



TEST REPORT

Report Number. : 13171837-E5V3

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

Model : SM-A515U, SM-A515U1, SM-A515W, and SM-S515DL

FCC ID : A3LSMA515U

ISED : 649E-SMA515W

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

Test Standard(s) : FCC 47 CFR PART 15 SUBPART E (EXCEPT DFS)
ISED RSS-247 ISSUE 2
ISED RSS-GEN ISSUE 5

Date Of Issue:

March 02, 2020

Prepared by:

UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538 U.S.A.
TEL: (510) 319-4000
FAX: (510) 661-0888



NVLAP Lab code: 200065-0

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	1/17/2020	Initial Issue	
V2	2/27/2020	Updated Section 5.2 MAXIMUM OUTPUT POWER Updated Section 8.5 OUTPUT POWER AND PSD, Sections: 8.5.3, 8.5.7, and 8.5.12	Glenn Escano
V3	3/2/2020	Updated Section 5.2 MAXIMUM OUTPUT POWER	Steven Tran

TABLE OF CONTENTS

REPORT REVISION HISTORY	2
TABLE OF CONTENTS	3
1. ATTESTATION OF TEST RESULTS	6
2. TEST METHODOLOGY	8
3. FACILITIES AND ACCREDITATION	8
4. CALIBRATION AND UNCERTAINTY	9
4.1. <i>MEASURING INSTRUMENT CALIBRATION</i>	<i>9</i>
4.2. <i>SAMPLE CALCULATION</i>	<i>9</i>
4.3. <i>MEASUREMENT UNCERTAINTY.....</i>	<i>9</i>
5. EQUIPMENT UNDER TEST.....	10
5.1. <i>EUT DESCRIPTION</i>	<i>10</i>
5.2. <i>MAXIMUM OUTPUT POWER.....</i>	<i>10</i>
5.3. <i>DESCRIPTION OF AVAILABLE ANTENNAS</i>	<i>12</i>
5.4. <i>SOFTWARE</i>	<i>12</i>
5.5. <i>WORST-CASE CONFIGURATION AND MODE.....</i>	<i>12</i>
5.6. <i>DESCRIPTION OF TEST SETUP.....</i>	<i>13</i>
6. MEASUREMENT METHOD.....	16
7. TEST AND MEASUREMENT EQUIPMENT	17
8. ANTENNA PORT TEST RESULTS.....	18
8.1. <i>ON TIME AND DUTY CYCLE.....</i>	<i>18</i>
8.2. <i>26 dB BANDWIDTH.....</i>	<i>20</i>
8.2.1. <i>802.11a MODE IN THE 5.2 GHz BAND.....</i>	<i>21</i>
8.2.2. <i>802.11n HT20 MODE IN THE 5.2 GHz BAND</i>	<i>22</i>
8.2.3. <i>802.11n HT40 MODE IN THE 5.2 GHz BAND</i>	<i>23</i>
8.2.4. <i>802.11ac VHT80 MODE IN THE 5.2 GHz BAND</i>	<i>24</i>
8.2.5. <i>802.11a MODE IN THE 5.3 GHz BAND.....</i>	<i>25</i>
8.2.6. <i>802.11n HT20 MODE IN THE 5.3 GHz BAND</i>	<i>26</i>
8.2.7. <i>802.11n HT40 MODE IN THE 5.3 GHz BAND</i>	<i>27</i>
8.2.8. <i>802.11ac VHT80 MODE IN THE 5.3 GHz BAND</i>	<i>28</i>
8.2.9. <i>802.11a MODE IN THE 5.6 GHz BAND.....</i>	<i>29</i>
8.2.10. <i>802.11n HT20 MODE IN THE 5.6 GHz BAND</i>	<i>30</i>
8.2.11. <i>802.11n HT40 MODE IN THE 5.6 GHz BAND</i>	<i>31</i>
8.2.12. <i>802.11ac VHT80 MODE IN THE 5.6 GHz BAND</i>	<i>32</i>
8.2.13. <i>802.11a MODE IN THE 5.8 GHz BAND.....</i>	<i>33</i>
8.2.14. <i>802.11n HT20 MODE IN THE 5.8 GHz BAND</i>	<i>34</i>

8.2.15.	802.11n HT40 MODE IN THE 5.8 GHz BAND	35
8.2.16.	802.11ac VHT80 MODE IN THE 5.8 GHz BAND	36
8.3.	99% BANDWIDTH	37
8.3.1.	802.11a MODE IN THE 5.2 GHz BAND	38
8.3.2.	802.11n HT20 MODE IN THE 5.2 GHz BAND	39
8.3.3.	802.11n HT40 MODE IN THE 5.2 GHz BAND	40
8.3.4.	802.11ac VHT80 MODE IN THE 5.2 GHz BAND	41
8.3.5.	802.11a MODE IN THE 5.3 GHz BAND	42
8.3.6.	802.11n HT20 MODE IN THE 5.3 GHz BAND	43
8.3.7.	802.11n HT40 MODE IN THE 5.3 GHz BAND	44
8.3.8.	802.11ac VHT80 MODE IN THE 5.3 GHz BAND	45
8.3.9.	802.11a MODE IN THE 5.6 GHz BAND	46
8.3.10.	802.11n HT20 MODE IN THE 5.6 GHz BAND	47
8.3.11.	802.11n HT40 MODE IN THE 5.6 GHz BAND	48
8.3.12.	802.11ac VHT80 MODE IN THE 5.6 GHz BAND	49
8.3.13.	802.11a MODE IN THE 5.8 GHz BAND	50
8.3.14.	802.11n HT20 MODE IN THE 5.8 GHz BAND	51
8.3.15.	802.11n HT40 MODE IN THE 5.8 GHz BAND	52
8.3.16.	802.11ac VHT80 MODE IN THE 5.8 GHz BAND	53
8.4.	6 dB BANDWIDTH	54
8.4.1.	802.11a MODE IN THE 5.8 GHz BAND	55
8.4.2.	802.11n HT20 MODE IN THE 5.8 GHz BAND	56
8.4.3.	802.11n HT40 MODE IN THE 5.8 GHz BAND	57
8.4.4.	802.11ac VHT80 MODE IN THE 5.8 GHz BAND	58
8.5.	OUTPUT POWER AND PSD	59
8.5.1.	802.11a MODE IN THE 5.2 GHz BAND	61
8.5.2.	802.11n HT20 MODE IN THE 5.2 GHz BAND	63
8.5.3.	802.11n HT40 MODE IN THE 5.2 GHz BAND	65
8.5.4.	802.11ac VHT80 MODE IN THE 5.2 GHz BAND	67
8.5.5.	802.11a MODE IN THE 5.3 GHz BAND	69
8.5.6.	802.11n HT20 MODE IN THE 5.3 GHz BAND	72
8.5.7.	802.11n HT40 MODE IN THE 5.3 GHz BAND	75
8.5.8.	802.11ac VHT80 MODE IN THE 5.3 GHz BAND	78
8.5.9.	802.11a MODE IN THE 5.6 GHz BAND	81
8.5.10.	802.11n HT20 MODE IN THE 5.6 GHz BAND	83
8.5.11.	802.11n HT40 MODE IN THE 5.6 GHz BAND	85
8.5.12.	802.11ac VHT80 MODE IN THE 5.6 GHz BAND	87
8.5.13.	802.11a MODE IN THE 5.8 GHz BAND	89
8.5.14.	802.11n HT20 MODE IN THE 5.8 GHz BAND	91
8.5.15.	802.11n HT40 MODE IN THE 5.8 GHz BAND	93
8.5.16.	802.11ac VHT80 MODE IN THE 5.8 GHz BAND	95
9.	RADIATED TEST RESULTS	97
9.1.	TRANSMITTER ABOVE 1 GHz	99
9.1.1.	TX ABOVE 1 GHz 802.11a MODE IN THE 5.2 GHz BAND	99
9.1.2.	TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.2 GHz BAND	107
9.1.3.	TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND	115
9.1.4.	TX ABOVE 1 GHz 802.11ac VHT80 MODE IN THE 5.2 GHz BAND	121
9.1.5.	TX ABOVE 1 GHz 802.11a MODE IN THE 5.3 GHz BAND	125
9.1.6.	TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.3 GHz BAND	133
9.1.7.	TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.3 GHz BAND	141

9.1.8.	TX ABOVE 1 GHz 802.11ac VHT80 MODE IN THE 5.3 GHz BAND.....	147
9.1.9.	TX ABOVE 1 GHz 802.11a MODE IN THE 5.6 GHz BAND	151
9.1.10.	TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.6 GHz BAND.....	163
9.1.11.	TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.6 GHz BAND.....	175
9.1.12.	TX ABOVE 1 GHz 802.11ac VHT80 MODE IN THE 5.6 GHz BAND.....	187
9.1.13.	TX ABOVE 1 GHz 802.11a MODE IN THE 5.8 GHz BAND	197
9.1.14.	TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND.....	207
9.1.15.	TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND.....	217
9.1.16.	TX ABOVE 1 GHz 802.11ac VHT80 MODE IN THE 5.8 GHz BAND.....	225
9.2.	<i>WORST CASE BELOW 30MHz</i>	231
9.3.	<i>WORST CASE BELOW 1 GHz</i>	232
9.4.	<i>WORST CASE 18-26 GHz</i>	234
9.5.	<i>WORST CASE 26-40 GHz</i>	236
10.	AC POWER LINE CONDUCTED EMISSIONS	238
11.	SETUP PHOTOS	241

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/CDMA/WCDMA/LTE Phablet with BT/BLE, DTS/UNII
a/b/g/n/ac, NFC and ANT+

MODEL: SM-A515U, SM-A515U1, SM-A515W, and SM-S515DL

SERIAL NUMBER: Conducted: R38MB0B5QVN
Radiated: 353327110220894, 353327110221298

DATE TESTED: December 31, 2019 – January 8, 2020

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart E (EXCEPT DFS)	Complies
ISED RSS-247 Issue 2	Complies
ISED RSS-GEN Issue 5	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.

Approved & Released For
UL Verification Services Inc. By:



Dan Corona
Operations Leader
Consumer Technology Division
UL Verification Services Inc.

Prepared By:



Glenn Escano
Test Engineer
Consumer Technology Division
UL Verification Services Inc.

Reviewed By:



Steven Tran
Project Engineer
Consumer Technology Division
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 14-30, FCC KDB 905462 D06 v02, FCC KDB 789033 D02 v02r01, KDB 414788 D01 Radiated Test Site v01r01, ANSI C63.10-2013, FCC 06-96, RSS-GEN Issue 5, and RSS-247 Issue 2.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, 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
<input type="checkbox"/> Chamber A	<input type="checkbox"/> Chamber D	<input checked="" type="checkbox"/> Chamber I
<input type="checkbox"/> Chamber B	<input type="checkbox"/> Chamber E	<input checked="" type="checkbox"/> Chamber J
<input type="checkbox"/> Chamber C	<input type="checkbox"/> Chamber F	<input checked="" type="checkbox"/> Chamber K
	<input type="checkbox"/> Chamber G	<input type="checkbox"/> Chamber L
	<input type="checkbox"/> Chamber H	<input type="checkbox"/> 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

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)

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

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.

$$36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$$

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	3.39 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.07 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%.

5. EQUIPMENT UNDER TEST

5.1. EUT DESCRIPTION

The EUT is a GSM/CDMA/WCDMA/LTE Phablet with BT/BLE, DTS/UNII a/b/g/n/ac, NFC and ANT+.

The model SM-A515U 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	Output Power (dBm)	Output Power (mW)
5.2 GHz band, 1TX			
5180-5240	802.11a	16.70	46.77
5180-5240	802.11n HT20	16.67	46.45
5190-5230	802.11n HT40	14.95	31.26
5210	802.11ac VHT80	14.13	25.88

5.3 GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.3 GHz band, 1TX			
5260 - 5320	802.11a	17.01	50.23
5260 - 5320	802.11n HT20	16.85	48.42
5270 - 5310	802.11n HT40	14.88	30.76
5290	802.11ac VHT80	13.82	24.10

5.6 GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.6 GHz band, 1TX			
5500-5720	802.11a	16.98	49.89
5500-5720	802.11n HT20	17.05	50.70
5510-5710	802.11n HT40	16.21	41.78
5530-5690	802.11ac VHT80	14.08	25.59

5.8 GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.8 GHz band, 1TX			
5745-5825	802.11a	16.45	44.16
5745-5825	802.11n HT20	16.33	42.95
5755-5795	802.11n HT40	16.64	46.13
5775	802.11ac VHT80	13.65	23.17

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)
5180-5240	-4.1
5260-5320	-4.0
5500-5720	-2.1
5745-5825	-3.0

Note: Antenna 1 = Chain 0

5.4. SOFTWARE

The test utility software used during testing was A515U.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 Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z 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

All radios that can be transmitted simultaneously have been evaluated for radiated for all possible combinations of transmission and found to be in compliance.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Samsung	EP-TA200	R37KBKL03C1DK3	N/A
Earphone	Samsung	N/A	N/A	N/A

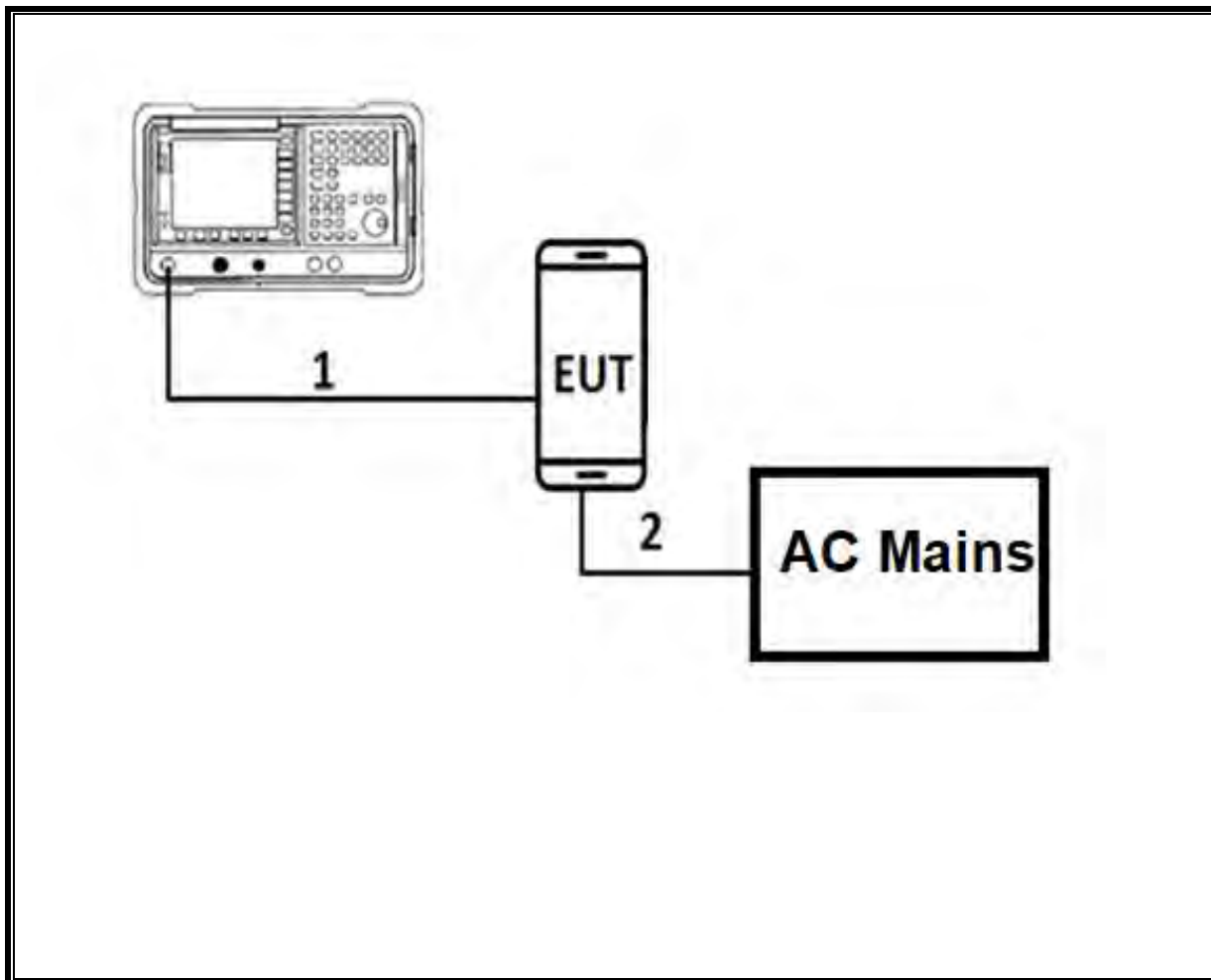
I/O CABLES (CONDUCTED TEST)

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

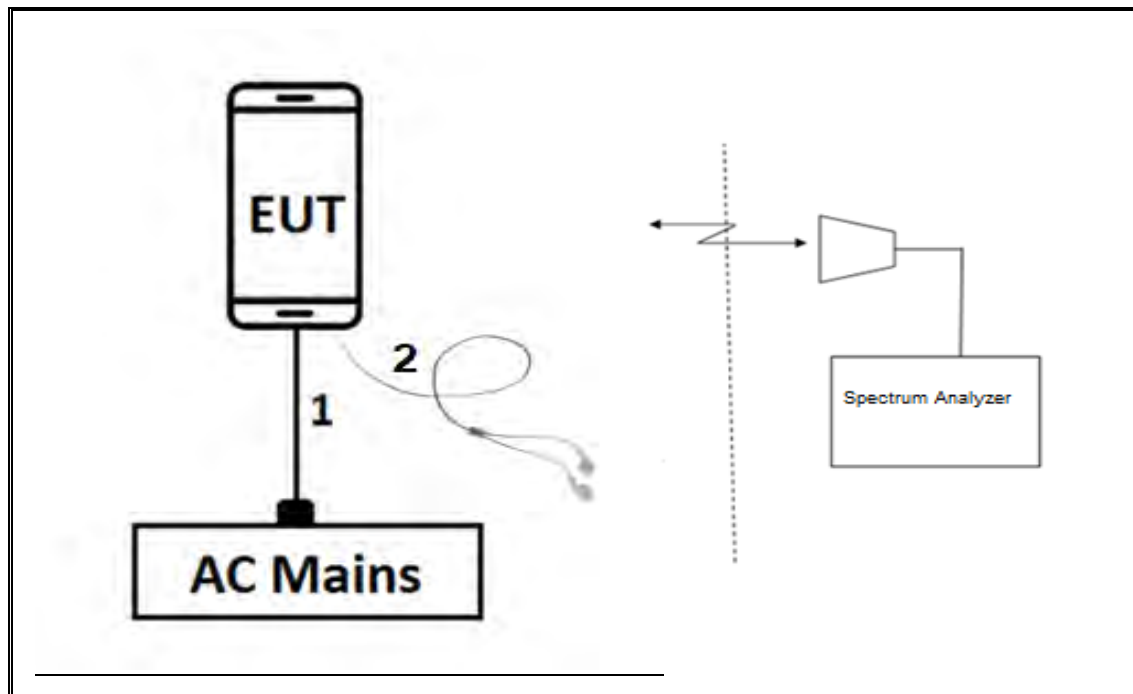
CONDUCTED TEST SETUP DIAGRAM



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

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

Conducted Output Power: KDB 789033 D02 v02r01, Section 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, II.G.4, II.G.5, and II.G.6.

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

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

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

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
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	T899	08/23/2020
Amplifier, SMA 9KHZ-3GHz , 32dB gain 16dBm P1dB	Fairview Microwave	SLNA-030-32-30-SMA	PRE183968	08/04/2020
Spectrum Analyzer, PSA, 3Hz to 44GHz	Keysight	E4446A	T146	01/28/2020
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	T917	01/24/2020
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	PRE0179367	05/16/2020
Filter, HPF 6.0HPF	MICRO-TRONICS	HPS17542	T894	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 11.13, Nov 13, 2019	
AC Line Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015	

NOTES:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

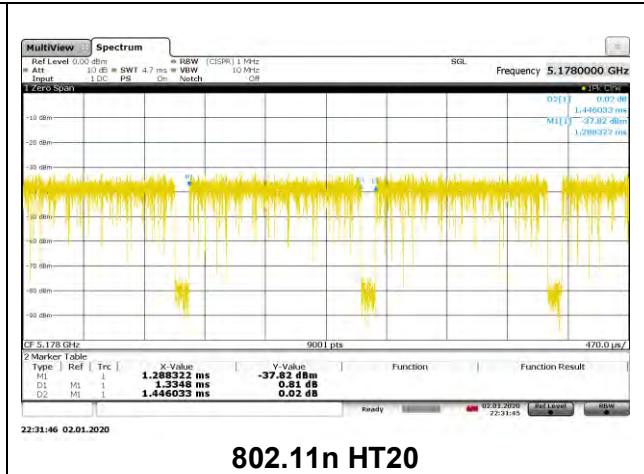
Tested By:	19497 AF
Date:	1/2/2020 and 1/3/2020

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	1.408	1.522	0.926	92.57	0.34	0.710
802.11n HT20	1.335	1.446	0.923	92.31	0.35	0.749
802.11n HT40	0.664	0.765	0.868	86.83	0.61	1.506
802.11ac VHT80	0.332	0.433	0.767	76.67	1.15	3.012

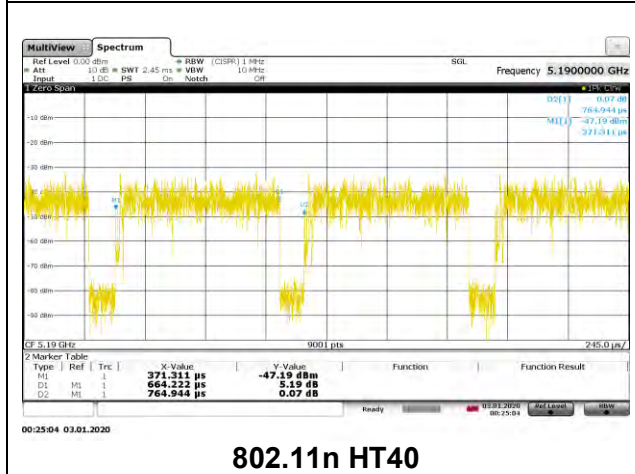
DUTY CYCLE PLOTS



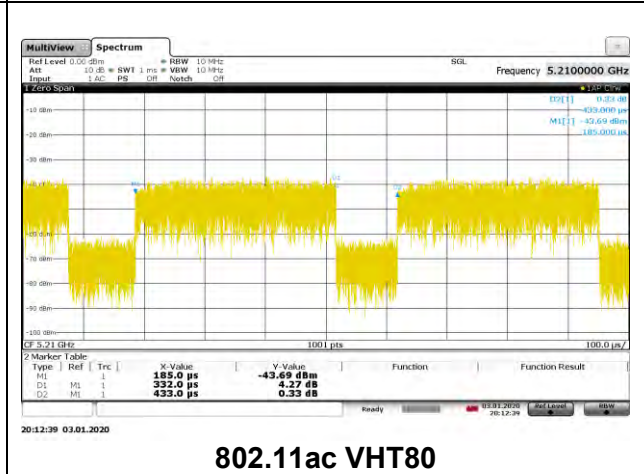
802.11a



802.11n HT20



802.11n HT40



802.11ac VHT80

8.2. 26 dB BANDWIDTH

LIMITS

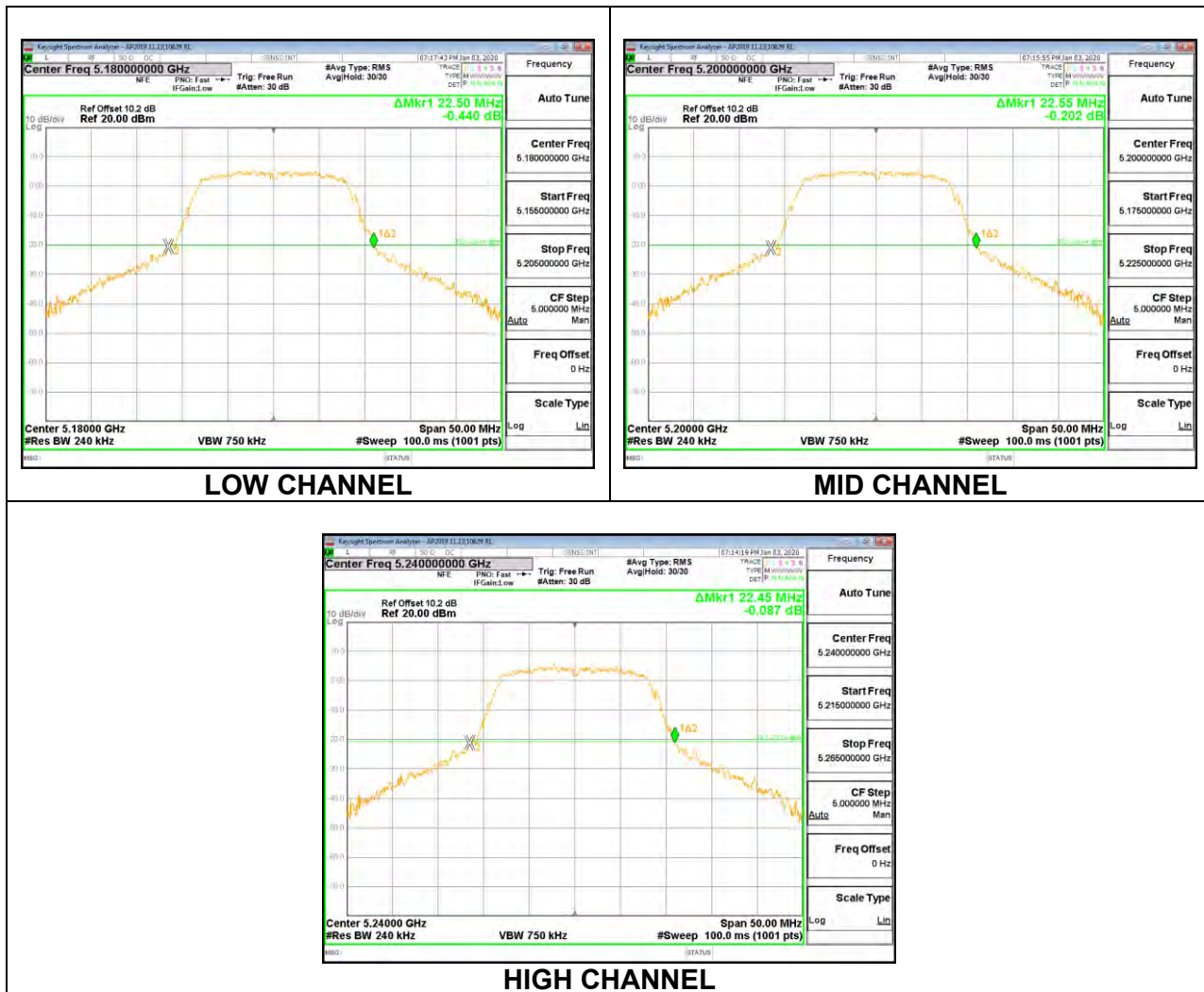
None; for reporting purposes only.

RESULTS

8.2.1. 802.11a MODE IN THE 5.2 GHz BAND

1TX CHAIN 0 MODE

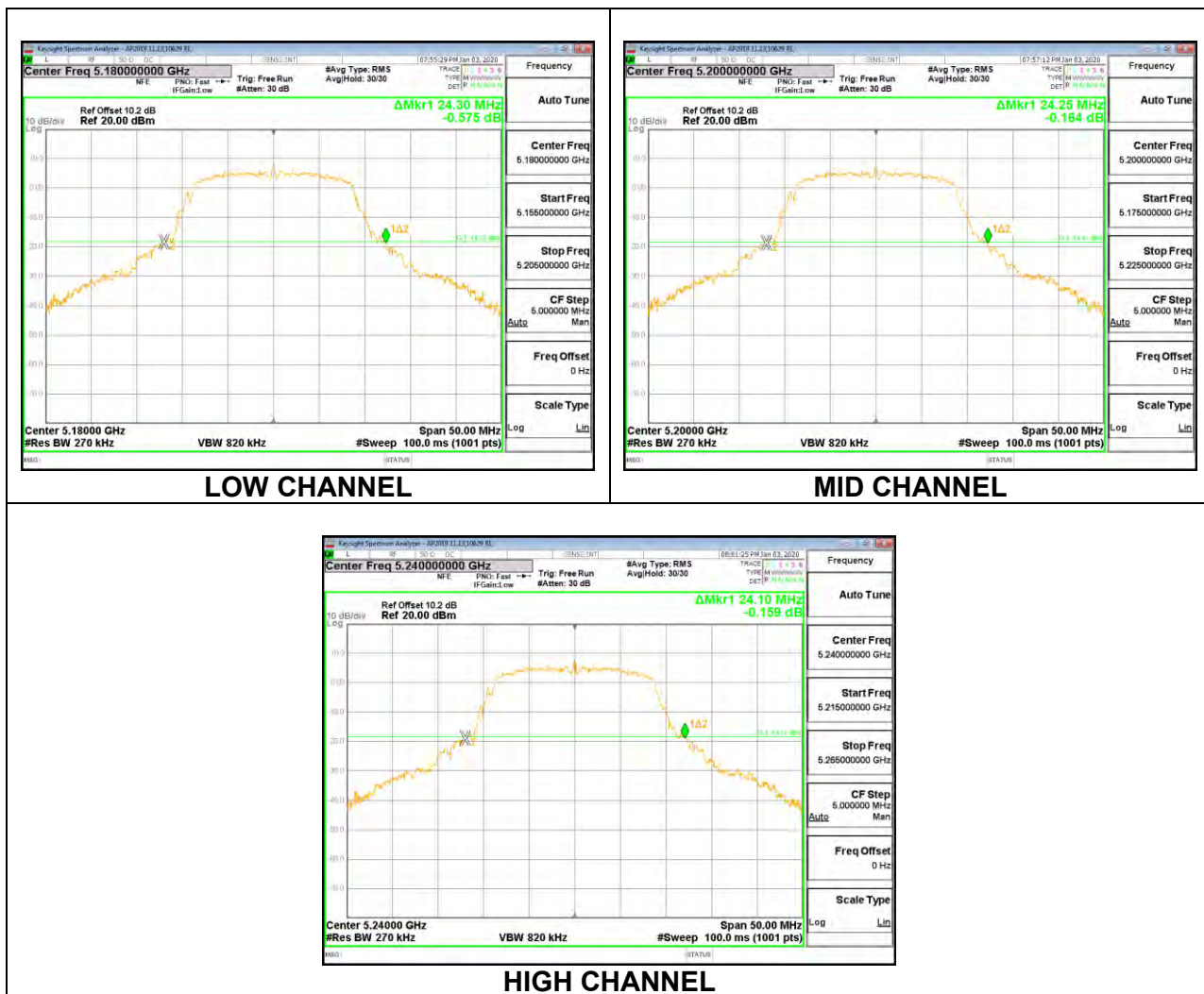
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	22.50
Mid	5200	22.55
High	5240	22.45



8.2.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

1TX CHAIN 0 MODE

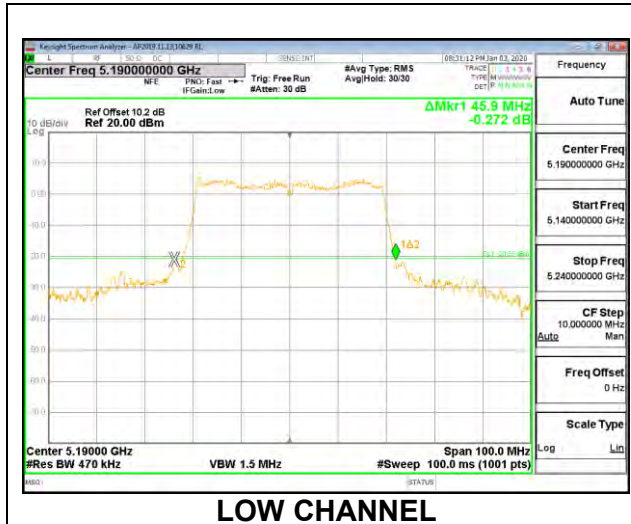
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	24.30
Mid	5200	24.25
High	5240	24.10



8.2.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

1TX CHAIN 0 MODE

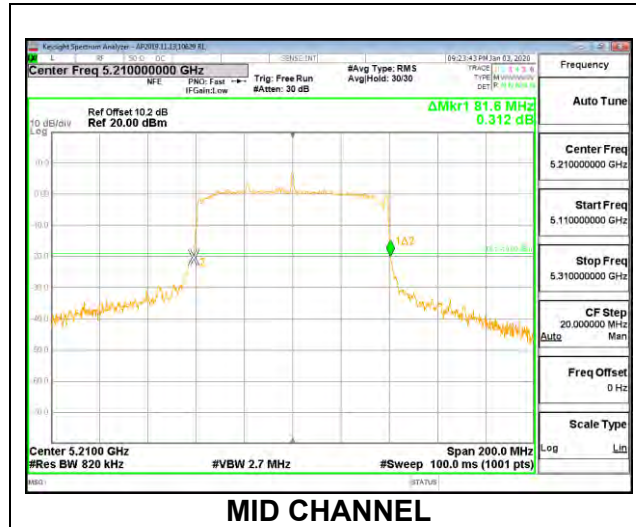
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
Low	5190	45.90
High	5230	45.80



