CERTIFICATION TEST REPORT

Report Number. : 11526345-E4V3

Applicant	:	NVIDIA CORP. 2701 SAN TOMAS EXPY SANTA CLARA, CA 95050
Model	:	P3310
FCC ID	:	VOB-P3310
IC	:	7361A-P3310
EUT Description	:	WLAN 2x2 MIMO 802.11a/b/g/n/ac with Bluetooth
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART E (EXCEPT DFS) INDUSTRY CANADA RSS - 247 ISSUE 1 (EXCEPT DFS) INDUSTRY CANADA RSS-GEN Issue 4

Date Of Issue:
January 15, 2017

Prepared by:
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	01/05/17	Initial Issue	D.Coronia
V2	01/14/17	Updated Section 1, 2, 10.4.1 & 10.13	D.Coronia
V3	01/15/17	Removed 26dB BW for 5.8GHz band	D.Coronia

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: NVIDIA CORP.

EUT DESCRIPTION: WLAN 2x2 MIMO 802.11a/b/g/n/ac with Bluetooth

MODEL: P3310

SERIAL NUMBER: 0334916010248 (for Conducted)
0334916000053 (for Radiated)

DATE TESTED: DECEMBER 13 - 28, 2016

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E (EXCEPT DFS)	Pass
INDUSTRY CANADA RSS-247 Issue 1 (EXCEPT DFS)	Pass
INDUSTRY CANADA RSS-GEN Issue 4	Pass

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

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

Approved & Released For
UL Verification Services Inc. By:

DAN CORONIA
WiSE Project Lead
UL VERIFICATION SERVICES INC.

Prepared By:

GLENN ESCANO
WiSE Lab Engineer
UL VERIFICATION SERVICES INC.

2. TEST METHODOLOGY

FCC: The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 14-30, FCC KDB 662911 D01 v02r01, FCC KDB 905462 D02 v02 / D03 v01r02 / D06 v02, FCC KDB 789033 D02 v01r03, FCC KDB 644545 D03 v01, ANSI C63.10-2013.

IC: The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 14-30, FCC KDB 662911 D01 v02r01, FCC KDB 905462 D02 v02 / D03 v01r02 / D06 v02, FCC KDB 789033 D02 v01r03, FCC KDB 644545 D03 v01, ANSI C63.10-2013, RSS-GEN Issue 4, and RSS-247 Issue 1.

3. FACILITIES AND ACCREDITATION

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

47173 Benicia Street	47266 Benicia Street
☒ Chamber A (IC:2324B-1)	☐ Chamber D (IC:2324B-4)
☒ Chamber B (IC:2324B-2)	☐ Chamber E (IC:2324B-5)
☒ Chamber C (IC:2324B-3)	☐ Chamber F (IC:2324B-6)
	☐ Chamber G (IC:2324B-7)
	☐ Chamber H (IC:2324B-8)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313.

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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

4.3. MEASUREMENT UNCERTAINTY

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

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

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a WLAN 2x2 MIMO 802.11a/b/g/n/ac with Bluetooth.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

NOTE: Covered modes are test reduction modes. The output powers on the “covered modes are equal to or less than the mode referenced and use the same modulation.

5.2GHz Band

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5180 - 5240	802.11a 1TX	16.01	39.90
	802.11n HT20 CDD 2TX	12.16	16.44
5190 - 5230	802.11n HT40 CDD 2TX	14.30	26.92
5210	802.11ac VHT80 CDD 2TX	14.33	27.10

5.3GHz Band

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5260 - 5320	802.11a 1TX	17.46	55.72
	802.11n HT20 CDD 2TX	19.20	83.18
5270 - 5310	802.11n HT40 CDD 2TX	17.97	62.66
5290	802.11ac VHT80 CDD 2TX	16.21	41.78

5.5GHz Band

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5500 - 5700	802.11a 1TX	17.49	56.10
	802.11n HT20 CDD 2TX	19.31	85.31
5510 - 5670	802.11n HT40 CDD 2TX	17.14	51.76
5530-5610	802.11ac VHT80 CDD 2TX	13.52	22.49

5.8GHz Band

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5745 - 5825	802.11a 1TX	17.51	56.36
	802.11n HT20 CDD 2TX	19.21	83.37
5755 - 5795	802.11n HT40 CDD 2TX	18.28	67.30
5775	802.11ac VHT80 CDD 2TX	15.23	33.34

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The EUT utilizes a Dipole antenna, with maximum gain as table below;

Frequency Band (GHz)	Antenna Gain (dBi)	
	Chain 0	Chain 1
5.2	5.49	5.49
5.3	5.57	5.57
5.6	4.84	4.84
5.8	1.99	1.99

List of test reduction and modes covering other modes:

Antenna port & Radiated Testing	
Mode	**Covered by**
802.11a legacy 1TX	802.11a 2TX CDD
802.11HT20 1TX	802.11n HT20 2TX CDD
802.11HT20 2TX STBC	802.11n HT20 2TX CDD
802.11ac VHT20 1TX	802.11n HT20 2TX CDD
802.11ac VHT20 2TX STBC	802.11n HT20 2TX CDD
802.11ac VHT20 2TX CDD/BF	802.11n HT20 2TX CDD
802.11n HT40 1TX	802.11n HT40 2TX CDD
802.11n HT40 2TX STBC	802.11n HT40 2TX CDD
802.11ac VHT40 1TX	802.11n HT40 2TX CDD
802.11ac VHT40 2TX STBC	802.11n HT40 2TX CDD
802.11ac VHT40 2TX CDD/BF	802.11n HT40 2TX CDD
802.11ac VHT80 1TX	802.11ac VHT80 2TX CDD
802.11ac VHT80 2TX STBC/BF	802.11ac VHT80 2TX CDD

5.4. SOFTWARE AND FIRMWARE

The software and firmware in the EUT during testing was C03A10019.0700.

5.5. WORST-CASE CONFIGURATION AND MODE

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

The fundamental of the EUT was investigated in three transmitting antenna degrees: 0, 45, and 90. It was determined that 90 degrees was the worst case antenna position; therefore all final radiated testing was performed with the antenna position at 90 degrees.

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

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

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Description	Manufacturer	Model	Serial Number	FCC ID
EUT AC/DC Adapter	Mean Well Enterprises	GST90A19	EB68F90444	NA
Laptop	Lenovo	7659	L3-AL664 08/03	NA
Base Board	NVIDIA	P2597	0334916030640, 0334916030602	DoC

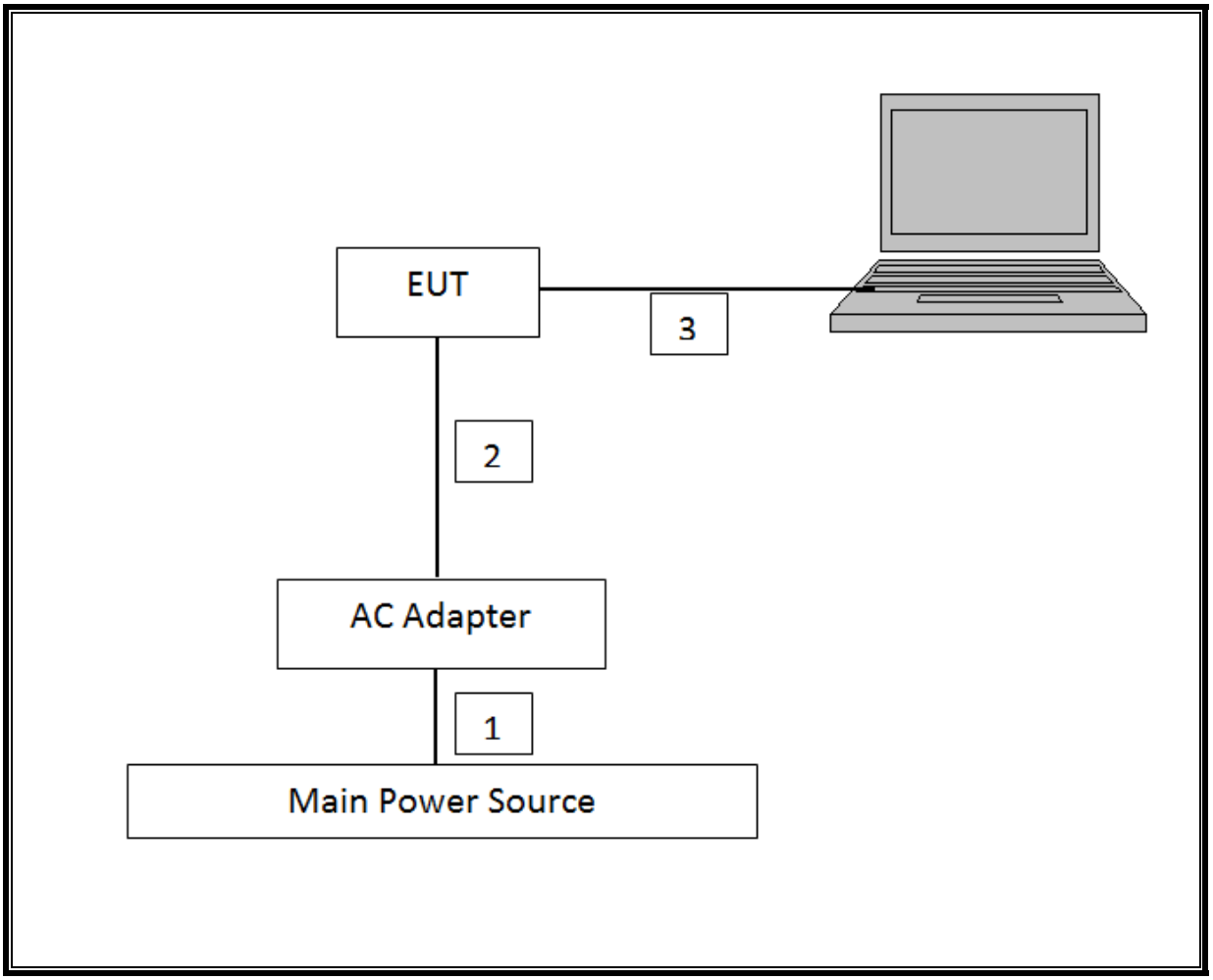
I/O CABLES (CONDUCTED & RADIATED TEST)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	US115V	Unshielded	0.5	For EUT
2	DC	1	19 Vdc	Unshielded	1	For EUT
3	USB	1	USB	Shielded	1.5	

TEST SETUP

The EUT was connected to a host Laptop via USB cable adapter Test software exercised the EUT.

SETUP DIAGRAM



6. TEST AND MEASUREMENT EQUIPMENT

Test Equipment List					
Description	**Manufacturer**	**Model**	**T Number**	**Cal Date**	**Cal Due**
PSA Series Spectrum 3Hz - 44GHz	Agilent	E4446A	146	07/13/16	07/13/17
Spectrum Analyzer	Agilent	8564E	106	09/07/16	09/07/17
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	907	01/06/16	01/06/17
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	908	04/13/16	04/13/17
EMI Reciever	Rohde & Schwarz	ESR-EMI	1436	12/19/15	12/31/16
18 - 26.5 GHz Horn Antenna	Seavey Division	MWH-1826/B	449	05/26/16	5/26/2017
26.5 - 40 GHz Horn Antenna	ARA	MWH-2640/B	446	05/25/16	5/25/2017
Antenna, Horn 1-18GHz	ETS Lindgren	3117	345	03/07/16	03/07/17
Antenna, Horn 1-18GHz	ETS Lindgren	3117	346	02/22/16	02/22/17
Antenna, Broadband Hybrid 30MHz to 2000MHz	Sunol Sciences	JB1	122	01/29/16	01/29/17
Loop Antenna	EMCO	6502	35	03/24/16	03/24/17
Pre-Amp 1-26.5 GHz	Agilent	8449B	404	07/05/16	07/05/17
Pre-Amp, 26-40GHz	MITEQ	NSP4000-SP2	88	04/07/16	4/7/2017
Amplifier, 1 to 18GHz	Miteq	AFS42-00101800-25-S-42	1165	08/01/16	08/01/17
Amplifier, 1 to 8 GHz	Miteq	AMF-4D-01000800-30-29P	1170	04/28/16	04/28/17
Amplifier, 1 to 18 GHz	Miteq	AFS43-00101800-25-S-42	493	03/09/16	03/09/17
Amplifier, 10KHz to 1GHz, 32dB	Keysight	8447D	15	08/26/16	08/26/17
P-Series Power Meter	Agilent	N1911A	229	07/28/16	07/28/17
LISN	FISCHER	FCC-LISN-50/250-25-2-01	1310	06/08/16	06/08/17

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

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

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

7. MEASUREMENT METHOD

On Time and Duty Cycle: KDB 789033 D02 v01r03, Section B.

6 dB Emission BW: KDB 789033 D02 v01r03, Section C.

26 dB Emission BW: KDB 789033 D02 v01r03, Section C.

99% Occupied BW: KDB 789033 D02 v01r03, Section D.

Conducted Output Power: KDB 789033 D02 v01r03, Section E.3.b (Method PM-G), and KDB 662911 D01 v02r01

Power Spectral Density: KDB 789033 D02 v01r03, Section F, and KDB 662911 D01 v02r01

Unwanted emissions in restricted bands: KDB 789033 D02 v01r03, Sections G.3, G.4, G.5, and G.6.

Unwanted emissions in non-restricted bands: KDB 789033 D02 v01r03, Sections G.3, G.4, and G.5.

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

8. SUMMARY TABLE

FCC Part Section	RSS Section	Test Description	Test Limit	Test Condition	Test Result
§15.407 (a)	RSS-247	Occupied Band width (26dB)	N/A	Conducted	Pass
§15.407	RSS-247 6.2.4	6dB Band width (5.8Ghz)	>500KHz		Pass
§15.407 (a)(1)	RSS-247 6.2	TX Cond. Power5.15-5.25 GHz	<24dBm (FCC) / <23 dBm EIRP or <10+10Log(99% BW) EIRP (IC)		Pass
§15.407 (a)(2)	RSS-247 6.2	TX Cond. Power 5.25-5.35 & 5.47-5.725 GHz	<24dBm or <11+10log (OBW) (FCC) / <24 dBm or <11+10Log(99% BW) (IC)		Pass
§15.407 (a)(3)	RSS-247 6.2.4	TX Cond. Power 5.725-5.850 GHz	<30dBm		Pass
§15.407 (a)(1)	RSS-247 6.2	PSD (5.15-5.25 GHz)	<11dBm/MHz (FCC) <10 dBm/MHz EIRP (IC)		Pass
§15.407 (a)(2)	RSS-247 6.2	PSD (5.3,5.5GHz)	<11dBm/MHz		Pass
§15.407 (a)(3)	RSS-247 6.2.4	PSD (5.8GHz)	<30dBm per 500kHz		Pass
§15.207 (a) §15.407(b) (6)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10		Pass
§15.407 (b) & 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	<54dBuV/m	Radiated	Pass

9. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)
802.11a	1.43	1.53	0.935	93.5%	0.29	0.700
802.11n HT20	1.34	1.44	0.930	93.0%	0.31	0.749
802.11n HT40	0.664	0.766	0.867	86.7%	0.62	1.505
802.11ac VHT80	0.191	0.292	0.655	65.5%	1.84	5.225

DUTY CYCLE PLOTS

DUTY CYCLE 802.11a MODE

DUTY CYCLE 802.11n HT20 MODE

DUTY CYCLE 802.11n HT40 MODE

DUTY CYCLE 802.11ac HT80 MODE

10. ANTENNA PORT TEST RESULTS

10.1. 11a Chain 0 SISO MODE IN THE 5.2GHz BAND

10.1.1. 26 dB BANDWIDTH

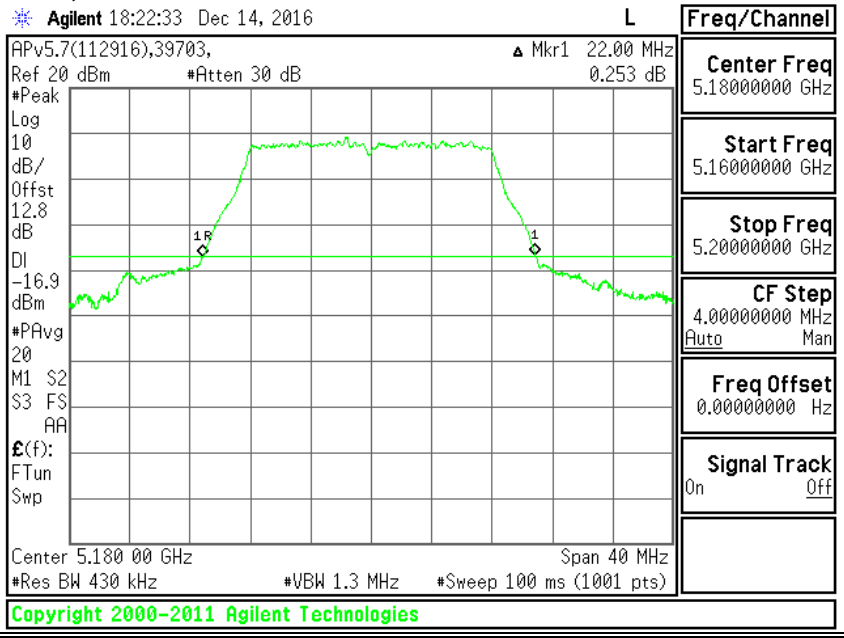
LIMITS

None; for reporting purposes only.

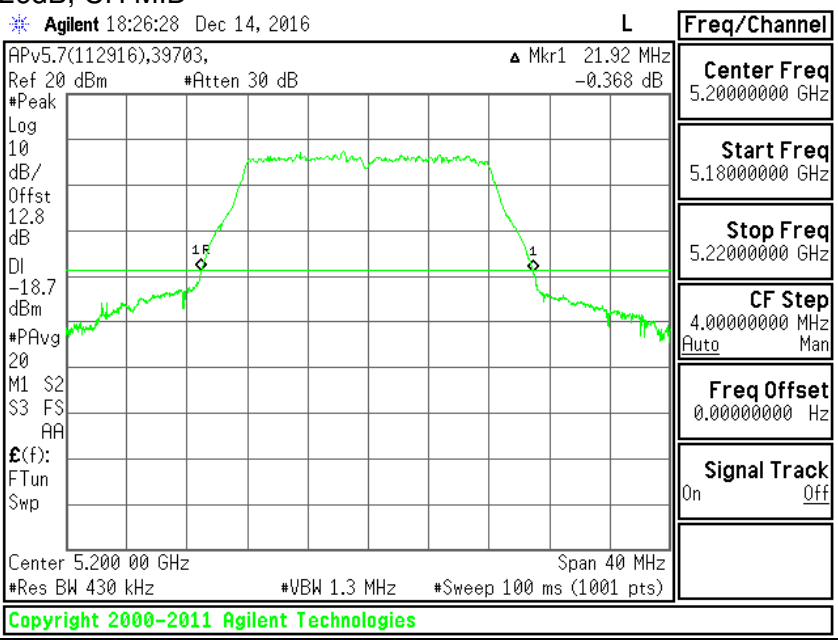
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)
Low	5180	22.00
Mid	5200	21.92
High	5240	21.92

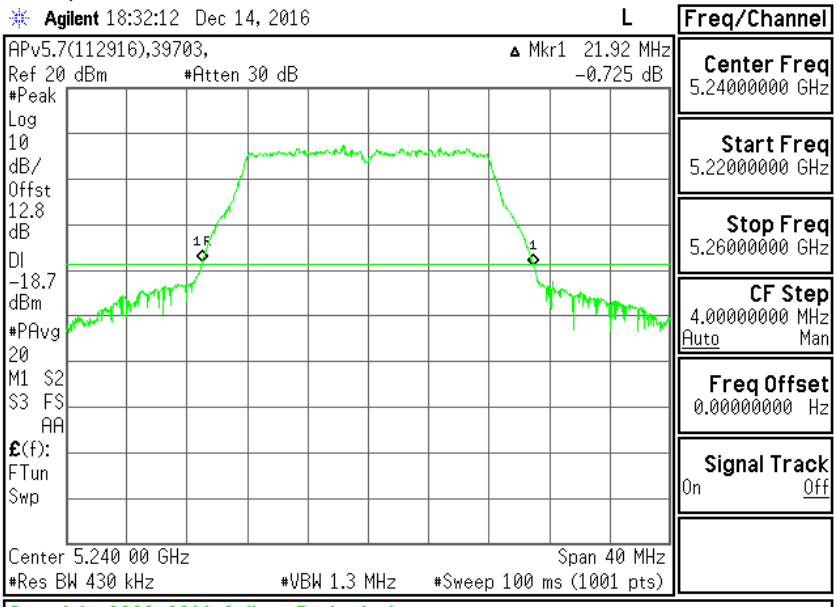
26dB, CH LOW



26dB, CH MID



26dB, CH HIGH



10.1.2. 99% BANDWIDTH

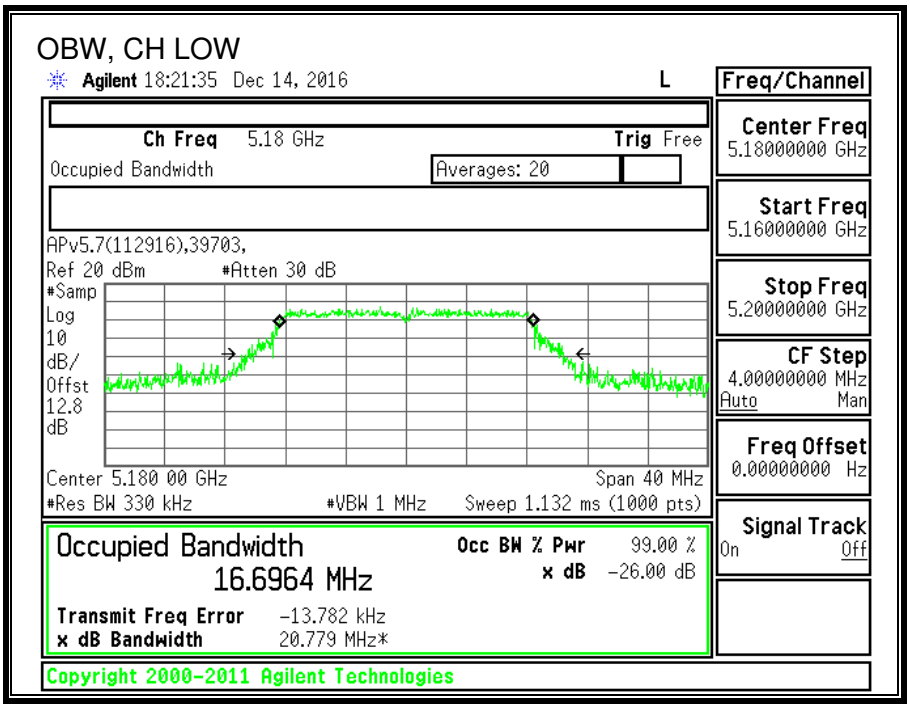
LIMITS

None; for reporting purposes only.

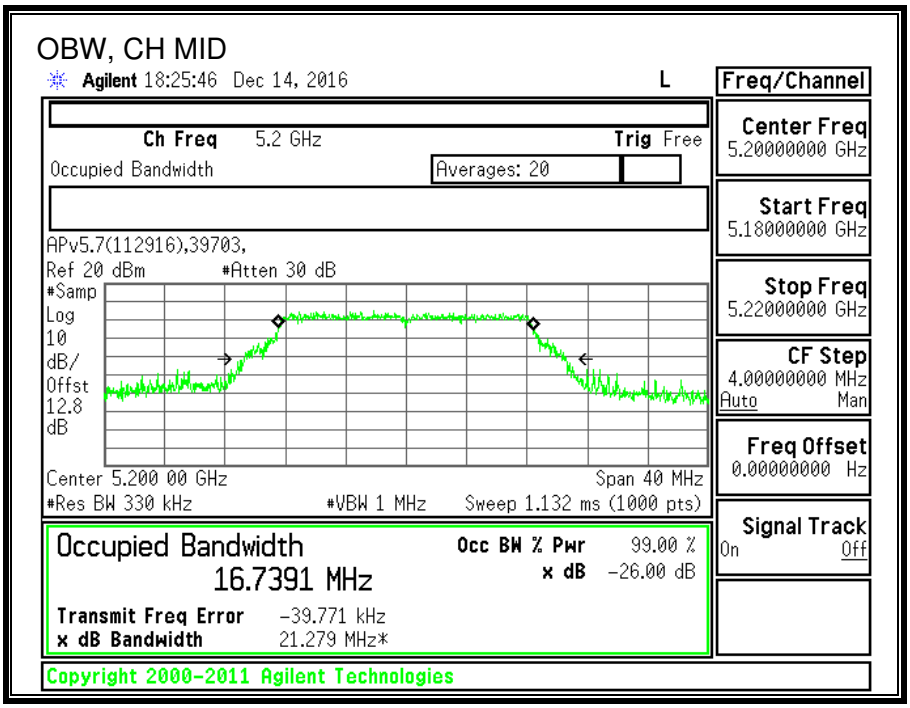
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)
Low	5180	16.6964
Mid	5200	16.7391
High	5240	16.7868

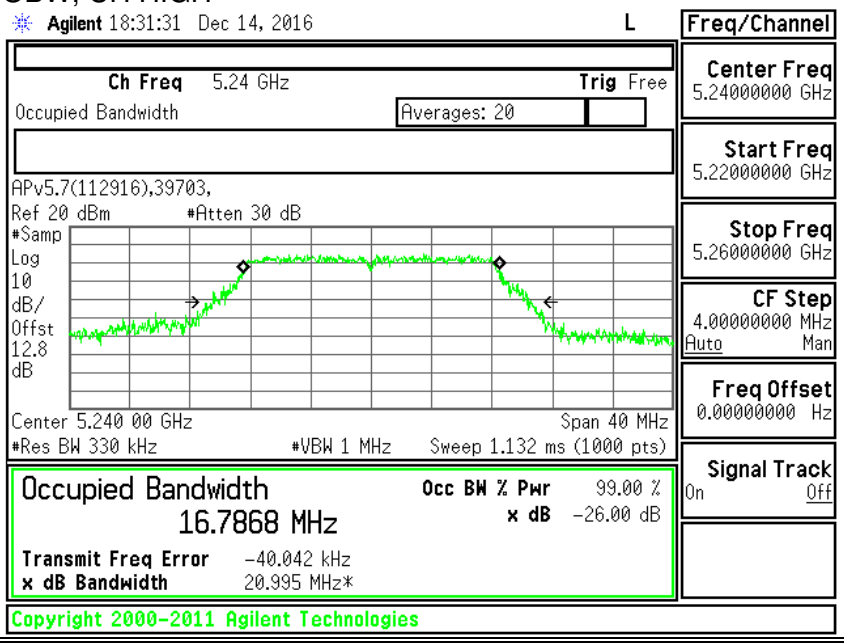
OBW, CH LOW



OBW, CH MID



OBW, CH HIGH



10.1.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

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

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

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

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

IC RSS-247 (6.2.1) (1)

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

TEST PROCEDURE

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

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain; 5.49dBi.

RESULTS

ID:	39703	Date:	12/14/16

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	22.00	16.70	5.49
Mid	5200	21.92	16.73	5.49
High	5240	21.92	16.79	5.49

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	24.00	22.23	16.74	16.74	11.00	10.00	4.51
Mid	5200	24.00	22.24	16.75	16.75	11.00	10.00	4.51
High	5240	24.00	22.25	16.76	16.76	11.00	10.00	4.51

Duty Cycle CF (dB)	0.29	Included in Calculations of Corr'd PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	15.15	15.15	16.74	-1.59
Mid	5200	14.12	14.12	16.75	-2.63
High	5240	14.06	14.06	16.76	-2.70

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	4.071	4.361	4.51	-0.15
Mid	5200	3.035	3.325	4.51	-1.19
High	5240	3.190	3.480	4.51	-1.03

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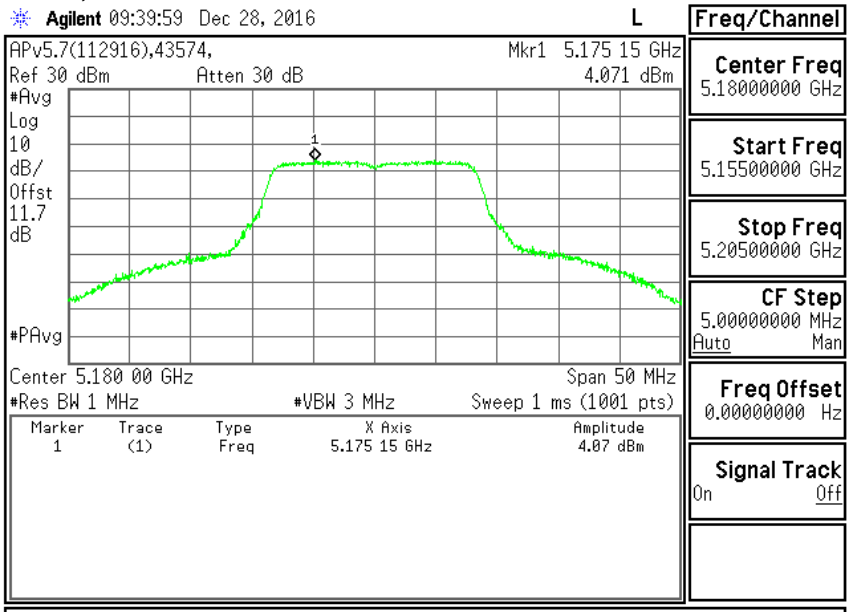
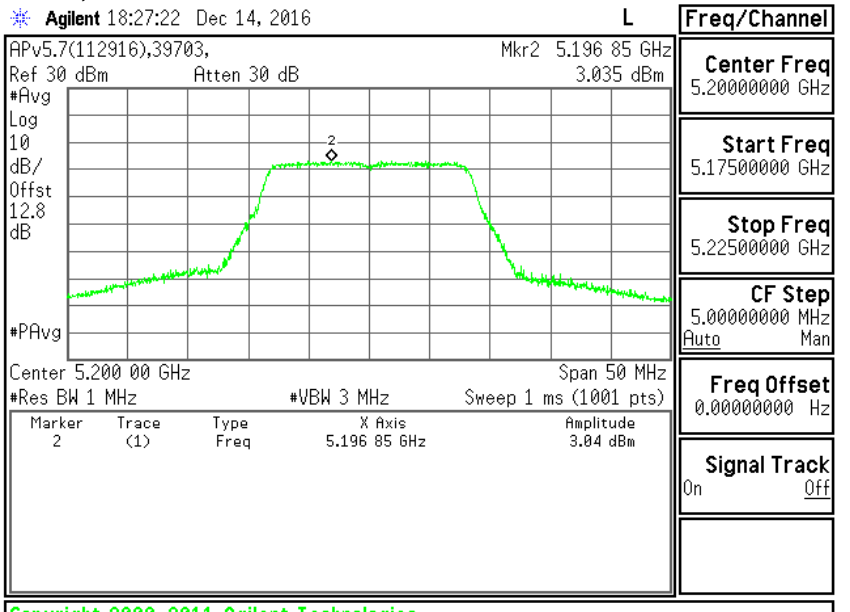
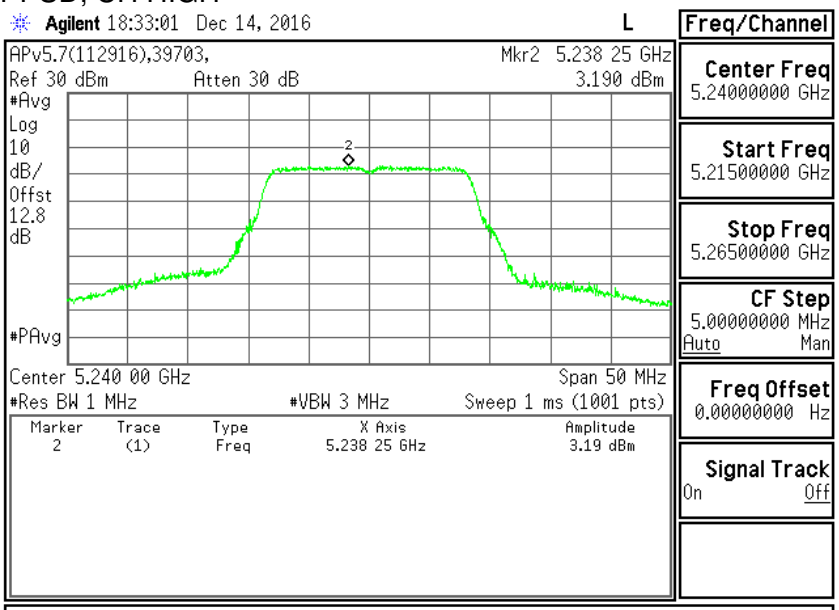
PPSD, CH LOW



PPSD, CH MID



PPSD, CH HIGH



10.2. 11a Chain 1 SISO MODE IN THE 5.2GHz BAND

10.2.1. 26 dB BANDWIDTH

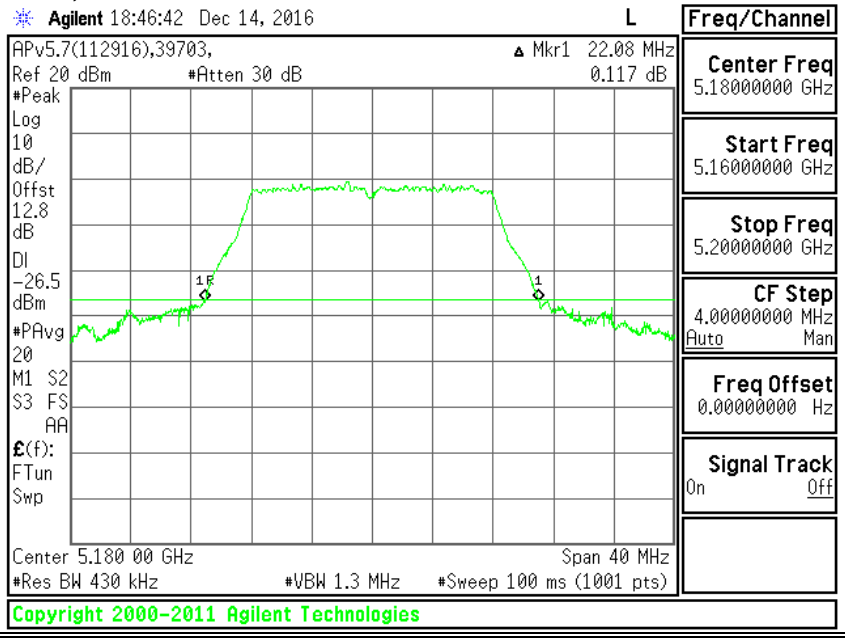
LIMITS

None; for reporting purposes only.

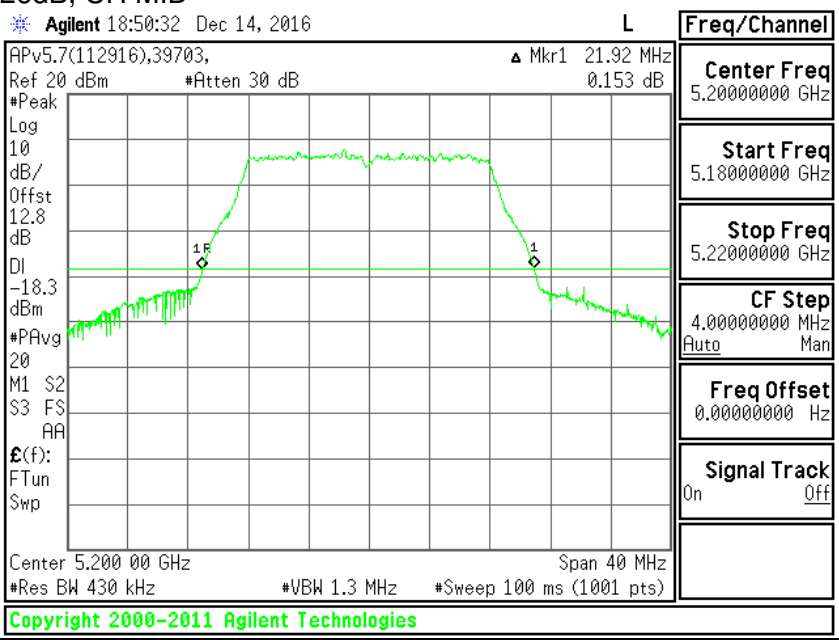
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 1 (MHz)
Low	5180	22.08
Mid	5200	21.92
High	5240	21.96

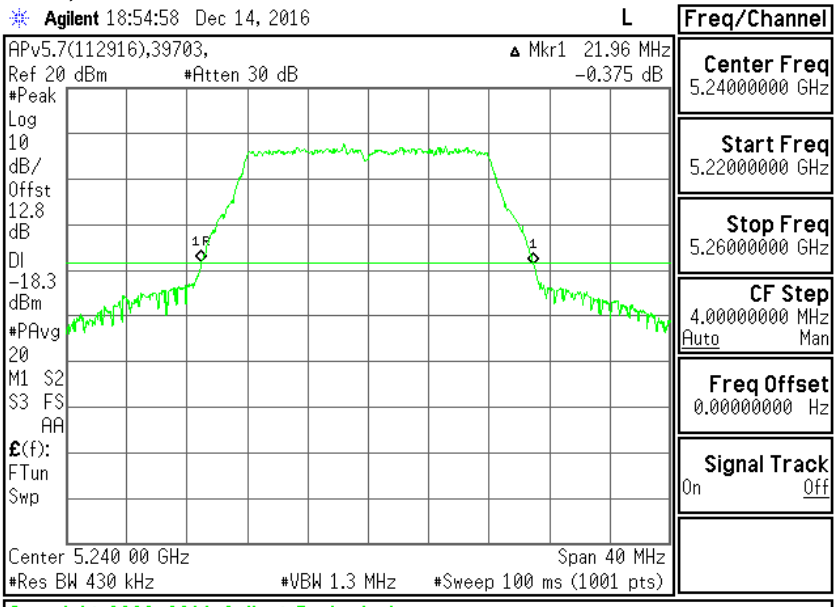
26dB, CH LOW



26dB, CH MID



26dB, CH HIGH



10.2.2. 99% BANDWIDTH

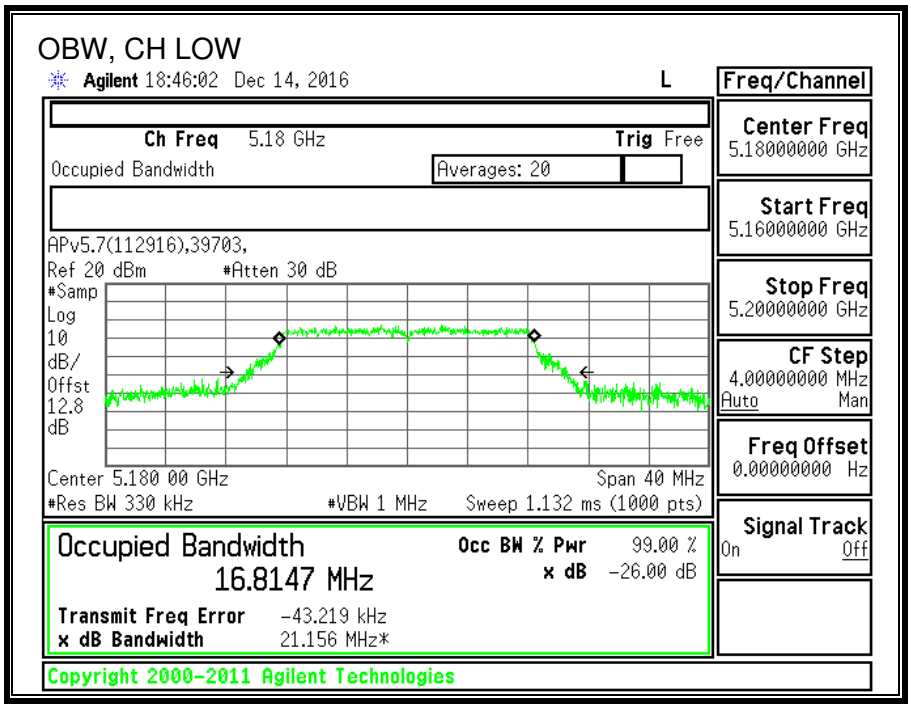
LIMITS

None; for reporting purposes only.

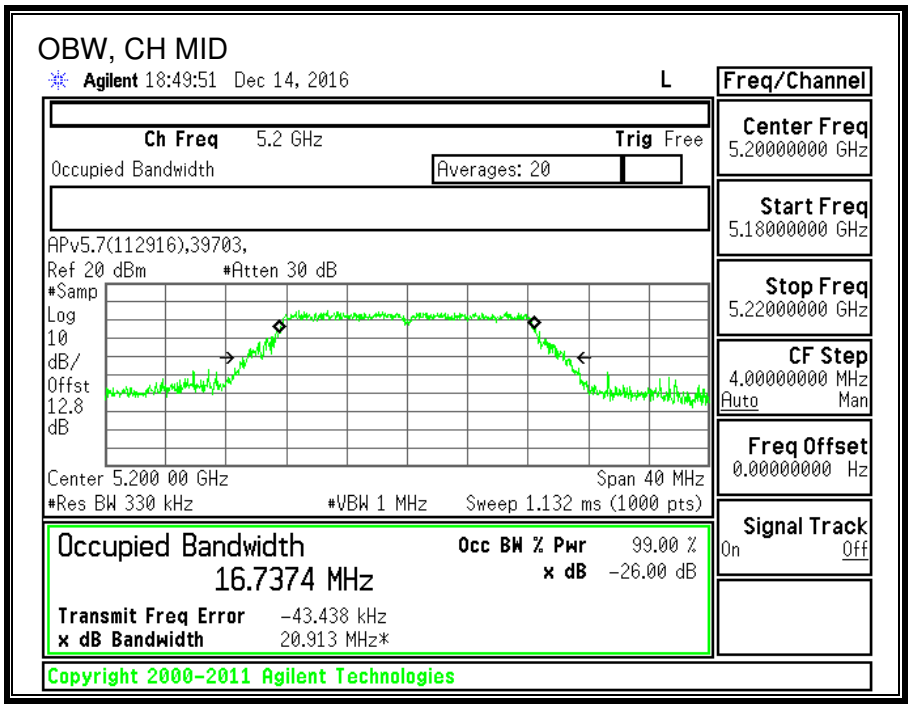
RESULTS

Channel	Frequency (MHz)	99% BW Chain 1 (MHz)
Low	5180	16.8147
Mid	5200	16.7374
High	5240	16.7126

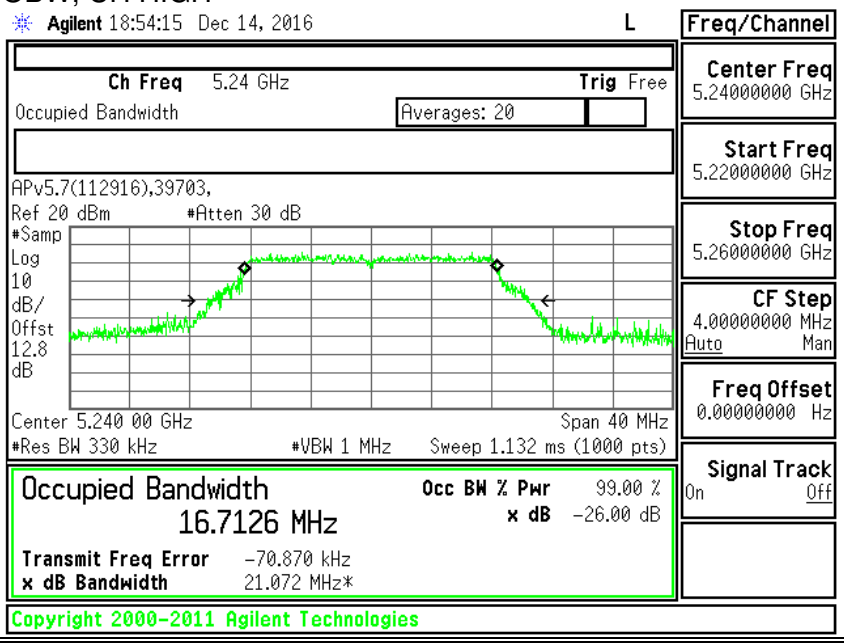
OBW, CH LOW



OBW, CH MID



OBW, CH HIGH



10.2.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

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

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

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

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

IC RSS-247 (6.2.1) (1)

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

TEST PROCEDURE

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

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain; 5.49dBi.

RESULTS

ID:	39703	Date:	12/14/16

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	22.08	16.81	5.49
Mid	5200	21.92	16.74	5.49
High	5240	21.96	16.71	5.49

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	24.00	22.26	16.77	16.77	11.00	10.00	4.51
Mid	5200	24.00	22.24	16.75	16.75	11.00	10.00	4.51
High	5240	24.00	22.23	16.74	16.74	11.00	10.00	4.51

Duty Cycle CF (dB)	0.29	Included in Calculations of Corr'd PPSD

Output Power Results

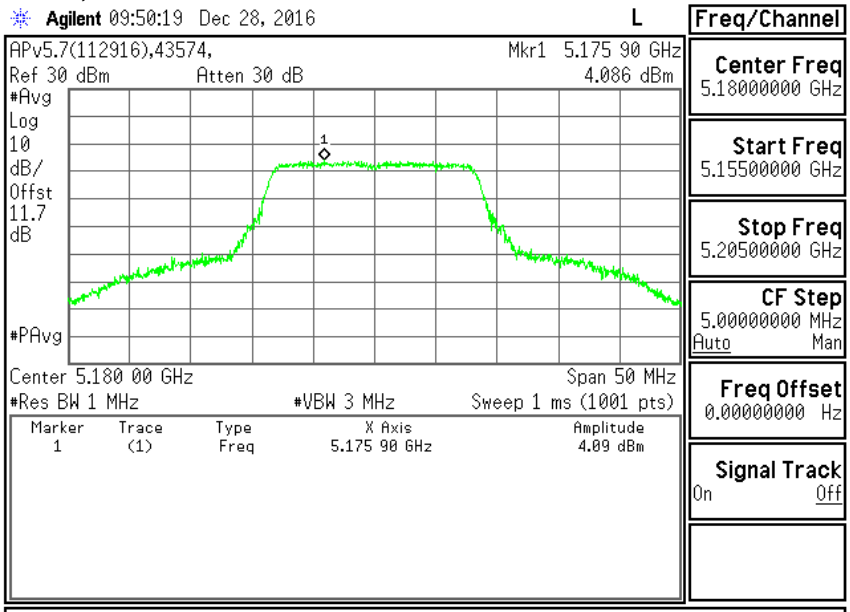
Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	16.01	16.01	16.77	-0.76
Mid	5200	14.43	14.43	16.75	-2.32
High	5240	14.09	14.09	16.74	-2.65

PPSD Results

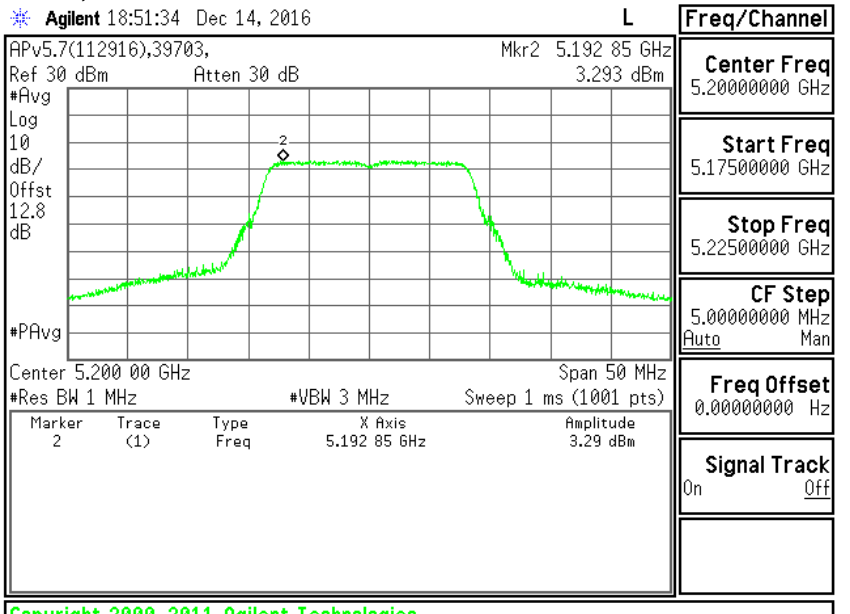
Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	4.086	4.376	4.51	-0.13
Mid	5200	3.293	3.583	4.51	-0.93
High	5240	3.263	3.553	4.51	-0.96

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701J
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

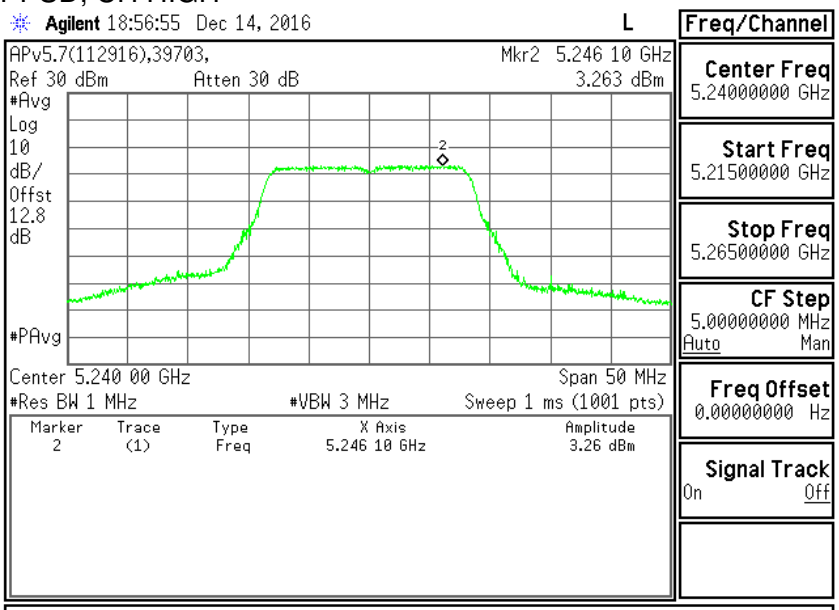
PPSD, CH LOW



PPSD, CH MID



PPSD, CH HIGH



10.3. 11n HT20 2TX CDD MIMO MODE IN THE 5.2GHz BAND

10.3.1. 26 dB BANDWIDTH

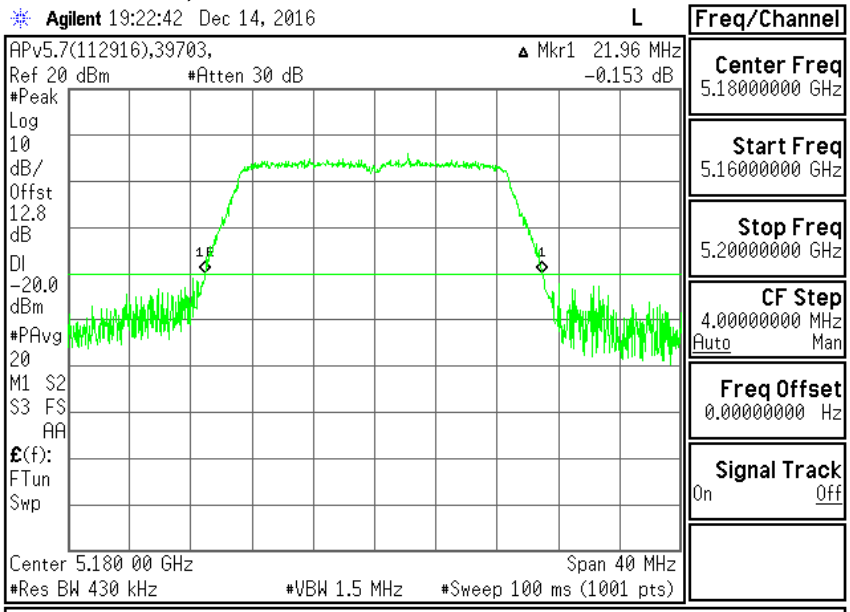
LIMITS

None; for reporting purposes only.

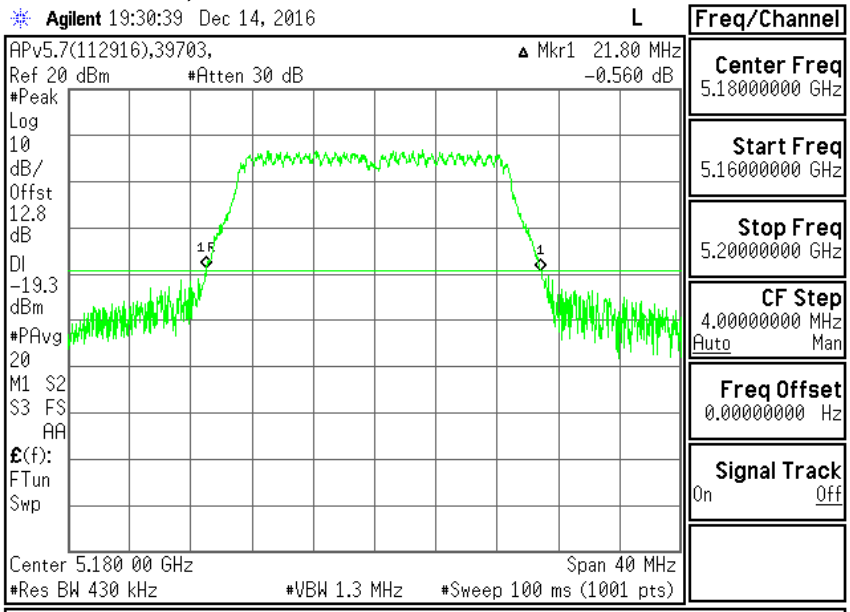
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5180	21.96	21.80
Mid	5200	22.16	21.88
High	5240	22.20	21.76

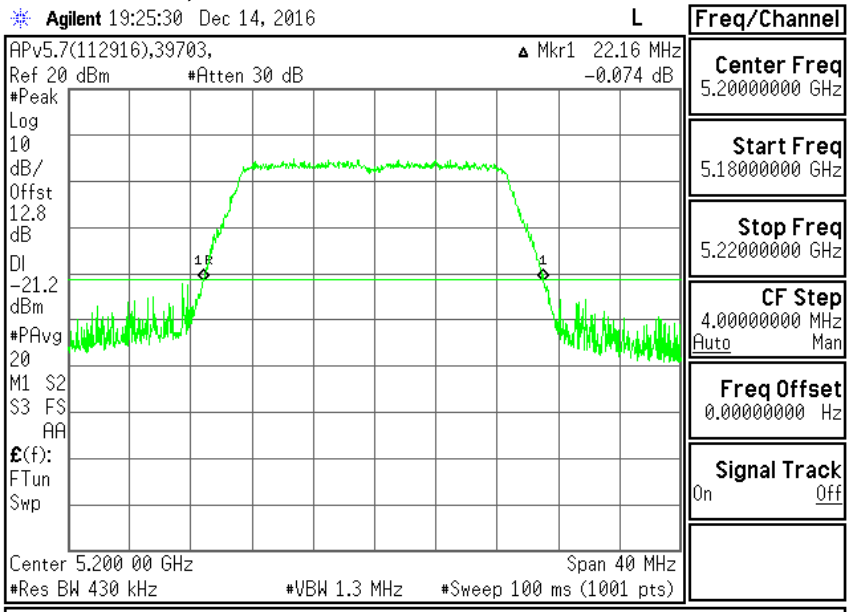
Chain 0 26dB , CH LOW



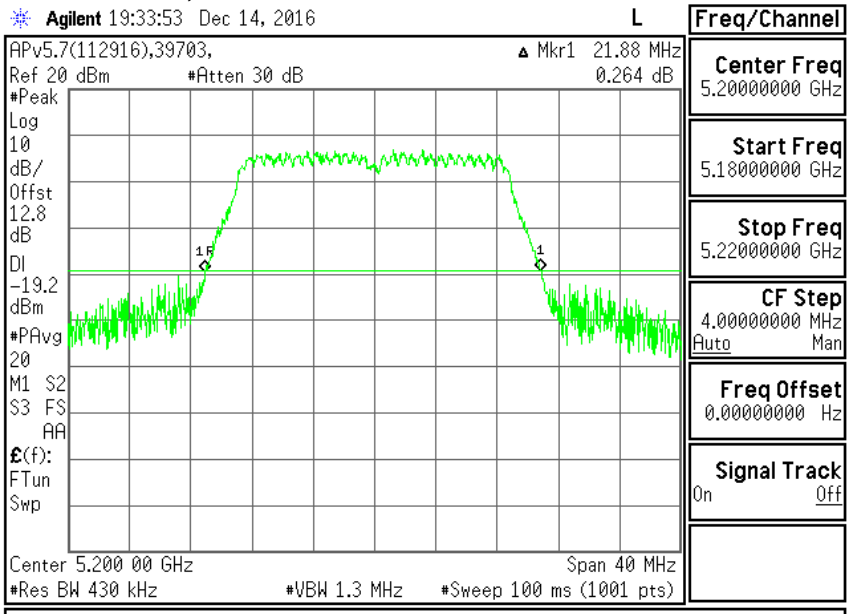
Chain 1 26dB , CH LOW



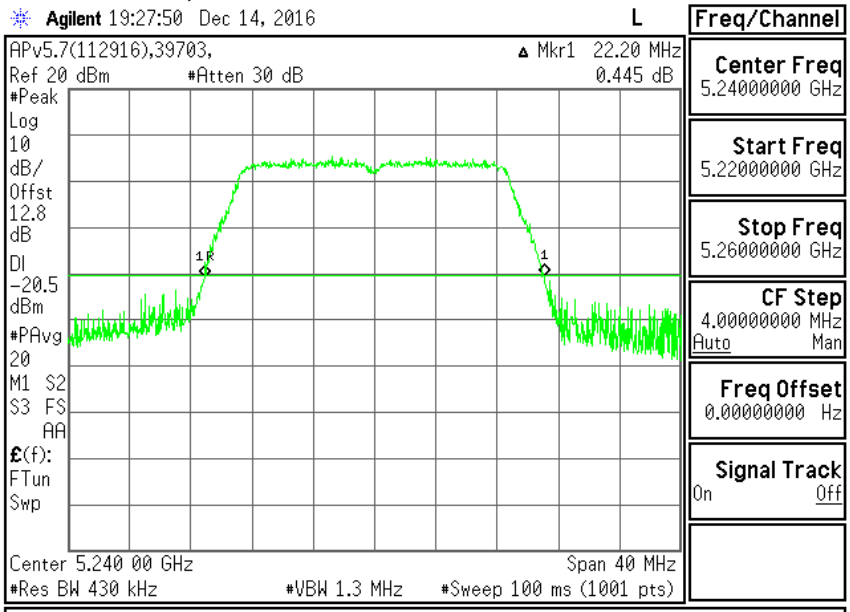
Chain 0 26dB , CH MID



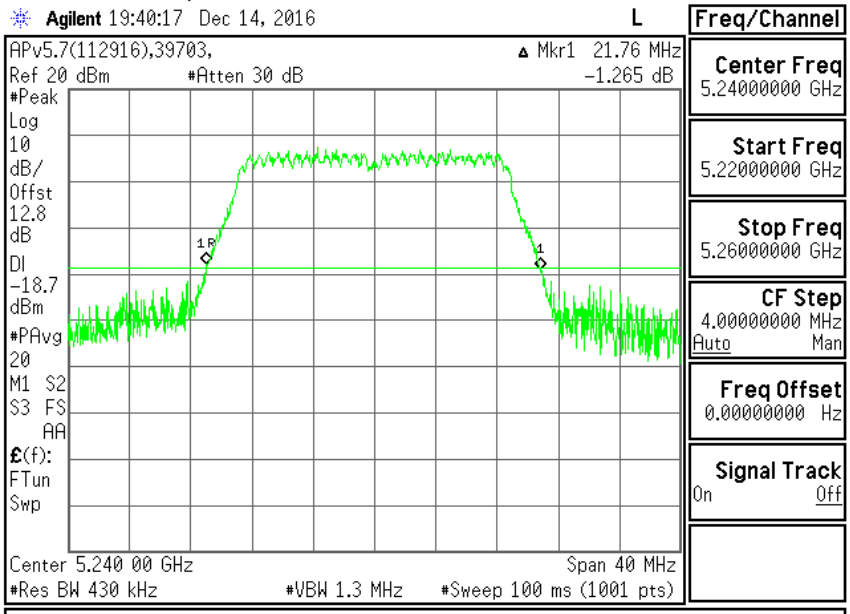
Chain 1 26dB , CH MID



Chain 0 26dB , CH HIGH



Chain 1 26dB , CH HIGH



10.3.2. 99% BANDWIDTH

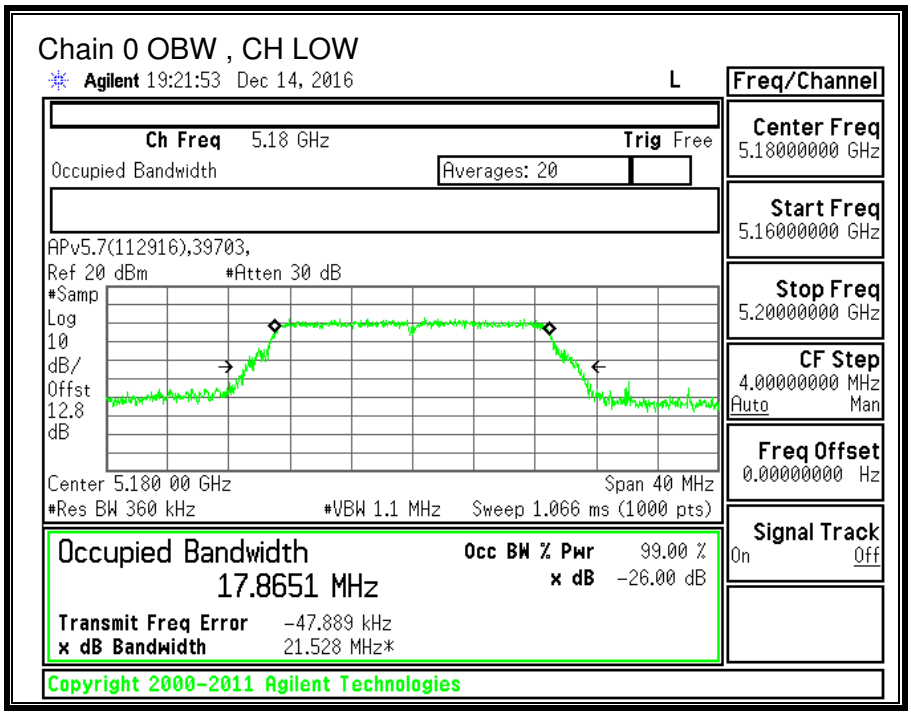
LIMITS

None; for reporting purposes only.

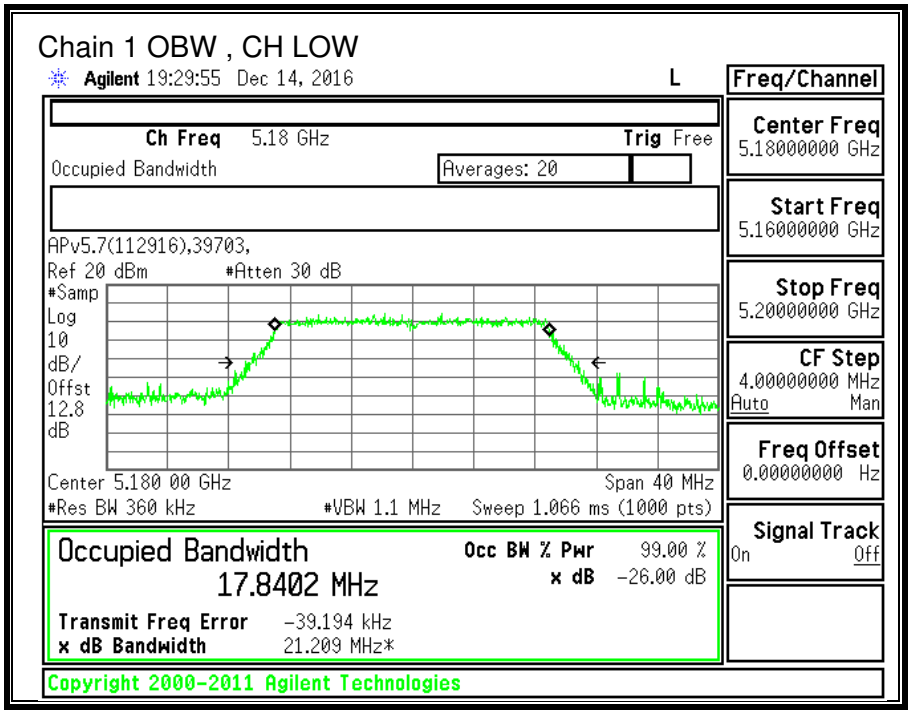
RESULTS

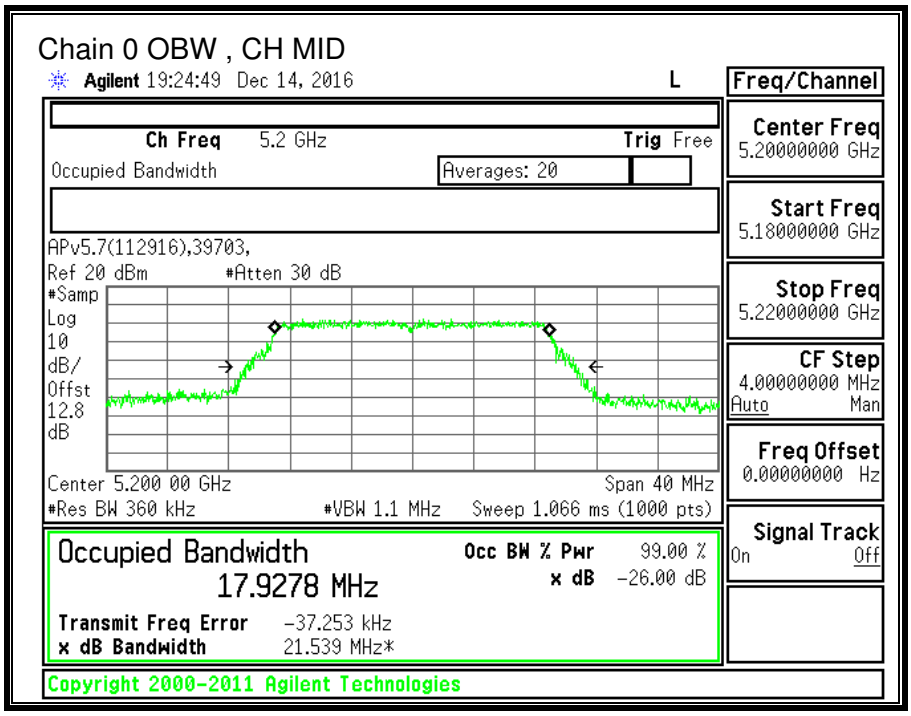
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5180	17.8651	17.8402
Mid	5200	17.9278	17.8317
High	5240	17.8478	17.8416

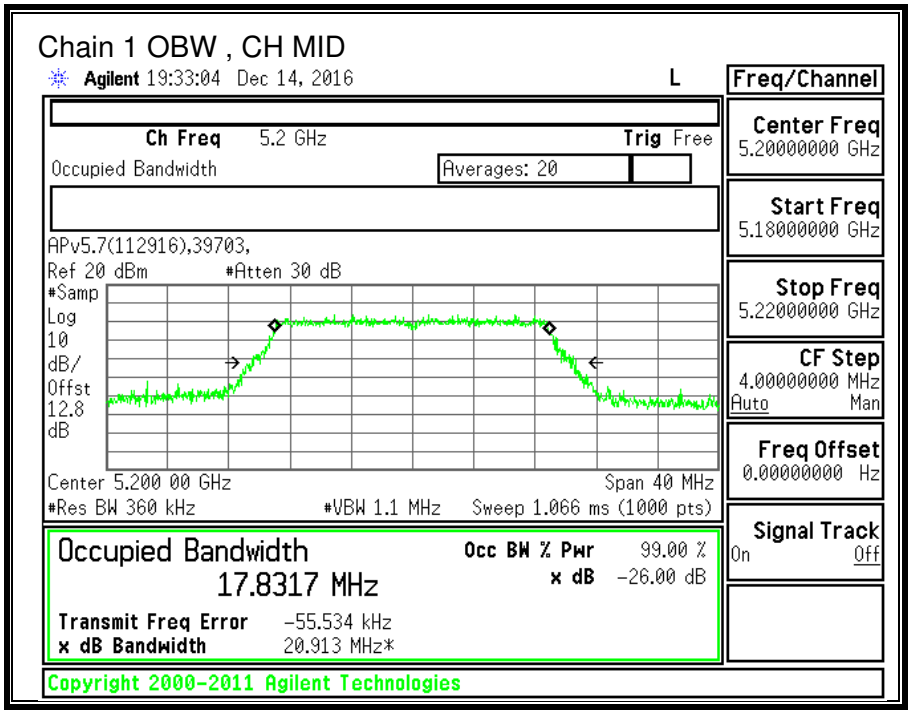
Chain 0 OBW , CH LOW



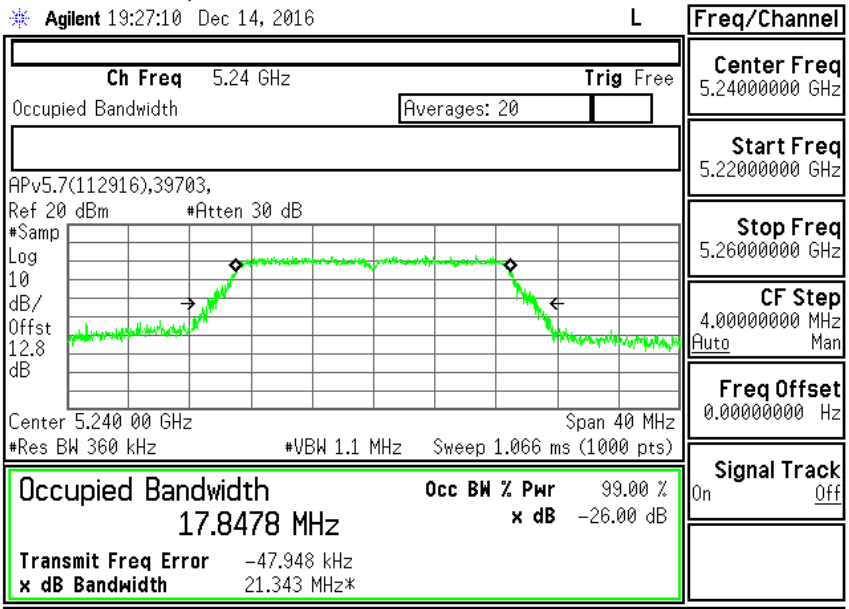
Chain 1 OBW , CH LOW



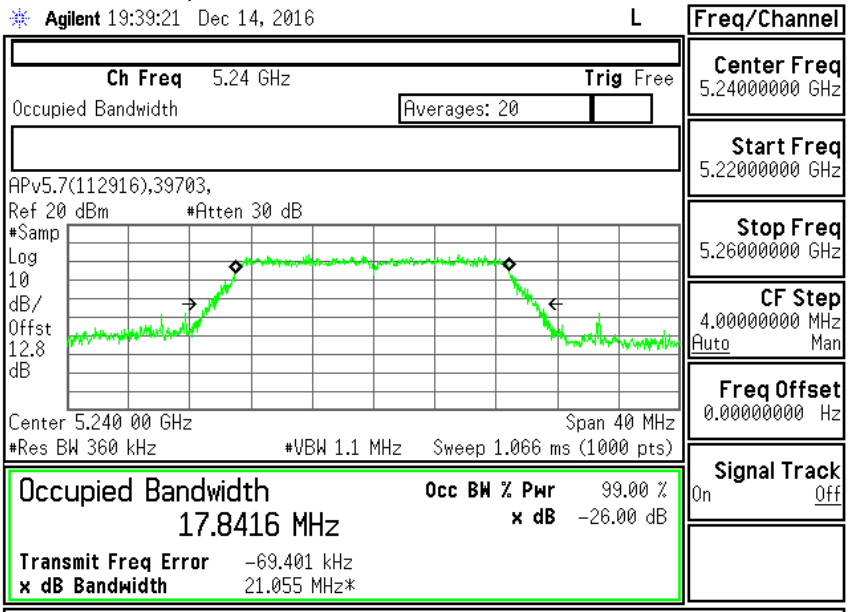




Chain 0 OBW , CH HIGH



Chain 1 OBW , CH HIGH



10.3.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

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

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

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

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

IC RSS-247 (6.2.1) (1)

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

TEST PROCEDURE

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

DIRECTIONAL ANTENNA GAIN

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

5180-5240 MHz

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
5.49	5.49	5.49

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

5180-5240 MHz

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
5.49	3.01	8.50

RESULTS

ID:	39703	Date:	12/14/16

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5180	21.800	17.8402	5.49	8.50
Mid	5200	21.880	17.8317	5.49	8.50
High	5240	21.760	17.8416	5.49	8.50

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	24.00	22.51	17.02	17.02	8.50	10.00	1.50
Mid	5200	24.00	22.51	17.02	17.02	8.50	10.00	1.50
High	5240	24.00	22.51	17.02	17.02	8.50	10.00	1.50

