



**FCC PART 15
TEST REPORT
No.I18Z60700-IOT05**

for

WORKERBASE GmbH

WIFI/BT Watch

WB-3301

with

FCC ID: 2APQFWB3301

Hardware Version: PIO01

Software Version: W0P

Issued Date: 2018-09-28



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.

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I18Z60700-IOT05	Rev.0	1st edition	2018-09-13
I18Z60700-IOT05	Rev.1	Update Maximum output Power in page 14	2018-09-26
I18Z60700-IOT05	Rev.2	Add duty cycle in page 14	2018-09-28

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1. TEST LATORATORY

1.1. TestingLocation

Conducted testing Location: CTTL(huayuan North Road)

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

Radiated testing Location: CTTL(BDA)

Address: No.18A, Kangding Street, Beijing Economic-Technology
Development Area, Beijing, P. R. China 100176

Radiated testing Location: CTTL(huayuan North Road)

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

1.2. TestingEnvironment

Normal Temperature: 15-35°C

Extreme Temperature: -10/+55°C

Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: 2018-05-28

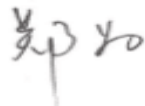
Testing End Date: 2018-09-26

1.4. Signature



Jiang Xue

(Prepared this test report)



Zheng Wei

(Reviewed this test report)



Gao Hong

(Approved this test report)



2. CLIENT INFORMATION

2.1. Applicant Information

Company Name: WORKERBASE GmbH
Address: Aventinstr. 7, Munich, Germany
City: Munich
Postal Code: /
Country: Germany
Telephone: +49 89 21540295
Fax: /

2.2. Manufacturer Information

Company Name: WORKERBASE GmbH
Address: Aventinstr. 7, Munich, Germany
City: Munich
Postal Code: /
Country: Germany
Telephone: +49 89 21540295
Fax: /

3. EQUIPMENT UNDER TEST (EUT) AND

ANCILLARY EQUIPMENT (AE)

3.1. About EUT

Description	WIFI/BT Watch
Model name	WB-3301
FCC ID	2APQFWB3301
IC ID	/
WLAN Frequency Range	ISM Bands: -5150MHz~5350MHz -5470MHz~5725MHz -5725MHz~5850MHz
Type of modulation	OFDM
Antenna	Integral Antenna
Voltage	3.7V 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*	SN or IMEI	HW Version	SW Version
EUT3	5C7776ED6B8B260	PIO01	W0P
EUT2	5C7776F72FAA040	PIO01	W0P

*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
AE1	Battery	inbuilt
AE1		
Model	CAB22B0000C1	
Manufacturer	BYD	
Capacitance	750mAh	
Nominal voltage	3.7V	

*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 WIFI/BT Watch 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	2016
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

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
Power Spectral Density	15.407	/	P
Occupied 26dB Bandwidth	15.403	/	P
Band edge compliance	15.209	/	P
Transmitter spurious emissions radiated	15.407	/	P
Spurious emissions radiated < 30 MHz	15.407	/	P
Spurious emissions conducted < 30 MHz	15.407	/	P
Frequency Stability	15.407	/	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/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	3.7V
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	2019-05-17
2	Test Receiver	ESCI	100766	Rohde & Schwarz	1 year	2019-02-28
3	LISN	ESH2-Z5	829991/012	Rohde & Schwarz	1 year	2019-04-15
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	2019-03-01
2	BiLog Antenna	VULB9163	302	Schwarzbeck	3 years	2019-03-27
3	EMI Antenna	3115	00167250	ETS-Lindgren	3 Years	2020-05-21
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	ETS-Lindgren	3 years	2020-07-27

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)

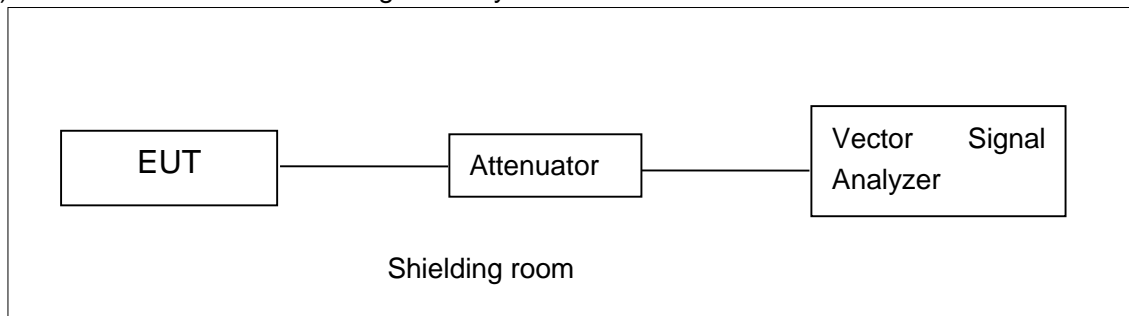
Frequency Range	Uncertainty(dB)
9kHz-30MHz	/
$30\text{MHz} \leq f \leq 1\text{GHz}$	5.40
$1\text{GHz} \leq f \leq 18\text{GHz}$	4.32
$18\text{GHz} \leq f \leq 40\text{GHz}$	5.26

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

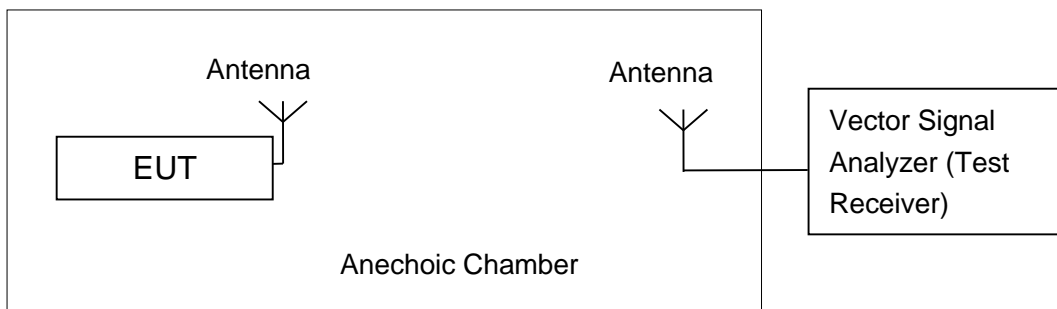


A.1.2. Radiated Emission Measurements

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 measurementmethod SA-1 is made according to KDB 789033

Measurement Results:

802.11a mode (duty cycle=86%)

Mode	Channel	Test Result (dBm)							
		Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
802.11a	5180MHz	14.09	/	/	/	/	/	/	/
	5200MHz	14.53	/	/	/	/	/	/	/
	5240MHz	15.01	14.69	14.48	13.98	13.48	12.77	12.17	11.96
	5260MHz	15.24	/	/	/	/	/	/	/
	5280MHz	15.32	/	/	/	/	/	/	/
	5320MHz	15.33	/	/	/	/	/	/	/
	5500MHz	14.51	/	/	/	/	/	/	/
	5580MHz	15.70	/	/	/	/	/	/	/
	5700MHz	15.53	/	/	/	/	/	/	/

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

802.11n-HT20 mode (duty cycle=85%)

Mode	Channel	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT20)	5180MHz	14.23	/	/	/	/	/	/	/
	5200MHz	14.55	/	/	/	/	/	/	/
	5240MHz	15.07	14.57	14.12	13.62	13.00	12.45	12.27	11.99
	5260MHz	15.24	/	/	/	/	/	/	/
	5280MHz	15.50	/	/	/	/	/	/	/
	5320MHz	15.56	/	/	/	/	/	/	/
	5500MHz	14.68	/	/	/	/	/	/	/
	5580MHz	15.89	/	/	/	/	/	/	/
	5700MHz	15.46	/	/	/	/	/	/	/

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

802.11n-HT40 mode (duty cycle=85%)

Mode	Channel	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT40)	5190MHz	12.95	/	/	/	/	/	/	/
	5230MHz	13.65	13.14	12.65	12.19	11.52	10.96	10.78	10.45
	5270MHz	14.34	/	/	/	/	/	/	/
	5310MHz	14.62	14.04	13.53	12.98	12.40	11.85	11.68	11.44
	5510MHz	13.70	/	/	/	/	/	/	/
	5550MHz	14.28	/	/	/	/	/	/	/
	5670MHz	14.69	/	/	/	/	/	/	/

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	3.83	P
	5200 MHz	3.63	P
	5240 MHz	3.92	P
	5260 MHz	4.08	P
	5280 MHz	4.04	P
	5320 MHz	4.04	P
	5500 MHz	4.25	P
	5580 MHz	4.22	P
802.11n HT20	5180 MHz	3.71	P
	5200 MHz	3.53	P
	5240 MHz	3.52	P
	5260 MHz	3.66	P
	5280 MHz	3.76	P
	5320 MHz	3.55	P
	5500 MHz	4.11	P
	5580 MHz	3.77	P
802.11n HT40	5190 MHz	2.12	P
	5230 MHz	2.33	P
	5270 MHz	2.46	P
	5310 MHz	2.40	P
	5510 MHz	2.81	P
	5550 MHz	2.81	P
	5670 MHz	2.79	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 (MHz)		conclusion
		Fig.	Value	
802.11a	5180 MHz	Fig.1	22.45	P
	5200 MHz	Fig.2	22.60	P
	5240 MHz	Fig.3	22.40	P
	5260 MHz	Fig.4	22.70	P
	5280 MHz	Fig.5	22.80	P
	5320 MHz	Fig.6	22.50	P
	5500 MHz	Fig.7	22.70	P
	5580 MHz	Fig.8	22.45	P
	5700 MHz	Fig.9	22.80	P
802.11n HT20	5180 MHz	Fig.10	23.00	P
	5200 MHz	Fig.11	23.10	P
	5240 MHz	Fig.12	23.45	P
	5260 MHz	Fig.13	23.10	P
	5280 MHz	Fig.14	22.70	P
	5320 MHz	Fig.15	23.15	P
	5500 MHz	Fig.16	23.65	P
	5580 MHz	Fig.17	23.10	P
	5700 MHz	Fig.18	23.10	P
802.11n HT40	5190 MHz	Fig.19	45.20	P
	5230 MHz	Fig.20	41.84	P
	5270 MHz	Fig.21	42.40	P
	5310 MHz	Fig.22	42.80	P
	5510 MHz	Fig.23	43.84	P
	5550 MHz	Fig.24	43.12	P
	5670 MHz	Fig.25	46.00	P

Conclusion: PASS

Test graphs as below:

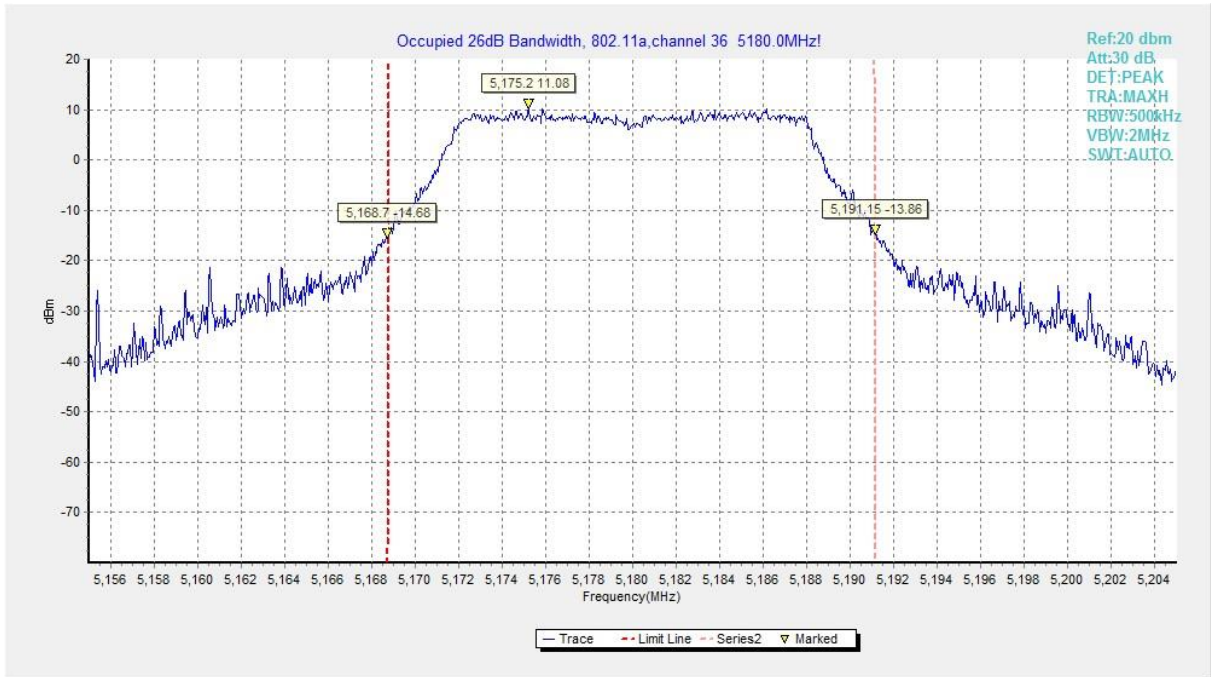


Fig. 1 Occupied 26dB Bandwidth (802.11a, 5180MHz)

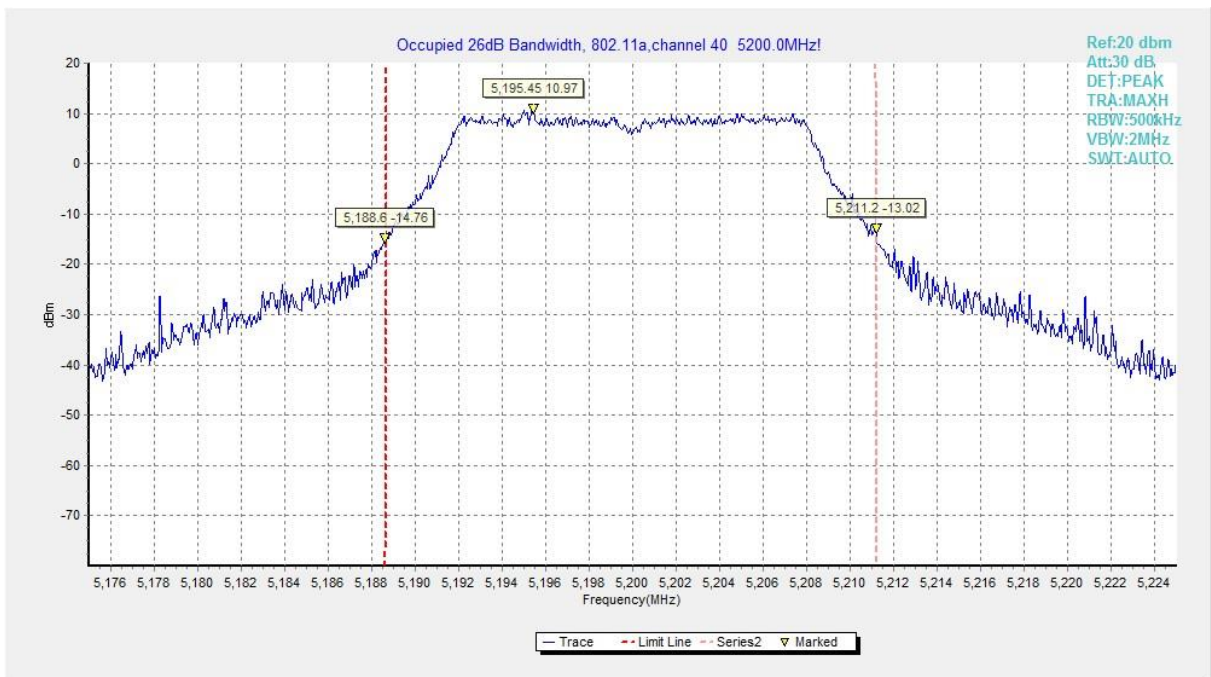


Fig. 2 Occupied 26dB Bandwidth (802.11a, 5200MHz)

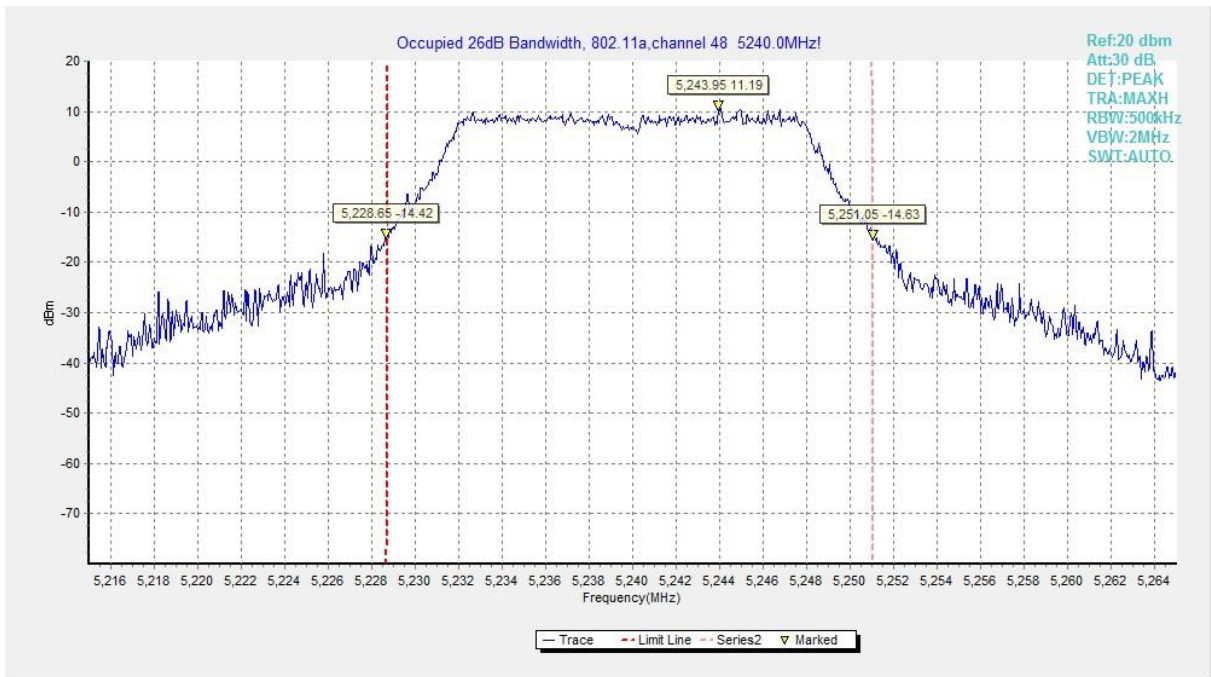


Fig. 3 Occupied 26dB Bandwidth (802.11a, 5240MHz)