8.2.4. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

1TX CHAIN 0 MODE

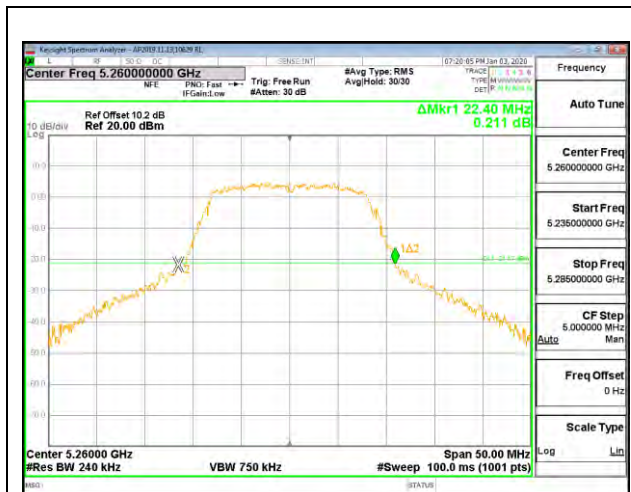
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Mid	5210	81.60



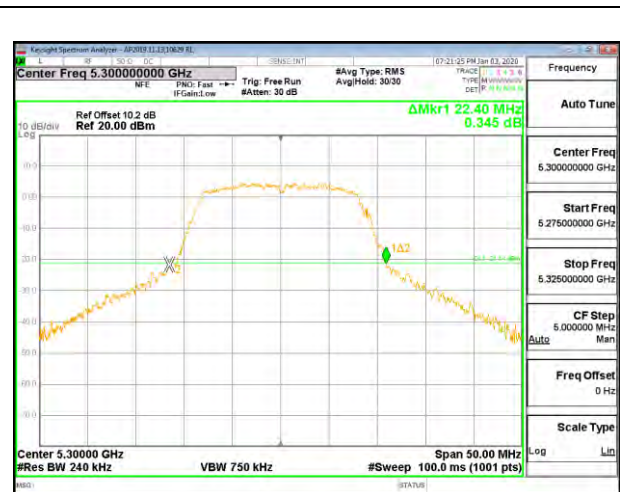
8.2.5. 802.11a MODE IN THE 5.3 GHz BAND

1TX CHAIN 0 MODE

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	22.40
Mid	5300	22.40
High	5320	22.25



LOW CHANNEL



MID CHANNEL

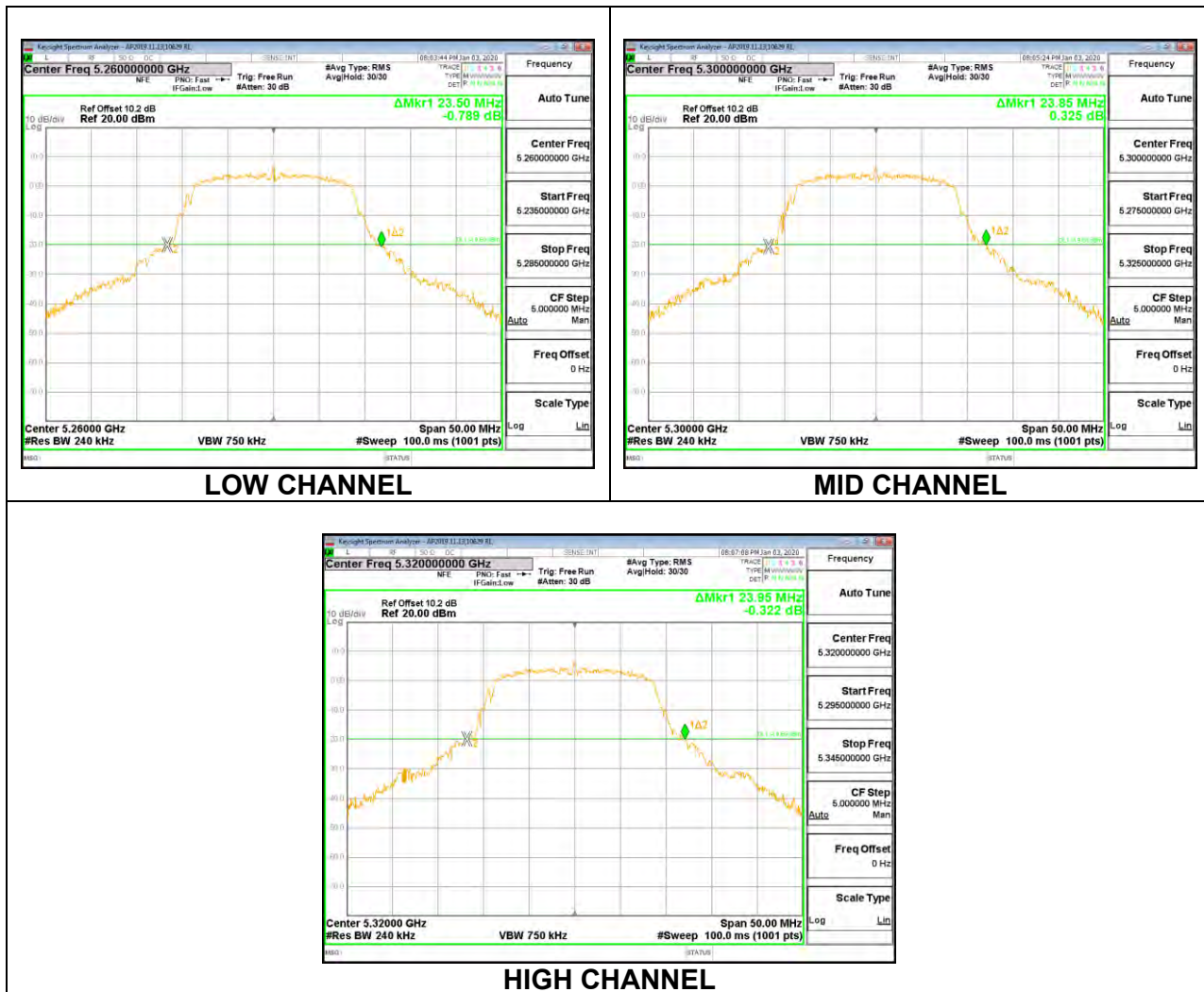


HIGH CHANNEL

8.2.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

1TX CHAIN 0 MODE

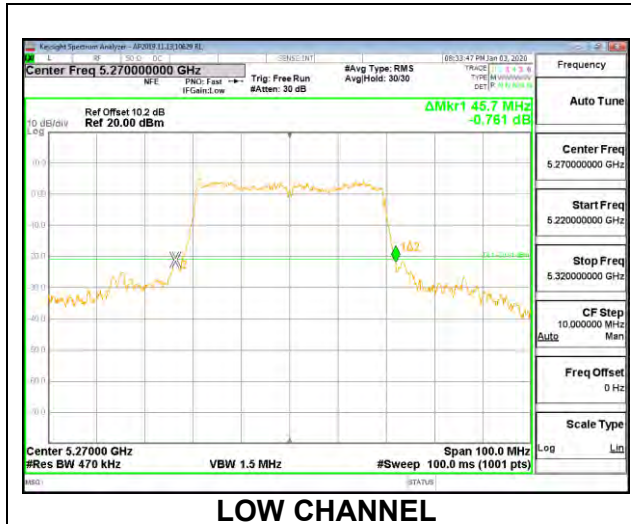
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	23.50
Mid	5300	23.85
High	5320	23.95



8.2.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

1TX CHAIN 0 MODE

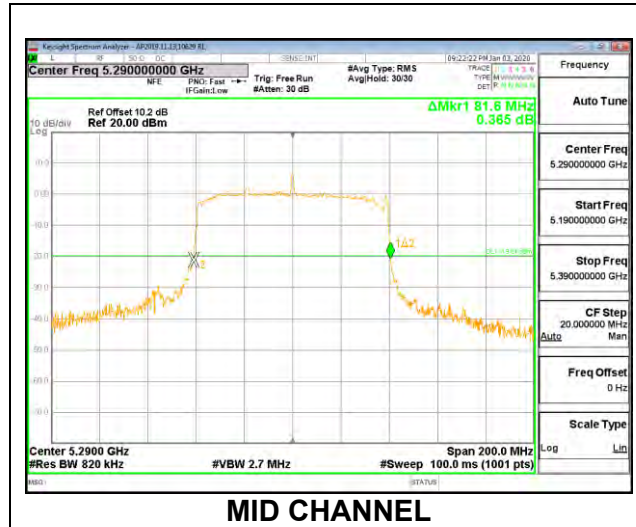
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
Low	5270	45.70
High	5310	45.70



8.2.8. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

1TX CHAIN 0 MODE

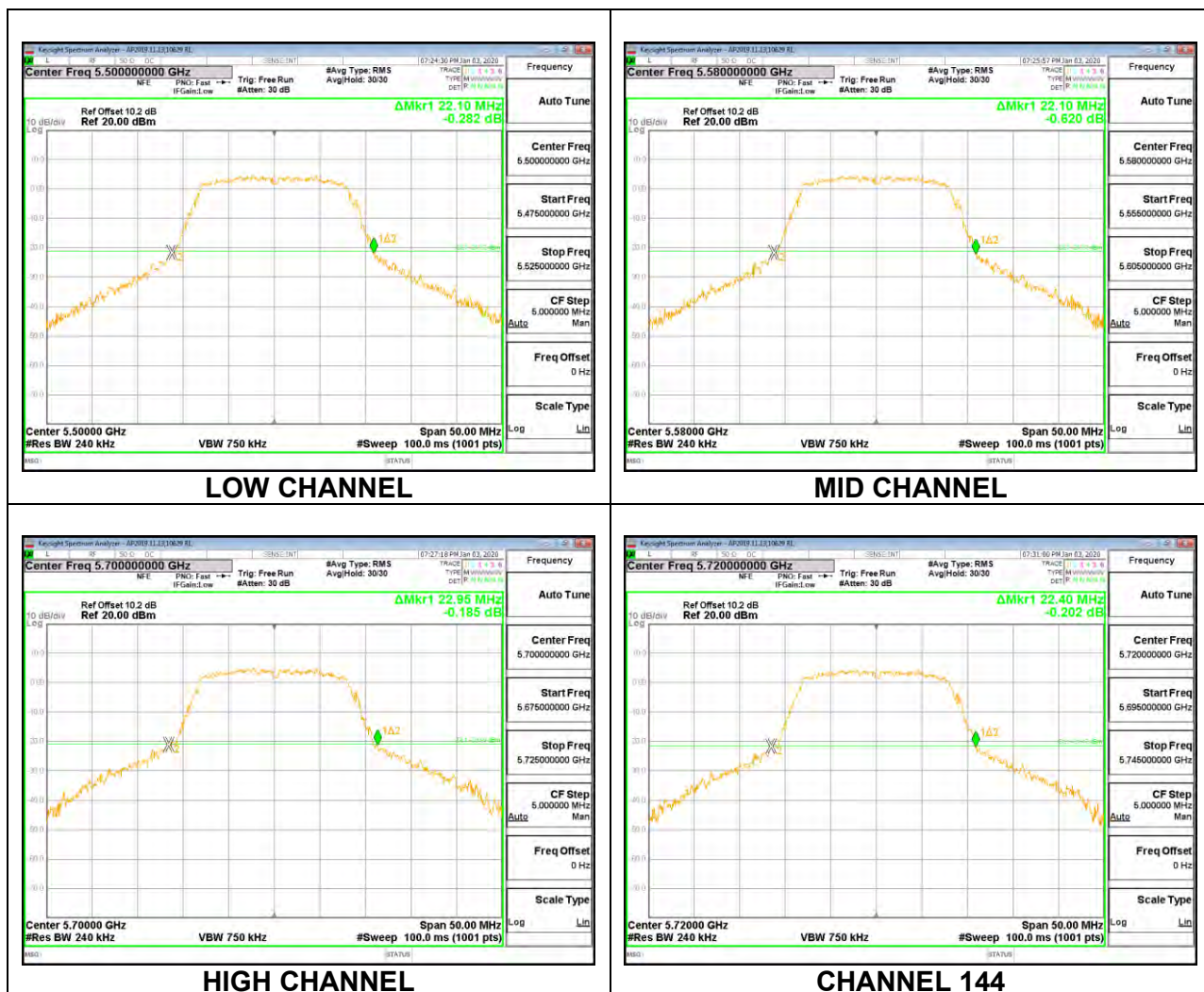
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Mid	5290	81.60



8.2.9. 802.11a MODE IN THE 5.6 GHz BAND

1TX CHAIN 0 MODE

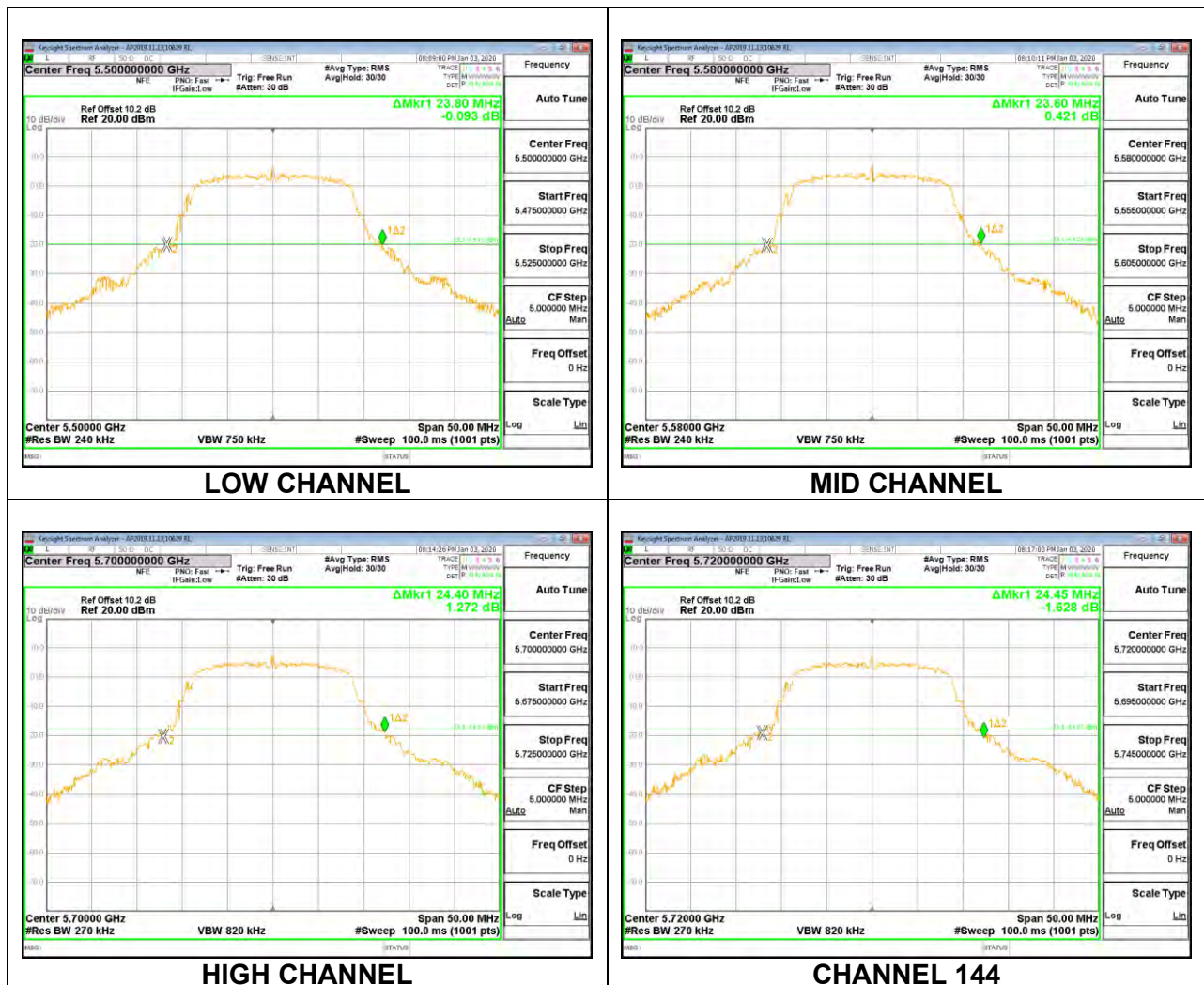
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	22.10
Mid	5580	22.10
High	5700	22.95
144	5720	22.40



8.2.10. 802.11n HT20 MODE IN THE 5.6 GHz BAND

1TX CHAIN 0 MODE

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	23.80
Mid	5580	23.60
High	5700	24.40
144	5720	24.45



8.2.11. 802.11n HT40 MODE IN THE 5.6 GHz BAND

1TX CHAIN 0 MODE

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5510	44.40
Mid	5550	44.30
High	5670	44.50
142	5710	44.50



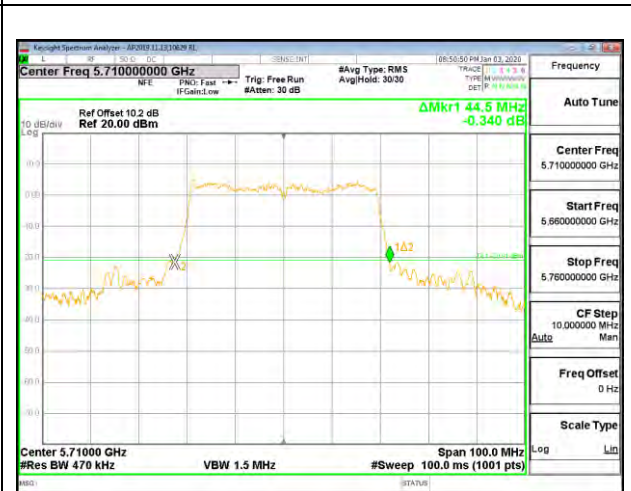
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

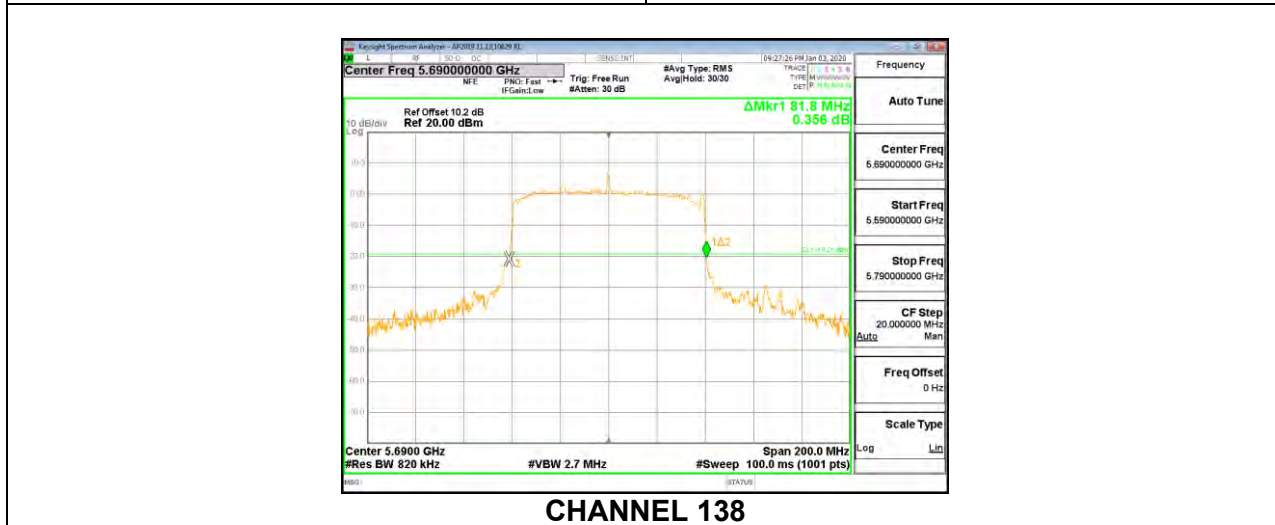
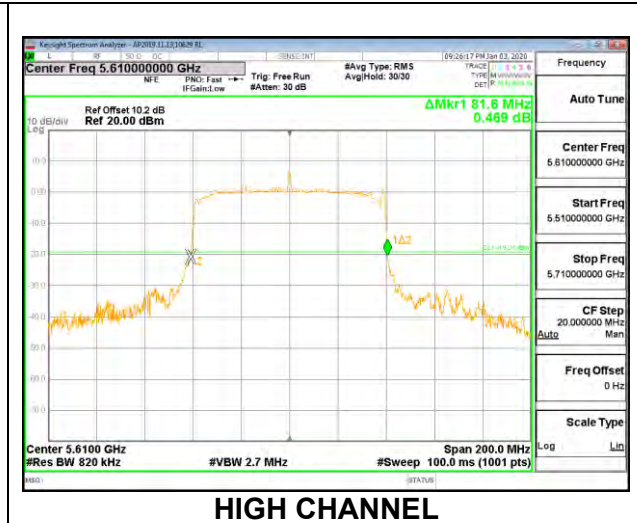
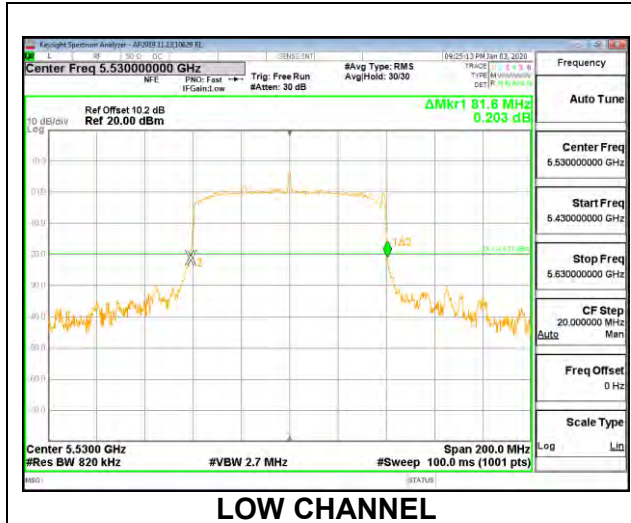


CHANNEL 142

8.2.12. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND

1TX CHAIN 0 MODE

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5530	81.60
High	5610	81.60
138	5690	81.80



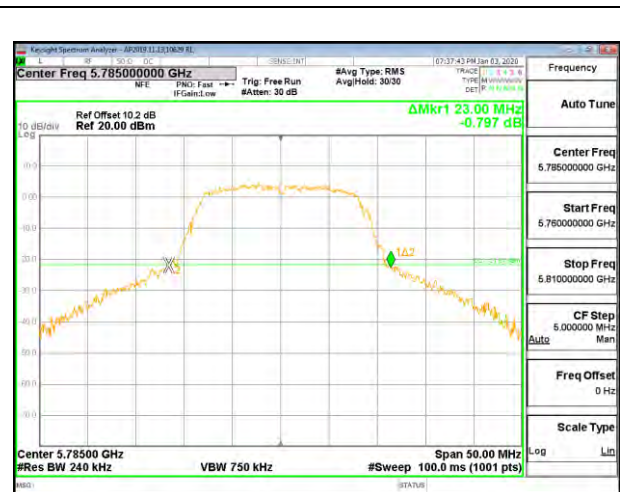
8.2.13. 802.11a MODE IN THE 5.8 GHz BAND

1TX CHAIN 0 MODE

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5745	23.05
Mid	5785	23.00
High	5825	26.00



LOW CHANNEL



MID CHANNEL

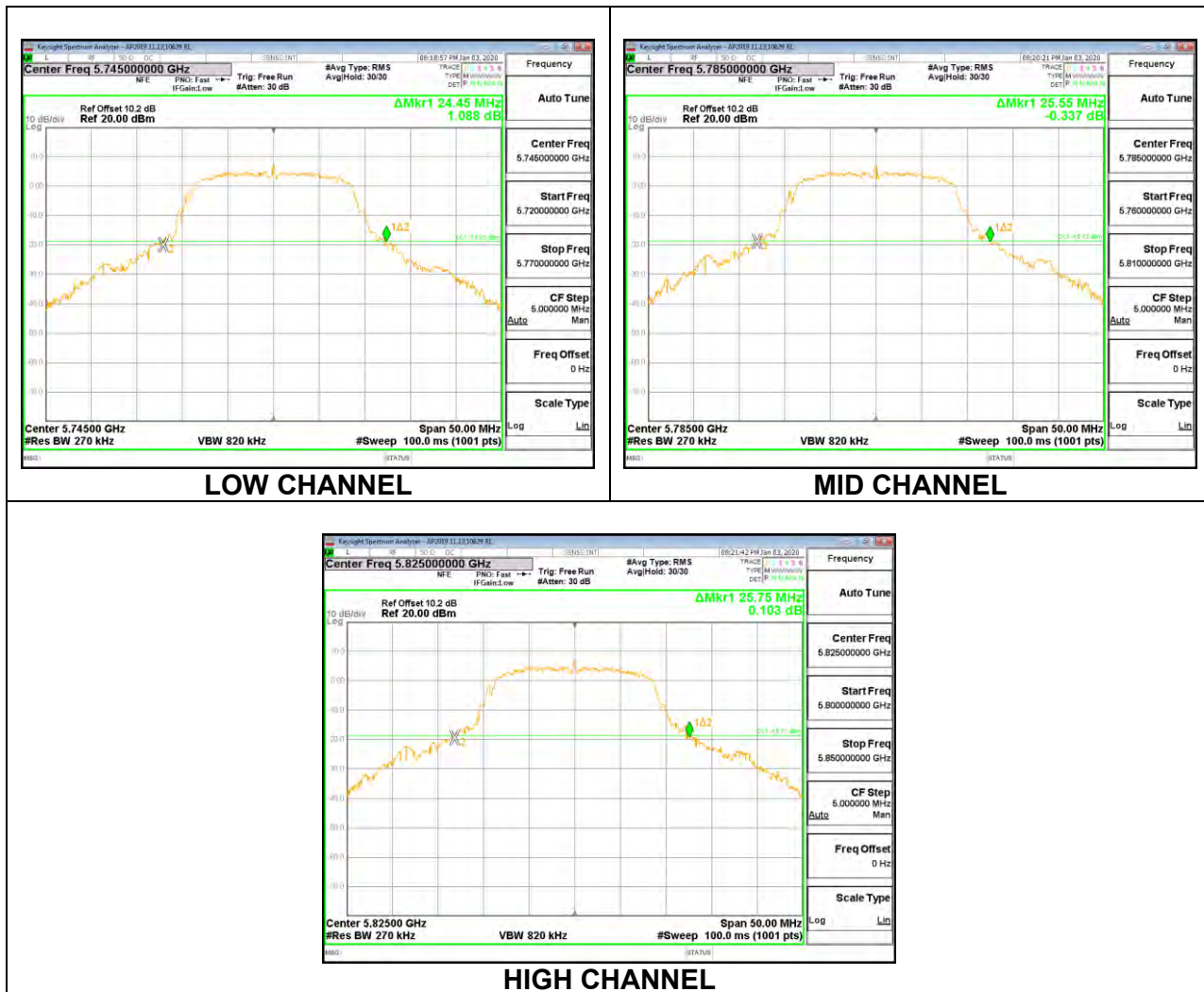


HIGH CHANNEL

8.2.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND

1TX CHAIN 0 MODE

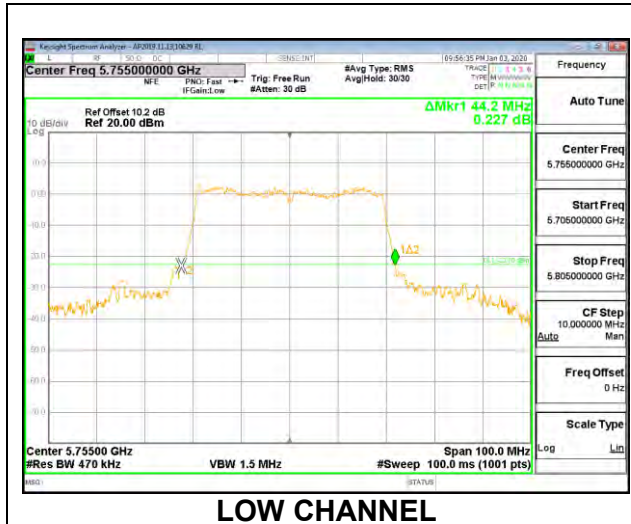
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5745	24.45
Mid	5785	25.55
High	5825	25.75



8.2.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND

1TX CHAIN 0 MODE

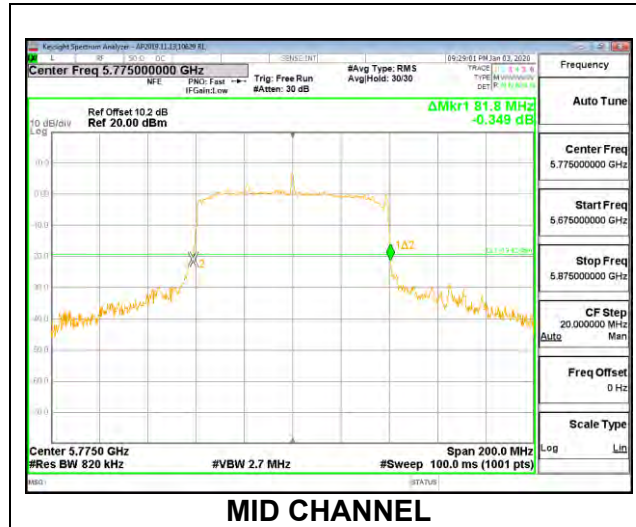
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
Low	5755	44.20
High	5795	44.30



8.2.16. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

1TX CHAIN 0 MODE

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Mid	5775	81.80



8.3. 99% BANDWIDTH

LIMITS

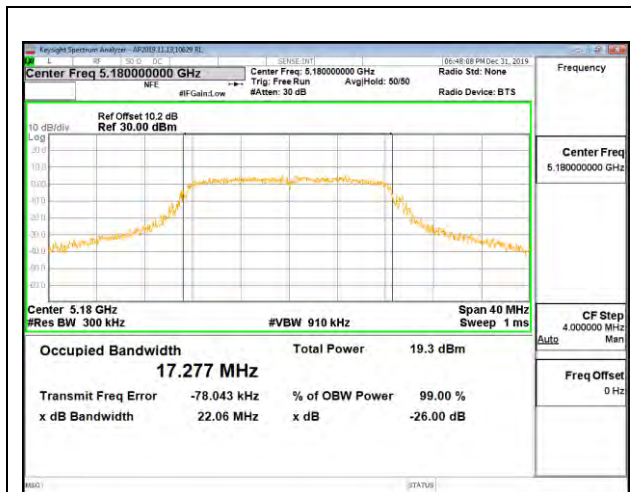
None; for reporting purposes only.

