



**FCC PART 15E
TEST REPORT
No. I19N00514-RLAN**

For

RUGGEAR LIMITED

LTE SMARTPHONE

Model Name: RG655

With

Hardware Version: V1.0

Software Version: RG655_US_1.0.0.0.0_5_20190415

FCC ID: 2ASCH-RG655

Issued Date: 2019-04-26

Designation Number: CN1210

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 SAICT.

Test Laboratory:

Shenzhen Academy of Information and Communications Technology
Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen,
Guangdong, P. R. China 518026.

Tel: +86(0)755-33322000, Fax: +86(0)755-33322001

Email: yewu@caict.ac.cn, website: www.cszit.com

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I19N00514-RLAN	Rev.0	1st edition	2019-04-26

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1. TEST LATORATORY

1.1. Testing Location

Location: Shenzhen Academy of Information and Communications Technology
Address: Building G, Shenzhen International Innovation Center, No.1006
Shennan Road, Futian District, Shenzhen, Guangdong Province ,China
Postal Code: 518026
Telephone: +86(0)755-33322000
Fax: +86(0)755-33322001

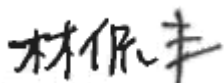
1.2. Testing Environment

Normal Temperature: 15-30℃
Relative Humidity: 35-60%

1.3. Project data

Testing Start Date: 2019-03-14
Testing End Date: 2019-04-19

1.4. Signature



Lin Kanfeng
(Prepared this test report)



Tang Weisheng
(Reviewed this test report)



Zhang Bojun
(Approved this test report)

2. CLIENT INFORMATION

2.1. Applicant Information

Company Name: RUGGEAR LIMITED
Address /Post: RM1301,13/F WING TUCK COMM CTR 177-183 WING LOK ST
SHEUNG WAN HONG KONG
City: HONG KONG
Postal Code: /
Country: China
Telephone: 0755-86220211

2.2. Manufacturer Information

Company Name: RUGGEAR LIMITED
Address /Post: RM1301,13/F WING TUCK COMM CTR 177-183 WING LOK ST
SHEUNG WAN HONG KONG
City: HONG KONG
Postal Code: /
Country: China
Telephone: 0755-86220211

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

3.1. About EUT

Description	LTE SMARTPHONE
Model Name	RG655
Market Name	RG655
RLAN Frequency Range	ISM Bands: -5150MHz~5250MHz -5250MHz~5350MHz -5470MHz~5725MHz -5725MHz~5850MHz
RLAN Protocol	IEEE 802.11a, 802.11n-HT20/40, 802.11ac-VHT20/40/80
Type of modulation	OFDM
Antenna Type	Integrated
Antenna Gain	-0.34dBi
Power Supply	3.8V DC by Battery
FCC ID	2ASCH-RG655
Condition of EUT as received	No abnormality in appearance

3.2. Internal Identification of EUT

EUT ID*	IMEI	HW Version	SW Version	Receive Date
EUT1	/	V1.0	RG655_US_1.0.0.0.0_5_20190415	2019-03-14

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

3.3. Internal Identification of AE

AE ID*	Description	Mode	Manufacturer
AE1	Battery	Li-Polymer Battery	SHENZHEN YJC TECHNOLOGY CO. LTD.
AE2	Charger	HKC0055010-3D	SHENZHEN HUNTKEY ELECTRIC CO., LTD.

*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 LTE SMARTPHONE with integrated antenna and battery.

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

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

Samples undergoing test were selected by the client.

Note: Automatically Discontinue Transmission is met by EUT.

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

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.

Reference	Title	Version
FCC Part15	FCC CFR 47,Part 15,Subpart C FCC CFR 47,Part 15,Subpart E	2017
ANSI C63.10	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices	2013
KDB789033	GUIDELINES FOR COMPLIANCE TESTING OF UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE (U-NII) DEVICES PART 15, SUBPART E	V02r01

5. SUMMARY OF TEST RESULTS

5.1. Summary of Test Results

No.	Test cases	Sub-clause of Part15E	Verdict
1	Maximum Output Power	15.407	P
2	Power Spectral Density	15.407	P
3	Occupied 26dB Bandwidth	15.403	P
4	Occupied 6dB Bandwidth	15.407	P
5	99% Occupied Bandwidth	15.407	P
6	Band edge compliance	15.209	P
7	Transmitter Spurious Emissions	15.407, 15.205	P
8	AC Power line Conducted	15.207	P
9	Frequency Stability	15.407	P
10	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/manufacture 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 isotropic radiated power
ISM	Industrial, Scientific and Medical
R&TTE	Radio and Telecommunications Terminal Equipment
RF	Radio Frequency
Tx	Transmitter

5.4. Laboratory Environment

Semi-anechoic Chamber

Temperature	Min. = 15°C, Max. = 30°C
Relative humidity	Min. = 35%, Max. = 60%
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ± 4 dB, 3 m distance, from 30 to 1000 MHz

Conducted shielded room

Temperature	Min. = 15°C, Max. = 30°C
Relative humidity	Min. = 35%, Max. = 60%
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-10000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4 Ω

Fully-anechoic Chamber

Temperature	Min. = 15°C, Max. = 30°C
Relative humidity	Min. = 35%, Max. = 60%
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4 Ω
Voltage Standing Wave Ratio (VSWR)	≤ 6 dB, from 1 to 18 GHz, 3 m distance
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz

6. TEST EQUIPMENTS UTILIZED

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Cycle	Calibration Due date
1	Vector Signal Analyzer	FSV40	100903	Rohde & Schwarz	2019-01-17	2020-01-16
2	Power Sensor	U2021XA	MY554300 13	Agilent	2019-01-17	2020-01-16
3	Data Acquisition	U2531A	TW554435 07	Agilent	/	/
4	Climate chamber	SU-242	93008165	ESPEC	2019-04-05	2020-04-04
5	DC Power Supply	ZUP60-14	6MY-847Z 13-0001	TDK-Lambda	2019-02-28	2020-02-27

Radiated emission test system

NO.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1	LISN	ESH2-Z5	100196	R&S	2019-01-04	2020-01-03
2	Test Receiver	ESCI	100701	R&S	2018-08-08	2019-08-07
3	Loop Antenna	HLA6120	35779	TESEQ	2016-05-03	2019-05-02
4	BiLog Antenna	VULB9163	9163 329	Schwarzbeck	2017-02-18	2020-02-17
5	Horn Antenna	3117	00066585	ETS-Lindgren	2019-03-05	2022-03-04
6	Test Receiver	ESR7	101675	R&S	2018-07-20	2019-07-19
7	Spectrum Analyzer	FSP 40	100378	R&S	2018-12-14	2019-12-13
8	Chamber	FACT5-2.0	4166	ETS-Lindgren	2018-05-13	2021-05-12
9	Antenna	QSH-SL-1 8-26-S-20	17013	Q-par	2017-01-16	2020-01-15
10	Antenna	QSH-SL-2 6-40-K-20	17014	Q-par	2017-01-12	2020-01-11

Test software

No.	Equipment	Manufacturer	Version
1	TechMgr Software	CAICT	2.1.1
2	EMC32	Rohde & Schwarz	8.53.0
3	EMC32	Rohde & Schwarz	10.01.00

EUT is engineering software provided by the customer to control the transmitting signal.

The EUT was programmed to be in continuously transmitting mode.

Anechoic chamber

Fully anechoic chamber by ETS-Lindgren

7. Measurement Uncertainty

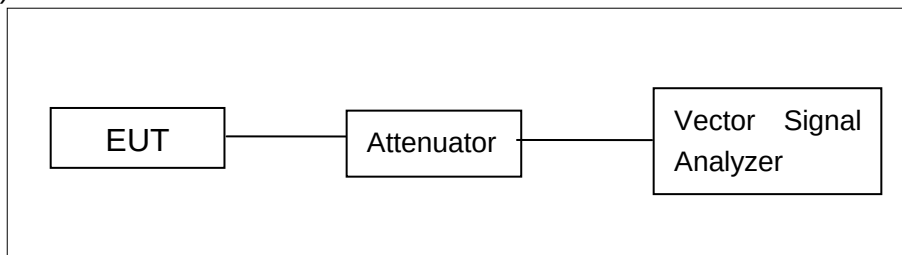
Test Name	Uncertainty	
1. RF Output Power - Conducted	$\pm 1.32\text{dB}$	
2. Power Spectral Density - Conducted	$\pm 2.32\text{dB}$	
3. Occupied channel bandwidth - Conducted	$\pm 66\text{Hz}$	
4 Transmitter Spurious Emission - Conducted	$30\text{MHz} \leq f \leq 1\text{GHz}$	$\pm 1.41\text{dB}$
	$1\text{GHz} \leq f \leq 7\text{GHz}$	$\pm 1.92\text{dB}$
	$7\text{GHz} \leq f \leq 13\text{GHz}$	$\pm 2.31\text{dB}$
	$13\text{GHz} \leq f \leq 26\text{GHz}$	$\pm 2.61\text{dB}$
5. Transmitter Spurious Emission - Radiated	$9\text{kHz} \leq f \leq 30\text{MHz}$	$\pm 1.84\text{dB}$
	$30\text{MHz} \leq f \leq 1\text{GHz}$	$\pm 4.90\text{dB}$
	$1\text{GHz} \leq f \leq 18\text{GHz}$	$\pm 5.12\text{dB}$
	$18\text{GHz} \leq f \leq 40\text{GHz}$	$\pm 4.66\text{dB}$
6. AC Power line Conducted Emission	$150\text{kHz} \leq f \leq 30\text{MHz}$	$\pm 3.10\text{dB}$

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

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.

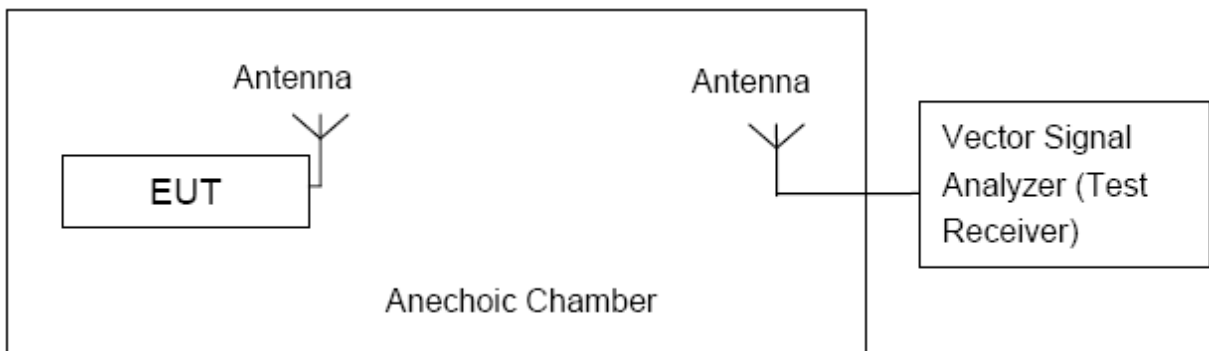


Radiated Emission Measurements

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

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

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



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	24
	5250MHz~5350MHz	24 or 11+10logB
	5470MHz~5725MHz	24 or 11+10logB
	5725MHz~5850MHz	30

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

Measurement of method: See ANSI C63.10-2013-Clause 12.3.3.2

Method PM-G is a measurement using a gated RF average power meter.

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Because the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Measurement Results:

U-NII Band	Mode	Channel	Frequency (MHz)	Average power (dBm)	Conclusion
5.2GHz Band (UNII-1)	802.11a	CH 36	5180	13.57	P
		CH 40	5200	13.68	P
		CH 48	5240	13.51	P
	802.11n-HT20	CH 36	5180	12.91	P
		CH 40	5200	12.84	P
		CH 48	5240	12.72	P
	802.11n-HT40	CH 38	5190	12.60	P
		CH 46	5230	12.47	P
	802.11ac-VHT20	CH 36	5180	13.17	P
		CH 40	5200	12.83	P
		CH 48	5240	12.73	P
	802.11ac-VHT40	CH 38	5190	12.57	P
		CH 46	5230	12.46	P
	802.11ac-VHT80	CH 42	5210	12.53	P

U-NII Band	Mode	Channel	Frequency (MHz)	Average power (dBm)	Conclusion
5.3GHz Band (UNII-2A)	802.11a	CH 52	5260	13.15	P
		CH 56	5280	13.23	P
		CH 64	5320	12.93	P
	802.11n-HT20	CH 52	5260	12.61	P
		CH 56	5280	12.58	P
		CH 64	5320	12.45	P
	802.11n-HT40	CH 54	5270	12.40	P
		CH 62	5310	12.35	P
	802.11ac-VHT20	CH 52	5260	12.73	P
		CH 56	5280	12.65	P
		CH 64	5320	12.54	P
	802.11ac-VHT40	CH 54	5270	12.39	P
		CH 62	5310	12.33	P
	802.11ac-VHT80	CH 58	5290	12.43	P

U-NII Band	Mode	Channel	Frequency (MHz)	Average power (dBm)	Conclusion
5.5GHz Band (UNII-2C)	802.11a	CH 100	5500	12.46	P
		CH 116	5580	11.82	P
		CH 140	5700	11.75	P
	802.11n-HT20	CH 100	5500	12.05	P
		CH 116	5580	11.70	P
		CH 140	5700	11.53	P
	802.11n-HT40	CH 102	5510	11.99	P
		CH 110	5550	11.80	P
		CH 134	5670	11.56	P
	802.11ac-VHT20	CH 100	5500	12.09	P
		CH 116	5580	11.68	P
		CH 140	5700	11.54	P
	802.11ac-VHT40	CH 102	5510	11.91	P
		CH 110	5550	11.72	P
		CH 134	5670	11.56	P
	802.11ac-VHT80	CH 106	5530	11.67	P
		CH 122	5610	11.48	P

U-NII Band	Mode	Channel	Frequency (MHz)	Average power (dBm)	Conclusion
5.8GHz Band (UNII-3)	802.11a	CH 149	5745	11.71	P
		CH 157	5785	11.75	P
		CH 165	5825	11.69	P
	802.11n-HT20	CH 149	5745	11.54	P
		CH 157	5785	11.66	P
		CH 165	5825	11.55	P
	802.11n-HT40	CH 151	5755	11.24	P
		CH 159	5795	11.27	P
	802.11ac-VHT20	CH 149	5745	11.57	P
		CH 157	5785	11.61	P
		CH 165	5825	11.58	P
	802.11ac-VHT40	CH 151	5755	11.32	P
		CH 159	5795	11.36	P
	802.11ac-VHT80	CH 155	5775	11.45	P

Note:

Worst-case data rates as provided by the client were: 6Mbps (802.11a), MCS0 (802.11n), MCS0 (802.11ac). 802.11a, 802.11n-HT40 and 802.11ac-VHT80 modes are selected as the worst case. The following cases and test graphs are performed with this condition. The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.

A.3. Peak Power Spectral Density

Measurement Limit:

Standard	Frequency (MHz)	Limit
FCC CRF Part 15.407(a)	5150MHz~5250MHz	11dBm/MHz
	5250MHz~5350MHz	11dBm/MHz
	5470MHz~5725MHz	11dBm/MHz
	5725MHz~5850MHz	30dBm/500KHz

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

Measurement Results:

Mode	Channel	Power Spectral Density (dBm/MHz)		Conclusion
802.11a	5180MHz(Ch36)	Fig.1	7.56	P
	5200MHz(Ch40)	Fig.2	7.70	P
	5240MHz(Ch48)	Fig.3	7.39	P
	5260MHz(Ch52)	Fig.4	7.41	P
	5280MHz(Ch56)	Fig.5	7.20	P
	5320MHz(Ch64)	Fig.6	6.93	P
	5500MHz(Ch100)	Fig.7	5.01	P
	5580MHz(Ch116)	Fig.8	5.68	P
	5700MHz(Ch140)	Fig.9	4.83	P

Mode	Channel	Power Spectral Density (dBm/MHz)	Conclusion
802.11n HT40	5190MHz(Ch38)	4.28	P
	5230MHz(Ch46)	3.33	P
	5270MHz(Ch54)	3.62	P
	5310MHz(Ch62)	3.08	P
	5510MHz(Ch102)	3.15	P
	5550MHz(Ch110)	3.18	P
	5670MHz(Ch134)	2.36	P

Mode	Channel	Power Spectral Density (dBm/MHz)	Conclusion
802.11ac VHT80	5210MHz(Ch42)	0.90	P
	5290MHz(Ch58)	0.69	P
	5530MHz(Ch106)	0.37	P
	5610MHz(Ch122)	-0.56	P

5.8GHz Band (UNII-3)

Mode	Channel	Power Spectral Density (dBm/500kHz)	Conclusion
802.11a	5745MHz(CH149)	3.01	P
	5785MHz(CH157)	3.34	P
	5825MHz(CH165)	3.13	P
802.11n HT40	5755MHz(CH151)	0.24	P
	5795MHz(CH159)	-0.22	P
802.11ac VHT80	5775MHz(CH155)	-2.63	P

Conclusion: PASS

Test graphs as below:

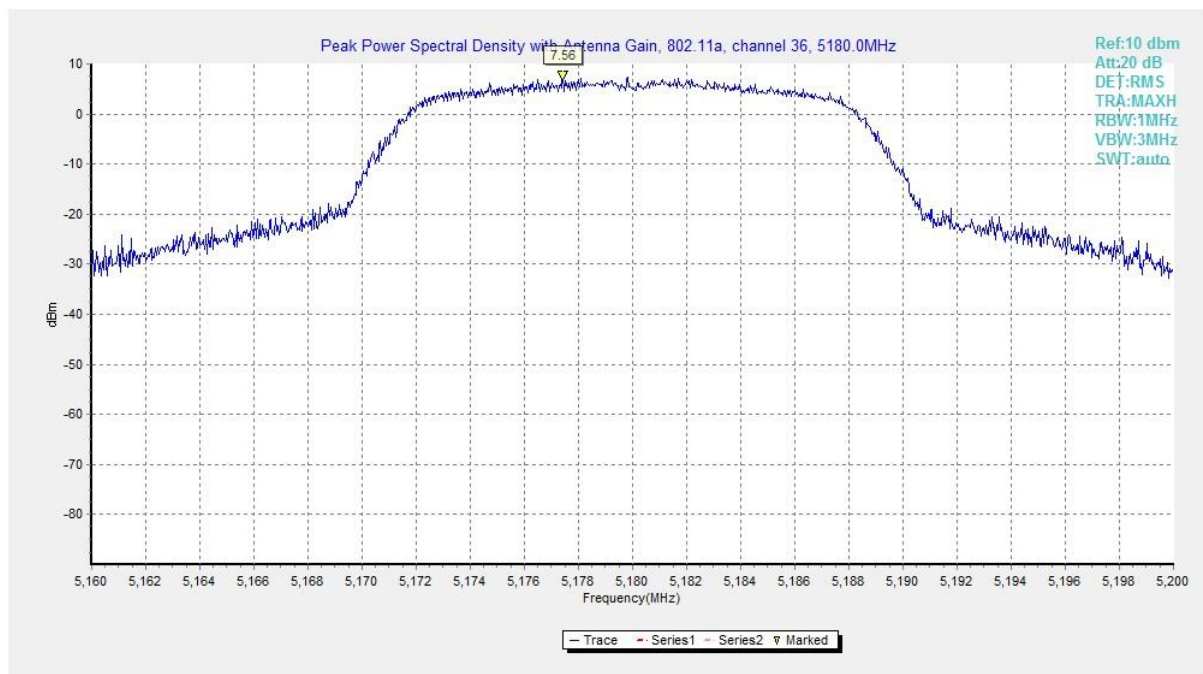


Fig. 1 Power Spectral Density (802.11a, 5180MHz)