Duty Cycle CF (dB)	0.31	Included in Calculations of Corr'd PPSD

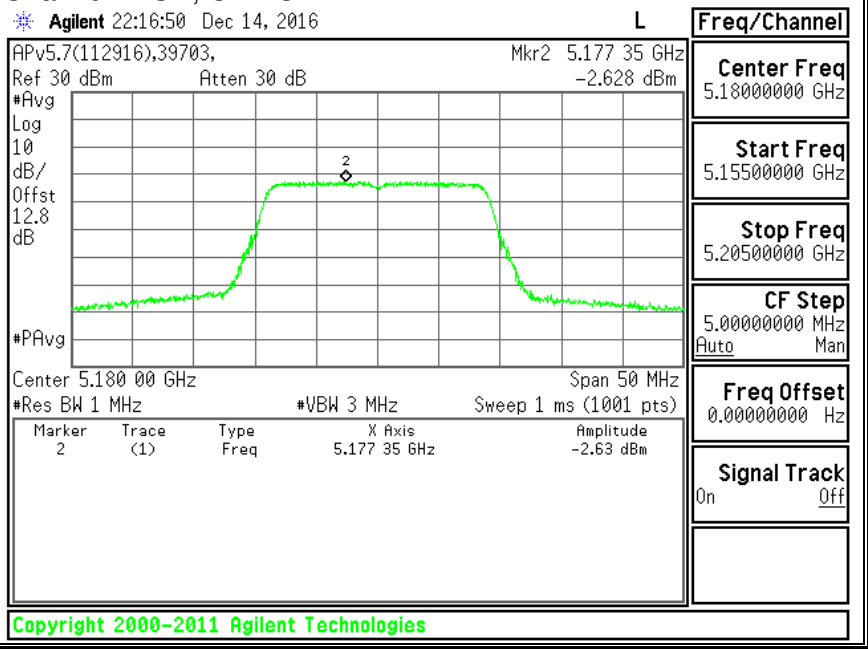
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	8.69	9.01	11.86	17.02	-5.16
Mid	5200	8.91	9.20	12.07	17.02	-4.95
High	5240	9.17	9.12	12.16	17.02	-4.87

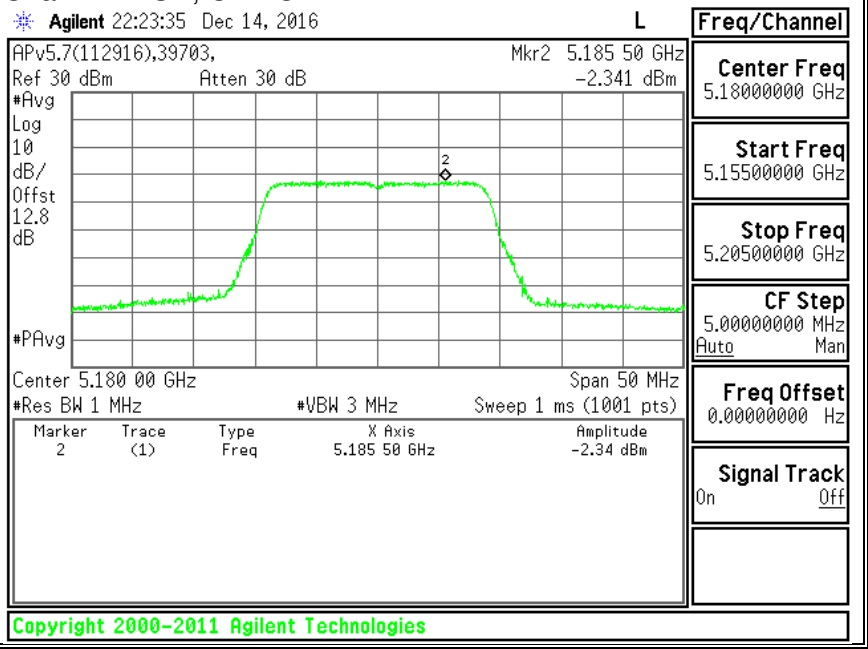
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	-2.628	-2.341	0.84	1.50	-0.66
Mid	5200	-2.344	-2.342	0.98	1.50	-0.52
High	5240	-2.424	-2.123	1.05	1.50	-0.45

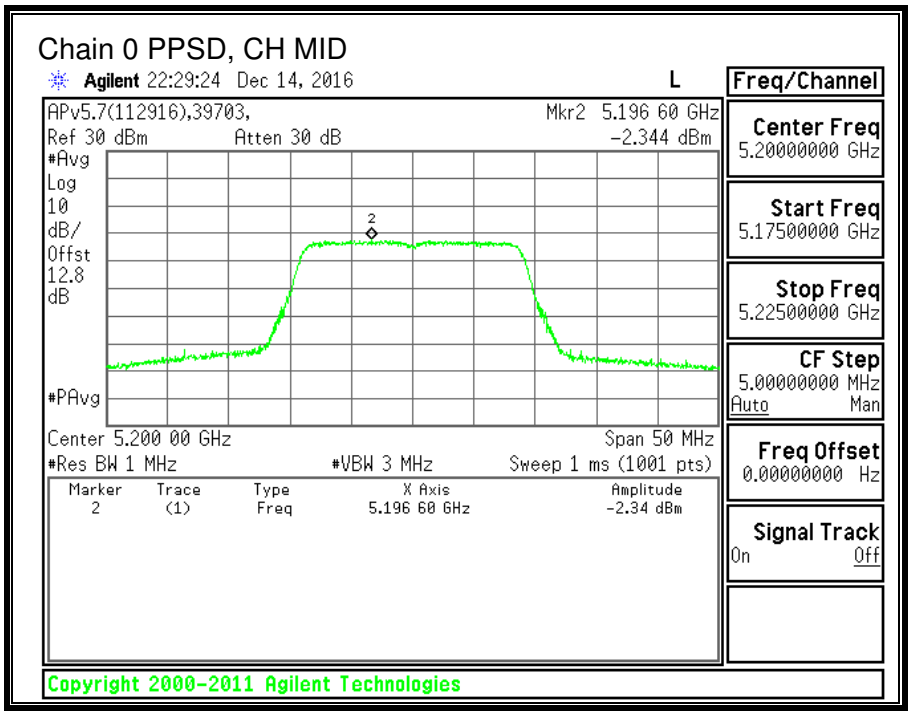
Chain 0 PPSD, CH LOW



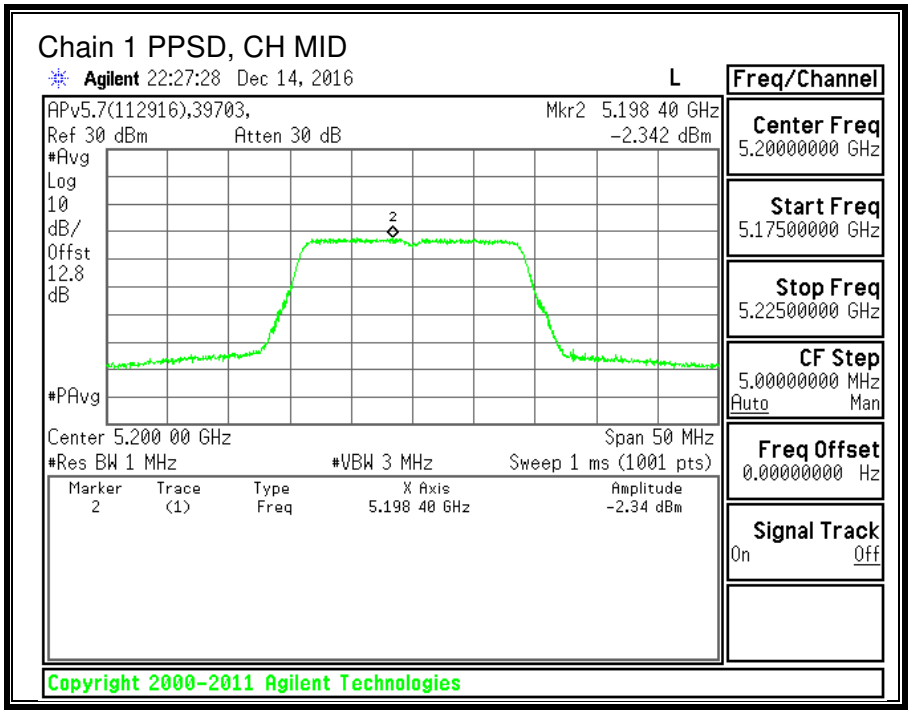
Chain 1 PPSD, CH LOW



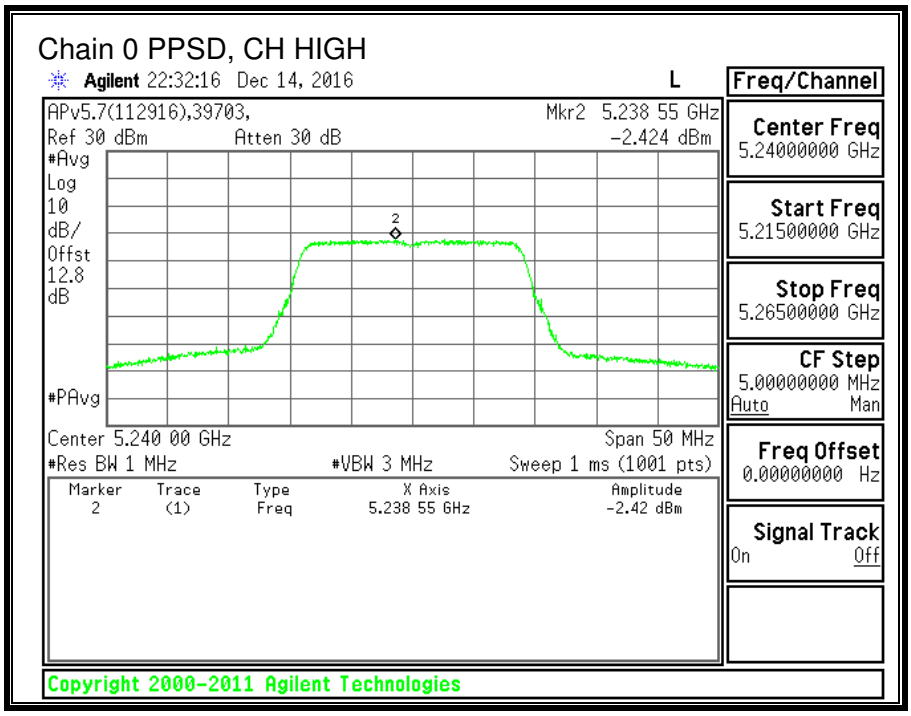
Chain 0 PPSD, CH MID



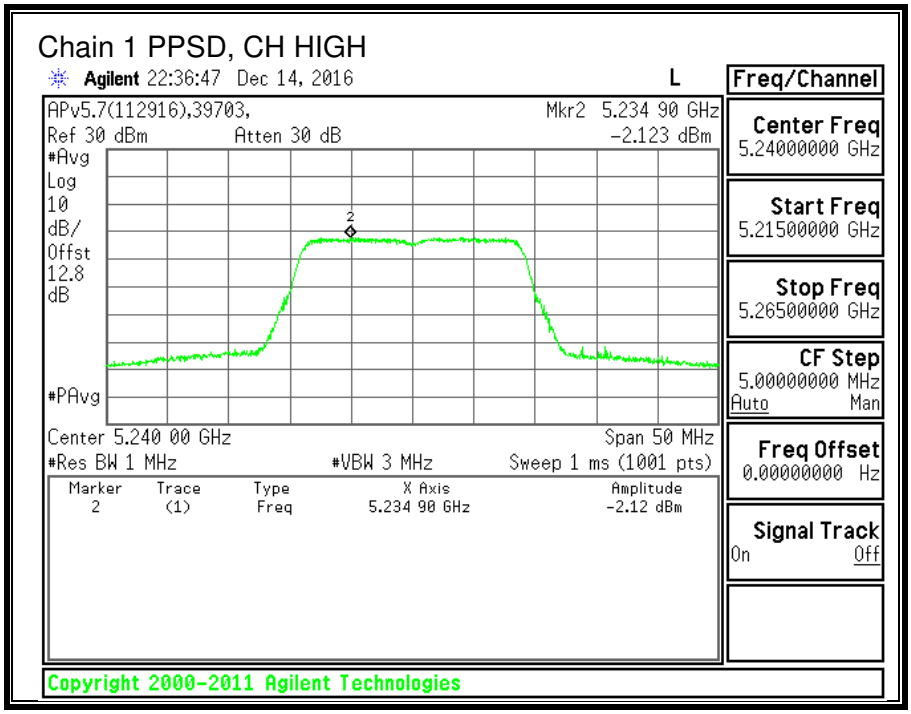
Chain 1 PPSD, CH MID



Chain 0 PPSD, CH HIGH



Chain 1 PPSD, CH HIGH



10.4. 11n HT40 2TX CDD MIMO MODE IN THE 5.2GHz BAND

10.4.1. 26 dB BANDWIDTH

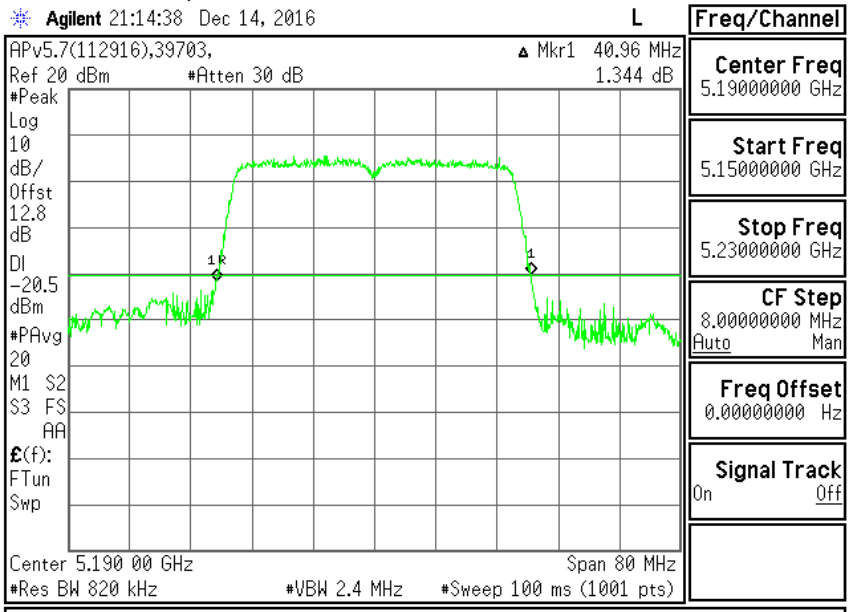
LIMITS

None; for reporting purposes only.

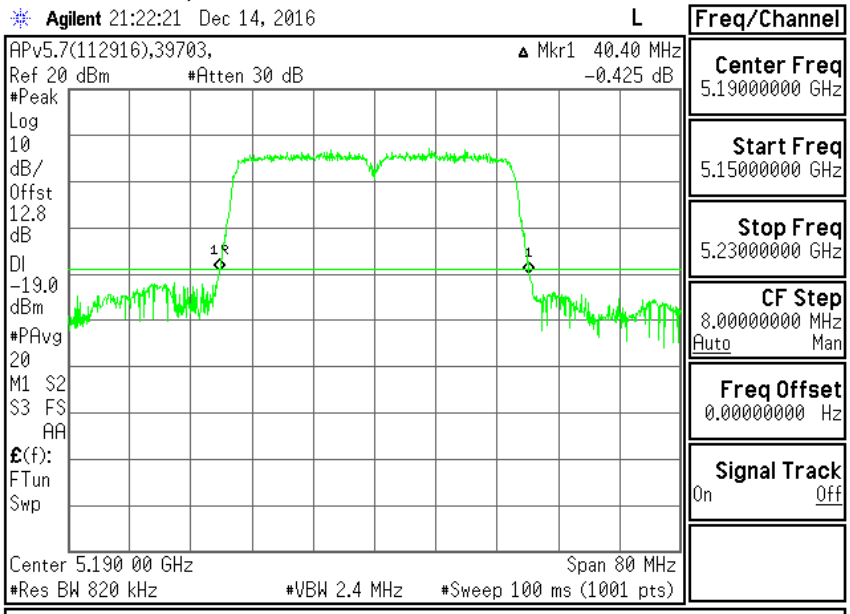
RESULTS

Channel	Frequency	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5190	40.96	40.40
High	5230	40.96	40.56

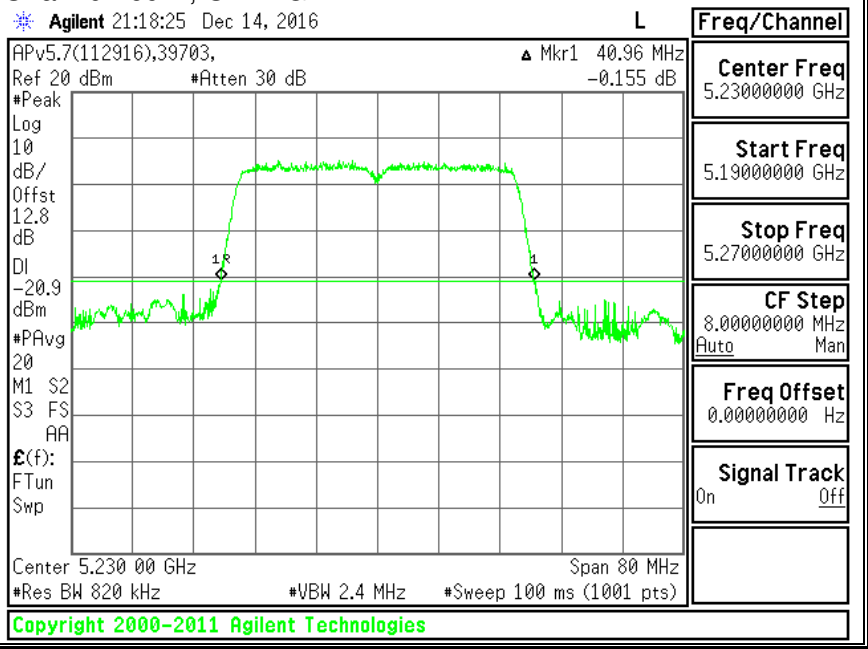
Chain 0 26dB , CH LOW



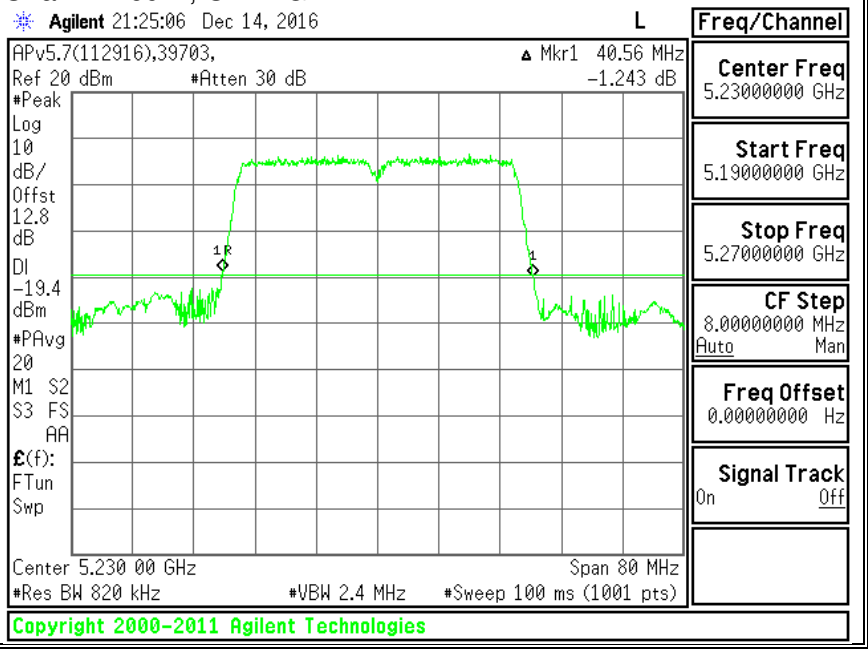
Chain 1 26dB , CH LOW



Chain 0 26dB , CH HIGH



Chain 1 26dB , CH HIGH



10.4.2. 99% BANDWIDTH

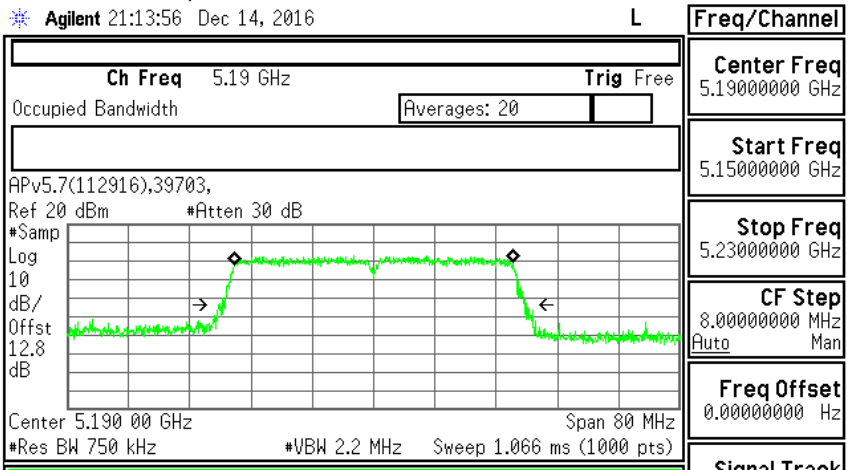
LIMITS

None; for reporting purposes only.

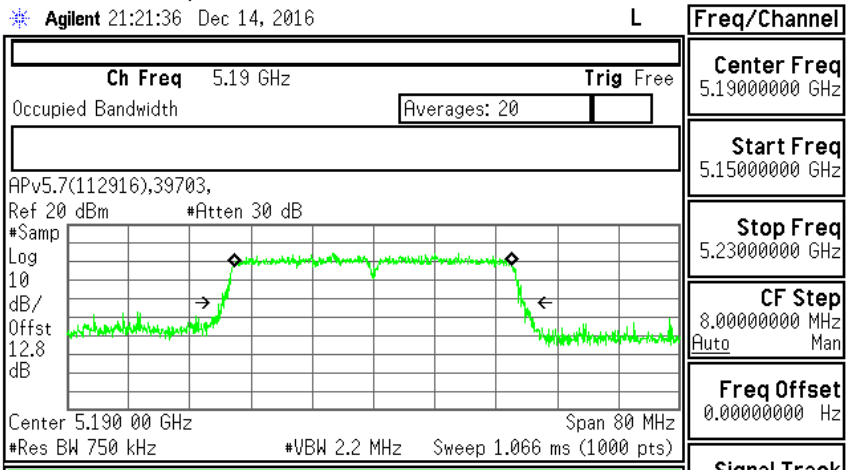
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5190	36.3253	36.0138
High	5230	36.3337	35.9759

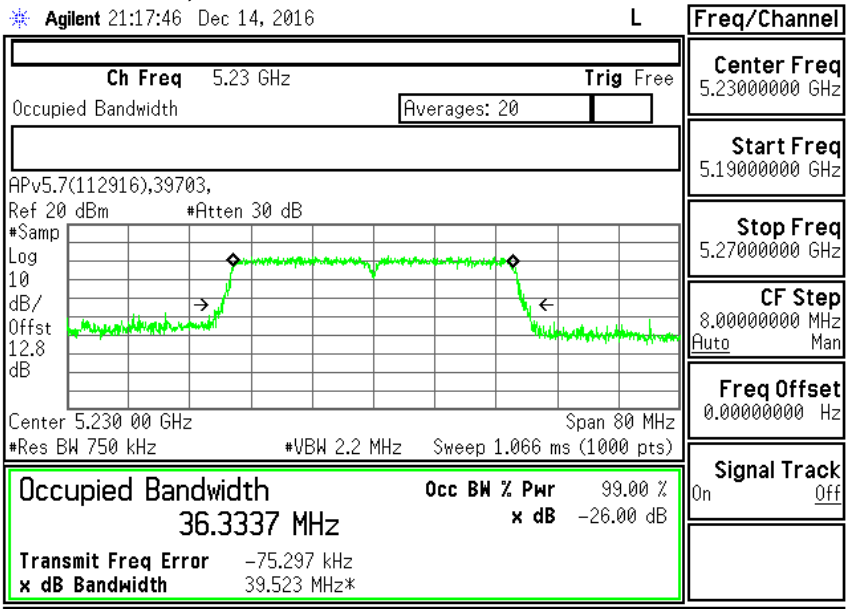
Chain 0 OBW , CH LOW



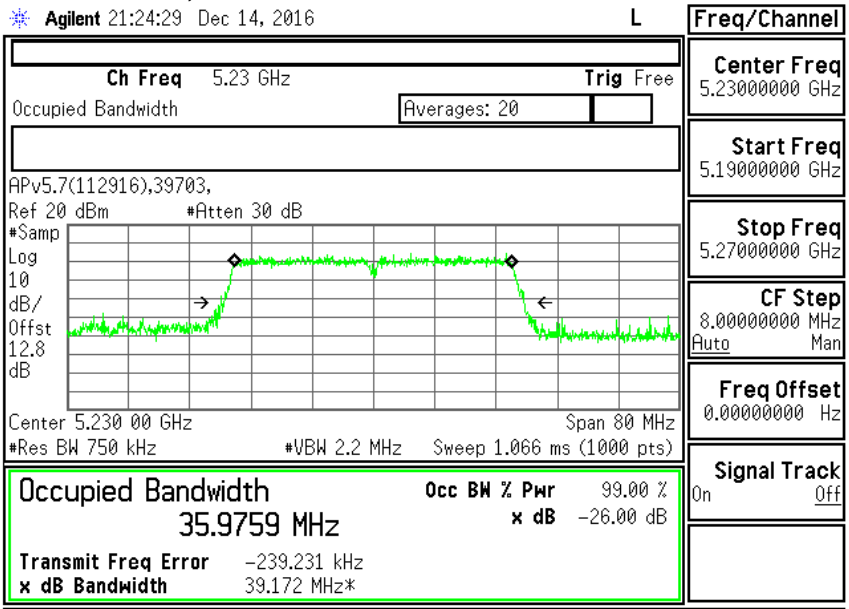
Chain 1 OBW , CH LOW



Chain 0 OBW , CH HIGH



Chain 1 OBW , CH HIGH



10.4.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

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

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

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

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

IC RSS-247 (6.2.1) (1)

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

TEST PROCEDURE

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

DIRECTIONAL ANTENNA GAIN

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

5180-5240 MHz

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
5.49	5.49	5.49

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

5180-5240 MHz

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
5.49	3.01	8.50

RESULTS

ID:	39703	Date:	12/16/16

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5190	40.960	36.014	5.49	8.50
High	5230	40.400	35.976	5.49	8.50

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5190	24.00	23.00	17.51	17.51	8.50	10.00	1.50
High	5230	24.00	23.00	17.51	17.51	8.50	10.00	1.50

Duty Cycle CF (dB)	0.62	Included in Calculations of Corr'd PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	9.97	10.52	13.26	17.51	-4.25
High	5230	11.24	11.34	14.30	17.51	-3.21

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5190	-4.639	-4.087	-0.72	1.50	-2.22
High	5230	-3.043	-2.826	0.70	1.50	-0.80

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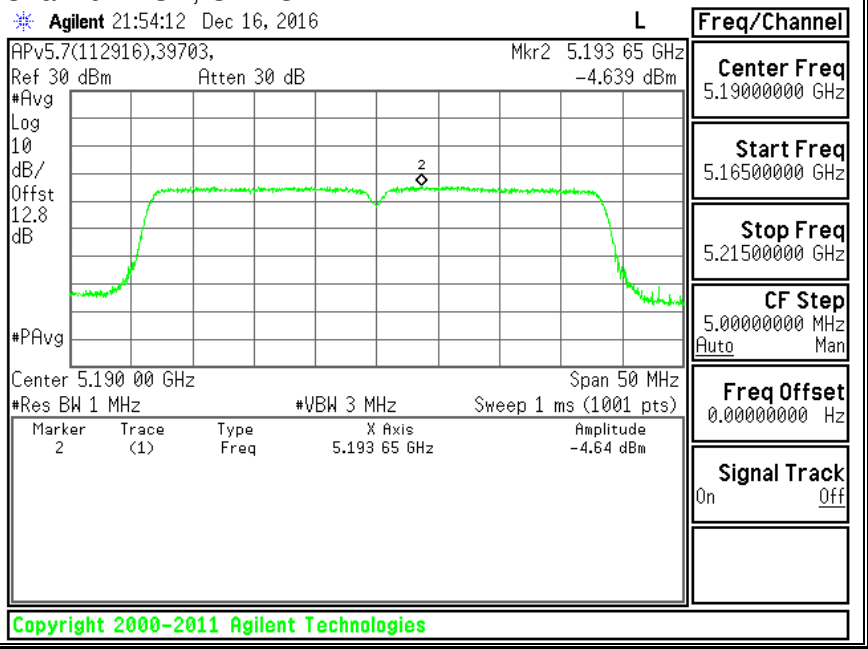
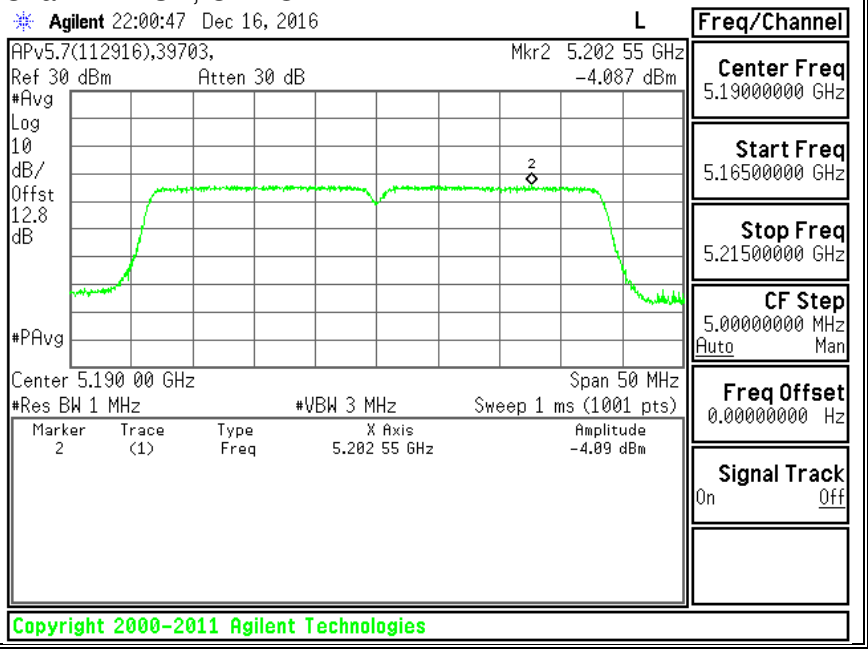
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

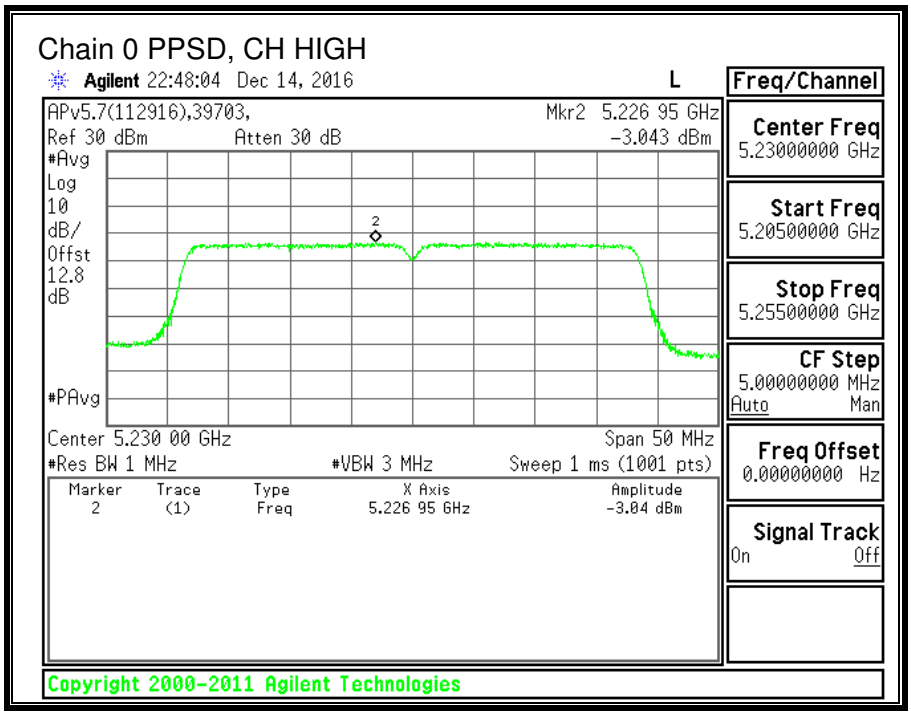
Chain 0 PPSD, CH LOW



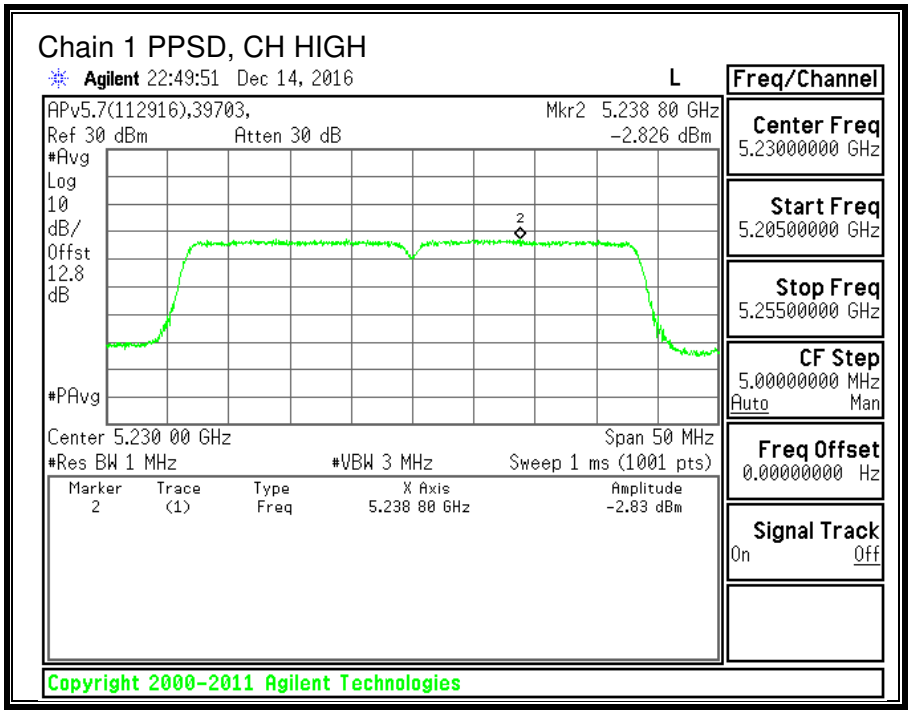
Chain 1 PPSD, CH LOW



Chain 0 PPSD, CH HIGH



Chain 1 PPSD, CH HIGH



10.5. 11ac HT80 2TX CDD MIMO MODE IN THE 5.2GHz BAND

10.5.1. 26 dB BANDWIDTH

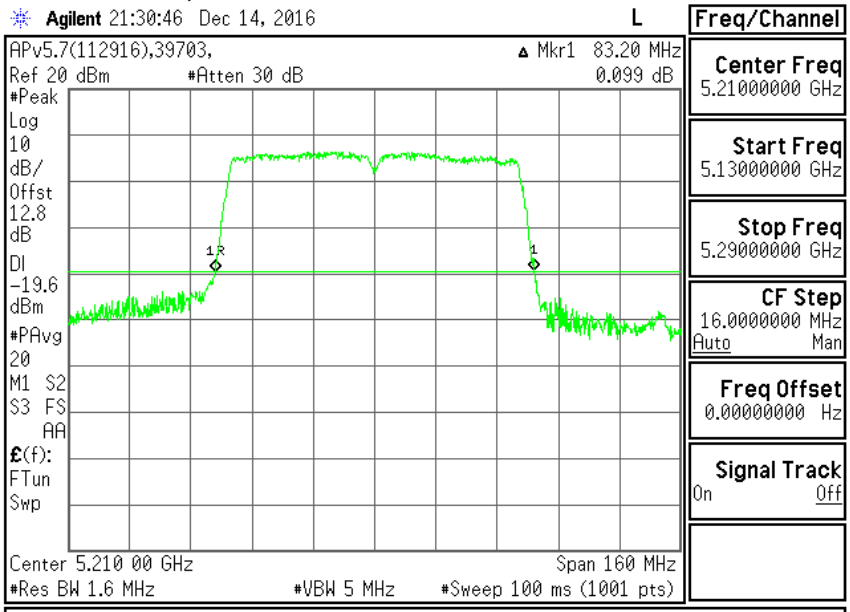
LIMITS

None; for reporting purposes only.

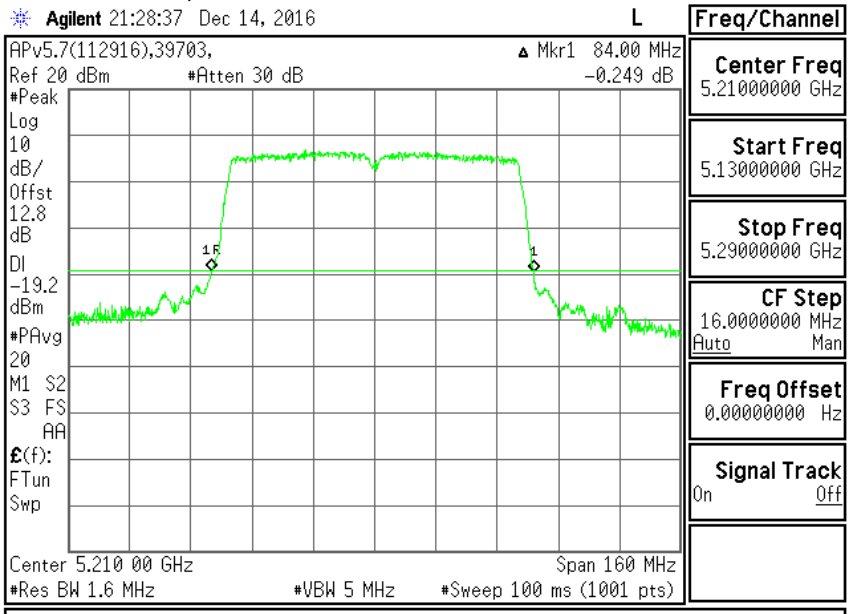
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Mid	5210	83.20	84.00

Chain 0 26dB , CH MID



Chain 1 26dB , CH MID



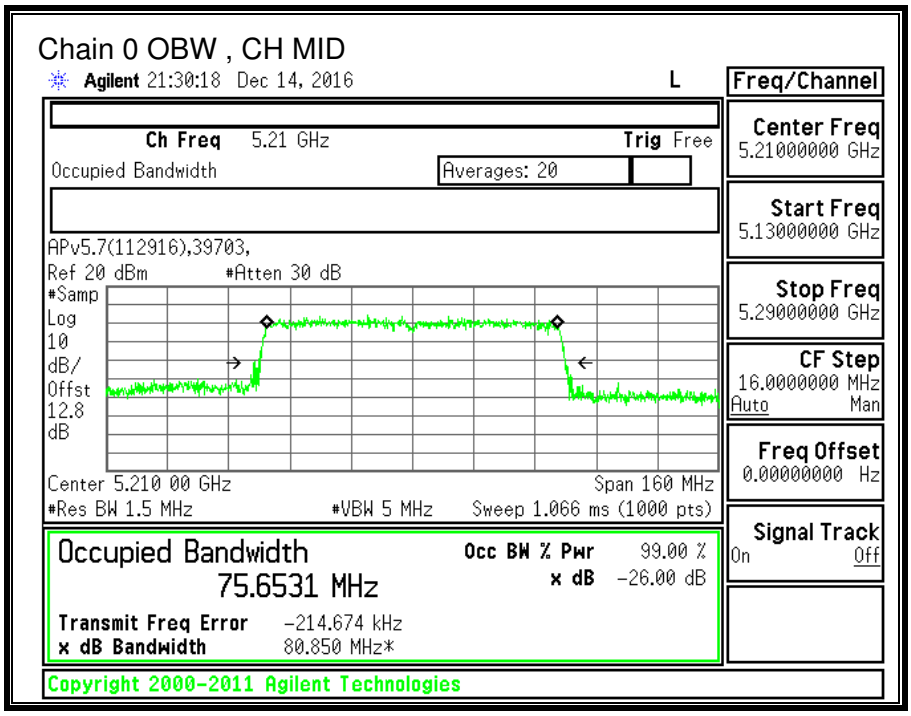
10.5.2. 99% BANDWIDTH

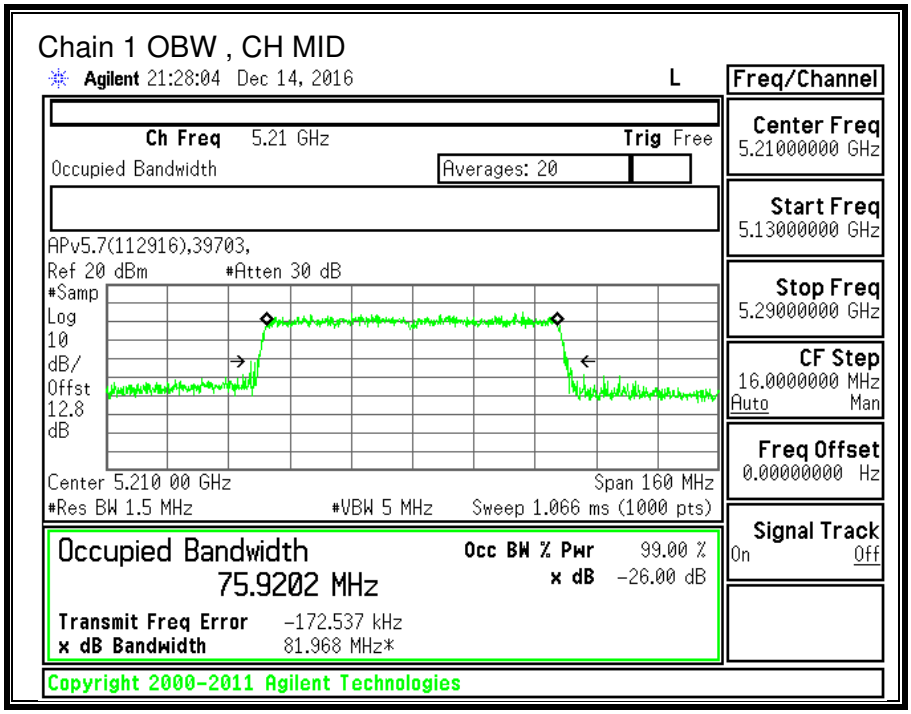
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Mid	5210	75.6531	75.9202





10.5.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

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

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

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

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

IC RSS-247 (6.2.1) (1)

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

TEST PROCEDURE

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

DIRECTIONAL ANTENNA GAIN

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

5180-5240 MHz

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
5.49	5.49	5.49

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

5180-5240 MHz

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
5.49	3.01	8.50

RESULTS

ID:	39703	Date:	12/16/16

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5210	83.200	75.653	5.49	8.50

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5210	24.00	23.00	17.51	17.51	8.50	10.00	1.50

Duty Cycle CF (dB)	1.84	Included in Calculations of Corr'd PPSD

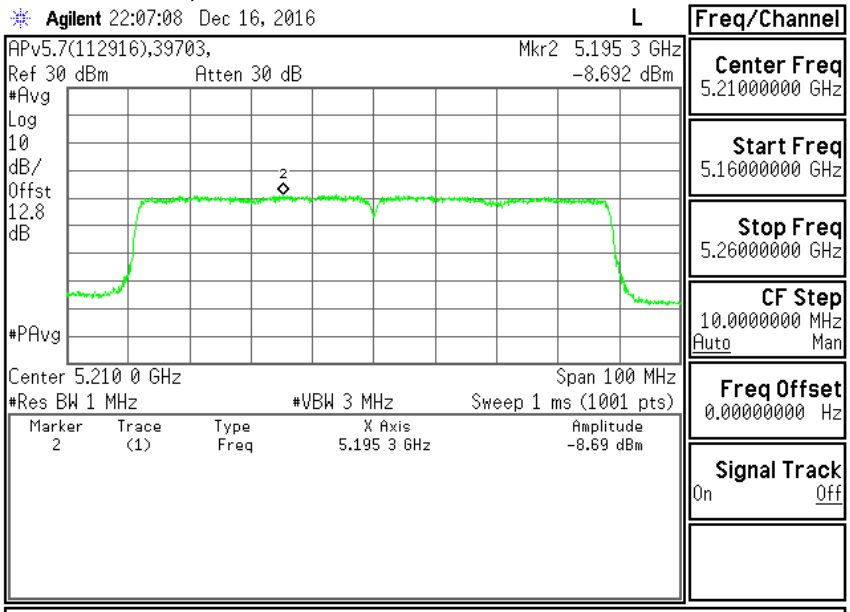
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5210	11.27	11.36	14.33	17.51	-3.18

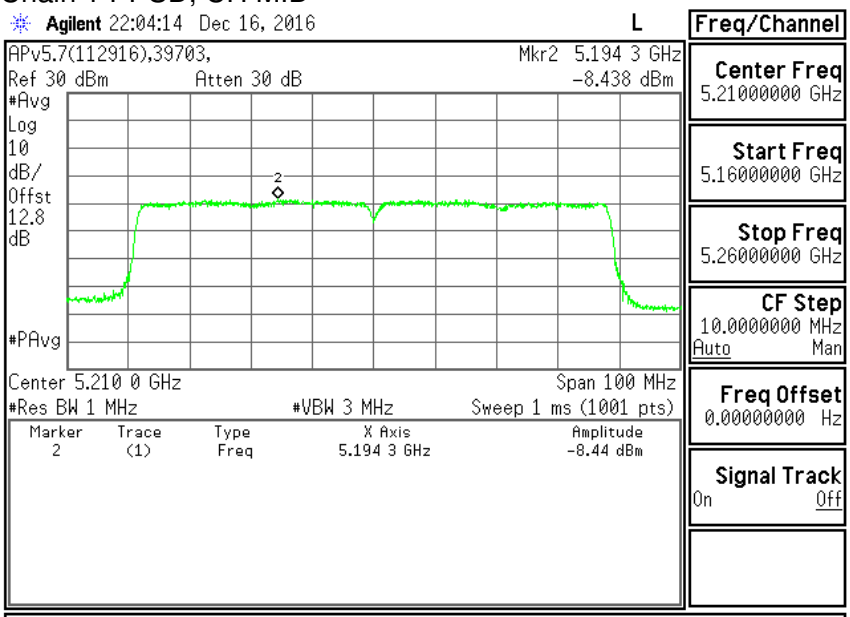
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5210	-8.692	-8.438	-3.71	1.50	-5.21

Chain 0 PPSD, CH MID



Chain 1 PPSD, CH MID



10.6. 11a Chain 0 SISO MODE IN THE 5.3GHz BAND

10.6.1. 26 dB BANDWIDTH

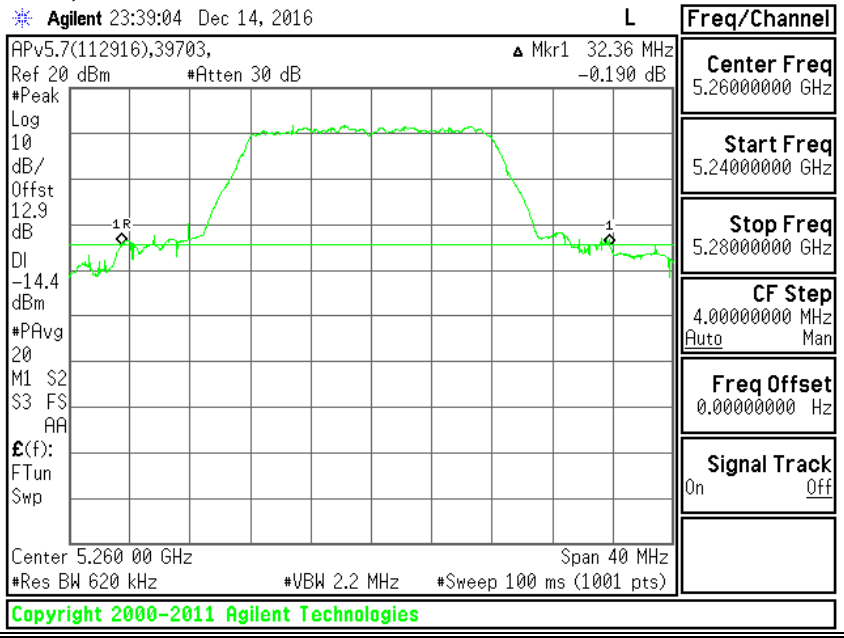
LIMITS

None; for reporting purposes only.

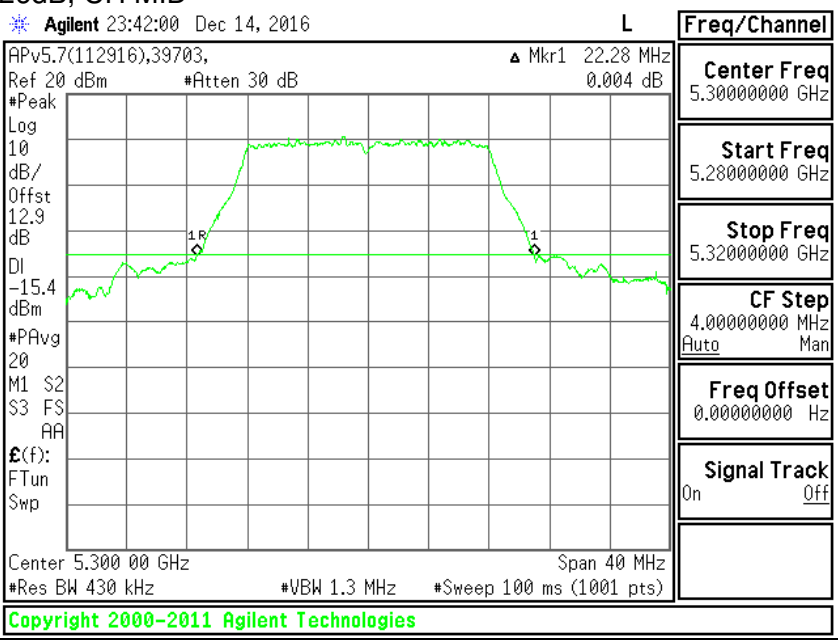
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)
Low	5260	32.36
Mid	5300	22.28
High	5320	22.28

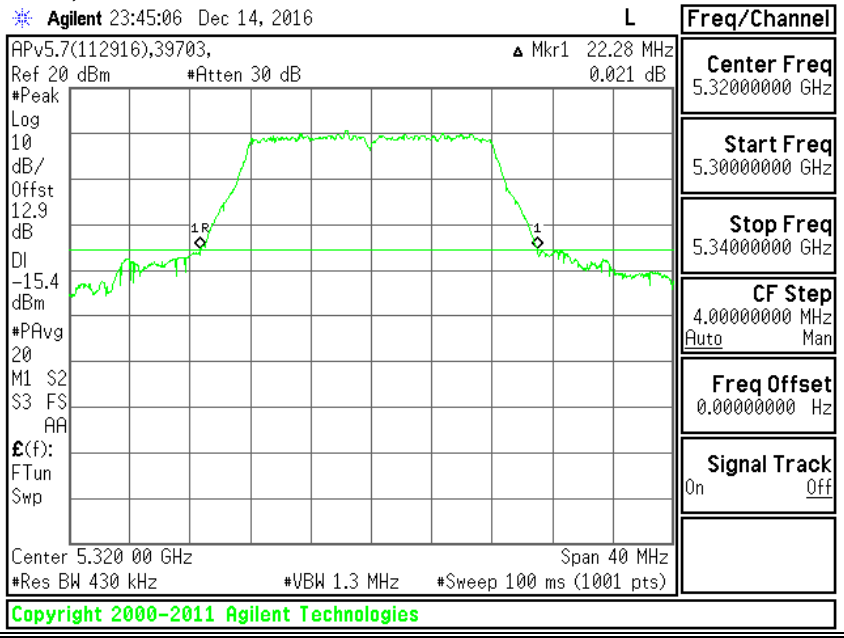
26dB, CH LOW



26dB, CH MID



26dB, CH HIGH



10.6.2. 99% BANDWIDTH

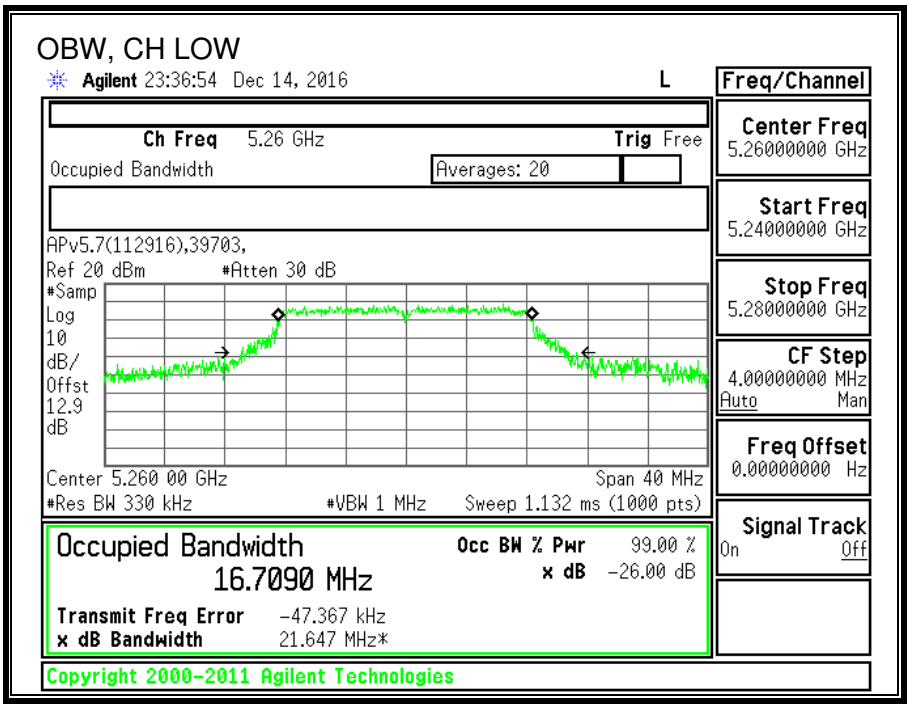
LIMITS

None; for reporting purposes only.

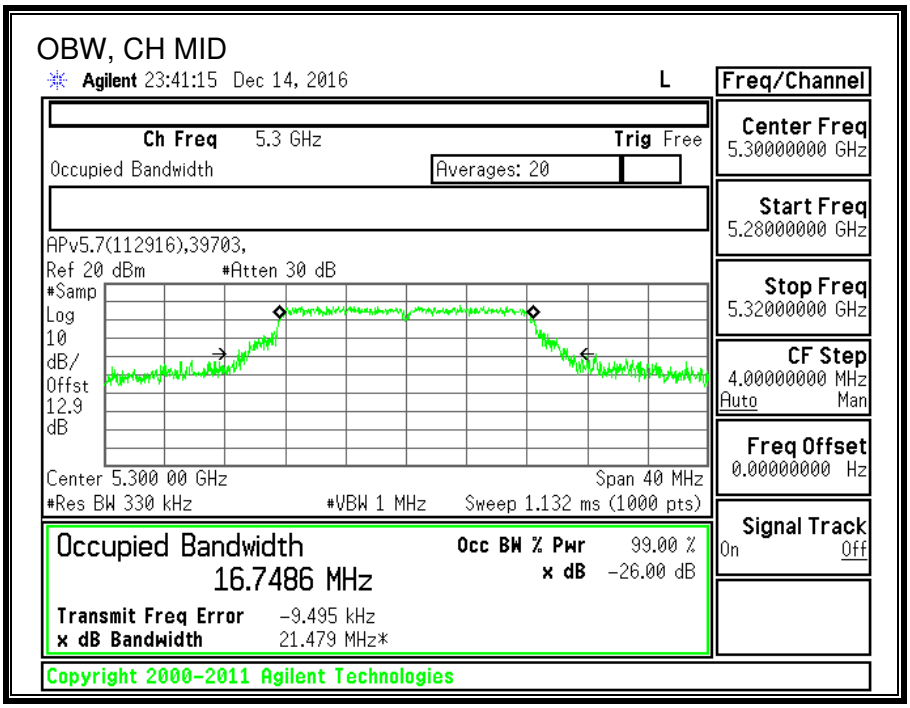
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)
Low	5260	16.7090
Mid	5300	16.7486
High	5320	16.7137

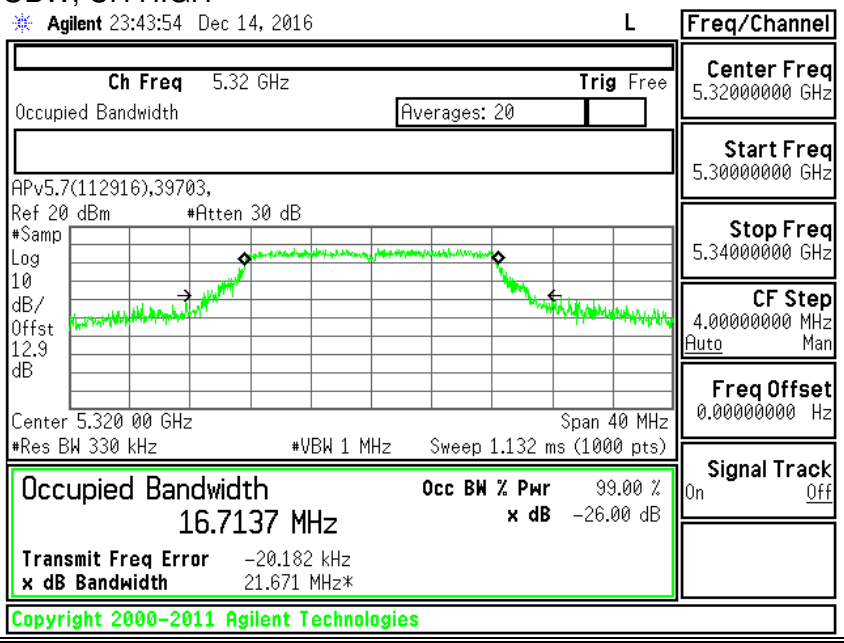
OBW, CH LOW



OBW, CH MID



OBW, CH HIGH



10.6.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 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.

IC RSS-247 (6.2.2) (1)

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever 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 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. 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.

TEST PROCEDURE

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

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain; 5.57dBi.

RESULTS

ID:	39703	Date:	12/14/16

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	32.36	16.71	5.57
Mid	5300	22.28	16.75	5.57
High	5320	22.28	16.71	5.57

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.23	29.23	23.23	11.00	11.00	11.00
Mid	5300	24.00	23.24	29.24	23.24	11.00	11.00	11.00
High	5320	24.00	23.23	29.23	23.23	11.00	11.00	11.00

Duty Cycle CF (dB)	0.29	Included in Calculations of Corr'd PPSD

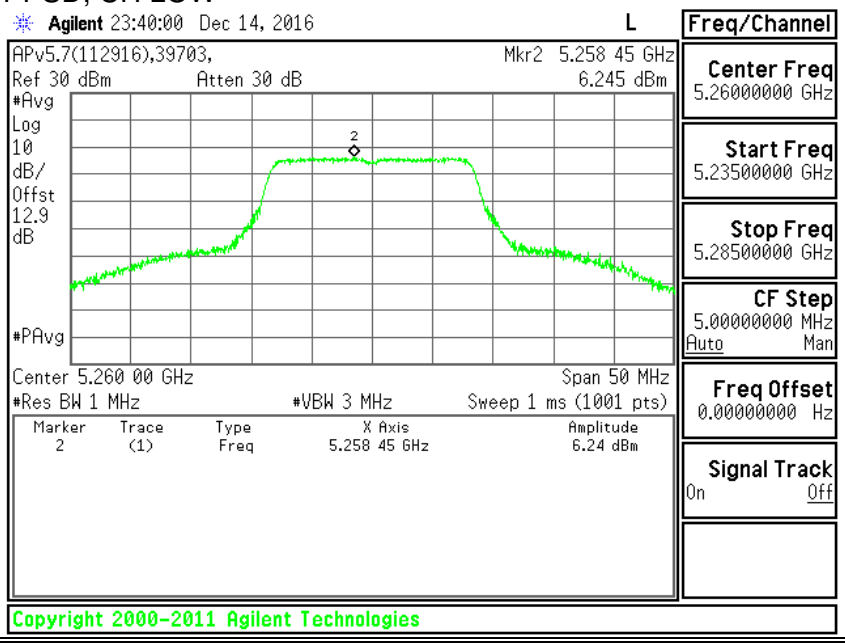
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	17.16	17.16	23.23	-6.07
Mid	5300	17.17	17.17	23.24	-6.07
High	5320	17.10	17.10	23.23	-6.13

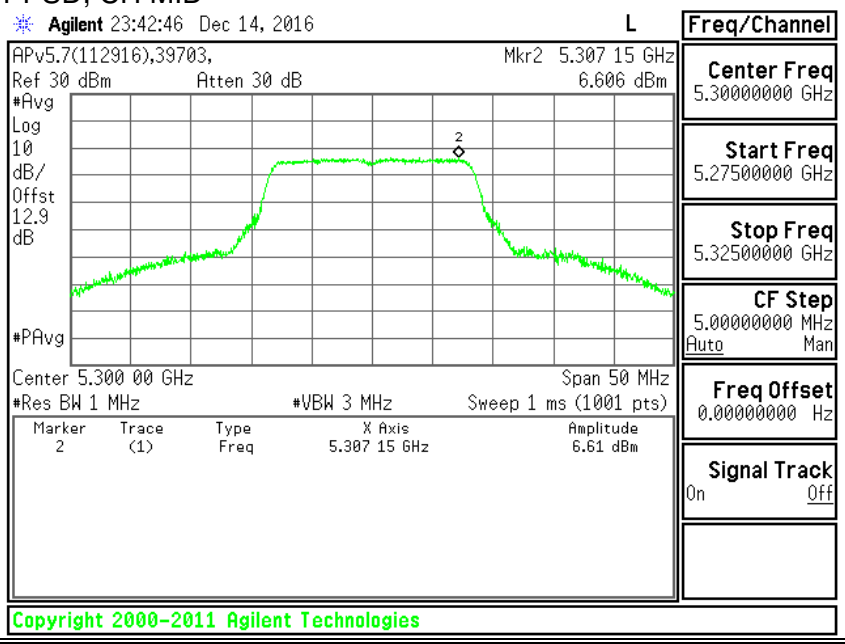
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	6.245	6.535	11.00	-4.47
Mid	5300	6.606	6.896	11.00	-4.10
High	5320	6.420	6.710	11.00	-4.29

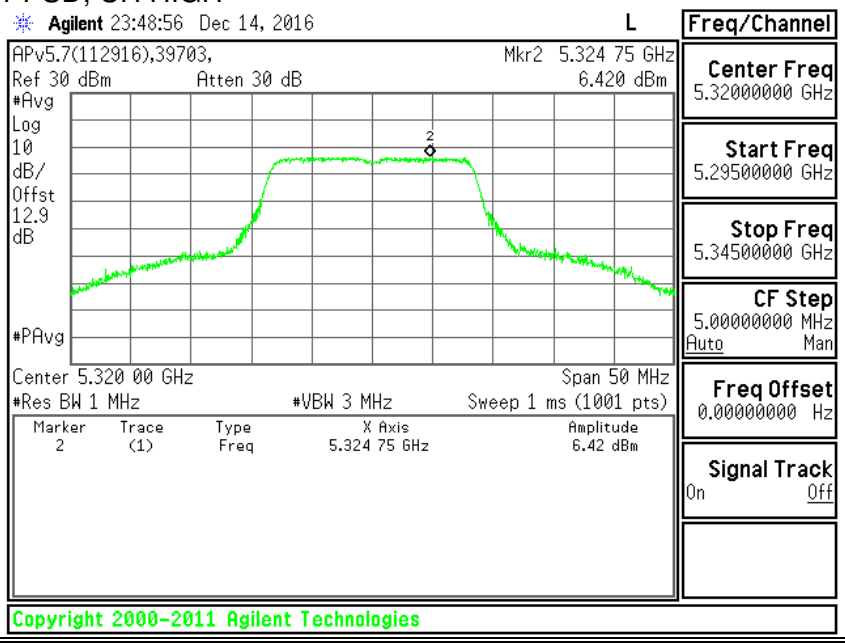
PPSD, CH LOW



PPSD, CH MID



PPSD, CH HIGH



10.7. 11a Chain 1 SISO MODE IN THE 5.3GHz BAND

10.7.1. 26 dB BANDWIDTH

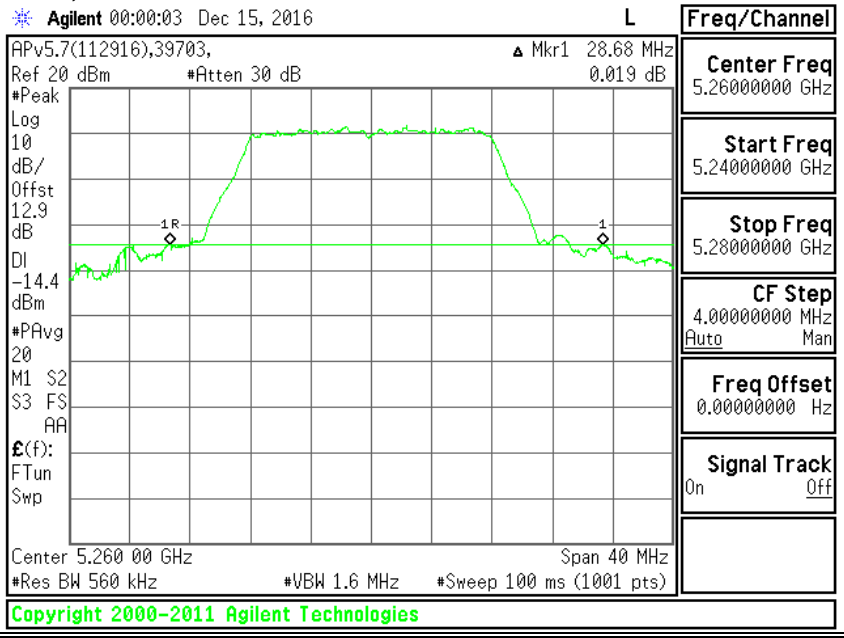
LIMITS

None; for reporting purposes only.

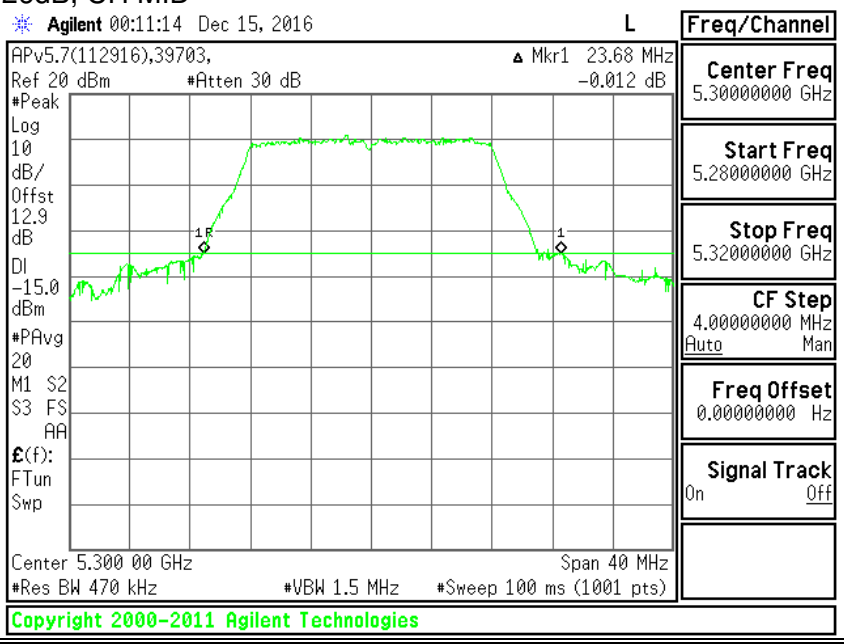
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 1 (MHz)
Low	5260	28.68
Mid	5300	23.68
High	5320	23.88

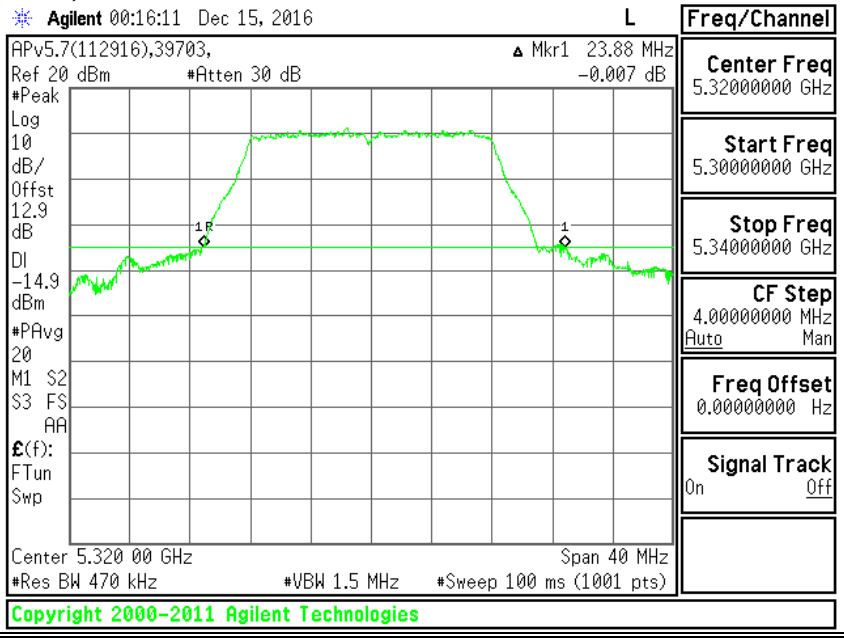
26dB, CH LOW



26dB, CH MID



26dB, CH HIGH



10.7.2. 99% BANDWIDTH

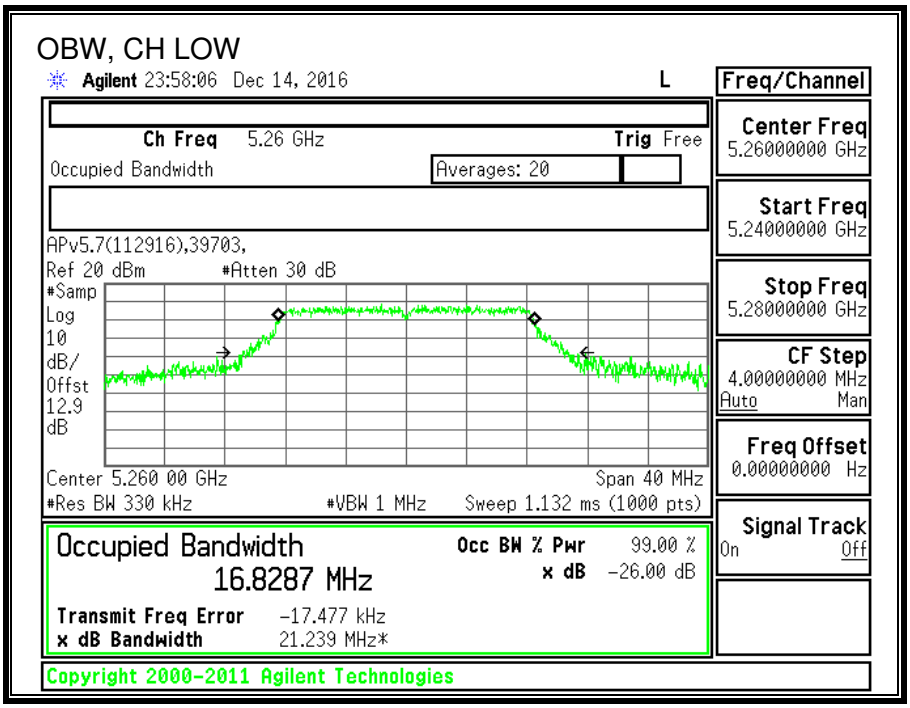
LIMITS

None; for reporting purposes only.

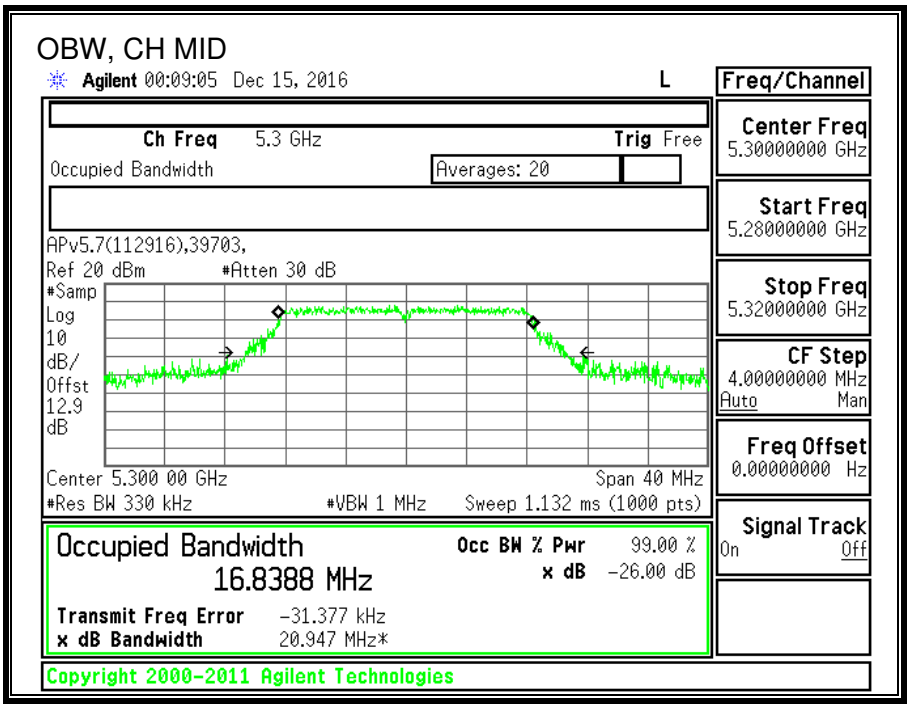
RESULTS

Channel	Frequency (MHz)	99% BW Chain 1 (MHz)
Low	5260	16.8287
Mid	5300	16.8388
High	5320	16.6015

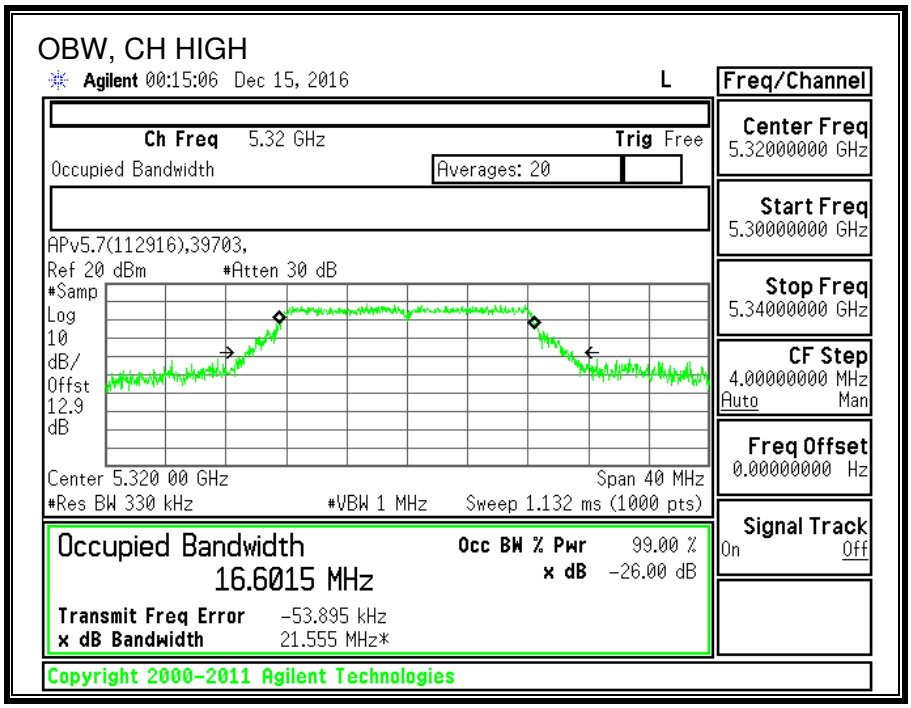
OBW, CH LOW



OBW, CH MID



OBW, CH HIGH



10.7.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 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.

