

FCC Test Report

Report No.: AGC00742200401FE06

FCC ID : 2AKC6XHT-6B29
APPLICATION PURPOSE : Original Equipment
PRODUCT DESIGNATION : WIRELESS USB ADAPTER
BRAND NAME : N/A
MODEL NAME : 6B29, 6B30
APPLICANT : SHEN ZHEN XIN HUA TIAN TECHNOLOGY CO., LTD.
DATE OF ISSUE : Apr. 27, 2020
STANDARD(S) : FCC Part 15.407
TEST PROCEDURE(S) : KDB 789033 D02 v02r01
REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Apr. 27, 2020	Valid	Initial Release



TABLE OF CONTENTS

1. VERIFICATION OF CONFORMITY	5
2. GENERAL INFORMATION.....	6
2.1. PRODUCT DESCRIPTION	6
2.2. TABLE OF CARRIER FREQUENCIES	6
2.3. RELATED SUBMITTAL(S) / GRANT (S)	7
2.4. TEST METHODOLOGY	7
2.5. SPECIAL ACCESSORIES	7
2.6. EQUIPMENT MODIFICATIONS	7
3. MEASUREMENT UNCERTAINTY	8
4. DESCRIPTION OF TEST MODES.....	9
5. SYSTEM TEST CONFIGURATION	10
5.1. CONFIGURATION OF EUT SYSTEM	10
5.2. EQUIPMENT USED IN EUT SYSTEM.....	10
5.3. SUMMARY OF TEST RESULTS.....	10
6. TEST FACILITY	11
7. MAXIMUM CONDUCTED OUTPUT POWER.....	12
7.1. MEASUREMENT PROCEDURE	12
7.2. TEST SET-UP.....	12
7.3. LIMITS AND MEASUREMENT RESULT	13
8. EMISSION BANDWIDTH.....	15
8.1. MEASUREMENT PROCEDURE.....	15
8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION).....	15
8.3. LIMITS AND MEASUREMENT RESULTS	16
9. MAXIMUM CONDUCTED OUTPUT PEAK POWER SPECTRAL DENSITY	24
9.1 MEASUREMENT PROCEDURE	24
9.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION).....	24
9.3 MEASUREMENT EQUIPMENT USED	24
9.4 LIMITS AND MEASUREMENT RESULT	24
10. CONDUCTED SPURIOUS EMISSION	40
10.1. MEASUREMENT PROCEDURE	40

10.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION).....	40
10.3. MEASUREMENT EQUIPMENT USED	40
10.4. LIMITS AND MEASUREMENT RESULT	40
11. RADIATED EMISSION.....	52
11.1. MEASUREMENT PROCEDURE	52
11.2. TEST SETUP	53
11.3. LIMITS AND MEASUREMENT RESULT	54
11.4. TEST RESULT	54
12. BAND EDGE EMISSION	59
12.1. MEASUREMENT PROCEDURE	59
12.2. TEST SET-UP.....	59
12.3. TEST RESULT	60
13. FREQUENCY STABILITY.....	66
13.1. MEASUREMENT PROCEDURE	66
13.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION).....	66
13.3. MEASUREMENT RESULTS.....	67
14. FCC LINE CONDUCTED EMISSION TEST	70
14.1. LIMITS OF LINE CONDUCTED EMISSION TEST	70
14.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST	70
14.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST	71
14.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST	71
14.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST	72
APPENDIX A: PHOTOGRAPHS OF TEST SETUP	74
APPENDIX B: PHOTOGRAPHS OF EUT	76

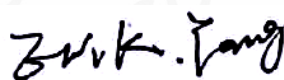
1. VERIFICATION OF CONFORMITY

Applicant	SHEN ZHEN XIN HUA TIAN TECHNOLOGY CO., LTD.
Address	3Foor, B Buliding, DaHong Industrial Park, GuangMin District, Shenzhen City, China
Manufacturer	SHEN ZHEN XIN HUA TIAN TECHNOLOGY CO., LTD.
Address	3Foor, B Buliding, DaHong Industrial Park, GuangMin District, Shenzhen City, China
Factory 1	SHEN ZHEN XIN HUA TIAN TECHNOLOGY CO., LTD.
Address	3Foor, B Buliding, DaHong Industrial Park, GuangMin District, Shenzhen City, China
Product Designation	WIRELESS USB ADAPTER
Brand Name	N/A
Test Model	6B29
Series Model	6B30
Difference description	All the same except for the model name and appearance
Date of test	Apr. 15, 2020 to Apr. 27, 2020
Deviation	No any deviation from the test method
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.

Prepared By



Erik Yang
(Project Engineer)

Apr. 27, 2020

Reviewed By



Max Zhang
(Reviewer)

Apr. 27, 2020

Approved By



Forrest Lei
(Authorized Officer)

Apr. 27, 2020

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

The EUT is designed as "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

Operation Frequency	5150 MHz~5250MHz
Output Power	IEEE 802.11a20:7.64dBm IEEE 802.11n(20):7.94dBm; IEEE802.11n(40):7.85dBm IEEE802.11ac(20):7.89dBm IEEE802.11ac(40):7.61dBm IEEE802.11ac(80):7.30dBm
Modulation	BPSK, QPSK, 16QAM, 64QAM, 128QAM, 256QAM,OFDM
Number of channels	7
Hardware Version	V2.0
Software Version	V2.0
Antenna Designation	Two Dedicated Antennas (Use of reverse SMA connector)
Number of transmit chain	2(802.11n20/n40/a/ac all used two antennas,but 802.11a support SISO and 802.11n20/n40/ac support MIMO)
Directional gain	All transmit signals are completely uncorrelated with each other
Antenna Gain	5dBi
Power Supply	DC 5V by PC

2.2. TABLE OF CARRIER FREQUENCIES

Frequency Band	Channel Number	Frequency
5150 GHz~5250GHz	36	5180 MHz
	38	5190 MHz
	40	5200 MHz
	42	5210 MHz
	44	5220 MHz
	46	5230 MHz
	48	5240 MHz

Note: For 20MHZ bandwidth system use Channel 36,40,44,48; For 40MHZ bandwidth system use Channel 38,46; For 80MHZ bandwidth system use Channel 42

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

This submittal(s) (test report) is intended for **FCC ID: 2AKC6XHT-6B29** 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.



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, $U_c = \pm 3.1$ dB
- Uncertainty of Radiated Emission below 1GHz, $U_c = \pm 4.0$ dB
- Uncertainty of Radiated Emission above 1GHz, $U_c = \pm 5.4$ dB



4. DESCRIPTION OF TEST MODES

Mode	Available channel	Tested channel	Modulation	Date rate(Mbps)
802.11a/n20/ac20	36,40,44,48	36,38,48	OFDM	6/6.5
802.11n40/ac40	38,46	38,46	OFDM	13.5
802.11ac80	42	42	OFDM	13.5

Note:

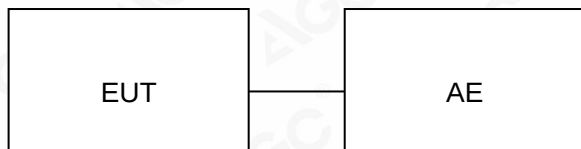
1. The EUT has been set to operate continuously on tested channel individually, and the EUT is operating at its maximum duty cycle>or equal 98%
2. All modes under which configure applicable have been tested and the worst mode test data recording in the test report, if no other mode data.
3. The test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



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	WIRELESS USB ADAPTER	6B29	2AKC6XHT-6B29	EUT
2	PC	Xiaomi	Air 13.3	AE
3	PC adapter	Xiaomi	DC 5V2A/9V2A/12V2A/15V3A/20V 3.25A 65W max	AE

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§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

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, 2019	Jun. 11, 2020
LISN	R&S	ESH2-Z5	100086	Aug. 26, 2019	Aug. 25, 2020
Test software	R&S	ES-K1(Ver.V1.71)	N/A	N/A	N/A

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Jun. 12, 2019	Jun. 11, 2020
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec. 12, 2019	Dec. 11, 2020
Power sensor	Aglient	U2021XA	MY54110007	Sep. 09, 2019	Sep. 08, 2021
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Sep. 09, 2019	Sep. 08, 2021
preamplifier	ChengYi	EMC184045SE	980508	Sep. 21, 2017	Sep. 20, 2020
Active loop antenna (9K-30MHz)	A.H.	SAS-562B	XGIMI	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. 15, 2019	Oct. 16, 2020
ANTENNA	SCHWARZBECK	VULB9168	D69250	Jan. 09, 2019	Jan. 08, 2021
Test software	Tonscend	JS32-RE (Ver.2.5)	N/A	N/A	N/A

7. MAXIMUM CONDUCTED OUTPUT POWER

7.1. MEASUREMENT PROCEDURE

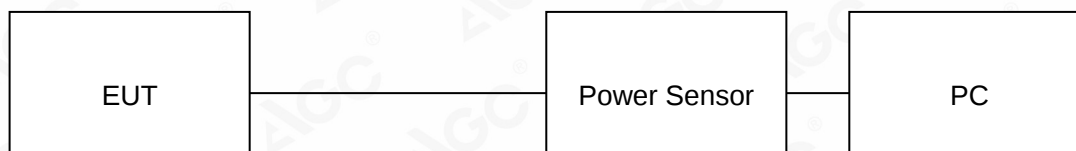
For average power test:

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



7.3. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT FOR 802.11A20 MODULATION					
Frequency (MHz)	Average Power Chain 1(dBm)	Average Power Chain 2(dBm)	Average Power Total(dBm)	Applicable Limits (dBm)	Pass or Fail
5180	7.64	7.58	N/A	30	Pass
5200	7.51	7.42	N/A	30	Pass
5240	7.37	7.25	N/A	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11N20 MODULATION					
Frequency (MHz)	Average Power Chain 1(dBm)	Average Power Chain 2(dBm)	Average Power Total(dBm)	Applicable Limits (dBm)	Pass or Fail
5180	4.25	4.14	7.21	30	Pass
5200	4.49	4.27	7.39	30	Pass
5240	4.98	4.87	7.94	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11AC20 MODULATION					
Frequency (MHz)	Average Power Chain 1(dBm)	Average Power Chain 2(dBm)	Average Power Total(dBm)	Applicable Limits (dBm)	Pass or Fail
5180	4.65	4.47	7.57	30	Pass
5200	4.71	4.59	7.66	30	Pass
5240	4.95	4.81	7.89	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11N40 MODULATION					
Frequency (MHz)	Average Power Chain 1(dBm)	Average Power Chain 2(dBm)	Average Power Total(dBm)	Applicable Limits (dBm)	Pass or Fail
5190	4.87	4.81	7.85	30	Pass
5230	4.91	4.69	7.81	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11AC40 MODULATION					
Frequency (MHz)	Average Power Chain 1(dBm)	Average Power Chain 2(dBm)	Average Power Total(dBm)	Applicable Limits (dBm)	Pass or Fail
5190	3.96	3.86	6.92	30	Pass
5230	4.67	4.53	7.61	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11AC80 MODULATION					
Frequency (MHz)	Average Power Chain 1(dBm)	Average Power Chain 2(dBm)	Average Power Total(dBm)	Applicable Limits (dBm)	Pass or Fail
5210	4.32	4.25	7.30	30	Pass



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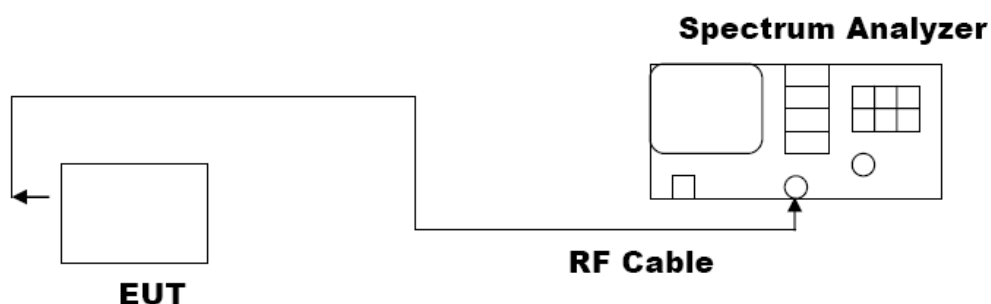
8. EMISSION BANDWIDTH

8.1. 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.

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



8.3. LIMITS AND MEASUREMENT RESULTS

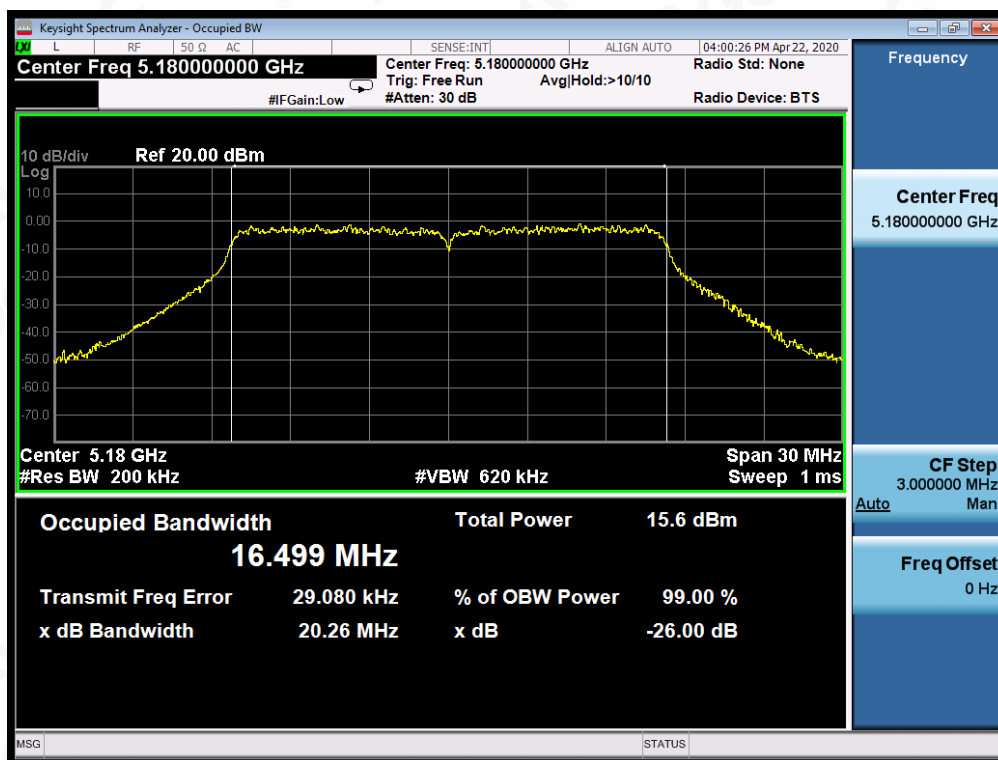
LIMITS AND MEASUREMENT RESULT FOR 802.11A20 MODULATION			
Applicable Limits	Applicable Limits		
	Test Data (MHz)		Criteria
Within the Band	5180MHz	20.26	PASS
	5200MHz	20.14	PASS
	5240MHz	19.97	PASS

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	20.56	PASS
	5240MHz	20.42	PASS
	5190MHz	42.49	PASS
	5230MHz	41.78	PASS

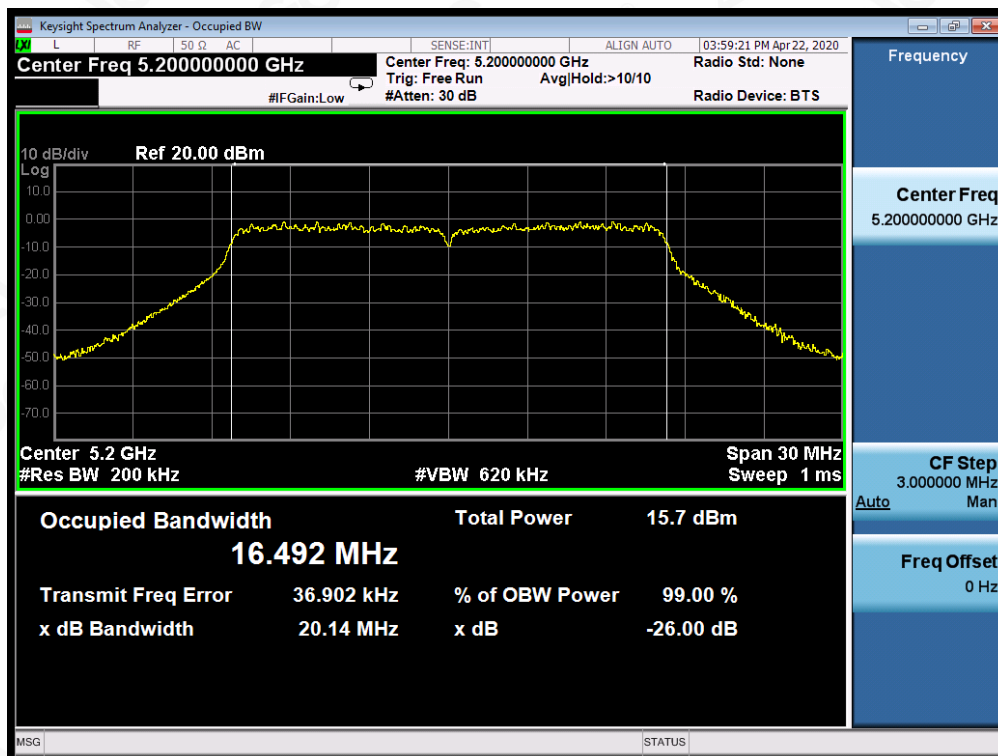
LIMITS AND MEASUREMENT RESULT FOR 802.11AC80 MODULATION			
Applicable Limits	Applicable Limits		
	Test Data (MHz)		Criteria
Within the Band	5180MHz	20.57	PASS
	5200MHz	20.31	PASS
	5240MHz	19.54	PASS
	5190MHz	41.45	PASS
	5230MHz	41.55	PASS
	5210MHz	81.05	PASS

