CERTIFICATION TEST REPORT

Report Number. : 11886412-E3V6

Applicant	:	SONOS, INC. 614 CHAPALA STREET SANTA BARBARA, CA, 93101, U.S.A
Model	:	S14
FCC ID	:	SBVRM014
IC	:	5373A-RM014
EUT Description	:	HOME THEATER SPEAKER
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART E (EXCEPT DFS) ISED RSS - 247 ISSUE 2 (EXCEPT DFS) ISED RSS-GEN ISSUE 4

Date Of Issue:
April 30, 2018

Prepared by:
UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888

NVLAP TESTING
NVLAP LAB CODE 200065-0

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	12/5/2017	Initial Issue	D. Coronia
V2	1/9/2018	Updated Section 2, 5.9, 5.3, 6.5.1-6.5.4 and Corrected FCC ID	D. Coronia
V3	02/22/2018	Updated section 5.5, 5.6, 6.5, 6.5.2, 7.2, 8.1, 10. Added section 7.6	C. Susa
V4	03/12/2018	Updated EUT description from Wireless Smart Speaker to Home Theater Speaker	C. Susa
V5	03/14/2018	Updated Product description, Section 5.1	C. Susa
V6	04/30/2018	Updated Software and Firmware Description, Section 5.4	D. Coronia

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SONOS, INC.

PRODUCT DESCRIPTION: HOME THEATER SPEAKER

MODEL: S14

SERIAL NUMBER: 179-94-9F-3E-C0-07-0E-3 CA (Radiated Sample)
1708 94 -9F-3E-D0-05-FE-2 (Radiated Sample)
1709-94-9F-3E-D0-07-09-E (Conducted Sample)

DATE TESTED: October 11- 17, 2017; February 14th - 16th, 2018

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E (EXCEPT DFS)	Complies
ISED RSS-247 ISSUE 2 (EXCEPT DFS)	Complies
ISED RSS-GEN Issue 4	Complies

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
OPERATIONS LEADER
UL Verification Services Inc.

Prepared By:

ERIC YU
TEST ENGINEER
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, KDB 789033 D02 v02r01, KDB 662911 D01 Multiple Transmitter Output v02r01, KDB 662911 D02 MIMO with Cross Polarized Antenna v01, ANSI C63.10-2013, RSS-GEN Issue 4, and RSS-247 Issue 2.

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. Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.84 dB
Radiated Disturbance, 9KHz to 30 MHz	2.14 dB
Radiated Disturbance, 30 to 1000 MHz	4.98 dB
Radiated Disturbance,1000 to 6000 MHz	3.86 dB
Radiated Disturbance,6000 to 18000 MHz	4.23 dB
Radiated Disturbance,18000 to 26000 MHz	5.30 dB
Radiated Disturbance,26000 to 40000 MHz	5.23 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is 802.11 a/b/g/n (HT20) master device. The model S14 is a high-performance all-in-one home theater smart speaker and part of Sonos' home sound system.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5180 - 5240	802.11n HT20 MIMO	20.07	101.62
5260 - 5320	802.11n HT20 MIMO	19.92	98.17
5500 - 5700	802.11n HT20 MIMO	19.74	94.19
5745 - 5825	802.11n HT20 MIMO	20.34	108.14

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes cross-polarized antennas, with a maximum gain as below:

Frequency Range MHz	5GHz Antenna Identification / Max Antenna Gain dBi			
	PWS-Stamped (Vertical Polarization)	PWR-Dipole (Horizontal Polarization)	HYSK-IFA (Vertical Polarization)	HTSK-Slot (Horizontal Polarization)
U-NII-1 (5180-5240)	Chain 3 / **1.67**	Chain 2 / **2.38**	Chain 1 / **4.33**	Chain 0 / **4.20**
U-NII-2A (5260-5320)	Chain 3 / **2.29**	Chain 2 / **2.72**	Chain 1 / **3.98**	Chain 0 / **4.37**
U-NII-2C (5500-5700)	Chain 3 / **2.92**	Chain 2 / **3.49**	Chain 1 / **3.40**	Chain 0 / **3.57**
U-NII-3 (5745-5825)	Chain 3 / **1.97**	Chain 2 / **4.05**	Chain 1 / **2.49**	Chain 0 / **1.92**

NOTE: All final tests were performed using the EUT highest antenna gain with same polarity as the test measurement setup.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was LabView WiFi controller application version 2.2.

5.5. WORST-CASE CONFIGURATION AND MODE

All measurements were performed with the AC plugged into a power source. The worst-case configuration for below 1GHz radiated emissions were performed with the EUT including the HDMI port exercised and the channel with the highest output power. The worst-case configuration for radiated emissions above 1GHz, and power line conducted emissions were performed with the EUT only and set to transmit at the channel with highest output power.

Radiated bandedge, harmonics, and spurious emissions from 1GHz to 18GHz were performed. The EUT was set to transmit at the Low/Middle/High channels with designed (target) output powers.

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

For simultaneous transmission in the 2.4GHz and 5GHz bands, tests were conducted for various configurations having the highest power. No noticeable new emission was found.

Data rates as provided by the client were:

802.11n HT20mode: MCS3 for Conducted Testing
802.11n HT20mode: MCS11 for Radiated Testing

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List			
Description	**Manufacturer**	**Model**	**Serial Number**
Laptop	Lenovo	X201	R9-BC7TG
AC/DC Adapter	Lenovo	ADLX90NCT2A	11S42T4418Z1ZF3B048J2Z
Television	Sony	XBR-43X830C	5082247

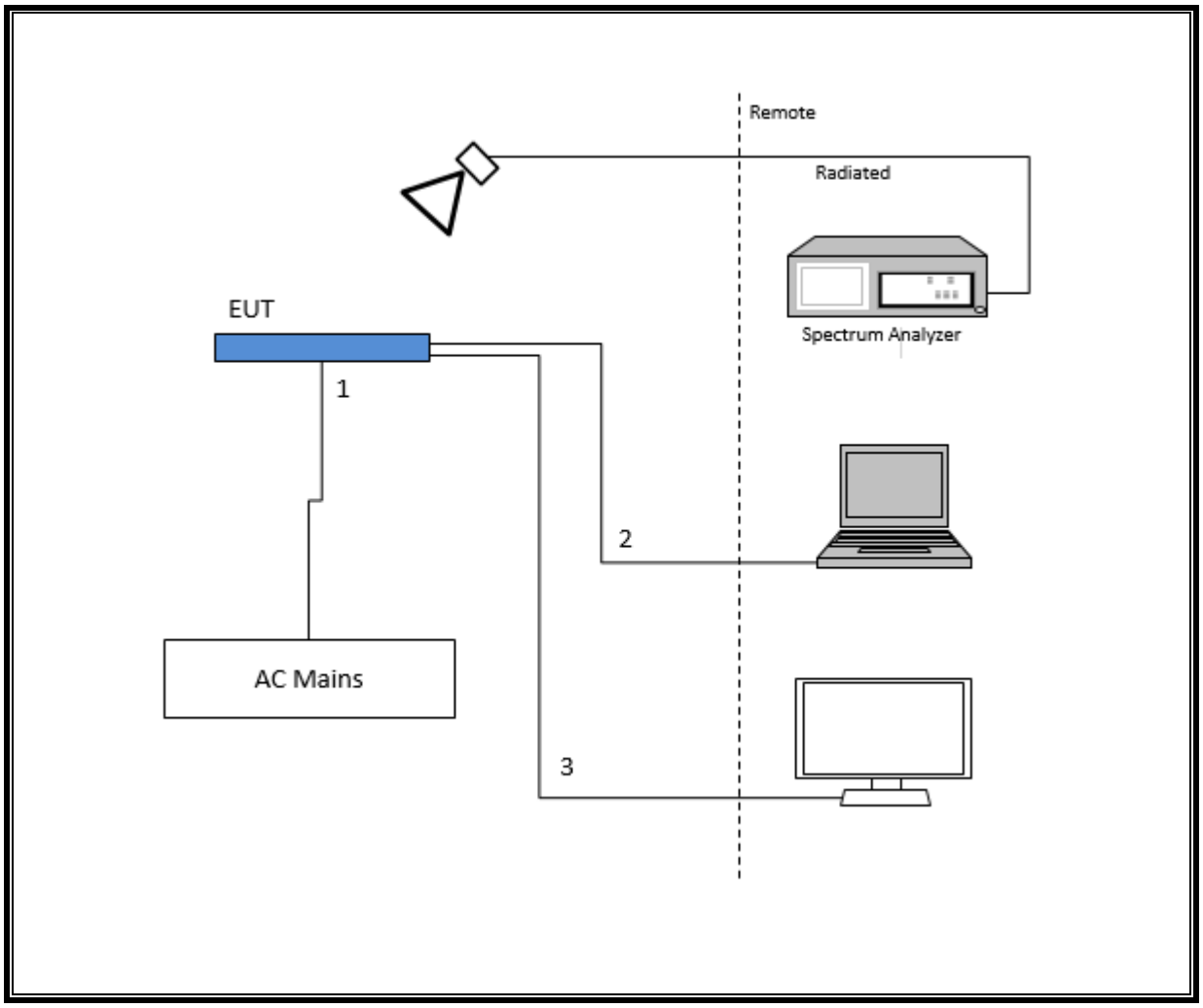
I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC Power	1	AC	Unshielded	1.2	AC Mains to EUT
2	Ethernet	1	RJ45	Unshielded	1.5	Laptop to EUT
3	HDMI	1	HDMI	shielded	10.2	

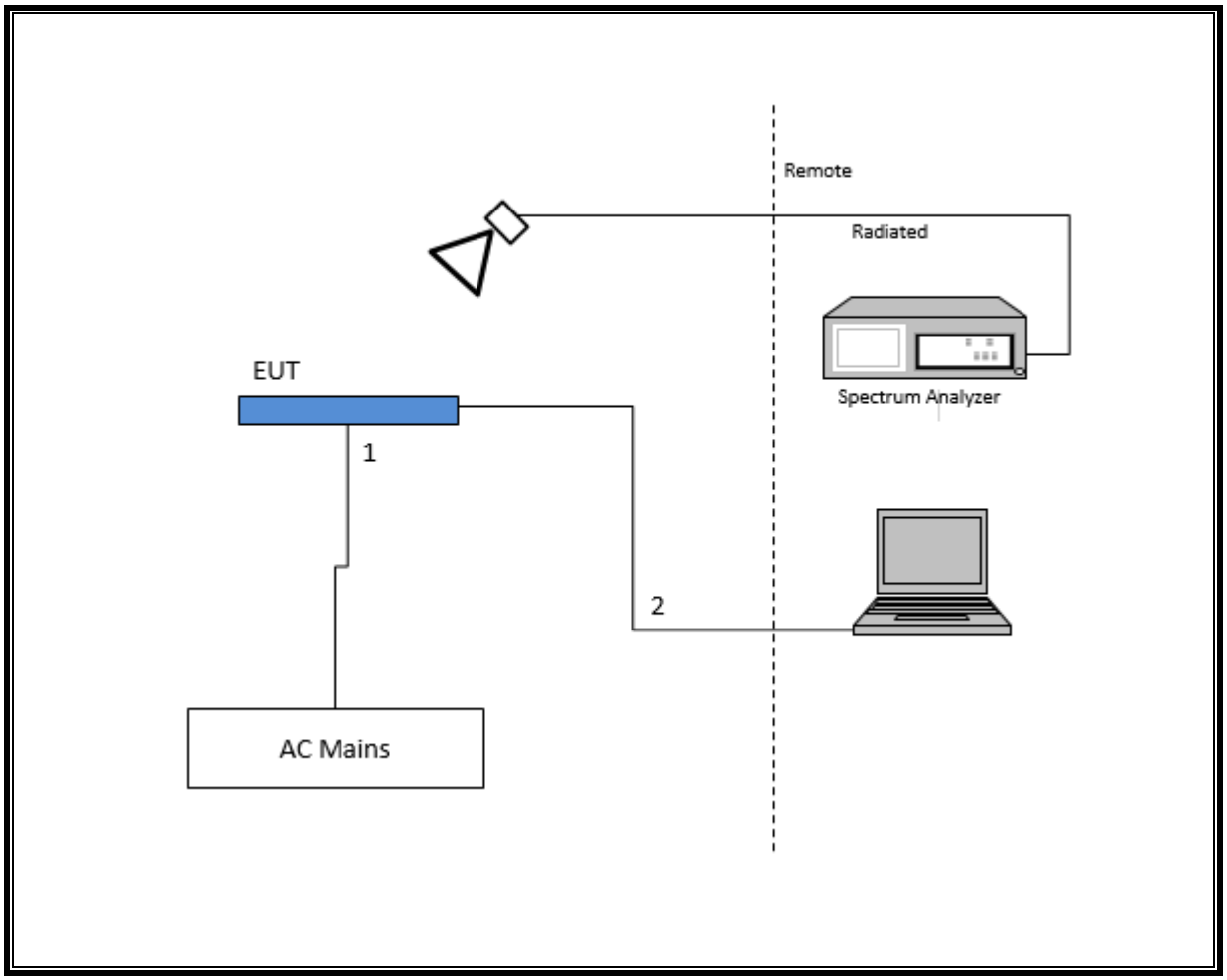
TEST SETUP

The EUT is a stand-alone unit, and the radio is exercised by Atheros Radio Test 2 (ART2-GUI) software, via Ethernet cable.

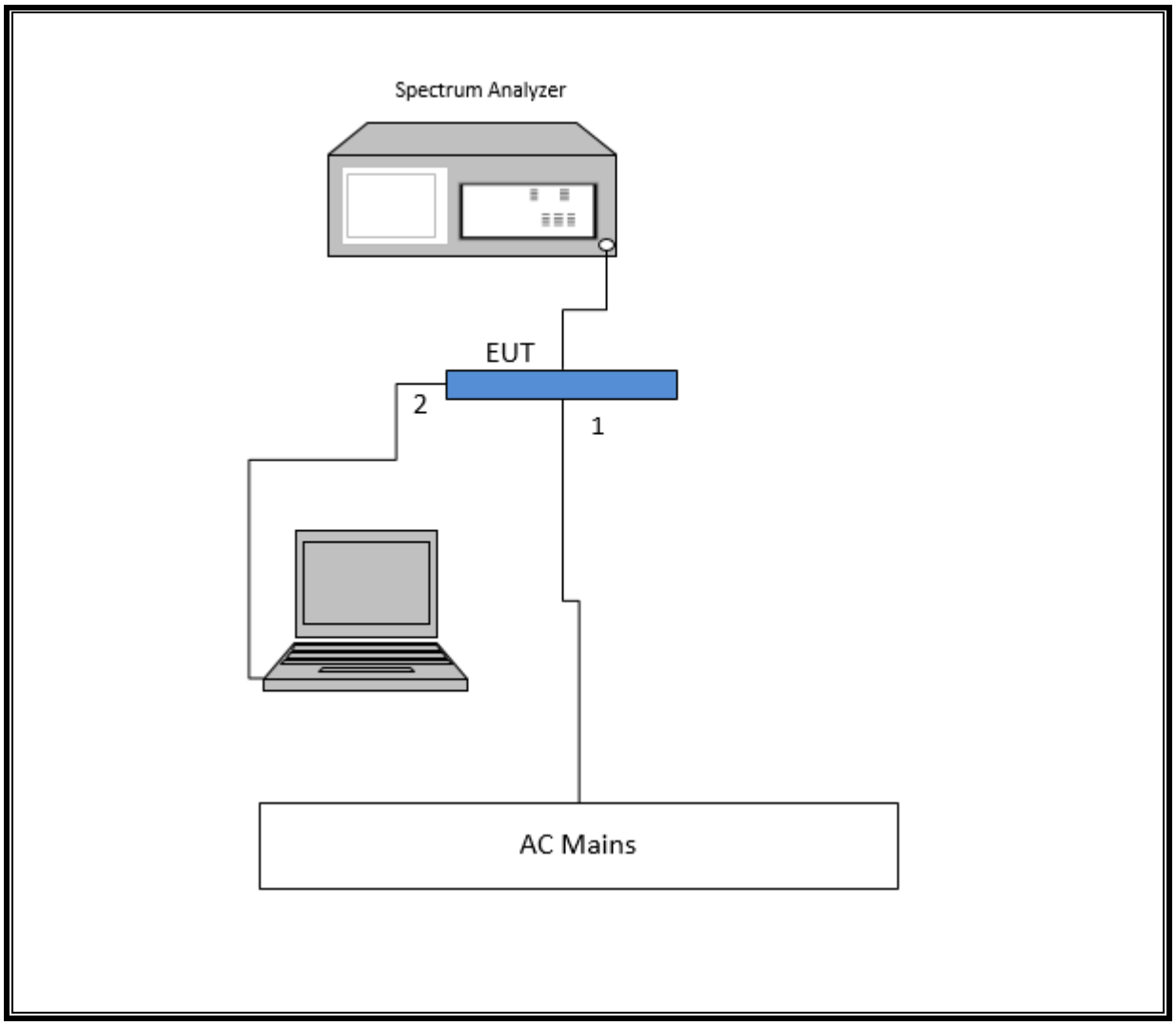
SETUP DIAGRAM FOR RADIATED BELOW 1GHZ TESTS



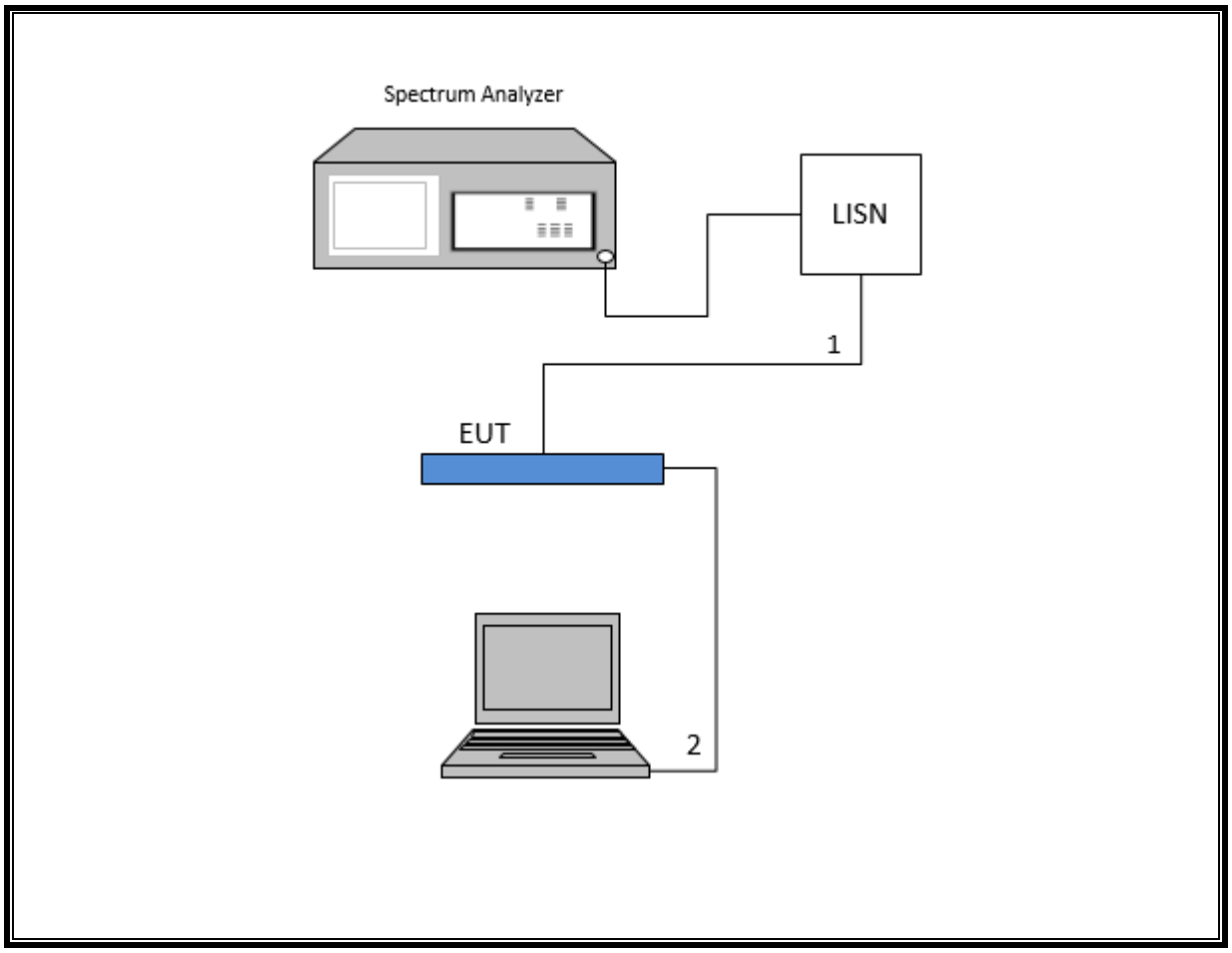
SETUP DIAGRAM FOR RADIATED ABOVE 1GHZ TESTS



SETUP DIAGRAM FOR CONDUCTED TESTS



SETUP DIAGRAM FOR AC LINE CONDUCTED TEST



5.7. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Asset**	**Cal Due**
Antenna, Broadband Hybrid, 30MHz to 2000MHz w/4dB Pad	Sunol Sciences Corp.	JB1	T130	10/16/2018
Antenna, Active Loop 9kHz-30MHz	ETS-Lindgren	6502	T1683	02/17/2018
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T863	06/09/2018
Antenna, Horn 18-26.5GHz	ARA	MWH-1826/B	T89	05/26/2018
Antenna, Horn 26.5 - 40GHz	ARA	MWH-1826/B	T90	05/26/2018
Power Meter, P-series single channel	Agilent (Keysight) Technologies	N1911A	T1264	07/08/2018
Power Sensor, P – series, 50MHz to 18GHz, Wideband	Agilent (Keysight) Technologies	N1921A	T413	06/20/2018
Amplifier, 1-18GHz	Miteq	AFS42-00101800-25-S-42	T493	12/16/2018
Amplifier, 10kHz-1GHz	Agilent (Keysight) Technologies	8447D	T15	08/26/2018
Amplifier, 1-26.5GHz	Keysight	8449B	T404	07/23/2018
Amplifier- 26.5-40GHz	MIteq	NSP 4000 SP2	T88	04/29/2018
Filter, BRF 5150 to 5350MHz	Micro-Tronics	BRC50703	T1850	07/16/18
Filter, BRF 2400 to 2500MHz	Micro-Tronics	BRM50702-02	T1784	05/16/18
Low pass filter 5GHz	Micro-Tronics	LPS17541	T482	12/16/18
High pass filter 3GHz	Micro-Tronics	HPM17543	T485	12/16/18
High Pass Filter 6GHz	Micro-Tronics	HPS17542	T483	12/16/18
Spectrum Analyzer, PSA, 3Hz to 26.5GHz	Agilent (Keysight) Technologies	E4440A	T199	07/22/2018
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T907	01/23/2018
Spectrum Analyzer, PSA, 3Hz to 26.5GHz	Agilent (Keysight) Technologies	E9030A	T905	01/11/2018
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T1466	04/11/2018
LISN	FISCHER	FCC-LISN-50/250-25-2-01	T1310	01/17/2018
Receiver, 10kHz-7GHz	ROHDE & SCHWARZ	ESR	T1436	01/06/2018

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

5.8. 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		
§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
§15.407 (h)(2)	RSS-247 6.3	Dynamic Frequency Selection	N/A	Radiated / Condcuted	Pass

5.9. MEASUREMENT METHOD

On Time and Duty Cycle: KDB 789033 D02 v02r01, Section B.

6 dB Emission BW: KDB 789033 D02 v02r01, Section C.

26 dB Emission BW: KDB 789033 D02 v02r01, Section C.

99% Occupied BW: KDB 789033 D02 v02r01, Section D.