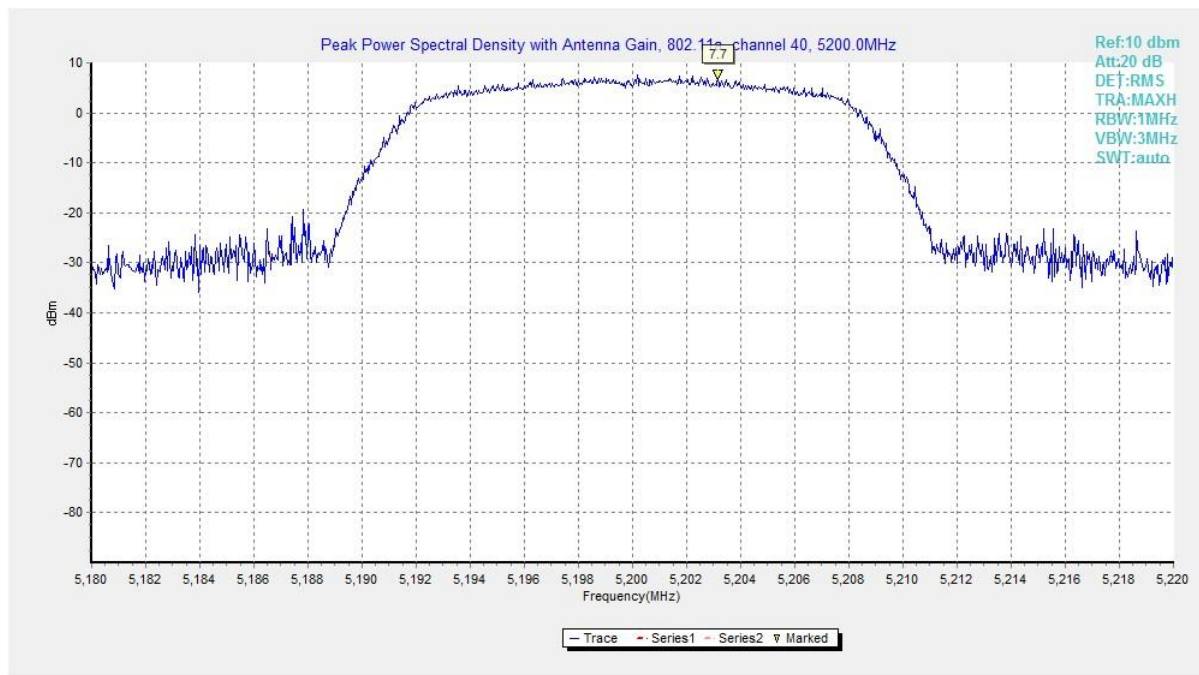


Fig. 2 Power Spectral Density (802.11a, 5200MHz)

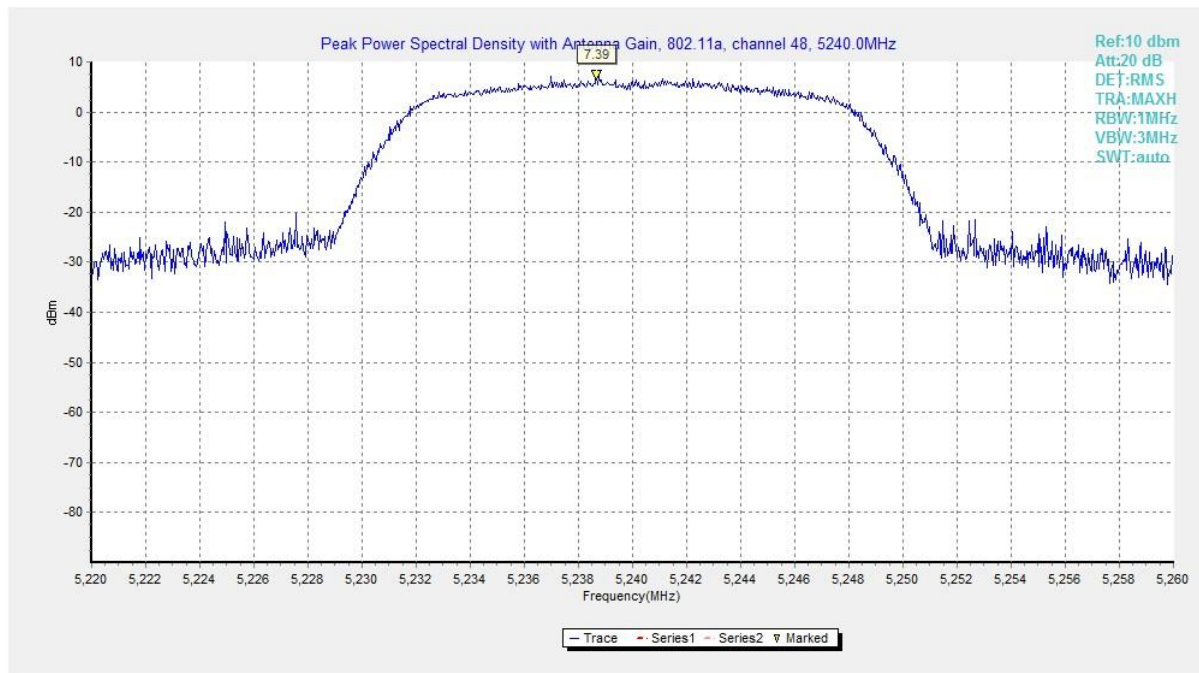


Fig. 3 Power Spectral Density (802.11a, 5240MHz)

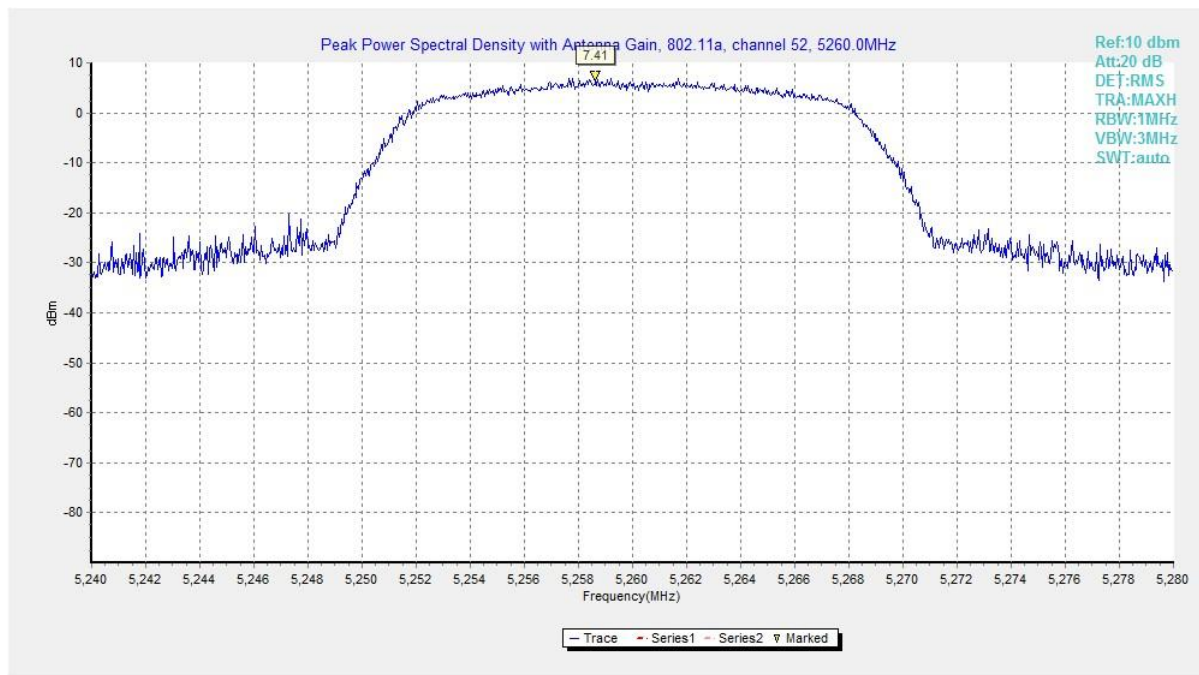


Fig. 4 Power Spectral Density (802.11a, 5260MHz)

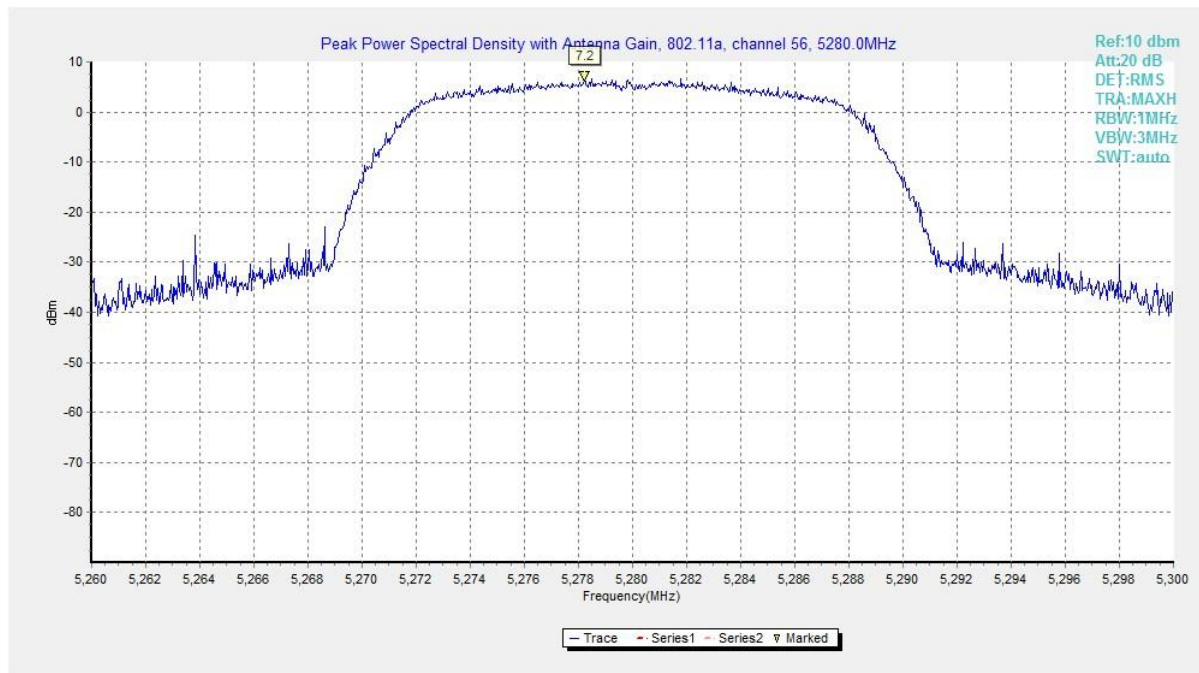


Fig. 5 Power Spectral Density (802.11a, 5280MHz)

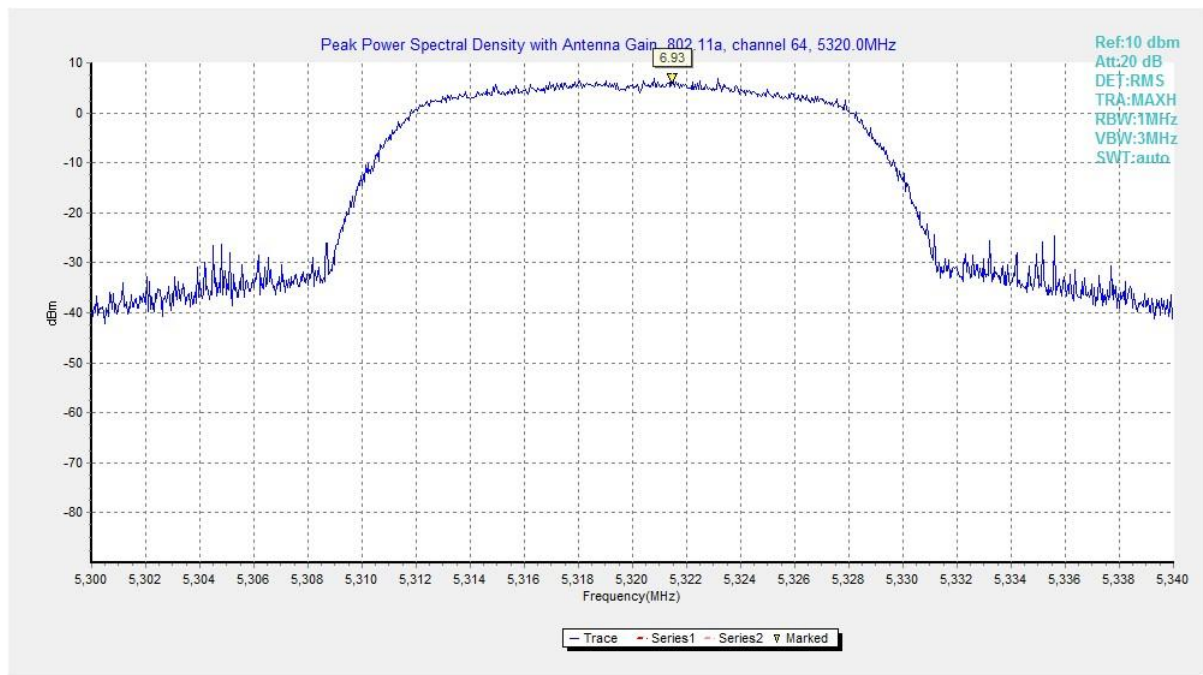


Fig. 6 Power Spectral Density (802.11a, 5320MHz)

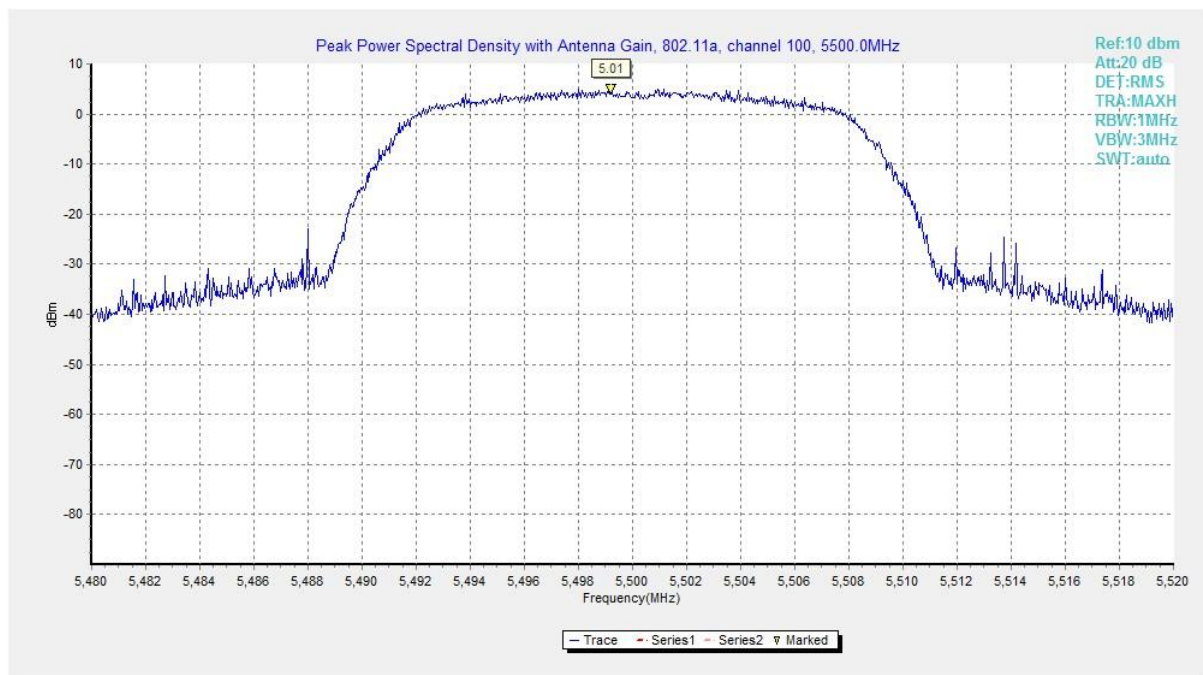


Fig. 7 Power Spectral Density (802.11a, 5500MHz)



Fig. 8 Power Spectral Density (802.11a, 5580MHz)



Fig. 9 Power Spectral Density (802.11a, 5700MHz)

A.4. Occupied 26dB Bandwidth

Measurement Limit:

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

The measurement is made according to KDB 789033.

Measurement Result:

Mode	Channel	Occupied 26dB Bandwidth(MHz)		Conclusion
802.11a	5180MHz(Ch36)	Fig.10	27.90	P
	5200MHz(Ch40)	Fig.11	25.55	P
	5240MHz(Ch48)	Fig.12	24.00	P
	5260MHz(Ch52)	Fig.13	22.85	P
	5280MHz(Ch56)	Fig.14	22.90	P
	5320MHz(Ch64)	Fig.15	21.75	P
	5500MHz(Ch100)	Fig.16	22.60	P
	5580MHz(Ch116)	Fig.17	22.80	P
	5700MHz(Ch140)	Fig.18	23.25	P
802.11n HT40	5190MHz(Ch38)	Fig.19	41.12	P
	5230MHz(Ch46)	Fig.20	47.28	P
	5270MHz(Ch54)	Fig.21	41.84	P
	5310MHz(Ch62)	Fig.22	40.80	P
	5510MHz(Ch102)	Fig.23	41.04	P
	5550MHz(Ch110)	Fig.24	48.32	P
	5670MHz(Ch134)	Fig.25	40.80	P
802.11ac VHT80	5210MHz(Ch42)	Fig.26	81.44	P
	5290MHz(Ch58)	Fig.27	80.80	P
	5530MHz(Ch106)	Fig.28	80.80	P
	5610MHz(Ch122)	Fig.29	89.60	P

Conclusion: PASS

Test graphs as below:



Fig. 10 Occupied 26dB Bandwidth (802.11a, 5180MHz)

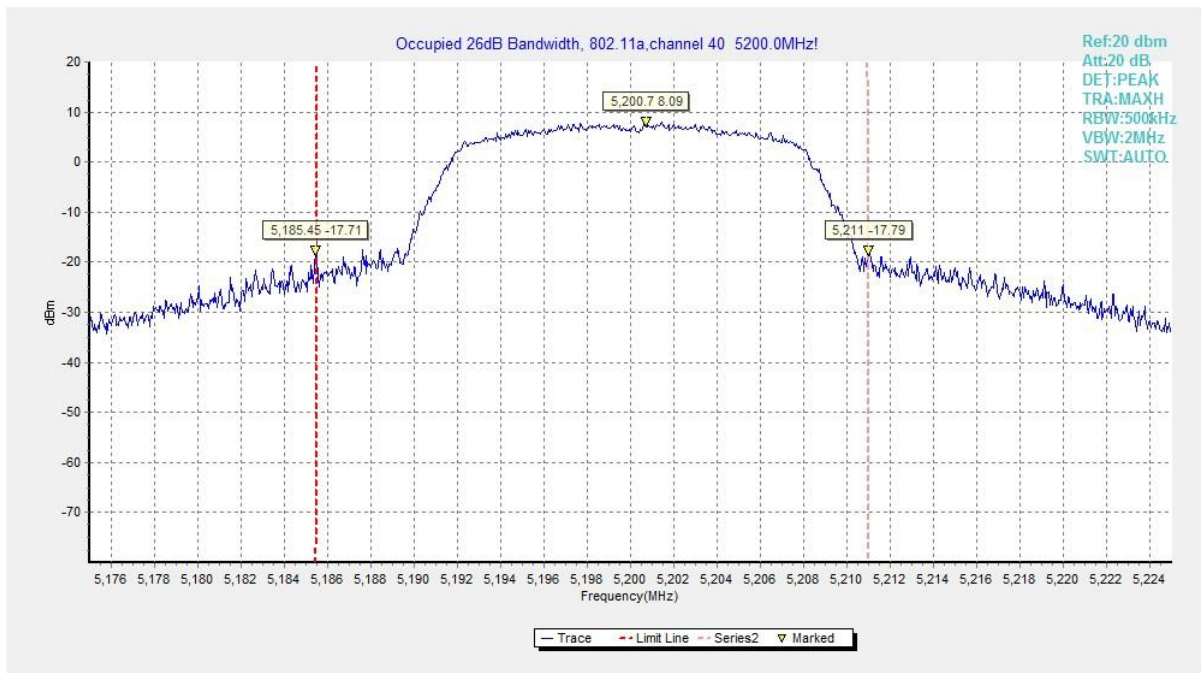


Fig. 11 Occupied 26dB Bandwidth (802.11a, 5200MHz)