IC RSS-247 (6.2.2) (1)

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever 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 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. 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.

TEST PROCEDURE

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

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain; 5.57dBi.

RESULTS

ID:	39703	Date:	12/15/16

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	28.68	16.829	5.57
Mid	5300	23.68	16.839	5.57
High	5320	23.88	16.602	5.57

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.26	29.26	23.26	11.00	11.00	11.00
Mid	5300	24.00	23.26	29.26	23.26	11.00	11.00	11.00
High	5320	24.00	23.20	29.20	23.20	11.00	11.00	11.00

Duty Cycle CF (dB)	0.29	Included in Calculations of Corr'd PPSD

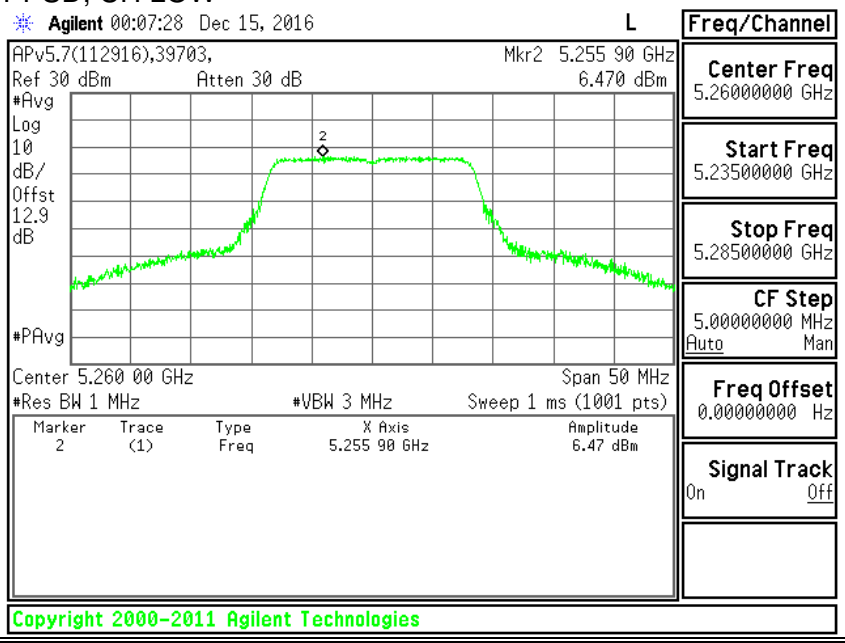
Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	17.23	17.23	23.26	-6.03
Mid	5300	17.29	17.29	23.26	-5.97
High	5320	17.46	17.46	23.20	-5.74

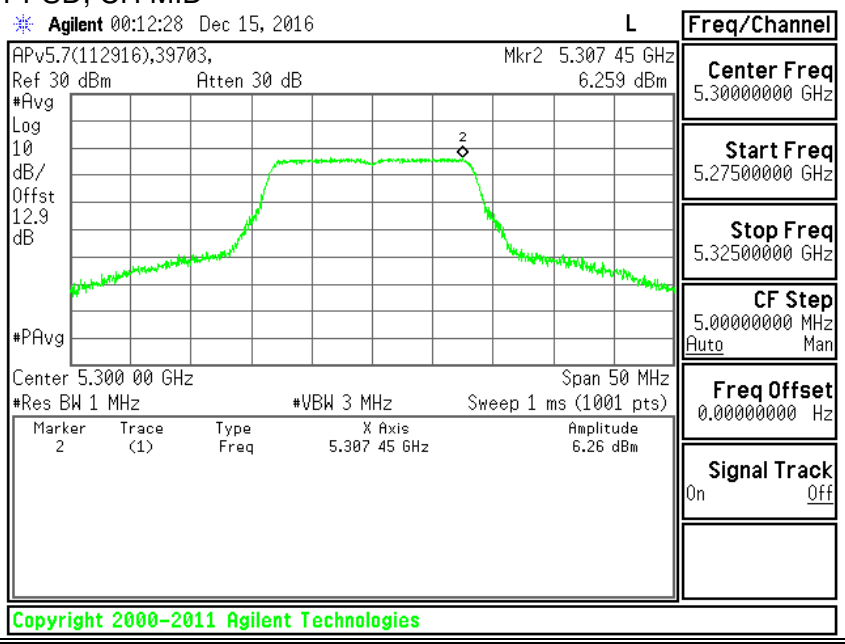
PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	6.470	6.760	11.00	-4.24
Mid	5300	6.259	6.549	11.00	-4.45
High	5320	6.567	6.857	11.00	-4.14

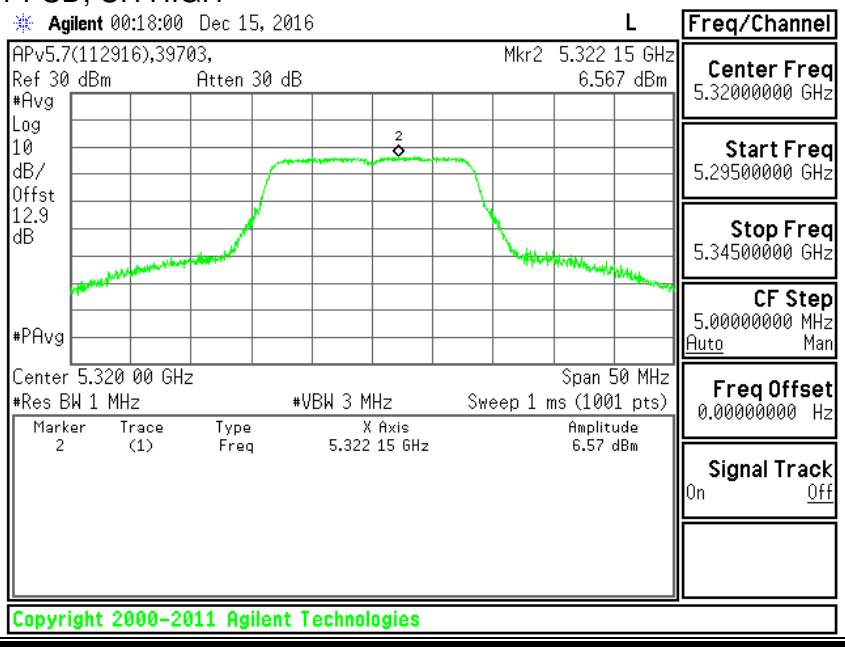
PPSD, CH LOW



PPSD, CH MID



PPSD, CH HIGH



10.8. 11n HT20 2TX CDD MIMO MODE IN THE 5.3GHz BAND

10.8.1. 26 dB BANDWIDTH

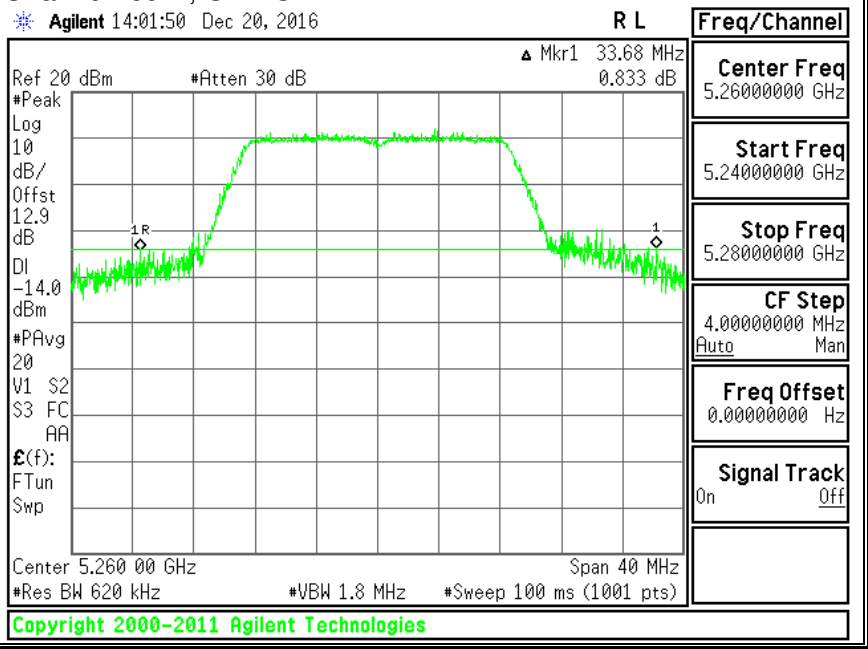
LIMITS

None; for reporting purposes only.

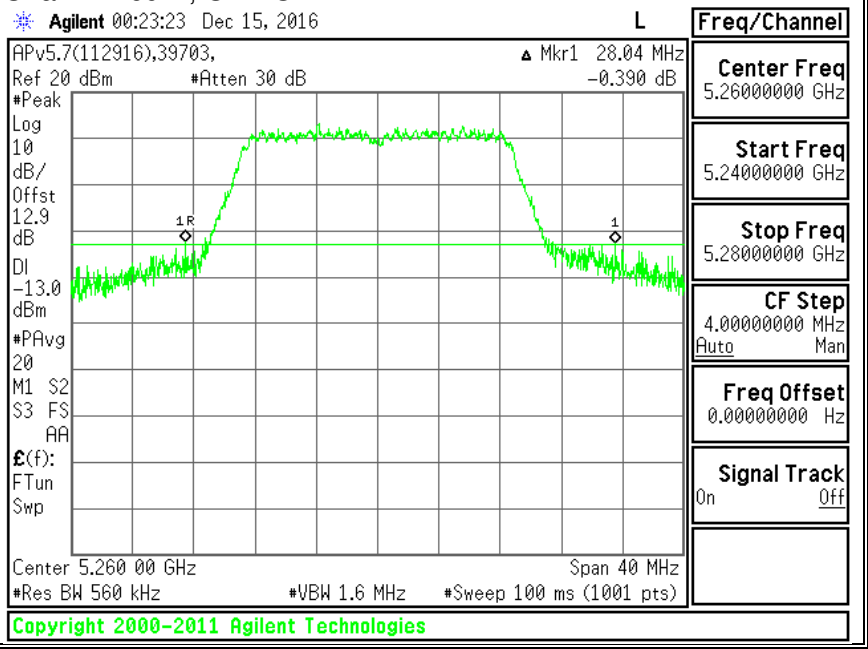
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5260	33.68	28.04
Mid	5300	29.00	28.24
High	5320	30.00	29.40

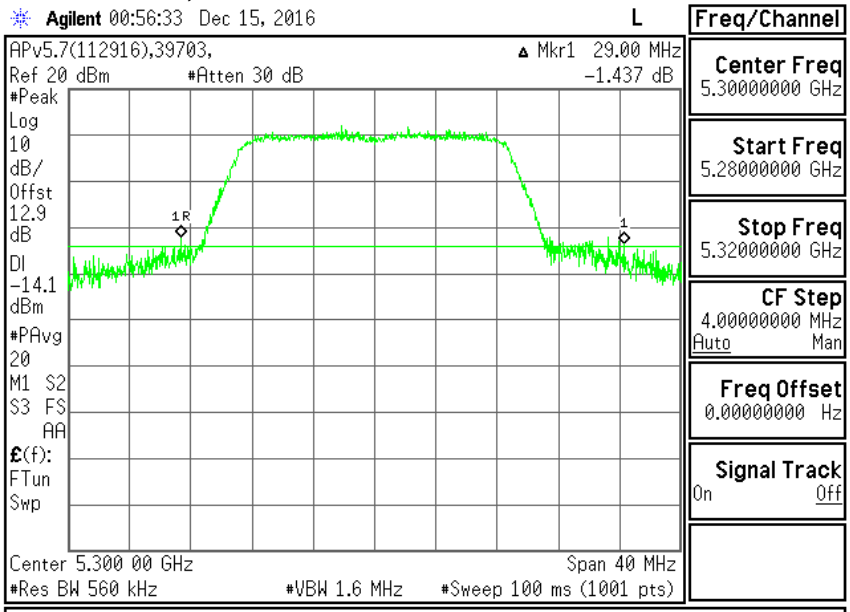
Chain 0 26dB , CH LOW



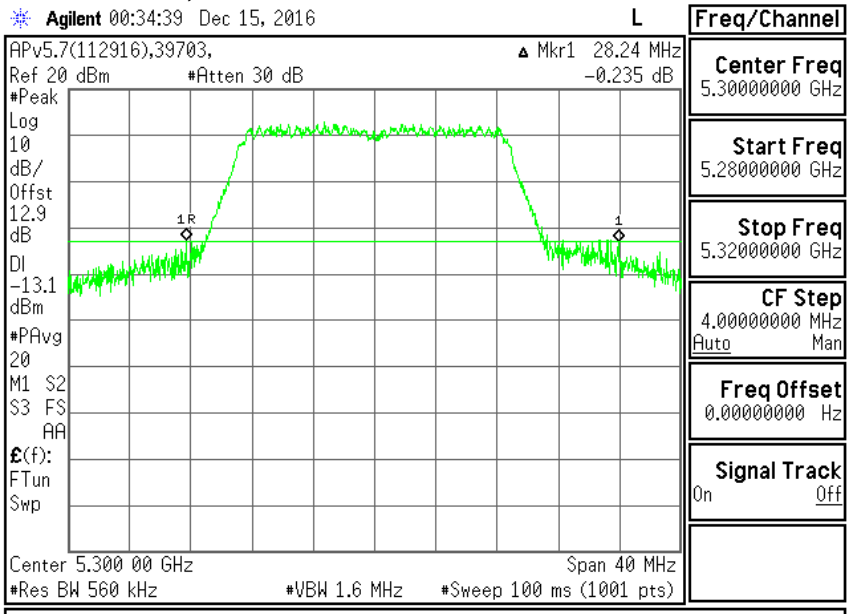
Chain 1 26dB , CH LOW



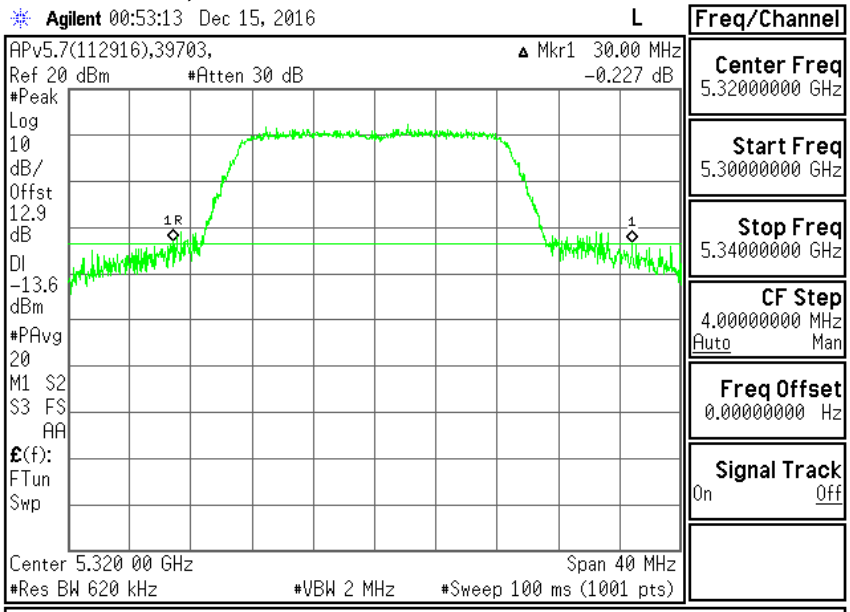
Chain 0 26dB , CH MID



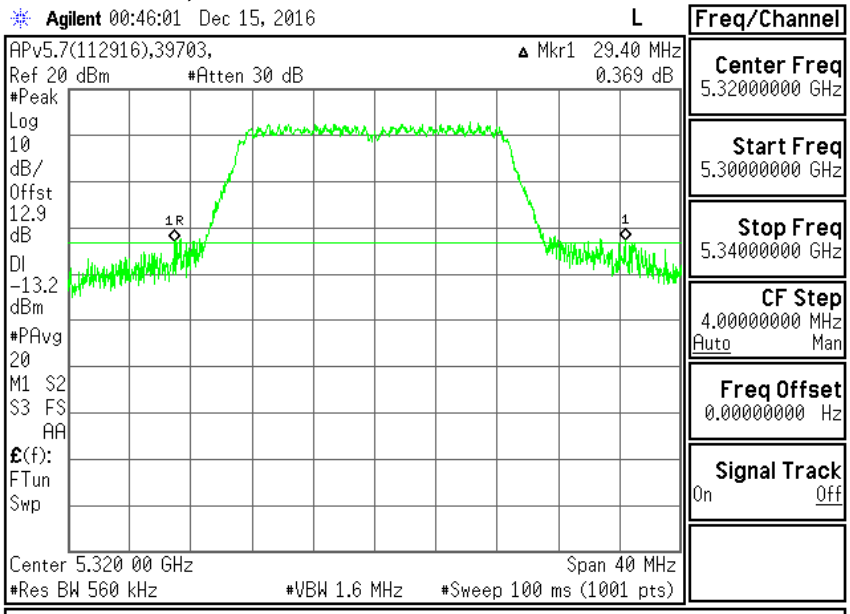
Chain 1 26dB , CH MID



Chain 0 26dB , CH HIGH



Chain 1 26dB , CH HIGH



10.8.2. 99% BANDWIDTH

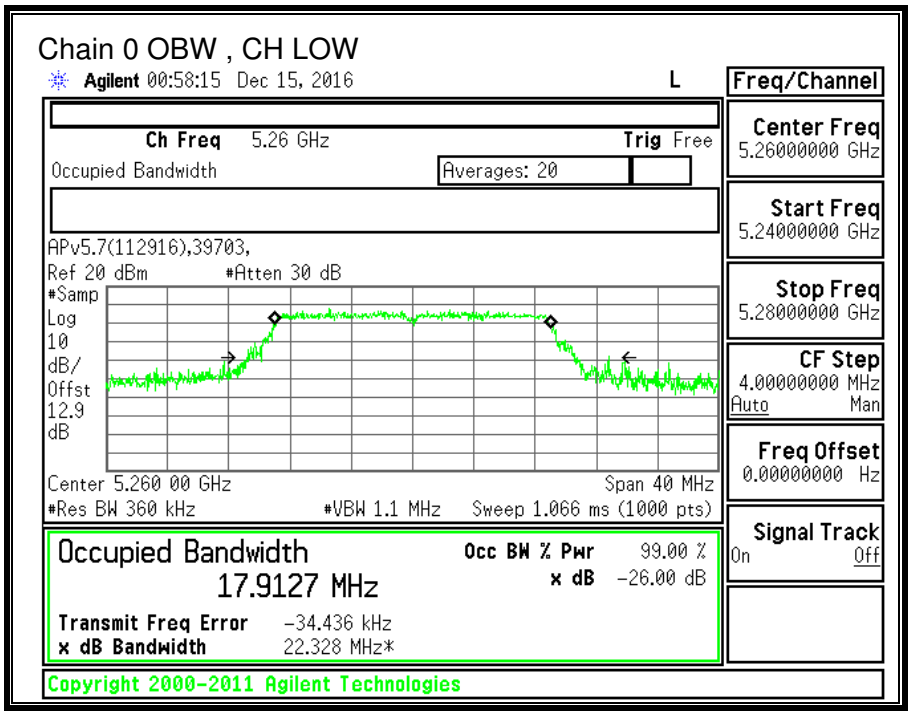
LIMITS

None; for reporting purposes only.

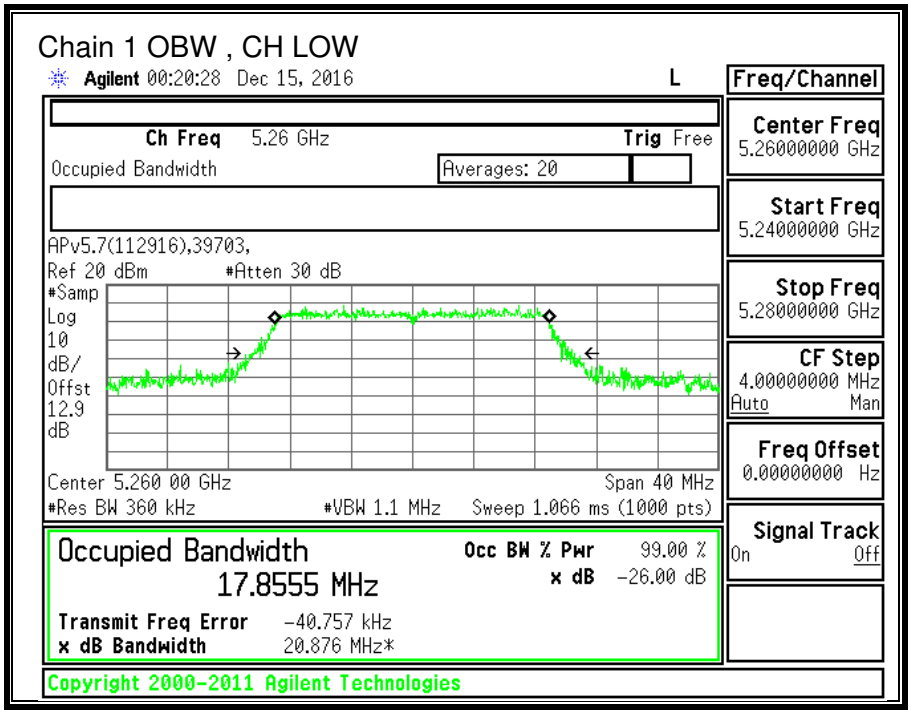
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5260	17.9127	17.8555
Mid	5300	17.9225	17.8588
High	5320	17.8602	17.8743

Chain 0 OBW , CH LOW



Chain 1 OBW , CH LOW



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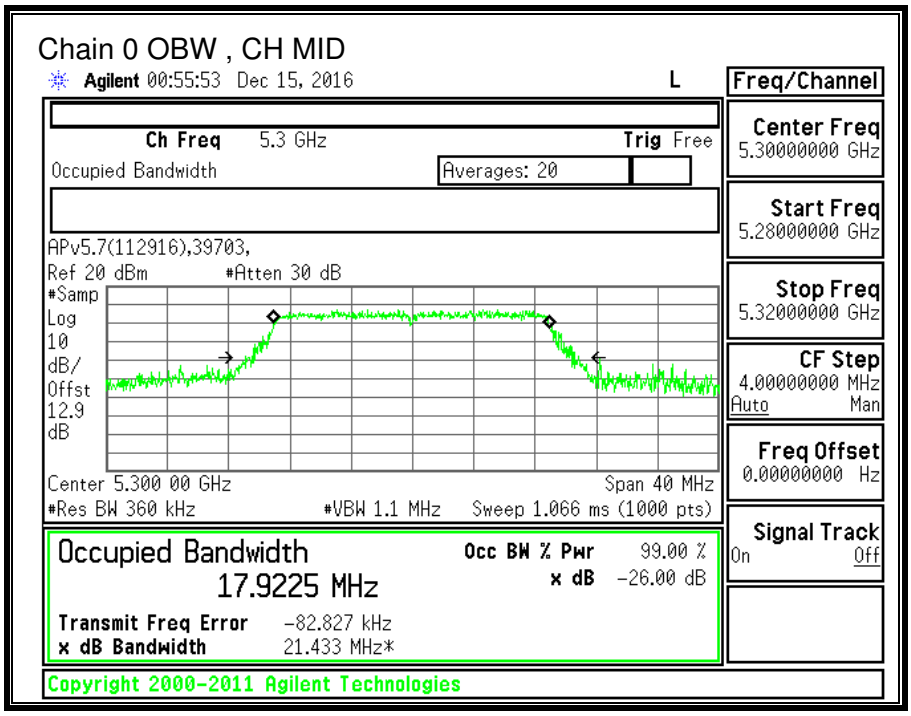
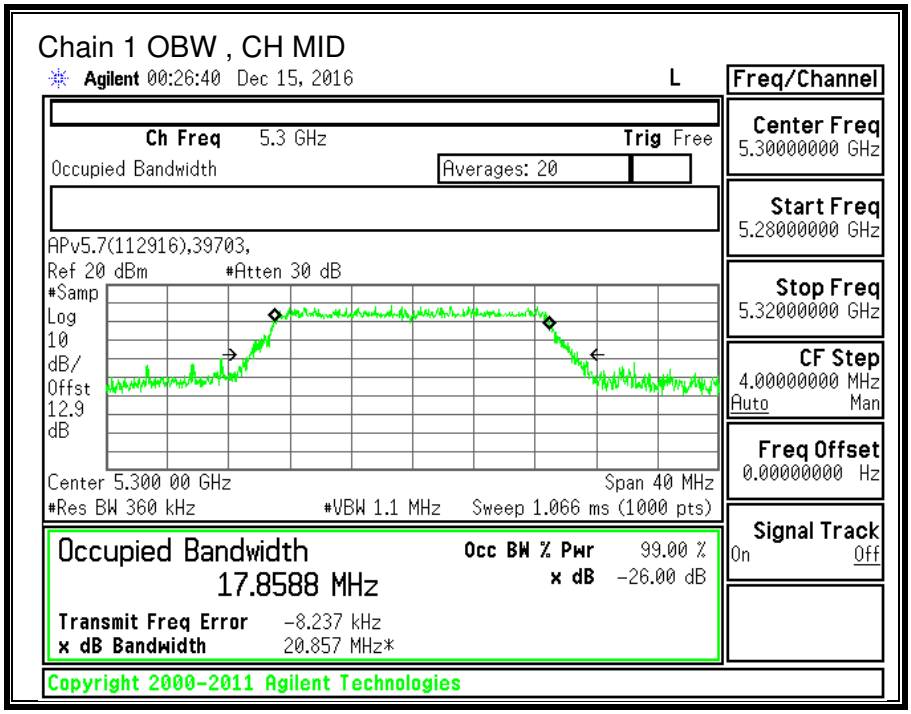
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

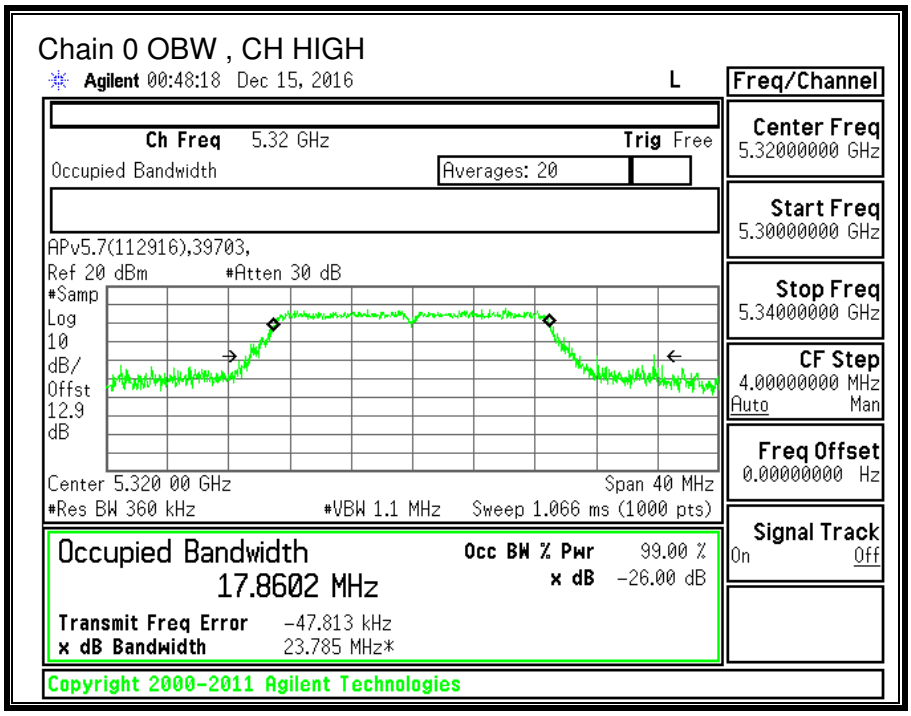
Chain 0 OBW , CH MID



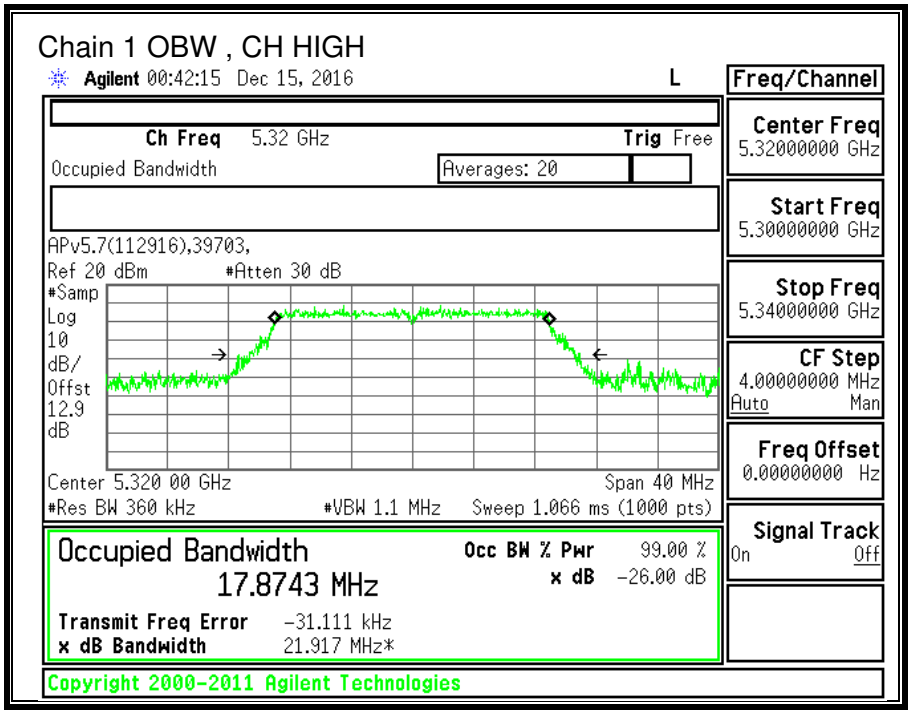
Chain 1 OBW , CH MID



Chain 0 OBW , CH HIGH



Chain 1 OBW , CH HIGH



10.8.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

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

IC RSS-247 (6.2.2) (1)

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever 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 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. 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.

TEST PROCEDURE

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

DIRECTIONAL ANTENNA GAIN

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

5260-5320 MHz

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

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

5260-5320 MHz

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
5.57	3.01	8.58

RESULTS

ID:	39703	Date:	12/15/16

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5260	28.04	17.856	5.57	8.58
Mid	5300	28.24	17.859	5.57	8.58
High	5320	29.40	17.860	5.57	8.58

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.52	29.52	23.52	8.42	11.00	8.42
Mid	5300	24.00	23.52	29.52	23.52	8.42	11.00	8.42
High	5320	24.00	23.52	29.52	23.52	8.42	11.00	8.42

Duty Cycle CF (dB)	0.31	Included in Calculations of Corr'd PPSD

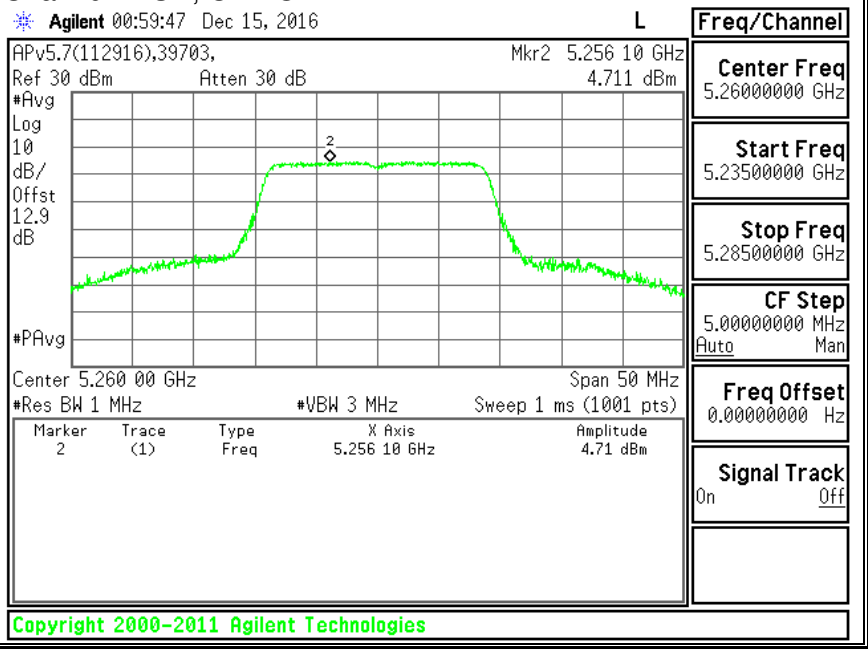
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	16.02	16.36	19.20	23.52	-4.31
Mid	5300	15.68	15.92	18.81	23.52	-4.71
High	5320	15.71	15.89	18.81	23.52	-4.71

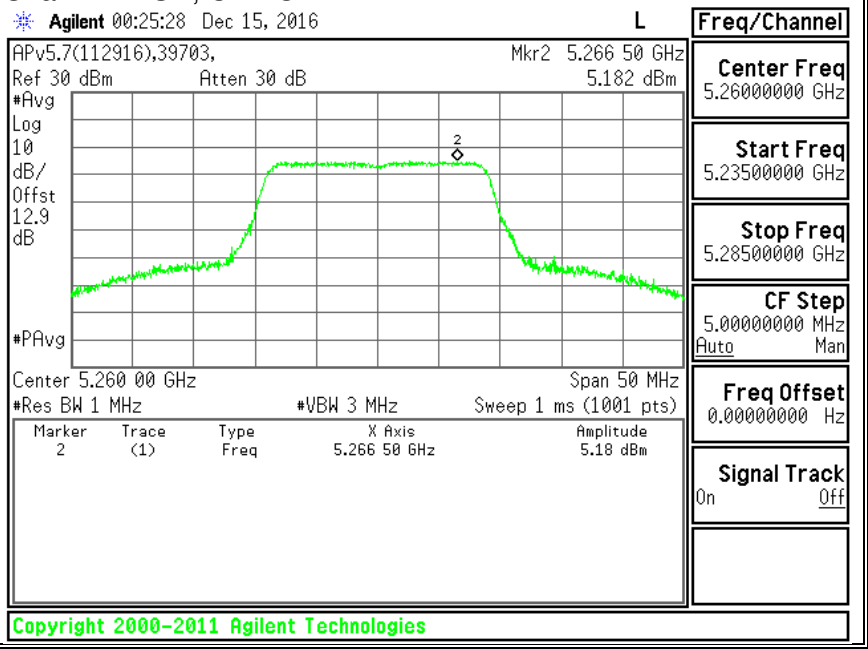
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	4.711	5.182	8.27	8.42	-0.15
Mid	5300	4.723	4.443	7.91	8.42	-0.51
High	5320	4.938	4.661	8.12	8.42	-0.30

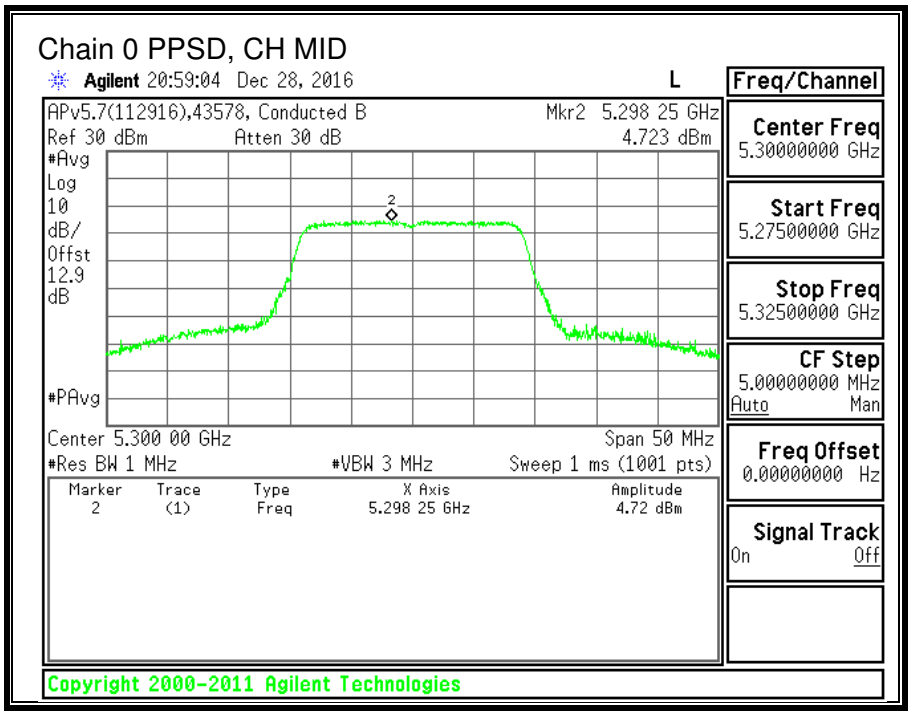
Chain 0 PPSD, CH LOW



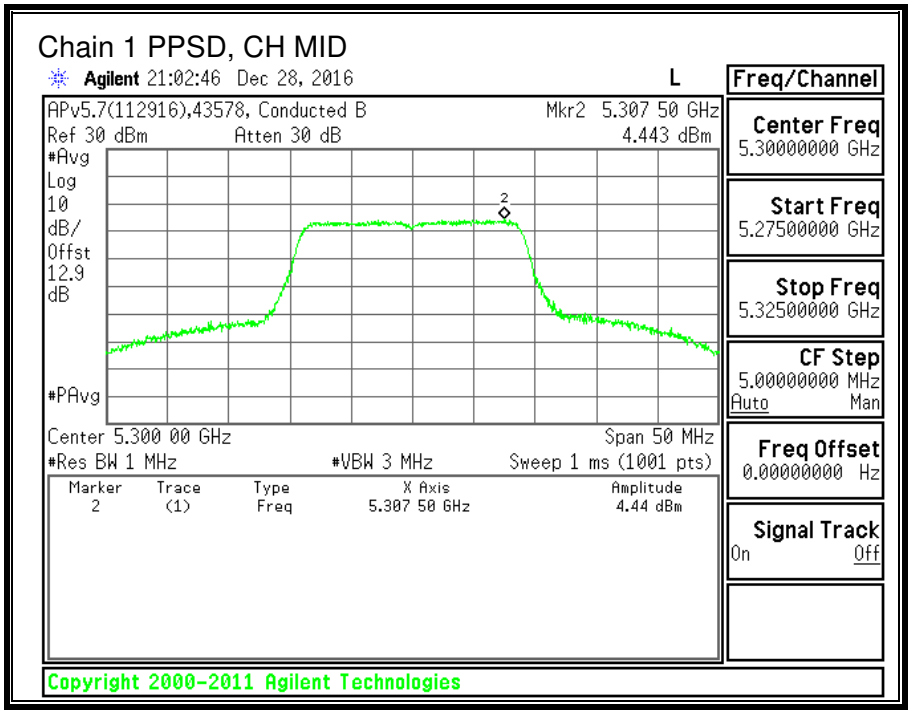
Chain 1 PPSD, CH LOW



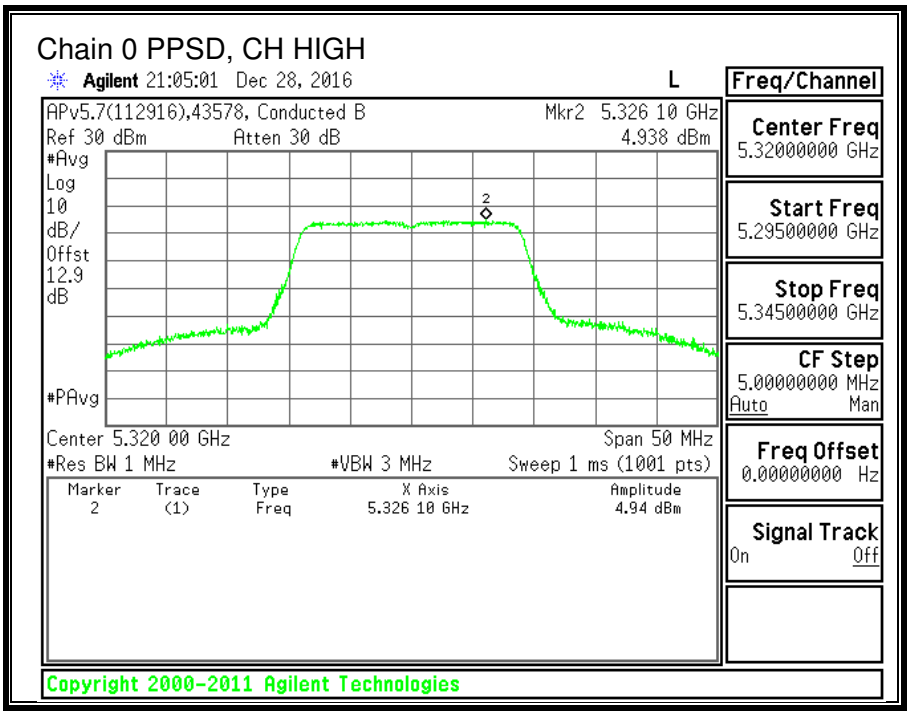
Chain 0 PPSD, CH MID



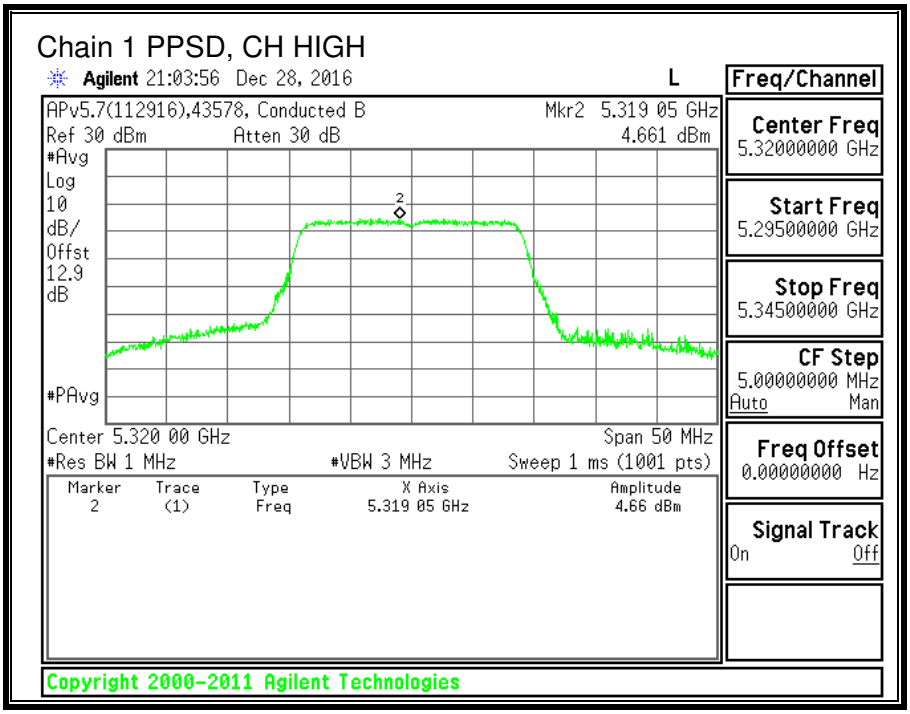
Chain 1 PPSD, CH MID



Chain 0 PPSD, CH HIGH



Chain 1 PPSD, CH HIGH



10.9. 11n HT40 2TX CDD MIMO MODE IN THE 5.3GHz BAND

10.9.1. 26 dB BANDWIDTH

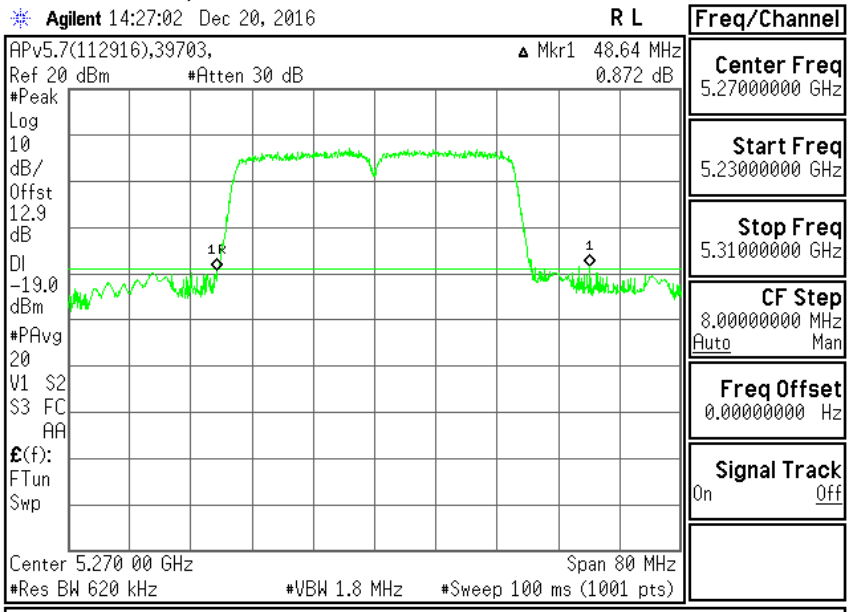
LIMITS

None; for reporting purposes only.

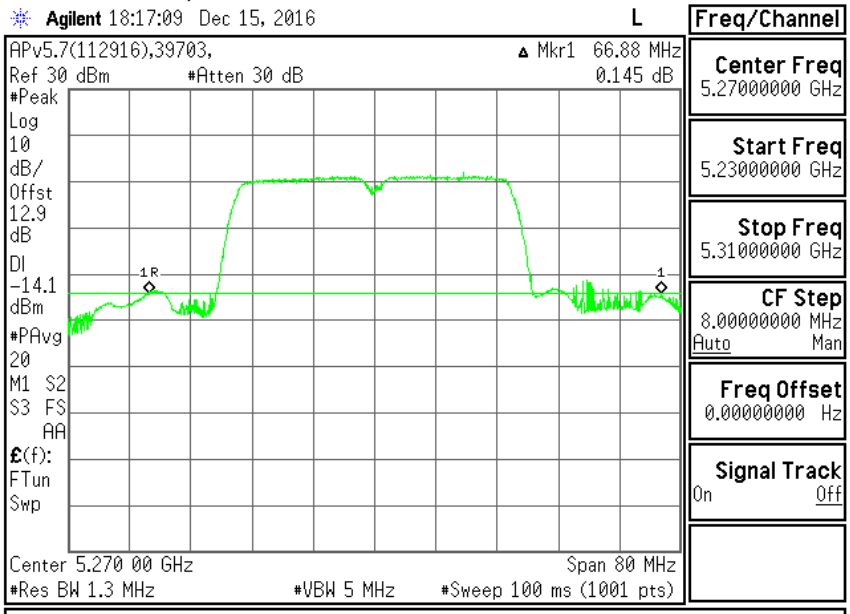
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5270	48.64	66.88
High	5310	67.52	40.32

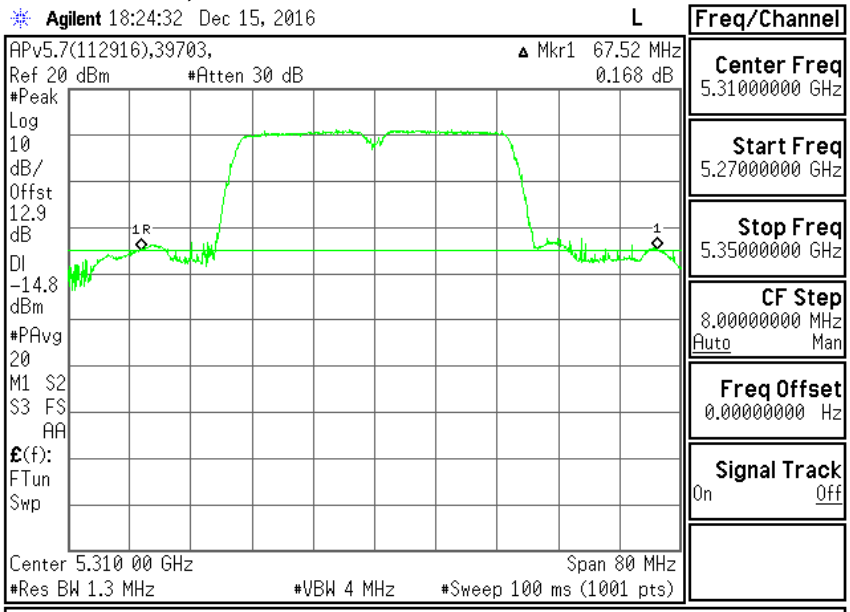
Chain 0 26dB , CH LOW



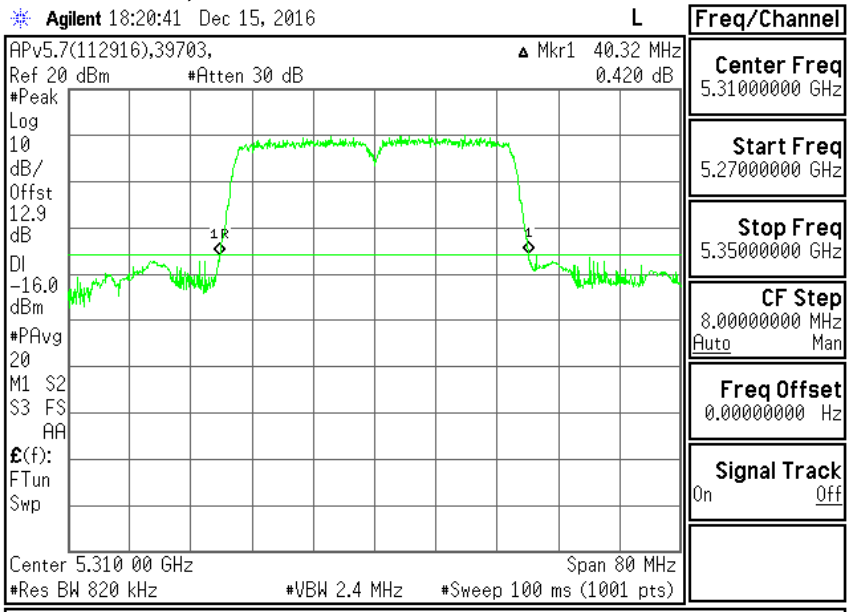
Chain 1 26dB , CH LOW



Chain 0 26dB , CH HIGH



Chain 1 26dB , CH HIGH



10.9.2. 99% BANDWIDTH

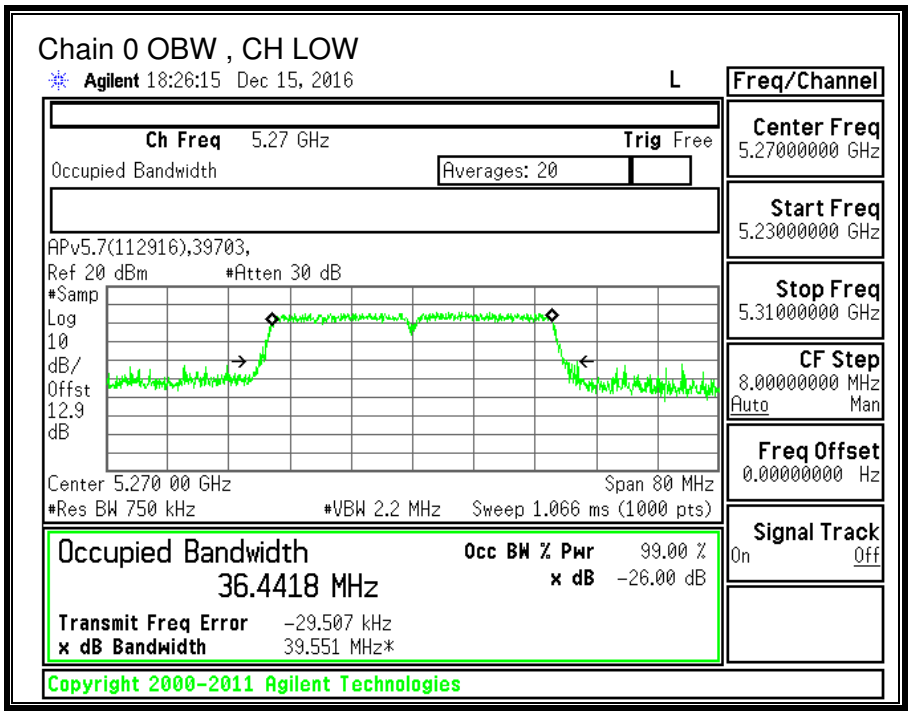
LIMITS

None; for reporting purposes only.

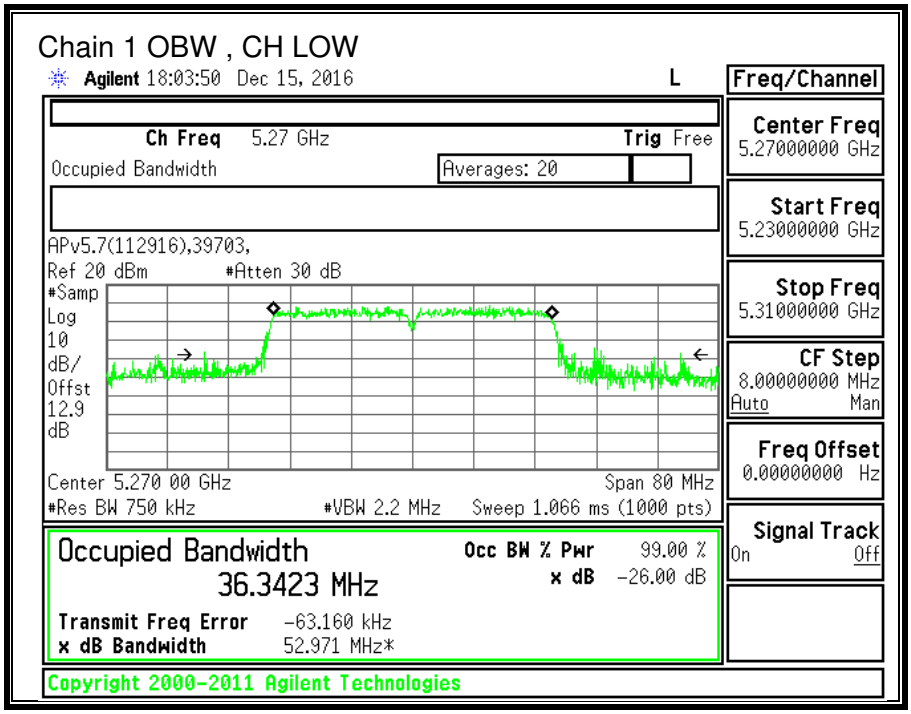
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5270	36.4418	36.3423
High	5310	36.1155	36.3779

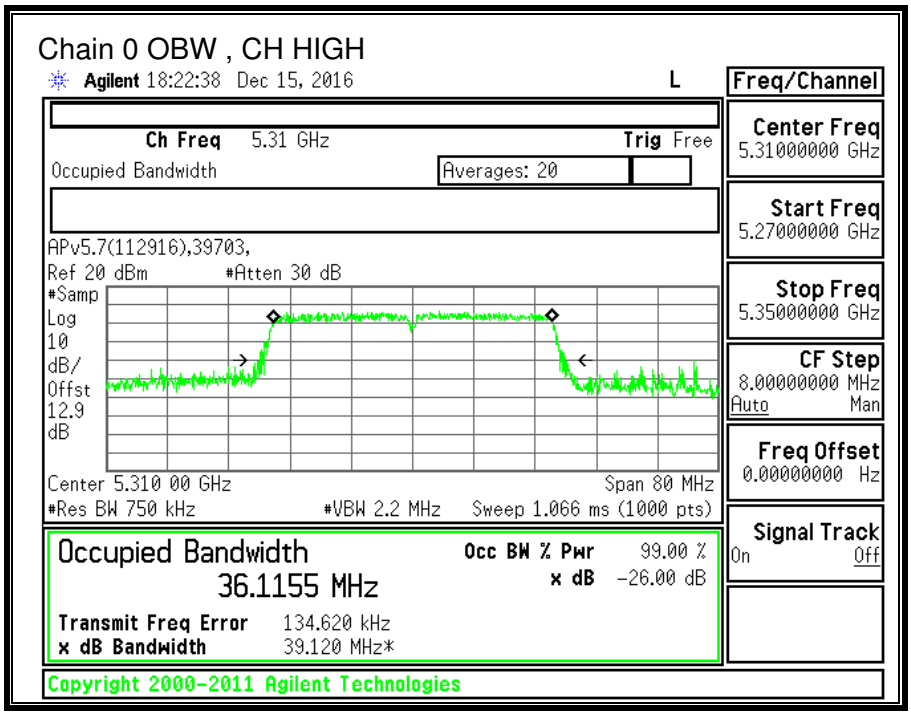
Chain 0 OBW , CH LOW



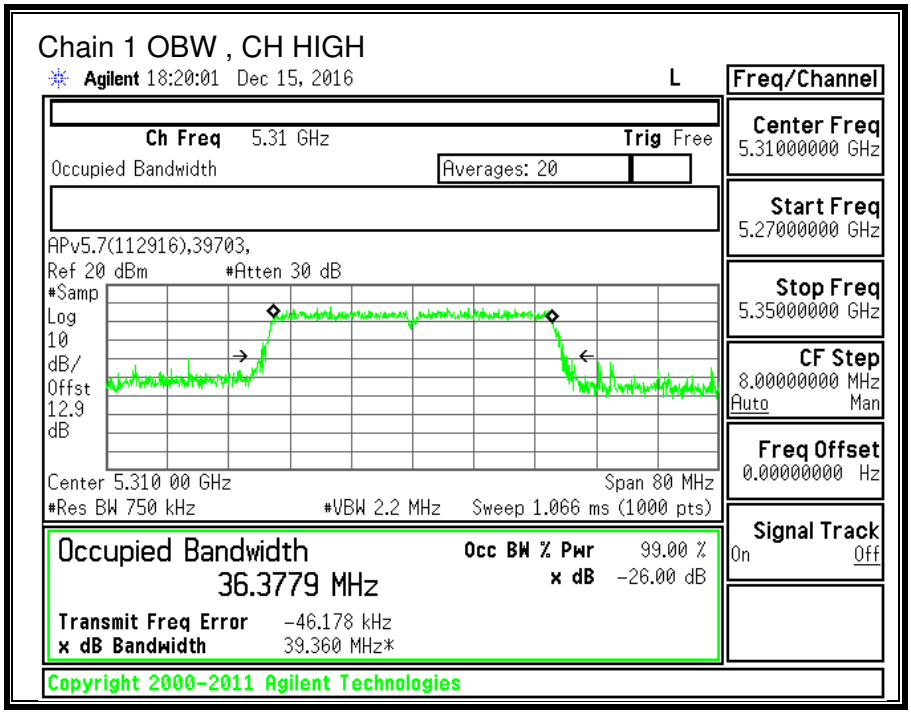
Chain 1 OBW , CH LOW



Chain 0 OBW , CH HIGH



Chain 1 OBW , CH HIGH



10.9.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

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

IC RSS-247 (6.2.2) (1)

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever 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 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. 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.

TEST PROCEDURE

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

DIRECTIONAL ANTENNA GAIN

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

5260-5320 MHz

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

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

5260-5320 MHz

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
5.57	3.01	8.58

RESULTS

ID:	39703	Date:	12/15/16

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5270	48.64	36.342	5.57	8.58
High	5310	40.32	36.116	5.57	8.58

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5270	24.00	24.00	30.00	24.00	8.42	11.00	8.42
High	5310	24.00	24.00	30.00	24.00	8.42	11.00	8.42

Duty Cycle CF (dB)	0.62	Included in Calculations of Corr'd PPSD

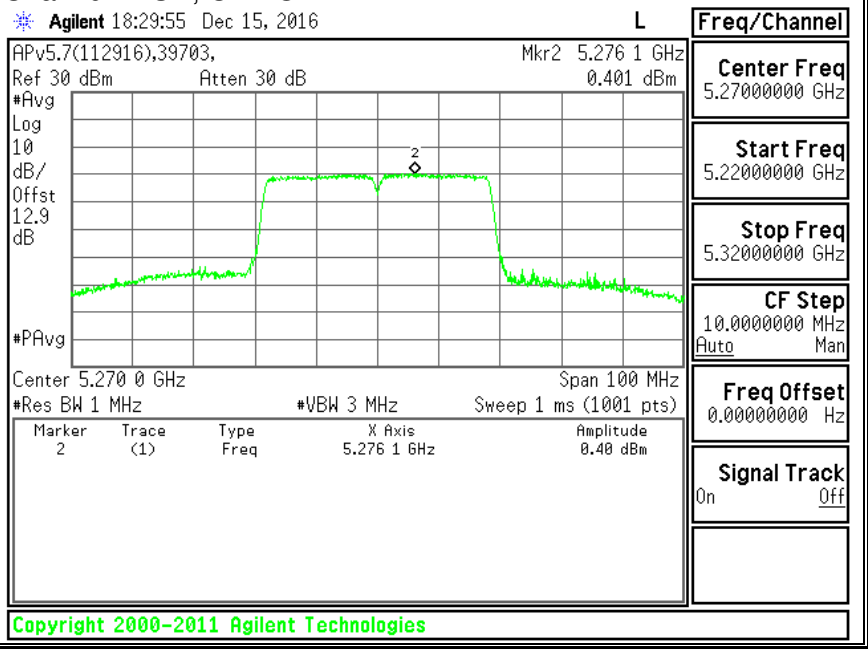
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	14.96	14.96	17.97	24.00	-6.03
High	5310	13.55	13.55	16.56	24.00	-7.44

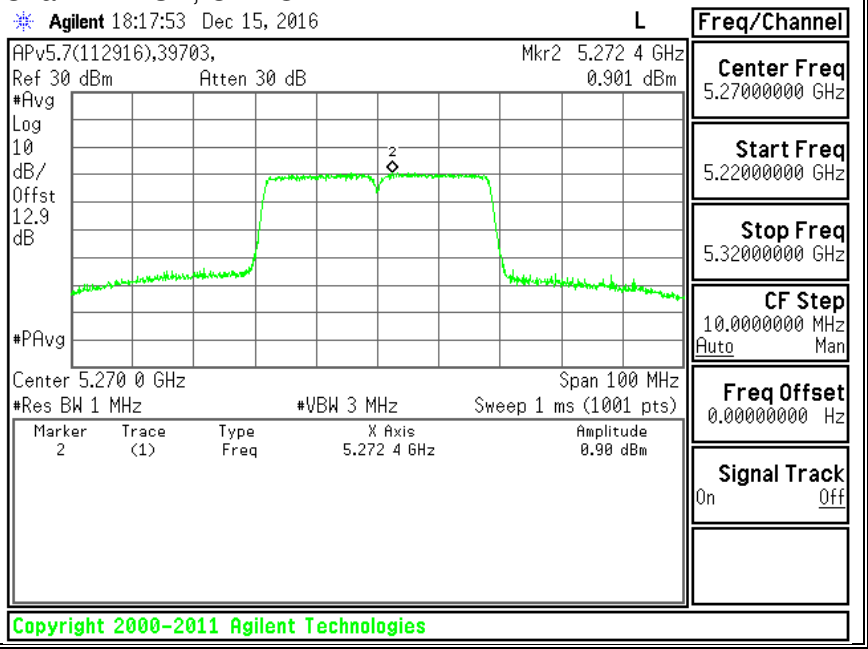
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5270	0.401	0.901	4.29	8.42	-4.13
High	5310	-1.121	-0.847	2.65	8.42	-5.77

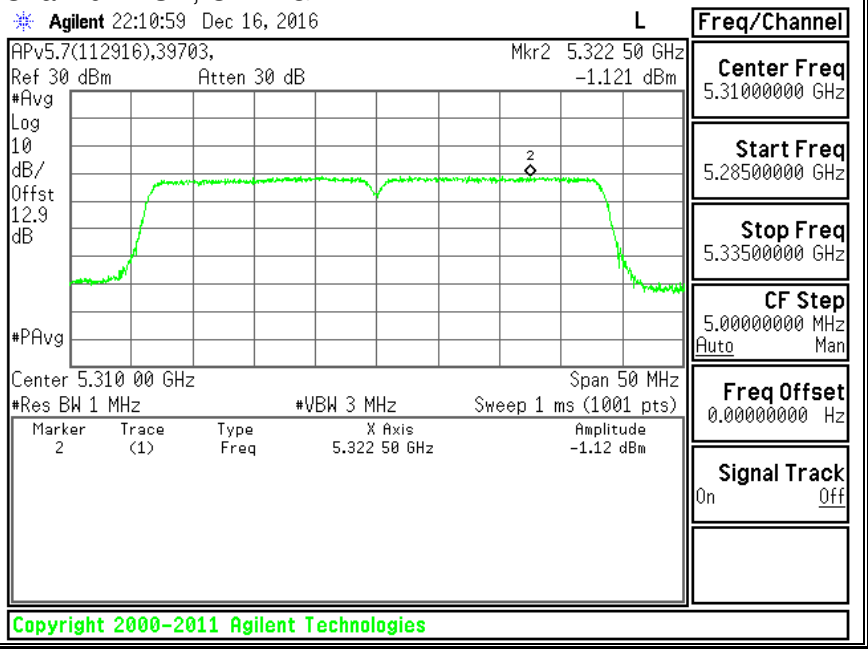
Chain 0 PPSD, CH LOW



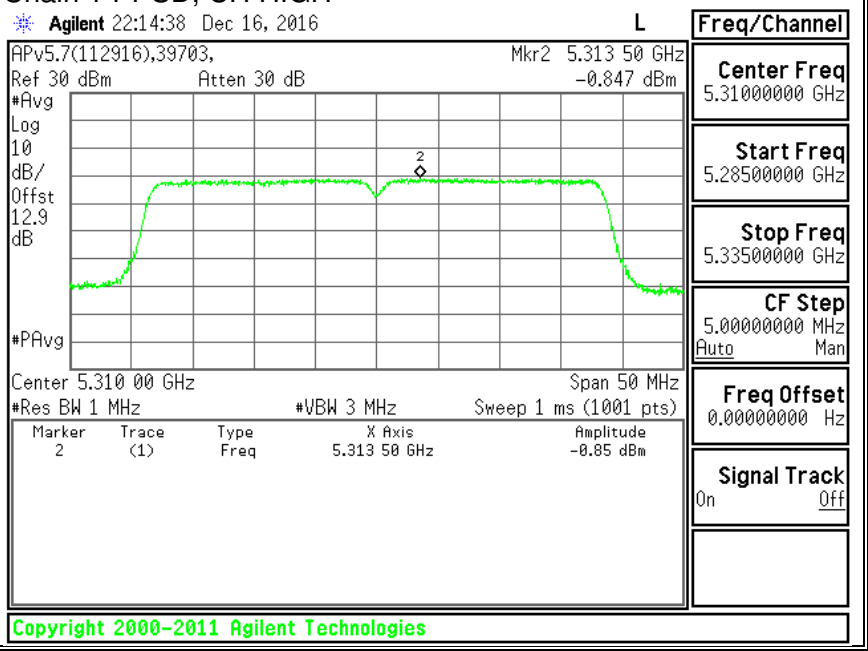
Chain 1 PPSD, CH LOW



Chain 0 PPSD, CH HIGH



Chain 1 PPSD, CH HIGH



10.10. 11ac HT80 2TX CDD MIMO MODE IN THE 5.3GHz BAND

10.10.1. 26 dB BANDWIDTH

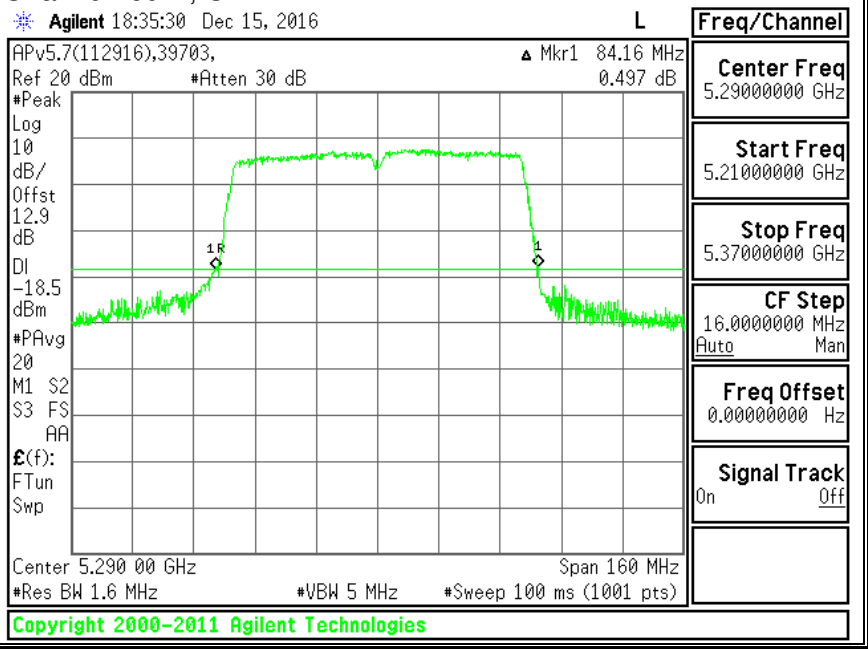
LIMITS

None; for reporting purposes only.

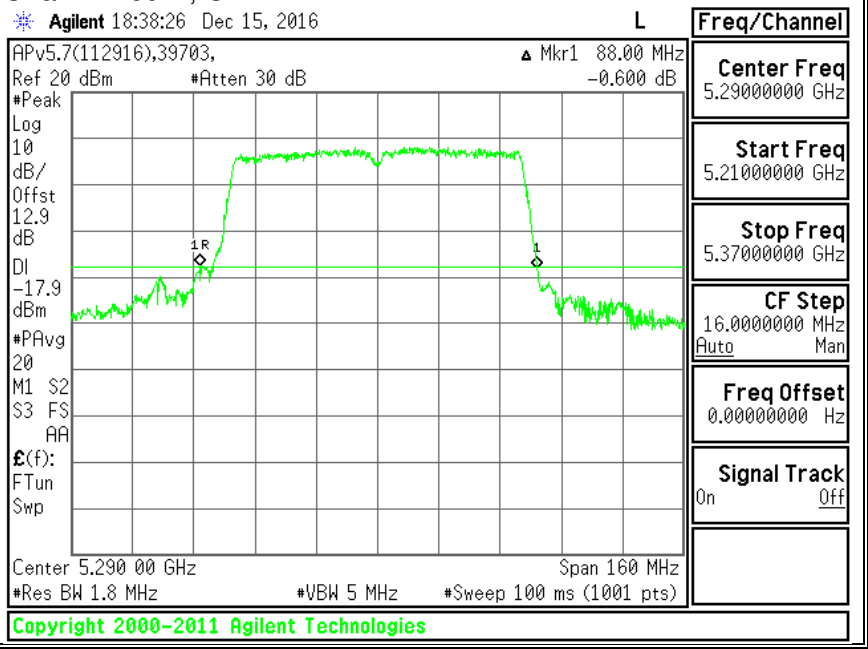
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Mid	5290	84.16	88.00

Chain 0 26dB , CH MID



Chain 1 26dB , CH MID



10.10.2. 99% BANDWIDTH

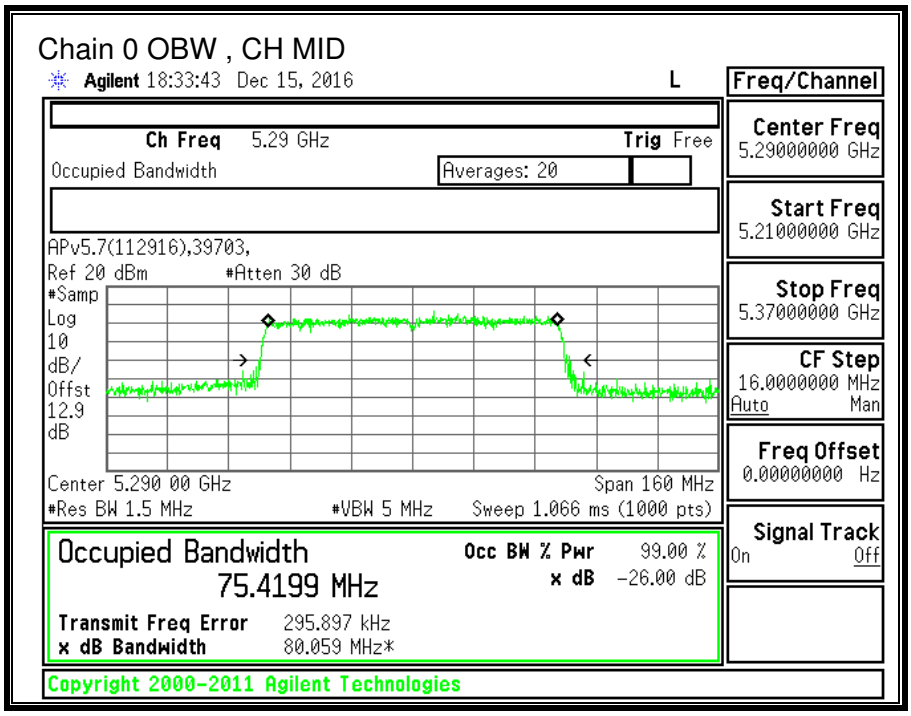
LIMITS

None; for reporting purposes only.