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

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

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

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

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

6. ANTENNA PORT TEST RESULTS

6.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

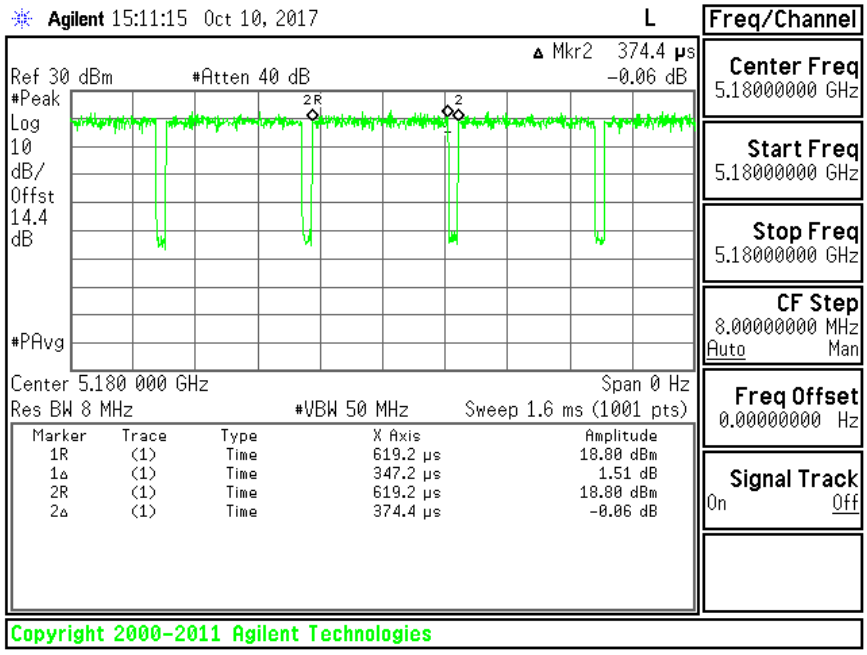
KDB 789033 Zero-Span Spectrum Analyzer Method.

RESULTS

Mode	ON Time (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
802.11n HT20 MCS3	0.347	0.374	0.927	92.7%	0.33
802.11n HT20 MCS11	0.196	0.223	0.879	87.9%	0.56

DUTY CYCLE PLOTS

DUTY CYCLE 802.11n HT20 MCS3 MODE



DUTY CYCLE 802.11n HT20 MCS11 MODE

6.2. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

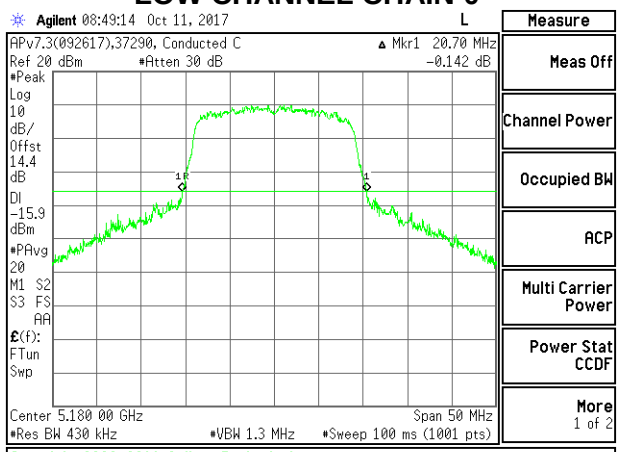
6.2.1. 802.11n HT20 MODE IN THE 5.2 GHz BAND

4TX CDD MODE

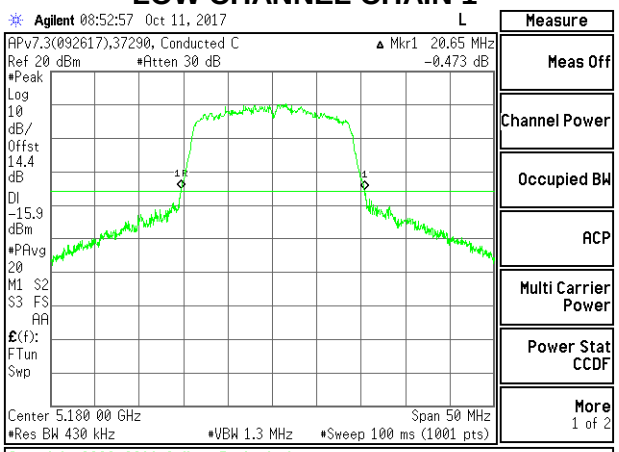
Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)	26 dB Bandwidth Chain 2 (MHz)	26 dB Bandwidth Chain 3 (MHz)
Low	5180	20.70	20.65	20.55	20.35
Mid	5200	20.65	**20.75**	20.50	20.45
High	5240	20.60	20.65	20.75	20.45

LOW CHANNEL

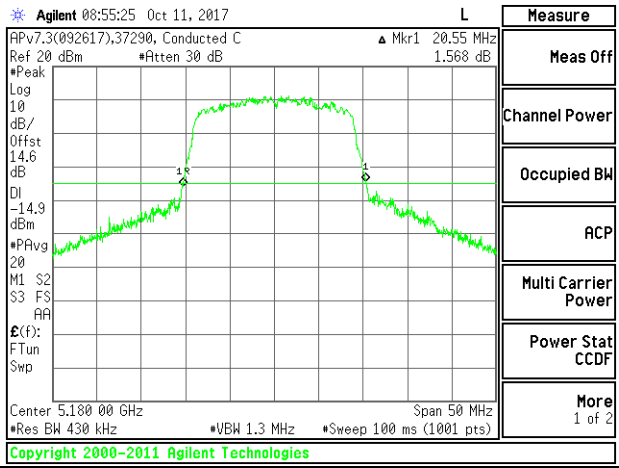
LOW CHANNEL CHAIN 0



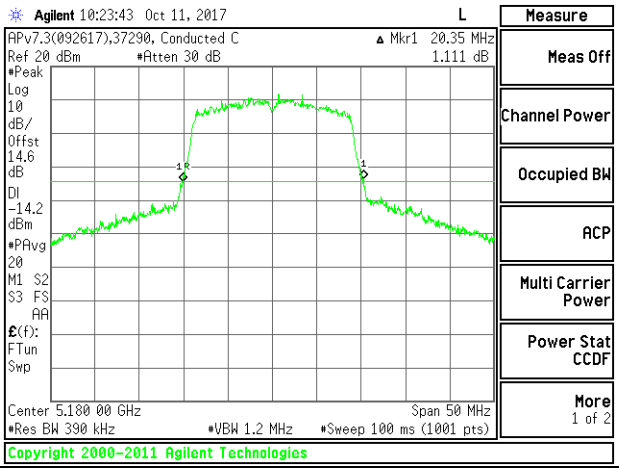
LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2

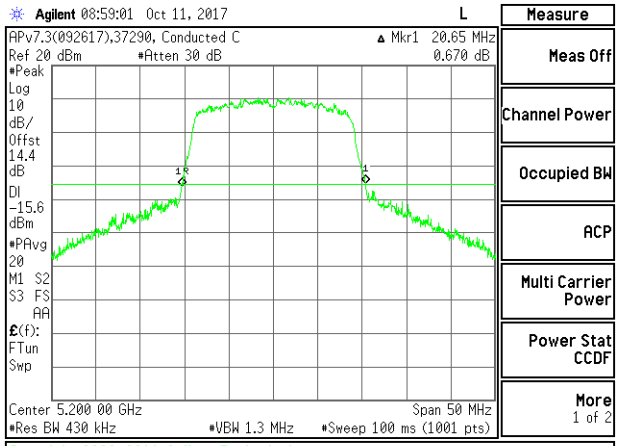


LOW CHANNEL CHAIN 3

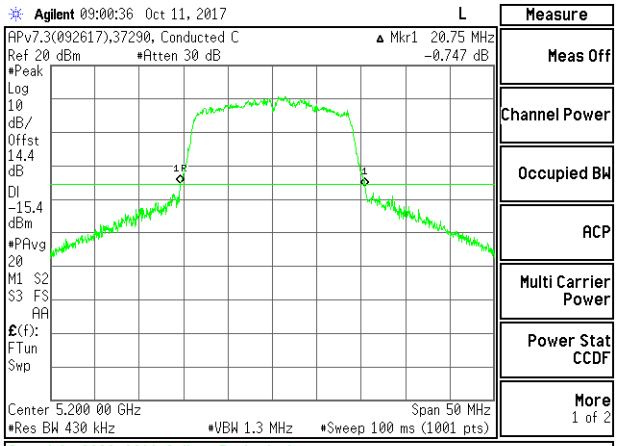


MID CHANNEL

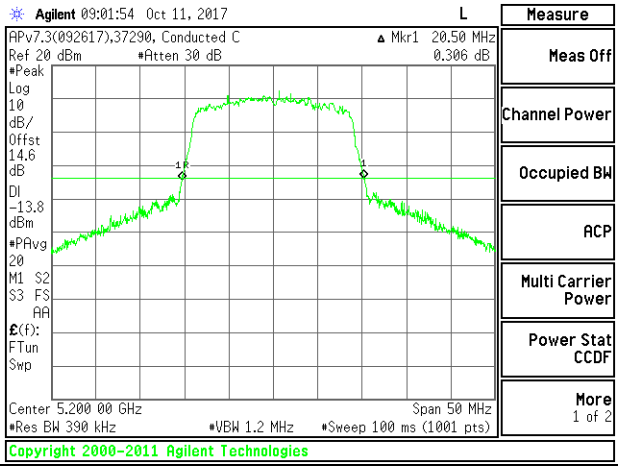
MID CHANNEL CHAIN 0



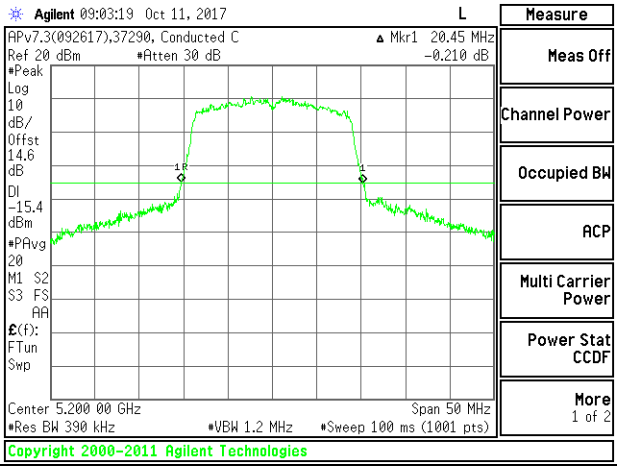
MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2

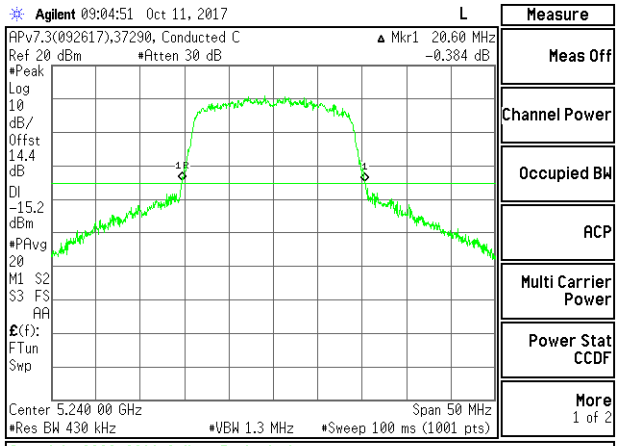


MID CHANNEL CHAIN 3

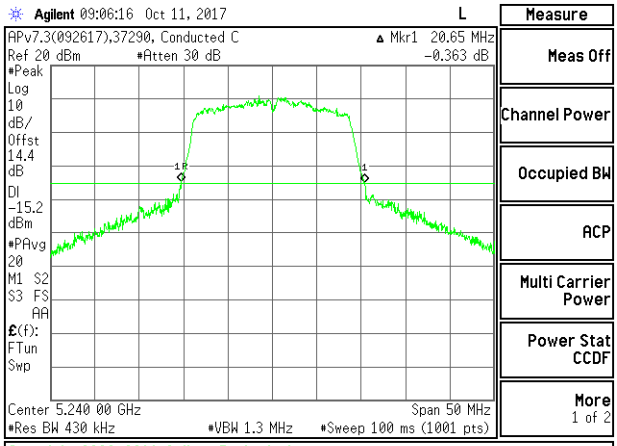


HIGH CHANNEL

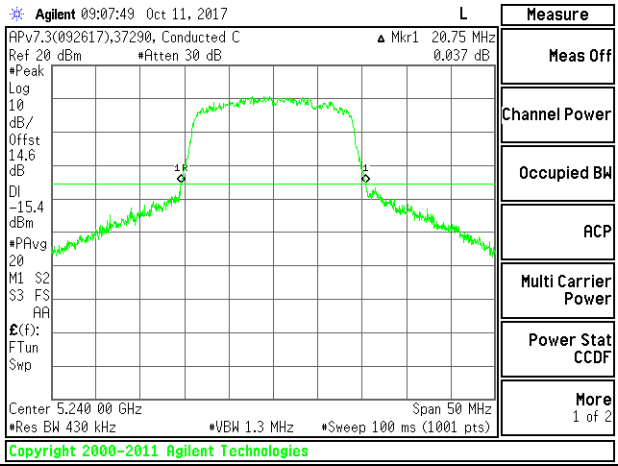
HIGH CHANNEL CHAIN 0



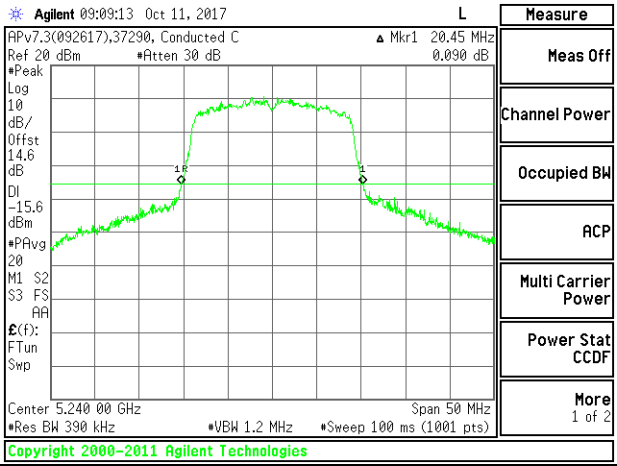
HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3



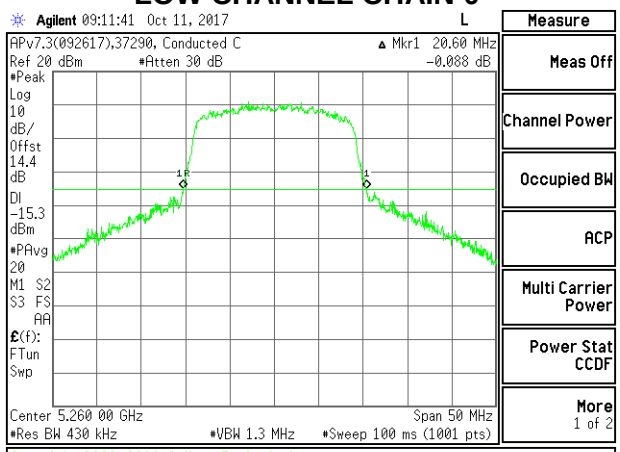
6.2.2. 802.11n HT20 MODE IN THE 5.3 GHz BAND

4TX CDD MODE

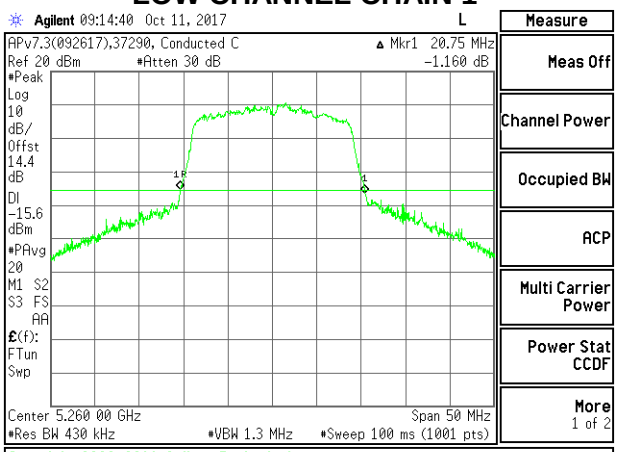
Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)	26 dB Bandwidth Chain 2 (MHz)	26 dB Bandwidth Chain 3 (MHz)
Low	5260	20.60	20.75	20.75	20.50
Mid	5300	20.65	20.85	21.75	20.55
High	5320	20.55	20.80	**22.05**	20.50

LOW CHANNEL

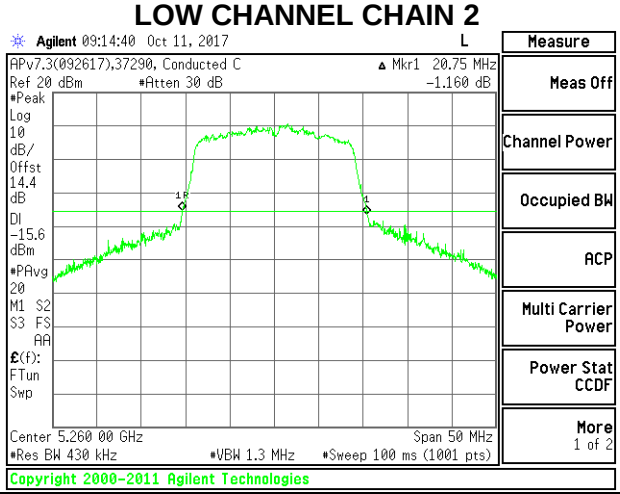
LOW CHANNEL CHAIN 0



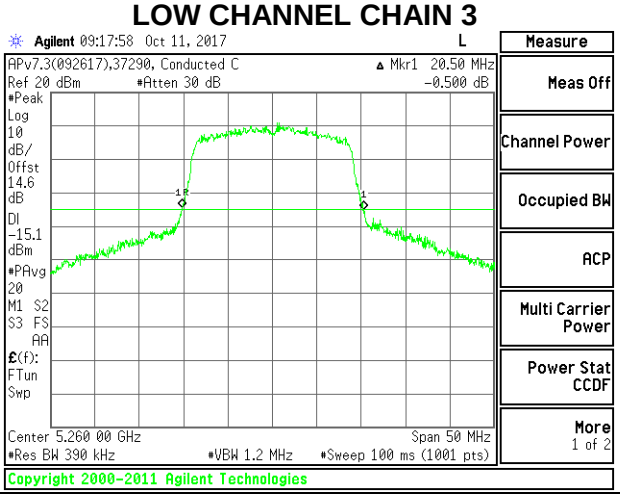
LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2

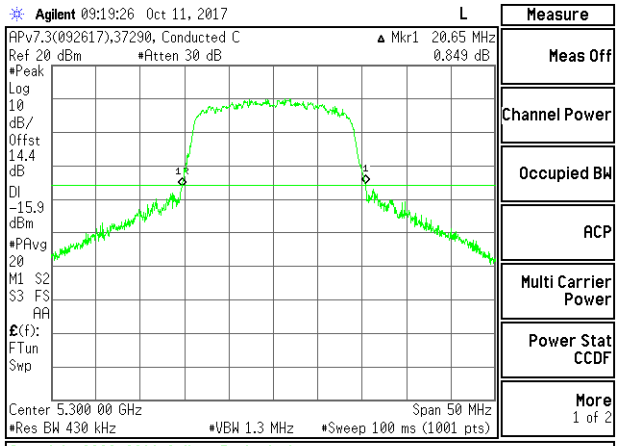


LOW CHANNEL CHAIN 3

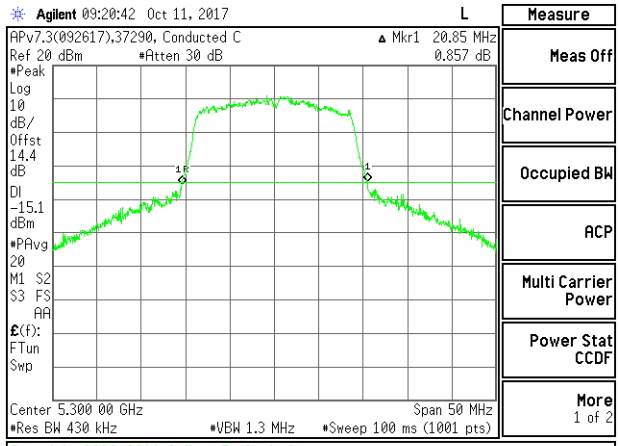


MID CHANNEL

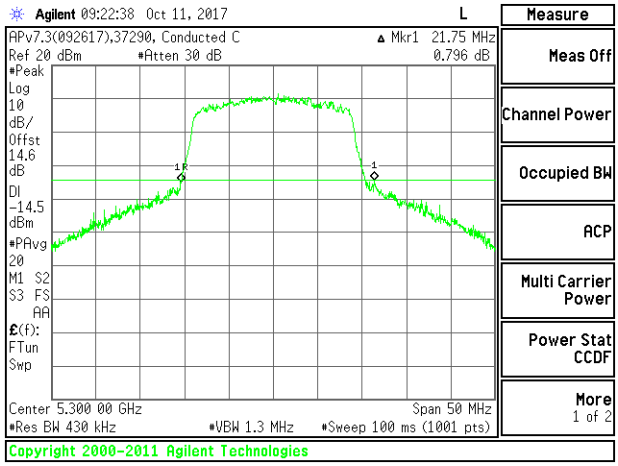
MID CHANNEL CHAIN 0



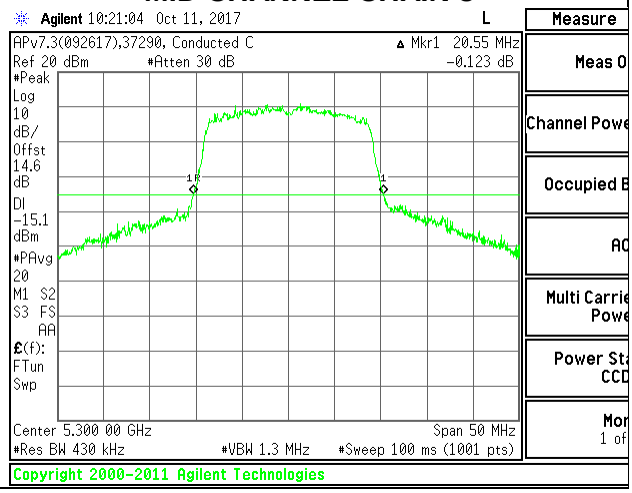
MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2

