



**FCC PART 15C  
TEST REPORT  
No. I21Z70432-IOT07**

**for**

**SAMSUNG Electronics Co., Ltd**

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

**SM-A035M/DS, SM-A035M**

**With**

**FCC ID: ZCASMA035M**

**Hardware Version: REV1.0**

**Software Version: A035M.001**

**Issued Date: 2021-10-15**

**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.

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## **REPORT HISTORY**

<b>Report Number</b>	<b>Revision</b>	<b>Description</b>	<b>Issue Date</b>
I21Z70432-IOT07	Rev.0	1st edition	2021-10-15

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## **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**

Location 1: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, 100176, P.R. China

### **1.3. TestingEnvironment**

Normal Temperature: 15-35°C

Relative Humidity: 20-75%

#### 1.4. Project date

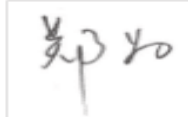
Testing Start Date: 2021-09-01  
Testing End Date: 2021-10-15

#### 1.5. Signature

封爱宇

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**Feng Aiyu**  
(Prepared this test report)



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**Zheng Wei**  
(Reviewed this test report)



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**Hu Xiaoyu**  
(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  
City: /  
Postal Code: /  
Contact: Jenni Chun  
Telephone: +1-201-937-4203  
Email: j1.chun@samsung.com

### **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  
Contact: (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-A035M/DS, SM-A035M
FCC ID	ZCASMA035M
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
UT07a	2170432UT07a	REV1.0	A035M.001
UT10a	2170432UT10a	REV1.0	A035M.001

\*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		
Model	EP-TA50JWS	
Manufacturer	RFTECH Co., Ltd.	
Length of cable	/	
AE2		
Model	EP-TA50JWS	
Manufacturer	HAMEN	
Length of cable	/	
AE3		
Model	EP-TA50EWE	
Manufacturer	DY	
Length of cable	/	
AE4		
Model	EP-TA50EWE	
Manufacturer	HAMEN	
Length of cable	/	
AE5		
Model	EP-TA50EWE	
Manufacturer	Salcomp	
Length of cable	/	
AE6		



Model	EP-TA50UWE	
Manufacturer	DY	
Length of cable	/	
AE7		
Model	EP-TA50UWE	
Manufacturer	HAMEN	
Length of cable	/	
AE8		
Model	EP- TA50UWE	
Manufacturer	Salcomp	
Length of cable	/	
AE9		
Model	ECB-DU68WE	
Manufacturer	Samsung Electronics Co., Ltd.	
Length	/	/
AE10		
Model	EHS61ASFWE	
Manufacturer	CRESYN HANOI Co., Ltd	
Length	/	
AE11		
Model	EHS61ASFWE	
Manufacturer	DONGGUAN YOUNGBO ELECTRONICS CO.,LTD	
Length	/	
AE12		
TYPE	Secondary Li-ion Battery	
SN	HQ-50SD	
Manufacturer	SCUD (Fujian) Electronics CO.,LTD	
AE13		
TYPE	Secondary Li-ion Battery	
SN	HQ-50N	
Manufacturer	SCUD (Fujian) Electronics CO.,LTD	

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

### 3.4. General Description

The Equipment under Test (EUT) is a model of Multi-band GSM/WCDMA/LTE phone with Bluetooth, WLAN

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 CFR 47, Part 15, Subpart C and E:	
FCC Part15	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	/	<b>P</b>
AC Powerline Conducted Emission	15.107, 15.207	/	<b>P</b>

Please refer to **ANNEX A** for detail.

Terms used in Verdict column

P	Pass, The EUT complies with the essential requirements in the standard.
NM	Not measured, The test was not measured by CTTL
NA	Not Applicable, The test was not applicable
F	Fail, The EUT does not comply with the essential requirements in the standard

## 6.2. Statements

CTTL has evaluated the test cases requested by the client/manufacturer as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.1.

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

## 6.3. Test Conditions

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

Temperature	26°C
Voltage	3.85V
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	2022-05-15
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	9163-01223	Schwarzbeck	1 year	2022-03-22
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

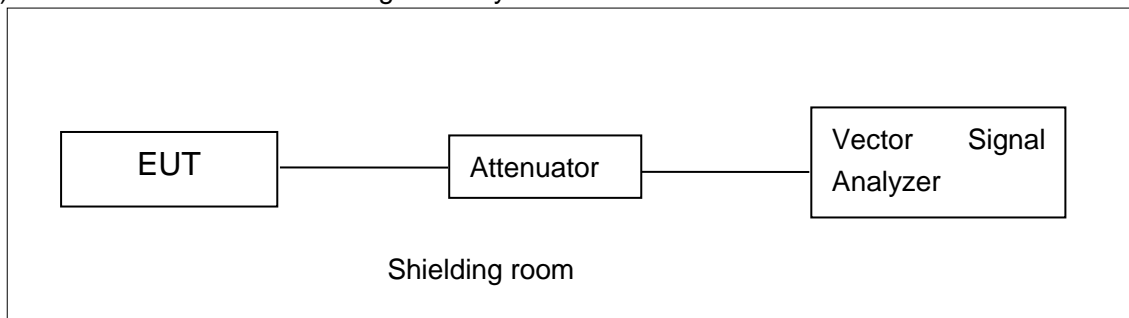
Measurement Uncertainty : 3.08dB,k=2

## 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

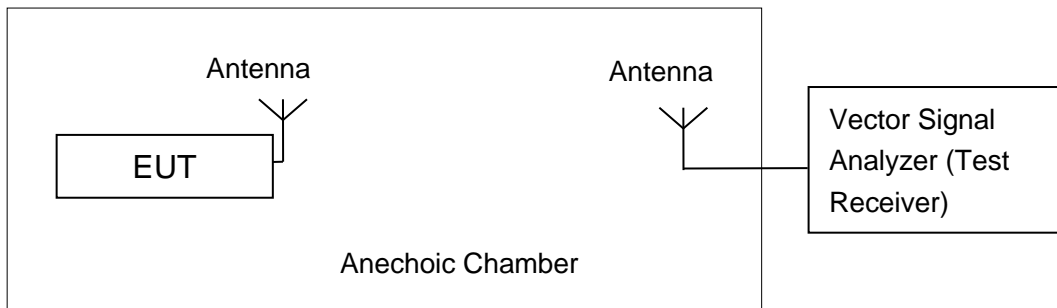


#### A.1.2. Radiated Emission Measurements

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 -0.6dBi 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	15.24	15.29	15.65
	9	/	/	15.76
	12	/	/	15.74
	18	/	/	15.83
	24	/	/	14.53
	36	/	/	14.51
	48	/	/	13.94
	54	/	/	13.96

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	15.29	/	/
	MCS1	15.53	/	/
	MCS2	15.62	15.38	15.13
	MCS3	15.37	/	/
	MCS4	15.21	/	/
	MCS5	15.43	/	/
	MCS6	13.38	/	/
	MCS7	12.53	/	/

The data rate MCS2 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	14.81	14.53	14.60
	MCS1	14.35	/	/
	MCS2	13.31	/	/
	MCS3	13.59	/	/
	MCS4	12.61	/	/
	MCS5	12.60	/	/
	MCS6	12.07	/	/
	MCS7	12.13	/	/
	MCS8	11.12	/	/

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	15.55	15.70
	MCS1	/	15.45
	MCS2	/	15.23
	MCS3	//	15.22
	MCS4	/	14.52
	MCS5	/	12.58
	MCS6	/	12.71
	MCS7	/	12.51

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	14.18	/
	MCS1	14.39	14.35
	MCS2	13.31	/
	MCS3	12.91	/
	MCS4	12.34	/
	MCS5	12.60	/
	MCS6	11.76	/
	MCS7	11.97	/
	MCS8	11.78	/

The data rate MCS1 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	14.14
	MCS1	14.22
	MCS2	13.08
	MCS3	12.96
	MCS4	12.18
	MCS5	12.06
	MCS6	11.53
	MCS7	11.49
	MCS8	10.46

The data rate MCS1 is selected as worse condition, and the following cases are performed with this condition.

**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:

##### ANT10

Mode	Channel	Power Spectral Density ( dBm/500kHz )	Conclusion
802.11a	149	1.43	P
	157	1.29	P
	165	1.46	P
802.11N HT20	149	0.94	P
	157	0.78	P
	165	0.97	P
802.11ac HT40	151	-2.05	P
	159	-2.31	P
802.11ac HT80	155	-6.21	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:

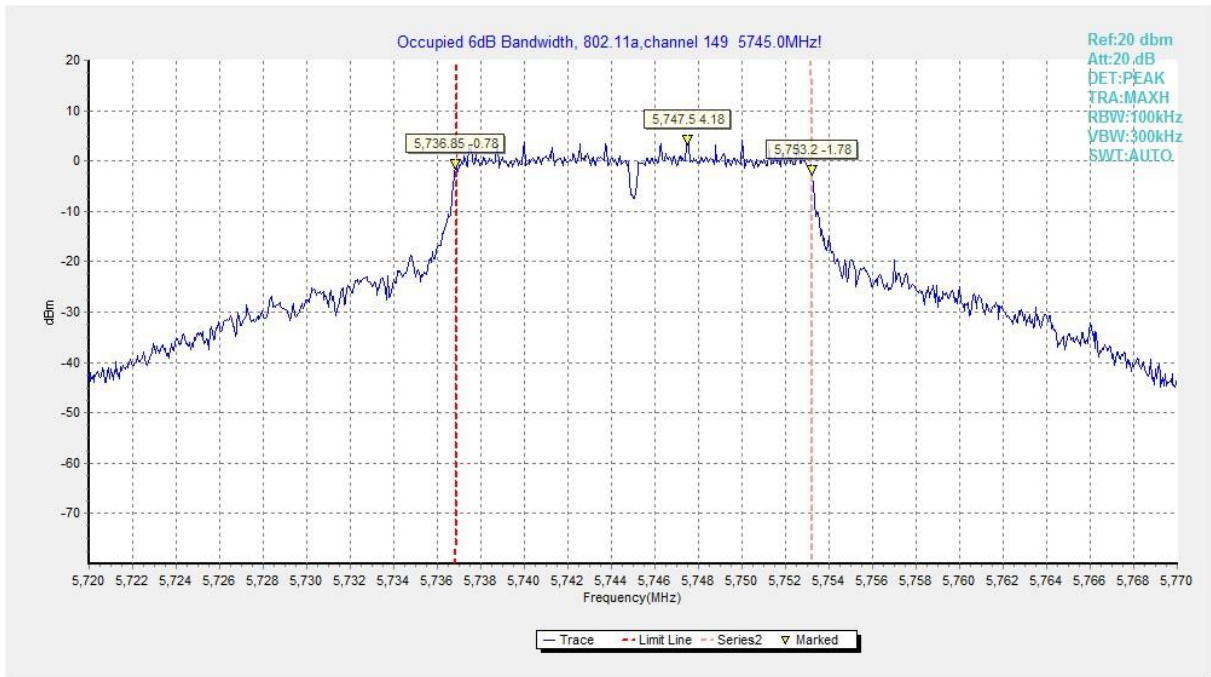
Measurement Uncertainty	60.80Hz
-------------------------	---------

