FCC PART 15
TEST REPORT
No. I17Z61985-IOT02

for

TCL Communication Ltd.

A3A XL 4G

5099A

With

FCC ID: 2ACCJBT08

Hardware Version: 03

Software Version: vJ1R

Issued Date: 2017-12-11

TESTING
NVLAP LAB CODE 600118-0

Note:

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Test Laboratory:

CTTL, Telecommunication Technology Labs, CAICT

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I17Z61985-IOT02	Rev.0	1st edition	2017-12-11

CONTENTS

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

1.2. TestingEnvironment

Normal Temperature: 15-35℃

Extreme Temperature: -20/+60℃

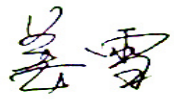
Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: 2017-11-09

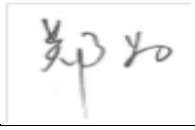
Testing End Date: 2017-12-11

1.4. Signature



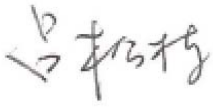
Jiang Xue

(Prepared this test report)



Zheng Wei

(Reviewed this test report)



Lv Songdong

(Approved this test report)

2. CLIENT INFORMATION

2.1. Applicant Information

Company Name:	TCL Communication Ltd.
Address:	5F, C-Tower, No. 232, Liang Jing Road, ZhangJiang High-Tech Park, Pudong Area,Shanghai,201203,P.R.China
City:	Shanghai
Postal Code:	201203
Country:	China
Telephone:	0755-33038372
Fax:	/

2.2. Manufacturer Information

Company Name:	TCL Communication Ltd.
Address:	5F, C-Tower, No. 232, Liang Jing Road, ZhangJiang High-Tech Park, Pudong Area,Shanghai,201203,P.R.China
City:	Shanghai
Postal Code:	201203
Country:	China
Telephone:	0755-33038372
Fax:	/

3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARYEQUIPMENT(AE)

3.1. About EUT

Description	A3A XL 4G
Model name	5099A
FCC ID	2ACCJBT08
IC ID	/
WLAN Frequency Range	ISM Bands: -5150MHz~5350MHz
Type of modulation	OFDM
Antenna	Integral Antenna
Voltage	3.8V DC by Battery

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

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	015106000200210	03	vJ1R
EUT2	015106000200053	03	vJ1R

*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	/	inbuilt
AE2	Battery	/	inbuilt
AE3	Charger	/	17TCTCH1231
AE4	Charger	/	17TCTCH1197
AE5	Charger	/	17TCTCH1249
AE6	Charger	/	17TCTCH1179
AE7	Charger	/	17TCTCH1187
AE8	USB cable	/	17TCTDC0502
AE9	USB cable	/	17TCTDC0490
AE10	Charger	/	/
AE11	Charger	/	/

AE1

Model	CAC2900005C7
Manufacturer	VEKEN
Capacitance	2900 mAh
Nominal voltage	3.0V

AE2

Model	CAC2900001C1
Manufacturer	BYD
Capacitance	2900 mAh
Nominal voltage	3.85V

AE3

Model	CBA0058AGAC2
Manufacturer	TENPAO
Length of cable	/

AE4

Model	CBA0058AMAC5
Manufacturer	PUAN
Length of cable	/

AE5

Model	CBA0058AMAC2
Manufacturer	TENPAO
Length of cable	/

AE6

Model	CBA0058AHAC2
Manufacturer	TENPAO
Length of cable	/

AE7

Model	CBA0058AGAC5
Manufacturer	PUAN
Length of cable	/

AE8

Model	CDA3122005C1
Manufacturer	Juwei
Length of cable	100cm

AE9

Model	CDA3122005C2
Manufacturer	Shenghua
Length of cable	99cm

AE10

Model	CBA0058AAAC5
Manufacturer	PUAN
Length of cable	/

AE11

Model	CBA0058AAAC2
Manufacturer	TENPAO
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 A3A XL 4G with integrated antennaand inbuilt battery.
It has Bluetooth (EDR)function.
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.

3.5. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	EUT8+AE1+AE3+AE8	Charger
Set.2	EUT8+AE1+AE4+AE8	Charger
Set.3	EUT8+AE1+AE5+AE8	Charger
Set.4	EUT8+AE1+AE6+AE8	Charger
Set.5	EUT8+AE1+AE7+AE8	Charger

3.6. 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	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E	2014-06

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℃
Voltage	3.8V
Humidity	44%

7. TEST EQUIPMENTS UTILIZED

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration date	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	1 year	2018-06-01
2	Test Receiver	ESCI	100766	Rohde & Schwarz	1 year	2018-05-06
3	LISN	ESH2-Z5	829991/012	Rohde & Schwarz	1 year	2018-05-10
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	2018-04-01
2	BiLog Antenna	VULB9163	9163-483	Schwarzbeck	3 years	2018-08-20
3	Dual-Ridge Waveguide Horn Antenna	3115	6914	ETS-Lindgren	3 years	2017-12-15
4	EMI Antenna	3117	00139065	ETS-Lindgren	3 Years	2020-11-15
5	EMI Antenna	3116	2663	ETS-Lindgren	3 Years	2020-05-31
6	Vector Signal Analyzer	FSV40	101047	Rohde & Schwarz	1 year	2018-06-22

8. Measurement Uncertainty

8.1. Transmitter Output Power

Measurement Uncertainty: 0.339dB,k=1.96

8.2. Peak Power Spectral Density

Measurement Uncertainty: 0.705dBm/MHz,k=1.96

8.3. Occupied Channel Bandwidth

Measurement Uncertainty: 60.80Hz,k=1.96

8.4. Band Edges Compliance

Measurement Uncertainty : 0.62dBm,k=1.96

8.5. Spurious Emissions

Conducted (k=1.96)

Frequency Range	Uncertainty(dBm)
30MHz ≤ f ≤ 2GHz	1.22
2GHz ≤ f ≤3.6GHz	1.22
3.6GHz ≤ f ≤8GHz	1.22
8GHz ≤ f ≤12.75GHz	1.51
12.75GHz ≤ f ≤26GHz	1.51
26GHz ≤ f ≤40GHz	1.59

Radiated (k=2)

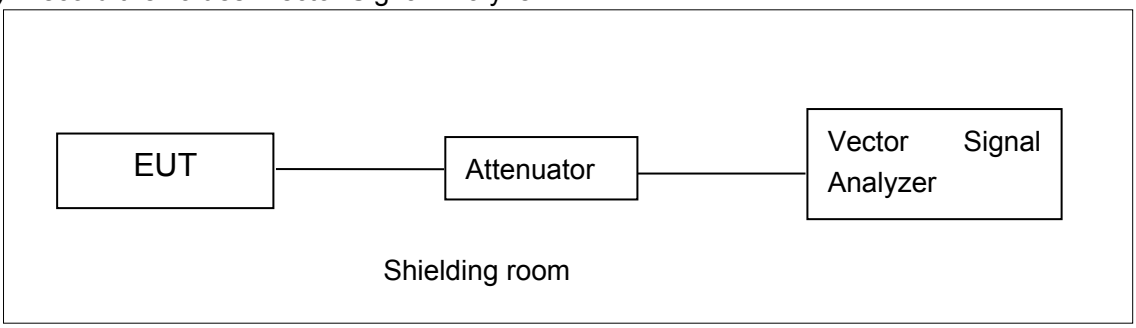
Frequency Range	Uncertainty(dBm)
9kHz-30MHz	
30MHz ≤ f ≤ 1GHz	4.86
1GHz ≤ f ≤18GHz	5.26
18GHz ≤ f ≤40GHz	5.28

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

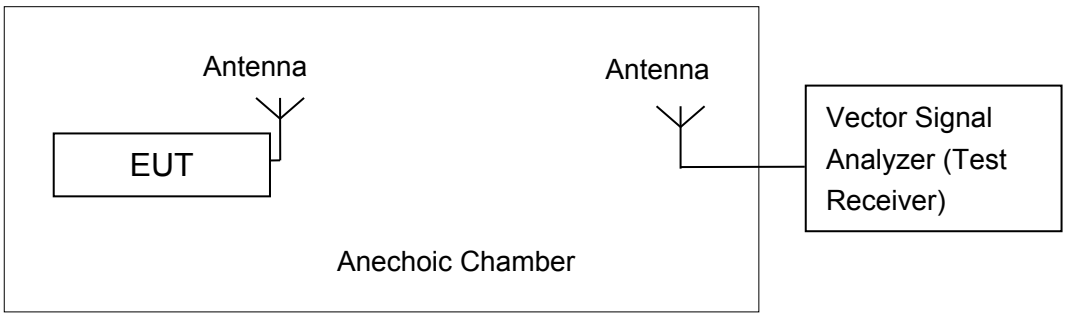
A.1.1. Conducted Measurements

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

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

Mode	Channel	Test Result (dBm)							
		Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
802.11a	5180MHz (Ch36)	12.90	13.38	13.51	13.57	13.48	13.28	13.54	13.57
	5200MHz (Ch40)								13.82
	5240MHz(Ch48)								13.86
	5260MHz(Ch52)								13.35
	5280MHz(Ch56)								12.81
	5320MHz(Ch64)								13.23

The data rate 54Mbps is selected as worse condition, and the following cases are performed with this condition.

802.11n-HT20 mode

Mode	Channel	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT20)	5180MHz (Ch36)	13.13	13.23	13.27	13.34	13.34	13.58	13.63	13.61
	5200MHz (Ch40)							13.41	
	5240MHz(Ch48)							13.52	
	5260MHz(Ch52)							13.16	
	5280MHz(Ch56)							13.03	
	5320MHz(Ch64)							12.34	

The data rate MCS6 is selected as worse condition, and the following cases are performed with this condition.

802.11n-HT40 mode

Mode	Channel	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT40)	5190MHz (Ch38)	13.44	13.22	13.90	13.49	14.33	14.62	14.71	14.68
	5230MHz(Ch46)							14.88	
	5270MHz(Ch54)							14.53	
	5310MHz(Ch62)							14.24	

The data rate MCS6 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

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

Measurement Results:

Mode	Channel	Power Spectral Density (dBm/3kHz)	Conclusion
802.11a	5180 MHz	2.74	P
	5200 MHz	1.95	P
	5240 MHz	2.34	P
	5260 MHz	2.11	P
	5280 MHz	1.89	P
	5320 MHz	1.78	P
802.11n HT20	5180 MHz	2.29	P
	5200 MHz	2.73	P
	5240 MHz	2.10	P
	5260 MHz	1.79	P
	5280 MHz	1.61	P
	5320 MHz	1.70	P
802.11n HT40	5190 MHz	-0.20	P
	5230 MHz	-0.92	P
	5270 MHz	-1.22	P
	5310 MHz	-1.15	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	Channel	Occupied 26dB Bandwidth (MHz)		conclusion
802.11a	5180 MHz	Fig.1	21.20	P
	5200 MHz	Fig.2	21.80	P
	5240 MHz	Fig.3	22.30	P
	5260 MHz	Fig.4	21.85	P
	5280 MHz	Fig.5	21.35	P
	5320 MHz	Fig.6	21.80	P
802.11n HT20	5180 MHz	Fig.7	21.70	P
	5200 MHz	Fig.8	22.30	P
	5240 MHz	Fig.9	22.45	P
	5260 MHz	Fig.10	20.80	P
	5280 MHz	Fig.11	21.45	P
	5320 MHz	Fig.12	21.85	P
802.11n HT40	5190 MHz	Fig.13	40.00	P
	5230 MHz	Fig.14	40.48	P
	5270 MHz	Fig.15	40.32	P
	5310 MHz	Fig.16	40.24	P

Conclusion: PASS

Test graphs as below:

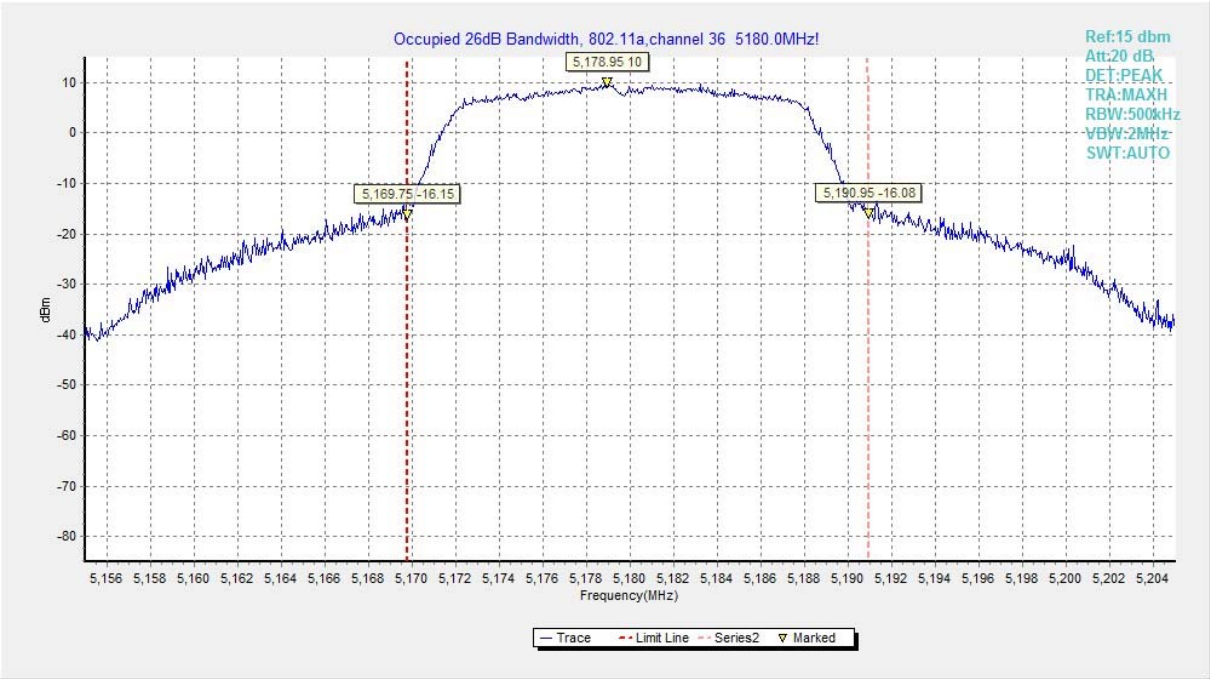


Fig. 1 Occupied 26dB Bandwidth (802.11a, 5180MHz)

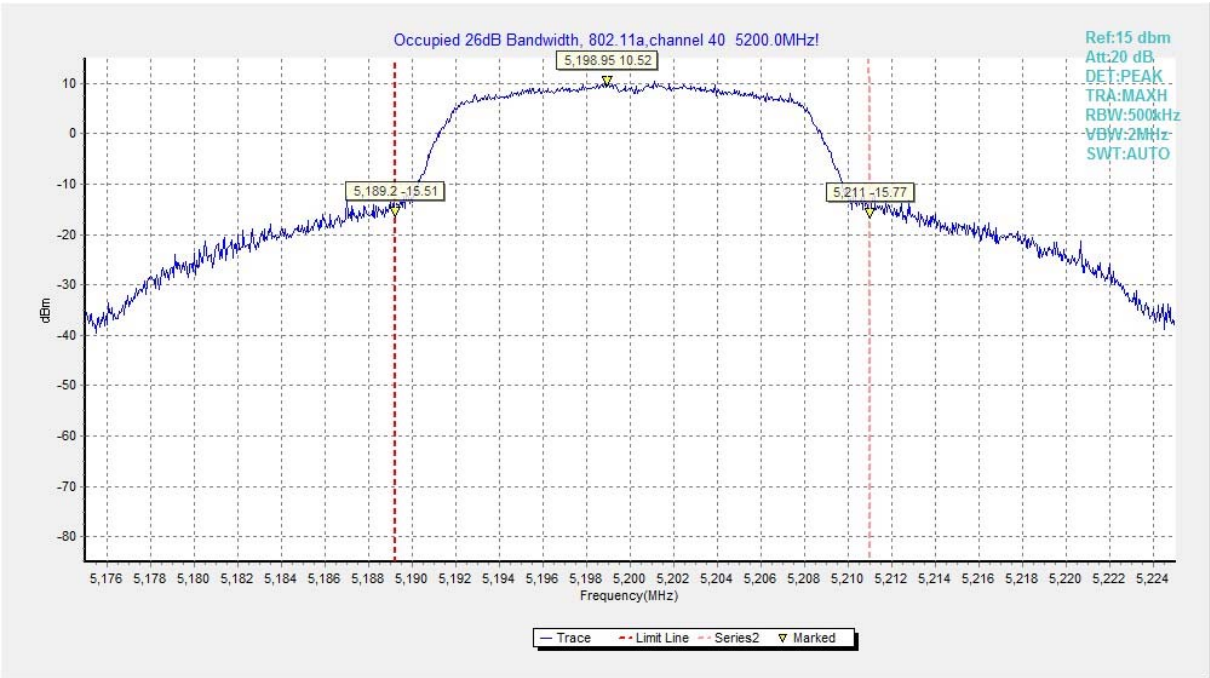


Fig. 2 Occupied 26dB Bandwidth (802.11a, 5200MHz)