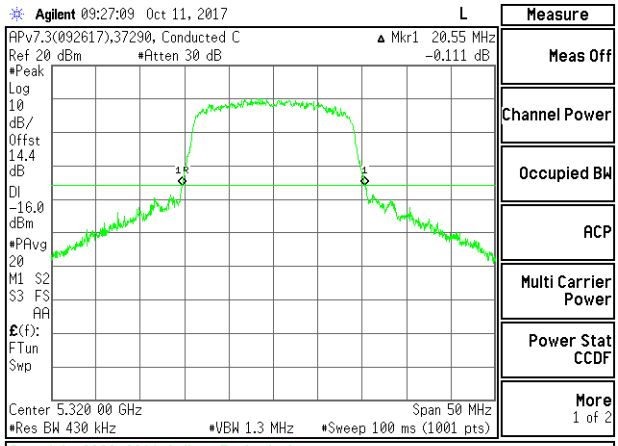


MID CHANNEL CHAIN 3

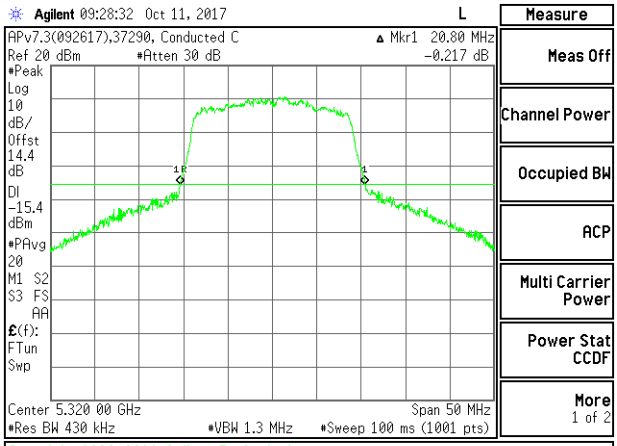


HIGH CHANNEL

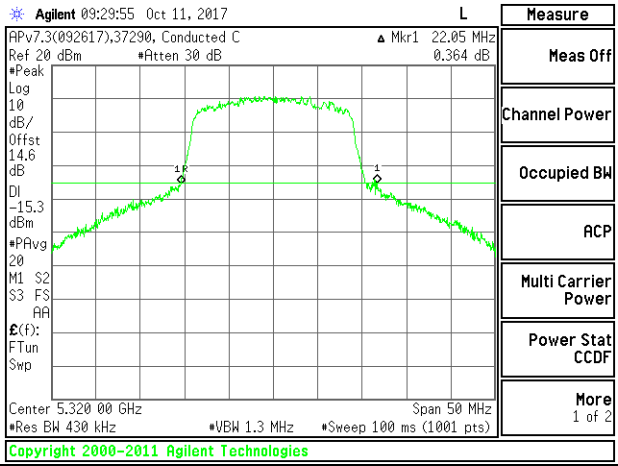
HIGH CHANNEL CHAIN 0



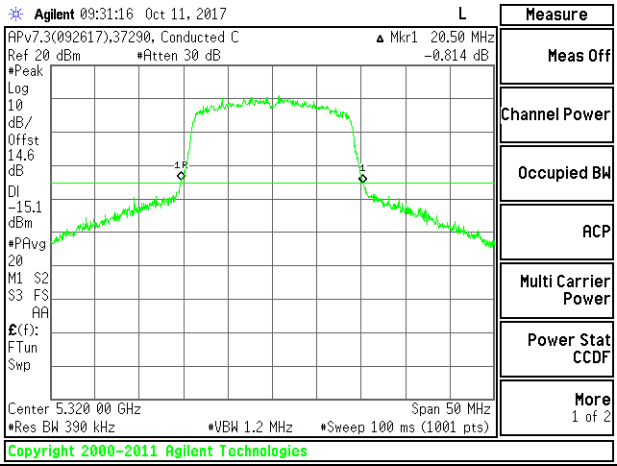
HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3



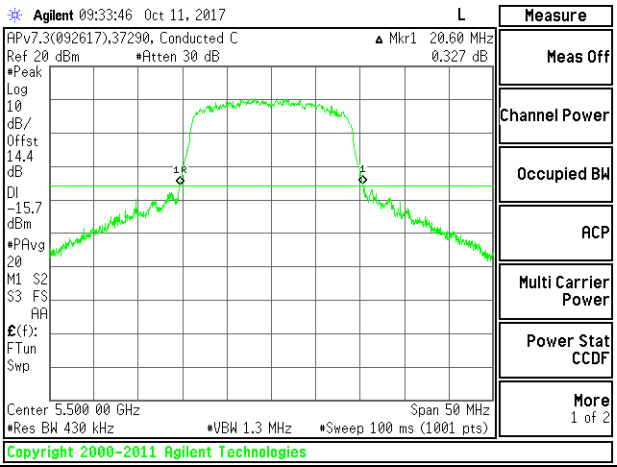
6.2.3. 802.11n HT20 MODE IN THE 5.6 GHz BAND

4TX CDD MODE

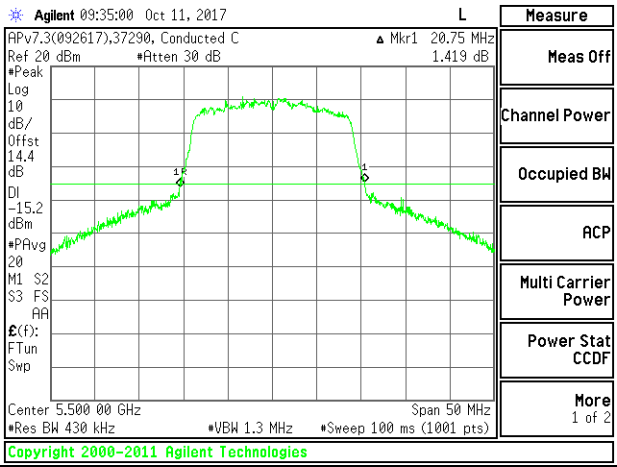
Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)	26 dB Bandwidth Chain 2 (MHz)	26 dB Bandwidth Chain 3 (MHz)
Low	5500	20.60	20.75	20.60	20.35
Mid	5580	20.45	20.85	20.80	20.30
High	5700	20.55	20.75	**23.95**	22.10

LOW CHANNEL

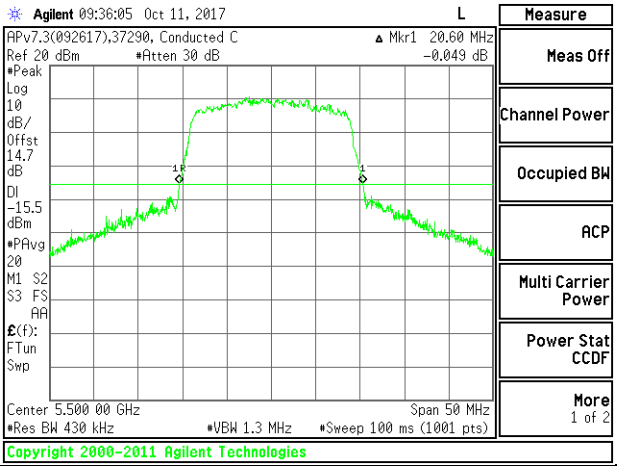
LOW CHANNEL CHAIN 0



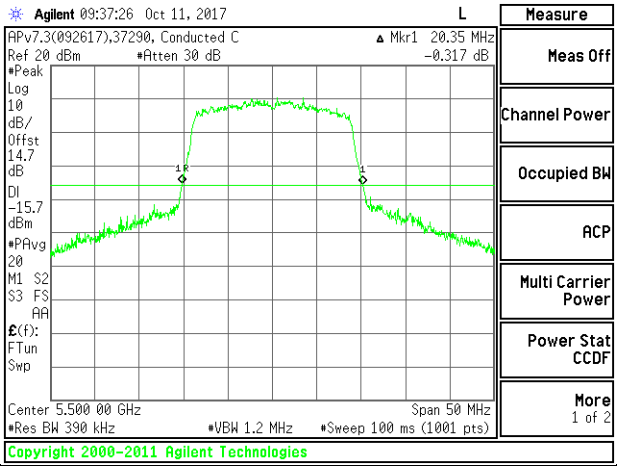
LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2

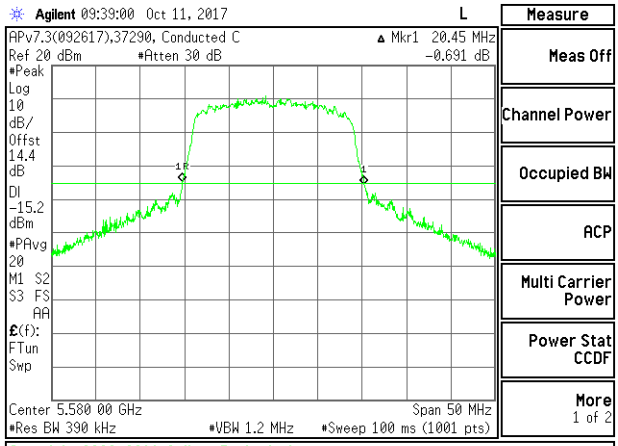


LOW CHANNEL CHAIN 3

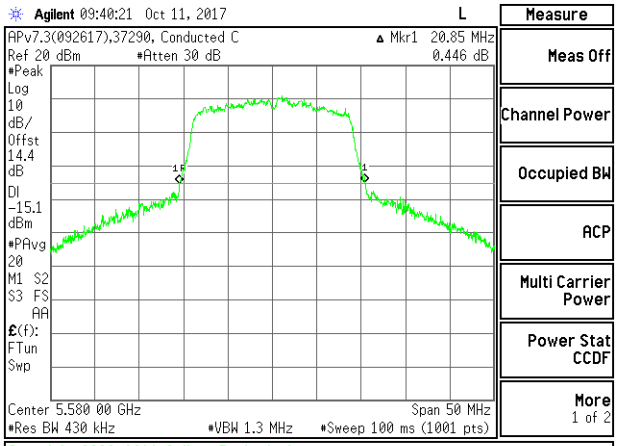


MID CHANNEL

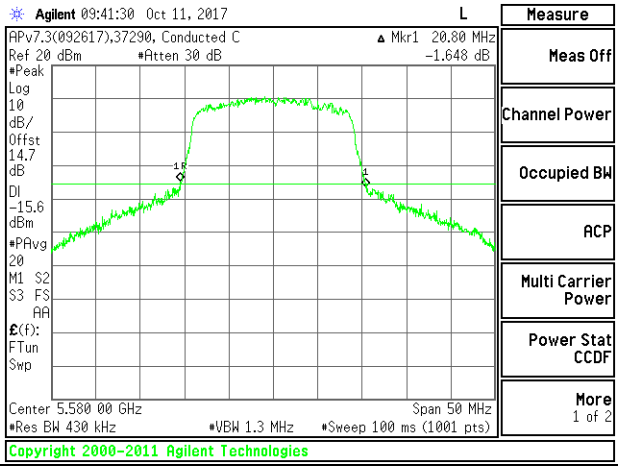
MID CHANNEL CHAIN 0



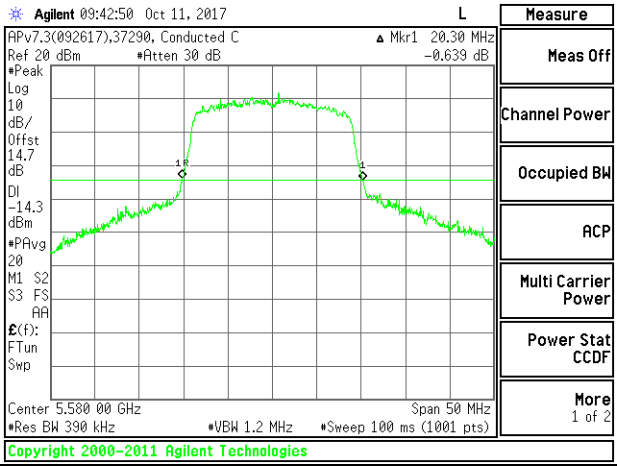
MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2

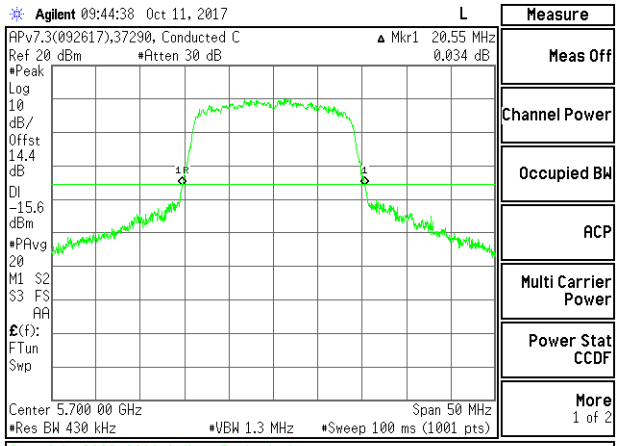


MID CHANNEL CHAIN 3

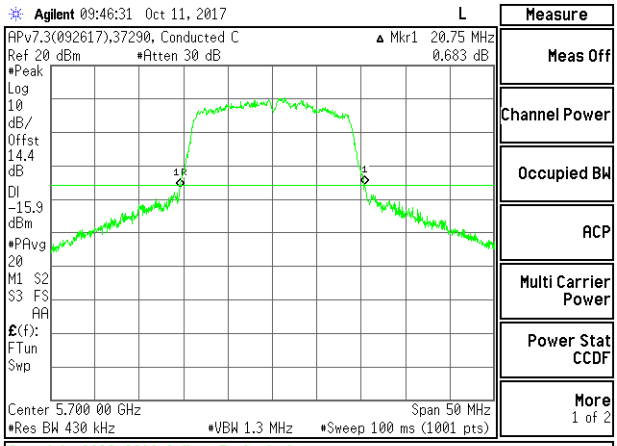


HIGH CHANNEL

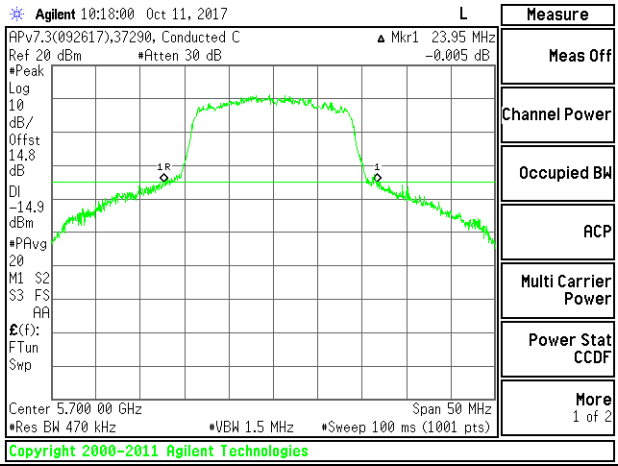
HIGH CHANNEL CHAIN 0



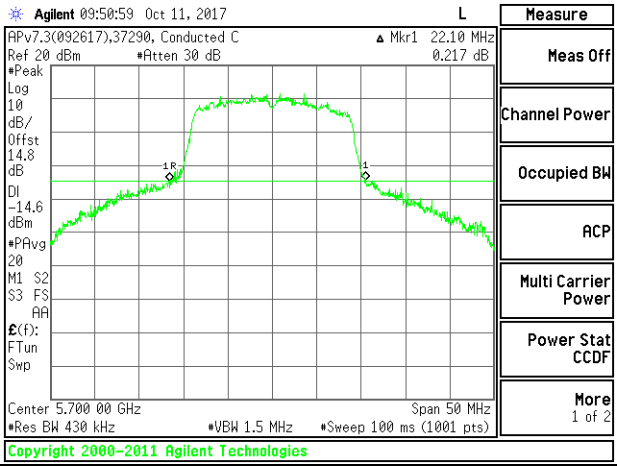
HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3



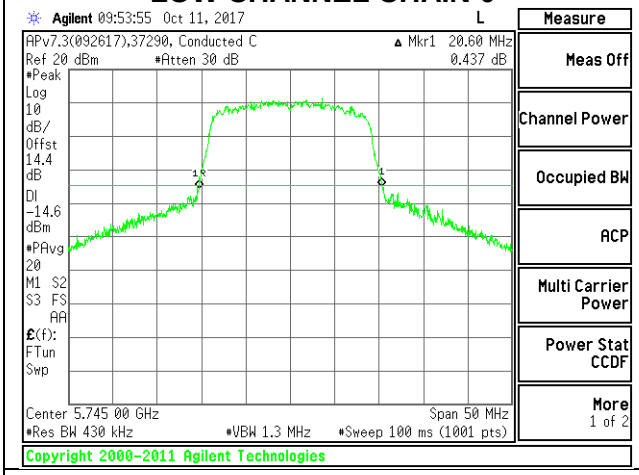
6.2.4. 802.11n HT20 MODE IN THE 5.8 GHz BAND

4TX CDD MODE

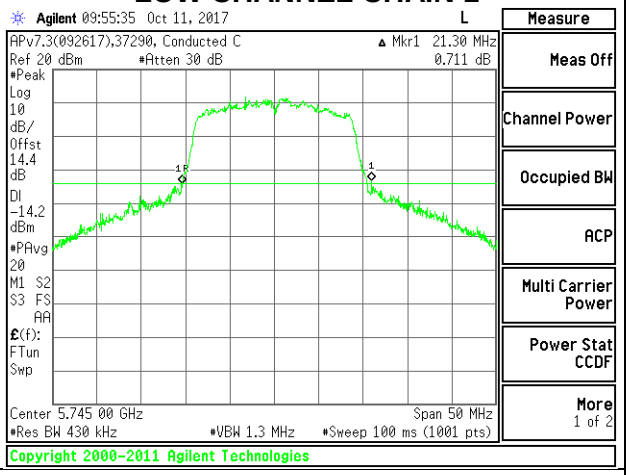
Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)	26 dB Bandwidth Chain 2 (MHz)	26 dB Bandwidth Chain 3 (MHz)
Low	5745	20.60	21.30	**22.40**	20.60
Mid	5785	20.55	20.85	20.85	20.40
High	5825	20.70	20.85	20.65	20.55

LOW CHANNEL

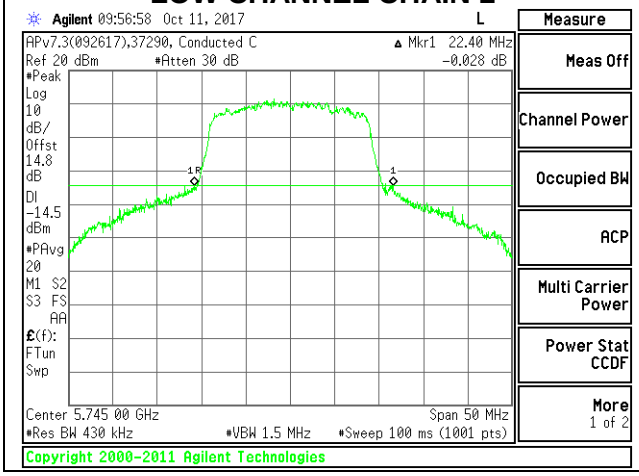
LOW CHANNEL CHAIN 0



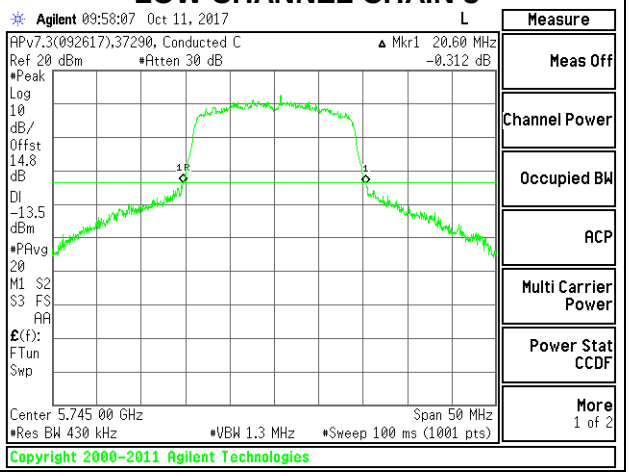
LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2

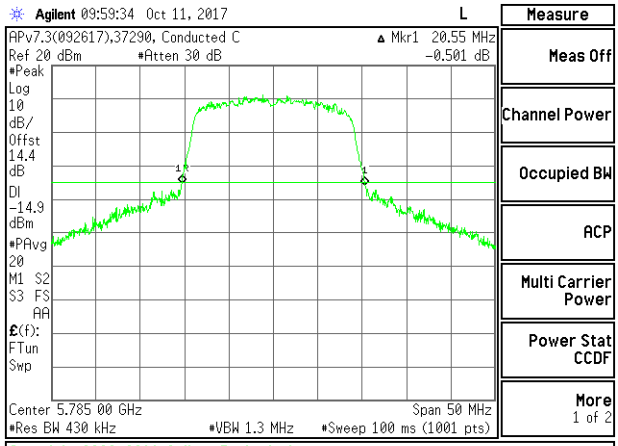


LOW CHANNEL CHAIN 3

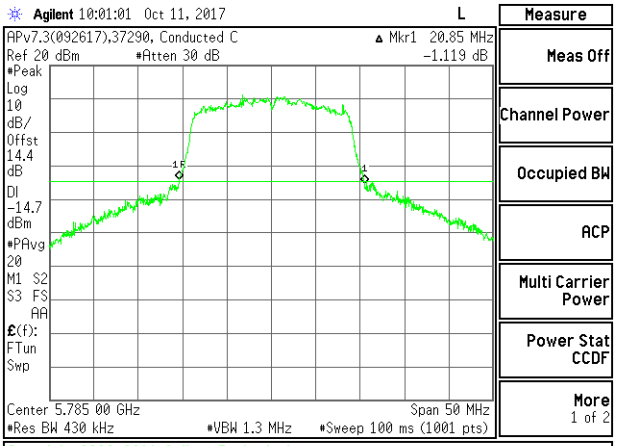


MID CHANNEL

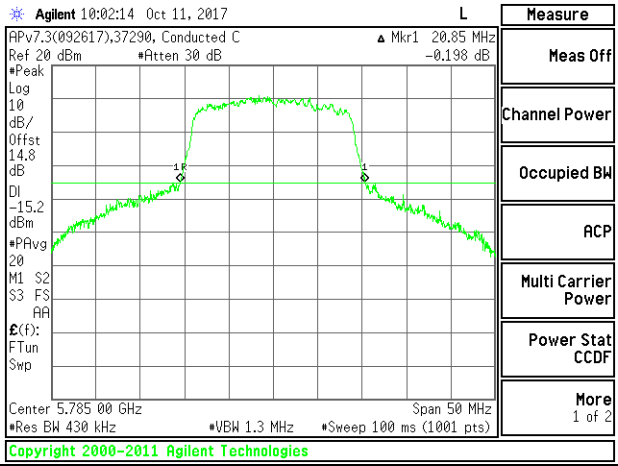
MID CHANNEL CHAIN 0



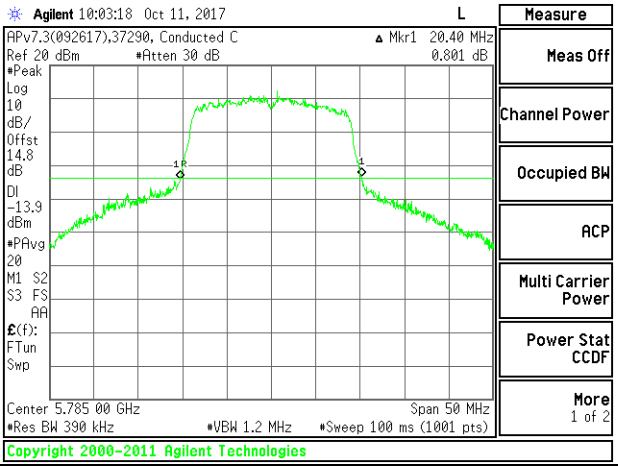
MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2

