TEST REPORT

Report Number: 13571607-E5V2

Applicant : APPLE INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A.

Model : A2482 (Parent Model, FULL Test)
A2631, A2633, A2634, A2635 (Variant Models)

Brand : APPLE

FCC ID : BCG-E3997A (Parent Model)
BCG-E3999A, BCG-E4031A, BCG-E4032A (Variant Models)

,

EUT Description : SMARTPHONE

Test Standard(s) : FCC 47 CFR PART 15 SUBPART E

Date Of Issue:
July 20, 2021

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

ACCREDITED
CERT #0751.05

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	7/13/2021	Initial Issue	Frank Ibrahim
V2	7/20/2021	Address TCB's Question on page 164 and section 9.4	Chin Pang

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

TABLE OF CONTENTS

REPORT REVISION HISTORY **2**

TABLE OF CONTENTS **3**

1. ATTESTATION OF TEST RESULTS **5**

2. TEST RESULT SUMMARY **7**

3. TEST METHODOLOGY **7**

4. FACILITIES AND ACCREDITATION **7**

5. DECISION RULES AND MEASUREMENT UNCERTAINTY **8**

5.1. METROLOGICAL TRACEABILITY *8*

5.2. DECISION RULES *8*

5.3. MEASUREMENT UNCERTAINTY *8*

5.4. SAMPLE CALCULATION *8*

6. EQUIPMENT UNDER TEST **9**

6.1. EUT DESCRIPTION *9*

6.2. MAXIMUM OUTPUT POWER *10*

6.3. DESCRIPTION OF AVAILABLE ANTENNAS *14*

6.4. SOFTWARE AND FIRMWARE *14*

6.5. WORST-CASE CONFIGURATION AND MODE *15*

6.6. DESCRIPTION OF TEST SETUP *16*

7. MEASUREMENT METHOD **21**

8. TEST AND MEASUREMENT EQUIPMENT **22**

9. ANTENNA PORT TEST RESULTS **24**

9.1. ON TIME AND DUTY CYCLE *24*

9.2. 26 dB and 99% BANDWIDTH *29*

9.2.1. 802.11n HT20 MODE IN THE 5.2 GHz BAND 29
9.2.2. 802.11n HT40 MODE IN THE 5.2 GHz BAND 31
9.2.3. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND 33
9.2.4. 802.11ax HE20 MODE IN THE 5.2 GHz BAND 35
9.2.5. 802.11ax HE40 MODE IN THE 5.2 GHz BAND 41
9.2.6. 802.11ax HE80 MODE IN THE 5.2 GHz BAND 47
9.2.7. 802.11n HT20 MODE IN THE 5.3 GHz BAND 53
9.2.8. 802.11n HT40 MODE IN THE 5.3 GHz BAND 55
9.2.9. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND 57
9.2.10. 802.11ax HE20 MODE IN THE 5.3 GHz BAND 59
9.2.11. 802.11ax HE40 MODE IN THE 5.3 GHz BAND 65
9.2.12. 802.11ax HE80 MODE IN THE 5.3 GHz BAND 71

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.13. 802.11n HT20 MODE IN THE 5.6 GHz BAND 77
9.2.14. 802.11n HT40 MODE IN THE 5.6 GHz BAND 80
9.2.15. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND 83
9.2.16. 802.11ax HE20 MODE IN THE 5.6 GHz BAND 85
9.2.17. 802.11ax HE40 MODE IN THE 5.6 GHz BAND 94
9.2.18. 802.11ax HE80 MODE IN THE 5.6 GHz BAND 103
9.2.19. 802.11n HT20 MODE IN THE 5.8 GHz BAND 109
9.2.20. 802.11n HT40 MODE IN THE 5.8 GHz BAND 111
9.2.21. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND 113
9.2.22. 802.11ax HE20 MODE IN THE 5.8 GHz BAND 115
9.2.23. 802.11ax HE40 MODE IN THE 5.8 GHz BAND 121
9.2.24. 802.11ax HE80 MODE IN THE 5.8 GHz BAND 127

9.3. 6 dB BANDWIDTH 133
9.3.1. 802.11n HT20 MODE IN THE 5.8 GHz BAND 134
9.3.2. 802.11n HT40 MODE IN THE 5.8 GHz BAND 136
9.3.3. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND 138
9.3.4. 802.11ax HE20 MODE IN THE 5.8 GHz BAND 140
9.3.5. 802.11ax HE40 MODE IN THE 5.8 GHz BAND 146
9.3.6. 802.11ax HE80 MODE IN THE 5.8 GHz BAND 152

9.4. OUTPUT POWER AND PSD 158
9.4.1. 802.11n HT20 MODE IN THE 5.2 GHz BAND 160
9.4.2. 802.11n HT40 MODE IN THE 5.2 GHz BAND 163
9.4.3. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND 166
9.4.4. 802.11ax HE20 MODE IN THE 5.2 GHz BAND 169
9.4.5. 802.11ax HE40 MODE IN THE 5.2 GHz BAND 181
9.4.6. 802.11ax HE80 MODE IN THE 5.2 GHz BAND 193
9.4.7. 802.11n HT20 MODE IN THE 5.3 GHz BAND 205
9.4.8. 802.11n HT40 MODE IN THE 5.3 GHz BAND 208
9.4.9. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND 211
9.4.10. 802.11ax HE20 MODE IN THE 5.3 GHz BAND 214
9.4.11. 802.11ax HE40 MODE IN THE 5.3 GHz BAND 226
9.4.12. 802.11ax HE80 MODE IN THE 5.3 GHz BAND 238
9.4.13. 802.11n HT20 MODE IN THE 5.6 GHz BAND 250
9.4.14. 802.11n HT40 MODE IN THE 5.6 GHz BAND 253
9.4.15. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND 256
9.4.16. 802.11ax HE20 MODE IN THE 5.6 GHz BAND 259
9.4.17. 802.11ax HE40 MODE IN THE 5.6 GHz BAND 271
9.4.18. 802.11ax HE80 MODE IN THE 5.6 GHz BAND 283
9.4.19. 802.11n HT20 MODE IN THE 5.8 GHz BAND 295
9.4.20. 802.11n HT40 MODE IN THE 5.8 GHz BAND 298
9.4.21. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND 301
9.4.22. 802.11ax HE20 MODE IN THE 5.8 GHz BAND 304
9.4.23. 802.11ax HE40 MODE IN THE 5.8 GHz BAND 316
9.4.24. 802.11ax HE80 MODE IN THE 5.8 GHz BAND 328

10. SETUP PHOTOS 340

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A.

EUT DESCRIPTION: SMARTPHONE

MODEL: A2482 (Parent Model, FULL Test)
A2635, A2631, A2633, A2634 (Variant Models)

BRAND: APPLE

FCC ID: BCG-E3997A (Parent Model)
BCG-E4032A, BCG-E3999A, BCG-E4031A (Variant Models)

SERIAL NUMBER: G6TDQ0AG0XGQ, L1P40M49QC, CQF9R4NQNJ

SAMPLE RECEIPT DATE: 1/28/2021, 1/22/2021

DATE TESTED: JANUARY 29, 2021 – JULY 23, 2021

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E	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 A2LA, NIST, any agency of the Federal Government, or any agency of the U.S. government.

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Approved & Released For
UL Verification Services Inc. By:

Frank Ibrahim
Staff Engineer
Consumer Technology Division
UL Verification Services Inc.

Prepared By:

Chris Xiong
Test Engineer
Consumer Technology Division
UL Verification Services Inc.

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2. TEST RESULT SUMMARY

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for the validity of results after the integration of the data provided by the customer.

FCC Clause	Requirement	Result	Comment
See Comment	Duty Cycle	Reporting purposes only	Per ANSI C63.10, Section 12.2.
See Comment	26dB BW 99% OBW	Reporting purposes only	Per ANSI C63.10 Sections 6.9.2 and 6.9.3
15.407 (e)	6 dB BW	Complies	None.
15.407 (a) (1-4), (h) (1)	Output Power	Complies	None.
15.407 (a) (1-3, 5)	PSD	Complies	None.
15.209, 15.205, 15.407 (b)	Radiated Emissions	Complies	None.
15.207	AC Mains Conducted Emissions	Complies	None.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with:

- FCC CFR 47 Part 2
- FCC CFR 47 Part 15
- FCC KDB 662911 D01 v02r01
- FCC KDB 789033 D02 v02r01
- ANSI C63.10-2013
- KDB 414788 D01 Radiated Test Site v01r01

4. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, certification #0751.05, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
☒	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	208313
☒	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA	US0104	22541	208313
☒	Building 4: 47658 Kato Rd, Fremont, CA 94538, USA	US0104	2324B	208313

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	U_{Lab}
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 dB

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

5.4. 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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The Apple iPhone is a smartphone with multimedia functions (music, application support, and video), cellular GSM, GPRS, EGPRS, UMTS, LTE, 5G, CDMA, IEEE 802.11a/b/g/n/ac/ax, Bluetooth, Ultra-Wideband, GPS and NFC. All models support at least one UICC based SIM. The second SIM is either an UICC based p-SIM (physical SIM) or e-SIM (electronic SIM). The device supports a built-in inductive charging transmitter and receiver. The rechargeable battery is not user accessible.

Testing was performed on the parent model and is used to support the application for the parent and variants identified in this report based on the test plan submitted and approved via KDB inquiry by the FCC and by ISED-Canada.

The Models and FCC IDs covered by this report include:

Parent Model:
A2482; FCC ID: BCG-E3997A

Variant Models:
A2635; FCC ID: BCG-E4032A
A2631; FCC ID: BCG-E3999A
A2633; FCC ID: BCG-E4031A
A2634; FCC ID: BCG-E4032A

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

5.2 GHz BAND (FCC)

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.2 GHz band, 1TX			
5180-5240	802.11a	Covered by 802.11n HT20 1TX	
5180-5240	802.11n HT20	19.74	94.19
5190-5230	802.11n HT40	20.23	105.44
5180-5240	802.11ac VHT20	Covered by 802.11n HT20 1TX	
5190-5230	802.11ac VHT40	Covered by 802.11n HT40 1TX	
5210	802.11ac VHT80	17.25	53.09
5180-5240	802.11ax HE20	19.73	93.97
5190-5230	802.11ax HE40	20.22	105.20
5210	802.11ax HE80	16.22	41.88
5.2 GHz band, 2TX			
5180-5240	802.11n HT20 CDD	19.73	93.97
5180-5240	802.11n HT20 SDM/STBC	Covered by 802.11n HT20 2TX CDD	
5190-5230	802.11n HT40 CDD	22.23	167.11
5190-5230	802.11n HT40 SDM/STBC	Covered by 802.11n HT40 2TX CDD	
5180-5240	802.11ac VHT20 SDM/STBC/CDD	Covered by 802.11n HT20 2TX CDD	
5190-5230	802.11ac VHT40 SDM/STBC/CDD	Covered by 802.11n HT40 2TX CDD	
5210	802.11ac VHT80 CDD	19.22	83.56
5210	802.11ac VHT80 SDM/STBC	Covered by 802.11ac VHT80 2TX CDD	
5180-5240	802.11ax HE20 OFDMA	19.74	94.19
5190-5230	802.11ax HE40 OFDMA	22.23	167.11
5210	802.11ax HE80 OFDMA	18.74	74.82

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

5.3 GHz BAND (FCC)

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.3 GHz band, 1TX			
5260 - 5320	802.11a	Covered by 802.11n HT20 1TX	
5260 - 5320	802.11n HT20	19.71	93.54
5270 - 5310	802.11n HT40	20.26	106.17
5260 - 5320	802.11ac VHT20	Covered by 802.11n HT20 1TX	
5270 - 5310	802.11ac VHT40	Covered by 802.11n HT40 1TX	
5290	802.11ac VHT80	15.74	37.50
5260 - 5320	802.11ax HE20	19.73	93.97
5270 - 5310	802.11ax HE40	20.22	105.20
5290	802.11ax HE80	15.21	33.19
5.3 GHz band, 2TX			
5260 - 5320	802.11n HT20 CDD	19.73	93.97
5260 - 5320	802.11n HT20 SDM/STBC	Covered by 802.11n HT40 2TX CDD	
5270 - 5310	802.11n HT40 CDD	22.23	167.11
5270 - 5310	802.11n HT40 SDM/STBC	Covered by 802.11n HT40 2TX CDD	
5260 - 5320	802.11ac VHT20 SDM/STBC/CDD	Covered by 802.11n HT20 2TX CDD	
5270 - 5310	802.11ac VHT40 SDM/STBC/CDD	Covered by 802.11n HT40 2TX CDD	
5290	802.11ac VHT80 CDD	18.21	66.22
5290	802.11ac VHT80 SDM/STBC	Covered by 802.11ac VHT80 2TX CDD	
5260 - 5320	802.11ax HE20 OFDMA	19.76	94.62
5270 - 5310	802.11ax HE40 OFDMA	22.22	166.72
5290	802.11ax HE80 OFDMA	17.22	52.72

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

5.6 GHz BAND (FCC)

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.6 GHz band, 1TX			
5500-5720	802.11a	Covered by 802.11n HT20 1TX	
5500-5720	802.11n HT20	19.73	93.97
5510-5710	802.11n HT40	20.23	105.44
5500-5720	802.11ac VHT20	Covered by 802.11n HT20 1TX	
5510-5710	802.11ac VHT40	Covered by 802.11n HT40 1TX	
5530-5690	802.11ac VHT80	20.24	105.68
5500-5720	802.11ax HE20	19.74	94.19
5510-5710	802.11ax HE40	20.25	105.93
5530-5690	802.11ax HE80	20.24	105.68
5.6 GHz band, 2TX			
5500-5720	802.11n HT20 CDD	19.80	95.50
5500-5720	802.11n HT20 SDM/STBC	Covered by 802.11n HT40 2TX CDD	
5510-5710	802.11n HT40 CDD	22.26	168.27
5510-5710	802.11n HT40 SDM/STBC	Covered by 802.11n HT40 2TX CDD	
5500-5720	802.11ac VHT20 SDM/STBC/CDD	Covered by 802.11n HT20 2TX CDD	
5510-5710	802.11ac VHT40 SDM/STBC/CDD	Covered by 802.11n HT40 2TX CDD	
5530-5690	802.11ac VHT80 CDD	22.75	188.36
5530-5690	802.11ac VHT80 SDM/STBC	Covered by 802.11ac VHT80 2TX CDD	
5500-5720	802.11ax HE20 OFDMA	19.71	93.54
5510-5710	802.11ax HE40 OFDMA	22.26	168.27
5530-5690	802.11ax HE80 OFDMA	22.75	188.36

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

5.8 GHz BAND (FCC)

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.8 GHz band, 1TX			
5745-5825	802.11a	Covered by 802.11n HT20 1TX	
5745-5825	802.11n HT20	21.24	133.05
5755-5795	802.11n HT40	20.27	106.41
5745-5825	802.11ac VHT20	Covered by 802.11n HT20 1TX	
5755-5795	802.11ac VHT40	Covered by 802.11n HT40 1TX	
5775	802.11ac VHT80	20.21	104.95
5745-5825	802.11ax HE20	21.20	131.83
5755-5795	802.11ax HE40	20.27	106.41
5775	802.11ax HE80	20.24	105.68
5.8 GHz band, 2TX			
5745-5825	802.11n HT20 CDD	24.23	264.85
5745-5825	802.11n HT20 SDM/STBC	Covered by 802.11n HT40 2TX CDD	
5755-5795	802.11n HT40 CDD	23.24	210.86
5755-5795	802.11n HT40 SDM/STBC	Covered by 802.11n HT40 2TX CDD	
5745-5825	802.11ac VHT20 STM/STBC/CDD	Covered by 802.11n HT20 2TX CDD	
5755-5795	802.11ac VHT40 STM/STBC/CDD	Covered by 802.11n HT40 2TX CDD	
5775	802.11ac VHT80 CDD	23.21	209.41
5775	802.11ac VHT80 SDM/STBC	Covered by 802.11ac VHT80 2TX CDD	
5745-5825	802.11ax HE20 OFDMA	24.20	263.03
5755-5795	802.11ax HE40 OFDMA	23.28	212.81
5775	802.11ax HE80 OFDMA	23.20	208.93

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The antenna type is IFA.

The antennas' gains, as provided by the manufacturer, are as follow:

Frequency Range (GHz)	Antenna 6 (dBi)	Antenna 5 (dBi)
5150-5250	-3.1	-2.2
5250-5350	-2.3	-1.8
5500-5700	-2.7	-3.0
5725-5825	-2.9	-2.6

6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was WiFi FW Version: 20_10_745_15.

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

6.5. WORST-CASE CONFIGURATION AND MODE

The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z on ANT 6 and ANT 5. It was determined that Y (Landscape) orientation was the worst-case orientation for ANT 6 and 2TX and X (Flatbed) orientation was the worst case for ANT 5.

IEEE 802.11 ax modes were used to perform on radiated harmonic spurious final test to cover all modes since it has widest bandwidth modulation, highest power density and power tuned to maximum based on among all the modes. For testing purposes, radiated harmonics spurious below 1GHz, 1-18GHz L/M/H channels, 18-40GHz, and power line conducted emissions were performed with the EUT set at the 2TX CDD mode among the CDD/SDM modes with power setting equal or higher than FCC & IC conducted SISO modes as worst-case scenario.

For Radiated band edge test all test modes have been investigated with power setting equal or higher than FCC & IC conducted SISO modes as worst-case scenario.

Below 1GHz tests were performed with EUT connected to AC power adapter as the worst case; and for above 1GHz, the worst-case configuration reported was tested with EUT only. For AC line conducted emission, test was investigated with AC power adapter and with laptop. There were no emissions found below 30MHz within 20dB of the limit.

Simultaneous transmission with the Bluetooth was investigated, and no noticeable emission was found.

The output power and psd for the IEEE 802.11 ax mode were investigated between all different tones, and we found that SU mode had the highest output power and the lowest tone had the highest PSD readings. And after investigation, antenna port conducted tests were performed on both SU and lowest tones; radiated spurious emission and radiated band edge tests were performed on full RU and lowest tones.

Low data rate was used to test on antenna port conducted tests and radiated spurious emissions since it has the highest maximum power. For radiated bandedge, following are the worst-case data rates set for test:

802.11n HT20 mode: MCS7
802.11n HT40 mode: MCS7
802.11ac VHT80 mode: MCS9
802.11ax HE20/HE40/HE80 FULL Tones RU & 26 Tones RU: MCS11

There are two vendors of the WiFi/Bluetooth radio modules: Variant 1 and Variant 2. The WiFi/Bluetooth radio modules have the same mechanical outline (e.g., the same package dimension and pin-out layout), use the same on-board antenna matching circuit, have an identical antenna structure, and are built and tested to conform to the same specifications and to operate within the same tolerances. Baseline testing was performed on the two variants to determine the worst case on all conducted power and radiated emissions.

Baseline testing was performed on the two variants to determine the worst case on all conducted power and radiated emissions.

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

6.6. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT						
Description		**Manufacturer**	**Model**	**Serial Number**		**FCC ID/ DoC**
Laptop		Apple	Macbook Pro	C02YL3ZMJHC8		BCGA1989
Laptop AC/DC adapter		Liteon Technology	A1424	NSW25679		DoC
EUT AC/DC adapter		Apple	A1720	C3D8417A7R93KVPA8		DoC
I/O CABLES (RF CONDUCTED TEST)						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	1	AC	Un-shielded	2	N/A
2	USB	1	USB	Shielded	1.0	N/A
3	Antenna	1	SMA	Un-shielded	0.2	To spectrum Analyzer
I/O CABLES (RF RADIATED TEST)						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	1	AC	Un-shielded	2	N/A
2	USB	1	USB	Un-shielded	1	N/A

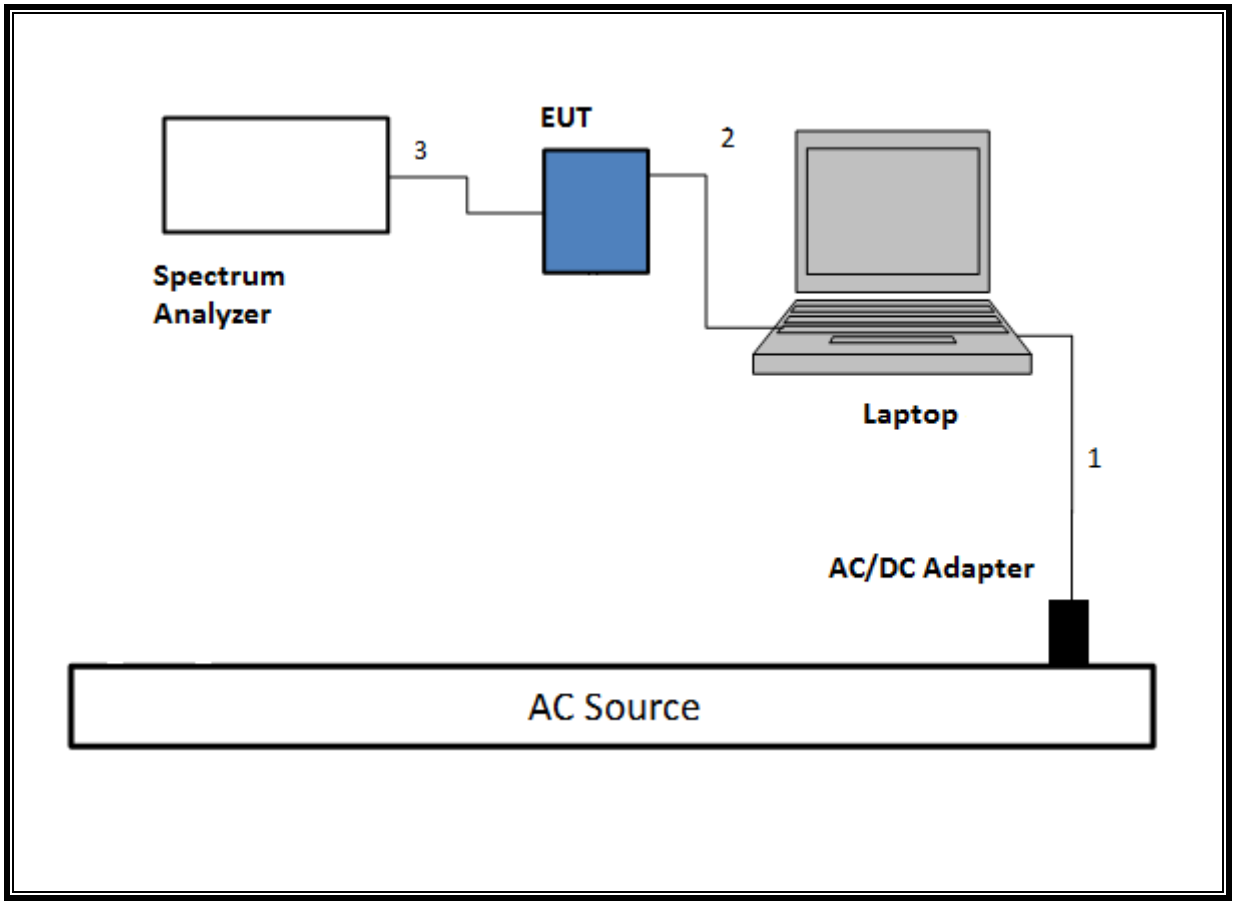
TEST SETUP

The EUT setup is shown as below. Test software exercised the radio card.

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

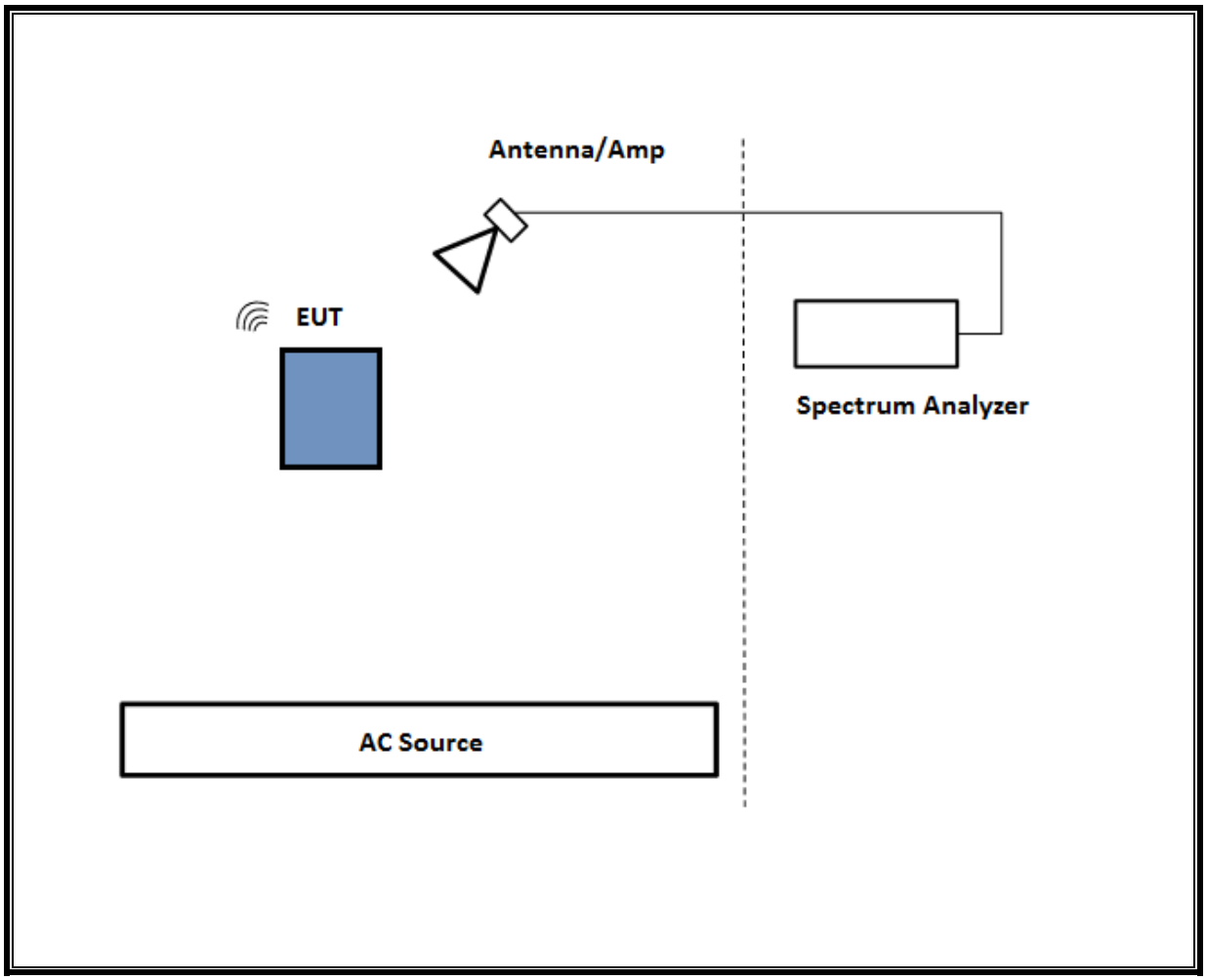
SETUP DIAGRAM FOR CONDUCTED TESTS



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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

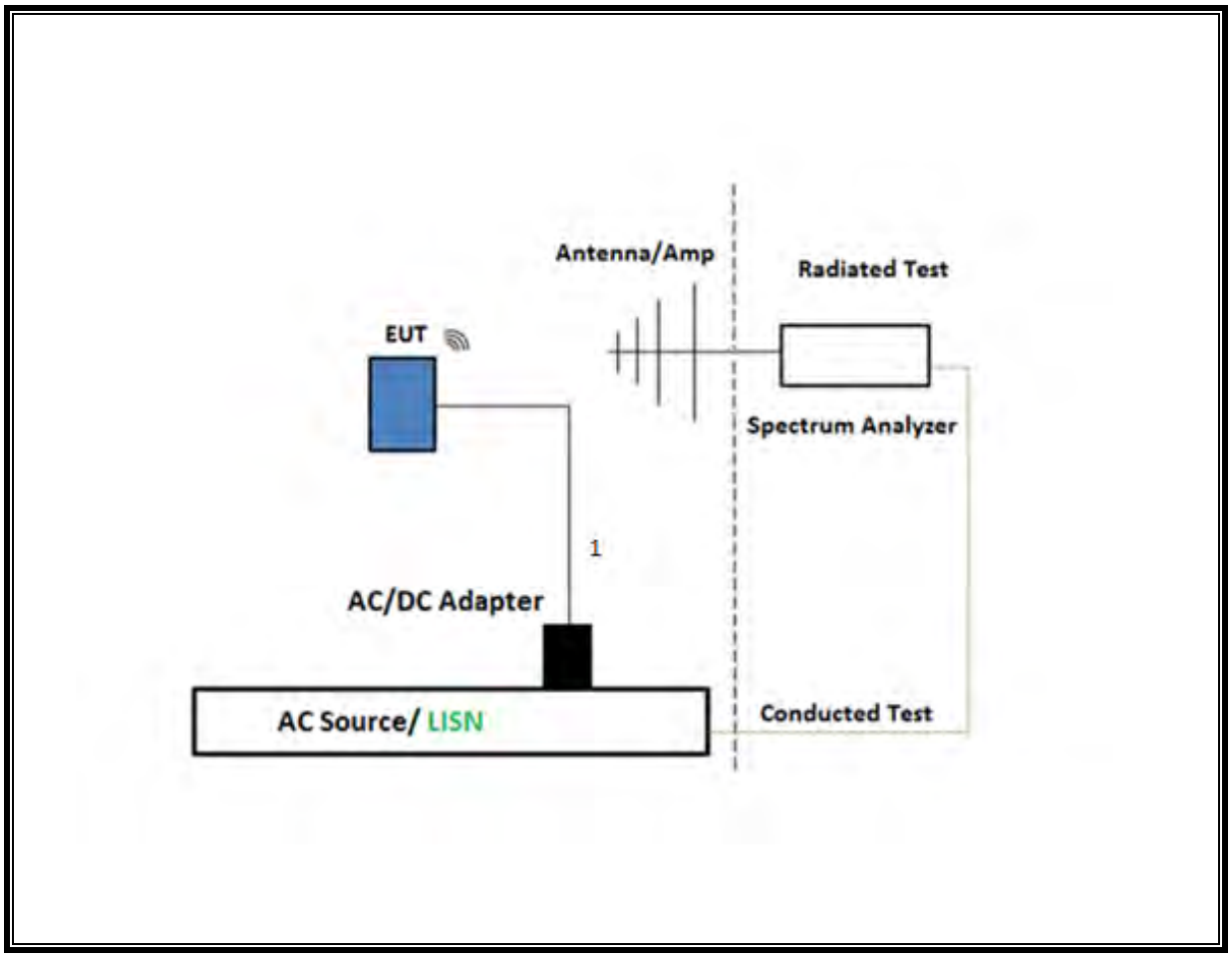
SETUP DIAGRAM FOR RADIATED TESTS ABOVE 1GHz



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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

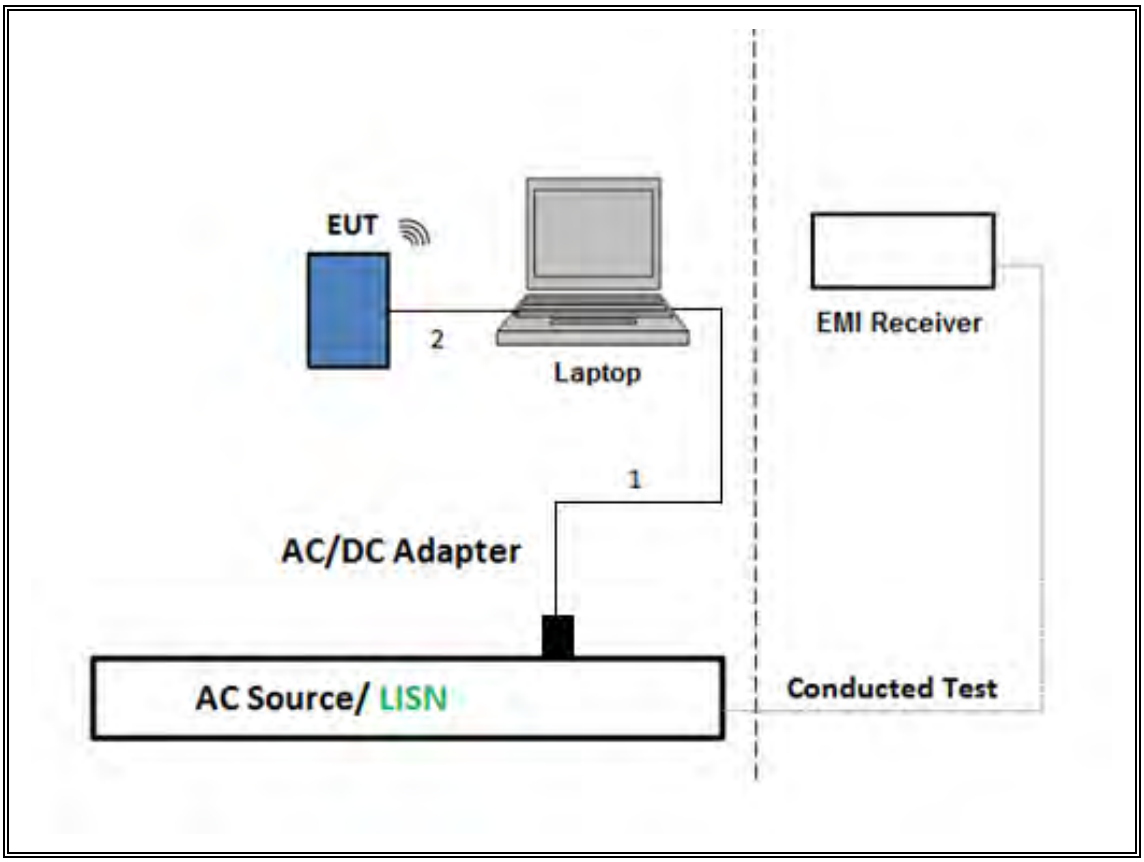
SETUP DIAGRAM FOR BELOW 1GHz and AC LINE CONDUCTED TEST



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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

TEST SETUP- AC LINE CONDUCTED: LAPTOP CONFIGURATION



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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

7. MEASUREMENT METHOD

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

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

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

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

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

Power Spectral Density: KDB 789033 D02 v02r01, Section F

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

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

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

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

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST					
Description	**Manufacturer**	**Model**	**ID Num**	**Cal Due**	**Last Cal**
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N90303A	T907	01/27/2022	01/27/2021
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T345	05/26/2022	05/26/2021
Amplifier, 1 to 18GHz	Miteq	AFS42-00101800-25-S-42	89431	08/10/2021	08/10/2020
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A	T917	01/27/2022	01/27/2021
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T711	03/01/2022	03/01/2021
RF Amplifier, 1-18GHz	UL	-	PRE0182865	03/30/2022	03/30/2021
EMI Test Receiver	Rohde & Schwarz	ESW44	PRE0179522	02/19/2022	02/19/2021
Antenna, Horn 1-18GHz	ETS Lindgren	3117	PRE0100034	09/15/2021	09/15/2020
RF Amplifier, 1-18GHz	UL	-	PRE0181597	08/20/2021	08/20/2020
EMI Test Receiver	Rohde & Schwarz	ESW44	201502	02/24/2022	02/24/2021
Antenna, Horn 1-18GHz	ETS Lindgren	3117	PRE0213971	09/25/2021	09/25/2020
RF Amplifier, 1-18GHz	UL	-	202843	12/03/2021	12/03/2020
EMI Test Receiver	Rohde & Schwarz	ESW44	201501	02/23/2022	02/23/2021
Antenna, Horn 1-18GHz	ETS Lindgren	3117	200785	09/25/2021	09/25/2020
RF Amplifier, 1-18GHz	UL	-	203372	12/09/2021	12/09/2020
EMI Test Receiver	Rohde & Schwarz	ESW44	201498	02/25/2022	02/25/2021
Antenna, Horn 1-18GHz	ETS Lindgren	3117	PRE0213831	12/03/2021	12/03/2020
RF Amplifier, 1-18GHz	UL	-	203957	01/02/2022	01/02/2021
EMI Test Receiver	Rohde & Schwarz	ESW44	201500	02/26/2022	02/26/2021
Antenna, Horn 1-18GHz	ETS Lindgren	3117	PRE0213973	02/16/2022	02/16/2021
RF Amplifier, 1-18GHz	UL	-	207182	03/14/2022	03/14/2021
Antenna, Hybrid 30-1000MHz	Sunar-Keysight	JB3	202329	10/27/2021	10/27/2020
RF Amplifier, 30-1000MHz	Sonoma Instrument	310N	202992	11/22/2021	11/22/2020
PXA Signal Analyzer	Agilent Technologies	N9030A	T906	01/27/2022	01/27/2021
Antenna, Loop 9kHz-30MHz	ETS Lindgren	6502	T757	11/12/2021	11/12/2020
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A	T341	01/28/2022	01/28/2021
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A	T146	01/25/2022	01/25/2021
Power Meter, P-series single channel	Keysight Technologies Inc	N1911A	T1271	01/20/2022	01/20/2021
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	90392	01/28/2022	01/28/2021
*Antenna Horn, 18 to 26GHz	ARA	SWH-28	T125	04/17/2021	04/17/2020
*Pre-Amp 18-26GHz	Agilent Technology	8449B	T404	04/08/2021	04/08/2020
Antenna, Horn 26.5GHz to 40GHz	ARA	MWH-2640/B	T446	09/24/2021	09/24/2020
*Amplifier, 26GHz to 40GHz	Miteq	TTA2640-35-HG	T1864	04/08/2021	04/08/2020

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

AC Line Conducted					
Description	**Manufacturer**	**Model**	**ID Num**	**Cal Due**	**Last Cal**
EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESR	T1436	02/19/2022	02/19/2021
Power Cable, Line Conducted Emissions	UL	PR1	T861	10/27/2021	10/27/2020
LISN for Conducted Emissions CISPR-16	FISCHER CUSTOM COMMUNICATIONS	FCC-LISN-50/250-25-2-01	PRE0186446	01/20/2022	01/20/2021
UL AUTOMATION SOFTWARE					
Radiated Software	UL	UL EMC	Ver 9.5, Mar 6, 2020		
Conducted Software	UL	UL EMC	2020.2.26		
AC Line Conducted Software	UL	UL EMC	Ver 9.5, February 21, 2020		

Note: *Testing is completed before equipment expiration date.

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

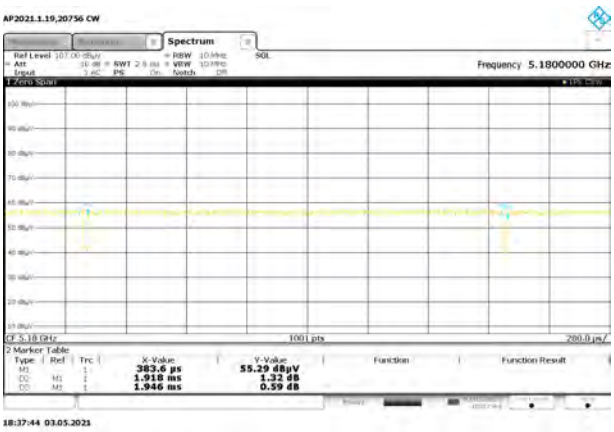
ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
5GHz Band						
802.11n HT20 1Tx MCS0	1.918	1.946	0.986	98.56%	0.00	0.010
802.11n HT20 1Tx MCS7	0.227	0.249	0.912	91.16%	0.40	4.405
802.11n HT20 CDD MCS0	0.983	1.006	0.977	97.69%	0.10	1.018
802.11n HT20 CDD MCS7	0.136	0.157	0.866	86.59%	0.63	7.375
802.11n HT40 1Tx MCS0	0.943	0.966	0.977	97.66%	0.10	1.060
802.11n HT40 1Tx MCS7	0.128	0.148	0.867	86.69%	0.62	7.805
802.11n HT40 CDD MCS0	0.496	0.517	0.959	95.90%	0.18	2.016
802.11n HT40 CDD MCS7	0.088	0.108	0.813	81.28%	0.90	11.426
802.11ac VHT80 1Tx MCS0	0.458	0.481	0.951	95.10%	0.22	2.186
802.11ac VHT80 1Tx MCS9	0.072	0.093	0.778	77.82%	1.09	13.887
802.11ac VHT80 CDD MCS0	0.254	0.278	0.914	91.44%	0.39	3.932
802.11ac VHT80 CDD MCS9	0.059	0.080	0.737	73.65%	1.33	16.938
802.11ax HE20 1Tx, MCS0	1.557	1.583	0.984	98.38%	0.00	0.010
802.11ax HE20 1Tx, MCS11	1.525	1.571	0.971	97.06%	0.13	0.656
802.11ax HE20 OFDMA, MCS0	1.560	1.583	0.985	98.52%	0.00	0.010
802.11ax HE20 OFDMA, MCS11	1.559	1.582	0.986	98.56%	0.00	0.010
802.11ax HE40 1Tx, MCS0	1.544	1.569	0.985	98.46%	0.00	0.010
802.11ax HE40 1Tx, MCS11	1.528	1.568	0.974	97.45%	0.11	0.655
802.11ax HE40 OFDMA, MCS0	1.544	1.567	0.985	98.48%	0.00	0.010
802.11ax HE40 OFDMA, MCS11	1.544	1.567	0.986	98.57%	0.00	0.010
802.11ax HE80 1Tx, MCS0	1.466	1.494	0.981	98.07%	0.00	0.010
802.11ax HE80 1Tx, MCS11	1.452	1.492	0.973	97.35%	0.12	0.689
802.11ax HE80 OFDMA, MCS0	1.472	1.499	0.982	98.20%	0.00	0.010
802.11ax HE80 OFDMA, MCS11	1.455	1.496	0.973	97.29%	0.12	0.687

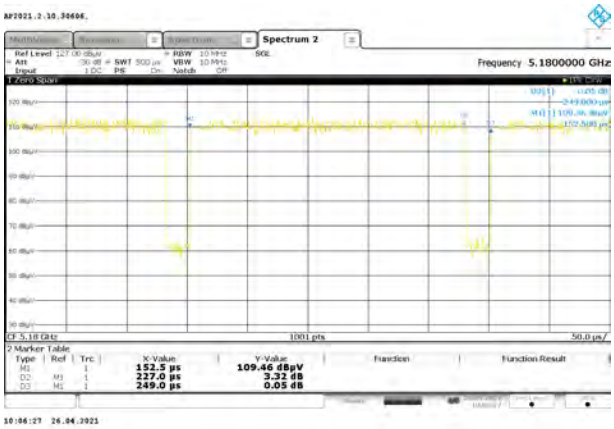
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

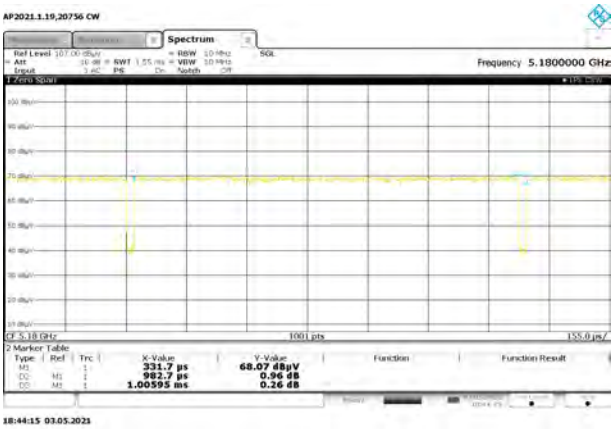
DUTY CYCLE PLOTS



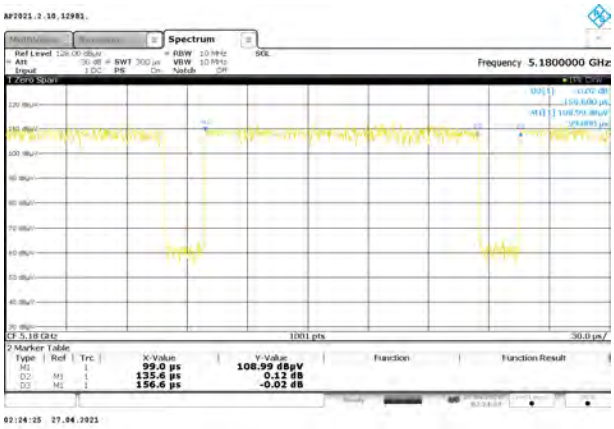
DUTY CYCLE 802.11n HT20 1TX MODE MCS0



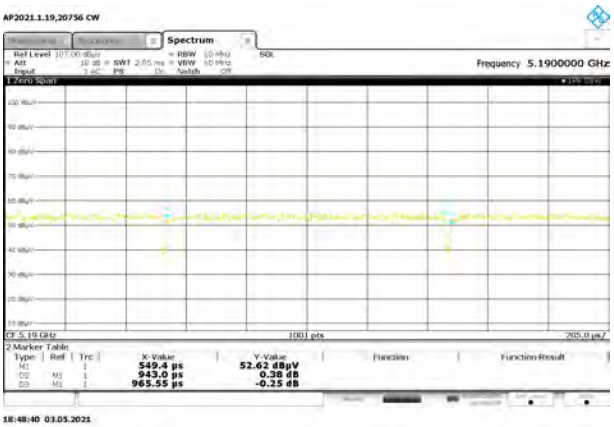
DUTY CYCLE 802.11n HT20 1TX MODE MCS7



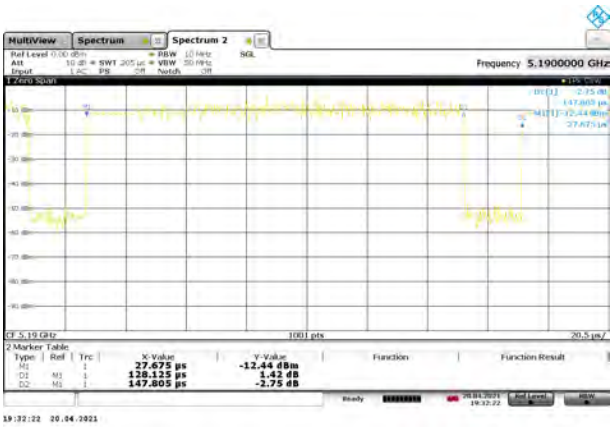
DUTY CYCLE 802.11n HT20 CDD MODE MCS0



DUTY CYCLE 802.11n HT20 CDD MODE MCS7



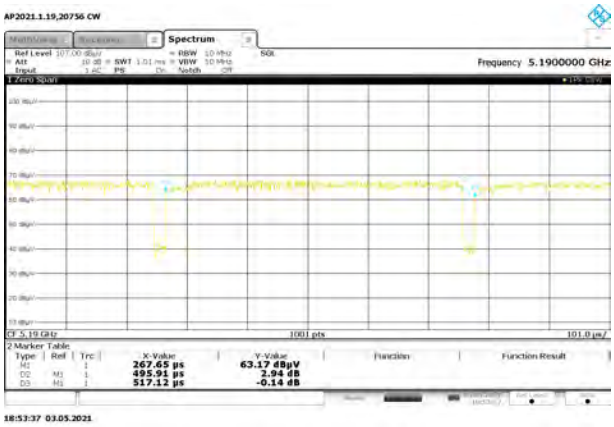
DUTY CYCLE 802.11n HT40 1TX MODE MCS0



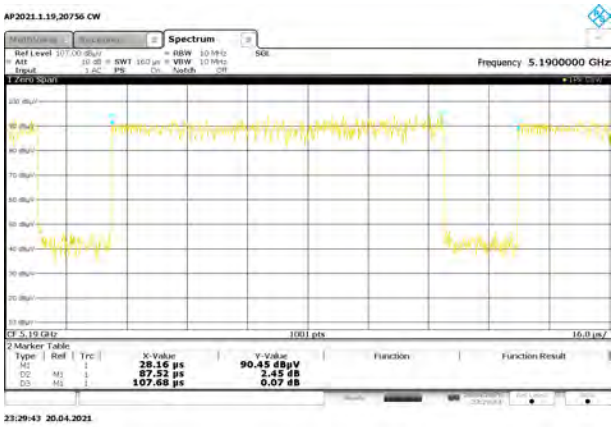
DUTY CYCLE 802.11n HT40 1TX MODE MCS7

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

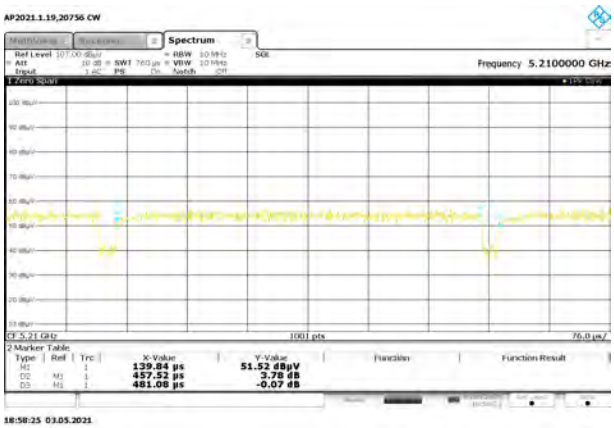
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.



