MEASUREMENT REPORT

FCC PART 15.407 WLAN 802.11a/n/ac

FCC ID:	TK4WLE1216VX
Applicant:	Compex Systems Pte Ltd
Application Type:	Certification
Product:	Dual Band 4x4 802.11ac Wave 2 Mini PCIe WiFi Module
Model No.:	WLE1216VX, WLE1216VX-I
Brand Name:	COMPEX
FCC Classification:	Unlicensed National Information Infrastructure (NII)
FCC Rule Part(s):	Part15 Subpart E (Section 15.407)
Test Procedure(s):	ANSI C63.10-2013, KDB 662911 D01v02r01, KDB 789033 D02v02r01
Test Date:	April 15 ~ September 22, 2021

Reviewed By: Kevin Guo

Approved By: Robin Wu

Revision History

Report No.	Version	Description	Issue Date	Note
2103RSU077-U2	Rev. 01	Initial Report	09-22-2021	Valid

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1. GENERAL INFORMATION

1.1. Applicant

Compex Systems Pte Ltd

No:9 Harrison Road, Harrison Industrial Building, #05-01, Singapore

1.2. Manufacturer

Compex Systems Pte Ltd

No:9 Harrison Road, Harrison Industrial Building, #05-01, Singapore

1.3. Testing Facility

<table>
<tr><td>☒</td><td colspan="5">Test Site – MRT Suzhou Laboratory</td></tr>
<tr><td></td><td colspan="5">Laboratory Location (Suzhou - Wuzhong)
D8 Building, No.2 Tian’edang Rd., Wuzhong Economic Development Zone, Suzhou, China
Laboratory Location (Suzhou - SIP)
4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China</td></tr>
<tr><td></td><td colspan="5">Laboratory Accreditations</td></tr>
<tr><td></td><td colspan="2">A2LA: 3628.01</td><td colspan="3">CNAS: L10551</td></tr>
<tr><td></td><td colspan="2">FCC: CN1166</td><td colspan="3">ISED: CN0001</td></tr>
<tr><td></td><td rowspan="2">VCCI:</td><td>☐R-20025</td><td>☐G-20034</td><td>☐C-20020</td><td>☐T-20020</td></tr>
<tr><td></td><td>☐R-20141</td><td>☐G-20134</td><td>☐C-20103</td><td>☐T-20104</td></tr>
<tr><td>☐</td><td colspan="5">Test Site – MRT Shenzhen Laboratory</td></tr>
<tr><td></td><td colspan="5">Laboratory Location (Shenzhen)
1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China</td></tr>
<tr><td></td><td colspan="5">Laboratory Accreditations</td></tr>
<tr><td></td><td colspan="2">A2LA: 3628.02</td><td colspan="3">CNAS: L10551</td></tr>
<tr><td></td><td colspan="2">FCC: CN1284</td><td colspan="3">ISED: CN0105</td></tr>
<tr><td>☐</td><td colspan="5">Test Site – MRT Taiwan Laboratory</td></tr>
<tr><td></td><td colspan="5">Laboratory Location (Taiwan)
No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)</td></tr>
<tr><td></td><td colspan="5">Laboratory Accreditations</td></tr>
<tr><td></td><td colspan="5">TAF: L3261-190725</td></tr>
<tr><td></td><td colspan="2">FCC: 291082, TW3261</td><td colspan="3">ISED: TW3261</td></tr>
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1.4. Product Information

Product Name	Dual Band 4x4 802.11ac Wave 2 Mini PCIe WiFi Module
Model No.	WLE1216VX, WLE1216VX-I
Serial No.	30836757
Wi-Fi Specification	802.11a/b/g/n/ac
Antenna Information	Refer to section 1.7

Remark:

1. The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.
2. The difference of models is only for marketing different client, so the model (WLE1216VX) was selected for testing in this report.

1.5. Radio Specification

Frequency Range	For 802.11a/n-HT20/ac-VHT20: 5180~5320MHz, 5500~5720MHz, 5745~5825MHz For 802.11n-HT40/ac-VHT40: 5190~5310MHz, 5510~5710MHz, 5755~5795MHz For 802.11ac-VHT80: 5210MHz, 5290MHz, 5530MHz, 5610MHz, 5690MHz, 5775MHz For 802.11ac-VHT80+80: 5210MHz+5290MHz, 5210MHz+5530MHz, 5210MHz+5610MHz, 5210MHz+5690MHz, 5530MHz+5610MHz, 5775MHz+5530MHz, 5775MHz+5610MHz, 5775MHz+5690MHz
Type of Modulation	802.11a/n/ac: OFDM
Data Rate	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 600Mbps 802.11ac: up to 1733.2Mbps

Note: For other features of this EUT, test report will be issued separately.

1.6. Working Frequencies

802.11a/n-HT20/ac-VHT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz
48	5240 MHz	52	5260 MHz	56	5280 MHz
60	5300 MHz	64	5320 MHz	100	5500 MHz
104	5520 MHz	108	5540 MHz	112	5560 MHz
116	5580 MHz	120	5600 MHz	124	5620 MHz
128	5640 MHz	132	5660 MHz	136	5680 MHz
140	5700 MHz	144	5720 MHz	149	5745 MHz
153	5765 MHz	157	5785 MHz	161	5805 MHz
165	5825 MHz	--	--	--	--

802.11n-HT40/ac-VHT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	54	5270 MHz
62	5310 MHz	102	5510 MHz	110	5550 MHz
118	5590 MHz	126	5630 MHz	134	5670 MHz
142	5710 MHz	151	5755 MHz	159	5795 MHz

802.11ac-VHT80

Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210 MHz	58	5290 MHz	106	5530 MHz
122	5610 MHz	138	5690 MHz	155	5775 MHz

802.11ac-VHT80+80

5210MHz + 5290MHz	5210MHz + 5530MHz
5210MHz + 5610MHz	5210MHz + 5690MHz
5530MHz + 5610MHz	5775MHz + 5530MHz
5775MHz + 5610MHz	5775MHz + 5690MHz

Note 1: For 802.11ac-VHT80+80 mode, Ant 0 & Ant 1 ports work on one frequency of the above table, Ant 2 & Ant 3 ports work on another frequency of the above table. E.g, channel 42 + 58 group, channel 42 will transmit by Ant 0 + 1 ports and channel 58 will transmit by Ant 2 + 3 ports.
Note 2: The limit on maximum conducted output power in each U-NII band is computed based on the portion of the emission bandwidth contained within that band.

1.7. Antenna Details

Antenna Type	Frequency Band (GHz)	T_X Paths	Max Antenna Gain (dBi)	Cable Loss (dB)	Actual Antenna Gain (dBi)	Directional Gain (dBi)	
						For Power	For PSD
Dipole Antenna	2.4	4	3.16	0.52	2.64	2.64	8.66
	5.0	4	4.18	0.83	3.35	3.35	9.37

Remark:

1. The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.
2. For CDD transmissions, directional gain is calculated as follows, $N_{ANT} = 4$, $N_{SS} = 1$.
   If all antennas have the same gain, G_{ANT}, Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.
   - For power spectral density (PSD) measurements on all devices,
     Array Gain = 10 log (N_{ANT}/ N_{SS}) dB = 6.02;
   - For power measurements on IEEE 802.11 devices,
     Array Gain = 0 dB for $N_{ANT} \leq 4$;

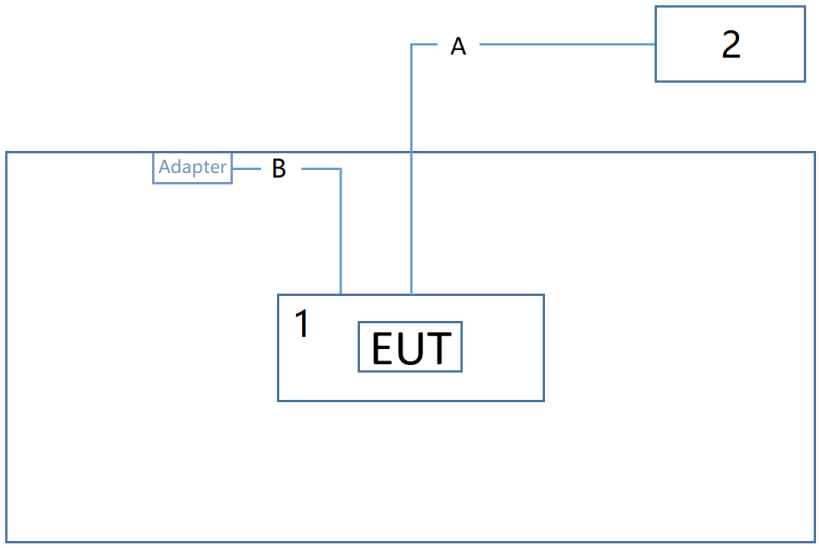
1.8. Test Mode

Test Mode	Mode 1: Transmit by 802.11a (6Mbps)
	Mode 2: Transmit by 802.11ac-VHT20 (MCS0)
	Mode 3: Transmit by 802.11ac-VHT40 (MCS0)
	Mode 4: Transmit by 802.11ac-VHT80 (MCS0)
	Mode 5: Transmit by 802.11ac-VHT80+80 (MCS0)

Note: Due to the same modulation between 802.11n and 802.11ac, so 802.11n-HT20 and HT40 are covered by 802.11ac-VHT20 and VHT40 in this report, meanwhile, power setting for 802.11n-HT20 and HT40 will not be greater than 802.11ac-VHT20 and VHT40.

1.9. Test System Connection Diagram

The device was tested per the guidance ANSI C63.10: 2013 was used to reference the appropriate EUT setup for radiated emissions testing and AC line conducted testing.

Connection Diagram


Cable Type		Cable Description
A	LAN able	Non shielded, > 10m
B	Power Cable	Non shielded, 1.25m

1.10. Test System Details

Product		Manufacturer	Model No.
1	Control Board	Compex	WPJXXX
2	Notebook	Dell	P62G

1.11. Test Software

The test utility software used during testing was “QRCT v4.0”.

Power setting refers to Operation Description.

1.12. Test Environment Condition

Ambient Temperature	15°C~35°C
Relative Humidity	20%RH ~75%RH

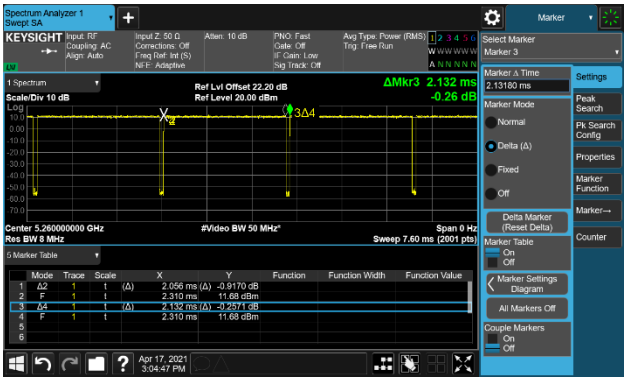
1.13. Duty Cycle

5GHz WLAN (U-NII) operation was possible in 20MHz, 40MHz and 80MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

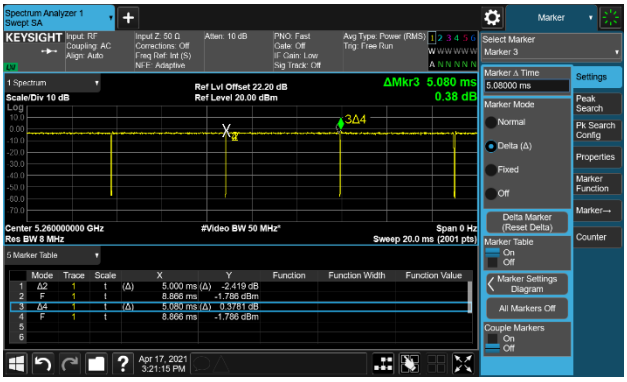
Test Mode	Duty Cycle (%)
802.11a	96.44
802.11ac-VHT20	98.43
802.11ac-VHT40	97.00
802.11ac-VHT80 / ac-VHT80+80	94.16

Duty Cycle (T = Transmission Duration)

802.11a (T = 2.056ms)

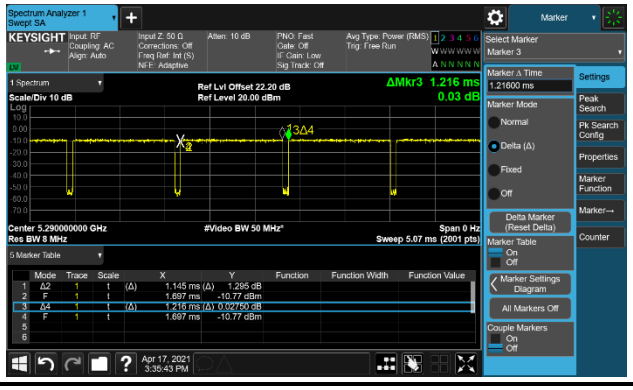


802.11ac-VHT20 (T = 5.000ms)



802.11ac-VHT40 (T = 2.425ms)

802.11ac-VHT80 / ac-VHT80+80 (T = 1.145ms)



2. ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with theprovisions of this section.”

