FCC PART 15C
TEST REPORT
No.I22Z70462-IOT04

for

Samsung Electronics Co., Ltd.

Multi-band GSM/WCDMA/LTE Phone with Bluetooth, WLAN

SM-A145R/DSN

With

FCC ID: ZCASMA145RN

Hardware Version: REV1.0

Software Version: A145R.001

Issued Date: 2022-12-06

Note:

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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:

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I22Z70462-IOT04	Rev.0	1st edition	2022-12-06

CONTENTS

1. TEST LATORATORY

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

Testing Location 1: CTTL(huayuan North Road)

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

Testing Location 2: CTTL (BDA)

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

1.3. TestingEnvironment

Normal Temperature: 15-35℃

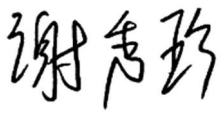
Relative Humidity: 20-75%

1.4. Project date

Testing Start Date: 2022-11-02

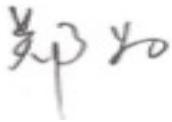
Testing End Date: 2022-12-06

1.5. Signature



Xie Xiuzhen

(Prepared this test report)



Zheng Wei

(Reviewed this test report)

Pang Shuai

(Approved this test report)

2. CLIENT INFORMATION

2.1. Applicant Information

Company Name:	Samsung Electronics Co., Ltd.
Address:	19 Chapin Rd.,Building D Pine Brook, NJ 07058
Country:	America
Contact Person:	Jenni Chun
Email:	j1.chun@samsung.com
Telephone:	+1-201-937-4203
Fax:	/

2.2. Manufacturer Information

Company Name:	Samsung Electronics Co., Ltd.
Address:	Samsung R5, Maetan dong 129, Samsung ro Youngtong gu, Suwon city 443 742, Korea
City:	Suwon
Country:	Korea
Contact Person:	Sunghoon Cho
Email:	ggobi.cho@samsung.com
Telephone:	+82-10-2722-4159
Fax:	/

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

3.1. About EUT

Description	Multi-band GSM/WCDMA/LTE Phone with Bluetooth, WLAN
Model name	SM-A145R/DSN
FCC ID	ZCASMA145RN
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
UT17a	2270462UT17a	REV1.0	A145R.001
UT03a	2270462UT03a	REV1.0	A145R.001

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

UT03a is used for Conduction test, UT17a is used for Radiation test.

3.3. Internal Identification of AE used during the test

AE ID*	Description	Remark
AE1	Adapter	/
AE2	USB Cable1	C to C
AE3	USB Cable2	C to C
AE4	USB Cable3	C to A
AE5	Headset	/
AE6	Battery1	/
AE7	Battery2	/

AE1

Model	EP-T1510
Manufacturer	HAEM Co.,Ltd
Length of cable	/

AE2

Model	EP-DN980BWZ
Manufacturer	Samsung Electronics Co., Ltd.
Length of cable	/

AE3

Model	EP-DN980BWE
Manufacturer	Samsung Electronics Co., Ltd.
Length of cable	/

AE4

Model	EP-DR140AWE
Manufacturer	Samsung Electronics Co., Ltd.

Length of cable	/
AE5	
Model	EHS61ASFWE
Manufacturer	ALMUS
Length of cable	/
AE6	
Model	HQ-50SD
Type	Secondary Li-ion Polymer Battery
Manufacturer	SCUD (Fujian) Electronics CO.,LTD
AE7	
Model	HQ-50S
Type	Secondary Li-ion Polymer Battery
Manufacturer	SCUD (Fujian) Electronics CO.,LTD

*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 Multi-band GSM/WCDMA/LTE Phone with Bluetooth, WLAN 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

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/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 3.85V

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	2023-05-15
2	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Manufacturer	Serial Number	Calibration Period	Calibration Due date
1	Test Receiver	ESU 26	R&S	100235	1 year	2023-03-08
2	Test Receiver	ESW44	R&S	103015	1 year	2023-01-23
3	EMI Antenna	VULB 9163	SCHWARZBECK	01223	1 year	2023-07-25
4	EMI Antenna	3115	ETS-Lindgren	00167250	1 year	2023-06-20
5	EMI Antenna	3116	ETS-Lindgren	2661	1 year	2023-02-08
6	Loop Antenna	HFH2-Z2	R&S	829324/007	1 year	2022-12-22

AC Power Line Conducted Emission

No.	Equipment	Model	Manufacturer	Serial Number	Calibration Period	Calibration Due date
1	LISN	ENV216	R&S	101200	1 year	2023-06-29
2	Test Receiver	ESCI	R&S	100344	1 year	2023-03-21

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	4.92
30MHz ≤ f ≤ 1GHz	5.73
1GHz ≤ f ≤18GHz	5.54
18GHz ≤ f ≤40GHz	5.26

8.6. AC Power-line Conducted Emission

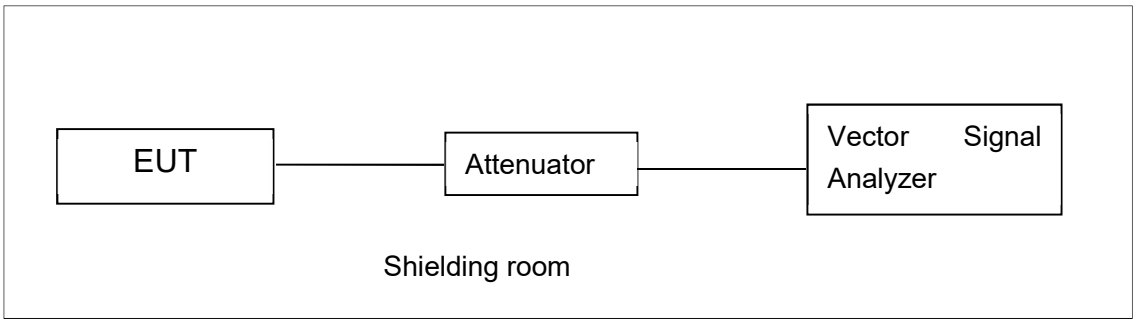
Measurement Uncertainty : 3.08dB,k=2

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

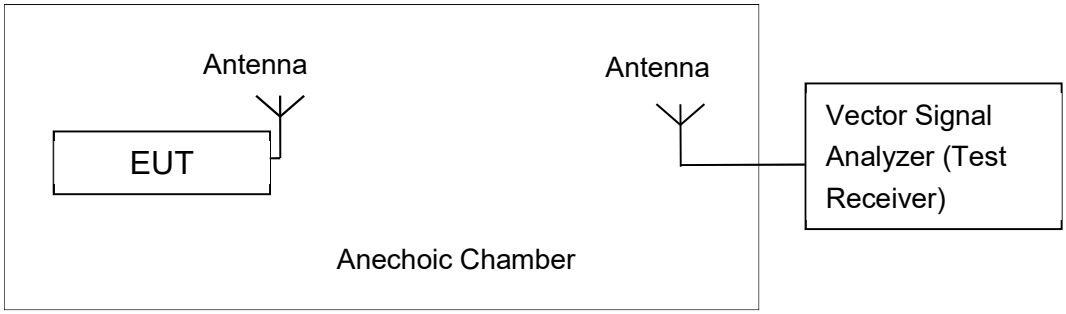
A.1.1. Conducted Measurements

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 -0.8 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	15.42	15.27	15.23
	9	15.32	/	/
	12	15.35	/	/
	18	15.32	/	/
	24	15.09	/	/
	36	13.97	/	/
	48	14.20	/	/
	54	13.98	/	/

The data rate 6Mbps is selected as worst 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	14.98	14.86	14.75
	MCS1	14.65	/	/
	MCS2	14.42	/	/
	MCS3	14.43	/	/
	MCS4	13.22	/	/
	MCS5	13.38	/	/
	MCS6	13.31	/	/
	MCS7	13.08	/	/

The data rate MCS0 is selected as worst 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	12.83	12.17	12.17
	MCS1	12.35	/	/
	MCS2	12.23	/	/
	MCS3	12.18	/	/
	MCS4	12.21	/	/
	MCS5	11.02	/	/
	MCS6	10.97	/	/
	MCS7	11.01	/	/
	MCS8	11.12	/	/

The data rate MCS0 is selected as worst 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	14.19	13.90
	MCS1	14.08	/
	MCS2	14.04	/
	MCS3	14.01	/
	MCS4	12.09	/
	MCS5	12.00	/
	MCS6	11.73	/
	MCS7	11.72	/

The data rate MCS0 is selected as worst 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	12.11	11.94
	MCS1	12.08	/
	MCS2	12.10	/
	MCS3	12.06	/
	MCS4	12.01	/
	MCS5	11.06	/
	MCS6	11.01	/
	MCS7	10.84	/
	MCS8	10.65	/
	MCS9	10.95	/

The data rate is selected as worst 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	12.11
	MCS1	12.01
	MCS2	11.91
	MCS3	12.00
	MCS4	10.98
	MCS5	11.01
	MCS6	11.14
	MCS7	11.08
	MCS8	10.99
	MCS9	11.12

The data rate MCS0 is selected as worst 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

Measurement Results:

Mode	Channel	Power Spectral Density (dBm/500kHz)	Conclusion
802.11a	149	1.76	P
	157	1.80	P
	165	1.30	P
802.11n HT20	149	1.45	P
	157	1.48	P
	165	0.98	P
802.11n HT40	151	-2.46	P
	159	-3.01	P
802.11ac HT80	155	-8.01	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

Measurement Result:

Mode	Channel	Occupied 6dB Bandwidth (MHz)		conclusion
802.11a	149	Fig.1	16.35	P
	157	Fig.2	16.30	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
802.11n HT40	151	Fig.7	36.08	P
	159	Fig.8	36.24	P
802.11ac HT80	155	Fig.9	76.16	P

Conclusion: PASS

Test graphs as below:

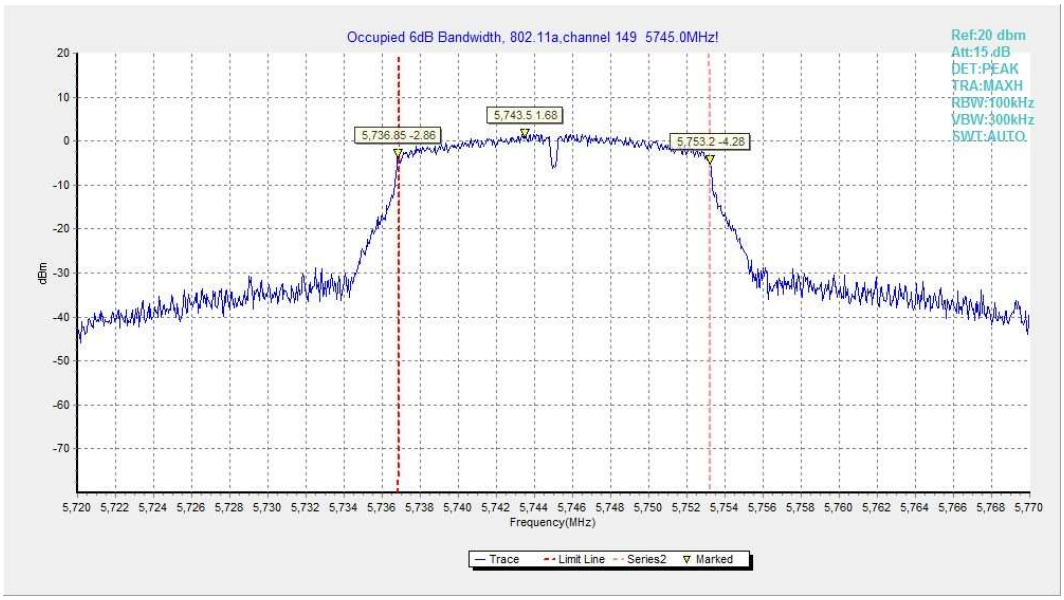


Fig. 1 Occupied 6dB Bandwidth (802.11a, Ch 149)

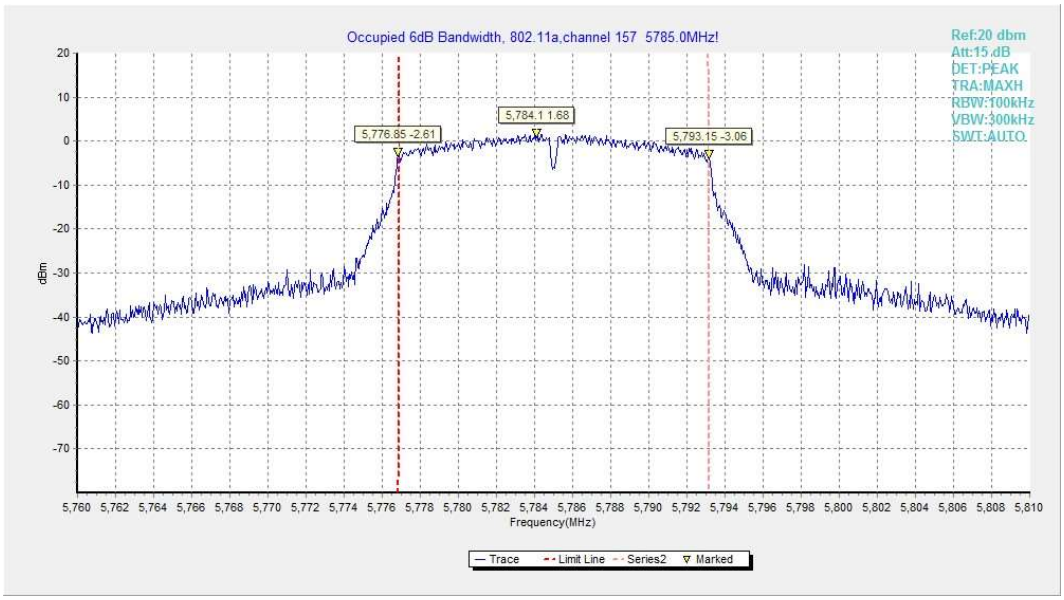


Fig. 2 Occupied 6dB Bandwidth (802.11a, Ch 157)

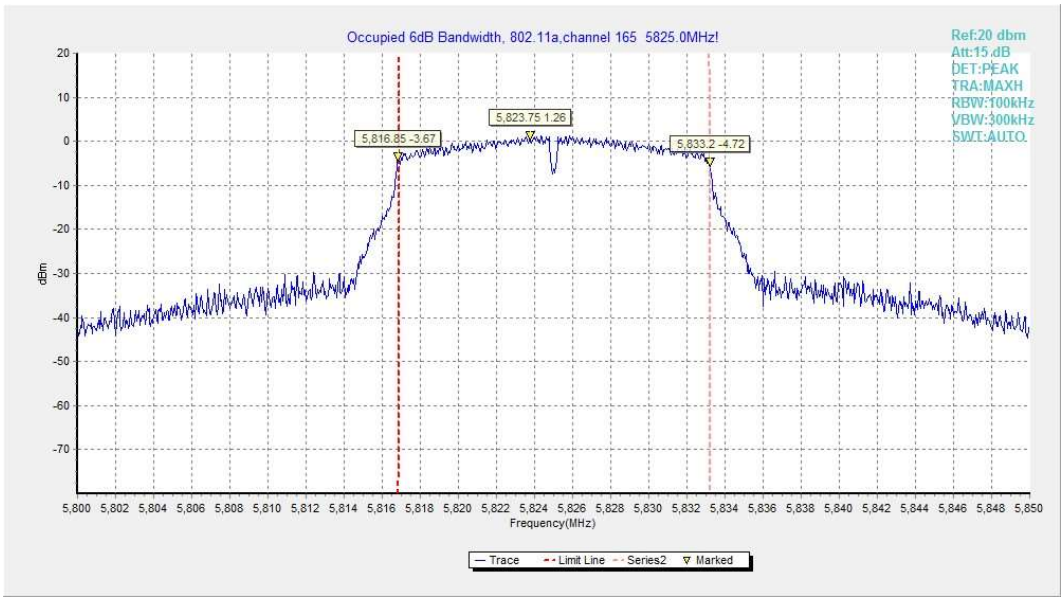


Fig. 3 Occupied 6dB Bandwidth (802.11a, Ch 165)

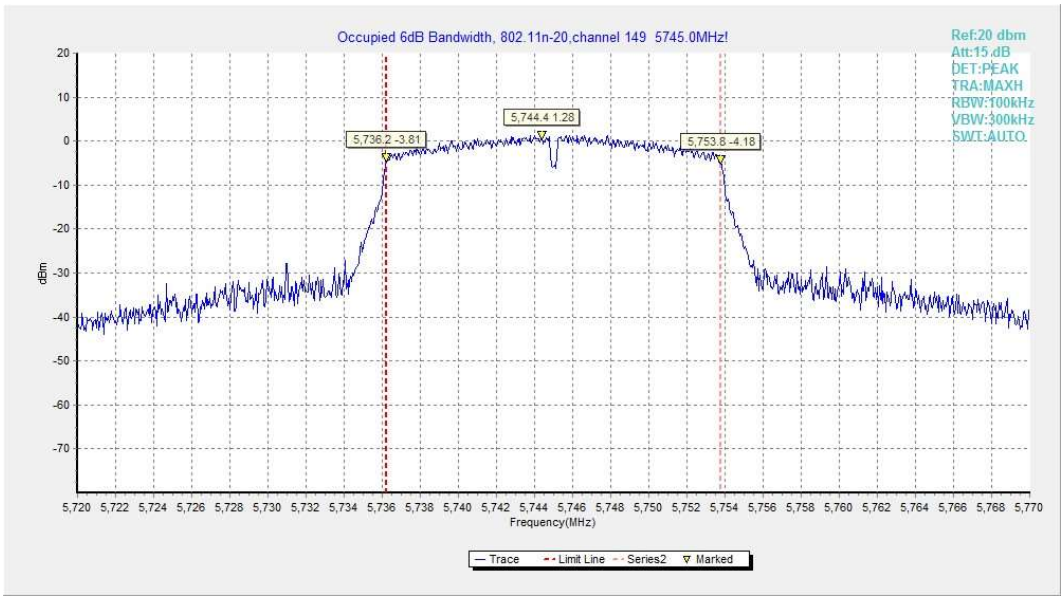


Fig. 4 Occupied 6dB Bandwidth (802.11n-HT20, Ch 149)

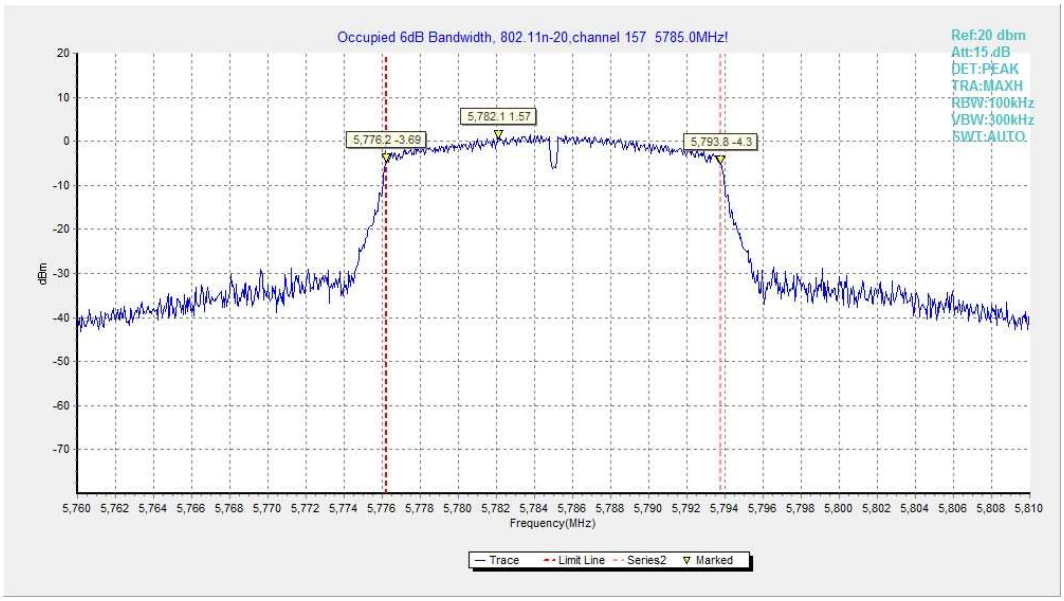


Fig. 5 Occupied 6dB Bandwidth (802.11n-HT20, Ch 157)

