



FCC PART 15C TEST REPORT No.I21Z61109-IOT23

for

Wingtech Group (Hong Kong) Limited

4G Mobile Phone

TMRVL4G

With

FCC ID: 2APXW-TMRVL4G

Hardware Version: 98117_1_10

Software Version: TMRVL4G_0.01.01

Issued Date: 2021-08-04

Note:

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

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I21Z61109-IOT23	Rev.0	1st edition	2021-08-04

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1. TEST LABORATORY

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 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 (ISED#: 24849). The detail accreditation scope can be found on NVLAP website.

1.2. Testing Location

Conducted testing Location: CTTL(Gaolizhang Road,)

Address: Cuihu Cloud Center, No.1, Gaolizhang Road, Wenquan,
Haidian District, Beijing, China

Radiated testing Location: CTTL(huayuan North Road)

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

1.3. Testing Environment

Normal Temperature: 15-35°C

Relative Humidity: 20-75%

1.4. Project date

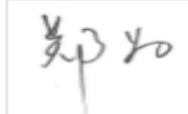
Testing Start Date: 2021-06-10

Testing End Date: 2021-08-04

1.5. Signature

谢秀珍

Xie Xiuzhen
(Prepared this test report)



Zheng Wei
(Reviewed this test report)

郑为

Hu Xiaoyu
(Approved this test report)



2. CLIENT INFORMATION

2.1. Applicant Information

Company Name: Wingtech Group (Hong Kong) Limited
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City: Hong Kong
Postal Code: /
Country: China
Telephone: /
Fax: /

2.2. Manufacturer Information

Company Name: Wingtech Group (Hong Kong) Limited
Address: Flat/RM 1903, 19/F, Podium Plaza 5 Hanoi Road, Tsim Sha Tsui
Kowloon, Hong Kong
City: Hong Kong
Postal Code: /
Country: China
Telephone: /
Fax: /

3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY

EQUIPMENT(AE)

3.1. About EUT

Description	4G Mobile Phone
Model name	TMRVL4G
FCC ID	2APXW-TMRVL4G
WLAN Frequency Band	ISM Band: 5725MHz~5850MHz
Type of modulation	OFDM
Voltage	3.85V

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version
EUT1	863892050009360	98117_1_10	TMRVL4G_0.01.01
EUT2	863892050025770	98117_1_10	TMRVL4G_0.01.01

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

3.3. Internal Identification of AE used during the test

AE ID*	Description	SN
AE1	Charger	/
AE2	USB cable	/
AE3	battery	/

AE1

Model	PA-US5V2A-036
Manufacturer	HUIZHOU PUAN ELECTRONICS CO., LTD
Length of cable	/

AE2

Description	USB CABLE ASSEMBLY
Manufacturer	Hui zhou washin
Type	711300001051
Length of cable	/

AE3

Model	JU001
Manufacturer	Jiade Energy Technology (Zhuhai) 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 4G Mobile 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 - Conducted& Radiated	15.407 (b)	/	P
Transmitter Spurious Emission - Conducted	15.407	/	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/matrix as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.1.

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

6.3. Test Conditions

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

Temperature	26°C
Voltage	3.85V
Humidity	44%

7. TEST EQUIPMENTS UTILIZED

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	1 year	2022-05-24
2	LISN	ENV216	101200	R&S	1 year	2022-05-30
3	Test Receiver	ESCI	100344	R&S	1 year	2022-02-23
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	2022-02-23
2	BiLog Antenna	VULB9163	9163-483	Schwarzbeck	1 year	2021-08-27
3	Antenna	3115	6914	ETS-Lindgren	1 year	2022-02-03
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	ETS-Lindgren	1 year	2022-01-05
5	Analytical Spectrometer	FSV40	R&S	101047	1 year	2022-05-17

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

Radiated (k=2)

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

8.6. AC Power-line Conducted Emission

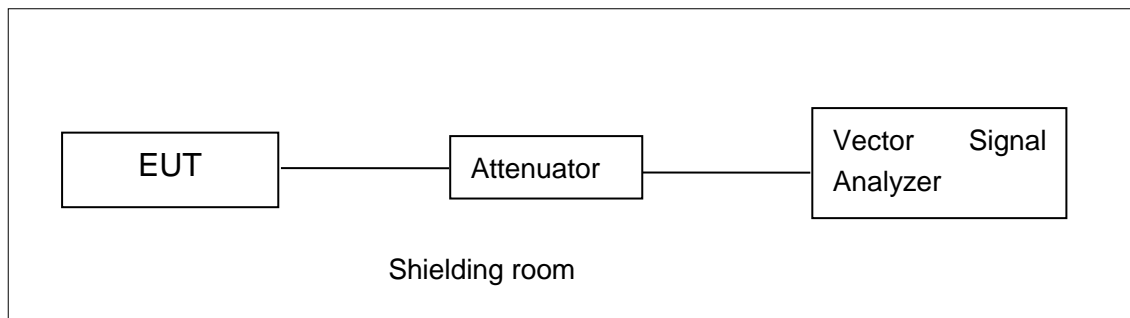
Measurement Uncertainty : 3.08dB,k=2

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

A.1.1. Conducted Measurements

- 1). Connect the EUT to the test system correctly.
- 2). Set the EUT to the required work mode.
- 3). Set the EUT to the required channel.
- 4). Set the spectrum analyzer to start measurement.
- 5). Record the values. Vector Signal Analyzer

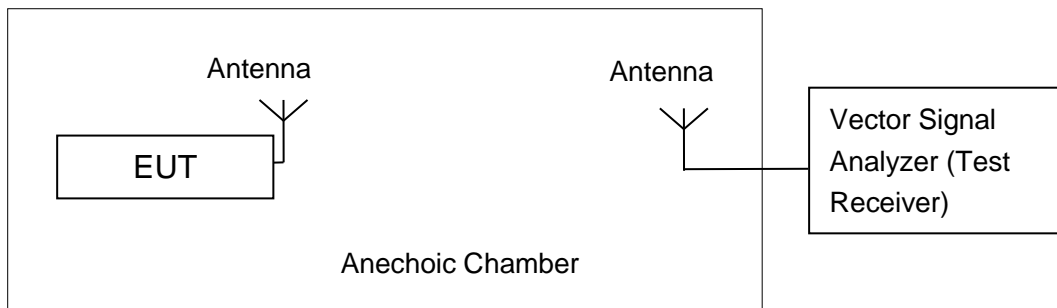


A.1.2. Radiated Emission Measurements

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

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

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



The measurement is made according to 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.

A.2. Maximum Peak Output Power

Measurement Limit and Method:

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

A.2.1 Antenna Gain

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

A.2.2. Maximum Average Output Power-Conducted

Measurement Results:

802.11a mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11a	6	19.20	19.07	19.78

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	18.76	18.43	18.37

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	18.02	17.51	17.43

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	17.41	17.03

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	18.26	17.83

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	17.32

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

The duty cycle of all mode are 100%.

Conclusion: PASS

A.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
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Measurement Results:

Mode	Channel	Power Spectral Density (dBm/500kHz)	Conclusion
802.11a	149	5.36	P
	157	4.89	P
	165	4.63	P
802.11n HT20	149	5.29	P
	157	4.61	P
	165	4.31	P
802.11ac HT40	151	1.08	P
	159	0.58	P
802.11ac HT80	155	-3.16	P

Conclusion: PASS

A.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
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Measurement Result:

Mode	Channel	Occupied 6dB Bandwidth (MHz)		conclusion
		Fig.	Value	
802.11a	149	Fig.1	16.35	P
	157	Fig.2	16.35	P
	165	Fig.3	16.35	P
802.11n HT20	149	Fig.4	17.60	P
	157	Fig.5	17.60	P
	165	Fig.6	17.60	P
802.11ac HT40	151	Fig.7	36.08	P
	159	Fig.8	36.08	P
802.11ac HT80	155	Fig.9	76.00	P

Conclusion: PASS

Test graphs as below:

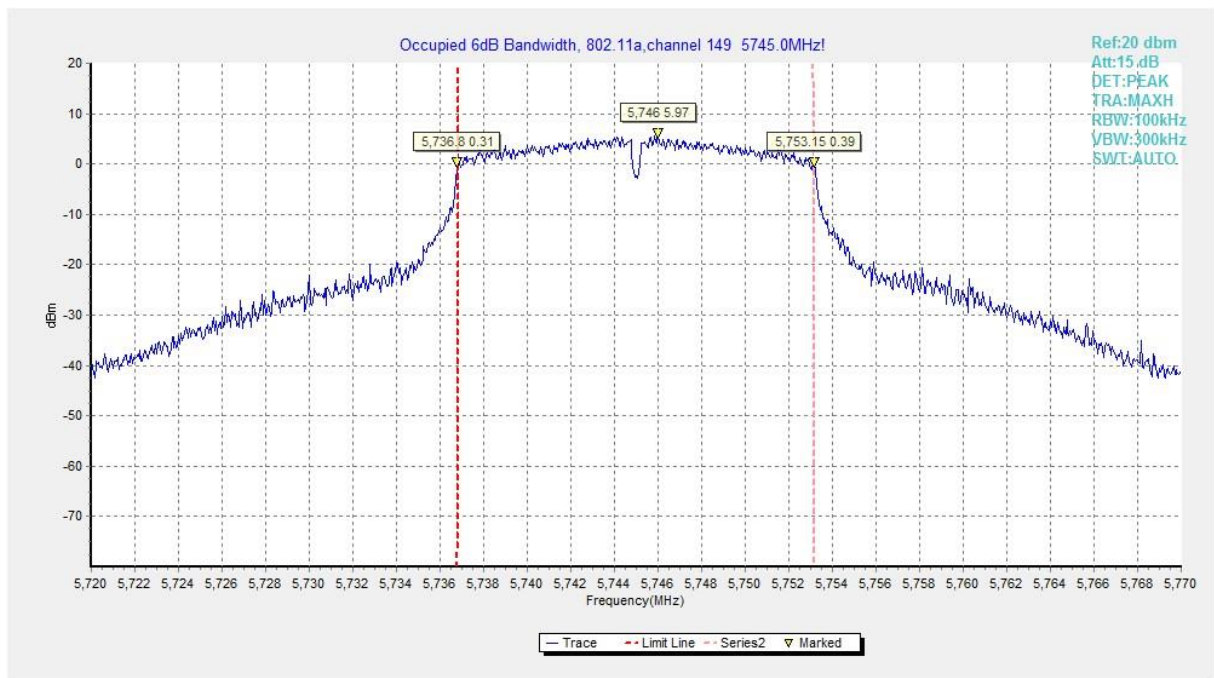


Fig. 1 Occupied 6dB Bandwidth (802.11a, Ch 149)

