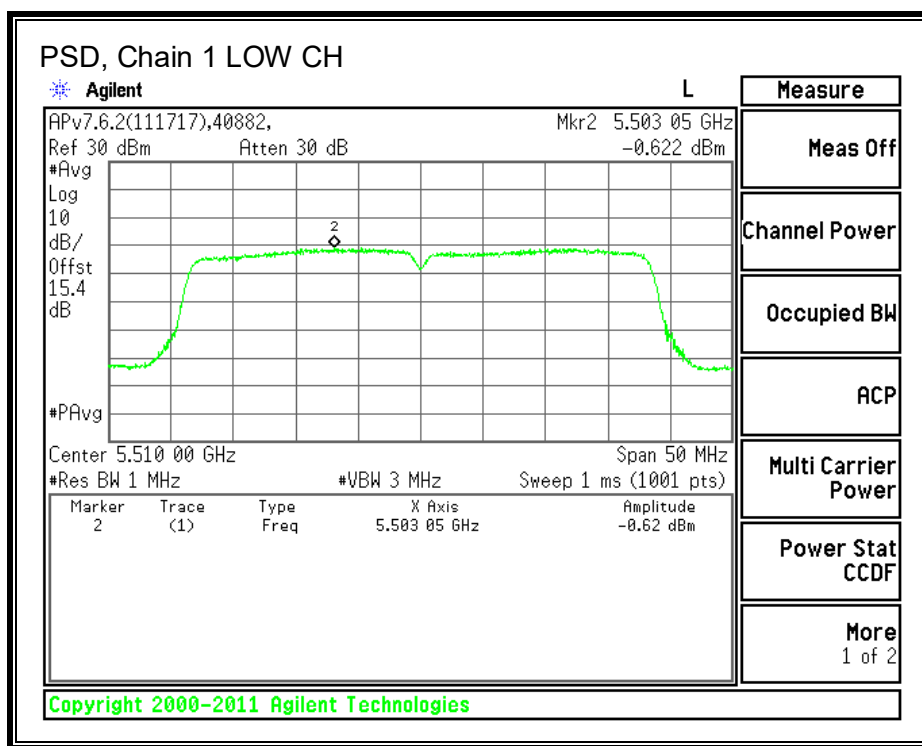
| Channel | Frequency (MHz) | Chain 0 Meas PSD (dBm) | Chain 1 Meas PSD (dBm) | Chain 2 Meas PSD (dBm) | Chain 3 Meas PSD (dBm) | Total Corr'd PSD (dBm) | PSD Limit (dBm) | PSD Margin (dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| Low | 5510 | -1.30 | -0.62 | -0.93 | -1.05 | 5.17 | 5.48 | -0.31 |
| Mid | 5590 | -1.05 | -0.38 | -0.58 | -0.77 | 5.45 | 5.48 | -0.03 |
| High | 5670 | -1.30 | -0.55 | -0.58 | -0.90 | 5.32 | 5.48 | -0.16 |

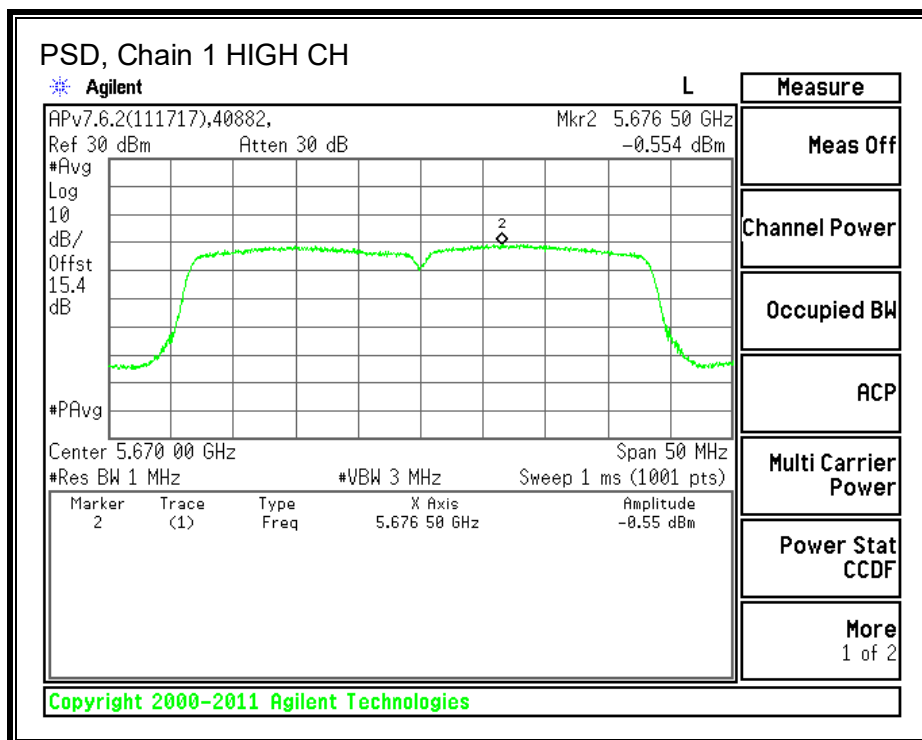
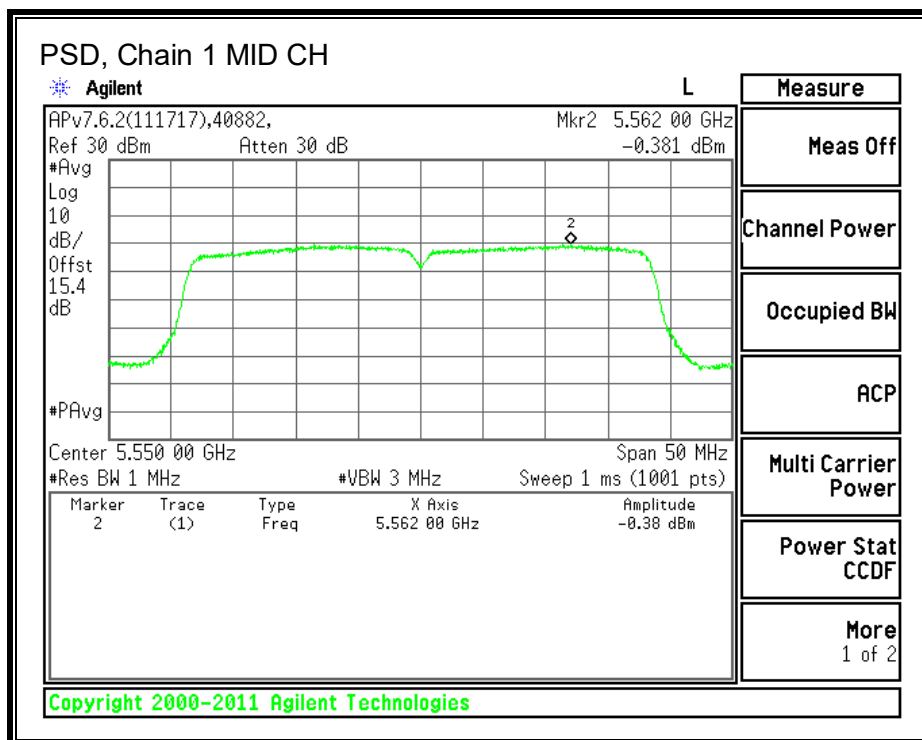
PSD, Chain 0



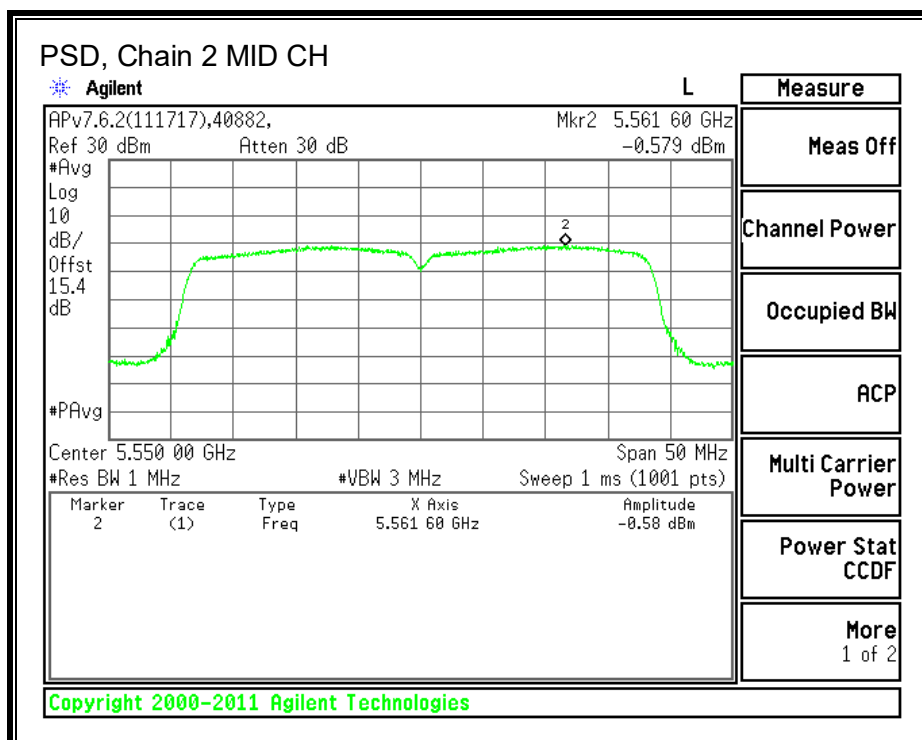
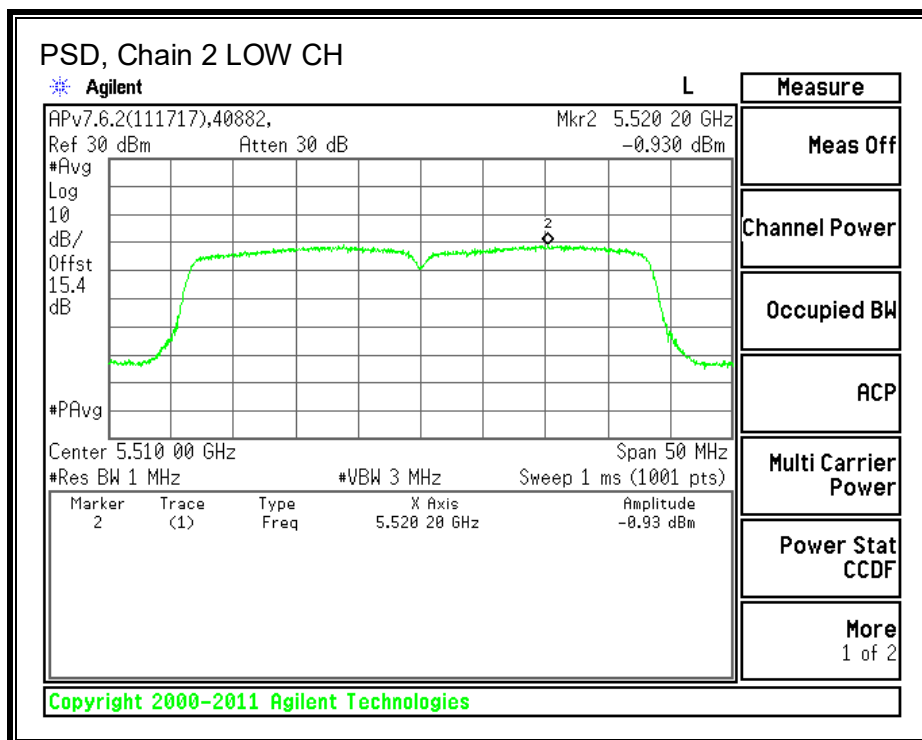


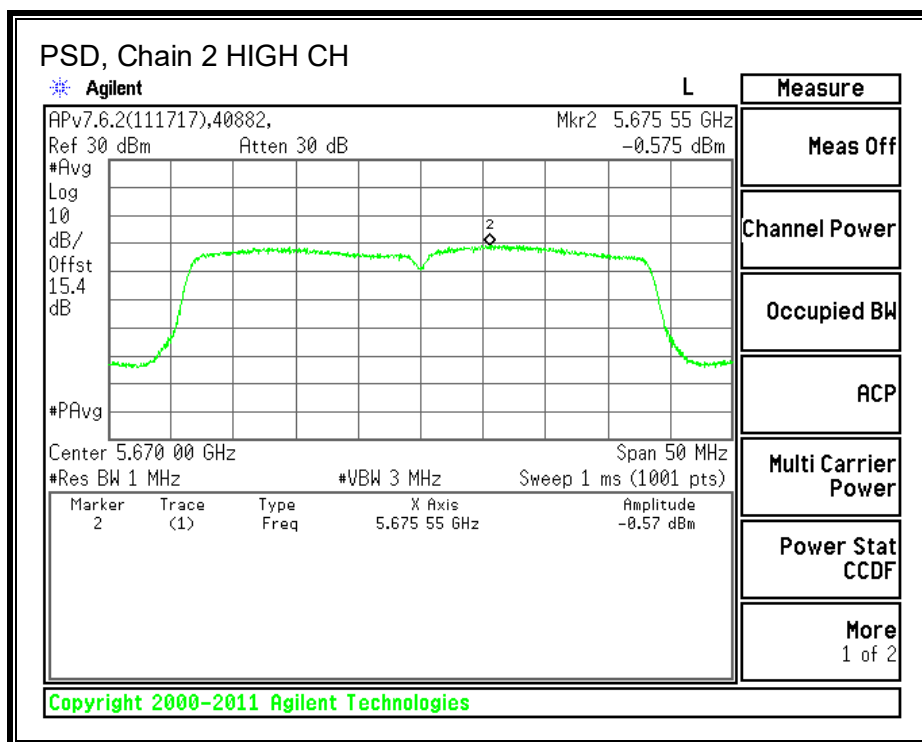
PSD, Chain 1



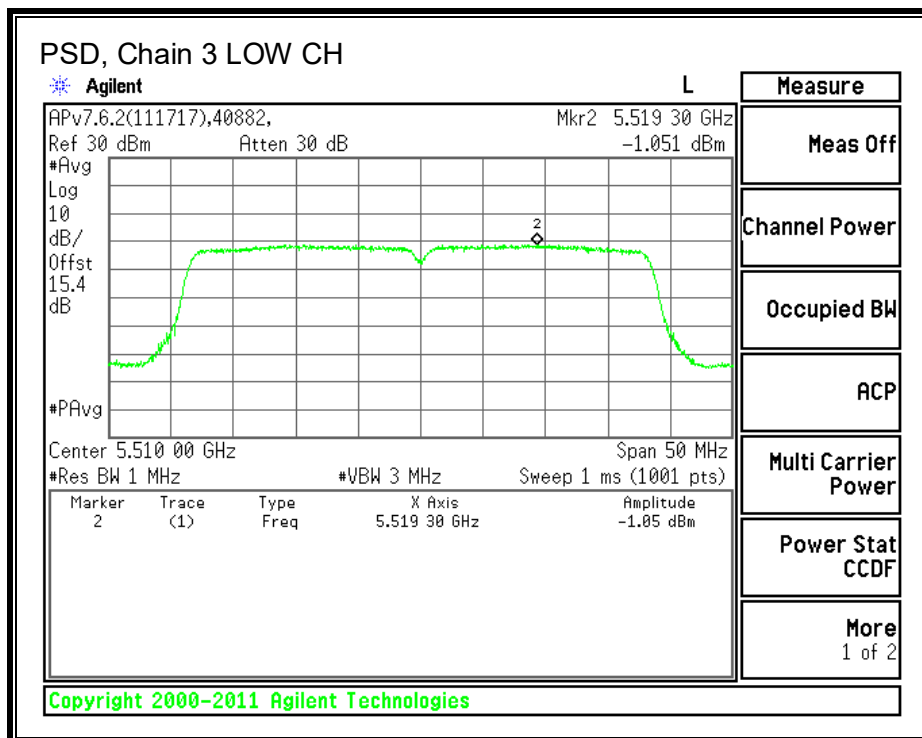


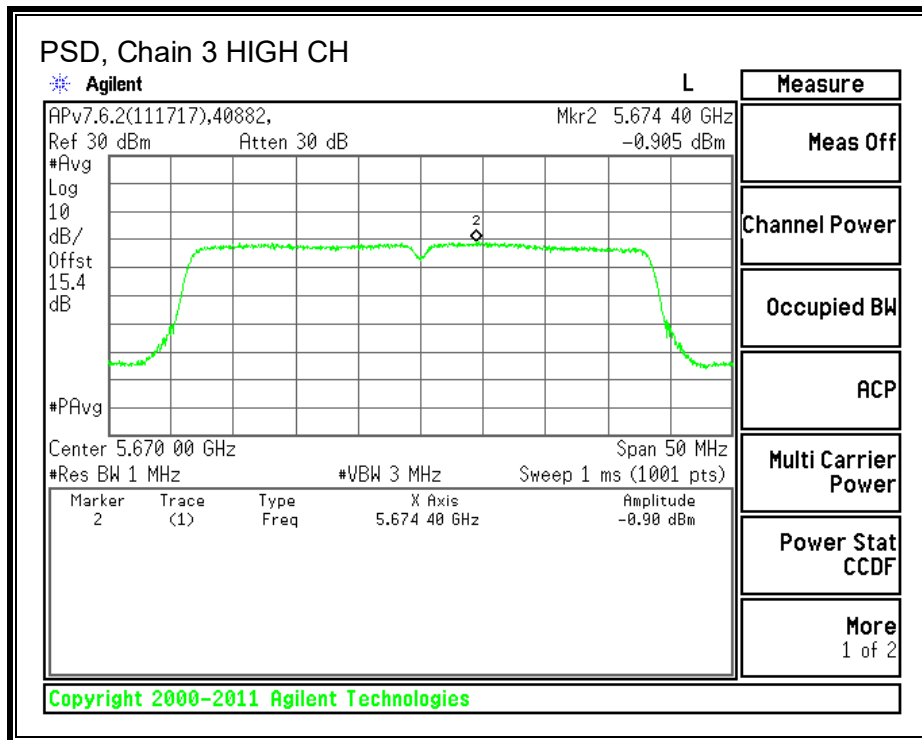
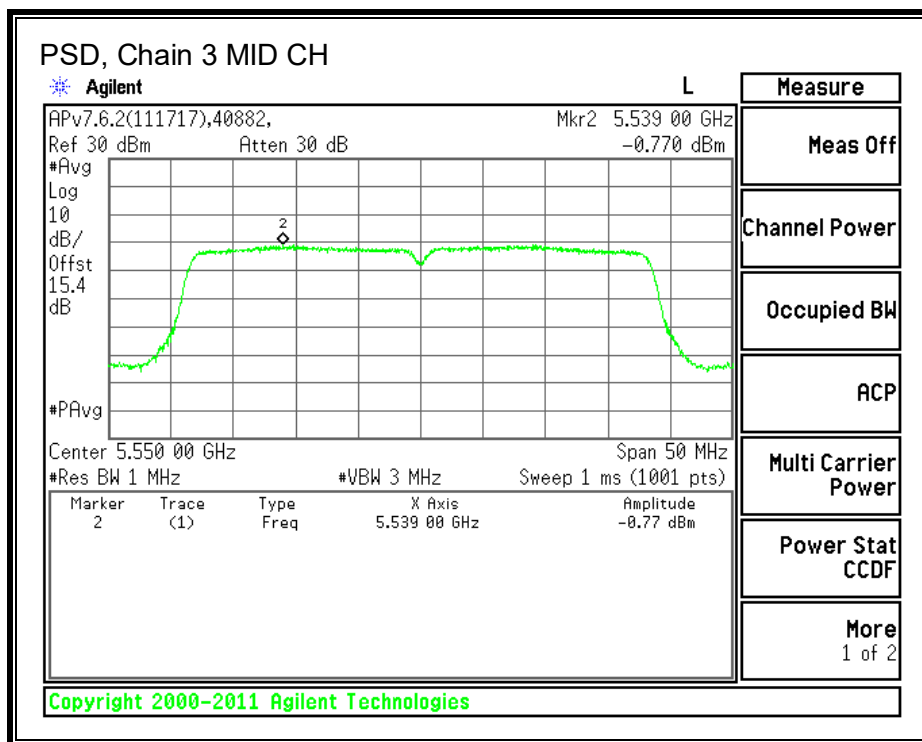
PSD, Chain 2





PSD, Chain 3





STRADDLE CHANNEL 144 RESULTS

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency (MHz) | Min 26 dB BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PSD (dBi) | Power Limit (dBm) | PSD Limit (dBm) |
|---------|--------------------|-----------------------------|---|---|-------------------------|-----------------------|
| 142 | 5710 | 39.67 | 11.52 | 11.52 | 18.48 | 5.48 |

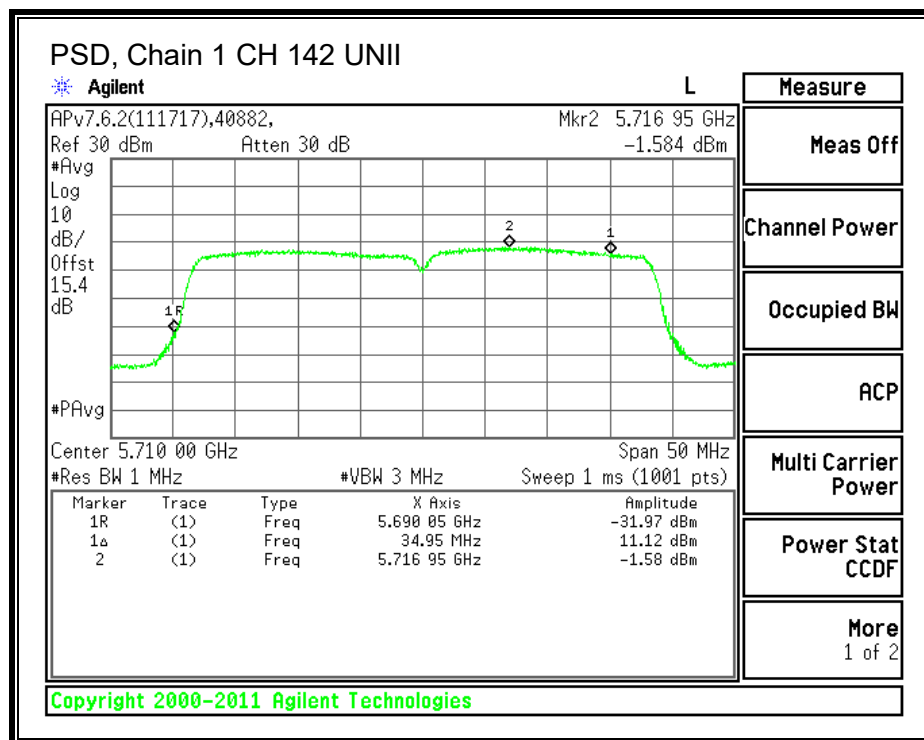
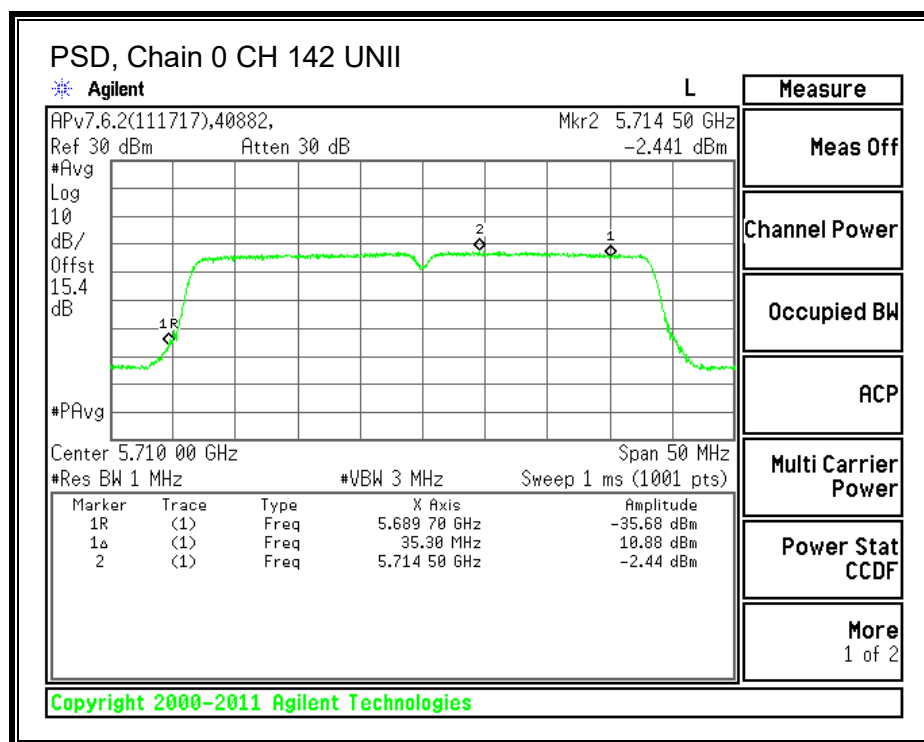
| | | |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|

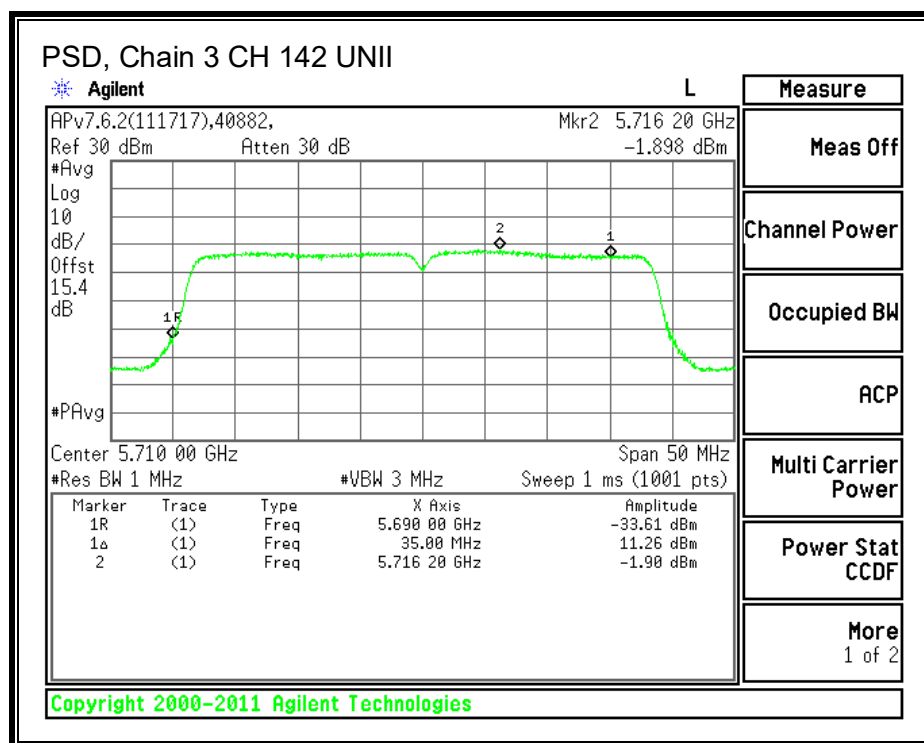
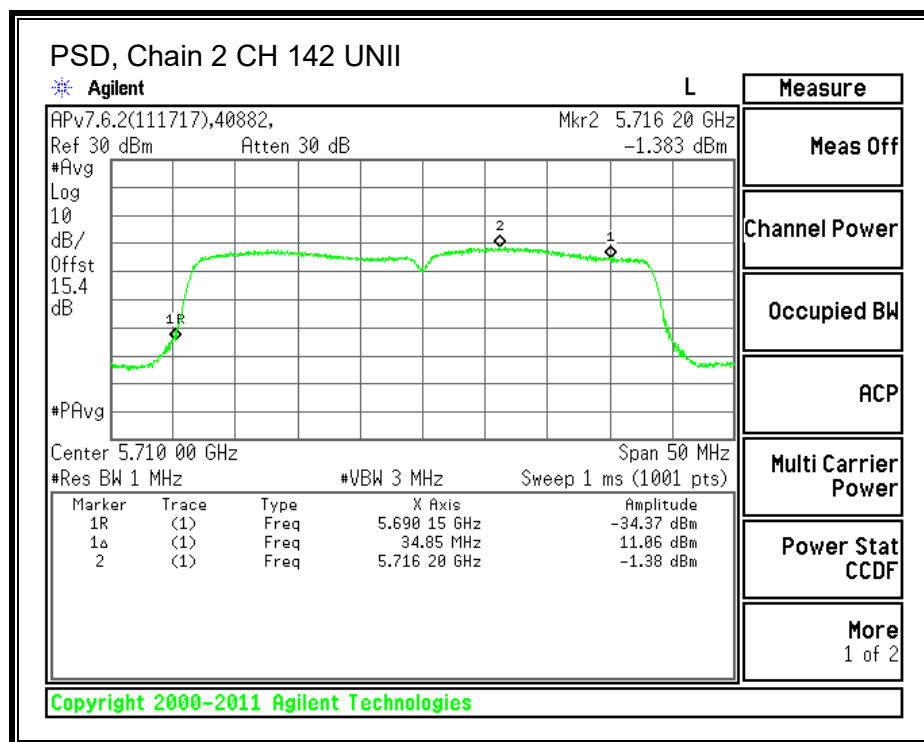
Output Power Results

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 142 | 5710 | -3.79 | -3.78 | -4.06 | -3.78 | 2.17 | 18.48 | -16.31 |

PSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PSD (dBm) | Chain 1 Meas PSD (dBm) | Chain 2 Meas PSD (dBm) | Chain 3 Meas PSD (dBm) | Total Corr'd PSD (dBm) | PSD Limit (dBm) | PSD Margin (dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 142 | 5710 | -2.44 | -1.58 | -1.38 | -1.90 | 4.21 | 5.48 | -1.27 |





UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional Gain | Directional Gain | Power Limit | PSD Limit |
|---------|-----------|---------------------|---------------------|----------------|--------------|
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 142 | 5710 | 11.52 | 11.52 | 24.48 | 24.48 |

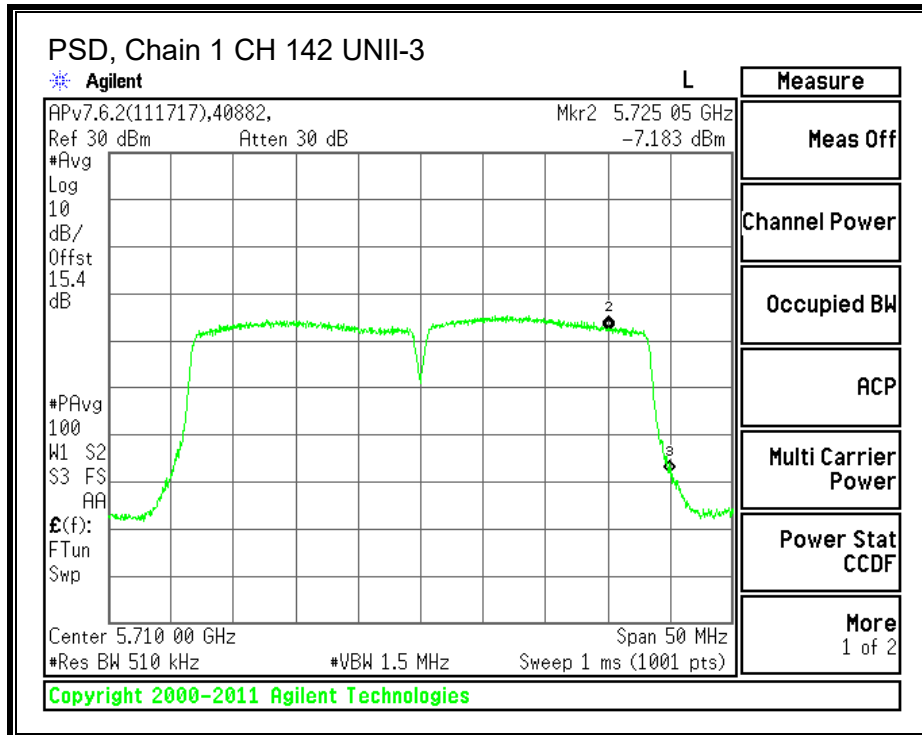
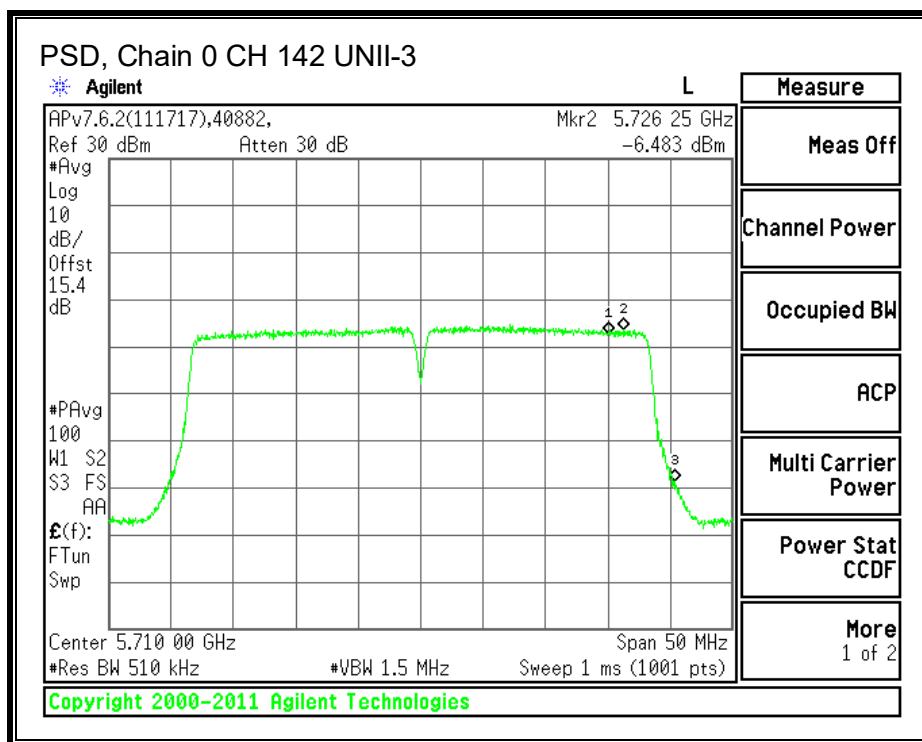
| | | |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|

