MEASUREMENT REPORT

FCC PART 15.407 WLAN 802.11a/n/ac

FCC ID:	TK4WLE600VX
APPLICANT:	Compex Systems Pte Ltd
Product:	802.11ac Dual Band Module
Model No.:	WLE600VX, WLE600VX-I
Brand Name:	COMPEX
FCC Classification:	Unlicensed National Information Infrastructure (UNII)
FCC Rule Part(s):	Part15 Subpart E (Section 15.407)
Test Date:	August 04 ~ 15, 2021

Reviewed By: Jame Yuan

Approved By: Robin Wu

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

The test results relate only to the samples tested.
This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.
The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2103RSU076-U2	Rev. 01	Initial Report	08-15-2021	Valid

CONTENTS

Description Page

1. GENERAL INFORMATION 6

1.1. Applicant 6
1.2. Manufacturer 6
1.3. Testing Facility 6
1.4. Product Information 7
1.5. Radio Specification under test 7
1.6. Working Frequencies for this Report 8
1.7. Antenna Details 9
1.8. Test Mode 9
1.9. Configuration of Test System 10
1.10. Duty Cycle 11
1.11. Applicable Standards 12
1.12. Test Environment Condition 12
1.13. EMI Suppression Device(s)/Modifications 12

2. ANTENNA REQUIREMENTS 13

3. TEST EQUIPMENT CALIBRATION DATE 14

4. MEASUREMENT UNCERTAINTY 17

5. TEST RESULT 18

5.1. Summary 18
5.2. 26dB Bandwidth 19
5.2.1. Test Limit 19
5.2.2. Test Procedure Used 19
5.2.3. Test Setting 19
5.2.4. Test Setup 19
5.2.5. Test Result 20
5.3. 6dB Bandwidth Measurement 30
5.3.1. Test Limit 30
5.3.2. Test Procedure Used 30
5.3.3. Test Setting 30
5.3.4. Test Setup 30
5.3.5. Test Result 31
5.4. Output Power Measurement 35
5.4.1. Test Limit 35
5.4.2. Test Procedure Used 35
5.4.3. Test Setting 35

5.4.4. Test Setup 36
5.4.5. Test Result 37
5.5. Transmit Power Control 40
5.5.1. Test Limit 40
5.5.2. Test Procedure Used 40
5.5.3. Test Setting 40
5.5.4. Test Setup 40
5.5.5. Test Result 40
5.6. Power Spectral Density Measurement 41
5.6.1. Test Limit 41
5.6.2. Test Procedure Used 41
5.6.3. Test Setting 41
5.6.4. Test Setup 42
5.6.5. Test Result 43
5.7. Frequency Stability Measurement 62
5.7.1. Test Limit 62
5.7.2. Test Procedure Used 62
5.7.3. Test Setup 62
5.7.4. Test Result 63
5.8. Radiated Spurious Emission Measurement 64
5.8.1. Test Limit 64
5.8.2. Test Procedure Used 64
5.8.3. Test Setting 64
5.8.4. Test Setup 66
5.8.5. Test Result 67
5.9. Radiated Restricted Band Edge Measurement 117
5.9.1. Test Limit 117
5.9.2. Test Procedure Used 119
5.9.3. Test Setting 119
5.9.4. Test Setup 120
5.9.5. Test Result 121
5.10. AC Conducted Emissions Measurement 207
5.10.1. Test Limit 207
5.10.2. Test Setting 207
5.10.3. Test Setup 208
5.10.4. Test Result 209

6. CONCLUSION 211

Appendix A - Test Setup Photograph 212

Appendix B - EUT Photograph.....213

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

☒	**Test Site – MRT Suzhou Laboratory**	
	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	
	Laboratory Accreditations	
	A2LA: 3628.01	CNAS: L10551
	FCC: CN1166	ISED: CN0001
	VCCI: R-20025, R-20141, G-20034, G-20134, C-20020, C-20103, T-20020, T-20104	
☐	**Test Site – MRT Shenzhen Laboratory**	
	Laboratory Location (Shenzhen)	
	1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China	
	Laboratory Accreditations	
	A2LA: 3628.02	CNAS: L10551
	FCC: CN1284	ISED: CN0105
☐	**Test Site – MRT Taiwan Laboratory**	
	Laboratory Location (Taiwan)	
	No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)	
	Laboratory Accreditations	
	TAF: L3261-190725	
	FCC: 291082, TW3261	ISED: TW3261

1.4. Product Information

Product Name	802.11ac Dual Band Module
Model No.	WLE600VX, WLE600VX-I
Serial No.	108421408
Wi-Fi Specification	802.11a/b/g/n/ac
Antenna Delivery	2*TX + 2*RX

1.5. Radio Specification under test

Frequency Range	For 802.11a/n-HT20: 5180~5320MHz, 5500~5700MHz, 5745~5825MHz For 802.11ac-VHT20: 5180~5320MHz, 5500~5720MHz, 5745~5825MHz For 802.11n-HT40: 5190~5310MHz, 5510~5670MHz, 5755~5795MHz For 802.11ac-VHT40: 5190~5310MHz, 5510~5710MHz, 5755~5795MHz For 802.11ac-VHT80: 5210MHz, 5290MHz, 5530MHz, 5610MHz, 5690MHz, 5775MHz
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 866.7Mbps
Antenna Information	Refer to clause 1.7

Note: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.

1.6. Working Frequencies for this Report

802.11a/n-HT20

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	149	5745 MHz	153	5765 MHz
157	5785 MHz	161	5805 MHz	165	5825 MHz

802.11ac-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

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
151	5755 MHz	159	5795 MHz	--	--

802.11ac-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

1.7. Antenna Details

Antenna Type	Manufacturer	T_X Paths	Max Antenna Gain (dBi)
Omni Antenna	Smart Ant Inc	2	2.4GHz: 4.5, 5GHz: 7.0

Note: The device didn't support transmit beam-forming mode and Cyclic Delay Diversity (CDD) mode, and the transmit signals are uncorrected, so no add array gain to the band power and band PSD.

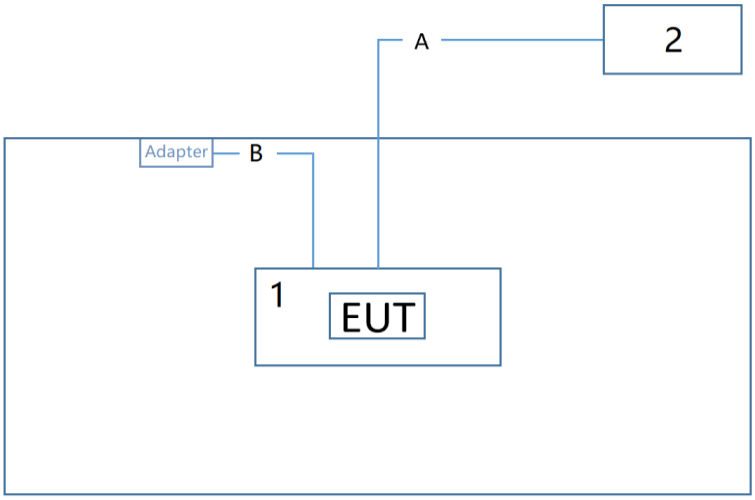
1.8. Test Mode

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)

Note 1: Due to the same modulation and same power setting for 802.11n and 802.11ac, so 802.11n-HT20 and HT40 are covered by 802.11ac-VHT20 and VHT40 in this report.

Note 2: 802.11a only support SISO mode, 802.11n/ac support SISO and MIMO mode.

1.9. Configuration of Test System



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

Product		Manufacturer	Model No.
1	Control Board	Compex	WPJ563HV
2	Notebook	Dell	P62G

Note 1: The test utility software used during testing was “ART2-GUI”, and the version was 2.3.

Note 2: Power setting refer to operation description, 802.11n/ac SISO and MIMO setting are same.