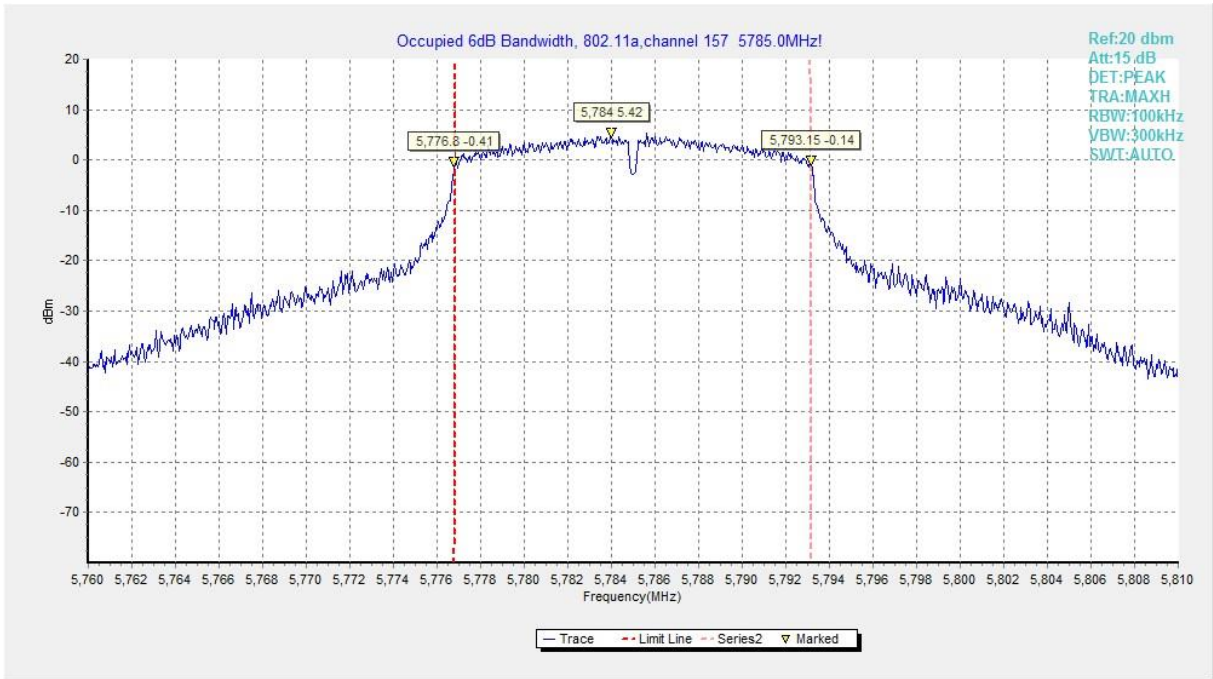


Fig. 2 Occupied 6dB Bandwidth (802.11a, Ch 157)

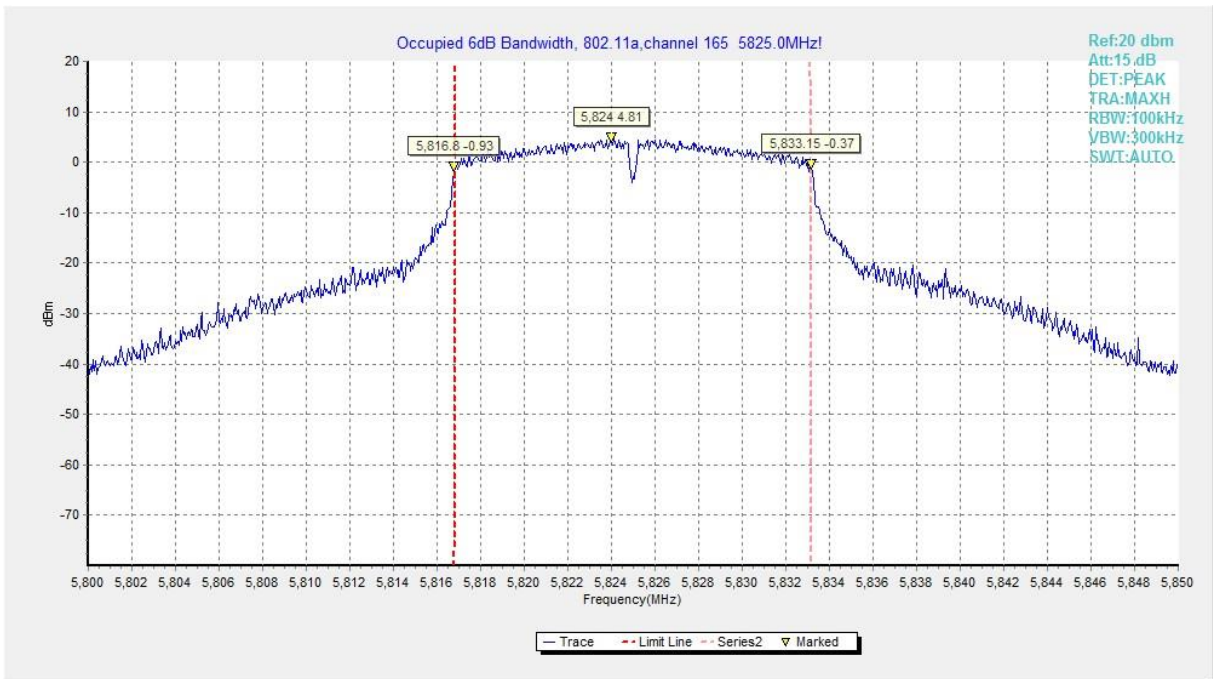


Fig. 3 Occupied 6dB Bandwidth (802.11a, Ch 165)

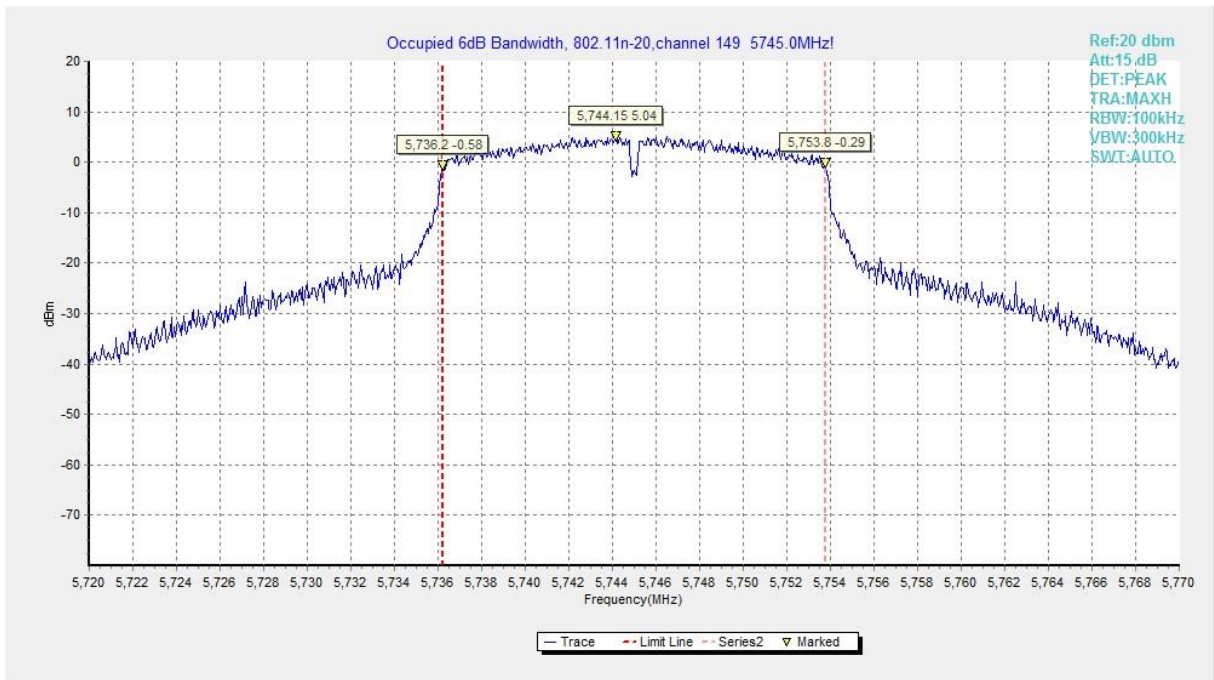


Fig. 4 Occupied 6dB Bandwidth (802.11n-HT20, Ch 149)

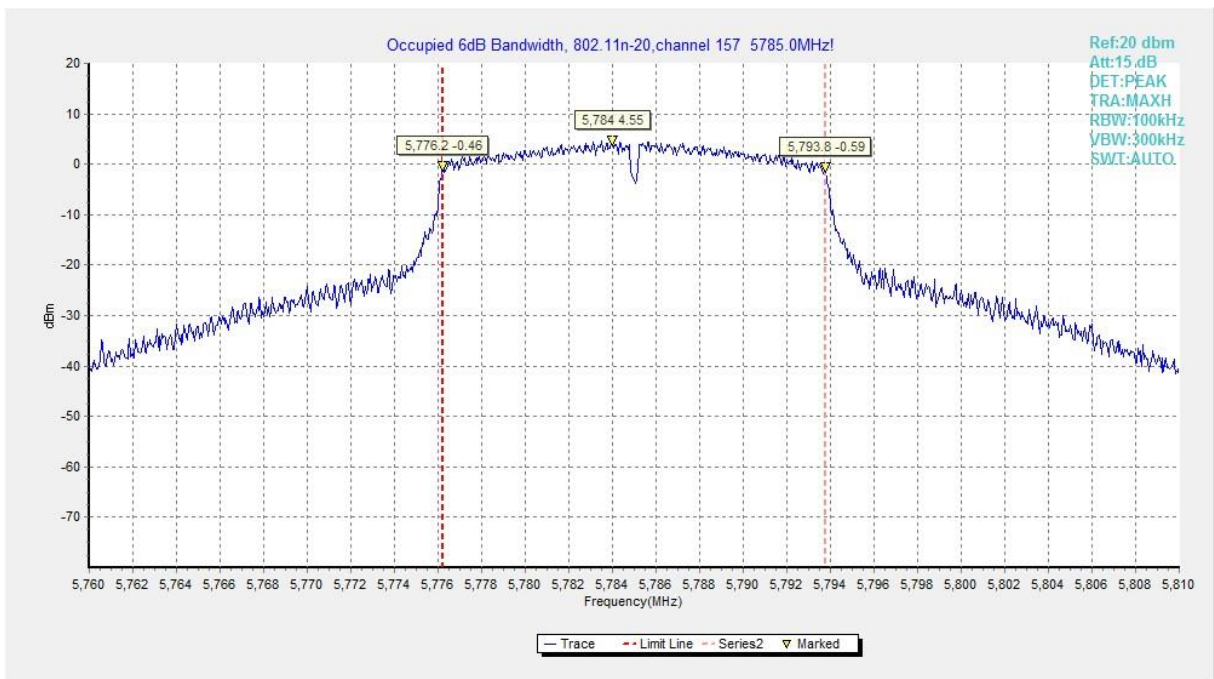


Fig. 5 Occupied 6dB Bandwidth (802.11n-HT20, Ch 157)