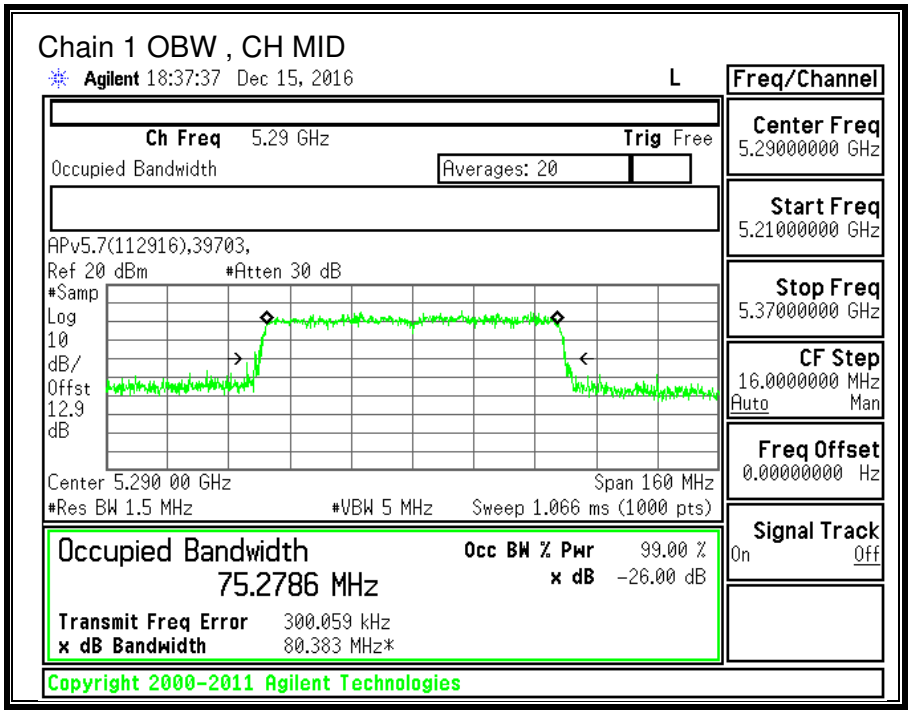
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Mid	5290	75.4199	75.2786

Chain 0 OBW , CH MID



Chain 1 OBW , CH MID



10.10.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

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

IC RSS-247 (6.2.2) (1)

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever 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 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. 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.

TEST PROCEDURE

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

DIRECTIONAL ANTENNA GAIN

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

5260-5320 MHz

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

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

5260-5320 MHz

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
5.57	3.01	8.58

RESULTS

ID:	39703	Date:	12/15/16

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5290	84.16	75.279	5.57	8.58

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5290	24.00	24.00	30.00	24.00	8.42	11.00	8.42

Duty Cycle CF (dB)	1.84	Included in Calculations of Corr'd PPSD

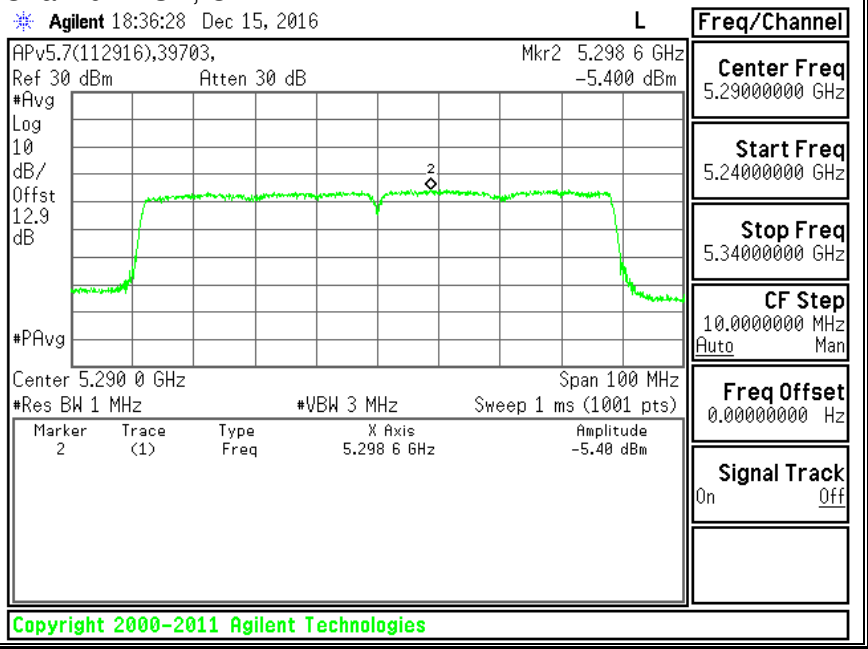
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5290	13.05	13.34	16.21	24.00	-7.79

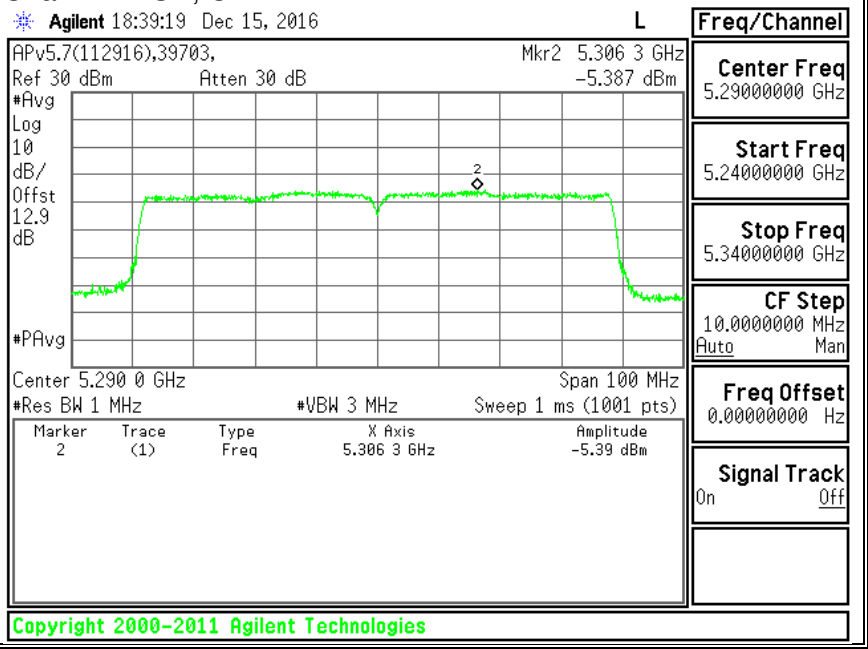
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5290	-5.4	-5.387	-0.54	8.42	-8.96

Chain 0 PPSD, CH MID



Chain 1 PPSD, CH MID



10.11. 11a Chain 0 SISO MODE IN THE 5.6GHz BAND

10.11.1. 26 dB BANDWIDTH

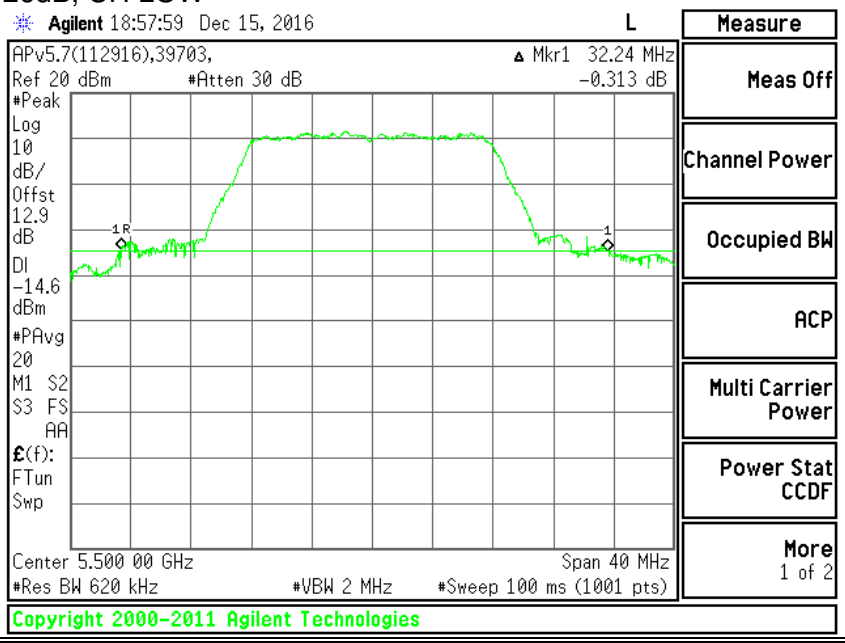
LIMITS

None; for reporting purposes only.

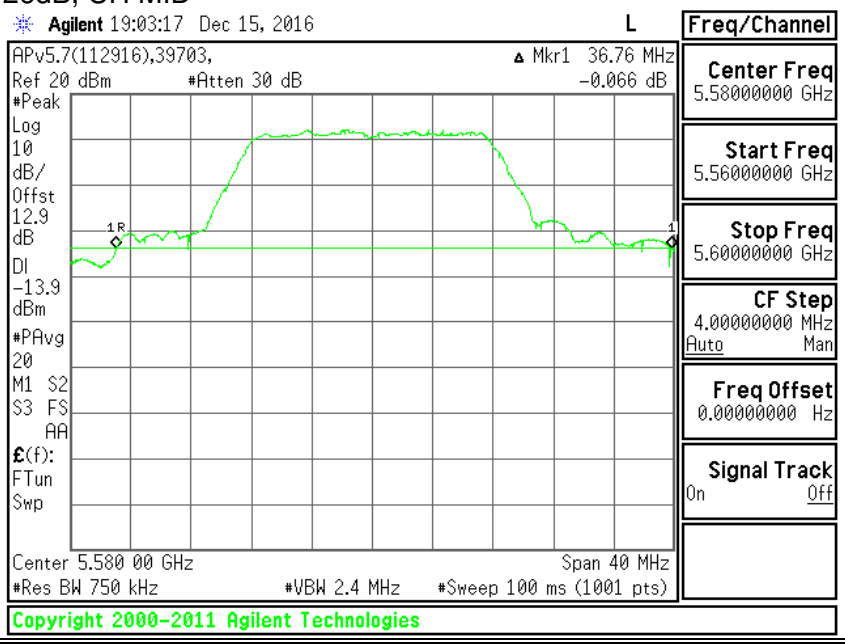
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)
Low	5500	32.24
Mid	5580	36.76
High	5700	33.80

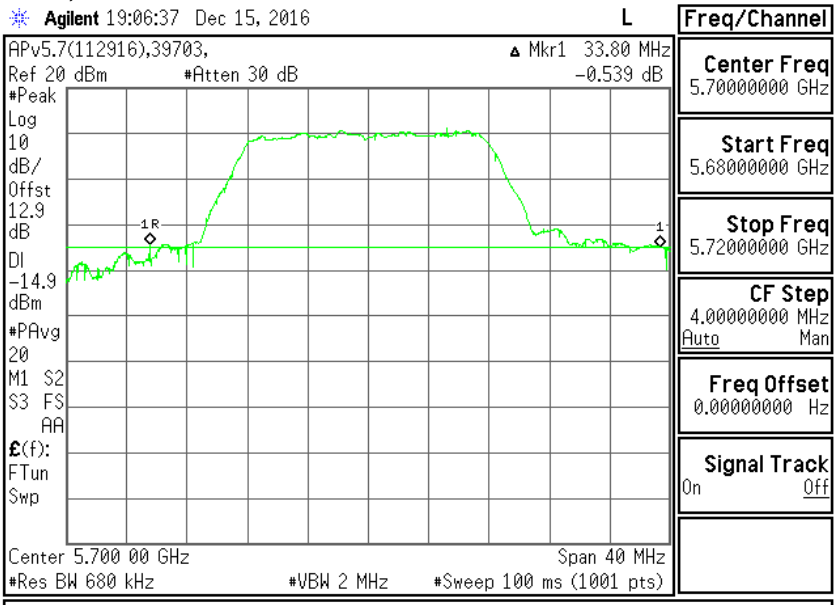
26dB, CH LOW



26dB, CH MID



26dB, CH HIGH



10.11.2. 99% BANDWIDTH

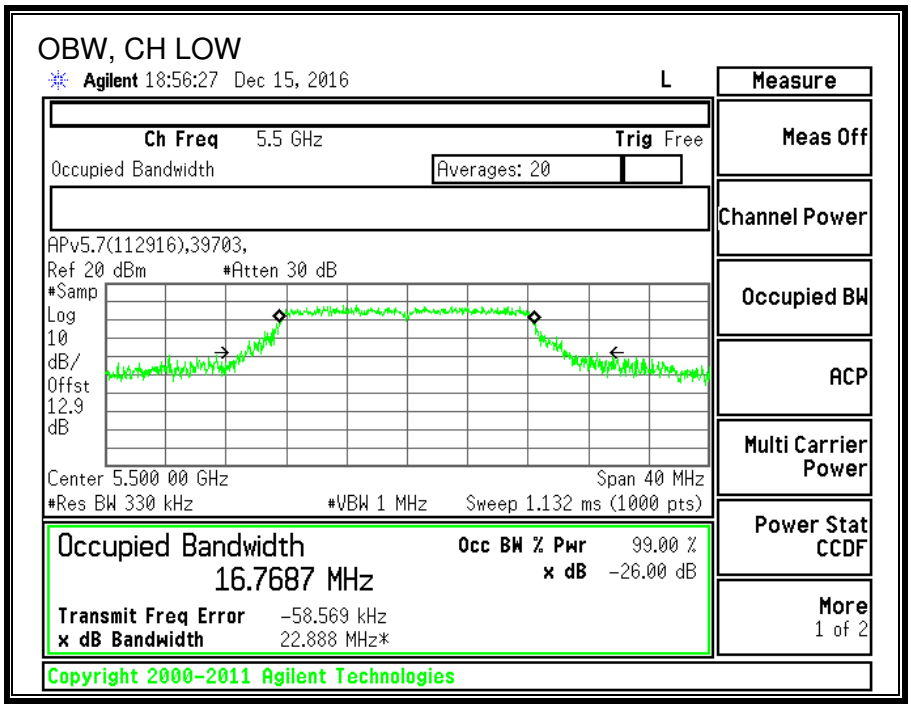
LIMITS

None; for reporting purposes only.

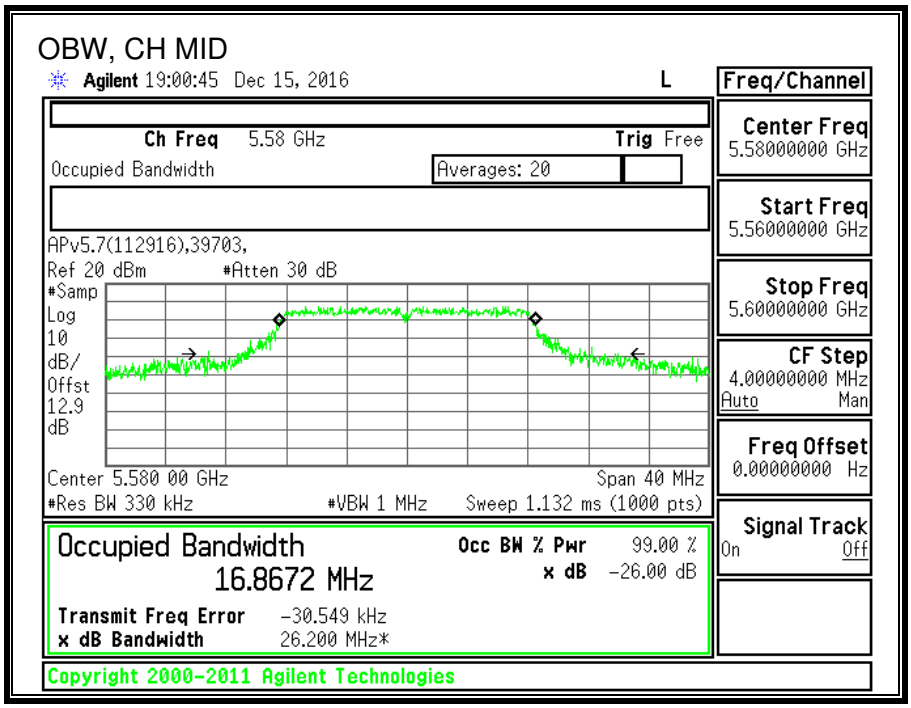
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)
Low	5500	16.7687
Mid	5580	16.8672
High	5700	16.8432

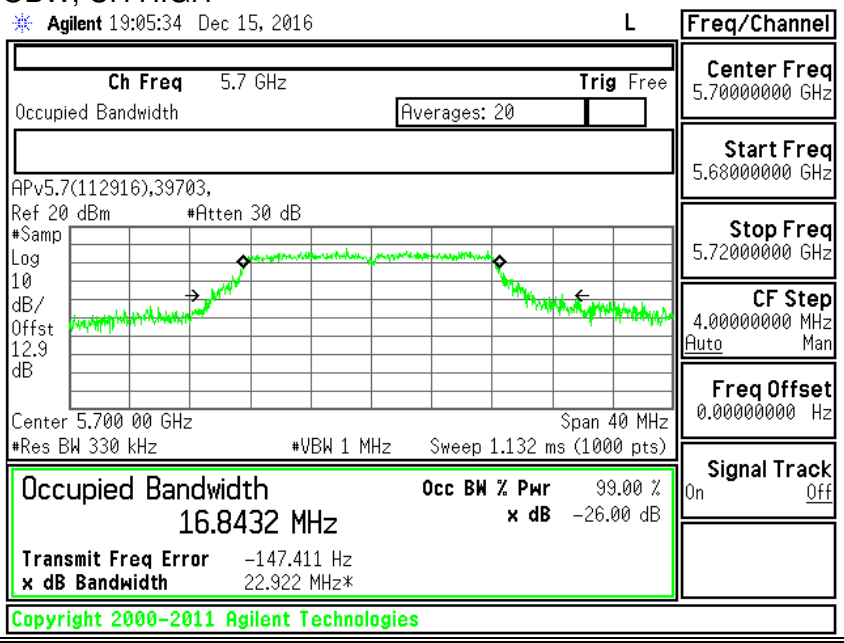
OBW, CH LOW



OBW, CH MID



OBW, CH HIGH



10.11.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

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

IC RSS-247 (6.2.3) (1)

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever 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 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. 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.

TEST PROCEDURE

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

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

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain; 4.84dBi.

RESULTS

ID:	39703	Date:	12/15/16

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	32.24	16.769	4.84
Mid	5580	36.76	16.867	4.84
High	5700	33.80	16.843	4.84

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	24.00	23.24	29.24	23.24	11.00	11.00	11.00
Mid	5580	24.00	23.27	29.27	23.27	11.00	11.00	11.00
High	5700	24.00	23.26	29.26	23.26	11.00	11.00	11.00

Duty Cycle CF (dB)	0.29	Included in Calculations of Corr'd PPSD

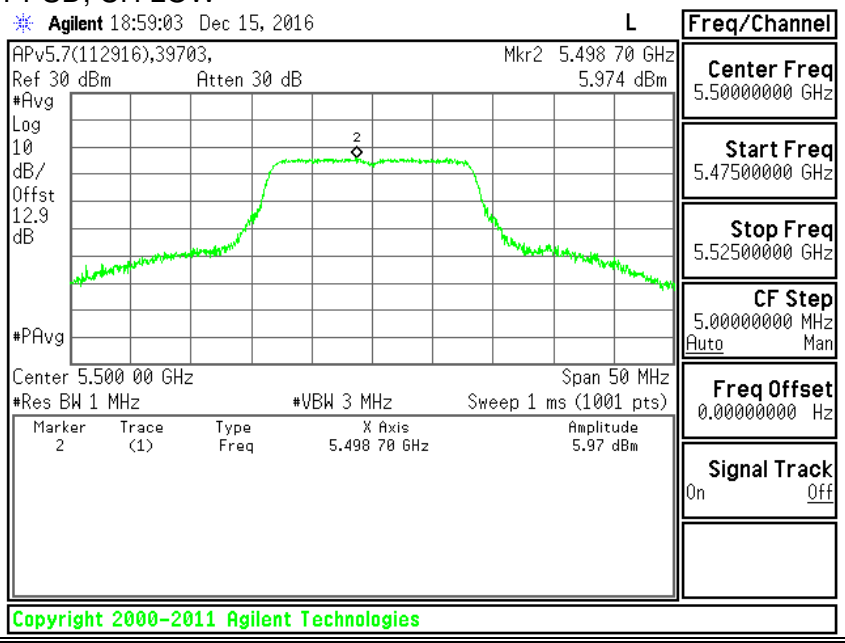
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	17.11	17.11	23.24	-6.13
Mid	5580	17.04	17.04	23.27	-6.23
High	5700	12.62	12.62	23.26	-10.64

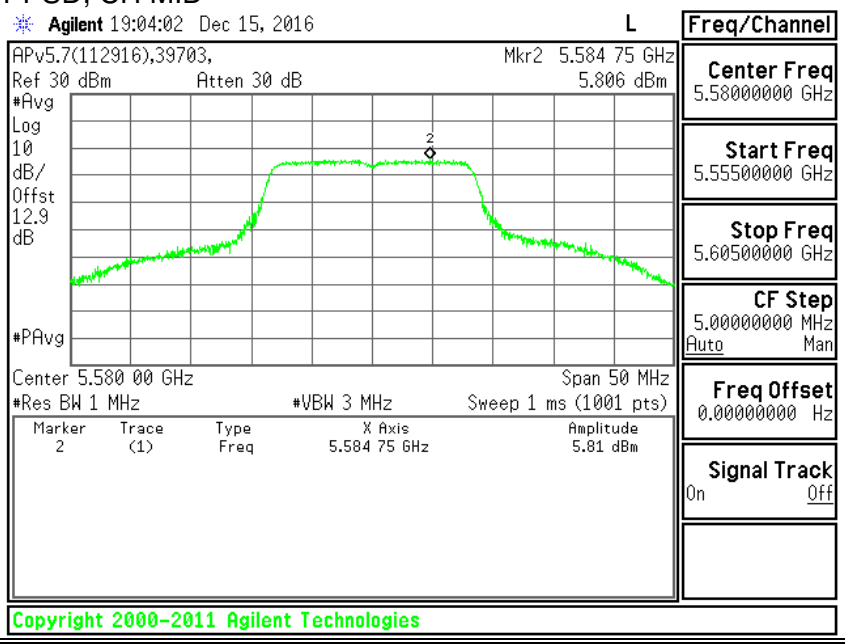
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	5.974	6.264	11.00	-4.74
Mid	5580	5.806	6.096	11.00	-4.90
High	5700	1.469	1.759	11.00	-9.24

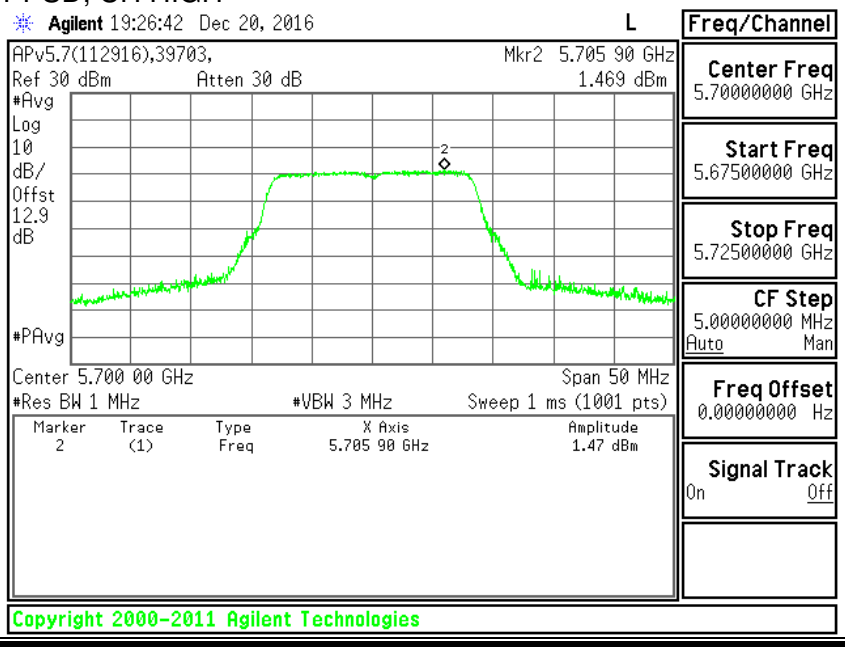
PPSD, CH LOW



PPSD, CH MID



PPSD, CH HIGH



10.12. 11a Chain 1 SISO MODE IN THE 5.6GHz BAND

10.12.1. 26 dB BANDWIDTH

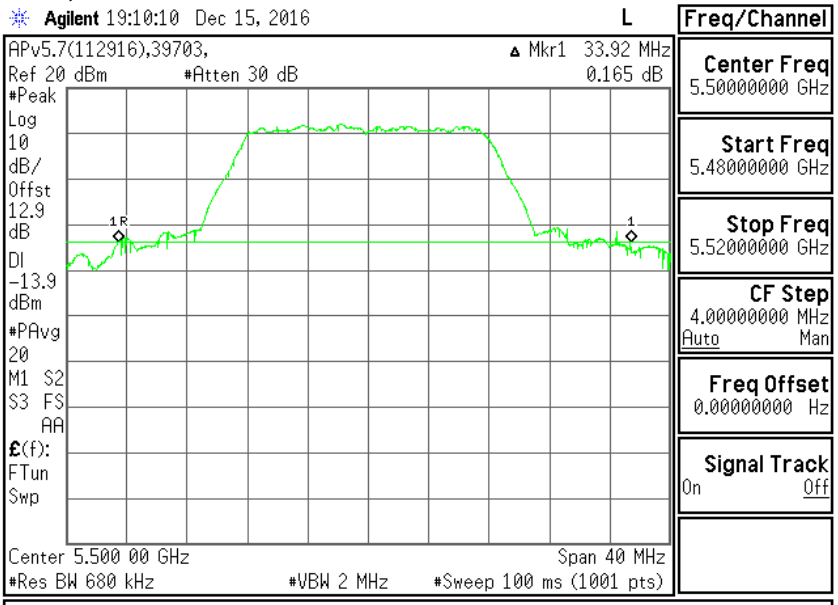
LIMITS

None; for reporting purposes only.

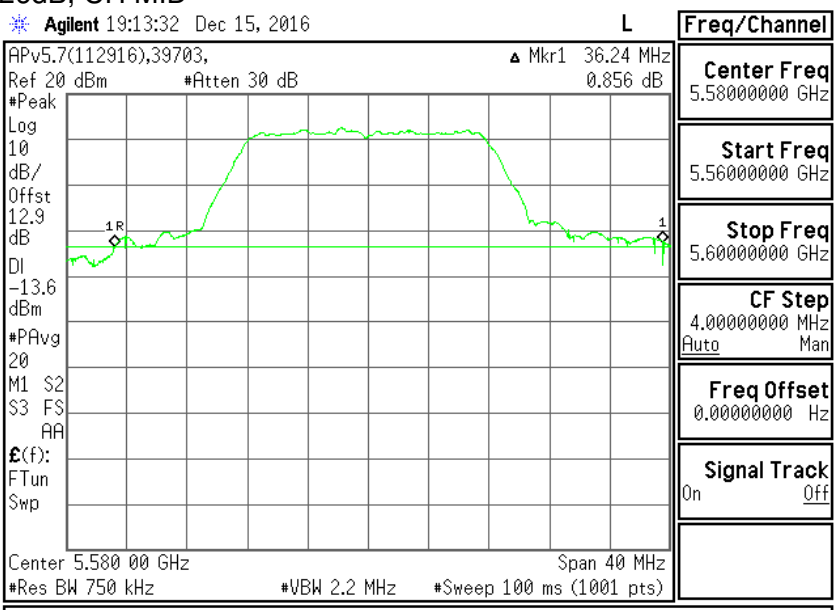
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 1 (MHz)
Low	5500	33.92
Mid	5580	36.24
High	5700	30.60

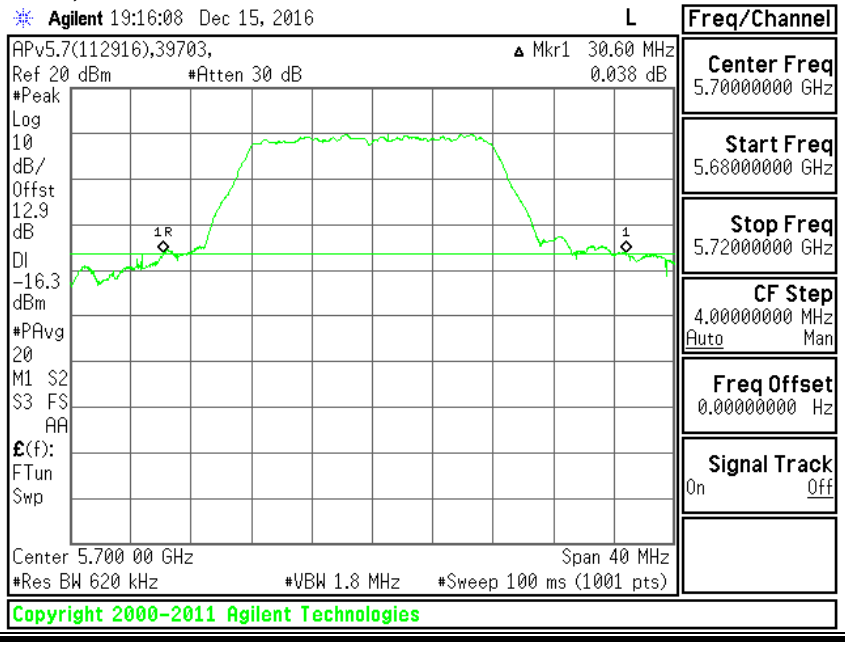
26dB, CH LOW



26dB, CH MID



26dB, CH HIGH



10.12.2. 99% BANDWIDTH

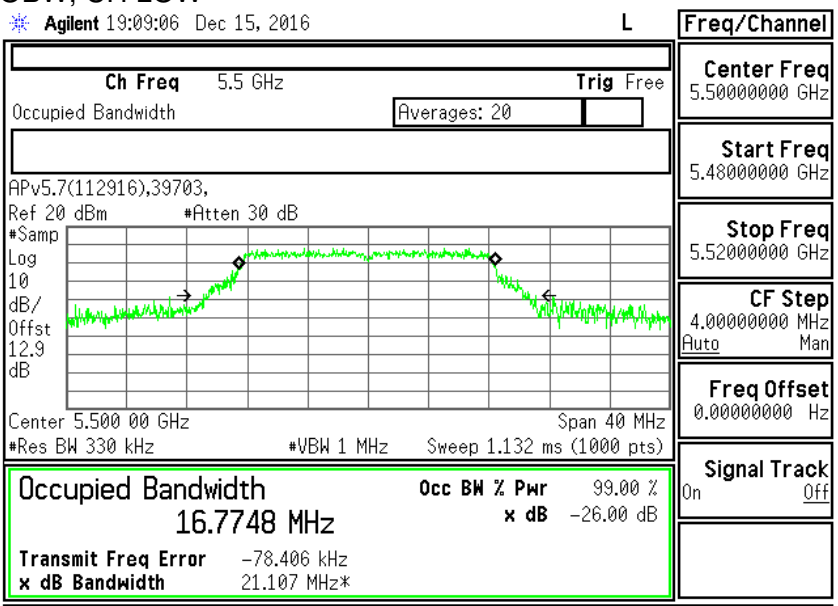
LIMITS

None; for reporting purposes only.

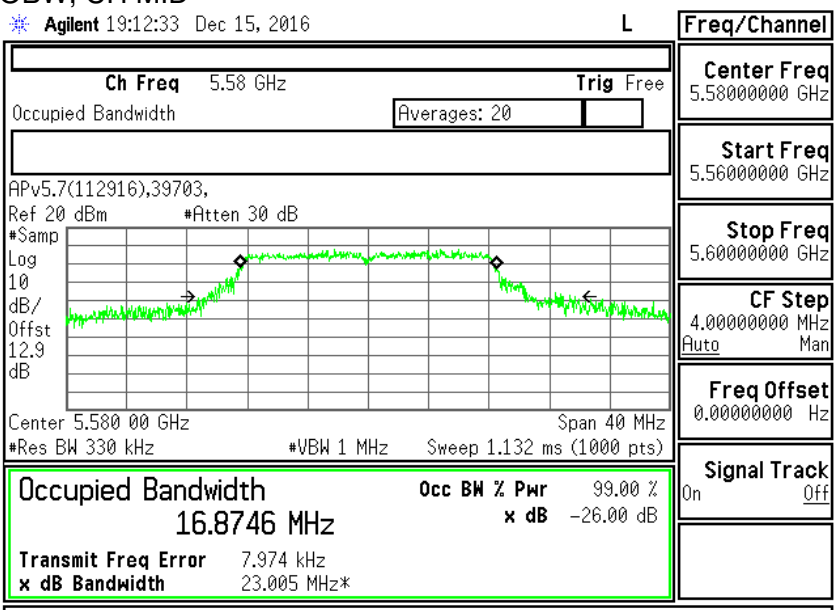
RESULTS

Channel	Frequency (MHz)	99% BW Chain 1 (MHz)
Low	5500	16.7748
Mid	5580	16.8746
High	5700	16.7583

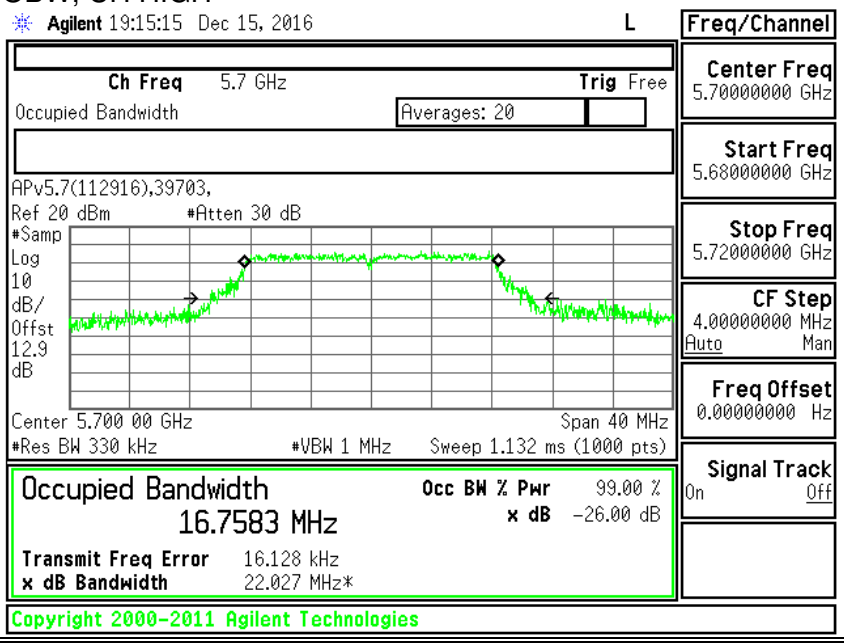
OBW, CH LOW



OBW, CH MID



OBW, CH HIGH



10.12.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

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

IC RSS-247 (6.2.3) (1)

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever 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 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. 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.

TEST PROCEDURE

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

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

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain; 4.84dBi.

RESULTS

ID:	39703	Date:	12/15/16

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	33.92	16.775	4.84
Mid	5580	36.24	16.875	4.84
High	5700	30.60	16.758	4.84

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	24.00	23.25	29.25	23.25	11.00	11.00	11.00
Mid	5580	24.00	23.27	29.27	23.27	11.00	11.00	11.00
High	5700	24.00	23.24	29.24	23.24	11.00	11.00	11.00

Duty Cycle CF (dB)	0.29	Included in Calculations of Corr'd PPSD

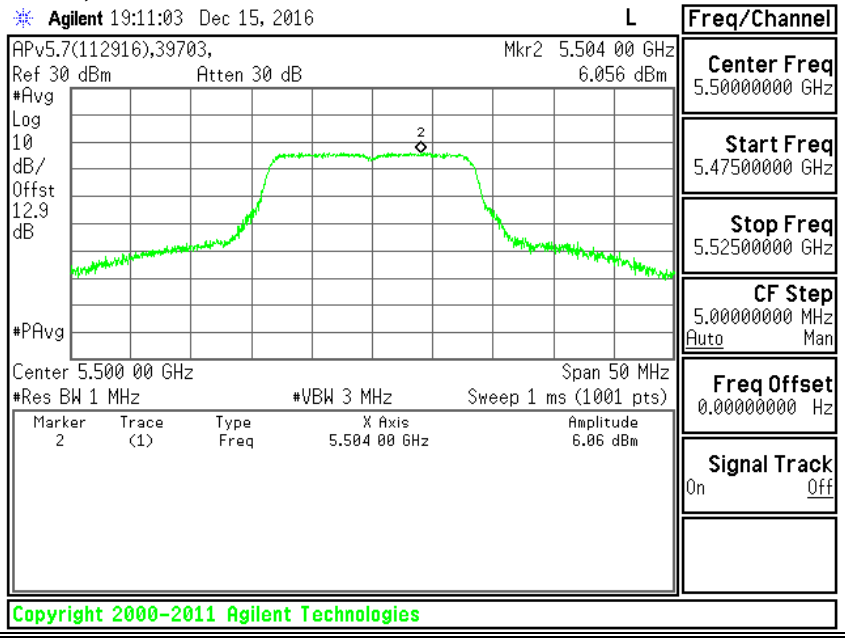
Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	17.49	17.49	23.25	-5.76
Mid	5580	17.31	17.31	23.27	-5.96
High	5700	13.20	13.20	23.24	-10.04

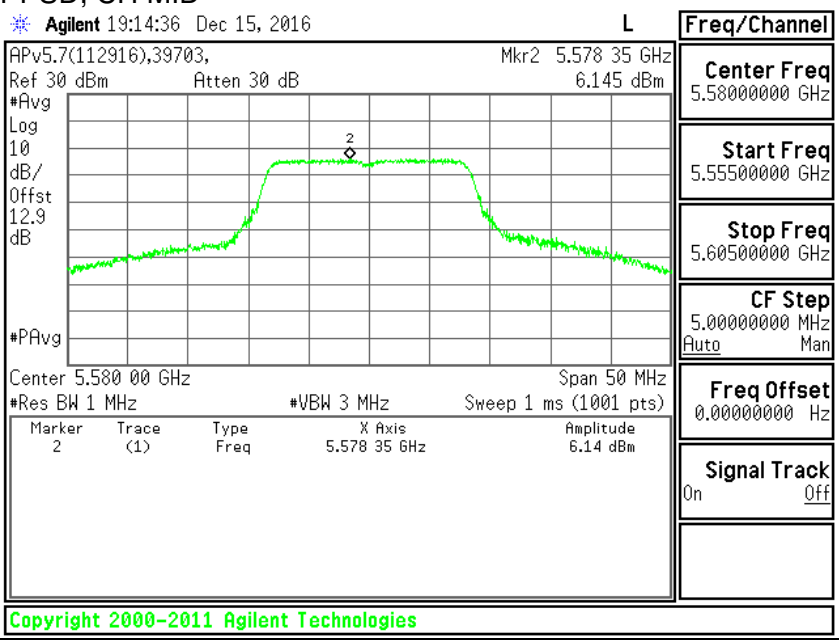
PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	6.056	6.346	11.00	-4.65
Mid	5580	6.145	6.435	11.00	-4.57
High	5700	1.816	2.106	11.00	-8.89

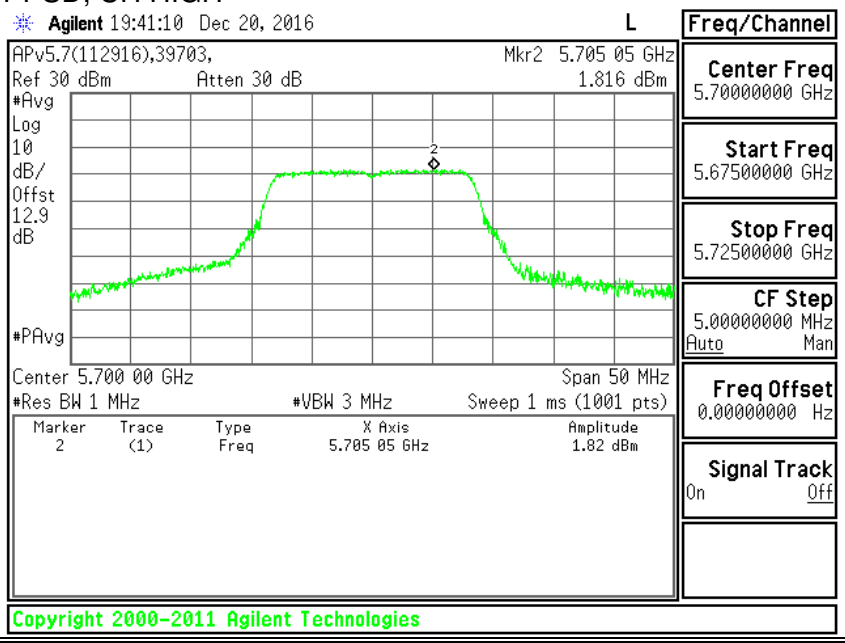
PPSD, CH LOW



PPSD, CH MID



PPSD, CH HIGH



10.13. 11n HT20 2TX CDD MIMO MODE IN THE 5.6GHz BAND

10.13.1. 26 dB BANDWIDTH

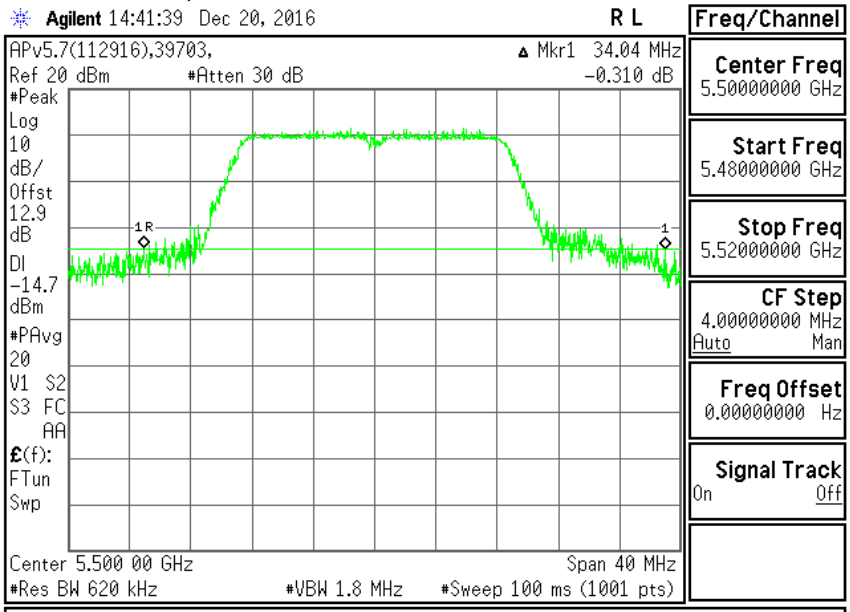
LIMITS

None; for reporting purposes only.

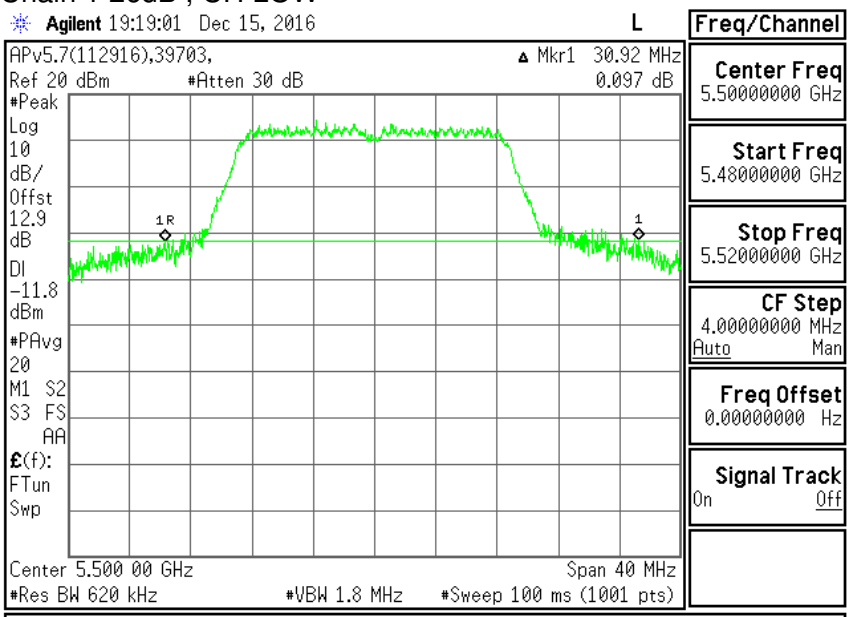
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5500	34.04	30.92
Mid	5580	37.92	33.36
High	5700	31.56	27.40

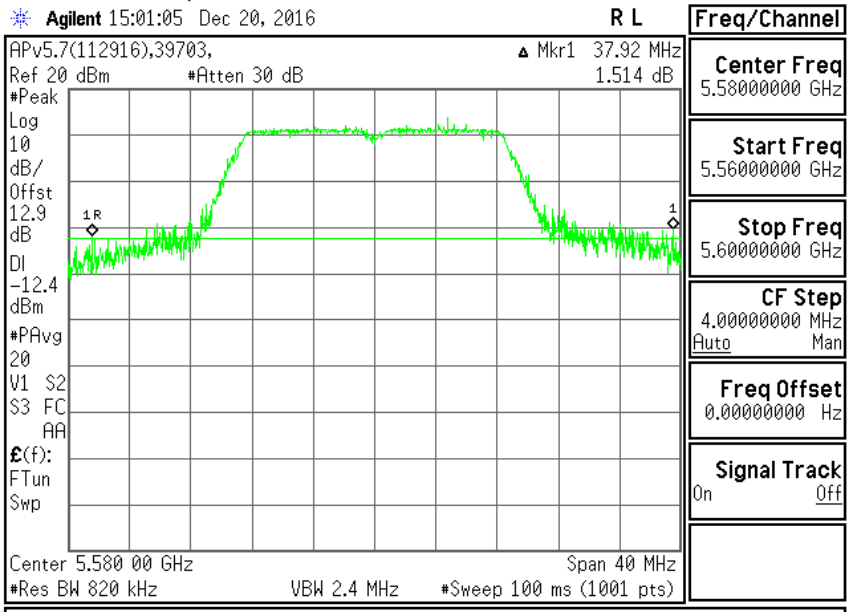
Chain 0 26dB , CH LOW



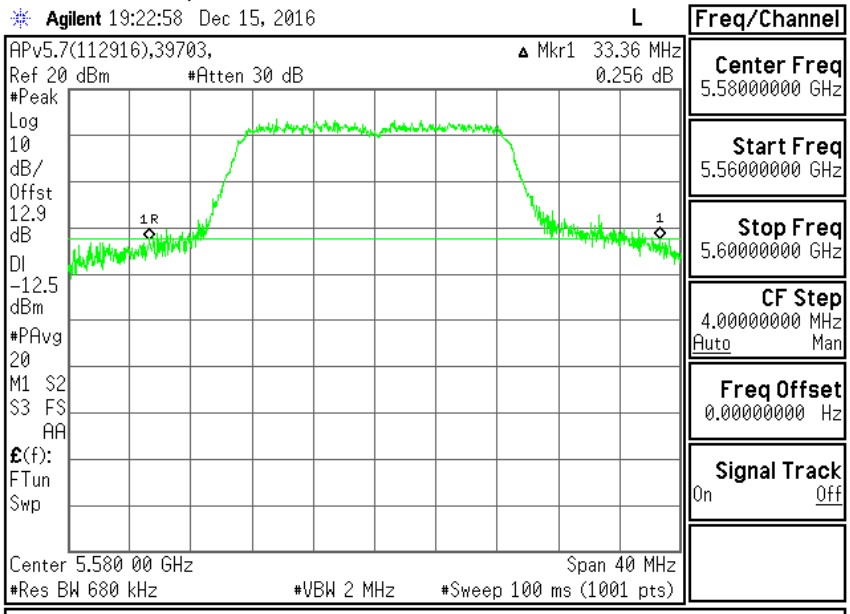
Chain 1 26dB , CH LOW



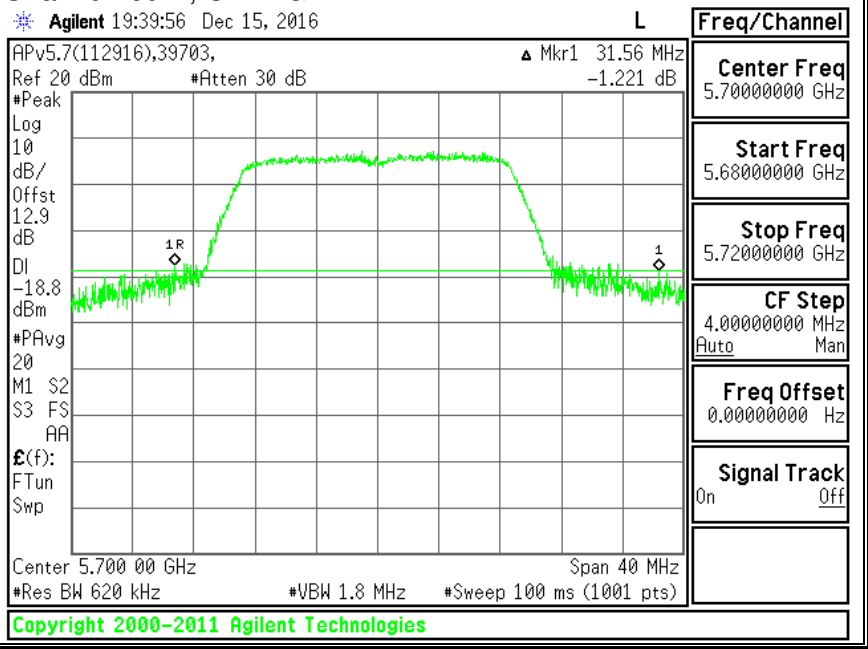
Chain 0 26dB , CH MID



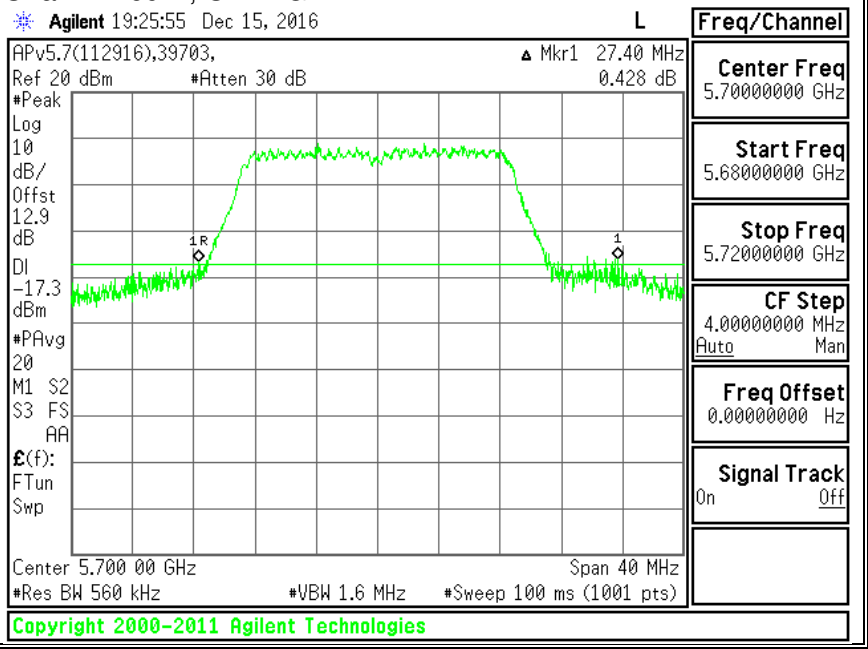
Chain 1 26dB , CH MID



Chain 0 26dB , CH HIGH



Chain 1 26dB , CH HIGH



10.13.2. 99% BANDWIDTH

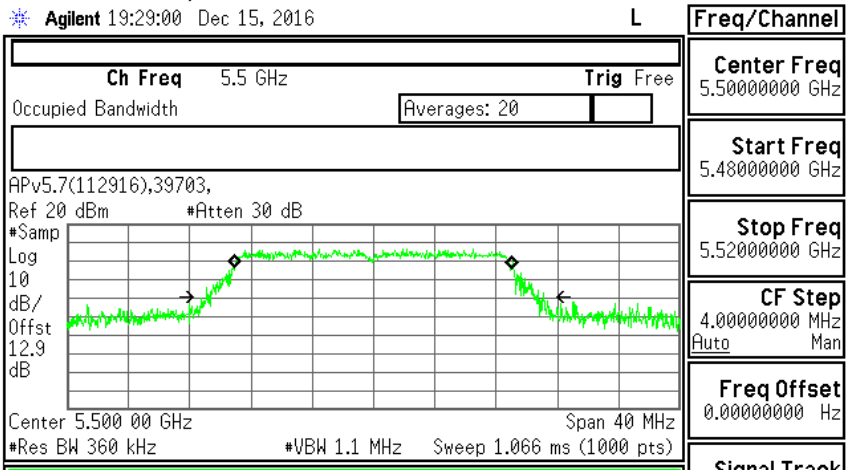
LIMITS

None; for reporting purposes only.

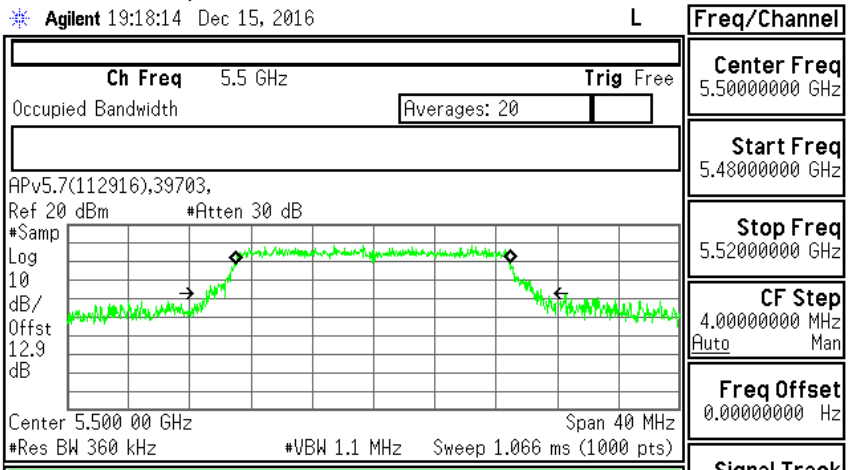
RESULTS

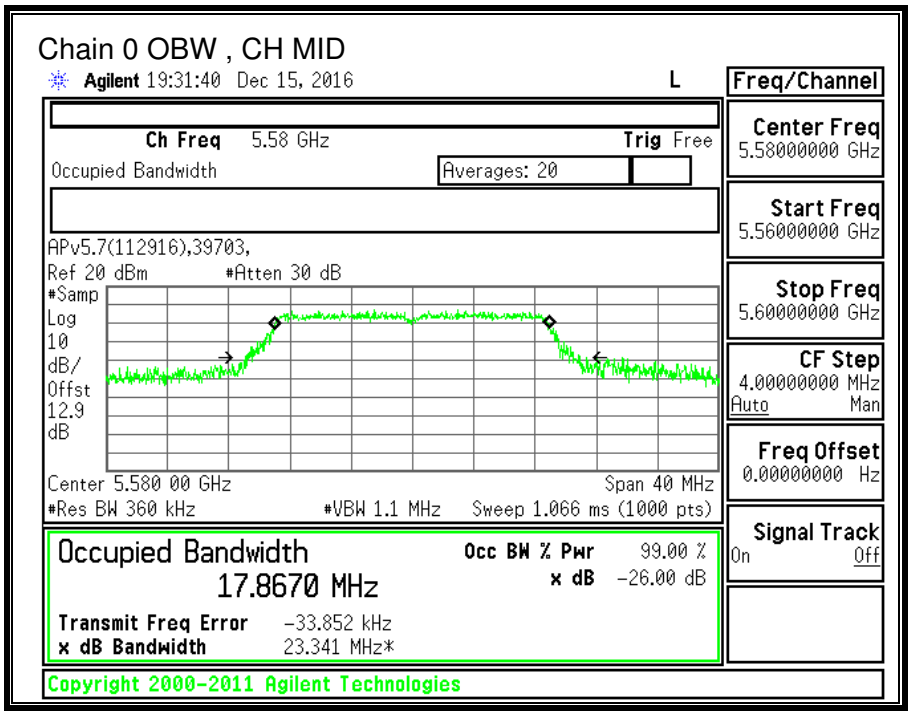
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5500	17.7993	17.8525
Mid	5580	17.8670	17.9227
High	5700	17.9179	17.8929

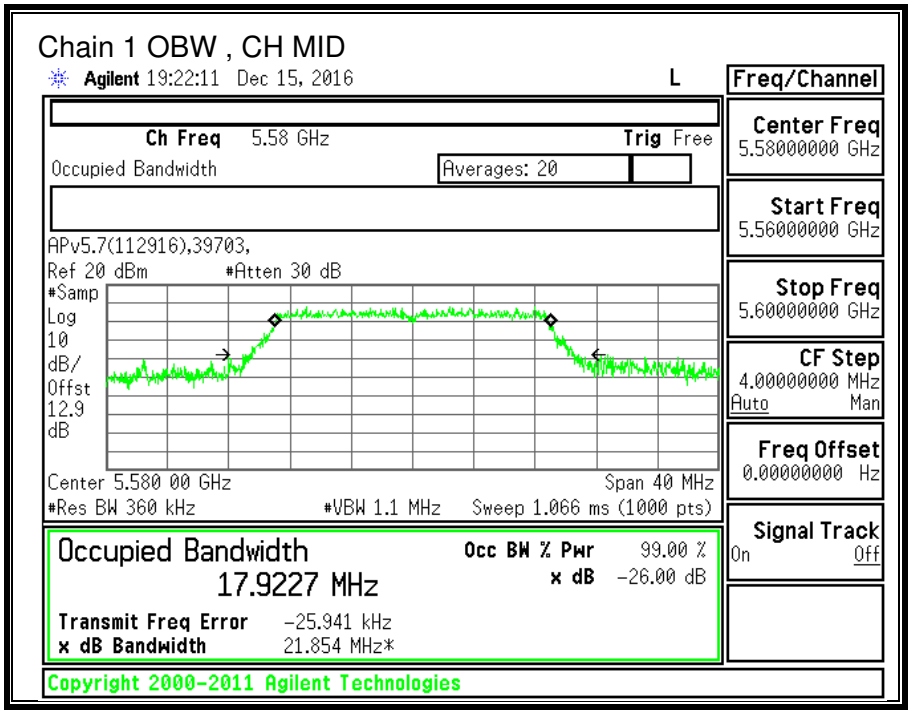
Chain 0 OBW , CH LOW



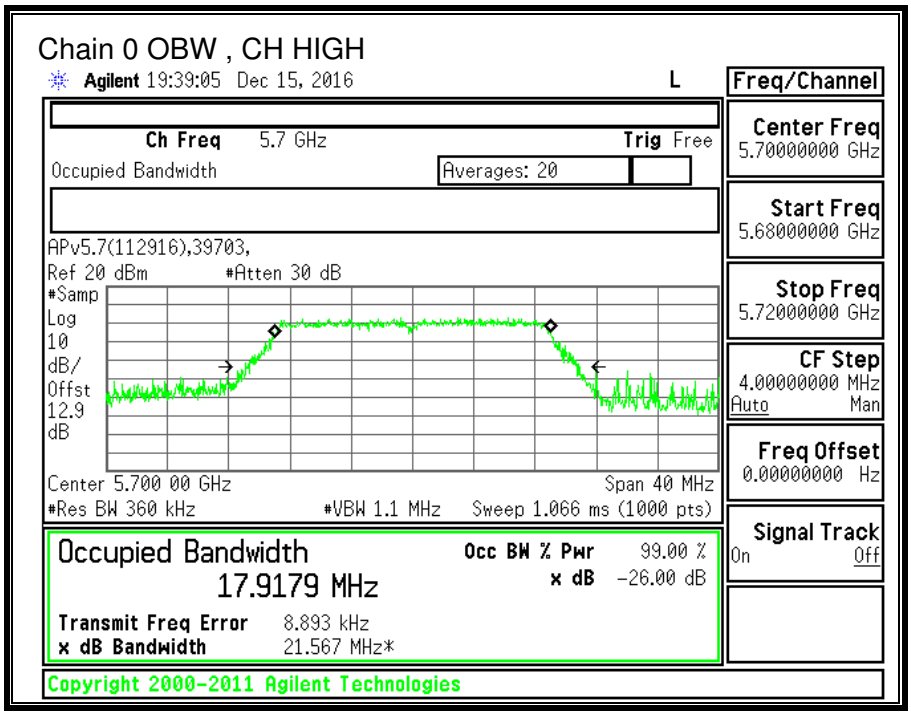
Chain 1 OBW , CH LOW



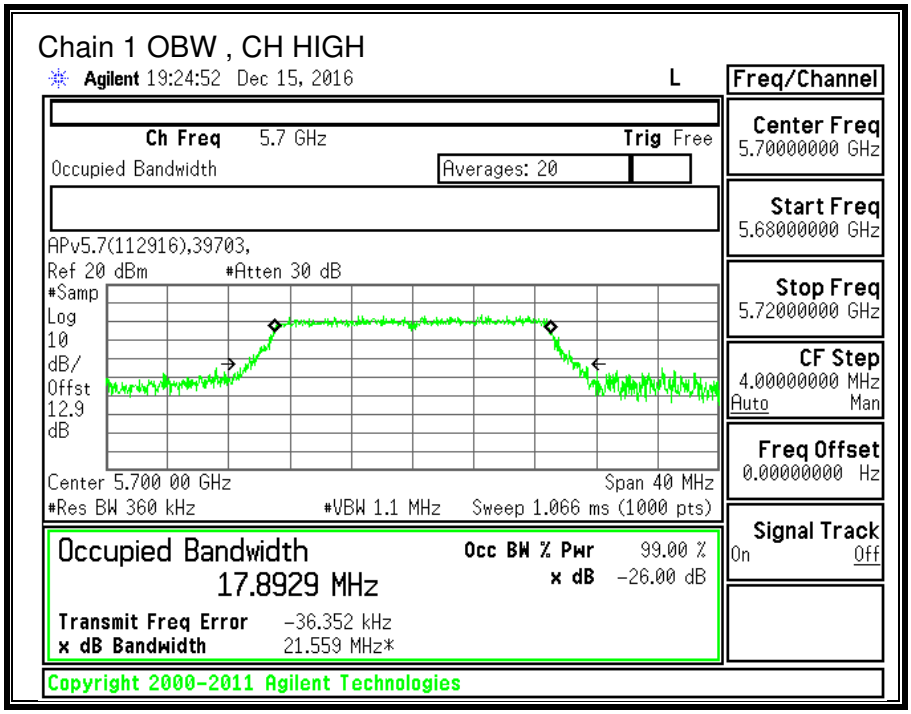




Chain 0 OBW , CH HIGH



Chain 1 OBW , CH HIGH



10.13.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

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

IC RSS-247 (6.2.3) (1)

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever 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 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. 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.

TEST PROCEDURE

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

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

DIRECTIONAL ANTENNA GAIN

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

5500-5700 MHz

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
4.84	4.84	4.84

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

5500-5700 MHz

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
4.84	3.01	7.85

RESULTS

ID:	39703	Date:	12/15/16

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5500	30.92	17.799	4.84	7.85
Mid	5580	33.36	17.867	4.84	7.85
High	5700	27.40	17.893	4.84	7.85

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	24.00	23.50	29.50	23.50	9.15	11.00	9.15
Mid	5580	24.00	23.52	29.52	23.52	9.15	11.00	9.15
High	5700	24.00	23.53	29.53	23.53	9.15	11.00	9.15

Duty Cycle CF (dB)	0.31	Included in Calculations of Corr'd PPSD

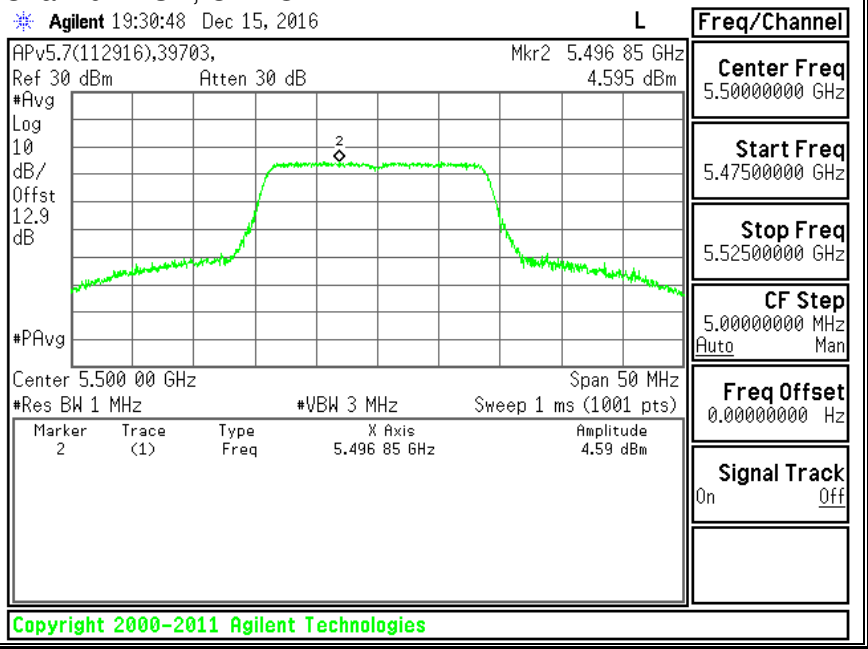
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	16.02	16.21	19.13	23.50	-4.38
Mid	5580	16.09	16.50	19.31	23.52	-4.21
High	5700	10.96	11.48	14.24	23.53	-9.29

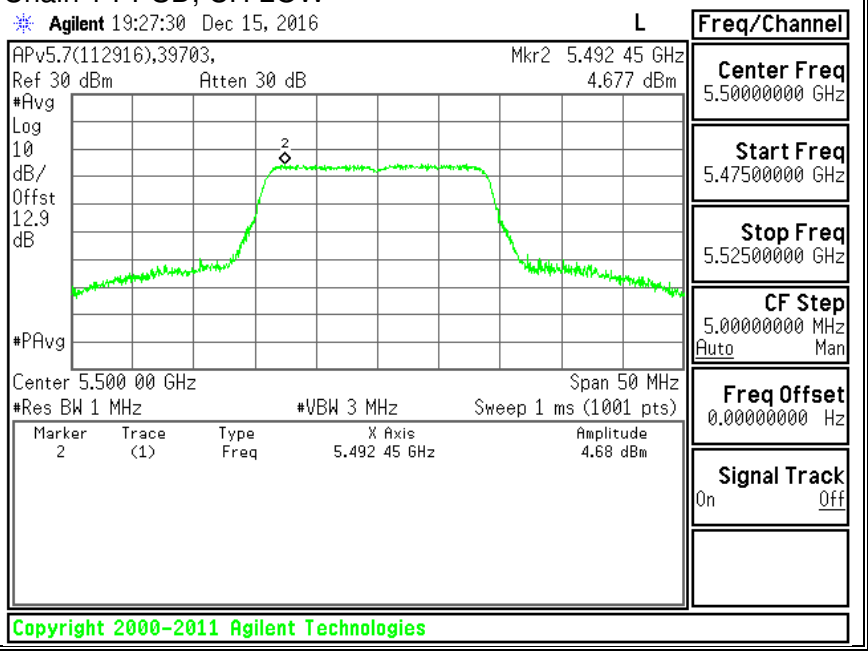
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	4.595	4.677	7.96	9.15	-1.19
Mid	5580	4.797	4.781	8.11	9.15	-1.04
High	5700	-0.617	-0.084	2.98	9.15	-6.17

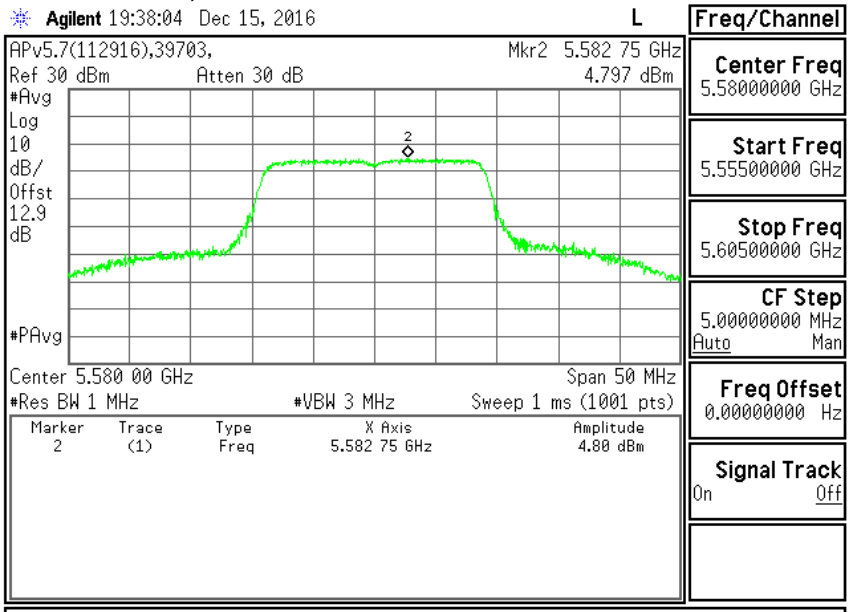
Chain 0 PPSD, CH LOW



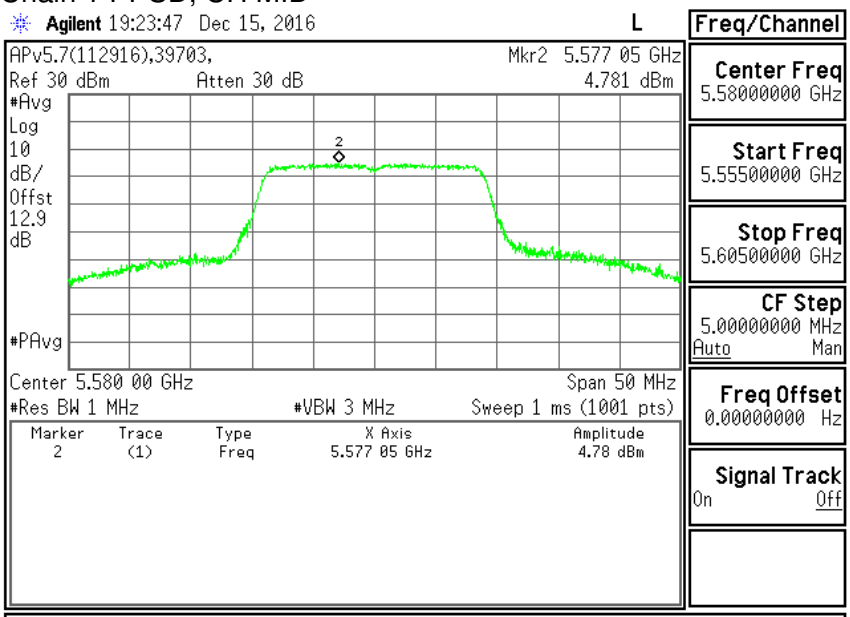
Chain 1 PPSD, CH LOW



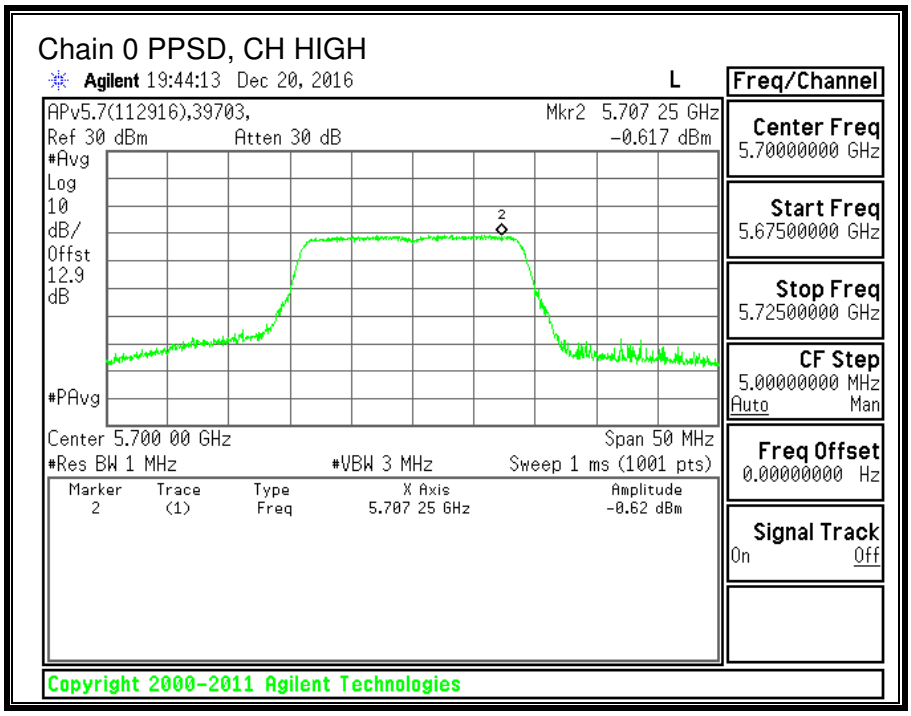
Chain 0 PPSD, CH MID



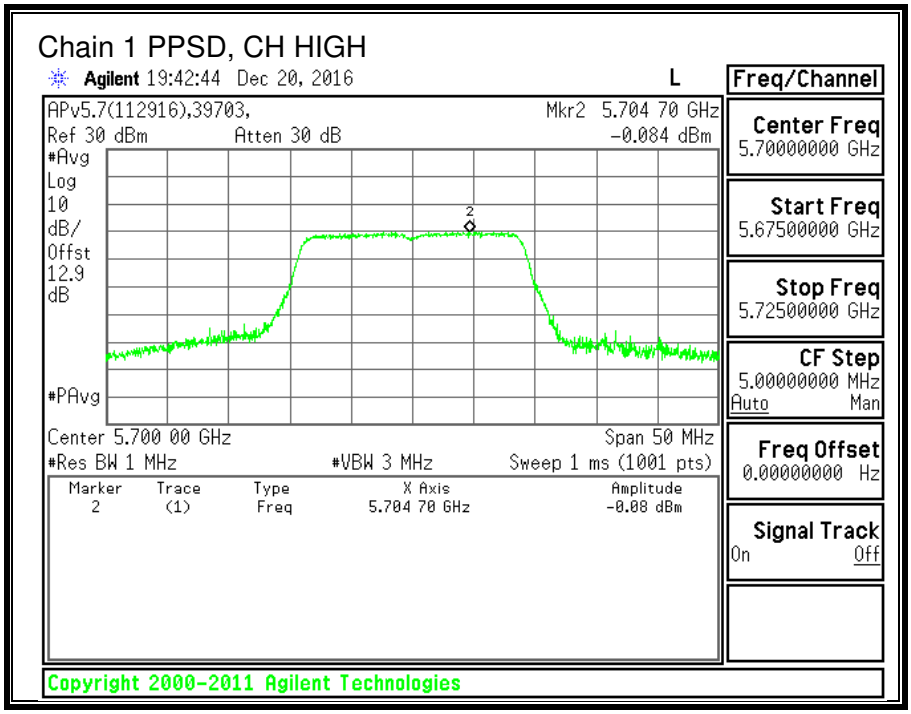
Chain 1 PPSD, CH MID



Chain 0 PPSD, CH HIGH



Chain 1 PPSD, CH HIGH



10.14. 11n HT40 2TX CDD MIMO MODE IN THE 5.6GHz BAND

10.14.1. 26 dB BANDWIDTH

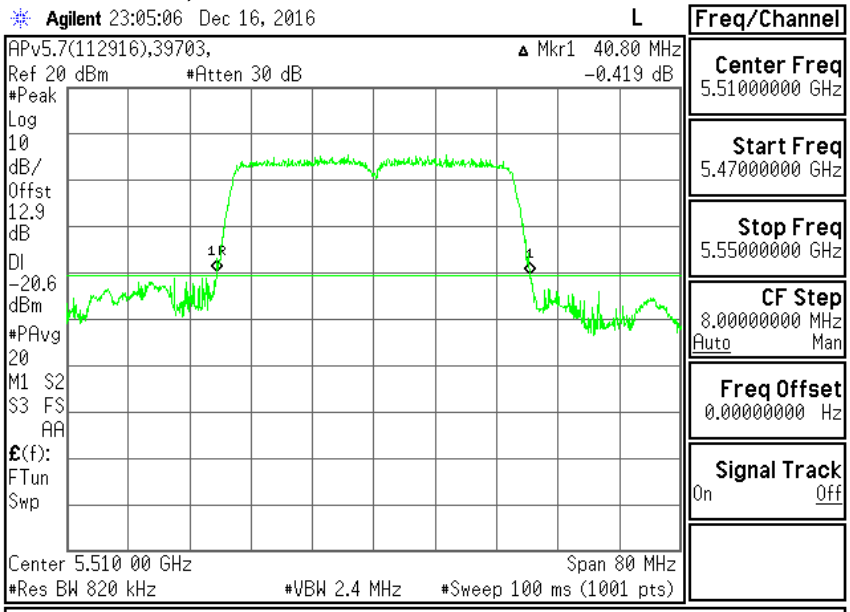
LIMITS

None; for reporting purposes only.