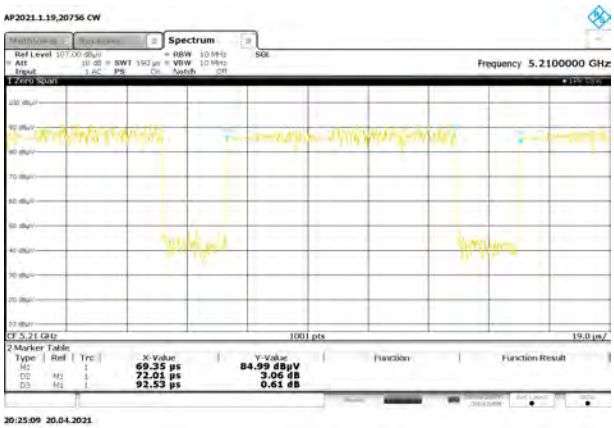
DUTY CYCLE 802.11n HT40 CDD MODE MCS0



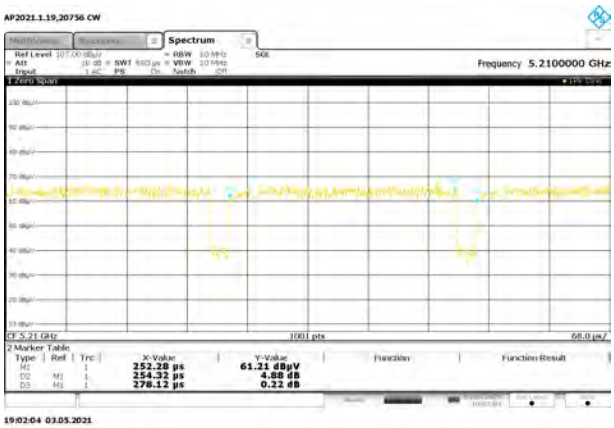
DUTY CYCLE 802.11n HT40 CDD MODE MCS7



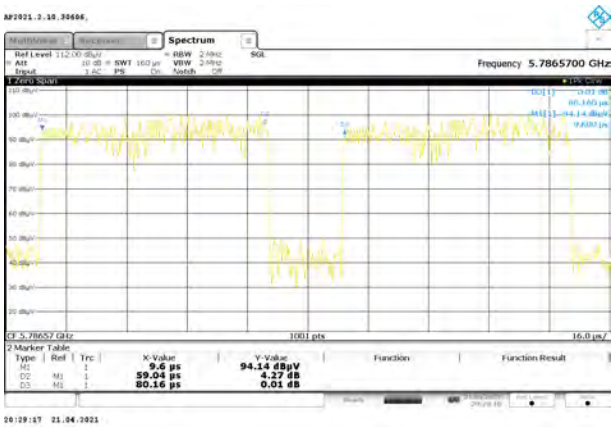
DUTY CYCLE 802.11ac VHT80 1TX MODE MCS0



DUTY CYCLE 802.11ac VHT80 1TX MODE MCS9



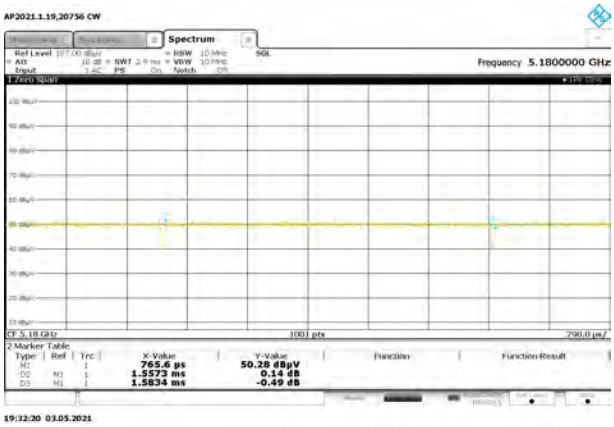
DUTY CYCLE 802.11ac VHT80 CDD MODE MCS0



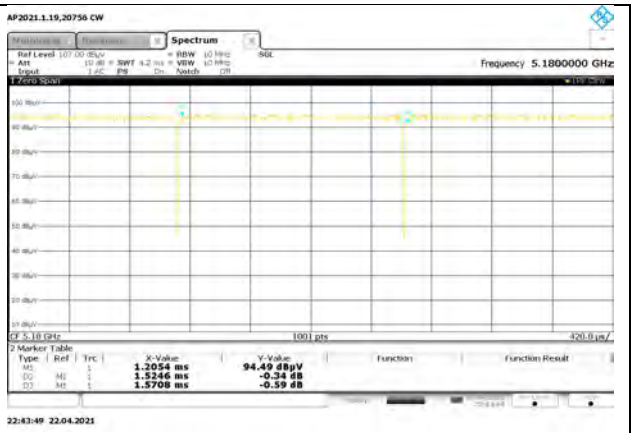
DUTY CYCLE 802.11ac VHT80 CDD MODE MCS9

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

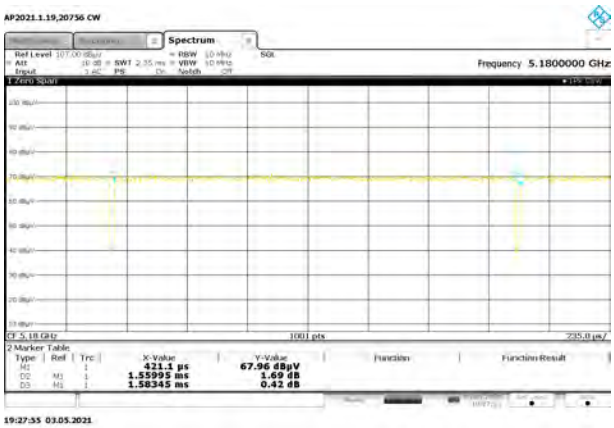
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.



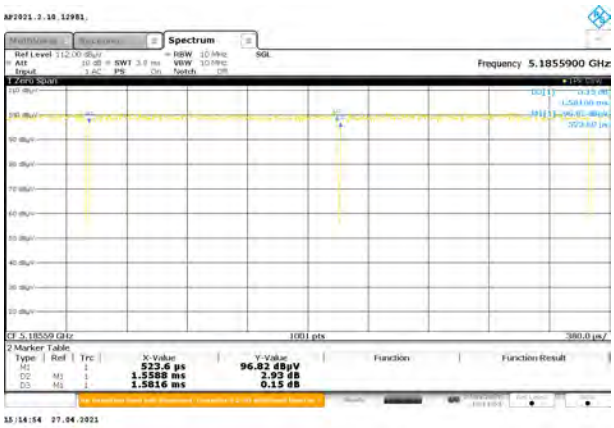
802.11ax HE20 1Tx, MCS0



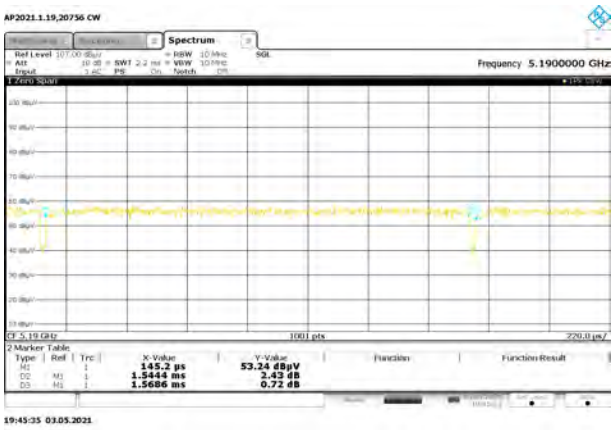
802.11ax HE20 1Tx, MCS11



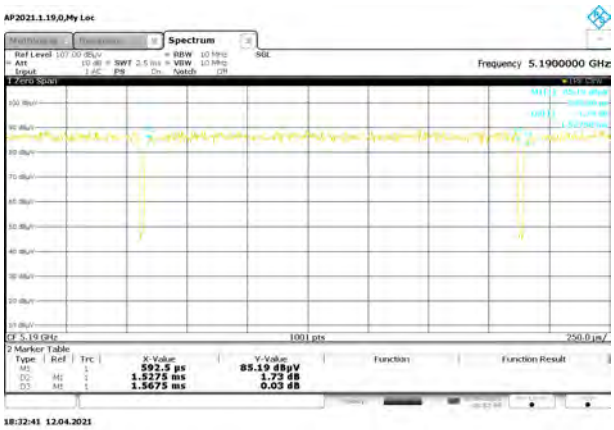
802.11ax HE20 OFDMA, MCS0



802.11ax HE20 OFDMA, MCS11



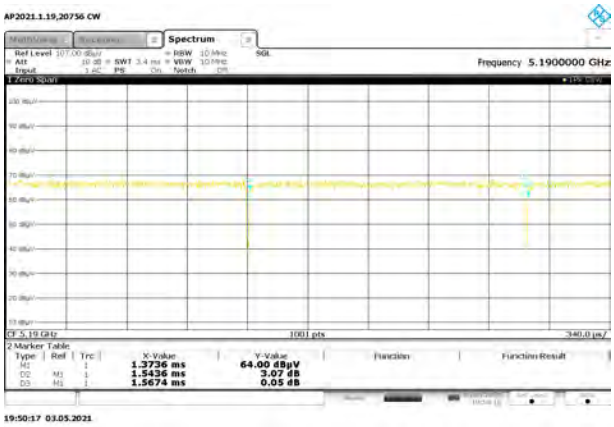
802.11ax HE40 1Tx, MCS0



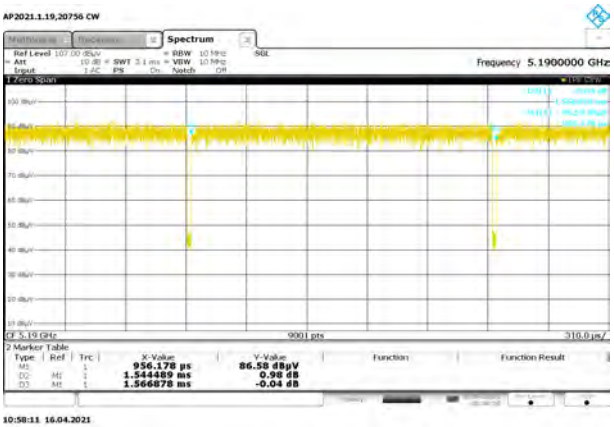
802.11ax HE40 1Tx, MCS11

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

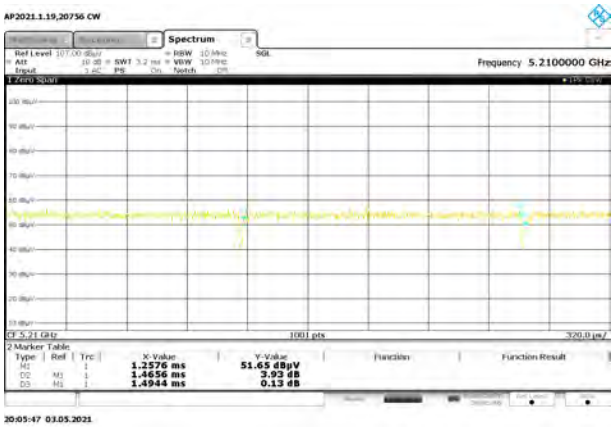
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.



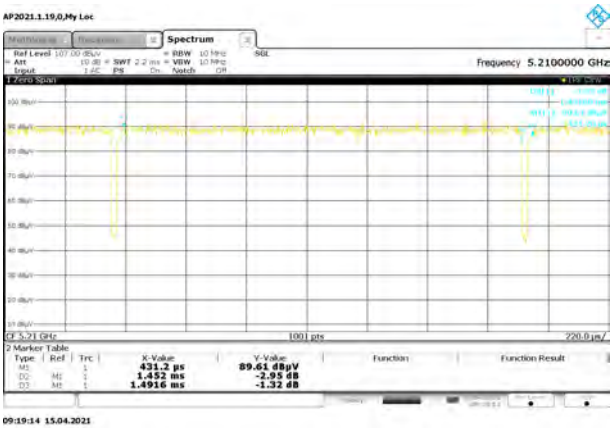
802.11ax HE40 OFDMA, MCS0



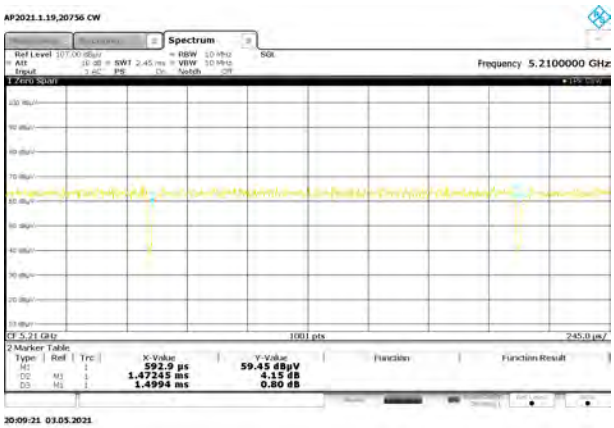
802.11ax HE40 OFDMA, MCS11



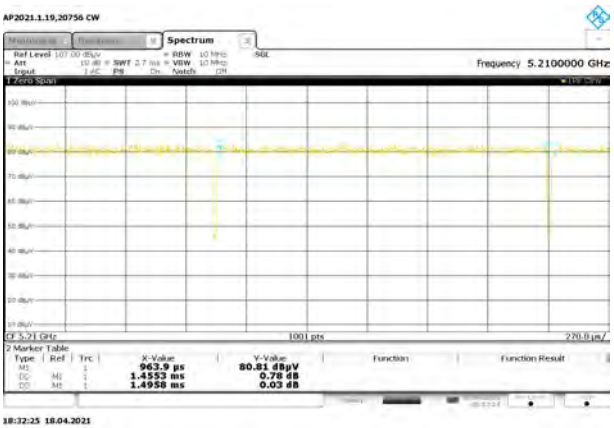
802.11ax HE80 1Tx, MCS0



802.11ax HE80 1Tx, MCS11



802.11ax HE80 OFDMA, MCS0



802.11ax HE80 OFDMA, MCS11

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2. 26 dB and 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

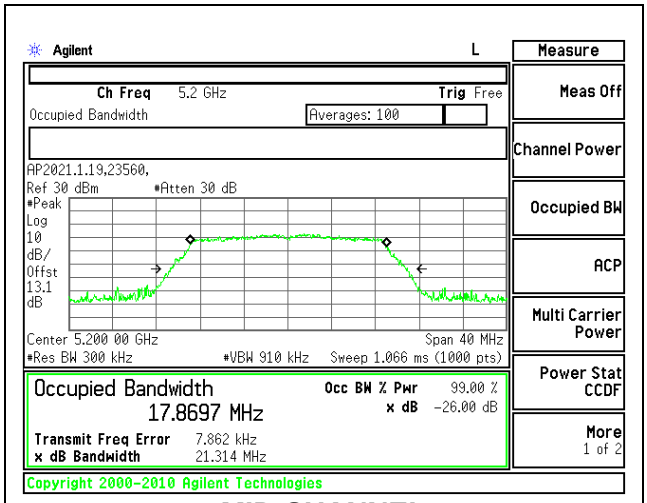
RESULTS

ID:	23560	Date:	1/29/21

9.2.1. 802.11n HT20 MODE IN THE 5.2 GHz BAND

1TX Antenna 6 MODE

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5180	21.348	17.8080
Mid	5200	21.314	17.8697
High	5240	21.345	17.8182



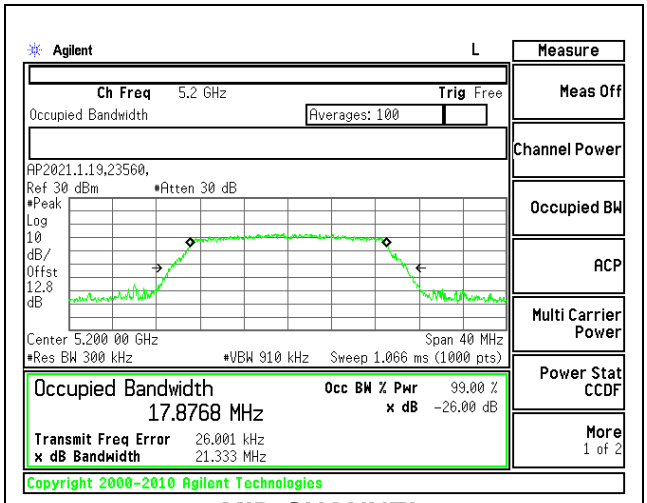
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE

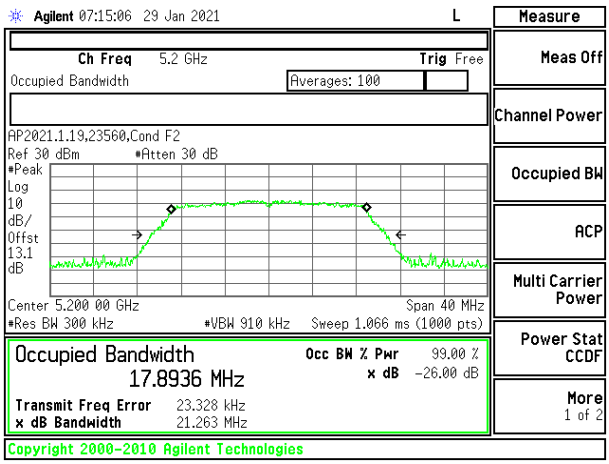
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5180	21.231	17.8743
Mid	5200	21.333	17.8768
High	5240	21.171	17.8457



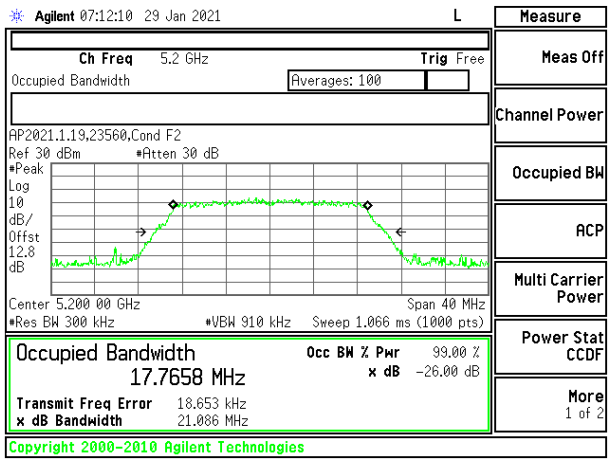
MID CHANNEL

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5180	21.341	21.187	17.8491	17.8085
Mid	5200	21.263	21.086	17.8936	17.7658
High	5240	21.236	21.139	17.8548	17.7609



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

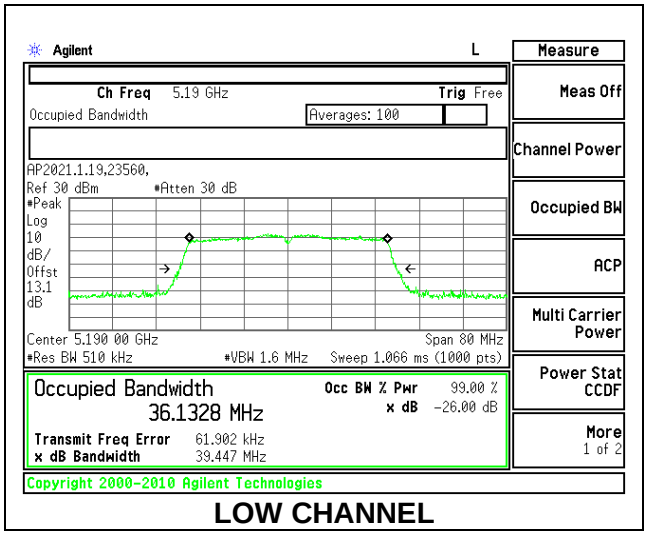
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.2. 802.11n HT40 MODE IN THE 5.2 GHz BAND

1TX Antenna 6 MODE

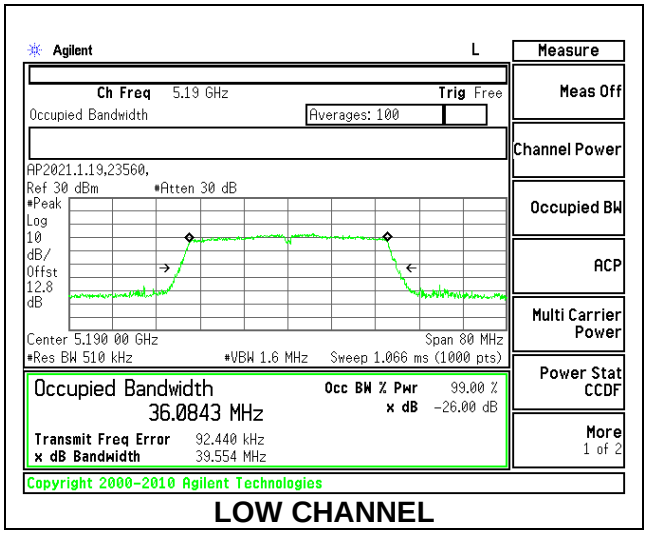
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5190	39.447	36.1328
High	5230	39.544	36.0828



LOW CHANNEL

1TX Antenna 5 MODE

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5190	39.554	36.0843
High	5230	39.448	36.0586



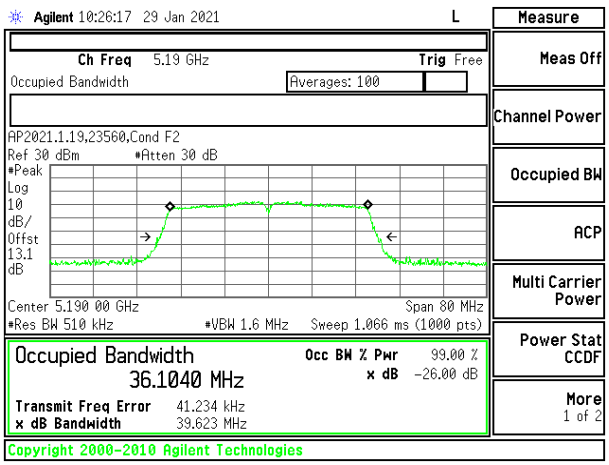
LOW CHANNEL

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

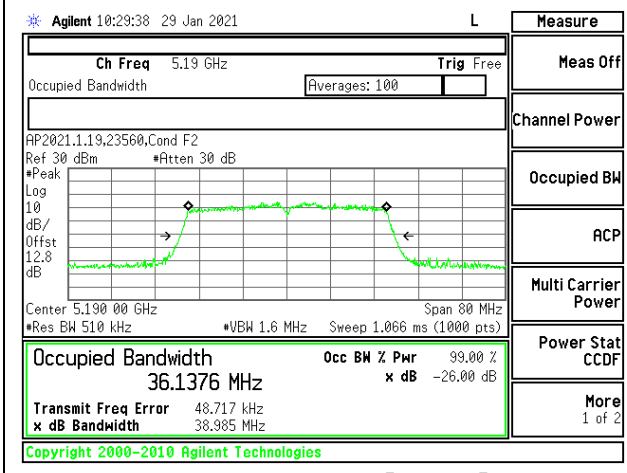
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5190	39.623	38.985	36.1040	36.1376
High	5230	39.573	39.032	36.1437	36.0853



LOW CHANNEL [ANT 6]



LOW CHANNEL [ANT 5]

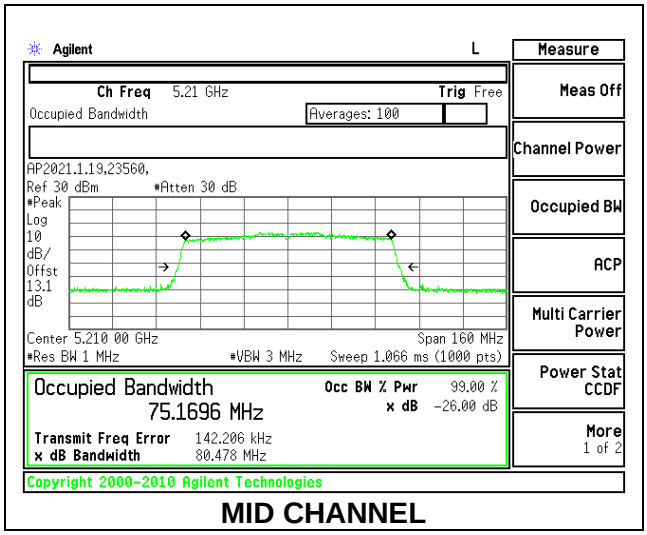
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.3. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

1TX Antenna 6 MODE

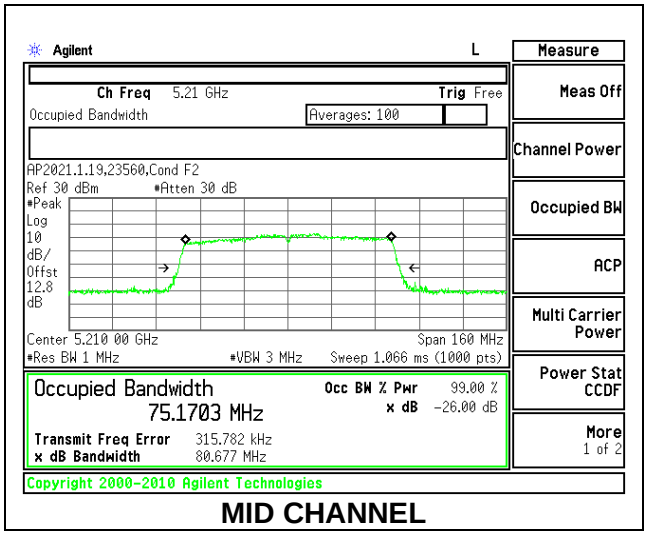
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5210	80.478	75.1696



MID CHANNEL

1TX Antenna 5 MODE

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5210	80.677	75.1703



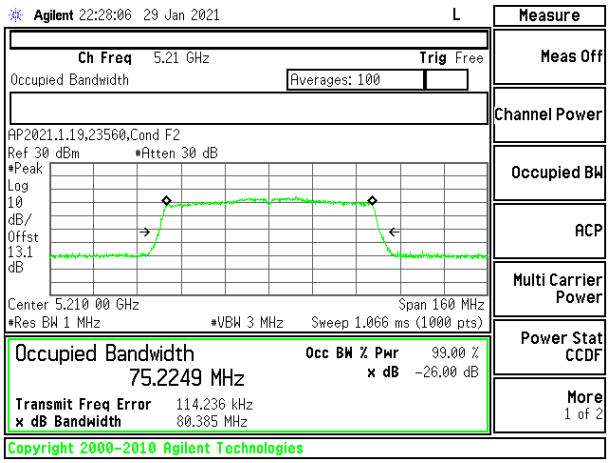
MID CHANNEL

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

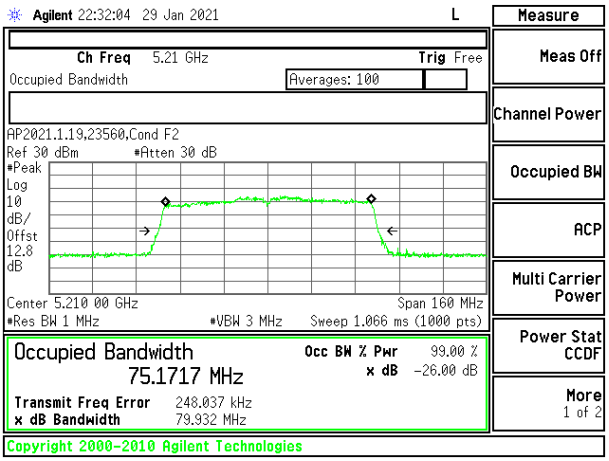
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Mid	5210	80.385	79.932	75.2249	75.1717



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

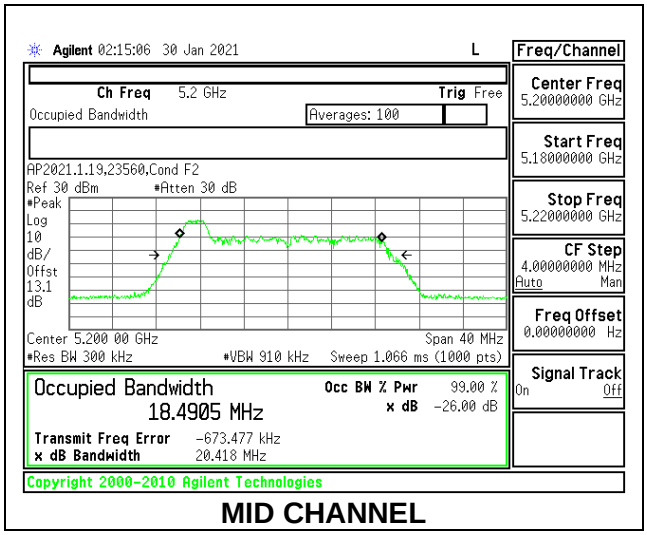
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.4. **802.11ax HE20 MODE IN THE 5.2 GHz BAND**

1TX Antenna 6 MODE: 26 Tones, RU Index 0

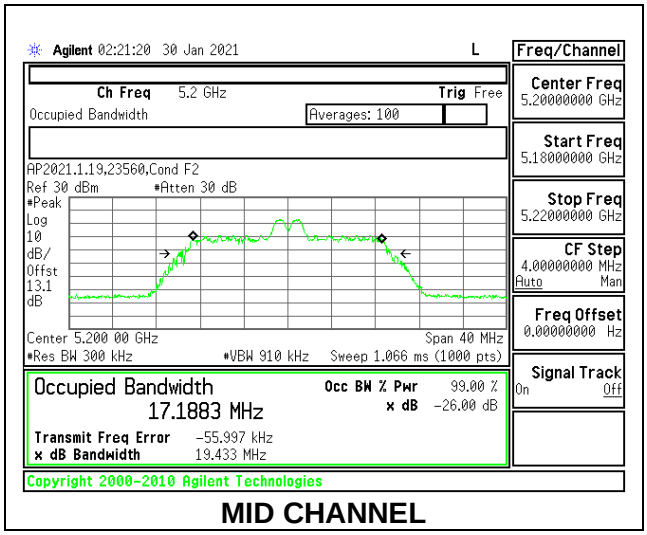
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5180	20.161	18.4540
Mid	5200	20.418	18.4905
High	5240	20.448	18.5325



MID CHANNEL

1TX Antenna 6 MODE: 26 Tones, RU Index 4

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5180	19.495	17.2658
Mid	5200	19.433	17.1883
High	5240	19.329	17.3093



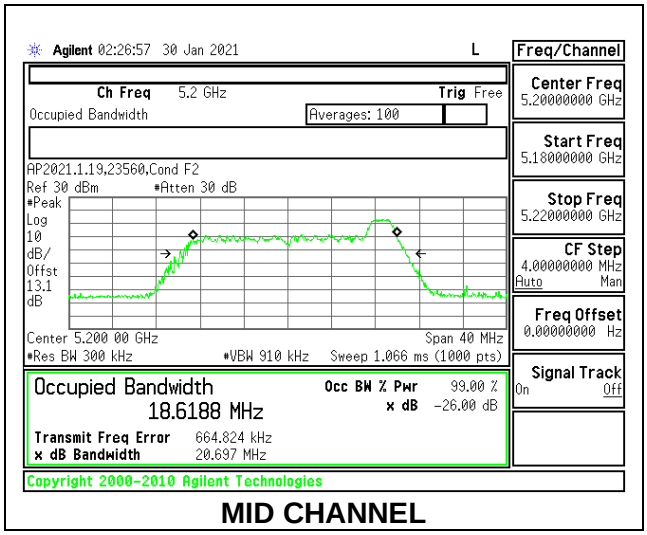
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: 26 Tones, RU Index 8

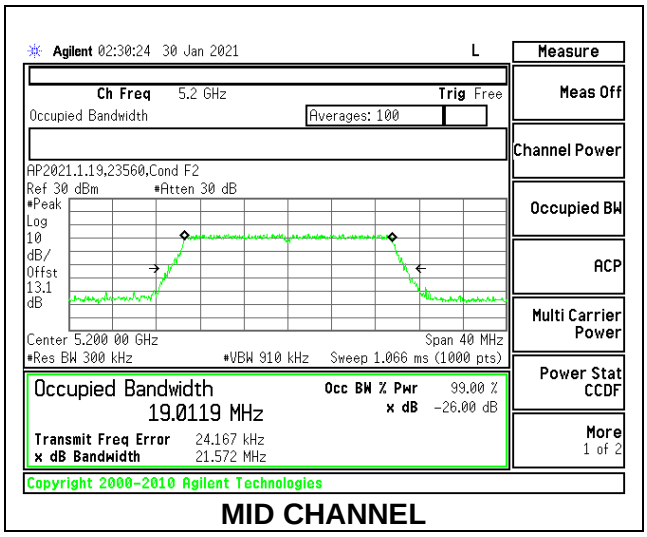
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5180	20.832	18.7820
Mid	5200	20.697	18.6188
High	5240	20.637	18.7057



MID CHANNEL

1TX Antenna 6 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5180	21.476	19.0046
Mid	5200	21.572	19.0119
High	5240	21.351	19.0021



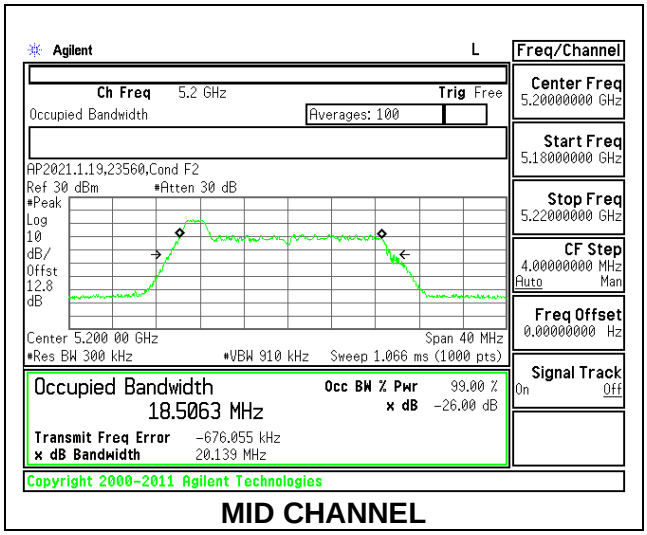
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 0

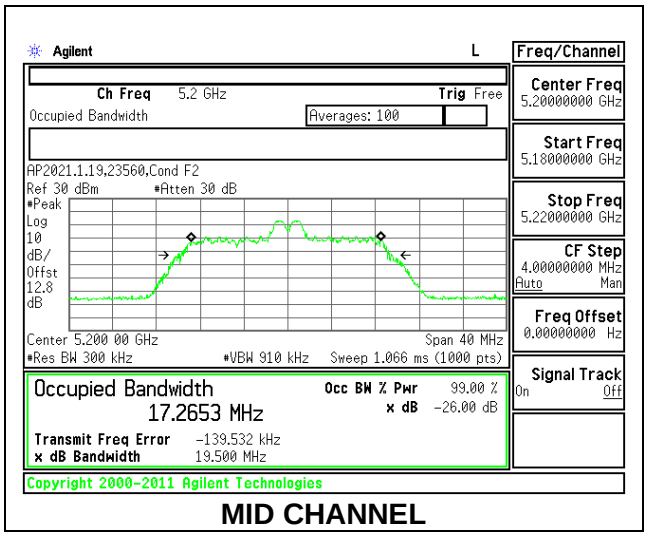
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5180	20.398	18.5129
Mid	5200	20.139	18.5063
High	5240	20.375	18.4834



MID CHANNEL

1TX Antenna 5 MODE: 26 Tones, RU Index 4

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5180	19.370	17.3283
Mid	5200	19.500	17.2653
High	5240	19.491	17.3342



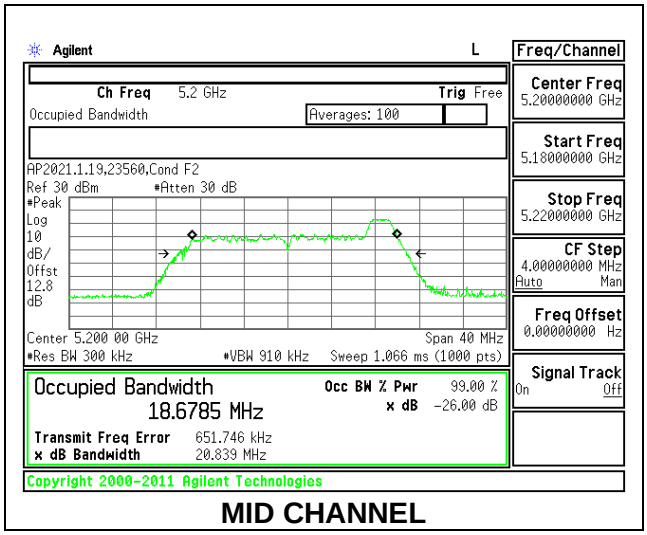
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 8

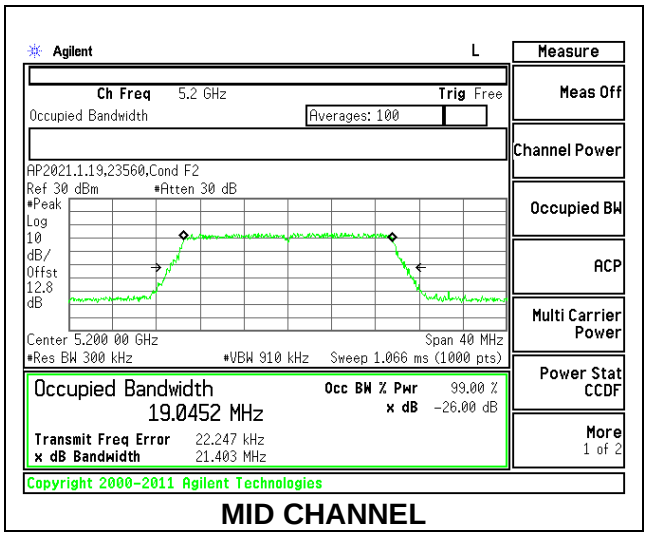
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5180	20.709	18.7430
Mid	5200	20.839	18.6785
High	5240	20.790	18.6839



MID CHANNEL

1TX Antenna 5 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5180	21.376	19.0303
Mid	5200	21.403	19.0452
High	5240	21.549	18.9910



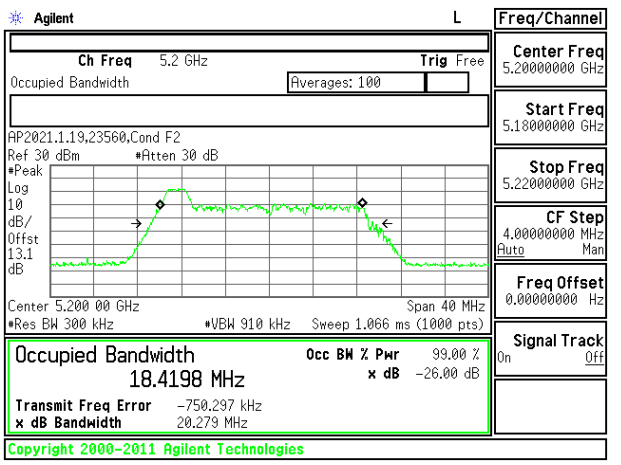
MID CHANNEL

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

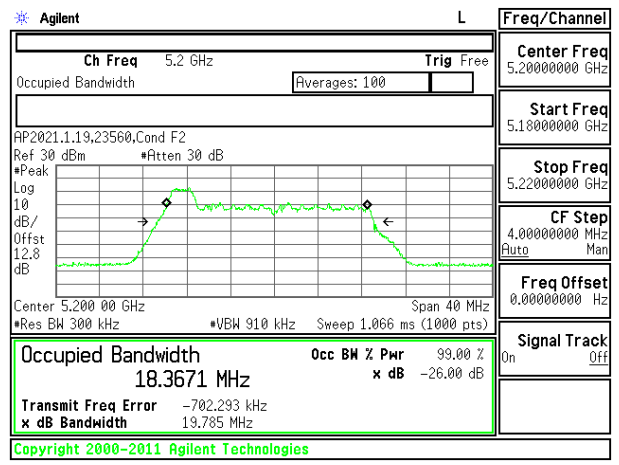
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5180	20.161	19.896	18.5067	18.3386
Mid	5200	20.279	19.785	18.4198	18.3671
High	5240	20.071	19.946	18.4487	18.4024



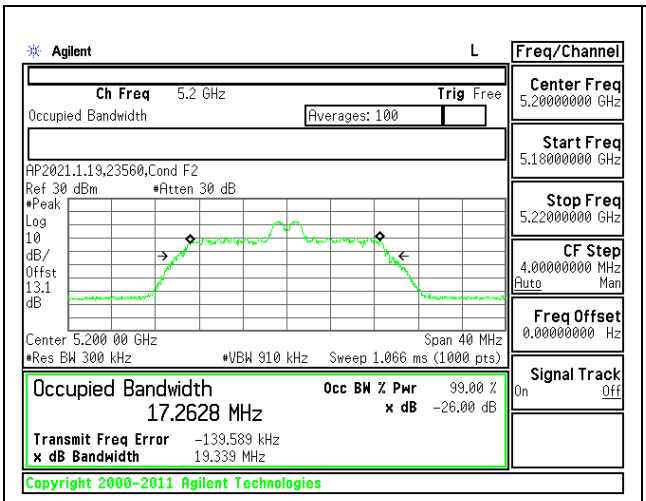
MID CHANNEL [ANT 6]



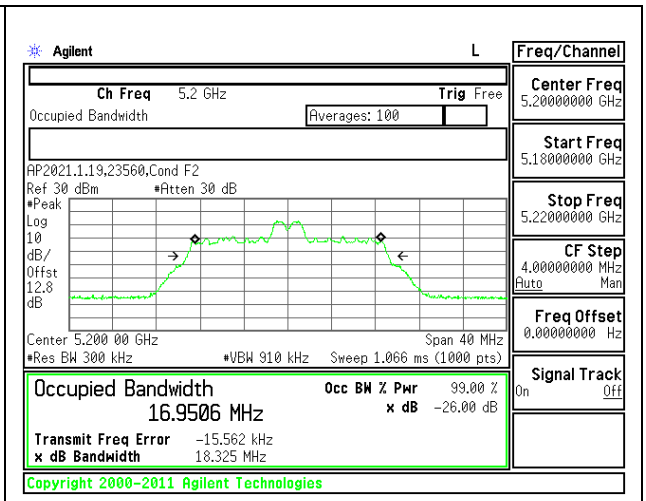
MID CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 4

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5180	18.999	18.150	17.3127	16.9458
Mid	5200	19.339	18.325	17.2628	16.9506
High	5240	19.469	18.254	17.2715	16.9162



MID CHANNEL [ANT 6]



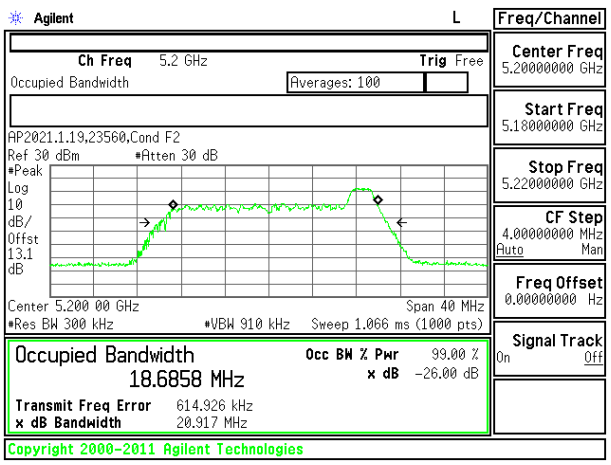
MID CHANNEL [ANT 5]

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

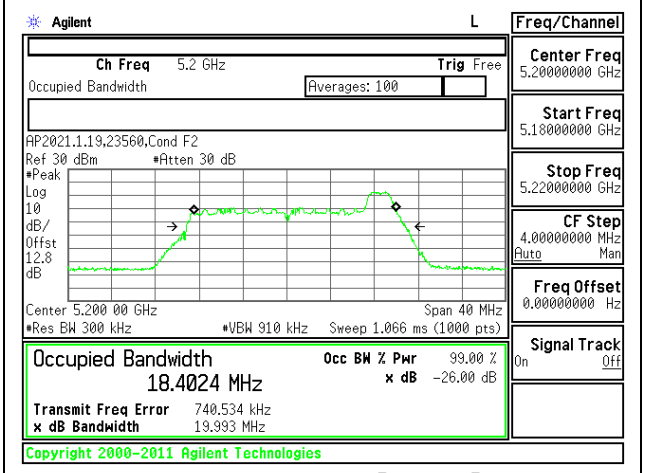
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5180	20.797	20.163	18.7275	18.4068
Mid	5200	20.917	19.993	18.6858	18.4024
High	5240	20.920	20.142	18.7067	18.3896



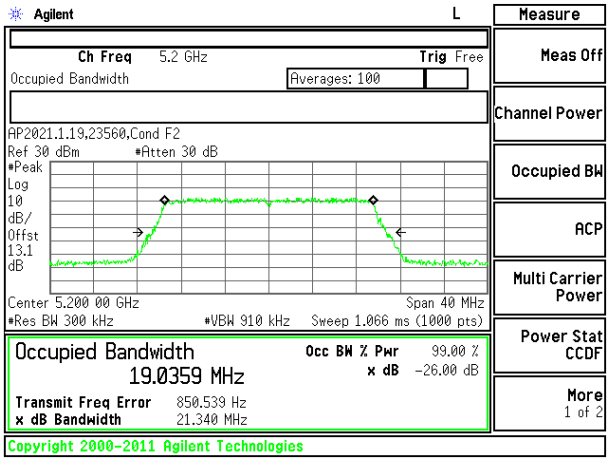
MID CHANNEL [ANT 6]



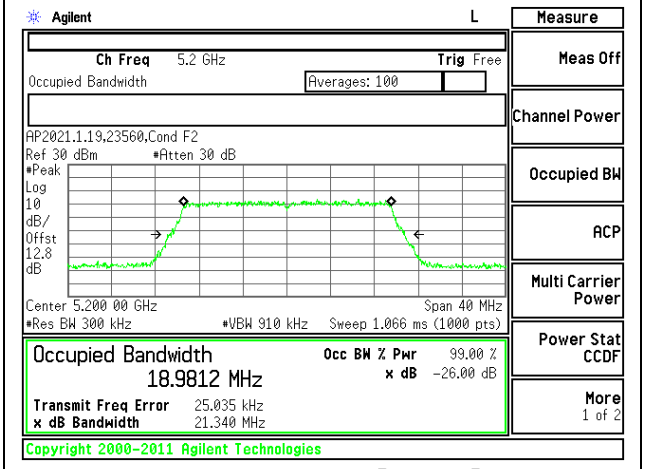
MID CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5180	21.368	21.164	19.0129	19.0244
Mid	5200	21.340	21.340	19.0359	18.9812
High	5240	21.268	21.389	19.0150	19.0249