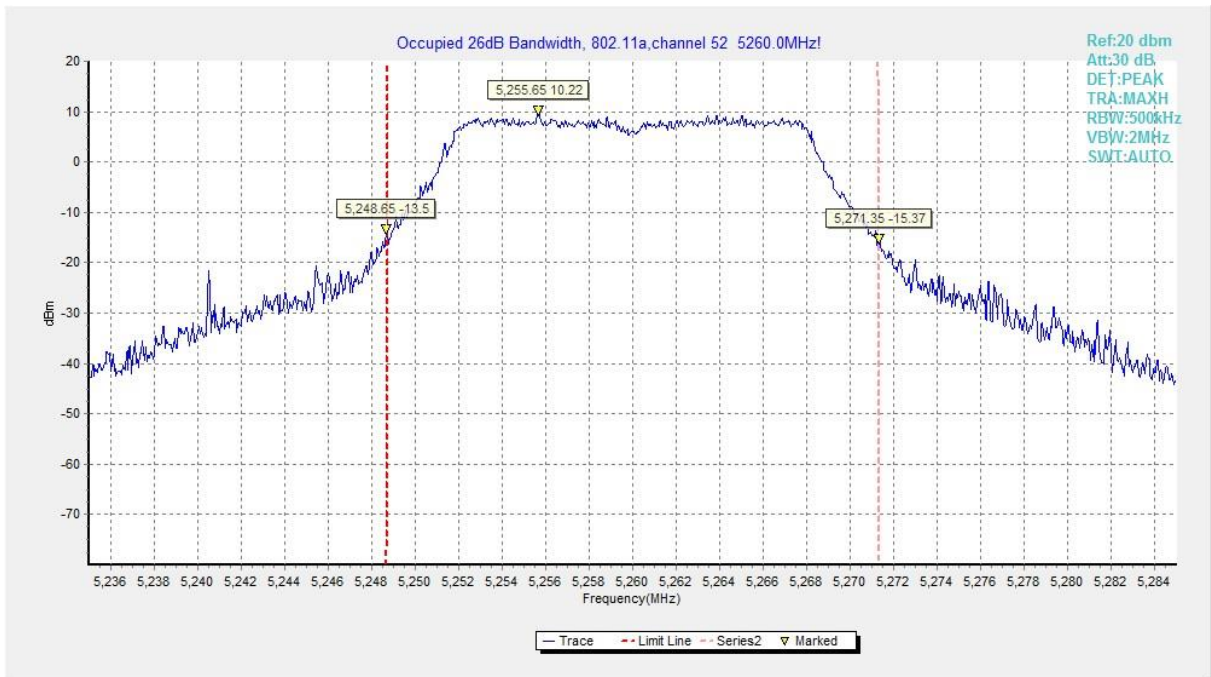


Fig. 4 Occupied 26dB Bandwidth (802.11a, 5260MHz)



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

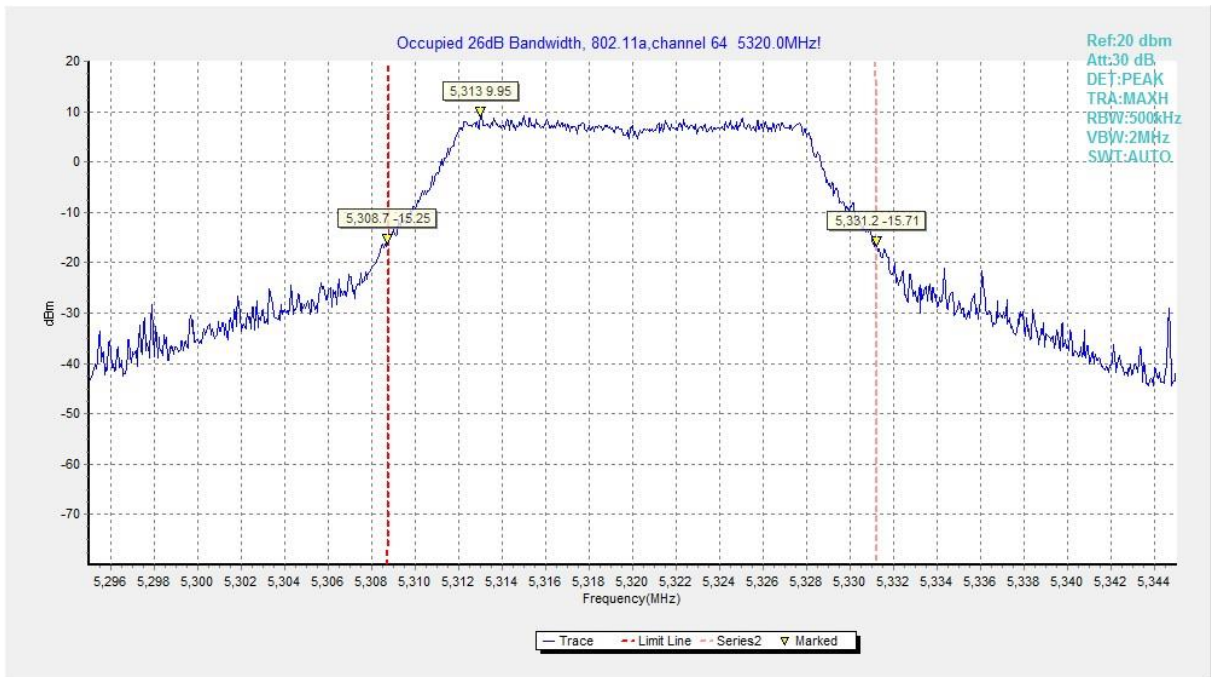


Fig. 6 Occupied 26dB Bandwidth (802.11a, 5320MHz)

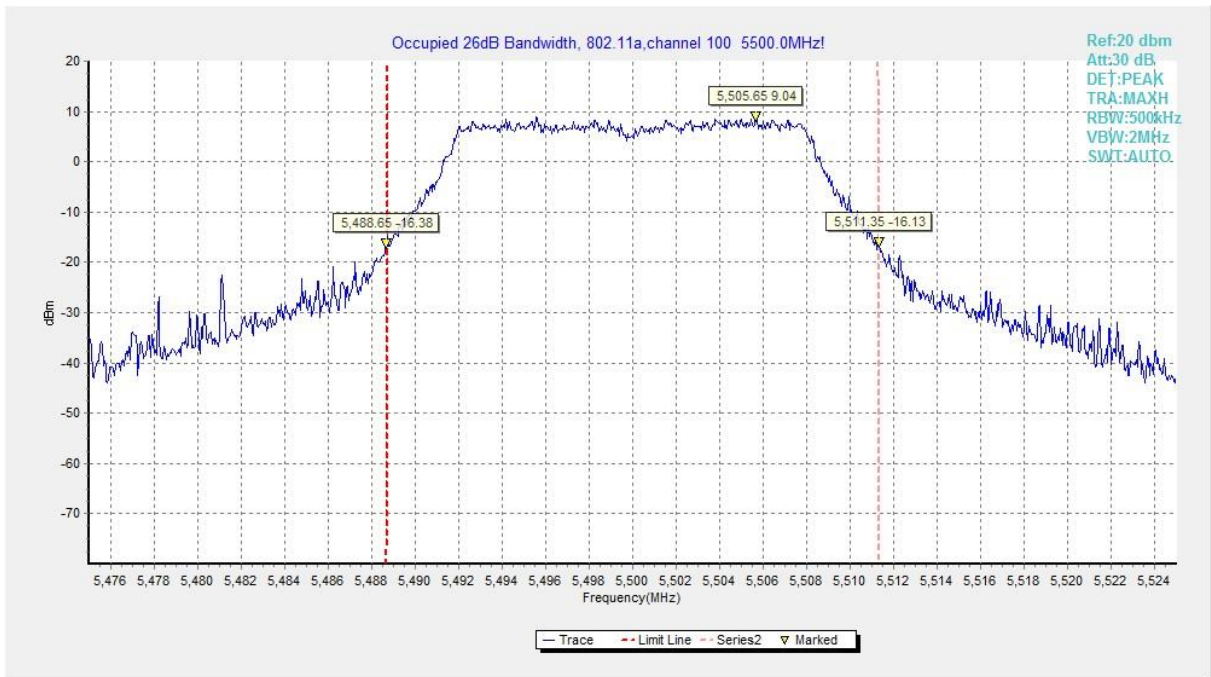


Fig. 7 Occupied 26dB Bandwidth (802.11a, 5500MHz)

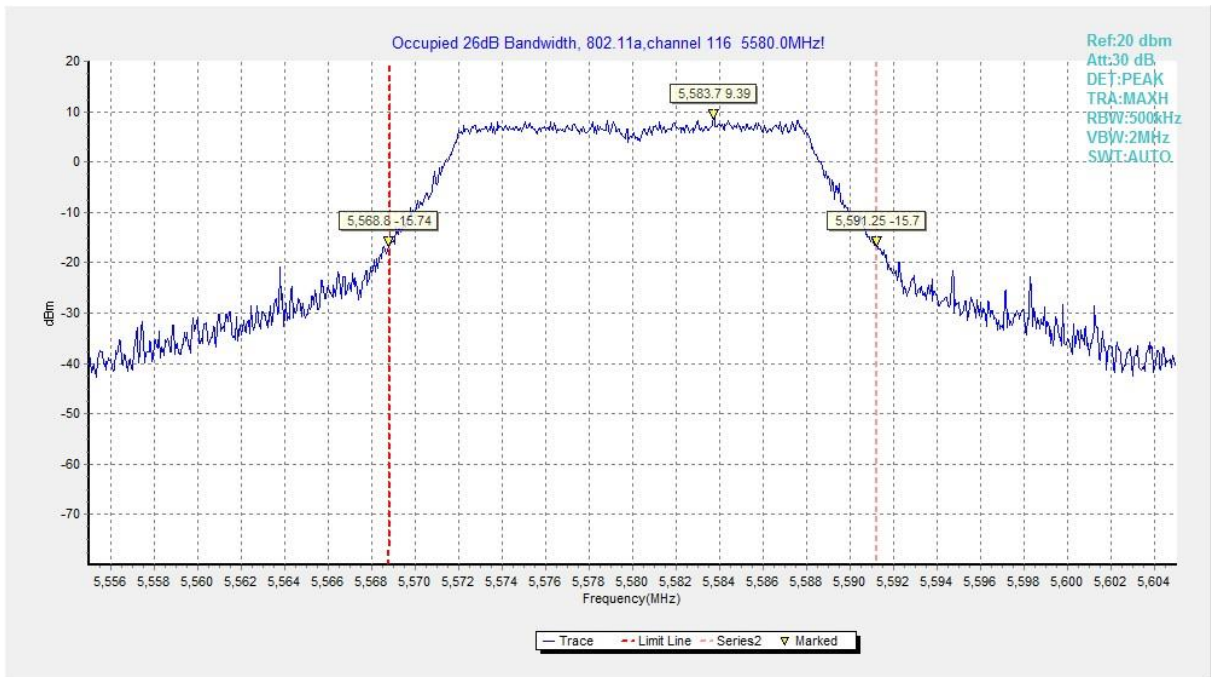


Fig. 8 Occupied 26dB Bandwidth (802.11a, 5580MHz)

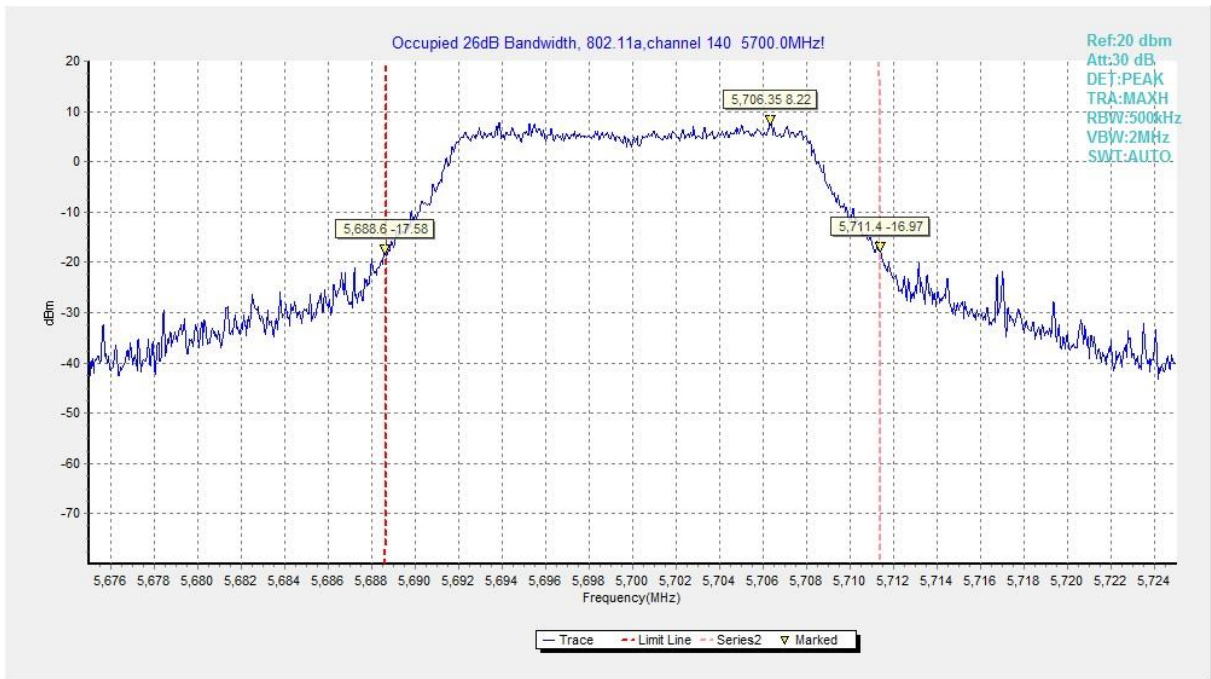


Fig. 9 Occupied 26dB Bandwidth (802.11a, 5700MHz)

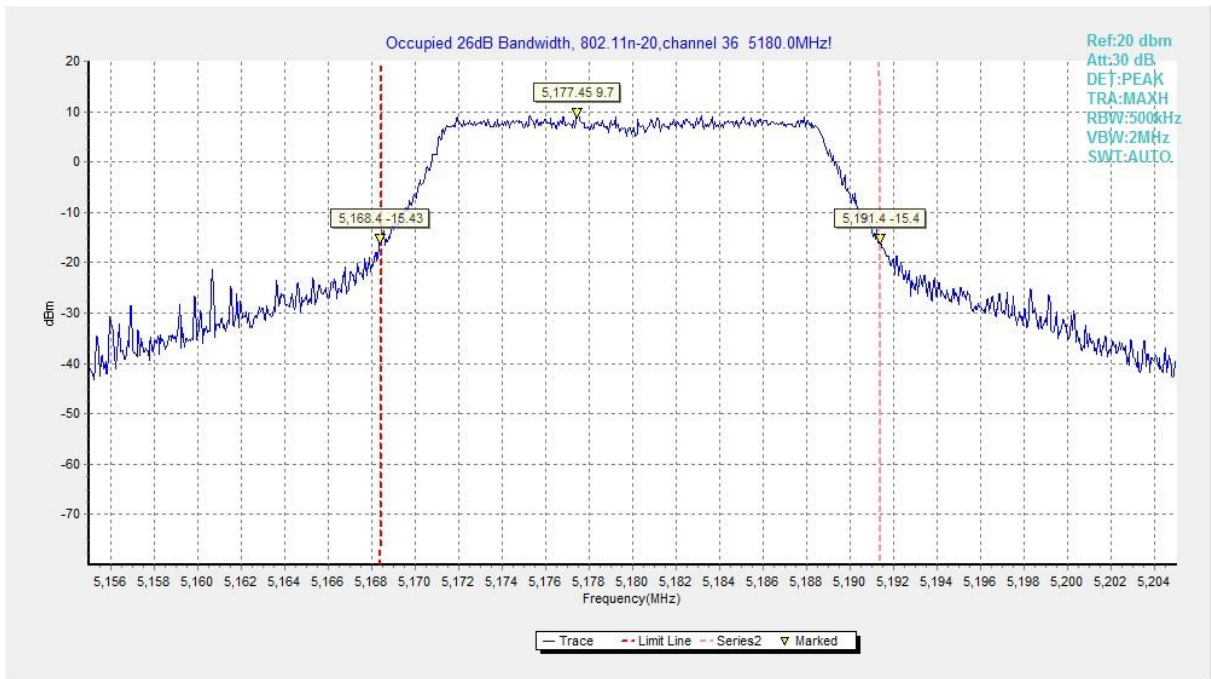


Fig. 10 Occupied 26dB Bandwidth (802.11n-HT20, 5180MHz)

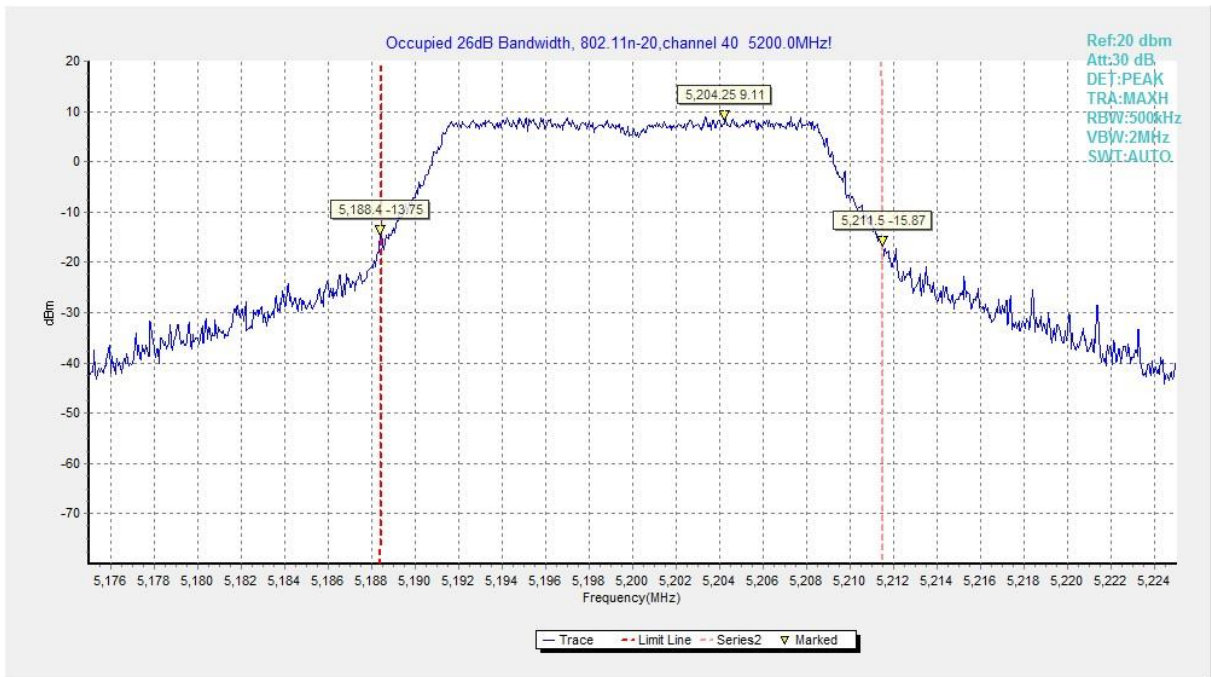


Fig. 11 Occupied 26dB Bandwidth (802.11n-HT20, 5200MHz)