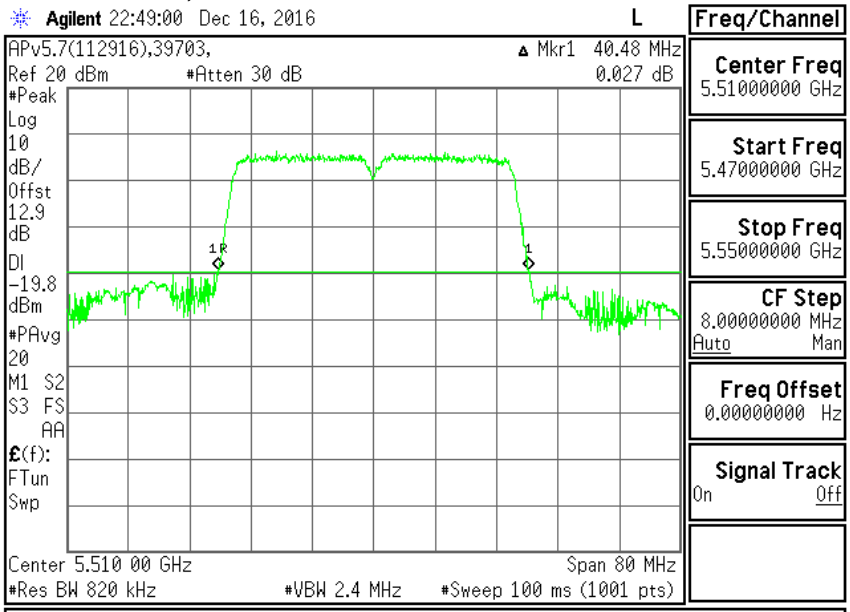
RESULTS

Channel	Frequency	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5510	40.80	40.48
Mid	5550	73.76	58.16
High	5670	78.80	76.24

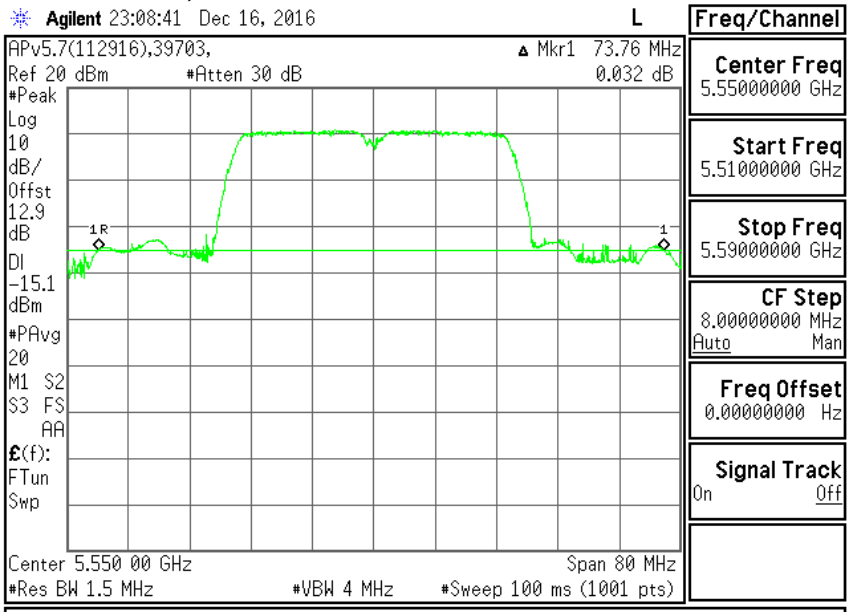
Chain 0 26dB , CH LOW



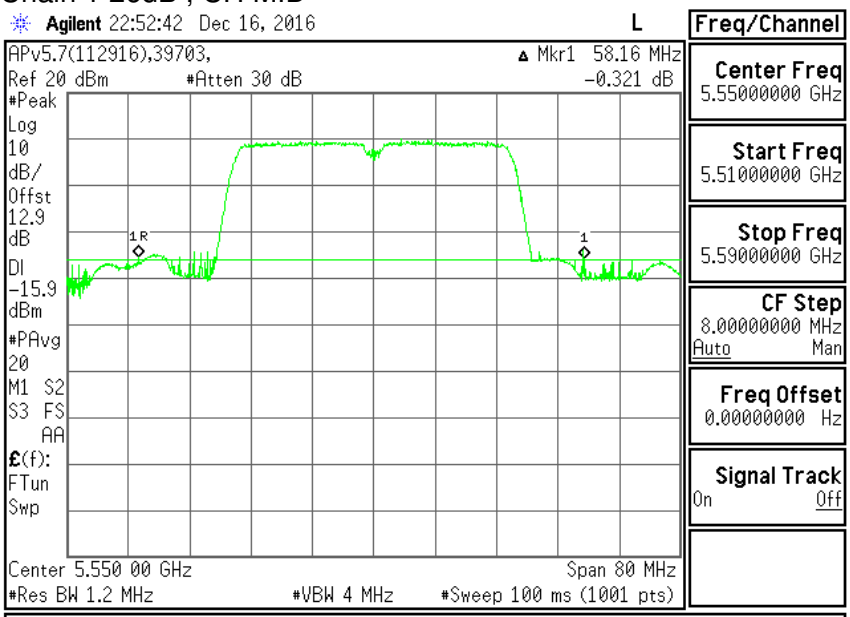
Chain 1 26dB , CH LOW



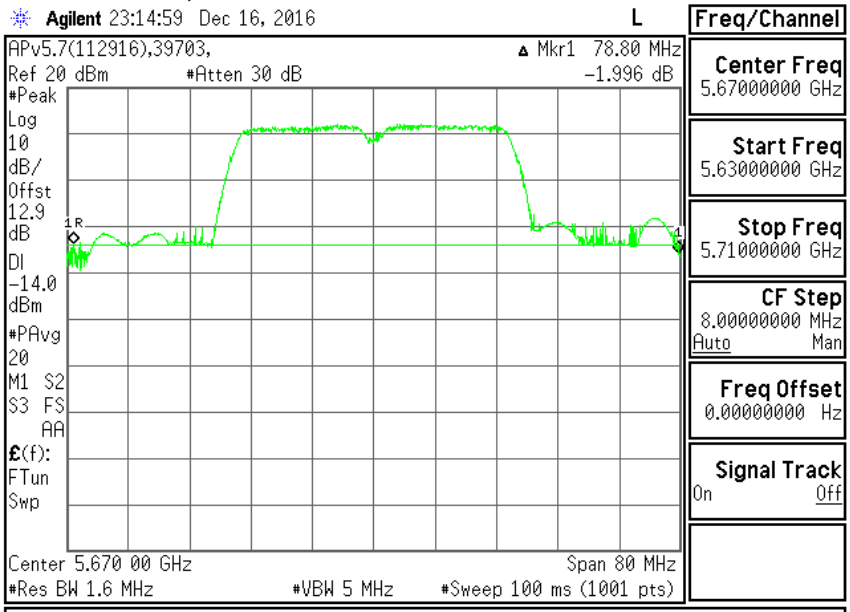
Chain 0 26dB , CH MID



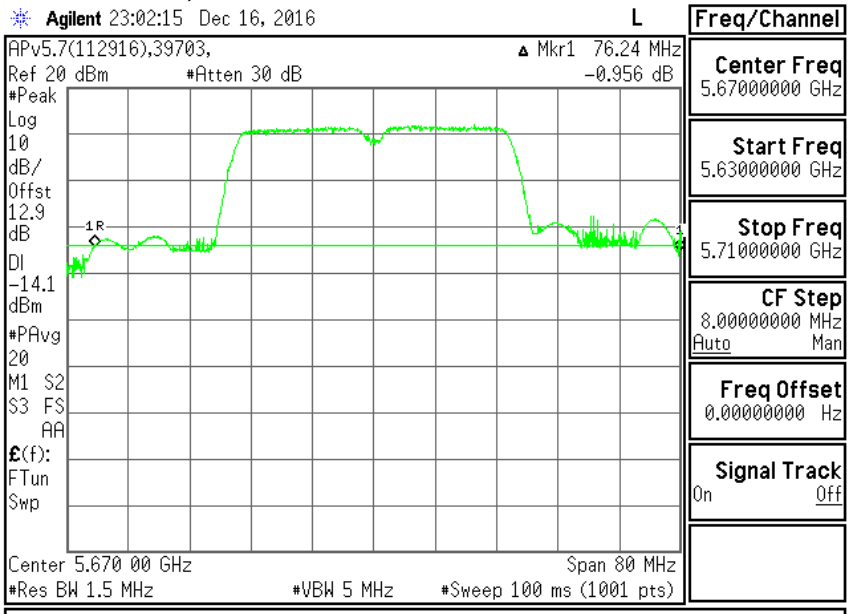
Chain 1 26dB , CH MID



Chain 0 26dB , CH HIGH



Chain 1 26dB , CH HIGH



10.14.2. 99% BANDWIDTH

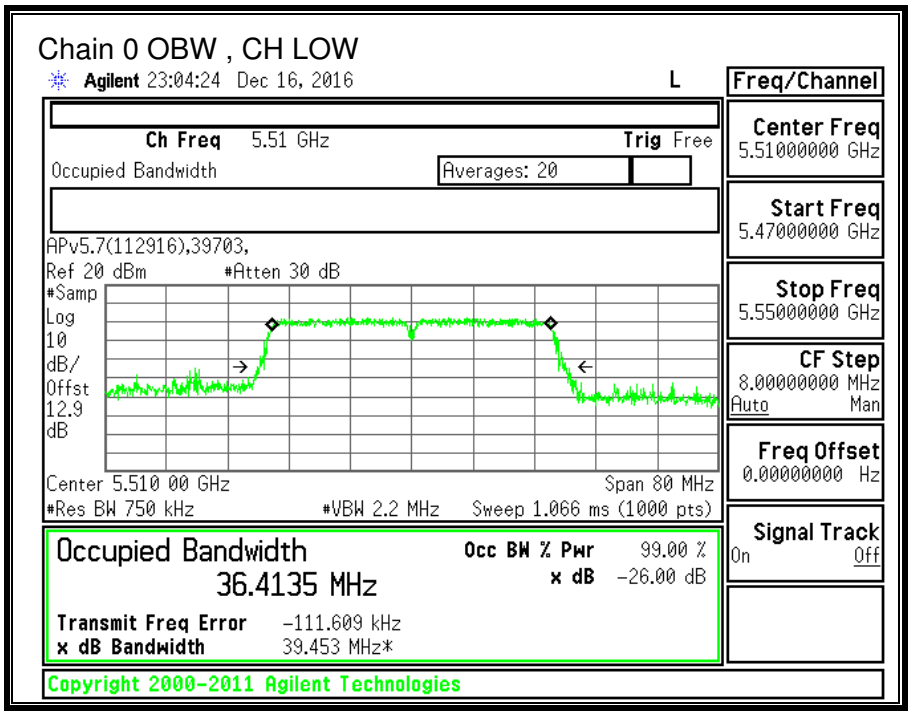
LIMITS

None; for reporting purposes only.

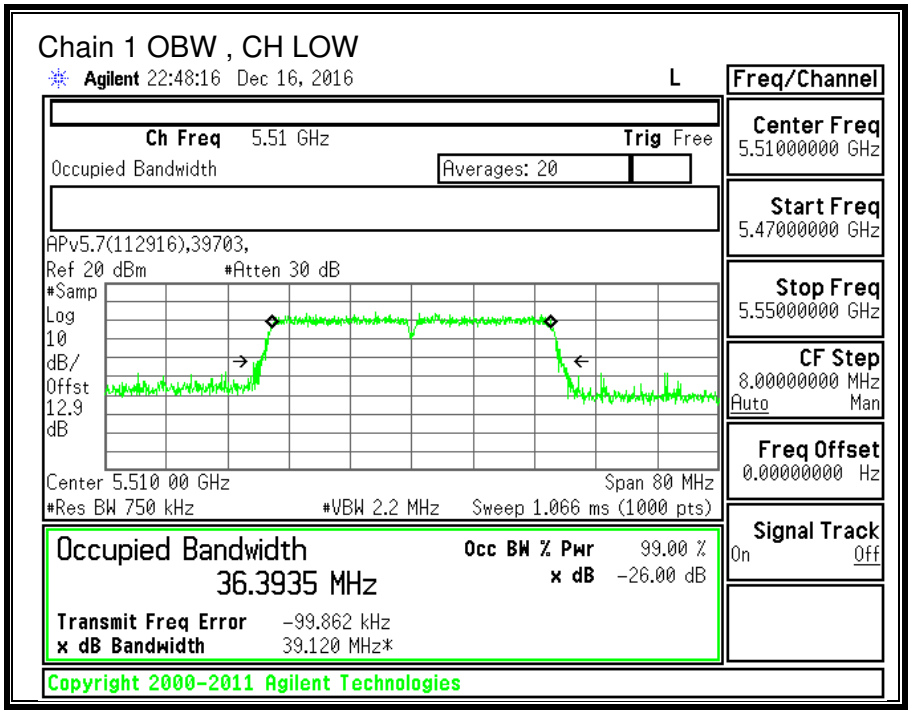
RESULTS

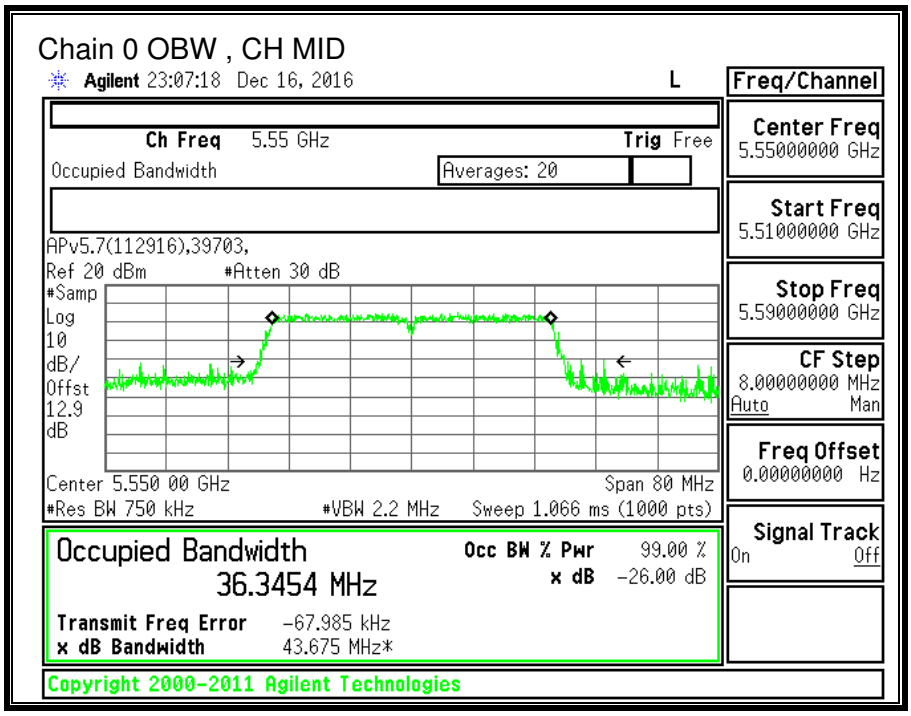
Channel	Frequency	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5510	36.4135	36.3935
Mid	5550	36.3454	36.1106
High	5670	36.1269	36.3556

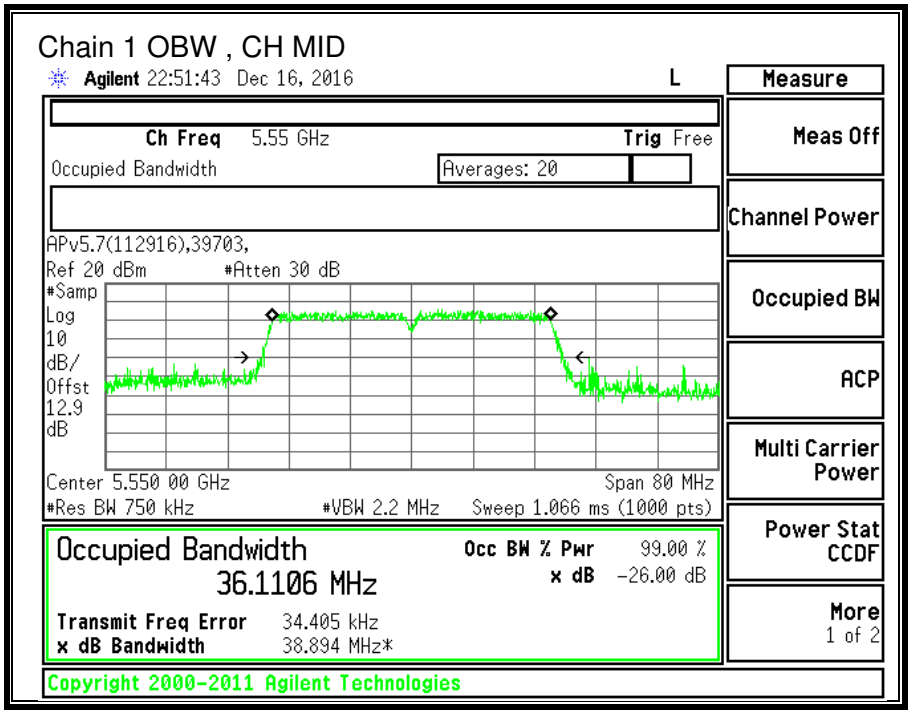
Chain 0 OBW , CH LOW



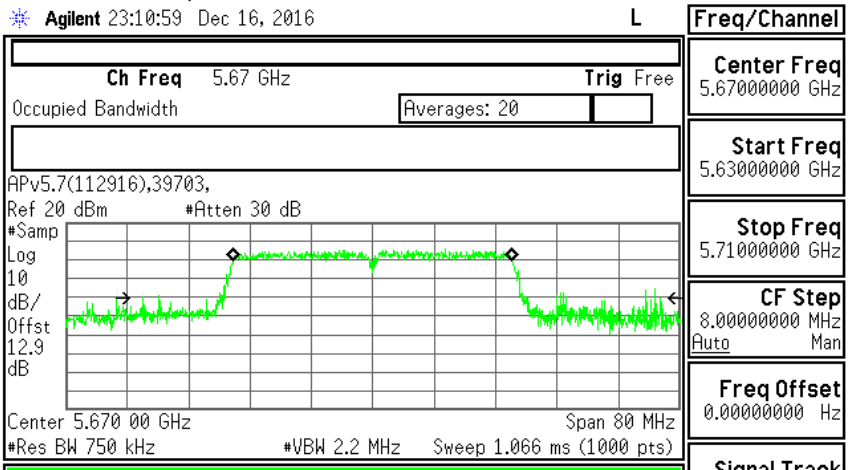
Chain 1 OBW , CH LOW



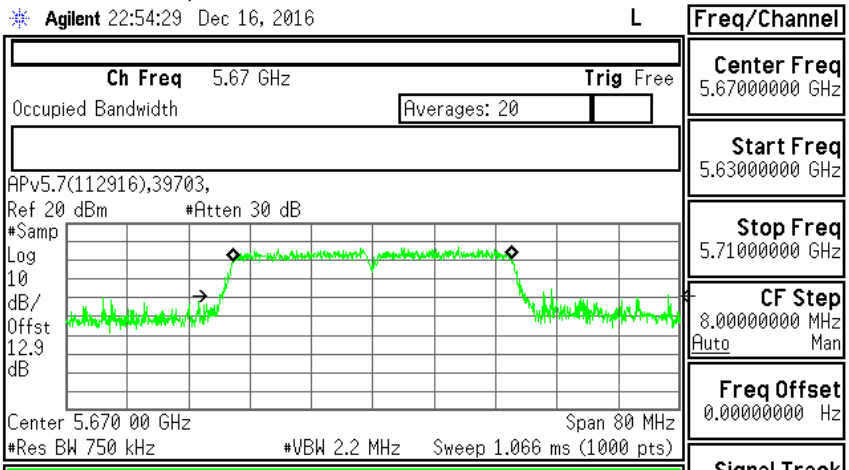




Chain 0 OBW , CH HIGH



Chain 1 OBW , CH HIGH



10.14.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

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

IC RSS-247 (6.2.3) (1)

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever 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 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. 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.

TEST PROCEDURE

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

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

DIRECTIONAL ANTENNA GAIN

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

5500-5700 MHz

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
4.84	4.84	4.84

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

5500-5700 MHz

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
4.84	3.01	7.85

RESULTS

ID:	39703	Date:	12/20/16

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5510	40.48	36.394	4.84	7.85
Mid	5550	58.16	36.111	4.84	7.85
High	5670	76.24	36.127	4.84	7.85

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5510	24.00	24.00	30.00	24.00	9.15	11.00	9.15
Mid	5550	24.00	24.00	30.00	24.00	9.15	11.00	9.15
High	5670	24.00	24.00	30.00	24.00	9.15	11.00	9.15

Duty Cycle CF (dB)	0.62	Included in Calculations of Corr'd PPSD

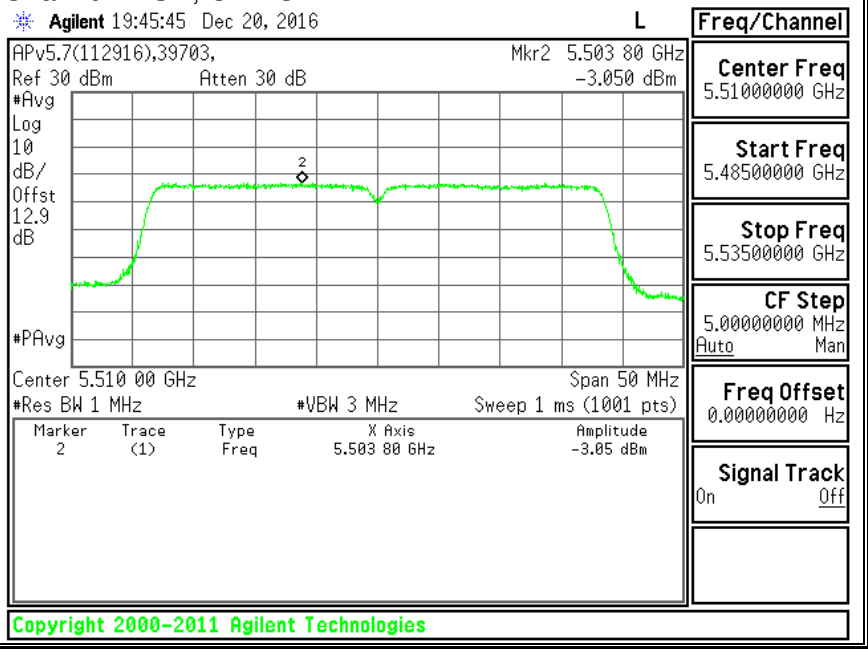
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	11.76	11.86	14.82	24.00	-9.18
Mid	5550	14.06	14.19	17.14	24.00	-6.86
High	5670	13.09	13.61	16.37	24.00	-7.63

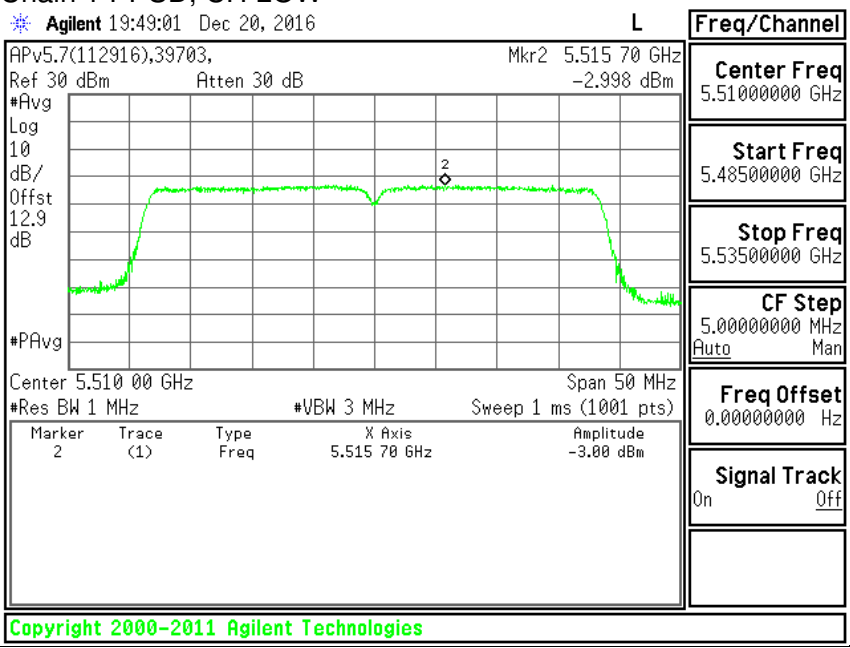
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5510	-3.050	-2.998	0.61	9.15	-8.54
Mid	5550	-0.618	-0.517	3.06	9.15	-6.09
High	5670	-1.380	-0.896	2.50	9.15	-6.65

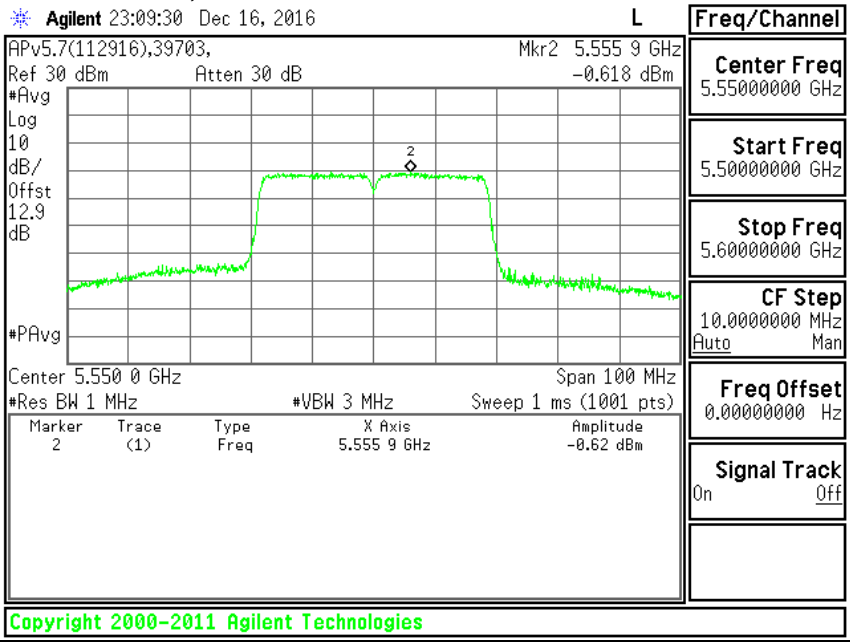
Chain 0 PPSD, CH LOW



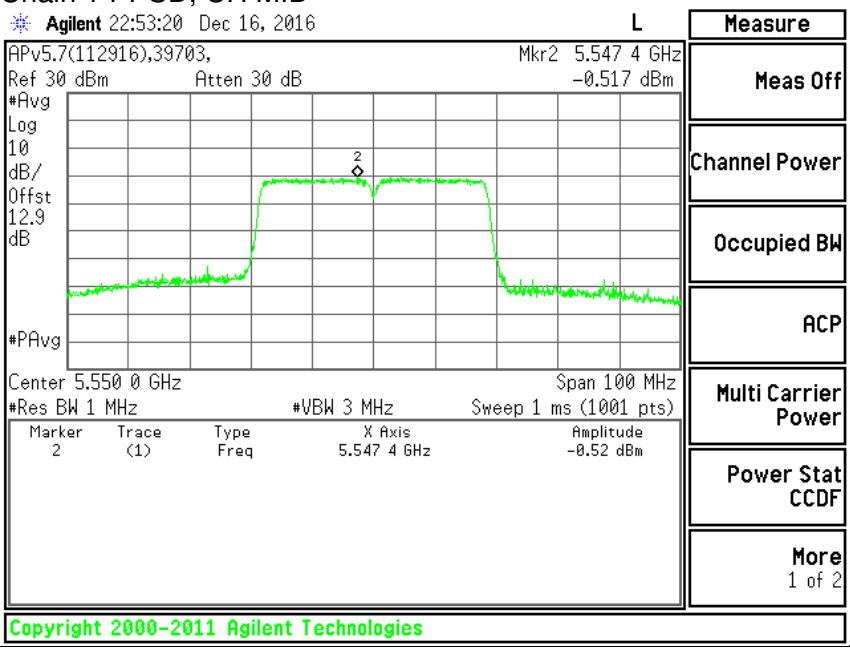
Chain 1 PPSD, CH LOW



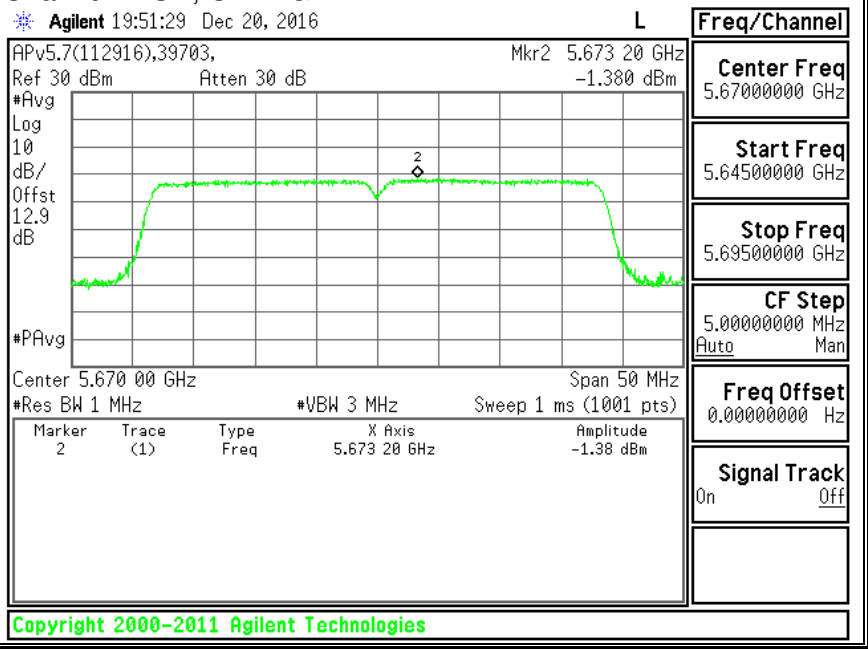
Chain 0 PPSD, CH MID



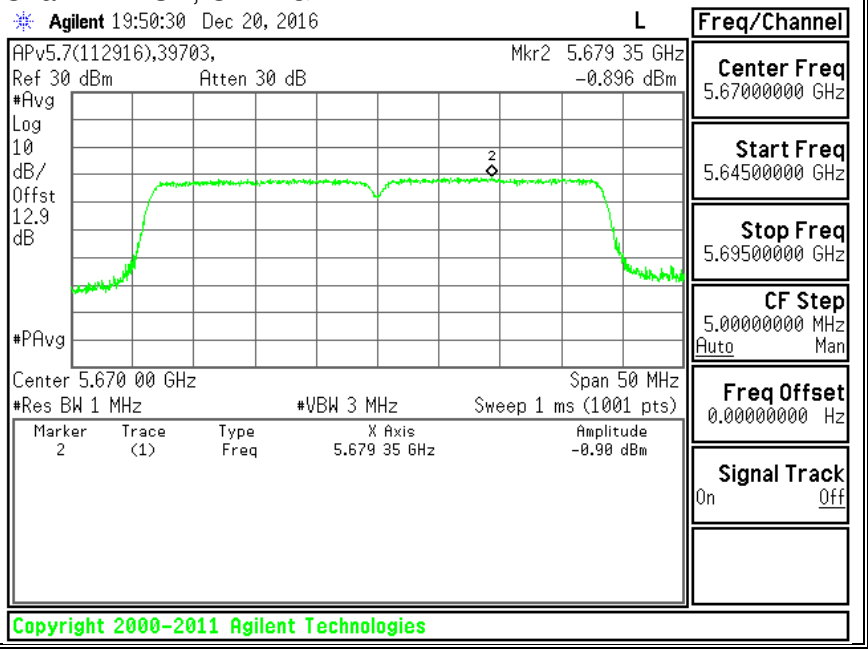
Chain 1 PPSD, CH MID



Chain 0 PPSD, CH HIGH



Chain 1 PPSD, CH HIGH



10.15. 11ac HT80 2TX CDD MIMO MODE IN THE 5.6GHz BAND

10.15.1. 26 dB BANDWIDTH

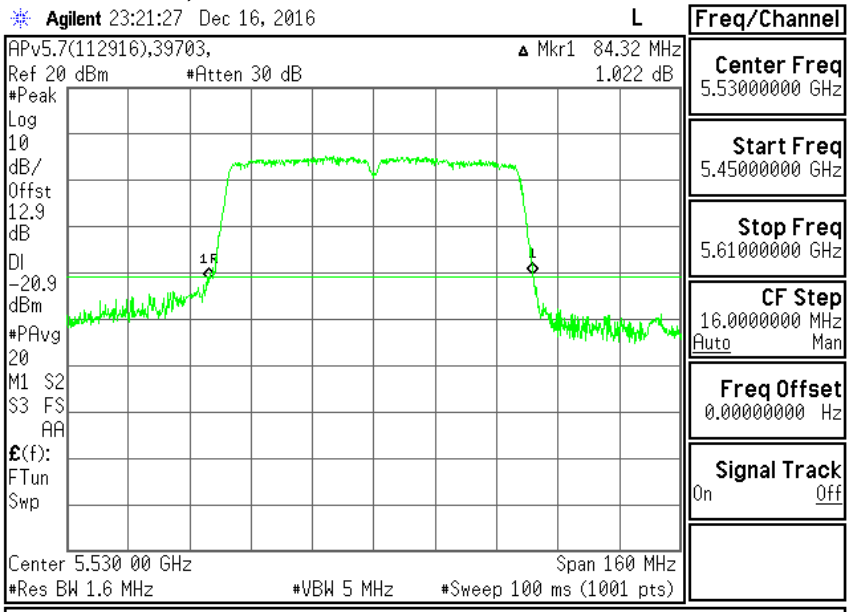
LIMITS

None; for reporting purposes only.

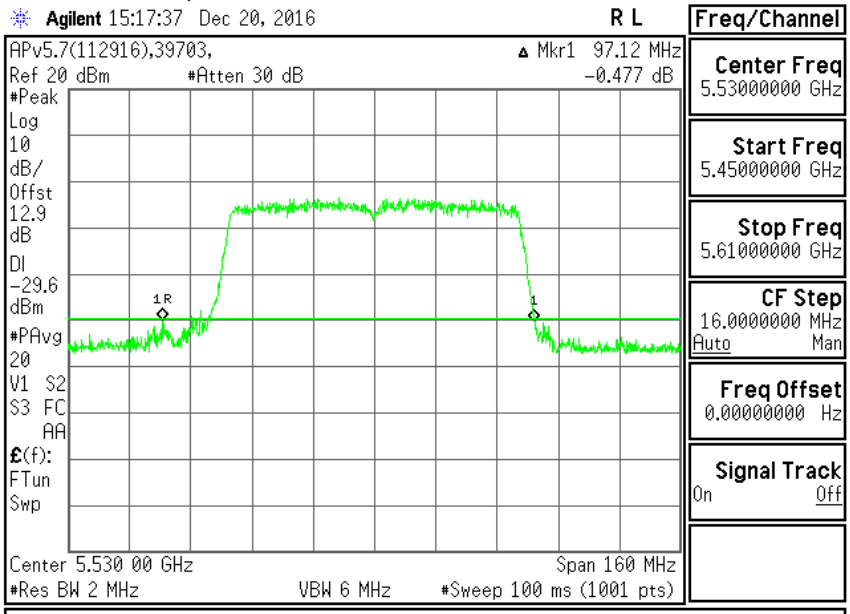
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5530	84.32	97.12

Chain 0 26dB , CH LOW



Chain 1 26dB , CH LOW



10.15.2. 99% BANDWIDTH

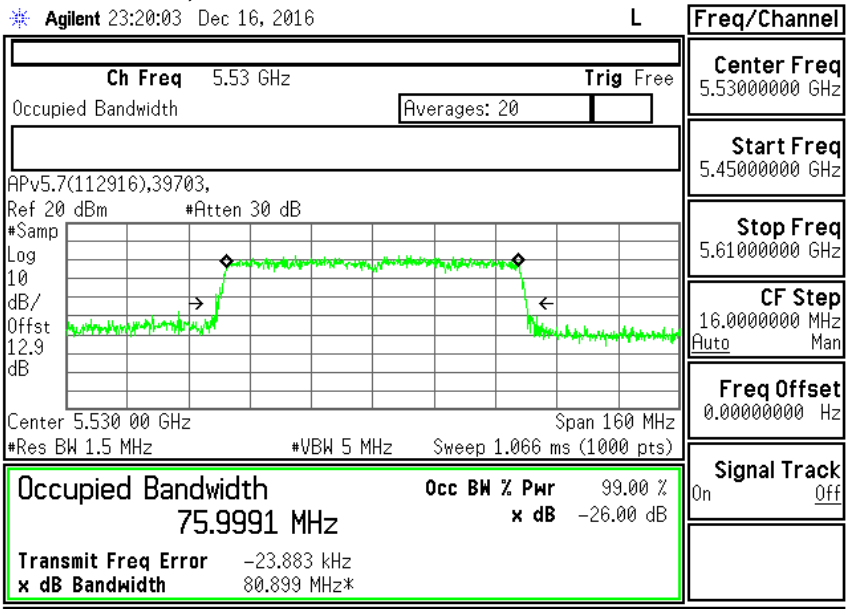
LIMITS

None; for reporting purposes only.

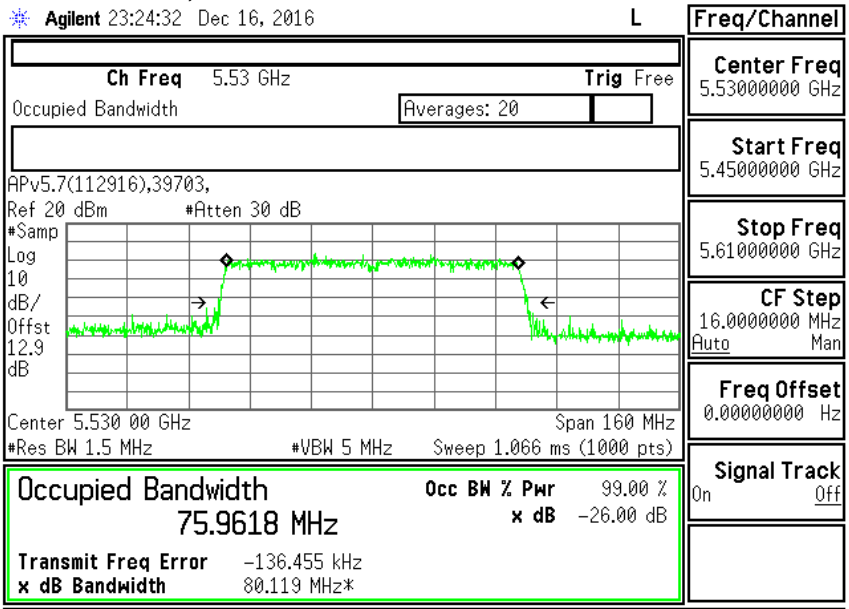
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5530	75.9991	75.9618

Chain 0 OBW , CH LOW



Chain 1 OBW , CH LOW



10.15.3. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (2)

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

IC RSS-247 (6.2.3) (1)

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever 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 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. 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.

TEST PROCEDURE

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

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

DIRECTIONAL ANTENNA GAIN

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

5500-5700 MHz

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
4.84	4.84	4.84

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

5500-5700 MHz

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
4.84	3.01	7.85

RESULTS

ID:	39703	Date:	12/16/16

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5530	84.320	75.962	4.84	7.85

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5530	24.00	24.00	30.00	24.00	9.15	11.00	9.15

Duty Cycle CF (dB)	1.84	Included in Calculations of Corr'd PPSD

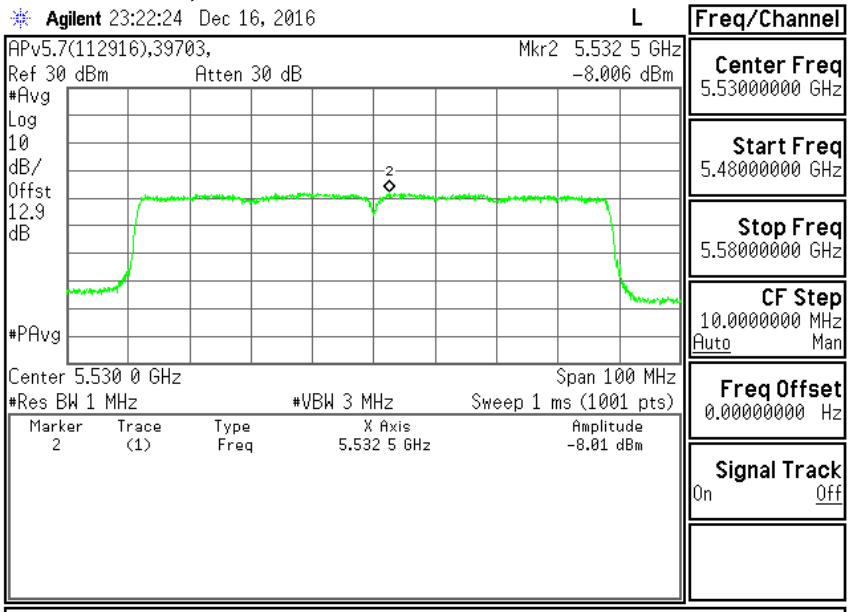
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5530	10.44	10.57	13.52	24.00	-10.48

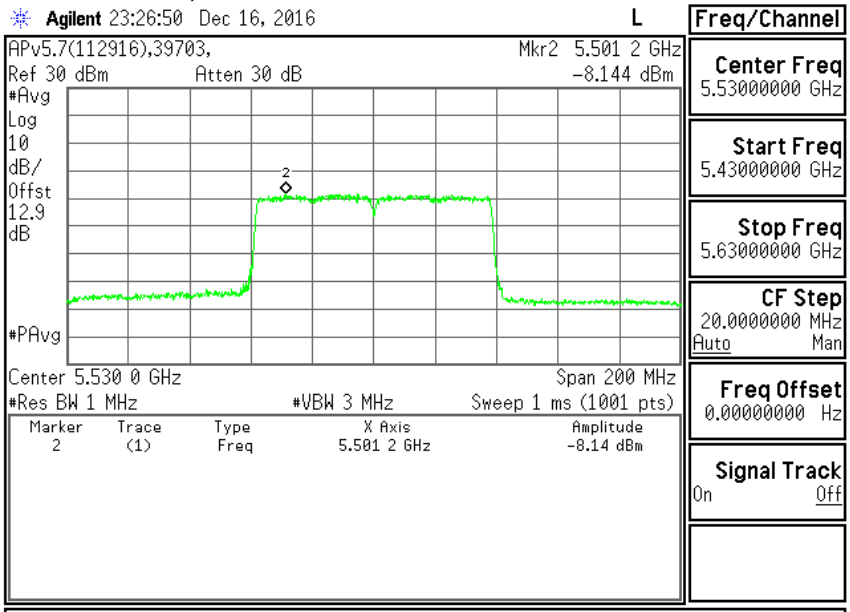
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5530	-8.006	-8.144	-3.22	9.15	-12.37

Chain 0 PPSD, CH LOW



Chain 1 PPSD, CH LOW



10.16. 11a Chain 0 SISO MODE IN THE 5.8GHz BAND

10.16.1. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

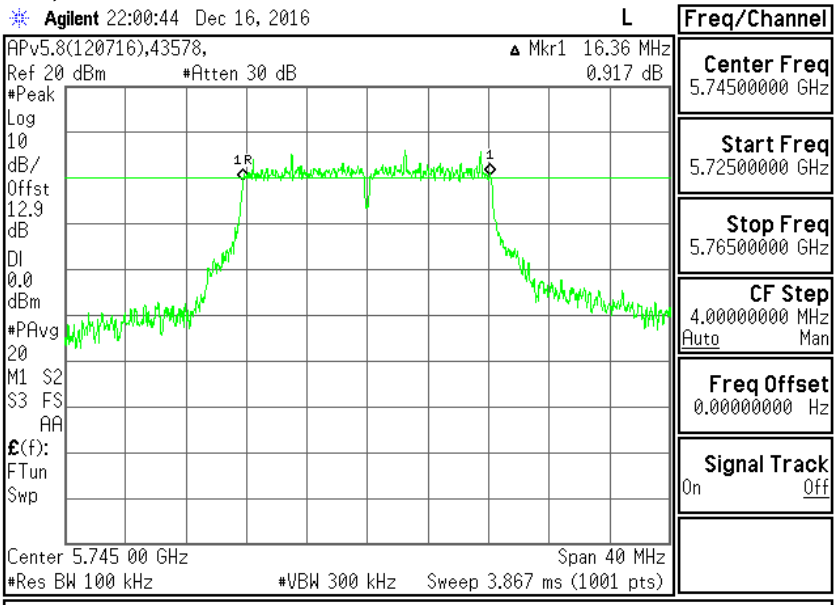
IC RSS-247 (6.2.4) (1)

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

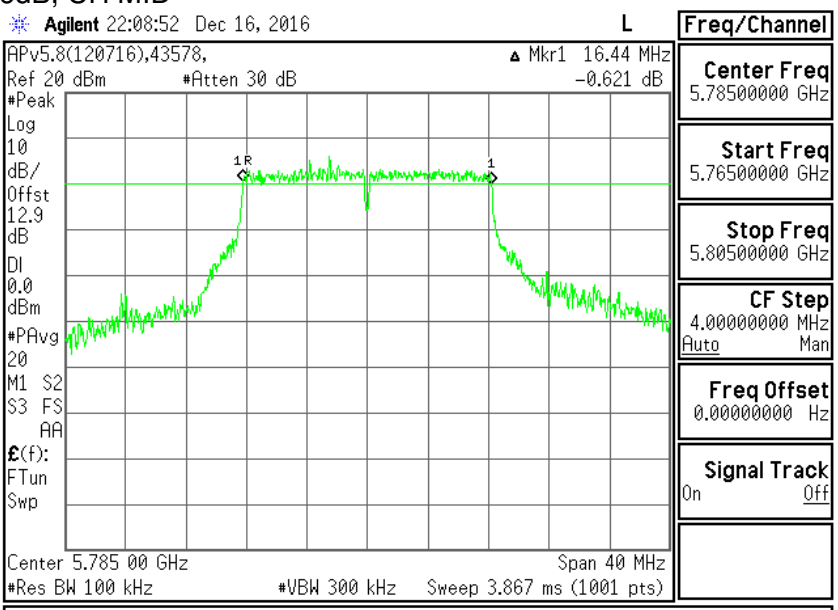
RESULTS

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	Minimum Limit (MHz)
Low	5745	16.36	0.5
Mid	5785	16.44	0.5
High	5825	16.40	0.5

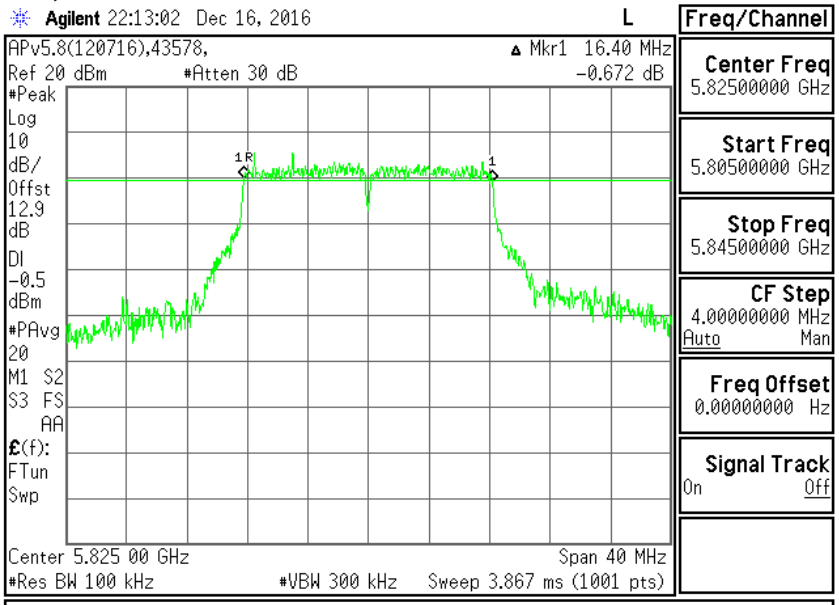
6dB, CH LOW



6dB, CH MID



6dB, CH HIGH



10.16.2. 99% BANDWIDTH

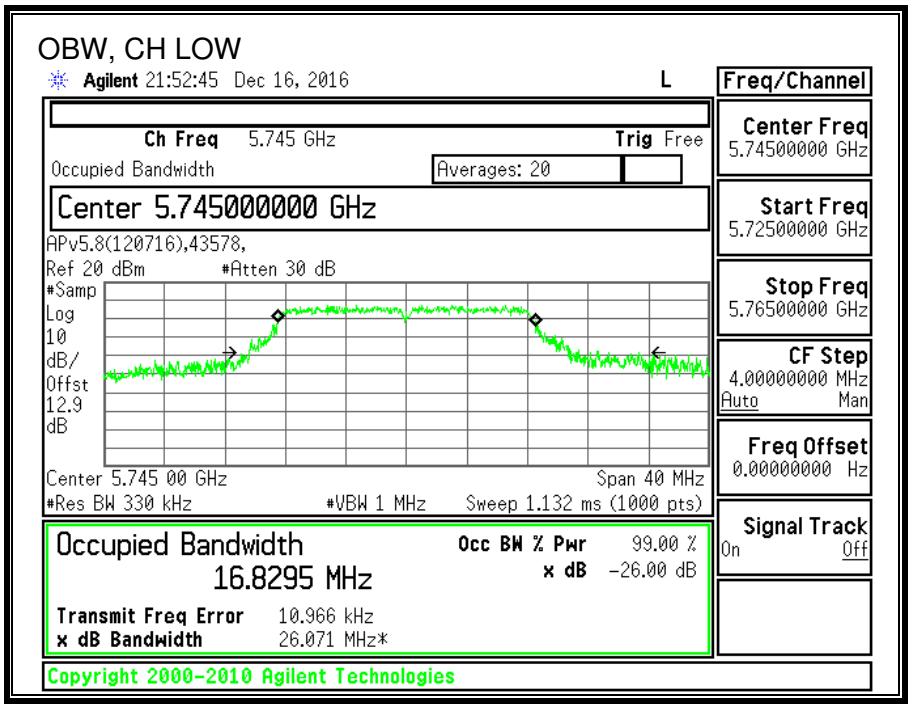
LIMITS

None; for reporting purposes only.

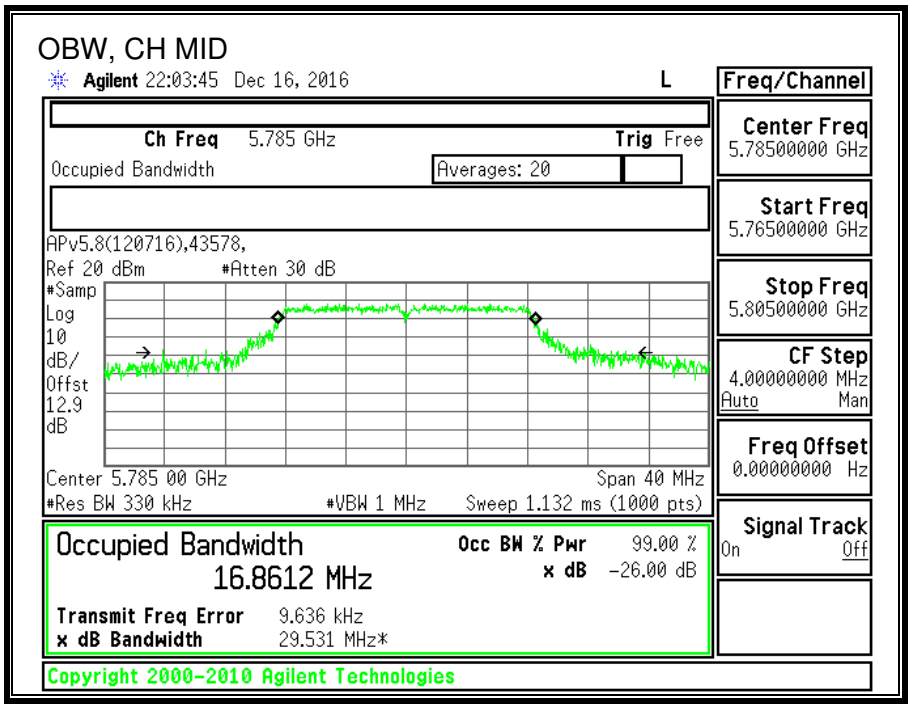
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)
Low	5745	16.8295
Mid	5785	16.8612
High	5825	16.8017

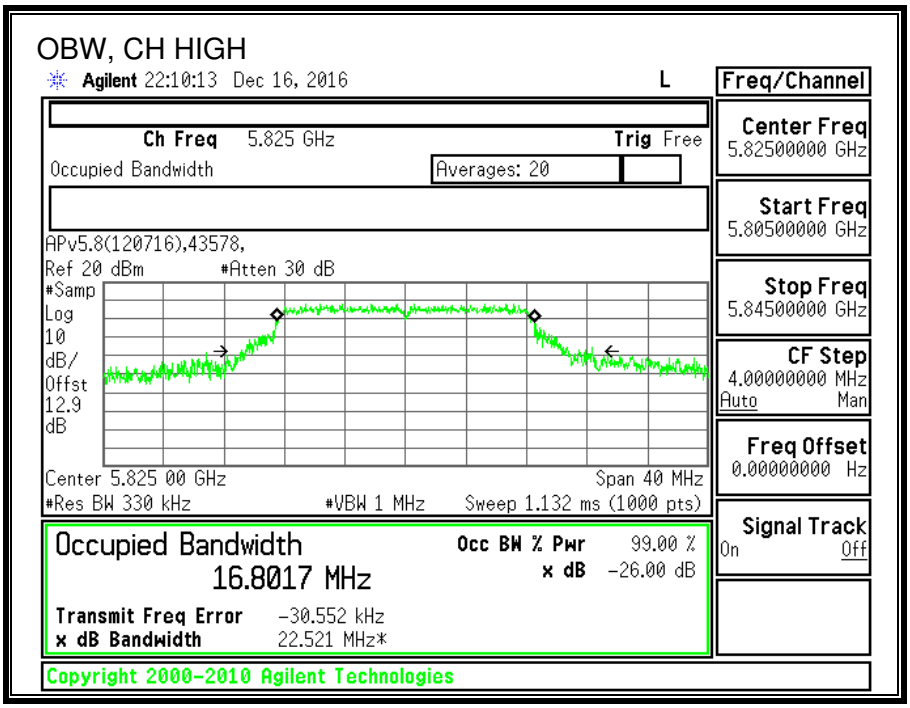
OBW, CH LOW



OBW, CH MID



OBW, CH HIGH



10.16.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (3)

IC RSS-247 (6.2.4) (1)

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

TEST PROCEDURE

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

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain; 1.99dBi.

RESULTS

ID:	43578	Date:	12/16/16

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5745	1.99	1.99	30.00	30.00
Mid	5785	1.99	1.99	30.00	30.00
High	5825	1.99	1.99	30.00	30.00

Duty Cycle CF (dB)	0.29	Included in Calculations of Corr'd PSD

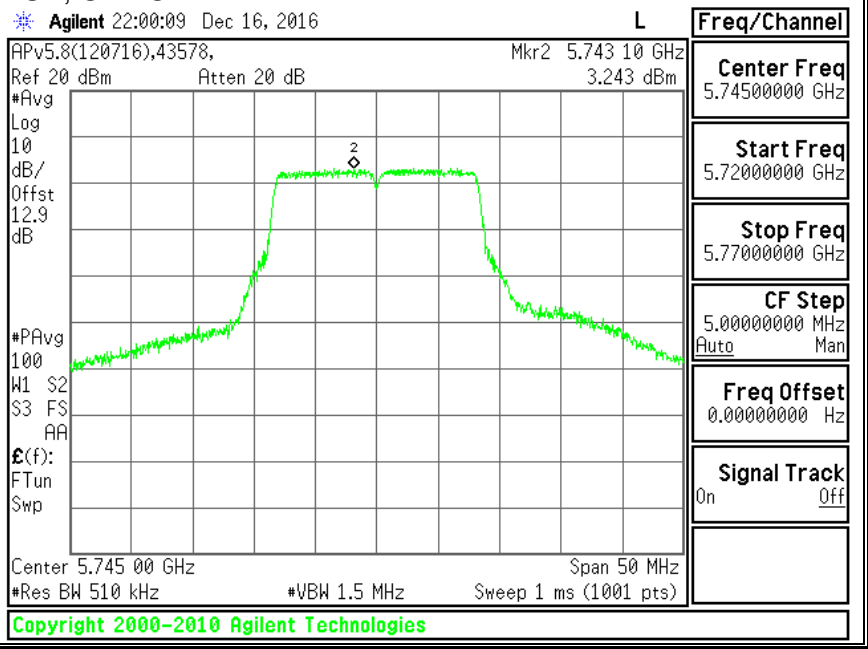
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	15.84	15.84	30.00	-14.16
Mid	5785	17.18	17.18	30.00	-12.82
High	5825	17.13	17.13	30.00	-12.87

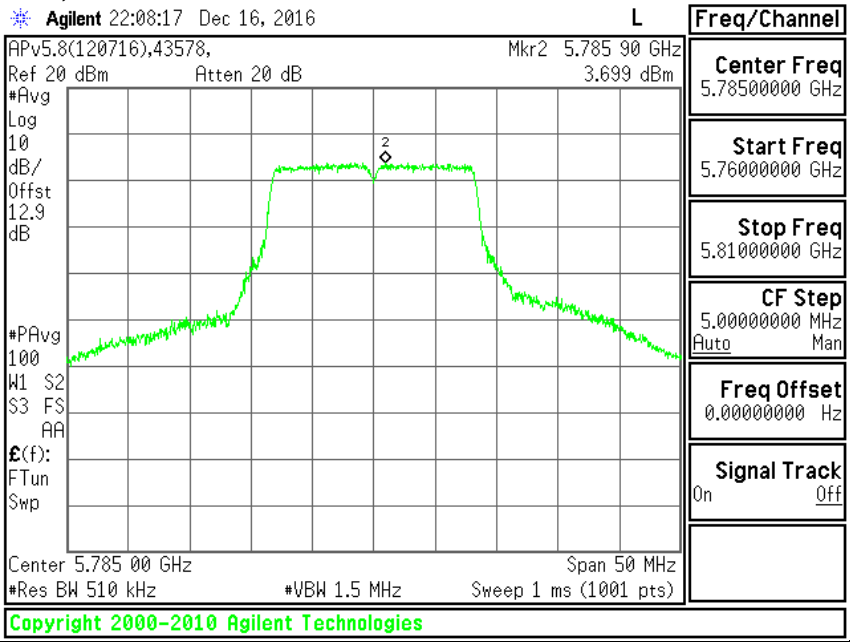
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5745	3.243	3.53	30.00	-26.47
Mid	5785	3.699	3.99	30.00	-26.01
High	5825	3.346	3.64	30.00	-26.36

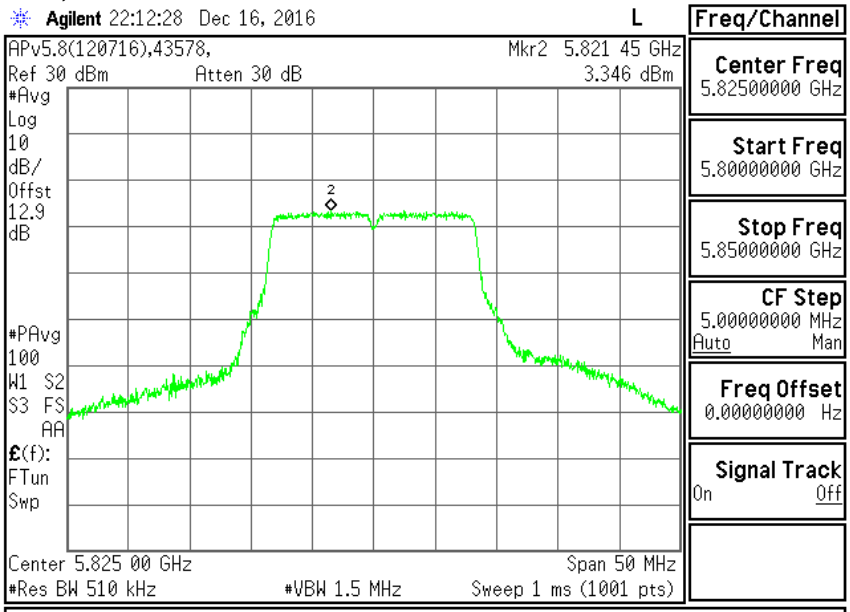
PSD, CH LOW



PSD, CH MID



PSD, CH HIGH



10.17. 11a Chain 1 SISO MODE IN THE 5.8GHz BAND

10.17.1. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

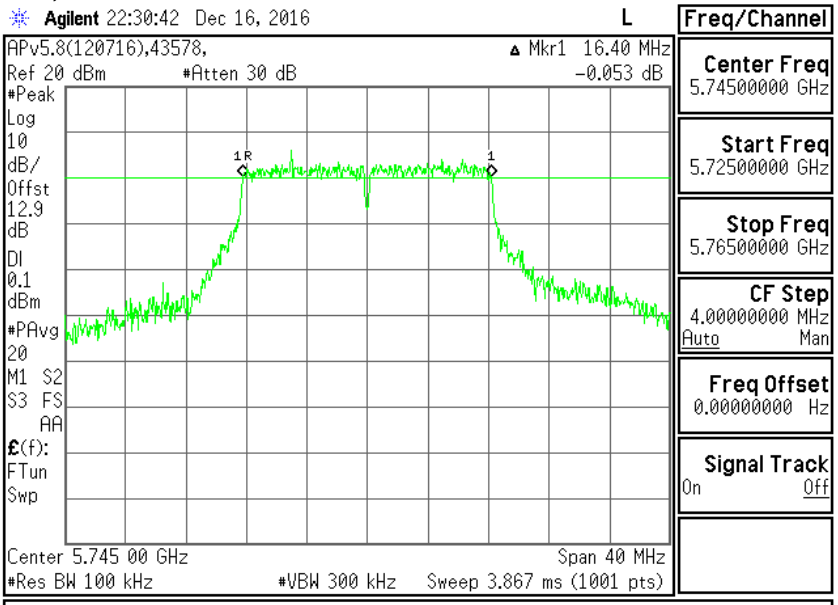
IC RSS-247 (6.2.4) (1)

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

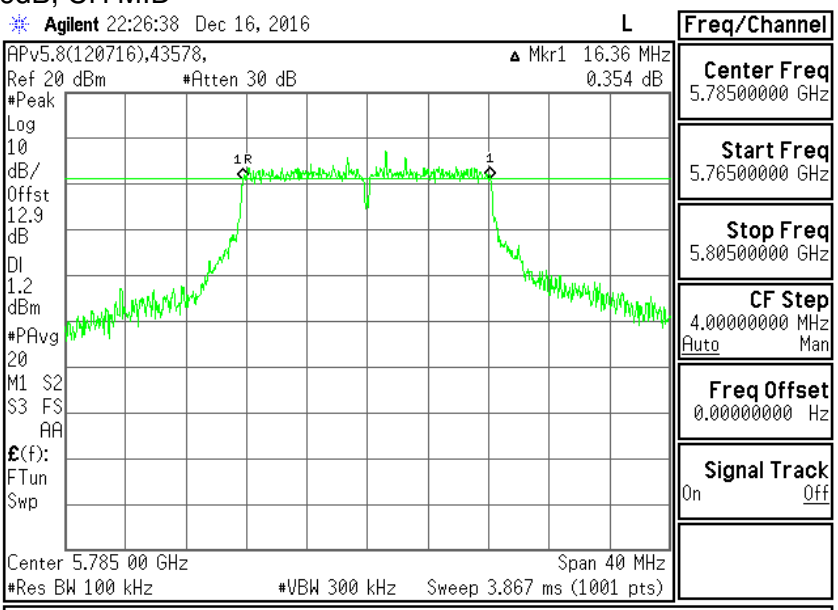
RESULTS

Channel	Frequency (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	5745	16.40	0.5
Mid	5785	16.36	0.5
High	5825	16.36	0.5

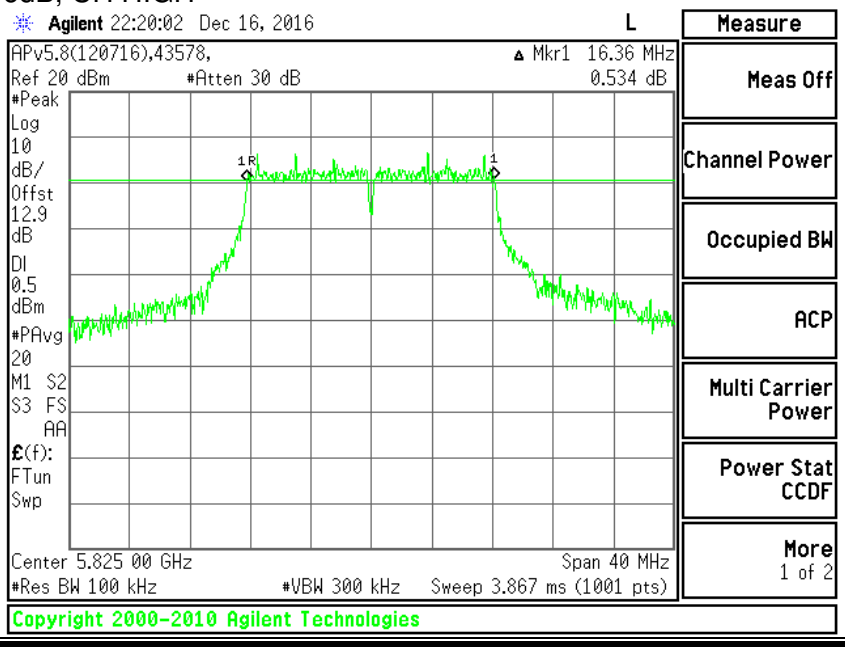
6dB, CH LOW



6dB, CH MID



6dB, CH HIGH



10.17.2. 99% BANDWIDTH

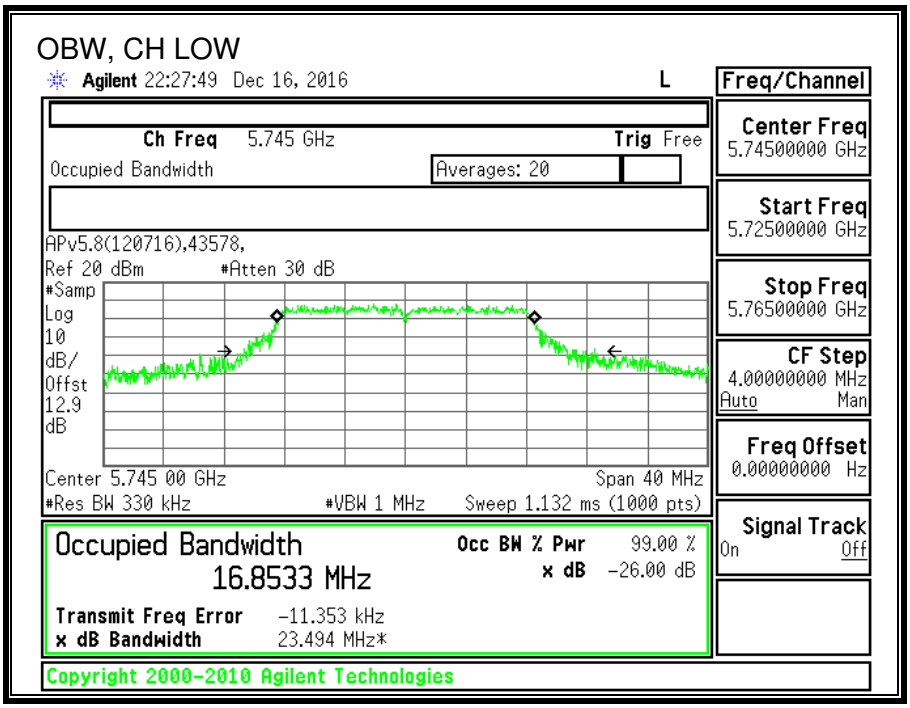
LIMITS

None; for reporting purposes only.

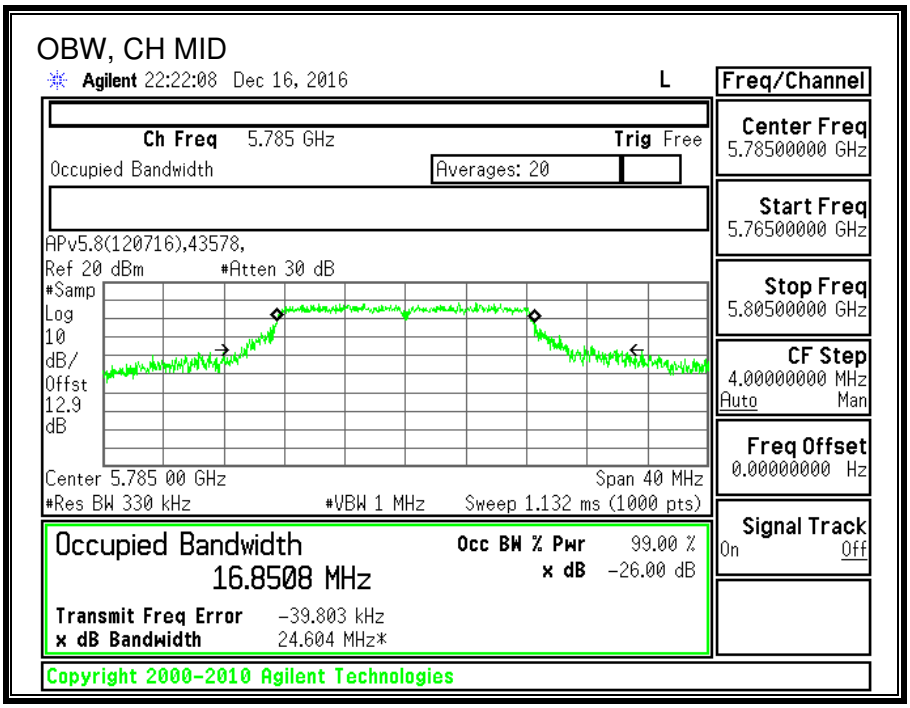
RESULTS

Channel	Frequency (MHz)	99% BW Chain 1 (MHz)
Low	5745	16.8533
Mid	5785	16.8508
High	5825	16.8602

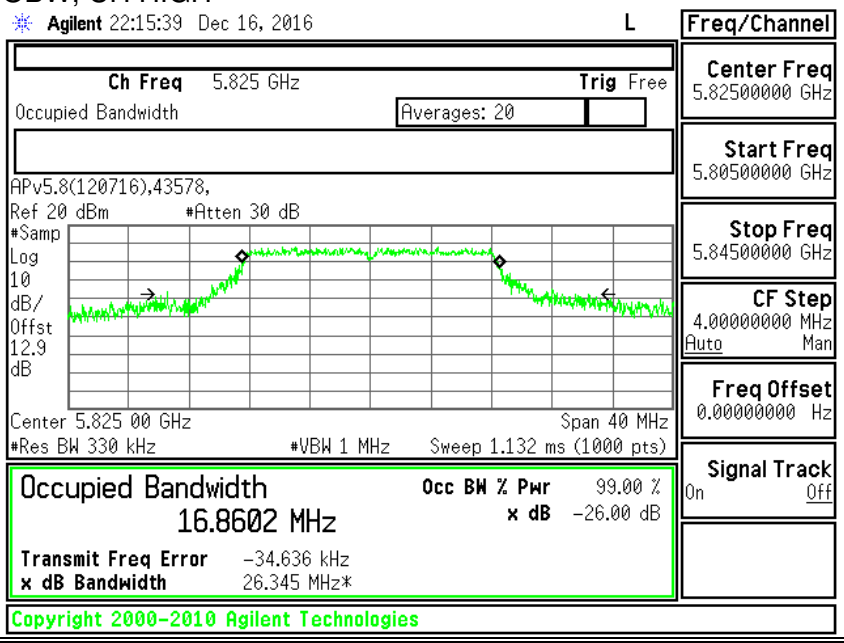
OBW, CH LOW



OBW, CH MID



OBW, CH HIGH



10.17.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (3)

IC RSS-247 (6.2.4) (1)

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

TEST PROCEDURE

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

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain; 1.99dBi.

