

FCC Test Report

Report No.: AGC00742190601FE06

FCC ID : 2AKC6XHT-WF6D
APPLICATION PURPOSE : Original Equipment
PRODUCT DESIGNATION : Dual Band Wireless USB Adapter
BRAND NAME : N/A
MODEL NAME : XHT-6B16, XHT-6B18
CLIENT : SHEN ZHEN XIN HUA TIAN TECHNOLOGY CO., LTD
DATE OF ISSUE : Jun. 27, 2019
STANDARD(S) : FCC Part 15.407
TEST PROCEDURE(S) : KDB 789033 D02 v02r01
REPORT VERSION : V1.0

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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jun. 27, 2019	Valid	Initial Release



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1. VERIFICATION OF CONFORMITY

Applicant	SHEN ZHEN SHI XIN HUA TIAN TECHNOLOGY CO., LTD
Address	3Floor, B Buliding, DaHong Industrial Park, GuangMin District, Shenzhen City, China
Manufacturer	SHEN ZHEN SHI XIN HUA TIAN TECHNOLOGY CO., LTD
Address	3Floor, B Buliding, DaHong Industrial Park, GuangMin District, Shenzhen City, China
Factory	SHEN ZHEN SHI XIN HUA TIAN TECHNOLOGY CO., LTD
Address	3Floor, B Buliding, DaHong Industrial Park, GuangMin District, Shenzhen City, China
Product Designation	Dual Band Wireless USB Adapter
Brand Name	N/A
Test Model	XHT-6B16
Series Model	XHT-6B18
Model Difference	All the same except for the model name and color
Date of test	Jun. 13, 2019 to Jun. 25, 2019
Deviation	None
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-US-BGN/RF

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with requirement of FCC Part 15 Rules requirement.

Tested By

NiNi

NiNi Guo(Guo Lili)

Jun. 25, 2019

Reviewed By

Max Zhang

Max Zhang(Zhang Yi)

Jun. 27, 2019

Approved By

Forrest Lei

Forrest Lei(Lei Yonggang)

Authorized Officer

Jun. 27, 2019



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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

The EUT is designed as “Dual Band Wireless USB Adapter”. It is designed by way of utilizing the OFDM technology to achieve the system operation.

A major technical description of EUT is described as following

Product Name	Dual Band Wireless USB Adapter
Model/Type reference	XHT-6B16
Modulation	802.11a/n20/n40/ac20/ac40/ac80 BPSK, QPSK, 16QAM, 64QAM, 128QAM, 256QAM, OFDM
Operation Frequency	5150 MHz~5250MHz;5725 MHz~5850MHz
Channel number	15
Antenna Designation	Two external antennas(Use of reverse SMA connector)
Number of transmit chain	2(802.11a used antenna 0, 802.11n/ac used two antennas)
Directional gain	All transmit signals are completely uncorrelated with each other
Antenna gain	5dBi
Power Supply	DC 5V



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2.2. TABLE OF CARRIER FREQUENCIES

Frequency Band	Channel Number	Frequency	Frequency Band	Channel Number	Frequency
5150 GHz~ 5250GHz	36	5180 MHz	5725 GHz~ 5850GHz	149	5745 MHz
	38	5190 MHz		151	5755 MHz
	40	5200 MHz		153	5765 MHz
	42	5210 MHz		155	5775MHz
	44	5220 MHz		157	5785 MHz
	46	5230 MHz		159	5795 MHz
	48	5240 MHz		161	5805 MHz
				165	5825MHz

Note: For 20MHZ bandwidth system use Channel 36,40,44,48,149,153,157,161,165; For 40MHZ bandwidth system use Channel 38,46,151,159; For 80MHZ bandwidth system use Channel 42,155

2.3. RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AKC6XHT-WF6D** filing to comply with the FCC Part 15 requirements.

2.4. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013).

Radiated testing was performed at an antenna to EUT distance 3 meters.

Others testing (listed at item 5.3) was performed according to the procedures in FCC Part 15.407 rules KDB 789033 D02

2.5. SPECIAL ACCESSORIES

Refer to section 5.2.

2.6. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.



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3. MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the “Guide to the Expression of Uncertainty in measurement” (GUM) published by CISPR and ANSI.

- Uncertainty of Conducted Emission, $U_c = \pm 3.2$ dB
- Uncertainty of Radiated Emission below 1GHz, $U_c = \pm 3.9$ dB
- Uncertainty of Radiated Emission above 1GHz, $U_c = \pm 4.8$ dB



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4. DESCRIPTION OF TEST MODES

Mode	Available channel	Tested channel	Modulation	Date rate(Mbps)
802.11a/n20/ac20	36,40,44,48,149,153,157,161,165	36,38,48,149, 157,165	OFDM	6/6.5
802.11n40/ac40	38,46,151,159	38,46, 151,159	OFDM	13.5
802.11ac80	42,155	42,155	OFDM	13.5

Note:

1. The EUT has been set to operate continuously on tested channel individually, and the EUT is operating at its maximum duty cycle>or equal 98%
2. All modes under which configure applicable have been tested and the worst mode test data recording in the test report, if no other mode data.
3. The test software is the RtkTestAPP-v2.0.0_20170425 which can set the EUT into the individual test modes



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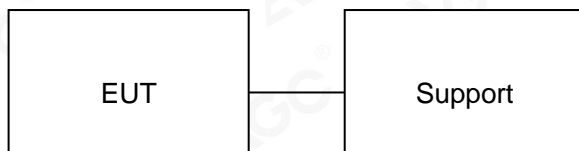
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5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Configure 1:



5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Dual Band Wireless USB Adapter	XHT-6B06	2AKC6XHT-WF6D	EUT
2	PC	XIAOMI	N/A	Support
3	PC adapter	XIAOMI ADC6501TM	DC15V/3A	Support

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.407	6dB Bandwidth	Compliant
§15.407	Emission Bandwidth	Compliant
§15.407	Maximum conducted output power	Compliant
§15.407	Conducted Spurious Emission	Compliant
§15.407	Maximum Conducted Output Power Density	Compliant
§15.209	Radiated Emission	Compliant
§15.407	Band Edges	Compliant
§15.207	Line Conduction Emission	Compliant



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6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Designation Number	CN1259
FCC Test Firm Registration Number	975832
A2LA Cert. No.	5054.02
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by A2LA

TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	Jun. 12, 2018	Jun. 11, 2019
LISN	R&S	ESH2-Z5	100086	Aug. 28, 2018	Aug. 27, 2019

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Jun. 12, 2018	Jun. 11, 2019
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec. 20, 2018	Dec. 19, 2019
Power sensor	Aglient	U2021XA	MY54110007	Sep. 20, 2018	Sep. 19, 2019
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Jun. 12, 2018	Jun. 11, 2019
preamplifier	ChengYi	EMC184045SE	980508	Sep. 21, 2017	Sep. 20, 2020
Active loop antenna (9K-30MHz)	A.H.	SAS-562B	N/A	Jun. 14, 2018	Jun. 13, 2020
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	May. 26, 2018	May. 25, 2020
Broadband Preamplifier	SCHWARZBECK	BBV 9718	9718-205	Oct. 25, 2018	Oct. 24, 2019
ANTENNA	SCHWARZBECK	VULB9168	D69250	Sep. 28, 2017	Sep. 27, 2019



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7. MAXIMUM CONDUCTED OUTPUT POWER

7.1. MEASUREMENT PROCEDURE

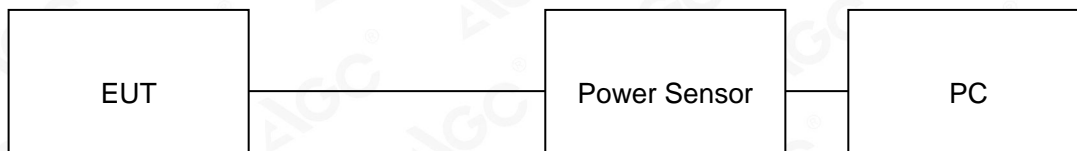
For average power test:

1. Connect EUT RF output port to power sensor through an RF attenuator.
2. Connect the power sensor to the PC.
3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
4. Record the maximum power from the software.

Note : The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

7.2. TEST SET-UP

AVERAGE POWER SETUP



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7.3. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT FOR 802.11A20 MODULATION			
Frequency (MHz)	Average Power (dBm)	Applicable Limits (dBm)	Pass or Fail
5180	6.95	24	Pass
5200	6.71	24	Pass
5240	6.53	24	Pass
5745	6.25	30	Pass
5785	6.14	30	Pass
5825	6.17	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11N20 MODULATION					
Frequency (MHz)	Average Power Chain 0(dBm)	Average Power Chain 1(dBm)	Average Power Total(dBm)	Applicable Limits (dBm)	Pass or Fail
5180	0.61	0.56	3.60	24	Pass
5200	0.59	0.34	3.48	24	Pass
5240	0.56	0.27	3.43	24	Pass
5745	0.55	0.29	3.43	30	Pass
5785	0.60	0.31	3.47	30	Pass
5825	0.51	0.24	3.39	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11AC20 MODULATION					
Frequency (MHz)	Average Power Chain 0(dBm)	Average Power Chain 1(dBm)	Average Power Total(dBm)	Applicable Limits (dBm)	Pass or Fail
5180	0.50	0.21	3.37	24	Pass
5200	0.46	0.11	3.30	24	Pass
5240	0.44	0.16	3.31	24	Pass
5745	0.41	0.14	3.29	30	Pass
5785	0.40	0.13	3.28	30	Pass
5825	0.39	0.16	3.29	30	Pass



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LIMITS AND MEASUREMENT RESULT FOR 802.11N40 MODULATION					
Frequency (MHz)	Average Power Chain 0(dBm)	Average Power Chain 1(dBm)	Average Power Total(dBm)	Applicable Limits (dBm)	Pass or Fail
5190	-1.23	-1.69	1.56	24	Pass
5230	-1.30	-1.72	1.51	24	Pass
5755	-1.39	-1.76	1.44	30	Pass
5795	-1.44	-1.79	1.40	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11AC40 MODULATION					
Frequency (MHz)	Average Power Chain 0(dBm)	Average Power Chain 1(dBm)	Average Power Total(dBm)	Applicable Limits (dBm)	Pass or Fail
5190	-1.56	-1.91	1.28	24	Pass
5230	-1.60	-1.83	1.30	24	Pass
5755	-1.63	-1.96	1.22	30	Pass
5795	-1.65	-1.98	1.20	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11AC80 MODULATION					
Frequency (MHz)	Average Power Chain 0(dBm)	Average Power Chain 1(dBm)	Average Power Total(dBm)	Applicable Limits (dBm)	Pass or Fail
5210	-4.06	-4.12	-1.08	24	Pass
5775	-4.64	-4.68	-1.65	30	Pass



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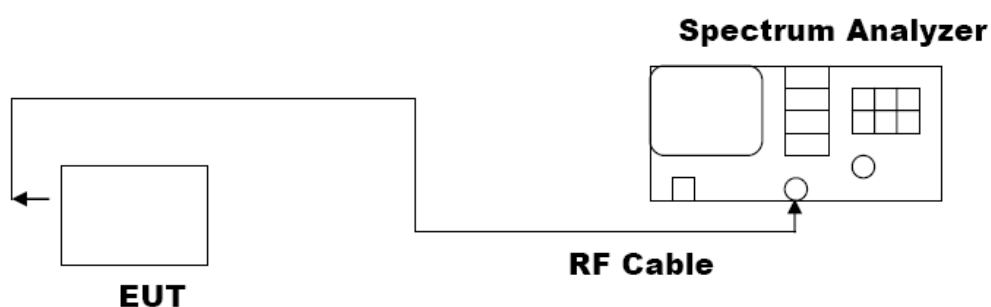
8. 6dB BANDWIDTH

8.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on operation frequency individually.
3. Set RBW = 100kHz.
4. Set the VBW $\geq 3 \times \text{RBW}$. Detector = Peak. Trace mode = max hold.
5. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.