- The antenna of the device uses the **unique I-PEX** connector.

Conclusion:

This unit complies with the requirement of §15.203.

3. TEST EQUIPMENT CALIBRATION DATE

Conducted Emission (WZ-SR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06909	1 year	2021/11/22
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2022/09/08
Thermal Hygrometer	testo	608-H1	MRTSUE06404	1 year	2021/07/26
Shielding Room	MIX-BEP	Chamber-SR2	MRTSUE06215	N/A	N/A

Radiated Emission (WZ-AC1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2022/01/04
PXA Signal Analyzer	Keysight	N9030B	MRTSUE06395	1 year	2022/08/29
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2022/08/07
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2021/09/27
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06597	1 year	2021/12/14
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2021/11/14
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2022/06/09
Thermal Hygrometer	testo	608-H1	MRTSUE06403	1 year	2022/06/28
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2022/04/29

Radiated Emission (WZ-AC2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
MXE EMI Receiver	Keysight	N9038A	MRTSUE06125	1 year	2022/06/24
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2022/05/24
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06171	1 year	2021/10/25
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06597	1 year	2021/12/14
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2021/11/14
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2022/06/09
Thermal Hygrometer	Minggao	ETH529	MRTSUE06170	1 year	2021/12/08
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2022/04/29

Conducted Test Equipment (WZ-TR3)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2022/04/13
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06607	1 year	2022/01/06
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2021/10/22
USB wideband power sensor	Keysight	U2021XA	MRTSUE06446	1 year	2022/06/08
USB wideband power sensor	Keysight	U2021XA	MRTSUE06447	1 year	2022/06/08
Attenuator	MVE	3dB	MRTSUE06529	1 year	2021/12/12
Attenuator	MVE	6dB	MRTSUE06534	1 year	2021/12/12
Attenuator	MVE	10dB	MRTSUE06540	1 year	2021/12/12
Attenuator	MVE	20dB	MRTSUE06547	1 year	2021/12/12
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2021/10/22
Thermal Hygrometer	testo	608-H1	MRTSUE06401	1 year	2022/06/28

Software	Version	Function
EMI Software	V3	EMI Test Software

4. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

AC Conducted Emission Measurement
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz~150kHz: 3.74dB 150kHz~30MHz: 3.44dB
Radiated Disturbance
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): Horizontal: 30MHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~40GHz: 6.40dB Vertical: 30MHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~40GHz: 6.40dB
Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.13dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.15dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.28%

5. TEST RESULT

5.1. Summary

FCC Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.407(a)	26dB Bandwidth	N/A	Conducted	Pass	Section 5.2
15.407(e)	6dB Bandwidth	≥ 500kHz		Pass	Section 5.3
15.407(a)(1)(ii), (2), (3)	Maximum Conducted Output Power	Refer to Section 5.4		Pass	Section 5.4
15.407(h)(1)	Transmit Power Control	≤ 24 dBm		Pass	Section 5.5
15.407(a)(1)(ii), (2), (3), (5)	Peak Power Spectral Density	Refer to Section 5.6		Pass	Section 5.6
15.407(b)(1), (2), (3), (4)(i)	Undesirable Emissions	Refer to Section 5.7 & 5.8	Radiated	Pass	Section 5.7 & 5.8
15.205, 15.209 15.407(b)(1), (2), (3), (4), (7), (8), (9)	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)			Pass	
15.207	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 5.9

Notes:

1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
2) Output power test was verified over all data rates of each mode (data refers to operational description), and then choose the maximum power output (low data rate) for the final test of each channel.
3) All modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.

5.2. 26dB Bandwidth

5.2.1.Test Limit

N/A

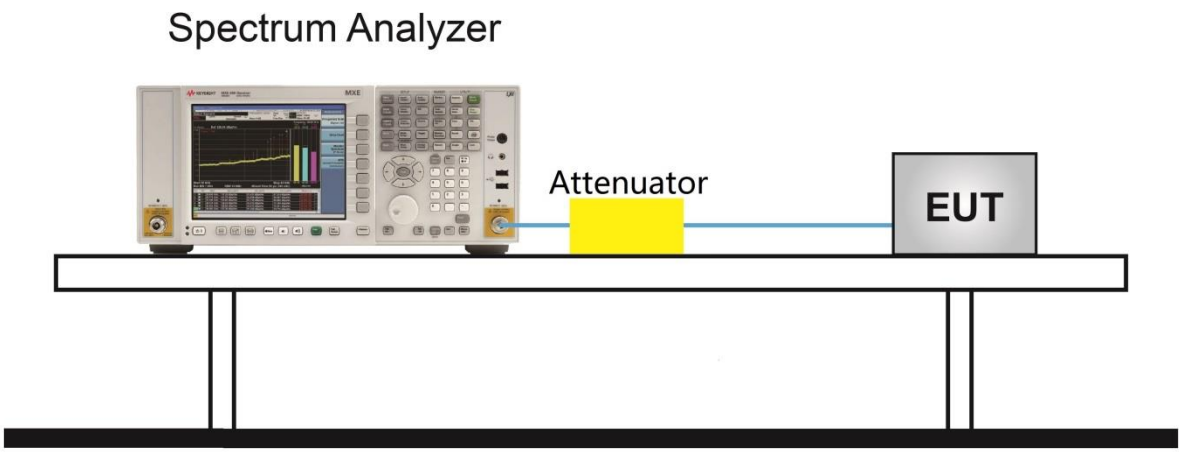
5.2.2.Test Procedure Used

KDB 789033 D02v02r01- Section C.1

5.2.3.Test Setting

1. The analyzers' automatic bandwidth measurement capability was used to perform the 26dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 26. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediated power nulls in the fundamental emission.
2. RBW = approximately 1% of the emission bandwidth.
3. VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold.

5.2.4.Test Setup

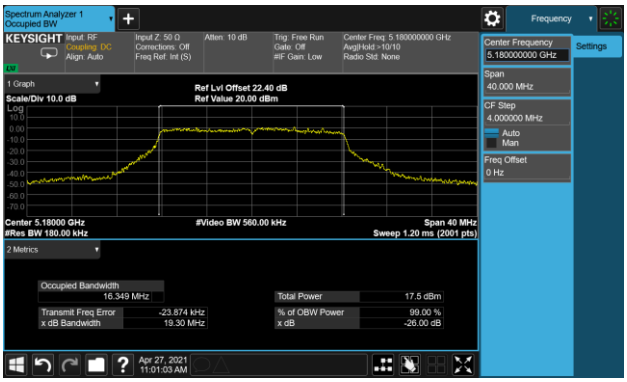
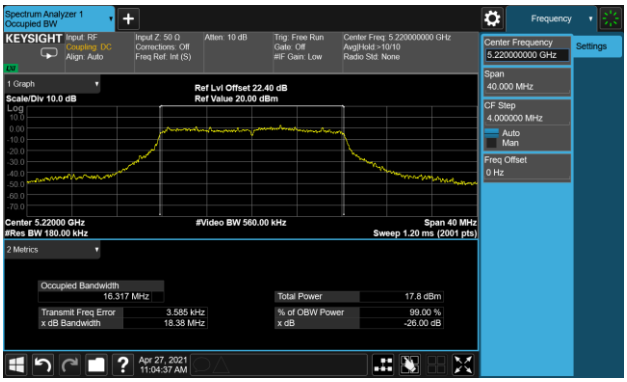
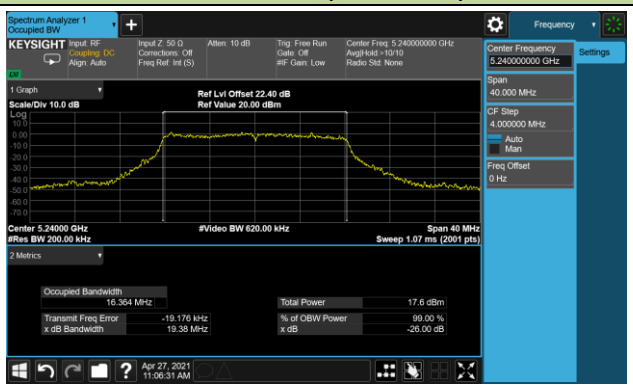
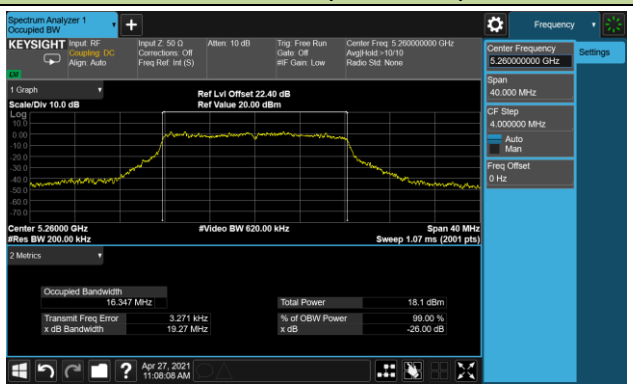
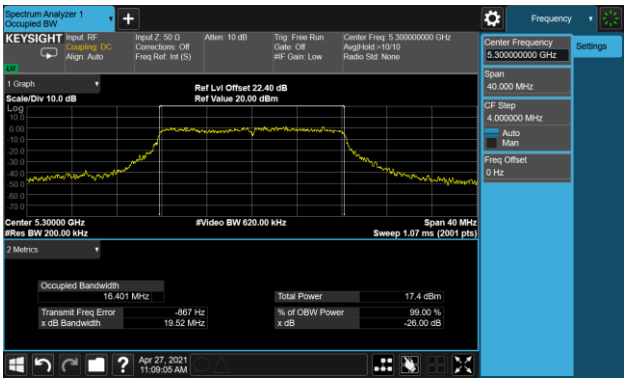
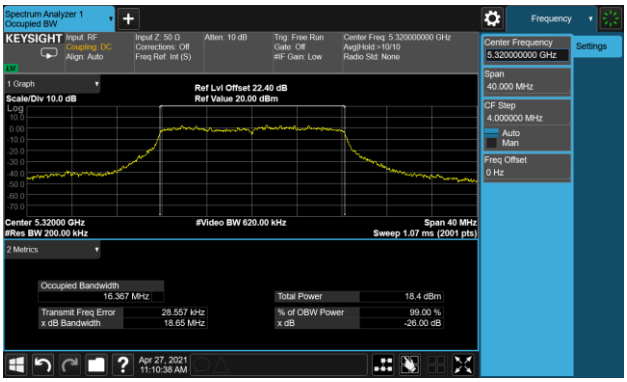
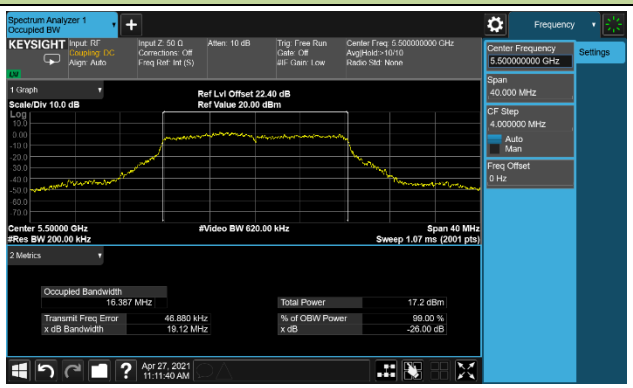
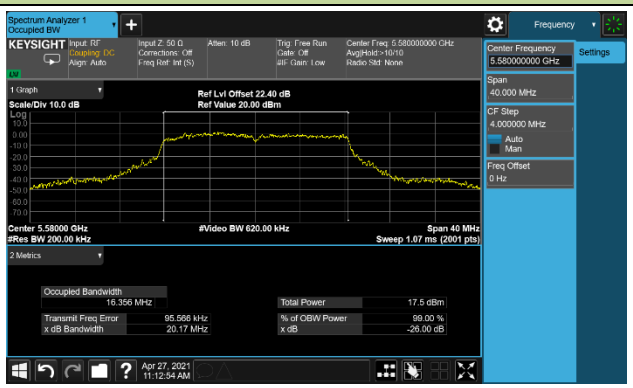