802.11a20 TEST RESULT

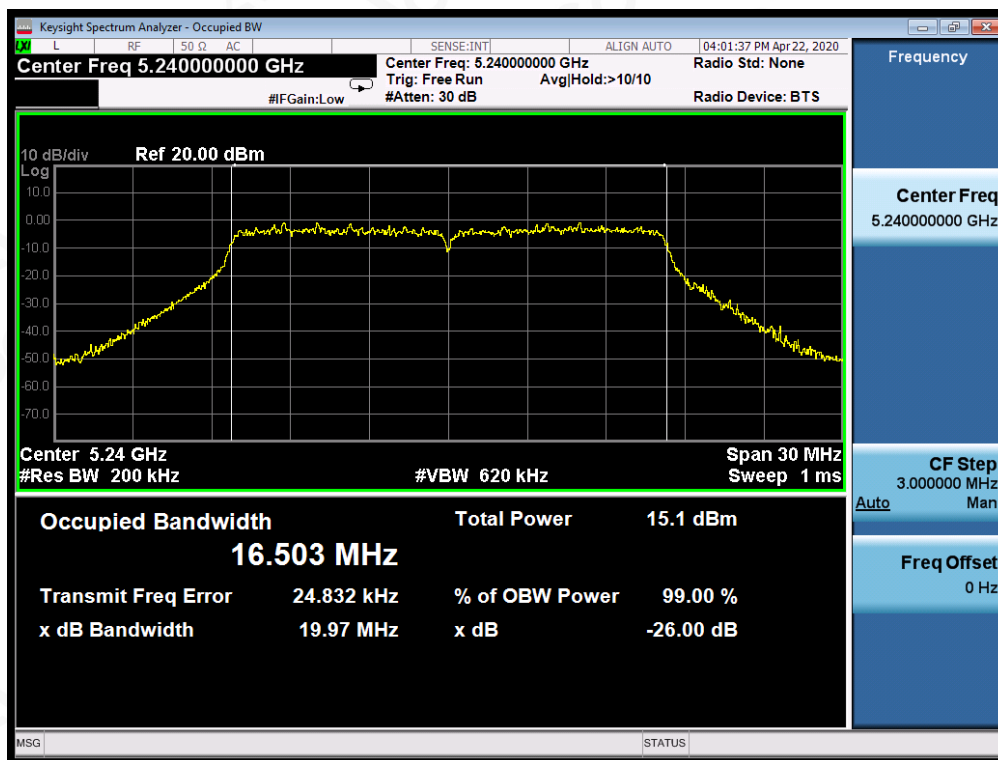
TEST PLOT OF BANDWIDTH FOR 5180MHz



TEST PLOT OF BANDWIDTH FOR 5200MHz

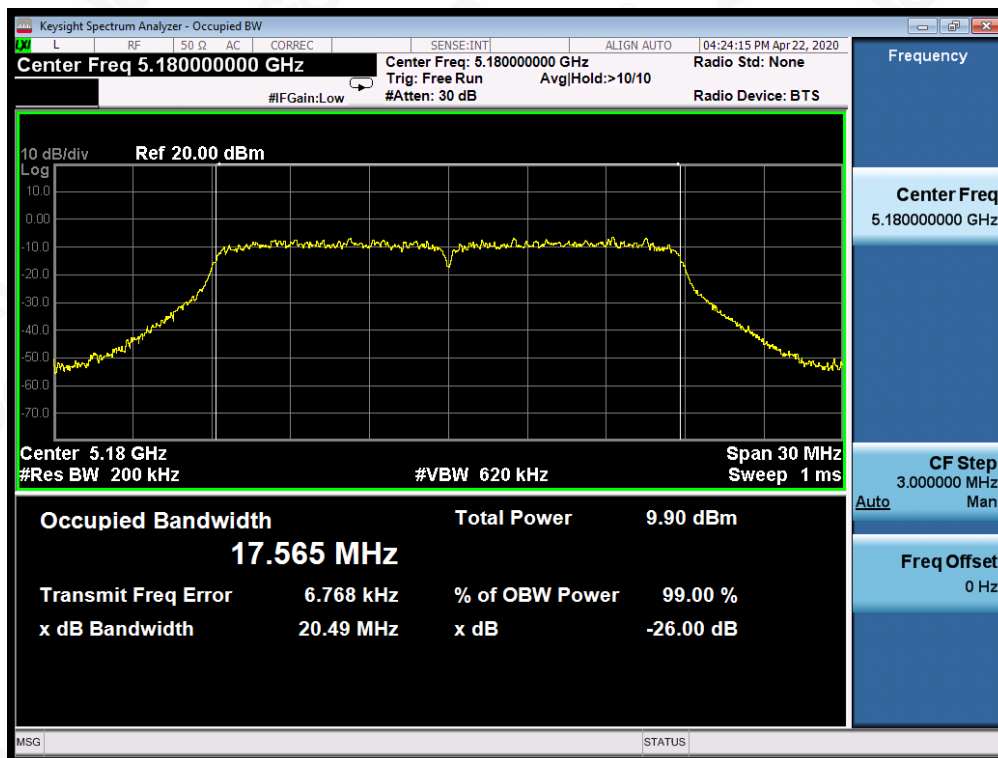


TEST PLOT OF BANDWIDTH FOR 5240MHz



802.11n20 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5180MHz



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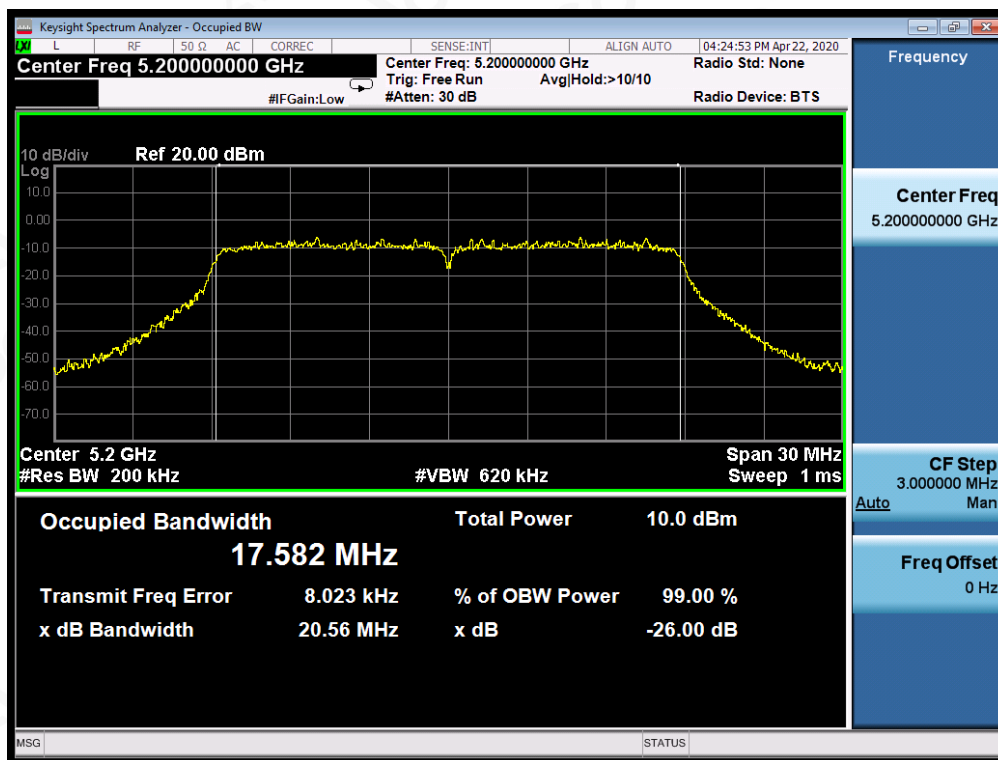
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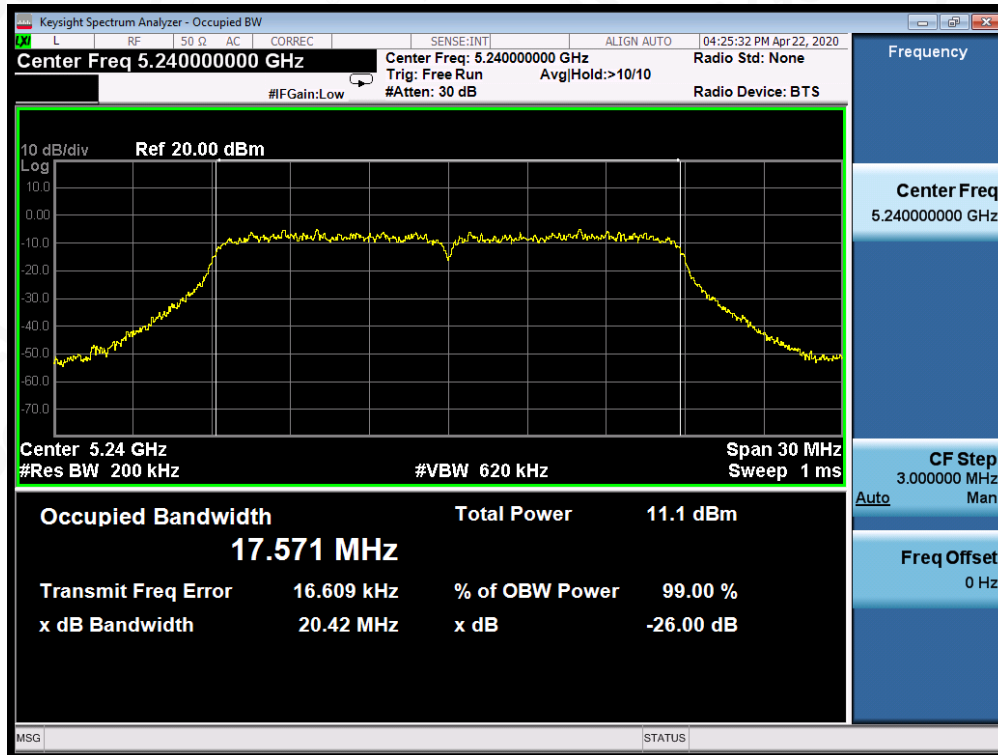
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TEST PLOT OF BANDWIDTH FOR 5200MHZ

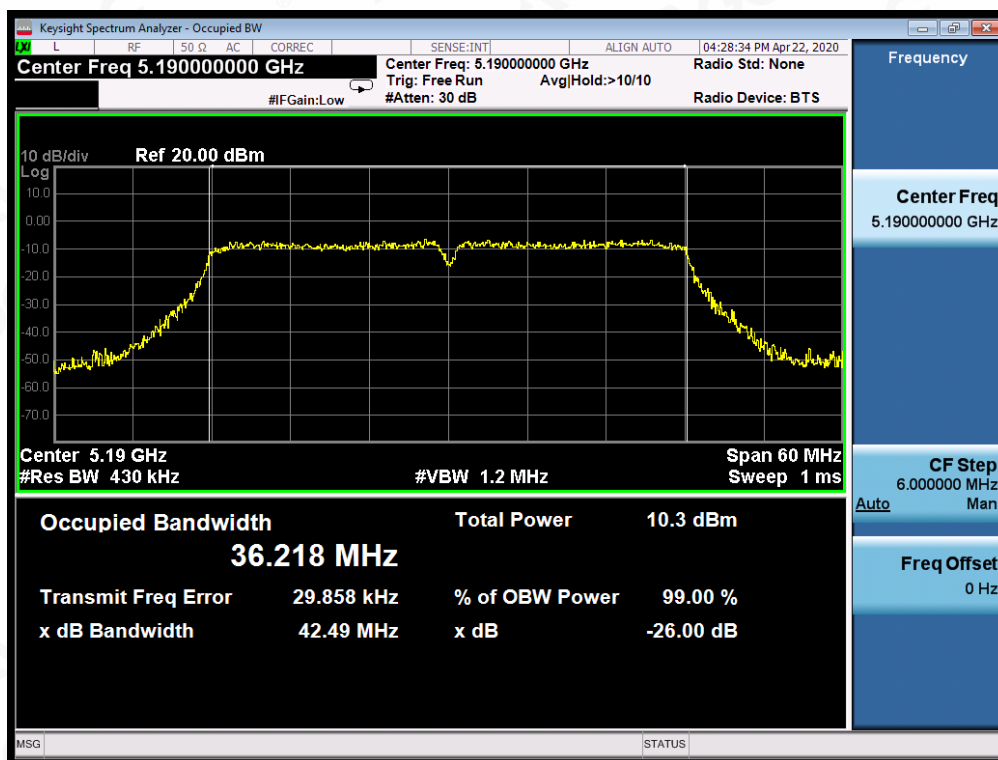


TEST PLOT OF BANDWIDTH FOR 5240MHZ

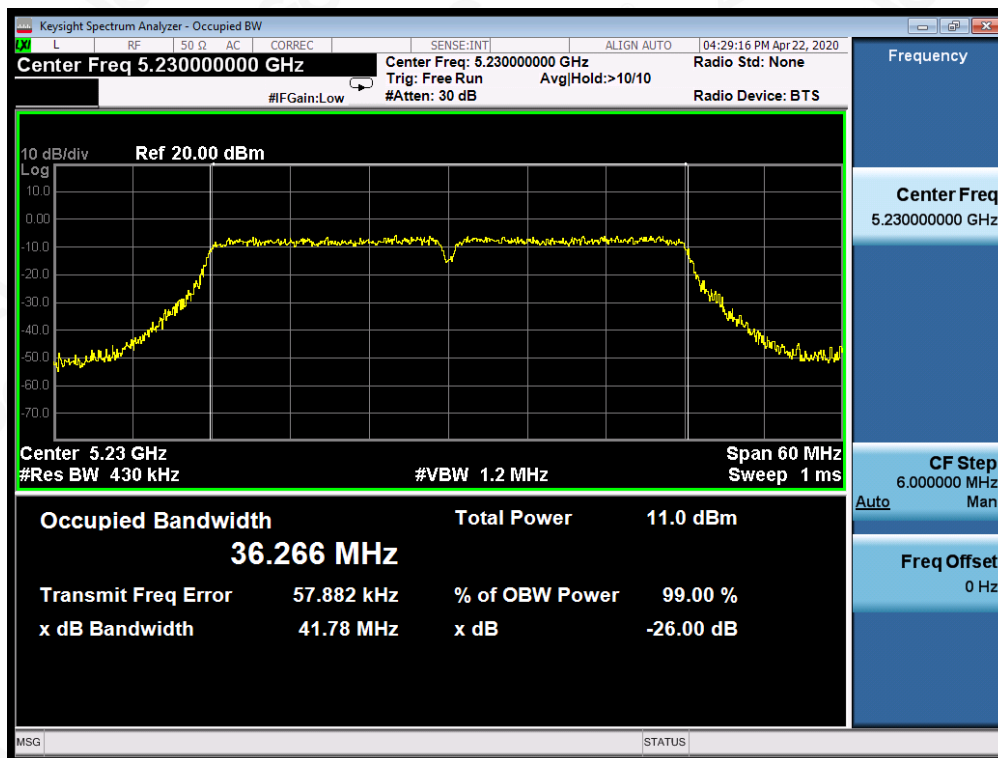


802.11n40 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5190MHz

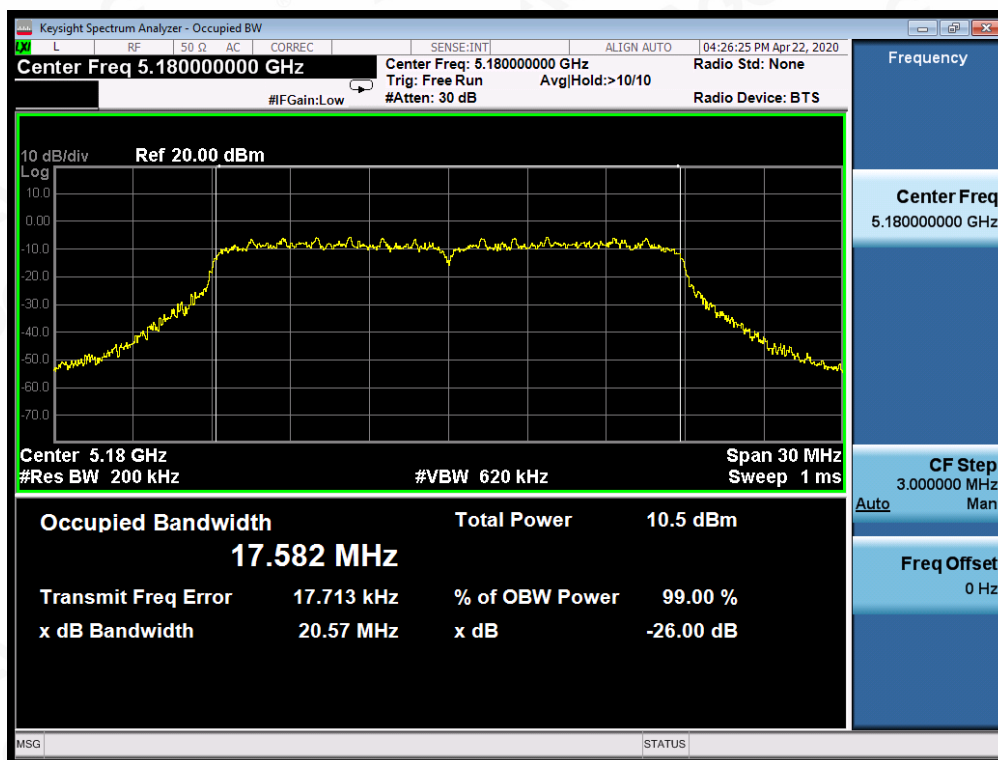


TEST PLOT OF BANDWIDTH FOR 5230MHz

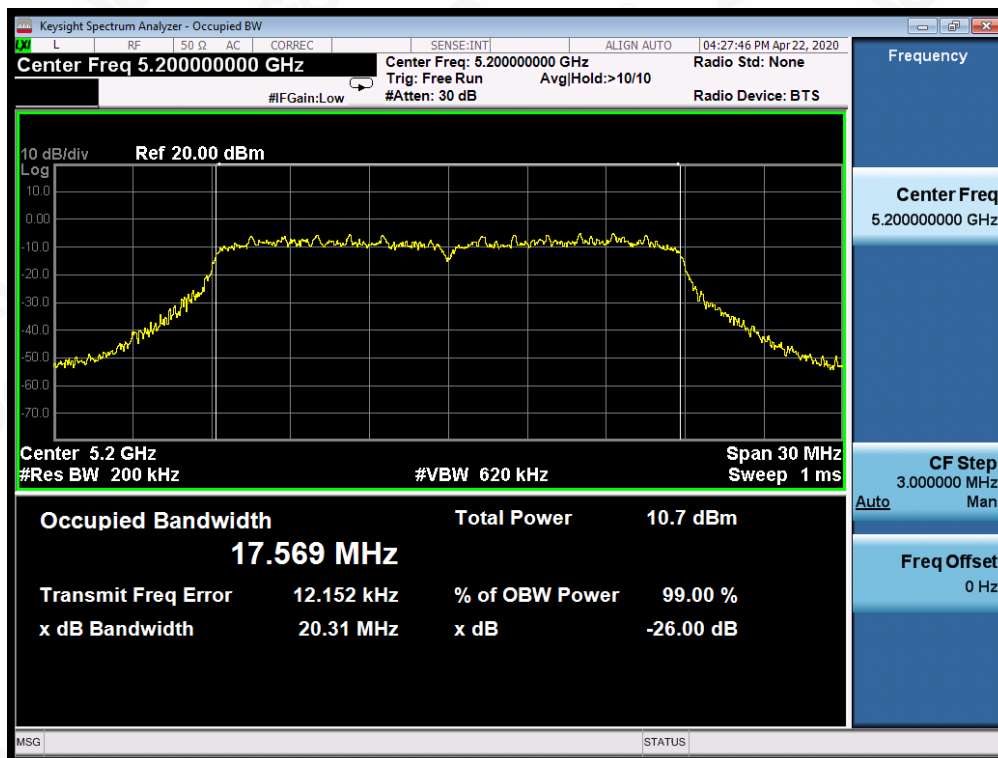


802.11ac20 TEST RESULT

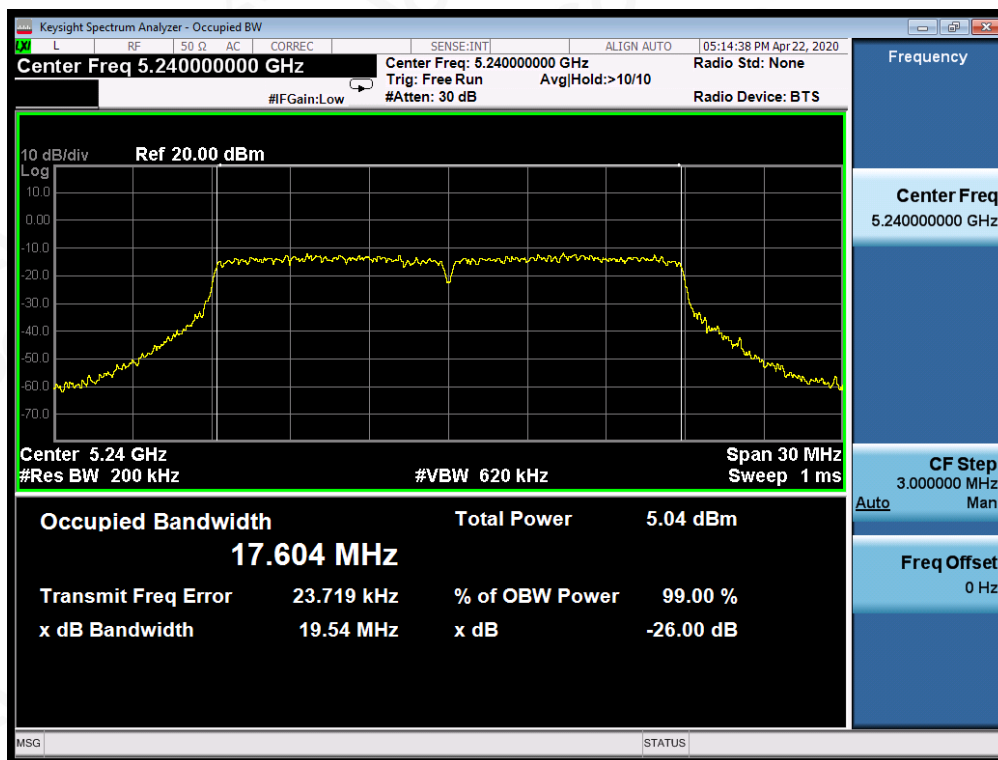
TEST PLOT OF BANDWIDTH FOR 5180MHz



TEST PLOT OF BANDWIDTH FOR 5200MHz

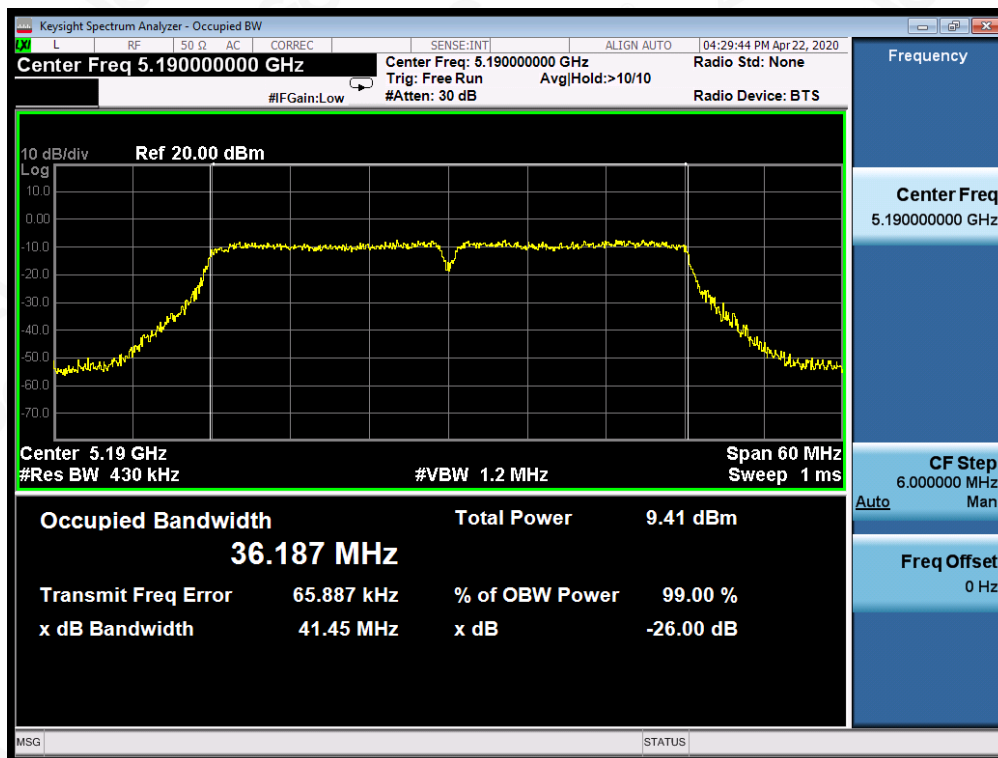


TEST PLOT OF BANDWIDTH FOR 5240MHz



802.11ac40 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5190MHz



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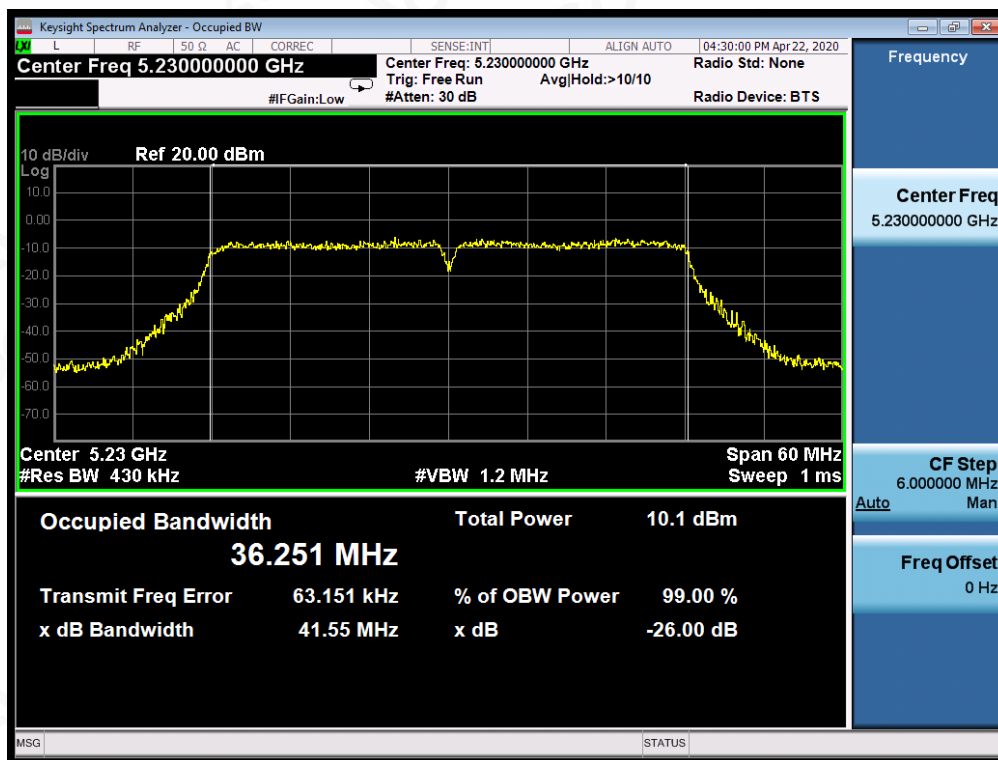
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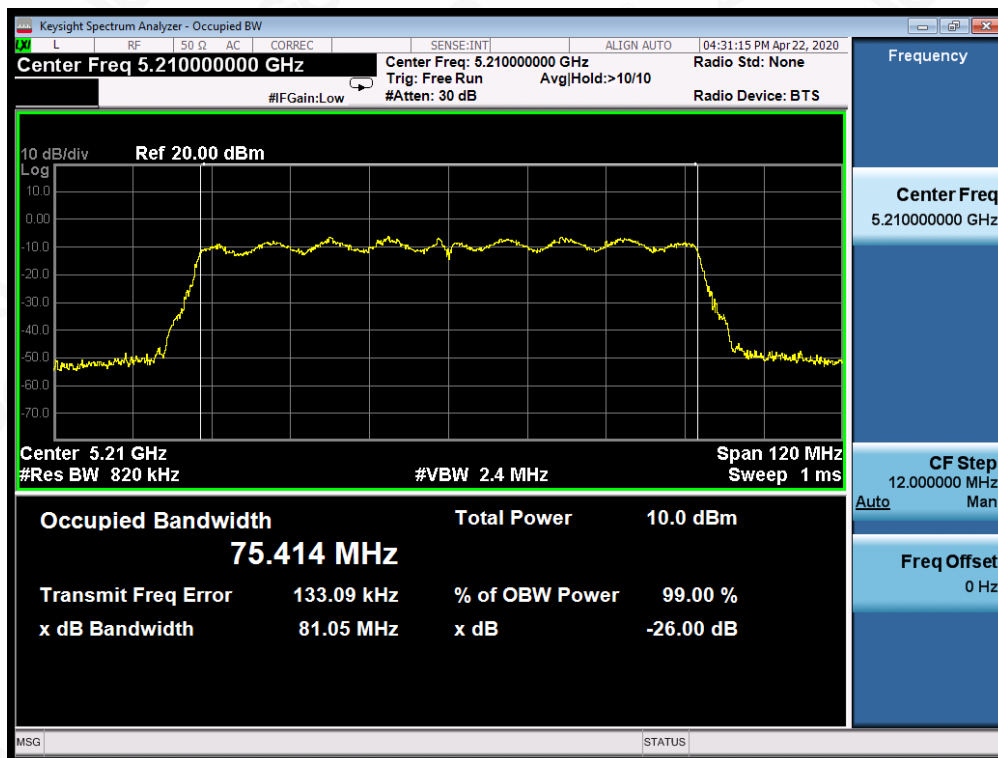
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TEST PLOT OF BANDWIDTH FOR 5230MHz



802.11ac80 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5210MHz



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9. MAXIMUM CONDUCTED OUTPUT PEAK POWER SPECTRAL DENSITY

9.1 MEASUREMENT PROCEDURE

Refer to KDB 789033 section F

9.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

Refer To Section 8.2.

9.3 MEASUREMENT EQUIPMENT USED

Refer To Section 6.

9.4 LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT FOR 802.11A20 MODULATION					
Frequency (MHz)	Power density Chain 1 (dBm/MHz)	Power density Chain 2 (dBm/MHz)	Power density Total (dBm/MHz)	Applicable Limits (dBm)	Pass or Fail
5180	5.132	4.877	N/A	17	Pass
5200	5.348	5.228	N/A	17	Pass
5240	5.193	5.151	N/A	17	Pass

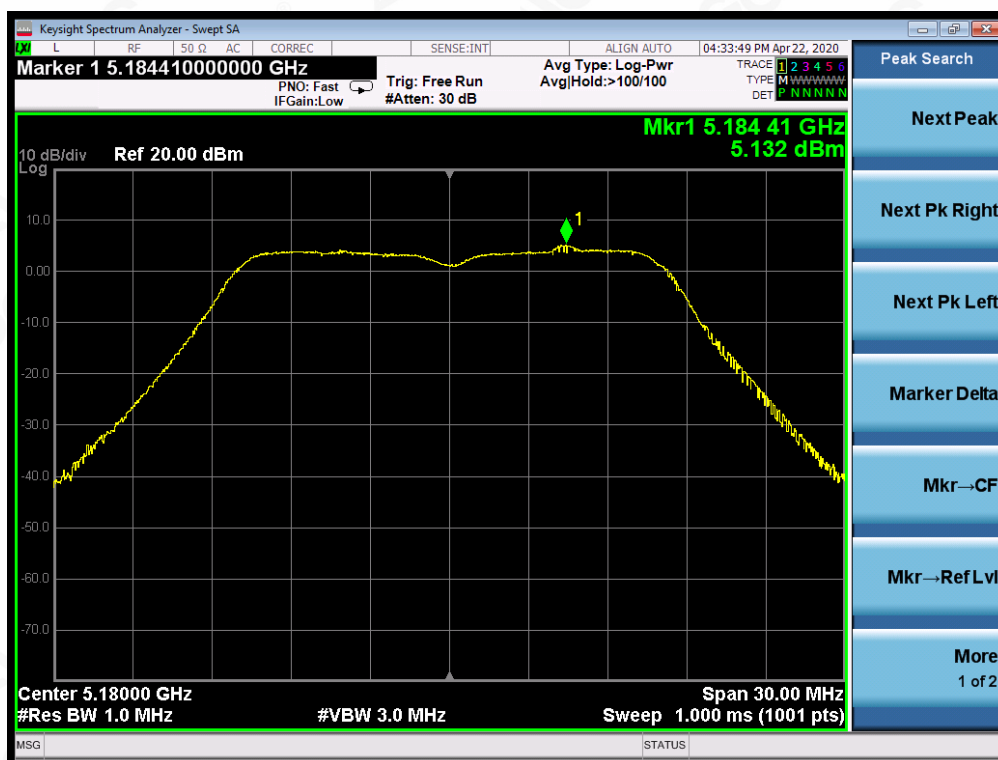
LIMITS AND MEASUREMENT RESULT FOR 802.11N20/40 MODULATION					
Frequency (MHz)	Power density Chain 1 (dBm/MHz)	Power density Chain 2 (dBm/MHz)	Power density Total (dBm/MHz)	Applicable Limits (dBm)	Pass or Fail
5180	2.598	2.425	5.52	17	Pass
5200	2.897	2.823	5.87	17	Pass
5240	2.881	2.755	5.83	17	Pass
5190	-1.602	-1.798	1.31	17	Pass
5230	-0.608	-1.024	2.20	17	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11AC20/40/80 MODULATION					
Frequency (MHz)	Power density Chain 1 (dBm/MHz)	Power density Chain 2 (dBm/MHz)	Power density Total (dBm/MHz)	Applicable Limits (dBm)	Pass or Fail
5180	2.279	2.075	5.19	17	Pass
5200	1.718	1.520	4.63	17	Pass
5240	1.490	1.337	4.42	17	Pass
5190	-2.075	-2.251	0.85	17	Pass
5230	-1.436	-1.588	1.50	17	Pass
5210	-4.405	-4.584	-1.48	17	Pass

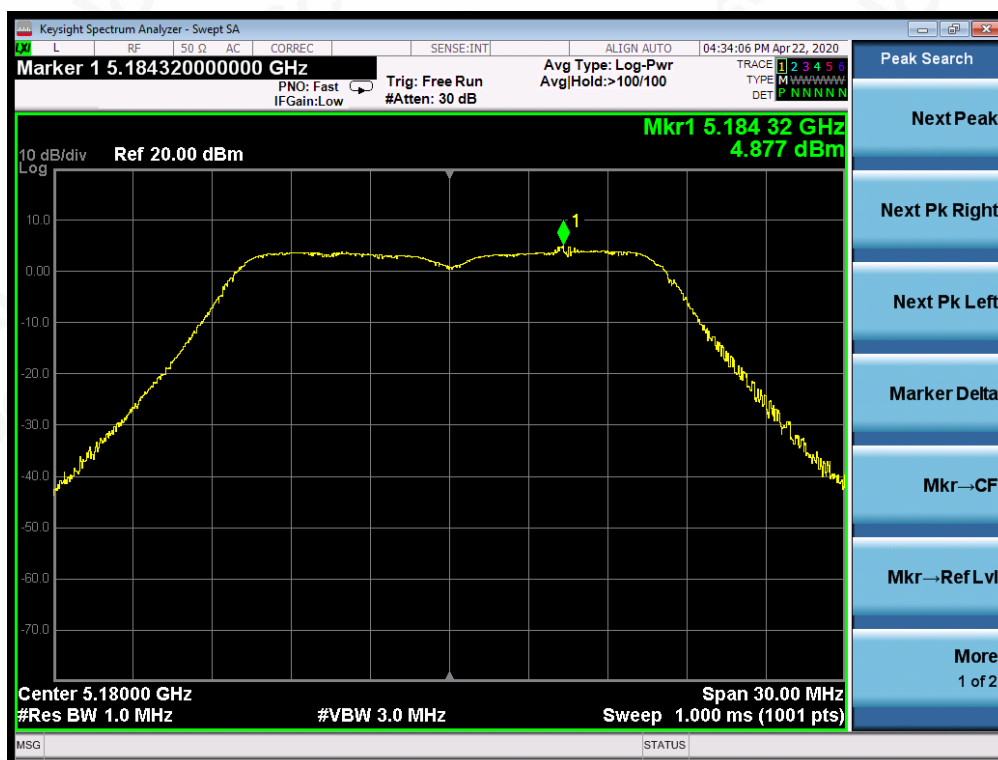


802.11a20 TEST RESULT

TEST PLOT OF SPECTRAL DENSITY FOR 5180MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5180MHz AT CHAIN 2



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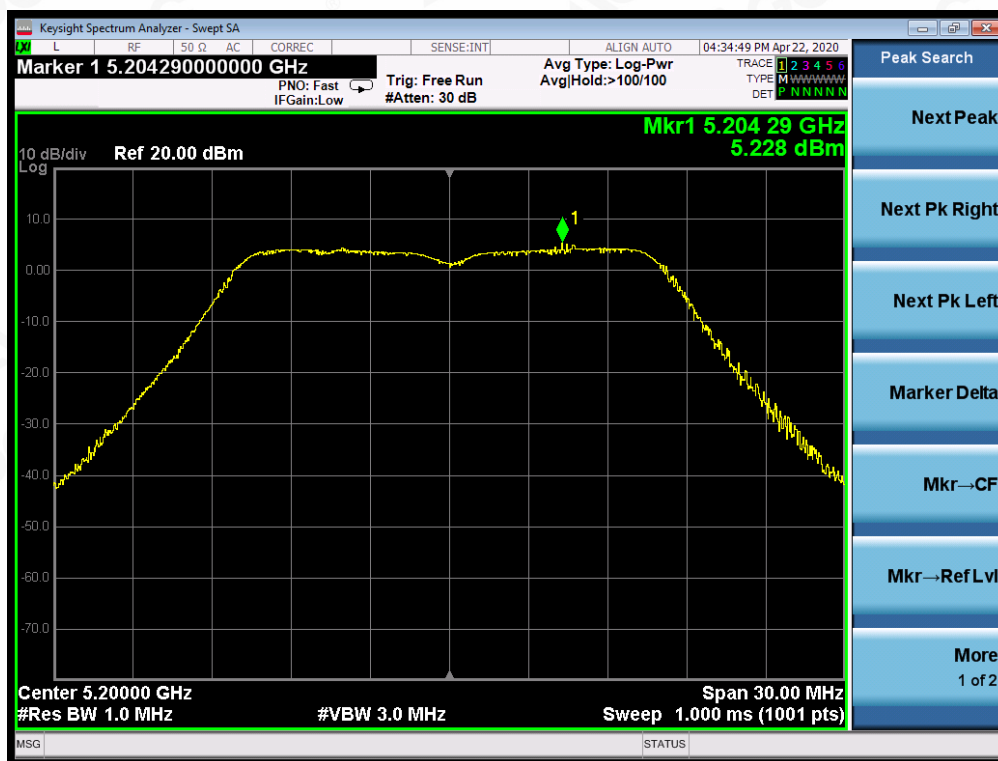
E-mail: agc@agc-cert.com

Service Hotline: 400 089 2118

TEST PLOT OF SPECTRAL DENSITY FOR 5200MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5200MHz AT CHAIN 2



TEST PLOT OF SPECTRAL DENSITY FOR 5240MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5240MHz AT CHAIN 2



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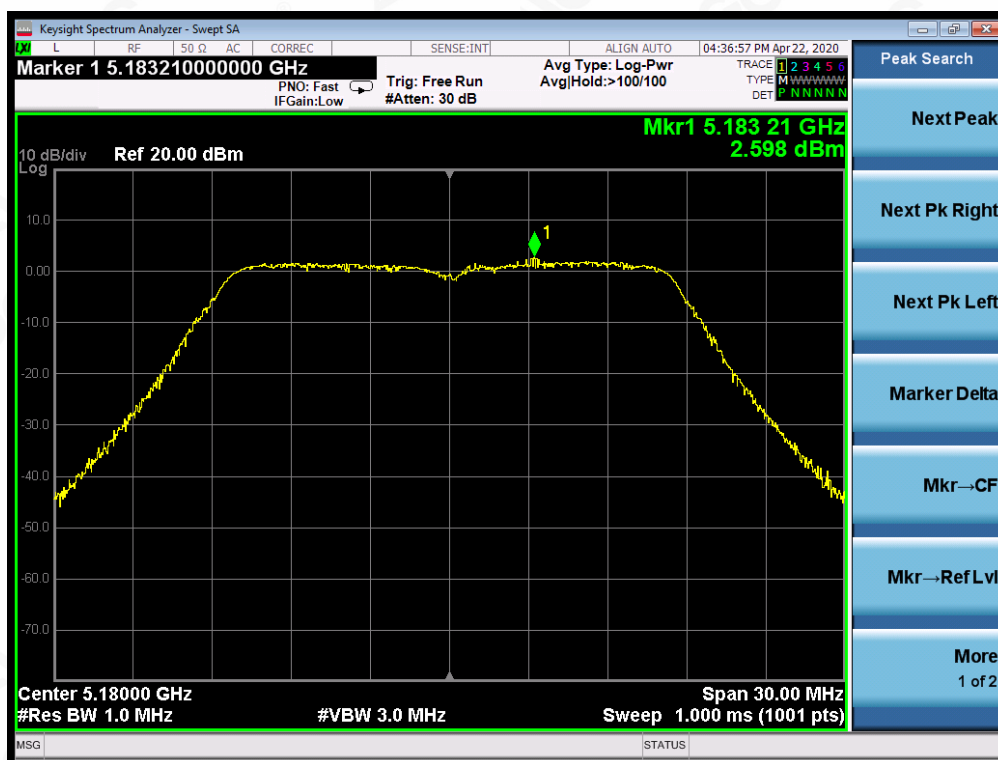
Tel: +86-755 2523 4088

E-mail: agc@agc-cert.com

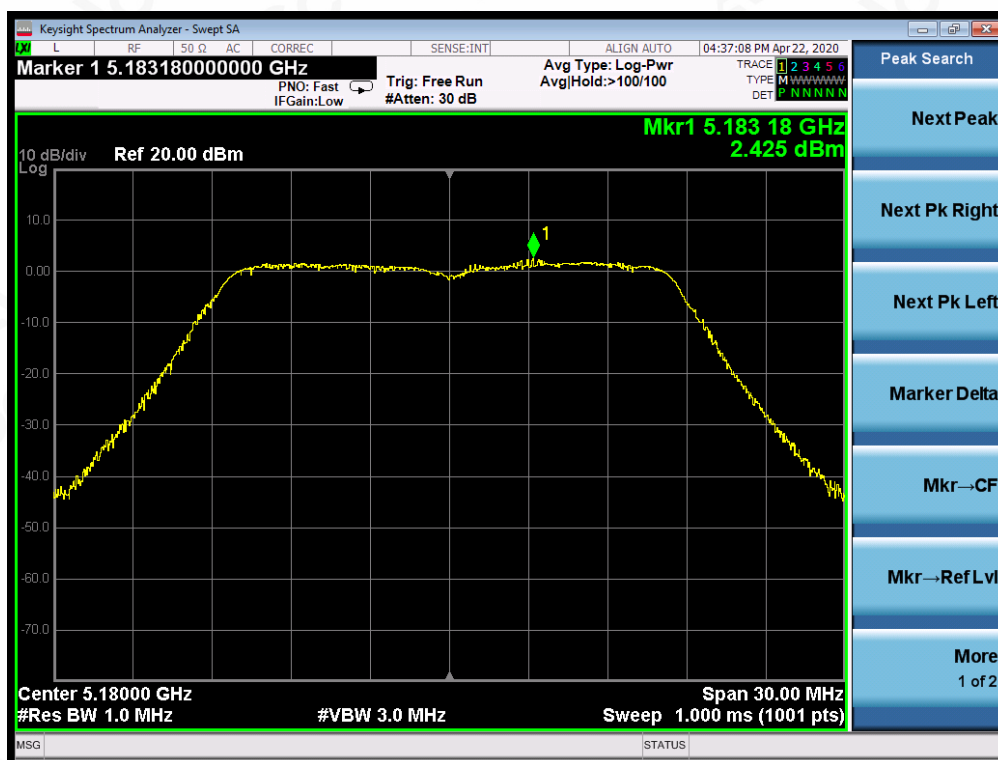
Service Hotline: 400 089 2118

802.11n20 TEST RESULT

TEST PLOT OF SPECTRAL DENSITY FOR 5180MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5180MHz AT CHAIN 2



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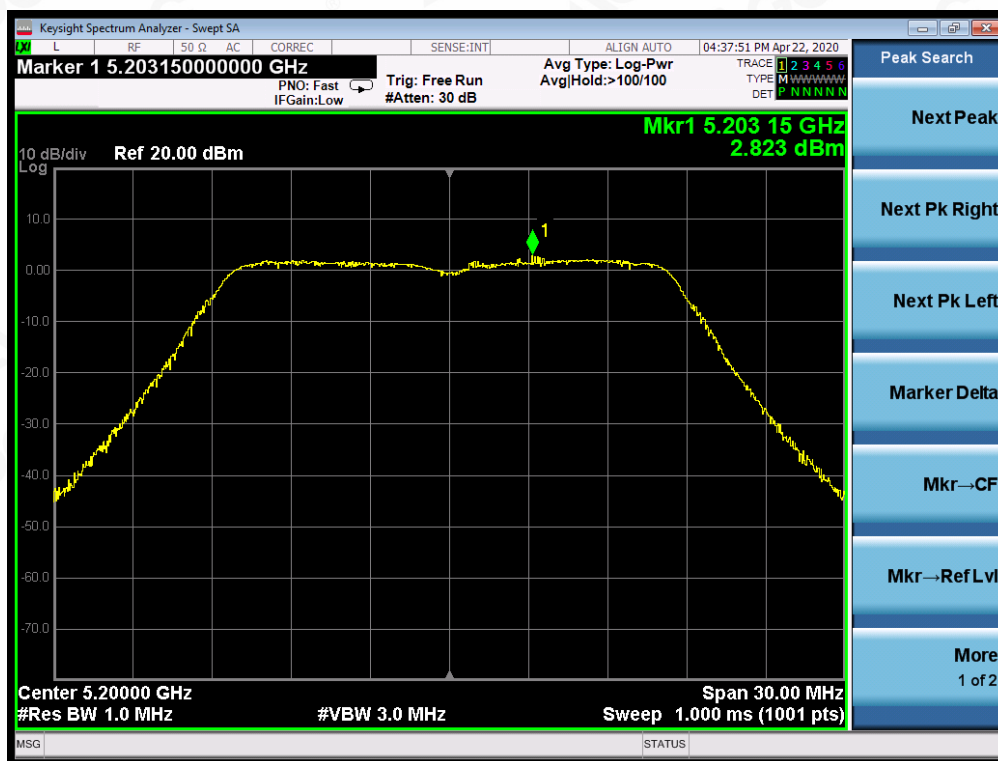
E-mail: agc@agc-cert.com

Service Hotline: 400 089 2118

TEST PLOT OF SPECTRAL DENSITY FOR 5200MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5200MHz AT CHAIN 2



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E-mail: agc@agc-cert.com

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TEST PLOT OF SPECTRAL DENSITY FOR 5240MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5240MHz AT CHAIN 2



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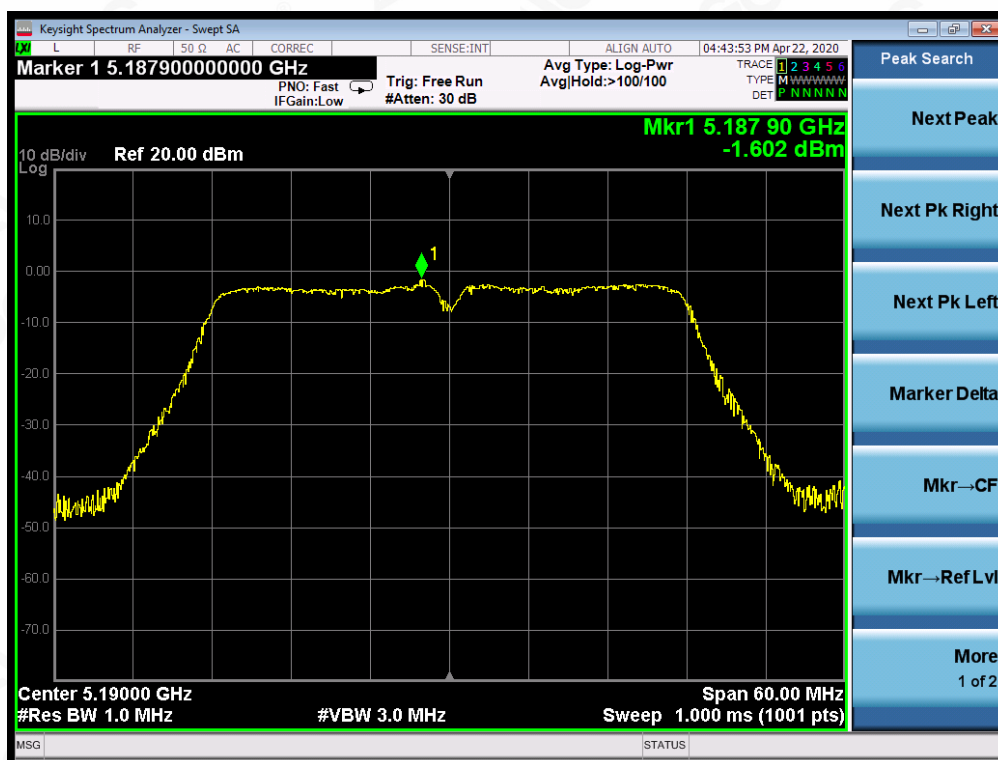
Tel: +86-755 2523 4088

E-mail: agc@agc-cert.com

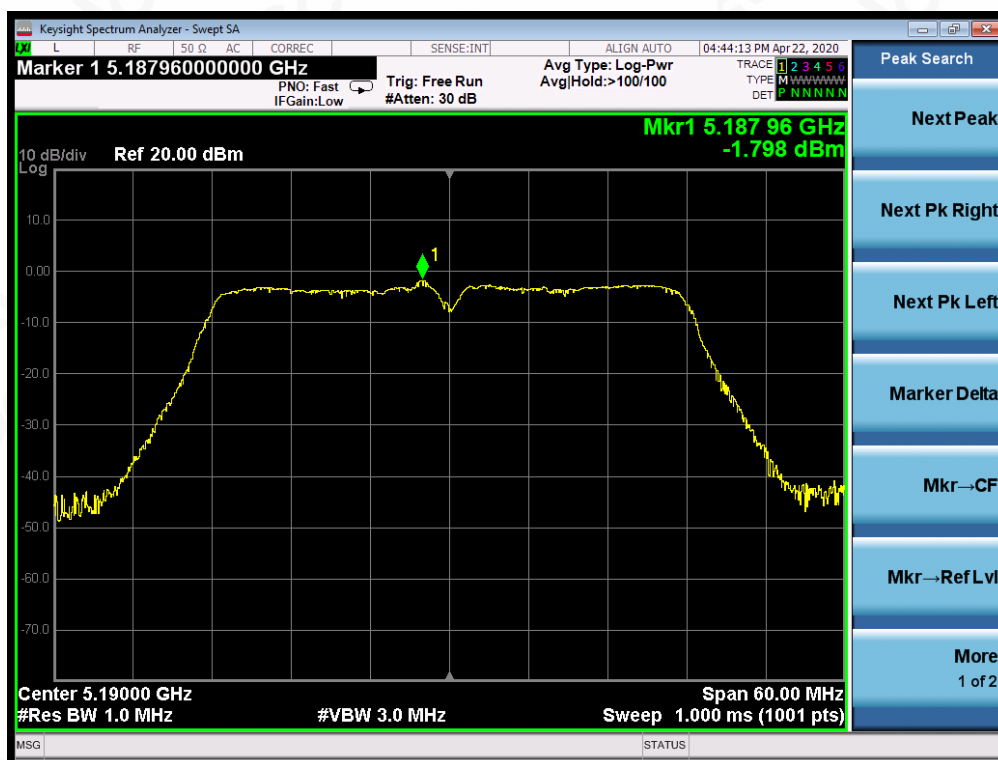
Service Hotline: 400 089 2118

802.11n40 TEST RESULT

TEST PLOT OF SPECTRAL DENSITY FOR 5190MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5190MHz AT CHAIN 2



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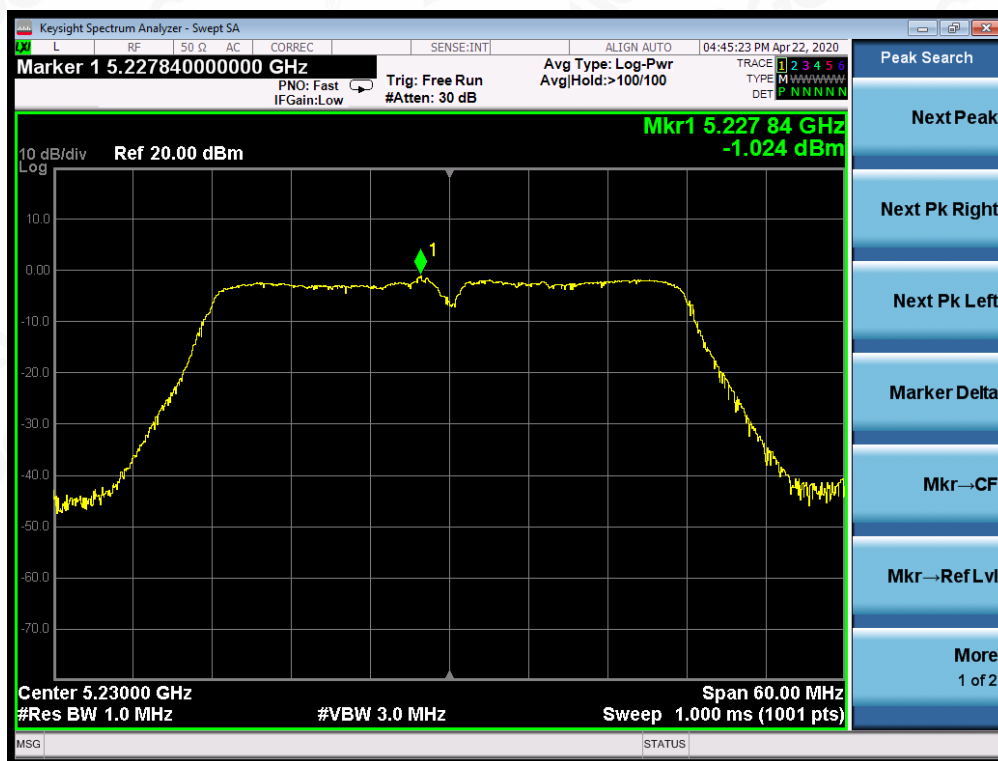
E-mail: agc@agc-cert.com

Service Hotline: 400 089 2118

TEST PLOT OF SPECTRAL DENSITY FOR 5230MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5230MHz AT CHAIN 2



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802.11ac20 TEST RESULT

TEST PLOT OF SPECTRAL DENSITY FOR 5180MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5180MHz AT CHAIN 2



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TEST PLOT OF SPECTRAL DENSITY FOR 5200MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5200MHz AT CHAIN 2



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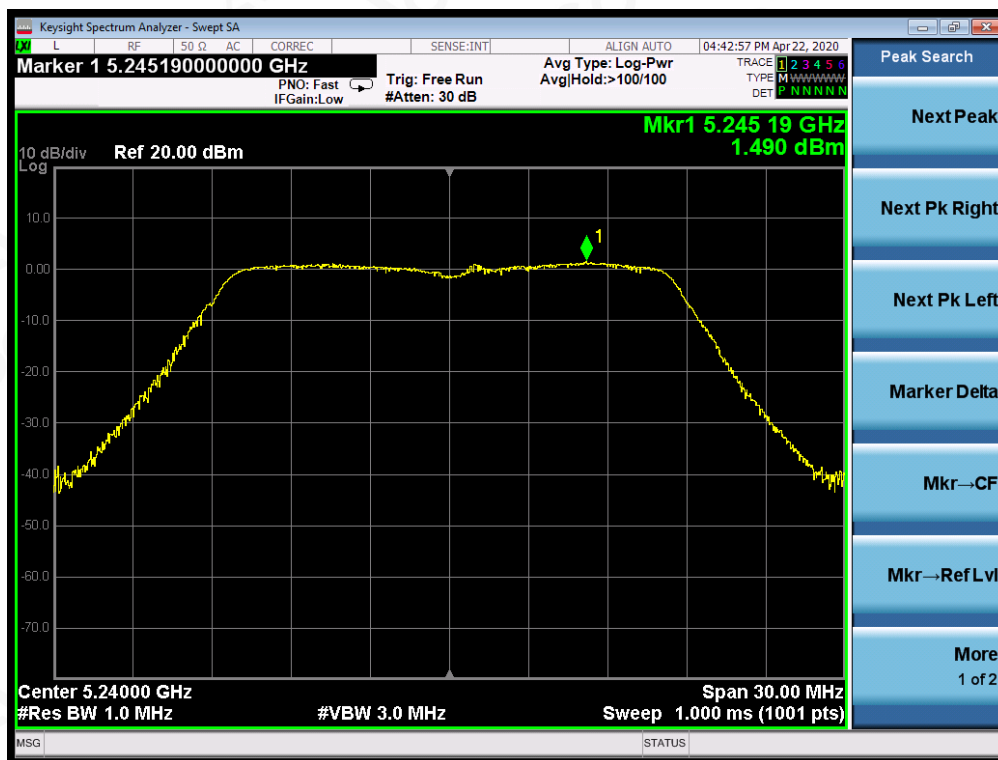
Add: 2/F., Building 2, Sanwei Chaxi Industrial Park, Sanwei Community,
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E-mail: agc@agc-cert.com

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TEST PLOT OF SPECTRAL DENSITY FOR 5240MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5240MHz AT CHAIN 2



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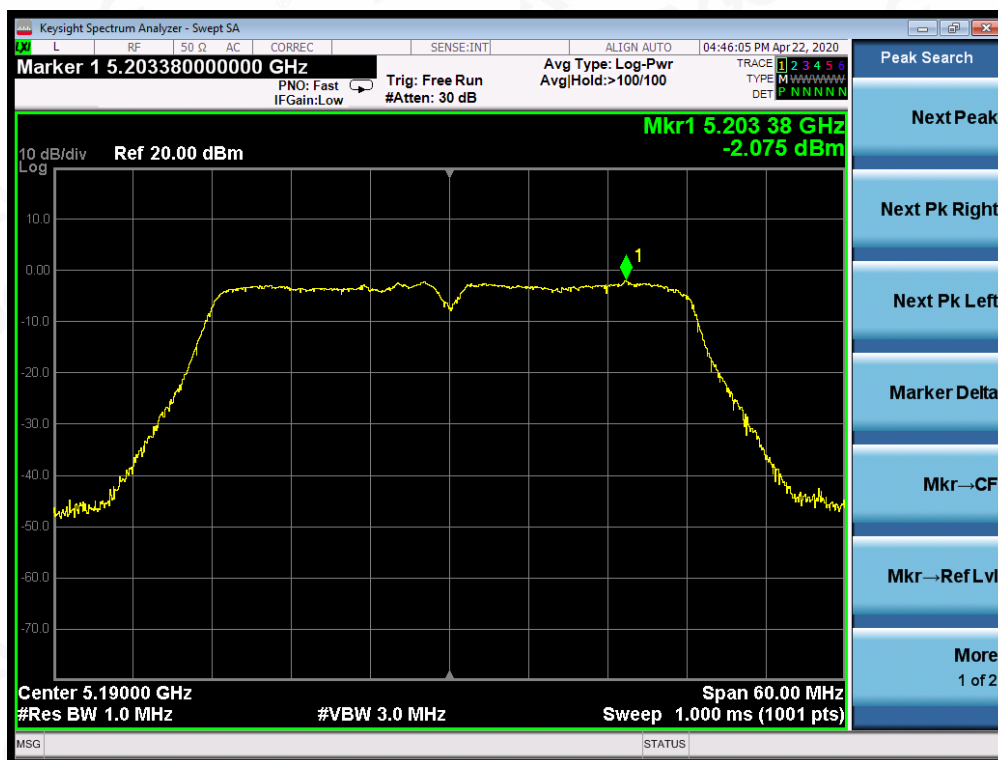
Tel: +86-755 2523 4088

E-mail: agc@agc-cert.com

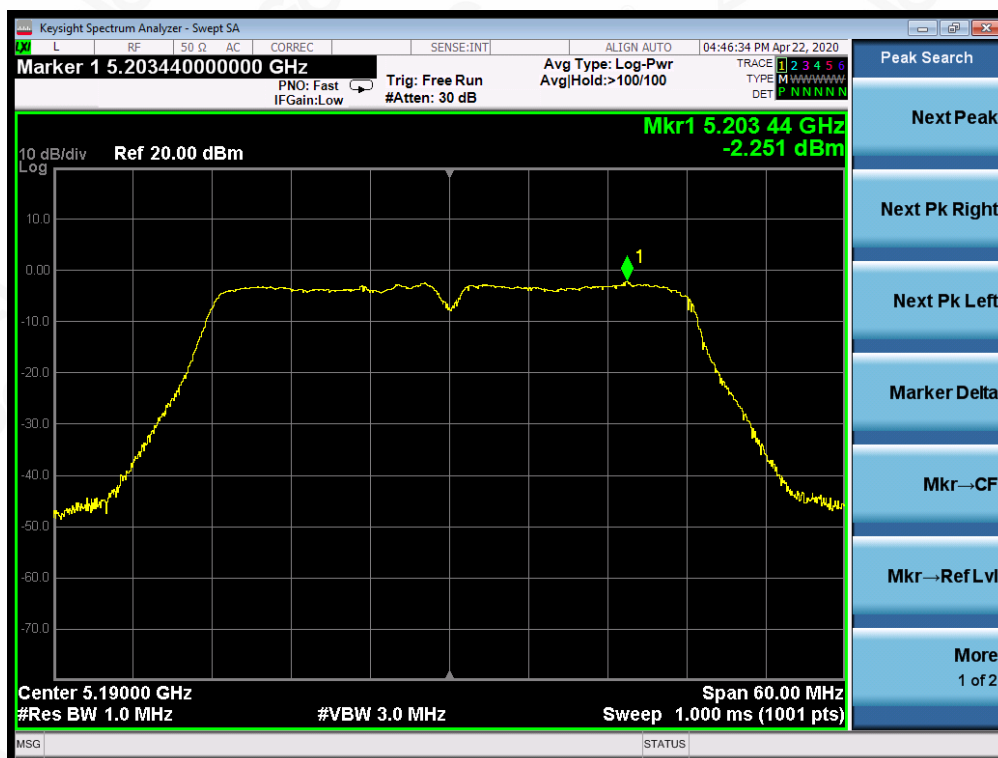
Service Hotline: 400 089 2118

802.11ac40 TEST RESULT

TEST PLOT OF SPECTRAL DENSITY FOR 5190MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5190MHz AT CHAIN 2



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Tel: +86-755 2523 4088

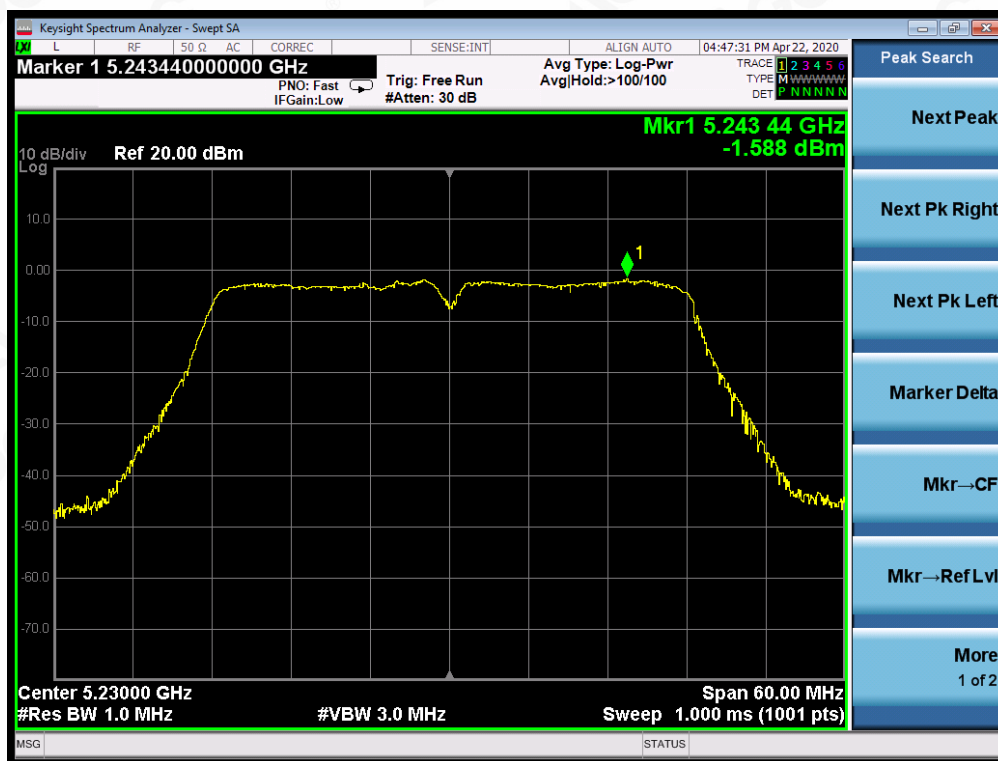
E-mail: agc@agc-cert.com

Service Hotline: 400 089 2118

TEST PLOT OF SPECTRAL DENSITY FOR 5230MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5230MHz AT CHAIN 2



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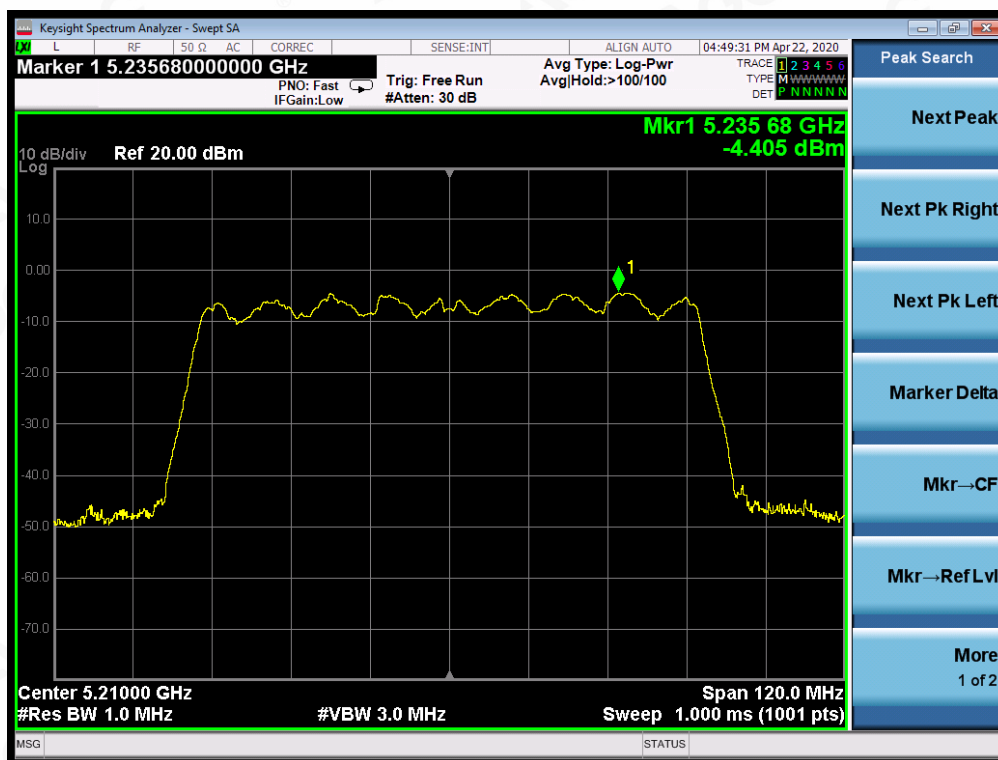
Tel: +86-755 2523 4088

E-mail: agc@agc-cert.com

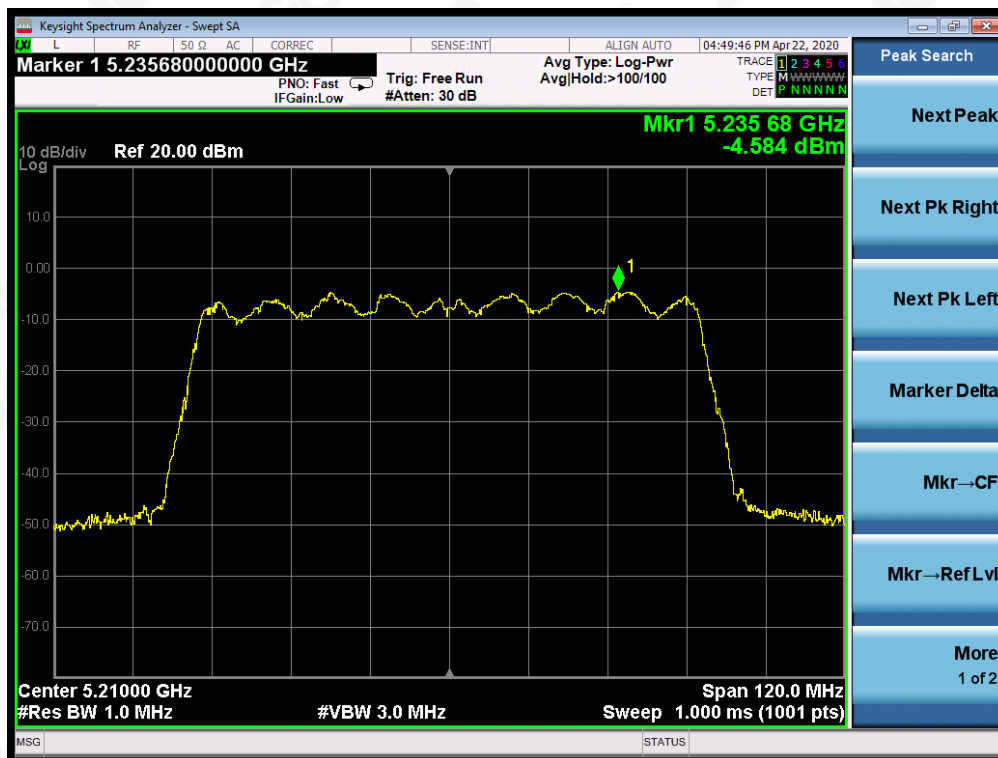
Service Hotline: 400 089 2118

802.11ac80 TEST RESULT

TEST PLOT OF SPECTRAL DENSITY FOR 5210MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5210MHz AT CHAIN 2



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Tel: +86-755 2523 4088

E-mail: agc@agc-cert.com

Service Hotline: 400 089 2118

10. CONDUCTED SPURIOUS EMISSION

10.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Trace 1 Max hold, then View.

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

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

The same as described in section 8.2.

10.3. MEASUREMENT EQUIPMENT USED

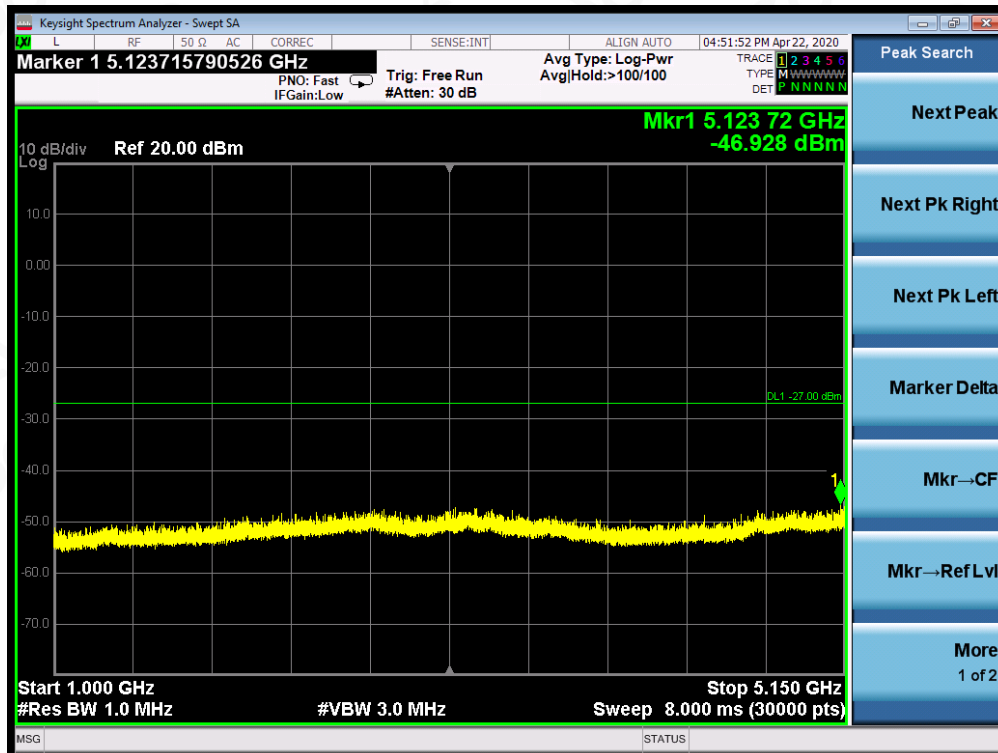
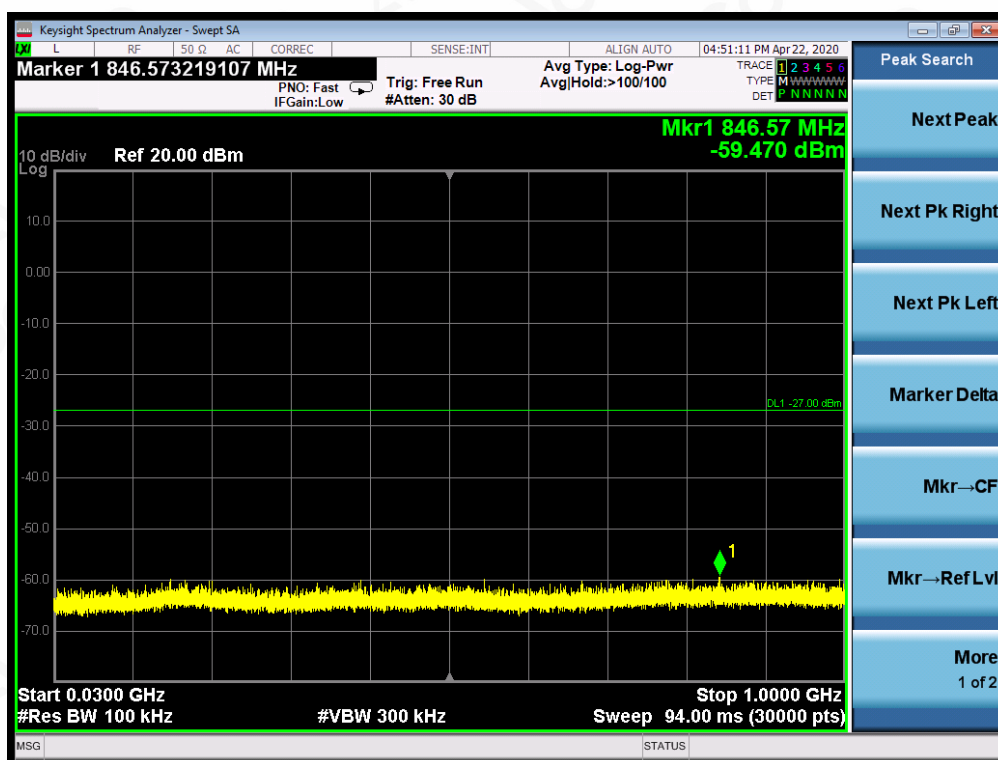
The same as described in section 6.

10.4. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT		
Applicable Limits	Measurement Result	
	Test channel	Criteria
-27dBm/MHz	5150MHz-5250MHz	PASS



FOR 802.11A20 MODULATION TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5180MHz



Attestation of Global Compliance

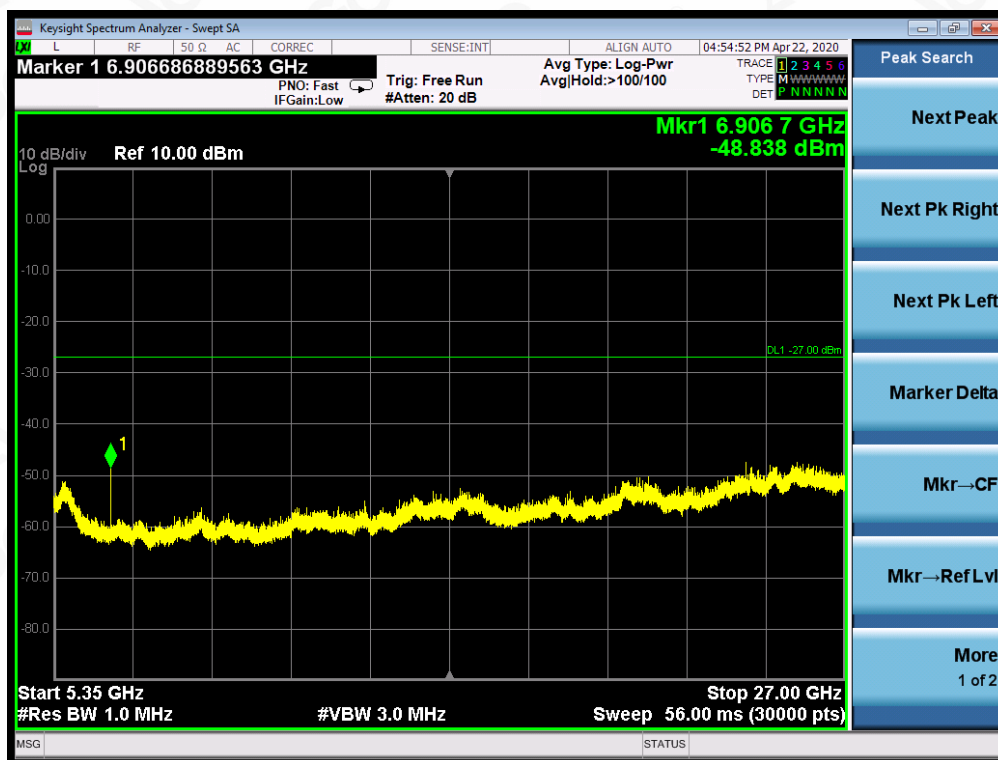
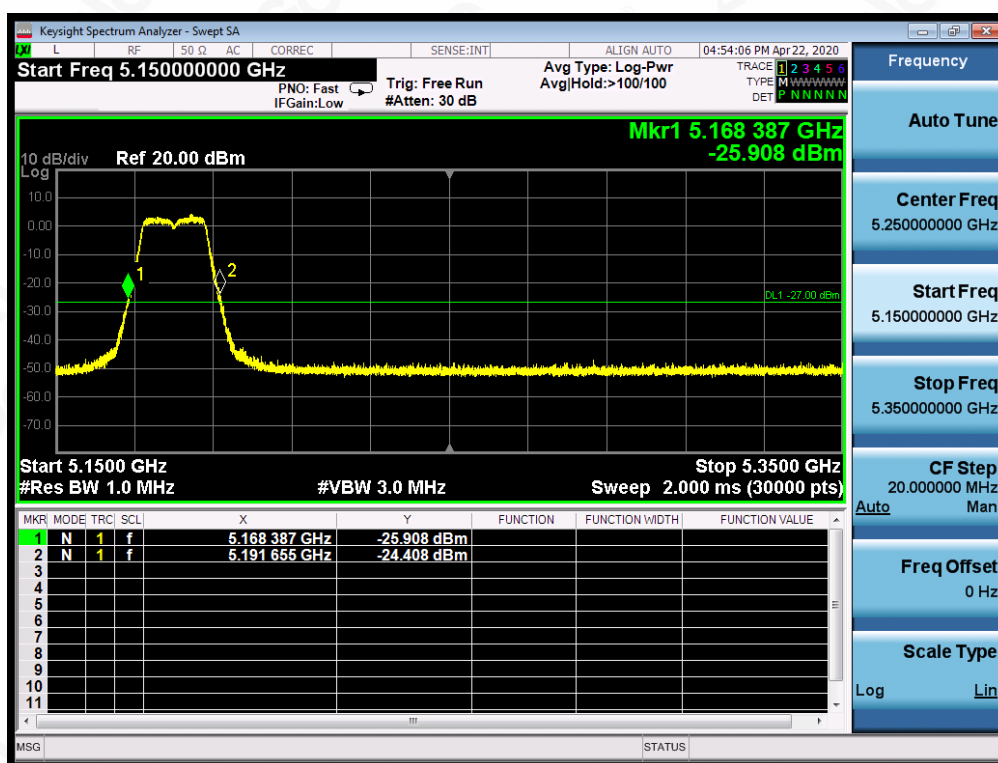
Attestation of Global Compliance(Shenzhen)Co.,Ltd.

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Tel: +86-755 2523 4088

E-mail: agc@agc-cert.com

Service Hotline: 400 089 2118



Attestation of Global Compliance

Attestation of Global Compliance(Shenzhen)Co.,Ltd.

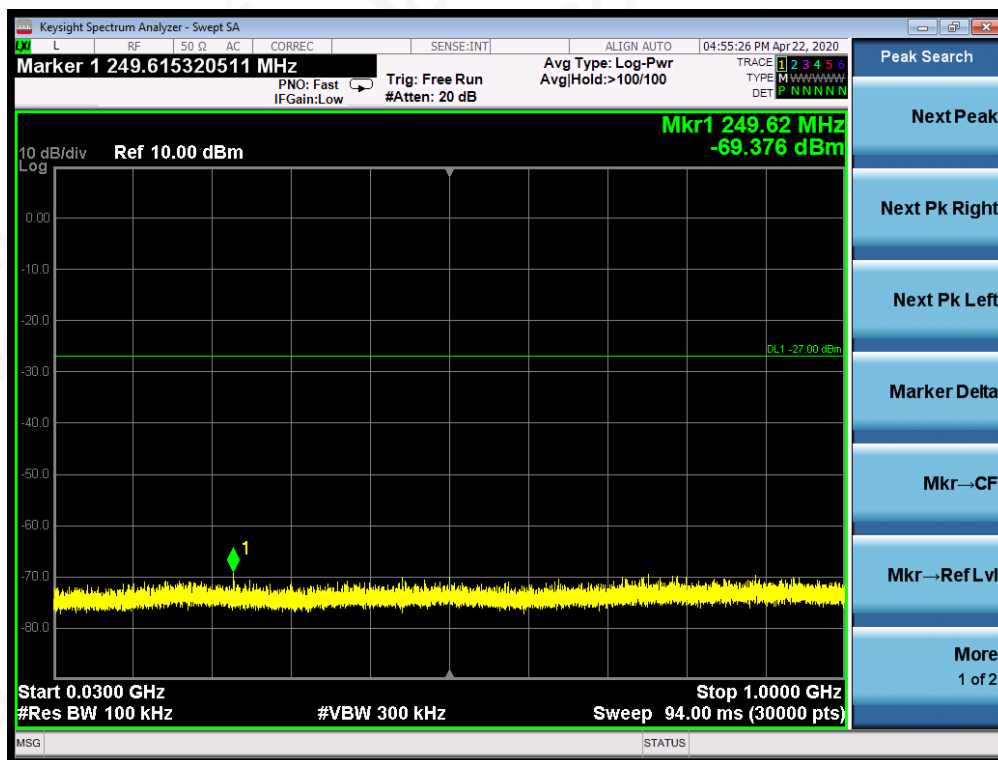
Add: 2/F., Building 2, Sanwei Chaxi Industrial Park, Sanwei Community,
Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China

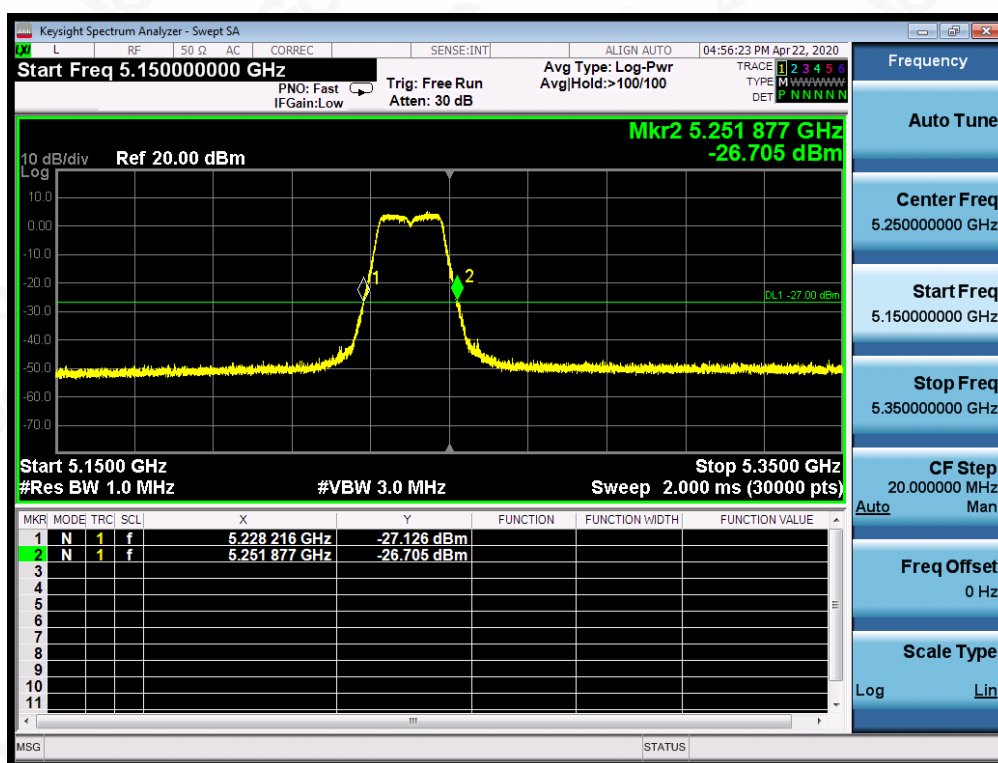
Tel: +86-755 2523 4088

E-mail: agc@agc-cert.com

Service Hotline: 400 089 2118

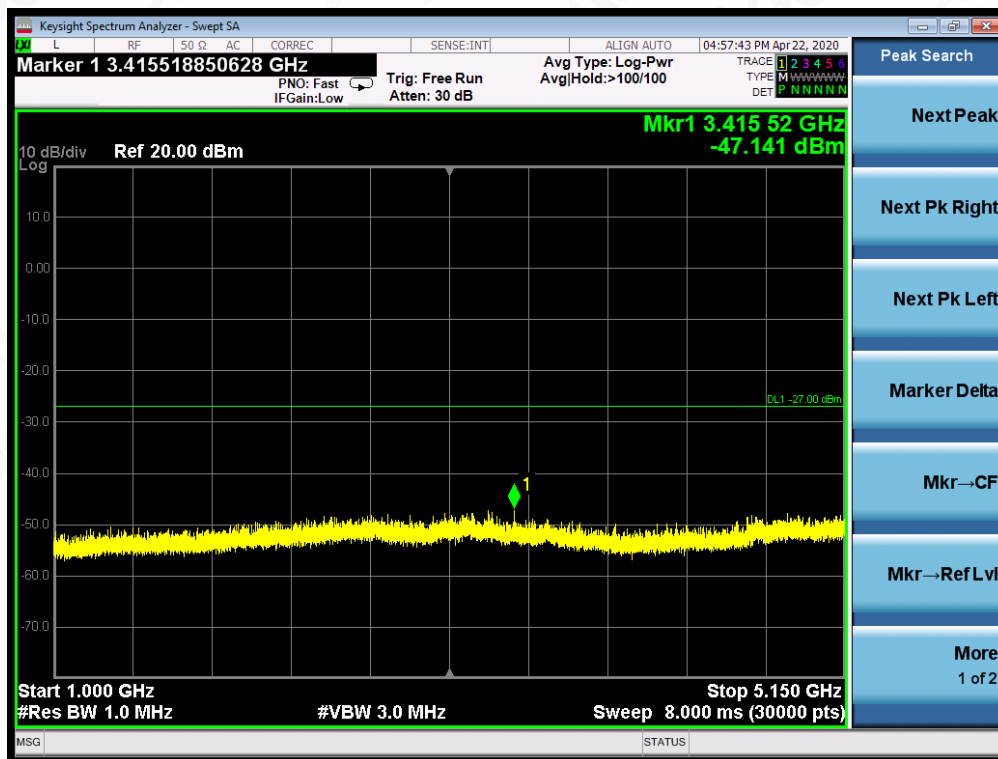
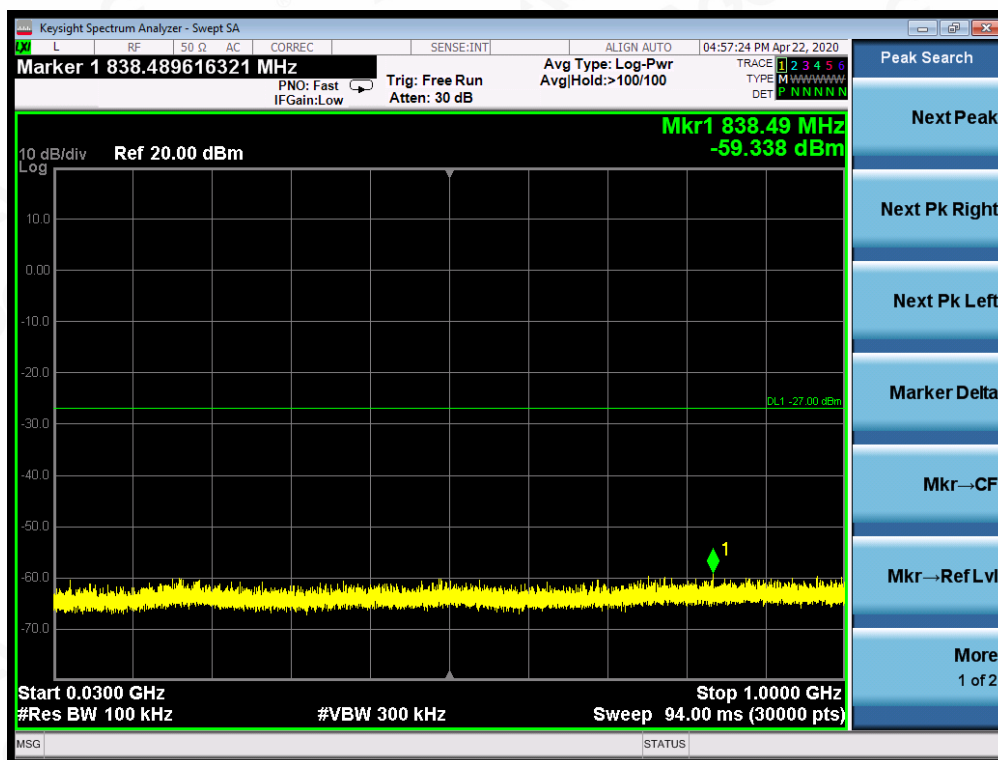
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5240MHz

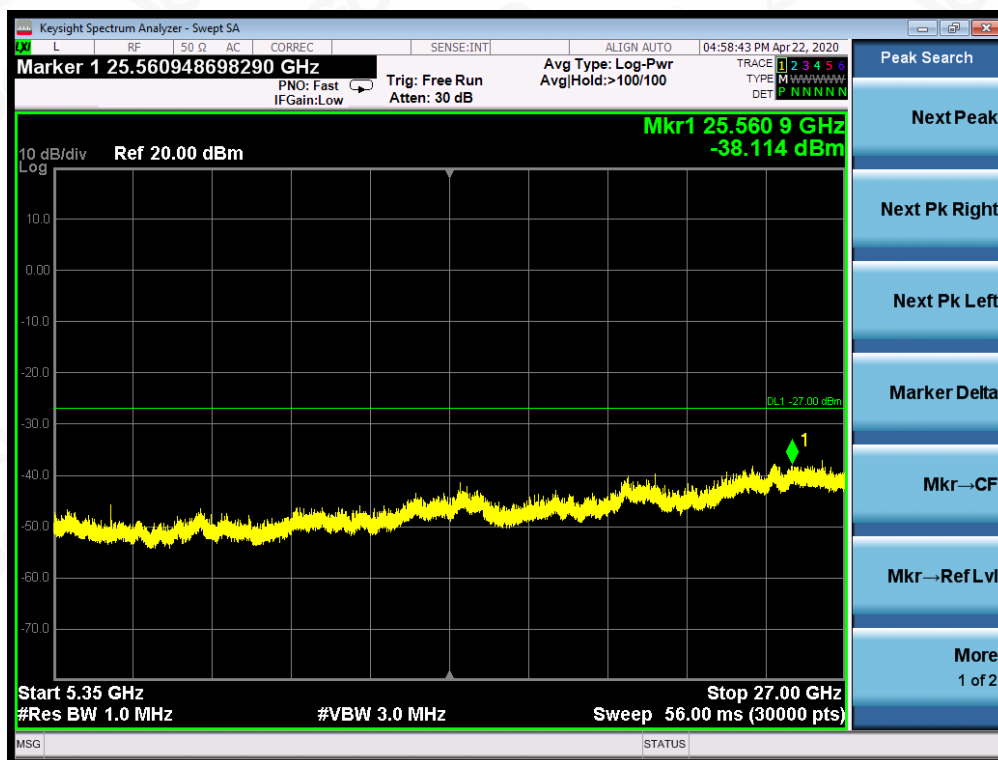
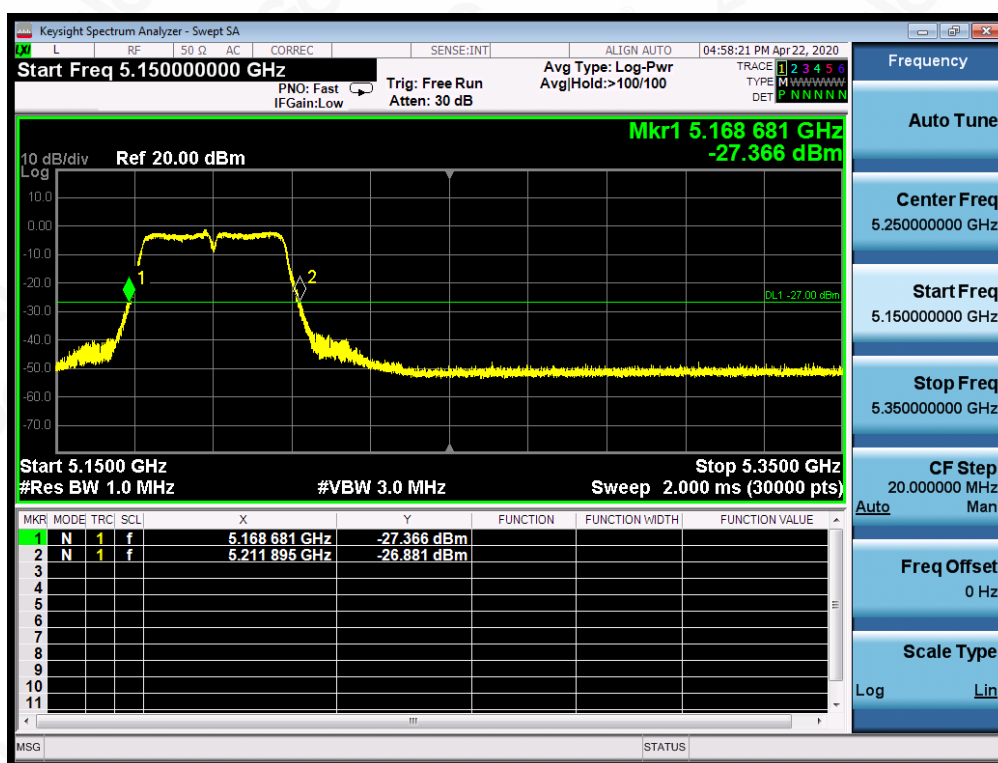




FOR 802.11N40 MODULATION

TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5190MHz





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Attestation of Global Compliance(Shenzhen)Co.,Ltd.

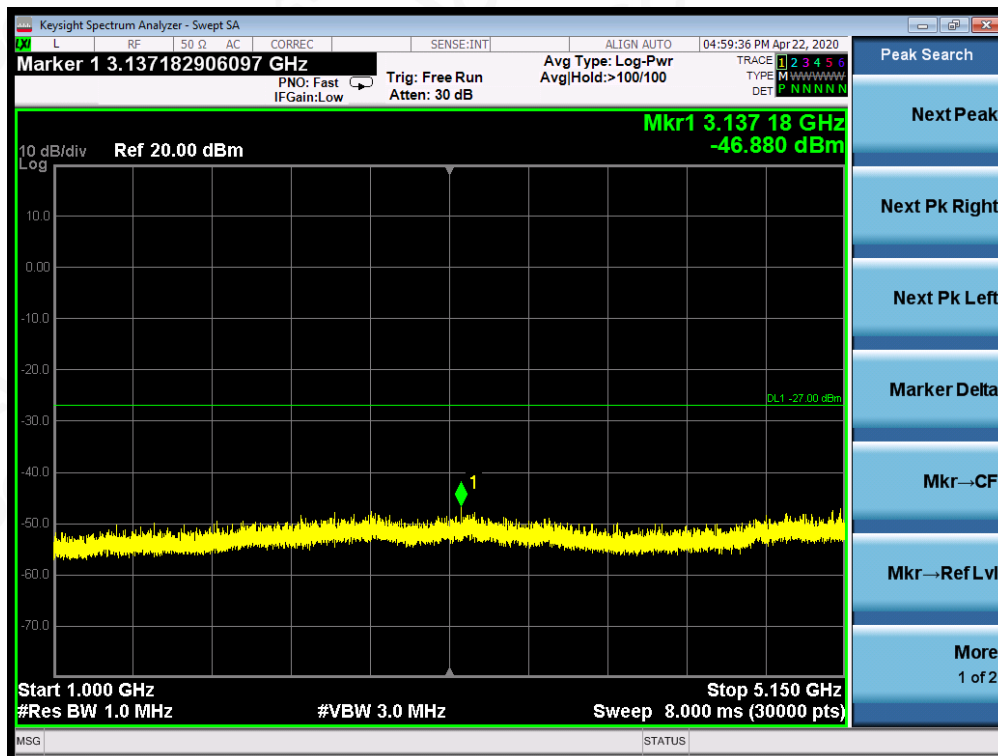
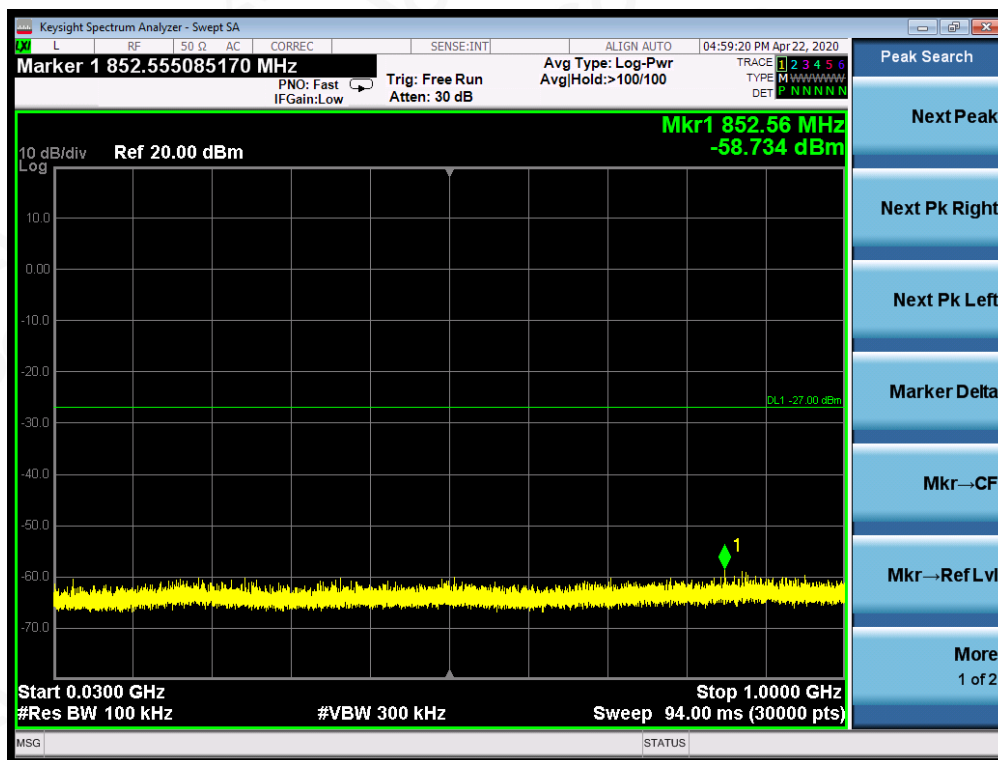
Add: 2/F., Building 2, Sanwei Chaxi Industrial Park, Sanwei Community,
Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China

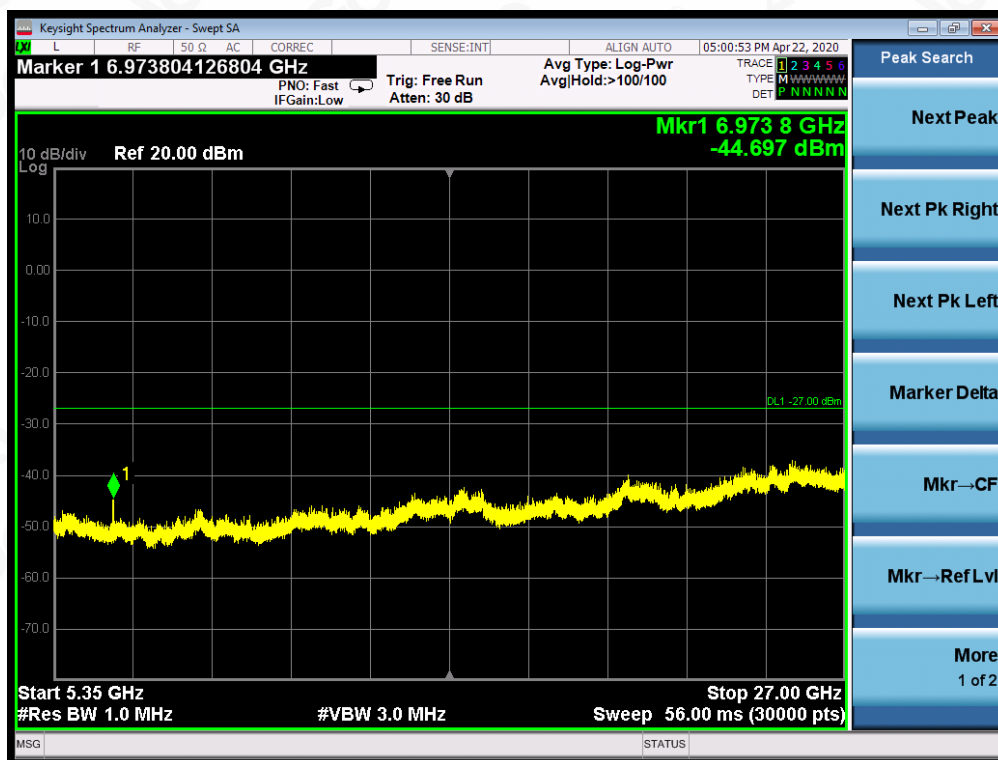
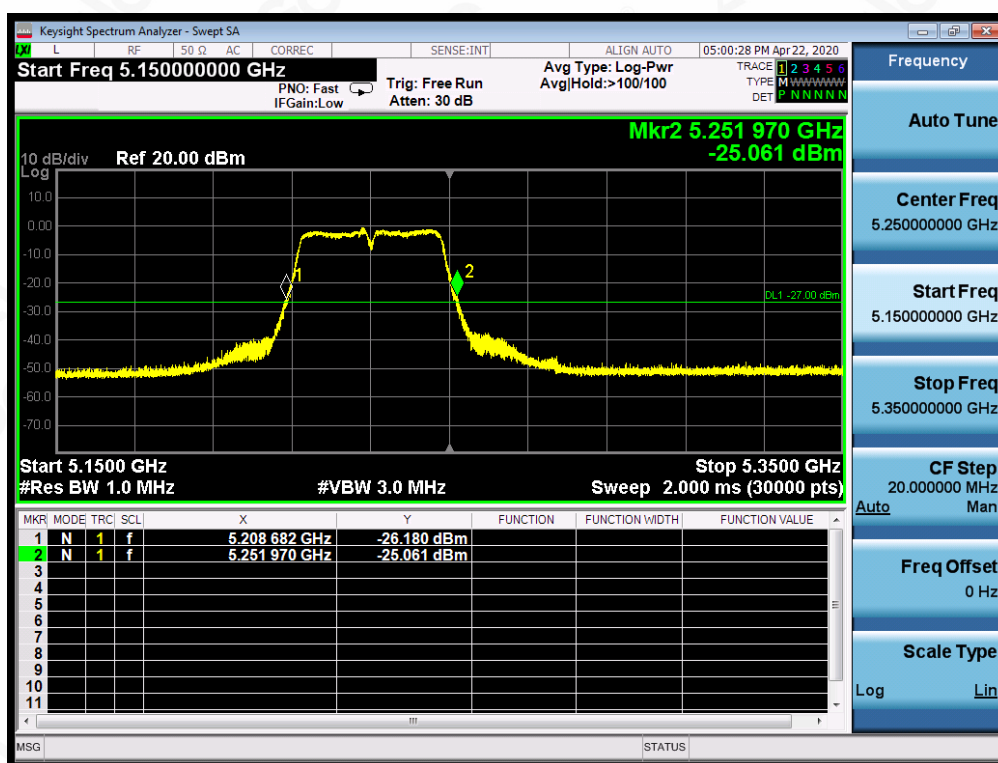
Tel: +86-755 2523 4088