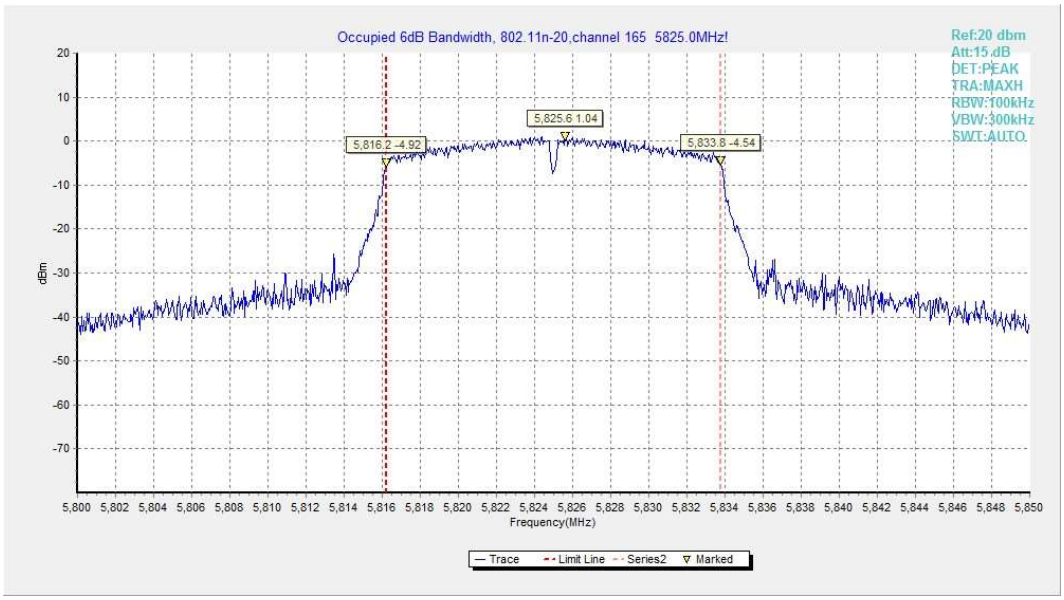


Fig. 6 Occupied 6dB Bandwidth (802.11n-HT20, Ch 165)

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

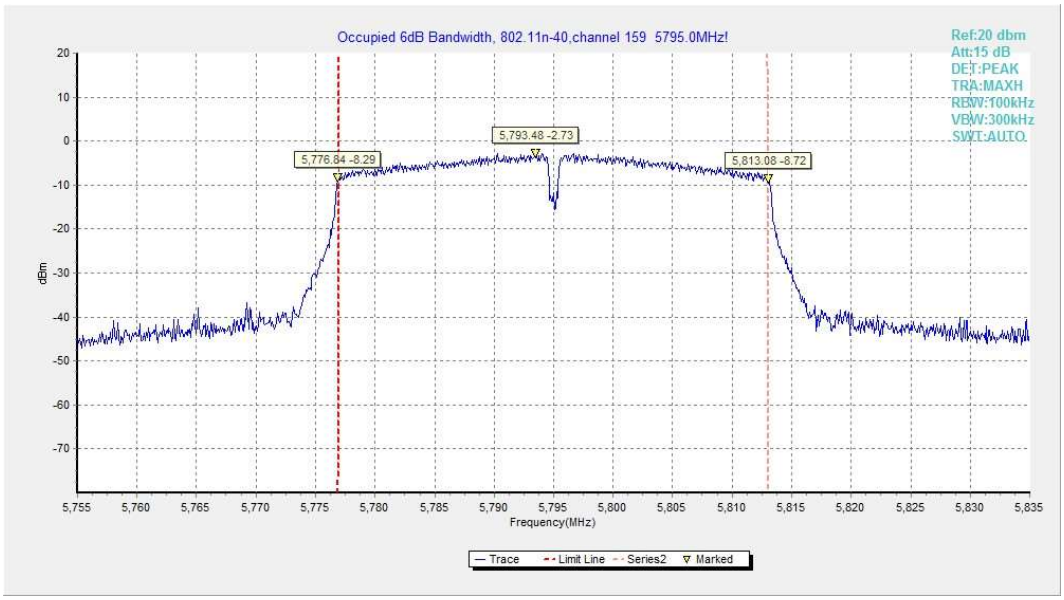


Fig. 8 Occupied 6dB Bandwidth (802.11n-HT40, Ch 159)

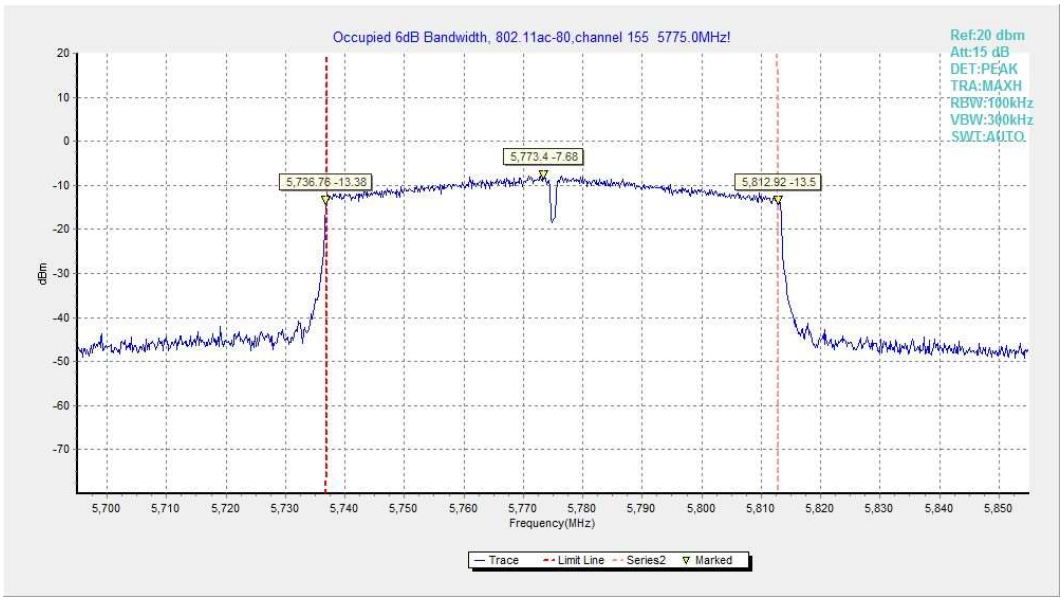


Fig. 9 Occupied 6dB Bandwidth (802.11ac-HT80, Ch 155)

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(μV/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 (uV/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

Sample Calculations

1. Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

E=EIRP- 20log (*D)* +104.77

Where:

E is the field strength in dBμV/m

D is the measurement distance in meters

EIRP is the equivalent isotropically radiated power in dbm

2. The measurement results are obtained as described below:

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

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.

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
		26.5 GHz~ 40 GHz	---	P
	165	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
		26.5 GHz~ 40 GHz	---	P
	165	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

Conclusion: PASS

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)
17938.033	40.92	-25.50	46.66	19.76	54.00	13.08	H
17902.467	40.81	-25.50	46.66	19.65	54.00	13.19	H
15988.100	39.65	-27.35	38.54	28.46	54.00	14.35	V
16013.033	39.62	-27.35	38.54	28.43	54.00	14.38	H
11489.833	38.01	-32.26	38.84	31.44	54.00	15.99	H
11488.000	37.44	-32.26	38.84	30.87	54.00	16.56	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)
17964.433	41.25	-25.50	46.66	20.09	54.00	12.75	V
17977.633	40.93	-25.50	46.66	19.77	54.00	13.07	H
16057.033	39.54	-26.77	38.93	27.38	54.00	14.46	H
16005.333	39.41	-27.35	38.54	28.22	54.00	14.59	V
11740.633	36.48	-31.99	38.98	29.49	54.00	17.52	H
11764.100	36.47	-31.99	38.98	29.48	54.00	17.53	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)
17936.200	41.08	-25.50	46.66	19.92	54.00	12.92	H
17944.633	40.95	-25.50	46.66	19.79	54.00	13.05	H
16048.600	39.86	-27.35	38.54	28.67	54.00	14.14	V
15987.367	39.27	-27.35	38.54	28.08	54.00	14.73	H
11868.600	37.19	-31.85	39.05	29.99	54.00	16.81	H
11760.800	36.85	-31.99	38.98	29.86	54.00	17.15	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)
17974.333	40.66	-25.50	46.66	19.50	54.00	13.34	H
17908.700	40.62	-25.50	46.66	19.46	54.00	13.38	H
15963.533	39.82	-27.35	38.54	28.63	54.00	14.18	V
15889.467	39.33	-26.97	38.48	27.82	54.00	14.67	H
11729.633	36.70	-31.99	38.98	29.71	54.00	17.30	V
11867.500	36.42	-31.85	39.05	29.22	54.00	17.58	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)
17965.900	40.91	-25.50	46.66	19.75	54.00	13.09	V
17938.033	40.81	-25.50	46.66	19.65	54.00	13.19	V
15889.467	39.48	-26.97	38.48	27.97	54.00	14.52	H
16054.100	39.29	-27.35	38.54	28.10	54.00	14.71	H
11772.900	36.43	-31.99	38.98	29.44	54.00	17.57	H
11770.333	36.27	-31.99	38.98	29.28	54.00	17.73	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)
17868.000	41.06	-25.50	46.66	19.90	54.00	12.94	V
17937.300	40.67	-25.50	46.66	19.51	54.00	13.33	V
15890.200	39.65	-26.97	38.48	28.14	54.00	14.35	H
15889.467	39.62	-26.97	38.48	28.11	54.00	14.38	V
11648.967	37.57	-32.31	38.91	30.98	54.00	16.43	V
11653.367	36.51	-32.31	38.91	29.92	54.00	17.49	V