RESULTS

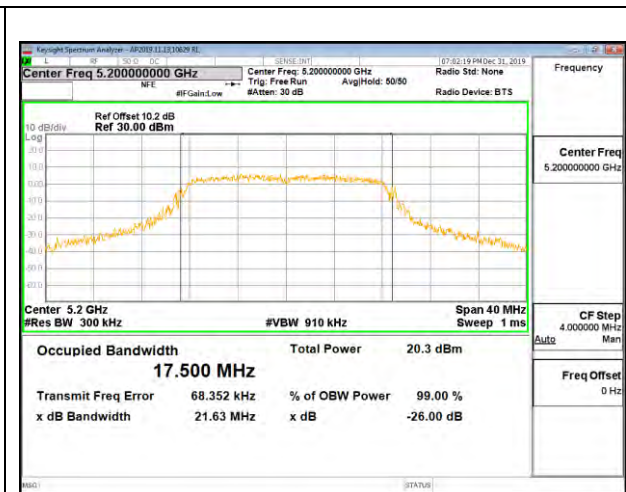
8.3.1. 802.11a MODE IN THE 5.2 GHz BAND

1TX CHAIN 0 MODE

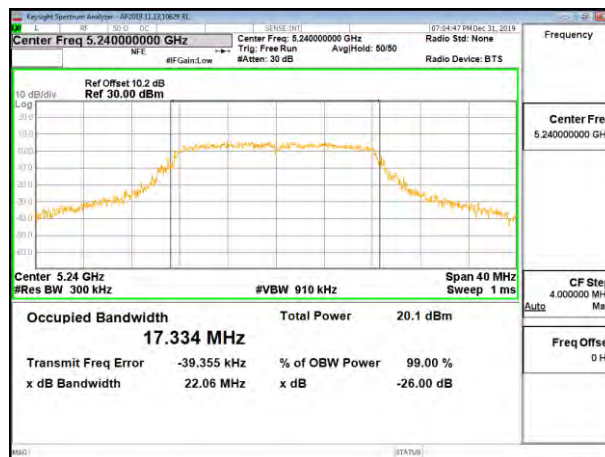
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	17.277
Mid	5200	17.500
High	5240	17.334



LOW CHANNEL



MID CHANNEL

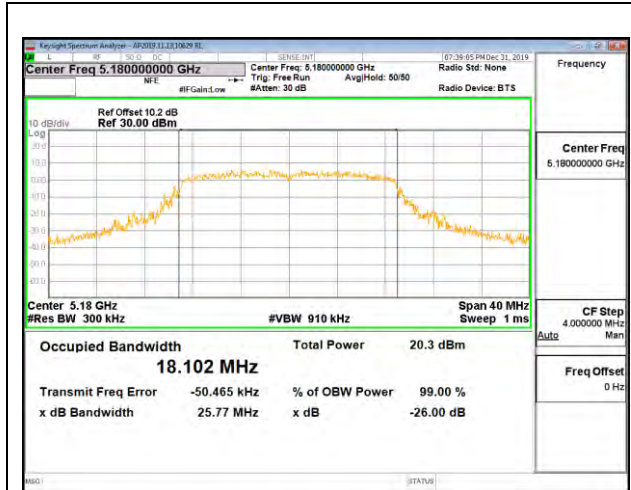


HIGH CHANNEL

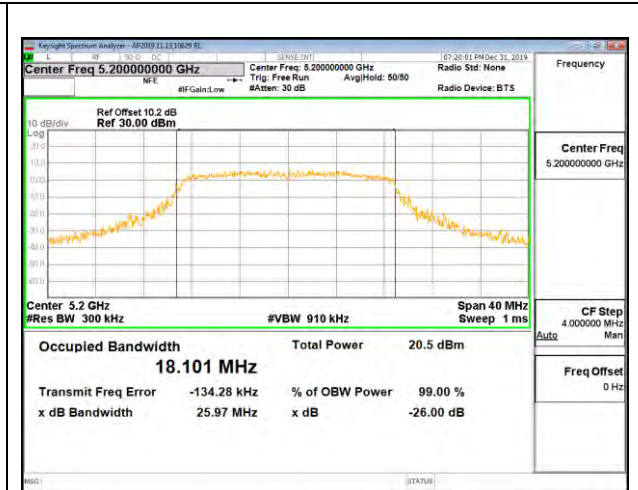
8.3.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

1TX CHAIN 0 MODE

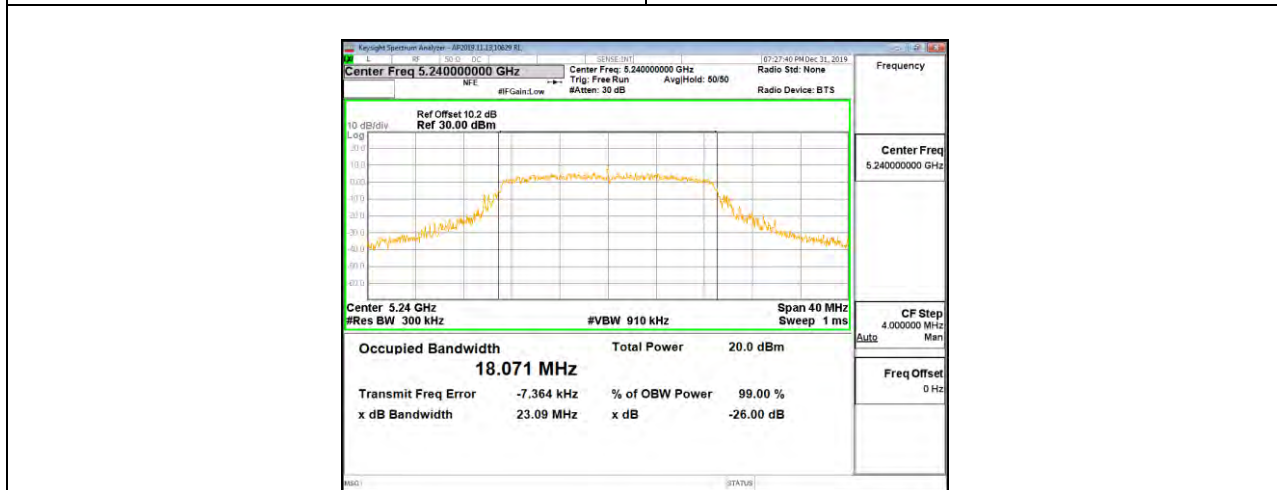
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	18.102
Mid	5200	18.101
High	5240	18.071



LOW CHANNEL



MID CHANNEL

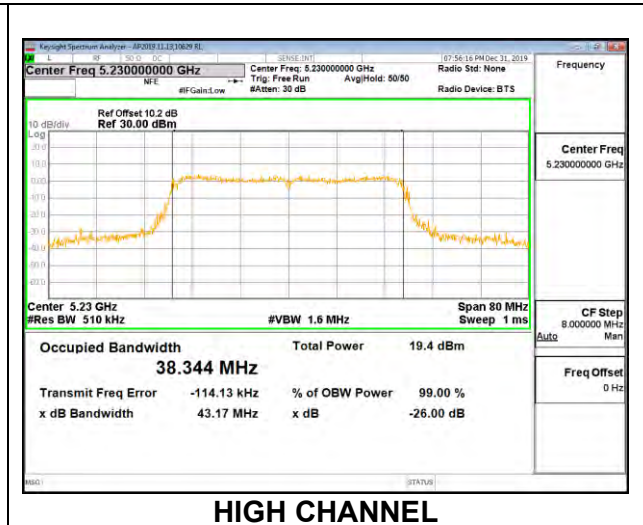
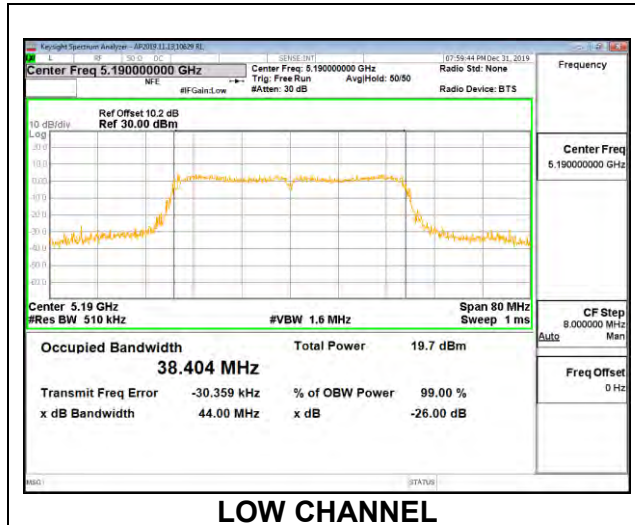


HIGH CHANNEL

8.3.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

1TX CHAIN 0 MODE

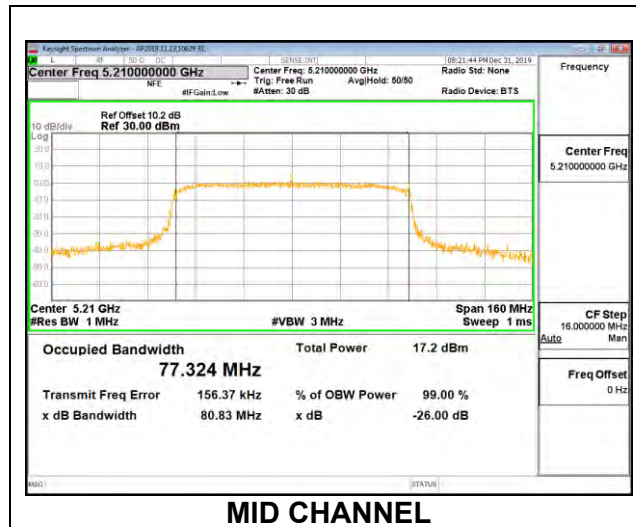
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	38.404
High	5230	38.344



8.3.4. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

1TX CHAIN 0 MODE

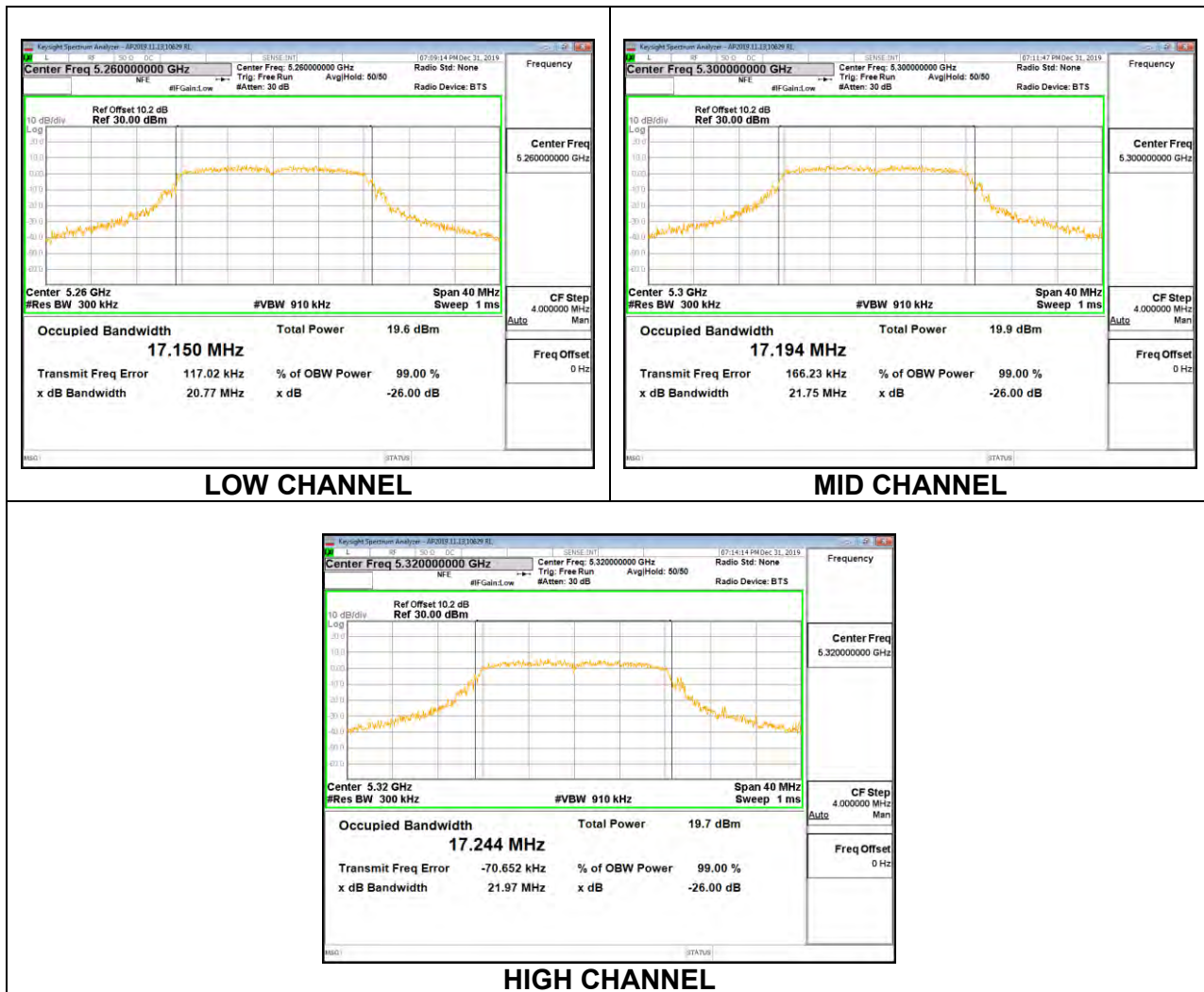
Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Mid	5210	77.324



8.3.5. 802.11a MODE IN THE 5.3 GHz BAND

1TX CHAIN 0 MODE

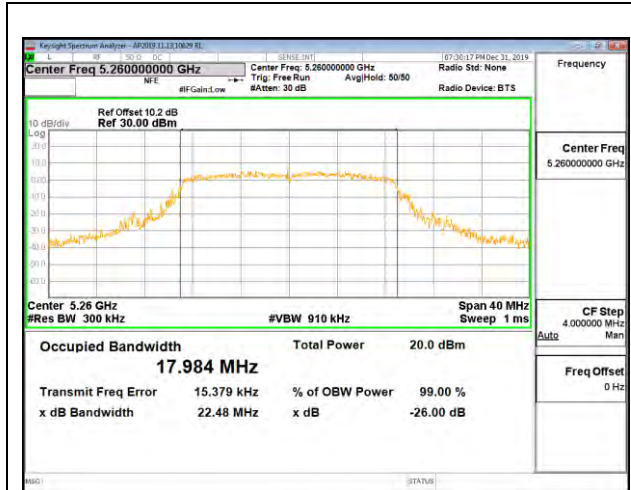
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	17.150
Mid	5300	17.194
High	5320	17.244



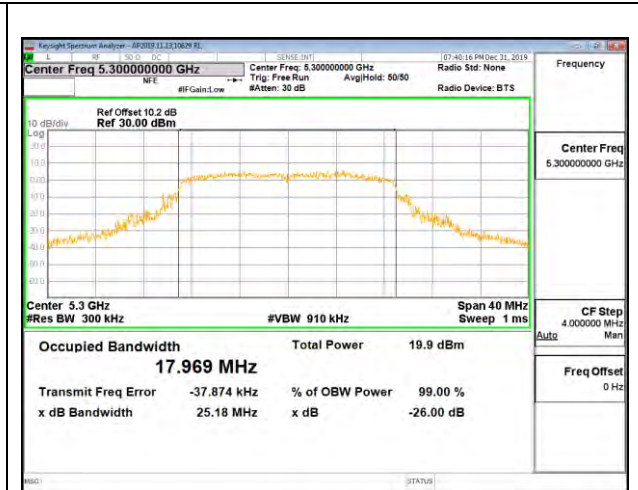
8.3.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

1TX CHAIN 0 MODE

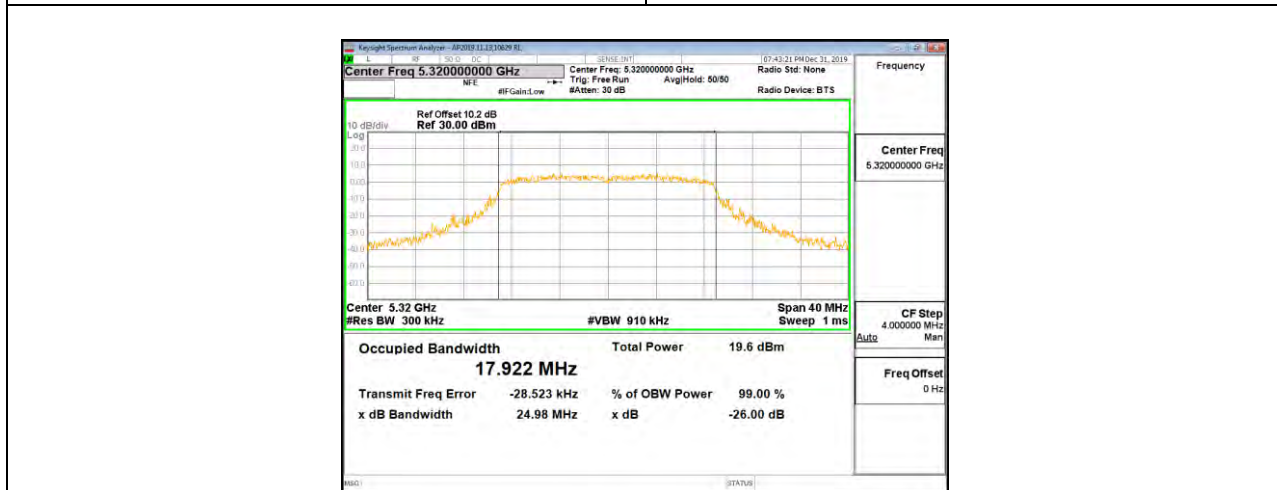
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	17.984
Mid	5300	17.969
High	5320	17.922



LOW CHANNEL



MID CHANNEL

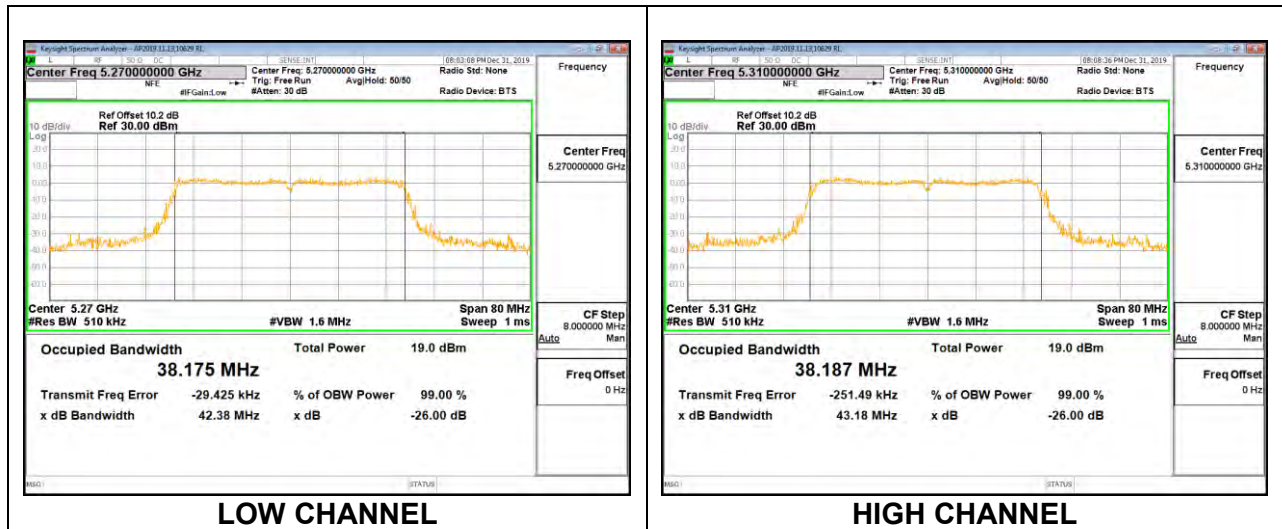


HIGH CHANNEL

8.3.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

1TX CHAIN 0 MODE

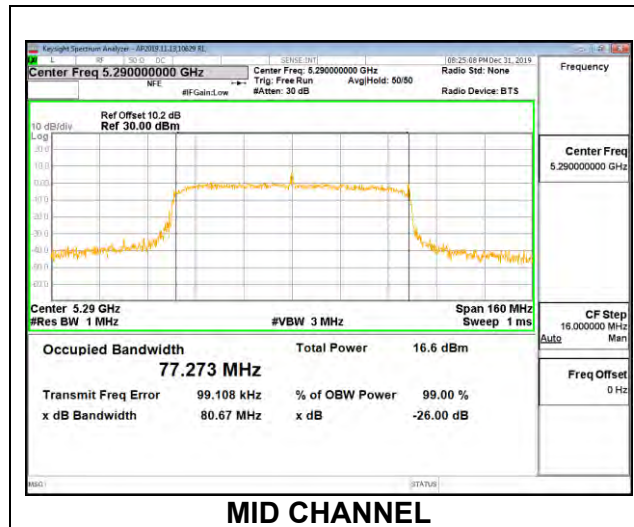
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5270	38.175
High	5310	38.187



8.3.8. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

1TX CHAIN 0 MODE

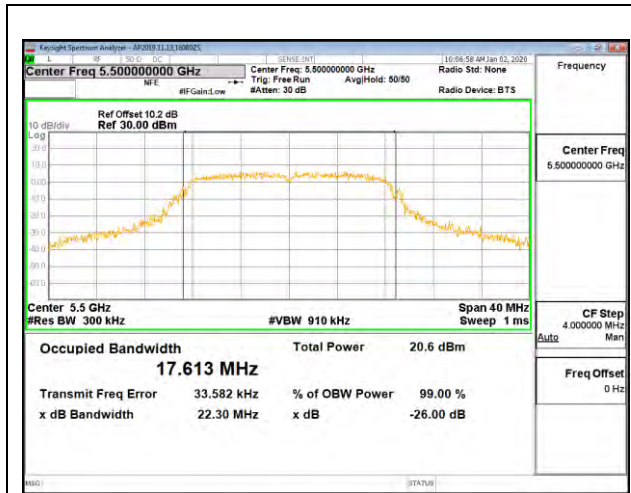
Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Mid	5290	77.273



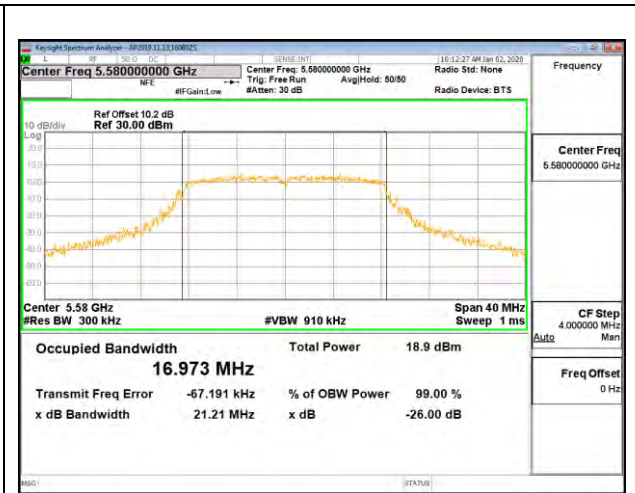
8.3.9. 802.11a MODE IN THE 5.6 GHz BAND

1TX CHAIN 0 MODE

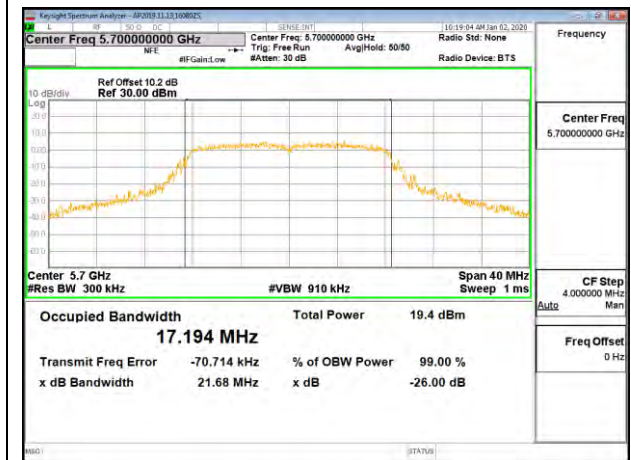
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	17.613
Mid	5580	16.973
High	5700	17.194
144	5720	17.507



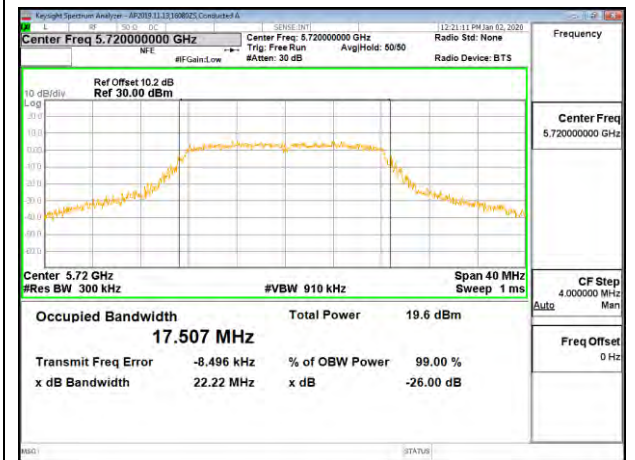
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

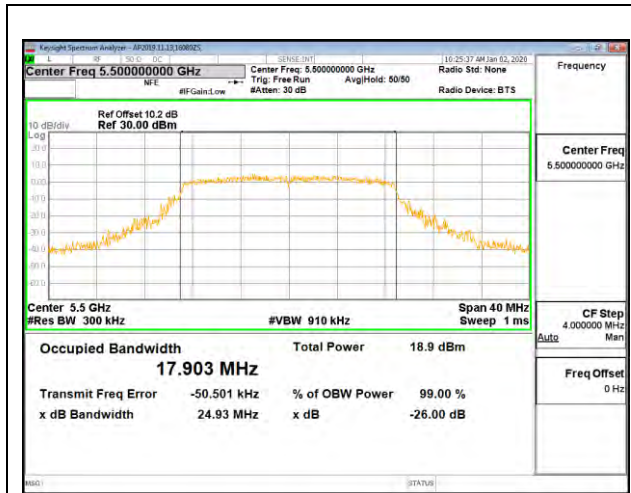


CHANNEL 144

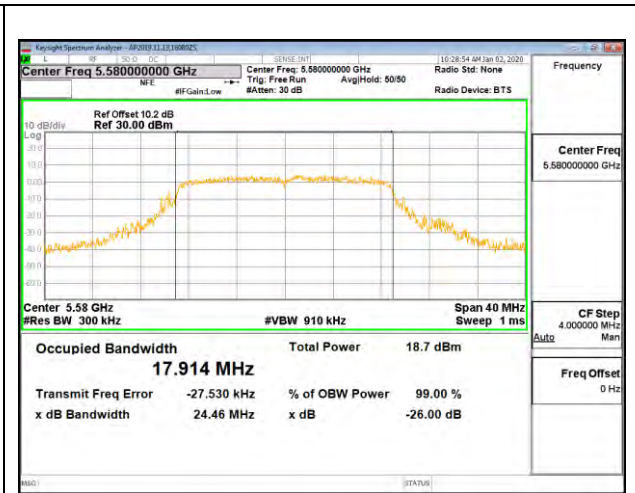
8.3.10. 802.11n HT20 MODE IN THE 5.6 GHz BAND

1TX CHAIN 0 MODE

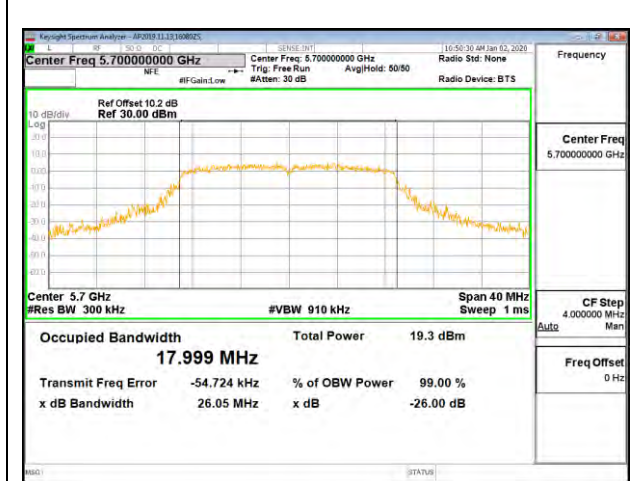
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	17.903
Mid	5580	17.914
High	5700	17.999
144	5720	18.446



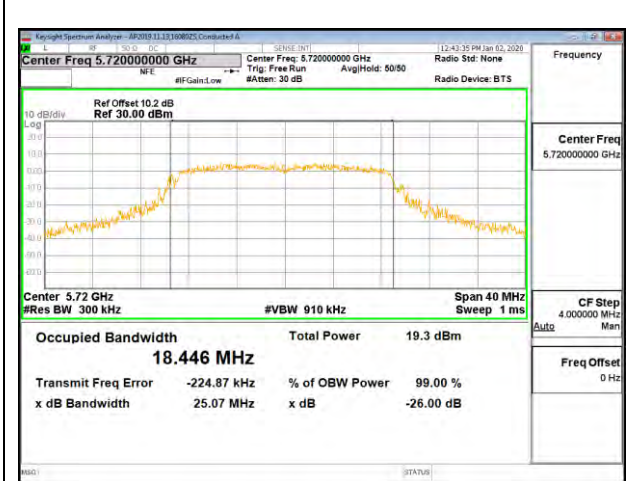
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

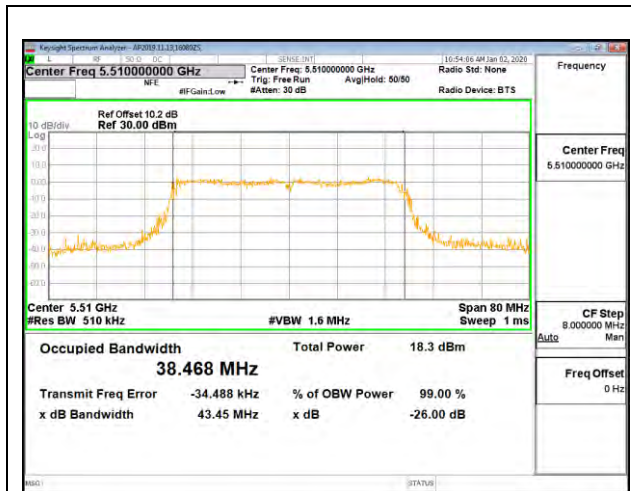


CHANNEL 144

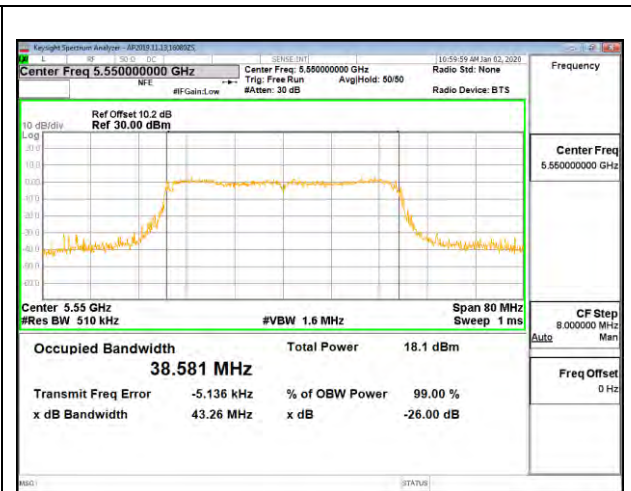
8.3.11. 802.11n HT40 MODE IN THE 5.6 GHz BAND

1TX CHAIN 0 MODE

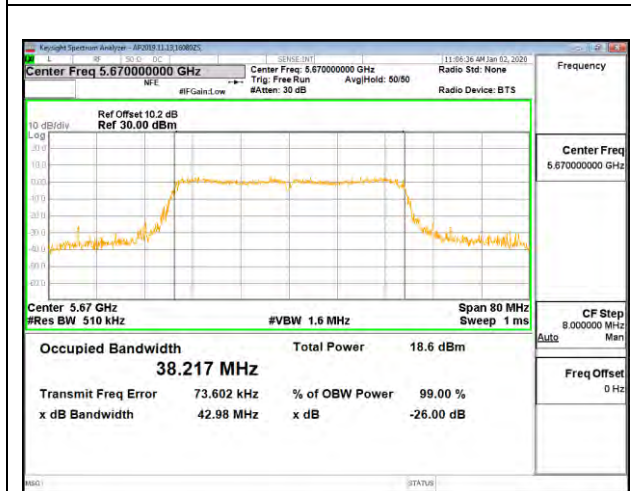
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	38.468
Mid	5550	38.581
High	5670	38.217
142	5710	38.118



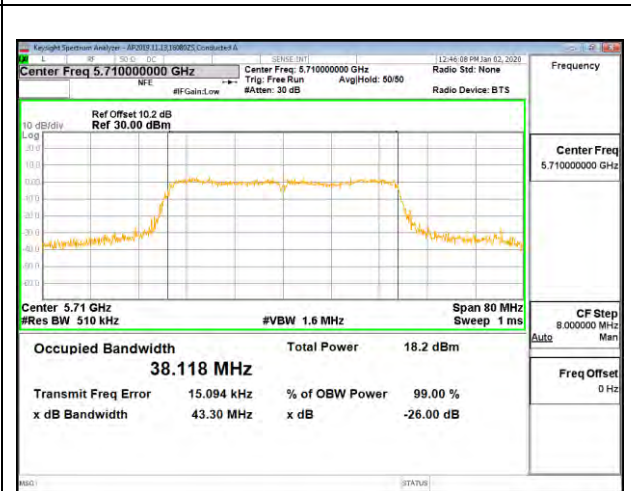
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

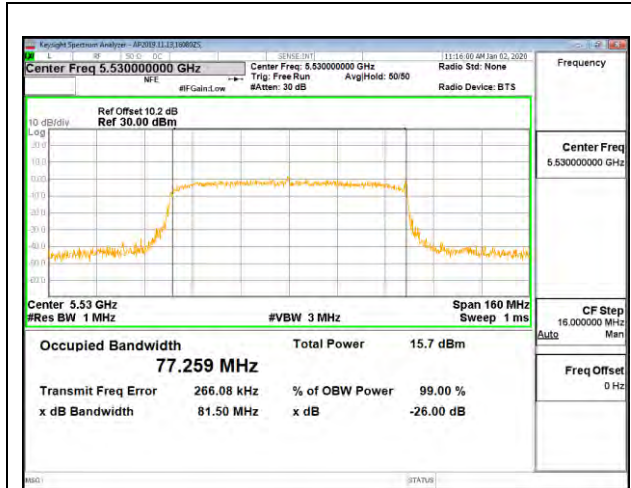


CHANNEL 142

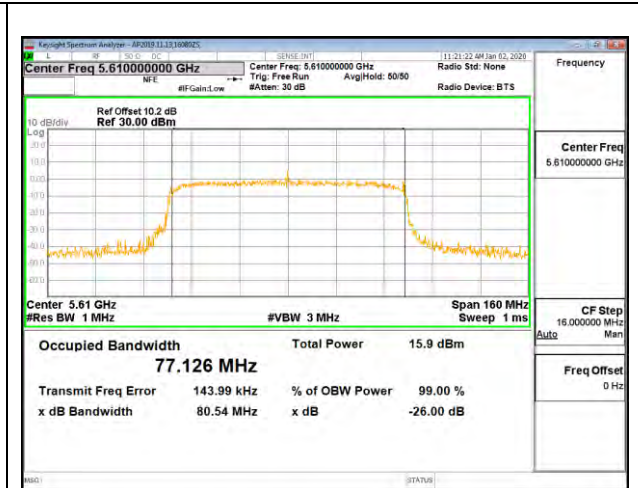
8.3.12. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND

1TX CHAIN 0 MODE

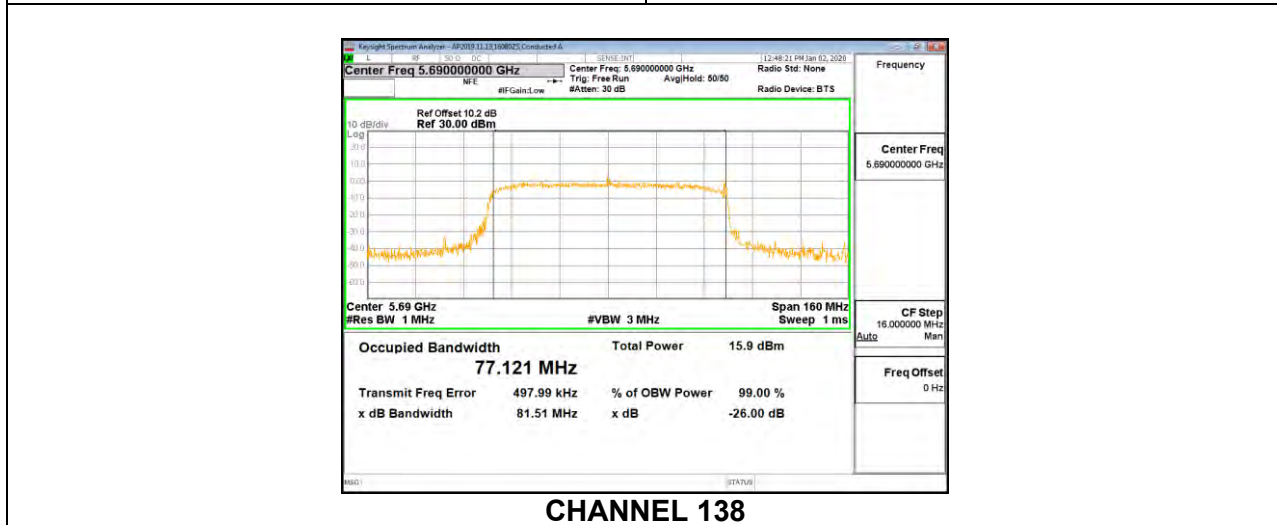
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5530	77.259
High	5610	77.126
138	5690	77.121



LOW CHANNEL



HIGH CHANNEL

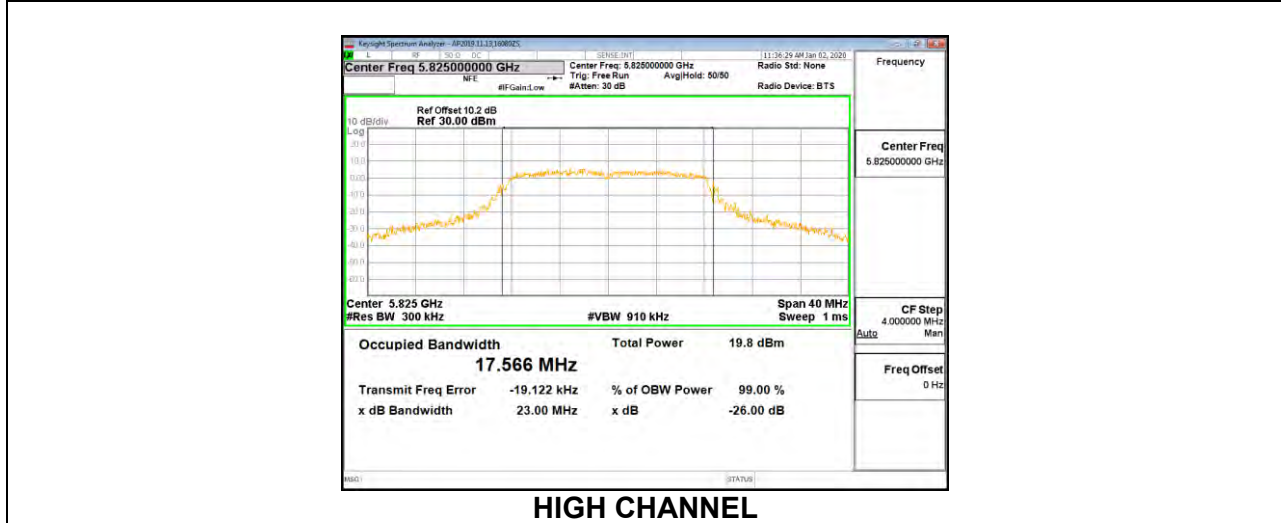
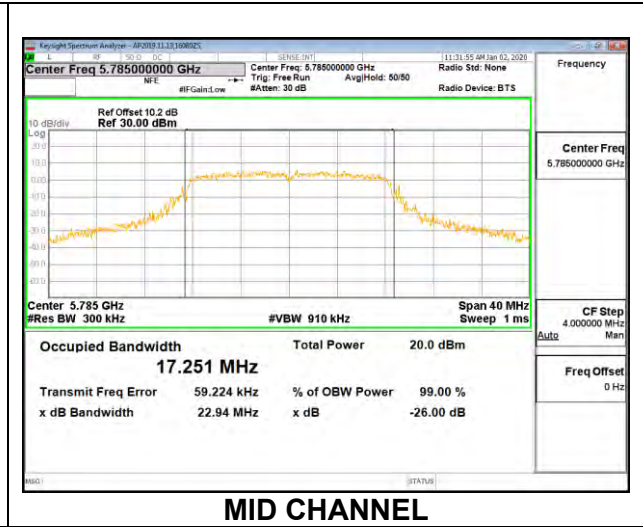
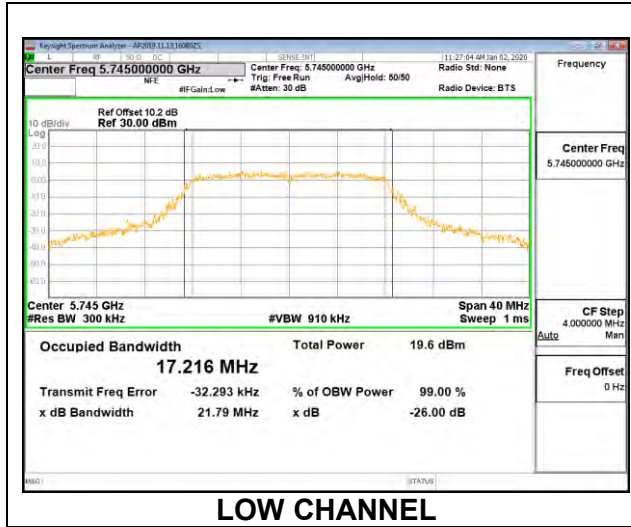


CHANNEL 138

8.3.13. 802.11a MODE IN THE 5.8 GHz BAND

1TX CHAIN 0 MODE

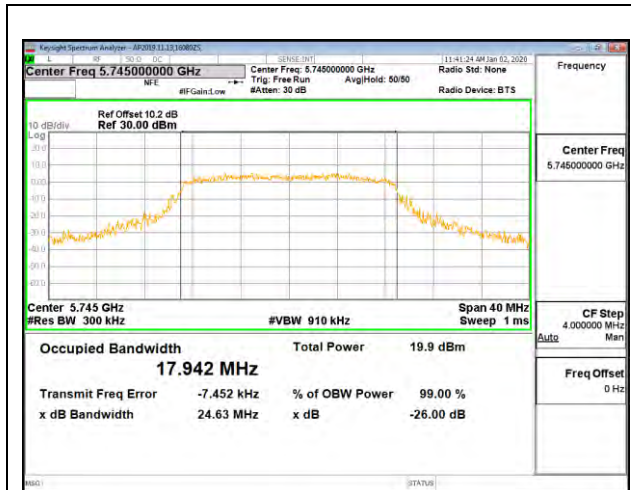
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.216
Mid	5785	17.251
High	5825	17.566



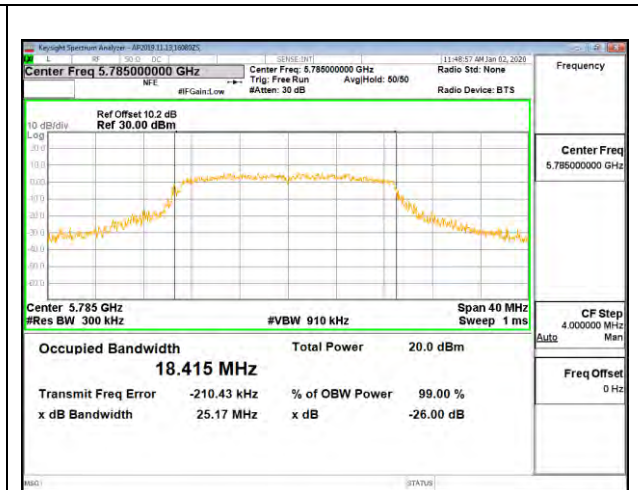
8.3.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND

1TX CHAIN 0 MODE

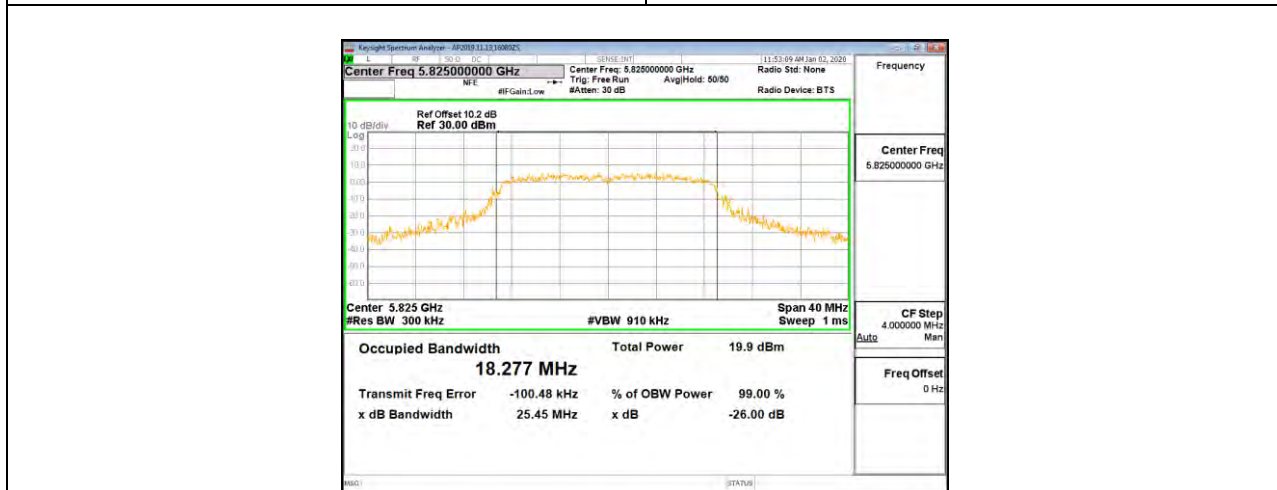
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.942
Mid	5785	18.415
High	5825	18.277



LOW CHANNEL



MID CHANNEL

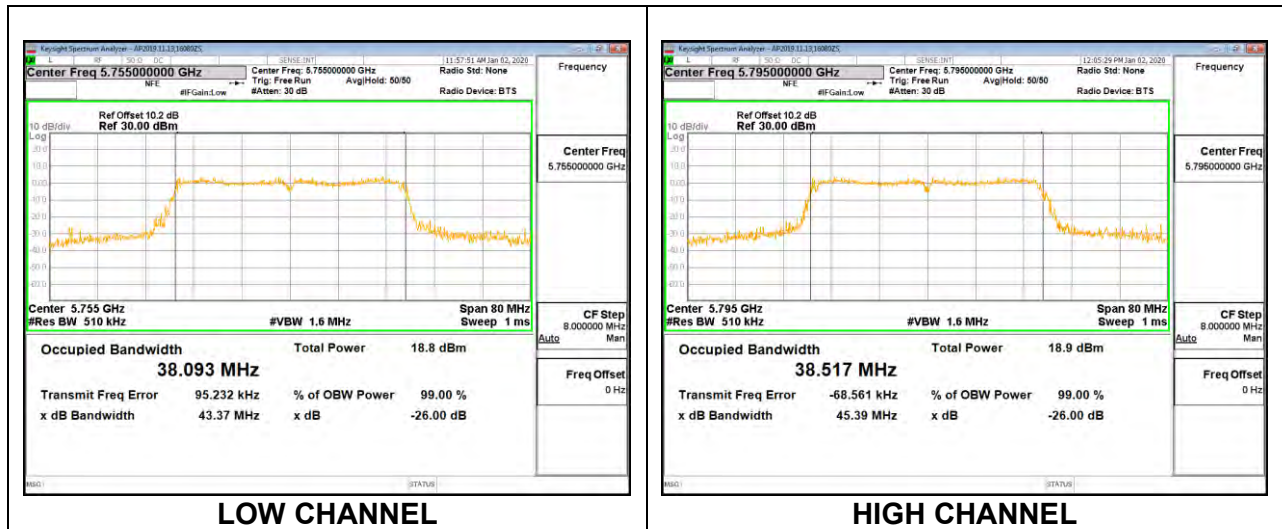


HIGH CHANNEL

8.3.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND

1TX CHAIN 0 MODE

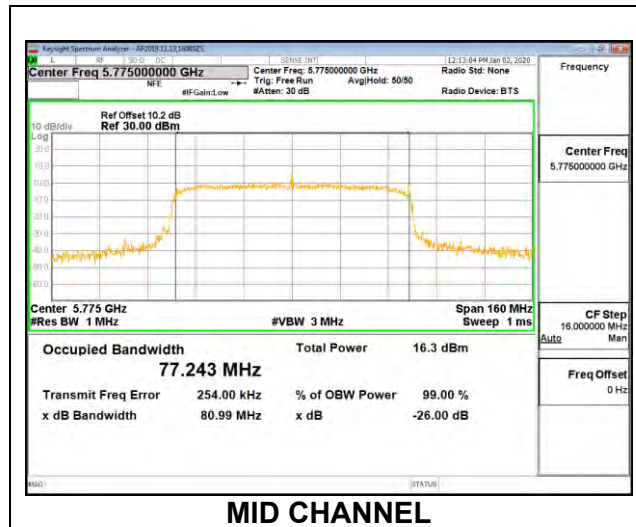
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	38.093
High	5795	38.517



8.3.16. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

1TX CHAIN 0 MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5775	77.243



8.4. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

RSS-247 6.2.4.1

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

RESULTS

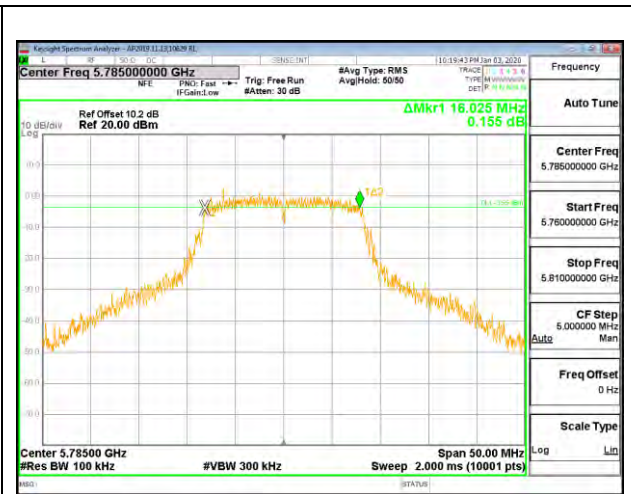
8.4.1. 802.11a MODE IN THE 5.8 GHz BAND

1TX CHAIN 0 MODE

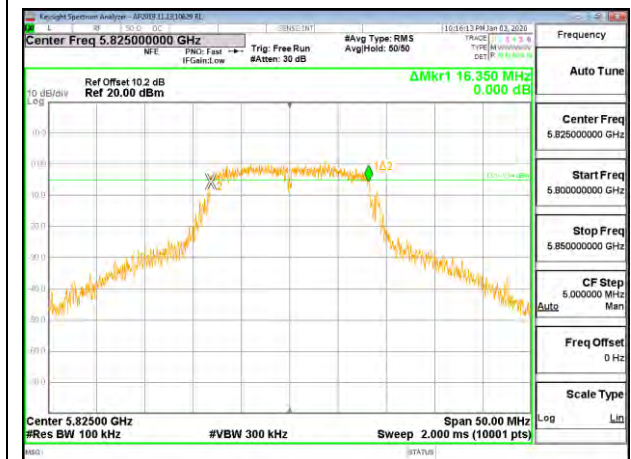
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	16.040	0.5
Mid	5785	16.025	0.5
High	5825	16.350	0.5
144	5720	3.215	0.5



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

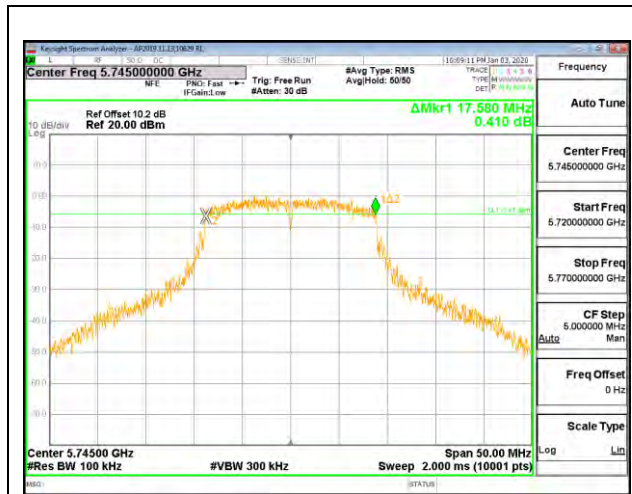


CHANNEL 144

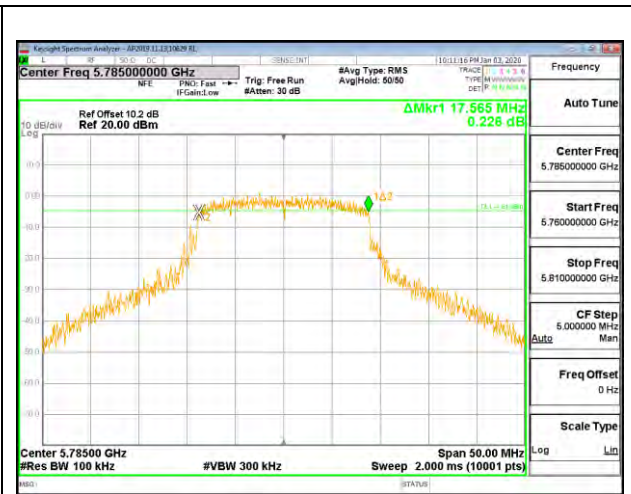
8.4.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

1TX CHAIN 0 MODE

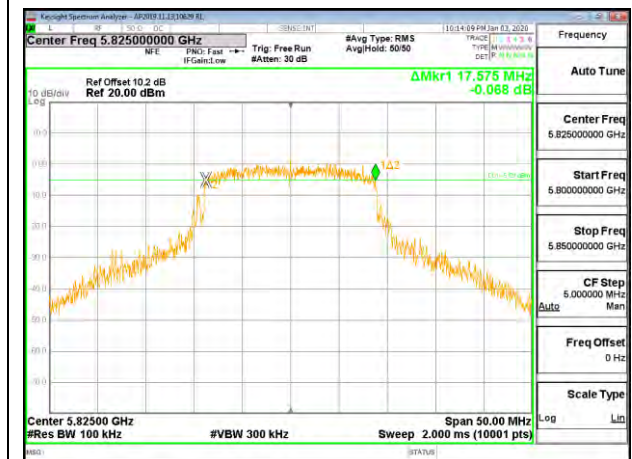
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	17.580	0.5
Mid	5785	17.565	0.5
High	5825	17.575	0.5
144	5720	3.810	0.5



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

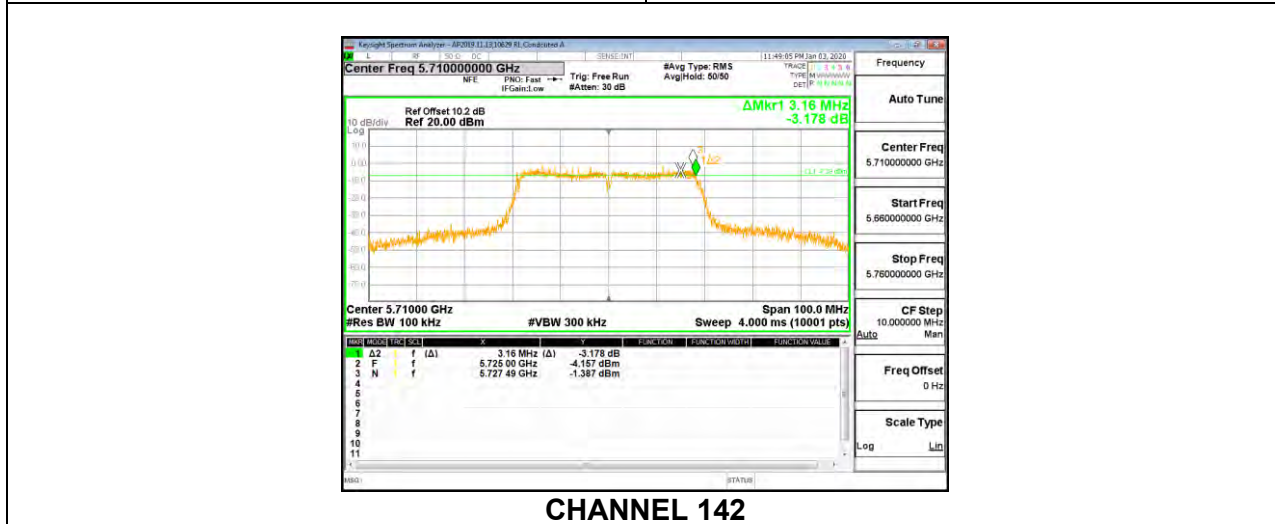
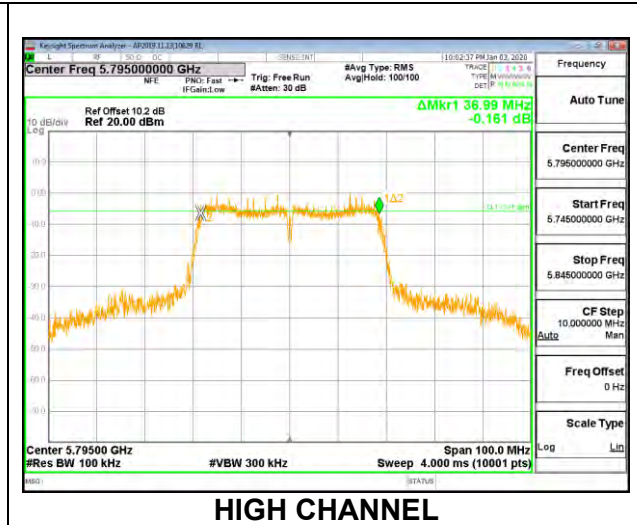
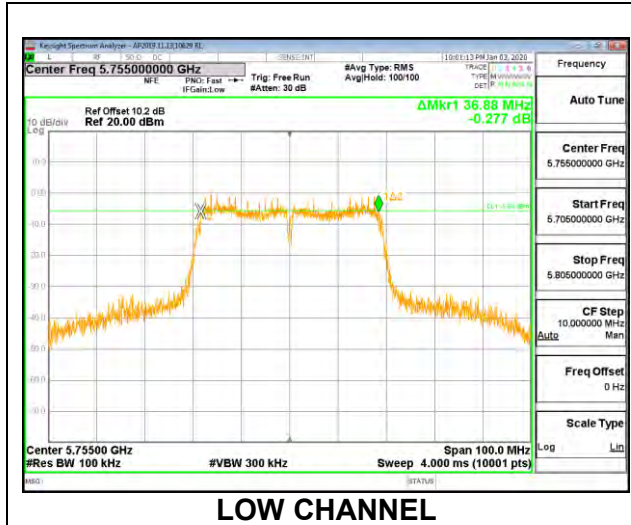


CHANNEL 144

8.4.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND

1TX CHAIN 0 MODE

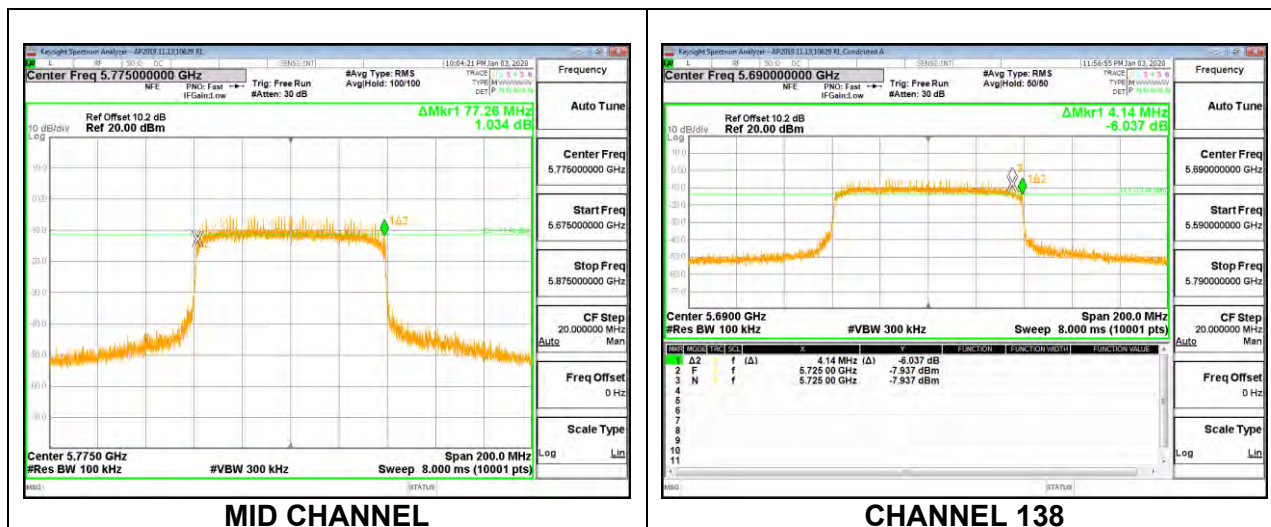
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	36.88	0.5
High	5795	36.99	0.5
142	5710	3.16	0.5



8.4.4. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

1TX CHAIN 0 MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Mid	5775	77.26	0.5
138	5690	4.14	0.5



8.5. 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 $11 \text{ dBm} + 10 \log B$, 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.

RSS-247

Band 5.15-5.25 GHz

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

Band 5.25-5.35 GHz

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10}B$, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

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

Bands 5.47-5.6 GHz and 5.65-5.725 GHz

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10}B$, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

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

Band 5.725-5.85 GHz

The maximum conducted output power shall not exceed 1 W. The 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 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 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).

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

DIRECTIONAL ANTENNA GAIN

For 1 TX:

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

RESULTS

8.5.1. 802.11a MODE IN THE 5.2 GHz BAND

1TX CHAIN 0 MODE (FCC+IC) MOBILE

Test Engineer:	10629 RL
Test Date:	12/31/2019

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	17.277	-4.10
Mid	5200	17.500	-4.10
High	5240	17.334	-4.10

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED EIRP Limit (dBm)	Max ISED Power (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/1MHz)	ISED eirp PSD Limit (dBm/1MHz)	PSD Limit (dBm/1MHz)
Low	5180	24.00	22.37	26.47	24.00	11.00	10.00	11.00
Mid	5200	24.00	22.43	26.53	24.00	11.00	10.00	11.00
High	5240	24.00	22.39	26.49	24.00	11.00	10.00	11.00

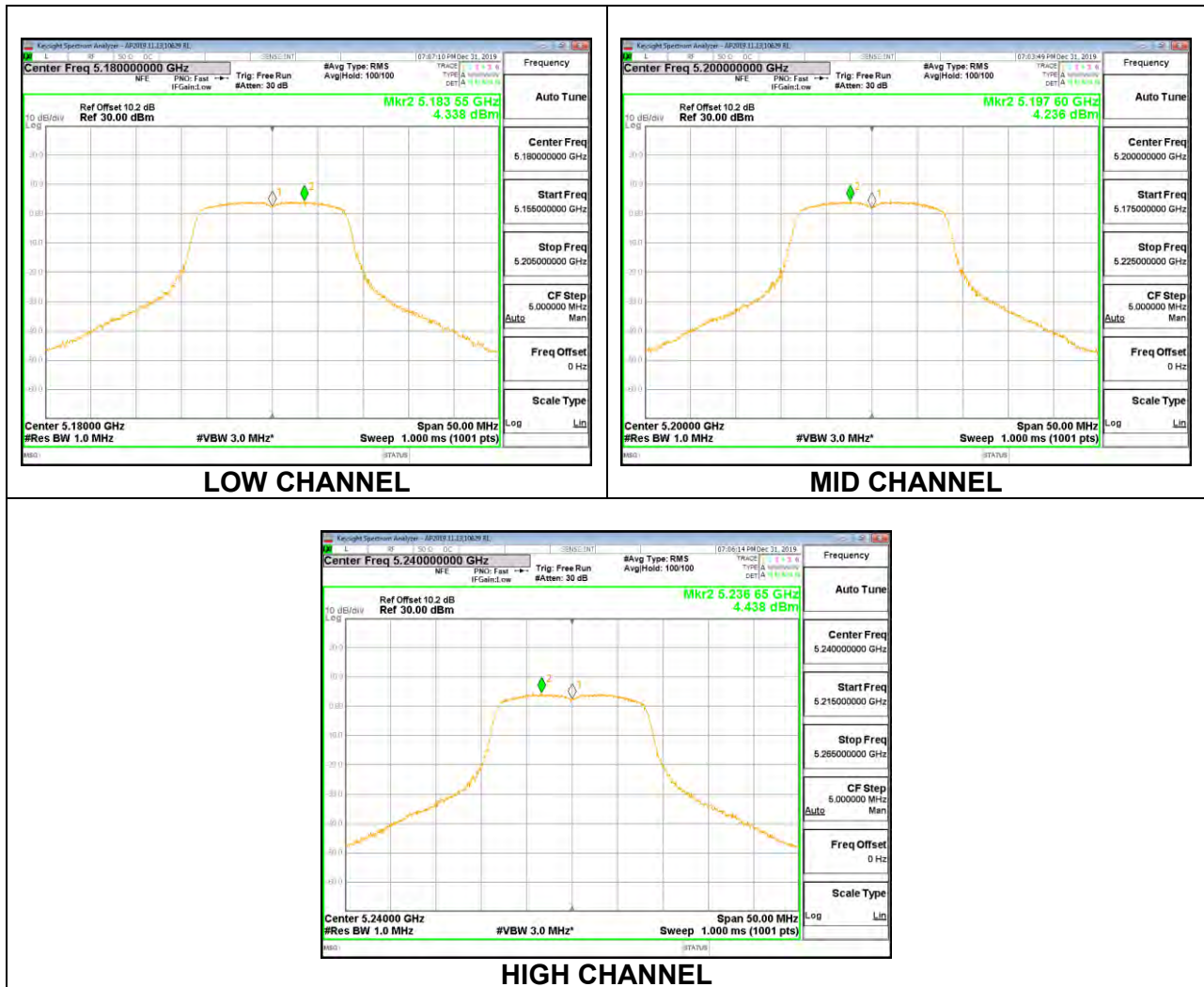
Duty Cycle CF (dB)	0.34	Included in Calculations of Corr'd PSD
---------------------------	------	--

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	16.49	16.49	24.00	-7.51
Mid	5200	16.70	16.70	24.00	-7.30
High	5240	16.60	16.60	24.00	-7.40

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5180	4.338	4.68	11.00	-6.32
Mid	5200	4.236	4.58	11.00	-6.42
High	5240	4.438	4.78	11.00	-6.22



8.5.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

1TX CHAIN 0 MODE (FCC+IC) MOBILE

Test Engineer:	10629 RL
Test Date:	12/31/2019

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	18.102	-4.10
Mid	5200	18.101	-4.10
High	5240	18.071	-4.10

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED EIRP Limit (dBm)	Max ISED Power (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/1MHz)	ISED eirp PSD Limit (dBm/1MHz)	PSD Limit (dBm/1MHz)
Low	5180	24.00	22.58	26.68	24.00	11.00	10.00	11.00
Mid	5200	24.00	22.58	26.68	24.00	11.00	10.00	11.00
High	5240	24.00	22.57	26.67	24.00	11.00	10.00	11.00