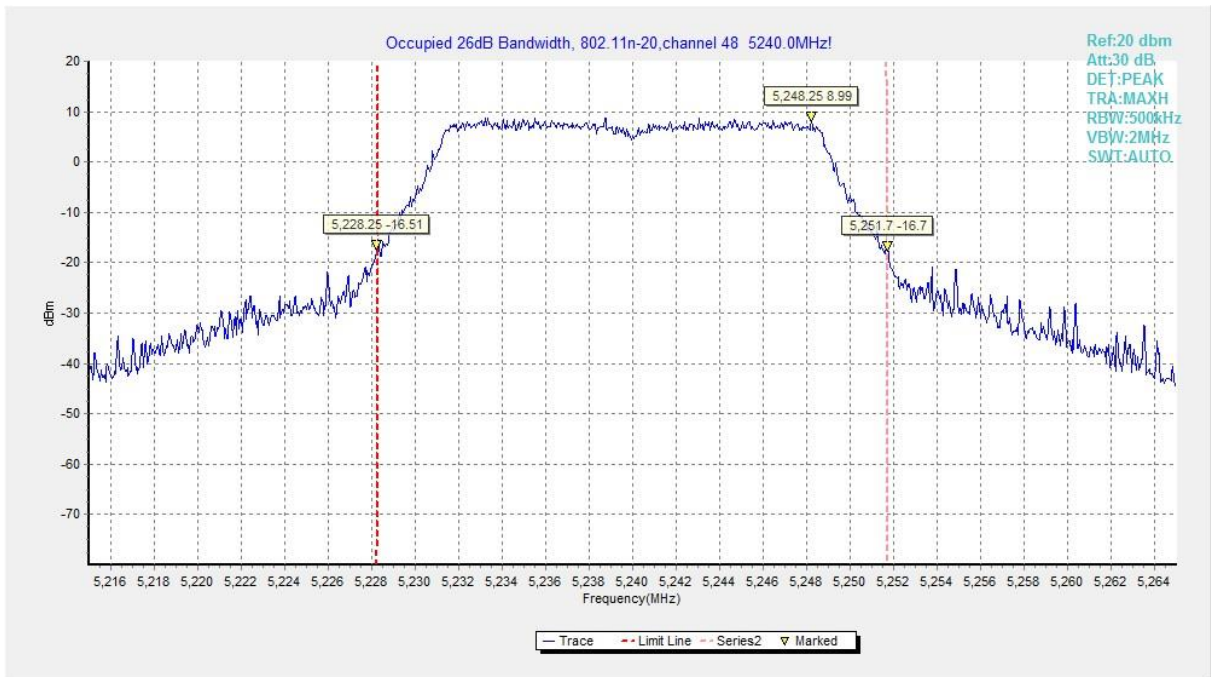


Fig. 12 Occupied 26dB Bandwidth (802.11n-HT20, 5240MHz)

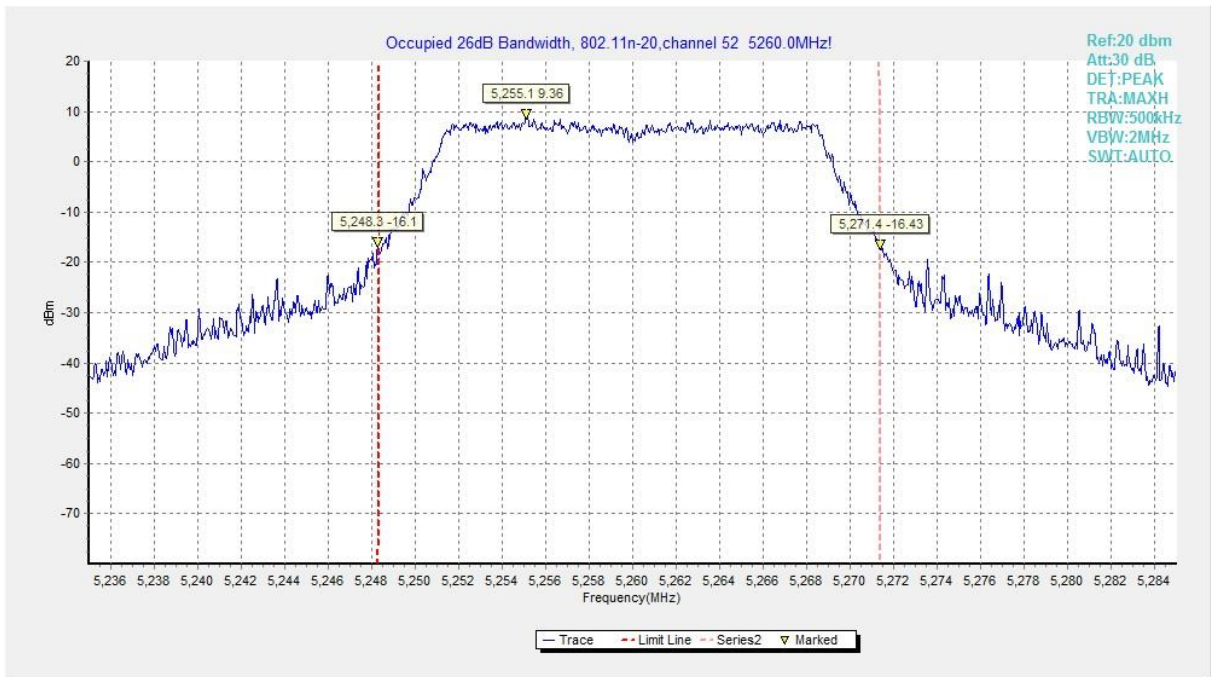


Fig. 13 Occupied 26dB Bandwidth (802.11n-HT20, 5260MHz)

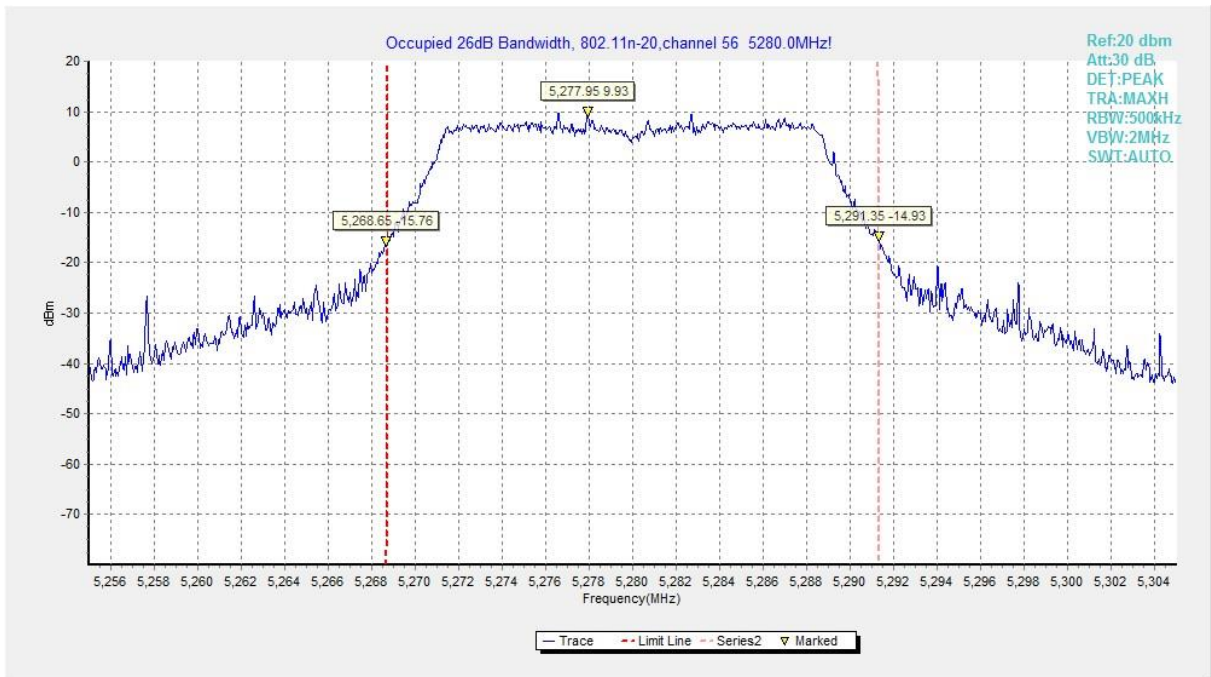


Fig. 14 Occupied 26dB Bandwidth (802.11n-HT20, 5280MHz)

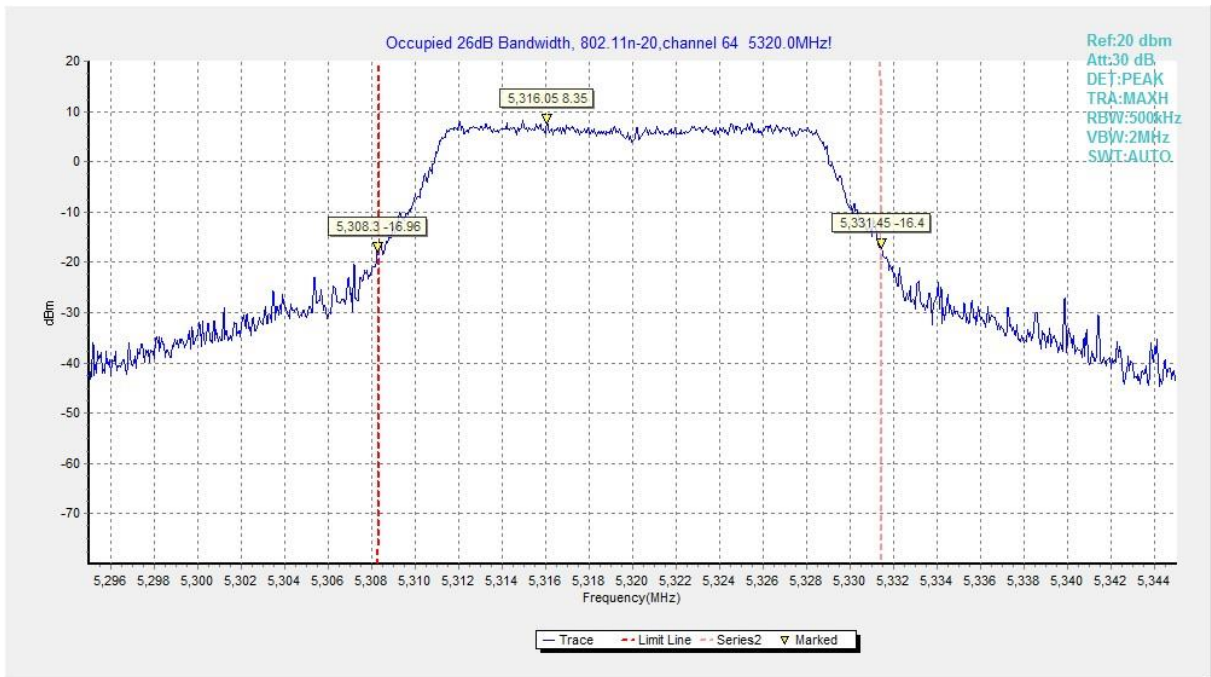


Fig. 15 Occupied 26dB Bandwidth (802.11n-HT20, 5320MHz)

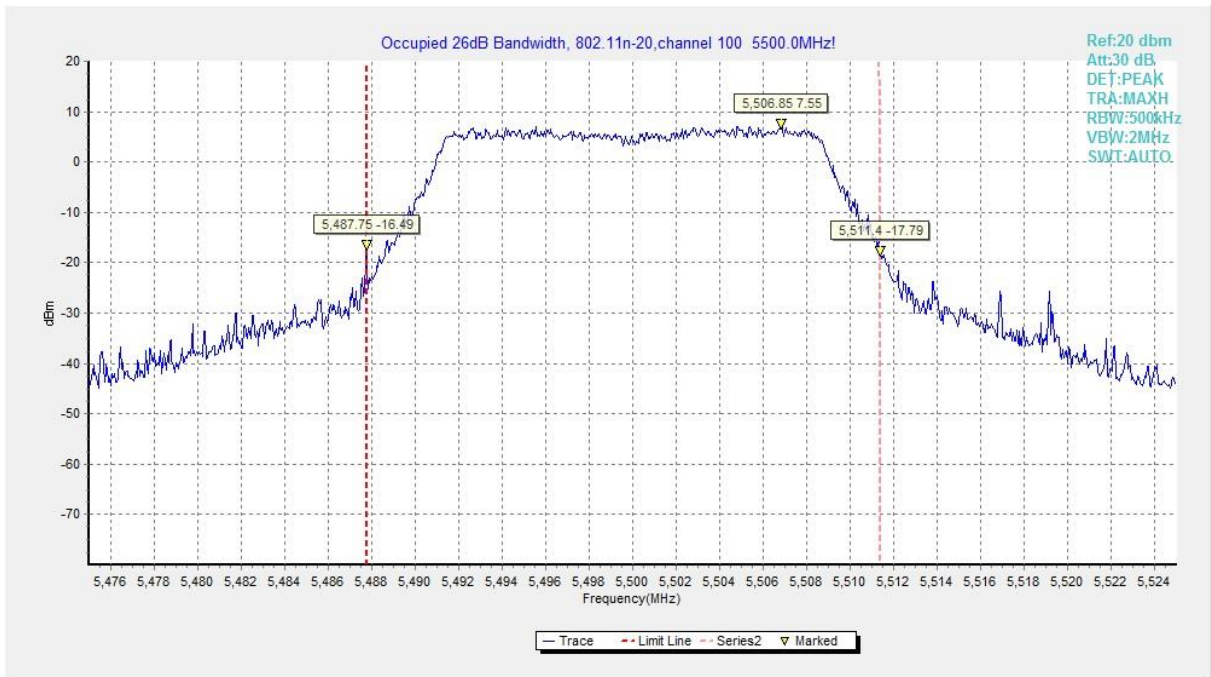


Fig. 16 Occupied 26dB Bandwidth (802.11n-HT20, 5500MHz)

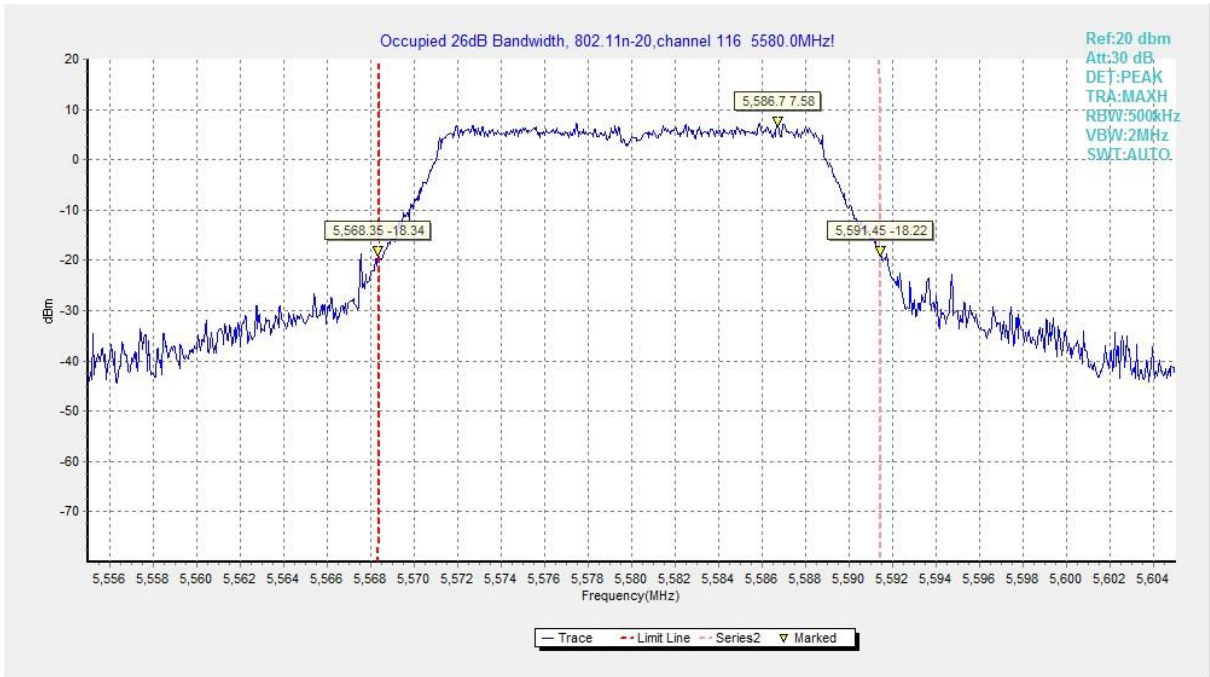


Fig. 17 Occupied 26dB Bandwidth (802. 11n-HT20, 5580MHz)