##### Measurement Result:

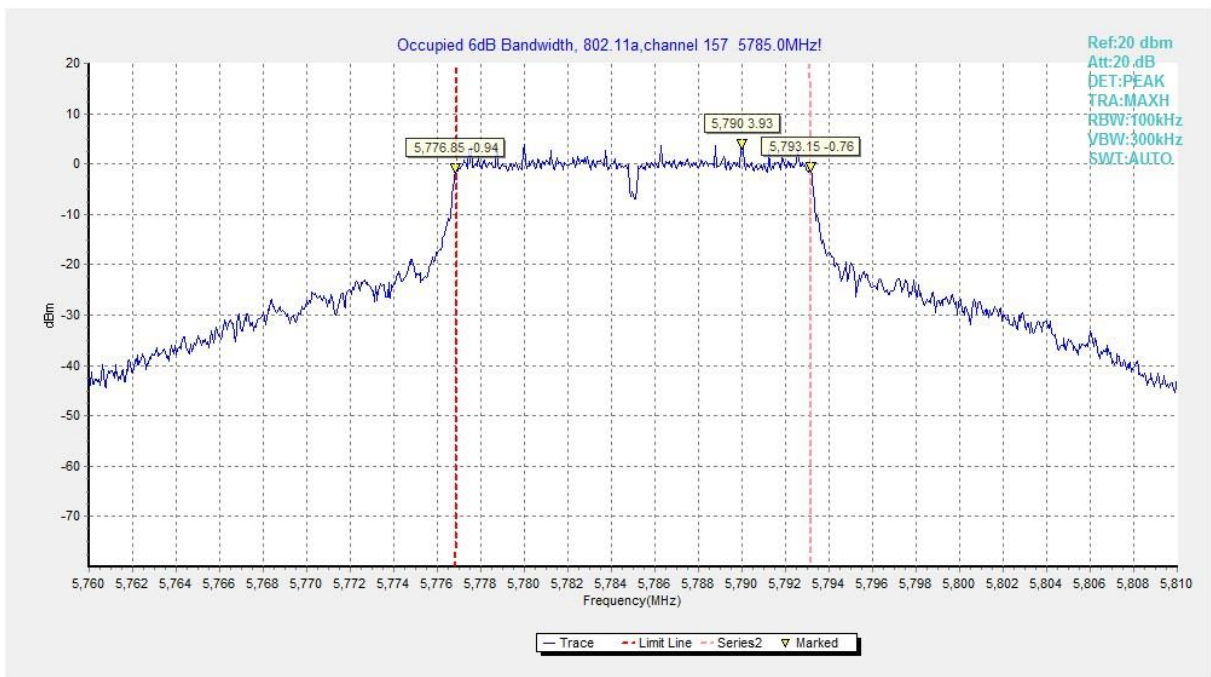
Mode	Channel	Occupied 6dB Bandwidth ( KHz)		conclusion
		Fig.	Value	
802.11a	149	Fig.1	16.35	P
	157	Fig.2	16.29	P
	165	Fig.3	16.35	P
802.11n HT20	149	Fig.4	17.29	P
	157	Fig.5	17.50	P
	165	Fig.6	17.54	P
802.11n HT40	151	Fig.7	35.68	P
	159	Fig.8	35.68	P
802.11ac HT80	155	Fig.9	75.83	P

**Conclusion: PASS**

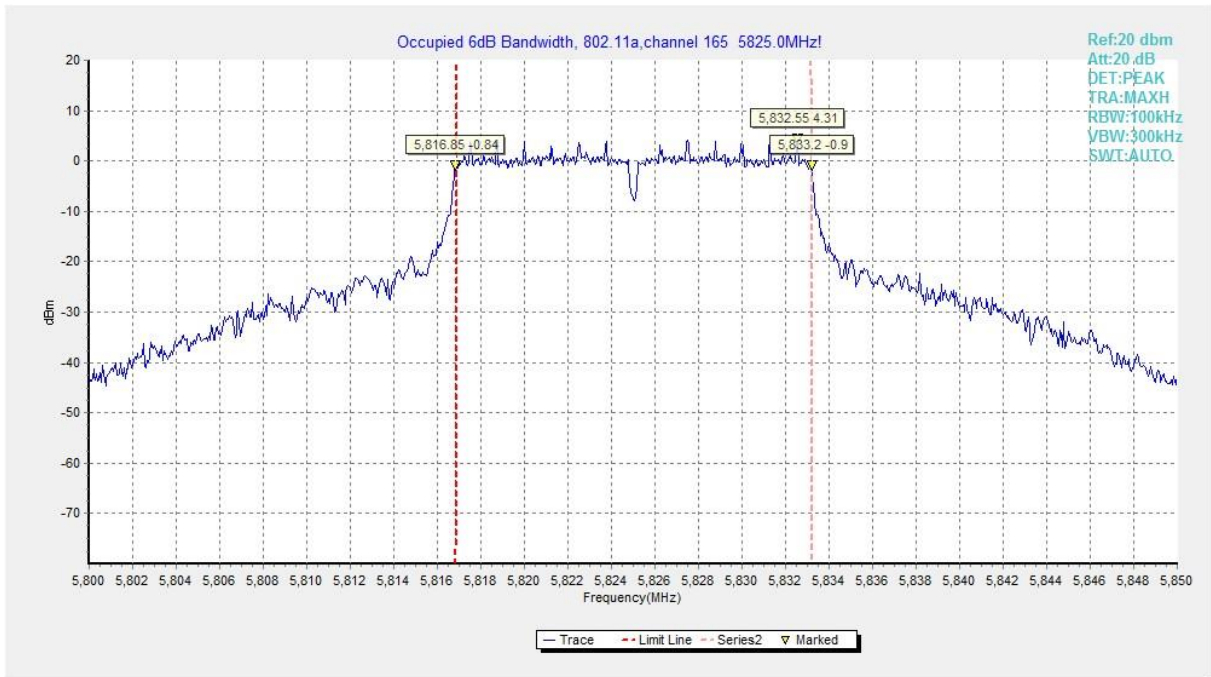
**Test graphs as below:**



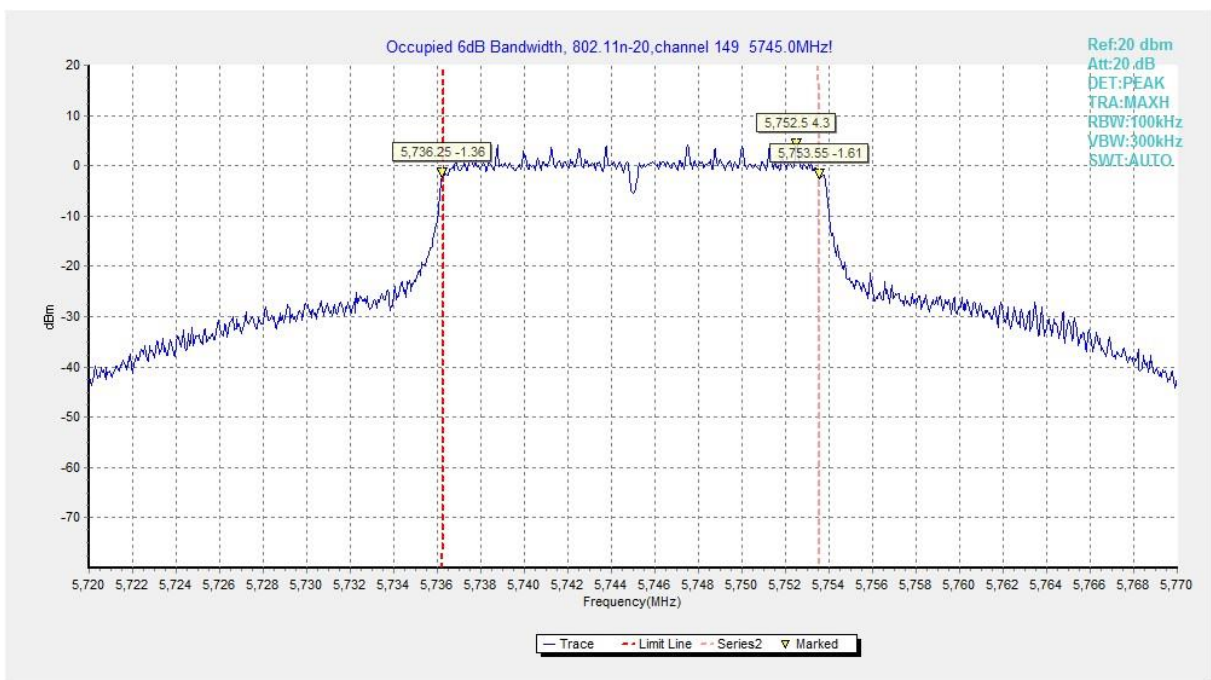
**Fig. 1 Occupied 6dB Bandwidth (802.11a, Ch 149)**