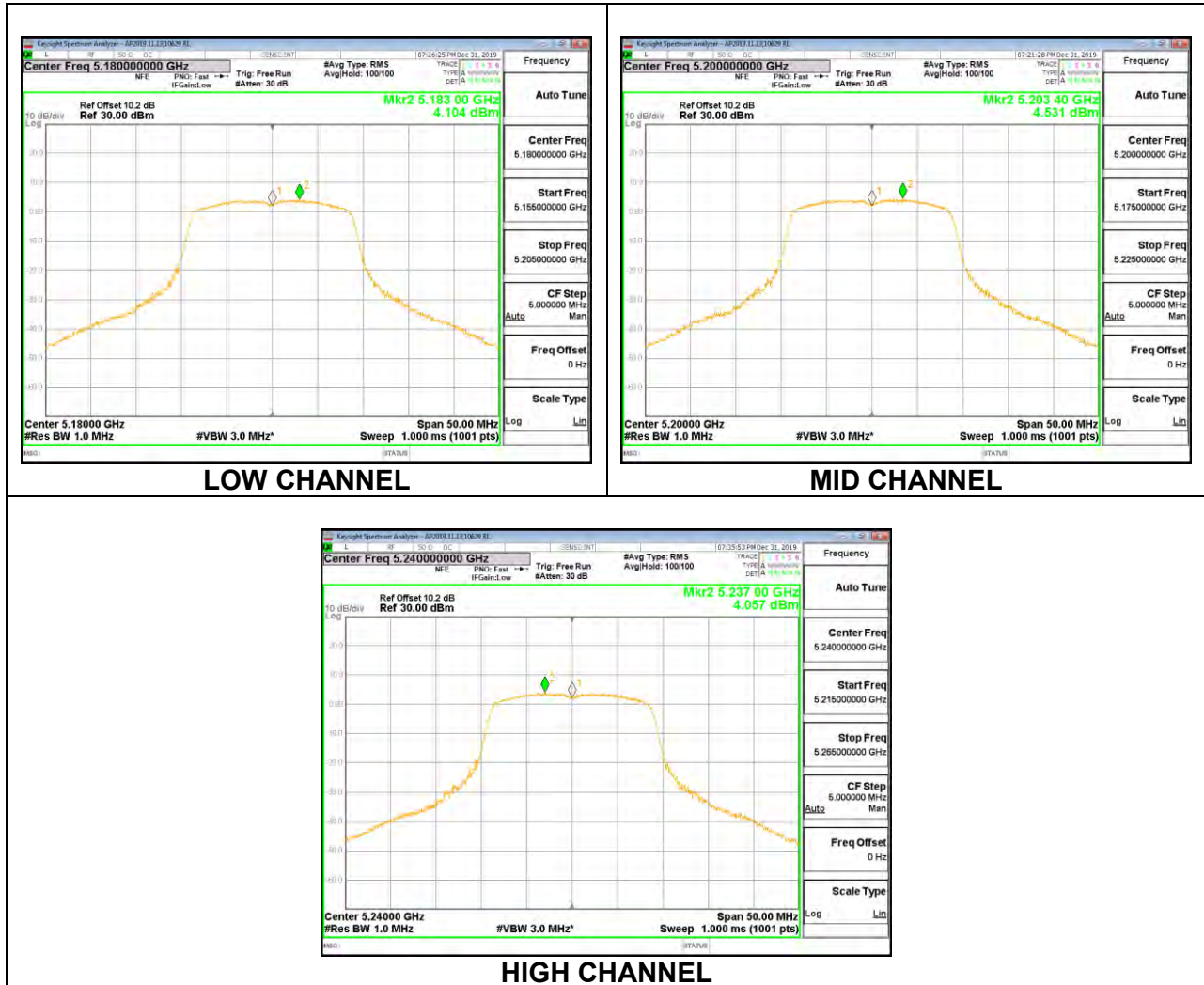
Duty Cycle CF (dB)	0.35	Included in Calculations of Corr'd PSD
---------------------------	------	---

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	16.30	16.30	24.00	-7.70
Mid	5200	16.61	16.61	24.00	-7.39
High	5240	16.67	16.67	24.00	-7.33

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5180	4.104	4.45	11.00	-6.55
Mid	5200	4.531	4.88	11.00	-6.12
High	5240	4.057	4.41	11.00	-6.59



8.5.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

1TX CHAIN 0 MODE (FCC+IC) MOBILE

Test Engineer:	10629 RL
Test Date:	12/31/2019 and 01/08/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5190	38.404	-4.10
High	5230	38.344	-4.10

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED EIRP Limit (dBm)	Max ISED Power (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/ 1MHz)	ISED eirp PSD Limit (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)
Low	5190	24.00	23.00	27.10	24.00	11.00	10.00	11.00
High	5230	24.00	23.00	27.10	24.00	11.00	10.00	11.00

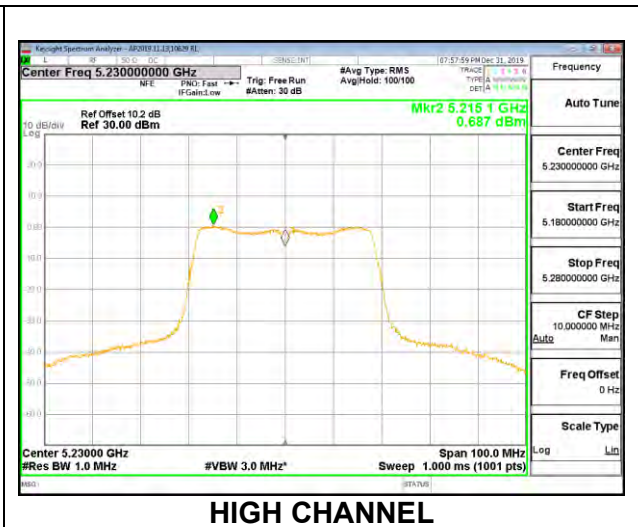
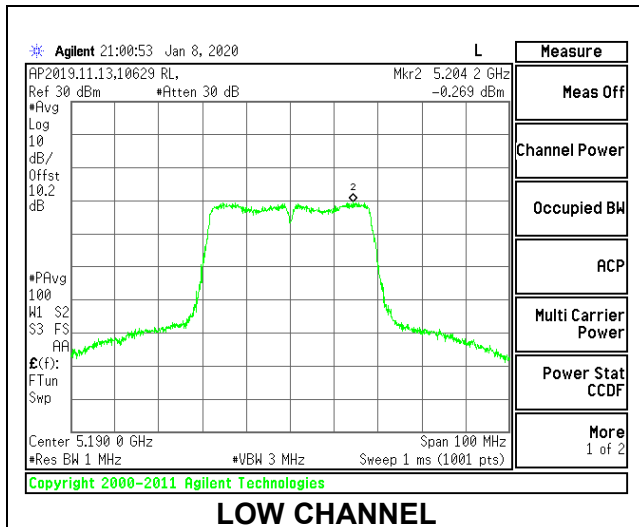
Duty Cycle CF (dB)	0.61	Included in Calculations of Corr'd PSD
---------------------------	------	---

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	14.33	14.33	24.00	-9.67
High	5230	14.95	14.95	24.00	-9.05

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5190	-0.269	0.34	11.00	-10.66
High	5230	0.687	1.30	11.00	-9.70



8.5.4. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

1TX Antenna 1 MODE (FCC+IC) MOBILE

Test Engineer:	10629 RL
Test Date:	12/31/2019

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Mid	5210	77.324	-4.10

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED EIRP Limit (dBm)	Max ISED Power (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/ 1MHz)	ISED eirp PSD Limit (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)
Mid	5210	24.00	23.00	27.10	24.00	17.00	10.00	14.10

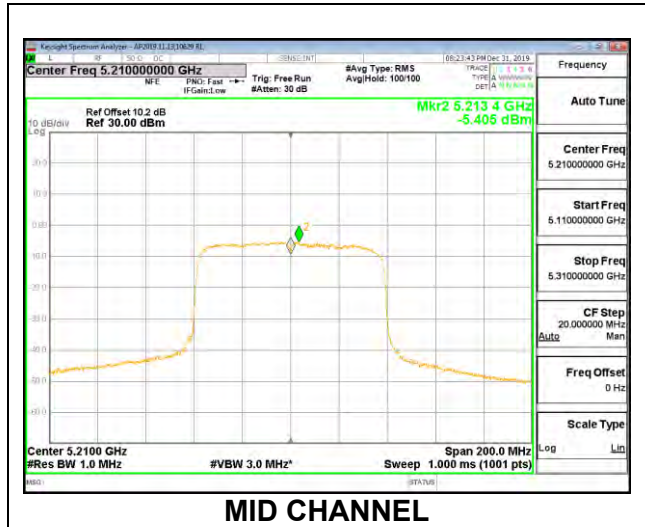
Duty Cycle CF (dB)	1.15	Included in Calculations of Corr'd PSD
---------------------------	------	--

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5210	14.13	14.13	24.00	-9.87

PPSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Mid	5210	-5.405	-4.26	14.10	-18.36



8.5.5. 802.11a MODE IN THE 5.3 GHz BAND

1TX CHAIN 0 MODE (FCC)

Test Engineer:	10629 RL
Test Date:	12/31/2019

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5260	22.40	-4.00	24.00	11.00
Mid	5300	22.40	-4.00	24.00	11.00
High	5320	22.25	-4.00	24.00	11.00

Duty Cycle CF (dB)	0.34	Included in Calculations of Corr'd PSD
---------------------------	------	---

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	16.34	16.34	24.00	-7.66
Mid	5300	16.89	16.89	24.00	-7.11
High	5320	17.01	17.01	24.00	-6.99

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5260	4.987	5.33	11.00	-5.67
Mid	5300	4.366	4.71	11.00	-6.29
High	5320	4.141	4.48	11.00	-6.52

1TX CHAIN 0 MODE (IC)

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5260	17.150	-4.00	23.34	11.00
Mid	5300	17.194	-4.00	23.35	11.00
High	5320	17.244	-4.00	23.37	11.00

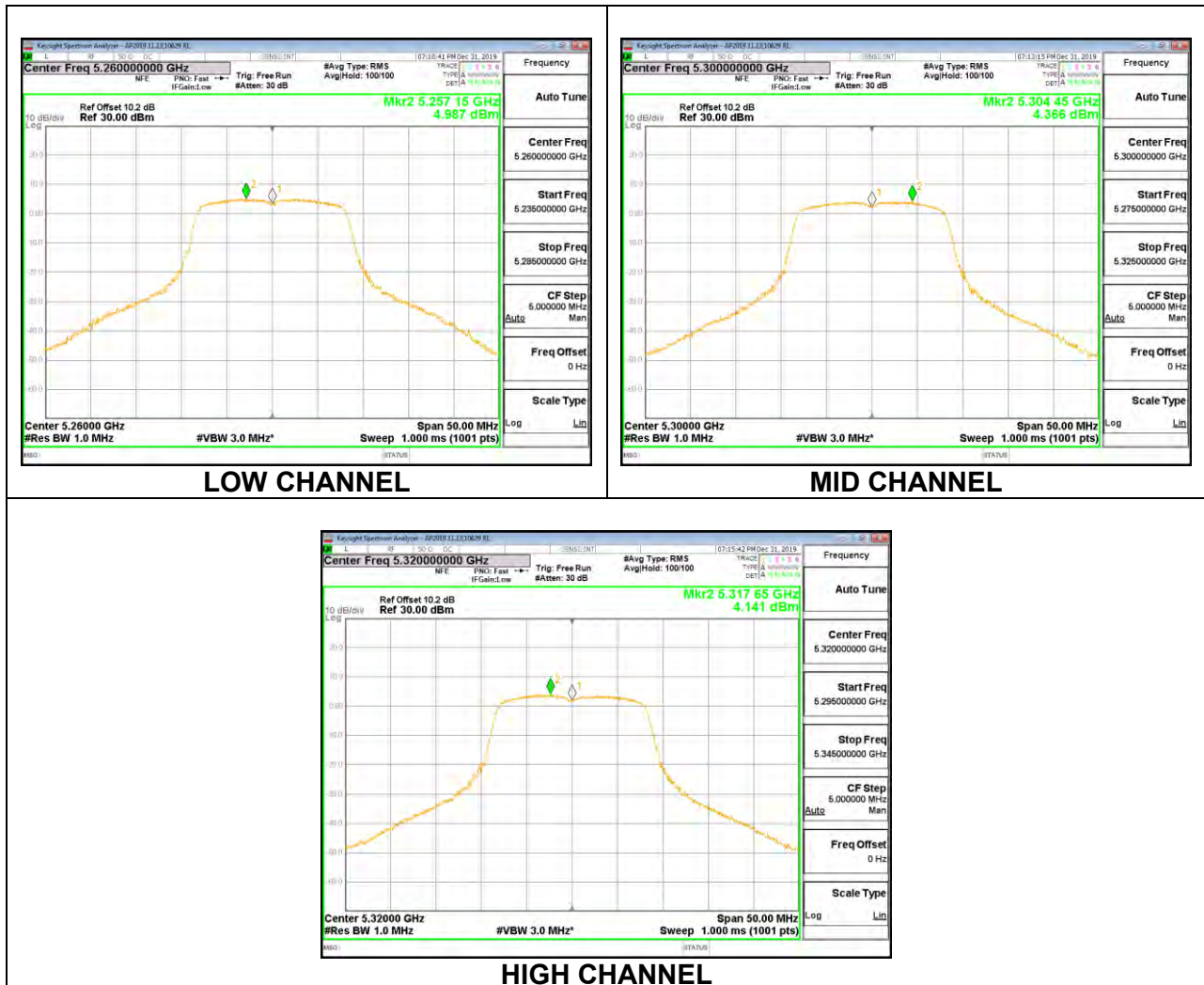
Duty Cycle CF (dB)	0.34	Included in Calculations of Corr'd PSD
---------------------------	------	---

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	16.34	16.34	23.34	-7.00
Mid	5300	16.89	16.89	23.35	-6.46
High	5320	17.01	17.01	23.37	-6.36

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5260	4.987	5.33	11.00	-5.67
Mid	5300	4.366	4.71	11.00	-6.29
High	5320	4.141	4.48	11.00	-6.52



8.5.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

1TX CHAIN 0 MODE (FCC)

Test Engineer:	10629 RL
Test Date:	12/31/2019

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5260	23.50	-4.00	24.00	11.00
Mid	5300	23.85	-4.00	24.00	11.00
High	5320	23.95	-4.00	24.00	11.00

Duty Cycle CF (dB)	0.35	Included in Calculations of Corr'd PSD
---------------------------	------	---

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	16.54	16.54	24.00	-7.46
Mid	5300	16.85	16.85	24.00	-7.15
High	5320	16.78	16.78	24.00	-7.22

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5260	3.853	4.20	11.00	-6.80
Mid	5300	3.967	4.32	11.00	-6.68
High	5320	3.918	4.27	11.00	-6.73

1TX CHAIN 0 MODE (IC)

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5260	17.984	-4.00	23.55	11.00
Mid	5300	17.969	-4.00	23.55	11.00
High	5320	17.922	-4.00	23.53	11.00

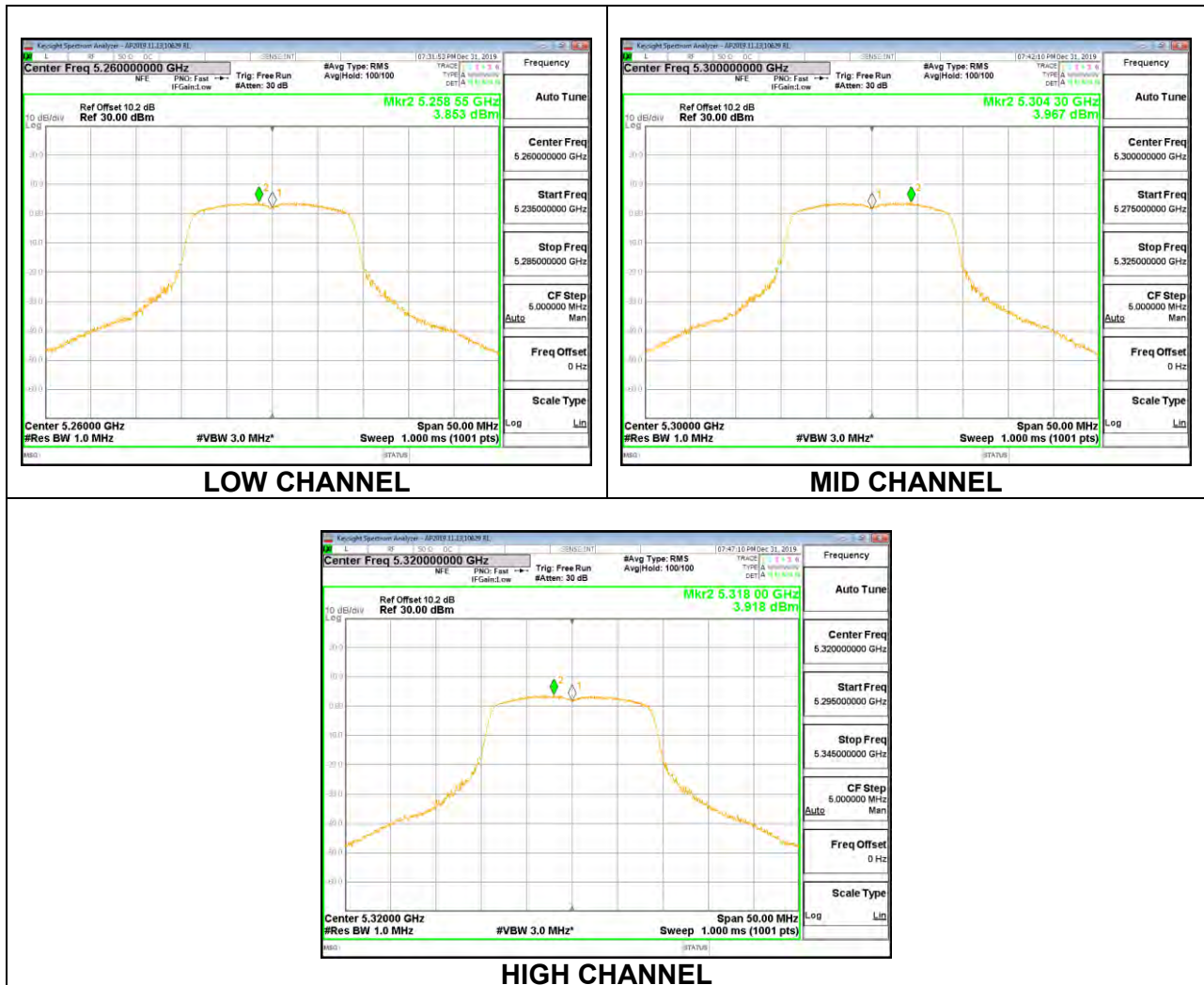
Duty Cycle CF (dB)	0.35	Included in Calculations of Corr'd PSD
---------------------------	------	---

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	16.54	16.54	23.55	-7.01
Mid	5300	16.85	16.85	23.55	-6.70
High	5320	16.78	16.78	23.53	-6.75

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5260	3.853	4.20	11.00	-6.80
Mid	5300	3.967	4.32	11.00	-6.68
High	5320	3.918	4.27	11.00	-6.73



8.5.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

1TX CHAIN 0 MODE (FCC)

Test Engineer:	10629 RL
Test Date:	12/31/2019 and 01/08/2020

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5270	45.70	-4.00	24.00	11.00
High	5310	45.70	-4.00	24.00	11.00

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

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	14.88	14.88	24.00	-9.12
High	5310	14.14	14.14	24.00	-9.86

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5270	0.657	1.27	11.00	-9.73
High	5310	-0.452	0.16	11.00	-10.84

1TX CHAIN 0 MODE (IC)

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5270	38.175	-4.00	24.00	11.00
High	5310	38.187	-4.00	24.00	11.00

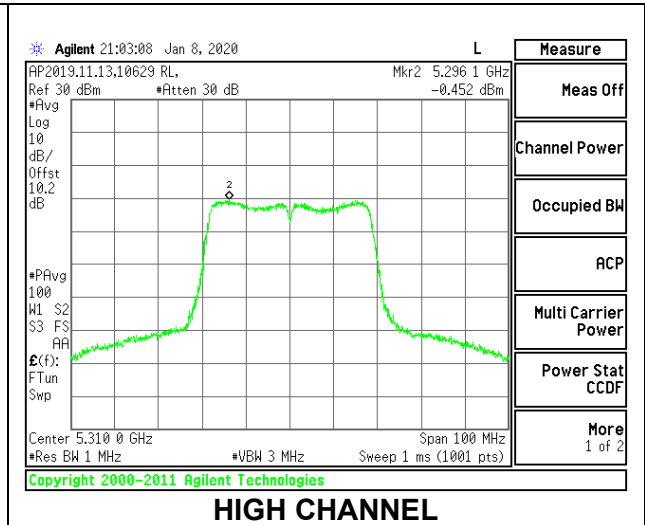
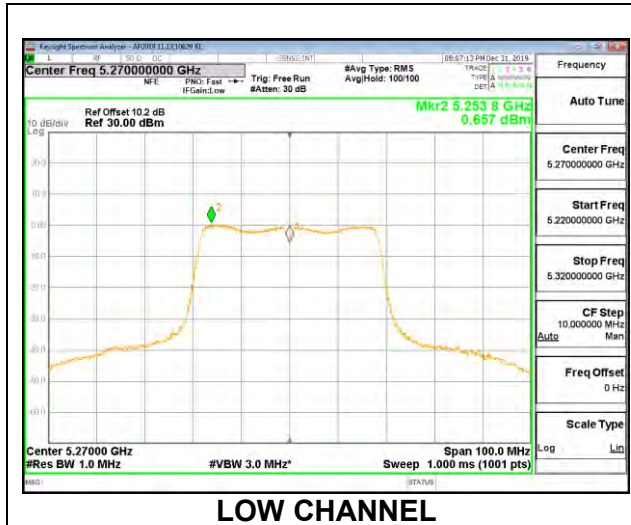
Duty Cycle CF (dB)	0.61	Included in Calculations of Corr'd PSD
---------------------------	------	---

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	15.80	15.80	24.00	-8.20
High	5310	14.14	14.14	24.00	-9.86

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5270	0.657	1.27	11.00	-9.73
High	5310	-0.452	0.16	11.00	-10.84



8.5.8. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

1TX CHAIN 0 MODE (FCC)

Test Engineer:	10629 RL
Test Date:	12/31/2019

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Mid	5290	81.60	-4.00	24.00	11.00

Duty Cycle CF (dB)	1.15	Included in Calculations of Corr'd PSD
---------------------------	------	---

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5290	13.82	13.82	24.00	-10.18

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Mid	5290	-5.374	-4.22	11.00	-15.22

1TX CHAIN 0 MODE (IC)

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Mid	5290	77.273	-4.00	24.00	11.00

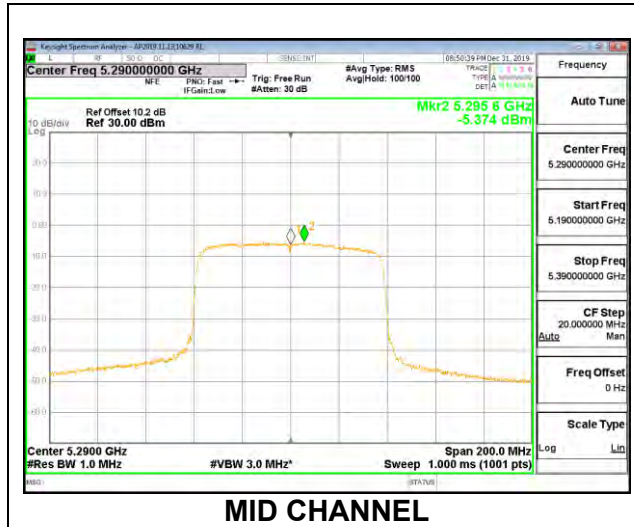
Duty Cycle CF (dB)	1.15	Included in Calculations of Corr'd PSD
--------------------	------	--

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5290	13.82	13.82	24.00	-10.18

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Mid	5290	-5.374	-4.22	11.00	-15.22



8.5.9. 802.11a MODE IN THE 5.6 GHz BAND

1TX CHAIN 0 MODE (FCC+IC)

Test Engineer:	16080ZS and 10629 RL
Test Date:	01/02/2020 and 01/08/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	22.10	17.613	-2.10
Mid	5580	22.10	16.973	-2.10
High	5700	22.95	17.194	-2.10
144	5720	22.40	17.507	-2.10

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/1MHz)	ISED PSD Limit (dBm/1MHz)	PSD Limit (dBm/1MHz)
Low	5500	24.00	23.46	29.46	23.46	11.00	11.00	11.00
Mid	5580	24.00	23.30	29.30	23.30	11.00	11.00	11.00
High	5700	24.00	23.35	29.35	23.35	11.00	11.00	11.00
144	5720	24.00	23.43	29.43	23.43	11.00	11.00	11.00

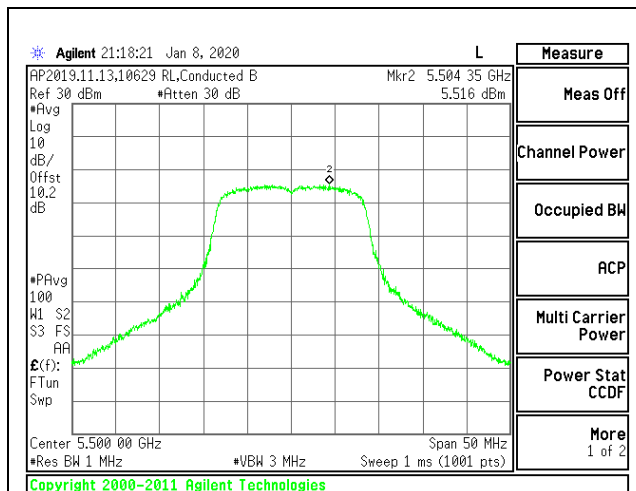
Duty Cycle CF (dB)	0.34	Included in Calculations of Corr'd PSD
---------------------------	------	---

Output Power Results

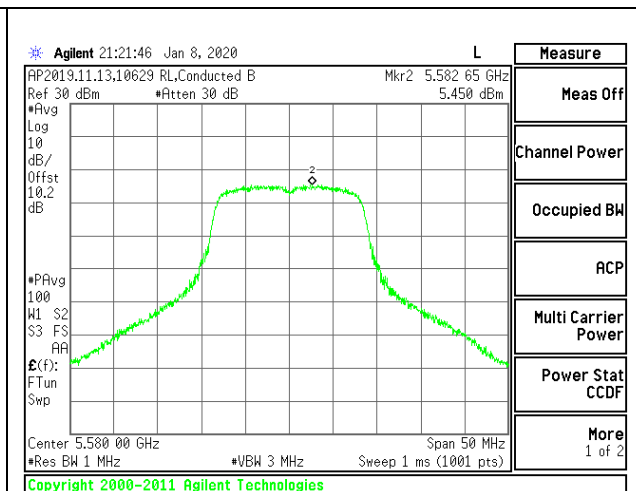
Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	16.98	16.98	23.46	-6.48
Mid	5580	16.75	16.75	23.30	-6.55
High	5700	16.43	16.43	23.35	-6.92
144	5720	16.64	16.64	23.43	-6.79

PSD Results

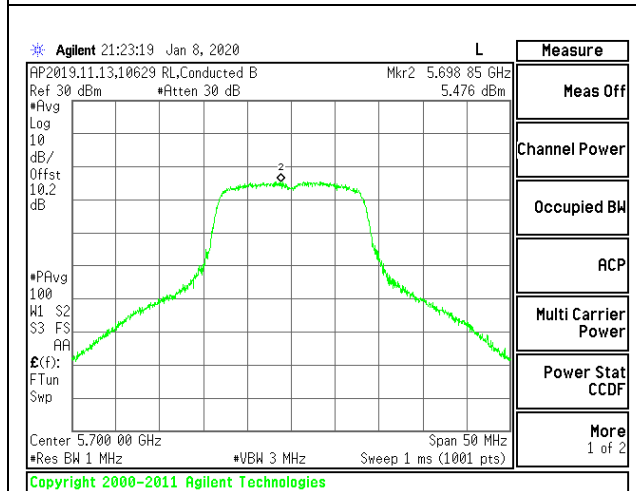
Channel	Frequency (MHz)	Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5500	5.516	5.856	11.00	-5.14
Mid	5580	5.450	5.790	11.00	-5.21
High	5700	5.476	5.816	11.00	-5.18
144	5720	5.534	5.874	11.00	-5.13



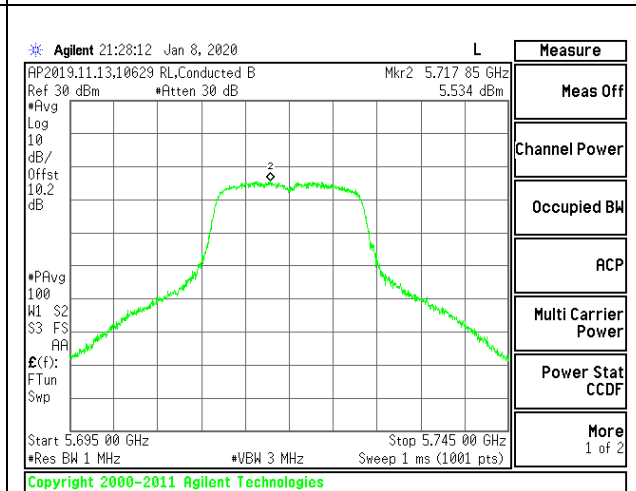
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



CHANNEL 144

8.5.10. 802.11n HT20 MODE IN THE 5.6 GHz BAND

1TX CHAIN 0 MODE (FCC+IC)

Test Engineer:	16080ZS and 10629 RL
Test Date:	01/02/2020 and 01/08/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	23.80	17.903	-2.10
Mid	5580	23.60	17.914	-2.10
High	5700	24.40	17.999	-2.10
144	5720	24.45	18.446	-2.10

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/1MHz)	ISED PSD Limit (dBm/1MHz)	PSD Limit (dBm/1MHz)
Low	5500	24.00	23.53	29.53	23.53	11.00	11.00	11.00
Mid	5580	24.00	23.53	29.53	23.53	11.00	11.00	11.00
High	5700	24.00	23.55	29.55	23.55	11.00	11.00	11.00
144	5720	24.00	23.66	29.66	23.66	11.00	11.00	11.00

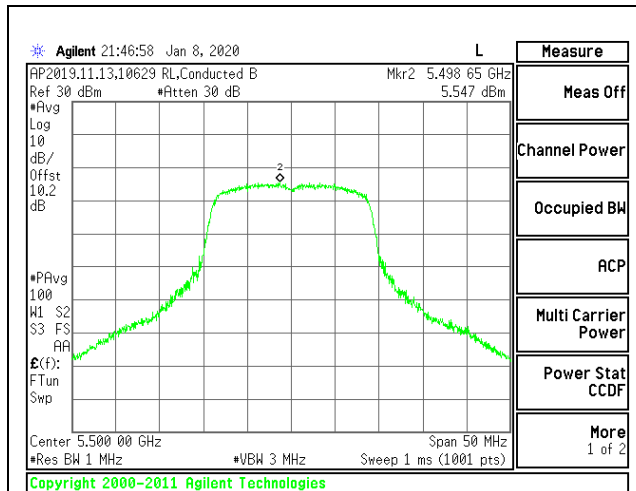
Duty Cycle CF (dB)	0.35	Included in Calculations of Corr'd PSD
---------------------------	------	---

Output Power Results

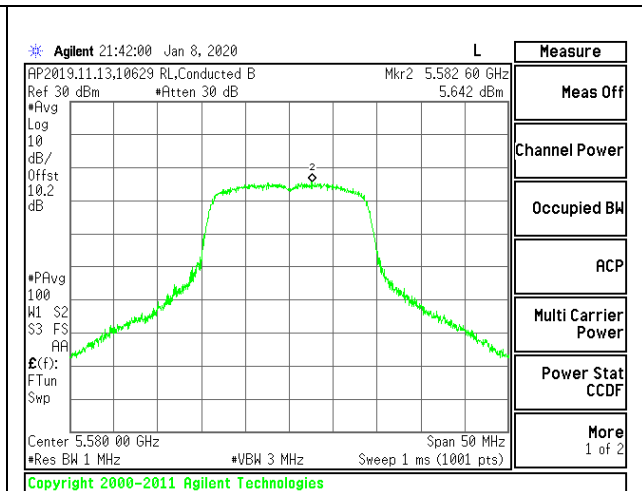
Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	17.05	17.05	23.53	-6.48
Mid	5580	16.54	16.54	23.53	-6.99
High	5700	16.44	16.44	23.55	-7.11
144	5720	16.30	16.30	23.66	-7.36

PSD Results

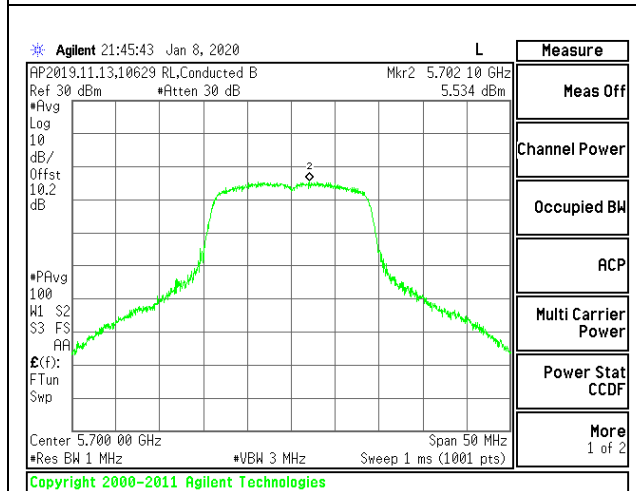
Channel	Frequency (MHz)	Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5500	5.547	5.897	11.00	-5.10
Mid	5580	5.642	5.992	11.00	-5.01
High	5700	5.534	5.884	11.00	-5.12
144	5720	5.493	5.843	11.00	-5.16



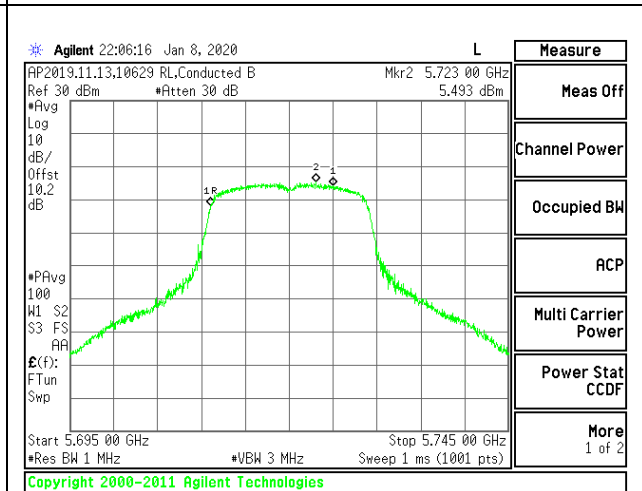
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



CHANNEL 144

8.5.11. 802.11n HT40 MODE IN THE 5.6 GHz BAND

1TX CHAIN 0 MODE (FCC+IC)