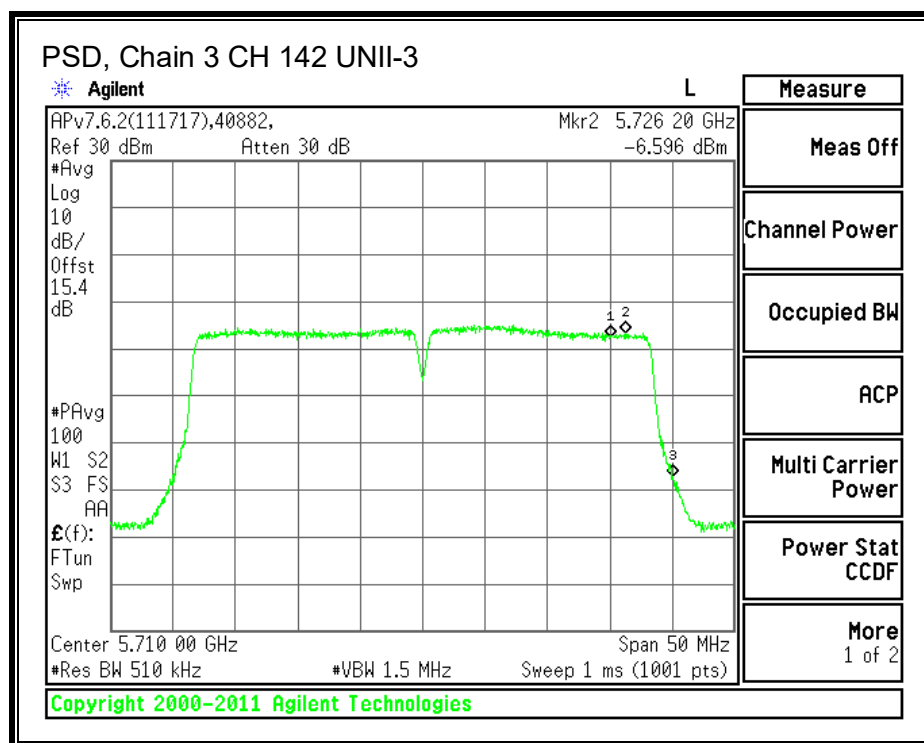
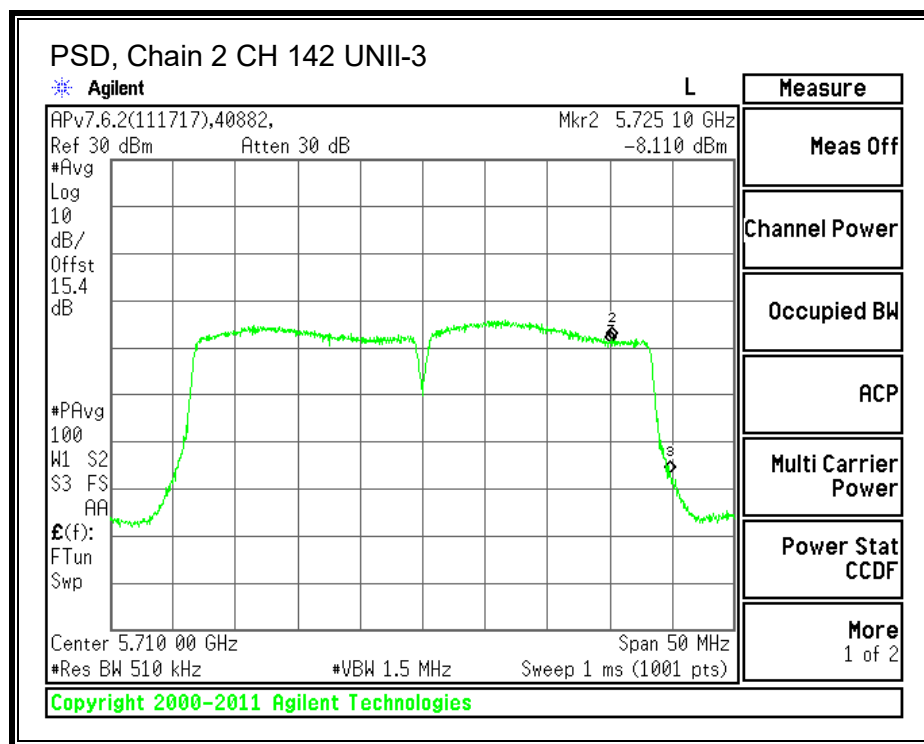
Output Power Results

| Channel | Frequency | Chain 0 Meas Power | Chain 1 Meas Power | Chain 2 Meas Power | Chain 3 Meas Power | Total Corr'd Power | Power Limit | Power Margin |
|---------|-----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|----------------|-----------------|
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | -3.79 | -3.78 | -4.06 | -3.78 | 2.17 | 24.48 | -22.31 |

PSD Results

| Channel | Frequency | Chain 0 Meas PSD | Chain 1 Meas PSD | Chain 2 Meas PSD | Chain 3 Meas PSD | Total Corr'd PSD | PSD Limit | PSD Margin |
|---------|-----------|------------------------|------------------------|------------------------|------------------------|------------------------|--------------|---------------|
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | -6.48 | -7.18 | -8.11 | -6.60 | -1.03 | 24.48 | -25.51 |





10.6.2. IC OUTPUT POWER AND PSD

LIMITS

IC RSS-247 (6.2.3 [1])

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10} B$, dBm, whichever power is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

DIRECTIONAL ANTENNA GAIN

This EUT mode is 802.11nHT20. This mode is TxBF, therefore array gain (antenna gain + $10 \log(n_{\text{ant}})$) is used.

Output Power

| Antenna Gain (dBi) | 10 * log (4 chains) (dB) | Array Gain (dBi) |
|--------------------|--------------------------|------------------|
| 5.50 | 6.02 | 11.52 |

PSD

| Antenna Gain (dBi) | 10 * Log (4 chains) (dB) | Correlated Chains Directional Gain (dBi) |
|--------------------|--------------------------|--|
| 5.50 | 6.02 | 11.52 |

TEST INFORMATION

Test Date: 2017-12-01

Tested By: Jeffrey Cabrera

RESULTS

Bandwidth and Antenna Gain

| Channel | Freq. (MHz) | Min 99% BW (MHz) | Direct. Gain for Power (dBi) | Direct. Gain for PPSP (dBi) |
|---------|----------------|---------------------------|--|--------------------------------------|
| Low | 5510 | 35.9200 | 11.52 | 11.52 |
| Mid | 5590 | 35.9200 | 11.52 | 11.52 |
| High | 5670 | 35.9200 | 11.52 | 11.52 |

Limits

| Channel | Freq. (MHz) | IC EIRP Limit (dBm) | IC eirp PSD Limit (dBm) | IC Output Power Limit (dBm) |
|---------|----------------|------------------------------|-------------------------------------|---|
| Low | 5510 | 30.00 | 11.00 | 24.00 |
| Mid | 5590 | 30.00 | 11.00 | 24.00 |
| High | 5670 | 30.00 | 11.00 | 24.00 |

| | | |
|--------------------|------|---|
| Duty Cycle CF (dB) | 0.12 | Included in Calculations of Corr'd Power & PPSP |
|--------------------|------|---|

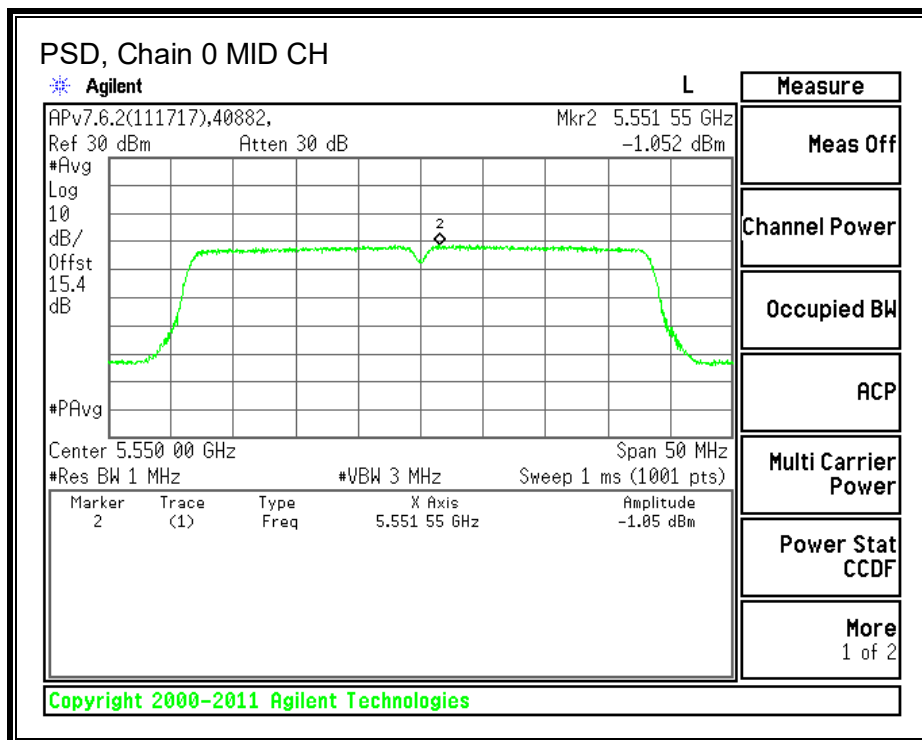
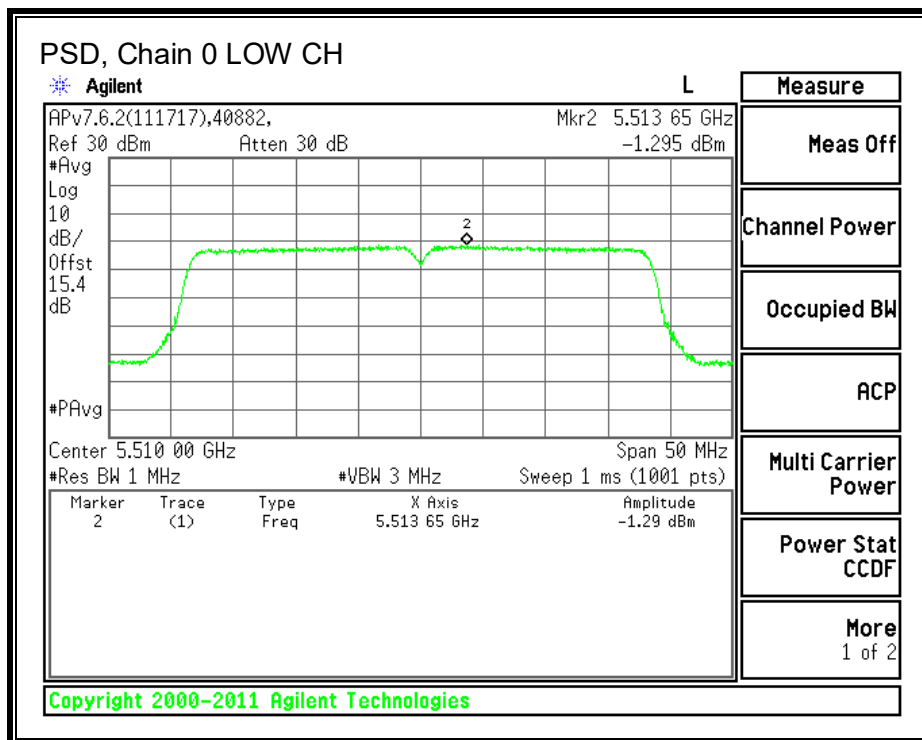
Output Power Results

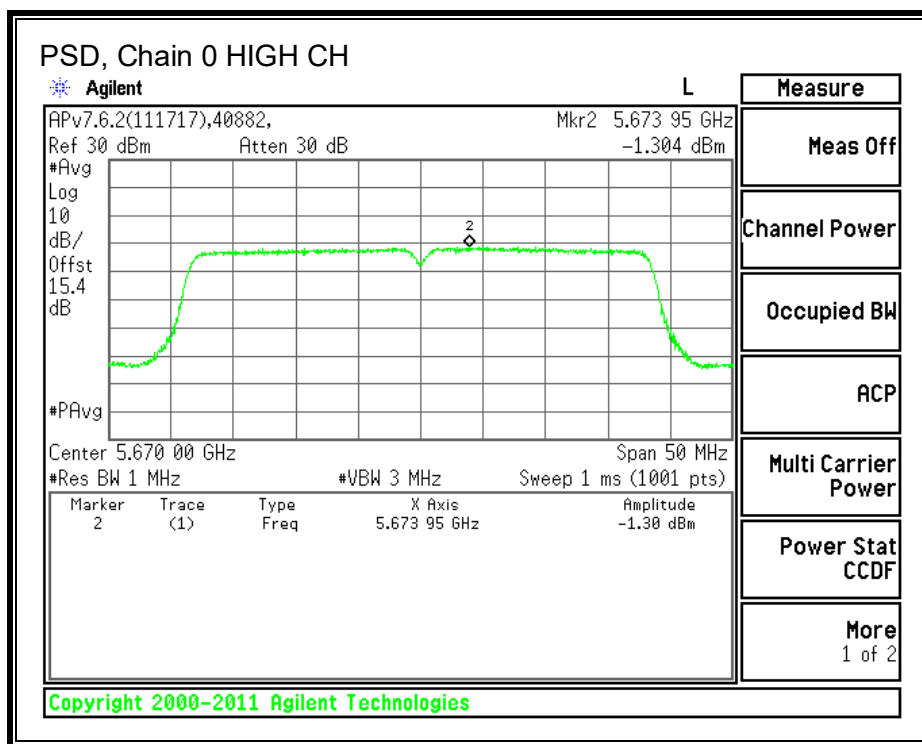
| Channel | Freq. (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd EIRP (dBm) | EIRP Limit (dBm) | EIRP Margin (dB) | Power Limit (dBm) | Power Margin (dB) |
|---------|----------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|----------------------------------|------------------------|------------------------|-------------------------|-------------------------|
| Low | 5510 | -4.32 | -4.42 | -4.86 | -3.98 | 13.28 | 30.00 | -16.72 | 24.00 | -22.24 |
| Mid | 5590 | -4.40 | -3.90 | -4.71 | -3.98 | 13.43 | 30.00 | -16.57 | 24.00 | -22.09 |
| High | 5670 | -3.41 | -3.90 | -4.19 | 3.64 | 17.15 | 30.00 | -12.85 | 24.00 | -18.37 |
| | | | | | | Power | | | | |
| | | | | | | 1.76 | | | | |
| | | | | | | 1.91 | | | | |
| | | | | | | 5.63 | | | | |

PPSP Results

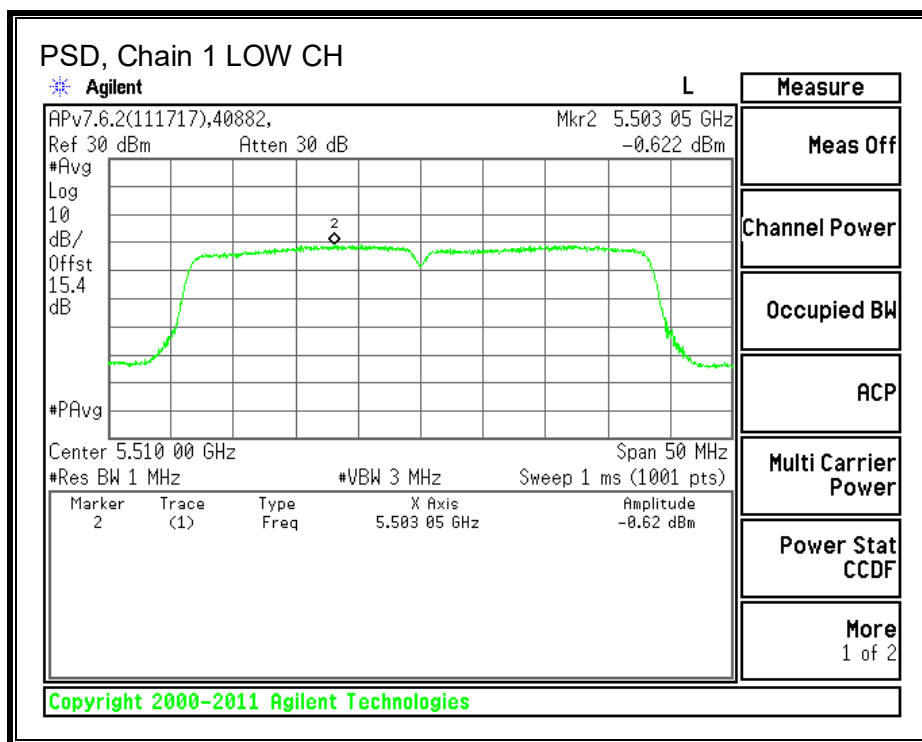
| Channel | Freq. (MHz) | Chain 0 Meas PPSP (dBm) | Chain 1 Meas PPSP (dBm) | Chain 2 Meas PPSP (dBm) | Chain 3 Meas PPSP (dBm) | Total Corr'd PPSP (dBm) | PPSP Limit (dBm) | PPSP Margin (dB) |
|---------|----------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|------------------------|
| Low | 5510 | -1.30 | -0.62 | -0.93 | -1.05 | 5.17 | 11.00 | -5.83 |
| Mid | 5590 | -1.05 | -0.38 | -0.58 | -0.77 | 5.45 | 11.00 | -5.55 |
| High | 5670 | -1.30 | -0.55 | -0.58 | -0.90 | 5.32 | 11.00 | -5.68 |

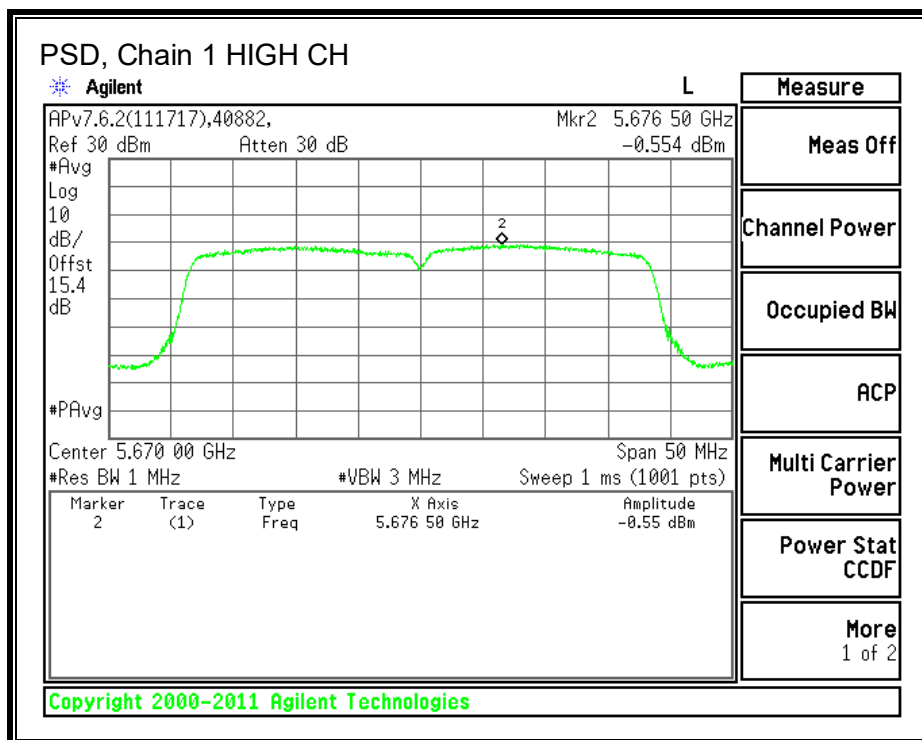
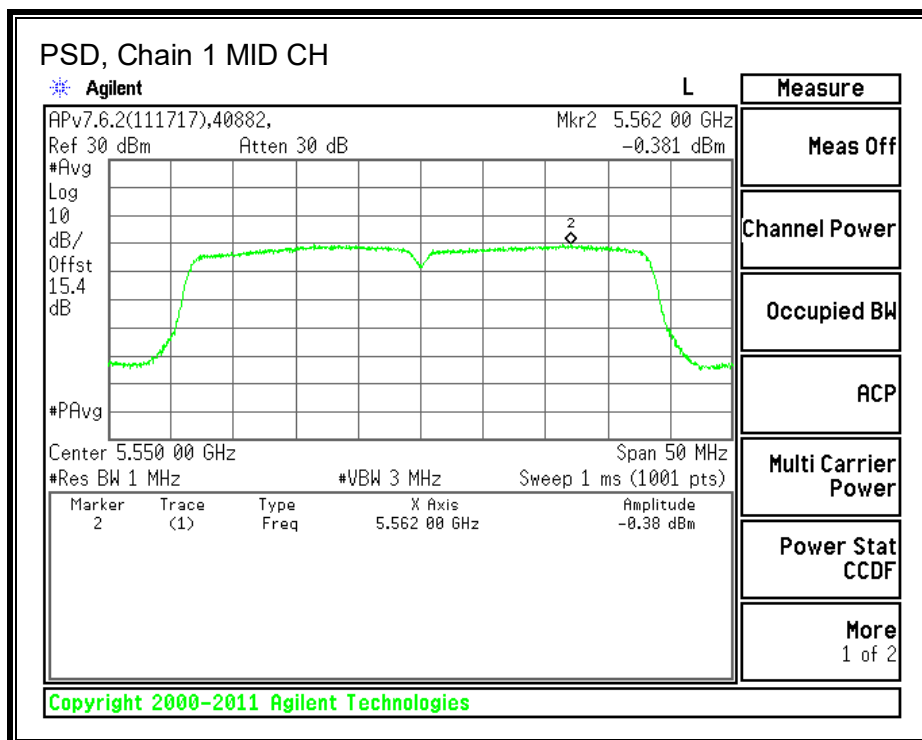
PSD, Chain 0



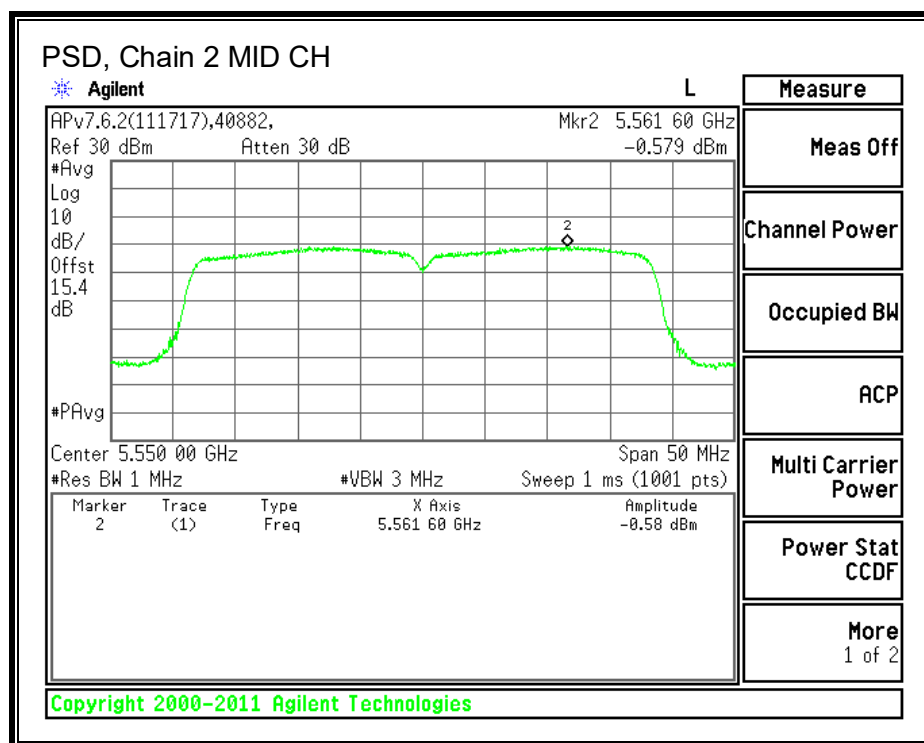
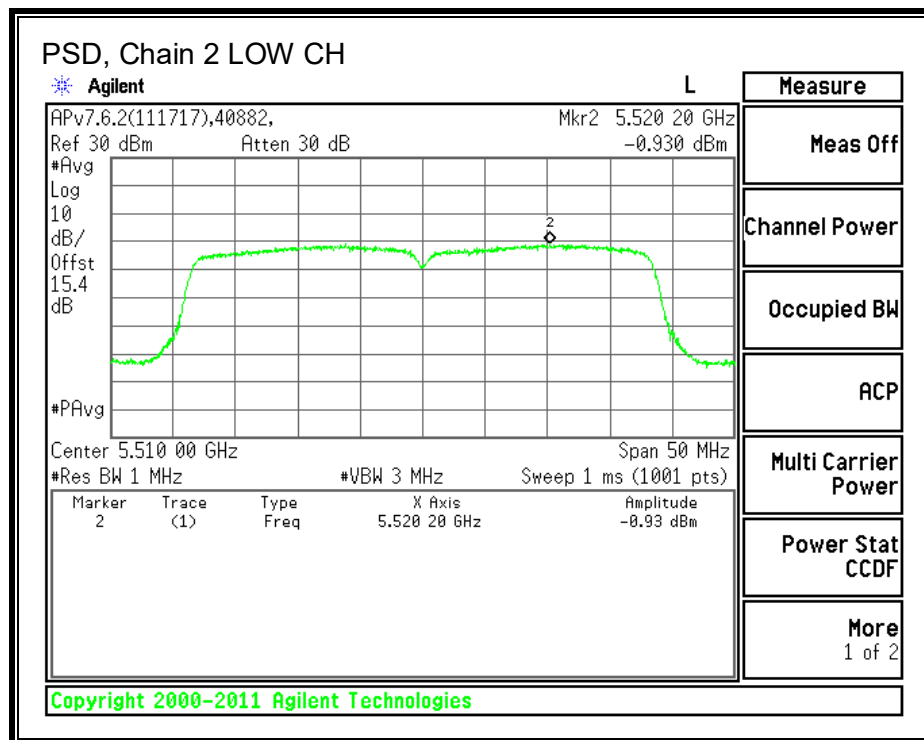


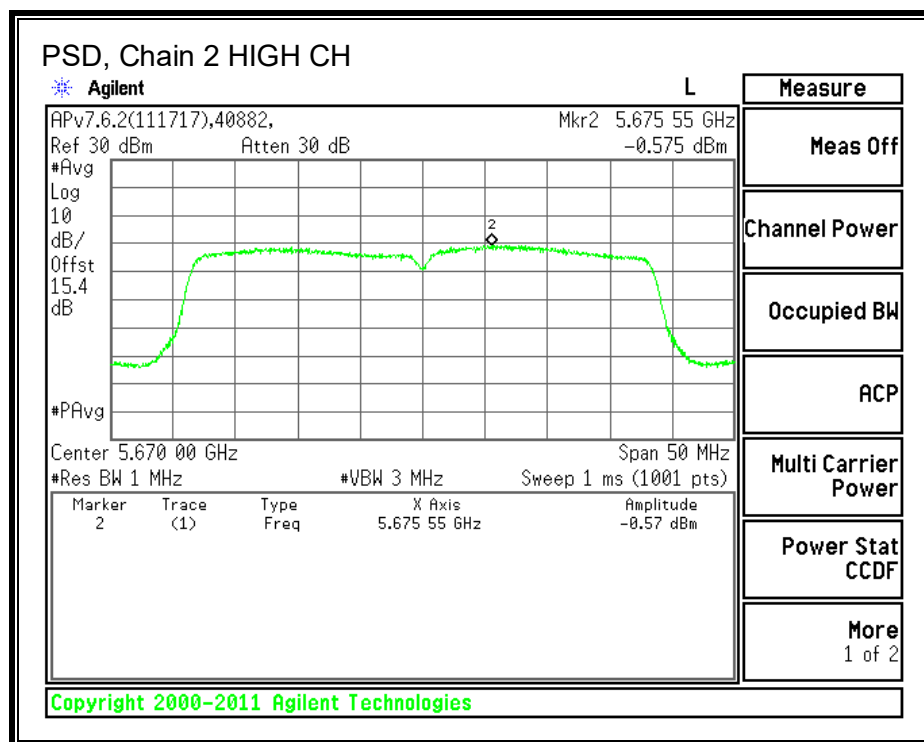
PSD, Chain 1



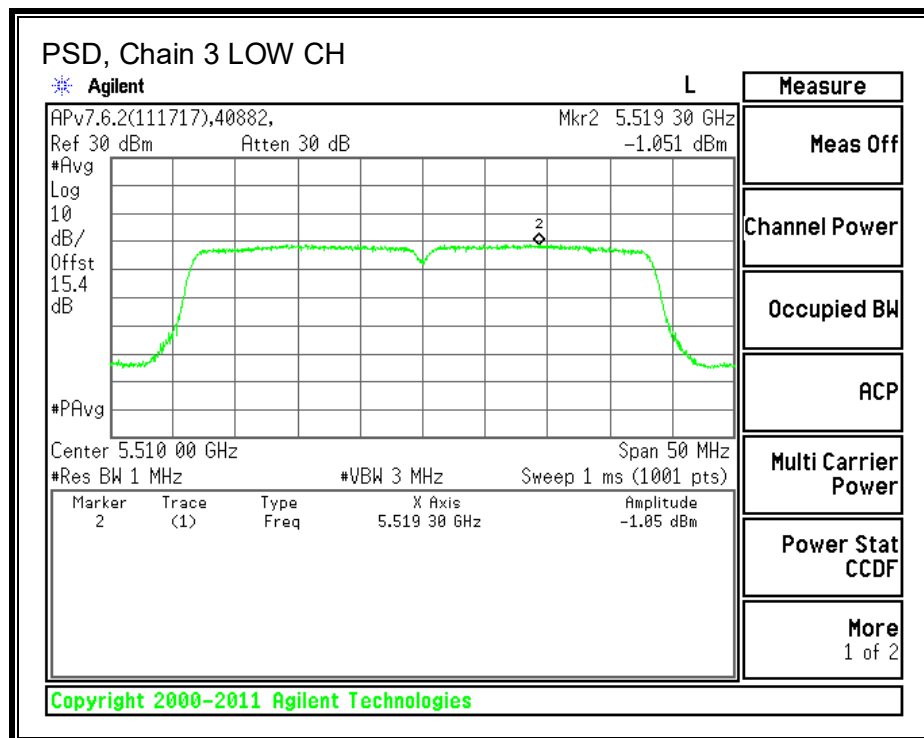


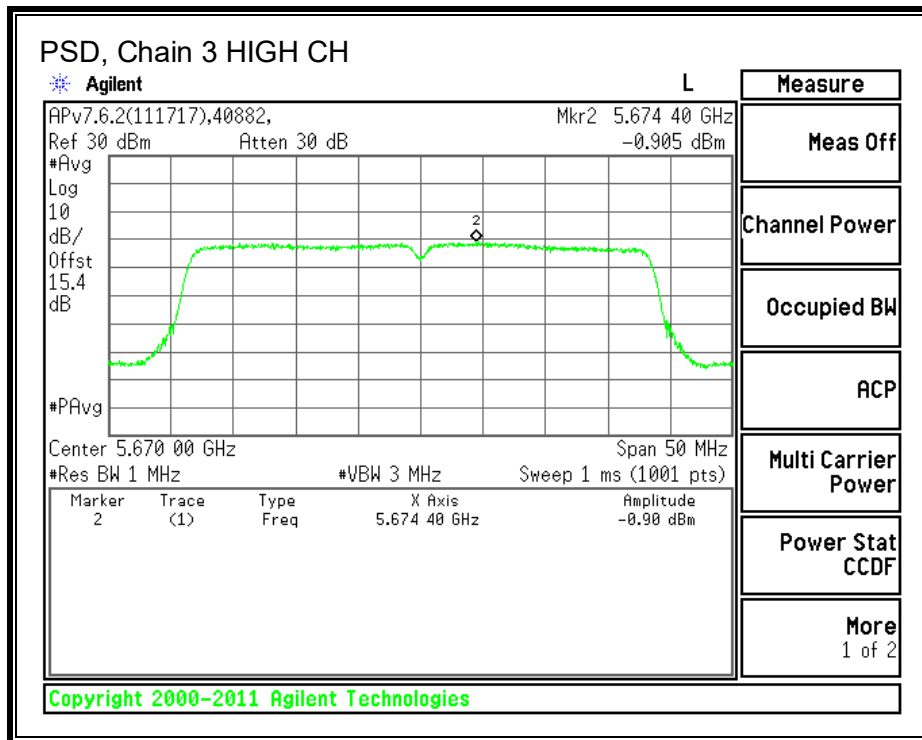
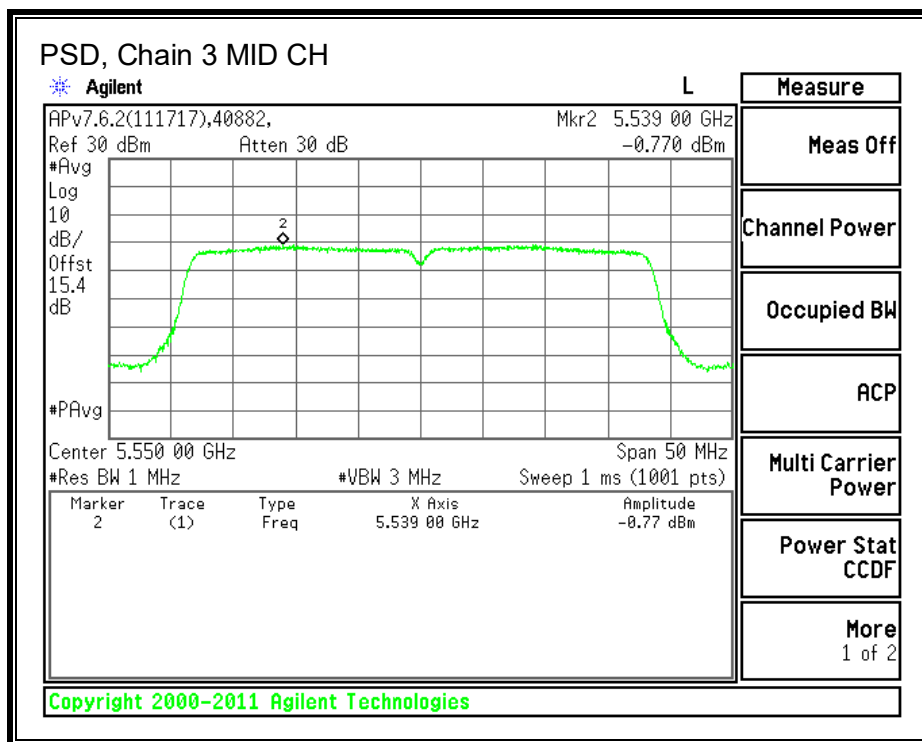
PSD, Chain 2