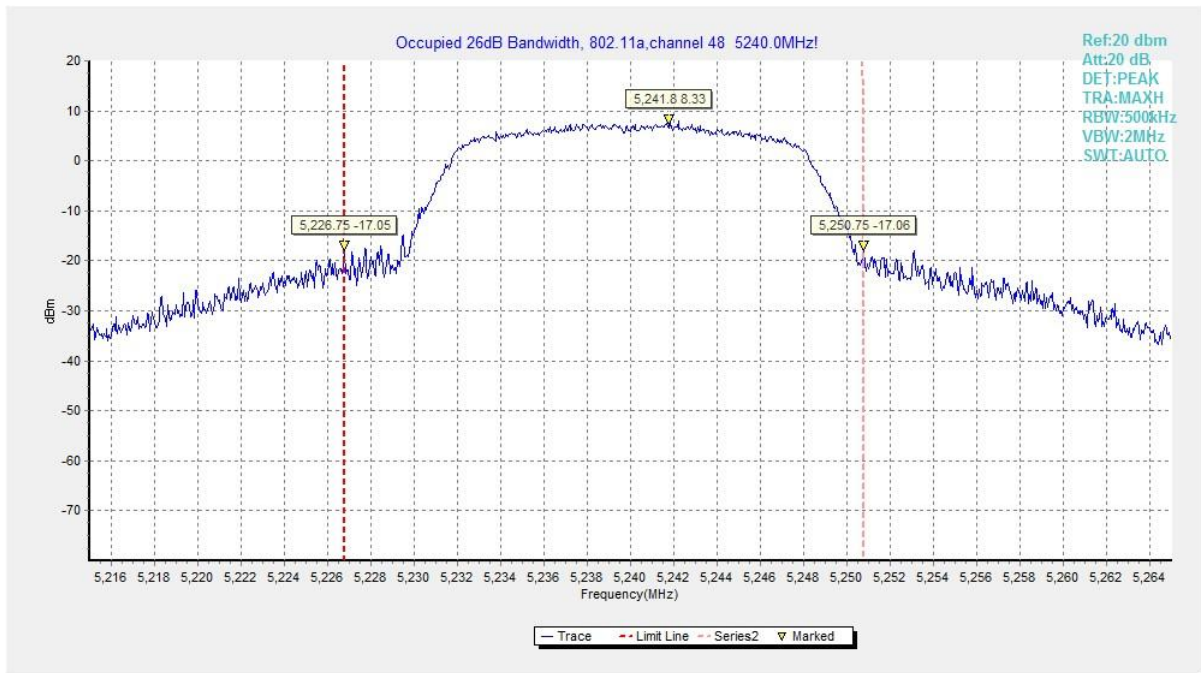


Fig. 12 Occupied 26dB Bandwidth (802.11a, 5240MHz)

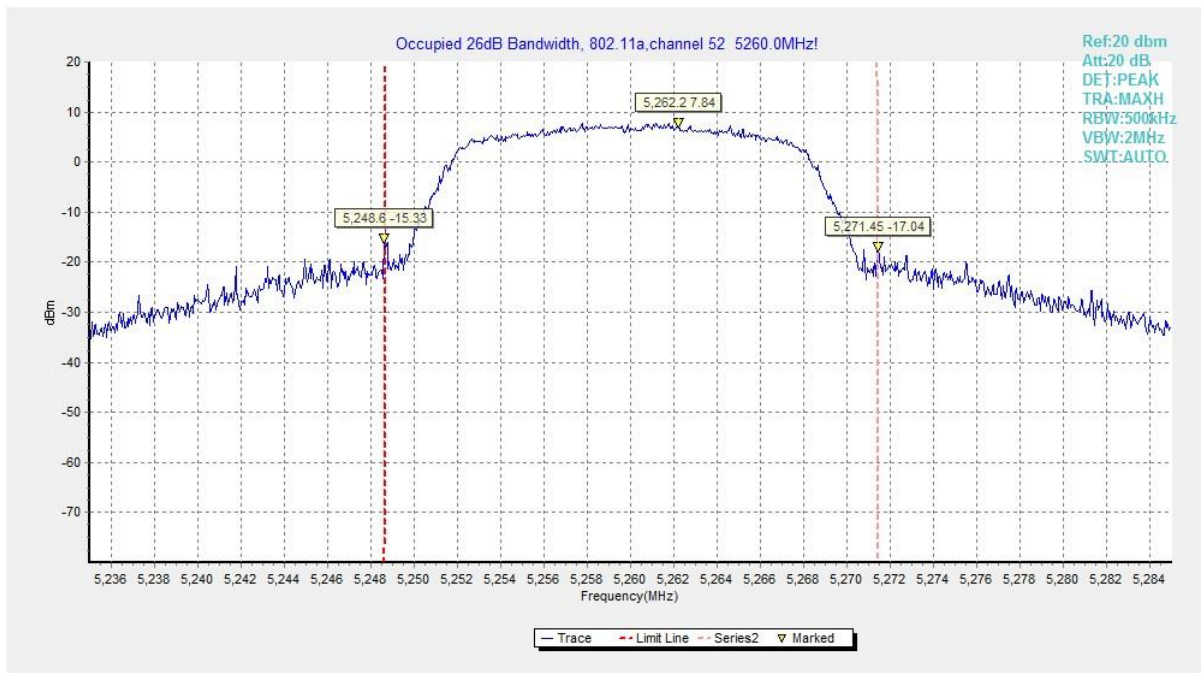


Fig. 13 Occupied 26dB Bandwidth (802.11a, 5260MHz)

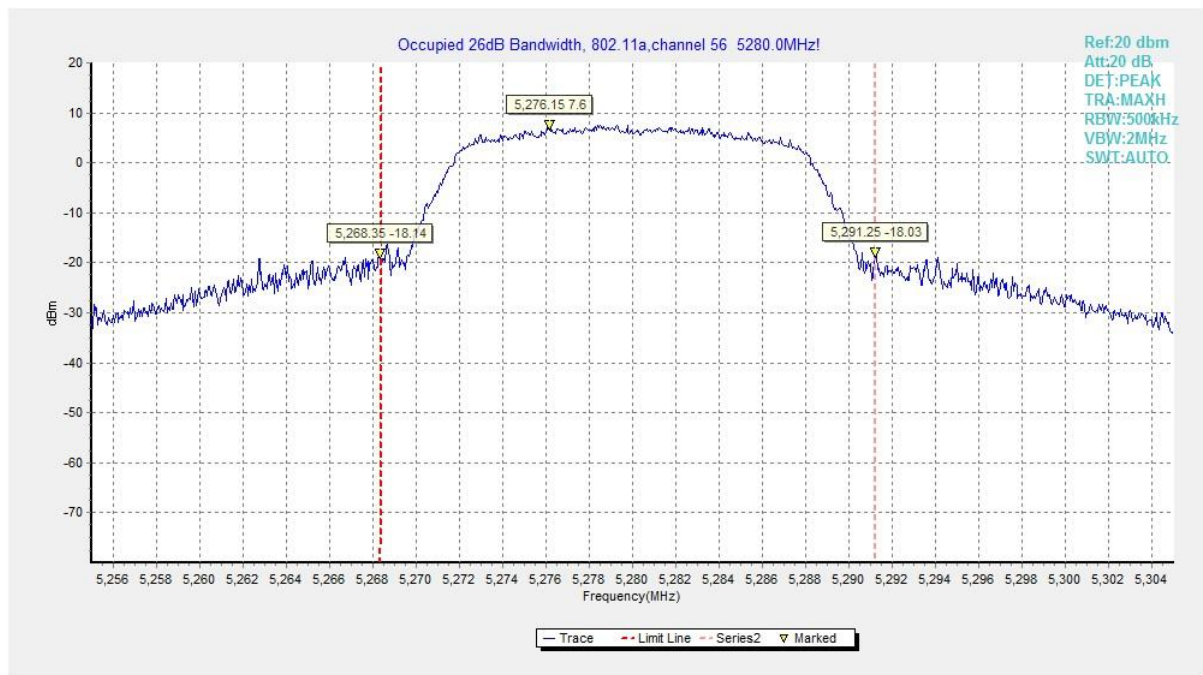


Fig. 14 Occupied 26dB Bandwidth (802.11a, 5280MHz)

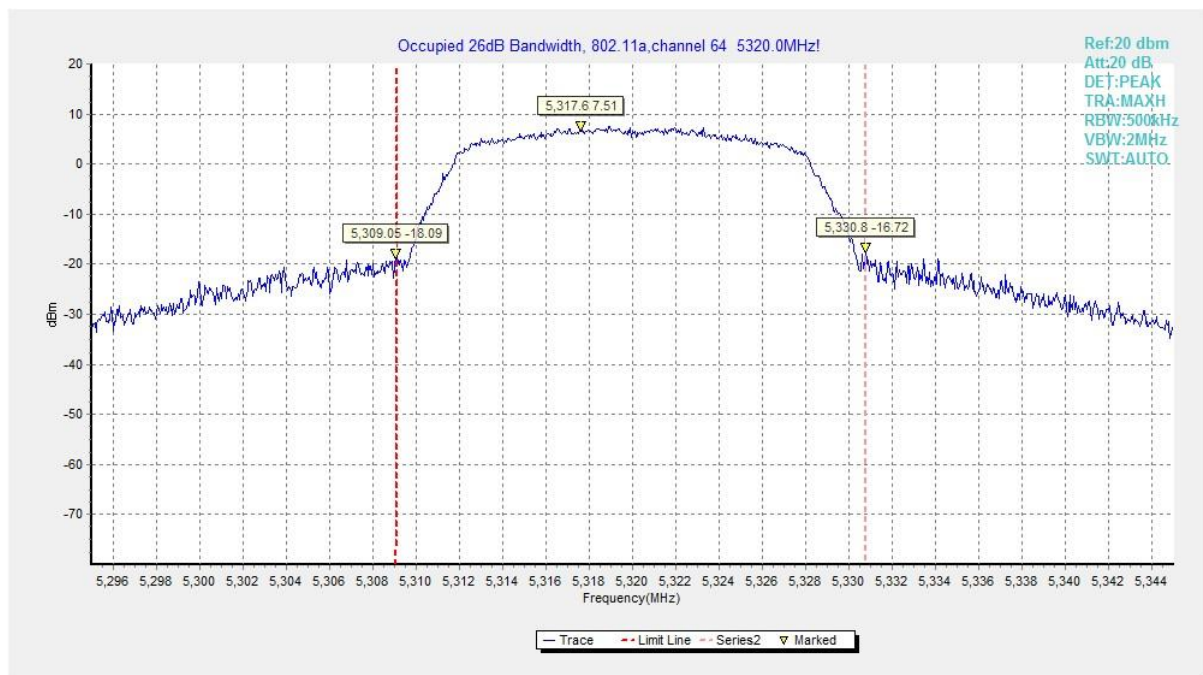


Fig. 15 Occupied 26dB Bandwidth (802.11a, 5320MHz)

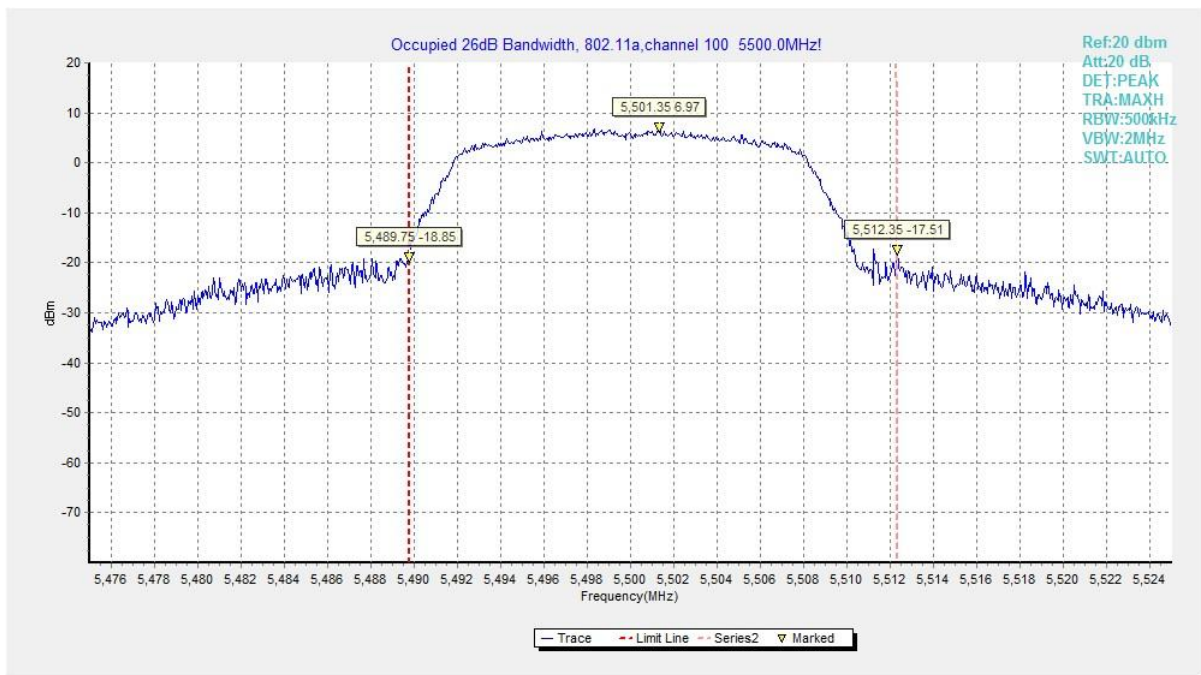


Fig. 16 Occupied 26dB Bandwidth (802. 11a, 5500MHz)

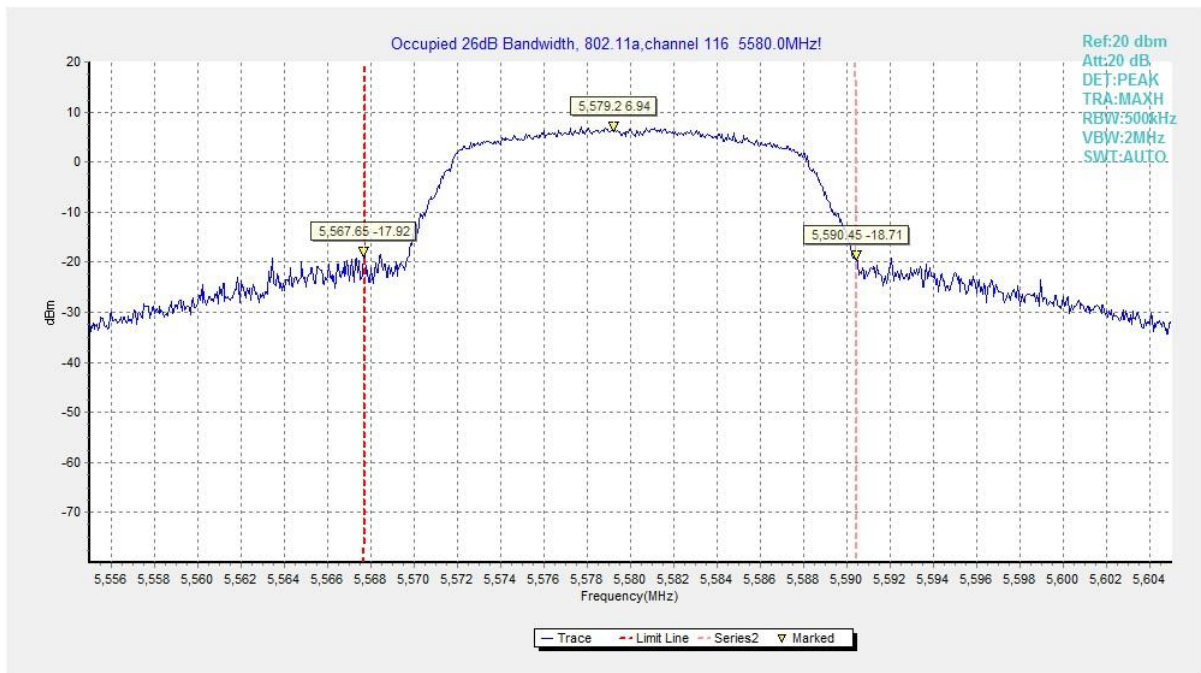


Fig. 17 Occupied 26dB Bandwidth (802. 11a, 5580MHz)

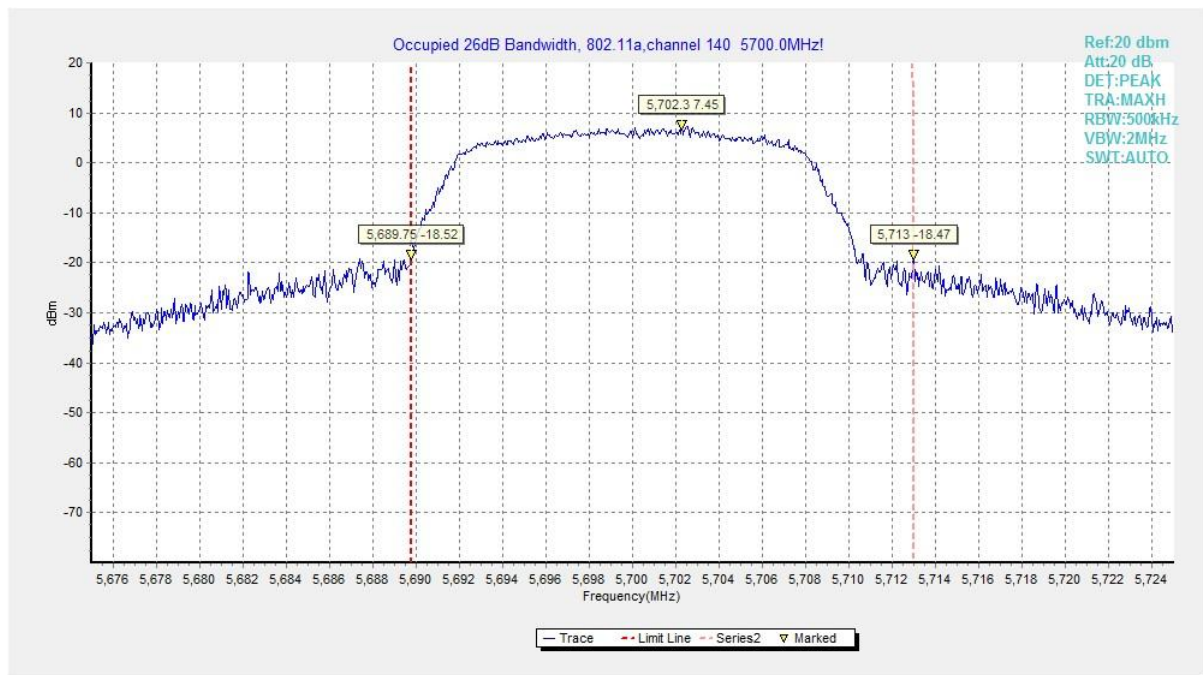


Fig. 18 Occupied 26dB Bandwidth (802. 11a, 5700MHz)