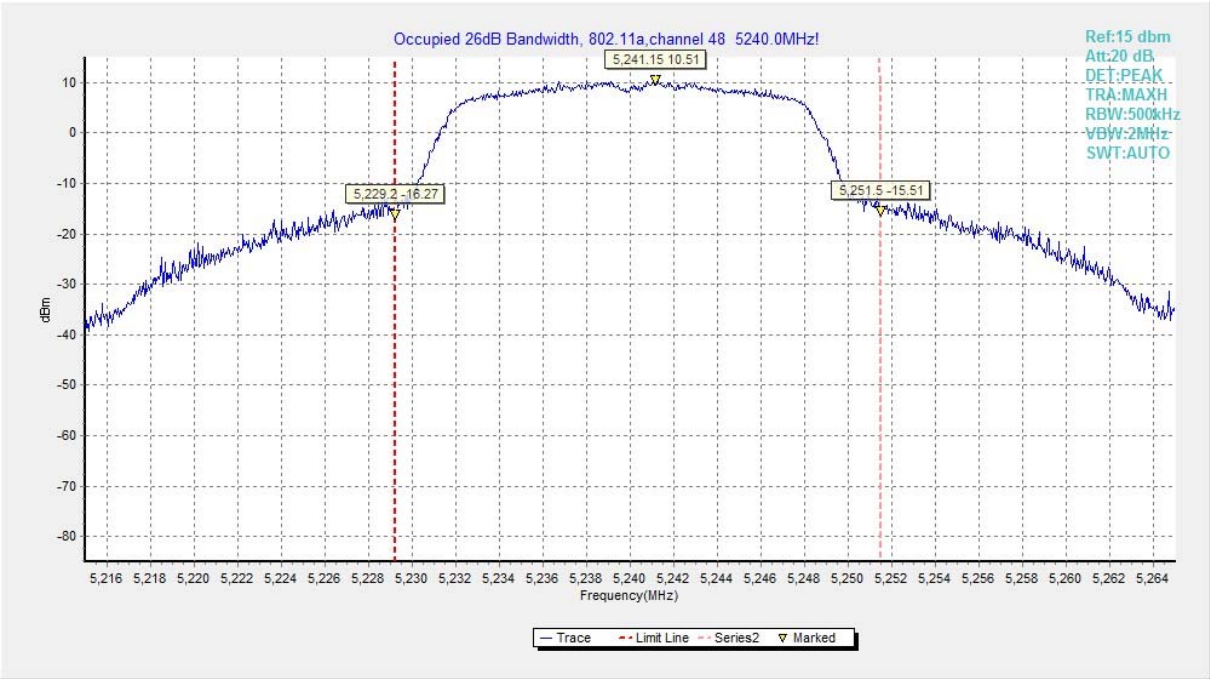


Fig. 3 Occupied 26dB Bandwidth (802.11a, 5240MHz)

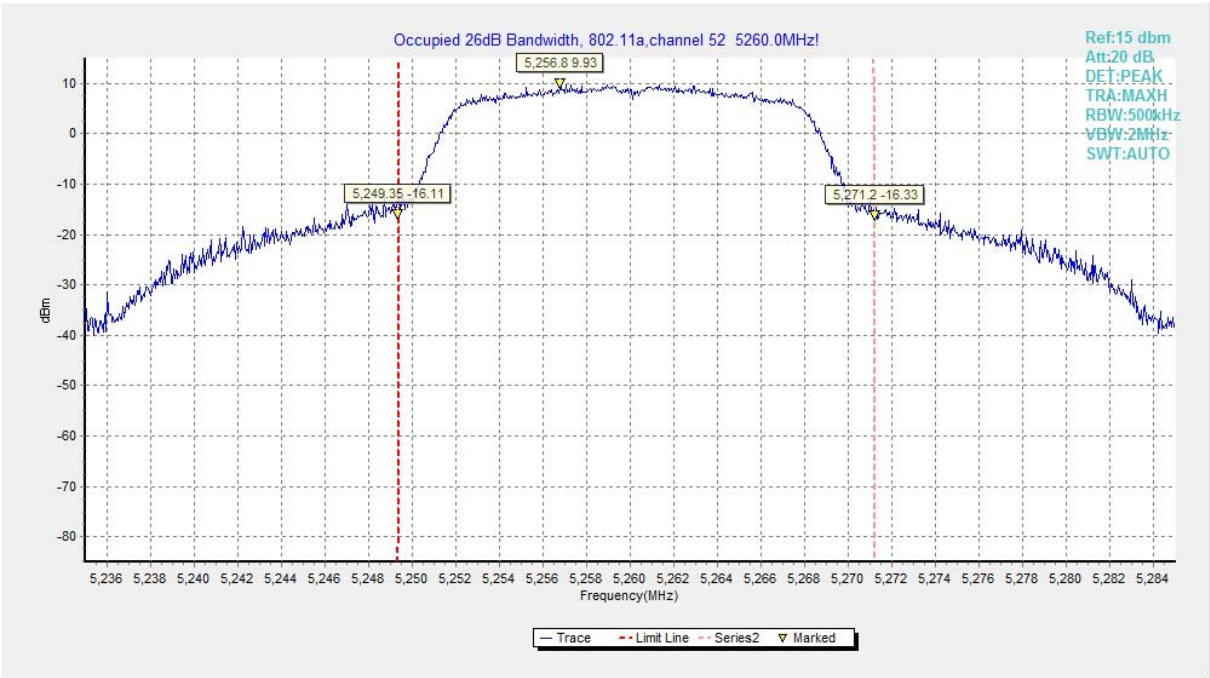


Fig. 4 Occupied 26dB Bandwidth (802.11a, 5260MHz)

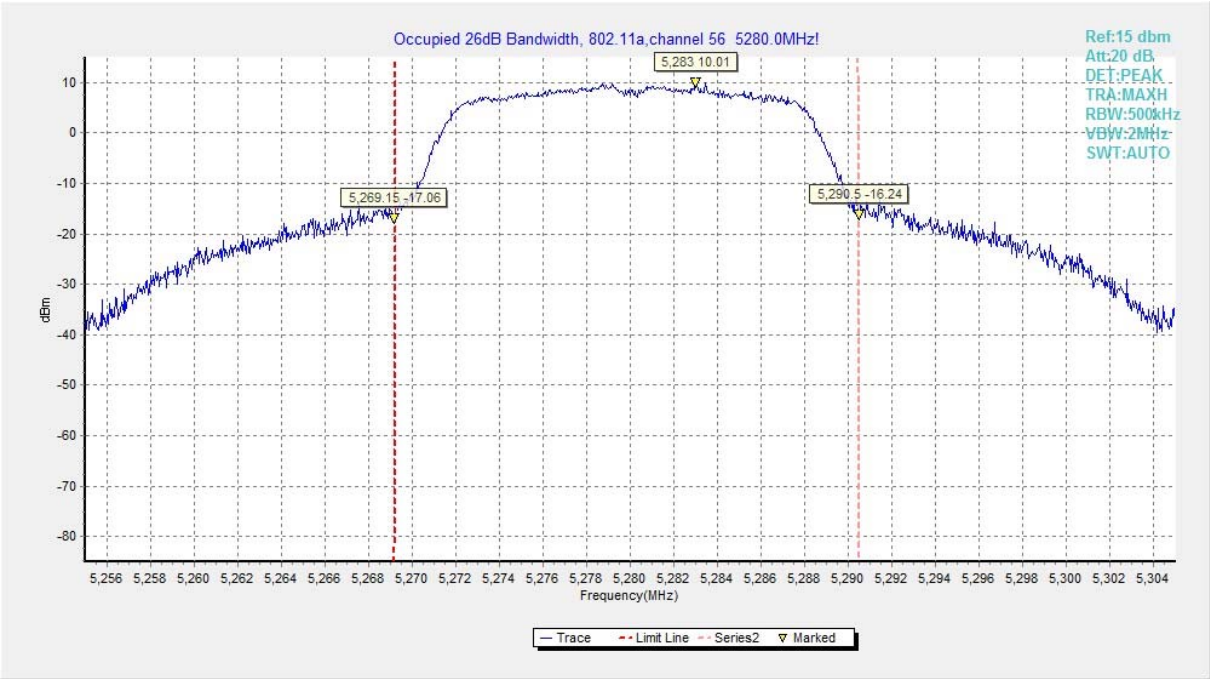


Fig. 5 Occupied 26dB Bandwidth (802.11a, 5280MHz)

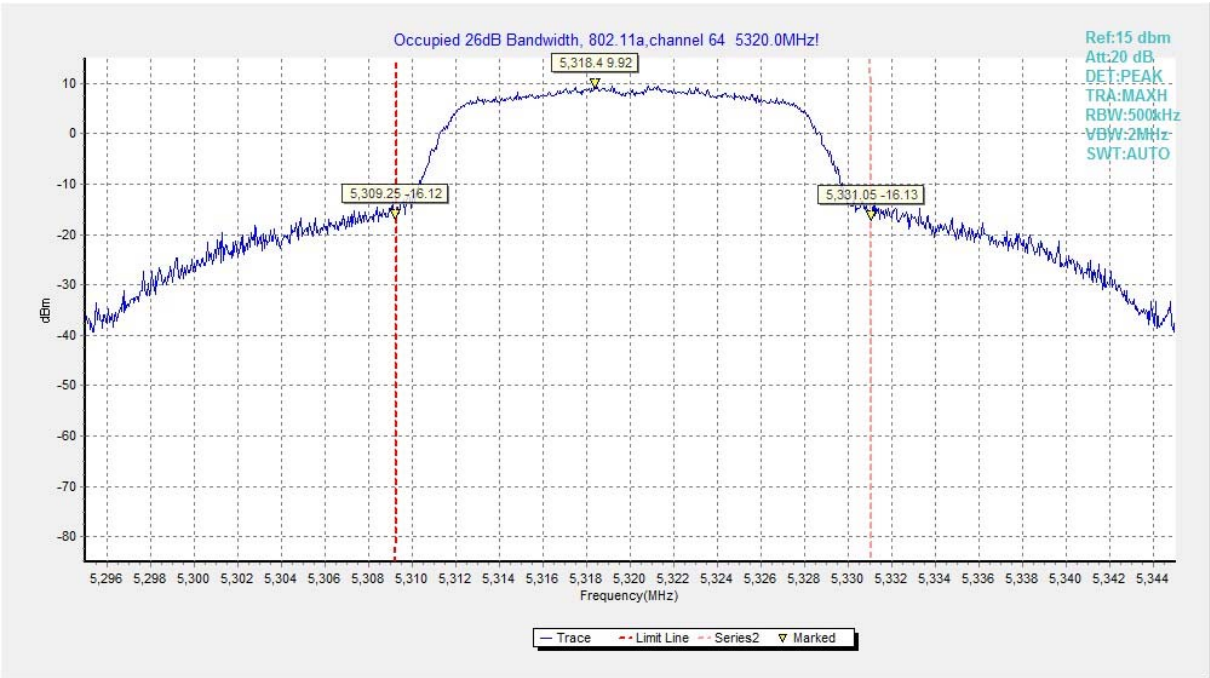


Fig. 6 Occupied 26dB Bandwidth (802.11a, 5320MHz)

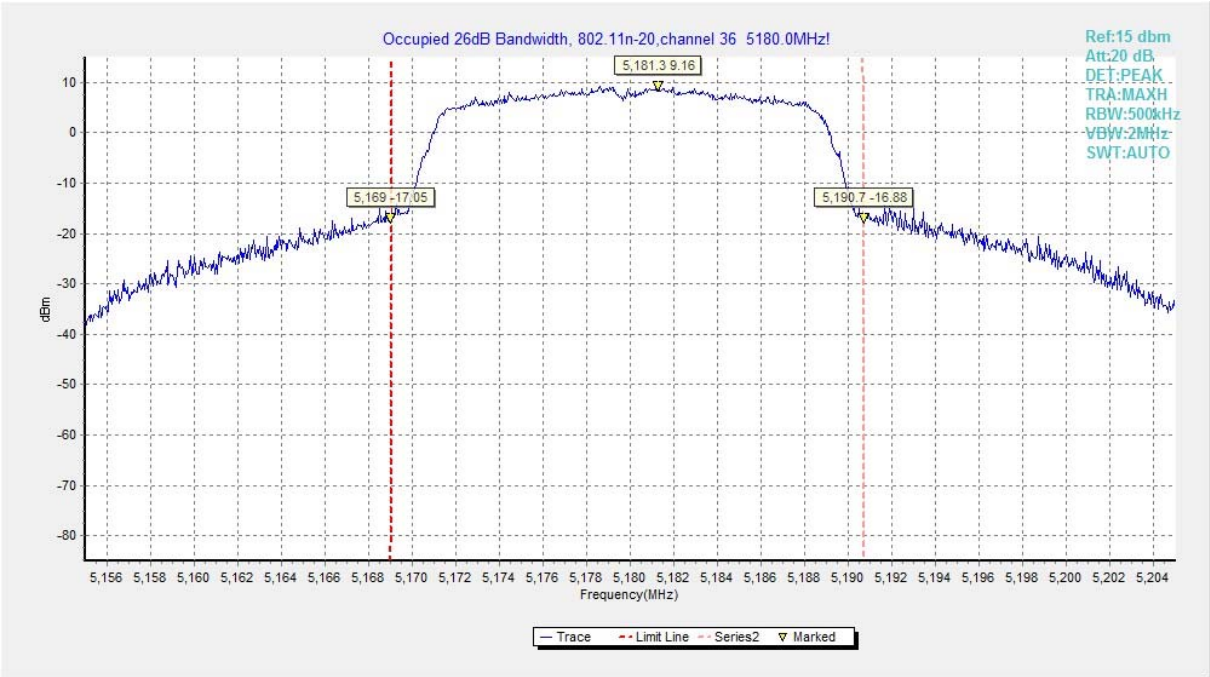


Fig. 7 Occupied 26dB Bandwidth (802.11n-HT20, 5180MHz)

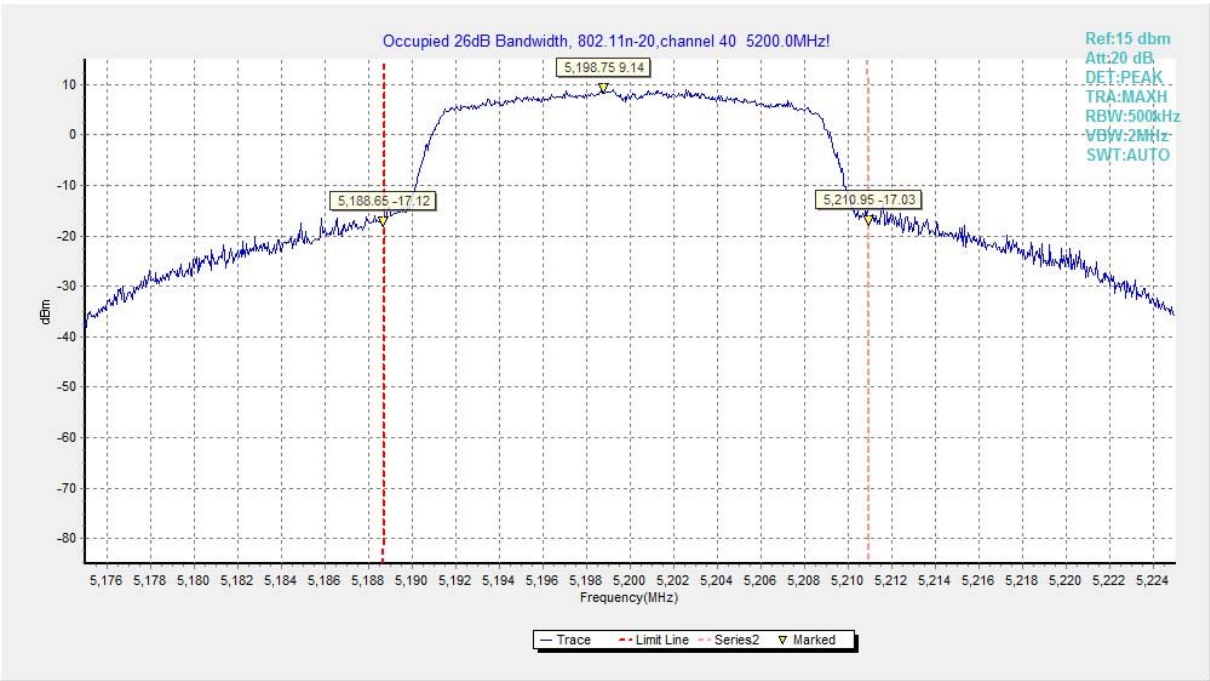


Fig. 8 Occupied 26dB Bandwidth (802.11n-HT20, 5200MHz)