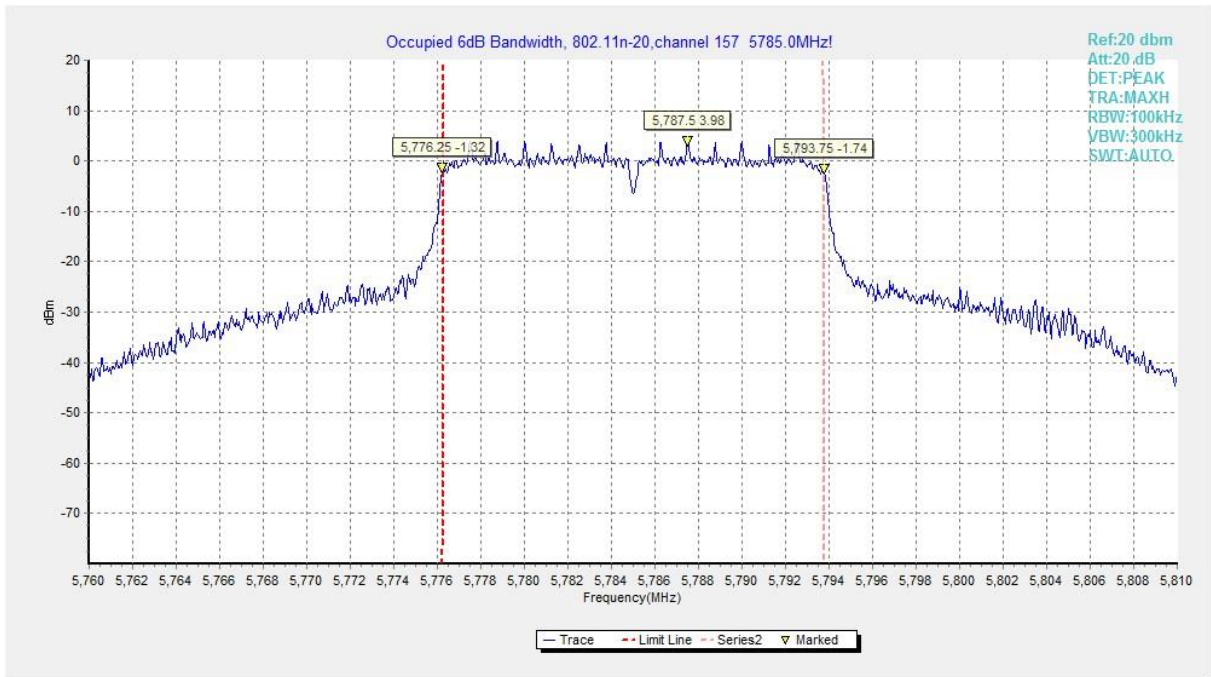
**Fig. 2 Occupied 6dB Bandwidth (802.11a, Ch 157)**



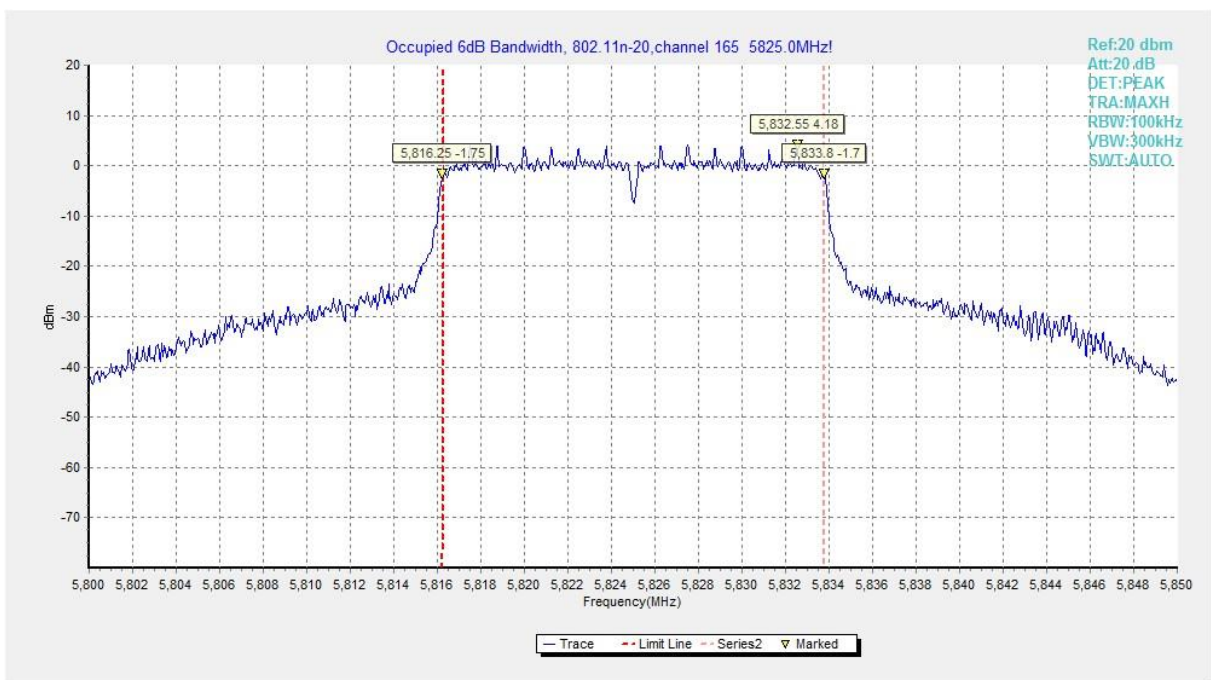
**Fig. 3 Occupied 6dB Bandwidth (802.11a, Ch 165)**