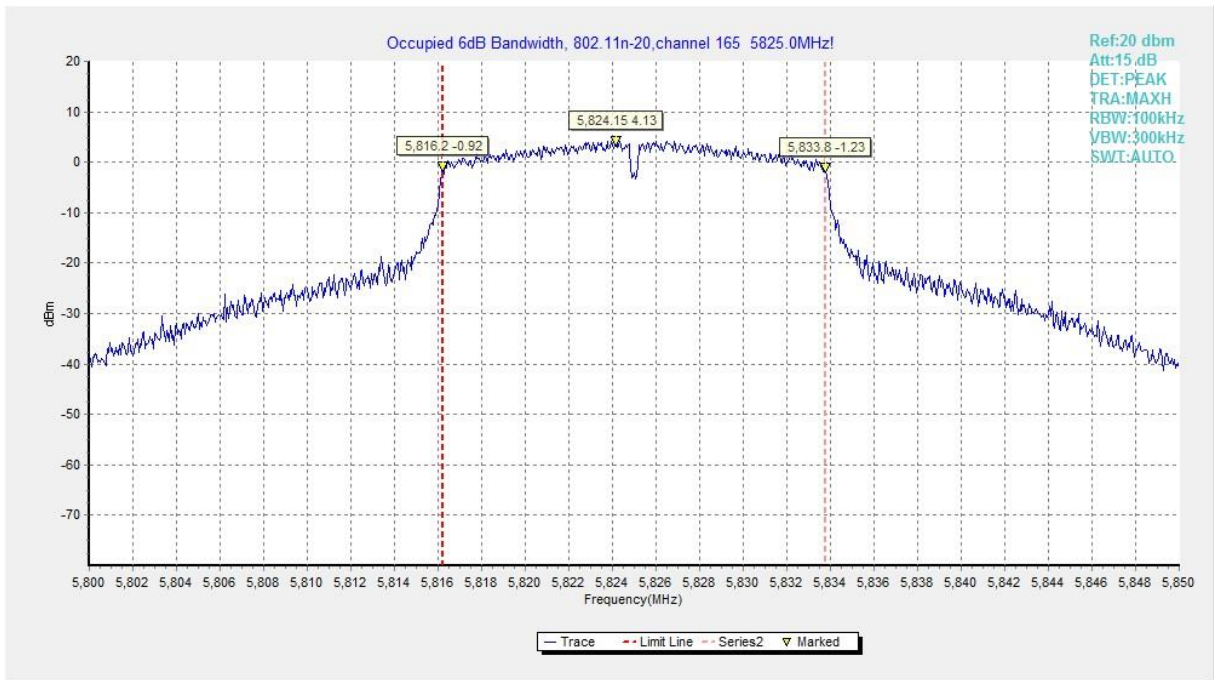


Fig. 6 Occupied 6dB Bandwidth (802.11n-HT20, Ch 165)

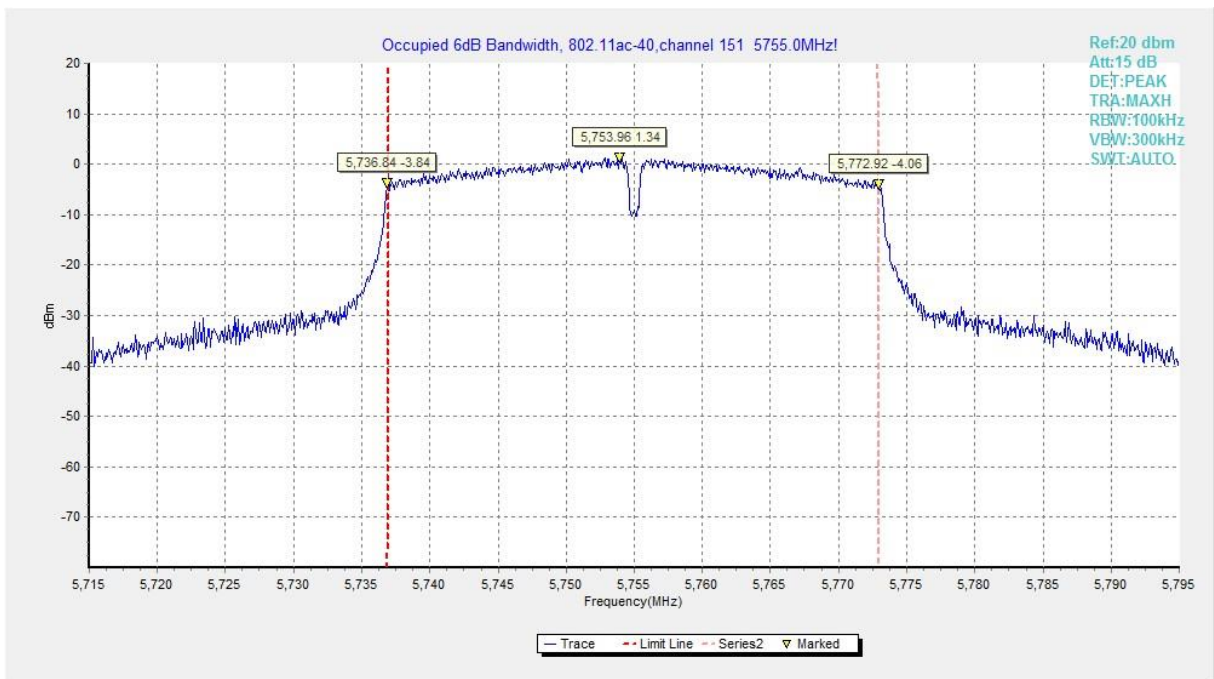


Fig. 7 Occupied 6dB Bandwidth (802.11ac-HT40, Ch 151)

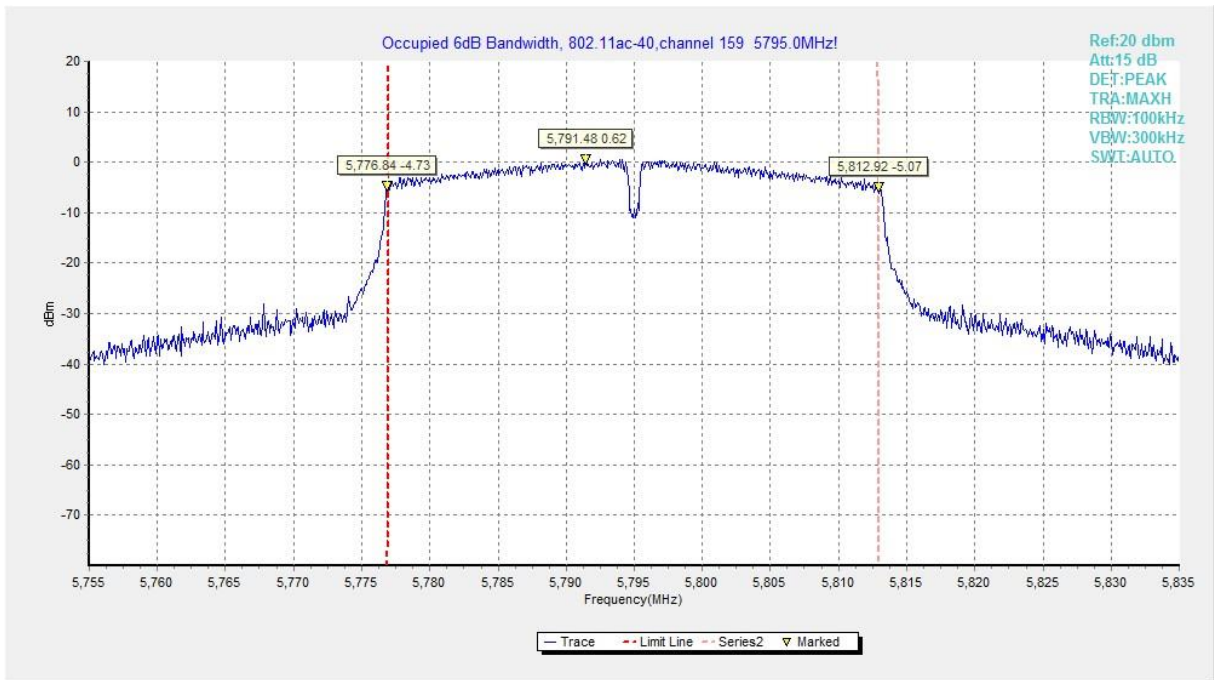


Fig. 8 Occupied 6dB Bandwidth (802.11ac-HT40, Ch 159)

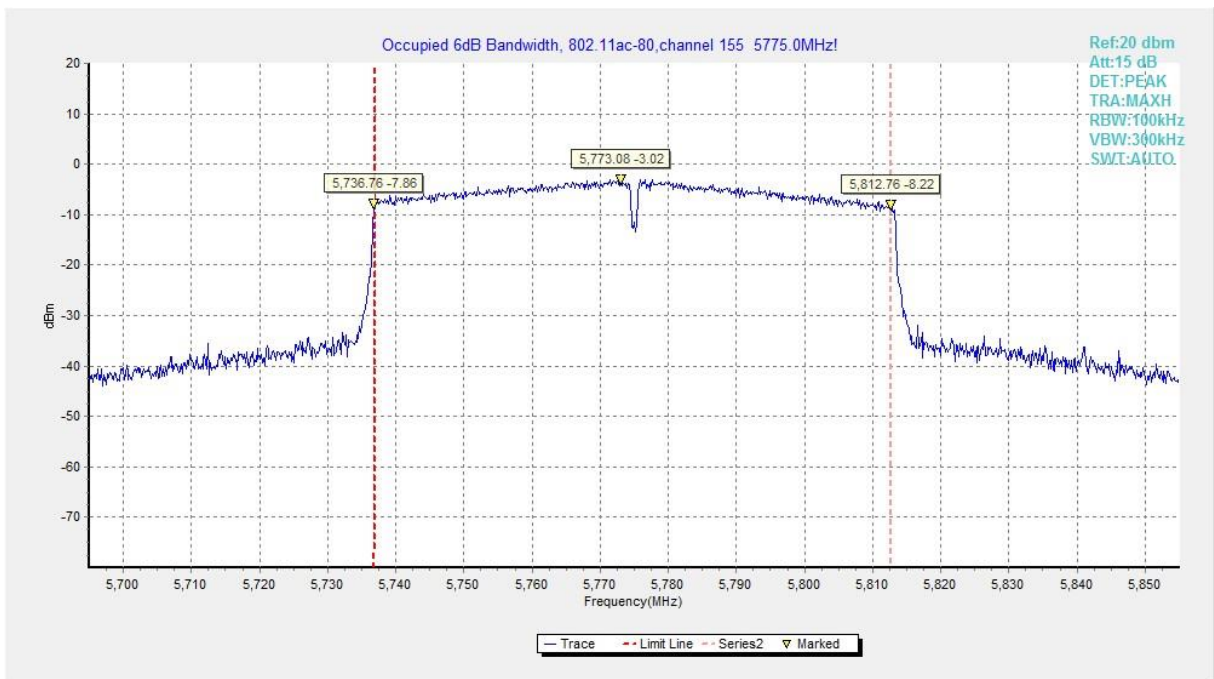


Fig. 9 Occupied 6dB Bandwidth (802.11ac-HT80, Ch 155)