PSD, Chain 3





STRADDLE CHANNEL 144 RESULTS
UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

| Channel | Frequency (MHz) | Min 99% BW (MHz) | Directional Gain for Power (dBi) | Directional Gain for PSD (dBi) | Power Limit (dBm) | PSD Limit (dBm) | EIRP Limit (dBm) |
|---------|--------------------|---------------------------|---|---|-------------------------|-----------------------|------------------------|
| 142 | 5710 | 35.96 | 11.52 | 11.52 | 18.48 | 11.00 | 24.48 |

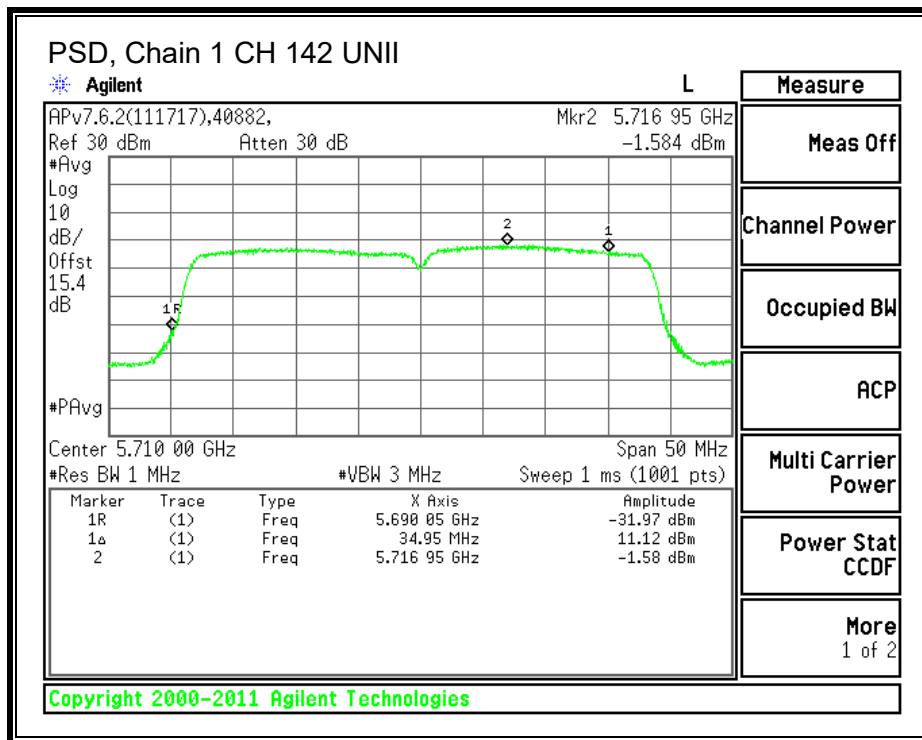
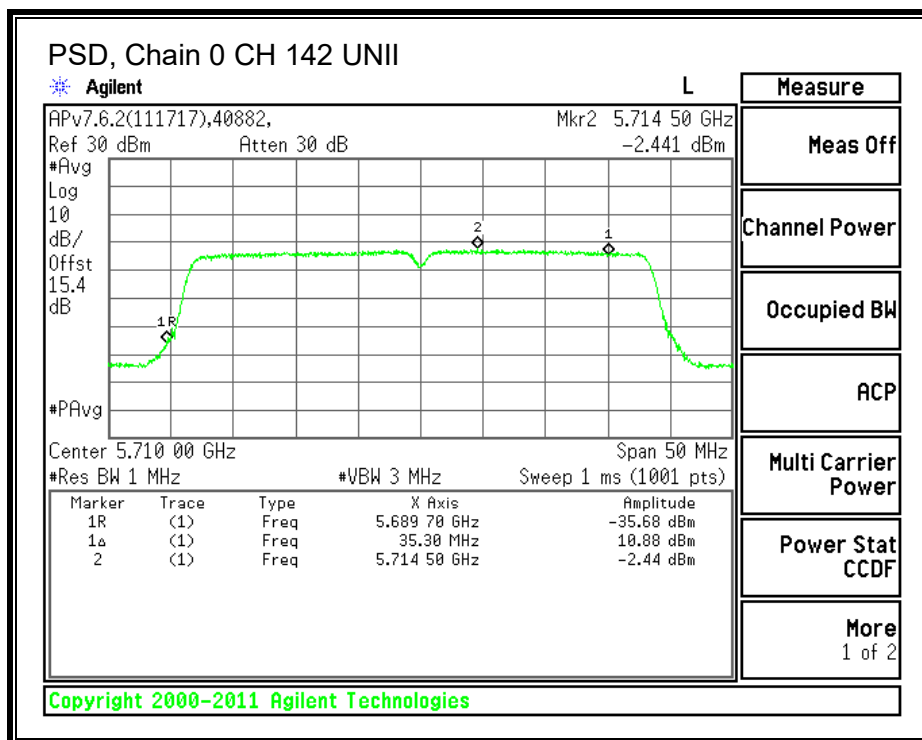
| | | |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|

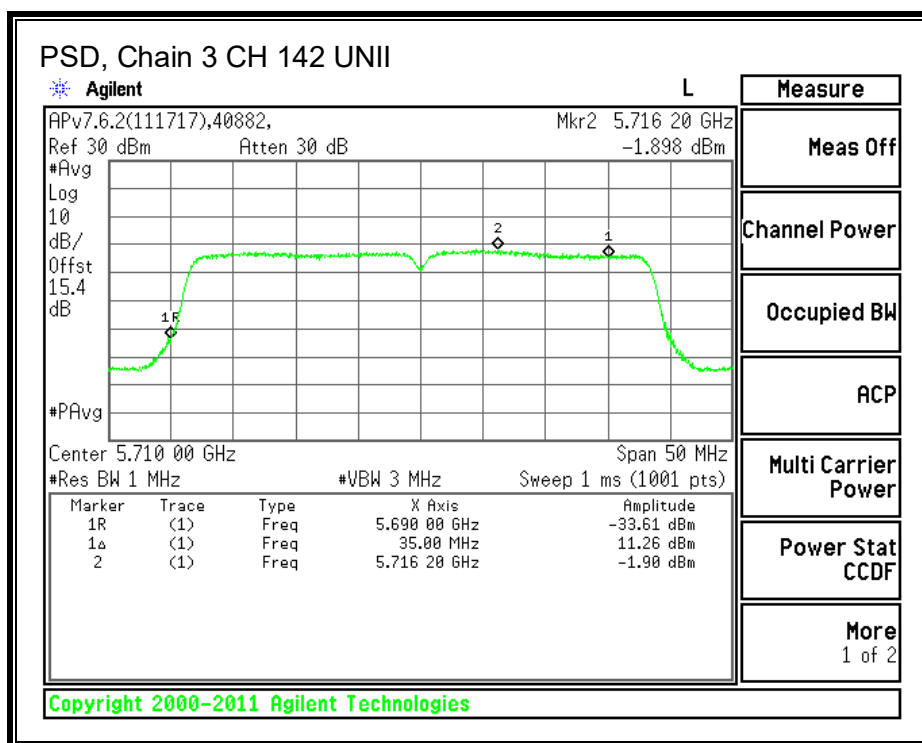
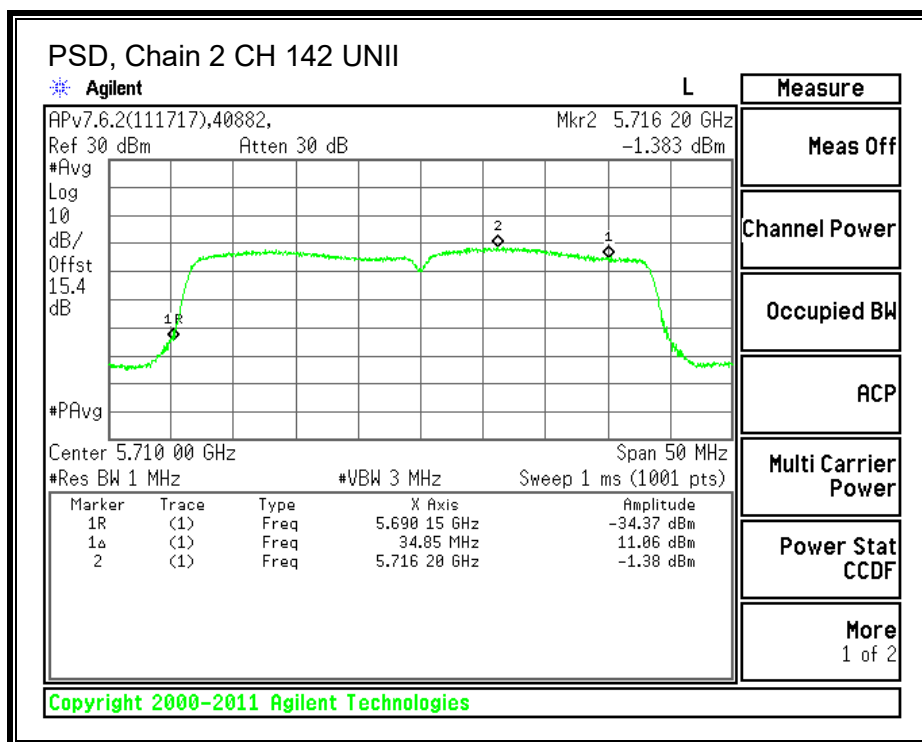
Output Power Results

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Chain 1 Meas Power (dBm) | Chain 2 Meas Power (dBm) | Chain 3 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Power Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|-------------------------|
| 142 | 5710 | -3.79 | -3.78 | -4.06 | -3.78 | 2.17 | 18.48 | -16.31 |
| | | | | | | EIRP | EIRP Limit | EIRP Margin |
| | | | | | | 13.69 | 24.48 | -10.79 |

PSD Results

| Channel | Frequency (MHz) | Chain 0 Meas PSD (dBm) | Chain 1 Meas PSD (dBm) | Chain 2 Meas PSD (dBm) | Chain 3 Meas PSD (dBm) | Total Corr'd PSD (dBm) | PSD Limit (dBm) | PSD Margin (dB) |
|---------|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 142 | 5710 | -2.44 | -1.58 | -1.38 | -1.90 | 4.21 | 11.00 | -6.79 |





UNII-3 BAND

Antenna Gain and Limit

| Channel | Frequency | Directional Gain | Directional Gain | Power Limit | PSD Limit |
|---------|-----------|---------------------|---------------------|----------------|--------------|
| | (MHz) | (dBi) | (dBi) | (dBm) | (dBm) |
| 142 | 5710 | 11.52 | 11.52 | 24.48 | 24.48 |

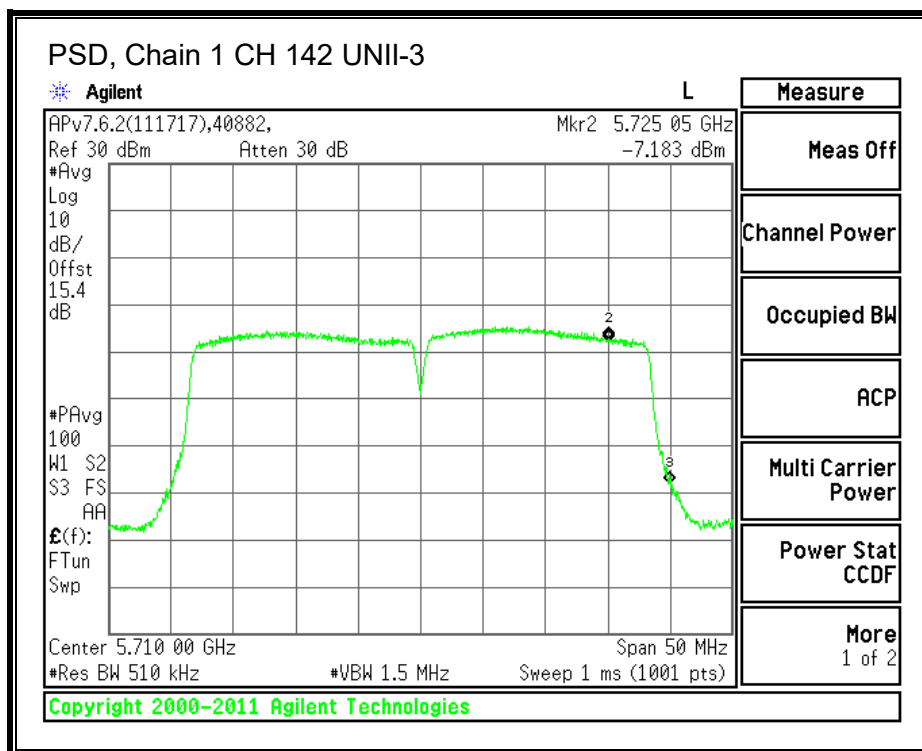
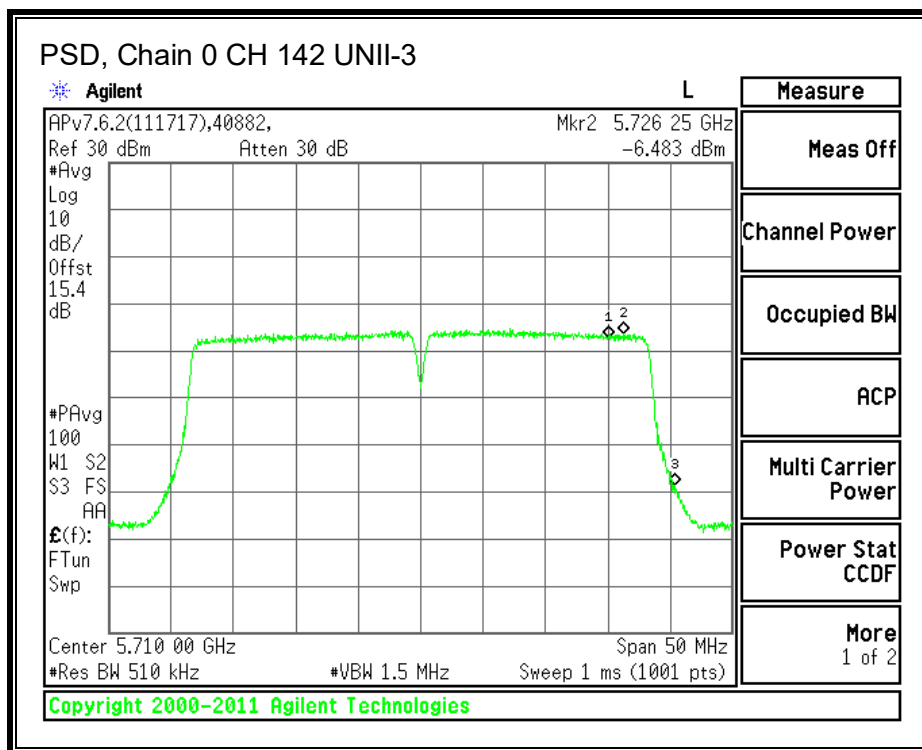
| | | |
|--------------------|------|--|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd Power & PSD |
|--------------------|------|--|

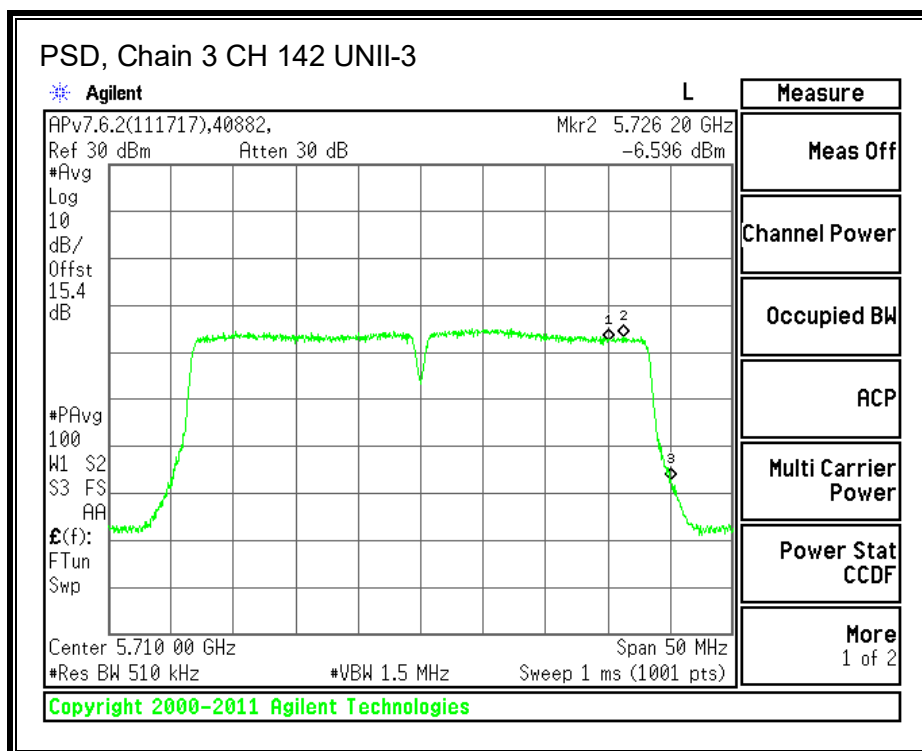
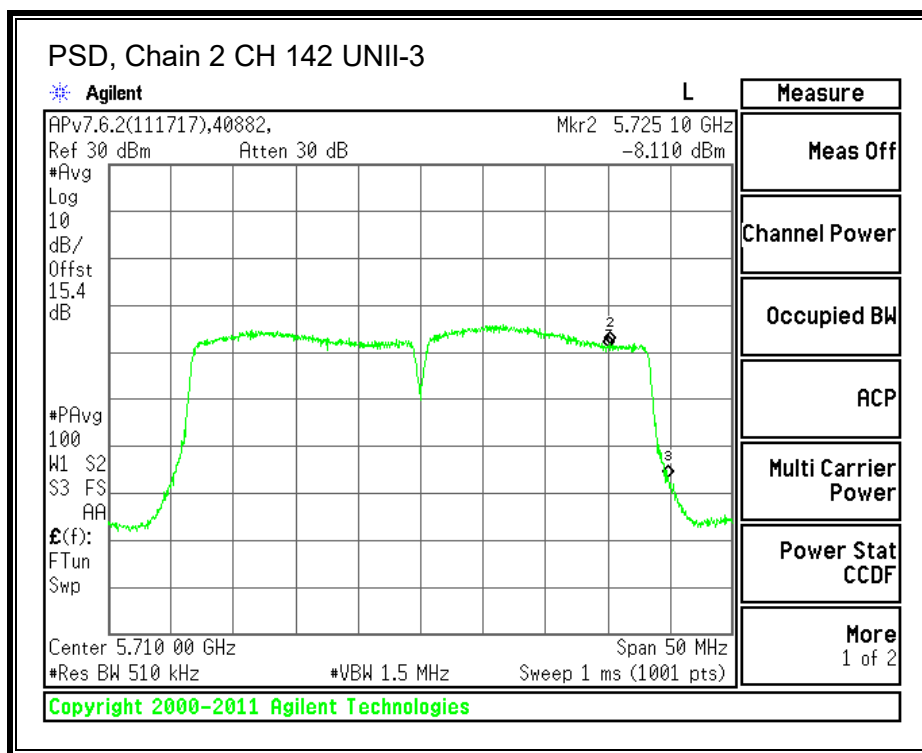
Output Power Results

| Channel | Frequency | Chain 0 Meas Power | Chain 1 Meas Power | Chain 2 Meas Power | Chain 3 Meas Power | Total Corr'd Power | Power Limit | Power Margin |
|---------|-----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|----------------|-----------------|
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | -3.79 | -3.78 | -4.06 | -3.78 | 2.17 | 24.48 | -22.31 |

PSD Results

| Channel | Frequency | Chain 0 Meas PSD | Chain 1 Meas PSD | Chain 2 Meas PSD | Chain 3 Meas PSD | Total Corr'd PSD | PSD Limit | PSD Margin |
|---------|-----------|------------------------|------------------------|------------------------|------------------------|------------------------|--------------|---------------|
| | (MHz) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dBm) | (dB) |
| 142 | 5710 | -6.48 | -7.18 | -8.11 | -6.60 | -1.03 | 24.48 | -25.51 |





11. RADIATED TEST RESULTS

11.1. LIMITS AND PROCEDURE LIMITS

FCC §15.205 and §15.209

IC RSS-GEN Clause 8.9 (Transmitter)

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

TEST PROCEDURE

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

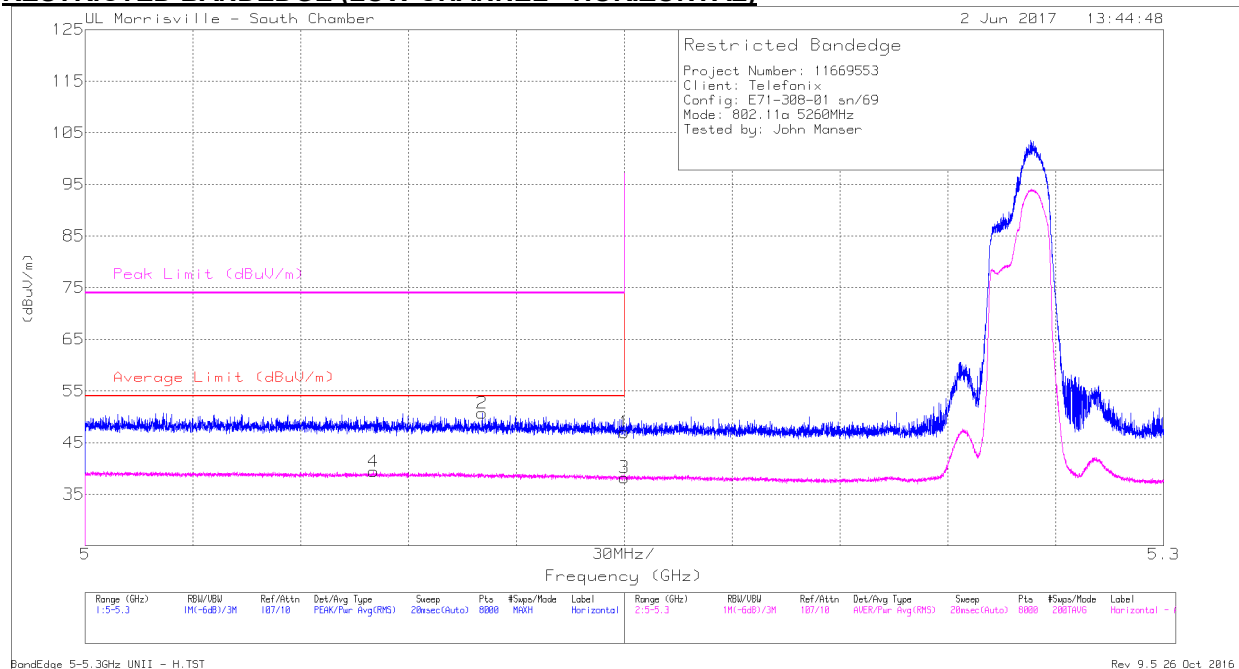
For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

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

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

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

11.2. TX ABOVE 1 GHz 802.11a MODE IN THE 5.3 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL - HORIZONTAL)



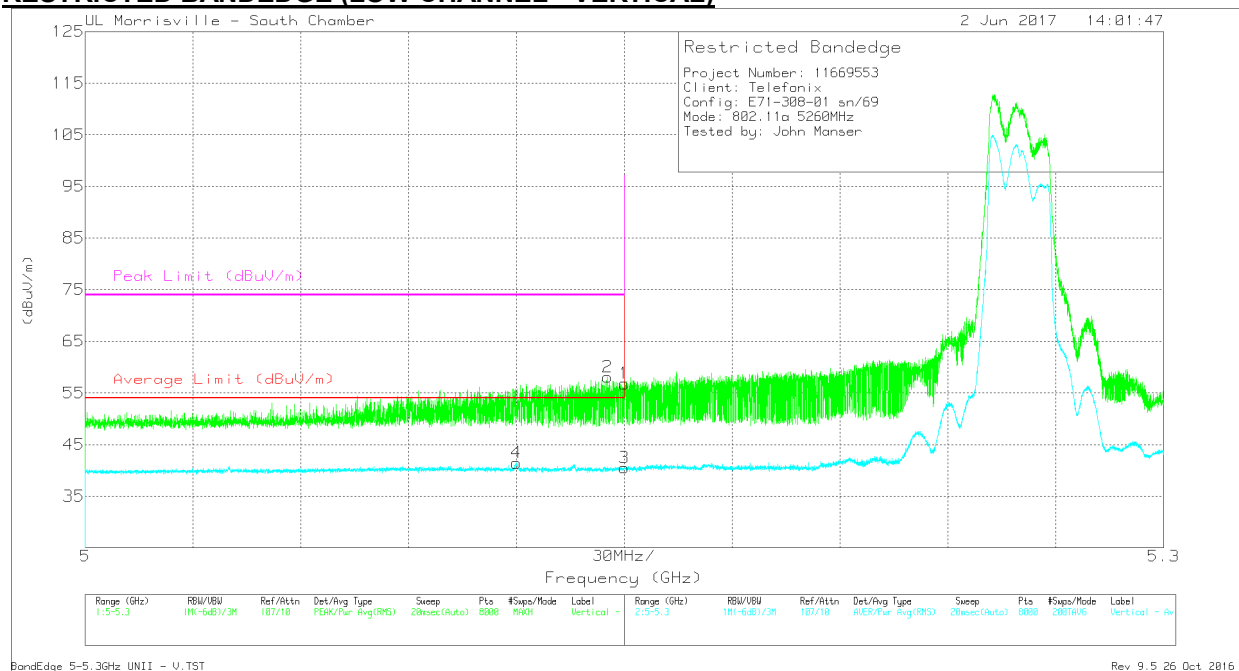
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Filt/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.15 | 35.58 | Pk | 34.1 | -22.7 | 0 | 46.98 | - | - | 74 | -27.02 | 330 | 106 | H |
| 2 | * 5.11 | 39.2 | Pk | 34.1 | -22.6 | 0 | 50.7 | - | - | 74 | -23.3 | 330 | 106 | H |
| 3 | * 5.15 | 26.67 | RMS | 34.1 | -22.7 | .14 | 38.21 | 54 | -15.79 | - | - | 330 | 106 | H |
| 4 | * 5.08 | 27.77 | RMS | 34.1 | -22.6 | .14 | 39.41 | 54 | -14.59 | - | - | 330 | 106 | H |

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

Pk - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (LOW CHANNEL - VERTICAL)



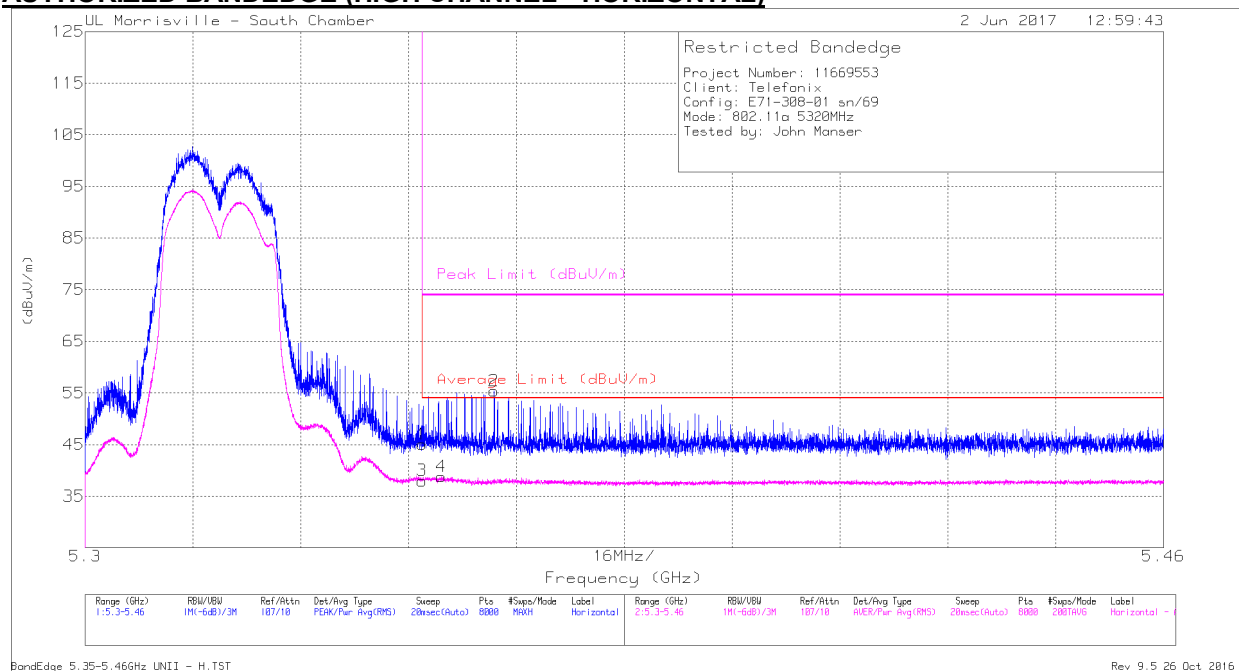
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl /Filtr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|-------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 4 | * 5.12 | 29.8 | RMS | 34.1 | -22.6 | .14 | 41.44 | 54 | -12.56 | - | - | 172 | 237 | V |
| 2 | * 5.145 | 46.71 | Pk | 34.1 | -22.7 | 0 | 58.11 | - | - | 74 | -15.89 | 172 | 237 | V |
| 1 | * 5.15 | 45.41 | Pk | 34.1 | -22.7 | 0 | 56.81 | - | - | 74 | -17.19 | 172 | 237 | V |
| 3 | * 5.15 | 28.94 | RMS | 34.1 | -22.7 | .14 | 40.48 | 54 | -13.52 | - | - | 172 | 237 | V |

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

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL - HORIZONTAL)



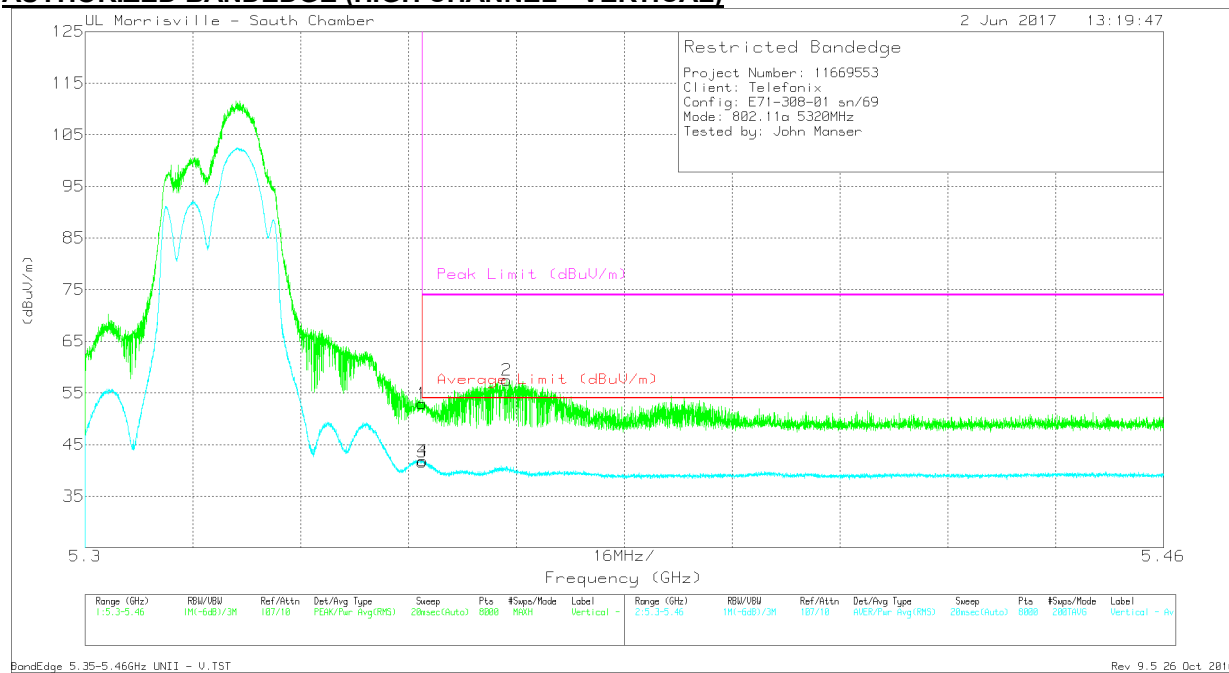
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl /Filtr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|-------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.35 | 33.86 | Pk | 34.4 | -23.2 | 0 | 45.06 | - | - | 74 | -28.94 | 106 | 244 | H |
| 2 | * 5.361 | 44.29 | Pk | 34.4 | -23.3 | 0 | 55.39 | - | - | 74 | -18.61 | 106 | 244 | H |
| 3 | * 5.35 | 26.65 | RMS | 34.4 | -23.2 | .14 | 37.99 | 54 | -16.01 | - | - | 106 | 244 | H |
| 4 | * 5.353 | 27.52 | RMS | 34.4 | -23.3 | .14 | 38.76 | 54 | -15.24 | - | - | 106 | 244 | H |

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

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL - VERTICAL)