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

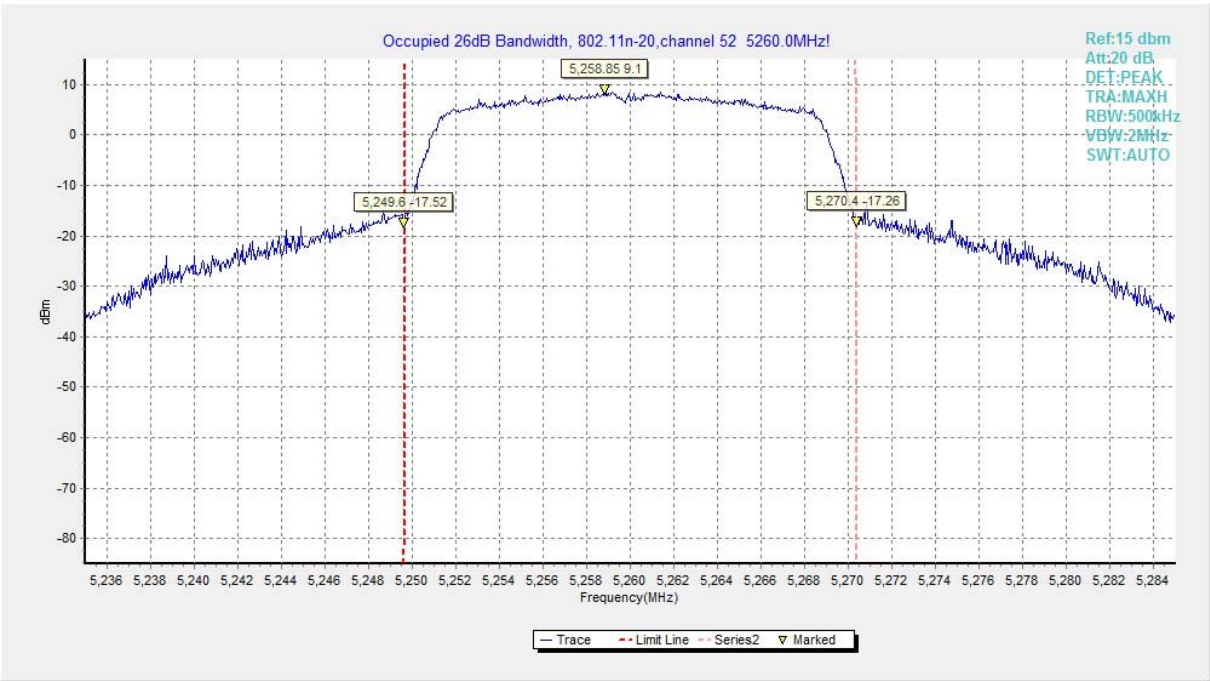


Fig. 10 Occupied 26dB Bandwidth (802.11n-HT20, 5260MHz)

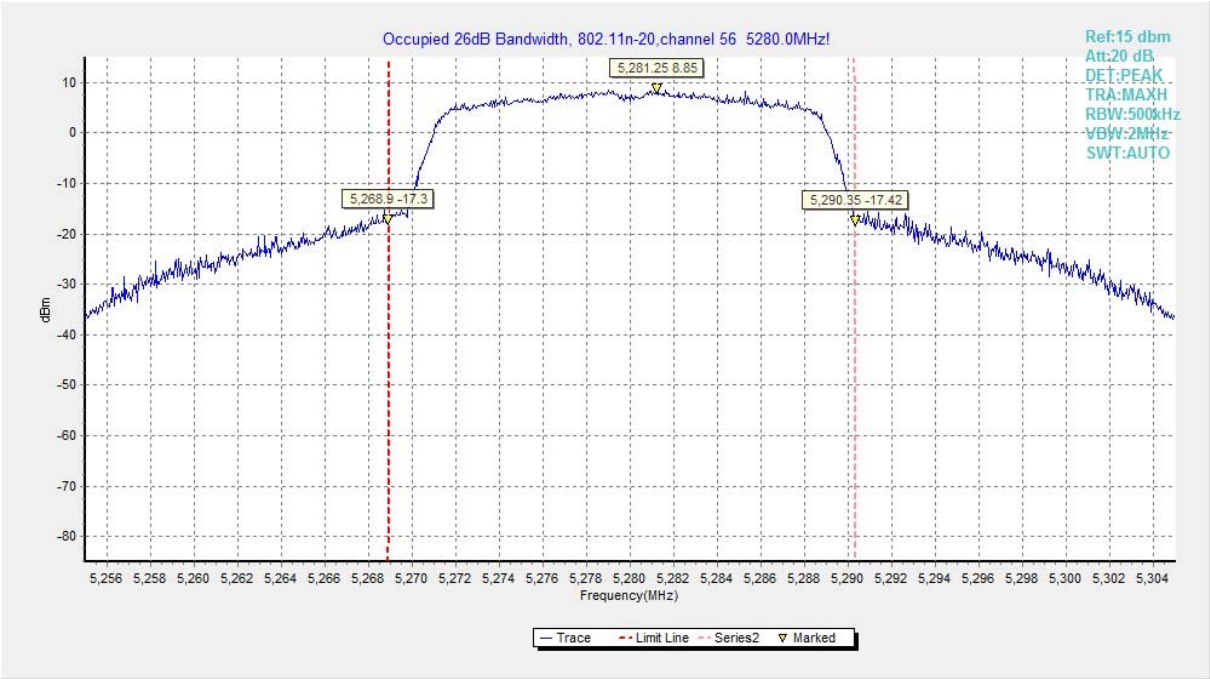


Fig. 11 Occupied 26dB Bandwidth (802.11n-HT20, 5280MHz)

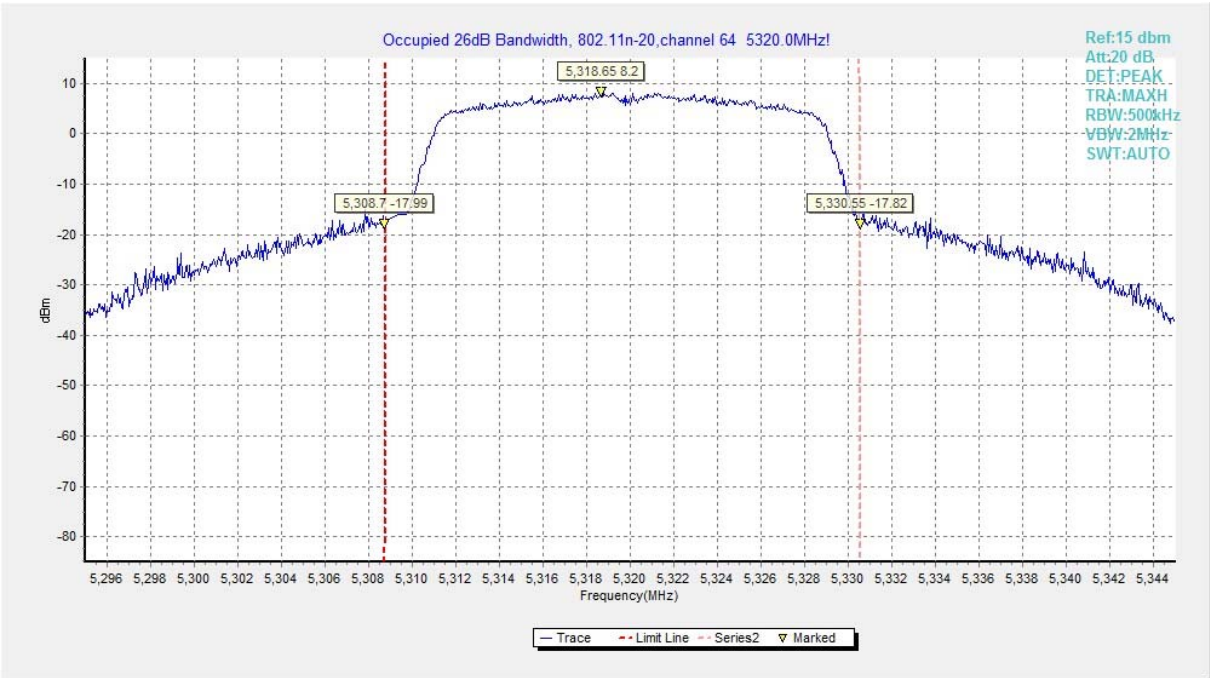


Fig. 12 Occupied 26dB Bandwidth (802.11n-HT20, 5320MHz)

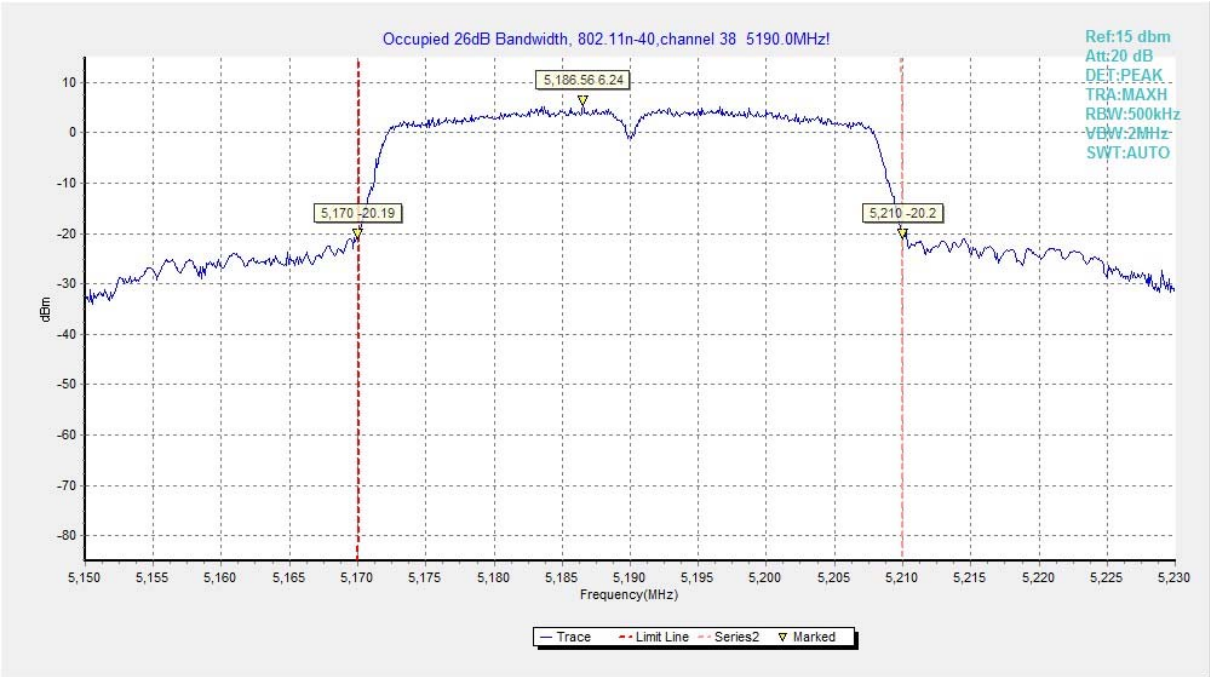


Fig. 13 Occupied 26dB Bandwidth (802.11n-HT40, 5190MHz)

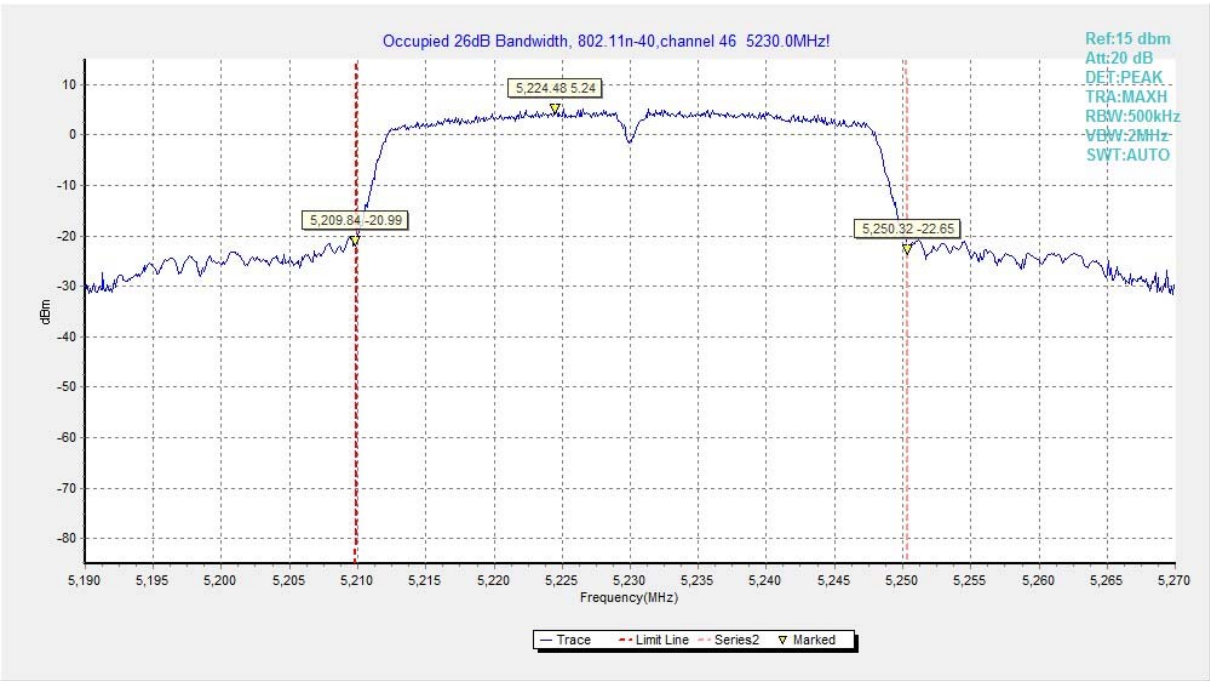


Fig. 14 Occupied 26dB Bandwidth (802.11n-HT40, 5230MHz)

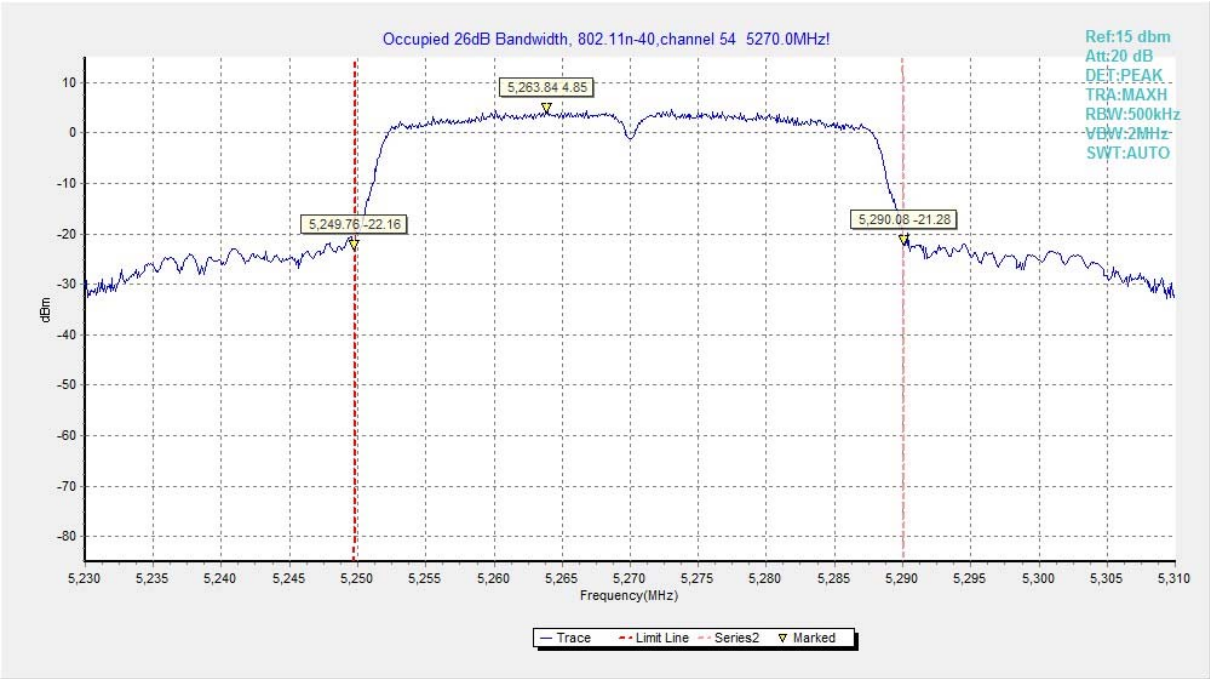


Fig. 15 Occupied 26dB Bandwidth (802.11n-HT40, 5270MHz)