A.5. Transmitter Spurious Emission

A.5.1 Transmitter Spurious Emission - 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

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 (MHz)	Field strength(μ V/m)	Measurement distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

Frequency of emission (MHz)	Field strength (μ V/m)	Field strength (dBuV/m)	Measurement distance (m)
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	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 Procedure

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. 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. 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

Measurement Results:
802.11a mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	149	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	157	9kHz ~30 MHz	---	P
		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
	165	26.5 GHz~ 40 GHz	---	P
		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)	149	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	157	9kHz ~30 MHz	---	P
		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
	165	26.5 GHz~ 40 GHz	---	P
		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)	151	9kHz ~30 MHz	---	P
		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	
	159	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
7 GHz ~ 18 GHz		---	P	

802.11ac-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11ac (HT20)	149	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	157	9kHz ~30 MHz	---	P
		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	
	165	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
7 GHz ~ 18 GHz		---	P	

802.11ac-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11ac (HT40)	151	9kHz ~30 MHz	---	P
		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	
	159	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
7 GHz ~ 18 GHz		---	P	

802.11ac-HT80 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11ac (HT80)	155	9kHz ~30 MHz	---	P
		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

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:

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

Average Results:
802.11a

Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17995.6	46.56	-25.5	46.66	25.4	54	7.44	V
17998.3	46.33	-25.5	46.66	25.17	54	7.67	H
14483.9	39.55	-28.59	42.46	25.68	54	14.45	H
14487.1	39.52	-28.59	42.46	25.65	54	14.48	H
11819.1	35.12	-31.85	39.05	27.92	54	18.88	H
11817.5	35.11	-31.85	39.05	27.91	54	18.89	V

Channel 157

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17989	46.44	-25.5	46.66	25.28	54	7.56	V
17998.3	46.34	-25.5	46.66	25.18	54	7.66	V
14483.9	39.73	-28.59	42.46	25.86	54	14.27	H
14495.4	39.41	-28.59	42.46	25.54	54	14.59	H
11910.4	35.33	-31.85	39.05	28.13	54	18.67	V
11837.8	35.24	-31.85	39.05	28.04	54	18.76	V

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17996.2	46.35	-25.5	46.66	25.19	54	7.65	H
17998.3	46.3	-25.5	46.66	25.14	54	7.7	V
14480.5	39.53	-28.59	42.46	25.66	54	14.47	V
14499.8	39.4	-28.59	42.46	25.53	54	14.6	H
11830.6	35.36	-31.85	39.05	28.16	54	18.64	V
11848.8	35.14	-31.85	39.05	27.94	54	18.86	V

802.11n-HT20

Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17991.2	46.59	-25.5	46.66	25.43	54	7.41	V
17991.8	46.38	-25.5	46.66	25.22	54	7.62	V
14494.3	39.63	-28.59	42.46	25.76	54	14.37	V
14497	39.5	-28.59	42.46	25.63	54	14.5	H
11845	35.15	-31.85	39.05	27.95	54	18.85	V
11817.5	35.1	-31.85	39.05	27.9	54	18.9	V

Channel 157

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17993.4	46.55	-25.5	46.66	25.39	54	7.45	H
17996.2	46.5	-25.5	46.66	25.34	54	7.5	V
14493.2	39.56	-28.59	42.46	25.69	54	14.44	H
14483.3	39.46	-28.59	42.46	25.59	54	14.54	V
11973.6	34.99	-31.48	39.09	27.38	54	19.01	H
11831.8	34.98	-31.85	39.05	27.78	54	19.02	H

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17990.1	46.46	-25.5	46.66	25.3	54	7.54	H
17978.5	46.39	-25.5	46.66	25.23	54	7.61	H
14490.5	39.37	-28.59	42.46	25.5	54	14.63	V
14482.2	39.36	-28.59	42.46	25.49	54	14.64	V
11835	35.27	-31.85	39.05	28.07	54	18.73	V
11844.4	35.13	-31.85	39.05	27.93	54	18.87	H

802.11n-HT40

Channel 151

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17989.5	46.78	-25.5	46.66	25.62	54	7.22	V
17994	46.71	-25.5	46.66	25.55	54	7.29	V
14498.7	39.97	-28.59	42.46	26.1	54	14.03	H
14478.9	39.52	-28.59	42.46	25.65	54	14.48	V
11820.8	35.4	-31.85	39.05	28.2	54	18.6	V
11817.5	35.24	-31.85	39.05	28.04	54	18.76	H

Channel 159

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17994.5	46.73	-25.5	46.66	25.57	54	7.27	V
17984	46.53	-25.5	46.66	25.37	54	7.47	H
14499.8	39.63	-28.59	42.46	25.76	54	14.37	V
14486.6	39.48	-28.59	42.46	25.61	54	14.52	V
11910.4	35.12	-31.85	39.05	27.92	54	18.88	H
11884	35.1	-31.85	39.05	27.9	54	18.9	V

802.11ac-HT20

Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17991.2	46.52	-25.5	46.66	25.36	54	7.48	V
17992.3	46.37	-25.5	46.66	25.21	54	7.63	V
14490.5	39.69	-28.59	42.46	25.82	54	14.31	V
14480.5	39.49	-28.59	42.46	25.62	54	14.51	V
11911.5	35.44	-31.85	39.05	28.24	54	18.56	V
11923.6	35.11	-31.48	39.09	27.5	54	18.89	H

Channel 157

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17994	46.5	-25.5	46.66	25.34	54	7.5	V
17997.8	46.46	-25.5	46.66	25.3	54	7.54	H
14483.9	39.71	-28.59	42.46	25.84	54	14.29	H
14499.2	39.5	-28.59	42.46	25.63	54	14.5	V
11853.2	34.97	-31.85	39.05	27.77	54	19.03	V
11847.7	34.94	-31.85	39.05	27.74	54	19.06	V

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17998.9	46.51	-25.5	46.66	25.35	54	7.49	V
17994	46.34	-25.5	46.66	25.18	54	7.66	V
14495.4	39.6	-28.59	42.46	25.73	54	14.4	H
14487.1	39.46	-28.59	42.46	25.59	54	14.54	V
11843.9	35.13	-31.85	39.05	27.93	54	18.87	V
11839.5	35.1	-31.85	39.05	27.9	54	18.9	V

802.11ac-HT40

Channel 151

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17997.8	46.44	-25.5	46.66	25.28	54	7.56	V
17997.2	46.31	-25.5	46.66	25.15	54	7.69	H
14482.8	39.61	-28.59	42.46	25.74	54	14.39	V
14494.3	39.51	-28.59	42.46	25.64	54	14.49	H
11900	35.28	-31.85	39.05	28.08	54	18.72	H
11622.2	35.19	-32.31	38.91	28.6	54	18.81	V

Channel 159

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17995.6	46.44	-25.5	46.66	25.28	54	7.56	H
17995	46.41	-25.5	46.66	25.25	54	7.59	V
14497.6	39.66	-28.59	42.46	25.79	54	14.34	V
14496.5	39.58	-28.59	42.46	25.71	54	14.42	V
11919.2	35.07	-31.48	39.09	27.46	54	18.93	V
11815.8	35.03	-31.85	39.05	27.83	54	18.97	V

802.11ac-HT80

Channel 155

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17987.9	46.56	-25.5	46.66	25.4	54	7.44	H
17991.8	46.24	-25.5	46.66	25.08	54	7.76	H
14480.5	39.6	-28.59	42.46	25.73	54	14.4	V
14499.8	39.52	-28.59	42.46	25.65	54	14.48	V
11863.6	35.19	-31.85	39.05	27.99	54	18.81	V
11830.6	35.14	-31.85	39.05	27.94	54	18.86	H

Peak Results:
802.11a

Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17891.7	57.45	-25.5	46.66	36.29	74	16.55	H
17995	57.45	-25.5	46.66	36.29	74	16.55	V
14405.8	51.8	-28.59	42.46	37.93	68.3	16.5	H
14485	51.68	-28.59	42.46	37.81	74	22.32	V
11838.4	47.08	-31.85	39.05	39.88	74	26.92	H
11836.1	46.49	-31.85	39.05	39.29	74	27.51	H

Channel 157

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17972.5	58.14	-25.5	46.66	36.98	74	15.86	V
17988.5	57.49	-25.5	46.66	36.33	74	16.51	H
14298.5	51.36	-28.42	42.34	37.44	68.3	16.94	V
14608.7	51.22	-27.29	41.9	36.61	68.3	17.08	H
10981.5	46.43	-32.82	38.7	40.55	74	27.57	H
11825.1	46.39	-31.85	39.05	39.19	74	27.61	H

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17994.5	57.74	-25.5	46.66	36.58	74	16.26	H
17977.5	57.64	-25.5	46.66	36.48	74	16.36	H
14392.5	51.31	-28.59	42.46	37.44	68.3	16.99	H
14486.6	51.29	-28.59	42.46	37.42	74	22.71	V
11818.5	46.8	-31.85	39.05	39.6	74	27.2	V
11925.8	46.68	-31.48	39.09	39.07	74	27.32	H

