



**FCC PART 15
TEST REPORT
No. I16N00359-RLAN01**

for

OnePlus Technology(Shenzhen) Co., Ltd.

Mobile Phone

Model Name: ONEPLUS A3000

With

Hardware Version: 16

Software Version: Qxygen OS 3.1.0

FCC ID: 2ABZ2-A3000

Issued Date: May 23th, 2016

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

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REPORT HISTORY

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1. TEST LATORATORY

1.1. Testing Location

Location: CTTL(South Branch)

Address: No.12, ShangSha Innovation and Technology Park, Futian District,
Shenzhen, Guangdong, P. R. China518048

1.2. Testing Environment

Normal Temperature: 15-35℃

Extreme Temperature: -20/+55℃

Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: 2016-04-06

Testing End Date: 2016-05-13

1.4. Signature

Xu Ye

(Prepared this test report)

Tang Weisheng

(Reviewed this test report)

Zhang Bojun

(Approved this test report)



2. CLIENT INFORMATION

2.1. Applicant Information

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City: Shenzhen
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Country: China
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Fax: /

2.2. Manufacturer Information

Company Name: OnePlus Technology(Shenzhen) Co., Ltd.
Address: 18/F, Tower C, Tai Ran Building, No.8 Tai Ran Road, Shenzhen, China
City: Shenzhen
Postal Code: /
Country: China
Telephone: 0755 61898696 EXT 7023
Fax: /

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	Mobile Phone
Model name	ONEPLUS A3000
FCC ID	2ABZ2-A3000
WLAN Frequency Range	ISM Bands: -5150MHz~5350MHz -5470MHz~5725MHz -5725MHz~5850MHz
Type of modulation	OFDM
Antenna	Integral Antenna
Voltage	3.8V DC by Battery

Note: Photographs of EUT are shown in ANNEX C of this test report. Components list, please refer to documents of the manufacturer.

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version	Receive Date
EUT1	860046030164299	16	Qxygen OS 3.1.0	2016-04-06

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

AE ID*	Description	Type	SN
AE1	Power Supply Unit	HK0504	/

*AE ID: is used to identify the test sample in the lab internally.



4. REFERENCE DOCUMENTS

4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

FCC Part15	Title 47 of the Code of Federal Regulations; Chapter I Part 15 - Radio frequency devices	Nov,2015
ANSI C63.10	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	Jun,2013
UNII: KDB 789033	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E	Jun,2014

5. SUMMARY OF TEST RESULTS

5.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15E	Verdict
Maximum Output Power	15.407	P
Power Spectral Density	15.407	P
Occupied 26dB Bandwidth	15.403	P
Band edge compliance	15.209	P
Spurious emissions conducted < 30 MHz	15.407	P
Frequency Stability	15.407	NA
Transmit Power Control	15.407	NA

Please refer to **ANNEX A** for detail.

5.2. Statements

CTTL has evaluated the test cases requested by the applicant/manufacturer as listed in section 5.1 of this report, for the EUT specified in section 3, according to the standards or reference documents listed in section 4.2

5.3. Terms used in the result table

Terms used in Verdict column

P	Pass
NA	Not Available
F	Fail

Abbreviations

AC	Alternating Current
AFH	Adaptive Frequency Hopping
BW	Band Width
E.I.R.P.	equivalent isotropical radiated power
ISM	Industrial, Scientific and Medical
R&TTE	Radio and Telecommunications Terminal Equipment
RF	Radio Frequency
Tx	Transmitter



6. TEST EQUIPMENTS UTILIZED

Conducted test system

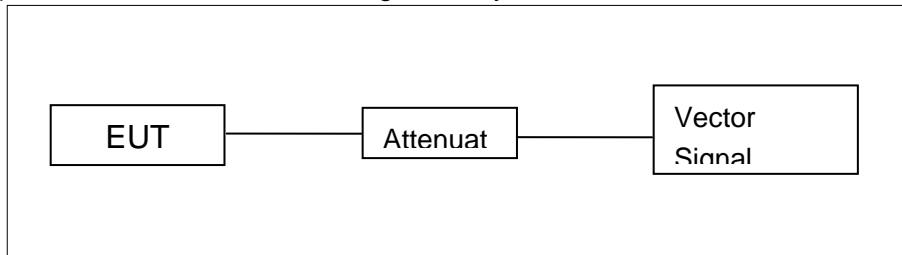
No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1	Vector Signal Analyzer	FSV40	100903	Rohde & Schwarz	2017-03-21	1 year

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

A.1.1. Conducted Measurements

- 1). Connect the EUT to the test system correctly.
- 2). Set the EUT to the required work mode.
- 3). Set the EUT to the required channel.
- 4). Set the spectrum analyzer to start measurement.
- 5). Record the values. Vector Signal Analyzer



A.2. Maximum output Power

Measurement Limit and Method:

Standard	Frequency (MHz)	Limit (dBm)
FCC CRF Part 15.407(a)	5150MHz~5250MHz	24dBm
	5250MHz~5350MHz	24dBm or 11+10logB
	5470MHz~5725MHz	24dBm or 11+10logB

Limit use the less value, and B is the 26dB bandwidth.

The measurement method SA-1 is made according to KDB 789033

Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep):

- (i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- (ii) Set RBW = 1 MHz.
- (iii) Set VBW \geq 3 MHz.
- (iv) Number of points in sweep $\geq 2 \times$ span / RBW. (This ensures that bin-to-bin spacing is \leq RBW/2, so that narrowband signals are not lost between frequency bins.)
- (v) Sweep time = auto.
- (vi) Detector = power averaging (rms), if available. Otherwise, use sample detector mode.
- (vii) If transmit duty cycle $<$ 98%, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle \geq 98%, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run."
- (viii) Trace average at least 100 traces in power averaging (rms) mode.
- (ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99%

occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

Measurement Results:

802.11a mode

Mode	Channel	Test Result (dBm)							
		Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
802.11a	5180MHz (Ch36)	10.50	/	/	/	/	/	/	/
	5200MHz (Ch40)	10.43	/	/	/	/	/	/	/
	5240MHz(Ch48)	10.52	/	/	/	/	/	/	/
	5260MHz(Ch52)	10.63	/	/	/	/	/	/	/
	5280MHz(Ch56)	10.31	/	/	/	/	/	/	/
	5320MHz(Ch64)	10.97	10.96	10.87	10.56	10.27	10.14	9.94	9.05
	5500MHz(Ch100)	10.78	/	/	/	/	/	/	/
	5580MHz(Ch116)	10.53	/	/	/	/	/	/	/
	5700MHz(Ch140)	10.67	/	/	/	/	/	/	/

The data rate 6Mbps is selected as worse condition, and the following cases are performed with this condition.

802.11n-HT20 mode

Mode	Channel	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT20)	5180MHz (Ch36)	9.37	/	/	/	/	/	/	/
	5200MHz (Ch40)	9.41	/	/	/	/	/	/	/
	5240MHz(Ch48)	9.36	/	/	/	/	/	/	/
	5260MHz(Ch52)	9.94	9.93	9.78	9.55	9.31	9.07	8.84	8.51
	5280MHz(Ch56)	9.71	/	/	/	/	/	/	/
	5320MHz(Ch64)	9.82	/	/	/	/	/	/	/
	5500MHz(Ch100)	9.67	/	/	/	/	/	/	/
	5580MHz(Ch116)	9.53	/	/	/	/	/	/	/
	5700MHz(Ch140)	9.22	/	/	/	/	/	/	/

The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

802.11n-HT40 mode

Mode	Channel	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT40)	5190MHz (Ch38)	9.16	/	/	/	/	/	/	/
	5230MHz(Ch46)	9.25	/	/	/	/	/	/	/
	5270MHz(Ch54)	10.23	/	/	/	/	/	/	/
	5310MHz(Ch62)	10.32	/	/	/	/	/	/	/
	5510MHz(Ch102)	9.33	/	/	/	/	/	/	/
	5550MHz(Ch110)	9.79	/	/	/	/	/	/	/
	5670MHz(Ch134)	10.56	10.53	10.50	10.29	10.15	10.07	9.92	9.67

The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

802.11ac-HT20 mode

Mode	Channel	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11 ac (HT20)	5180MHz (Ch36)	7.49	/	/	/	/	/	/	/
	5200MHz (Ch40)	7.93	/	/	/	/	/	/	/
	5240MHz(Ch48)	7.90	/	/	/	/	/	/	/
	5260MHz(Ch52)	8.51	/	/	/	/	/	/	/
	5280MHz(Ch56)	8.26	/	/	/	/	/	/	/
	5320MHz(Ch64)	8.73	8.71	8.58	8.45	8.24	8.09	8.02	7.73
	5500MHz(Ch100)	8.57	/	/	/	/	/	/	/
	5580MHz(Ch116)	8.32	/	/	/	/	/	/	/
	5700MHz(Ch140)	8.14	/	/	/	/	/	/	/

The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

802.11ac-HT40 mode

Mode	Channel	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11 ac (HT40)	5190MHz (Ch38)	8.07	/	/	/	/	/	/	/
	5230MHz(Ch46)	8.32	/	/	/	/	/	/	/
	5270MHz(Ch54)	8.64	/	/	/	/	/	/	/
	5310MHz(Ch62)	8.54	/	/	/	/	/	/	/
	5510MHz(Ch102)	8.46	/	/	/	/	/	/	/
	5550MHz(Ch110)	8.70	8.66	8.53	8.29	8.17	8.02	7.84	7.41
	5670MHz(Ch134)	8.24	/	/	/	/	/	/	/

The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

802.11ac-HT80 mode

Mode	Channel	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11ac (HT80)	5210MHz(Ch42)	6.75	/	/	/	/	/	/	/
	5290MHz(Ch58)	6.86	6.77	6.51	6.38	6.16	6.02	5.79	5.47
	5530MHz(Ch106)	6.53	/	/	/	/	/	/	/

The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

A.3. Peak Power Spectral Density (conducted)

Measurement Limit:

Standard	Frequency (MHz)	Limit (dBm/MHz)
FCC CRF Part 15.407(a)	5150MHz~5250MHz	11
	5250MHz~5350MHz	11
	5470MHz~5725MHz	11

The output power measurement method SA-1 is made according to KDB 789033

Measurement Results:

Mode	Channel	Power Spectral Density (dBm/MHz)	Conclusion
802.11a	5180 MHz	1.08	P
	5200 MHz	1.23	P
	5240 MHz	1.67	P
	5260 MHz	-1.46	P
	5280 MHz	0.19	P
	5320 MHz	0.18	P
	5500 MHz	-0.04	P
	5580 MHz	0.12	P
802.11n HT20	5700 MHz	-0.45	P
	5180 MHz	-0.28	P
	5200 MHz	-0.13	P
	5240 MHz	-1.17	P
	5260 MHz	-2.86	P
	5280 MHz	-1.14	P
	5320 MHz	-0.60	P
	5500 MHz	-1.07	P
	5580 MHz	-1.18	P
5700 MHz	-1.90	P	



Mode	Channel	Power Spectral Density (dBm/MHz)	Conclusion
802.11n HT40	5190 MHz	-2.45	P
	5230 MHz	-2.13	P
	5270 MHz	-3.35	P
	5310 MHz	-4.91	P
	5510 MHz	-4.33	P
	5550 MHz	-4.13	P
	5670 MHz	-4.74	P
802.11ac HT20	5180 MHz	-1.04	P
	5200 MHz	-1.17	P
	5240 MHz	-0.86	P
	5260 MHz	-4.06	P
	5280 MHz	-2.20	P
	5320 MHz	-2.65	P
	5500 MHz	-2.56	P
	5580 MHz	-2.31	P
802.11ac HT40	5190 MHz	-3.32	P
	5230 MHz	-3.46	P
	5270 MHz	-5.43	P
	5310 MHz	-5.59	P
	5510 MHz	-5.12	P
	5550 MHz	-5.42	P
	5670 MHz	-5.86	P
802.11ac HT80	5210MHz	-6.61	P
	5290MHz	-7.58	P
	5530MHz	-7.55	P

Conclusion: PASS

A.4. Occupied 26dB Bandwidth(conducted)

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.403 (i)	/

The measurement is made according to KDB 789033

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz
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Measurement Result:

Mode	Channel	Occupied 26dB Bandwidth (kHz)		conclusion
		Fig.	Value	
802.11a	5180 MHz	Fig.1	20550	P
	5200 MHz	Fig.2	20650	P
	5240 MHz	Fig.3	20550	P
	5260 MHz	Fig.4	20900	P
	5280 MHz	Fig.5	20400	P
	5320 MHz	Fig.6	20550	P
	5500 MHz	Fig.7	20600	P
	5580 MHz	Fig.8	20600	P
802.11n HT20	5700 MHz	Fig.9	20700	P
	5180 MHz	Fig.10	21400	P
	5200 MHz	Fig.11	21550	P
	5240 MHz	Fig.12	21550	P
	5260 MHz	Fig.13	21750	P
	5280 MHz	Fig.14	21450	P
	5320 MHz	Fig.15	21550	P
	5500 MHz	Fig.16	21700	P
802.11n HT40	5580 MHz	Fig.17	21700	P
	5700 MHz	Fig.18	21600	P
	5190 MHz	Fig.19	41200	P
	5230 MHz	Fig.20	41040	P
	5270 MHz	Fig.21	41040	P
	5310 MHz	Fig.22	41760	P
	5510 MHz	Fig.23	41760	P
5550 MHz	Fig.24	43360	P	
	5670 MHz	Fig.25	42160	P

802.11ac HT20	5180 MHz	Fig.26	21600	P
	5200 MHz	Fig.27	21700	P
	5240 MHz	Fig.28	21800	P
	5260 MHz	Fig.29	21400	P
	5280 MHz	Fig.30	21400	P
	5320 MHz	Fig.31	21600	P
	5500 MHz	Fig.32	21600	P
	5580 MHz	Fig.33	21550	P
	5700 MHz	Fig.34	21700	P
802.11ac HT40	5190 MHz	Fig.35	41200	P
	5230 MHz	Fig.36	40880	P
	5270 MHz	Fig.37	41360	P
	5310 MHz	Fig.38	43920	P
	5510 MHz	Fig.39	41520	P
	5550 MHz	Fig.40	41680	P
	5670 MHz	Fig.41	43360	P
802.11ac HT80	5210MHz	Fig.42	82560	P
	5290MHz	Fig.43	82240	P
	5530MHz	Fig.44	83040	P

Conclusion: PASS

Test graphs as below:

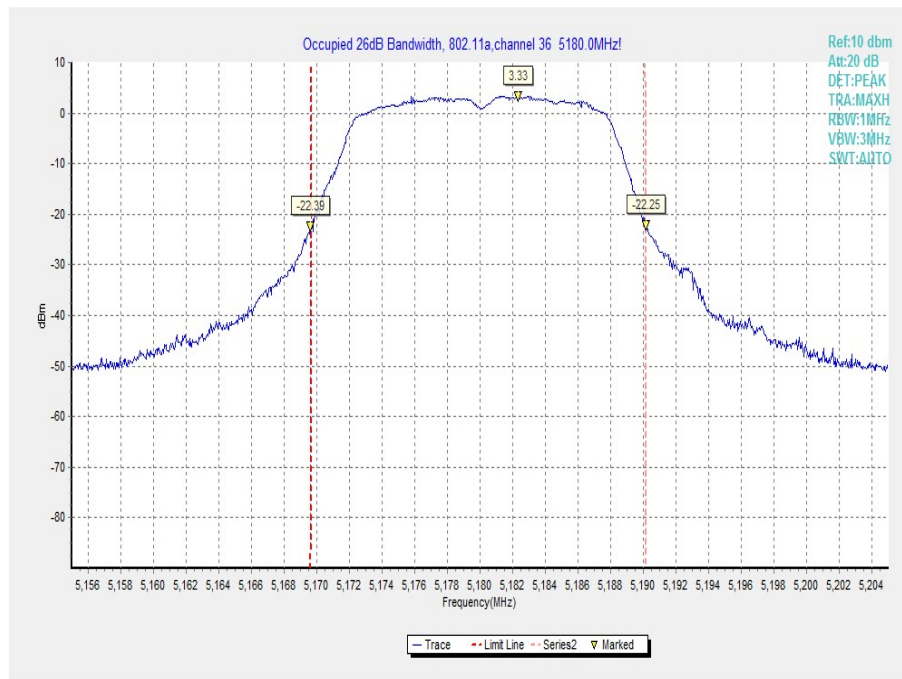


Fig. 1 Occupied 26dB Bandwidth (802.11a, 5180MHz)

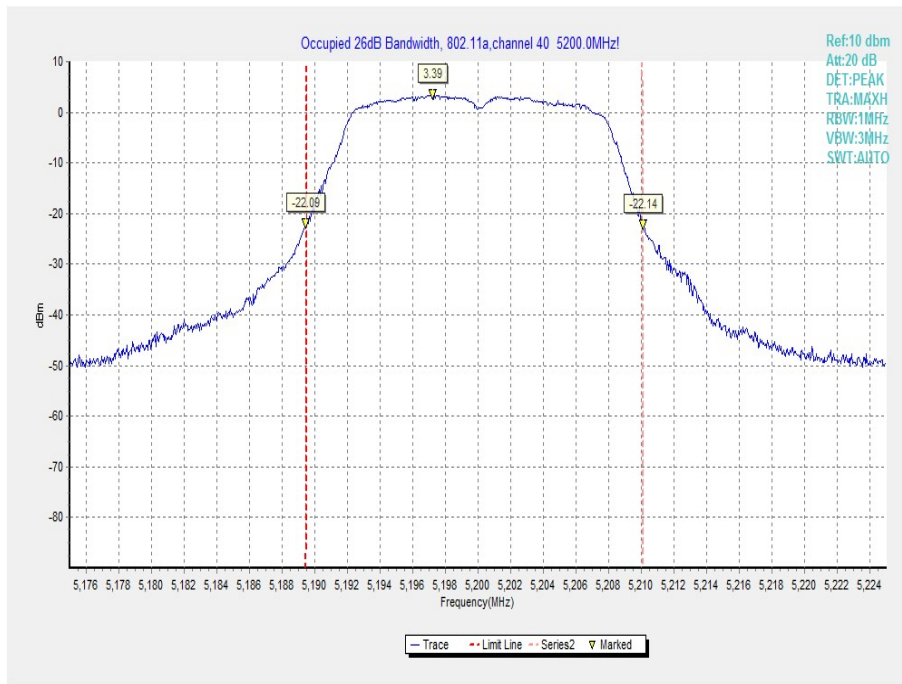


Fig. 2 Occupied 26dB Bandwidth (802.11a, 5200MHz)

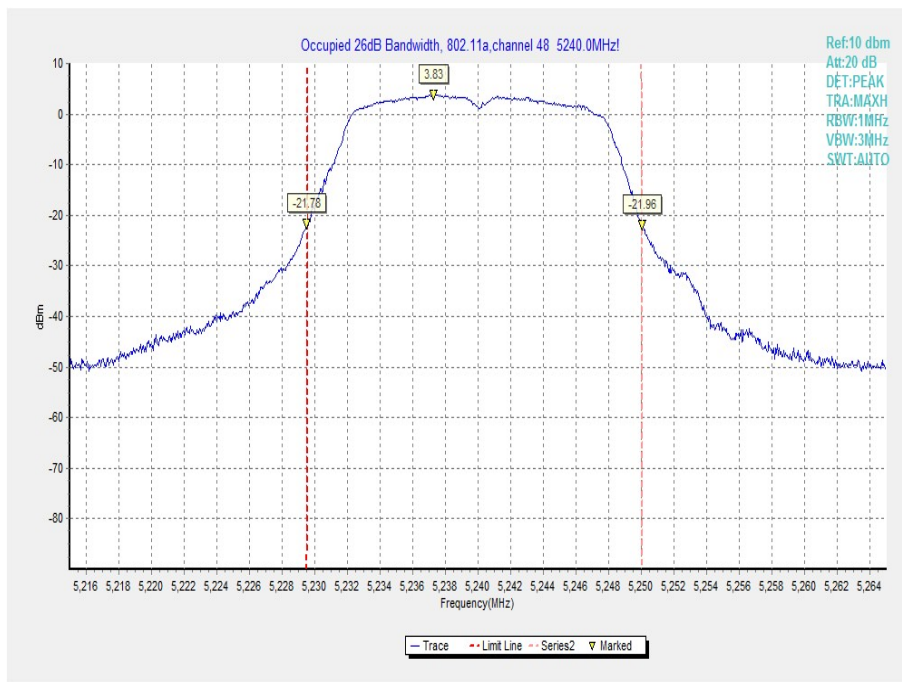


Fig. 3 Occupied 26dB Bandwidth (802.11a, 5240MHz)

