FCC PART 15C
TEST REPORT
No.I20Z60959-IOT05

for

Client name: OnePlus Technology (Shenzhen) Co., Ltd.

Product name: Smart Phone

Model name: BE2028,BE2025,BE2026

With

FCC ID: 2ABZ2-EF170

Hardware Version: 16

Software Version: 10.5.5.BE88CB

Issued Date: 2020-10-09

Note:

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

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

Test Laboratory:

CTTL-Telecommunication Technology Labs, CAICT

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

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

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I20Z60959-IOT05	Rev.0	1st edition	2020-10-09

CONTENTS

1. TEST LATORATORY

1.1. Introduction & Accreditation

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

1.2. Testing Location

Conducted testing Location: CTTL(huayuan North Road)

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

Radiated testing Location: CTTL(huayuan North Road)

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

Radiated testing Location: CTTL(BDA)

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

1.3. TestingEnvironment

Normal Temperature: 15-35℃

Extreme Temperature: -20/+55℃

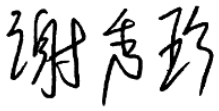
Relative Humidity: 20-75%

1.4. Project date

Testing Start Date: 2020-05-22

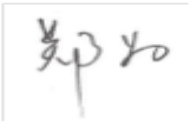
Testing End Date: 2020-10-05

1.5. Signature



Xie Xiuzhen

(Prepared this test report)



Zheng Wei

(Reviewed this test report)

Hu Xiaoyu

(Approved this test report)

2. CLIENT INFORMATION

2.1. Applicant Information

Company Name:	OnePlus Technology (Shenzhen) Co., Ltd.
Address:	18C02, 18C03, 18C04 and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen
City:	Shenzhen
Postal Code:	/
Country:	China
Telephone:	86 755 61898696-7023
Fax:	/

2.2. Manufacturer Information

Company Name:	OnePlus Technology (Shenzhen) Co., Ltd.
Address:	18C02, 18C03, 18C04 and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen
City:	Shenzhen
Postal Code:	/
Country:	China
Telephone:	86 755 61898696-7023
Fax:	/

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

3.1. About EUT

Description	Smart Phone
Model name	BE2028,BE2025,BE2026
WLAN Frequency Band	ISM Band: 5725MHz~5850MHz
Type of modulation	OFDM
Voltage	3.87V

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version
EUT1	990016800135079	16	10.5.BE89BA
EUT2	990016800071985	16	10.5.BE89BA
EUT3	990016800071969	16	10.5.BE89BA

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

3.3. Internal Identification of AE used during the test

AE ID*	Description	Type	SN
AE1	battery	/	/
AE2	Dummy battery	/	/
AE3	Charger	/	/
AE4	Charger	/	/
AE5	Charger	/	/

AE1

Model	BLP815
Manufacturer	/
Length of cable	/

AE3

Model	WC0506A51GB
Manufacturer	/
Length of cable	/

AE4

Model	WC0506A51JH
Manufacturer	Huizhou Golden Lake Industrial Co,. Ltd.
Length of cable	/

AE5

Model	WC030B51HK
Manufacturer	SHENZHEN HUNTKEY ELECTRIC CO LTD
Length of cable	/

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

3.4. General Description

Equipment Under Test (EUT) is a model of Smart Phone with integrated antenna. It consists of normal options: Battery and Charger.

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

Samples undergoing test were selected by the Client.

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	FCC CFR 47, Part 15, Subpart C and E: 15.205 Restricted bands of operation; 15.209 Radiated emission limits, general requirements; 15.407 General technical requirements	2018
ANSI C63.10	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2013
UNII: KDB 789033 D02	General U-NII Test Procedures New Rules v02r01	2017-12
KDB 558074 D01	Federal Communications Commission Office of Engineering and Technology Laboratory Division GUIDANCE FOR COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES OPERATING UNDER SECTION 15.247 OF THE FCC RULES	2019

5. LABORATORY ENVIRONMENT

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.

6. SUMMARY OF TEST RESULTS

6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15C	Sub-clause of IC	Verdict
Maximum Peak Output Power	15.407 (a)	/	P
Peak Power Spectral Density	15.407 (a)	/	P
Occupied 6dB Bandwidth	15.407 (e)	/	P
Band Edges Compliance - Radiated	15.407 (b)	/	P
Transmitter Spurious Emission - Radiated	15.407, 15.205, 15.209	/	P
AC Powerline Conducted Emission	15.107, 15.207	/	P

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	3.87V
Humidity	44%

7. TEST EQUIPMENTS UTILIZED

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	1 year	2021-05-06
2	LISN	ENV216	101200	Rohde & Schwarz	1 year	2021-05-19
3	Test Receiver	ESCI	100344	Rohde & Schwarz	1 year	2021-02-26
4	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESU26	100235	R&S	1 year	2021-03-03
2	BiLog Antenna	VULB9163	9163-1223	Schwarzbeck	1 year	2021-03-18
3	Dual-Ridge Waveguide Horn Antenna	3115	6914	ETS-Lindgren	1 year	2021-01-14
4	EMI Antenna	3117	00139065	ETS-Lindgren	1 year	2020-11-15

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 6dB 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)
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(dB)
9kHz-30MHz	/
30MHz ≤ f ≤ 1GHz	5.40
1GHz ≤ f ≤18GHz	4.32
18GHz ≤ f ≤40GHz	5.26

8.6. AC Power-line Conducted Emission

Measurement Uncertainty : 3.08dB,k=2

ANNEX A: EUT parameters

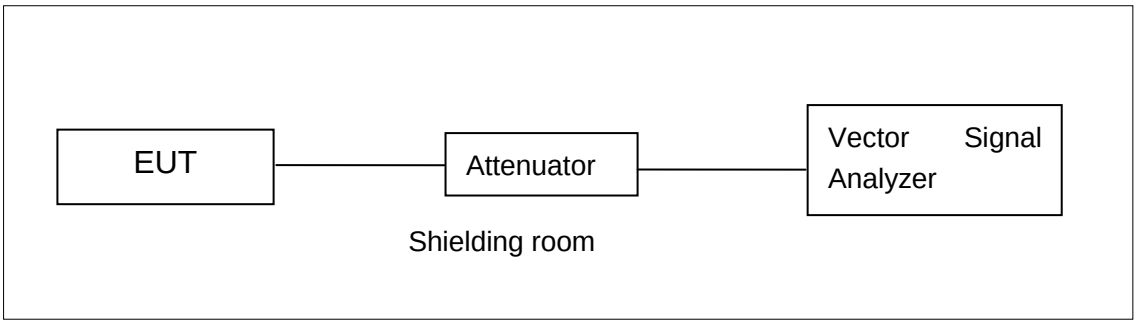
Disclaimer: the antenna gain and the worse case provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.

ANNEX B: MEASUREMENT RESULTS

B.1. Measurement Method

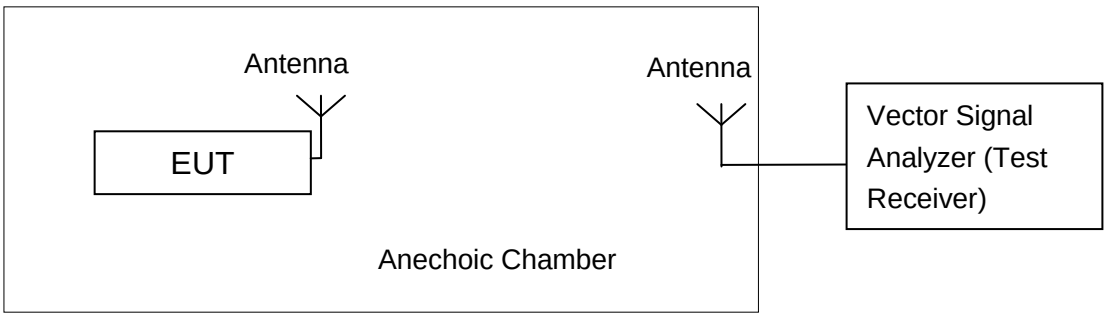
B.1.1. Conducted Measurements

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



B.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 ANSI C63.10.
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.

B.2. Maximum Peak Output Power

Measurement Limit and Method:

Standard	Limit (dBm)
FCC CRF Part 15.407(a)	< 30

B.2.1 Antenna Gain

Antenna gain is -1.5dBi and the value is supplied by the applicant or manufacturer.

B.2.2. Maximum Average Output Power-Conducted

Measurement Results:

MIMO&CDD

802.11a mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11a	6	19.42	19.39	19.29

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

802.11n-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11n(20MHz)	MCS0	20.96	20.66	20.73

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

802.11ac-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11ac(20MHz)	MCS0	19.43	19.47	19.45

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

802.11n-HT40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11n(40MHz)	MCS0	19.40	19.22

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

802.11ac-HT40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11ac(40MHz)	MCS0	18.40	18.24

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

802.11ac-HT80 mode

Mode	Data Rate (Index)	Test Result (dBm)
		5775MHz (Ch155)
802.11ac(80MHz)	MCS0	14.64

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

Conclusion: PASS

B.3. Peak Power Spectral Density

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.407(a)	< 30 dBm/500 kHz

The measurement is made according to ANSI C63.10 and KDB789033 D02

Measurement Uncertainty:

Measurement Uncertainty	0.75dB

Measurement Results:

MIMO&CDD

Mode	Channel	Power Spectral Density (dBm/500kHz)	Conclusion
802.11a	149	4.56	P
	157	4.47	P
	165	4.45	P
802.11n HT20	149	4.75	P
	157	4.73	P
	165	4.81	P
802.11ac HT20	149	3.53	P
	157	3.49	P
	165	3.46	P
802.11n HT40	151	3.32	P
	159	3.15	P
802.11ac HT40	151	3.17	P
	159	3.09	P
802.11ac HT80	155	-5.80	P

Conclusion: PASS

B.4. Occupied 6dB Bandwidth

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.407 (e)	≥ 500

The measurement is made according to KDB789033 D02 .

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz

Measurement Result:

MIMO&CDD-ANT6

Mode	Channel	Occupied 6dB Bandwidth (KHz)		conclusion
802.11a	149	Fig.1	15.70	P
	157	Fig.2	15.90	P
	165	Fig.3	16.25	P
802.11n HT20	149	Fig.4	15.70	P
	157	Fig.5	16.70	P
	165	Fig.6	15.65	P
802.11ac HT20	149	Fig.7	17.10	P
	157	Fig.8	15.65	P
	165	Fig.9	15.85	P
802.11n HT40	151	Fig.10	36.08	P
	159	Fig.11	35.28	P
802.11ac HT40	151	Fig.12	35.52	P
	159	Fig.13	35.76	P
802.11ac HT80	155	Fig.14	73.92	P

Both of the ANT6 and ANT7 are measured, as the power of ANT6 is the worse case, so the results of ANT6 are reflected in the report.

Conclusion: PASS

Test graphs as below:

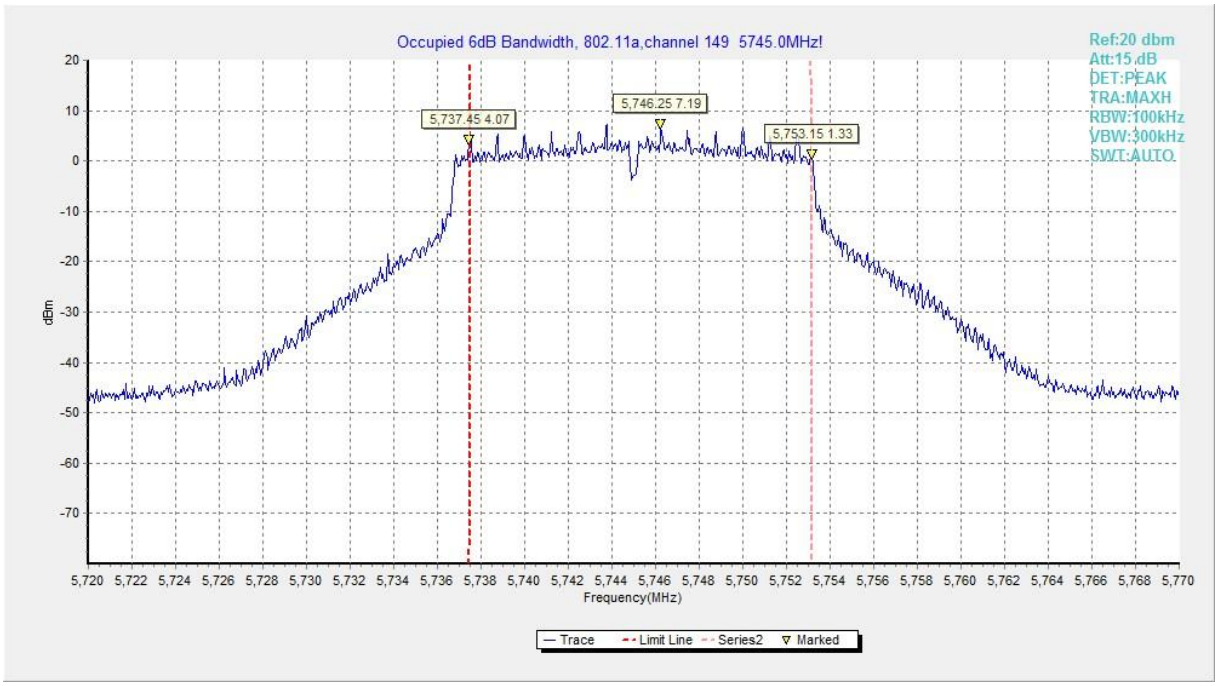


Fig. 1 Occupied 6dB Bandwidth (802.11a, Ch 149)