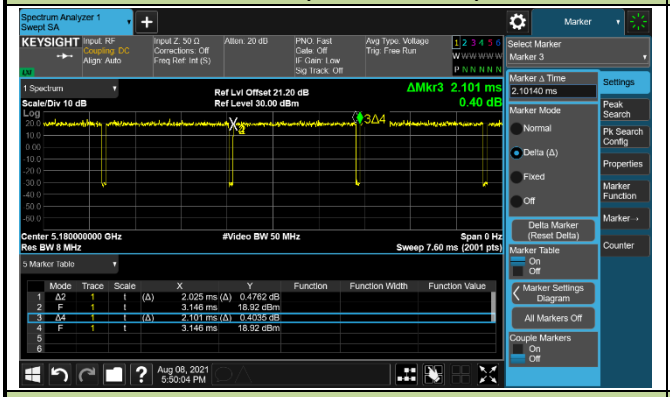
1.10. Duty Cycle

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:

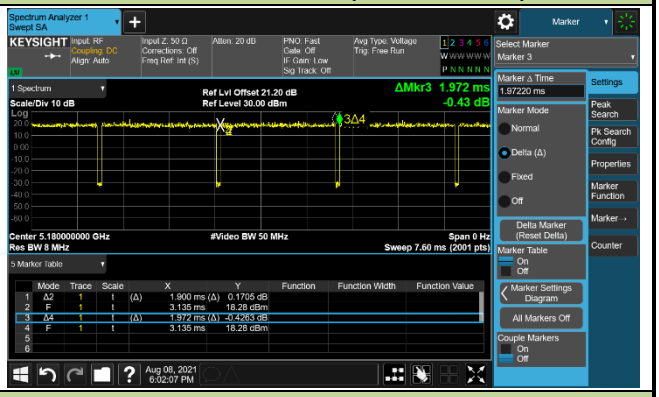
Test Mode	Duty Cycle (%)
802.11a	96.38
802.11ac-VHT20	96.35
802.11ac-VHT40	92.78
802.11ac-VHT80	78.74

Duty Cycle (T = Transmission Duration)

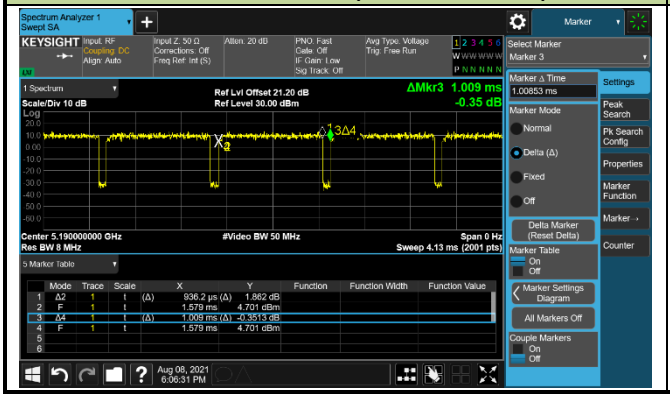
802.11a (T = 2.025ms)



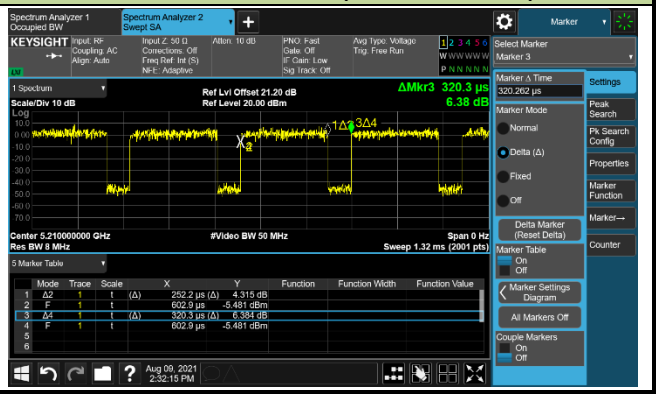
802.11ac-VHT20 (T = 1.900ms)



802.11ac-VHT40 (T = 0.9362ms)



802.11ac-VHT80 (T = 0.2522ms)



1.11. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ANSI C63.10-2013
- FCC KDB 662911 D01v02r01
- FCC KDB 789033 D02v02r01

1.12. Test Environment Condition

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

1.13. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

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 device uses one unique IPEX 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	2022/06/08
Thermal Hygrometer	testo	608-H1	MRTSUE06404	1 year	2022/06/28
Shielding Room	MIX-BEP	Chamber-SR2	MRTSUE06215	N/A	N/A

Conducted Emission (SIP-SR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2022/06/24
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2022/06/08
Thermal Hygrometer	testo	608-H1	MRTSUE06621	1 year	2021/12/03

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
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
Thermal Hygrometer	Minggao	ETH529	MRTSUE06170	1 year	2021/12/08
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2022/04/29

Radiated Emission (SIP-AC1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2022/06/24
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2022/06/24
Loop Antenna	Schwarzbeck	FMZB 1519 B	MRTSUE06937	1 year	2022/03/09
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06645	1 year	2021/08/30
Double Ridged Horn Antenna	R&S	HF907	MRTSUE06610	1 year	2021/08/30
Preamplifier	EMCI	EMC051845SE	MRTSUE06600	1 year	2021/11/09
Thermal Hygrometer	testo	608-H1	MRTSUE06620	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC1	MRTSUE06554	1 year	2021/12/24

Radiated Emission (SIP-AC2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2022/06/24
MXA Signal Analyzer	Keysight	N9020B	MRTSUE06604	1 year	2021/09/26
Loop Antenna	Schwarzbeck	FMZB 1519 B	MRTSUE06937	1 year	2022/03/09
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06646	1 year	2021/08/30
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06648	1 year	2021/11/26
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06599	1 year	2021/11/26
Preamplifier	EMCI	EMC051845SE	MRTSUE06644	1 year	2021/11/09
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2021/10/12
Thermal Hygrometer	testo	608-H1	MRTSUE06624	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC2	MRTSUE06781	1 year	2021/12/24

Radiated Emission (SIP-AC3)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2022/06/09
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2022/06/24
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2022/06/24
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06646	1 year	2021/08/30
Double Ridged Horn Antenna	R&S	HF907	MRTSUE06611	1 year	2021/09/13
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06598	1 year	2021/11/26
Preamplifier	EMCI	EMC012645SE	MRTSUE06642	1 year	2022/01/14
Thermal Hygrometer	testo	608-H1	MRTSUE06622	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC3	MRTSUE06782	1 year	2021/12/24

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
Bluetooth Test Set	Anritsu	MT8852B-042	MRTSUE06389	1 year	2022/06/08
Modulation Analyzer	HP	HP8901A	MRTSUE06098	1 year	2021/09/26
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

Conducted Test Equipment (SIP-TR1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	KEYSIGHT	N9010B	MRTSUE06603	1 year	2021/11/23
PXA Signal Analyzer	Keysight	N9030B	MRTSUE06395	1 year	2021/08/30
USB wideband power sensor	Agilent	U2021XA	MRTSUE06595	1 year	2021/09/26
USB wideband power sensor	Agilent	U2021XA	MRTSUE06596	1 year	2021/09/26
Temperature Chamber	BAOYT	BYG-408CS	MRTSUE06847	1 year	2022/02/23
Thermal Hygrometer	testo	608-H1	MRTSUE11022	1 year	2021/11/25

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

Test Description	Test Limit	Test Condition	Test Result
26dB Bandwidth	N/A	Conducted	Pass
6dB Bandwidth	> 500kHz		Pass
Maximum Conducted Output Power	< 250 mW (NII-1 & NII-2) < 1W (NII-3)		Pass
Transmit Power Control	≤ 24 dBm		Pass
Peak Power Spectral Density	< 11 dBm/MHz (NII-1 & NII-2) < 30 dBm/500kHz (NII-3)		Pass
Frequency Stability	N/A		Pass
Radiated Spurious Emission	< FCC 15.209 limits	Radiated	Pass
Radiated Band Edge	< FCC 15.407 (b)(1), (2), (3), (4)(i) limits		Pass
AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	Pass

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) 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.
3) Test Items “26dB Bandwidth” & “6dB Bandwidth” was showed the worst test data in this report.

5.2. 26dB Bandwidth

5.2.1.Test Limit

N/A

5.2.2.Test Procedure Used

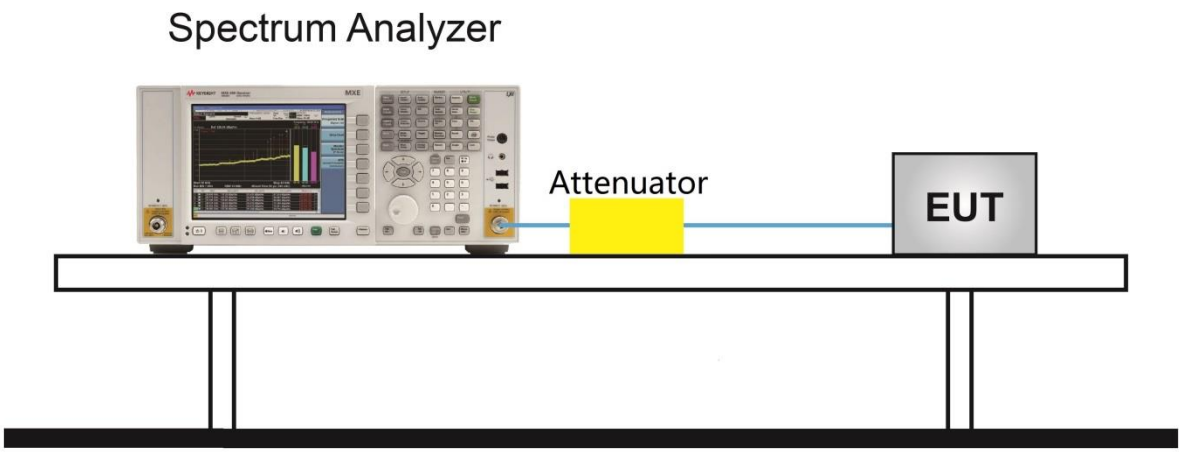
ANSI C63.10-2013 - Section 6.9.2

5.2.3.Test Setting

26dB Bandwidth Measurements

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	Liz Yuan
Test Date	2021/08/09		

