TEST REPORT

Report Number. : 13094578-E5V2

Applicant	:	Samsung Electronics Co., Ltd. 129 Samsung-Ro, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, 16677, Korea
Model	:	SM-N770F and SM-N770F/DS
FCC ID	:	A3LSMN770F
EUT Description	:	GSM/WCDMA/LTE Phablet with BT/BLE,DTS/UNII a/b/g/n/ac, NFC, ANT+ and WPT
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART E (EXCEPT DFS)

Date Of Issue:
November 26, 2019

Prepared by:
UL Verification Services Inc.
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NVLAP Lab code: 200065-0

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	11/19/2019	Initial Issue	
V2	11/26/2019	Updated Section 1, 2, 5.2, 8.4	Steven Tran

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Samsung Electronics Co., Ltd.
129 Samsung-Ro, Yeongtong-Gu,
Suwon-Si, Gyeonggi-Do, 16677, Korea

EUT DESCRIPTION: GSM/WCDMA/LTE Phablet with BT, DTS/UNII a/b/g/n/ac, NFC, ANT+ and WPT

MODEL: SM-N770F and SM-N770F/DS

SERIAL NUMBER: Conducted: R38MA039RER
Radiated: R38MA039SFP

DATE TESTED: November 01 to 13, 2019

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E (EXCEPT DFS)	Complies

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

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 the U.S. government.

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2. TEST METHODOLOGY

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 789033 D02 v02r01, ANSI C63.10-2013, FCC 06-96, and KDB 414788 D01 Radiated Test Site v01r01

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, and 47658 Kato Road, 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	47658 Kato Rd
☐ Chamber A	☐ Chamber D	☒ Chamber I
☐ Chamber B	☐ Chamber E	☒ Chamber J
☐ Chamber C	☐ Chamber F	☒ Chamber K
	☐ Chamber G	☐ Chamber L
	☐ Chamber H	☐ Chamber M

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers above are covered under Industry Canada company address and respective code: 2324A.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0

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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

RADIATED EMISSIONS

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

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:
Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.
36.5 dBuV + 0 dB +10.1 dB+ 0 dB = 46.6 dBuV

4.3. MEASUREMENT UNCERTAINTY

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	2.52 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	4.88 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.24 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.37 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.17 dB

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

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5. EQUIPMENT UNDER TEST

5.1. EUT DESCRIPTION

GSM/WCDMA/LTE Phablet with BT, DTS/UNII a/b/g/n/ac, NFC, ANT+ and WPT. The model SM-N770F was used for final testing and is representative of the test results in this report.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

5.2 GHz BAND

Frequency Range (MHz)	Mode	Chain 0 Output Power (dBm)	Chain 0 Output Power (mW)	Chain 1 Output Power (dBm)	Chain 1 Output Power (mW)
5.2 GHz band, 1TX					
5180-5240	802.11a	15.28	33.73	16.44	44.06
5180-5240	802.11n HT20	15.32	34.04	16.58	45.50
5190-5230	802.11n HT40	14.01	25.18	15.45	35.08
5210	802.11ac VHT80	12.82	19.14	14.20	26.30

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.2 GHz band, 2TX			
5180-5240	802.11a CDD	19.14	82.04
5180-5240	802.11n HT20 CDD	19.05	80.35
5190-5230	802.11n HT40 CDD	17.95	62.37
5210	802.11ac VHT80 CDD	16.77	47.53

5.3 GHz BAND

Frequency Range (MHz)	Mode	Chain 0 Output Power (dBm)	Chain 0 Output Power (mW)	Chain 1 Output Power (dBm)	Chain 1 Output Power (mW)
5.3 GHz band, 1TX					
5260-5320	802.11a	15.60	36.31	16.29	42.56
5260-5320	802.11n HT20	15.45	35.08	16.32	42.85
5270-5310	802.11n HT40	14.47	27.99	15.47	35.24
5290	802.11ac VHT80	13.19	20.84	14.09	25.64

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.3 GHz band, 2TX			
5260 - 5320	802.11a CDD	19.08	80.91
5260 - 5320	802.11n HT20 CDD	19.09	81.10
5270 - 5310	802.11n HT40 CDD	18.13	65.01
5290	802.11ac VHT80 CDD	16.78	47.64

5.6 GHz BAND

Frequency Range (MHz)	Mode	Chain 0 Output Power (dBm)	Chain 0 Output Power (mW)	Chain 1 Output Power (dBm)	Chain 1 Output Power (mW)
5.6 GHz band, 1TX					
5500-5720	802.11a	16.05	40.27	16.31	42.76
5500-5720	802.11n HT20	15.97	39.54	16.25	42.17
5510-5710	802.11n HT40	15.31	33.96	15.54	35.81
5530-5690	802.11ac VHT80	14.22	26.42	14.13	25.88

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.6 GHz band, 2TX			
5500-5720	802.11a CDD	19.44	87.90
5500-5720	802.11n HT20 CDD	19.34	85.90
5510-5710	802.11n HT40 CDD	18.49	70.63
5530-5690	802.11ac VHT80 CDD	17.38	54.70

5.8 GHz BAND

Frequency Range (MHz)	Mode	Chain 0 Output Power (dBm)	Chain 0 Output Power (mW)	Chain 1 Output Power (dBm)	Chain 1 Output Power (mW)
5.8 GHz band, 1TX					
5745-5825	802.11a	16.39	43.55	16.34	43.05
5745-5825	802.11n HT20	16.42	43.85	16.32	42.85
5755-5795	802.11n HT40	15.52	35.65	15.13	32.58
5775	802.11ac VHT80	14.49	28.12	14.09	25.64

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.8 GHz band, 2TX			
5745-5825	802.11a CDD	19.58	90.78
5745-5825	802.11n HT20 CDD	19.50	89.13
5755-5795	802.11n HT40 CDD	18.43	69.66
5775	802.11ac VHT80 CDD	17.44	55.46

_The 11a SISO output power, chain 0 and chain 1, is lower or equal to 11a CDD. The 11a SISO is covered by the 11a CDD testing.
_The 11n HT20 SISO output power, chain 0 and chain 1, is lower or equal to 11n HT20 CDD. The 11n HT20 SISO is covered by the 11n HT20 CDD testing.
_The 11n HT40 SISO output power, chain 0 and chain 1, is lower or equal to 11n HT40 CDD. The 11n HT40 SISO is covered by the 11n HT40 CDD testing.
_The 11ac VHT80 SISO output power, chain 0 and chain 1, is lower or equal to 11ac VHT80 CDD. The 11ac VHT80 SISO is covered by the to 11ac VHT80 CDD testing.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an internal antenna, with a maximum gain as follows:

Frequency Range (MHz)	Chain 0 Peak Antenna Gain (dBi)	Chain 1 Peak Antenna Gain (dBi)
5180-5240	-7.02	-8.21
5260-5320	-7.58	-8.22
5500-5720	-7.11	-7.41
5745-5825	-6.05	-4.85

NOTE:
Antenna 1 = Chain 0 = WIFI1
Antenna 2 = Chain 1 = WIFI2

5.4. SOFTWARE AND FIRMWARE

The test utility software used during testing was N770F.001.

5.5. WORST-CASE CONFIGURATION AND MODE

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

Band edge and radiated emissions between 1GHz and 18GHz were performed with the EUT set to transmit at the highest power on low, middle and high channels.

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

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

802.11a mode: 6 Mbps
802.11n HT20mode: MCS0
802.11n HT40mode: MCS0
802.11ac VHT80 mode: MCS0

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Samsung	EP-TA800	R37M3531XX1SE3	N/A
Earphone	Samsung	N/A	N/A	N/A

I/O CABLES (CONDUCTED TEST)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Antenna	1	RF	Shielded	0.2	To spectrum Analyzer
2	USB	1	USB	Un-shielded	1	EUT to AC Mains

I/O CABLES (RADIATED AND CONDUCTED EMISSIONS)

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

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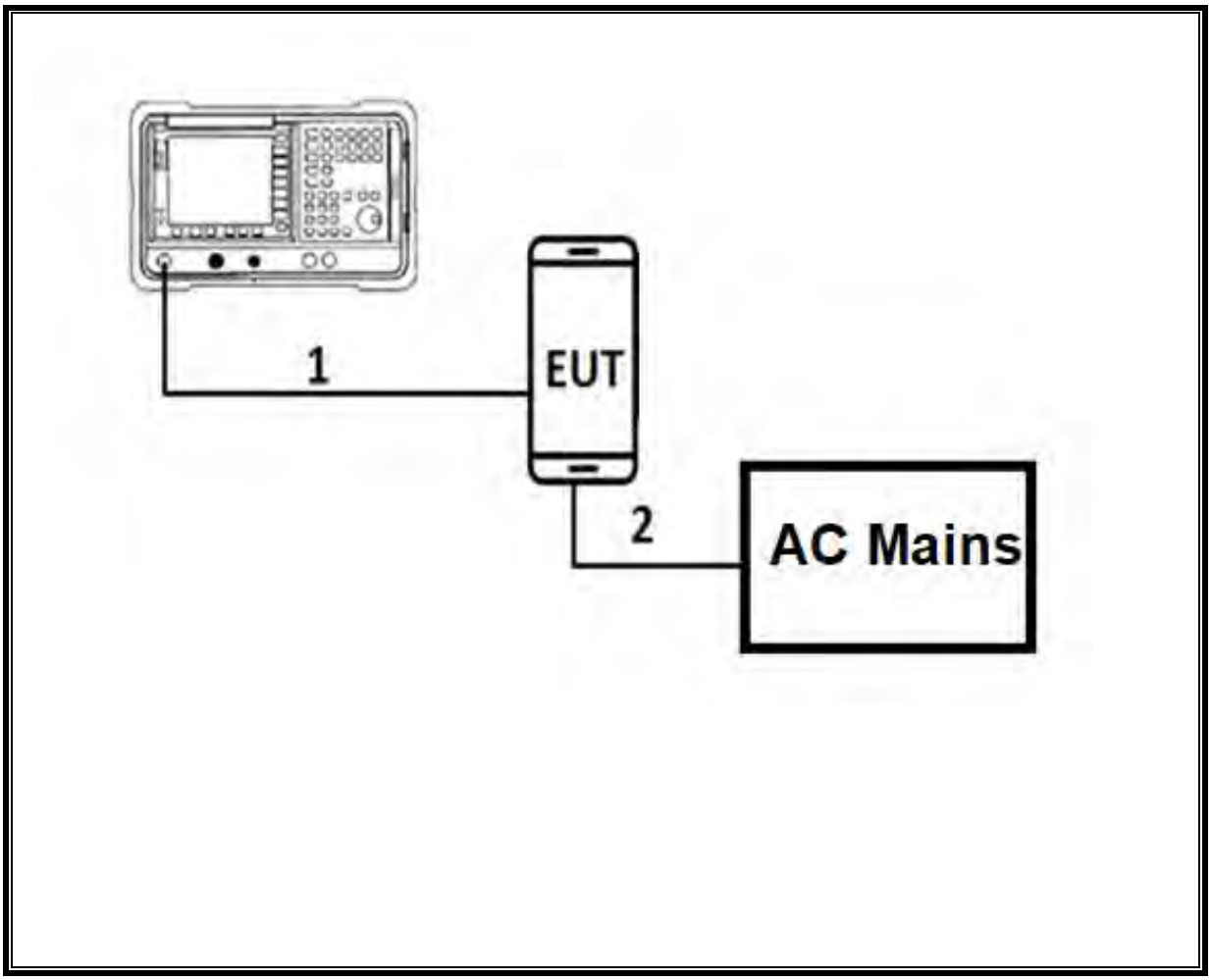
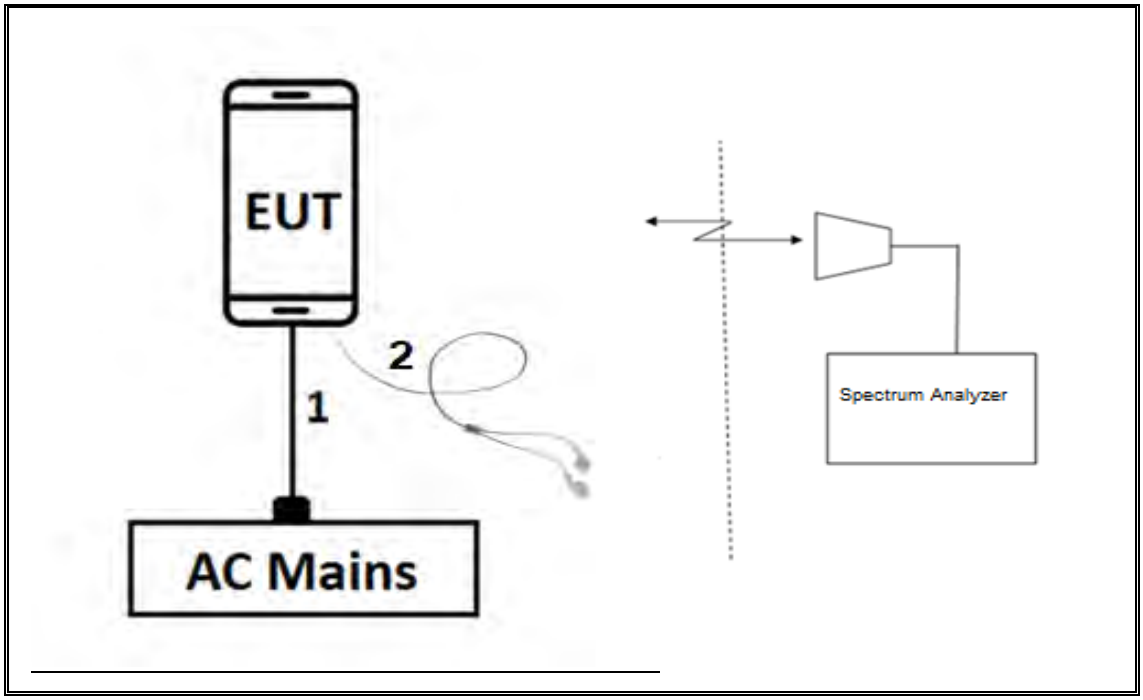
CONDUCTED TEST SETUP DIAGRAM



TEST SETUP

For conducted tests: the EUT was stand alone. The test software exercises the radio.

RADIATED AND AC LINE CONDUCTED EMISSIONS SETUP DIAGRAM



TEST SETUP

For radiated tests: EUT is connected to earphone. The test software exercises the radio.

6. MEASUREMENT METHOD

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

6 dB Emission BW: KDB 789033 D02 v02r01, Section II.C.2

26 dB Emission BW: KDB 789033 D02 v02r01, Section II.C.1

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

Power Spectral Density: KDB 789033 D02 v02r01, Section II.F

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

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

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

Radiated Spurious Emissions Below 30MHz: ANSI C63.10-2013 Section 6.4

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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, Passive Loop 30Hz to 1MHz	ELETRO METRICS	EM-6871	PRE0179466	05/31/2020
Antenna, Passive Loop 100KHz to 30MHz	ELETRO METRICS	EM-6872	PRE0179468	05/31/2020
Antenna, Horn 1-18GHz	ETS Lindgren	3117	EMC4249 / PRE0100034	06/14/2020
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T862	06/05/2020
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T344	05/07/2020
Amplifier, 1 to 18GHz	Amplical	AMP1G18-35	T1571	05/28/2020
Amplifier, 1 to 18GHz	MITEQ	AFS42-00101800-25-S-42	PRE171460	08/24/2020
Amplifier, 1 to 18GHz	Amplical	AMP1G18-35	T1569	05/04/2020
Antenna, Broadband Hybrid, 30MHz to 3GHz	Sunol Sciences	JB3	PRE0181574	10/14/2020
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	PRE175953	12/13/2019
Spectrum Analyzer, PSA, 3Hz to 44GHz	Keysight	E4446A	T146	01/28/2020
Antenna Horn, 18 to 26.5GHz	ARA	MWH-1826/B	T447	08/13/2020
Antenna Horn, 26.5 to 40GHz	ARA	MWH-2640/B	T446	08/13/2020
Pre-Amp 26.5-40 GHz	AMPLICAL	AMP26G40-60	PRE0181239	05/01/2020
Pre-Amp 1-26.5 GHz	AMPLICAL	AMP18G26.5-60	PRE0181238	05/01/2020
EMI Test Receiver	Rohde&Schwarz	ESW44	PRE0179376	02/14/2020
EMI Test Receiver	Rohde&Schwarz	ESW44	PRE0179372	02/16/2020
EMI Test Receiver	Rohde&Schwarz	ESW44	PRE0179372	02/16/2020
Filter, HPF 6.0HPF	MICRO-TRONICS	HPS17542	T894	05/04/2020
Filter, HPF 3.0GHz	MICRO-TRONICS	HPM17543	T897	05/04/2020
Filter, LPF 5.0GHz	MICRO-TRONICS	LPS17541	T891	05/04/2020
Power Meter, P-series single channel	Agilent (Keysight) Technologies	N1911A	T229	01/31/2020
Power Sensor, P-series, 50MHz to 18GHz, Wideband	Agilent (Keysight) Technologies	N1921A	T1226	02/06/2020
AC Line Conducted				
EMI Receiver	Rohde & Schwarz	ESR	T1436	02/14/2020
LISN for Conducted Emissions CISPR-16	FCC INC.	FCC LISN 50/250	T1310	01/24/2020
UL AUTOMATION SOFTWARE				
Radiated Software	UL	UL EMC	Ver 9.5, June 15, 2019	
Antenna Port Software	UL	UL RF	Ver 10.4, Oct 10, 2019	
AC Line Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015	

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8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
802.11a	1.416	1.516	0.934	93.40%	0.30	0.706
802.11n HT20	1.324	1.425	0.929	92.93%	0.32	0.755
802.11n HT40	0.6637	0.7643	0.868	86.83%	0.61	1.507
802.11ac VHT80	0.1917	0.2928	0.655	65.46%	1.84	5.217

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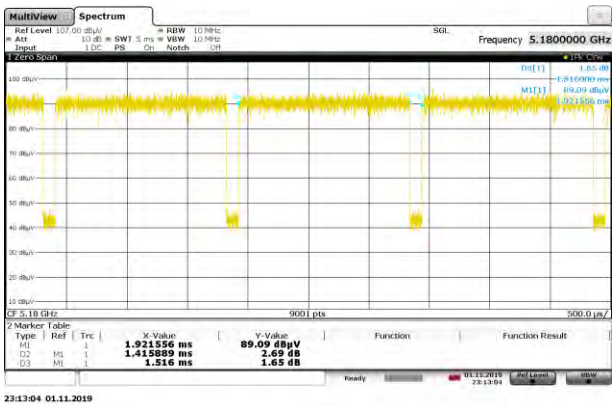
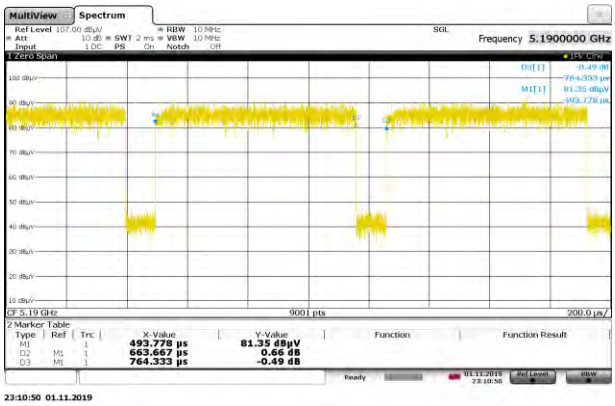
DUTY CYCLE PLOTS



802.11a

802.11n HT20



802.11n HT40

802.11ac VHT80

Tested By:	19497 AF
Date:	11/01/2019

8.2. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

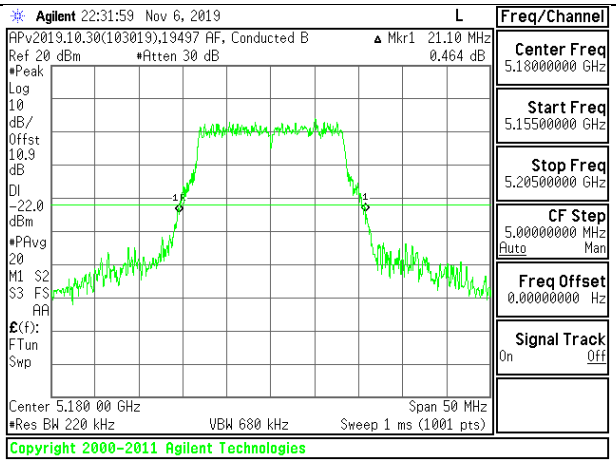
RESULTS

8.2.1. 802.11a MODE IN THE 5.2 GHz BAND

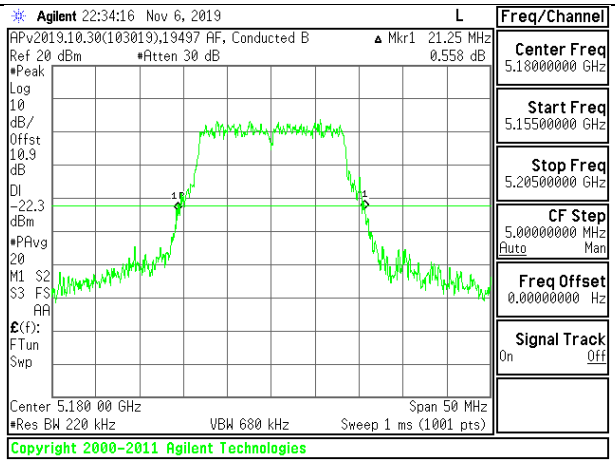
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5180	21.10	21.25
Mid	5200	21.00	21.40
High	5240	21.15	21.25

LOW CHANNEL

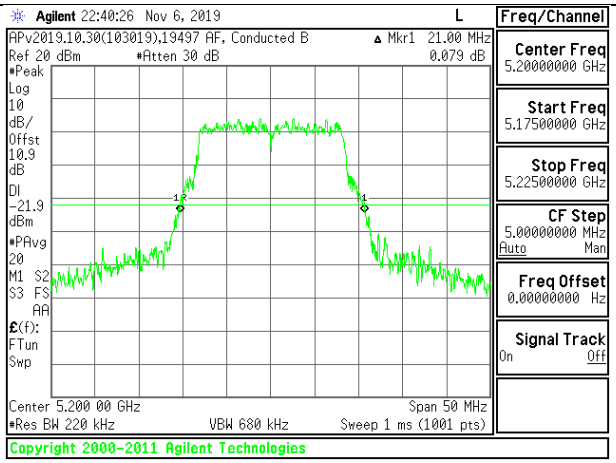


LOW CHANNEL CHAIN 0



LOW CHANNEL CHAIN 1

MID CHANNEL



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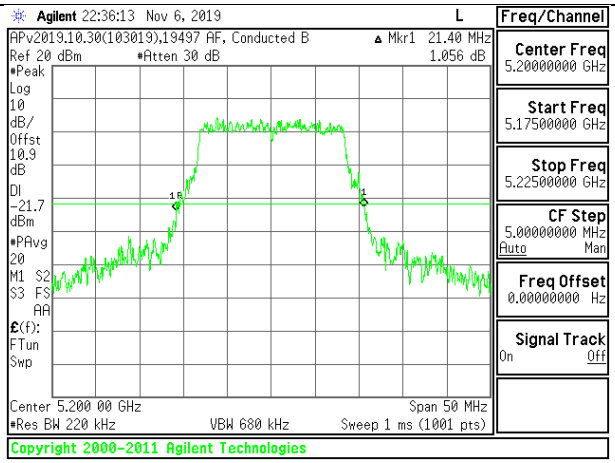
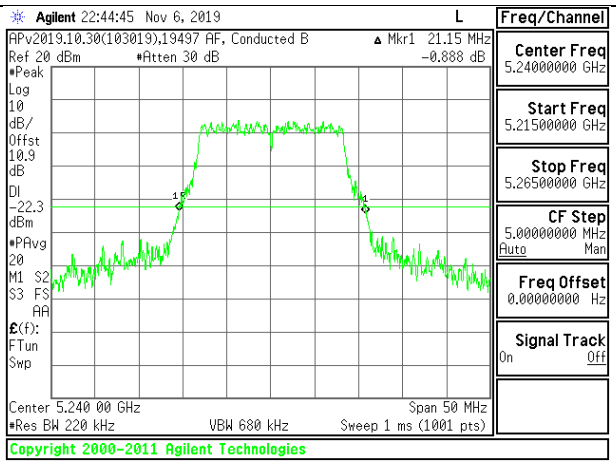
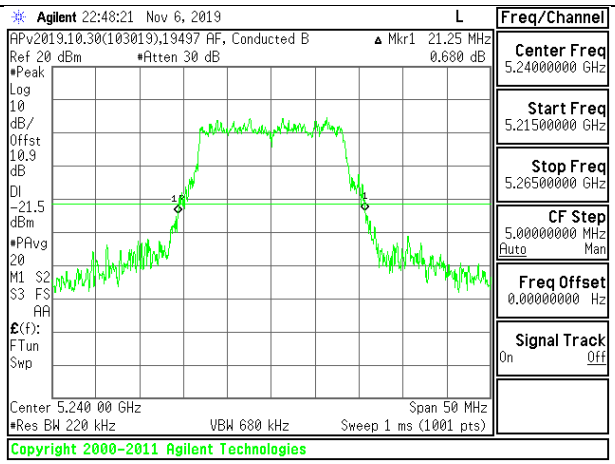


MID CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



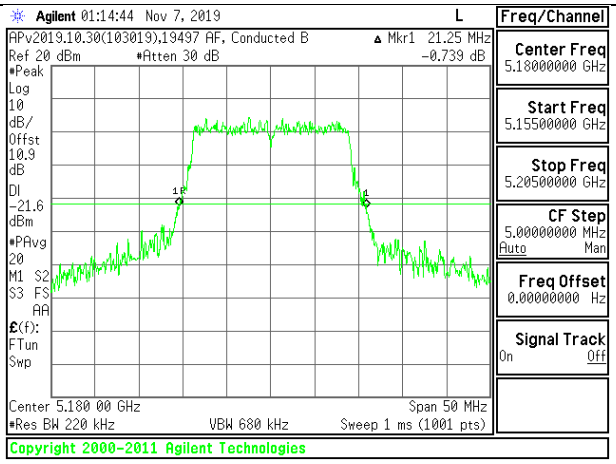
HIGH CHANNEL CHAIN 1

8.2.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5180	21.25	21.45
Mid	5200	21.15	21.40
High	5240	21.20	21.60

LOW CHANNEL



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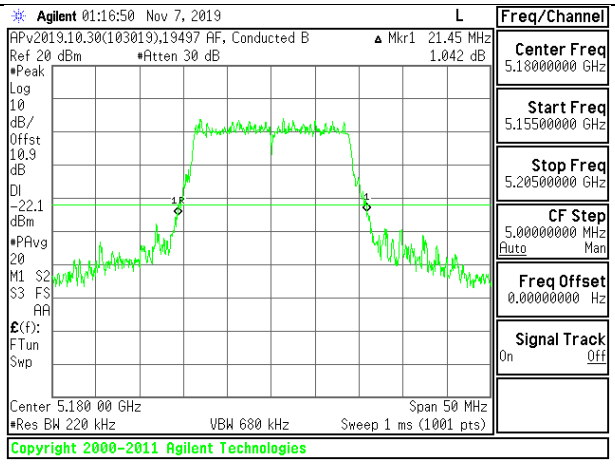
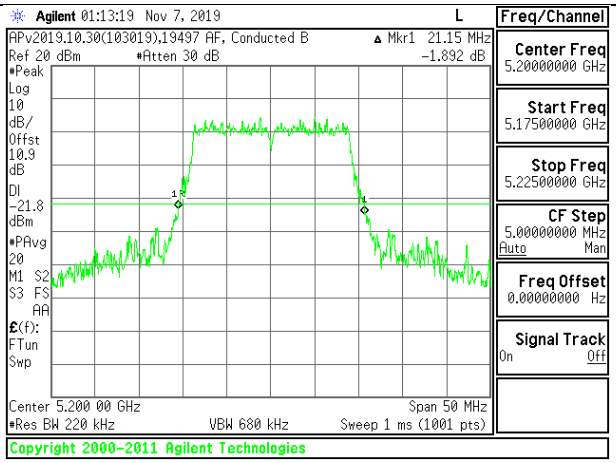
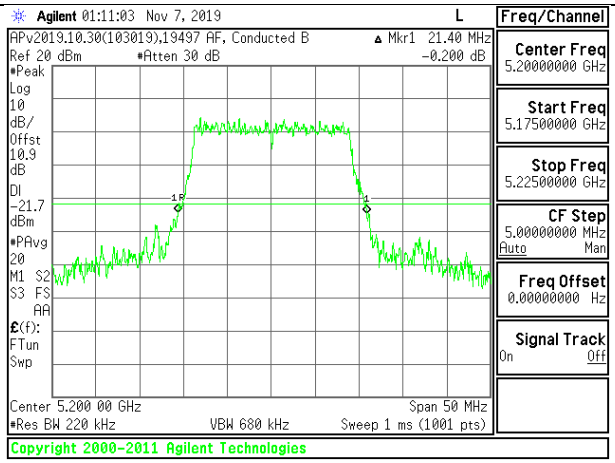


LOW CHANNEL CHAIN 1

MID CHANNEL

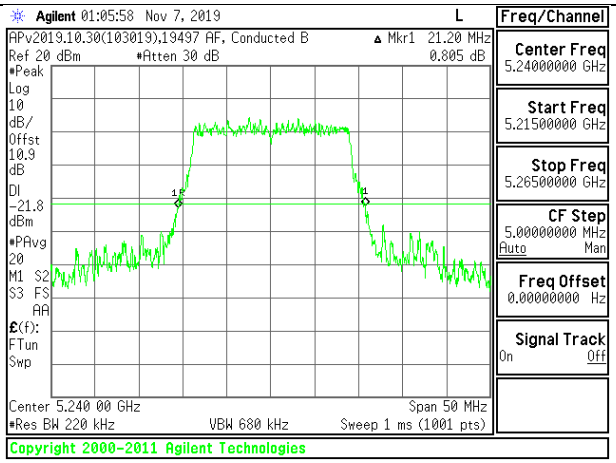


MID CHANNEL CHAIN 0

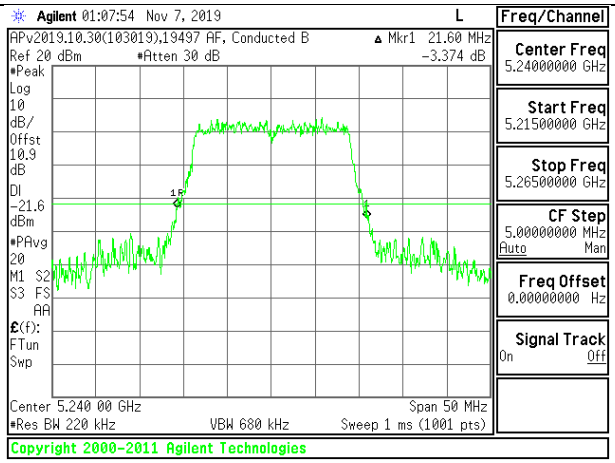


MID CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



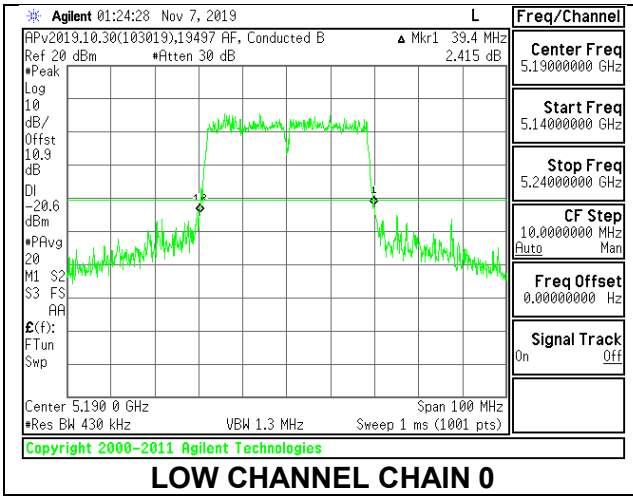
HIGH CHANNEL CHAIN 1

8.2.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

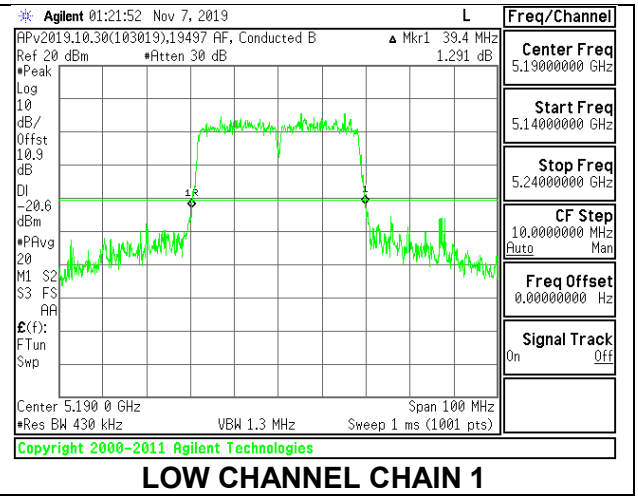
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5190	39.40	39.40
High	5230	39.10	38.90

LOW CHANNEL

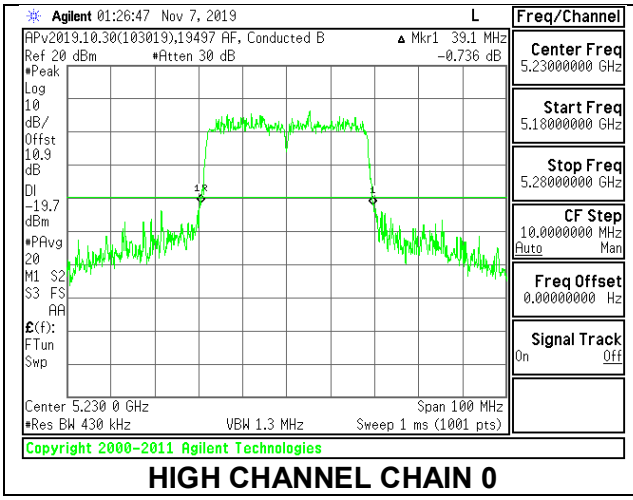


LOW CHANNEL CHAIN 0

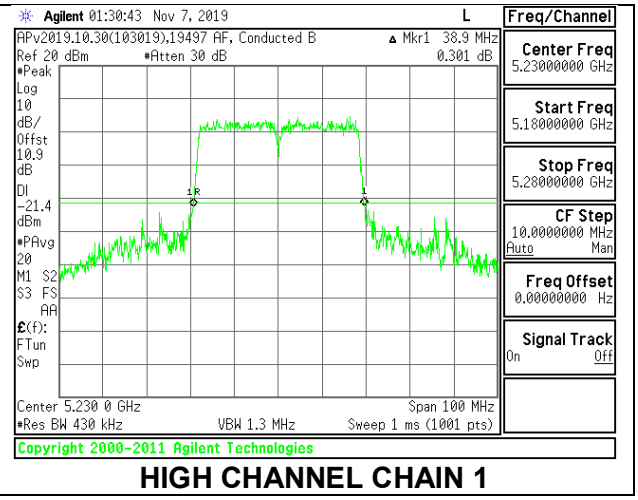


LOW CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



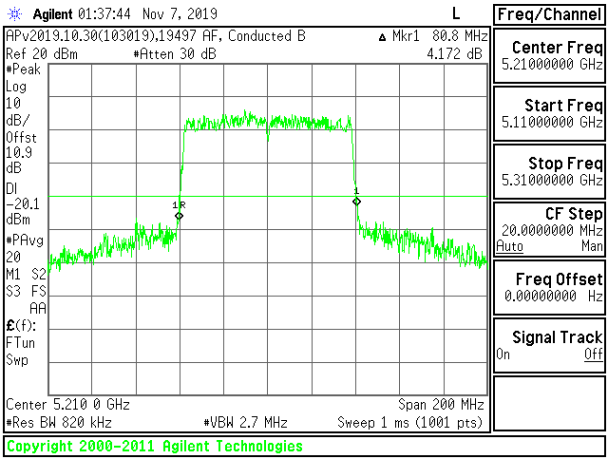
HIGH CHANNEL CHAIN 1

8.2.4. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

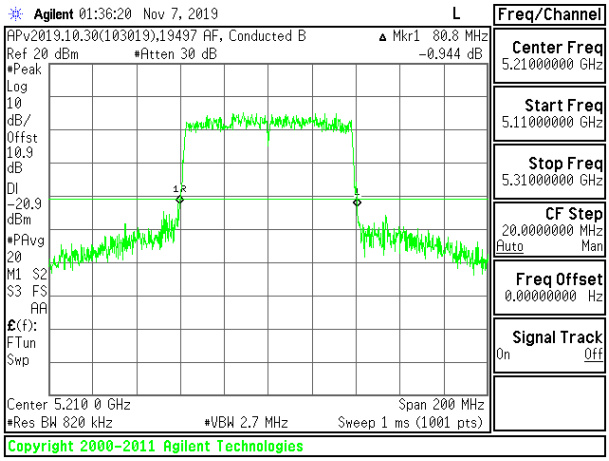
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Mid	5210	80.80	80.80

MID CHANNEL



MID CHANNEL CHAIN 0



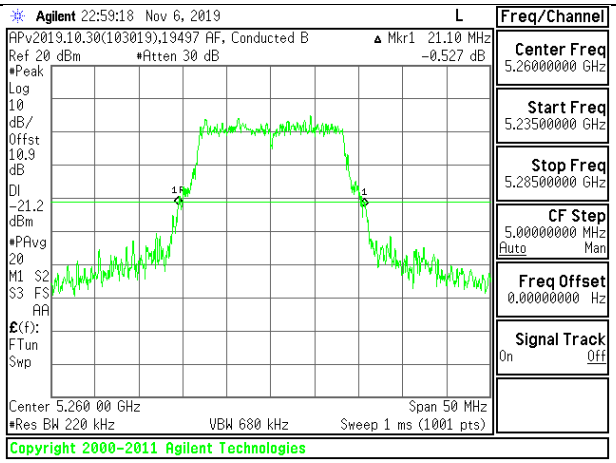
MID CHANNEL CHAIN 1

8.2.5. 802.11a MODE IN THE 5.3 GHz BAND

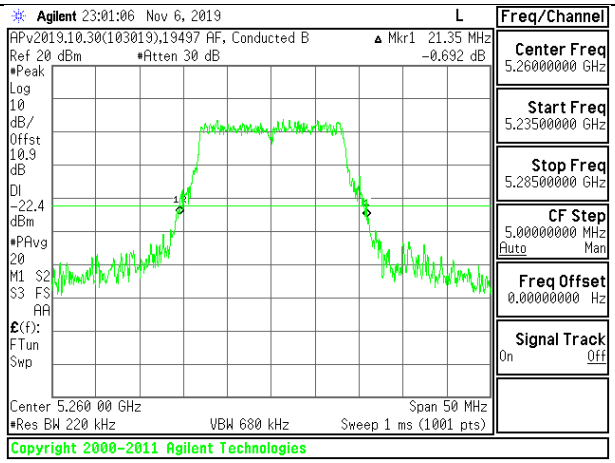
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5260	21.10	21.35
Mid	5300	20.95	21.00
High	5320	21.00	21.05

LOW CHANNEL

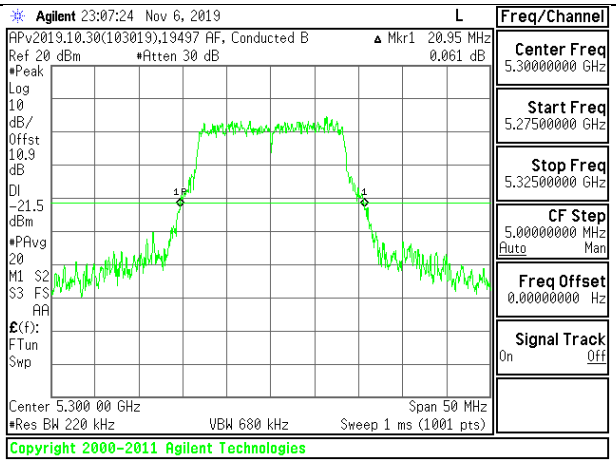


LOW CHANNEL CHAIN 0

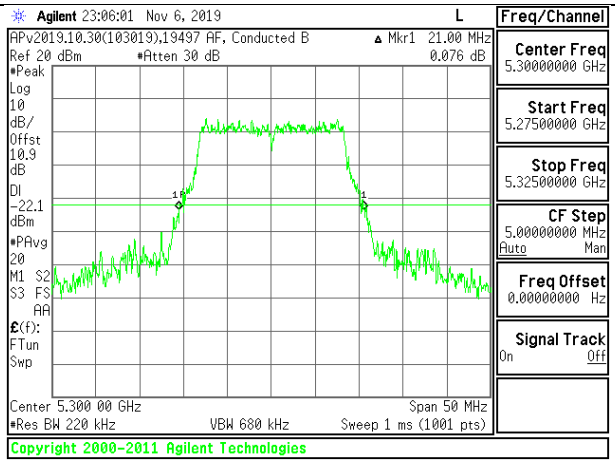


LOW CHANNEL CHAIN 1

MID CHANNEL

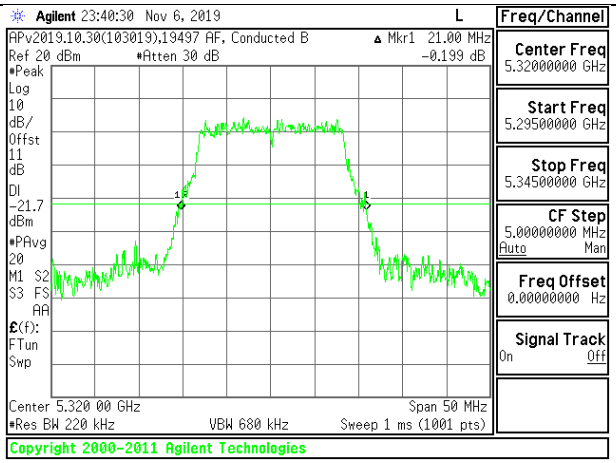


MID CHANNEL CHAIN 0

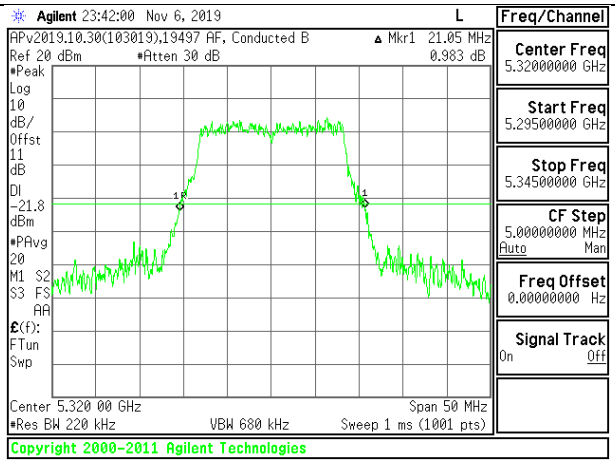


MID CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



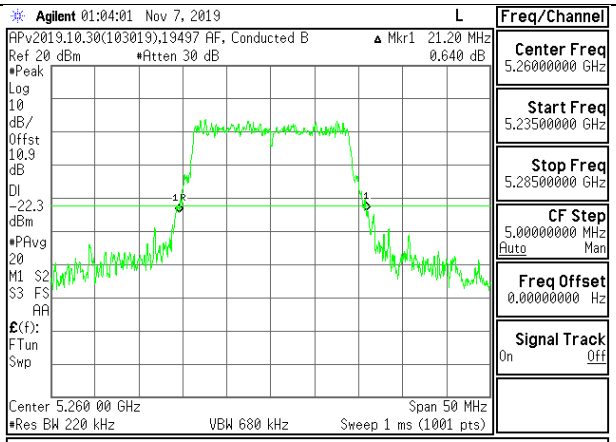
HIGH CHANNEL CHAIN 1

8.2.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

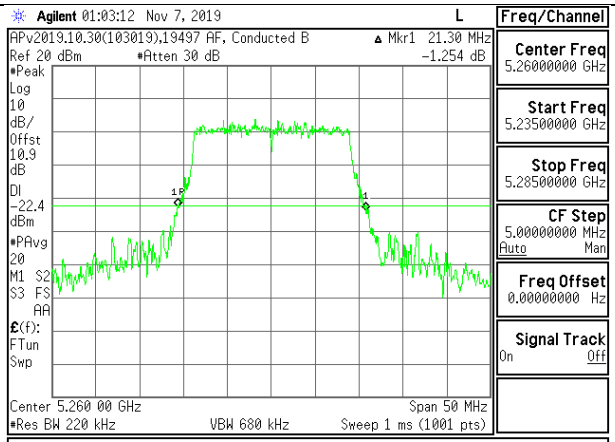
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5260	21.20	21.30
Mid	5300	21.05	21.20
High	5320	21.25	21.15