Test Engineer:	16080ZS and 10629 RL
Test Date:	01/02/2020 and 01/08/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5510	44.40	38.468	-2.10
Mid	5550	44.30	38.581	-2.10
High	5670	44.50	38.217	-2.10
142	5710	44.50	38.118	-2.10

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/ 1MHz)	ISED PSD Limit (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)
Low	5510	24.00	24.00	30.00	24.00	11.00	11.00	11.00
Mid	5550	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5670	24.00	24.00	30.00	24.00	11.00	11.00	11.00
142	5710	24.00	24.00	30.00	24.00	11.00	11.00	11.00

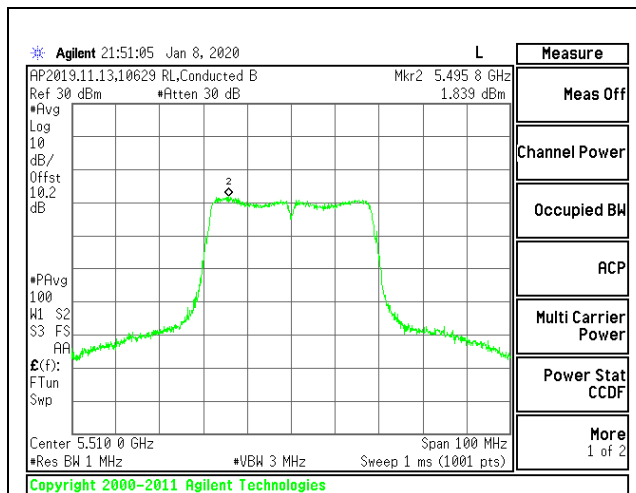
Duty Cycle CF (dB)	0.61	Included in Calculations of Corr'd PSD
---------------------------	------	---

Output Power Results

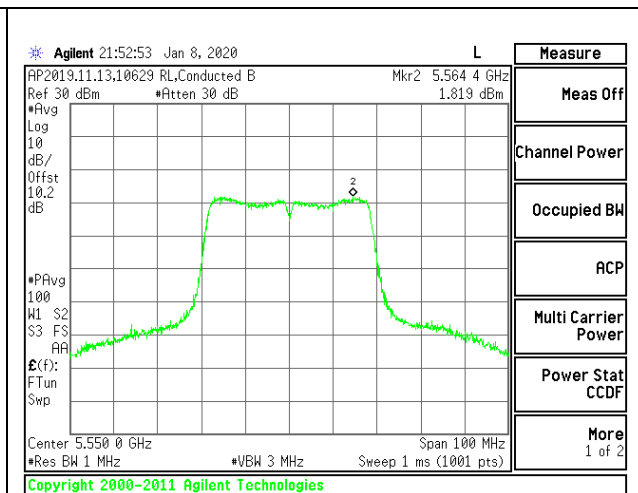
Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	16.21	16.21	24.00	-7.79
Mid	5550	15.85	15.85	24.00	-8.15
High	5670	15.96	15.96	24.00	-8.04
142	5710	15.65	15.65	24.00	-8.35

PSD Results

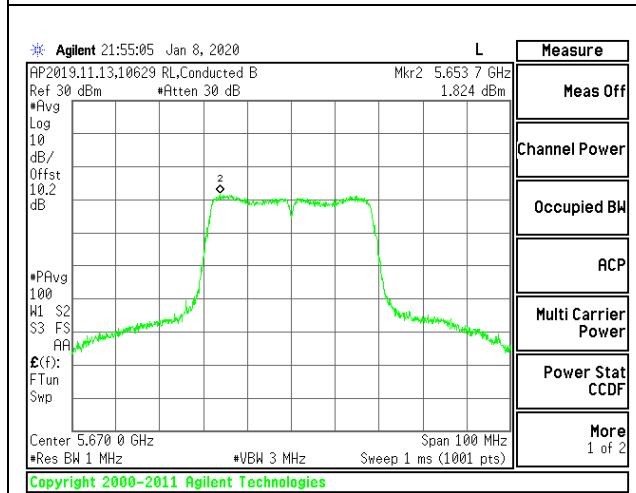
Channel	Frequency (MHz)	Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5510	1.839	2.45	11.00	-8.55
Mid	5550	1.819	2.43	11.00	-8.57
High	5670	1.824	2.43	11.00	-8.57
142	5710	1.714	2.32	11.00	-8.68



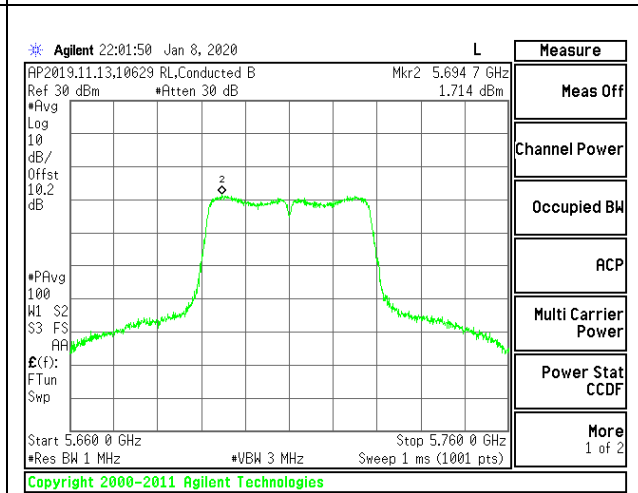
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



CHANNEL 142

8.5.12. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND

1TX CHAIN 0 MODE (FCC+IC)

Test Engineer:	16080ZS
Test Date:	01/02/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5530	81.60	77.259	-2.10
High	5610	81.60	77.126	-2.10
138	5690	81.80	77.121	-2.10

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/ 1MHz)	ISED PSD Limit (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)
Low	5530	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5610	24.00	24.00	30.00	24.00	11.00	11.00	11.00
138	5690	24.00	24.00	30.00	24.00	11.00	11.00	11.00

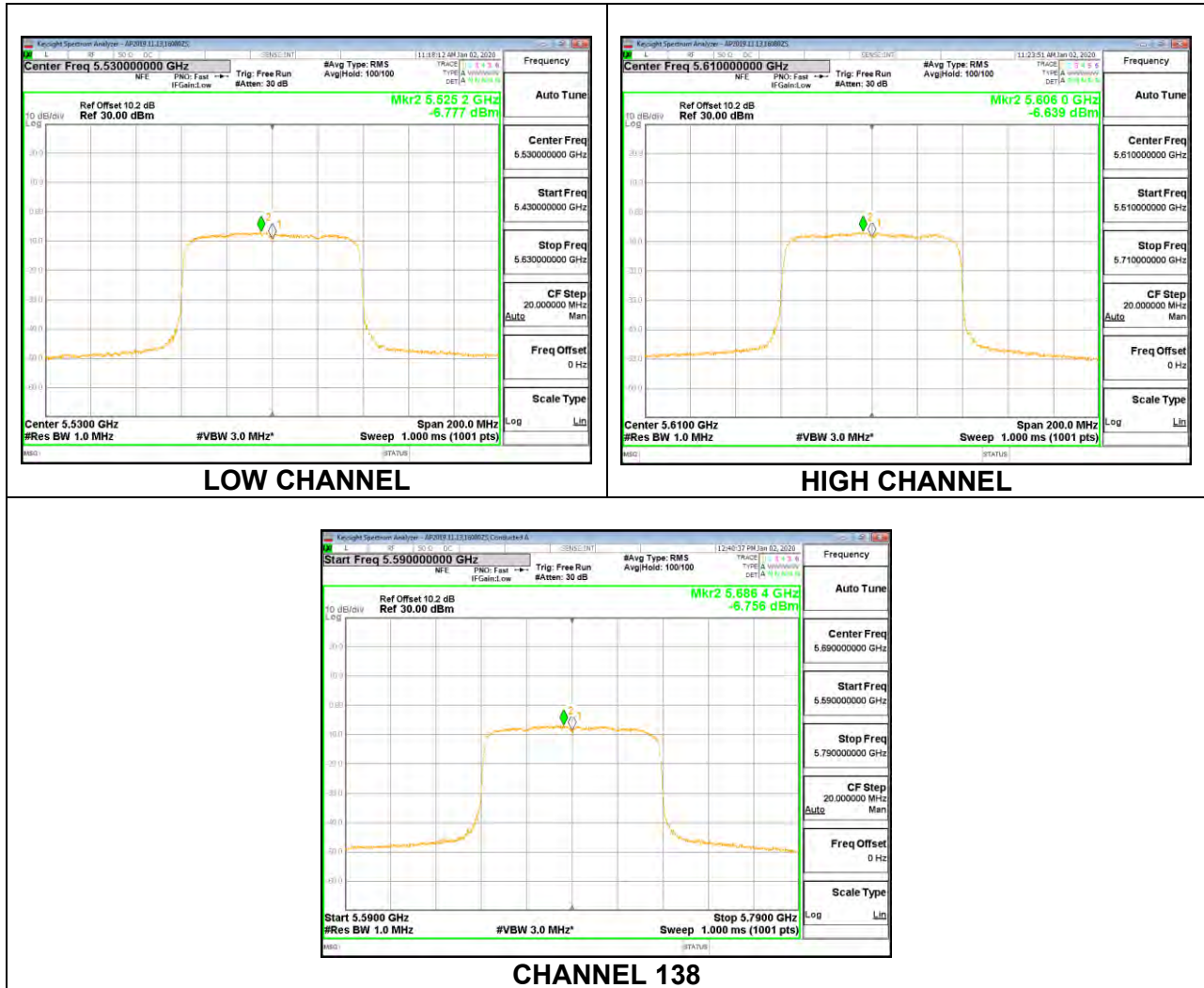
Duty Cycle CF (dB)	1.15	Included in Calculations of Corr'd PSD
---------------------------	------	---

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5530	14.08	14.08	24.00	-9.92
High	5610	13.65	13.65	24.00	-10.35
138	5690	13.50	13.50	24.00	-10.50

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5530	-6.777	-5.627	11.00	-16.63
High	5610	-6.639	-5.489	11.00	-16.49
138	5690	-6.756	-5.606	11.00	-16.61



8.5.13. 802.11a MODE IN THE 5.8 GHz BAND

1TX CHAIN 0 MODE (FCC+IC)

Test Engineer:	16080ZS
Test Date:	01/02/2020

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	FCC/ISED PSD Limit (dBm/ 500KHz)
Low	5745	-3.00	30.00	30.00
Mid	5785	-3.00	30.00	30.00
High	5825	-3.00	30.00	30.00

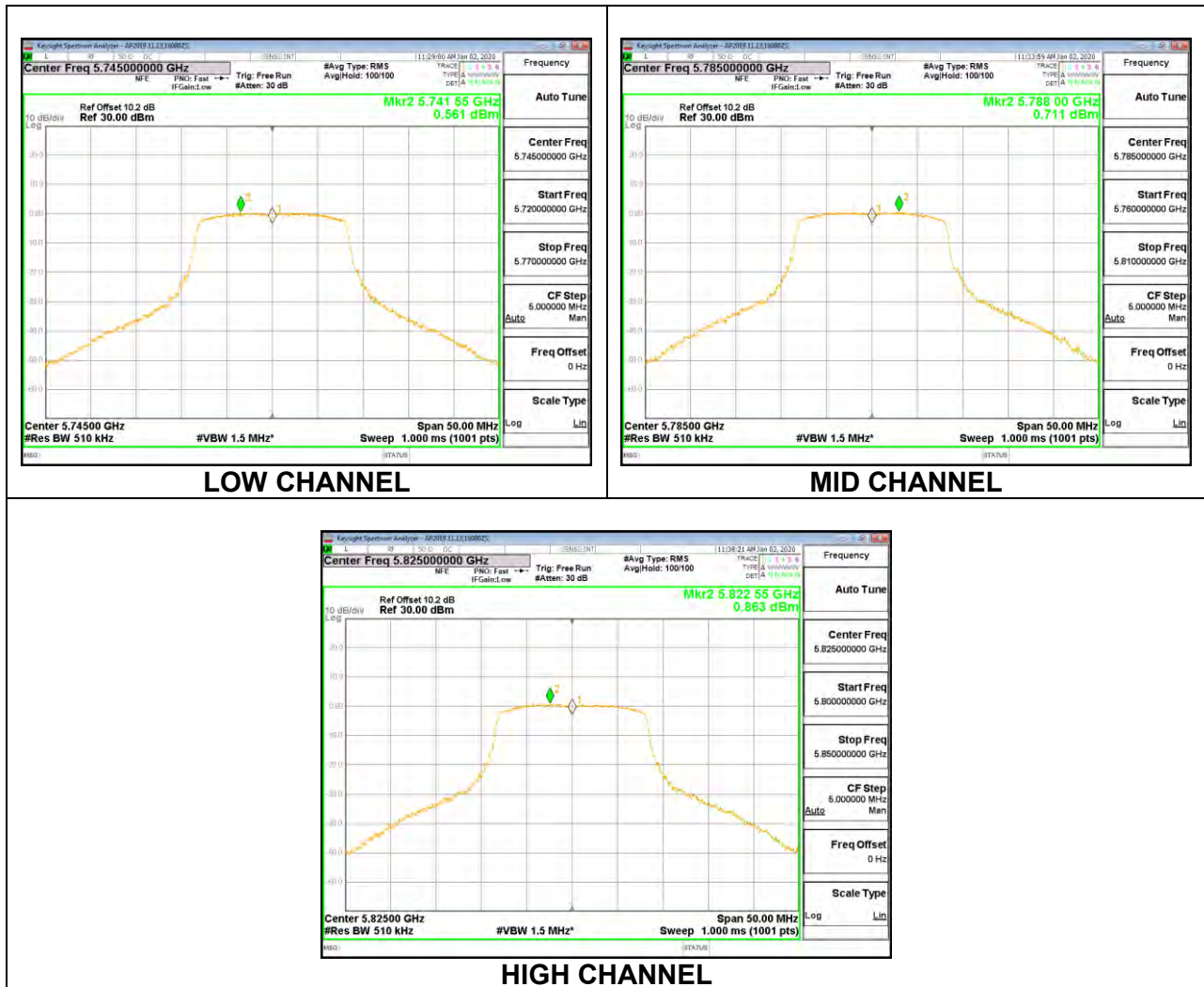
Duty Cycle CF (dB)	0.34	Included in Calculations of Corr'd PSD
---------------------------	------	---

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	16.33	16.33	30.00	-13.67
Mid	5785	16.45	16.45	30.00	-13.55
High	5825	16.27	16.27	30.00	-13.73

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/ 500kHz)	Total Corr'd PSD (dBm/ 500kHz)	PSD Limit (dBm/ 500kHz)	PSD Margin (dB)
Low	5745	0.561	0.901	30.00	-29.10
Mid	5785	0.711	1.051	30.00	-28.95
High	5825	0.863	1.203	30.00	-28.80



8.5.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND

1TX CHAIN 0 MODE (FCC+IC)

Test Engineer:	16080ZS
Test Date:	01/02/2020

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	FCC/ISED PSD Limit (dBm/ 500KHz)
Low	5745	-3.00	30.00	30.00
Mid	5785	-3.00	30.00	30.00
High	5825	-3.00	30.00	30.00

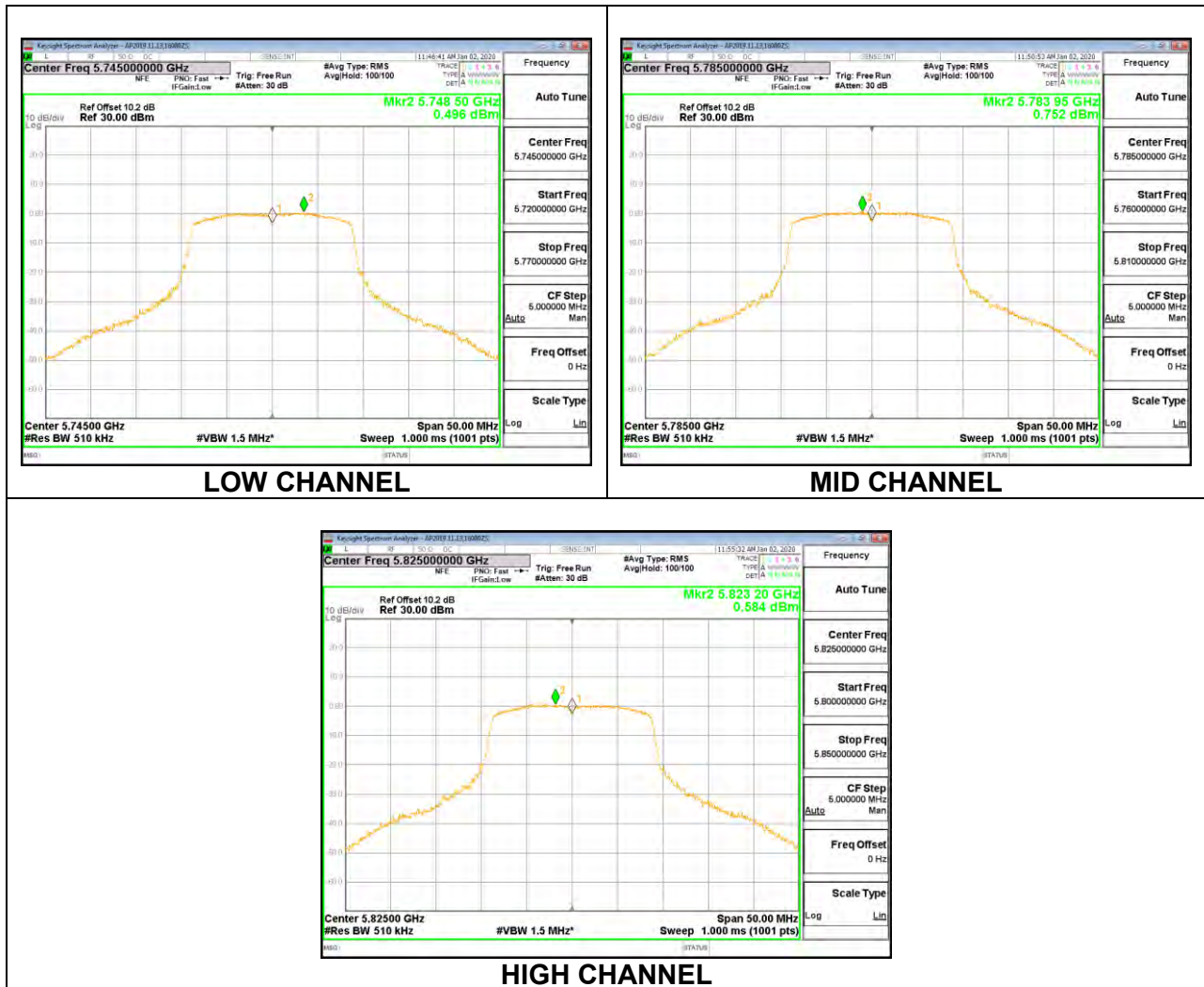
Duty Cycle CF (dB)	0.35	Included in Calculations of Corr'd PSD
---------------------------	------	---

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	16.33	16.33	30.00	-13.67
Mid	5785	16.32	16.32	30.00	-13.68
High	5825	16.24	16.24	30.00	-13.76

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/ 500kHz)	Total Corr'd PSD (dBm/ 500kHz)	PSD Limit (dBm/ 500kHz)	PSD Margin (dB)
Low	5745	0.496	0.846	30.00	-29.15
Mid	5785	0.752	1.102	30.00	-28.90
High	5825	0.584	0.934	30.00	-29.07



8.5.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND

1TX CHAIN 0 MODE (FCC+IC)

Test Engineer:	16080ZS
Test Date:	01/02/2020

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISE Power Limit (dBm)	FCC/ISED PSD Limit (dBm/ 500KHz)
Low	5755	-3.00	30.00	30.00
High	5795	-3.00	30.00	30.00

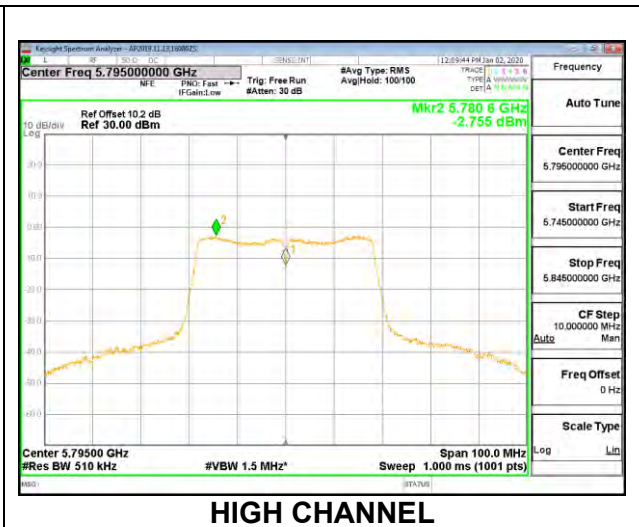
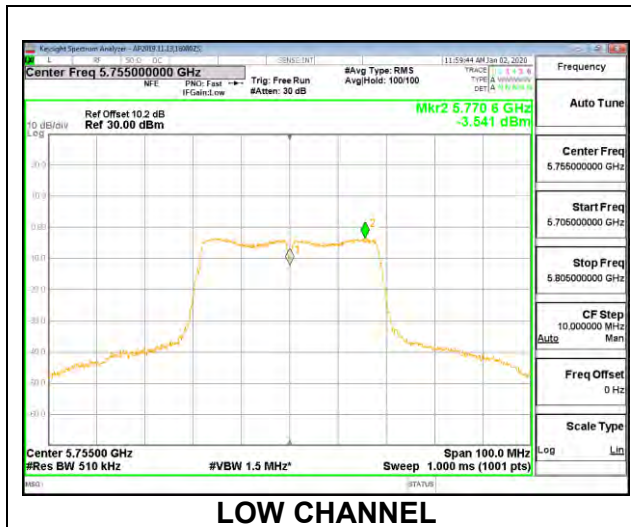
Duty Cycle CF (dB)	0.61	Included in Calculations of Corr'd PSD
---------------------------	------	---

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5755	16.64	16.64	30.00	-13.36
High	5795	15.67	15.67	30.00	-14.33

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/ 500kHz)	Total Corr'd PSD (dBm/ 500kHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Low	5755	-3.541	-2.931	30.00	-32.93
High	5795	-2.755	-2.145	30.00	-32.15



8.5.16. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

1TX CHAIN 0 MODE (FCC+IC)

Test Engineer:	16080ZS
Test Date:	01/02/2020

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	FCC/ISED PSD Limit (dBm/ 500KHz)
Mid	5775	-3.00	30.00	30.00

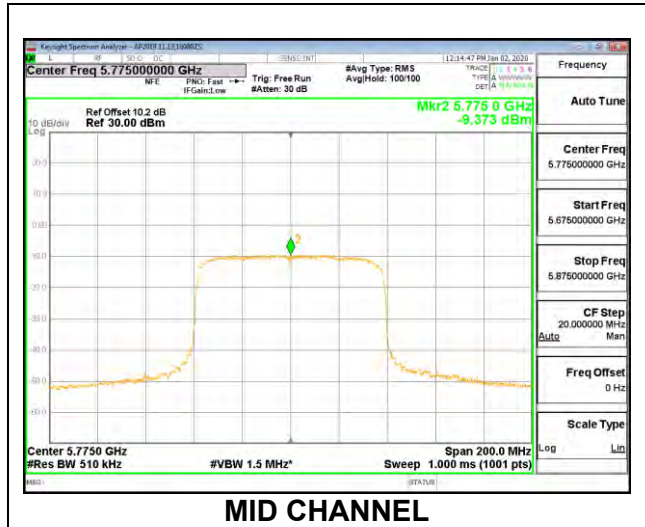
Duty Cycle CF (dB)	1.15	Included in Calculations of Corr'd PSD
---------------------------	------	---

Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5775	13.65	13.65	30.00	-16.35

PSD Results

Channel	Frequency (MHz)	Meas PSD (dBm/ 500kHz)	Total Corr'd PSD (dBm/ 500kHz)	PSD Limit (dBm/ 500kHz)	PSD Margin (dB)
Mid	5775	-9.373	-8.223	30.00	-38.22



9. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209 -Restricted bands

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

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

RSS 247 Issue 2 Sections

6.2.1.2 (for 5150-5250 MHz band)

6.2.2.2 (for 5250-5350 MHz band)

6.2.3.2 (for 5470-5600 MHz and 5650-5725 MHz bands)

6.2.4.2 (for 5725-5850 MHz band)

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.

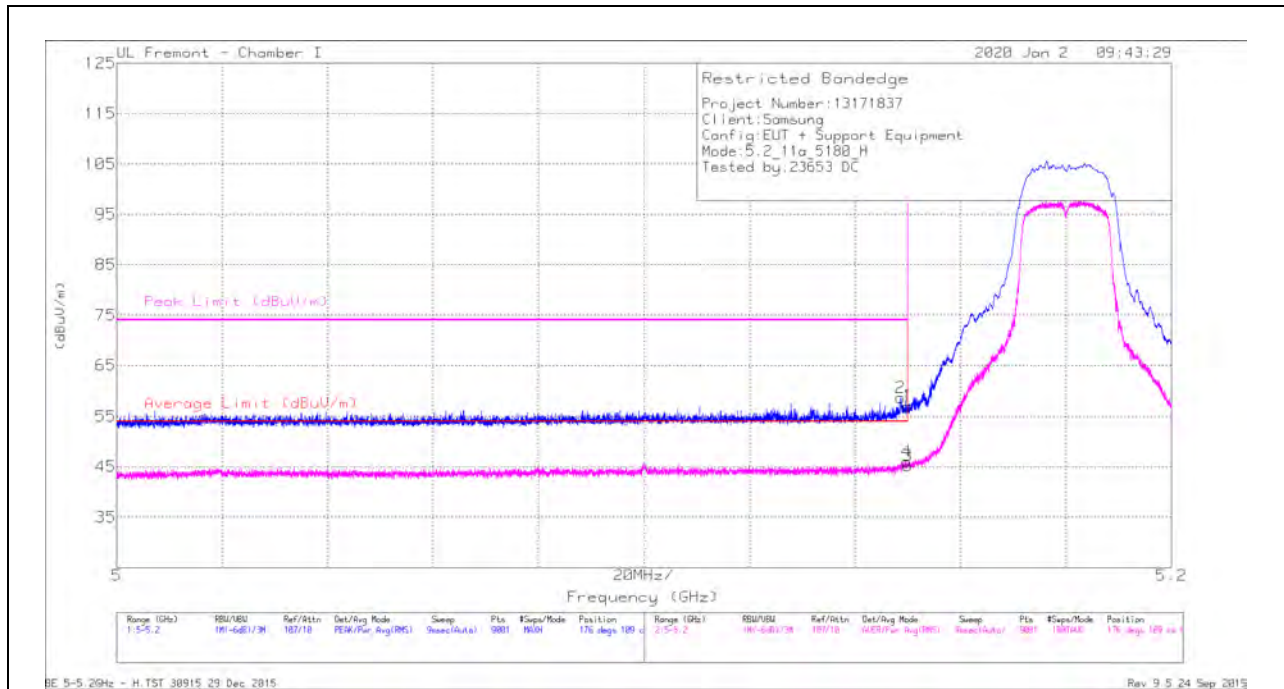
9.1. TRANSMITTER ABOVE 1 GHz

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

1TX CHAIN 0 MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Trace Markers

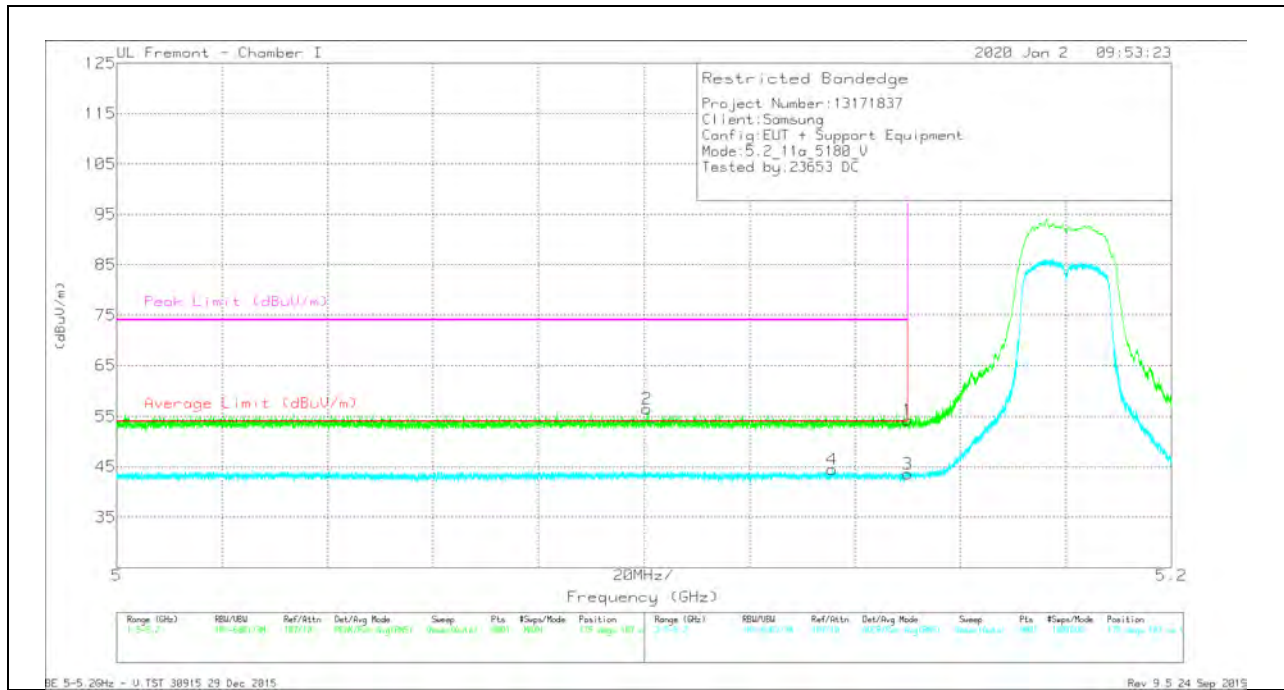
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*5.15	39.66	Pk	34.4	-17	0	57.06	-	-	74	-16.94	176	109	H
2	*5.14871	41.4	Pk	34.4	-17.1	0	58.7	-	-	74	-15.3	176	109	H
3	*5.15	27.51	RMS	34.4	-17	.34	45.25	54	-8.75	-	-	176	109	H
4	*5.14982	28.38	RMS	34.4	-17	.34	46.12	54	-7.88	-	-	176	109	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



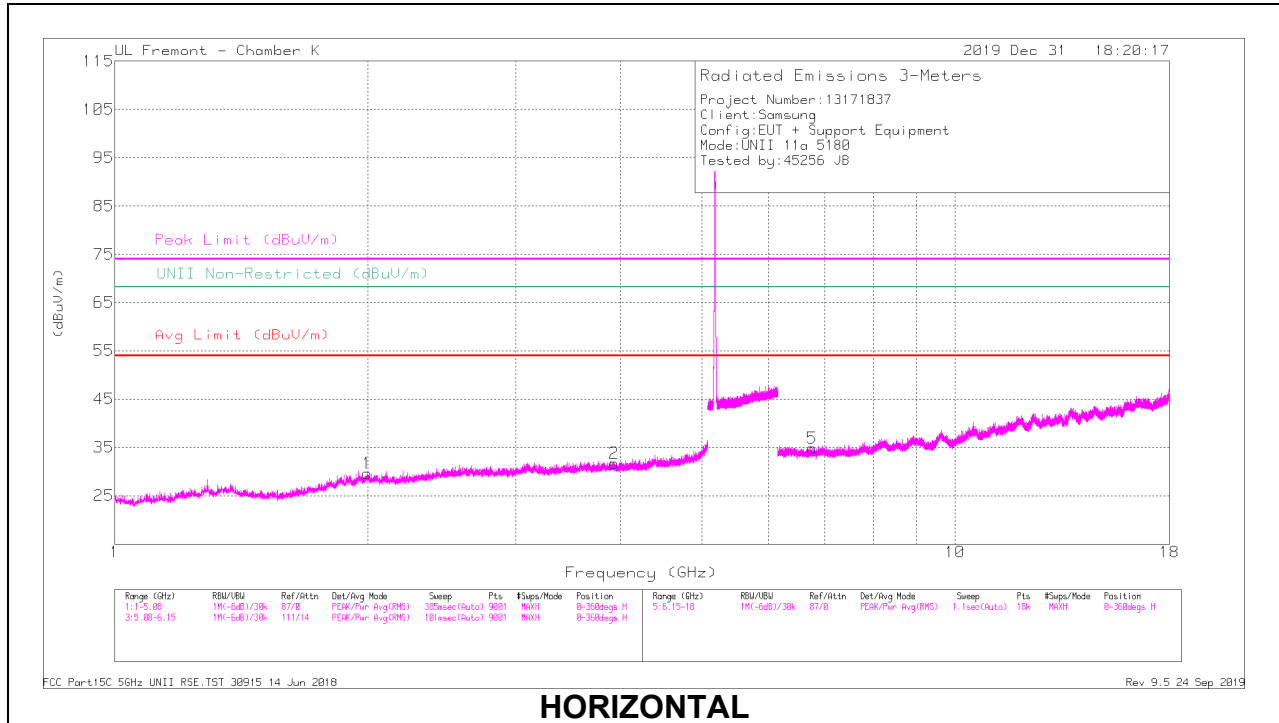
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*5.15	36.87	Pk	34.4	-17	0	54.27	-	-	74	-19.73	175	107	V
2	*5.10053	39.02	Pk	34.4	-16.9	0	56.52	-	-	74	-17.48	175	107	V
3	*5.15	25.85	RMS	34.4	-17	.34	43.59	54	-10.41	-	-	175	107	V
4	*5.13564	26.65	RMS	34.5	-17	.34	44.49	54	-9.51	-	-	175	107	V