Note: The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



8.3. LIMITS AND MEASUREMENT RESULTS

LIMITS AND MEASUREMENT RESULT FOR 802.11A20 MODULATION			
Applicable Limits	Applicable Limits		
	Test Data (MHz)		Criteria
>500KHZ	5745MHz	16.34	PASS
	5785MHz	16.36	PASS
	5825MHz	16.35	PASS

LIMITS AND MEASUREMENT RESULT FOR 802.11N20/40 MODULATION			
Applicable Limits	Applicable Limits		
	Test Data (MHz)		Criteria
>500KHZ	5745MHz	17.54	PASS
	5785MHz	17.56	PASS
	5825MHz	17.51	PASS
	5755MHz	36.36	PASS
	5795MHz	36.33	PASS

LIMITS AND MEASUREMENT RESULT FOR 802.11AC20/40/80 MODULATION			
Applicable Limits	Applicable Limits		
	Test Data (MHz)		Criteria
>500KHZ	5745MHz	17.32	PASS
	5785MHz	17.15	PASS
	5825MHz	17.07	PASS
	5755MHz	36.34	PASS
	5795MHz	36.35	PASS
	5775MHz	75.28	PASS



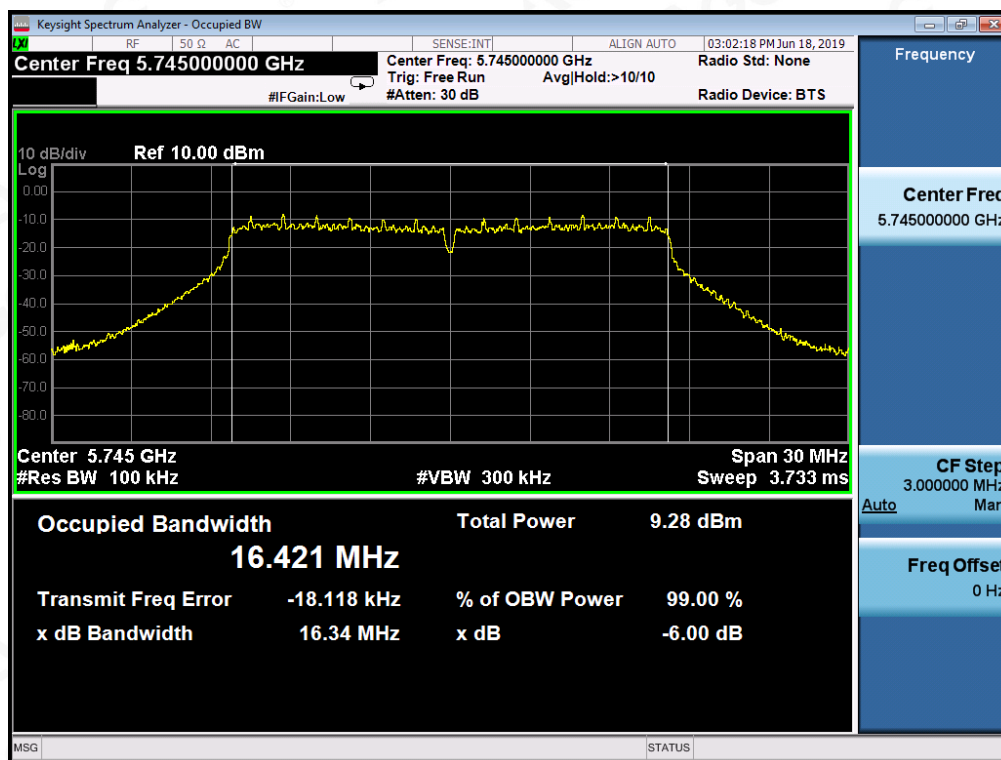
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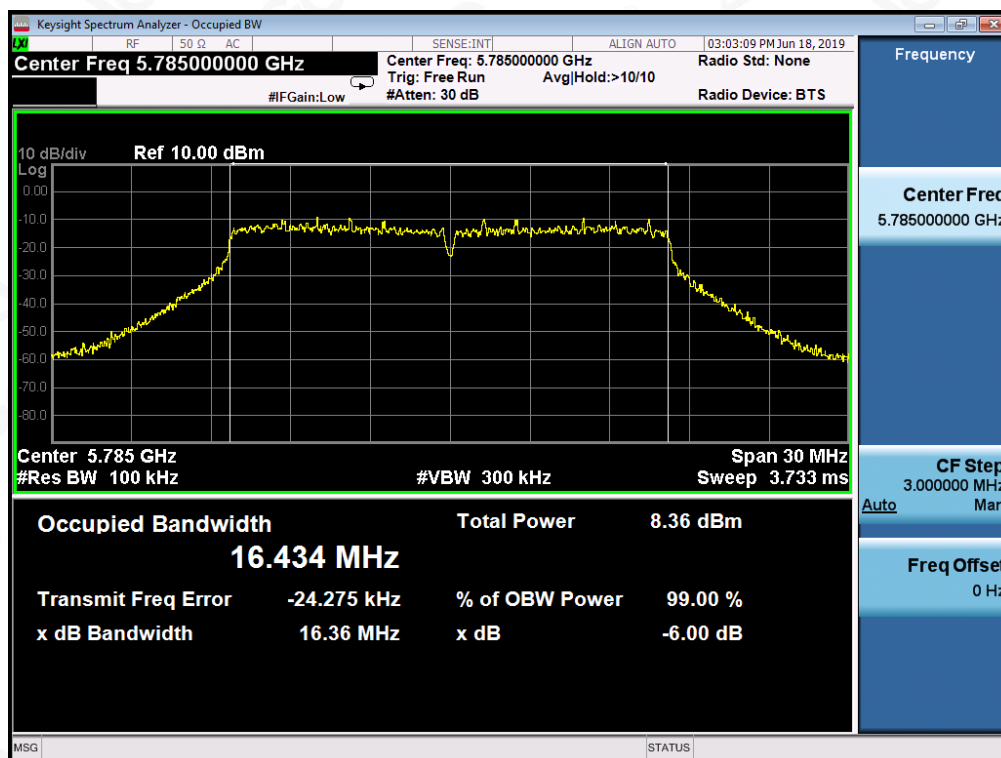
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802.11a20 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5745MHz



TEST PLOT OF BANDWIDTH FOR 5785MHz



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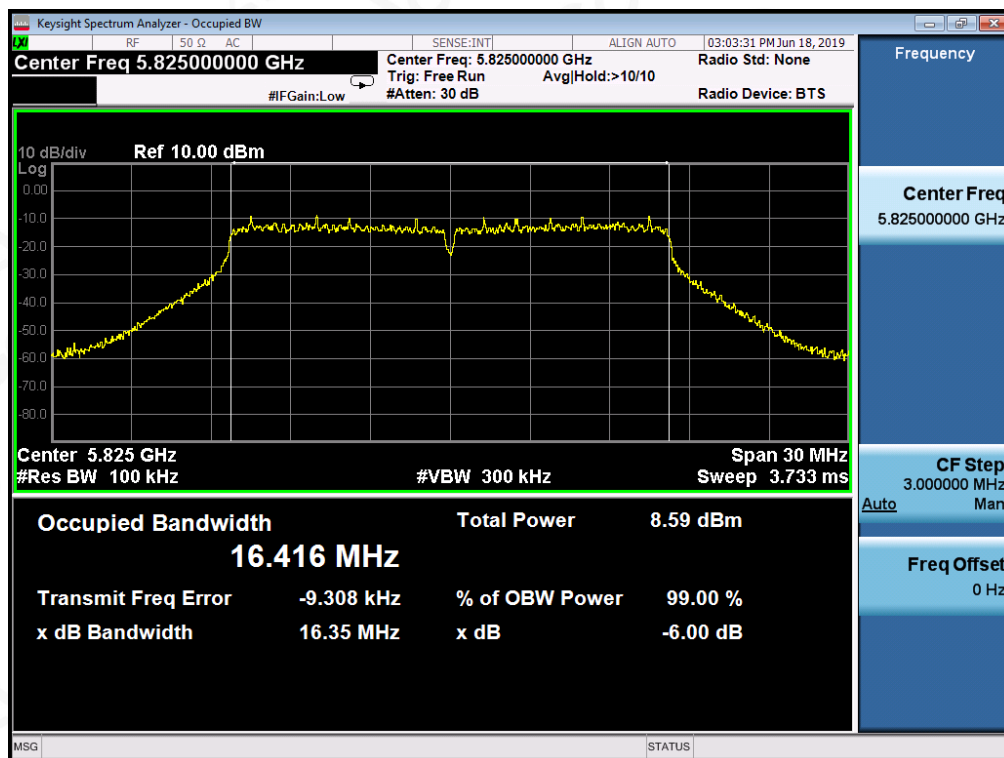
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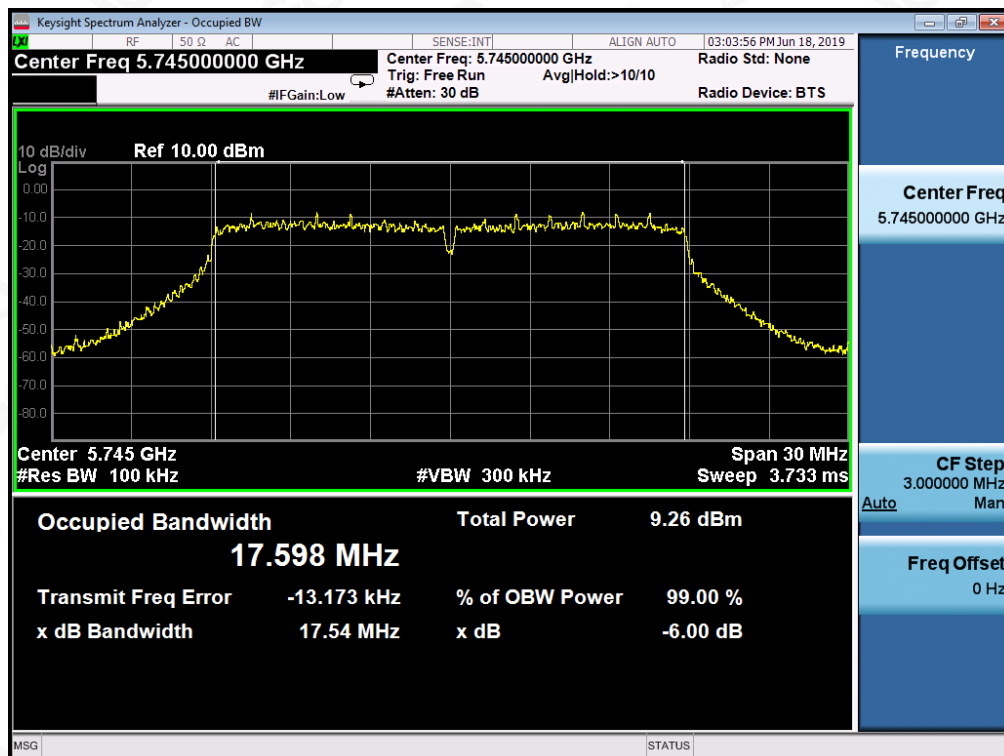
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TEST PLOT OF BANDWIDTH FOR 5825MHz