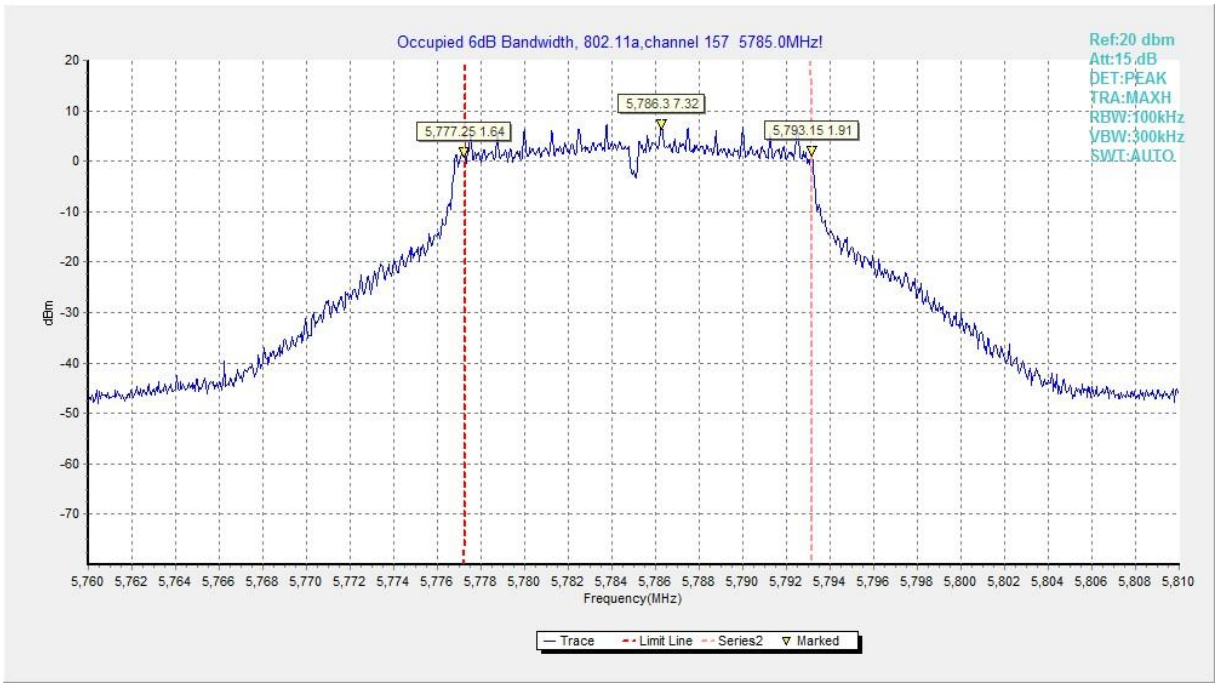


Fig. 2 Occupied 6dB Bandwidth (802.11a, Ch 157)

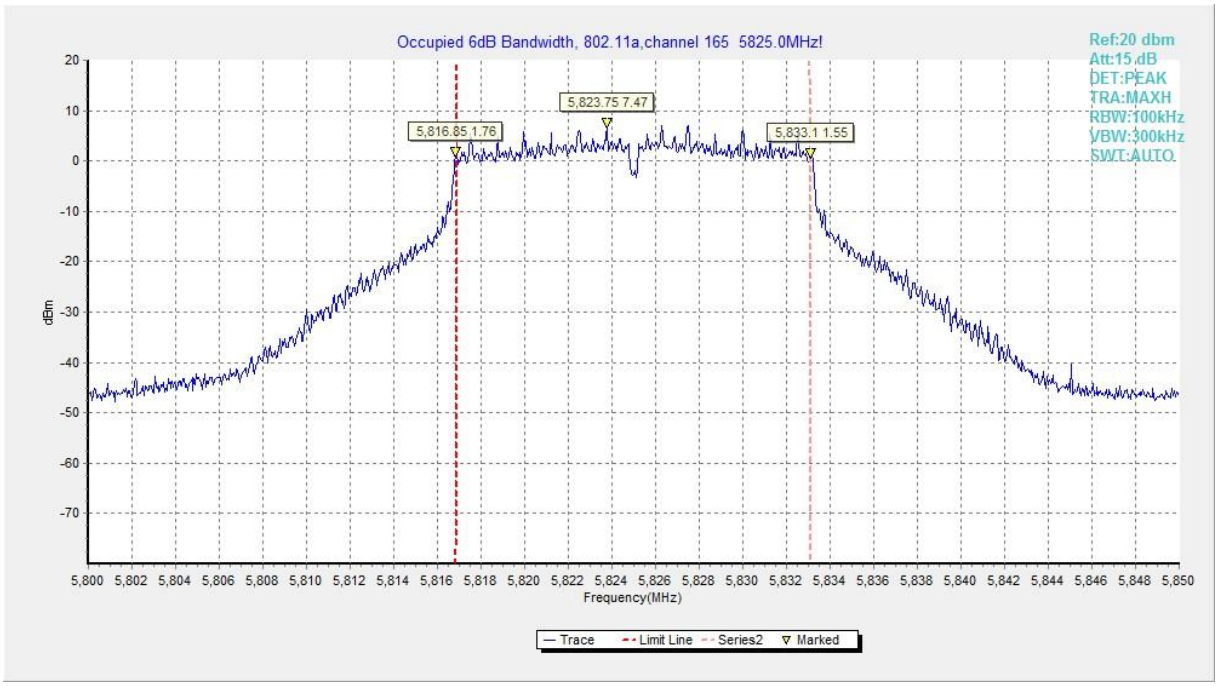


Fig. 3 Occupied 6dB Bandwidth (802.11a, Ch 165)

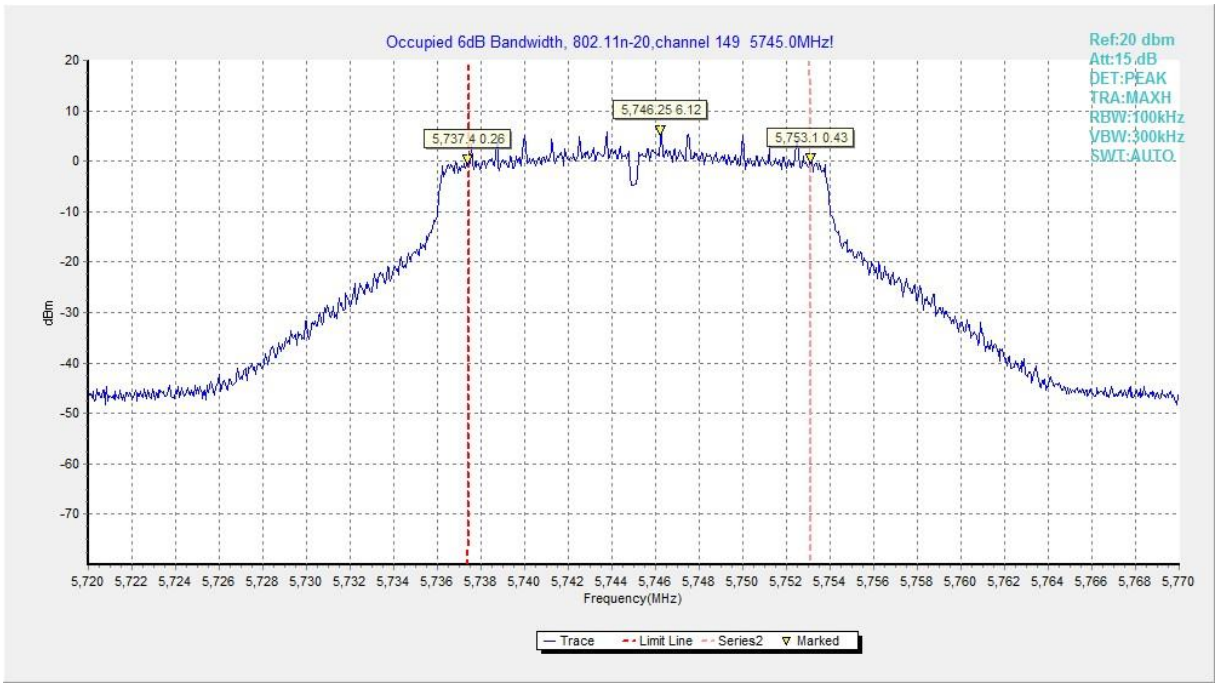


Fig. 4 Occupied 6dB Bandwidth (802.11n-HT20, Ch 149)

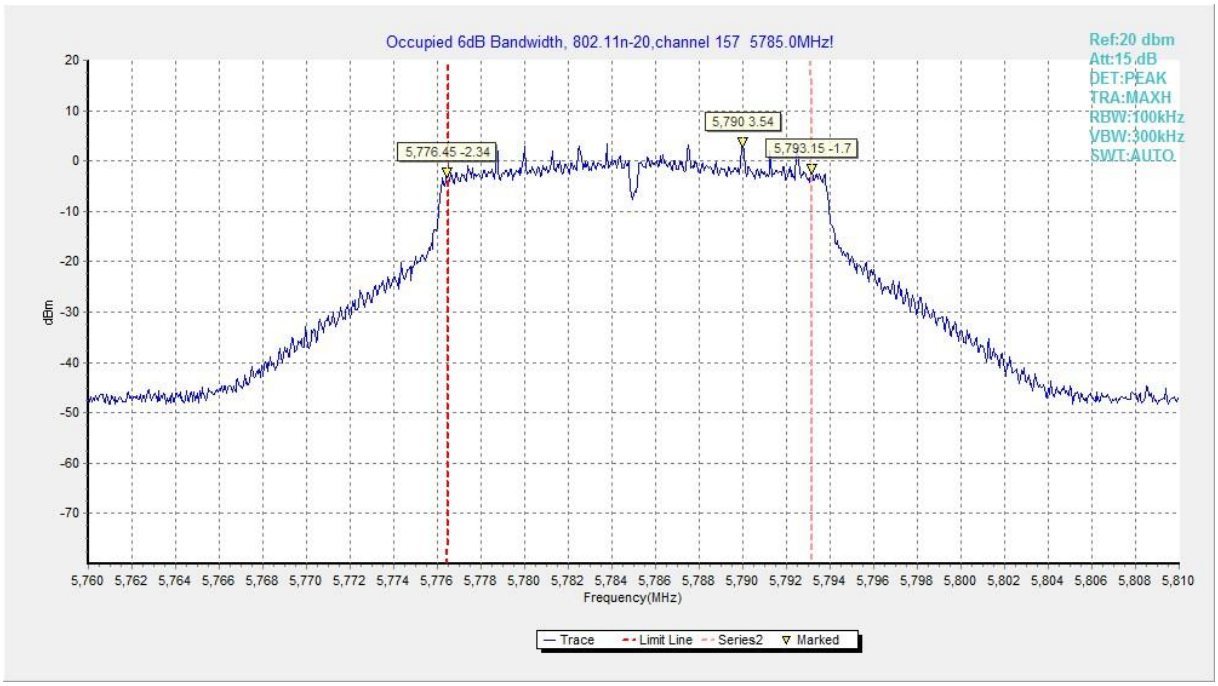


Fig. 5 Occupied 6dB Bandwidth (802.11n-HT20, Ch 157)

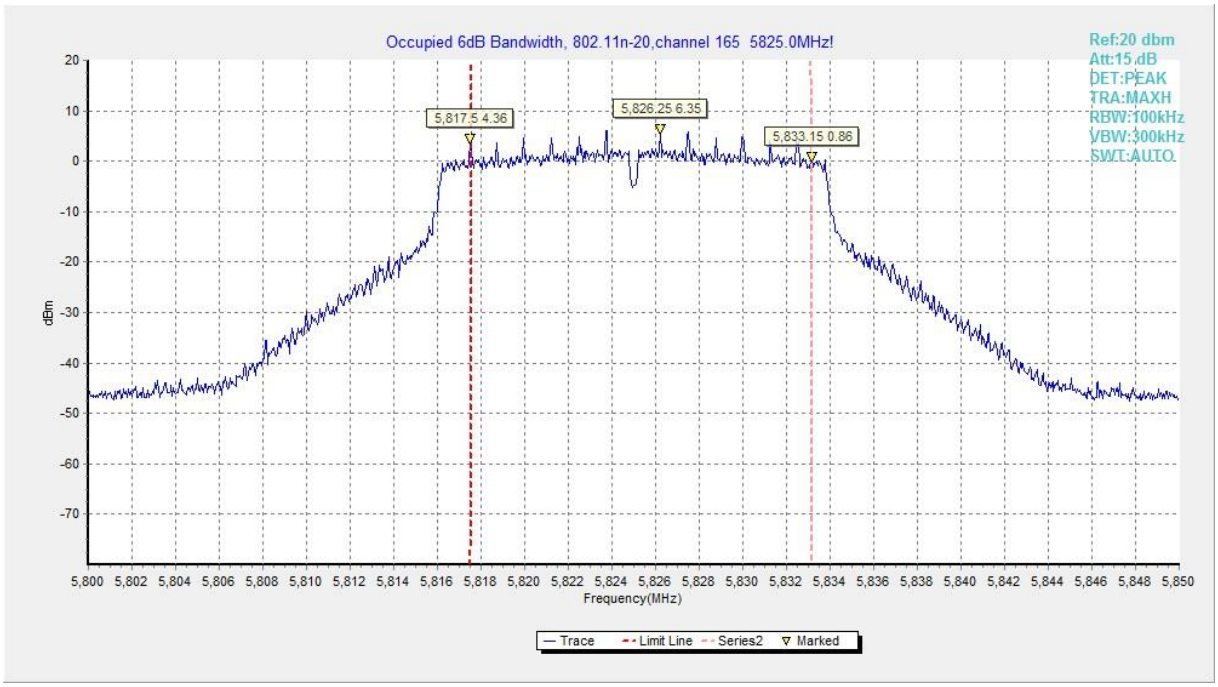


Fig. 6 Occupied 6dB Bandwidth (802.11n-HT20, Ch 165)

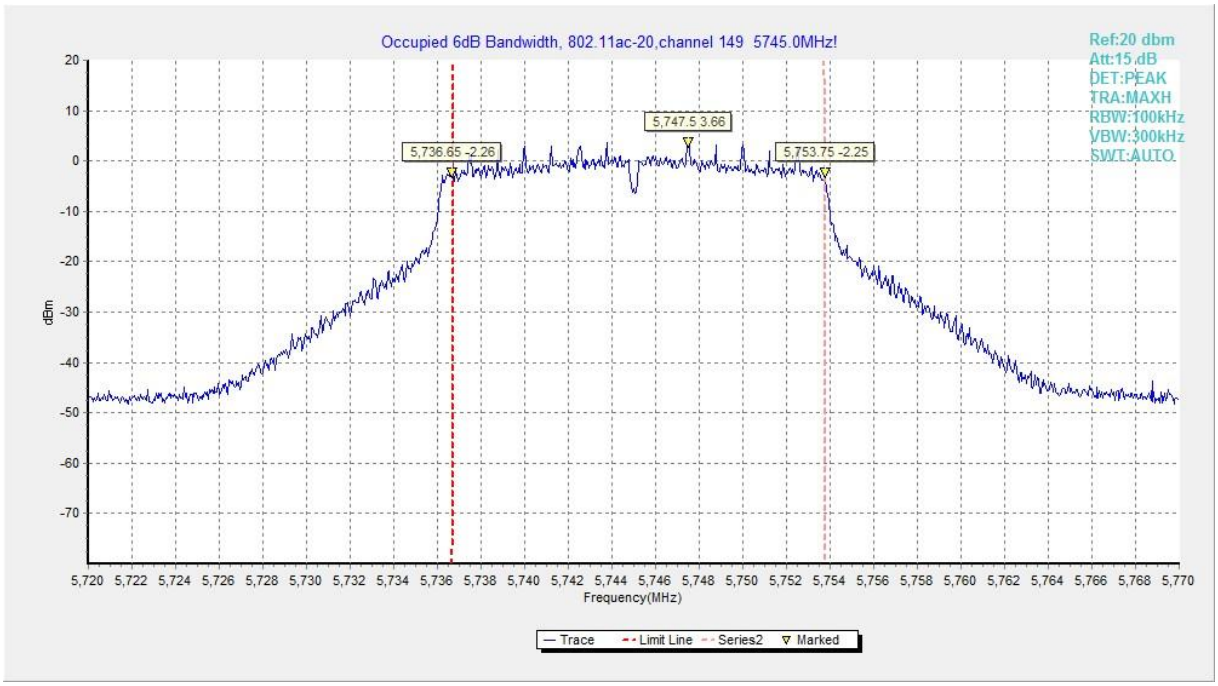


Fig. 7 Occupied 6dB Bandwidth (802.11ac-HT20, Ch 149)