LOW CHANNEL

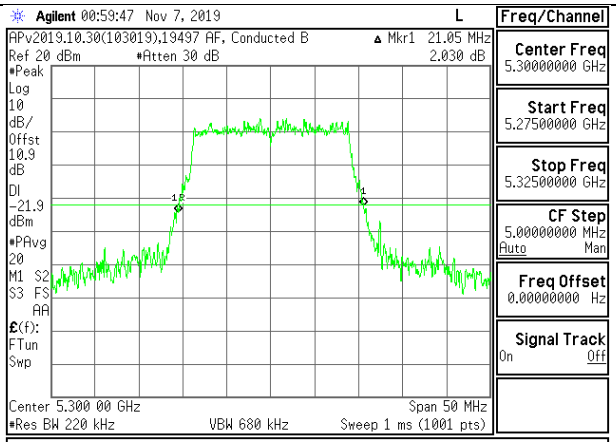


LOW CHANNEL CHAIN 0

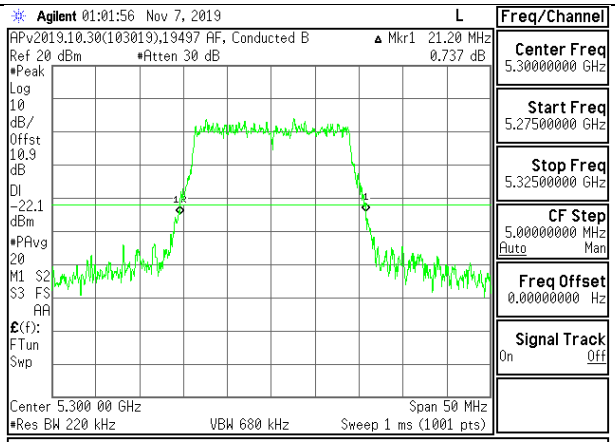


LOW CHANNEL CHAIN 1

MID CHANNEL

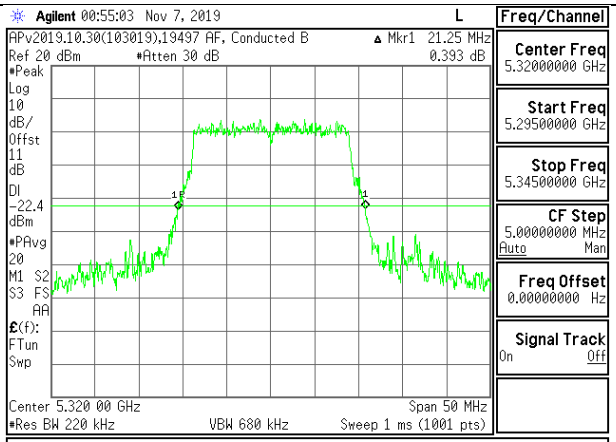


MID CHANNEL CHAIN 0

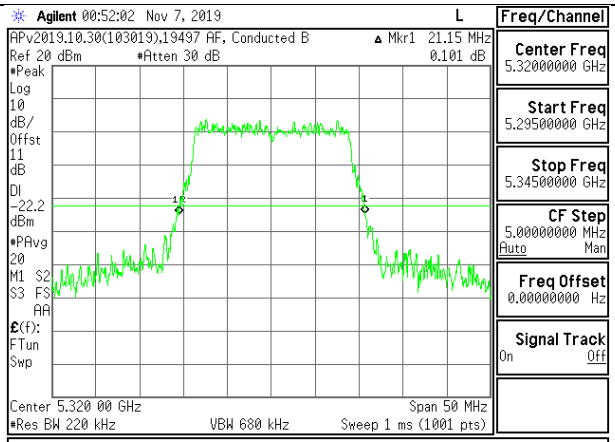


MID CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



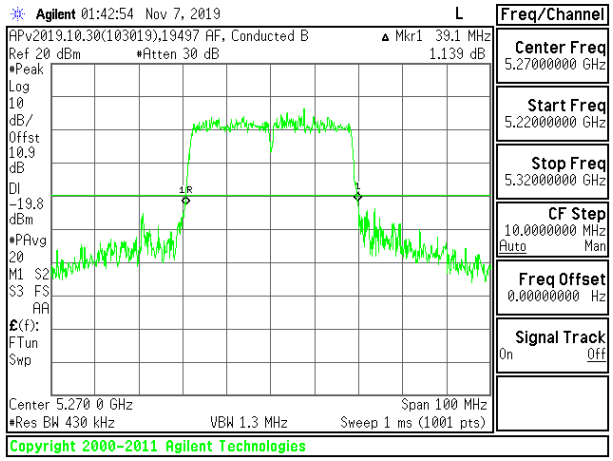
HIGH CHANNEL CHAIN 1

8.2.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

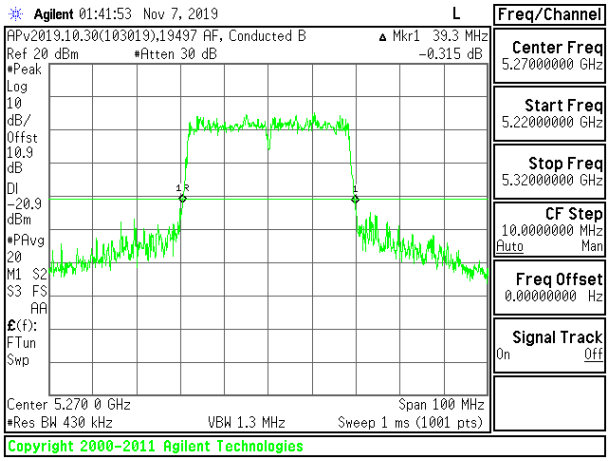
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5270	39.10	39.30
High	5310	39.50	39.30

LOW CHANNEL

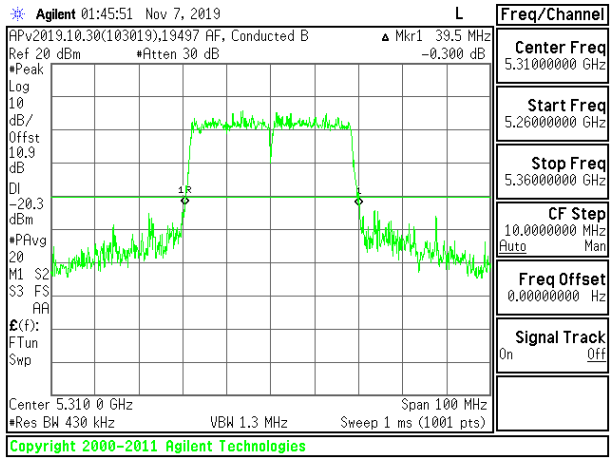


LOW CHANNEL CHAIN 0

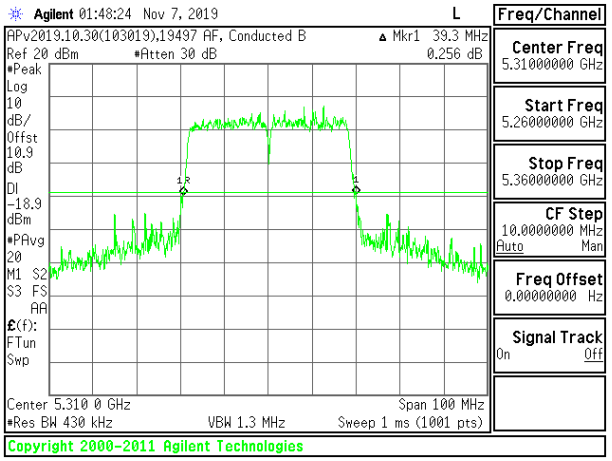


LOW CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



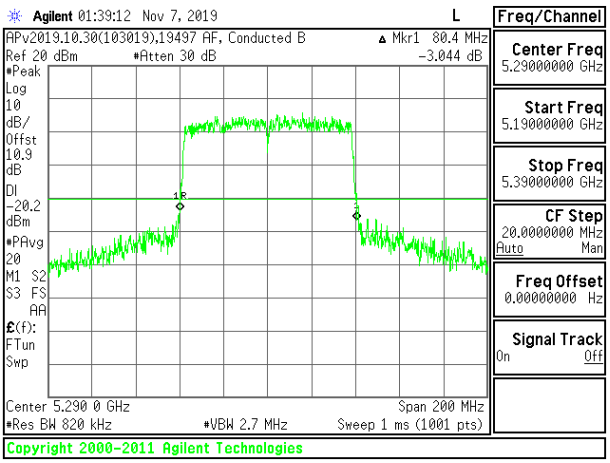
HIGH CHANNEL CHAIN 1

8.2.8. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

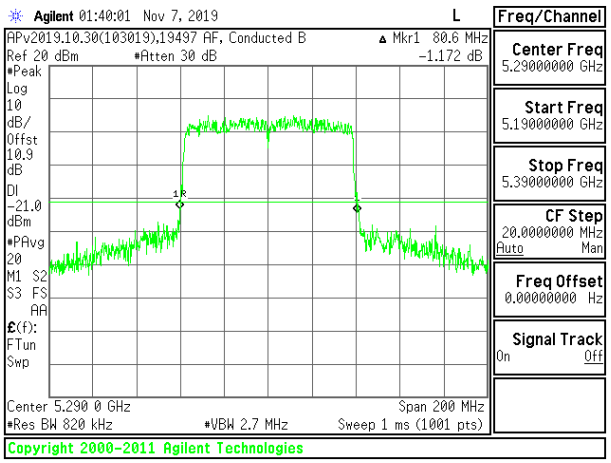
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Mid	5290	80.40	80.60

MID CHANNEL



MID CHANNEL CHAIN 0



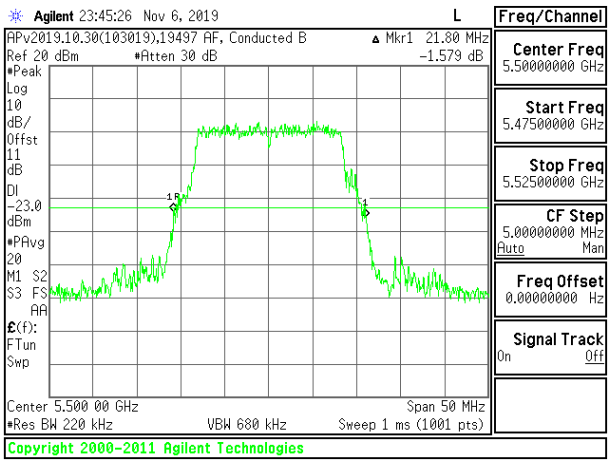
MID CHANNEL CHAIN 1

8.2.9. 802.11a MODE IN THE 5.6 GHz BAND

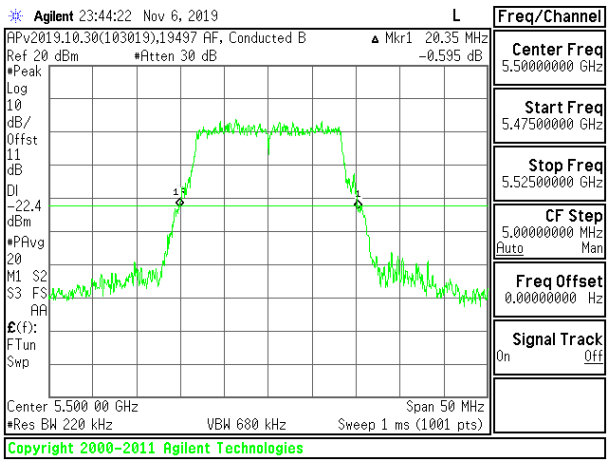
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5500	21.80	20.35
Mid	5580	20.90	21.10
High	5700	21.20	21.50
144	5720	21.15	21.15

LOW CHANNEL

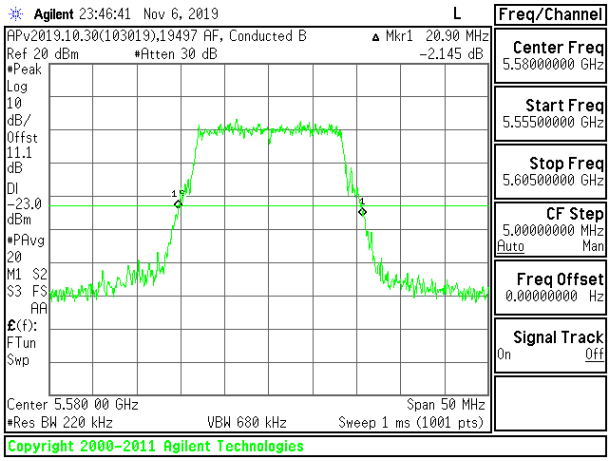


LOW CHANNEL CHAIN 0

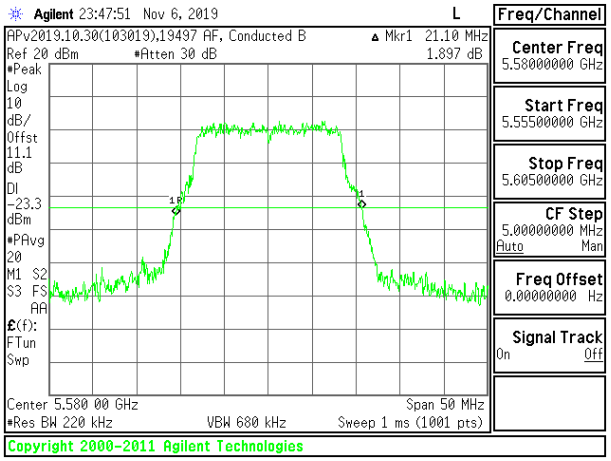


LOW CHANNEL CHAIN 1

MID CHANNEL

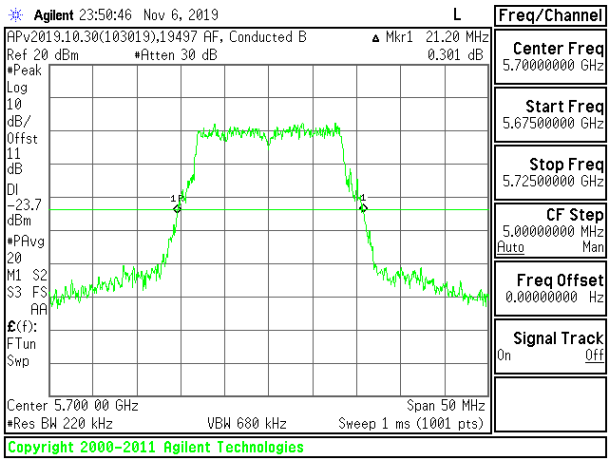


MID CHANNEL CHAIN 0

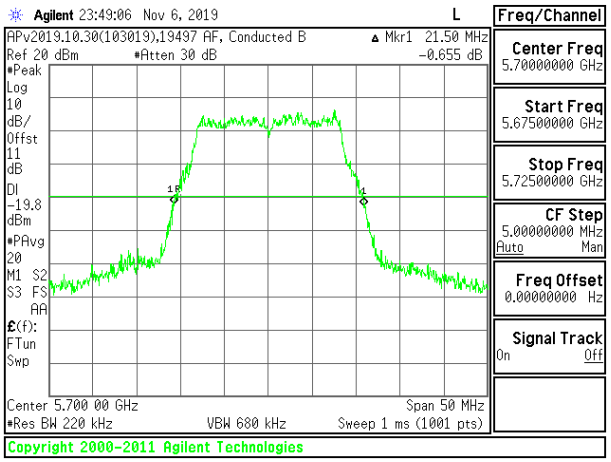


MID CHANNEL CHAIN 1

HIGH CHANNEL

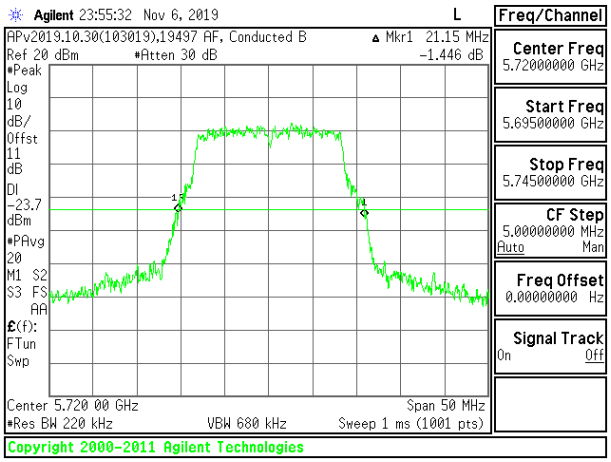


HIGH CHANNEL CHAIN 0

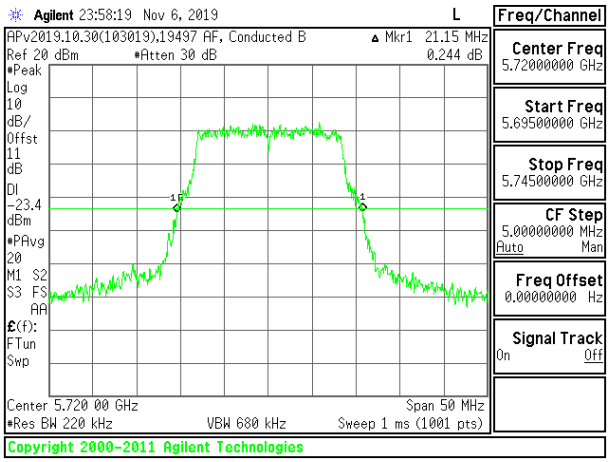


HIGH CHANNEL CHAIN 1

CHANNEL 144



CHANNEL 144 CHAIN 0



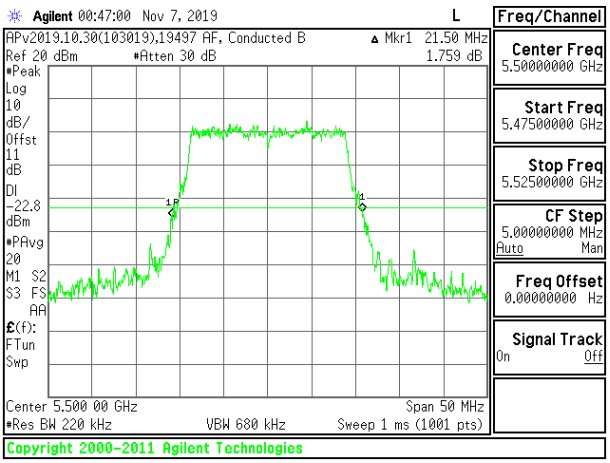
CHANNEL 144 CHAIN 1

8.2.10. 802.11n HT20 MODE IN THE 5.6 GHz BAND

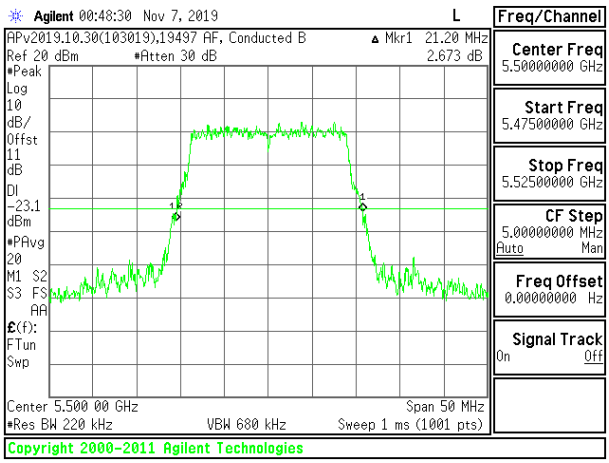
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5500	21.50	21.20
Mid	5580	21.30	21.40
High	5700	21.05	21.35
144	5720	21.40	21.30

LOW CHANNEL

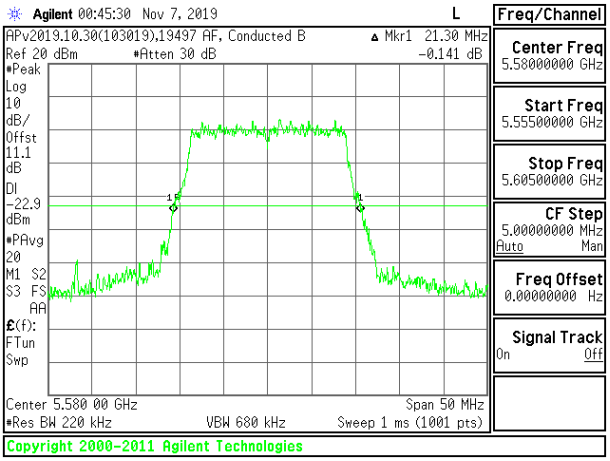


LOW CHANNEL CHAIN 0

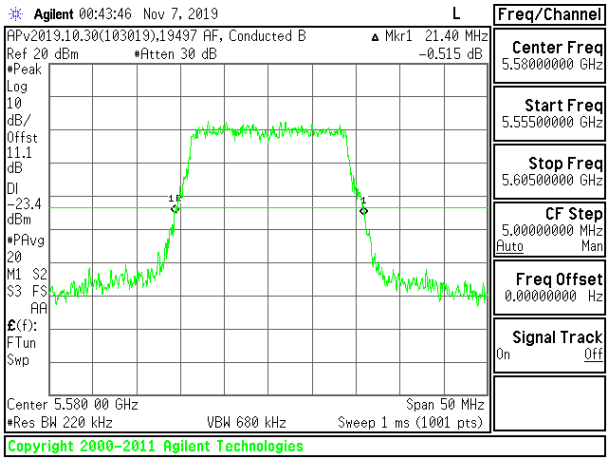


LOW CHANNEL CHAIN 1

MID CHANNEL

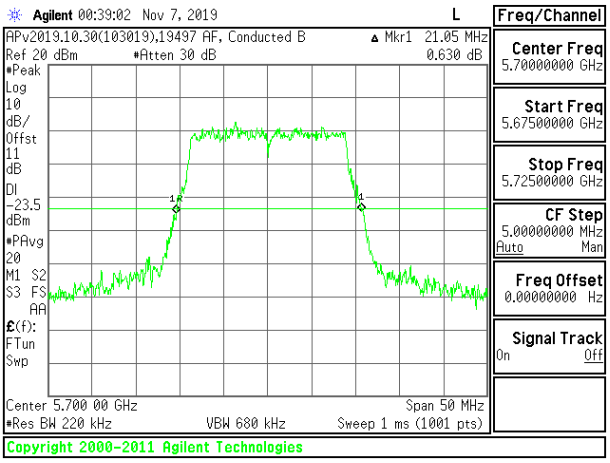


MID CHANNEL CHAIN 0

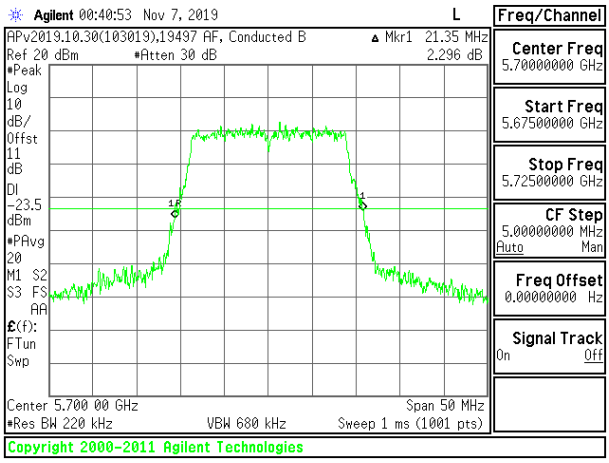


MID CHANNEL CHAIN 1

HIGH CHANNEL

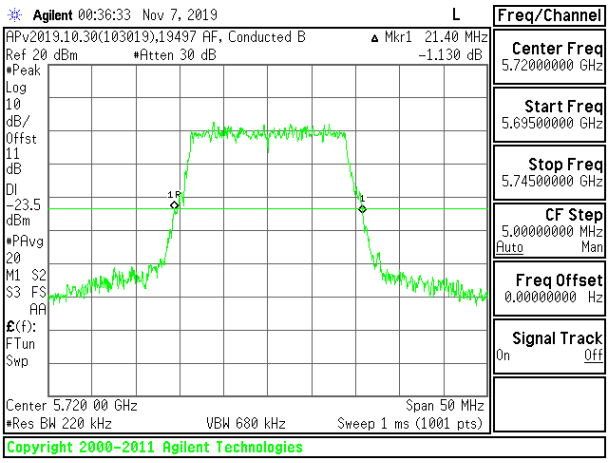


HIGH CHANNEL CHAIN 0

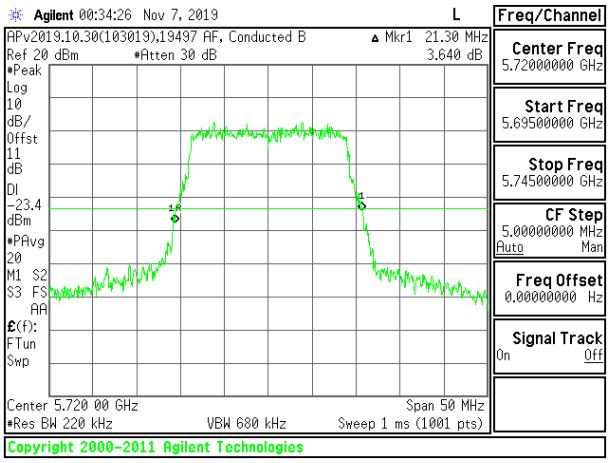


HIGH CHANNEL CHAIN 1

CHANNEL 144



CHANNEL 144 CHAIN 0



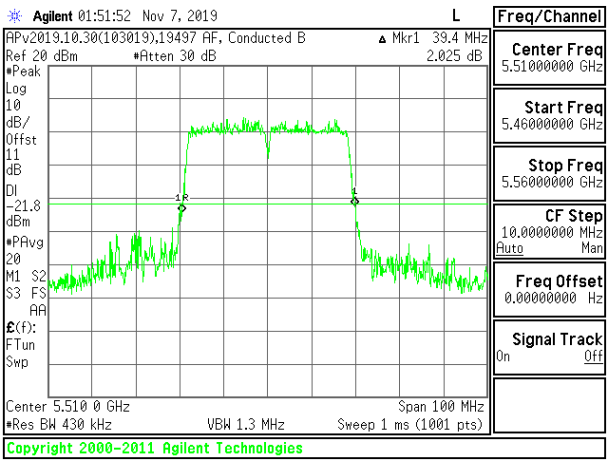
CHANNEL 144 CHAIN 1

8.2.11. 802.11n HT40 MODE IN THE 5.6 GHz BAND

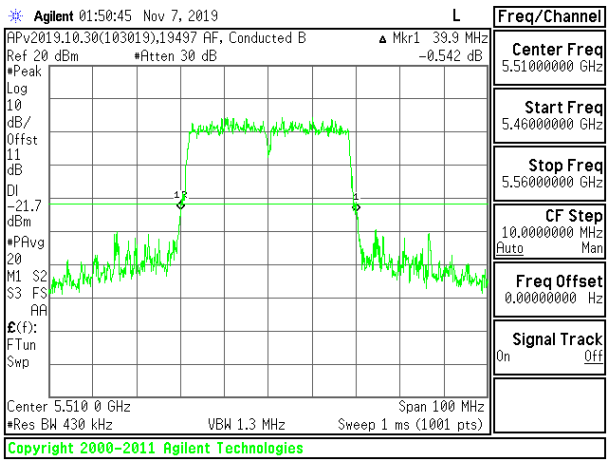
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5510	39.40	39.90
Mid	5550	39.30	39.10
High	5670	39.50	39.30
142	5710	39.40	39.40

LOW CHANNEL

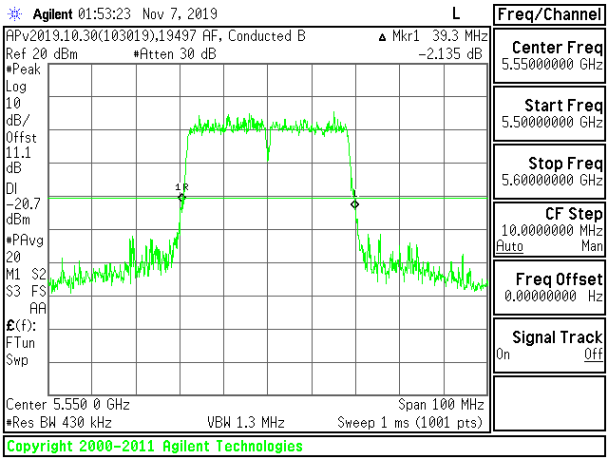


LOW CHANNEL CHAIN 0

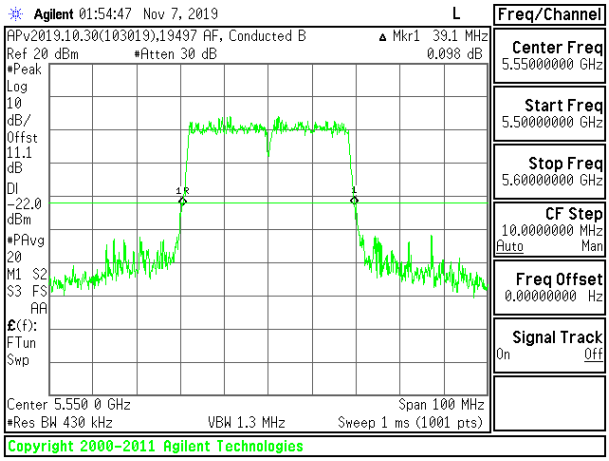


LOW CHANNEL CHAIN 1

MID CHANNEL

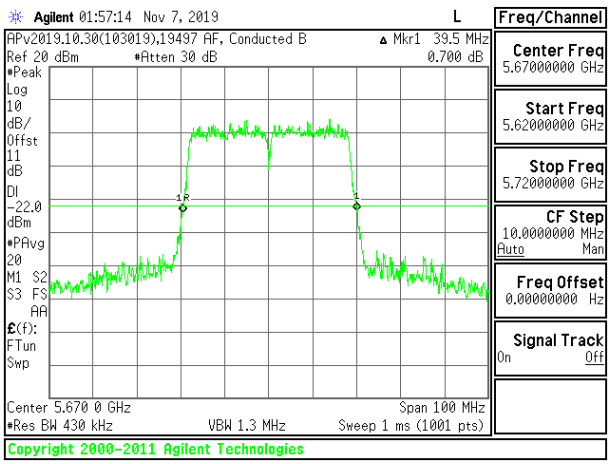


MID CHANNEL CHAIN 0

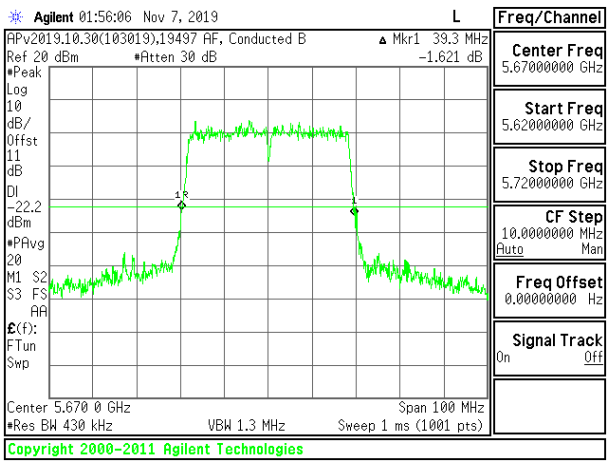


MID CHANNEL CHAIN 1

HIGH CHANNEL

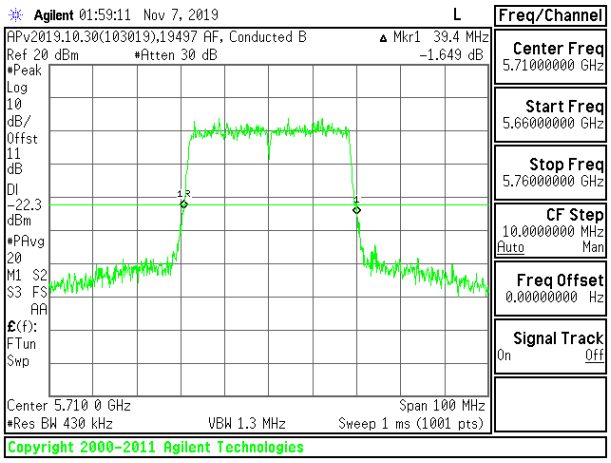


HIGH CHANNEL CHAIN 0

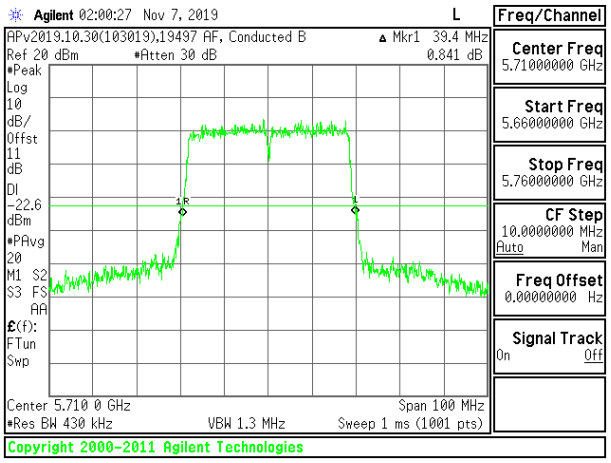


HIGH CHANNEL CHAIN 1

CHANNEL 142



CHANNEL 142 CHAIN 0



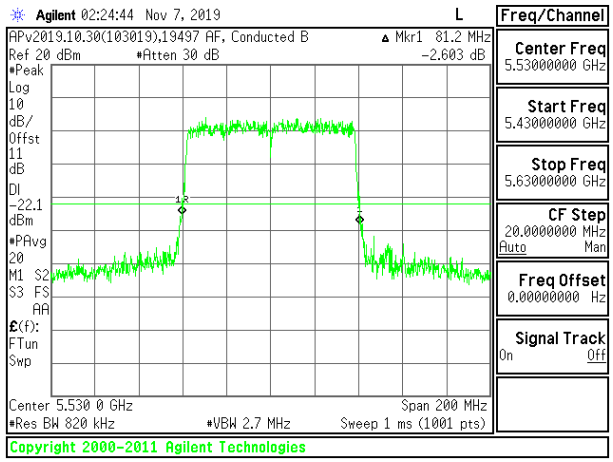
CHANNEL 142 CHAIN 1

8.2.12. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND

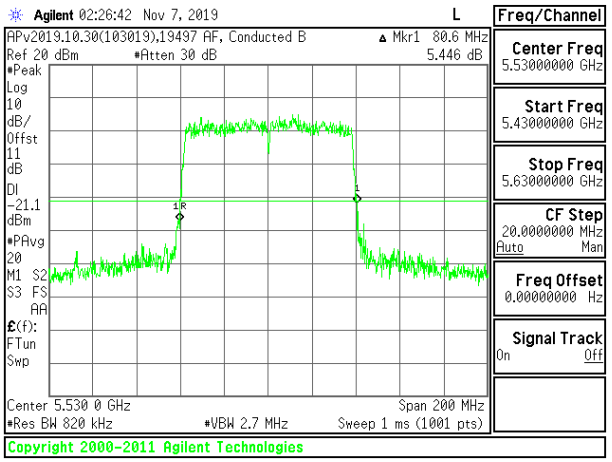
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5530	81.20	80.60
High	5610	80.40	81.00
138	5690	80.20	80.40

LOW CHANNEL

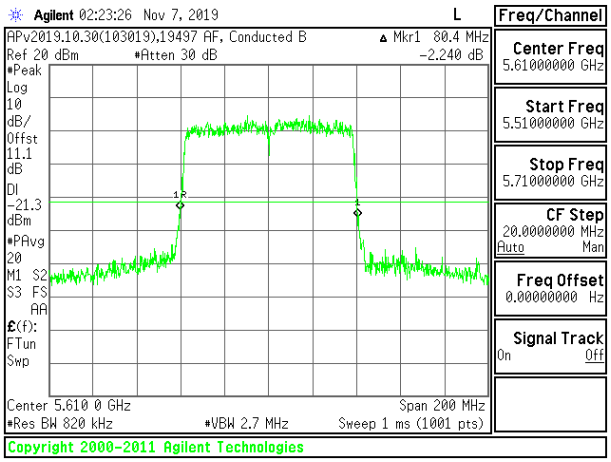


LOW CHANNEL CHAIN 0

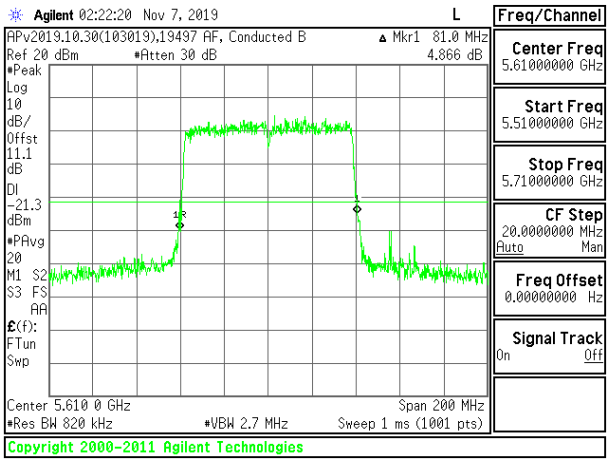


LOW CHANNEL CHAIN 1

HIGH CHANNEL

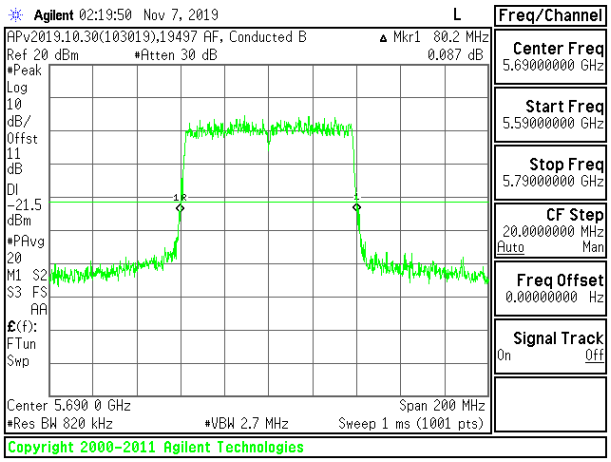


HIGH CHANNEL CHAIN 0

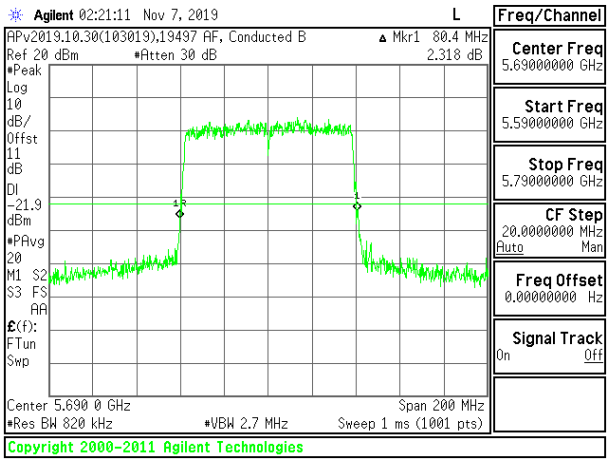


HIGH CHANNEL CHAIN 1

CHANNEL 138



CHANNEL 138 CHAIN 0



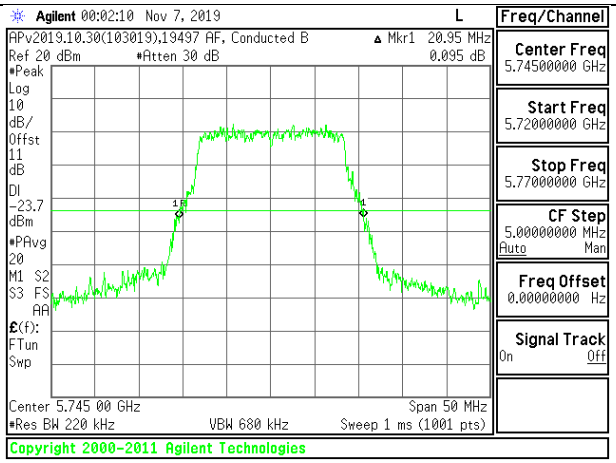
CHANNEL 138 CHAIN 1

8.2.13. 802.11a MODE IN THE 5.8 GHz BAND

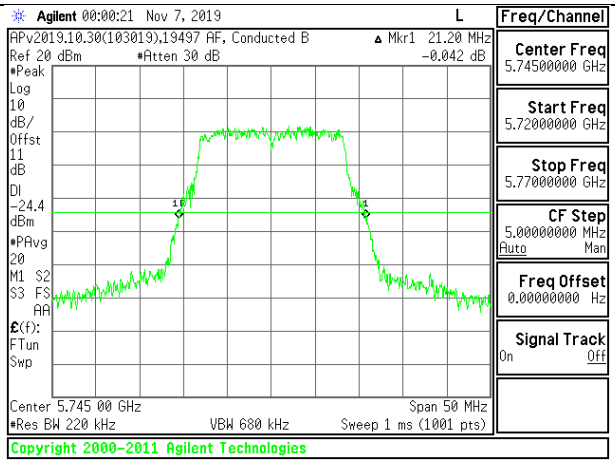
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5745	20.95	21.20
Mid	5785	21.00	21.20
High	5825	21.20	21.25