RESULTS

ID:	43578	Date:	12/16/16

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5745	1.99	1.99	30.00	30.00
Mid	5785	1.99	1.99	30.00	30.00
High	5825	1.99	1.99	30.00	30.00

Duty Cycle CF (dB)	0.29	Included in Calculations of Corr'd PSD

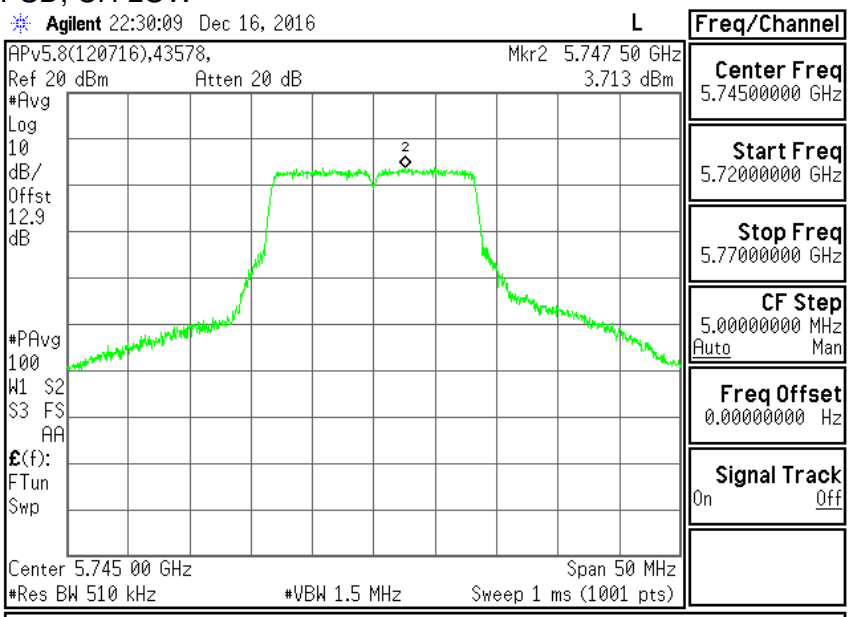
Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	16.14	16.14	30.00	-13.86
Mid	5785	17.51	17.51	30.00	-12.49
High	5825	17.15	17.15	30.00	-12.85

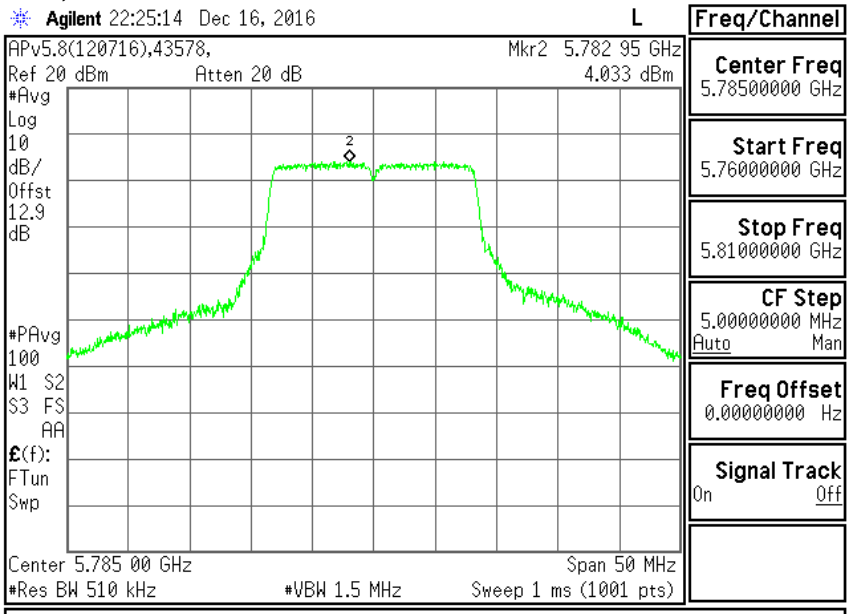
PSD Results

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5745	3.713	4.00	30.00	-26.00
Mid	5785	4.033	4.32	30.00	-25.68
High	5825	3.720	4.01	30.00	-25.99

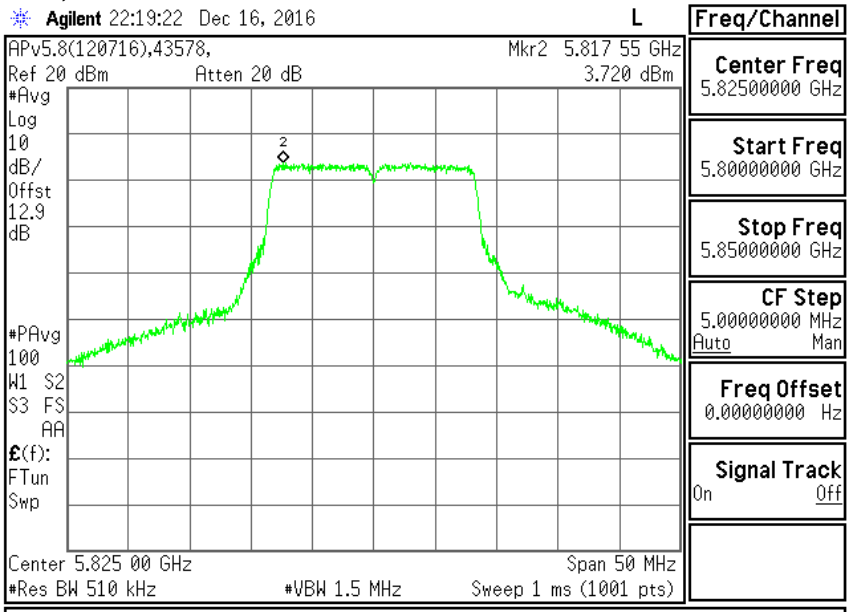
PSD, CH LOW



PSD, CH MID



PSD, CH HIGH



10.18. 11n HT20 2TX CDD MIMO MODE IN THE 5.8GHz BAND

10.18.1. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

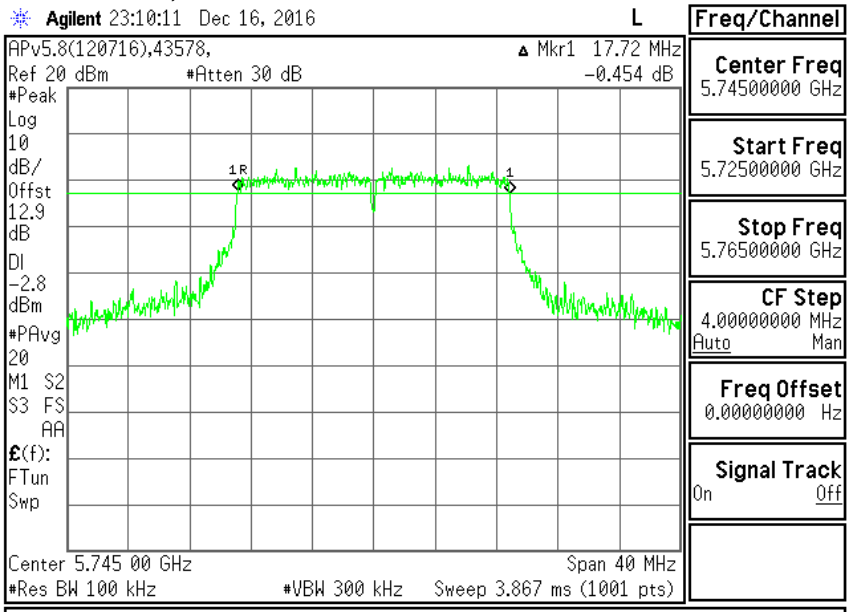
IC RSS-247 (6.2.4) (1)

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

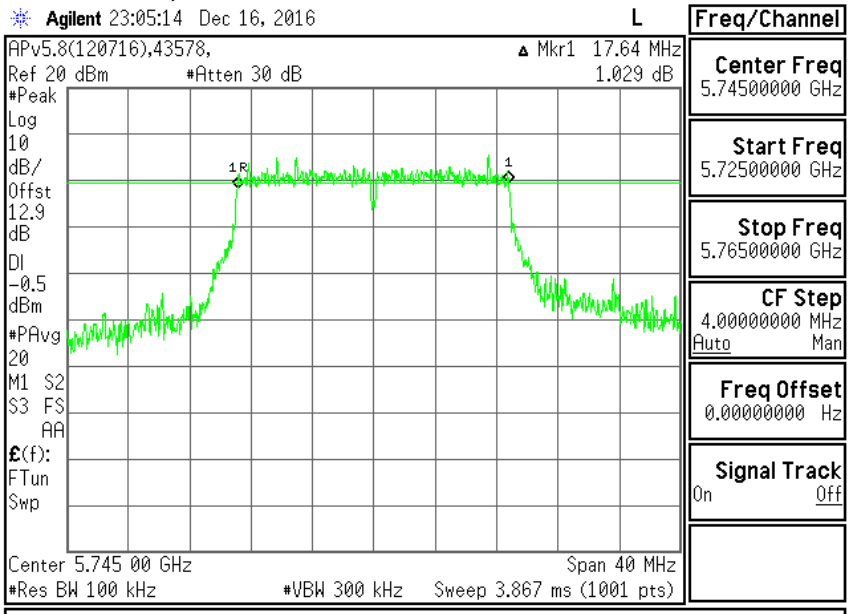
RESULTS

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	5745	17.72	17.64	0.5
Mid	5785	17.76	17.64	0.5
High	5825	17.64	17.64	0.5

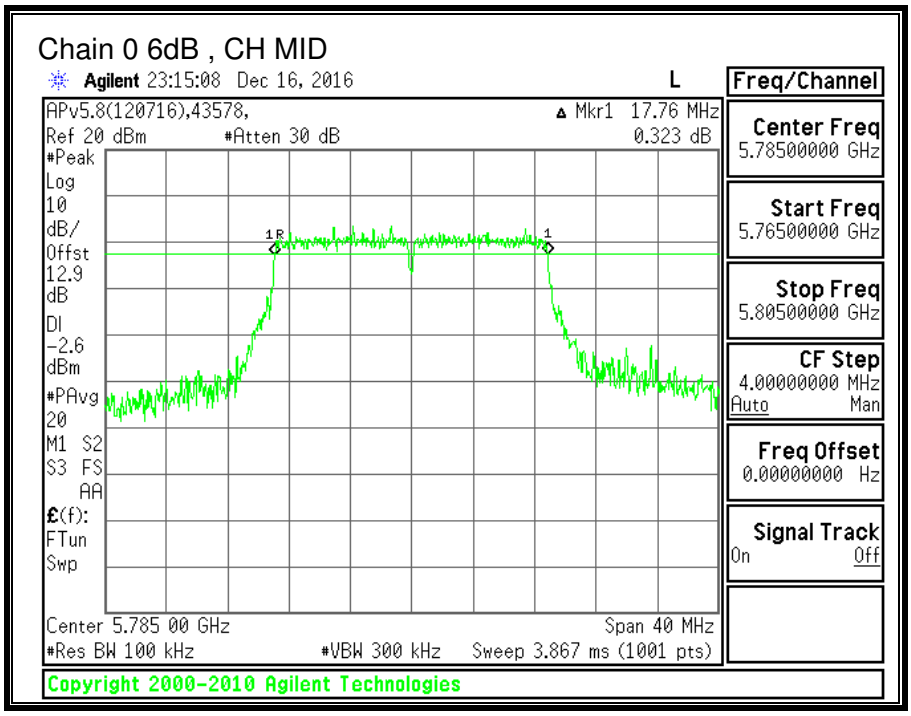
Chain 0 6dB , CH LOW



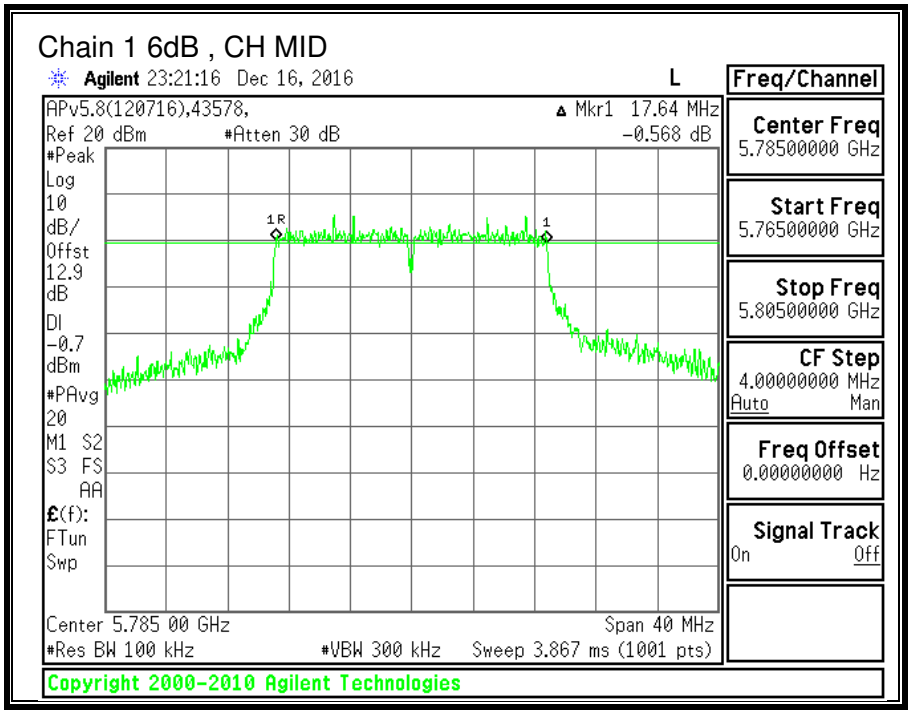
Chain 1 6dB , CH LOW



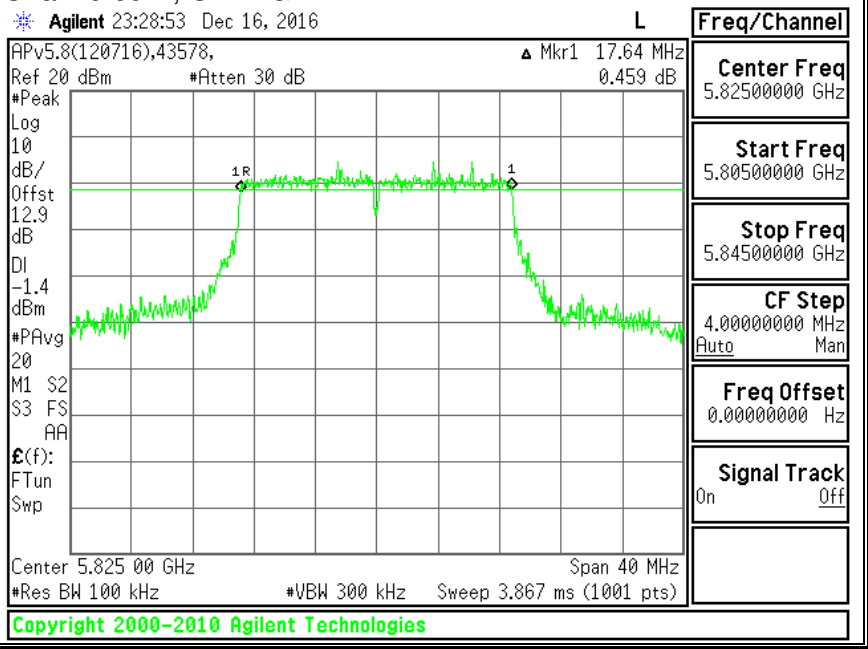
Chain 0 6dB , CH MID



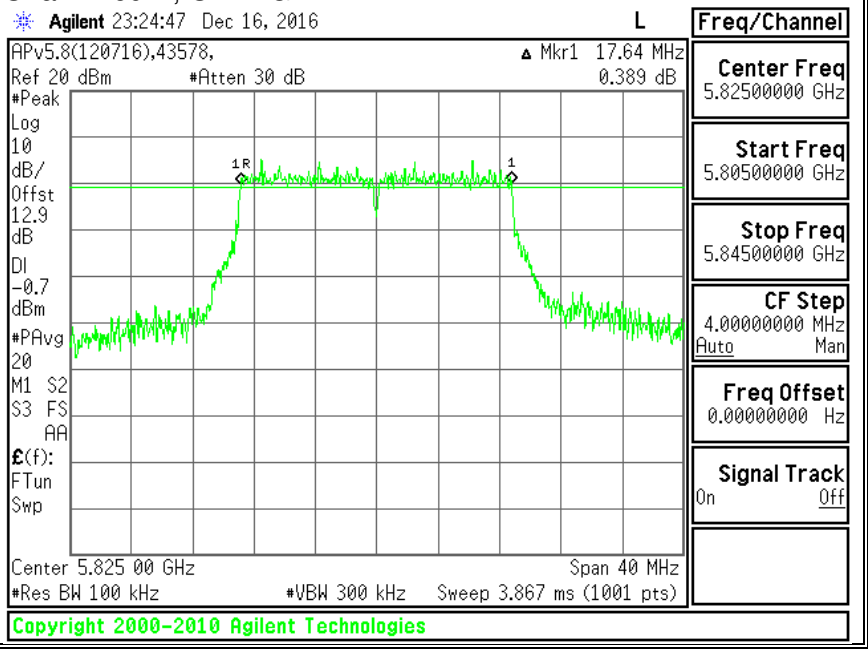
Chain 1 6dB , CH MID



Chain 0 6dB , CH HIGH



Chain 1 6dB , CH HIGH



10.18.2. 99% BANDWIDTH

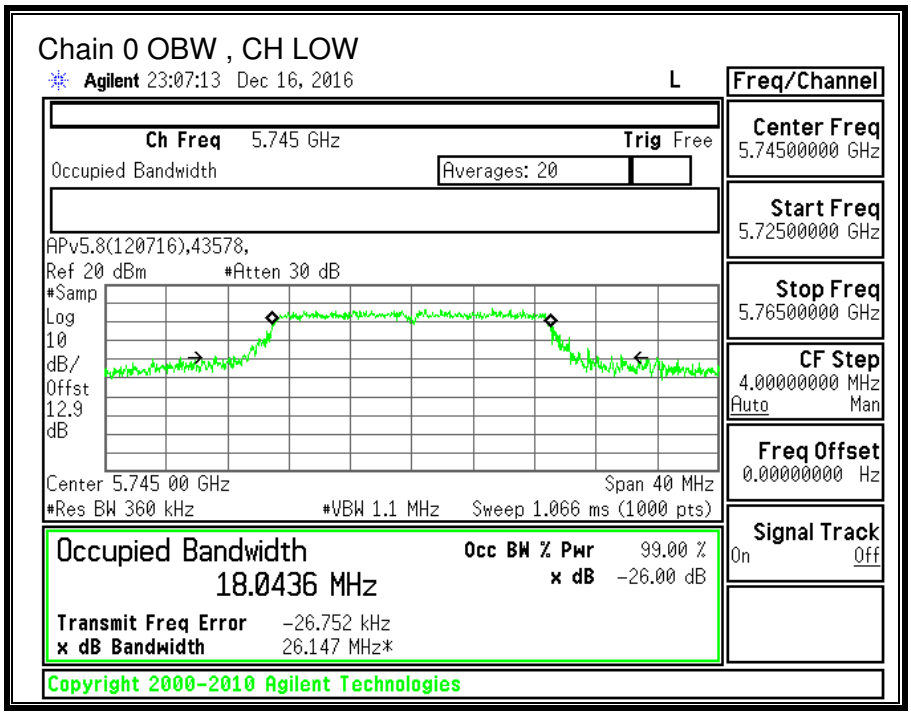
LIMITS

None; for reporting purposes only.

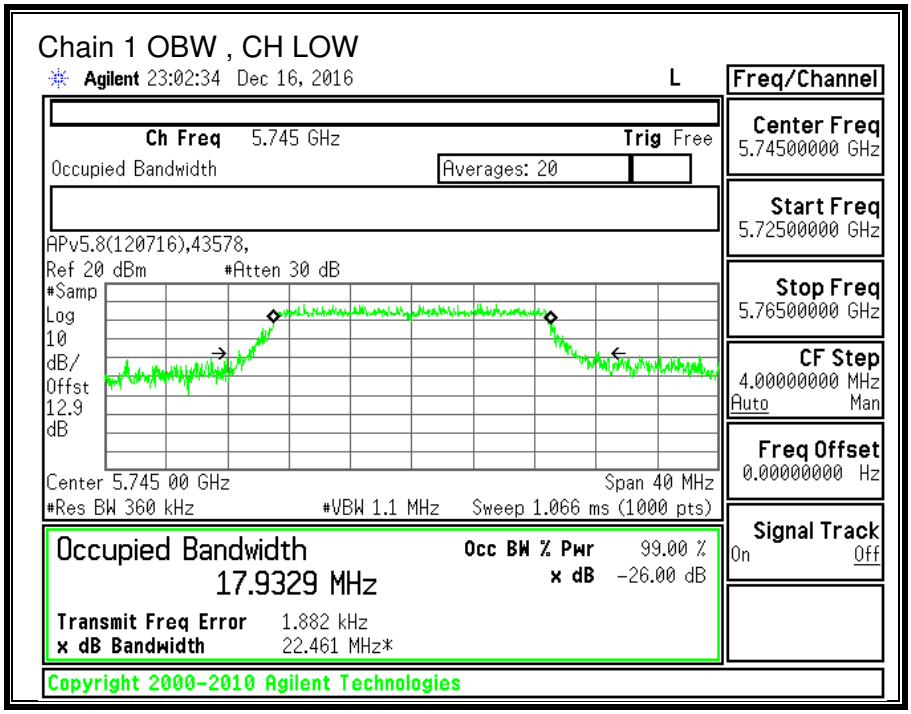
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5745	18.0436	17.9329
Mid	5785	17.8413	18.0459
High	5825	18.0510	17.8198

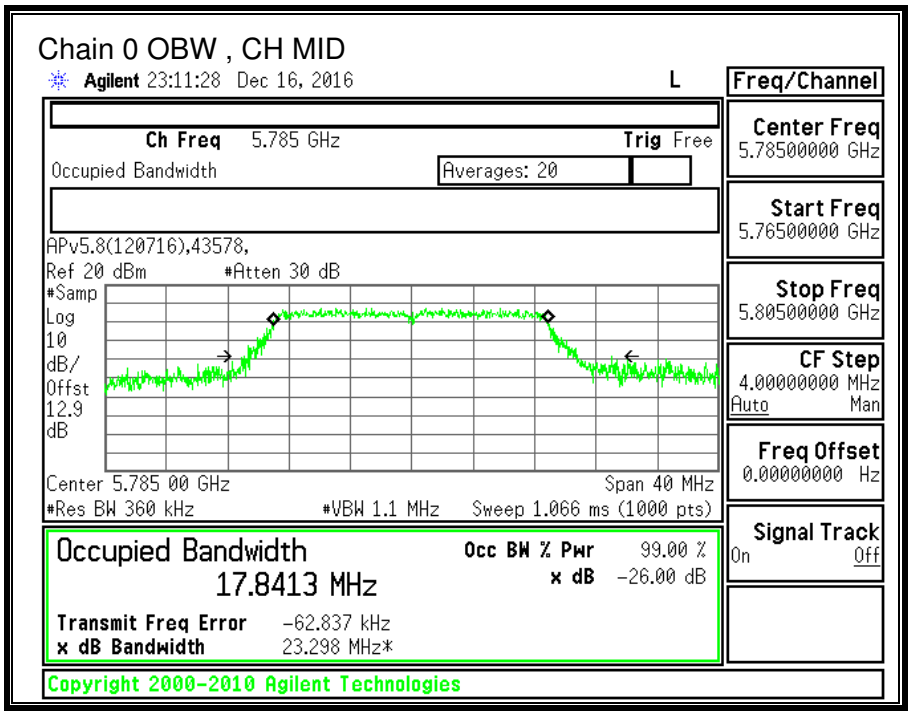
Chain 0 OBW , CH LOW



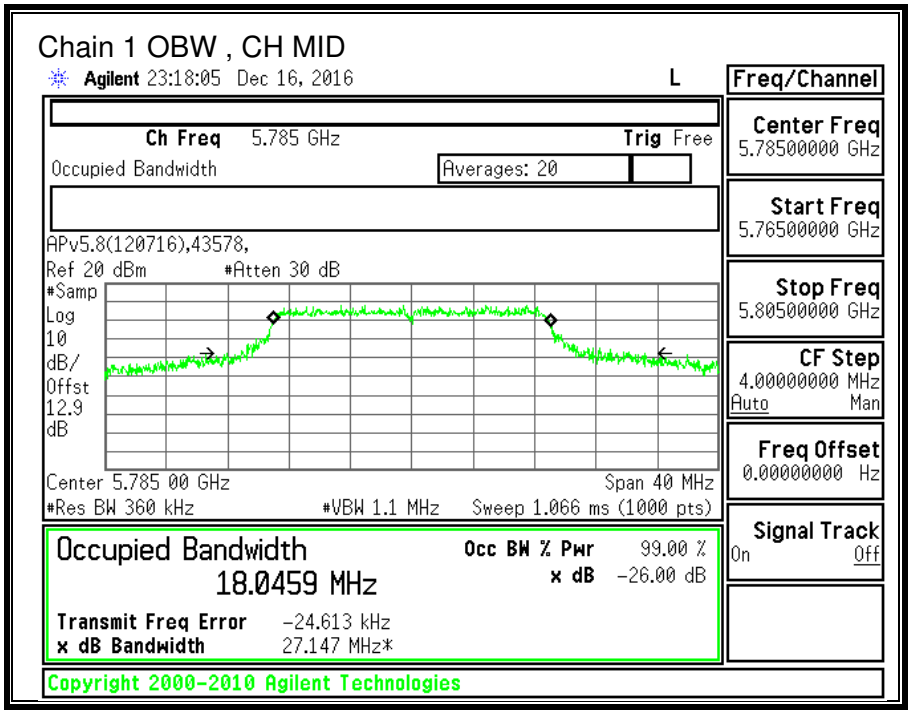
Chain 1 OBW , CH LOW



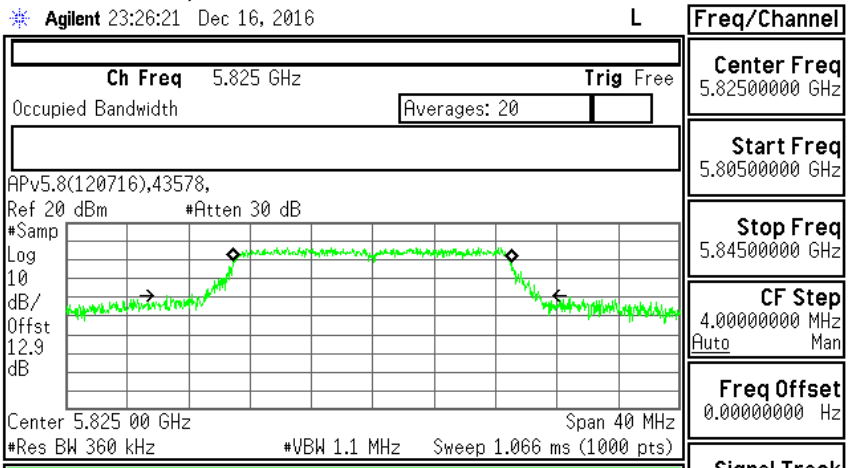
Chain 0 OBW , CH MID



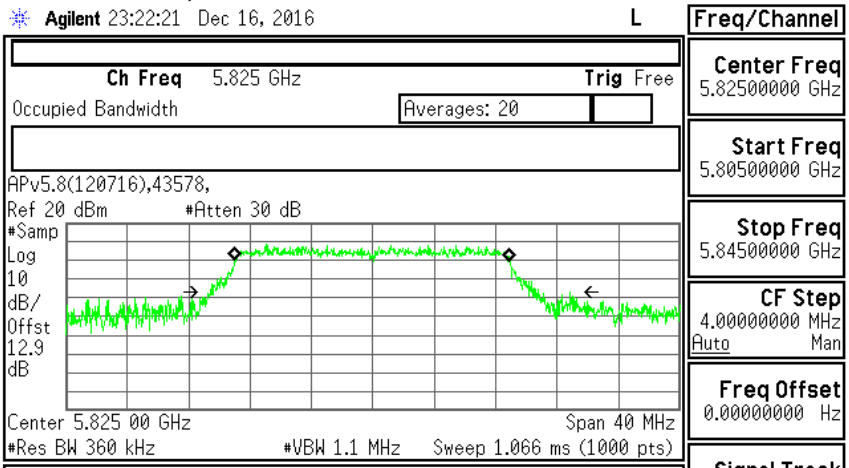
Chain 1 OBW , CH MID



Chain 0 OBW , CH HIGH



Chain 1 OBW , CH HIGH



10.18.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (3)

IC RSS-247 (6.2.4) (1)

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

TEST PROCEDURE

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

DIRECTIONAL ANTENNA GAIN

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

5745-5825 MHz

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
1.99	1.99	1.99

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

5745-5825 MHz

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
1.99	3.01	5.00

RESULTS

ID:	43578	Date:	12/16/16

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	Power Limit (dBm)
Low	5745	1.99	5.00	30.00	30.00
Mid	5785	1.99	5.00	30.00	30.00
High	5825	1.99	5.00	30.00	30.00

Duty Cycle CF (dB)	0.31	Included in Calculations of Corr'd PSD

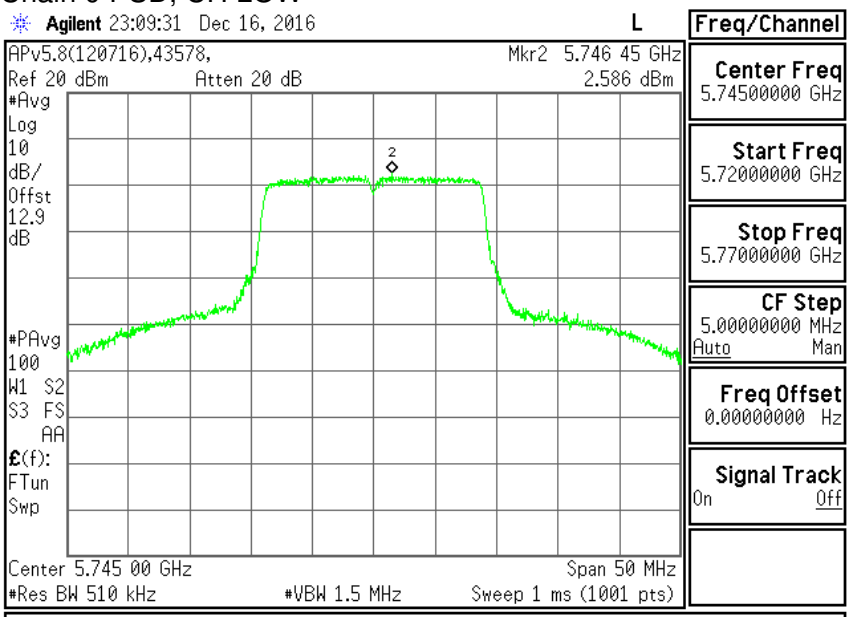
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	14.43	14.72	17.59	30.00	-12.41
Mid	5785	16.01	16.20	19.12	30.00	-10.88
High	5825	16.19	16.21	19.21	30.00	-10.79

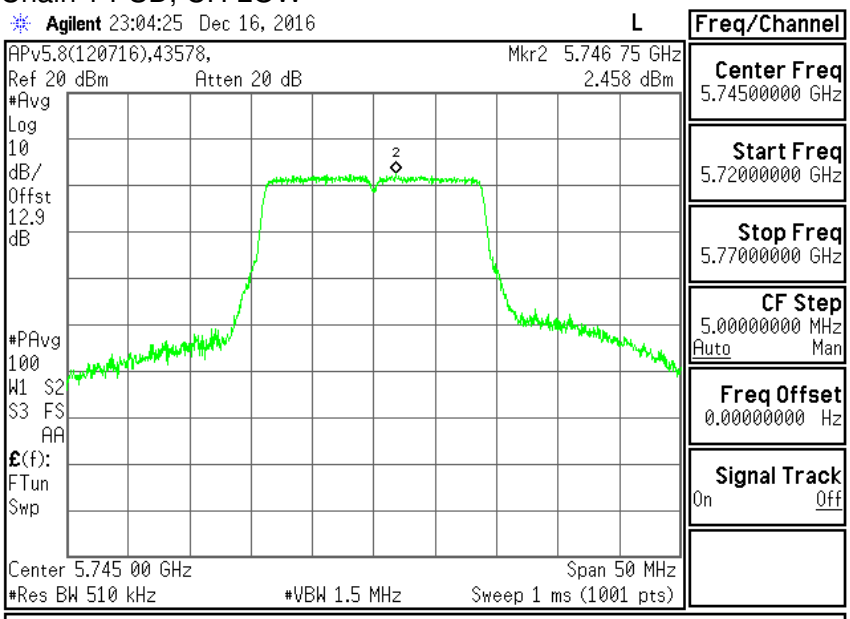
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5745	2.586	2.458	5.84	30.00	-24.16
Mid	5785	2.379	2.608	5.82	30.00	-24.18
High	5825	2.147	2.323	5.56	30.00	-24.44

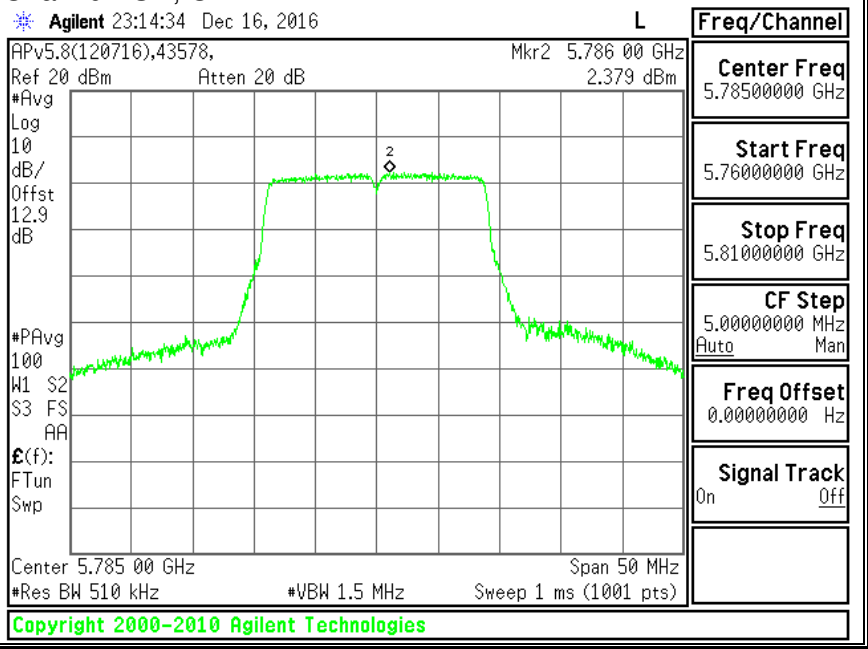
Chain 0 PSD, CH LOW



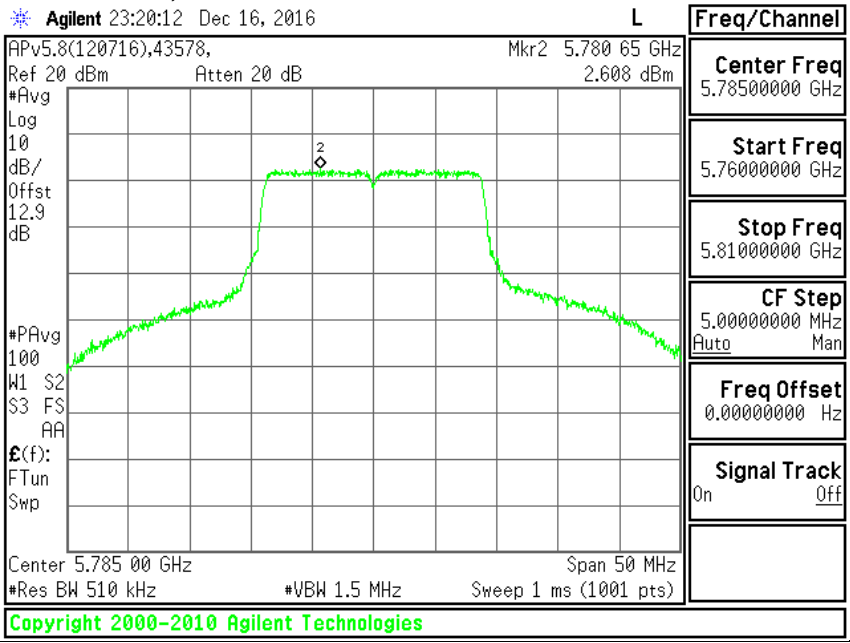
Chain 1 PSD, CH LOW



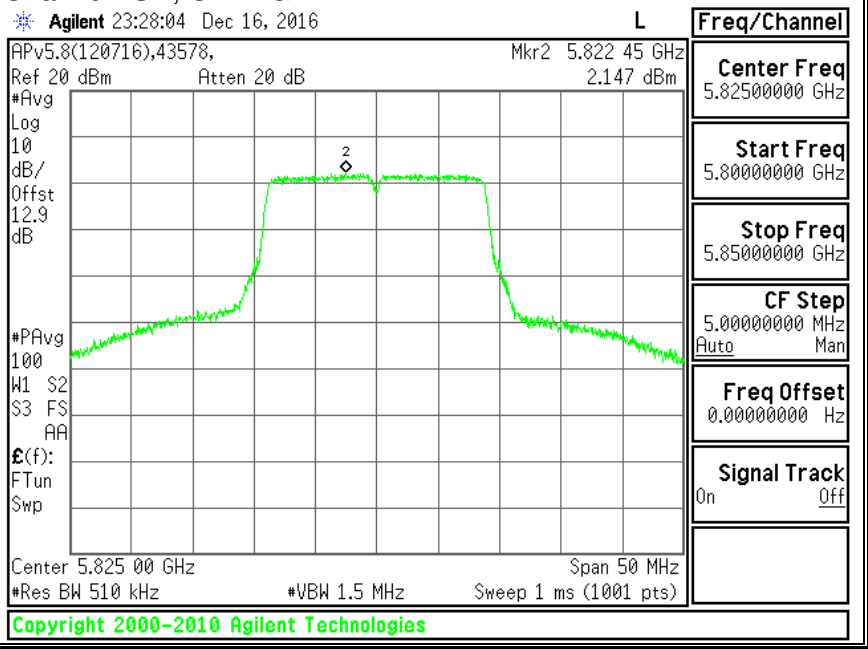
Chain 0 PSD, CH MID



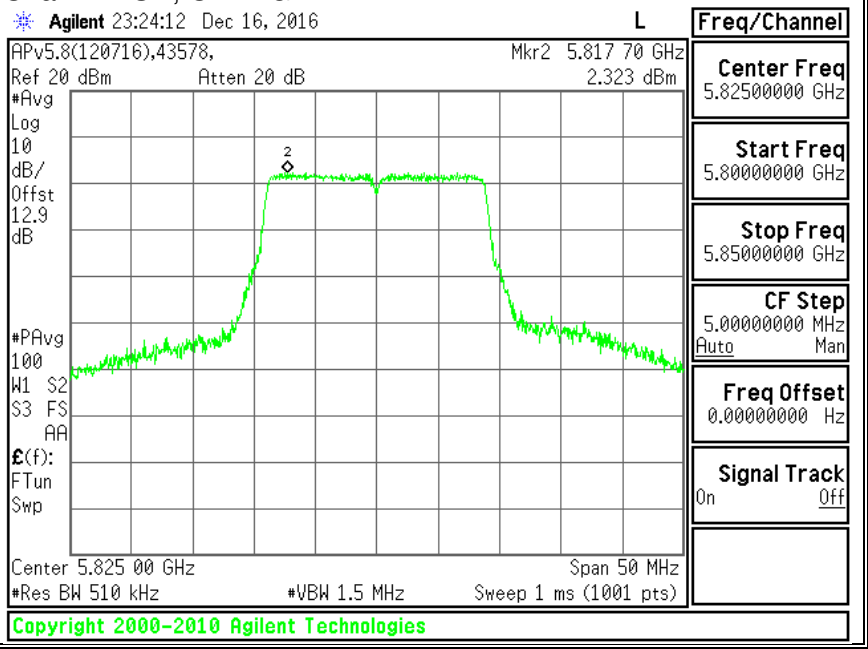
Chain 1 PSD, CH MID



Chain 0 PSD, CH HIGH



Chain 1 PSD, CH HIGH



10.19. 11n HT40 2TX CDD MIMO MODE IN THE 5.8GHz BAND

10.19.1. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

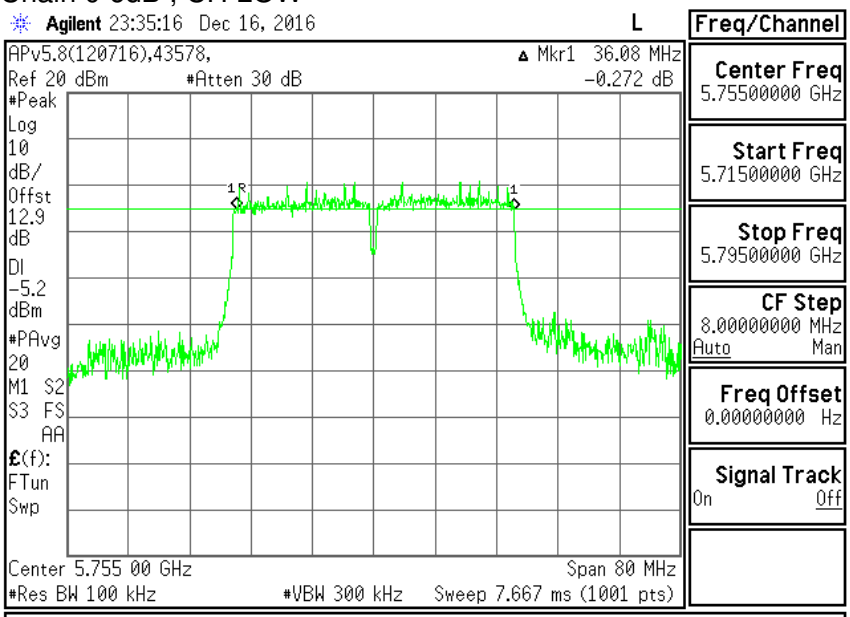
IC RSS-247 (6.2.4) (1)

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

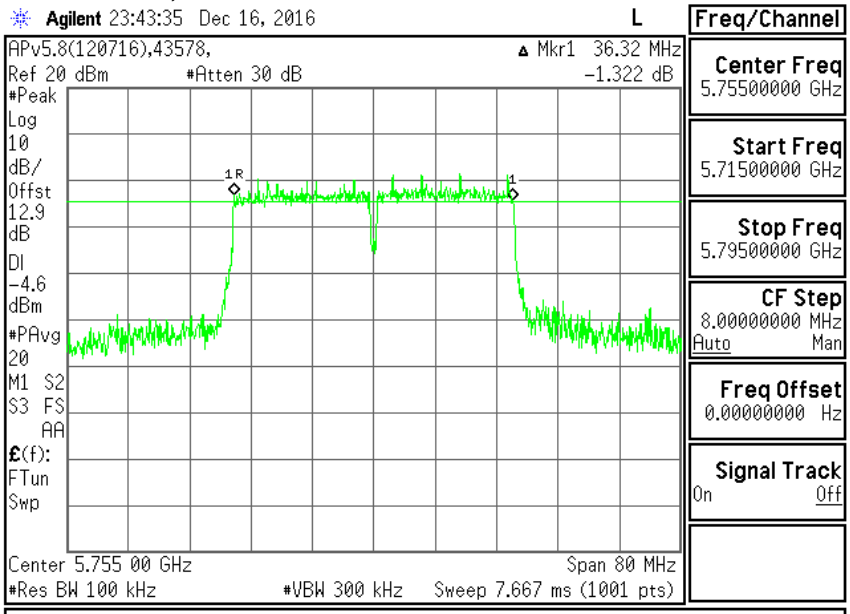
RESULTS

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	5755	36.08	36.32	0.5
High	5795	36.00	36.32	0.5

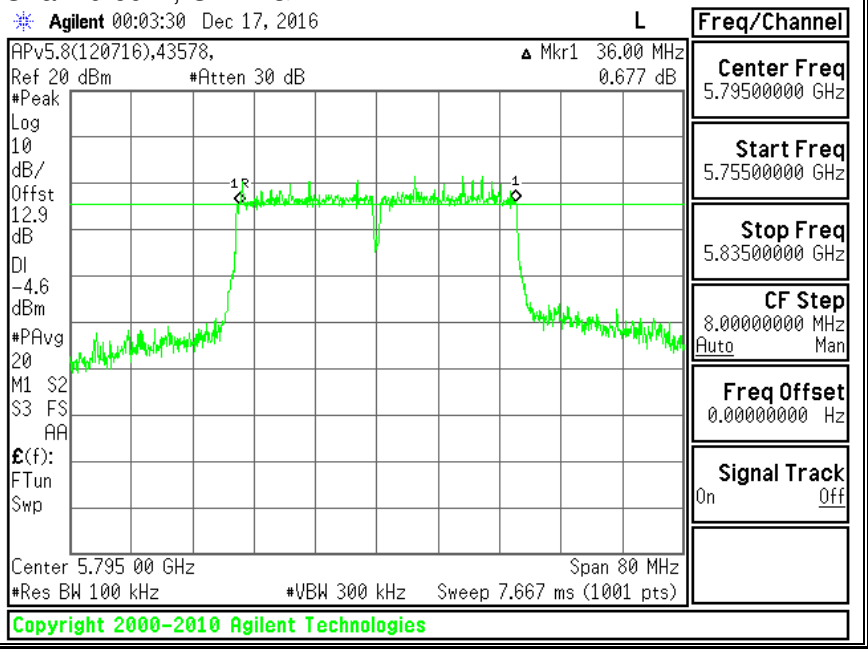
Chain 0 6dB , CH LOW



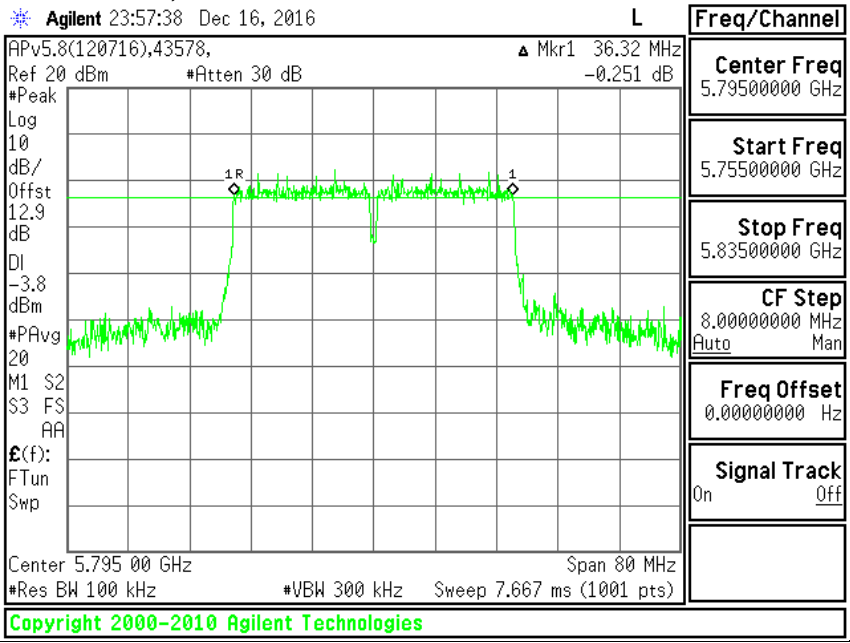
Chain 1 6dB , CH LOW



Chain 0 6dB , CH HIGH



Chain 1 6dB , CH HIGH



10.19.2. 99% BANDWIDTH

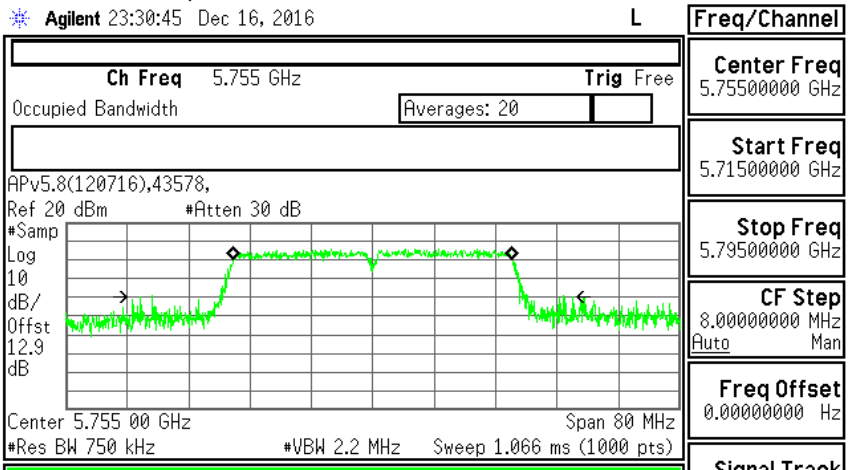
LIMITS

None; for reporting purposes only.

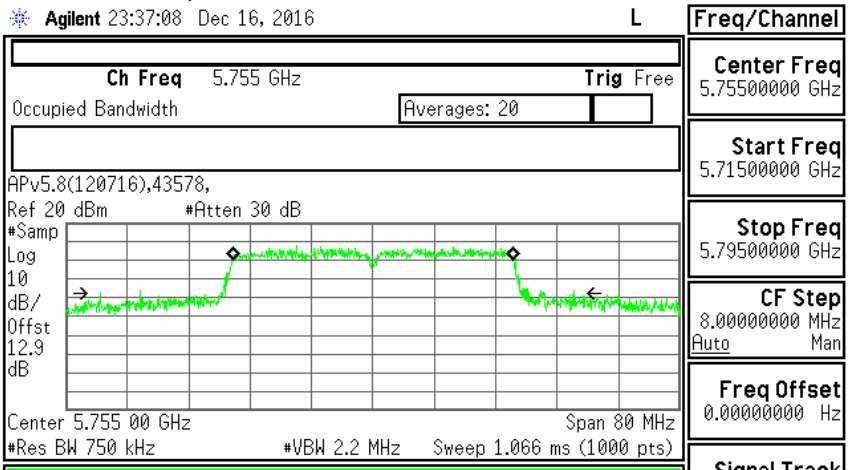
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5755	36.3514	36.4665
High	5795	36.0466	36.1166

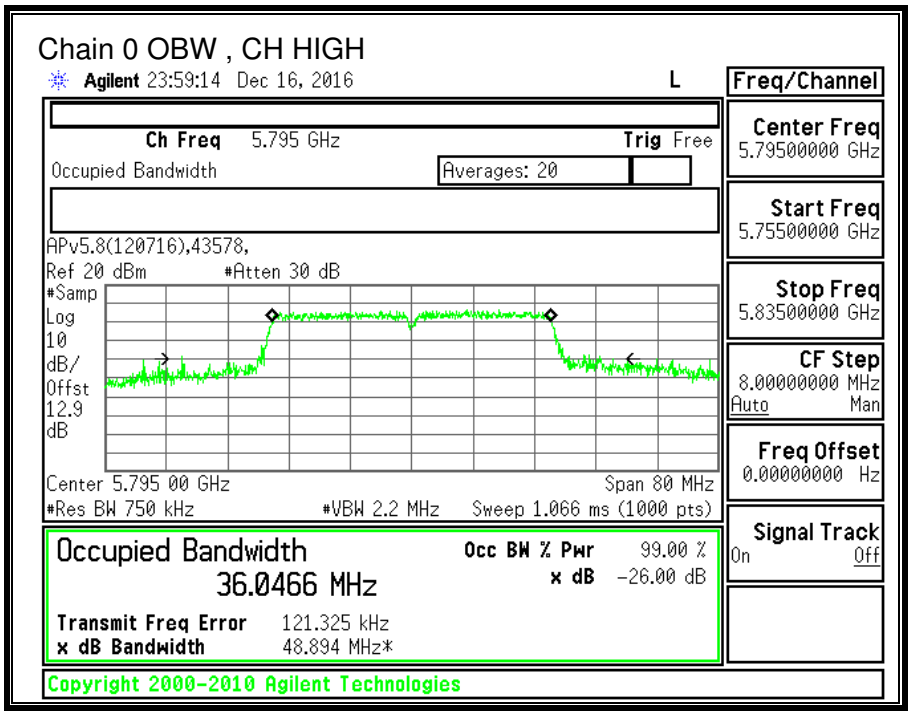
Chain 0 OBW , CH LOW



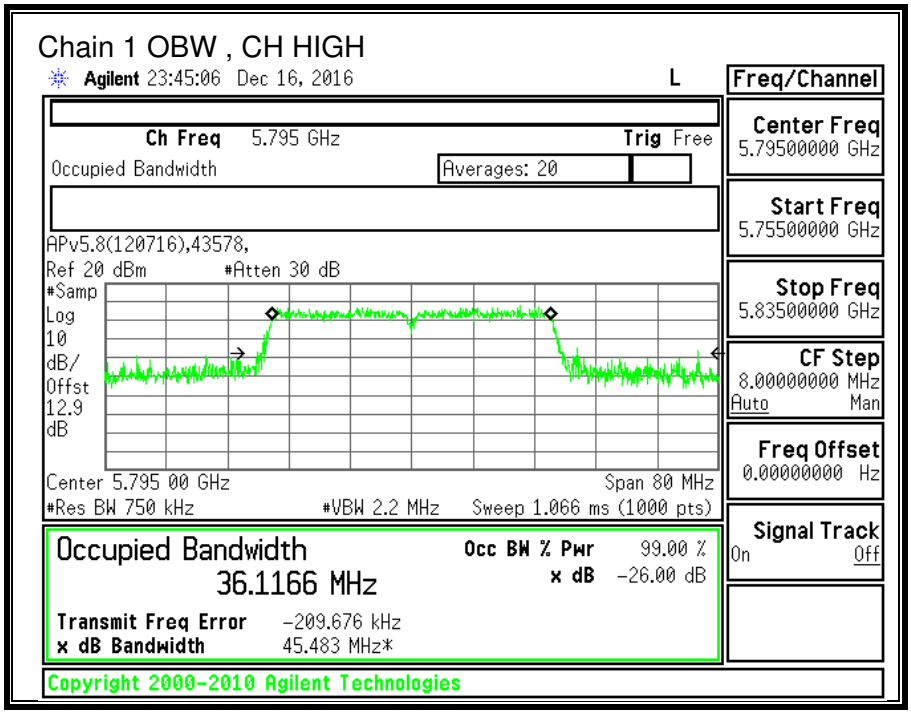
Chain 1 OBW , CH LOW



Chain 0 OBW , CH HIGH



Chain 1 OBW , CH HIGH



10.19.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (3)

IC RSS-247 (6.2.4) (1)

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

TEST PROCEDURE

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

DIRECTIONAL ANTENNA GAIN

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

5745-5825 MHz

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
1.99	1.99	1.99

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

5745-5825 MHz

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
1.99	3.01	5.00

RESULTS

ID:	43578	Date:	12/16/16

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	Power Limit (dBm)
Low	5755	1.99	5.00	30.00	30.00
High	5795	1.99	5.00	30.00	30.00

Duty Cycle CF (dB)	0.62	Included in Calculations of Corr'd PSD

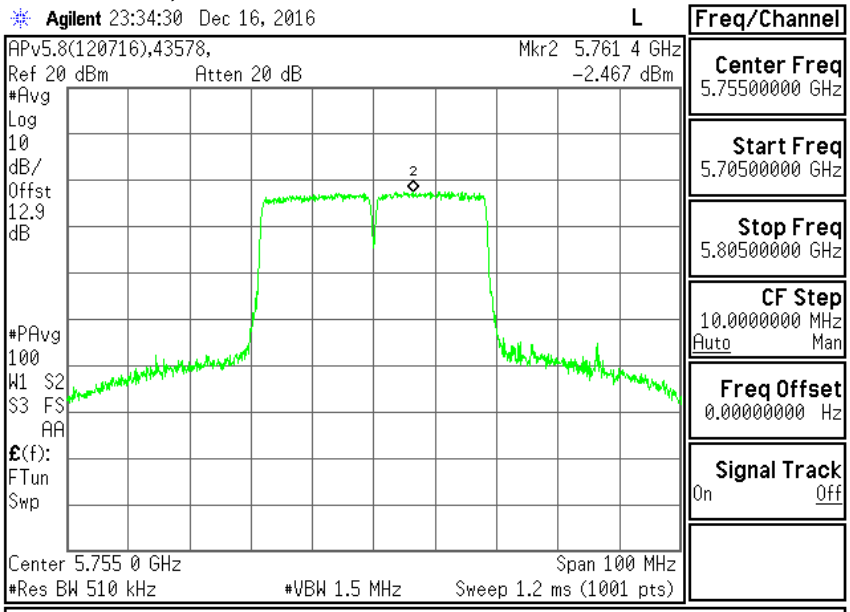
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5755	10.70	10.79	13.76	30.00	-16.24
High	5795	15.22	15.31	18.28	30.00	-11.72

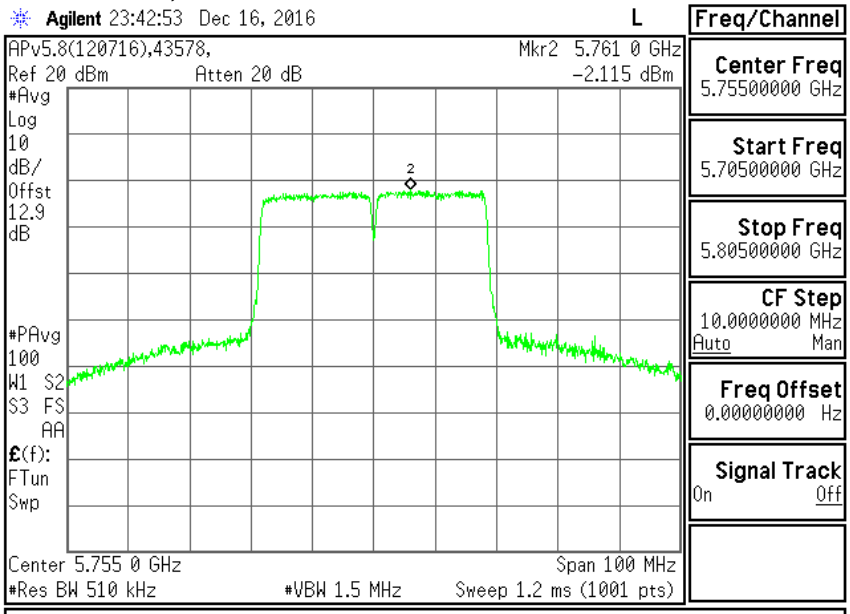
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5755	-2.467	-2.115	1.34	30.00	-28.66
High	5795	-1.971	-1.231	2.05	30.00	-27.95

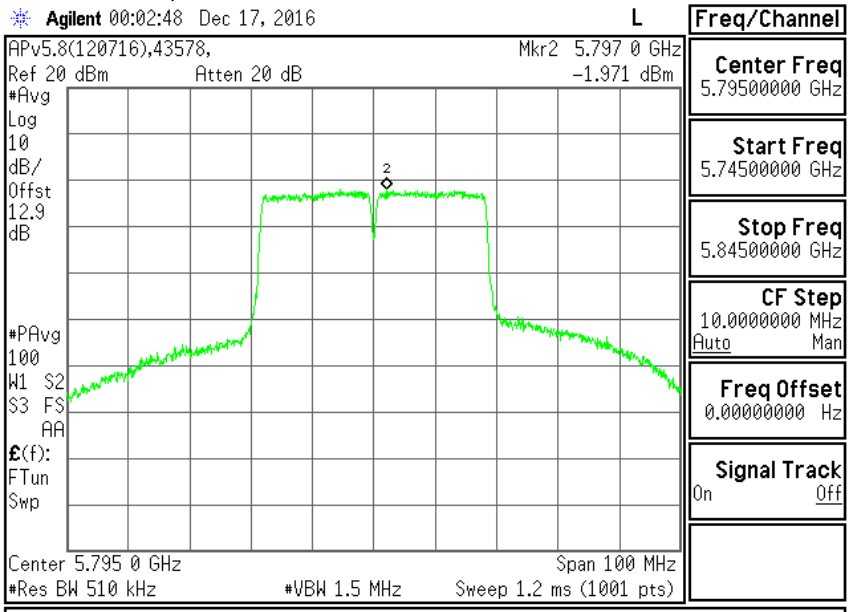
Chain 0 PSD, CH LOW



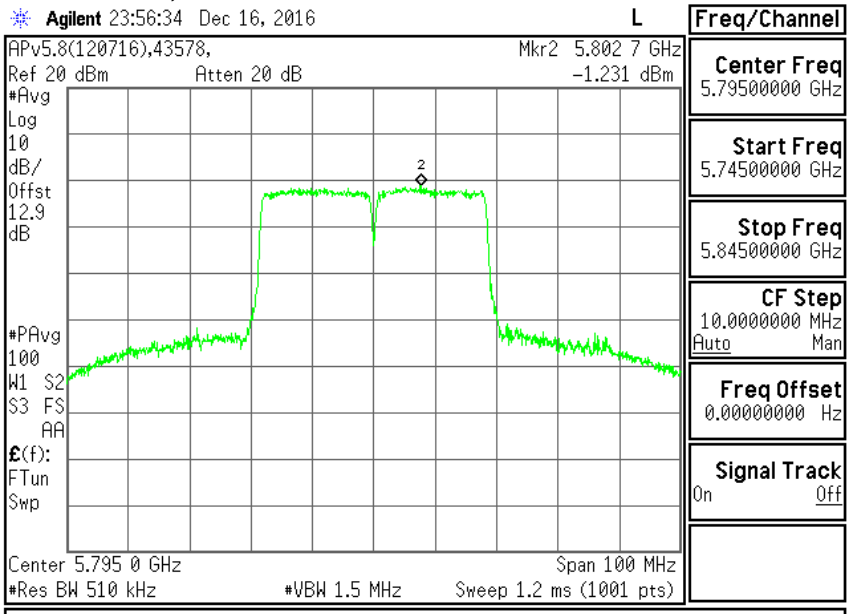
Chain 1 PSD, CH LOW



Chain 0 PSD, CH HIGH



Chain 1 PSD, CH HIGH



10.20. 11ac HT80 2TX CDD MIMO MODE IN THE 5.8GHz BAND

10.20.1. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

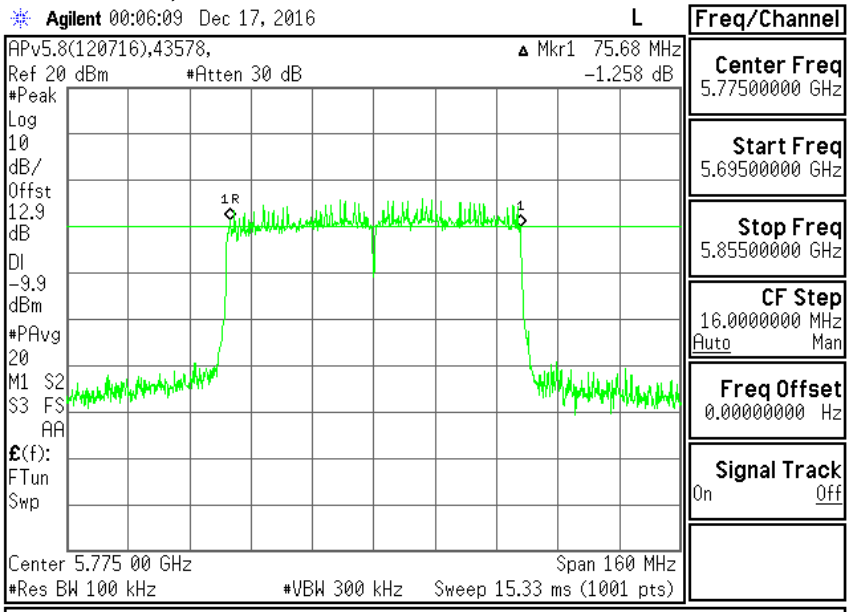
IC RSS-247 (6.2.4) (1)

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

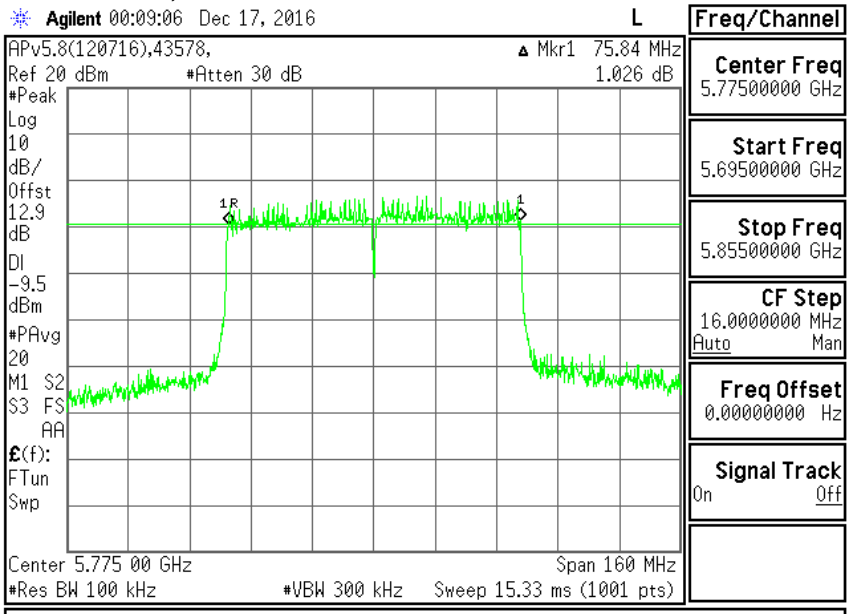
RESULTS

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Mid	5775	75.68	75.84	0.5

Chain 0 6dB , CH MID



Chain 1 6dB , CH MID



10.20.2. 99% BANDWIDTH

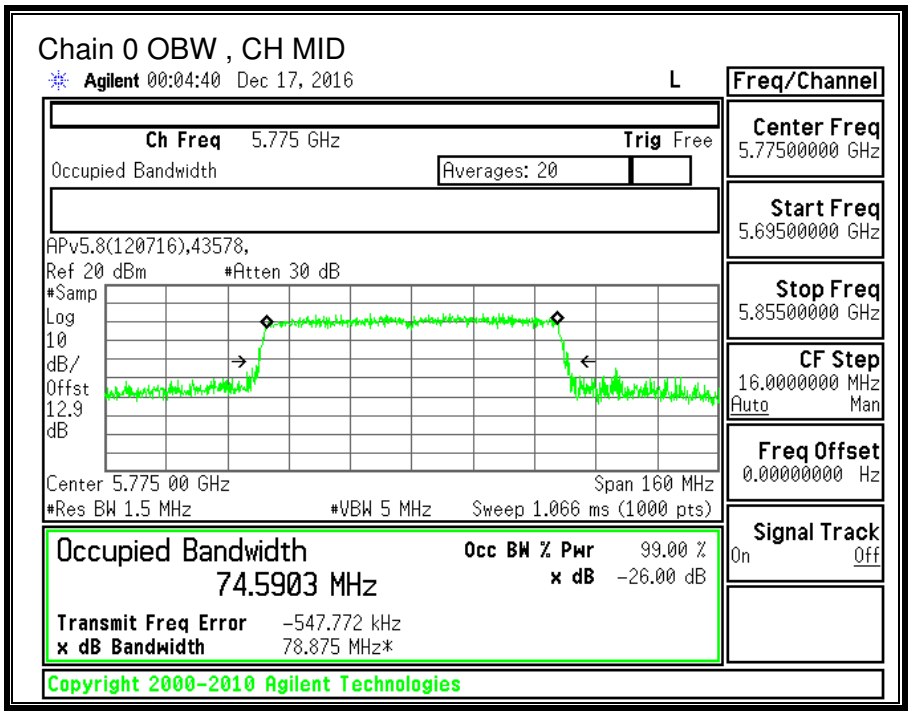
LIMITS

None; for reporting purposes only.

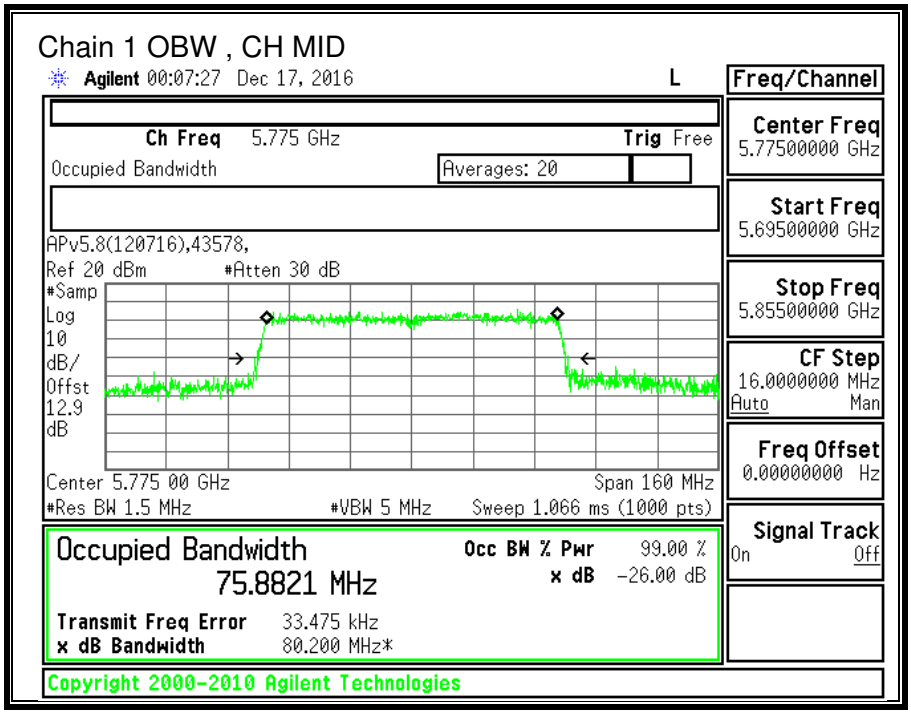
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Mid	5775	74.5903	75.8821

Chain 0 OBW , CH MID



Chain 1 OBW , CH MID



10.20.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (3)

IC RSS-247 (6.2.4) (1)

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

TEST PROCEDURE

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

DIRECTIONAL ANTENNA GAIN

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

5745-5825 MHz

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
1.99	1.99	1.99

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

5745-5825 MHz

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
1.99	3.01	5.00

RESULTS

ID:	43578	Date:	12/16/16

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Power Limit for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Mid	5775	1.99	5.00	30.00	30.00

Duty Cycle CF (dB)	1.84	Included in Calculations of Corr'd PSD

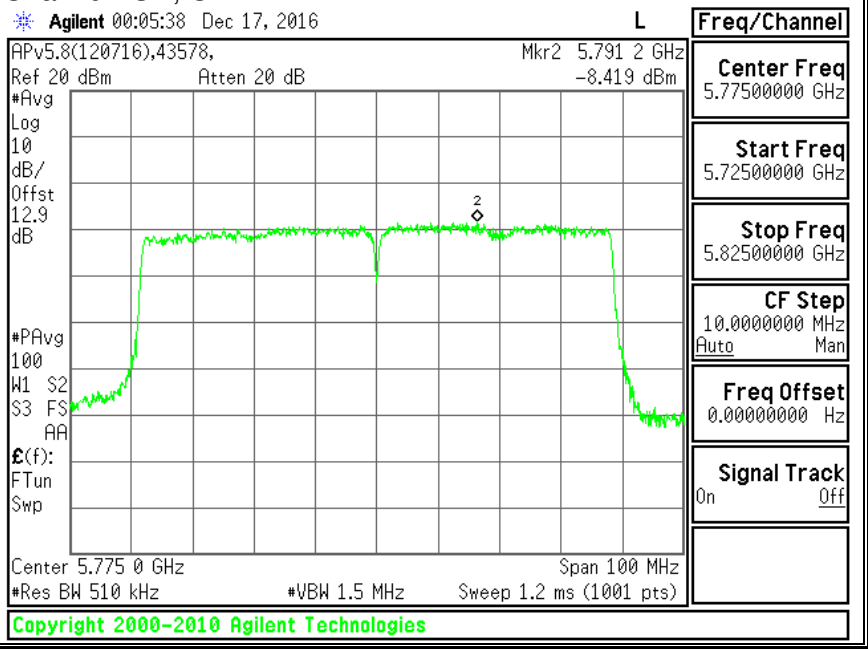
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5775	12.07	12.36	15.23	30.00	-14.77

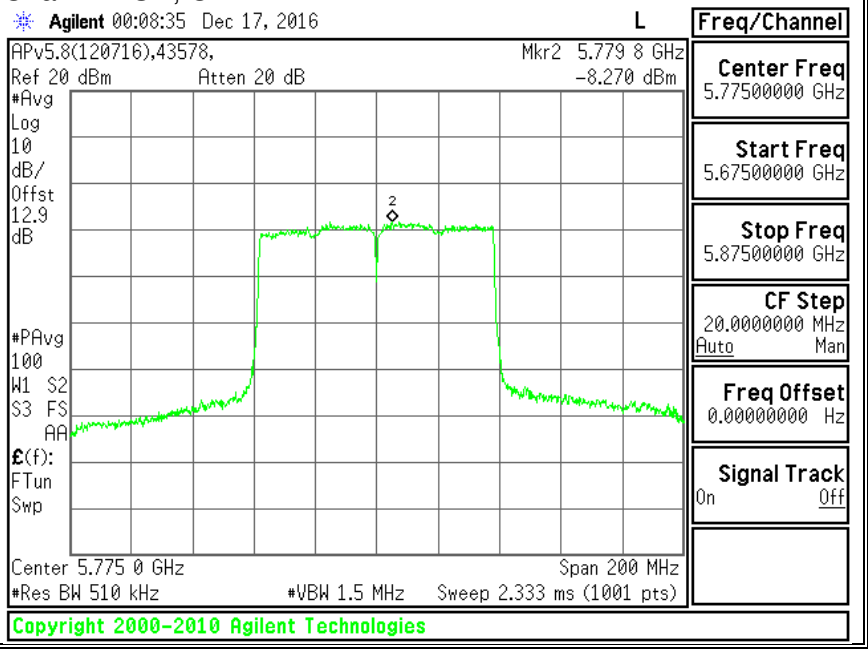
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5775	-8.419	-8.270	-3.49	30.00	-33.49

Chain 0 PSD, CH MID



Chain 1 PSD, CH MID



11. RADIATED TEST RESULTS

11.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-GEN, Section 8.9 and 8.10.