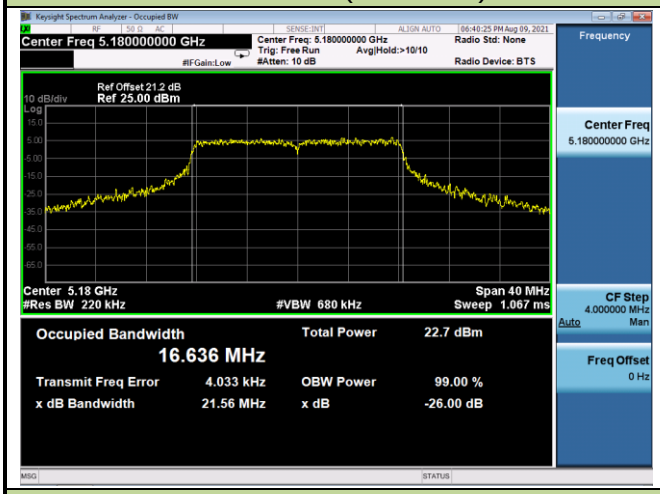
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)
802.11a	6Mbps	36	5180	21.56
802.11a	6Mbps	44	5220	29.98
802.11a	6Mbps	48	5240	30.50
802.11a	6Mbps	52	5260	30.40
802.11a	6Mbps	60	5300	29.18
802.11a	6Mbps	64	5320	23.91
802.11a	6Mbps	100	5500	23.67
802.11a	6Mbps	116	5580	24.19
802.11a	6Mbps	140	5700	21.39
802.11a	6Mbps	149	5745	21.32
802.11a	6Mbps	157	5785	21.62
802.11a	6Mbps	165	5825	22.02
802.11ac-VHT20	MCS0	36	5180	24.07
802.11ac-VHT20	MCS0	44	5220	23.43
802.11ac-VHT20	MCS0	48	5240	24.01
802.11ac-VHT20	MCS0	52	5260	22.37
802.11ac-VHT20	MCS0	60	5300	24.01
802.11ac-VHT20	MCS0	64	5320	23.12
802.11ac-VHT20	MCS0	100	5500	23.49
802.11ac-VHT20	MCS0	116	5580	23.88
802.11ac-VHT20	MCS0	140	5700	21.74
802.11ac-VHT20	MCS0	144	5720	21.84
802.11ac-VHT20	MCS0	149	5745	21.76
802.11ac-VHT20	MCS0	157	5785	22.01
802.11ac-VHT20	MCS0	165	5825	21.80

Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)
802.11ac-VHT40	MCS0	38	5190	45.23
802.11ac-VHT40	MCS0	46	5230	45.28
802.11ac-VHT40	MCS0	54	5270	50.38
802.11ac-VHT40	MCS0	62	5310	45.61
802.11ac-VHT40	MCS0	102	5510	45.21
802.11ac-VHT40	MCS0	110	5550	50.54
802.11ac-VHT40	MCS0	134	5670	45.18
802.11ac-VHT40	MCS0	142	5710	50.87
802.11ac-VHT40	MCS0	151	5755	44.30
802.11ac-VHT40	MCS0	159	5795	46.68
802.11ac-VHT80	MCS0	42	5210	90.67
802.11ac-VHT80	MCS0	58	5290	88.14
802.11ac-VHT80	MCS0	106	5530	88.17
802.11ac-VHT80	MCS0	122	5610	88.35
802.11ac-VHT80	MCS0	138	5690	88.81
802.11ac-VHT80	MCS0	155	5775	87.45

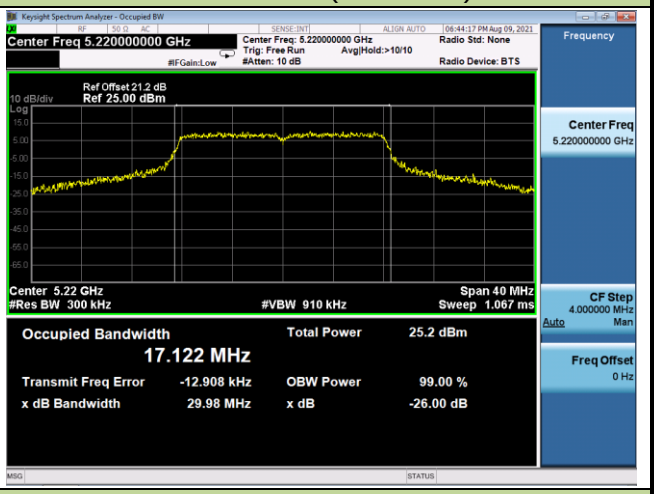
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	99% Bandwidth (MHz)
802.11a	6Mbps	36	5180	16.34
802.11a	6Mbps	44	5220	17.12
802.11a	6Mbps	48	5240	17.10
802.11ac-VHT20	MCS0	36	5180	17.84
802.11ac-VHT20	MCS0	44	5220	17.89
802.11ac-VHT20	MCS0	48	5240	17.86
802.11ac-VHT40	MCS0	38	5190	36.47
802.11ac-VHT40	MCS0	46	5230	36.50
802.11ac-VHT80	MCS0	42	5210	75.92

802.11a 26dB Bandwidth

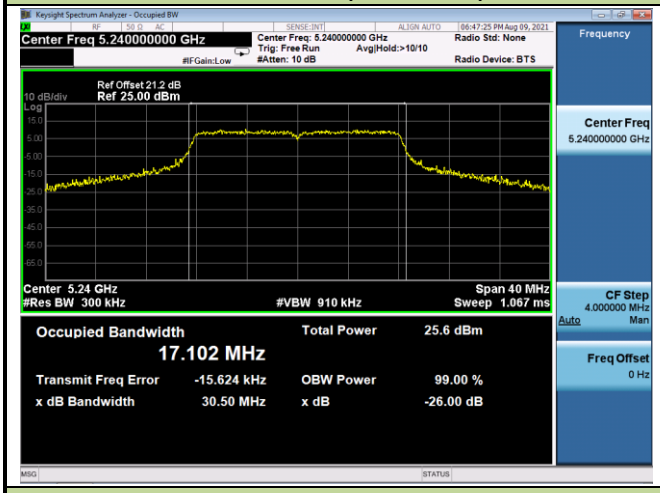
Channel 36 (5180MHz)



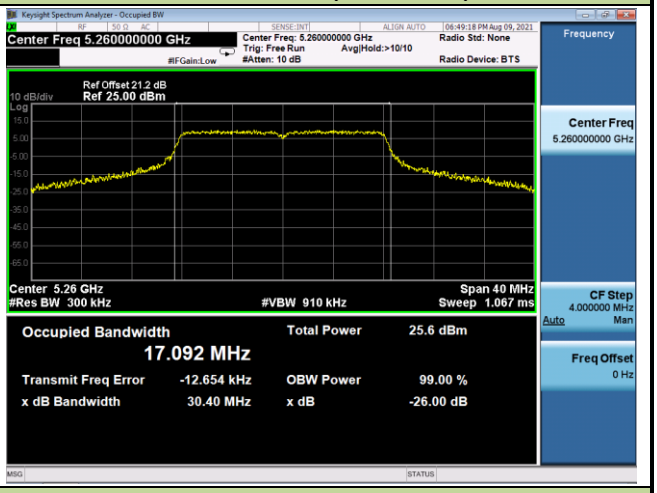
Channel 44 (5220MHz)



Channel 48 (5240MHz)

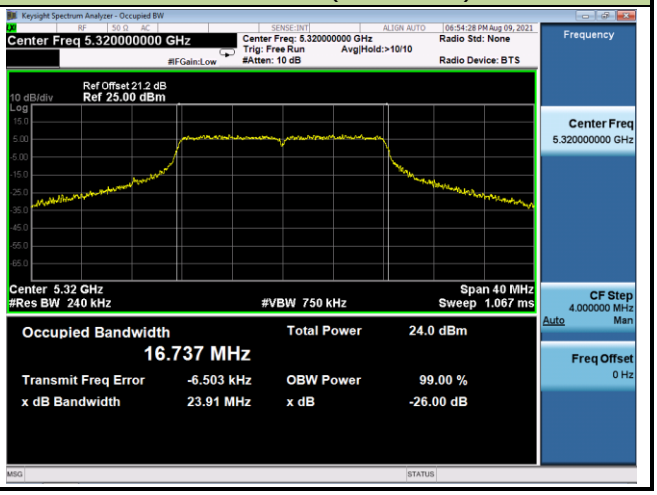


Channel 52 (5260MHz)