802.11n-HT20
Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17997.8	57.7	-25.5	46.66	36.54	74	16.3	H
17940	57.32	-25.5	46.66	36.16	74	16.68	H
14388.7	52.15	-28.42	42.34	38.23	68.3	16.15	V
14389.8	51.35	-28.42	42.34	37.43	68.3	16.95	H
11771.2	46.48	-31.99	38.98	39.49	74	27.52	V
11883.5	46.29	-31.85	39.05	39.09	74	27.71	H

Channel 157

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17998.9	57.93	-25.5	46.66	36.77	74	16.07	V
17987.3	57.76	-25.5	46.66	36.6	74	16.24	V
14503.6	51.35	-28.59	42.46	37.48	68.3	16.95	H
14414	51.33	-28.59	42.46	37.46	68.3	16.97	H
11925.8	46.57	-31.48	39.09	38.96	74	27.43	V
11985.2	46.47	-31.48	39.09	38.86	74	27.53	H

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17998.3	57.41	-25.5	46.66	36.25	74	16.59	V
17982.4	57.37	-25.5	46.66	36.21	74	16.63	V
14731.4	51.84	-28.32	41.35	38.82	68.3	16.46	H
14407.4	51.63	-28.59	42.46	37.76	68.3	16.67	V
11828.5	46.7	-31.85	39.05	39.5	74	27.3	H
11853.2	46.54	-31.85	39.05	39.34	74	27.46	H

802.11n-HT40

Channel 151

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17942.8	57.87	-25.5	46.66	36.71	74	16.13	H
17980.2	57.86	-25.5	46.66	36.7	74	16.14	V
14357.4	51.83	-28.42	42.34	37.91	68.3	16.47	H
14671.4	51.68	-27.29	41.9	37.07	68.3	16.62	V
11591.4	46.68	-32.31	38.91	40.09	74	27.32	H
11190.5	46.57	-32.6	38.75	40.43	74	27.43	V

Channel 159

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17974.2	57.35	-25.5	46.66	36.19	74	16.65	V
17995	57.35	-25.5	46.66	36.19	74	16.65	H
14440.4	51.71	-28.59	42.46	37.84	68.3	16.59	V
14489.9	51.59	-28.59	42.46	37.72	74	22.41	H
11882.4	47.73	-31.85	39.05	40.53	74	26.27	V
11909.3	47.14	-31.85	39.05	39.94	74	26.86	H

802.11ac-HT20

Channel 149

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17971.4	58.21	-25.5	46.66	37.05	74	15.79	H
17996.2	57.83	-25.5	46.66	36.67	74	16.17	H
14382.6	52.21	-28.42	42.34	38.29	68.3	16.09	H
14395.9	51.95	-28.59	42.46	38.08	68.3	16.35	H
11853.2	46.49	-31.85	39.05	39.29	74	27.51	V
11861.5	46.44	-31.85	39.05	39.24	74	27.56	V

Channel 157

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17976.9	57.59	-25.5	46.66	36.43	74	16.41	H
17995	57.32	-25.5	46.66	36.16	74	16.68	V
14505.3	51.84	-28.59	42.46	37.97	68.3	16.46	V
14718.1	51.68	-28.32	41.35	38.66	68.3	16.62	H
11407.1	47.04	-32.42	38.79	40.67	74	26.96	H
11854.9	46.75	-31.85	39.05	39.55	74	27.25	V

Channel 165

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17990.1	58.25	-25.5	46.66	37.09	74	15.75	H
17994.5	58.18	-25.5	46.66	37.02	74	15.82	H
14282.5	52	-28.42	42.34	38.08	68.3	16.3	V
14411.8	51.45	-28.59	42.46	37.58	68.3	16.85	V
11983	46.9	-31.48	39.09	39.29	74	27.1	V
9005.3	46.71	-33.28	38.19	41.8	74	27.29	H

802.11ac-HT40

Channel 151

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17990.7	57.95	-25.5	46.66	36.79	74	16.05	H
17985.7	57.72	-25.5	46.66	36.56	74	16.28	V
14338.1	51.89	-28.42	42.34	37.97	68.3	16.41	H
14338.6	51.8	-28.42	42.34	37.88	68.3	16.5	H
11897.2	46.67	-31.85	39.05	39.47	74	27.33	V
11822.4	46.66	-31.85	39.05	39.46	74	27.34	H

Channel 159

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17987.9	57.7	-25.5	46.66	36.54	74	16.3	H
17997.8	57.58	-25.5	46.66	36.42	74	16.42	V
14384.3	51.81	-28.42	42.34	37.89	68.3	16.49	H
14523.5	51.76	-28.59	42.46	37.89	68.3	16.54	V
11922.5	47.04	-31.48	39.09	39.43	74	26.96	V
11863.6	46.68	-31.85	39.05	39.48	74	27.32	V

802.11ac-HT80

Channel 155

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17980.8	57.46	-25.5	46.66	36.3	74	16.54	H
17974.7	57.3	-25.5	46.66	36.14	74	16.7	H
14310	51.98	-28.42	42.34	38.06	68.3	16.32	V
14500.9	51.29	-28.59	42.46	37.42	68.3	17.01	H
11937.4	47.5	-31.48	39.09	39.89	74	26.5	H
11895.5	46.78	-31.85	39.05	39.58	74	27.22	V

A.6. Band Edges Compliance

A6.1 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.	

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 Procedure

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. 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. 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

Measurement Result:

Mode	Channel	Test Results	Conclusion
802.11a	5745 MHz	Fig.10	P
	5825 MHz	Fig.11	P
802.11n HT20	5745 MHz	Fig.12	P
	5825 MHz	Fig.13	P
802.11n HT40	5755 MHz	Fig.14	P
	5795 MHz	Fig.15	P
802.11ac HT20	5745 MHz	Fig.16	P
	5825 MHz	Fig.17	P
802.11ac HT40	5755 MHz	Fig.18	P
	5795 MHz	Fig.19	P
802.11ac HT80	5775 MHz	Fig.20 Fig.21	P

Conclusion: PASS**Test graphs as below:**

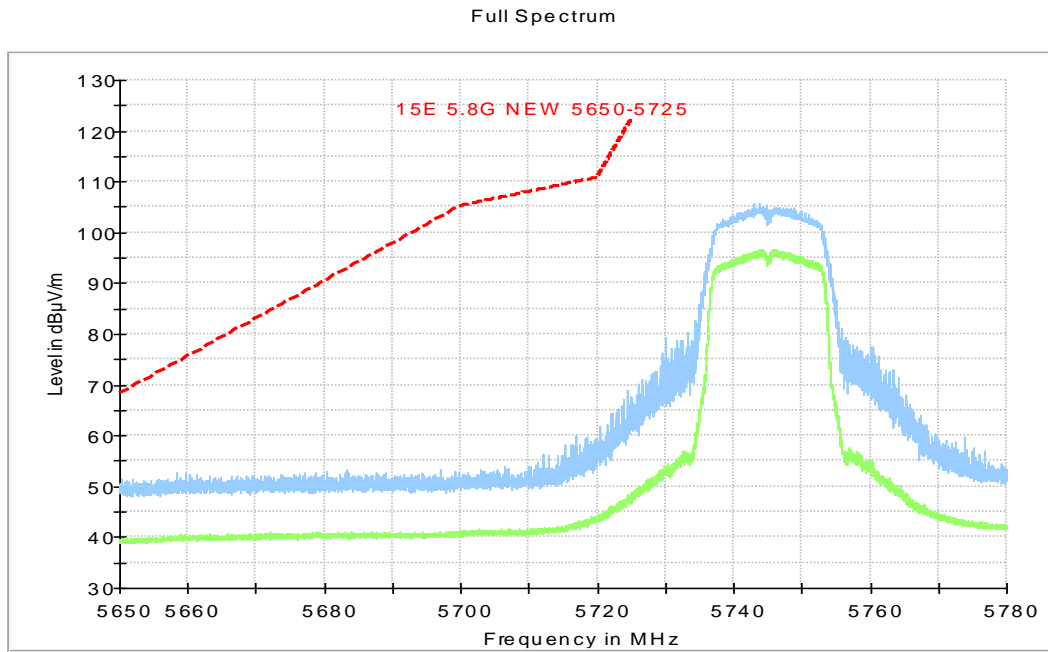


Fig. 10 Band Edges (802.11a Ch149,5745MHz)

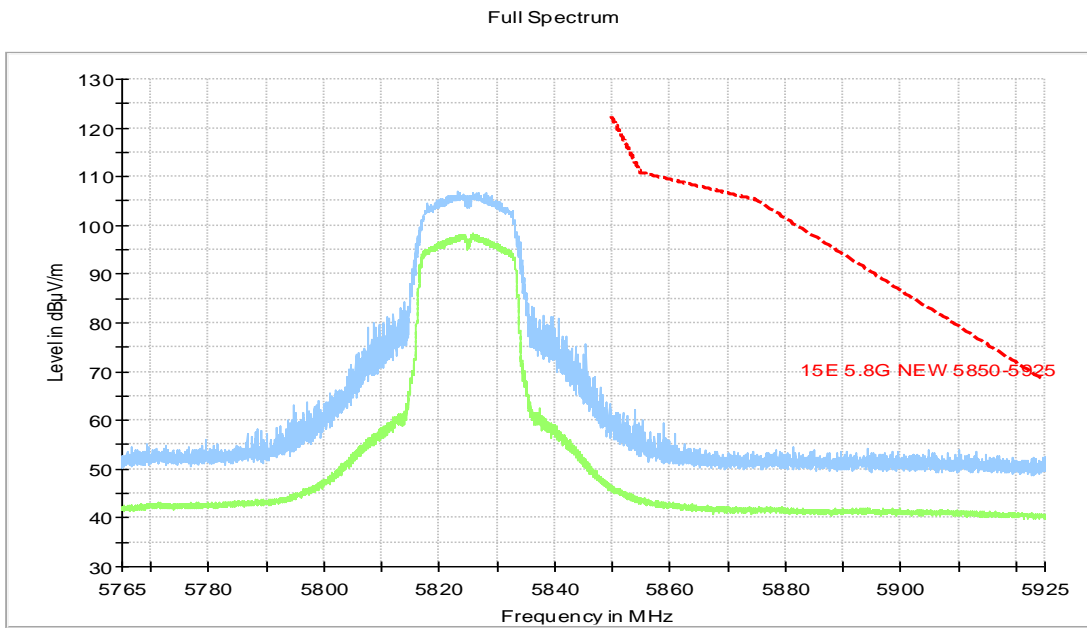


Fig. 11 Band Edges (802.11a Ch165, 5825MHz)

Full Spectrum

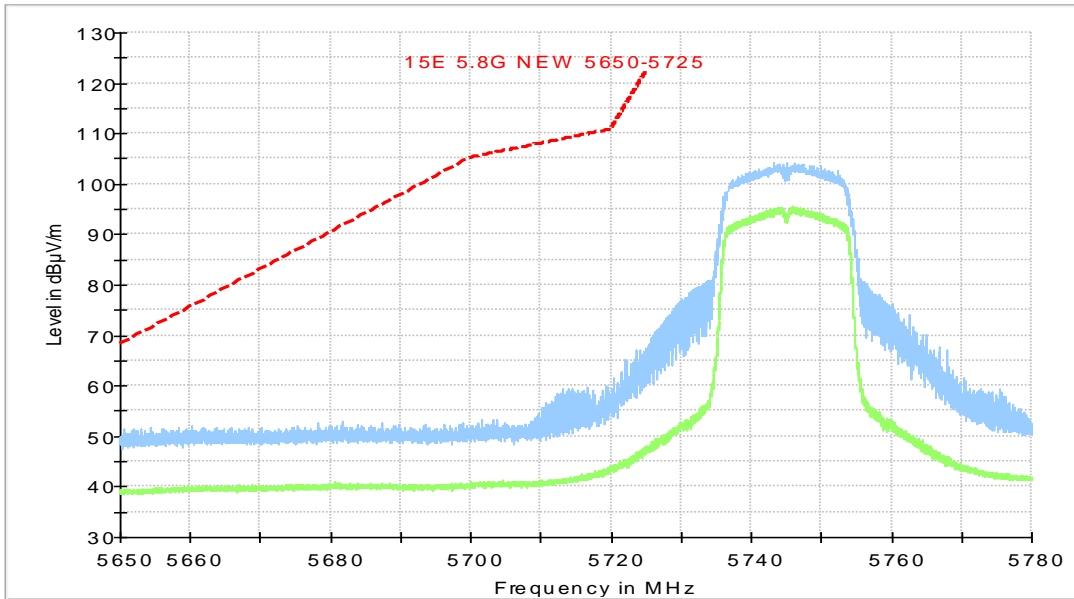


Fig. 12 Band Edges (802.11n-HT20 Ch149, 5745MHz)

Full Spectrum

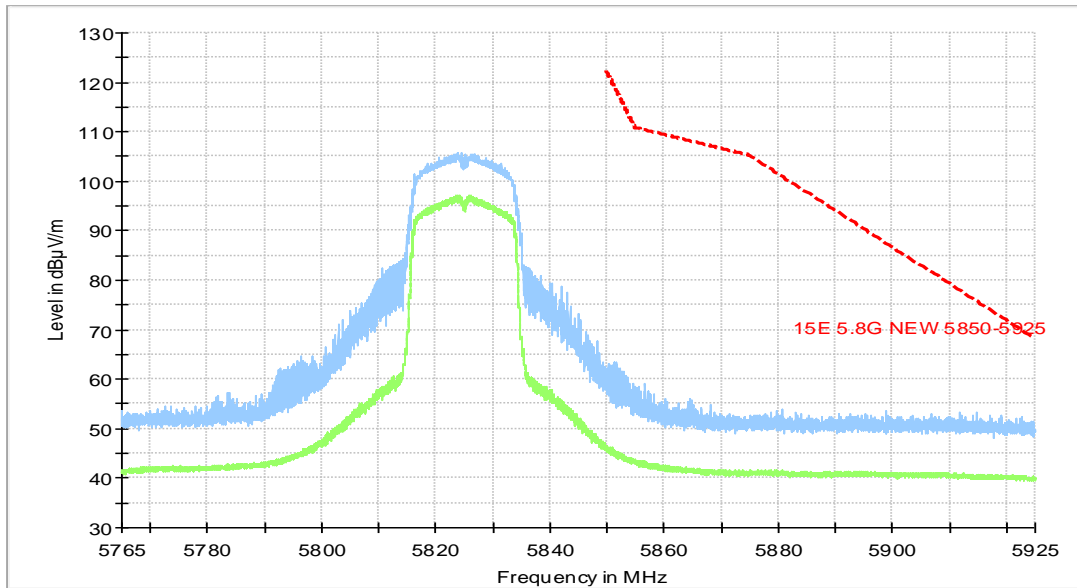


Fig. 13 Band Edges (802.11n-HT20 Ch165, 5825MHz)

Full Spectrum

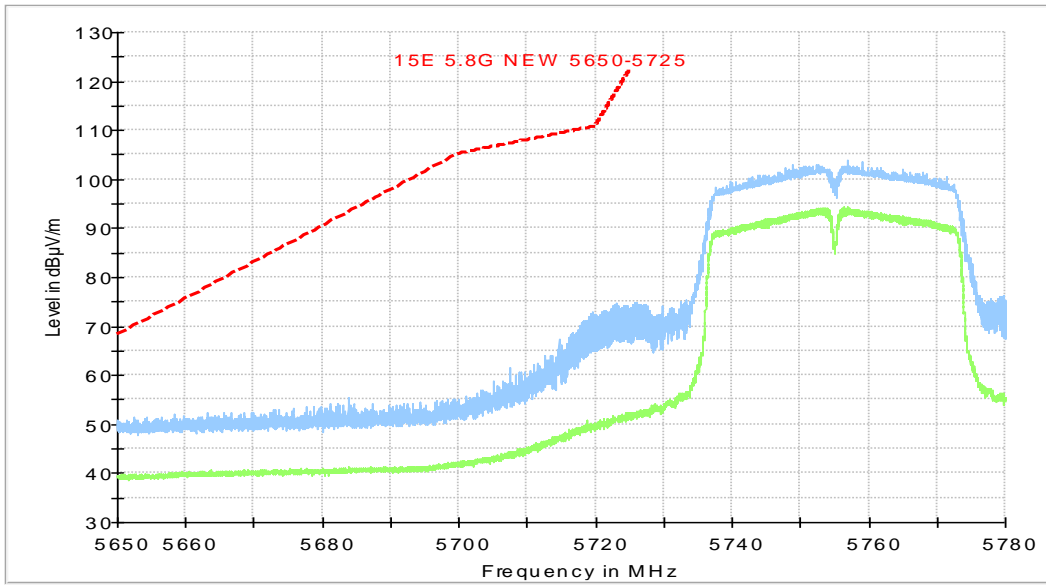


Fig. 14 Band Edges (802.11n-HT40 Ch151, 5755MHz)

Full Spectrum

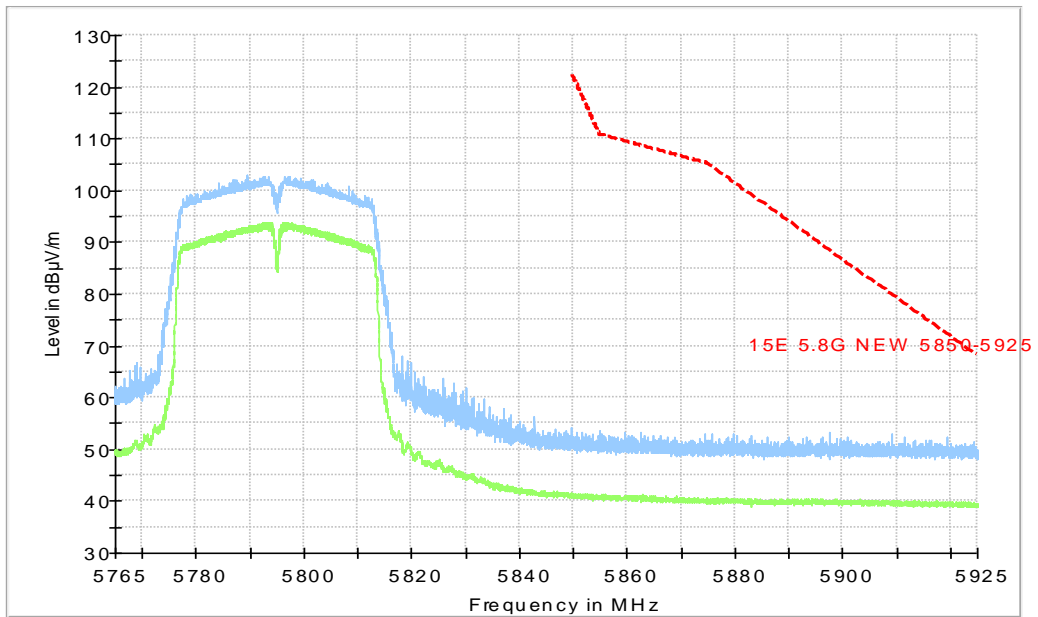


Fig. 15 Band Edges (802.11n-HT40 Ch159, 5795MHz)

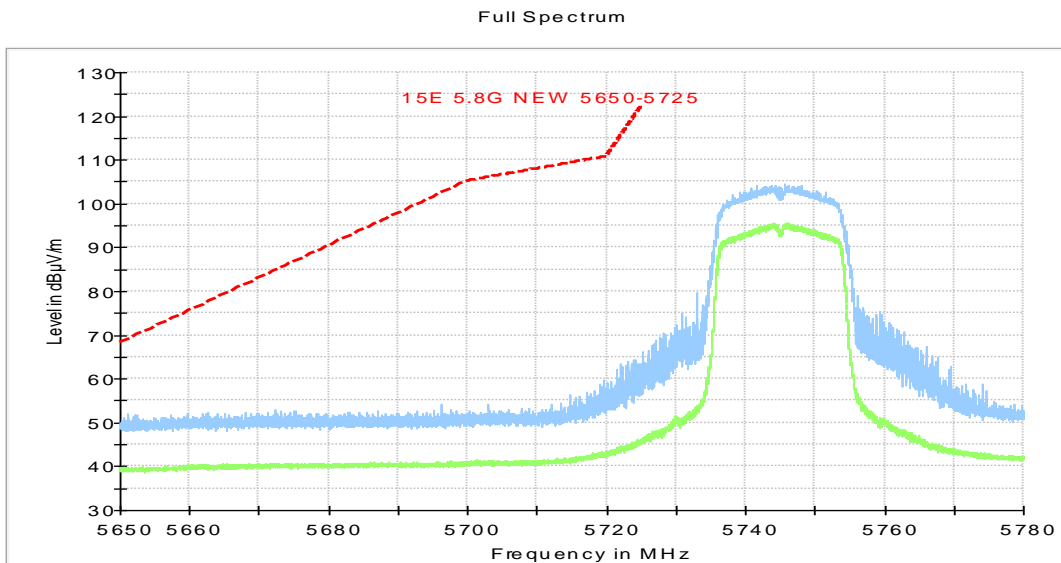


Fig. 16 Band Edges (802.11ac-HT20 Ch149, 5745MHz)

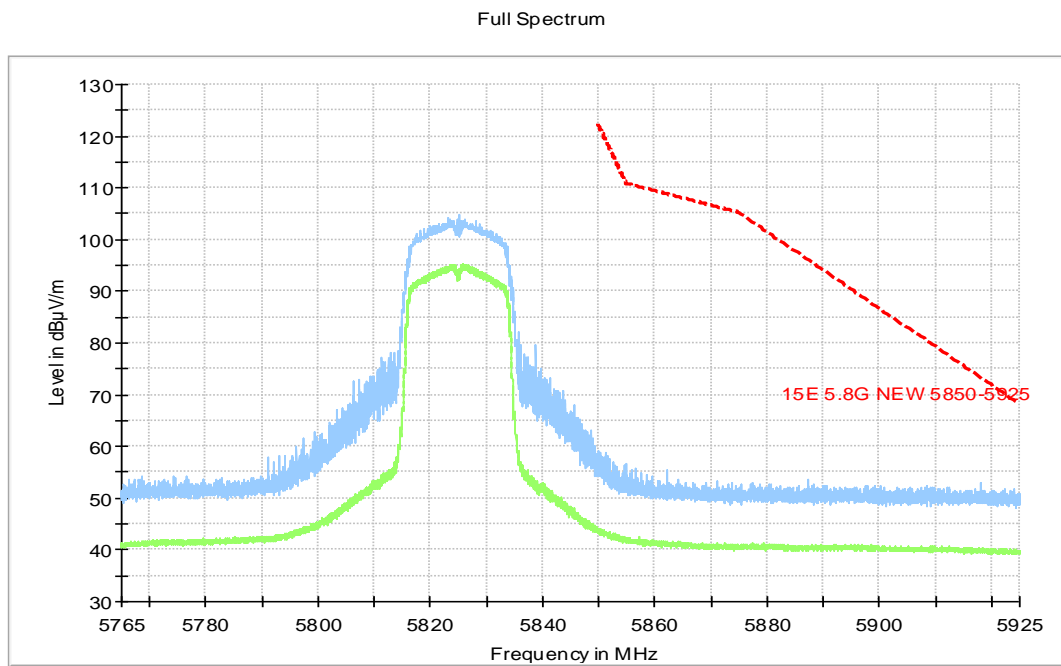


Fig. 17 Band Edges (802.11ac-HT20 Ch165, 5825MHz)

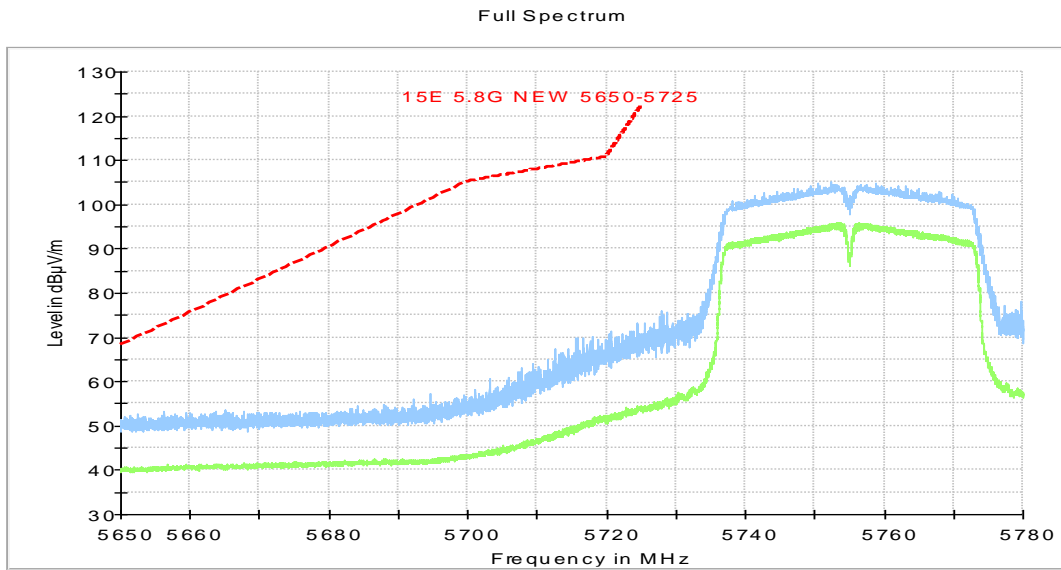


Fig. 18 Band Edges (802.11ac-HT40 Ch151, 5755MHz)

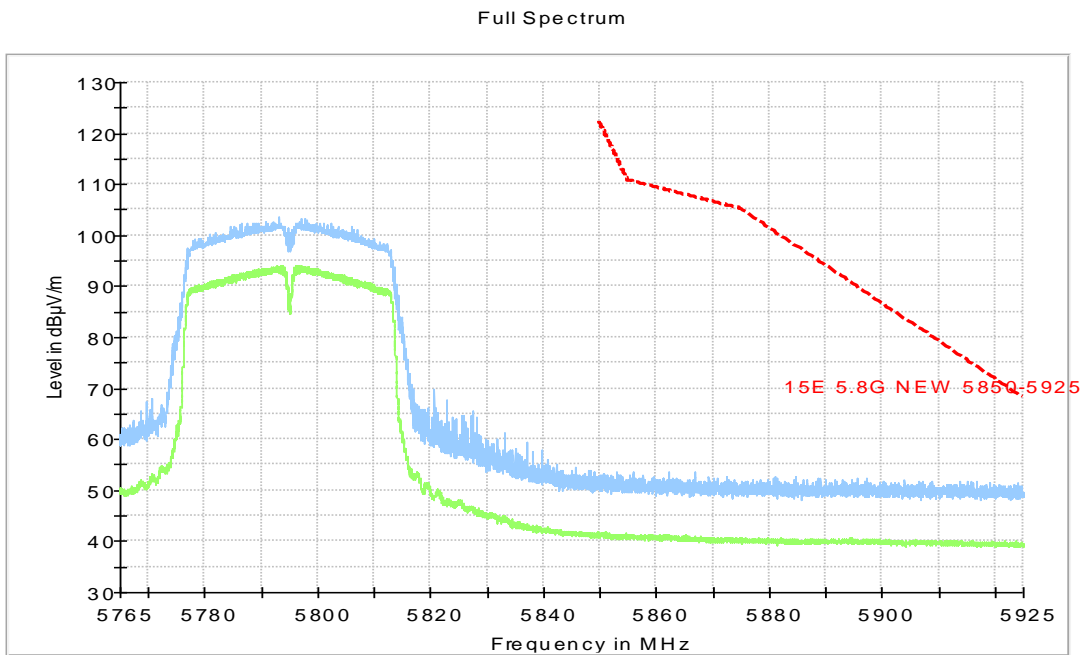


Fig. 19 Band Edges (802.11ac-HT40 Ch159, 5795MHz)

Full Spectrum

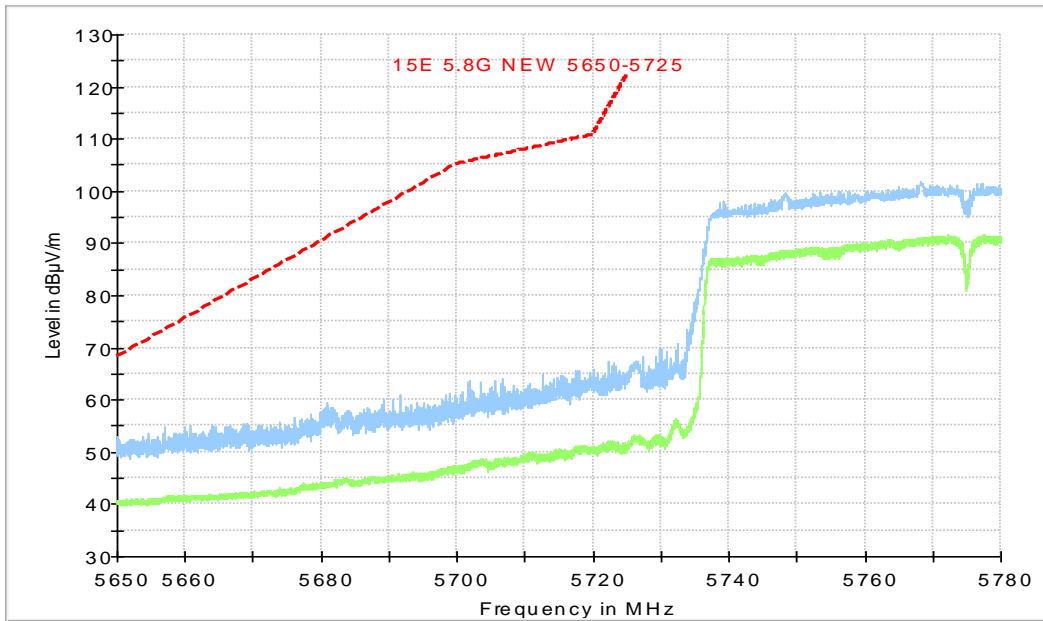


Fig. 20 Band Edges (802.11ac-HT80 Ch155, 5775MHz)

Full Spectrum

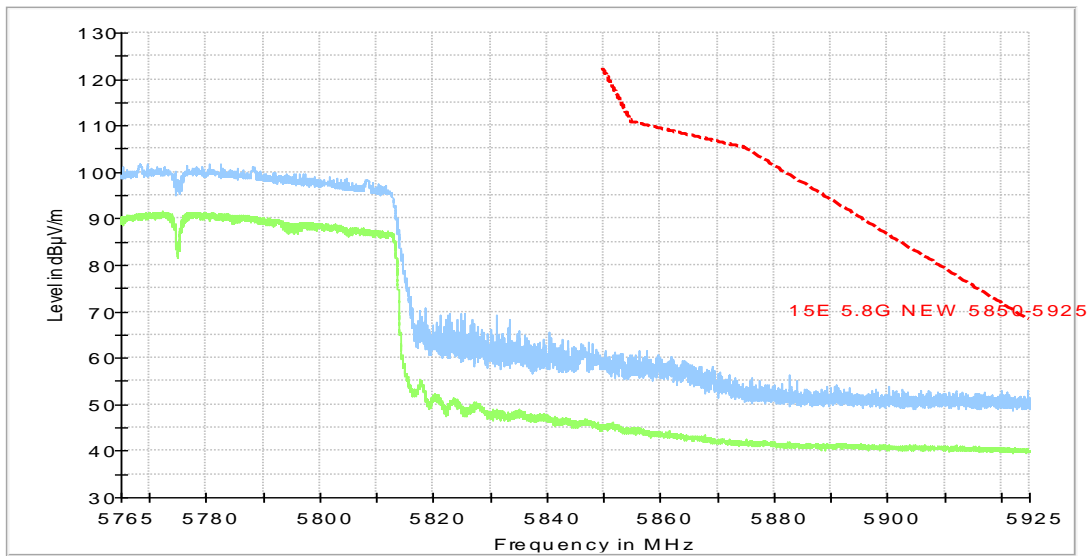


Fig. 21 Band Edges (802.11ac-HT80, 5775MHz)

A.7. AC Powerline Conducted Emission

Method of Measurement:

See Clause 6.2 of ANSI C63.10-2013 specifically.