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

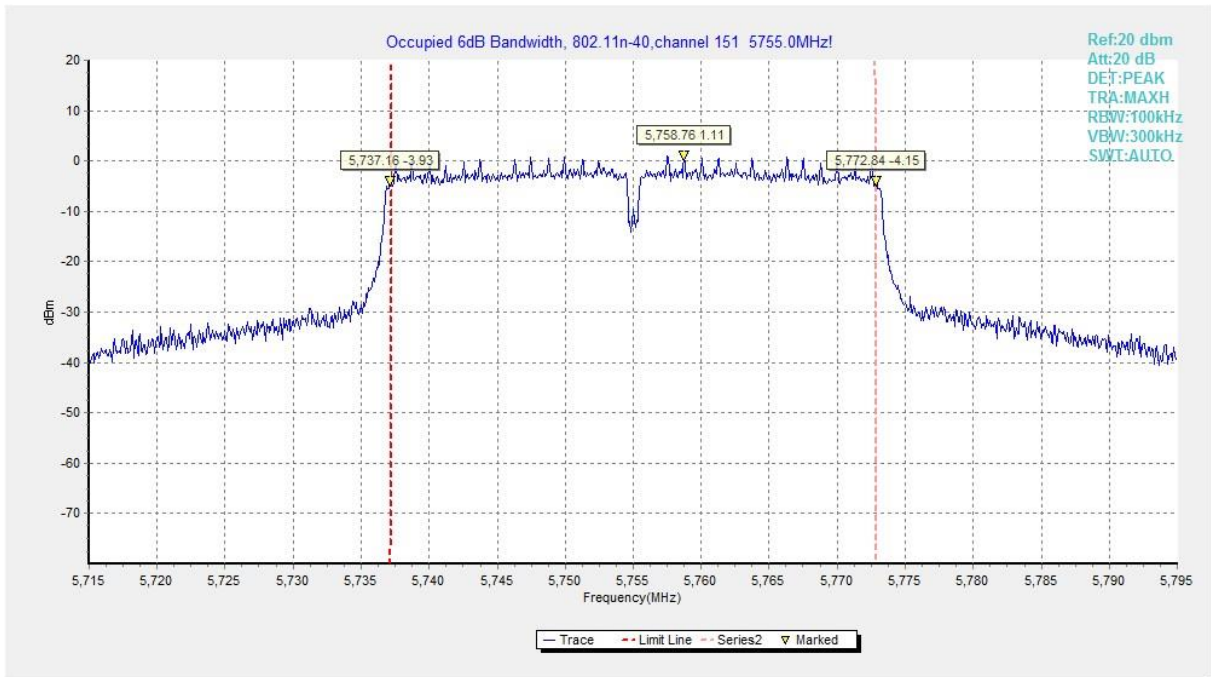


**Fig. 5 Occupied 6dB Bandwidth (802.11n-HT20, Ch 157)**

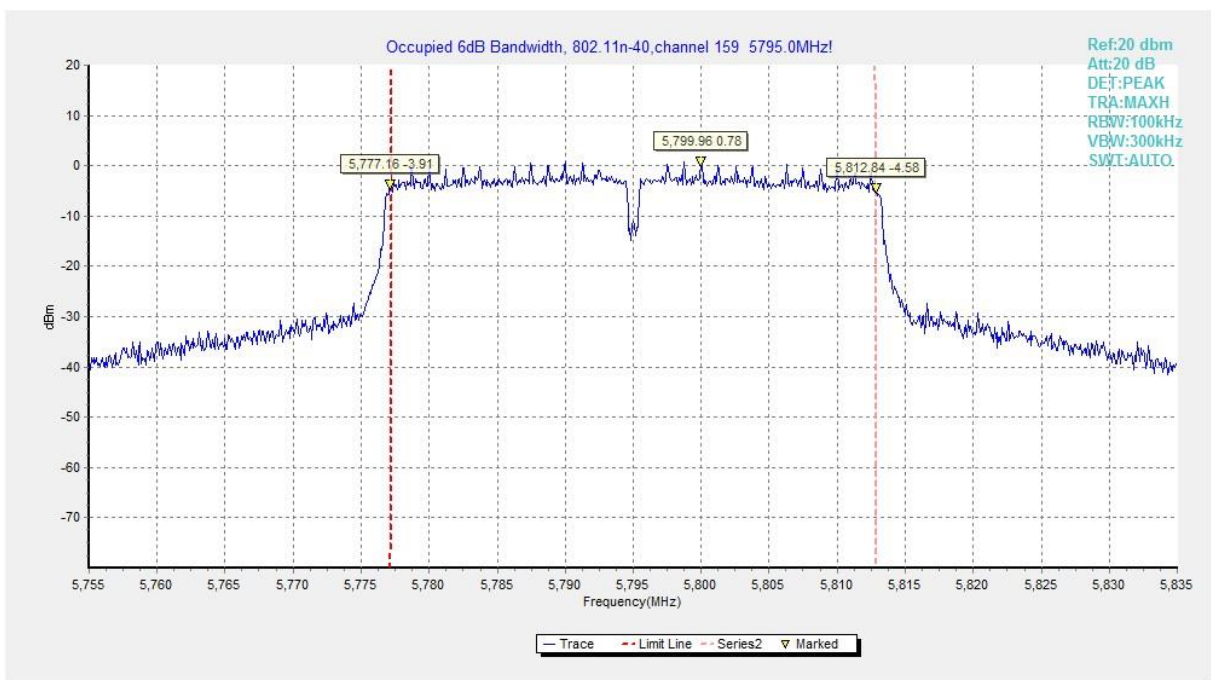


**Fig. 6 Occupied 6dB Bandwidth (802.11n-HT20, Ch 165)**

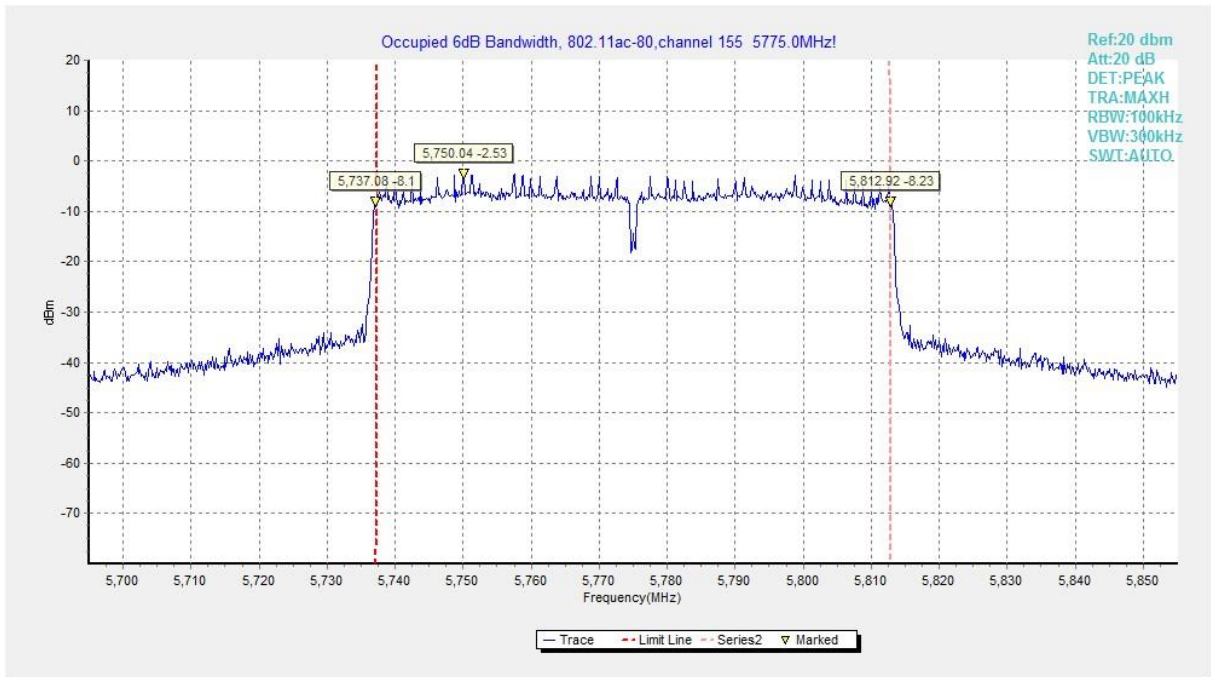




**Fig. 7 Occupied 6dB Bandwidth (802.11n-HT40, Ch 151)**



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



**Fig. 9 Occupied 6dB Bandwidth (802.11n-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( $\mu$ 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 ( $\mu$ 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
		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	---
	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:

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

**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)
17989.50	46.27	-25.50	46.66	25.11	54.00	7.73	H
17984.00	46.17	-25.50	46.66	25.01	54.00	7.83	V
14475.60	39.34	-28.59	42.46	25.47	54.00	14.66	H
14493.80	39.31	-28.59	42.46	25.44	54.00	14.69	V
11890.10	34.8	-31.85	39.05	27.6	54.00	19.2	V
11902.70	34.79	-31.85	39.05	27.59	54.00	19.21	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)
17985.70	45.41	-25.50	46.66	24.25	54.00	8.59	V
17991.80	45.24	-25.50	46.66	24.08	54.00	8.76	H
14493.80	38.29	-28.59	42.46	24.42	54.00	15.71	V
14495.40	38.2	-28.59	42.46	24.33	54.00	15.8	H
11842.20	33.61	-31.85	39.05	26.41	54.00	20.39	H
11812.00	33.54	-31.85	39.05	26.34	54.00	20.46	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)
17994.00	45.33	-25.50	46.66	24.17	54.00	8.67	H
17979.10	45.21	-25.50	46.66	24.05	54.00	8.79	V
14496.50	38.57	-28.59	42.46	24.7	54.00	15.43	H
14480.50	38.53	-28.59	42.46	24.66	54.00	15.47	V
11821.90	33.98	-31.85	39.05	26.78	54.00	20.02	H
11988.00	33.68	-31.48	39.09	26.07	54.00	20.32	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)
17998.90	46.51	-25.50	46.66	25.35	54.00	7.49	V
17989.00	46.39	-25.50	46.66	25.23	54.00	7.61	H
14488.80	39.54	-28.59	42.46	25.67	54.00	14.46	V
14493.80	39.35	-28.59	42.46	25.48	54.00	14.65	H
11835.60	34.98	-31.85	39.05	27.78	54.00	19.02	H
11832.30	34.92	-31.85	39.05	27.72	54.00	19.08	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)
17984.00	46.36	-25.50	46.66	25.2	54.00	7.64	V
17994.00	46.33	-25.50	46.66	25.17	54.00	7.67	V
14498.10	39.21	-28.59	42.46	25.34	54.00	14.79	V
14494.90	39.13	-28.59	42.46	25.26	54.00	14.87	V
11934.60	34.94	-31.48	39.09	27.33	54.00	19.06	H
11837.80	34.93	-31.85	39.05	27.73	54.00	19.07	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)
17998.30	46.30	-25.50	46.66	25.14	54.00	7.7	V
17989.00	46.18	-25.50	46.66	25.02	54.00	7.82	H
14477.20	39.50	-28.59	42.46	25.63	54.00	14.5	V
14482.80	39.30	-28.59	42.46	25.43	54.00	14.7	V
11835.10	35.11	-31.85	39.05	27.91	54.00	18.89	V
11845.50	35.04	-31.85	39.05	27.84	54.00	18.96	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)
17997.20	46.36	-25.50	46.66	25.2	54.00	7.64	H
17995.00	46.20	-25.50	46.66	25.04	54.00	7.8	H
14480.50	39.65	-28.59	42.46	25.78	54.00	14.35	H
14490.50	39.21	-28.59	42.46	25.34	54.00	14.79	V
11903.30	34.93	-31.85	39.05	27.73	54.00	19.07	V
11911.50	34.74	-31.85	39.05	27.54	54.00	19.26	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)
17987.90	46.31	-25.50	46.66	25.15	54.00	7.69	V
17996.70	46.27	-25.50	46.66	25.11	54.00	7.73	H
14489.40	39.32	-28.59	42.46	25.45	54.00	14.68	H
14496.50	39.32	-28.59	42.46	25.45	54.00	14.68	V
11825.70	35.09	-31.85	39.05	27.89	54.00	18.91	H
11905.50	35.06	-31.85	39.05	27.86	54.00	18.94	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)
17996.20	46.22	-25.50	46.66	25.06	54.00	7.78	V
17981.30	46.19	-25.50	46.66	25.03	54.00	7.81	V
14499.80	39.45	-28.59	42.46	25.58	54.00	14.55	H
14486.00	39.35	-28.59	42.46	25.48	54.00	14.65	H
11820.80	34.99	-31.85	39.05	27.79	54.00	19.01	V
11841.10	34.91	-31.85	39.05	27.71	54.00	19.09	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)
17997.80	46.72	-25.50	46.66	25.56	54.00	7.28	H
17991.80	46.53	-25.50	46.66	25.37	54.00	7.47	V
14498.70	40.08	-28.59	42.46	26.21	54.00	13.92	V
14490.50	39.32	-28.59	42.46	25.45	54.00	14.68	V
11820.80	34.90	-31.85	39.05	27.7	54.00	19.1	V
11831.80	34.82	-31.85	39.05	27.62	54.00	19.18	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)
17994.00	46.44	-25.50	46.66	25.28	54.00	7.56	V
17996.20	46.23	-25.50	46.66	25.07	54.00	7.77	V
14477.80	39.33	-28.59	42.46	25.46	54.00	14.67	H
14488.20	39.31	-28.59	42.46	25.44	54.00	14.69	H
11816.40	34.91	-31.85	39.05	27.71	54.00	19.09	H
11863.10	34.82	-31.85	39.05	27.62	54.00	19.18	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)
17996.70	46.35	-25.50	46.66	25.19	54.00	7.65	H
17997.80	46.21	-25.50	46.66	25.05	54.00	7.79	V
14493.20	39.59	-28.59	42.46	25.72	54.00	14.41	H
14475.60	39.39	-28.59	42.46	25.52	54.00	14.61	H
11815.80	34.87	-31.85	39.05	27.67	54.00	19.13	H
11928.60	34.85	-31.48	39.09	27.24	54.00	19.15	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)
17987.30	46.35	-25.50	46.66	25.19	54.00	7.65	V
17996.20	46.35	-25.50	46.66	25.19	54.00	7.65	H
14499.20	39.47	-28.59	42.46	25.6	54.00	14.53	H
14497.60	39.36	-28.59	42.46	25.49	54.00	14.64	H
11819.10	34.91	-31.85	39.05	27.71	54.00	19.09	V
11811.40	34.89	-31.85	39.05	27.69	54.00	19.11	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)
17997.20	46.52	-25.50	46.66	25.36	54.00	7.48	H
17997.80	46.23	-25.50	46.66	25.07	54.00	7.77	V
14483.90	39.37	-28.59	42.46	25.5	54.00	14.63	V
14482.20	39.21	-28.59	42.46	25.34	54.00	14.79	H
11901.10	34.98	-31.85	39.05	27.78	54.00	19.02	V
11919.20	34.92	-31.48	39.09	27.31	54.00	19.08	V