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)
17937.300	40.88	-25.50	46.66	19.72	54.00	13.12	V
17982.033	40.77	-25.50	46.66	19.61	54.00	13.23	H
15959.867	39.66	-27.35	38.54	28.47	54.00	14.34	V
15672.033	39.65	-27.23	38.61	28.27	54.00	14.35	V
11990.700	37.83	-31.48	39.09	30.22	54.00	16.17	H
11742.100	37.25	-31.99	38.98	30.26	54.00	16.75	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)
17939.500	40.98	-25.50	46.66	19.82	54.00	13.02	H
17941.333	40.79	-25.50	46.66	19.63	54.00	13.21	V
15960.600	39.49	-27.35	38.54	28.30	54.00	14.51	V
15935.667	39.44	-27.35	38.54	28.25	54.00	14.56	V
11769.233	36.86	-31.99	38.98	29.87	54.00	17.14	H
11739.533	36.62	-31.99	38.98	29.63	54.00	17.38	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)
17973.600	40.94	-25.50	46.66	19.78	54.00	13.06	V
17980.567	40.86	-25.50	46.66	19.70	54.00	13.14	H
15988.467	39.53	-27.35	38.54	28.34	54.00	14.47	V
15918.433	39.39	-27.35	38.54	28.20	54.00	14.61	H
11942.300	36.70	-31.48	39.09	29.09	54.00	17.30	V
11767.033	36.63	-31.99	38.98	29.64	54.00	17.37	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)
17977.633	41.31	-25.50	46.66	20.15	54.00	12.69	H
17978.733	40.70	-25.50	46.66	19.54	54.00	13.30	V
15960.233	39.32	-27.35	38.54	28.13	54.00	14.68	H
15951.800	39.14	-27.35	38.54	27.95	54.00	14.86	V
11765.933	36.47	-31.99	38.98	29.48	54.00	17.53	H
11988.133	36.32	-31.48	39.09	28.71	54.00	17.68	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)
17868.000	40.89	-25.50	46.66	19.73	54.00	13.11	H
17939.500	40.76	-25.50	46.66	19.60	54.00	13.24	V
16182.067	39.54	-26.77	38.93	27.38	54.00	14.46	H
16002.400	39.43	-27.35	38.54	28.24	54.00	14.57	H
11766.667	36.69	-31.99	38.98	29.70	54.00	17.31	V
11876.667	36.43	-31.85	39.05	29.23	54.00	17.57	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)
17869.100	41.01	-25.50	46.66	19.85	54.00	12.99	H
17983.867	40.68	-25.50	46.66	19.52	54.00	13.32	V
16052.633	39.73	-27.35	38.54	28.54	54.00	14.27	H
15925.400	39.52	-27.35	38.54	28.33	54.00	14.48	H
11763.000	37.16	-31.99	38.98	30.17	54.00	16.84	H
11511.833	36.95	-32.26	38.84	30.38	54.00	17.05	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)
17938.767	41.14	-25.50	46.66	19.98	54.00	12.86	H
17977.633	41.07	-25.50	46.66	19.91	54.00	12.93	H
15960.600	39.52	-27.35	38.54	28.33	54.00	14.48	H
15889.467	39.34	-26.97	38.48	27.83	54.00	14.66	H
11760.067	36.75	-31.99	38.98	29.76	54.00	17.25	H
11763.367	36.73	-31.99	38.98	29.74	54.00	17.27	H

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)
17871.667	40.79	-25.50	46.66	19.63	54.00	13.21	V
17956.367	40.72	-25.50	46.66	19.56	54.00	13.28	H
15888.000	39.31	-26.97	38.48	27.80	54.00	14.69	H
15980.033	39.27	-27.35	38.54	28.08	54.00	14.73	V
11733.300	36.89	-31.99	38.98	29.90	54.00	17.11	H
11732.200	36.65	-31.99	38.98	29.66	54.00	17.35	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)
17610.233	49.21	-25.74	45.95	29.00	68.20	18.99	V
16975.533	48.99	-26.32	42.36	32.94	68.20	19.21	V
17584.567	48.95	-25.74	45.95	28.74	68.20	19.25	V
16868.100	48.77	-26.62	41.49	33.90	68.20	19.43	V
11489.833	45.59	-32.26	38.84	39.02	74.00	28.41	H
11874.100	45.29	-31.85	39.05	38.09	74.00	28.71	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)
17020.633	49.34	-26.32	42.36	33.29	68.20	18.86	H
17961.500	49.34	-25.50	46.66	28.18	74.00	24.66	V
16943.633	49.00	-26.32	42.36	32.95	68.20	19.20	V
16971.867	48.98	-26.32	42.36	32.93	68.20	19.22	H
11763.367	46.23	-31.99	38.98	39.24	74.00	27.77	H
11997.667	45.26	-31.48	39.09	37.65	74.00	28.74	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)
17936.200	49.40	-25.50	46.66	28.24	74.00	24.60	H
17905.400	49.19	-25.50	46.66	28.03	74.00	24.81	H
16969.300	49.17	-26.32	42.36	33.12	68.20	19.03	H
16868.100	48.84	-26.62	41.49	33.97	68.20	19.36	V
10854.767	45.73	-32.33	38.59	39.47	74.00	28.27	V
11970.900	45.30	-31.48	39.09	37.69	74.00	28.70	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)
17155.200	49.33	-26.60	43.36	32.57	68.20	18.87	H
17798.333	48.90	-25.50	46.66	27.74	74.00	25.10	H
16873.233	48.73	-26.62	41.49	33.86	68.20	19.47	V
16029.900	48.65	-27.35	38.54	37.46	74.00	25.35	V
11428.967	45.33	-32.42	38.79	38.96	74.00	28.67	V
11728.167	44.86	-31.99	38.98	37.87	74.00	29.14	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)
17968.833	49.86	-25.50	46.66	28.70	74.00	24.14	V
17334.133	49.70	-25.95	44.35	31.29	68.20	18.50	V
16881.667	48.85	-26.32	42.36	32.80	68.20	19.35	V
16840.600	48.81	-26.62	41.49	33.94	68.20	19.39	V
11992.900	45.62	-31.48	39.09	38.01	74.00	28.38	H
11771.433	45.16	-31.99	38.98	38.17	74.00	28.84	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)
17365.667	49.42	-25.95	44.35	31.01	68.20	18.78	V
16840.233	49.22	-26.62	41.49	34.35	68.20	18.98	V
16862.967	49.21	-26.62	41.49	34.34	68.20	18.99	H
17968.833	49.15	-25.50	46.66	27.99	74.00	24.85	H
11612.300	45.17	-32.31	38.91	38.58	74.00	28.83	H
11875.933	44.90	-31.85	39.05	37.70	74.00	29.10	V

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)
17341.833	50.21	-25.95	44.35	31.80	68.20	17.99	H
17976.900	50.06	-25.50	46.66	28.90	74.00	23.94	H
16960.867	49.52	-26.32	42.36	33.47	68.20	18.68	V
16997.167	49.20	-26.32	42.36	33.15	68.20	19.00	H
11464.167	45.81	-32.26	38.84	39.24	74.00	28.19	H
11741.000	45.18	-31.99	38.98	38.19	74.00	28.82	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)
17935.467	49.54	-25.50	46.66	28.38	74.00	24.46	H
17919.333	49.45	-25.50	46.66	28.29	74.00	24.55	H
16986.900	48.80	-26.32	42.36	32.75	68.20	19.40	H
16841.700	48.79	-26.62	41.49	33.92	68.20	19.41	V
11810.667	45.03	-31.85	39.05	37.83	74.00	28.97	V
11934.600	44.91	-31.48	39.09	37.30	74.00	29.09	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)
17828.767	49.63	-25.50	46.66	28.47	74.00	24.37	V
17952.700	49.25	-25.50	46.66	28.09	74.00	24.75	H
16843.533	48.98	-26.62	41.49	34.11	68.20	19.22	H
16935.200	48.62	-26.32	42.36	32.57	68.20	19.58	H
11962.100	45.20	-31.48	39.09	37.59	74.00	28.80	V
11765.933	45.06	-31.99	38.98	38.07	74.00	28.94	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)
17945.000	49.96	-25.50	46.66	28.80	74.00	24.04	V
17094.700	49.68	-26.60	43.36	32.92	68.20	18.52	H
16839.133	49.54	-26.62	41.49	34.67	68.20	18.66	V
16858.933	49.23	-26.62	41.49	34.36	68.20	18.97	V
11865.667	45.48	-31.85	39.05	38.28	74.00	28.52	V
11331.800	45.01	-32.36	38.77	38.61	74.00	28.99	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)
17960.767	49.40	-25.50	46.66	28.24	74.00	24.60	V
17885.967	49.39	-25.50	46.66	28.23	74.00	24.61	H
16835.467	48.85	-26.62	41.49	33.98	68.20	19.35	H
16860.767	48.71	-26.62	41.49	33.84	68.20	19.49	H
11720.100	45.01	-31.99	38.98	38.02	74.00	28.99	H
11943.033	44.97	-31.48	39.09	37.36	74.00	29.03	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)
17461.000	49.82	-26.85	45.25	31.42	68.20	18.38	H
17098.733	49.25	-26.60	43.36	32.49	68.20	18.95	H
16357.333	49.18	-27.10	39.31	36.97	68.20	19.02	V
16994.967	49.06	-26.32	42.36	33.01	68.20	19.14	V
11767.033	45.26	-31.99	38.98	38.27	74.00	28.74	H
11927.267	45.16	-31.48	39.09	37.55	74.00	28.84	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)
17908.700	50.84	-25.50	46.66	29.68	74.00	23.16	H
17964.800	50.33	-25.50	46.66	29.17	74.00	23.67	V
16502.900	48.84	-26.96	39.82	35.98	68.20	19.36	V
16830.700	48.63	-26.62	41.49	33.76	68.20	19.57	V
11998.400	44.95	-31.48	39.09	37.34	74.00	29.05	V
11760.067	44.91	-31.99	38.98	37.92	74.00	29.09	H