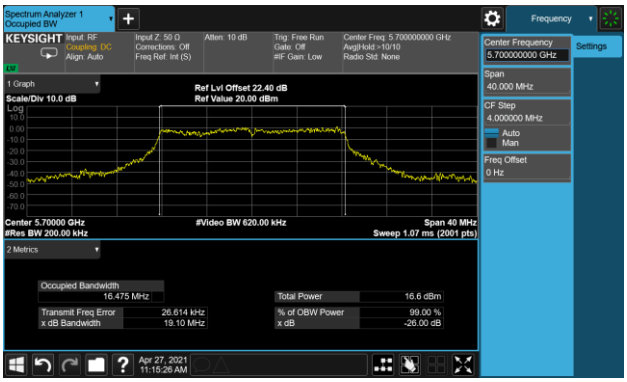
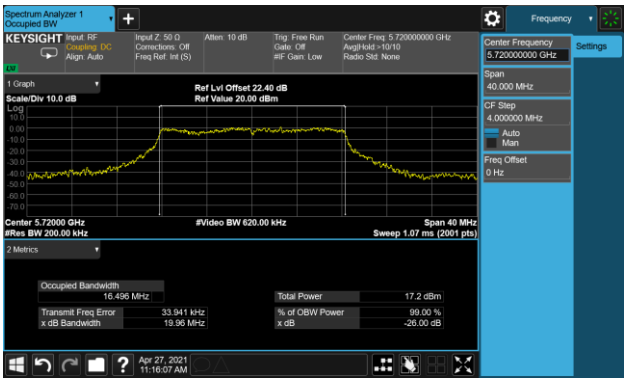
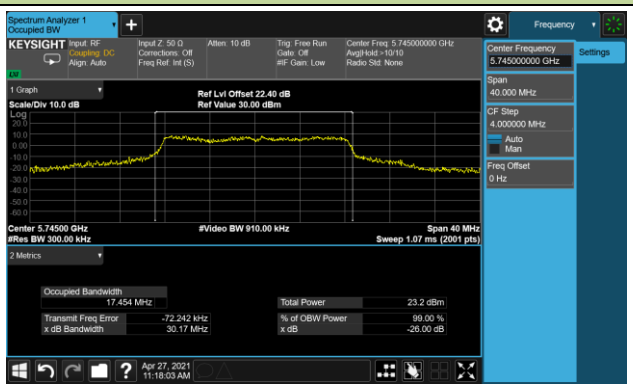
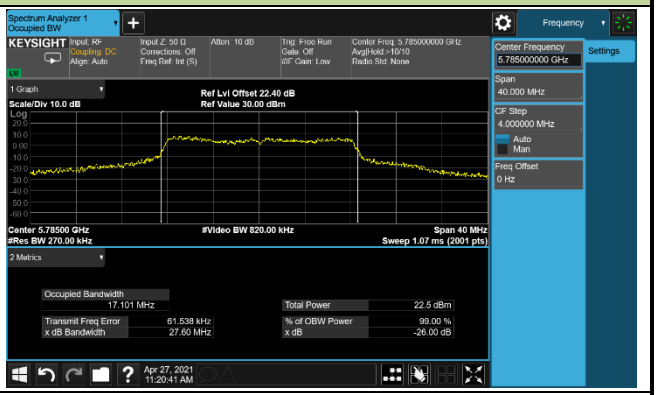
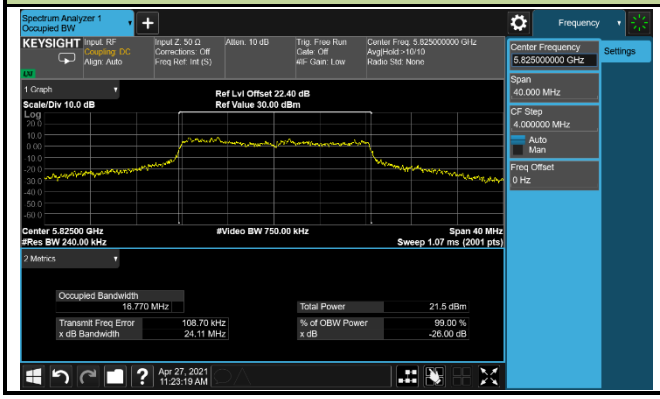
5.2.5.Test Result

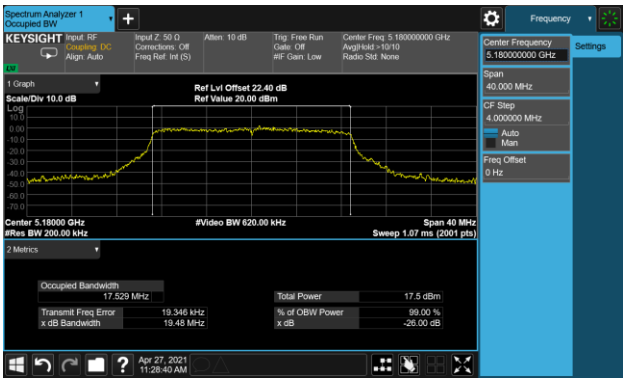
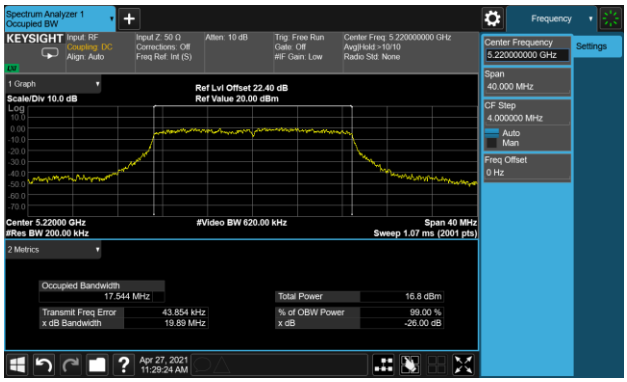
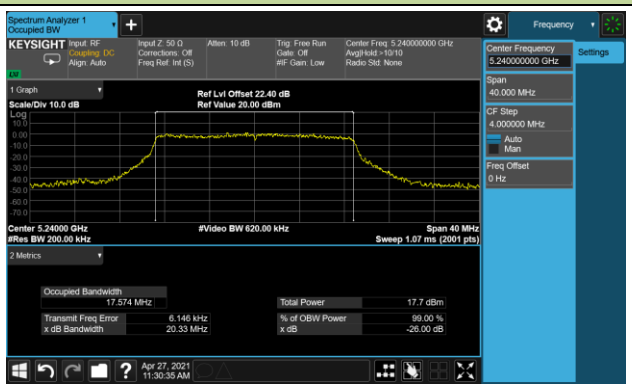
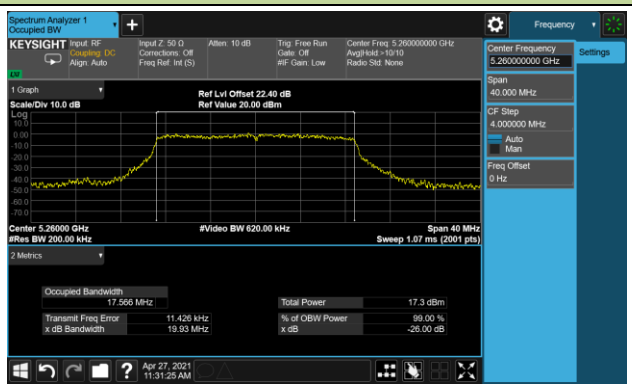
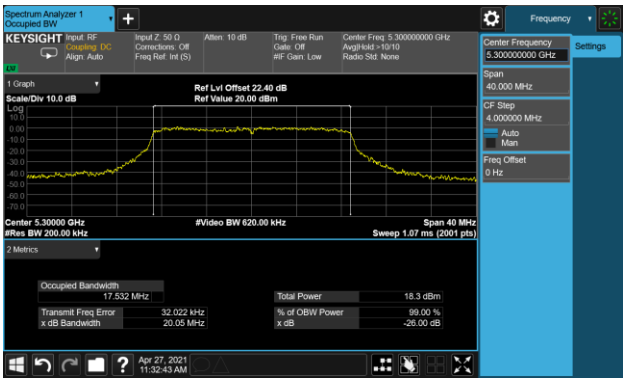
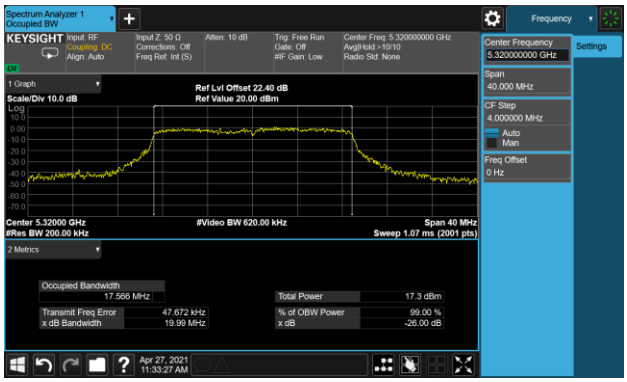
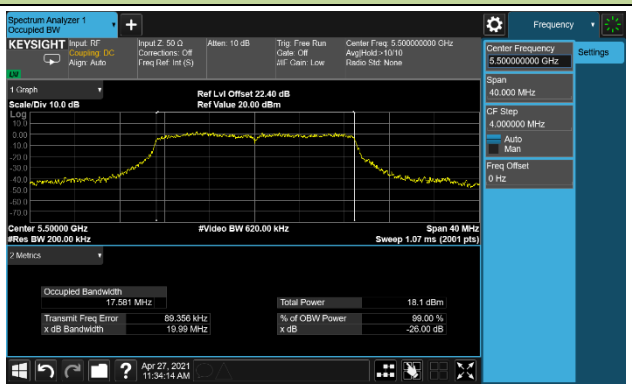
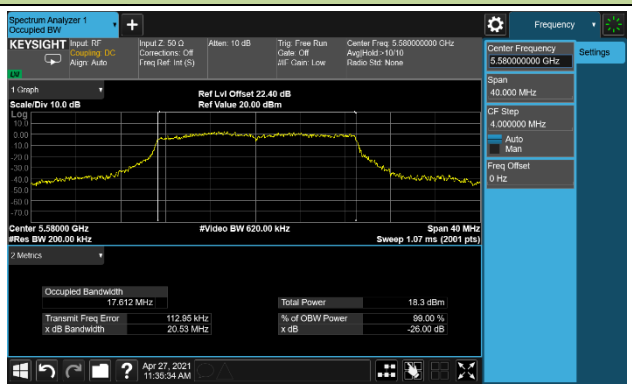
Test Site	WZ-TR3	Test Engineer	Luis Yang
Test Date	2021/04/27~2021/09/22		