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

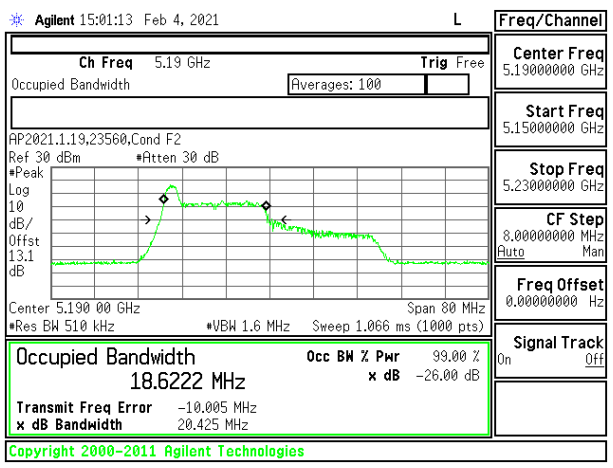
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.5. **802.11ax HE40 MODE IN THE 5.2 GHz BAND**

1TX Antenna 6 MODE: 26 Tones, RU Index 0

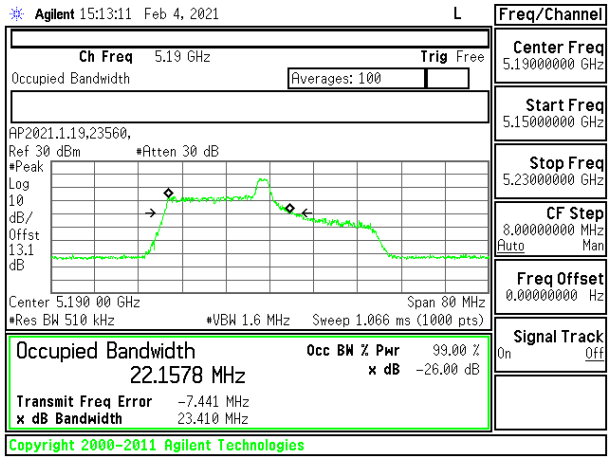
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5190	20.425	18.6222
High	5230	20.333	18.5971



LOW CHANNEL

1TX Antenna 6 MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5190	23.410	22.1578
High	5230	24.406	22.0913



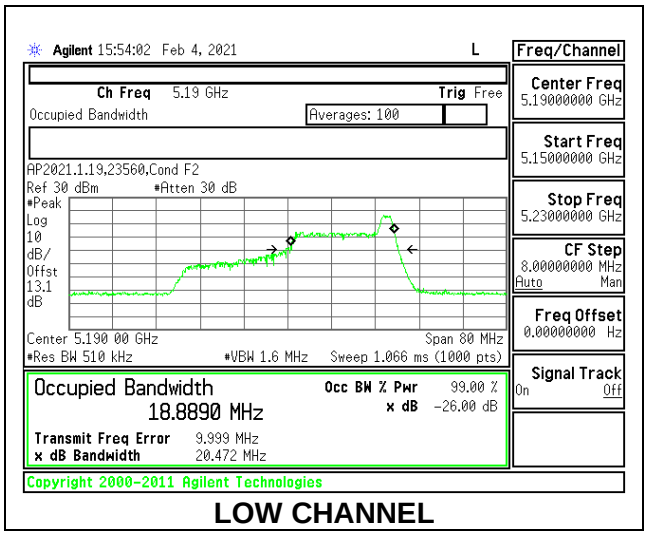
LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: 26 Tones, RU Index 17

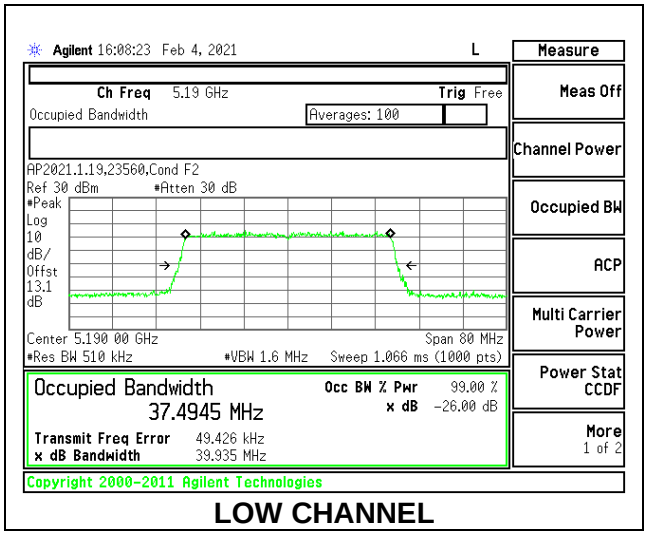
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5190	20.472	18.8890
High	5230	20.309	18.6651



LOW CHANNEL

1TX Antenna 6 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5190	39.935	37.4945
High	5230	39.760	37.4942



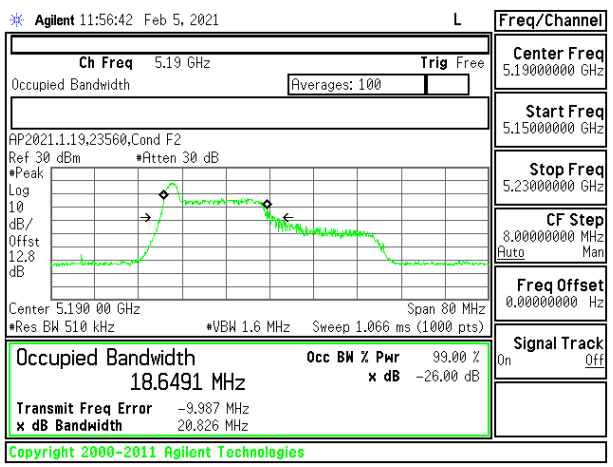
LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 0

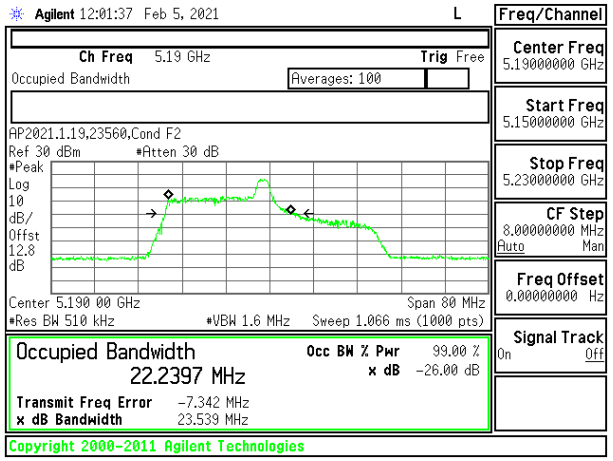
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5190	20.826	18.6491
High	5230	20.441	18.7729



LOW CHANNEL

1TX Antenna 5 MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5190	23.539	22.2397
High	5230	23.153	22.0811



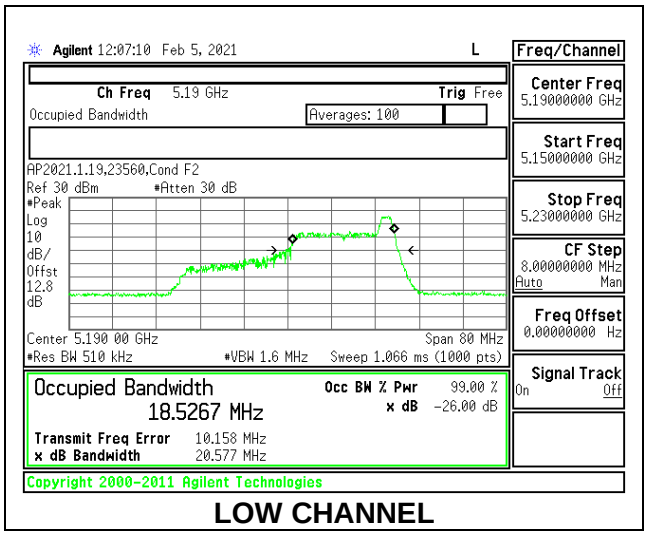
LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 17

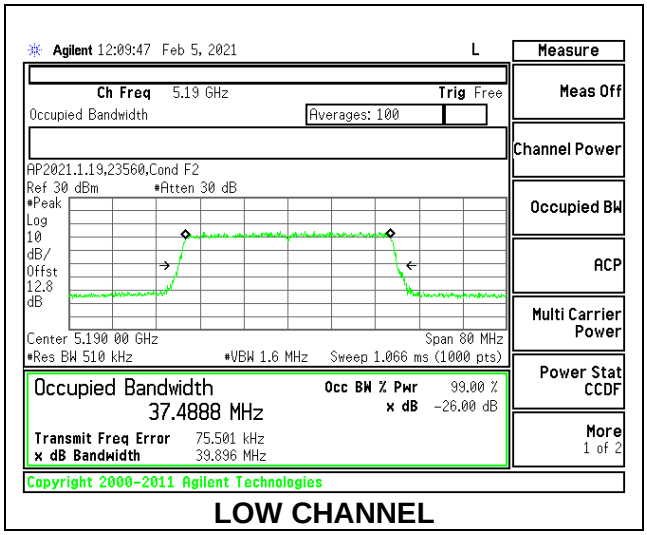
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5190	20.577	18.5267
High	5230	21.067	18.3755



LOW CHANNEL

1TX Antenna 5 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5190	39.896	37.4888
High	5230	39.823	37.4817



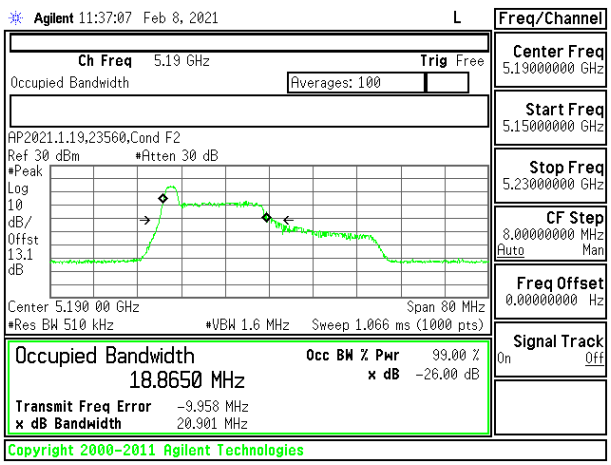
LOW CHANNEL

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

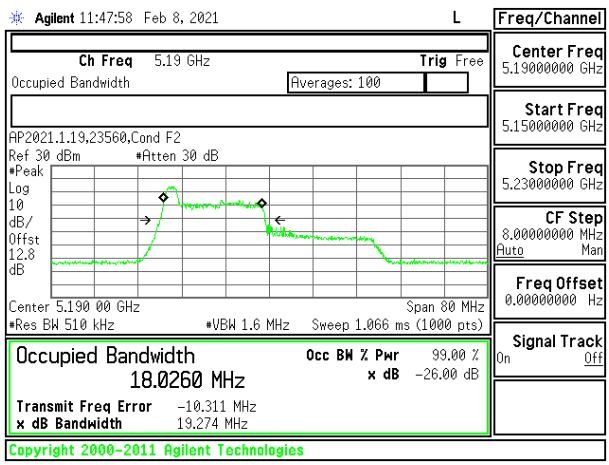
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5190	20.901	19.274	18.8650	18.0260
High	5230	20.628	19.738	18.7571	18.2086



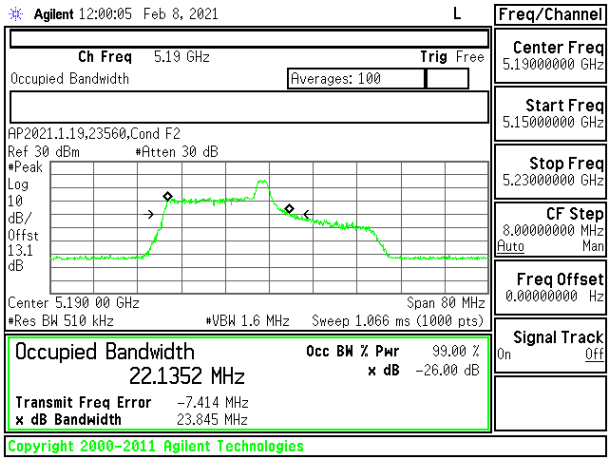
LOW CHANNEL [ANT 6]



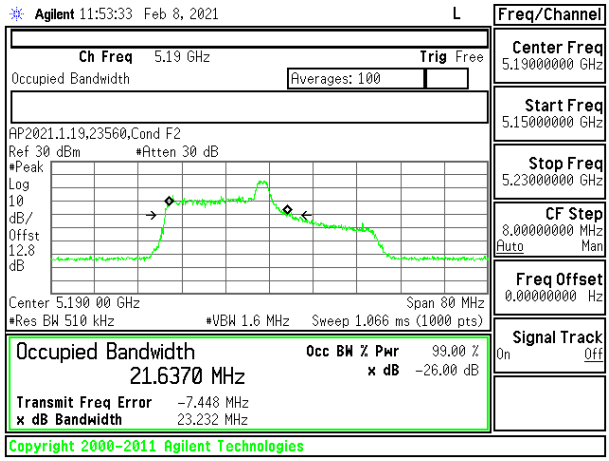
LOW CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5190	23.845	23.232	22.1352	21.6370
High	5230	23.485	23.284	22.1743	21.7036



LOW CHANNEL [ANT 6]



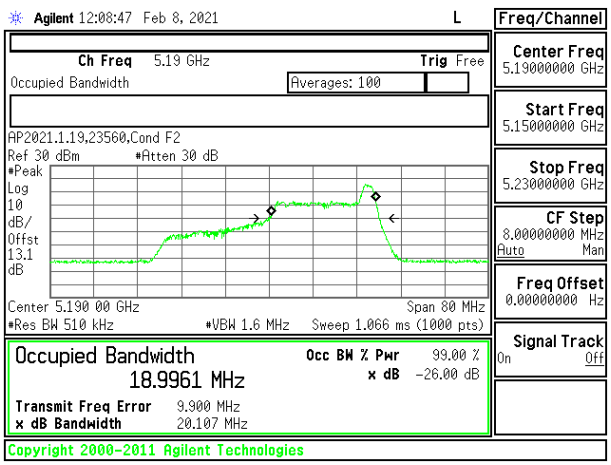
LOW CHANNEL [ANT 5]

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

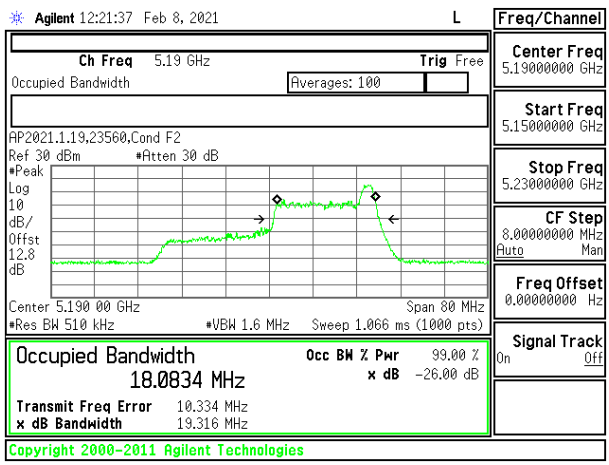
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 17

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5190	20.107	19.316	18.9961	18.0834
High	5230	20.554	19.375	18.7806	18.0781



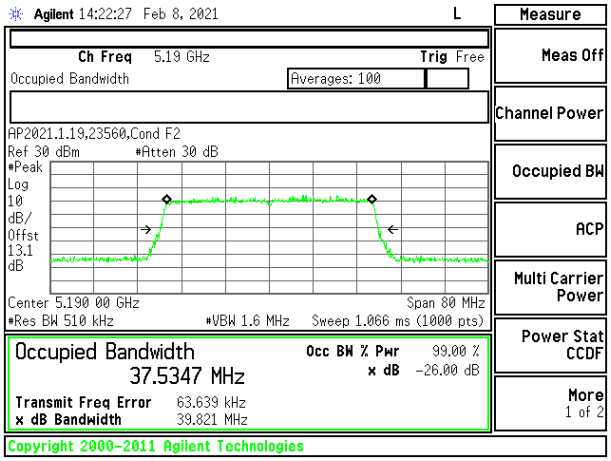
LOW CHANNEL [ANT 6]



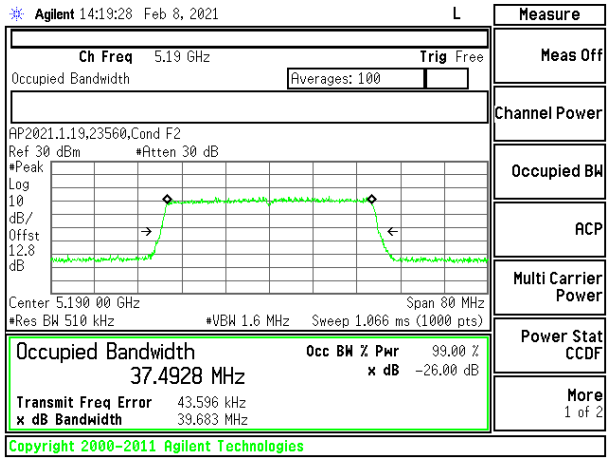
LOW CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5190	39.821	39.683	37.5347	37.4928
High	5230	39.980	39.828	37.5299	37.5980



LOW CHANNEL [ANT 6]



LOW CHANNEL [ANT 5]

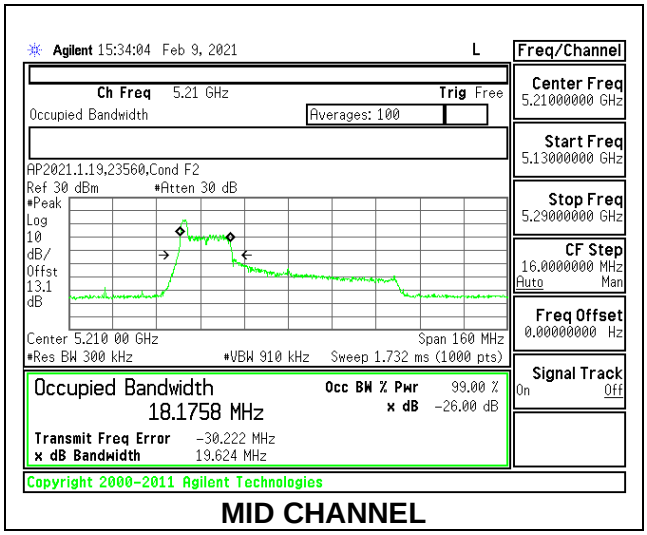
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.6. 802.11ax HE80 MODE IN THE 5.2 GHz BAND

1TX Antenna 6 MODE: 26 Tones, RU Index 0

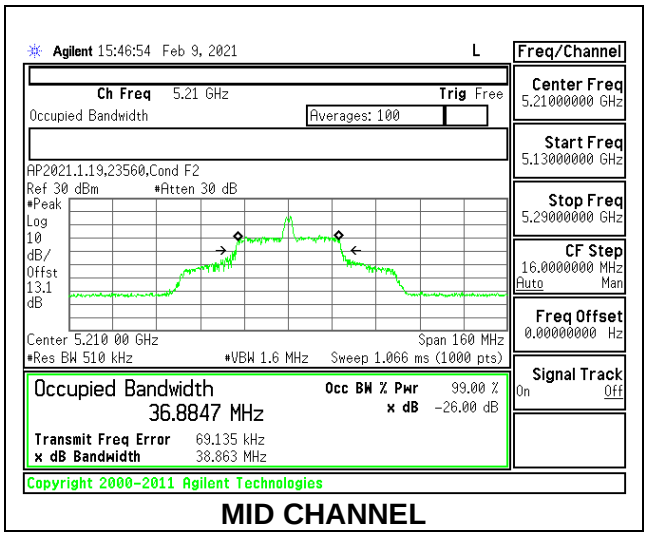
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5210	19.624	18.1758



MID CHANNEL

1TX Antenna 6 MODE: 26 Tones, RU Index 18

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5210	38.863	36.8847



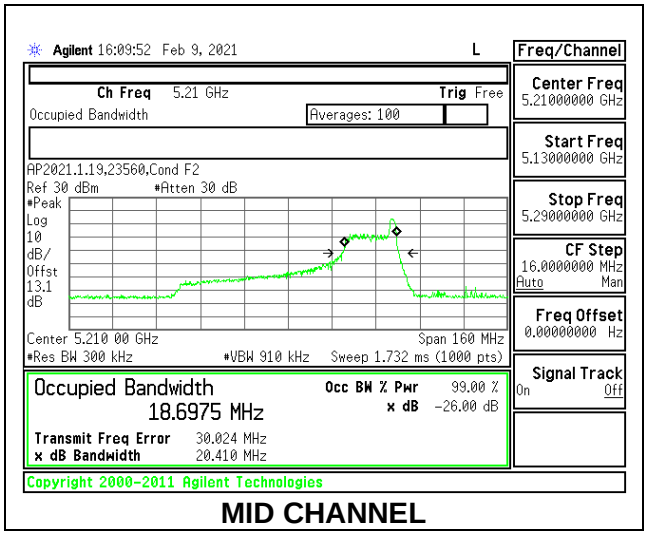
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: 26 Tones, RU Index 36

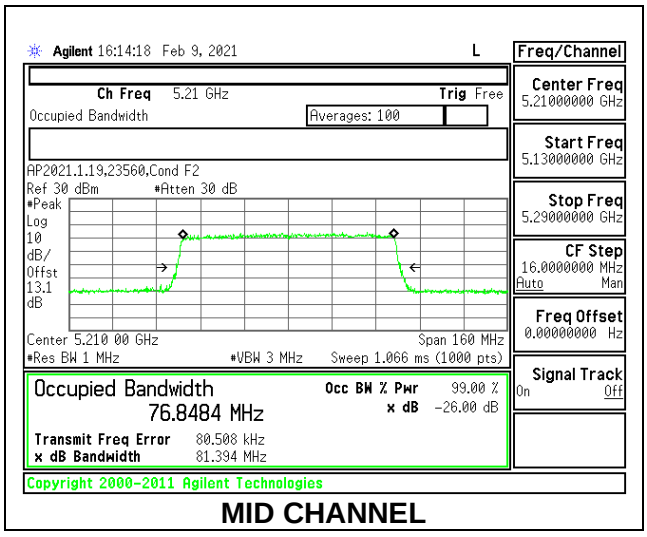
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5210	20.410	18.6975



MID CHANNEL

1TX Antenna 6 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5210	81.394	76.8484



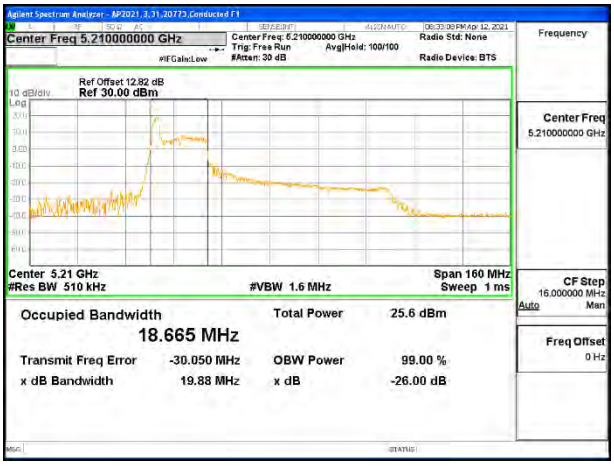
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5210	19.88	18.665



MID CHANNEL

1TX Antenna 5 MODE: 26 Tones, RU Index 18

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5210	39.08	37.181

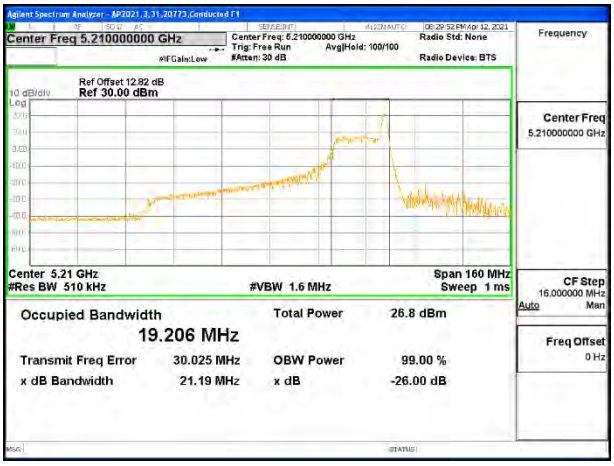
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 36

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5210	21.19	19.206



MID CHANNEL

1TX Antenna 5 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5210	81.12	76.666

MID CHANNEL

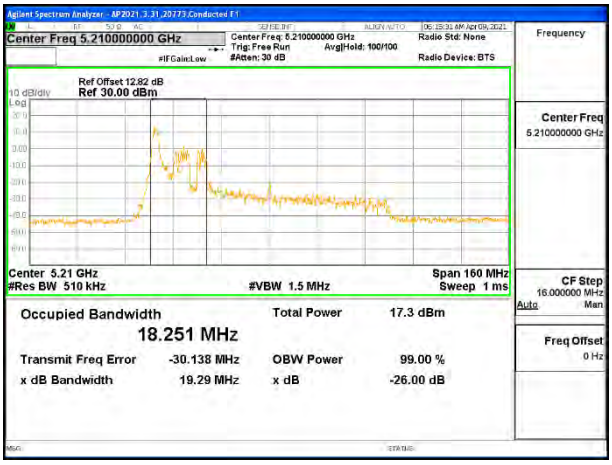
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Mid	5210	19.75	19.29	18.365	18.251

MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 18

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Mid	5210	38.31	39.24	36.419	37.153

MID CHANNEL [ANT 6]

MID CHANNEL [ANT 5]

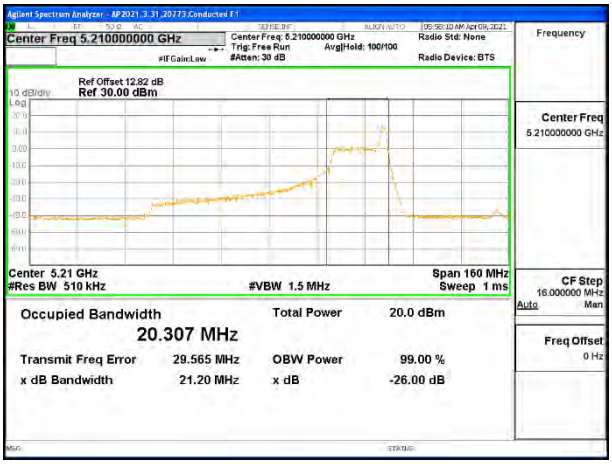
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 36

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Mid	5210	19.57	21.20	18.270	20.307

MID CHANNEL [ANT 6]

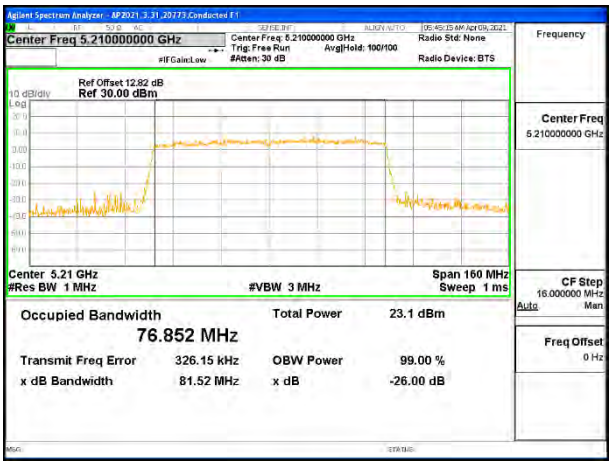


MID CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Mid	5210	81.17	81.52	76.776	76.852

MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

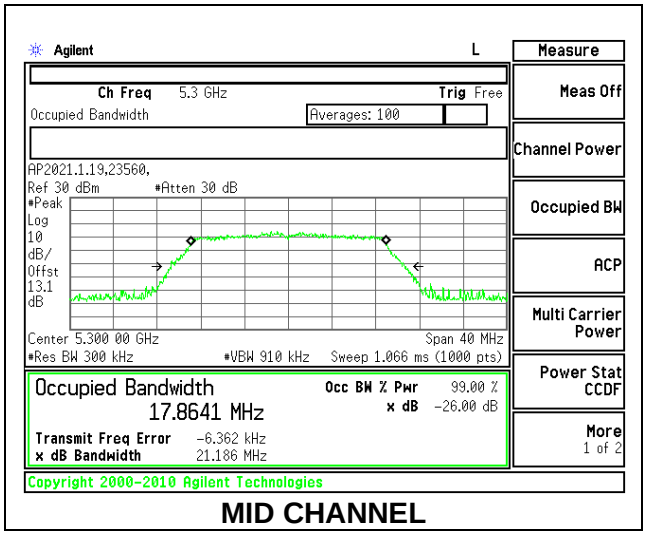
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.7. **802.11n HT20 MODE IN THE 5.3 GHz BAND**

1TX Antenna 6 MODE

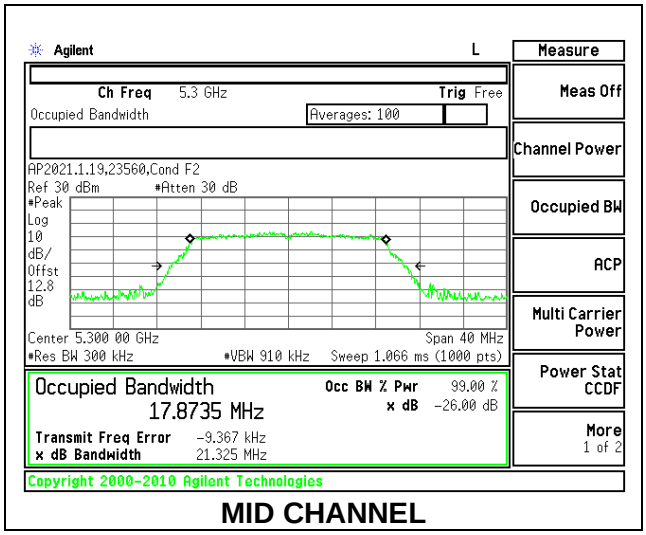
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5260	21.214	17.8507
Mid	5300	21.186	17.8641
High	5320	21.458	17.7951



MID CHANNEL

1TX Antenna 5 MODE

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5260	21.388	17.8276
Mid	5300	21.325	17.8735
High	5320	21.414	17.8886



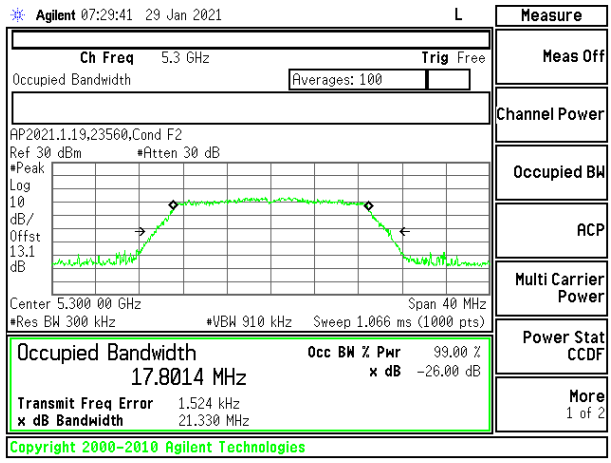
MID CHANNEL

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

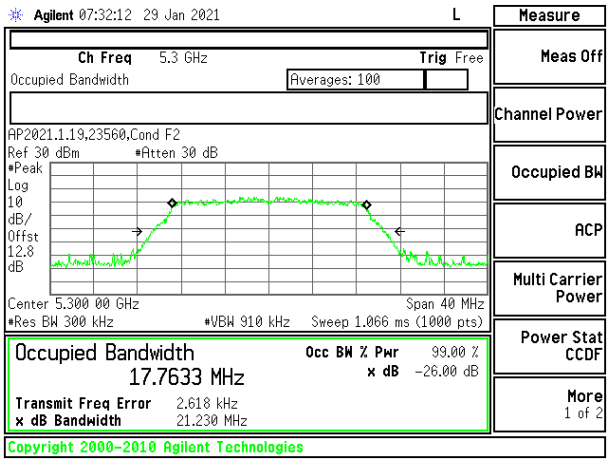
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5260	21.121	21.324	17.7751	17.7846
Mid	5300	21.330	21.230	17.8014	17.7633
High	5320	21.292	21.009	17.7898	17.7598



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

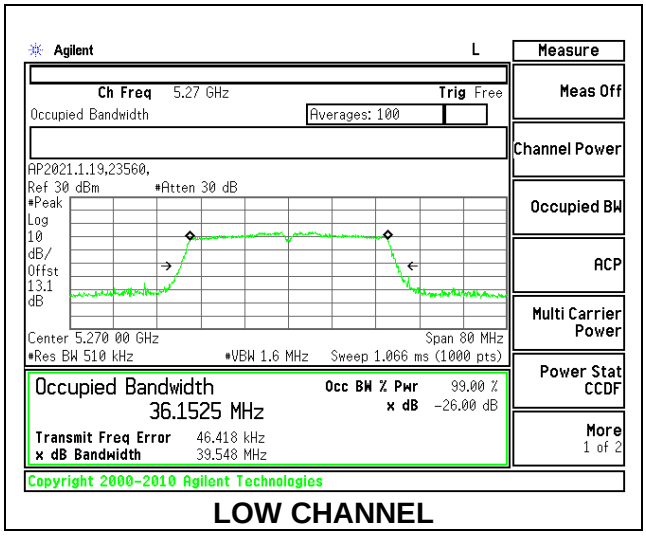
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.8. **802.11n HT40 MODE IN THE 5.3 GHz BAND**

1TX Antenna 6 MODE

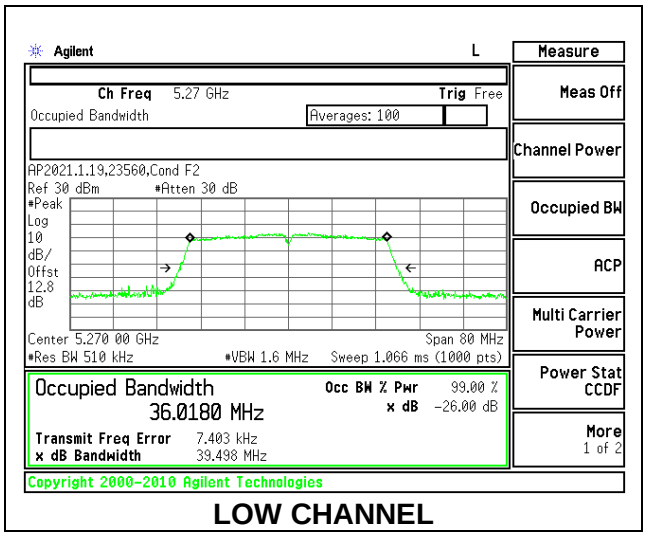
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5270	39.548	36.1525
High	5310	39.455	36.0657



LOW CHANNEL

1TX Antenna 5 MODE

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5270	39.498	36.0180
High	5310	39.424	36.1321



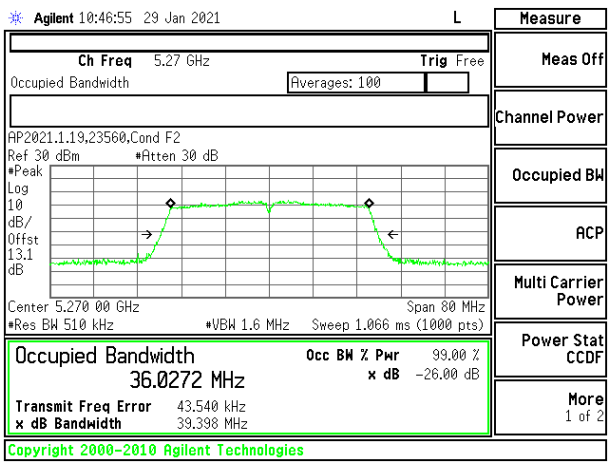
LOW CHANNEL

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

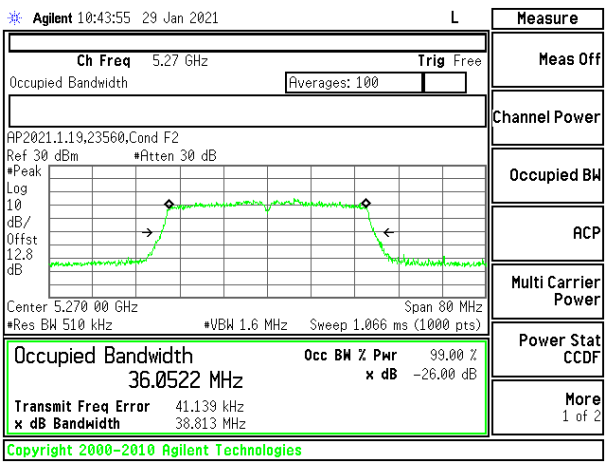
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5270	39.398	38.813	36.0272	36.0522
High	5310	39.567	39.123	36.1081	36.0689



LOW CHANNEL [ANT 6]



LOW CHANNEL [ANT 5]

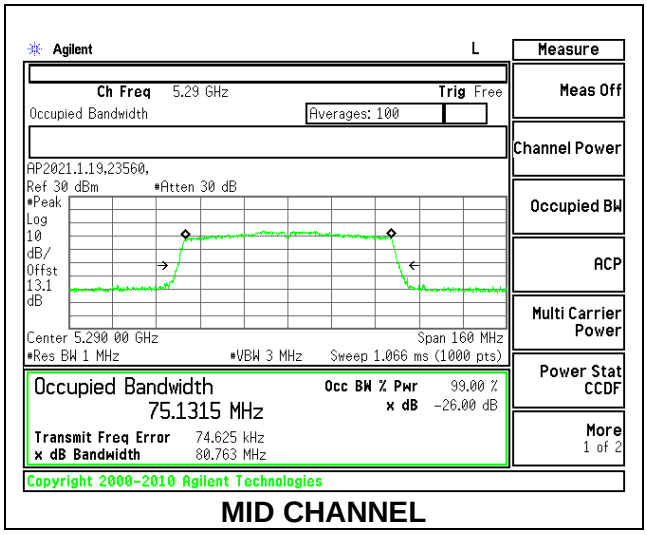
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.9. **802.11ac VHT80 MODE IN THE 5.3 GHz BAND**

1TX Antenna 6 MODE

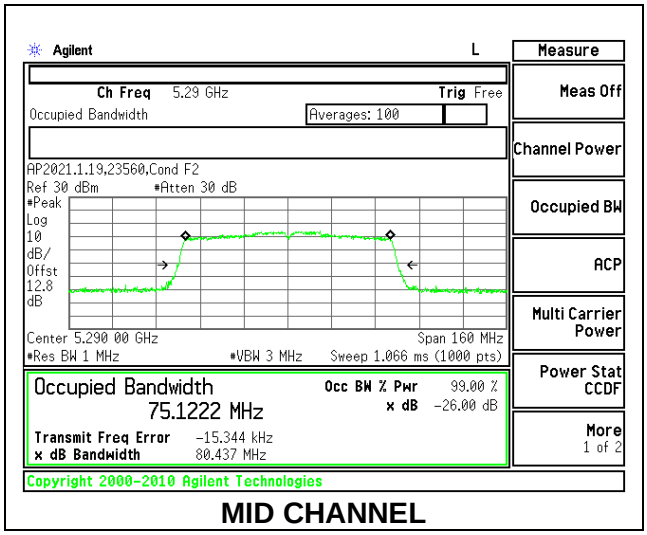
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5290	80.763	75.1315



MID CHANNEL

1TX Antenna 5 MODE

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5290	80.437	75.1222



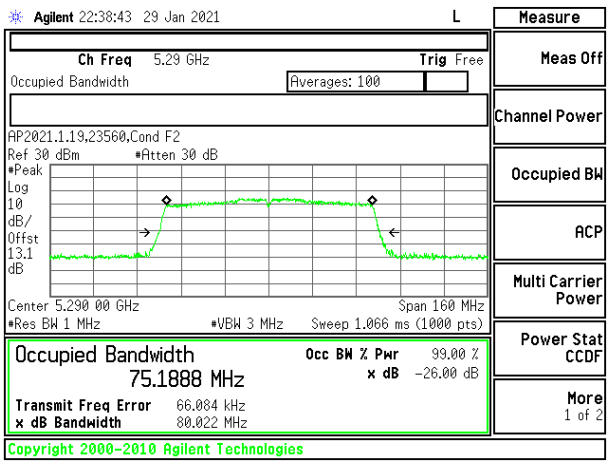
MID CHANNEL

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

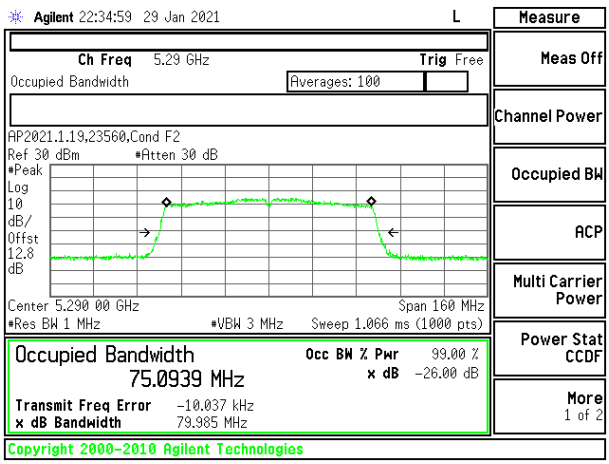
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Mid	5290	80.022	79.985	75.1888	75.0939



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

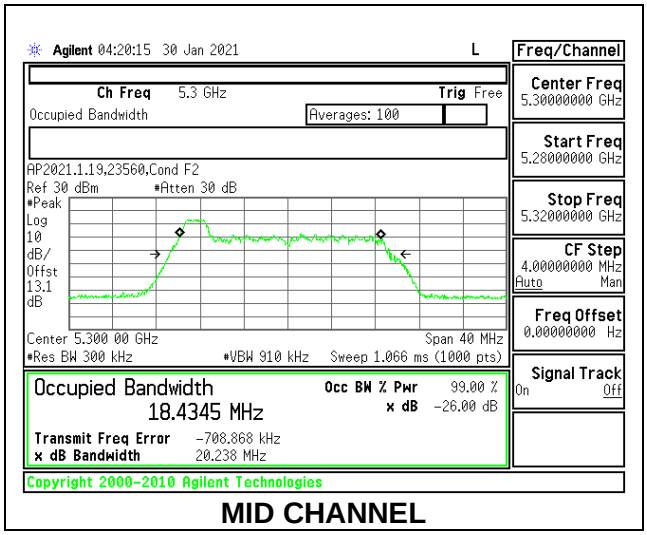
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.10. 802.11ax HE20 MODE IN THE 5.3 GHz BAND

1TX Antenna 6 MODE: 26 Tones, RU Index 0

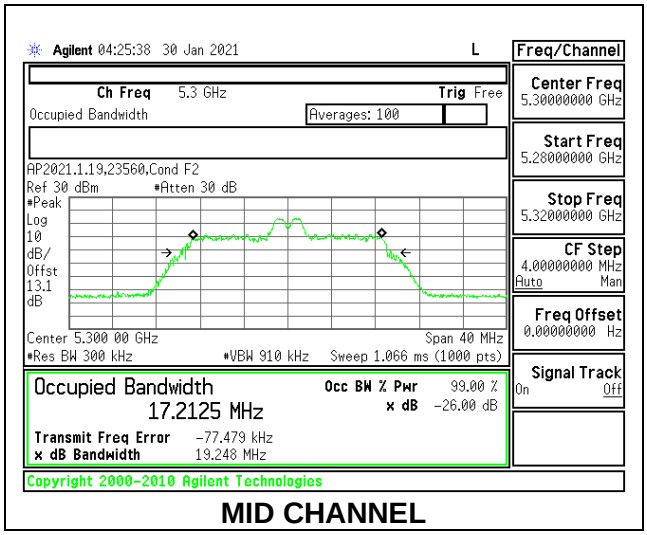
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5260	20.268	18.5217
Mid	5300	20.238	18.4345
High	5320	20.169	18.5037



MID CHANNEL

1TX Antenna 6 MODE: 26 Tones, RU Index 4

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5260	19.494	17.2729
Mid	5300	19.248	17.2125
High	5320	19.577	17.2318



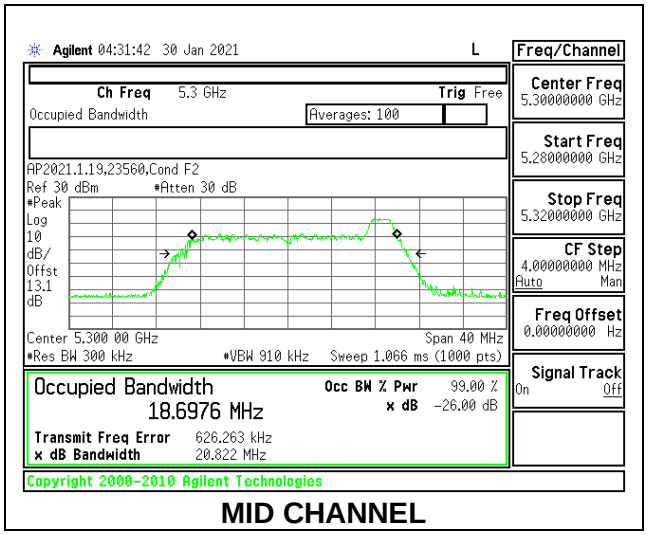
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: 26 Tones, RU Index 8

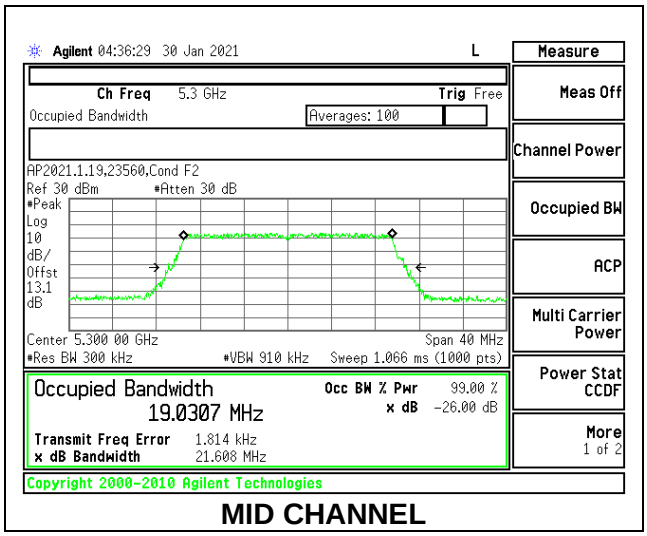
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5260	20.740	18.6477
Mid	5300	20.822	18.6976
High	5320	20.875	18.7015



MID CHANNEL

1TX Antenna 6 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5260	21.466	19.0174
Mid	5300	21.608	19.0307
High	5320	21.396	19.0489



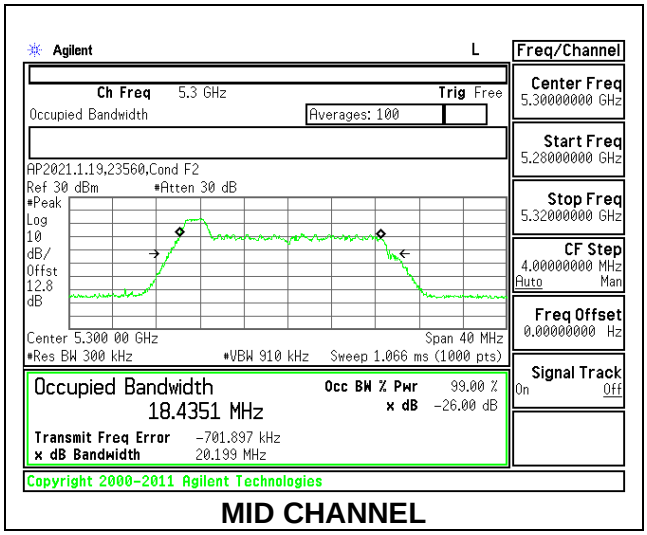
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 0