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)
17947.933	49.33	-25.50	46.66	28.17	74.00	24.67	V
16673.033	49.21	-26.87	40.65	35.43	68.20	18.99	V
17410.033	49.03	-26.85	45.25	30.63	68.20	19.17	V
16937.033	48.93	-26.32	42.36	32.88	68.20	19.27	H
11853.200	45.15	-31.85	39.05	37.95	74.00	28.85	H
11977.500	45.14	-31.48	39.09	37.53	74.00	28.86	V

Note:

1. The spurious emission above 18G is noise only.
2. All emissions below 30MHz are more than 20 dB below the limit

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

Sample Calculations

Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

E=EIRP- 20log (*D*) +104.77　Where:

E is the field strength in dBμV/m

D is the measurement distance in meters

EIRP is the equivalent isotropically radiated power in dbm

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:

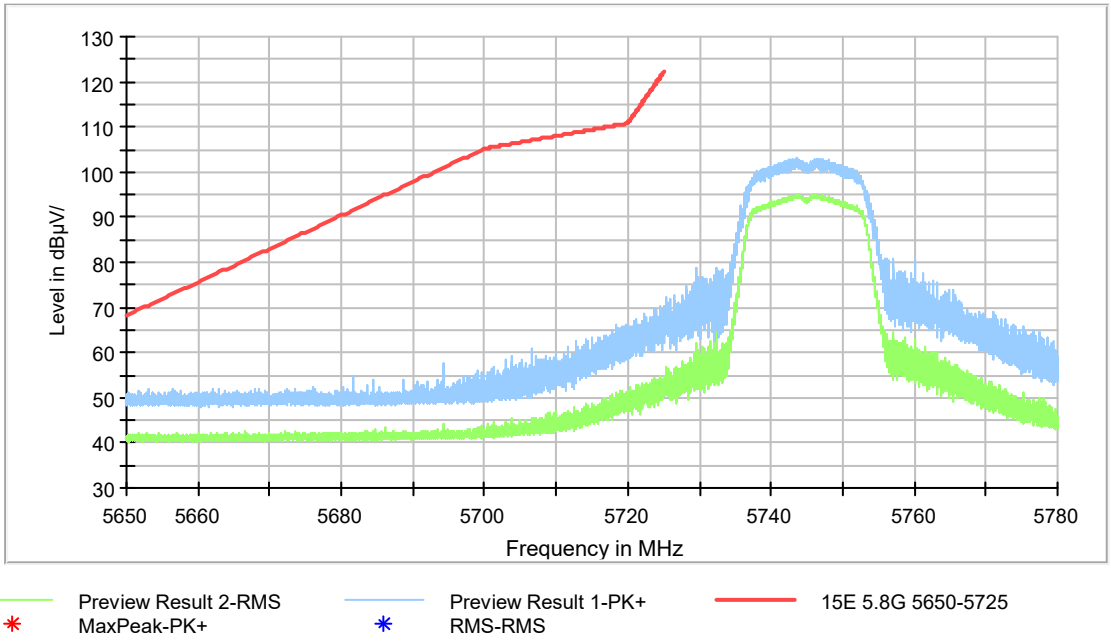


Fig. 10 Band Edges (802.11a Ch149,5745MHz)

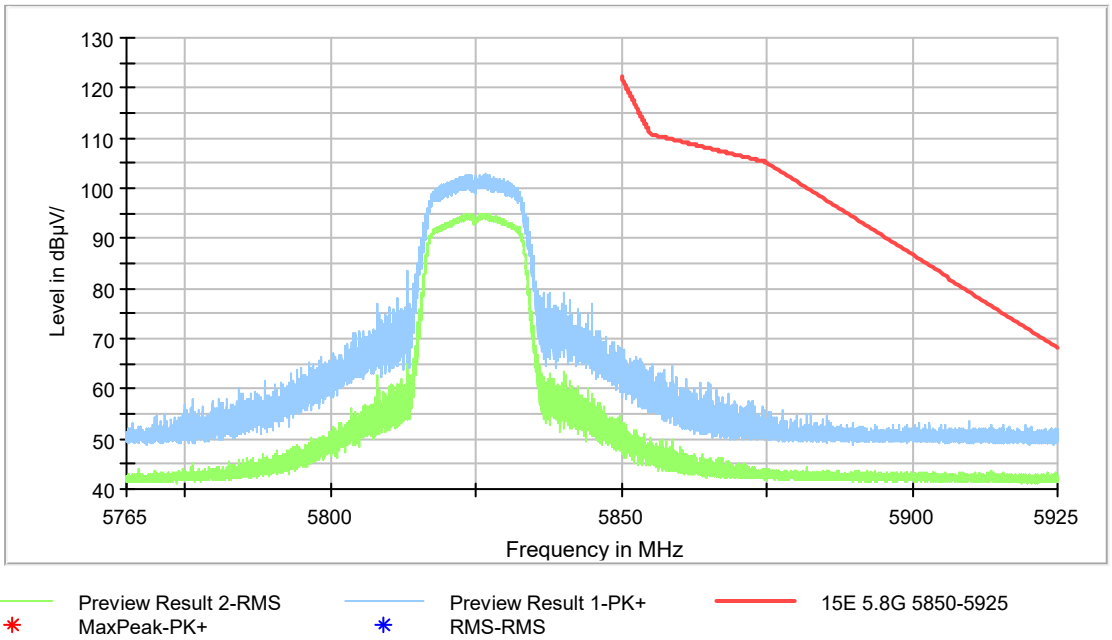


Fig. 11 Band Edges (802.11a Ch165, 5825MHz)

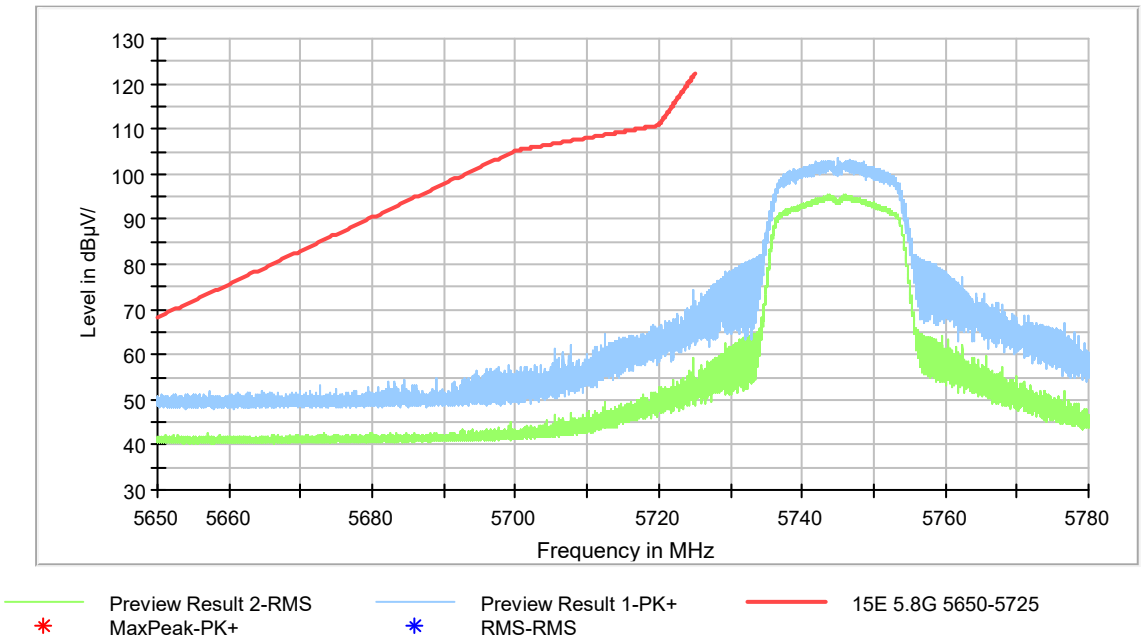


Fig. 12 Band Edges (802.11n-HT20 Ch149, 5745MHz)