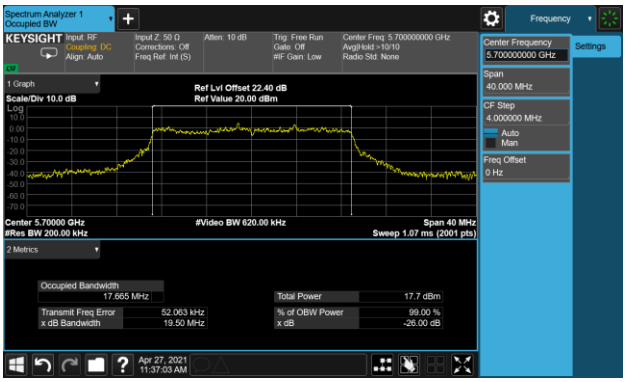
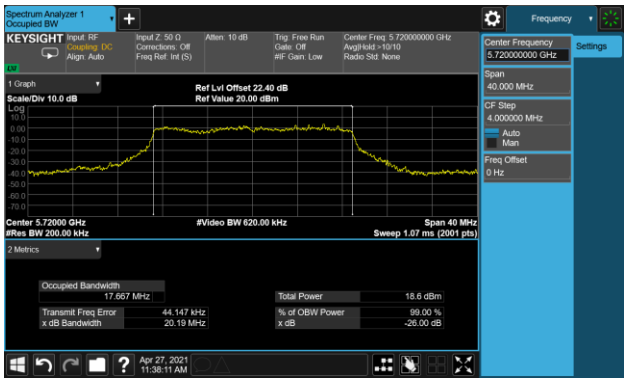
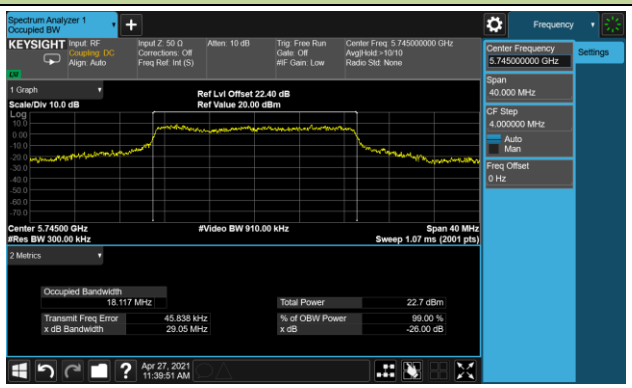
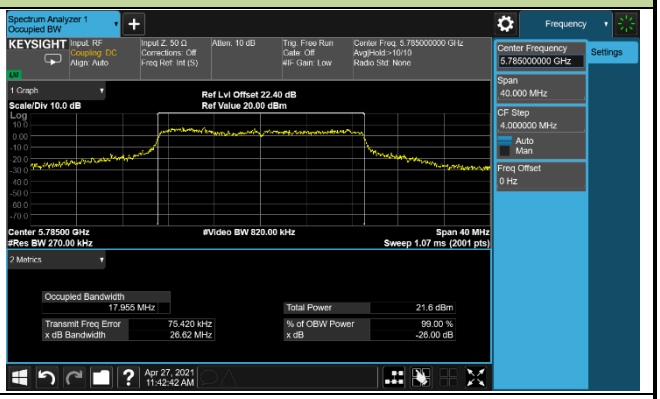
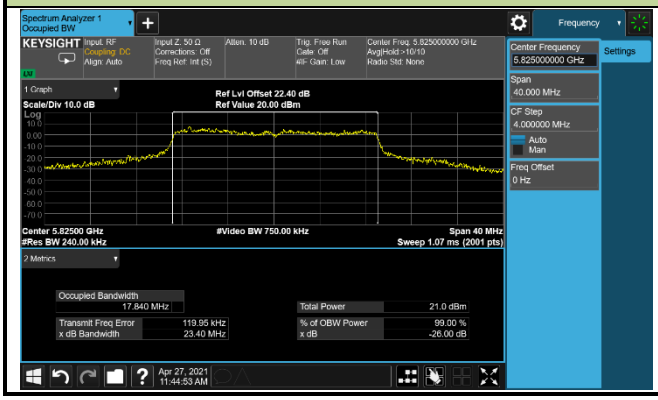
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)
Ant 0				
11a	6Mbps	36	5180	19.30
11a	6Mbps	44	5220	18.38
11a	6Mbps	48	5240	19.38
11a	6Mbps	52	5260	19.27
11a	6Mbps	60	5300	19.52
11a	6Mbps	64	5320	18.65
11a	6Mbps	100	5500	19.12
11a	6Mbps	116	5580	20.17
11a	6Mbps	140	5700	19.10
11a	6Mbps	144	5720	19.96
11a	6Mbps	149	5745	30.17
11a	6Mbps	157	5785	27.60
11a	6Mbps	165	5825	24.11
11ac-VHT20	MCS0	36	5180	19.48
11ac-VHT20	MCS0	44	5220	19.89
11ac-VHT20	MCS0	48	5240	20.33
11ac-VHT20	MCS0	52	5260	19.93
11ac-VHT20	MCS0	60	5300	20.05
11ac-VHT20	MCS0	64	5320	19.99
11ac-VHT20	MCS0	100	5500	19.99
11ac-VHT20	MCS0	116	5580	20.53
11ac-VHT20	MCS0	140	5700	19.50
11ac-VHT20	MCS0	144	5720	20.19
11ac-VHT20	MCS0	149	5745	29.05
11ac-VHT20	MCS0	157	5785	26.62
11ac-VHT20	MCS0	165	5825	23.40

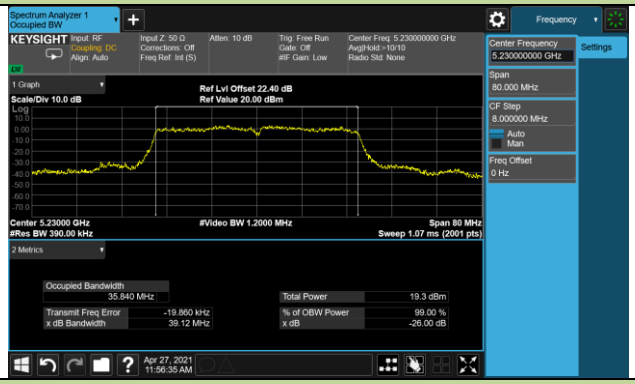
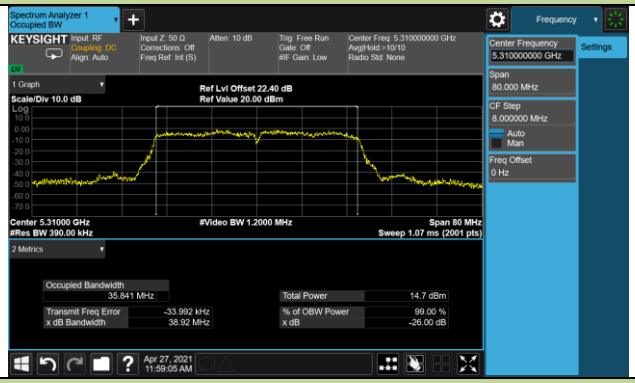
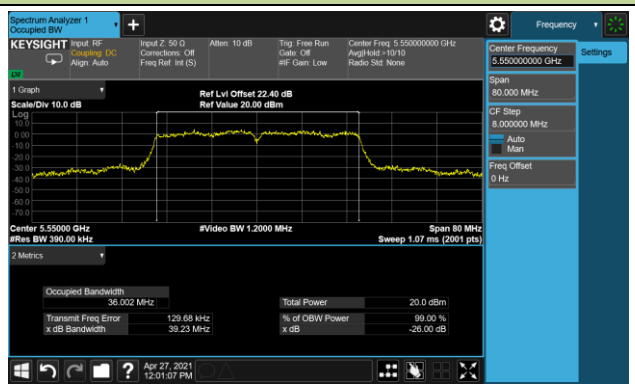
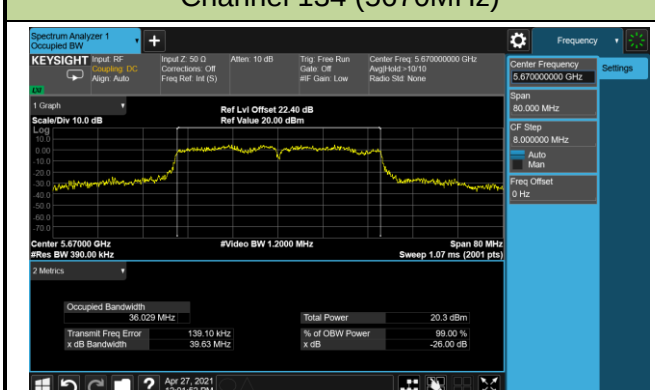
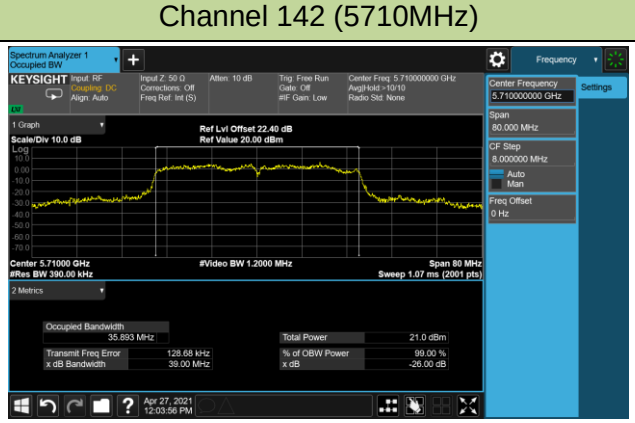
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)
Ant 0				
11ac-VHT40	MCS0	38	5190	39.09
11ac-VHT40	MCS0	46	5230	39.12
11ac-VHT40	MCS0	54	5270	39.31
11ac-VHT40	MCS0	62	5310	38.92
11ac-VHT40	MCS0	102	5510	38.77
11ac-VHT40	MCS0	110	5550	39.23
11ac-VHT40	MCS0	134	5670	39.63
11ac-VHT40	MCS0	142	5710	39.00
11ac-VHT40	MCS0	151	5755	62.82
11ac-VHT40	MCS0	159	5795	61.58
11ac-VHT80	MCS0	42	5210	82.41
11ac-VHT80	MCS0	58	5290	82.16
11ac-VHT80	MCS0	106	5530	82.56
11ac-VHT80	MCS0	122	5610	109.00
11ac-VHT80	MCS0	138	5690	111.50
11ac-VHT80	MCS0	155	5775	106.40
Ant 0 + 1 + 2 + 3				
11ac-VHT80+80 Contiguous	MCS0	42	5210	163.2
		58	5290	
11ac-VHT80+80 Non-contiguous	MCS0	42	5210	82.41
		106	5530	82.56
11ac-VHT80+80 Non-contiguous	MCS0	42	5210	82.41
		122	5610	109.00
11ac-VHT80+80 Non-contiguous	MCS0	42	5210	82.41
		138	5690	111.50
11ac-VHT80+80 Contiguous	MCS0	106	5530	163.4
		122	5610	
11ac-VHT80+80 Non-contiguous	MCS0	155	5775	106.40
		106	5530	82.56
11ac-VHT80+80 Non-contiguous	MCS0	155	5775	106.40
		122	5610	109.00
11ac-VHT80+80 Non-contiguous	MCS0	155	5775	106.40
		138	5690	111.50

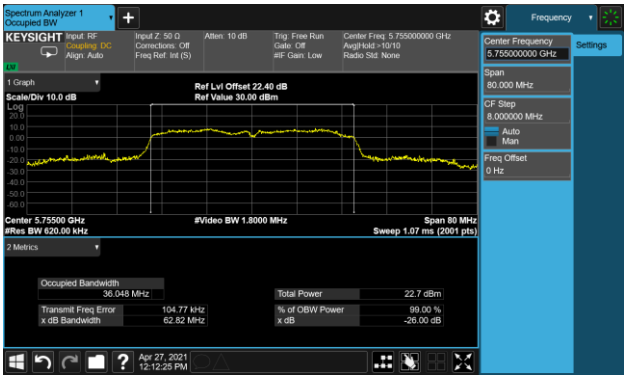
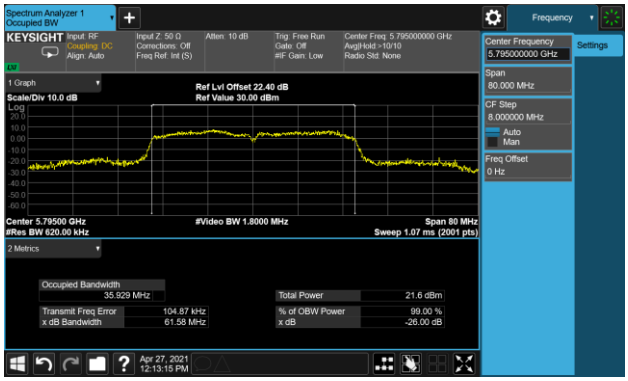
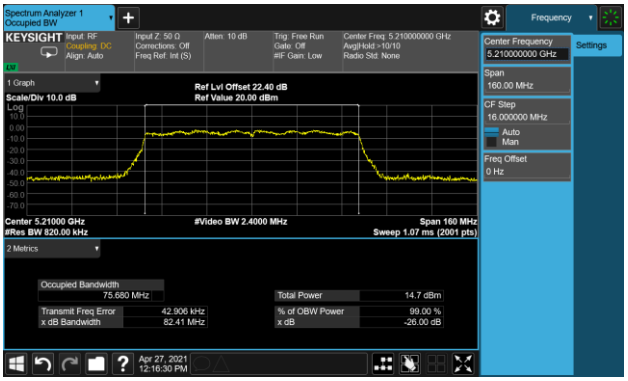
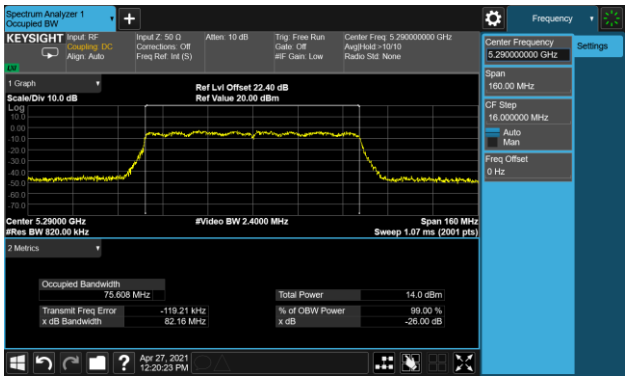
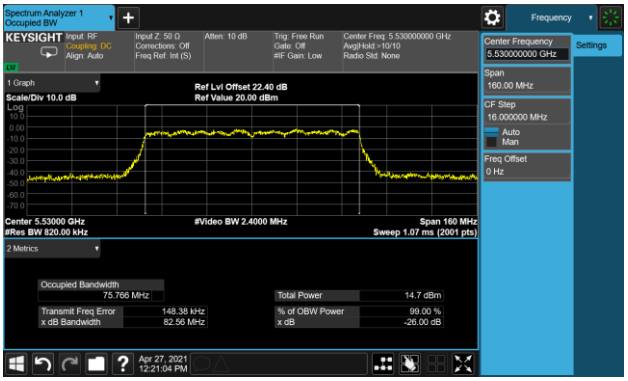
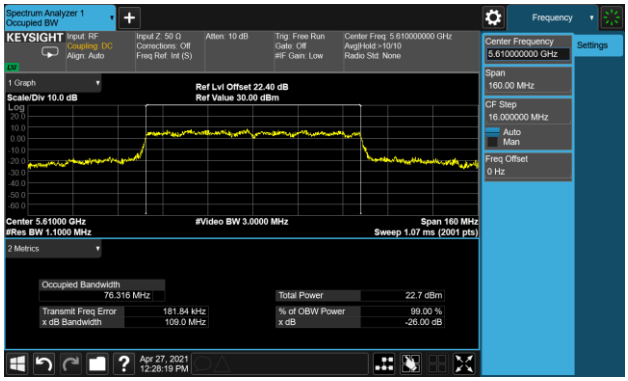
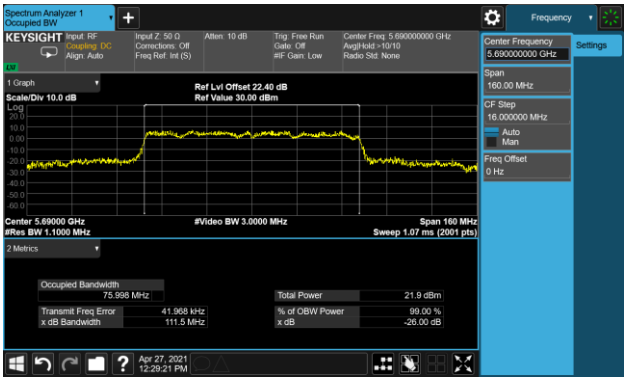
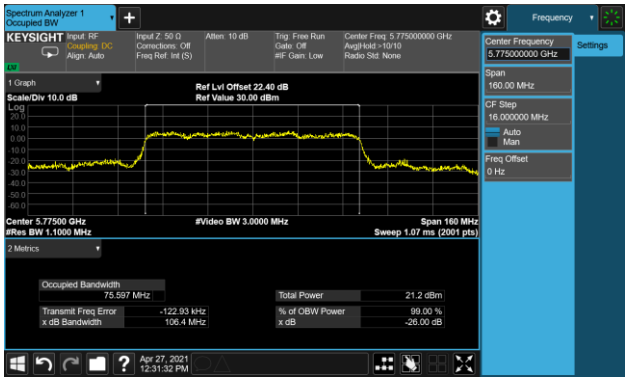
802.11a 26dB Bandwidth - Ant 0	
Channel 36 (5180MHz)	Channel 44 (5220MHz)
	