802.11n20 TEST RESULT

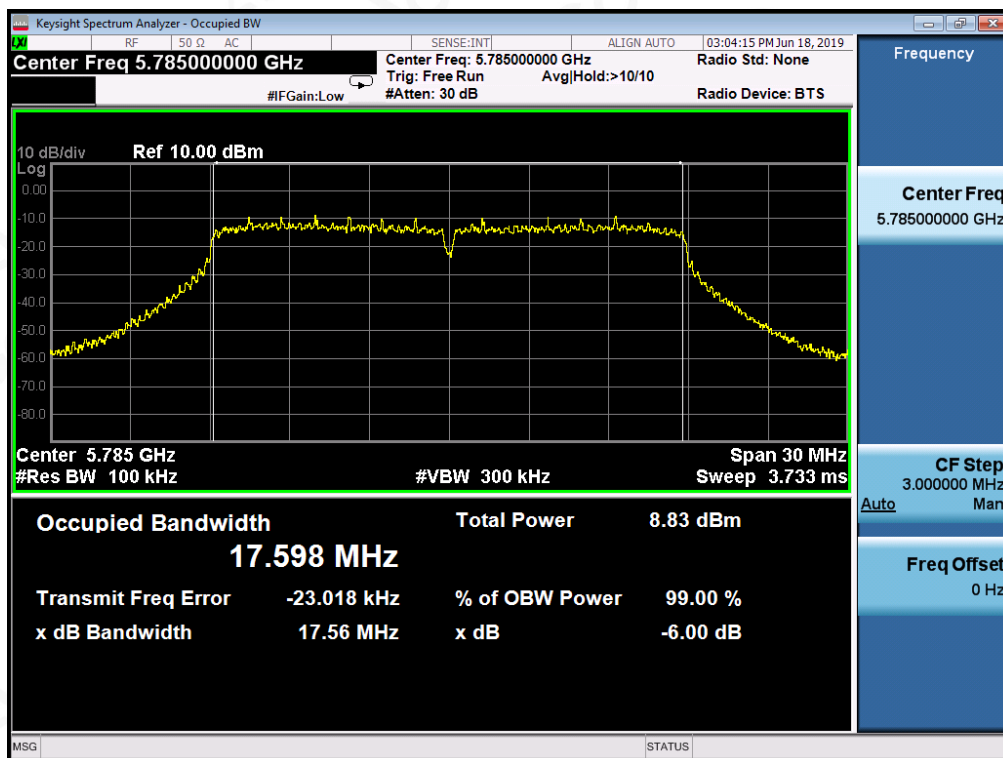
TEST PLOT OF BANDWIDTH FOR 5745MHz



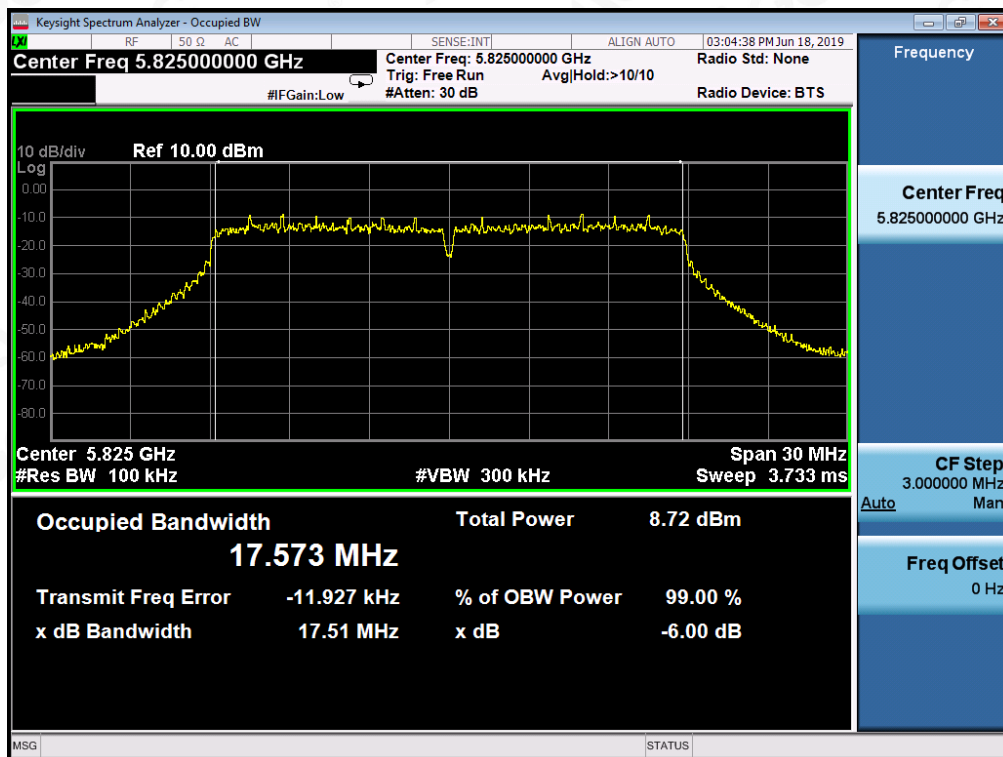
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TEST PLOT OF BANDWIDTH FOR 5785MHz



TEST PLOT OF BANDWIDTH FOR 5825MHz



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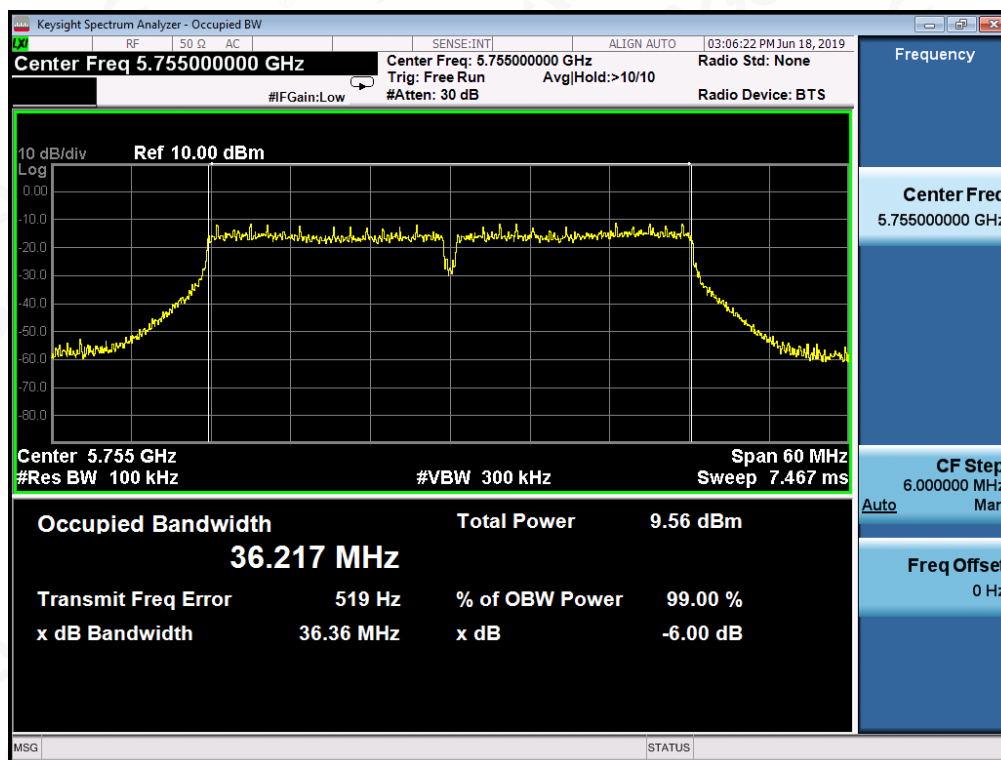
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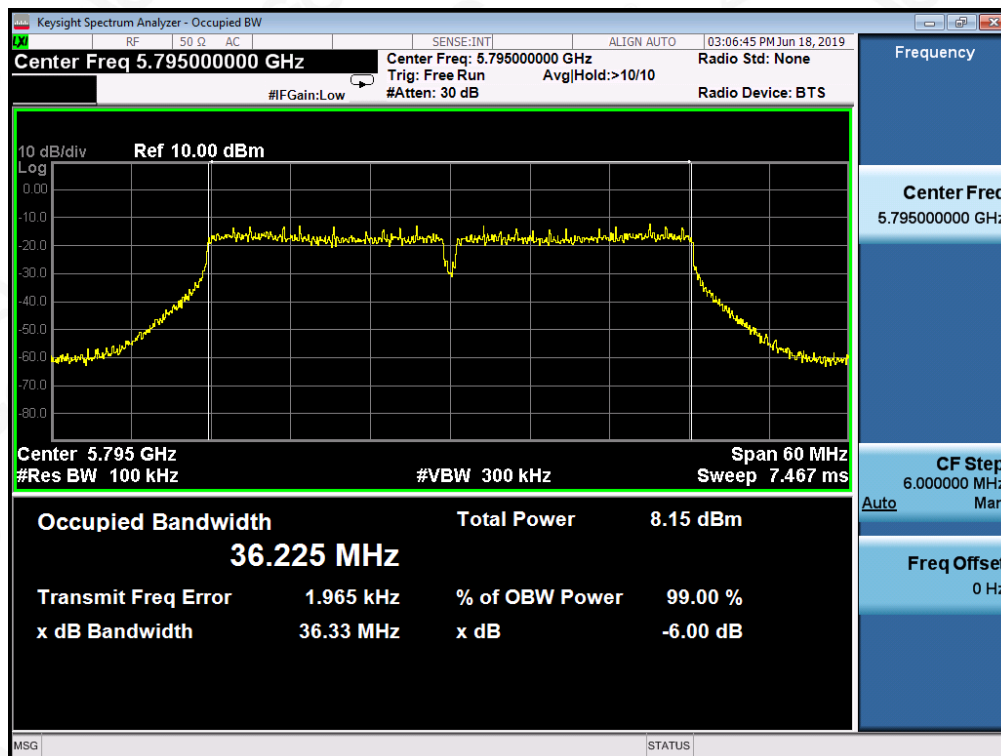
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802.11n40 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5755MHz