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300m	2400/F(kHz) @ 300m
0.490-1.705	24000/F(kHz) @ 30m	24000/F(kHz) @ 30m
1.705-30.0	30 @ 30m	30 @ 30m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

NOTE: KDB 937606 OATS and Chamber Correlation Justification

- Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.
- OATs and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150 cm for above 1GHz. 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 3 MHz for peak measurements and add duty cycle factor for average measurements. Please refer to test report section 4.1 for duty cycle factor information.

For 5GHz band, the spectrum from 9 kHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels for above 1GHz in each applicable band. Below and above 18GHz emissions, the channel with the highest output power was tested.

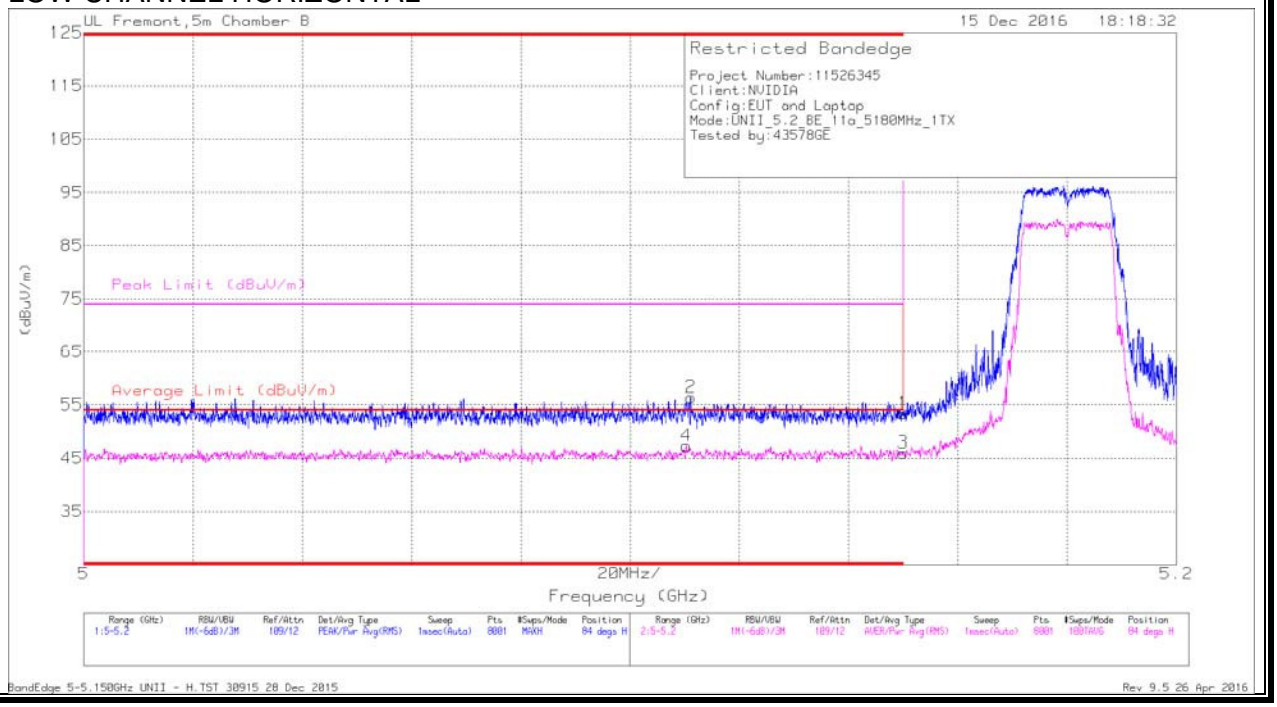
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

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

11.1.1. 11a Chain 0 SISO MODE IN THE 5.2GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL HORIZONTAL

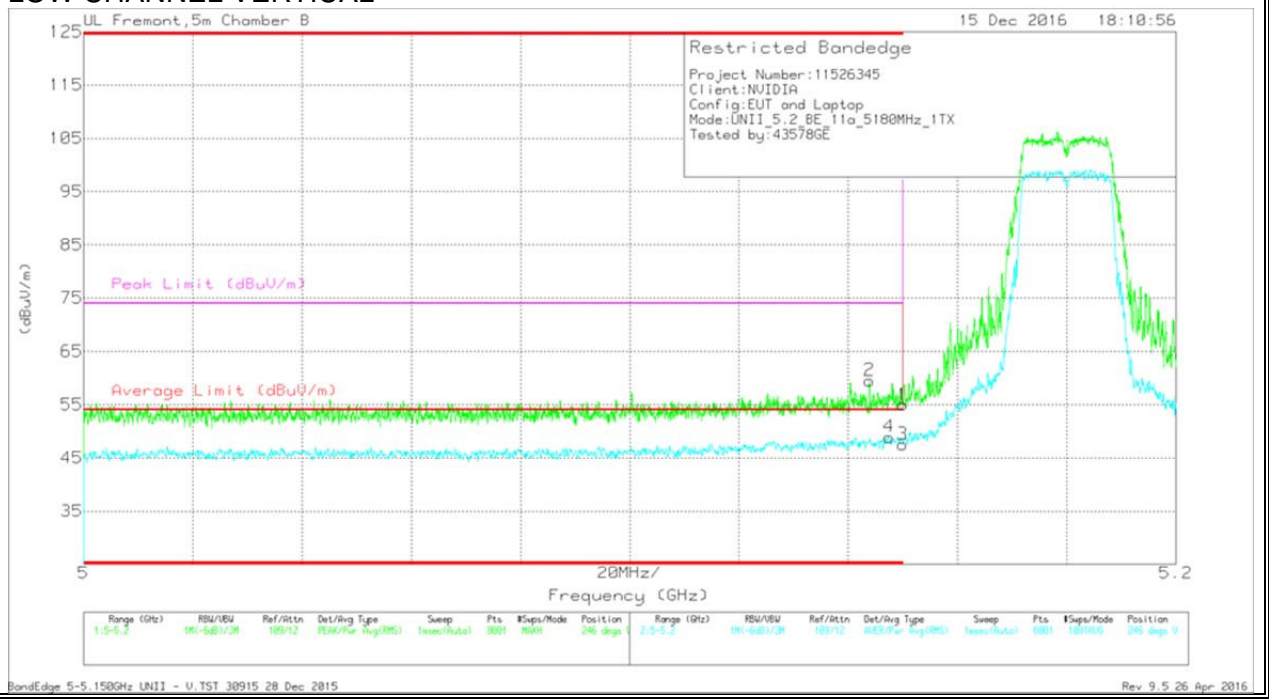


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
2	* 5.111	41.66	Pk	34.1	-19.4	0	56.36	-	-	74	-17.64	84	291	H
4	* 5.11	32.08	RMS	34.1	-19.2	.29	47.27	54	-6.73	-	-	84	291	H
1	5.15	39.07	Pk	34.2	-19.9	0	53.37	-	-	74	-20.63	84	291	H
3	5.15	31.38	RMS	34.2	-19.9	.29	45.97	54	-8.03	-	-	84	291	H

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

LOW CHANNEL VERTICAL



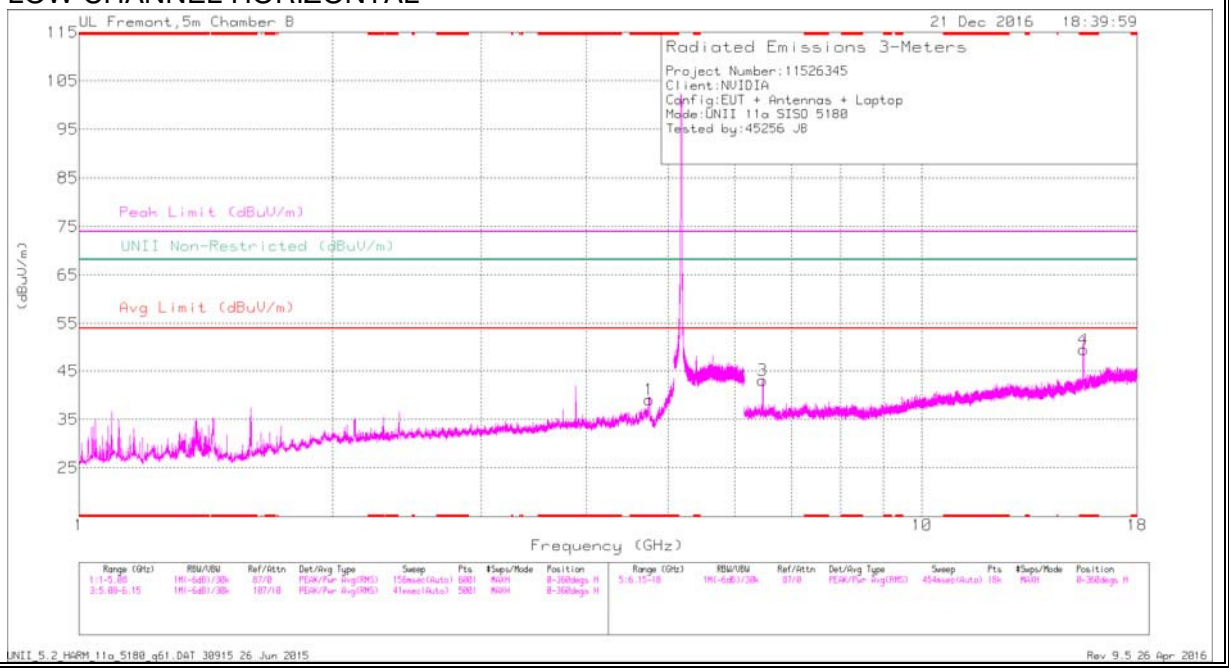
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T34S (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
2	* 5.144	45.03	Pk	34.2	-19.7	0	59.53	-	-	74	-14.47	246	241	V
4	* 5.147	33.83	RMS	34.2	-19.4	.29	48.92	54	-5.08	-	-	246	241	V
1	5.15	40.64	Pk	34.2	-19.9	0	54.94	-	-	74	-19.06	246	241	V
3	5.15	32.95	RMS	34.2	-19.9	.29	47.54	54	-6.46	-	-	246	241	V

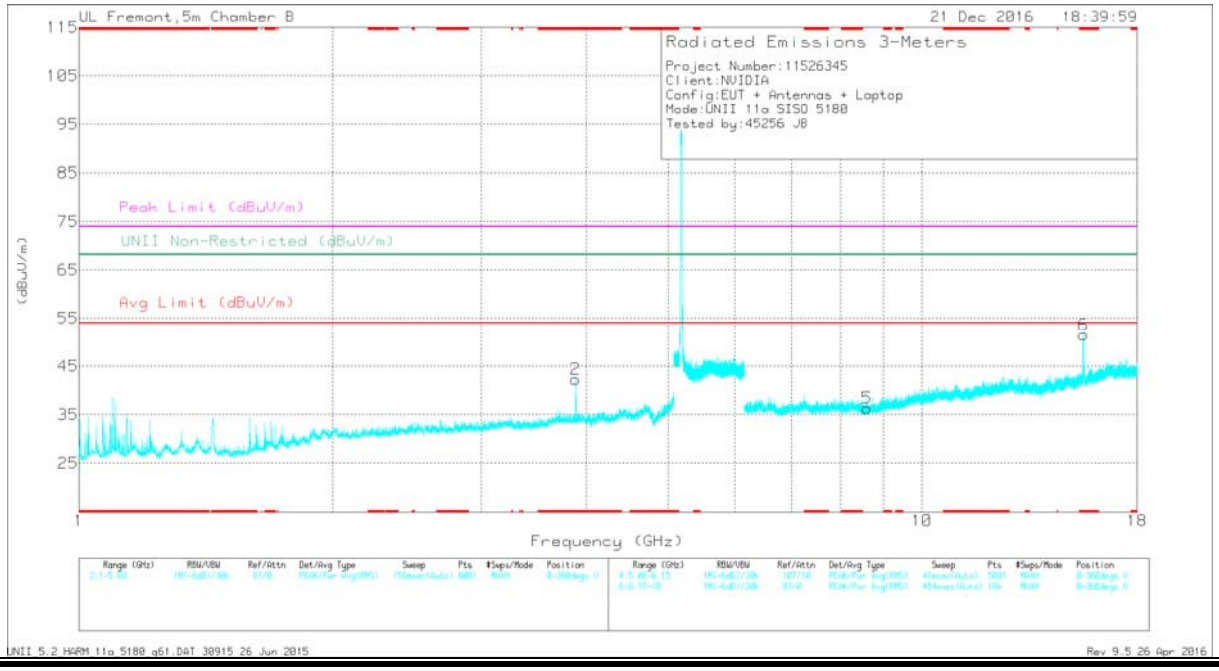
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



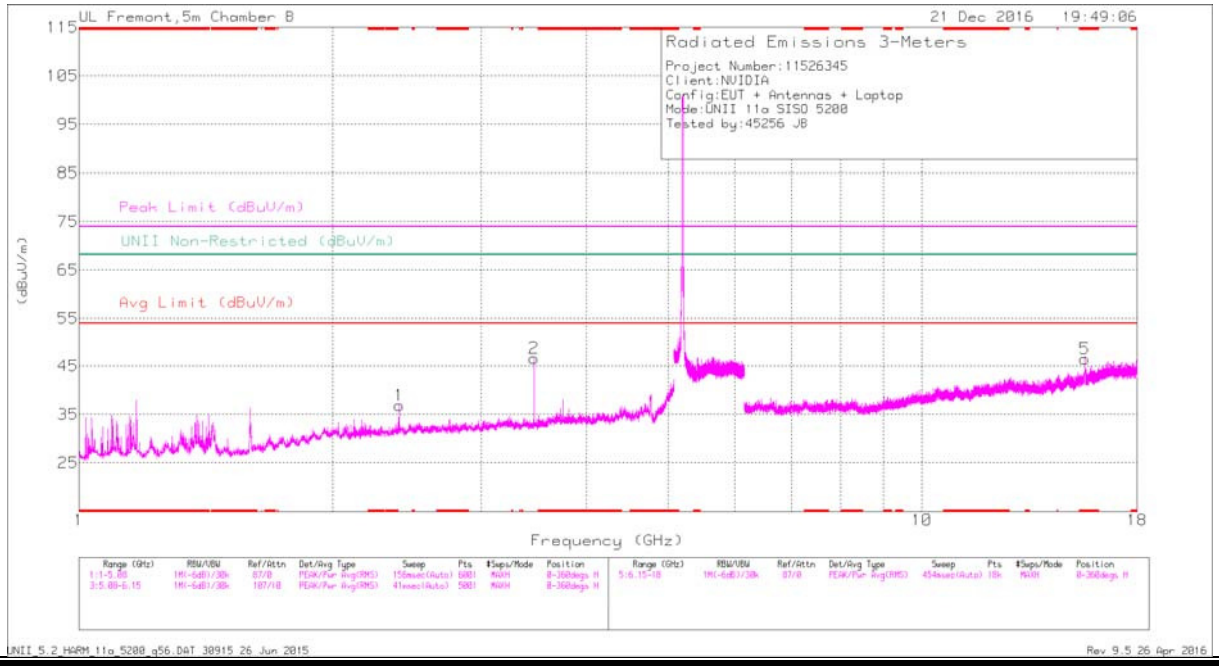
Radiated Emissions

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/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	* 4.746	44.01	PK-U	34	-31.5	0	46.51	-	-	74	-27.49	-	-	222	182	H
	* 4.747	33.75	ADR	33.9	-31.5	.29	36.44	54	-17.56	-	-	-	-	222	182	H
2	* 3.885	45.3	PK-U	33.3	-32.9	0	45.7	-	-	74	-28.3	-	-	118	107	V
	* 3.885	40.76	ADR	33.3	-32.9	.29	41.45	54	-12.55	-	-	-	-	118	107	V
4	* 15.548	41.47	PK-U	40.2	-24	0	57.67	-	-	74	-16.33	-	-	297	192	H
	* 15.547	29.38	ADR	40.2	-24	.29	45.87	54	-8.13	-	-	-	-	297	192	H
6	* 15.548	44.43	PK-U	40.2	-24	0	60.63	-	-	74	-13.37	-	-	355	293	V
	* 15.547	32.94	ADR	40.2	-24	.29	49.43	54	-4.57	-	-	-	-	355	293	V
3	6.475	43.01	PK-U	35.6	-30.9	0	47.71	-	-	-	-	68.2	-20.49	261	192	H
5	8.607	35.53	PK-U	35.9	-28.7	0	42.73	-	-	-	-	68.2	-25.47	73	100	V

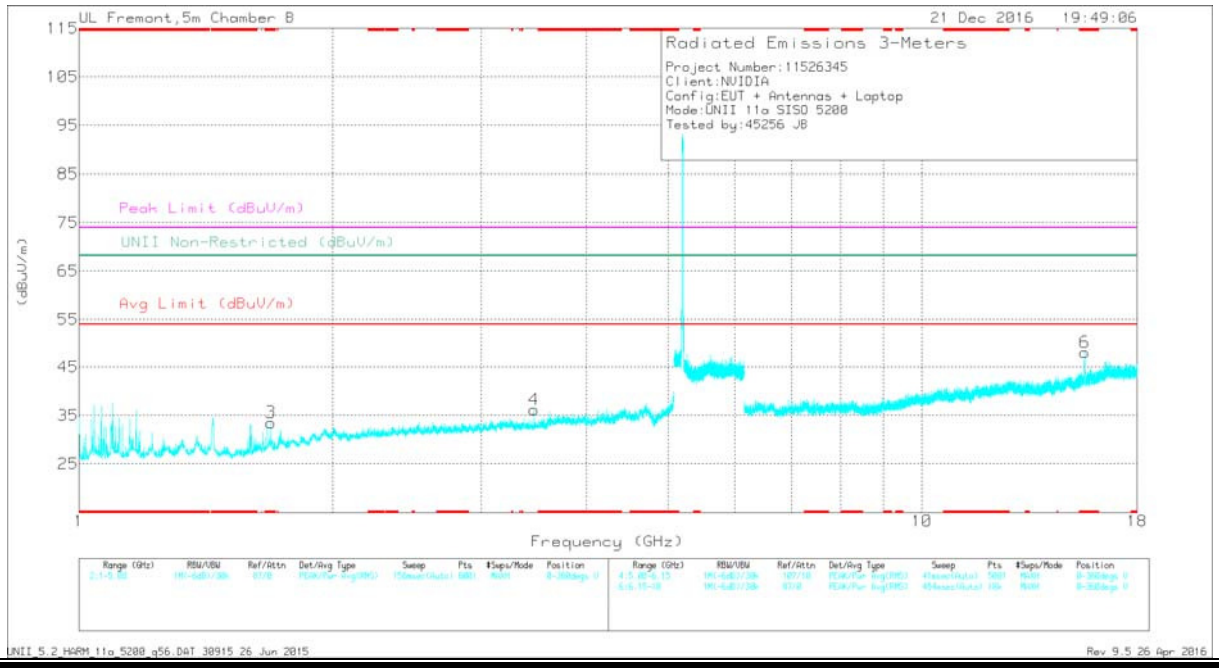
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701J
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



Radiated Emissions

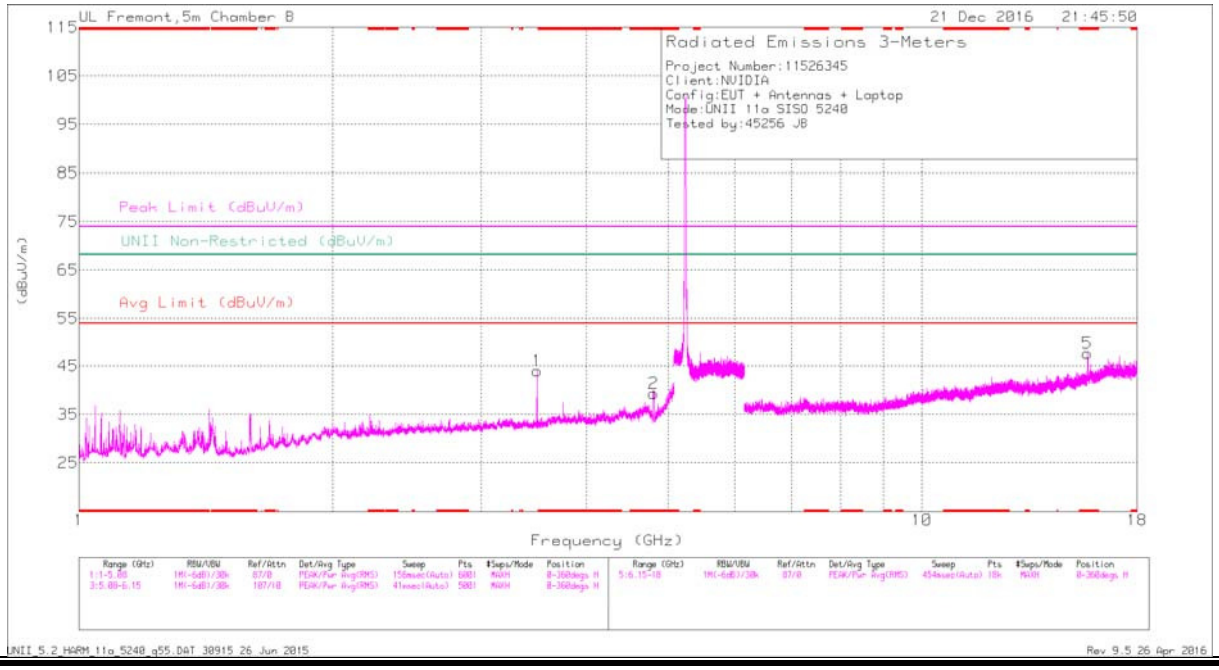
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 1.689	42.26	PK-U	29.1	-34.4	0	36.96	-	-	74	-37.04	-	-	203	100	V
	* 1.688	30.24	ADR	29	-34.4	.29	25.13	54	-28.87	-	-	-	-	203	100	V
5	* 15.599	41.49	PK-U	40.3	-24.5	0	57.29	-	-	74	-16.71	-	-	302	270	H
	* 15.603	29.73	ADR	40.3	-24.5	.29	45.82	54	-8.18	-	-	-	-	302	270	H
6	* 15.602	40.81	PK-U	40.3	-24.5	0	56.61	-	-	74	-17.39	-	-	359	201	V
	* 15.598	28.78	ADR	40.3	-24.5	.29	44.87	54	-9.13	-	-	-	-	359	201	V
1	2.399	47.05	PK-U	32.2	-34.7	0	44.55	-	-	-	-	68.2	-23.65	111	187	H
2	3.467	49.82	PK-U	32.8	-33.7	0	48.92	-	-	-	-	68.2	-19.28	220	204	H
4	3.467	43.99	PK-U	32.8	-33.7	0	43.09	-	-	-	-	68.2	-25.11	153	131	V

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

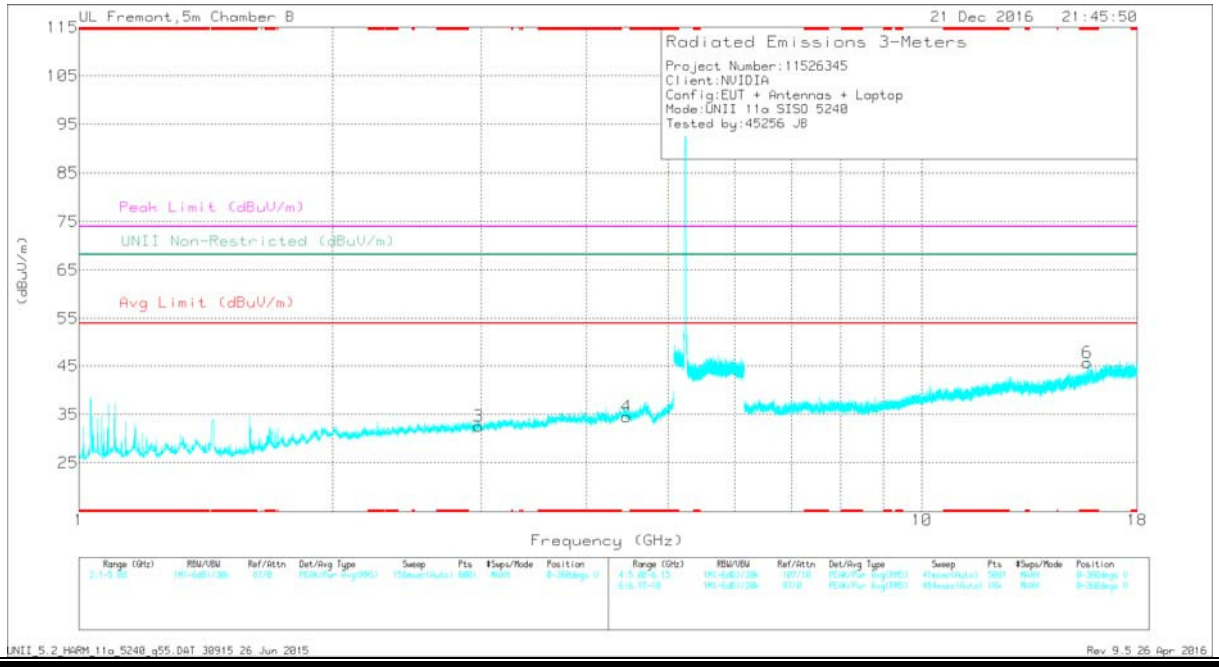
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



Radiated Emissions

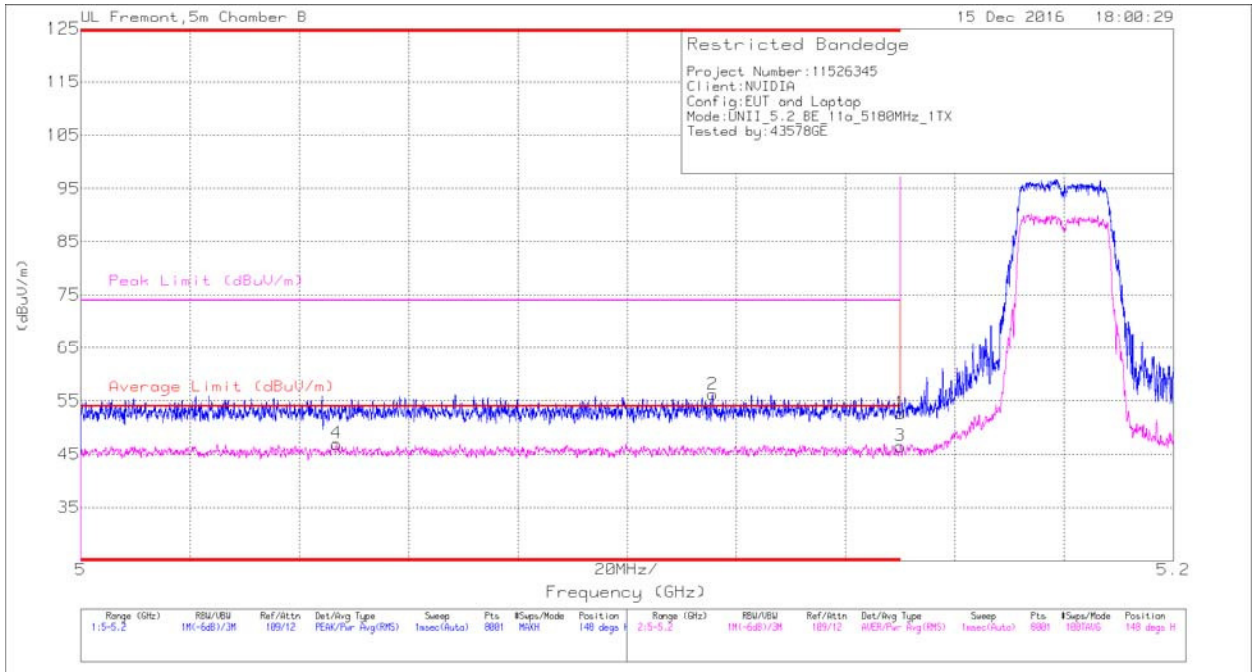
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.802	45.26	PK-U	33.8	-32.1	0	46.96	-	-	74	-27.04	-	-	225	168	H
	* 4.806	34.75	ADR	33.8	-32.2	.29	36.64	54	-17.36	-	-	-	-	225	168	H
5	* 15.716	39.33	PK-U	40.5	-24.4	0	55.43	-	-	74	-18.57	-	-	305	339	H
	* 15.717	27.9	ADR	40.5	-24.4	.29	44.29	54	-9.71	-	-	-	-	305	339	H
6	* 15.723	39.57	PK-U	40.5	-24.5	0	55.57	-	-	74	-18.43	-	-	296	202	V
	* 15.722	26.62	ADR	40.5	-24.5	.29	42.91	54	-11.09	-	-	-	-	296	202	V
3	2.979	41.41	PK-U	32.5	-33.8	0	40.11	-	-	-	-	68.2	-28.09	57	306	V
1	3.493	49.33	PK-U	32.8	-33.2	0	48.93	-	-	-	-	68.2	-19.27	234	352	H
4	4.463	38.76	PK-U	34	-31.7	0	41.06	-	-	-	-	68.2	-27.14	5	170	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

11.1.2. 11a Chain 1 SISO MODE IN THE 5.2GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL HORIZONTAL

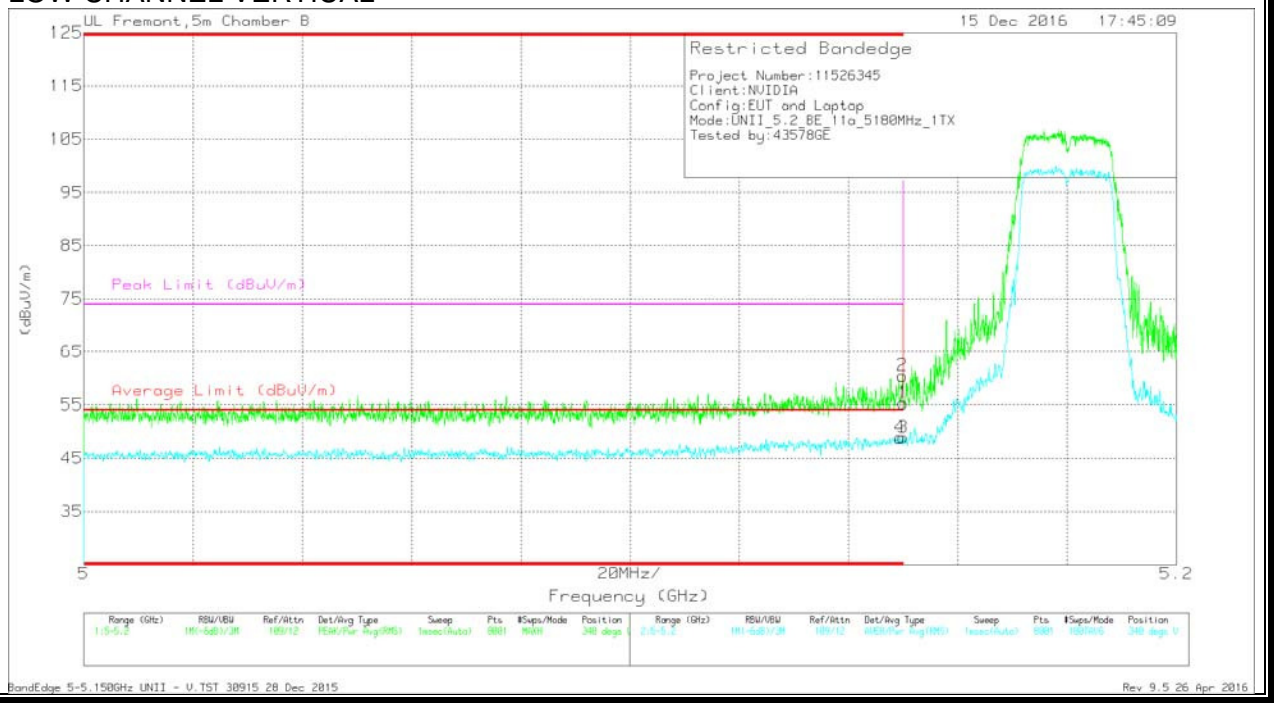


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
2	* 5.116	41.47	Pk	34.1	-19.4	0	56.17	-	-	74	-17.83	148	263	H
4	* 5.047	31.67	RMS	34.1	-19.1	.29	46.96	54	-7.04	-	-	148	263	H
1	5.15	38.32	Pk	34.2	-19.9	0	52.62	-	-	74	-21.38	148	263	H
3	5.15	31.9	RMS	34.2	-19.9	.29	46.49	54	-7.51	-	-	148	263	H

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

LOW CHANNEL VERTICAL



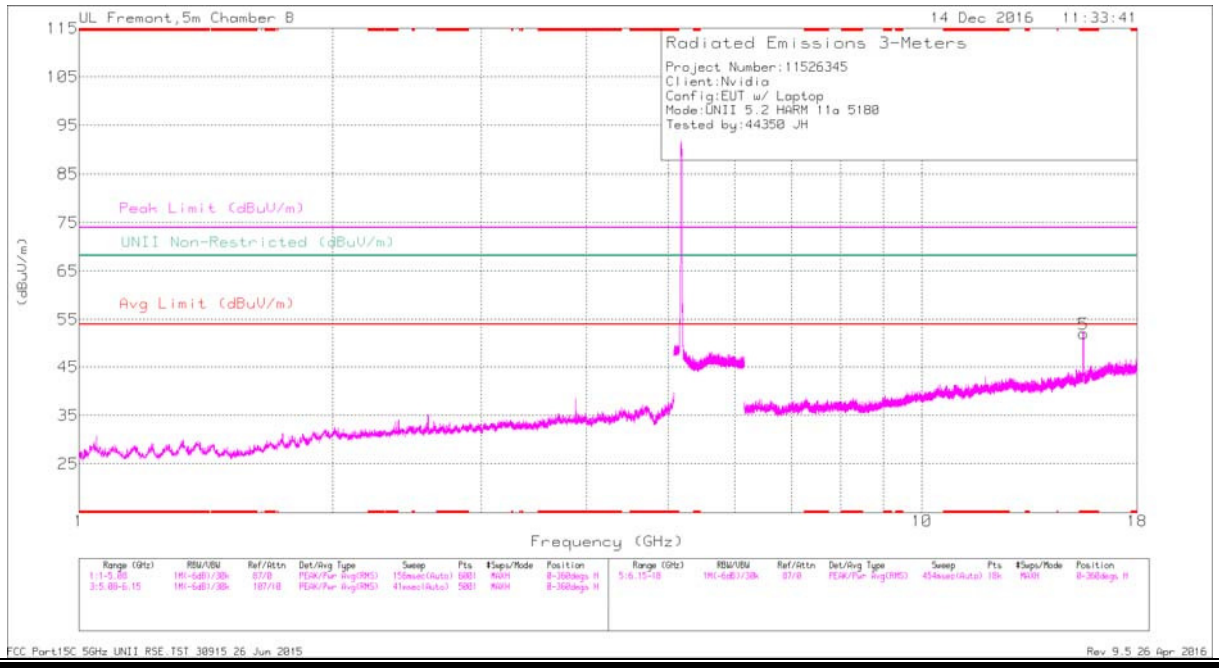
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
2	* 5.15	46.13	Pk	34.2	-19.9	0	60.43	-	-	74	-13.57	340	294	V
4	* 5.149	34.22	RMS	34.2	-19.9	.29	48.81	54	-5.19	-	-	340	294	V
1	5.15	41	Pk	34.2	-19.9	0	55.3	-	-	74	-18.7	340	294	V
3	5.15	34.28	RMS	34.2	-19.9	.29	48.87	54	-5.13	-	-	340	294	V

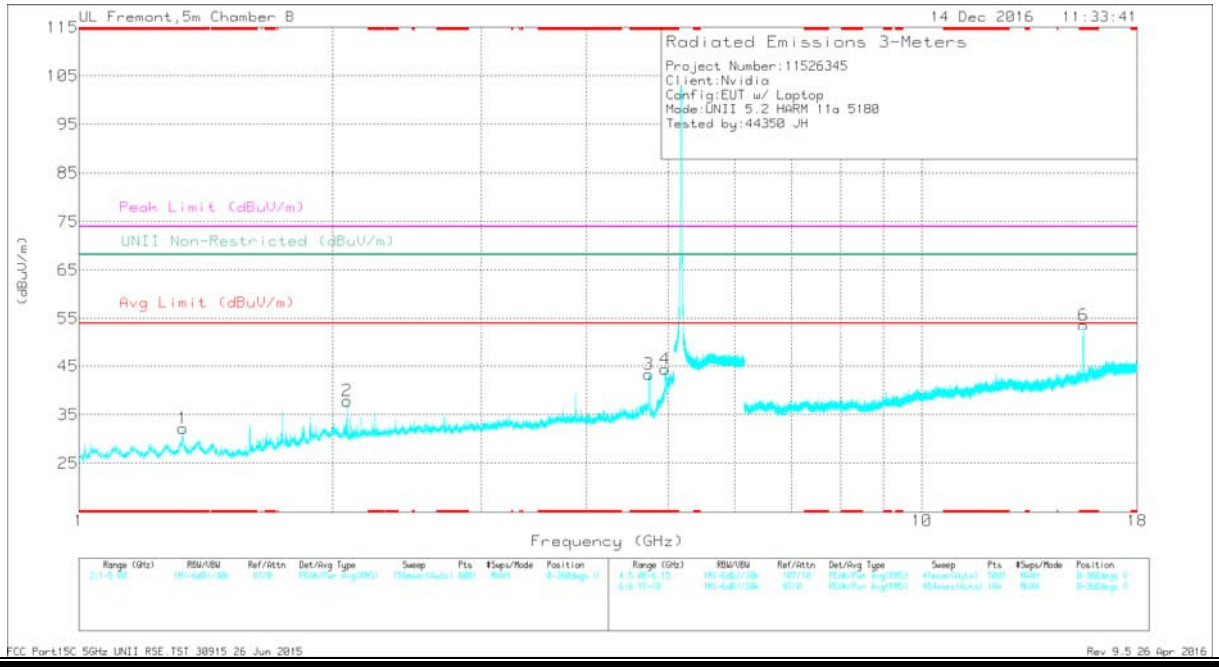
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL

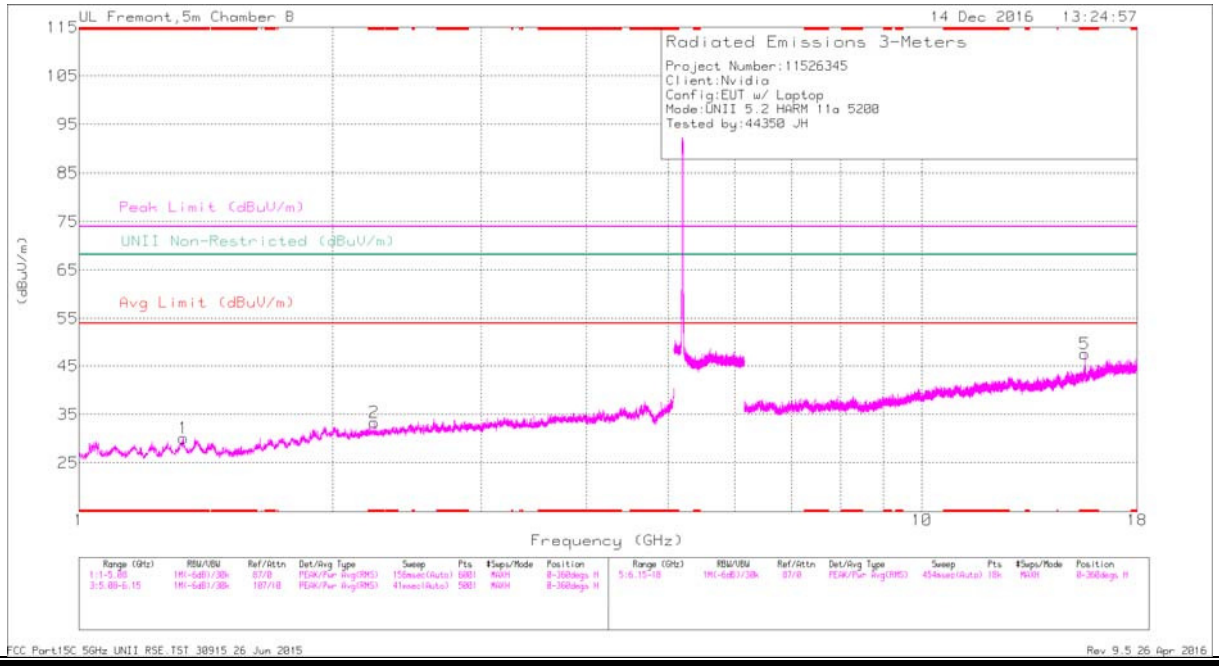


Radiated Emissions

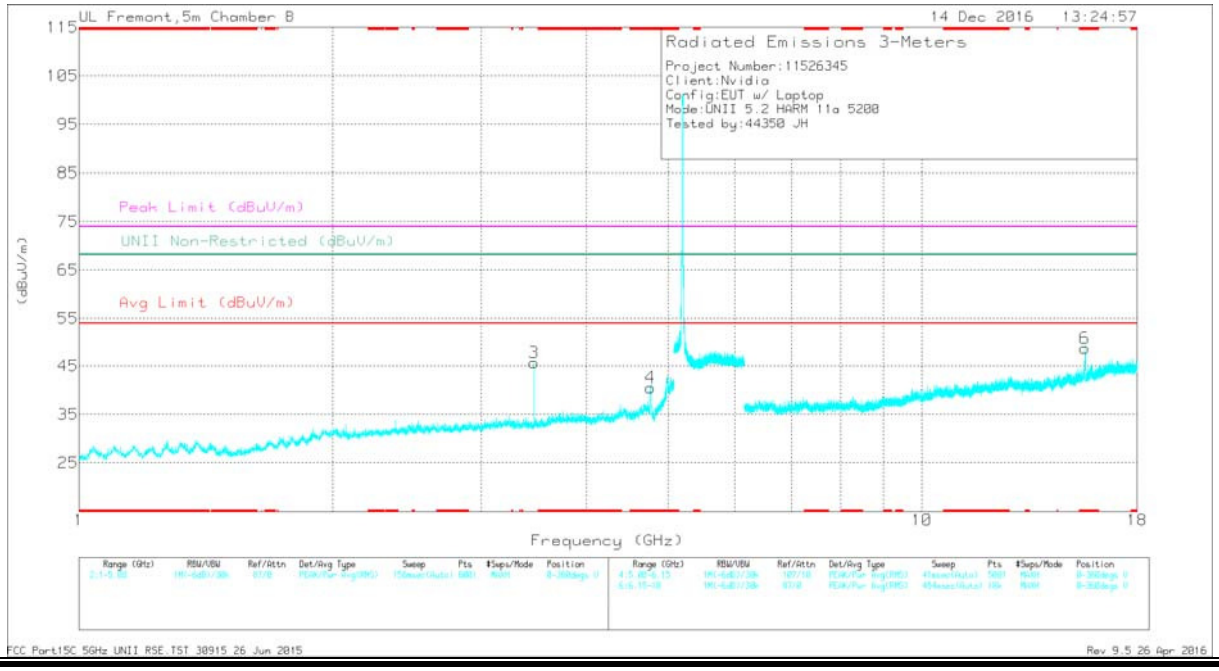
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.327	46.03	PK-U	28.9	-35.4	0	39.53	-	-	74	-34.47	-	-	183	117	V
	* 1.329	31.76	ADR	28.9	-35.4	.29	25.55	54	-28.45	-	-	-	-	183	117	V
3	* 4.744	48.56	PK-U	34	-31.5	0	51.06	-	-	74	-22.94	-	-	24	183	V
	* 4.751	40.26	ADR	33.9	-31.5	.29	42.95	54	-11.05	-	-	-	-	24	183	V
4	* 4.956	47.2	PK-U	34	-31.4	0	49.8	-	-	74	-24.2	-	-	21	185	V
	* 4.741	38.39	ADR	34	-31.4	.29	41.28	54	-12.72	-	-	-	-	21	185	V
5	* 15.537	45.68	PK-U	40.2	-24.1	0	61.78	-	-	74	-12.22	-	-	6	284	H
	* 15.538	34.18	ADR	40.2	-24.1	.29	50.57	54	-3.43	-	-	-	-	6	284	H
6	* 15.541	45.08	PK-U	40.2	-24	0	61.28	-	-	74	-12.72	-	-	16	206	V
	* 15.543	33.82	ADR	40.2	-24	.29	50.31	54	-3.69	-	-	-	-	16	206	V
2	2.079	48.42	PK-U	31.3	-34.9	0	44.82	-	-	-	-	68.2	-23.38	123	139	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

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL

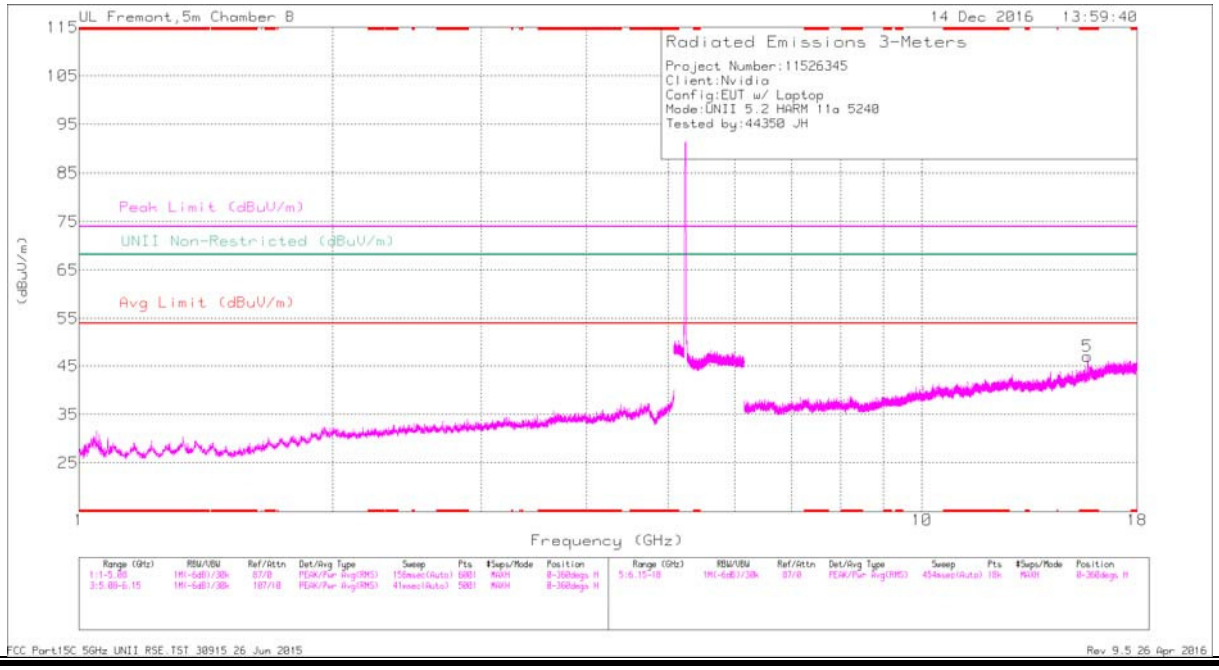


Radiated Emissions

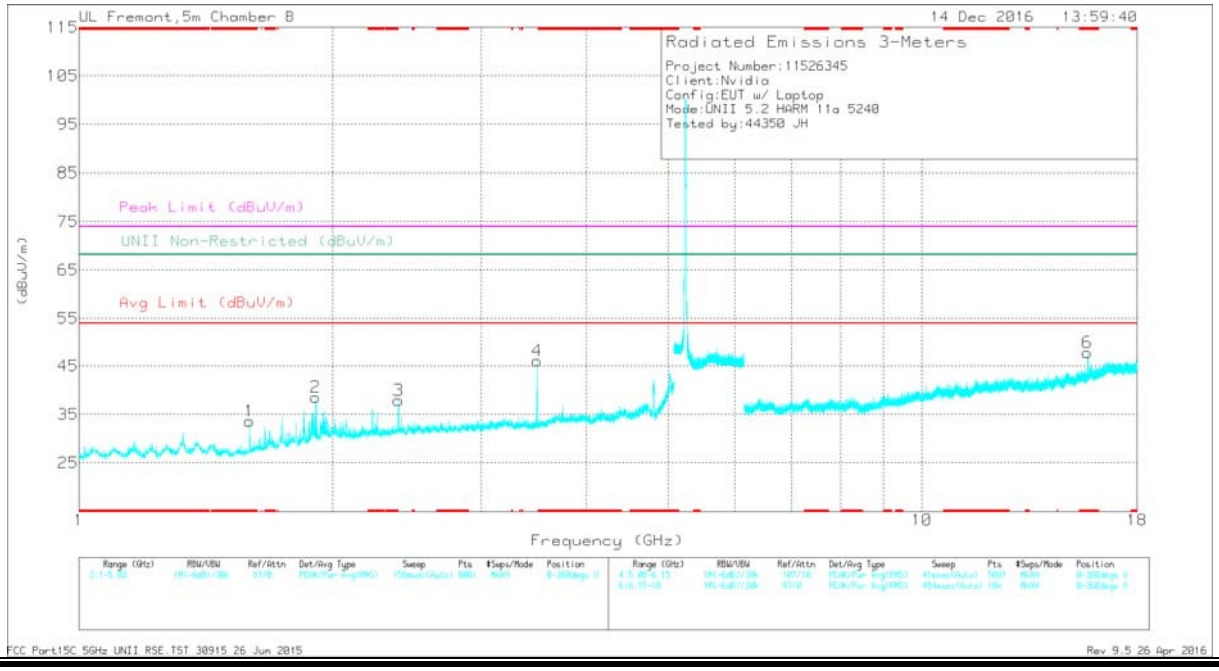
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.331	41.9	PK-U	28.9	-35.4	0	35.4	-	-	74	-38.6	-	-	1	100	H
	* 1.329	31.51	ADR	28.9	-35.4	.29	25.3	54	-28.7	-	-	-	-	1	100	H
2	* 2.24	41.14	PK-U	31.6	-34.2	0	38.54	-	-	74	-35.46	-	-	1	100	H
	* 2.241	30.26	ADR	31.6	-34.2	.29	27.95	54	-26.05	-	-	-	-	1	100	H
4	* 4.77	46.35	PK-U	33.9	-31.6	0	48.65	-	-	74	-25.35	-	-	59	124	V
	* 4.774	37.86	ADR	33.9	-31.6	.29	40.45	54	-13.55	-	-	-	-	59	124	V
5	* 15.594	42.59	PK-U	40.3	-24.7	0	58.19	-	-	74	-15.81	-	-	10	307	H
	* 15.597	31.49	ADR	40.3	-24.6	.29	47.48	54	-6.52	-	-	-	-	10	307	H
6	* 15.603	40.1	PK-U	40.3	-24.5	0	55.9	-	-	74	-18.1	-	-	5	212	V
	* 15.602	29.09	ADR	40.3	-24.5	.29	45.18	54	-8.82	-	-	-	-	5	212	V
3	3.467	50.19	PK-U	32.8	-33.7	0	49.29	-	-	-	-	68.2	-18.91	194	161	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

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



Radiated Emissions

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/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	* 1.594	41.59	PK-U	28.1	-35.3	0	34.39	-	-	74	-39.61	-	-	0	100	V
	* 1.593	30.97	ADR	28.1	-35.3	.29	24.06	54	-29.94	-	-	-	-	0	100	V
5	* 15.723	40.75	PK-U	40.5	-24.5	0	56.75	-	-	74	-17.25	-	-	7	285	H
	* 15.716	28.34	ADR	40.5	-24.4	.29	44.73	54	-9.27	-	-	-	-	7	285	H
6	* 15.723	36.63	PK-U	40.5	-24.5	0	52.63	-	-	74	-21.37	-	-	5	203	V
	* 15.725	26.4	ADR	40.5	-24.4	.29	42.79	54	-11.21	-	-	-	-	5	203	V
2	1.907	48.85	PK-U	30.9	-34.1	0	45.65	-	-	-	-	68.2	-22.55	135	197	V
3	2.393	40.89	PK-U	32.1	-34.6	0	38.39	-	-	-	-	68.2	-29.81	302	198	V
4	3.493	48.37	PK-U	32.8	-33.2	0	47.97	-	-	-	-	68.2	-20.23	264	188	V

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

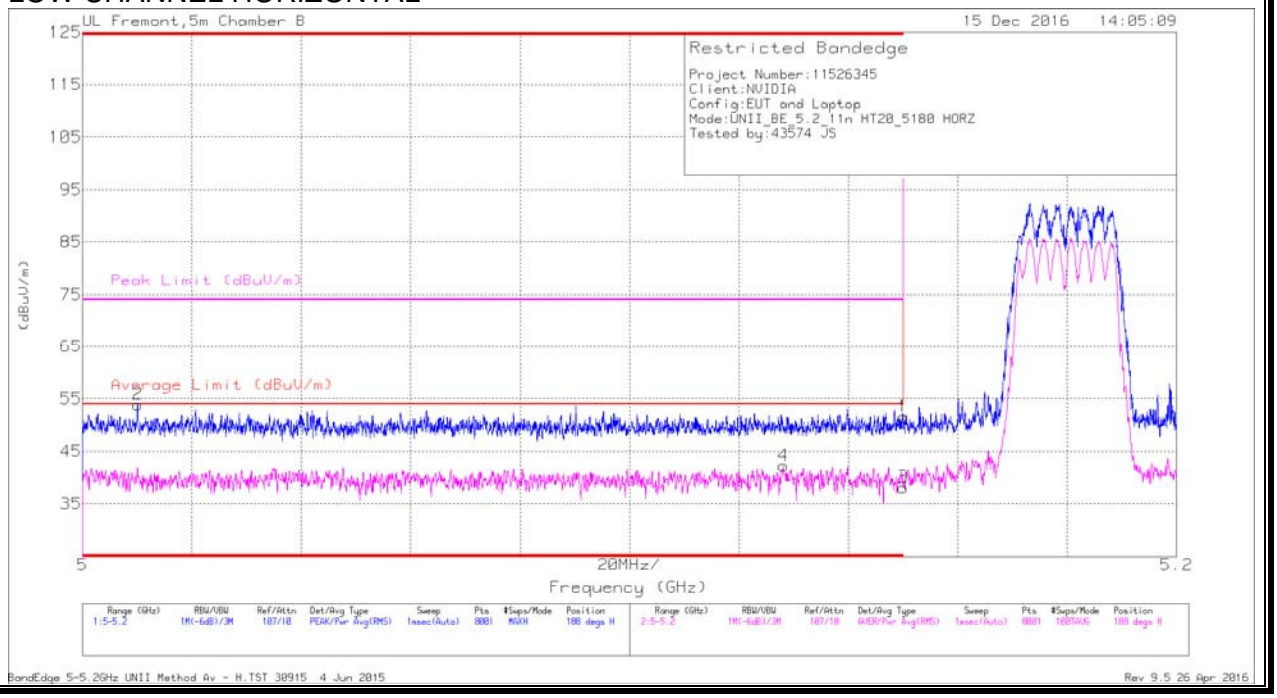
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

11.1.3. 11n HT20 2TX CDD MIMO MODE IN THE 5.2GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL HORIZONTAL

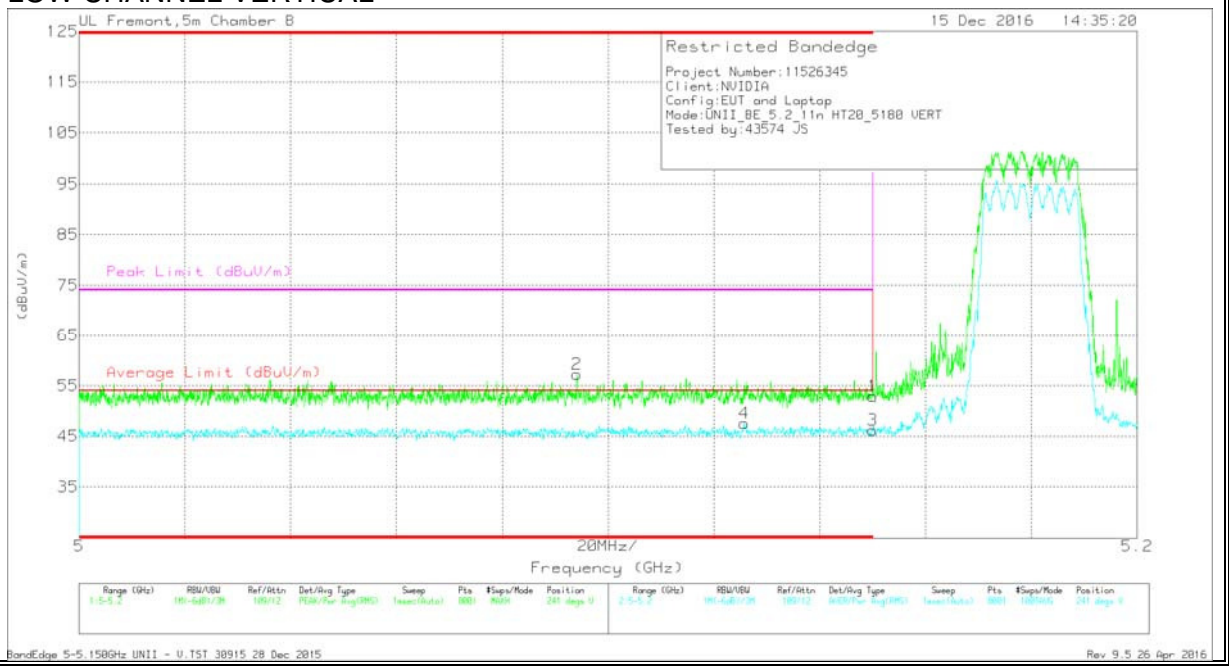


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
2	* 5.01	42.41	Pk	34.1	-22.6	0	53.91	-	-	74	-20.09	188	238	H
4	* 5.128	30.24	RMS	34.2	-22.6	.31	42.15	54	-11.85	-	-	188	238	H
1	5.15	39.93	Pk	34.2	-22.6	0	51.53	-	-	74	-22.47	188	238	H
3	5.15	26.23	RMS	34.2	-22.6	.31	38.14	54	-15.86	-	-	188	238	H

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

LOW CHANNEL VERTICAL



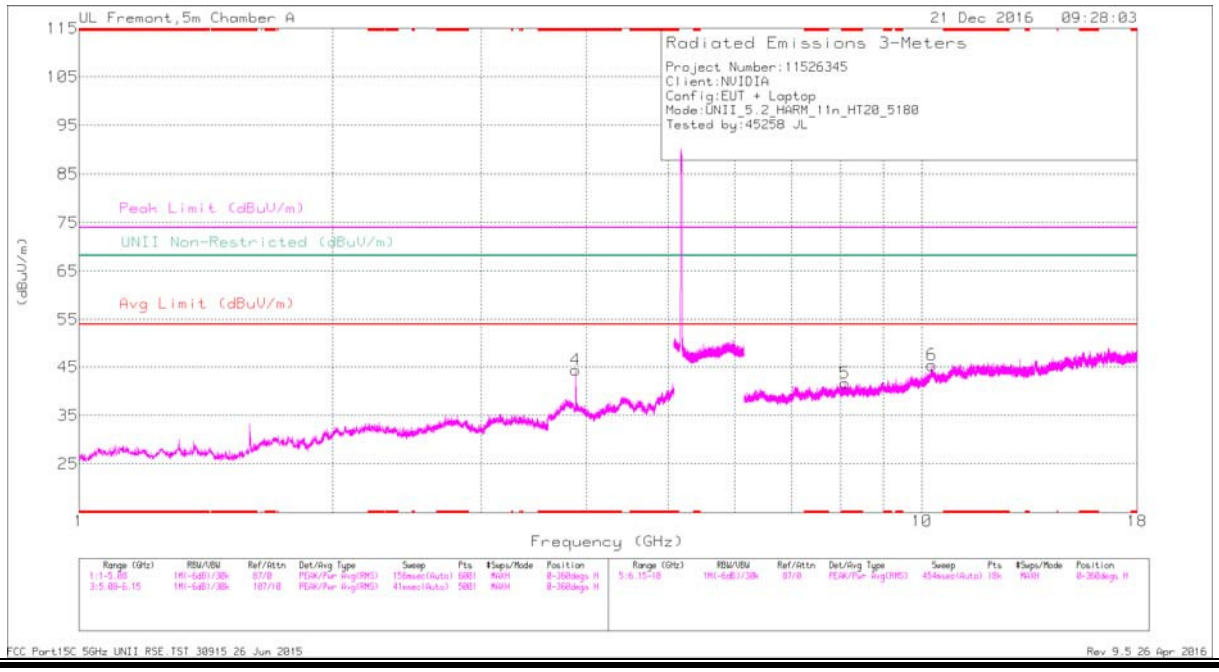
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
2	* 5.094	42.53	Pk	34.1	-19.4	0	57.23	-	-	74	-16.77	241	244	V
4	* 5.126	32.18	RMS	34.2	-19.2	.31	47.49	54	-6.51	-	-	241	244	V
1	5.15	38.57	Pk	34.2	-19.9	0	52.87	-	-	74	-21.13	241	244	V
3	5.15	31.5	RMS	34.2	-19.9	.31	46.11	54	-7.89	-	-	241	244	V

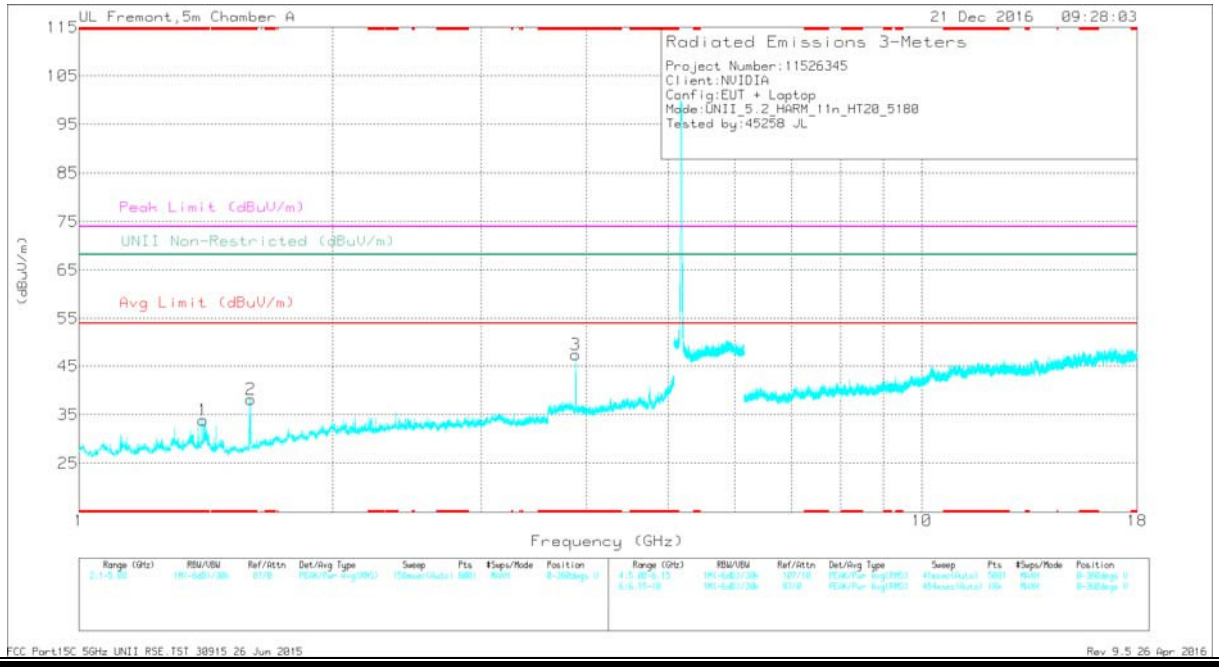
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL

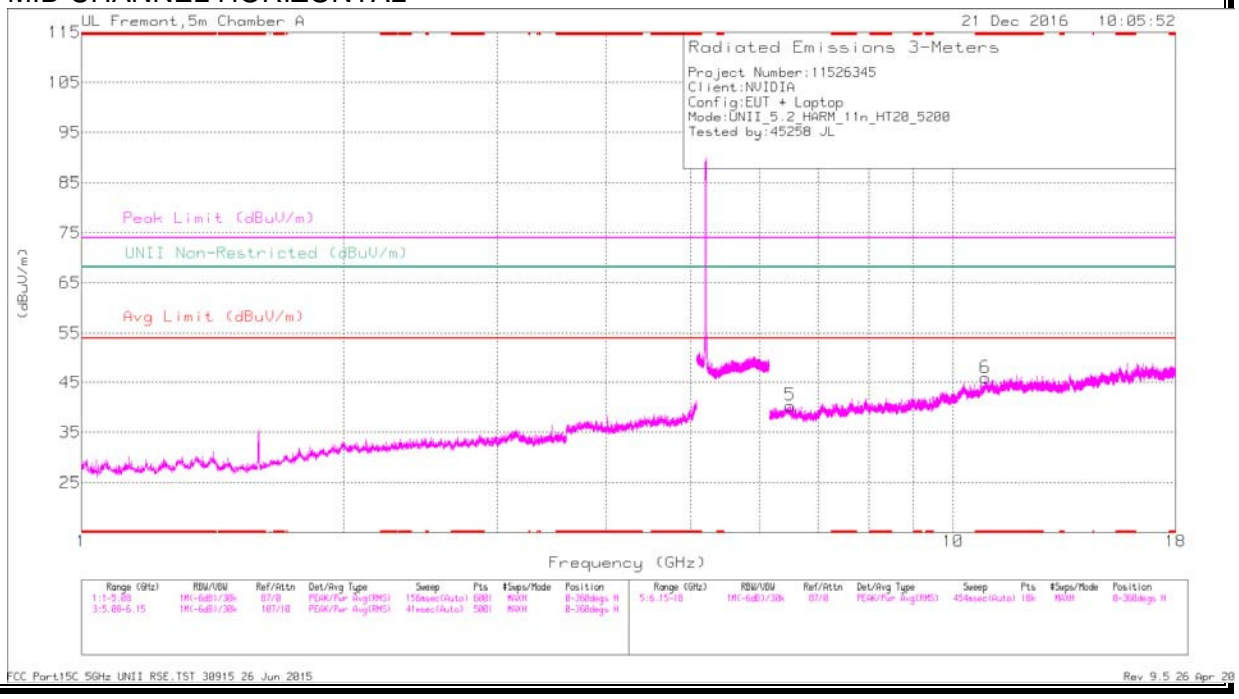


Radiated Emissions

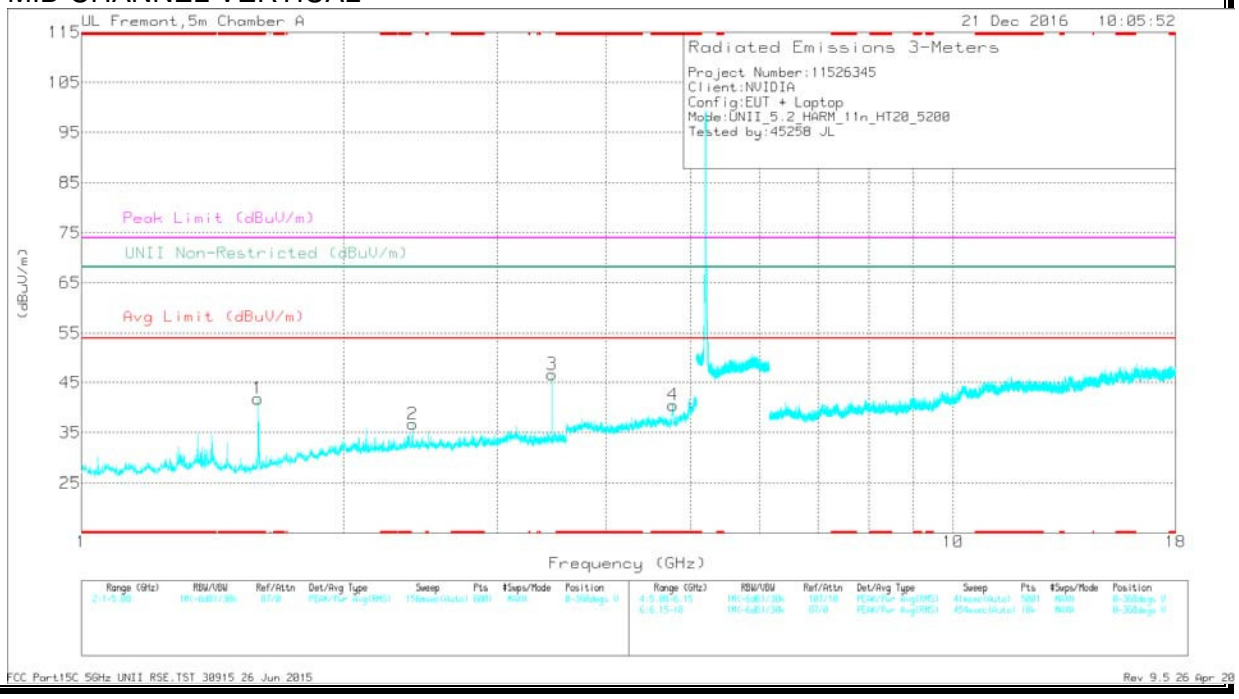
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 3.885	44.92	PK-U	33.6	-30.5	0	48.02	-	-	74	-25.98	-	-	328	108	H
	* 3.885	40.52	ADR	33.6	-30.5	.31	43.93	54	-10.07	-	-	-	-	328	108	H
3	* 3.885	43.53	PK-U	33.6	-30.5	0	46.63	-	-	74	-27.37	-	-	329	154	V
	* 3.885	38.56	ADR	33.6	-30.5	.31	41.97	54	-12.03	-	-	-	-	329	154	V
1	* 1.403	47.75	PK-U	29	-33.2	0	43.55	-	-	74	-30.45	-	-	249	193	V
	* 1.404	31.42	ADR	28.9	-33.2	.31	27.43	54	-26.57	-	-	-	-	249	193	V
2	* 1.598	46.69	PK-U	28.2	-33.8	0	41.09	-	-	74	-32.91	-	-	201	222	V
	* 1.597	30.68	ADR	28.2	-33.8	.31	25.39	54	-28.61	-	-	-	-	201	222	V
5	* 8.109	33.81	PK-U	35.9	-23.3	0	46.41	-	-	74	-27.59	-	-	203	196	H
	* 8.11	23.59	ADR	35.9	-23.3	.31	36.40	54	-17.50	-	-	-	-	203	196	H
6	10.274	32.51	PK-U	37.3	-19.5	0	50.31	-	-	-	-	68.2	-17.89	304	180	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