Channel 48 (5240MHz)	Channel 52 (5260MHz)
	
Channel 60 (5300MHz)	Channel 64 (5320MHz)
	
Channel 100 (5500MHz)	Channel 116 (5580MHz)
	

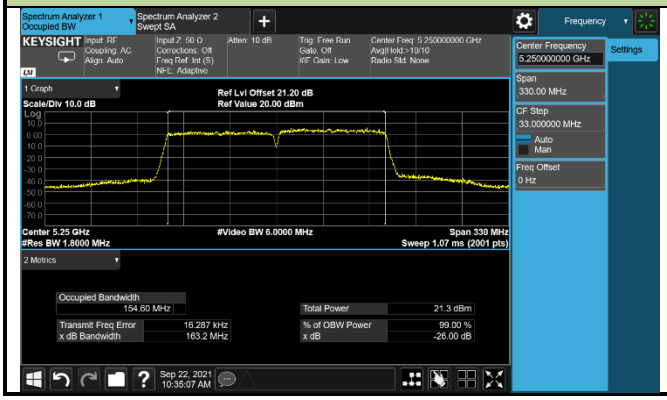
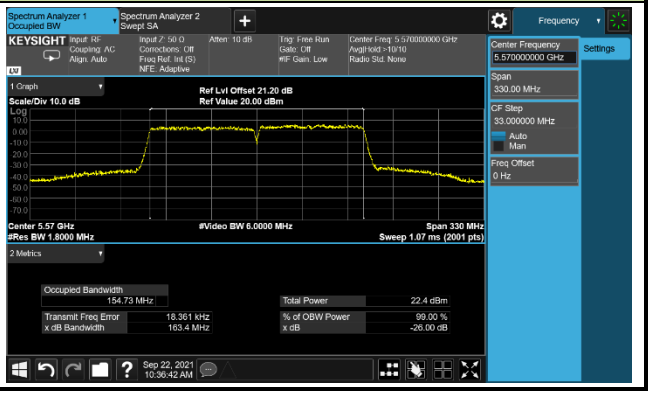
802.11a 26dB Bandwidth - Ant 0	
Channel 140 (5700MHz)	Channel 144 (5720MHz)
	
Channel 149 (5745MHz)	Channel 157 (5785MHz)
	
Channel 165 (5825MHz)	
	

802.11ac-VHT20 26dB Bandwidth - Ant 0	
Channel 36 (5180MHz)	Channel 44 (5220MHz)
	
Channel 48 (5240MHz)	Channel 52 (5260MHz)
	
Channel 60 (5300MHz)	Channel 64 (5320MHz)
	
Channel 100 (5500MHz)	Channel 116 (5580MHz)
	

802.11ac-VHT20 26dB Bandwidth - Ant 0	
Channel 140 (5700MHz)	Channel 144 (5720MHz)
	
Channel 149 (5745MHz)	Channel 157 (5785MHz)
	
Channel 165 (5825MHz)	
	

802.11ac-VHT40 26dB Bandwidth - Ant 0	
Channel 38 (5190MHz)	Channel 46 (5230MHz)
	
Channel 54 (5270MHz)	Channel 62 (5310MHz)
	
Channel 102 (5510MHz)	Channel 110 (5550MHz)
	
Channel 134 (5670MHz)	Channel 142 (5710MHz)
	

802.11ac-VHT40 26dB Bandwidth - Ant 0	
Channel 151 (5755MHz)	Channel 159 (5795MHz)
	
802.11ac-VHT80 26dB Bandwidth - Ant 0	
Channel 42 (5210MHz)	Channel 58 (5290MHz)
	
Channel 106 (5530MHz)	Channel 122 (5610MHz)
	
Channel 138 (5690MHz)	Channel 155 (5775MHz)
	

802.11ac-VHT80+80 26dB Bandwidth - Ant 0 + 1 + 2 + 3	
Channel 42 + Channel 58	Channel 106 + Channel 122
	

5.3. 6dB Bandwidth Measurement

5.3.1.Test Limit

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

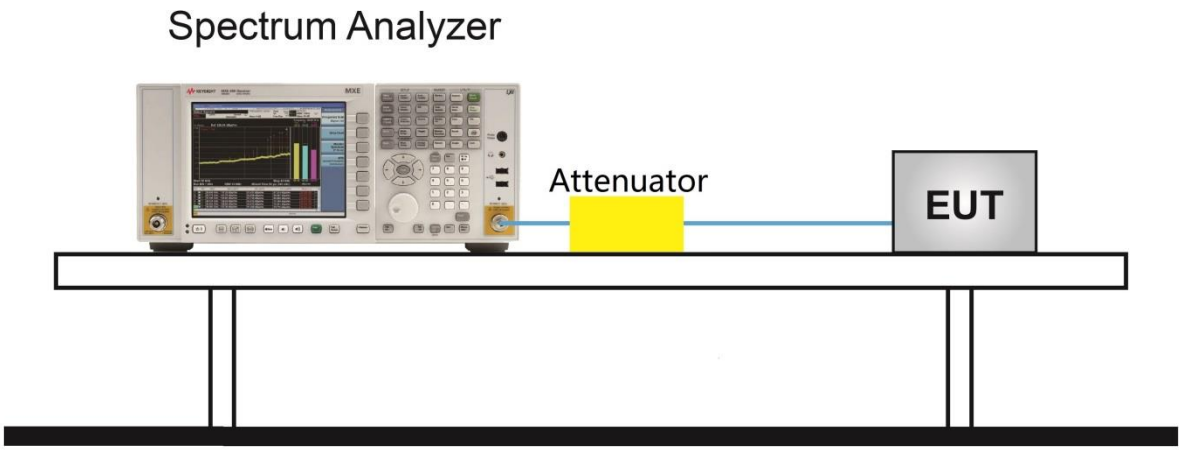
5.3.2.Test Procedure Used

KDB 789033 D02v02r01- Section C.2

5.3.3.Test Setting

1. Set center frequency to the nominal EUT channel center frequency.
2. RBW = 100 kHz.
3. VBW ≥ 3×RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.3.4.Test Setup

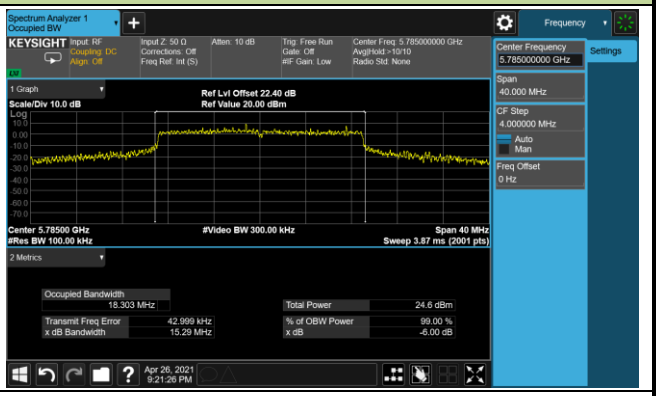
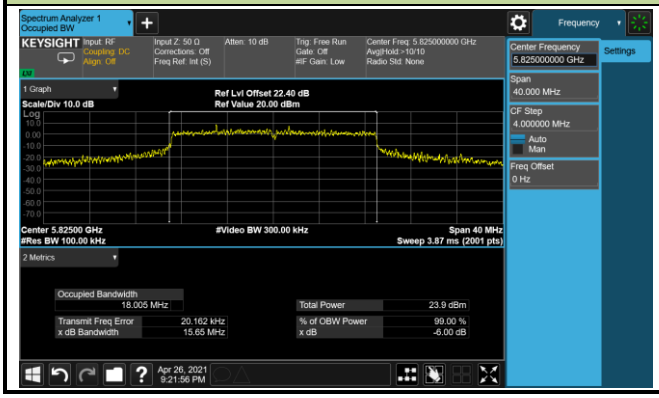


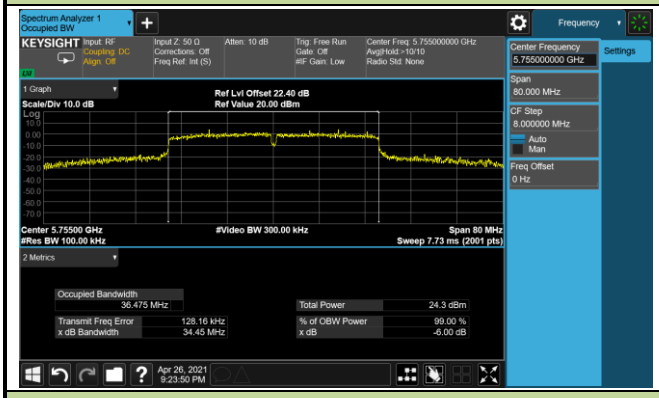
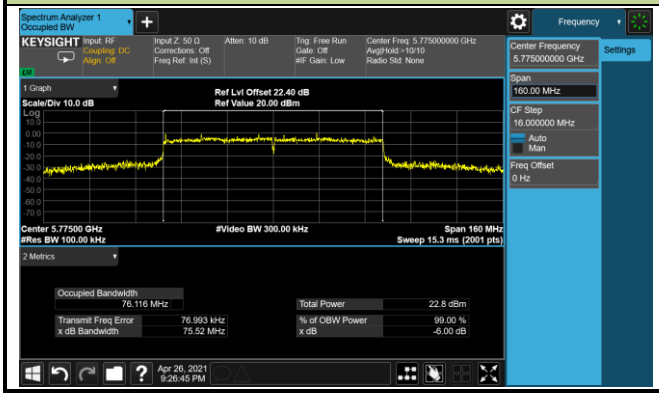
5.3.5.Test Result

Test Site	WZ-TR3	Test Engineer	Luis Yang
Test Date	2021/04/26		

Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
Ant 0						
802.11a	6Mbps	149	5745	16.34	≥ 0.5	Pass
802.11a	6Mbps	157	5785	16.39	≥ 0.5	Pass
802.11a	6Mbps	165	5825	16.37	≥ 0.5	Pass
802.11ac-VHT20	MCS0	149	5745	16.70	≥ 0.5	Pass
802.11ac-VHT20	MCS0	157	5785	15.29	≥ 0.5	Pass
802.11ac-VHT20	MCS0	165	5825	15.65	≥ 0.5	Pass
802.11ac-VHT40	MCS0	151	5755	34.45	≥ 0.5	Pass
802.11ac-VHT40	MCS0	159	5795	35.08	≥ 0.5	Pass
802.11ac-VHT80	MCS0	155	5775	75.52	≥ 0.5	Pass

802.11a 6dB Bandwidth - Ant 0	
Channel 149 (5745MHz)	Channel 157 (5785MHz)
	
Channel 165 (5825MHz)	
	

802.11ac-VHT20 6dB Bandwidth - Ant 0	
Channel 149 (5745MHz)	Channel 157 (5785MHz)
	
Channel 165 (5825MHz)	
	

802.11ac-VHT40 6dB Bandwidth - Ant 3	
Channel 151 (5755MHz)	Channel 159 (5795MHz)
	
802.11ac-VHT80 6dB Bandwidth - Ant 0	
Channel 155 (5775MHz)	
	

5.4. Output Power Measurement

5.4.1.Test Limit

For 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 (23.98dBm).