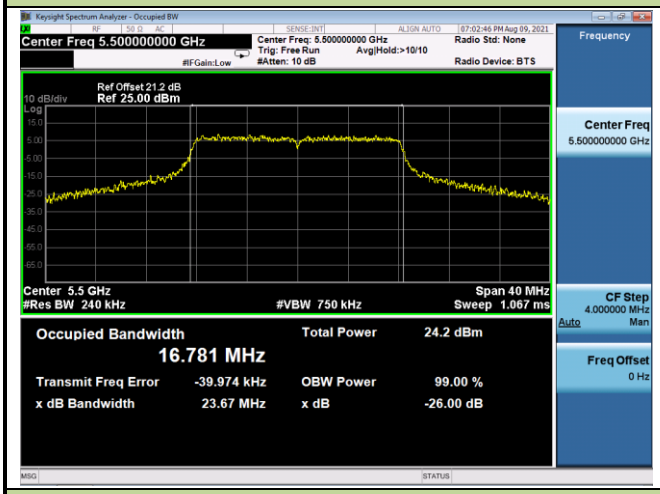
Channel 60 (5300MHz)

Channel 64 (5320MHz)

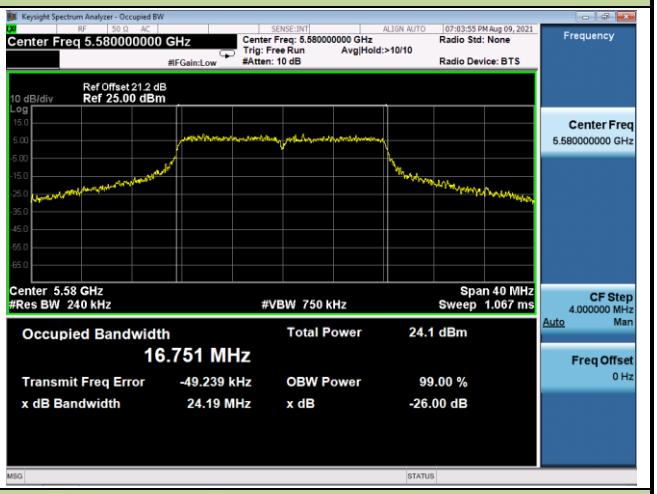


802.11a 26dB Bandwidth

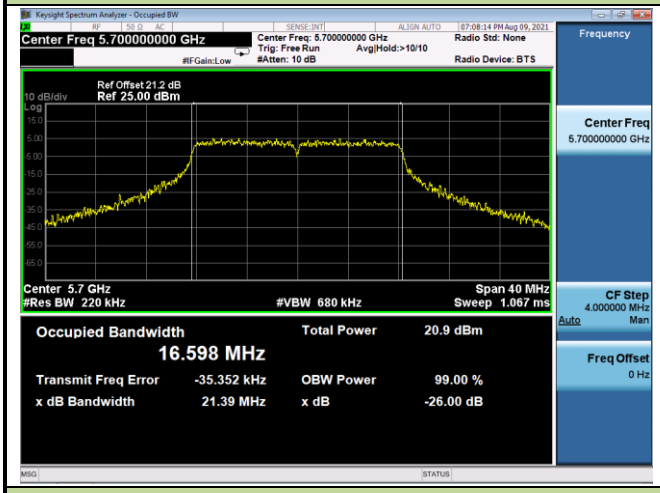
Channel 100 (5500MHz)



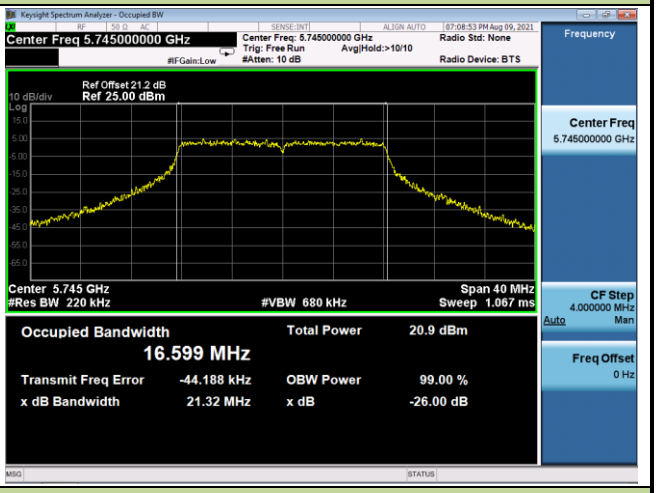
Channel 116 (5580MHz)



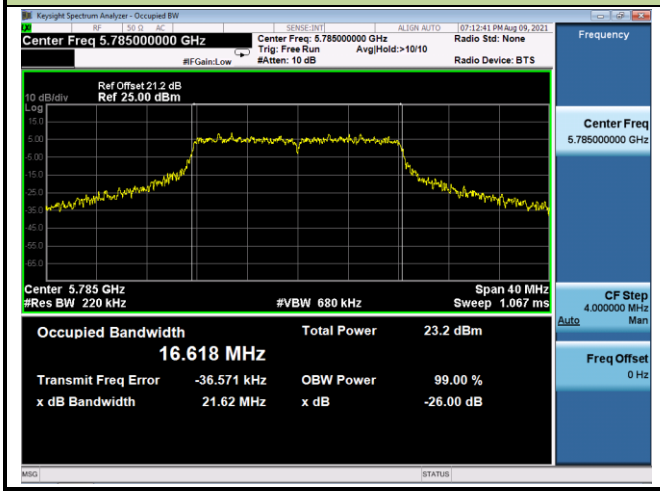
Channel 140 (5700MHz)



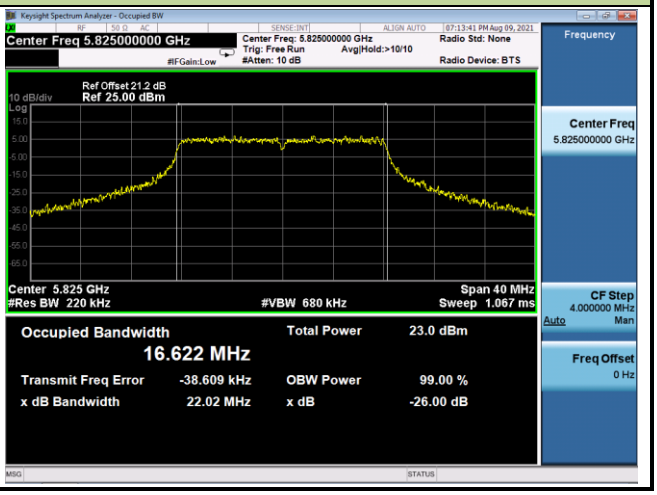
Channel 149 (5745MHz)



Channel 157 (5785MHz)

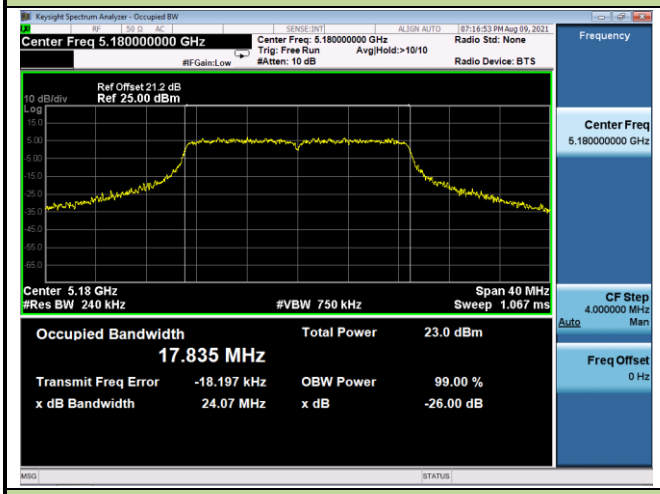


Channel 165 (5825MHz)