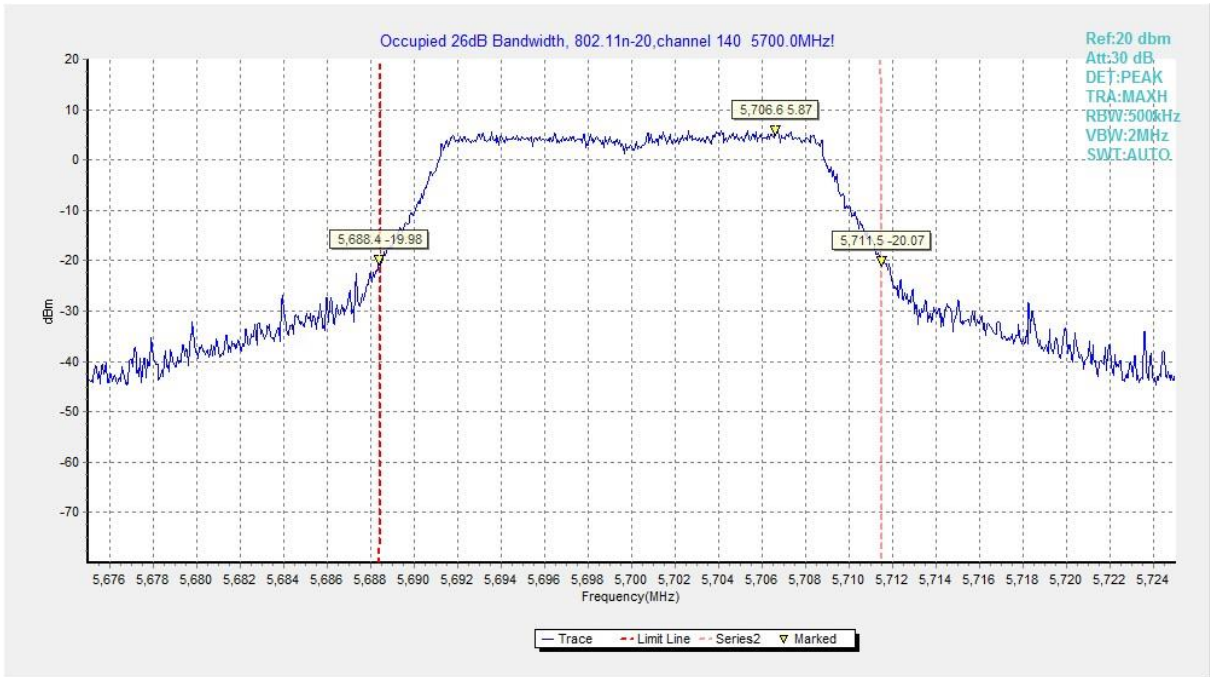


Fig. 18 Occupied 26dB Bandwidth (802. 11n-HT20, 5700MHz)

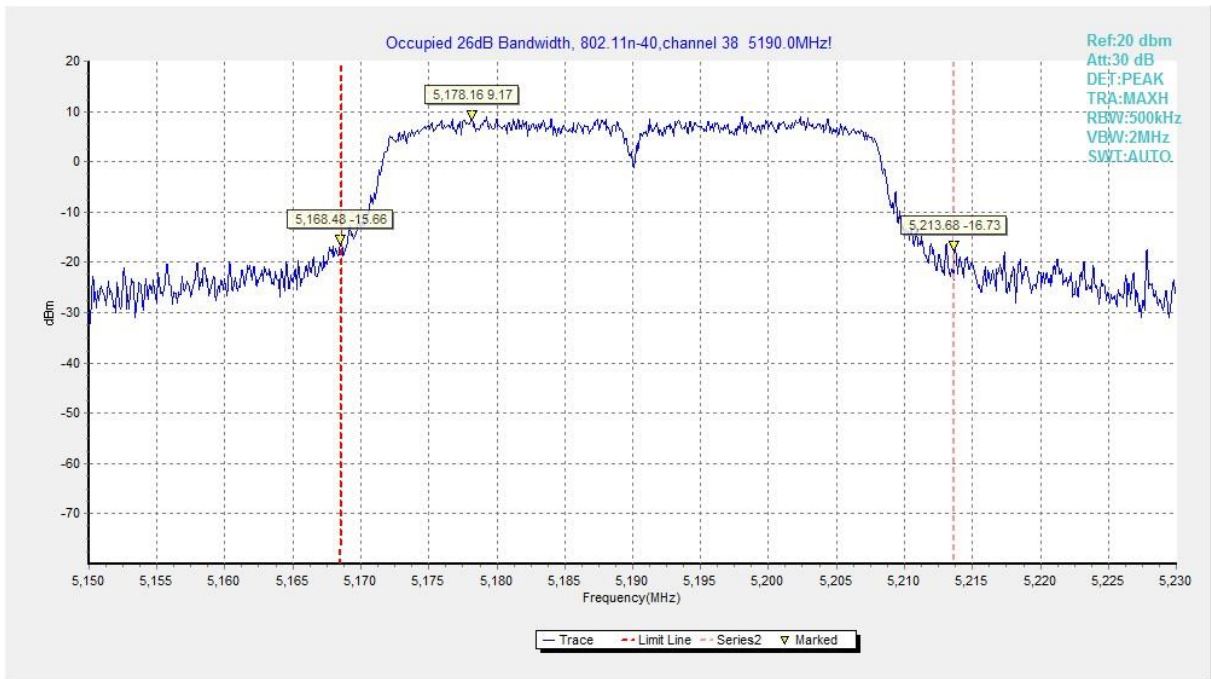


Fig. 19 Occupied 26dB Bandwidth (802.11n-HT40, 5190MHz)

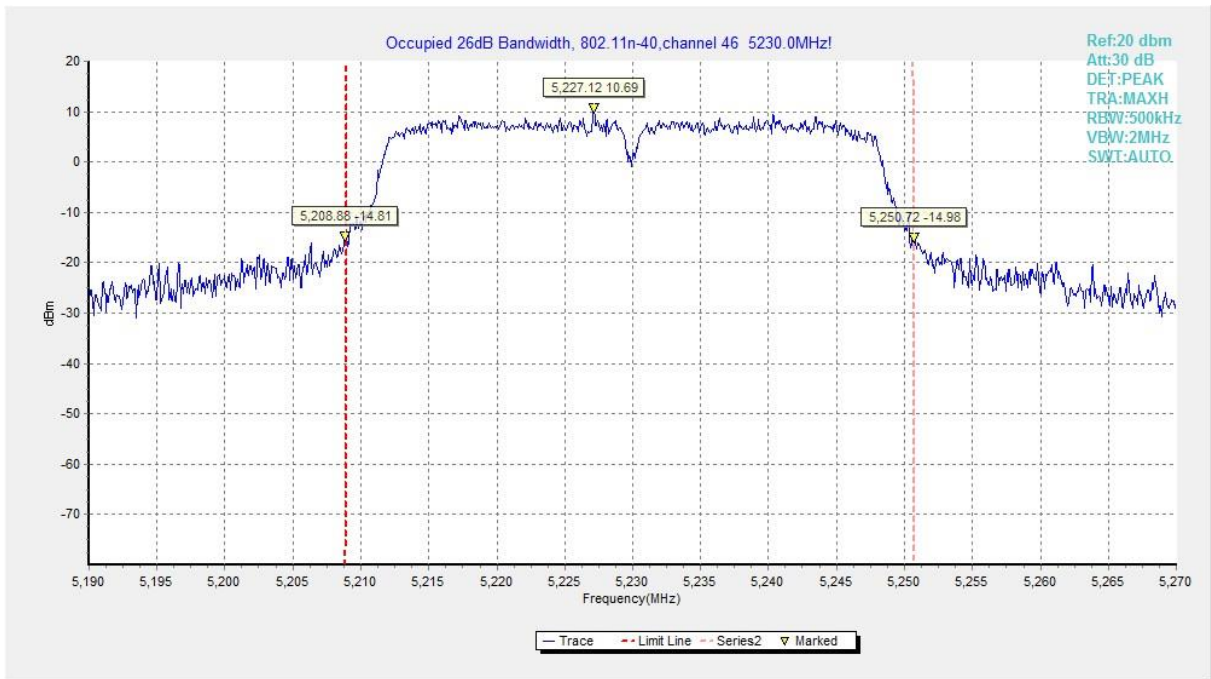


Fig. 20 Occupied 26dB Bandwidth (802.11n-HT40, 5230MHz)

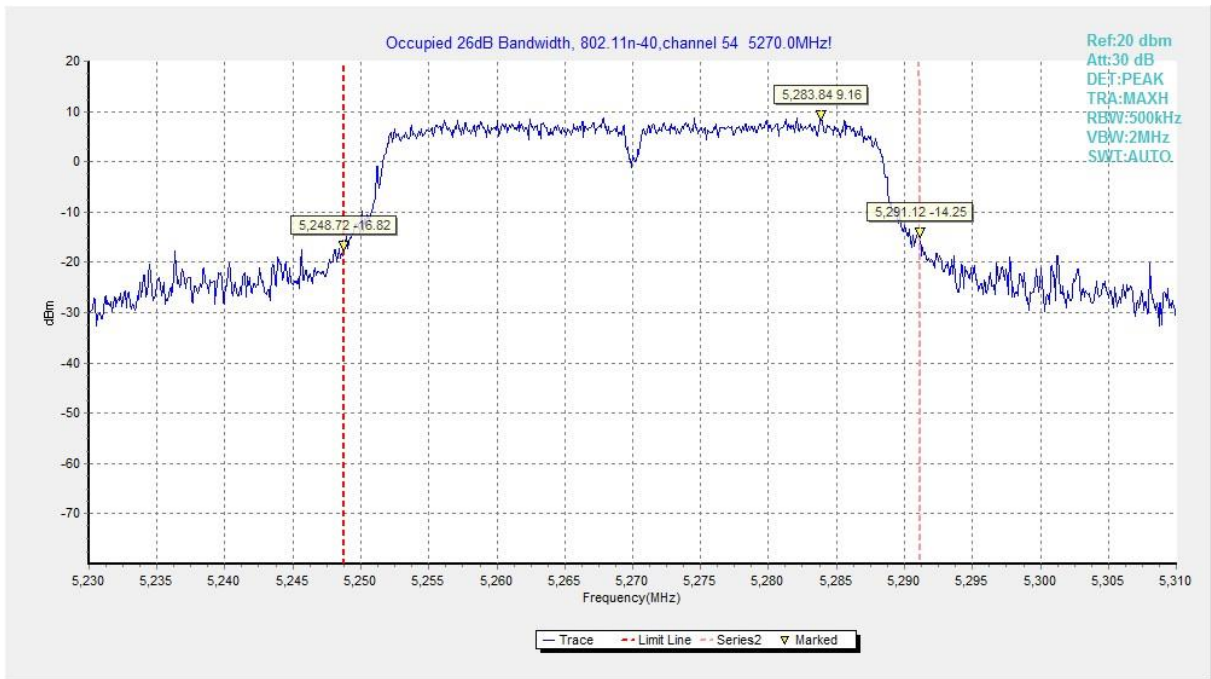


Fig. 21 Occupied 26dB Bandwidth (802.11n-HT40, 5270MHz)

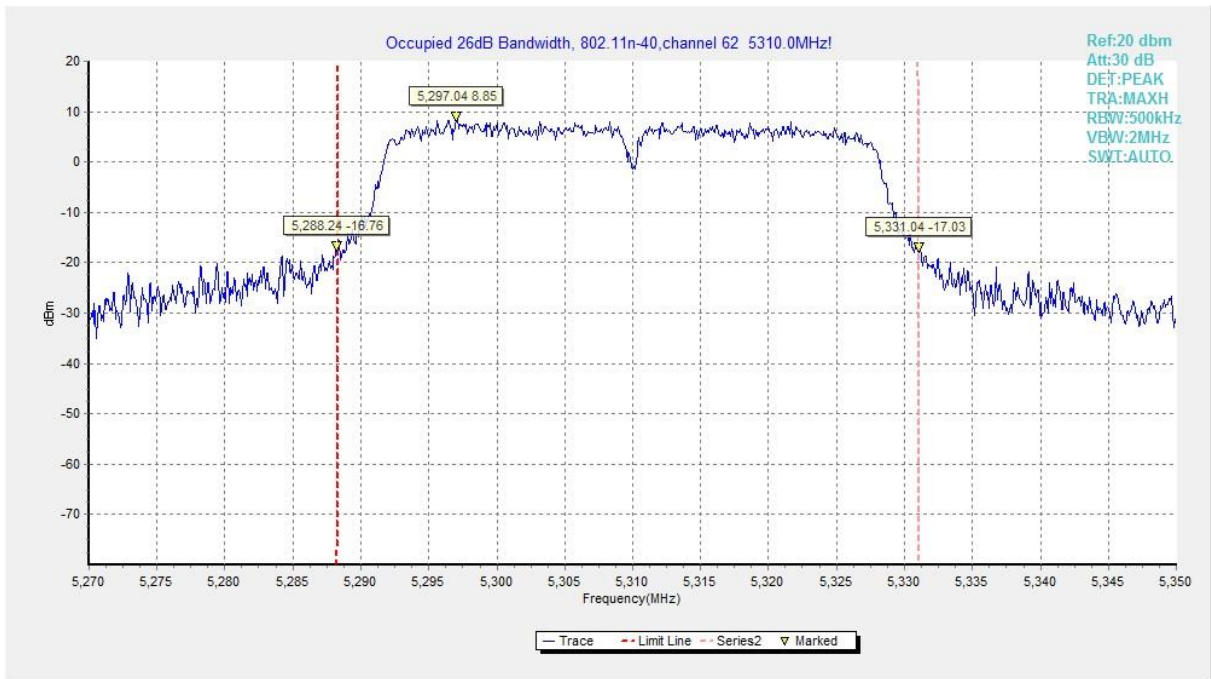


Fig. 22 Occupied 26dB Bandwidth (802.11n-HT40, 5310MHz)

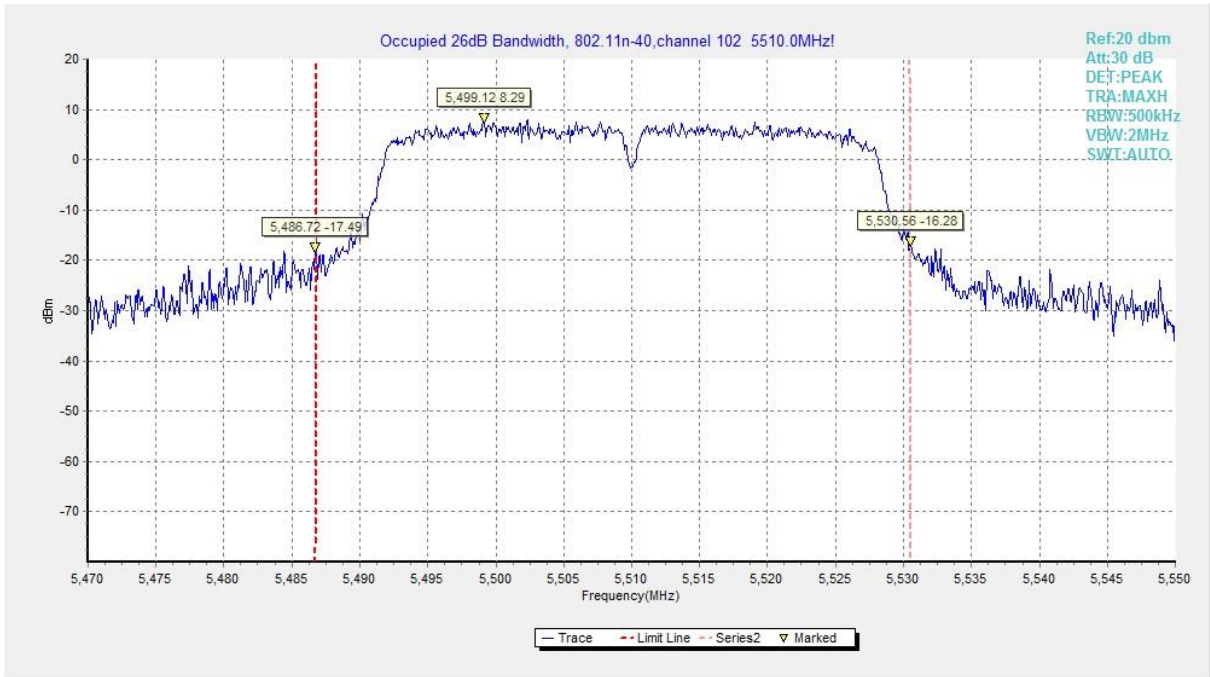


Fig. 23 Occupied 26dB Bandwidth (802. 11n-HT40, 5510MHz)

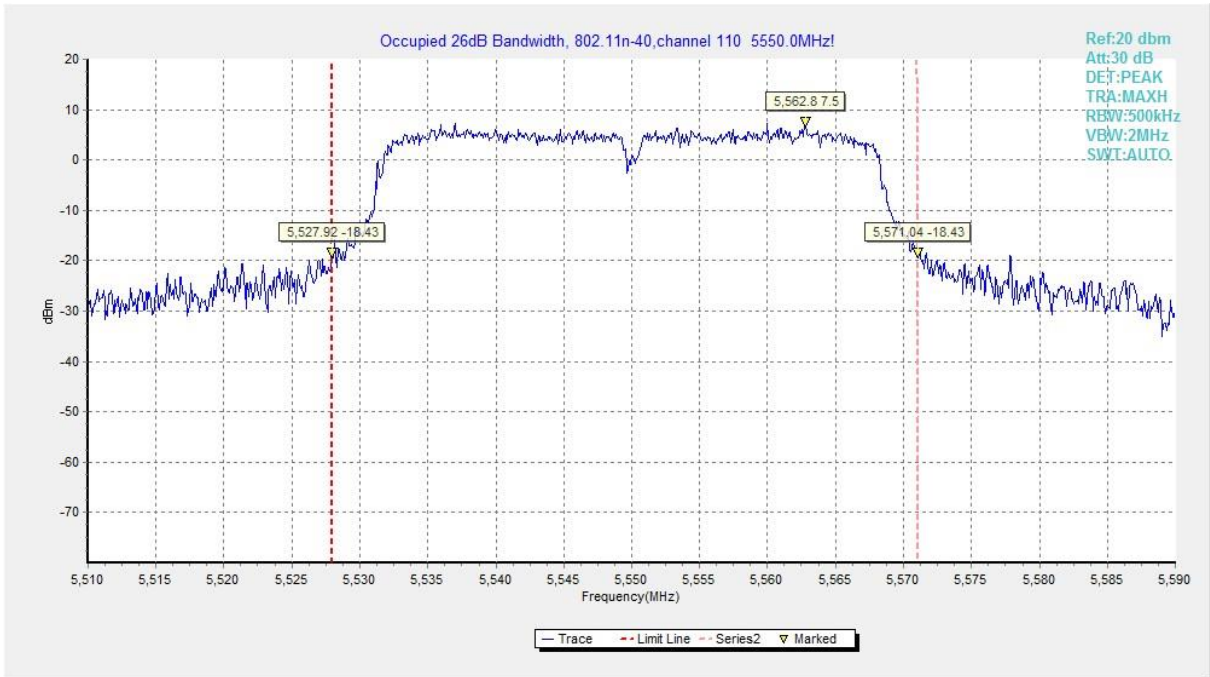


Fig. 24 Occupied 26dB Bandwidth (802. 11n-HT40, 5550MHz)