LOW CHANNEL

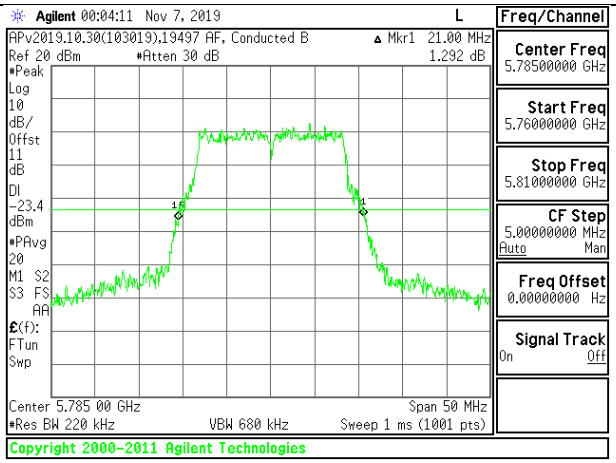


LOW CHANNEL CHAIN 0

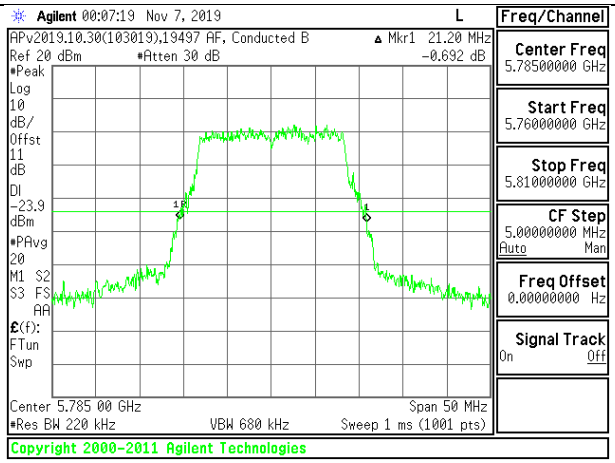


LOW CHANNEL CHAIN 1

MID CHANNEL

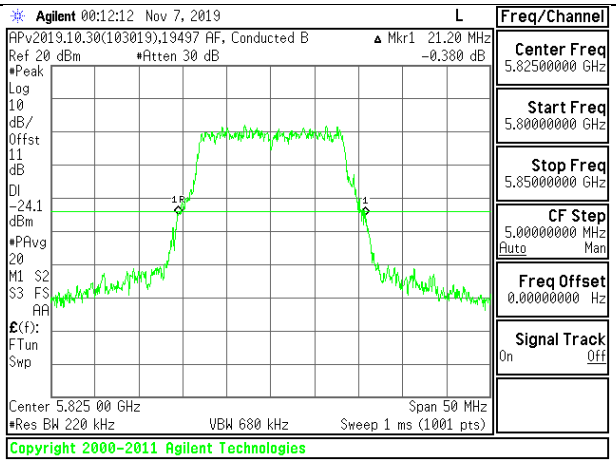


MID CHANNEL CHAIN 0

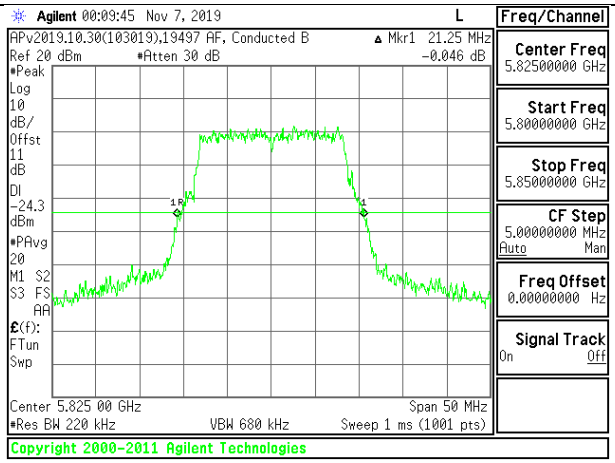


MID CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



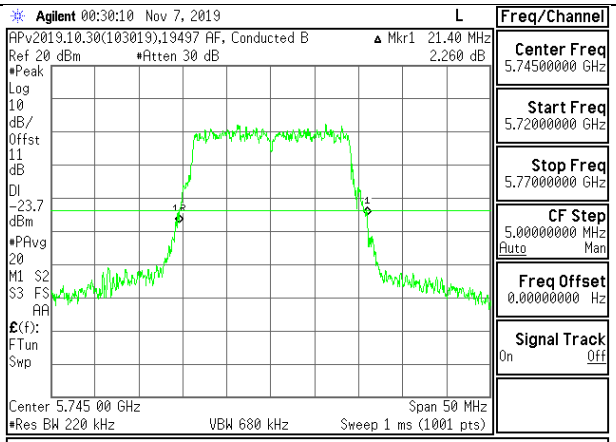
HIGH CHANNEL CHAIN 1

8.2.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND

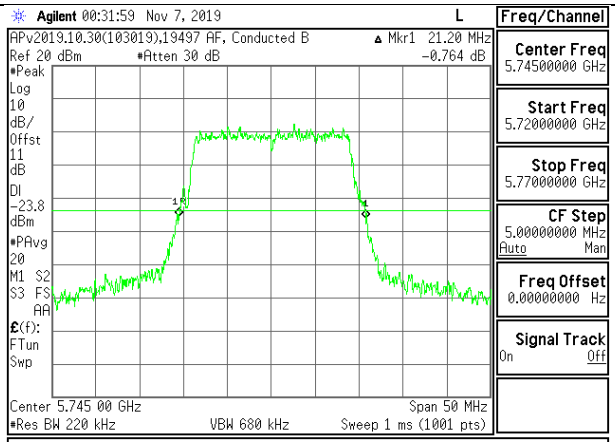
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5745	21.40	21.20
Mid	5785	21.25	21.45
High	5825	21.25	21.15

LOW CHANNEL

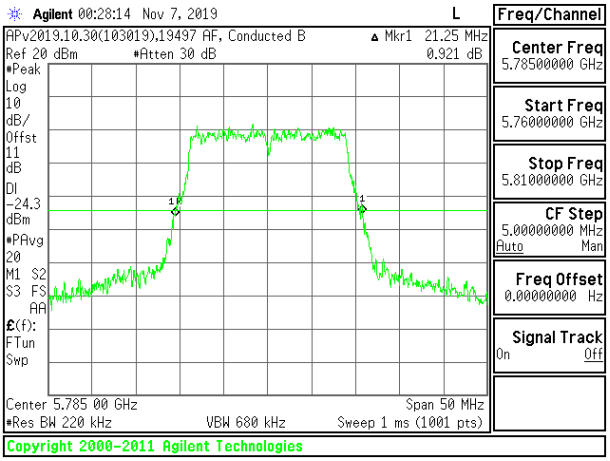


LOW CHANNEL CHAIN 0

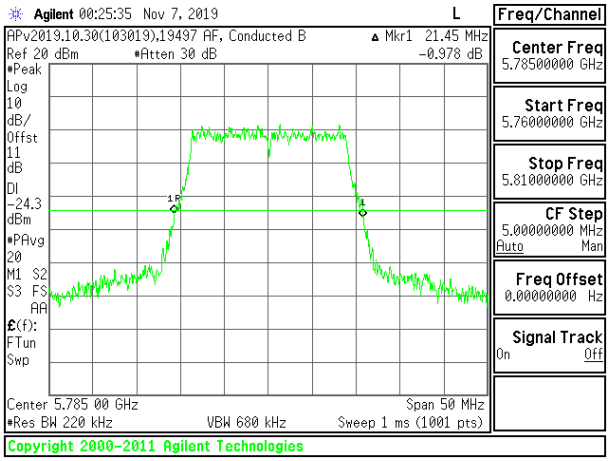


LOW CHANNEL CHAIN 1

MID CHANNEL

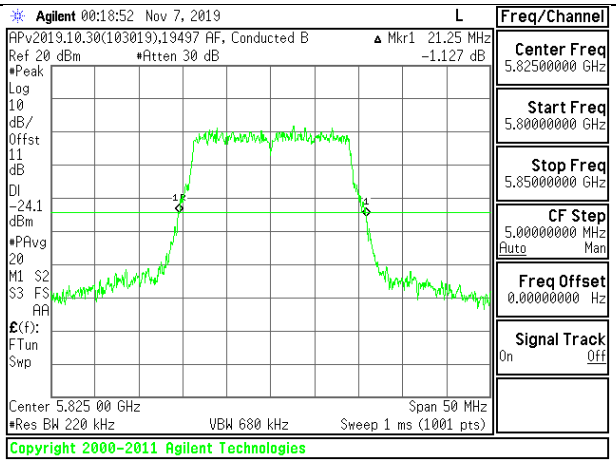


MID CHANNEL CHAIN 0

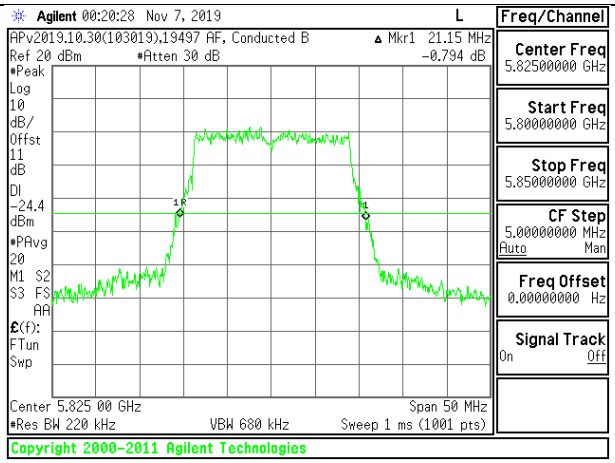


MID CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



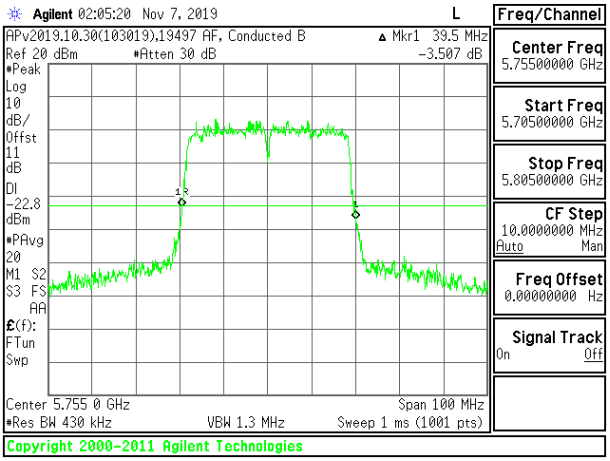
HIGH CHANNEL CHAIN 1

8.2.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND

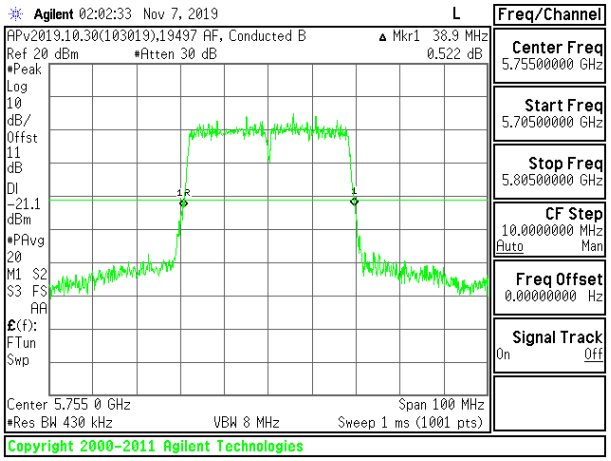
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5755	39.50	38.90
High	5795	39.40	39.30

LOW CHANNEL

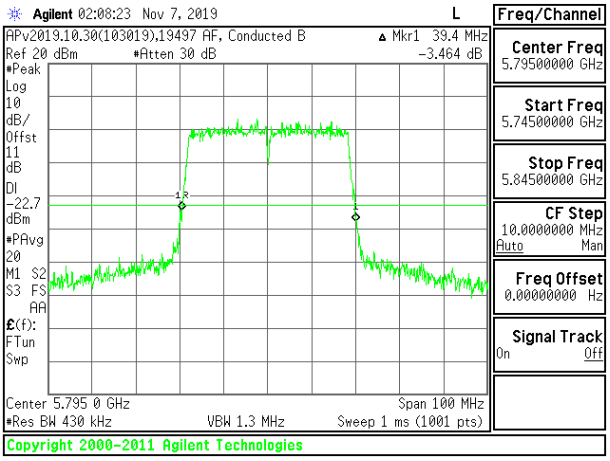


LOW CHANNEL CHAIN 0

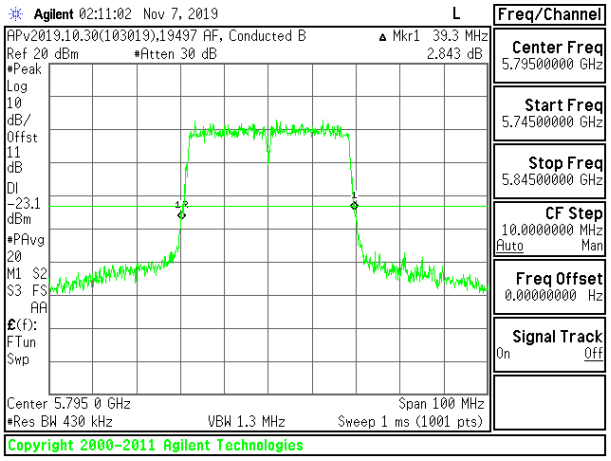


LOW CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



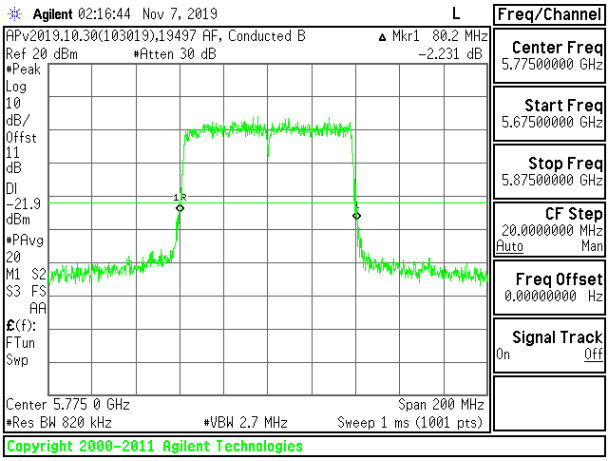
HIGH CHANNEL CHAIN 1

8.2.16. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

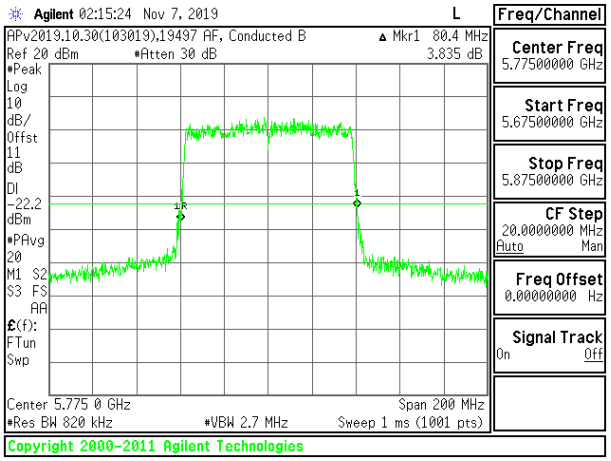
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Mid	5775	80.20	80.40

MID CHANNEL



MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1

8.3. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

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

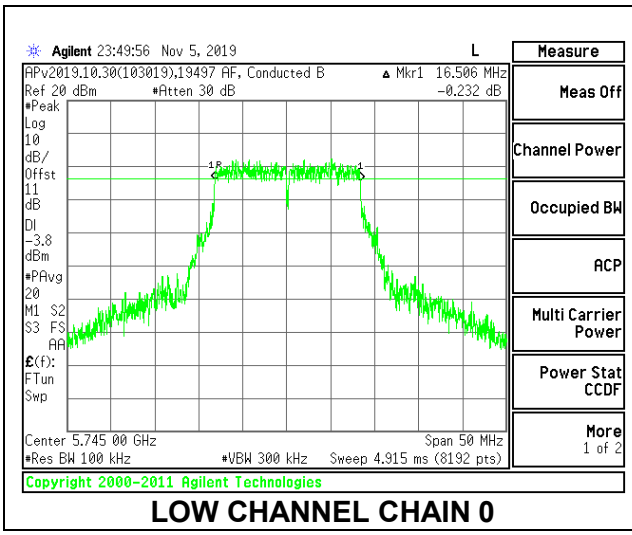
RESULTS

8.3.1. 802.11a MODE IN THE 5.8 GHz BAND

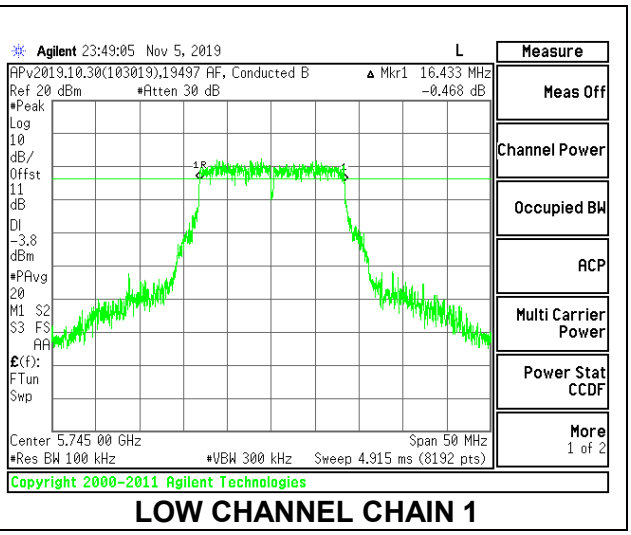
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	5745	16.506	16.433	0.5
Mid	5785	16.298	16.127	0.5
High	5825	16.140	16.311	0.5
144	5720	3.247	3.333	0.5

LOW CHANNEL

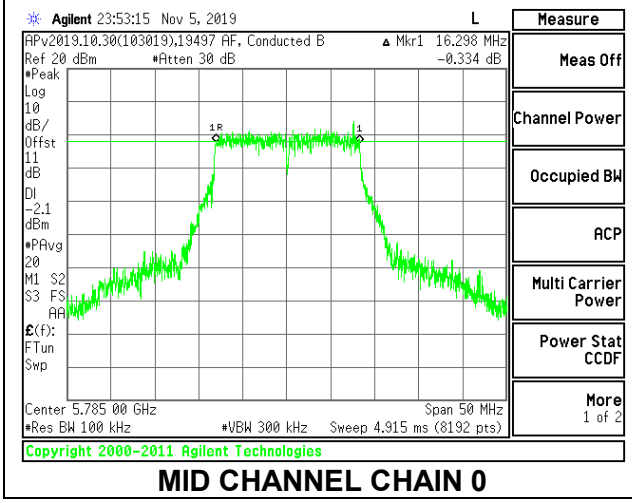


LOW CHANNEL CHAIN 0

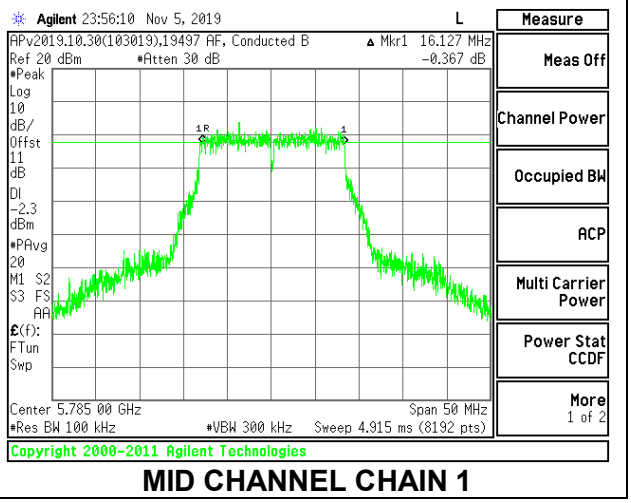


LOW CHANNEL CHAIN 1

MID CHANNEL

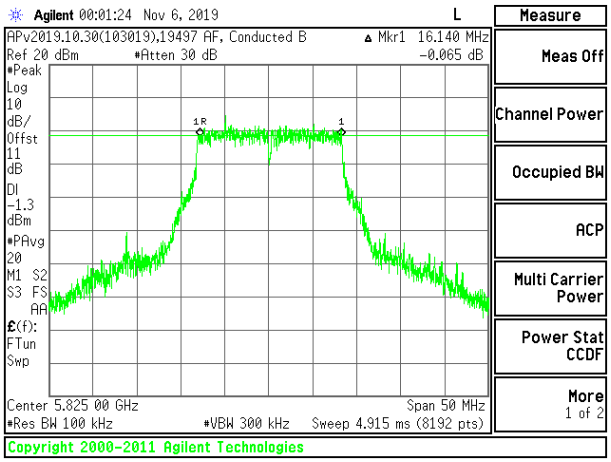


MID CHANNEL CHAIN 0

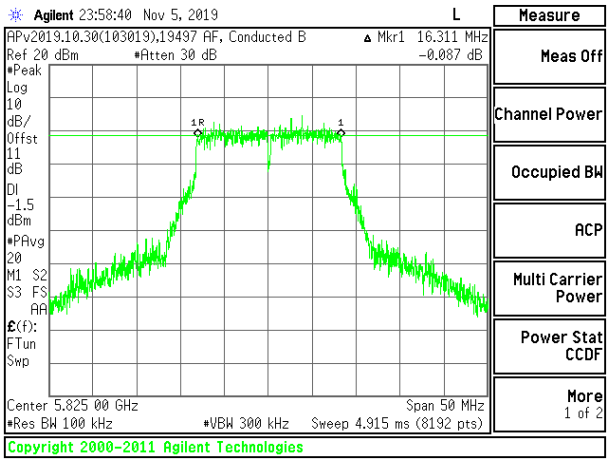


MID CHANNEL CHAIN 1

HIGH CHANNEL

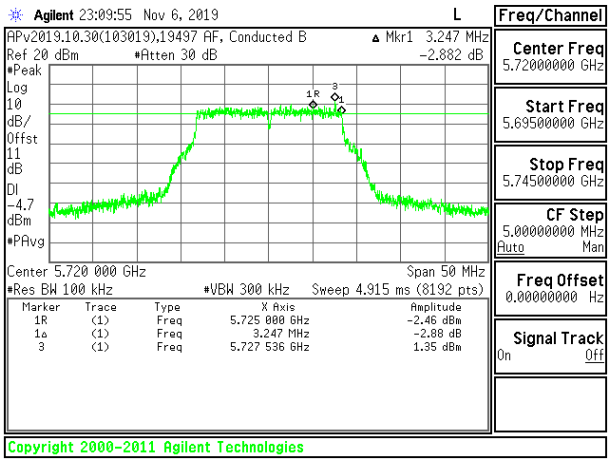


HIGH CHANNEL CHAIN 0

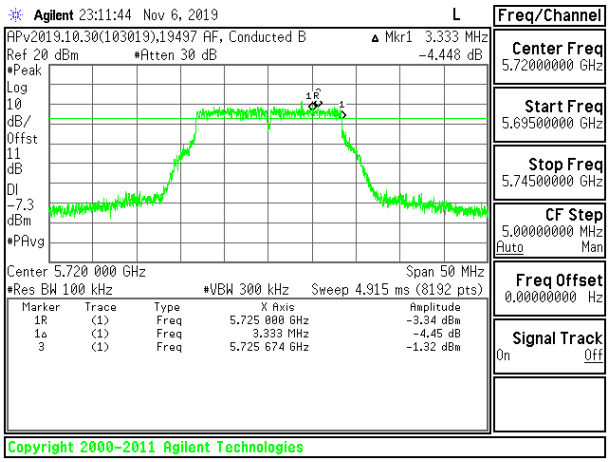


HIGH CHANNEL CHAIN 1

CHANNEL 144



CHANNEL 144 CHAIN 0



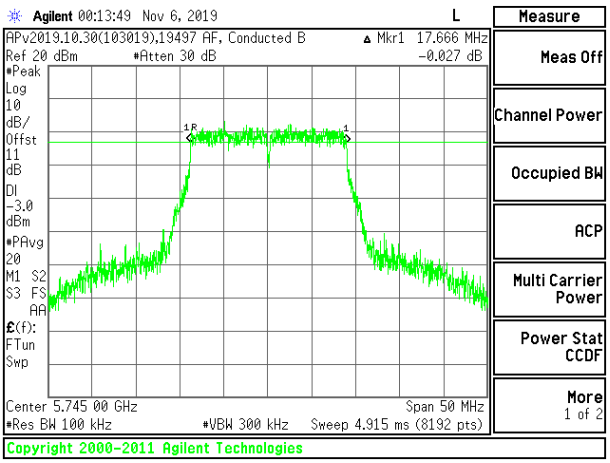
CHANNEL 144 CHAIN 1

8.3.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

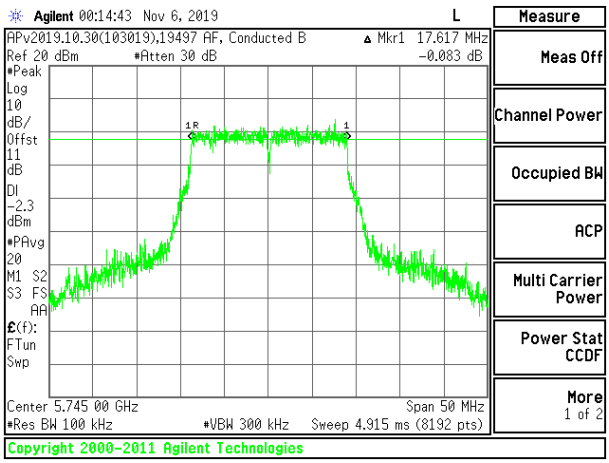
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	5745	17.666	17.617	0.5
Mid	5785	17.611	17.562	0.5
High	5825	17.306	17.623	0.5
144	5720	3.876	3.907	0.5

LOW CHANNEL

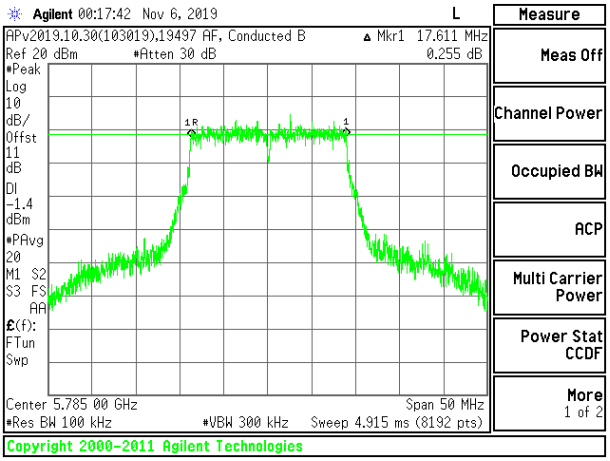


LOW CHANNEL CHAIN 0

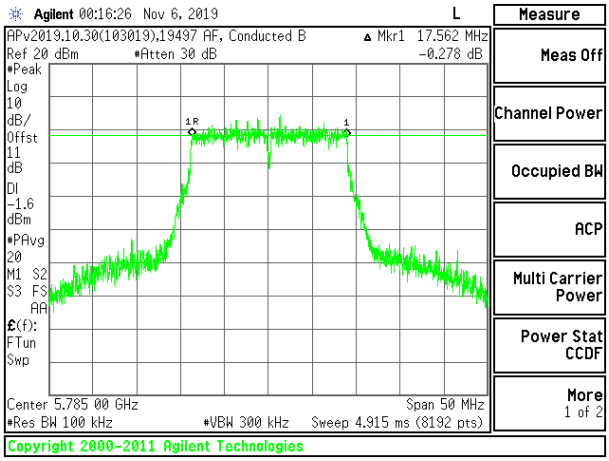


LOW CHANNEL CHAIN 1

MID CHANNEL

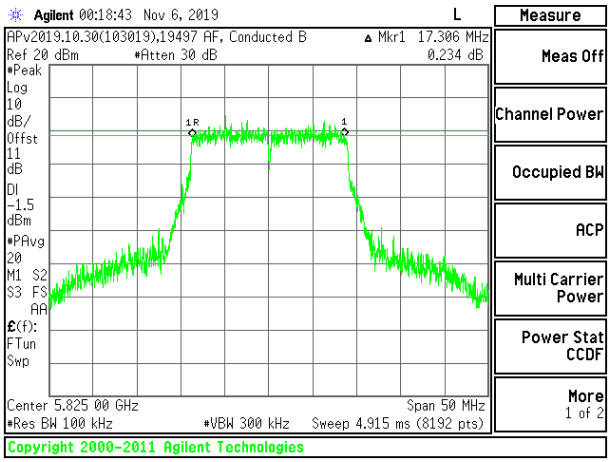


MID CHANNEL CHAIN 0

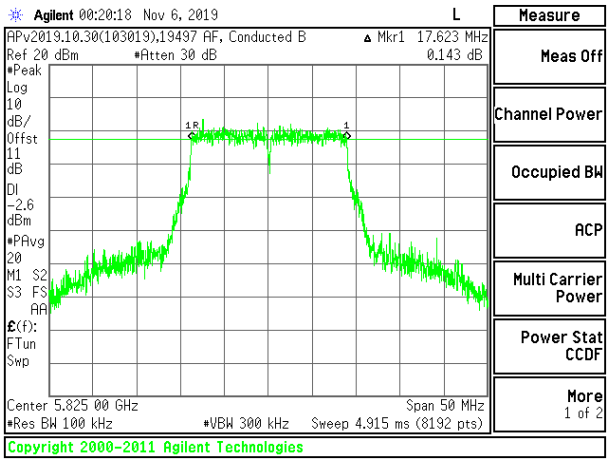


MID CHANNEL CHAIN 1

HIGH CHANNEL

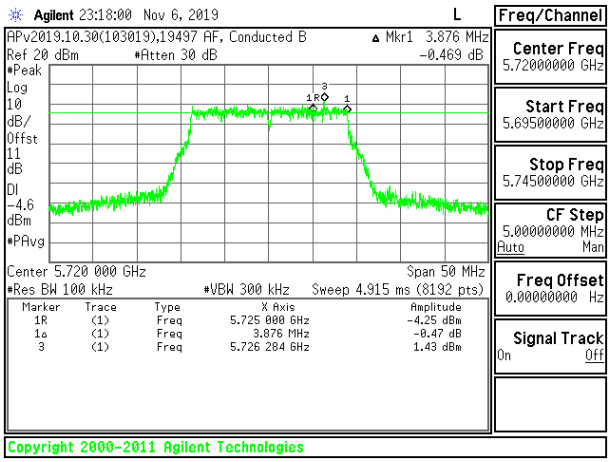


HIGH CHANNEL CHAIN 0

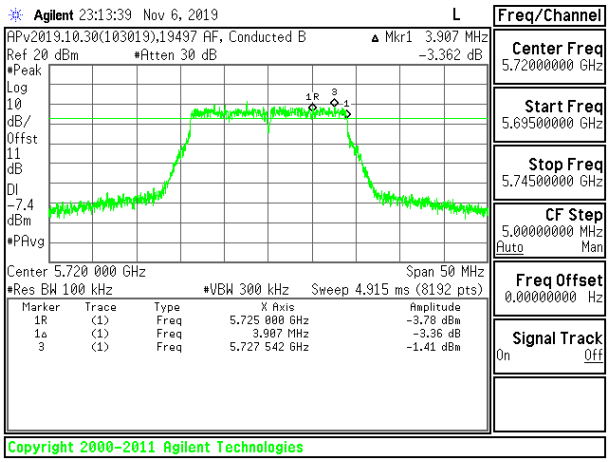


HIGH CHANNEL CHAIN 1

CHANNEL 144



CHANNEL 144 CHAIN 0



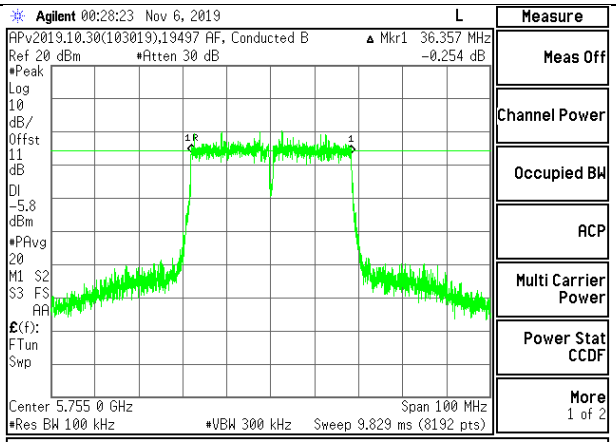
CHANNEL 144 CHAIN 1

8.3.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND

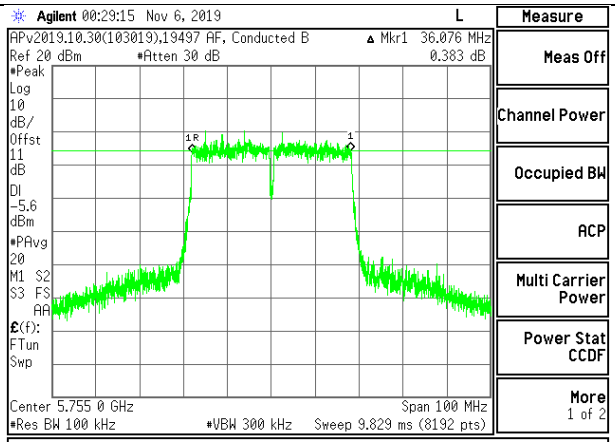
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	5755	36.357	36.076	0.5
High	5795	36.320	36.076	0.5
142	5710	3.235	3.235	0.5

LOW CHANNEL

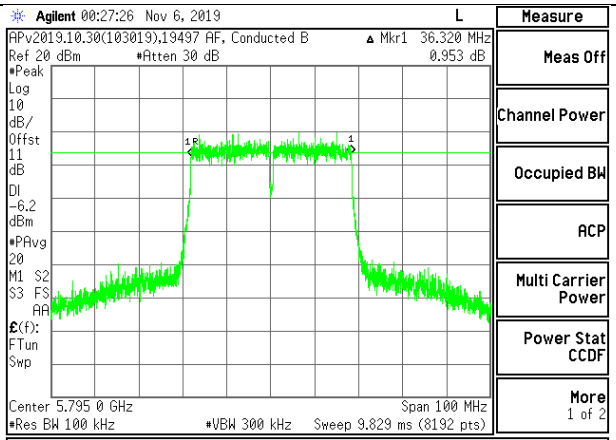


LOW CHANNEL CHAIN 0

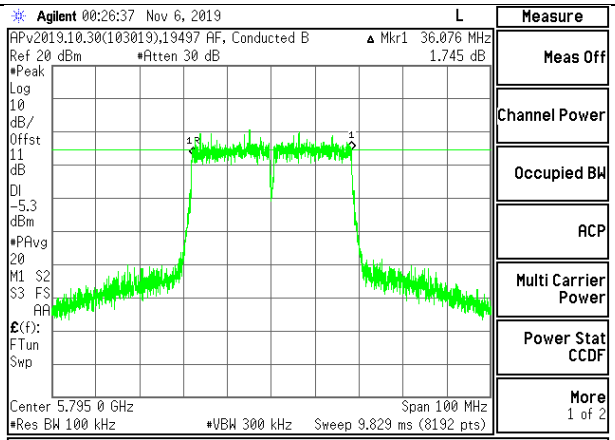


LOW CHANNEL CHAIN 1

HIGH CHANNEL

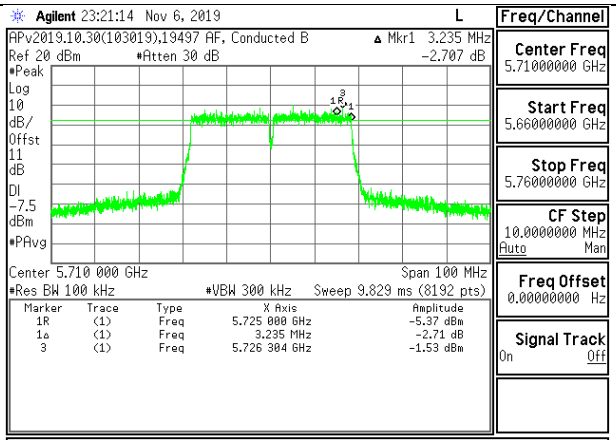


HIGH CHANNEL CHAIN 0

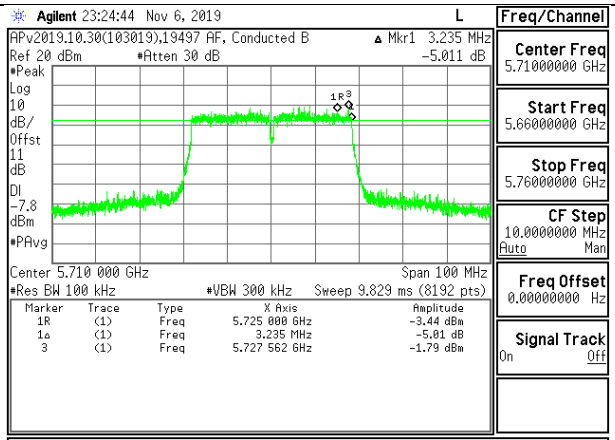


HIGH CHANNEL CHAIN 1

CHANNEL 142



CHANNEL 142 CHAIN 0



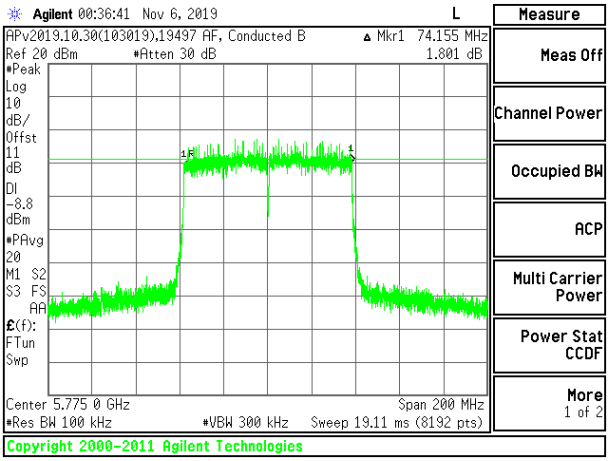
CHANNEL 142 CHAIN 1

8.3.4. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

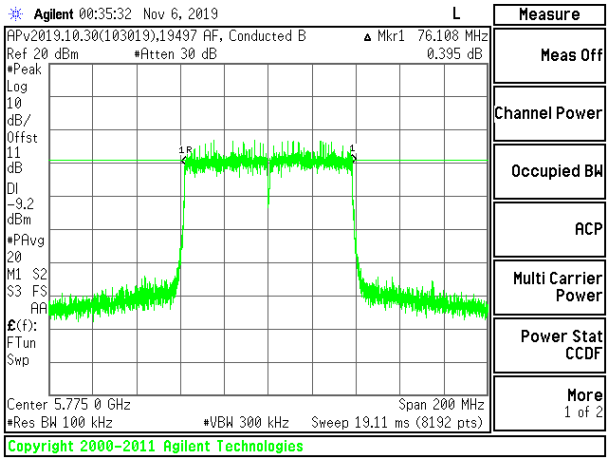
2TX Chain 0 + Chain 1 CDD MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Mid	5775	74.155	76.108	0.5
138	5690	3.247	3.247	0.5

MID CHANNEL

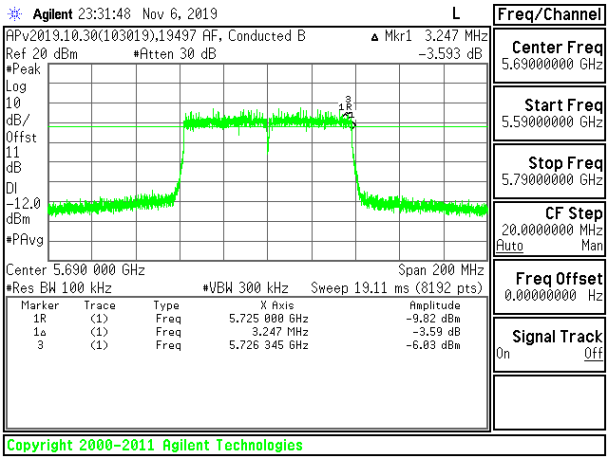


MID CHANNEL CHAIN 0

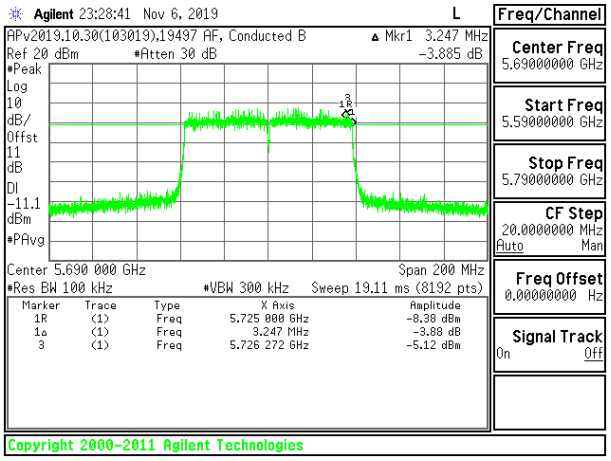


MID CHANNEL CHAIN 1

CHANNEL 138



CHANNEL 138 CHAIN 0



CHANNEL 138 CHAIN 1

8.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407

Band 5.15–5.25 GHz

(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.