TEST PLOT OF BANDWIDTH FOR 5795MHz



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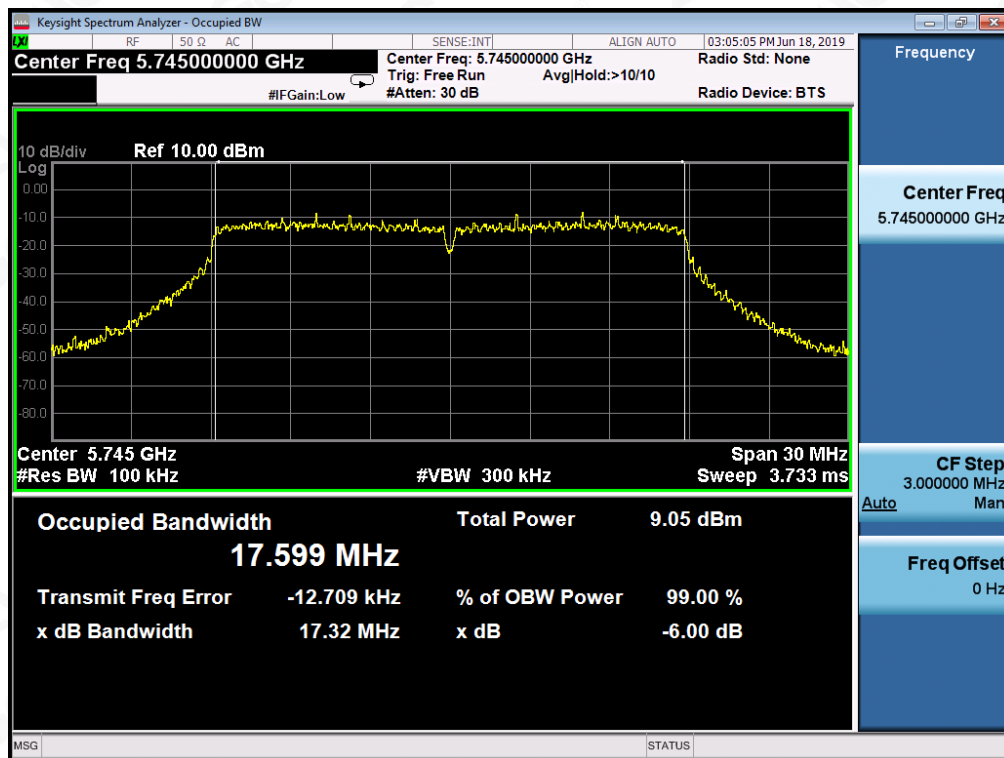
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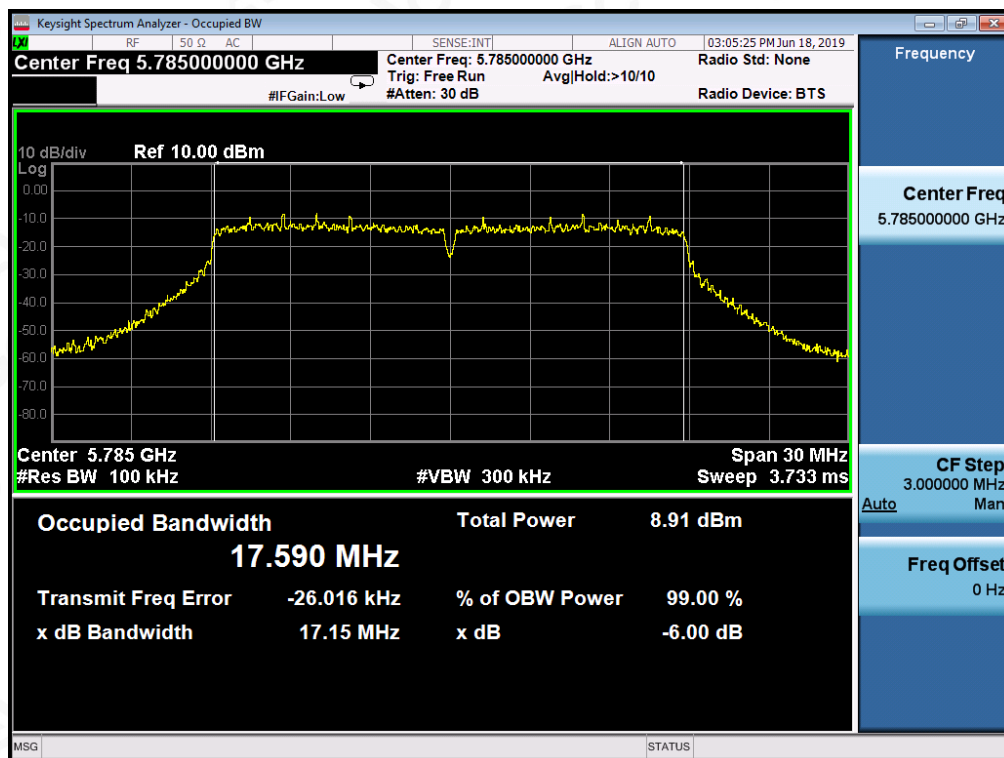
Service Hotline: 400 089 2118

802.11ac20 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5745MHz



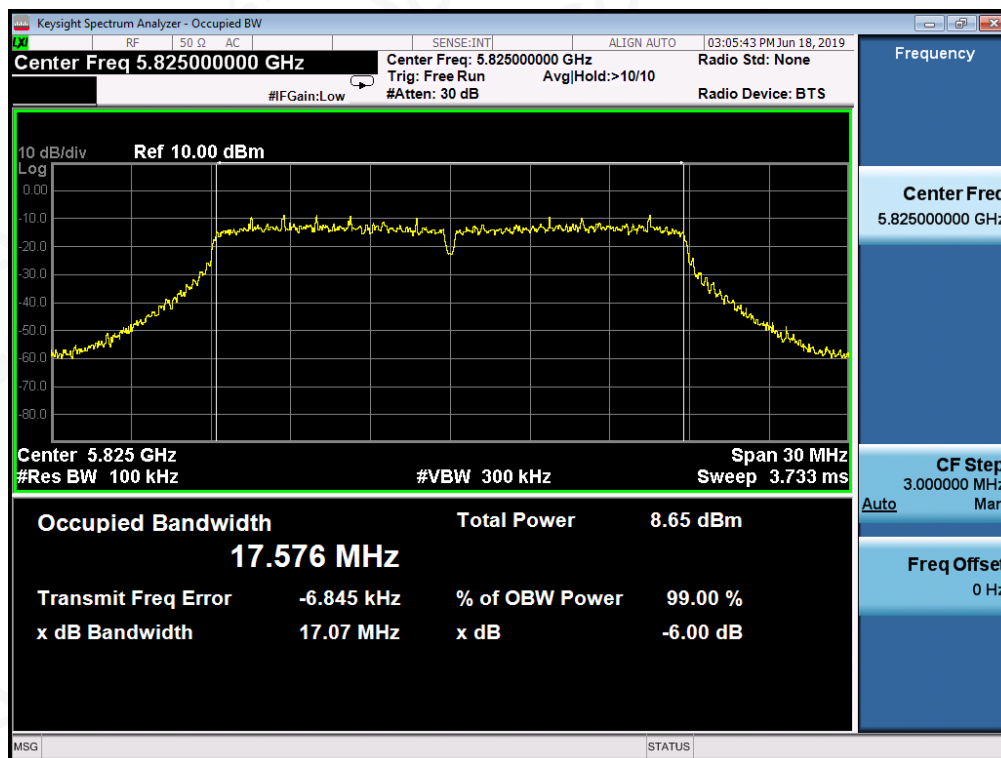
TEST PLOT OF BANDWIDTH FOR 5785MHz



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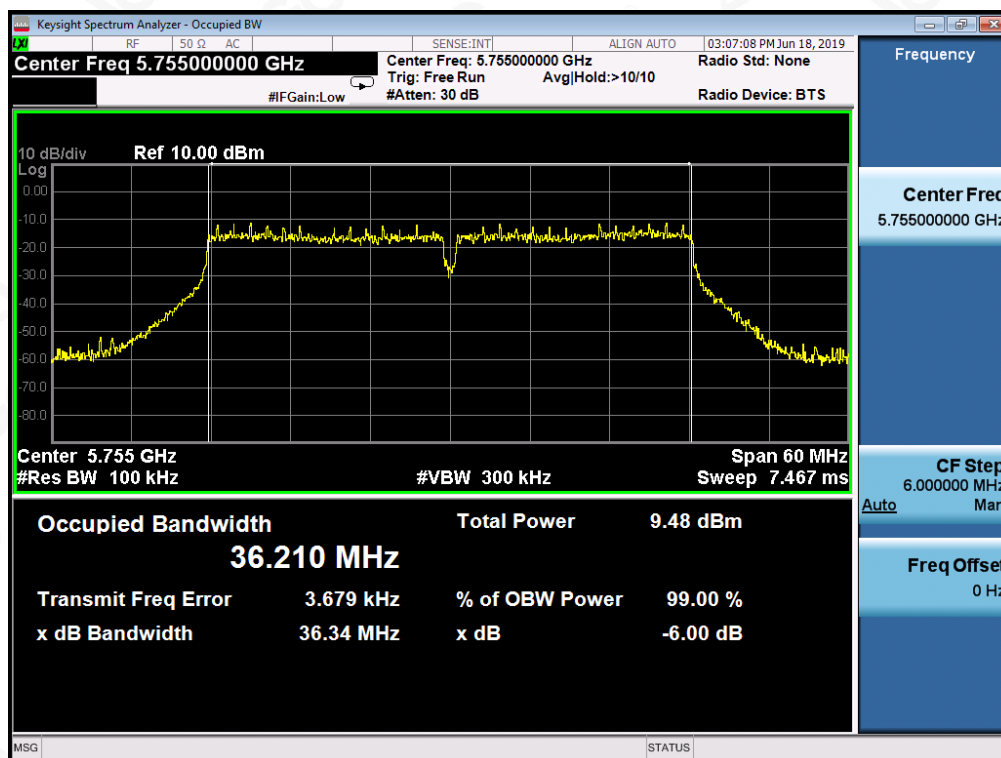
Add: 2/F., Building 2, No.1-4, Chaxi Sanwei Technial Industrial Park, Gushu,
Xixiang, Bao'an District, Shenzhen, Guangdong, China
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TEST PLOT OF BANDWIDTH FOR 5825MHz