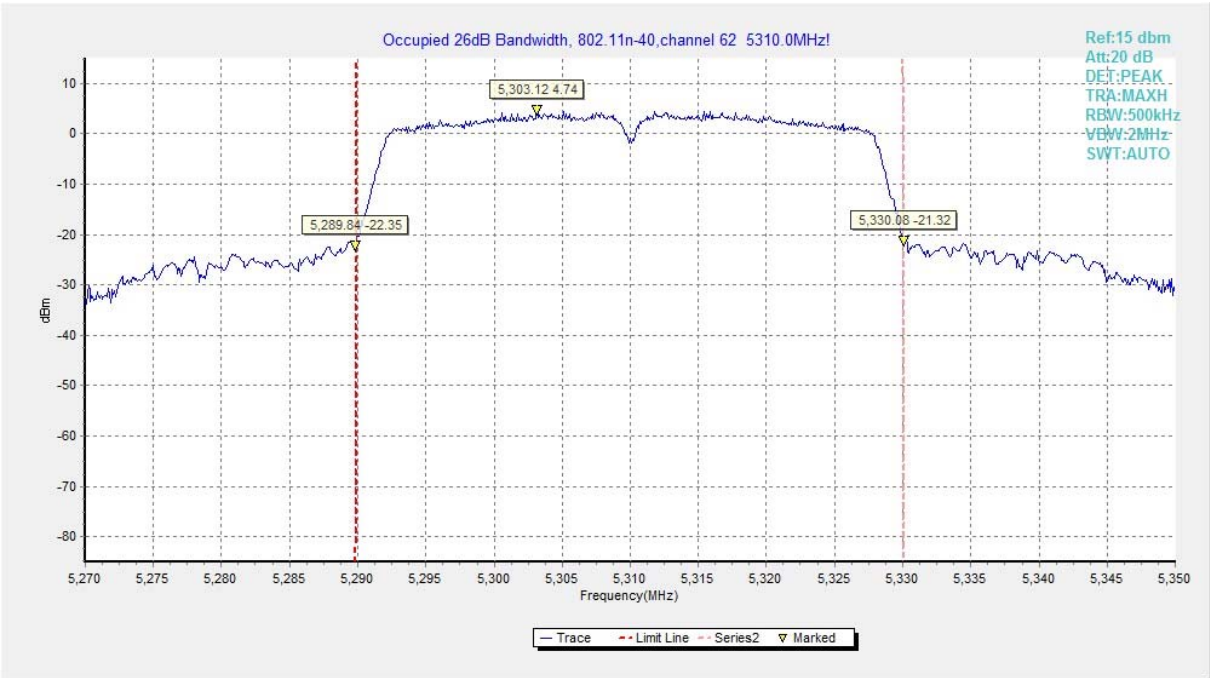


Fig. 16 Occupied 26dB Bandwidth (802.11n-HT40, 5310MHz)

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

Measurement Result:

Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.17	P
	5320 MHz	Fig.18	P
802.11n HT20	5180 MHz	Fig.19	P
	5320 MHz	Fig.20	P
802.11n HT40	5190 MHz	Fig.21	P
	5310 MHz	Fig.22	P

Conclusion: PASS

Test graphs as below:

RE - Power-5.125GHz-5.175GHz

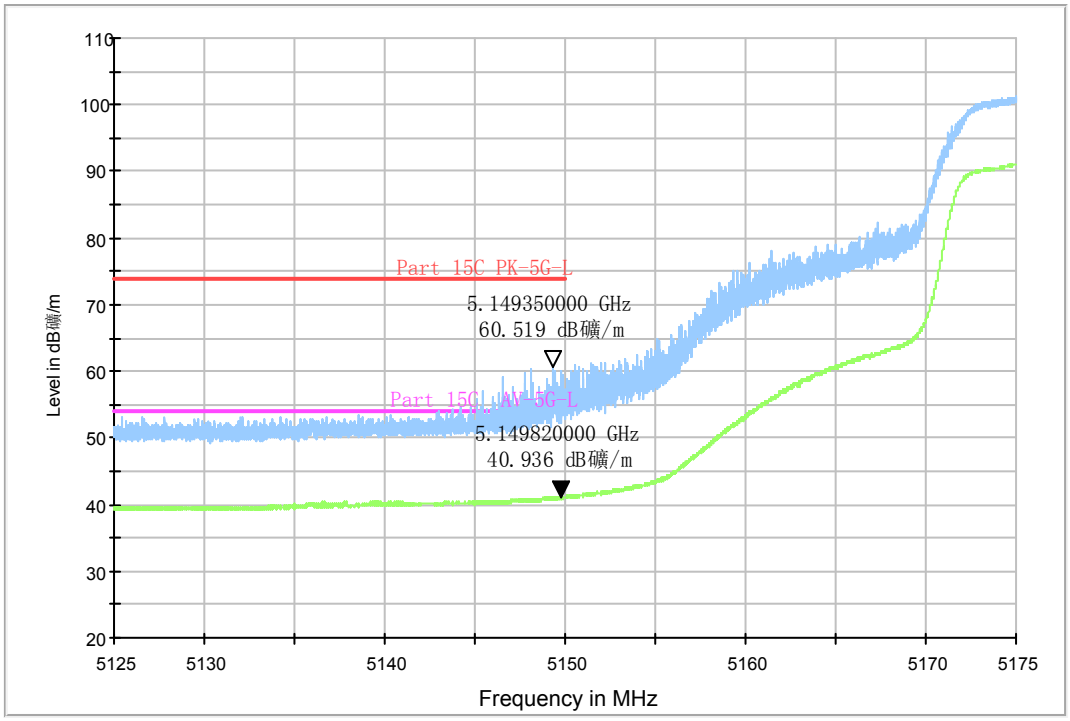


Fig. 17 Band Edges (802.11a, 5180MHz)

RE - Power-5.325GHz-5.375GHz

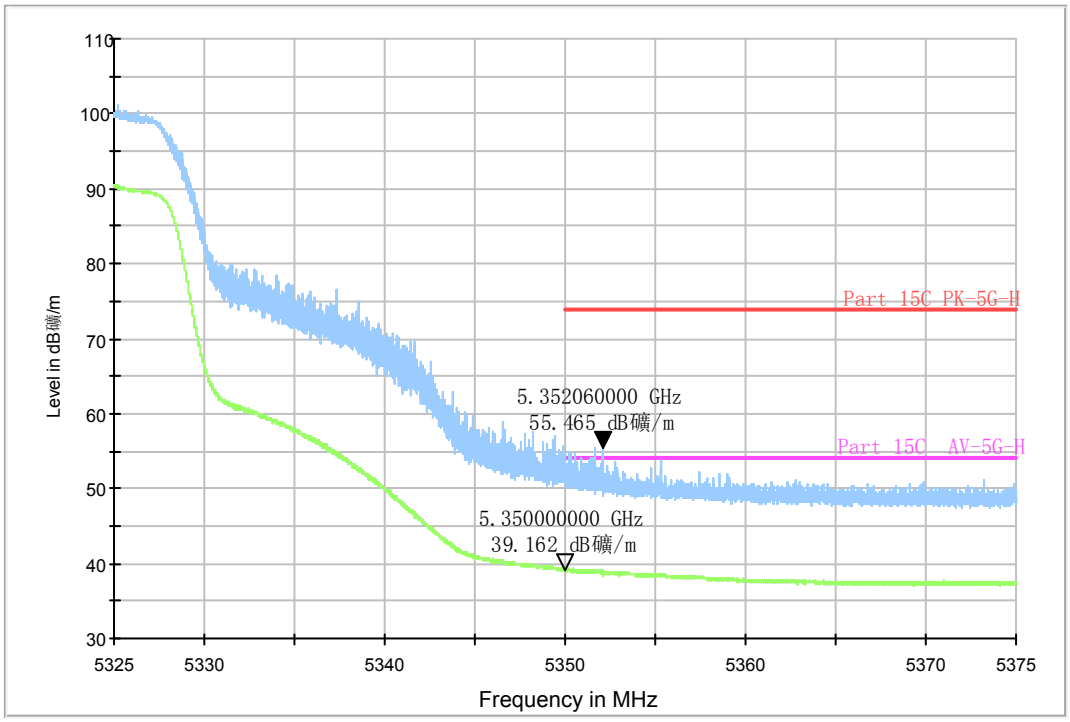


Fig. 18 Band Edges (802.11a, 5320MHz)

RE - Power-5.125GHz-5.175GHz

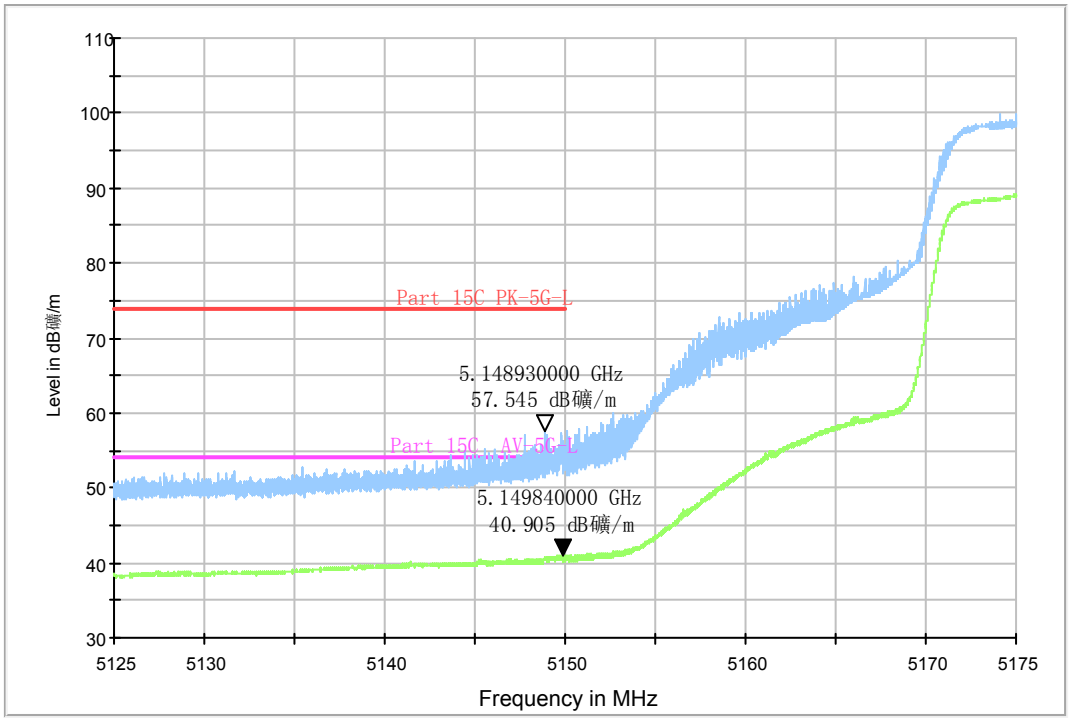


Fig. 19 Band Edges (802.11n-HT20, 5180MHz)

RE - Power-5.325GHz-5.375GHz

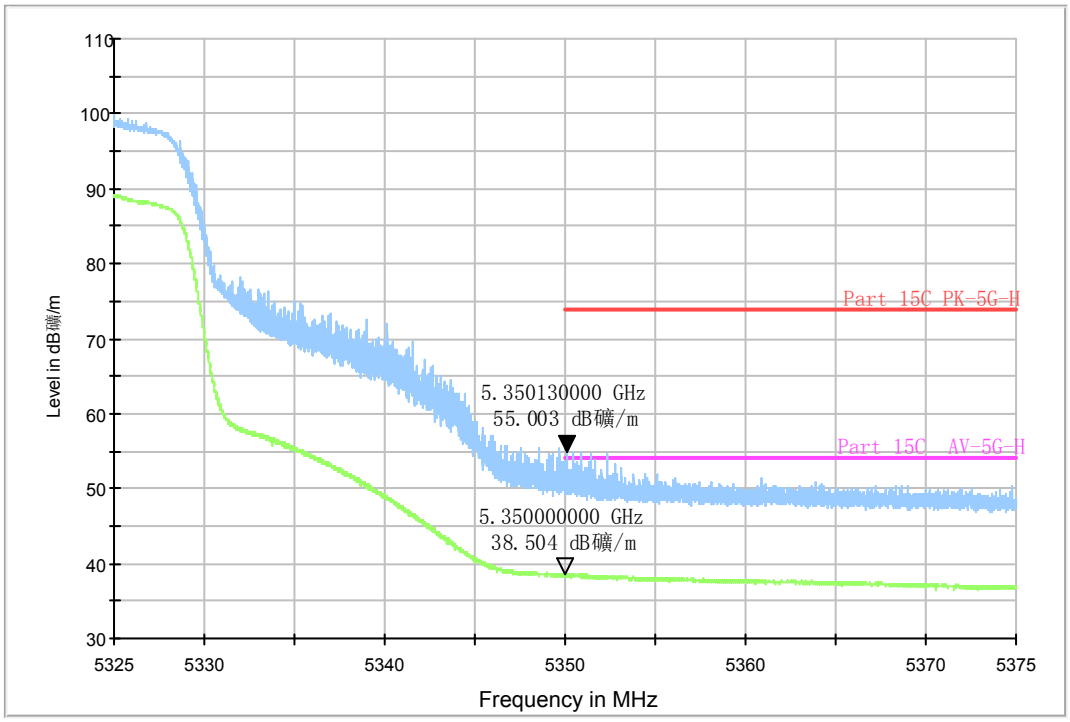


Fig. 20 Band Edges (802.11n-HT20, 5320MHz)

RE - Power-5.125GHz-5.175GHz

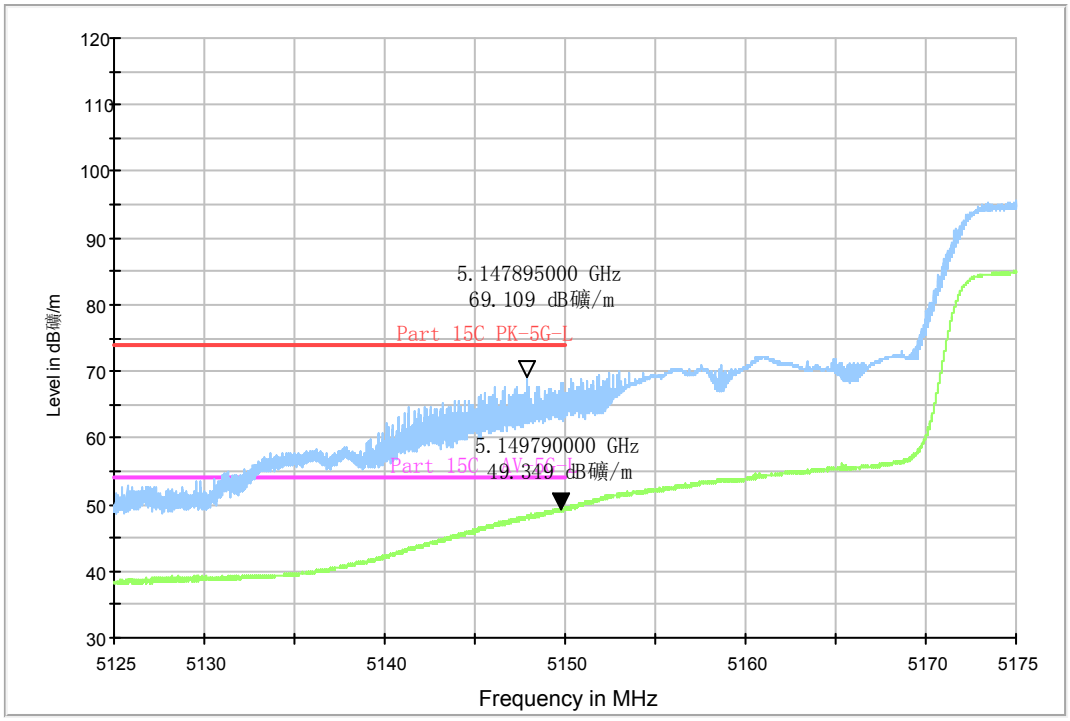


Fig. 21 Band Edges (802.11n-HT40, 5190MHz)