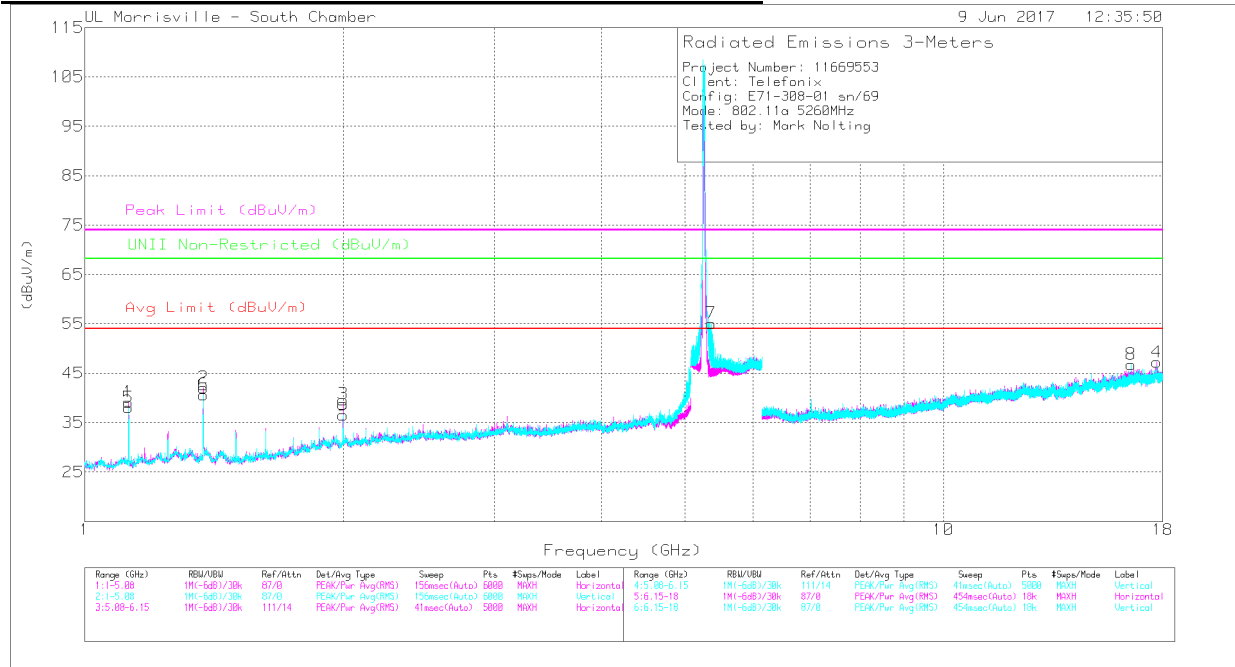
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl /Fitr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.35 | 41.73 | Pk | 34.4 | -23.2 | 0 | 52.93 | - | - | 74 | -21.07 | 107 | 170 | V |
| 3 | * 5.35 | 30.33 | RMS | 34.4 | -23.2 | .14 | 41.67 | 54 | -12.33 | - | - | 107 | 170 | V |
| 4 | * 5.35 | 30.5 | RMS | 34.4 | -23.2 | .14 | 41.84 | 54 | -12.16 | - | - | 107 | 170 | V |
| 2 | * 5.363 | 46.37 | Pk | 34.4 | -23.3 | 0 | 57.47 | - | - | 74 | -16.53 | 107 | 170 | V |

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

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS – LOW CHANNEL



| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl /Filtr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|------|------------------|-------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| 1 | * 1.125 | 49.92 | PK-U | 27.6 | -35.3 | 0 | 42.22 | - | - | 74 | -31.78 | - | - | 91 | 139 | H |
| | * 1.125 | 46.12 | ADR | 27.6 | -35.3 | .14 | 38.56 | 54 | -15.44 | - | - | - | - | 91 | 139 | H |
| 2 | * 1.375 | 50.27 | PK-U | 28.9 | -34.8 | 0 | 44.37 | - | - | 74 | -29.63 | - | - | 193 | 102 | H |
| | * 1.375 | 46.76 | ADR | 28.9 | -34.8 | .14 | 41 | 54 | -13 | - | - | - | - | 193 | 102 | H |
| 5 | * 1.125 | 49.7 | PK-U | 27.6 | -35.3 | 0 | 42 | - | - | 74 | -32 | - | - | 6 | 145 | V |
| | * 1.125 | 45.95 | ADR | 27.6 | -35.3 | .14 | 38.39 | 54 | -15.61 | - | - | - | - | 6 | 145 | V |
| 6 | * 1.375 | 48.78 | PK-U | 28.9 | -34.8 | 0 | 42.88 | - | - | 74 | -31.12 | - | - | 269 | 111 | V |
| | * 1.375 | 44.09 | ADR | 28.9 | -34.8 | .14 | 38.33 | 54 | -15.67 | - | - | - | - | 269 | 111 | V |
| 7 | * 5.353 | 53.7 | PK-U | 34.4 | -23.3 | 0 | 64.8 | - | - | 74 | -9.2 | - | - | 246 | 274 | V |
| | * 5.352 | 34.06 | ADR | 34.4 | -23.2 | .14 | 45.4 | 54 | -8.6 | - | - | - | - | 246 | 274 | V |
| 4 | * 17.723 | 33.28 | PK-U | 40.9 | -22.4 | 0 | 51.78 | - | - | 74 | -22.22 | - | - | 216 | 199 | H |
| | * 17.723 | 22.08 | ADR | 40.9 | -22.4 | .14 | 40.72 | 54 | -13.28 | - | - | - | - | 216 | 199 | H |
| 3 | 2 | 47.43 | PK-U | 31.1 | -34.3 | 0 | 44.23 | - | - | - | - | 68.2 | -23.97 | 235 | 162 | H |
| 9 | 2 | 45.45 | PK-U | 31.1 | -34.3 | 0 | 42.25 | - | - | - | - | 68.2 | -25.95 | 223 | 136 | V |
| 8 | 16.537 | 33.82 | PK-U | 41.2 | -23.5 | 0 | 51.52 | - | - | - | - | 68.2 | -16.68 | 318 | 101 | V |

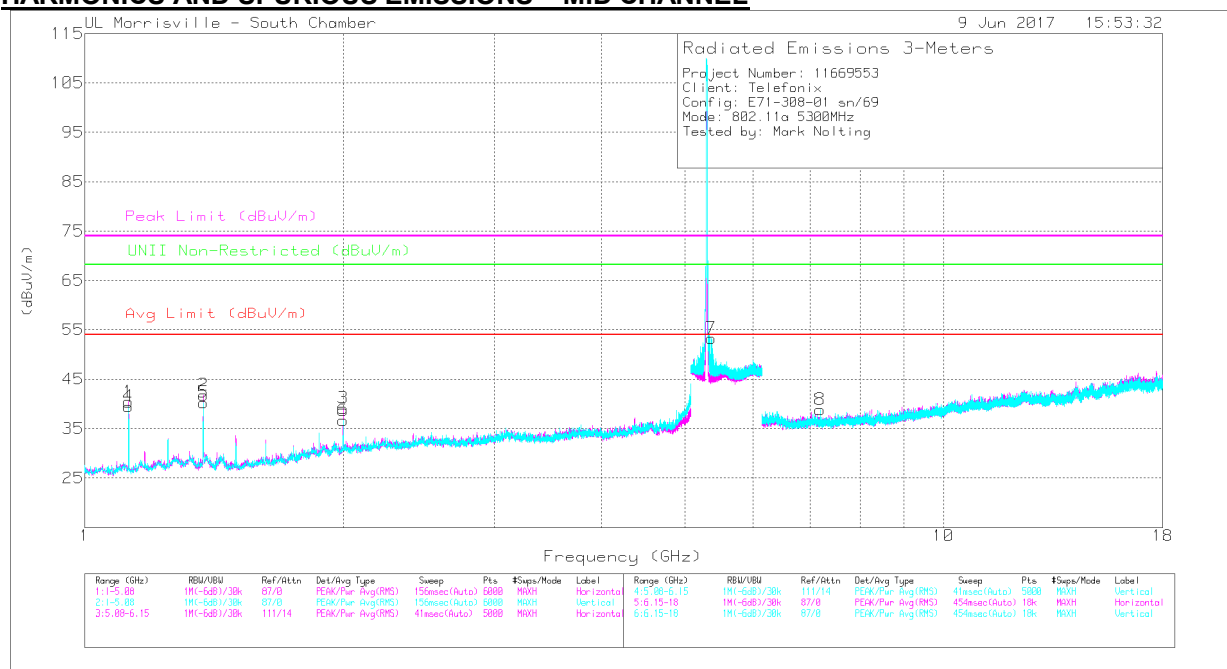
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HARMONICS AND SPURIOUS EMISSIONS – MID CHANNEL



| Marker | Freq (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Filt/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|------------|----------------------|------|------------------|------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| 1 | * 1.125 | 51 | PK-U | 27.6 | -35.3 | 0 | 43.3 | - | - | 74 | -30.7 | - | - | 86 | 140 | H |
| | * 1.125 | 47.53 | ADR | 27.6 | -35.3 | .14 | 39.97 | 54 | -14.03 | - | - | - | - | 86 | 140 | H |
| 2 | * 1.375 | 50.34 | PK-U | 28.9 | -34.8 | 0 | 44.44 | - | - | 74 | -29.56 | - | - | 171 | 102 | H |
| | * 1.375 | 46.66 | ADR | 28.9 | -34.8 | .14 | 40.9 | 54 | -13.1 | - | - | - | - | 171 | 102 | H |
| 4 | * 1.125 | 50.56 | PK-U | 27.6 | -35.3 | 0 | 42.86 | - | - | 74 | -31.14 | - | - | 310 | 145 | V |
| | * 1.125 | 47.08 | ADR | 27.6 | -35.3 | .14 | 39.52 | 54 | -14.48 | - | - | - | - | 310 | 145 | V |
| 5 | * 1.375 | 48.78 | PK-U | 28.9 | -34.8 | 0 | 42.88 | - | - | 74 | -31.12 | - | - | 263 | 111 | V |
| | * 1.375 | 44.69 | ADR | 28.9 | -34.8 | .14 | 38.93 | 54 | -15.07 | - | - | - | - | 263 | 111 | V |
| 7 | * 5.352 | 53.42 | PK-U | 34.4 | -23.2 | 0 | 64.62 | - | - | 74 | -9.38 | - | - | 172 | 274 | V |
| | * 5.35 | 33.9 | ADR | 34.4 | -23.2 | .14 | 45.24 | 54 | -8.76 | - | - | - | - | 172 | 274 | V |
| 3 | 2 | 47.5 | PK-U | 31.1 | -34.3 | 0 | 44.3 | - | - | - | - | 68.2 | -23.9 | 243 | 162 | H |
| 6 | 2 | 45.63 | PK-U | 31.1 | -34.3 | 0 | 42.43 | - | - | - | - | 68.2 | -25.77 | 220 | 136 | V |
| 8 | 7.187 | 36.33 | PK-U | 35.5 | -28.3 | 0 | 43.53 | - | - | - | - | 68.2 | -24.67 | 66 | 201 | V |

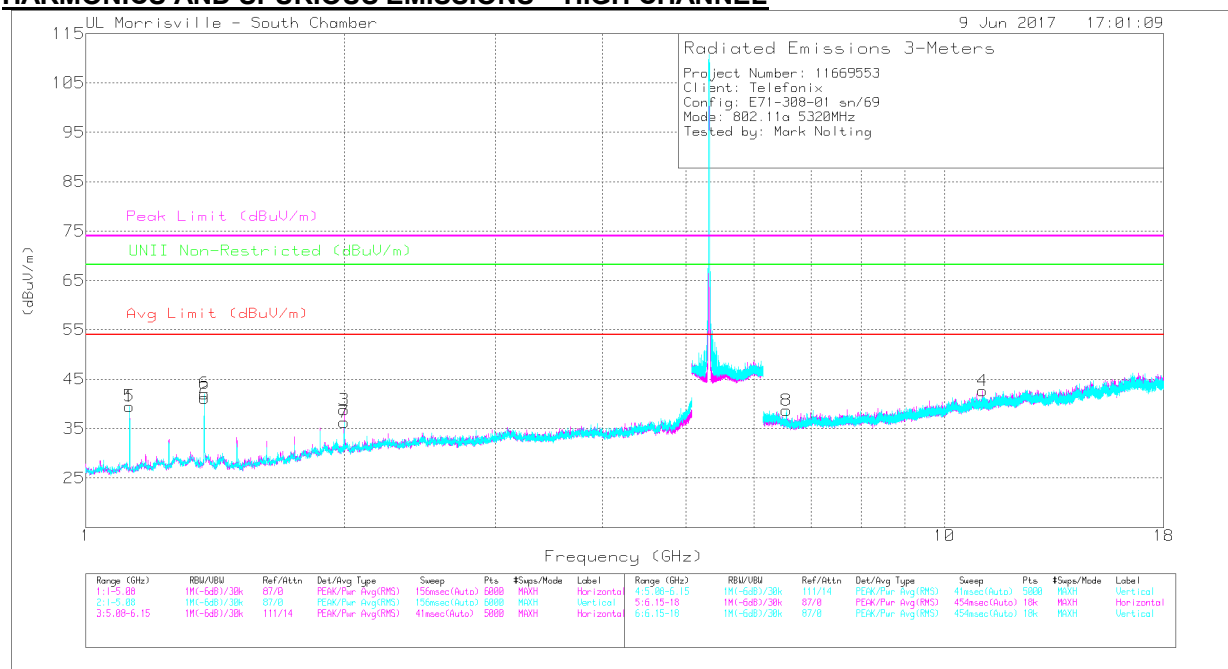
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HARMONICS AND SPURIOUS EMISSIONS – HIGH CHANNEL



| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fitr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|------|------------------|------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| 1 | * 1.125 | 50.84 | PK-U | 27.6 | -35.3 | 0 | 43.14 | - | - | 74 | -30.86 | - | - | 87 | 140 | H |
| | * 1.125 | 47.4 | ADR | 27.6 | -35.3 | .14 | 39.84 | 54 | -14.16 | - | - | - | - | 87 | 140 | H |
| 2 | * 1.375 | 50.04 | PK-U | 28.9 | -34.8 | 0 | 44.14 | - | - | 74 | -29.86 | - | - | 169 | 102 | H |
| | * 1.375 | 46.41 | ADR | 28.9 | -34.8 | .14 | 40.65 | 54 | -13.35 | - | - | - | - | 169 | 102 | H |
| 5 | * 1.125 | 50.16 | PK-U | 27.6 | -35.3 | 0 | 42.46 | - | - | 74 | -31.54 | - | - | 359 | 145 | V |
| | * 1.125 | 46.45 | ADR | 27.6 | -35.3 | .14 | 38.89 | 54 | -15.11 | - | - | - | - | 359 | 145 | V |
| 6 | * 1.375 | 48.73 | PK-U | 28.9 | -34.8 | 0 | 42.83 | - | - | 74 | -31.17 | - | - | 263 | 109 | V |
| | * 1.375 | 44.41 | ADR | 28.9 | -34.8 | .14 | 38.65 | 54 | -15.35 | - | - | - | - | 263 | 109 | V |
| 4 | * 11.086 | 34.11 | PK-U | 37.9 | -25.1 | 0 | 46.91 | - | - | 74 | -27.09 | - | - | 26 | 201 | H |
| | * 11.083 | 22.68 | ADR | 37.9 | -25.1 | .14 | 35.62 | 54 | -18.38 | - | - | - | - | 26 | 201 | H |
| 3 | 2 | 47.22 | PK-U | 31.1 | -34.3 | 0 | 44.02 | - | - | - | - | 68.2 | -24.18 | 243 | 162 | H |
| 7 | 2 | 45.92 | PK-U | 31.1 | -34.3 | 0 | 42.72 | - | - | - | - | 68.2 | -25.48 | 218 | 136 | V |
| 8 | 6.539 | 36.7 | PK-U | 35.5 | -28.9 | 0 | 43.3 | - | - | - | - | 68.2 | -24.9 | 30 | 201 | V |

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

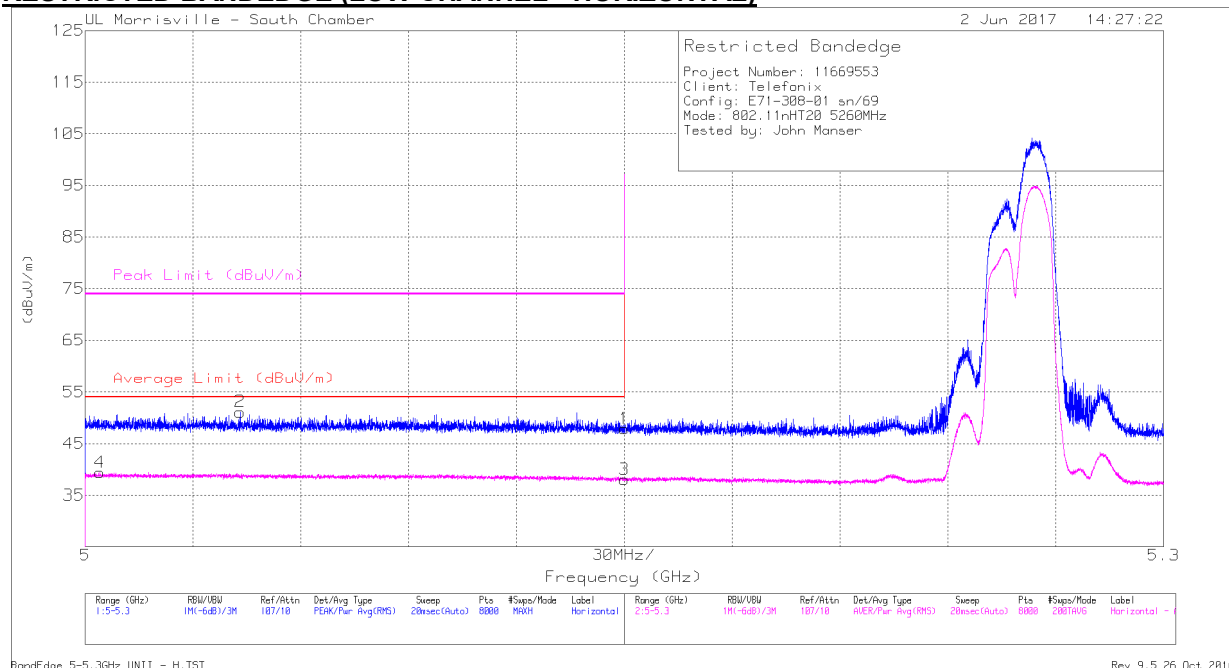
Pk - Peak detector

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

11.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.3 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL - HORIZONTAL)



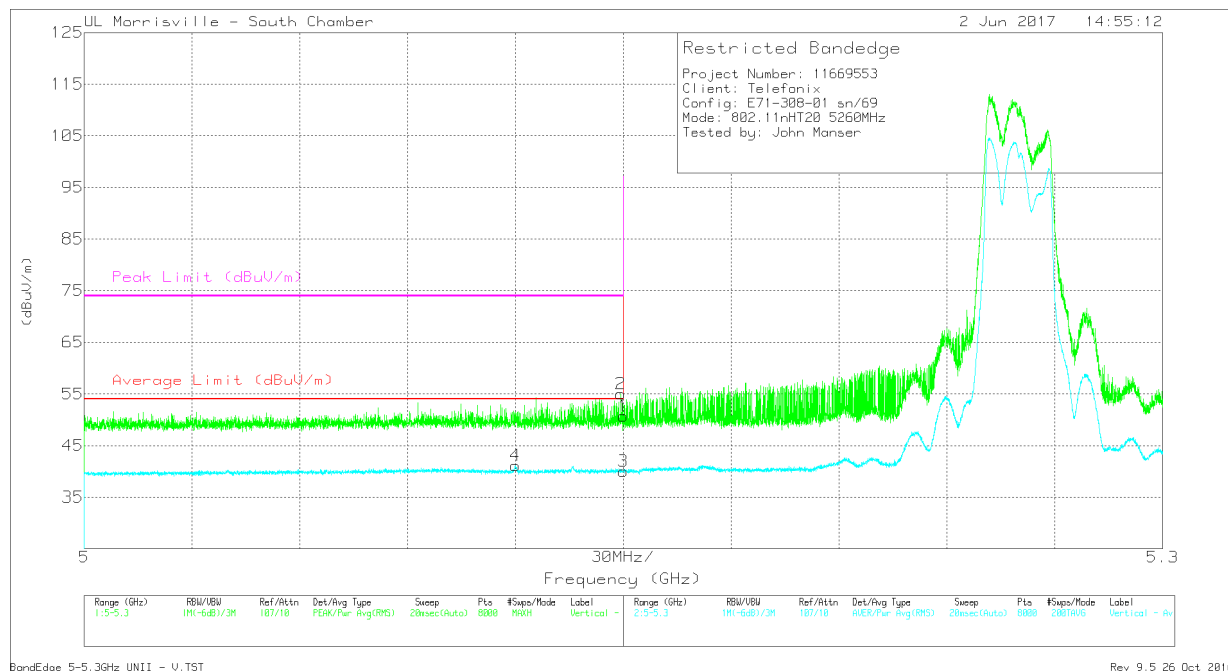
| Marker | Frequency (GHz) | Meter Reading (dBUV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fitr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBUV/m) | Average Limit (dBUV/m) | Margin (dB) | Peak Limit (dBUV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 4 | * 5.004 | 27.82 | RMS | 34 | -22.4 | 0 | 39.42 | 54 | -14.58 | - | - | 285 | 210 | H |
| 2 | * 5.043 | 39.64 | Pk | 34 | -22.5 | 0 | 51.14 | - | - | 74 | -22.86 | 285 | 210 | H |
| 1 | * 5.15 | 36.47 | Pk | 34.1 | -22.7 | 0 | 47.87 | - | - | 74 | -26.13 | 285 | 210 | H |
| 3 | * 5.15 | 26.65 | RMS | 34.1 | -22.7 | 0 | 38.05 | 54 | -15.95 | - | - | 285 | 210 | H |

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

Pk - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (LOW CHANNEL - VERTICAL)



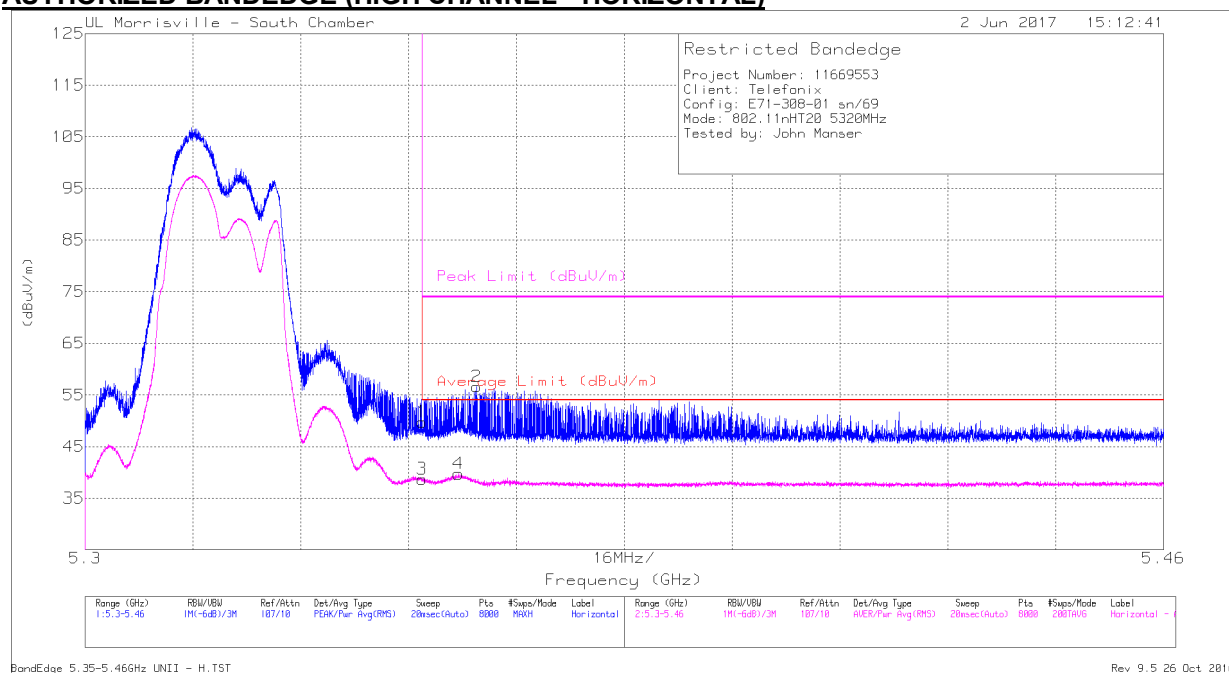
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl /Filtr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|-------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 4 | * 5.12 | 29.59 | RMS | 34.1 | -22.6 | 0 | 41.09 | 54 | -12.91 | - | - | 170 | 224 | V |
| 2 | * 5.149 | 43.61 | Pk | 34.1 | -22.7 | 0 | 55.01 | - | - | 74 | -18.99 | 170 | 224 | V |
| 1 | * 5.15 | 39.28 | Pk | 34.1 | -22.7 | 0 | 50.68 | - | - | 74 | -23.32 | 170 | 224 | V |
| 3 | * 5.15 | 28.63 | RMS | 34.1 | -22.7 | 0 | 40.03 | 54 | -13.97 | - | - | 170 | 224 | V |

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

Pk - Peak detector

RMS - RMS detection

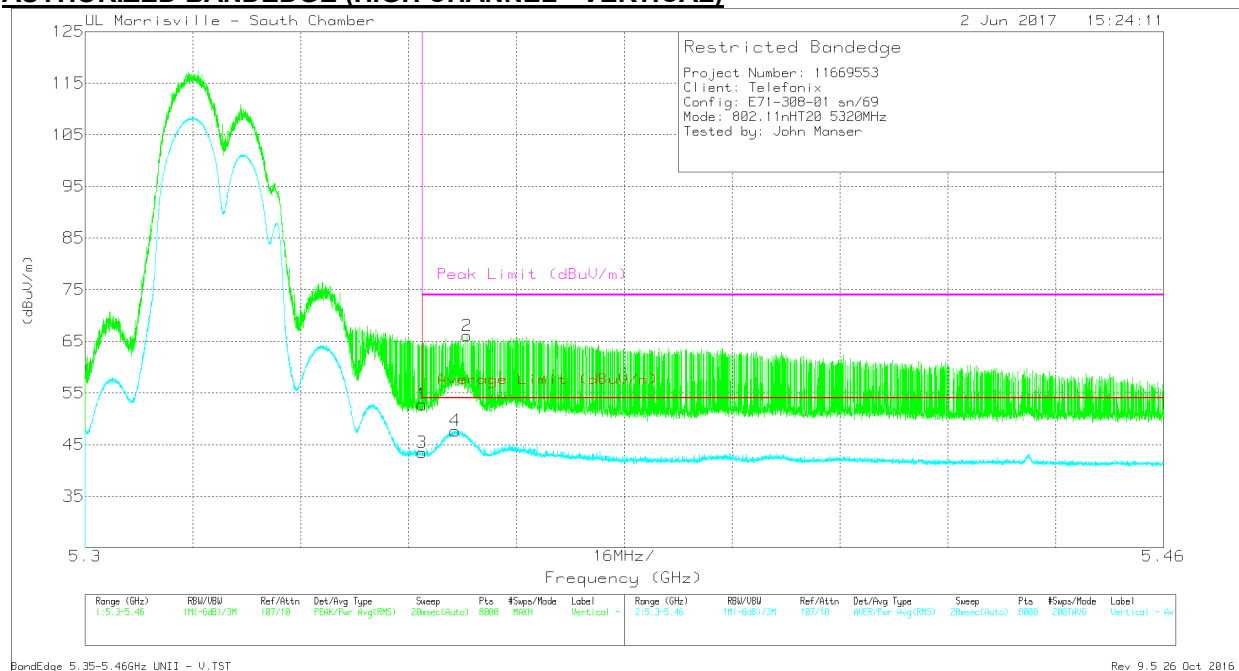
AUTHORIZED BANDEDGE (HIGH CHANNEL - HORIZONTAL)



| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/Filtr /Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|-------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.35 | 38.58 | Pk | 34.4 | -23.2 | 0 | 49.78 | - | - | 74 | -24.22 | 103 | 219 | H |
| 3 | * 5.35 | 27.52 | RMS | 34.4 | -23.2 | 0 | 38.72 | 54 | -15.28 | - | - | 103 | 219 | H |
| 4 | * 5.355 | 28.63 | RMS | 34.4 | -23.3 | 0 | 39.73 | 54 | -14.27 | - | - | 103 | 219 | H |
| 2 | * 5.358 | 45.54 | Pk | 34.4 | -23.3 | 0 | 56.64 | - | - | 74 | -17.36 | 103 | 219 | H |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL - VERTICAL)



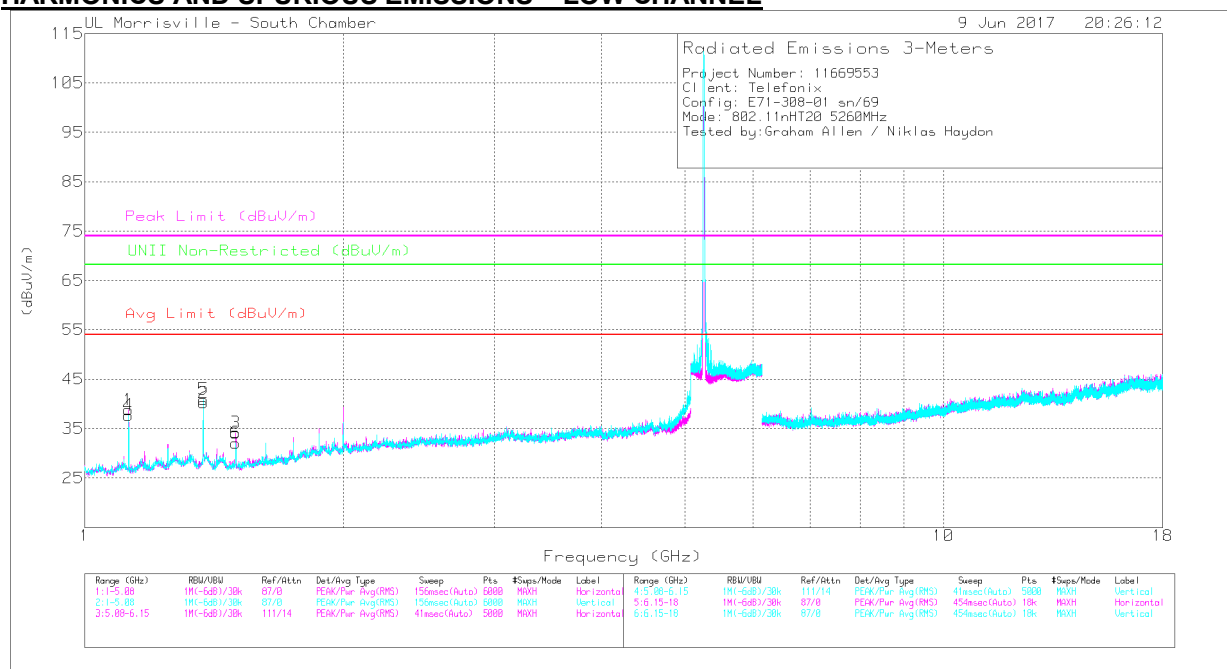
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fltr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.35 | 41.55 | Pk | 34.4 | -23.2 | 0 | 52.75 | - | - | 74 | -21.25 | 259 | 237 | V |
| 3 | * 5.35 | 32.24 | RMS | 34.4 | -23.2 | 0 | 43.44 | 54 | -10.56 | - | - | 259 | 237 | V |
| 4 | * 5.355 | 36.57 | RMS | 34.4 | -23.3 | 0 | 47.67 | 54 | -6.33 | - | - | 259 | 237 | V |
| 2 | * 5.357 | 54.94 | Pk | 34.4 | -23.3 | 0 | 66.04 | - | - | 74 | -7.96 | 259 | 237 | V |

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

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS – LOW CHANNEL



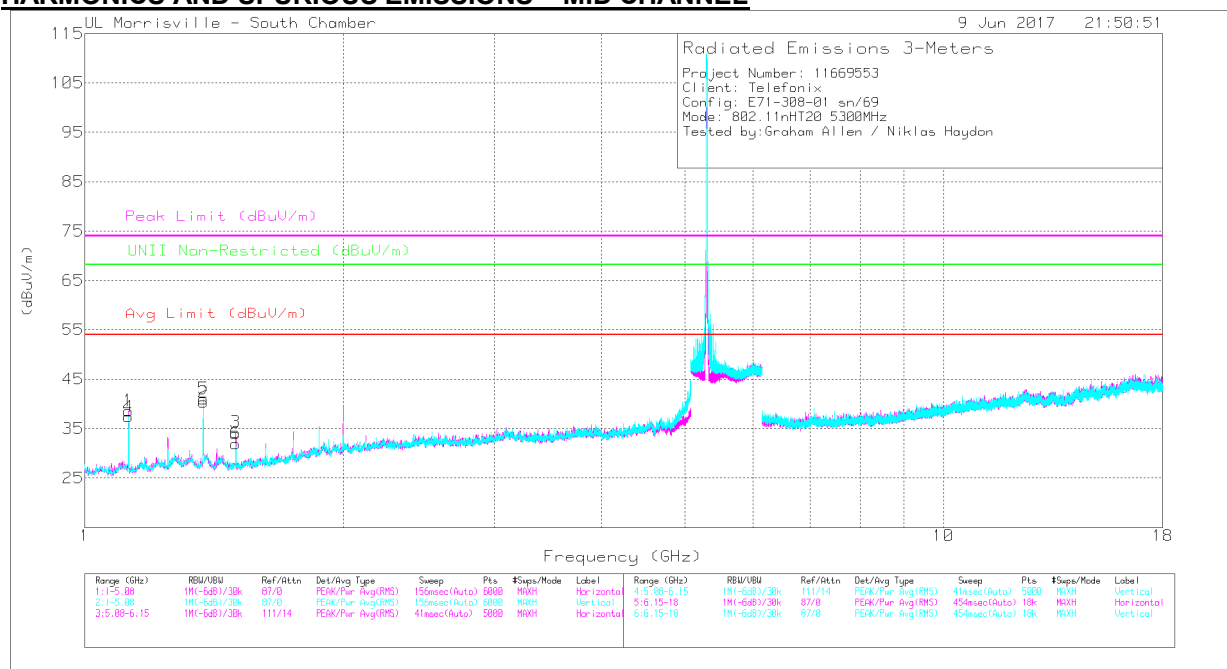
| Marker | Freq (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl /Fitr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|------------|----------------------|------|------------------|------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| 1 | * 1.125 | 49.97 | PK-U | 27.6 | -35.3 | 0 | 42.27 | - | - | 74 | -31.73 | - | - | 258 | 109 | H |
| | * 1.125 | 46.35 | ADR | 27.6 | -35.3 | 0 | 38.65 | 54 | -15.35 | - | - | - | - | 258 | 109 | H |
| 2 | * 1.375 | 49.88 | PK-U | 28.9 | -34.8 | 0 | 43.98 | - | - | 74 | -30.02 | - | - | 169 | 118 | H |
| | * 1.375 | 45.99 | ADR | 28.9 | -34.8 | 0 | 40.09 | 54 | -13.91 | - | - | - | - | 169 | 118 | H |
| 3 | * 1.5 | 46.57 | PK-U | 27.9 | -35.1 | 0 | 39.37 | - | - | 74 | -34.63 | - | - | 144 | 199 | H |
| | * 1.5 | 38.6 | ADR | 27.9 | -35.1 | 0 | 31.4 | 54 | -22.6 | - | - | - | - | 144 | 199 | H |
| 4 | * 1.125 | 49.1 | PK-U | 27.6 | -35.3 | 0 | 41.4 | - | - | 74 | -32.6 | - | - | 260 | 106 | V |
| | * 1.125 | 44.79 | ADR | 27.6 | -35.3 | 0 | 37.09 | 54 | -16.91 | - | - | - | - | 260 | 106 | V |
| 5 | * 1.375 | 49.76 | PK-U | 28.9 | -34.8 | 0 | 43.86 | - | - | 74 | -30.14 | - | - | 237 | 102 | V |
| | * 1.375 | 46.22 | ADR | 28.9 | -34.8 | 0 | 40.32 | 54 | -13.68 | - | - | - | - | 237 | 102 | V |
| 6 | * 1.5 | 45.93 | PK-U | 27.9 | -35.1 | 0 | 38.73 | - | - | 74 | -35.27 | - | - | 8 | 260 | V |
| | * 1.5 | 37.96 | ADR | 27.9 | -35.1 | 0 | 30.76 | 54 | -23.24 | - | - | - | - | 8 | 260 | V |