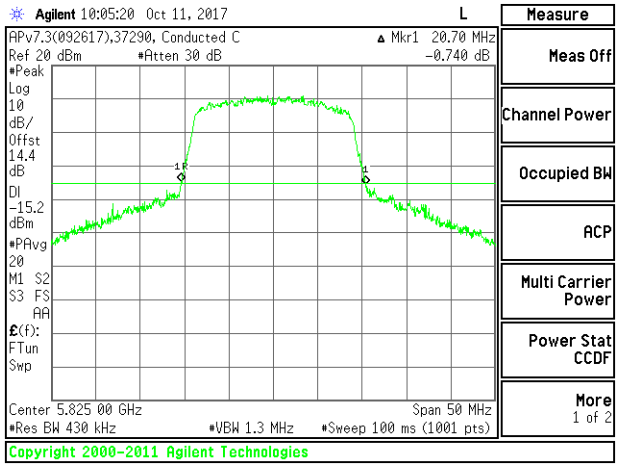


MID CHANNEL CHAIN 3

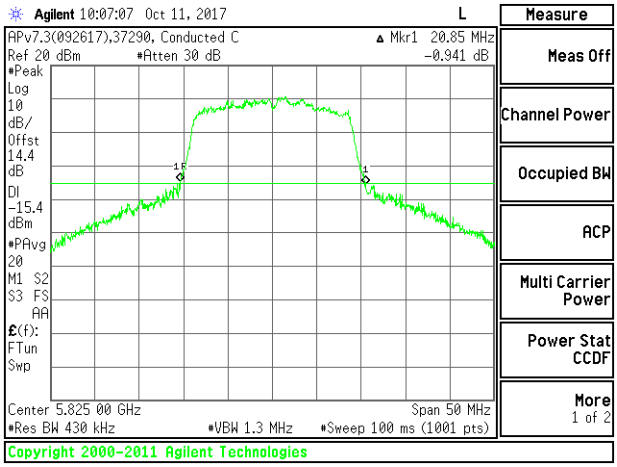


HIGH CHANNEL

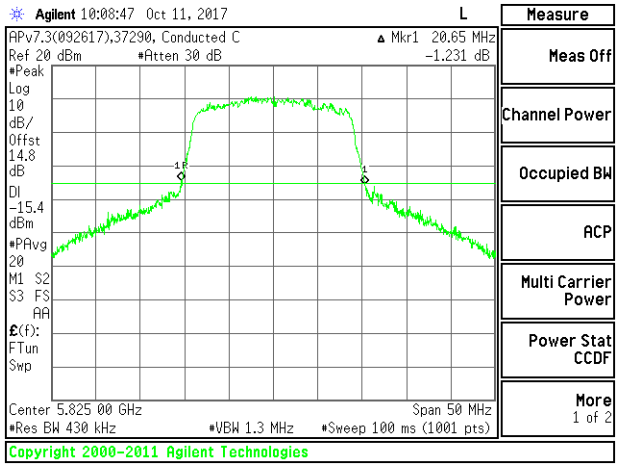
HIGH CHANNEL CHAIN 0



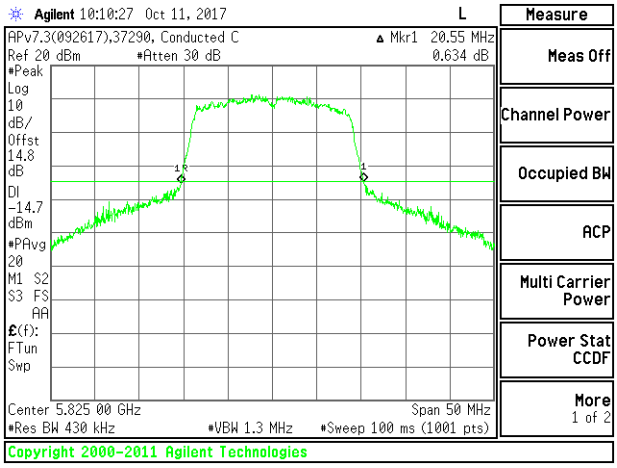
HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3



6.3. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

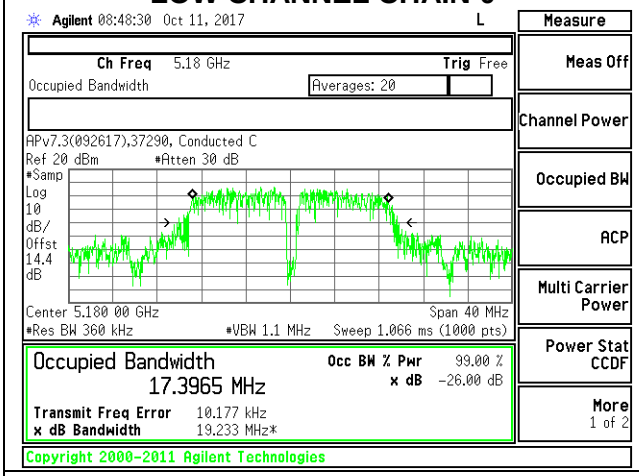
6.3.1. 802.11n HT20 MODE IN THE 5.2 GHz BAND

4TX CDD MODE

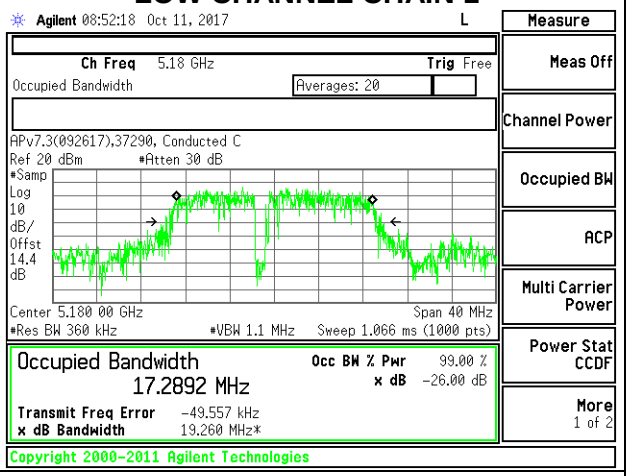
Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)	99% Bandwidth Chain 2 (MHz)	99% Bandwidth Chain 3 (MHz)
Low	5180	17.3965	17.2892	17.2154	17.2360
Mid	5200	17.4835	17.2889	17.3892	17.2899
High	5240	**17.5062**	17.2632	17.2984	17.3748

LOW CHANNEL

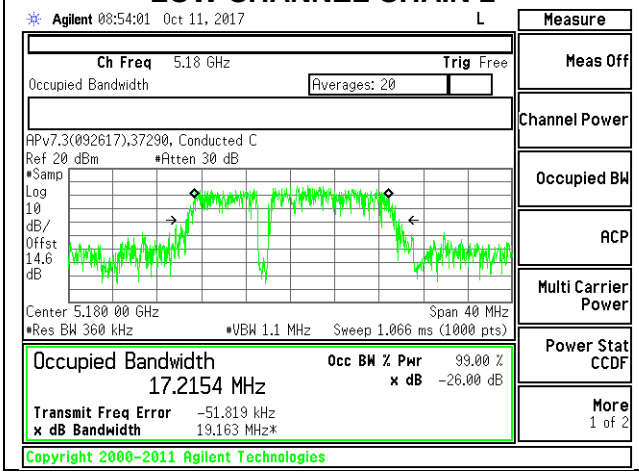
LOW CHANNEL CHAIN 0



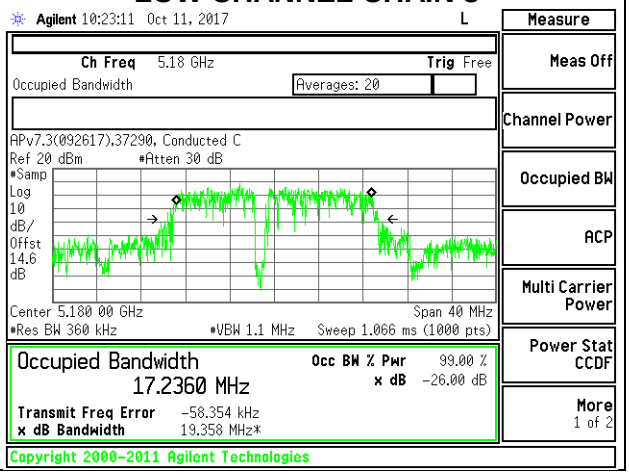
LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2

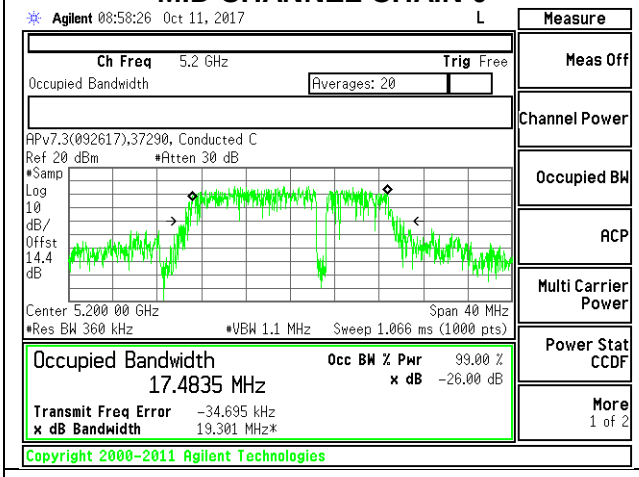


LOW CHANNEL CHAIN 3

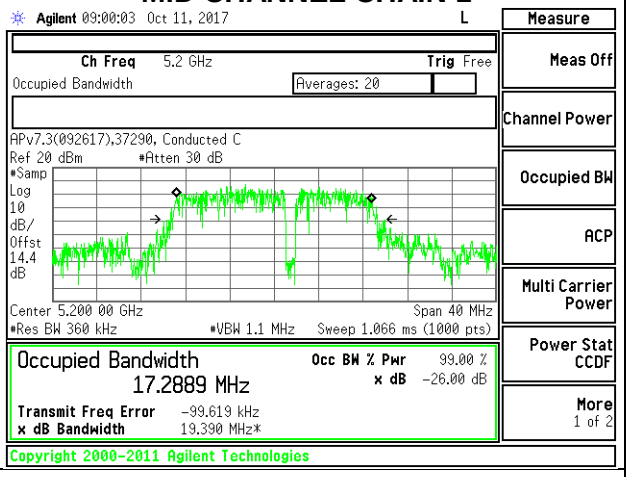


MID CHANNEL

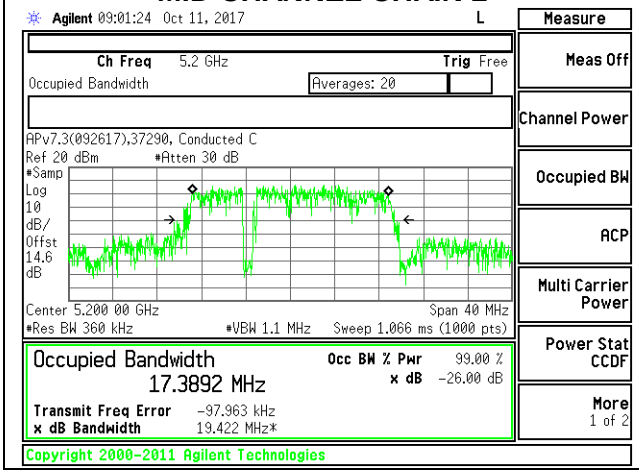
MID CHANNEL CHAIN 0



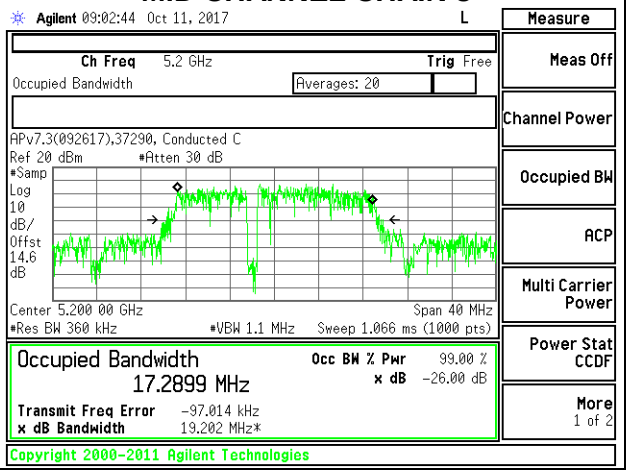
MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2

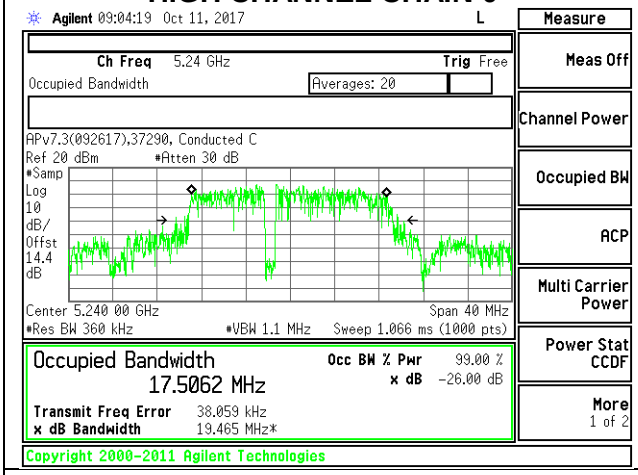


MID CHANNEL CHAIN 3

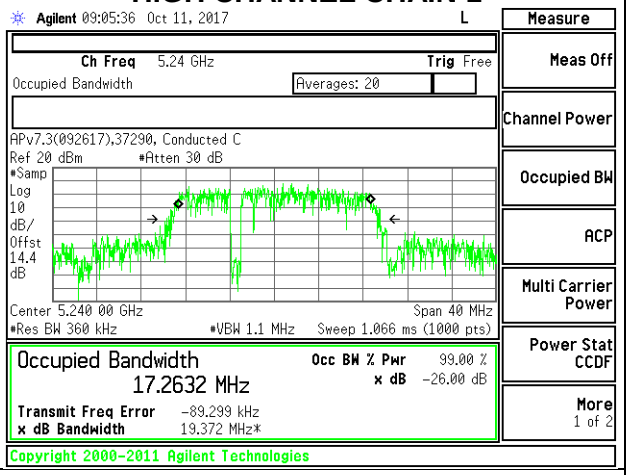


HIGH CHANNEL

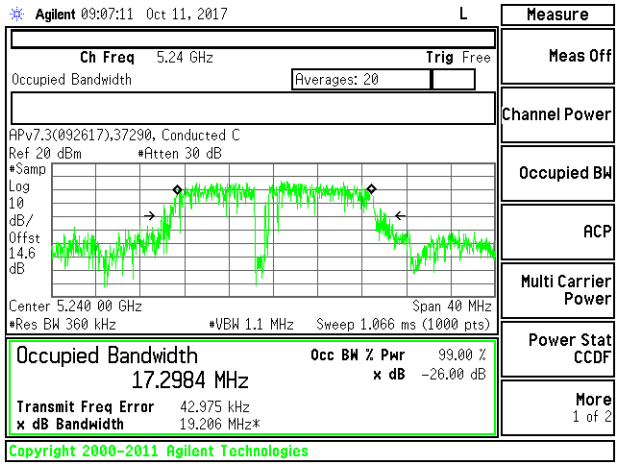
HIGH CHANNEL CHAIN 0



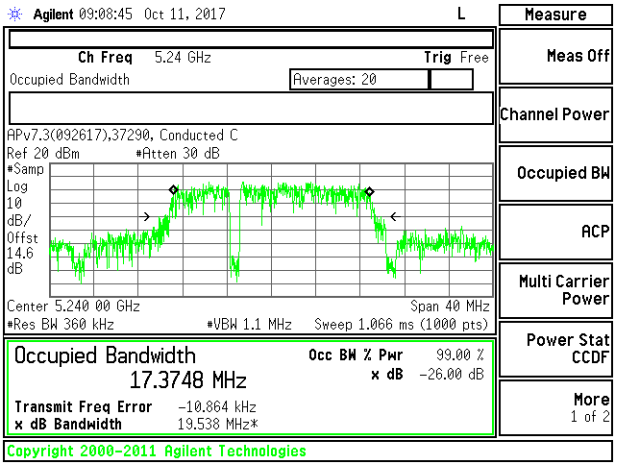
HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3

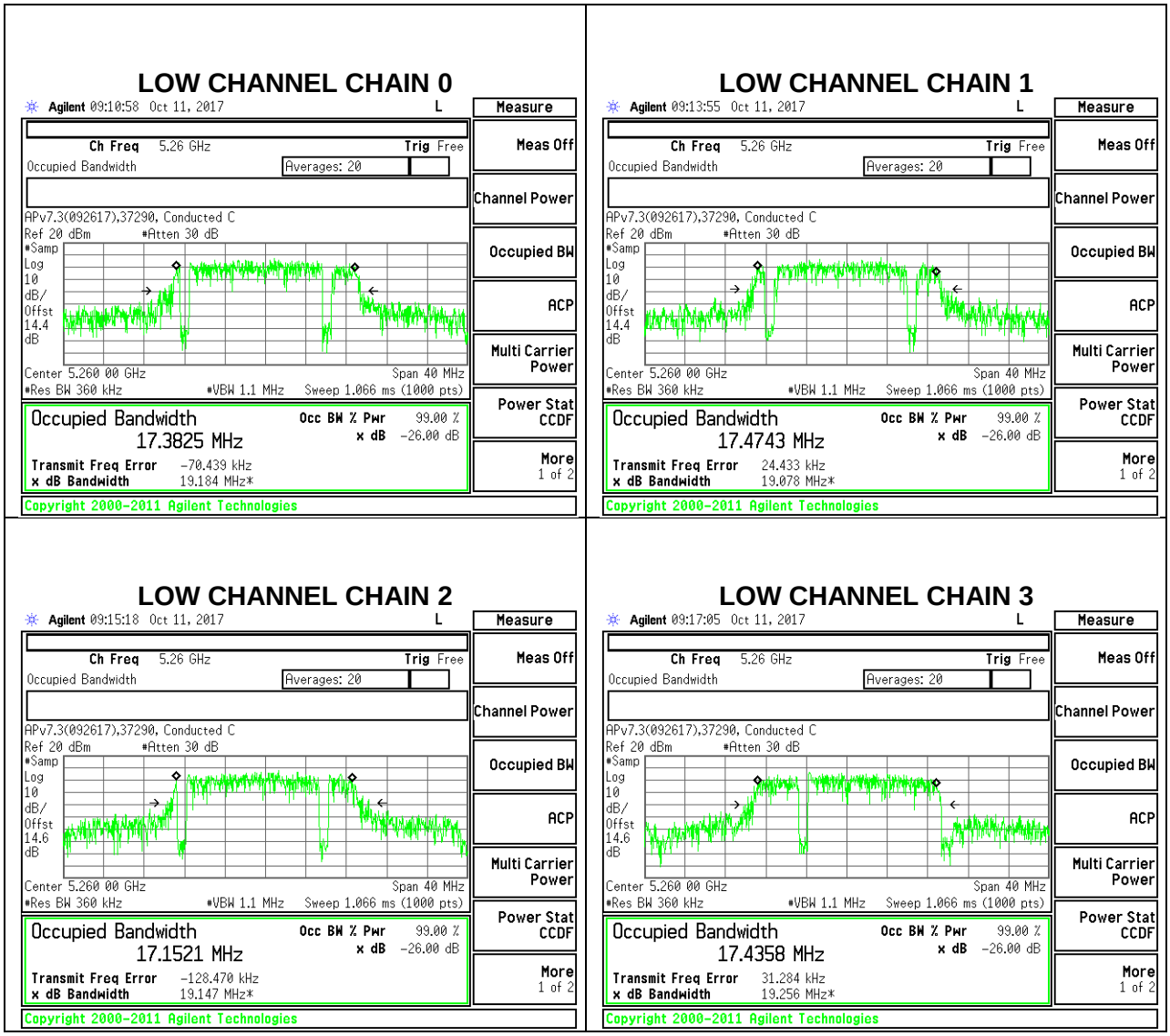


6.3.2. 802.11n HT20 MODE IN THE 5.3 GHz BAND

4TX CDD MODE

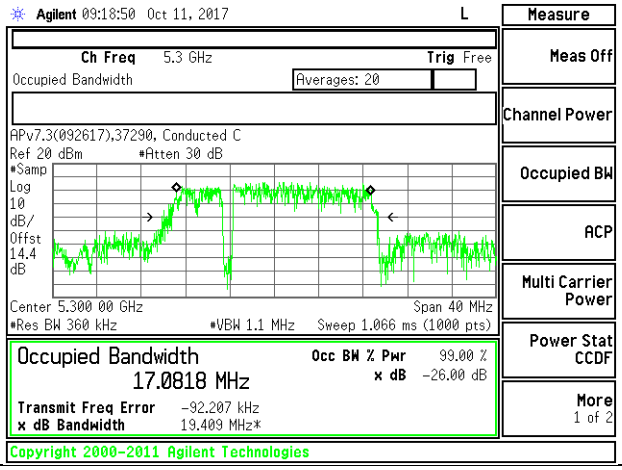
Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)	99% Bandwidth Chain 2 (MHz)	99% Bandwidth Chain 3 (MHz)
Low	5260	17.3825	**17.4743**	17.1521	17.4358
Mid	5300	17.0818	17.4709	17.2340	17.4330
High	5320	17.2895	17.4266	17.2000	17.2030

LOW CHANNEL

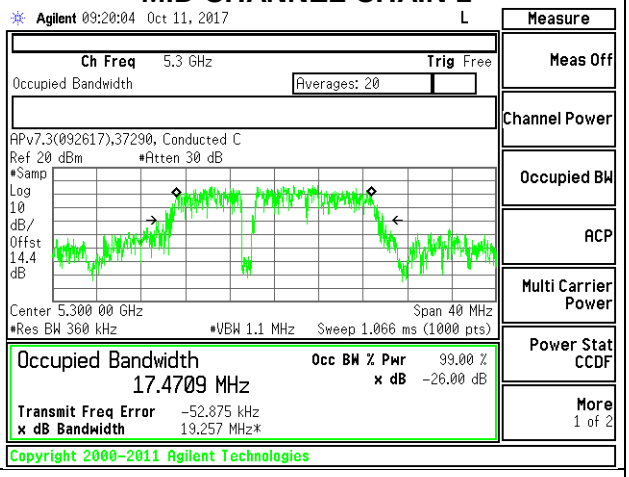


MID CHANNEL

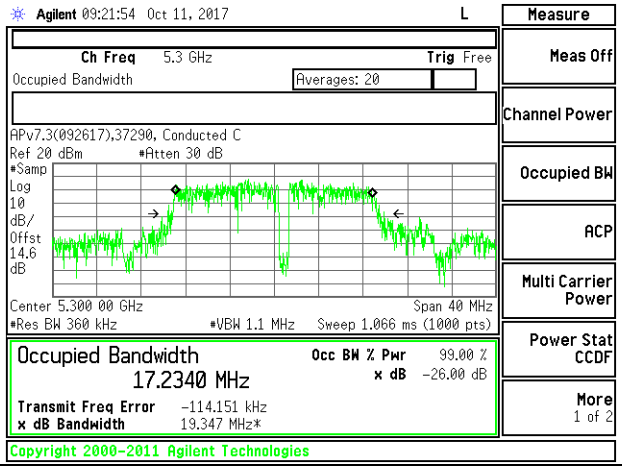
MID CHANNEL CHAIN 0



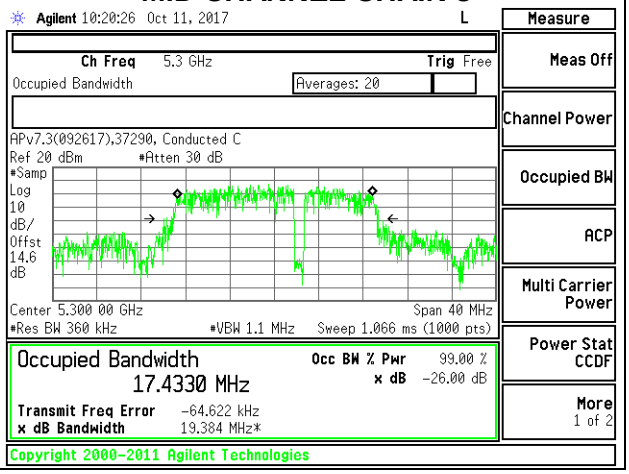
MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2