RE - Power-5.325GHz-5.375GHz

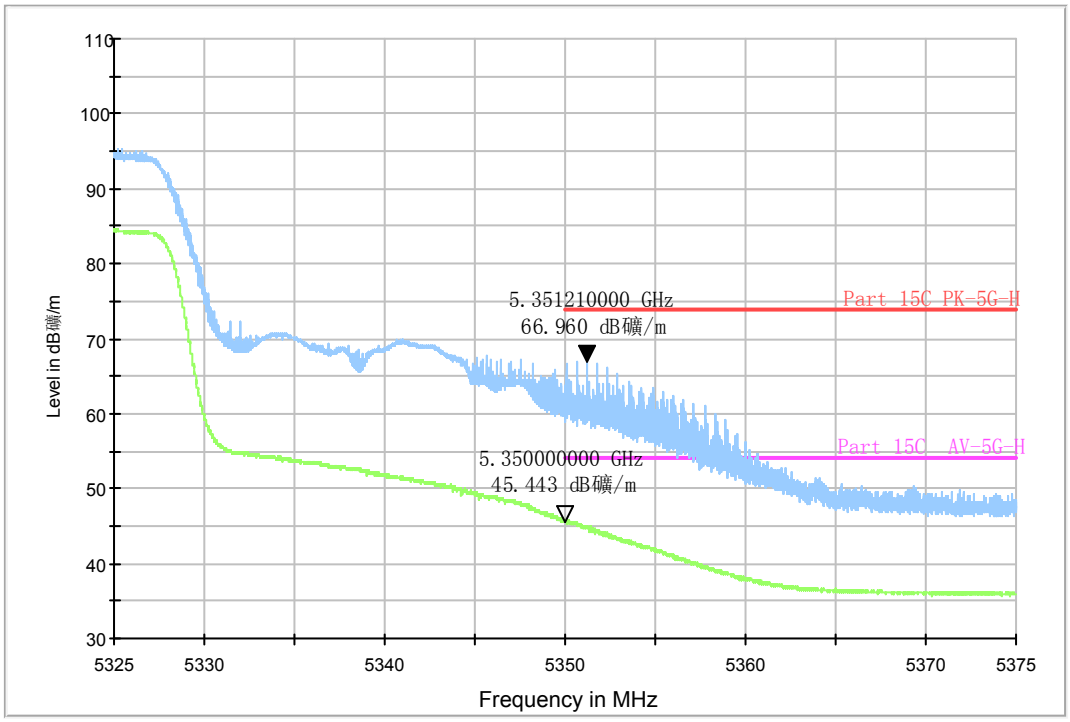


Fig. 22 Band Edges (802.11n-HT40, 5310MHz)

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:

802.11a mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	36(5180MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	40(5200MHz)	30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz ~ 40 GHz	---	P
	48(5240MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	52(5260MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	56(5280MHz)	30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz ~ 40 GHz	---	P
	64(5320MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P

802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n -HT20	36(5180MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	40(5200MHz)	30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz ~ 40 GHz	---	P
	48(5240MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	52(5260MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	56(5280MHz)	30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz ~ 40 GHz	---	P
	64(5320MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P

802.11n-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n HT40	38(5190MHz)	30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz ~ 40 GHz	---	P
	46(5230MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	54(5270MHz)	30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz ~ 40 GHz	---	P
	62(5310MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P

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)	Meas. Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
5149.230	41.2	-32.9	34.4	39.74	54.0	12.8	H
5143.523	40.7	-33.0	34.4	39.33	54.0	13.3	H
10360.000	35.8	-29.8	37.9	27.64	54.0	18.2	H
15540.000	38.6	-26.3	40.1	24.83	54.0	15.4	H
16641.502	37.6	-26.0	41.3	22.23	54.0	16.4	H
17659.450	38.2	-25.5	41.1	22.54	54.0	15.8	H

Channel 40

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5148.400	38.6	-33.0	34.4	37.16	54.0	15.4	H
5241.600	38.8	-32.5	34.4	36.86	54.0	15.2	H
10400.000	35.9	-29.6	38.0	27.55	54.0	18.1	H
15600.000	38.8	-26.4	40.1	24.97	54.0	15.3	H
16810.980	37.8	-26.1	41.5	22.41	54.0	16.2	H
17953.860	38.2	-24.9	40.8	22.28	54.0	15.8	H

Channel 48

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5192.400	39.0	-32.5	34.4	37.05	54.0	15.0	H
5306.800	38.8	-32.0	34.5	36.36	54.0	15.2	H
10480.000	39.2	-30.6	38.1	31.72	54.0	14.9	H
15720.000	38.3	-26.4	40.2	24.50	54.0	15.7	H
17956.230	38.3	-25.0	40.8	22.45	54.0	15.7	H
17634.830	38.0	-25.9	41.1	22.74	54.0	16.0	H

Channel 52

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5180.400	38.3	-32.5	34.4	36.34	54.0	15.7	H
5340.300	38.5	-31.8	34.5	35.76	54.0	15.5	H
10520.000	41.3	-30.9	38.1	34.10	54.0	12.7	H
15780.000	36.7	-26.3	40.2	22.86	54.0	17.3	H
16946.250	37.8	-25.7	41.4	22.06	54.0	16.2	H
17653.540	38.1	-25.6	41.1	22.57	54.0	15.9	H

Channel 56

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5199.900	38.3	-32.5	34.4	36.37	54.0	15.7	H
5360.100	38.7	-31.9	34.6	36.00	54.0	15.3	H
10560.000	41.2	-30.2	38.1	33.26	54.0	12.8	H
15840.000	36.9	-26.2	40.3	22.80	54.0	17.1	H

16897.620	38.0	-25.8	41.4	22.38	54.0	16.0	H
17653.820	38.2	-25.6	41.1	22.72	54.0	15.8	H

Channel 64

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5350.200	38.6	-31.9	34.6	35.91	54.0	15.4	H
5391.300	38.1	-32.1	34.6	35.60	54.0	15.9	H
10640.000	41.0	-29.3	38.2	32.15	54.0	13.0	H
15960.000	36.8	-25.8	40.5	22.19	54.0	17.2	H
16923.680	37.8	-25.7	41.4	22.12	54.0	16.2	H
17653.586	38.2	-25.6	41.1	22.67	54.0	15.8	H

802.11n-HT20

Channel 36

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5148.780	40.6	-33.0	34.4	39.13	54.0	13.4	H
5141.723	40.2	-33.1	34.4	38.86	54.0	13.8	H
10360.000	36.1	-29.8	37.9	27.99	54.0	17.9	H
15540.000	37.7	-26.3	40.1	23.93	54.0	16.3	H
16935.203	37.9	-25.7	41.4	22.13	54.0	16.1	H
17655.706	38.1	-25.5	41.1	22.51	54.0	15.9	H

Channel 40

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5120.400	37.5	-33.2	34.5	36.29	54.0	16.5	H
5244.800	38.7	-32.5	34.4	36.78	54.0	15.3	H
10400.000	36.2	-29.6	38.0	27.87	54.0	17.8	H
15600.000	37.8	-26.4	40.1	24.06	54.0	16.2	H
16942.890	38.0	-25.7	41.4	22.20	54.0	16.0	H
17659.420	38.2	-25.5	41.1	22.61	54.0	15.8	H

Channel 48

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)

5187.600	38.3	-32.4	34.4	36.35	54.0	15.7	H
5320.000	38.3	-31.9	34.5	35.76	54.0	15.7	H
10480.000	39.1	-30.6	38.1	31.63	54.0	14.9	H
15720.000	37.4	-26.4	40.2	23.59	54.0	16.6	H
16942.930	37.8	-25.7	41.4	22.09	54.0	16.2	H
17639.240	38.1	-25.8	41.1	22.78	54.0	15.9	H

Channel 52

Frequency (MHz)	Meas. Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
5180.100	37.9	-32.5	34.4	36.03	54.0	16.1	H
5340.000	38.4	-31.8	34.5	35.66	54.0	15.6	H
10520.000	39.3	-30.9	38.1	32.14	54.0	14.7	H
15780.000	36.8	-26.3	40.2	22.86	54.0	17.2	H
15806.780	37.5	-26.3	40.3	23.55	54.0	16.5	H
16937.860	37.9	-25.7	41.4	22.12	54.0	16.1	H

Channel 56

Frequency (MHz)	Meas. Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
5212.500	37.9	-32.5	34.4	35.94	54.0	16.1	H
5360.100	37.9	-31.9	34.6	35.26	54.0	16.1	H
10560.000	39.7	-30.2	38.1	31.75	54.0	14.3	H
15840.000	36.7	-26.2	40.3	22.63	54.0	17.3	H
15802.680	37.6	-26.3	40.3	23.65	54.0	16.4	H
16948.530	38.0	-25.7	41.4	22.20	54.0	16.0	H

Channel 64

Frequency (MHz)	Meas. Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
5350.200	39.4	-31.9	34.6	36.66	54.0	14.6	H
5400.300	38.4	-32.1	34.6	35.91	54.0	15.6	H
10640.000	39.6	-29.3	38.2	30.75	54.0	14.4	H
15960.000	36.6	-25.8	40.5	21.98	54.0	17.4	H
15812.120	37.4	-26.3	40.3	23.42	54.0	16.6	H
16936.320	37.9	-25.7	41.4	22.18	54.0	16.1	H

802.11n-HT40

Channel 38

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5149.580	48.2	-32.9	34.4	46.74	54.0	5.8	H
5148.980	47.6	-33.0	34.4	46.09	54.0	6.4	H
10380.000	36.6	-29.7	38.0	28.30	54.0	17.5	H
15570.000	37.9	-26.3	40.1	24.15	54.0	16.1	H
16823.470	37.4	-26.1	41.5	22.03	54.0	16.6	H
17655.790	38.1	-25.5	41.1	22.51	54.0	15.9	H

Channel 46

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5132.400	36.9	-33.2	34.4	35.64	54.0	17.1	H
5311.200	37.8	-32.0	34.5	35.31	54.0	16.2	H
10460.000	38.1	-30.4	38.1	30.45	54.0	15.9	H
15690.000	36.9	-26.4	40.2	23.07	54.0	17.1	H
16942.930	37.9	-25.7	41.4	22.19	54.0	16.1	H
16942.950	37.9	-25.7	41.4	22.19	54.0	16.1	H

Channel 54

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5184.600	37.8	-32.5	34.4	35.85	54.0	16.2	H
5343.600	37.6	-31.8	34.6	34.87	54.0	16.4	H
10540.000	38.4	-30.5	38.1	30.86	54.0	15.6	H
15810.000	36.5	-26.3	40.3	22.60	54.0	17.5	H
17948.680	38.2	-24.9	40.8	22.19	54.0	15.8	H
17658.490	38.1	-25.5	41.1	22.53	54.0	15.9	H

Channel 62

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5350.200	44.7	-31.9	34.6	42.02	54.0	9.3	H
5355.900	41.2	-31.9	34.6	38.51	54.0	12.8	H
10620.000	38.4	-29.2	38.1	29.41	54.0	15.6	H

15930.000	36.5	-25.9	40.4	21.98	54.0	17.5	H
17651.350	38.1	-25.6	41.1	22.61	54.0	15.9	H
17953.860	38.1	-24.9	40.8	22.19	54.0	15.9	H

PEAK Results:

802.11a

Channel 36

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5148.135	60.4	-33.0	34.4	58.89	74.0	13.6	H
5149.350	60.5	-32.9	34.4	59.03	74.0	13.5	H
10360.000	48.1	-29.8	37.9	40.01	74.0	25.9	H
15540.000	55.5	-26.3	40.1	41.71	74.0	18.5	V
16720.150	55.3	-26.1	41.5	40.01	74.0	18.7	H
17654.050	55.4	-25.5	41.1	39.84	74.0	18.6	H

Channel 40

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5140.400	48.8	-33.1	34.4	47.47	74.0	25.2	H
5258.000	49.4	-32.4	34.4	47.39	74.0	24.6	H
10439.150	48.6	-30.1	38.0	40.59	74.0	25.4	H
17506.230	55.3	-25.4	41.2	39.43	74.0	18.7	H
15601.450	56.3	-26.4	40.1	42.50	74.0	17.7	H
17629.850	55.3	-25.9	41.1	40.11	74.0	18.7	V

Channel 48

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5151.000	47.9	-32.9	34.4	46.37	74.0	26.1	H
5306.600	49.2	-32.0	34.5	46.71	74.0	24.8	H
10480.000	48.2	-30.6	38.1	40.76	74.0	25.8	V
15720.000	55.2	-26.4	40.2	41.34	74.0	18.8	V
16508.400	55.0	-26.0	41.1	39.85	74.0	19.0	H
17540.230	56.0	-25.5	41.2	40.33	74.0	18.0	H

Channel 52

Frequency	Meas.	Cable	Antenna	Receiver	Limit	Margin	Antenna

(MHz)	Result (dBμV/m)	loss (dB)	Factor (dB/m)	Reading (dBμV)	(dBμV/m)	(dB)	Pol. (H/V)
5180.000	47.8	-32.5	34.4	45.91	74.0	26.2	H
5340.200	48.3	-31.8	34.5	45.61	74.0	25.7	H
10520.000	48.3	-30.9	38.1	41.14	74.0	25.7	V
15780.000	54.3	-26.3	40.2	40.43	74.0	19.7	V
17401.620	55.4	-25.4	41.2	39.61	74.0	18.6	V
17579.250	55.5	-25.7	41.1	39.99	74.0	18.5	H

Channel 56

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5198.800	47.5	-32.5	34.4	45.55	74.0	26.5	H
5359.800	48.1	-31.9	34.6	45.44	74.0	25.9	H
10560.000	48.7	-30.2	38.1	40.71	74.0	25.3	V
15840.000	54.4	-26.2	40.3	40.33	74.0	19.6	V
17578.470	55.4	-25.7	41.1	39.96	74.0	18.6	V
17929.056	56.3	-24.6	40.9	40.00	74.0	17.7	V

Channel 64

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5351.690	55.4	-31.9	34.6	52.69	74.0	18.6	H
5352.060	55.5	-31.9	34.6	52.78	74.0	18.5	H
10640.000	48.0	-29.3	38.2	39.14	74.0	26.0	H
15960.000	53.4	-25.8	40.5	38.71	74.0	20.6	V
17098.560	54.9	-25.5	41.3	39.01	74.0	19.1	V
17564.950	54.8	-25.6	41.1	39.29	74.0	19.2	V

802.11n-HT20

Channel 36

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5147.795	56.9	-33.0	34.4	55.43	74.0	17.1	H
5148.935	57.5	-33.0	34.4	56.06	74.0	16.5	H
10360.000	48.8	-29.8	37.9	40.63	74.0	25.2	V
15540.000	54.2	-26.3	40.1	40.46	74.0	19.8	H
17133.260	55.2	-25.5	41.3	39.39	74.0	18.8	V

17589.760	55.4	-25.7	41.1	40.03	74.0	18.6	H

Channel 40

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5128.200	47.0	-33.2	34.4	45.76	74.0	27.0	H
5309.000	47.1	-32.0	34.5	44.61	74.0	26.9	H
10400.000	50.2	-29.6	38.0	41.86	74.0	23.8	V
15600.000	54.0	-26.4	40.1	40.22	74.0	20.0	H
16919.250	55.1	-25.8	41.4	39.38	74.0	18.9	V
17947.752	56.5	-24.8	40.8	40.49	74.0	17.5	H

Channel 48

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5189.000	48.5	-32.5	34.4	46.54	74.0	25.5	H
5289.000	48.2	-32.1	34.5	45.85	74.0	25.8	H
10480.000	49.7	-30.6	38.1	42.31	74.0	24.3	H
15720.000	54.0	-26.4	40.2	40.22	74.0	20.0	V
16913.200	55.4	-25.8	41.4	39.75	74.0	18.6	V
1749.934	55.4	2.4	27.6	25.36	74.0	18.6	H

Channel 52

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5188.400	47.1	-32.4	34.4	45.14	74.0	26.9	H
5412.200	46.3	-32.1	34.7	43.75	74.0	27.7	H
10520.000	49.2	-30.9	38.1	41.96	74.0	24.8	V
15780.000	52.6	-26.3	40.2	38.74	74.0	21.4	H
16936.320	54.9	-25.7	41.4	39.17	74.0	19.1	V
17941.730	54.9	-24.8	40.8	38.81	74.0	19.1	H

Channel 56

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5200.200	47.1	-32.5	34.4	45.19	74.0	26.9	H
5434.600	46.3	-32.0	34.7	43.62	74.0	27.7	H

10560.000	48.4	-30.2	38.1	40.45	74.0	25.6	V
15840.000	53.0	-26.2	40.3	38.89	74.0	21.0	V
16943.450	55.0	-25.7	41.4	39.24	74.0	19.0	H
17897.706	54.6	-24.2	40.9	37.93	74.0	19.4	H

Channel 64

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5350.130	55.0	-31.9	34.6	52.31	74.0	19.0	H
5350.475	55.0	-31.9	34.6	52.30	74.0	19.0	H
10640.000	48.4	-29.3	38.2	39.51	74.0	25.6	V
15960.000	53.1	-25.8	40.5	38.43	74.0	20.9	H
17104.050	55.3	-25.5	41.3	39.43	74.0	18.7	H
17604.550	55.8	-25.8	41.1	40.43	74.0	18.2	H

802.11n-HT40

Channel 38

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5146.612	67.7	-33.0	34.4	66.19	74.0	6.3	V
5147.895	69.1	-33.0	34.4	67.64	74.0	4.9	H
10380.000	47.9	-29.7	38.0	39.70	74.0	26.1	V
15570.000	54.3	-26.3	40.1	40.53	74.0	19.7	H
16380.804	55.6	-25.7	40.9	40.42	74.0	18.4	H
17528.650	55.6	-25.5	41.2	39.86	74.0	18.4	V

Channel 46

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5059.600	45.7	-33.2	34.5	44.41	74.0	28.3	H
5404.200	46.2	-32.1	34.6	43.70	74.0	27.8	V
10460.000	50.2	-30.4	38.1	42.46	74.0	23.8	H
15690.000	53.9	-26.4	40.2	40.11	74.0	20.1	V
17440.650	55.8	-25.3	41.2	39.89	74.0	18.2	V
17237.702	55.4	-25.8	41.2	40.04	74.0	18.6	V

Channel 54

Frequency	Meas.	Cable	Antenna	Receiver	Limit	Margin	Antenna

(MHz)	Result (dBμV/m)	loss (dB)	Factor (dB/m)	Reading (dBμV)	(dBμV/m)	(dB)	Pol. (H/V)
5184.200	47.2	-32.5	34.4	45.26	74.0	26.8	H
5342.000	46.8	-31.8	34.5	44.12	74.0	27.2	H
10540.000	48.2	-30.5	38.1	40.63	74.0	25.8	V
15810.000	52.6	-26.3	40.3	38.67	74.0	21.4	H
16931.560	54.9	-25.7	41.4	39.16	74.0	19.1	V
17934.560	55.1	-24.7	40.9	38.96	74.0	18.9	V

Channel 62

Frequency (MHz)	Meas. Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
5350.635	67.0	-31.9	34.6	64.26	74.0	7.0	H
5351.210	67.0	-31.9	34.6	64.27	74.0	7.0	H
10620.000	49.2	-29.2	38.1	40.22	74.0	24.8	H
15930.000	53.2	-25.9	40.4	38.67	74.0	20.8	V
17553.406	55.2	-25.6	41.2	39.64	74.0	18.8	V
17428.560	55.2	-25.3	41.2	39.28	74.0	18.8	H

A.7. Spurious Emissions Radiated (150kHz- 30MHz)

Test Condition:

Voltage（V）	Frequency（Hz）
110	60

Measurement uncertainty:
Expanded measurement uncertainty for this test item is U =3.2dB, k=2.

Measurement Result and limit:
WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	66 to 56	Fig. 23 Fig. 24 Fig. 25 Fig. 26 Fig. 27	Fig. 28	P
0.5 to 5	56			
5 to 30	60			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	56 to 46	Fig. 23 Fig. 24 Fig. 25 Fig. 26 Fig. 27	Fig. 28	P
0.5 to 5	46			
5 to 30	50			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

Conclusion: PASS
Test graphs as below:

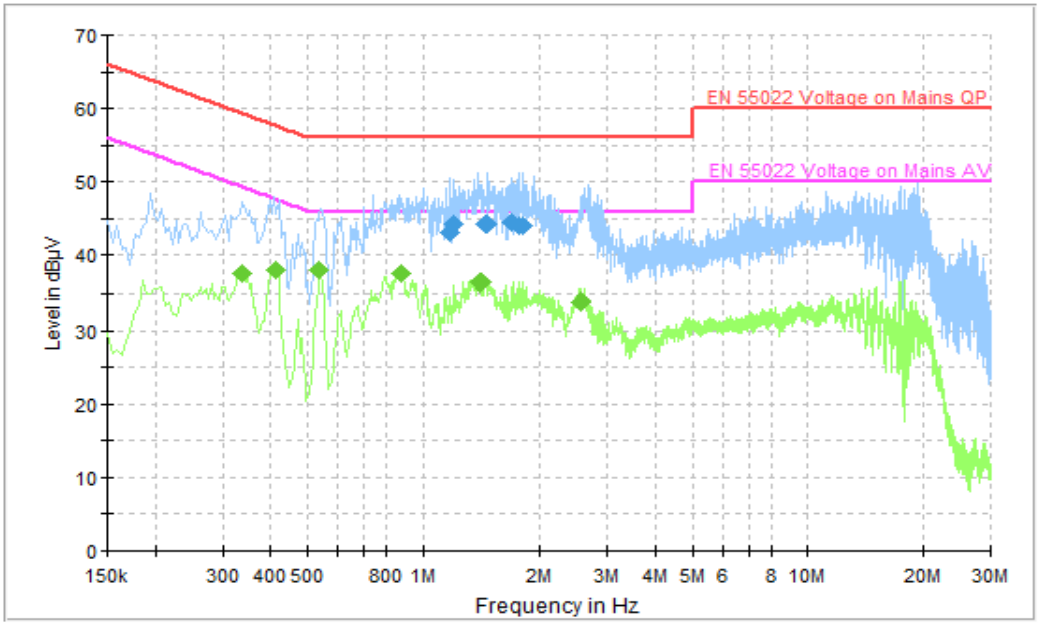


Fig. 23 Conducted Emission(Set1，802.11a, Ch40, TX)

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.180500	43.2	2000.0	9.000	L1	10.2	12.8	56.0
1.207500	44.2	2000.0	9.000	L1	10.2	11.8	56.0
1.455000	44.3	2000.0	9.000	L1	10.2	11.7	56.0
1.693500	44.4	2000.0	9.000	L1	10.2	11.6	56.0
1.770000	44.0	2000.0	9.000	L1	10.2	12.0	56.0
1.806000	44.1	2000.0	9.000	L1	10.2	11.9	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.339000	37.5	2000.0	9.000	N	10.2	11.7	49.2
0.411000	37.9	2000.0	9.000	N	10.2	9.7	47.6
0.537000	37.9	2000.0	9.000	N	10.2	8.1	46.0
0.874500	37.6	2000.0	9.000	N	10.2	8.4	46.0
1.414500	36.4	2000.0	9.000	N	10.2	9.6	46.0
2.557500	33.9	2000.0	9.000	L1	10.2	12.1	46.0

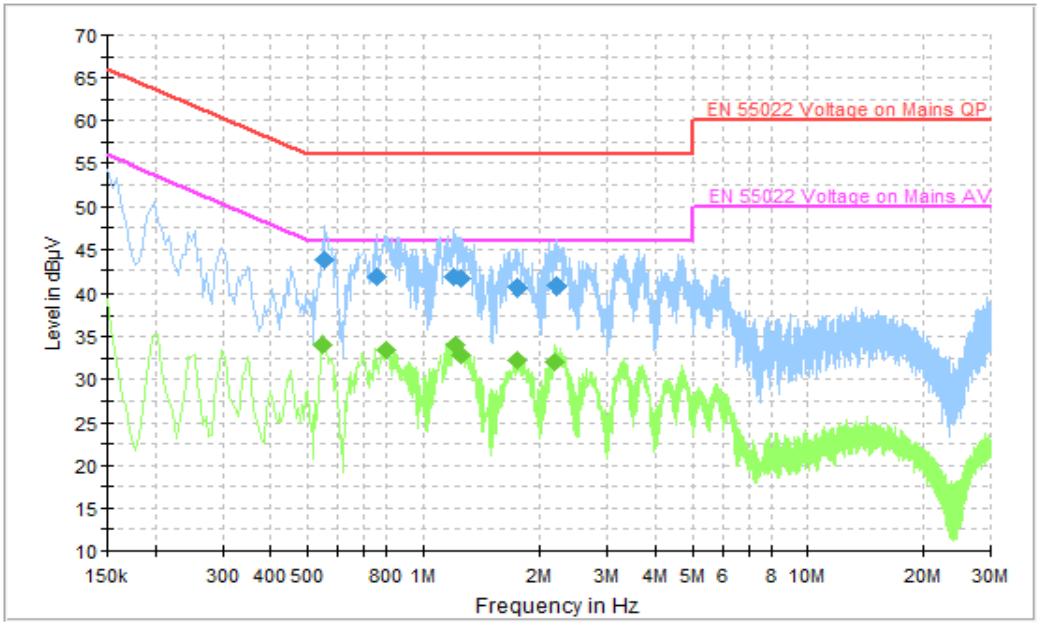


Fig. 24 Conducted Emission(Set2，802.11a, Ch40, TX)

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.555000	43.8	2000.0	9.000	L1	10.2	12.2	56.0
0.762000	41.8	2000.0	9.000	L1	10.2	14.2	56.0
1.203000	41.9	2000.0	9.000	L1	10.2	14.1	56.0
1.252500	41.5	2000.0	9.000	L1	10.2	14.5	56.0
1.747500	40.5	2000.0	9.000	L1	10.2	15.5	56.0
2.211000	40.8	2000.0	9.000	L1	10.2	15.2	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.546000	34.1	2000.0	9.000	L1	10.2	11.9	46.0
0.802500	33.4	2000.0	9.000	L1	10.2	12.6	46.0
1.216500	34.0	2000.0	9.000	L1	10.2	12.0	46.0
1.261500	32.9	2000.0	9.000	L1	10.2	13.1	46.0
1.734000	32.3	2000.0	9.000	L1	10.2	13.7	46.0
2.179500	32.0	2000.0	9.000	L1	10.2	14.0	46.0

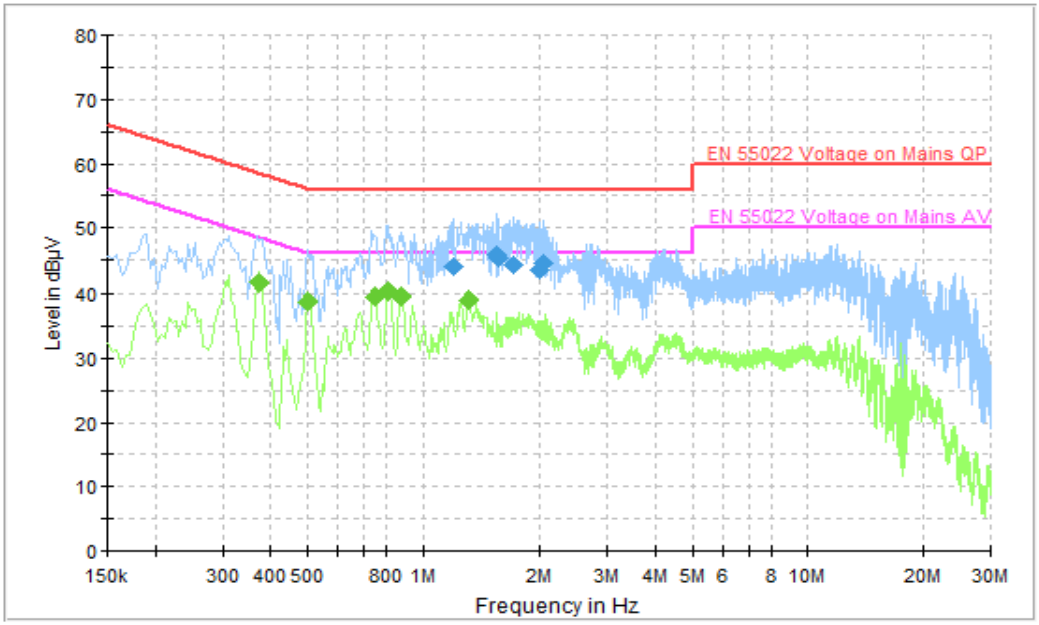


Fig. 25 Conducted Emission(Set3，802.11a, Ch40, TX)

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.198500	44.0	2000.0	9.000	L1	10.2	12.0	56.0
1.540500	45.9	2000.0	9.000	L1	10.2	10.1	56.0
1.549500	45.3	2000.0	9.000	L1	10.2	10.7	56.0
1.707000	44.2	2000.0	9.000	L1	10.2	11.8	56.0
2.004000	43.6	2000.0	9.000	L1	10.3	12.4	56.0
2.031000	44.5	2000.0	9.000	L1	10.2	11.5	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.375000	41.6	2000.0	9.000	N	10.2	6.8	48.4
0.501000	38.7	2000.0	9.000	N	10.2	7.3	46.0
0.748500	39.4	2000.0	9.000	N	10.2	6.6	46.0
0.811500	40.4	2000.0	9.000	N	10.2	5.6	46.0
0.879000	39.5	2000.0	9.000	N	10.2	6.5	46.0
1.315500	38.9	2000.0	9.000	N	10.2	7.1	46.0

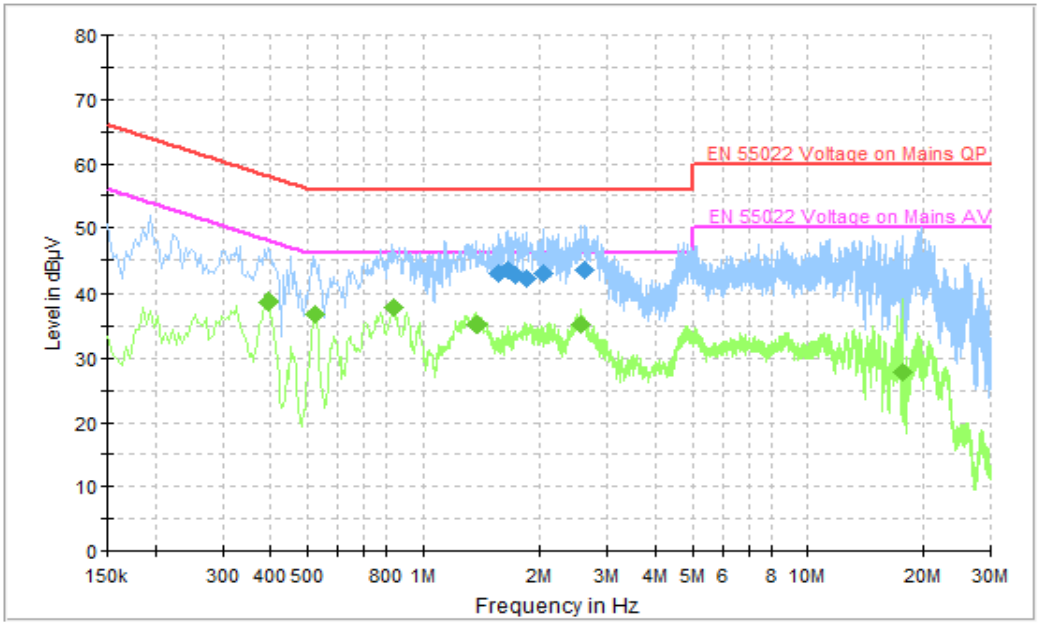


Fig. 26 Conducted Emission(Set4，802.11a, Ch40, TX)

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.549500	42.8	2000.0	9.000	L1	10.2	13.2	56.0
1.644000	43.3	2000.0	9.000	L1	10.2	12.7	56.0
1.729500	42.7	2000.0	9.000	L1	10.2	13.4	56.0
1.833000	42.0	2000.0	9.000	L1	10.2	14.0	56.0
2.040000	42.8	2000.0	9.000	L1	10.2	13.2	56.0
2.602500	43.5	2000.0	9.000	L1	10.2	12.5	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.393000	38.6	2000.0	9.000	N	10.2	9.4	48.0
0.523500	36.7	2000.0	9.000	N	10.2	9.3	46.0
0.843000	37.8	2000.0	9.000	N	10.2	8.2	46.0
1.383000	35.2	2000.0	9.000	N	10.2	10.8	46.0
2.548500	35.1	2000.0	9.000	L1	10.2	10.9	46.0
17.592000	27.7	2000.0	9.000	L1	11.1	22.3	50.0

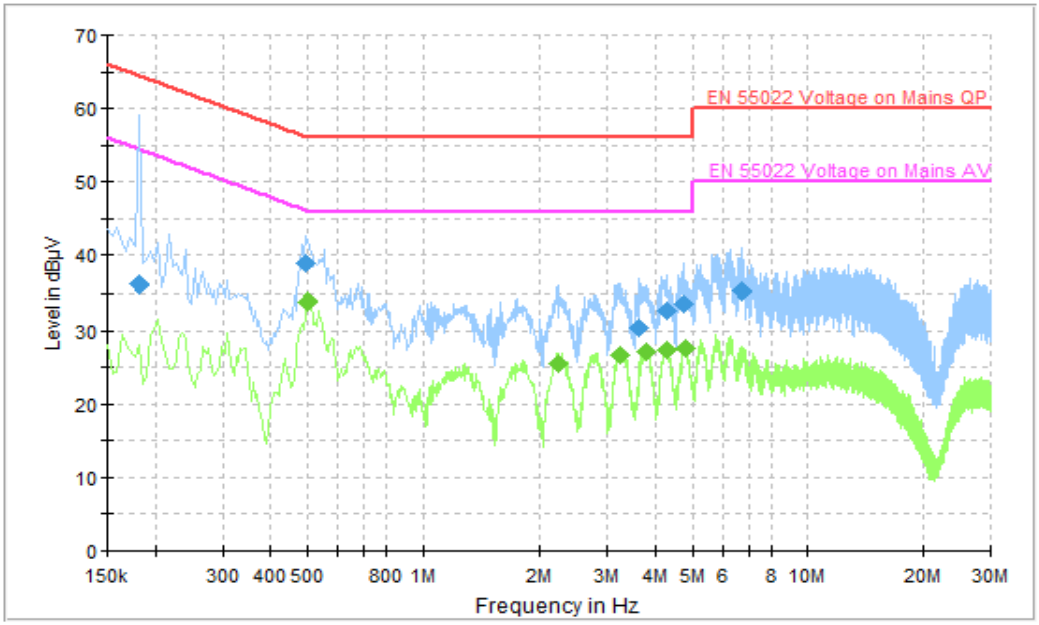


Fig. 27 Conducted Emission(Set5，802.11a, Ch40, TX)

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.181500	36.2	2000.0	9.000	L1	10.1	28.2	64.4
0.492000	38.8	2000.0	9.000	L1	10.2	17.3	56.1
3.624000	30.4	2000.0	9.000	L1	10.3	25.6	56.0
4.281000	32.7	2000.0	9.000	L1	10.3	23.3	56.0
4.717500	33.6	2000.0	9.000	L1	10.3	22.4	56.0
6.706500	35.3	2000.0	9.000	L1	10.4	24.7	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.501000	33.9	2000.0	9.000	L1	10.2	12.1	46.0
2.233500	25.4	2000.0	9.000	L1	10.2	20.6	46.0
3.228000	26.6	2000.0	9.000	L1	10.3	19.4	46.0
3.768000	27.2	2000.0	9.000	L1	10.3	18.8	46.0
4.281000	27.4	2000.0	9.000	L1	10.3	18.6	46.0
4.807500	27.6	2000.0	9.000	L1	10.3	18.4	46.0

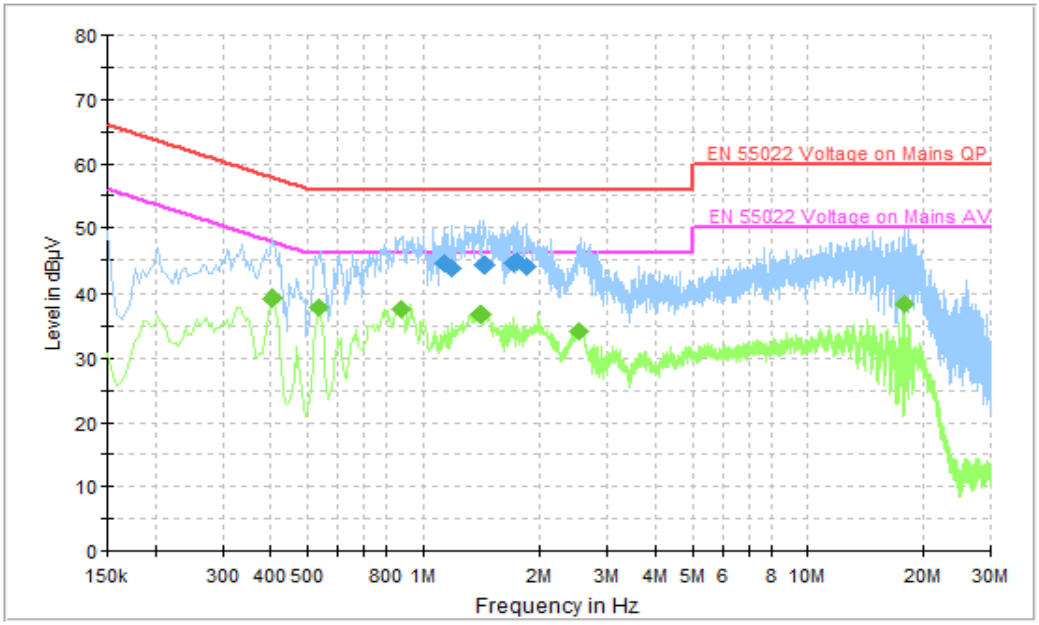


Fig. 28 Conducted Emission(Set1，802.11a, IDLE)

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.140000	44.4	2000.0	9.000	L1	10.2	11.6	56.0
1.189500	43.8	2000.0	9.000	L1	10.2	12.2	56.0
1.446000	44.3	2000.0	9.000	L1	10.2	11.7	56.0
1.711500	44.4	2000.0	9.000	L1	10.2	11.6	56.0
1.747500	44.8	2000.0	9.000	L1	10.2	11.2	56.0
1.842000	43.9	2000.0	9.000	L1	10.2	12.1	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.402000	39.3	2000.0	9.000	N	10.2	8.6	47.8
0.537000	37.8	2000.0	9.000	N	10.2	8.2	46.0
0.874500	37.5	2000.0	9.000	N	10.2	8.5	46.0
1.401000	36.7	2000.0	9.000	N	10.2	9.3	46.0
2.539500	34.2	2000.0	9.000	N	10.2	11.8	46.0
17.808000	38.3	2000.0	9.000	L1	11.1	11.7	50.0

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% ofthe 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

Measurement Result:

Mode	Channel	99% Occupied bandwidth (MHz)		conclusion
802.11a	5180 MHz	Fig. 29	17.60	P
	5200 MHz	Fig. 30	17.64	P
	5240 MHz	Fig. 31	17.64	P
802.11n HT20	5180 MHz	Fig. 32	18.16	P
	5200 MHz	Fig. 33	18.16	P
	5240 MHz	Fig. 34	18.12	P
802.11n HT40	5190 MHz	Fig. 35	36.24	P
	5230 MHz	Fig. 36	36.24	P

Conclusion: PASS

Test graphs as below:

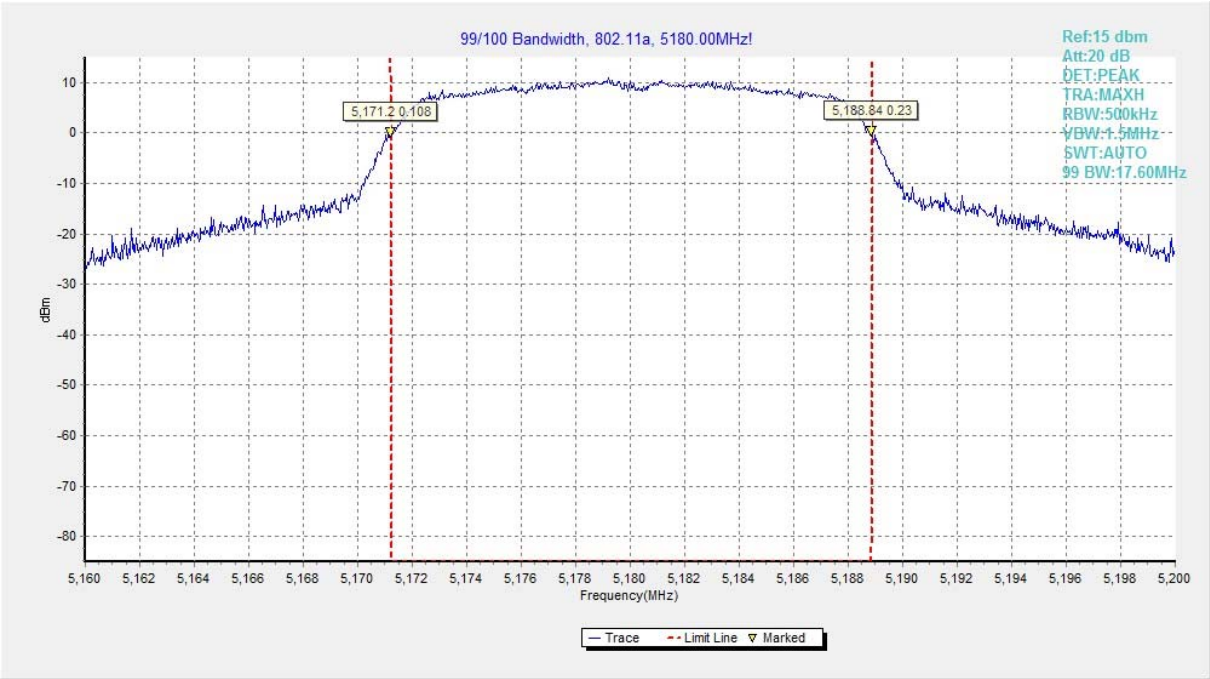


Fig. 29 99% Occupied bandwidth (802.11a, 5180MHz)

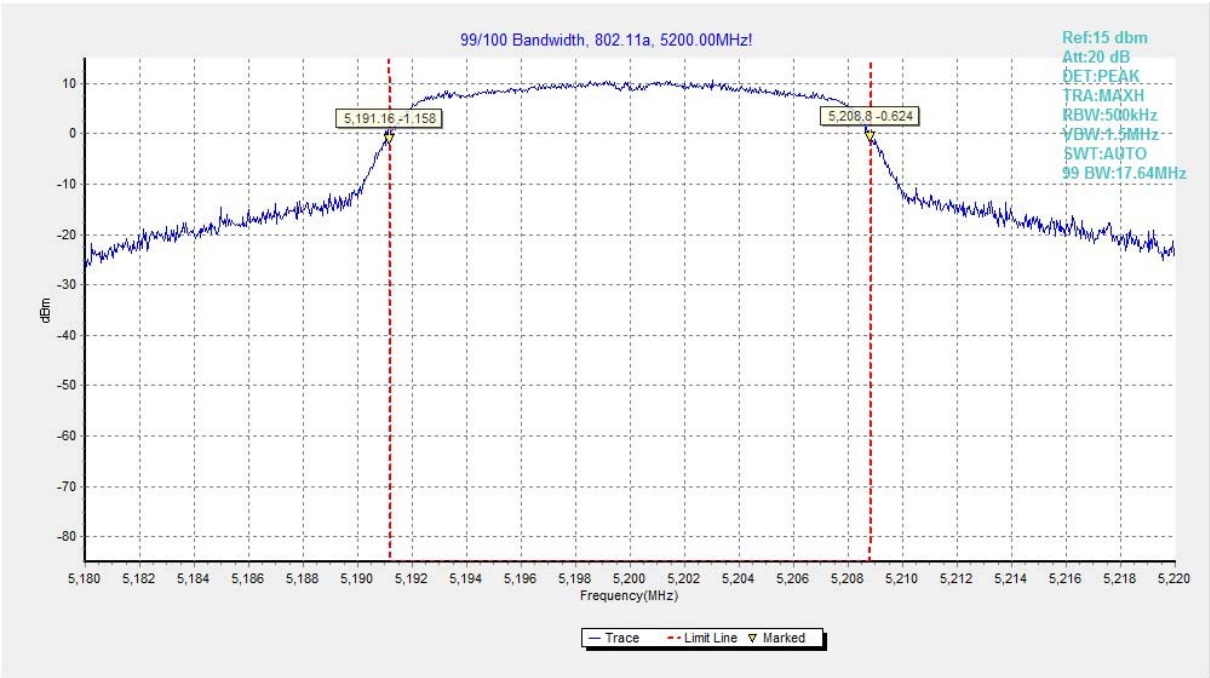


Fig. 30 99% Occupied bandwidth (802.11a, 5200MHz)

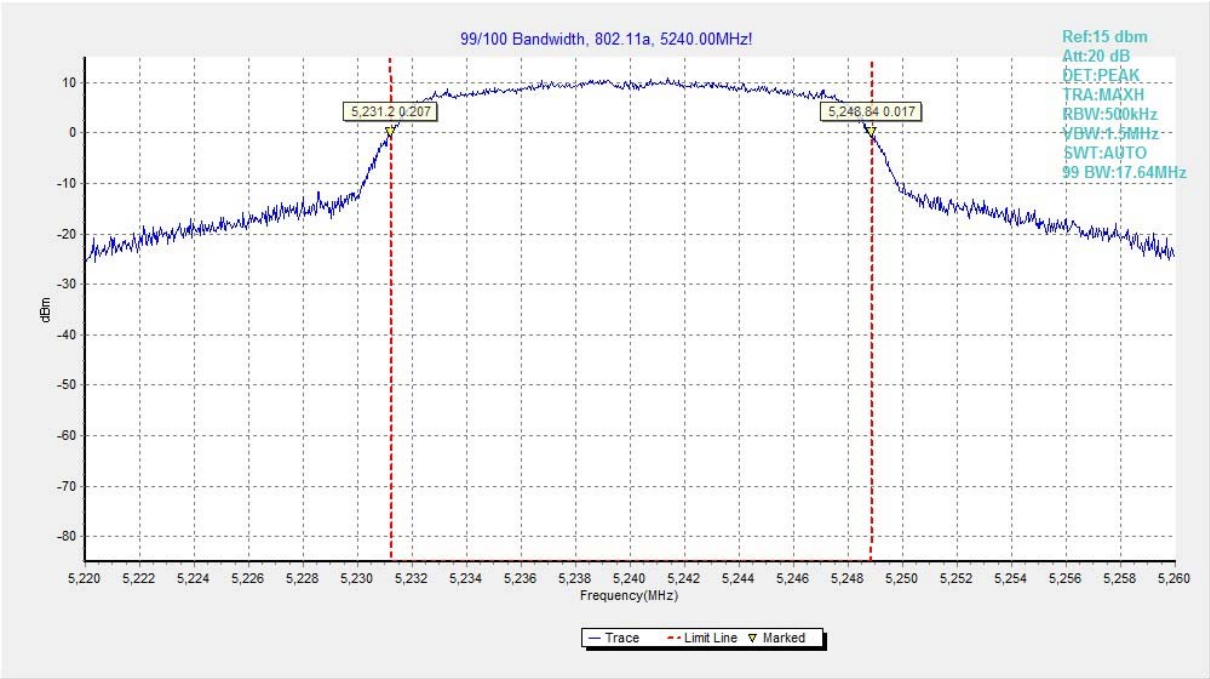


Fig. 31 99% Occupied bandwidth (802.11a, 5240MHz)

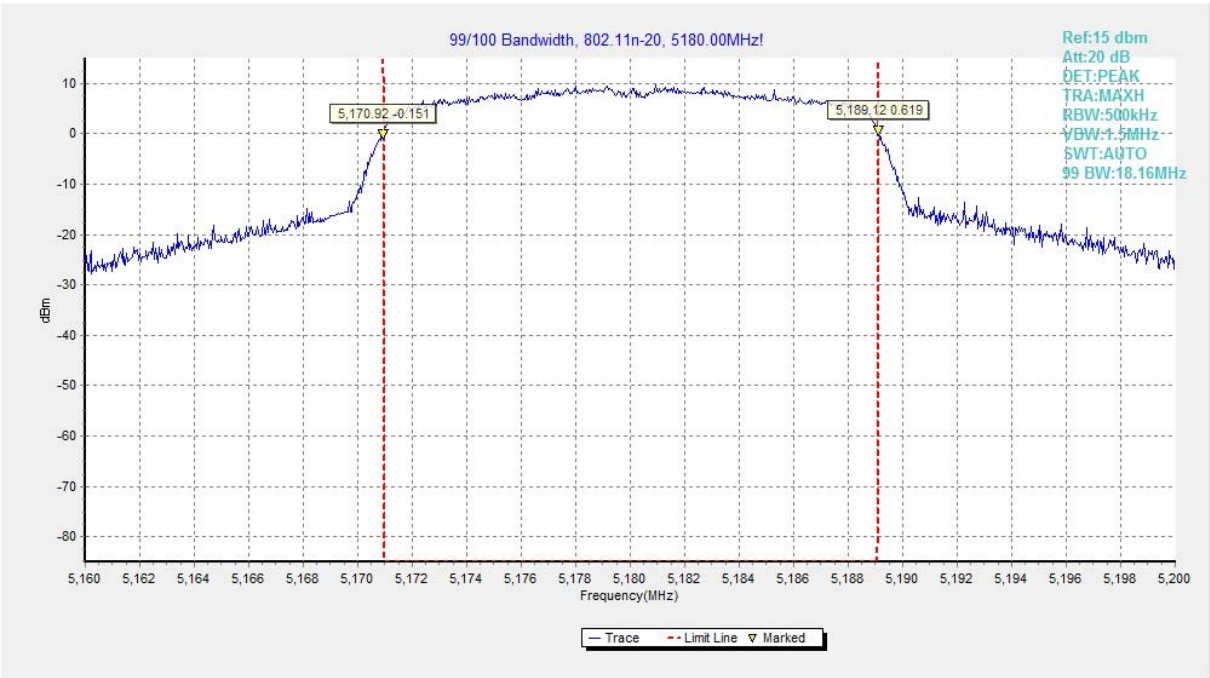


Fig. 32 99% Occupied bandwidth (802.11n-HT20, 5180MHz)