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

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HARMONICS AND SPURIOUS EMISSIONS – MID CHANNEL



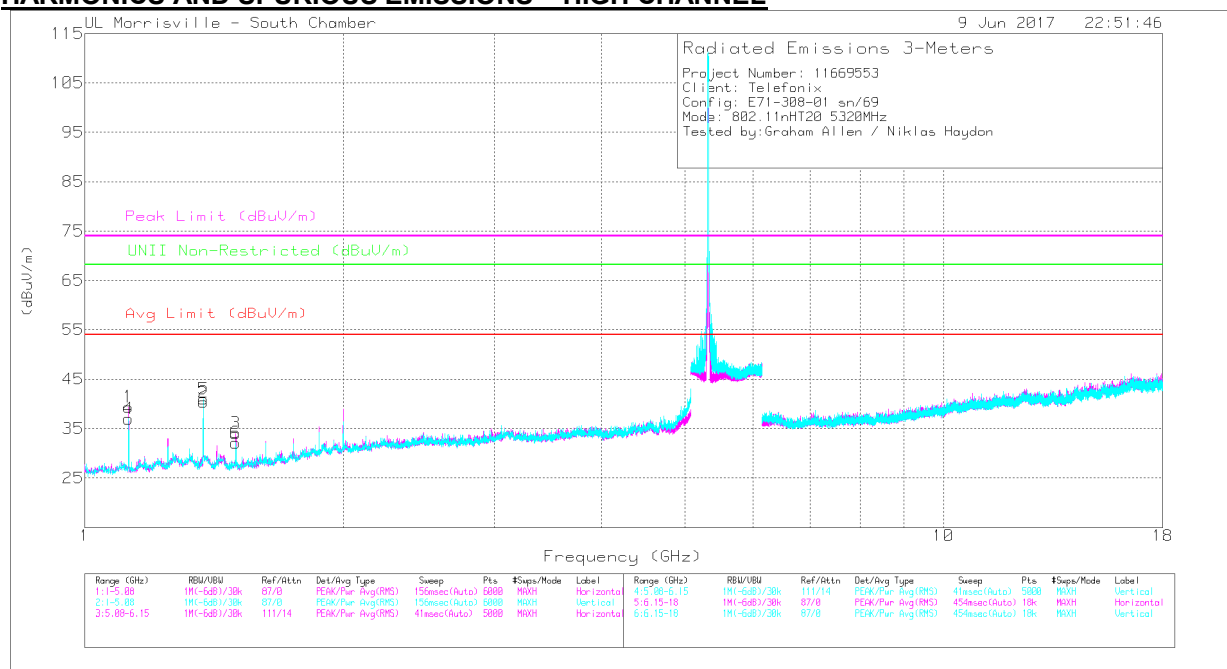
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl /Filtr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarit y |
|--------|-----------------|----------------------|------|------------------|-------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|-----------|
| 1 | * 1.125 | 50.13 | PK-U | 27.6 | -35.3 | 0 | 42.43 | - | - | 74 | -31.57 | - | - | 248 | 110 | H |
| | * 1.125 | 46.42 | ADR | 27.6 | -35.3 | 0 | 38.72 | 54 | -15.28 | - | - | - | - | 248 | 110 | H |
| 2 | * 1.375 | 49.79 | PK-U | 28.9 | -34.8 | 0 | 43.89 | - | - | 74 | -30.11 | - | - | 159 | 118 | H |
| | * 1.375 | 46.09 | ADR | 28.9 | -34.8 | 0 | 40.19 | 54 | -13.81 | - | - | - | - | 159 | 118 | H |
| 3 | * 1.5 | 46.68 | PK-U | 27.9 | -35.1 | 0 | 39.48 | - | - | 74 | -34.52 | - | - | 347 | 161 | H |
| | * 1.5 | 39.71 | ADR | 27.9 | -35.1 | 0 | 32.51 | 54 | -21.49 | - | - | - | - | 347 | 161 | H |
| 4 | * 1.125 | 50.03 | PK-U | 27.6 | -35.3 | 0 | 42.33 | - | - | 74 | -31.67 | - | - | 344 | 139 | V |
| | * 1.125 | 46.41 | ADR | 27.6 | -35.3 | 0 | 38.71 | 54 | -15.29 | - | - | - | - | 344 | 139 | V |
| 5 | * 1.375 | 49.79 | PK-U | 28.9 | -34.8 | 0 | 43.89 | - | - | 74 | -30.11 | - | - | 236 | 103 | V |
| | * 1.375 | 46.21 | ADR | 28.9 | -34.8 | 0 | 40.31 | 54 | -13.69 | - | - | - | - | 236 | 103 | V |
| 6 | * 1.5 | 45.14 | PK-U | 27.9 | -35.1 | 0 | 37.94 | - | - | 74 | -36.06 | - | - | 321 | 106 | V |
| | * 1.5 | 37.15 | ADR | 27.9 | -35.1 | 0 | 29.95 | 54 | -24.05 | - | - | - | - | 321 | 106 | V |

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

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HARMONICS AND SPURIOUS EMISSIONS – HIGH CHANNEL



| Marker | Freq (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl /Fitr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Pol |
|--------|------------|----------------------|------|------------------|------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|-----|
| 1 | * 1.125 | 50.31 | PK-U | 27.6 | -35.3 | 0 | 42.61 | - | - | 74 | -31.39 | - | - | 245 | 109 | H |
| | * 1.125 | 46.48 | ADR | 27.6 | -35.3 | 0 | 38.78 | 54 | -15.22 | - | - | - | - | 245 | 109 | H |
| 2 | * 1.375 | 50.2 | PK-U | 28.9 | -34.8 | 0 | 44.3 | - | - | 74 | -29.7 | - | - | 161 | 115 | H |
| | * 1.375 | 45.96 | ADR | 28.9 | -34.8 | 0 | 40.06 | 54 | -13.94 | - | - | - | - | 161 | 115 | H |
| 3 | * 1.5 | 46.61 | PK-U | 27.9 | -35.1 | 0 | 39.41 | - | - | 74 | -34.59 | - | - | 350 | 203 | H |
| | * 1.5 | 39.49 | ADR | 27.9 | -35.1 | 0 | 32.29 | 54 | -21.71 | - | - | - | - | 350 | 203 | H |
| 4 | * 1.125 | 49.14 | PK-U | 27.6 | -35.3 | 0 | 41.44 | - | - | 74 | -32.56 | - | - | 254 | 109 | V |
| | * 1.125 | 44.72 | ADR | 27.6 | -35.3 | 0 | 37.02 | 54 | -16.98 | - | - | - | - | 254 | 109 | V |
| 5 | * 1.375 | 49.82 | PK-U | 28.9 | -34.8 | 0 | 43.92 | - | - | 74 | -30.08 | - | - | 235 | 103 | V |
| | * 1.375 | 46.22 | ADR | 28.9 | -34.8 | 0 | 40.32 | 54 | -13.68 | - | - | - | - | 235 | 103 | V |
| 6 | * 1.5 | 46.2 | PK-U | 27.9 | -35.1 | 0 | 39 | - | - | 74 | -35 | - | - | 319 | 149 | V |
| | * 1.5 | 38.96 | ADR | 27.9 | -35.1 | 0 | 31.76 | 54 | -22.24 | - | - | - | - | 319 | 149 | V |

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

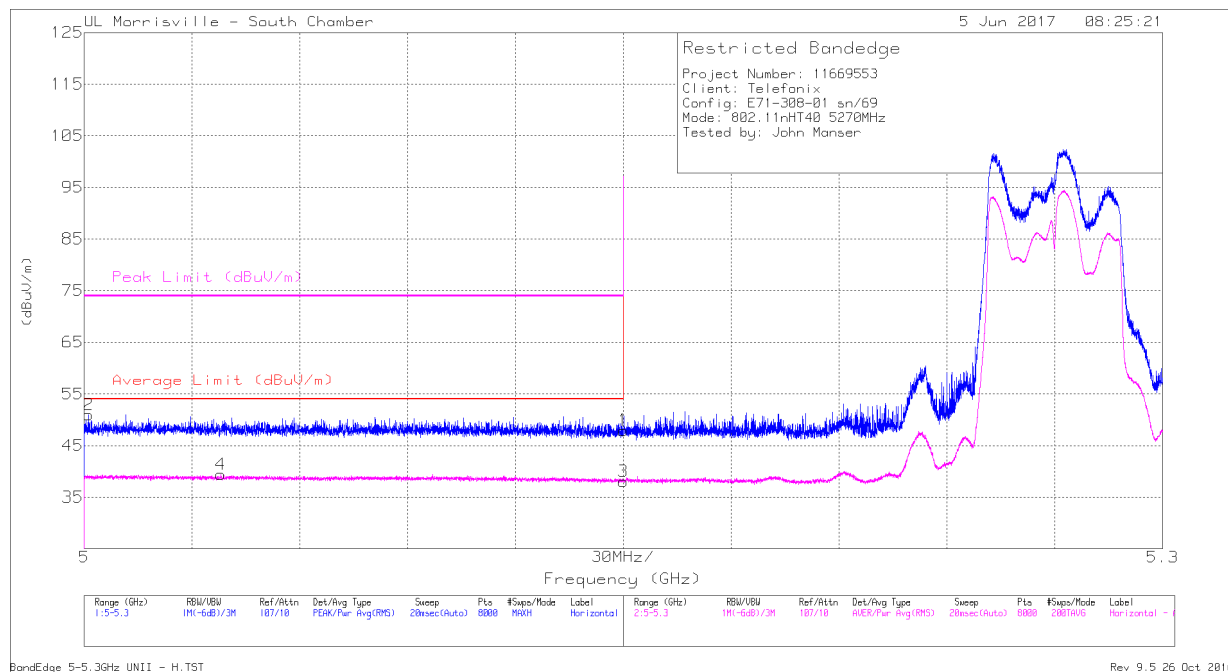
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

11.4. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.3 GHz BAND

Note: RSE not performed at 40MHz since 20MHz was considered worst-case.

RESTRICTED BANDEDGE (LOW CHANNEL - HORIZONTAL)



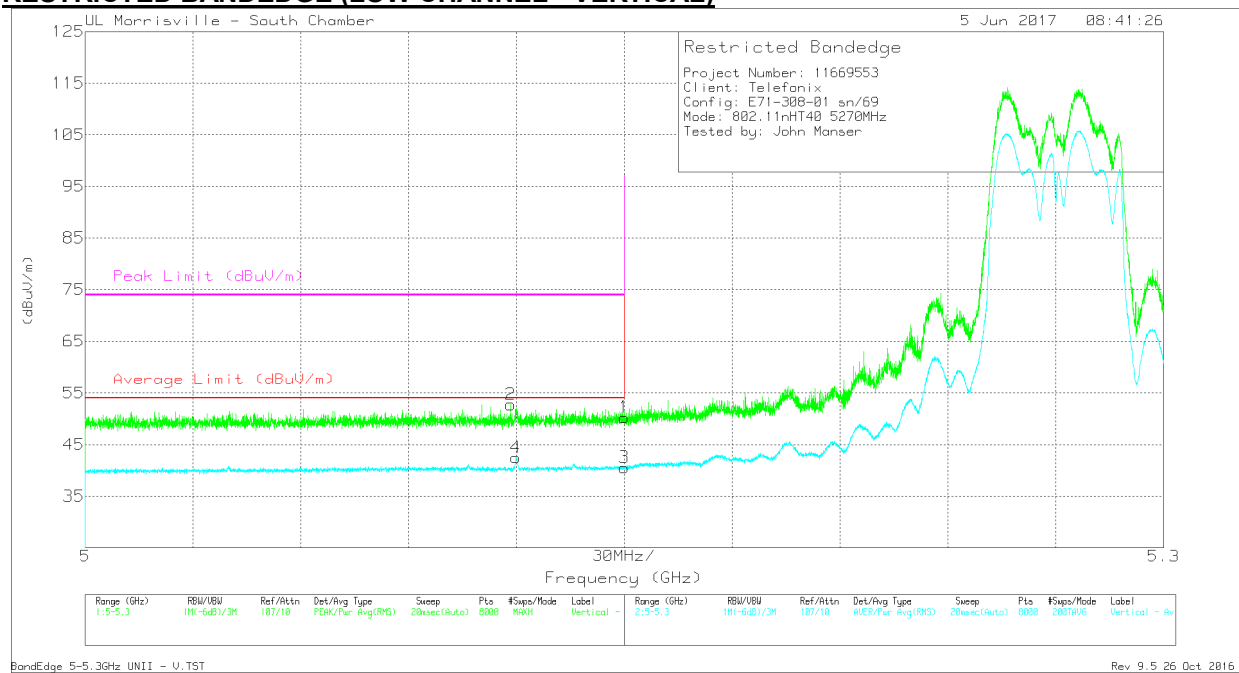
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl /Filtr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|-------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.15 | 36.53 | Pk | 34.1 | -22.7 | 0 | 47.93 | - | - | 74 | -26.07 | 332 | 238 | H |
| 2 | * 5.001 | 39.28 | Pk | 34 | -22.3 | 0 | 50.98 | - | - | 74 | -23.02 | 332 | 238 | H |
| 3 | * 5.15 | 26.51 | RMS | 34.1 | -22.7 | .13 | 38.04 | 54 | -15.96 | - | - | 332 | 238 | H |
| 4 | * 5.038 | 27.8 | RMS | 34 | -22.5 | .13 | 39.43 | 54 | -14.57 | - | - | 332 | 238 | H |

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

Pk - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (LOW CHANNEL - VERTICAL)



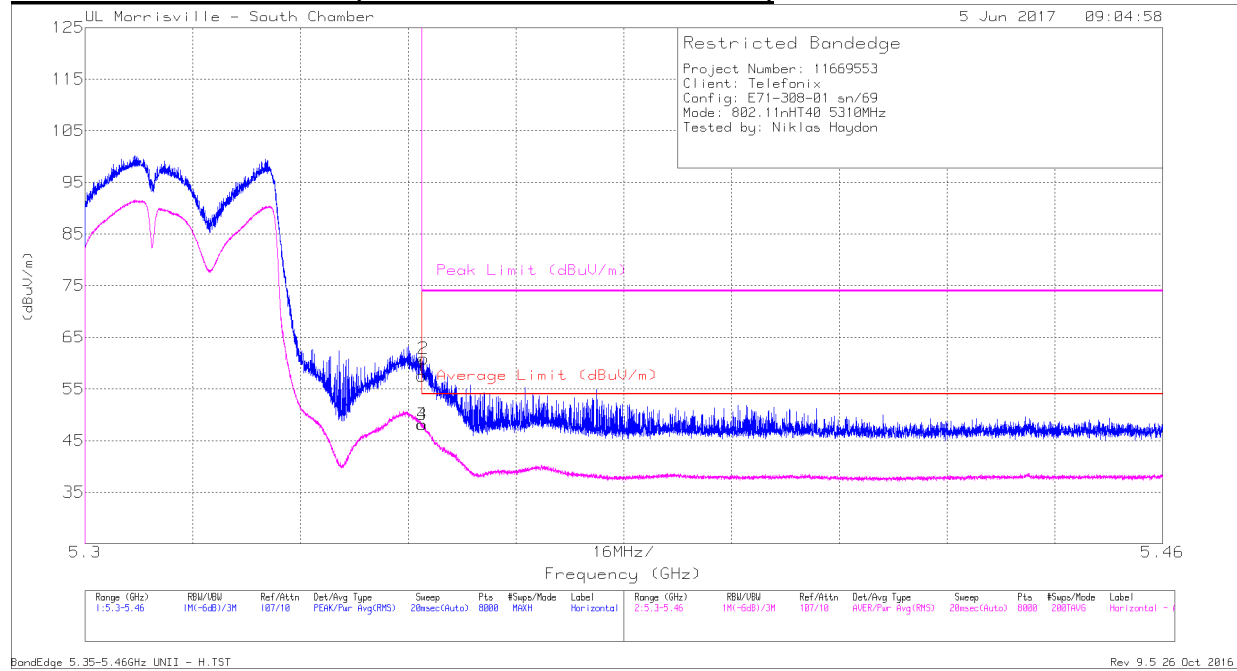
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fltr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.15 | 38.87 | Pk | 34.1 | -22.7 | 0 | 50.27 | - | - | 74 | -23.73 | 75 | 278 | V |
| 2 | * 5.118 | 41.25 | Pk | 34.1 | -22.6 | 0 | 52.75 | - | - | 74 | -21.25 | 75 | 278 | V |
| 3 | * 5.15 | 29.03 | RMS | 34.1 | -22.7 | .13 | 40.56 | 54 | -13.44 | - | - | 75 | 278 | V |
| 4 | * 5.12 | 30.86 | RMS | 34.1 | -22.6 | .13 | 42.49 | 54 | -11.51 | - | - | 75 | 278 | V |

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

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL - HORIZONTAL)



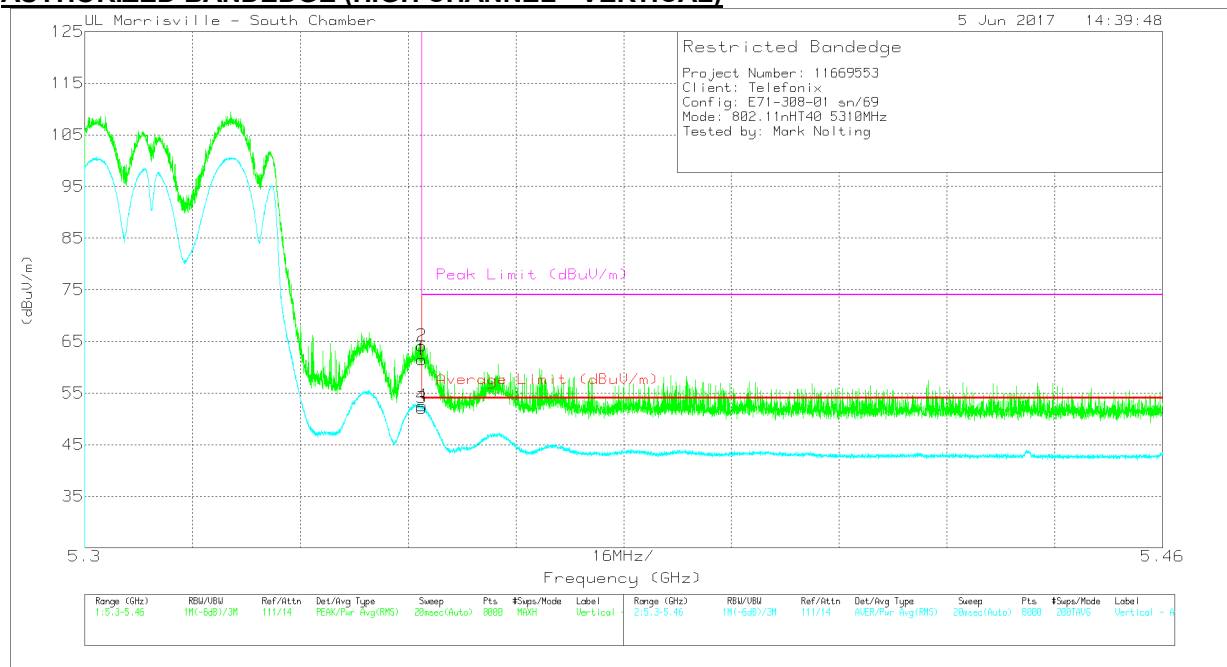
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/Filtr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.35 | 46.35 | Pk | 34.4 | -23.2 | 0 | 57.55 | - | - | 74 | -16.45 | 94 | 268 | H |
| 2 | * 5.35 | 49.67 | Pk | 34.4 | -23.2 | 0 | 60.87 | - | - | 74 | -13.13 | 94 | 268 | H |
| 3 | * 5.35 | 36.91 | RMS | 34.4 | -23.2 | .13 | 48.24 | 54 | -5.76 | - | - | 94 | 268 | H |
| 4 | * 5.35 | 36.97 | RMS | 34.4 | -23.2 | .13 | 48.30 | 54 | -5.70 | - | - | 94 | 268 | H |

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

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL - VERTICAL)



| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fltr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.35 | 50.26 | Pk | 34.4 | -23.2 | 0 | 61.46 | - | - | 74 | -12.54 | 162 | 250 | V |
| 2 | * 5.35 | 52.95 | Pk | 34.4 | -23.2 | 0 | 64.15 | - | - | 74 | -9.85 | 162 | 250 | V |
| 3 | * 5.35 | 40.78 | RMS | 34.4 | -23.2 | .13 | 52.11 | 54 | -1.89 | - | - | 162 | 250 | V |
| 4 | * 5.35 | 41.23 | RMS | 34.4 | -23.2 | .13 | 52.56 | 54 | -1.44 | - | - | 162 | 250 | V |

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

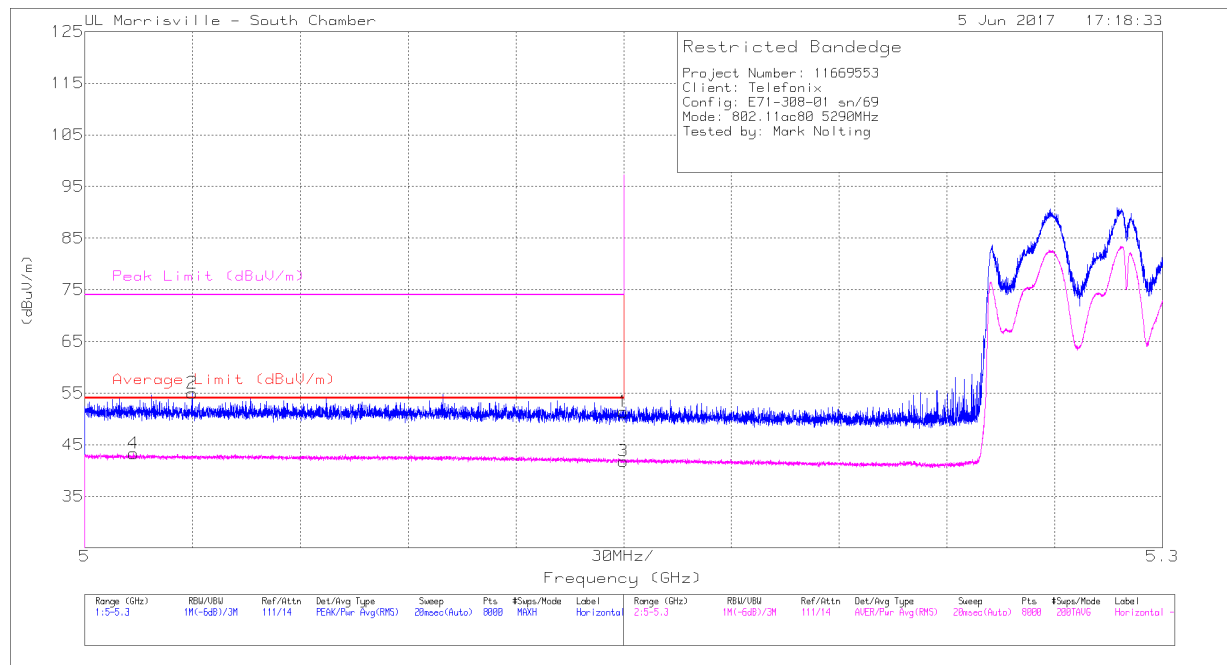
Pk - Peak detector

RMS - RMS detection

11.5. TX ABOVE 1 GHz 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

Note: RSE not performed at 40MHz since 20MHz was considered worst-case.

RESTRICTED BANDEDGE (LOW CHANNEL - HORIZONTAL)



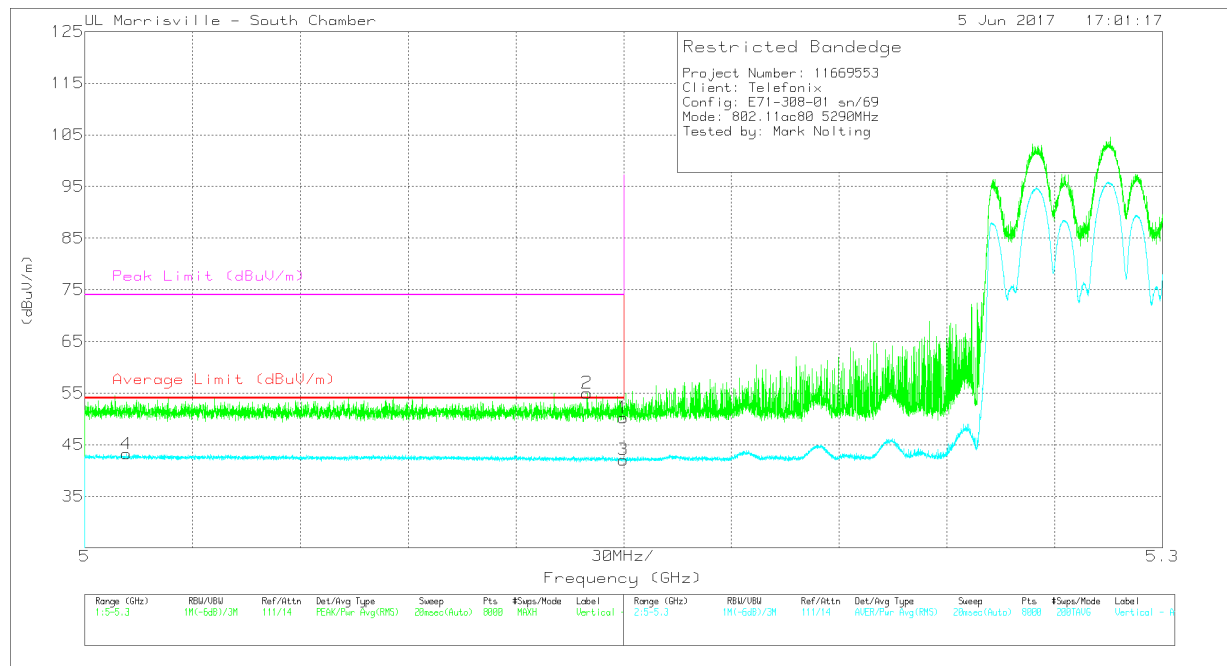
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fltr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.15 | 39.99 | Pk | 34.1 | -22.7 | 0 | 51.39 | - | - | 74 | -22.61 | 319 | 103 | H |
| 2 | * 5.03 | 43.51 | Pk | 34 | -22.5 | 0 | 55.01 | - | - | 74 | -18.99 | 319 | 103 | H |
| 3 | * 5.15 | 30.18 | RMS | 34.1 | -22.7 | .26 | 41.84 | 54 | -12.16 | - | - | 319 | 103 | H |
| 4 | * 5.014 | 31.46 | RMS | 34 | -22.4 | .26 | 43.32 | 54 | -10.68 | - | - | 319 | 103 | H |

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

Pk - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (LOW CHANNEL - VERTICAL)



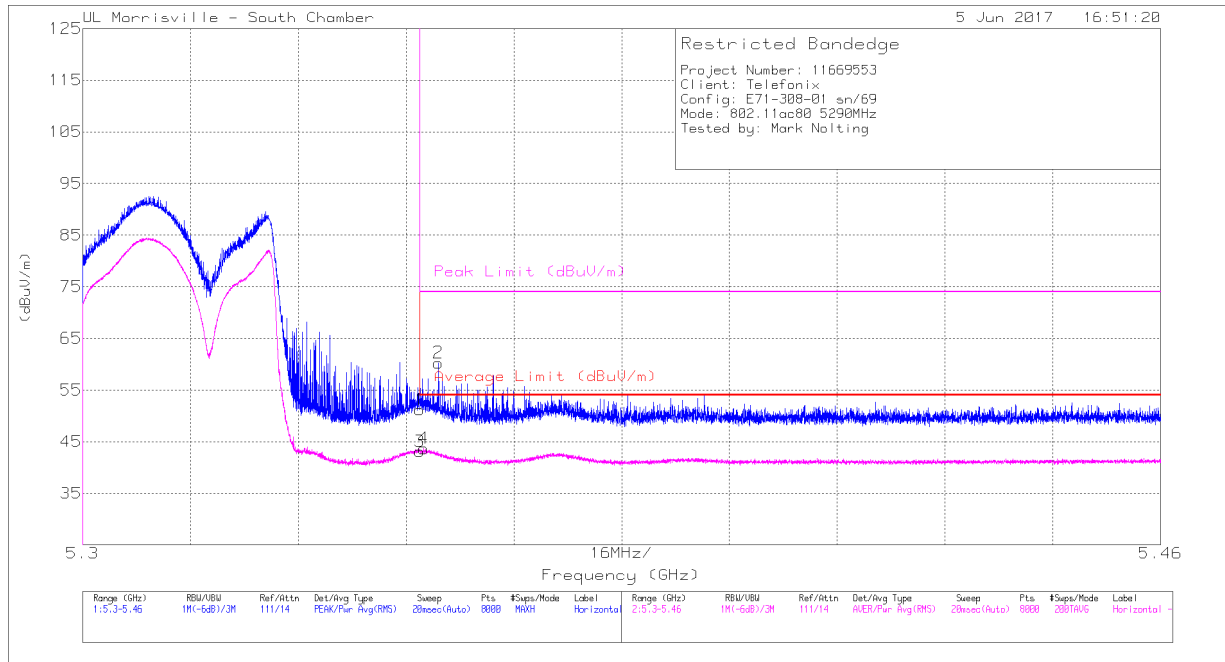
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fltr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.15 | 38.84 | Pk | 34.1 | -22.7 | 0 | 50.24 | - | - | 74 | -23.76 | 247 | 246 | V |
| 2 | * 5.14 | 43.52 | Pk | 34.1 | -22.6 | 0 | 55.02 | - | - | 74 | -18.98 | 247 | 246 | V |
| 3 | * 5.15 | 30.68 | RMS | 34.1 | -22.7 | .26 | 42.34 | 54 | -11.66 | - | - | 247 | 246 | V |
| 4 | * 5.012 | 31.63 | RMS | 34 | -22.4 | .26 | 43.49 | 54 | -10.51 | - | - | 247 | 246 | V |

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

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL - HORIZONTAL)



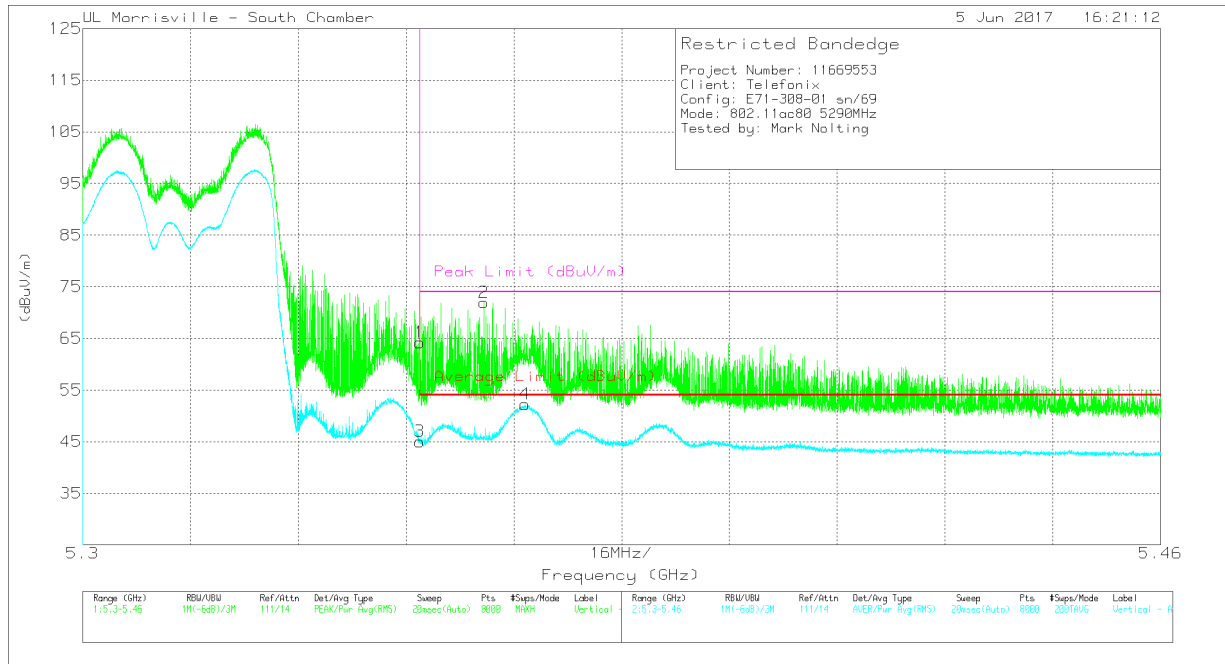
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fitr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.35 | 39.99 | Pk | 34.4 | -23.2 | 0 | 51.19 | - | - | 74 | -22.81 | 327 | 105 | H |
| 2 | * 5.353 | 49.16 | Pk | 34.4 | -23.3 | 0 | 60.26 | - | - | 74 | -13.74 | 327 | 105 | H |
| 3 | * 5.35 | 31.67 | RMS | 34.4 | -23.2 | .26 | 43.13 | 54 | -10.87 | - | - | 327 | 105 | H |
| 4 | * 5.351 | 32.23 | RMS | 34.4 | -23.2 | .26 | 43.69 | 54 | -10.31 | - | - | 327 | 105 | H |