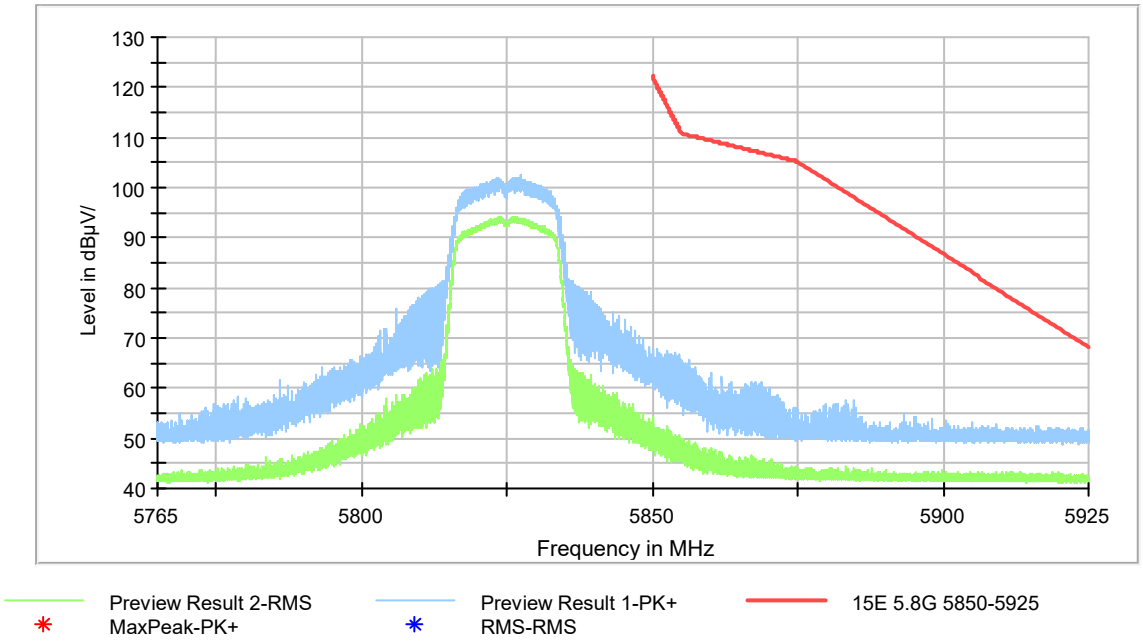


Fig. 13 Band Edges (802.11n-HT20 Ch165, 5825MHz)

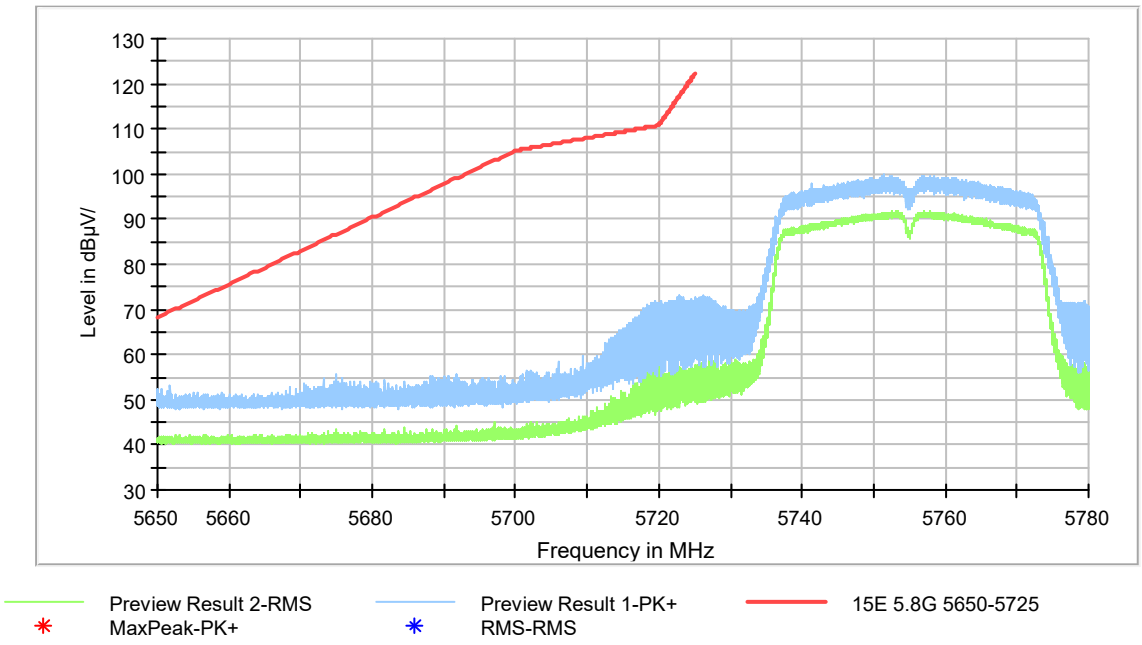


Fig. 14 Band Edges (802.11n-HT40 Ch151, 5755MHz)

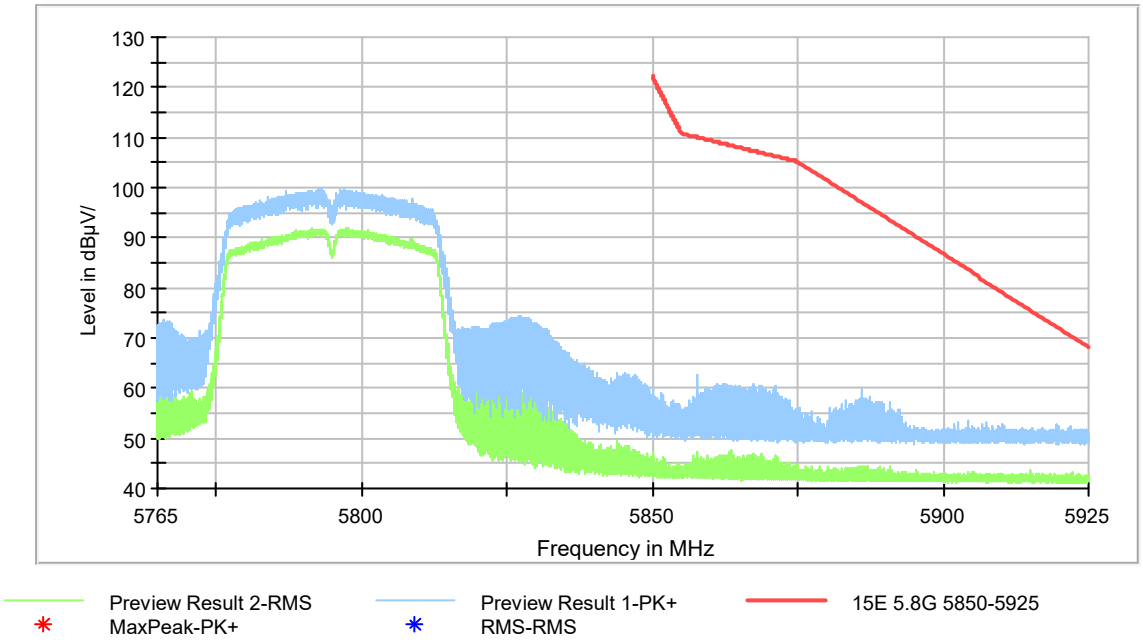


Fig. 15 Band Edges (802.11n-HT40 Ch159, 5795MHz)

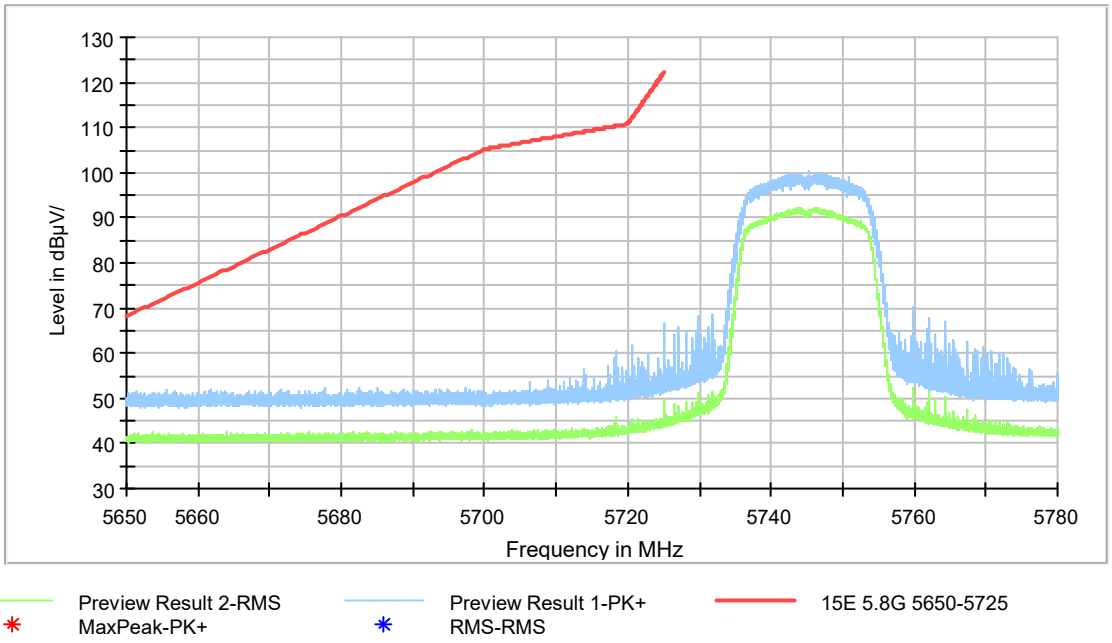


Fig. 16 Band Edges (802.11ac-HT20 Ch149, 5745MHz)

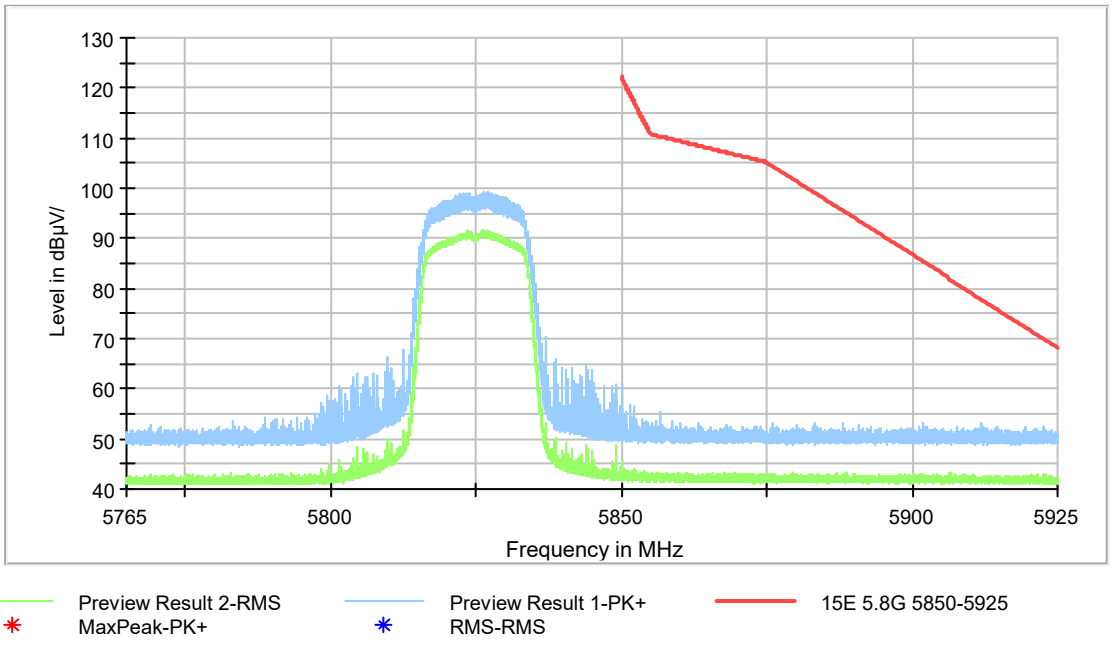


Fig. 17 Band Edges (802.11ac-HT20 Ch165, 5825MHz)