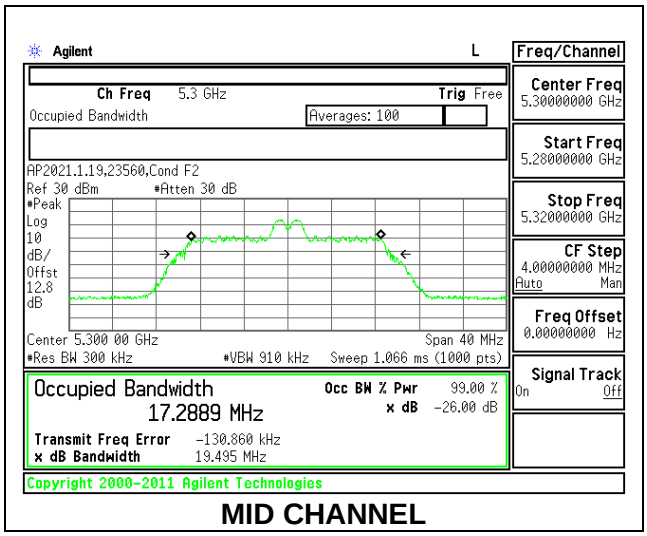
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5260	20.397	18.3930
Mid	5300	20.199	18.4351
High	5320	20.319	18.5636



MID CHANNEL

1TX Antenna 5 MODE: 26 Tones, RU Index 4

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5260	19.147	17.2562
Mid	5300	19.495	17.2889
High	5320	19.502	17.1846



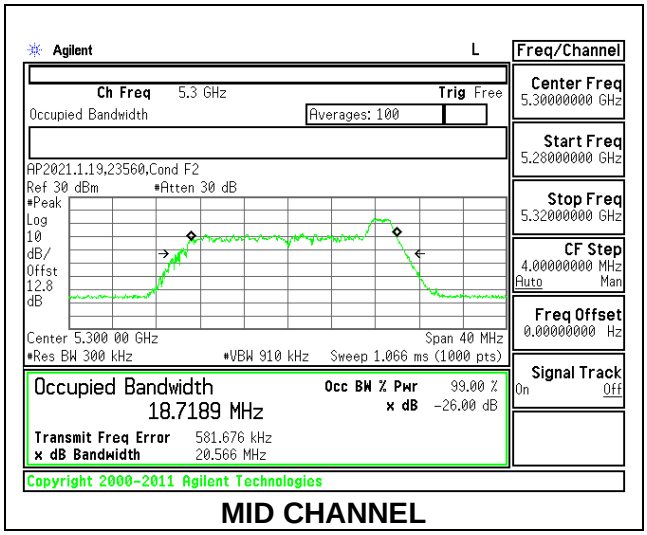
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 8

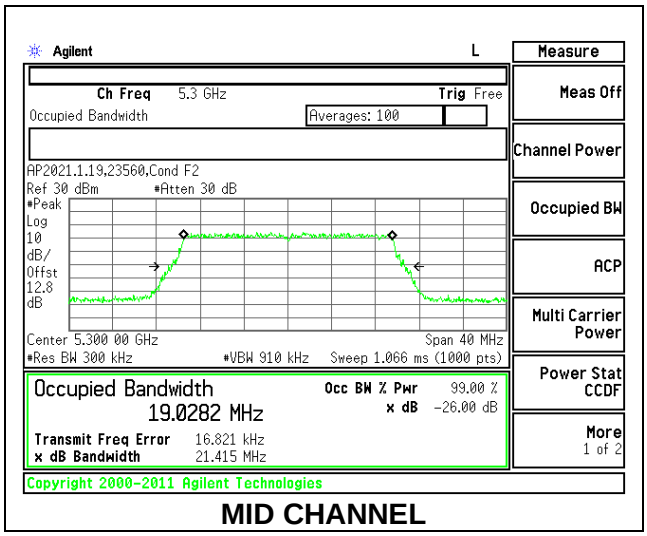
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5260	20.893	18.7576
Mid	5300	20.566	18.7189
High	5320	20.715	18.6179



MID CHANNEL

1TX Antenna 5 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5260	21.478	19.0335
Mid	5300	21.415	19.0282
High	5320	21.402	19.0472



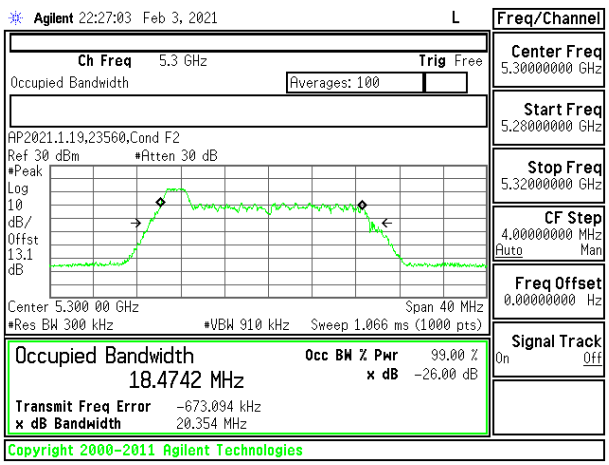
MID CHANNEL

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

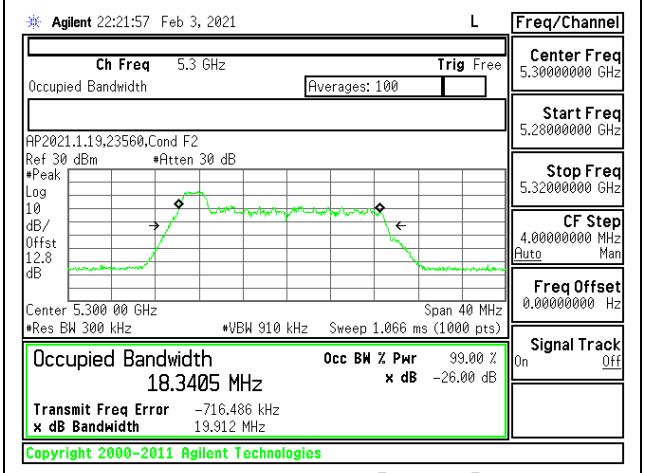
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5260	20.274	19.901	18.4452	18.3785
Mid	5300	20.354	19.912	18.4742	18.3405
High	5320	20.136	19.777	18.4773	18.3414



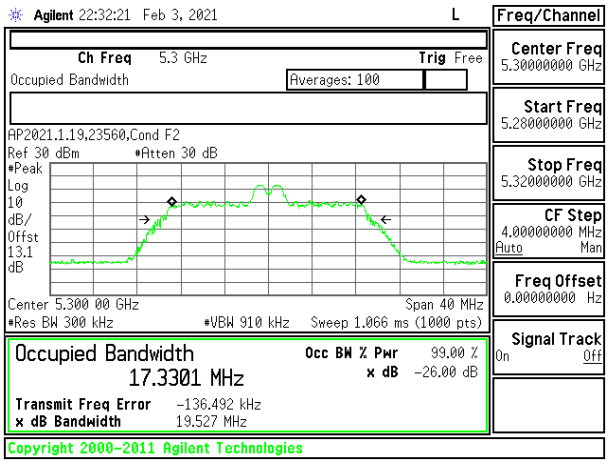
MID CHANNEL [ANT 6]



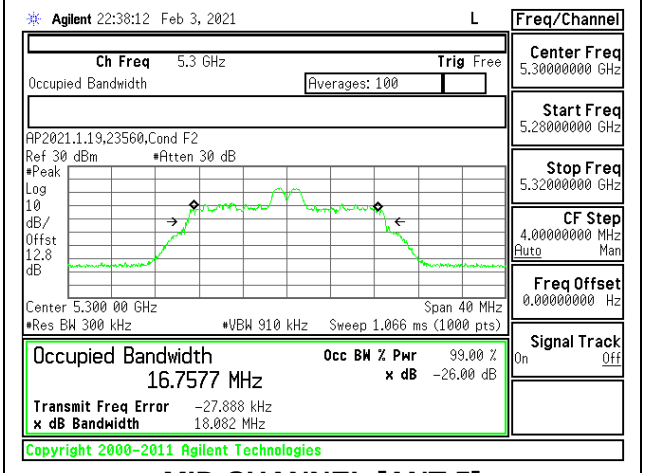
MID CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 4

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5260	18.023	18.320	16.8944	16.9627
Mid	5300	19.527	18.082	17.3301	16.7577
High	5320	19.545	18.297	17.2583	16.8515



MID CHANNEL [ANT 6]



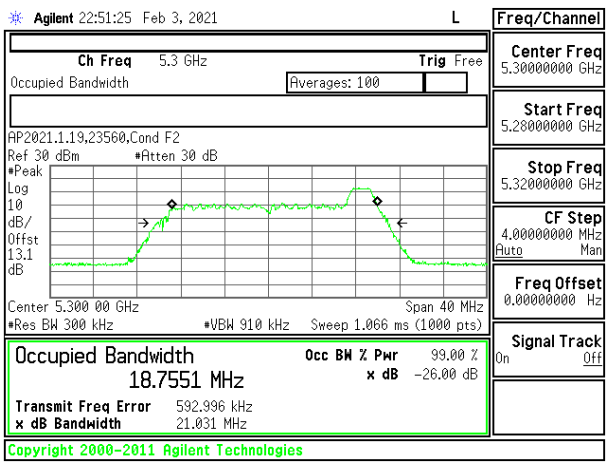
MID CHANNEL [ANT 5]

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

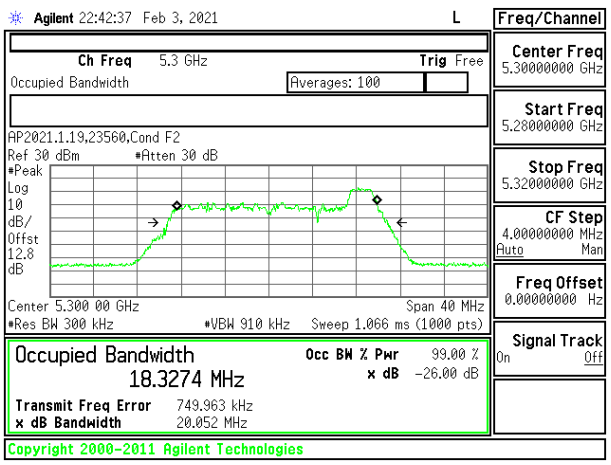
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5260	19.795	20.856	18.4592	18.5683
Mid	5300	21.031	20.052	18.7551	18.3274
High	5320	21.014	20.067	18.7526	18.4656



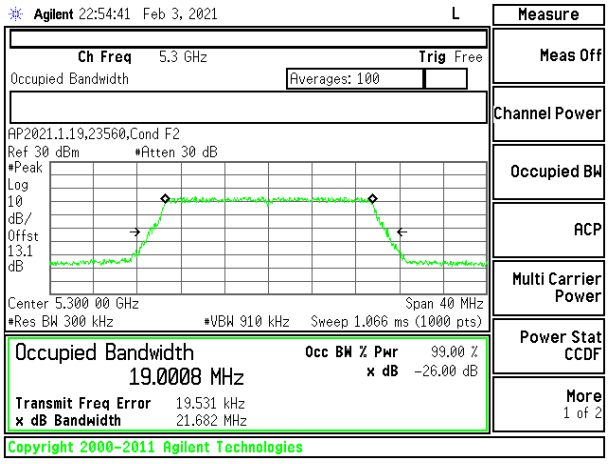
MID CHANNEL [ANT 6]



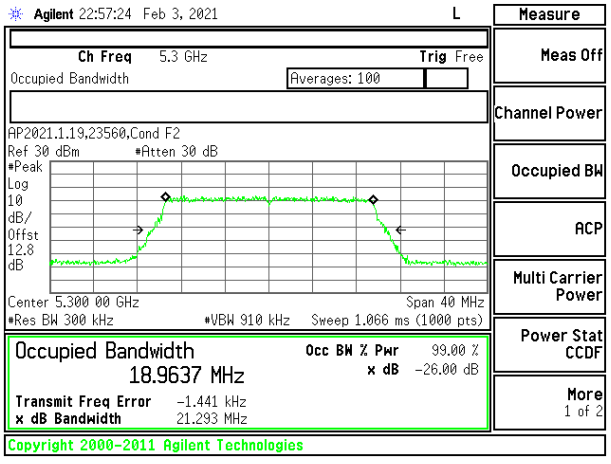
MID CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5260	21.509	21.192	19.0198	19.0175
Mid	5300	21.682	21.293	19.0008	18.9637
High	5320	21.707	21.203	19.0325	19.0333



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

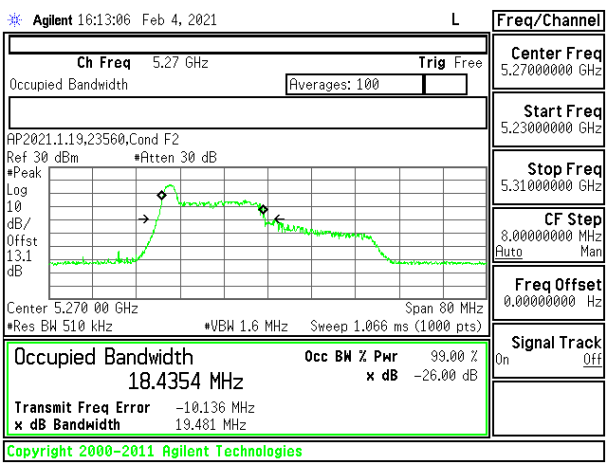
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.11. 802.11ax HE40 MODE IN THE 5.3 GHz BAND

1TX Antenna 6 MODE: 26 Tones, RU Index 0

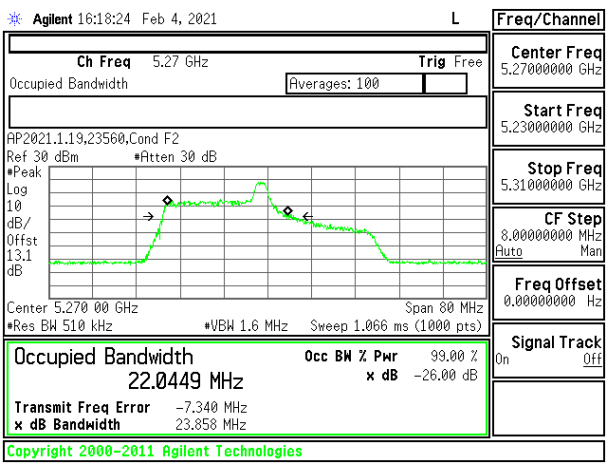
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5270	19.481	18.4354
High	5310	20.671	18.6618



LOW CHANNEL

1TX Antenna 6 MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5270	23.858	22.0449
High	5310	23.546	21.9254



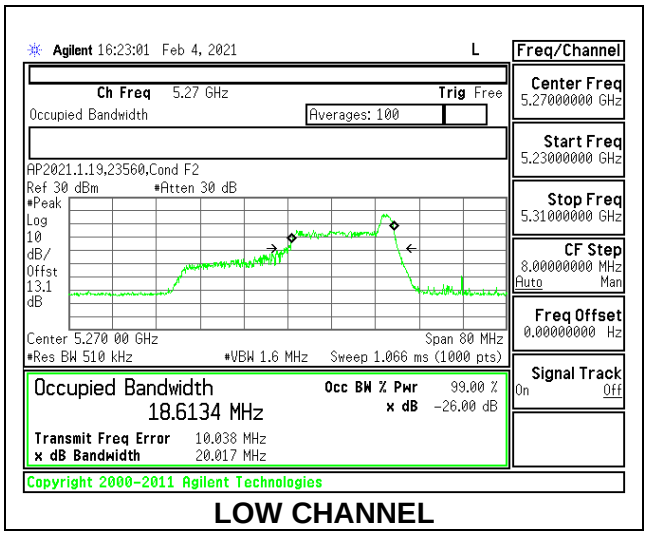
LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: 26 Tones, RU Index 17

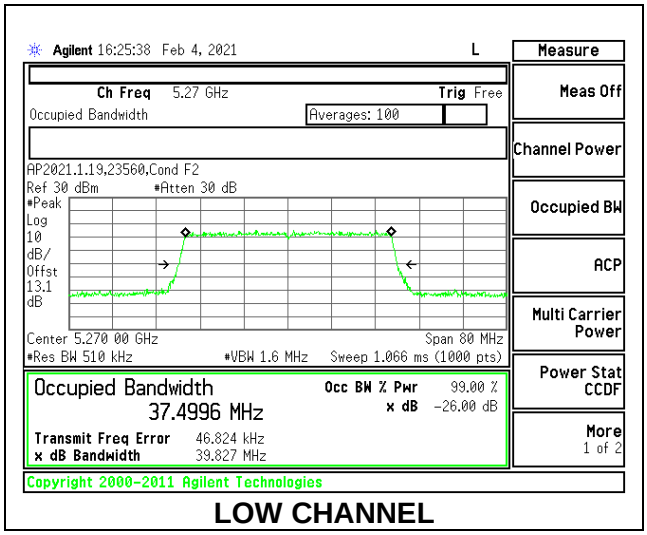
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5270	20.017	18.6134
High	5310	20.511	18.7877



LOW CHANNEL

1TX Antenna 6 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5270	39.827	37.4996
High	5310	39.678	37.5515



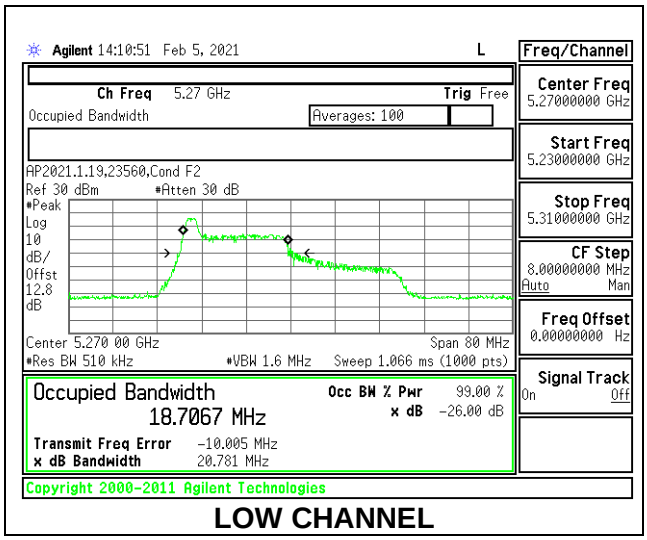
LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 0

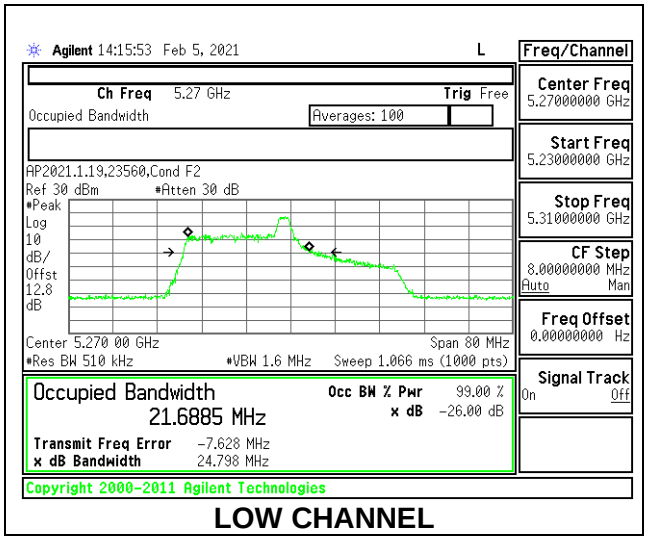
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5270	20.781	18.7067
High	5310	20.416	18.5493



LOW CHANNEL

1TX Antenna 5 MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5270	24.798	21.6885
High	5310	23.465	21.8486



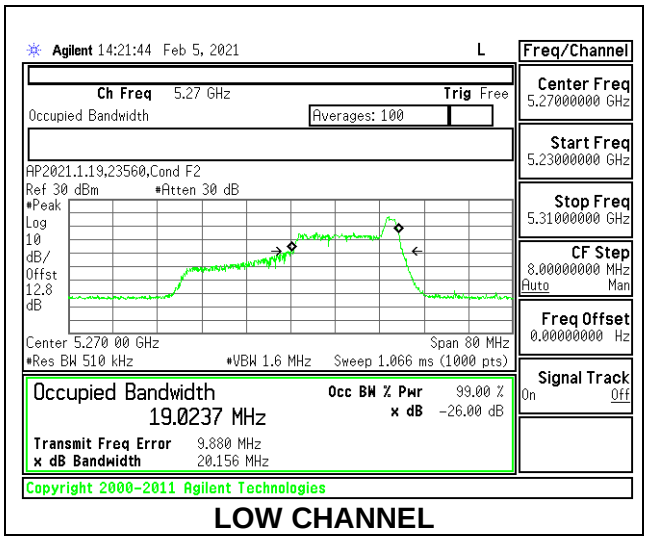
LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 17

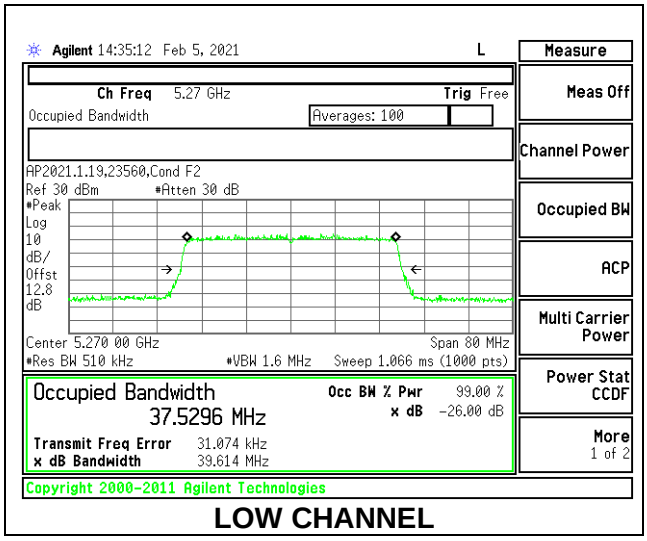
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5270	20.156	19.0237
High	5310	20.694	19.2190



LOW CHANNEL

1TX Antenna 5 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5270	39.614	37.5296
High	5310	39.823	37.4911



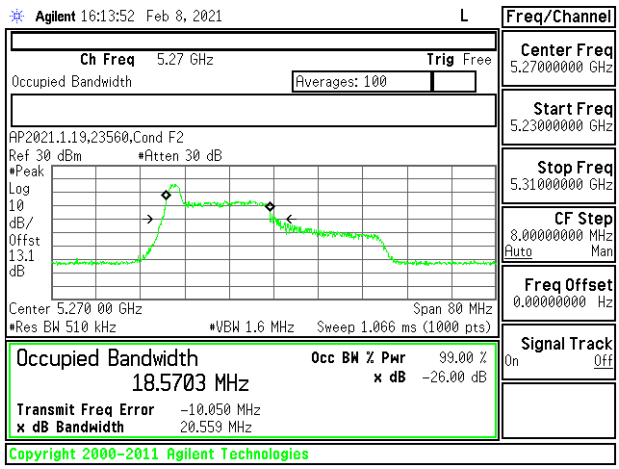
LOW CHANNEL

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

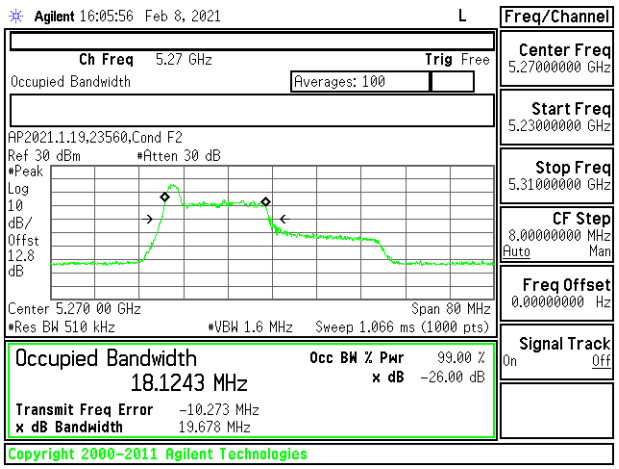
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5270	20.559	19.678	18.5703	18.1243
High	5310	20.923	19.632	18.3824	18.0398



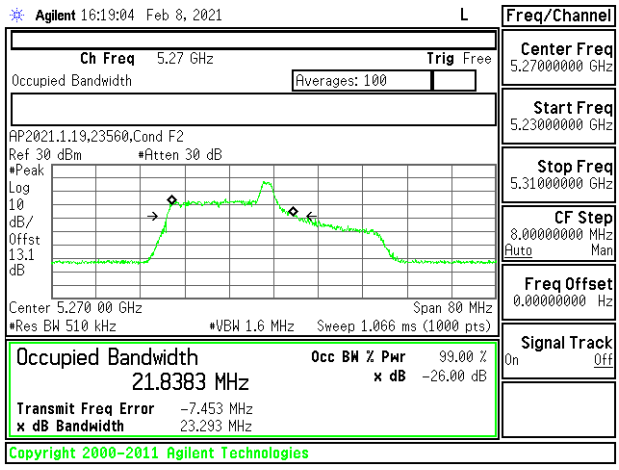
LOW CHANNEL [ANT 6]



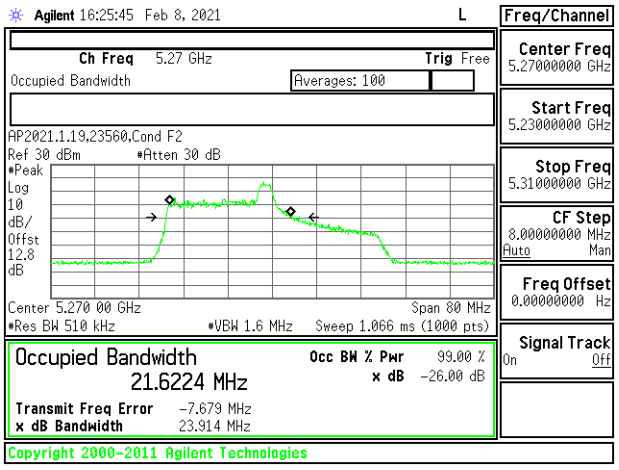
LOW CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5270	23.293	23.914	21.8383	21.6224
High	5310	23.651	22.491	22.1577	21.1683



LOW CHANNEL [ANT 6]



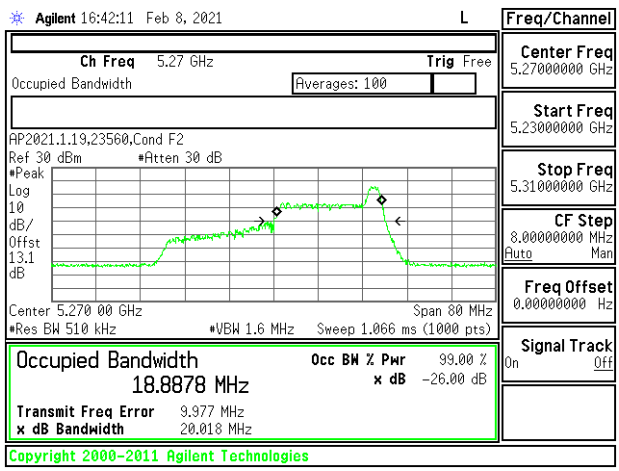
LOW CHANNEL [ANT 5]

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

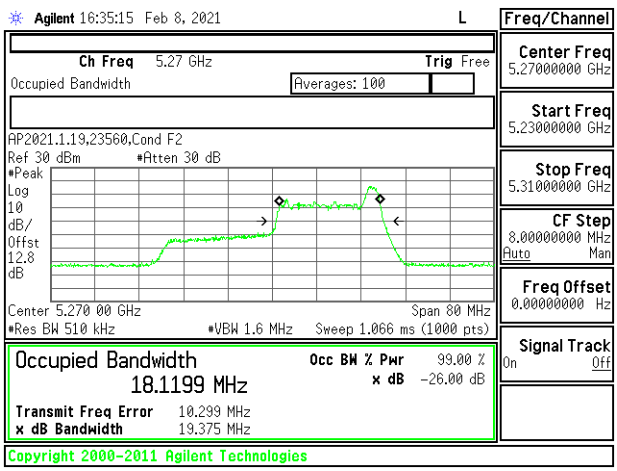
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 17

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5270	20.018	19.375	18.8878	18.1199
High	5310	20.798	19.411	19.3246	18.1330



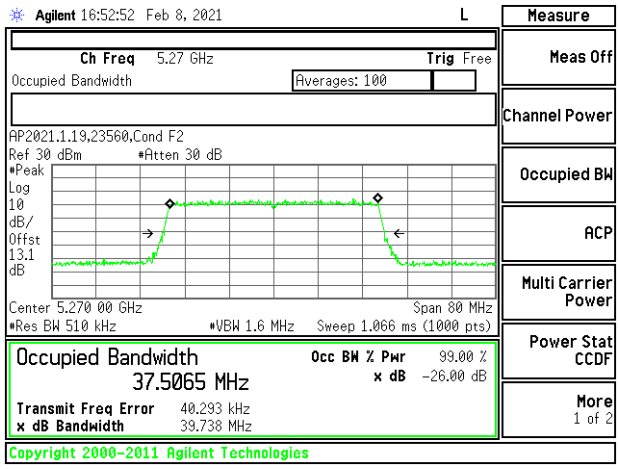
LOW CHANNEL [ANT 6]



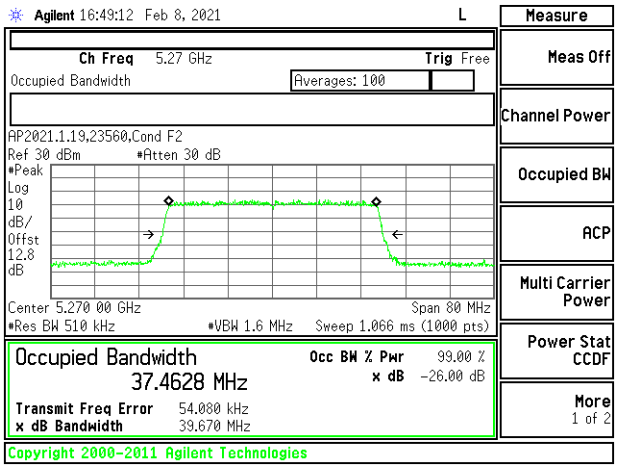
LOW CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5270	39.738	39.670	37.5065	37.4628
High	5310	40.110	39.771	37.5645	37.4849



LOW CHANNEL [ANT 6]



LOW CHANNEL [ANT 5]

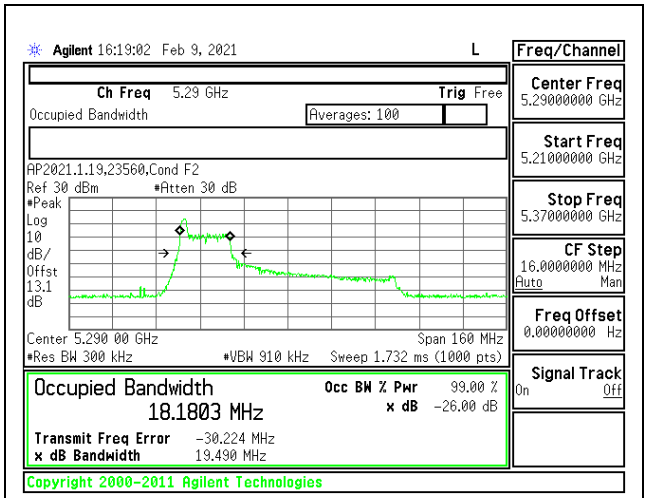
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.12. 802.11ax HE80 MODE IN THE 5.3 GHz BAND

1TX Antenna 6 MODE: 26 Tones, RU Index 0

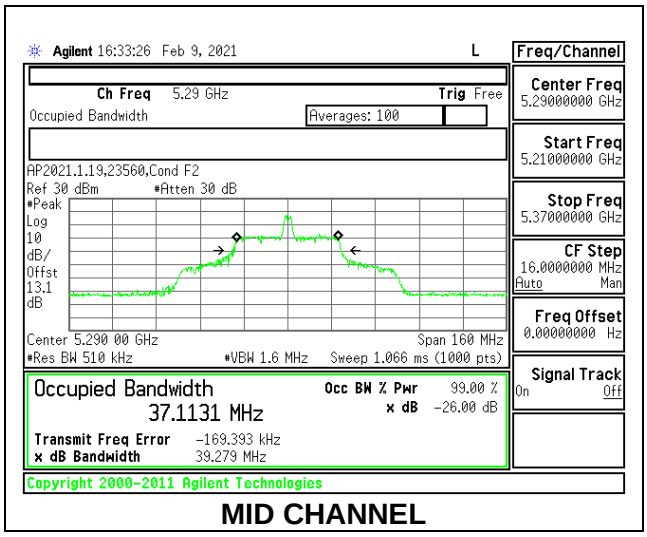
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5290	19.490	18.1803



MID CHANNEL

1TX Antenna 6 MODE: 26 Tones, RU Index 18

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5290	39.279	37.1131



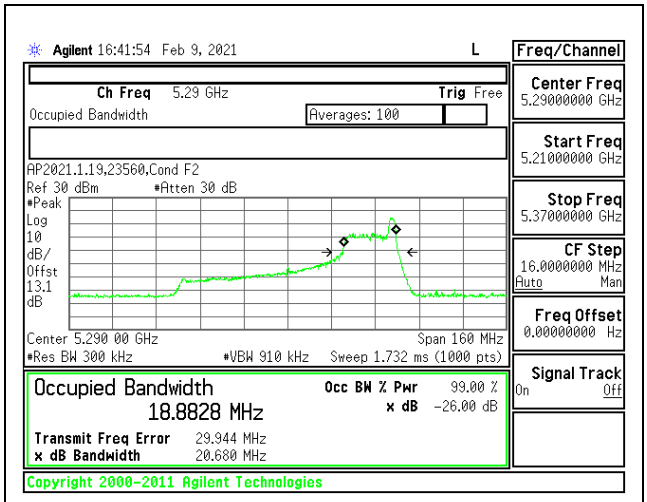
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: 26 Tones, RU Index 36

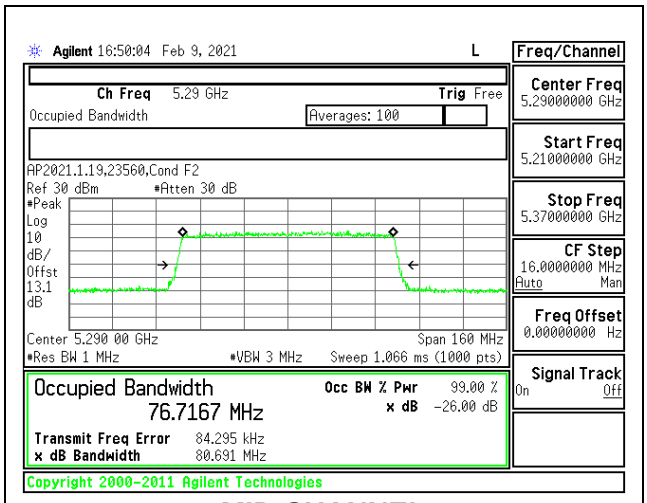
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5290	20.680	18.8828



MID CHANNEL

1TX Antenna 6 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5290	80.691	76.7167



MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5290	20.28	18.475

MID CHANNEL

1TX Antenna 5 MODE: 26 Tones, RU Index 18

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5290	38.33	36.770

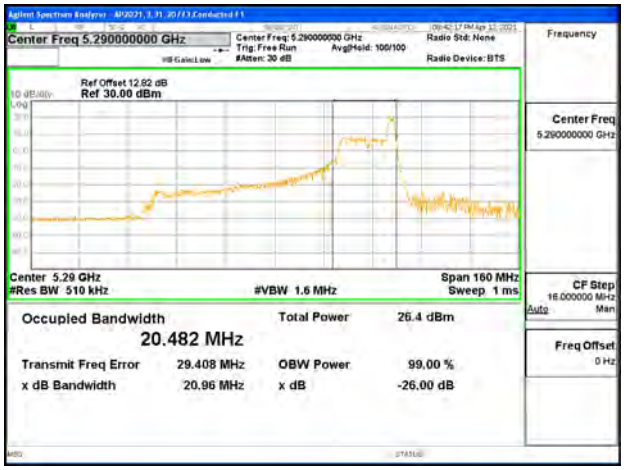
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 36

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5290	20.96	20.482



MID CHANNEL

1TX Antenna 5 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Mid	5290	80.84	76.963

MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Mid	5290	20.12	19.50	18.575	18.300

MID CHANNEL [ANT 6]

MID CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 18

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Mid	5290	39.16	38.28	36.932	36.153

MID CHANNEL [ANT 6]

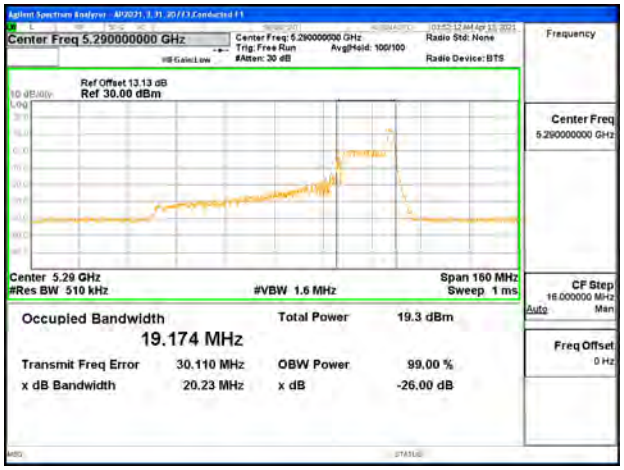
MID CHANNEL [ANT 5]

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 36

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Mid	5290	20.23	20.22	19.174	18.435



MID CHANNEL [ANT 6]

MID CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Mid	5290	81.34	81.55	76.859	76.985

MID CHANNEL [ANT 6]

MID CHANNEL [ANT 5]

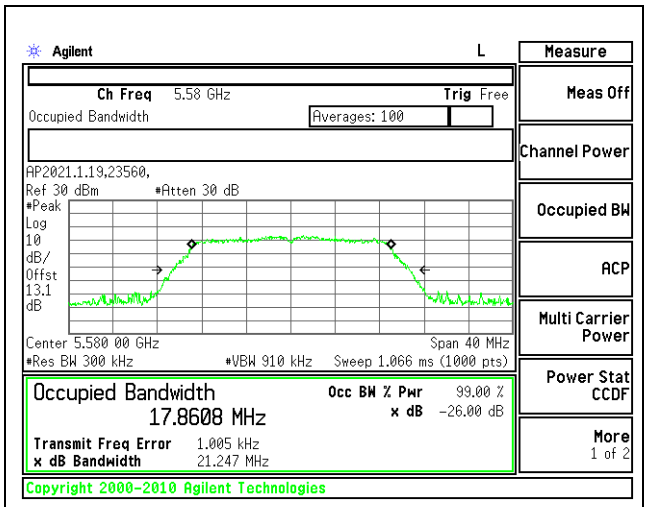
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.13. 802.11n HT20 MODE IN THE 5.6 GHz BAND

1TX Antenna 6 MODE

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5500	21.437	17.8545
Mid	5580	21.247	17.8608
High	5700	21.142	17.8316
144	5720	21.413	17.8644



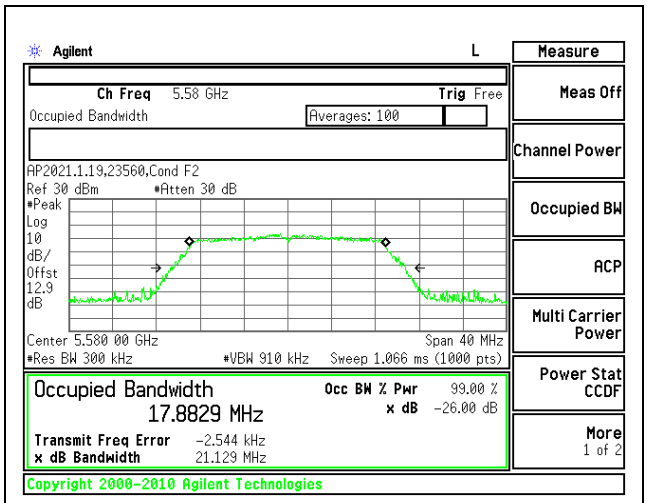
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5500	21.309	17.8460
Mid	5580	21.129	17.8829
High	5700	21.123	17.8195
144	5720	21.172	17.8425



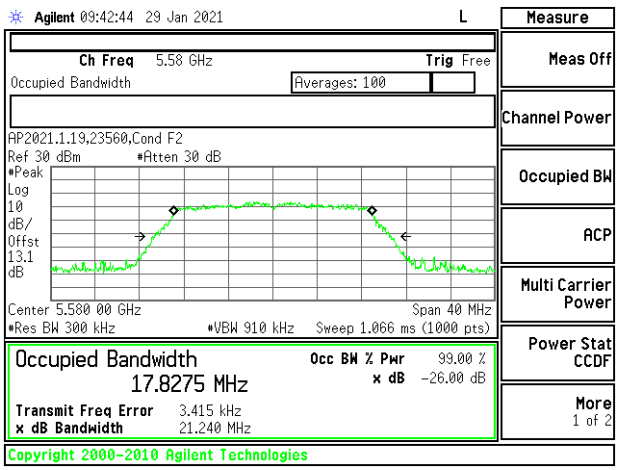
MID CHANNEL

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

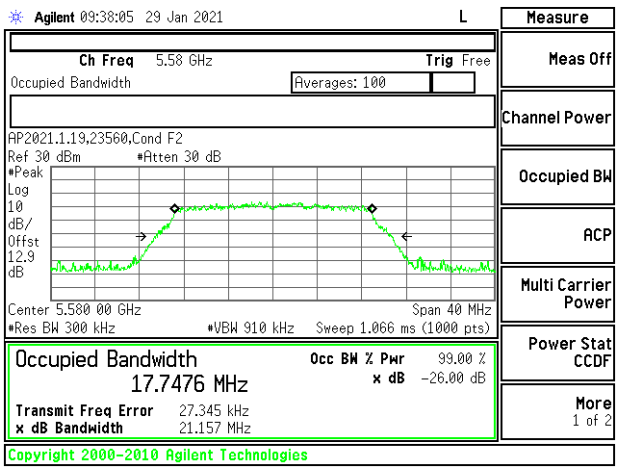
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5500	21.409	21.176	17.8630	17.7682
Mid	5580	21.240	21.157	17.8275	17.7476
High	5700	21.340	21.049	17.8156	17.7909
144	5720	21.232	21.153	17.7995	17.7775



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

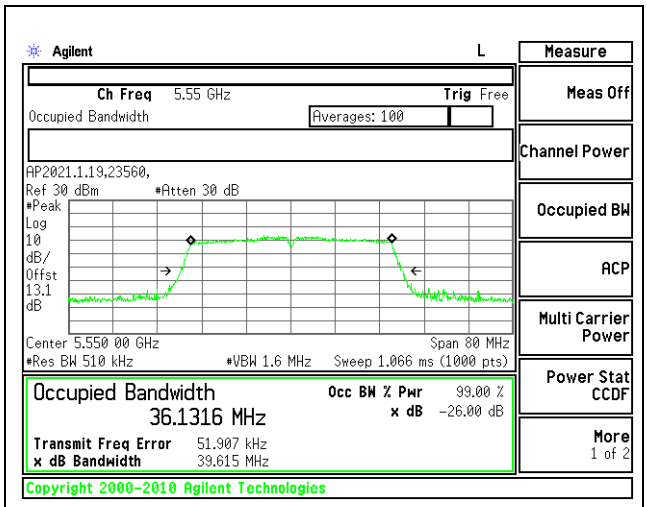
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.14. 802.11n HT40 MODE IN THE 5.6 GHz BAND

1TX Antenna 6 MODE

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5510	39.354	36.1120
Mid	5550	39.615	36.1316
High	5670	39.551	36.1791
142	5710	39.446	36.0806



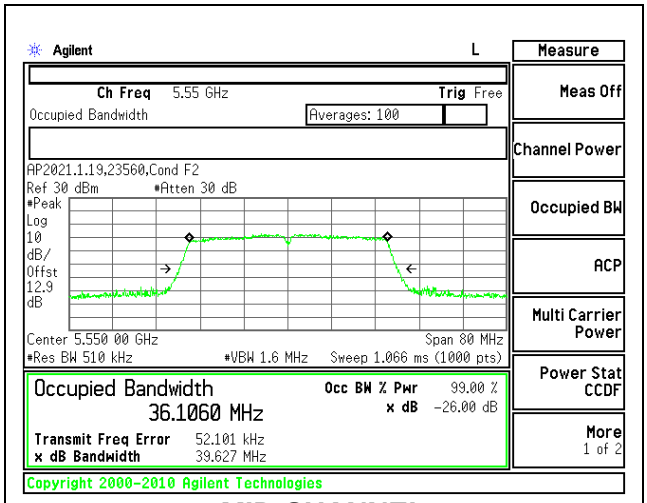
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5510	39.877	36.0575
Mid	5550	39.627	36.1060
High	5670	39.428	36.0630
142	5710	39.398	36.1592



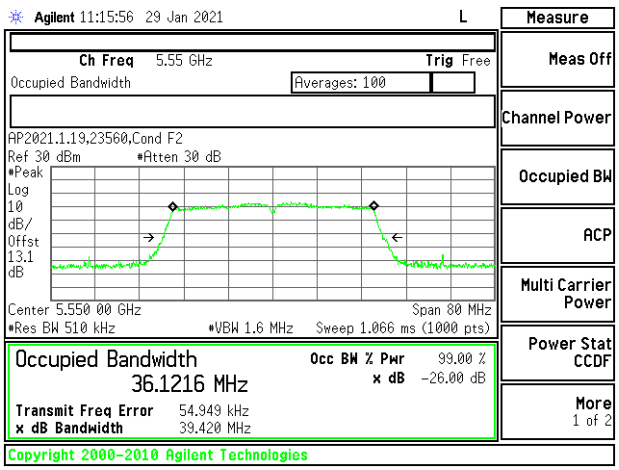
MID CHANNEL

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

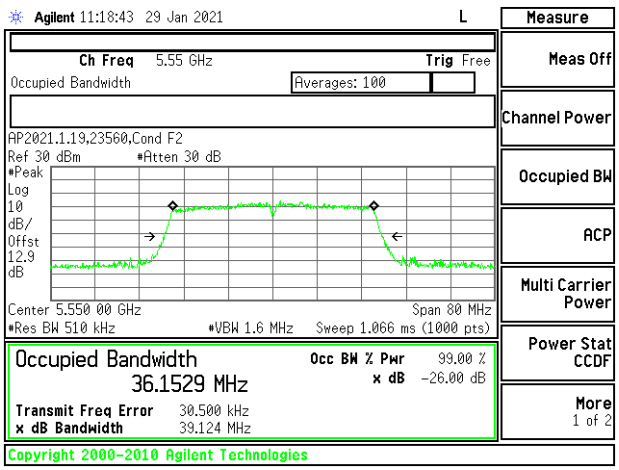
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5510	39.750	39.139	36.0748	36.0922
Mid	5550	39.420	39.124	36.1216	36.1529
High	5670	39.460	39.274	36.0758	36.1488
144	5710	39.529	39.240	36.0734	36.0928



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

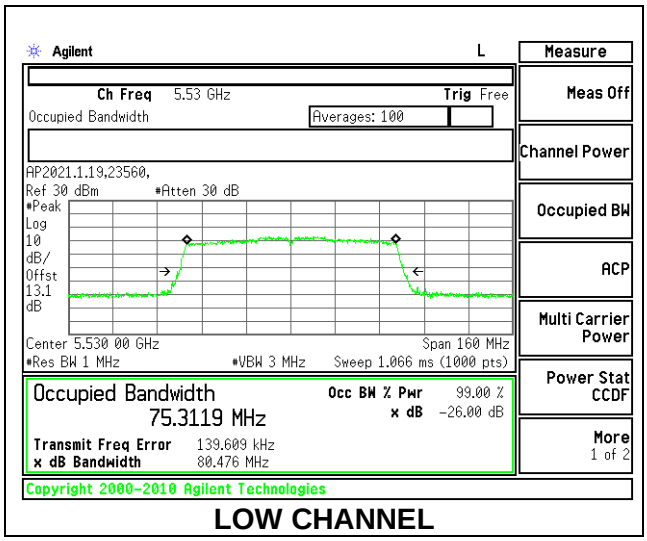
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.15. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND

1TX Antenna 6 MODE

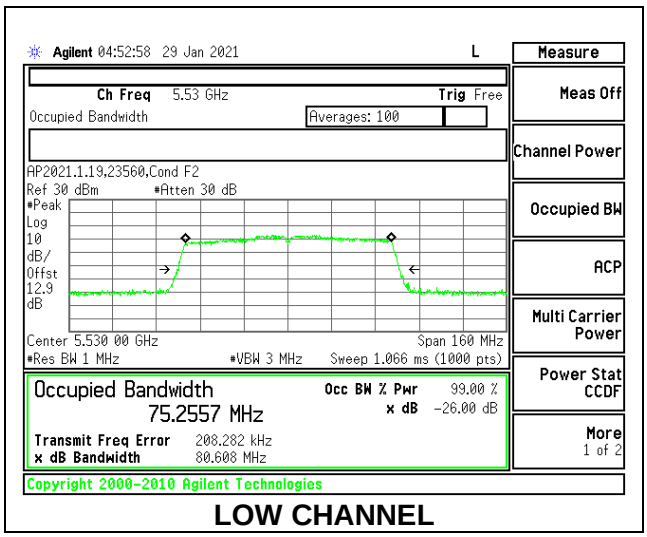
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5530	80.476	75.3119
High	5610	80.310	75.1810
138	5690	80.539	75.1950



LOW CHANNEL

1TX Antenna 5 MODE

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5530	80.608	75.2557
High	5610	80.200	75.2336
138	5690	80.733	75.2564



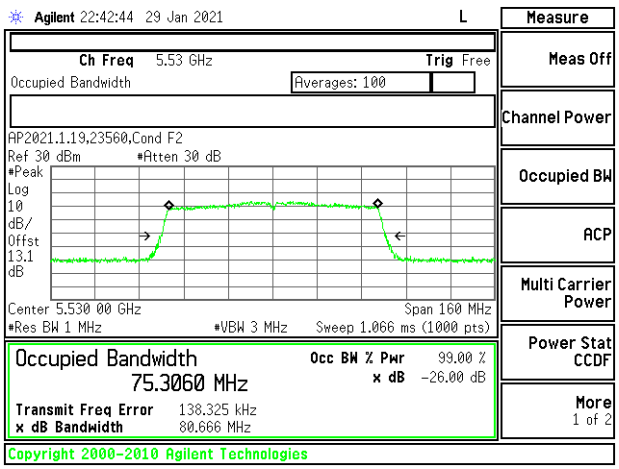
LOW CHANNEL

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

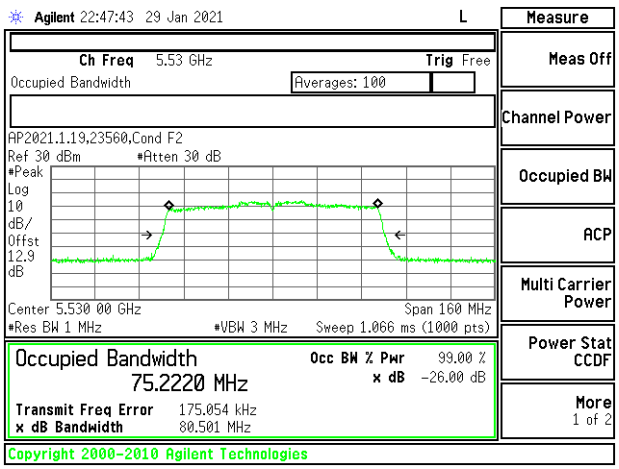
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5530	80.666	80.501	75.3060	75.2220
High	5610	80.804	80.202	75.3023	75.1738
138	5690	80.732	80.212	75.1264	75.3634



LOW CHANNEL [ANT 6]



LOW CHANNEL [ANT 5]

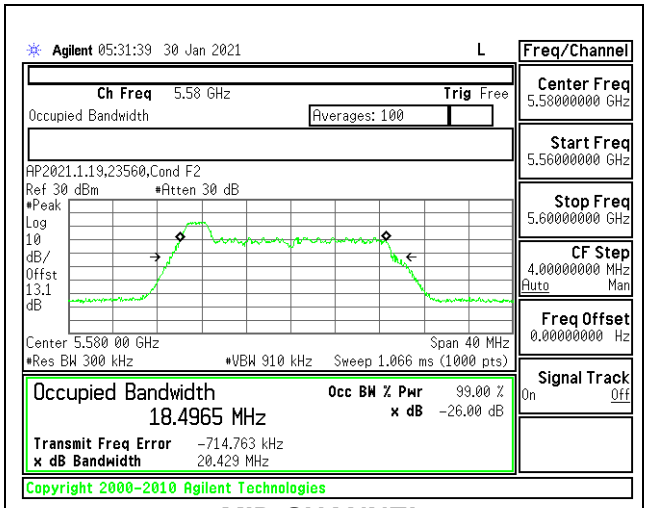
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.16. 802.11ax HE20 MODE IN THE 5.6 GHz BAND

1TX Antenna 6 MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5500	20.378	18.5412
Mid	5580	20.429	18.4965
High	5700	20.018	18.3997
144	5720	19.723	18.3515



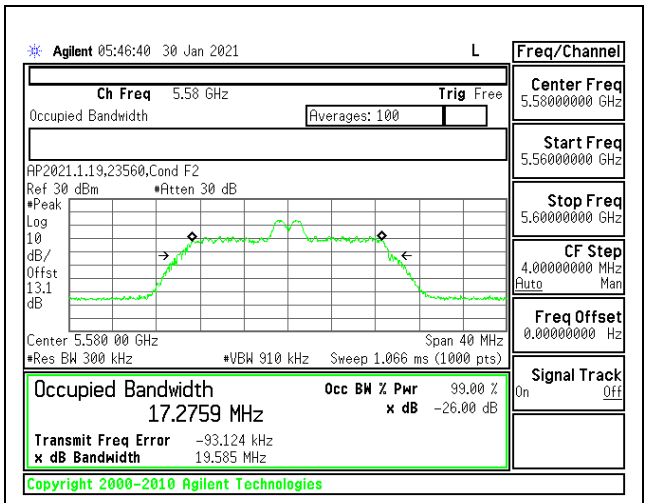
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: 26 Tones, RU Index 4

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5500	19.444	17.2795
Mid	5580	19.585	17.2759
High	5700	19.522	17.2315
144	5720	19.523	17.3976



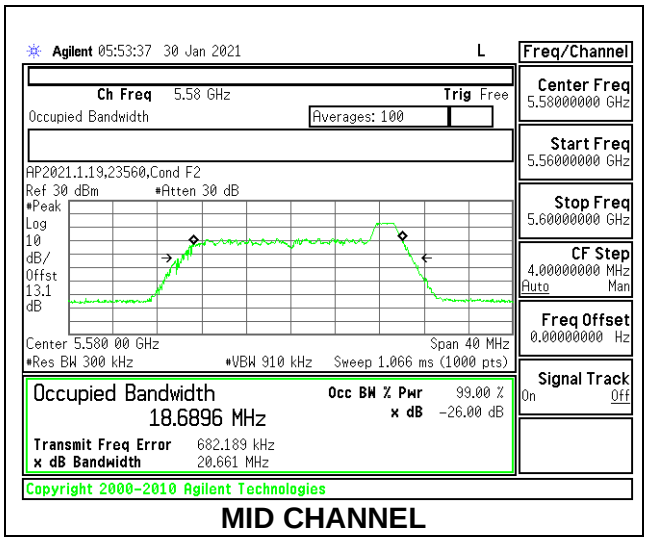
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: 26 Tones, RU Index 8

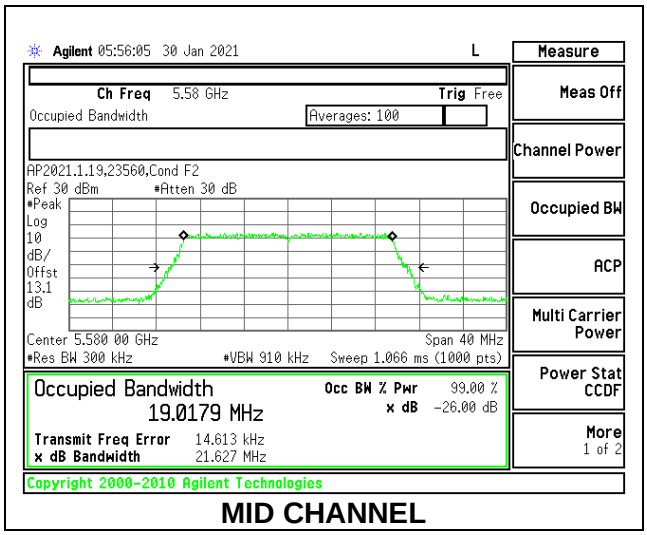
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5500	20.808	18.7584
Mid	5580	20.661	18.6896
High	5700	20.763	18.7921
144	5720	20.888	18.7345



MID CHANNEL

1TX Antenna 6 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5500	21.417	19.0136
Mid	5580	21.627	19.0179
High	5700	21.342	19.0141
144	5720	21.630	19.0900



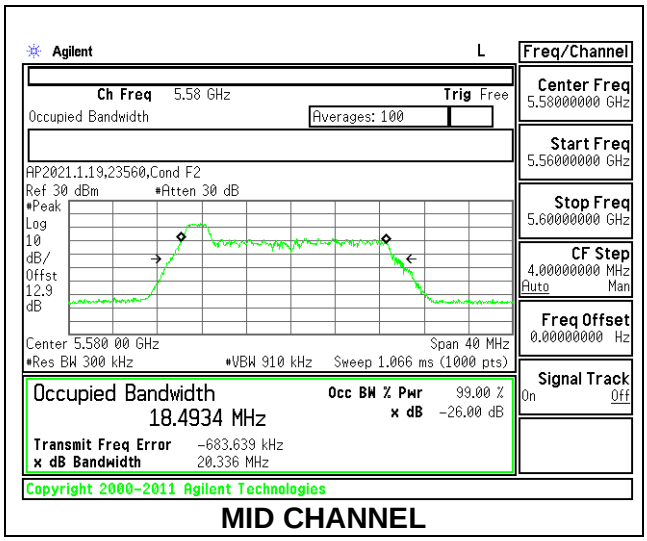
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 0

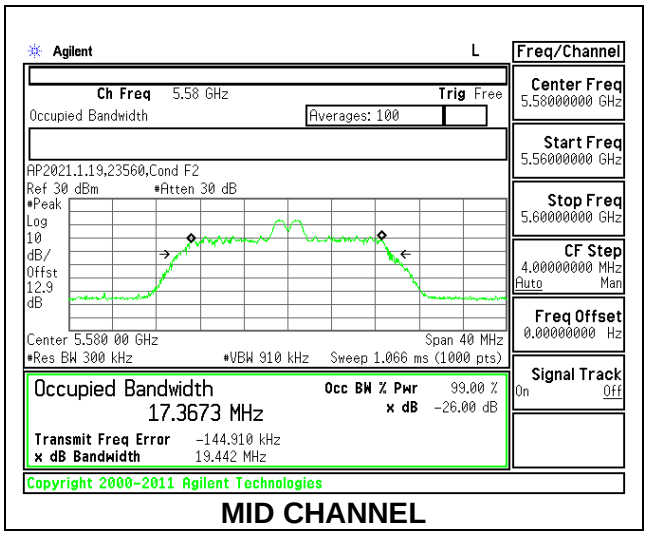
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5500	20.222	18.4731
Mid	5580	20.336	18.4934
High	5700	20.543	18.5833
144	5720	19.980	18.4930



MID CHANNEL

1TX Antenna 5 MODE: 26 Tones, RU Index 4

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5500	19.410	17.2659
Mid	5580	19.442	17.3673
High	5700	19.510	17.3558
144	5720	19.490	17.2770



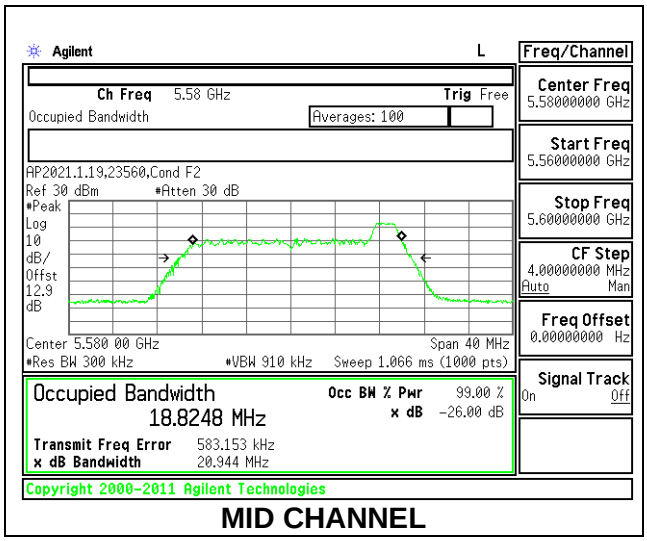
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 8

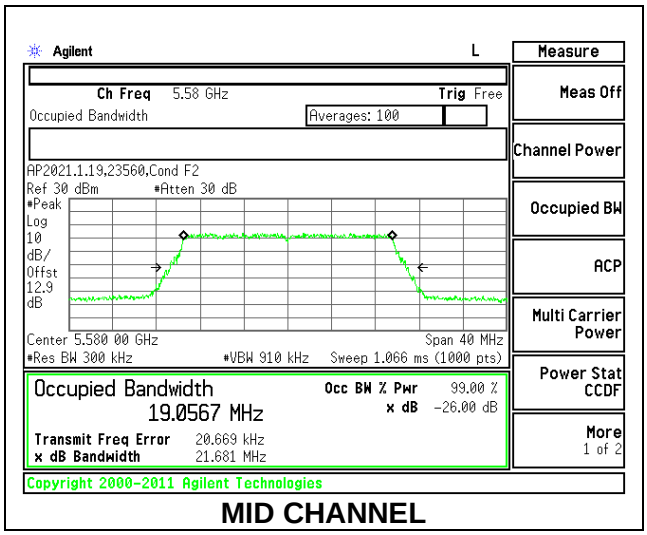
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5500	20.815	18.7099
Mid	5580	20.944	18.8248
High	5700	20.822	18.7178
144	5720	21.060	18.7670



MID CHANNEL

1TX Antenna 5 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5500	21.507	19.0452
Mid	5580	21.681	19.0567
High	5700	21.579	18.9983
144	5720	21.310	19.1620



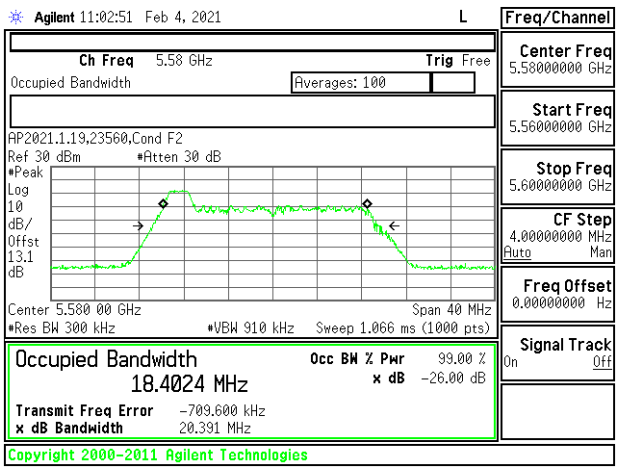
MID CHANNEL

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

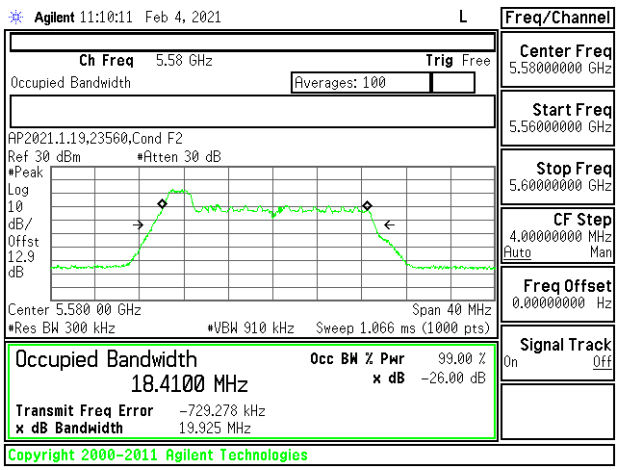
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5500	20.347	19.871	18.4530	18.3654
Mid	5580	20.391	19.925	18.4024	18.4100
High	5700	20.279	19.827	18.3453	18.4097
144	5720	20.273	19.915	18.4907	18.4014



MID CHANNEL [ANT 6]



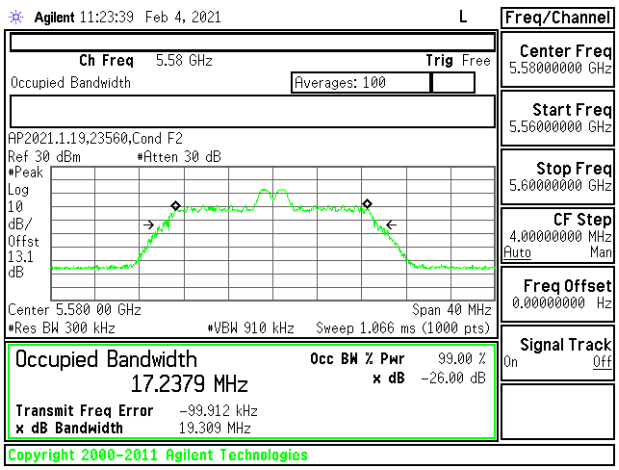
MID CHANNEL [ANT 5]

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

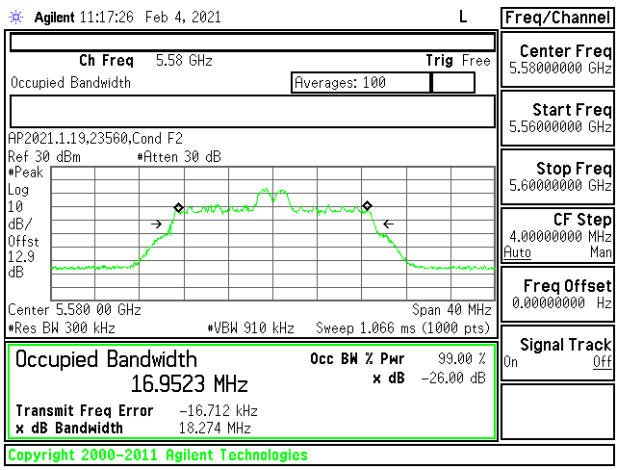
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 4

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5500	19.466	18.339	17.2571	16.9550
Mid	5580	19.309	18.274	17.2379	16.9523
High	5700	19.503	18.164	17.3244	16.9907
144	5720	19.355	18.365	17.3467	16.8740



MID CHANNEL [ANT 6]



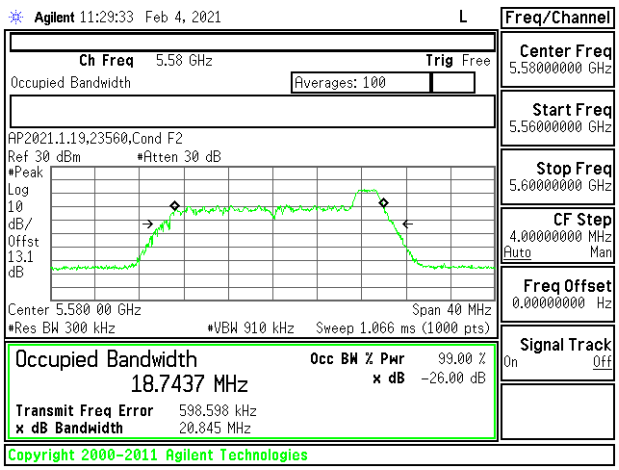
MID CHANNEL [ANT 5]

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

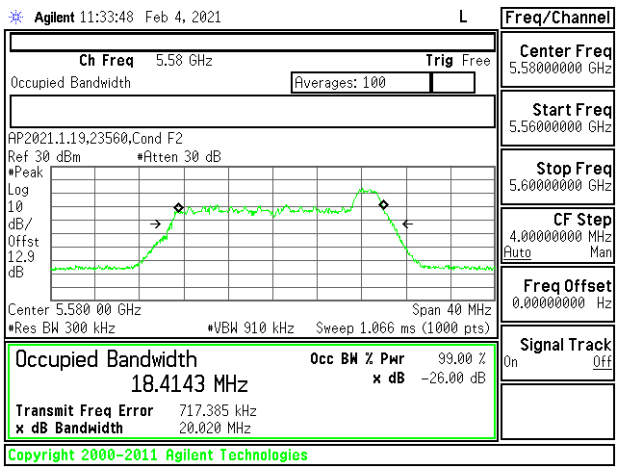
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5500	20.848	19.959	18.6590	18.3122
Mid	5580	20.845	20.020	18.7437	18.4143
High	5700	21.052	19.915	18.9287	18.4166
144	5720	20.723	20.055	18.7380	18.5464



MID CHANNEL [ANT 6]



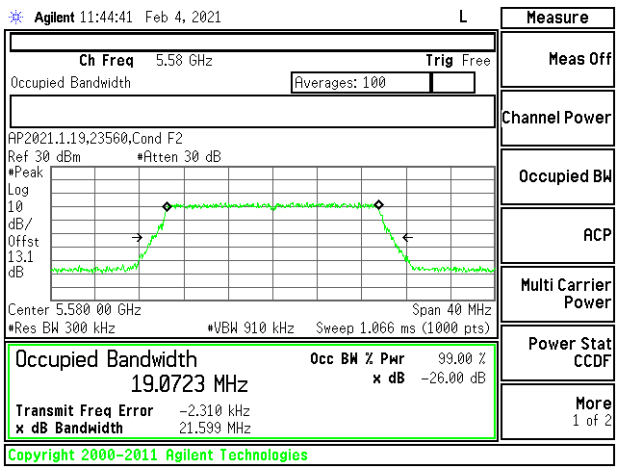
MID CHANNEL [ANT 5]

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

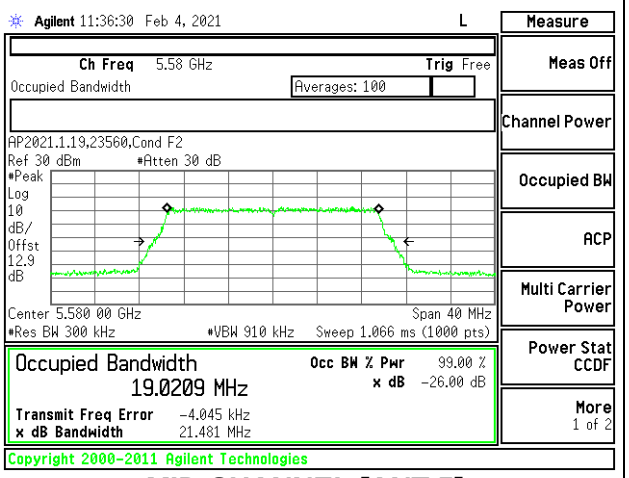
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5500	21.331	21.179	19.0555	19.0347
Mid	5580	21.599	21.481	19.0723	19.0209
High	5700	21.395	21.368	19.0277	19.0460
144	5720	21.510	21.662	19.0471	19.0362



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

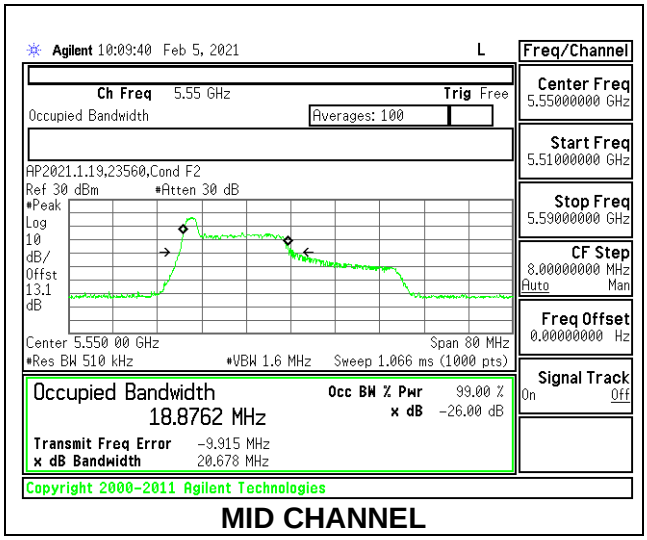
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.17. 802.11ax HE40 MODE IN THE 5.6 GHz BAND

1TX Antenna 6 MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5510	20.624	18.7283
Mid	5550	20.678	18.8762
High	5670	20.505	18.7806
142	5710	20.643	18.4712



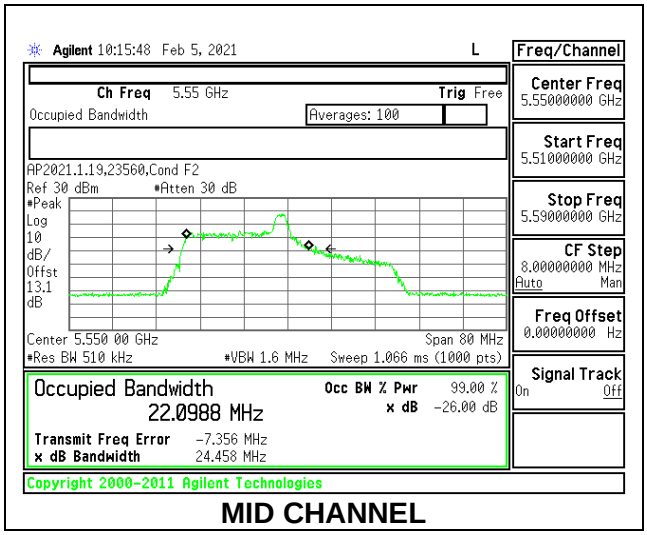
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: 26 Tones, RU Index 8

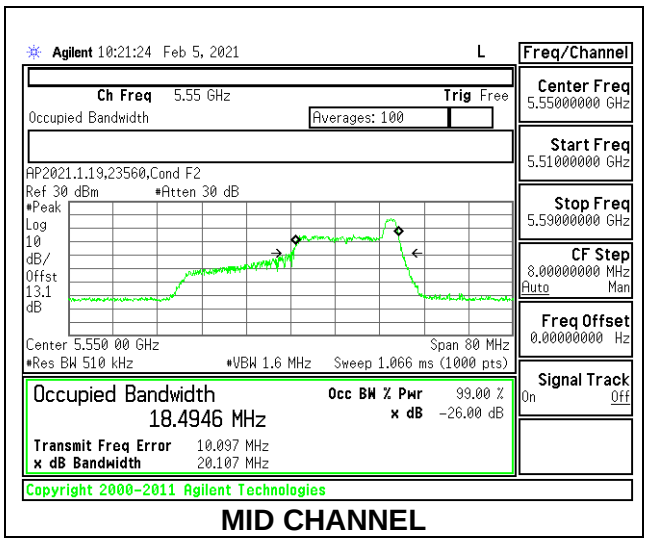
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5510	22.794	21.9613
Mid	5550	24.458	22.0988
High	5670	23.877	22.1862
142	5710	23.816	22.1287



MID CHANNEL

1TX Antenna 6 MODE: 26 Tones, RU Index 17

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5510	20.847	18.9957
Mid	5550	20.107	18.4946
High	5670	20.980	19.1785
142	5710	20.905	18.9633



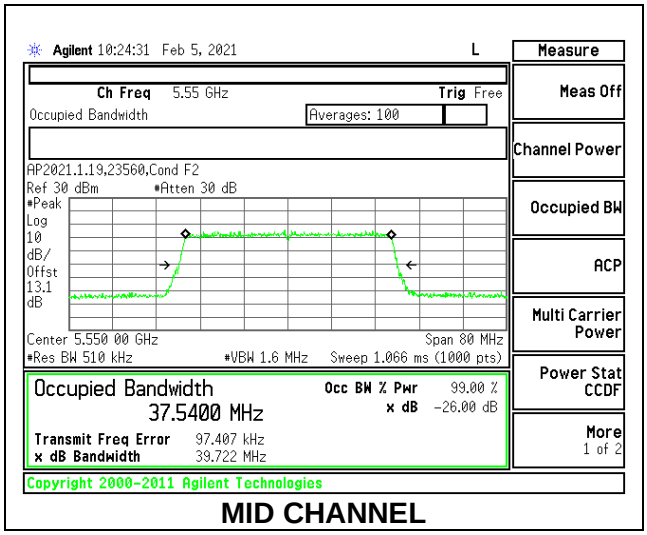
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: SU Mode

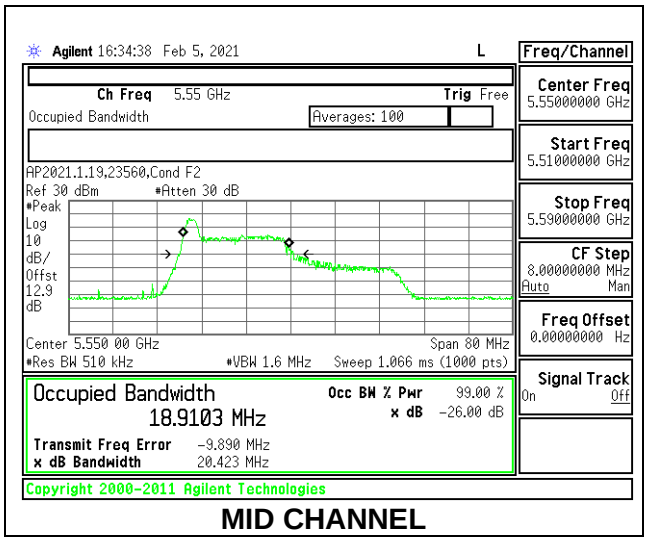
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5510	39.700	37.5426
Mid	5550	39.722	37.5400
High	5670	39.771	37.5120
142	5710	39.799	37.4913



MID CHANNEL

1TX Antenna 5 MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5510	19.387	18.3997
Mid	5550	20.423	18.9103
High	5670	20.315	18.4711
142	5710	20.367	18.9171



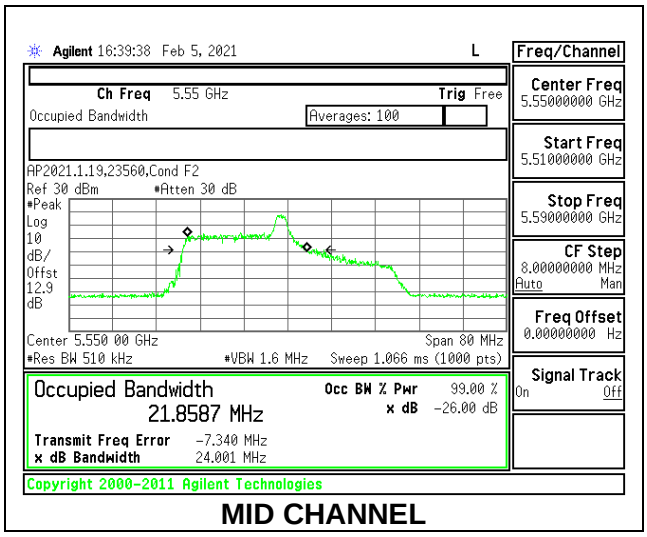
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 8

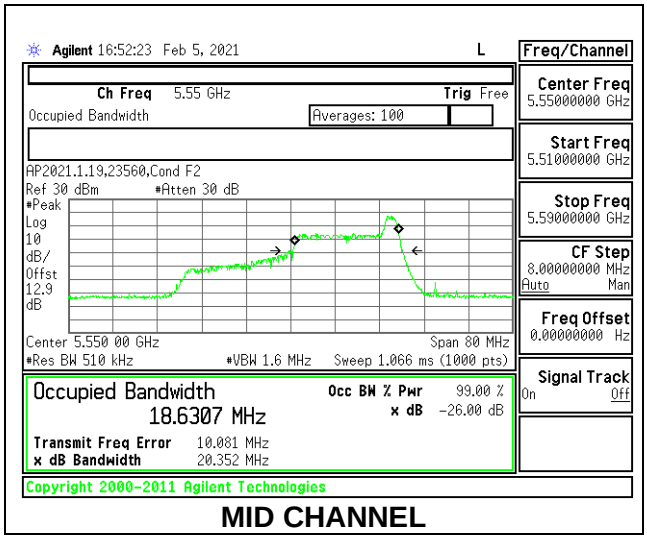
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5510	23.615	22.5375
Mid	5550	24.001	21.8587
High	5670	23.215	21.9954
142	5710	24.489	21.7594



MID CHANNEL

1TX Antenna 5 MODE: 26 Tones, RU Index 17

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5510	20.398	18.8887
Mid	5550	20.352	18.6307
High	5670	20.927	19.3170
142	5710	20.744	18.9661



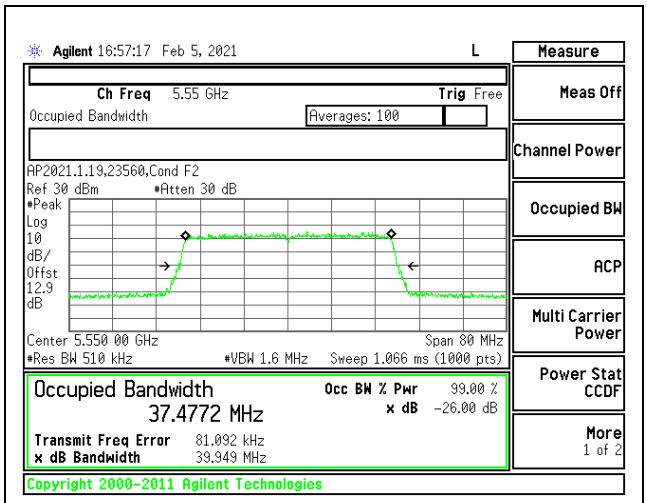
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5510	39.898	37.5451
Mid	5550	39.949	37.4772
High	5670	39.923	37.4814
142	5710	39.855	37.5194



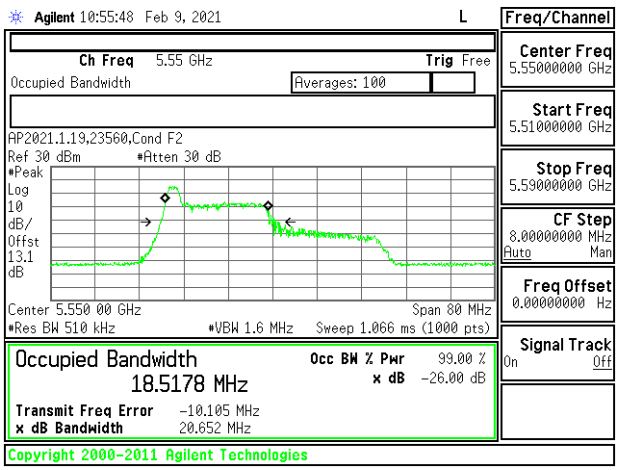
MID CHANNEL

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

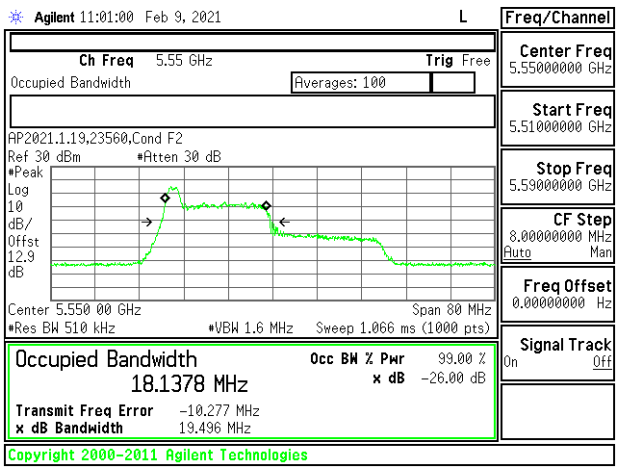
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5510	20.328	19.270	18.4498	18.1177
Mid	5550	20.652	19.496	18.5178	18.1378
High	5670	20.410	19.678	18.6027	18.1083
144	5710	20.271	19.701	18.3297	18.1127



MID CHANNEL [ANT 6]



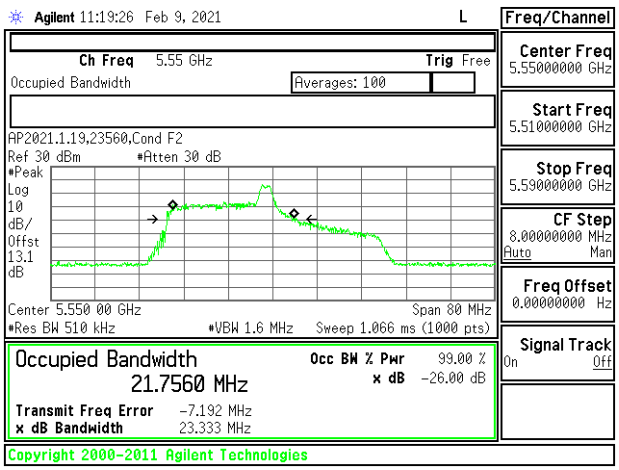
MID CHANNEL [ANT 5]

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

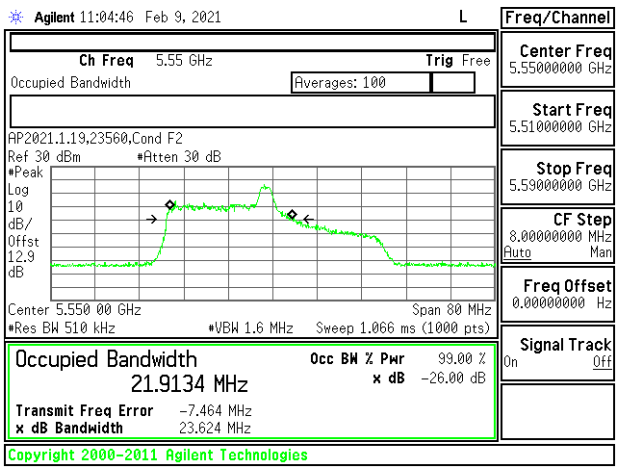
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5510	23.366	23.796	22.2018	21.5724
Mid	5550	23.333	23.624	21.7560	21.9134
High	5670	22.944	24.016	21.5492	21.4843
144	5710	23.938	23.282	22.2055	21.5318



MID CHANNEL [ANT 6]



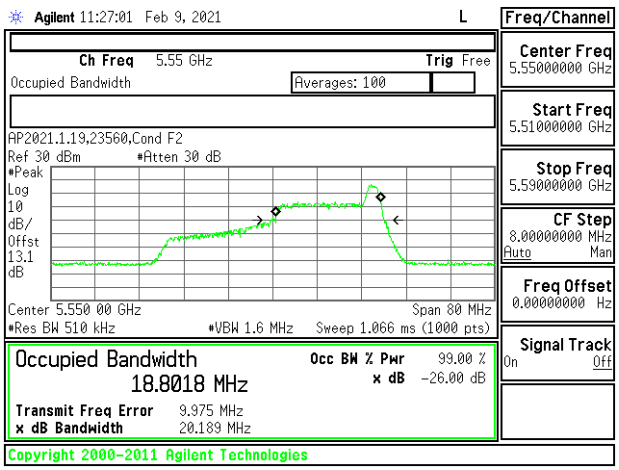
MID CHANNEL [ANT 5]

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

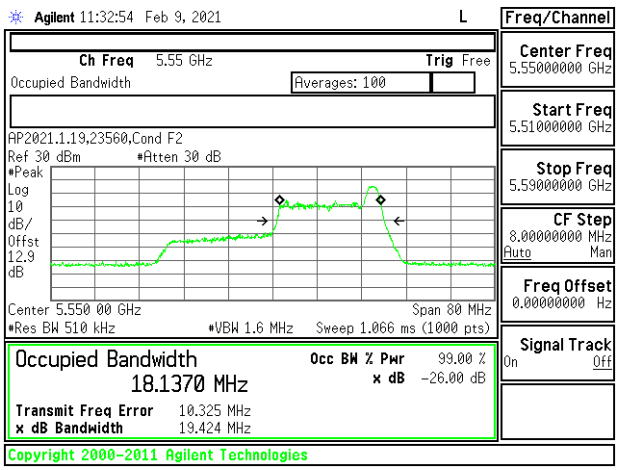
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 17

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5510	20.243	19.247	18.8748	18.1293
Mid	5550	20.189	19.424	18.8018	18.1370
High	5670	20.361	19.362	19.0321	18.1612
144	5710	20.768	19.419	19.3255	18.1210



MID CHANNEL [ANT 6]



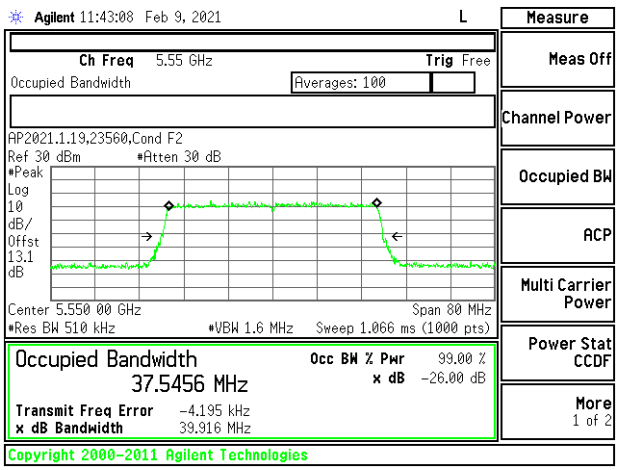
MID CHANNEL [ANT 5]

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

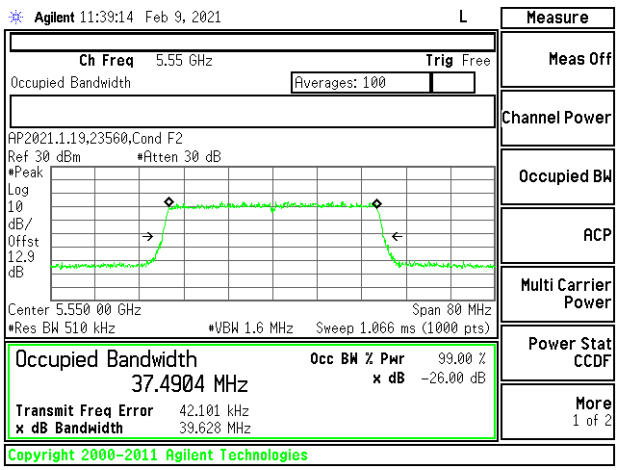
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5510	39.894	39.607	37.5560	37.4840
Mid	5550	39.916	39.628	37.5456	37.4904
High	5670	39.903	39.846	37.5115	37.5728
144	5710	39.822	39.664	37.5149	37.4617



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

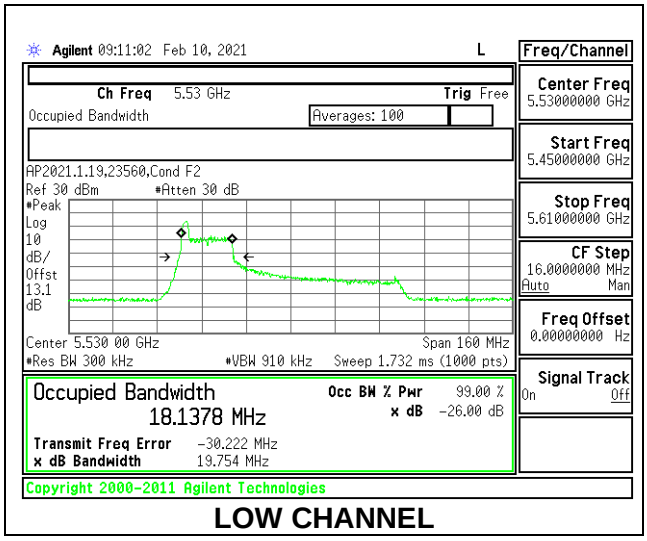
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.18. 802.11ax HE80 MODE IN THE 5.6 GHz BAND

1TX Antenna 6 MODE: 26 Tones, RU Index 0

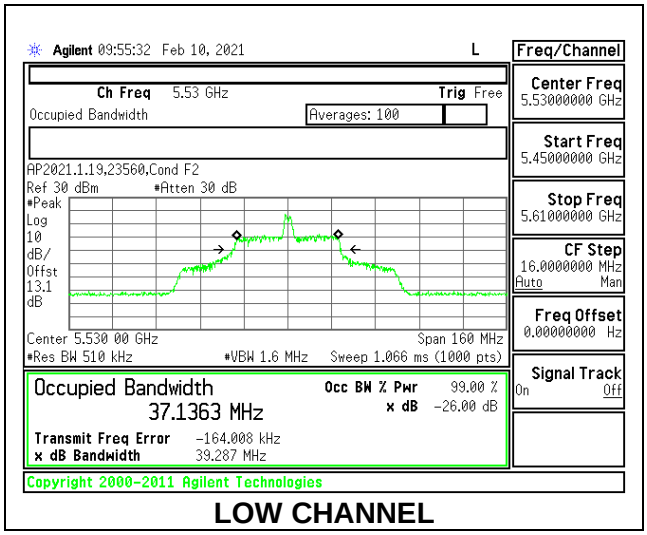
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5530	19.754	18.1378
High	5610	19.620	18.2616
138	5690	19.942	18.7179



LOW CHANNEL

1TX Antenna 6 MODE: 26 Tones, RU Index 18

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5530	39.287	37.1363
High	5610	40.840	37.8870
138	5690	39.171	37.0608



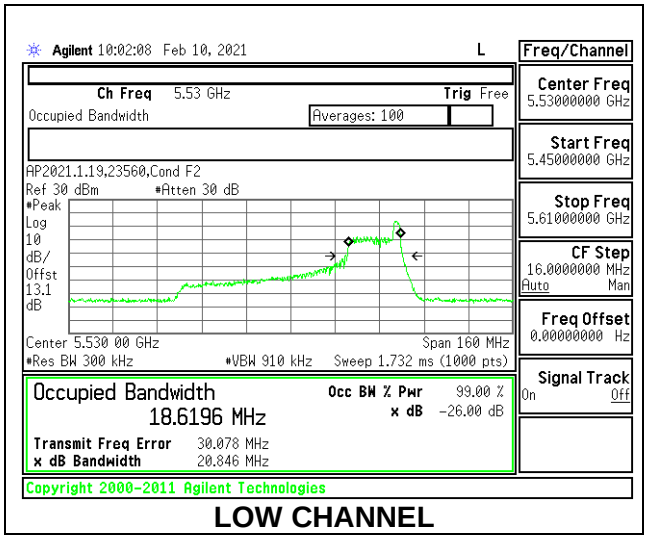
LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: 26 Tones, RU Index 36

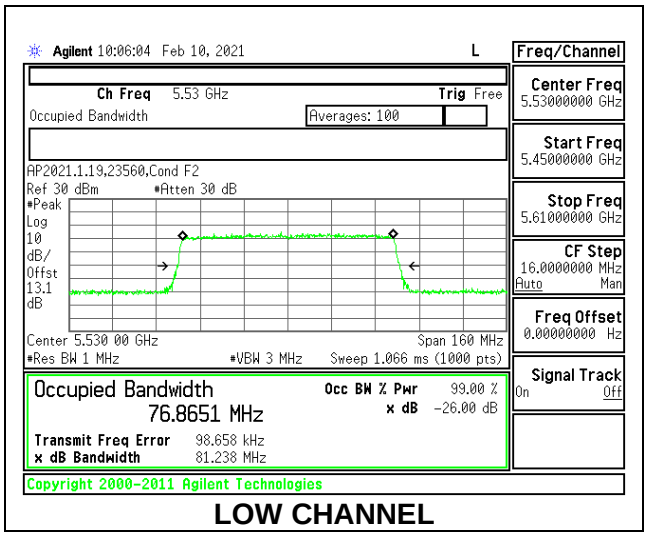
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5530	20.846	18.6196
High	5610	20.529	18.8966
138	5690	24.684	20.2202



LOW CHANNEL

1TX Antenna 6 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5530	81.238	76.8651
High	5610	80.921	76.7560
138	5690	80.615	76.8033



LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5530	19.910	18.8000
High	5610	19.740	18.4400
138	5690	19.787	18.5785

LOW CHANNEL

1TX Antenna 5 MODE: 26 Tones, RU Index 18

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5530	39.210	37.2110
High	5610	39.210	36.5910
138	5690	39.322	37.5754

LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

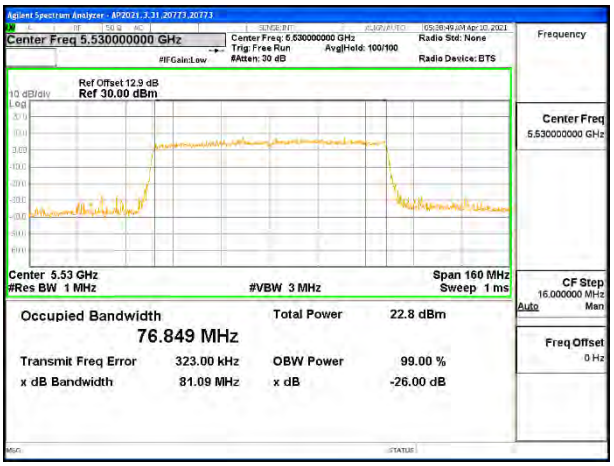
1TX Antenna 5 MODE: 26 Tones, RU Index 36

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5530	21.07	19.5960
High	5610	21.37	19.8660
138	5690	19.92	18.7957

LOW CHANNEL

1TX Antenna 5 MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5530	81.090	76.8490
High	5610	81.290	76.8990
138	5690	80.787	76.7500



LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5530	19.640	19.840	18.5590	18.3460
High	5610	20.170	19.330	18.7290	18.2540
138	5690	19.948	19.952	18.6362	18.4240

LOW CHANNEL [ANT 6]

LOW CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 18

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5530	39.100	38.320	37.0970	36.1790
High	5610	39.210	38.230	36.8930	36.1550
138	5690	39.002	38.215	37.3542	35.9866

LOW CHANNEL [ANT 6]

LOW CHANNEL [ANT 5]

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 36

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5530	20.950	19.690	19.7050	18.2900
High	5610	20.950	19.970	21.2310	18.2910
138	5690	20.409	19.783	20.0165	18.5225

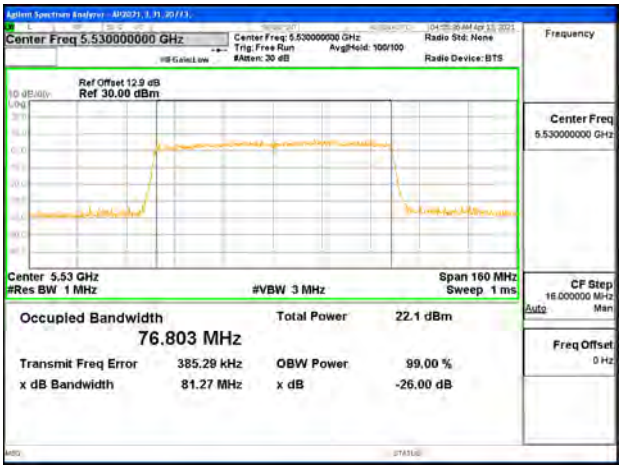
LOW CHANNEL [ANT 6]

LOW CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: SU Mode

Channel	Frequency (MHz)	26dB Bandwidth Antenna 6 (MHz)	26dB Bandwidth Antenna 5 (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5530	81.42	81.27	76.894	76.803
High	5610	81.42	81.38	76.931	76.767
138	5690	81.00	81.08	76.941	76.904

LOW CHANNEL [ANT 6]



LOW CHANNEL [ANT 5]

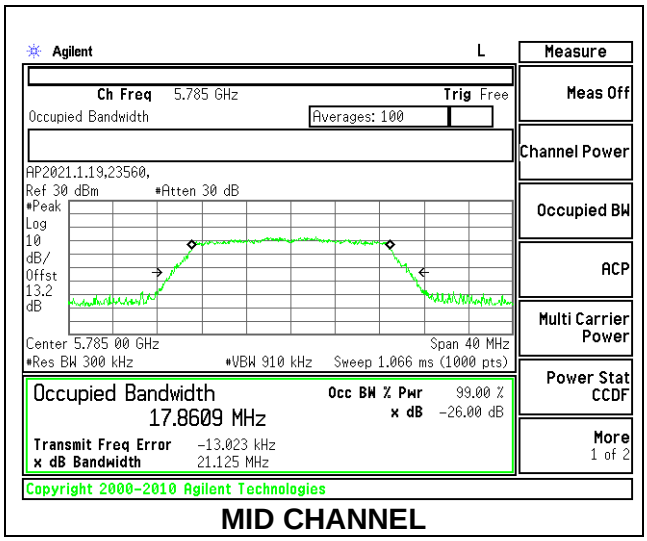
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.19. 802.11n HT20 MODE IN THE 5.8 GHz BAND

1TX Antenna 6 MODE

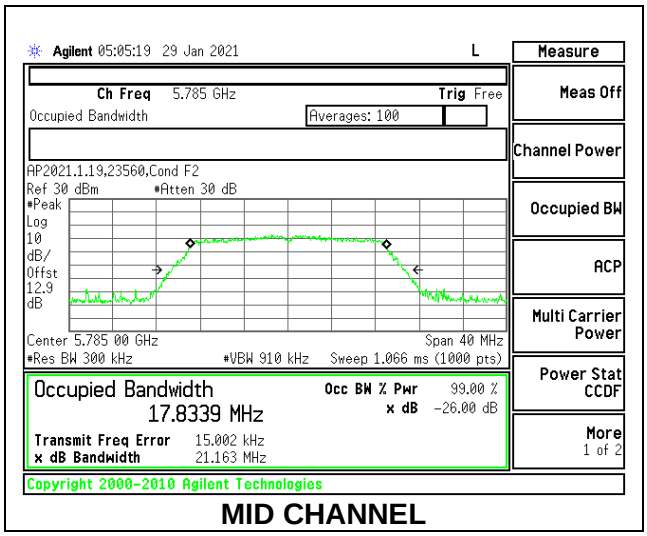
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.8226
Mid	5785	17.8609
High	5825	17.8908



MID CHANNEL

1TX Antenna 5 MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.8111
Mid	5785	17.8339
High	5825	17.8984



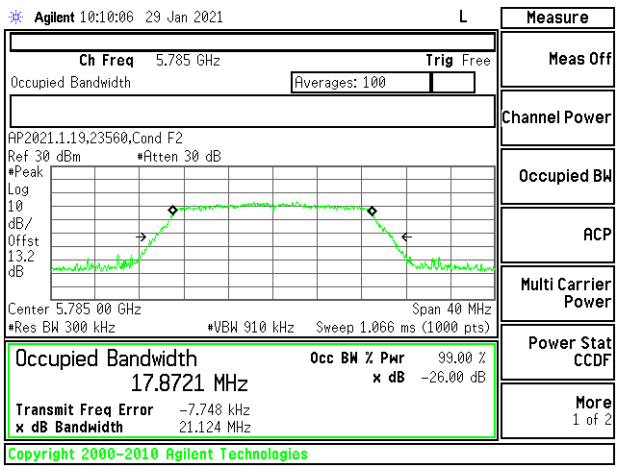
MID CHANNEL

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

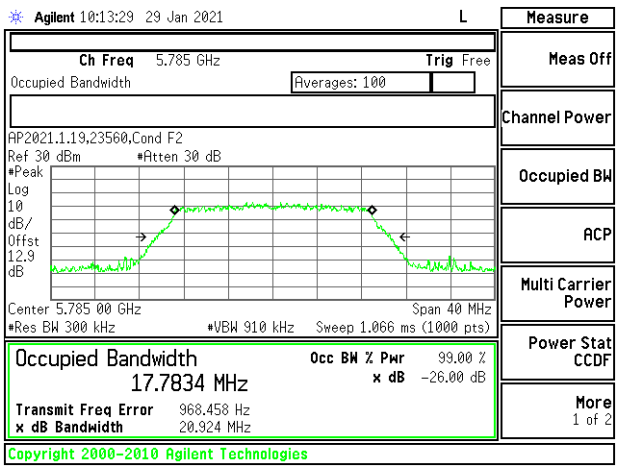
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5745	17.8078	17.7992
Mid	5785	17.8721	17.7834
High	5825	17.8000	17.7668



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

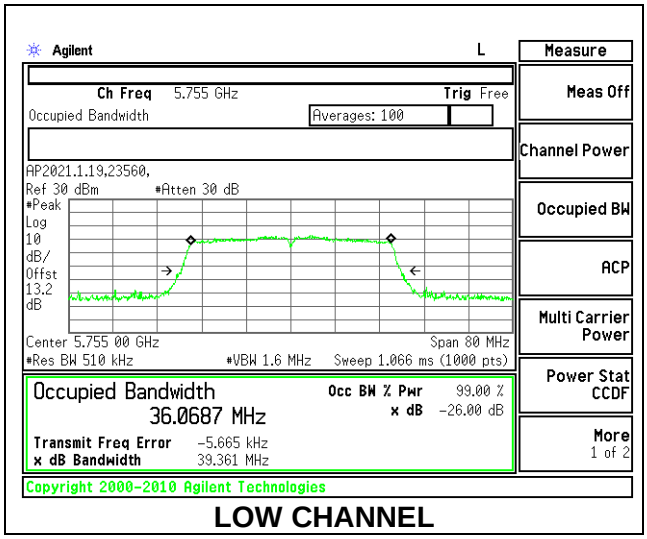
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.20. 802.11n HT40 MODE IN THE 5.8 GHz BAND

1TX Antenna 6 MODE

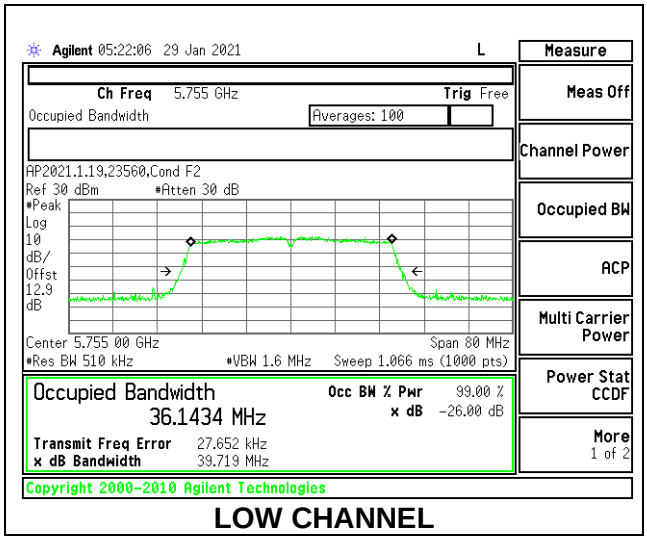
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	36.0687
High	5795	36.1776



LOW CHANNEL

1TX Antenna 5 MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	36.1434
High	5795	36.0968



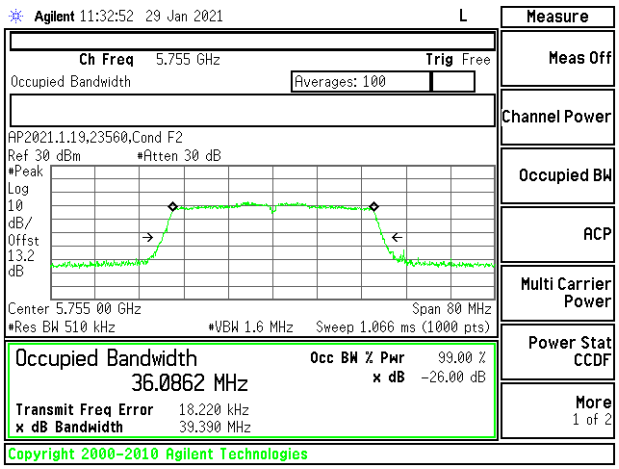
LOW CHANNEL

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

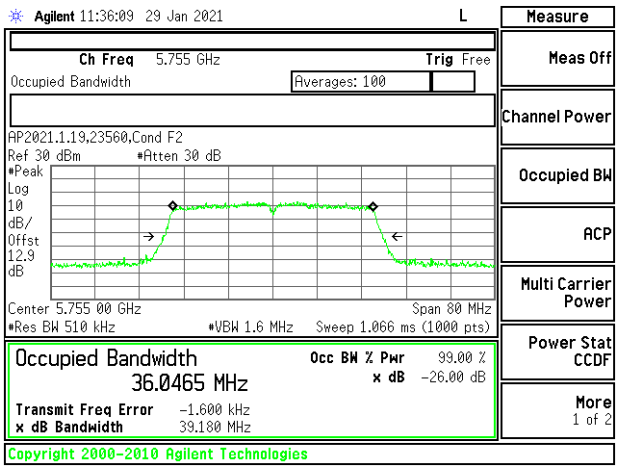
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5755	36.0862	36.0465
High	5795	36.1156	36.0931



LOW CHANNEL [ANT 6]



LOW CHANNEL [ANT 5]

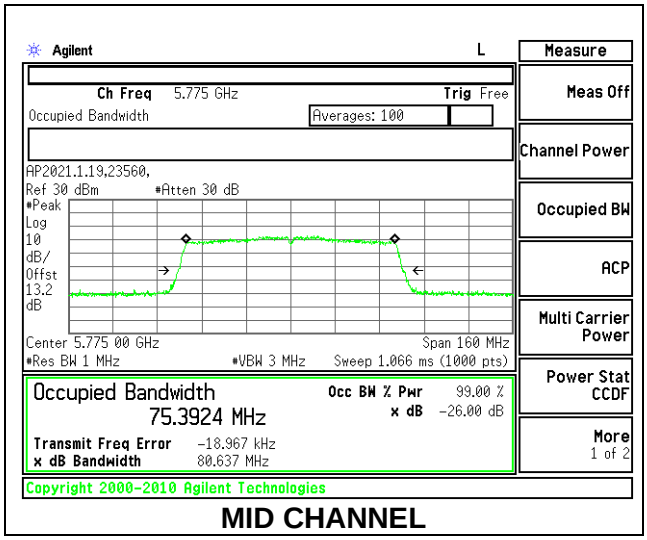
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.21. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

1TX Antenna 6 MODE

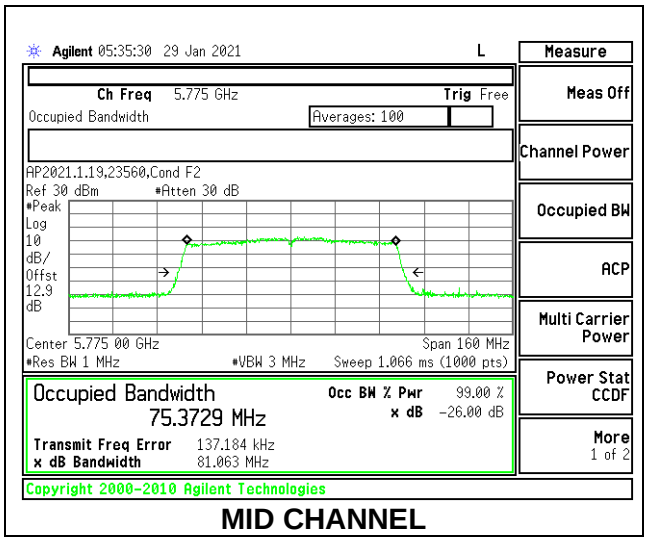
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5775	75.3924



MID CHANNEL

1TX Antenna 5 MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5775	75.3729



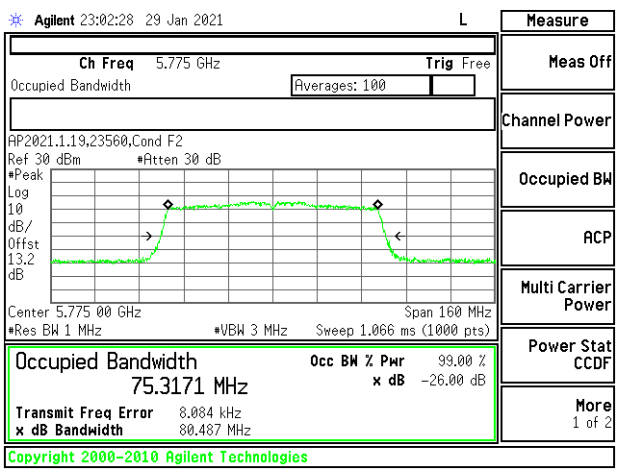
MID CHANNEL

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

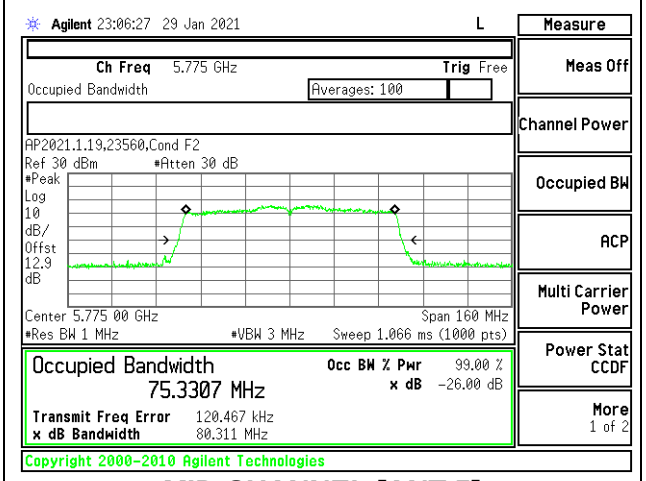
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Mid	5755	75.3171	75.3307



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

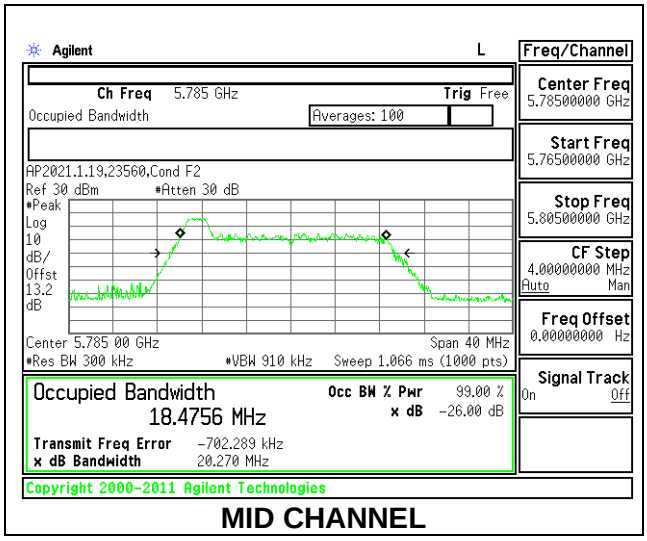
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.22. 802.11ax HE20 MODE IN THE 5.8 GHz BAND

1TX Antenna 6 MODE: 26 Tones, RU Index 0

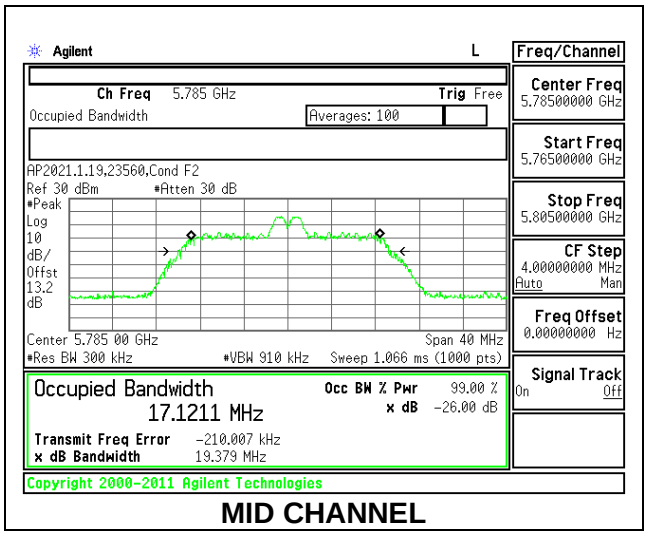
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	18.4690
Mid	5785	18.4756
High	5825	18.4097



MID CHANNEL

1TX Antenna 6 MODE: 26 Tones, RU Index 4

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.2632
Mid	5785	17.1211
High	5825	17.1641



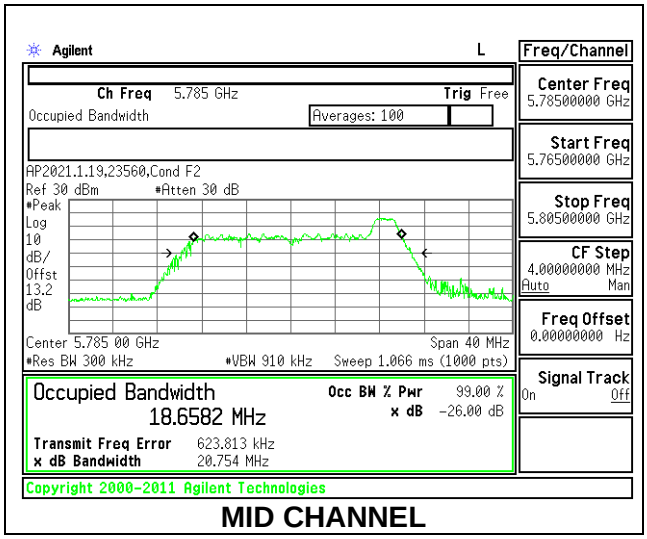
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: 26 Tones, RU Index 8

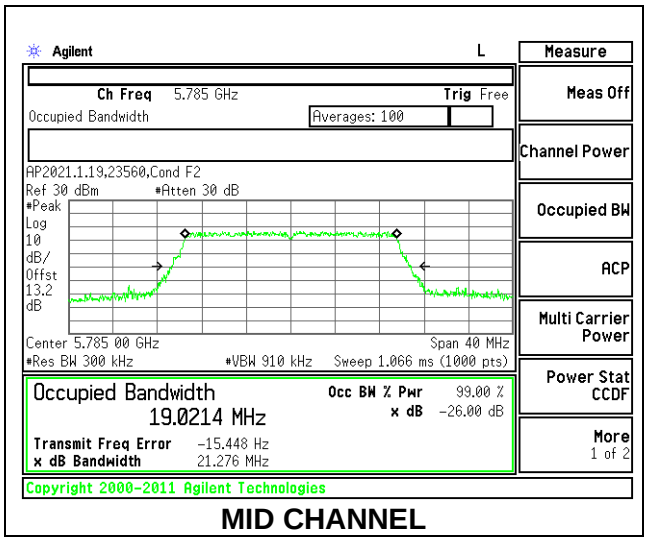
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	18.7419
Mid	5785	18.6582
High	5825	18.7019



MID CHANNEL

1TX Antenna 6 MODE: SU Mode

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	19.0063
Mid	5785	19.0214
High	5825	19.0327



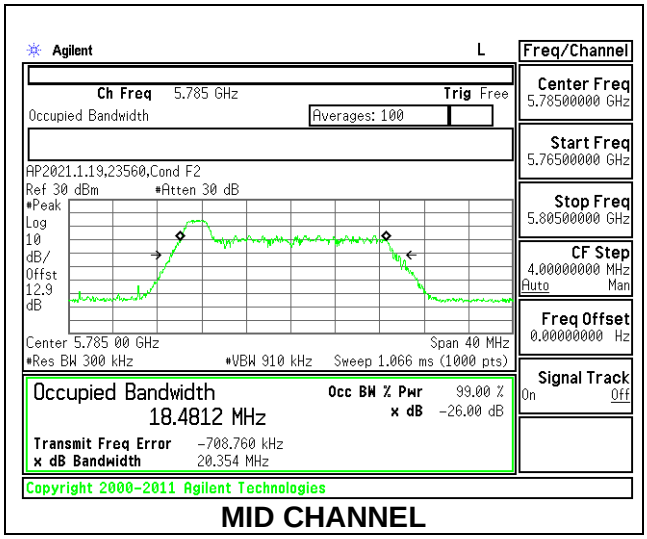
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 0

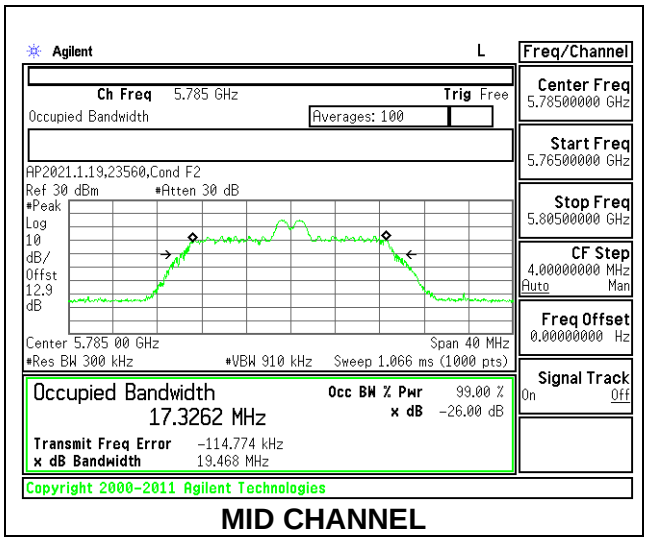
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	18.4403
Mid	5785	18.4812
High	5825	18.4939



MID CHANNEL

1TX Antenna 5 MODE: 26 Tones, RU Index 4

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.3274
Mid	5785	17.3262
High	5825	17.2681



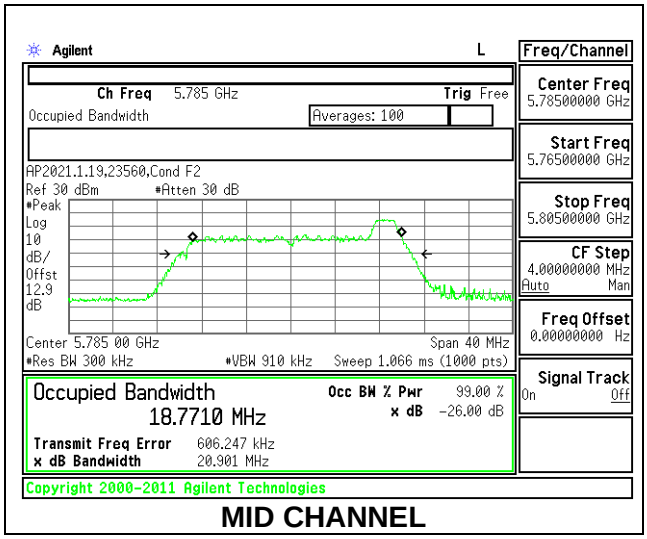
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 8

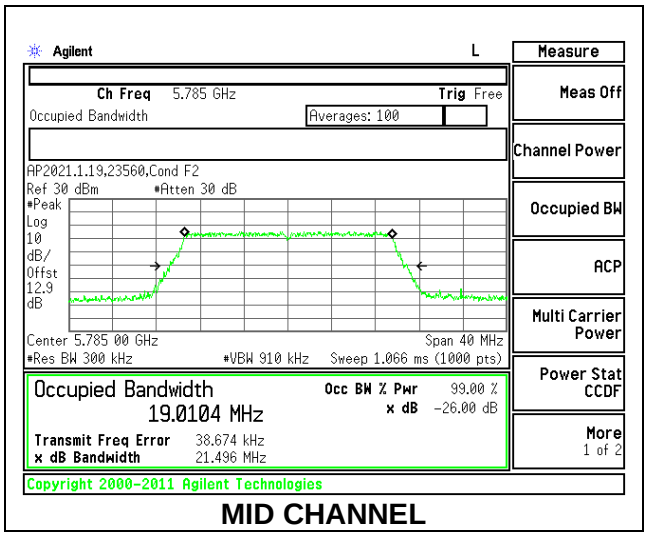
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	18.8282
Mid	5785	18.7710
High	5825	18.7483



MID CHANNEL

1TX Antenna 5 MODE: SU Mode

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	19.0070
Mid	5785	19.0104
High	5825	18.9715



MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5745	18.250	18.343
Mid	5785	18.483	18.533
High	5825	18.583	18.538

MID CHANNEL [ANT 6]

MID CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 4

Channel	Frequency (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5745	17.286	16.823
Mid	5785	17.340	16.980
High	5825	17.127	16.940

MID CHANNEL [ANT 6]

MID CHANNEL [ANT 5]

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 8

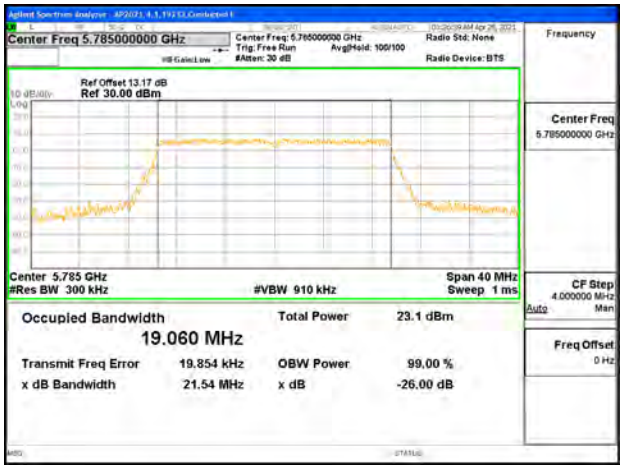
Channel	Frequency (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5745	18.710	18.297
Mid	5785	18.700	18.501
High	5825	18.692	18.592

MID CHANNEL [ANT 6]

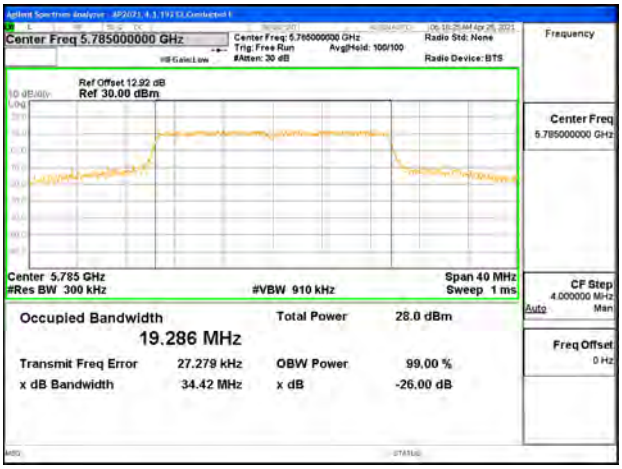
MID CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: SU Mode

Channel	Frequency (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5745	19.0154	19.0344
Mid	5785	19.0600	19.2860
High	5825	19.1590	19.1840



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

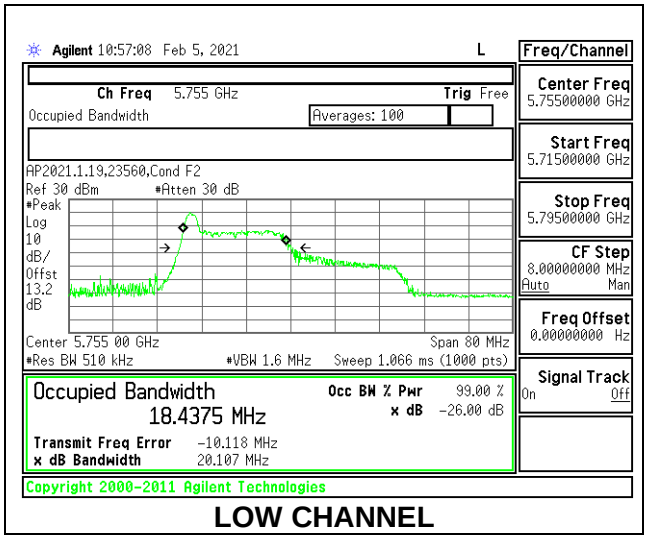
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.23. 802.11ax HE40 MODE IN THE 5.8 GHz BAND

1TX Antenna 6 MODE: 26 Tones, RU Index 0

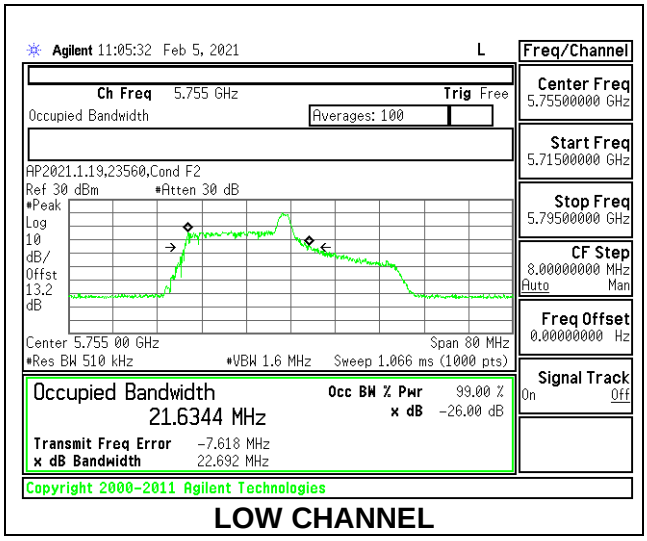
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	18.4375
High	5795	18.3686



LOW CHANNEL

1TX Antenna 6 MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	21.6344
High	5795	21.8051



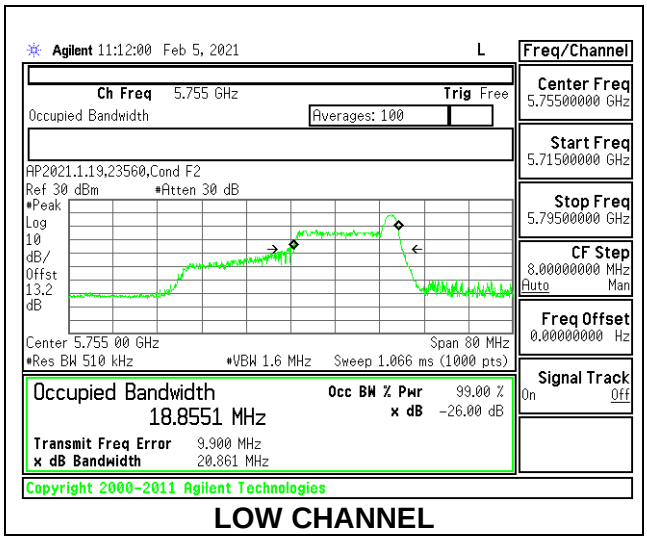
LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: 26 Tones, RU Index 17

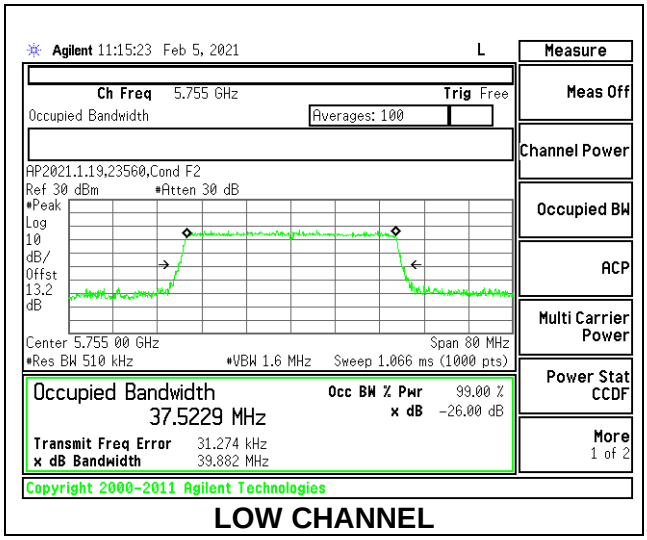
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	18.8551
High	5795	18.9913



LOW CHANNEL

1TX Antenna 6 MODE: SU Mode

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	37.5229
High	5795	37.5493



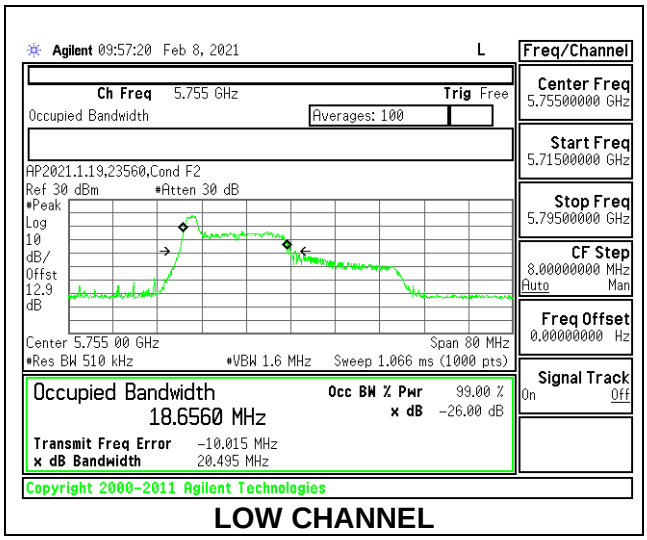
LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 0

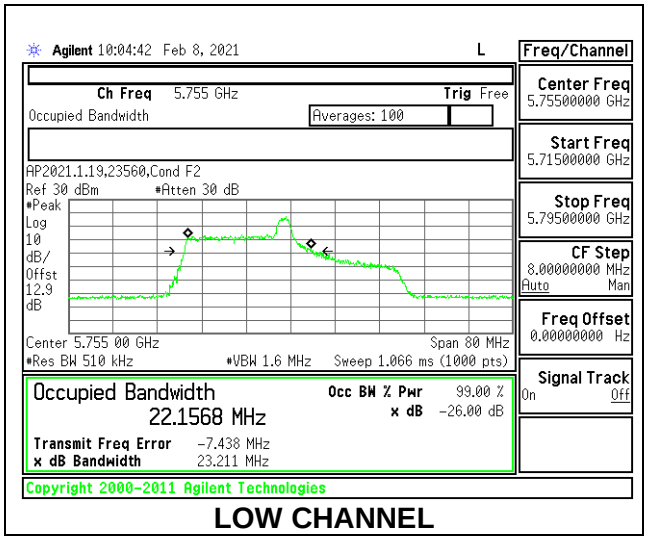
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	18.6560
High	5795	18.7269



LOW CHANNEL

1TX Antenna 5 MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	22.1568
High	5795	21.7243



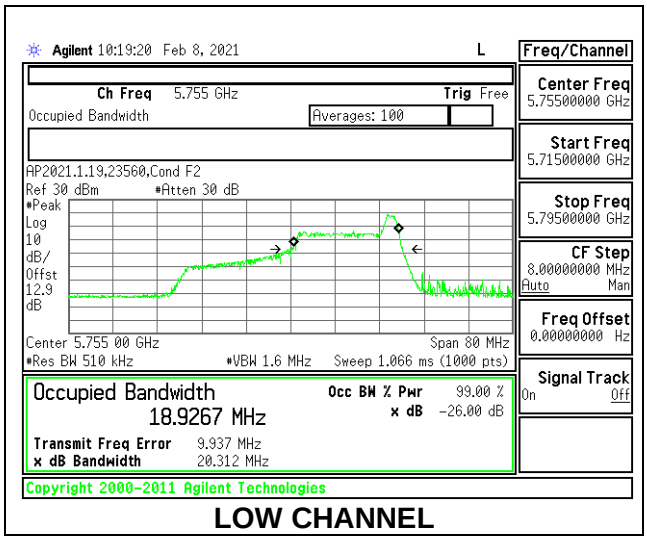
LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 17

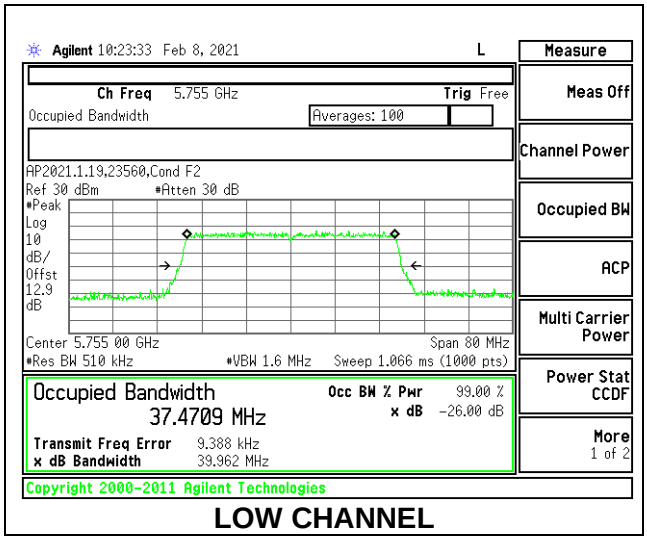
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	18.9267
High	5795	18.8436



LOW CHANNEL

1TX Antenna 5 MODE: SU Mode

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	37.4709
High	5795	37.5112



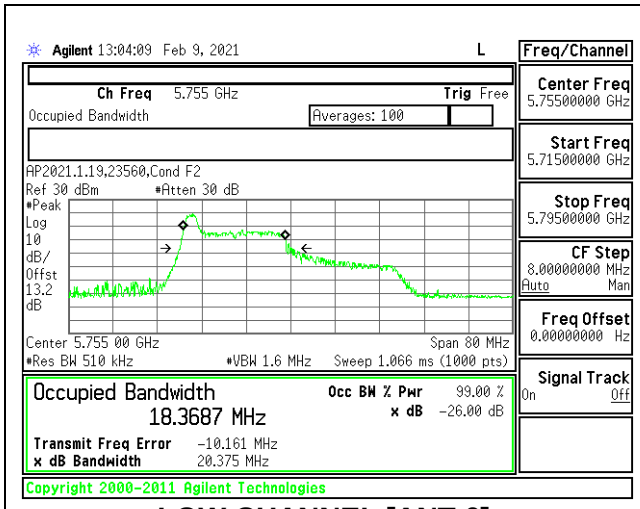
LOW CHANNEL

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

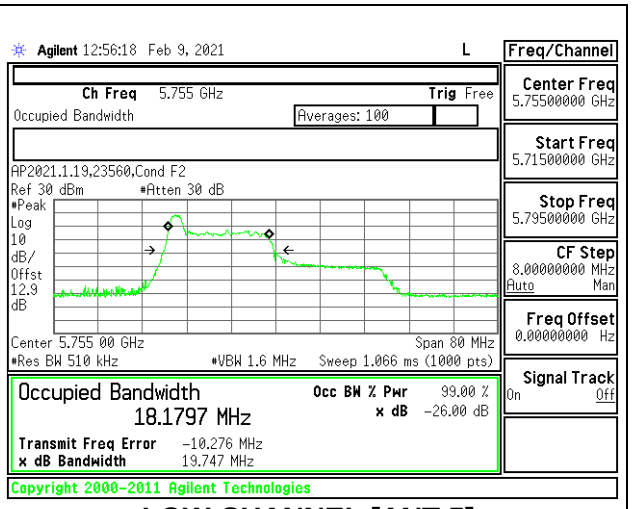
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5755	18.3687	18.1797
High	5795	18.7508	18.0066



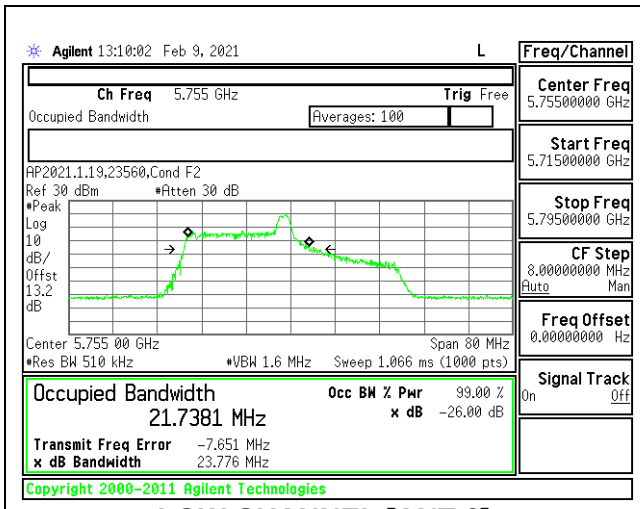
LOW CHANNEL [ANT 6]



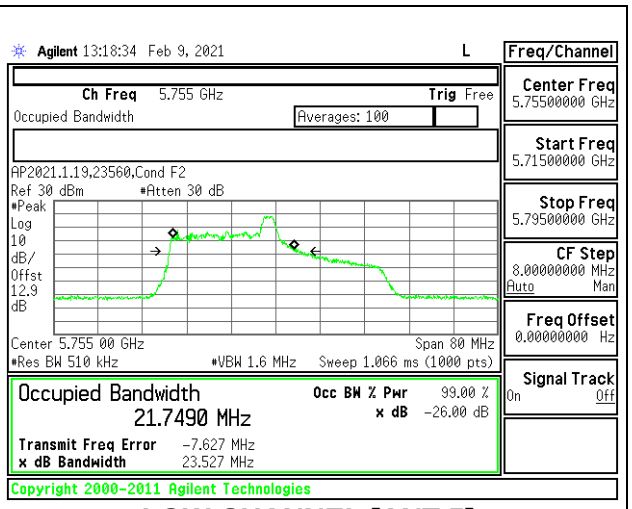
LOW CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5755	21.7381	21.7490
High	5795	20.1030	21.6963



LOW CHANNEL [ANT 6]



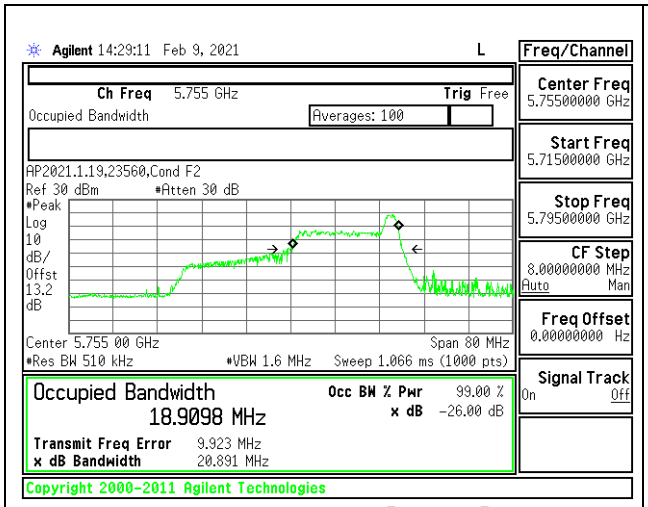
LOW CHANNEL [ANT 5]

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

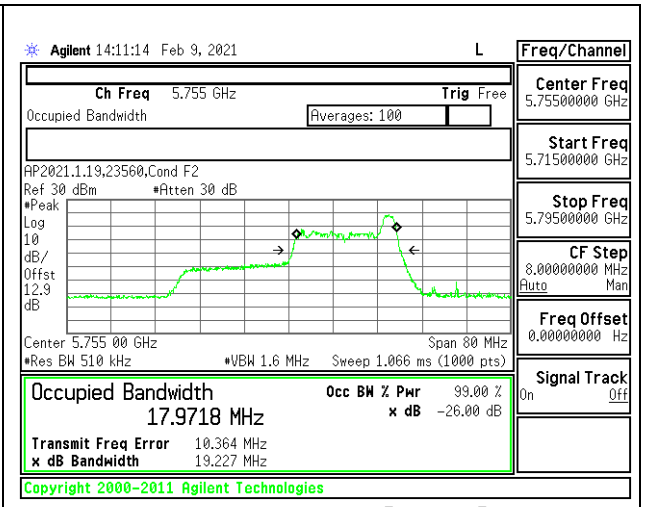
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 17

Channel	Frequency (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5755	18.9098	17.9718
High	5795	18.7286	18.0095



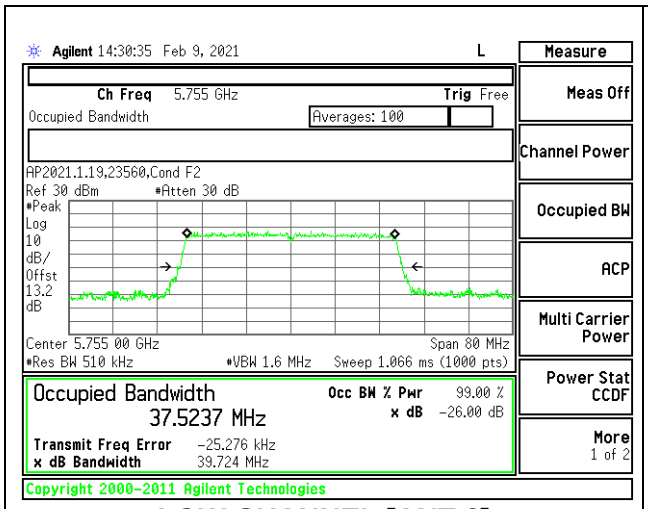
LOW CHANNEL [ANT 6]