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

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL - VERTICAL)



| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fitr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.35 | 53.01 | Pk | 34.4 | -23.2 | 0 | 64.21 | - | - | 74 | -9.79 | 253 | 282 | V |
| 3 | * 5.35 | 33.56 | RMS | 34.4 | -23.2 | .26 | 45.02 | 54 | -8.98 | - | - | 253 | 282 | V |
| 2 | * 5.36 | 60.85 | Pk | 34.4 | -23.3 | 0 | 71.95 | - | - | 74 | -2.05 | 253 | 282 | V |
| 4 | * 5.366 | 40.87 | RMS | 34.4 | -23.3 | .26 | 52.23 | 54 | -1.77 | - | - | 253 | 282 | V |

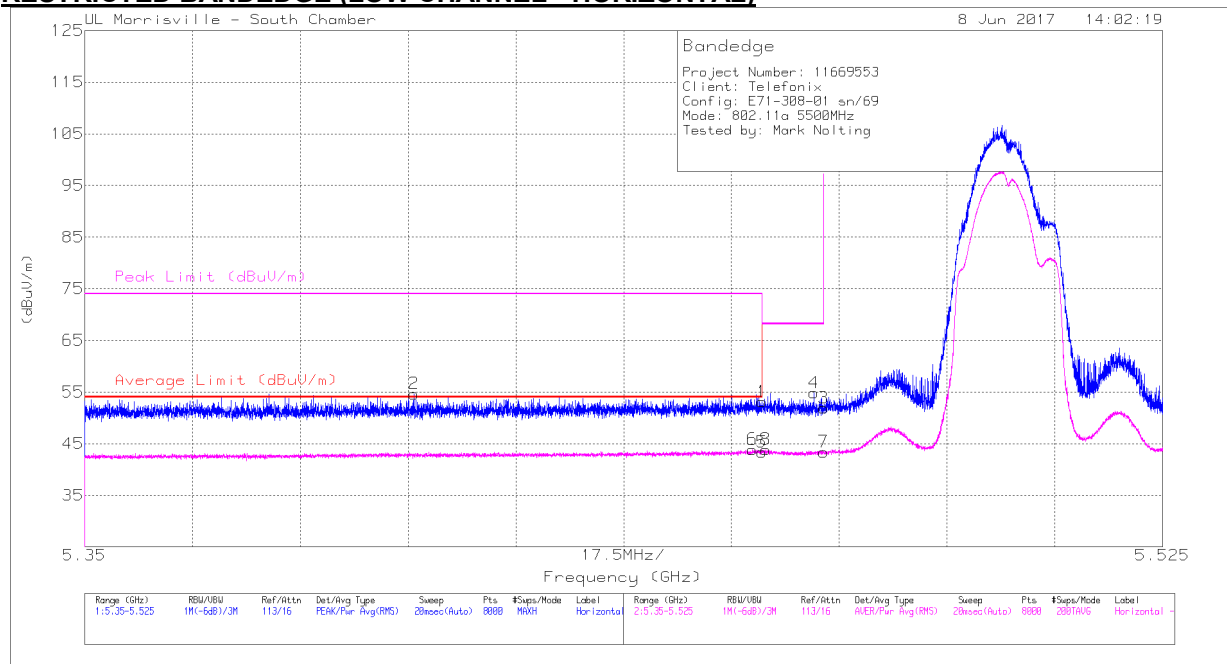
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

11.6. TX ABOVE 1 GHz 802.11a MODE IN THE 5.6 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL - HORIZONTAL)



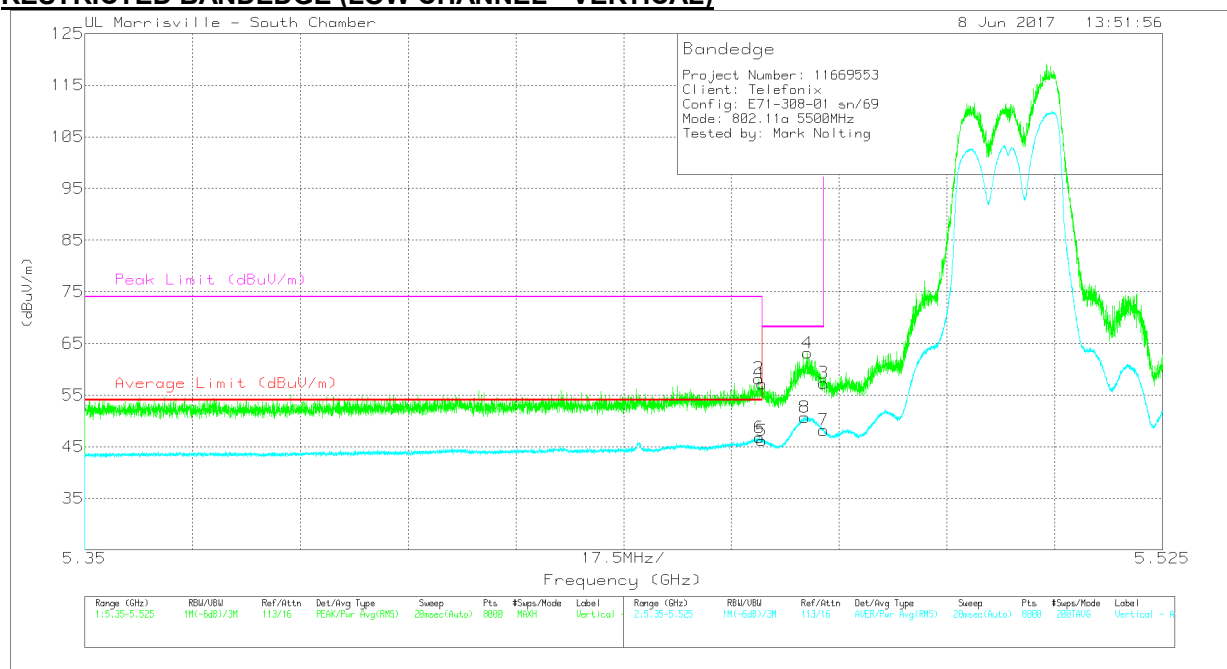
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fltr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.46 | 42.21 | Pk | 34.5 | -23.6 | 0 | 53.11 | - | - | 74 | -20.89 | 327 | 101 | H |
| 2 | * 5.404 | 43.66 | Pk | 34.4 | -23.4 | 0 | 54.66 | - | - | 74 | -19.34 | 327 | 101 | H |
| 3 | 5.47 | 40.99 | Pk | 34.5 | -23.6 | 0 | 51.89 | - | - | 68.2 | -16.31 | 327 | 101 | H |
| 4 | 5.468 | 43.93 | Pk | 34.5 | -23.6 | 0 | 54.83 | - | - | 68.2 | -13.37 | 327 | 101 | H |
| 5 | * 5.46 | 32.31 | RMS | 34.5 | -23.6 | .14 | 43.35 | 54 | -10.65 | - | - | 327 | 101 | H |
| 6 | * 5.458 | 32.85 | RMS | 34.5 | -23.6 | .14 | 43.89 | 54 | -10.11 | - | - | 327 | 101 | H |
| 7 | 5.47 | 32.34 | RMS | 34.5 | -23.6 | .14 | 43.38 | - | - | - | - | 327 | 101 | H |
| 8 | 5.461 | 32.84 | RMS | 34.5 | -23.6 | .14 | 43.88 | - | - | - | - | 327 | 101 | H |

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

Pk - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (LOW CHANNEL - VERTICAL)



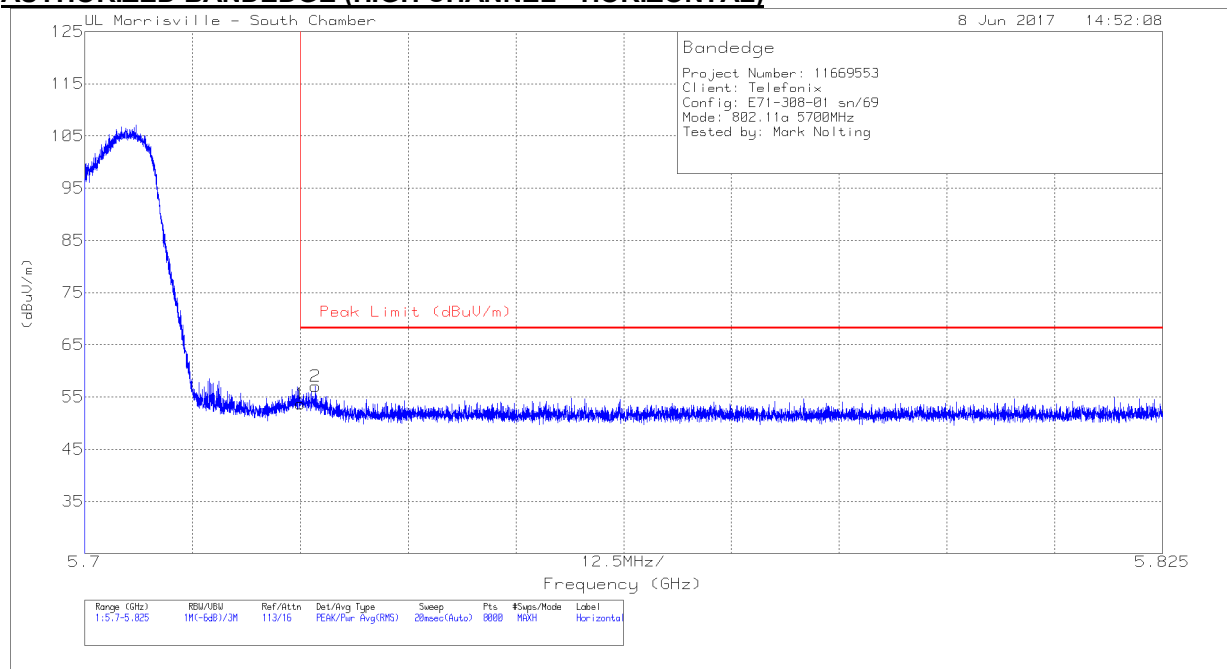
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl /Fltr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.46 | 46.26 | Pk | 34.5 | -23.6 | 0 | 57.16 | - | - | 74 | -16.84 | 60 | 295 | V |
| 2 | * 5.459 | 47.28 | Pk | 34.5 | -23.6 | 0 | 58.18 | - | - | 74 | -15.82 | 60 | 295 | V |
| 3 | 5.47 | 46.42 | Pk | 34.5 | -23.6 | 0 | 57.32 | - | - | 68.2 | -10.88 | 60 | 295 | V |
| 4 | 5.467 | 52.22 | Pk | 34.5 | -23.6 | 0 | 63.12 | - | - | 68.2 | -5.08 | 60 | 295 | V |
| 5 | * 5.46 | 35.24 | RMS | 34.5 | -23.6 | .14 | 46.28 | 54 | -7.72 | - | - | 60 | 295 | V |
| 6 | * 5.46 | 35.86 | RMS | 34.5 | -23.6 | .14 | 46.9 | 54 | -7.1 | - | - | 60 | 295 | V |
| 7 | 5.47 | 37.3 | RMS | 34.5 | -23.6 | .14 | 48.34 | - | - | - | - | 60 | 295 | V |
| 8 | 5.467 | 39.79 | RMS | 34.5 | -23.6 | .14 | 50.83 | - | - | - | - | 60 | 295 | V |

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

Pk - Peak detector

RMS - RMS detection

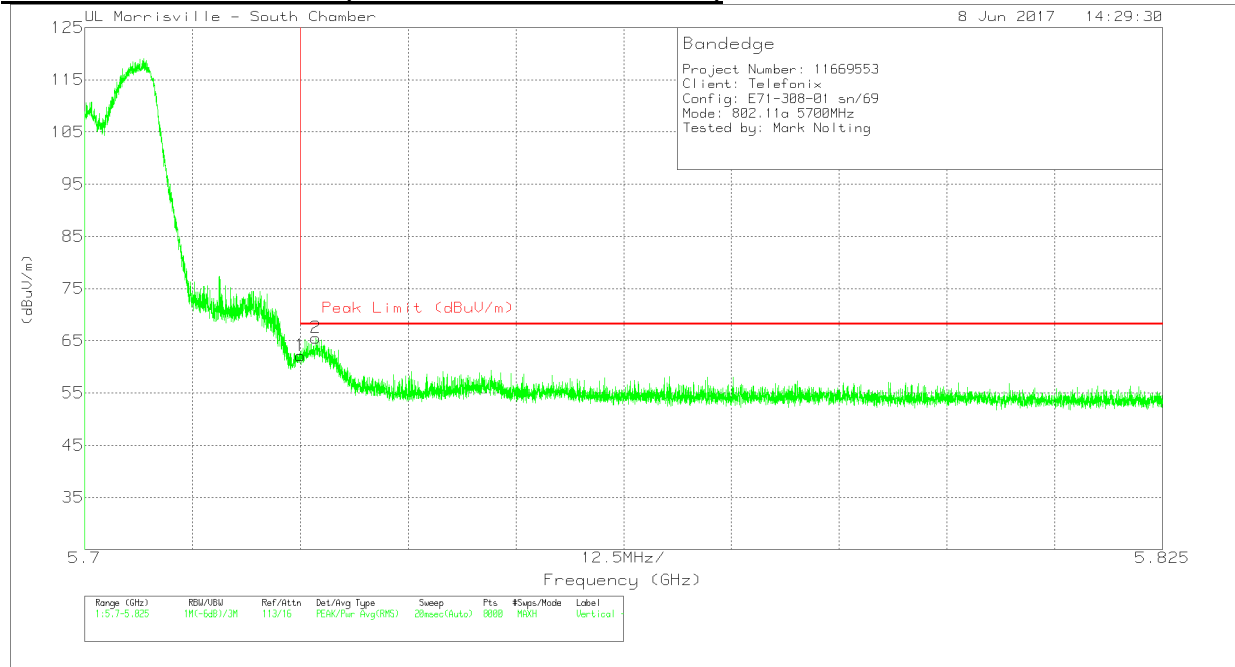
AUTHORIZED BANDEDGE (HIGH CHANNEL - HORIZONTAL)



| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fitr/Pad (dB) | Corrected Reading (dBuV/m) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|----------------------------|---------------------|----------------|----------------|-------------|----------|
| 1 | 5.725 | 42.58 | Pk | 34.6 | -23.5 | 53.68 | 68.2 | -14.52 | 272 | 259 | H |
| 2 | 5.727 | 45.96 | Pk | 34.6 | -23.5 | 57.06 | 68.2 | -11.14 | 272 | 259 | H |

Pk - Peak detector

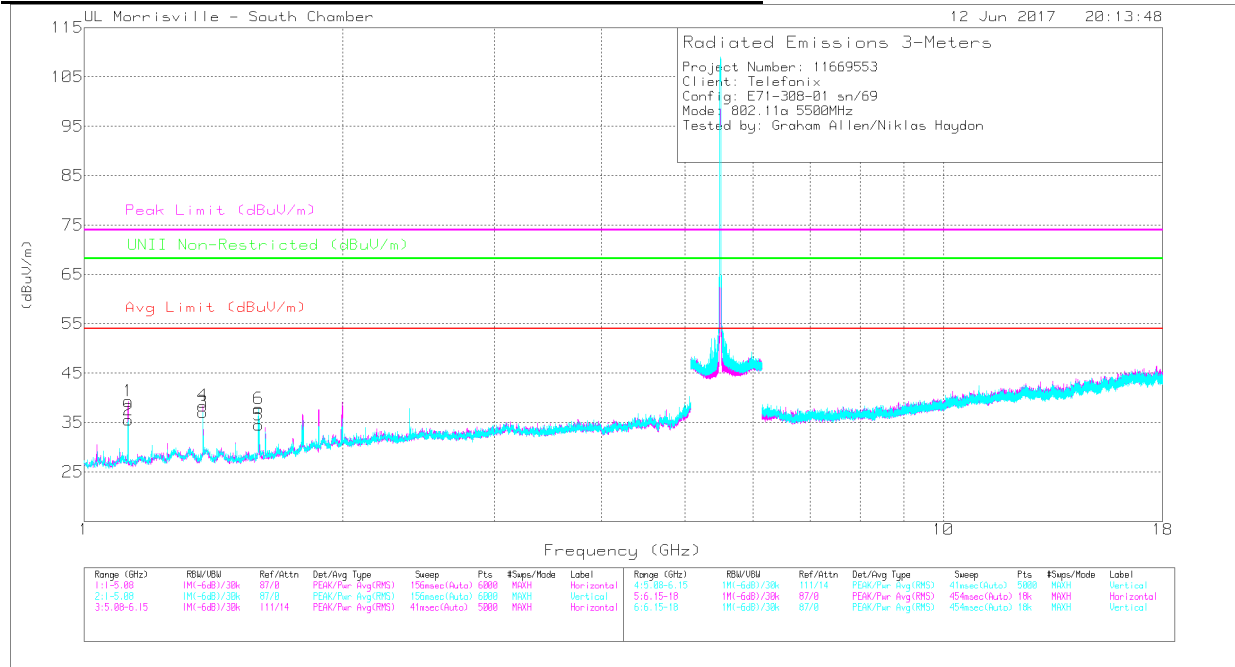
AUTHORIZED BANDEDGE (HIGH CHANNEL - VERTICAL)



| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fltr/Pad (dB) | Corrected Reading (dBuV/m) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|----------------------------|---------------------|----------------|----------------|-------------|----------|
| 1 | 5.725 | 51.06 | Pk | 34.6 | -23.5 | 62.16 | 68.2 | -6.04 | 62 | 310 | V |
| 2 | 5.727 | 54.47 | Pk | 34.6 | -23.5 | 65.57 | 68.2 | -2.63 | 62 | 310 | V |

Pk - Peak detector

HARMONICS AND SPURIOUS EMISSIONS – LOW CHANNEL



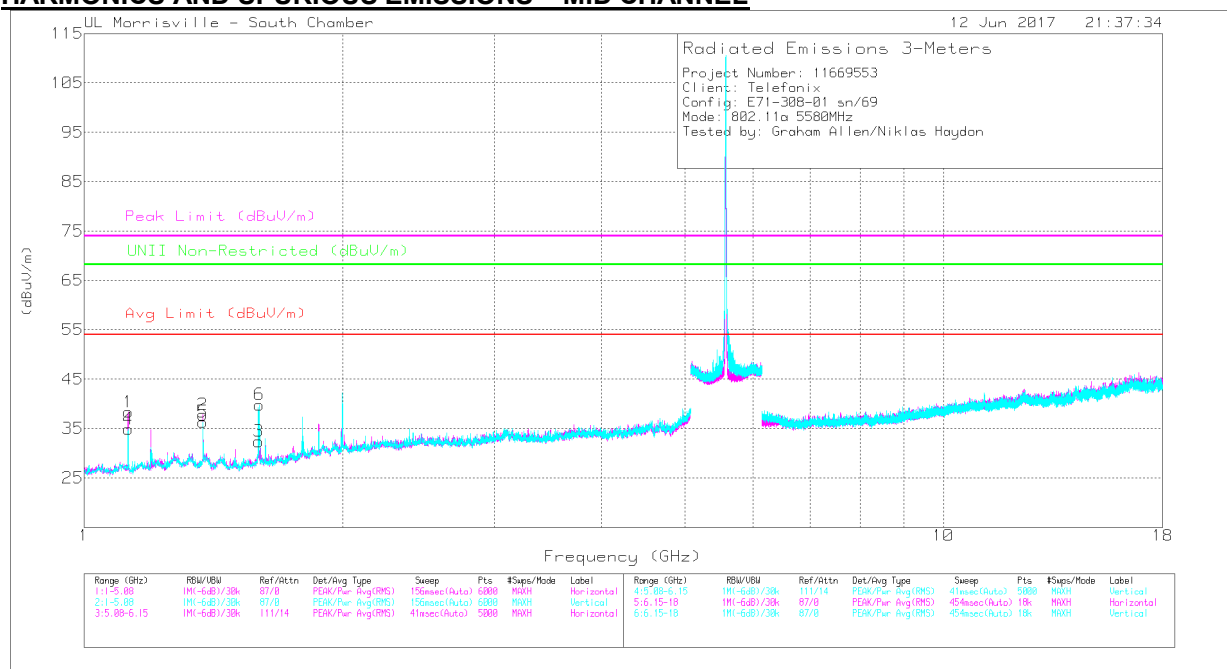
| Markers | Frequency (GHz) | Meter Reading (dBuV) | Det | AT006 9 AF (dB/m) | Amp/C b/Fltr/ Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---------|-----------------|----------------------|------|-------------------|------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| 1 | * 1.125 | 50.17 | PK-U | 27.6 | -35.3 | 0 | 42.47 | - | - | 74 | -31.53 | - | - | 237 | 138 | H |
| | * 1.125 | 46.48 | ADR | 27.6 | -35.3 | .14 | 38.92 | 54 | -15.08 | - | - | - | - | 237 | 138 | H |
| 4 | * 1.375 | 49.03 | PK-U | 28.9 | -34.8 | 0 | 43.13 | - | - | 74 | -30.87 | - | - | 81 | 132 | H |
| | * 1.375 | 44.73 | ADR | 28.9 | -34.8 | .14 | 38.97 | 54 | -15.03 | - | - | - | - | 81 | 132 | H |
| 5 | * 1.595 | 54.37 | PK-U | 28.2 | -34.6 | 0 | 47.97 | - | - | 74 | -26.03 | - | - | 137 | 144 | H |
| | * 1.594 | 31.64 | ADR | 28.2 | -34.6 | .14 | 25.38 | 54 | -28.62 | - | - | - | - | 137 | 144 | H |
| 2 | * 1.125 | 48.18 | PK-U | 27.6 | -35.3 | 0 | 40.48 | - | - | 74 | -33.52 | - | - | 136 | 111 | V |
| | * 1.125 | 42.59 | ADR | 27.6 | -35.3 | .14 | 35.03 | 54 | -18.97 | - | - | - | - | 136 | 111 | V |
| 3 | * 1.375 | 46.38 | PK-U | 28.9 | -34.8 | 0 | 40.48 | - | - | 74 | -33.52 | - | - | 81 | 102 | V |
| | * 1.375 | 40.62 | ADR | 28.9 | -34.8 | .14 | 34.86 | 54 | -19.14 | - | - | - | - | 81 | 102 | V |
| 6 | * 1.596 | 53.22 | PK-U | 28.2 | -34.6 | 0 | 46.82 | - | - | 74 | -27.18 | - | - | 54 | 113 | V |
| | * 1.597 | 31.13 | ADR | 28.3 | -34.6 | .14 | 24.97 | 54 | -29.03 | - | - | - | - | 54 | 113 | V |

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

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HARMONICS AND SPURIOUS EMISSIONS – MID CHANNEL



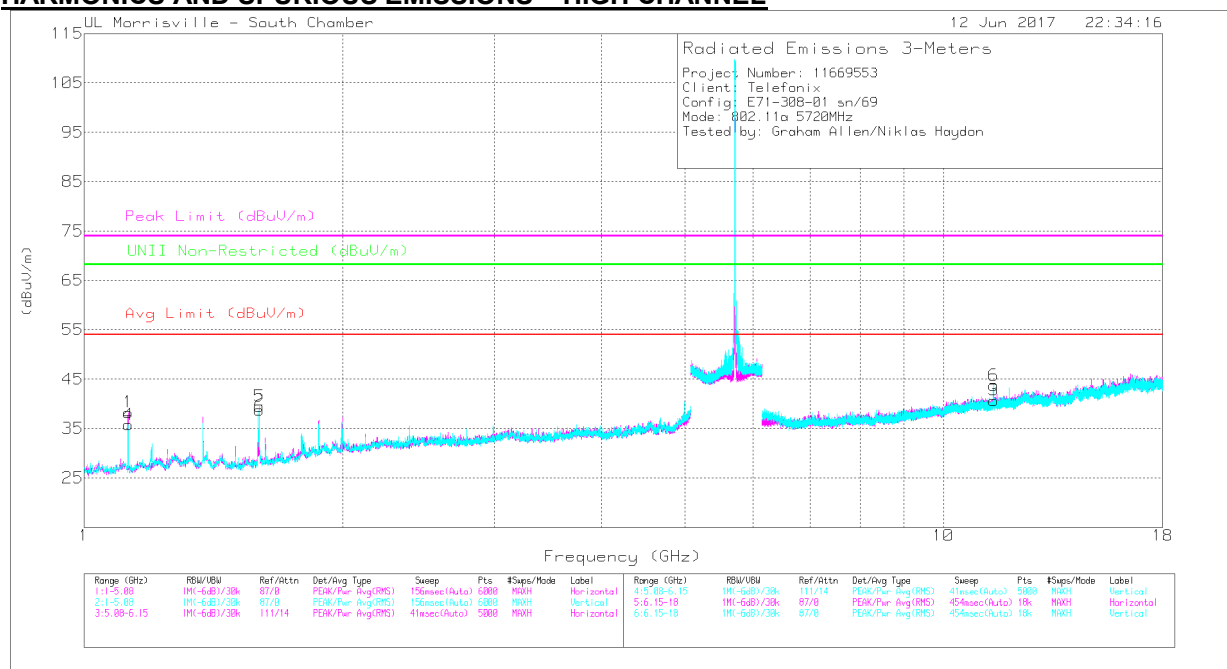
| Marekers | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/Filtr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|----------|-----------------|----------------------|------|------------------|------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| 1 | * 1.125 | 49.82 | PK-U | 27.6 | -35.3 | 0 | 42.12 | - | - | 74 | -31.88 | - | - | 185 | 197 | H |
| | * 1.125 | 46.07 | ADR | 27.6 | -35.3 | .14 | 38.51 | 54 | -15.49 | - | - | - | - | 185 | 197 | H |
| 2 | * 1.375 | 46.08 | PK-U | 28.9 | -34.8 | 0 | 40.18 | - | - | 74 | -33.82 | - | - | 2 | 148 | H |
| | * 1.375 | 40.43 | ADR | 28.9 | -34.8 | .14 | 34.67 | 54 | -19.33 | - | - | - | - | 2 | 148 | H |
| 3 | * 1.595 | 54.6 | PK-U | 28.2 | -34.6 | 0 | 48.2 | - | - | 74 | -25.8 | - | - | 138 | 137 | H |
| | * 1.595 | 31.21 | ADR | 28.2 | -34.6 | .14 | 24.95 | 54 | -29.05 | - | - | - | - | 138 | 137 | H |
| 4 | * 1.125 | 48.28 | PK-U | 27.6 | -35.3 | 0 | 40.58 | - | - | 74 | -33.42 | - | - | 315 | 168 | V |
| | * 1.125 | 43.36 | ADR | 27.6 | -35.3 | .14 | 35.8 | 54 | -18.2 | - | - | - | - | 315 | 168 | V |
| 5 | * 1.375 | 46.76 | PK-U | 28.9 | -34.8 | 0 | 40.86 | - | - | 74 | -33.14 | - | - | 82 | 102 | V |
| | * 1.375 | 40.23 | ADR | 28.9 | -34.8 | .14 | 34.47 | 54 | -19.53 | - | - | - | - | 82 | 102 | V |
| 6 | * 1.6 | 50.4 | PK-U | 28.3 | -34.6 | 0 | 44.1 | - | - | 74 | -29.9 | - | - | 55 | 182 | V |
| | * 1.6 | 30.6 | ADR | 28.3 | -34.6 | .14 | 24.44 | 54 | -29.56 | - | - | - | - | 55 | 182 | V |

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

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HARMONICS AND SPURIOUS EMISSIONS – HIGH CHANNEL



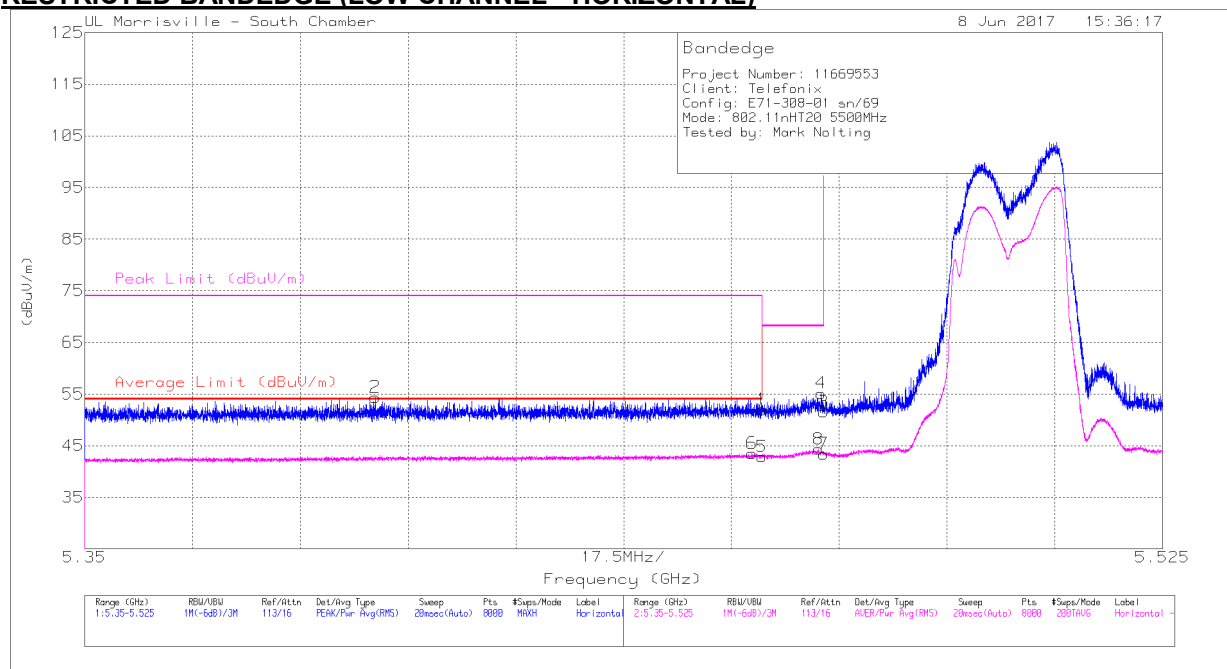
| Markers | Freq (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Filt/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---------|------------|----------------------|------|------------------|------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| 1 | * 1.125 | 49.89 | PK-U | 27.6 | -35.3 | 0 | 42.19 | - | - | 74 | -31.81 | - | - | 180 | 196 | H |
| | * 1.125 | 46.02 | ADR | 27.6 | -35.3 | .14 | 38.46 | 54 | -15.54 | - | - | - | - | 180 | 196 | H |
| 2 | * 1.597 | 50.11 | PK-U | 28.3 | -34.6 | 0 | 43.81 | - | - | 74 | -30.19 | - | - | 185 | 272 | H |
| | * 1.598 | 30.6 | ADR | 28.3 | -34.6 | .14 | 24.44 | 54 | -29.56 | - | - | - | - | 185 | 272 | H |
| 4 | * 1.125 | 48.66 | PK-U | 27.6 | -35.3 | 0 | 40.96 | - | - | 74 | -33.04 | - | - | 109 | 159 | V |
| | * 1.125 | 43.02 | ADR | 27.6 | -35.3 | .14 | 35.46 | 54 | -18.54 | - | - | - | - | 109 | 159 | V |
| 5 | * 1.599 | 52.3 | PK-U | 28.3 | -34.6 | 0 | 46 | - | - | 74 | -28 | - | - | 358 | 120 | V |
| | * 1.599 | 31.42 | ADR | 28.3 | -34.6 | .14 | 25.26 | 54 | -28.74 | - | - | - | - | 358 | 120 | V |
| 3 | * 11.439 | 34.44 | PK-U | 38.2 | -25.1 | 0 | 47.54 | - | - | 74 | -26.46 | - | - | 26 | 164 | H |
| | * 11.442 | 22.8 | ADR | 38.2 | -25.1 | .14 | 36.04 | 54 | -17.96 | - | - | - | - | 26 | 164 | H |
| 6 | * 11.442 | 38.48 | PK-U | 38.2 | -25.1 | 0 | 51.58 | - | - | 74 | -22.42 | - | - | 327 | 232 | V |
| | * 11.442 | 26.29 | ADR | 38.2 | -25.1 | .14 | 39.53 | 54 | -14.47 | - | - | - | - | 327 | 232 | V |

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

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

11.7. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.6 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL - HORIZONTAL)