Bands 5.25-5.35 GHz and 5.47-5.725 GHz

The maximum conducted output power over the frequency bands 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 megahertz. 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.

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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

TEST PROCEDURE

The measurement method used for output power is KDB 789033 D02 v02r01, Section E.3.b (Method PM-G) and for straddles channels KDB 789033 D02 v02r01, Section E.2.b (Method SA-1) was used.

The measurement method used for power spectral density is KDB 789033 D02 v02r01, Section F

DIRECTIONAL 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:

Band (GHz)	Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
5.2	-7.02	-8.21	-7.57	-4.58
5.3	-7.58	-8.22	-7.89	-4.88
5.6	-7.11	-7.41	-7.26	-4.25
5.8	-6.05	-4.85	-5.41	-2.42

RESULTS

Tested By:	19497 AF
Date:	11/05/2019

8.4.1. 802.11a MODE IN THE 5.2 GHz BAND

1TX SISO MODE

Antenna Gain and Limits

Channel	Frequency (MHz)	Chain 0 Directional Gain for Power (dBi)	Chain 1 Directional Gain for Power (dBi)	Power Limit (dBm)
Low	5180	-7.02	-8.21	24.00
Mid	5200	-7.02	-8.21	24.00
High	5240	-7.02	-8.21	24.00

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 0 Corr'd Power (dBm)	Chain 1 Corr'd Power (dBm)	Power Limit (dBm)	Pov Mar (d
Low	5180	15.25	16.44	15.25	16.44	24.00	-7.
Mid	5200	15.12	16.38	15.12	16.38	24.00	-7.
High	5240	15.28	16.60	15.28	16.60	24.00	-7.

2TX Chain 0 + Chain 1 CDD MODE (FCC) MOBILE

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5180	-7.57	-4.58	24.00	11.00
Mid	5200	-7.57	-4.58	24.00	11.00
High	5240	-7.57	-4.58	24.00	11.00

Duty Cycle CF (dB)	0.30	Included in Calculations of Corr'd PSD

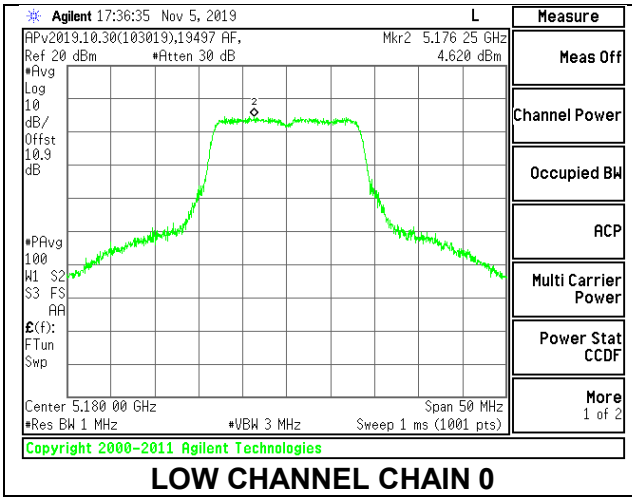
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	15.35	16.54	19.00	24.00	-5.00
Mid	5200	15.22	16.49	18.91	24.00	-5.09
High	5240	15.49	16.69	19.14	24.00	-4.86

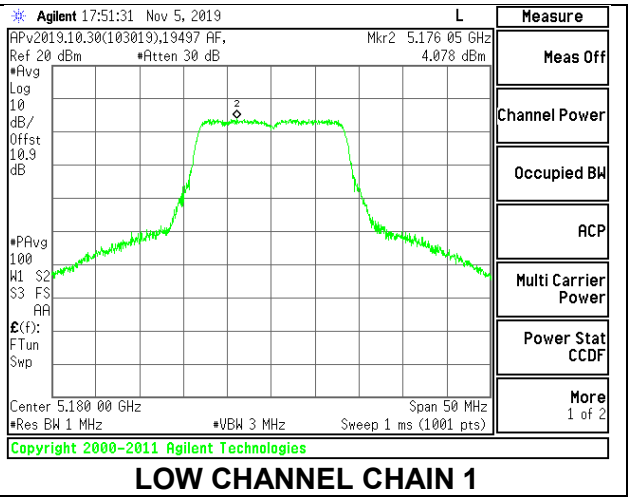
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/1MHz)	Antenna 2 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5180	4.620	4.078	7.67	11.00	-3.33
Mid	5200	4.248	3.900	7.39	11.00	-3.61
High	5240	4.573	4.175	7.69	11.00	-3.31

LOW CHANNEL

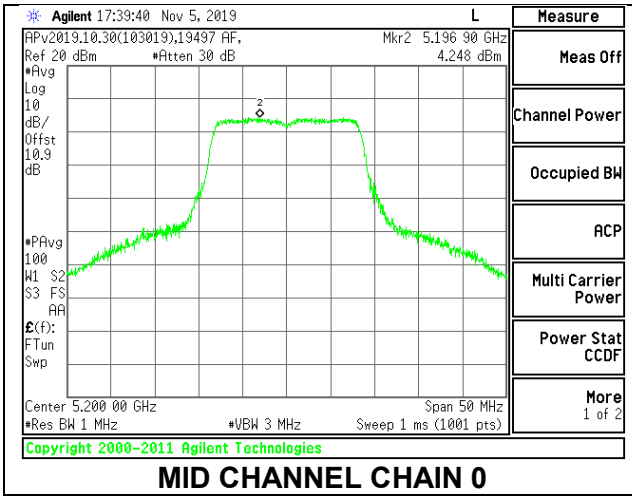


LOW CHANNEL CHAIN 0

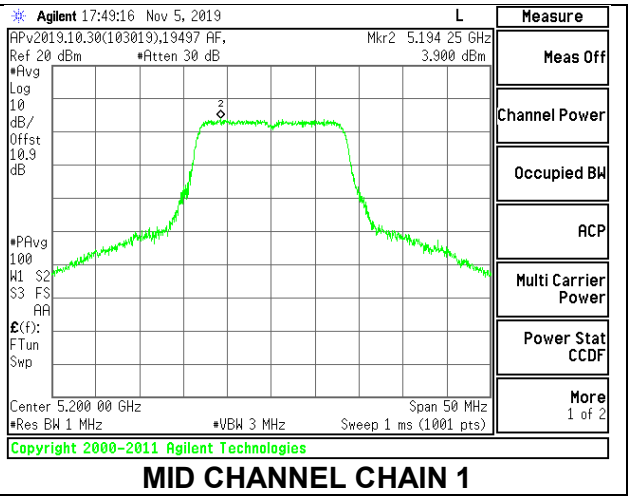


LOW CHANNEL CHAIN 1

MID CHANNEL

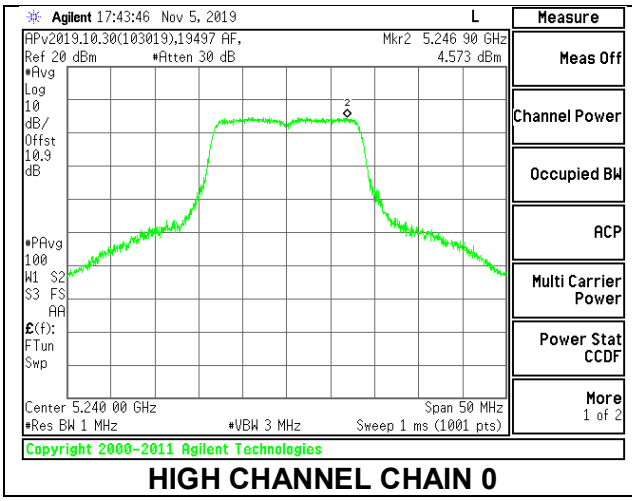


MID CHANNEL CHAIN 0

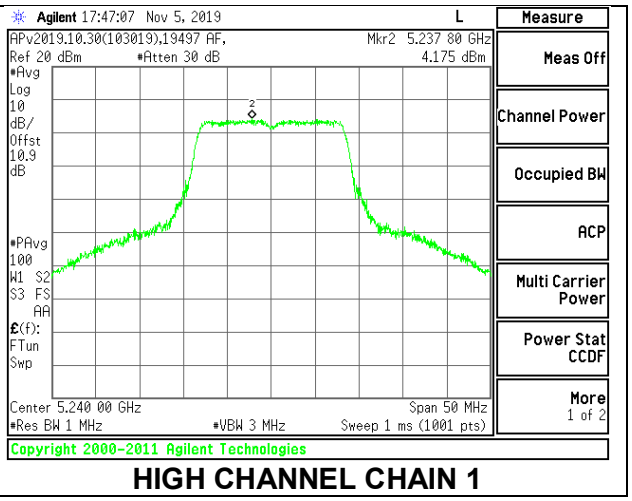


MID CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1

8.4.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

1TX SISO MODE

Antenna Gain and Limits

Channel	Frequency (MHz)	Chain 0 Directional Gain for Power (dBi)	Chain 1 Directional Gain for Power (dBi)	Power Limit (dBm)
Low	5180	-7.02	-8.21	24.00
Mid	5200	-7.02	-8.21	24.00
High	5240	-7.02	-8.21	24.00

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 0 Corr'd Power (dBm)	Chain 1 Corr'd Power (dBm)	Power Limit (dBm)	Pov Mar (d
Low	5180	15.12	16.58	15.12	16.58	24.00	-7.
Mid	5200	15.10	16.50	15.10	16.50	24.00	-7.
High	5240	15.32	16.47	15.32	16.47	24.00	-7.

2TX Chain 0 + Chain 1 CDD MODE (FCC) MOBILE

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5180	-7.57	-4.58	24.00	11.00
Mid	5200	-7.57	-4.58	24.00	11.00
High	5240	-7.57	-4.58	24.00	11.00

Duty Cycle CF (dB)	0.32	Included in Calculations of Corr'd PSD

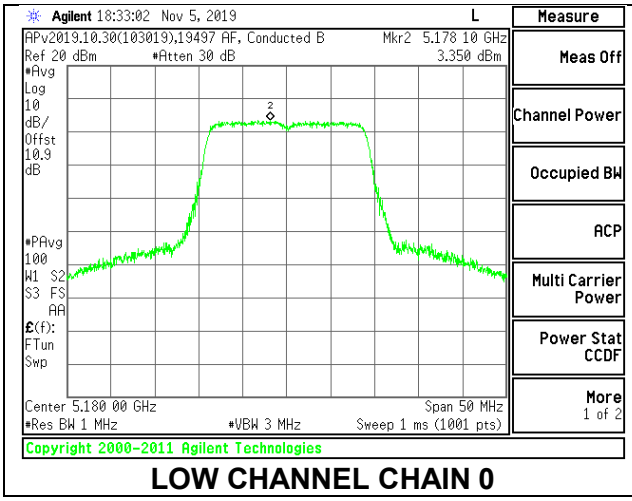
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	15.34	16.65	19.05	24.00	-4.95
Mid	5200	15.34	16.62	19.04	24.00	-4.96
High	5240	15.45	16.56	19.05	24.00	-4.95

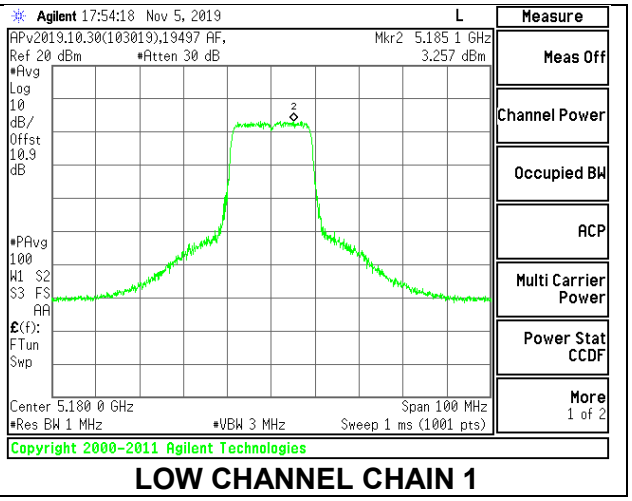
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/1MHz)	Antenna 2 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	3.350	3.257	6.63	11.00	-4.37
Mid	5200	3.479	3.885	7.02	11.00	-3.98
High	5240	4.181	3.955	7.40	11.00	-3.60

LOW CHANNEL

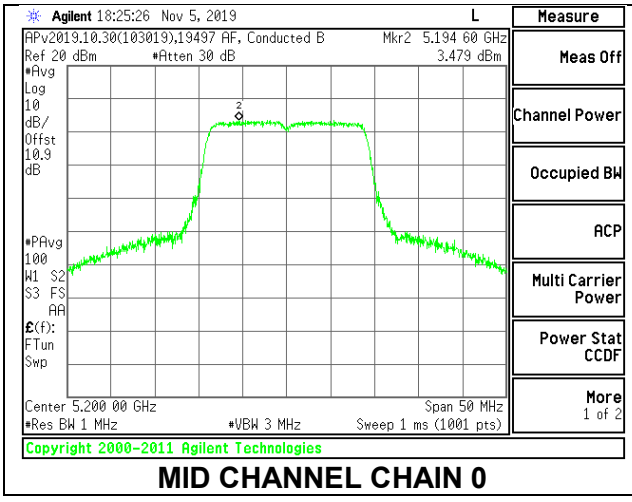


LOW CHANNEL CHAIN 0

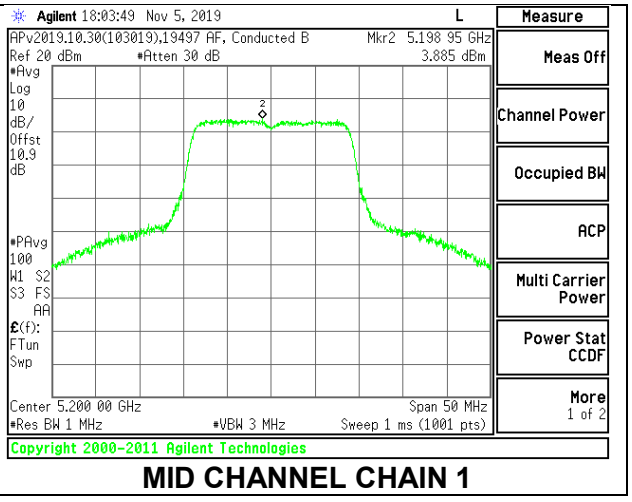


LOW CHANNEL CHAIN 1

MID CHANNEL

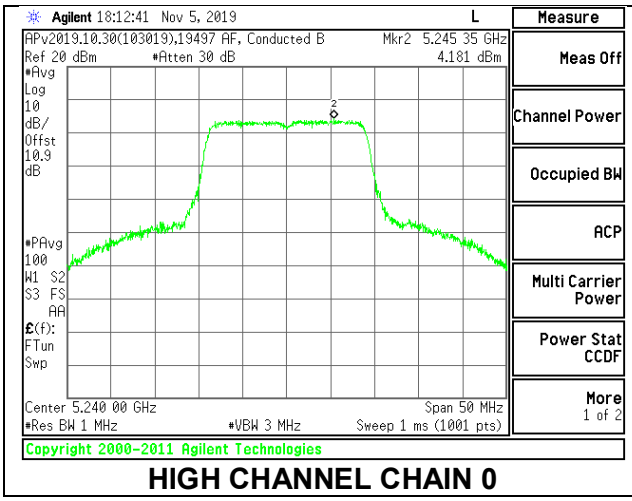


MID CHANNEL CHAIN 0

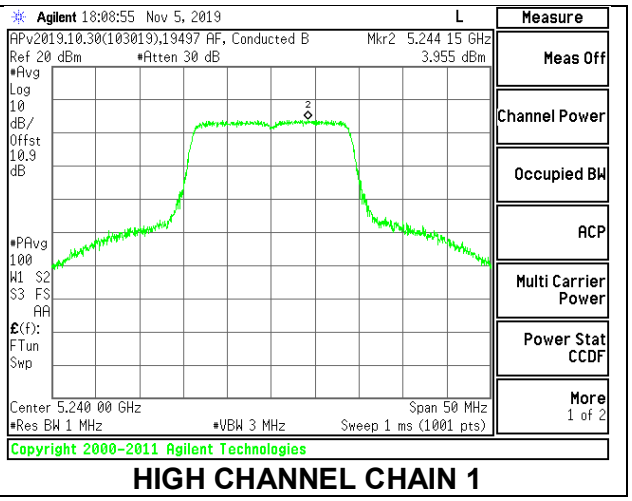


MID CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1

8.4.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

1TX SISO MODE

Antenna Gain and Limits

Channel	Frequency (MHz)	Chain 0 Directional Gain for Power (dBi)	Chain 1 Directional Gain for Power (dBi)	Power Limit (dBm)
Low	5190	-7.02	-8.21	24.00
High	5230	-7.02	-8.21	24.00

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 0 Corr'd Power (dBm)	Chain 1 Corr'd Power (dBm)	Power Limit (dBm)	Pov Mar (d
Low	5190	14.01	15.45	14.01	15.45	24.00	-8.
High	5230	13.92	15.23	13.92	15.23	24.00	-8.

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2TX Chain 0 + Chain 1 CDD MODE (FCC) MOBILE

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5190	-7.57	-4.58	24.00	11.00
High	5230	-7.57	-4.58	24.00	11.00

Duty Cycle CF (dB)	0.61	Included in Calculations of Corr'd PSD

Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	14.14	15.62	17.95	24.00	-6.05
High	5230	14.04	15.35	17.75	24.00	-6.25

PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 1MHz)	Antenna 2 Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5190	-1.058	-0.666	2.76	11.00	-8.24
High	5230	-0.728	-0.635	2.94	11.00	-8.06

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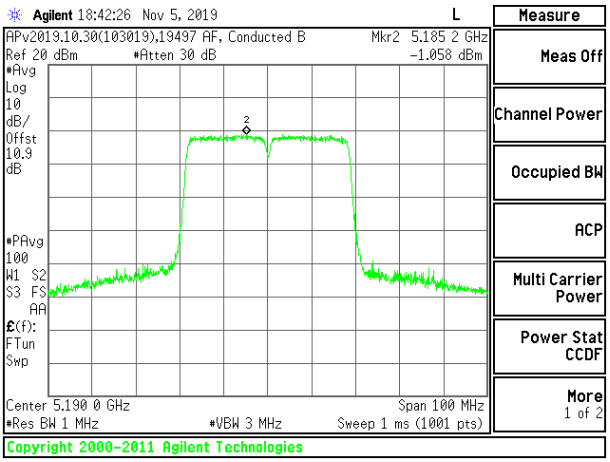
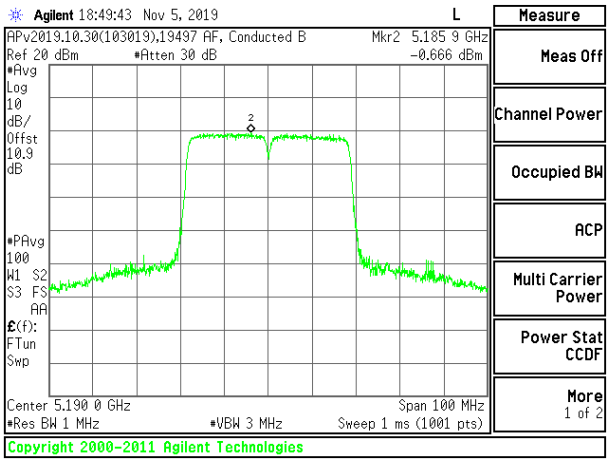
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

LOW CHANNEL

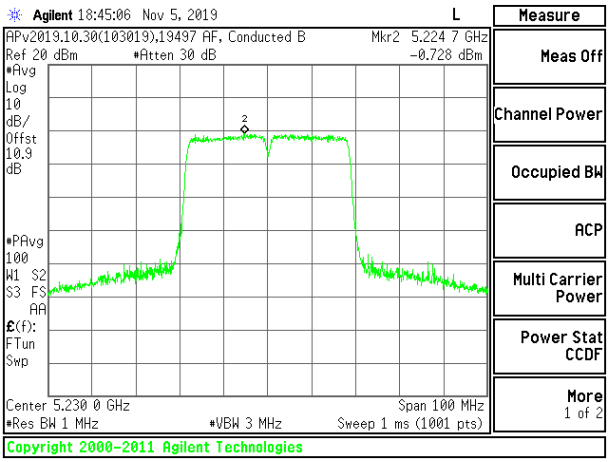


LOW CHANNEL CHAIN 0

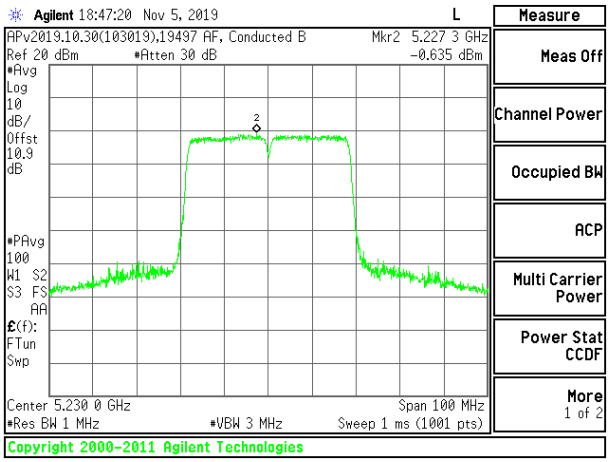


LOW CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1

8.4.4. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

1TX SISO MODE

Antenna Gain and Limits

Channel	Frequency (MHz)	Chain 0 Directional Gain for Power (dBi)	Chain 1 Directional Gain for Power (dBi)	Power Limit (dBm)
Mid	5210	-7.02	-8.21	24.00

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 0 Corr'd Power (dBm)	Chain 1 Corr'd Power (dBm)	Power Limit (dBm)	Pov Mar (d
Mid	5210	12.82	14.20	12.82	14.20	24.00	-9.

2TX Chain 0 + Chain 1 CDD MODE (FCC) MOBILE

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Mid	5210	-7.57	-4.58	24.00	11.00

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

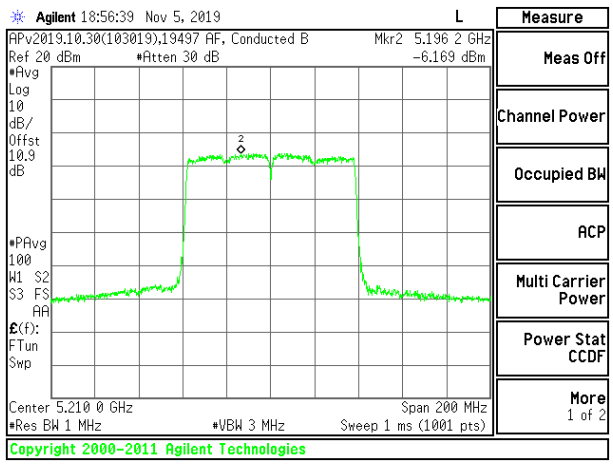
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5210	13.06	14.37	16.77	24.00	-7.23

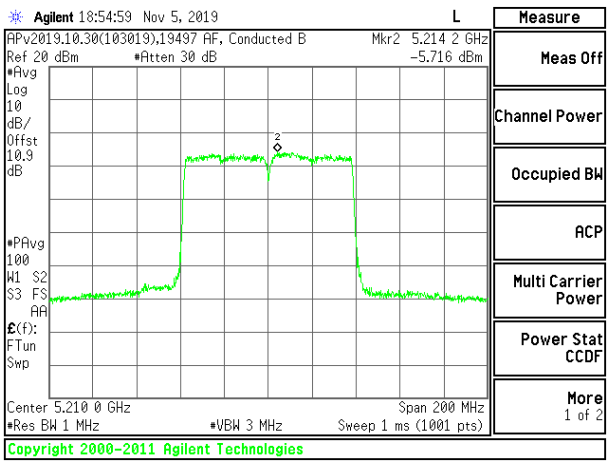
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 1MHz)	Antenna 2 Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Mid	5210	-6.169	-5.716	-1.09	11.00	-12.09

MID CHANNEL



MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1

8.4.5. 802.11a MODE IN THE 5.3 GHz BAND

1TX SISO MODE

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Chain 0 Directional Gain for Power (dBi)	Chain 1 Directional Gain for Power (dBi)	Power Power Limit (dBm)
Low	5260	21.10	-7.58	-8.22	24.00
Mid	5300	20.95	-7.58	-8.22	24.00
High	5320	21.00	-7.58	-8.22	24.00

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 0 Corr'd Power (dBm)	Chain 1 Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	15.40	16.27	15.40	16.27	24.00	-7.73
Mid	5300	15.60	16.27	15.60	16.27	24.00	-7.73
High	5320	15.52	16.29	15.52	16.29	24.00	-7.71

2TX Chain 0 + Chain 1 CDD MODE (FCC)

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5260	21.10	-7.89	-4.88	24.00	11.00
Mid	5300	20.95	-7.89	-4.88	24.00	11.00
High	5320	21.00	-7.89	-4.88	24.00	11.00

Duty Cycle CF (dB)	0.30	Included in Calculations of Corr'd PSD

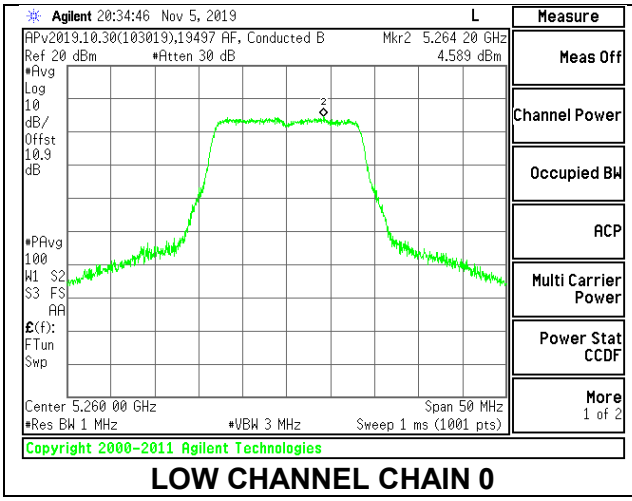
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	15.66	16.35	19.03	24.00	-4.97
Mid	5300	15.72	16.40	19.08	24.00	-4.92
High	5320	15.76	16.36	19.08	24.00	-4.92

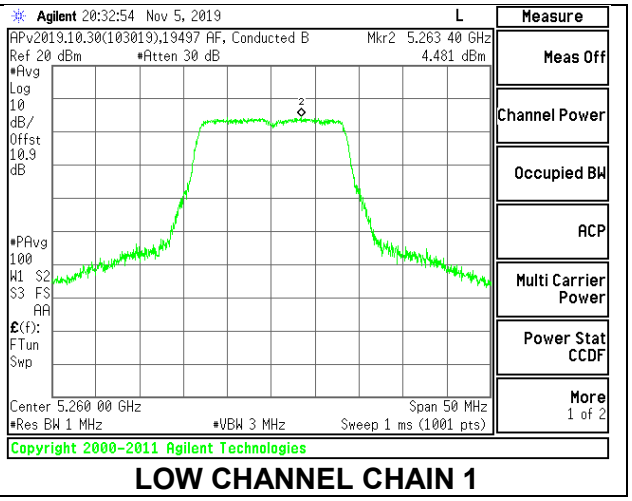
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/1MHz)	Antenna 2 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5260	4.589	4.481	7.85	11.00	-3.15
Mid	5300	4.681	4.438	7.87	11.00	-3.13
High	5320	4.676	4.425	7.86	11.00	-3.14

LOW CHANNEL

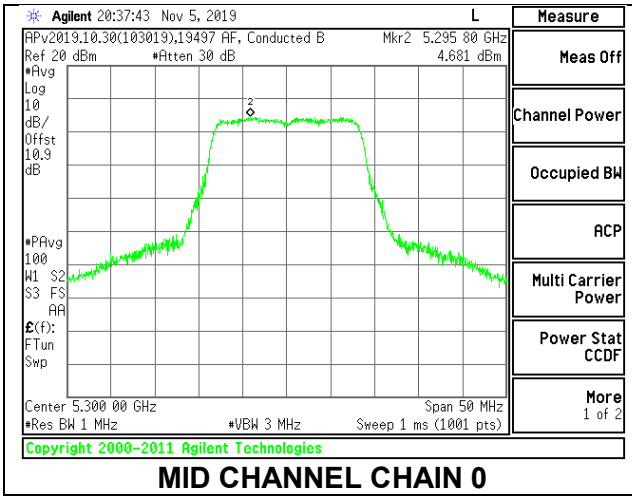


LOW CHANNEL CHAIN 0

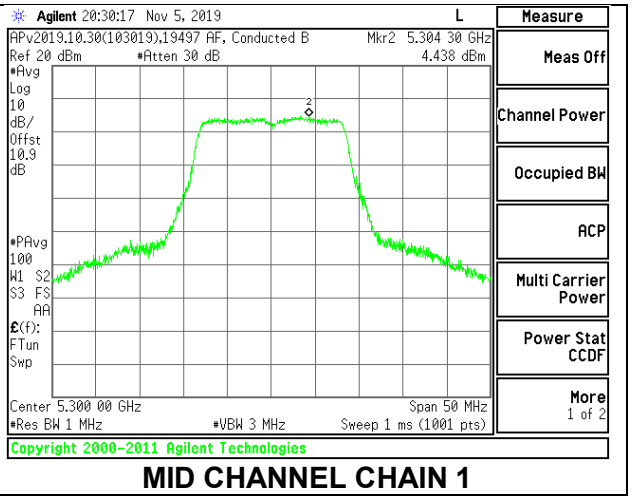


LOW CHANNEL CHAIN 1

MID CHANNEL

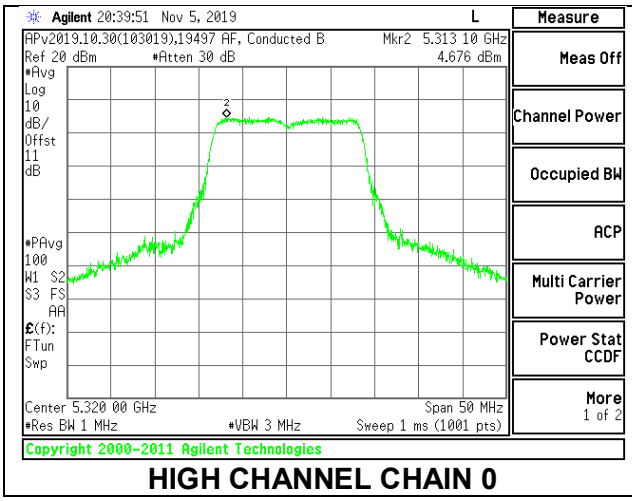


MID CHANNEL CHAIN 0

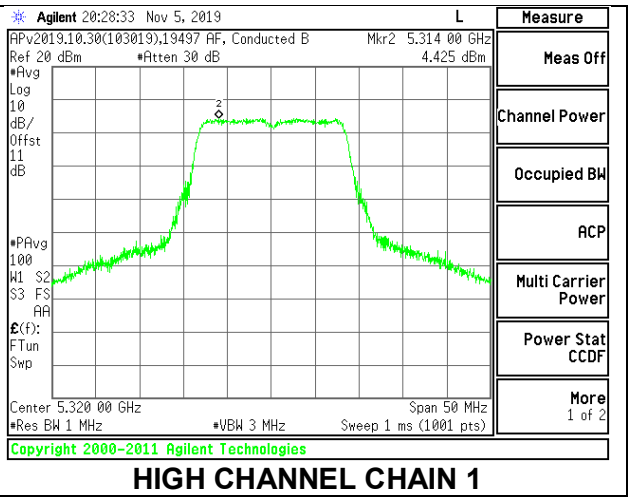


MID CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1

8.4.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

1TX SISO MODE

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Chain 0 Directional Gain for Power (dBi)	Chain 1 Directional Gain for Power (dBi)	Power Power Limit (dBm)
Low	5260	21.20	-7.58	-8.22	24.00
Mid	5300	21.05	-7.58	-8.22	24.00
High	5320	21.15	-7.58	-8.22	24.00

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 0 Corr'd Power (dBm)	Chain 1 Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	15.44	16.32	15.44	16.32	24.00	-7.68
Mid	5300	15.43	16.30	15.43	16.30	24.00	-7.70
High	5320	15.45	16.24	15.45	16.24	24.00	-7.76

2TX Chain 0 + Chain 1 CDD MODE (FCC)

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5260	21.20	-7.89	-4.88	24.00	11.00
Mid	5300	21.05	-7.89	-4.88	24.00	11.00
High	5320	21.15	-7.89	-4.88	24.00	11.00

Duty Cycle CF (dB)	0.32	Included in Calculations of Corr'd PSD

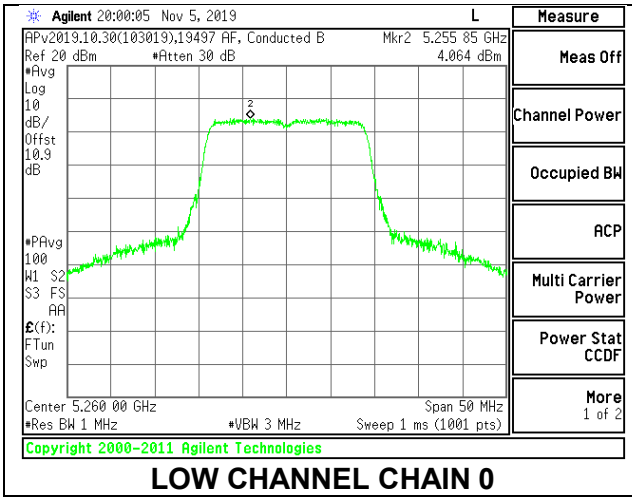
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	15.70	16.42	19.09	24.00	-4.91
Mid	5300	15.54	16.43	19.02	24.00	-4.98
High	5320	15.57	16.35	18.99	24.00	-5.01

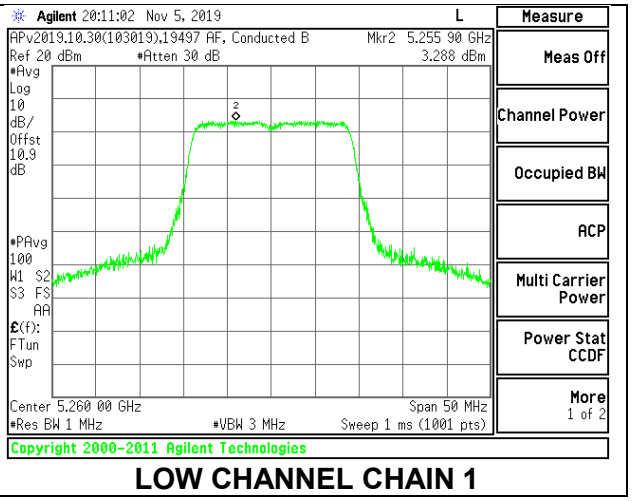
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/1MHz)	Antenna 2 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5260	4.064	3.288	7.02	11.00	-3.98
Mid	5300	4.082	4.256	7.50	11.00	-3.50
High	5320	4.255	4.111	7.51	11.00	-3.49

LOW CHANNEL

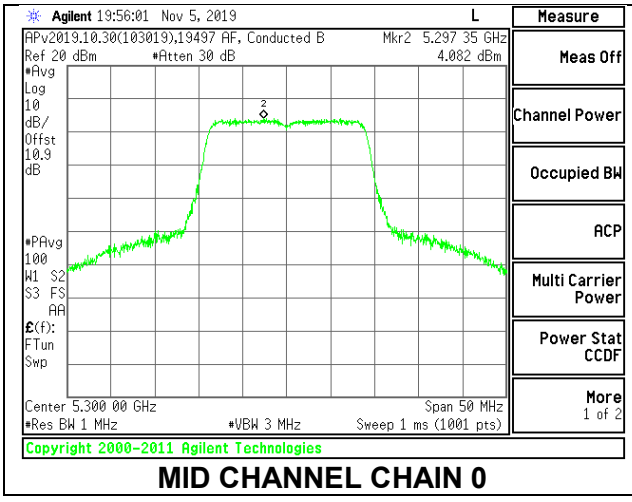


LOW CHANNEL CHAIN 0

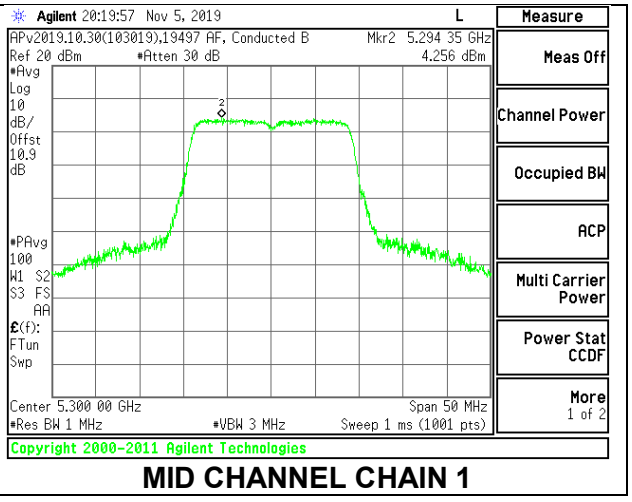


LOW CHANNEL CHAIN 1

MID CHANNEL

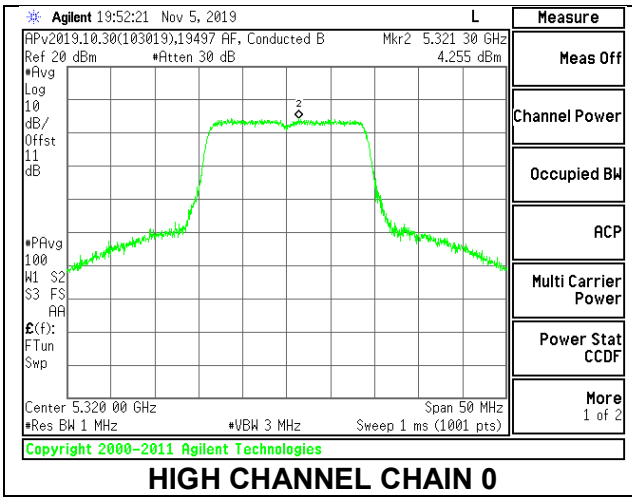


MID CHANNEL CHAIN 0

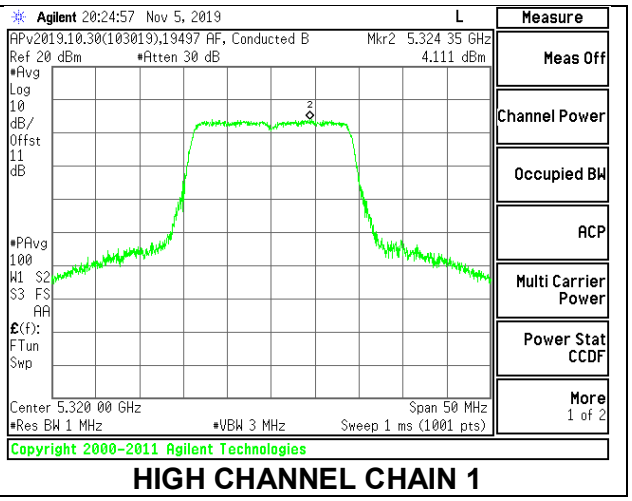


MID CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1

8.4.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

1TX SISO MODE

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Chain 0 Directional Gain for Power (dBi)	Chain 1 Directional Gain for Power (dBi)	Power Power Limit (dBm)
Low	5270	39.10	-7.58	-8.22	24.00
High	5310	39.30	-7.58	-8.22	24.00

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 0 Corr'd Power (dBm)	Chain 1 Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	14.17	15.33	14.17	15.33	24.00	-8.67
High	5310	14.47	15.47	14.47	15.47	24.00	-8.53

2TX Chain 0 + Chain 1 CDD MODE (FCC)

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5270	39.10	-7.89	-4.88	24.00	11.00
High	5310	39.30	-7.89	-4.88	24.00	11.00

Duty Cycle CF (dB)	0.61	Included in Calculations of Corr'd PSD

Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	14.28	15.48	17.93	24.00	-6.07
High	5310	14.56	15.61	18.13	24.00	-5.87

PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/1MHz)	Antenna 2 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5270	0.115	-0.196	3.58	11.00	-7.42
High	5310	-0.234	-0.260	3.37	11.00	-7.63

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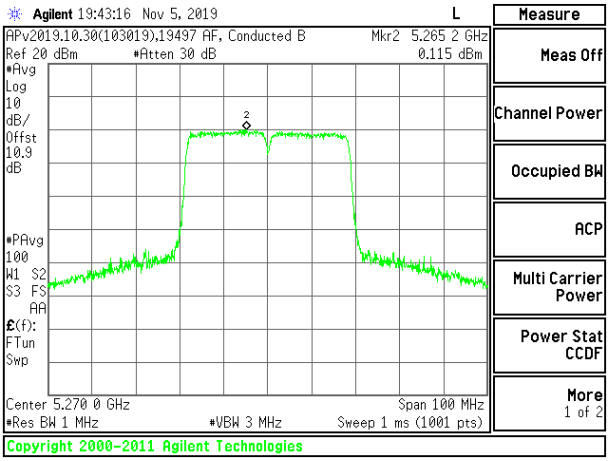
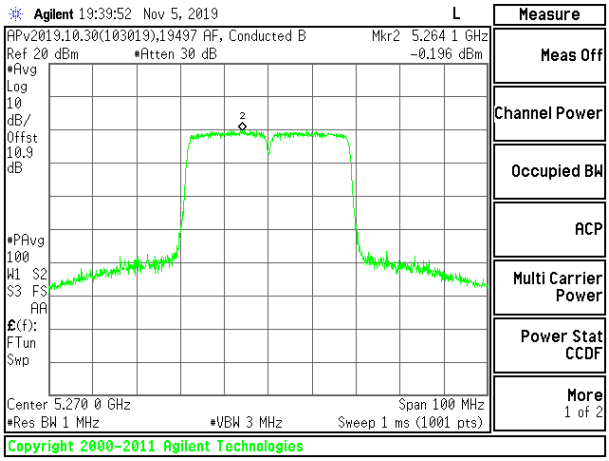
LOW CHANNEL