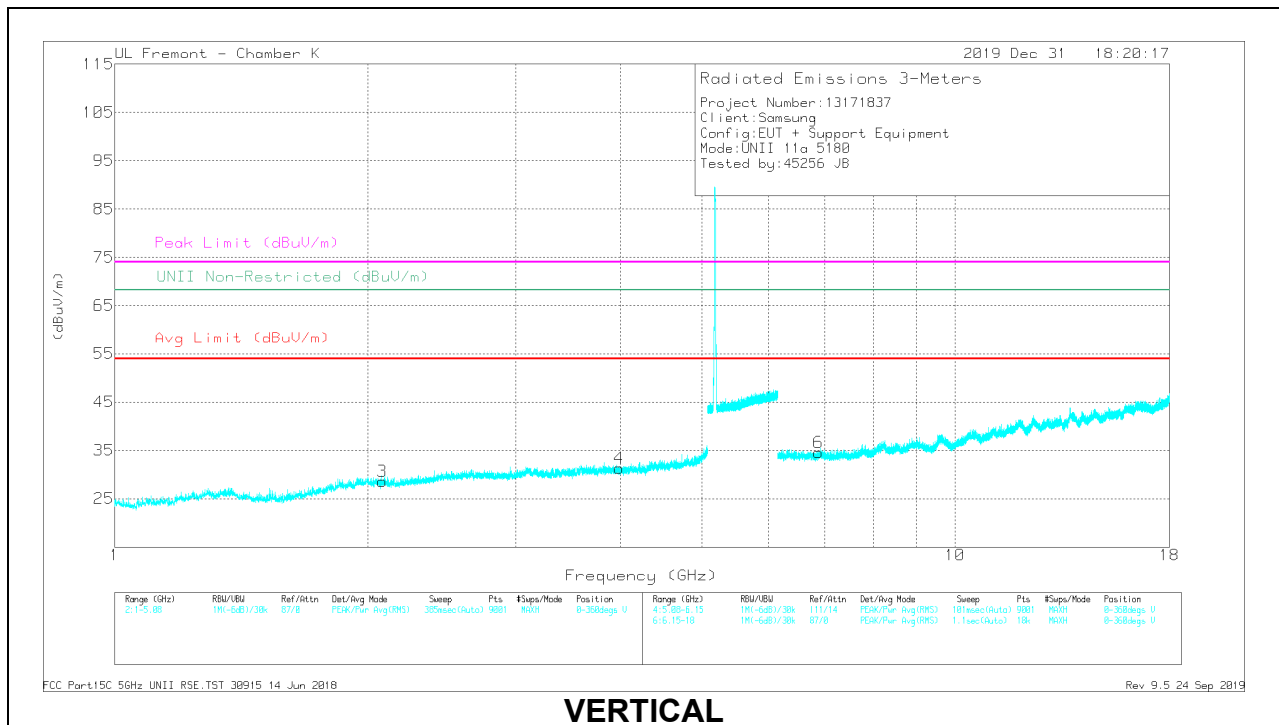
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

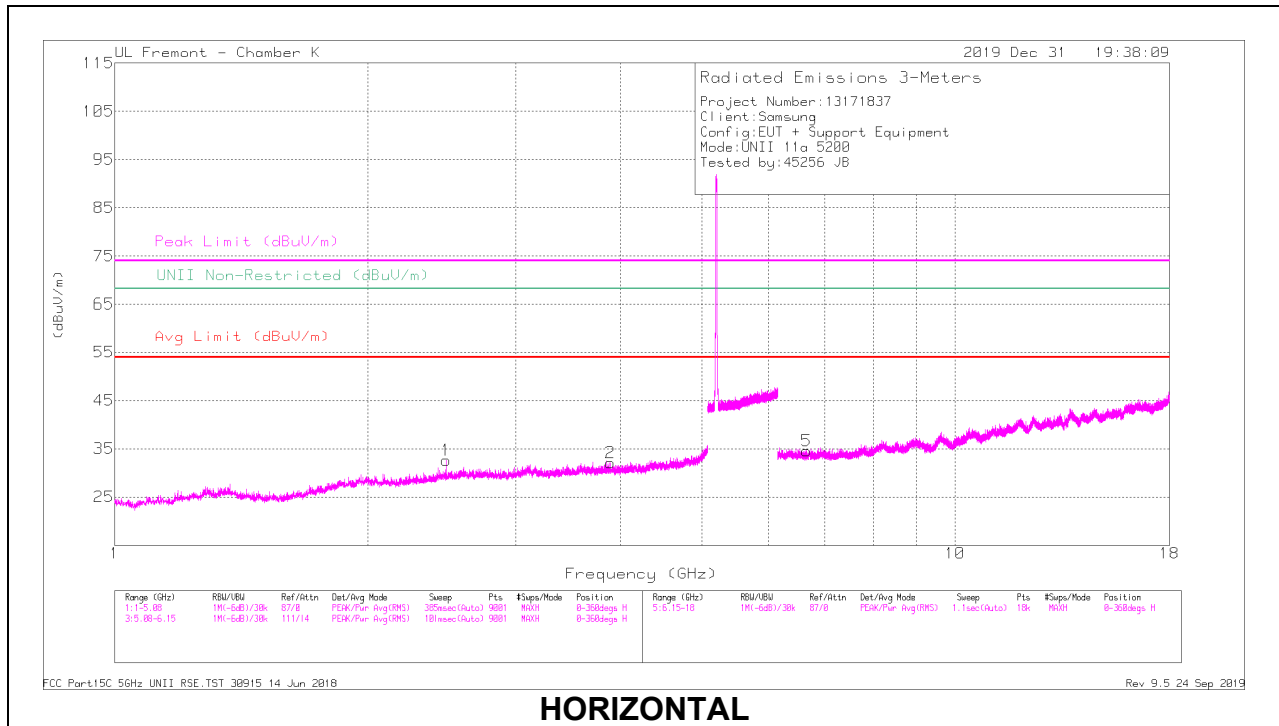
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF EMC4294 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.93129	37	PK-U	33.4	-31.5	0	38.9	-	-	74	-35.1	-	-	87	257	H
	* 3.92971	27.17	ADR	33.4	-31.5	.34	29.41	54	-24.59	-	-	-	-	87	257	H
1	1.99808	41.19	PK-U	31.5	-35.2	0	37.49	-	-	-	-	68.2	-30.71	317	148	H
4	* 3.98362	38.12	PK-U	33.4	-31.5	0	40.02	-	-	74	-33.98	-	-	208	309	V
	* 3.98159	27.26	ADR	33.4	-31.5	.34	29.5	54	-24.5	-	-	-	-	208	309	V
3	2.08223	40.12	PK-U	31.4	-35.2	0	36.32	-	-	-	-	68.2	-31.88	107	171	V
5	6.76129	33.53	PK-U	35.8	-27.1	0	42.23	-	-	-	-	68.2	-25.97	20	381	H
6	6.87359	33.87	PK-U	35.7	-26.8	0	42.77	-	-	-	-	68.2	-25.43	193	394	V

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

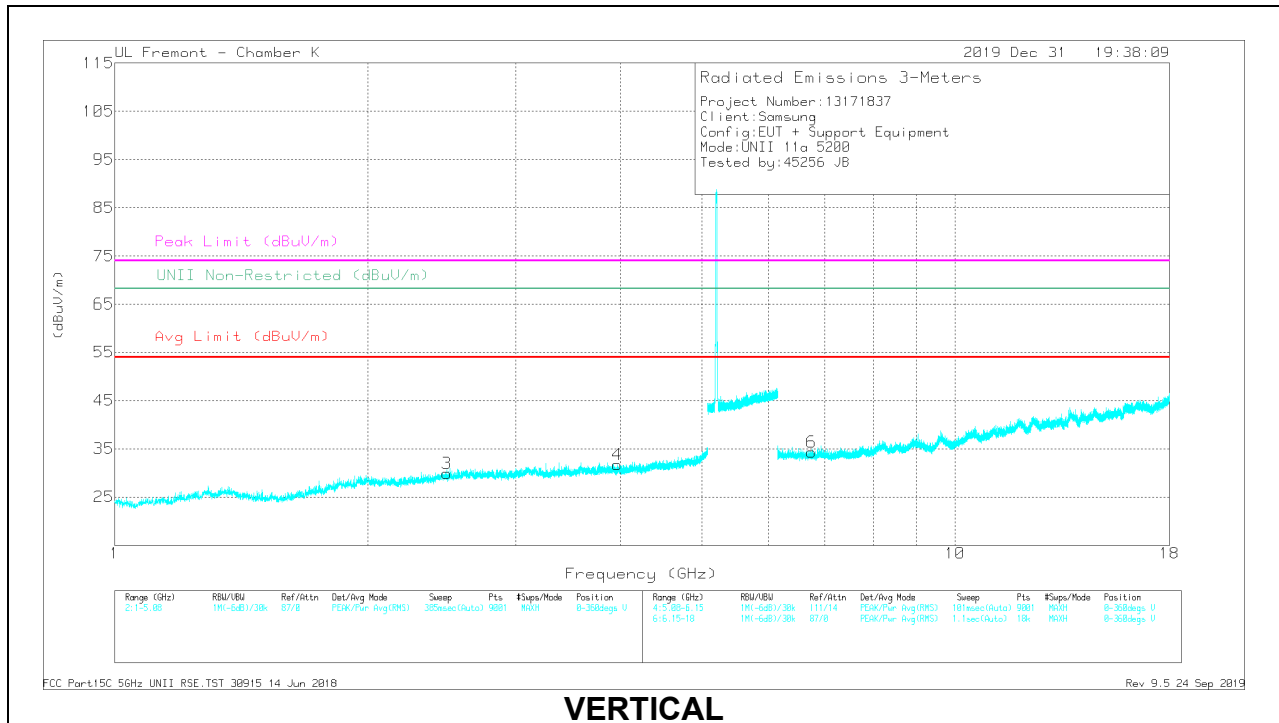
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

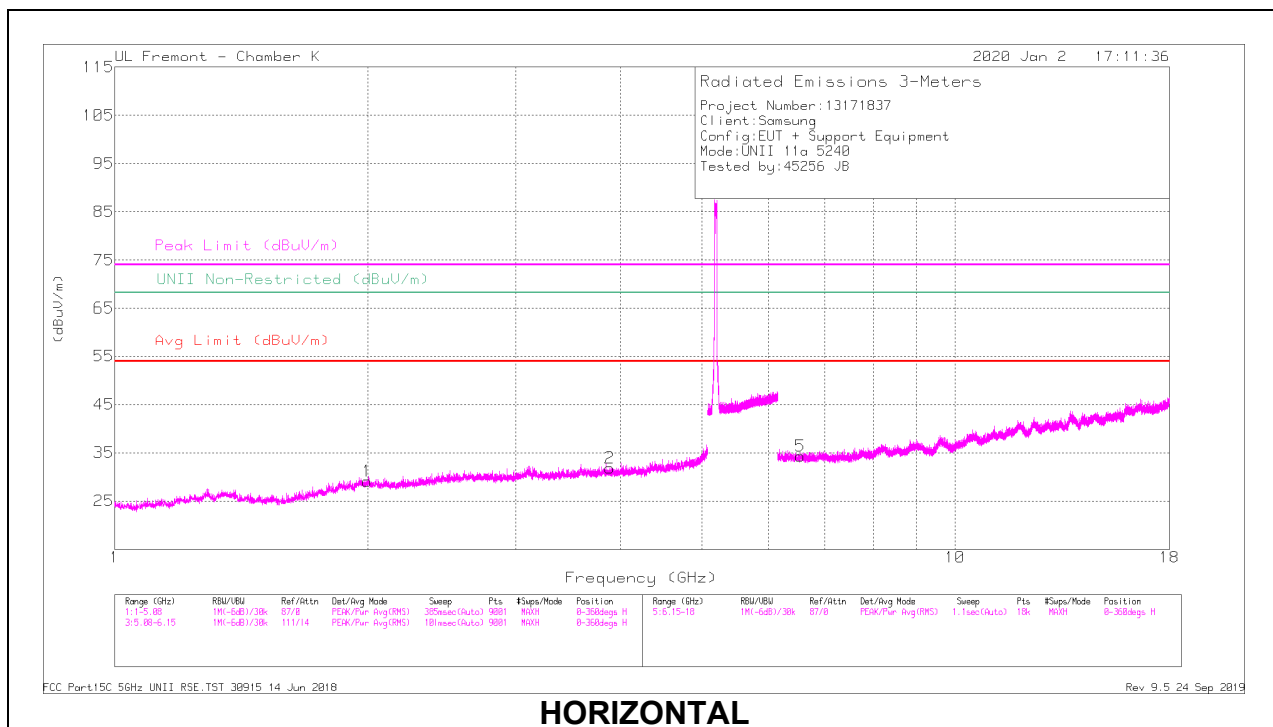
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF EMC4294 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.89045	37.44	PK-U	33.4	-31.7	0	39.14	-	-	74	-34.86	-	-	340	286	H
	* 3.89066	27.39	ADR	33.4	-31.7	.34	29.43	54	-24.57	-	-	-	-	340	286	H
1	2.47866	40.91	PK-U	32.4	-35	0	38.31	-	-	-	-	68.2	-29.89	131	225	H
4	* 3.96725	37.68	PK-U	33.3	-31.4	0	39.58	-	-	74	-34.42	-	-	235	285	V
	* 3.96687	27.02	ADR	33.3	-31.4	.34	29.26	54	-24.74	-	-	-	-	235	285	V
3	2.48275	40.75	PK-U	32.5	-34.9	0	38.35	-	-	-	-	68.2	-29.85	116	342	V
5	6.66149	33.22	PK-U	35.7	-27.2	0	41.72	-	-	-	-	68.2	-26.48	279	353	H
6	6.75443	34.17	PK-U	35.7	-27	0	42.87	-	-	-	-	68.2	-25.33	61	232	V

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

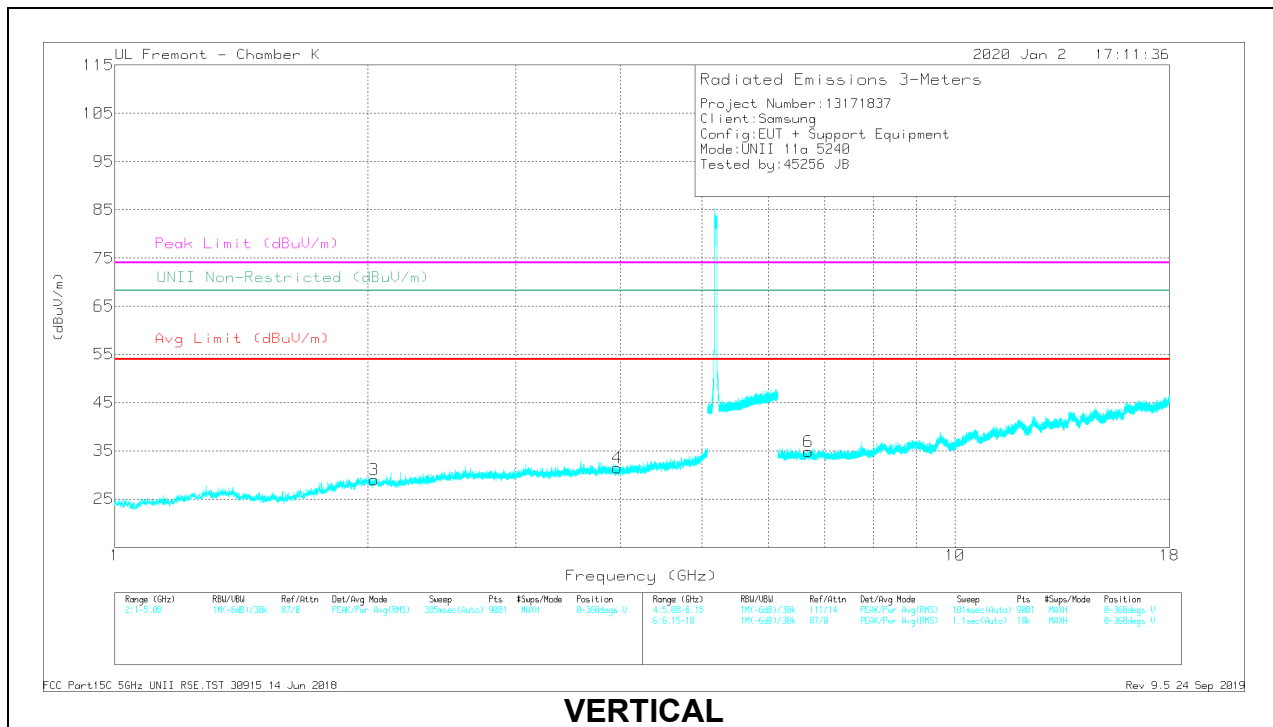
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF EMC4294 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.88412	37.76	PK-U	33.3	-31.7	0	39.36	-	-	74	-34.64	-	-	222	272	H
	* 3.88211	27.31	ADR	33.4	-31.7	.34	29.35	54	-24.65	-	-	-	-	222	272	H
1	1.9965	41.12	PK-U	31.5	-35.2	0	37.42	-	-	-	-	68.2	-30.78	234	284	H
4	* 3.96548	37.48	PK-U	33.3	-31.4	0	39.38	-	-	74	-34.62	-	-	354	237	V
	* 3.96616	27.36	ADR	33.3	-31.4	.34	29.6	54	-24.36	-	-	-	-	354	237	V
3	2.03585	41.33	PK-U	31.4	-35.1	0	37.63	-	-	-	-	68.2	-30.57	167	212	V
5	6.54483	33.59	PK-U	35.7	-27.2	0	42.09	-	-	-	-	68.2	-26.11	297	225	H
6	6.68849	34.56	PK-U	35.8	-27.2	0	43.16	-	-	-	-	68.2	-25.04	355	256	V

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

PK-U - U-NII: Maximum Peak

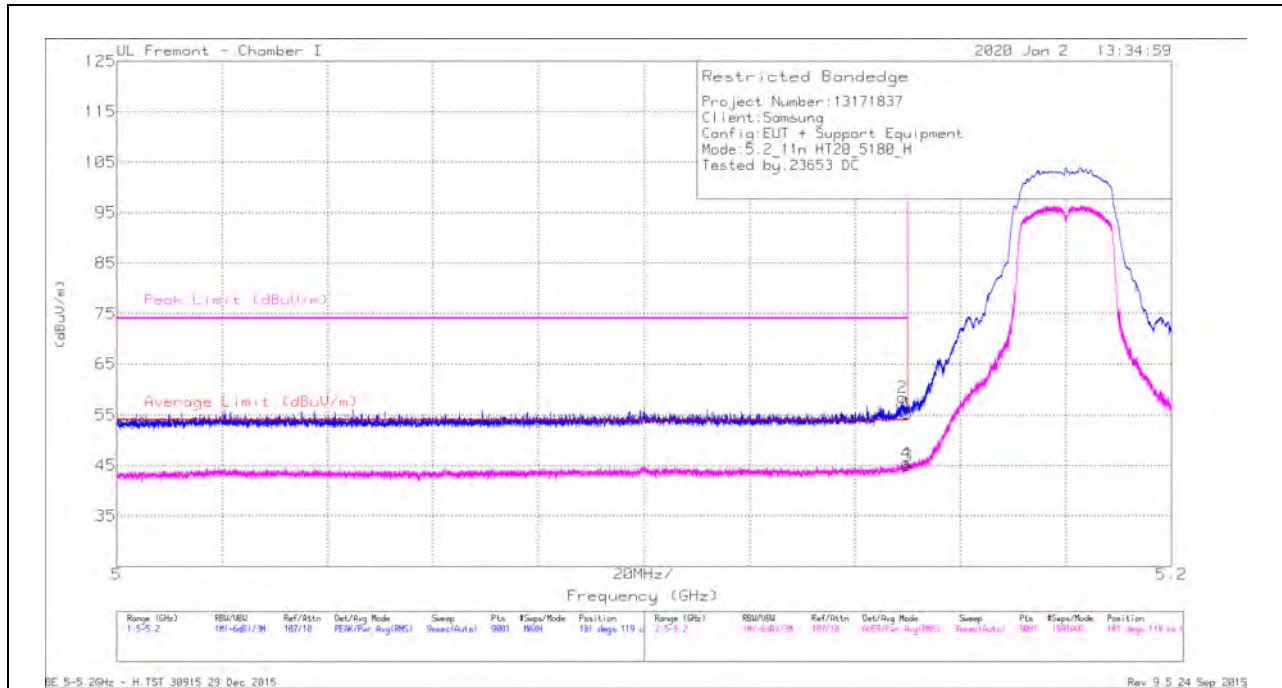
ADR - U-NII AD primary method, RMS average

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

1TX CHAIN 0 MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Trace Markers

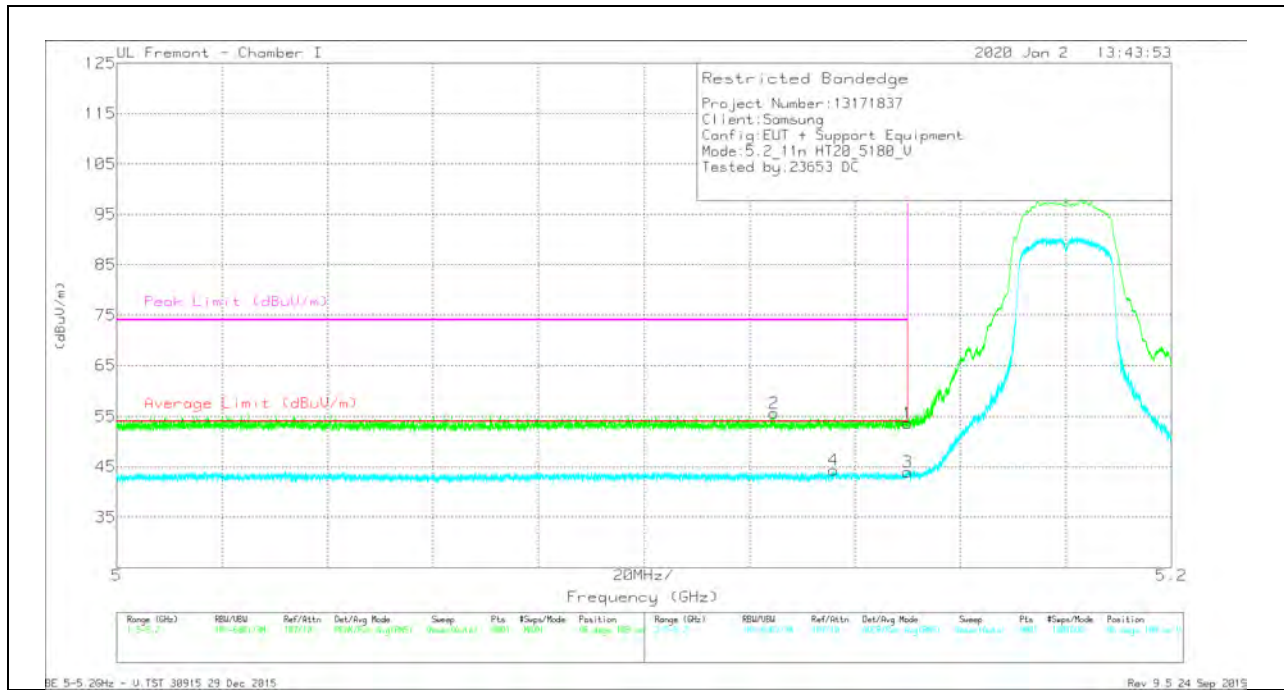
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*5.15	37.81	Pk	34.4	-17	0	55.21	-	-	74	-18.79	181	119	H
2	*5.14907	41.21	Pk	34.4	-17.1	0	58.51	-	-	74	-15.49	181	119	H
3	*5.15	27.15	RMS	34.4	-17	.35	44.9	54	-9.1	-	-	181	119	H
4	*5.14975	27.75	RMS	34.4	-17	.35	45.5	54	-8.5	-	-	181	119	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



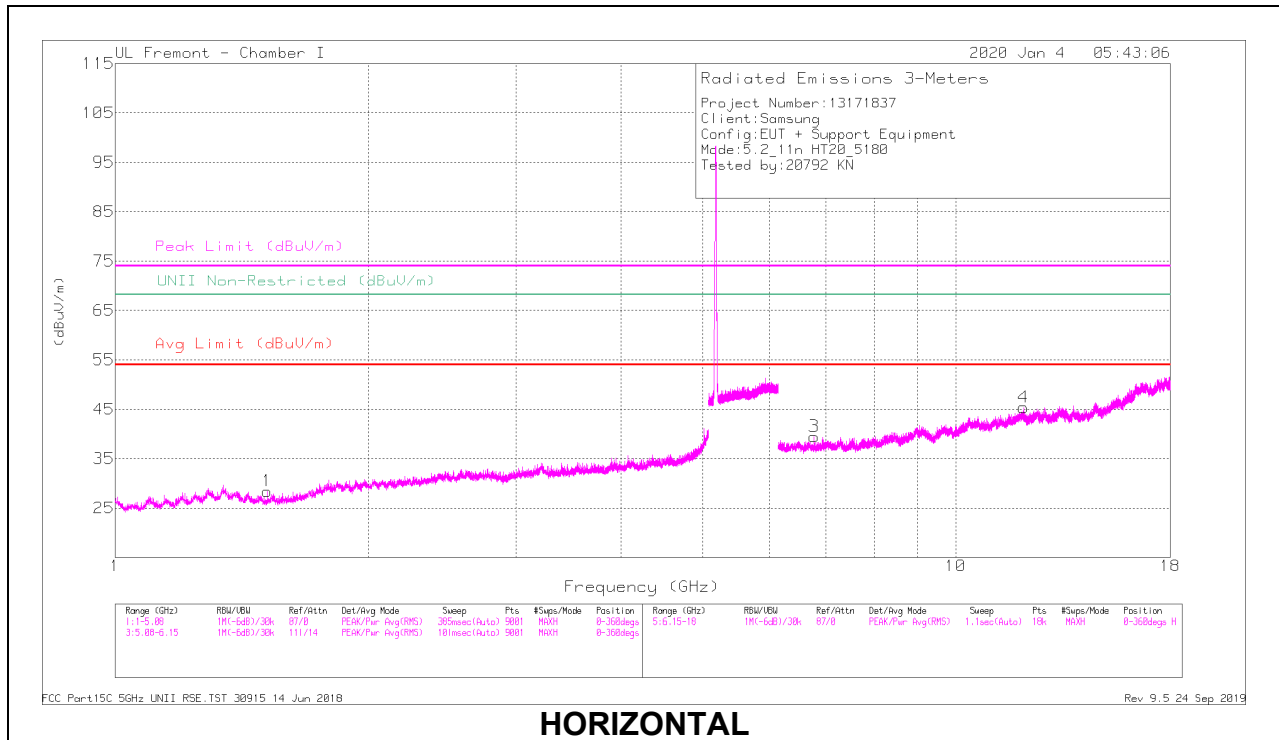
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*5.15	36.25	Pk	34.4	-17	0	53.65	-	-	74	-20.35	96	108	V
2	*5.12467	38.15	Pk	34.4	-16.9	0	55.65	-	-	74	-18.35	96	108	V
3	*5.15	26.17	RMS	34.4	-17	.35	43.92	54	-10.08	-	-	96	108	V
4	*5.13598	26.44	RMS	34.5	-17	.35	44.29	54	-9.71	-	-	96	108	V

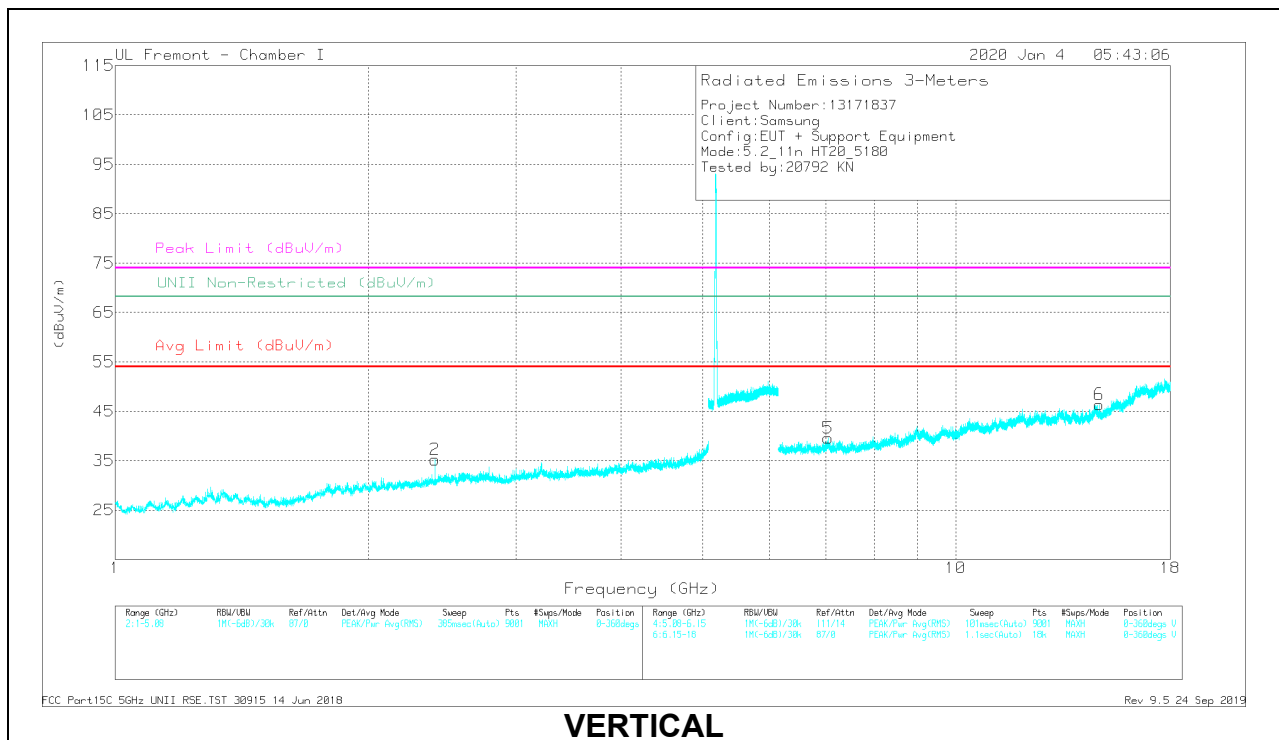
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

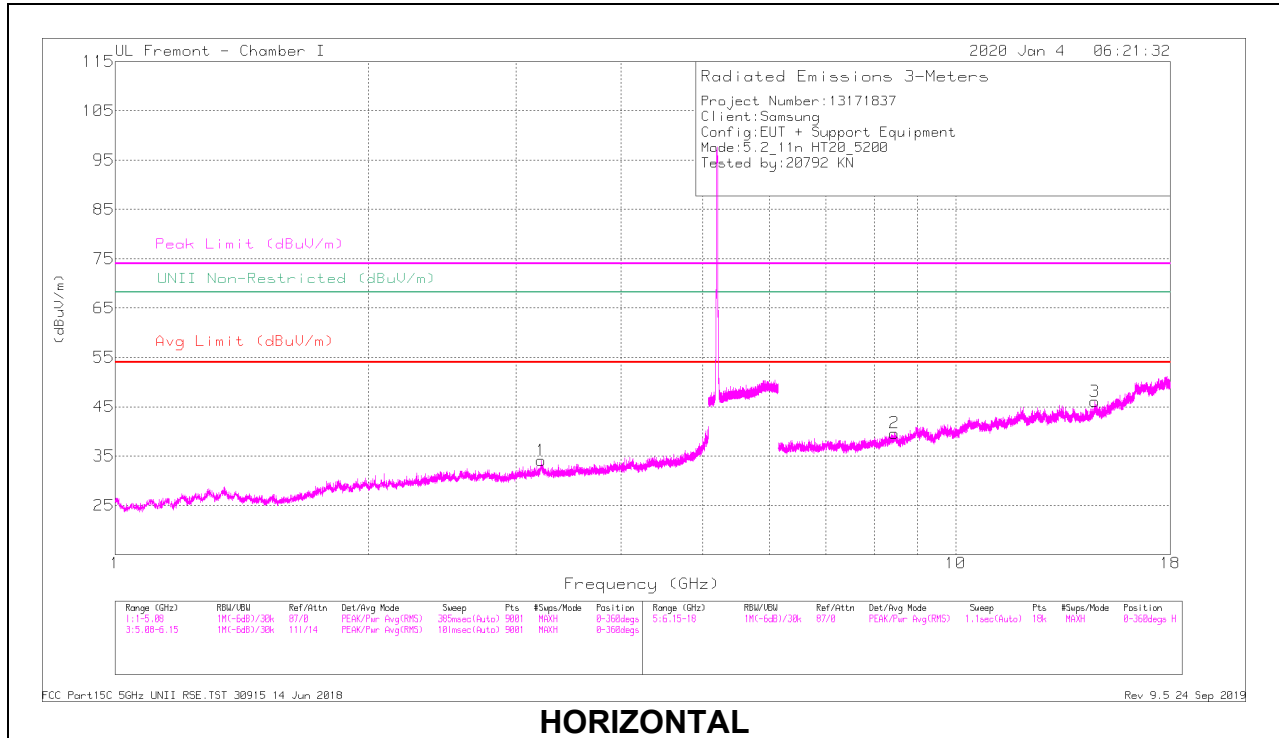
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cb/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.51834	38.6	PK-U	28	-31.7	0	34.9	-	-	74	-39.1	-	-	278	160	H
	* 1.51826	27.92	ADR	28	-31.7	.35	24.57	54	-29.43	-	-	-	-	278	160	H
2	2.40223	36.68	PK-U	31.9	-30.2	0	38.38	-	-	-	-	68.2	-29.82	227	197	V
4	* 12.03895	28.56	PK-U	38.8	-15.7	0	51.66	-	-	74	-22.34	-	-	345	359	H
	* 12.04216	18.32	ADR	38.8	-15.8	.35	41.67	54	-12.33	-	-	-	-	345	359	H
3	6.78715	30.25	PK-U	35.6	-20.5	0	45.35	-	-	-	-	68.2	-22.85	282	216	H
5	7.04818	30.45	PK-U	35.7	-19.4	0	46.75	-	-	-	-	68.2	-21.45	142	265	V
6	14.8133	27.38	PK-U	39.9	-15.3	0	51.98	-	-	-	-	68.2	-16.22	206	266	V