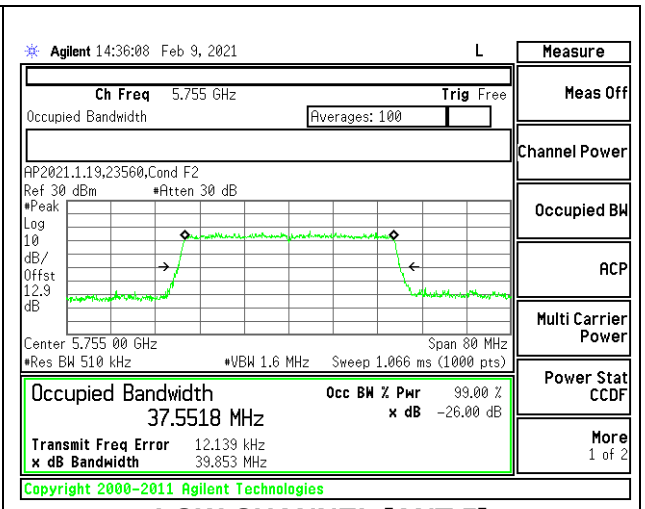
LOW CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: SU Mode

Channel	Frequency (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Low	5755	37.5237	37.5518
High	5795	37.5533	37.4754



LOW CHANNEL [ANT 6]



LOW CHANNEL [ANT 5]

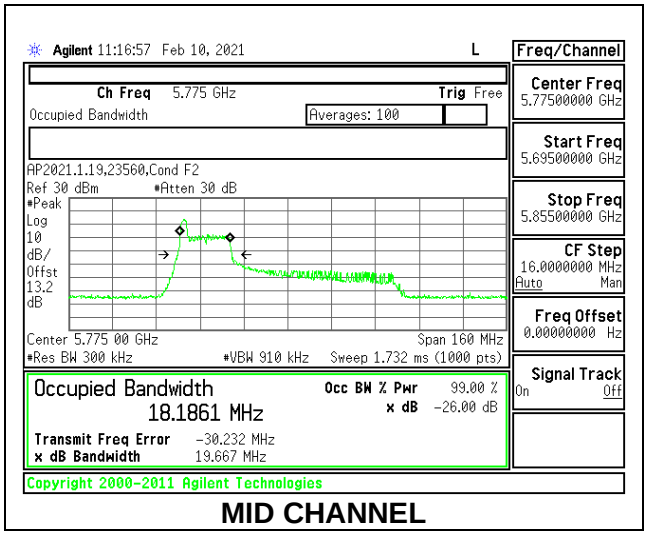
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.24. 802.11ax HE80 MODE IN THE 5.8 GHz BAND

1TX Antenna 6 MODE: 26 Tones, RU Index 0

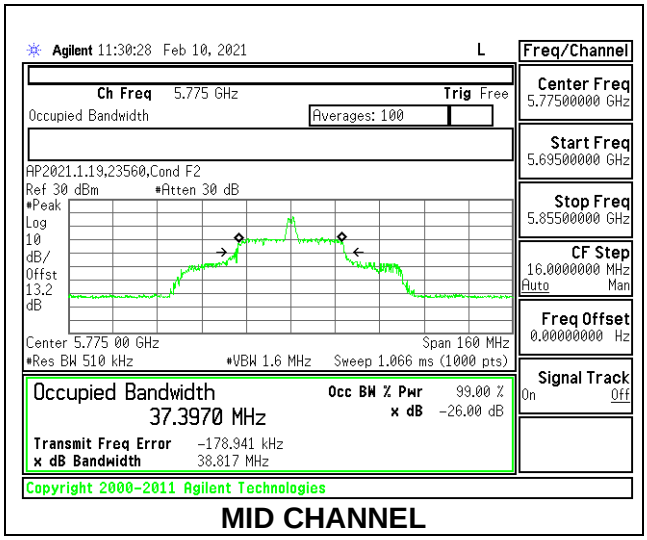
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5775	18.1861



MID CHANNEL

1TX Antenna 6 MODE: 26 Tones, RU Index 18

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5775	37.3970



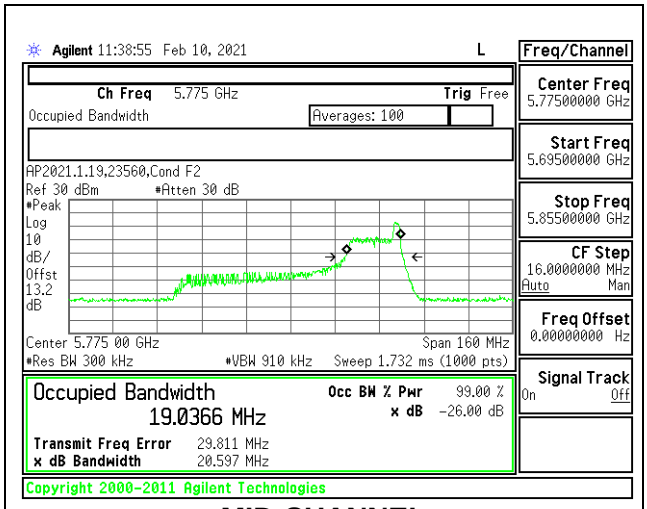
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: 26 Tones, RU Index 36

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5775	19.0366



MID CHANNEL

1TX Antenna 6 MODE: SU Mode

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5775	77.101

MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5775	19.225

MID CHANNEL

1TX Antenna 5 MODE: 26 Tones, RU Index 18

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5775	37.388

MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

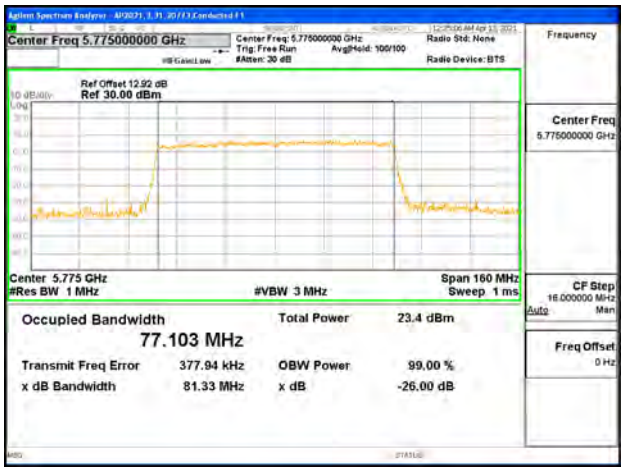
1TX Antenna 5 MODE: 26 Tones, RU Index 36

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5775	19.762

MID CHANNEL

1TX Antenna 5 MODE: SU Mode

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5775	77.103



MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Mid	5755	18.557	18.356

MID CHANNEL [ANT 6]

MID CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 18

Channel	Frequency (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Mid	5755	37.242	36.160

MID CHANNEL [ANT 6]

MID CHANNEL [ANT 5]

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 36

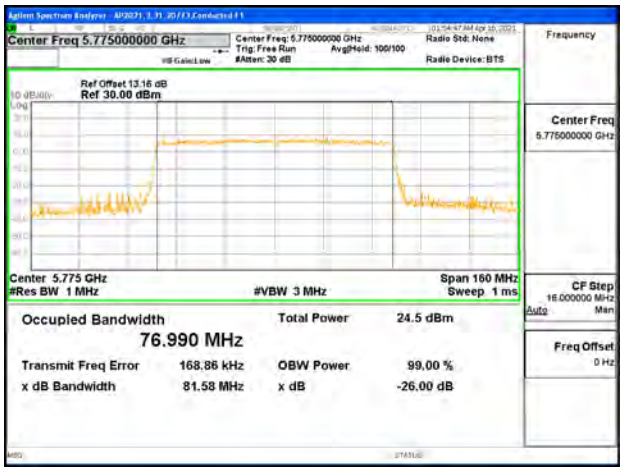
Channel	Frequency (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Mid	5755	19.646	18.274

MID CHANNEL [ANT 6]

MID CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: SU Mode

Channel	Frequency (MHz)	99% Bandwidth Antenna 6 (MHz)	99% Bandwidth Antenna 5 (MHz)
Mid	5755	76.990	76.893



MID CHANNEL [ANT 6]

MID CHANNEL [ANT 5]

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.3. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

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

RESULTS

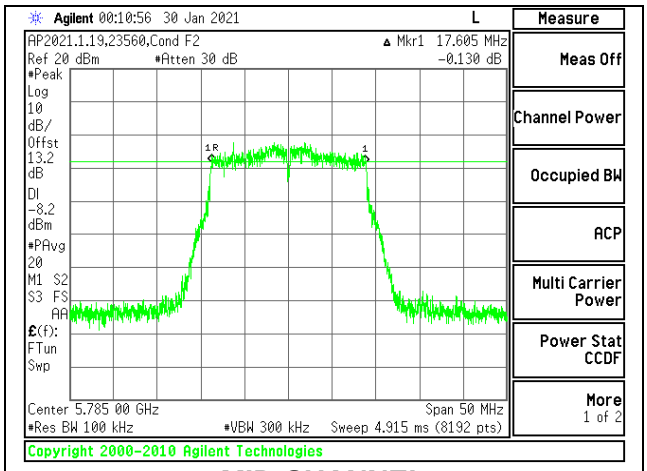
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.3.1. 802.11n HT20 MODE IN THE 5.8 GHz BAND

1TX Antenna 6 MODE

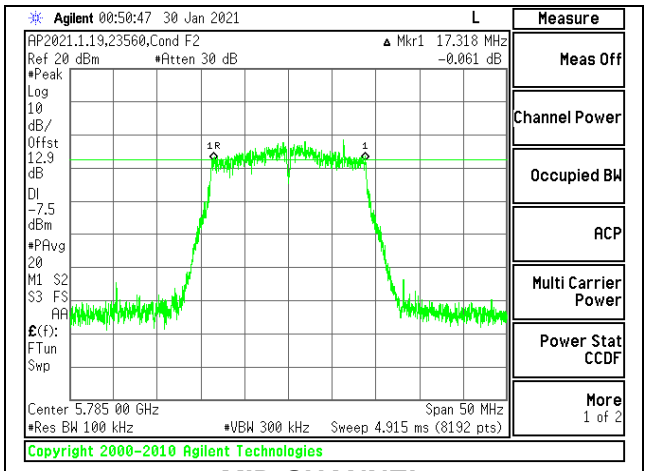
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	17.592	0.5
Mid	5785	17.605	0.5
High	5825	17.660	0.5
144	5720	3.927	0.5



MID CHANNEL

1TX Antenna 5 MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	17.342	0.5
Mid	5785	17.318	0.5
High	5825	17.574	0.5
144	5720	3.903	0.5



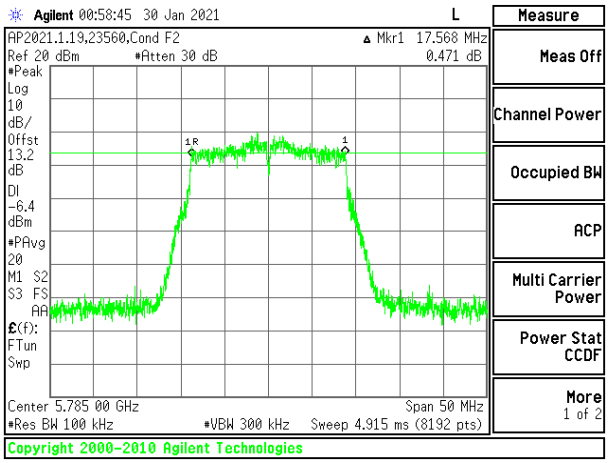
MID CHANNEL

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

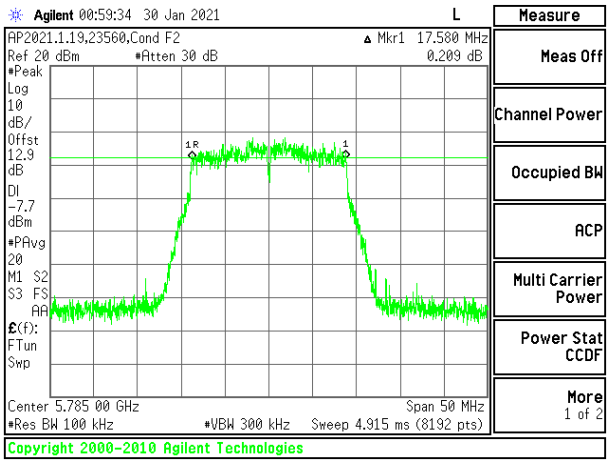
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Low	5745	17.580	17.336	0.5
Mid	5785	17.568	17.580	0.5
High	5825	17.580	17.599	0.5
144	5720	3.769	3.793	0.5



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

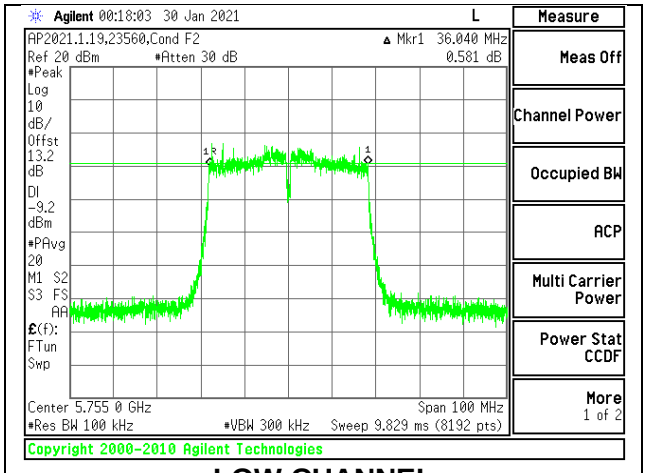
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.3.2. 802.11n HT40 MODE IN THE 5.8 GHz BAND

1TX Antenna 6 MODE

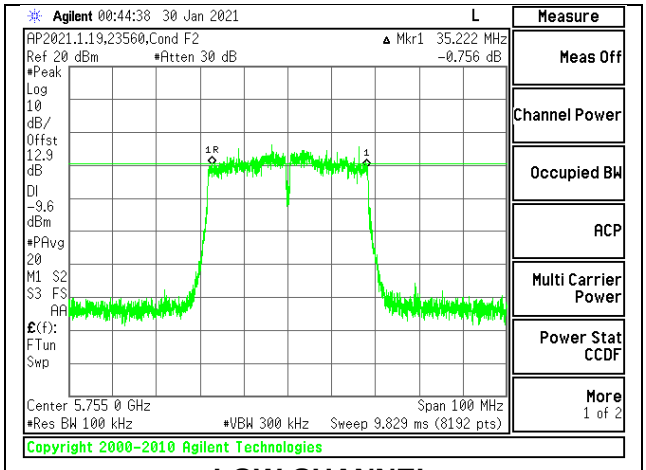
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	36.040	0.5
High	5795	35.502	0.5
142	5710	3.270	0.5



LOW CHANNEL

1TX Antenna 5 MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	35.222	0.5
High	5795	35.795	0.5
142	5710	3.172	0.5



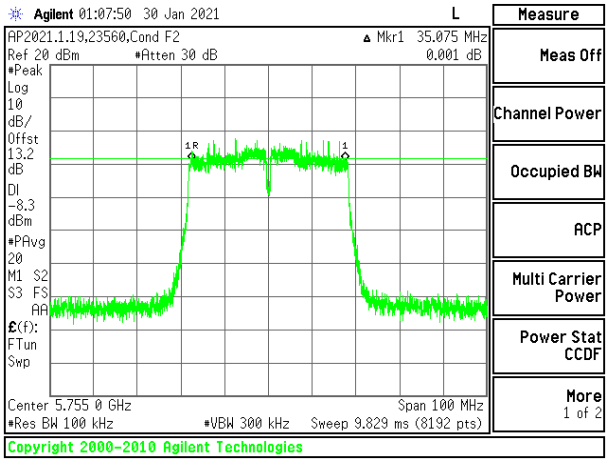
LOW CHANNEL

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

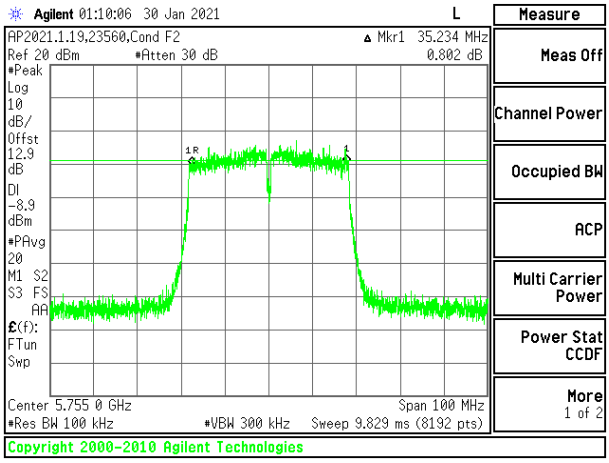
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Low	5755	35.075	35.234	0.5
High	5795	35.686	35.624	0.5
142	5710	3.209	3.148	0.5



LOW CHANNEL [ANT 6]



LOW CHANNEL [ANT 5]

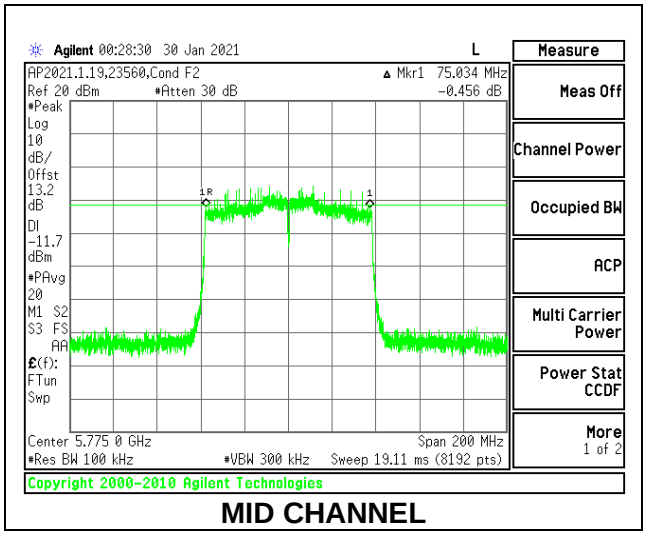
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.3.3. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

1TX Antenna 6 MODE

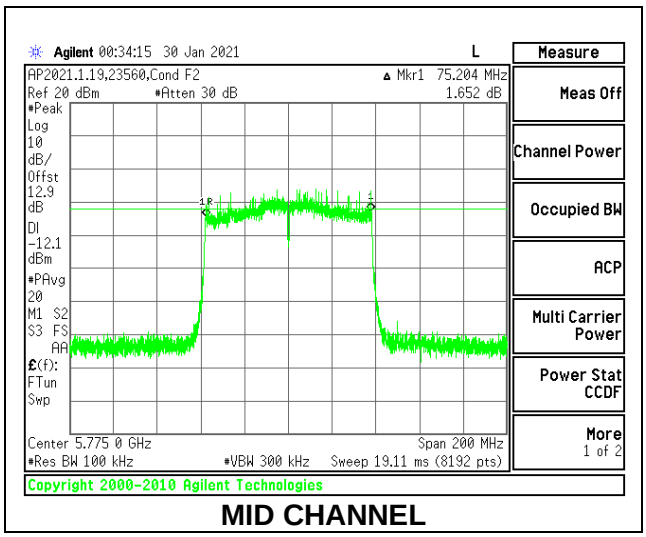
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Mid	5775	75.034	0.5
138	5690	3.200	0.5



MID CHANNEL

1TX Antenna 5 MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Mid	5775	75.204	0.5
138	5690	3.176	0.5



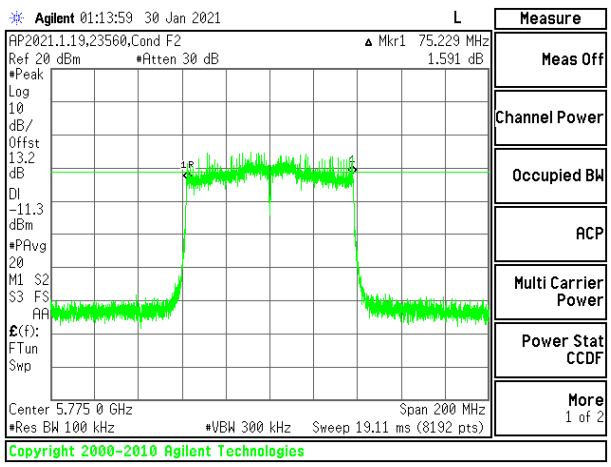
MID CHANNEL

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

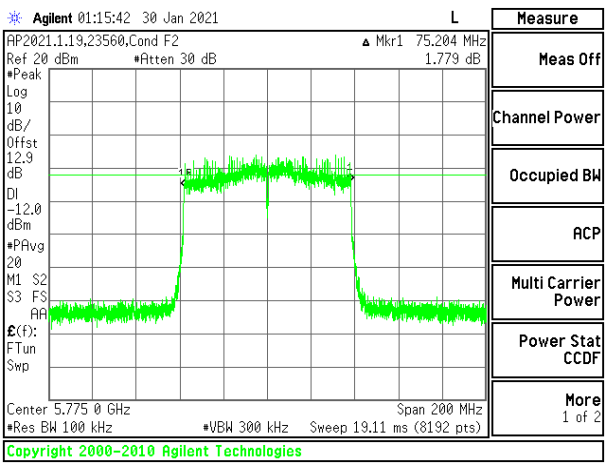
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Mid	5775	75.229	75.204	0.5
138	5690	3.176	3.152	0.5



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

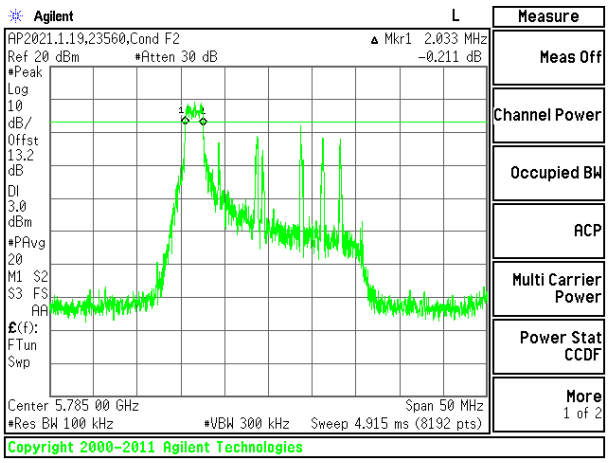
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.3.4. 802.11ax HE20 MODE IN THE 5.8 GHz BAND

1TX Antenna 6 MODE: 26 Tones, RU Index 0

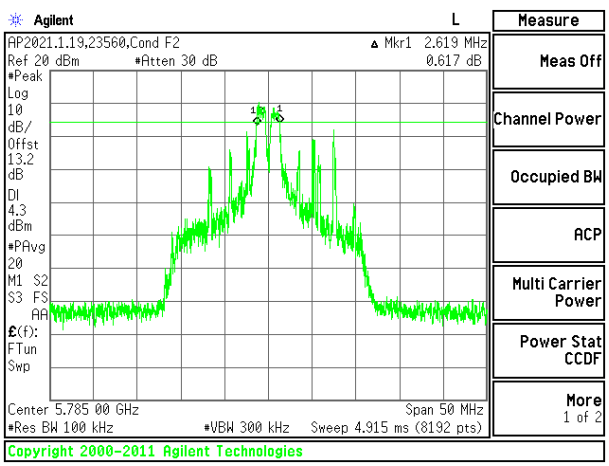
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	2.082	0.5
Mid	5785	2.033	0.5
High	5825	2.008	0.5



MID CHANNEL

1TX Antenna 6 MODE: 26 Tones, RU Index 4

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	2.570	0.5
Mid	5785	2.619	0.5
High	5825	2.545	0.5



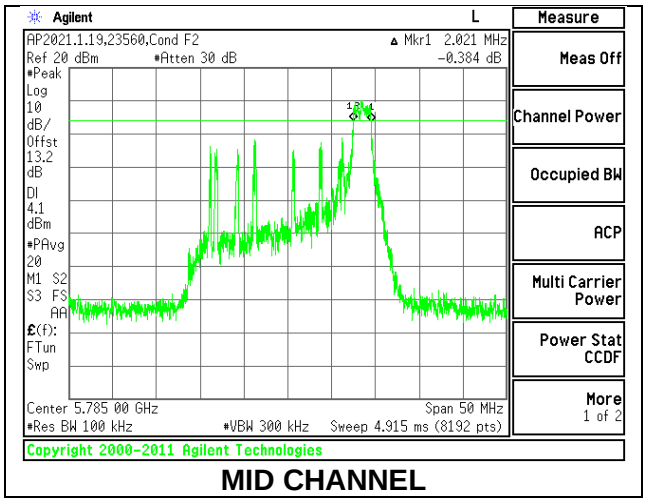
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: 26 Tones, RU Index 8

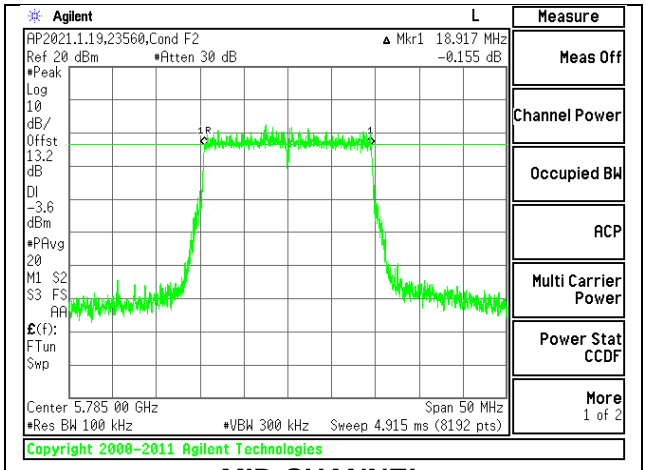
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	2.033	0.5
Mid	5785	2.021	0.5
High	5825	1.996	0.5
144	5720	2.020	0.5



MID CHANNEL

1TX Antenna 6 MODE: SU Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	18.752	0.5
Mid	5785	18.917	0.5
High	5825	18.813	0.5
144	5720	4.562	0.5



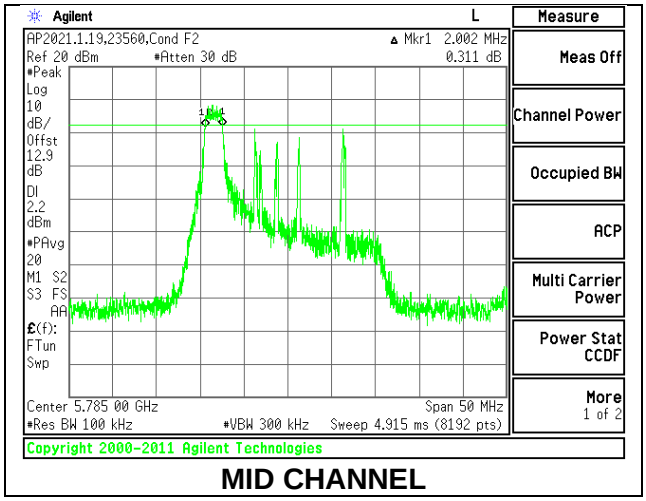
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 0

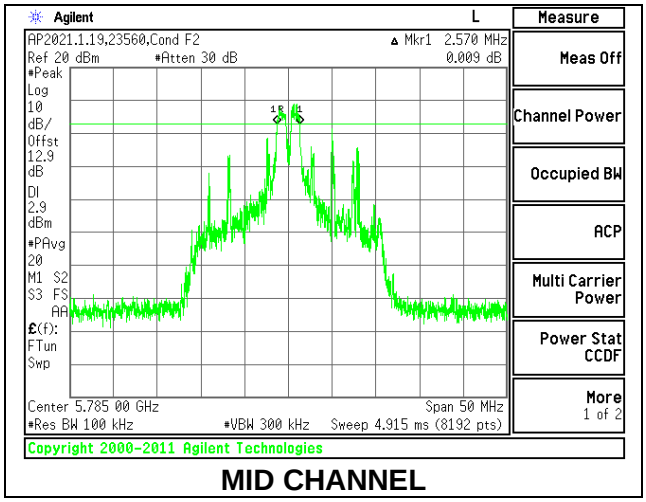
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	2.014	0.5
Mid	5785	2.002	0.5
High	5825	2.021	0.5



MID CHANNEL

1TX Antenna 5 MODE: 26 Tones, RU Index 4

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	2.552	0.5
Mid	5785	2.570	0.5
High	5825	2.539	0.5



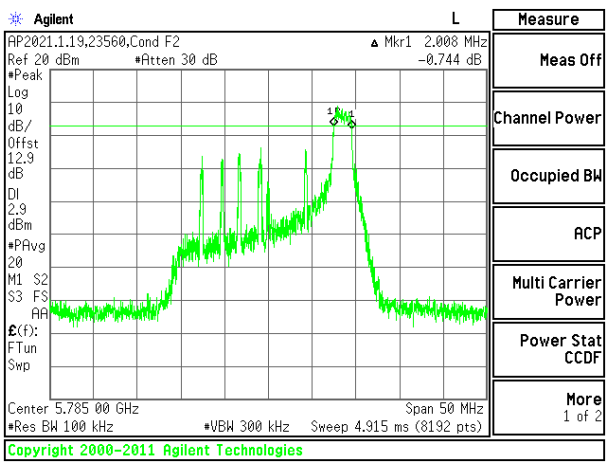
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 8

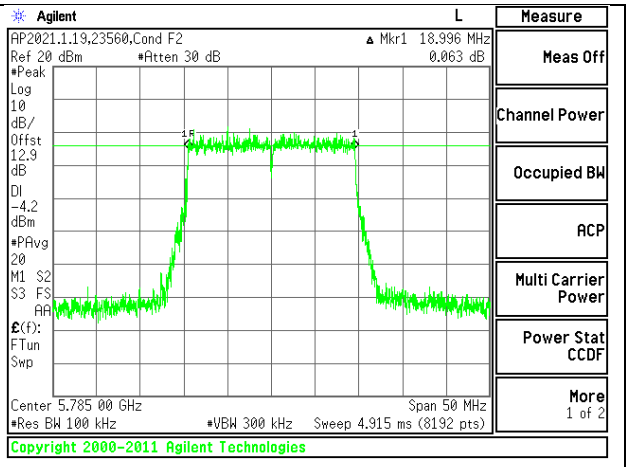
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	2.014	0.5
Mid	5785	2.008	0.5
High	5825	2.033	0.5
144	5720	2.030	0.5



MID CHANNEL

1TX Antenna 5 MODE: SU Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	19.021	0.5
Mid	5785	18.996	0.5
High	5825	18.856	0.5
144	5720	4.562	0.5



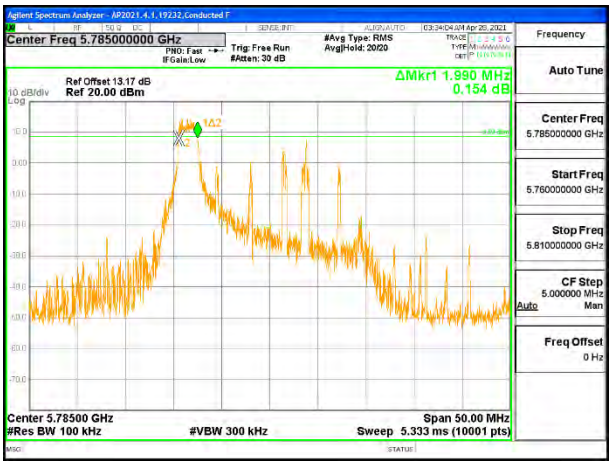
MID CHANNEL

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

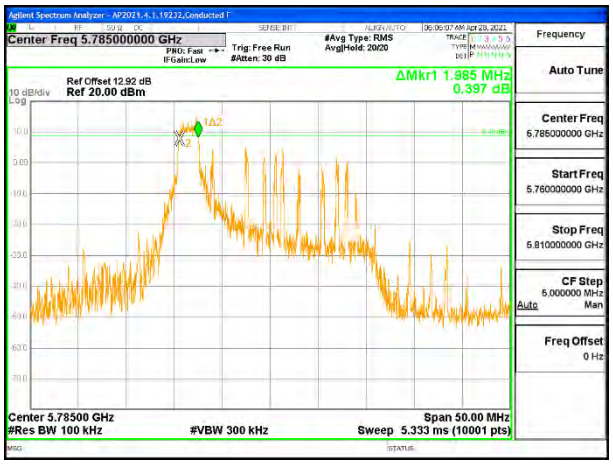
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Low	5745	2.033	2.069	0.5
Mid	5785	1.990	1.985	0.5
High	5825	2.040	2.005	0.5



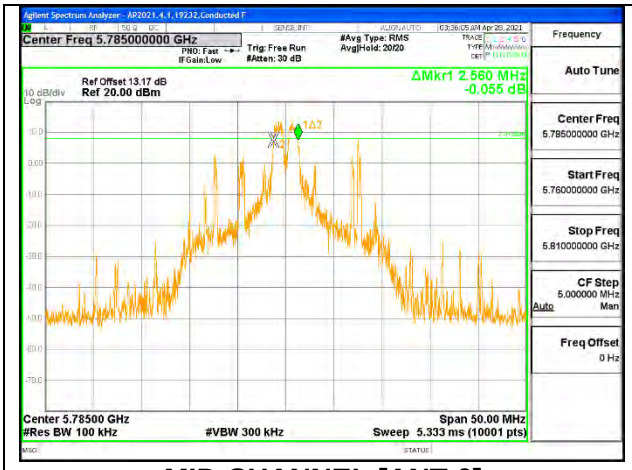
MID CHANNEL [ANT 6]



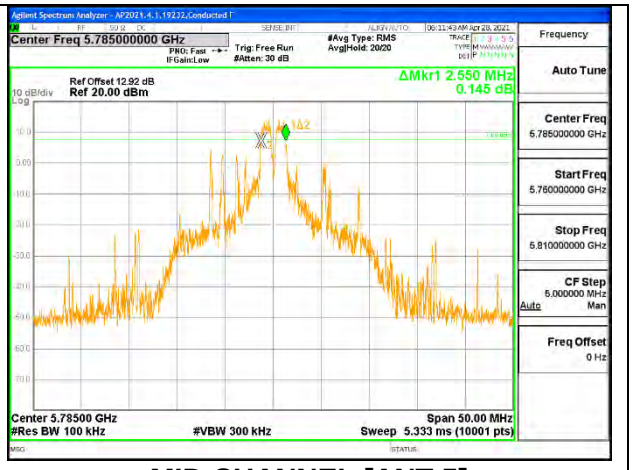
MID CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 4

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Low	5745	2.503	2.594	0.5
Mid	5785	2.560	2.550	0.5
High	5825	2.570	2.575	0.5



MID CHANNEL [ANT 6]



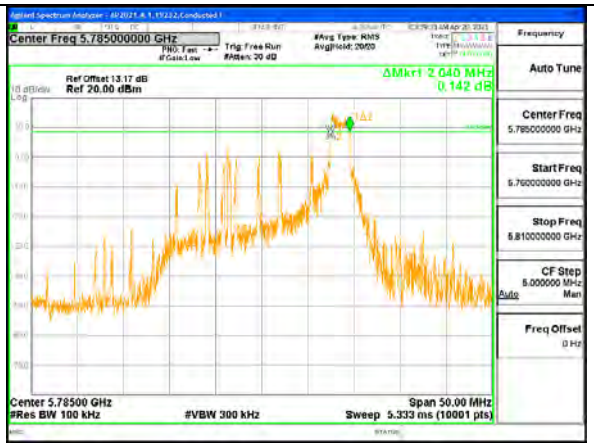
MID CHANNEL [ANT 5]

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

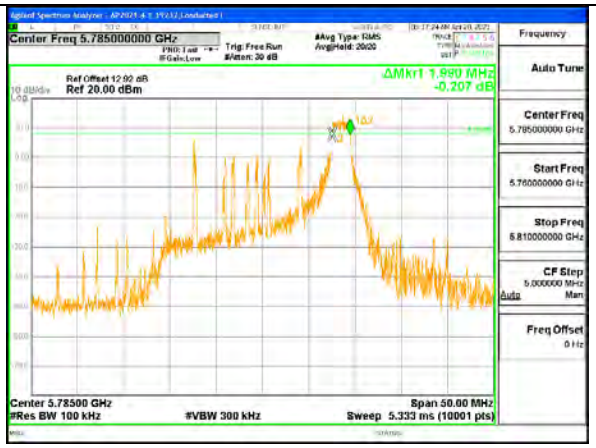
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Low	5745	1.990	1.996	0.5
Mid	5785	2.040	1.990	0.5
High	5825	2.050	2.015	0.5
144	5720	2.005	2.060	0.5



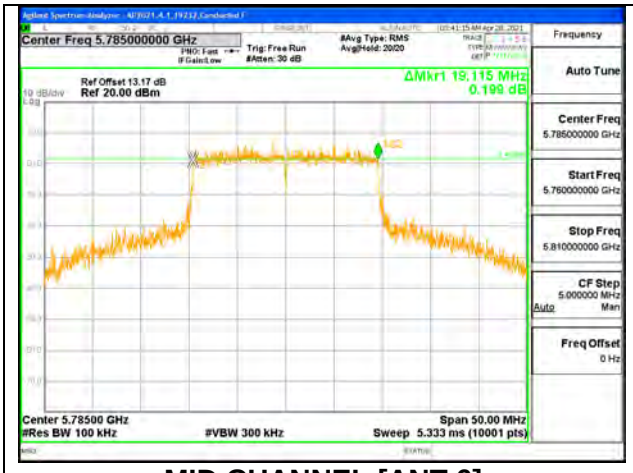
MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: SU Mode

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Low	5745	19.021	18.966	0.5
Mid	5785	19.115	19.015	0.5
High	5825	18.810	18.760	0.5
144	5720	4.526	4.562	0.5



MID CHANNEL [ANT 6]

MID CHANNEL [ANT 5]

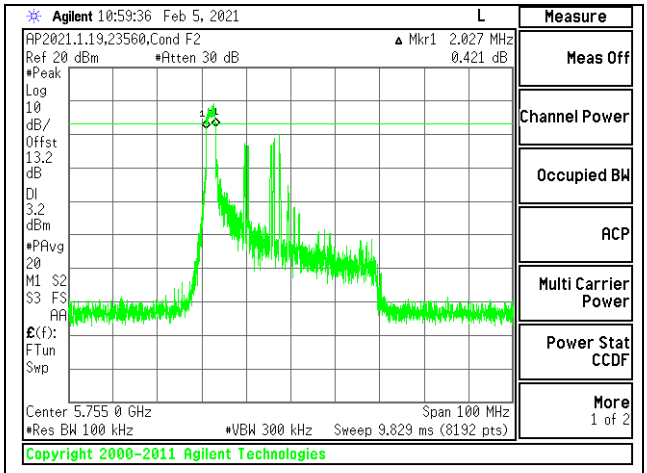
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.3.5. 802.11ax HE40 MODE IN THE 5.8 GHz BAND

1TX Antenna 6 MODE: 26 Tones, RU Index 0

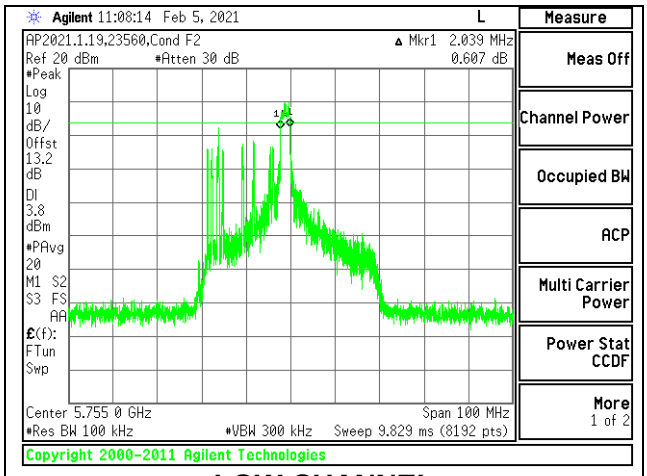
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	2.027	0.5
High	5795	1.953	0.5



LOW CHANNEL

1TX Antenna 6 MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	2.039	0.5
High	5795	1.990	0.5



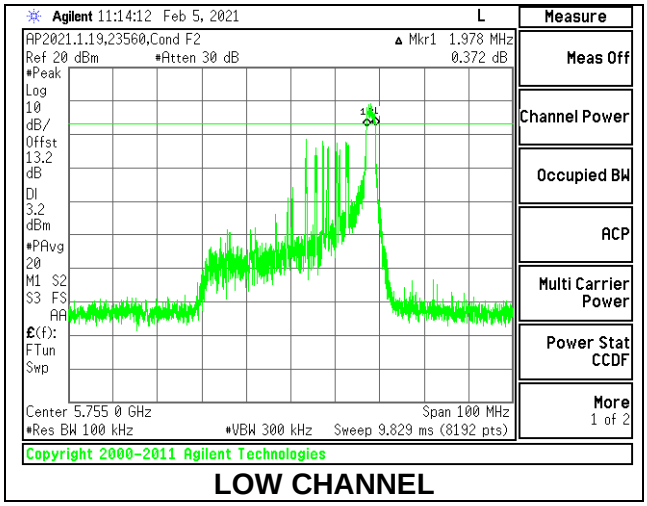
LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: 26 Tones, RU Index 17

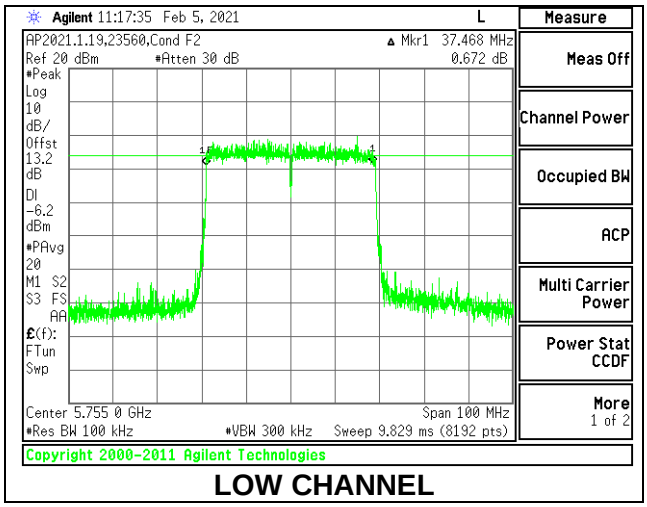
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	1.978	0.5
High	5795	1.917	0.5
142	5710	1.890	0.5



LOW CHANNEL

1TX Antenna 6 MODE: SU Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	37.468	0.5
High	5795	37.370	0.5
142	5710	4.027	0.5



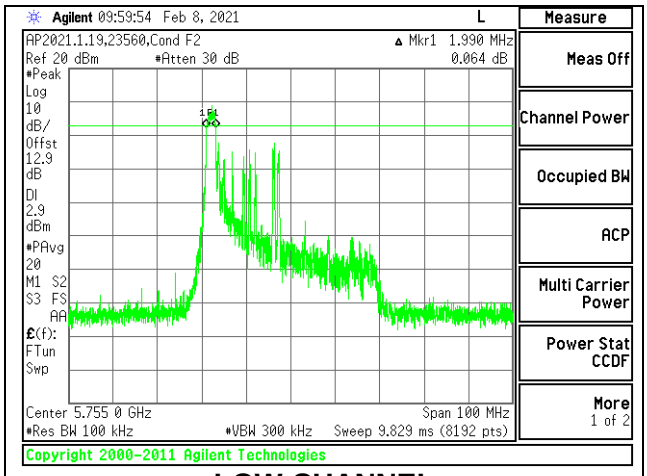
LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 0

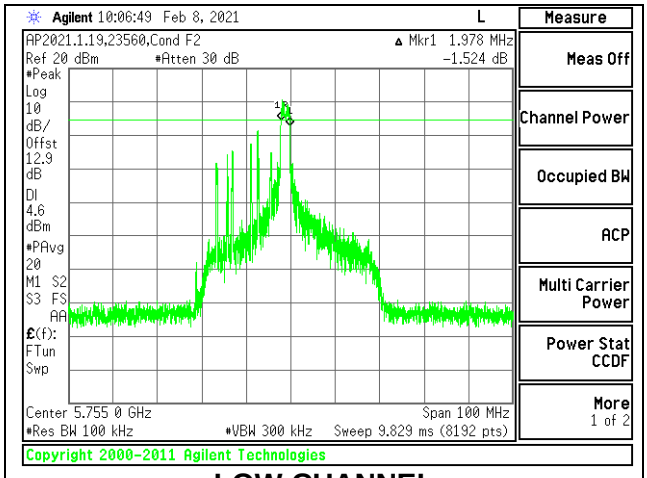
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	1.990	0.5
High	5795	2.027	0.5



LOW CHANNEL

1TX Antenna 5 MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	1.978	0.5
High	5795	1.940	0.5



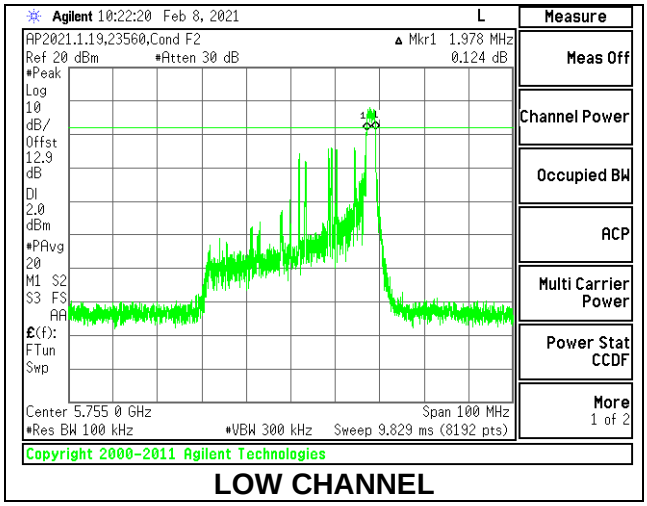
LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 17

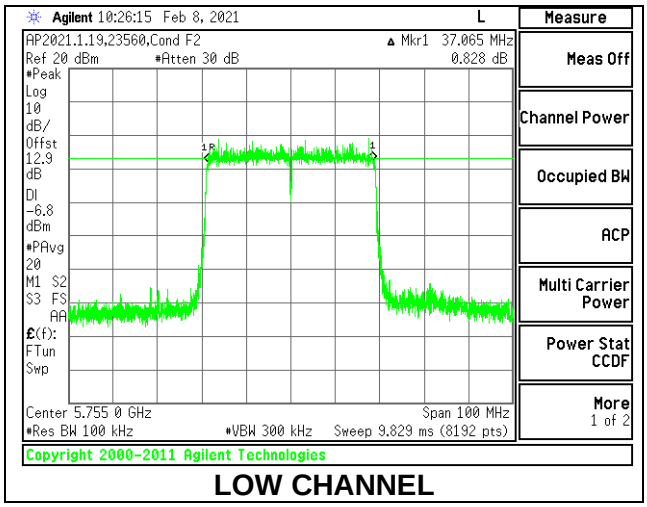
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	1.978	0.5
High	5795	2.027	0.5
142	5710	1.960	0.5



LOW CHANNEL

1TX Antenna 5 MODE: SU Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	37.065	0.5
High	5795	37.456	0.5
142	5710	4.039	0.5