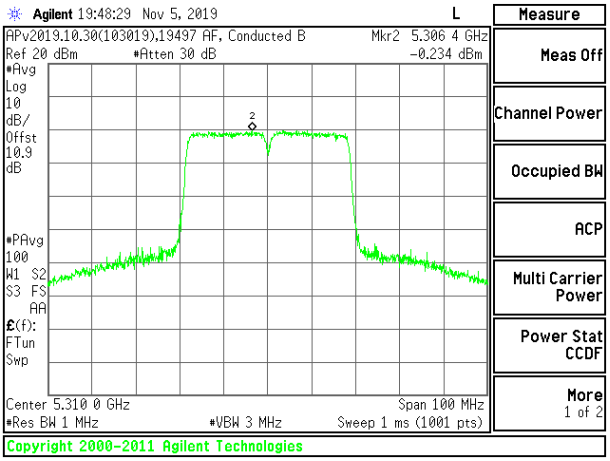


LOW CHANNEL CHAIN 0

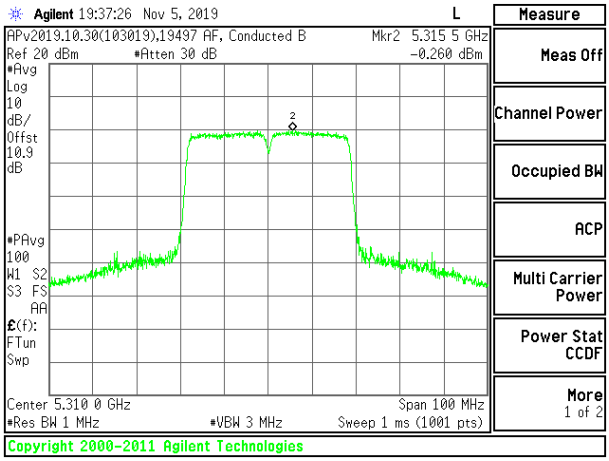


LOW CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1

8.4.8. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

1TX SISO MODE

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Chain 0 Directional Gain for Power (dBi)	Chain 1 Directional Gain for Power (dBi)	Power Power Limit (dBm)
Mid	5290	80.40	-7.58	8.22	24.00

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 0 Corr'd Power (dBm)	Chain 1 Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5290	13.19	14.09	13.19	14.09	24.00	-9.91

2TX Chain 0 + Chain 1 CDD MODE (FCC)

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Mid	5290	80.40	-7.89	-4.88	24.00	11.00

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

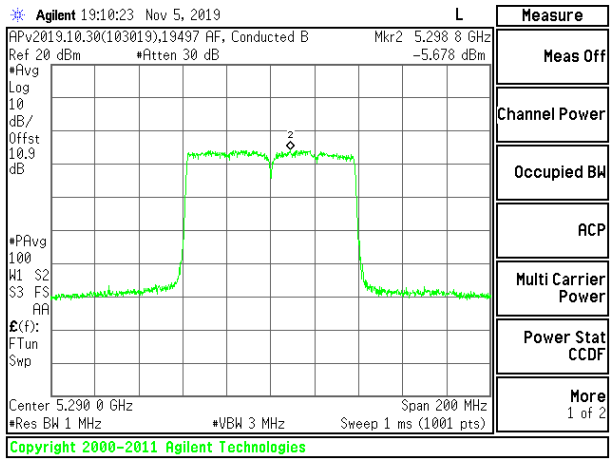
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5290	13.30	14.20	16.78	24.00	-7.22

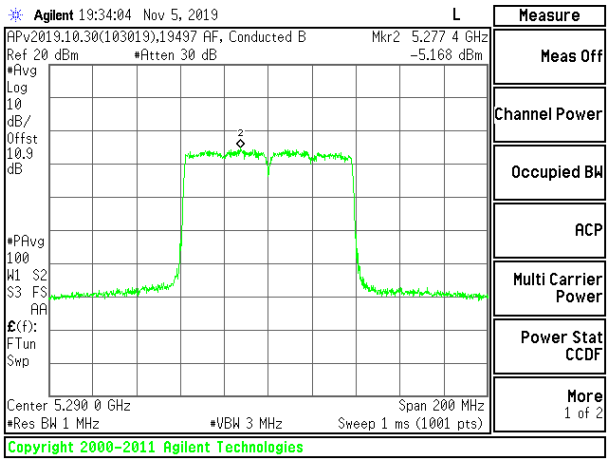
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/1MHz)	Antenna 2 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Mid	5290	-5.678	-5.168	-0.57	11.00	-11.57

MID CHANNEL



MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1

8.4.9. 802.11a MODE IN THE 5.6 GHz BAND

1TX SISO MODE

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Chain 0 Directional Gain for Power (dBi)	Chain 1 Directional Gain For Power (dBi)	Power Limit (dBm)
Low	5500	20.35	-7.11	-7.41	24.00
Mid	5580	20.90	-7.11	-7.41	24.00
High	5700	21.20	-7.11	-7.41	24.00
144	5720	21.15	-7.11	-7.41	24.00

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 0 Corr'd Power (dBm)	Chain 1 Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	15.95	16.31	15.95	16.31	24.00	-7.69
Mid	5580	15.80	16.10	15.80	16.10	24.00	-7.90
High	5700	16.05	16.18	16.05	16.18	24.00	-7.82
144	5720	16.01	16.15	16.01	16.15	24.00	-7.85

2TX Chain 0 + Chain 1 CDD MODE (FCC)

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5500	20.35	-7.26	-4.25	24.00	11.00
Mid	5580	20.90	-7.26	-4.25	24.00	11.00
High	5700	21.20	-7.26	-4.25	24.00	11.00
144	5720	21.15	-7.26	-4.25	24.00	11.00

Duty Cycle CF (dB)	0.30	Included in Calculations of Corr'd PSD

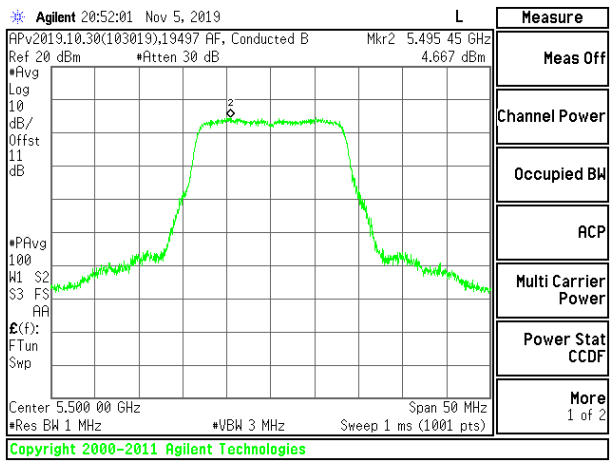
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	16.12	16.50	19.32	24.00	-4.68
Mid	5580	16.07	16.20	19.15	24.00	-4.85
High	5700	16.22	16.42	19.33	24.00	-4.67
144	5720	16.45	16.41	19.44	24.00	-4.56

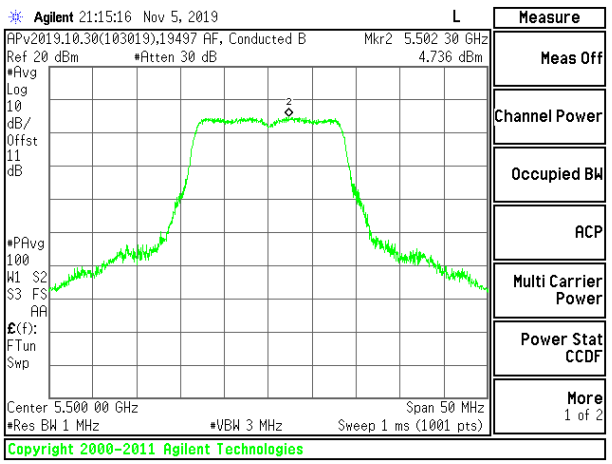
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 1MHz)	Antenna 2 Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5500	4.667	4.736	8.01	11.00	-2.99
Mid	5580	4.566	4.704	7.95	11.00	-3.05
High	5700	4.884	4.813	8.16	11.00	-2.84
144	5720	4.939	5.115	8.34	11.00	-2.66

LOW CHANNEL

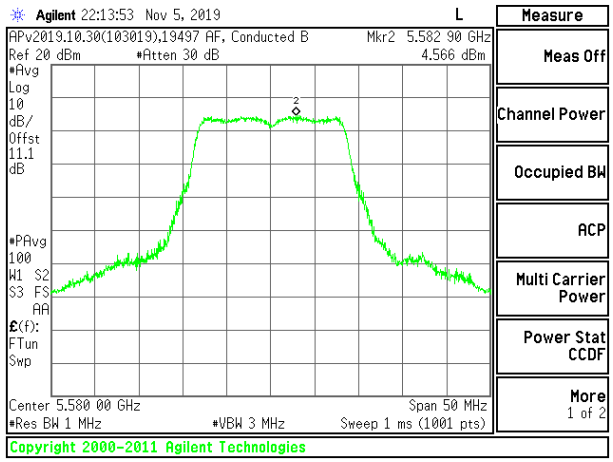


LOW CHANNEL CHAIN 0

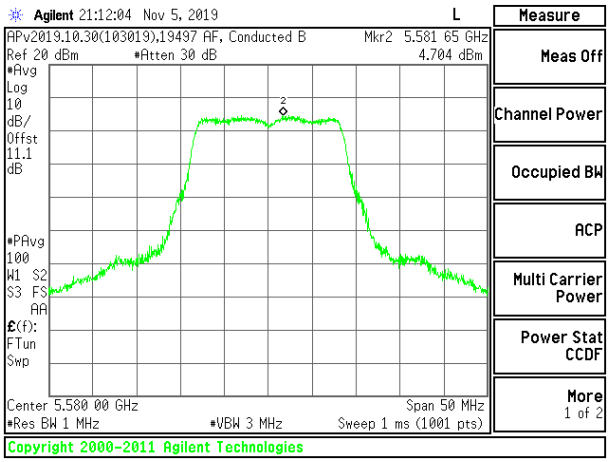


LOW CHANNEL CHAIN 1

MID CHANNEL

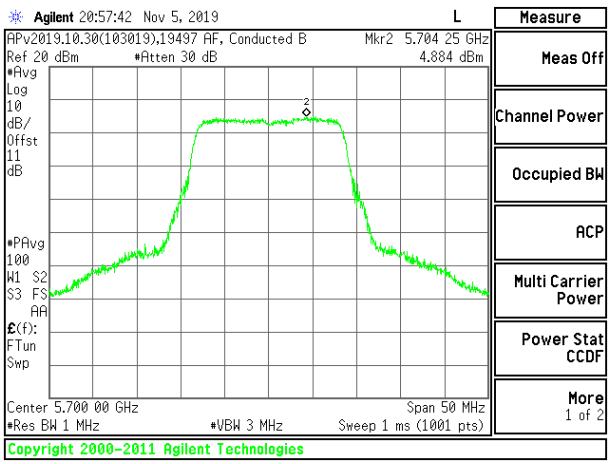


MID CHANNEL CHAIN 0

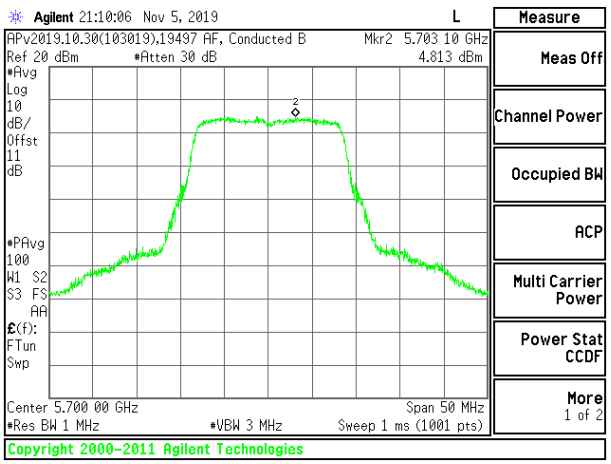


MID CHANNEL CHAIN 1

HIGH CHANNEL

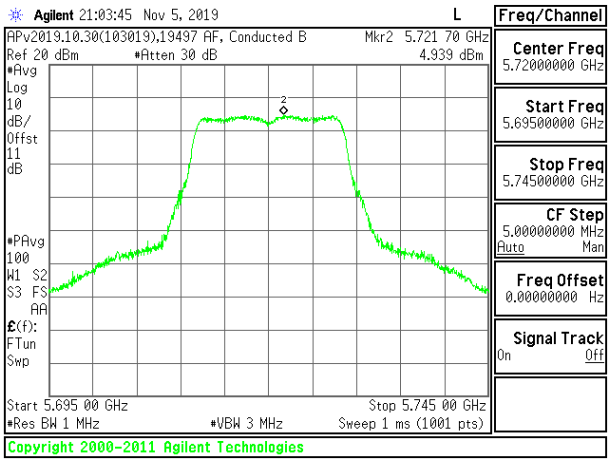


HIGH CHANNEL CHAIN 0

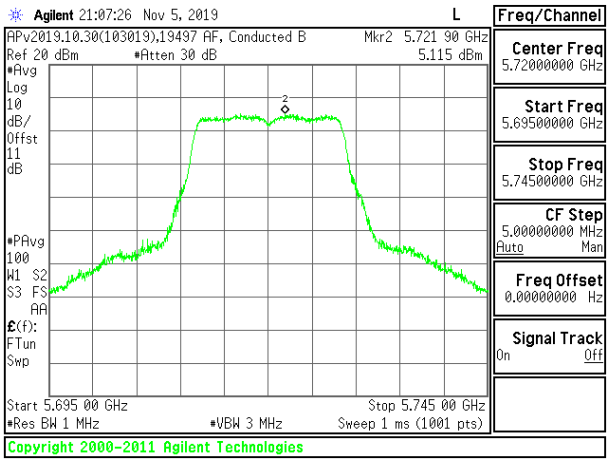


HIGH CHANNEL CHAIN 1

CHANNEL 144



CHANNEL 144 CHAIN 0



CHANNEL 144 CHAIN 1

8.4.10. 802.11n HT20 MODE IN THE 5.6 GHz BAND

1TX SISO MODE

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Chain 0 Directional Gain for Power (dBi)	Chain 1 Directional Gain For Power (dBi)	Power Limit (dBm)
Low	5500	21.20	-7.11	-7.41	24.00
Mid	5580	21.30	-7.11	-7.41	24.00
High	5700	21.05	-7.11	-7.41	24.00
144	5720	21.30	-7.11	-7.41	24.00

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 0 Corr'd Power (dBm)	Chain 1 Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	15.97	16.25	15.97	16.25	24.00	-7.75
Mid	5580	15.88	16.09	15.88	16.09	24.00	-7.91
High	5700	15.56	15.66	15.56	15.66	24.00	-8.34
144	5720	15.57	15.50	15.57	15.50	24.00	-8.43

2TX Chain 0 + Chain 1 CDD MODE (FCC)

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5500	21.20	-7.26	-4.25	24.00	11.00
Mid	5580	21.30	-7.26	-4.25	24.00	11.00
High	5700	21.05	-7.26	-4.25	24.00	11.00
144	5720	21.30	-7.26	-4.25	24.00	11.00

Duty Cycle CF (dB)	0.32	Included in Calculations of Corr'd PSD

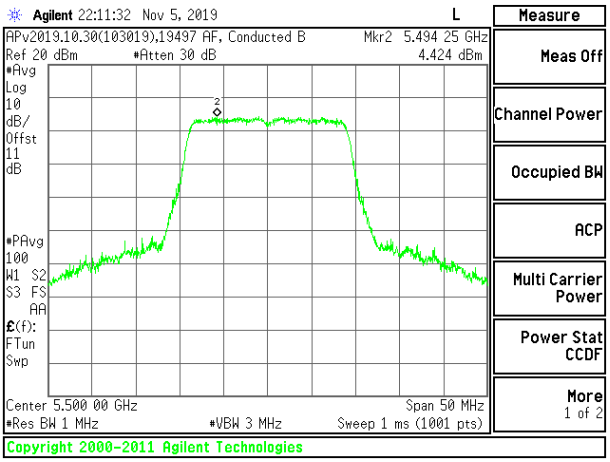
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	16.16	16.49	19.34	24.00	-4.66
Mid	5580	16.01	16.32	19.18	24.00	-4.82
High	5700	15.98	16.27	19.14	24.00	-4.86
144	5720	16.09	15.97	19.04	24.00	-4.96

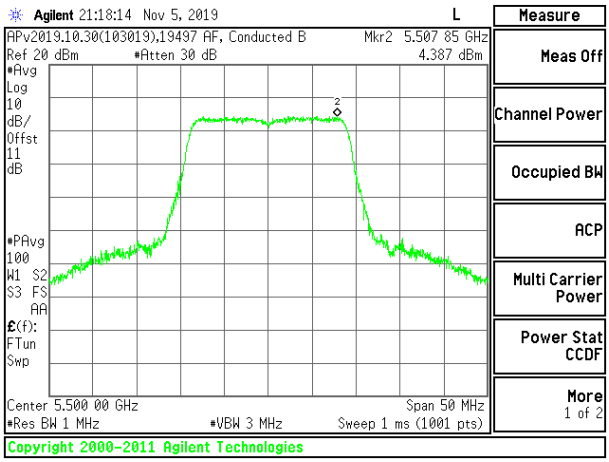
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 1MHz)	Antenna 2 Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5500	4.424	4.387	7.74	11.00	-3.26
Mid	5580	4.124	4.303	7.54	11.00	-3.46
High	5700	4.096	3.728	7.25	11.00	-3.75
144	5720	3.568	3.866	7.05	11.00	-3.95

LOW CHANNEL

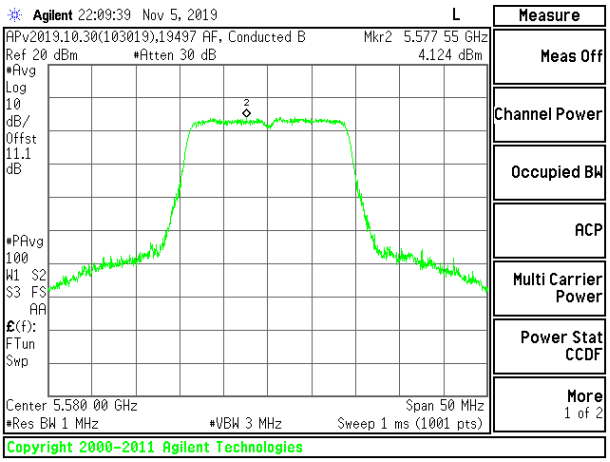


LOW CHANNEL CHAIN 0

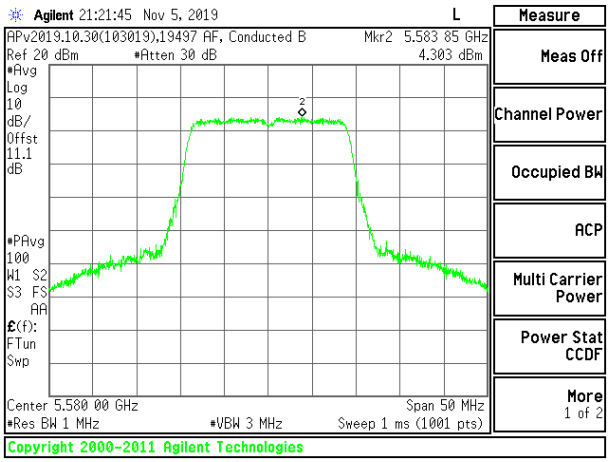


LOW CHANNEL CHAIN 1

MID CHANNEL

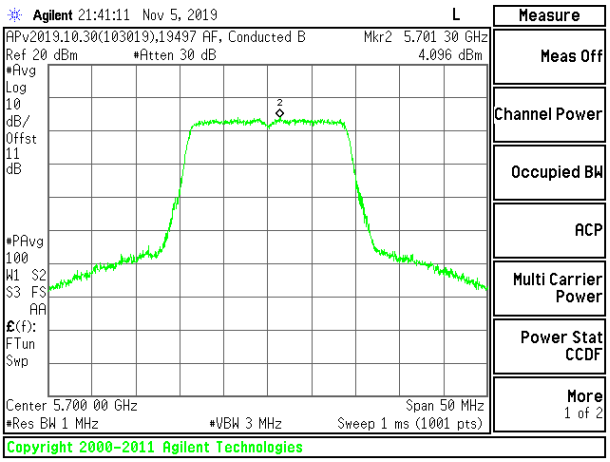


MID CHANNEL CHAIN 0

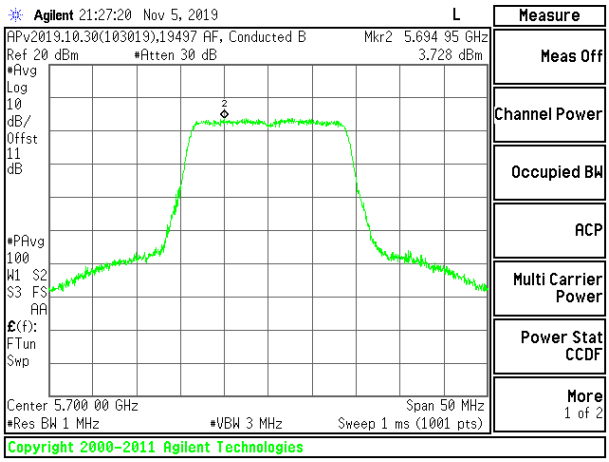


MID CHANNEL CHAIN 1

HIGH CHANNEL

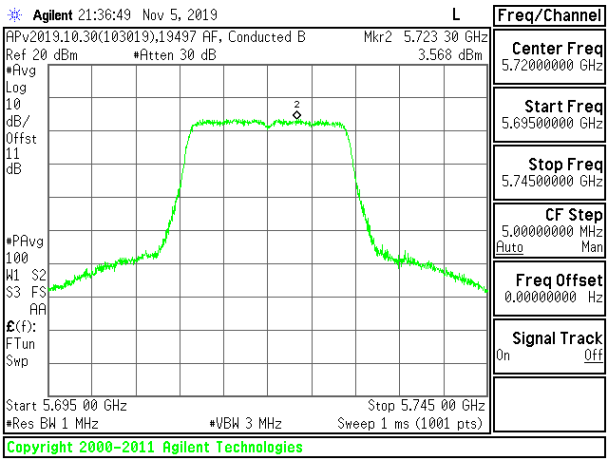


HIGH CHANNEL CHAIN 0

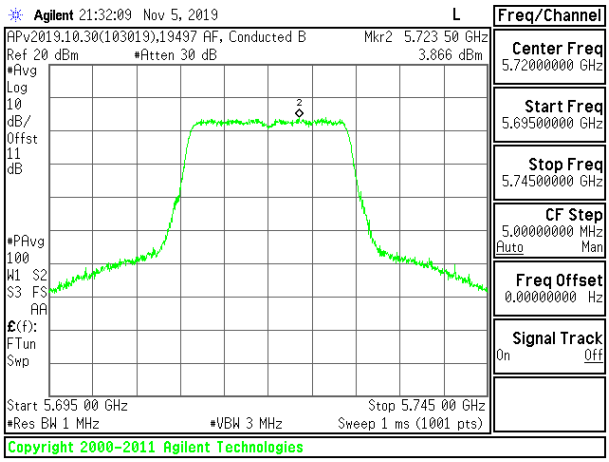


HIGH CHANNEL CHAIN 1

CHANNEL 144



CHANNEL 144 CHAIN 0



CHANNEL 144 CHAIN 1

8.4.11. 802.11n HT40 MODE IN THE 5.6 GHz BAND

1TX SISO MODE

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Chain 0 Directional Gain for Power (dBi)	Chain 1 Directional Gain For Power (dBi)	Power Limit (dBm)
Low	5510	39.40	-7.11	-7.41	24.00
Mid	5550	39.10	-7.11	-7.41	24.00
High	5670	39.30	-7.11	-7.41	24.00
142	5710	39.40	-7.11	-7.41	24.00

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 0 Corr'd Power (dBm)	Chain 1 Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	15.09	15.54	15.09	15.54	24.00	-8.46
Mid	5550	15.03	15.48	15.03	15.48	24.00	-8.52
High	5670	14.90	15.01	14.90	15.01	24.00	-8.99
142	5710	15.31	15.29	15.31	15.29	24.00	-8.69

2TX Chain 0 + Chain 1 CDD MODE (FCC)

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5510	39.40	-7.26	-4.25	24.00	11.00
Mid	5550	39.10	-7.26	-4.25	24.00	11.00
High	5670	39.30	-7.26	-4.25	24.00	11.00
142	5710	39.40	-7.26	-4.25	24.00	11.00

Duty Cycle CF (dB)	0.61	Included in Calculations of Corr'd PSD

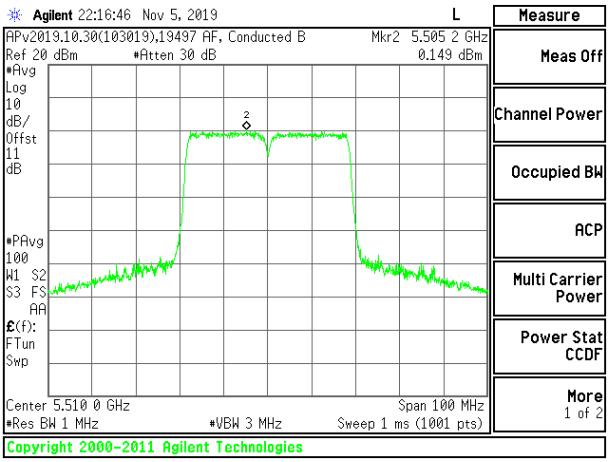
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	15.29	15.66	18.49	24.00	-5.51
Mid	5550	15.12	15.62	18.39	24.00	-5.61
High	5670	15.29	15.51	18.41	24.00	-5.59
142	5710	15.45	15.37	18.42	24.00	-5.58

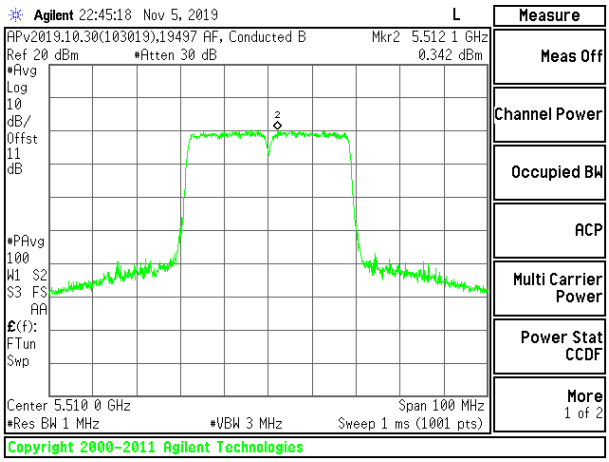
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 1MHz)	Antenna 2 Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5510	0.149	0.342	3.87	11.00	-7.13
Mid	5550	0.159	0.010	3.71	11.00	-7.29
High	5670	0.331	-0.001	3.79	11.00	-7.21
142	5710	-0.117	-0.550	3.29	11.00	-7.71

LOW CHANNEL

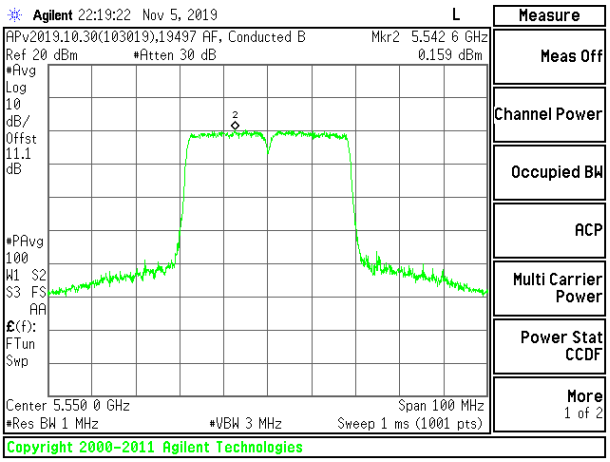


LOW CHANNEL CHAIN 0

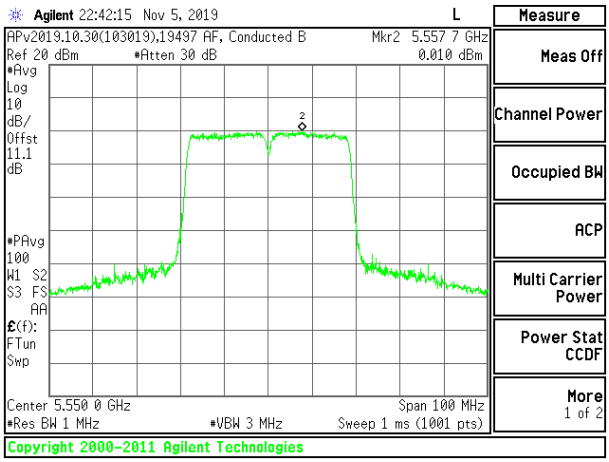


LOW CHANNEL CHAIN 1

MID CHANNEL

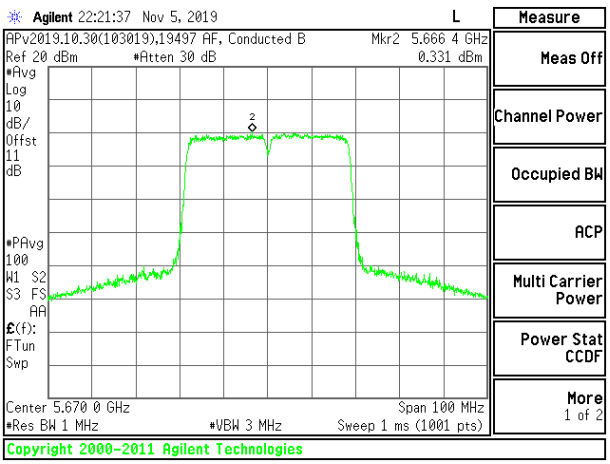


MID CHANNEL CHAIN 0

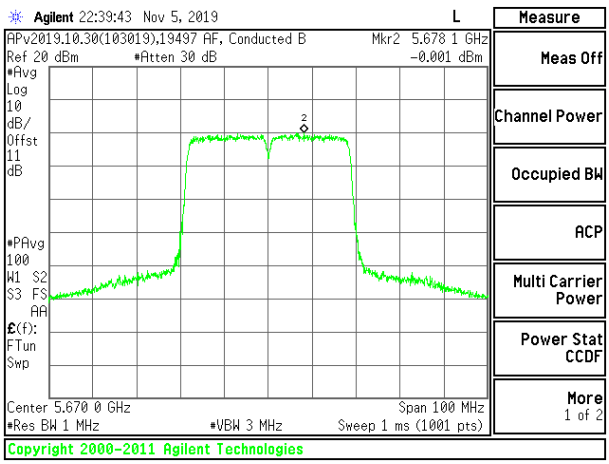


MID CHANNEL CHAIN 1

HIGH CHANNEL

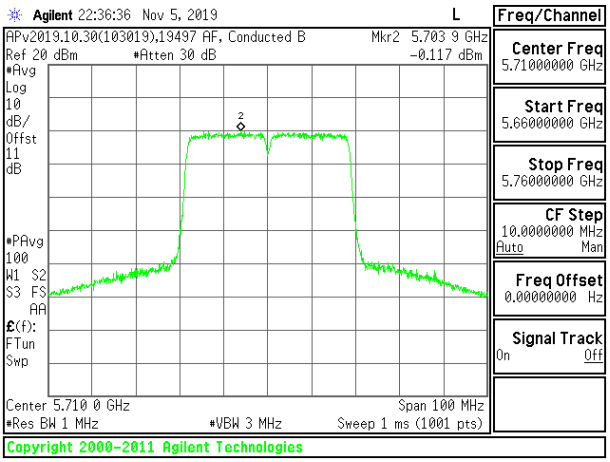


HIGH CHANNEL CHAIN 0

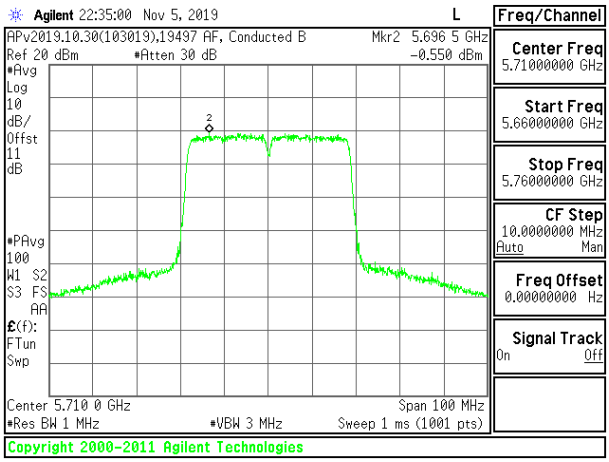


HIGH CHANNEL CHAIN 1

CHANNEL 142



CHANNEL 142 CHAIN 0



CHANNEL 142 CHAIN 1

8.4.12. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND

1TX SISO MODE

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Chain 0 Directional Gain for Power (dBi)	Chain 1 Directional Gain For Power (dBi)	Power Limit (dBm)
Low	5530	80.60	-7.11	-7.41	24.00
High	5610	80.40	-7.11	-7.41	24.00
138	5690	80.20	-7.11	-7.41	24.00

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 0 Corr'd Power (dBm)	Chain 1 Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5530	13.83	13.92	13.83	13.92	24.00	-10.08
High	5610	14.12	14.04	14.12	14.04	24.00	-9.88
138	5690	14.22	14.13	14.22	14.13	24.00	-9.78

2TX Chain 0 + Chain 1 CDD MODE (FCC)

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5530	80.60	-7.26	-4.25	24.00	11.00
High	5610	80.40	-7.26	-4.25	24.00	11.00
138	5690	80.20	-7.26	-4.25	24.00	11.00

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

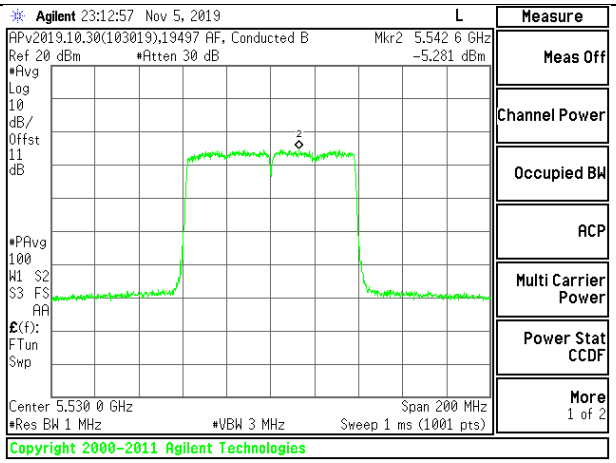
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5530	14.00	14.14	17.08	24.00	-6.92
High	5610	14.22	14.31	17.28	24.00	-6.72
138	5690	14.53	14.20	17.38	24.00	-6.62

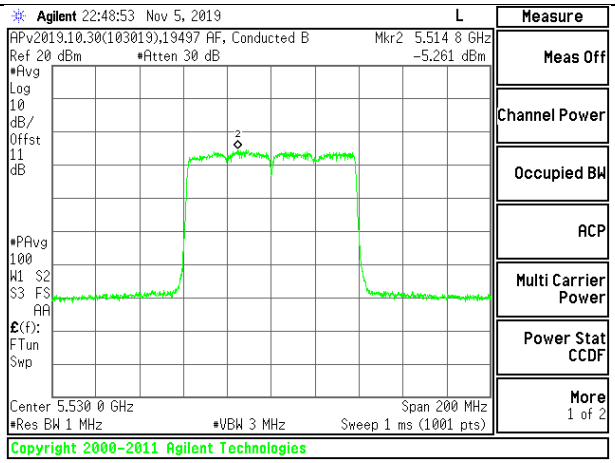
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 1MHz)	Antenna 2 Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5530	-5.281	-5.261	-0.42	11.00	-11.42
High	5610	-4.717	-4.735	0.12	11.00	-10.88
138	5690	-4.504	-5.112	0.05	11.00	-10.95

LOW CHANNEL

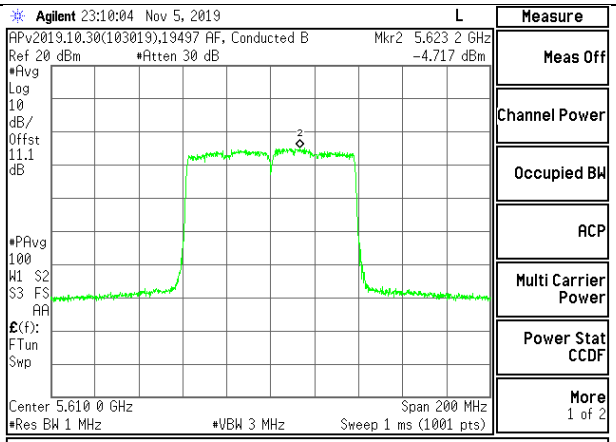


LOW CHANNEL CHAIN 0

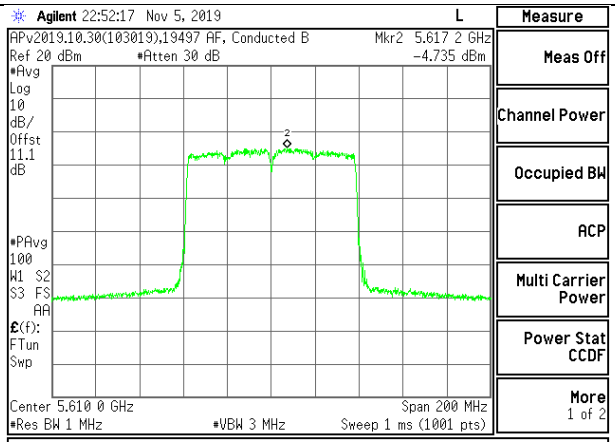


LOW CHANNEL CHAIN 1

HIGH CHANNEL

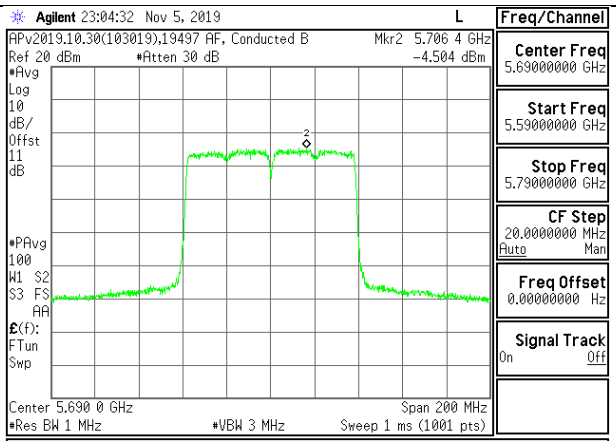


HIGH CHANNEL CHAIN 0

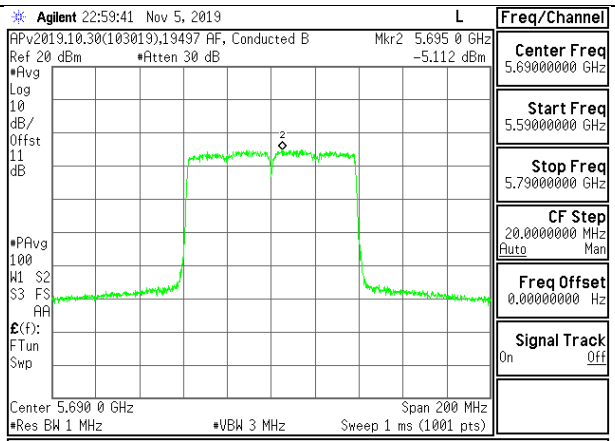


HIGH CHANNEL CHAIN 1

CHANNEL 138



CHANNEL 138 CHAIN 0



CHANNEL 138 CHAIN 1

8.4.13. 802.11a MODE IN THE 5.8 GHz BAND

1TX SISO MODE

Antenna Gain and Limit

Channel	Frequency (MHz)	Chain 0 Directional Gain For Power (dBi)	Chain 1 Directional Gain For PSD (dBi)	Power Limit (dBm)
Low	5745	-6.05	-4.85	30.00
Mid	5785	-6.05	-4.85	30.00
High	5825	-6.05	-4.85	30.00

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 0 Corr'd Power (dBm)	Chain 1 Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	16.35	16.34	16.35	16.34	30.00	-13.65
Mid	5785	16.39	16.12	16.39	16.12	30.00	-13.61
High	5825	16.31	16.05	16.31	16.05	30.00	-13.69

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2TX Chain 0 + Chain 1 CDD MODE (FCC)

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5745	-5.41	-2.42	30.00	30.00
Mid	5785	-5.41	-2.42	30.00	30.00
High	5825	-5.41	-2.42	30.00	30.00

Duty Cycle CF (dB)	0.30	Included in Calculations of Corr'd PSD

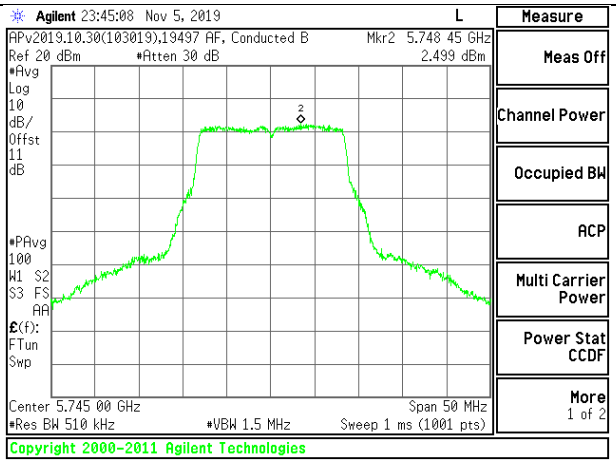
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	16.54	16.60	19.58	30.00	-10.42
Mid	5785	16.52	16.20	19.37	30.00	-10.63
High	5825	16.45	16.18	19.33	30.00	-10.67

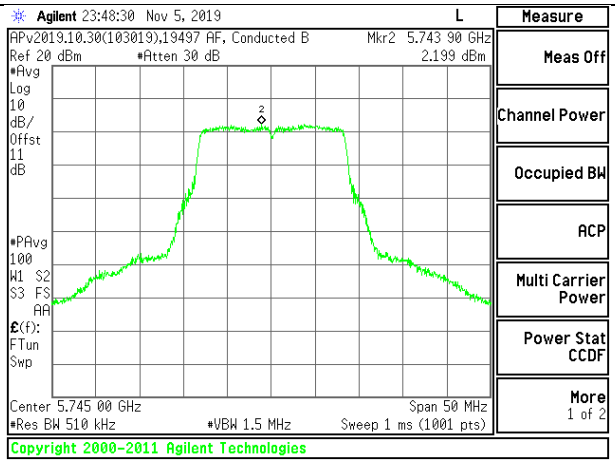
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 500KHz)	Antenna 2 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Low	5745	2.499	2.199	5.66	30.00	-24.34
Mid	5785	1.722	1.802	5.07	30.00	-24.93
High	5825	1.836	2.286	5.38	30.00	-24.62