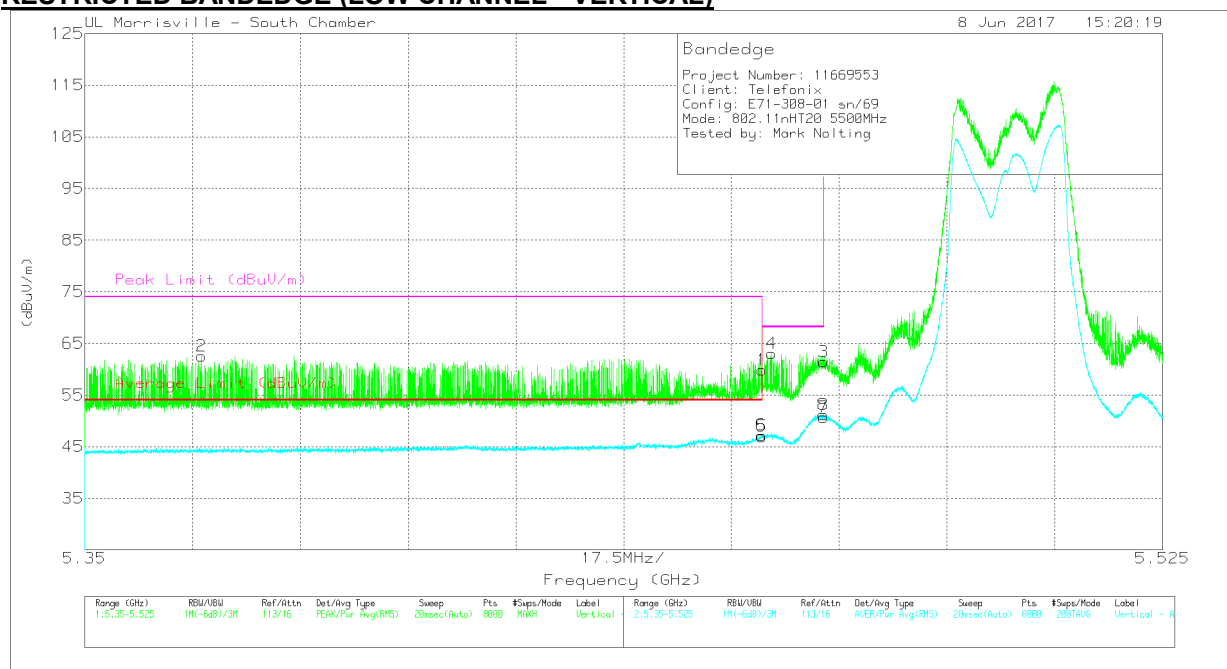
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl /Filtr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|-------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.46 | 41.1 | Pk | 34.5 | -23.6 | 0 | 52 | - | - | 74 | -22 | 176 | 128 | H |
| 2 | * 5.397 | 43.28 | Pk | 34.4 | -23.3 | 0 | 54.38 | - | - | 74 | -19.62 | 176 | 128 | H |
| 3 | 5.47 | 40.62 | Pk | 34.5 | -23.6 | 0 | 51.52 | - | - | 68.2 | -16.68 | 176 | 128 | H |
| 4 | 5.47 | 44.25 | Pk | 34.5 | -23.6 | 0 | 55.15 | - | - | 68.2 | -13.05 | 176 | 128 | H |
| 5 | * 5.46 | 31.98 | RMS | 34.5 | -23.6 | 0 | 42.88 | 54 | -11.12 | - | - | 176 | 128 | H |
| 6 | * 5.458 | 32.6 | RMS | 34.5 | -23.6 | 0 | 43.5 | 54 | -10.5 | - | - | 176 | 128 | H |
| 7 | 5.47 | 32.51 | RMS | 34.5 | -23.6 | 0 | 43.41 | - | - | - | - | 176 | 128 | H |
| 8 | 5.469 | 33.44 | RMS | 34.5 | -23.6 | 0 | 44.34 | - | - | - | - | 176 | 128 | H |

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

Pk - Peak detector

RMS - RMS detection

RESTRICTED BANDEGE (LOW CHANNEL - VERTICAL)



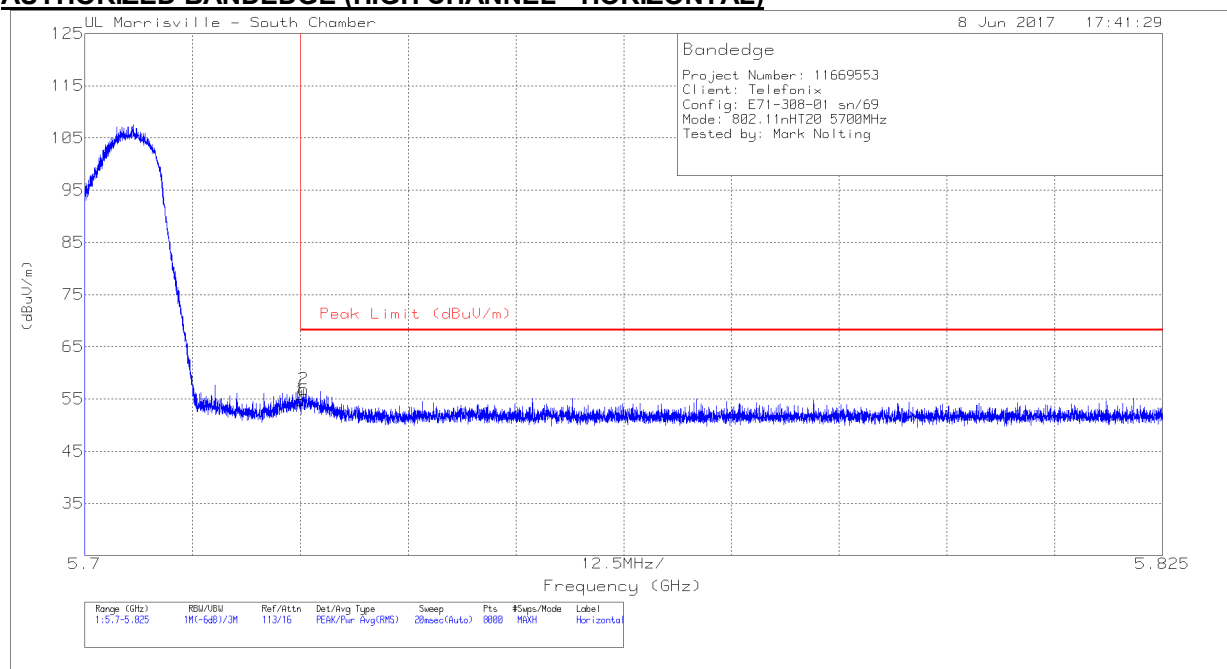
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fltr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|--------------|----------------------------|-------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.46 | 48.93 | Pk | 34.5 | -23.6 | 0 | 59.83 | - | - | 74 | -14.17 | 173 | 239 | V |
| 2 | * 5.369 | 51.44 | Pk | 34.4 | -23.3 | 0 | 62.54 | - | - | 74 | -11.46 | 173 | 239 | V |
| 3 | 5.47 | 50.54 | Pk | 34.5 | -23.6 | 0 | 61.44 | - | - | 68.2 | -6.76 | 173 | 239 | V |
| 4 | 5.462 | 52.13 | Pk | 34.5 | -23.6 | 0 | 63.03 | - | - | 68.2 | -5.17 | 173 | 239 | V |
| 5 | * 5.46 | 36.09 | RMS | 34.5 | -23.6 | 0 | 46.99 | 54 | -7.01 | - | - | 173 | 239 | V |
| 6 | * 5.46 | 36.31 | RMS | 34.5 | -23.6 | 0 | 47.21 | 54 | -6.79 | - | - | 173 | 239 | V |
| 7 | 5.47 | 39.76 | RMS | 34.5 | -23.6 | 0 | 50.66 | - | - | - | - | 173 | 239 | V |
| 8 | 5.47 | 40.29 | RMS | 34.5 | -23.6 | 0 | 51.19 | - | - | - | - | 173 | 239 | V |

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

Pk - Peak detector

RMS - RMS detection

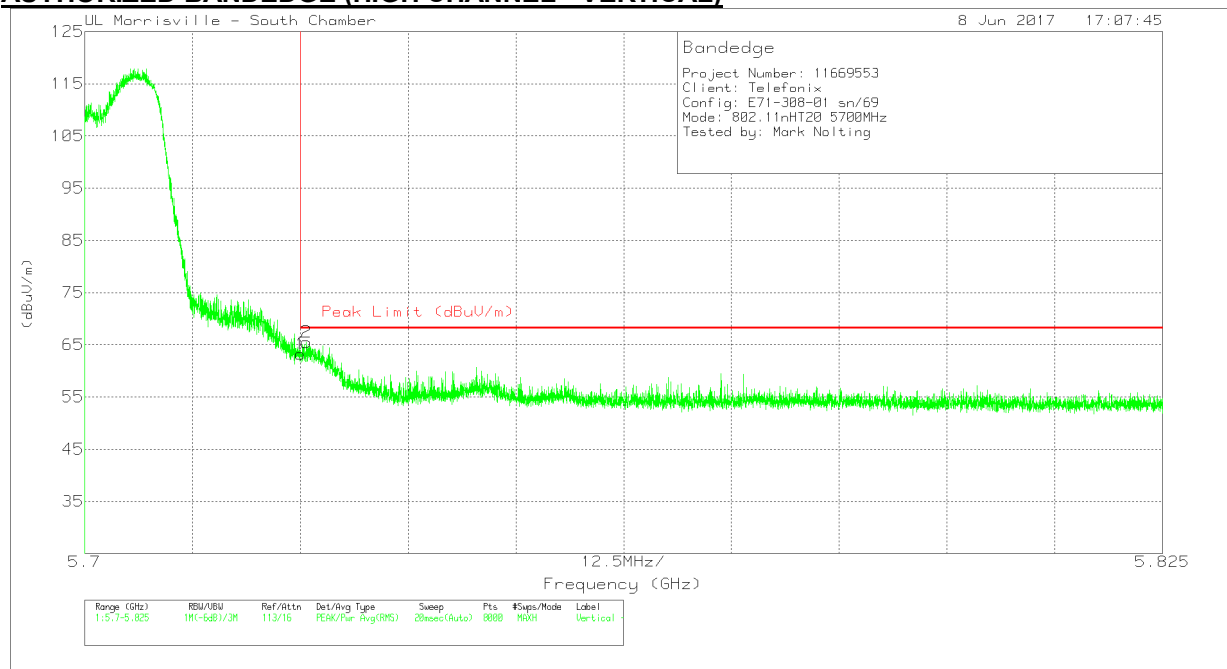
AUTHORIZED BANDEDGE (HIGH CHANNEL - HORIZONTAL)



| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fitr/Pad (dB) | Corrected Reading (dBuV/m) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|----------------------------|---------------------|----------------|----------------|-------------|----------|
| 1 | 5.725 | 43.55 | Pk | 34.6 | -23.5 | 54.65 | 68.2 | -13.55 | 272 | 234 | H |
| 2 | 5.725 | 45.79 | Pk | 34.6 | -23.5 | 56.89 | 68.2 | -11.31 | 272 | 234 | H |

Pk - Peak detector

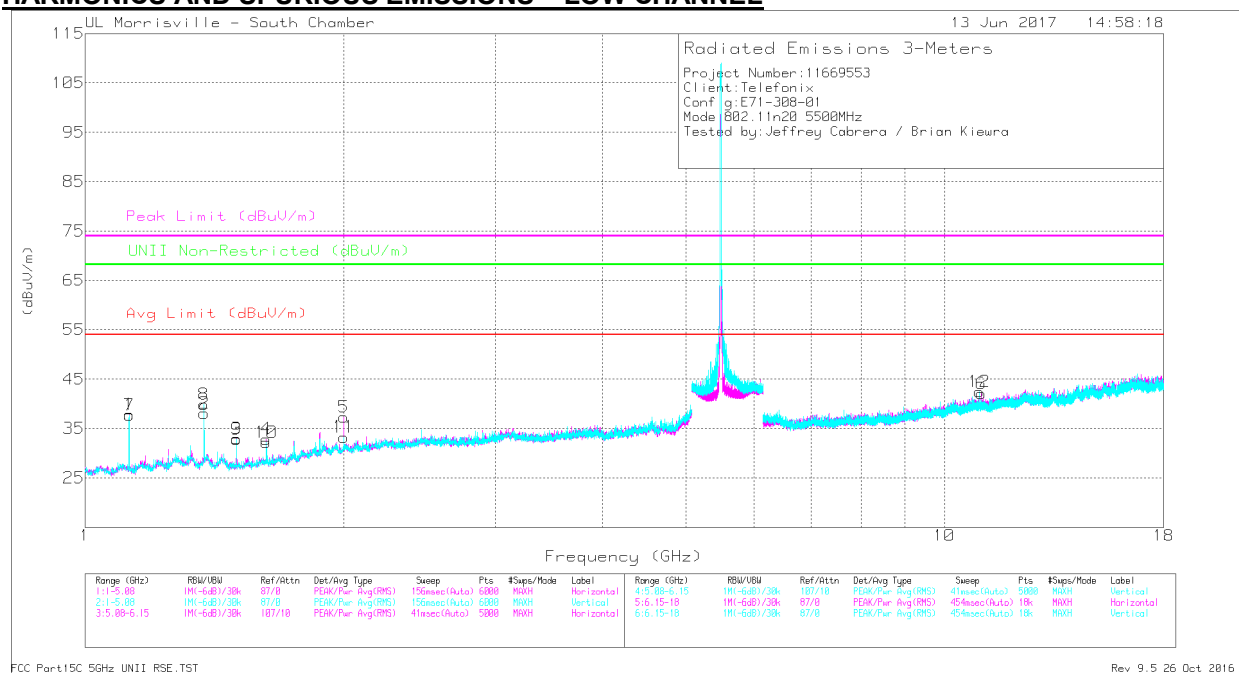
AUTHORIZED BANDEDGE (HIGH CHANNEL - VERTICAL)



| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Filt/Pad (dB) | Corrected Reading (dBuV/m) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|----------------------------|---------------------|----------------|----------------|-------------|----------|
| 1 | 5.725 | 52.14 | Pk | 34.6 | -23.5 | 63.24 | 68.2 | -4.96 | 64 | 296 | V |
| 2 | 5.726 | 54.38 | Pk | 34.6 | -23.5 | 65.48 | 68.2 | -2.72 | 64 | 296 | V |

Pk - Peak detector

HARMONICS AND SPURIOUS EMISSIONS – LOW CHANNEL



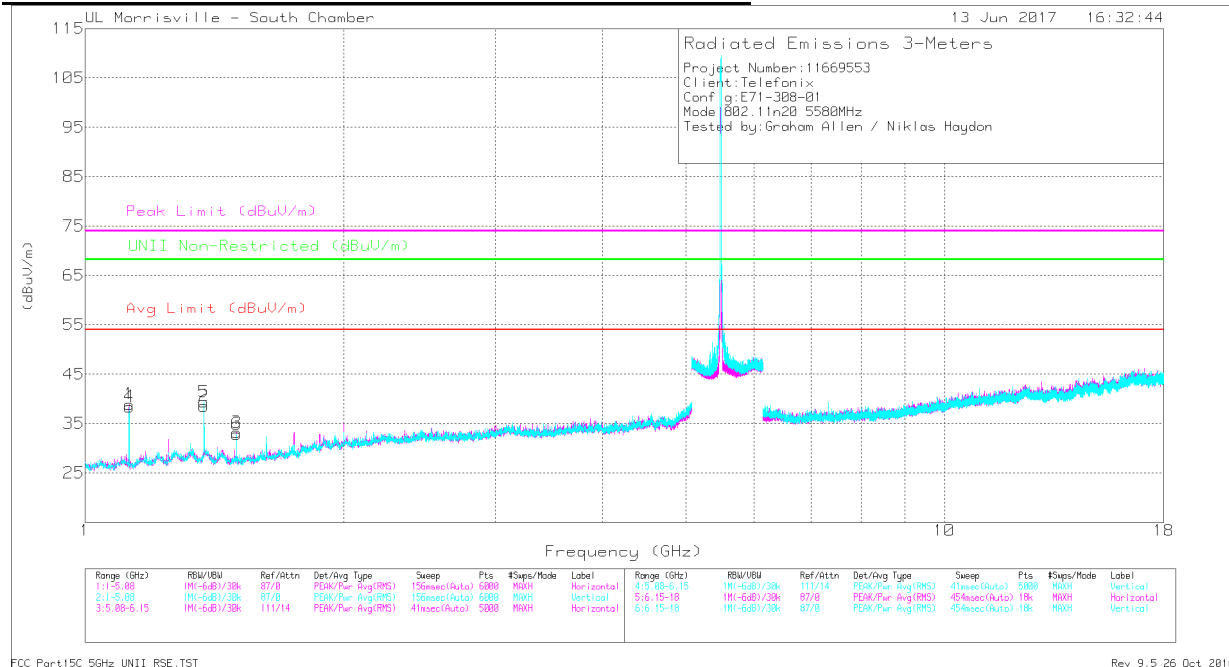
| Markers | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dBm) | Amp/Cbl /Filtr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---------|-----------------|----------------------|------|-----------------|-------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| 1 | * 1.125 | 51.67 | PK-U | 27.6 | -35.3 | 0 | 43.97 | - | - | 74 | -30.03 | - | - | 358 | 112 | H |
| | * 1.125 | 49.05 | ADR | 27.6 | -35.3 | 0 | 41.35 | 54 | -12.65 | - | - | - | - | 358 | 112 | H |
| 2 | * 1.375 | 48.98 | PK-U | 28.9 | -34.8 | 0 | 43.08 | - | - | 74 | -30.92 | - | - | 169 | 170 | H |
| | * 1.375 | 44.85 | ADR | 28.9 | -34.8 | 0 | 38.95 | 54 | -15.05 | - | - | - | - | 169 | 170 | H |
| 3 | * 1.5 | 46.51 | PK-U | 27.9 | -35.1 | 0 | 39.31 | - | - | 74 | -34.69 | - | - | 125 | 159 | H |
| | * 1.5 | 40.23 | ADR | 27.9 | -35.1 | 0 | 33.03 | 54 | -20.97 | - | - | - | - | 125 | 159 | H |
| 4 | * 1.375 | 44.84 | PK-U | 28.9 | -34.8 | 0 | 38.94 | - | - | 74 | -35.06 | - | - | 140 | 211 | H |
| | * 1.375 | 38.2 | ADR | 28.9 | -34.8 | 0 | 32.3 | 54 | -21.7 | - | - | - | - | 140 | 211 | H |
| 6 | * 11.045 | 34.03 | PK-U | 37.9 | -25.1 | 0 | 46.83 | - | - | 74 | -27.17 | - | - | 123 | 168 | H |
| | * 11.045 | 22.65 | ADR | 37.9 | -25.1 | 0 | 35.45 | 54 | -18.55 | - | - | - | - | 123 | 168 | H |
| 7 | * 1.125 | 47.22 | PK-U | 27.6 | -35.3 | 0 | 39.52 | - | - | 74 | -34.48 | - | - | 16 | 202 | V |
| | * 1.125 | 41.61 | ADR | 27.6 | -35.3 | 0 | 33.91 | 54 | -20.09 | - | - | - | - | 16 | 202 | V |
| 8 | * 1.375 | 49.92 | PK-U | 28.9 | -34.8 | 0 | 44.02 | - | - | 74 | -29.98 | - | - | 355 | 120 | V |
| | * 1.375 | 46.81 | ADR | 28.9 | -34.8 | 0 | 40.91 | 54 | -13.09 | - | - | - | - | 355 | 120 | V |
| 9 | * 1.5 | 47.61 | PK-U | 27.9 | -35.1 | 0 | 40.41 | - | - | 74 | -33.59 | - | - | 345 | 303 | V |
| | * 1.5 | 41.04 | ADR | 27.9 | -35.1 | 0 | 33.84 | 54 | -20.16 | - | - | - | - | 345 | 303 | V |
| 10 | * 1.625 | 44.56 | PK-U | 28.4 | -34.5 | 0 | 38.46 | - | - | 74 | -35.54 | - | - | 44 | 201 | V |
| | * 1.625 | 35.9 | ADR | 28.4 | -34.5 | 0 | 29.8 | 54 | -24.2 | - | - | - | - | 44 | 201 | V |
| 12 | * 10.978 | 37.34 | PK-U | 37.9 | -25.3 | 0 | 49.94 | - | - | 74 | -24.06 | - | - | 241 | 195 | V |
| | * 10.978 | 25.58 | ADR | 37.9 | -25.3 | 0 | 38.18 | 54 | -15.82 | - | - | - | - | 241 | 195 | V |
| 5 | 2 | 45.42 | PK-U | 31.1 | -34.3 | 0 | 42.22 | - | - | - | - | 68.2 | -25.98 | 235 | 108 | H |
| 11 | 2 | 43.5 | PK-U | 31.1 | -34.3 | 0 | 40.3 | - | - | - | - | 68.2 | -27.9 | 121 | 377 | V |

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

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HARMONICS AND SPURIOUS EMISSIONS – MID CHANNEL



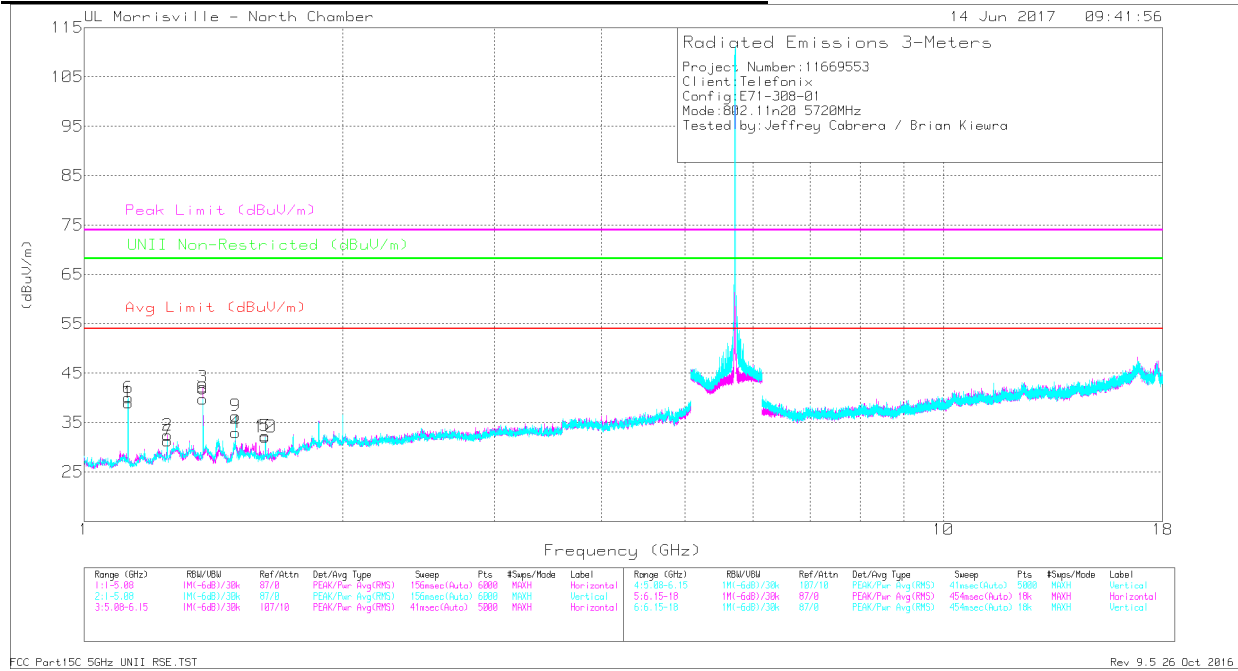
| Markers | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl /Filtr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---------|-----------------|----------------------|------|------------------|-------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| 1 | * 1.125 | 47.89 | PK-U | 27.6 | -35.3 | 0 | 40.19 | - | - | 74 | -33.81 | - | - | 0 | 114 | H |
| | * 1.125 | 42.15 | ADR | 27.6 | -35.3 | 0 | 34.45 | 54 | -19.55 | - | - | - | - | 0 | 114 | H |
| 2 | * 1.375 | 49.53 | PK-U | 28.9 | -34.8 | 0 | 43.63 | - | - | 74 | -30.37 | - | - | 352 | 188 | H |
| | * 1.375 | 45.46 | ADR | 28.9 | -34.8 | 0 | 39.56 | 54 | -14.44 | - | - | - | - | 352 | 188 | H |
| 3 | * 1.5 | 46.71 | PK-U | 27.9 | -35.1 | 0 | 39.51 | - | - | 74 | -34.49 | - | - | 127 | 251 | H |
| | * 1.5 | 40.3 | ADR | 27.9 | -35.1 | 0 | 33.1 | 54 | -20.9 | - | - | - | - | 127 | 251 | H |
| 4 | * 1.125 | 49.29 | PK-U | 27.6 | -35.3 | 0 | 41.59 | - | - | 74 | -32.41 | - | - | 328 | 114 | V |
| | * 1.125 | 45.05 | ADR | 27.6 | -35.3 | 0 | 37.35 | 54 | -16.65 | - | - | - | - | 328 | 114 | V |
| 5 | * 1.375 | 48.68 | PK-U | 28.9 | -34.8 | 0 | 42.78 | - | - | 74 | -31.22 | - | - | 297 | 199 | V |
| | * 1.375 | 44.21 | ADR | 28.9 | -34.8 | 0 | 38.31 | 54 | -15.69 | - | - | - | - | 297 | 199 | V |
| 6 | * 1.5 | 47.31 | PK-U | 27.9 | -35.1 | 0 | 40.11 | - | - | 74 | -33.89 | - | - | 343 | 301 | V |
| | * 1.5 | 41.48 | ADR | 27.9 | -35.1 | 0 | 34.28 | 54 | -19.72 | - | - | - | - | 343 | 301 | V |

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

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HARMONICS AND SPURIOUS EMISSIONS – HIGH CHANNEL



| Frequency (GHz) | Meter Reading (dBuV) | Det | AT0072 AF (dB/m) | Amp/Cbl /Filtr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|------------------|-------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| * 1.125 | 51.32 | PK-U | 27.7 | -37 | 0 | 42.02 | - | - | 74 | -31.98 | - | - | 270 | 152 | H |
| * 1.125 | 47.57 | ADR | 27.7 | -37 | 0 | 38.27 | 54 | -15.73 | - | - | - | - | 270 | 152 | H |
| * 1.25 | 44.85 | PK-U | 28.9 | -36.7 | 0 | 37.05 | - | - | 74 | -36.95 | - | - | 292 | 200 | H |
| * 1.25 | 37.39 | ADR | 28.9 | -36.7 | 0 | 29.59 | 54 | -24.41 | - | - | - | - | 292 | 200 | H |
| * 1.375 | 50.17 | PK-U | 29 | -36.1 | 0 | 43.07 | - | - | 74 | -30.93 | - | - | 308 | 198 | H |
| * 1.375 | 47.03 | ADR | 29 | -36.1 | 0 | 39.93 | 54 | -14.07 | - | - | - | - | 308 | 198 | H |
| * 1.5 | 49.2 | PK-U | 27.8 | -36.4 | 0 | 40.6 | - | - | 74 | -33.4 | - | - | 292 | 255 | H |
| * 1.5 | 40.89 | ADR | 27.8 | -36.4 | 0 | 32.29 | 54 | -21.71 | - | - | - | - | 292 | 255 | H |
| * 1.375 | 46.28 | PK-U | 29 | -36.1 | 0 | 39.18 | - | - | 74 | -34.82 | - | - | 118 | 137 | H |
| * 1.375 | 40.85 | ADR | 29 | -36.1 | 0 | 33.75 | 54 | -20.25 | - | - | - | - | 118 | 137 | H |
| * 1.125 | 50.94 | PK-U | 27.7 | -37 | 0 | 41.64 | - | - | 74 | -32.36 | - | - | 355 | 103 | V |
| * 1.125 | 47.45 | ADR | 27.7 | -37 | 0 | 38.15 | 54 | -15.85 | - | - | - | - | 355 | 103 | V |
| * 1.25 | 45.74 | PK-U | 28.9 | -36.7 | 0 | 37.94 | - | - | 74 | -36.06 | - | - | 145 | 248 | V |
| * 1.25 | 37.66 | ADR | 28.9 | -36.7 | 0 | 29.86 | 54 | -24.14 | - | - | - | - | 145 | 248 | V |
| * 1.375 | 50.68 | PK-U | 29 | -36.1 | 0 | 43.58 | - | - | 74 | -30.42 | - | - | 228 | 149 | V |
| * 1.375 | 47.09 | ADR | 29 | -36.1 | 0 | 39.99 | 54 | -14.01 | - | - | - | - | 228 | 149 | V |
| * 1.5 | 47.77 | PK-U | 27.8 | -36.4 | 0 | 39.17 | - | - | 74 | -34.83 | - | - | 231 | 207 | V |
| * 1.5 | 41.9 | ADR | 27.8 | -36.4 | 0 | 33.3 | 54 | -20.7 | - | - | - | - | 231 | 207 | V |
| * 1.375 | 47.48 | PK-U | 29 | -36.1 | 0 | 40.38 | - | - | 74 | -33.62 | - | - | 315 | 270 | V |
| * 1.375 | 41.49 | ADR | 29 | -36.1 | 0 | 34.39 | 54 | -19.61 | - | - | - | - | 315 | 270 | V |

Radiated Emissions

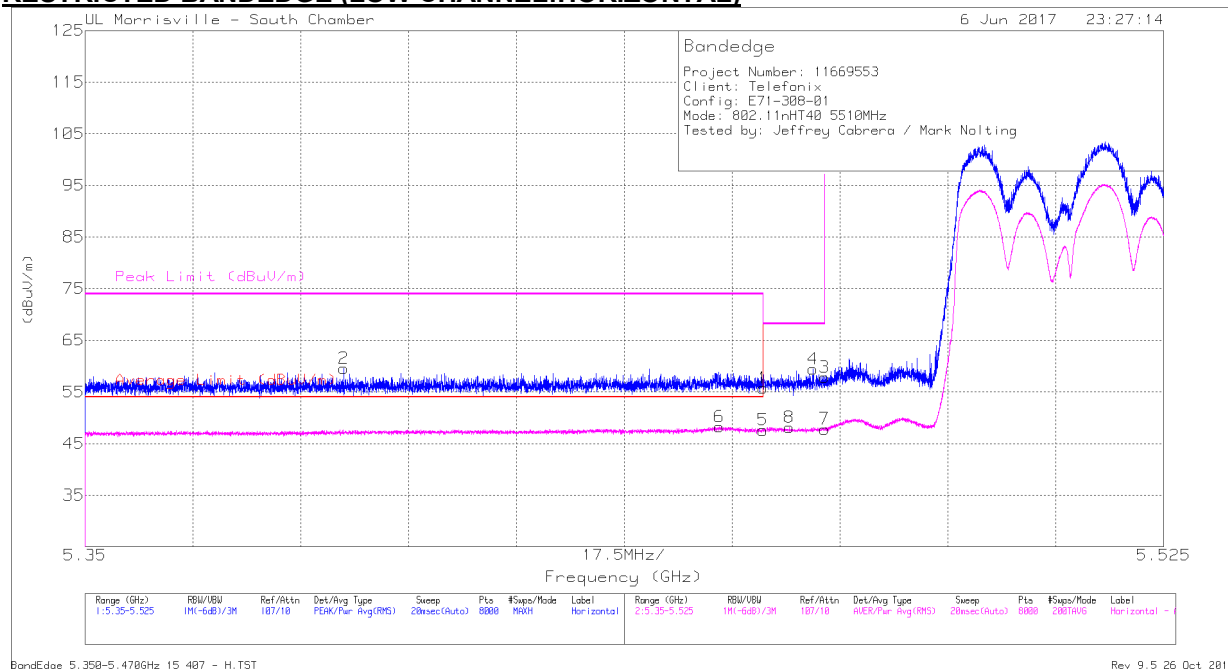
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

11.8. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.6 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL:HORIZONTAL)



Trace Markers

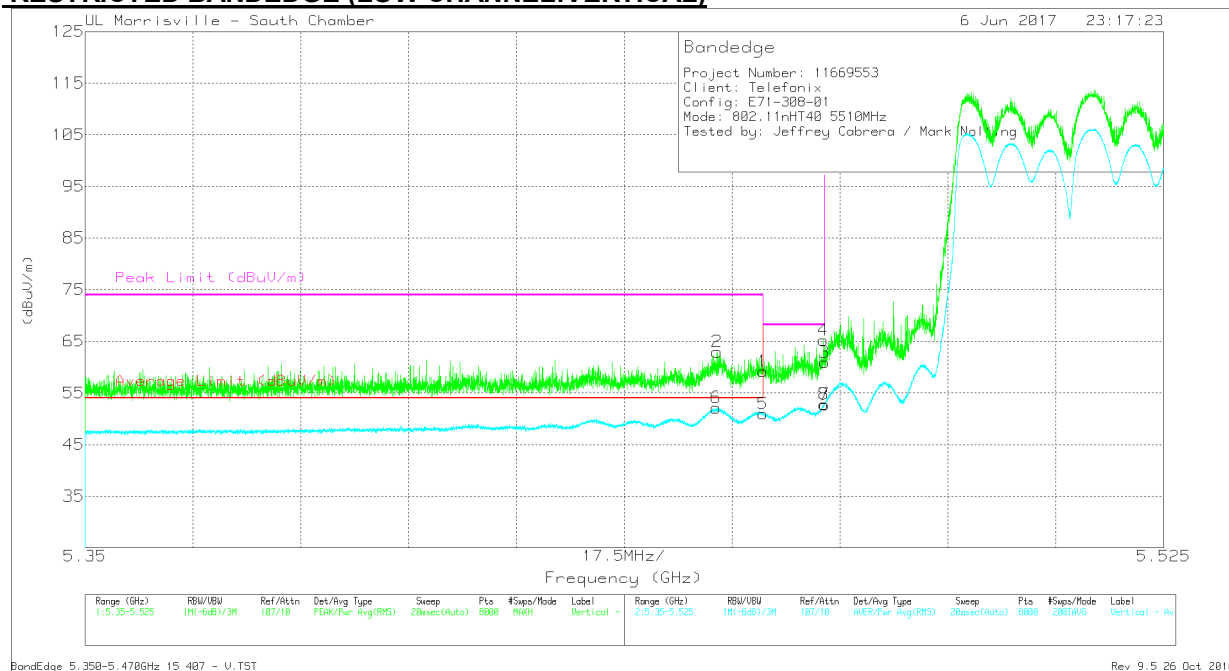
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl /Filtr/Pad (dB) | Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) |
|--------|-----------------|----------------------|-----|------------------|-------------------------|----------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|
| 1 | * 5.46 | 34.72 | Pk | 34.5 | -23.6 | 10.1 | 0 | 55.72 | - | - | 74 | -18.28 | 284 | 262 |
| 2 | * 5.392 | 38.33 | Pk | 34.4 | -23.3 | 10.1 | 0 | 59.53 | - | - | 74 | -14.47 | 284 | 262 |
| 3 | 5.47 | 36.81 | Pk | 34.5 | -23.6 | 10.1 | 0 | 57.81 | - | - | 68.2 | -10.39 | 284 | 262 |
| 4 | 5.468 | 38.42 | Pk | 34.5 | -23.6 | 10.1 | 0 | 59.42 | - | - | 68.2 | -8.78 | 284 | 262 |
| 6 | * 5.453 | 27.25 | RMS | 34.5 | -23.6 | 10.1 | .14 | 48.39 | 54 | -5.61 | - | - | 284 | 262 |
| 5 | * 5.46 | 26.59 | RMS | 34.5 | -23.6 | 10.1 | .14 | 47.73 | 54 | -6.27 | - | - | 284 | 262 |
| 8 | 5.464 | 27.15 | RMS | 34.5 | -23.6 | 10.1 | .14 | 48.29 | - | - | - | - | 284 | 262 |
| 7 | 5.47 | 26.81 | RMS | 34.5 | -23.6 | 10.1 | .14 | 47.95 | - | - | - | - | 284 | 262 |