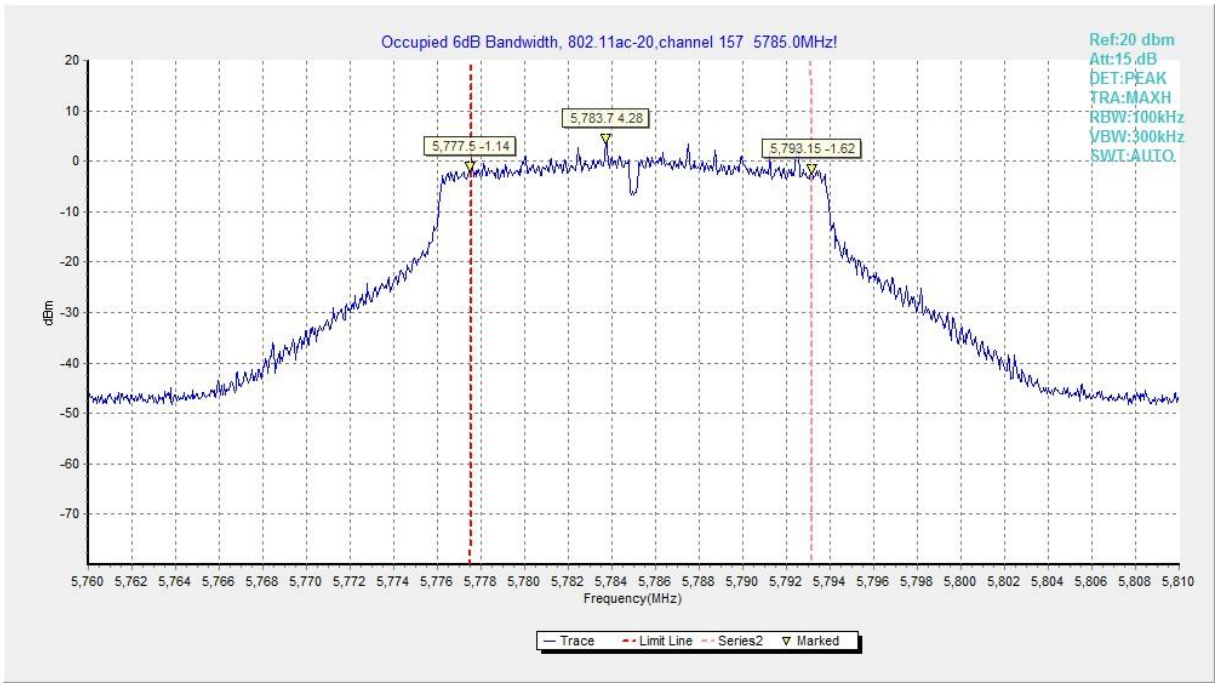


Fig. 8 Occupied 6dB Bandwidth (802.11ac-HT20, Ch 157)

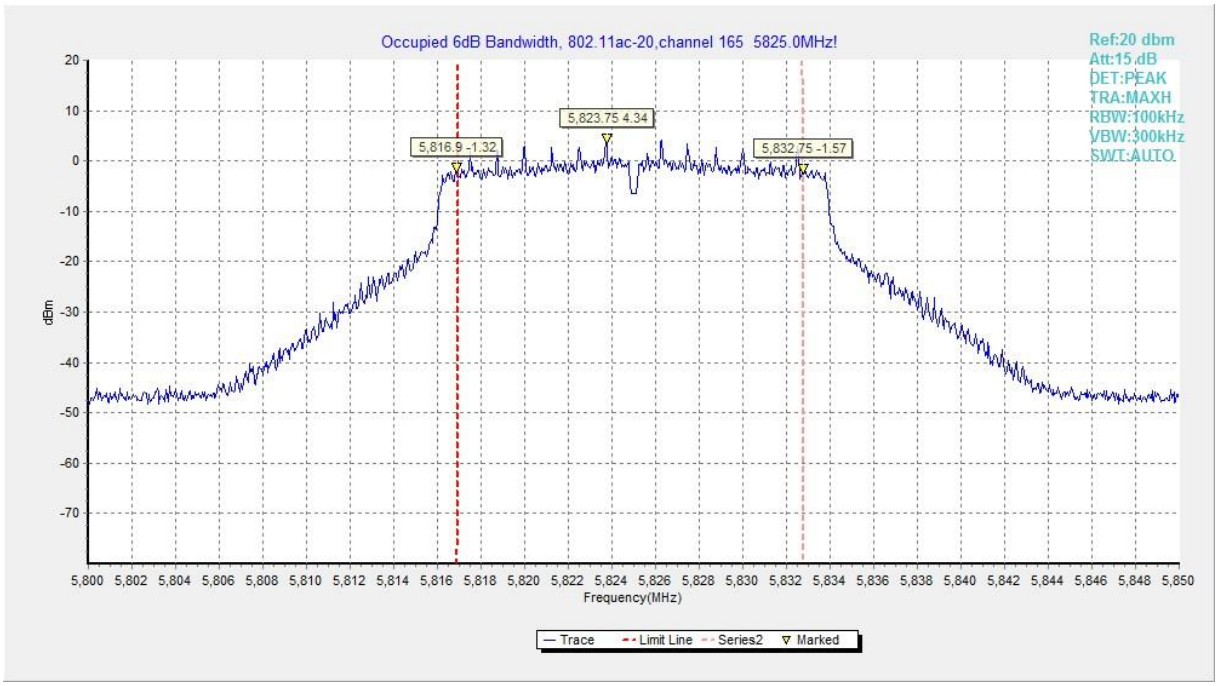


Fig. 9 Occupied 6dB Bandwidth (802.11ac-HT20, Ch 165)

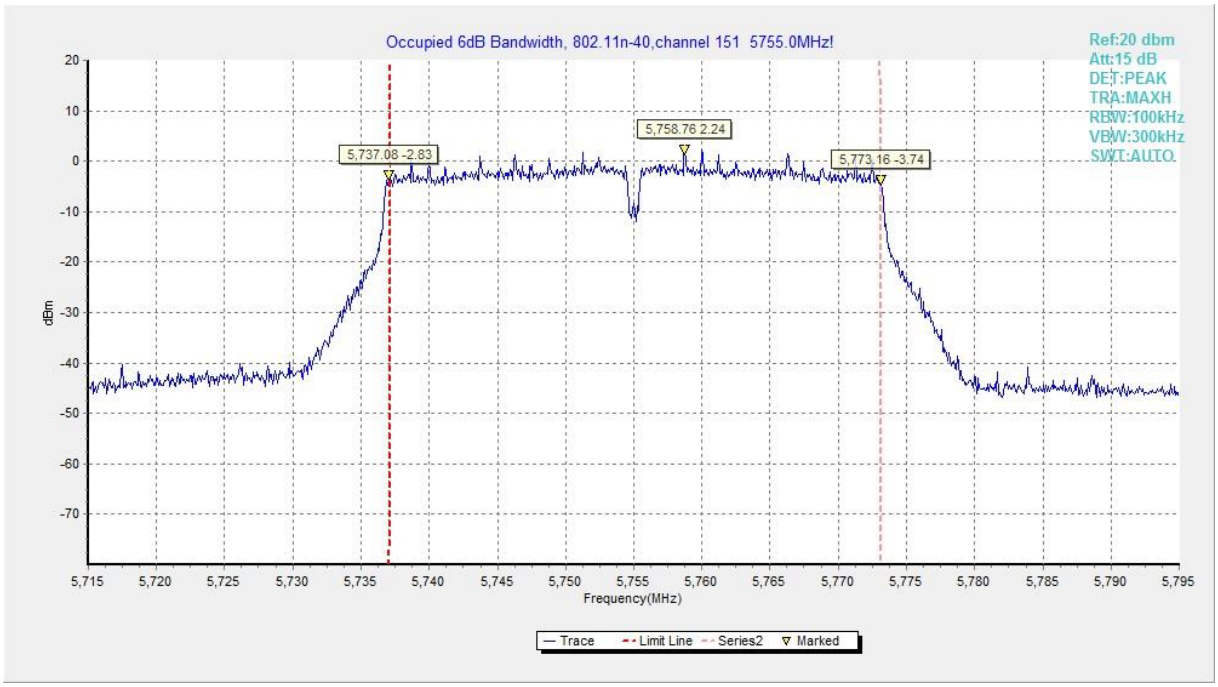


Fig. 10 Occupied 6dB Bandwidth (802.11n-HT40, Ch 151)

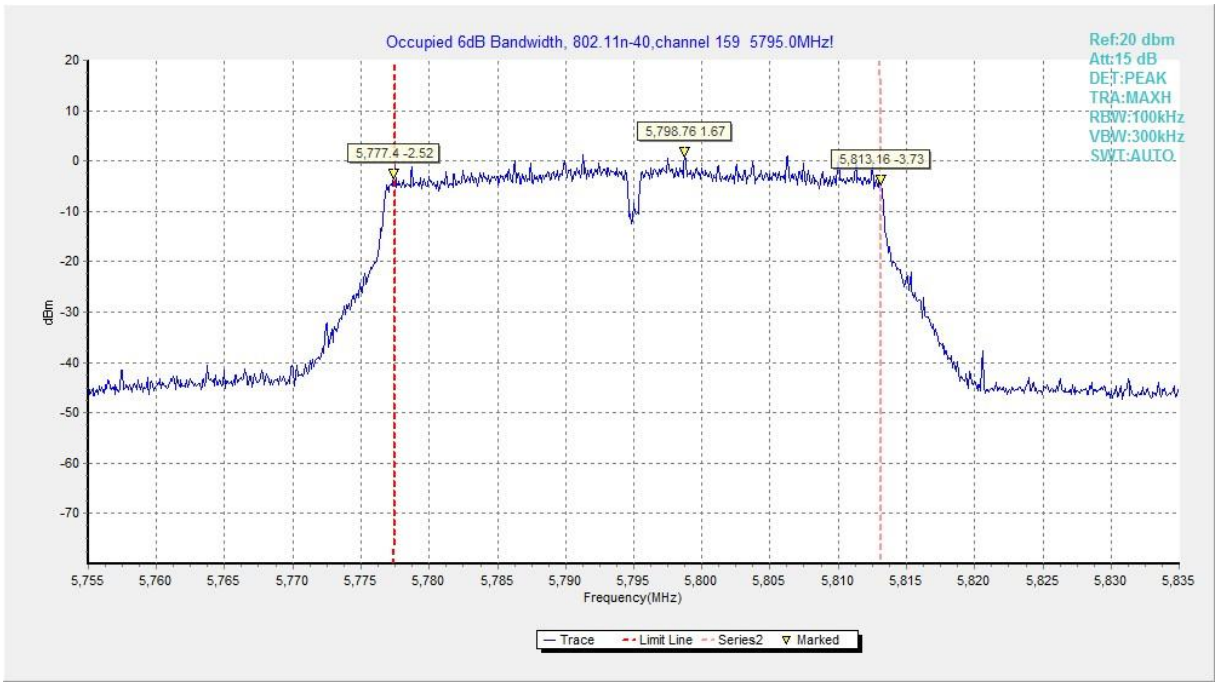


Fig. 11 Occupied 6dB Bandwidth (802.11n-HT40, Ch 159)

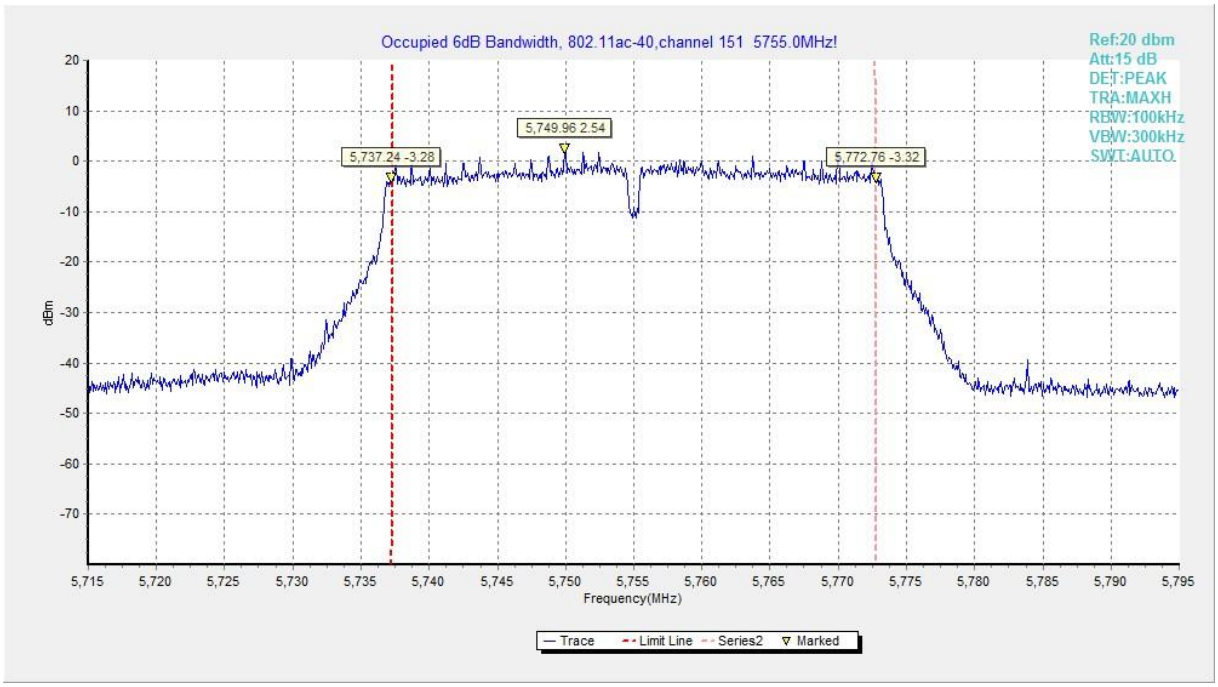


Fig. 12 Occupied 6dB Bandwidth (802.11ac-HT40, Ch 151)

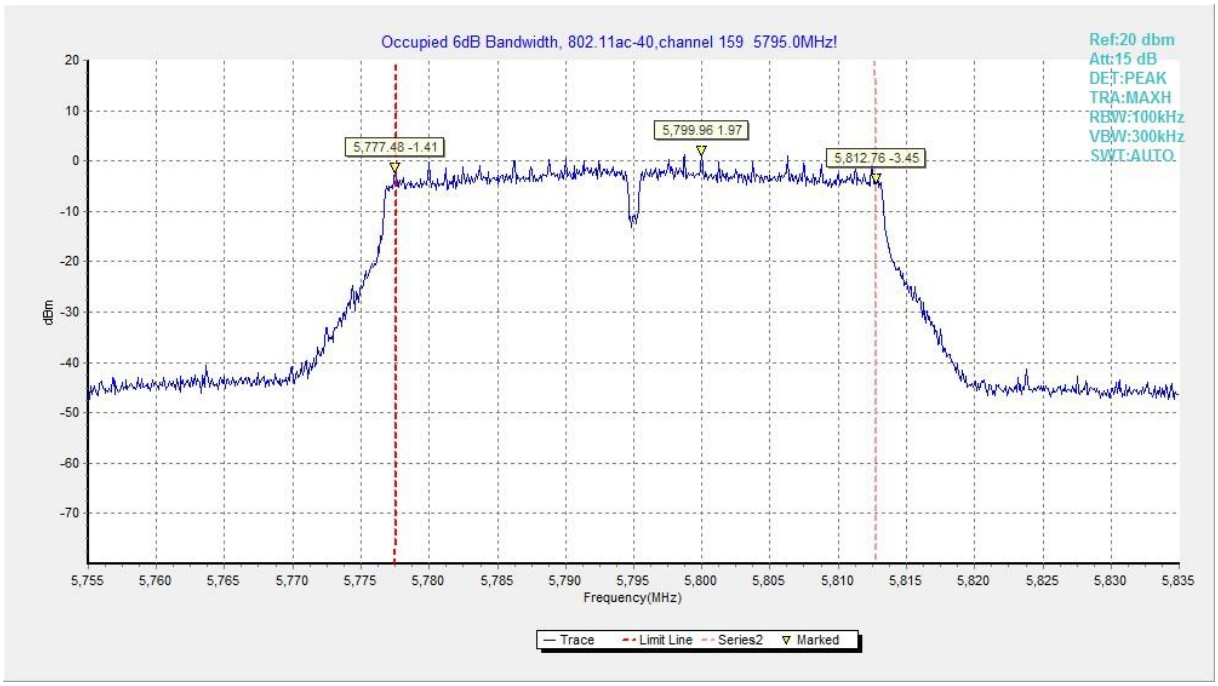


Fig. 13 Occupied 6dB Bandwidth (802.11ac-HT40, Ch 159)

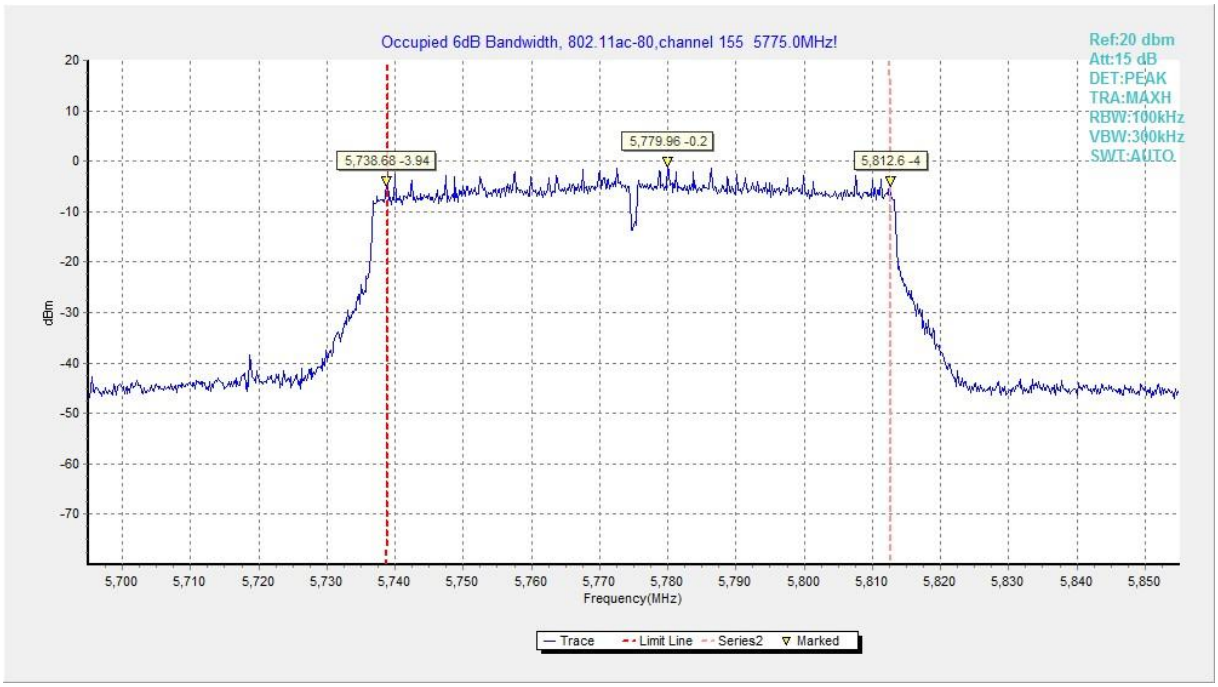


Fig. 14 Occupied 6dB Bandwidth (802.11ac-HT80, Ch 155)

B.5. Transmitter Spurious Emission

B.5.1 Transmitter Spurious Emission - Radiated

Measurement Limit:

Standard	Frequency (MHz)	Limit (dBm/MHz)
FCC 47 CFR Part 15.407	5725MHz~5850MHz	< -27

The measurement is made according to ANSI C63.10 .

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)).

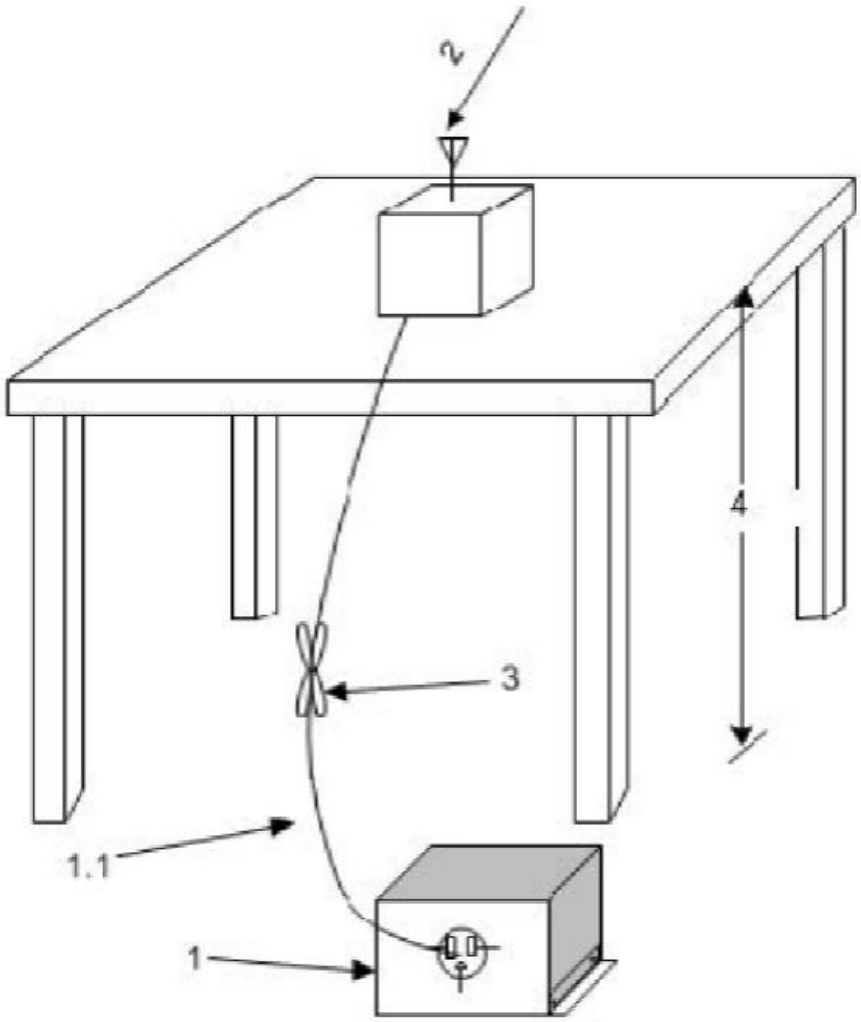
Limit in restricted band:

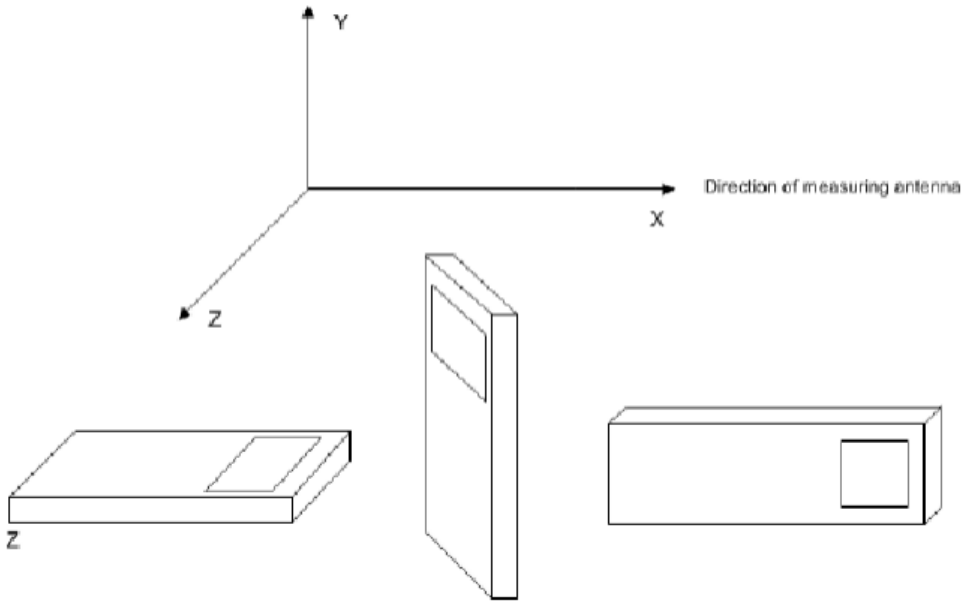
Frequency of emission (MHz)	Field strength (uV/m)	Field strength (dBμV/m)	Measurement distance(m)
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Set up:

Tabletop devices shall be placed on a nonconducting platform with nominal top surface dimensions 1 m by 1.5 m. For emissions testing at or below 1 GHz, the table height shall be 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m

The EUT and transmitting antenna shall be centered on the turntable.





Test Condition

The EUT shall be tested 1 near top, 1 near middle, and 1 near bottom. Set the unlicensed wireless device to operate in continuous transmit mode. For unlicensed wireless devices unable to be configured for 100% duty cycle even in test mode, configure the system for the maximum duty cycle supported.

When required for unlicensed wireless devices, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Exploratory radiated emissions measurements

Exploratory radiated measurements shall be performed at the measurement distance or at a closer distance than that specified for compliance to determine the emission characteristics of the EUT and, if applicable, the EUT configuration that produces the maximum level of emissions. The frequencies of maximum emission may be determined by manually positioning the antenna close to the EUT, and then moving the antenna over all sides of the EUT while observing a spectral display. It is advantageous to have prior knowledge of the frequencies of emissions, although this may be determined from such a near-field scan. The near-field scan shall only be used to determine the frequency but not the amplitude of the emissions. Where exploratory measurements are not adequate to determine the worst-case operating modes and are used only to identify the frequencies of the highest emissions, additional preliminary tests can be required.

For emissions from the EUT, the maximum level shall be determined by rotating the EUT and its antenna through 0° to 360°. For each mode of operation required to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored.

Broadband antennas and a spectrum analyzer or a radio-noise meter with a panoramic display are often useful in this type of test. If either antenna height or EUT azimuth are not fully measured during exploratory testing, then complete testing can be required at the OATS or semi-anechoic chamber when the final full spectrum testing is performed.

Final radiated emissions measurements

The final measurements are using the orientation and equipment arrangement of the EUT based on the measurement results found during the preliminary (exploratory) measurements, the EUT arrangement, appropriate modulation, and modes of operation that produce the emissions that have the highest amplitude relative to the limit shall be selected for the final measurement.

For each mode of operation required to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.

For each mode selected, record the frequency and amplitude of the highest fundamental emission (if applicable), as well as the frequency and amplitude of the six highest spurious emissions relative to the limit. Emissions more than 20 dB below the limit do not need to be reported.

This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The receiver references:

Frequency of emission	RBW/VBW	Sweep Time(s)

(MHz)		
30-1000	100KHz/300KHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

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

The measurement results are obtained as described below:

Result= P_{Mea} + Cable Loss + Antenna Factor

Where:

P_{Mea} field strength recorded from the instrument

Conclusion: Pass

Measurement Results:

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.

Average Results：

802.11a

Ch149

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)
17980.200	47.2	-25.5	46.7	26.0	54.0	6.8	V
17978.000	47.1	-25.5	46.7	25.9	54.0	6.9	H
17978.500	47.1	-25.5	46.7	25.9	54.0	6.9	V
17996.200	47.0	-25.5	46.7	25.8	54.0	7.0	H
17957.700	46.9	-25.5	46.7	25.7	54.0	7.1	V
5724.400	46.4	-16.3	34.3	28.4	54.0	7.6	V

Ch157

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)
17962.000	47.2	-25.5	46.7	26.0	54.0	6.8	V
17993.400	47.0	-25.5	46.7	25.8	54.0	7.0	V
17998.300	47.0	-25.5	46.7	25.8	54.0	7.0	H
17963.200	46.9	-25.5	46.7	25.7	54.0	7.1	H
17965.300	46.9	-25.5	46.7	25.7	54.0	7.1	V
17967.500	46.9	-25.5	46.7	25.7	54.0	7.1	H

Ch165

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)
17975.800	47.5	-25.5	46.7	26.3	54.0	6.5	V
17983.500	47.3	-25.5	46.7	26.1	54.0	6.7	H
17965.900	47.2	-25.5	46.7	26.0	54.0	6.8	H
17972.000	47.1	-25.5	46.7	25.9	54.0	6.9	H
17956.000	47.0	-25.5	46.7	25.8	54.0	7.0	H
5850.800	42.4	-16.2	34.4	24.3	54.0	11.6	V

802.11n-HT20

Ch149

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)
17954.300	47.3	-25.5	46.7	26.1	54.0	6.7	V
17955.500	47.2	-25.5	46.7	26.0	54.0	6.8	H
17976.900	47.2	-25.5	46.7	26.0	54.0	6.8	H
17973.000	47.1	-25.5	46.7	25.9	54.0	6.9	V
17974.200	47.1	-25.5	46.7	25.9	54.0	6.9	H
5724.800	45.7	-16.3	34.3	27.7	54.0	8.3	V

Ch157

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)
17972.500	47.8	-25.5	46.7	26.6	54.0	6.2	V
17981.800	47.3	-25.5	46.7	26.1	54.0	6.7	V
17976.900	47.2	-25.5	46.7	26.0	54.0	6.8	V
17985.200	47.2	-25.5	46.7	26.0	54.0	6.8	H
17947.800	47.1	-25.5	46.7	25.9	54.0	6.9	V
17967.500	47.1	-25.5	46.7	25.9	54.0	6.9	H

Ch165

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)
17975.200	47.1	-25.5	46.7	25.9	54.0	6.9	V
17988.500	47.1	-25.5	46.7	25.9	54.0	6.9	H
17989.500	47.1	-25.5	46.7	25.9	54.0	6.9	V
17961.000	47.0	-25.5	46.7	25.8	54.0	7.0	H
17950.000	46.9	-25.5	46.7	25.7	54.0	7.1	V
5850.200	41.8	-16.2	34.4	23.7	54.0	12.2	V

802.11n-HT40

Ch151

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)
17973.600	47.2	-25.5	46.7	26.0	54.0	6.8	V
17969.200	47.1	-25.5	46.7	25.9	54.0	6.9	H
17971.400	47.1	-25.5	46.7	25.9	54.0	6.9	V
17994.000	47.1	-25.5	46.7	25.9	54.0	6.9	H
17964.800	47.0	-25.5	46.7	25.8	54.0	7.0	H
5724.300	50.2	-16.3	34.3	32.2	54.0	3.8	V

Ch159

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)
17947.800	47.1	-25.5	46.7	25.9	54.0	6.9	H
17994.500	47.1	-25.5	46.7	25.9	54.0	6.9	V
17953.800	47.0	-25.5	46.7	25.8	54.0	7.0	V
17957.100	47.0	-25.5	46.7	25.8	54.0	7.0	H
17992.300	47.0	-25.5	46.7	25.8	54.0	7.0	H
5851.700	41.4	-16.2	34.4	23.3	54.0	12.6	V

802.11ac-HT20

Ch149

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)
17963.700	47.0	-25.5	46.7	25.8	54.0	7.0	V
17967.000	46.9	-25.5	46.7	25.7	54.0	7.1	H
17981.300	46.9	-25.5	46.7	25.7	54.0	7.1	H
17984.000	46.9	-25.5	46.7	25.7	54.0	7.1	V
17991.800	46.9	-25.5	46.7	25.7	54.0	7.1	V
5725.000	56.0	-16.3	34.3	38.0	122.0	66.0	V

Ch157

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)
17978.000	47.1	-25.5	46.7	25.9	54.0	6.9	H
17985.700	47.1	-25.5	46.7	25.9	54.0	6.9	V
17992.800	47.1	-25.5	46.7	25.9	54.0	6.9	V
17983.500	47.0	-25.5	46.7	25.8	54.0	7.0	V
17994.000	47.0	-25.5	46.7	25.8	54.0	7.0	H
17948.800	46.9	-25.5	46.7	25.7	54.0	7.1	H

Ch165

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)
17973.000	47.3	-25.5	46.7	26.1	54.0	6.7	V
17973.600	47.3	-25.5	46.7	26.1	54.0	6.7	H
17974.700	47.1	-25.5	46.7	25.9	54.0	6.9	V
17975.800	47.1	-25.5	46.7	25.9	54.0	6.9	V
17996.700	47.1	-25.5	46.7	25.9	54.0	6.9	V
5852.000	40.6	-16.2	34.4	22.5	54.0	13.4	V

802.11ac-HT40

Ch151

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)
17993.400	47.3	-25.5	46.7	26.1	54.0	6.7	H
17969.800	47.2	-25.5	46.7	26.0	54.0	6.8	H
17970.300	47.1	-25.5	46.7	25.9	54.0	6.9	V
17986.200	47.1	-25.5	46.7	25.9	54.0	6.9	H
17964.800	47.0	-25.5	46.7	25.8	54.0	7.0	H
5724.500	46.9	-16.3	34.3	28.9	54.0	7.1	V

Ch159

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)
17972.000	47.3	-25.5	46.7	26.1	54.0	6.7	V
17975.800	47.2	-25.5	46.7	26.0	54.0	6.8	H
17980.200	47.2	-25.5	46.7	26.0	54.0	6.8	V
17948.800	47.1	-25.5	46.7	25.9	54.0	6.9	V
17972.500	47.1	-25.5	46.7	25.9	54.0	6.9	H
5850.400	41.1	-16.2	34.4	23.0	54.0	12.9	V

802.11ac-HT80

Ch155

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)
17991.200	47.2	-25.5	46.7	26.0	54.0	6.8	V
17974.700	47.1	-25.5	46.7	25.9	54.0	6.9	V
17985.700	47.1	-25.5	46.7	25.9	54.0	6.9	V
17998.300	47.1	-25.5	46.7	25.9	54.0	6.9	V
17975.800	47.0	-25.5	46.7	25.8	54.0	7.0	V
17976.300	47.0	-25.5	46.7	25.8	54.0	7.0	V

Peak Results：

802.11a

Ch149

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)
17962.000	58.6	-25.5	46.7	37.4	74.0	15.4	V
17965.900	58.1	-25.5	46.7	36.9	74.0	15.9	V
17983.500	58.1	-25.5	46.7	36.9	74.0	15.9	V
17996.700	58.1	-25.5	46.7	36.9	74.0	15.9	V
17958.200	58.0	-25.5	46.7	36.8	74.0	16.0	H
5725.000	58.7	-16.3	34.3	40.7	74.0	15.3	V

Ch157

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)
17965.300	59.5	-25.5	46.7	38.3	74.0	14.5	V
17962.000	58.5	-25.5	46.7	37.3	74.0	15.5	V
17977.500	58.5	-25.5	46.7	37.3	74.0	15.5	H
17904.800	58.4	-25.5	46.7	37.2	74.0	15.6	V
17951.600	58.4	-25.5	46.7	37.2	74.0	15.6	V
17967.500	58.4	-25.5	46.7	37.2	74.0	15.6	H

Ch165

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)
17962.600	59.0	-25.5	46.7	37.8	74.0	15.0	H
17976.900	58.9	-25.5	46.7	37.7	74.0	15.1	V
17968.100	58.8	-25.5	46.7	37.6	74.0	15.2	V
17995.000	58.7	-25.5	46.7	37.5	74.0	15.3	V
17958.200	58.2	-25.5	46.7	37.0	74.0	15.8	V
5851.300	57.2	-16.2	34.4	39.1	74.0	16.8	V

802.11n-HT20

Ch149

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)
17994.500	58.5	-25.5	46.7	37.3	74.0	15.5	V
17988.500	58.4	-25.5	46.7	37.2	74.0	15.6	H
17962.600	58.3	-25.5	46.7	37.1	74.0	15.7	H
17985.200	58.2	-25.5	46.7	37.0	74.0	15.8	H
17937.800	58.0	-25.5	46.7	36.8	74.0	16.0	V
5724.900	59.3	-16.3	34.3	41.3	74.0	14.7	V

Ch157

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)
17986.200	58.4	-25.5	46.7	37.2	74.0	15.6	H
17936.200	58.2	-25.5	46.7	37.0	74.0	15.8	H
17974.200	58.1	-25.5	46.7	36.9	74.0	15.9	H
17954.300	58.0	-25.5	46.7	36.8	74.0	16.0	H
17961.000	58.0	-25.5	46.7	36.8	74.0	16.0	H
17792.100	57.9	-25.5	46.7	36.7	74.0	16.1	H

Ch165

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)
17981.800	58.0	-25.5	46.7	36.8	74.0	16.0	V
17888.900	57.9	-25.5	46.7	36.7	74.0	16.1	H
17942.800	57.9	-25.5	46.7	36.7	74.0	16.1	V
17972.500	57.9	-25.5	46.7	36.7	74.0	16.1	H
17858.700	57.8	-25.5	46.7	36.6	74.0	16.2	V
5851.500	55.1	-16.2	34.4	37.0	74.0	18.9	V

802.11n-HT40

Ch151

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)
17968.700	59.1	-25.5	46.7	37.9	74.0	14.9	H
17980.200	58.9	-25.5	46.7	37.7	74.0	15.1	V
17984.600	58.7	-25.5	46.7	37.5	74.0	15.3	V
17957.100	58.4	-25.5	46.7	37.2	74.0	15.6	V
17985.200	58.2	-25.5	46.7	37.0	74.0	15.8	V
5723.300	62.6	-16.3	34.3	44.6	74.0	11.4	V

Ch159

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)
17957.700	58.9	-25.5	46.7	37.7	74.0	15.1	V
17975.200	58.2	-25.5	46.7	37.0	74.0	15.8	V
17967.000	58.1	-25.5	46.7	36.9	74.0	15.9	H
17942.800	58.0	-25.5	46.7	36.8	74.0	16.0	H
17945.000	58.0	-25.5	46.7	36.8	74.0	16.0	H
5854.500	54.6	-16.2	34.4	36.5	74.0	19.4	H

802.11ac-HT20

Ch149

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)
17956.500	59.0	-25.5	46.7	37.8	74.0	15.0	H
17977.500	58.8	-25.5	46.7	37.6	74.0	15.2	V
17982.400	58.8	-25.5	46.7	37.6	74.0	15.2	H
17990.100	58.8	-25.5	46.7	37.6	74.0	15.2	H
17981.300	58.6	-25.5	46.7	37.4	74.0	15.4	H
5725.000	69.2	-16.3	34.3	51.2	74.0	4.8	V

Ch157

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)
17994.000	58.8	-25.5	46.7	37.6	74.0	15.2	H
17978.000	58.5	-25.5	46.7	37.3	74.0	15.5	H
17979.700	58.5	-25.5	46.7	37.3	74.0	15.5	H
17991.200	58.2	-25.5	46.7	37.0	74.0	15.8	H
17861.400	58.0	-25.5	46.7	36.8	74.0	16.0	V
17959.800	57.9	-25.5	46.7	36.7	74.0	16.1	H

Ch165

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)
17970.300	59.2	-25.5	46.7	38.0	74.0	14.8	H
17941.200	58.9	-25.5	46.7	37.7	74.0	15.1	H
17976.900	58.8	-25.5	46.7	37.6	74.0	15.2	V
17994.500	58.6	-25.5	46.7	37.4	74.0	15.4	V
17887.800	58.4	-25.5	46.7	37.2	74.0	15.6	H
5855.900	53.2	-16.2	34.4	35.1	74.0	20.8	V

802.11ac-HT40

Ch151

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)
17982.400	58.7	-25.5	46.7	37.5	74.0	15.3	V
17992.300	58.7	-25.5	46.7	37.5	74.0	15.3	H
17994.000	58.6	-25.5	46.7	37.4	74.0	15.4	H
17968.100	58.5	-25.5	46.7	37.3	74.0	15.5	V
17997.200	58.2	-25.5	46.7	37.0	74.0	15.8	H
5724.100	59.9	-16.3	34.3	41.9	74.0	14.1	V

Ch159

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)
17977.500	59.1	-25.5	46.7	37.9	74.0	14.9	V
17987.300	58.8	-25.5	46.7	37.6	74.0	15.2	H
17957.100	58.6	-25.5	46.7	37.4	74.0	15.4	H
17858.100	58.4	-25.5	46.7	37.2	74.0	15.6	V
17958.200	58.3	-25.5	46.7	37.1	74.0	15.7	H
5851.400	55.3	-16.2	34.4	37.2	74.0	18.7	V

802.11ac-HT80

Ch155

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)
17983.000	58.5	-25.5	46.7	37.3	74.0	15.5	V
17965.900	58.3	-25.5	46.7	37.1	74.0	15.7	H
17967.000	58.2	-25.5	46.7	37.0	74.0	15.8	V
17972.500	58.1	-25.5	46.7	36.9	74.0	15.9	H
17983.500	58.1	-25.5	46.7	36.9	74.0	15.9	H
17997.800	58.1	-25.5	46.7	36.9	74.0	15.9	H

Sample:

Result(58.5 dBμV/m)= P_{Mea} (37.3 dBμV/m)+Cable Loss(-25.5 dB) + Antenna Factor(46.7 dB/m)

B.6. Band Edges Compliance

B.6.1 Band Edges - Radiated

Measurement Limit:

Standard	Limit (dBm/MHz)	
FCC 47 CFR Part 15.407	at the band edge	27
	at 5 MHz above or below the band edge	15.6
	at 25 MHz above or below the band edge	10
	at 75 MHz or more above or below the band edge	-27
	Note：increasing linearly from point to point.	

The measurement is made according to KDB 789033 D02
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)).

Set up:
Tabletop devices shall be placed on a nonconducting platform with nominal top surface dimensions 1 m by 1.5 m and the table height shall be 1.5 m.
The EUT and transmitting antenna shall be centered on the turntable.

Test Condition
The EUT shall be tested 1 near top, 1 near middle, and 1 near bottom. Set the unlicensed wireless device to operate in continuous transmit mode. For unlicensed wireless devices unable to be configured for 100% duty cycle even in test mode, configure the system for the maximum duty cycle supported.
When required for unlicensed wireless devices, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Exploratory radiated emissions measurements
Exploratory radiated measurements shall be performed at the measurement distance or at a closer distance than that specified for compliance to determine the emission characteristics of the EUT and, if applicable, the EUT configuration that produces the maximum level of emissions. The frequencies of maximum emission may be determined by manually positioning the antenna close to the EUT, and then moving the antenna over all sides of the EUT while observing a spectral display. It is advantageous to have prior knowledge of the frequencies of emissions, although this may be determined from such a near-field scan. The near-field scan shall only be used to determine the frequency but not the amplitude of the emissions. Where exploratory measurements are not adequate to determine the worst-case operating modes and are used only to identify the frequencies of the highest emissions, additional preliminary tests can be required.
For emissions from the EUT, the maximum level shall be determined by rotating the EUT and its antenna through 0° to 360°. For each mode of operation required to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored.
Broadband antennas and a spectrum analyzer or a radio-noise meter with a panoramic display are

often useful in this type of test. If either antenna height or EUT azimuth are not fully measured during exploratory testing, then complete testing can be required at the OATS or semi-anechoic chamber when the final full spectrum testing is performed.

Final radiated emissions measurements

The final measurements are using the orientation and equipment arrangement of the EUT based on the measurement results found during the preliminary (exploratory) measurements, the EUT arrangement, appropriate modulation, and modes of operation that produce the emissions that have the highest amplitude relative to the limit shall be selected for the final measurement.

For emissions from the EUT, the maximum level shall be determined by rotating the EUT and its antenna through 0° to 360°. Final measurements for the EUT require a measurement antenna height scan of 1 m to 4 m and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. For each mode of operation required to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored. For each mode selected, record the frequency and amplitude of the highest fundamental emission (if applicable), as well as the frequency and amplitude of the six highest spurious emissions relative to the limit. Emissions more than 20 dB below the limit do not need to be reported.

This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The receiver references:

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100KHz/300KHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

Conclusion: PASS

Measurement Result:

Mode	Channel	Test Results	Conclusion
802.11a	5745 MHz	Fig.15	P
	5825 MHz	Fig.16	P
802.11n HT20	5745 MHz	Fig.17	P
	5825 MHz	Fig.18	P
802.11ac HT20	5745 MHz	Fig.19	P
	5825 MHz	Fig.20	P
802.11n HT40	5755 MHz	Fig.21	P
	5795 MHz	Fig.22	P
802.11ac HT40	5755 MHz	Fig.23	P
	5795 MHz	Fig.24	P
802.11ac HT80	5775 MHz	Fig.26	P
	5775 MHz	Fig.26	P

Test graphs as below:

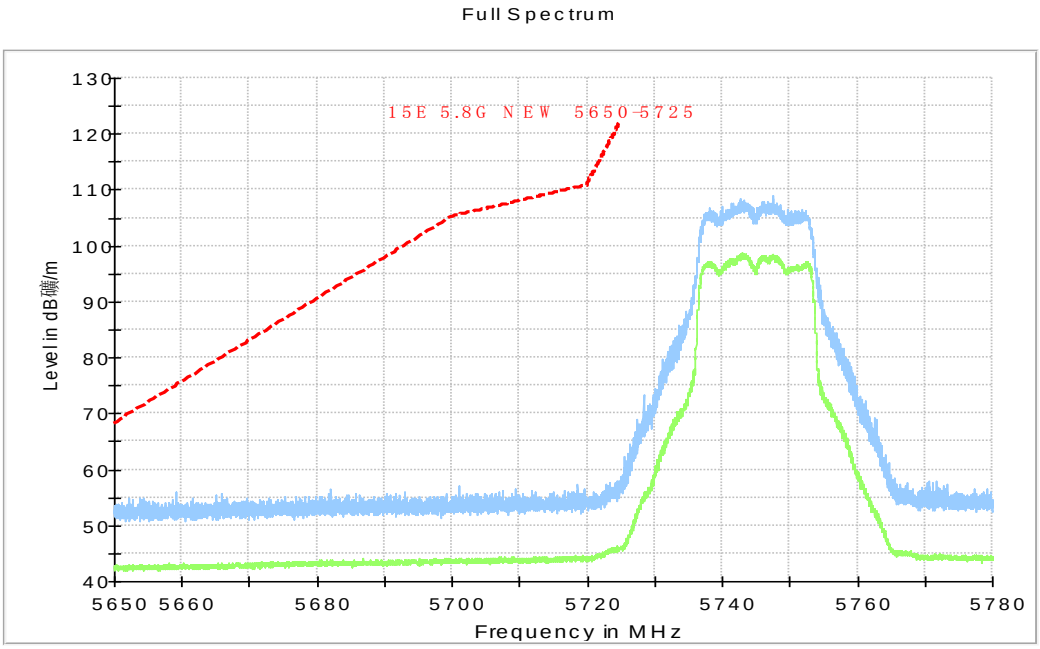


Fig. 15 Band Edges (802.11a, 5745MHz)

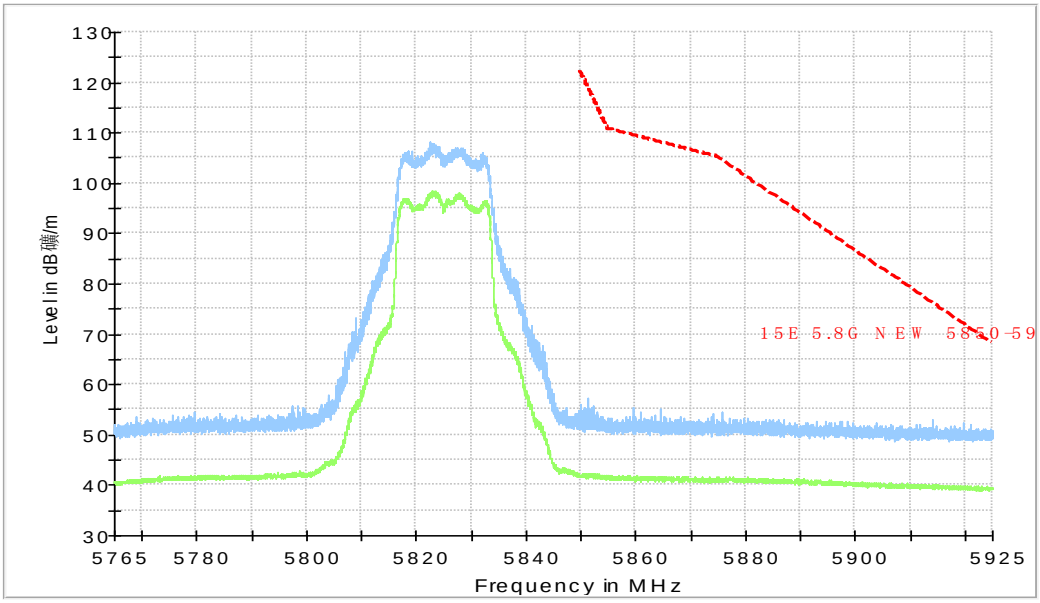


Fig. 16 Band Edges (802.11a, 5825MHz)

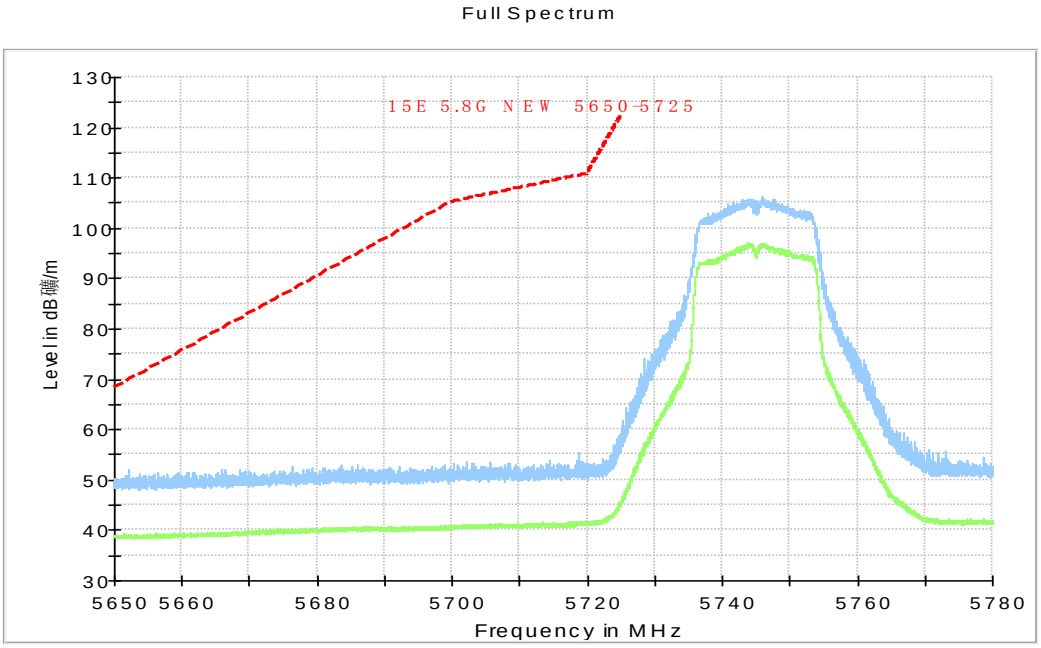


Fig. 17 Band Edges (802.11n-HT20, 5745MHz)

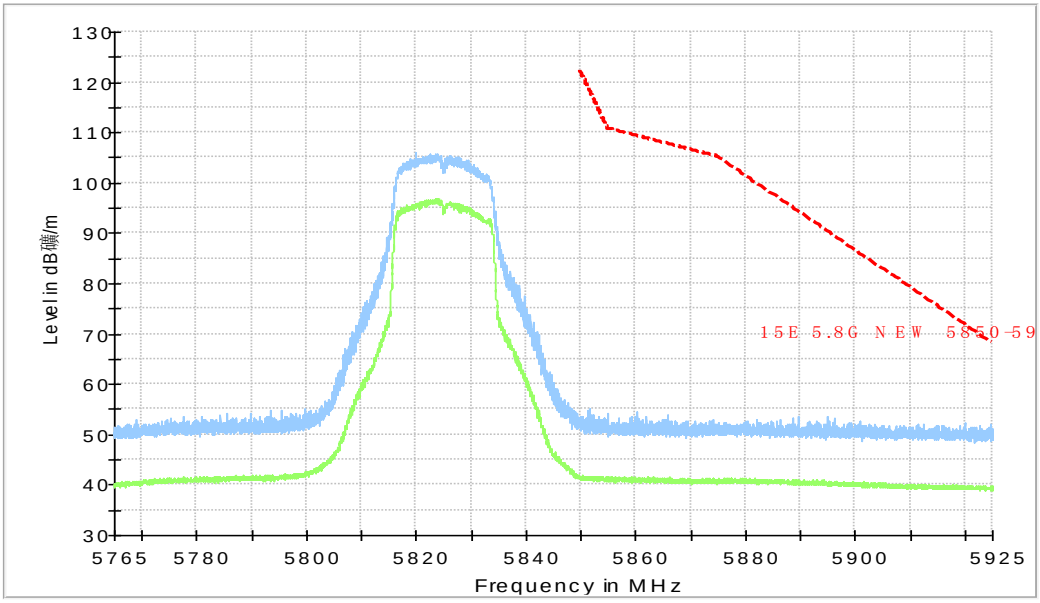


Fig. 18 Band Edges (802.11n-HT20, 5825MHz)

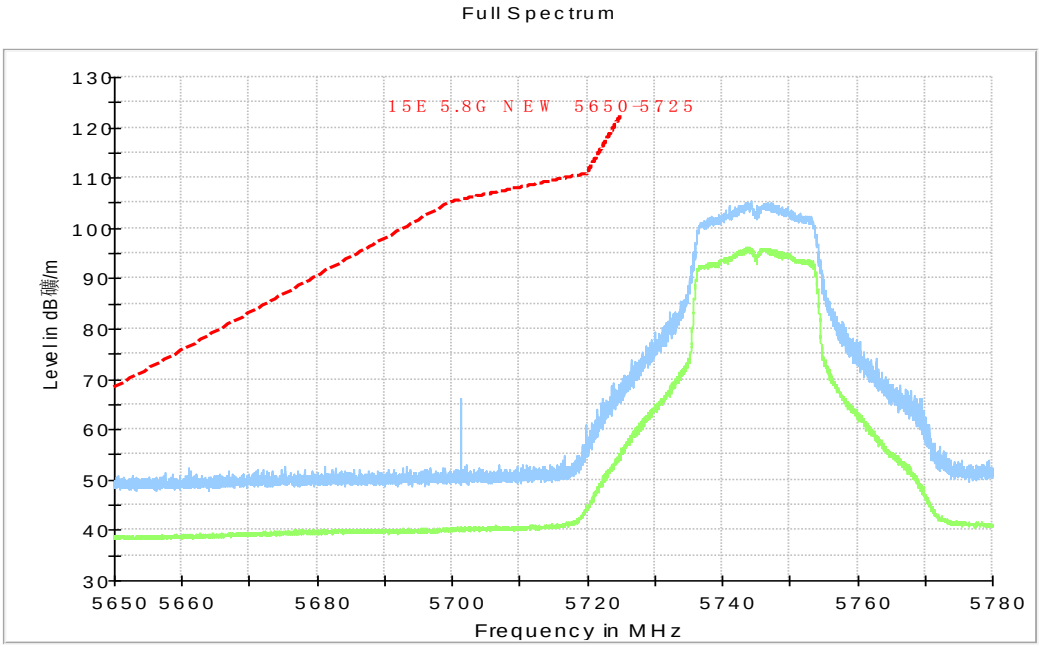


Fig. 19 Band Edges (802.11ac-HT20, 5745MHz)

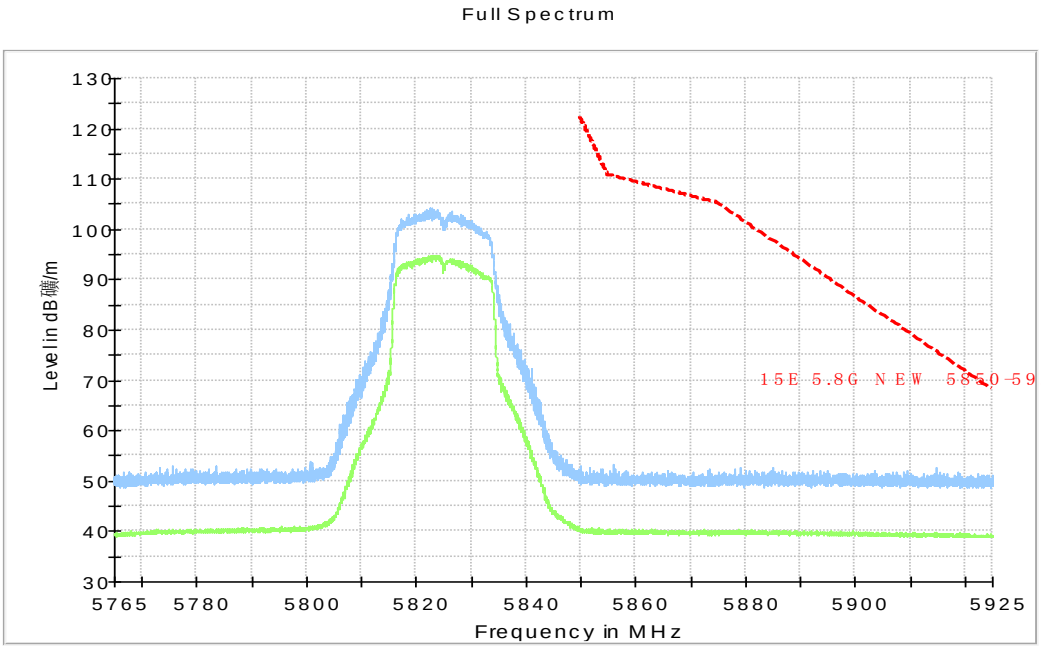


Fig. 20 Band Edges (802.11ac-HT20, 5825MHz)

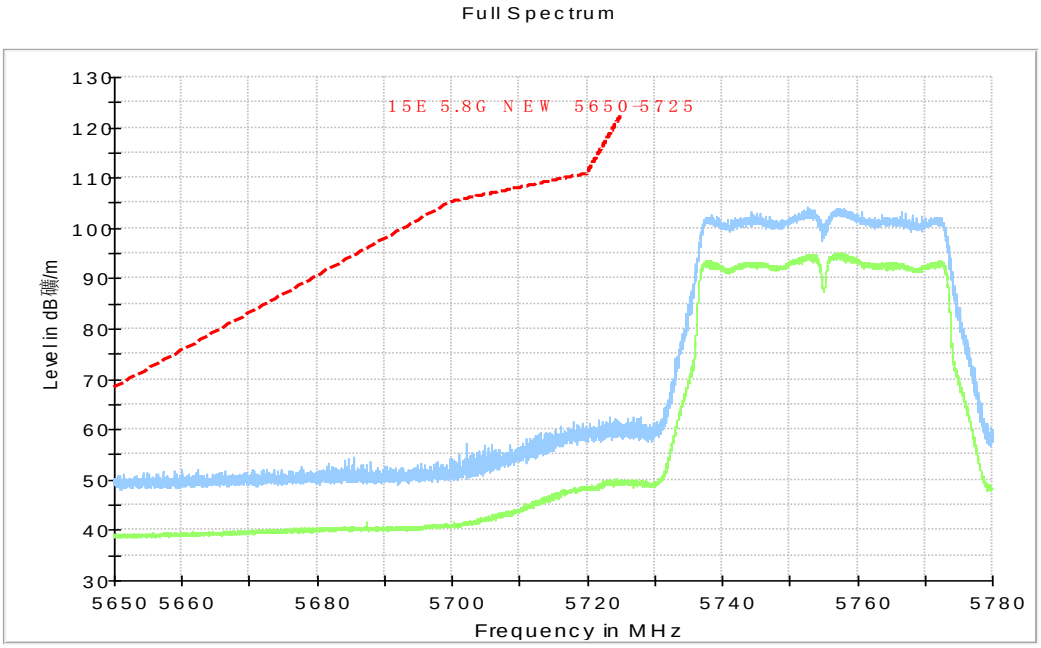


Fig. 21 Band Edges (802.11n-HT40, 5755MHz)

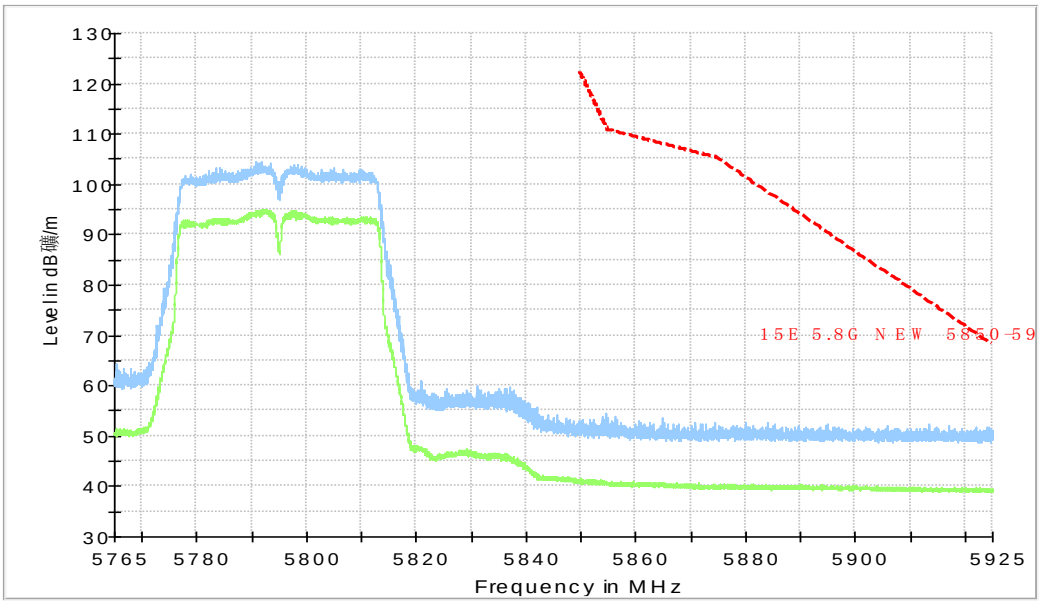


Fig. 22 Band Edges (802.11n-HT40, 5795MHz)

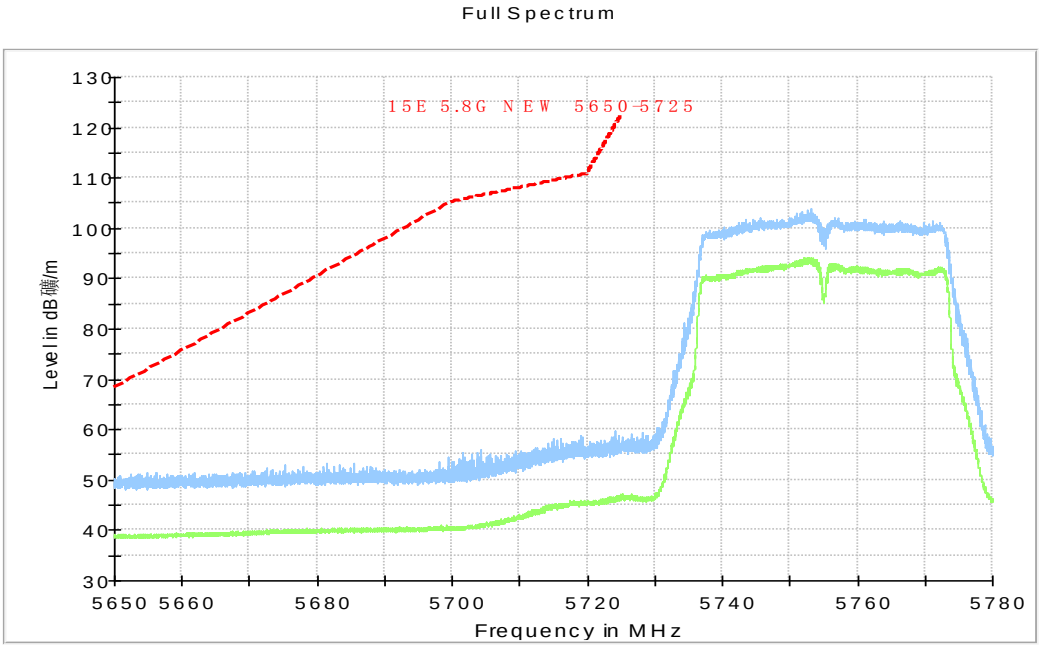


Fig. 23 Band Edges (802.11ac-HT40, 5755MHz)

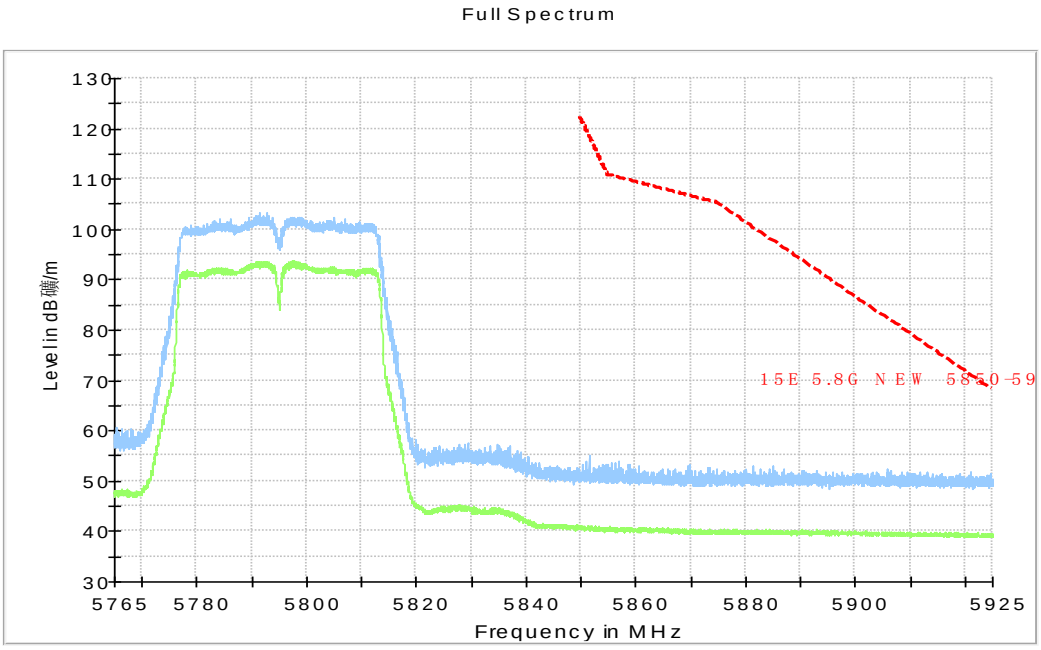


Fig. 24 Band Edges (802.11ac-HT40, 5795MHz)

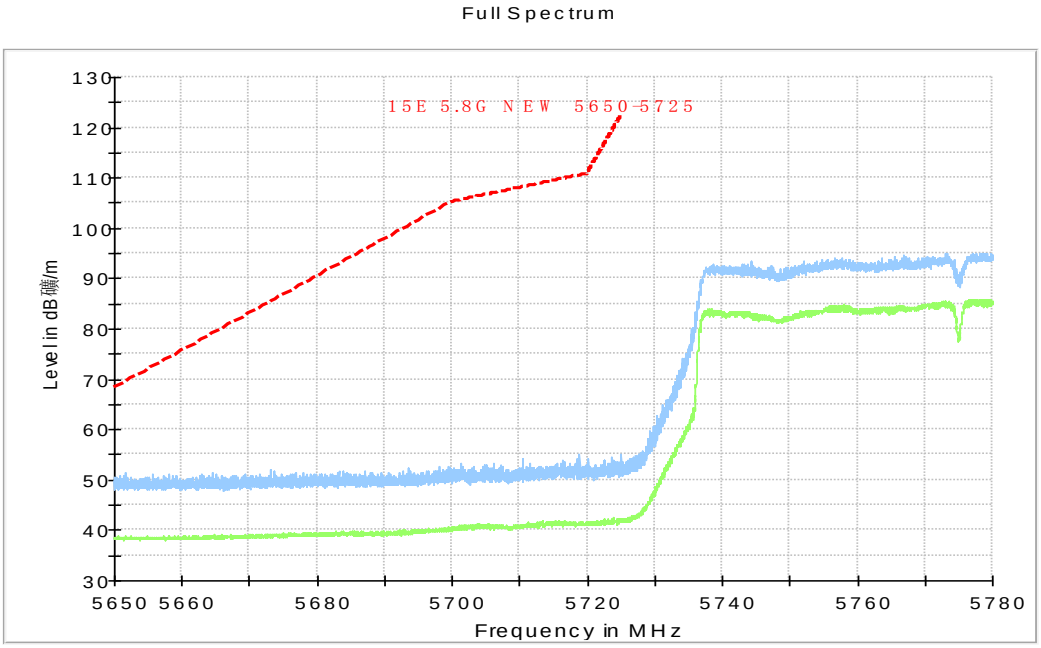


Fig. 25 Band Edges (802.11ac-HT80, 5775MHz)

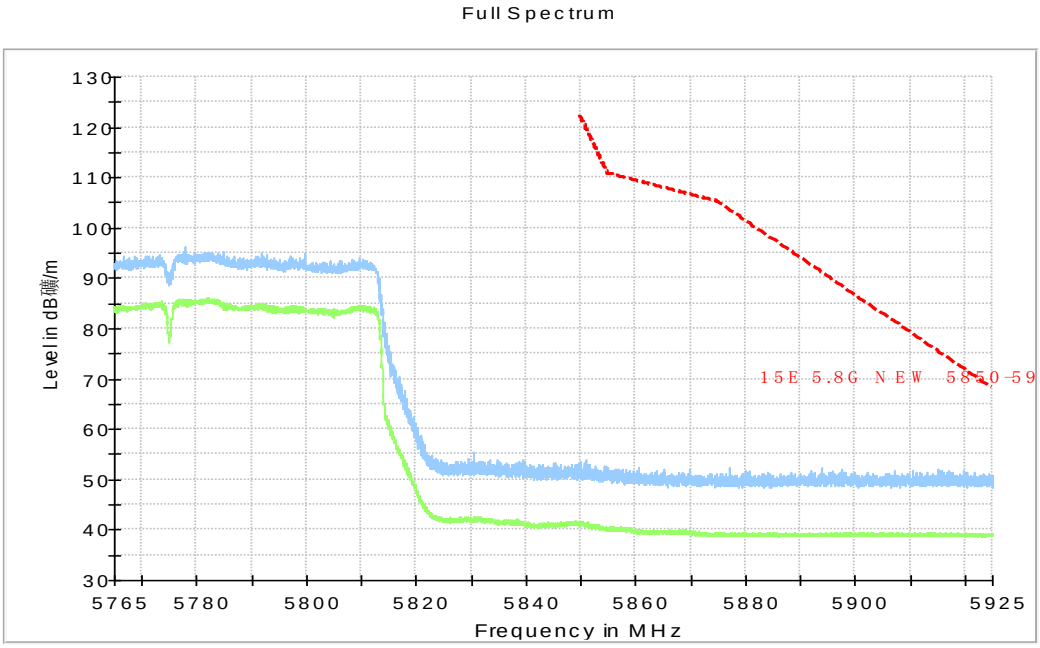


Fig. 26 Band Edges (802.11ac-HT80, 5775MHz)

B.7. AC Powerline Conducted Emission

Test Condition:

Voltage（V）	Frequency（Hz）
120	60

Measurement uncertainty:

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

Measurement Result and limit:

Charger WC0506A51GB

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11a	Idle	
0.15 to 0.5	66 to 56	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		
		802.11a	Idle	
0.15 to 0.5	56 to 46	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.				

Charger WC0506A51JH

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11a	Idle	
0.15 to 0.5	67 to 56	Fig.29	/	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	

		802.11a	**Idle**	
0.15 to 0.5	56 to 46	Fig.29	/	**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.				

Charger WC030B51HK

WLAN (Quasi-peak Limit)

Frequency range (MHz)	**Quasi-peak Limit (dBμV)**	**Result (dBμV)**		**Conclusion**
		With charger		
		802.11a	**Idle**	
0.15 to 0.5	68 to 56	Fig.30	**/**	**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		
		802.11a	**Idle**	
0.15 to 0.5	56 to 46	Fig.30	/	**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.				

The measurement is made according to ANSI C63.10 .