LOW CHANNEL

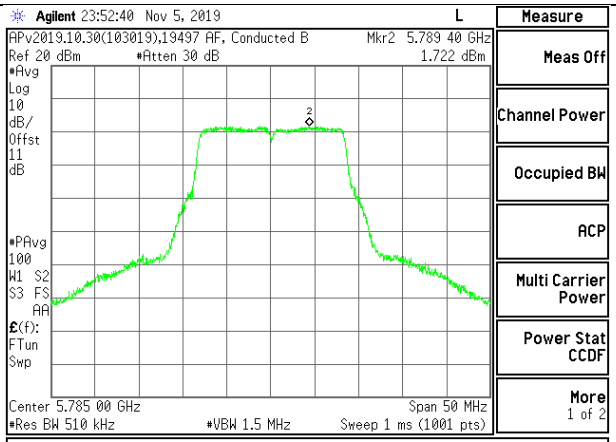


LOW CHANNEL CHAIN 0

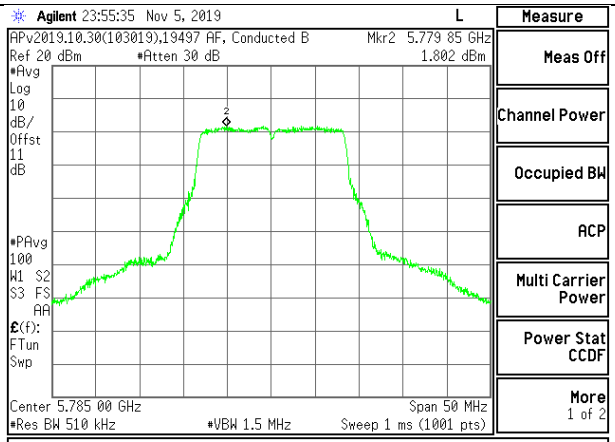


LOW CHANNEL CHAIN 1

MID CHANNEL

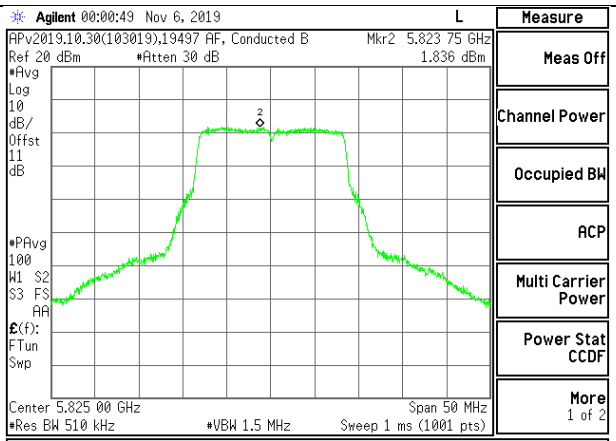


MID CHANNEL CHAIN 0

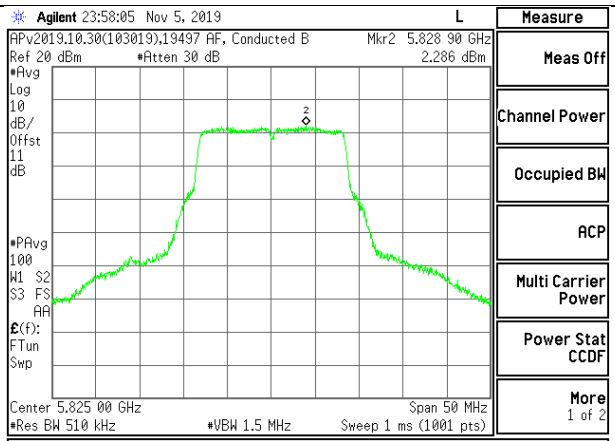


MID CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1

8.4.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND

1TX SISO MODE

Antenna Gain and Limit

Channel	Frequency (MHz)	Chain 0 Directional Gain For Power (dBi)	Chain 1 Directional Gain For PSD (dBi)	Power Limit (dBm)
Low	5745	-6.05	-4.85	30.00
Mid	5785	-6.05	-4.85	30.00
High	5825	-6.05	-4.85	30.00

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 0 Corr'd Power (dBm)	Chain 1 Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	16.42	16.32	16.42	16.32	30.00	-13.58
Mid	5785	16.41	16.18	16.41	16.18	30.00	-13.59
High	5825	16.35	16.07	16.35	16.07	30.00	-13.65

2TX Chain 0 + Chain 1 CDD MODE (FCC)

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5745	-5.41	2.42	30.00	30.00
Mid	5785	-5.41	-2.42	30.00	30.00
High	5825	-5.41	-2.42	30.00	30.00

Duty Cycle CF (dB)	0.32	Included in Calculations of Corr'd PSD

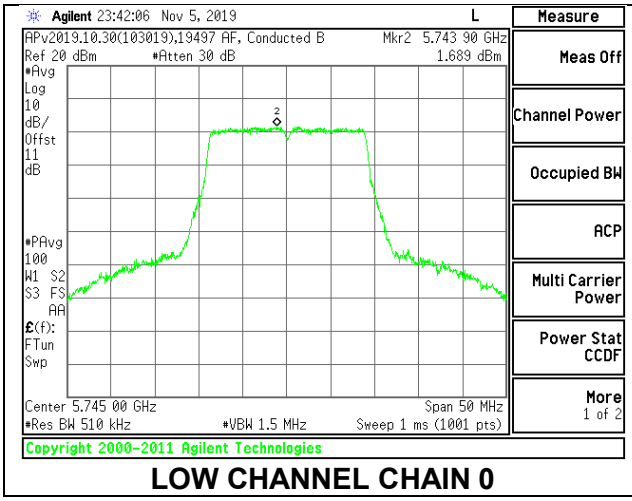
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	16.57	16.40	19.50	30.00	-10.50
Mid	5785	16.58	16.38	19.49	30.00	-10.51
High	5825	16.44	16.39	19.43	30.00	-10.57

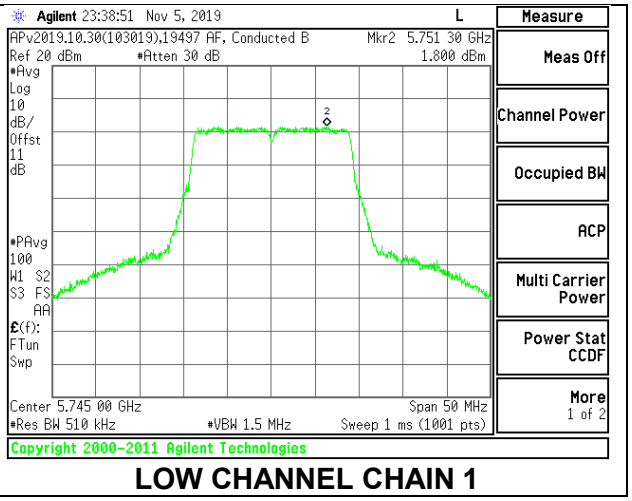
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 500KHz)	Antenna 2 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Low	5745	1.689	1.800	5.08	30.00	-24.92
Mid	5785	1.472	1.326	4.73	30.00	-25.27
High	5825	1.451	1.813	4.97	30.00	-25.03

LOW CHANNEL

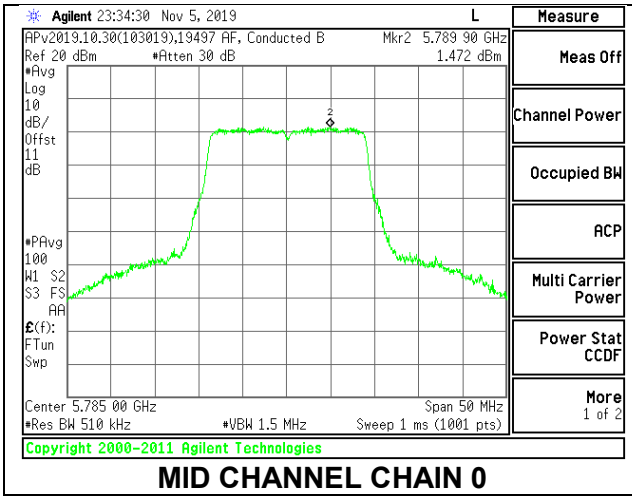


LOW CHANNEL CHAIN 0

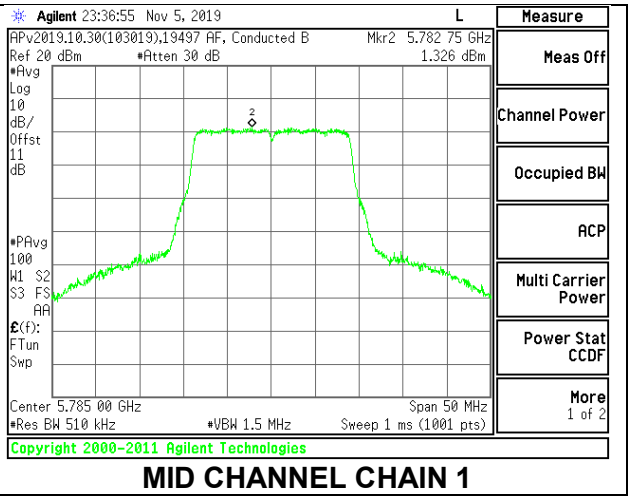


LOW CHANNEL CHAIN 1

MID CHANNEL

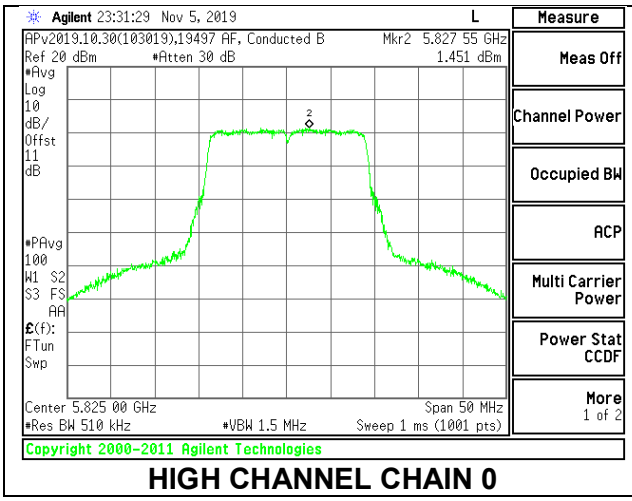


MID CHANNEL CHAIN 0

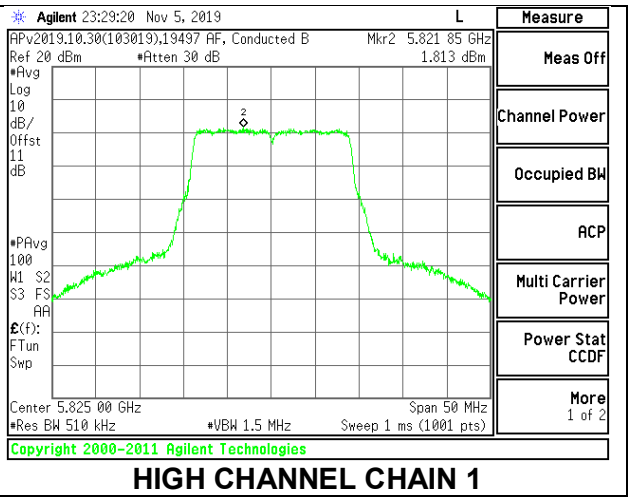


MID CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1

8.4.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND

1TX SISO MODE

Antenna Gain and Limit

Channel	Frequency (MHz)	Chain 0 Directional Gain For Power (dBi)	Chain 1 Directional Gain For PSD (dBi)	Power Limit (dBm)
Low	5755	-6.05	-4.85	30.00
High	5795	-6.05	-4.85	30.00

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 0 Corr'd Power (dBm)	Chain 1 Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5755	15.52	15.13	15.52	15.13	30.00	-14.48
High	5795	15.36	14.94	15.36	14.94	30.00	-14.64

2TX Chain 0 + Chain 1 CDD MODE (FCC)

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5755	-5.41	-2.42	30.00	30.00
High	5795	-5.41	-2.42	30.00	30.00

Duty Cycle CF (dB)	0.61	Included in Calculations of Corr'd PSD

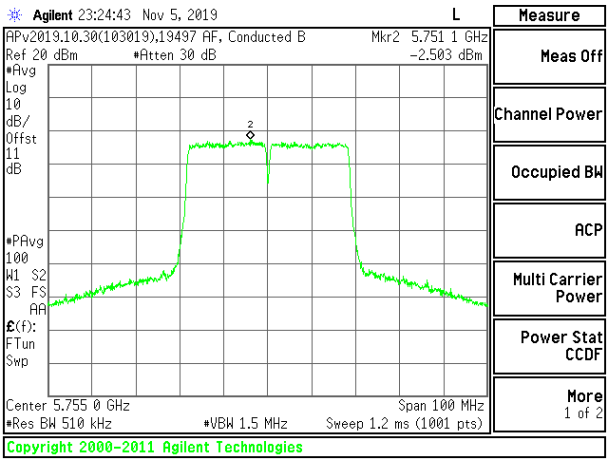
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5755	15.60	15.23	18.43	30.00	-11.57
High	5795	15.46	15.02	18.26	30.00	-11.74

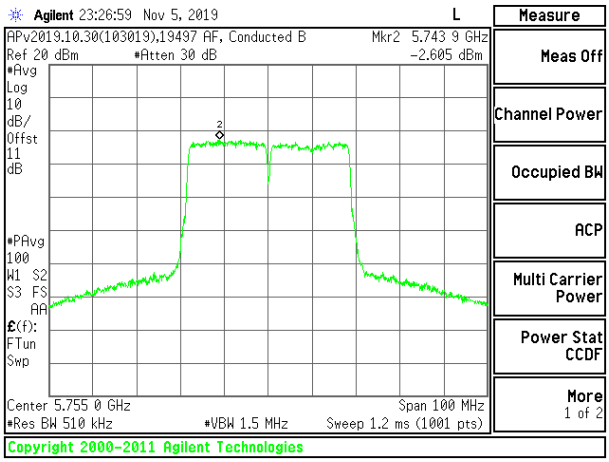
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 500KHz)	Antenna 2 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Low	5755	-2.503	-2.605	1.07	30.00	-28.93
High	5795	-2.561	-2.777	0.95	30.00	-29.05

LOW CHANNEL

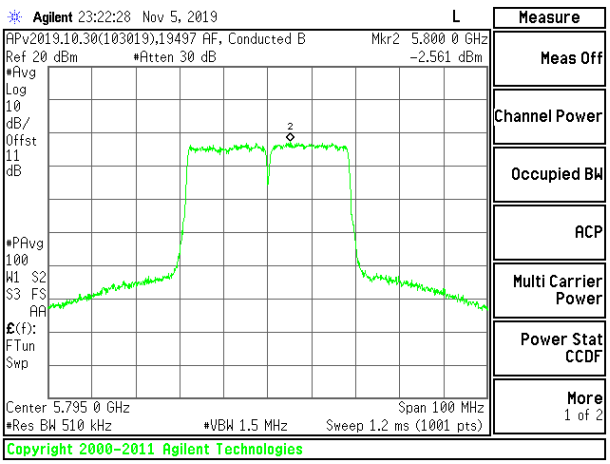


LOW CHANNEL CHAIN 0

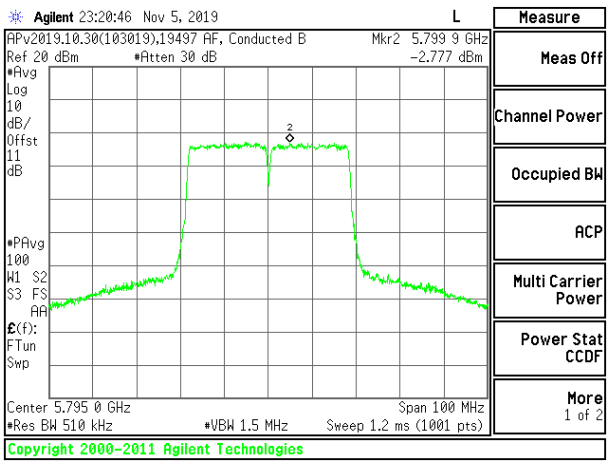


LOW CHANNEL CHAIN 1

HIGH CHANNEL



HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1

8.4.16. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

1TX SISO MODE

Antenna Gain and Limit

Channel	Frequency (MHz)	Chain 0 Directional Gain For Power (dBi)	Chain 1 Directional Gain For PSD (dBi)	Power Limit (dBm)
Mid	5775	-6.05	-4.85	30.00

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 0 Corr'd Power (dBm)	Chain 1 Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5775	14.49	14.09	14.49	14.09	30.00	-15.51

2TX Chain 0 + Chain 1 CDD MODE (FCC)

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Mid	5775	-5.41	-2.42	30.00	30.00

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

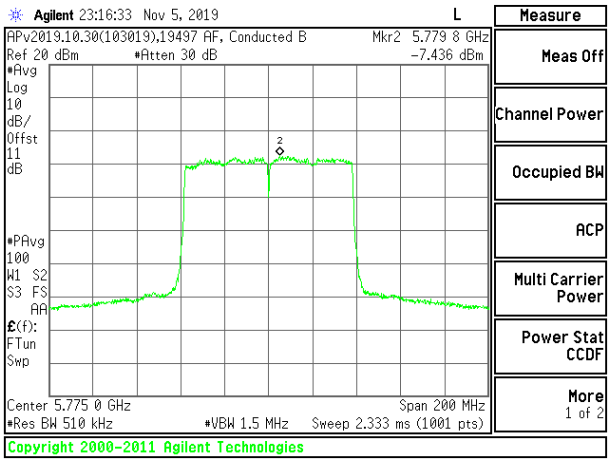
Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5775	14.65	14.19	17.44	30.00	-12.56

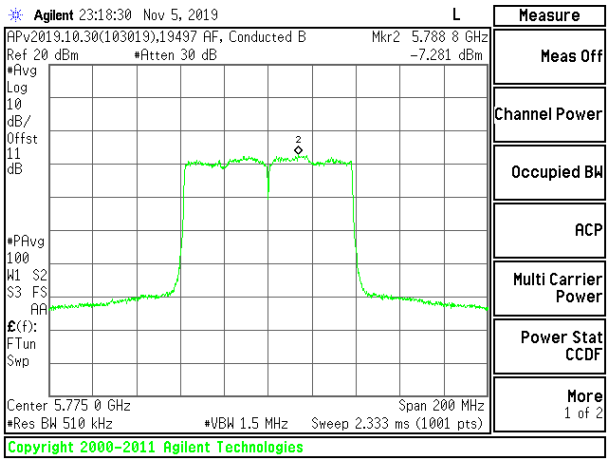
PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 500KHz)	Antenna 2 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Mid	5775	-7.436	-7.281	-2.51	30.00	-32.51

MID CHANNEL



MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1

9. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209 -Restriced bands

FCC §15.407(b)(1-3) -Un-Restriced bands

After January 01, 2019 for Outside of the Restricted Bands Emissions

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

TEST PROCEDURE

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

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

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

For final 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 30 MHz to 1GHz and 18GHz to 40 GHz is investigated with the transmitter set to transmit at the channel with highest output power as worst-case scenario. 1GHz to 18GHz was set to the lowest, middle, and highest channels in the 5 GHz bands.

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.

2D antenna use - For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel), parallel and perpendicular are the worst orientations, therefore testing was performed on these two orientations only.

KDB 414788 Open Field Site(OFS) and Chamber Correlation Justification

Base 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.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

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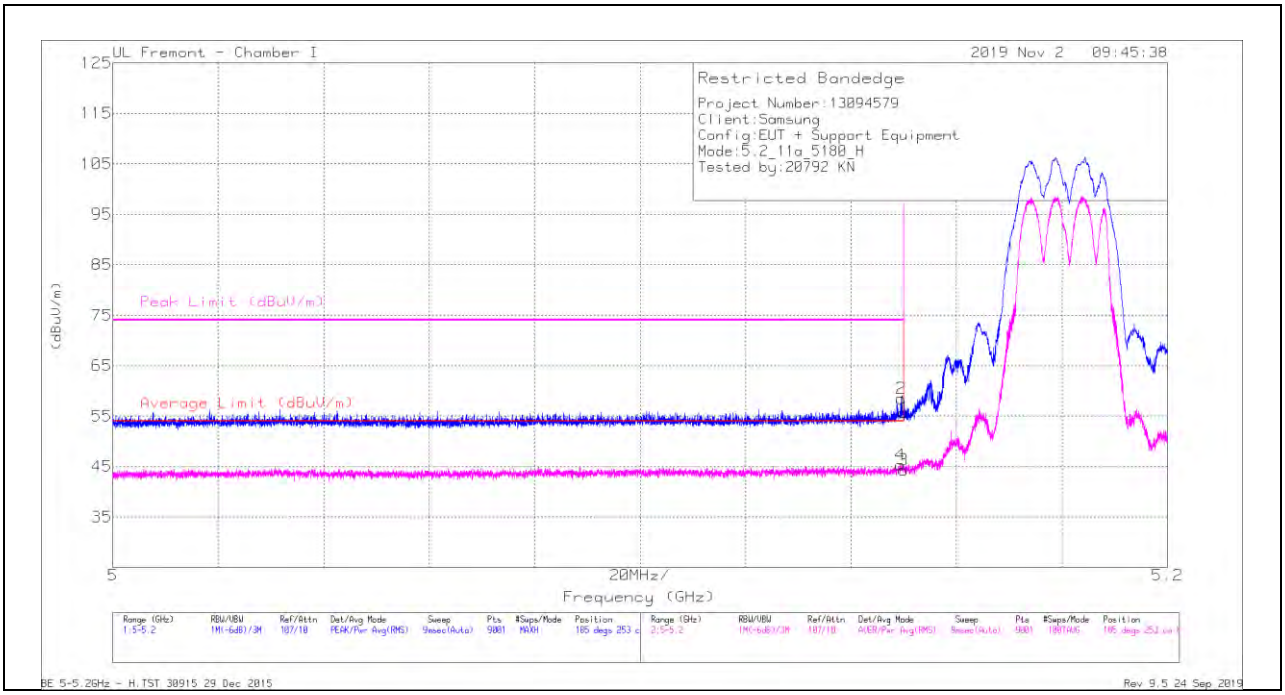
9.1. TRANSMITTER ABOVE 1 GHz

9.1.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.2 GHz BAND

2TX Chain 0 + Chain 1 CDD MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

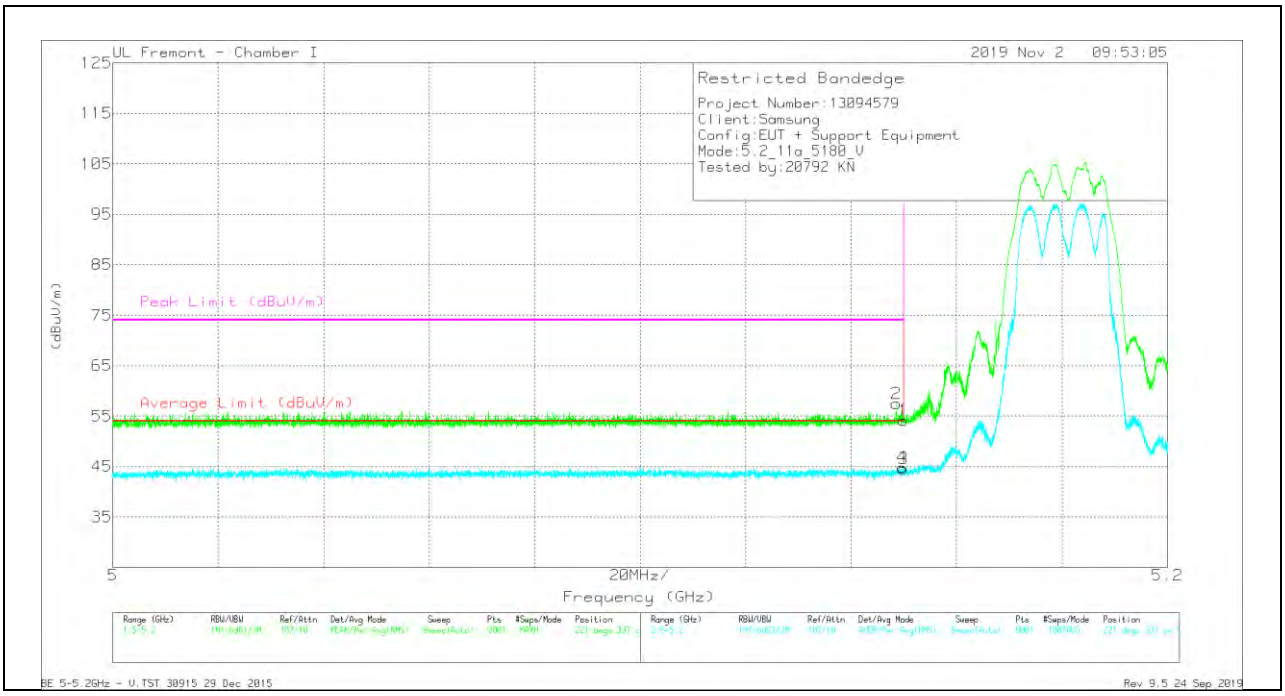


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*5.15	38.38	Pk	34.4	-17	0	55.78	-	-	74	-18.22	185	253	H
2	*5.14949	41.14	Pk	34.4	-17	0	58.54	-	-	74	-15.46	185	253	H
3	*5.15	26.66	RMS	34.4	-17	.3	44.36	54	-9.64	-	-	185	253	H
4	*5.1494	27.66	RMS	34.4	-17	.3	45.36	54	-8.64	-	-	185	253	H

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

VERTICAL RESULT



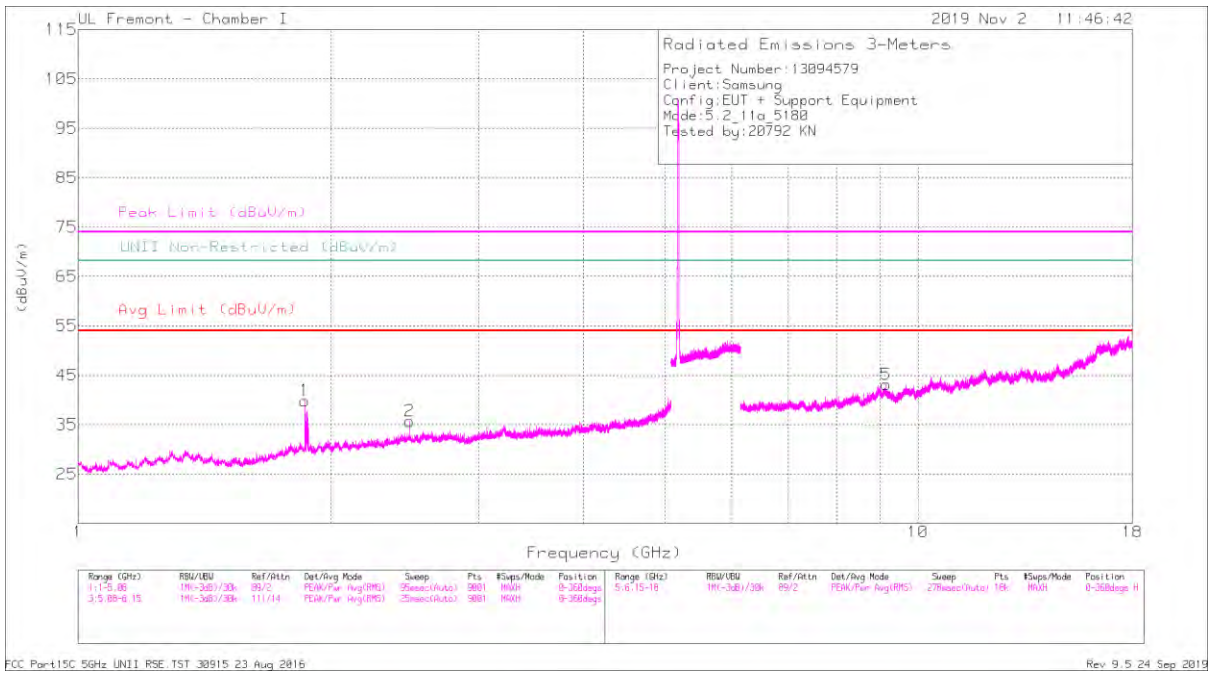
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (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	36.7	Pk	34.4	-17	0	54.1	-	-	74	-19.9	221	337	V
2	*5.1486	40.15	Pk	34.4	-17.1	0	57.45	-	-	74	-16.55	221	337	V
3	*5.15	26.92	RMS	34.4	-17	.3	44.62	54	-9.38	-	-	221	337	V
4	*5.14971	27.17	RMS	34.4	-17	.3	44.87	54	-9.13	-	-	221	337	V

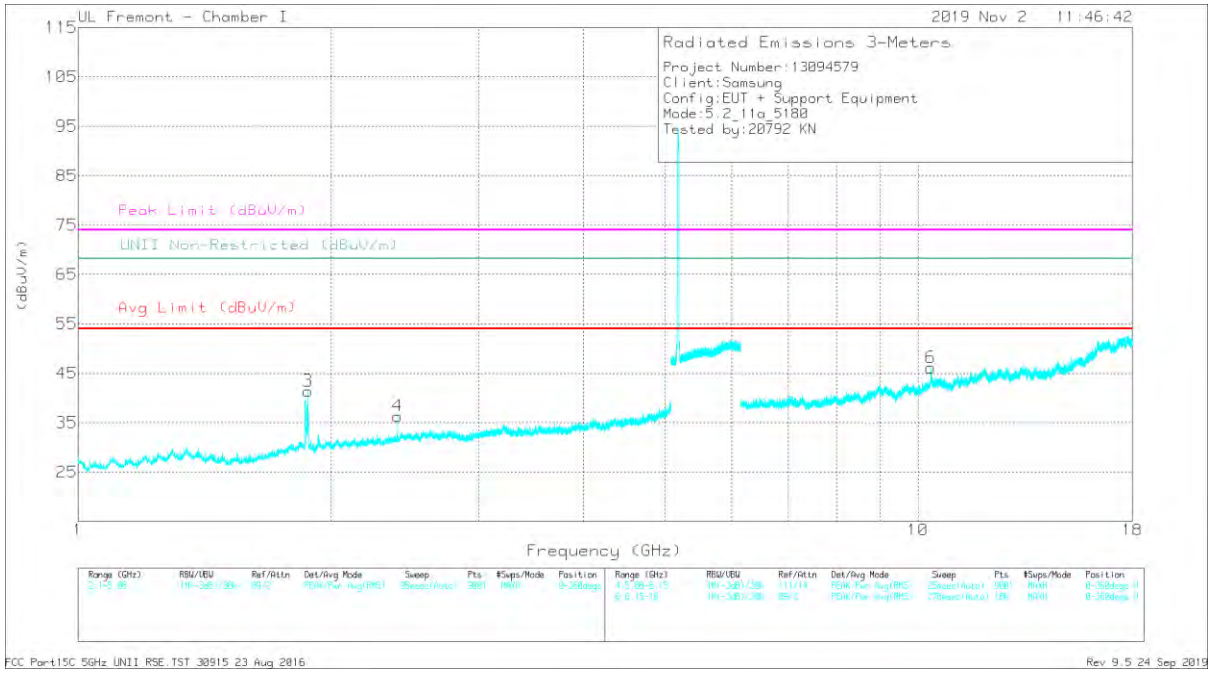
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (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	1.86165	49.29	PK-U	30.7	-31.1	0	48.89	-	-	-	-	68.2	-19.31	70	342	H
2	2.47968	39.71	PK-U	32.3	-29.9	0	42.11	-	-	-	-	68.2	-26.09	238	202	H
3	1.87527	48.92	PK-U	30.8	-31	0	48.72	-	-	-	-	68.2	-19.48	50	273	V
4	2.40224	39.01	PK-U	31.9	-30.2	0	40.71	-	-	-	-	68.2	-27.49	298	390	V
5	* 9.16532	31.96	PK-U	36.4	-17	0	51.36	-	-	74	-22.64	-	-	68	180	H
	* 9.16335	20.23	ADR	36.4	-17	.3	39.93	54	-14.07	-	-	-	-	68	180	H
6	10.36174	35.8	PK-U	37.5	-15.8	0	57.5	-	-	-	-	68.2	-10.7	233	101	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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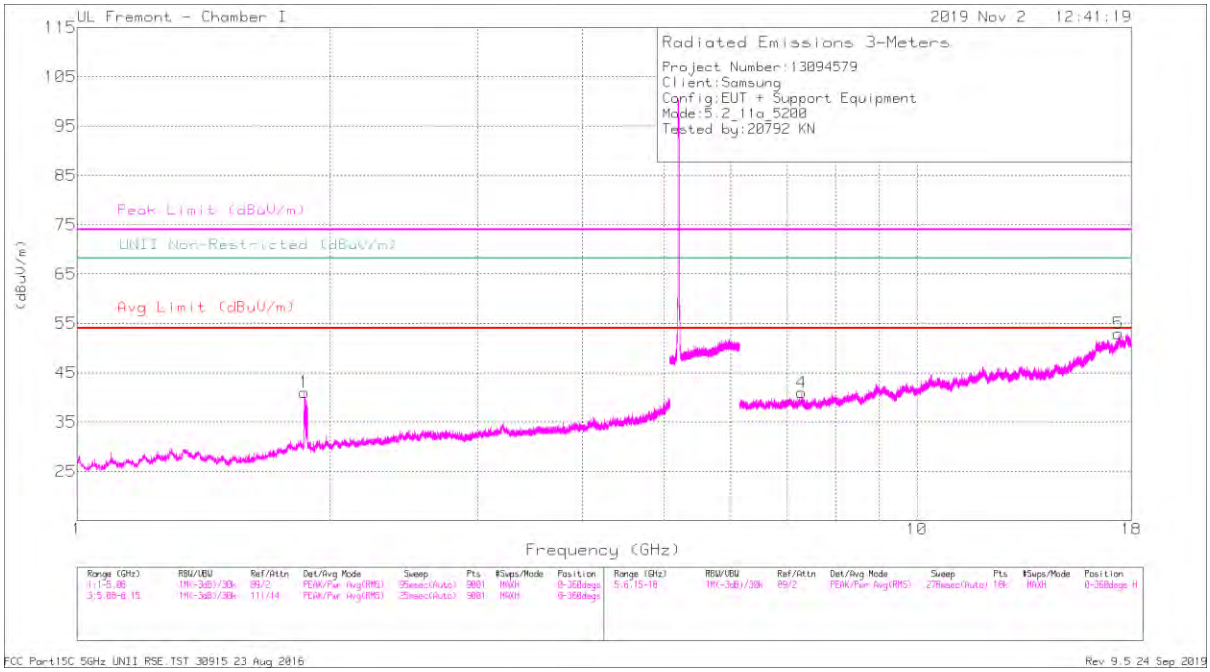
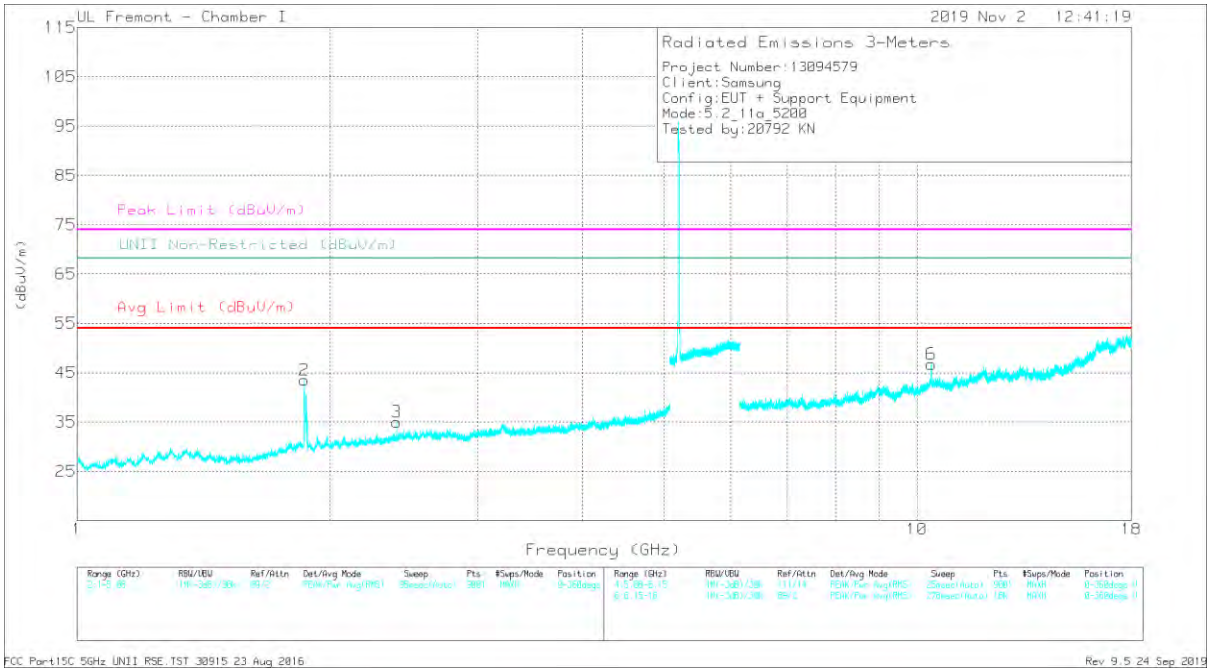
MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (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	1.86316	38.79	PK-U	30.7	-31.1	0	38.39	-	-	-	-	68.2	-29.81	281	399	H
2	1.85989	38.29	PK-U	30.7	-31.1	0	37.89	-	-	-	-	68.2	-30.31	106	210	V
3	2.40051	37.57	PK-U	31.9	-30.2	0	39.27	-	-	-	-	68.2	-28.93	253	197	V
4	* 7.28751	30.13	PK-U	35.6	-18.6	0	47.13	-	-	74	-26.87	-	-	157	221	H
	* 7.28751	19.88	ADR	35.6	-18.6	.3	37.18	54	-16.82	-	-	-	-	157	221	H
5	17.37183	30.57	PK-U	41.1	-10.2	0	61.47	-	-	-	-	68.2	-6.73	306	252	H
6	10.40137	34.63	PK-U	37.5	-15.9	0	56.23	-	-	-	-	68.2	-11.97	246	114	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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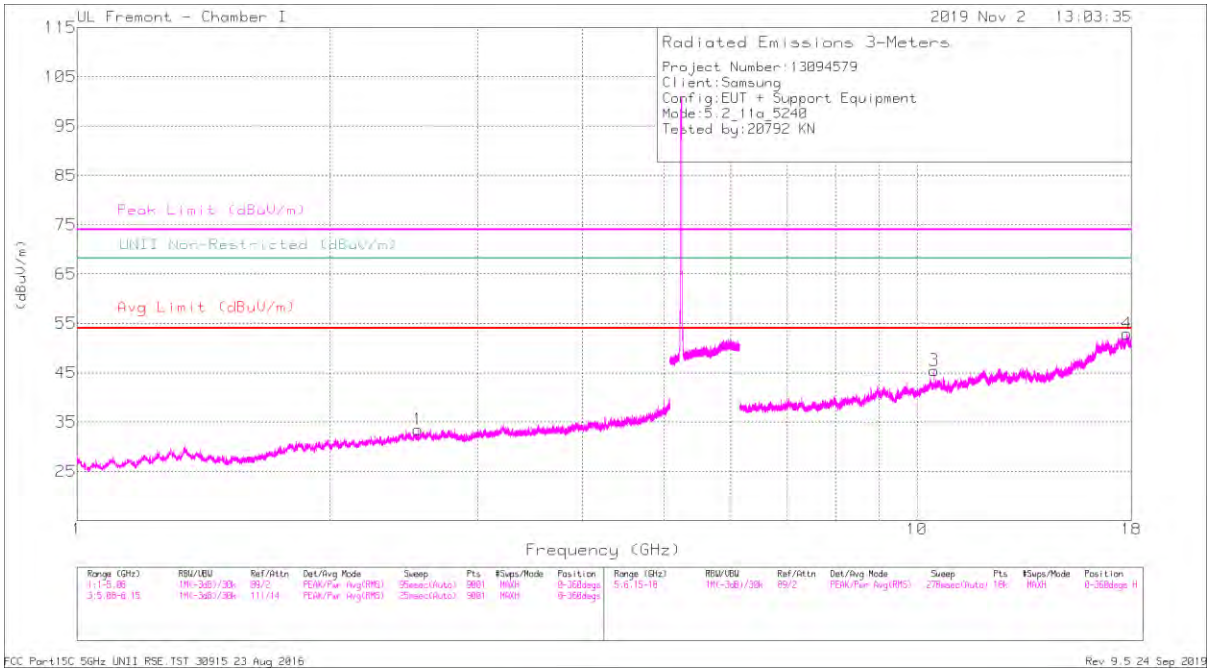
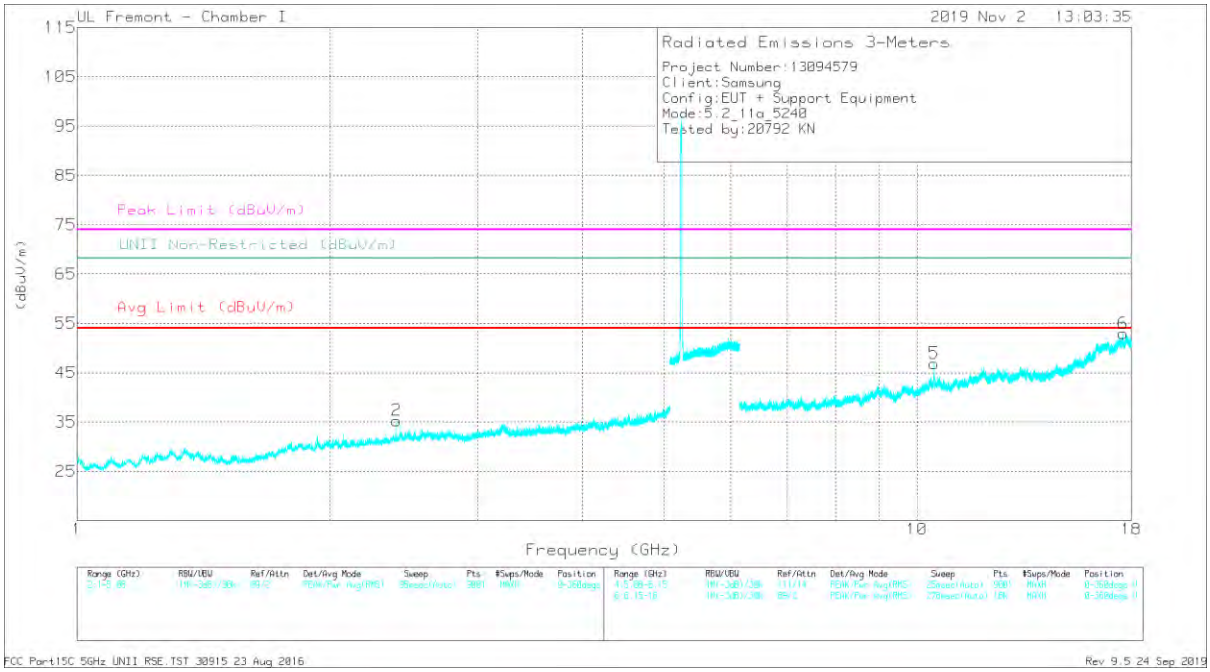
HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (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	2.54814	37.41	PK-U	32.3	-29.9	0	39.81	-	-	-	-	68.2	-28.39	92	282	H
2	2.4034	38.2	PK-U	31.9	-30.2	0	39.9	-	-	-	-	68.2	-28.3	199	301	V
4	* 17.78834	28.23	PK-U	41.4	-9	0	60.63	-	-	74	-13.37	-	-	310	119	H
	* 17.78648	18.2	ADR	41.5	-9	.3	51	54	-3	-	-	-	-	310	119	H
3	10.47674	34.49	PK-U	37.7	-16.7	0	55.49	-	-	-	-	68.2	-12.71	204	123	H
5	10.48099	36.89	PK-U	37.7	-16.6	0	57.99	-	-	-	-	68.2	-10.21	229	102	V
6	17.60145	27.94	PK-U	41.4	-9.3	0	60.04	-	-	-	-	68.2	-8.16	200	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