802.11ac40 TEST RESULT

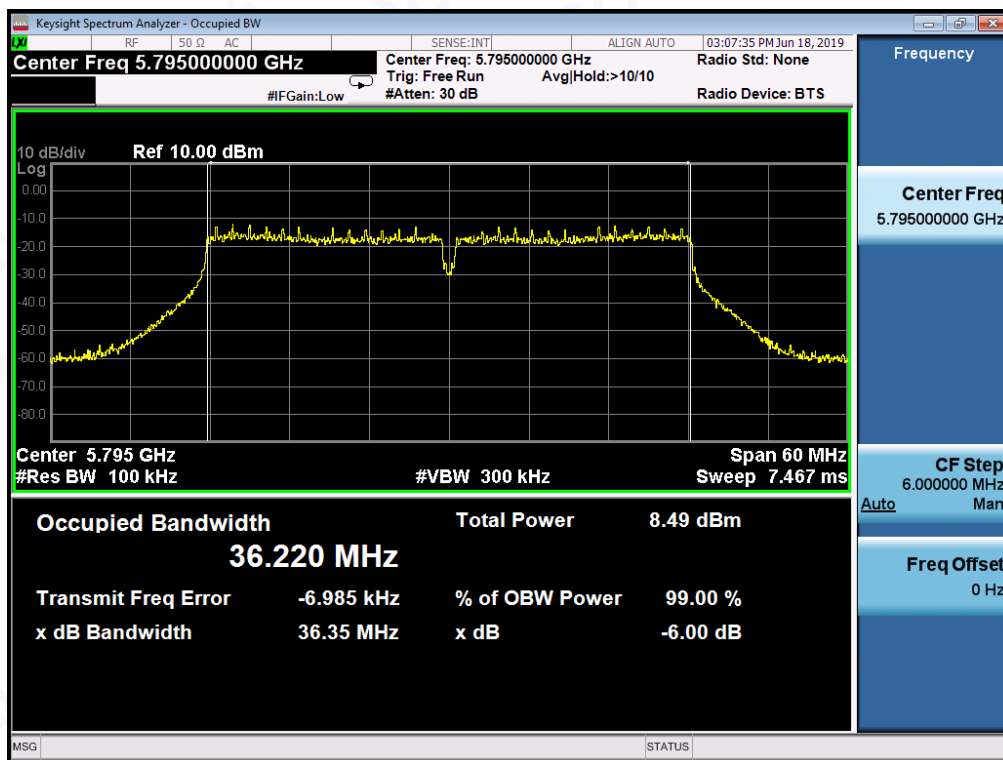
TEST PLOT OF BANDWIDTH FOR 5755MHz



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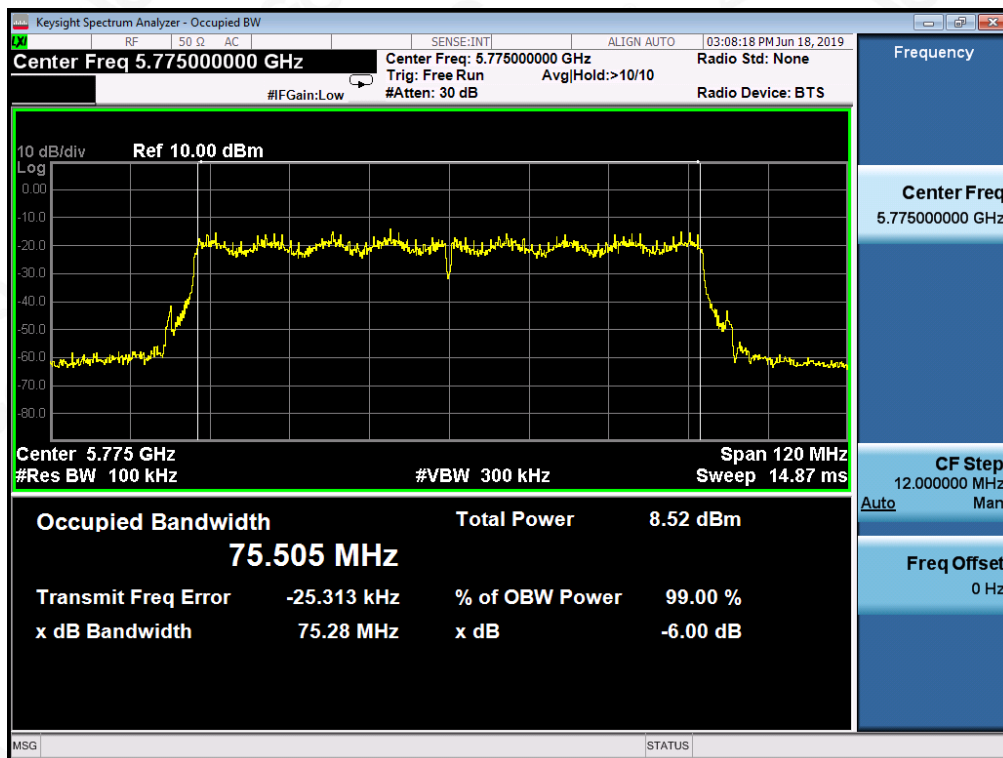
Add: 2/F., Building 2, No.1-4, Chaxi Sanwei Technial Industrial Park, Gushu,
Xixiang, Bao'an District, Shenzhen, Guangdong, China
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TEST PLOT OF BANDWIDTH FOR 5795MHz



802.11ac80 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5775MHz



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Service Hotline: 400 089 2118

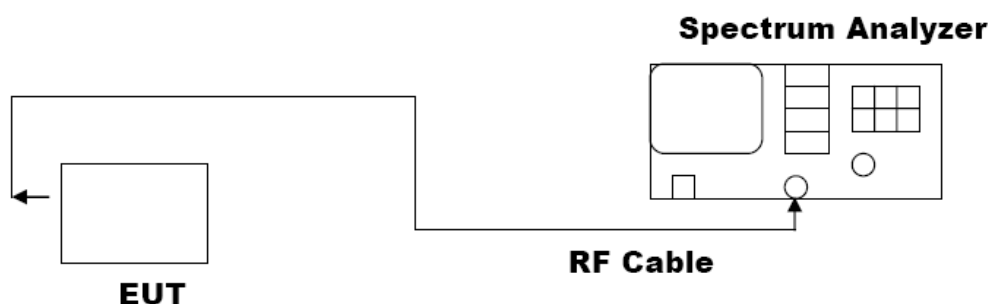
9. EMISSION BANDWIDTH

9.1. MEASUREMENT PROCEDURE

- Set RBW = approximately 1% of the emission bandwidth.
 - Set the VBW > RBW.
 - Detector = Peak.
 - Trace mode = max hold.
 - Measure the maximum width of the emission that is 26 dB down from the maximum of the emission.
- Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

Note: The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



9.3. LIMITS AND MEASUREMENT RESULTS

LIMITS AND MEASUREMENT RESULT FOR 802.11A20 MODULATION			
Applicable Limits	Applicable Limits		
	Test Data (MHz)		Criteria
Within the Band	5180MHz	20.54	PASS
	5200MHz	20.38	PASS
	5240MHz	20.45	PASS

LIMITS AND MEASUREMENT RESULT FOR 802.11N20/40 MODULATION			
Applicable Limits	Applicable Limits		
	Test Data (MHz)		Criteria
Within the Band	5180MHz	20.49	PASS
	5200MHz	20.39	PASS
	5240MHz	20.59	PASS
	5190MHz	43.72	PASS
	5230MHz	43.70	PASS

LIMITS AND MEASUREMENT RESULT FOR 802.11AC80 MODULATION			
Applicable Limits	Applicable Limits		
	Test Data (MHz)		Criteria
Within the Band	5180MHz	20.63	PASS
	5200MHz	20.39	PASS
	5240MHz	20.71	PASS
	5190MHz	42.88	PASS
	5230MHz	42.71	PASS
	5210MHz	83.06	PASS

A 26-dB bandwidth that straddles into U-NII 2A band but its 99% occupied power bandwidth does not. If DFS is required, the device must be able to detect radar signal within its 99% occupied power bandwidth. For this rare case, DFS requirement does not apply.



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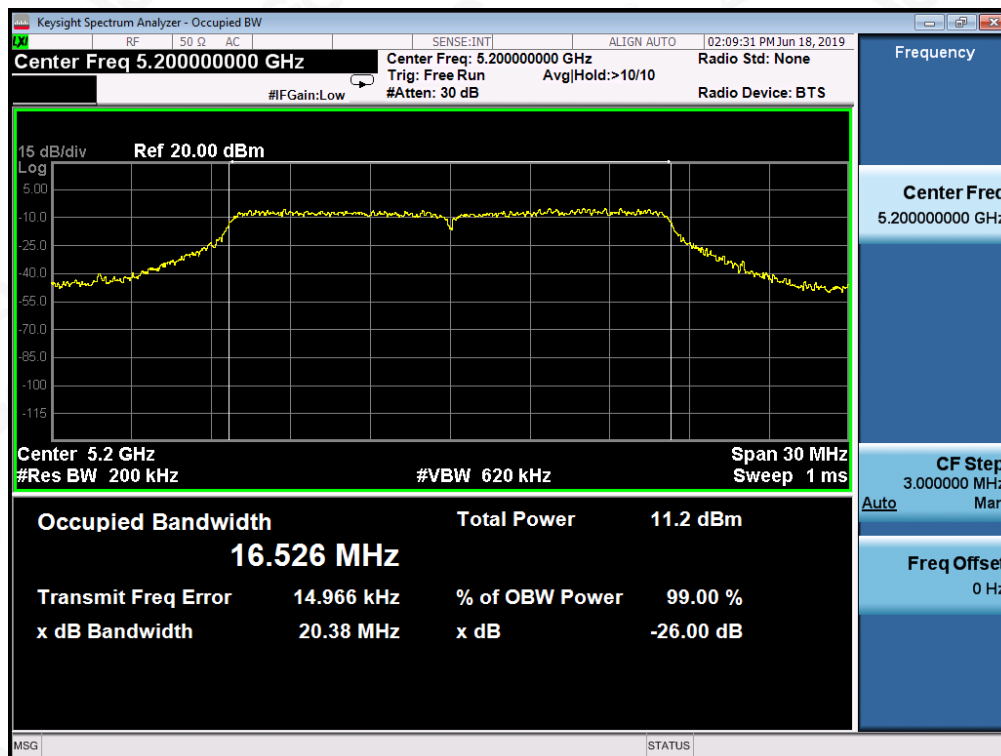
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802.11a20 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5180MHz