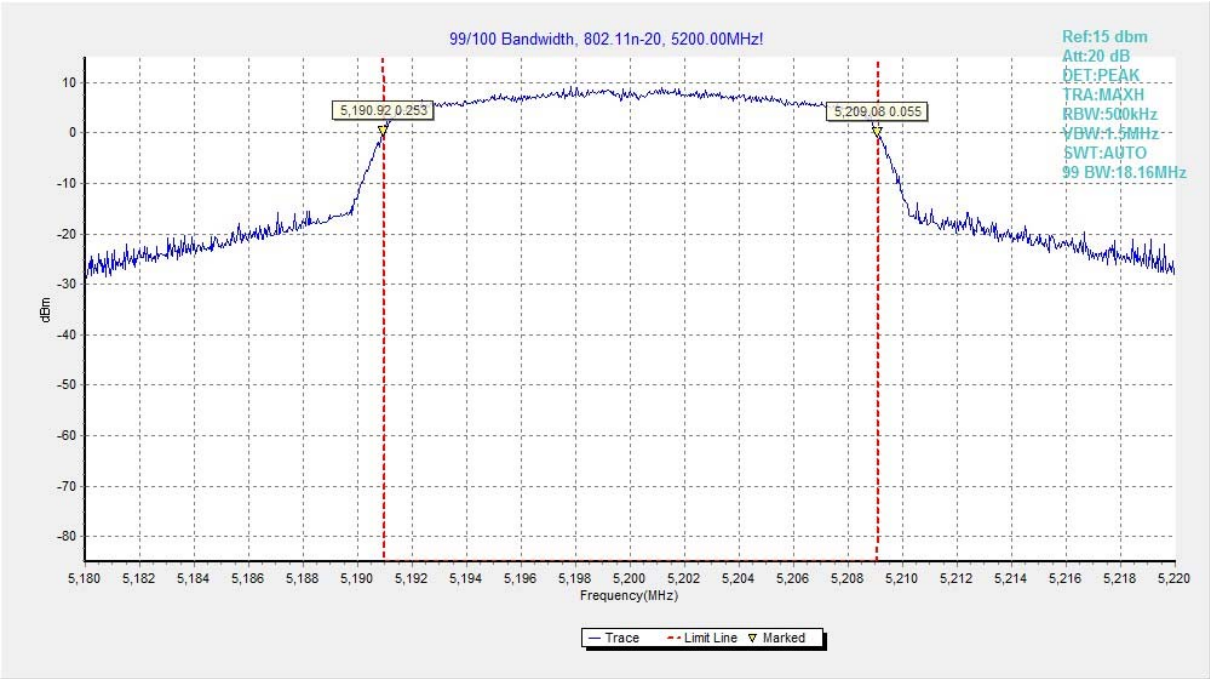


Fig. 33 99% Occupied bandwidth (802.11n-HT20, 5200MHz)

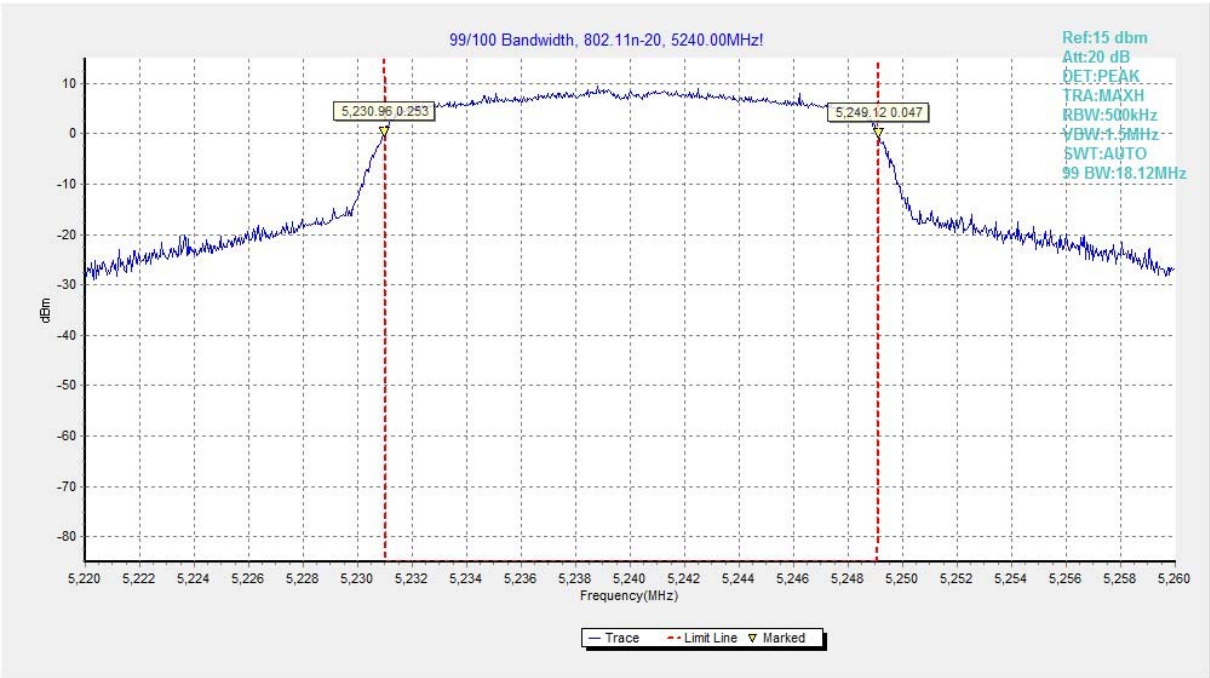


Fig. 34 99% Occupied bandwidth (802.11n-HT20, 5240MHz)

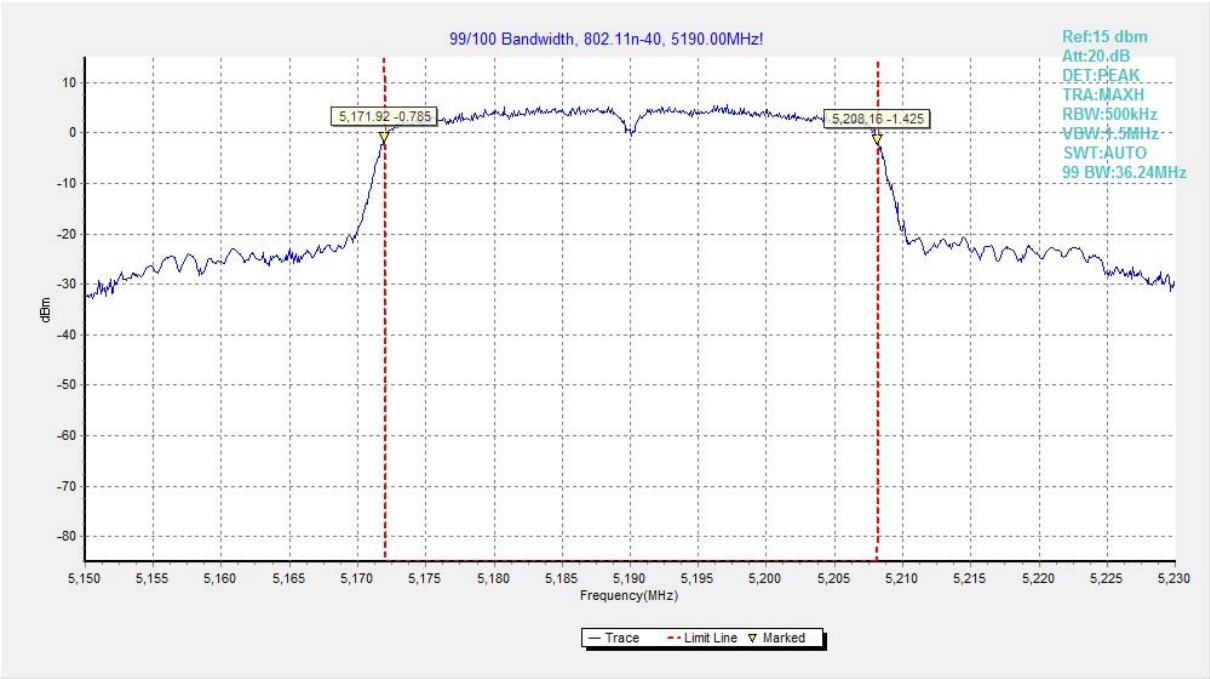


Fig. 35 99% Occupied bandwidth (802.11n-HT40, 5190MHz)

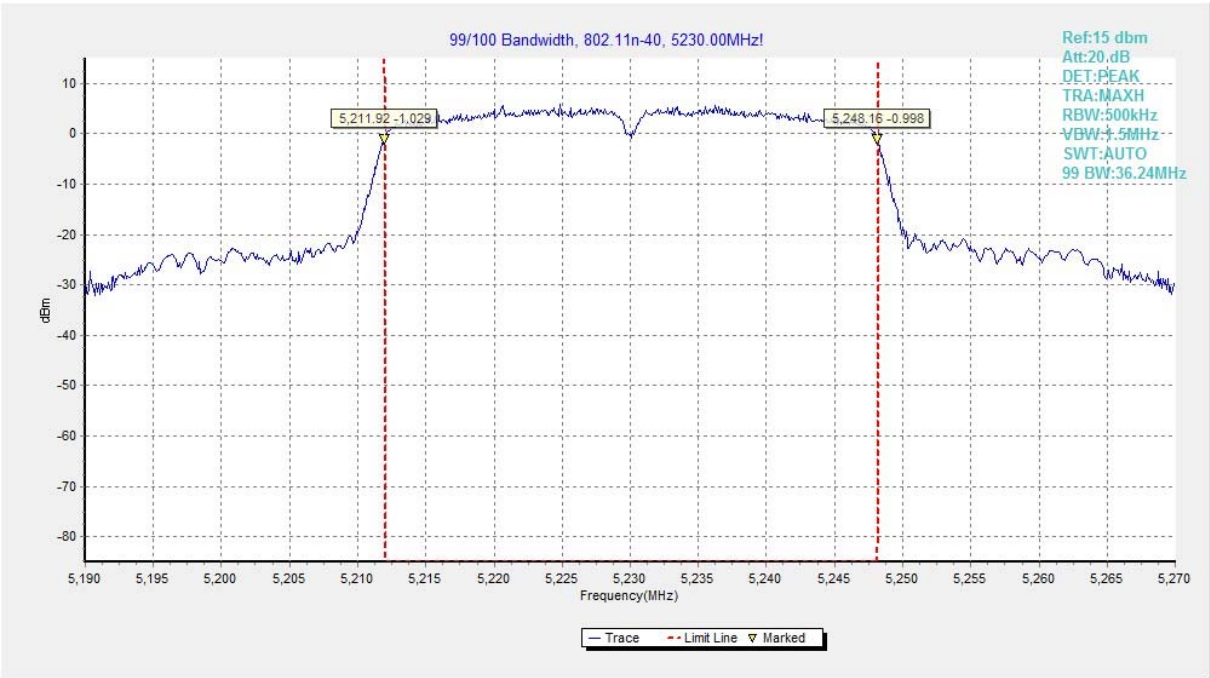


Fig. 36 99% Occupied bandwidth (802.11n-HT40, 5230MHz)

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.

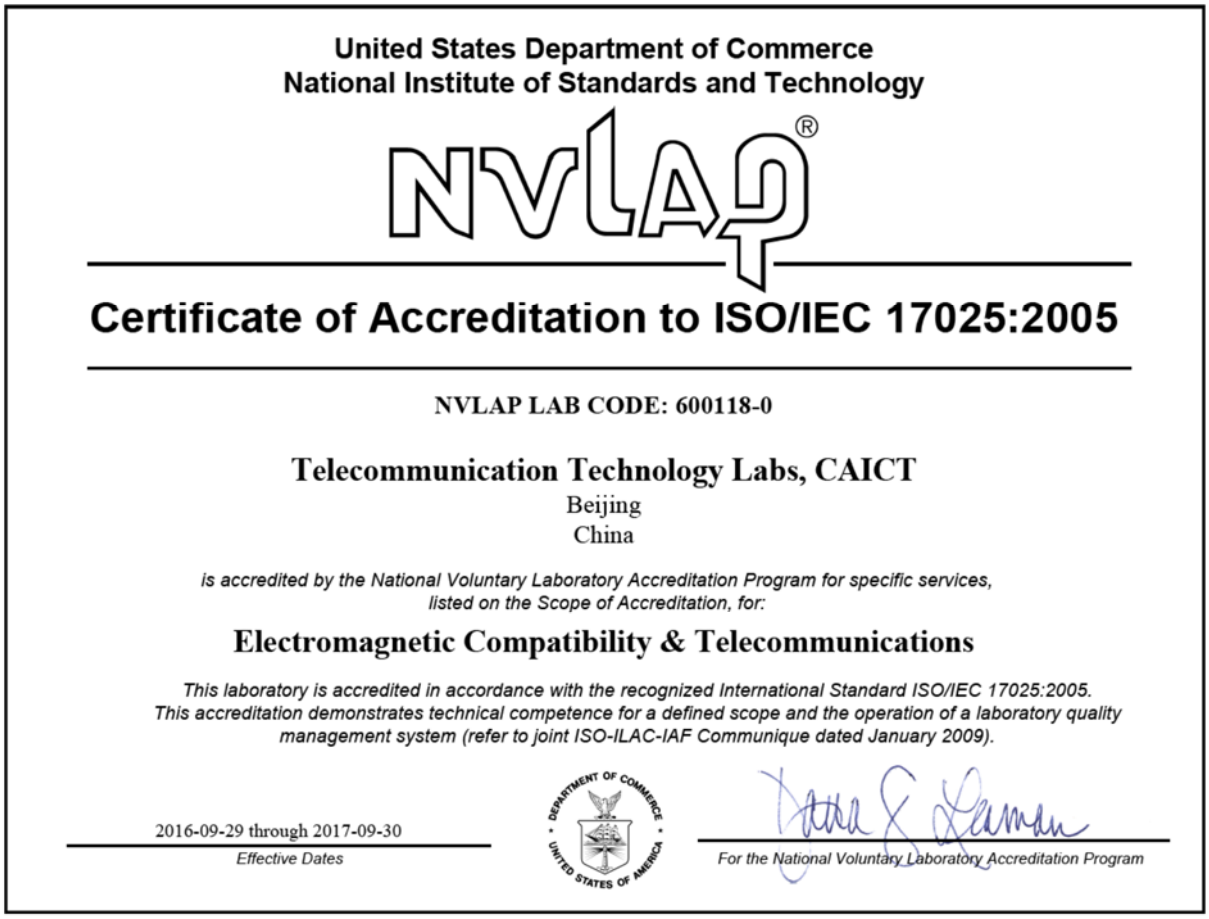
Measurement Result:

Mode	Channel	Test Condition		Result(MHz)
802.11n-HT40	5190 MHz (5150-5250)	Tnom	Vnom	0.03
		Tmax	Vnom	
		Tmin	Vnom	
		Vmax	Tnom	
		Vmin	Tnom	
802.11n-HT20	5320 MHz (5250-5350)	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 B: Accreditation Certificate



United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 600118-0

Telecommunication Technology Labs, CAICT
Beijing
China

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

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).

2016-09-29 through 2017-09-30
Effective Dates

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

For the National Voluntary Laboratory Accreditation Program

***** END OF REPORT BODY *****