



**FCC PART 15C  
TEST REPORT  
No. I15Z41150-SRD04**

**for**

**ZTE CORPORATION**

**LTE/WCDMA/GSM Multi-Mode Ufi**

**Model name: MF900**

**With**

**FCC ID: SRQ-MF900**

**Hardware Version: HO2**

**Software Version: BD\_UROSMF900V1.0.0B04**

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**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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FIG. 93 RADIATED SPURIOUS EMISSION (802.11N-HT20, CH64, 6 GHz-18 GHz)错误! 未定义书签。

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FIG. 120 RADIATED SPURIOUS EMISSION (802.11N-HT40, CH110, 1 GHZ-6 GHZ) 错误！未定义书签。

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FIG. 131 PEAK EXCURSIONS (802.11A, CH48, PEAK) ..... 错误！未定义书签。

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FIG. 133 PEAK EXCURSIONS (802.11A, CH40, AVERAGE) ..... 错误！未定义书签。

FIG. 134 PEAK EXCURSIONS (802.11A, CH48, AVERAGE) ..... 错误！未定义书签。

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FIG. 136 PEAK EXCURSIONS (802.11A, CH56, PEAK) ..... 错误！未定义书签。

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FIG. 138 PEAK EXCURSIONS (802.11A, CH52, AVERAGE) ..... 错误！未定义书签。

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FIG. 144 PEAK EXCURSIONS (802.11A, CH100, AVERAGE) ..... 错误！未定义书签。

FIG. 145 PEAK EXCURSIONS (802.11A, CH116, AVERAGE) ..... 错误！未定义书签。

FIG. 146 PEAK EXCURSIONS (802.11A, CH140, AVERAGE) ..... 错误！未定义书签。

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FIG. 150	PEAK EXCURSIONS (802.11N-HT20, CH36, AVERAGE).....	错误! 未定义书签。
FIG. 151	PEAK EXCURSIONS (802.11N-HT20, CH40, AVERAGE).....	错误! 未定义书签。
FIG. 152	PEAK EXCURSIONS (802.11N-HT20, CH48, AVERAGE).....	错误! 未定义书签。
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FIG. 167	PEAK EXCURSIONS (802.11N-HT40, CH54, PEAK).....	错误! 未定义书签。
FIG. 168	PEAK EXCURSIONS (802.11N-HT40, CH62, PEAK).....	错误! 未定义书签。
FIG. 169	PEAK EXCURSIONS (802.11N-HT40, CH38, AVERAGE).....	错误! 未定义书签。
FIG. 170	PEAK EXCURSIONS (802.11N-HT40, CH46, AVERAGE).....	错误! 未定义书签。
FIG. 171	PEAK EXCURSIONS (802.11N-HT40, CH54, AVERAGE).....	错误! 未定义书签。
FIG. 172	PEAK EXCURSIONS (802.11N-HT40, CH62, AVERAGE).....	错误! 未定义书签。
FIG. 173	PEAK EXCURSIONS (802.11N-HT40, CH102, PEAK).....	错误! 未定义书签。
FIG. 174	PEAK EXCURSIONS (802.11N-HT40, CH110, PEAK).....	错误! 未定义书签。
FIG. 175	PEAK EXCURSIONS (802.11N-HT40, CH134, PEAK).....	错误! 未定义书签。
FIG. 176	PEAK EXCURSIONS (802.11N-HT40, CH102, AVERAGE).....	错误! 未定义书签。
FIG. 177	PEAK EXCURSIONS (802.11N-HT40, CH110, AVERAGE).....	错误! 未定义书签。
FIG. 178	PEAK EXCURSIONS (802.11N-HT40, CH134, AVERAGE).....	错误! 未定义书签。
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FIG. 185	OCCUPIED 6DB BANDWIDTH (802.11A, CH 100).....	错误! 未定义书签。
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FIG. 193	OCCUPIED 6DB BANDWIDTH (802.11N-HT20, CH 64).....	错误! 未定义书签。
FIG. 194	OCCUPIED 6DB BANDWIDTH (802.11N-HT20, CH 100).....	错误! 未定义书签。
FIG. 195	OCCUPIED 6DB BANDWIDTH (802.11N-HT20, CH 116).....	错误! 未定义书签。
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FIG. 202	OCCUPIED 6DB BANDWIDTH (802.11N-HT40, CH 110).....	错误! 未定义书签。
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<b>ANNEX B:</b>	<b>PHOTOGRAPHS OF THE TEST SET-UP .....</b>	<b>错误! 未定义书签。</b>

## 1. TEST LATORATORY

### 1.1. Testing Location

Location 1:CTTL(Huayuan North Road)

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

Location 2:CTTL(Shouxiang)

Address: No. 51 Shouxiang Science Building, Xueyuan Road,  
Haidian District, Beijing, P. R. China100191

### 1.2. Project data

Testing Start Date: 2015-05-05

Testing End Date: 2015-06-24

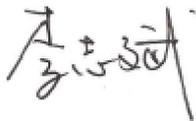
### 1.3. Signature



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Xu Zhongfei

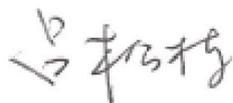
(Prepared this test report)