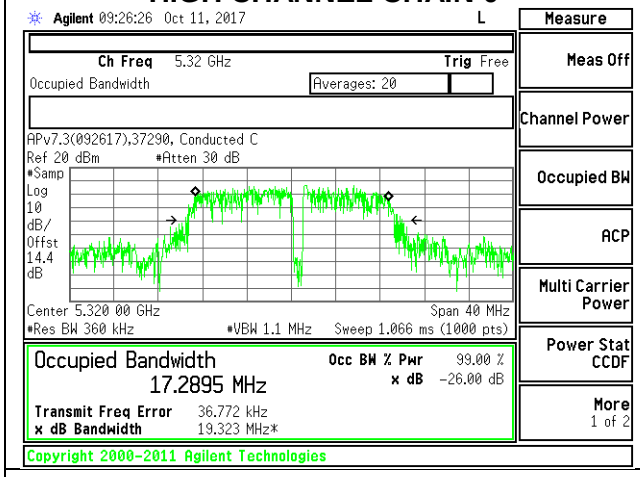


MID CHANNEL CHAIN 3

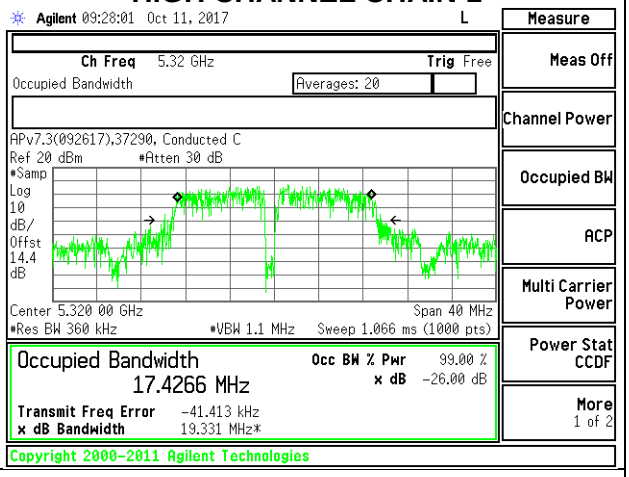


HIGH CHANNEL

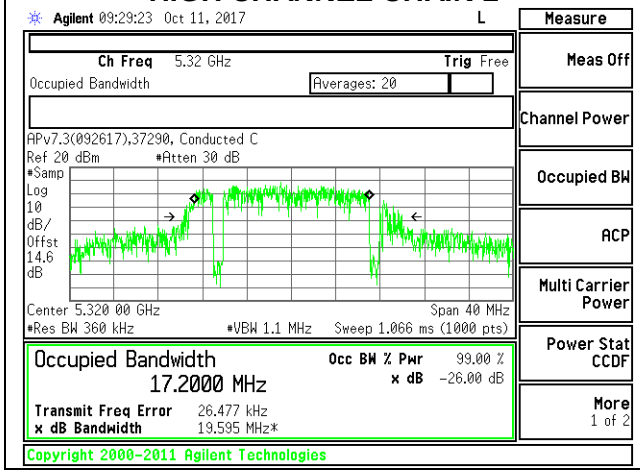
HIGH CHANNEL CHAIN 0



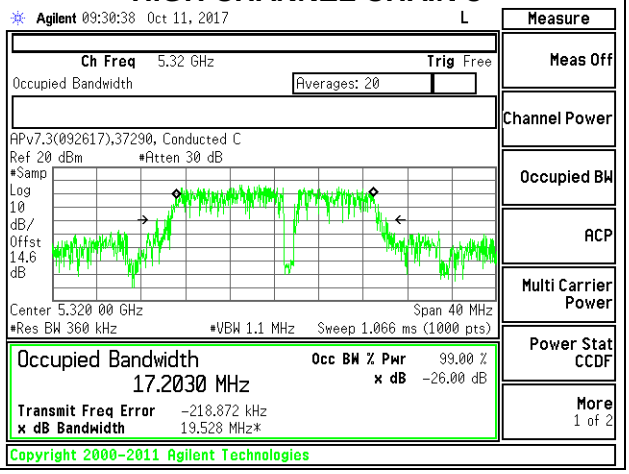
HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3



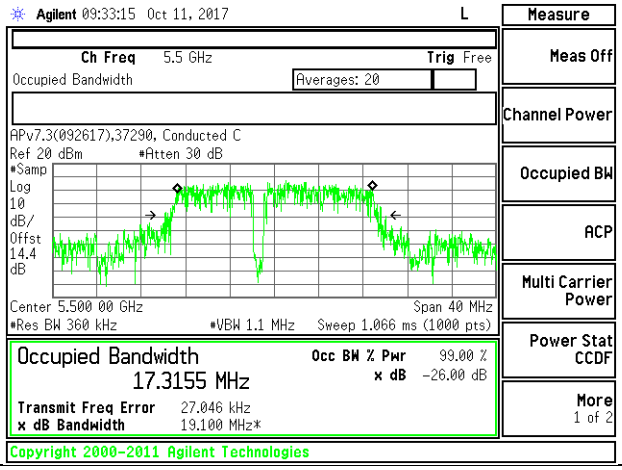
6.3.3. 802.11n HT20 MODE IN THE 5.6 GHz BAND

4TX CDD MODE

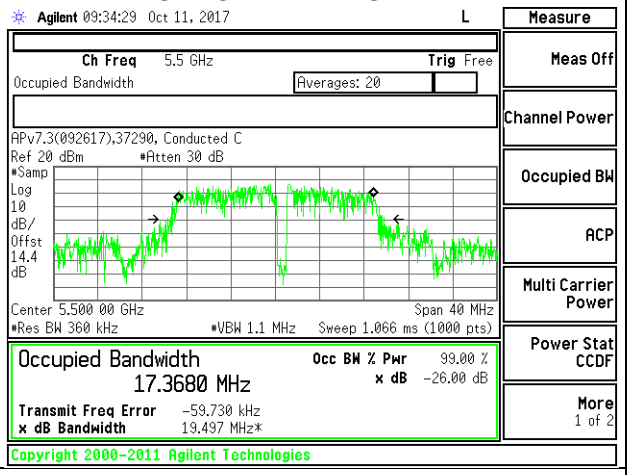
Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)	99% Bandwidth Chain 2 (MHz)	99% Bandwidth Chain 3 (MHz)
Low	5500	17.3155	17.3680	17.1071	17.3678
Mid	5580	17.1954	17.4264	17.2722	**17.4321**
High	5700	17.4180	17.3142	17.2861	17.4189

LOW CHANNEL

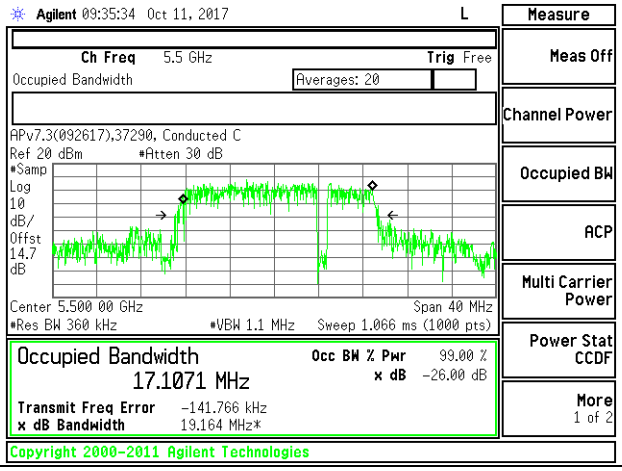
LOW CHANNEL CHAIN 0



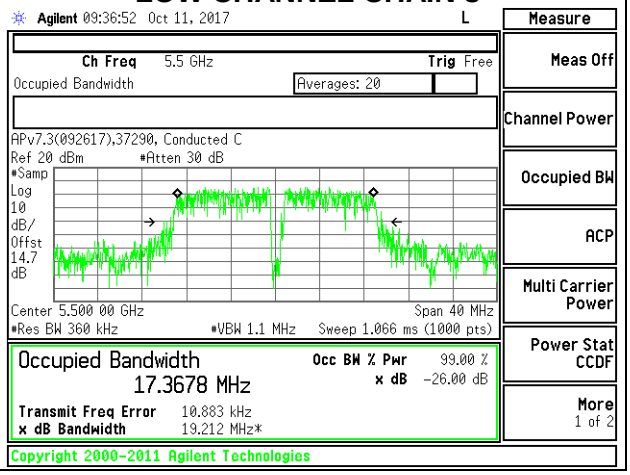
LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2

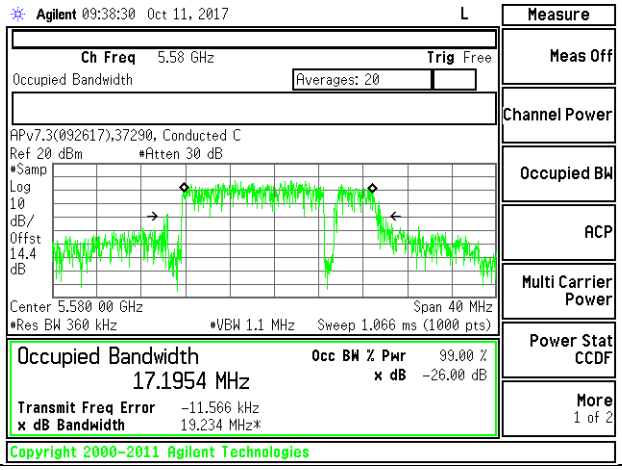


LOW CHANNEL CHAIN 3

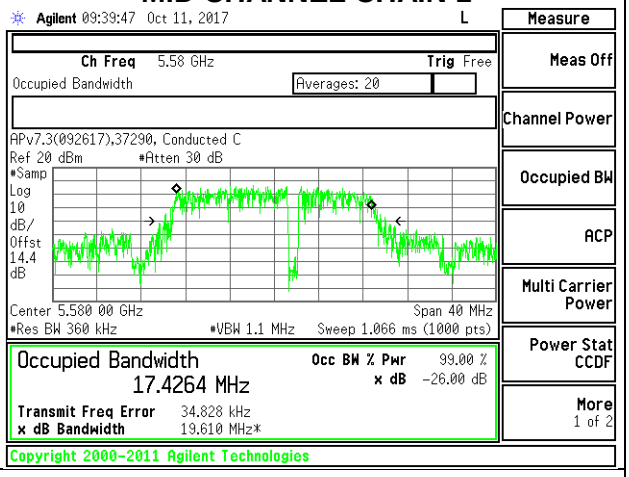


MID CHANNEL

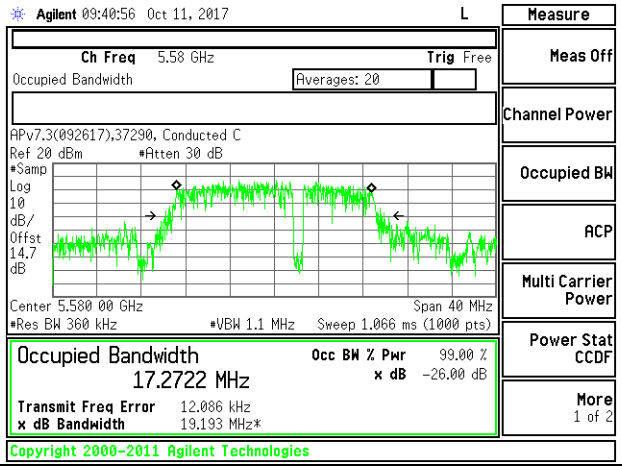
MID CHANNEL CHAIN 0



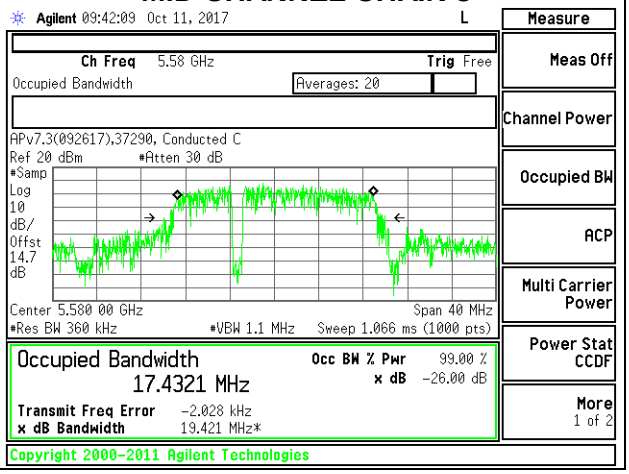
MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2

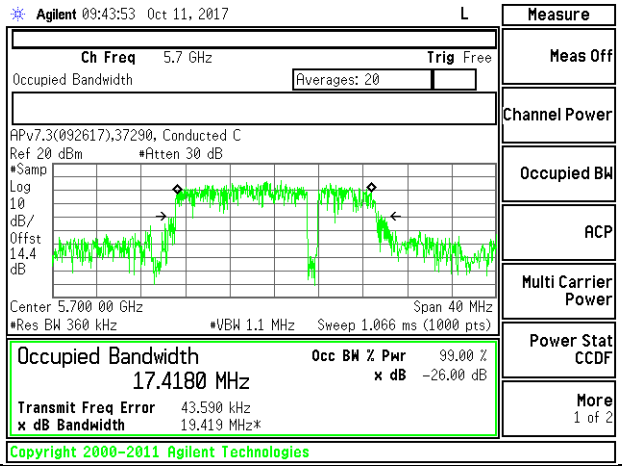


MID CHANNEL CHAIN 3

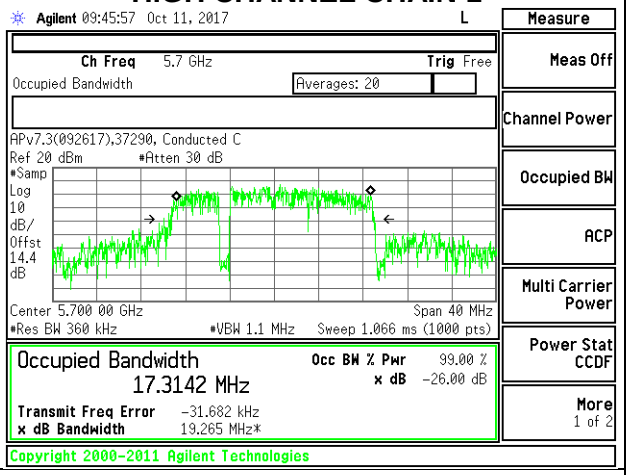


HIGH CHANNEL

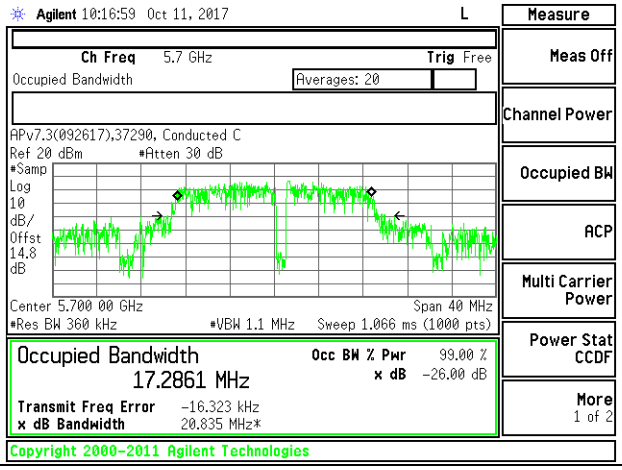
HIGH CHANNEL CHAIN 0



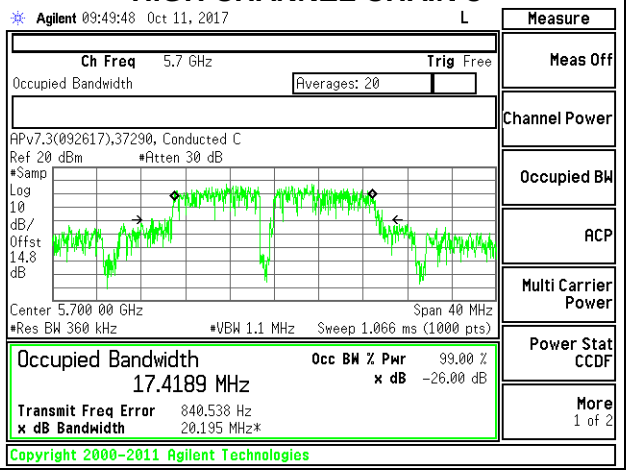
HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3



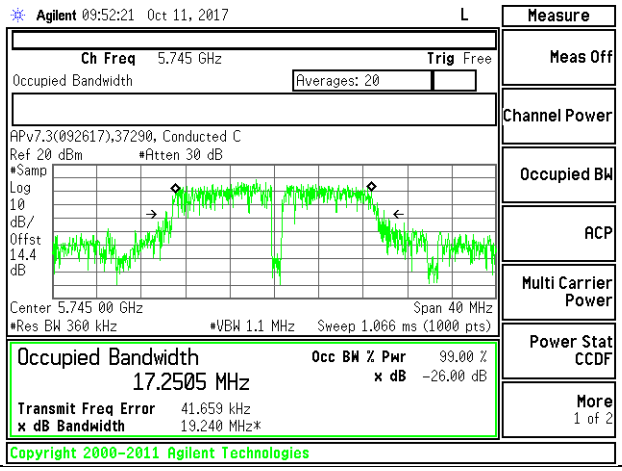
6.3.4. 802.11n HT20 MODE IN THE 5.8 GHz BAND

4TX CDD MODE

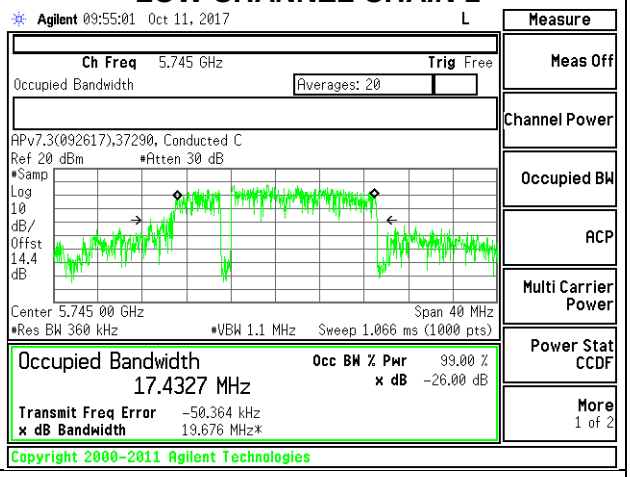
Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)	99% Bandwidth Chain 2 (MHz)	99% Bandwidth Chain 3 (MHz)
Low	5745	17.2505	17.4327	**17.5259**	17.2641
Mid	5785	17.3008	17.3438	17.4074	17.3632
High	5825	17.2965	17.3807	17.2661	17.4440

LOW CHANNEL

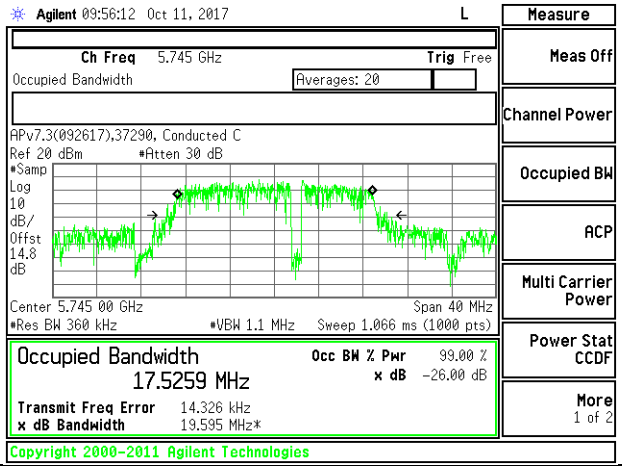
LOW CHANNEL CHAIN 0



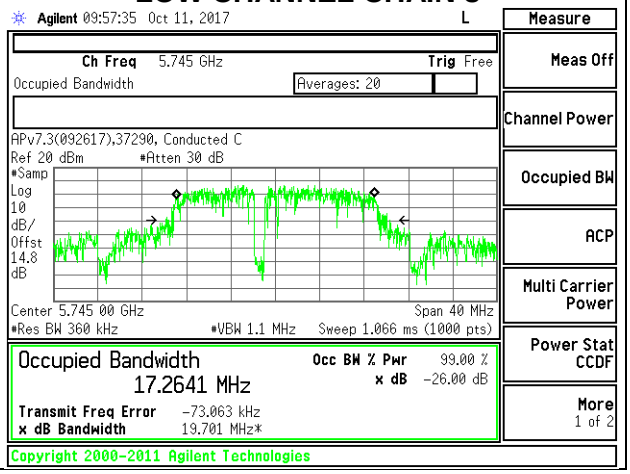
LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2

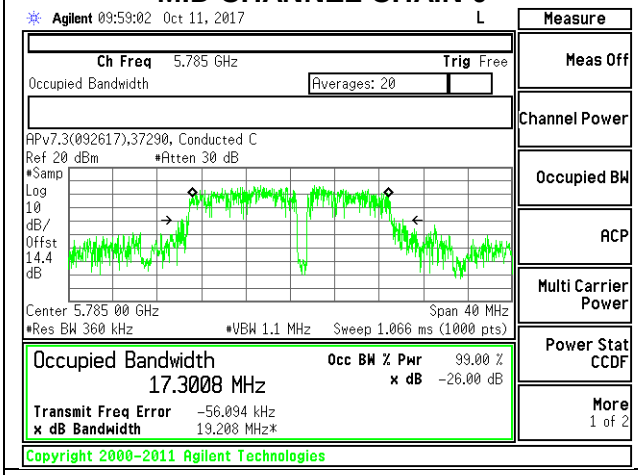


LOW CHANNEL CHAIN 3

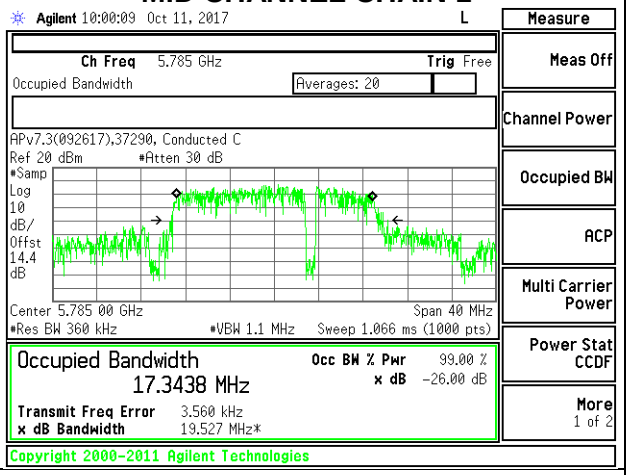


MID CHANNEL

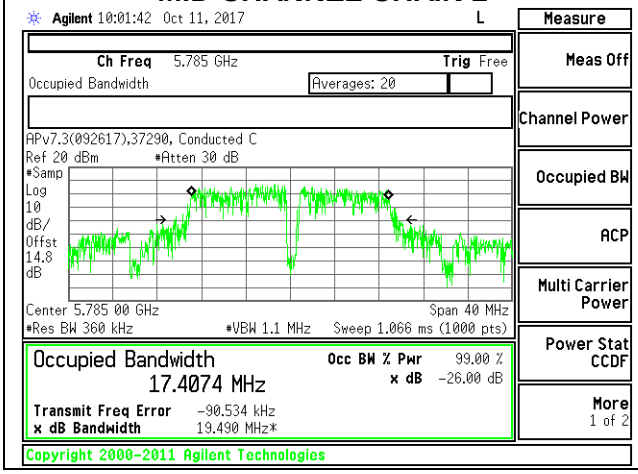
MID CHANNEL CHAIN 0



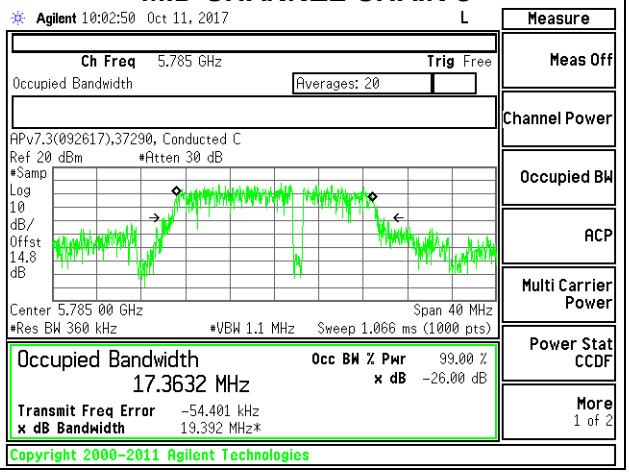
MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2

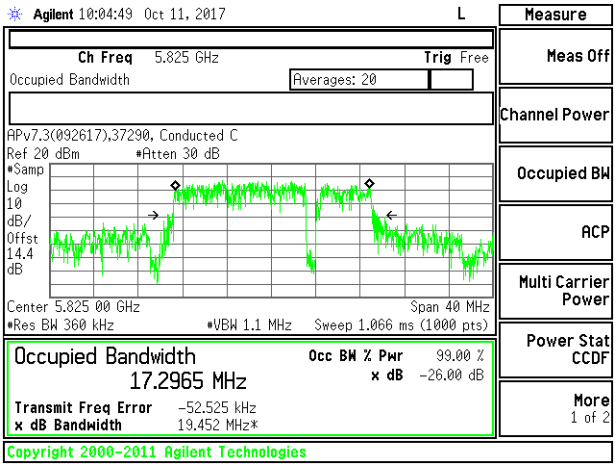


MID CHANNEL CHAIN 3

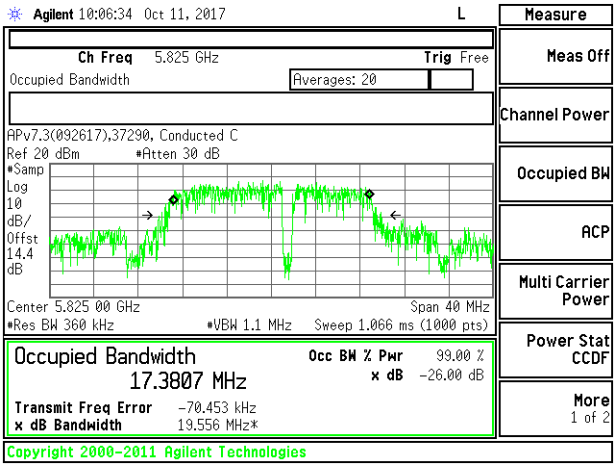


HIGH CHANNEL

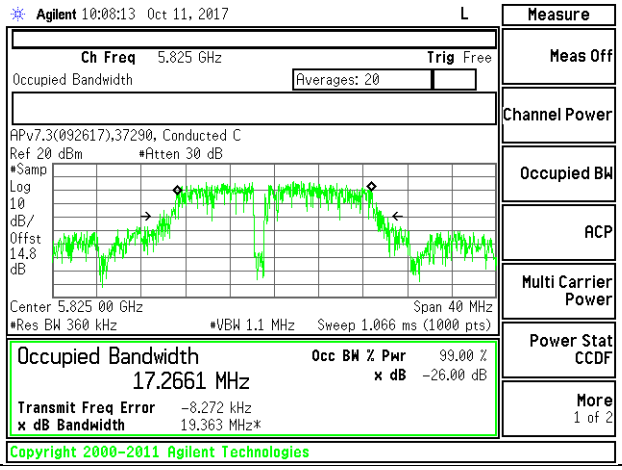
HIGH CHANNEL CHAIN 0



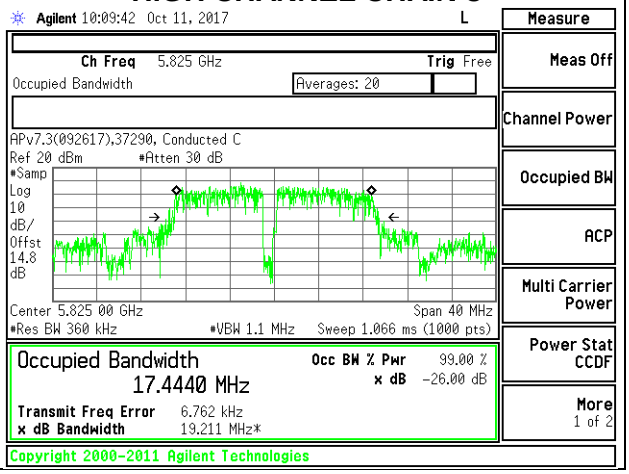
HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3



6.4. 6 dB BANDWIDTH

LIMITS

FCC §15.407

IC RSS-247 (6.2.4)

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

RESULTS

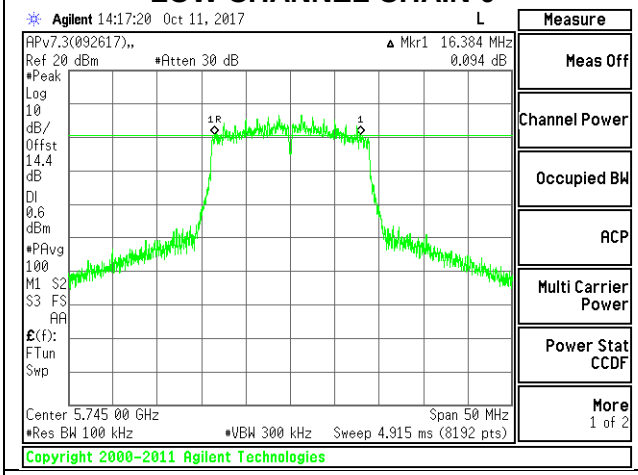
6.4.1. 802.11n HT20 MODE IN THE 5.8 GHz BAND

4TX CDD MODE

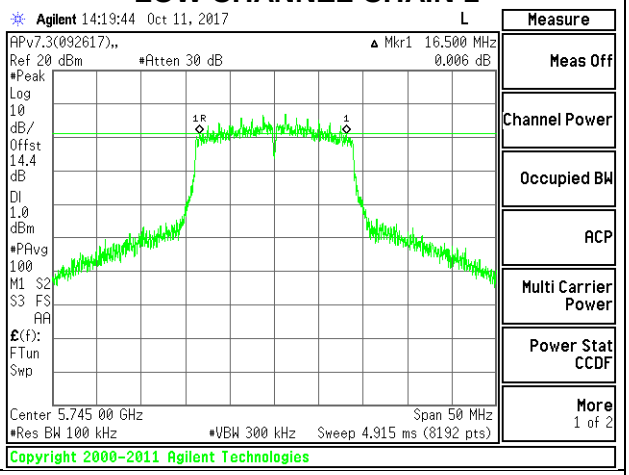
Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	6 dB BW Chain 2 (MHz)	6 dB BW Chain 3 (MHz)	Minimum Limit (MHz)
Low	5745	16.3840	16.5000	16.3290	16.5970	0.5
Mid	5785	16.0790	16.5550	16.3410	**16.7500**	0.5
High	5825	15.6270	15.1140	16.6520	16.6280	0.5

LOW CHANNEL

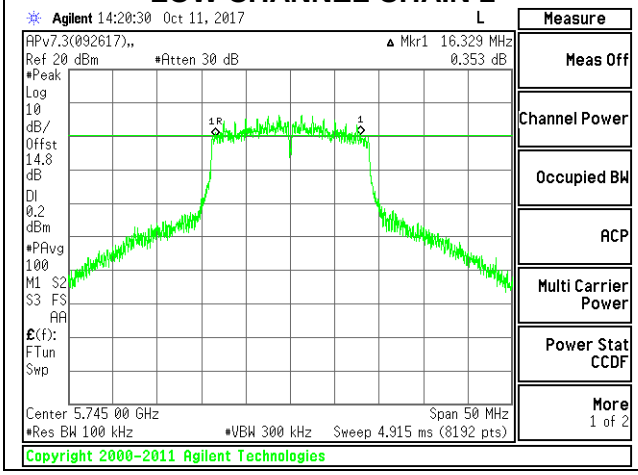
LOW CHANNEL CHAIN 0



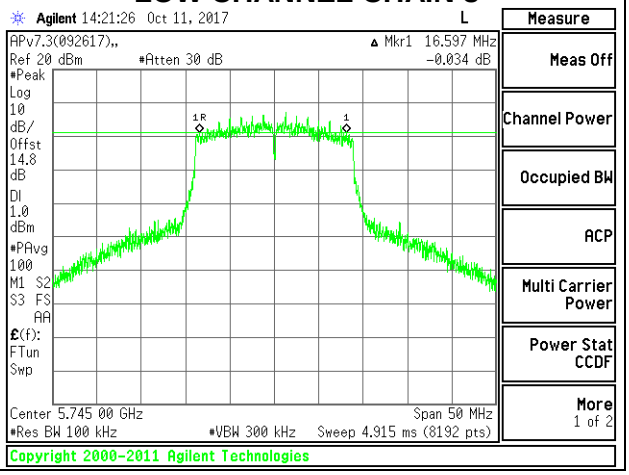
LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2

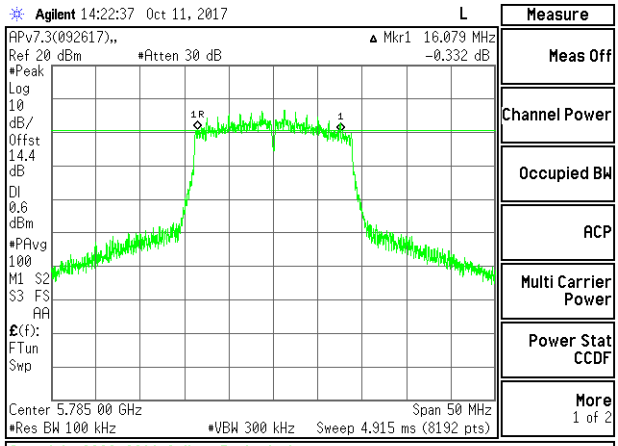


LOW CHANNEL CHAIN 3

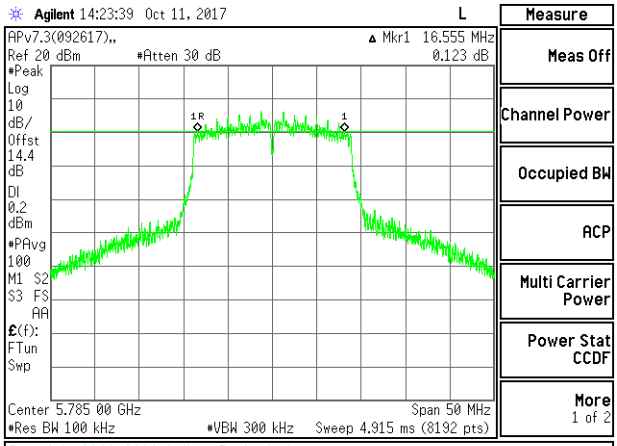


MID CHANNEL

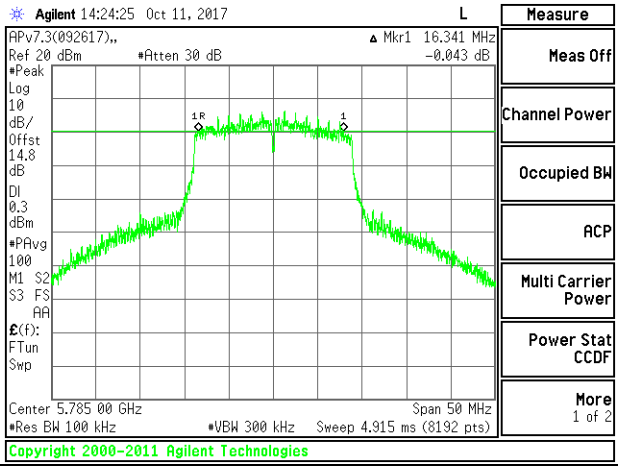
MID CHANNEL CHAIN 0



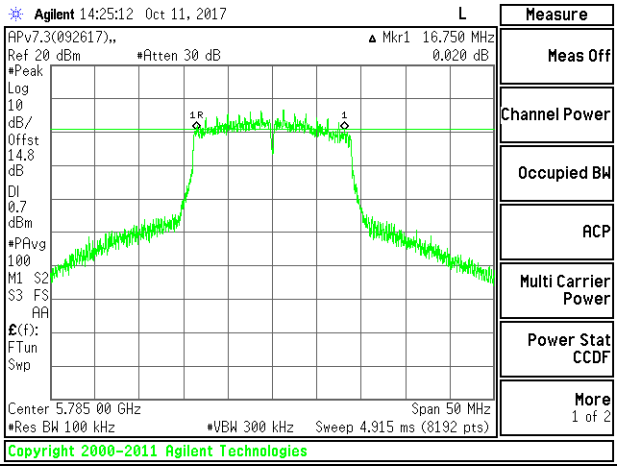
MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2

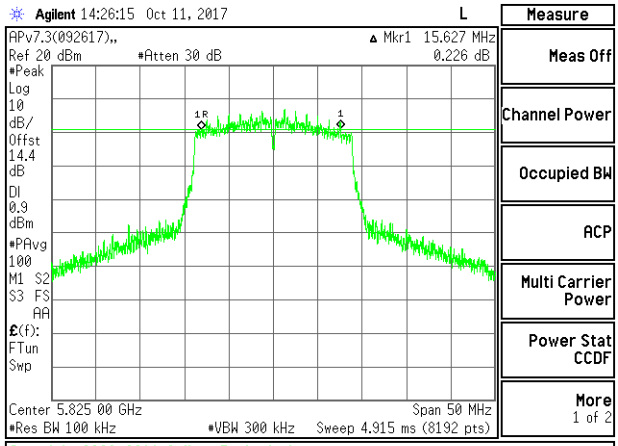


MID CHANNEL CHAIN 3

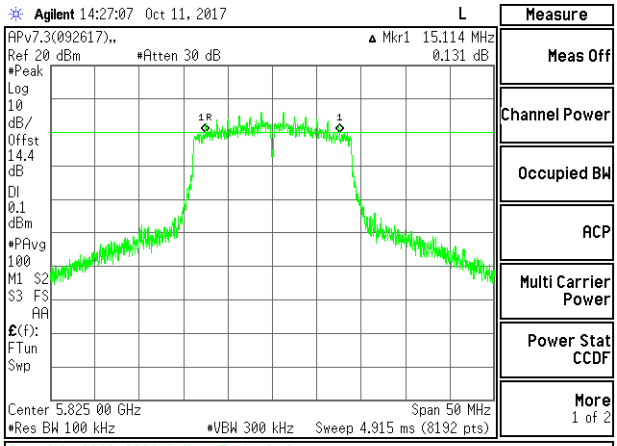


HIGH CHANNEL

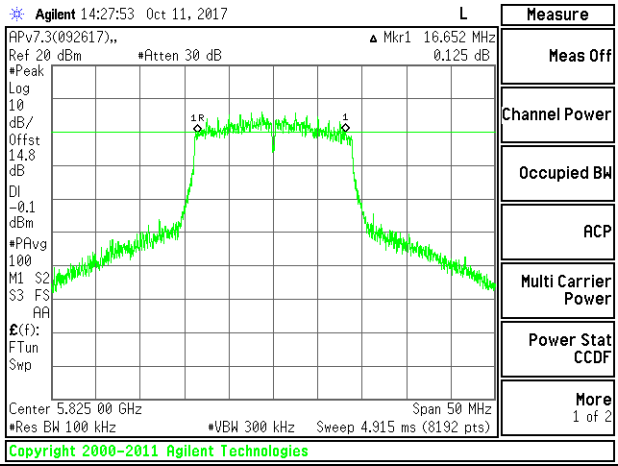
HIGH CHANNEL CHAIN 0



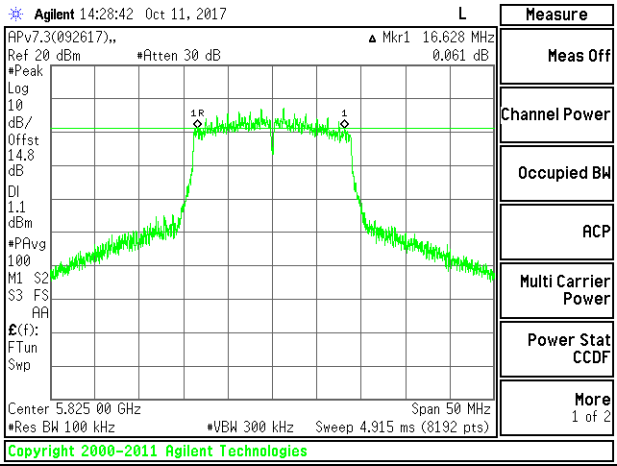
HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3



6.5. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (1)

(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.

Cross-polarized antennas. For a system in which the antennas have fixed orientations relative to one another that ensure that the antennas are cross-polarized regardless of any user actions, the directional gain is computed as follows.
(i) Cross-polarized antennas with NANT = 2. In the case of a transmitter with only two outputs driving a pair of antennas that are cross-polarized (e.g., vertical and horizontal or left-circular and right-circular), directional gain is the gain of an individual antenna. If the two antennas have different gains, the larger gain applies.

IC RSS-247 6.2.1(1)

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

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 peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-247 6.2.2 (1)

The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, 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 $\log_{10}$B, 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.

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 $\log_{10}$B, 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 $\log_{10}$B, 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.

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.

ANTENNA GAIN

Tx chains are uncorrelated for power and correlated for PSD due to the device supporting CDD in all MIMO modes. The directional gains are as follows:

Horizontal Polarity (Worst Case)

Band (GHz)	Chain 0 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
5.2	4.20	2.38	3.38	6.35
5.3	4.37	2.72	3.62	6.59
5.6	3.57	3.49	3.53	6.54
5.8	1.92	4.05	3.11	6.06

Vertical Polarity

Band (GHz)	Chain 1 Antenna Gain (dBi)	Chain 3 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
5.2	4.33	1.67	3.20	6.11
5.3	3.98	2.29	3.22	6.19
5.6	3.4	2.92	3.17	6.17
5.8	2.49	1.97	2.24	5.24

RESULTS

6.5.1. 802.11n HT20 MODE IN THE 5.2 GHz BAND

4TX CDD MODE (FCC+IC)

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)	Power Limit (dBi)	PSD Limit (dBi)
Low	5180	17.22	3.38	6.35	24.00	10.46
Mid	5200	17.29	3.38	6.35	24.00	10.46
High	5240	17.26	3.38	6.35	24.00	10.46

Duty Cycle CF (dB)	0.33	Included in Calculations of Corr'd Power & PPSD

Output Power Results

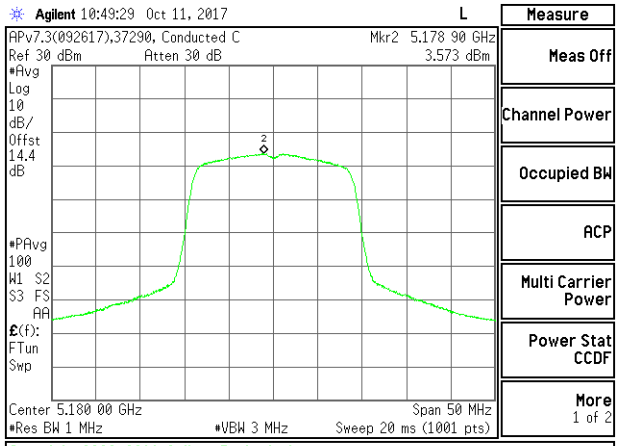
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Chain 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	13.58	13.41	14.04	13.81	**20.07**	24.00	-3.93
Mid	5200	13.42	13.32	13.95	13.66	19.94	24.00	-4.06
High	5240	13.14	13.33	14.10	13.23	19.82	24.00	-4.18

PPSD Results

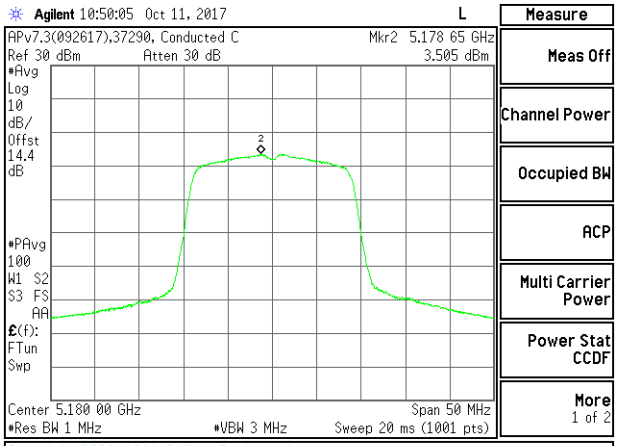
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Chain 3 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	3.57	3.51	4.31	3.95	10.20	10.46	-0.26
Mid	5200	3.68	3.52	4.36	3.94	**10.24**	10.46	-0.22
High	5240	3.57	3.46	4.06	3.75	10.07	10.46	-0.39

LOW CHANNEL

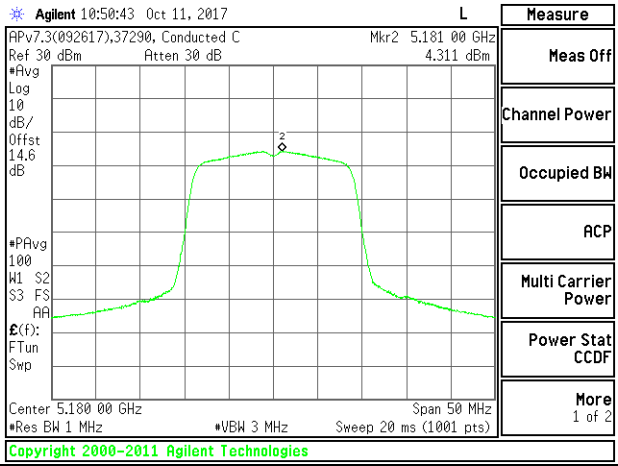
LOW CHANNEL CHAIN 0



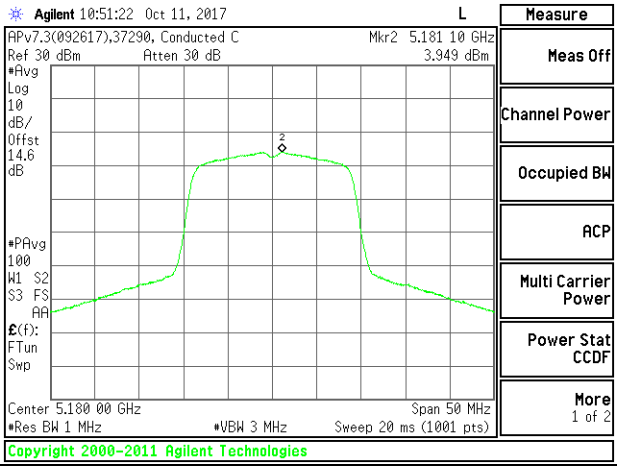
LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2

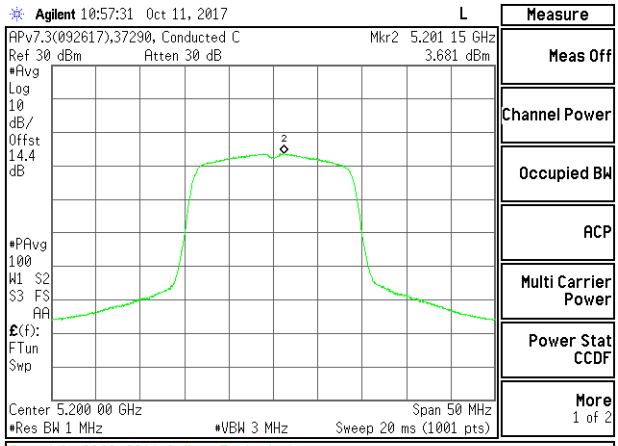


LOW CHANNEL CHAIN 3

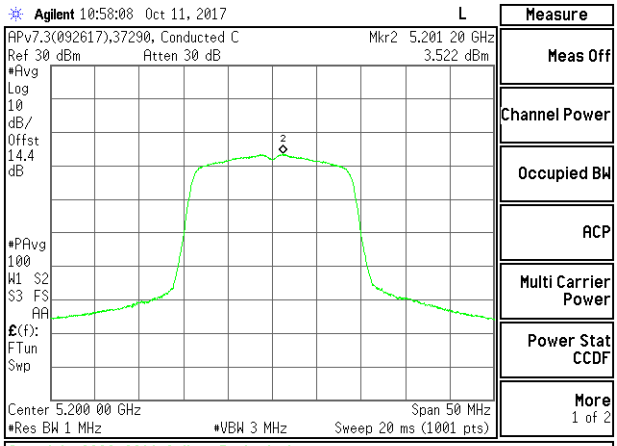


MID CHANNEL

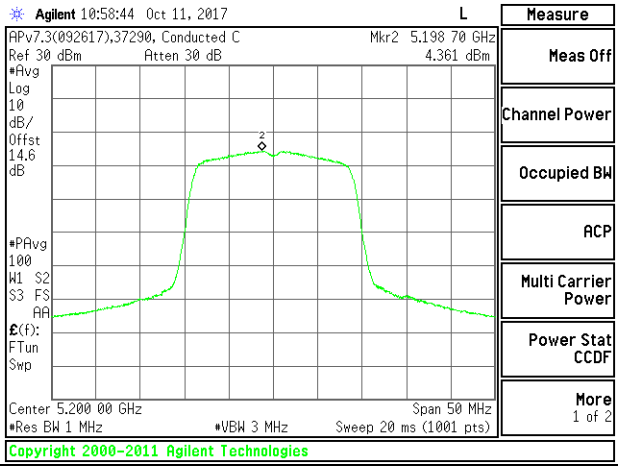
MID CHANNEL CHAIN 0



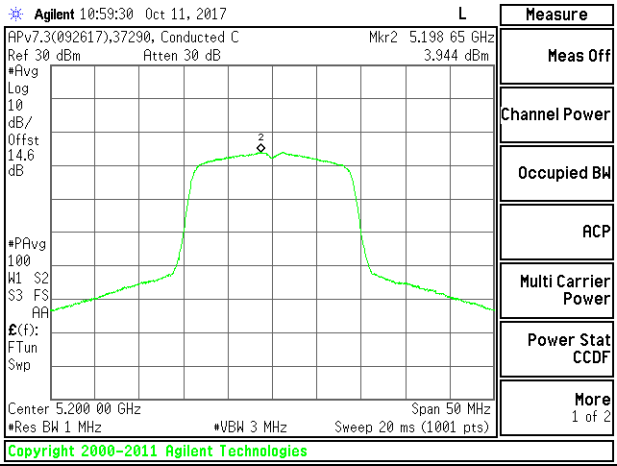
MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2

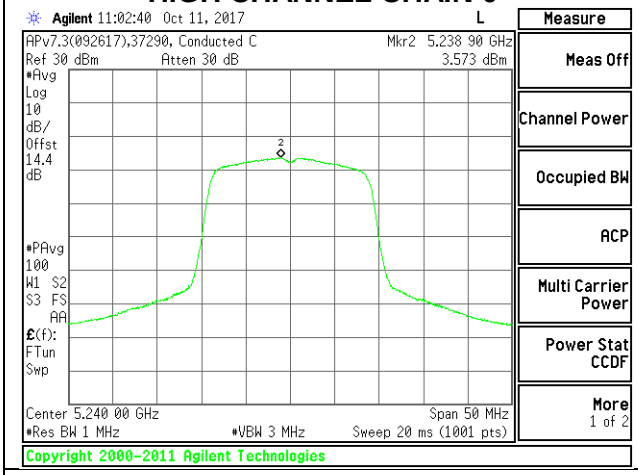


MID CHANNEL CHAIN 3

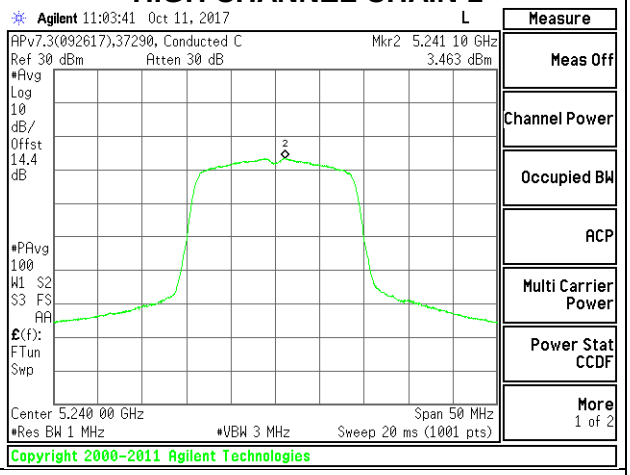


HIGH CHANNEL

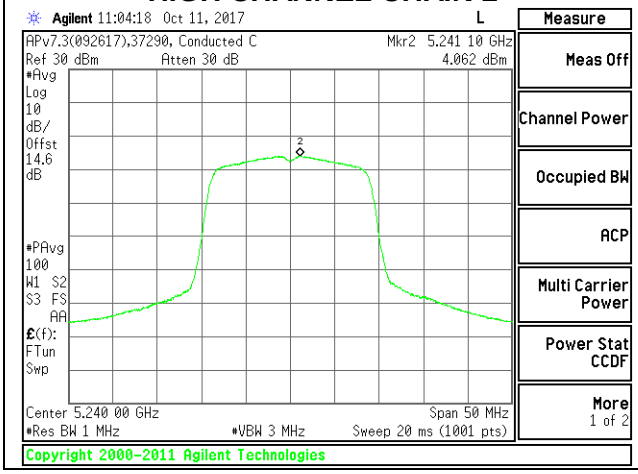
HIGH CHANNEL CHAIN 0



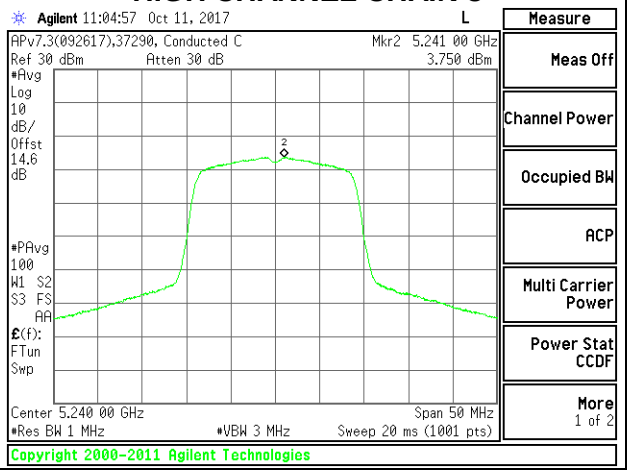
HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3



6.5.2. 802.11n HT20 MODE IN THE 5.3 GHz BAND

4TX CDD MODE (FCC+IC)

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)	Power Limit (dBi)	PSD Limit (dBi)
Low	5260	20.50	17.15	3.62	6.59	23.34	10.46
Mid	5300	20.55	17.08	3.62	6.59	23.33	10.46
High	5320	20.50	17.20	3.62	6.59	23.36	10.46

Duty Cycle CF (dB)	0.33	Included in Calculations of Corr'd Power & PPSD

Output Power Results

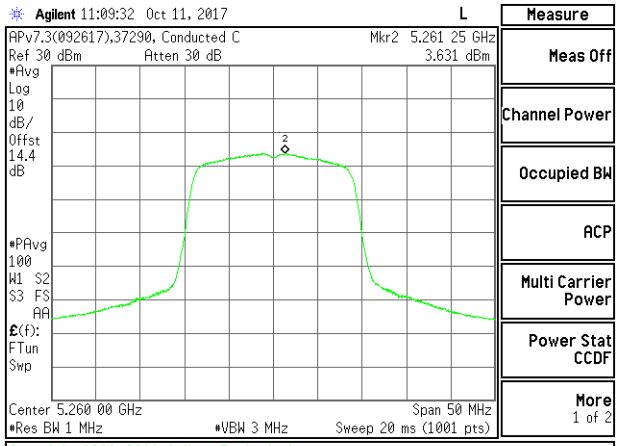
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Chain 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	13.15	13.41	14.37	13.24	**19.92**	23.34	-3.42
Mid	5300	12.85	13.11	14.00	13.06	19.63	23.33	-3.70
High	5320	11.12	11.59	11.41	11.02	17.64	23.36	-5.72

PPSD Results

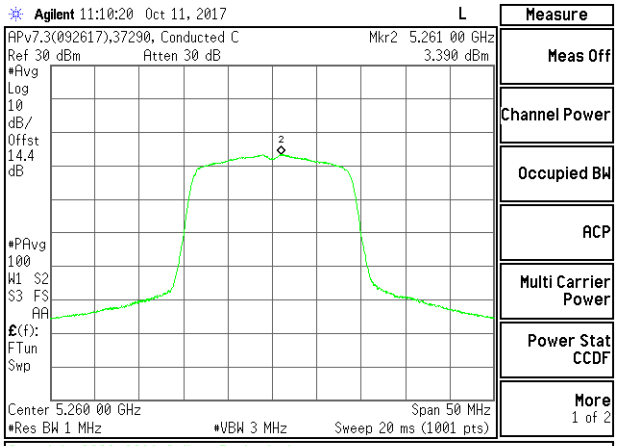
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Chain 2 Meas PPSD (dBm)	Chain 3 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	3.63	3.39	4.13	3.61	10.05	10.46	-0.41
Mid	5300	3.27	3.58	4.33	3.85	**10.13**	10.46	-0.33
High	5320	3.27	3.63	4.23	3.94	10.13	10.46	-0.33

LOW CHANNEL

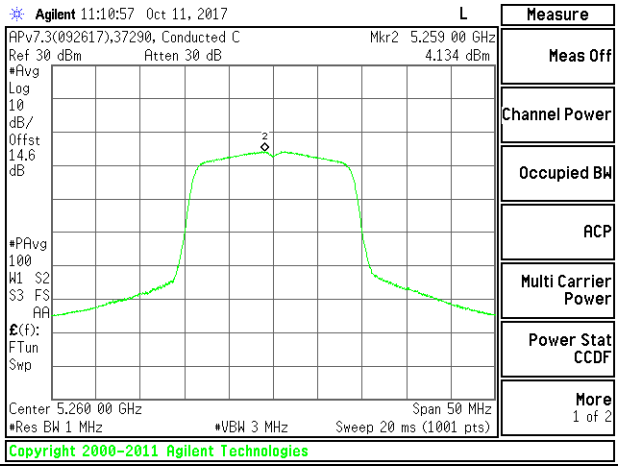
LOW CHANNEL CHAIN 0



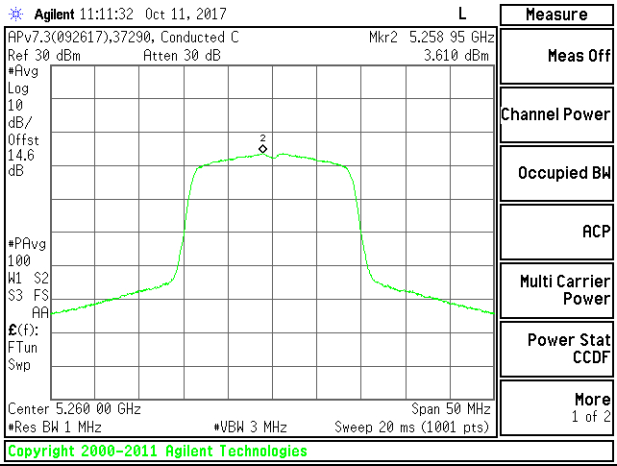
LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2

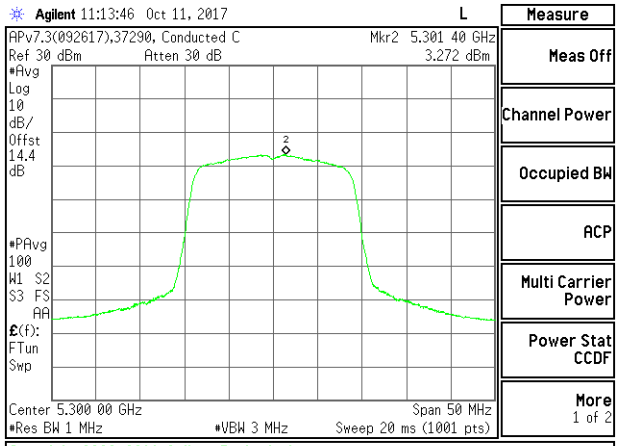


LOW CHANNEL CHAIN 3

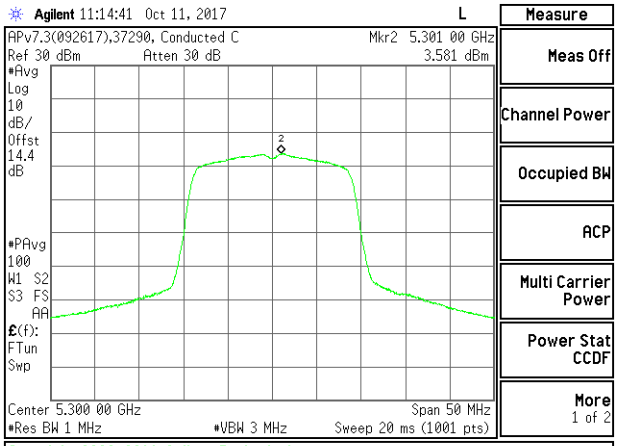


MID CHANNEL

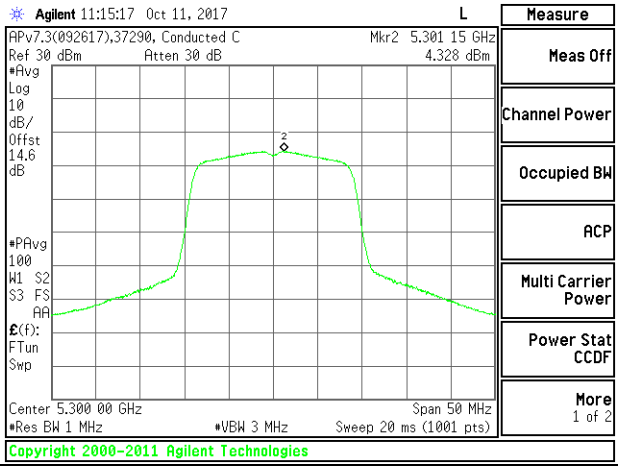
MID CHANNEL CHAIN 0



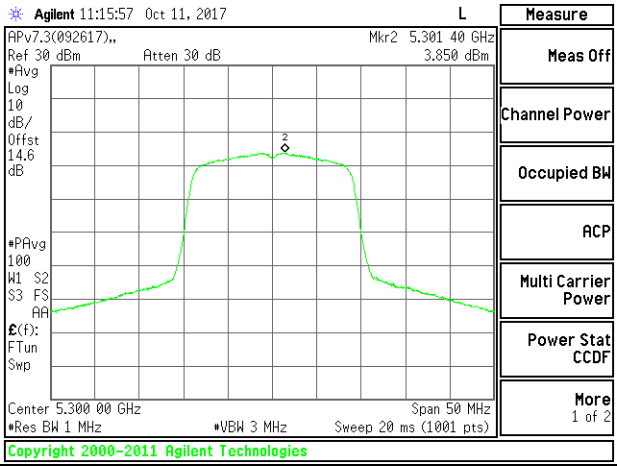
MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2

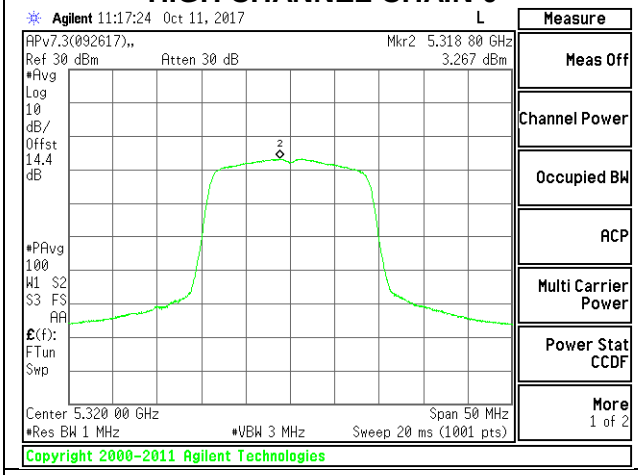


MID CHANNEL CHAIN 3

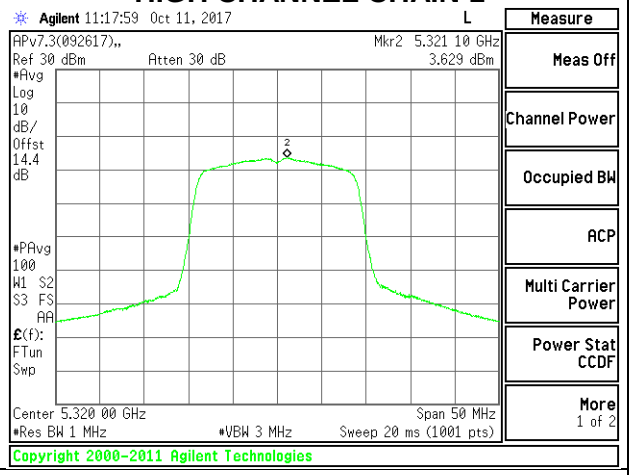


HIGH CHANNEL

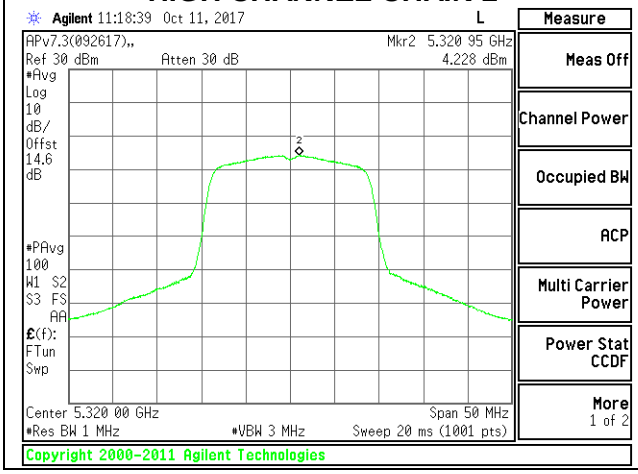
HIGH CHANNEL CHAIN 0



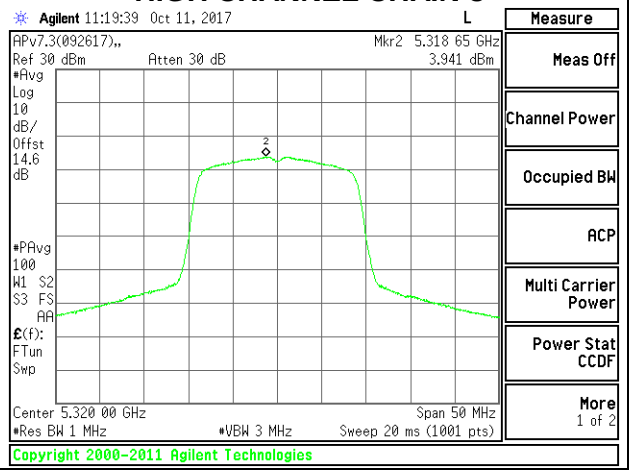
HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3



6.5.3. 802.11n HT20 MODE IN THE 5.6 GHz BAND

4TX CDD MODE (FCC+IC)

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBi)	PSD Limit (dBi)
Low	5500	20.35	17.11	3.53	6.54	23.33	10.46
Mid	5580	20.30	17.20	3.53	6.54	23.35	10.46
High	5700	20.55	17.29	3.53	6.54	23.38	10.46

Duty Cycle CF (dB)	0.33	Included in Calculations of Corr'd Power & PSD

Output Power Results

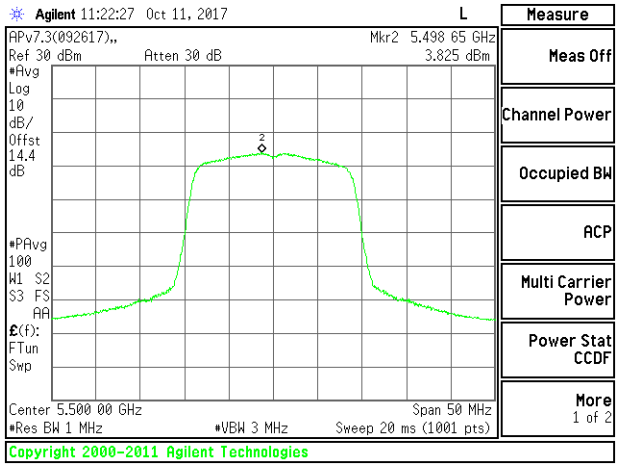
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Chain 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	12.94	12.84	13.42	12.83	19.36	23.33	-3.97
Mid	5580	13.45	12.98	13.86	13.22	**19.74**	23.35	-3.61
High	5700	13.01	12.43	13.08	13.15	19.28	23.38	-4.10

PSD Results

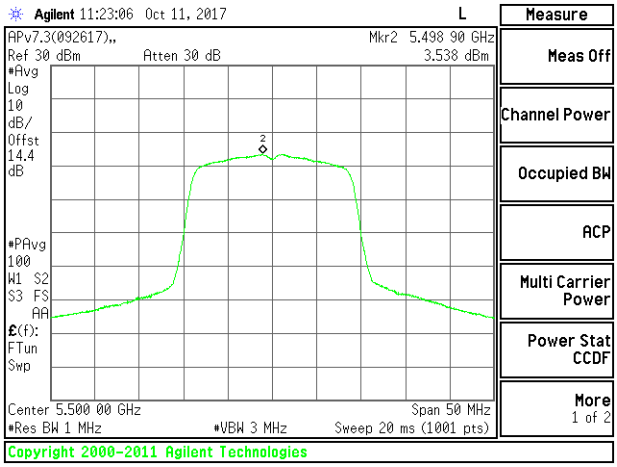
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Chain 2 Meas PSD (dBm)	Chain 3 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5500	3.83	3.54	3.68	3.45	9.97	10.46	-0.49
Mid	5580	3.67	3.41	4.01	4.00	**10.13**	10.46	-0.33
High	5700	3.04	3.20	3.62	4.29	9.92	10.46	-0.54

LOW CHANNEL

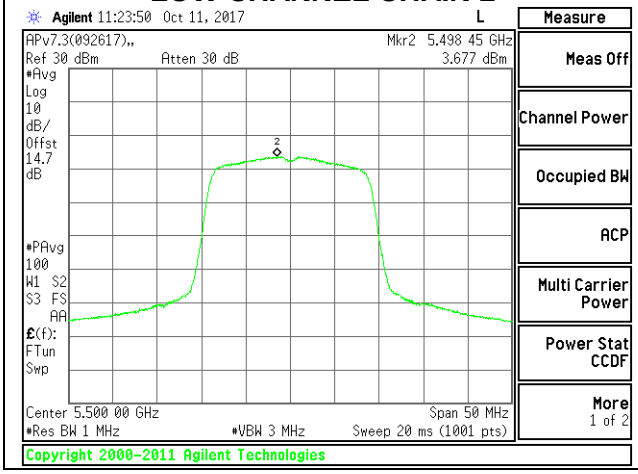
LOW CHANNEL CHAIN 0



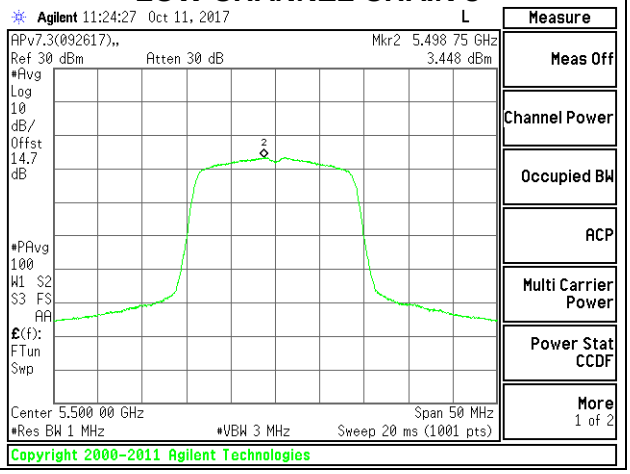
LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2