TEST PLOT OF BANDWIDTH FOR 5200MHz



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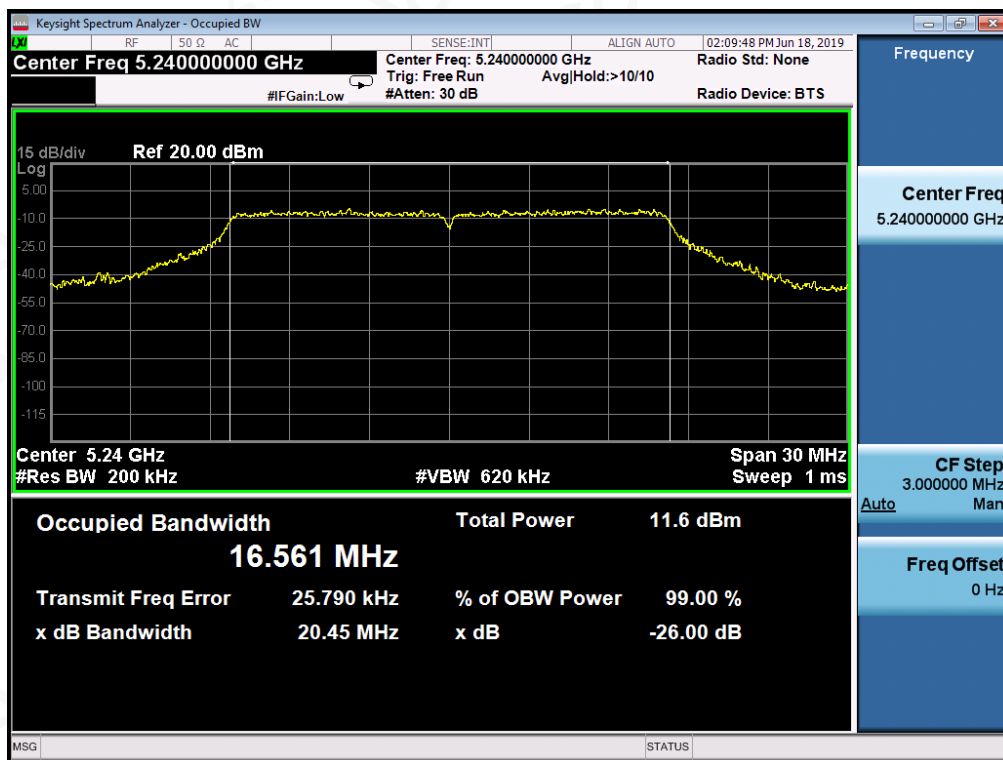
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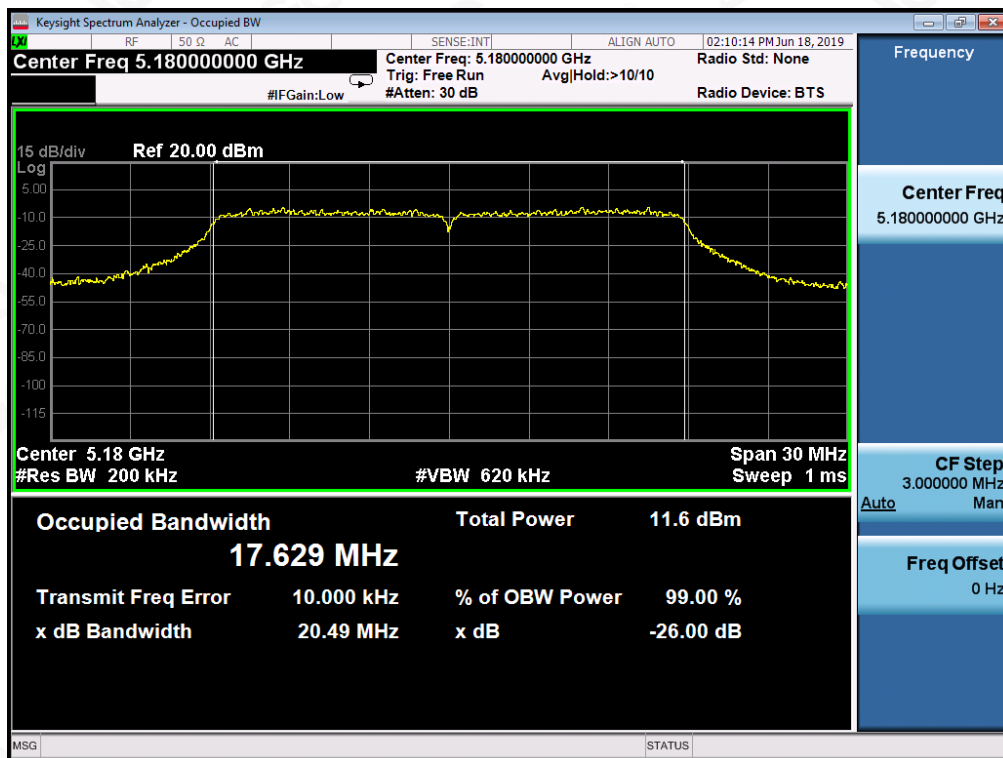
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TEST PLOT OF BANDWIDTH FOR 5240MHz



802.11n20 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5180MHz



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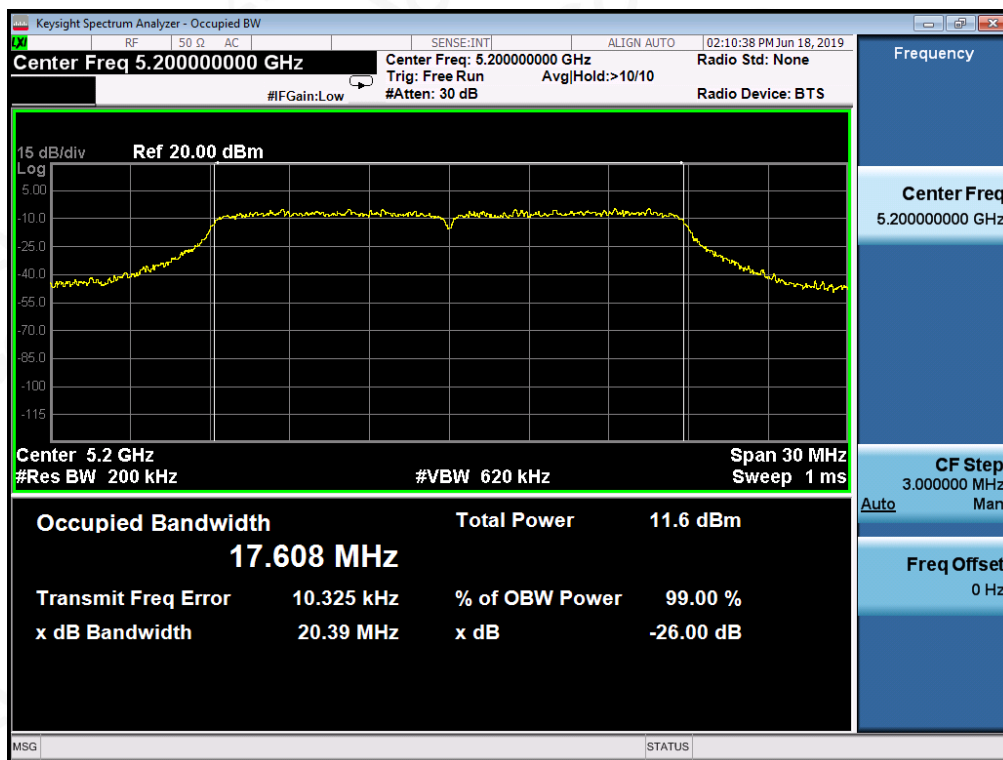
Add: 2/F., Building 2, No.1-4, Chaxi Sanwei Technial Industrial Park, Gushu,
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Tel: +86-755 2523 4088

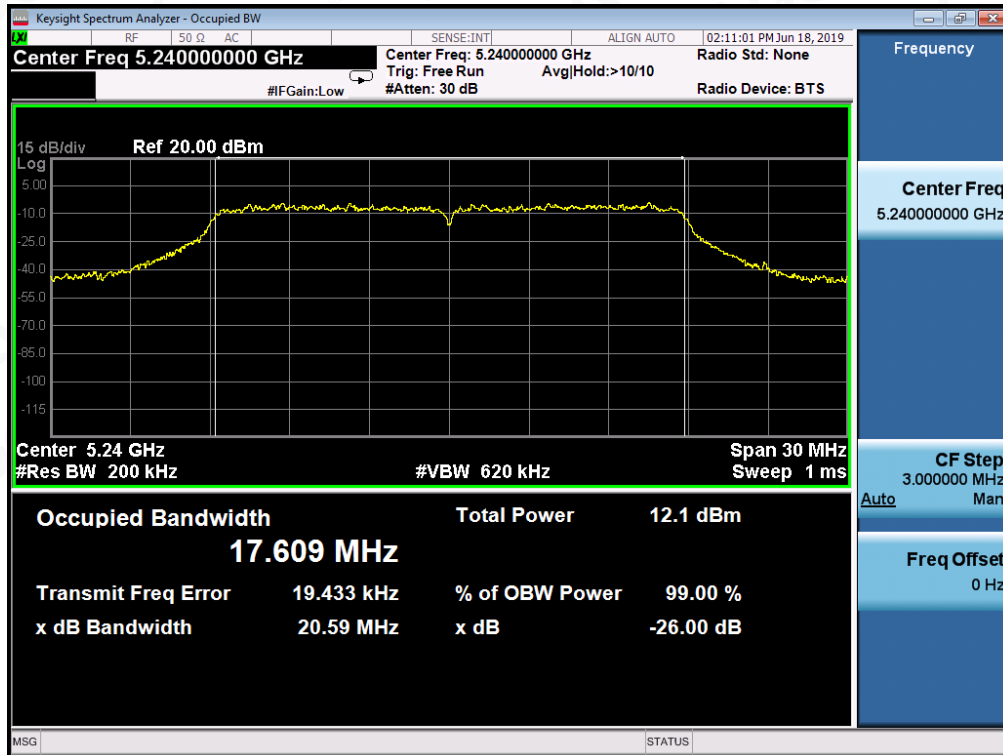
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TEST PLOT OF BANDWIDTH FOR 5200MHz