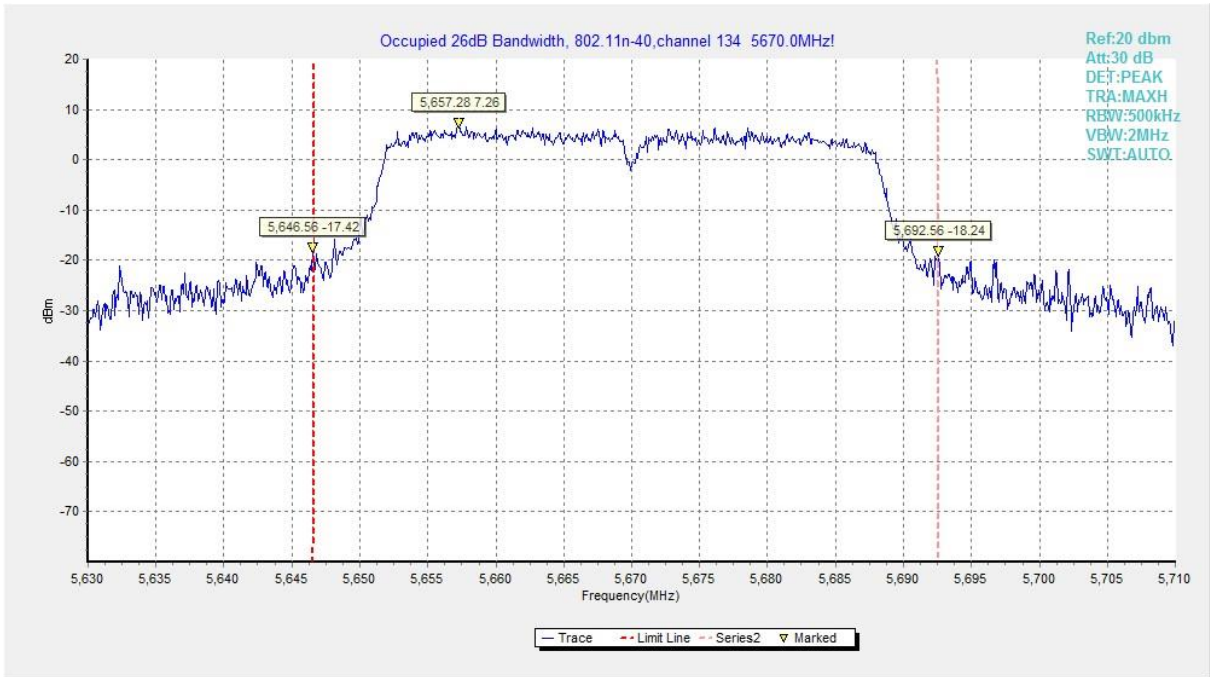


Fig. 25 Occupied 26dB Bandwidth (802. 11n-HT40, 5670MHz)

A.5. Band Edges Compliance

A5.1 Band Edges - Radiated

Measurement Limit:

Standard	Limit (dB μ V/m)	
FCC 47 CFR Part 15.209	Peak	74
	Average	54

The measurement is made according to KDB 789033

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

Measurement Uncertainty:

Measurement Uncertainty	0.75dB
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Measurement Result:

Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.26	P
	5320 MHz	Fig.27	P
	5500 MHz	Fig.28	P
	5700 MHz	Fig.29	P
802.11n HT20	5180 MHz	Fig.30	P
	5320 MHz	Fig.31	P
	5500 MHz	Fig.32	P
	5700 MHz	Fig.33	P
802.11n HT40	5190 MHz	Fig.34	P
	5310 MHz	Fig.35	P
	5510 MHz	Fig.36	P
	5670 MHz	Fig.37	P

Conclusion: PASS

Test graphs as below:

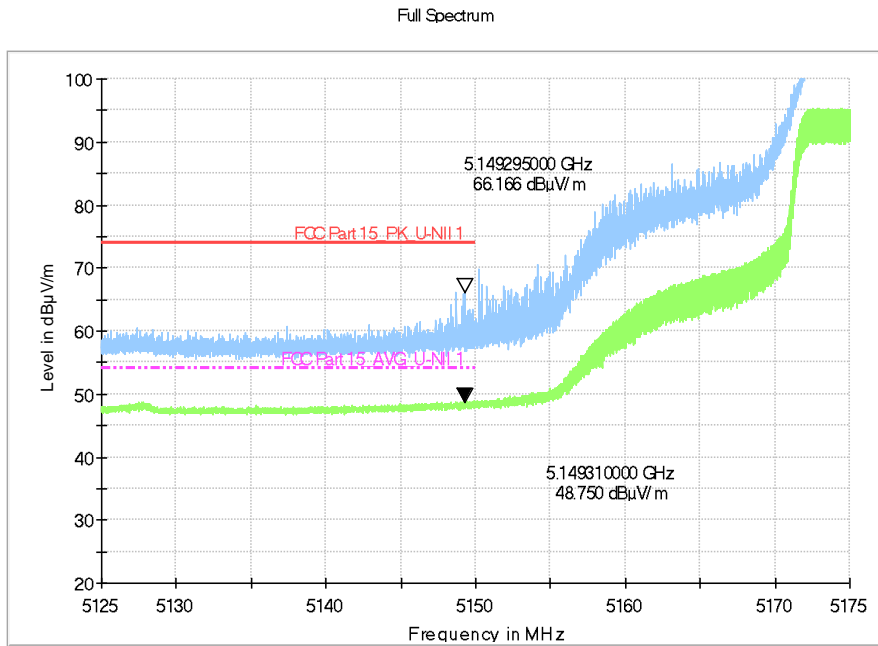


Fig. 26 Band Edges (802.11a, 5180MHz)

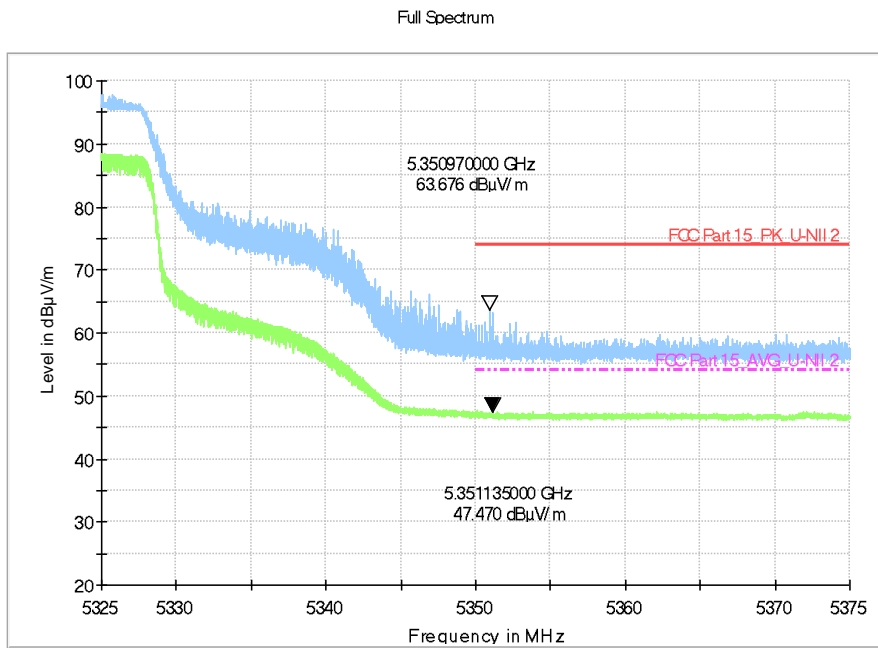


Fig. 27 Band Edges (802.11a, 5320MHz)

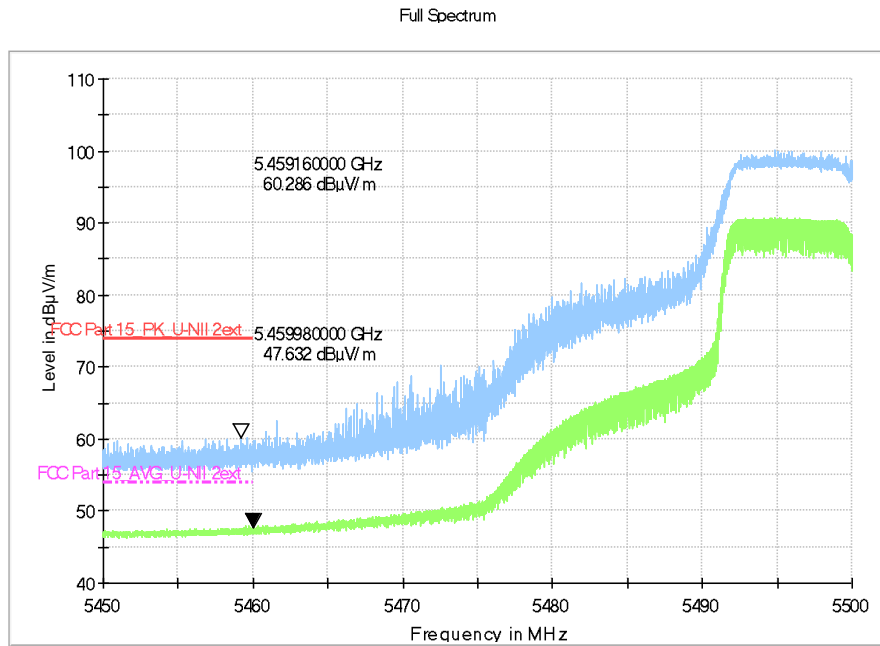


Fig. 28 Band Edges (802.11a, 5500MHz)

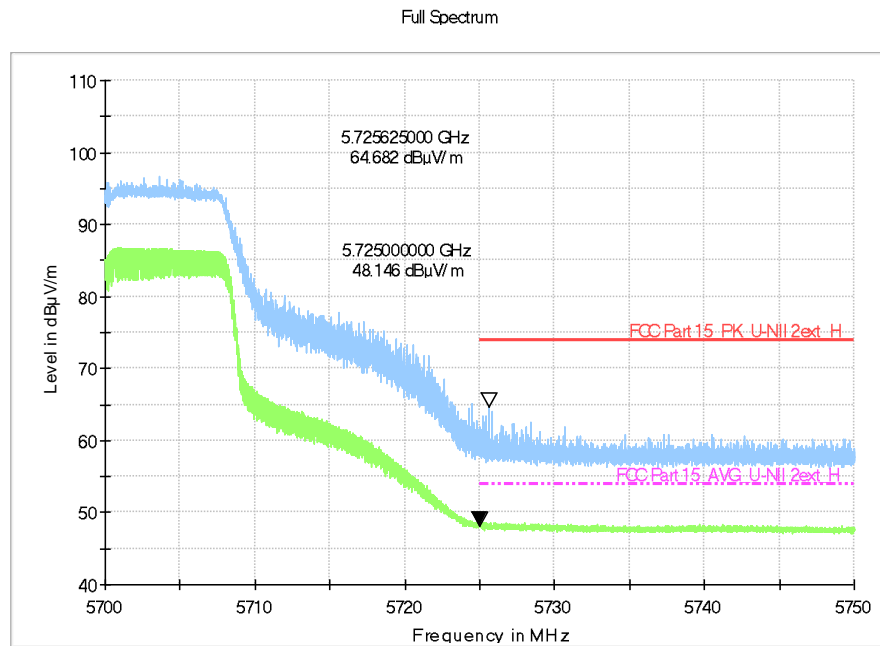


Fig. 29 Band Edges (802.11a, 5700MHz)

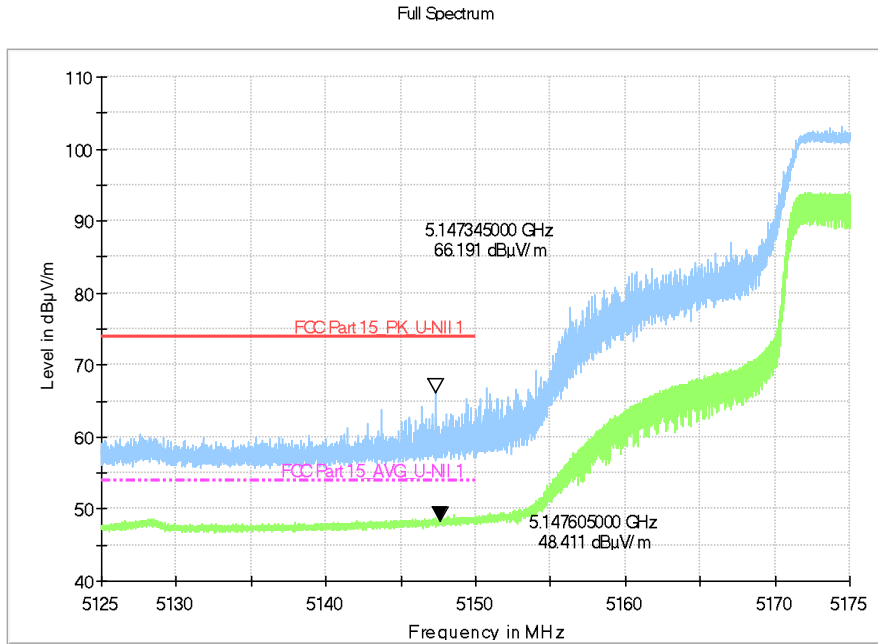


Fig. 30 Band Edges (802.11n-HT20, 5180MHz)

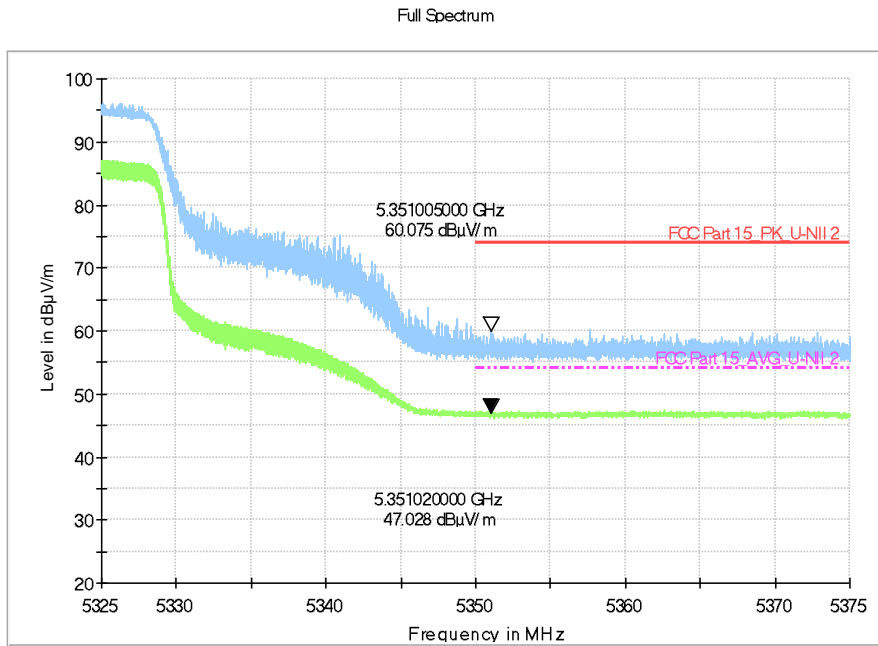


Fig. 31 Band Edges (802.11n-HT20, 5320MHz)

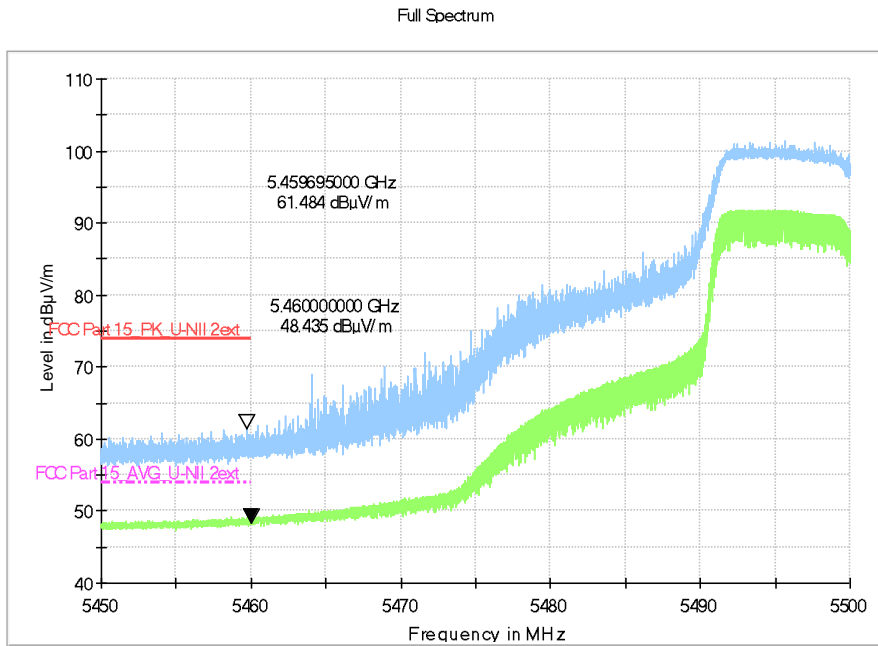


Fig. 32 Band Edges (802.11n-HT20, 5500MHz)