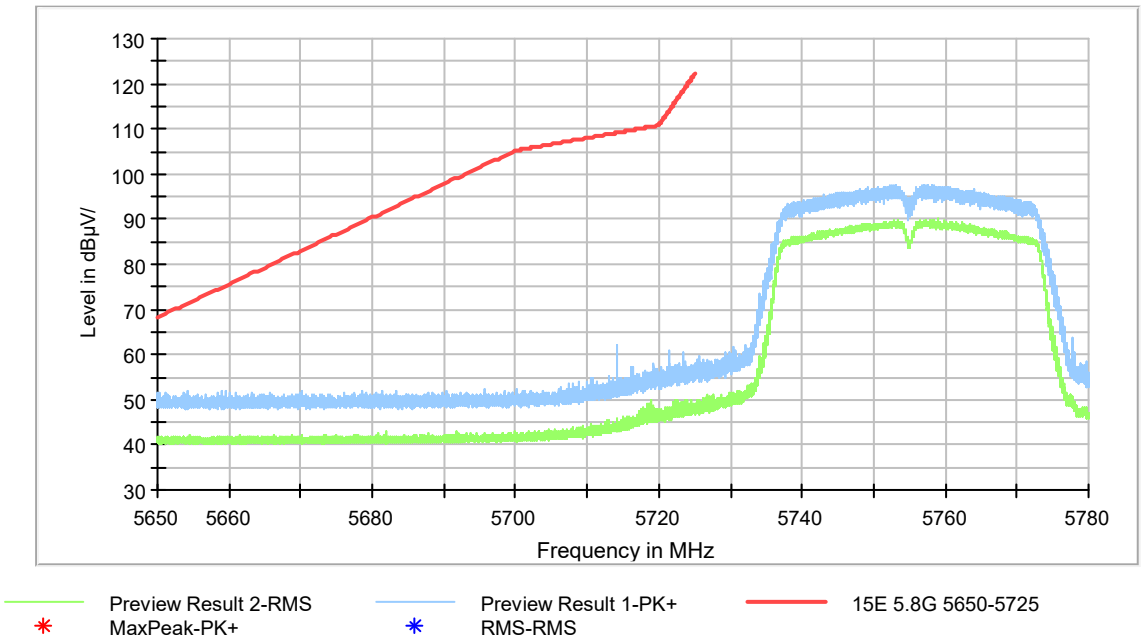


Fig. 18 Band Edges (802.11ac-HT40 Ch151, 5755MHz)

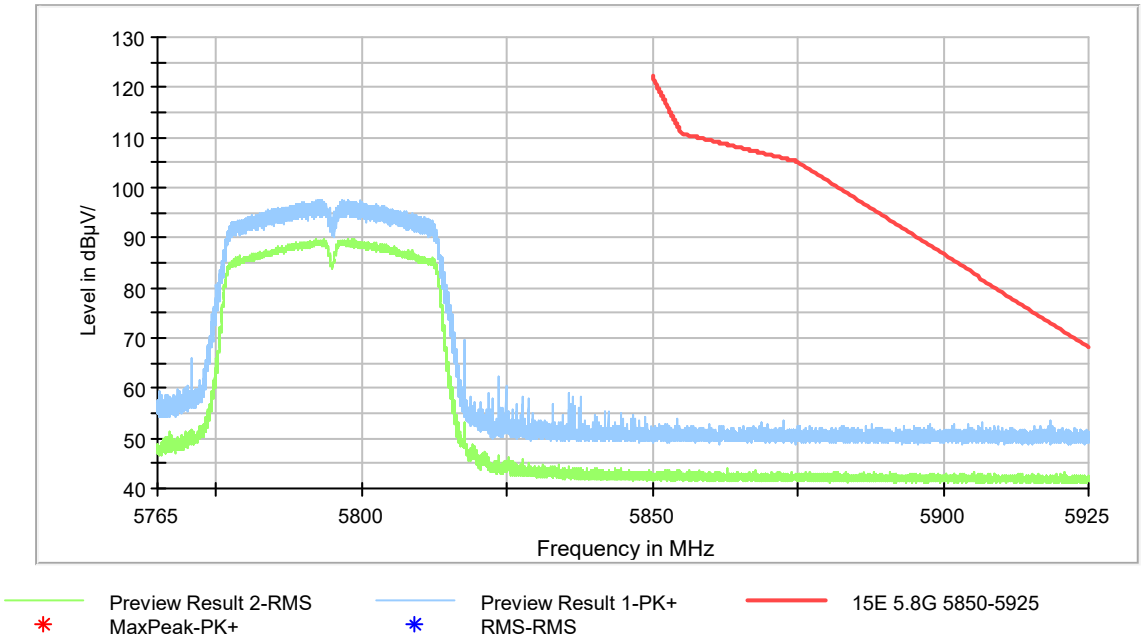


Fig. 19 Band Edges (802.11ac-HT40 Ch159, 5795MHz)

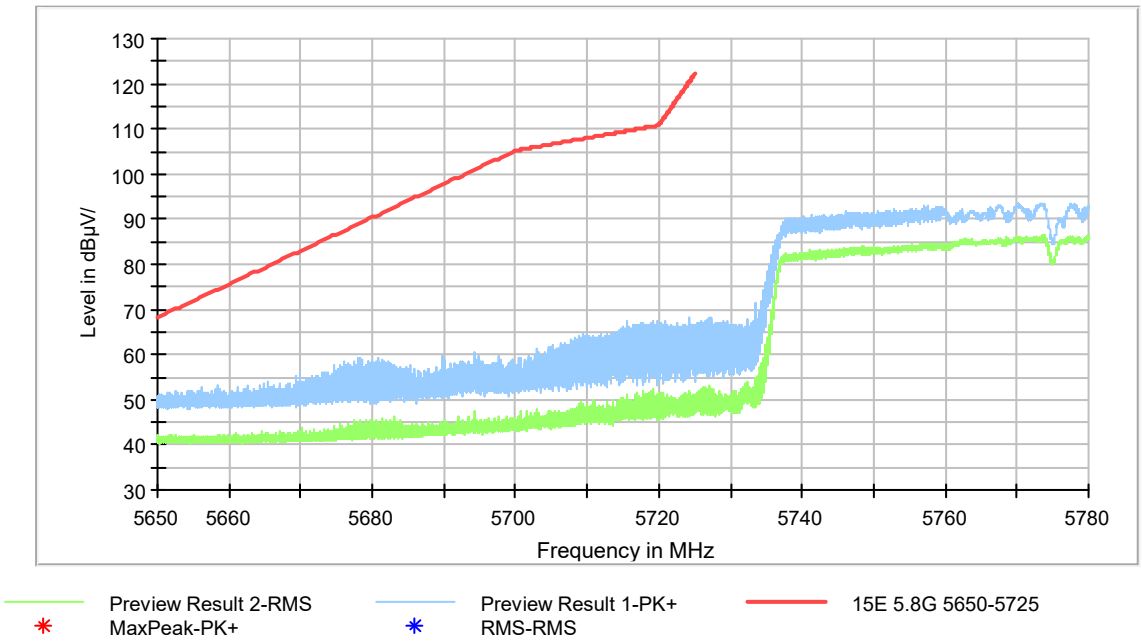


Fig. 20 Band Edges (802.11ac-HT80 Ch155, 5775MHz)

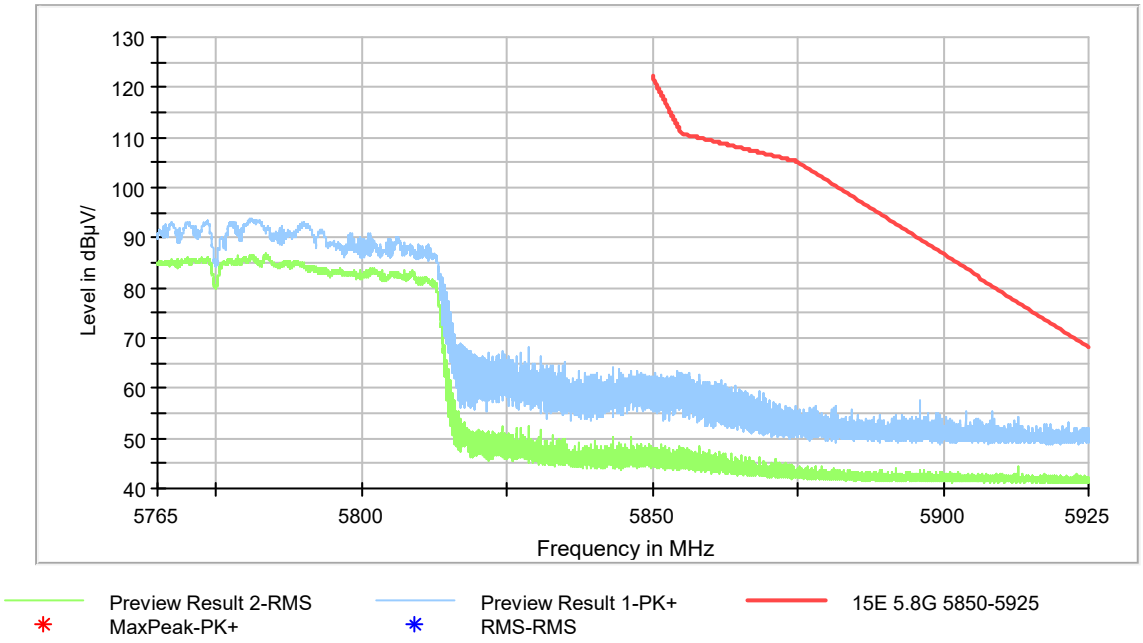


Fig. 21 Band Edges (802.11ac-HT80 Ch155, 5775MHz)

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.