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (23.98dBm) or 11dBm +10 log (26dB BW).

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm).

If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

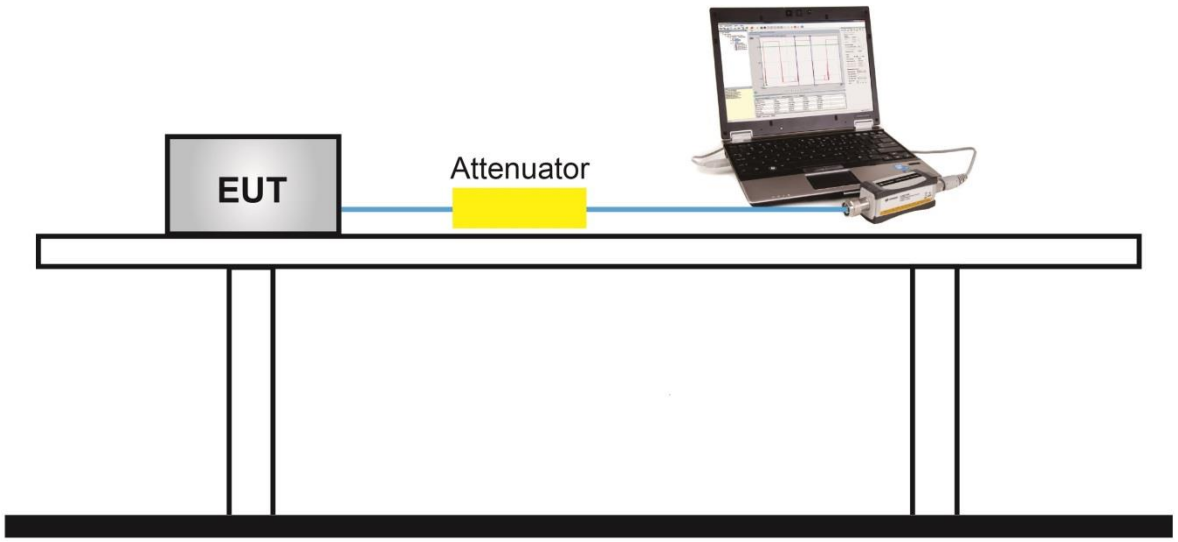
5.4.2.Test Procedure Used

KDB 789033D02v02r01- Section E)3)b) Method PM-G

5.4.3.Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a wideband gated RF power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

5.4.4.Test Setup



5.4.5.Test Result

Test Site	WZ-TR3	Test Engineer	Luis Yang
Test Date	2021/04/15		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11a	6Mbps	36	5180	11.91	12.65	11.62	11.22	17.90	≤ 23.98	Pass
11a	6Mbps	44	5220	11.83	12.05	11.44	11.36	17.70	≤ 23.98	Pass
11a	6Mbps	48	5240	11.97	11.48	11.16	10.95	17.43	≤ 23.98	Pass
11a	6Mbps	52	5260	11.79	11.66	11.40	11.58	17.63	≤ 23.71	Pass
11a	6Mbps	60	5300	12.00	11.99	11.68	11.58	17.84	≤ 23.71	Pass
11a	6Mbps	64	5320	11.88	11.59	11.94	11.29	17.70	≤ 23.71	Pass
11a	6Mbps	100	5500	11.94	10.90	10.89	11.14	17.26	≤ 23.71	Pass
11a	6Mbps	116	5580	11.99	11.00	11.82	11.60	17.64	≤ 23.71	Pass
11a	6Mbps	140	5700	11.27	10.99	11.39	11.00	17.19	≤ 23.71	Pass
11a	6Mbps	144	5720	11.56	11.22	11.66	11.22	17.44	≤ 22.76	Pass
11a	6Mbps	149	5745	18.87	18.90	19.32	17.23	24.67	≤ 30.00	Pass
11a	6Mbps	157	5785	17.61	19.37	18.50	17.33	24.30	≤ 30.00	Pass
11a	6Mbps	165	5825	17.13	19.46	19.33	17.80	24.56	≤ 30.00	Pass
11ac-VHT20	MCS0	36	5180	12.06	12.57	11.69	11.74	18.05	≤ 23.98	Pass
11ac-VHT20	MCS0	44	5220	11.97	12.41	11.90	11.72	18.03	≤ 23.98	Pass
11ac-VHT20	MCS0	48	5240	12.47	12.34	11.54	11.76	18.07	≤ 23.90	Pass
11ac-VHT20	MCS0	52	5260	12.23	12.09	11.65	11.77	17.96	≤ 23.90	Pass
11ac-VHT20	MCS0	60	5300	12.11	12.16	11.83	12.00	18.05	≤ 23.90	Pass
11ac-VHT20	MCS0	64	5320	12.20	11.90	11.99	11.55	17.94	≤ 23.90	Pass
11ac-VHT20	MCS0	100	5500	12.18	11.11	11.23	11.48	17.54	≤ 23.90	Pass
11ac-VHT20	MCS0	116	5580	12.03	10.75	11.65	11.50	17.53	≤ 23.90	Pass
11ac-VHT20	MCS0	140	5700	11.61	11.30	11.76	11.32	17.52	≤ 23.90	Pass
11ac-VHT20	MCS0	144	5720	11.89	11.58	11.82	11.58	17.74	≤ 22.79	Pass
11ac-VHT20	MCS0	149	5745	17.30	19.20	18.00	17.20	24.02	≤ 30.00	Pass
11ac-VHT20	MCS0	157	5785	16.57	18.58	17.59	16.80	23.48	≤ 30.00	Pass
11ac-VHT20	MCS0	165	5825	16.36	18.51	17.73	17.50	23.61	≤ 30.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11ac-VHT40	MCS0	38	5190	9.48	10.71	10.28	10.45	16.27	≤ 23.98	Pass
11ac-VHT40	MCS0	46	5230	13.75	13.91	13.73	14.03	19.88	≤ 23.98	Pass
11ac-VHT40	MCS0	54	5270	13.94	14.38	14.04	14.01	20.12	≤ 23.98	Pass
11ac-VHT40	MCS0	62	5310	10.58	10.77	10.28	10.35	16.52	≤ 23.98	Pass
11ac-VHT40	MCS0	102	5510	10.82	10.25	10.31	10.32	16.45	≤ 23.98	Pass
11ac-VHT40	MCS0	110	5550	14.94	14.08	14.22	14.24	20.40	≤ 23.98	Pass
11ac-VHT40	MCS0	134	5670	15.36	14.10	14.94	14.64	20.80	≤ 23.98	Pass
11ac-VHT40	MCS0	142	5710	15.45	14.42	14.64	14.68	20.84	≤ 23.98	Pass
11ac-VHT40	MCS0	151	5755	17.64	19.03	17.87	16.93	23.96	≤ 30.00	Pass
11ac-VHT40	MCS0	159	5795	17.16	18.93	17.70	16.11	23.61	≤ 30.00	Pass
11ac-VHT80	MCS0	42	5210	8.22	9.24	8.38	8.66	14.66	≤ 23.98	Pass
11ac-VHT80	MCS0	58	5290	8.27	8.41	8.01	8.06	14.21	≤ 23.98	Pass
11ac-VHT80	MCS0	106	5530	8.88	7.46	8.39	8.14	14.27	≤ 23.98	Pass
11ac-VHT80	MCS0	122	5610	16.69	15.63	15.84	15.79	22.03	≤ 23.98	Pass
11ac-VHT80	MCS0	138	5690	18.38	18.17	17.63	16.51	23.75	≤ 23.98	Pass
11ac-VHT80	MCS0	155	5775	16.93	16.58	16.45	17.23	22.83	≤ 30.00	Pass
11ac-VHT80+80 Contiguous	MCS0	42	5210	10.52	11.05	--	--	13.80	≤ 23.98	Pass
		58	5290	--	--	11.26	11.03	14.16	≤ 23.98	Pass
11ac-VHT80+80 Non-contiguous	MCS0	42	5210	10.54	11.11	--	--	13.84	≤ 23.98	Pass
		106	5530	--	--	9.92	10.30	13.12	≤ 23.98	Pass
11ac-VHT80+80 Non-contiguous	MCS0	42	5210	10.91	11.54	--	--	14.25	≤ 23.98	Pass
		122	5610	--	--	11.66	11.52	14.60	≤ 23.98	Pass
11ac-VHT80+80 Non-contiguous	MCS0	42	5210	10.83	11.38	--	--	14.12	≤ 23.98	Pass
		138	5690	--	--	12.64	11.93	15.31	≤ 23.98	Pass
11ac-VHT80+80 Contiguous	MCS0	106	5530	11.09	10.86	--	--	17.60	≤ 23.98	Pass
		122	5610	--	--	12.17	12.06			
11ac-VHT80+80 Non-contiguous	MCS0	155	5775	11.75	11.85	--	--	14.81	≤ 30.00	Pass
		106	5530	--	--	10.98	11.20	14.10	≤ 23.98	Pass
11ac-VHT80+80 Non-contiguous	MCS0	155	5775	17.13	19.03	--	--	21.19	≤ 30.00	Pass
		122	5610	--	--	17.37	17.85	20.63	≤ 23.98	Pass
11ac-VHT80+80 Non-contiguous	MCS0	155	5775	17.22	18.72	--	--	21.04	≤ 30.00	Pass
		138	5690	--	--	17.57	17.26	20.43	≤ 23.98	Pass

Note 1: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power}/10)}$ + $10^{(\text{Ant 1 Average Power}/10)}$ + $10^{(\text{Ant 2 Average Power}/10)}$ + $10^{(\text{Ant 3 Average Power}/10)}$} (dBm).

Note 2: For 802.11ac-VHT80+80 Mode:

5210MHz fall within UNII-1: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power}/10)}$ + $10^{(\text{Ant 1 Average Power}/10)}$} (dBm).

5290MHz fall within UNII-2A: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 2 Average Power}/10)}$ + $10^{(\text{Ant 3 Average Power}/10)}$} (dBm).

5530MHz, 5610MHz or 5690MHz fall within UNII-2C: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 2 Average Power}/10)}$ + $10^{(\text{Ant 3 Average Power}/10)}$} (dBm).

5775MHz fall within UNII-3: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power}/10)}$ + $10^{(\text{Ant 1 Average Power}/10)}$} (dBm).

5530MHz + 5610MHz fall within UNII-2C: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power}/10)}$ + $10^{(\text{Ant 1 Average Power}/10)}$ + $10^{(\text{Ant 2 Average Power}/10)}$ + $10^{(\text{Ant 3 Average Power}/10)}$} (dBm).

5.5. Transmit Power Control

5.5.1.Test Limit

The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm.