Radiated Emissions

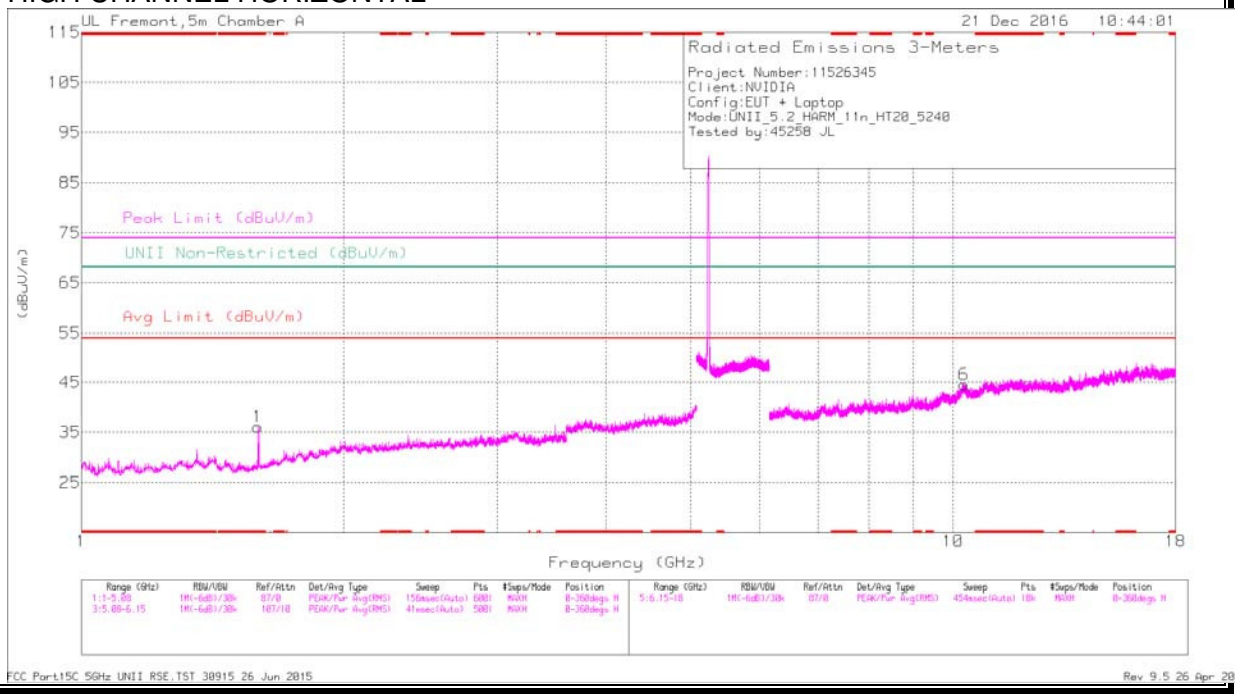
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.594	46.48	PK-U	28.1	-33.8	0	40.78	-	-	74	-33.22	-	-	164	282	V
	* 1.594	30.4	ADR	28.1	-33.8	.31	25.01	54	-28.99	-	-	-	-	164	282	V
4	* 4.774	39.13	PK-U	34.3	-28.4	0	45.03	-	-	74	-28.97	-	-	96	227	V
	* 4.773	30.17	ADR	34.3	-28.4	.31	36.38	54	-17.62	-	-	-	-	96	227	V
6	* 10.901	32.06	PK-U	37.8	-19.4	0	50.46	-	-	74	-23.54	-	-	123	204	H
	* 10.901	22.35	ADR	37.8	-19.4	.31	41.06	54	-12.94	-	-	-	-	123	204	H
2	2.399	41.11	PK-U	32.3	-32.3	0	41.11	-	-	-	-	68.2	-27.09	264	283	V
3	3.467	46.61	PK-U	33	-30.5	0	49.11	-	-	-	-	68.2	-19.09	289	255	V
5	6.502	35.18	PK-U	35.6	-25	0	45.78	-	-	-	-	68.2	-22.42	219	260	H

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

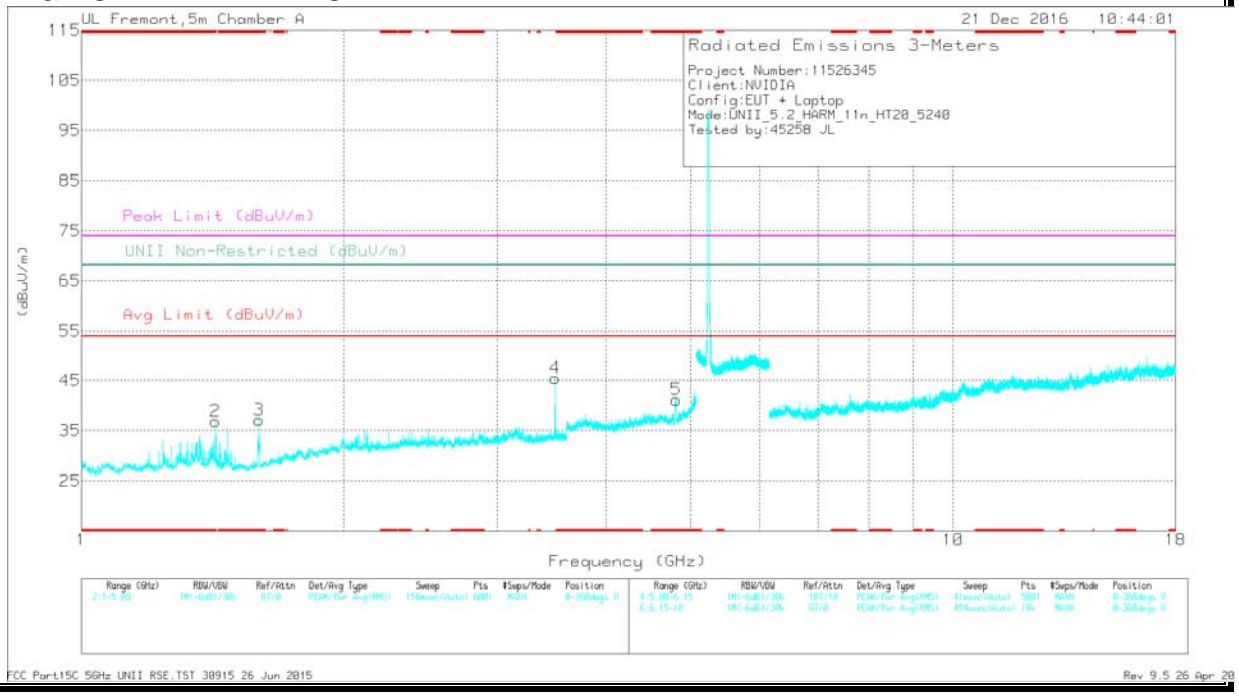
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



Radiated Emissions

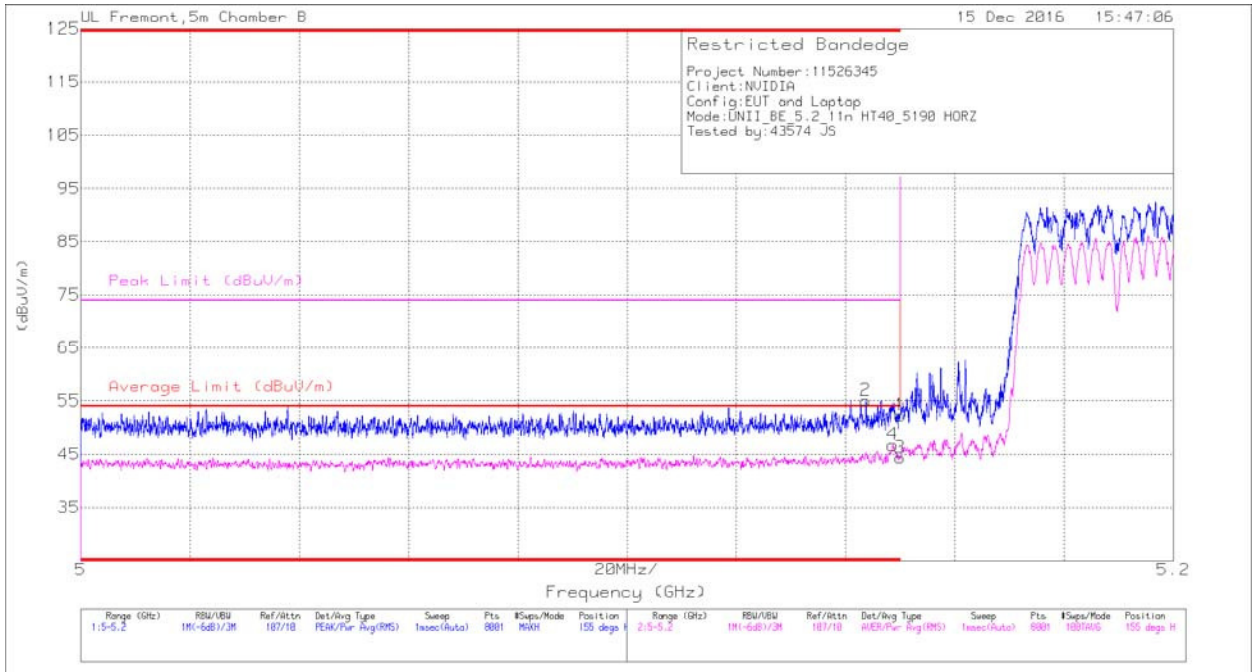
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.595	43.95	PK-U	28.1	-33.8	0	38.25	-	-	74	-35.75	-	-	222	243	H
	* 1.595	30.14	ADR	28.1	-33.8	.31	24.75	54	-29.25	-	-	-	-	222	243	H
2	* 1.422	40.75	PK-U	28.8	-33.3	0	36.25	-	-	74	-37.75	-	-	225	262	V
	* 1.424	29.83	ADR	28.7	-33.2	.31	25.64	54	-28.36	-	-	-	-	225	262	V
3	* 1.599	45.69	PK-U	28.2	-33.8	0	40.09	-	-	74	-33.91	-	-	190	227	V
	* 1.598	30.09	ADR	28.2	-33.8	.31	24.80	54	-29.20	-	-	-	-	190	227	V
5	* 4.812	41.7	PK-U	34.3	-28.3	0	47.7	-	-	74	-26.3	-	-	130	169	V
	* 4.81	32.41	ADR	34.3	-28.2	.31	38.82	54	-15.18	-	-	-	-	130	169	V
4	3.493	46.49	PK-U	33	-30.3	0	49.19	-	-	-	-	68.2	-19.01	312	228	V
6	10.294	33.04	PK-U	37.3	-19.6	0	50.74	-	-	-	-	68.2	-17.46	277	207	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

11.1.4. 11n HT40 2TX CDD MIMO MODE IN THE 5.2GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL HORIZONTAL

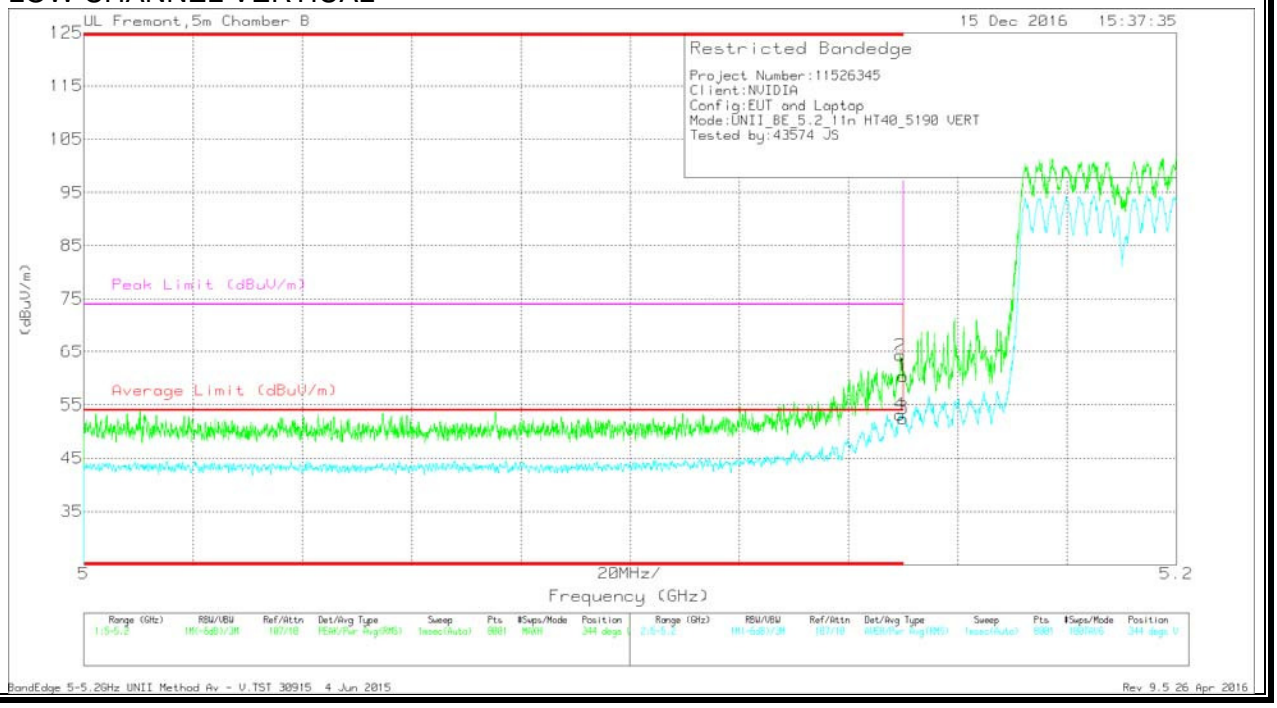


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
2	* 5.144	43.41	Pk	34.2	-22.6	0	55.01	-	-	74	-18.99	155	258	H
4	* 5.149	34.51	RMS	34.2	-22.6	.62	46.73	54	-7.27	-	-	155	258	H
1	5.15	40.63	Pk	34.2	-22.6	0	52.23	-	-	74	-21.77	155	258	H
3	5.15	32.08	RMS	34.2	-22.6	.62	44.30	54	-9.70	-	-	155	258	H

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

LOW CHANNEL VERTICAL



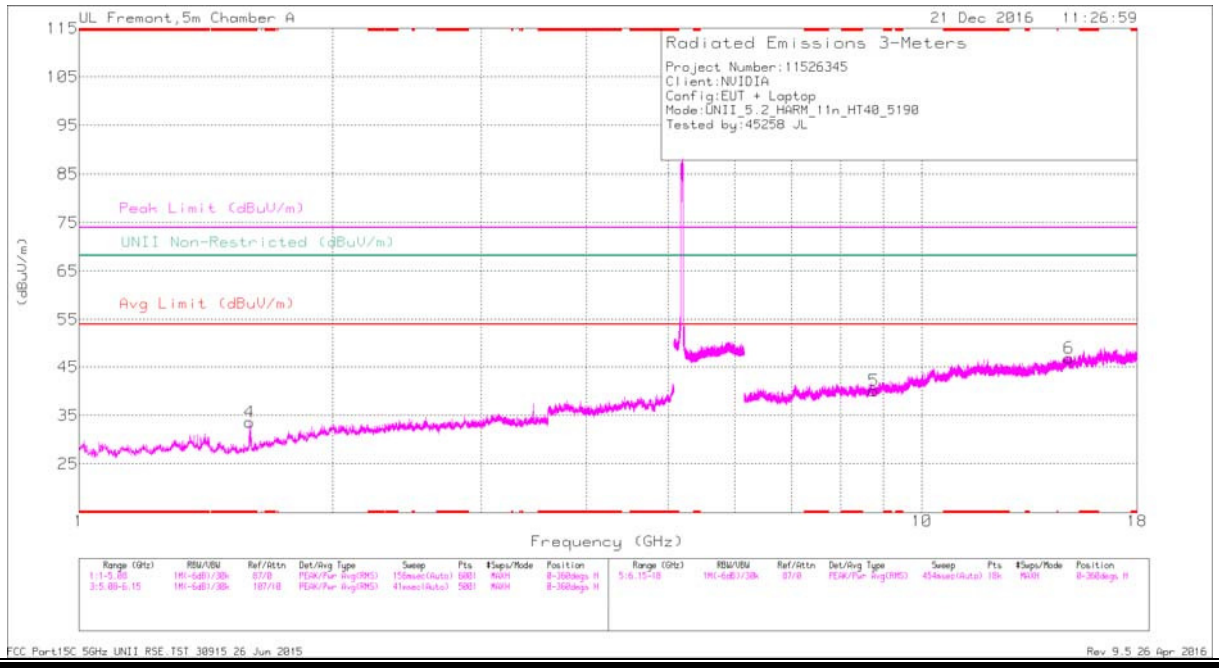
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
2	* 5.149	52.68	Pk	34.2	-22.6	0	64.28	-	-	74	-9.72	344	293	V
4	* 5.149	40.88	RMS	34.2	-22.6	.62	53.10	54	-.90	-	-	344	293	V
1	5.15	48.8	Pk	34.2	-22.6	0	60.4	-	-	74	-13.6	344	293	V
3	5.15	40.22	RMS	34.2	-22.6	.62	52.44	54	-1.56	-	-	344	293	V

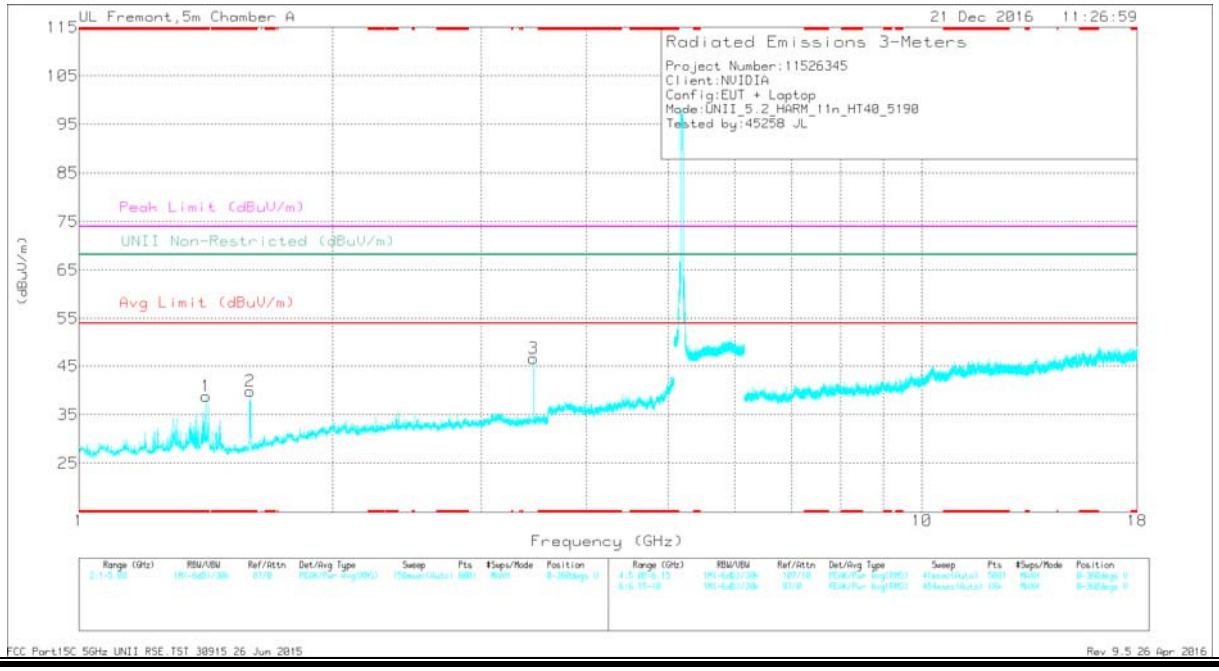
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



Radiated Emissions

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/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
4	* 1.593	49.9	PK-U	28.1	-33.8	0	44.2	-	-	74	-29.8	-	-	211	204	H
	* 1.594	31.2	ADR	28.1	-33.8	.62	26.12	54	-27.88	-	-	-	-	211	204	H
1	* 1.416	41.05	PK-U	28.8	-33.4	0	36.45	-	-	74	-37.55	-	-	282	119	V
	* 1.415	30.13	ADR	28.8	-33.3	.62	26.25	54	-27.75	-	-	-	-	282	119	V
2	* 1.593	43.67	PK-U	28.1	-33.8	0	37.97	-	-	74	-36.03	-	-	79	180	V
	* 1.595	30.08	ADR	28.1	-33.8	.62	25	54	-29	-	-	-	-	79	180	V
3	3.46	45.79	PK-U	33	-30.5	0	48.29	-	-	-	-	68.2	-19.91	312	229	V
5	8.773	32.96	PK-U	36	-23.4	0	45.56	-	-	-	-	68.2	-22.64	276	245	H
6	14.942	33.45	PK-U	39.8	-20.7	0	52.55	-	-	-	-	68.2	-15.65	211	204	H

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

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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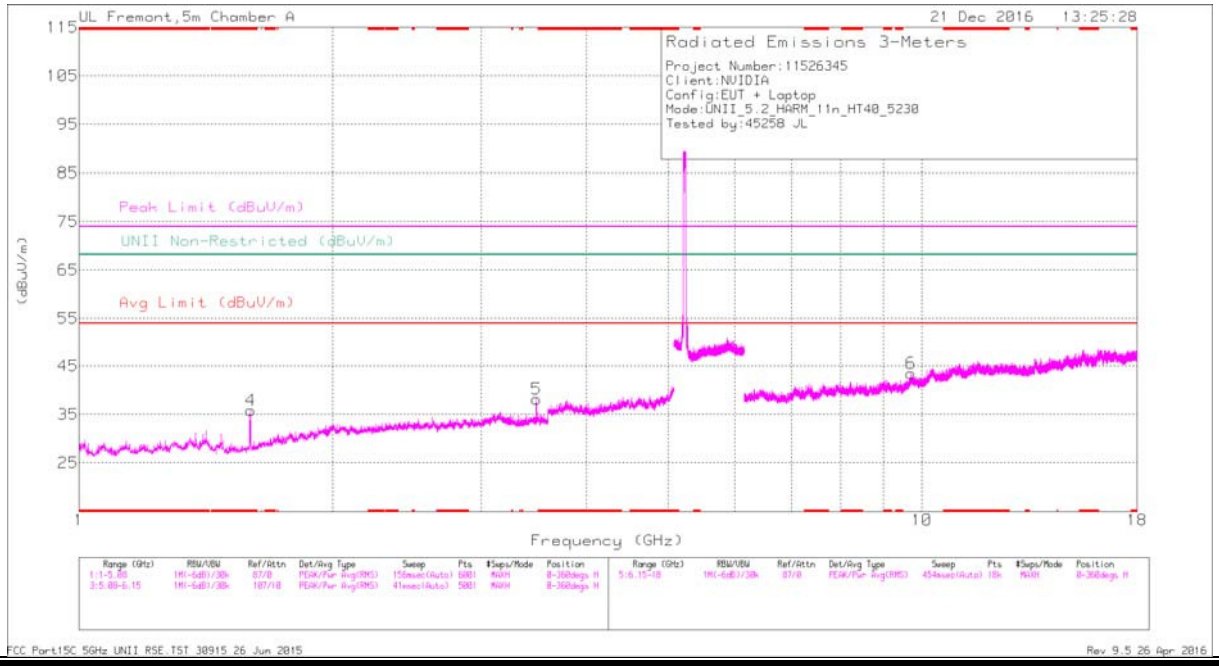
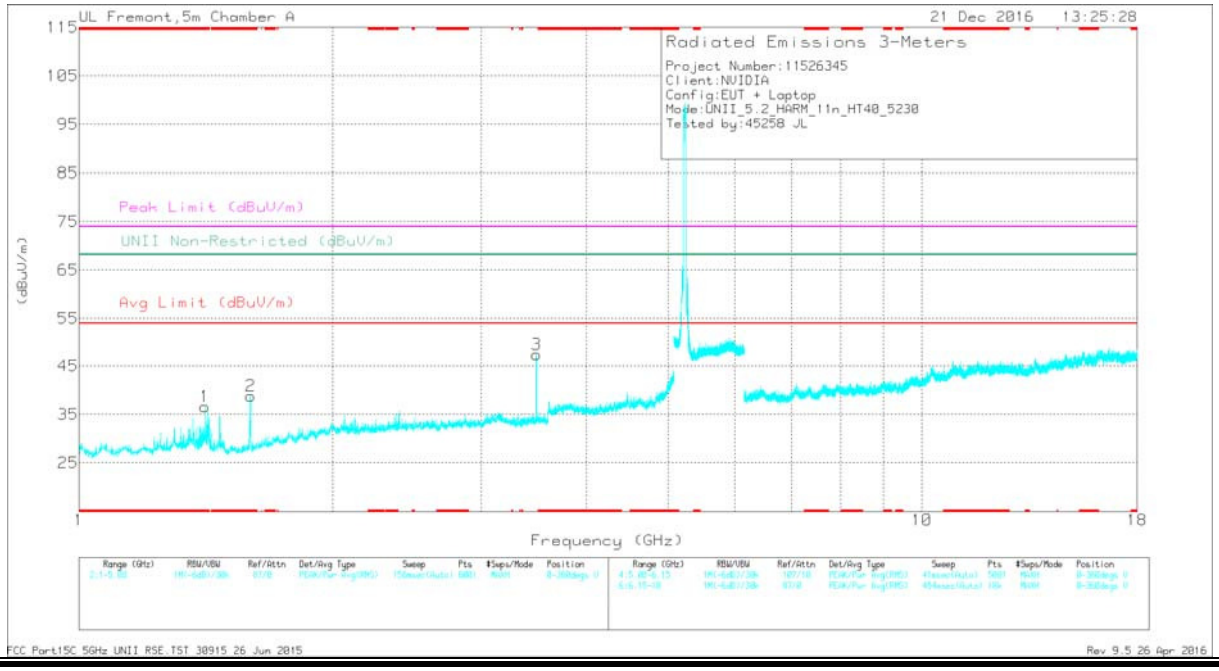
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



Radiated Emissions

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/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
4	* 1.598	44.06	PK-U	28.2	-33.8	0	38.46	-	-	74	-35.54	-	-	170	226	H
	* 1.599	30.33	ADR	28.2	-33.7	.62	25.45	54	-28.55	-	-	-	-	170	226	H
1	* 1.41	41.3	PK-U	28.9	-33.4	0	36.8	-	-	74	-37.2	-	-	128	196	V
	* 1.411	30.14	ADR	28.9	-33.4	.62	26.26	54	-27.74	-	-	-	-	128	196	V
2	* 1.599	43.72	PK-U	28.2	-33.7	0	38.22	-	-	74	-35.78	-	-	121	183	V
	* 1.6	30.15	ADR	28.2	-33.7	.62	25.27	54	-28.73	-	-	-	-	121	183	V
5	3.487	39.01	PK-U	33	-30.4	0	41.61	-	-	-	-	68.2	-26.59	288	209	H
3	3.487	47.39	PK-U	33	-30.4	0	49.99	-	-	-	-	68.2	-18.21	288	211	V
6	9.711	33.17	PK-U	36.6	-21.5	0	48.27	-	-	-	-	68.2	-19.93	227	251	H

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

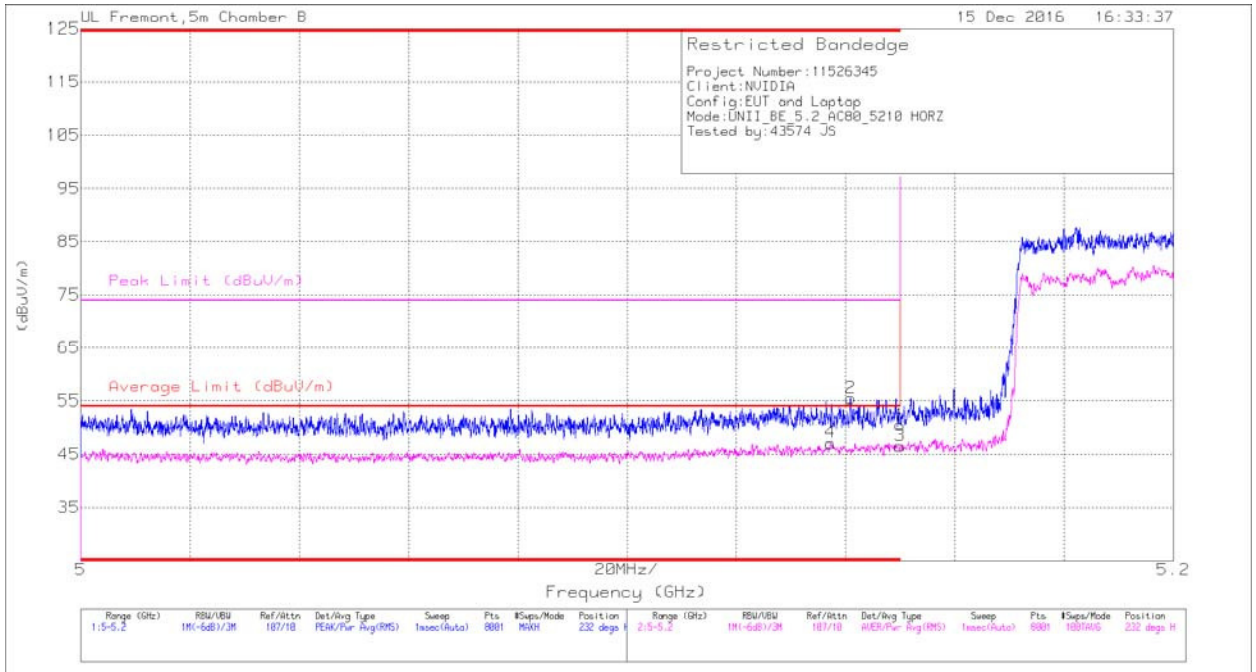
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

11.1.5. 11ac HT80 2TX CDD MIMO MODE IN THE 5.2GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL HORIZONTAL

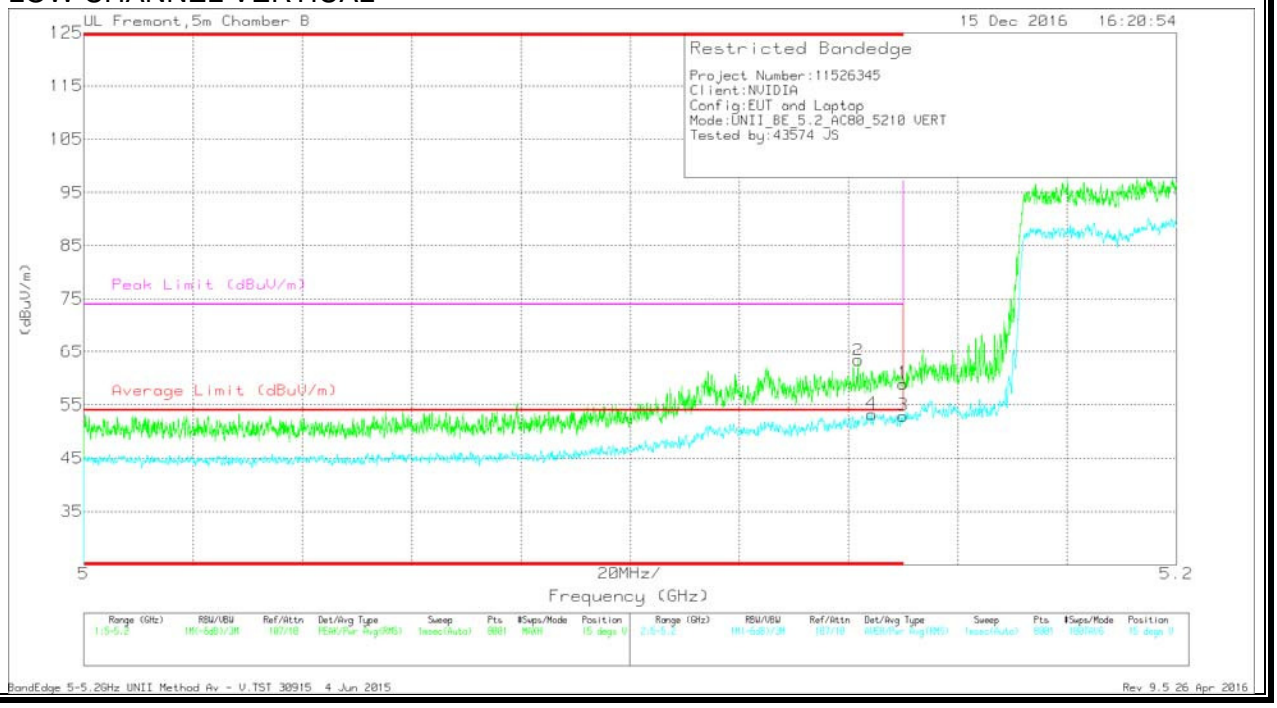


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
2	* 5.141	43.86	Pk	34.2	-22.6	0	55.46	-	-	74	-18.54	232	282	H
4	* 5.137	33.64	RMS	34.2	-22.6	1.84	47.08	54	-6.92	-	-	232	282	H
1	5.15	38.85	Pk	34.2	-22.6	0	50.45	-	-	74	-23.55	232	282	H
3	5.15	33.1	RMS	34.2	-22.6	1.84	46.54	54	-7.46	-	-	232	282	H

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

LOW CHANNEL VERTICAL



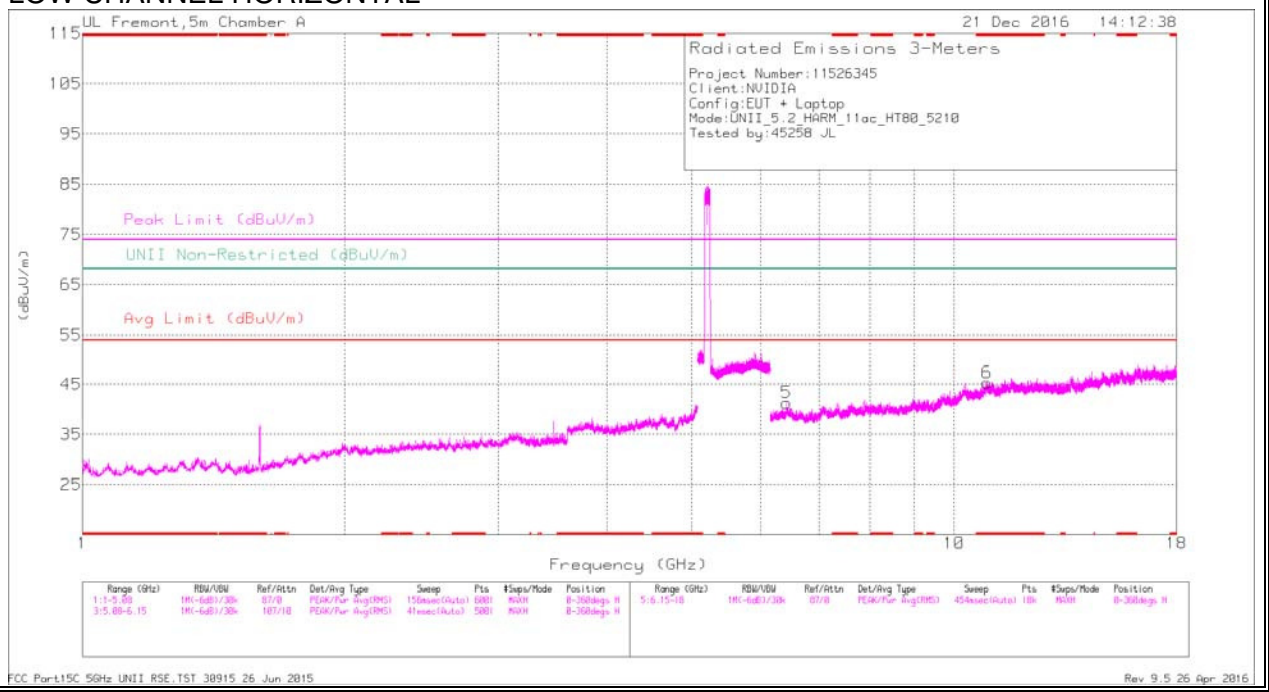
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
2	* 5.142	51.76	Pk	34.2	-22.6	0	63.36	-	-	74	-10.64	15	295	V
4	* 5.144	39.82	RMS	34.2	-22.6	1.84	53.26	54	-.74	-	-	15	295	V
1	5.15	47.33	Pk	34.2	-22.6	0	58.93	-	-	74	-15.07	15	295	V
3	5.15	39.5	RMS	34.2	-22.6	1.84	52.94	54	-1.06	-	-	15	295	V

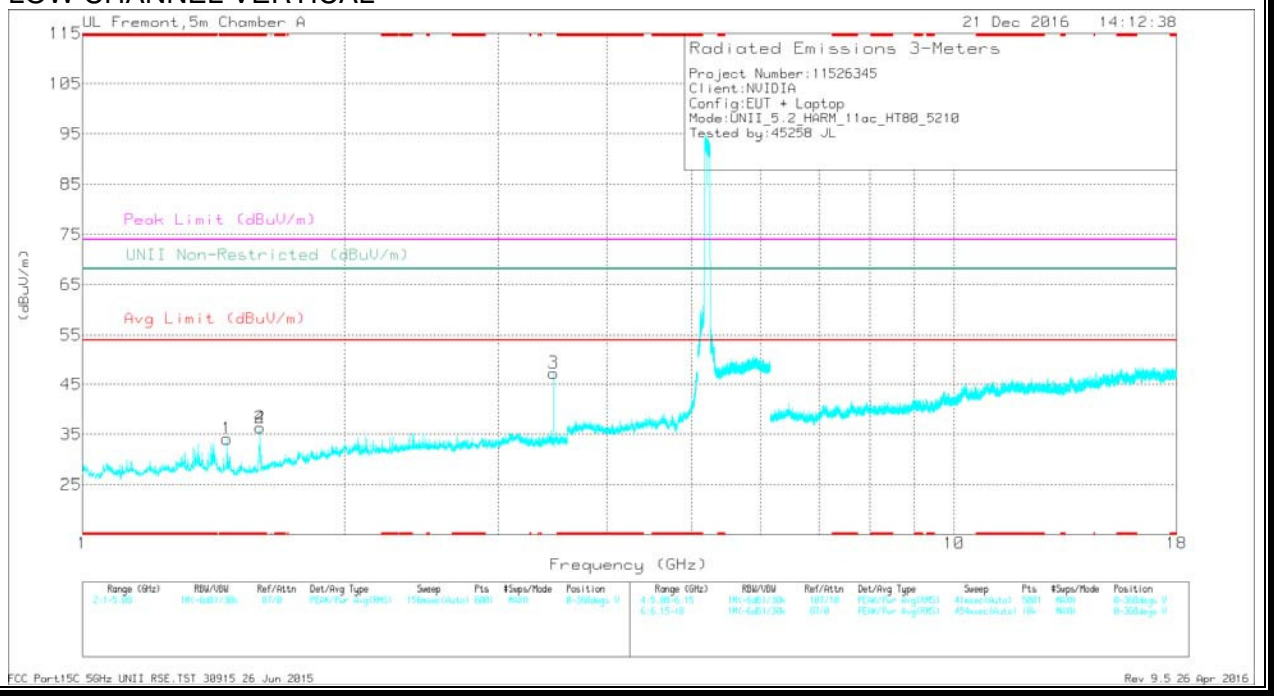
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



Radiated Emissions

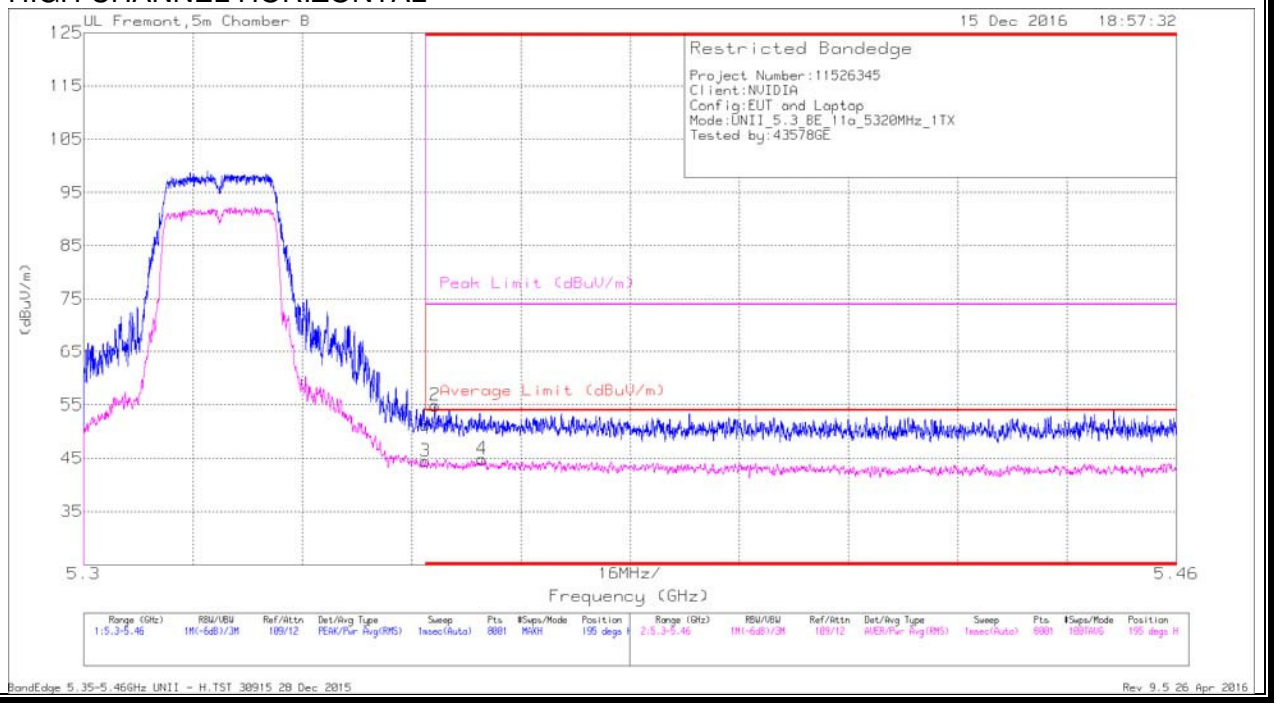
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.464	40.82	PK-U	28.3	-33.5	0	35.62	-	-	74	-38.38	-	-	221	266	V
	* 1.467	30.02	ADR	28.3	-33.5	1.84	26.66	54	-27.34	-	-	-	-	221	266	V
2	* 1.596	54.15	PK-U	28.2	-33.8	0	48.55	-	-	74	-25.45	-	-	216	281	V
	* 1.599	33.67	ADR	28.2	-33.7	1.84	30.01	54	-23.99	-	-	-	-	216	281	V
4	* 1.599	55.84	PK-U	28.2	-33.7	0	50.34	-	-	74	-23.66	-	-	219	263	V
	* 1.596	35.13	ADR	28.2	-33.8	1.84	31.37	54	-22.63	-	-	-	-	219	263	V
6	* 10.902	31.83	PK-U	37.8	-19.4	0	50.23	-	-	74	-23.77	-	-	93	205	H
	* 10.902	22.15	ADR	37.8	-19.4	1.84	42.39	54	-11.61	-	-	-	-	93	205	H
3	3.473	47.77	PK-U	33	-30.5	0	50.27	-	-	-	-	68.2	-17.93	286	197	V
5	6.428	35.68	PK-U	35.6	-25.2	0	46.08	-	-	-	-	68.2	-22.12	251	235	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

11.1.6. 11a Chain 0 SISO MODE IN THE 5.3GHz BAND

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL HORIZONTAL

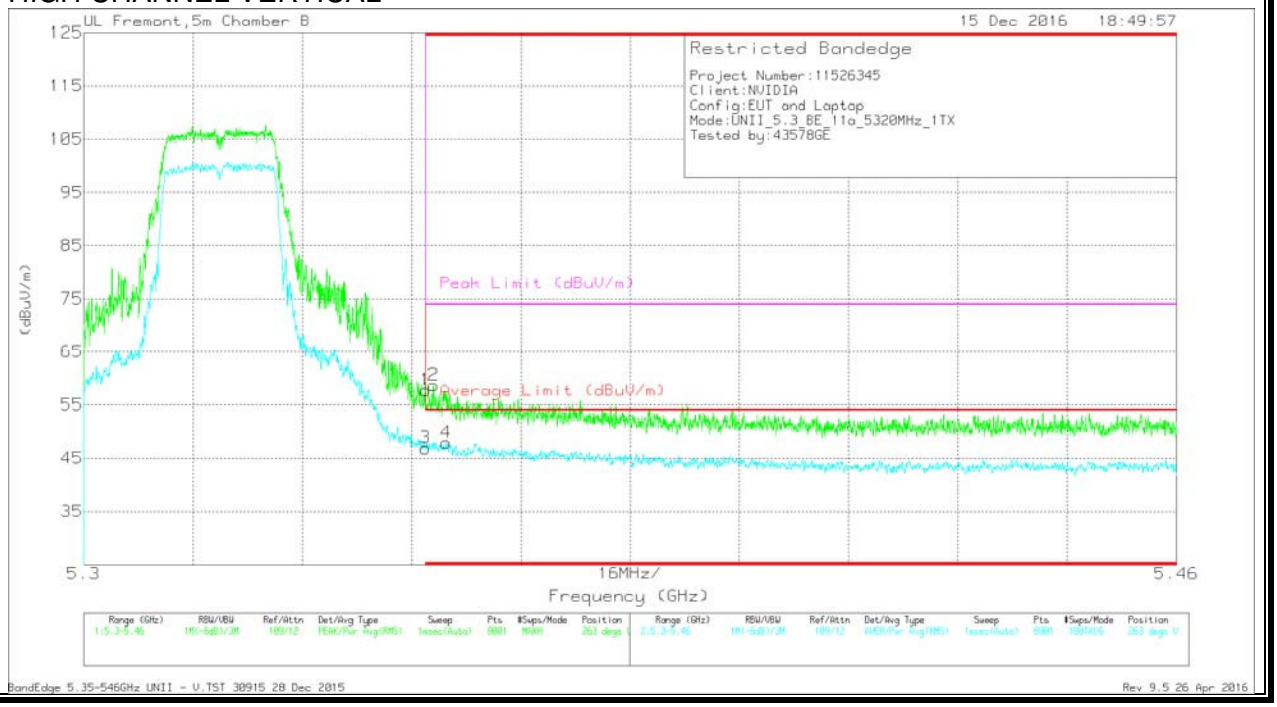


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	36.98	Pk	34.5	-20.3	0	51.18	-	-	74	-22.82	195	259	H
3	* 5.35	29.96	RMS	34.5	-20.3	.29	44.45	54	-9.55	-	-	195	259	H
2	* 5.351	40.69	Pk	34.5	-20.3	0	54.89	-	-	74	-19.11	195	259	H
4	* 5.358	30.16	RMS	34.5	-20.1	.29	44.85	54	-9.15	-	-	195	259	H

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

HIGH CHANNEL VERTICAL



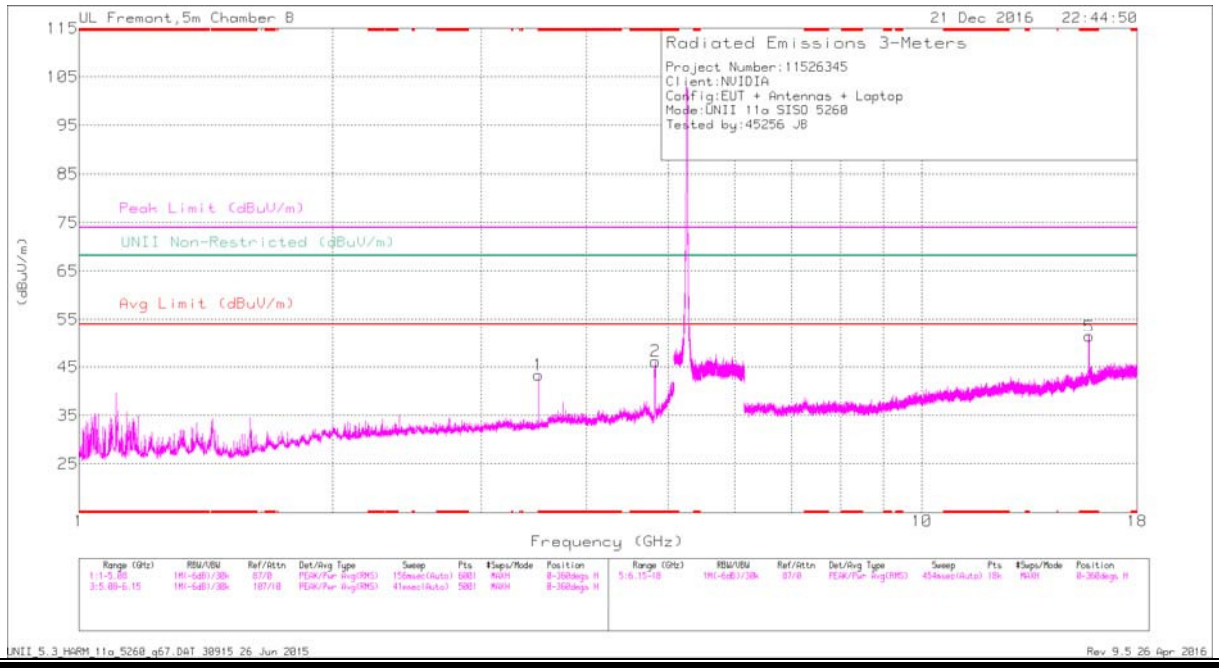
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	43.53	Pk	34.5	-20.3	0	57.73	-	-	74	-16.27	263	254	V
3	* 5.35	32.38	RMS	34.5	-20.3	.29	46.87	54	-7.13	-	-	263	254	V
2	* 5.351	44.43	Pk	34.5	-20.3	0	58.63	-	-	74	-15.37	263	254	V
4	* 5.353	33.17	RMS	34.5	-20.1	.29	47.86	54	-6.14	-	-	263	254	V

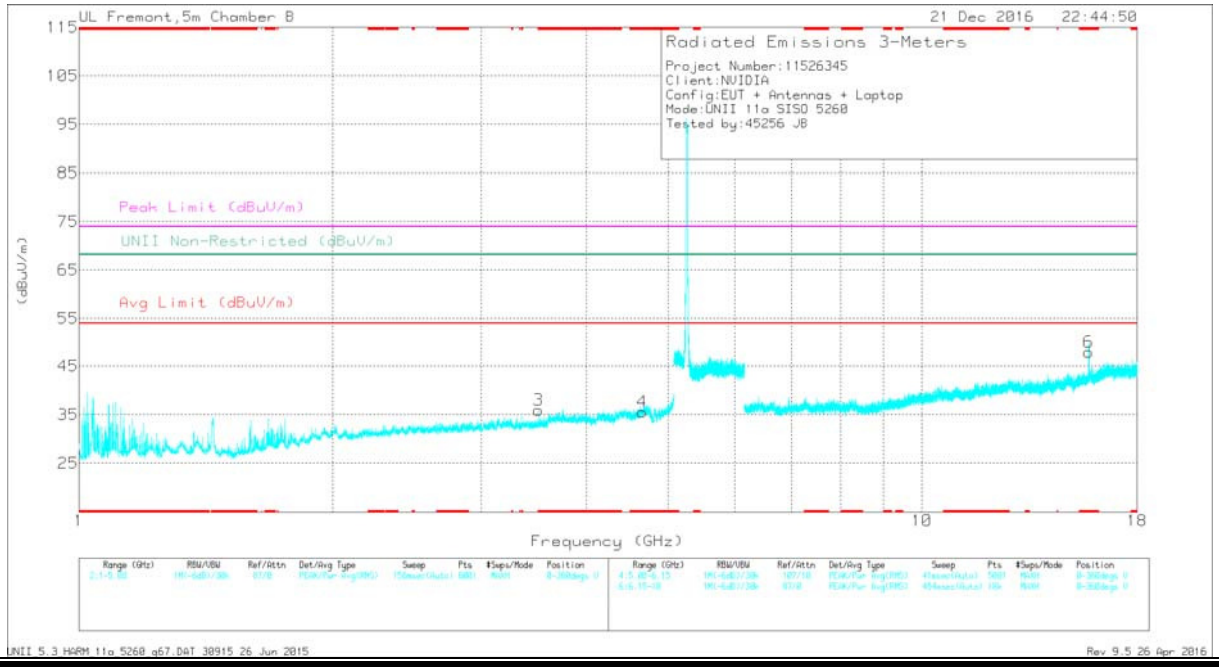
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL

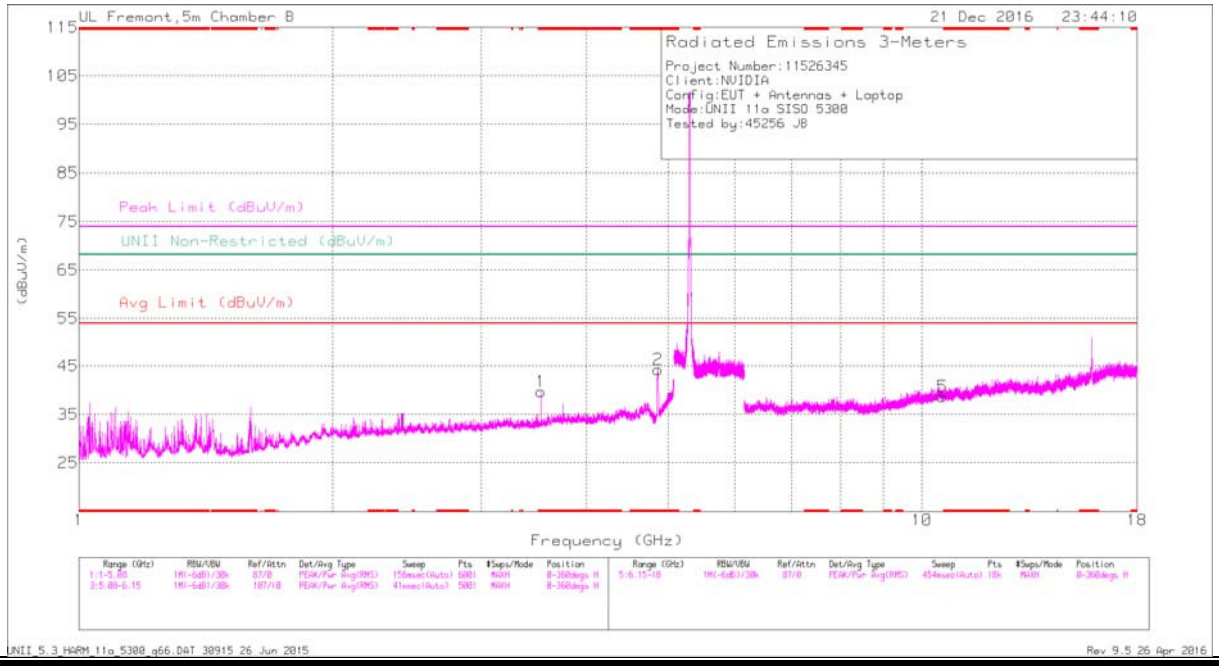


Radiated Emissions

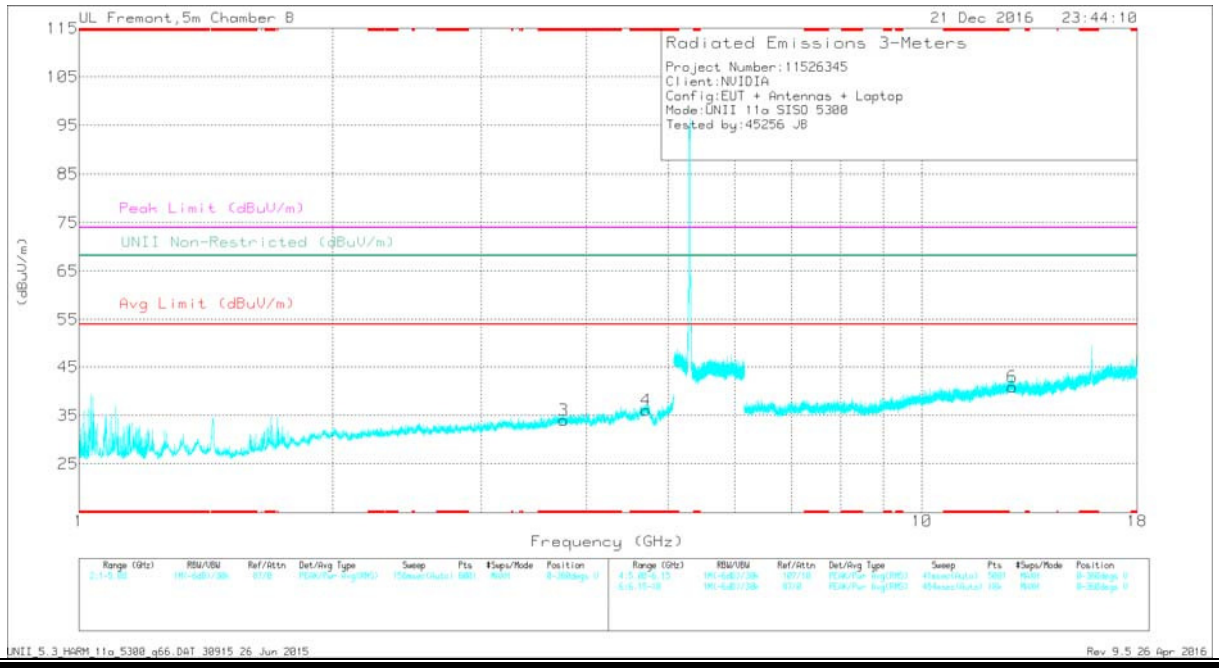
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.507	47.3	PK-U	32.8	-33.2	0	46.9	-	-	74	-27.1	-	-	269	207	H
	* 3.507	35.06	ADR	32.8	-33.2	.29	34.95	54	-19.05	-	-	-	-	269	207	H
2	* 4.828	50.5	PK-U	33.8	-32.4	0	51.9	-	-	74	-22.1	-	-	207	181	H
	* 4.828	41.72	ADR	33.8	-32.4	.29	43.41	54	-10.59	-	-	-	-	207	181	H
3	* 3.507	41.42	PK-U	32.8	-33.2	0	41.02	-	-	74	-32.98	-	-	119	193	V
	* 3.507	29.86	ADR	32.8	-33.2	.29	29.75	54	-24.25	-	-	-	-	119	193	V
4	* 4.661	39.11	PK-U	34.1	-31.2	0	42.01	-	-	74	-31.99	-	-	43	100	V
	* 4.659	28.41	ADR	34.1	-31.2	.29	31.6	54	-22.4	-	-	-	-	43	100	V
5	* 15.781	43.02	PK-U	40.6	-24.1	0	59.52	-	-	74	-14.48	-	-	360	100	H
	* 15.778	31.06	ADR	40.5	-24.1	.29	47.75	54	-6.25	-	-	-	-	360	100	H
6	* 15.774	41.15	PK-U	40.5	-23.9	0	57.75	-	-	74	-16.25	-	-	298	203	V
	* 15.777	29.25	ADR	40.5	-24.1	.29	45.94	54	-8.06	-	-	-	-	298	203	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

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



Radiated Emissions

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/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	* 3.533	45.04	PK-U	32.9	-32.8	0	45.14	-	-	74	-28.86	-	-	271	193	H
	* 3.533	32.66	ADR	32.9	-32.8	.29	33.05	54	-20.95	-	-	-	-	271	193	H
2	* 4.864	48.56	PK-U	33.8	-31.8	0	50.56	-	-	74	-23.44	-	-	226	212	H
	* 4.863	39.19	ADR	33.8	-31.9	.29	41.38	54	-12.62	-	-	-	-	226	212	H
3	* 3.757	40.49	PK-U	33.4	-32.9	0	40.99	-	-	74	-33.01	-	-	207	129	V
	* 3.758	28.91	ADR	33.4	-32.9	.29	29.7	54	-24.3	-	-	-	-	207	129	V
4	* 4.706	41.57	PK-U	34.1	-31.8	0	43.87	-	-	74	-30.13	-	-	183	326	V
	* 4.709	29.56	ADR	34.1	-31.8	.29	32.15	54	-21.85	-	-	-	-	183	326	V
5	10.571	34.29	PK-U	37.9	-26.5	0	45.69	-	-	-	-	68.2	-22.51	252	366	H
6	12.799	33.35	PK-U	39.4	-25.2	0	47.55	-	-	-	-	68.2	-20.65	33	240	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

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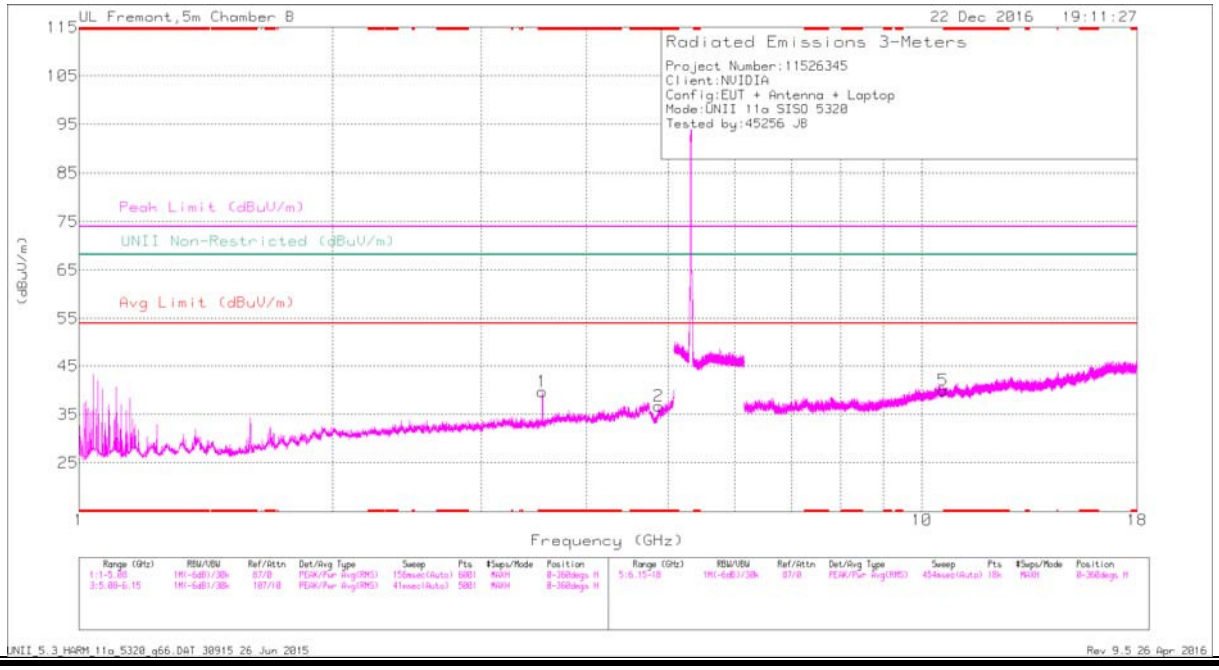
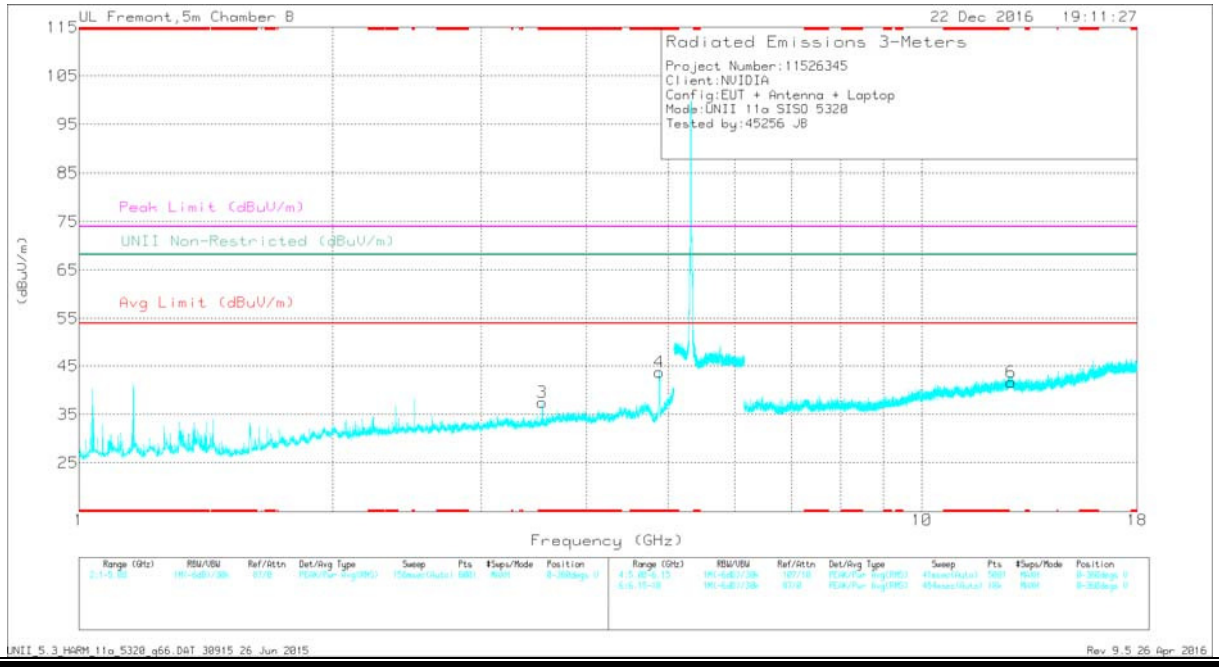
HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



Radiated Emissions

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/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	* 3.547	44.49	PK-U	32.9	-32.8	0	44.59	-	-	74	-29.41	-	-	102	111	H
	* 3.547	33.03	ADR	32.9	-32.8	.29	33.42	54	-20.58	-	-	-	-	102	111	H
2	* 4.873	40.34	PK-U	33.8	-31.6	0	42.54	-	-	74	-31.46	-	-	268	320	H
	* 4.87	30.14	ADR	33.8	-31.7	.29	32.53	54	-21.47	-	-	-	-	268	320	H
3	* 3.547	44.6	PK-U	32.9	-32.8	0	44.7	-	-	74	-29.3	-	-	166	102	V
	* 3.547	32.92	ADR	32.9	-32.8	.29	33.31	54	-20.69	-	-	-	-	166	102	V
4	* 4.881	46.98	PK-U	33.8	-31.5	0	49.28	-	-	74	-24.72	-	-	314	187	V
	* 4.88	37.24	ADR	33.8	-31.5	.29	39.83	54	-14.17	-	-	-	-	314	187	V
5	10.593	34.2	PK-U	37.9	-26.4	0	45.7	-	-	-	-	68.2	-22.5	291	226	H
6	12.76	33.31	PK-U	39.4	-25	0	47.71	-	-	-	-	68.2	-20.49	86	220	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

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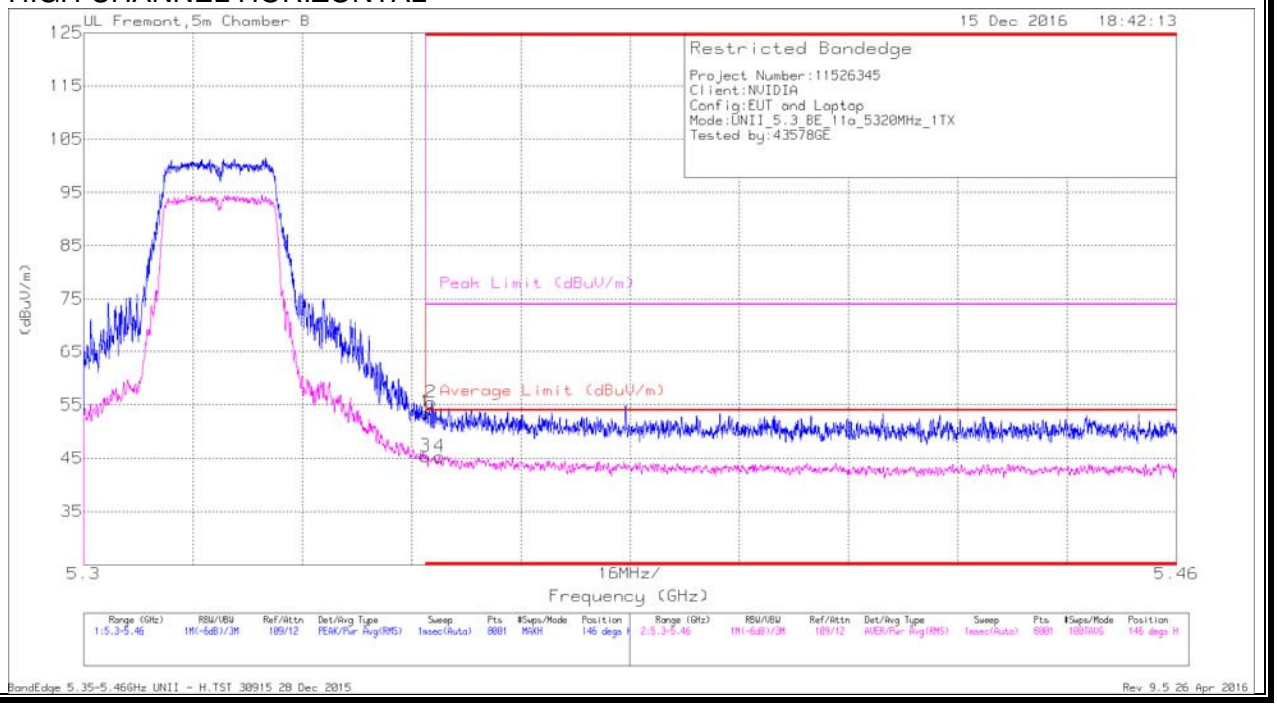
11.1.7. 11a Chain 1 SISO MODE IN THE 5.3GHz BAND

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL HORIZONTAL

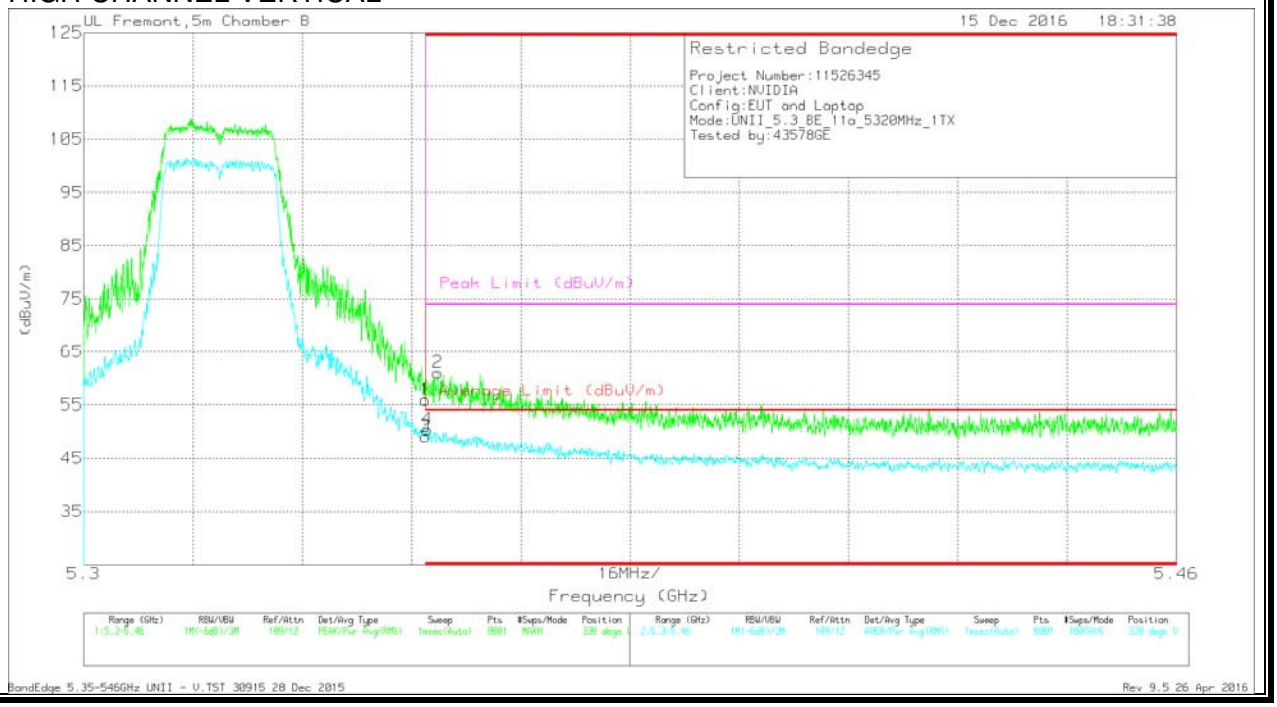


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	39.36	Pk	34.5	-20.3	0	53.56	-	-	74	-20.44	146	253	H
3	* 5.35	30.86	RMS	34.5	-20.3	.29	45.35	54	-8.65	-	-	146	253	H
2	* 5.351	41.32	Pk	34.5	-20.4	0	55.42	-	-	74	-18.58	146	253	H
4	* 5.352	30.71	RMS	34.5	-20.2	.29	45.3	54	-8.7	-	-	146	253	H

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

HIGH CHANNEL VERTICAL



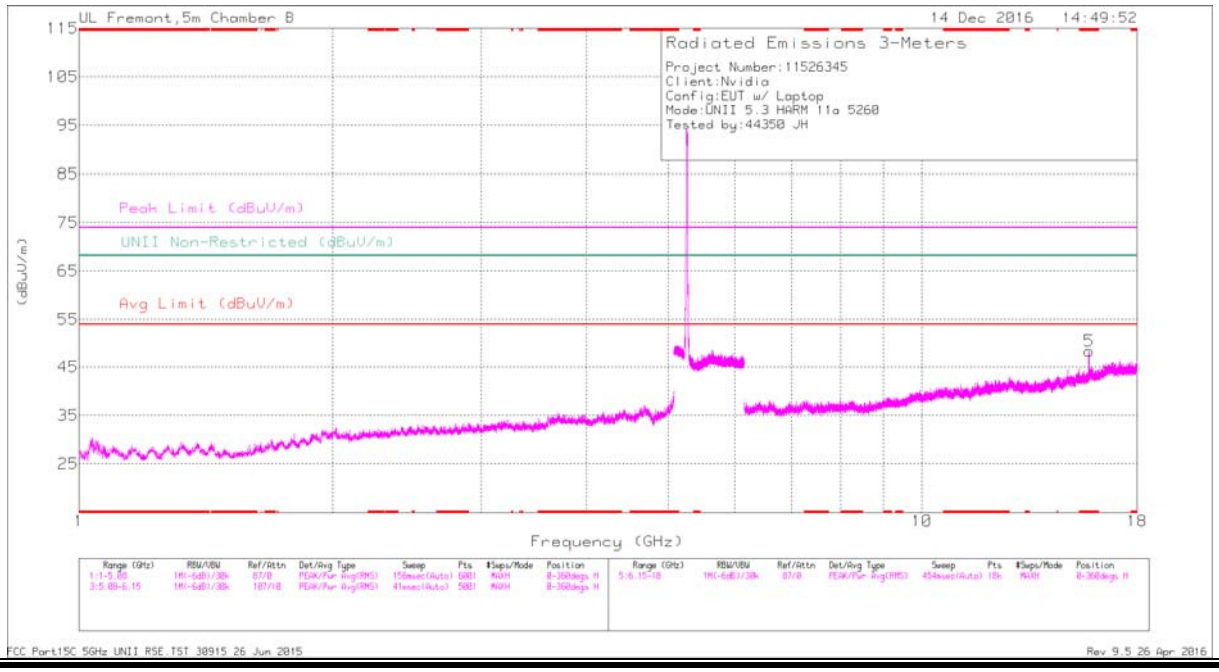
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	41.69	Pk	34.5	-20.3	0	55.89	-	-	74	-18.11	338	300	V
3	* 5.35	34.82	RMS	34.5	-20.3	.29	49.31	54	-4.69	-	-	338	300	V
4	* 5.35	36.15	RMS	34.5	-20.3	.29	50.64	54	-3.36	-	-	338	300	V
2	* 5.352	46.67	Pk	34.5	-20.2	0	60.97	-	-	74	-13.03	338	300	V

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

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL