

TEST REPORT

Applicant: CTOUCH Europe B.V.

Address of Applicant: Achtseweg Zuid 153R, 5651 GW Eindhoven, Netherlands

Manufacturer/Factory: CTOUCH Europe B.V.

Address of Manufacturer/Factory: Achtseweg Zuid 153R, 5651 GW Eindhoven, Netherlands

Equipment Under Test (EUT)

Product Name: WIFI6 MODULE

Model No.: MT7921AU-FRX

Trade Mark: CTOUCH

FCC ID: 2APQQ-MT7921AU-FRX

Applicable standards: FCC CFR Title 47 Part 15 Subpart E Section 15.407

Date of sample receipt: December 6, 2022

Date of Test: December 17~29, 2022

Date of report issued: December 30, 2022

Test Result : PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Robinson Luo

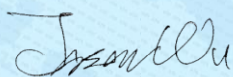
Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

2 Version

Version No.	Date	Description
00	2022-12-30	Original

Prepared By:

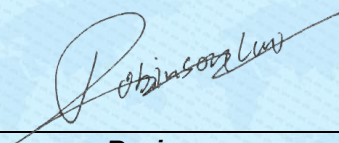


Date:

2022-12-30

Project Engineer

Check By:



Date:

2022-12-30

Reviewer

3 Contents

	Page
1 COVER PAGE	1
2 VERSION	2
3 CONTENTS	3
4 TEST SUMMARY	4
4.1 MEASUREMENT UNCERTAINTY	4
5 GENERAL INFORMATION	5
5.1 GENERAL DESCRIPTION OF EUT	5
5.2 TEST MODE	7
5.3 DESCRIPTION OF SUPPORT UNITS	7
5.4 DEVIATION FROM STANDARDS	7
5.5 ABNORMALITIES FROM STANDARD CONDITIONS.....	7
5.6 ADDITIONAL INSTRUCTIONS	7
5.7 TEST FACILITY	8
5.8 TEST LOCATION	8
6 TEST INSTRUMENTS LIST	9
7 TEST RESULTS AND MEASUREMENT DATA.....	11
7.1 ANTENNA REQUIREMENT.....	11
7.2 CONDUCTED AVERAGE OUTPUT POWER	12
7.3 CHANNEL BANDWIDTH.....	17
7.4 POWER SPECTRAL DENSITY	40
7.5 BAND EDGE.....	54
7.5.1 Conducted Emission Method.....	54
7.5.2 Radiated Emission Method.....	61
7.6 SPURIOUS EMISSION	72
7.6.1 Radiated Emission Method.....	72
7.7 FREQUENCY STABILITY	83
8 TEST SETUP PHOTO	90
9 EUT CONSTRUCTIONAL DETAILS	90

4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	Not Applicable
Conducted Average Output Power	15.407(a)(3)	Pass
-6dB Bandwidth & Channel Bandwidth	15.407(e)	Pass
Power Spectral Density	15.407(a)(3)	Pass
Band Edge	15.407(b)(4)	Pass
Spurious Emission	15.205/15.209/15.407(b)(4)	Pass
Frequency Stability	15.407(g)	Pass

Remarks:

1. Pass: The EUT complies with the essential requirements in the standard.
2. Test according to ANSI C63.10:2013.

4.1 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	1 x 10 ⁻⁷
2	Duty cycle	0.37%
3	Occupied Bandwidth	3%
4	RF conducted power	0.75dB
5	RF power density	3dB
6	Conducted Spurious emissions	2.58dB
7	AC Power Line Conducted Emission	3.44dB (0.15MHz ~ 30MHz)
8	Radiated Spurious emission test	3.1dB (9kHz-30MHz)
		3.8039dB (30MHz-200MHz)
		3.9679dB (200MHz-1GHz)
		4.29dB (1GHz-18GHz)
		3.30dB (18GHz-40GHz)

Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

5 General Information

5.1 General Description of EUT

Product Name:	WIFI6 MODULE
Model No.:	MT7921AU-FRX
Serial No.:	C43CB0DCFA64
Hardware Version:	V1.0
Software Version:	V1.0
Test sample(s) ID:	GTSL202212000237-1
Sample(s) Status:	Engineer sample
Operation Frequency:	802.11a/802.11n(HT20)/802.11n(HT40) /802.11ac(VHT20) /802.11ac(VHT40) /802.11ac(VHT80) /802.11ax(HE20) /802.11ax(HE40) /802.11ax(HE80): 5745MHz ~ 5825MHz
Channel numbers:	802.11a/802.11n(HT20)/802.11ac(VHT20)/802.11ax(HE20): 5 802.11n(HT40) /802.11ac(VHT40) /802.11ax(HE40):2 802.11ac(VHT80) /802.11ax(HE80):1
Channel bandwidth:	802.11a/802.11n(HT20)/802.11ac(VHT20)/802.11ax(HE20) : 20MHz 802.11n(HT40) /802.11ac(VHT40) /802.11ax(HE40):40MHz 802.11ac(VHT80) /802.11ax(HE80): 80MHz
Modulation technology:	802.11a/n/ac/: OFDM; 802.11ax: OFDMA Beamforming: 802.11a/n/ac/ax
Antenna Type:	External Antenna
Antenna gain:	ANT1:4.62dBi ANT2:4.62dBi Beamforming technology: (PSD directional gain=7.63dBi, Power directional gain=7.63dBi)
Beamforming Factor	0 dB by manufacturer's declaration
Power supply:	DC 3.3V

Operation Frequency each of channel					
Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745MHz	151	5755MHz	153	5765MHz
155	5775MHz	157	5785MHz	159	5795MHz
161	5805MHz	165	5825MHz	/	/

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Test channel	Frequency (MHz)								
	802.11 a	802.11 n(HT20)	802.11 n(HT40)	802.11 ac(VHT20)	802.11 ac(VHT40)	802.11 ac(VHT80)	802.11 ax(HE20)	802.11 ax(HE 40)	802.11 ax(HE80)
Lowest	5745	5745	5755	5745	5755	5775	5745	5755	5775
Middle	5785	5785	/	5785	/	/	5785	/	/
Highest	5825	5825	5795	5825	5795	/	5825	5795	/

5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode
<i>Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.</i>	

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate
802.11a-Beamforming	6Mbps
n(HT20)-Beamforming	MCS0
n(HT40)-Beamforming	MCS0
ac(VHT20)-Beamforming	MCS0
ac(VHT40)-Beamforming	MCS0
ac(VHT80)-Beamforming	MCS0
ax(HE20)-Beamforming	MCS0
ax(HE40)-Beamforming	MCS0
ax(HE80)-Beamforming	MCS0

5.3 Description of Support Units

Computer Mode Number: TPC-F123-MT / Displayer Mode Number: KG223Q
 Mouse Mode Number: KM10 / keyboard Mode Number: MK11

5.4 Deviation from Standards

None.

5.5 Abnormalities from Standard Conditions

None.

5.6 Additional Instructions

Test Software	MP_AX
---------------	-------

Output power setting table:

Test Mode	Set Tx Output Power
802.11a-Beamforming	16
n(HT20)-Beamforming	16
n(HT40)-Beamforming	16
ac(VHT20)-Beamforming	18
ac(VHT40)-Beamforming	18
ac(VHT80)-Beamforming	16
ax(HE20)-Beamforming	14
ax(HE40)-Beamforming	14
ax(HE80)-Beamforming	8

5.7 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC—Registration No.: 381383**

Designation Number: CN5029

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files.

- **IC —Registration No.: 9079A**

CAB identifier: CN0091

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

- **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

5.8 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone,
Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July 02, 2020	July 01, 2025
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	April 22, 2022	April 21, 2023
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	GTS640	March 21, 2022	March 20, 2023
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June 12, 2022	June 11, 2023
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June 23, 2022	June 22, 2023
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	April 22, 2022	April 21, 2023
9	Coaxial Cable	GTS	N/A	GTS211	April 22, 2022	April 21, 2023
10	Coaxial cable	GTS	N/A	GTS210	April 22, 2022	April 21, 2023
11	Coaxial Cable	GTS	N/A	GTS212	April 22, 2022	April 21, 2023
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	April 22, 2022	April 21, 2023
13	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 23, 2022	June 22, 2023
14	Band filter	Amindeon	82346	GTS219	June 23, 2022	June 22, 2023
15	Power Meter	Anritsu	ML2495A	GTS540	June 23, 2022	June 22, 2023
16	Power Sensor	Anritsu	MA2411B	GTS541	June 23, 2022	June 22, 2023
17	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	April 22, 2022	April 21, 2023
18	Splitter	Agilent	11636B	GTS237	June 23, 2022	June 22, 2023
19	Loop Antenna	ZHINAN	ZN30900A	GTS534	Nov. 29, 2022	Nov. 28, 2023
20	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	April 22, 2022	April 21, 2023
21	Breitband hornantenna	SCHWARZBECK	BBHA 9170	GTS579	Oct. 16, 2022	Oct. 15, 2023
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 16, 2022	Oct. 15, 2023
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 16, 2022	Oct. 15, 2023
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June 23, 2022	June 22, 2023
25	Amplifier(1GHz-26.5GHz)	HP	8449B	GTS601	April 22, 2022	April 21, 2023

RF Conducted Test:						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	April 22, 2022	April 21, 2023
2	EMI Test Receiver	R&S	ESCI 7	GTS552	April 22, 2022	April 21, 2023
3	Spectrum Analyzer	Agilent	E4440A	GTS536	April 22, 2022	April 21, 2023
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	April 22, 2022	April 21, 2023
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	April 22, 2022	April 21, 2023
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	April 22, 2022	April 21, 2023
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	April 22, 2022	April 21, 2023
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	April 22, 2022	April 21, 2023

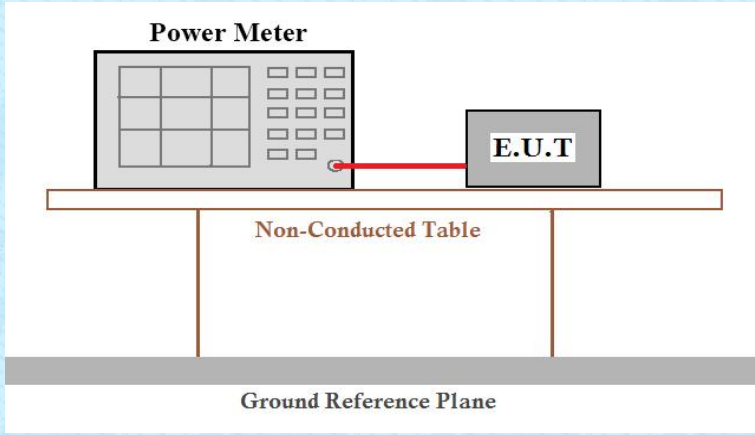
General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	April 25, 2022	April 24, 2023
2	Barometer	KUMAO	SF132	GTS647	July 26, 2022	July 25, 2023

7 Test results and Measurement Data

7.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203
<i>15.203 requirement:</i> <i>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</i>	
E.U.T Antenna:	
<i>The antennas are external antenna, the best case gain of the antennas are 4.62dBi, reference to the appendix II for details</i>	

7.2 Conducted Average Output Power

Test Requirement:	FCC Part15 E Section 15.407(a)(3)
Test Method:	ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	30dBm
Test setup:	 The diagram illustrates the test setup. A 'Power Meter' is connected to an 'E.U.T.' (Equipment Under Test) by a red cable. Both the Power Meter and the E.U.T. are positioned on a 'Non-Conducted Table'. This table is supported by a 'Ground Reference Plane'.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

Modulation	Frequency (MHz)	Duty cycle		Duty Factor	
		Antenna1	Antenna2	Antenna1	Antenna2
802.11a	5745	79.52	79.52	1	1
	5785	79.44	79.44	1	1
	5825	79.28	79.28	1.01	1.01
802.11n(HT20)	5745	78.35	78.35	1.06	1.06
	5785	78.08	78.08	1.07	1.07
	5825	78.05	78.05	1.08	1.08
802.11n(HT40)	5755	64.97	64.97	1.87	1.87
	5795	64.94	64.94	1.87	1.87
802.11ac(VHT20)	5745	65.84	65.84	1.81	1.81
	5785	66.07	66.07	1.8	1.8
	5825	65.77	65.77	1.82	1.82
802.11ac(VHT40)	5755	69.71	69.71	1.57	1.57
	5795	69.1	69.1	1.61	1.61
802.11ac(VHT80)	5775	65.79	65.79	1.82	1.82
802.11ax(HE20)	5745	69.39	69.39	1.59	1.59
	5785	69.45	69.45	1.58	1.58
	5825	69.44	69.44	1.58	1.58
802.11ax(HE40)	5755	69.4	69.4	1.59	1.59
	5795	69.37	69.37	1.59	1.59
802.11ax(HE80)	5775	66.02	66.02	1.80	1.80

802.11a mode										
CH No.	Frequency (MHz)	Measured Power (dBm)			Duty Factor	Output Power (dBm)			Limit (dBm)	Result
		ANT1	ANT2	ANT 1+2		ANT1	ANT2	ANT 1+2		
149	5745	14.26	13.573	16.94	1	15.26	14.573	17.94	30	Pass
157	5785	14.482	12.668	16.679	1	15.482	13.668	17.679		
165	5825	14.267	13.514	16.917	1.01	15.277	14.524	17.927		
802.11n(HT20) mode										
CH No.	Frequency (MHz)	Measured Power (dBm)			Duty Factor	Output Power (dBm)			Limit (dBm)	Result
		ANT1	ANT2	ANT 1+2		ANT1	ANT2	ANT 1+2		
149	5745	13.572	12.774	16.202	1.06	14.632	13.834	17.262	30	Pass
157	5785	14.603	13.351	17.032	1.07	15.673	14.421	18.102		
165	5825	13.873	14.009	16.952	1.08	14.953	15.089	18.032		
802.11n(HT40) mode										
CH No.	Frequency (MHz)	Measured Power (dBm)			Duty Factor	Output Power (dBm)			Limit (dBm)	Result
		ANT1	ANT2	ANT 1+2		ANT1	ANT2	ANT 1+2		
151	5755	13.235	12.401	15.848	1.87	15.105	14.271	17.718	30	Pass
159	5795	12.922	11.586	15.315	1.87	14.792	13.456	17.185		

802.11ac(VHT20) mode										
CH No.	Frequency (MHz)	Measured Power (dBm)			Duty Factor	Output Power (dBm)			Limit (dBm)	Result
		ANT1	ANT2	ANT 1+2		ANT1	ANT2	ANT 1+2		
149	5745	13.503	11.711	15.709	1.81	15.313	13.521	17.519	30	Pass
157	5785	13.563	11.992	15.858	1.8	15.363	13.792	17.658		
165	5825	13.331	13.284	16.318	1.82	15.151	15.104	18.138		
802.11ac(VHT40) mode										
CH No.	Frequency (MHz)	Measured Power (dBm)			Duty Factor	Output Power (dBm)			Limit (dBm)	Result
		ANT1	ANT2	ANT 1+2		ANT1	ANT2	ANT 1+2		
151	5755	12.106	10.345	14.324	1.57	13.676	11.915	15.894	28.37	Pass
159	5795	11.782	10.942	14.393	1.61	13.392	12.552	16.003		
802.11ac(VHT80) mode										
CH No.	Frequency (MHz)	Measured Power (dBm)			Duty Factor	Output Power (dBm)			Limit (dBm)	Result
		ANT1	ANT2	ANT 1+2		ANT1	ANT2	ANT 1+2		
155	5775	10.195	8.454	12.421	1.82	12.015	10.274	14.241	28.37	Pass

802.11ax(HE20) mode										
CH No.	Frequency (MHz)	Measured Power (dBm)			Duty Factor	Output Power (dBm)			Limit (dBm)	Result
		ANT1	ANT2	ANT 1+2		ANT1	ANT2	ANT 1+2		
149	5745	10.776	9.926	13.382	1.59	12.366	11.516	14.972	28.37	Pass
157	5785	11.139	9.732	13.503	1.58	12.719	11.312	15.083		
165	5825	10.917	10.604	13.774	1.58	12.497	12.184	15.354		
802.11ax(HE40) mode										
CH No.	Frequency (MHz)	Measured Power (dBm)			Duty Factor	Output Power (dBm)			Limit (dBm)	Result
		ANT1	ANT2	ANT 1+2		ANT1	ANT2	ANT 1+2		
151	5755	11.096	9.433	13.354	1.59	12.686	11.023	14.944	28.37	Pass
159	5795	9.962	10.158	13.071	1.59	11.552	11.748	14.661		
802.11ax(HE80) mode										
CH No.	Frequency (MHz)	Measured Power (dBm)			Duty Factor	Output Power (dBm)			Limit (dBm)	Result
		ANT1	ANT2	ANT 1+2		ANT1	ANT2	ANT 1+2		
155	5775	10.77	9.272	13.096	1.80	12.57	11.072	14.896	28.37	Pass

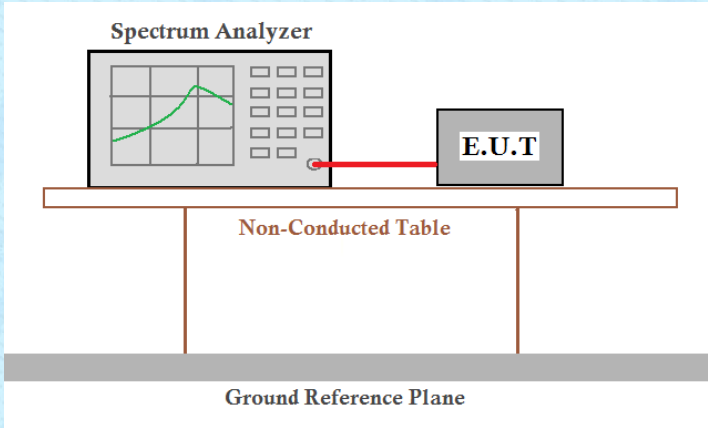
Note: Output Power = Measured Power + Duty Factor

Duty Factor = $10 \log (1/\text{Duty Cycle})$

Power directional gain=7.63dBi, So Limit=30-1.63=28.37dBm

Beamforming Factor is 0 dB, and the results are unchanged

7.3 Channel Bandwidth

Test Requirement:	FCC Part15 E Section 15.407(e)
Test Method:	ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	>500KHz
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		802.11a	
		ANT1	ANT2
149	5745	16.68	16.62
157	5785	16.663	16.616
165	5825	16.703	16.64

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		802.11n(HT20)	
		ANT1	ANT2
149	5745	17.858	17.781
157	5785	17.833	17.797
165	5825	17.877	17.768

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		802.11n(HT40)	
		ANT1	ANT2
151	5755	35.746	35.842
159	5795	35.76	35.799

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		802.11ac(VHT20)	
		ANT1	ANT2
149	5745	17.846	17.774
157	5785	17.804	17.778
165	5825	17.812	17.712

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		802.11ac(VHT40)	
		ANT1	ANT2
151	5755	35.7	35.762
159	5795	35.752	35.743

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		802.11ac(VHT80)	
		ANT1	ANT2
155	5775	75.063	75.179

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		802.11ax(HE20)	
		ANT1	ANT2
149	5745	18.892	18.891
157	5785	18.979	18.955
165	5825	18.92	18.929

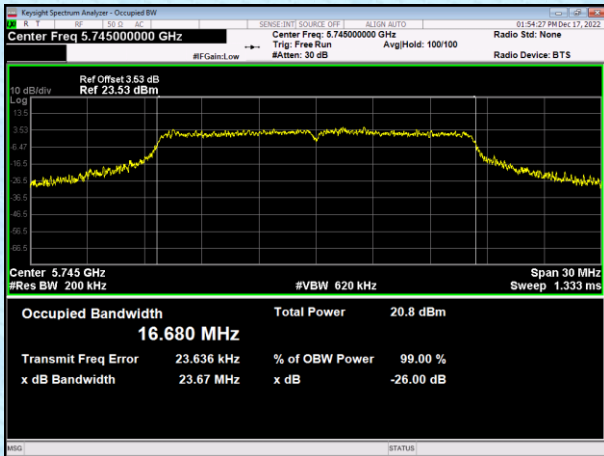
CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		802.11 ax(HE40)	
		ANT1	ANT2
151	5755	37.442	37.362
159	5795	37.41	37.447

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		802.11 ax(HE80)	
		ANT1	ANT2
155	5775	76.622	76.856

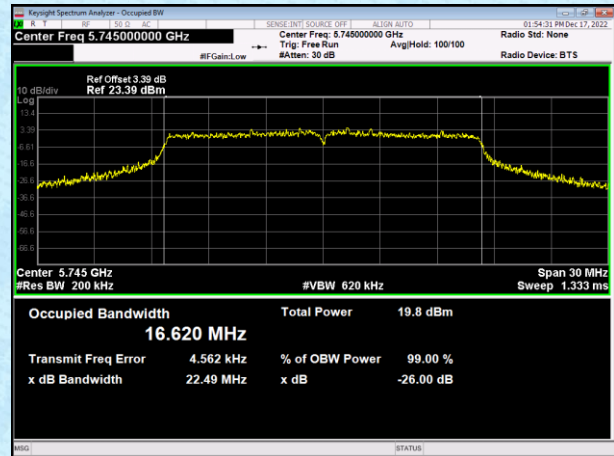
Test plot as follows: Test mode: 802.11a

Lowest channel 5745MHz

Antenna1

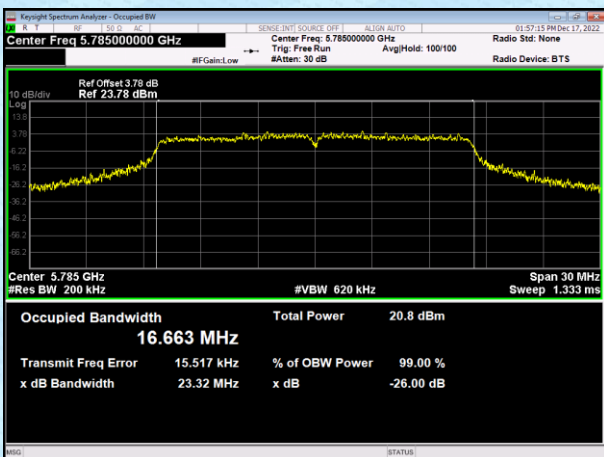


Antenna2

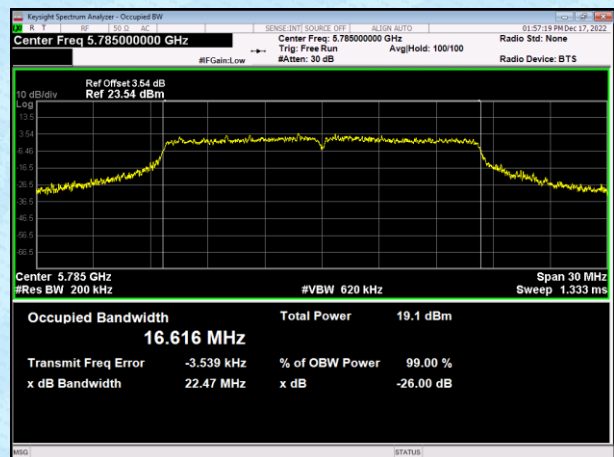


Middle channel 5785MHz

Antenna1

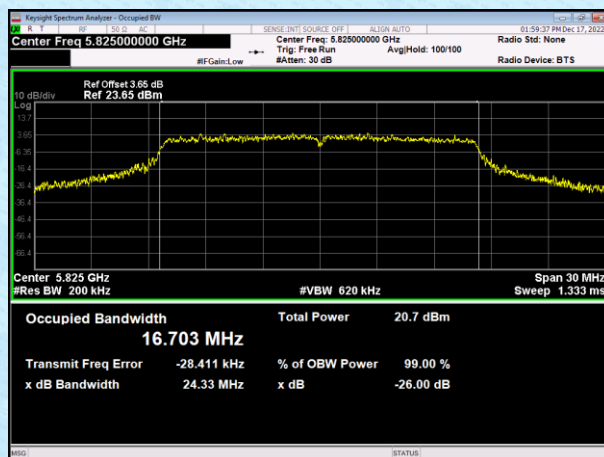


Antenna2

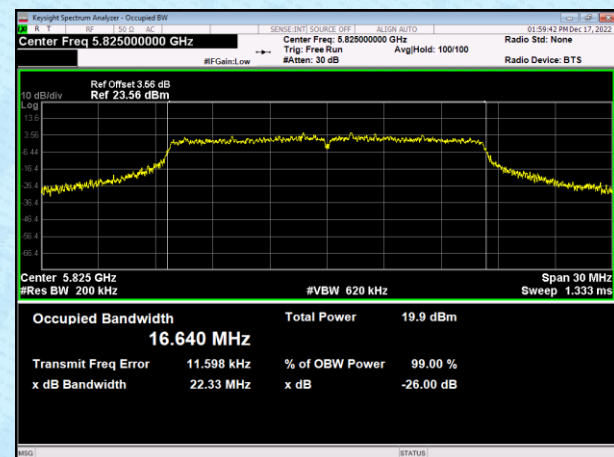


Highest channel 5825MHz

Antenna1



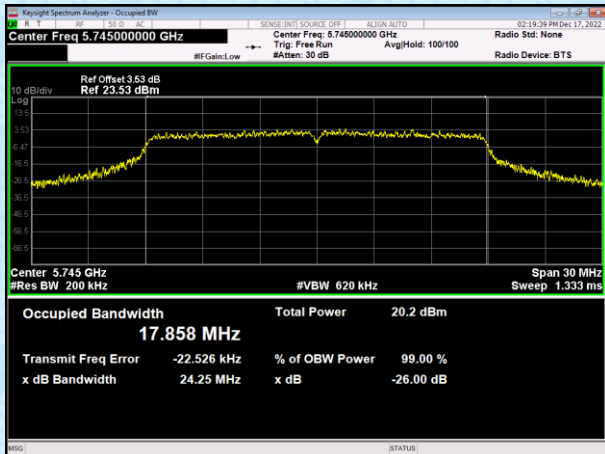
Antenna2



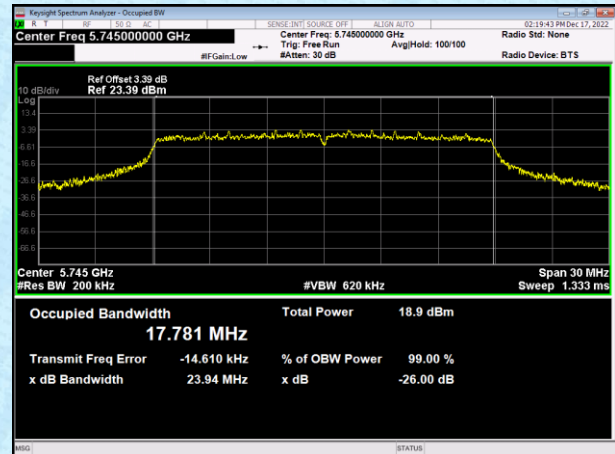
Test mode: 802.11 n(HT20)

Lowest channel 5745MHz

Antenna1

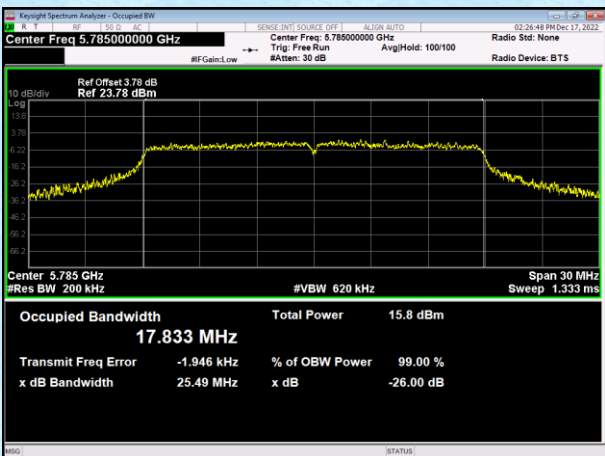


Antenna2

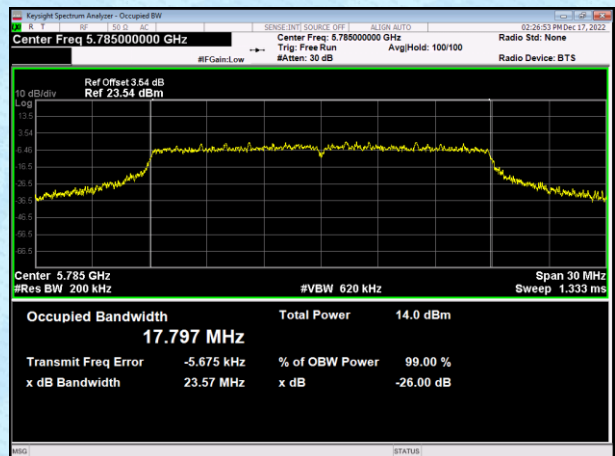


Middle channel 5785MHz

Antenna1

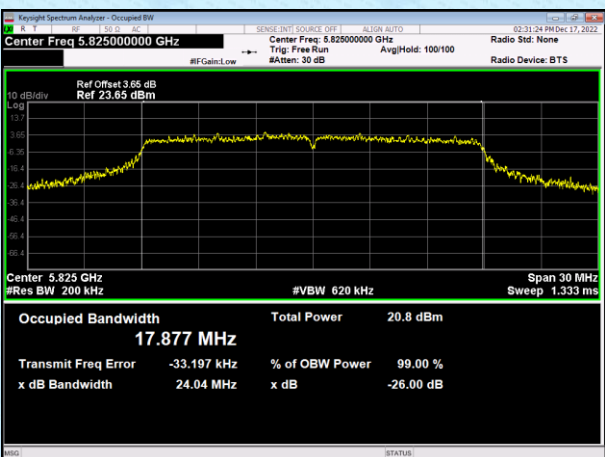


Antenna2

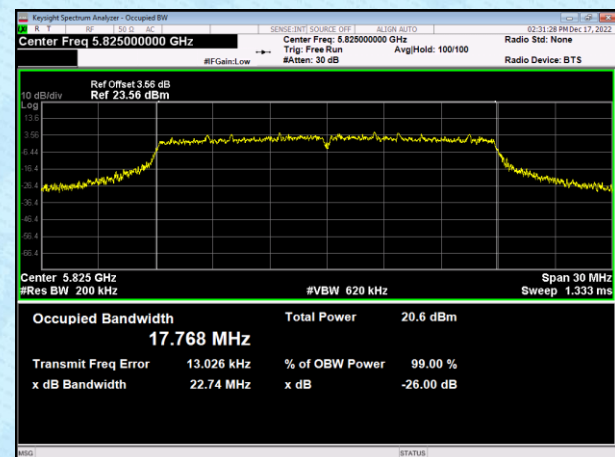


Highest channel 5825MHz

Antenna1



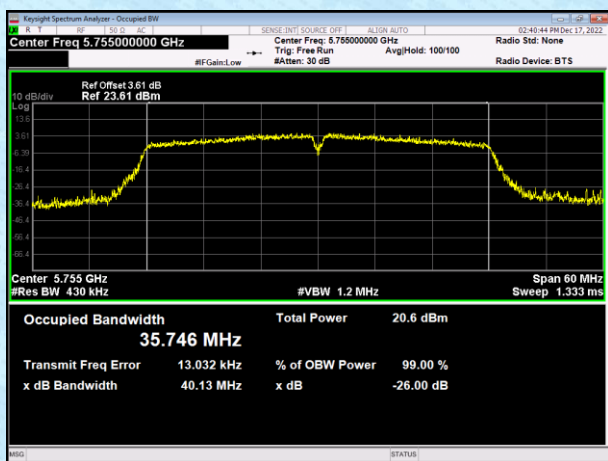
Antenna2



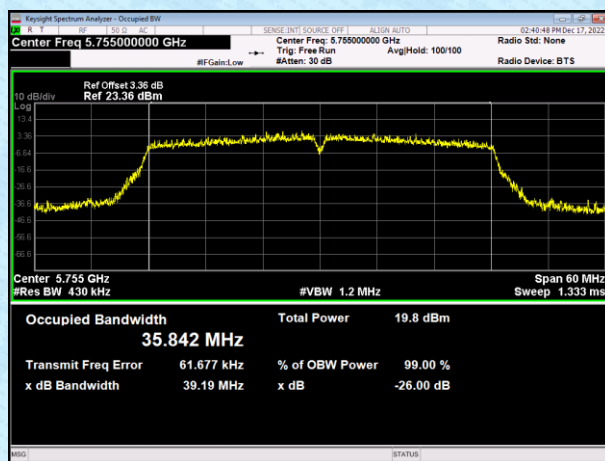
Test mode: 802.11 n(HT40)

Lowest channel 5755MHz

Antenna1

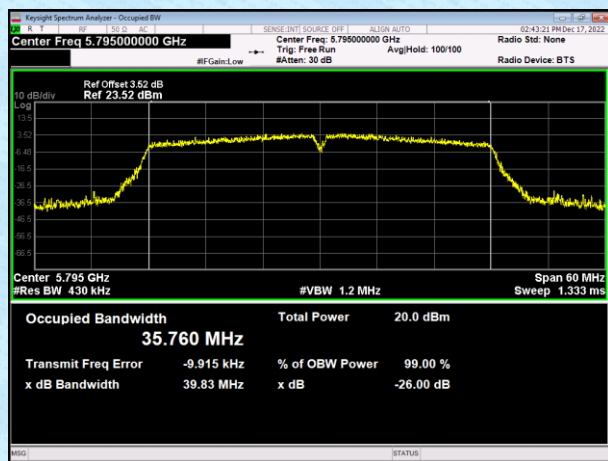


Antenna2

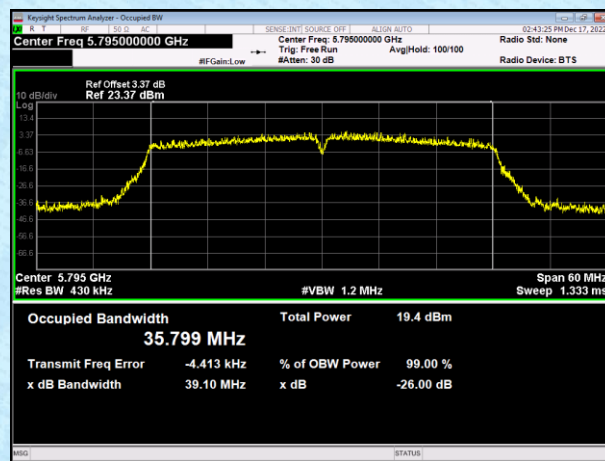


Highest channel 5795MHz

Antenna1



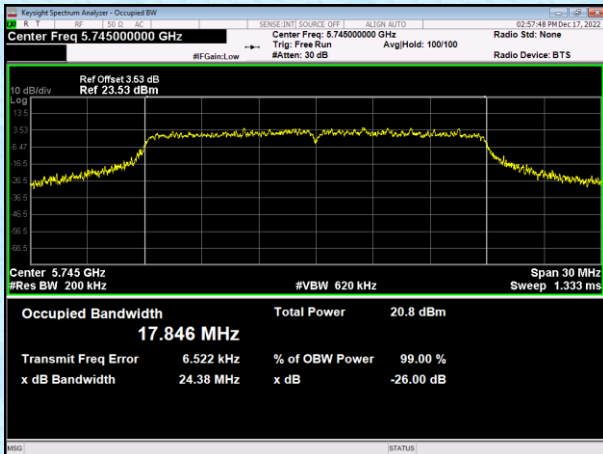
Antenna2



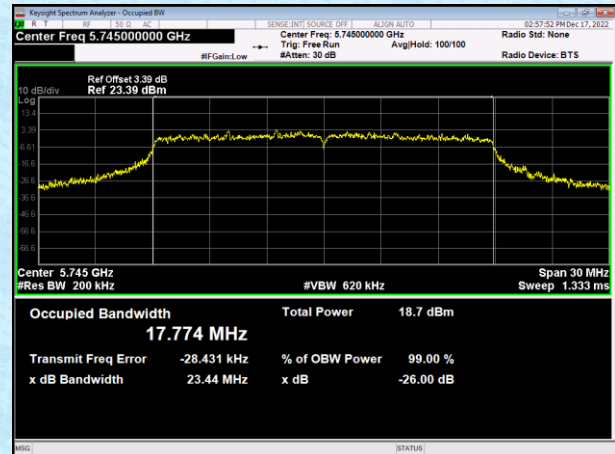
Test mode: 802.11ac(VHT20)

Lowest channel 5745MHz

Antenna1

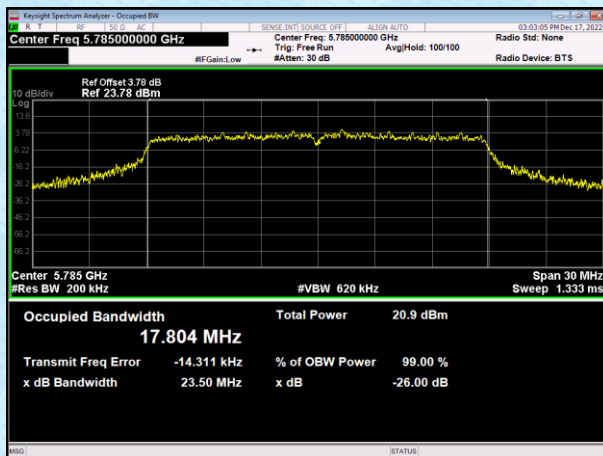


Antenna2

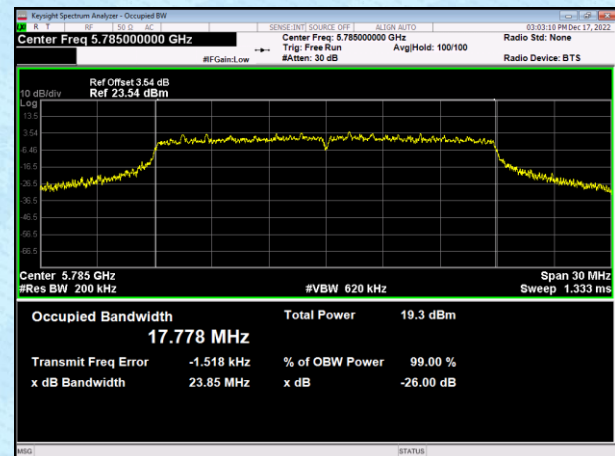


Middle channel 5785MHz

Antenna1

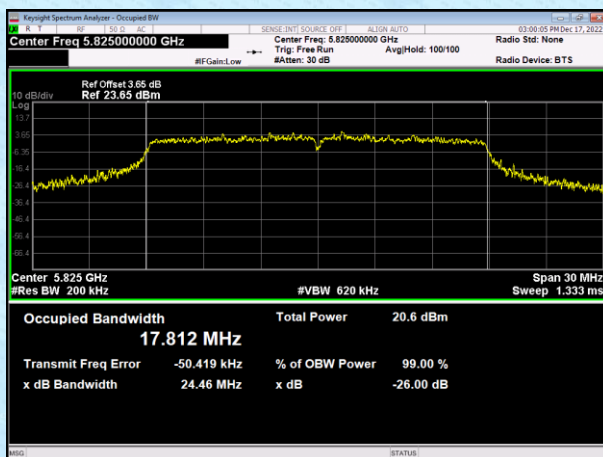


Antenna2

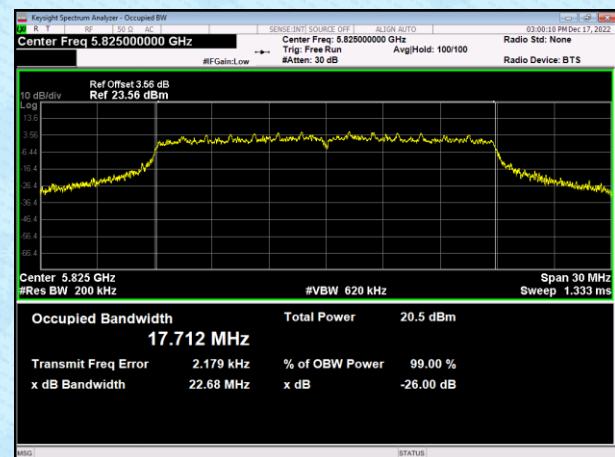


Highest channel 5825MHz

Antenna1



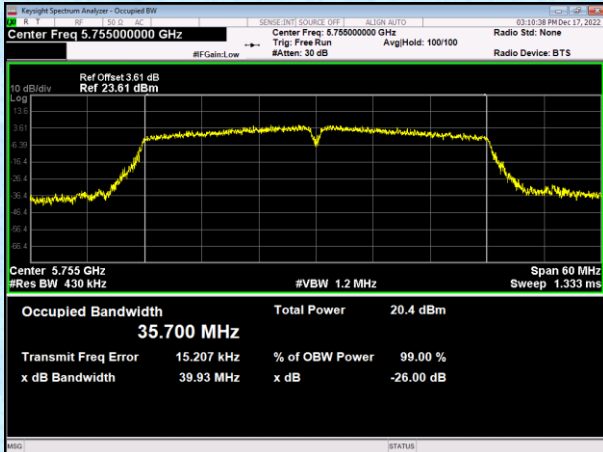
Antenna2



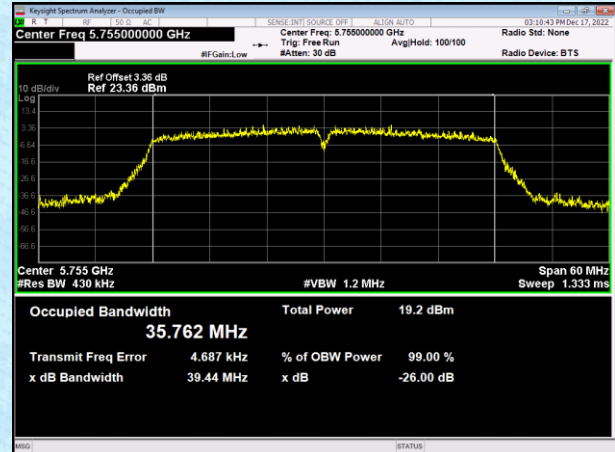
Test mode: 802.11 ac(VHT40)

Lowest channel 5755MHz

Antenna1

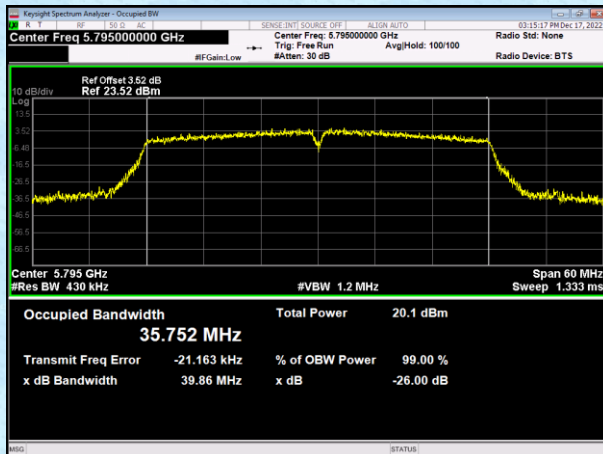


Antenna2

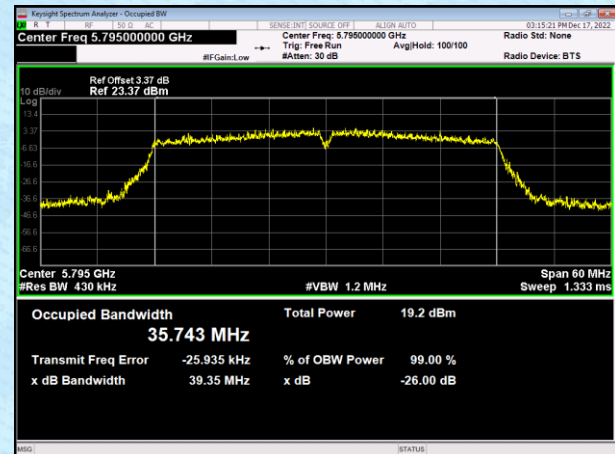


Highest channel 5795MHz

Antenna1



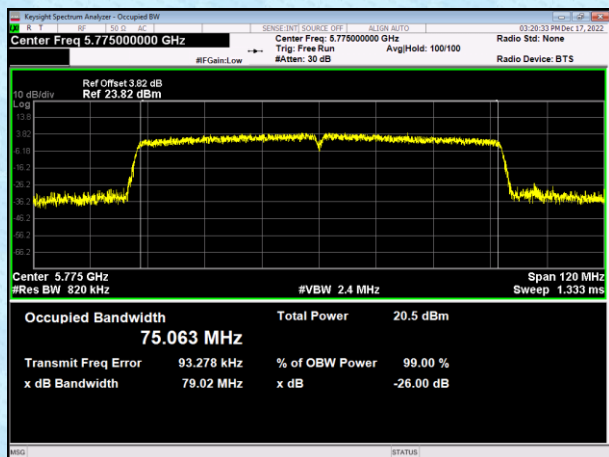
Antenna2



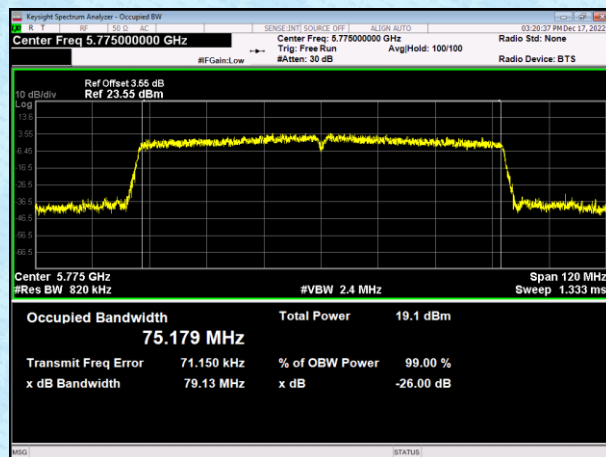
Test mode: 802.11 ac(VHT80)

Lowest channel 5775MHz

Antenna1



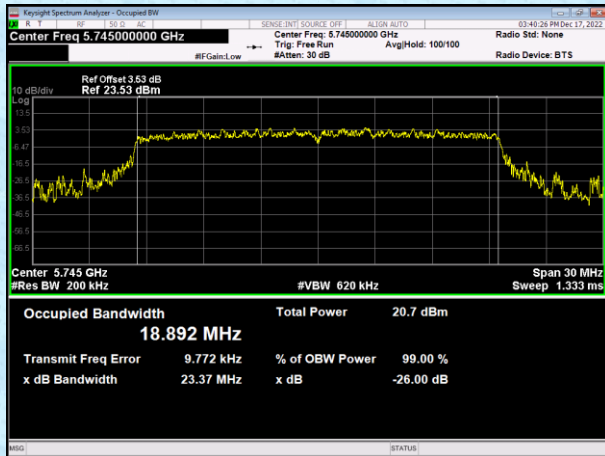
Antenna2



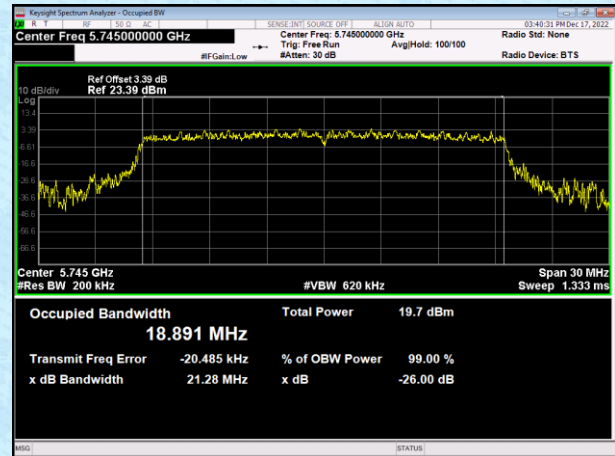
Test mode: 802.11ax(HE20)

Lowest channel 5745MHz

Antenna1

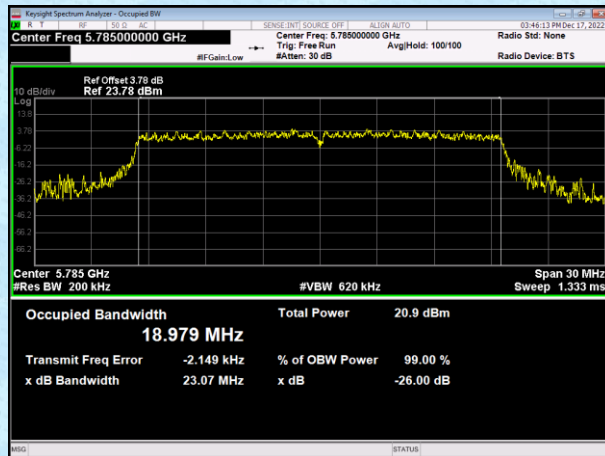


Antenna2

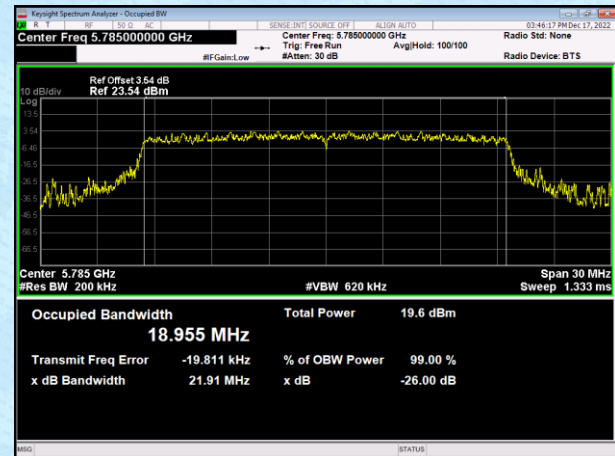


Middle channel 5785MHz

Antenna1

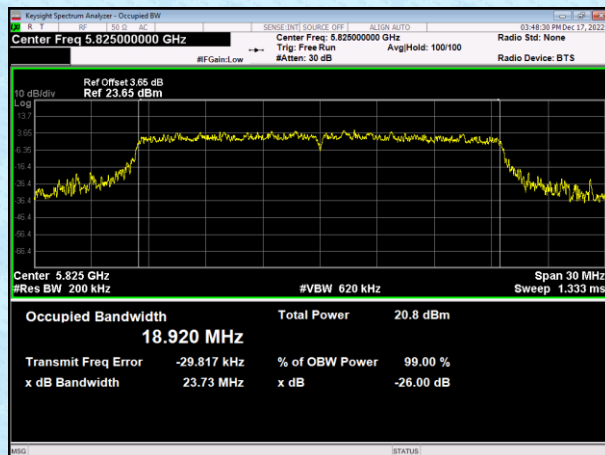


Antenna2

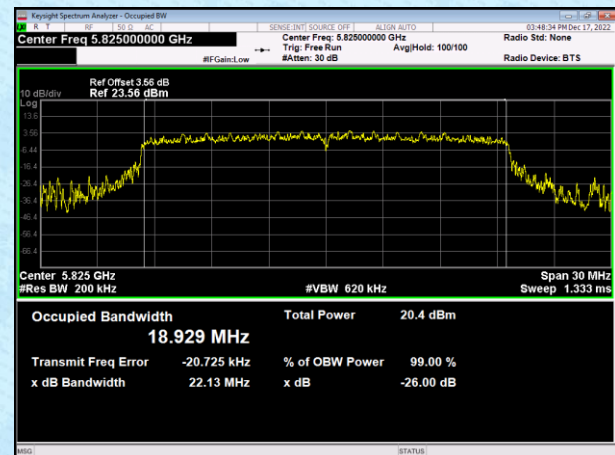


Highest channel 5825MHz

Antenna1



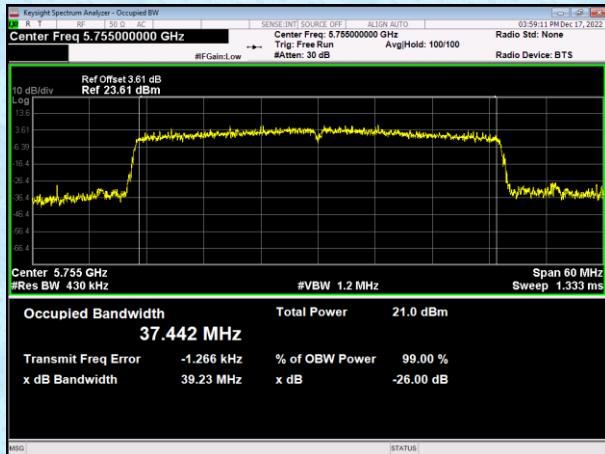
Antenna2



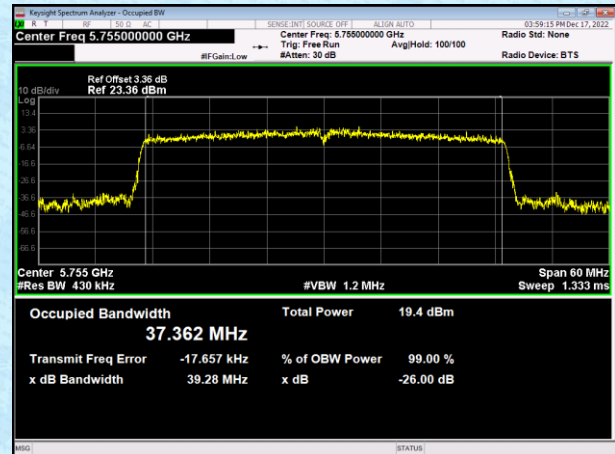
Test mode: 802.11 ax(HE40)

Lowest channel 5755MHz

Antenna1

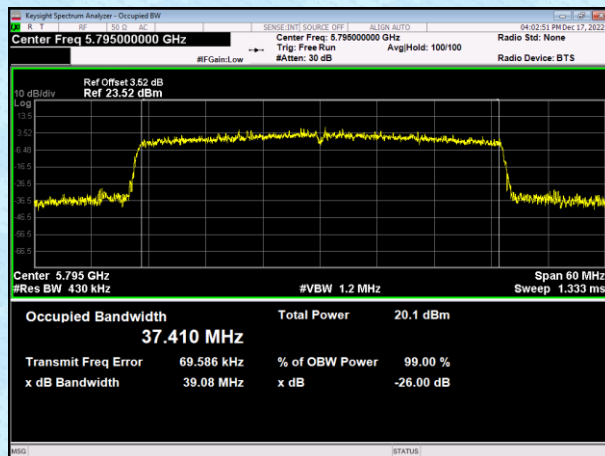


Antenna2

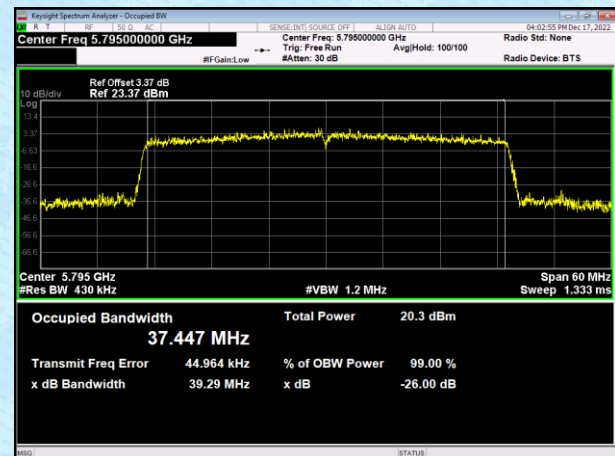


Highest channel 5795MHz

Antenna1



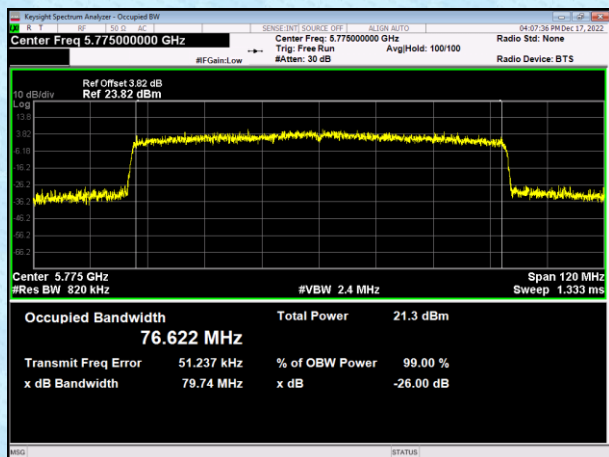
Antenna2



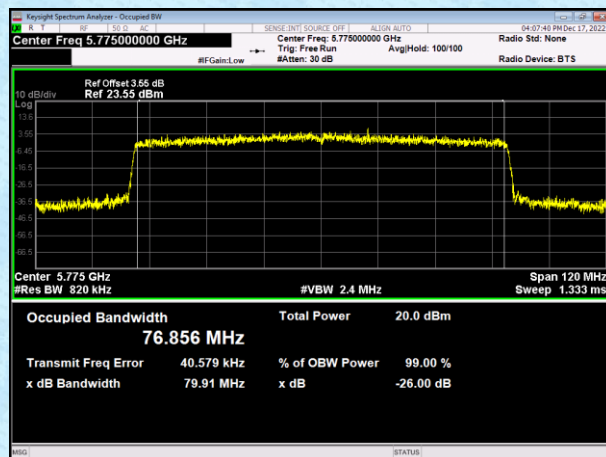
Test mode: 802.11 ax(HE80)

Lowest channel 5775MHz

Antenna1



Antenna2



CH. No.	Frequency (MHz)	6dB Occupied Bandwidth (MHz)	
		802.11a	
		ANT1	ANT2
149	5745	14.8	16.3
157	5785	15.41	16.04
165	5825	15.29	15.65

CH. No.	Frequency (MHz)	6dB Occupied Bandwidth (MHz)	
		802.11n(HT20)	
		ANT1	ANT2
149	5745	15.67	17.26
157	5785	17.18	17.57
165	5825	16.18	16.93

CH. No.	Frequency (MHz)	6dB Occupied Bandwidth (MHz)	
		802.11n(HT40)	
		ANT1	ANT2
151	5755	30.07	32.49
159	5795	33.75	31.28

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		802.11ac(VHT20)	
		ANT1	ANT2
149	5745	16.89	17.53
157	5785	15.88	17.29
165	5825	15.1	17.54

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		802.11ac(VHT40)	
		ANT1	ANT2
151	5755	33.81	32.5
159	5795	33.77	35.04

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		802.11ac(VHT80)	
		ANT1	ANT2
155	5775	75.09	75.04

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		802.11ax(HE20)	
		ANT1	ANT2
149	5745	17.78	17.5
157	5785	16.46	17.65
165	5825	17.97	17.47

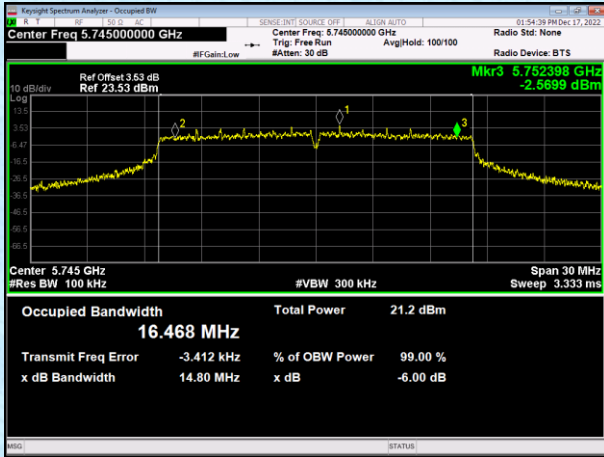
CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		802.11ax(HE40)	
		ANT1	ANT2
151	5755	35.09	35.07
159	5795	35.05	35.06

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		802.11ax(HE80)	
		ANT1	ANT2
155	5775	75.02	75.02

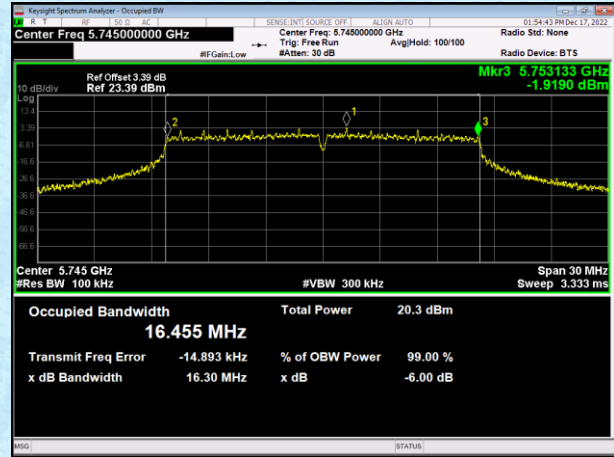
Test plot as follows: Test mode: 802.11a