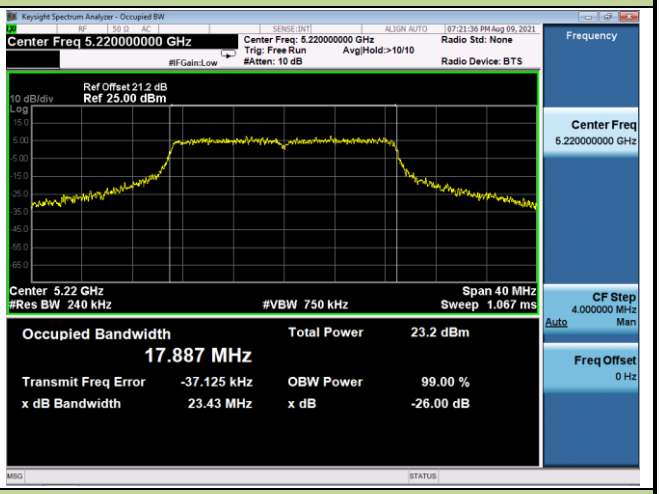


802.11ac-VHT20 26dB Bandwidth

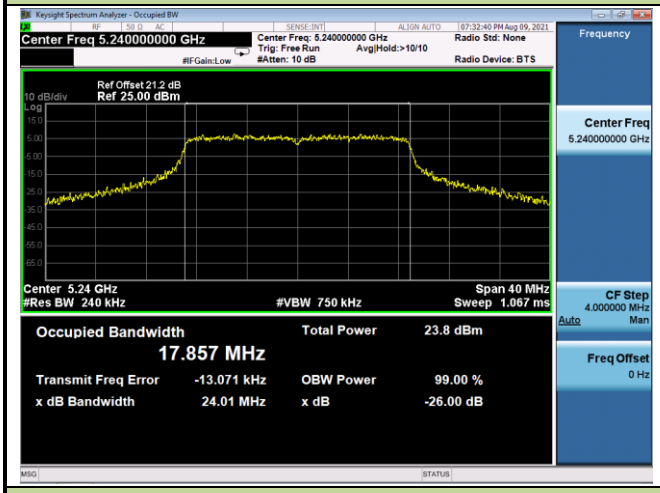
Channel 36 (5180MHz)



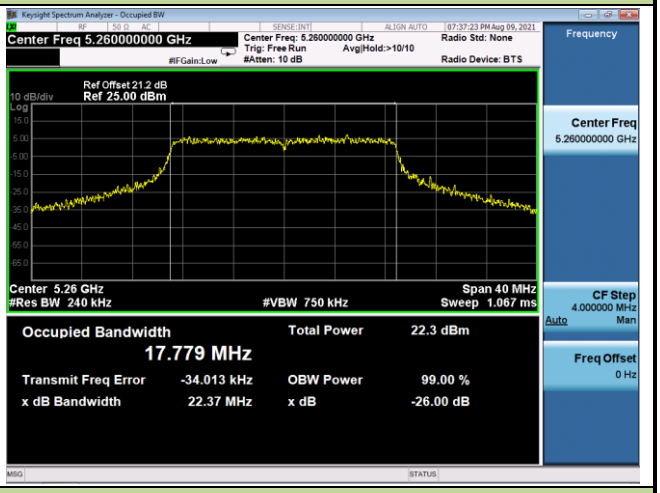
Channel 44 (5220MHz)



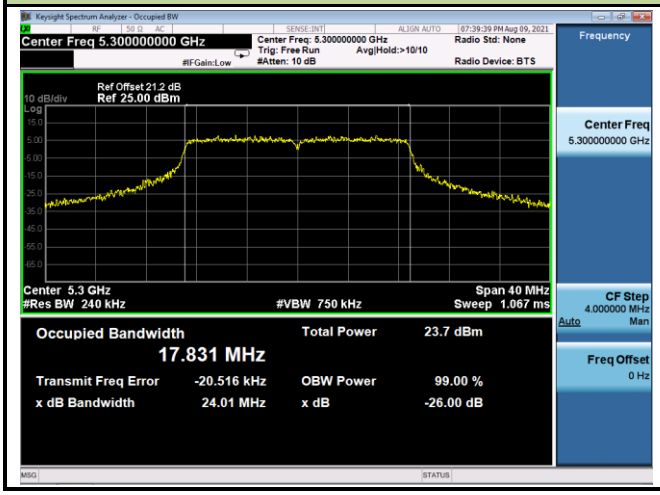
Channel 48 (5240MHz)



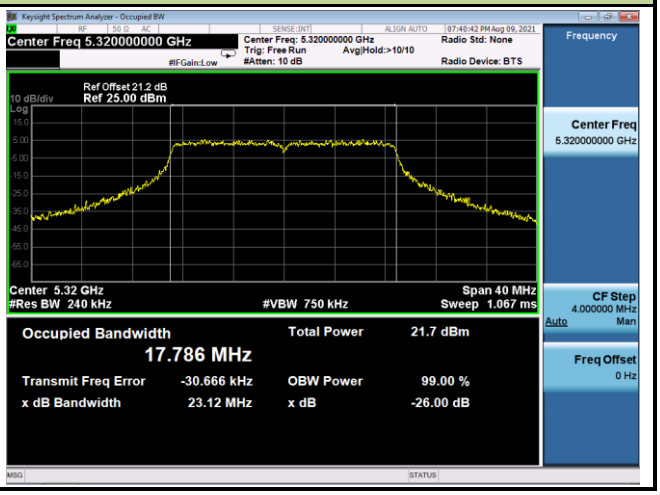
Channel 52 (5260MHz)



Channel 60 (5300MHz)

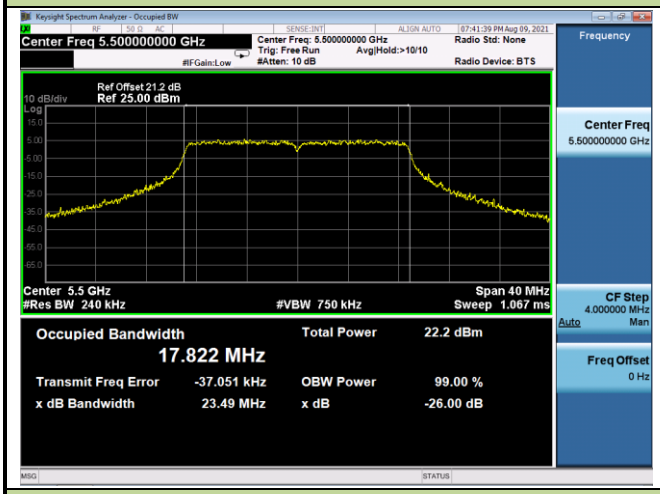


Channel 64 (5320MHz)

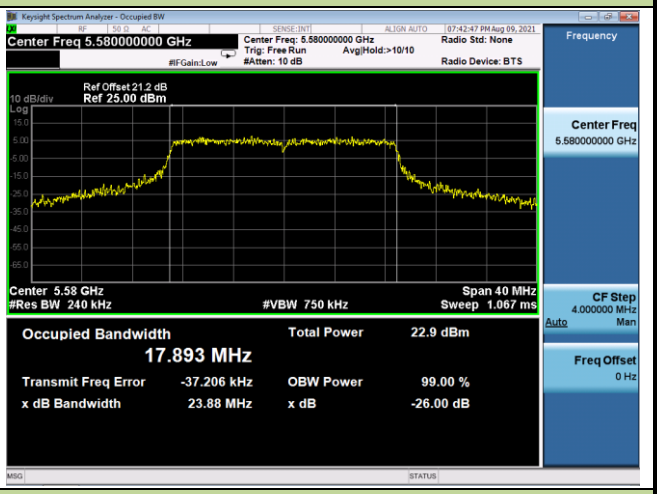


802.11ac-VHT20 26dB Bandwidth

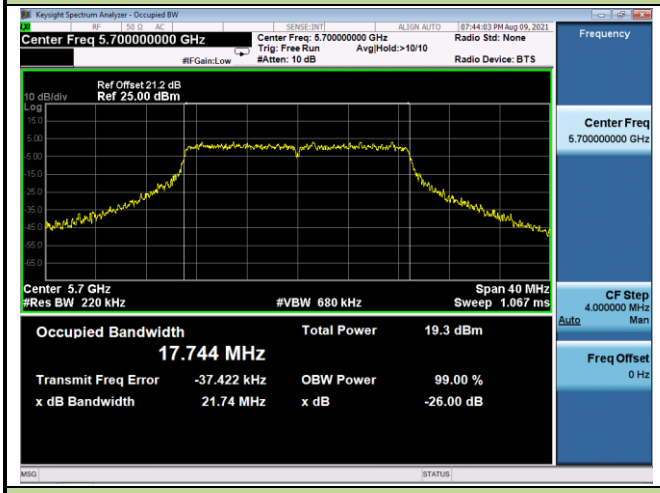
Channel 100 (5500MHz)



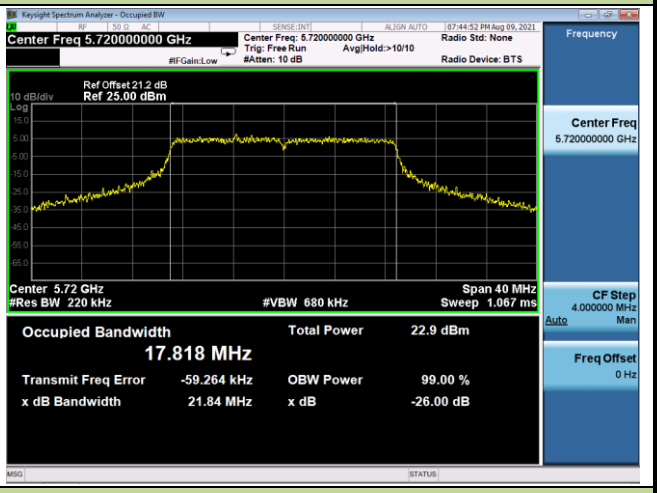
Channel 116 (5580MHz)