TEST PLOT OF BANDWIDTH FOR 5240MHz



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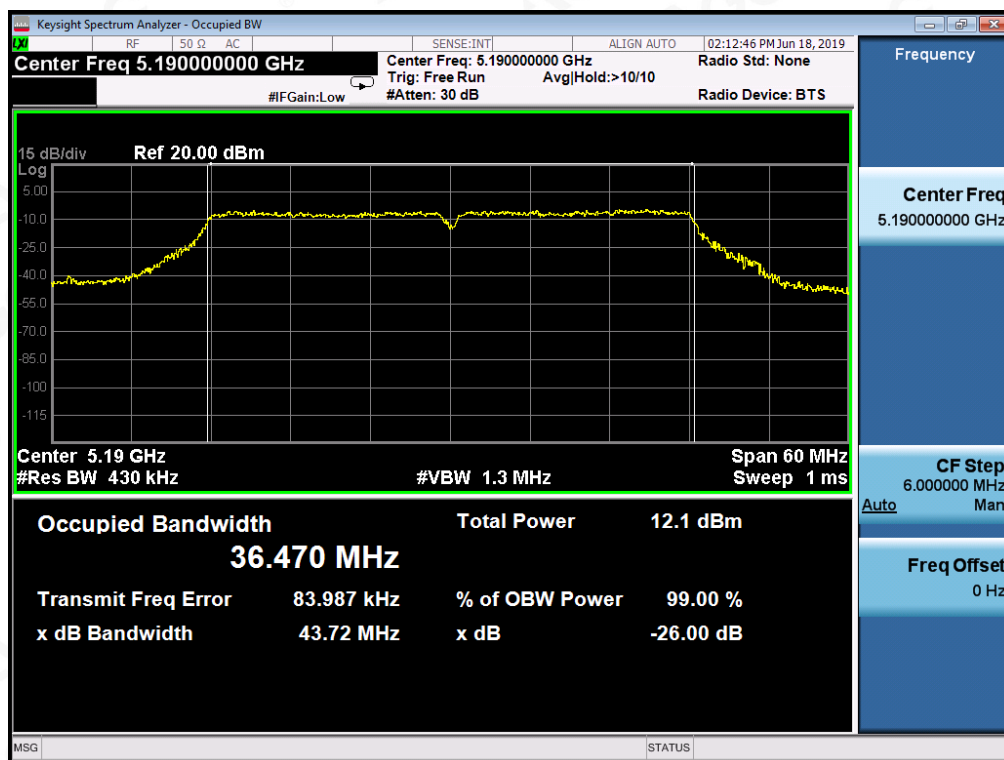
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802.11n40 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5190MHz



TEST PLOT OF BANDWIDTH FOR 5230MHz



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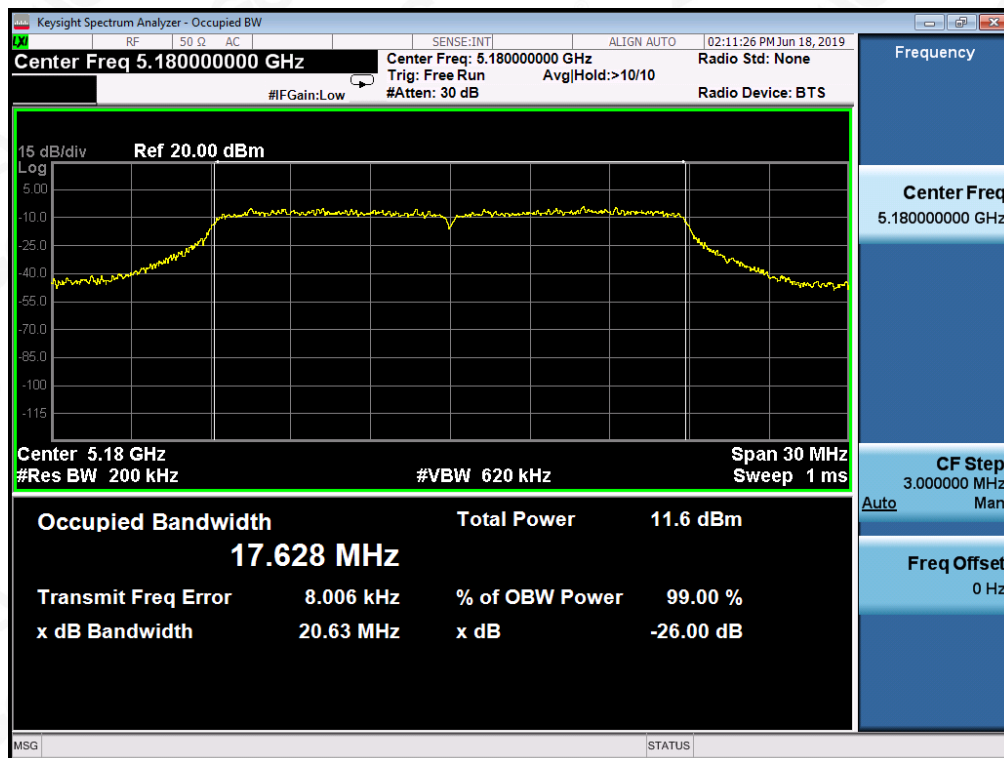
Tel: +86-755 2523 4088