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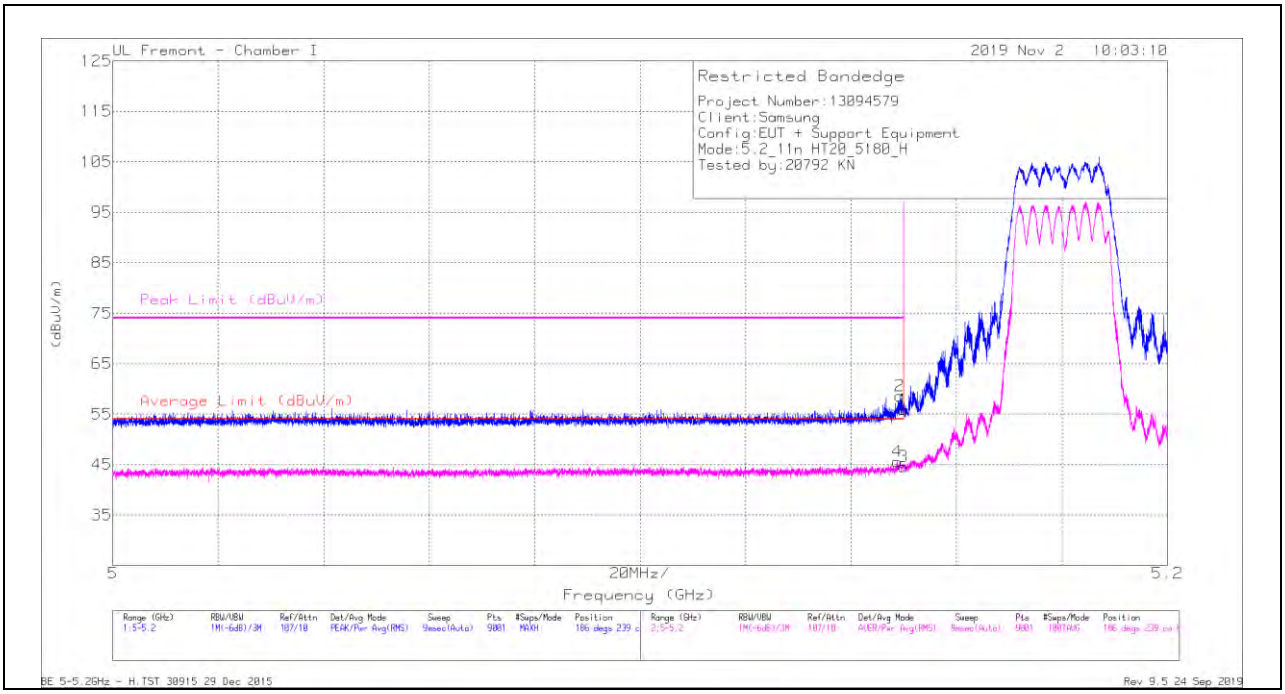
9.1.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.2 GHz BAND

2TX Chain 0 + Chain 1 CDD MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

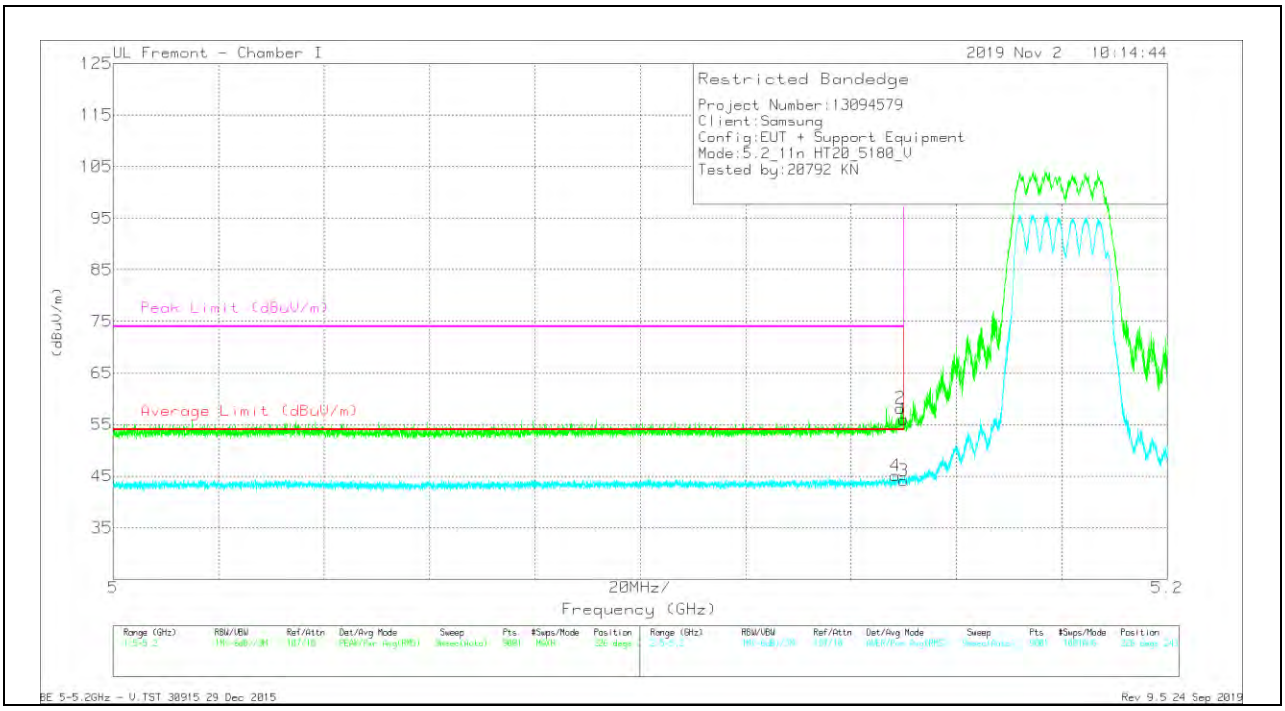


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*5.15	38.48	Pk	34.4	-17	0	55.88	-	-	74	-18.12	186	239	H
2	*5.14924	41.32	Pk	34.4	-17.1	0	58.62	-	-	74	-15.38	186	239	H
3	*5.15	26.83	RMS	34.4	-17	.32	44.55	54	-9.45	-	-	186	239	H
4	*5.14873	27.93	RMS	34.4	-17.1	.32	45.55	54	-8.45	-	-	186	239	H

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

VERTICAL RESULT



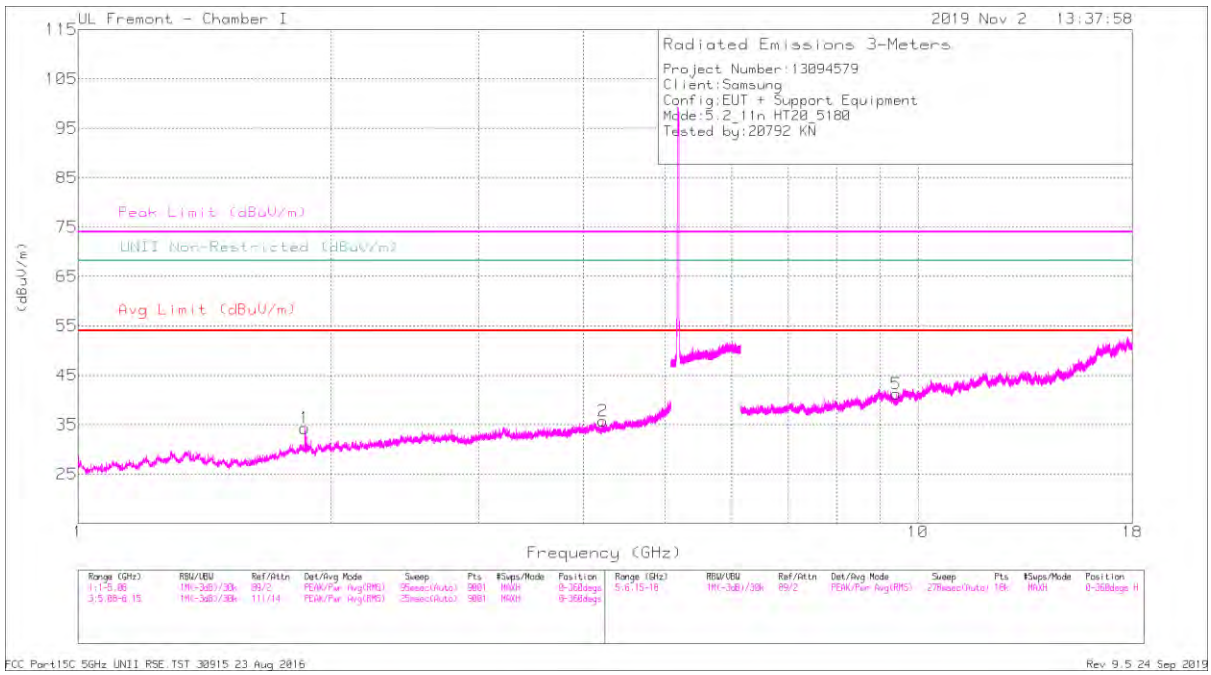
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*5.15	38.61	Pk	34.4	-17	0	56.01	-	-	74	-17.99	226	243	V
2	*5.1494	40.74	Pk	34.4	-17	0	58.14	-	-	74	-15.86	226	243	V
3	*5.15	26.41	RMS	34.4	-17	.32	44.13	54	-9.87	-	-	226	243	V
4	*5.14842	27.49	RMS	34.4	-17.1	.32	45.11	54	-8.89	-	-	226	243	V

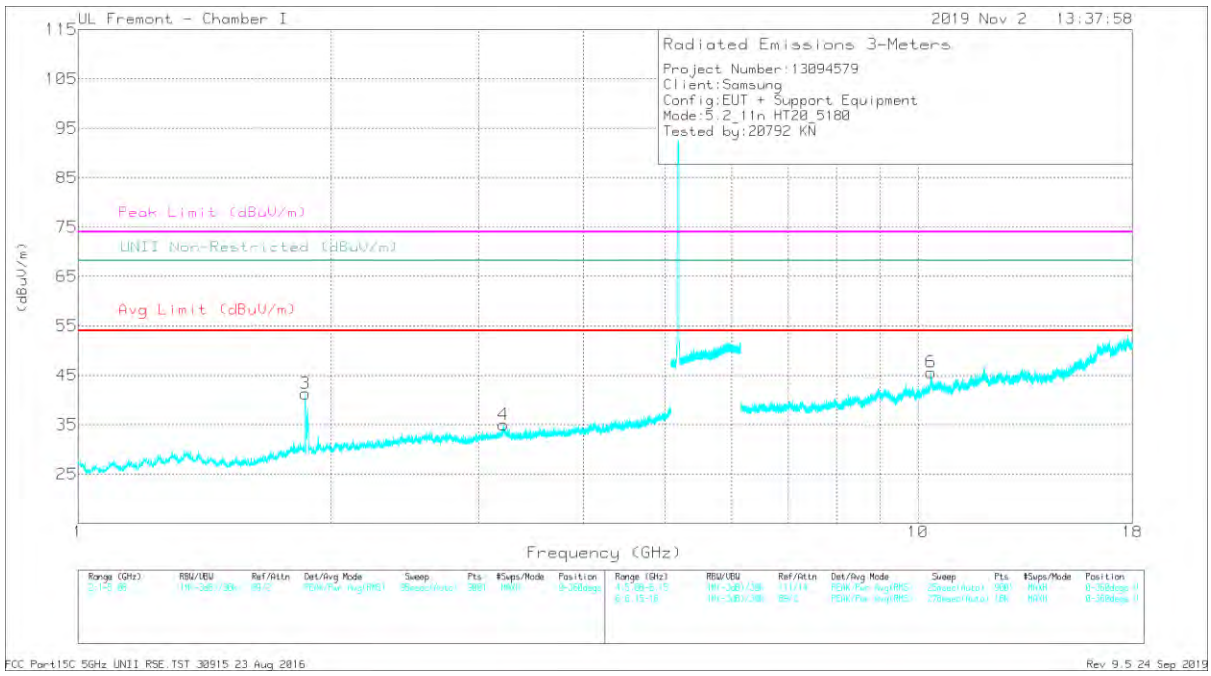
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (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	* 4.21797	36.85	PK-U	33.4	-27.4	0	42.85	-	-	74	-31.15	-	-	239	250	H
	* 4.2147	26.91	ADR	33.3	-27.5	.32	33.03	54	-20.97	-	-	-	-	239	250	H
1	1.86164	44.51	PK-U	30.7	-31.1	0	44.11	-	-	-	-	68.2	-24.09	210	264	H
3	1.86679	38.1	PK-U	30.8	-31	0	37.9	-	-	-	-	68.2	-30.3	204	208	V
4	3.21151	36.69	PK-U	33.6	-28.2	0	42.09	-	-	-	-	68.2	-26.11	230	248	V
5	* 9.41138	29.08	PK-U	36.4	-17.6	0	47.88	-	-	74	-26.12	-	-	133	173	H
	* 9.41506	19.44	ADR	36.4	-17.6	.32	38.56	54	-15.44	-	-	-	-	133	173	H
6	10.35866	34.23	PK-U	37.5	-15.8	0	55.93	-	-	-	-	68.2	-12.27	232	102	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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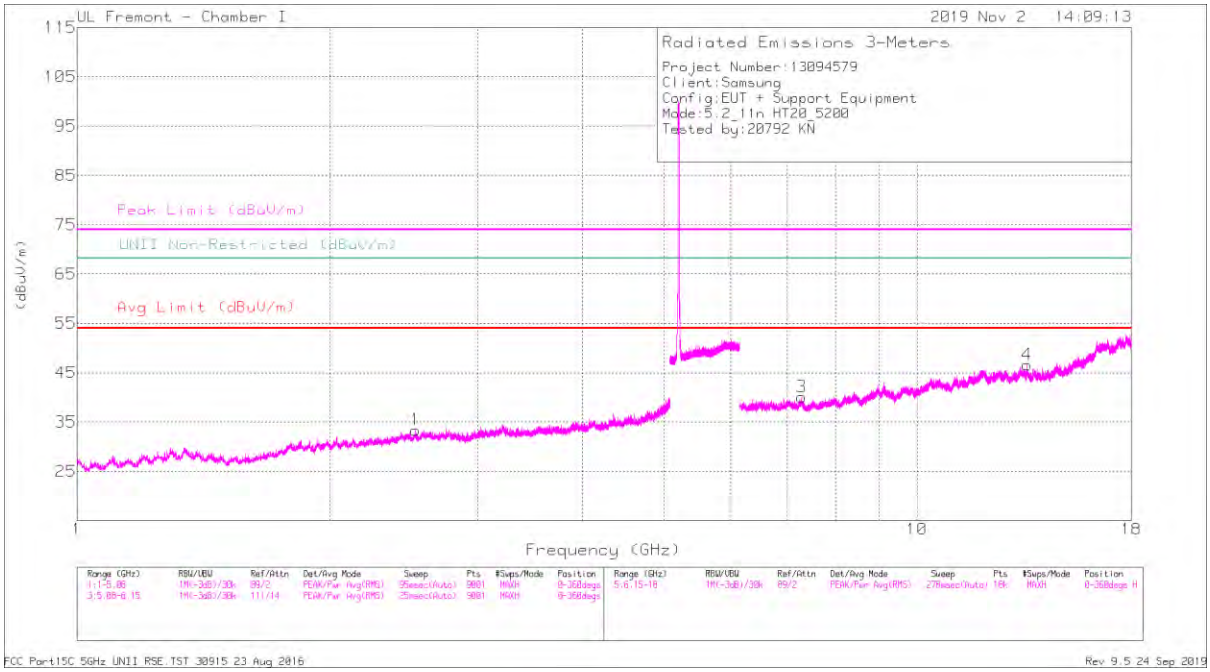
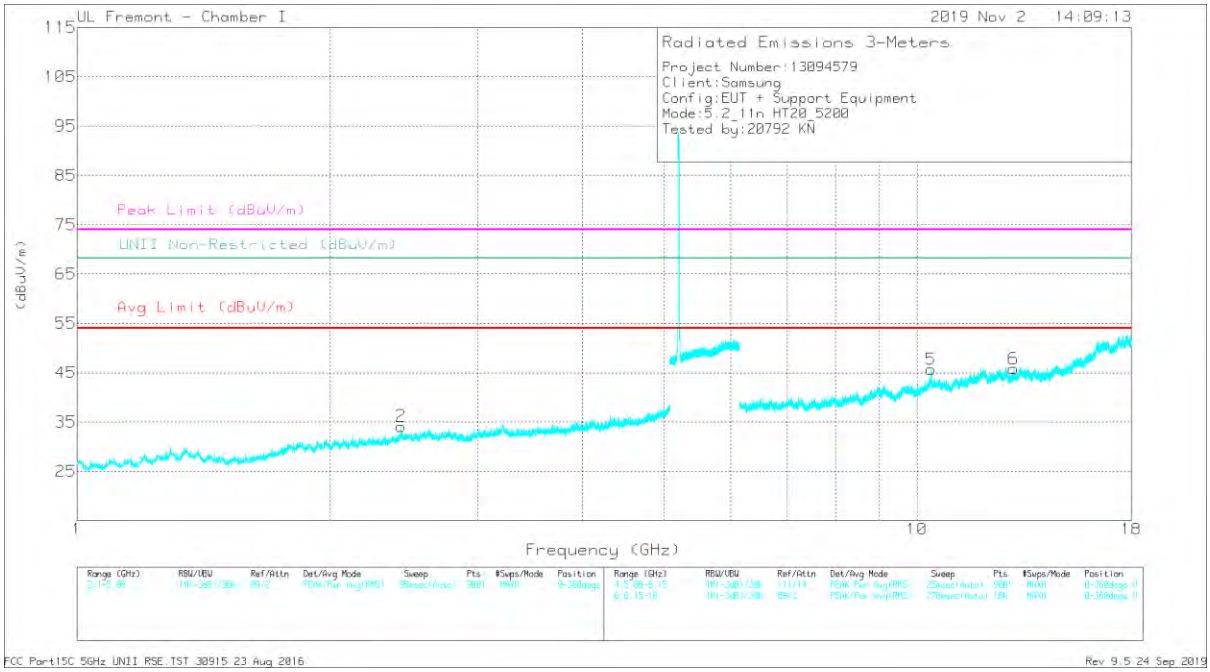
MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (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	2.52959	38.42	PK-U	32.2	-29.8	0	40.82	-	-	-	-	68.2	-27.38	114	158	H
2	2.43206	37.7	PK-U	32.2	-29.9	0	40	-	-	-	-	68.2	-28.2	107	196	V
3	* 7.2901	30.02	PK-U	35.6	-18.6	0	47.02	-	-	74	-26.98	-	-	237	162	H
	* 7.28914	20.7	ADR	35.6	-18.5	.32	38.12	54	-15.88	-	-	-	-	237	162	H
4	13.52936	30.78	PK-U	39.3	-16.6	0	53.48	-	-	-	-	68.2	-14.72	261	236	H
5	10.39766	32.45	PK-U	37.5	-15.7	0	54.25	-	-	-	-	68.2	-13.95	239	135	V
6	13.02933	28.75	PK-U	39.3	-15.9	0	52.15	-	-	-	-	68.2	-16.05	240	171	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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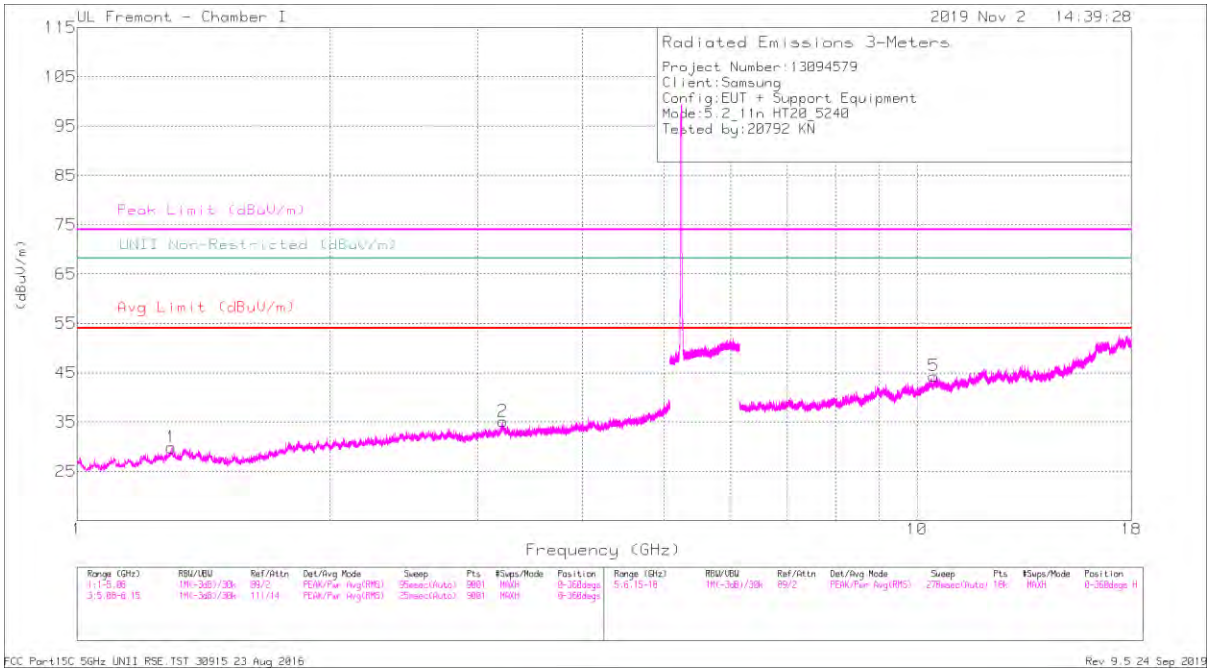
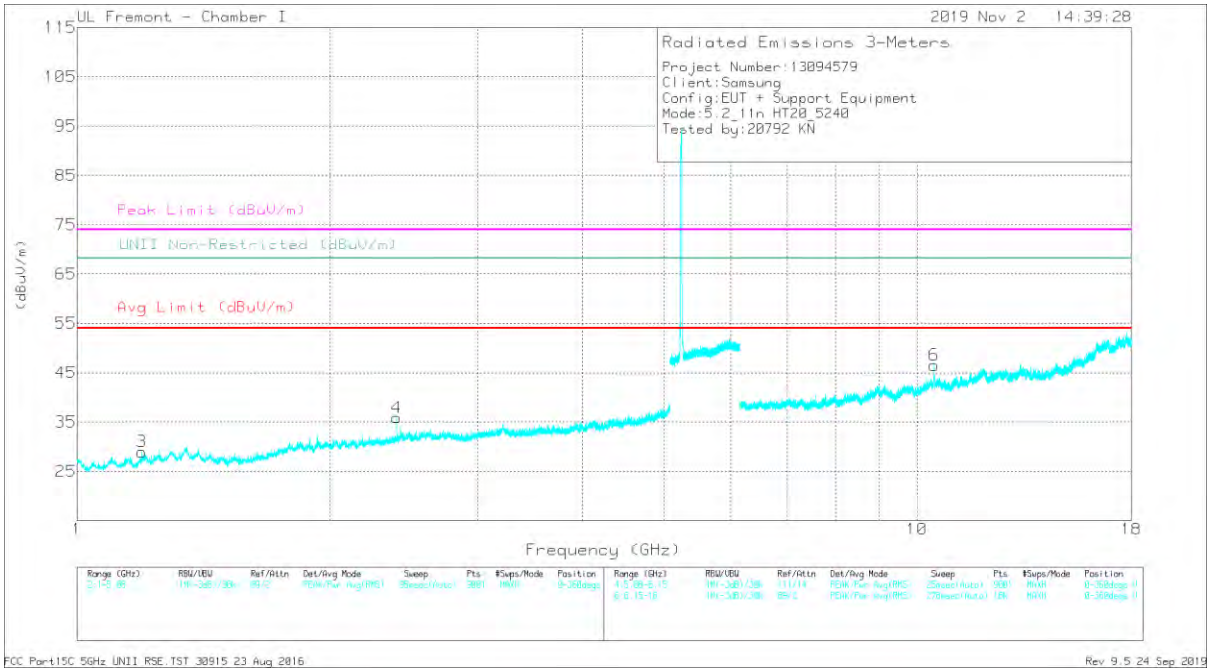
HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (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	* 1.29237	39.92	PK-U	29.4	-32.1	0	37.22	-	-	74	-36.78	-	-	263	199	H
	* 1.29817	29.76	ADR	29.2	-32.1	.32	27.18	54	-26.82	-	-	-	-	263	199	H
2	3.20932	36.44	PK-U	33.6	-28.2	0	41.84	-	-	-	-	68.2	-26.36	251	211	H
3	* 1.19404	40.92	PK-U	28.2	-32.4	0	36.72	-	-	74	-37.28	-	-	252	143	V
	* 1.19168	30.12	ADR	28.2	-32.4	.32	26.24	54	-27.76	-	-	-	-	252	143	V
4	2.40203	40.35	PK-U	31.9	-30.3	0	41.95	-	-	-	-	68.2	-26.25	154	121	V
5	10.47417	31.05	PK-U	37.7	-16.7	0	52.05	-	-	-	-	68.2	-16.15	122	122	H
6	10.47861	32.02	PK-U	37.7	-16.6	0	53.12	-	-	-	-	68.2	-15.08	237	152	V

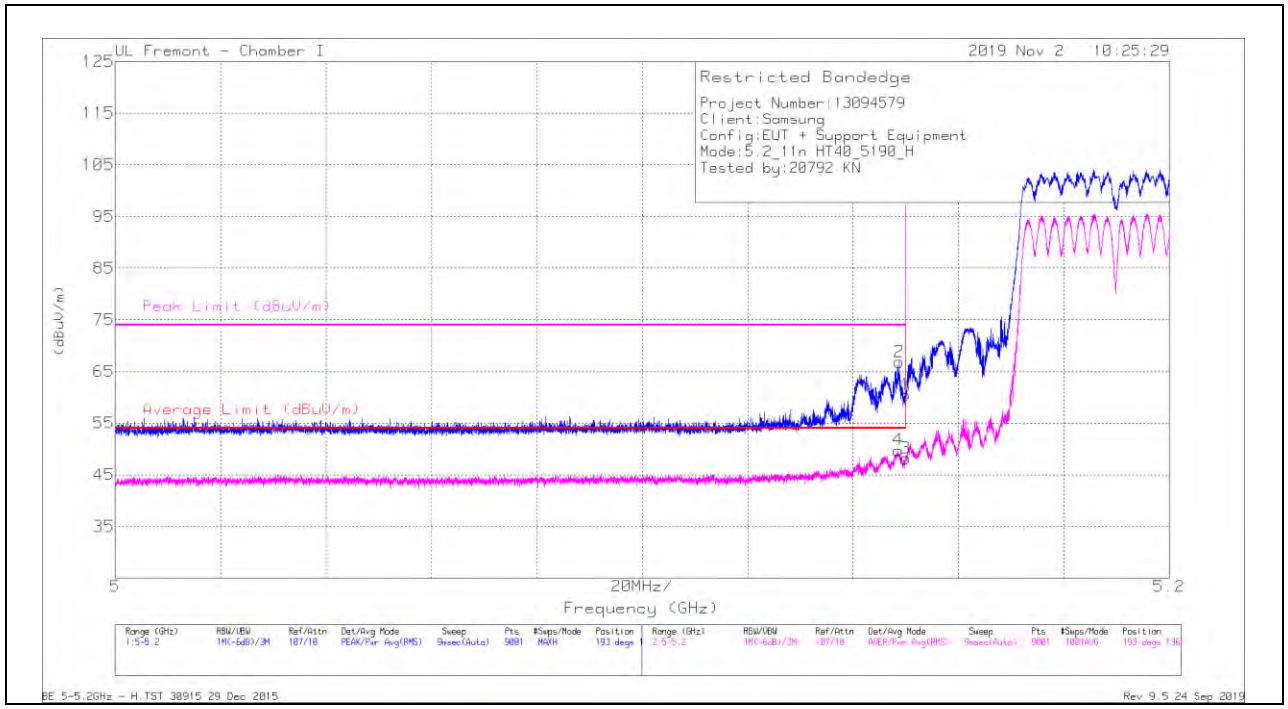
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

9.1.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND

2TX Chain 0 + Chain 1 CDD MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

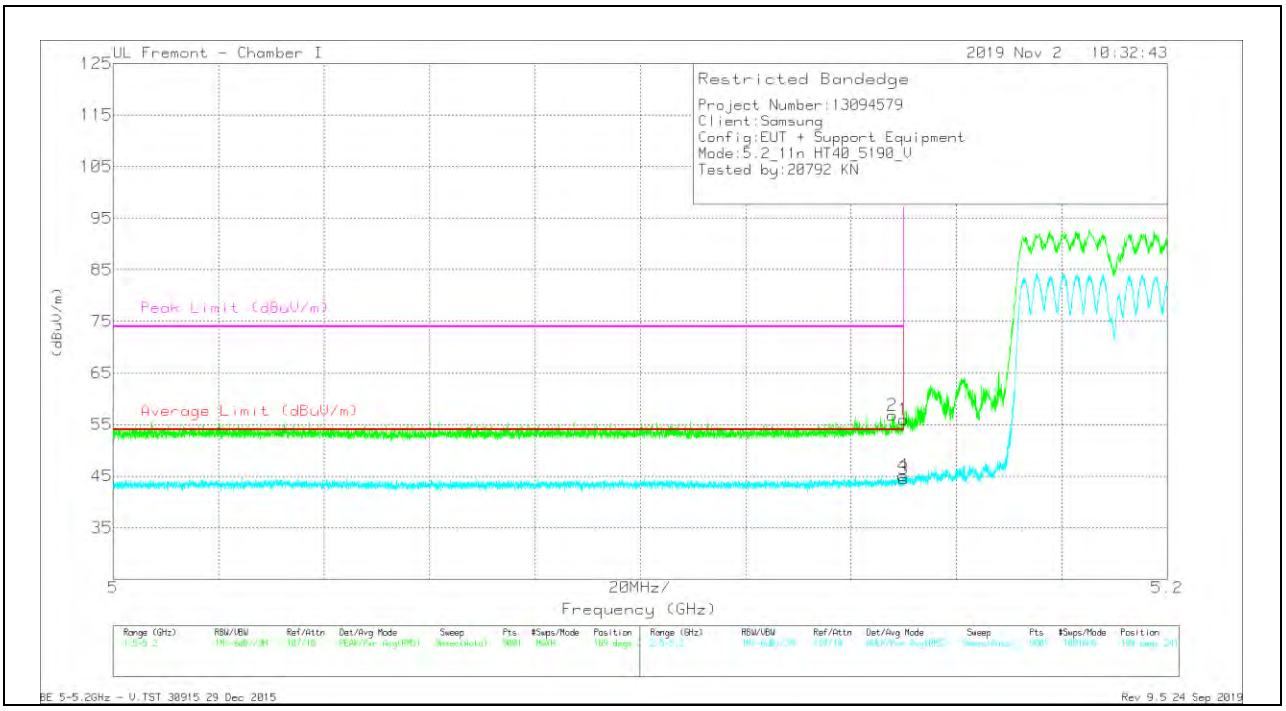


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (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	43.06	Pk	34.4	-17	0	60.46	-	-	74	-13.54	193	136	H
2	*5.14878	49.55	Pk	34.4	-17.1	0	66.85	-	-	74	-7.15	193	136	H
3	*5.15	30.2	RMS	34.4	-17	.61	48.21	54	-5.79	-	-	193	136	H
4	*5.14858	31.85	RMS	34.4	-17.1	.61	49.76	54	-4.24	-	-	193	136	H

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

VERTICAL RESULT



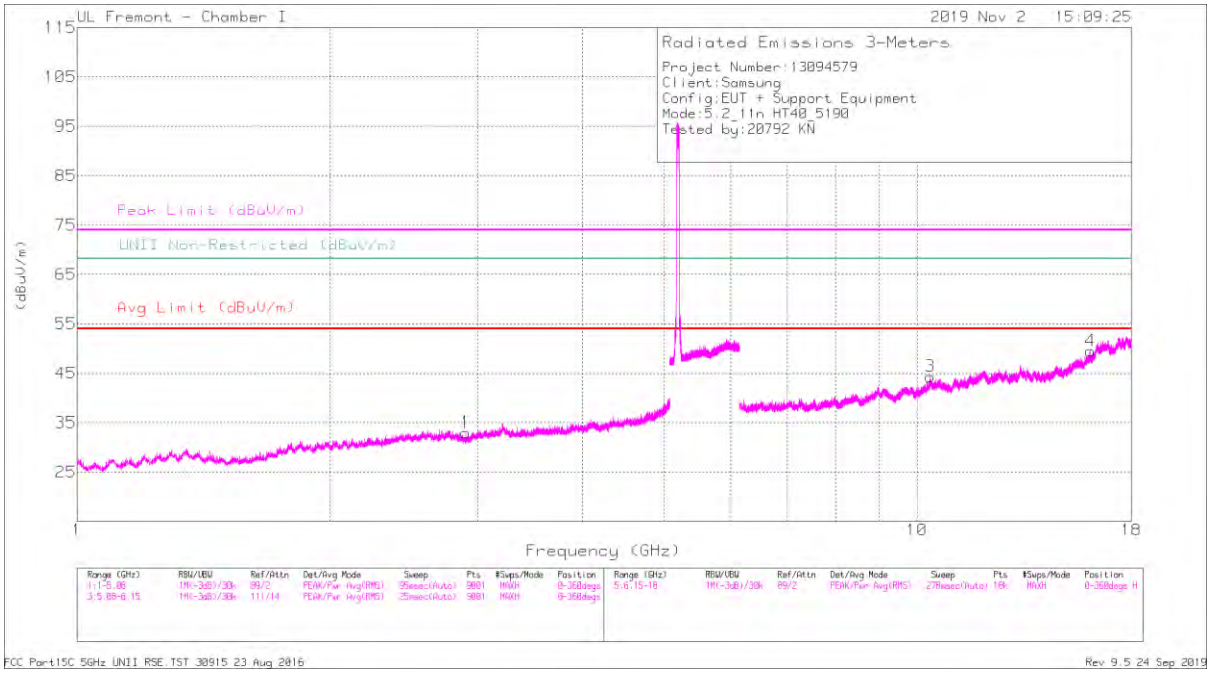
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*5.15	38.56	Pk	34.4	-17	0	55.96	-	-	74	-18.04	189	241	V
2	*5.14778	39.48	Pk	34.4	-17.1	0	56.78	-	-	74	-17.22	189	241	V
3	*5.15	26.48	RMS	34.4	-17	.61	44.49	54	-9.51	-	-	189	241	V
4	*5.14991	27.08	RMS	34.4	-17	.61	45.09	54	-8.91	-	-	189	241	V

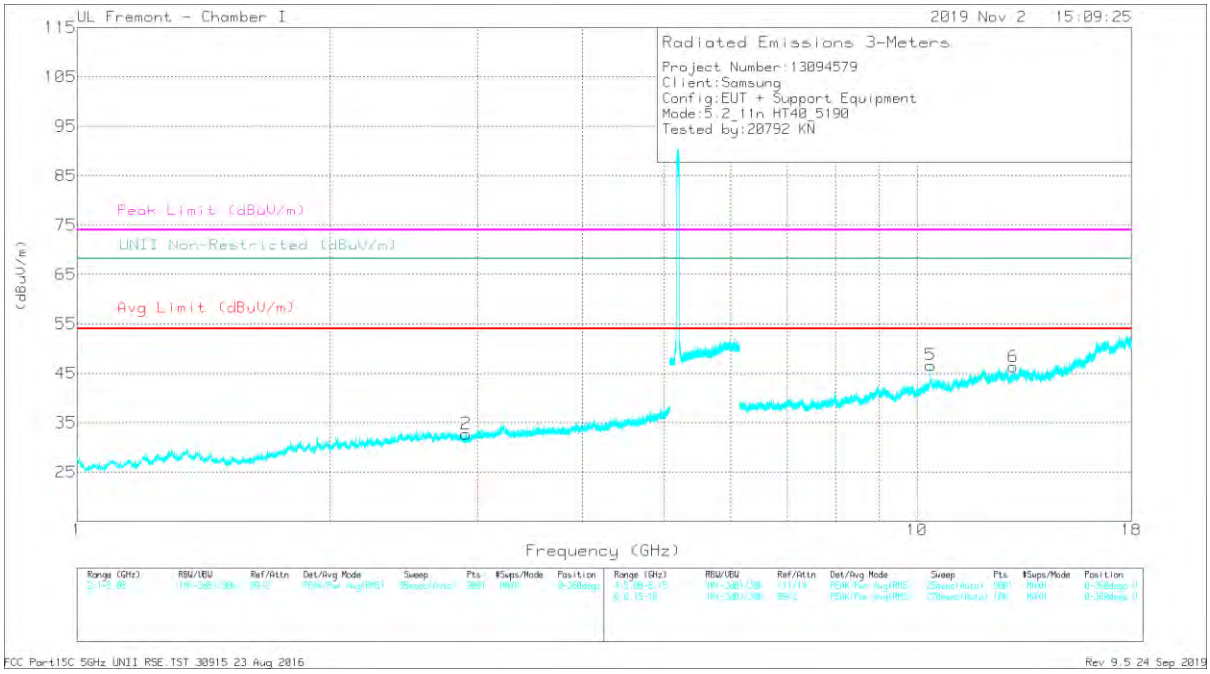
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (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	2.90554	37.61	PK-U	31.7	-29.7	0	39.61	-	-	-	-	68.2	-28.59	137	177	H
2	2.90499	37.54	PK-U	31.7	-29.7	0	39.54	-	-	-	-	68.2	-28.66	263	175	V
4	* 16.10442	27.09	PK-U	40.5	-11.6	0	55.99	-	-	74	-18.01	-	-	199	163	H
	* 16.10484	18.16	ADR	40.5	-11.6	.61	47.67	54	-6.33	-	-	-	-	199	163	H
3	10.38383	29.45	PK-U	37.5	-15.4	0	51.55	-	-	-	-	68.2	-16.65	201	212	H
5	10.38039	32.09	PK-U	37.5	-15.3	0	54.29	-	-	-	-	68.2	-13.91	226	194	V
6	13.01774	28.88	PK-U	39.3	-16	0	52.18	-	-	-	-	68.2	-16.02	125	178	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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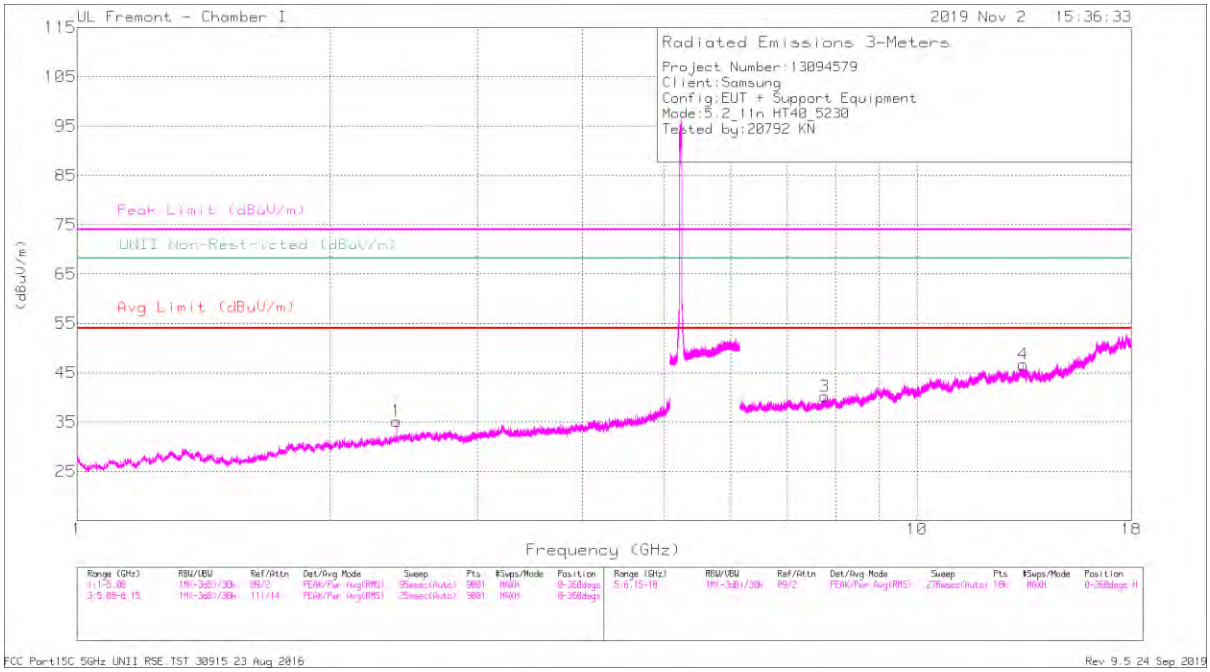
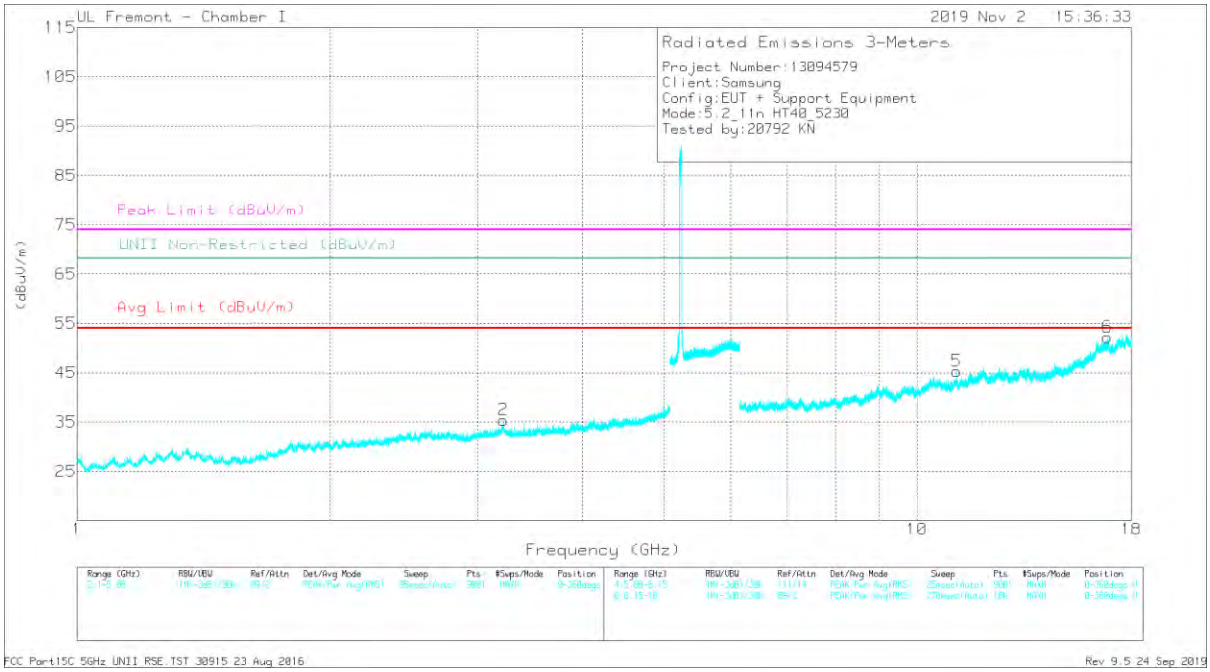
HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (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	2.39745	37.58	PK-U	31.9	-30.2	0	39.28	-	-	-	-	68.2	-28.92	198	172	H
2	3.2134	36.06	PK-U	33.6	-28.2	0	41.46	-	-	-	-	68.2	-26.74	255	135	V
4	* 13.38217	29.4	PK-U	39.7	-16.4	0	52.7	-	-	74	-21.3	-	-	139	227	H
	* 13.38008	19.97	ADR	39.7	-16.4	.61	43.88	54	-10.12	-	-	-	-	139	227	H
3	7.77229	30.03	PK-U	35.8	-18.8	0	47.03	-	-	-	-	68.2	-21.17	133	220	H
5	* 11.16134	28.87	PK-U	37.9	-15.8	0	50.97	-	-	74	-23.03	-	-	148	193	V
	* 11.1568	19.73	ADR	37.9	-15.8	.61	42.44	54	-11.56	-	-	-	-	148	193	V
6	16.85562	28.36	PK-U	41.2	-10.4	0	59.16	-	-	-	-	68.2	-9.04	222	182	V