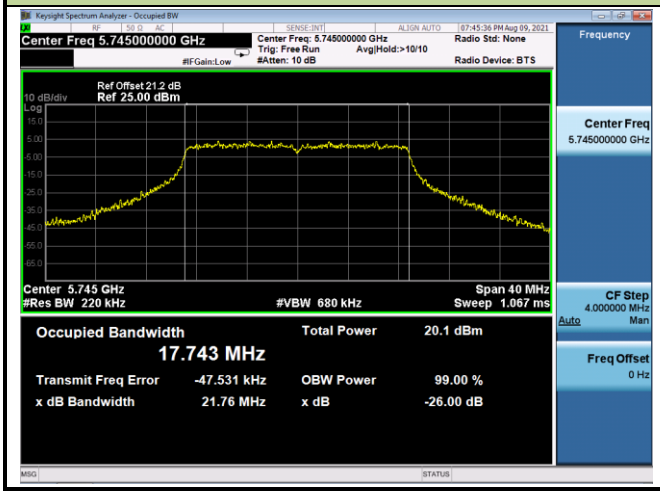
Channel 140 (5700MHz)



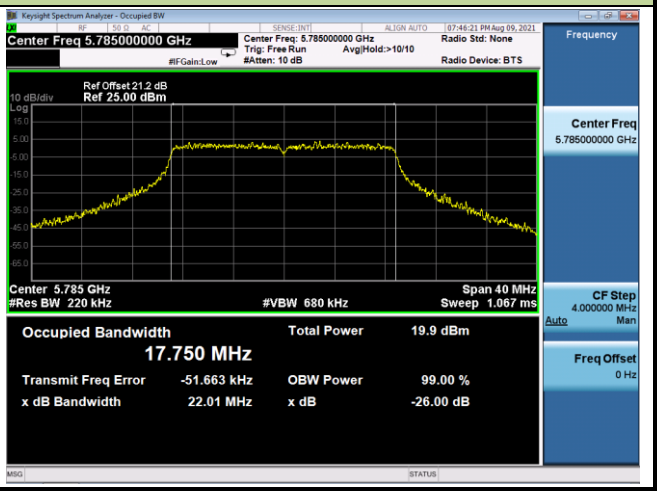
Channel 144 (5720MHz)

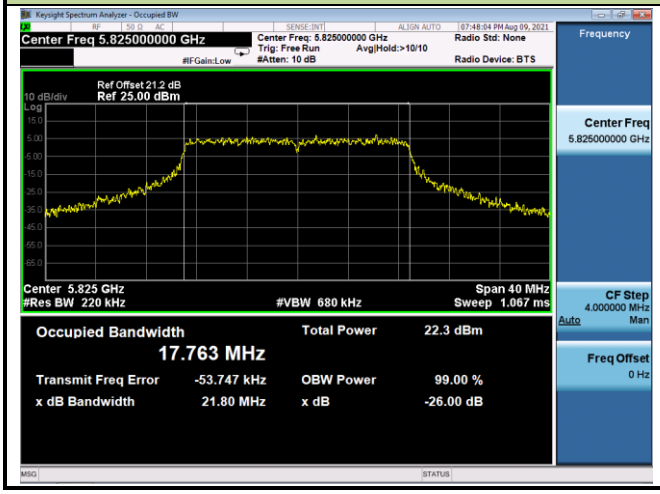


Channel 149 (5745MHz)



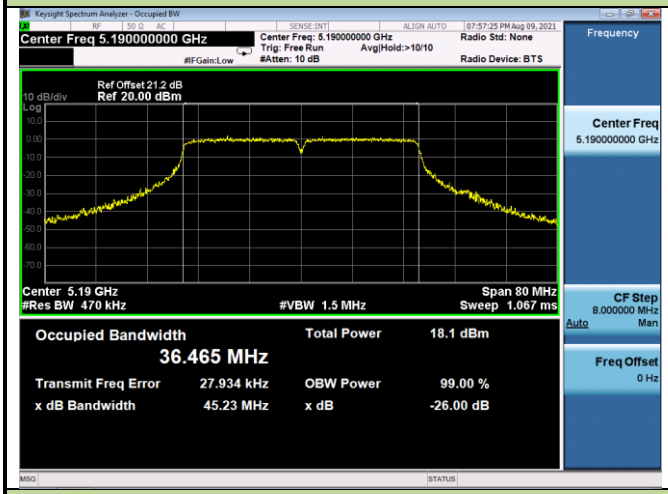
Channel 157 (5785MHz)



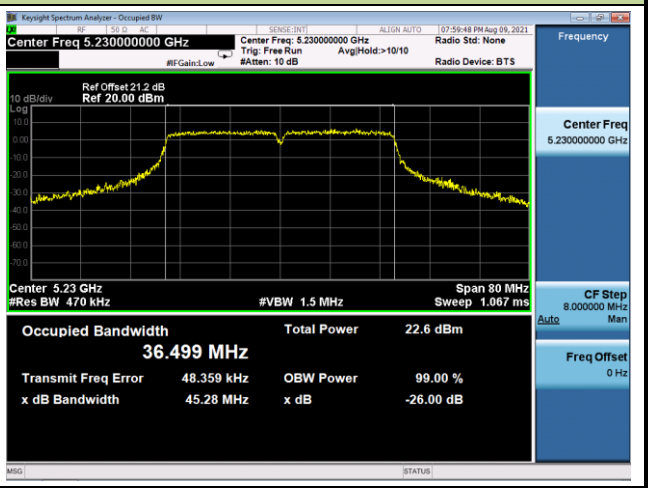
802.11ac-VHT20 26dB Bandwidth	
Channel 165 (5825MHz)	
	

802.11ac-VHT40 26dB Bandwidth

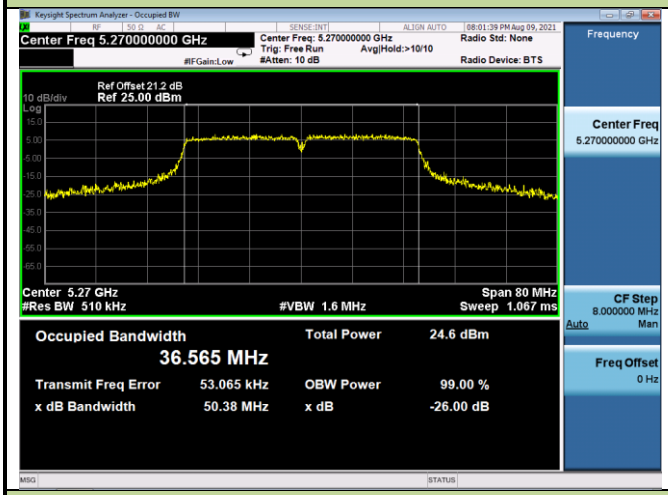
Channel 38 (5190MHz)



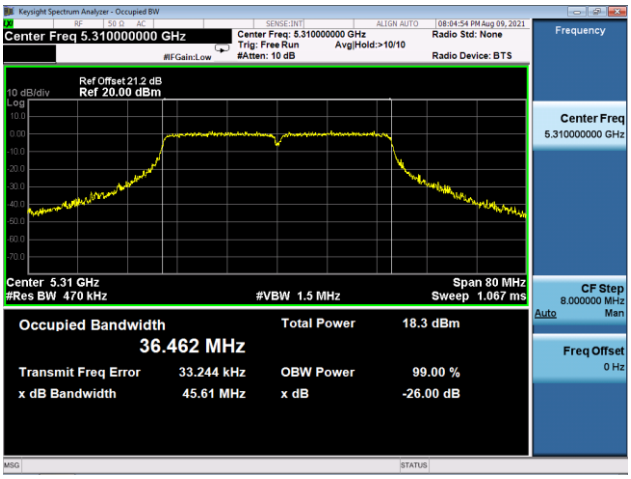
Channel 46 (5230MHz)



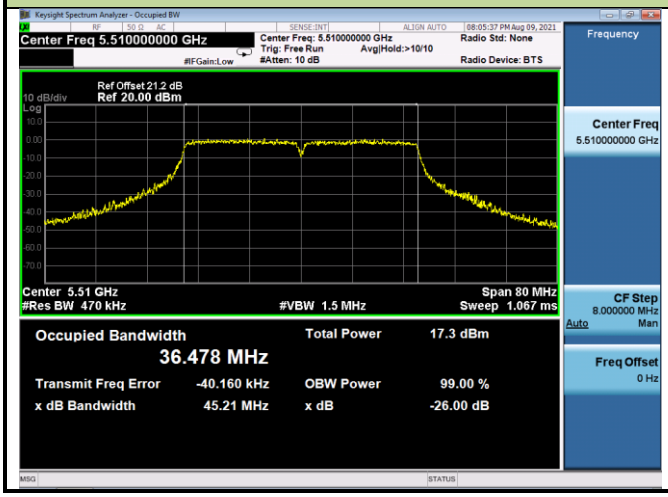
Channel 54 (5270MHz)