Lowest channel 5745MHz

Antenna1

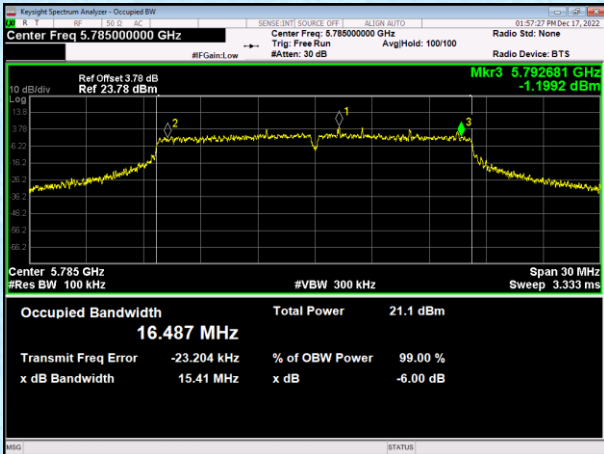


Antenna2

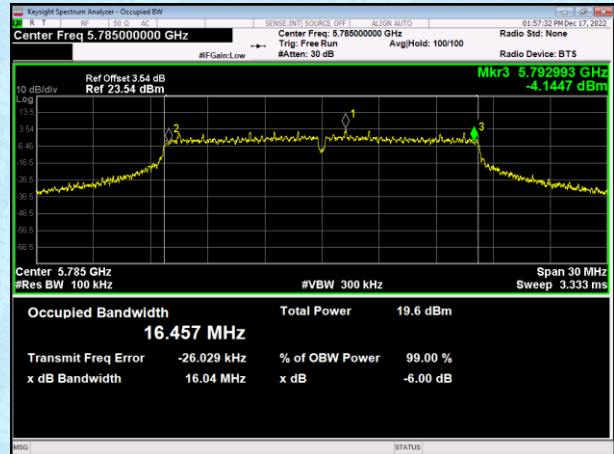


Middle channel 5785MHz

Antenna1

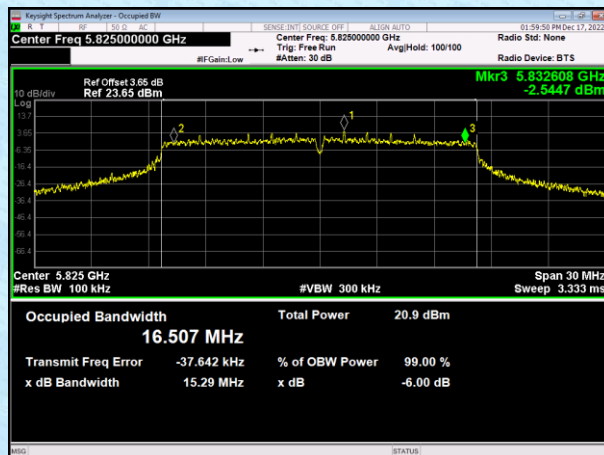


Antenna2

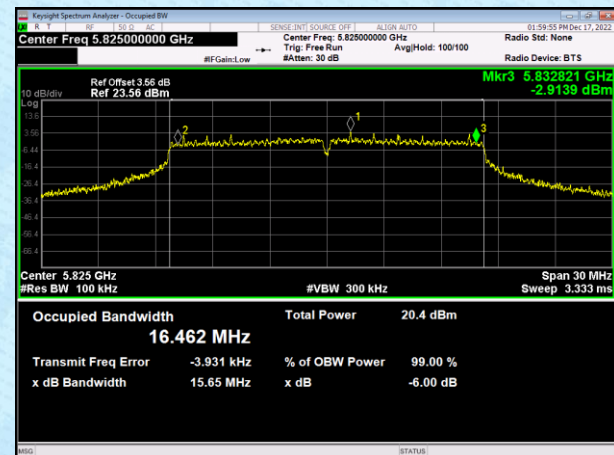


Highest channel 5825MHz

Antenna1



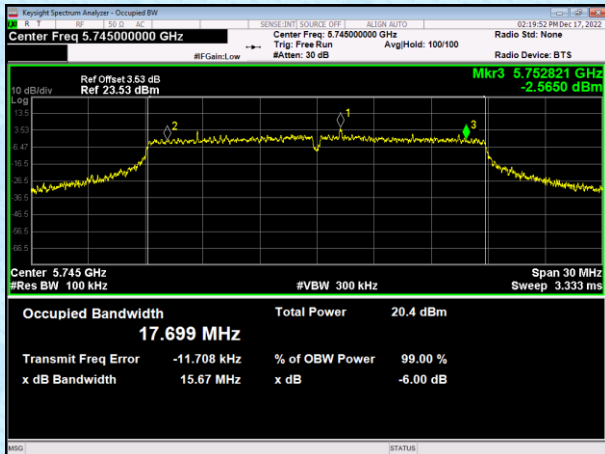
Antenna2



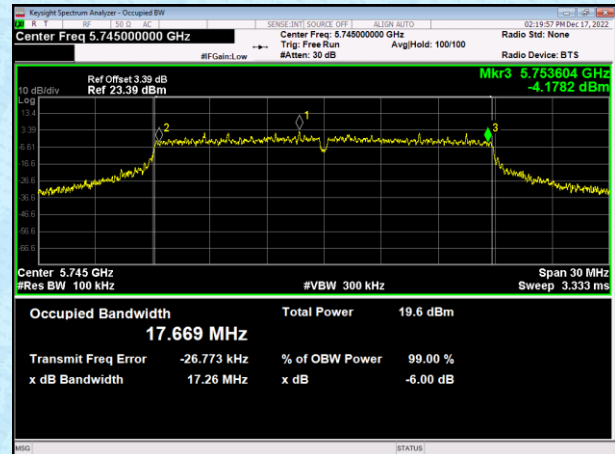
Test mode: 802.11 n(HT20)

Lowest channel 5745MHz

Antenna1

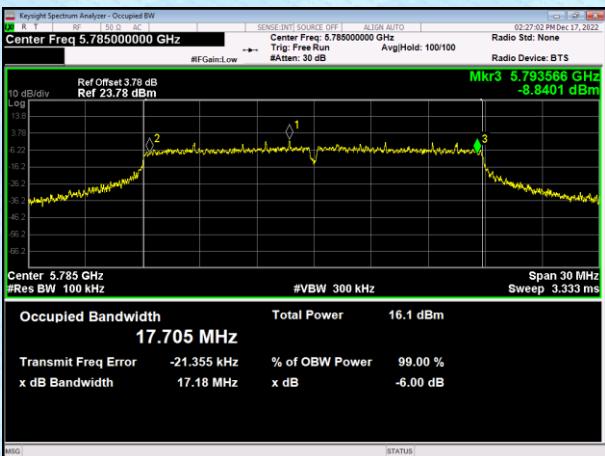


Antenna2

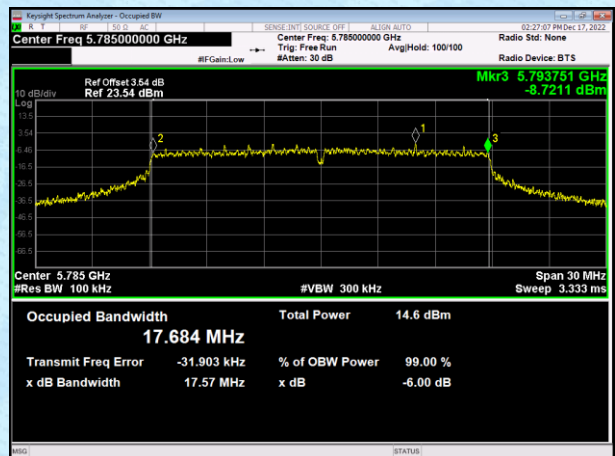


Middle channel 5785MHz

Antenna1

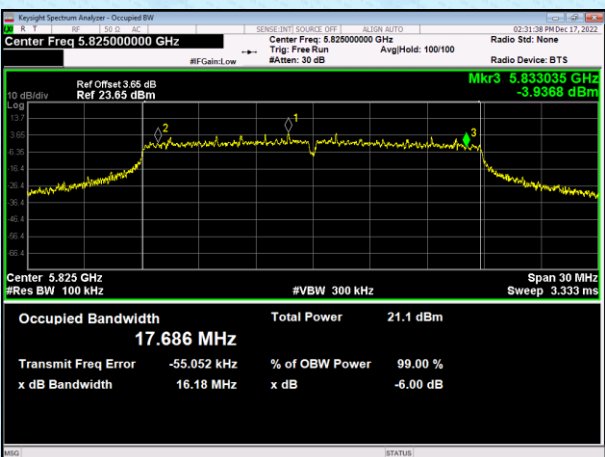


Antenna2

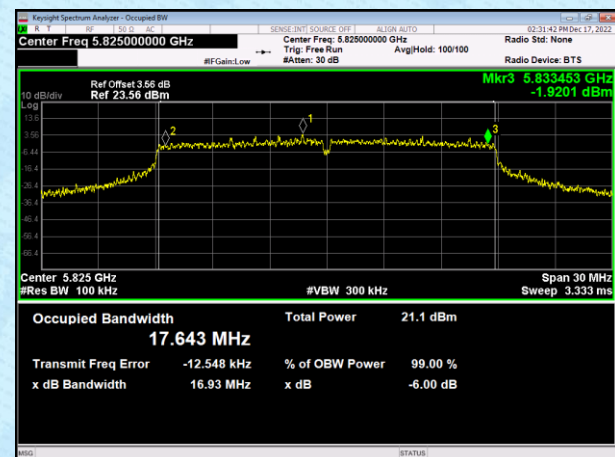


Highest channel 5825MHz

Antenna1



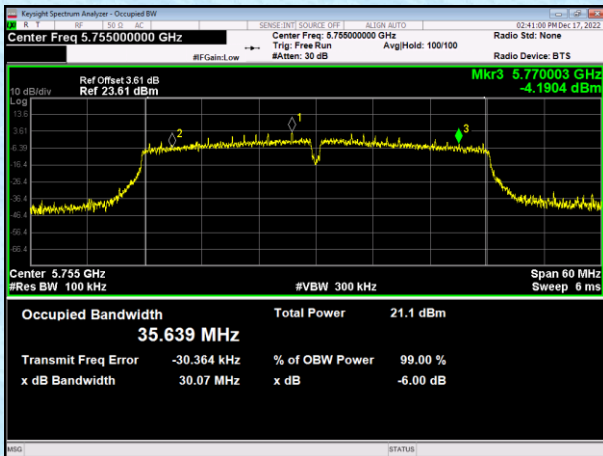
Antenna2



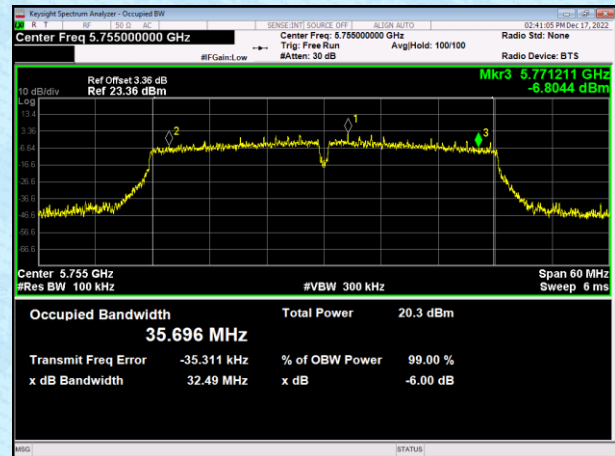
Test mode: 802.11 n(HT40)