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

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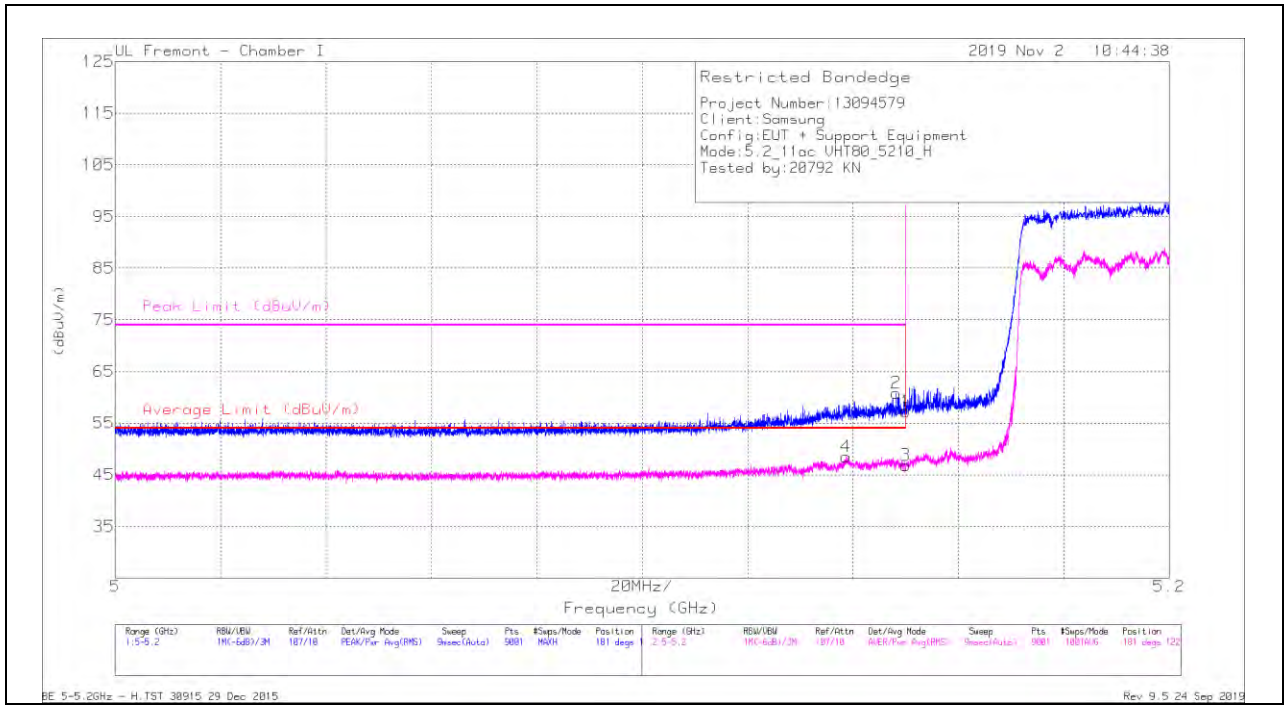
9.1.4. TX ABOVE 1 GHz 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

2TX Chain 0 + Chain 1 CDD MODE

BANDEDGE (MID CHANNEL)

HORIZONTAL RESULT

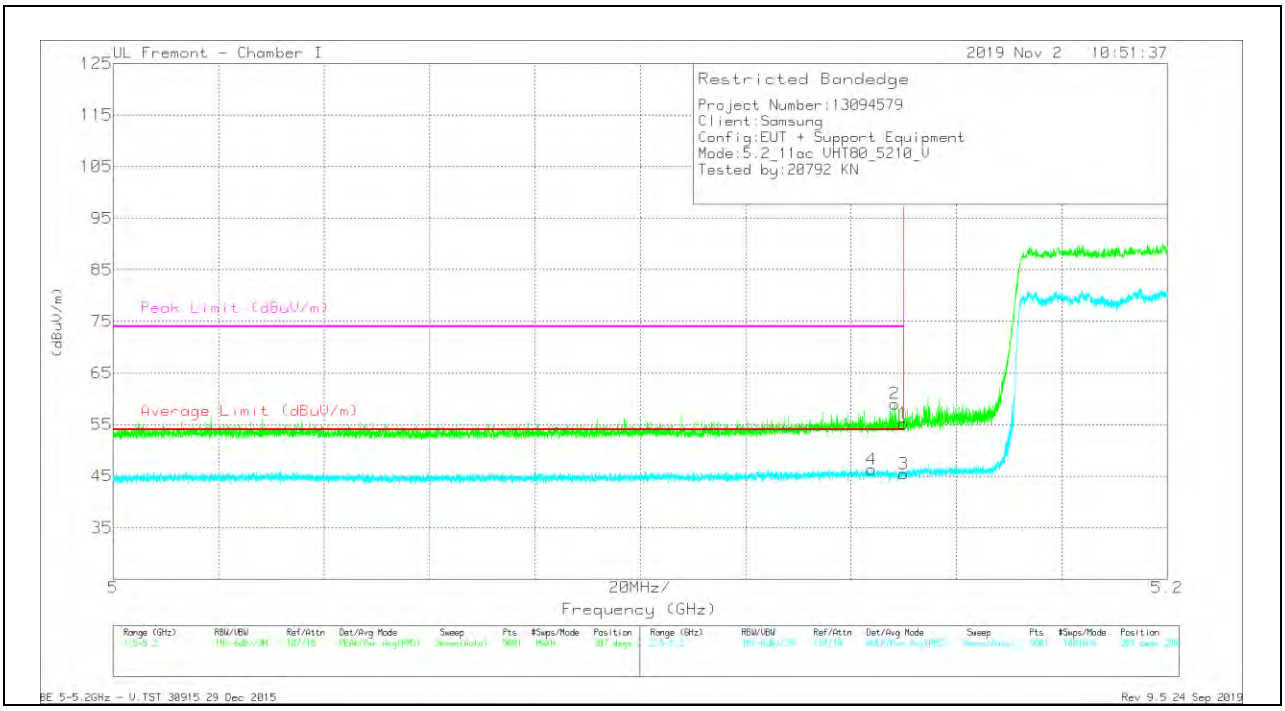


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*5.15	39.83	Pk	34.4	-17	0	57.23	-	-	74	-16.77	181	122	H
2	*5.14813	43.53	Pk	34.4	-17.1	0	60.83	-	-	74	-13.17	181	122	H
3	*5.15	27.58	RMS	34.4	-17	1.84	46.82	54	-7.18	-	-	181	122	H
4	*5.13869	29.24	RMS	34.5	-17.1	1.84	48.48	54	-5.52	-	-	181	122	H

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

VERTICAL RESULT



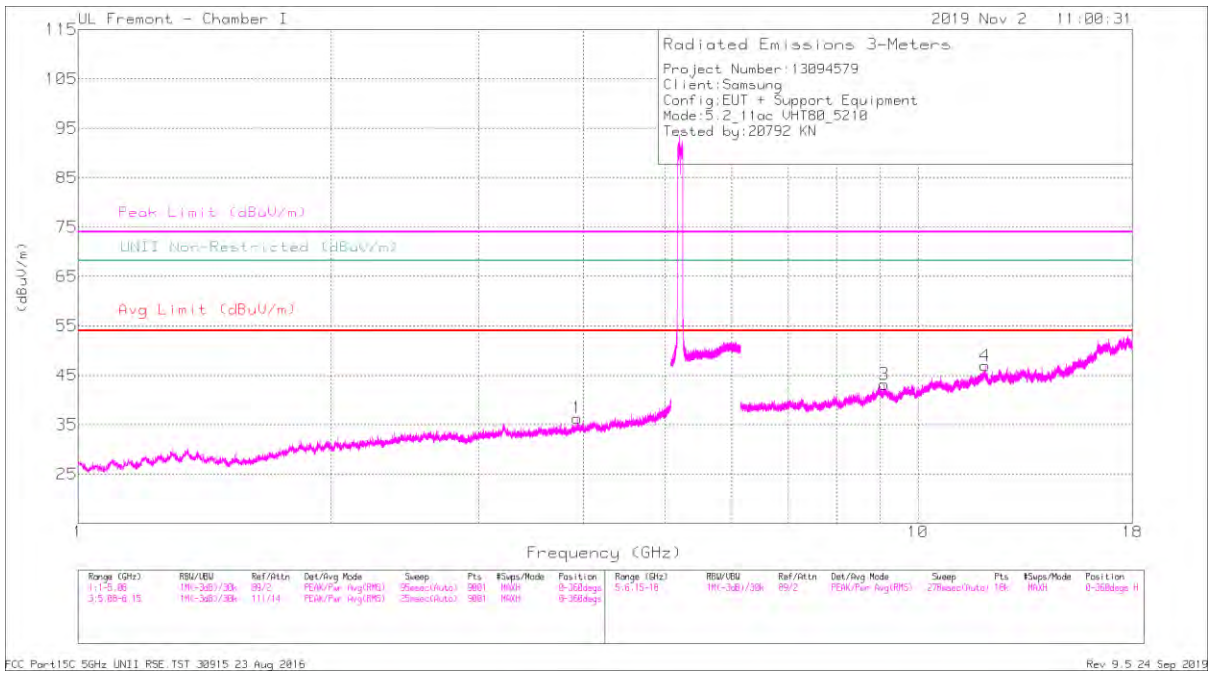
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (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	37.84	Pk	34.4	-17	0	55.24	-	-	74	-18.76	307	299	V
2	*5.14829	41.73	Pk	34.4	-17.1	0	59.03	-	-	74	-14.97	307	299	V
3	*5.15	26.18	RMS	34.4	-17	1.84	45.42	54	-8.58	-	-	307	299	V
4	*5.14389	27.15	RMS	34.4	-17.1	1.84	46.29	54	-7.71	-	-	307	299	V

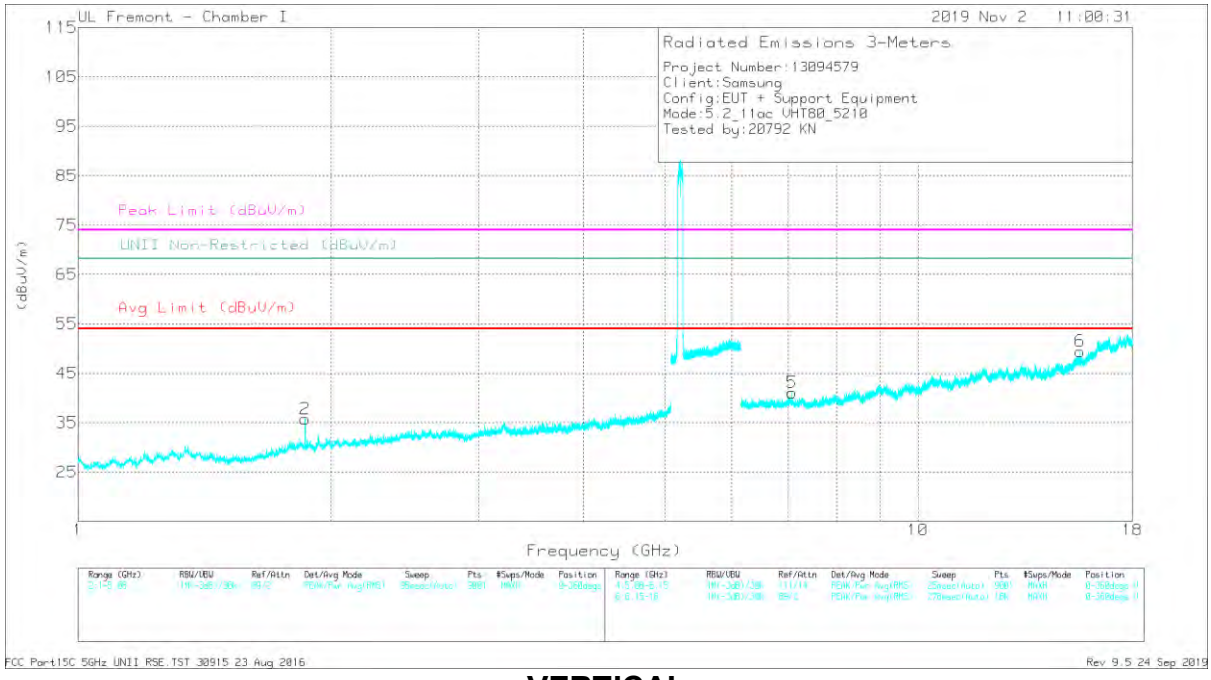
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (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	* 3.92901	36.42	PK-U	33.3	-27	0	42.72	-	-	74	-31.28	-	-	114	210	H
	* 3.9266	26.48	ADR	33.3	-27	1.84	34.62	54	-19.38	-	-	-	-	114	210	H
2	1.8619	43.18	PK-U	30.7	-31.1	0	42.78	-	-	-	-	68.2	-25.42	8	163	V
3	* 9.11493	29.23	PK-U	36.4	-16.9	0	48.73	-	-	74	-25.27	-	-	323	237	H
	* 9.11584	20.3	ADR	36.4	-16.8	1.84	41.74	54	-12.26	-	-	-	-	323	237	H
4	* 12.02122	32.03	PK-U	38.8	-15.7	0	55.13	-	-	74	-18.87	-	-	67	371	H
	* 12.02278	20.42	ADR	38.8	-15.8	1.84	45.26	54	-8.74	-	-	-	-	67	371	H
6	* 15.59593	28.85	PK-U	40.1	-13.1	0	55.85	-	-	74	-18.15	-	-	23	156	V
	* 15.59593	18.71	ADR	40.1	-13.1	1.84	47.55	54	-6.45	-	-	-	-	23	156	V
5	7.085	31.85	PK-U	35.7	-19.9	0	47.65	-	-	-	-	68.2	-20.55	274	268	V

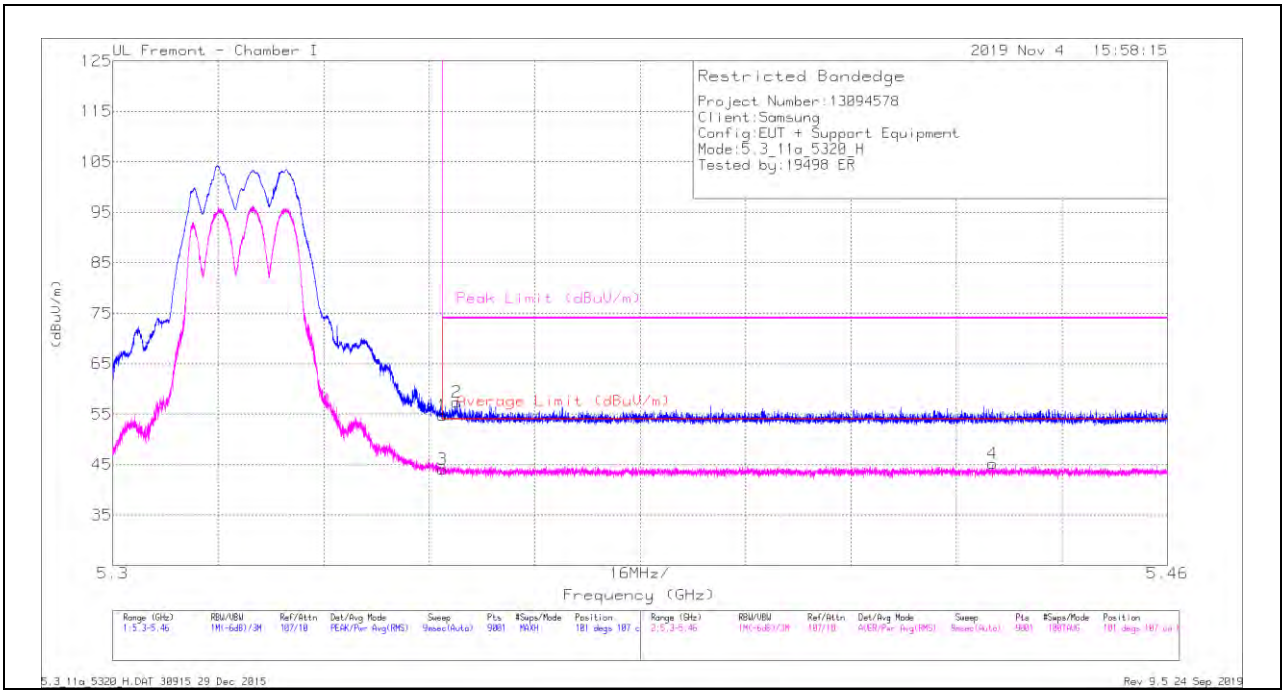
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

9.1.5. TX ABOVE 1 GHz 802.11a MODE IN THE 5.3 GHz BAND

2TX Chain 0 + Chain 1 CDD MODE

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT

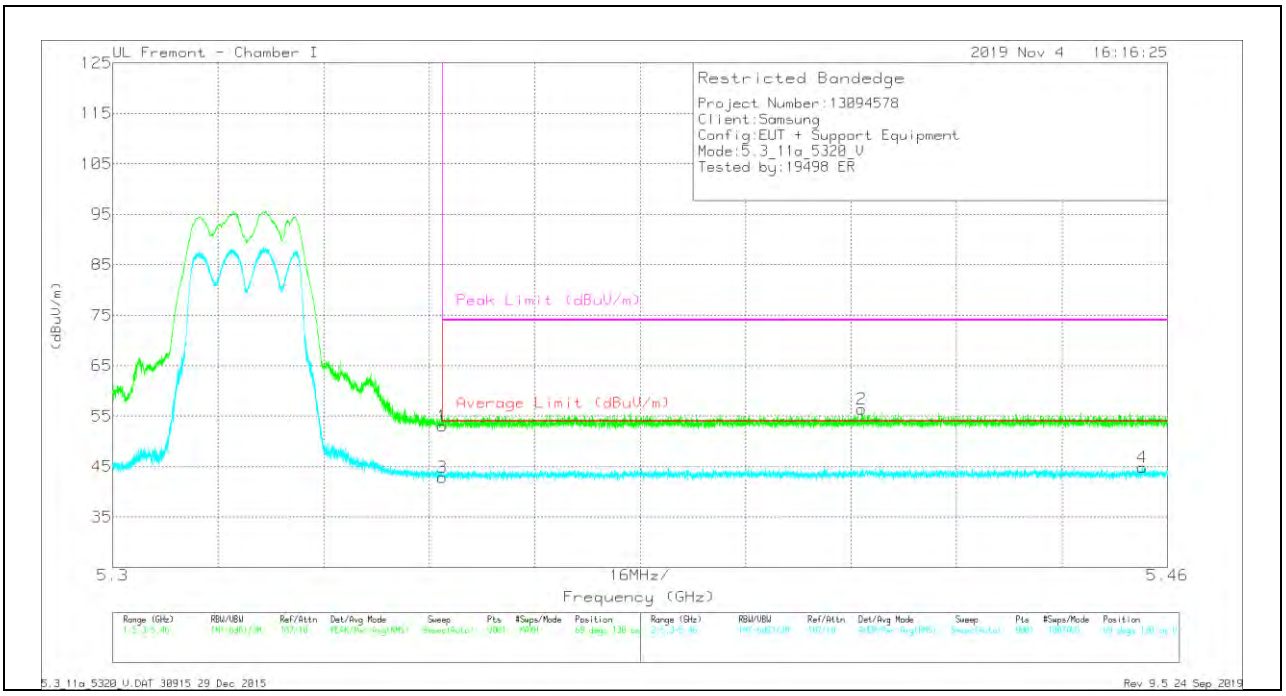


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (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	*5.35001	36.41	Pk	34.6	-16.2	0	54.81	-	-	74	-19.19	101	107	H
2	*5.35216	38.98	Pk	34.6	-16.2	0	57.38	-	-	74	-16.62	101	107	H
3	*5.35001	25.36	RMS	34.6	-16.2	.3	44.06	54	-9.94	-	-	101	107	H
4	*5.43351	25.98	RMS	34.8	-15.9	.3	45.18	54	-8.82	-	-	101	107	H

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

VERTICAL RESULT



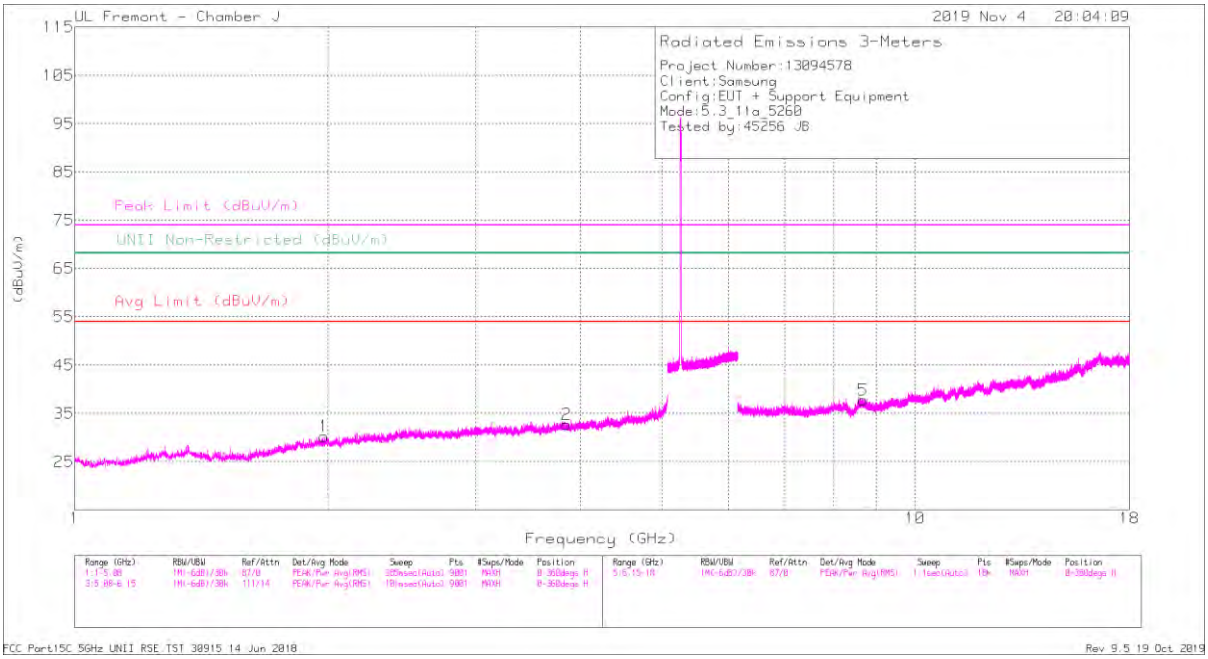
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (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	*5.35001	34.61	Pk	34.6	-16.2	0	53.01	-	-	74	-20.99	69	130	V
2	*5.41362	37.48	Pk	34.8	-15.9	0	56.38	-	-	74	-17.62	69	130	V
3	*5.35001	24.09	RMS	34.6	-16.2	.3	42.79	54	-11.21	-	-	69	130	V
4	*5.4562	25.43	RMS	34.9	-15.8	.3	44.83	54	-9.17	-	-	69	130	V

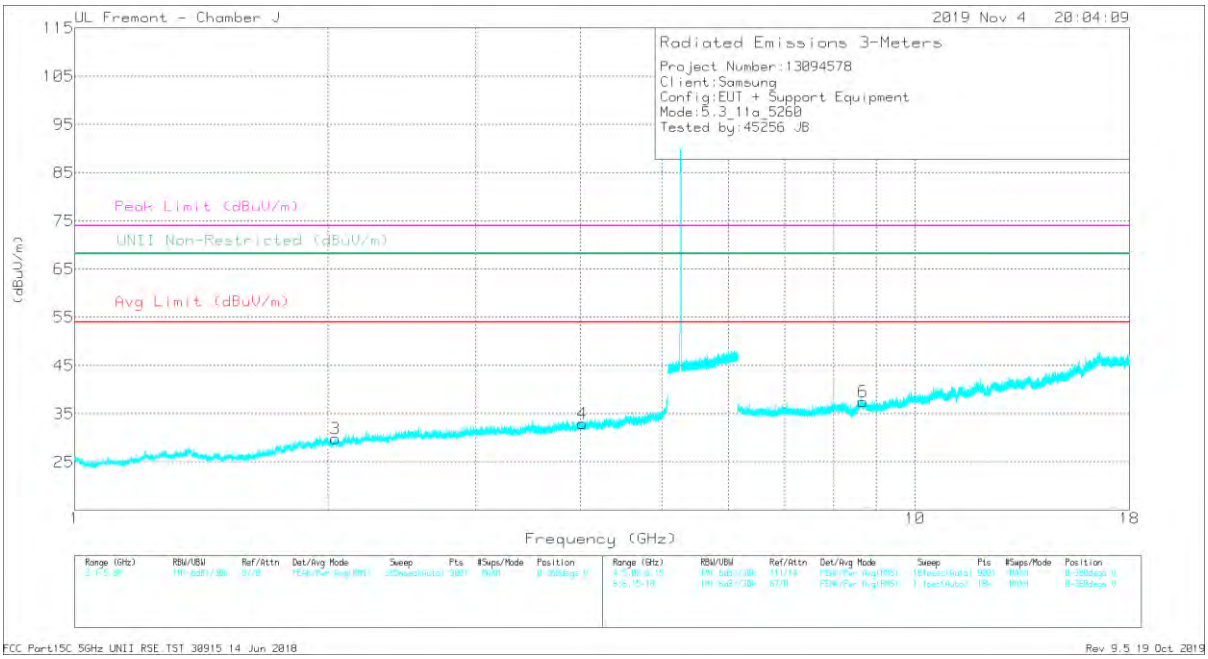
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (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	* 3.85269	39.88	PK-U	33.5	-32.4	0	40.98	-	-	74	-33.02	-	-	72	338	H
	* 3.85064	29.36	ADR	33.5	-32.4	.3	30.76	54	-23.24	-	-	-	-	72	338	H
1	1.98002	41.52	PK-U	31	-35.4	0	37.12	-	-	-	-	68.2	-31.08	228	174	H
4	* 4.0172	40.03	PK-U	33.5	-32.1	0	41.43	-	-	74	-32.57	-	-	66	127	V
	* 4.01818	29.48	ADR	33.5	-32.1	.3	31.18	54	-22.82	-	-	-	-	66	127	V
3	2.0451	42	PK-U	30.9	-35.1	0	37.8	-	-	-	-	68.2	-30.4	288	125	V
5	8.67372	33.97	PK-U	36	-25.4	0	44.57	-	-	-	-	68.2	-23.63	64	389	H
6	8.67239	34.43	PK-U	36	-25.4	0	45.03	-	-	-	-	68.2	-23.17	219	355	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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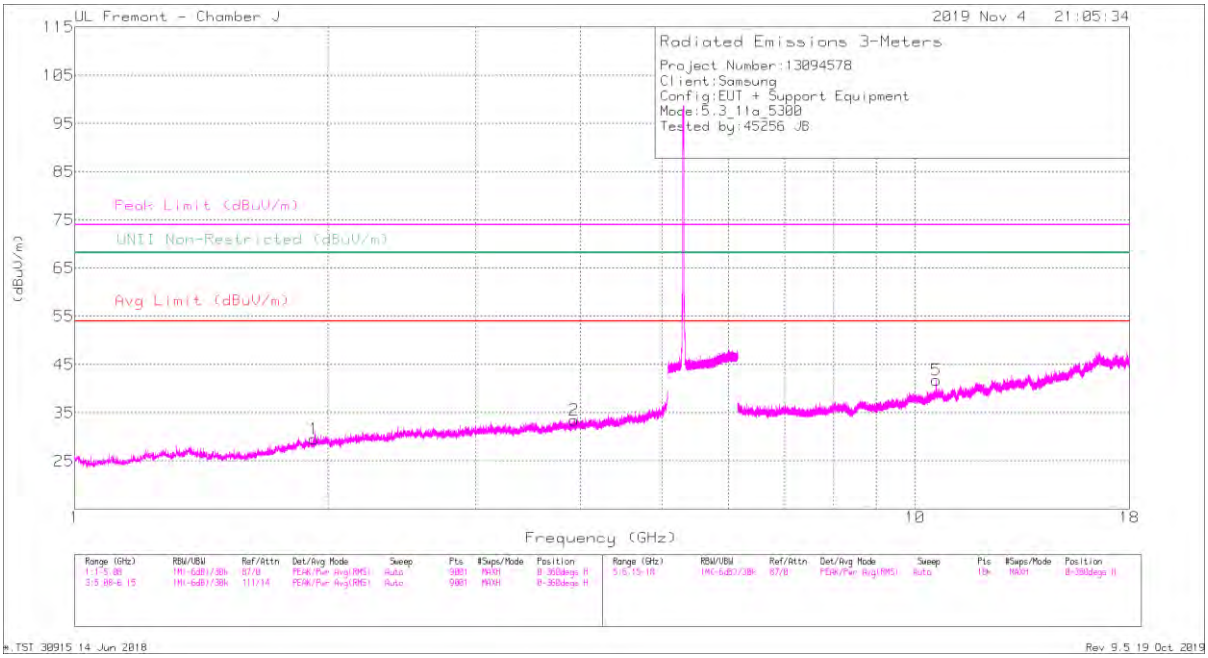
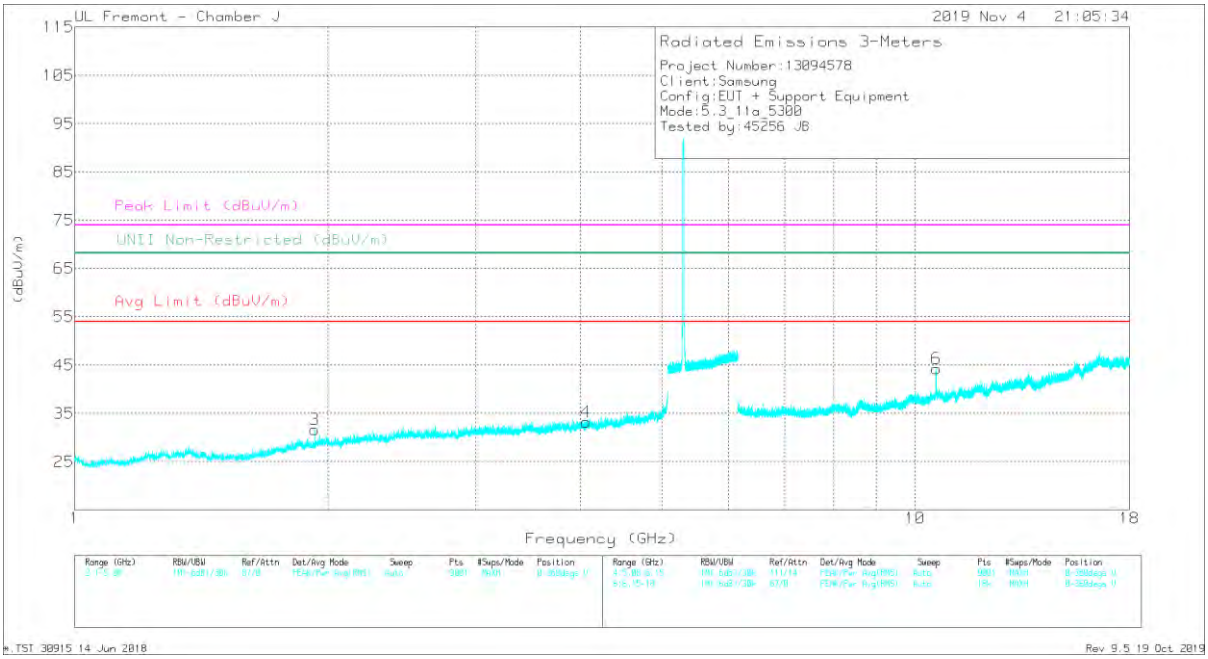
MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (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	1.92938	41.83	PK-U	30.6	-35.5	0	36.93	-	-	-	-	68.2	-31.27	269	132	H
2	* 3.92575	40.29	PK-U	33.4	-32.4	0	41.29	-	-	74	-32.71	-	-	349	189	H
	* 3.92962	29.37	ADR	33.5	-32.4	.3	30.77	54	-23.23	-	-	-	-	349	189	H
3	1.93137	42.64	PK-U	30.6	-35.5	0	37.74	-	-	-	-	68.2	-30.46	91	197	V
4	* 4.06287	39.38	PK-U	33.6	-32	0	40.98	-	-	74	-33.02	-	-	122	209	V
	* 4.06088	29.48	ADR	33.6	-32	.3	31.38	54	-22.62	-	-	-	-	122	209	V
5	* 10.60227	37.22	PK-U	37.9	-24.7	0	50.42	-	-	74	-23.58	-	-	239	102	H
	* 10.60167	27.44	ADR	37.9	-24.7	.3	40.94	54	-13.06	-	-	-	-	239	102	H
6	* 11.48629	33.82	PK-U	38.1	-23.1	0	48.82	-	-	74	-25.18	-	-	331	122	V
	* 11.83694	22.61	ADR	38.5	-22.8	.3	38.61	54	-15.39	-	-	-	-	331	122	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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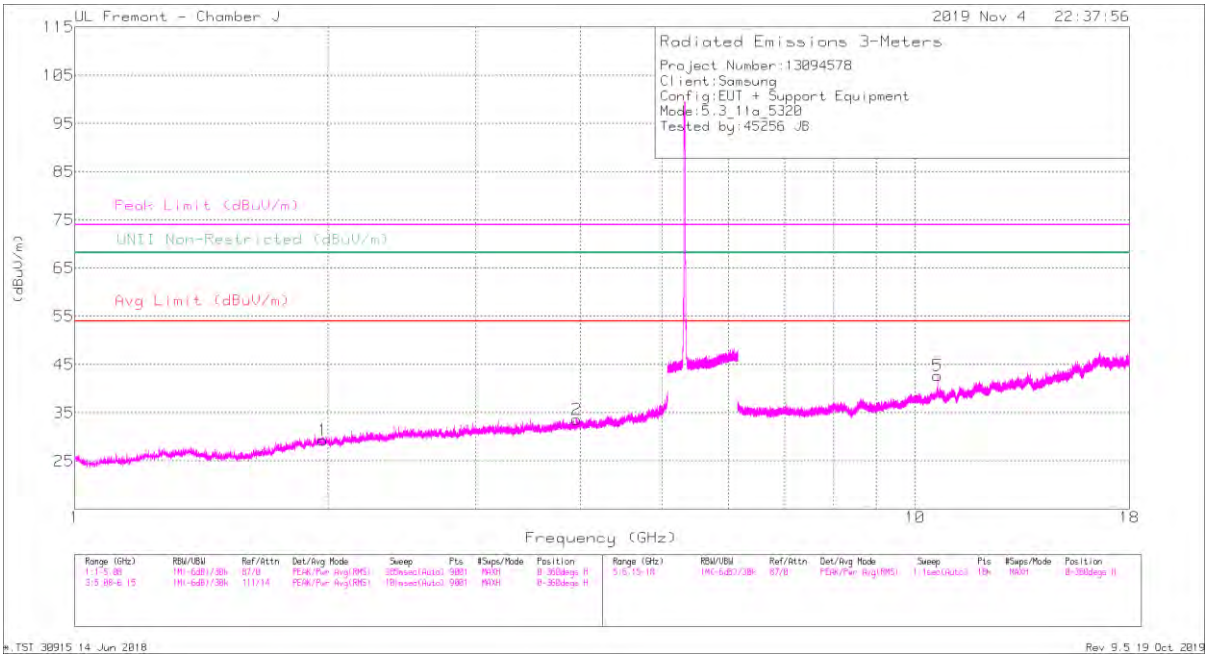
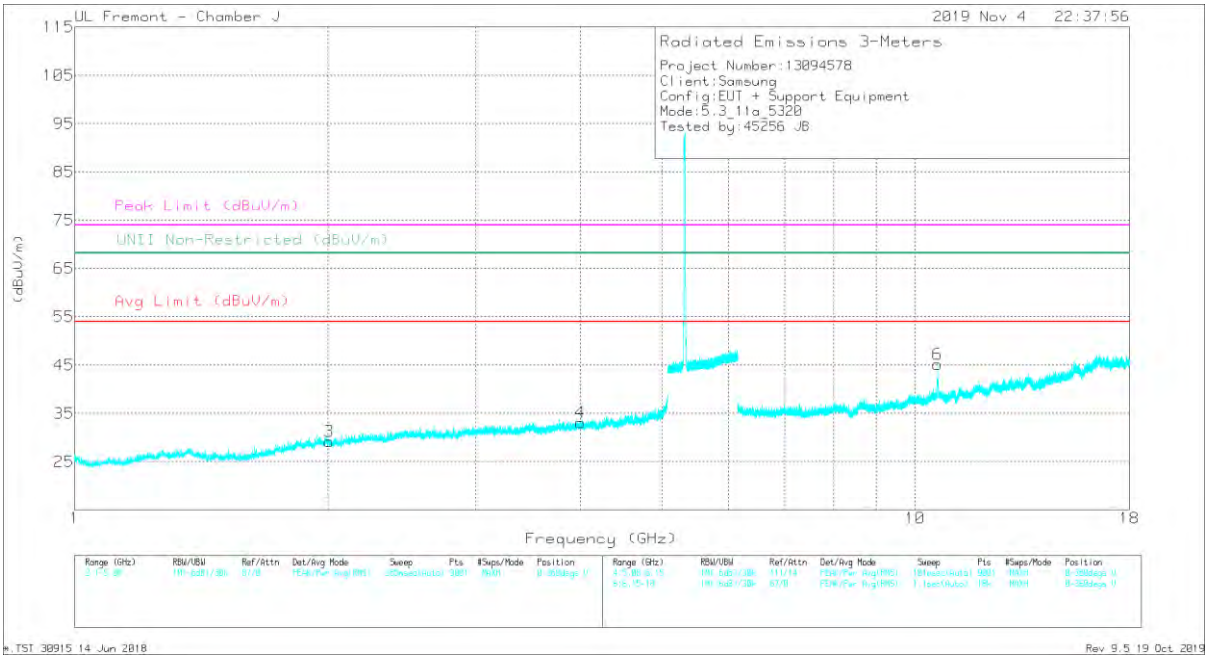
HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL