



FCC PART 15 TEST REPORT No.I20Z60999-IOT02

for

Client name: TCL Communication Ltd.

Product name: Tablet PC

Model name: 9032W

With

FCC ID: 2ACCJB129

Hardware Version: 03

Software Version: 1CS09000

Issued Date: 2020-07-28

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.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S.Government.

Test Laboratory:

CTTL-Telecommunication Technology Labs, CAICT

No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China 100191.

Tel:+86(0)10-62304633-2512, Fax:+86(0)10-62304633-2504

Email: ctl_terminals@caict.ac.cn, website: www.caict.ac.cn



REPORT HISTORY

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1. TEST LABORATORY

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2005 accredited test laboratory under NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0, and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (CN0066). The detail accreditation scope can be found on NVLAP website.

1.2. Testing Location

Conducted testing Location: CTTL(huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,
P. R. China100191

Radiated testing Location: CTTL (Huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,
P. R. China100191

1.3. Testing Environment

Normal Temperature: 15-35°C

Relative Humidity: 20-75%

1.4. Project date

Testing Start Date: 2020-06-17

Testing End Date: 2020-07-27

1.5. Signature

谢秀珍

Xie Xiuzhen
(Prepared this test report)



Zheng Wei
(Reviewed this test report)

胡晓宇

Hu Xiaoyu
(Approved this test report)



2. CLIENT INFORMATION

2.1 Applicant Information

Company Name: TCL Communication Ltd.
Address: 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
City: Hong Kong
Postal Code: /
Country: China
Telephone: 0086-755-36611722
Fax: 0086-755-36612000-81722

2.2 Manufacturer Information

Company Name: TCL Communication Ltd.
Address: 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
City: Hong Kong
Postal Code: /
Country: China
Telephone: 0086-755-36611722
Fax: 0086-755-36612000-81722

3. EQUIPMENT UNDER TEST (EUT) AND

ANCILLARY EQUIPMENT (AE)

3.1. About EUT

Description	Tablet PC
Model name	9032W
FCC ID	2ACCJB129
WLAN Frequency Band	ISM Bands: -5150MHz~5250MHz -5250MHz~5350MHz
Type of modulation	OFDM
Antenna	Integral Antenna
Voltage	3.85V

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	015773000002571	03	WFA100311
EUT2	015773000002274	03	WFA100311

*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	SN	Remarks
AE1	Battery	CAC4000020C1	/
AE2	Charger	CBA0059AGAC5	/
AE3	USB Cable	CDA0000123C2	/

AE1

Type	TLp040M1
Manufacturer	BYD
Capacitance	/
Nominal voltage	/

AE2

Model	UC13US
Manufacturer	PUAN
Length of cable	/

AE3

Type:	Data Cable
Manufacturer	SHENGHUA
Length of cable	/

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

3.4. General Description

The Equipment under Test (EUT) is a model of Tablet PC with integrated antenna and inbuilt battery.

It has Bluetooth (EDR) function.

It consists of normal options: travel charger, USB cable.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the client.

3.5. Interpretation of the Test Environment

For the test methods, the test environment uncertainty figures correspond to an expansion factor $k=2$.

Measurement Uncertainty

Parameter	Uncertainty
temperature	0.48°C
humidity	2 %
DC voltages	0.003V

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	2018
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	2013
UNII: KDB 789033 D02	General U-NII Test Procedures New Rules v02r01	2017-12
KDB 558074 D01	Federal Communications Commission Office of Engineering and Technology Laboratory Division GUIDANCE FOR COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES OPERATING UNDER SECTION 15.247 OF THE FCC RULES	2019

5. LABORATORY ENVIRONMENT

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.

6. SUMMARY OF TEST RESULTS

6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15E	Sub-clause of IC	Verdict
Maximum Output Power	15.407	/	P
Peak Power Spectral Density	15.407	/	P
Occupied 26dB Bandwidth	15.403	/	P
Band edge compliance (Radiated)	15.209	/	P
Transmitter spurious emissions (Radiated)	15.407	/	P
AC Powerline Conducted Emission (150kHz- 30MHz)	15.407	/	P
99% Occupied bandwidth	/	/	P
Transmit Power Control	15.407	/	NA

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

Terms used in Verdict column

P	Pass, The EUT complies with the essential requirements in the standard.
NM	Not measured, The test was not measured by CTTL
NA	Not Applicable, The test was not applicable
F	Fail, The EUT does not comply with the essential requirements in the standard

6.2. Statements

CTTL has evaluated the test cases requested by the client/matrix manufacturer as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.1.

This report only deals with the WLAN function among the features described in section 3.

6.3. Test Conditions

For this report, all the test cases are tested under normal temperature and normal voltage, and also under norm humidity, the specific condition is shown as follows:

Temperature	26°C
Voltage	3.85V
Humidity	44%

7. TEST EQUIPMENTS UTILIZED

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	1 year	2021-05-06
2	LISN	ENV216	101200	Rohde & Schwarz	1 year	2021-05-17
3	Test Receiver	ESCI	100344	Rohde & Schwarz	1 year	2021-02-26
4	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESU26	100235	Rohde & Schwarz	1 year	2021-03-05
2	BiLog Antenna	VULB9163	483	Schwarzbeck	1 year	2020-09-17
3	Dual-Ridge Waveguide Horn Antenna	3115	6914	ETS-Lindgren	1 year	2021-01-14
4	EMI Antenna	3116	2661	ETS-Lindgren	1 year	2020-10-18

8. Measurement Uncertainty

8.1 Transmitter Output Power

Measurement Uncertainty: 0.387dB,k=1.96

8.2 Peak Power Spectral Density

Measurement Uncertainty: 0.705dB,k=1.96

8.3 Occupied Channel Bandwidth

Measurement Uncertainty: 60.80Hz,k=1.96

8.4 Band Edges Compliance

Measurement Uncertainty : 0.62dB,k=1.96

8.5 Spurious Emissions

Conducted (k=1.96)

Frequency Range	Uncertainty(dB)
$30\text{MHz} \leq f \leq 2\text{GHz}$	1.22
$2\text{GHz} \leq f \leq 3.6\text{GHz}$	1.22
$3.6\text{GHz} \leq f \leq 8\text{GHz}$	1.22
$8\text{GHz} \leq f \leq 12.75\text{GHz}$	1.51
$12.75\text{GHz} \leq f \leq 26\text{GHz}$	1.51
$26\text{GHz} \leq f \leq 40\text{GHz}$	1.59

Radiated (k=2)

Frequency Range	Uncertainty(dB)
9kHz-30MHz	/
$30\text{MHz} \leq f \leq 1\text{GHz}$	5.16
$1\text{GHz} \leq f \leq 18\text{GHz}$	5.44
$18\text{GHz} \leq f \leq 40\text{GHz}$	5.28

8.6. AC Power-line Conducted Emission

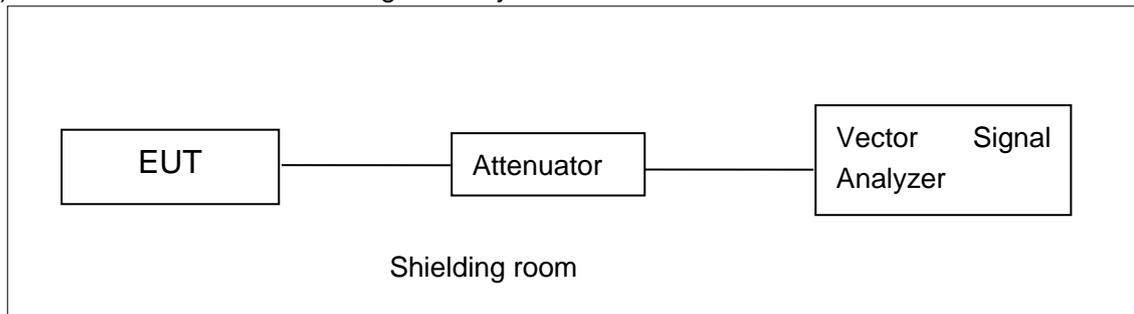
Measurement Uncertainty : 3.08dB,k=2

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

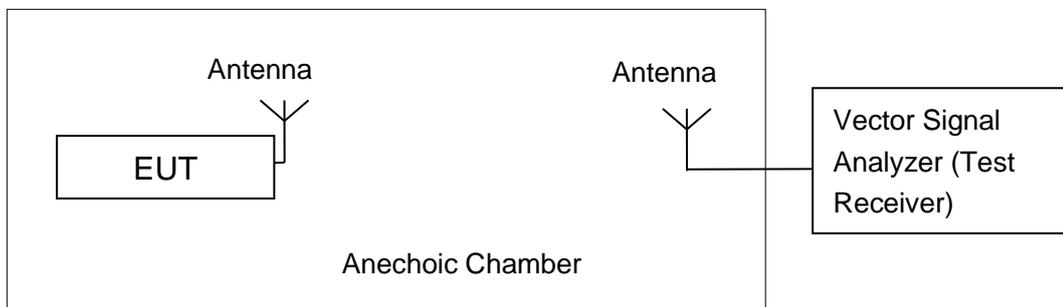


A.1.2. Radiated Emission Measurements

In the case of radiated emission, the used settings are as follows,

Sweep frequency from 30 MHz to 1GHz, RBW = 100 kHz, VBW = 300 kHz;

Sweep frequency from 1 GHz to 26GHz, RBW = 1MHz, VBW = 10Hz;



The measurement is made according to KDB 789033

The radiated emission test is performed in semi-anechoic chamber. The distance from the EUT to the reference point of measurement antenna is 3m. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated 360° and the measurement antenna is moved from 1m to 4m to get the maximization result.

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-2 is made according to KDB 789033

Duty Cycle:

11a	1Mbps
Duty Cycle	100%
11n-20	6Mbps
Duty Cycle	100%
11n-40	MCS0
Duty Cycle	100%
11ac-20	MCS0
Duty Cycle	100%
11ac-40	MCS0
Duty Cycle	100%
11ac-80	MCS0
Duty Cycle	100%

Measurement Results:

The data rate 6Mbps(11a)/ MCS0(11n-20)/ MCS0(11n-40)/ MCS0(11ac-20)/ MCS0(11ac-40)/ MCS0(11ac-80) are worse condition declared by client, and the following cases are performed with this condition.

802.11a mode

Mode	Frequency	Test Result (dBm)							
		Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
802.11a	5180MHz	17.34	/	/	/	/	/	/	/
	5200MHz	17.60	/	/	/	/	/	/	/
	5240MHz	17.98	/	/	/	/	/	/	/
	5260MHz	18.13	/	/	/	/	/	/	/
	5280MHz	18.15	/	/	/	/	/	/	/
	5320MHz	18.11	/	/	/	/	/	/	/

802.11n-HT20 mode

Mode	Frequency	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT20)	5180MHz	15.79	/	/	/	/	/	/	/
	5200MHz	17.47	/	/	/	/	/	/	/
	5240MHz	17.46	/	/	/	/	/	/	/
	5260MHz	17.52	/	/	/	/	/	/	/
	5280MHz	17.63	/	/	/	/	/	/	/
	5320MHz	17.54	/	/	/	/	/	/	/

802.11ac-HT20 mode

Mode	Frequency	Test Result (dBm)								
		Data Rate								
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
802.11ac (HT20)	5180MHz	15.28	/	/	/	/	/	/	/	/
	5200MHz	15.43	/	/	/	/	/	/	/	/
	5240MHz	15.57	/	/	/	/	/	/	/	/
	5260MHz	15.82	/	/	/	/	/	/	/	/
	5280MHz	15.90	/	/	/	/	/	/	/	/
	5320MHz	15.98	/	/	/	/	/	/	/	/

802.11n-HT40 mode

Mode	Frequency	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT40)	5190MHz	7.79	/	/	/	/	/	/	/
	5230MHz	7.80	/	/	/	/	/	/	/
	5270MHz	8.06	/	/	/	/	/	/	/
	5310MHz	8.86	/	/	/	/	/	/	/

802.11ac-HT40 mode

Mode	Frequency	Test Result (dBm)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (HT40)	5190MHz	15.08	/	/	/	/	/	/	/	/	/
	5230MHz	15.44	/	/	/	/	/	/	/	/	/
	5270MHz	15.66	/	/	/	/	/	/	/	/	/
	5310MHz	15.57	/	/	/	/	/	/	/	/	/

802.11ac-HT80 mode

Mode	Frequency	Test Result (dBm)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (HT80)	5210MHz	15.13	/	/	/	/	/	/	/	/	/
	5290MHz	15.53	/	/	/	/	/	/	/	/	/

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 Section F is made according to KDB 789033

Measurement Results:

Mode	Frequency	Power Spectral Density (dBm/MHz)	Conclusion
802.11a	5180 MHz	6.35	P
	5200 MHz	6.48	P
	5240 MHz	5.14	P
	5260 MHz	5.55	P
	5280 MHz	5.60	P
	5320 MHz	5.87	P
802.11n HT20	5180 MHz	4.82	P
	5200 MHz	6.17	P
	5240 MHz	4.83	P
	5260 MHz	4.95	P
	5280 MHz	5.07	P
	5320 MHz	5.50	P
802.11ac HT20	5180 MHz	4.18	P
	5200 MHz	4.21	P
	5240 MHz	2.86	P
	5260 MHz	2.99	P
	5280 MHz	3.08	P
	5320 MHz	3.50	P
802.11n HT40	5190 MHz	2.29	P
	5230 MHz	1.76	P
	5270 MHz	1.73	P
	5310 MHz	2.08	P
802.11ac HT40	5190 MHz	1.32	P
	5230 MHz	-0.28	P
	5270 MHz	0.25	P
	5310 MHz	0.60	P
802.11ac HT80	5210MHz	-1.95	P
	5290MHz	-2.84	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
-------------------------	---------

Measurement Result:

Mode	Frequency	Occupied 26dB Bandwidth (MHz)		conclusion
		Fig.	Value	
802.11a	5180 MHz	Fig.1	28.00	P
	5200 MHz	Fig.2	28.35	P
	5240 MHz	Fig.3	29.80	P
	5260 MHz	Fig.4	29.25	P
	5280 MHz	Fig.5	26.20	P
	5320 MHz	Fig.6	27.60	P
802.11n HT20	5180 MHz	Fig.7	27.15	P
	5200 MHz	Fig.8	29.85	P
	5240 MHz	Fig.9	33.45	P
	5260 MHz	Fig.10	29.15	P
	5280 MHz	Fig.11	29.10	P
	5320 MHz	Fig.12	31.05	P

802.11ac HT20	5180 MHz	Fig.13	20.90	P
	5200 MHz	Fig.14	20.80	P
	5240 MHz	Fig.15	31.20	P
	5260 MHz	Fig.16	20.85	P
	5280 MHz	Fig.17	20.85	P
	5320 MHz	Fig.18	20.80	P

802.11n HT40	5190 MHz	Fig.19	48.48	P
	5230 MHz	Fig.20	49.2	P
	5270 MHz	Fig.21	43.84	P
	5310 MHz	Fig.22	48.08	P

802.11ac HT40	5190 MHz	Fig.23	41.12	P
	5230 MHz	Fig.24	40.88	P
	5270 MHz	Fig.25	41.36	P
	5310 MHz	Fig.26	41.12	P

802.11ac HT80	5210MHz	Fig.27	80.96	P
	5290MHz	Fig.28	81.12	P

Conclusion: PASS

Test graphs as below:

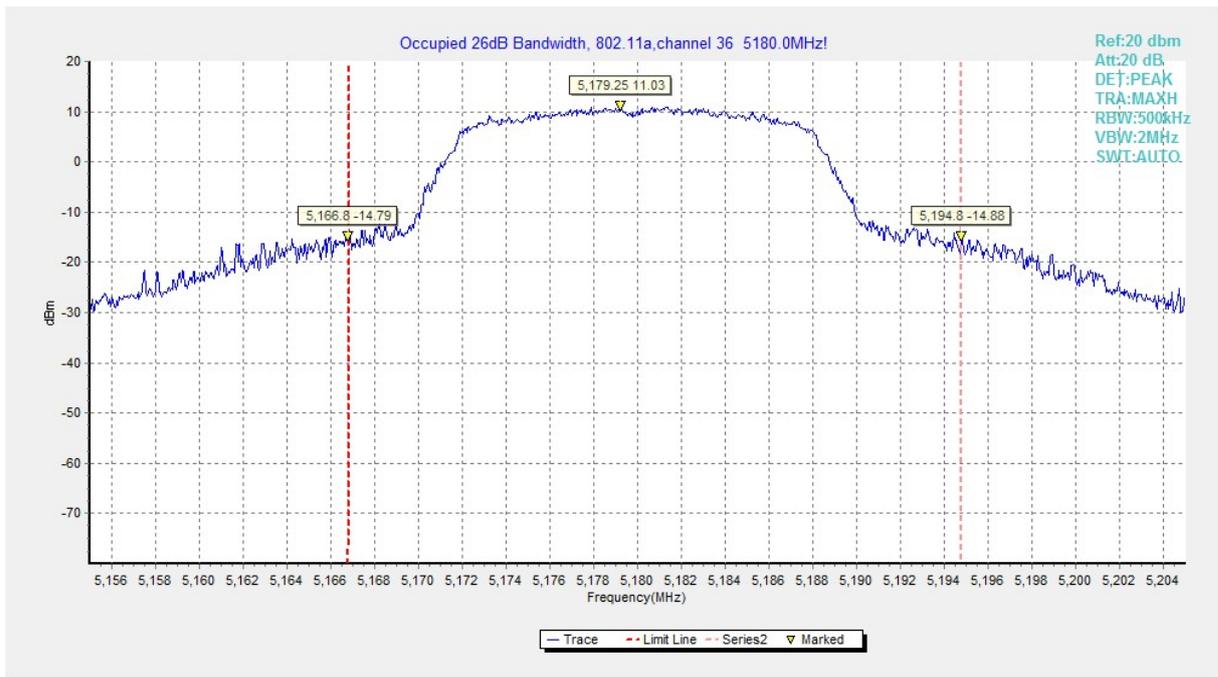


Fig.1 Occupied 26dB Bandwidth (802.11a, 5180MHz)

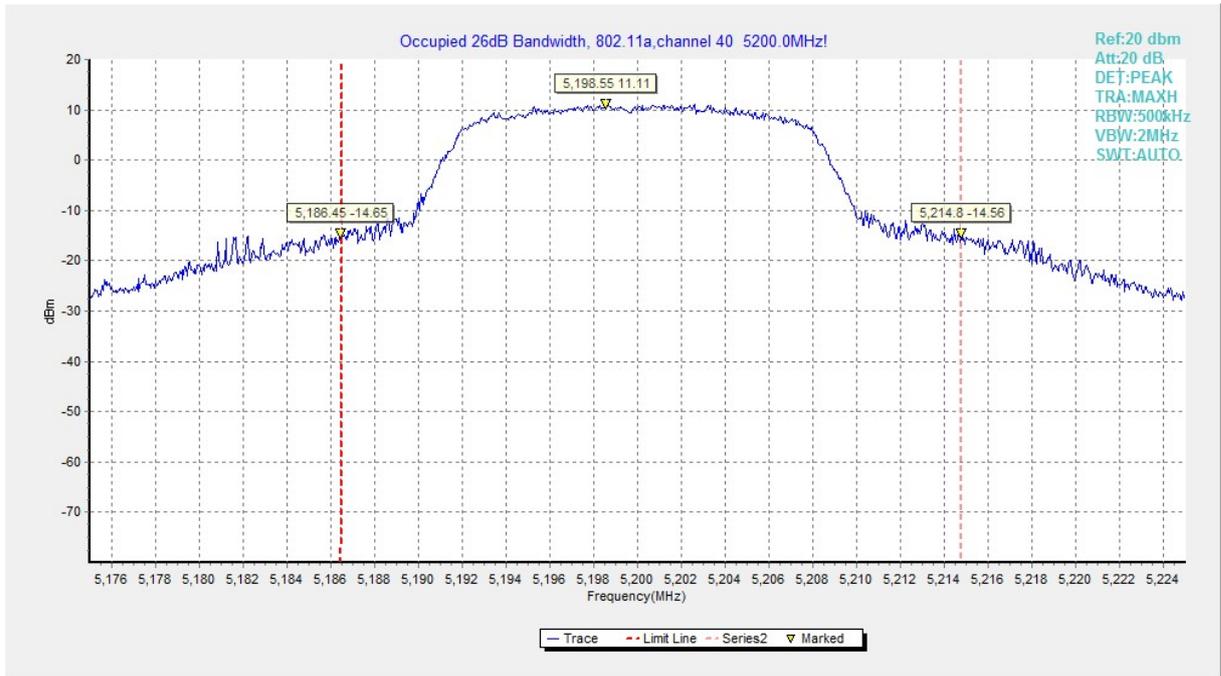


Fig.2 Occupied 26dB Bandwidth (802.11a, 5200MHz)

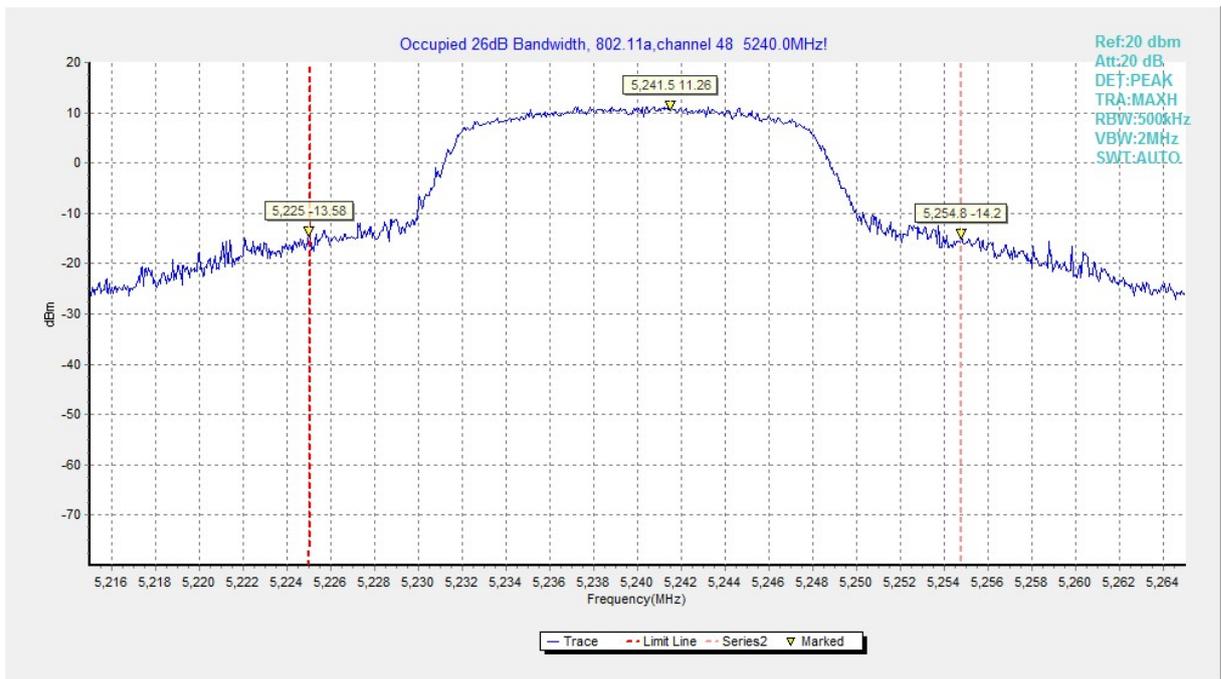


Fig.3 Occupied 26dB Bandwidth (802.11a, 5240MHz)

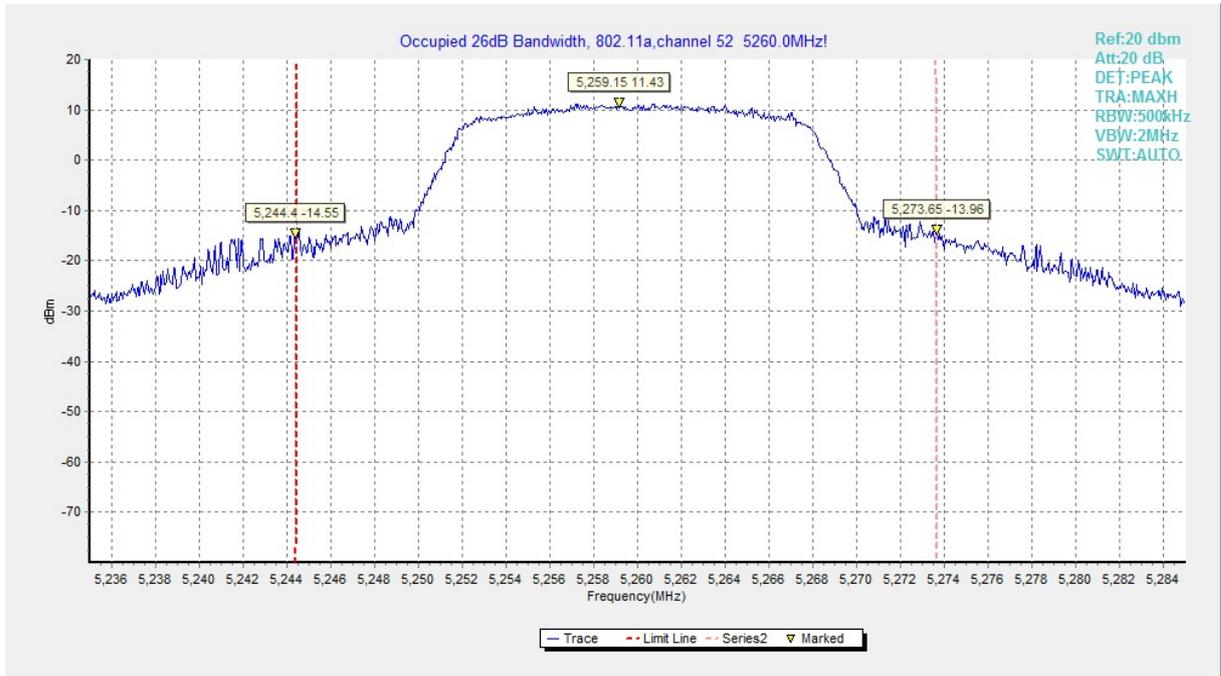


Fig.4 Occupied 26dB Bandwidth (802.11a, 5260MHz)

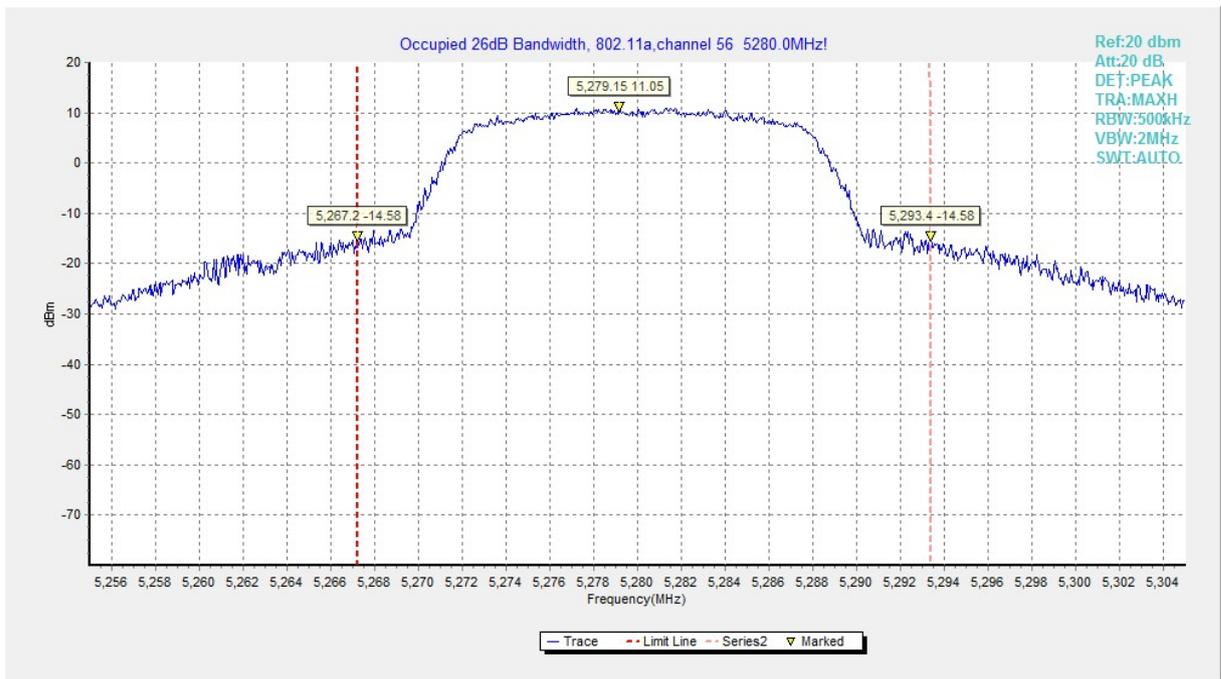


Fig.5 Occupied 26dB Bandwidth (802.11a, 5280MHz)

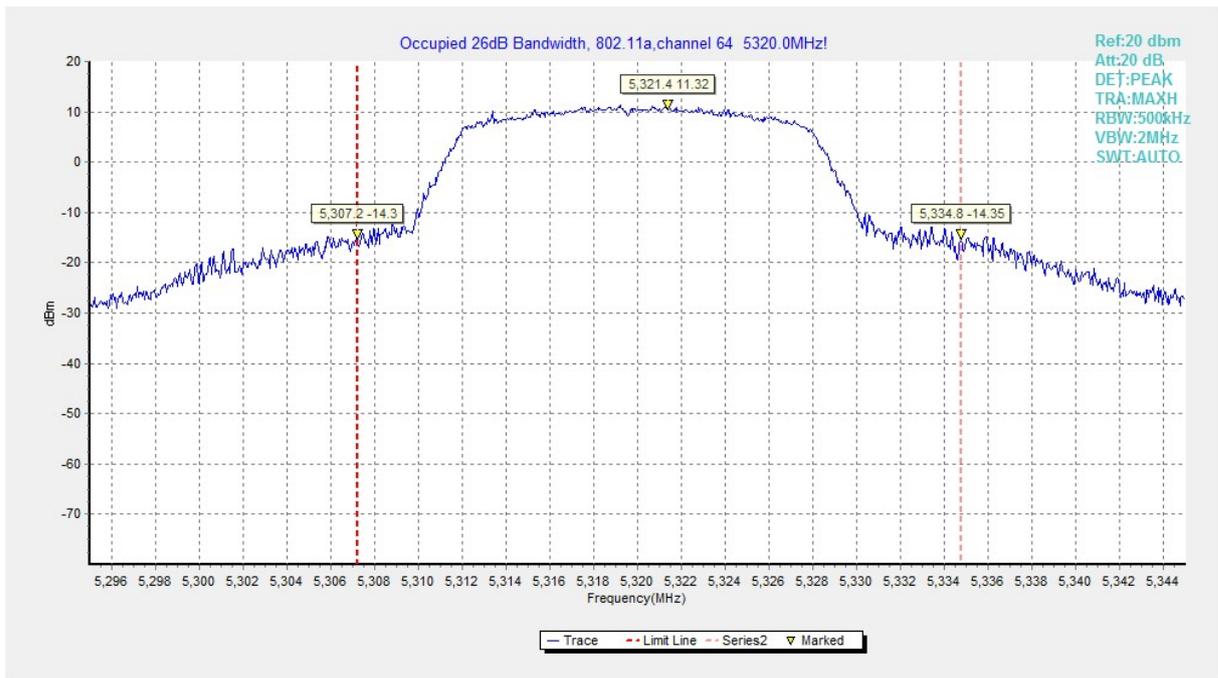


Fig.6 Occupied 26dB Bandwidth (802.11a, 5320MHz)

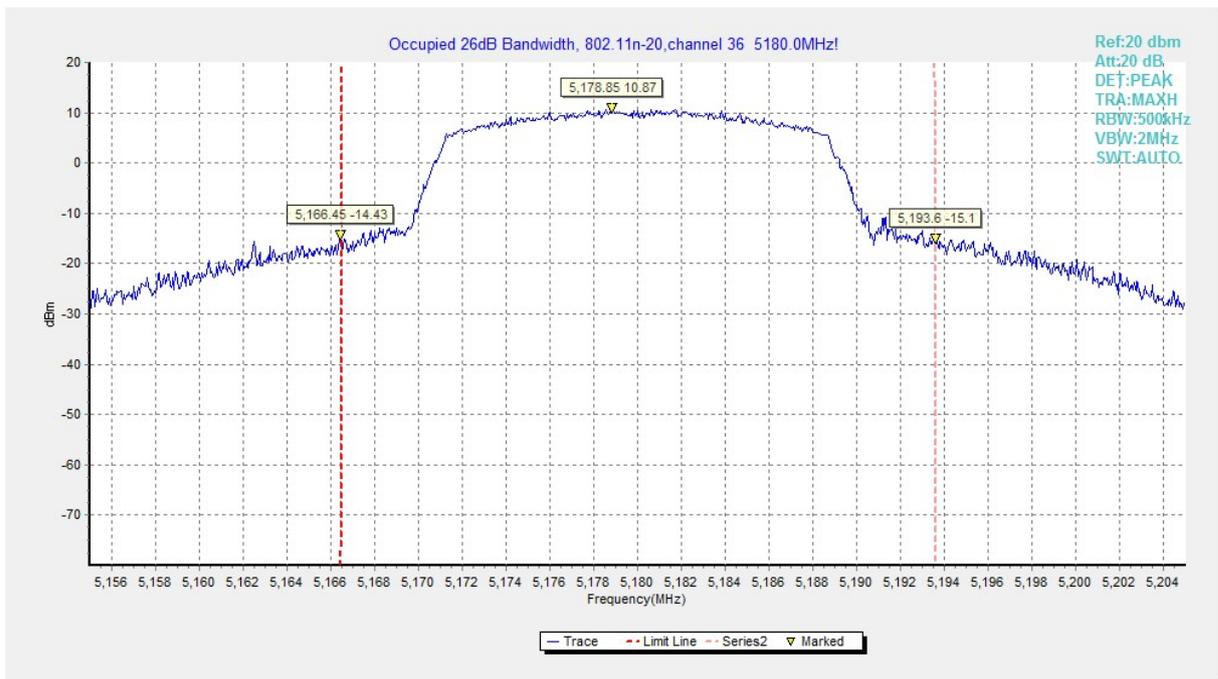


Fig.7 Occupied 26dB Bandwidth (802.11n-HT20, 5180MHz)

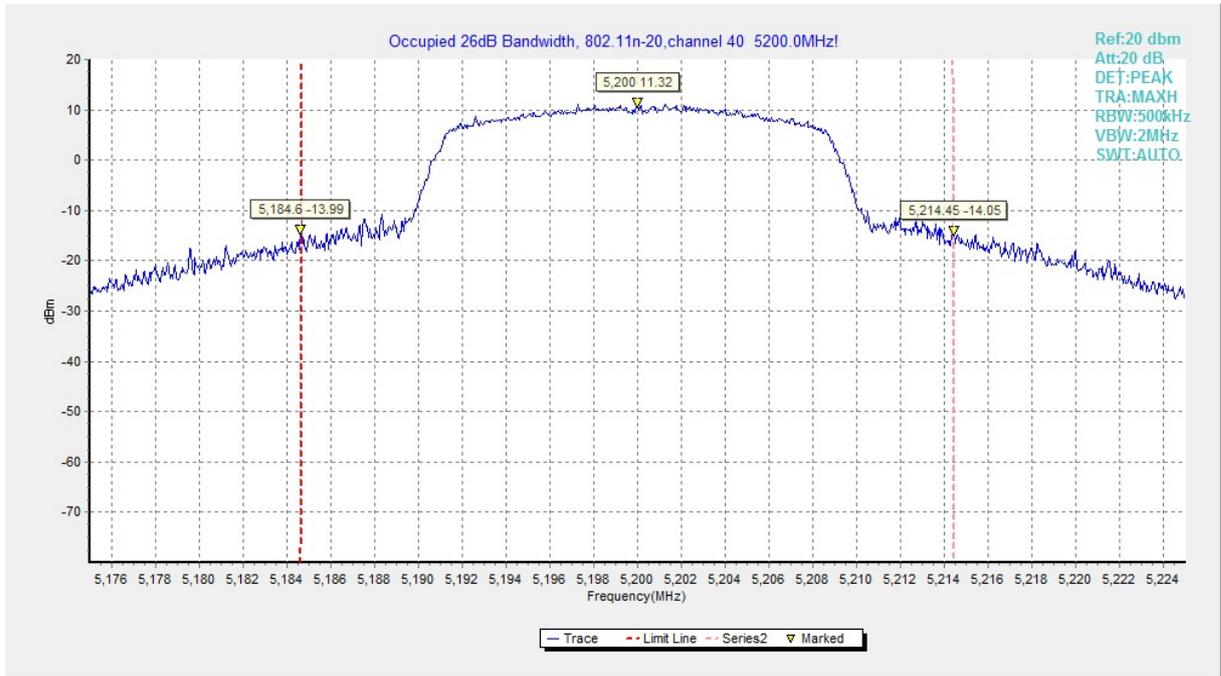


Fig.8 Occupied 26dB Bandwidth (802.11n-HT20, 5200MHz)

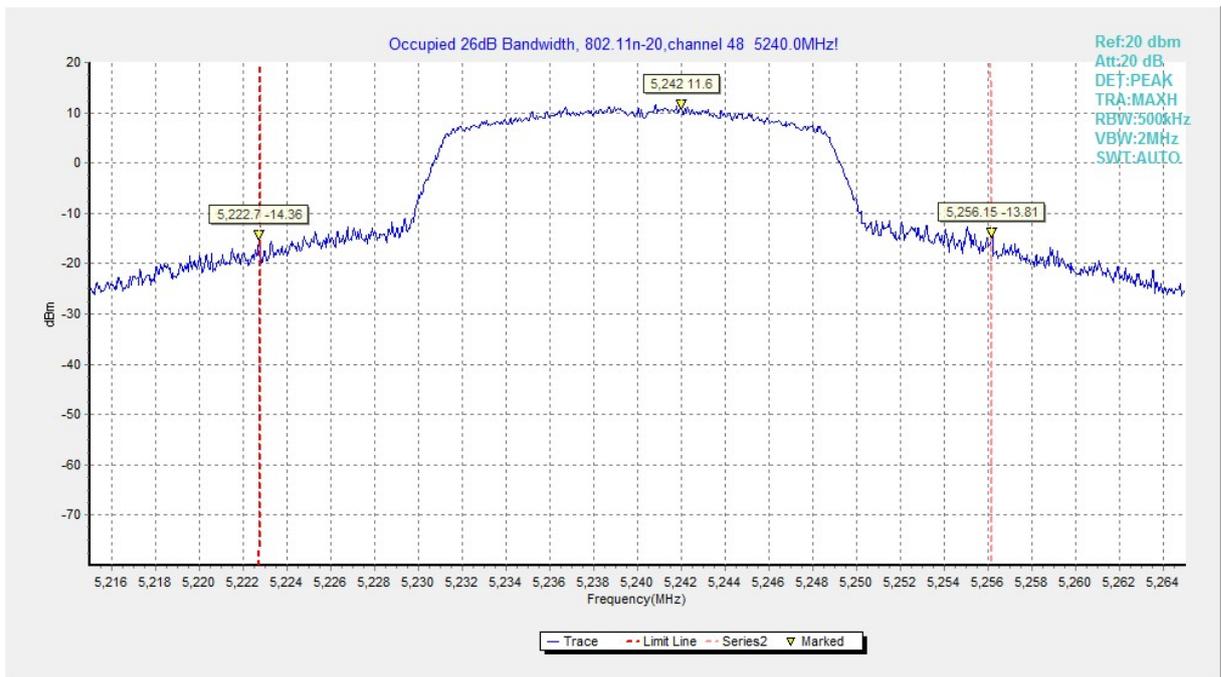


Fig.9 Occupied 26dB Bandwidth (802.11n-HT20, 5240MHz)

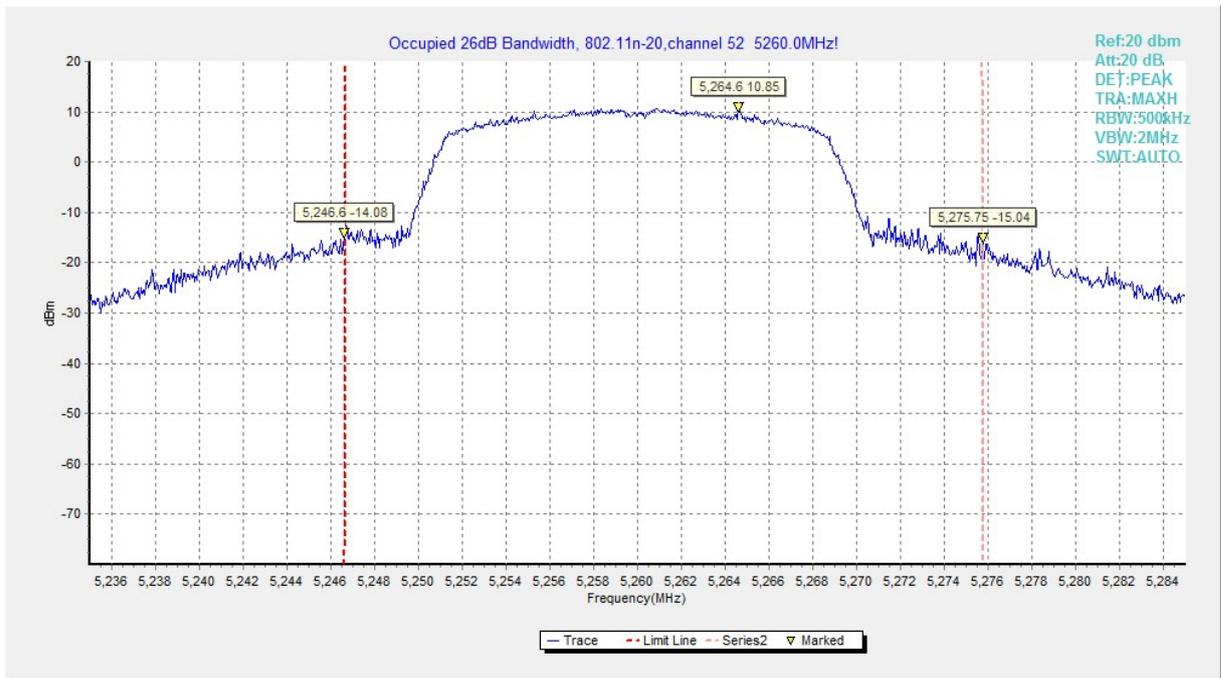


Fig.10 Occupied 26dB Bandwidth (802.11n-HT20, 5260MHz)

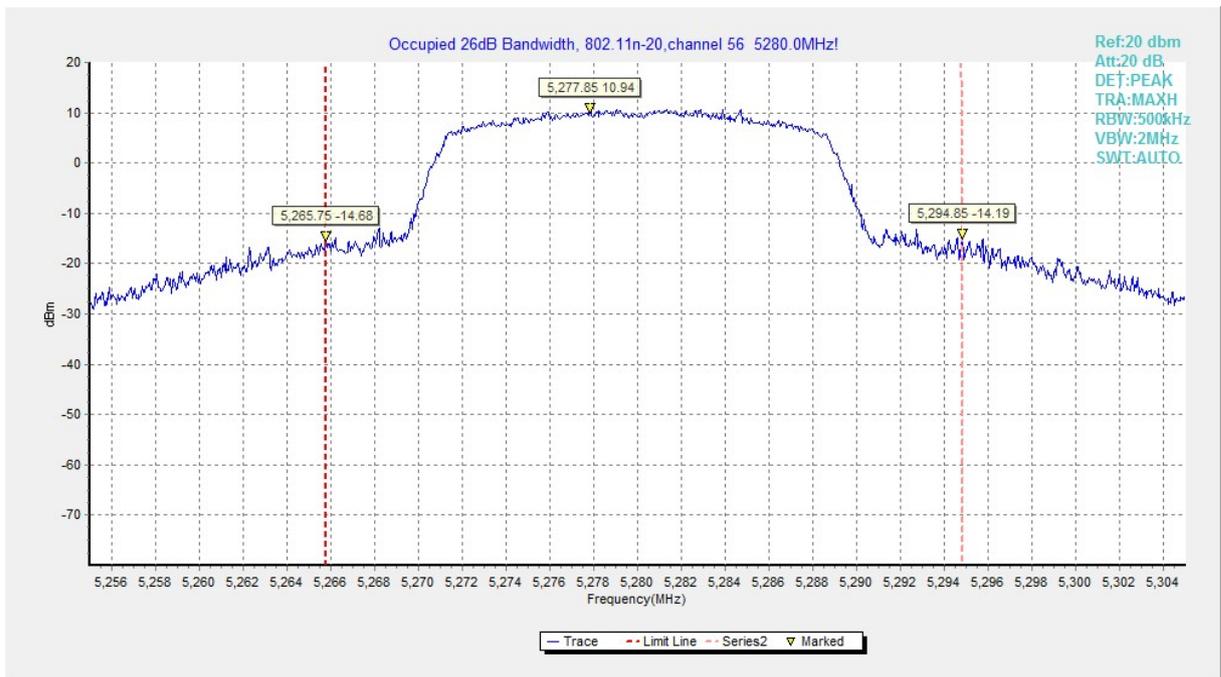


Fig.11 Occupied 26dB Bandwidth (802.11n-HT20, 5280MHz)

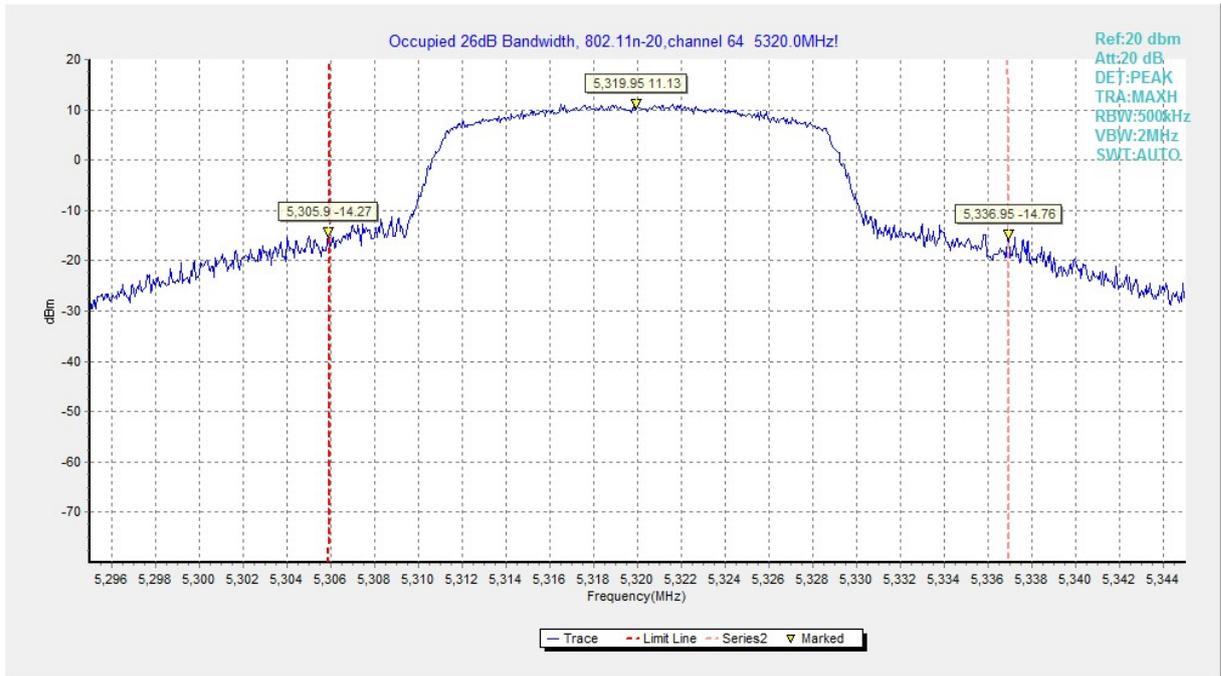


Fig.12 Occupied 26dB Bandwidth (802.11n-HT20, 5320MHz)

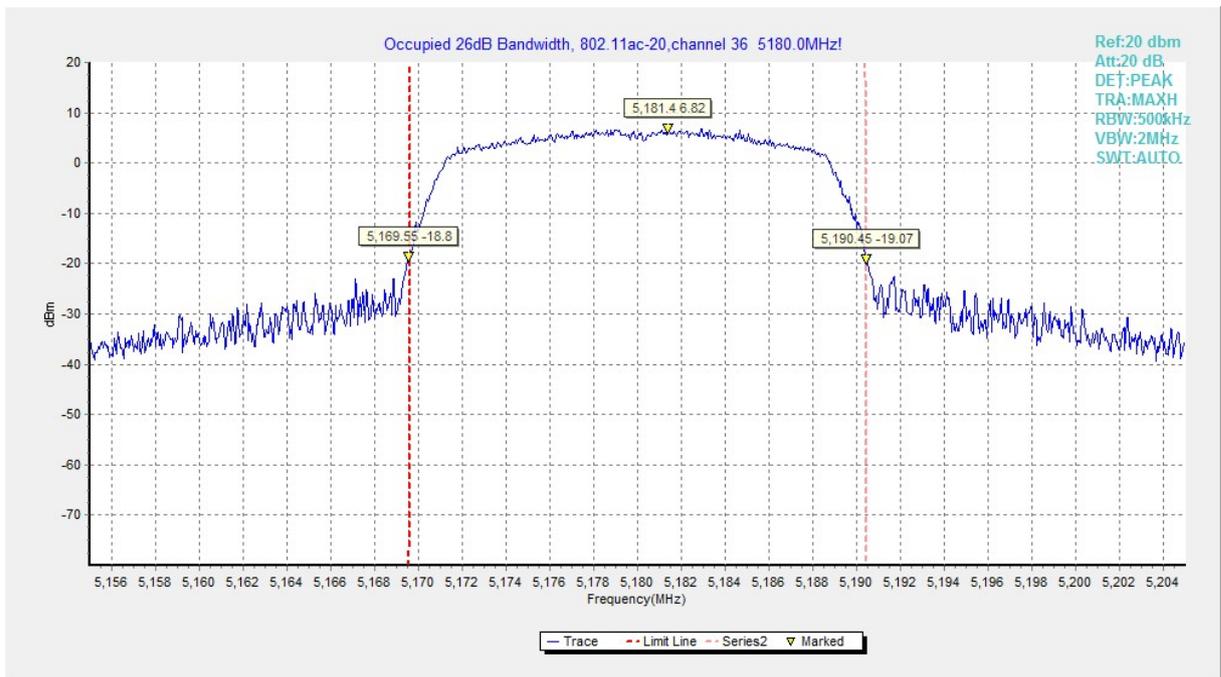


Fig.13 Occupied 26dB Bandwidth (802.11ac-HT20, 5180MHz)

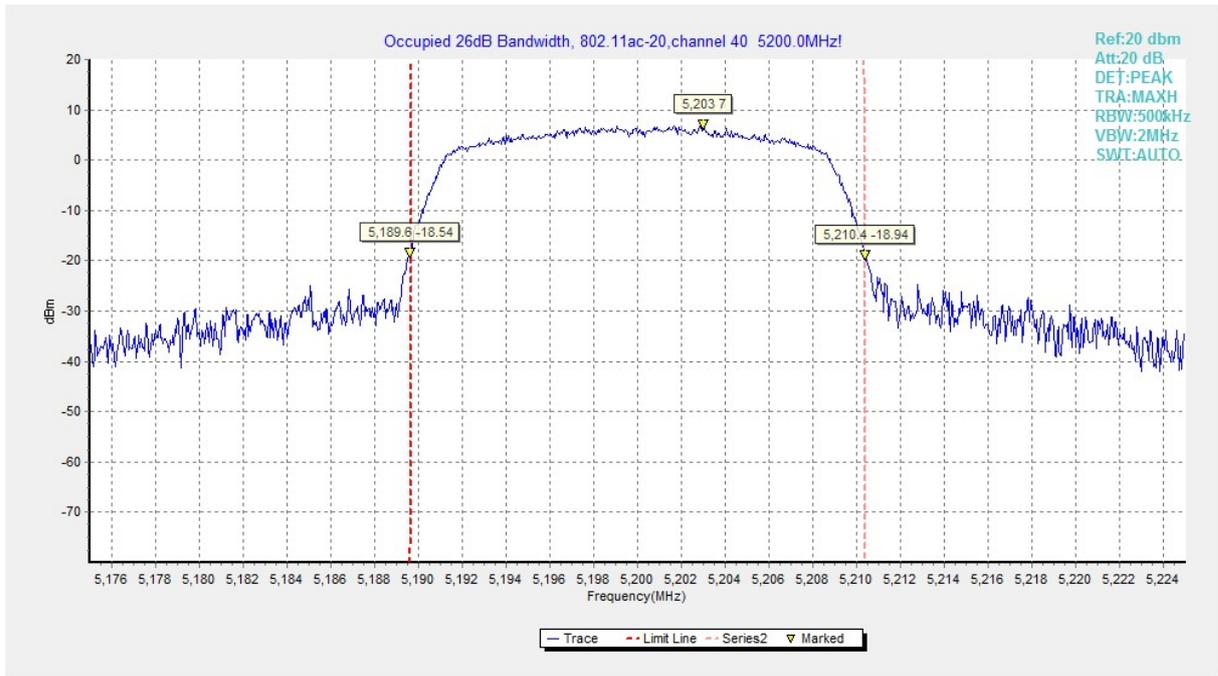


Fig.14 Occupied 26dB Bandwidth (802.11ac-HT20, 5200MHz)

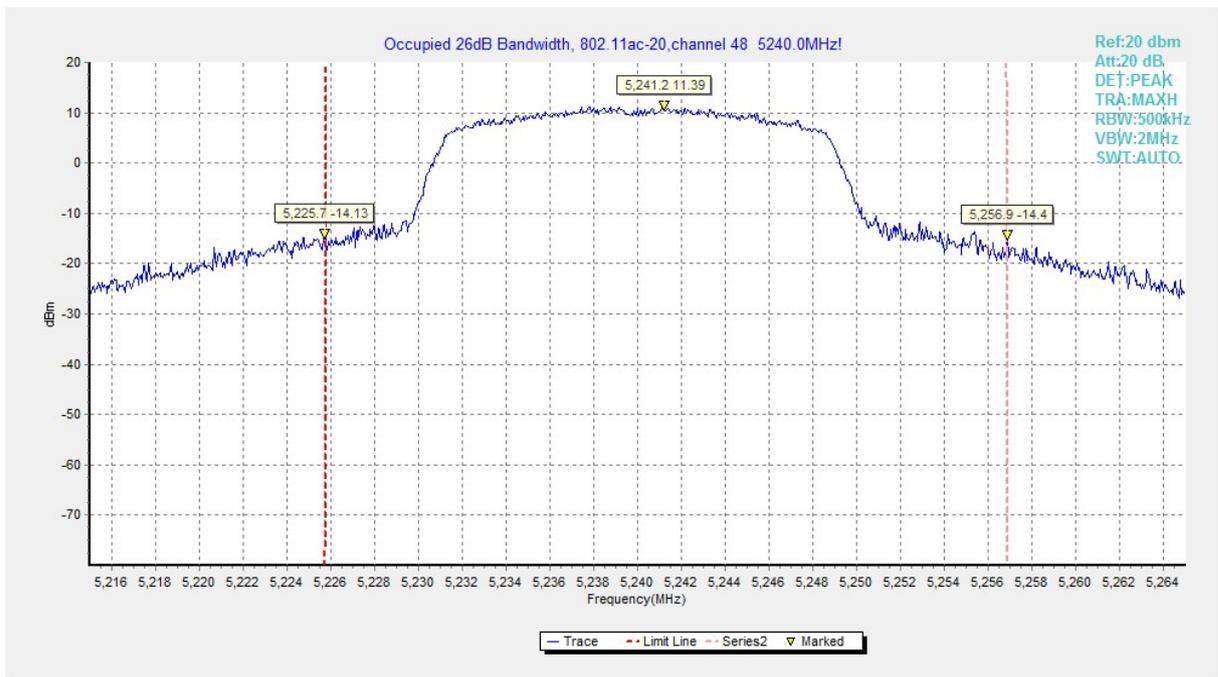


Fig.15 Occupied 26dB Bandwidth (802.11ac-HT20, 5240MHz)

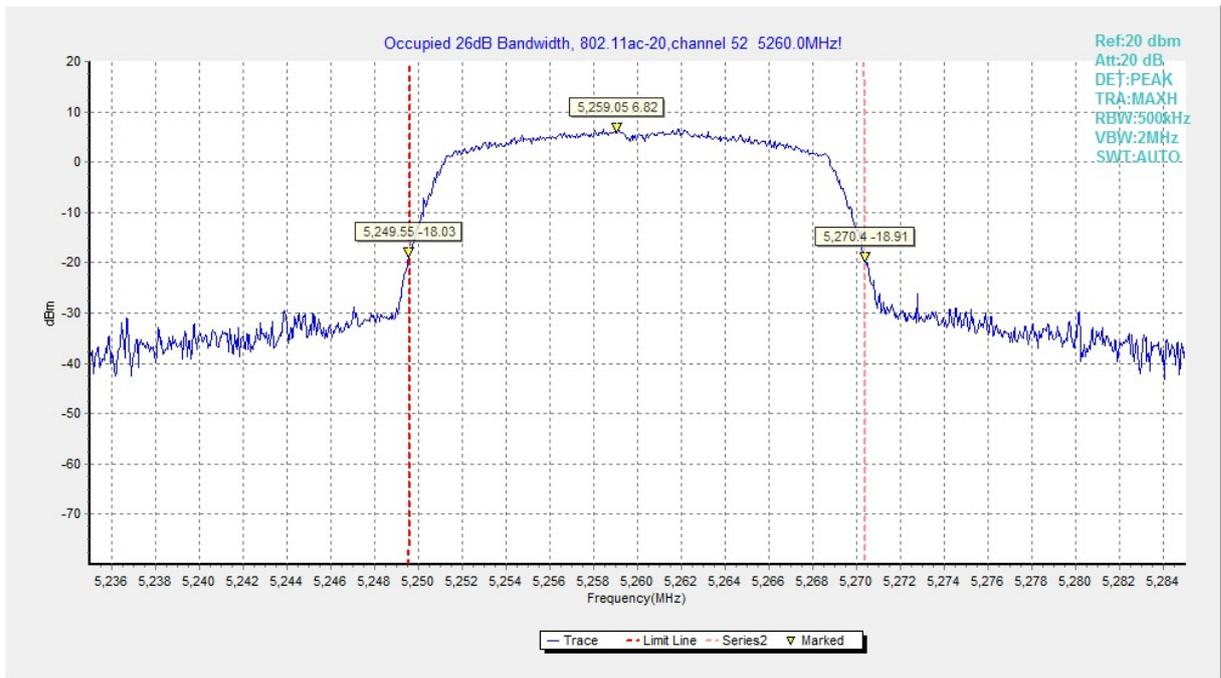


Fig.16 Occupied 26dB Bandwidth (802.11ac-HT20, 5260MHz)

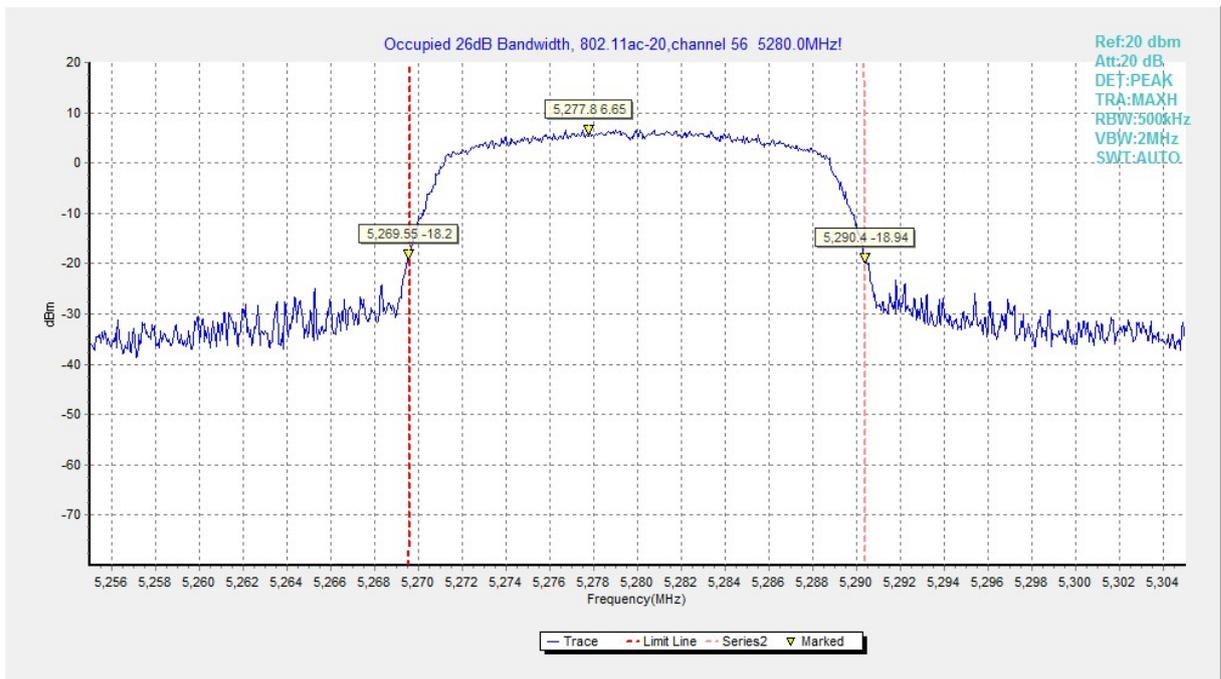


Fig.17 Occupied 26dB Bandwidth (802.11ac-HT20, 5280MHz)

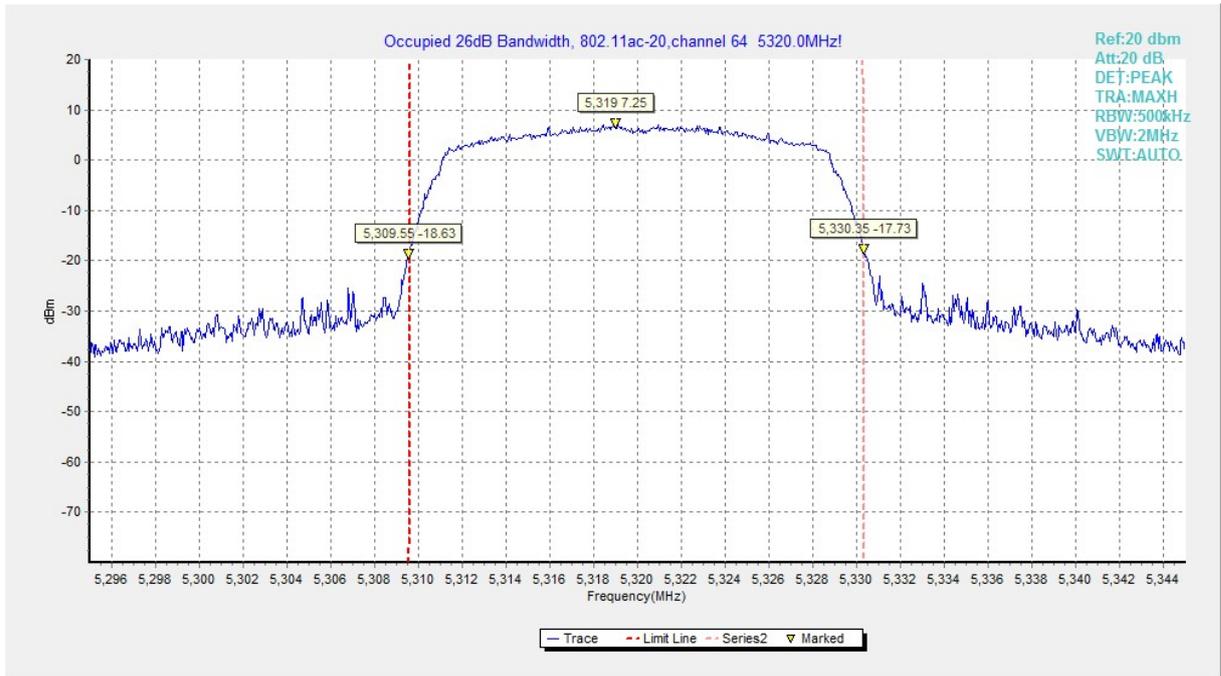


Fig.18 Occupied 26dB Bandwidth (802.11ac-HT20, 5320MHz)

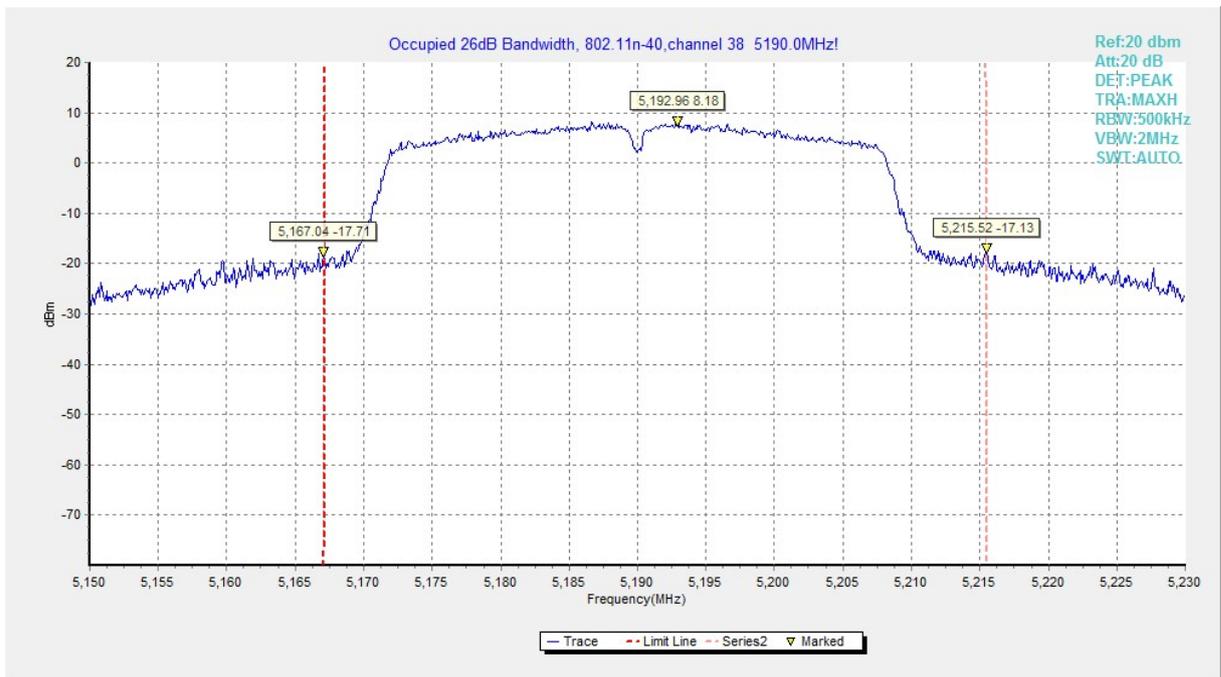


Fig.19 Occupied 26dB Bandwidth (802.11n-HT40, 5190MHz)

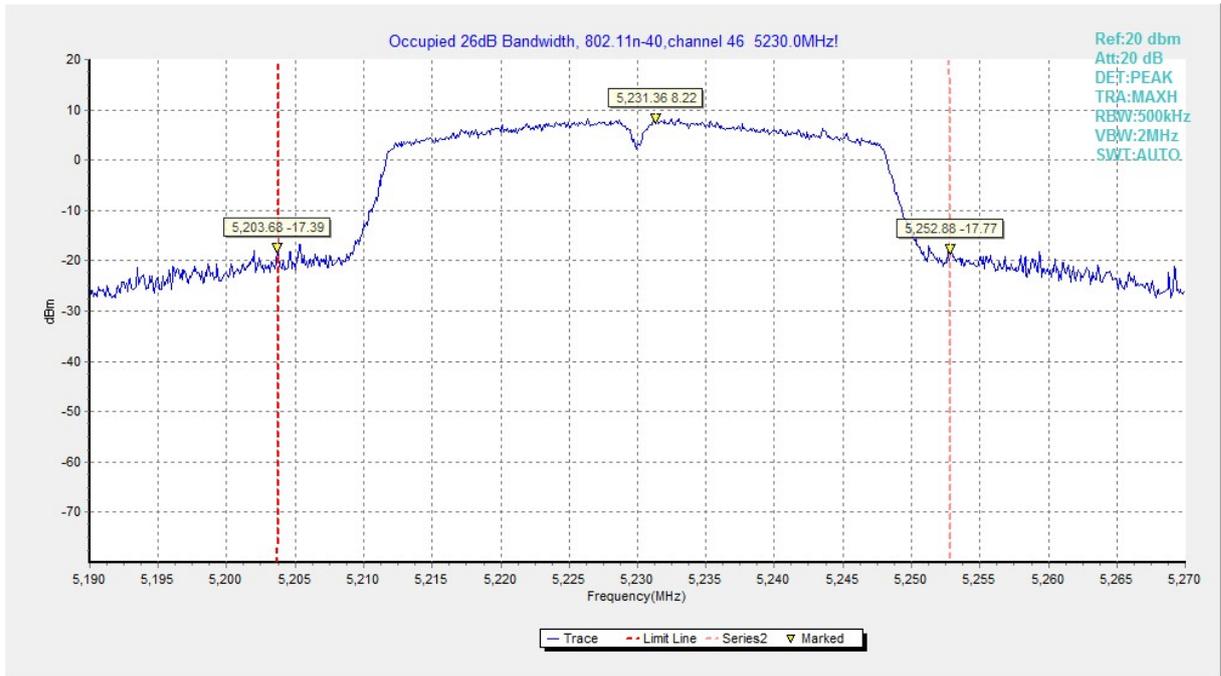


Fig.20 Occupied 26dB Bandwidth (802.11n-HT40, 5230MHz)

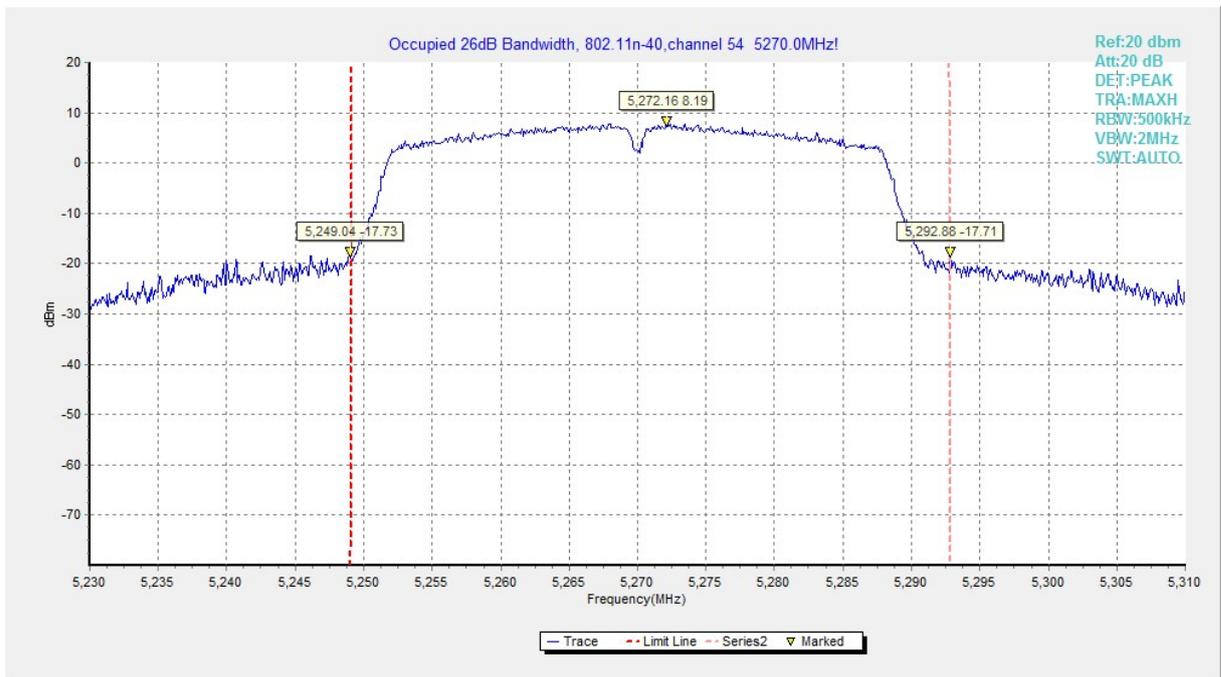


Fig.21 Occupied 26dB Bandwidth (802.11n-HT40, 5270MHz)