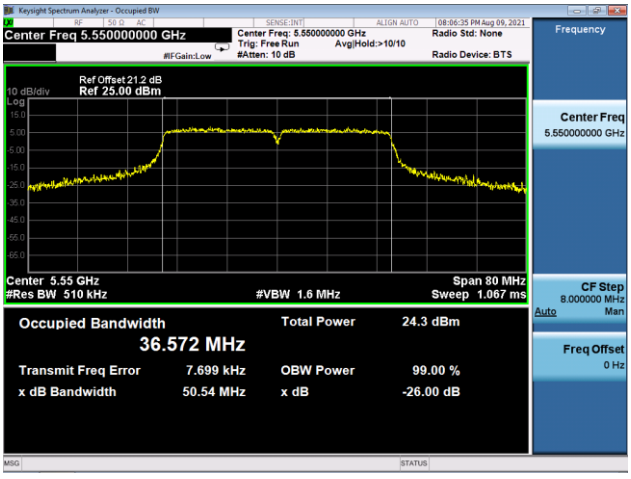
Channel 62 (5310MHz)

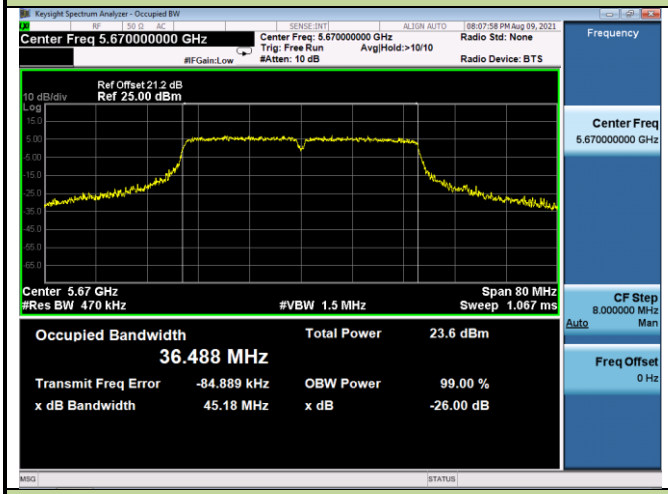
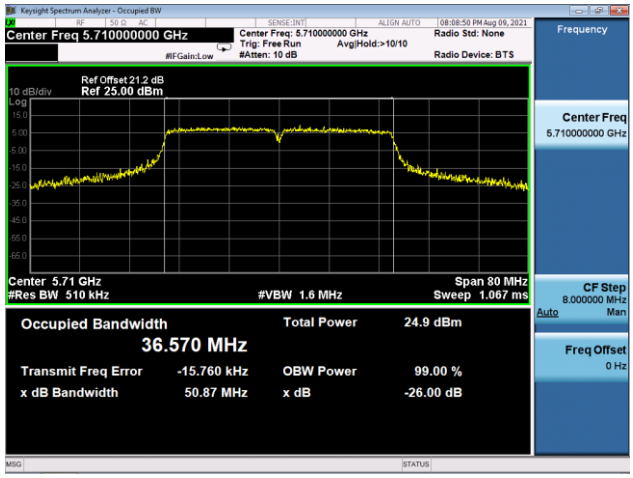
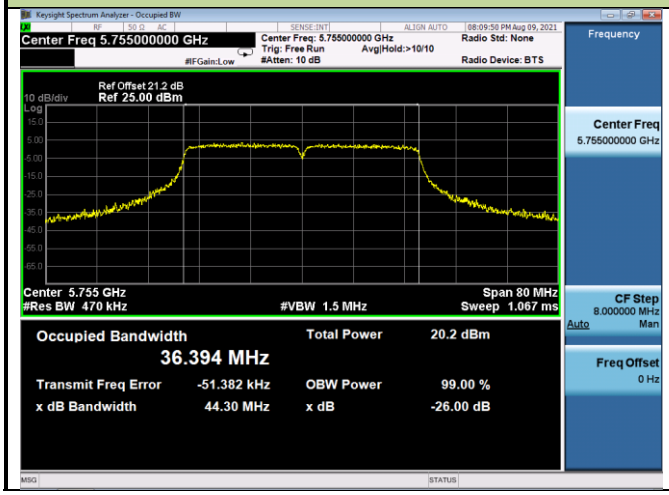
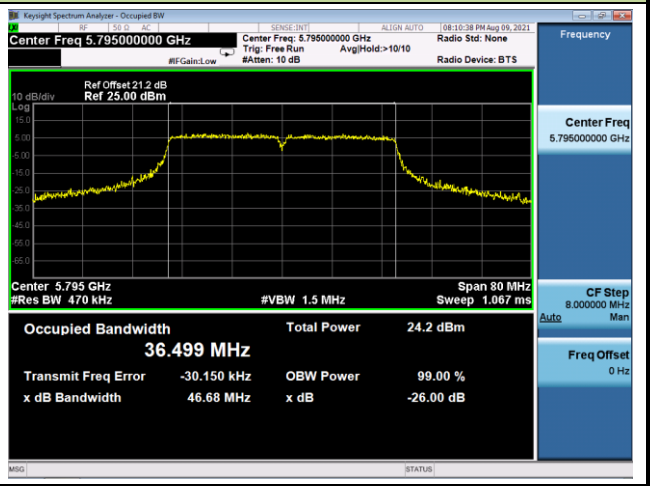


Channel 102 (5510MHz)



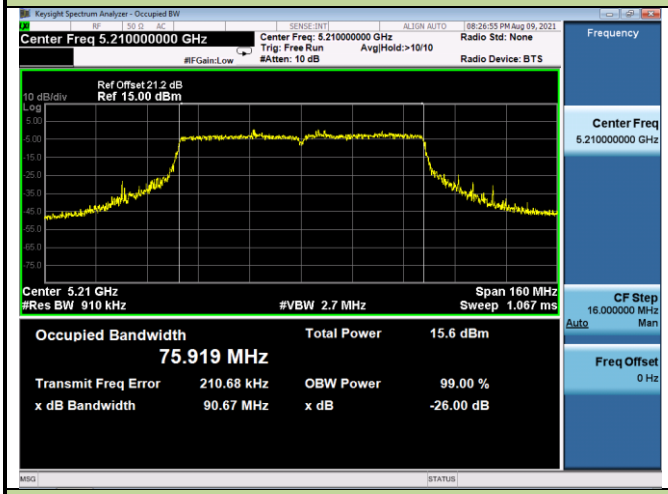
Channel 110 (5550MHz)



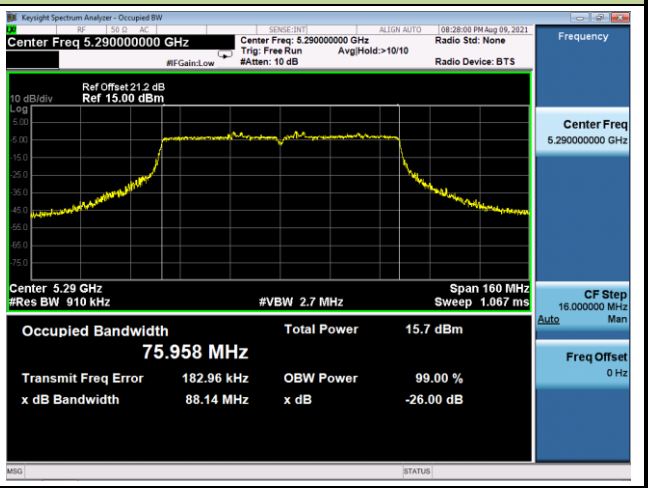
802.11ac-VHT40 26dB Bandwidth	
Channel 134 (5670MHz)	Channel 142 (5710MHz)
	
Channel 151 (5755MHz)	Channel 159 (5795MHz)
	

802.11ac-VHT80 26dB Bandwidth

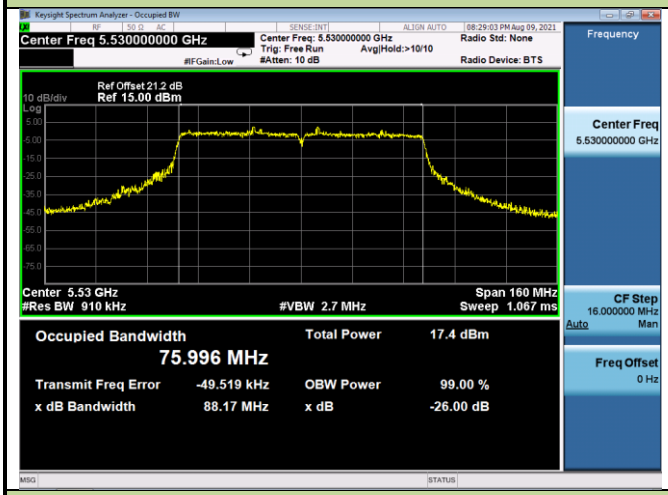
Channel 42 (5210MHz)