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Li Zhibin

(Reviewed this test report)



---

Lv Songdong

(Approved this test report)



## **2. CLIENT INFORMATION**

### **2.1. Applicant Information**

Company Name: ZTE CORPORATION  
Address /Post: ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan  
District, Shenzhen, Guangdong, 518057, P.R. China  
Contact Person: 518057  
Telephone: +86-21-68897541  
Fax: +86-21-50801070

### **2.2. Manufacturer Information**

Company Name: ZTE CORPORATION  
Address /Post: ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan  
District, Shenzhen, Guangdong, 518057, P.R. China  
Contact Person: 518057  
Telephone: +86-21-68897541  
Fax: +86-21-50801070

### **3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY**

#### **EQUIPMENT(AE)**

##### **3.1. About EUT**

Description	LTE/WCDMA/GSM Multi-Mode Ufi
Model name	MF900
FCC ID	SRQ-MF900
IC ID	/
WLAN Frequency Range	ISM Bands: -5150MHz~5250MHz
Type of modulation	OFDM
Antenna	Integral Antenna

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MIIT of People's Republic of China.

##### **3.2. Internal Identification of EUT used during the test**

<b>EUT ID*</b>	<b>S/N</b>	<b>HW Version</b>	<b>SW Version</b>
EUT1	/	HO2	BD_UROSMF900V1.0.0B04
EUT7	/	HO2	BD_UROSMF900V1.0.0B04

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

##### **3.3. Internal Identification of AE used during the test**

<b>AE ID*</b>	<b>Description</b>	<b>Type</b>	<b>SN</b>
AE1	Dummy battery	/	/
AE2	Charger	/	/

\*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 LTE/WCDMA/GSM Multi-Mode Ufi with integrated antenna. It consists of normal options: lithium battery, charger. Manual and specifications of the EUT were provided to fulfil the test.



## **4. REFERENCE DOCUMENTS**

### **4.1. Documents supplied by applicant**

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

### **4.2. Reference Documents for testing**

The following documents listed in this section are referred for testing.

FCC Part15	Title 47 of the Code of Federal Regulations; Chapter I Part 15 - Radio frequency devices	2014
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2009
KDB 789033 D02	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E	June 2014

## **5. LABORATORY ENVIRONMENT**

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.

## 6. SUMMARY OF TEST RESULTS

### 6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15E	Sub-clause of IC	Verdict
Maximum Output Power	15.407	/	<b>P</b>
Power Spectral Density	15.407	/	<b>P</b>
Occupied 26dB Bandwidth	15.403	/	<b>P</b>
Band edge compliance	15.209	/	<b>P</b>
Transmitter spurious emissions radiated	15.407	/	<b>P</b>
Spurious emissions radiated < 30 MHz	15.407	/	<b>P</b>
Spurious emissions conducted < 30 MHz	15.407	/	<b>P</b>
Peak Excursion	15.407	/	<b>P</b>
Frequency Stability	15.407	/	<b>NA</b>
Transmit Power Control	15.407	/	<b>NA</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/manufacture 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	3.8V
Humidity	44%

## 7. TEST EQUIPMENTS UTILIZED

### Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration date	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	2014-07-08	2015-07-07
2	Test Receiver	ESS	847151/015	Rohde & Schwarz	2014-11-29	2015-11-28
3	LISN	ESH2-Z5	829991/012	Rohde & Schwarz	2014-4-15	2016-4-14
4	Shielding Room	S81	/	ETS-Lindgren	/	/

### Radiated emission test system

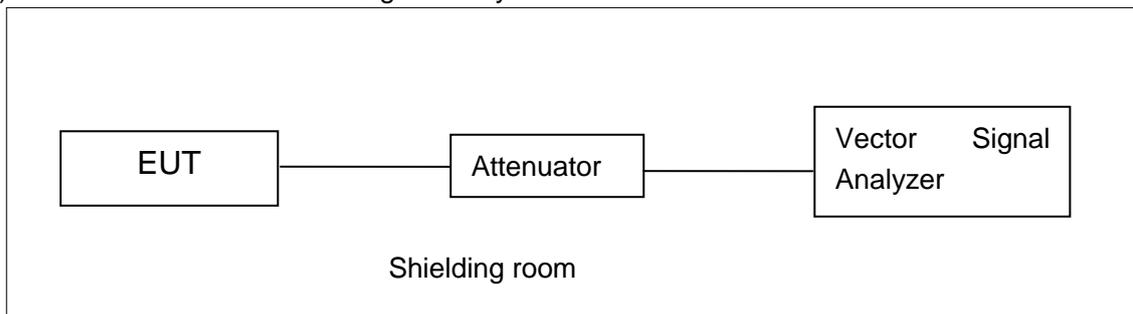
No.	Equipment	Model	Serial Number	Manufacturer	Calibration date	Calibration Due date
1	Test Receiver	ESU26	100376	Rohde & Schwarz	2014-11-6	2015-11-5
2	BiLog Antenna	VULB9163	9163-514	Schwarzbeck	2012-11-11	2015-11-10
3	Dual-Ridge Waveguide Horn Antenna	3117	00119024	ETS-Lindgren	2014-4-20	2017-4-19
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2012-7-1	2015-06-30
5	Loop antenna	HFH2-Z2	829324/007	Rohde & Schwarz	2012-12-21	2015-12-20
6	Semi-anechoic chamber	/	CT000332-1074	Frankonia German	/	/