E-mail: agc@agc-cert.com

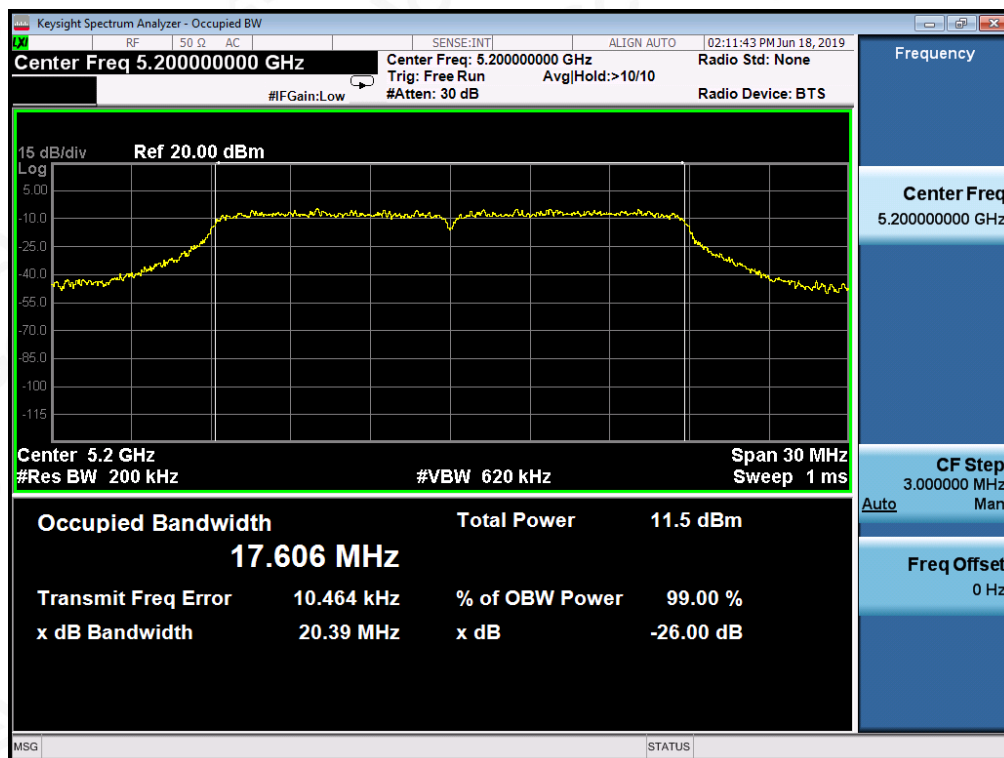
Service Hotline: 400 089 2118

802.11ac20 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5180MHz



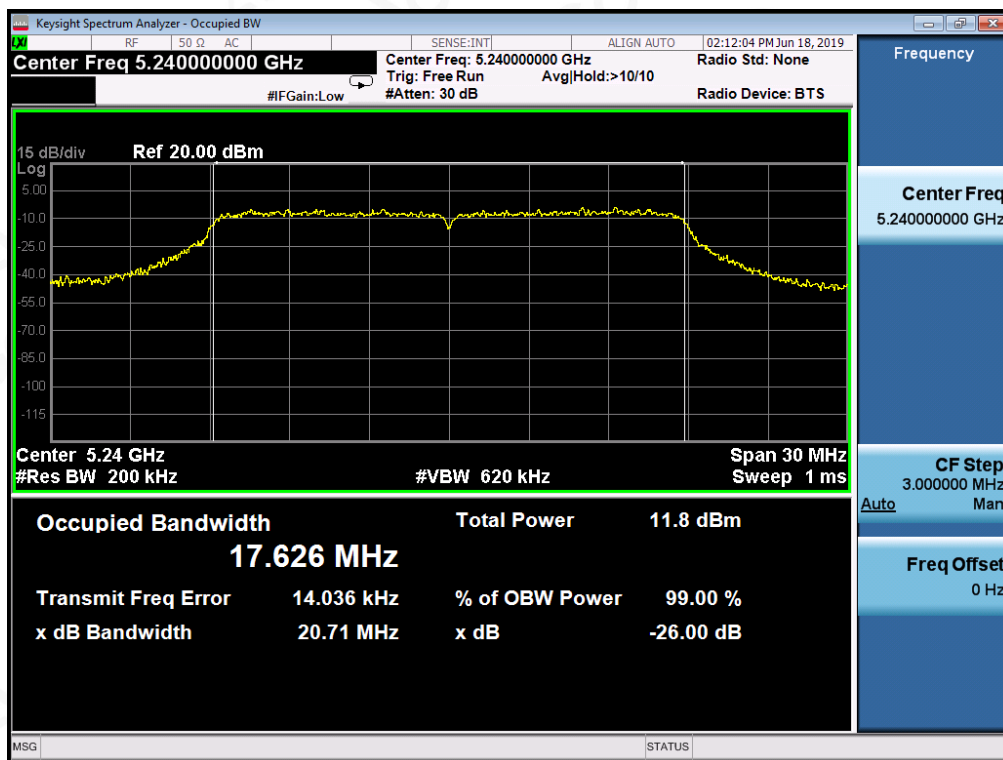
TEST PLOT OF BANDWIDTH FOR 5200MHz



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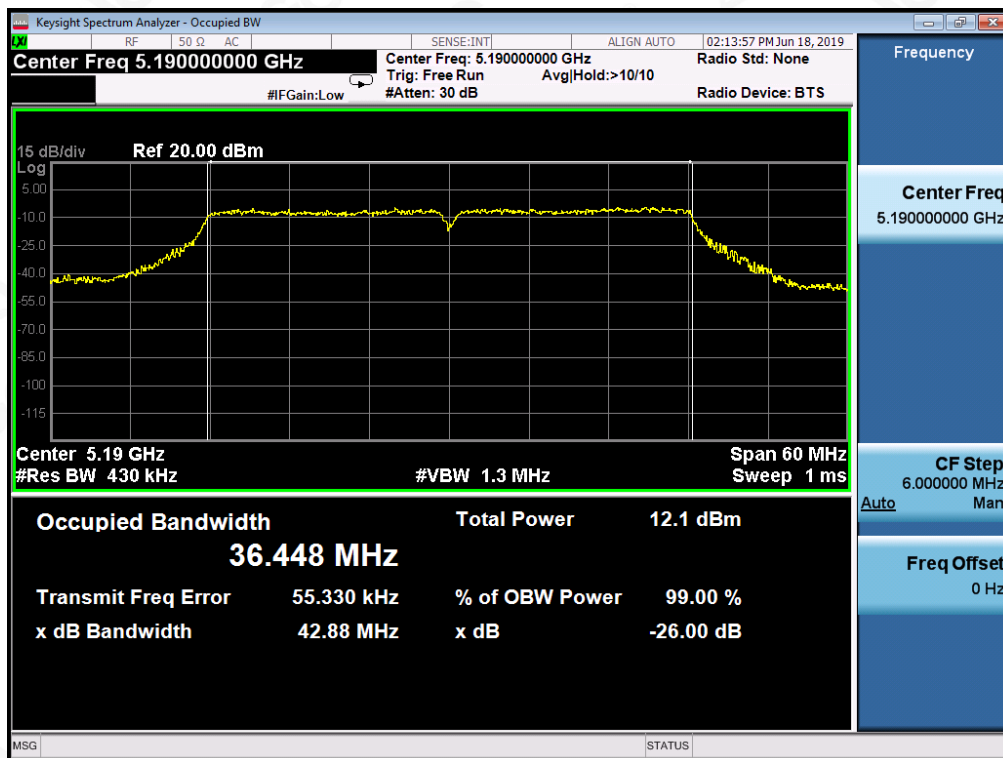
Add: 2/F., Building 2, No.1-4, Chaxi Sanwei Technial Industrial Park, Gushu,
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TEST PLOT OF BANDWIDTH FOR 5240MHz



802.11ac40 TEST RESULT

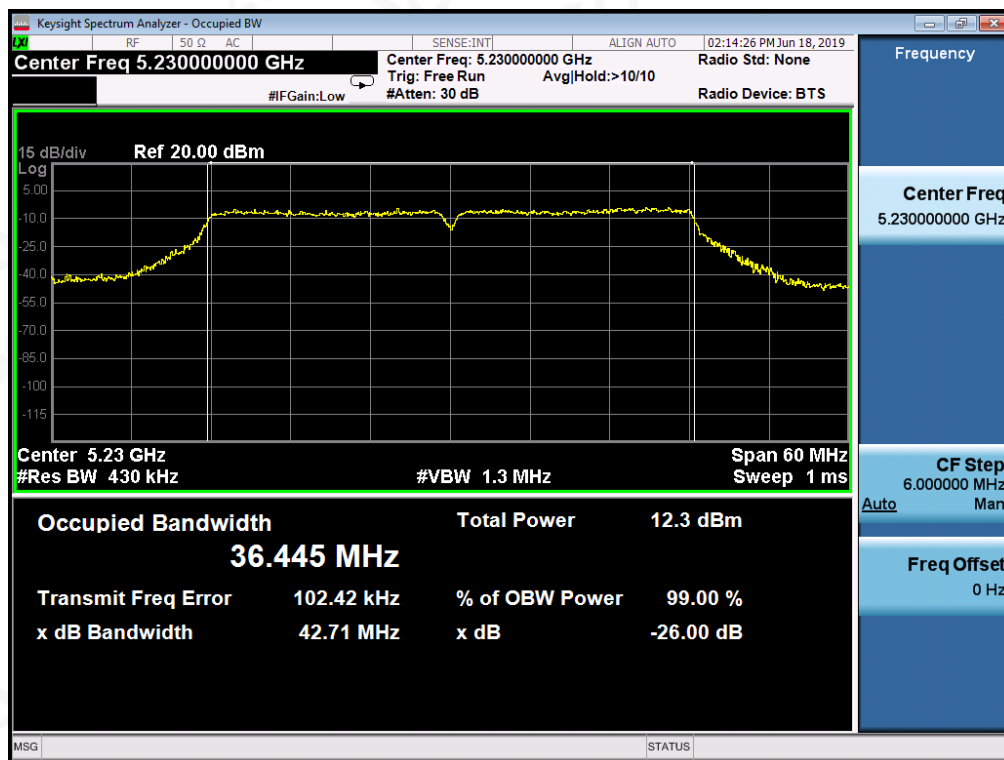
TEST PLOT OF BANDWIDTH FOR 5190MHz



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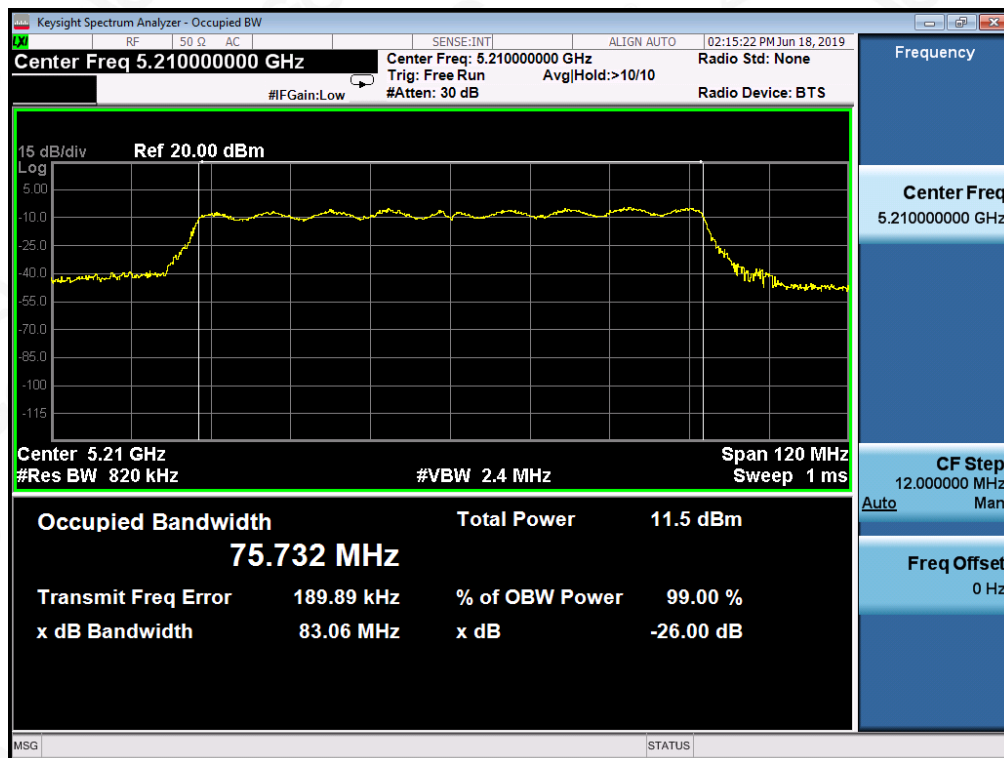
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TEST PLOT OF BANDWIDTH FOR 5230MHz



802.11ac80 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5210MHz



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10. MAXIMUM CONDUCTED OUTPUT PEAK POWER SPECTRAL DENSITY

10.1 MEASUREMENT PROCEDURE

Refer to KDB 789033 section F

10.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

Refer To Section 8.2.

10.3 MEASUREMENT EQUIPMENT USED

Refer To Section 6.

10.4 LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT FOR 802.11A20 MODULATION			
Freq (MHz)	Power density (dBm/MHz)	Applicable Limits (dBm)	Pass or Fail
5180	-0.363	11	Pass
5200	0.230	11	Pass
5240	1.228	11	Pass
Freq (MHz)	Power density (dBm/500kHz)	Applicable Limits (dBm)	Pass or Fail
5745	-2.630	30	Pass
5785	-3.205	30	Pass
5825	-3.317	30	Pass



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LIMITS AND MEASUREMENT RESULT FOR 802.11N20/40 MODULATION					
Freq (MHz)	Power density Chain 0 (dBm/MHz)	Power density Chain 1 (dBm/MHz)	Power density Total (dBm/MHz)	Limits (dBm)	Pass or Fail
5180	-0.733	-0.881	2.20	11	Pass
5200	-0.655	-0.449	2.46	11	Pass
5240	0.680	0.442	3.57	11	Pass
5190	-3.181	-3.303	-0.23	11	Pass
5230	-2.311	-2.474	0.62	11	Pass
Freq (MHz)	Power density Chain 0 (dBm/500kHz)	Power density Chain 1 (dBm/500kHz)	Power density Total (dBm/500kHz)	Limits (dBm)	Pass or Fail
5745	-3.260	-3.250	-0.24	30	Pass
5785	-3.388	-3.400	-0.38	30	Pass
5825	-3.990	-4.126	-1.05	30	Pass
5755	-5.814	-6.069	-2.93	30	Pass
5795	-6.244	-5.598	-2.90	30	Pass



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LIMITS AND MEASUREMENT RESULT FOR 802.11AC20/40/80 MODULATION					
Freq (MHz)	Power density Chain 0 (dBm/MHz)	Power density Chain 1 (dBm/MHz)	Power density Total (dBm/MHz)	Limits (dBm)	Pass or Fail
5180	-1.091	-1.202	1.86	11	Pass
5200	-0.803	-0.907	2.16	11	Pass
5240	0.099	-0.048	3.04	11	Pass
5190	-2.655	-2.675	0.35	11	Pass
5230	-2.093	-2.326	0.80	11	Pass
5210	-4.644	-4.770	-1.70	11	Pass
Freq (MHz)	Power density Chain 0 (dBm/500kHz)	Power density Chain 1 (dBm/500kHz)	Power density Total (dBm/500kHz)	Limits (dBm)	Pass or Fail
5745	-3.308	-3.532	-0.41	30	Pass
5785	-3.464	-3.900	-0.67	30	Pass
5825	-4.335	-4.368	-1.34	30	Pass
5755	-5.500	-5.669	-2.57	30	Pass
5795	-5.794	-5.785	-2.78	30	Pass
5775	-8.036	-7.824	-4.92	30	Pass



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