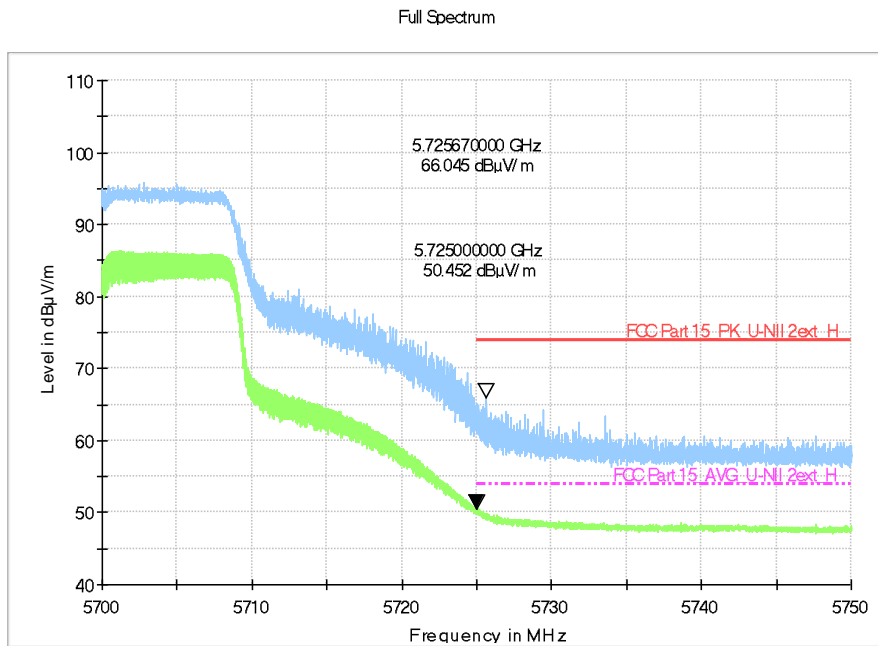


Fig. 33 Band Edges (802.11n-HT20, 5700MHz)

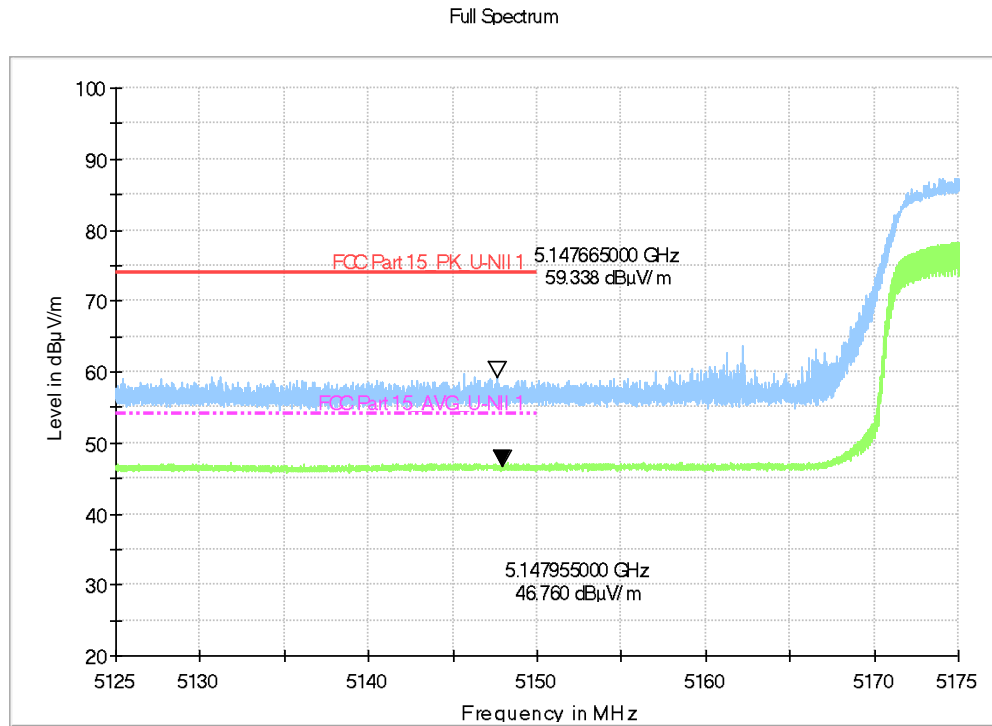


Fig. 34 Band Edges (802.11n-HT40, 5190MHz)

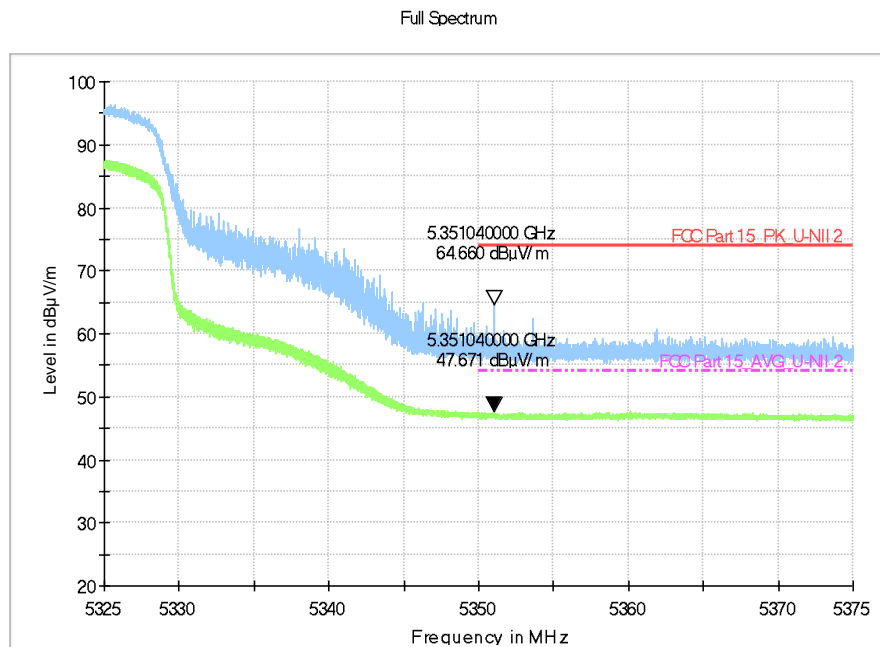


Fig. 35 Band Edges (802.11n-HT40, 5310MHz)

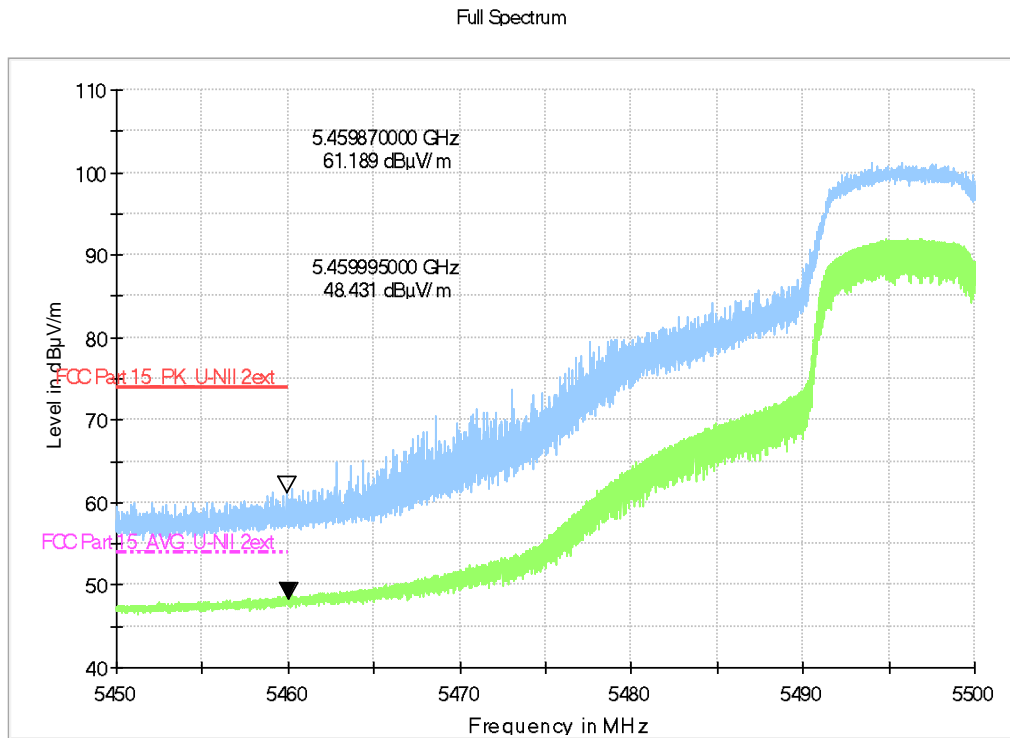


Fig. 36 Band Edges (802.11n-HT40, 5510MHz)

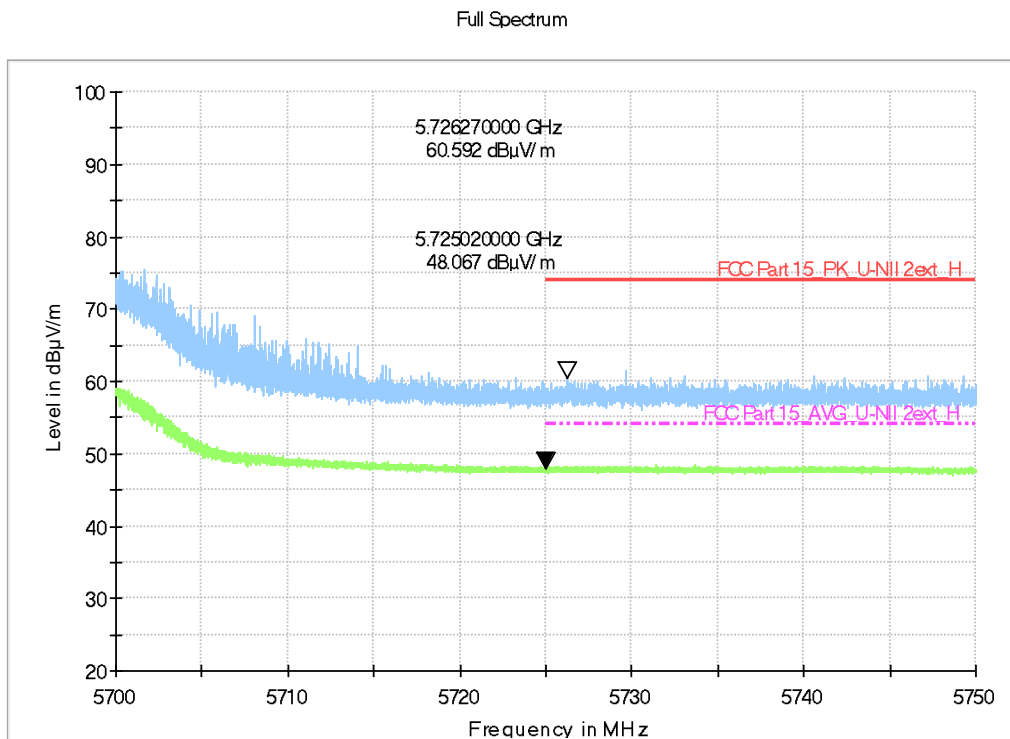


Fig. 37 Band Edges (802.11n-HT40, 5670MHz)

A.6. Transmitter Spurious Emission

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.407	-27 dBm/MHz

The measurement is made according to KDB 789033

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

Limit in restricted band:

Frequency of emission (MHz)	Field strength(dBμV/m)	Measurement distance(m)
30-88	40.0	3
88-216	43.5	3
216-960	46.0	3
Above 960	54.0	3

Note: for frequency range below 960MHz, the limit in 15.209 is defined in 10m test distance. The limit used above is calculated from 10m to 3m

Measurement uncertainty:

Expanded measurement uncertainty for this test item is U =3.9dB, k=2.

Measurement Results:

Conclusion: PASS

Note:

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

P_{Mea} is the field strength recorded from the instrument.

The measurement results are obtained as described below:

Result= $P_{Mea}+A_{Rpl}= P_{Mea}+Cable Loss+Antenna Factor$

AVERAGE Results:

802.11a

Channel 36

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
5149.295	66.2	-36.6	33.4	69.436	H
17998.900	41.0	-25.5	43.4	23.102	H
17994.500	40.8	-25.5	43.4	22.902	V
18000.000	40.7	-26.5	46.4	20.805	H
17997.800	40.7	-25.5	43.4	22.802	H
17985.700	40.7	-25.5	43.4	22.802	H

Channel 40

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
17995.600	40.8	-25.5	43.4	22.902	H
17997.800	40.8	-25.5	43.4	22.902	H
17998.900	40.8	-25.5	43.4	22.902	V
17992.300	40.8	-25.5	43.4	22.902	H
17994.500	40.6	-25.5	43.4	22.702	H
17993.400	40.5	-25.5	43.4	22.602	H

Channel 48

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
18000.000	40.8	-26.5	46.4	20.905	H
17998.900	40.8	-25.5	43.4	22.902	H
17994.500	40.5	-25.5	43.4	22.602	V
17993.400	40.5	-25.5	43.4	22.602	H
17997.800	40.5	-25.5	43.4	22.602	H
17990.100	40.5	-25.5	43.4	22.602	H

Channel 52

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
18000.000	40.8	-26.5	46.4	20.905	H
17998.900	40.7	-25.5	43.4	22.802	H
17997.800	40.7	-25.5	43.4	22.802	V
17996.700	40.6	-25.5	43.4	22.702	H
17995.600	40.5	-25.5	43.4	22.602	H
17982.400	40.3	-25.5	43.4	22.402	H

Channel 56

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
18000.000	40.8	-26.5	46.4	20.905	H
17998.900	40.7	-25.5	43.4	22.802	H
17992.300	40.7	-25.5	43.4	22.802	V
17995.600	40.6	-25.5	43.4	22.702	H
17987.900	40.6	-25.5	43.4	22.702	H
17985.700	40.5	-25.5	43.4	22.602	H

Channel 64

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
5351.135	47.5	-36.6	33.4	50.694	H
17997.800	40.7	-25.5	43.4	22.802	H
18000.000	40.7	-26.5	46.4	20.805	V
17994.500	40.7	-25.5	43.4	22.802	H
17995.600	40.7	-25.5	43.4	22.802	H
17996.700	40.6	-25.5	43.4	22.702	H

Channel 100

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
5459.980	47.6	-36.8	33.4	50.988	H
17992.300	40.8	-25.5	43.4	22.902	H
18000.000	40.7	-26.5	46.4	20.805	V
17997.800	40.7	-25.5	43.4	22.802	H
17991.200	40.6	-25.5	43.4	22.702	H
17996.700	40.5	-25.5	43.4	22.602	H

Channel 120

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17993.400	40.7	-25.5	43.4	22.802	H
17997.800	40.7	-25.5	43.4	22.802	H
17998.900	40.6	-25.5	43.4	22.702	V
17995.600	40.6	-25.5	43.4	22.702	H
18000.000	40.5	-26.5	46.4	20.605	H
17996.700	40.5	-25.5	43.4	22.602	H

Channel 140

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
5725.000	48.1	-36.5	34.2	50.385	H
17996.700	40.7	-25.5	43.4	22.802	H
17994.500	40.7	-25.5	43.4	22.802	V
17997.800	40.7	-25.5	43.4	22.802	H
17998.900	40.7	-25.5	43.4	22.802	H
17989.000	40.6	-25.5	43.4	22.702	H

802.11n-HT20

Channel 36

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
5147.605	48.4	-36.6	33.4	51.636	H
17993.400	40.5	-25.5	43.4	22.602	H
17998.900	40.5	-25.5	43.4	22.602	V
18000.000	40.5	-26.5	46.4	20.605	H
17994.500	40.5	-25.5	43.4	22.602	H
17997.800	40.5	-25.5	43.4	22.602	H

Channel 40

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17997.800	40.8	-25.5	43.4	22.902	H
18000.000	40.8	-26.5	46.4	20.905	H
17998.900	40.7	-25.5	43.4	22.802	V
17993.400	40.4	-25.5	43.4	22.502	H
17991.200	40.4	-25.5	43.4	22.502	H
17980.200	40.3	-25.5	43.4	22.402	H

Channel 48

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17997.800	40.7	-25.5	43.4	22.802	H
17996.700	40.6	-25.5	43.4	22.702	H
18000.000	40.5	-26.5	46.4	20.605	V
17993.400	40.4	-25.5	43.4	22.502	H
17998.900	40.4	-25.5	43.4	22.502	H
17994.500	40.3	-25.5	43.4	22.402	H

Channel 52

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
18000.000	40.7	-26.5	46.4	20.805	H
17997.800	40.6	-25.5	43.4	22.702	H
17992.300	40.6	-25.5	43.4	22.702	V
17998.900	40.6	-25.5	43.4	22.702	H
17994.500	40.6	-25.5	43.4	22.702	H
17996.700	40.5	-25.5	43.4	22.602	H

Channel 56

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
17998.900	40.8	-25.5	43.4	22.902	H
17987.900	40.7	-25.5	43.4	22.802	H
17993.400	40.6	-25.5	43.4	22.702	V
18000.000	40.6	-26.5	46.4	20.705	H
17997.800	40.6	-25.5	43.4	22.702	H
17994.500	40.4	-25.5	43.4	22.502	H

Channel 64

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
5351.020	47.0	-36.6	33.4	50.194	H
17997.800	41.0	-25.5	43.4	23.102	H
17995.600	40.9	-25.5	43.4	23.002	V
17996.700	40.8	-25.5	43.4	22.902	H
17994.500	40.7	-25.5	43.4	22.802	H
17998.900	40.6	-25.5	43.4	22.702	H

Channel 100

Frequency (MHz)	Meas. Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
5460.000	48.4	-36.8	33.4	51.788	H
17998.900	40.9	-25.5	43.4	23.002	H
18000.000	40.8	-26.5	46.4	20.905	V
17996.700	40.8	-25.5	43.4	22.902	H
17997.800	40.8	-25.5	43.4	22.902	H
17991.200	40.7	-25.5	43.4	22.802	H

Channel 120

Frequency (MHz)	Meas. Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
17996.700	41.1	-25.5	43.4	23.202	H
17994.500	40.9	-25.5	43.4	23.002	H
18000.000	40.7	-26.5	46.4	20.805	V
17998.900	40.7	-25.5	43.4	22.802	H
17993.400	40.7	-25.5	43.4	22.802	H
17992.300	40.6	-25.5	43.4	22.702	H

Channel 140

Frequency (MHz)	Meas. Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
5725.000	50.5	-36.5	34.2	52.785	H
17997.800	41.0	-25.5	43.4	23.102	H
17998.900	40.9	-25.5	43.4	23.002	V
18000.000	40.9	-26.5	46.4	21.005	H
17994.500	40.9	-25.5	43.4	23.002	H
17996.700	40.8	-25.5	43.4	22.902	H

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Channel 38

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
5147.955	46.8	-36.6	33.4	50.036	H
17994.500	40.8	-25.5	43.4	22.902	H
17997.800	40.7	-25.5	43.4	22.802	V
18000.000	40.6	-26.5	46.4	20.705	H
17998.900	40.6	-25.5	43.4	22.702	H
17993.400	40.5	-25.5	43.4	22.602	H

Channel 46

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17998.900	40.2	-25.5	43.4	22.302	H
17989.000	40.1	-25.5	43.4	22.202	H
17987.900	40.0	-25.5	43.4	22.102	V
17994.500	40.0	-25.5	43.4	22.102	H
17997.800	39.9	-25.5	43.4	22.002	H
17992.300	39.9	-25.5	43.4	22.002	H

Channel 54

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17998.900	41.0	-25.5	43.4	23.102	H
17997.800	40.9	-25.5	43.4	23.002	H
17996.700	40.6	-25.5	43.4	22.702	V
18000.000	40.6	-26.5	46.4	20.705	H
17995.600	40.5	-25.5	43.4	22.602	H
17994.500	40.5	-25.5	43.4	22.602	H

Channel 62

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
5351.040	47.7	-36.6	33.4	50.894	H
17996.700	40.8	-25.5	43.4	22.902	H
17993.400	40.7	-25.5	43.4	22.802	V
17994.500	40.7	-25.5	43.4	22.802	H
18000.000	40.7	-26.5	46.4	20.805	H
17997.800	40.6	-25.5	43.4	22.702	H

Channel 102

Frequency (MHz)	Meas. Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
5459.995	48.4	-36.8	33.4	51.788	H
18000.000	41.0	-26.5	46.4	21.105	H
17997.800	40.9	-25.5	43.4	23.002	V
17998.900	40.9	-25.5	43.4	23.002	H
17995.600	40.8	-25.5	43.4	22.902	H
17994.500	40.6	-25.5	43.4	22.702	H

Channel 118

Frequency (MHz)	Meas. Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
17993.400	40.7	-25.5	43.4	22.802	H
17997.800	40.7	-25.5	43.4	22.802	H
17996.700	40.6	-25.5	43.4	22.702	V
17995.600	40.5	-25.5	43.4	22.602	H
17998.900	40.5	-25.5	43.4	22.602	H
18000.000	40.5	-26.5	46.4	20.605	H



Channel 134

Frequency (MHz)	Meas. Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
5725.020	48.1	-36.5	34.2	50.385	H
17996.700	40.8	-25.5	43.4	22.902	H
17997.800	40.7	-25.5	43.4	22.802	V
17995.600	40.6	-25.5	43.4	22.702	H
17994.500	40.5	-25.5	43.4	22.602	H
17992.300	40.5	-25.5	43.4	22.602	H

PEAK Results:

802.11a

Channel 36

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
5149.295	66.2	-36.6	33.4	69.436	H
17991.200	52.3	-25.5	43.4	34.402	H
17899.900	52.0	-25.7	43.4	34.342	V
17835.000	51.4	-25.7	43.4	33.742	H
17982.400	51.4	-25.5	43.4	33.502	H
17945.000	51.4	-25.5	43.4	33.502	H

Channel 40

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17996.700	52.2	-25.5	43.4	34.302	H
17992.300	52.1	-25.5	43.4	34.202	H
17997.800	52.1	-25.5	43.4	34.202	V
17879.000	51.9	-25.7	43.4	34.242	H
17978.000	51.6	-25.5	43.4	33.702	H
17998.900	51.6	-25.5	43.4	33.702	H

Channel 48

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17998.900	51.6	-25.5	43.4	33.702	H
17810.800	51.5	-25.7	43.4	33.842	H
17897.700	51.5	-25.7	43.4	33.842	V
17915.300	51.5	-25.5	43.4	33.602	H
17960.400	51.4	-25.5	43.4	33.502	H
17995.600	51.4	-25.5	43.4	33.502	H

Channel 52

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
18000.000	52.1	-26.5	46.4	32.205	H
17902.100	51.8	-25.7	43.4	34.142	H
17837.200	51.1	-25.7	43.4	33.442	V
17974.700	51.0	-25.5	43.4	33.102	H
17949.400	51.0	-25.5	43.4	33.102	H
17930.700	51.0	-25.5	43.4	33.102	H

Channel 56

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
17908.700	51.7	-25.7	43.4	34.042	H
17905.400	51.7	-25.7	43.4	34.042	H
17931.800	51.7	-25.5	43.4	33.802	V
17998.900	51.6	-25.5	43.4	33.702	H
17990.100	51.3	-25.5	43.4	33.402	H
17985.700	51.3	-25.5	43.4	33.402	H

Channel 64

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
5350.970	63.7	-36.6	33.4	66.894	H
17885.600	52.0	-25.7	43.4	34.342	H
17994.500	51.9	-25.5	43.4	34.002	V
17979.100	51.9	-25.5	43.4	34.002	H
17827.300	51.8	-25.7	43.4	34.142	H
17995.600	51.7	-25.5	43.4	33.802	H

Channel 100

Frequency (MHz)	Meas. Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
5459.160	60.3	-36.8	33.4	63.688	H
17998.900	51.7	-25.5	43.4	33.802	H
17984.600	51.6	-25.5	43.4	33.702	V
17968.100	51.5	-25.5	43.4	33.602	H
17901.000	51.4	-25.7	43.4	33.742	H
17896.600	51.4	-25.7	43.4	33.742	H

Channel 120

Frequency (MHz)	Meas. Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
17984.600	52.9	-25.5	43.4	35.002	H
17978.000	51.7	-25.5	43.4	33.802	H
17989.000	51.5	-25.5	43.4	33.602	V
17956.000	51.2	-25.5	43.4	33.302	H
17993.400	51.2	-25.5	43.4	33.302	H
17881.200	51.1	-25.7	43.4	33.442	H

Channel 140

Frequency (MHz)	Meas. Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
5725.625	64.7	-36.5	34.2	66.985	H
17990.100	52.0	-25.5	43.4	34.102	H
17993.400	51.8	-25.5	43.4	33.902	V
17992.300	51.6	-25.5	43.4	33.702	H
17953.800	51.6	-25.5	43.4	33.702	H
17979.100	51.5	-25.5	43.4	33.602	H

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Channel 36

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
5147.345	66.2	-36.6	33.4	69.436	H
17946.100	52.4	-25.5	43.4	34.502	H
17960.400	51.7	-25.5	43.4	33.802	V
17994.500	51.4	-25.5	43.4	33.502	H
17910.900	51.4	-25.7	43.4	33.742	H
17995.600	51.3	-25.5	43.4	33.402	H

Channel 40

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17945.000	52.1	-25.5	43.4	34.202	H
17920.800	51.8	-25.5	43.4	33.902	H
17949.400	51.7	-25.5	43.4	33.802	V
17984.600	51.7	-25.5	43.4	33.802	H
17978.000	51.4	-25.5	43.4	33.502	H
17995.600	51.4	-25.5	43.4	33.502	H

Channel 48

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17956.000	52.0	-25.5	43.4	34.102	H
17970.300	51.7	-25.5	43.4	33.802	H
17997.800	51.6	-25.5	43.4	33.702	V
17978.000	51.4	-25.5	43.4	33.502	H
17928.500	51.4	-25.5	43.4	33.502	H
18000.000	51.4	-26.5	46.4	31.505	H

Channel 52

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17896.600	51.6	-25.7	43.4	33.942	H
18000.000	51.3	-26.5	46.4	31.405	H
17990.100	51.3	-25.5	43.4	33.402	V
17987.900	51.3	-25.5	43.4	33.402	H
17992.300	51.2	-25.5	43.4	33.302	H
17984.600	51.1	-25.5	43.4	33.202	H

Channel 56

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17829.500	52.0	-25.7	43.4	34.342	H
17970.300	51.5	-25.5	43.4	33.602	H
17992.300	51.3	-25.5	43.4	33.402	V
18000.000	51.2	-26.5	46.4	31.305	H
17984.600	51.2	-25.5	43.4	33.302	H
17951.600	51.1	-25.5	43.4	33.202	H

Channel 64

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
5351.005	60.1	-36.6	33.4	63.294	H
17991.200	52.4	-25.5	43.4	34.502	H
17913.100	52.1	-25.7	43.4	34.442	V
17907.600	51.6	-25.7	43.4	33.942	H
17939.500	51.5	-25.5	43.4	33.602	H
17818.500	51.4	-25.7	43.4	33.742	H

Channel 100

Frequency (MHz)	Meas. Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
5459.695	61.5	-36.8	33.4	64.888	H
17992.300	52.9	-25.5	43.4	35.002	H
17998.900	52.7	-25.5	43.4	34.802	V
17993.400	52.5	-25.5	43.4	34.602	H
17995.600	51.9	-25.5	43.4	34.002	H
17928.500	51.9	-25.5	43.4	34.002	H

Channel 120

Frequency (MHz)	Meas. Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
17974.700	52.1	-25.5	43.4	34.202	H
17996.700	51.9	-25.5	43.4	34.002	H
17918.600	51.5	-25.5	43.4	33.602	V
17888.900	51.5	-25.7	43.4	33.842	H
17998.900	51.4	-25.5	43.4	33.502	H
17886.700	51.4	-25.7	43.4	33.742	H

Channel 140

Frequency (MHz)	Meas. Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
5725.670	66.0	-36.5	34.2	68.285	H
17996.700	51.9	-25.5	43.4	34.002	H
17962.600	51.3	-25.5	43.4	33.402	V
17941.700	51.3	-25.5	43.4	33.402	H
17991.200	51.3	-25.5	43.4	33.402	H
17896.600	51.2	-25.7	43.4	33.542	H

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Channel 38

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
5147.665	59.3	-36.6	33.4	62.536	H
17994.500	52.3	-25.5	43.4	34.402	H
17871.300	51.9	-25.7	43.4	34.242	V
17992.300	51.8	-25.5	43.4	33.902	H
17909.800	51.3	-25.7	43.4	33.642	H
17976.900	51.2	-25.5	43.4	33.302	H

Channel 46

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17993.400	51.9	-25.5	43.4	34.002	H
17998.900	51.8	-25.5	43.4	33.902	H
17985.700	51.4	-25.5	43.4	33.502	V
17902.100	51.4	-25.7	43.4	33.742	H
17961.500	51.2	-25.5	43.4	33.302	H
17996.700	51.2	-25.5	43.4	33.302	H

Channel 54

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17928.500	51.9	-25.5	43.4	34.002	H
17987.900	51.7	-25.5	43.4	33.802	H
17989.000	51.6	-25.5	43.4	33.702	V
17998.900	51.5	-25.5	43.4	33.602	H
17814.100	51.4	-25.7	43.4	33.742	H
17996.700	51.4	-25.5	43.4	33.502	H

Channel 62

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
5351.040	64.7	-36.6	33.4	67.894	H
17990.100	52.4	-25.5	43.4	34.502	H
18000.000	52.0	-26.5	46.4	32.105	V
17991.200	51.9	-25.5	43.4	34.002	H
17910.900	51.6	-25.7	43.4	33.942	H
17980.200	51.4	-25.5	43.4	33.502	H

Channel 102

Frequency (MHz)	Meas. Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
5459.870	61.2	-36.8	33.4	64.588	H
17998.900	52.5	-25.5	43.4	34.602	H
17983.500	52.1	-25.5	43.4	34.202	V
17995.600	52.1	-25.5	43.4	34.202	H
17992.300	51.9	-25.5	43.4	34.002	H
17915.300	51.5	-25.5	43.4	33.602	H

Channel 118

Frequency (MHz)	Meas. Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
18000.000	53.1	-26.5	46.4	33.205	H
17909.800	51.6	-25.7	43.4	33.942	H
17987.900	51.4	-25.5	43.4	33.502	V
17903.200	51.3	-25.7	43.4	33.642	H
17997.800	51.2	-25.5	43.4	33.302	H
17989.000	51.2	-25.5	43.4	33.302	H



Channel 134

Frequency (MHz)	Meas. Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Antenna Pol. (H/V)
5726.270	60.6	-33.8	35.1	59.300	H
17907.600	52.0	-18.5	45.6	24.900	H
17981.300	51.6	-17.7	45.6	23.700	V
17807.500	51.6	-18.5	45.6	24.500	H
17929.600	51.5	-17.7	45.6	23.600	H
17987.900	51.5	-17.7	45.6	23.600	H

Sample calculation: 802.11n 40MHz CH134–Peak, 5726.270 MHz

$$\text{Peak ERP(dBuV/m)} = P_{\text{Mea}}(59.3) + \text{Cable Loss}(-33.8) + \text{Antenna Factor}(35.1) = 60.6$$

A.8. 99% Occupied bandwidth

Method of Measurement: See ANSI C63.10-2013-clause 12.4.2.

- a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
- b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
- c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level. Specific guidance is given in 4.1.5.2.
- d) Step a) through step c) might require iteration to adjust within the specified range.
- e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
- g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
- h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz
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Measurement Result:

Mode	Channel	99% Occupied bandwidth (MHz)		conclusion
802.11a	5180 MHz	Fig. 38	17.71	P
	5200 MHz	Fig. 39	17.70	P
	5240 MHz	Fig. 40	17.73	P
802.11n HT20	5180 MHz	Fig. 41	18.58	P
	5200 MHz	Fig. 42	18.57	P
	5240 MHz	Fig. 43	18.50	P
802.11n HT40	5190 MHz	Fig. 44	36.32	P
	5230 MHz	Fig. 45	36.20	P

Conclusion: PASS

Test graphs as below:

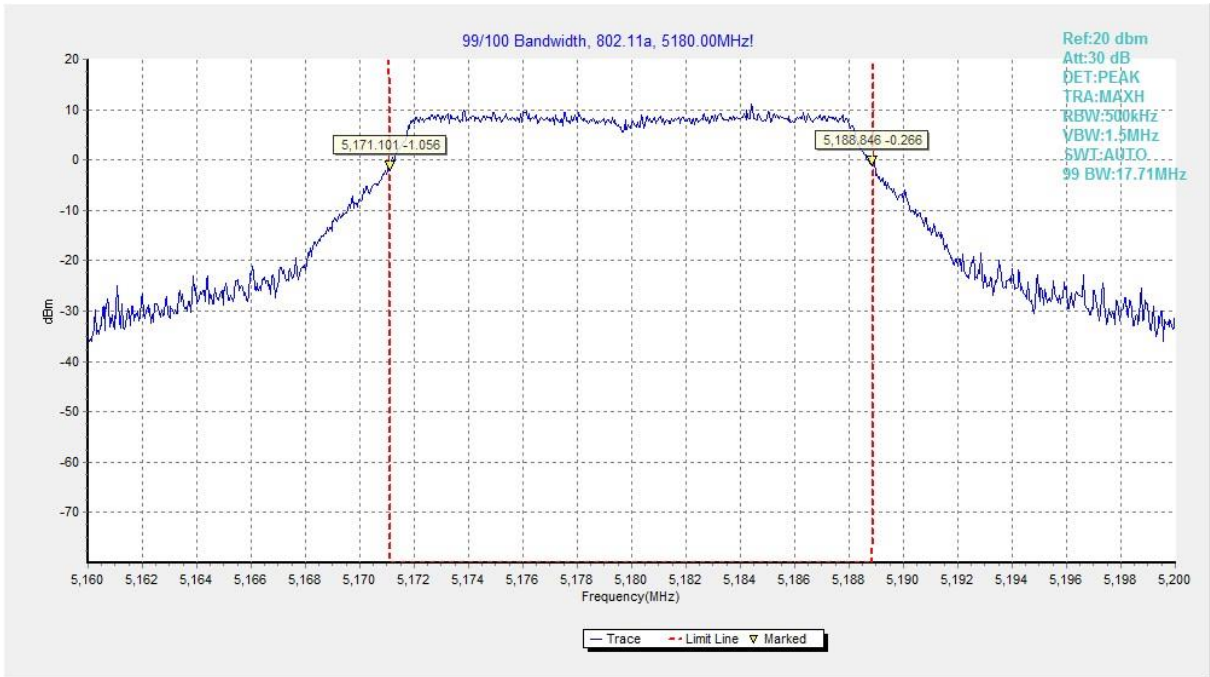


Fig. 38 99% Occupied bandwidth (802.11a, 5180MHz)

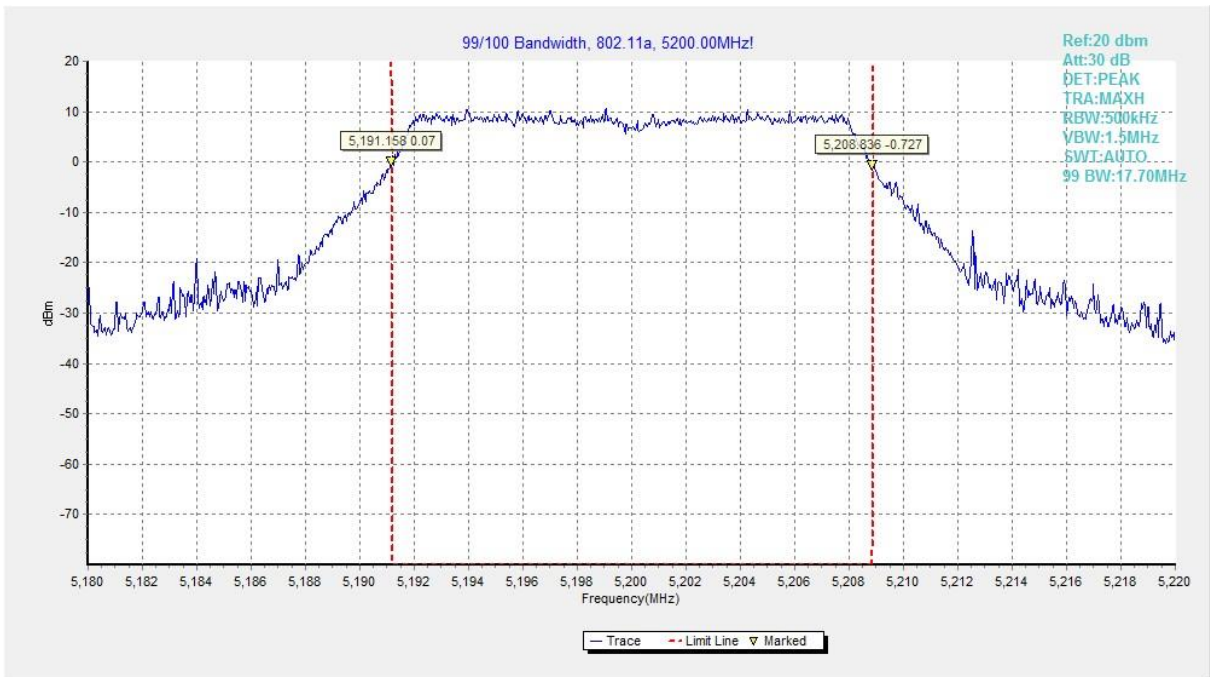


Fig. 39 99% Occupied bandwidth (802.11a, 5200MHz)