**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)
17995.60	57.39	-25.50	46.66	36.23	74.00	16.61	H
17919.70	57.08	-25.50	46.66	35.92	74.00	16.92	V
14665.40	51.82	-27.29	41.90	37.21	68.30	16.48	H
14455.80	51.30	-28.59	42.46	37.43	68.30	17.00	H
11964.90	46.58	-31.48	39.09	38.97	74.00	27.42	H
11840.60	46.27	-31.85	39.05	39.07	74.00	27.73	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)
17972.00	56.58	-25.50	46.66	35.42	74.00	17.42	V
17940.60	56.40	-25.50	46.66	35.24	74.00	17.60	H
14423.40	50.54	-28.59	42.46	36.67	68.30	17.76	H
14488.20	50.19	-28.59	42.46	36.32	74.00	23.81	H
11855.40	45.86	-31.85	39.05	38.66	74.00	28.14	H
11717.90	45.50	-31.99	38.98	38.51	74.00	28.50	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)
17992.80	56.45	-25.50	46.66	35.29	74.00	17.55	H
17945.00	56.40	-25.50	46.66	35.24	74.00	17.60	H
14502.50	50.88	-28.59	42.46	37.01	68.30	17.42	H
14298.00	50.42	-28.42	42.34	36.50	68.30	17.88	H
11899.40	45.67	-31.85	39.05	38.47	74.00	28.33	V
11725.60	45.61	-31.99	38.98	38.62	74.00	28.39	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)
17977.50	58.07	-25.50	46.66	36.91	74.00	15.93	V
17998.30	57.77	-25.50	46.66	36.61	74.00	16.23	V
14480.50	52.09	-28.59	42.46	38.22	74.00	21.91	V
14536.10	51.77	-28.59	42.46	37.90	68.30	16.53	V
11874.10	46.70	-31.85	39.05	39.50	74.00	27.30	H
11928.60	46.56	-31.48	39.09	38.95	74.00	27.44	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)
17987.30	57.33	-25.50	46.66	36.17	74.00	16.67	H
17997.20	57.19	-25.50	46.66	36.03	74.00	16.81	V
14406.30	51.01	-28.59	42.46	37.14	68.30	17.29	H
14302.40	50.84	-28.42	42.34	36.92	68.30	17.46	H
11619.50	46.65	-32.31	38.91	40.06	74.00	27.35	V
11791.10	46.57	-31.99	38.98	39.58	74.00	27.43	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)
17986.80	58.12	-25.50	46.66	36.96	74.00	15.88	H
17983.00	57.79	-25.50	46.66	36.63	74.00	16.21	V
14519.00	51.06	-28.59	42.46	37.19	68.30	17.24	V
14533.90	50.85	-28.59	42.46	36.98	68.30	17.45	H
11395.60	47.24	-32.42	38.79	40.87	74.00	26.76	V
11891.20	47.09	-31.85	39.05	39.89	74.00	26.91	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)
17980.80	57.58	-25.50	46.66	36.42	74.00	16.42	H
17997.20	57.49	-25.50	46.66	36.33	74.00	16.51	H
14381.00	51.01	-28.42	42.34	37.09	68.30	17.29	V
14690.10	50.77	-28.32	41.35	37.75	68.30	17.53	H
11522.10	47.14	-32.26	38.84	40.57	74.00	26.86	V
11632.10	46.25	-32.31	38.91	39.66	74.00	27.75	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)
17989.00	58.16	-25.50	46.66	37.00	74.00	15.84	H
17997.20	57.61	-25.50	46.66	36.45	74.00	16.39	H
14324.90	52.11	-28.42	42.34	38.19	68.30	16.19	V
14399.10	51.33	-28.59	42.46	37.46	68.30	16.97	H
11820.20	46.87	-31.85	39.05	39.67	74.00	27.13	H
11837.30	46.68	-31.85	39.05	39.48	74.00	27.32	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)
17977.50	58.56	-25.50	46.66	37.40	74.00	15.44	H
17992.30	57.67	-25.50	46.66	36.51	74.00	16.33	V
14312.20	51.93	-28.42	42.34	38.01	68.30	16.37	V
14694.00	51.72	-28.32	41.35	38.70	68.30	16.58	V
11891.20	46.55	-31.85	39.05	39.35	74.00	27.45	V
11839.50	46.39	-31.85	39.05	39.19	74.00	27.61	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)
17994.50	57.71	-25.50	46.66	36.55	74.00	16.29	H
17968.10	57.50	-25.50	46.66	36.34	74.00	16.50	V
14695.00	51.39	-28.32	41.35	38.37	68.30	16.91	V
14414.00	51.31	-28.59	42.46	37.44	68.30	16.99	H
11831.80	46.91	-31.85	39.05	39.71	74.00	27.09	H
11936.30	46.47	-31.48	39.09	38.86	74.00	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)
17975.80	58.16	-25.50	46.66	37.00	74.00	15.84	H
17985.20	57.73	-25.50	46.66	36.57	74.00	16.27	V
14661.50	51.27	-27.29	41.90	36.66	68.30	17.03	H
14397.50	51.20	-28.59	42.46	37.33	68.30	17.10	V
11364.80	46.70	-32.42	38.79	40.33	74.00	27.30	V
11871.40	46.64	-31.85	39.05	39.44	74.00	27.36	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)
17989.50	58.79	-25.50	46.66	37.63	74.00	15.21	V
17990.10	57.26	-25.50	46.66	36.10	74.00	16.74	V
14362.30	51.88	-28.42	42.34	37.96	68.30	16.42	V
14407.40	51.59	-28.59	42.46	37.72	68.30	16.71	V
11935.20	46.96	-31.48	39.09	39.35	74.00	27.04	H
11260.30	46.30	-32.36	38.77	39.90	74.00	27.70	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)
17981.80	58.03	-25.50	46.66	36.87	74.00	15.97	H
17978.50	57.54	-25.50	46.66	36.38	74.00	16.46	V
14431.00	51.08	-28.59	42.46	37.21	68.30	17.22	H
14696.70	51.07	-28.32	41.35	38.05	68.30	17.23	V
11559.50	46.46	-32.26	38.84	39.89	74.00	27.54	H
11820.20	46.42	-31.85	39.05	39.22	74.00	27.58	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)
17986.80	58.04	-25.50	46.66	36.88	74.00	15.96	V
17982.40	57.65	-25.50	46.66	36.49	74.00	16.35	H
14509.10	51.94	-28.59	42.46	38.07	68.30	16.36	V
14528.40	51.34	-28.59	42.46	37.47	68.30	16.96	H
11917.00	47.04	-31.48	39.09	39.43	74.00	26.96	H
11781.20	46.95	-31.99	38.98	39.96	74.00	27.05	H