See Clause 4 and Clause 5 of ANSI C63.10-2013 generally.

The conducted emissions from the AC port of the EUT are measured in a shielding room. The EUT is connected to a Line Impedance Stabilization Network (LISN). An overview sweep with peak detection was performed. The measurements were performed with a quasi-peak detector and if required, an average detector.

The conducted emission measurements were made with the following detector of the test receiver: Quasi-Peak / Average Detector.

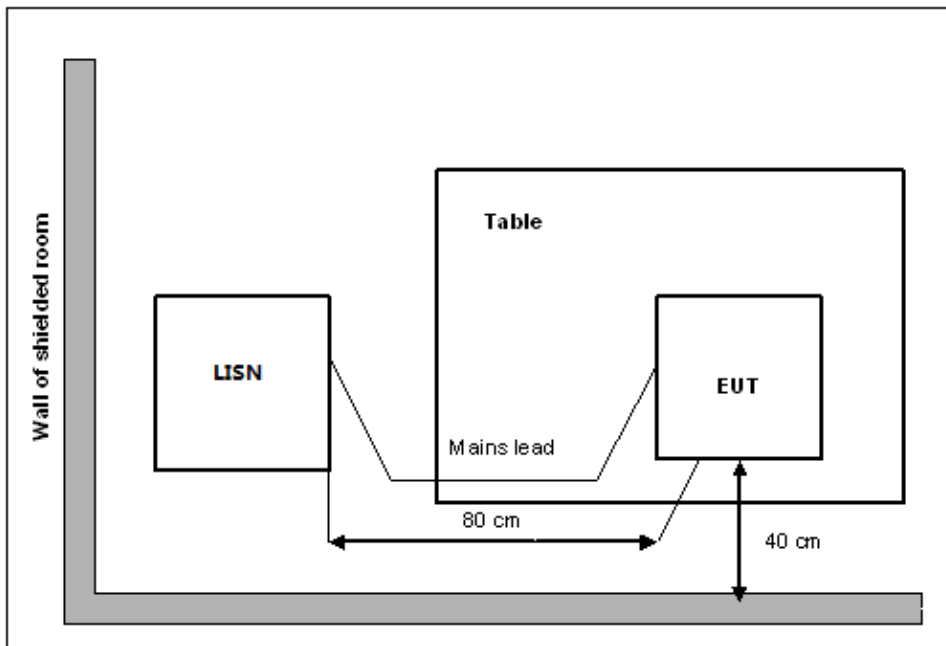
The measurement bandwidth is:

Frequency of Emission (MHz)	RBW/IF bandwidth
0.15-30	9kHz

Test Condition:

Voltage (V)	Frequency (Hz)
120	60

Measurement Setup



Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)		Conclusion
		With charger		
		802.11a	Idle	
0.15 to 0.5	66 to 56	Fig.22	Fig.23	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 (dB μ V)	Result (dB μ V)		Conclusion
		With charger		
		802.11a	Idle	
0.15 to 0.5	56 to 46	Fig.22	Fig.23	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:

Traffic:

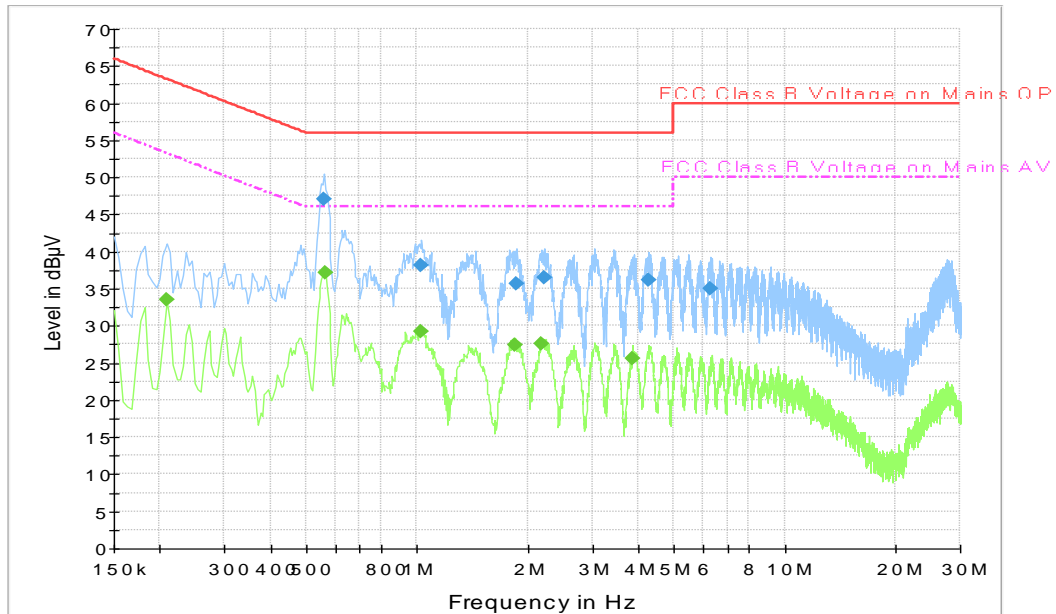


Fig. 22 AC Power line Conducted Emission-802.11a

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.559500	47.1	1000.	9.000	L1	19.9	8.9	56.0
1.027500	38.1	1000.	9.000	L1	19.6	17.9	56.0
1.873500	35.7	1000.	9.000	L1	19.4	20.3	56.0
2.211000	36.5	1000.	9.000	L1	19.5	19.5	56.0
4.254000	36.1	1000.	9.000	L1	19.6	19.9	56.0
6.292500	34.9	1000.	9.000	L1	19.6	25.1	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.208500	33.5	1000.0	9.000	N	19.8	19.8	53.3
0.564000	37.2	1000.0	9.000	N	19.9	8.8	46.0
1.027500	29.3	1000.0	9.000	N	19.8	16.7	46.0
1.855500	27.4	1000.0	9.000	L1	19.5	18.6	46.0
2.179500	27.6	1000.0	9.000	L1	19.5	18.4	46.0
3.853500	25.5	1000.0	9.000	L1	19.5	20.5	46.0

Idle:

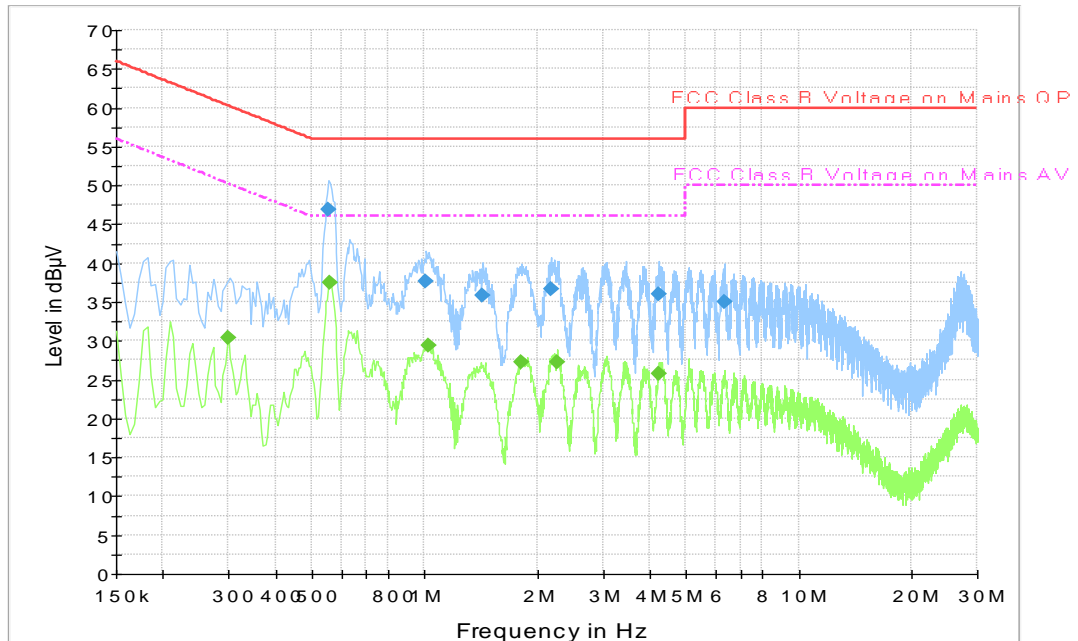


Fig. 23 AC Power line Conducted Emission-Idle

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.555000	46.9	1000.	9.000	L1	19.9	9.1	56.0
1.009500	37.7	1000.	9.000	L1	19.6	18.3	56.0
1.432500	35.8	1000.	9.000	L1	19.5	20.2	56.0
2.175000	36.7	1000.	9.000	L1	19.5	19.3	56.0
4.227000	36.1	1000.	9.000	L1	19.6	19.9	56.0
6.315000	35.1	1000.	9.000	L1	19.6	24.9	60.0




Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.298500	30.4	1000.0	9.000	N	19.9	19.9	50.3
0.559500	37.4	1000.0	9.000	N	19.9	8.6	46.0
1.023000	29.4	1000.0	9.000	N	19.8	16.6	46.0
1.819500	27.2	1000.0	9.000	L1	19.5	18.8	46.0
2.260500	27.3	1000.0	9.000	L1	19.5	18.7	46.0
4.218000	25.7	1000.0	9.000	L1	19.6	20.3	46.0

ANNEX B: EUT parameters

Disclaimer: 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 C: Accreditation Certificate

<p>United States Department of Commerce National Institute of Standards and Technology</p>  	
<hr/> <h3>Certificate of Accreditation to ISO/IEC 17025:2017</h3> <hr/>	
<p>NVLAP LAB CODE: 600118-0</p>	
<p>Telecommunication Technology Labs, CAICT Beijing China</p>	
<p><i>is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:</i></p>	
<p>Electromagnetic Compatibility & Telecommunications</p>	
<p><i>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. 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).</i></p>	
<hr/> <p>2020-09-29 through 2021-09-30 <i>Effective Dates</i></p>	 <hr/> <p><i>[Signature]</i> For the National Voluntary Laboratory Accreditation Program</p>

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