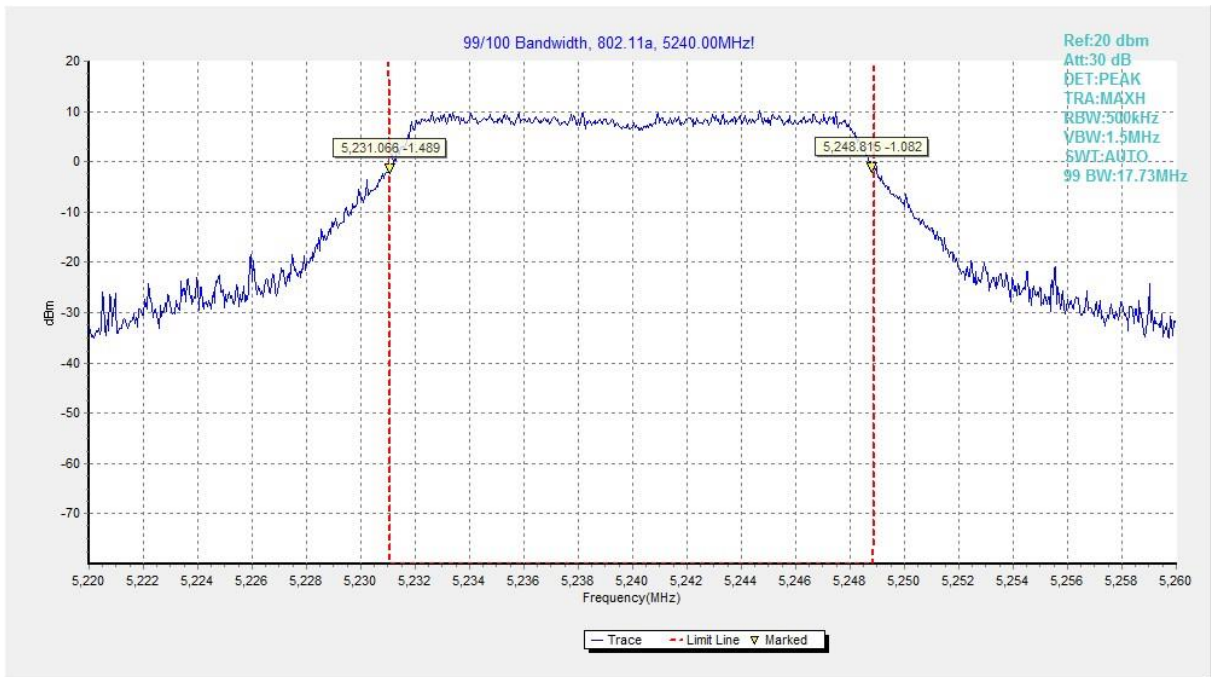


Fig. 40 99% Occupied bandwidth (802.11a, 5240MHz)

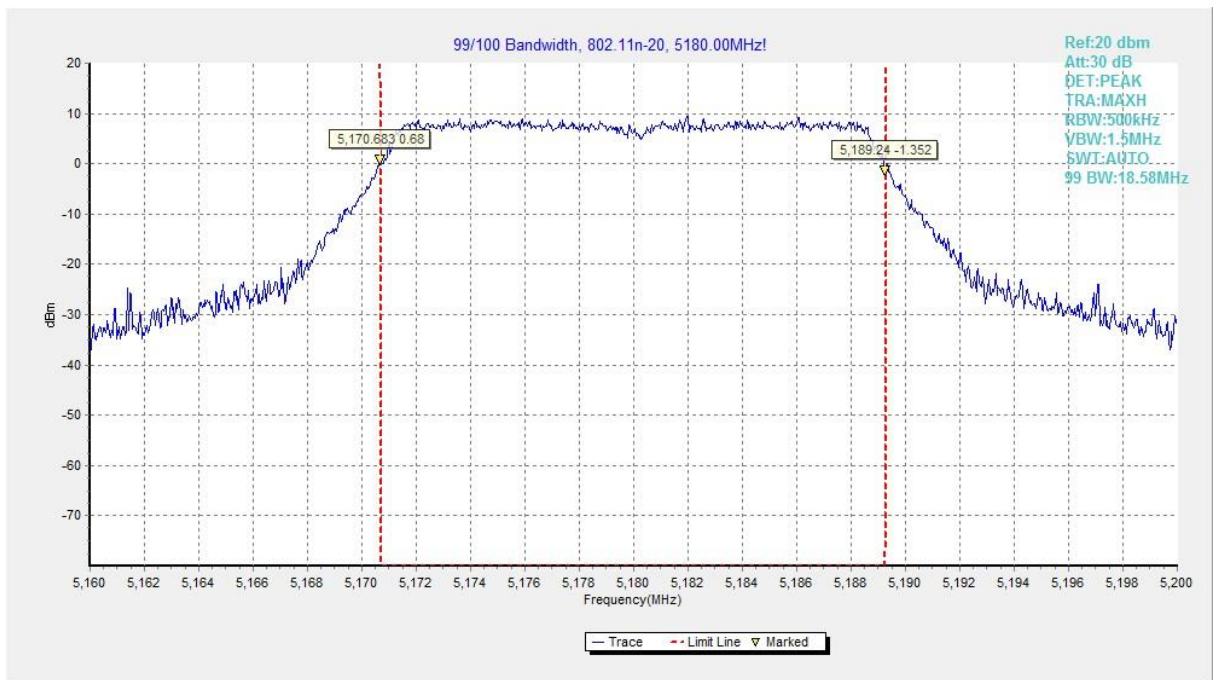


Fig. 41 99% Occupied bandwidth (802.11n-HT20, 5180MHz)

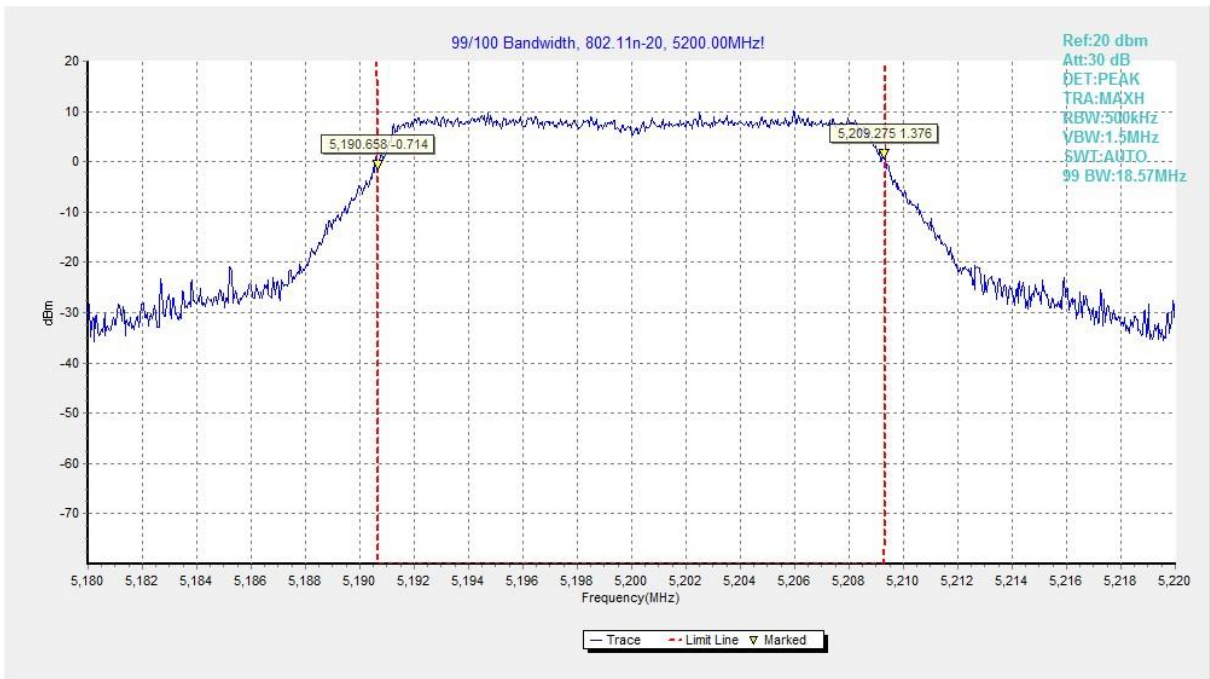


Fig. 42 99% Occupied bandwidth (802.11n-HT20, 5200MHz)

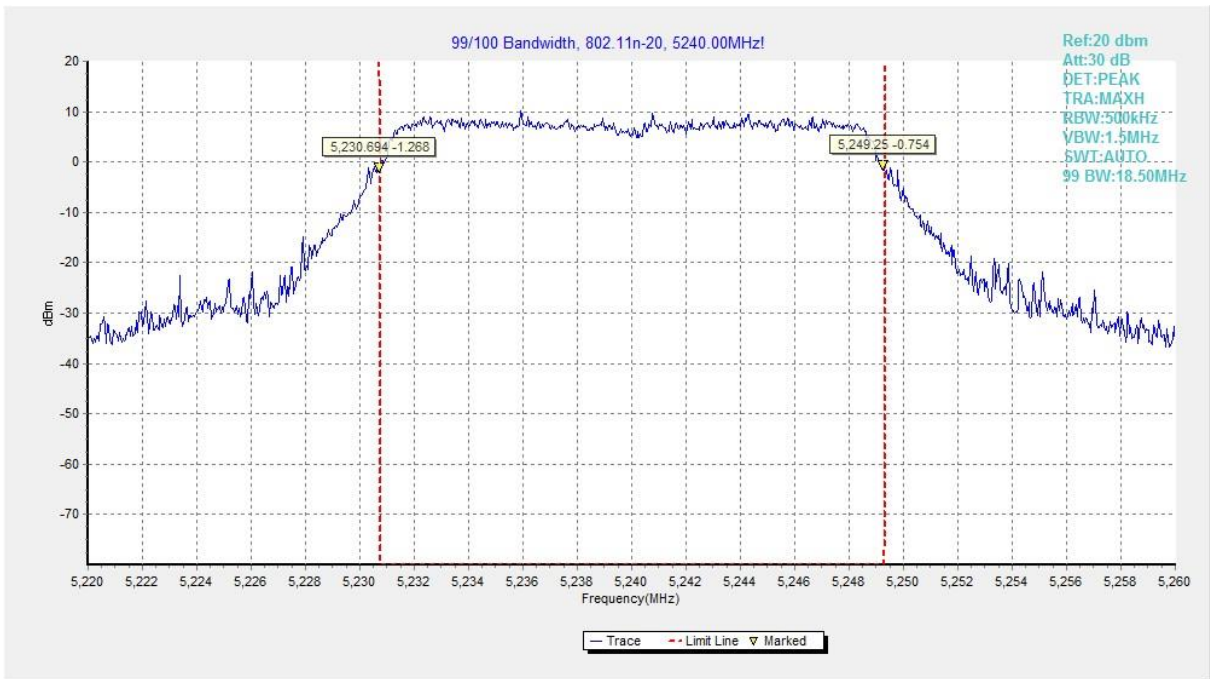


Fig. 43 99% Occupied bandwidth (802.11n-HT20, 5240MHz)

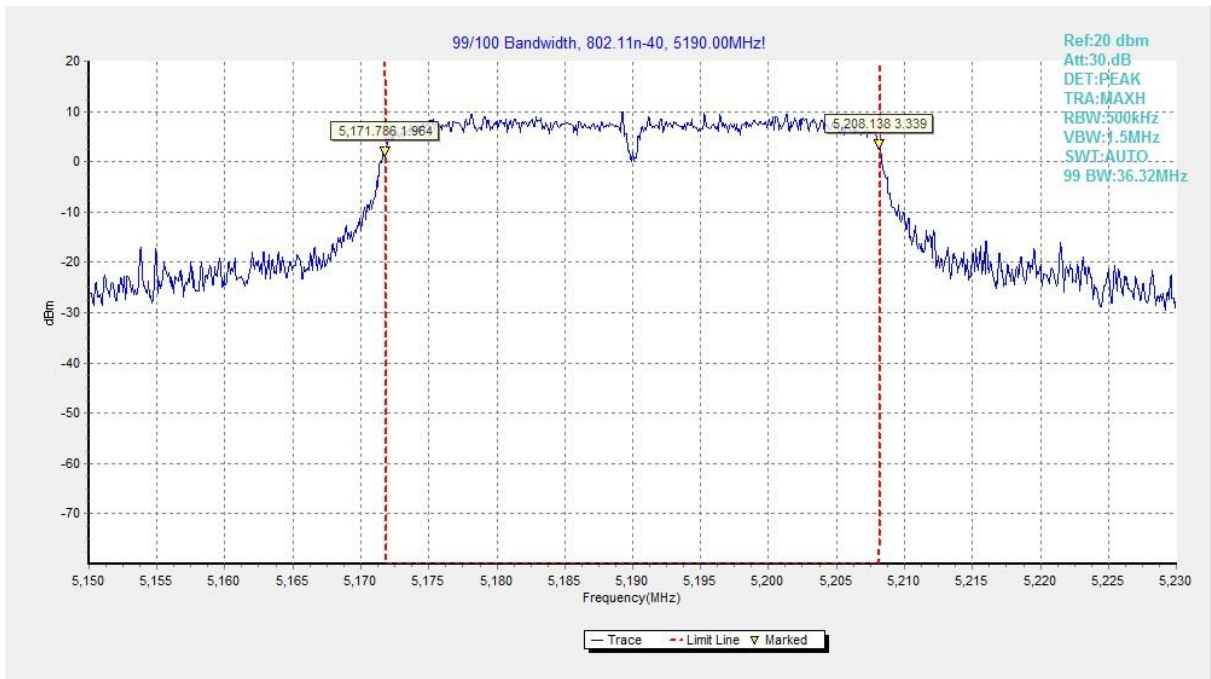


Fig. 44 99% Occupied bandwidth (802.11n-HT40, 5190MHz)

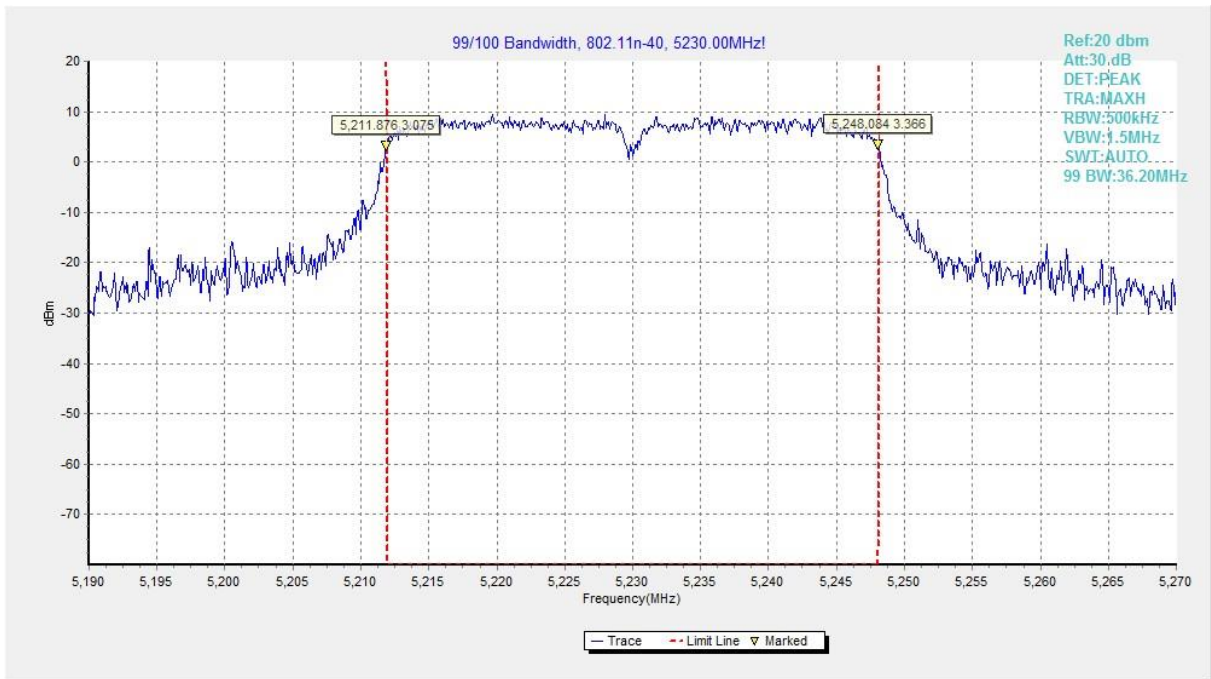


Fig. 45 99% Occupied bandwidth (802.11n-HT40, 5230MHz)

A.9. Frequency Stability

Manufacturers ensured the EUT meet the requirement of frequency stability, such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.



Measurement Result:

Mode	Channel	Test Condition		Result(MHz)
		Tnom	Vnom	
802.11a	5240MHz	Tnom	Vnom	0.01
		Tmax	Vnom	
		Tmin	Vnom	
		Vmax	Tnom	
		Vmin	Tnom	
802.11a	5280MHz	Tnom	Vnom	0.01
		Tmax	Vnom	
		Tmin	Vnom	
		Vmax	Tnom	
		Vmin	Tnom	
802.11n-20	5580MHz	Tnom	Vnom	0.02
		Tmax	Vnom	
		Tmin	Vnom	
		Vmax	Tnom	
		Vmin	Tnom	

A.10. Power control

A Transmission Power Control mechanism is not required for systems with an e.i.r.p. of less than 27dBm (500 mW).

ANNEX C: Accreditation Certificate

<p>United States Department of Commerce National Institute of Standards and Technology</p> 	
<hr/> <p>Certificate of Accreditation to ISO/IEC 17025:2005</p> <hr/>	
<p>NVLAP LAB CODE: 600118-0</p>	
<p>Telecommunication Technology Labs, CAICT Beijing China</p>	
<p><i>is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:</i></p>	
<p>Electromagnetic Compatibility & Telecommunications</p>	
<p><i>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).</i></p>	
<hr/> <p>2017-08-22 through 2018-09-30 <i>Effective Dates</i></p>	 <hr/> <p><i>[Signature]</i> For the National Voluntary Laboratory Accreditation Program</p>

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