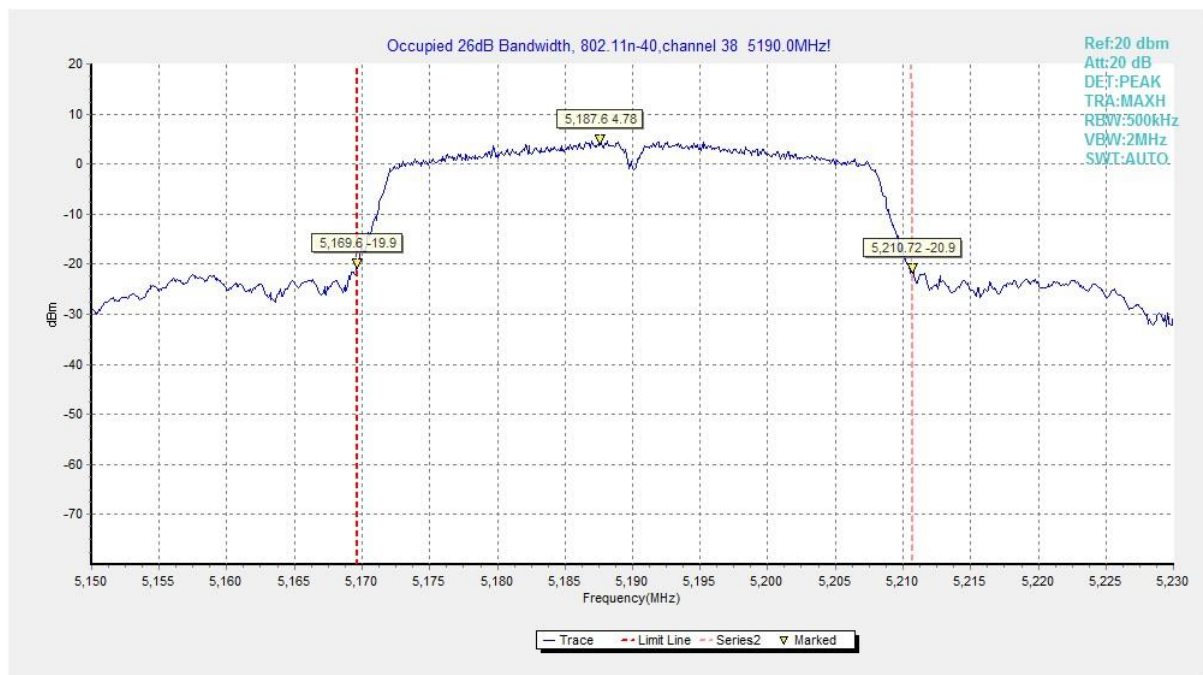


Fig. 19 Occupied 26dB Bandwidth (802.11n-HT40, 5190MHz)

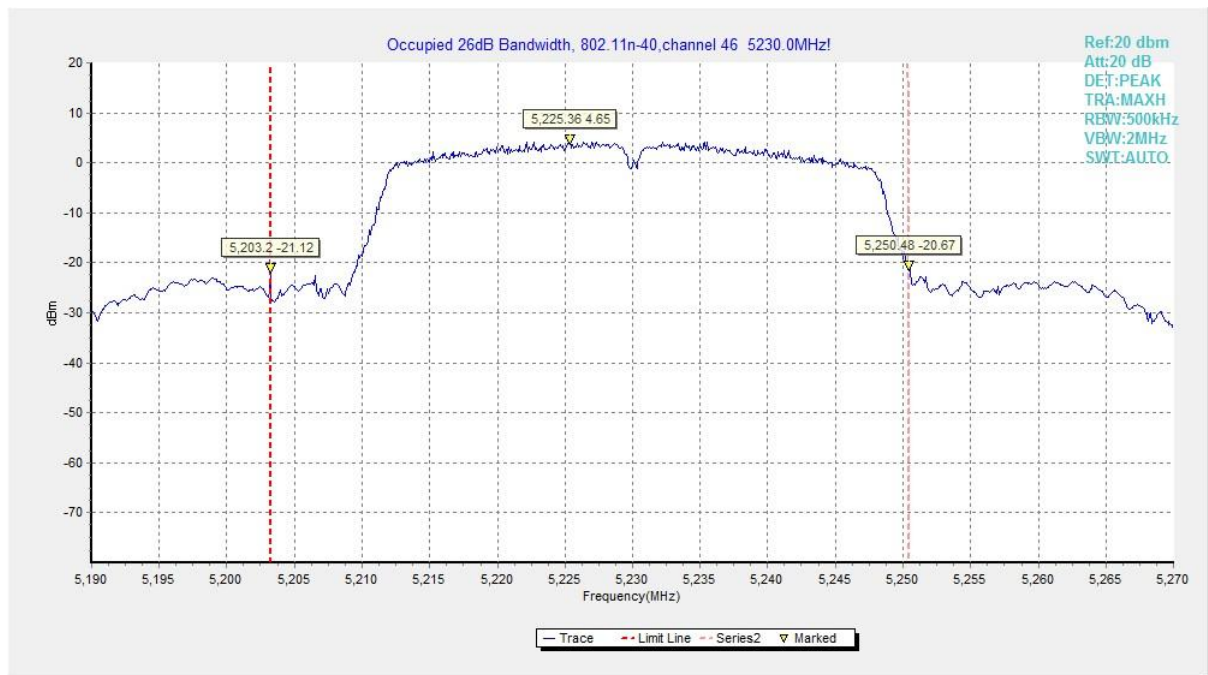


Fig. 20 Occupied 26dB Bandwidth (802.11n-HT40, 5230MHz)

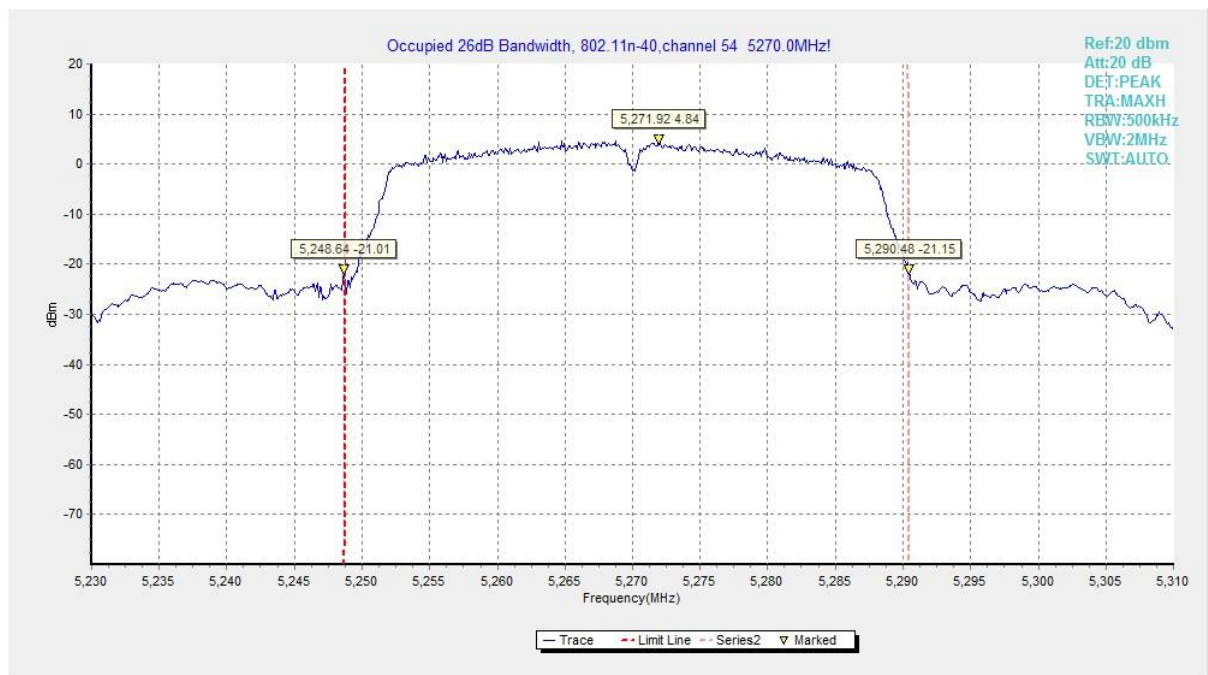


Fig. 21 Occupied 26dB Bandwidth (802.11n-HT40, 5270MHz)

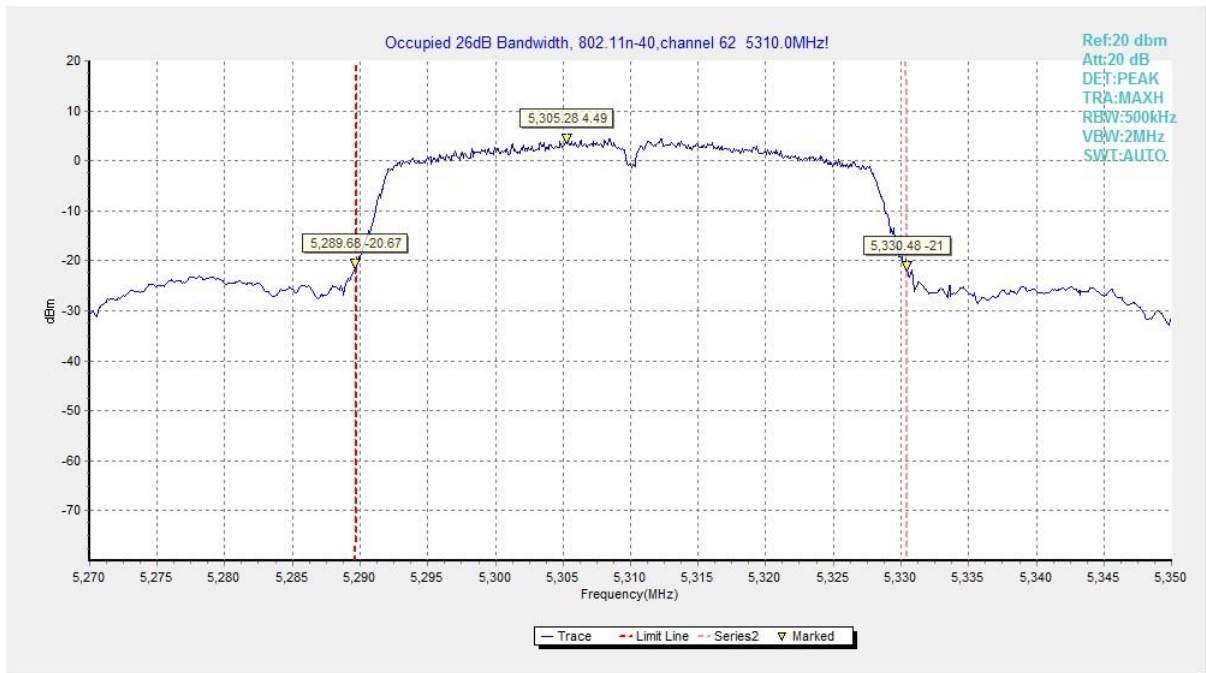


Fig. 22 Occupied 26dB Bandwidth (802.11n-HT40, 5310MHz)

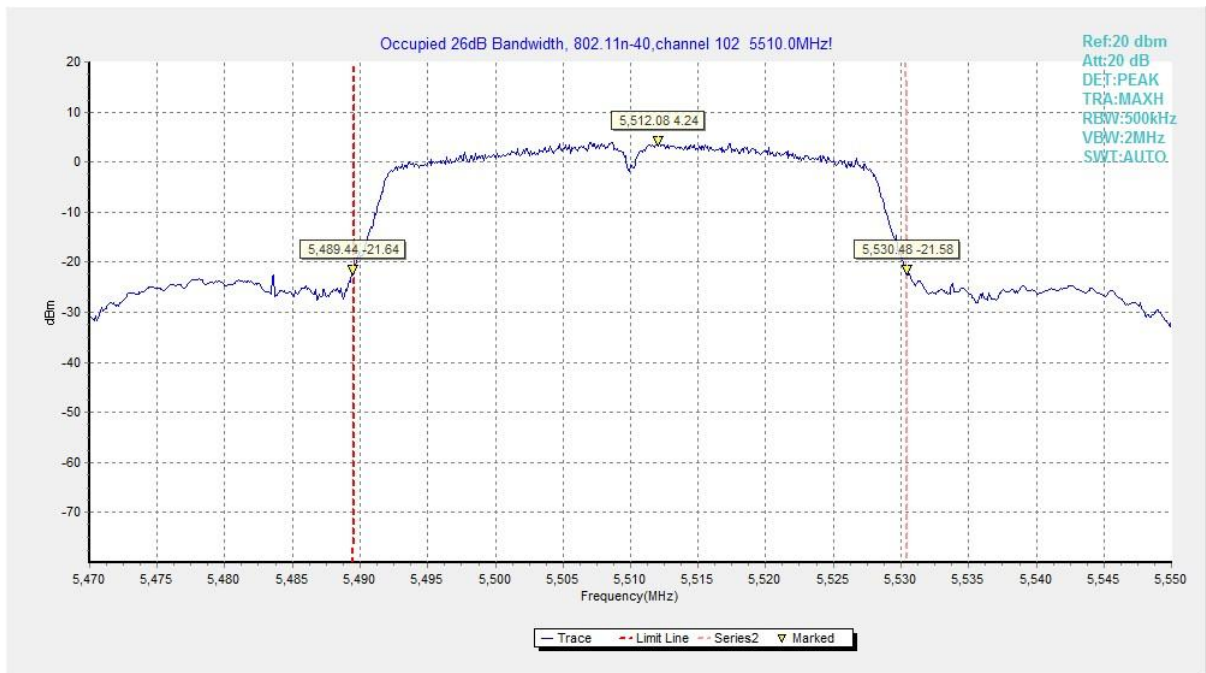


Fig. 23 Occupied 26dB Bandwidth (802. 11n-HT40, 5510MHz)

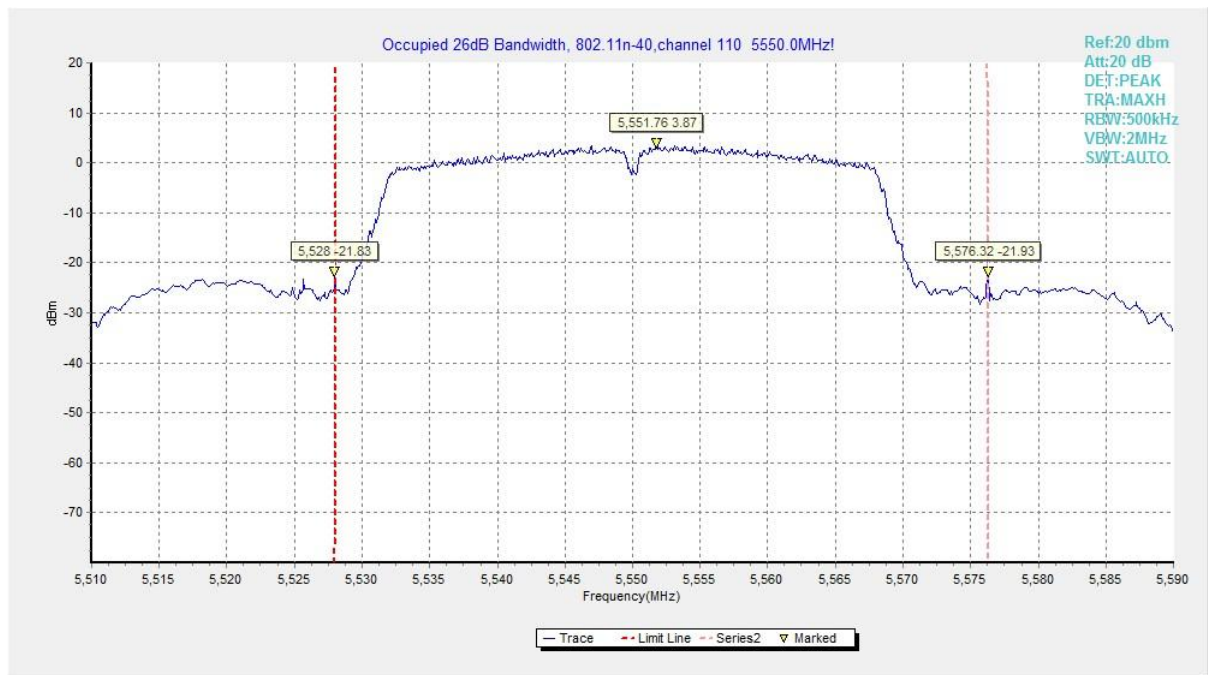


Fig. 24 Occupied 26dB Bandwidth (802. 11n-HT40, 5550MHz)

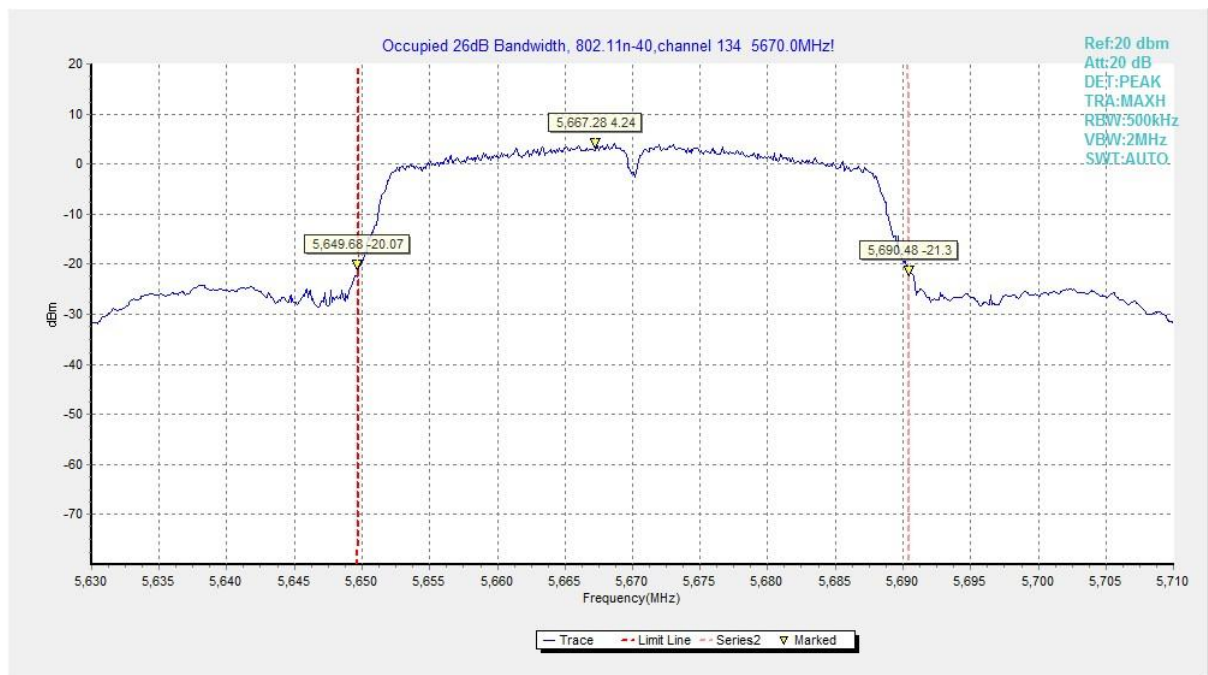


Fig. 25 Occupied 26dB Bandwidth (802. 11n-HT40, 5670MHz)

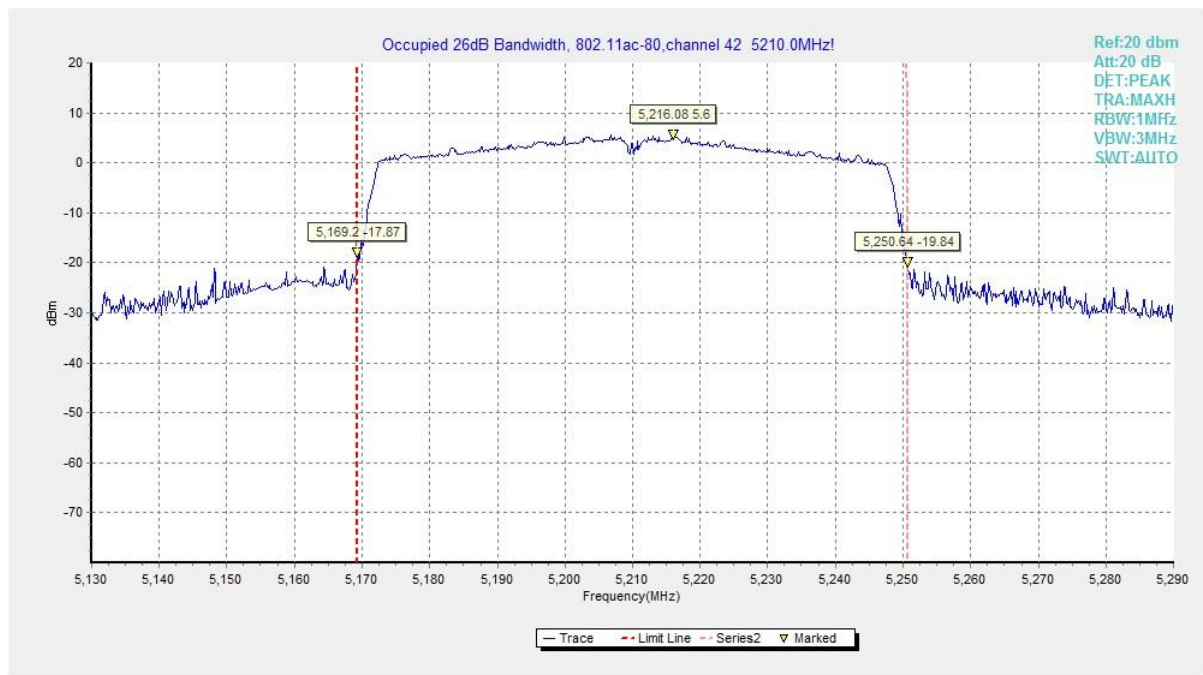


Fig. 26 Occupied 26dB Bandwidth (802. 11ac-VHT80, 5210MHz)

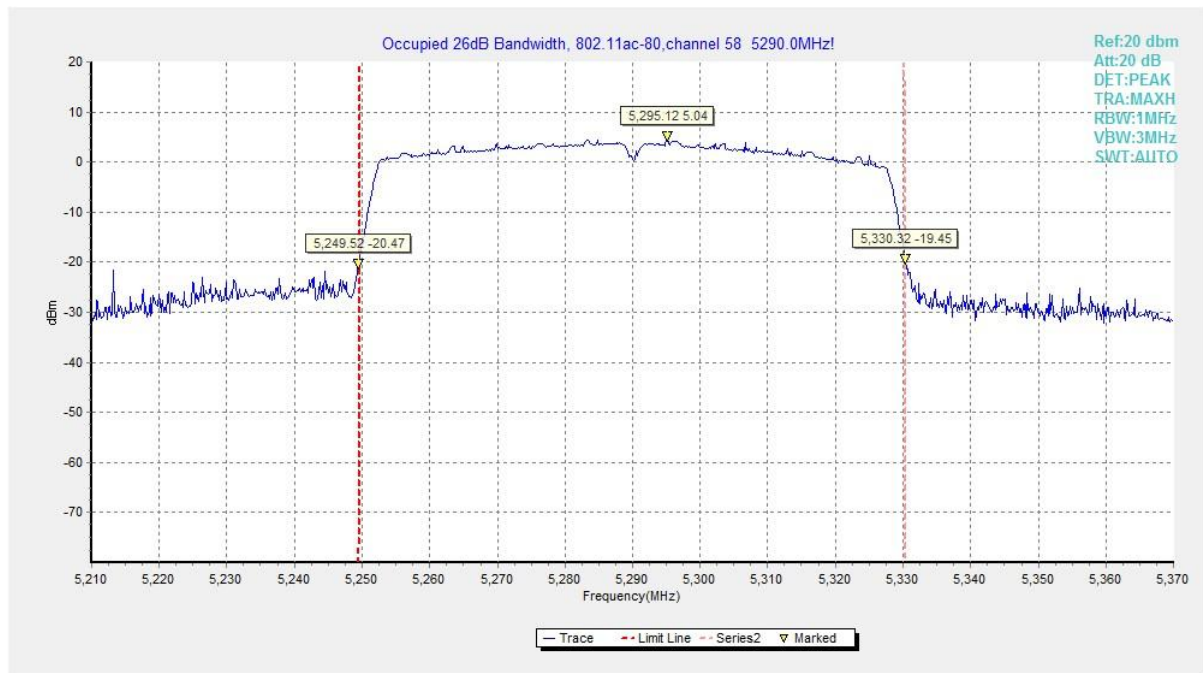


Fig. 27 Occupied 26dB Bandwidth (802. 11ac-VHT80, 5290MHz)

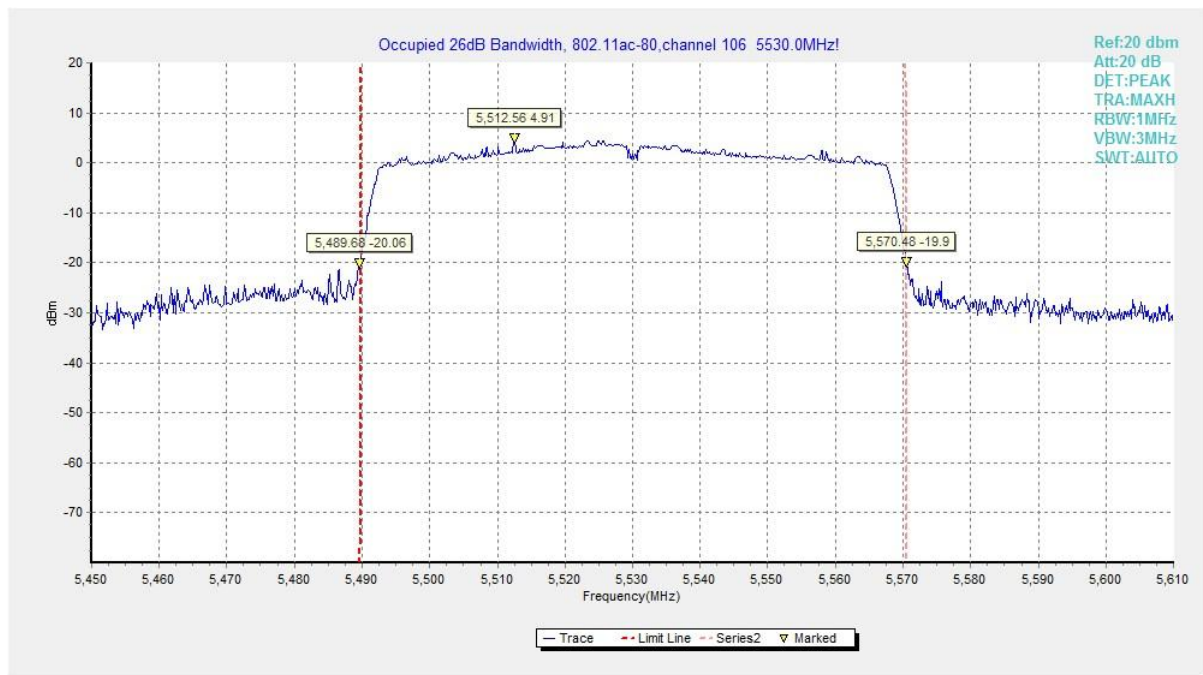


Fig. 28 Occupied 26dB Bandwidth (802. 11ac-VHT80, 5530MHz)

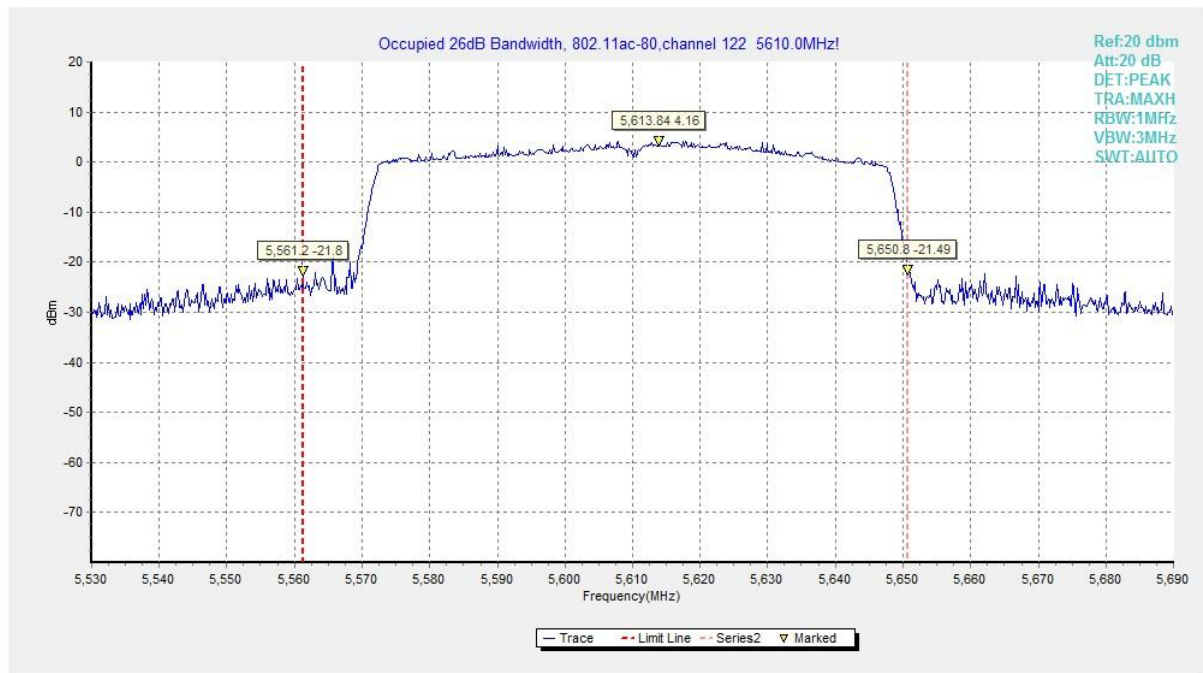


Fig. 29 Occupied 26dB Bandwidth (802. 11ac-VHT80, 5610MHz)

A.5. Occupied 6dB Bandwidth

Measurement Limit:

Standard	Limit (MHz)
FCC 47 CFR Part 15.407(e)	≥ 0.5

The measurement is made according to KDB 789033.

Measurement Result:

Mode	Channel	Occupied 6dB Bandwidth(MHz)		Conclusion
802.11a	5745MHz(Ch149)	Fig.30	15.10	P
	5785MHz(Ch157)	Fig.31	15.10	P
	5825MHz(Ch165)	Fig.32	15.10	P
802.11n HT40	5755MHz(Ch151)	Fig.33	35.12	P
	5795MHz(Ch159)	Fig.34	35.12	P
802.11ac VHT80	5775MHz(Ch155)	Fig.35	75.20	P

Conclusion: PASS

Test graphs as below:

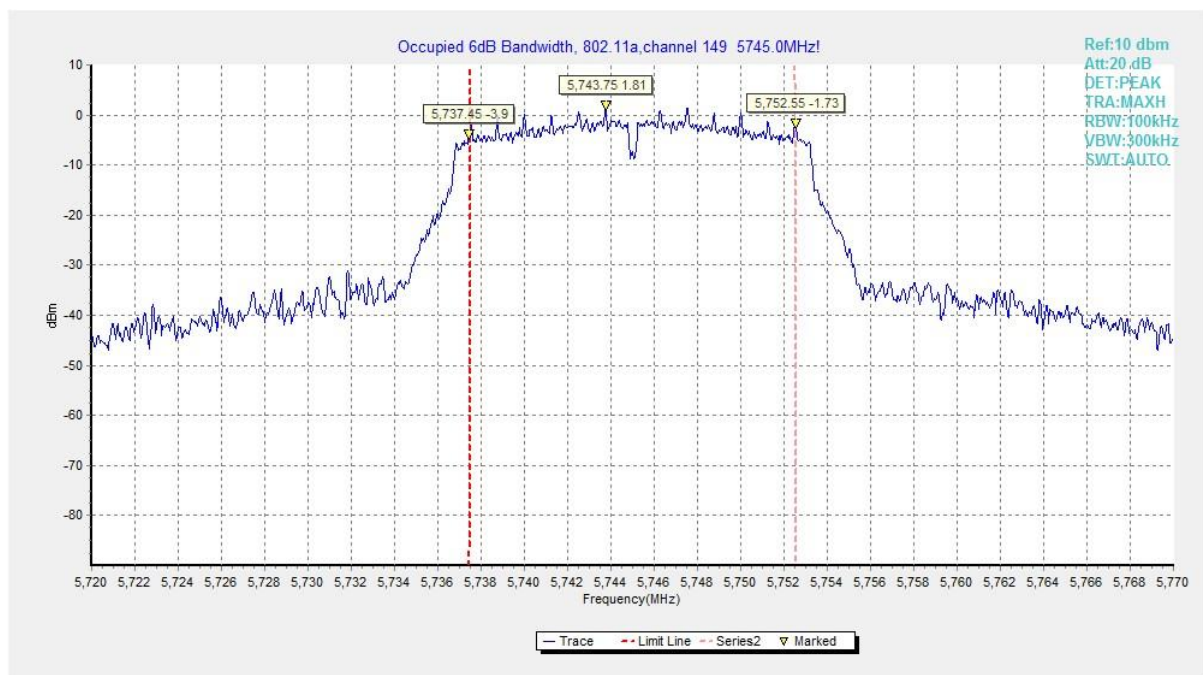


Fig. 30 Occupied 6dB Bandwidth (802.11a, 5745MHz)

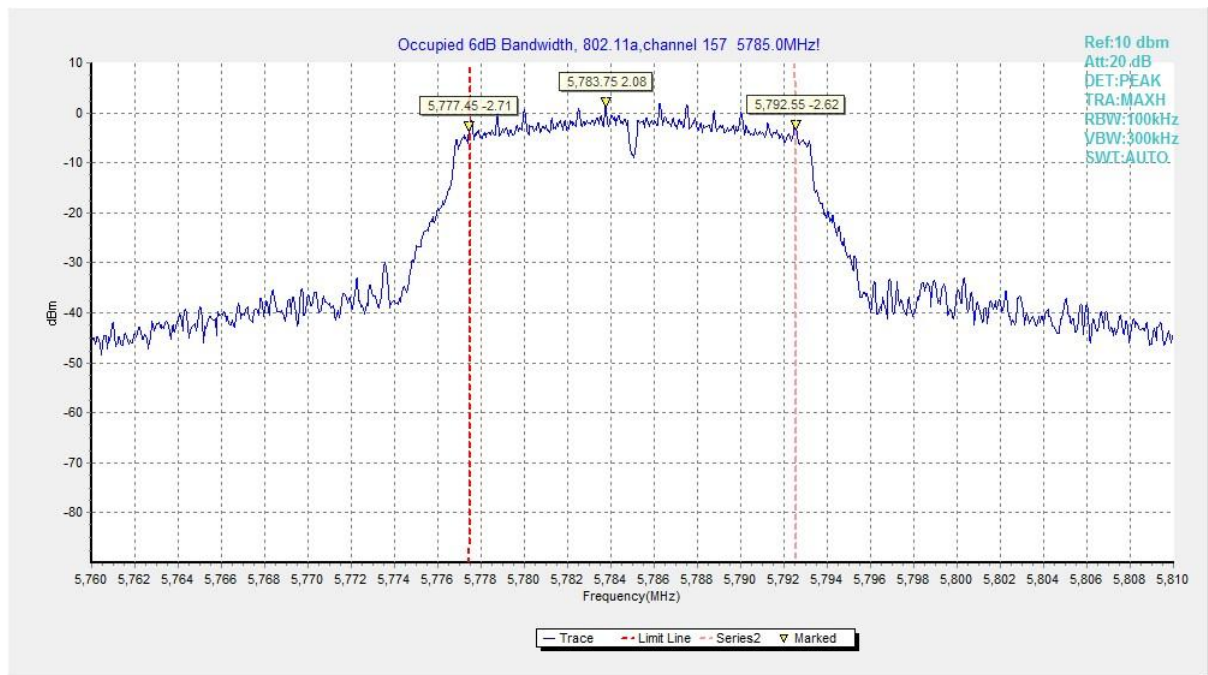


Fig. 31 Occupied 6dB Bandwidth (802.11a, 5785MHz)

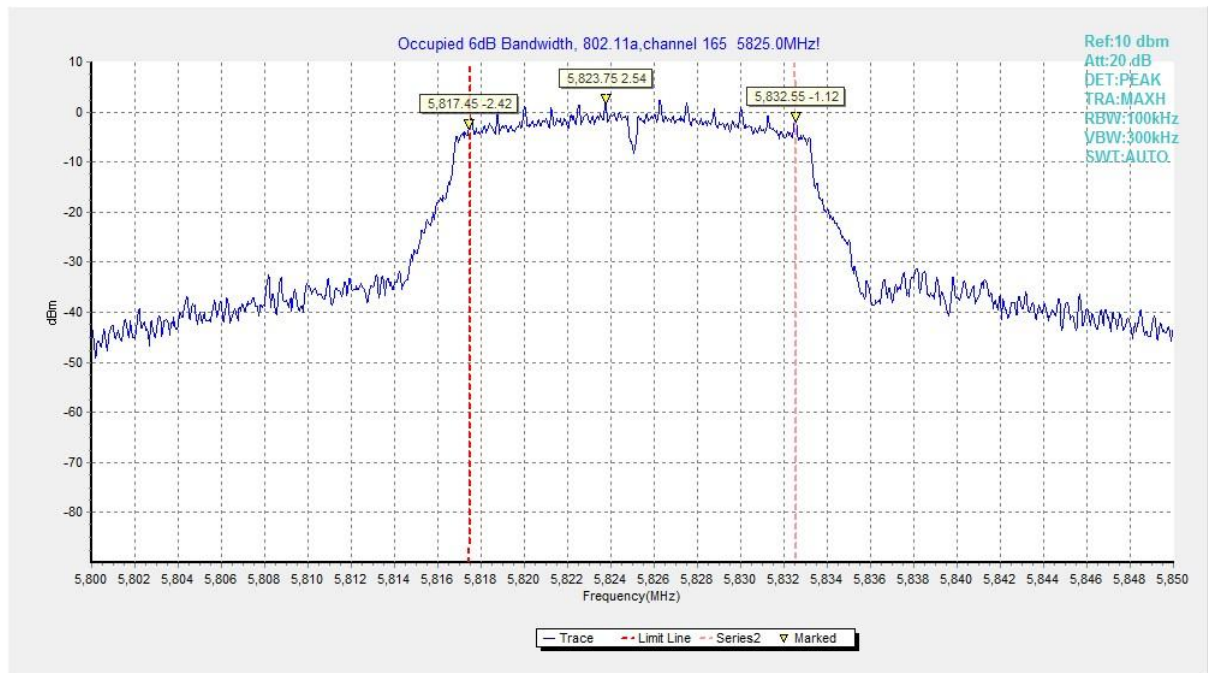


Fig. 32 Occupied 6dB Bandwidth (802.11a, 5825MHz)

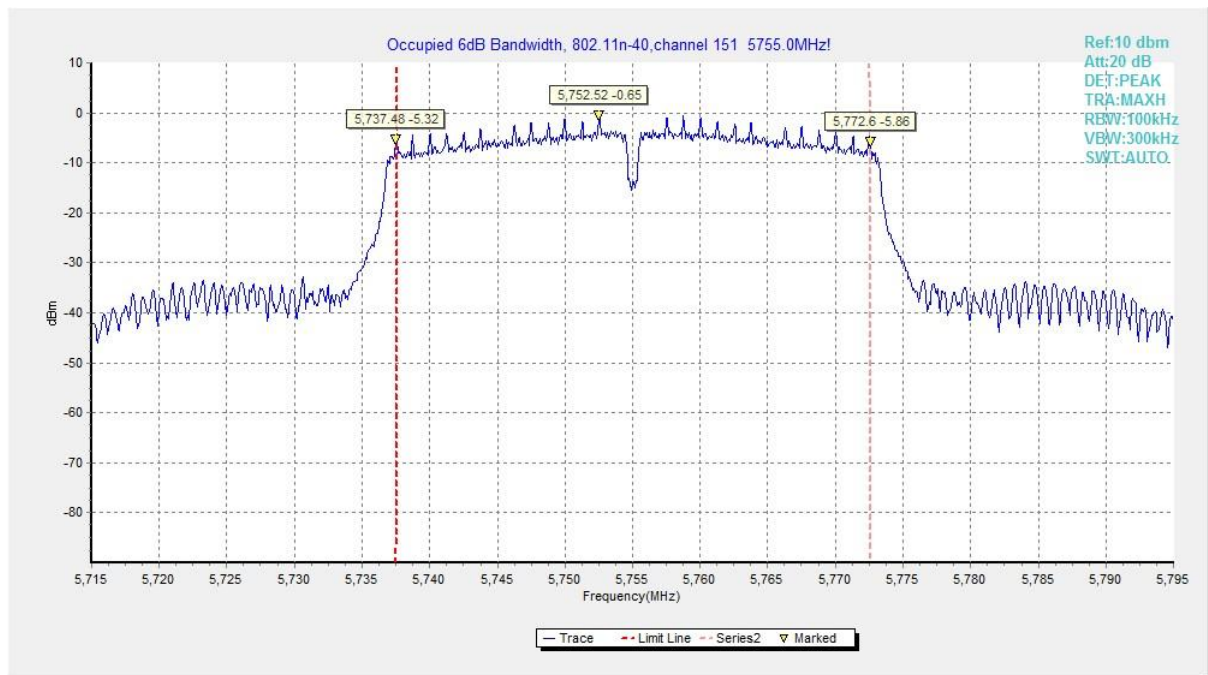


Fig. 33 Occupied 6dB Bandwidth (802.11n-HT40, 5755MHz)

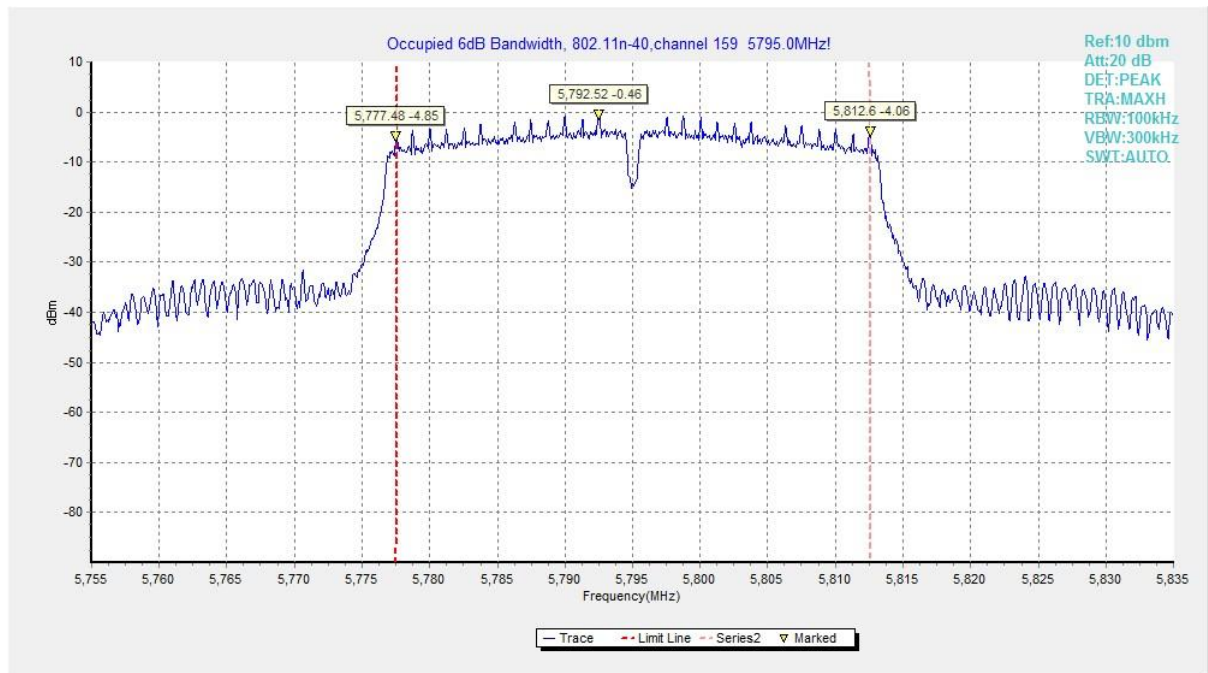


Fig. 34 Occupied 6dB Bandwidth (802.11n-HT40, 5795MHz)

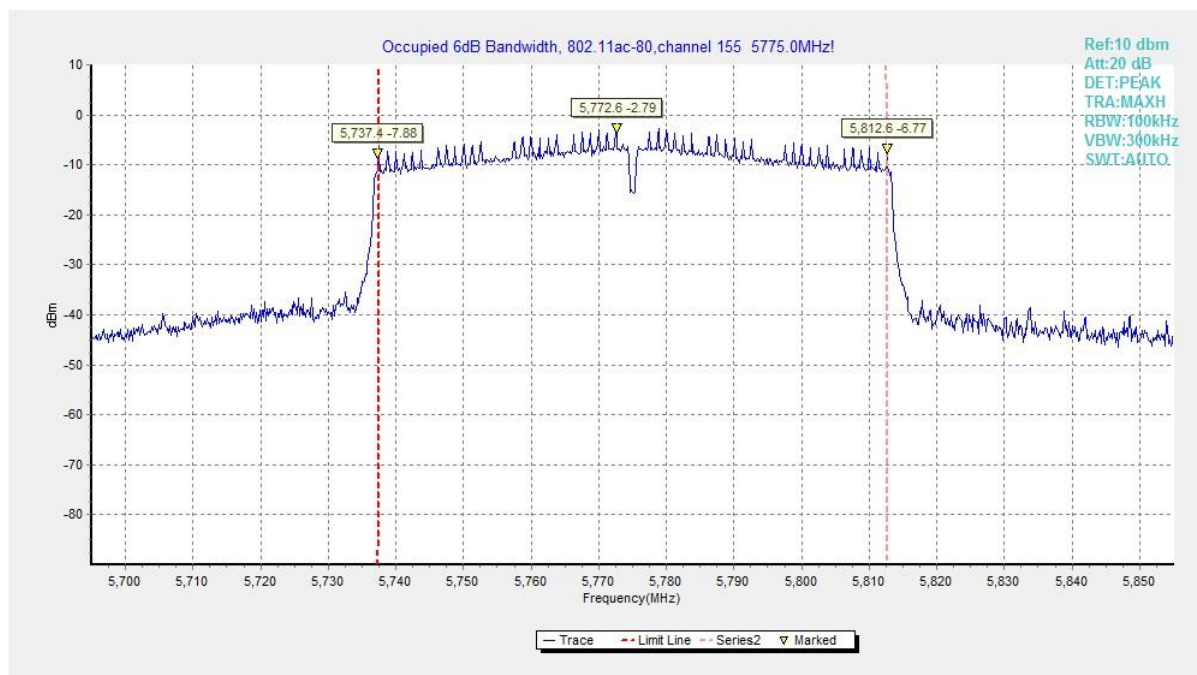


Fig. 35 Occupied 6dB Bandwidth (802.11ac-VHT80, 5775MHz)

A.6. 99% Occupied Bandwidth

Measurement Limit:

Standard	Limit (MHz)
FCC 47 CFR Part 15.403	/

The measurement is made according to KDB 789033.

Measurement Result:

Mode	Channel	99% Occupied Bandwidth(MHz)		Conclusion
802.11a	5180MHz(Ch36)	Fig.36	17.38	P
	5200MHz(Ch40)	Fig.37	17.30	P
	5240MHz(Ch48)	Fig.38	17.38	P
	5260MHz(Ch52)	Fig.39	17.38	P
	5280MHz(Ch56)	Fig.40	17.38	P
	5320MHz(Ch64)	Fig.41	17.30	P
	5500MHz(Ch100)	Fig.42	17.38	P
	5580MHz(Ch116)	Fig.43	17.34	P
	5700MHz(Ch140)	Fig.44	17.26	P
802.11n HT40	5190MHz(Ch38)	Fig.45	36.36	P
	5230MHz(Ch46)	Fig.46	36.28	P
	5270MHz(Ch54)	Fig.47	36.28	P
	5310MHz(Ch62)	Fig.48	36.28	P
	5510MHz(Ch102)	Fig.49	36.28	P
	5550MHz(Ch110)	Fig.50	36.36	P
	5670MHz(Ch134)	Fig.51	36.20	P
802.11ac VHT80	5210MHz(Ch42)	Fig.52	75.28	P
	5290MHz(Ch58)	Fig.53	75.28	P
	5530MHz(Ch106)	Fig.54	75.28	P
	5610MHz(Ch122)	Fig.55	75.44	P

Conclusion: PASS

Test graphs as below:

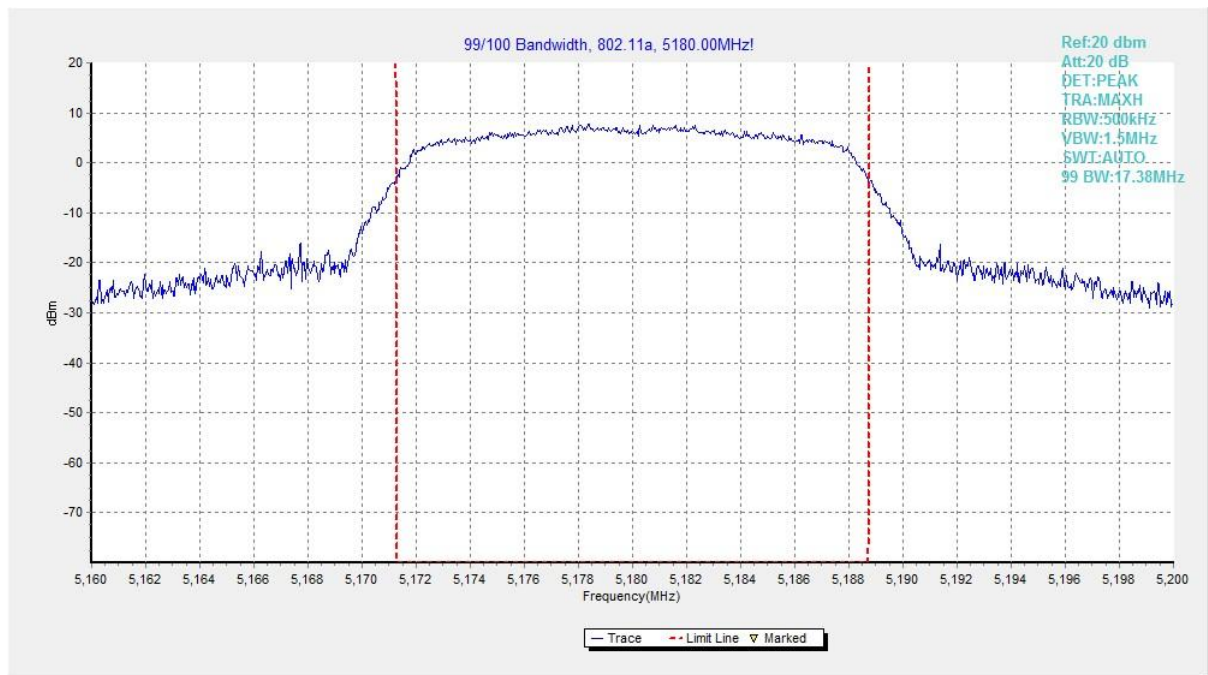


Fig. 36 99% Occupied Bandwidth (802.11a, 5180MHz)

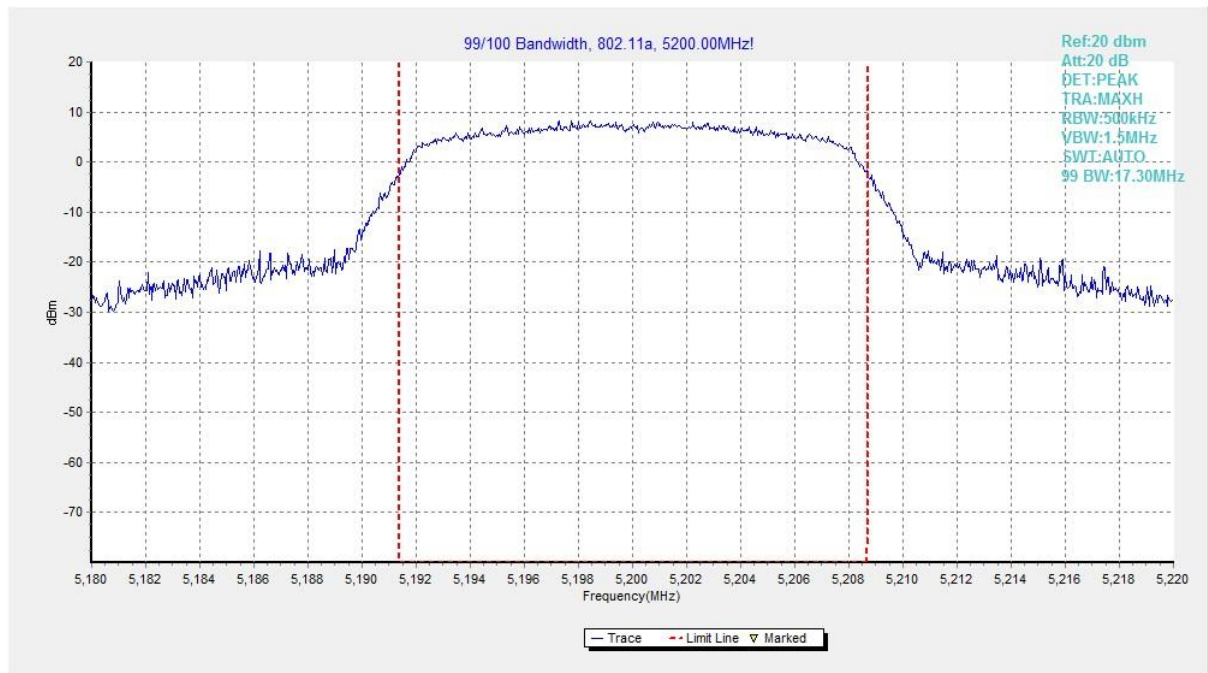


Fig. 37 99% Occupied Bandwidth (802.11a, 5200MHz)

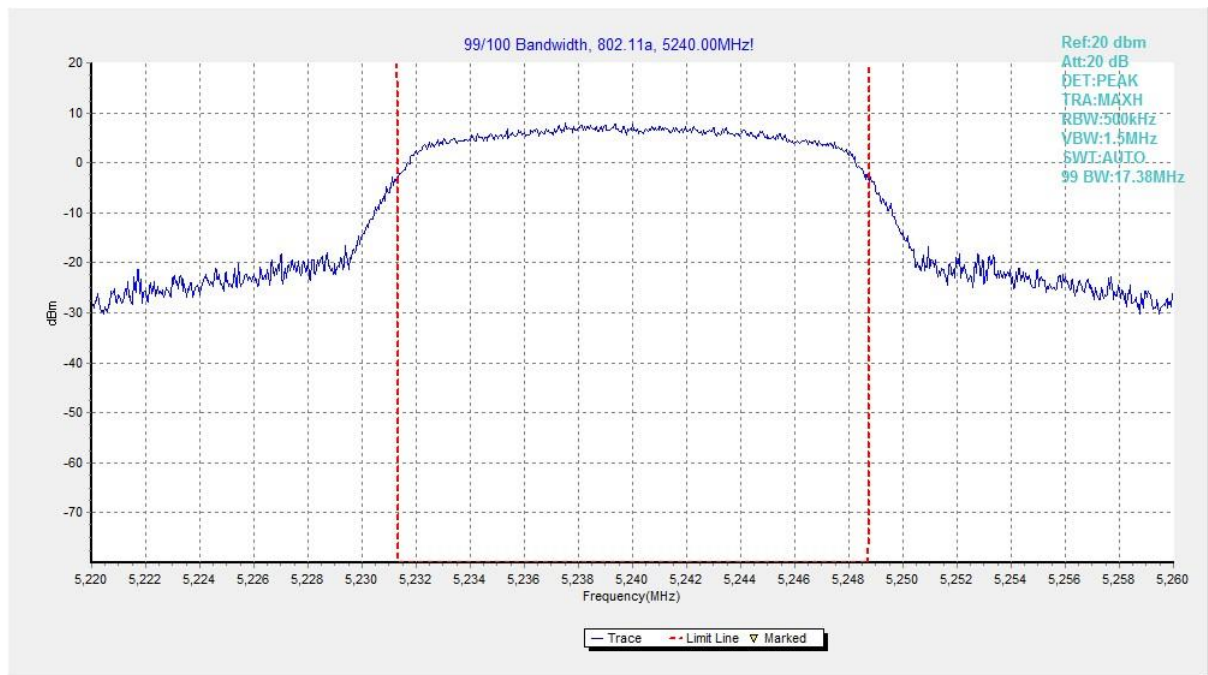


Fig. 38 99% Occupied Bandwidth (802.11a, 5240MHz)

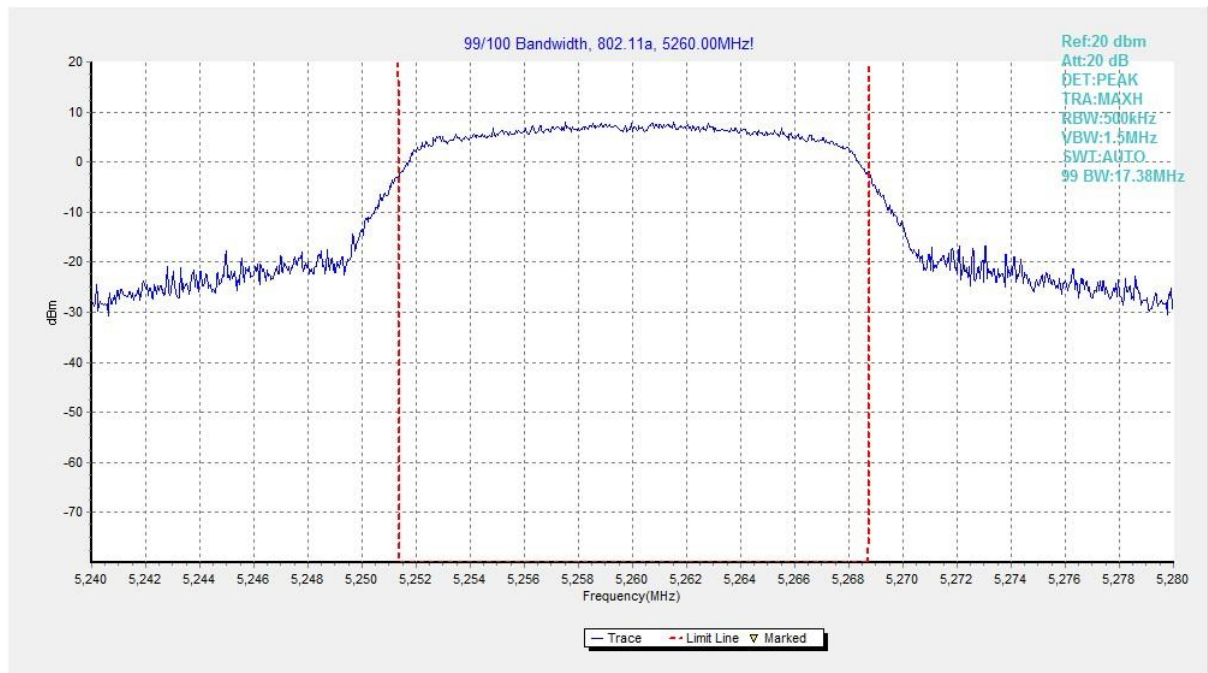


Fig. 39 99% Occupied Bandwidth (802.11a, 5260MHz)

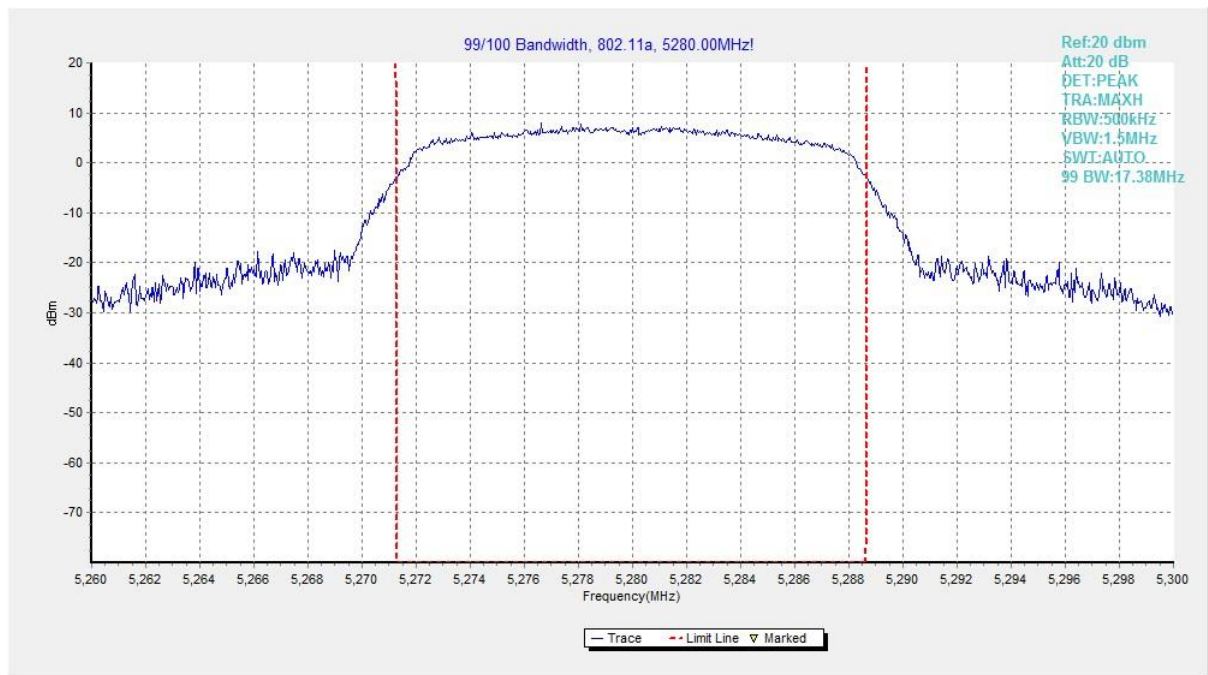


Fig. 40 99% Occupied Bandwidth (802.11a, 5280MHz)

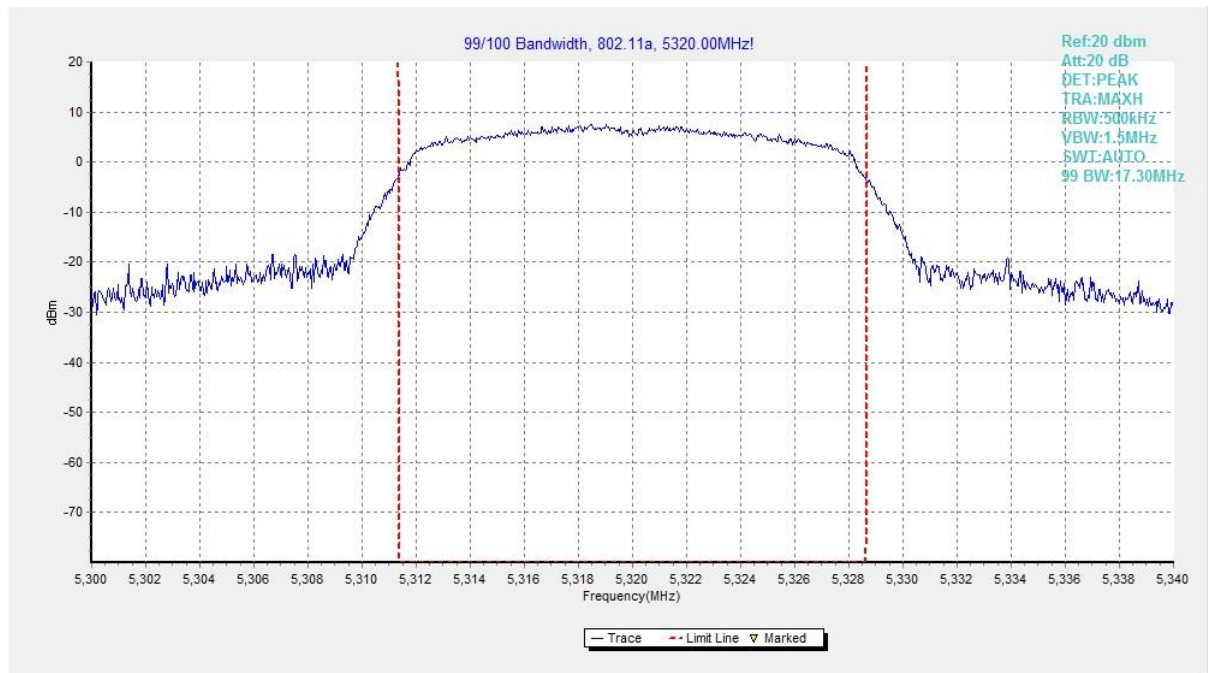


Fig. 41 99% Occupied Bandwidth (802.11a, 5320MHz)

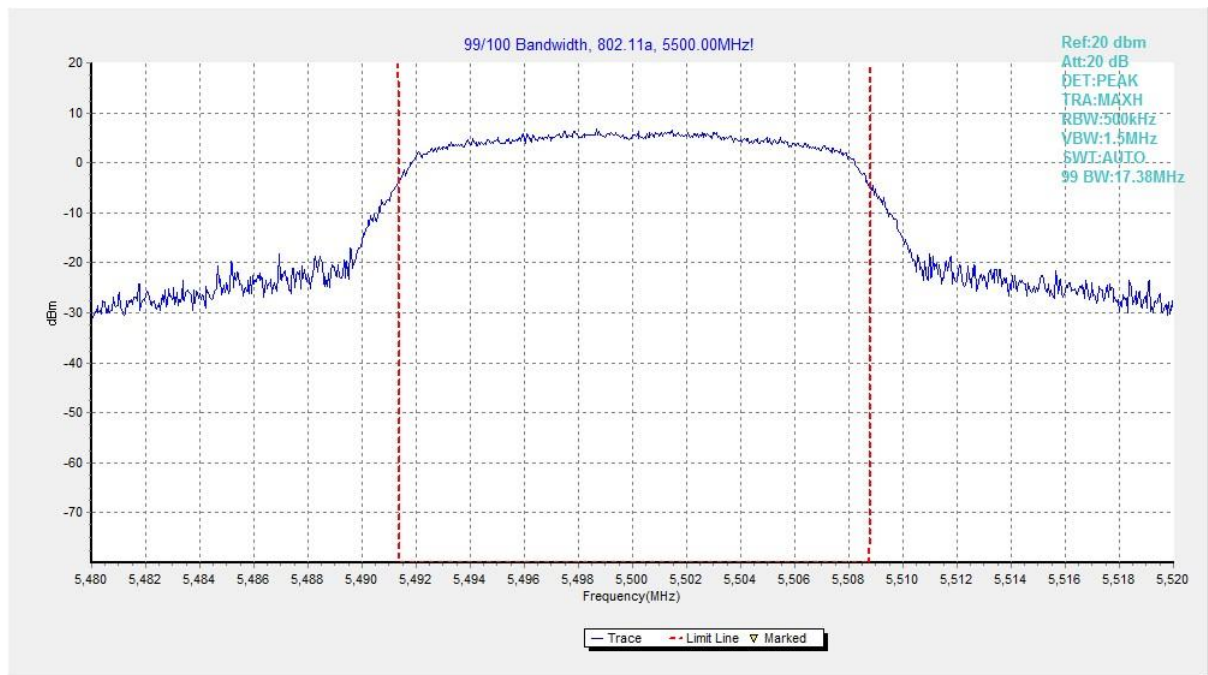


Fig. 42 99% Occupied Bandwidth (802. 11a, 5500MHz)

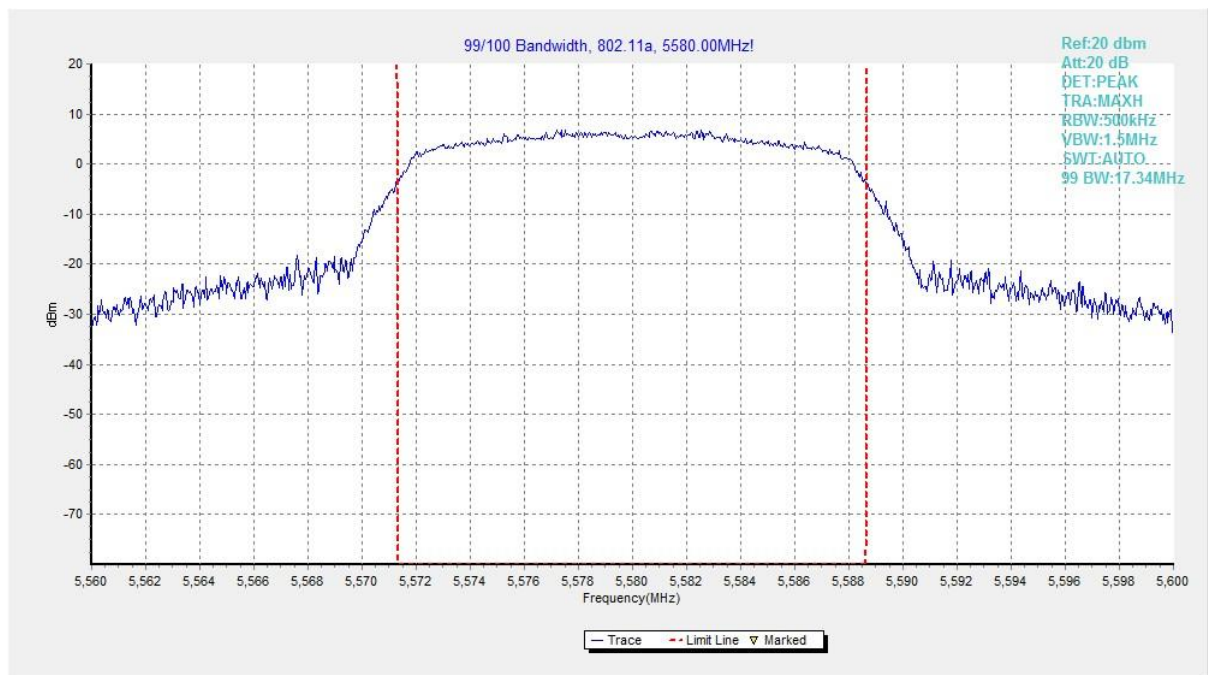


Fig. 43 99% Occupied Bandwidth (802. 11a, 5580MHz)

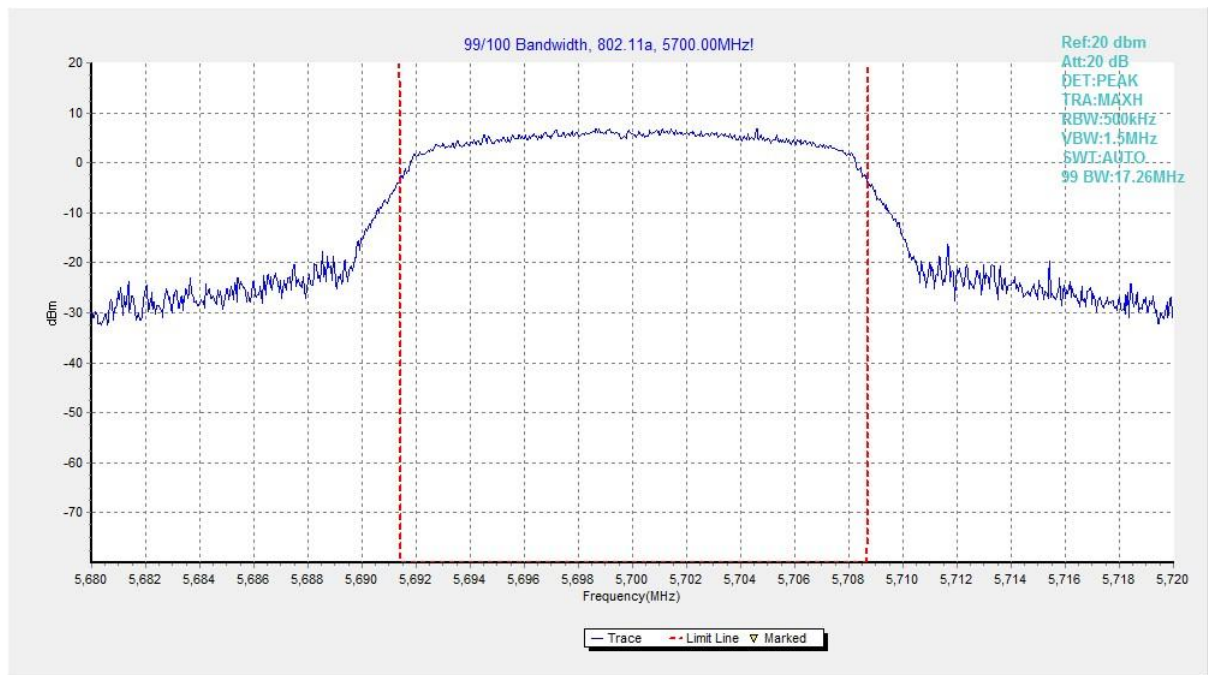


Fig. 44 99% Occupied Bandwidth (802. 11a, 5700MHz)

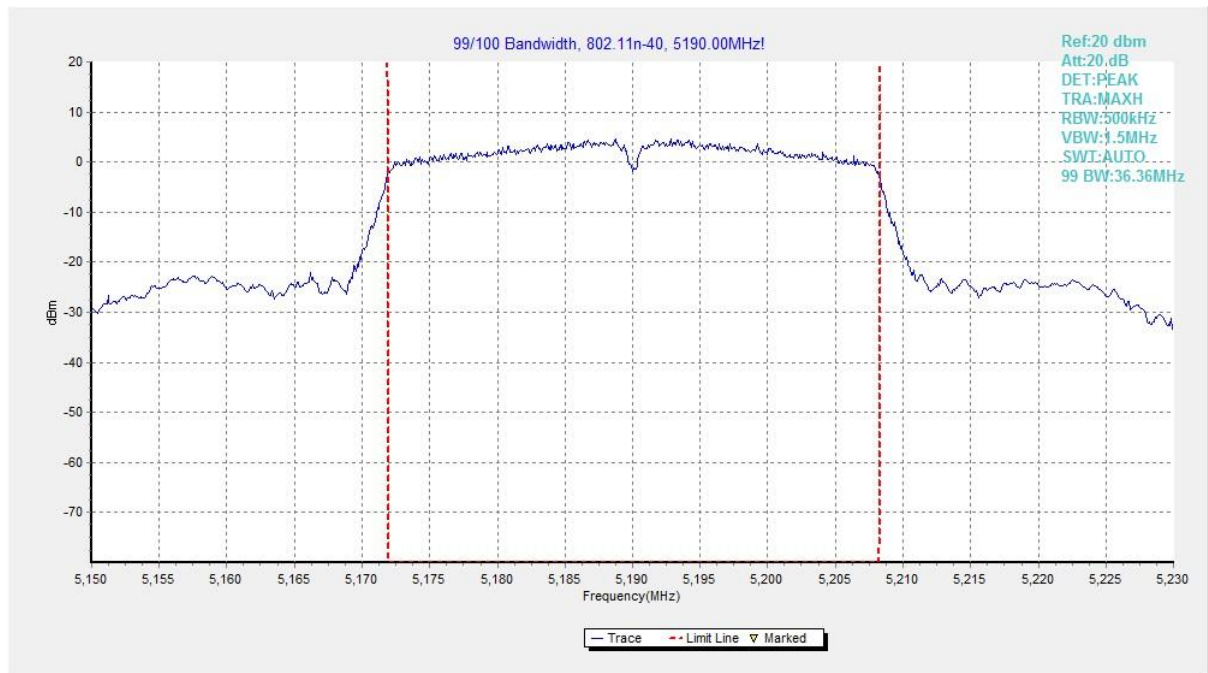


Fig. 45 99% Occupied Bandwidth (802.11n-HT40, 5190MHz)

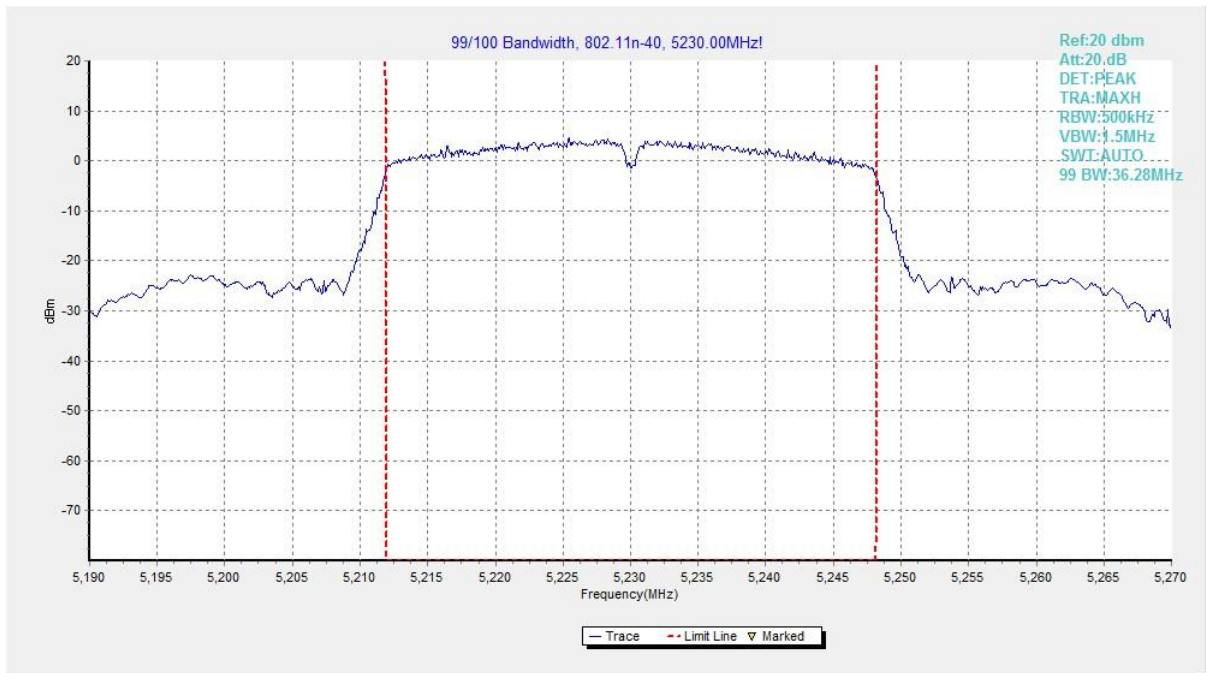


Fig. 46 99% Occupied Bandwidth (802.11n-HT40, 5230MHz)

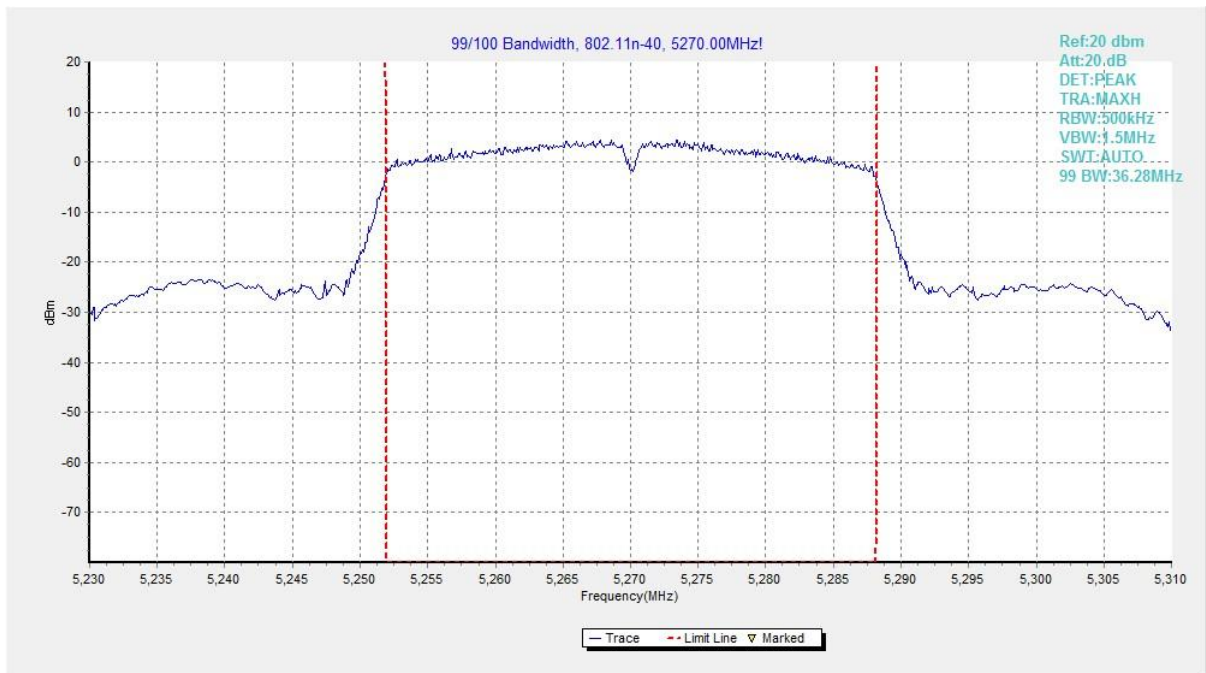


Fig. 47 99% Occupied Bandwidth (802.11n-HT40, 5270MHz)

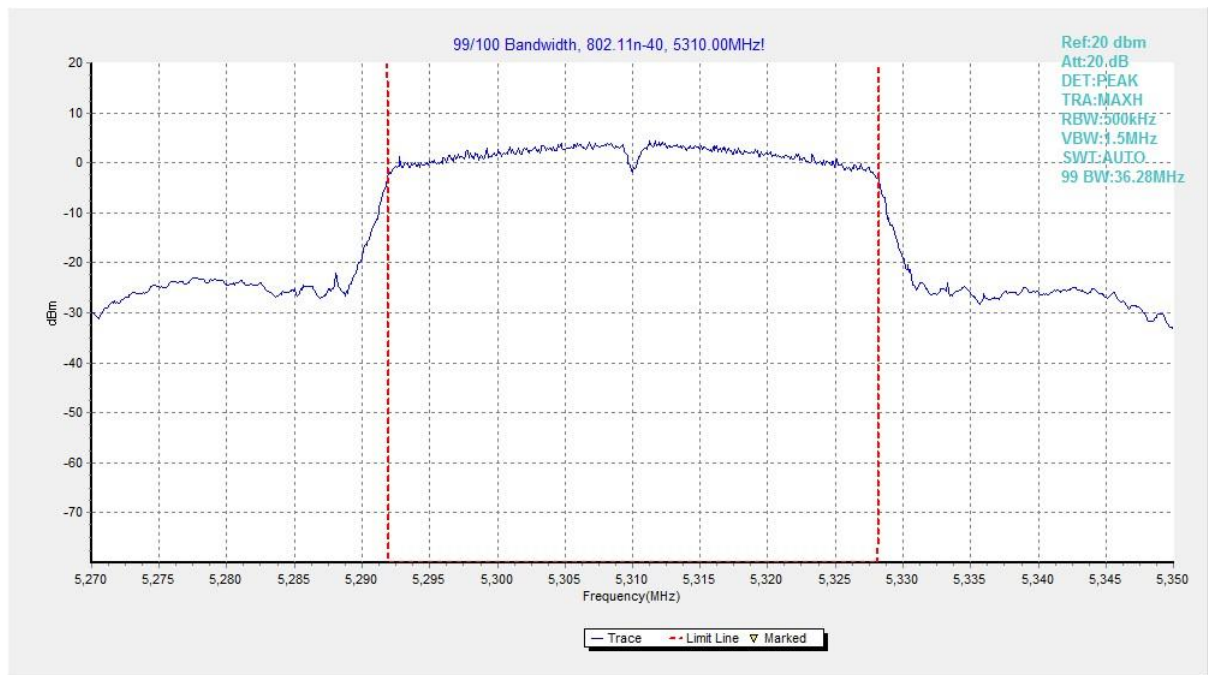


Fig. 48 99% Occupied Bandwidth (802.11n-HT40, 5310MHz)

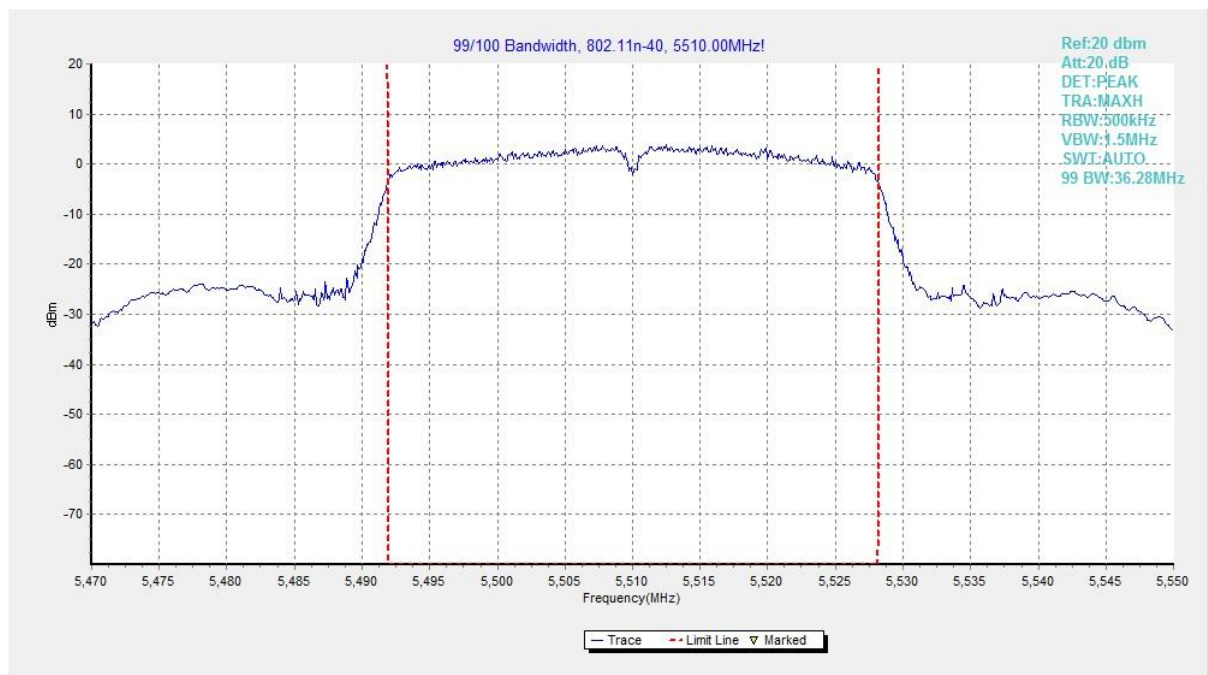


Fig. 49 99% Occupied Bandwidth (802.11n-HT40, 5510MHz)



Fig. 50 99% Occupied Bandwidth (802.11n-HT40, 5550MHz)

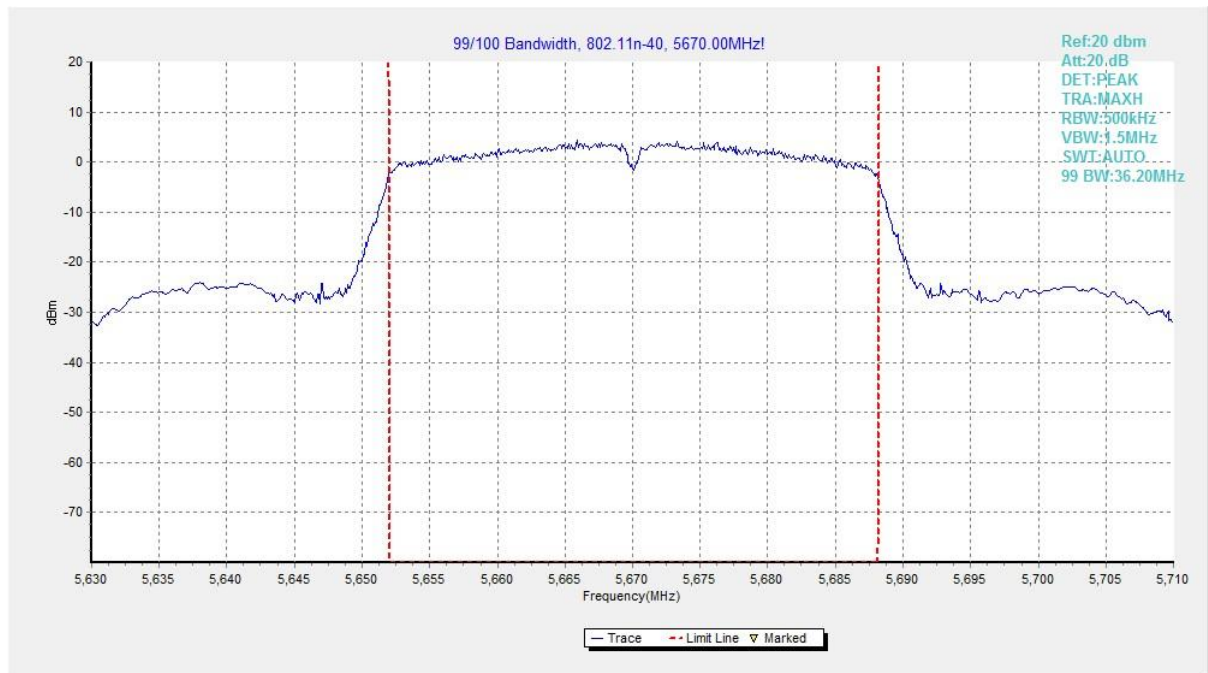


Fig. 51 99% Occupied Bandwidth (802.11n-HT40, 5670MHz)

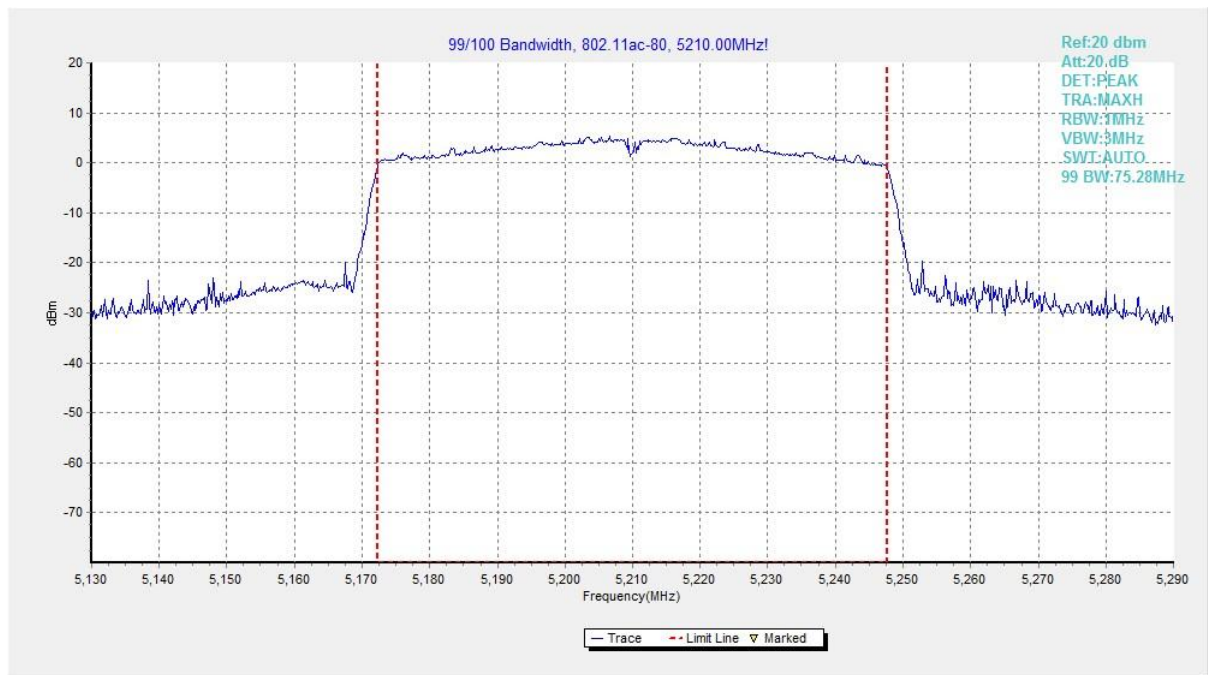


Fig. 52 99% Occupied Bandwidth (802.11ac-VHT80, 5210MHz)

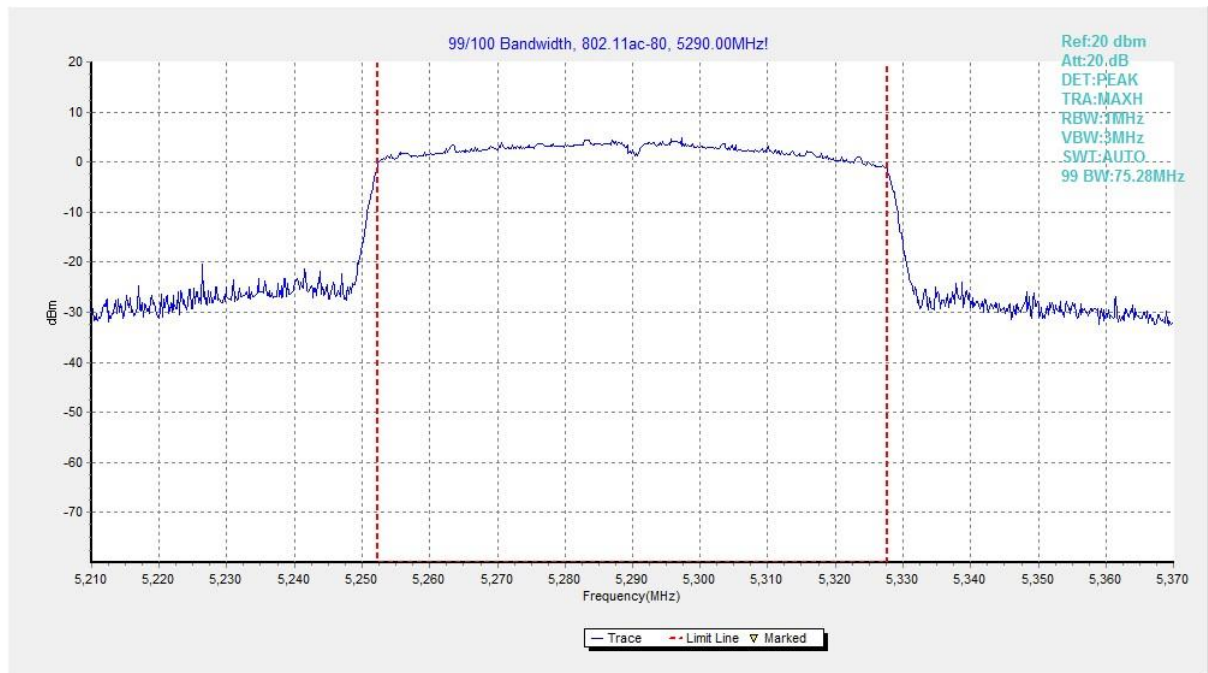


Fig. 53 99% Occupied Bandwidth (802.11ac-VHT80, 5290MHz)

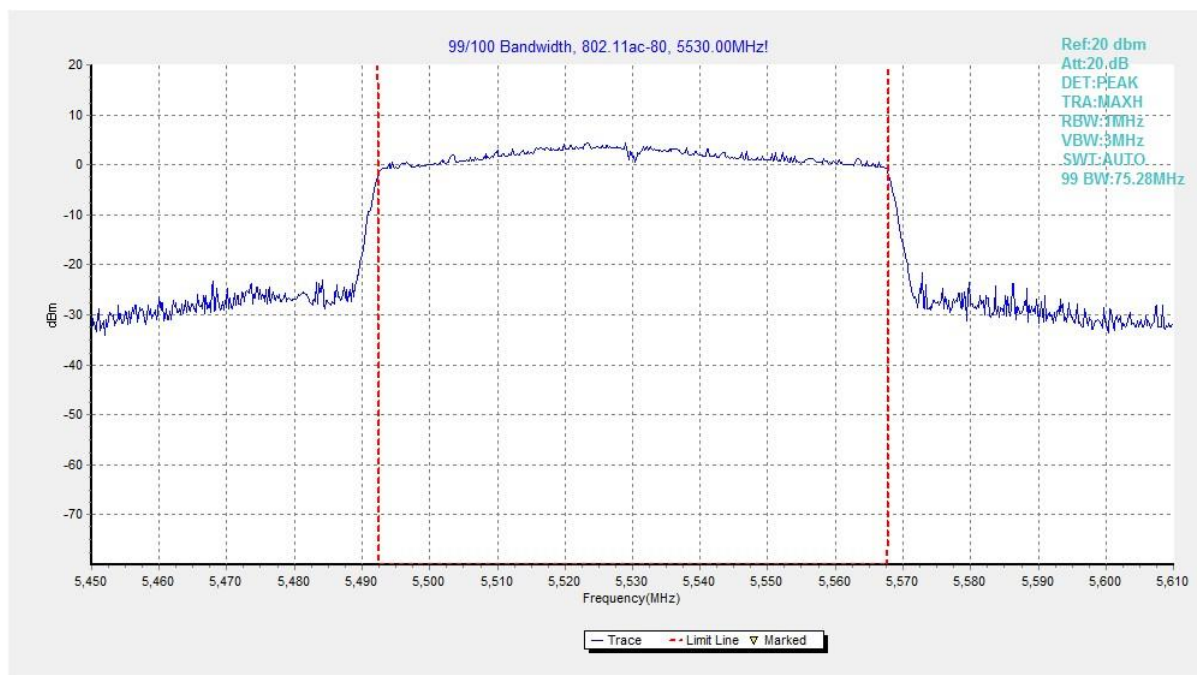


Fig. 54 99% Occupied Bandwidth (802. 11ac-VHT80, 5530MHz)

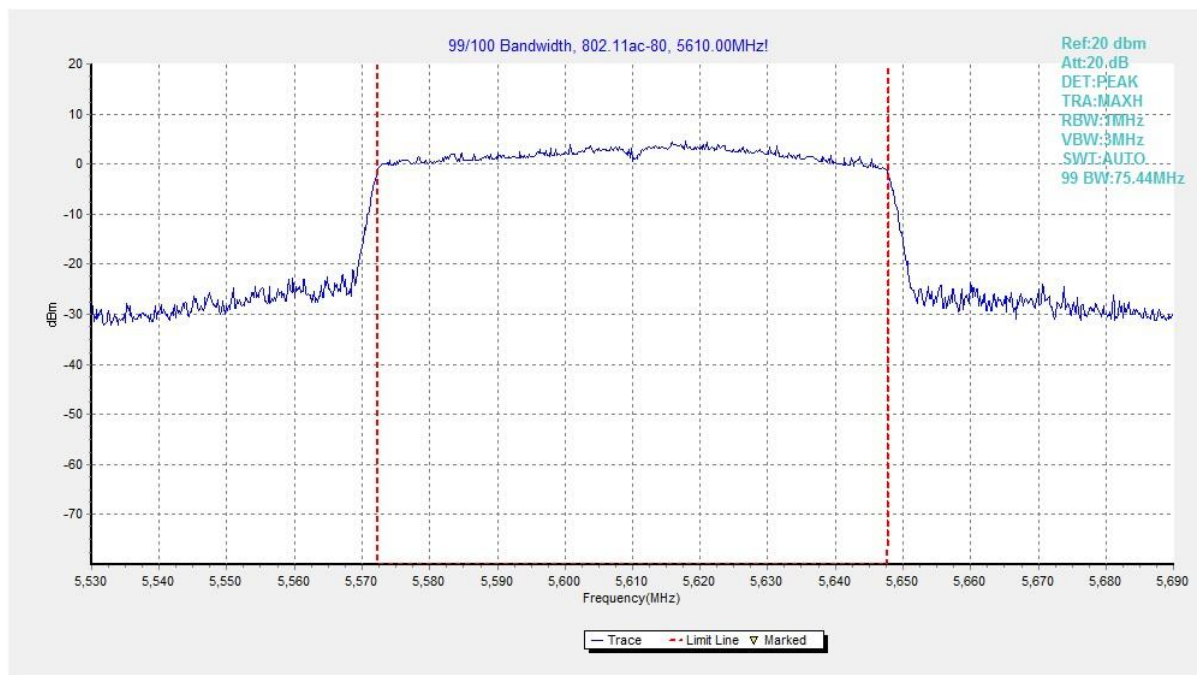


Fig. 55 99% Occupied Bandwidth (802. 11ac-VHT80, 5610MHz)