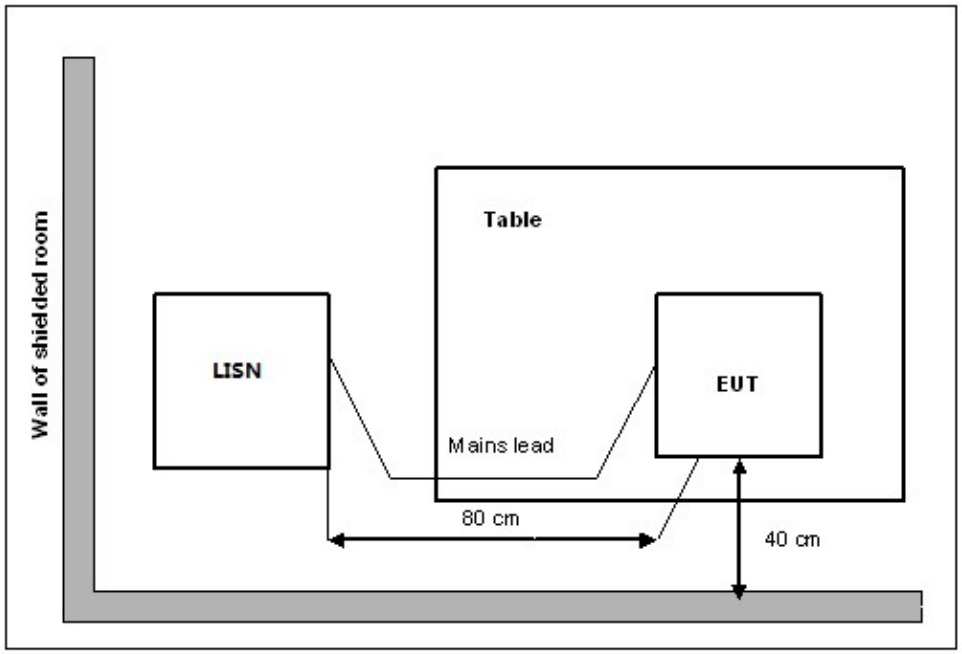
The measurement bandwidth is:

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 (dBμV)	Result (dBμV)		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 (dBμV)	Result (dBμV)		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:

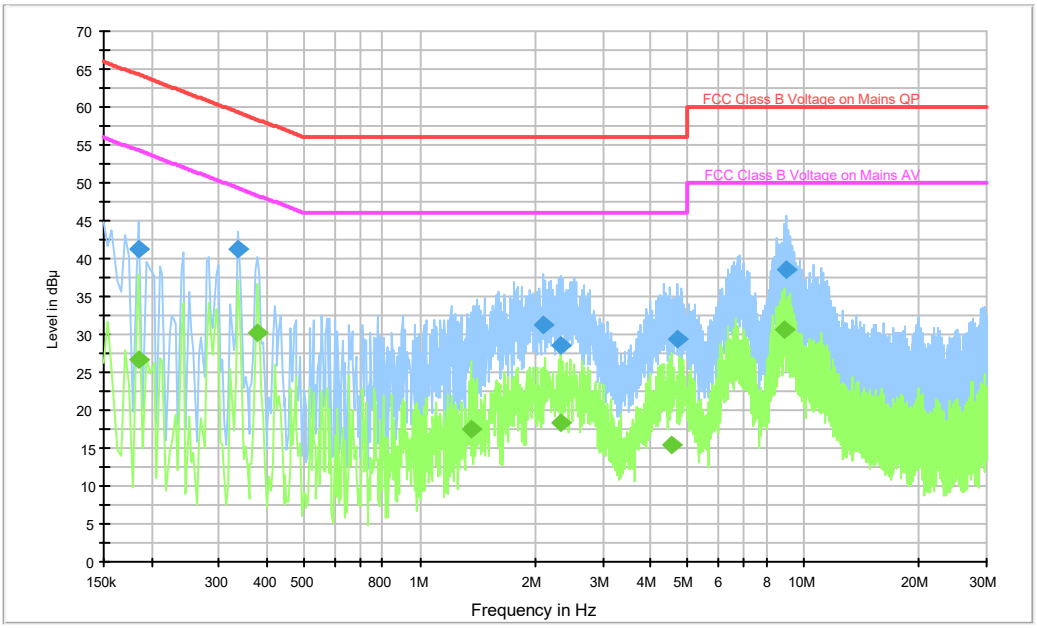


Fig.22 AC Power line Conducted Emission-802.11a

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	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186000	41.3	2000	9.000	On	L1	19.7	22.9	64.2
0.334000	41.2	2000	9.000	On	N	19.7	18.2	59.4
2.102000	31.2	2000	9.000	On	L1	19.6	24.8	56.0
2.322000	28.5	2000	9.000	On	L1	19.6	27.5	56.0
4.682000	29.4	2000	9.000	On	L1	19.6	26.6	56.0
8.974000	38.6	2000	9.000	On	L1	19.7	21.4	60.0

Final Result 2

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186000	26.7	2000	9.000	On	L1	19.7	27.6	54.2
0.378000	30.3	2000	9.000	On	L1	19.7	18.0	48.3
1.354000	17.5	2000	9.000	On	N	19.6	28.5	46.0
2.322000	18.3	2000	9.000	On	L1	19.6	27.7	46.0
4.526000	15.4	2000	9.000	On	L1	19.6	30.6	46.0
8.946000	30.5	2000	9.000	On	L1	19.7	19.5	50.0

Idle:

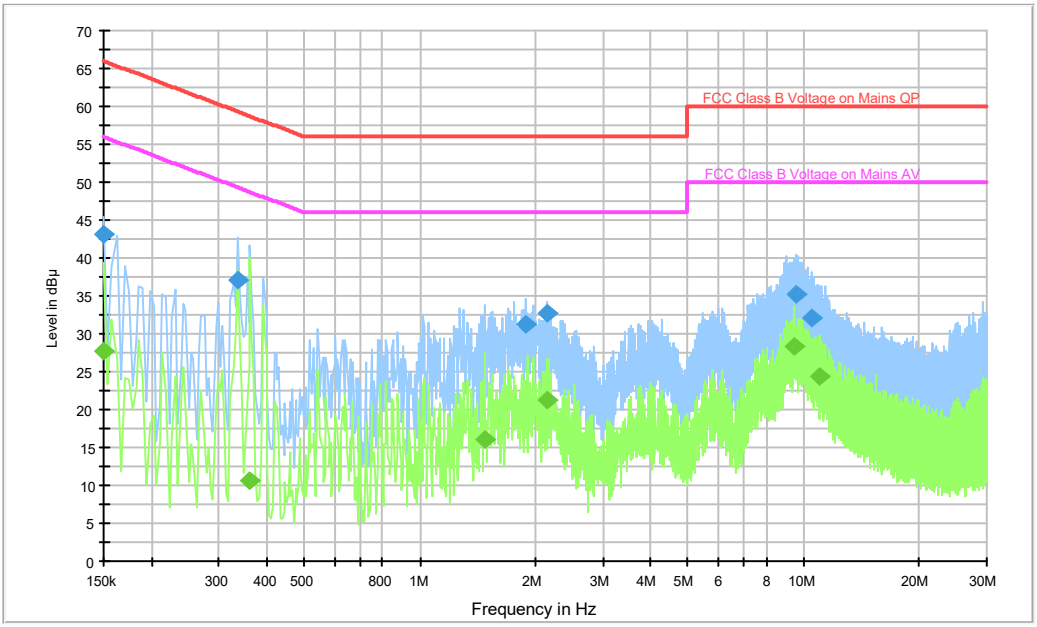


Fig.23 AC Power line Conducted Emission-Idle

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	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	43.1	2000	9.000	On	L1	20.0	22.9	66.0
0.334000	37.2	2000	9.000	On	L1	19.7	22.2	59.4
1.890000	31.2	2000	9.000	On	L1	19.6	24.8	56.0
2.138000	32.7	2000	9.000	On	L1	19.6	23.3	56.0
9.562000	35.2	2000	9.000	On	L1	19.7	24.8	60.0
10.43800	32.1	2000	9.000	On	L1	19.7	27.9	60.0

Final Result 2

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	27.7	2000.0	9.000	On	L1	20.0	28.3	56.0
0.362000	10.6	2000.0	9.000	On	L1	19.7	38.1	48.7
1.482000	16.1	2000.0	9.000	On	L1	19.7	29.9	46.0
2.138000	21.2	2000.0	9.000	On	L1	19.6	24.8	46.0
9.466000	28.4	2000.0	9.000	On	L1	19.7	21.6	50.0
11.034000	24.5	2000.0	9.000	On	L1	19.7	25.5	50.0

ANNEX B: EUT parameters

Disclaimer: The antenna gain 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

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).

2022-10-01 through 2023-09-30
Effective Dates

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

For the National Voluntary Laboratory Accreditation Program

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