E-mail: agc@agc-cert.com

Service Hotline: 400 089 2118

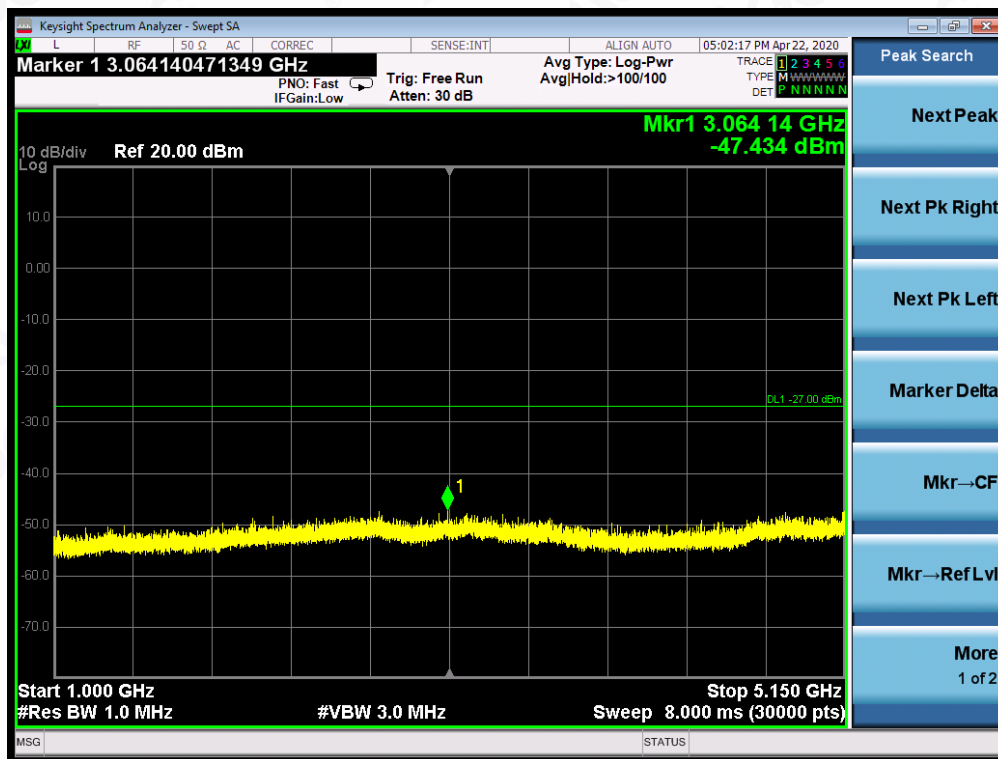
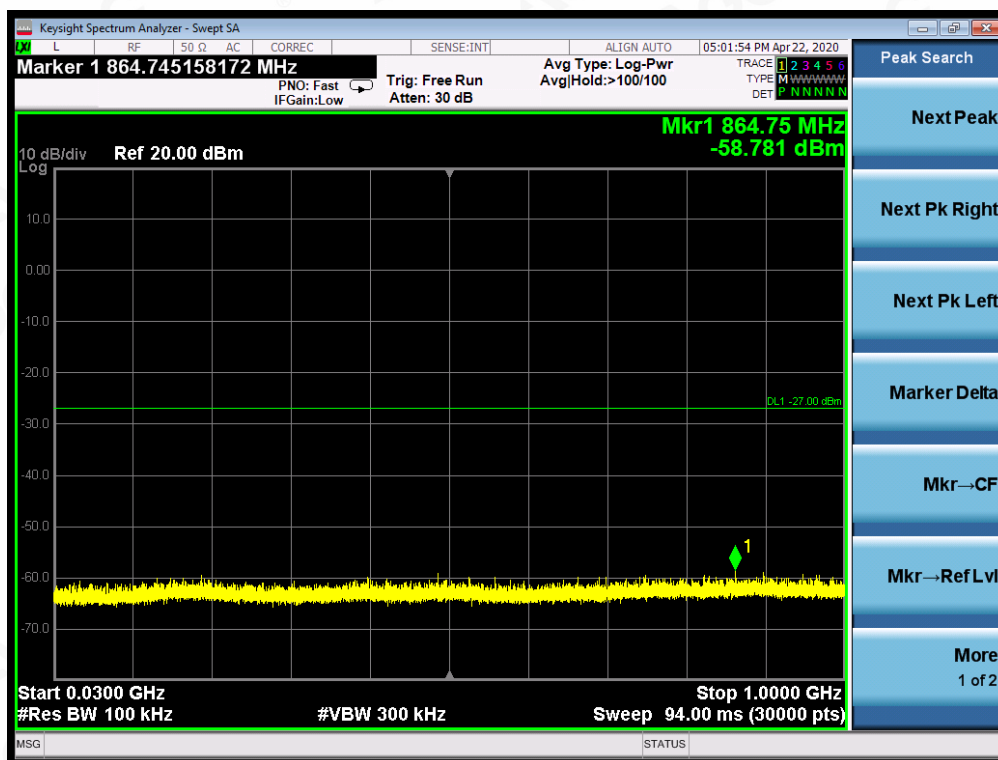
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5230MHz

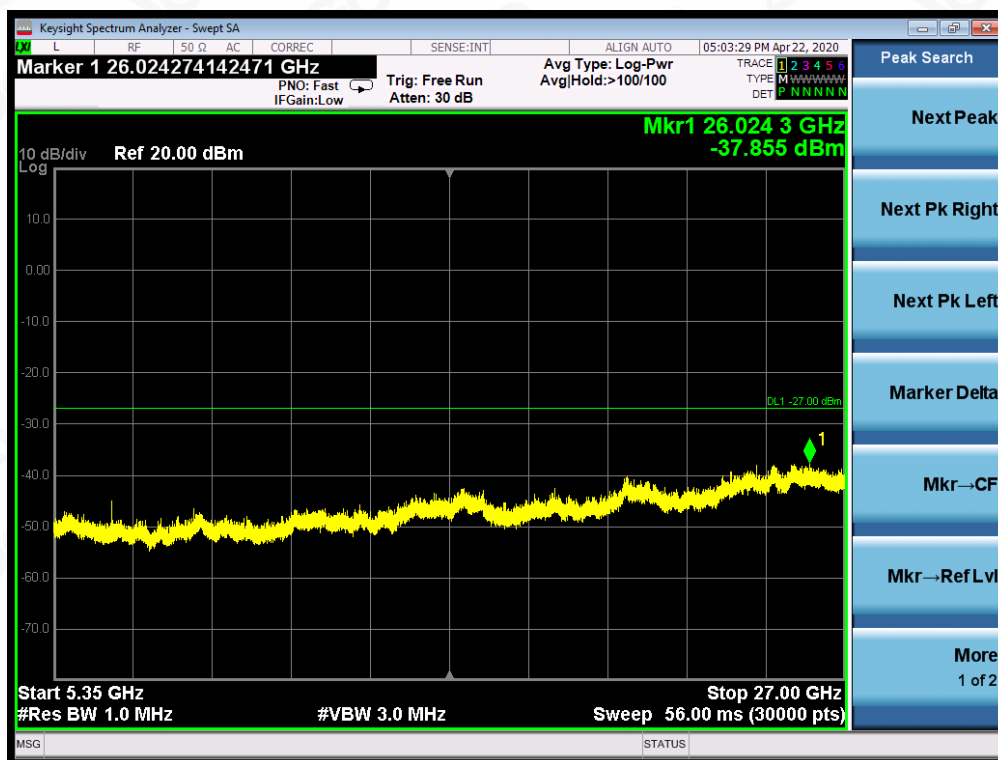
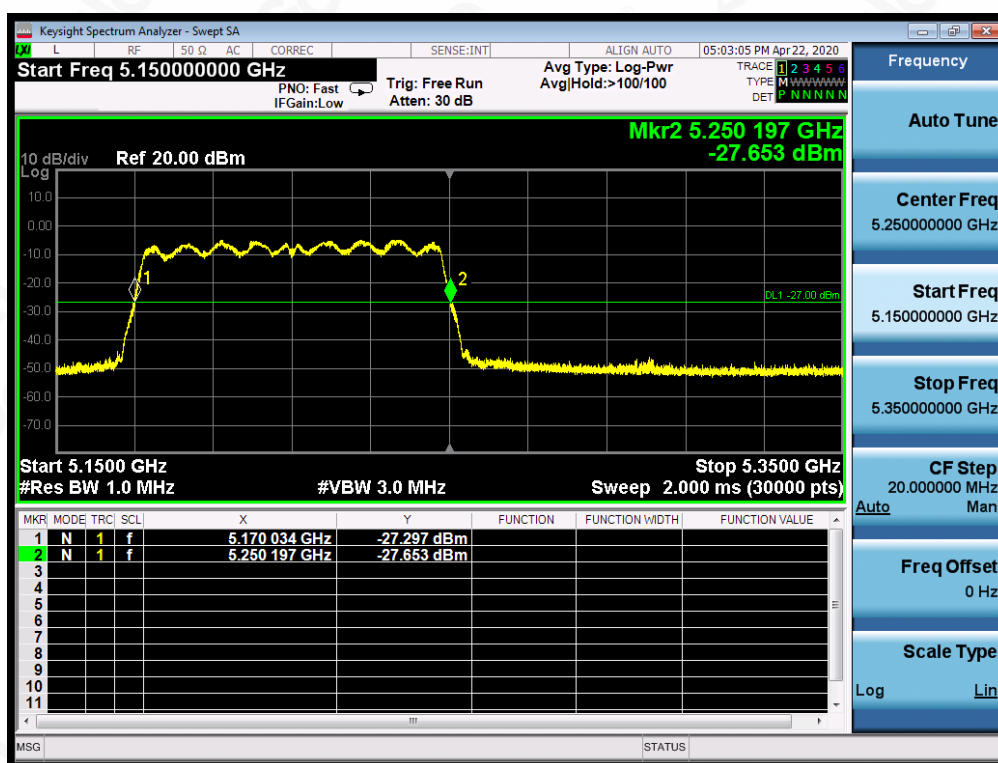




FOR 802.11AC80 MODULATION

TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5210MHz





Note: All the 20MHz bandwidth modulation had been tested, the 802.11a20 was the worst case and record in his test report. All the 40MHz bandwidth modulation had been tested, the 802.11N40 was the worst case and record in his test report. All the 80MHz bandwidth modulation had been tested, the 802.11ac80 was the worst case and record in his test report.

Two transmit chains had been tested, the chain 1 was the worst case and record in the test report.

The spurious emission at chain 1 is more than 3dB below the limits, so the MIMO results for the spurious emissions are comply with the requirement.



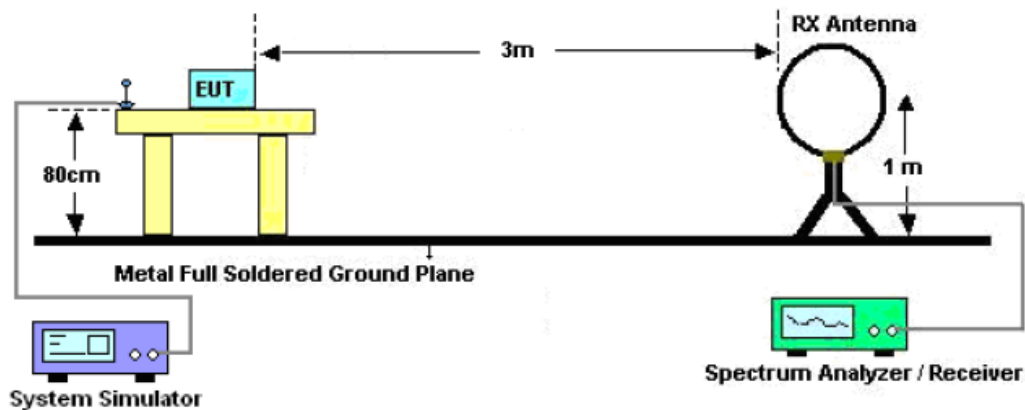
11. RADIATED EMISSION

11.1. MEASUREMENT PROCEDURE

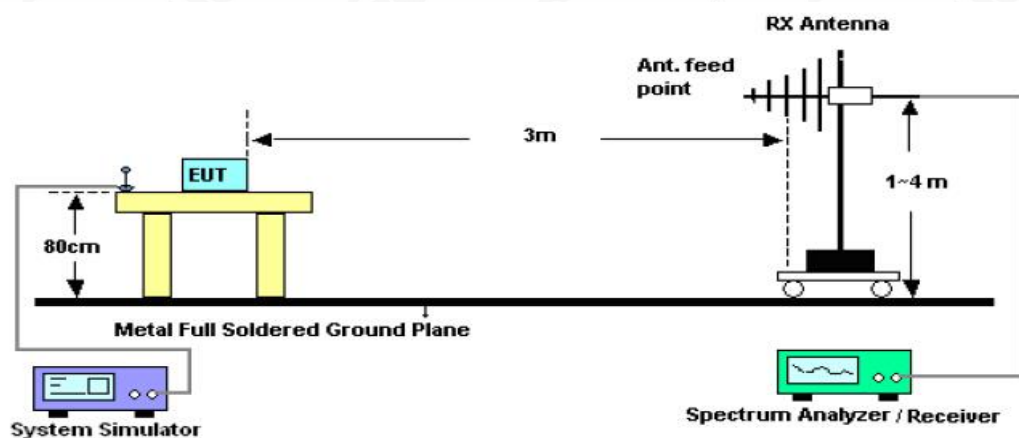
1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz RBW and 3M VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

11.2. TEST SETUP

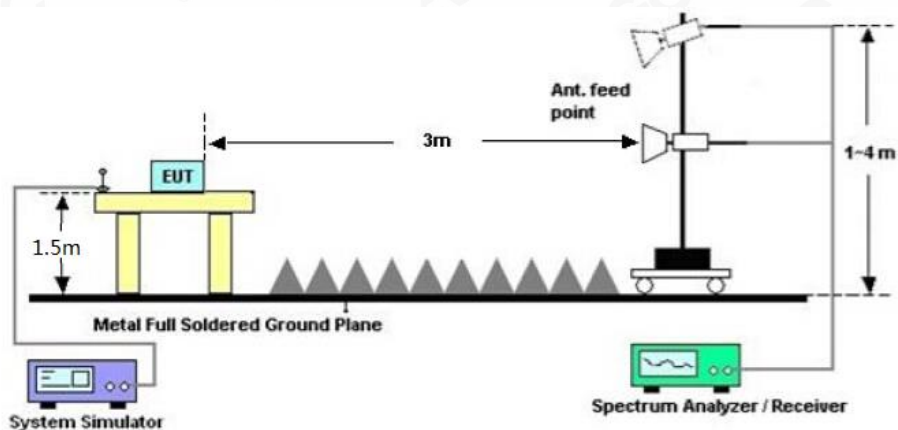
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



11.3. LIMITS AND MEASUREMENT RESULT

15.209(a) Limit in the below table has to be followed

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Note: All modes were tested For restricted band radiated emission,
the test records reported below are the worst result compared to other modes.

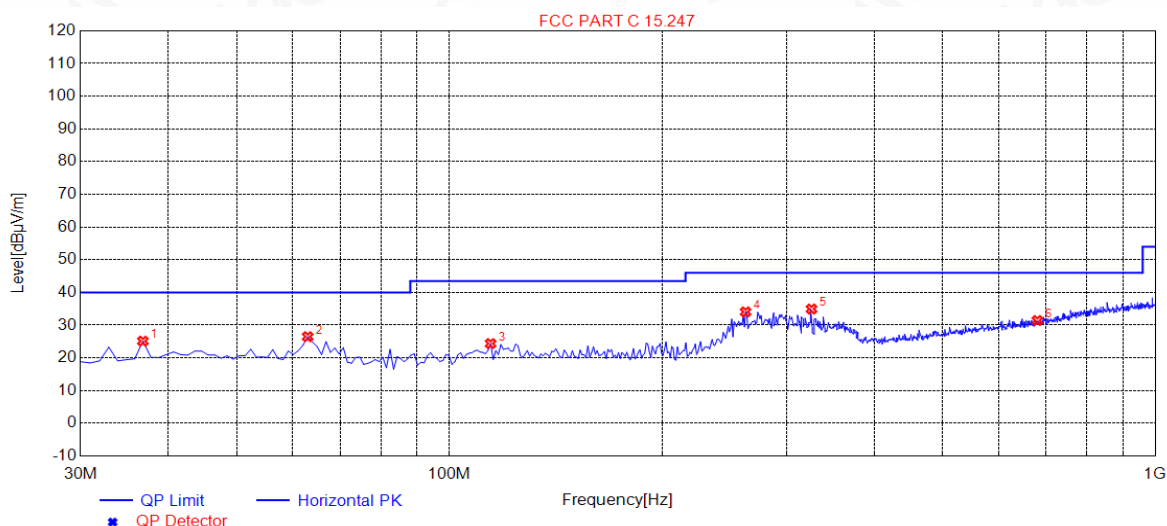
11.4. TEST RESULT

RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.

RADIATED EMISSION BELOW 1GHZ

EUT	WIRELESS USB ADAPTER	Model Name	6B29
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5180MHz	Antenna	Horizontal



NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	36.7900	25.14	14.16	40.00	14.86	100	293	Horizontal
2	62.9800	26.49	13.42	40.00	13.51	100	359	Horizontal
3	114.3900	24.39	12.89	43.50	19.11	100	142	Horizontal
4	262.8000	34.08	14.80	46.00	11.92	100	22	Horizontal
5	325.8500	34.95	16.92	46.00	11.05	100	182	Horizontal
6	680.8700	31.44	25.63	46.00	14.56	100	353	Horizontal

RESULT: PASS



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