## A6.2 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

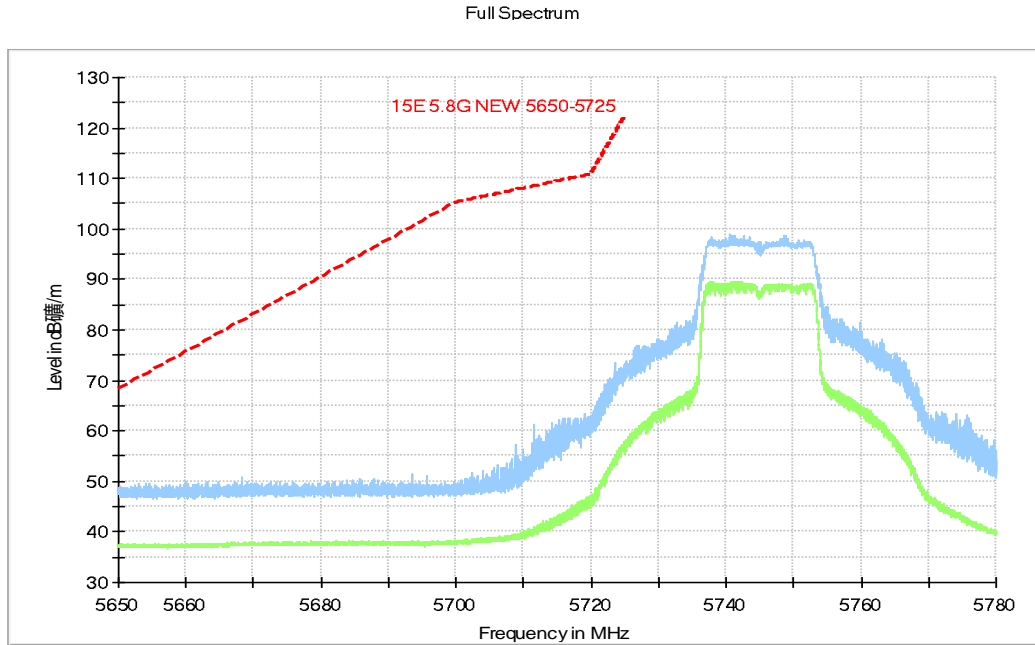
**Measurement Result:**

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

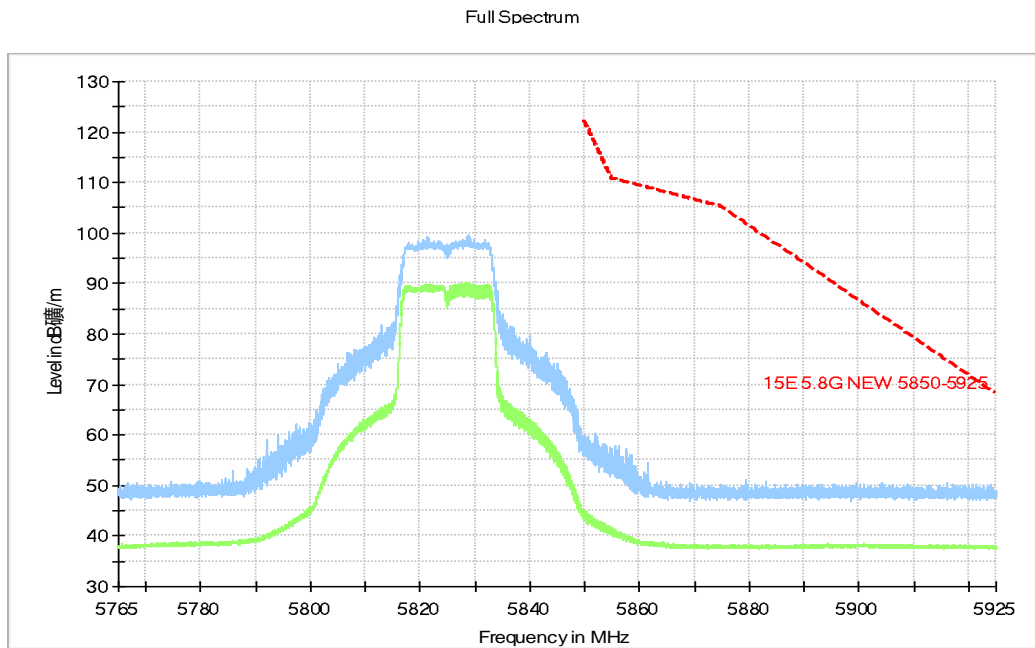
**Conclusion: PASS**

**Test graphs as below:**





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



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

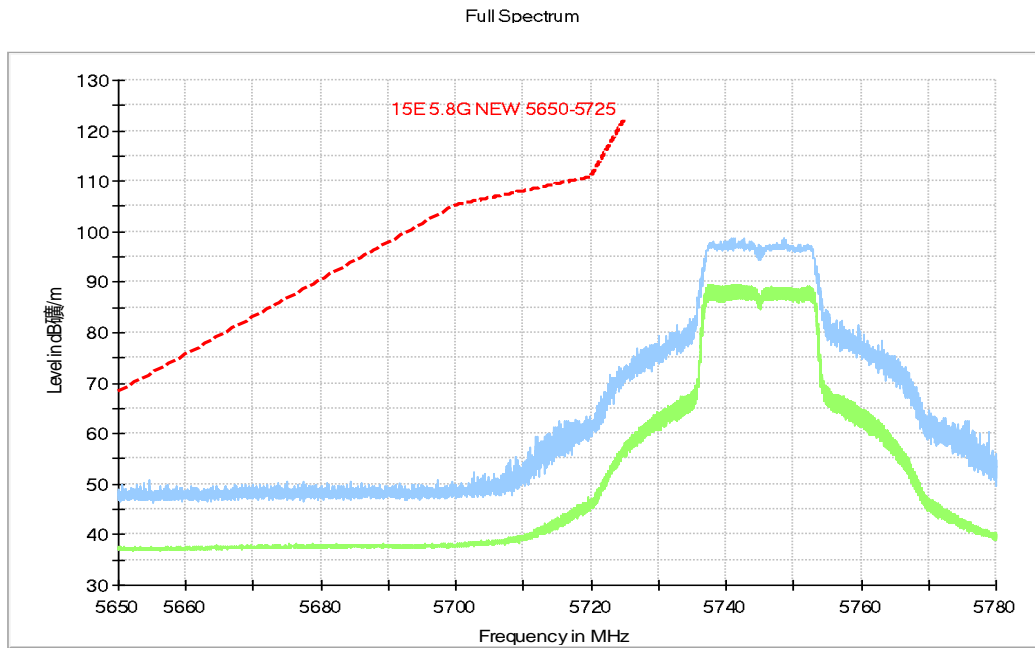


Fig.12 Band Edges (802.11n-HT20 Ch149, 5745MHz)

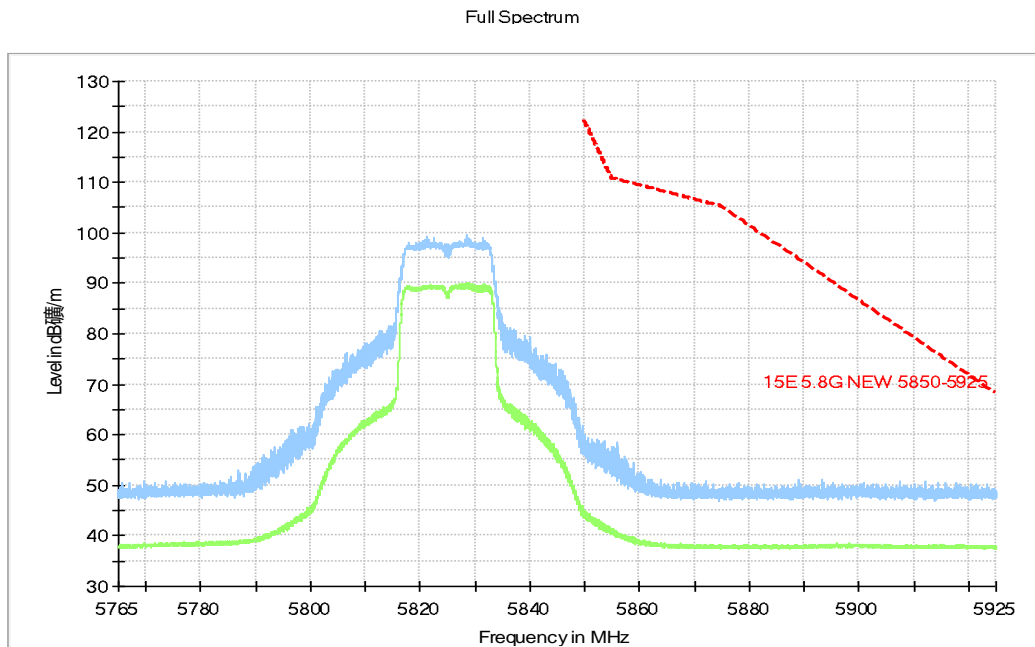


Fig.13 Band Edges (802.11n-HT20 Ch165, 5825MHz)

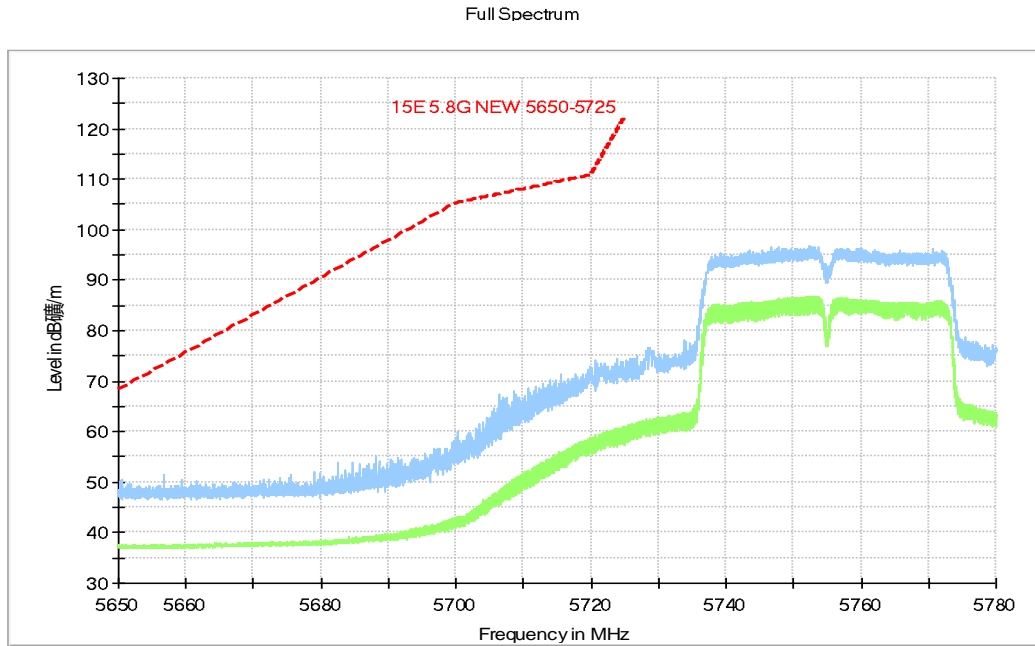


Fig.14 **Band Edges (802.11n-HT40 Ch151, 5755MHz)**

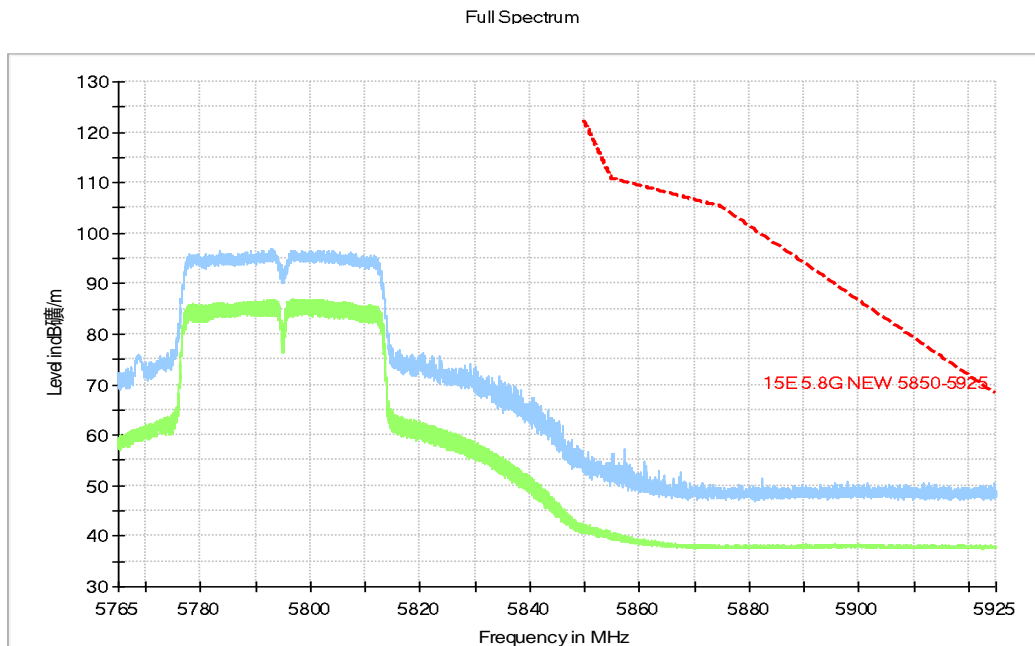


Fig.15 **Band Edges (802.11n-HT40 Ch159, 5795MHz)**

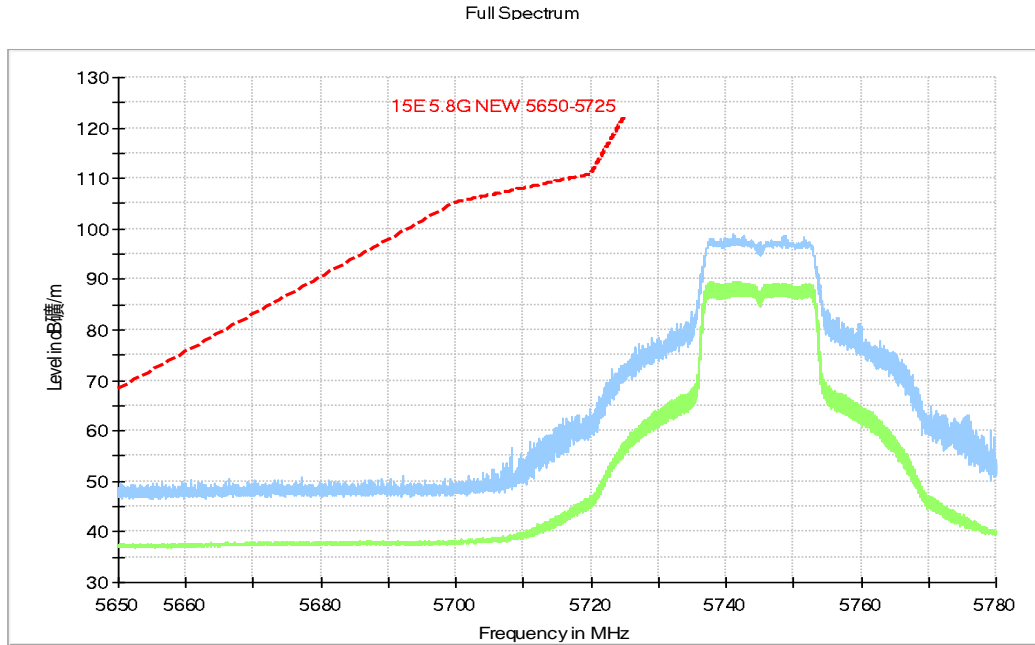


Fig.16 Band Edges (802.11ac-HT20 Ch149, 5745MHz)