Lowest channel 5755MHz

Antenna1

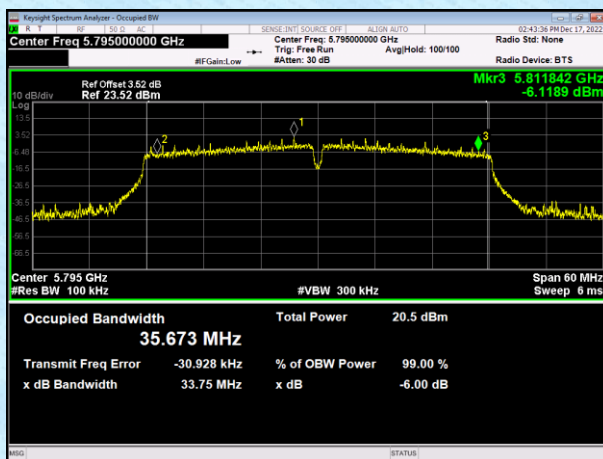


Antenna2

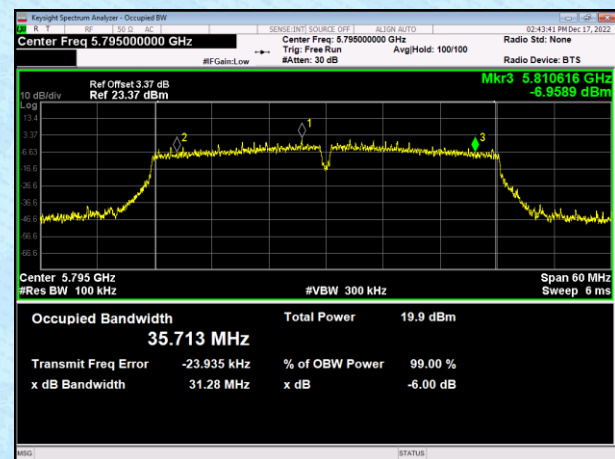


Highest channel 5795MHz

Antenna1



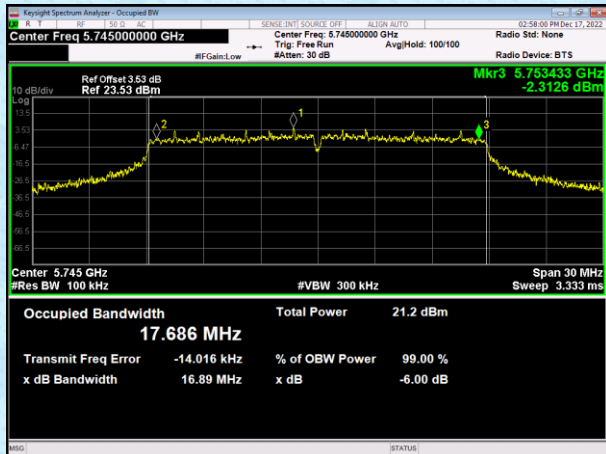
Antenna2



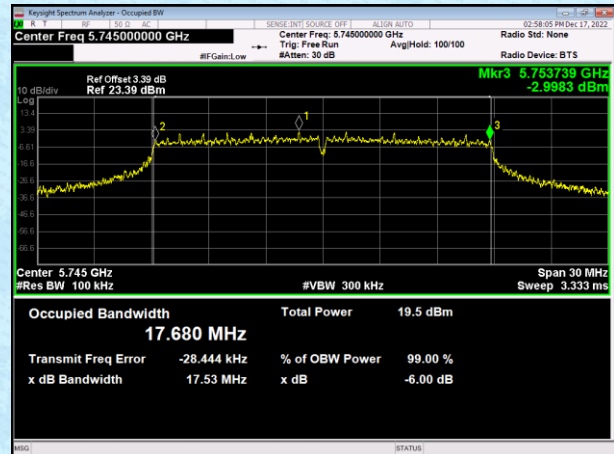
Test mode: 802.11ac(VHT20)

Lowest channel 5745MHz

Antenna1

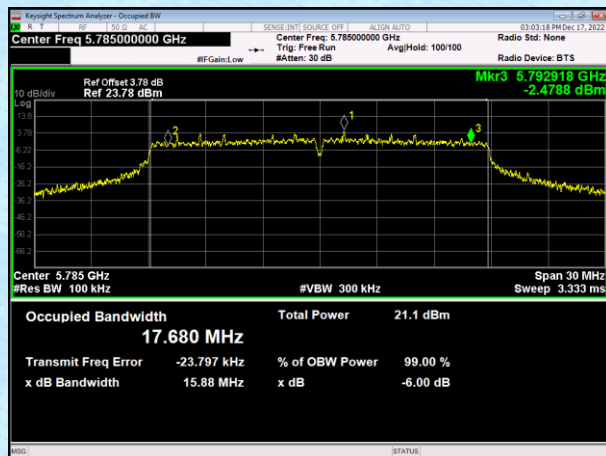


Antenna2

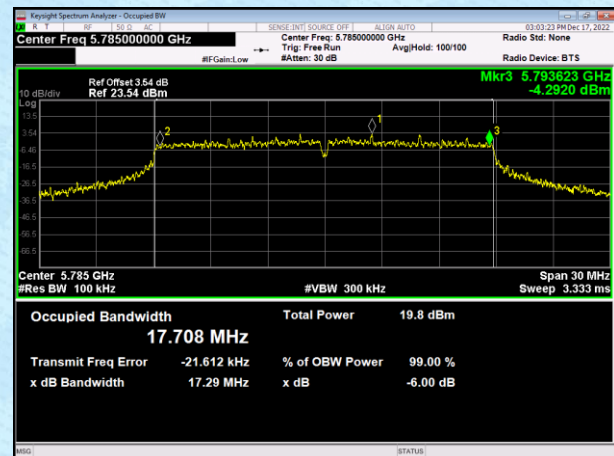


Middle channel 5785MHz

Antenna1

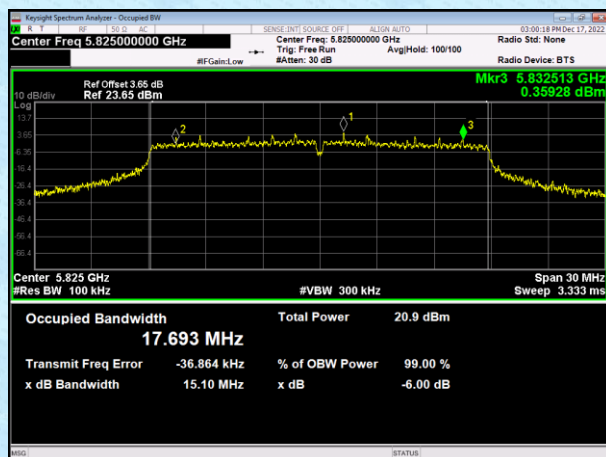


Antenna2

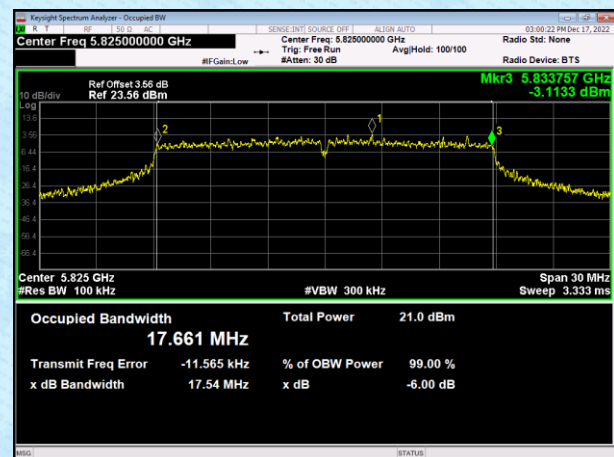


Highest channel 5825MHz

Antenna1



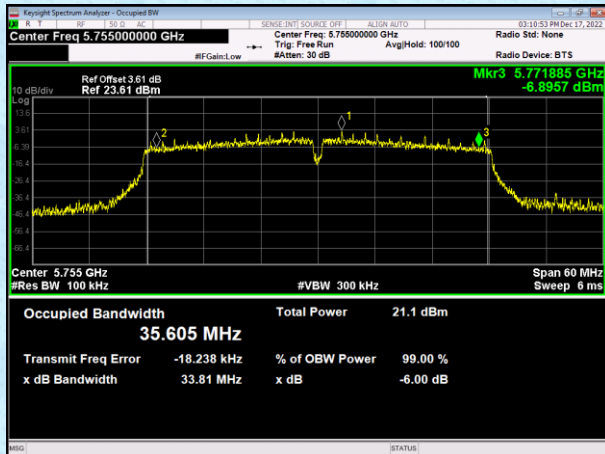
Antenna2



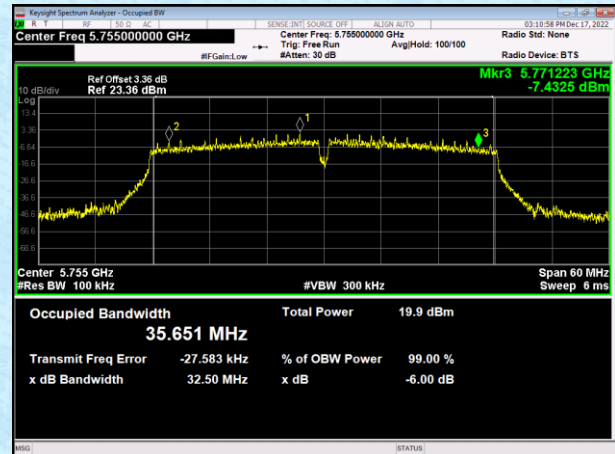
Test mode: 802.11 ac(VHT40)

Lowest channel 5755MHz

Antenna1

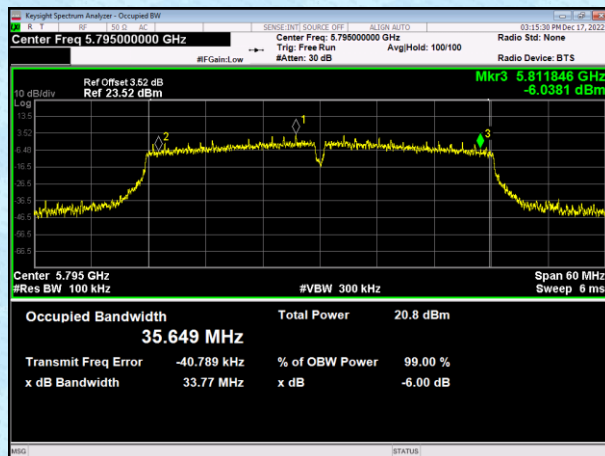


Antenna2



Highest channel 5795MHz

Antenna1



Antenna2