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

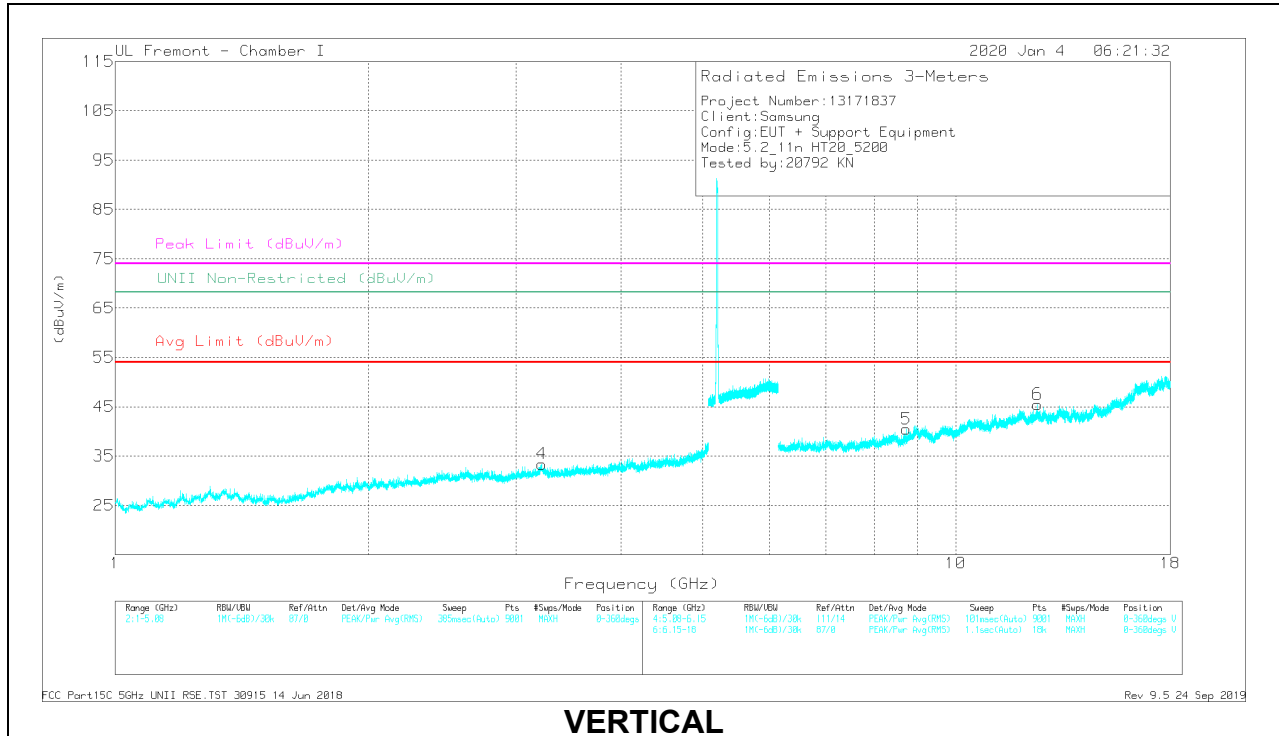
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

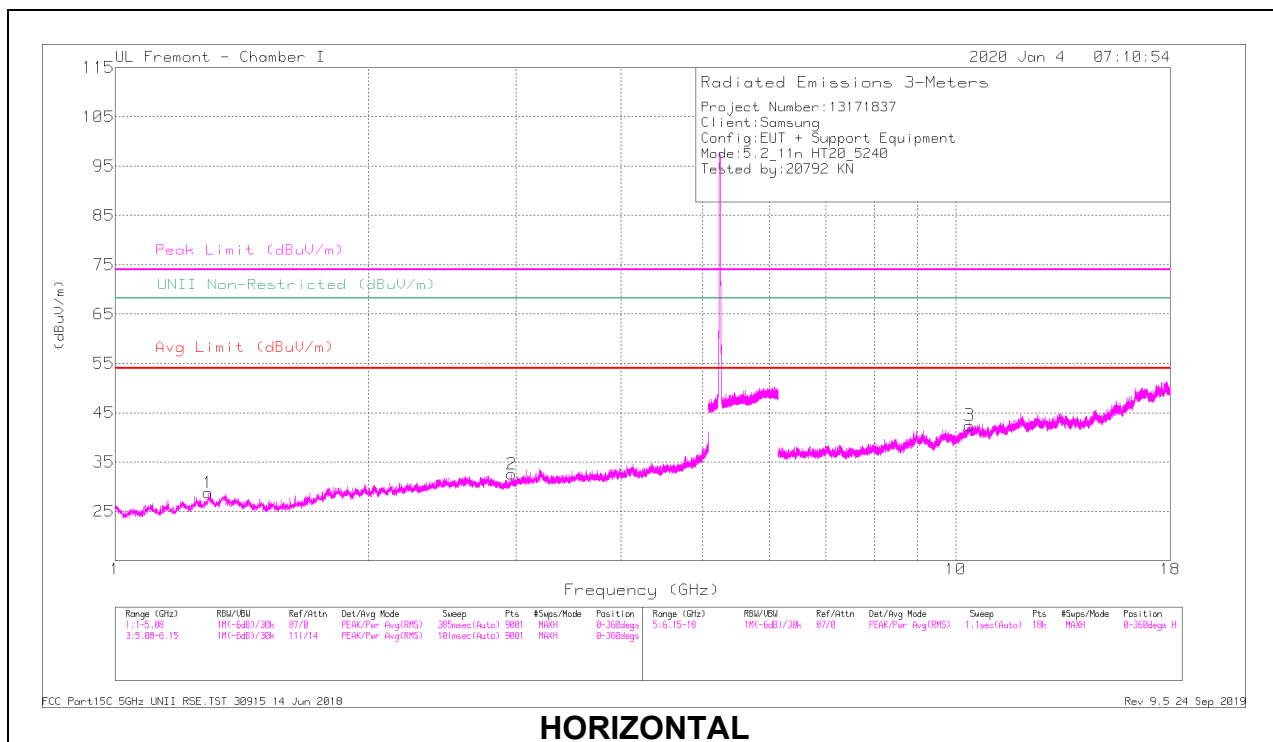
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.21361	35.04	PK-U	33.6	-28.2	0	40.44	-	-	-	-	68.2	-27.76	135	206	H
4	3.21781	35.21	PK-U	33.4	-28.2	0	40.41	-	-	-	-	68.2	-27.79	271	217	V
2	* 6.45734	28.33	PK-U	35.8	-17.7	0	46.43	-	-	74	-27.57	-	-	164	184	H
	* 6.45813	18.6	ADR	35.9	-17.7	.35	37.15	54	-16.85	-	-	-	-	164	184	H
3	14.63248	27.06	PK-U	39.9	-15.7	0	51.26	-	-	-	-	68.2	-16.94	104	185	H
6	* 12.50902	28.38	PK-U	39.1	-15.3	0	52.18	-	-	74	-21.82	-	-	219	180	V
	* 12.50785	17.95	ADR	39.1	-15.4	.35	42	54	-12	-	-	-	-	219	180	V
5	8.73759	28.64	PK-U	36	-17.7	0	46.94	-	-	-	-	68.2	-21.26	261	175	V

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

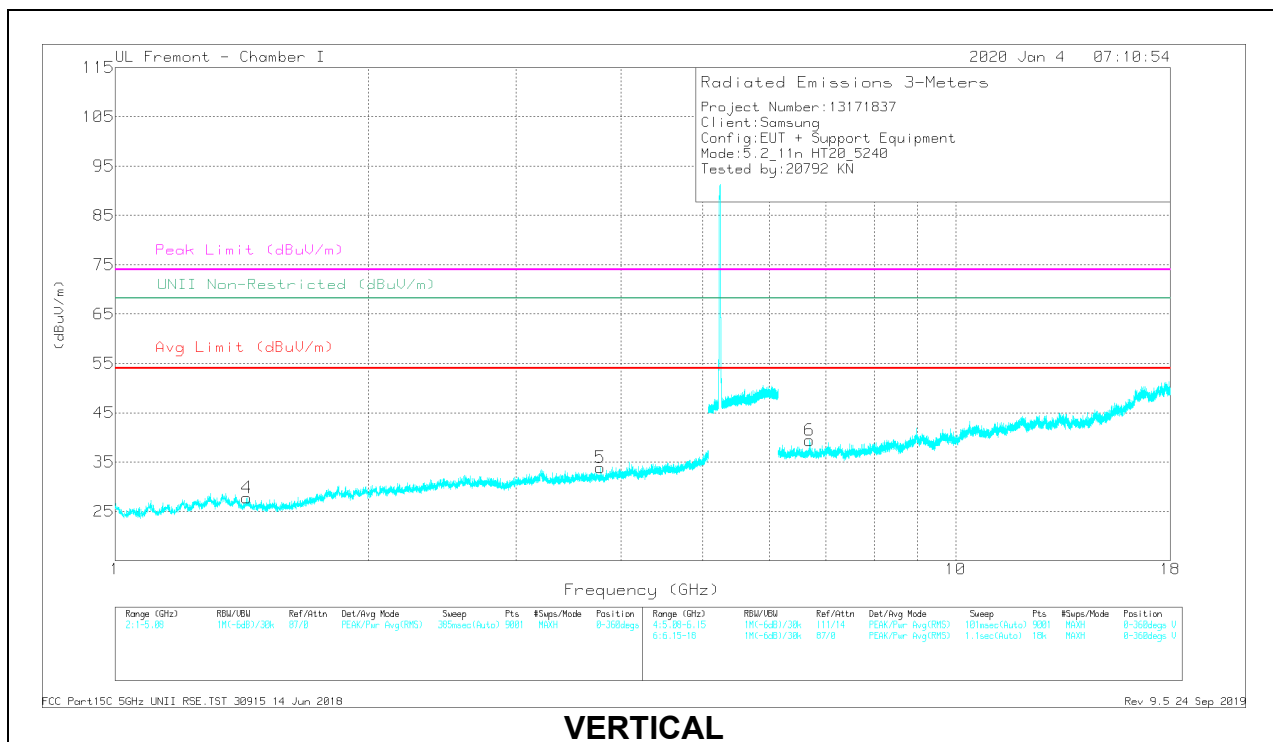
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.29559	37.99	PK-U	29.4	-32.1	0	35.29	-	-	74	-38.71	-	-	211	209	H
	* 1.29179	28.38	ADR	29.4	-32.1	.35	26.03	54	-27.97	-	-	-	-	211	209	H
2	2.96116	36.42	PK-U	32	-28.9	0	39.52	-	-	-	-	68.2	-28.68	327	277	H
5	* 3.77186	34.22	PK-U	33	-27.7	0	39.52	-	-	74	-34.48	-	-	100	197	V
	* 3.77081	24.98	ADR	33	-27.7	.35	30.63	54	-23.37	-	-	-	-	100	197	V
4	1.43384	40.55	PK-U	28.1	-31.8	0	36.85	-	-	74	-37.15	-	-	141	184	V
3	10.38763	29.1	PK-U	37.4	-15.4	0	51.1	-	-	-	-	68.2	-17.1	324	279	H
6	6.70275	29.27	PK-U	35.5	-19.7	0	45.07	-	-	-	-	68.2	-23.13	152	193	V

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

PK-U - U-NII: Maximum Peak

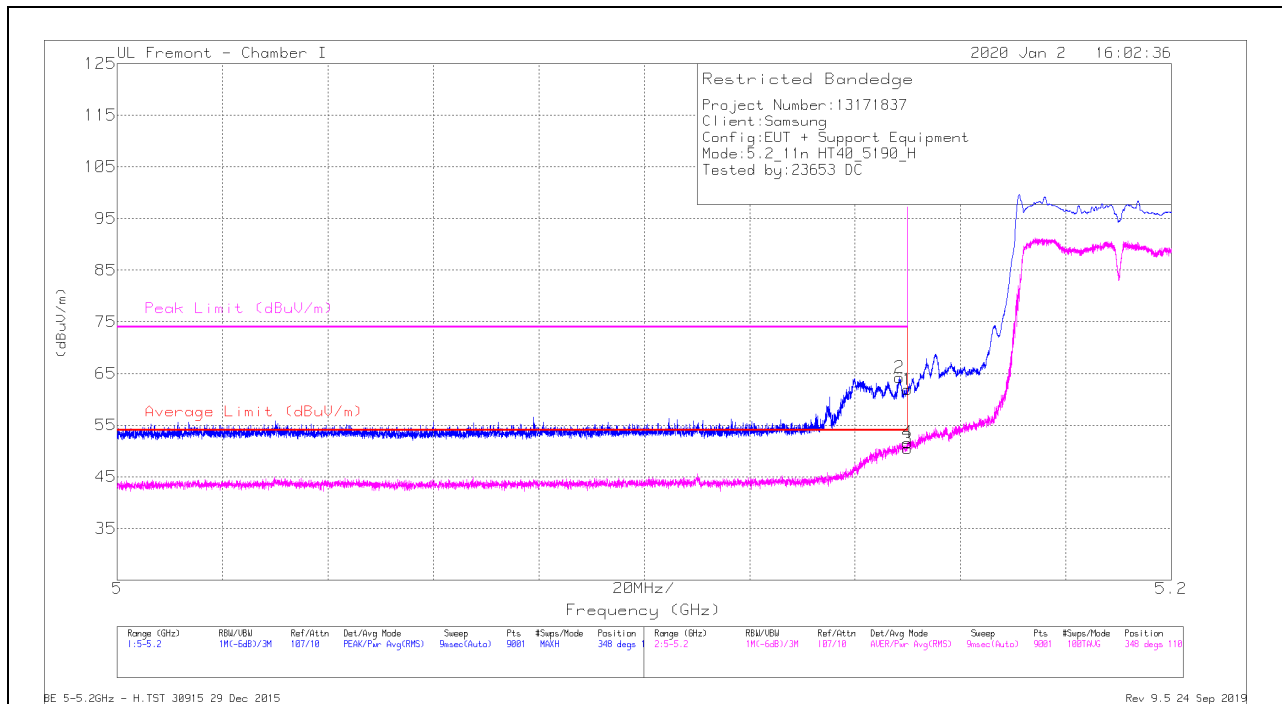
ADR - U-NII AD primary method, RMS average

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

1TX CHAIN 0 MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Trace Markers

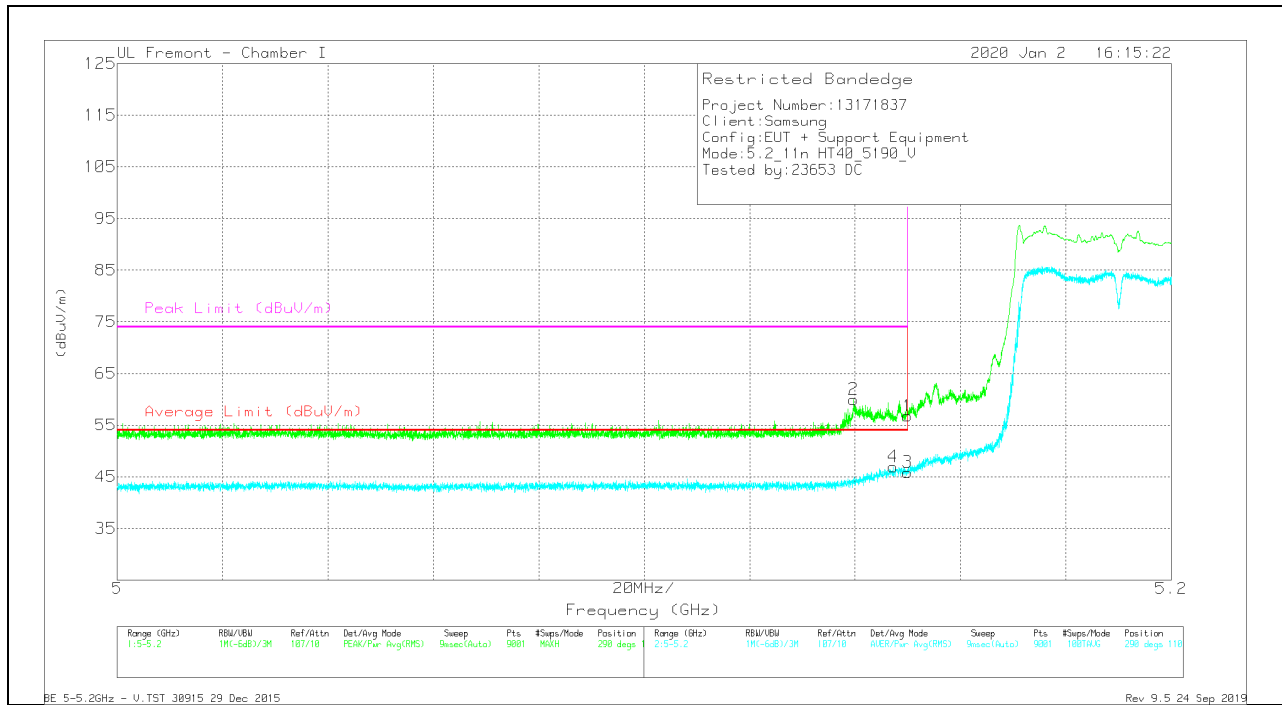
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cb/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBUV/m)	Average Limit (dBUV/m)	Margin (dB)	Peak Limit (dBUV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*5.15	44.49	Pk	34.4	-17	0	61.89	-	-	74	-12.11	348	110	H
2	*5.14838	46.91	Pk	34.4	-17.1	0	64.21	-	-	74	-9.79	348	110	H
3	*5.15	32.45	RMS	34.4	-17	.61	50.46	54	-3.54	-	-	348	110	H
4	*5.14995	33.56	RMS	34.4	-17	.61	51.57	54	-2.43	-	-	348	110	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



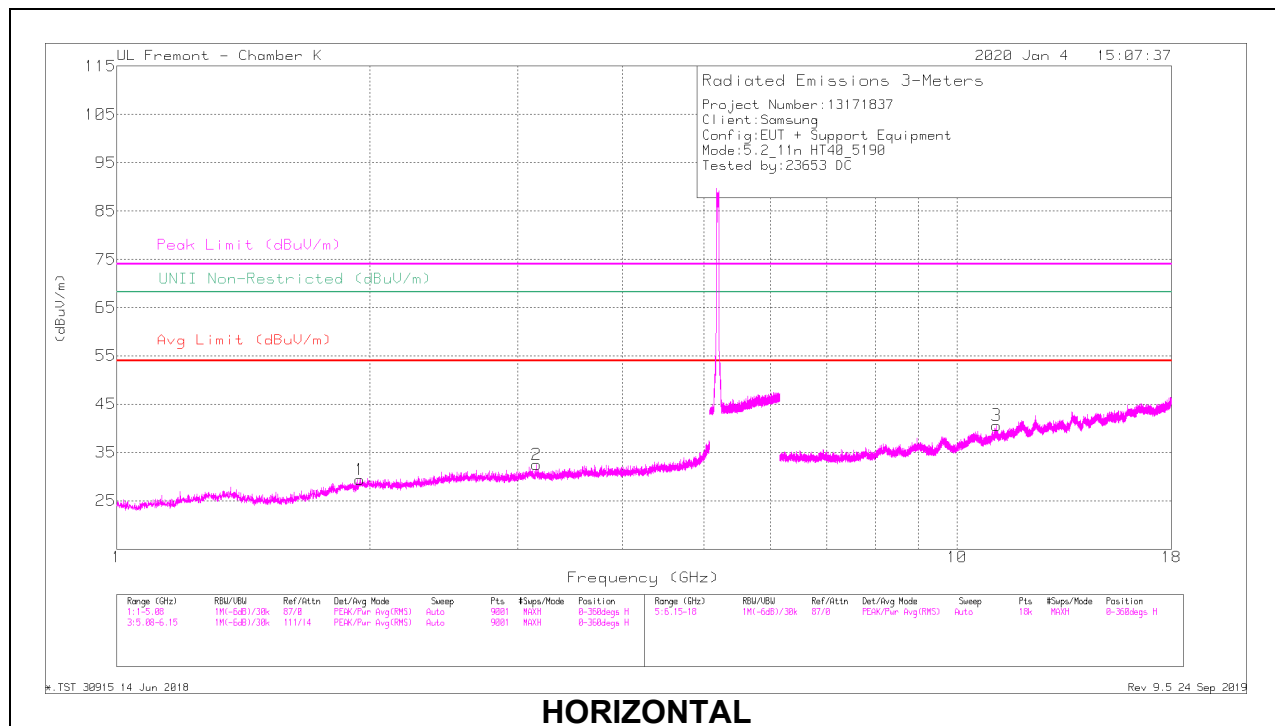
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*5.15	39.36	Pk	34.4	-17	0	56.76	-	-	74	-17.24	290	110	V
2	*5.13971	42.58	Pk	34.5	-17.1	0	59.98	-	-	74	-14.02	290	110	V
3	*5.15	27.85	RMS	34.4	-17	.61	45.86	54	-8.14	-	-	290	110	V
4	*5.14724	29.13	RMS	34.3	-17.1	.61	46.94	54	-7.06	-	-	290	110	V

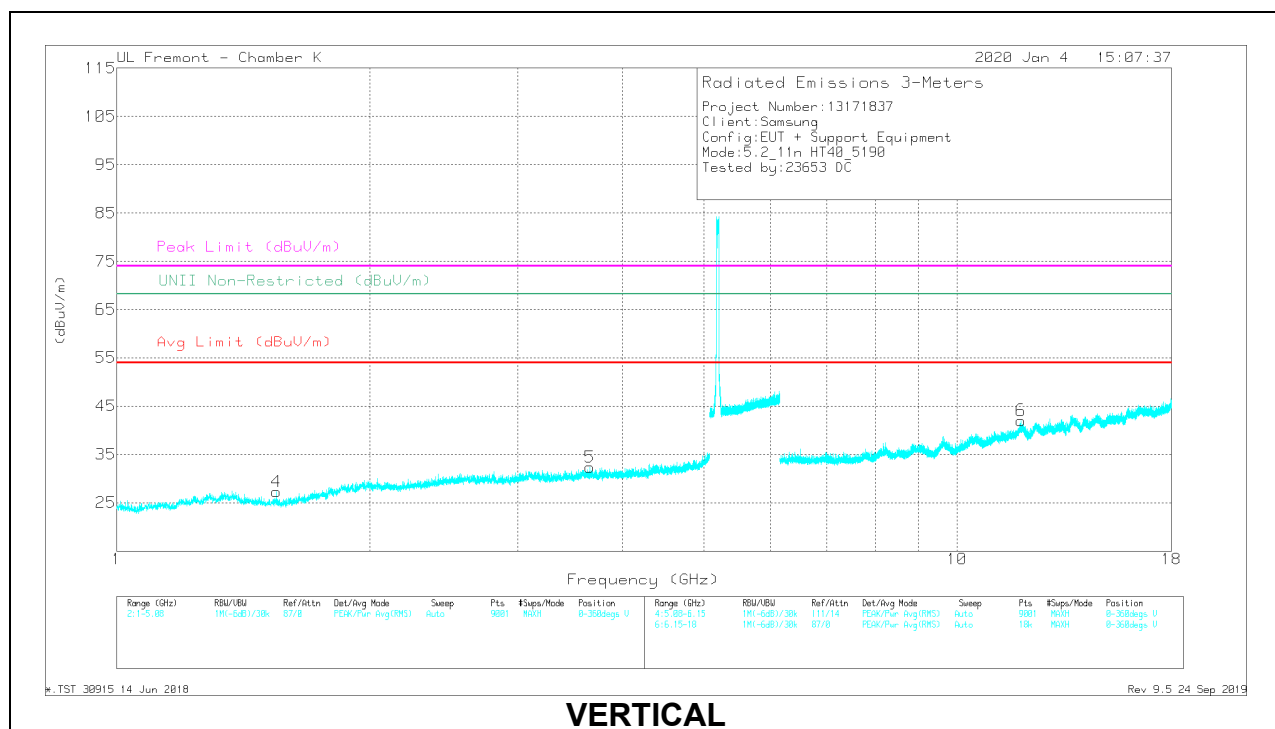
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

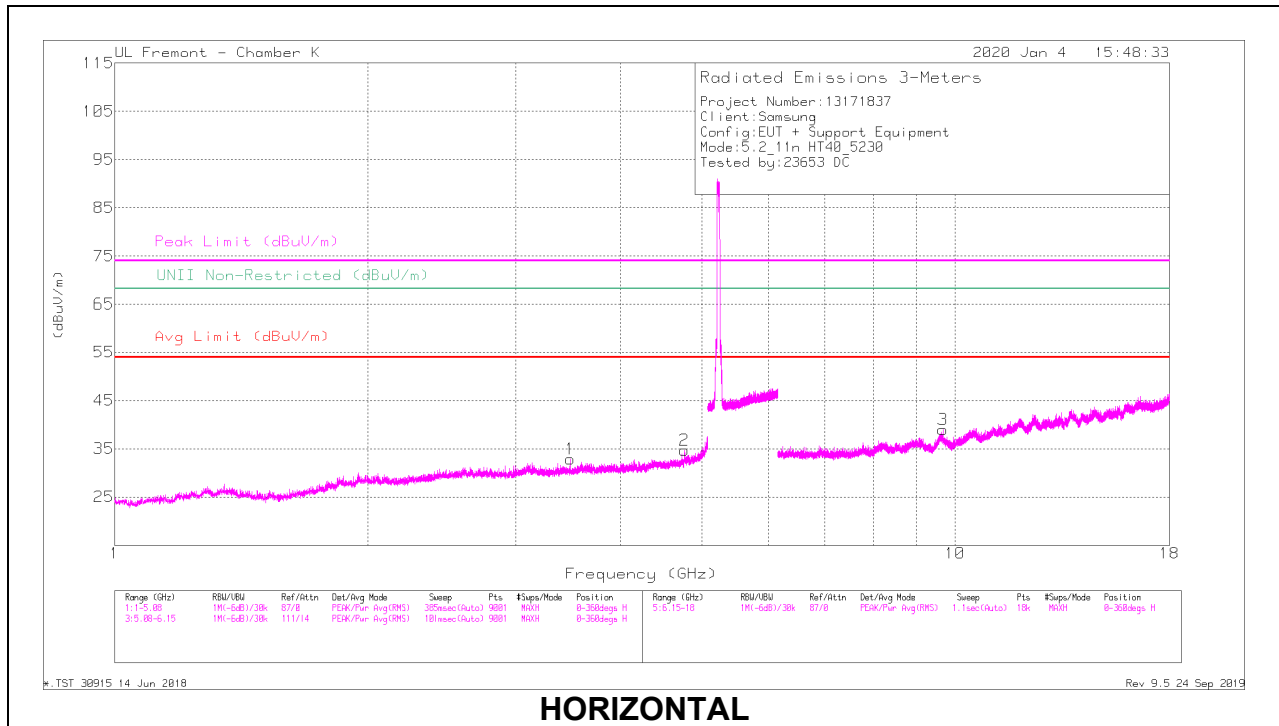
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF EMC4294 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.94571	42.09	PK-U	31.3	-35.2	0	38.19	-	-	-	-	68.2	-30.01	119	326	H
2	3.16099	39.61	PK-U	32.8	-33.4	0	39.01	-	-	-	-	68.2	-29.19	8	386	H
4	* 1.54838	40.83	PK-U	28.2	-35.2	0	33.83	-	-	74	-40.17	-	-	74	164	V
	* 1.54932	30.39	ADR	28.2	-35.2	.61	24	54	-30	-	-	-	-	74	164	V
5	* 3.65457	39.69	PK-U	33	-32.4	0	40.29	-	-	74	-33.71	-	-	51	165	V
	* 3.65389	28.43	ADR	33	-32.4	.61	29.64	54	-24.36	-	-	-	-	51	165	V
3	* 11.13914	30.28	PK-U	38	-21.4	0	46.88	-	-	74	-27.12	-	-	9	179	H
	* 11.13639	19.98	ADR	38	-21.4	.61	37.19	54	-16.81	-	-	-	-	9	179	H
6	* 11.91921	32.2	PK-U	38.8	-20.3	0	50.7	-	-	74	-23.3	-	-	195	309	V
	* 11.91879	22.83	ADR	38.8	-20.3	.61	41.94	54	-12.06	-	-	-	-	195	309	V

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

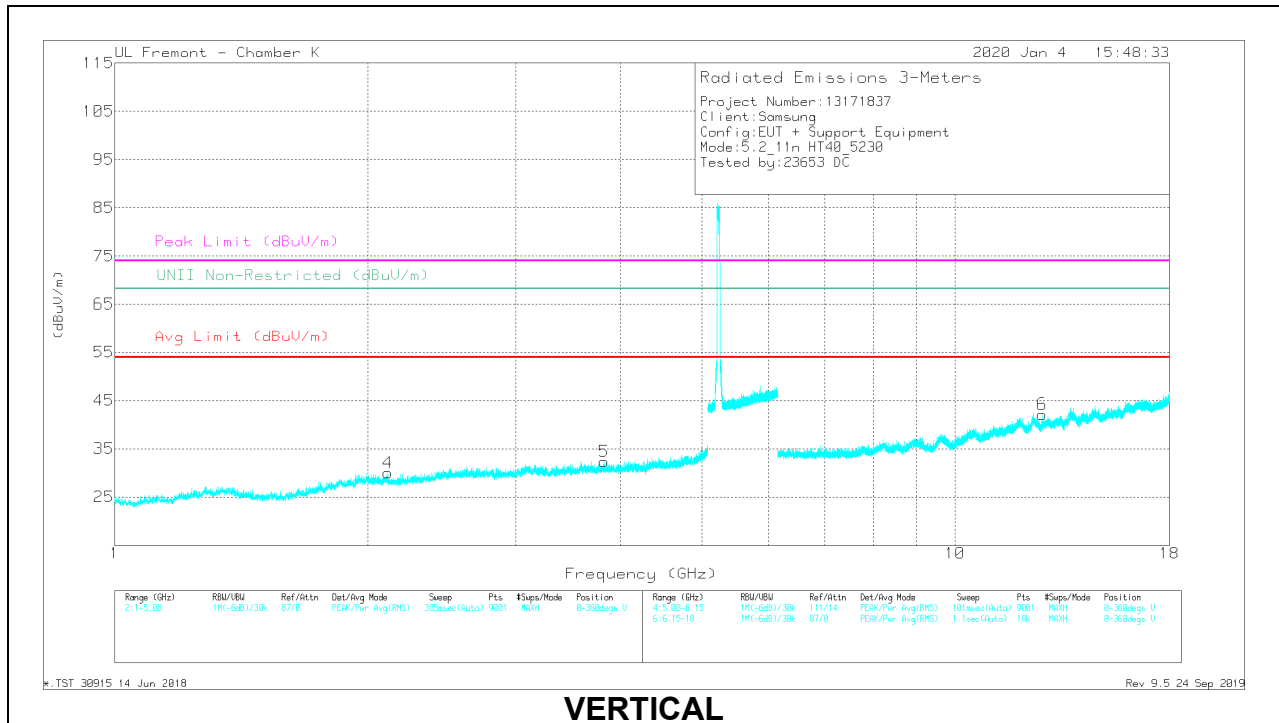
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF EMC4294 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.48649	38.89	PK-U	33.1	-32.6	0	39.39	-	-	-	-	68.2	-28.81	219	183	H
2	* 4.76682	38.63	PK-U	34	-30.1	0	42.53	-	-	74	-31.47	-	-	167	110	H
	* 4.76617	28.32	ADR	34	-30.1	.61	32.83	54	-21.17	-	-	-	-	167	110	H
4	2.11524	40.87	PK-U	31.3	-35.1	0	37.07	-	-	-	-	68.2	-31.13	344	258	V
5	* 3.82546	37.38	PK-U	33.4	-31.6	0	39.18	-	-	74	-34.82	-	-	43	240	V
	* 3.82278	27.99	ADR	33.4	-31.7	.61	30.3	54	-23.7	-	-	-	-	43	240	V
3	9.6735	31.55	PK-U	37.1	-23.6	0	45.05	-	-	-	-	68.2	-23.15	278	223	H
6	* 12.69952	29.33	PK-U	39.1	-20.3	0	48.13	-	-	74	-25.87	-	-	123	291	V
	* 12.69913	19.32	ADR	39.1	-20.3	.61	38.73	54	-15.27	-	-	-	-	123	291	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