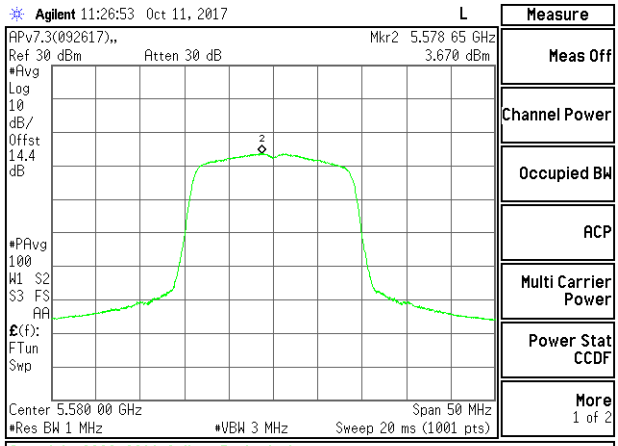


LOW CHANNEL CHAIN 3

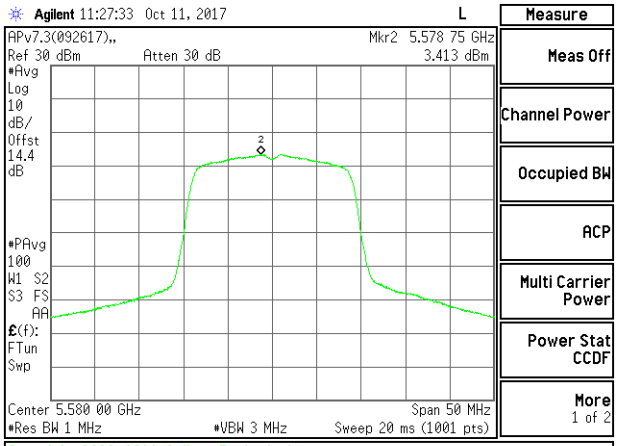


MID CHANNEL

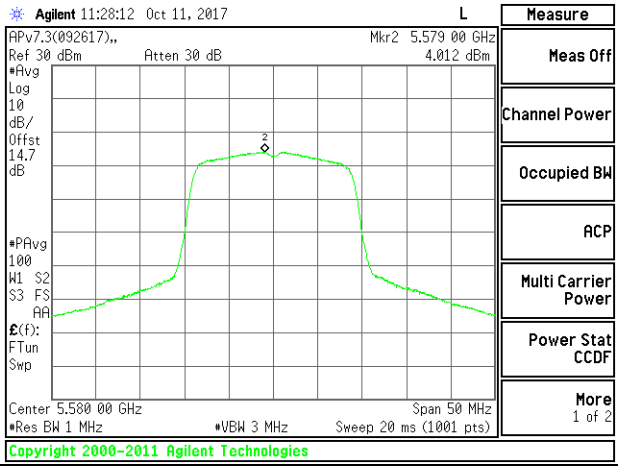
MID CHANNEL CHAIN 0



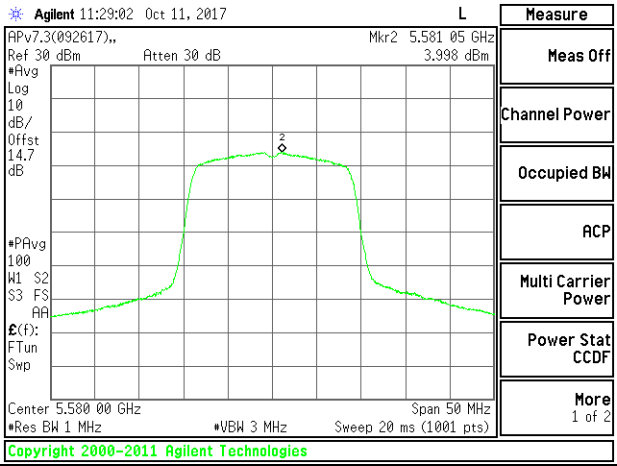
MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2

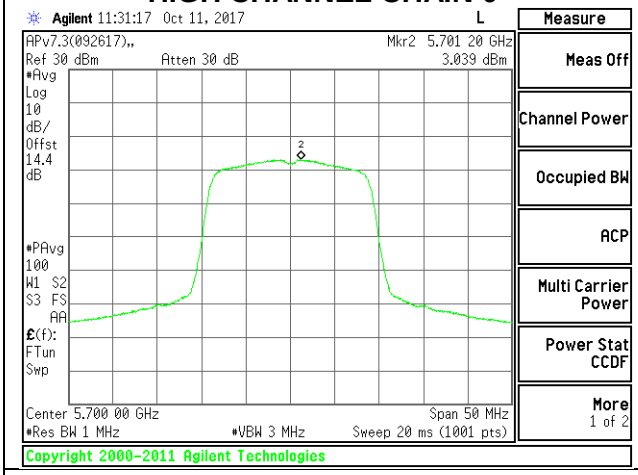


MID CHANNEL CHAIN 3

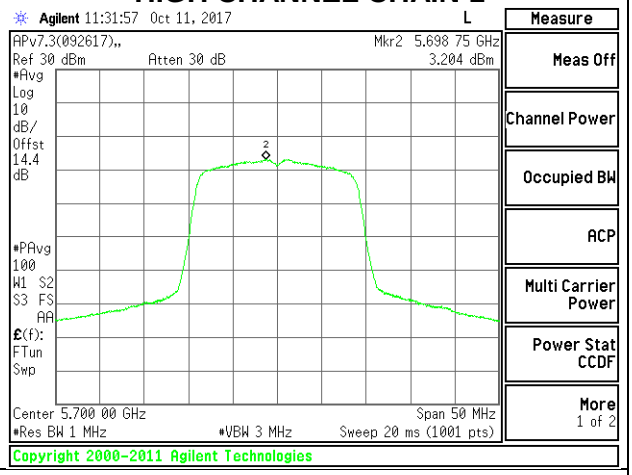


HIGH CHANNEL

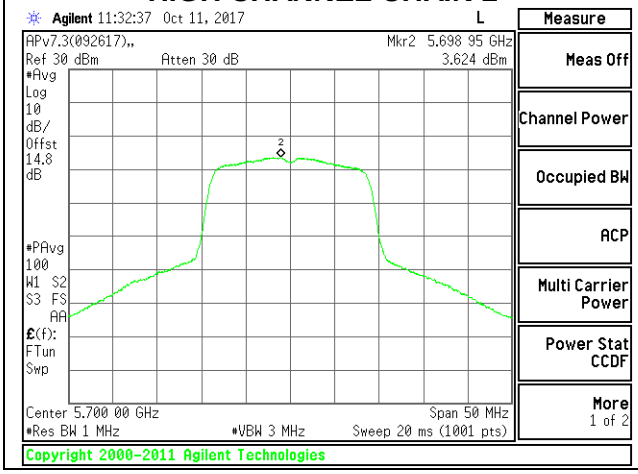
HIGH CHANNEL CHAIN 0



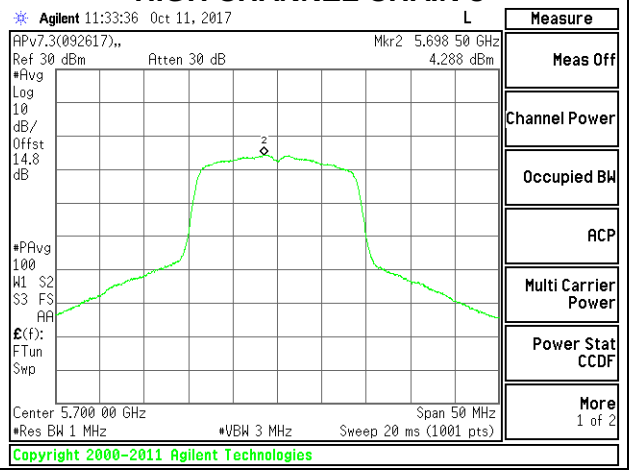
HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3



6.5.4. 802.11n HT20 MODE IN THE 5.8 GHz BAND

4TX CDD MODE (FCC+IC)

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBm)	FCC/IC Power Limit (dBm)	FCC/IC PSD Limit (dBm)
Low	5745	3.11	6.06	30.00	29.94
Mid	5785	3.11	6.06	30.00	29.94
High	5825	3.11	6.06	30.00	29.94

Duty Cycle CF (dB)	0.33	Included in Calculations of Corr'd Power & PSD

Output Power Results

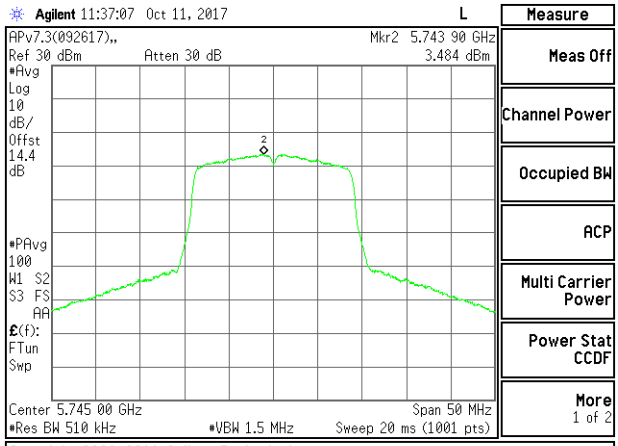
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Chain 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	15.23	15.11	15.34	15.23	20.29	30.00	-9.71
Mid	5785	15.25	15.00	15.14	15.23	20.26	30.00	-9.74
High	5825	15.92	14.44	15.17	15.23	**20.34**	30.00	-9.66

PSD Results

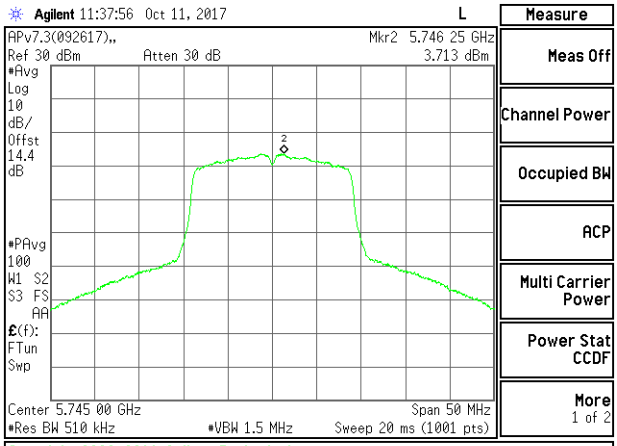
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Chain 2 Meas PSD (dBm)	Chain 3 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5745	3.48	3.71	3.25	3.69	**8.73**	29.94	-21.21
Mid	5785	3.09	3.05	2.80	3.24	8.23	29.94	-21.71
High	5825	3.42	2.73	2.86	3.70	8.40	29.94	-21.54

LOW CHANNEL

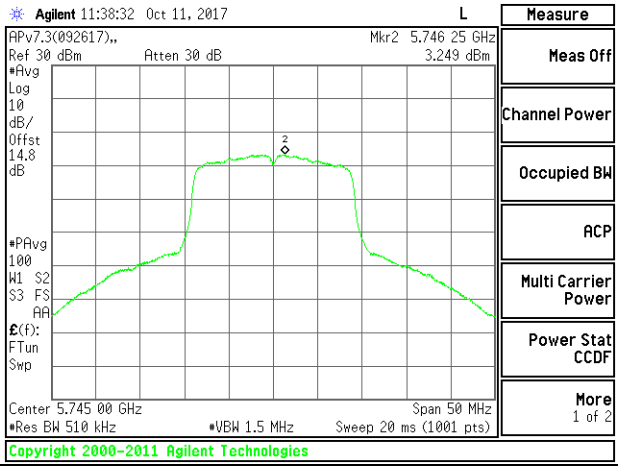
LOW CHANNEL CHAIN 0



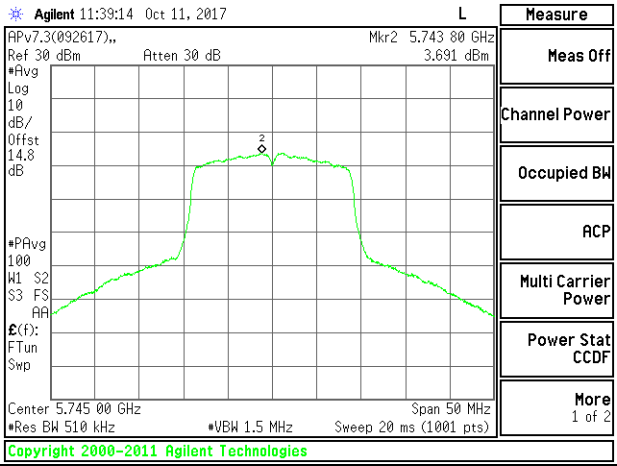
LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2

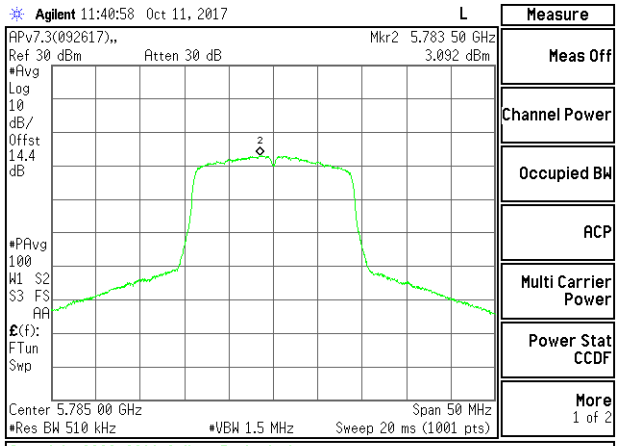


LOW CHANNEL CHAIN 3

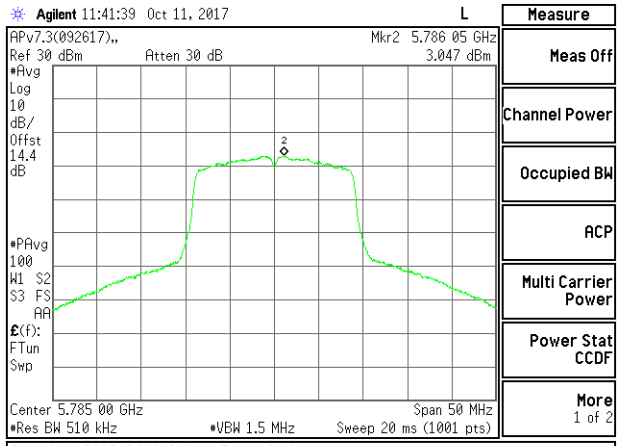


MID CHANNEL

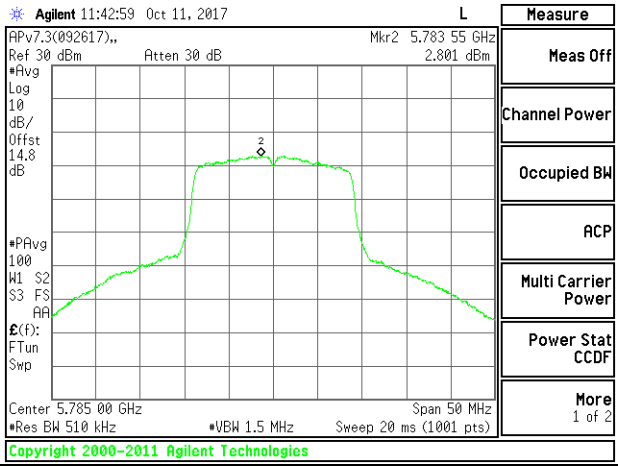
MID CHANNEL CHAIN 0



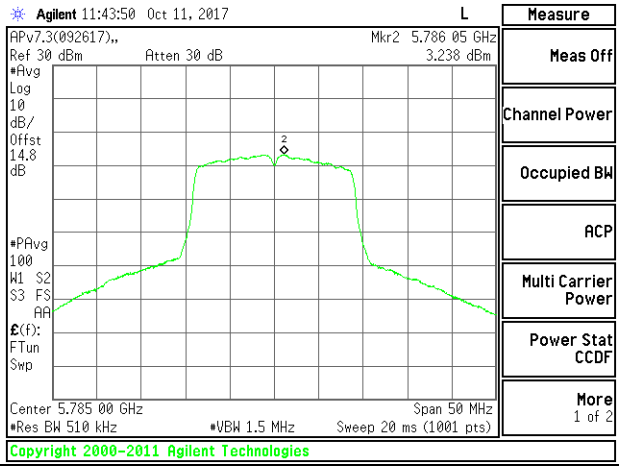
MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2

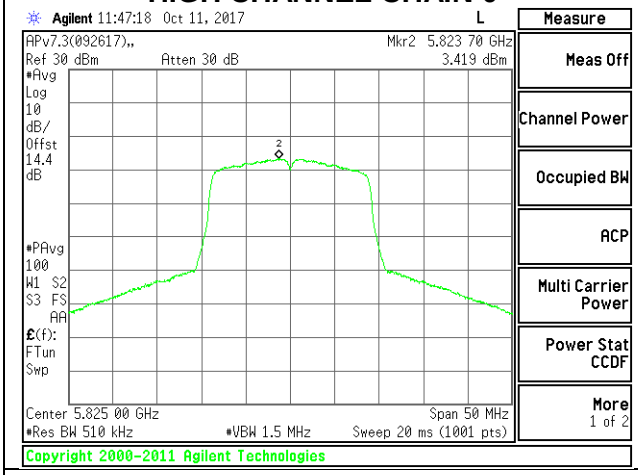


MID CHANNEL CHAIN 3

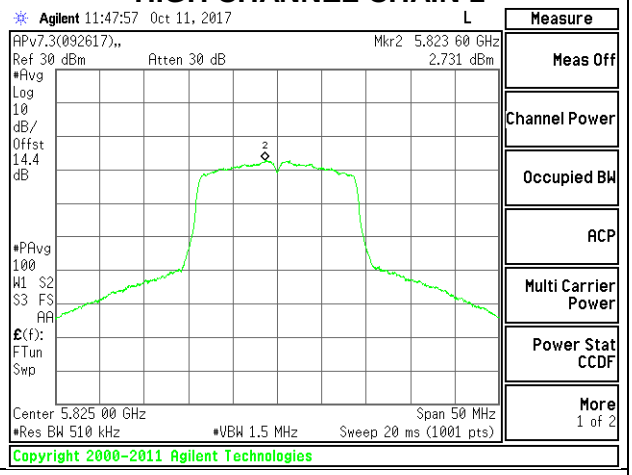


HIGH CHANNEL

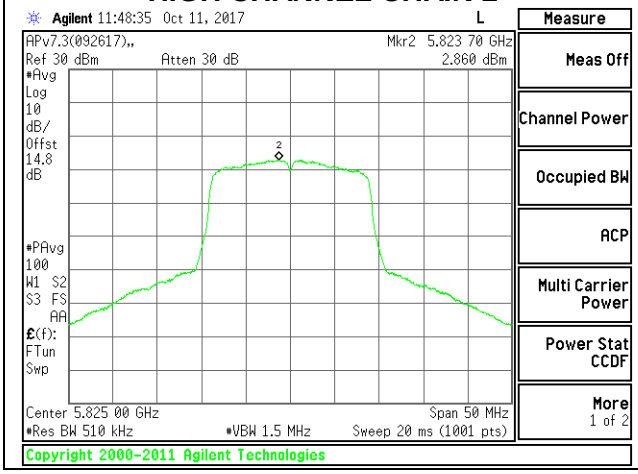
HIGH CHANNEL CHAIN 0



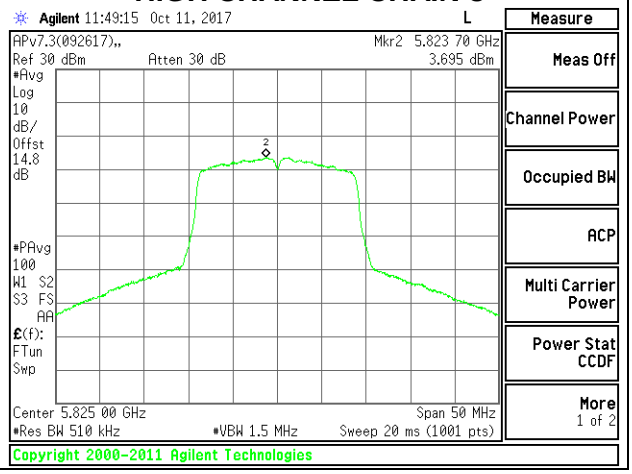
HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3



7. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

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) @ 300 m	-
0.490-1.705	2400/F(kHz) @ 30 m	-
1.705-30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below1GHz; 1.5m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a contionous mode.

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

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

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

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

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

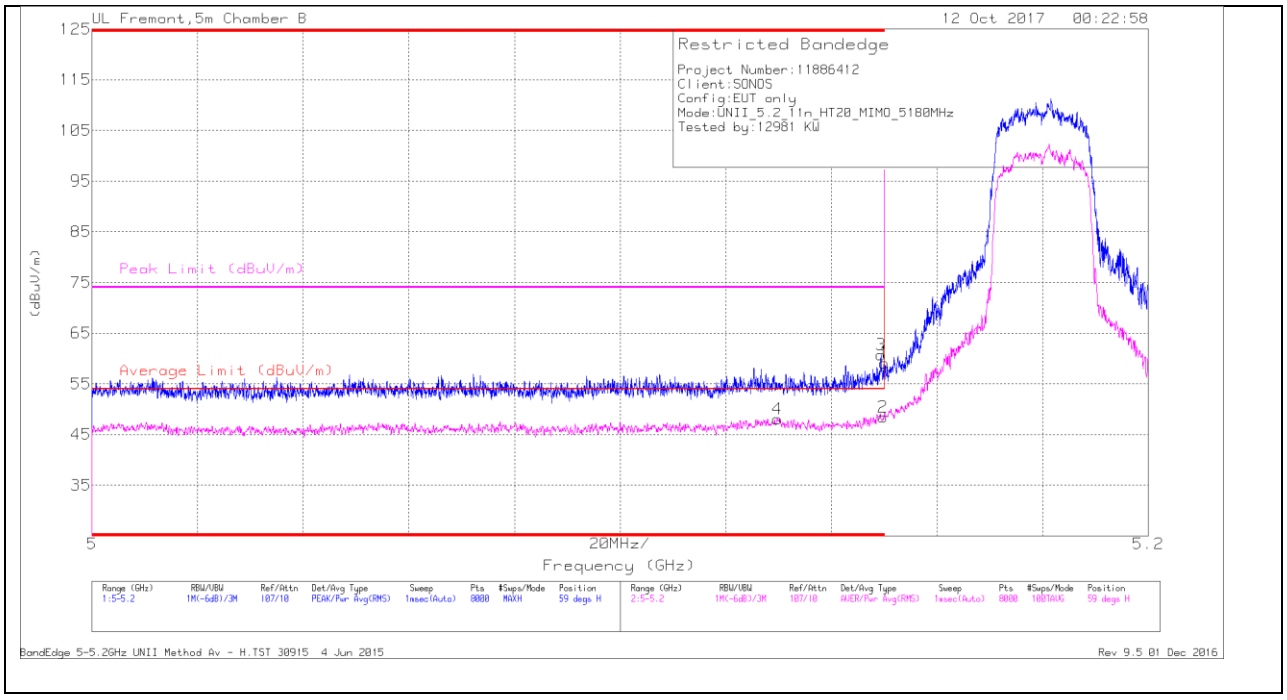
7.1. TRANSMITTER ABOVE 1 GHz

7.1.1. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.2 GHz BAND

4TX CDD MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	44.77	Pk	34.4	-20	0	59.17	-	-	74	-14.83	59	335	H
3	* 5.149	46.3	Pk	34.4	-20	0	60.7	-	-	74	-13.3	59	335	H
2	* 5.15	33.43	RMS	34.4	-20	.56	48.39	54	-5.61	-	-	59	335	H
4	* 5.13	32.4	RMS	34.4	-19.3	.56	48.06	54	-5.94	-	-	59	335	H

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