Channel 58 (5290MHz)

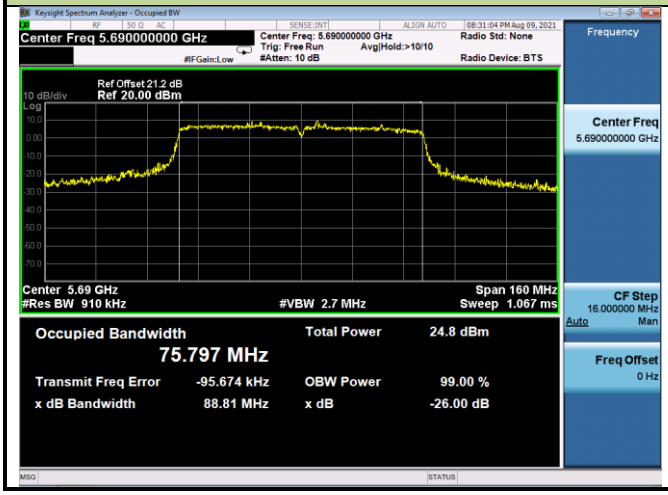


Channel 106 (5530MHz)

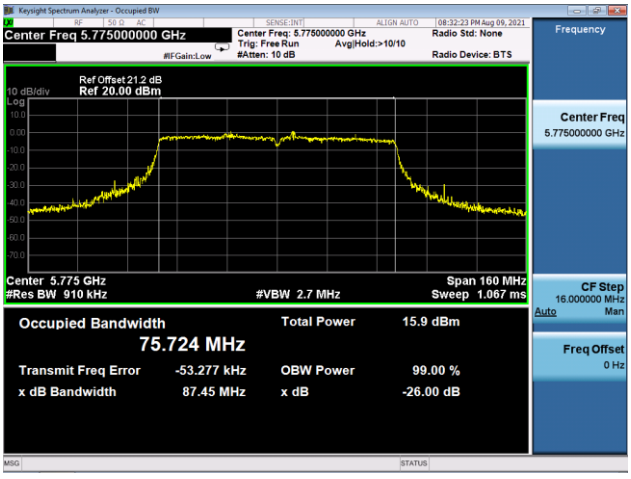


Channel 122 (5610MHz)

Channel 138 (5690MHz)



Channel 155 (5775MHz)



5.3. 6dB Bandwidth Measurement

5.3.1.Test Limit

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

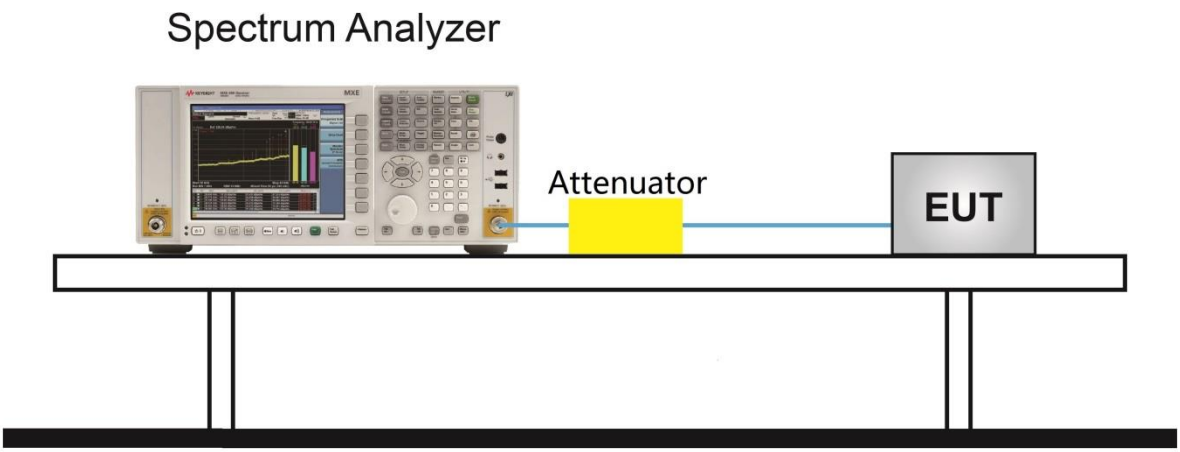
5.3.2.Test Procedure Used

ANSI C63.10-2013 - Section 6.9.2

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



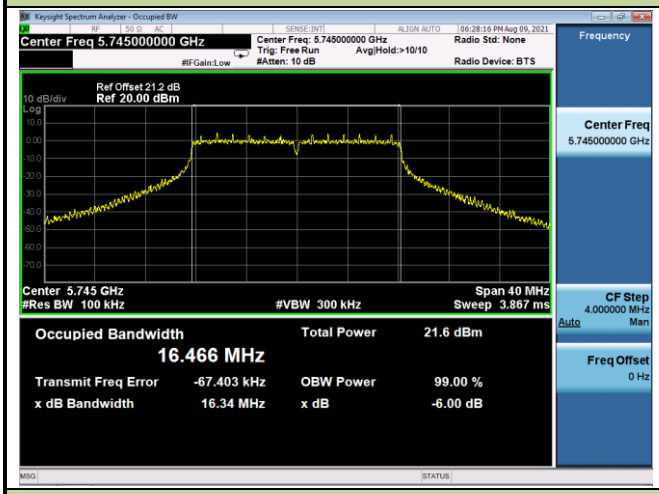
5.3.5.Test Result

Test Site	WZ-TR3	Test Engineer	Liz Yuan
Test Date	2021/08/09 ~ 2021/08/15		

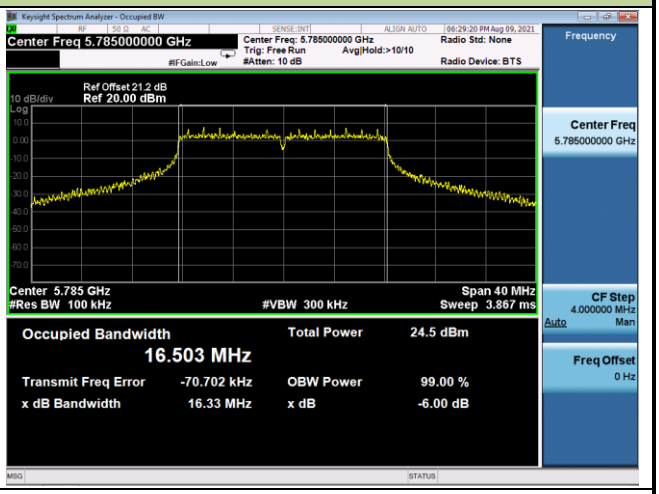
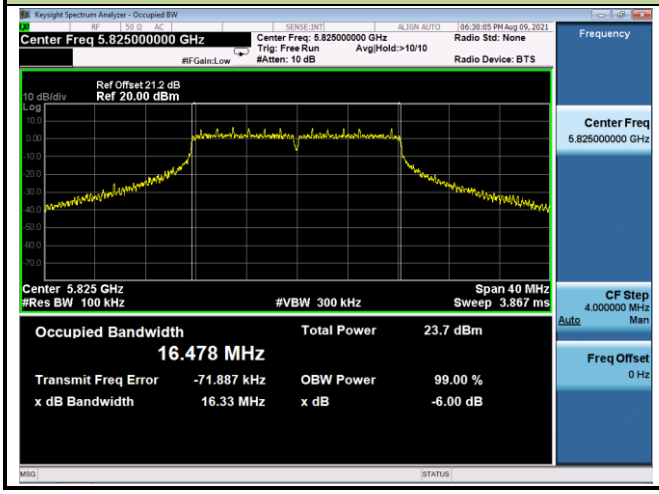
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11a	6Mbps	149	5745	16.34	≥ 0.5	Pass
802.11a	6Mbps	157	5785	16.33	≥ 0.5	Pass
802.11a	6Mbps	165	5825	16.33	≥ 0.5	Pass
802.11ac-VHT20	MCS0	149	5745	17.54	≥ 0.5	Pass
802.11ac-VHT20	MCS0	157	5785	17.58	≥ 0.5	Pass
802.11ac-VHT20	MCS0	165	5825	17.58	≥ 0.5	Pass
802.11ac-VHT40	MCS0	151	5755	35.75	≥ 0.5	Pass
802.11ac-VHT40	MCS0	159	5795	36.31	≥ 0.5	Pass
802.11ac-VHT80	MCS0	155	5775	75.69	≥ 0.5	Pass

802.11a 6dB Bandwidth

Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)