Conclusion: PASS

Test graphs as below:

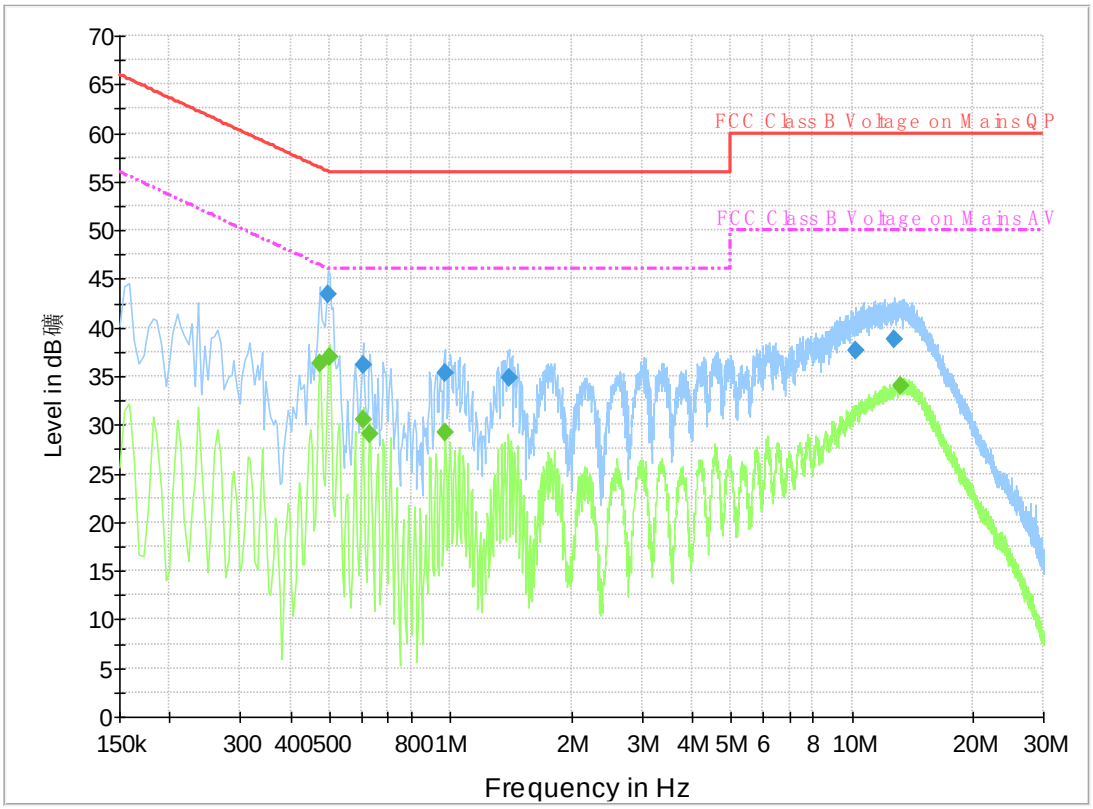


Fig. 27 AC Powerline Conducted Emission-802.11a(Charger WC0506A51GB)

Measurement Result 1:

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.496500	43.4	GND	N	10.0	12.7	56.1
0.604500	36.2	GND	L1	10.0	19.8	56.0
0.969000	35.4	GND	L1	10.0	20.6	56.0
1.396500	34.8	GND	L1	10.0	21.2	56.0
10.252500	37.6	GND	L1	10.4	22.4	60.0
12.781500	38.8	GND	L1	10.6	21.2	60.0

Measurement Result 2:

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.474000	36.3	GND	L1	10.0	10.2	46.4
0.501000	37.0	GND	L1	10.0	9.0	46.0
0.604500	30.6	GND	L1	10.0	15.4	46.0
0.631500	29.0	GND	L1	10.0	17.0	46.0
0.969000	29.2	GND	L1	10.0	16.8	46.0
13.177500	34.0	GND	L1	10.7	16.0	50.0

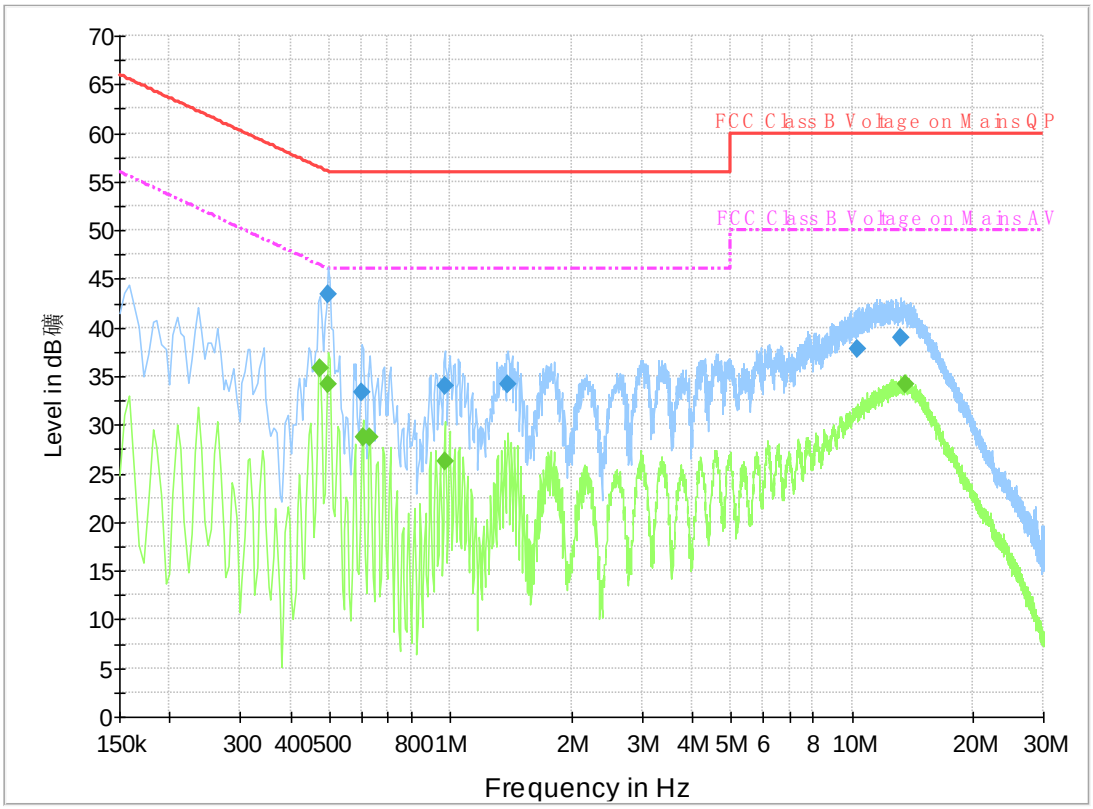


Fig. 28 AC Powerline Conducted Emission-802.11a(Charger WC0506A51GB)

Measurement Result 1:

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.496500	43.5	GND	L1	10.0	12.6	56.1
0.600000	33.3	GND	L1	10.0	22.7	56.0
0.969000	34.1	GND	L1	10.0	21.9	56.0
1.392000	34.1	GND	L1	10.0	21.9	56.0
10.320000	37.8	GND	L1	10.4	22.2	60.0
13.200000	39.0	GND	L1	10.7	21.0	60.0

Measurement Result 2:

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.474000	35.8	GND	L1	10.0	10.6	46.4
0.496500	34.1	GND	L1	10.0	11.9	46.1
0.604500	28.7	GND	L1	10.0	17.3	46.0
0.631500	28.7	GND	L1	10.0	17.3	46.0
0.969000	26.2	GND	L1	10.0	19.8	46.0
13.587000	34.1	GND	L1	10.7	15.9	50.0

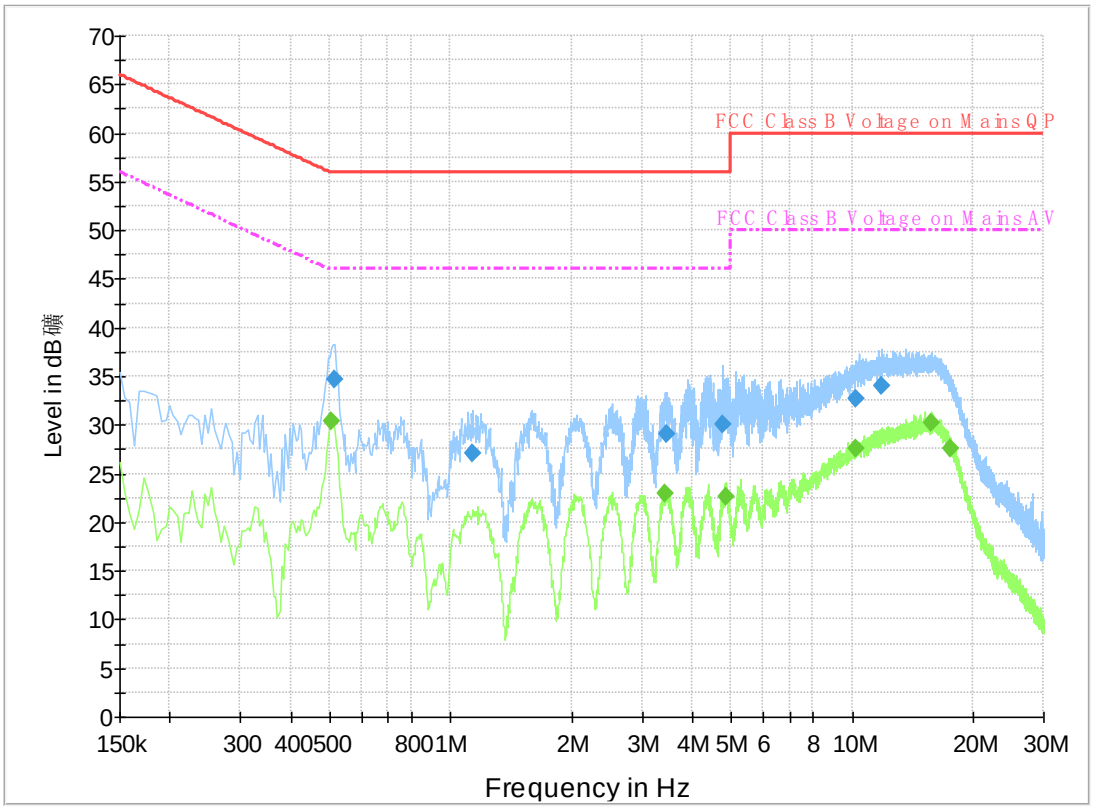


Fig. 29 AC Powerline Conducted Emission(Charger WC0506A51JH)

Measurement Result 1:

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.514500	34.7	GND	L1	10.0	21.3	56.0
1.135500	27.1	GND	L1	10.0	28.9	56.0
3.457500	29.0	GND	L1	10.1	27.0	56.0
4.780500	30.1	GND	L1	10.2	25.9	56.0
10.194000	32.8	GND	L1	10.4	27.2	60.0
11.895000	34.0	GND	L1	10.6	26.0	60.0

Measurement Result 2:

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.505500	30.4	GND	L1	10.0	15.6	46.0
3.426000	22.9	GND	L1	10.1	23.1	46.0
4.848000	22.6	GND	L1	10.2	23.4	46.0
10.243500	27.6	GND	L1	10.4	22.4	50.0
15.828000	30.2	GND	L1	10.8	19.8	50.0
17.673000	27.6	GND	L1	10.9	22.4	50.0

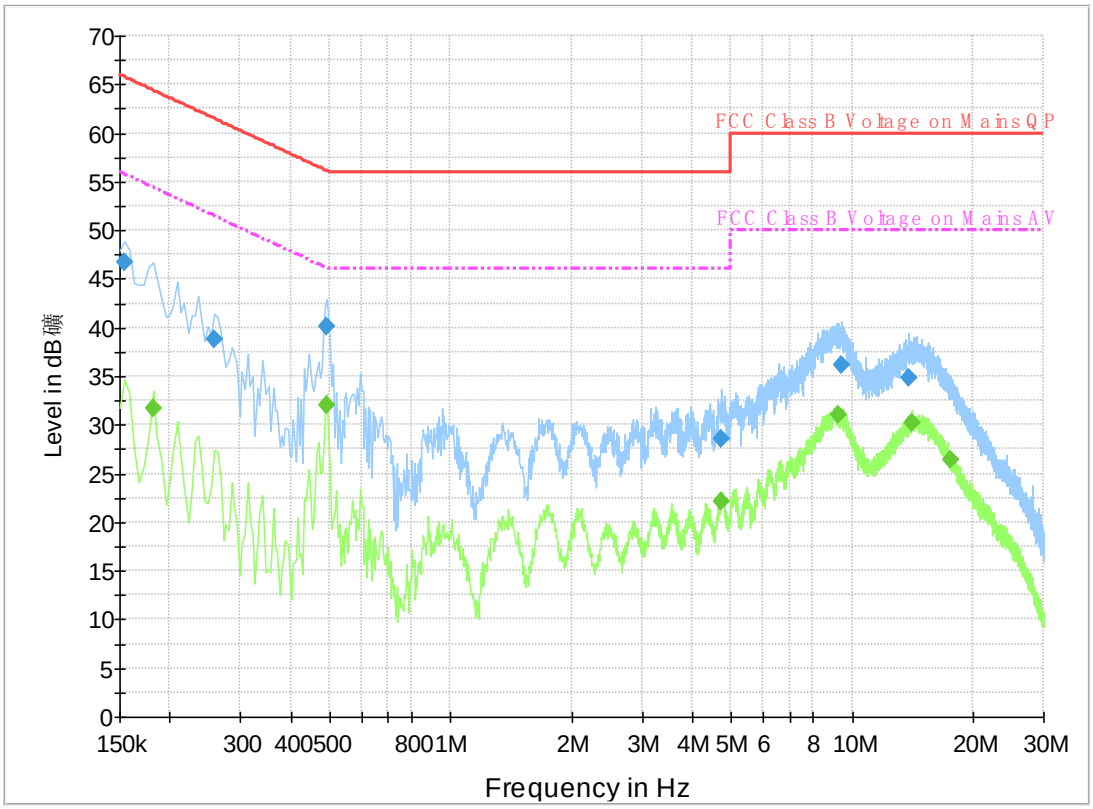


Fig. 30 AC Powerline Conducted Emission(Charger WC030B51HK)

Measurement Result 1:

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.154500	46.8	GND	L1	10.0	19.0	65.8
0.258000	38.8	GND	L1	10.0	22.7	61.5
0.492000	40.1	GND	L1	10.0	16.0	56.1
4.740000	28.6	GND	N	10.2	27.4	56.0
9.420000	36.2	GND	N	10.4	23.8	60.0
13.843500	34.9	GND	N	10.6	25.1	60.0

Measurement Result 2:

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.181500	31.7	GND	L1	10.0	22.7	54.4
0.492000	32.1	GND	L1	10.0	14.1	46.1
4.740000	22.1	GND	N	10.2	23.9	46.0
9.262500	31.0	GND	N	10.3	19.0	50.0
14.113500	30.3	GND	N	10.6	19.7	50.0
17.668500	26.4	GND	N	10.7	23.6	50.0

ANNEX C: Accreditation Certificate

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ilac-MRA

Certificate of Accreditation to ISO/IEC 17025:2017

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 17025:2017. 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).

2020-09-29 through 2021-09-30
Effective Dates

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

For the National Voluntary Laboratory Accreditation Program

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