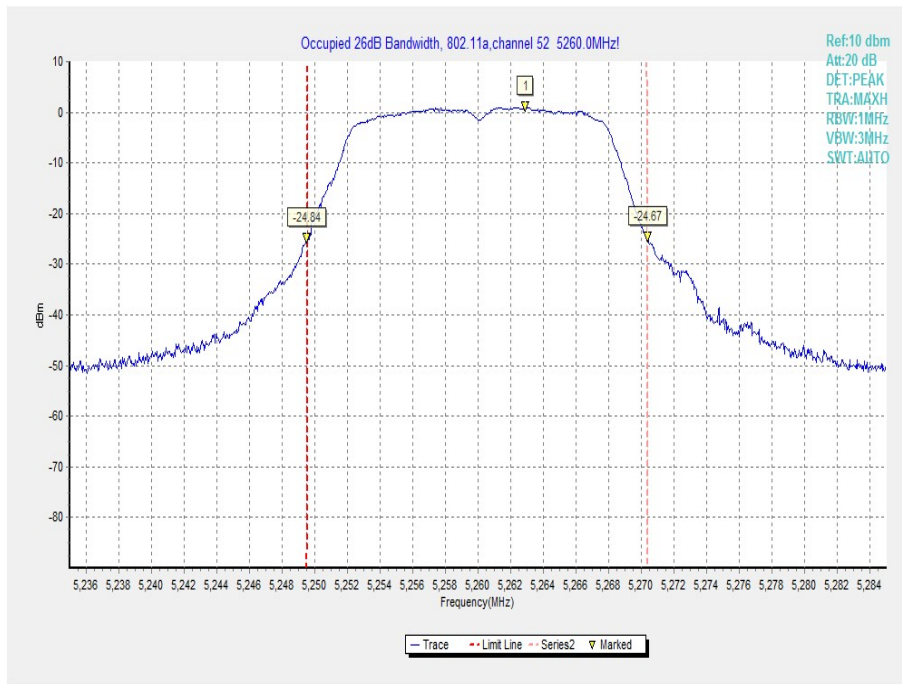


Fig. 4 Occupied 26dB Bandwidth (802.11a, 5260MHz)



Fig. 5 Occupied 26dB Bandwidth (802.11a, 5280MHz)

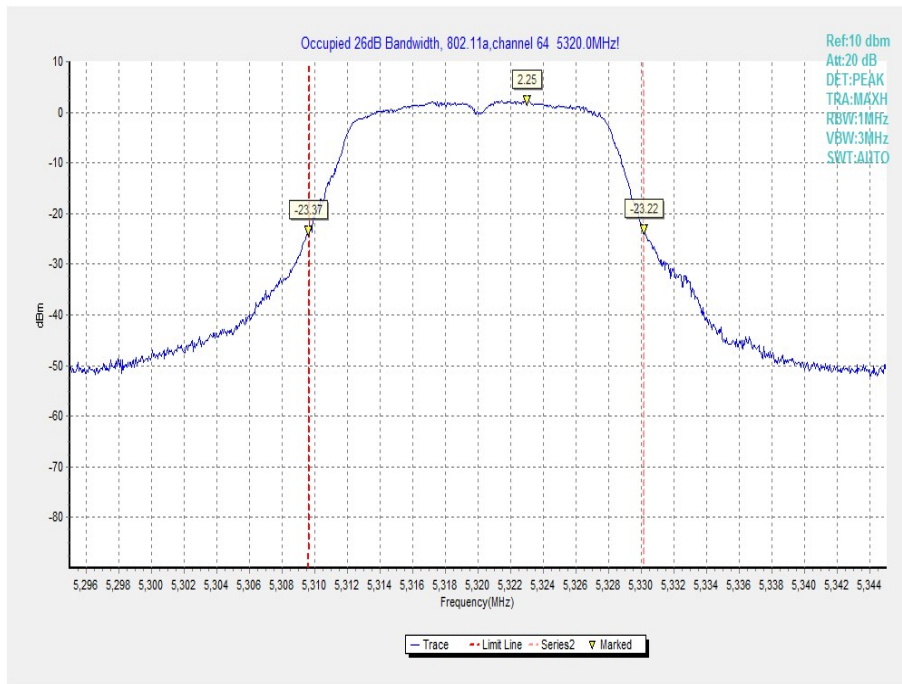


Fig. 6 Occupied 26dB Bandwidth (802.11a, 5320MHz)

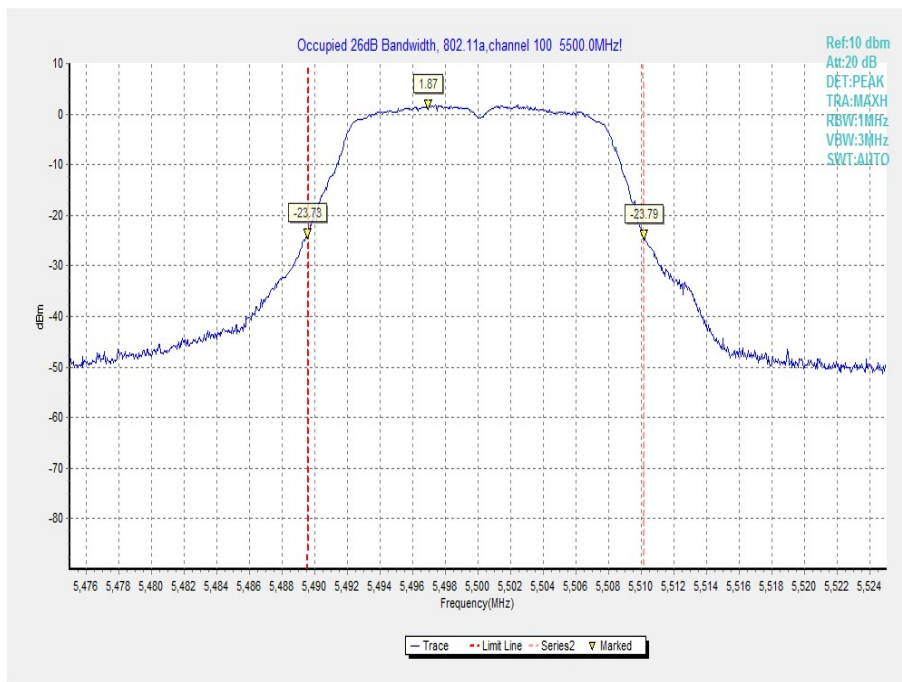


Fig. 7 Occupied 26dB Bandwidth (802.11a, 5500MHz)

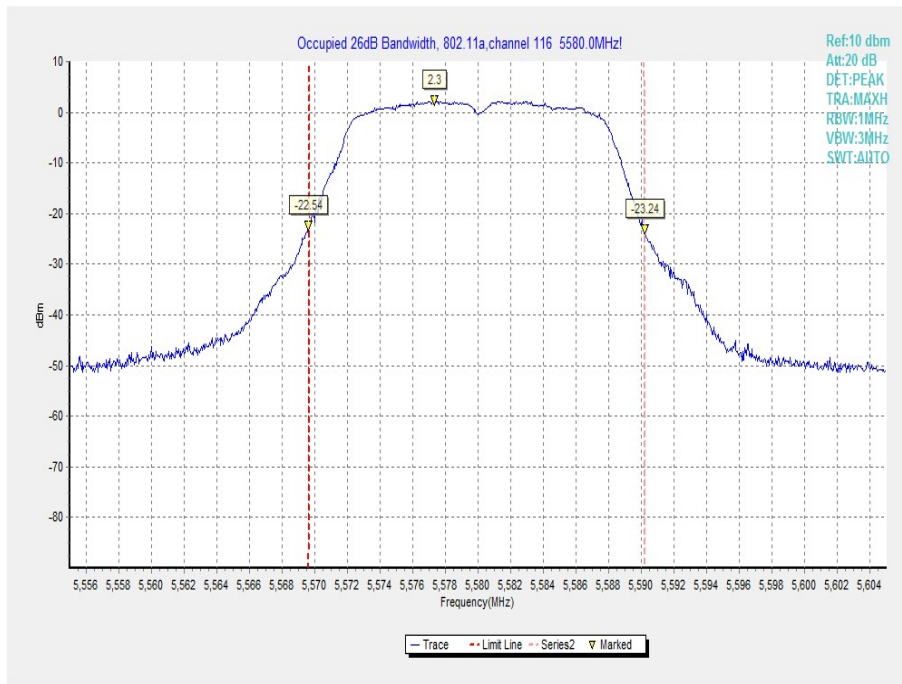


Fig. 8 Occupied 26dB Bandwidth (802.11a, 5600MHz)

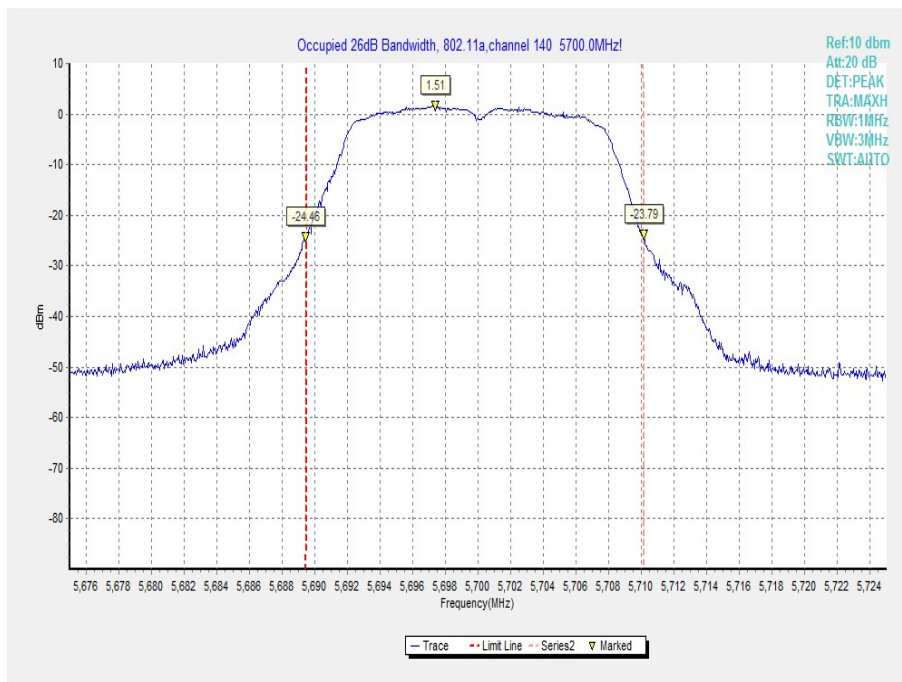


Fig. 9 Occupied 26dB Bandwidth (802.11a, 5700MHz)

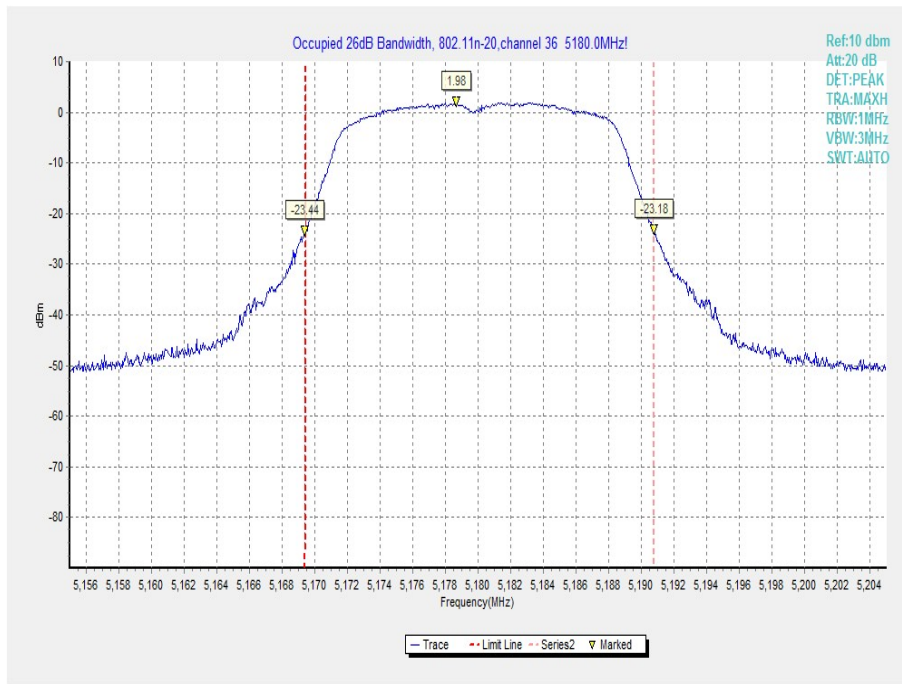


Fig. 10 Occupied 26dB Bandwidth (802.11n-HT20, 5180MHz)

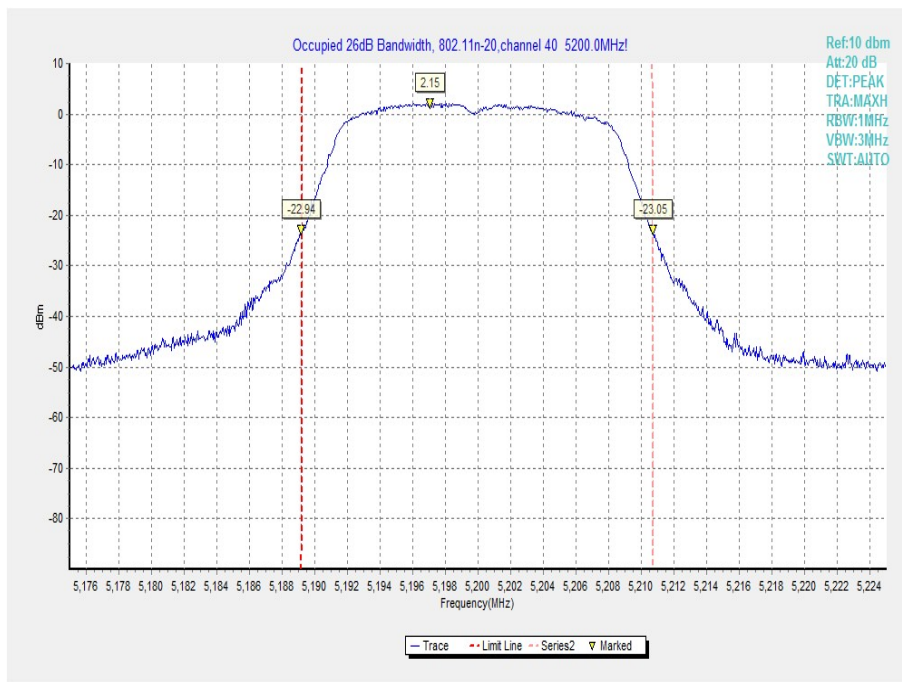


Fig. 11 Occupied 26dB Bandwidth (802.11n-HT20, 5200MHz)

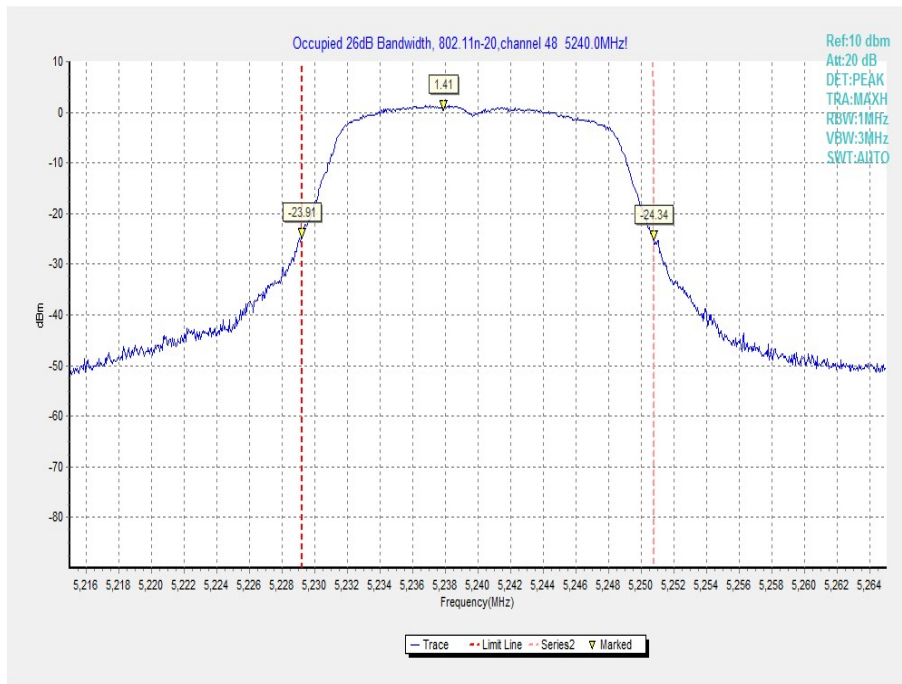


Fig. 12 Occupied 26dB Bandwidth (802.11n-HT20, 5240MHz)

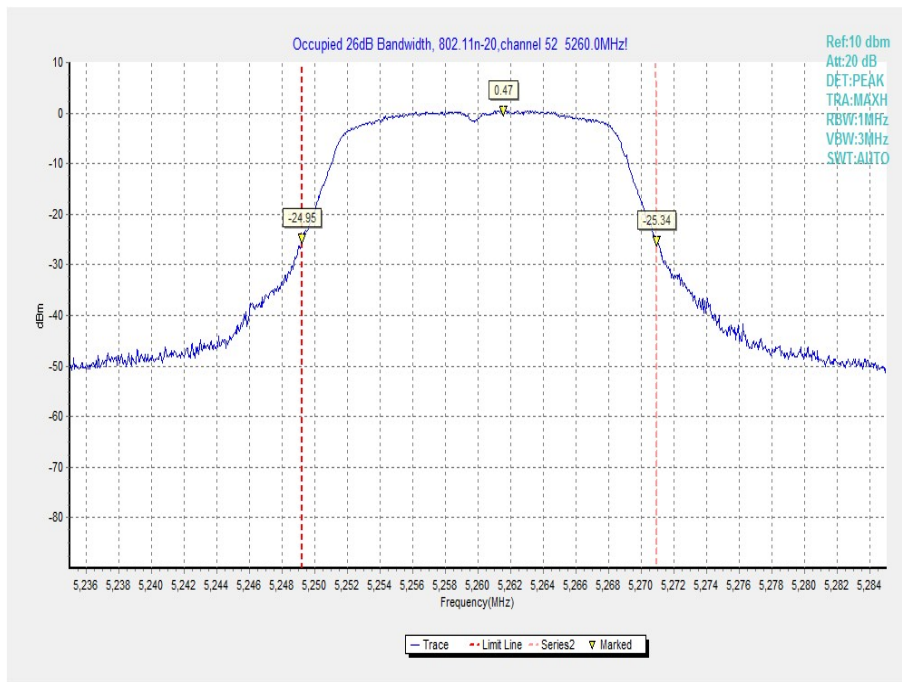


Fig. 13 Occupied 26dB Bandwidth (802.11n-HT20, 5260MHz)

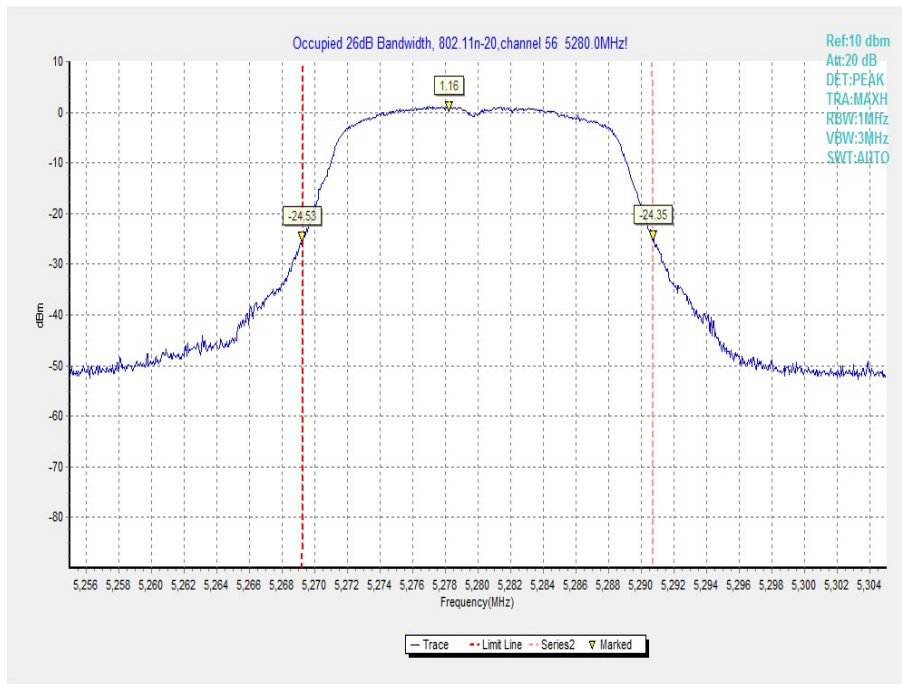


Fig. 14 Occupied 26dB Bandwidth (802.11n-HT20, 5280MHz)

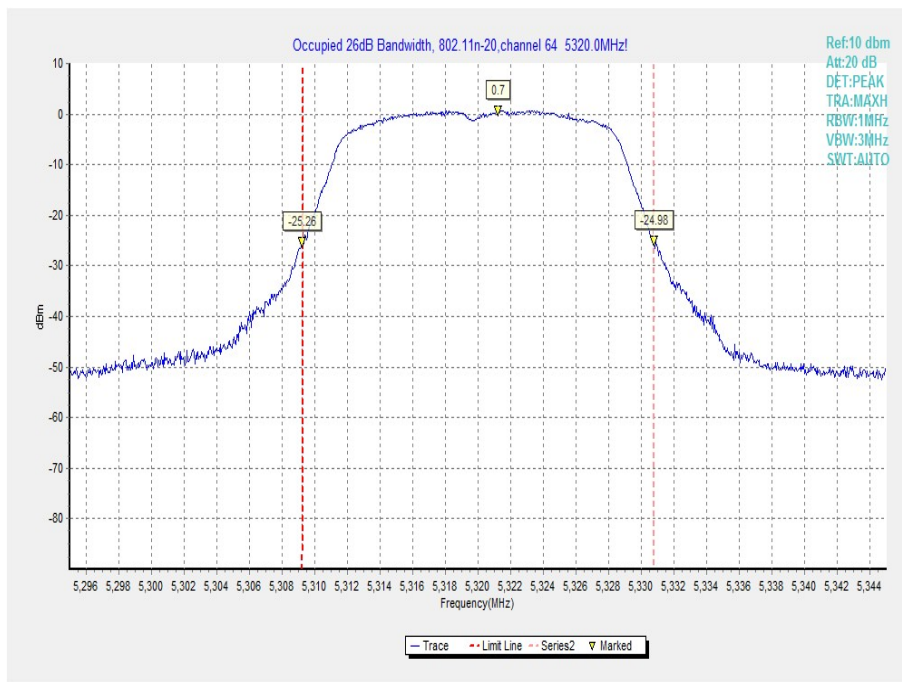


Fig. 15 Occupied 26dB Bandwidth (802.11n-HT20, 5320MHz)

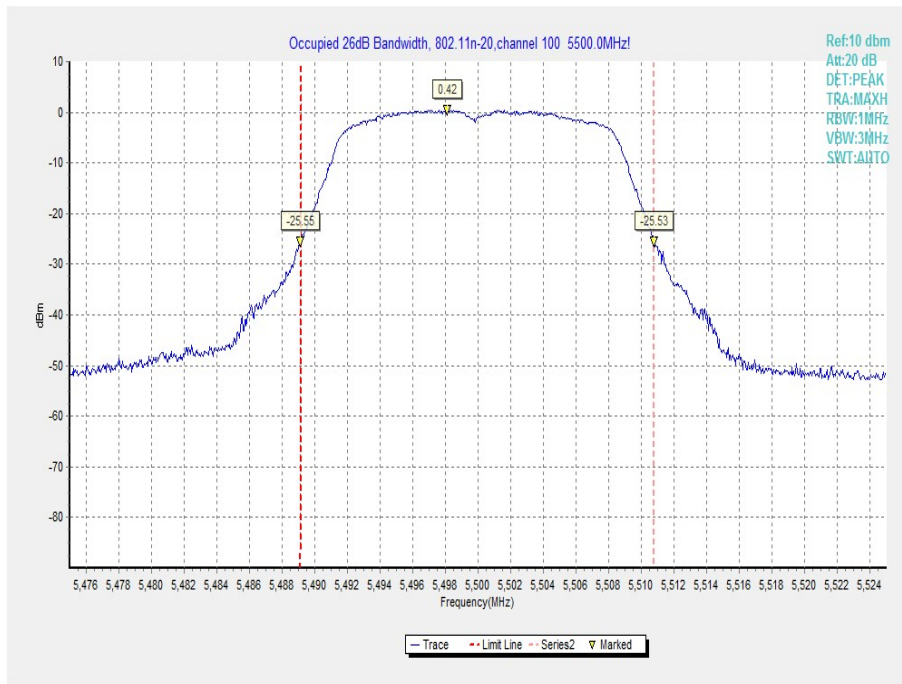


Fig. 16 Occupied 26dB Bandwidth (802. 11n-HT20, 5500MHz)

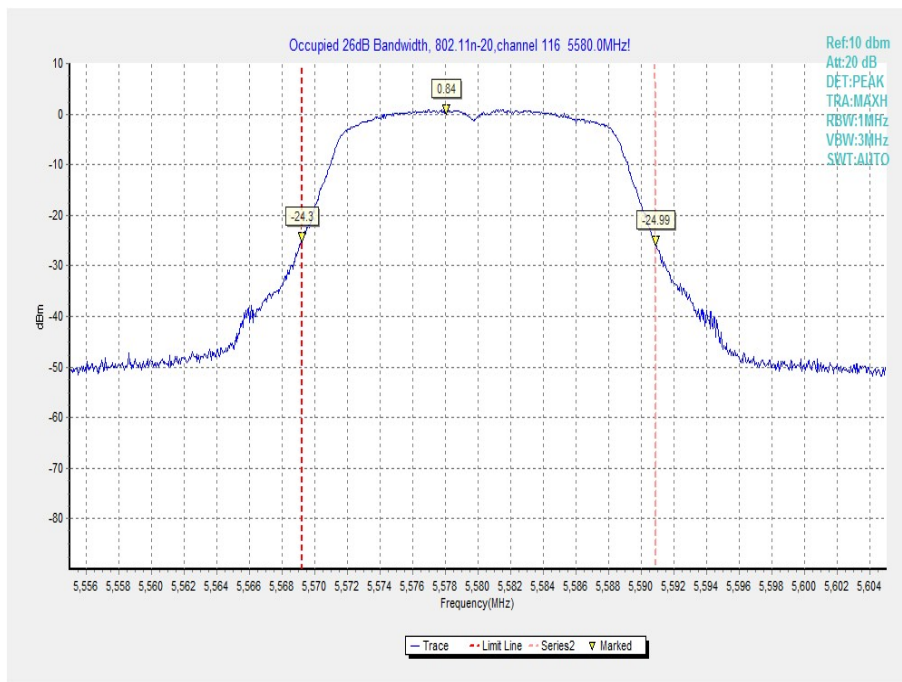


Fig. 17 Occupied 26dB Bandwidth (802. 11n-HT20, 5600MHz)

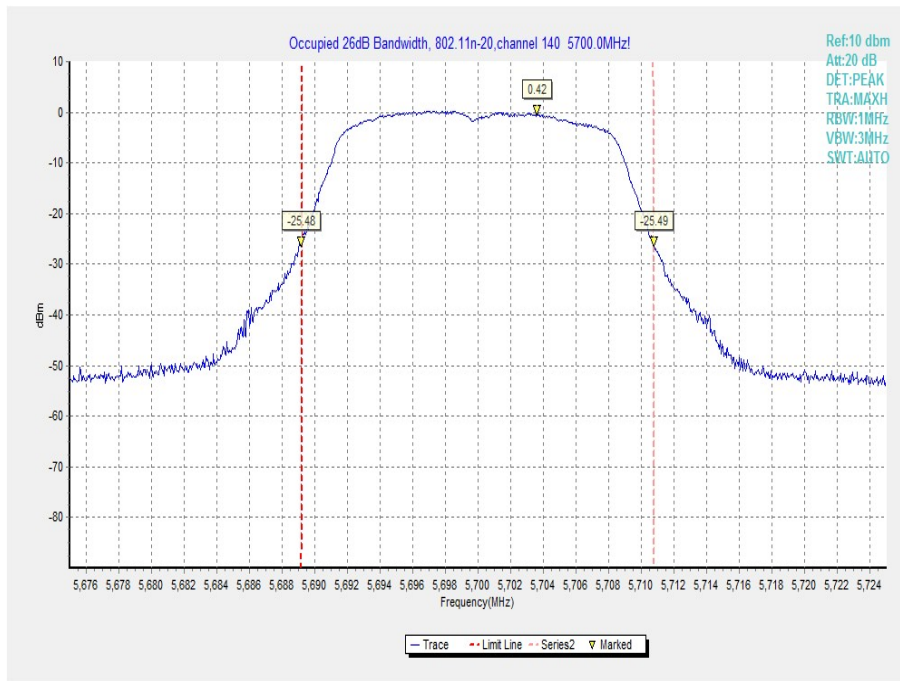


Fig. 18 Occupied 26dB Bandwidth (802.11n-HT20, 5700MHz)

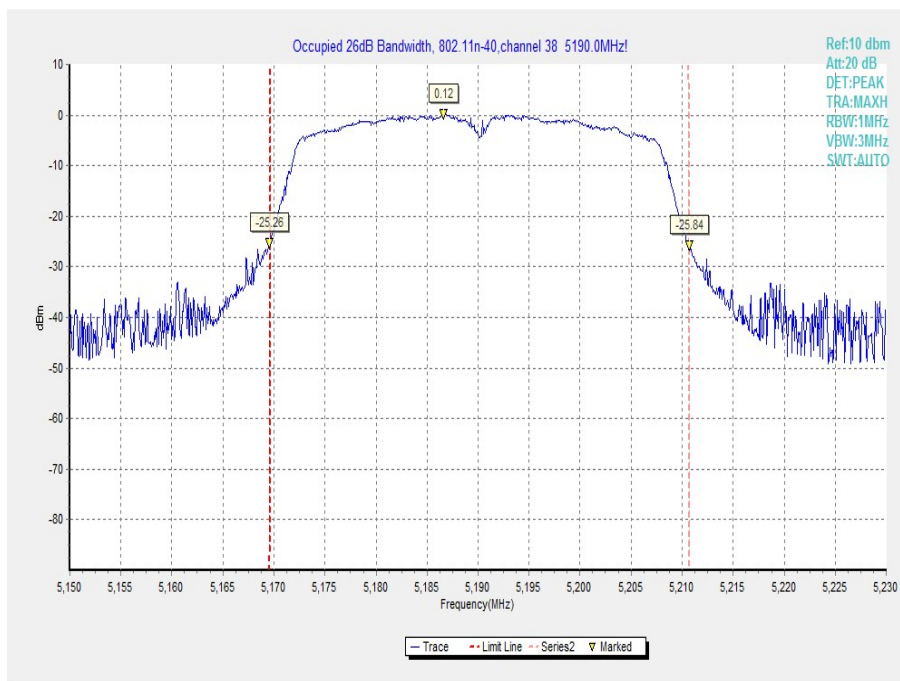


Fig. 19 Occupied 26dB Bandwidth (802.11n-HT40, 5190MHz)

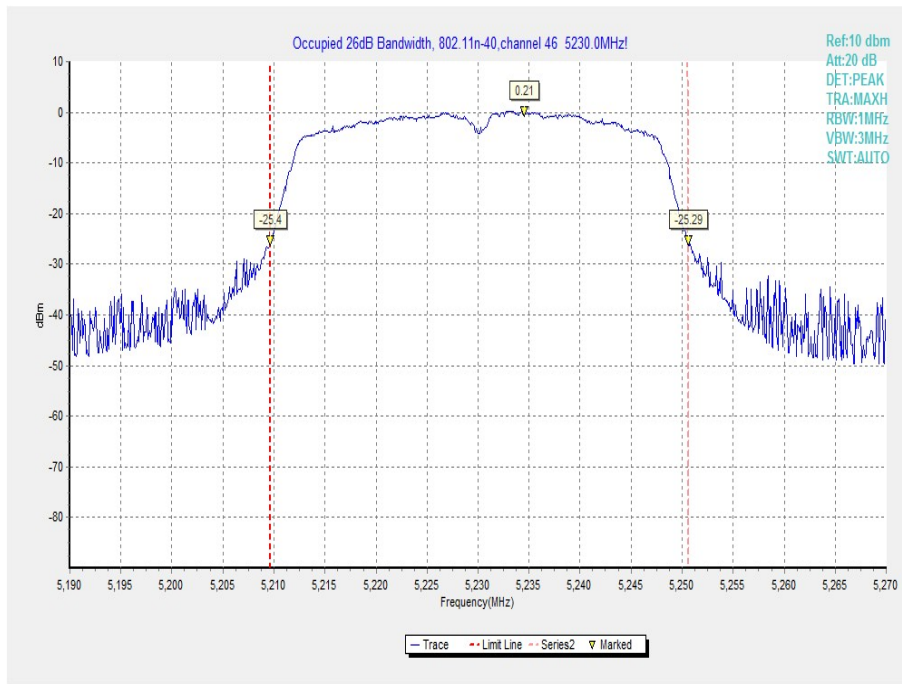


Fig. 20 Occupied 26dB Bandwidth (802.11n-HT40, 5230MHz)

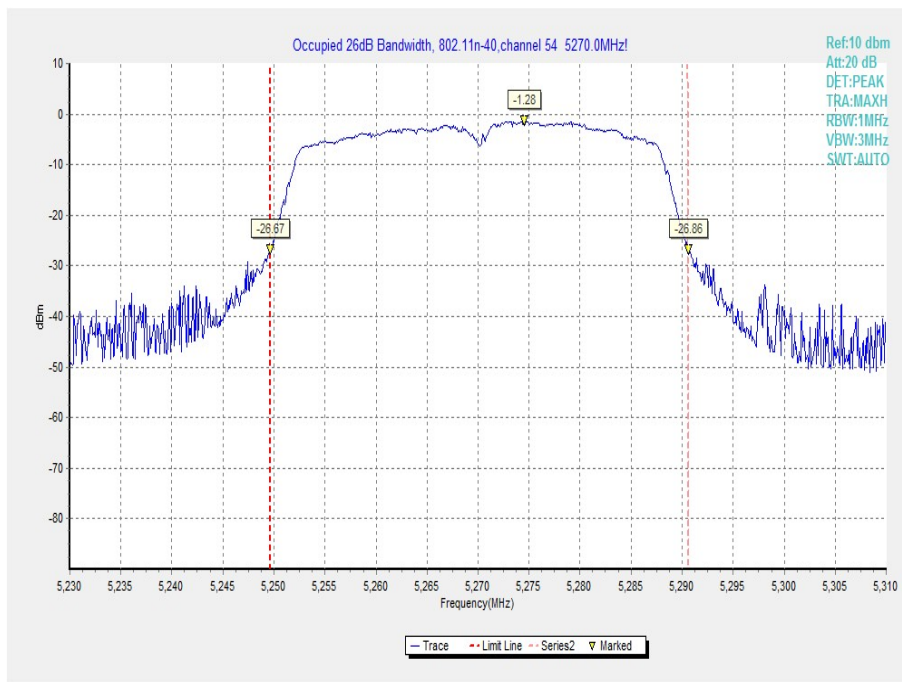


Fig. 21 Occupied 26dB Bandwidth (802.11n-HT40, 5270MHz)

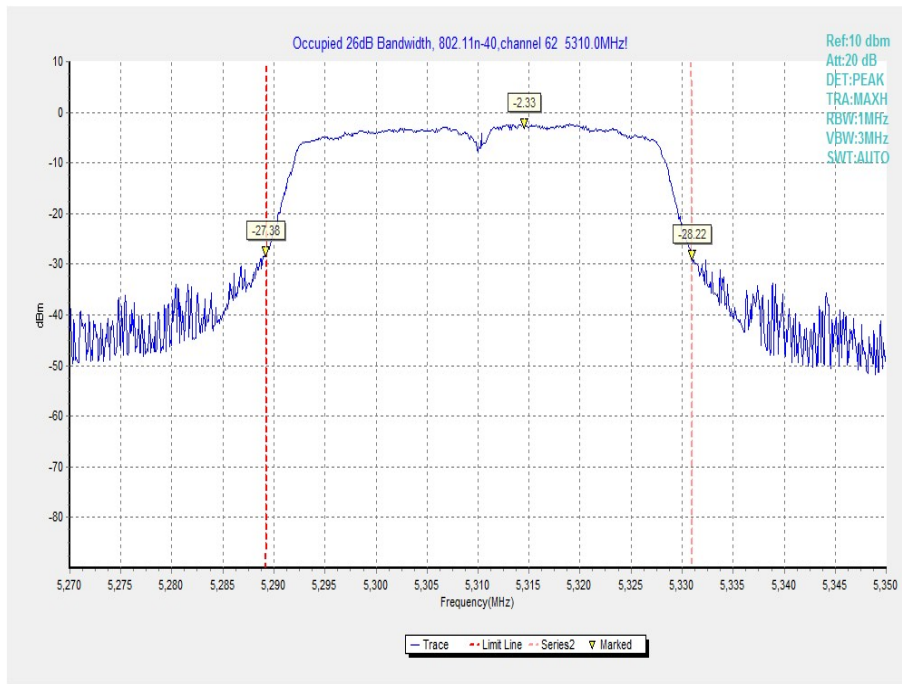


Fig. 22 Occupied 26dB Bandwidth (802.11n-HT40, 5310MHz)

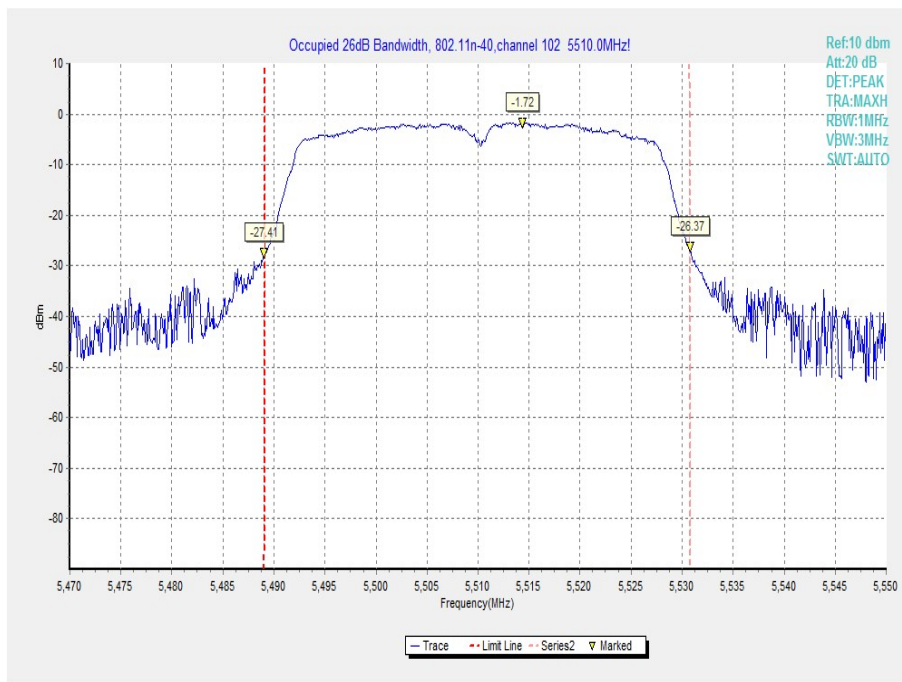


Fig. 23 Occupied 26dB Bandwidth (802.11n-HT40, 5510MHz)

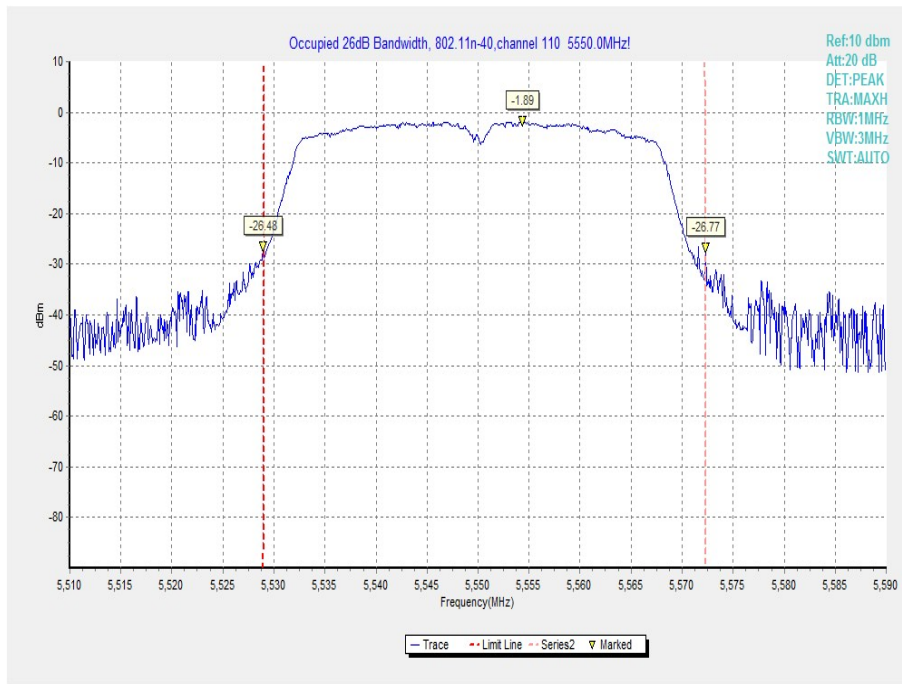


Fig. 24 Occupied 26dB Bandwidth (802. 11n-HT40, 5590MHz)

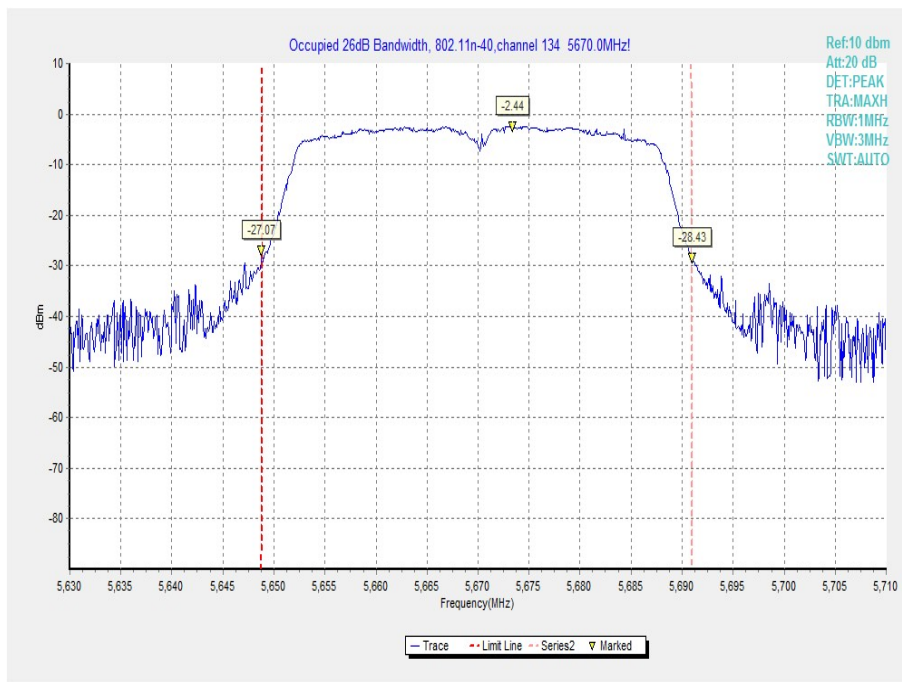


Fig. 25 Occupied 26dB Bandwidth (802. 11n-HT40, 5670MHz)

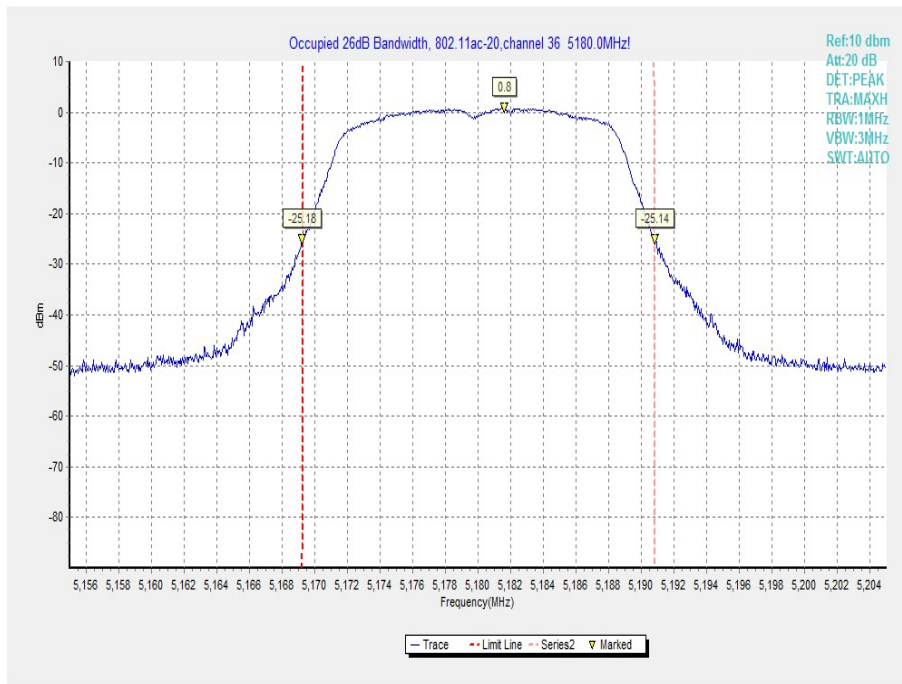


Fig. 26 Occupied 26dB Bandwidth (802.11ac-HT20, 5180MHz)

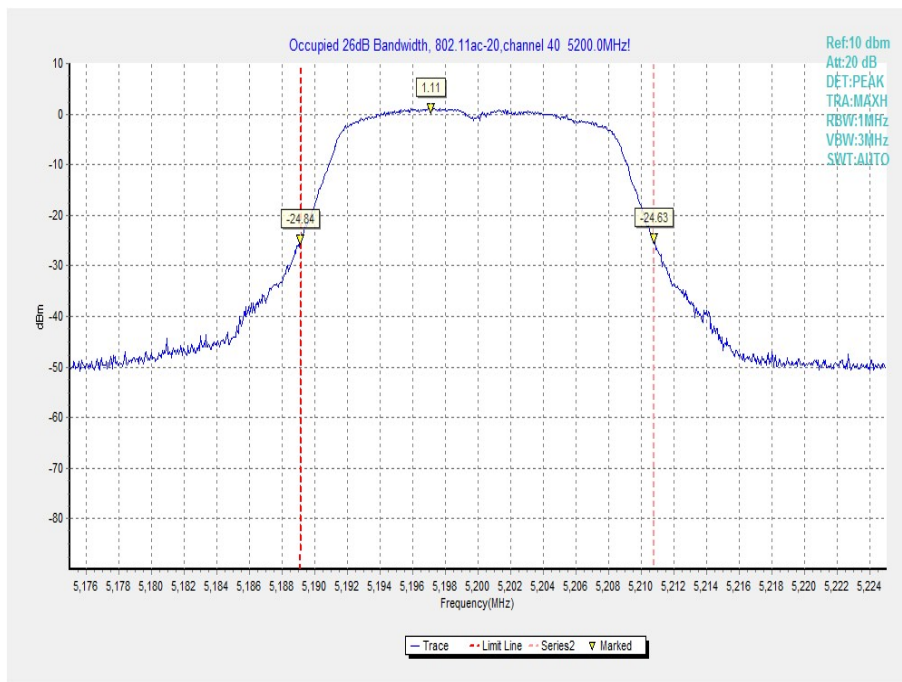


Fig. 27 Occupied 26dB Bandwidth (802.11ac-HT20, 5200MHz)

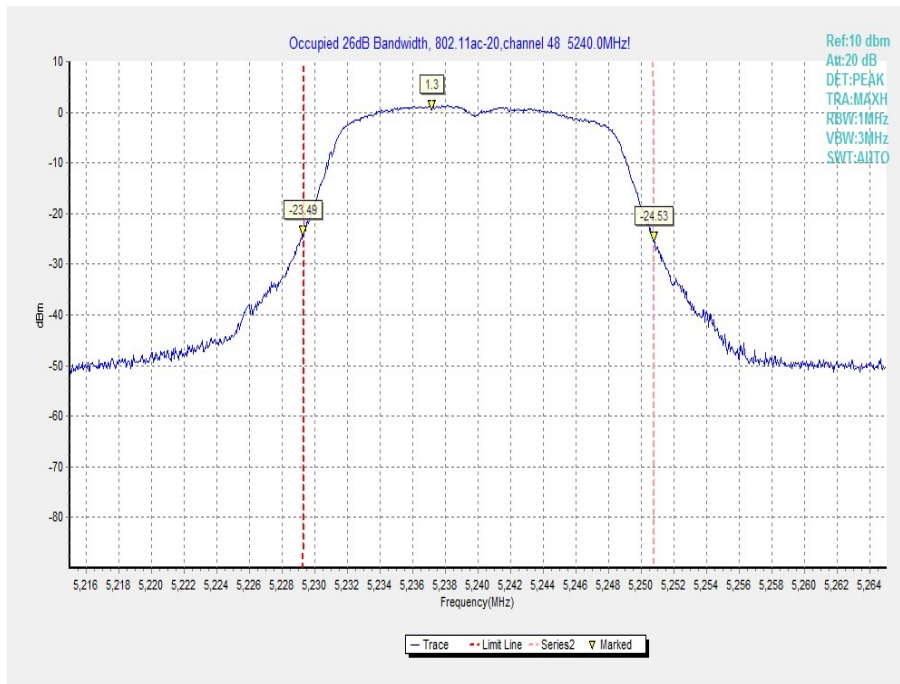


Fig. 28 Occupied 26dB Bandwidth (802.11ac-HT20, 5240MHz)

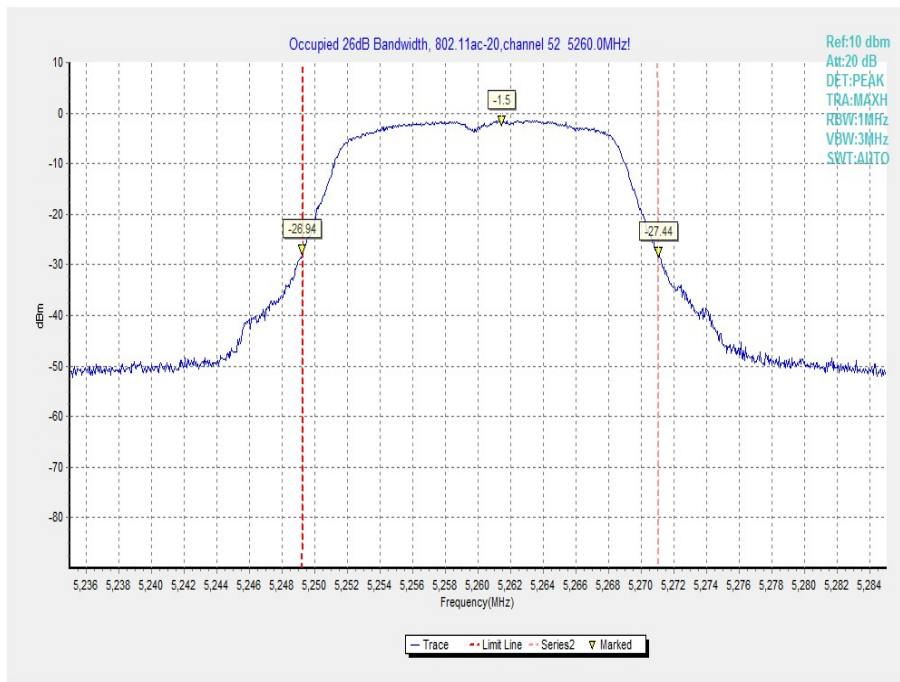


Fig. 29 Occupied 26dB Bandwidth (802.11ac-HT20, 5260MHz)

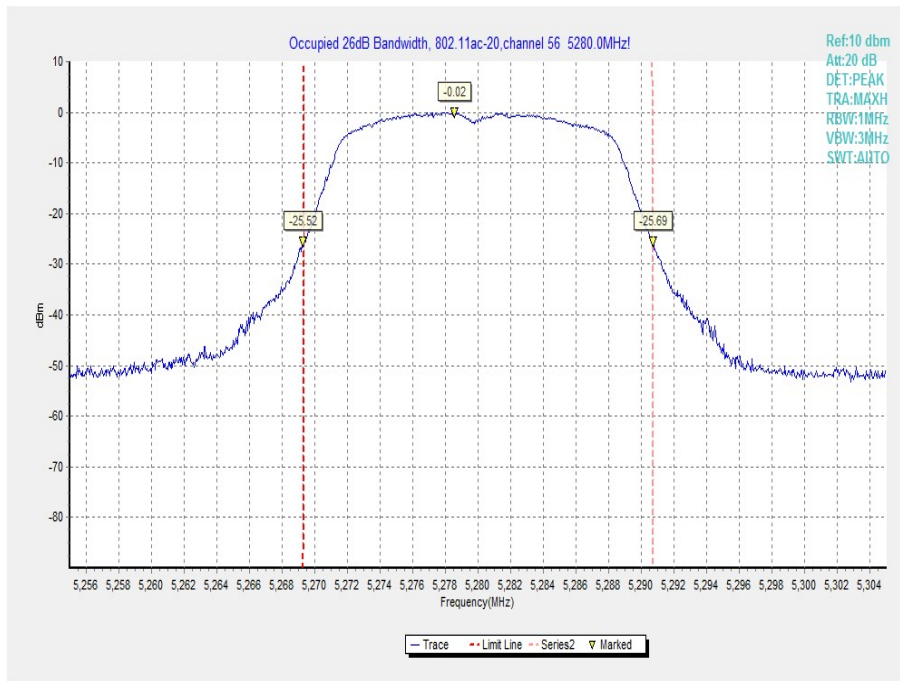


Fig. 30 Occupied 26dB Bandwidth (802.11ac-HT20, 5280MHz)

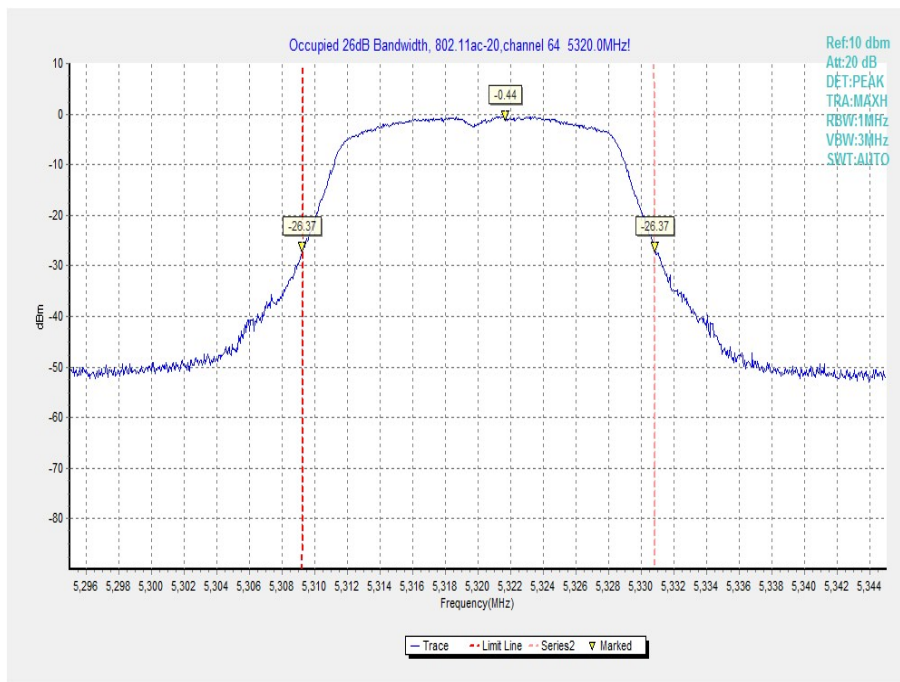


Fig. 31 Occupied 26dB Bandwidth (802.11ac-HT20, 5320MHz)

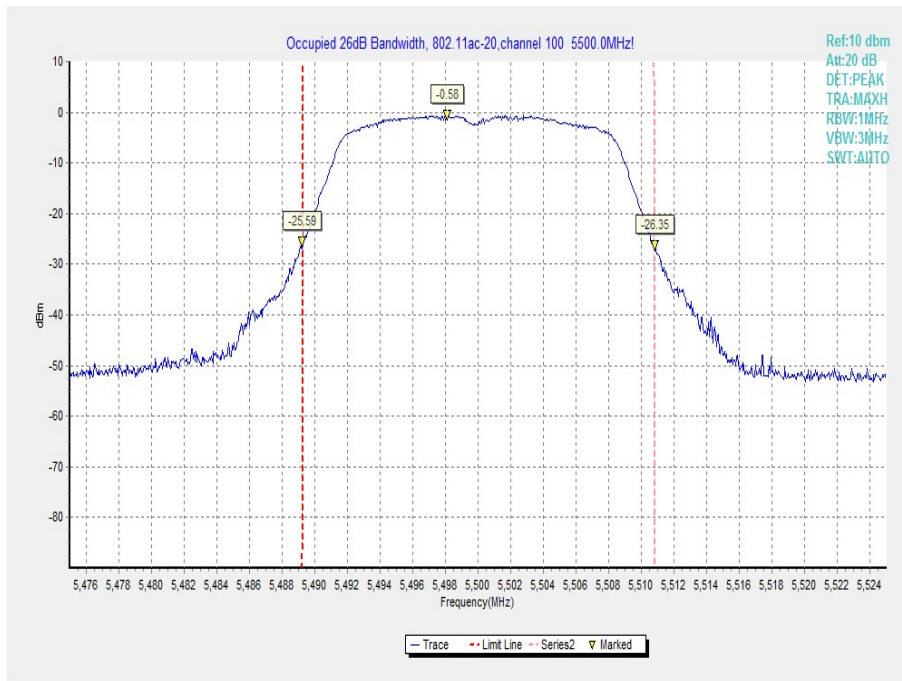


Fig. 32 Occupied 26dB Bandwidth (802.11ac-HT20, 5500MHz)

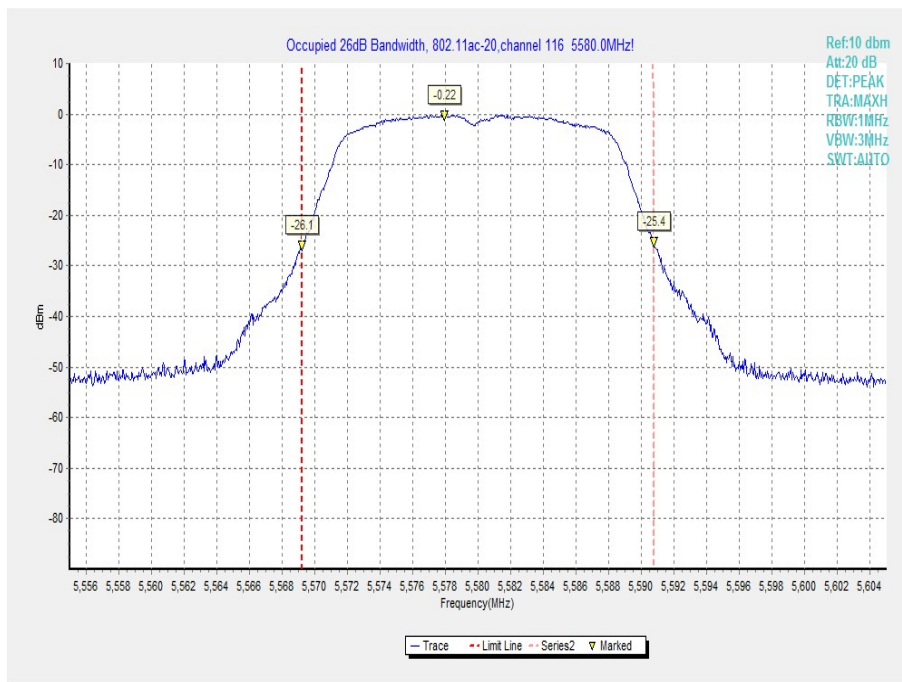


Fig. 33 Occupied 26dB Bandwidth (802.11ac-HT20, 5600MHz)

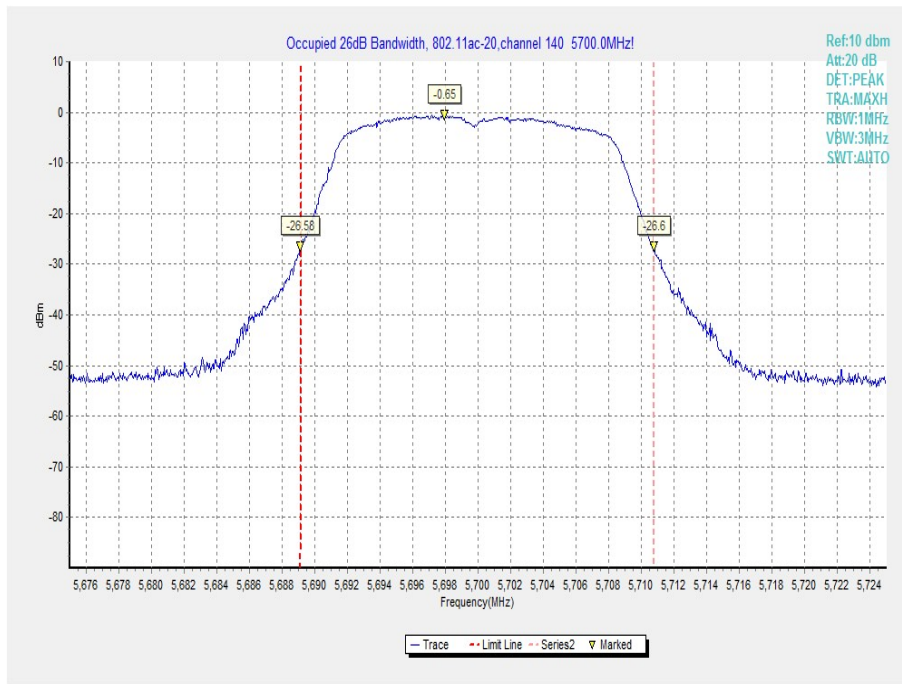


Fig. 34 Occupied 26dB Bandwidth (802.11ac-HT20, 5700MHz)

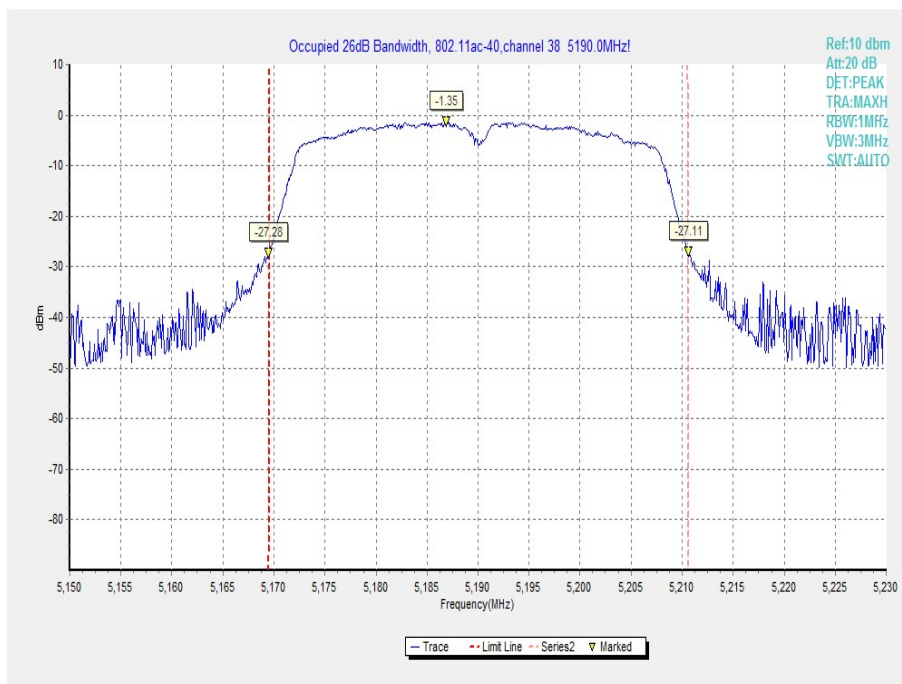


Fig. 35 Occupied 26dB Bandwidth (802.11ac-HT40, 5190MHz)