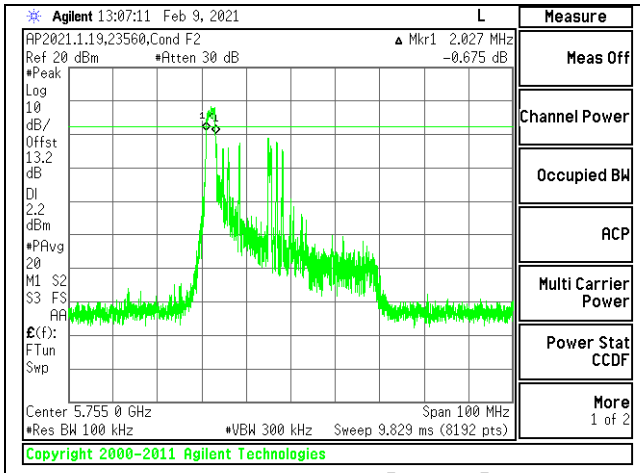
LOW CHANNEL

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

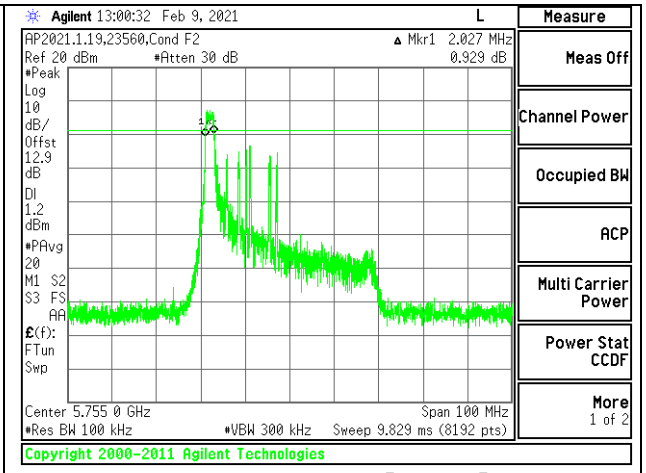
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Low	5755	2.027	2.027	0.5
High	5795	1.990	2.051	0.5



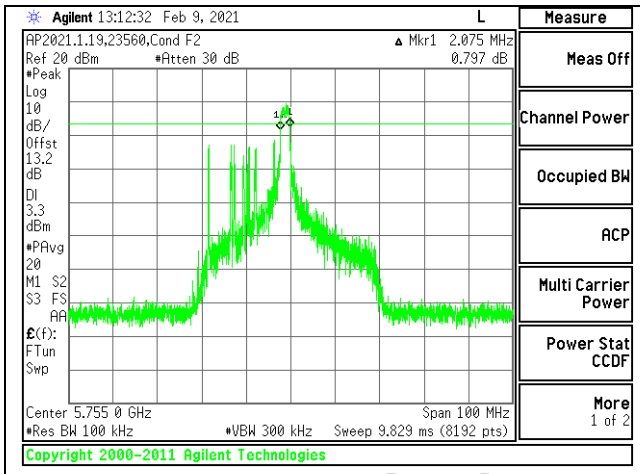
LOW CHANNEL [ANT 6]



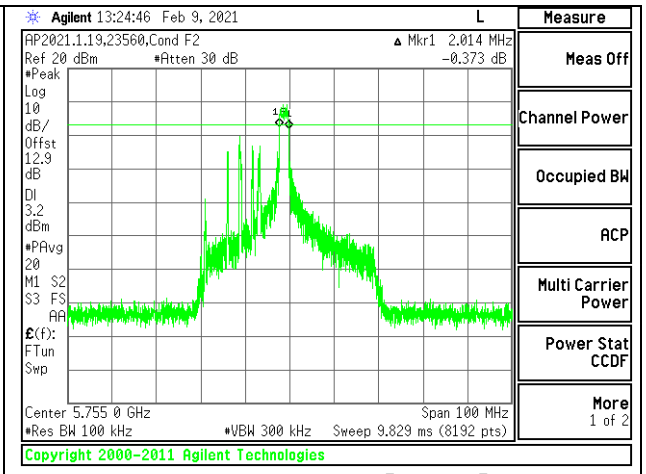
LOW CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 8

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Low	5755	2.075	2.014	0.5
High	5795	1.978	2.002	0.5



LOW CHANNEL [ANT 6]



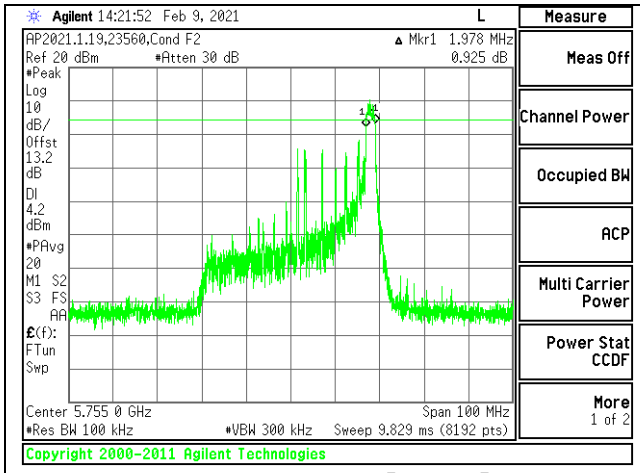
LOW CHANNEL [ANT 5]

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

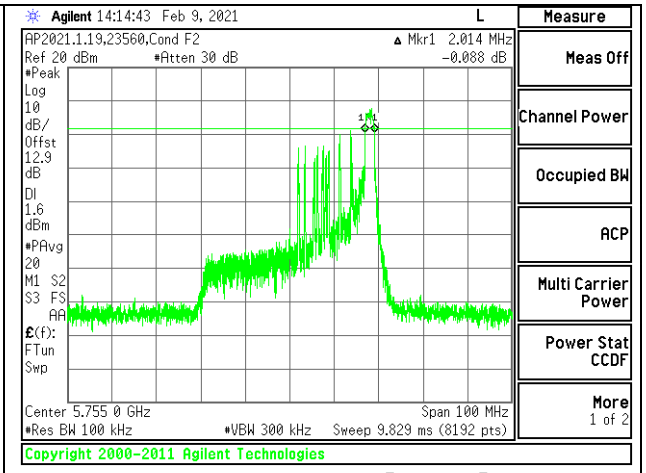
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 17

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Low	5755	1.978	2.014	0.5
High	5795	1.953	1.953	0.5
142	5710	2.00	2.04	0.5



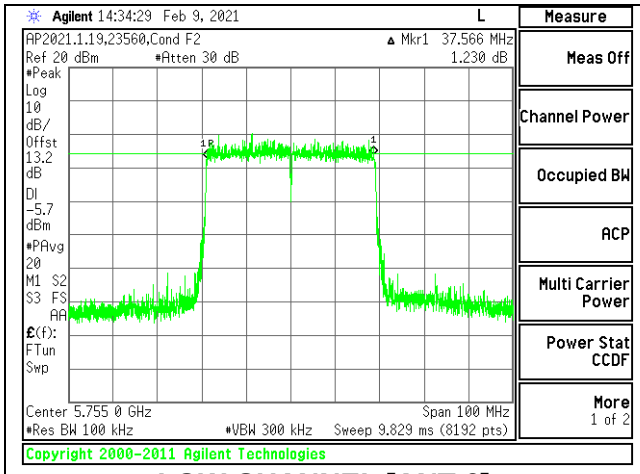
LOW CHANNEL [ANT 6]



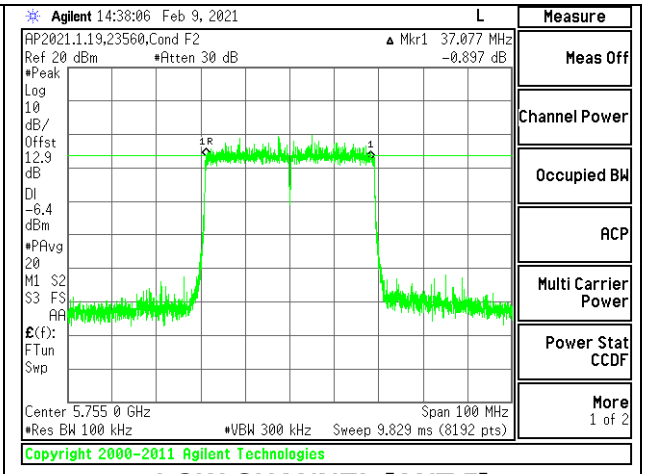
LOW CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: SU Mode

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Low	5755	37.566	37.077	0.5
High	5795	37.358	36.919	0.5
142	5710	3.905	4.015	0.5



LOW CHANNEL [ANT 6]



LOW CHANNEL [ANT 5]

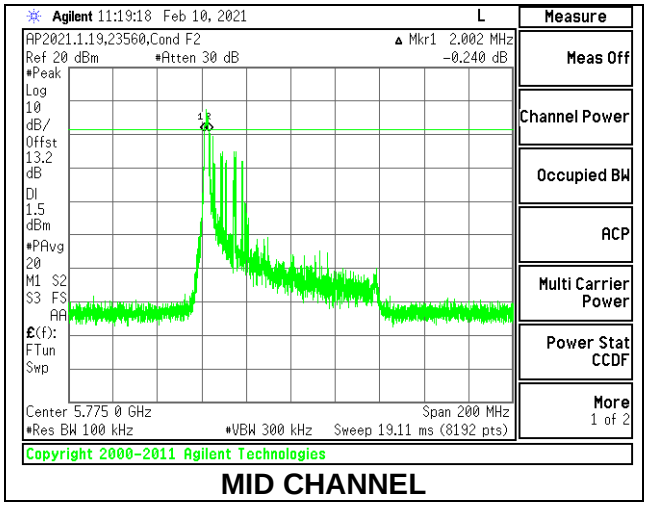
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.3.6. **802.11ax HE80 MODE IN THE 5.8 GHz BAND**

1TX Antenna 6 MODE: 26 Tones, RU Index 0

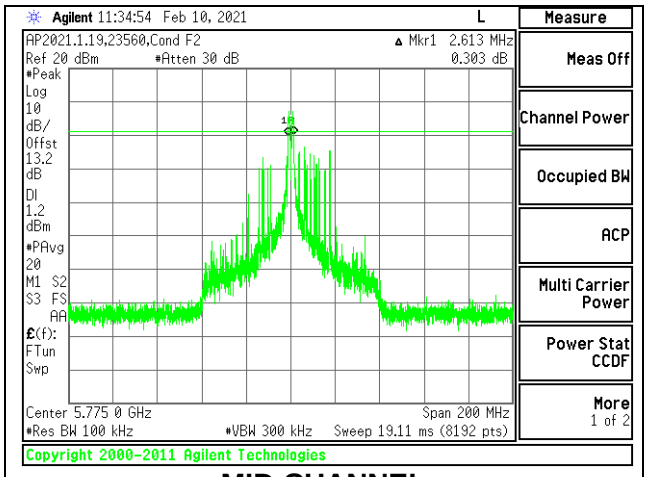
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Mid	5775	2.002	0.5



MID CHANNEL

1TX Antenna 6 MODE: 26 Tones, RU Index 18

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Mid	5775	2.613	0.5



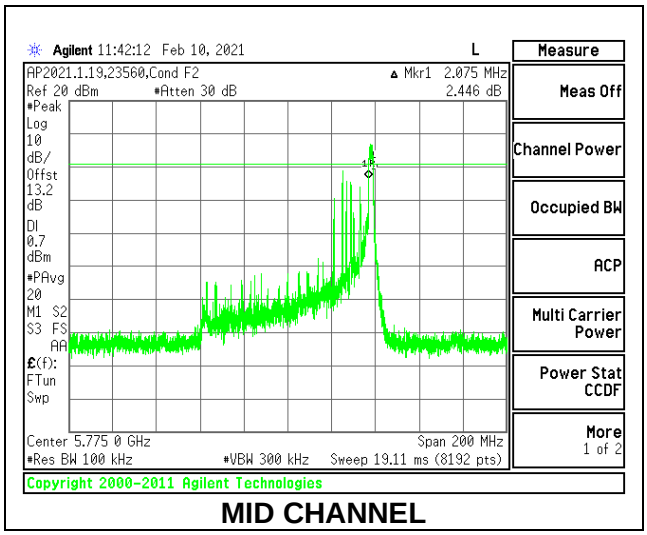
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE: 26 Tones, RU Index 36

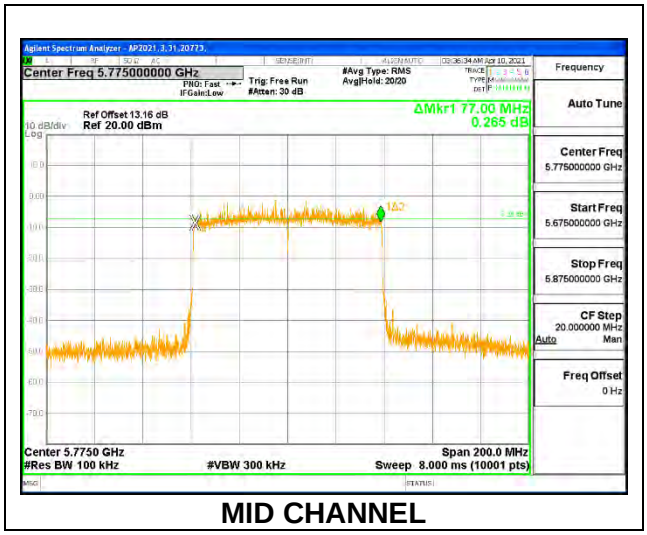
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Mid	5775	2.075	0.5
138	5690	2.00	0.5



MID CHANNEL

1TX Antenna 6 MODE: SU Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Mid	5775	77.000	0.5
138	5690	4.055	0.5



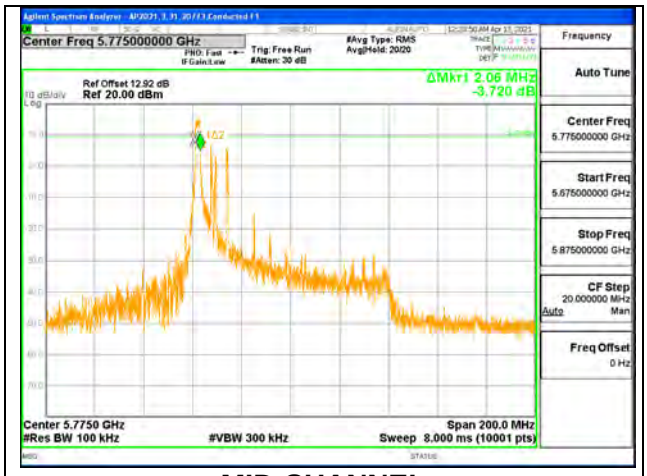
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 0

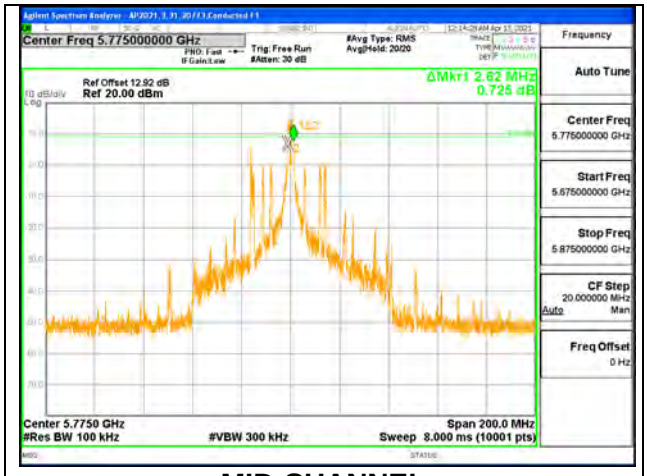
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Mid	5775	2.06	0.5



MID CHANNEL

1TX Antenna 5 MODE: 26 Tones, RU Index 18

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Mid	5775	2.62	0.5



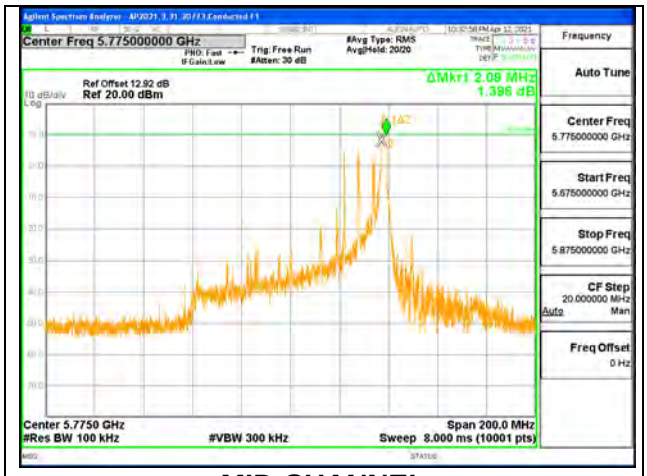
MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE: 26 Tones, RU Index 36

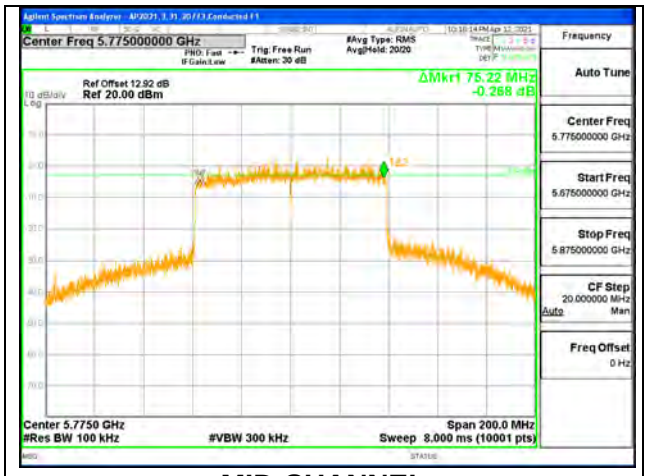
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Mid	5775	2.080	0.5
138	5690	1.940	0.5



MID CHANNEL

1TX Antenna 5 MODE: SU Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Mid	5775	75.220	0.5
138	5690	3.786	0.5



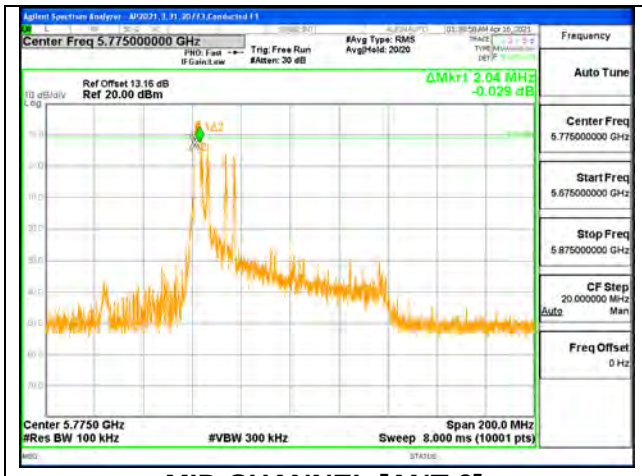
MID CHANNEL

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

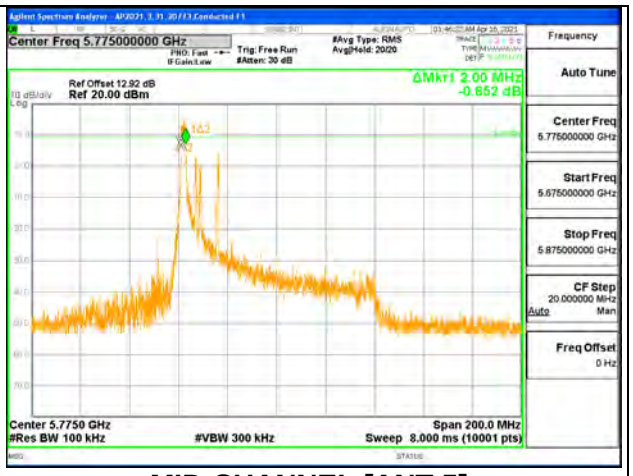
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 0

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Mid	5775	2.040	2.000	0.5



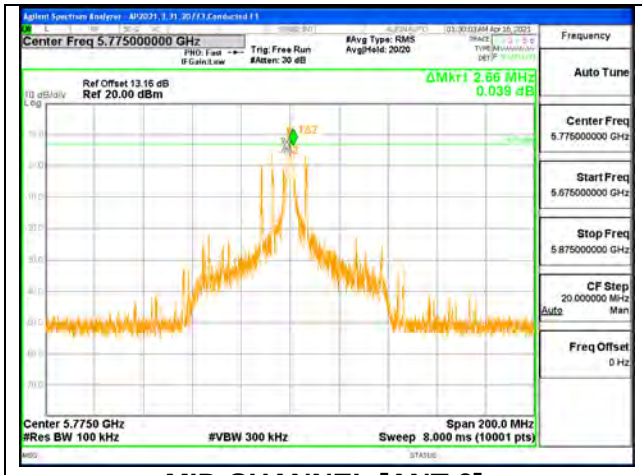
MID CHANNEL [ANT 6]



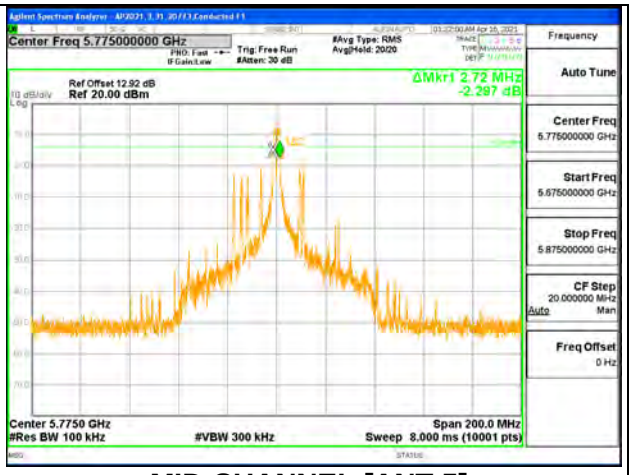
MID CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 18

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Mid	5775	2.660	2.720	0.5



MID CHANNEL [ANT 6]



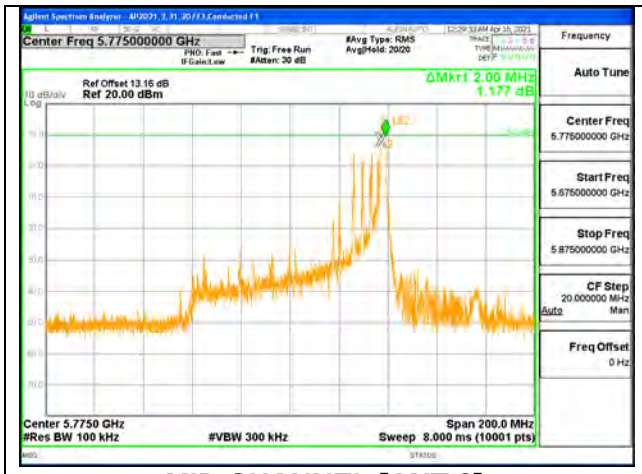
MID CHANNEL [ANT 5]

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

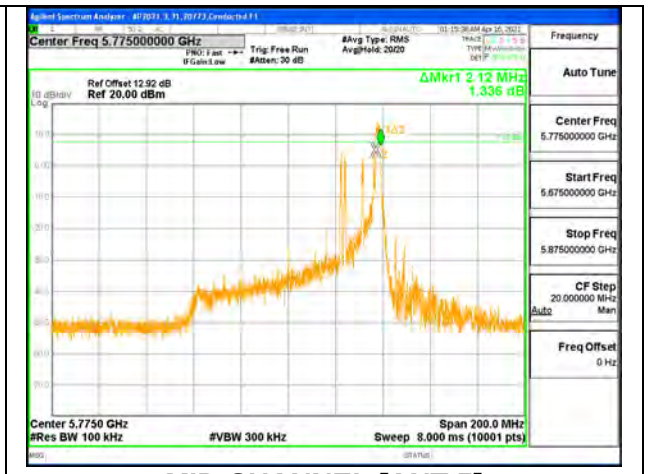
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 OFDMA MODE: 26 Tones, RU Index 36

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Mid	5775	2.000	2.120	0.5
138	5690	2.040	1.960	0.5



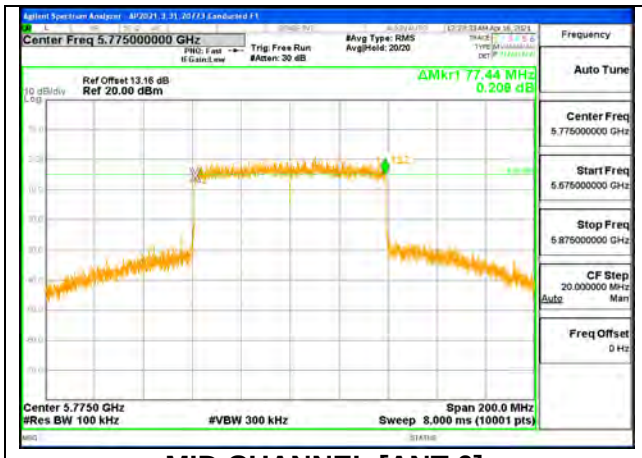
MID CHANNEL [ANT 6]



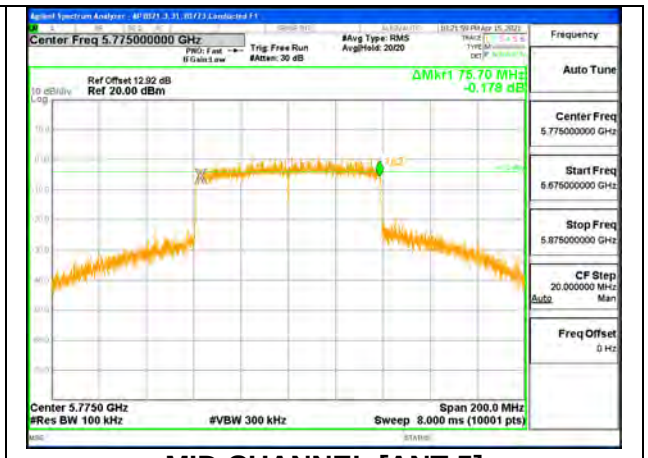
MID CHANNEL [ANT 5]

2TX Antenna 6 + Antenna 5 OFDMA MODE: SU Mode

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Mid	5775	77.44	75.70	0.5
138	5690	4.040	4.060	0.5



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4. 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).

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

For all straddle channels, full bandwidth power is reported in the 5.6GHz section. The combined 5.6GHz and 5.8GHz power already passed the worst case 5.6GHz 24dBm limit, therefore there is no need to provide the 5.8GHz power.

11n HT20 and 11ax HE20 straddle channel 26dB bandwidth= (26dB BW/2) + 5MHz

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

DIRECTIONAL ANTENNA GAIN

For 1 TX:
There is only one transmitter output therefore the directional gain is equal to the antenna gain.

For 2 TX:
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)	Antenna 6 Gain (dBi)	Antenna 5 Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
5.2	-3.10	-2.20	-2.63	0.37
5.3	-2.30	-1.80	-2.04	0.96
5.6	-2.70	-3.00	-2.85	0.16
5.8	-2.90	-2.60	-2.75	0.26

RESULTS

Note: PSD tested at target power on HT20/HT40/VHT80 and ax mode but power was reduced later and Lab didn't retest due to results still pass the limit.

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.1. **802.11n HT20 MODE IN THE 5.2 GHz BAND**

1TX Antenna 6 MODE (FCC) MOBILE

Test Engineer:	23560
Test Date:	5/26/21

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5180	-3.10	24.00	11.00
Mid	5200	-3.10	24.00	11.00
High	5240	-3.10	24.00	11.00

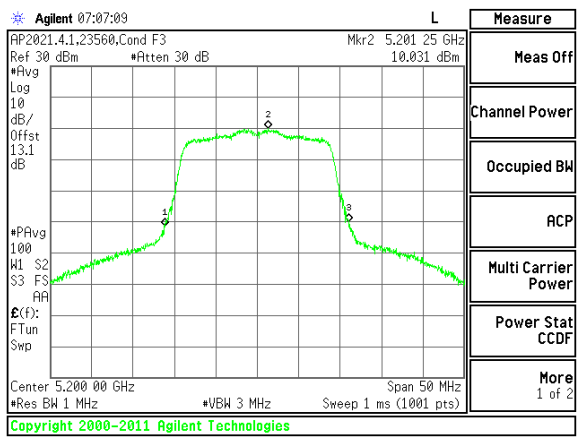
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	18.73	18.73	24.00	-5.27
Mid	5200	19.74	19.74	24.00	-4.26
High	5240	19.70	19.70	24.00	-4.30

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	9.559	9.559	11.00	-1.441
Mid	5200	10.031	10.031	11.00	-0.969
High	5240	9.818	9.818	11.00	-1.182



MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE (FCC) MOBILE

Test Engineer:	23560
Test Date:	5/26/21

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5180	-2.20	24.00	11.00
Mid	5200	-2.20	24.00	11.00
High	5240	-2.20	24.00	11.00

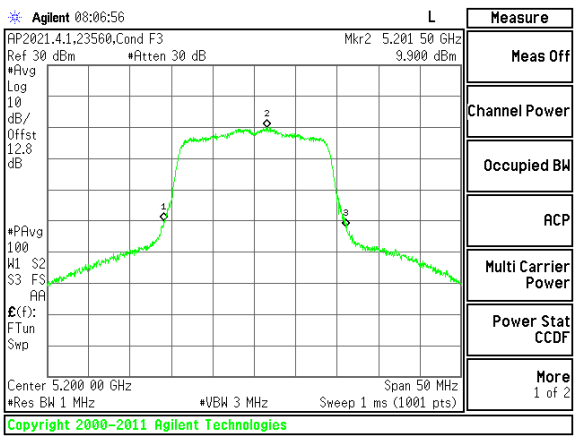
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	18.68	18.68	24.00	-5.32
Mid	5200	19.68	19.68	24.00	-4.32
High	5240	19.64	19.64	24.00	-4.36

PSD Results

Channel	Frequency (MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	9.008	9.008	11.00	-1.992
Mid	5200	9.900	9.900	11.00	-1.100
High	5240	9.802	9.802	11.00	-1.198



MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE (FCC) MOBILE

Test Engineer:	23560
Test Date:	1/29/21

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	-2.63	0.37	24.00	11.00
Mid	5200	-2.63	0.37	24.00	11.00
High	5240	-2.63	0.37	24.00	11.00

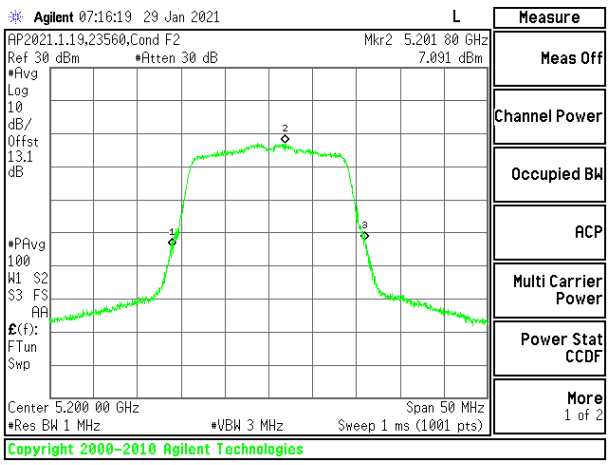
Duty Cycle CF (dB)	0.10	**Included in Calculations of Corr'd PSD**

Output Power Results

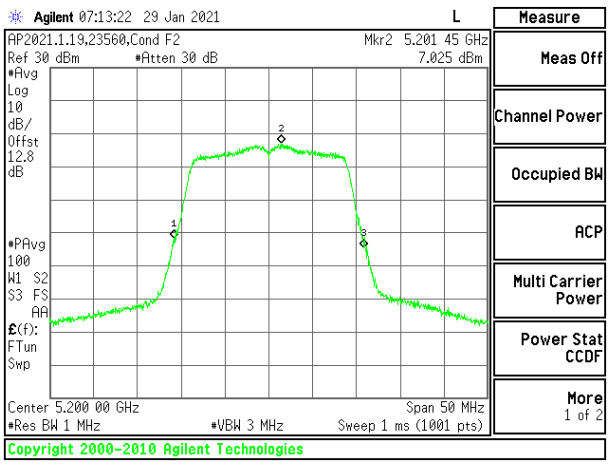
Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	16.69	16.70	19.71	24.00	-4.29
Mid	5200	16.73	16.71	19.73	24.00	-4.27
High	5240	16.66	16.68	19.68	24.00	-4.32

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	6.880	6.681	9.892	11.00	-1.108
Mid	5200	7.091	7.025	10.168	11.00	-0.832
High	5240	6.826	7.093	10.072	11.00	-0.928



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.2. **802.11n HT40 MODE IN THE 5.2 GHz BAND**

1TX Antenna 6 MODE (FCC) MOBILE

Test Engineer:	19480
Test Date:	5/25/21

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5190	-3.10	24.00	11.00
High	5230	-3.10	24.00	11.00

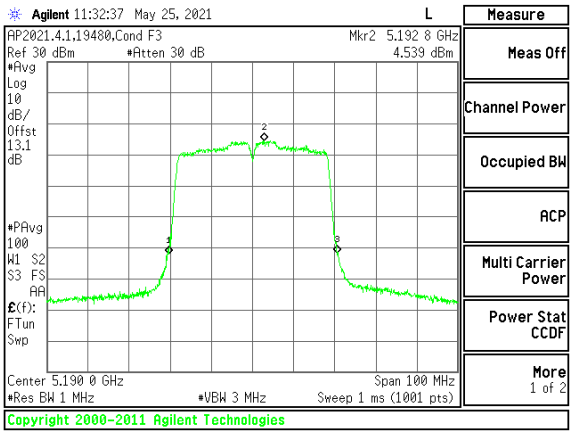
Duty Cycle CF (dB)	0.10	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	17.21	17.21	24.00	-6.79
High	5230	20.20	20.20	24.00	-3.80

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5190	4.539	4.639	11.00	-6.361
High	5230	8.042	8.142	11.00	-2.858



LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE (FCC) MOBILE

Test Engineer:	19480
Test Date:	5/25/21

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5190	-2.20	24.00	11.00
High	5230	-2.20	24.00	11.00

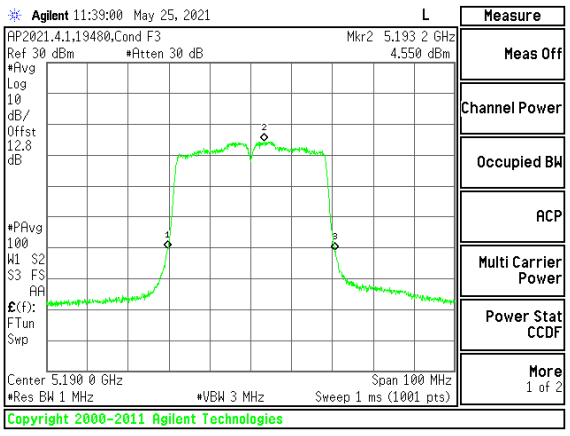
Duty Cycle CF (dB)	0.10	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	17.22	17.22	24.00	-6.78
High	5230	20.23	20.23	24.00	-3.77

PSD Results

Channel	Frequency (MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5190	4.550	4.650	11.00	-6.350
High	5230	8.017	8.117	11.00	-2.883



LOW CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE (FCC) MOBILE

Test Engineer:	19480
Test Date:	5/25/21

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	-2.63	0.37	24.00	11.00
High	5230	-2.63	0.37	24.00	11.00

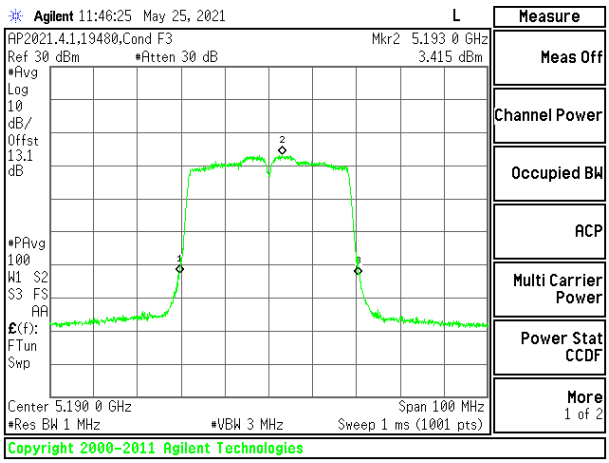
Duty Cycle CF (dB)	0.18	**Included in Calculations of Corr'd PSD**

Output Power Results

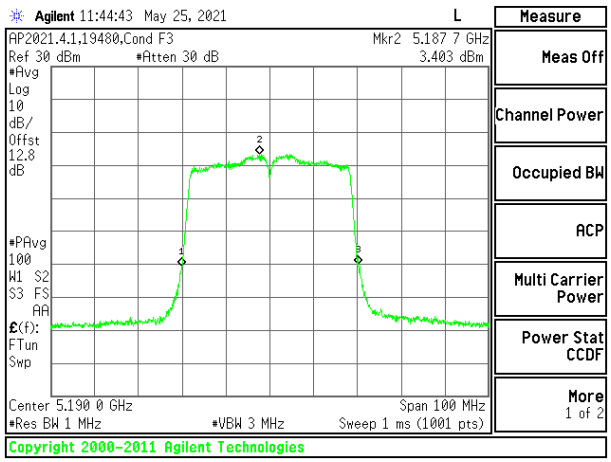
Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	15.78	15.75	18.78	24.00	-5.22
High	5230	19.21	19.23	22.23	24.00	-1.77

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5190	3.415	3.403	6.599	11.00	-4.401
High	5230	6.699	6.827	9.954	11.00	-1.046



LOW CHANNEL [ANT 6]



LOW CHANNEL [ANT 5]

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.3. **802.11ac VHT80 MODE IN THE 5.2 GHz BAND**

1TX Antenna 6 MODE (FCC) MOBILE

Test Engineer:	19480
Test Date:	5/25/21

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Mid	5210	-3.10	24.00	11.00

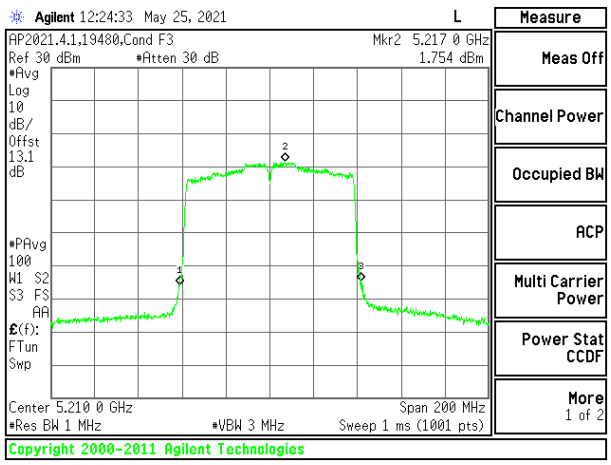
Duty Cycle CF (dB)	0.22	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5210	17.23	17.23	24.00	-6.77

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Mid	5210	1.754	1.974	11.00	-9.026



MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE (FCC) MOBILE

Test Engineer:	19480
Test Date:	5/25/21

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Mid	5210	-2.20	24.00	11.00

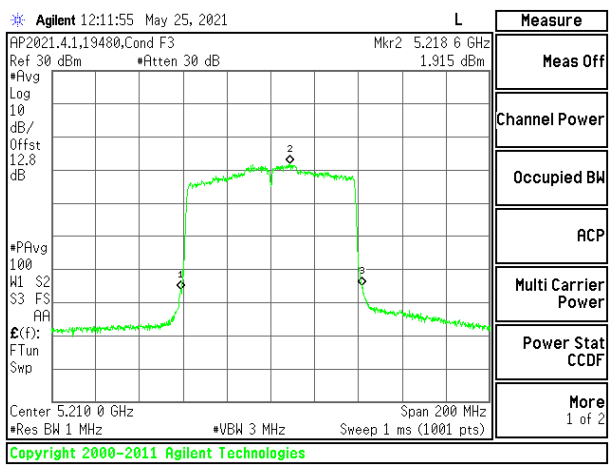
Duty Cycle CF (dB)	0.22	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5210	17.25	17.25	24.00	-6.75

PSD Results

Channel	Frequency (MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Mid	5210	1.915	2.135	11.00	-8.865



MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE (FCC) MOBILE

Test Engineer:	19480
Test Date:	5/25/21

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	-2.63	0.37	24.00	11.00

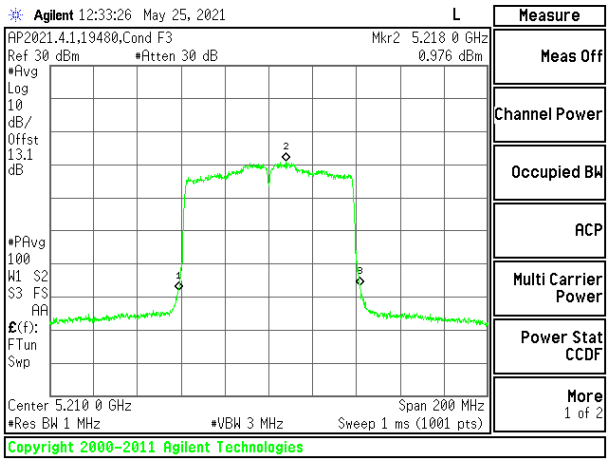
Duty Cycle CF (dB)	0.39	**Included in Calculations of Corr'd PSD**

Output Power Results

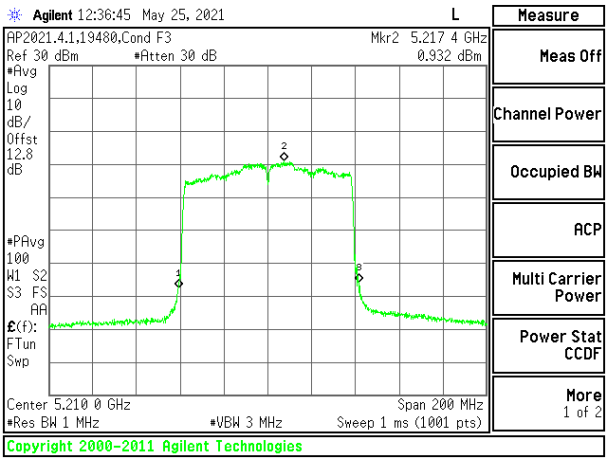
Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5210	16.22	16.20	19.22	24.00	-4.78

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Mid	5210	0.976	0.932	4.354	11.00	-6.646



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.4. 802.11ax HE20 MODE IN THE 5.2 GHz BAND

1TX Antenna 6 MODE (FCC): 26 Tones, RU Index 0

Test Engineer:	23560
Test Date:	1/30/21

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5180	-3.10	24.00	11.00
Mid	5200	-3.10	24.00	11.00
High	5240	-3.10	24.00	11.00

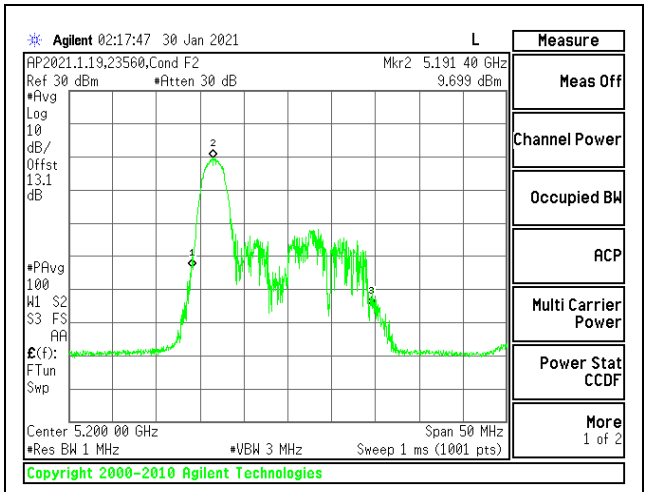
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	11.72	11.72	24.00	-12.28
Mid	5200	11.73	11.73	24.00	-12.27
High	5240	11.71	11.71	24.00	-12.29

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	9.696	9.696	11.00	-1.304
Mid	5200	9.699	9.699	11.00	-1.301
High	5240	9.561	9.561	11.00	-1.439



MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE (FCC): 26 Tones, RU Index 4

Test Engineer:	23560
Test Date:	1/30/21

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5180	-3.10	24.00	11.00
Mid	5200	-3.10	24.00	11.00
High	5240	-3.10	24.00	11.00

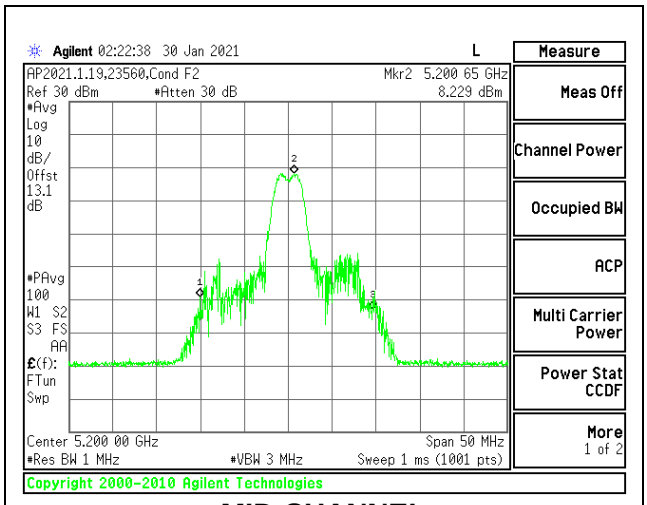
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	11.74	11.74	24.00	-12.26
Mid	5200	11.70	11.70	24.00	-12.30
High	5240	11.73	11.73	24.00	-12.27

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	8.876	8.876	11.00	-2.124
Mid	5200	8.229	8.229	11.00	-2.771
High	5240	8.281	8.281	11.00	-2.719



MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE (FCC): 26 Tones, RU Index 8

Test Engineer:	23560
Test Date:	1/30/21

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5180	-3.10	24.00	11.00
Mid	5200	-3.10	24.00	11.00
High	5240	-3.10	24.00	11.00

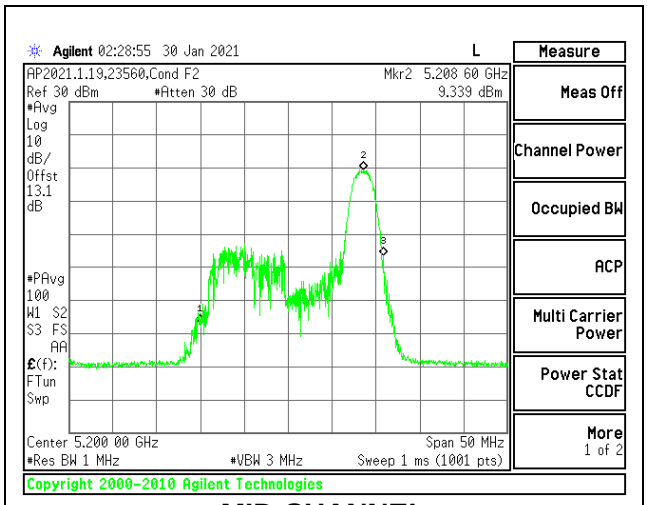
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	11.71	11.71	24.00	-12.29
Mid	5200	11.69	11.69	24.00	-12.31
High	5240	11.70	11.70	24.00	-12.30

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	9.601	9.601	11.00	-1.399
Mid	5200	9.339	9.339	11.00	-1.661
High	5240	9.604	9.604	11.00	-1.396



MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 6 MODE (FCC): SU Mode

Test Engineer:	23560
Test Date:	1/30/21

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5180	-3.10	24.00	11.00
Mid	5200	-3.10	24.00	11.00
High	5240	-3.10	24.00	11.00

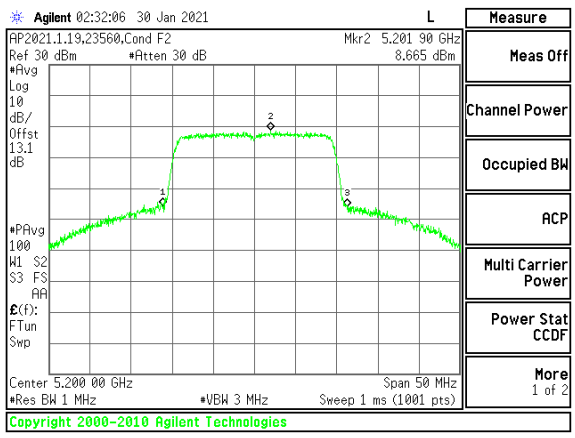
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	18.24	18.24	24.00	-5.76
Mid	5200	19.73	19.73	24.00	-4.27
High	5240	19.70	19.70	24.00	-4.30

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5180	6.865	6.865	11.00	-4.135
Mid	5200	8.665	8.665	11.00	-2.335
High	5240	8.459	8.459	11.00	-2.541



MID CHANNEL

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.