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

Pk - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (LOW CHANNEL:VERTICAL)



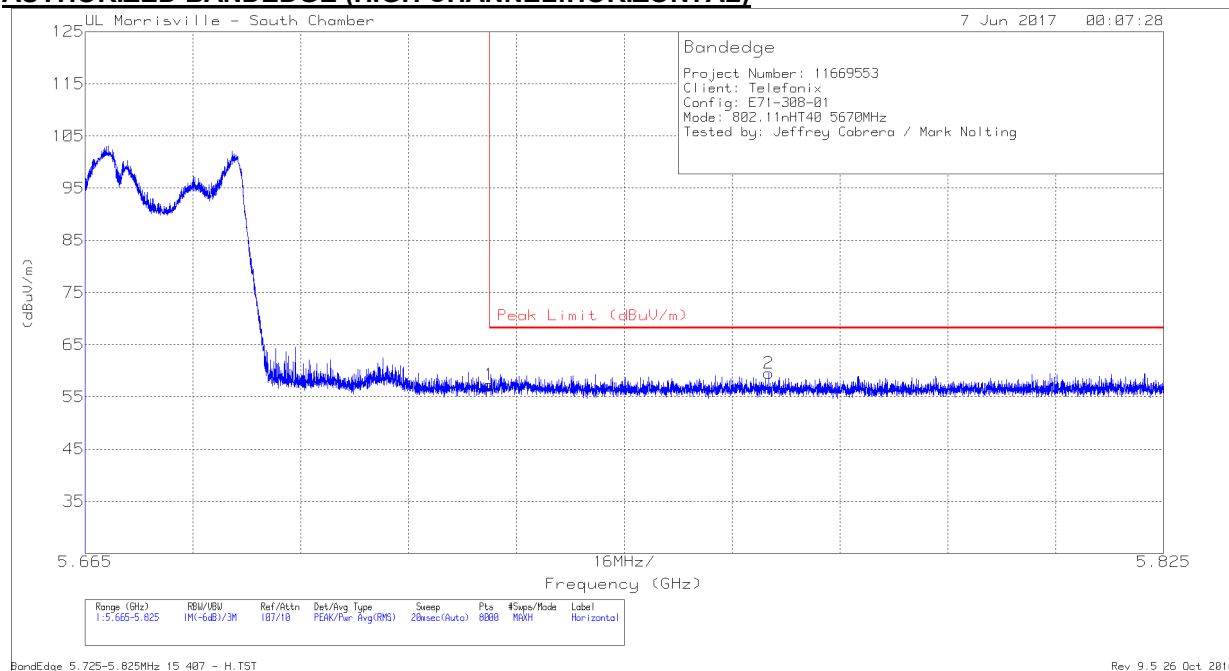
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl /Filtr/Pad (dB) | Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|-------------------------|----------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.46 | 38.17 | Pk | 34.5 | -23.6 | 10.1 | 0 | 59.17 | - | - | 74 | -14.83 | 100 | 260 | V |
| 2 | * 5.453 | 41.95 | Pk | 34.5 | -23.6 | 10.1 | 0 | 62.95 | - | - | 74 | -11.05 | 100 | 260 | V |
| 5 | * 5.46 | 29.78 | RMS | 34.5 | -23.6 | 10.1 | .14 | 50.92 | 54 | -3.08 | - | - | 100 | 260 | V |
| 6 | * 5.452 | 30.99 | RMS | 34.5 | -23.6 | 10.1 | .14 | 52.13 | 54 | -1.87 | - | - | 100 | 260 | V |
| 3 | 5.47 | 39.89 | Pk | 34.5 | -23.6 | 10.1 | 0 | 60.89 | - | - | 68.2 | -7.31 | 100 | 260 | V |
| 4 | 5.47 | 44.18 | Pk | 34.5 | -23.6 | 10.1 | 0 | 65.18 | - | - | 68.2 | -3.02 | 100 | 260 | V |
| 7 | 5.47 | 31.57 | RMS | 34.5 | -23.6 | 10.1 | .14 | 52.71 | - | - | - | - | 100 | 260 | V |
| 8 | 5.47 | 31.63 | RMS | 34.5 | -23.6 | 10.1 | .14 | 52.77 | - | - | - | - | 100 | 260 | V |

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

Pk - Peak detector

RMS - RMS detection

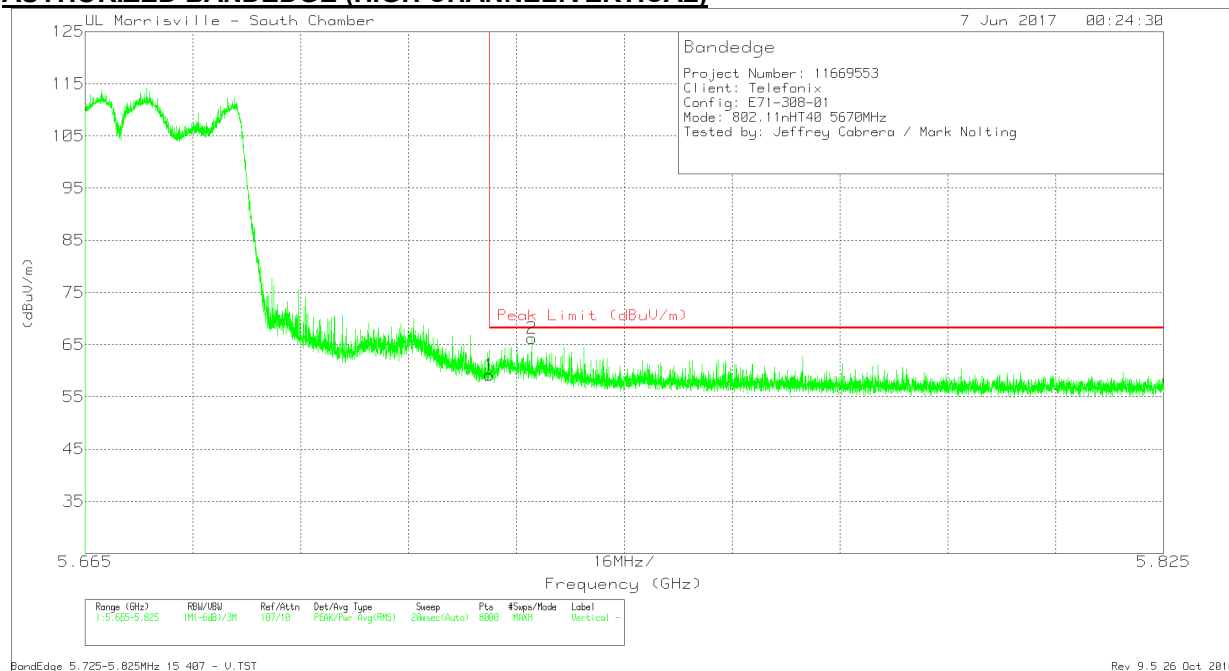
AUTHORIZED BANDEDGE (HIGH CHANNEL:HORIZONTAL)



| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fltr/Pad (dB) | Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|----------|--------------|----------------------------|---------------------|----------------|----------------|-------------|----------|
| 1 | 5.725 | 36.1 | Pk | 34.6 | -23.5 | 10.1 | 0 | 57.3 | 68.2 | -10.9 | 330 | 132 | H |
| 2 | 5.766 | 38.04 | Pk | 34.7 | -23.3 | 10.1 | 0 | 59.54 | 68.2 | -8.66 | 330 | 132 | H |

Pk - Peak detector

AUTHORIZED BANDEDGE (HIGH CHANNEL:VERTICAL)

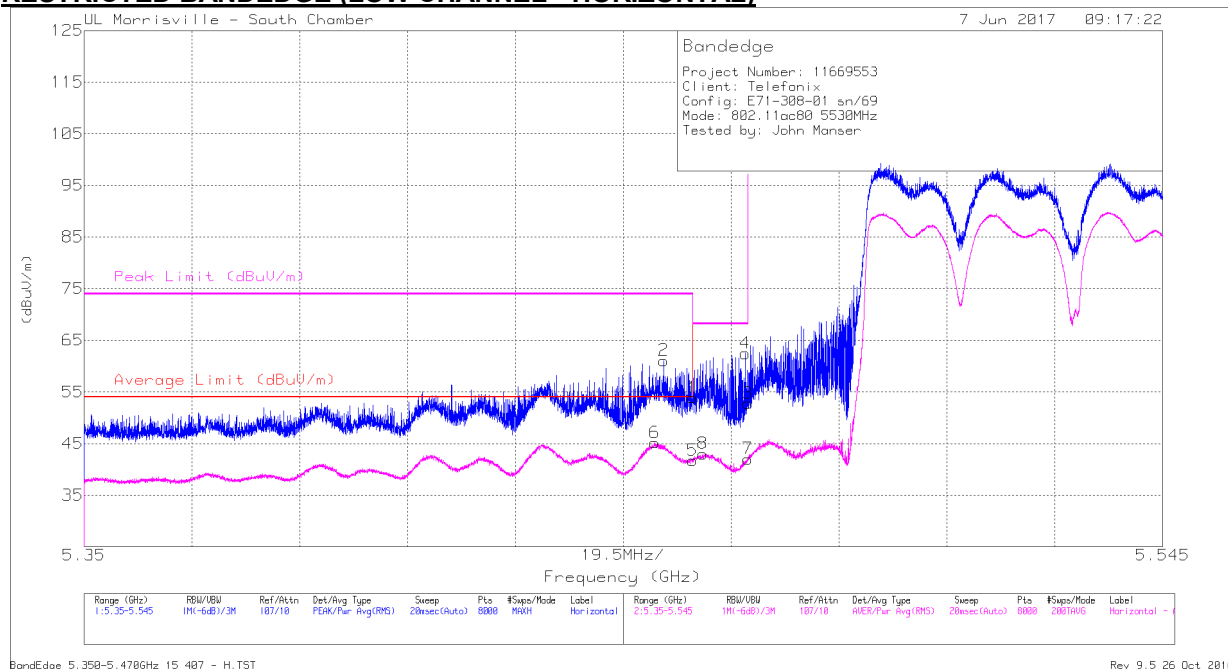


| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fitr/Pad (dB) | Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|----------|--------------|----------------------------|---------------------|----------------|----------------|-------------|----------|
| 1 | 5.725 | 38.01 | Pk | 34.6 | -23.5 | 10.1 | 0 | 59.21 | 68.2 | -8.99 | 262 | 222 | V |
| 2 | 5.731 | 45.01 | Pk | 34.6 | -23.5 | 10.1 | 0 | 66.21 | 68.2 | -1.99 | 262 | 222 | V |

Pk - Peak detector

11.9. TX ABOVE 1 GHz 802.11ac VHT80 MODE IN THE 5.6 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL - HORIZONTAL)



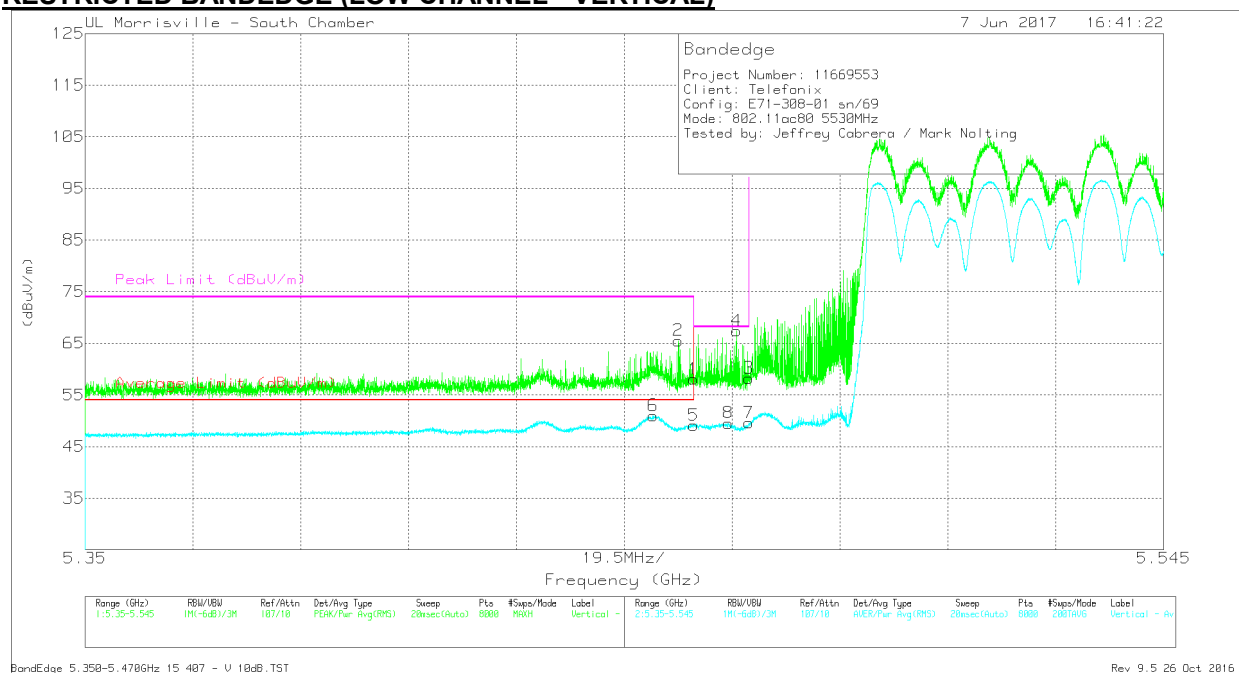
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl /Filtr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|-------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.46 | 43.03 | Pk | 34.5 | -23.6 | 0 | 53.93 | - | - | 74 | -20.07 | 90 | 123 | H |
| 2 | * 5.455 | 50.19 | Pk | 34.5 | -23.6 | 0 | 61.09 | - | - | 74 | -12.91 | 90 | 123 | H |
| 5 | * 5.46 | 30.54 | RMS | 34.5 | -23.6 | .26 | 41.7 | 54 | -12.3 | - | - | 90 | 123 | H |
| 6 | * 5.453 | 34 | RMS | 34.5 | -23.6 | .26 | 45.16 | 54 | -8.84 | - | - | 90 | 123 | H |
| 8 | 5.462 | 31.87 | RMS | 34.5 | -23.6 | .26 | 43.03 | - | - | - | - | 90 | 123 | H |
| 3 | 5.47 | 41.9 | Pk | 34.5 | -23.6 | 0 | 52.8 | - | - | 68.2 | -15.4 | 90 | 123 | H |
| 4 | 5.47 | 51.56 | Pk | 34.5 | -23.6 | 0 | 62.46 | - | - | 68.2 | -5.74 | 90 | 123 | H |
| 7 | 5.47 | 30.89 | RMS | 34.5 | -23.6 | .26 | 42.05 | - | - | - | - | 90 | 123 | H |

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

Pk - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (LOW CHANNEL - VERTICAL)



Trace Markers

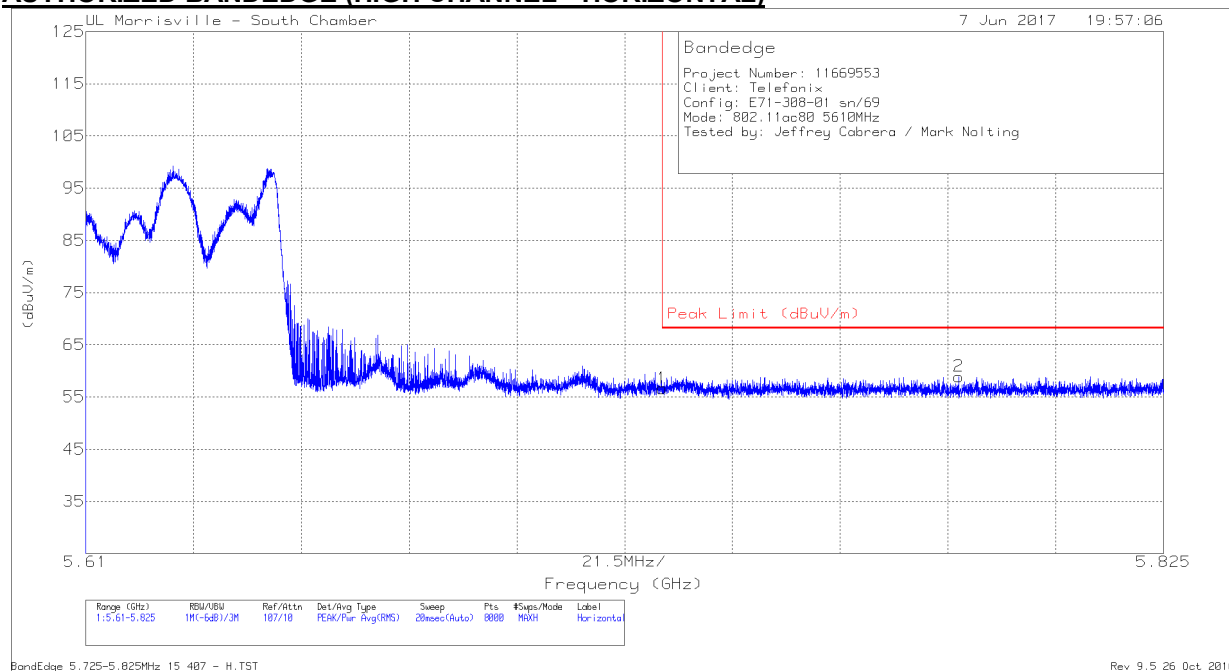
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fltr/Pad (dB) | Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|----------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 5.46 | 37.07 | Pk | 34.5 | -23.6 | 10.1 | 0 | 58.07 | - | - | 74 | -15.93 | 93 | 283 | V |
| 2 | * 5.457 | 44.52 | Pk | 34.5 | -23.6 | 10.1 | 0 | 65.52 | - | - | 74 | -8.48 | 93 | 283 | V |
| 5 | * 5.46 | 27.87 | RMS | 34.5 | -23.6 | 10.1 | .26 | 49.13 | 54 | -4.87 | - | - | 93 | 283 | V |
| 6 | * 5.453 | 29.74 | RMS | 34.5 | -23.6 | 10.1 | .26 | 51 | 54 | -3 | - | - | 93 | 283 | V |
| 8 | 5.466 | 28.28 | RMS | 34.5 | -23.6 | 10.1 | .26 | 49.54 | - | - | - | - | 93 | 283 | V |
| 4 | 5.468 | 46.44 | Pk | 34.5 | -23.6 | 10.1 | 0 | 67.44 | - | - | 68.2 | -.76 | 93 | 283 | V |
| 3 | 5.47 | 37.25 | Pk | 34.5 | -23.6 | 10.1 | 0 | 58.25 | - | - | 68.2 | -9.95 | 93 | 283 | V |
| 7 | 5.47 | 28.33 | RMS | 34.5 | -23.6 | 10.1 | .26 | 49.59 | - | - | - | - | 93 | 283 | V |

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

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL - HORIZONTAL)

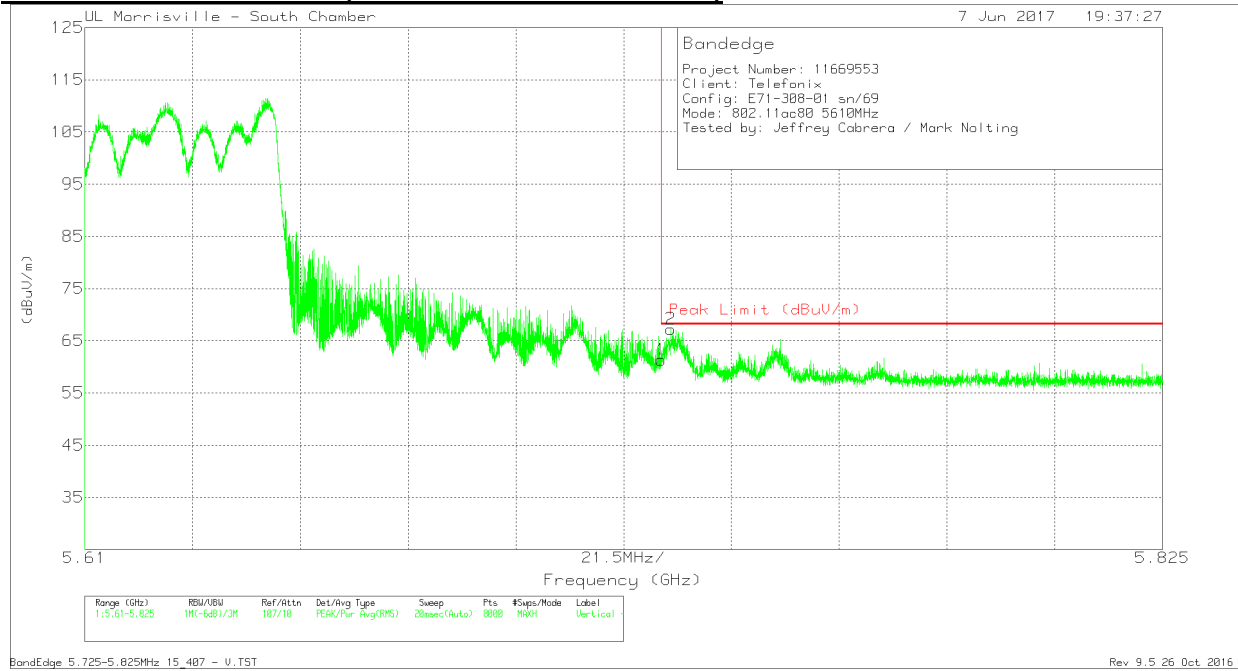


Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/ Fitr/Pad (dB) | Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|----------|--------------|----------------------------|---------------------|----------------|----------------|-------------|----------|
| 1 | 5.725 | 35.45 | Pk | 34.6 | -23.5 | 10.1 | 0 | 56.65 | 68.2 | -11.55 | 298 | 355 | H |
| 2 | 5.784 | 37.53 | Pk | 34.7 | -23.4 | 10.1 | 0 | 58.93 | 68.2 | -9.27 | 298 | 355 | H |

Pk - Peak detector

AUTHORIZED BANDEDGE (HIGH CHANNEL - VERTICAL)



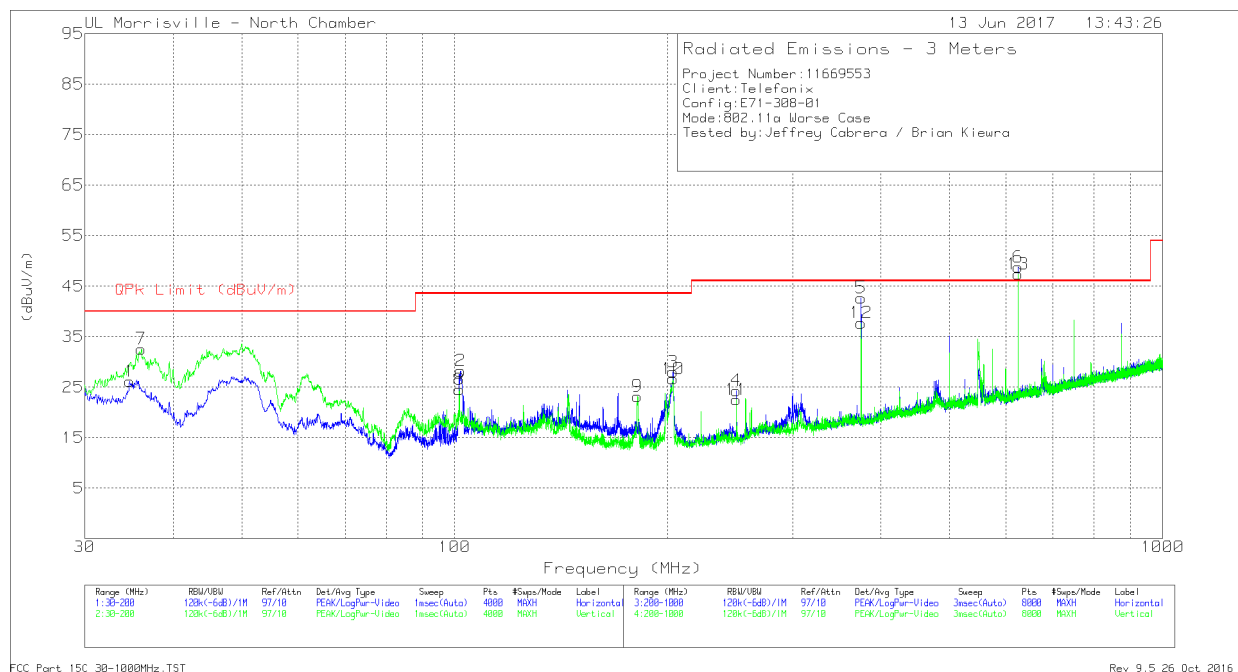
Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0069 AF (dB/m) | Amp/Cbl/Filtr/Pad (dB) | Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|------------------------|----------|--------------|----------------------------|---------------------|----------------|----------------|-------------|----------|
| 1 | 5.725 | 40.16 | Pk | 34.6 | -23.5 | 10.1 | 0 | 61.36 | 68.2 | -6.84 | 318 | 329 | V |
| 2 | 5.727 | 46.03 | Pk | 34.6 | -23.5 | 10.1 | 0 | 67.23 | 68.2 | -9.97 | 318 | 329 | V |

Pk - Peak detector

11.10. WORST-CASE BELOW 1 GHz

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



| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | AT0073 AF (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|------------------|--------------|----------------------------|--------------------|-------------|----------------|-------------|----------|
| 4 | * 250.0007 | 36.94 | Qp | 16.2 | -29.8 | 23.34 | 46.02 | -22.68 | 138 | 125 | H |
| 11 | * 249.9806 | 36.18 | Qp | 16.2 | -29.8 | 22.58 | 46.02 | -23.44 | 220 | 173 | V |
| 1 | 34.7187 | 35.35 | Pk | 22.5 | -31.7 | 26.15 | - | - | 0-360 | 299 | H |
| 2 | 101.9286 | 44.02 | Pk | 15.1 | -30.9 | 28.22 | - | - | 0-360 | 399 | H |
| 3 | 203.4004 | 41.82 | Pk | 16.3 | -30.1 | 28.02 | - | - | 0-360 | 102 | H |
| 5 | 375.0228 | 52.06 | Pk | 19.7 | -29.1 | 42.66 | - | - | 0-360 | 102 | H |
| 6 | 624.9552 | 53.07 | Pk | 23.8 | -28.1 | 48.77 | - | - | 0-360 | 198 | H |
| 7 | 36.0791 | 42.86 | Pk | 21.4 | -31.7 | 32.56 | - | - | 0-360 | 102 | V |
| 8 | 101.5035 | 40.43 | Pk | 15 | -30.9 | 24.53 | - | - | 0-360 | 102 | V |
| 9 | 181.2966 | 37.57 | Pk | 15.8 | -30.2 | 23.17 | - | - | 0-360 | 102 | V |
| 10 | 203.4004 | 40.42 | Pk | 16.3 | -30.1 | 26.62 | - | - | 0-360 | 103 | V |
| 12 | 375.0228 | 47.11 | Pk | 19.7 | -29.1 | 37.71 | - | - | 0-360 | 103 | V |
| 13 | 624.9552 | 51.67 | Pk | 23.8 | -28.1 | 47.37 | - | - | 0-360 | 103 | V |

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

Pk - Peak detector

Qp - Quasi-Peak detector

11.11. WORST-CASE ABOVE 18 GHz

SPURIOUS EMISSIONS 18 to 40GHz (WORST-CASE CONFIGURATION)



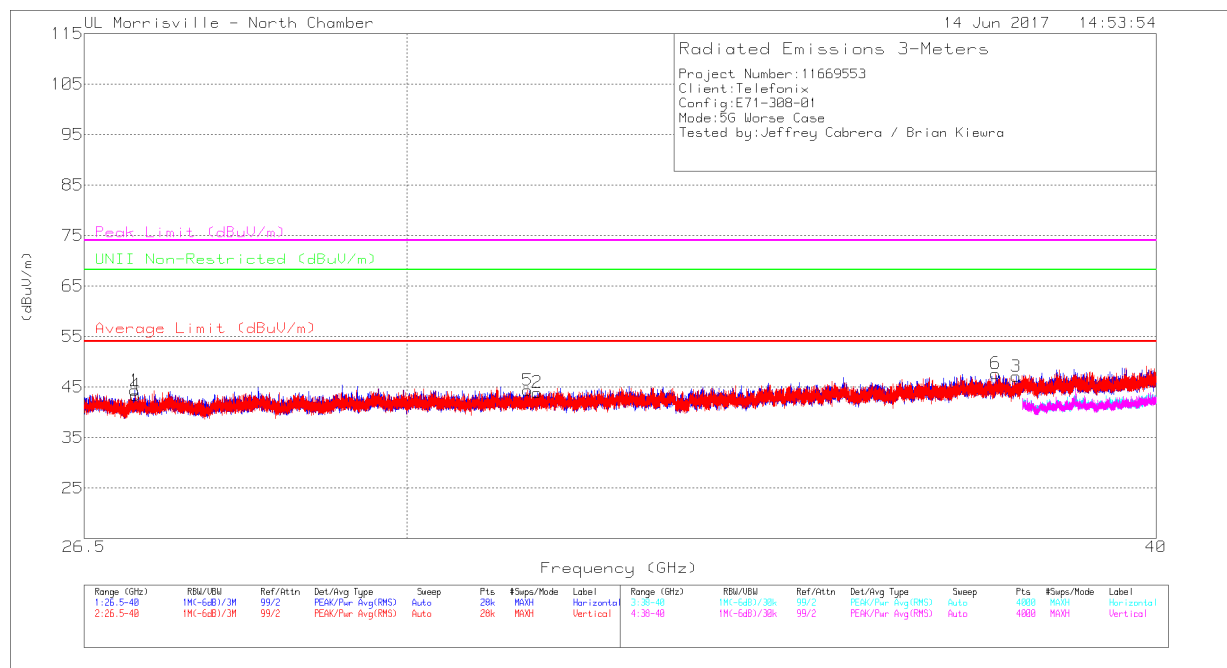
Trace Markers

| Frequency (GHz) | Meter Reading (dBuV) | Det | AF AT0076 (dB/m) | Amp/Cbl (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|------------------|--------------|--------------|----------------------------|------------------------|-------------|---------------------|-------------|------------------------------|----------------|----------------|-------------|----------|
| * 20.066 | 48.59 | PK-U | 32.9 | -41.3 | 0 | 40.19 | - | - | 74 | -33.81 | - | - | 132 | 128 | H |
| * 20.068 | 37.19 | ADR | 32.9 | -41.3 | .14 | 28.93 | 54 | -25.07 | - | - | - | - | 132 | 128 | H |
| * 20.071 | 48.87 | PK-U | 32.9 | -41.3 | 0 | 40.47 | - | - | 74 | -33.53 | - | - | 126 | 328 | V |
| * 20.072 | 37.1 | ADR | 32.9 | -41.3 | .14 | 28.84 | 54 | -25.16 | - | - | - | - | 126 | 328 | V |
| 21.636 | 48.11 | PK-U | 33.4 | -40.8 | 0 | 40.71 | - | - | - | - | 68.2 | -27.49 | 160 | 103 | H |
| 25.282 | 47.3 | PK-U | 34.5 | -39.8 | 0 | 42 | - | - | - | - | 68.2 | -26.2 | 57 | 273 | H |
| 21.616 | 47.37 | PK-U | 33.4 | -40.9 | 0 | 39.87 | - | - | - | - | 68.2 | -28.33 | 233 | 231 | V |
| 25.155 | 47.19 | PK-U | 34.3 | -39.8 | 0 | 41.69 | - | - | - | - | 68.2 | -26.51 | 358 | 235 | V |

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

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average



| Frequency (GHz) | Meter Reading (dBuV) | Det | AF AT0077 (dB/m) | Amp/Cb l (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|------------------|---------------|--------------|----------------------------|------------------------|-------------|---------------------|-------------|------------------------------|----------------|----------------|-------------|----------|
| * 31.539 | 46.22 | PK-U | 36.9 | -37.7 | 0 | 45.42 | - | - | 74 | -28.58 | - | - | 139 | 169 | H |
| * 31.542 | 34.7 | ADR | 36.9 | -37.6 | .14 | 34.14 | 54 | -19.86 | - | - | - | - | 139 | 169 | H |
| * 31.424 | 45.05 | PK-U | 37.1 | -37.7 | 0 | 44.45 | - | - | 74 | -29.55 | - | - | 71 | 253 | V |
| * 31.424 | 33.91 | ADR | 37.1 | -37.7 | .14 | 33.45 | 54 | -20.55 | - | - | - | - | 71 | 253 | V |
| 27.016 | 46.21 | PK-U | 36.1 | -38.6 | 0 | 43.71 | - | - | - | - | 68.2 | -24.49 | 32 | 367 | H |
| 37.906 | 44.96 | PK-U | 38.2 | -35.3 | 0 | 47.86 | - | - | - | - | 68.2 | -20.34 | 177 | 284 | H |
| 27.028 | 46.59 | PK-U | 36.1 | -38.6 | 0 | 44.09 | - | - | - | - | 68.2 | -24.11 | 5 | 226 | V |
| 37.609 | 44.31 | PK-U | 38.3 | -35.5 | 0 | 47.11 | - | - | - | - | 68.2 | -21.09 | 15 | 281 | V |

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

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average