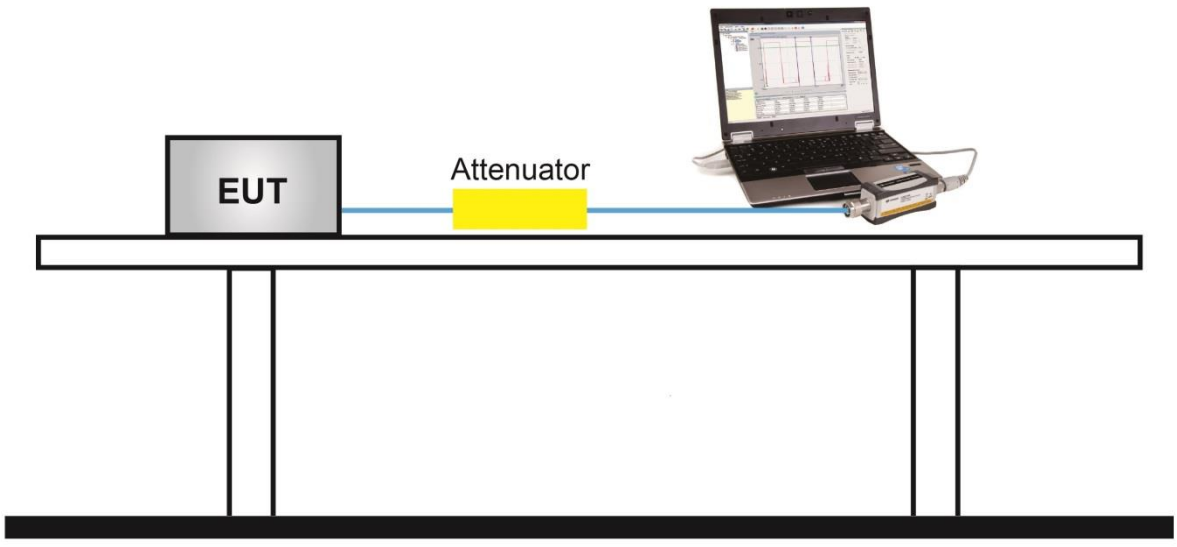
5.5.2.Test Procedure Used

KDB 789033D02v02r01- Section E)3)b) Method PM-G

5.5.3.Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a wideband gated RF power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

5.5.4.Test Setup



5.5.5.Test Result

Device supports TPC mechanism, details refer to the operational description.

5.6. Power Spectral Density Measurement

5.6.1.Test Limit

For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

If transmitting antennas of directional gain greater than 6dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

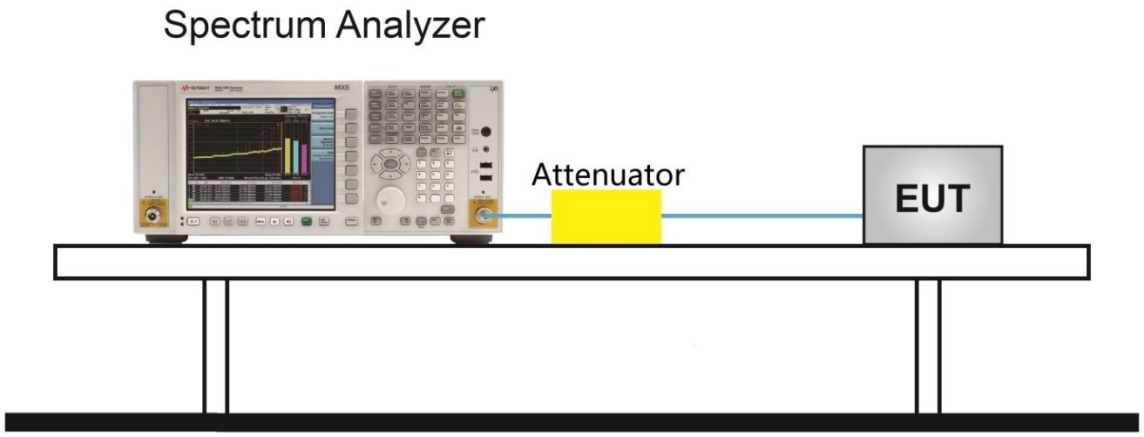
5.6.2.Test Procedure Used

KDB 789033 D02v02r01-SectionF

5.6.3.Test Setting

1. Analyzer was set to the center frequency of the U-NII channel under investigation
2. Span was set to encompass the entire 26dB EBW of the signal
3. RBW = 1MHz for UNII-Band 1 & 2A & 2C, RBW = 510 kHz for UNII-Band 3; VBW ≥ 3*RBW
4. Number of sweep points ≥ 2 × (span / RBW)
5. Detector = power averaging (Average)
6. Sweep time = auto
7. Trigger = free run
8. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
9. Add 10*log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add 10*log(1/0.25) = 6 dB if the duty cycle is 25 percent.

5.6.4.Test Setup



5.6.5.Test Result

Test Site	WZ-TR3	Test Engineer	Luis Yang
Test Date	2021/04/17~2021/06/16		
Test Item	Power Spectral Density (UNII-Band 1 & 2A & 2C)		

Test Mode	Data Rate/ MCS	Ch. No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Ant 3 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
11a	6Mbps	36	5180	1.57	1.90	0.57	0.30	96.44	7.31	≤ 7.63	Pass
11a	6Mbps	44	5220	1.88	1.82	0.66	0.58	96.44	7.46	≤ 7.63	Pass
11a	6Mbps	48	5240	1.71	1.40	0.66	0.61	96.44	7.30	≤ 7.63	Pass
11a	6Mbps	52	5260	1.38	0.66	1.01	0.95	96.44	7.18	≤ 7.63	Pass
11a	6Mbps	60	5300	1.25	0.99	1.18	0.97	96.44	7.28	≤ 7.63	Pass
11a	6Mbps	64	5320	1.26	0.95	1.46	0.78	96.44	7.30	≤ 7.63	Pass
11a	6Mbps	100	5500	1.97	-0.15	0.80	0.29	96.44	6.98	≤ 7.63	Pass
11a	6Mbps	116	5580	1.78	-0.47	1.30	0.55	96.44	7.05	≤ 7.63	Pass
11a	6Mbps	140	5700	1.05	0.96	0.79	0.36	96.44	6.98	≤ 7.63	Pass
11a	6Mbps	144	5720	1.21	1.09	1.03	0.71	96.44	7.19	≤ 7.63	Pass
11ac-VHT20	MCS0	36	5180	1.57	1.86	0.36	0.51	98.43	7.14	≤ 7.63	Pass
11ac-VHT20	MCS0	44	5220	1.40	1.37	0.66	0.60	98.43	7.05	≤ 7.63	Pass
11ac-VHT20	MCS0	48	5240	1.92	1.63	1.16	0.80	98.43	7.42	≤ 7.63	Pass
11ac-VHT20	MCS0	52	5260	1.20	0.73	1.08	0.78	98.43	6.97	≤ 7.63	Pass
11ac-VHT20	MCS0	60	5300	1.38	1.13	1.09	0.98	98.43	7.17	≤ 7.63	Pass
11ac-VHT20	MCS0	64	5320	1.06	0.92	1.63	0.86	98.43	7.15	≤ 7.63	Pass
11ac-VHT20	MCS0	100	5500	2.65	0.70	0.95	0.60	98.43	7.33	≤ 7.63	Pass
11ac-VHT20	MCS0	116	5580	2.36	-0.04	1.34	0.55	98.43	7.17	≤ 7.63	Pass
11ac-VHT20	MCS0	140	5700	1.79	0.95	0.77	0.19	98.43	6.98	≤ 7.63	Pass
11ac-VHT20	MCS0	144	5720	1.56	1.14	0.95	0.39	98.43	7.05	≤ 7.63	Pass

Test Mode	Data Rate/ MCS	Ch. No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Ant 3 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
11ac-VHT40	MCS0	38	5190	-2.37	-2.61	-3.61	-3.09	97.00	3.26	≤7.63	Pass
11ac-VHT40	MCS0	46	5230	1.67	0.88	0.75	0.71	97.00	7.18	≤7.63	Pass
11ac-VHT40	MCS0	54	5270	1.13	1.04	1.24	0.82	97.00	7.22	≤7.63	Pass
11ac-VHT40	MCS0	62	5310	-2.46	-1.98	-2.28	-2.50	97.00	3.85	≤7.63	Pass
11ac-VHT40	MCS0	102	5510	-1.92	-3.34	-2.94	-3.59	97.00	3.25	≤7.63	Pass
11ac-VHT40	MCS0	110	5550	2.08	0.50	0.77	0.43	97.00	7.15	≤7.63	Pass
11ac-VHT40	MCS0	134	5670	2.32	1.06	1.09	0.78	97.00	7.51	≤7.63	Pass
11ac-VHT40	MCS0	142	5710	2.05	0.82	1.22	0.94	97.00	7.44	≤7.63	Pass
11ac-VHT80	MCS0	42	5210	-7.70	-7.83	-8.58	-8.74	94.16	-1.91	≤7.63	Pass
11ac-VHT80	MCS0	58	5290	-8.31	-7.51	-8.18	-8.87	94.16	-1.91	≤7.63	Pass
11ac-VHT80	MCS0	106	5530	-0.90	-9.83	-9.74	-9.78	94.16	0.78	≤7.63	Pass
11ac-VHT80	MCS0	122	5610	0.52	-0.91	-1.24	-0.55	94.16	5.79	≤7.63	Pass
11ac-VHT80	MCS0	138	5690	1.35	1.42	-0.15	-1.45	94.16	6.73	≤7.63	Pass

Note 1: When EUT duty cycle ≥ 98%, Total PSD (dBm/MHz) = 10*log $\{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)} + 10^{(\text{Ant 2 PSD}/10)} + 10^{(\text{Ant 3 PSD}/10)}\}$ (dBm/MHz).

Note 2: When EUT duty cycle < 98%, Total PSD (dBm/MHz) = 10*log $\{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)} + 10^{(\text{Ant 2 PSD}/10)} + 10^{(\text{Ant 3 PSD}/10)}\}$ (dBm/MHz) + 10*log (1/Duty Cycle).

Note 3: PSD Limit = 11dBm/MHz - (9.37dBi - 6dBi) = 7.63dBm/MHz.

Test Site	WZ-TR3	Test Engineer	Luis Yang
Test Date	2021/04/17~2021/06/16		
Test Item	Power Spectral Density (UNII-Band 3)		

Test Mode	Data Rate/ MCS	Ch. No.	Freq. (MHz)	Ant 0 PSD (dBm/ 510kHz)	Ant 1 PSD (dBm/ 510kHz)	Ant 2 PSD (dBm/ 510kHz)	Ant 3 PSD (dBm/ 510kHz)	Duty Cycle (%)	Total PSD (dBm/ 510kHz)	PSD Limit (dBm/ 500kHz)	Result
11a	6Mbps	149	5745	5.63	7.01	5.39	3.70	96.44	11.76	≤ 26.63	Pass
11a	6Mbps	157	5785	4.64	6.50	5.23	3.41	96.44	11.27	≤ 26.63	Pass
11a	6Mbps	165	5825	3.80	6.28	5.64	2.90	96.44	11.04	≤ 26.63	Pass
11ac-VHT20	MCS0	149	5745	4.57	5.83	5.12	3.67	98.43	10.89	≤ 26.63	Pass
11ac-VHT20	MCS0	157	5785	4.06	6.08	5.11	3.20	98.43	10.77	≤ 26.63	Pass
11ac-VHT20	MCS0	165	5825	2.89	5.62	5.20	2.24	98.43	10.25	≤ 26.63	Pass
11ac-VHT40	MCS0	151	5755	0.98	2.75	1.46	0.30	97.00	7.62	≤26.63	Pass
11ac-VHT40	MCS0	159	5795	0.40	2.56	1.69	-0.35	97.00	7.37	≤26.63	Pass
11ac-VHT80	MCS0	155	5775	-4.13	-3.73	-3.47	-5.30	94.16	2.18	≤26.63	Pass

Note 1: When EUT duty cycle ≥ 98%, Total PSD (dBm/510kHz) = 10*log $\{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)} + 10^{(\text{Ant 2 PSD}/10)} + 10^{(\text{Ant 3 PSD}/10)}\}$ (dBm/510KHz).

Note 2: When EUT duty cycle < 98%, Total PSD (dBm/510kHz) = 10*log $\{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)} + 10^{(\text{Ant 2 PSD}/10)} + 10^{(\text{Ant 3 PSD}/10)}\}$ (dBm/510KHz) + 10*log (1/Duty Cycle).

Note 3: PSD Limit = 30dBm/500kHHz - (9.37dBi - 6dBi) = 26.63dBm/500kHz.