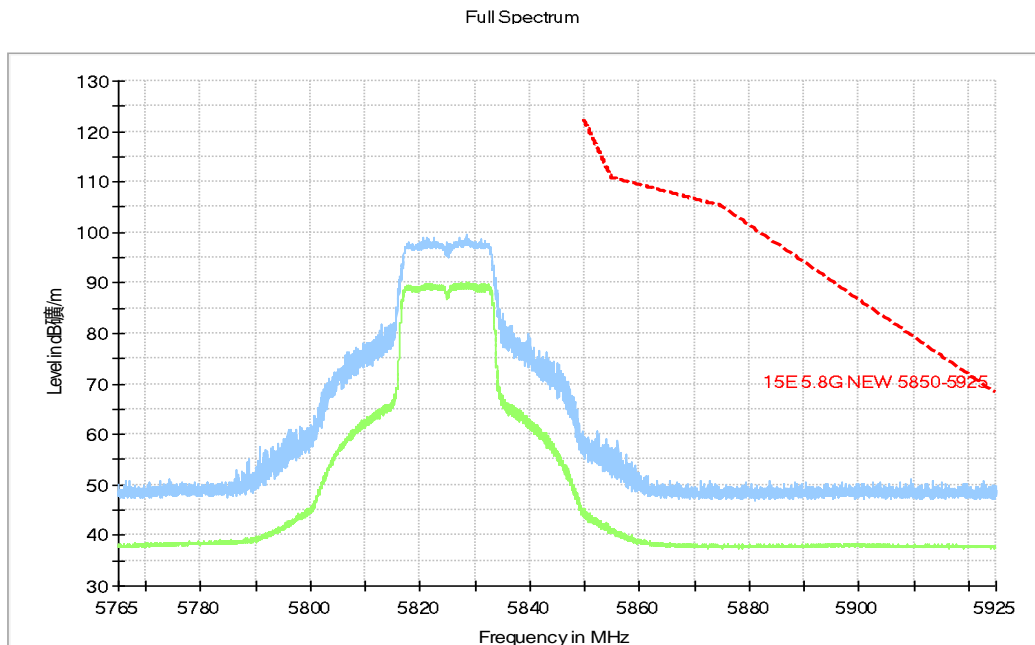
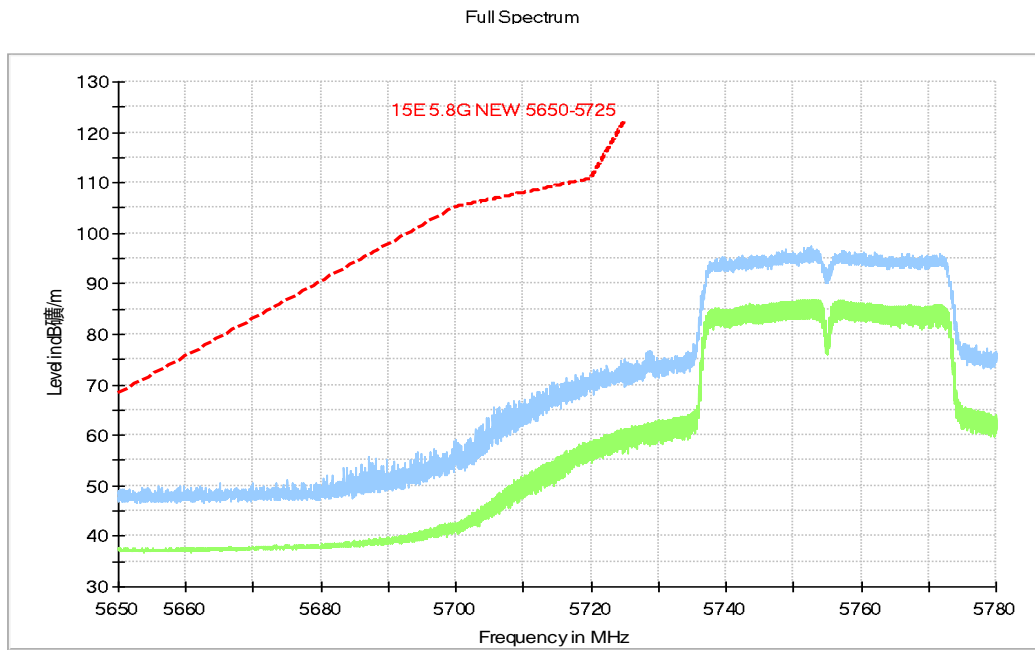
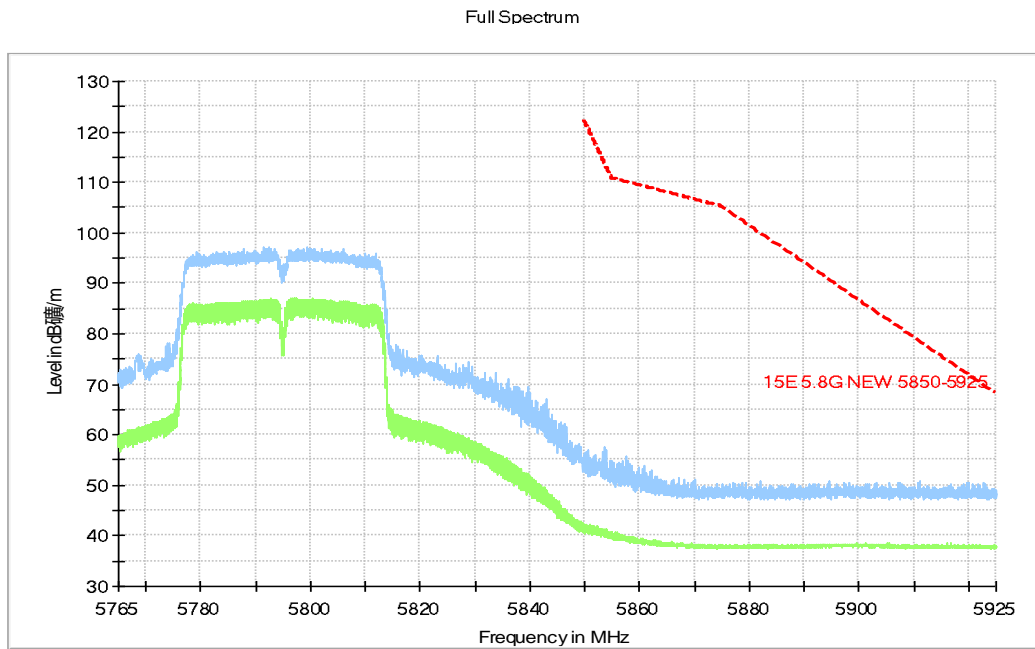


Fig.17 Band Edges (802.11ac-HT20 Ch165, 5825MHz)



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



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

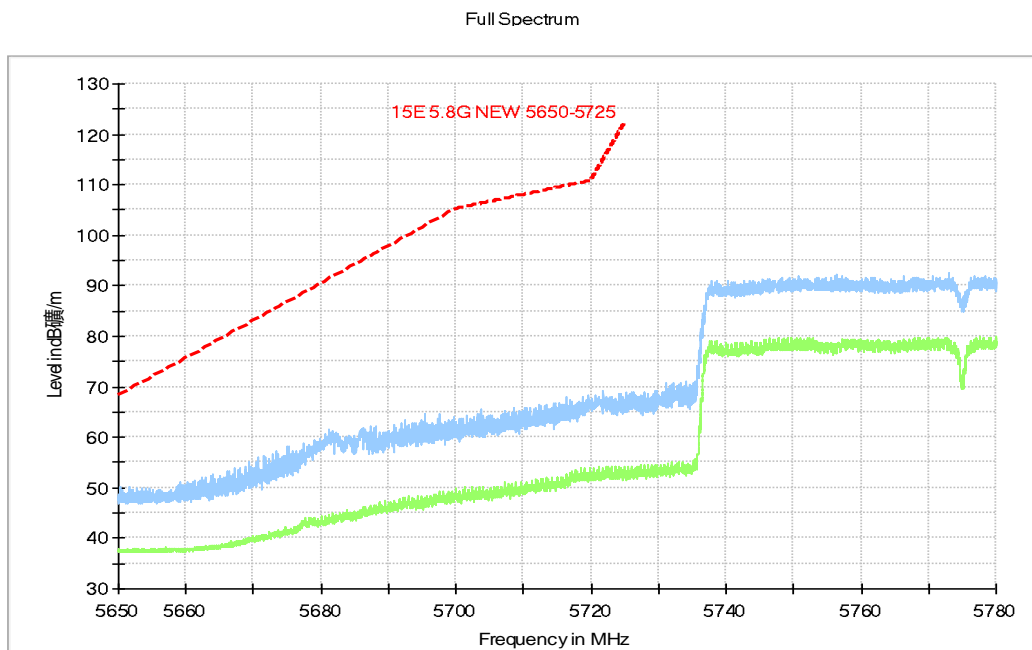


Fig.20 Band Edges (802.11ac-HT80 Ch155, 5775MHz)

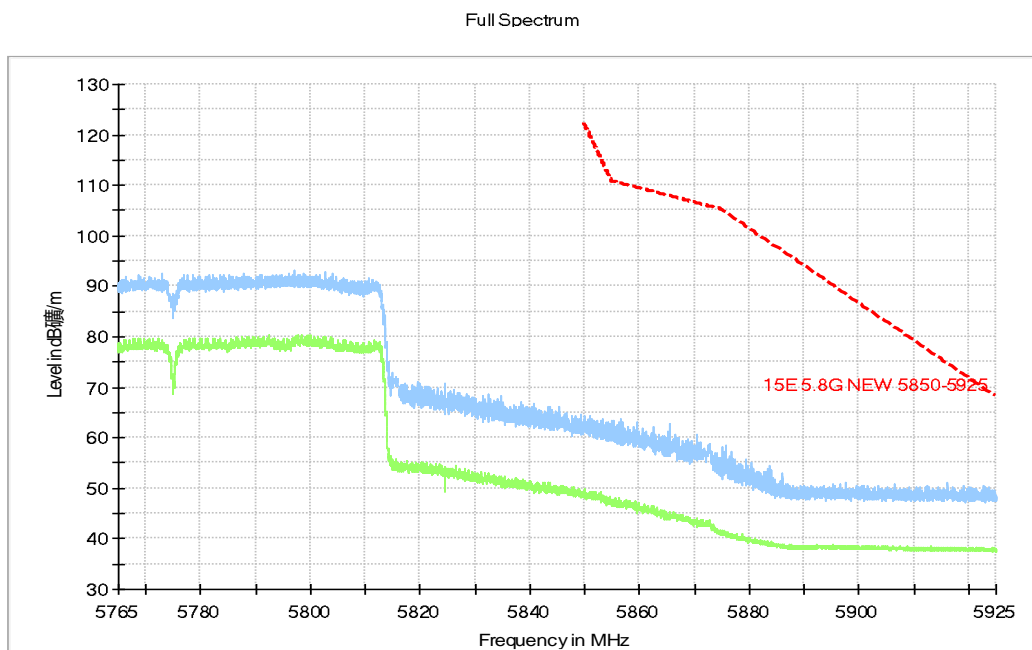


Fig.21 Band Edges (802.11ac-HT80 Ch156, 5775MHz)

## 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.

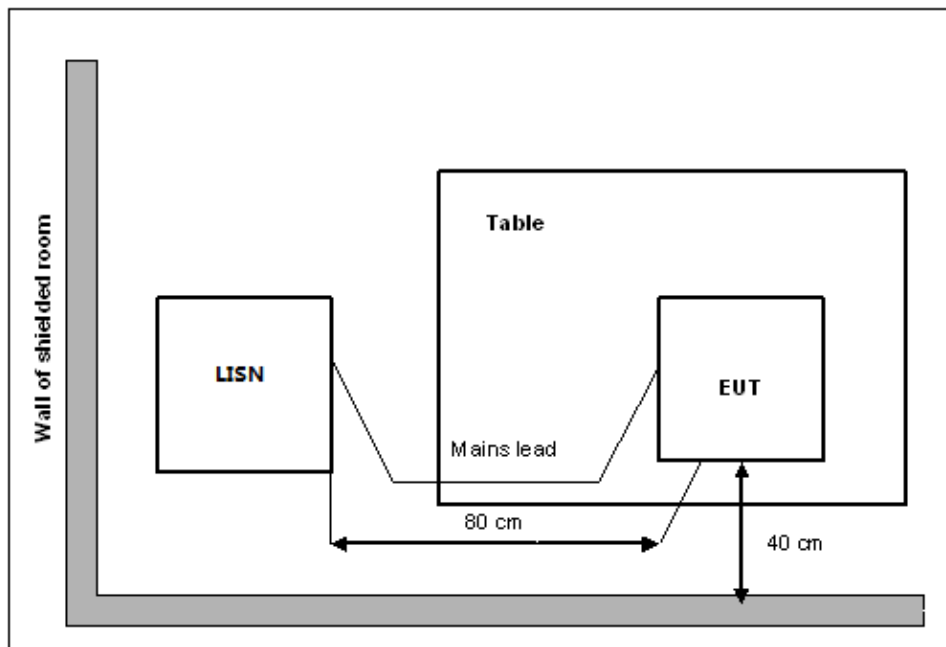
The measurement bandwidth is:

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 $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		With charger		
		802.11a	Idle	
0.15 to 0.5	66 to 56	Fig.A7.1	Fig.A7.2	<b>P</b>
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)

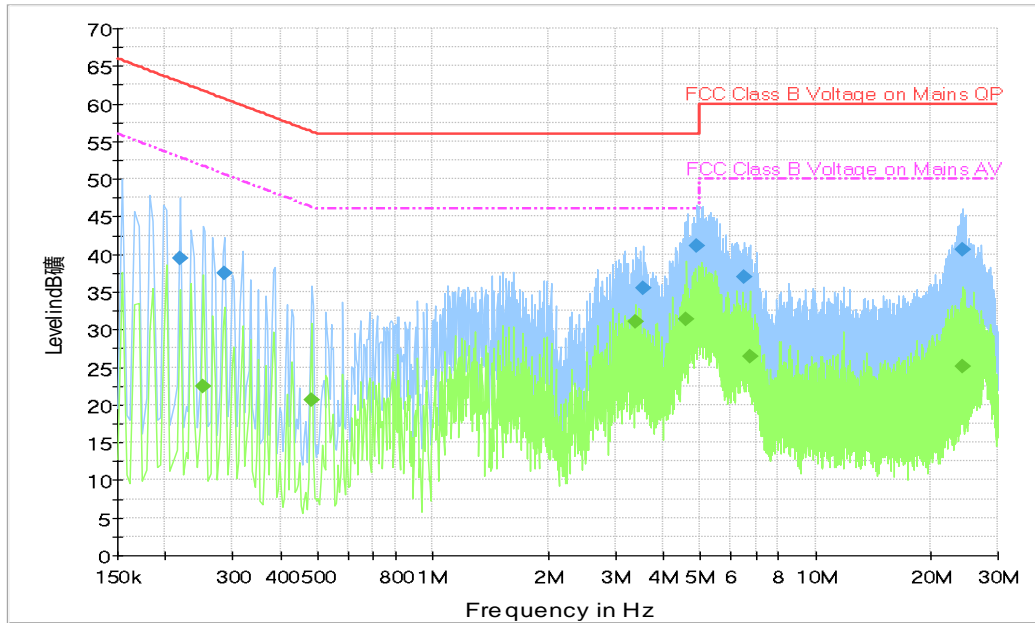
Frequency range (MHz)	Average Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		With charger		
		802.11a	Idle	
0.15 to 0.5	56 to 46	Fig.A7.1	Fig.A7.2	<b>P</b>
0.5 to 5	46			
5 to 30	50			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

The measurement is made according to ANSI C63.10 .

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



**Traffic:**



**Fig.A7.1 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)
0.21800	39.4	200	9.000	On	N	19.	23.5	62.9
0.28600	37.5	200	9.000	On	N	19.	23.2	60.6
3.54200	35.4	200	9.000	On	L1	19.	20.6	56.0
4.91800	41.1	200	9.000	On	L1	19.	14.9	56.0
6.49800	37.1	200	9.000	On	L1	19.	23.0	60.0
24.2700	40.6	200	9.000	On	N	20.	19.4	60.0

**Final Result 2**

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.25000	22.4	200	9.000	On	L1	20.	29.4	51.8
0.48200	20.6	200	9.000	On	L1	19.	25.7	46.3
3.37800	31.0	200	9.000	On	L1	19.	15.0	46.0
4.61400	31.3	200	9.000	On	L1	19.	14.7	46.0
6.73000	26.4	200	9.000	On	L1	19.	23.6	50.0
24.3540	25.0	200	9.000	On	N	20.	25.0	50.0

Idle:

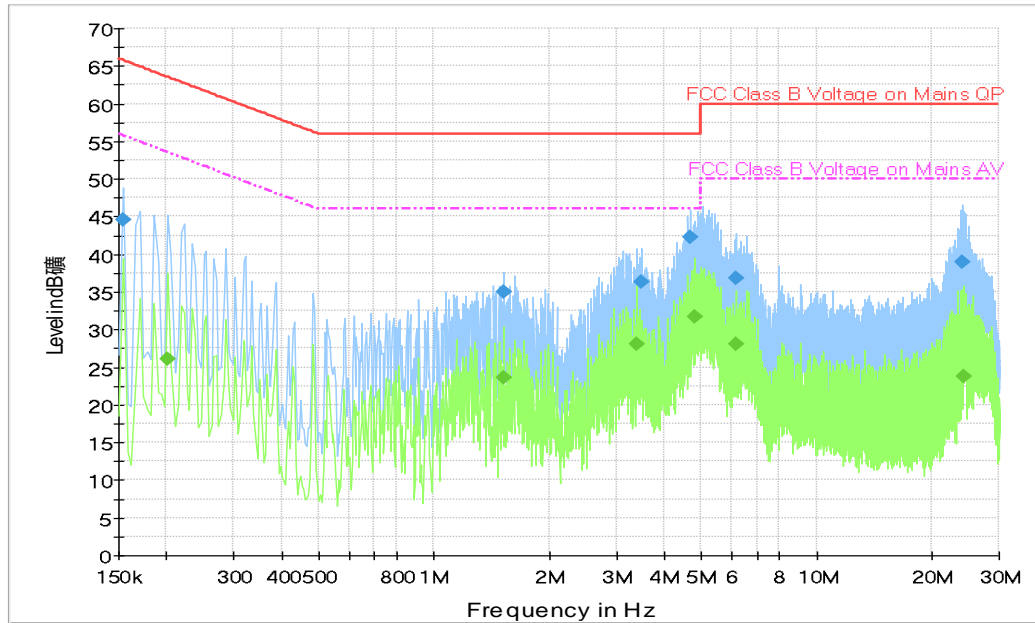


Fig.A7.2 AC Power line Conducted Emission-Idle

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)
0.15400	44.5	200	9.000	On	L1	20.	21.3	65.8
1.52600	35.0	200	9.000	On	L1	19.	21.0	56.0
3.48200	36.3	200	9.000	On	L1	19.	19.7	56.0
4.67000	42.3	200	9.000	On	L1	19.	13.7	56.0
6.17400	36.7	200	9.000	On	L1	19.	23.3	60.0
24.0740	39.0	200	9.000	On	N	20.	21.0	60.0

### Final Result 2

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.202000	26.1	2000.0	9.000	On	L1	20.0	27.5	53.5
1.526000	23.6	2000.0	9.000	On	L1	19.5	22.4	46.0
3.378000	28.0	2000.0	9.000	On	L1	19.5	18.0	46.0
4.802000	31.7	2000.0	9.000	On	L1	19.6	14.3	46.0
6.174000	28.1	2000.0	9.000	On	L1	19.6	21.9	50.0
24.218000	23.8	2000.0	9.000	On	N	20.0	26.2	50.0

Note: The measurement results showed here are worst cases of the combinations of different Adapters

## 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

<p>United States Department of Commerce National Institute of Standards and Technology</p>  	
<hr/> <b>Certificate of Accreditation to ISO/IEC 17025:2017</b> <hr/>	
NVLAP LAB CODE: 600118-0	
<b>Telecommunication Technology Labs, CAICT</b> Beijing China	
<i>is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:</i>	
<b>Electromagnetic Compatibility &amp; Telecommunications</b>	
<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>	
2021-09-29 through 2022-09-30 <i>Effective Dates</i>	  <i>For the National Voluntary Laboratory Accreditation Program</i>

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