Test Site	WZ-TR3	Test Engineer	Luis Yang
Test Date	2021/04/17~2021/06/16		

Test Mode	Data Rate/ MCS	Ch. No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz or 510kHz)	Ant 1 PSD (dBm/ MHz or 510kHz)	Ant 2 PSD (dBm/ MHz or 510kHz)	Ant 3 PSD (dBm/ MHz or 510kHz)	Duty Cycle (%)	Total PSD (dBm/ MHz or 510kHz)	PSD Limit (dBm/ MHz or 500kHz)	Result
11ac-VHT80+80 Contiguous	MCS0	42	5210	-7.09	-6.47	--	--	94.16	-3.50	≤ 7.63	Pass
		58	5290	--	--	-6.97	-7.14	94.16	-3.78	≤ 7.63	Pass
11ac-VHT80+80 Non-contiguous	MCS0	42	5210	-7.32	-6.41	--	--	94.16	-3.57	≤ 7.63	Pass
		106	5530	--	--	-7.87	-7.55	94.16	-4.43	≤ 7.63	Pass
11ac-VHT80+80 Non-contiguous	MCS0	42	5210	-5.67	-5.32	--	--	94.16	-2.22	≤ 7.63	Pass
		122	5610	--	--	-5.56	-5.14	94.16	-2.07	≤ 7.63	Pass
11ac-VHT80+80 Non-contiguous	MCS0	42	5210	-6.04	-4.93	--	--	94.16	-2.17	≤ 7.63	Pass
		138	5690	--	--	-4.09	-4.42	94.16	-0.98	≤ 7.63	Pass
11ac-VHT80+80 Contiguous	MCS0	106	5530	-6.51	-6.91	--	--	94.16	0.28	≤ 7.63	Pass
		122	5610	--	--	-5.37	-5.41	94.16			
11ac-VHT80+80 Non-contiguous	MCS0	155	5775	-7.98	-8.30	--	--	94.16	-4.87	≤ 26.63	Pass
		106	5530	--	--	-6.29	-6.47	94.16	-3.11	≤ 7.63	Pass
11ac-VHT80+80 Non-contiguous	MCS0	155	5775	-2.87	-2.00	--	--	94.16	0.86	≤ 26.63	Pass
		122	5610	--	--	0.87	0.51	94.16	3.96	≤ 7.63	Pass
11ac-VHT80+80 Non-contiguous	MCS0	155	5775	-4.19	-2.07	--	--	94.16	0.27	≤ 26.63	Pass
		138	5690	--	--	0.26	0.10	94.16	3.45	≤ 7.63	Pass

Note 1: For 802.11ac-VHT80+80 Mode:

5210MHz fall within UNII-1: Total PSD = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$} + 10*log (1/Duty Cycle).

5290MHz fall within UNII-2A: Total PSD = 10*log {$10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} + 10*log (1/Duty Cycle).

5530MHz, 5610MHz or 5690MHz fall within UNII-2C: Total PSD = 10*log {$10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} + 10*log (1/Duty Cycle).

5775MHz fall within UNII-3: Total PSD (dBm/510kHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$} + 10*log (1/Duty Cycle).

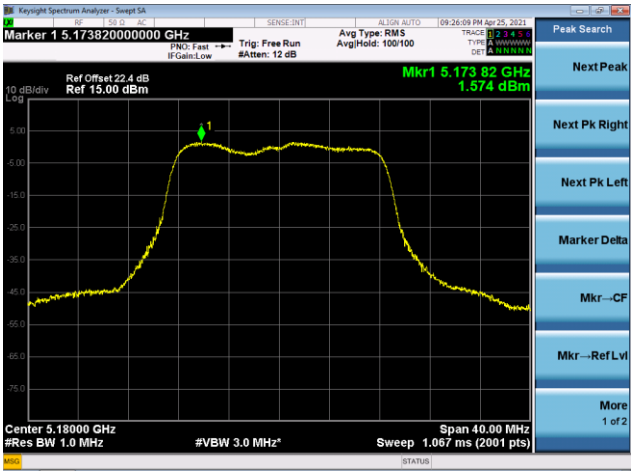
5530MHz + 5610MHz fall within UNII-2C: Total PSD = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$ + $10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} + 10*log (1/Duty Cycle).

Note 2: For UNII-Band 1 & 2A & 2C: PSD Limit = 11dBm/MHz - (9.37dBi - 6dBi) = 7.63dBm/MHz.

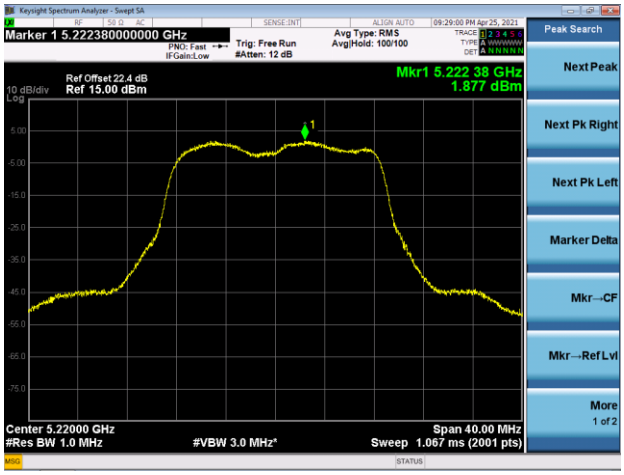
For UNII-Band 3: PSD Limit = 30dBm/500kHz - (9.37dBi - 6dBi) = 26.63dBm/500kHz.

802.11a Power Spectral Density - Ant 0

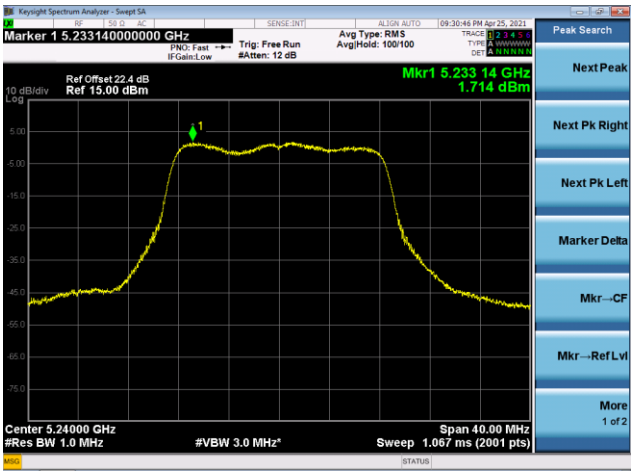
Channel 36 (5180MHz)



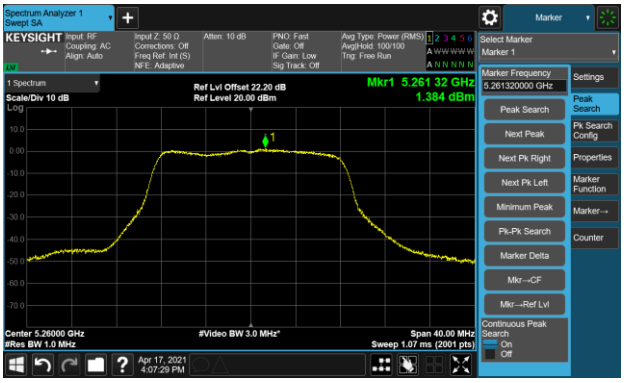
Channel 44 (5220MHz)



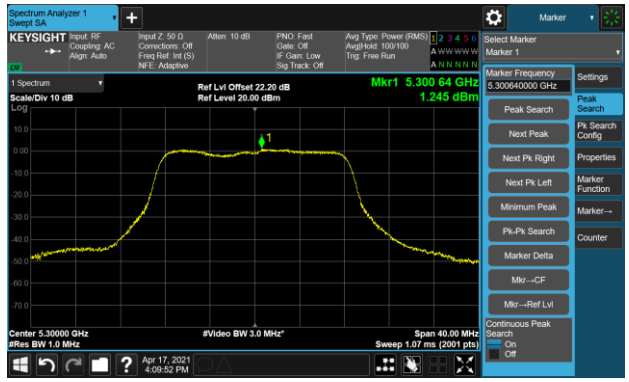
Channel 48 (5240MHz)



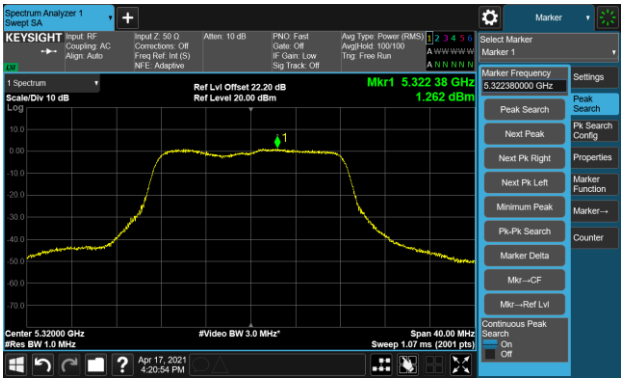
Channel 52 (5260MHz)

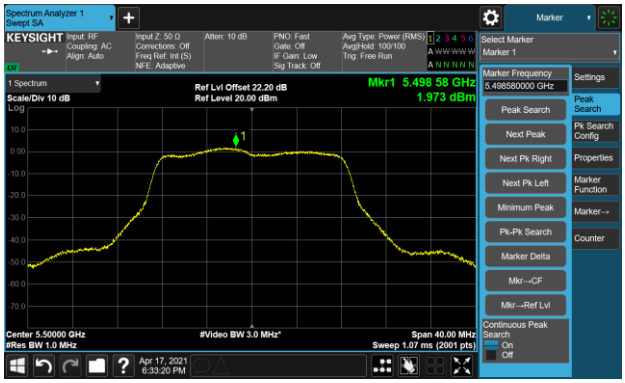
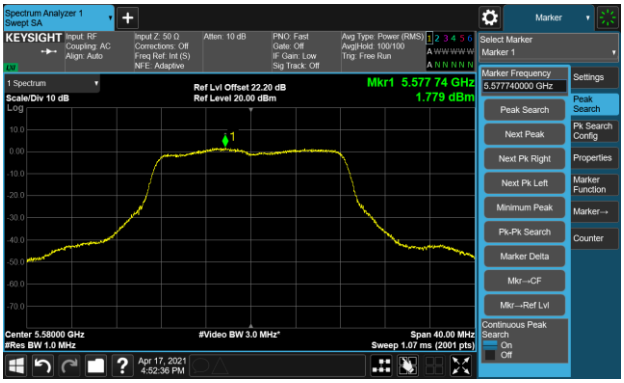
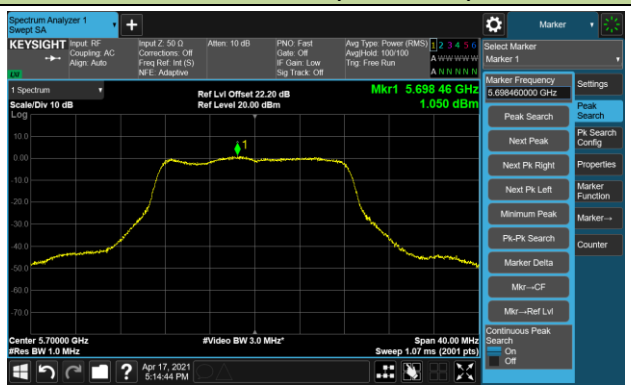
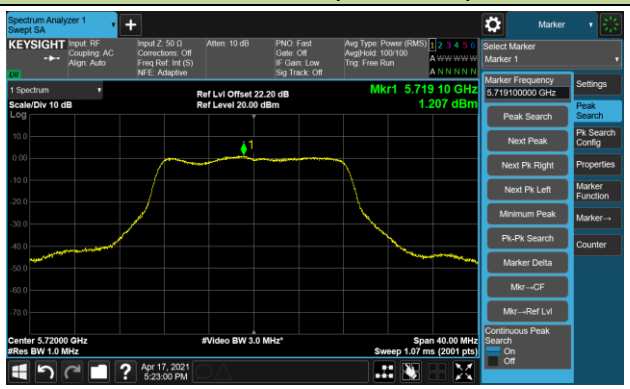
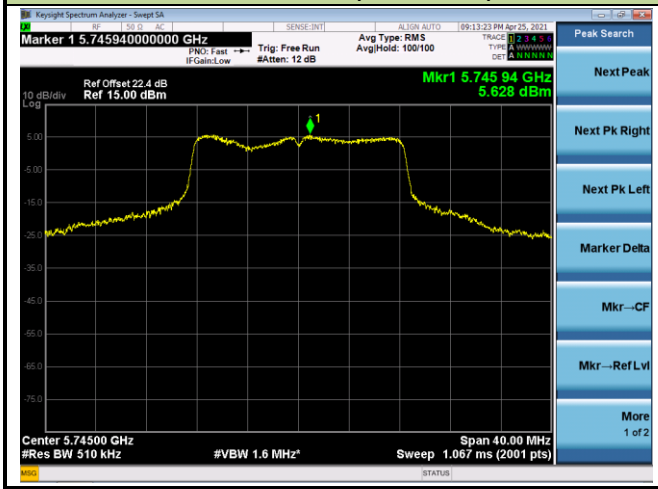


Channel 60 (5300MHz)



Channel 64 (5320MHz)



802.11a Power Spectral Density - Ant 0	
Channel 100 (5500MHz)	Channel 116 (5580MHz)
	
Channel 140 (5700MHz)	Channel 144 (5720MHz)
	
Channel 149 (5745MHz)	Channel 157 (5785MHz)
	

802.11a Power Spectral Density - Ant 0	
Channel 165 (5825MHz)