## ANNEX A: MEASUREMENT RESULTS

### A.1. Measurement Method

#### A.1.1. Conducted Measurements

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

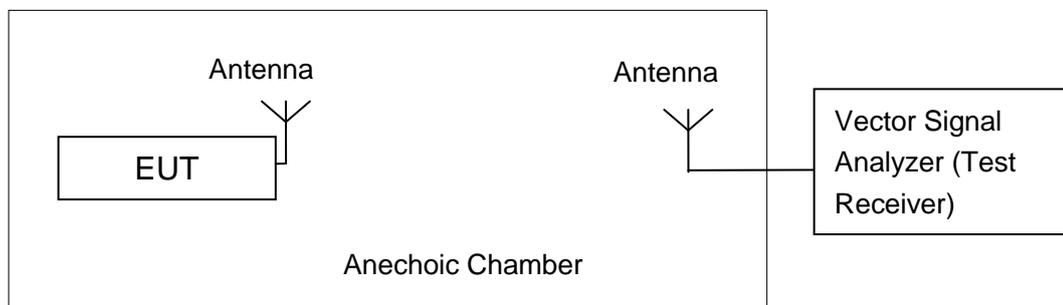


#### A.1.2. Radiated Emission Measurements

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

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

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



The measurement is made according to KDB 789033

The radiated emission test is performed in semi-anechoic chamber. The distance from the EUT to the reference point of measurement antenna is 3m. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated 360° and the measurement antenna is moved from 1m to 4m to get the maximization result.

## A.2. Maximum output Power

### Measurement Limit and Method:

Standard	Frequency (MHz)	Limit (dBm)
FCC CRF Part 15.407(a)	5150MHz~5250MHz	24dBm

Limit use the less value, and B is the 26dB bandwidth.

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

### Measurement Results:

#### 802.11a mode

Mode	Channel	Test Result (dBm)							
		Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
802.11a	5180MHz (Ch36)	13.69	13.71	13.65	13.64	13.47	10.93	10.94	8.17
	5200MHz (Ch40)	/	13.57	/	/	/	/	/	/
	5240MHz(Ch48)	/	13.76	/	/	/	/	/	/

The antenna 2 and data rate 9Mbps are selected as worse condition, and the following cases are performed with this condition.

#### 802.11n-HT20 mode

Chain NO.	Channel	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Chain 0	5180MHz (Ch36)	9.48	9.38	9.46	9.44	8.52	7.66	6.73	6.70
	5200MHz (Ch40)	9.54	/	/	/	/	/	/	/
	5240MHz(Ch48)	9.72	/	/	/	/	/	/	/
Chain 1	5180MHz (Ch36)	10.08	9.88	9.96	9.93	9.01	8.05	7.18	7.15
	5200MHz (Ch40)	10.15	/	/	/	/	/	/	/
	5240MHz(Ch48)	10.25	/	/	/	/	/	/	/

The antenna 2 and data rate MCS0 are selected as worse condition, and the following cases are performed with this condition.

#### 802.11n-HT40 mode

Chain NO.	Channel	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Chain 0	5190MHz (Ch38)	9.03	9.01	8.95	8.89	8.06	7.05	6.28	5.34
	5230MHz(Ch46)	9.42	/	/	/	/	/	/	/
Chain 1	5190MHz (Ch38)	9.83	9.69	9.55	9.44	8.41	7.49	6.61	5.60
	5230MHz(Ch46)	10.41	/	/	/	/	/	/	/

The antenna 2 and data rate MCS0 are selected as worse condition, and the following cases are performed with this condition.

### 802.11n-HT20 MIMO mode

Mode	Test Result (dBm)								
	5180MHz (Ch36)			5200MHz (Ch40)			5240MHz (Ch48)		
	Chain0	Chain1	Sum	Chain0	Chain1	Sum	Chain0	Chain1	Sum
HT20	8.74	10.43	12.68	8.53	10.26	12.49	9.01	10.47	12.81

### 802.11n-HT40 MIMO mode

Mode	Test Result (dBm)					
	5190MHz (Ch38)			5230MHz(Ch46)		
	Chain0	Chain1	Sum	Chain0	Chain1	Sum
HT40	8.71	9.87	12.34	8.75	10.37	12.65

For MIMO mode, the total power is calculated with all antennas ( $P_{Total} = P_{ant1} + P_{ant2}$ ).

### A.3. Peak Power Spectral Density (conducted)

#### Measurement Limit:

Standard	Frequency (MHz)	Limit (dBm/MHz)
FCC CRF Part 15.407(a)	5150MHz~5250MHz	11

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

#### Measurement Results:

Mode	Channel	Power Spectral Density (dBm/MHz)	Conclusion
802.11a	5180 MHz	2.97	P
	5200 MHz	2.79	P
	5240 MHz	2.91	P
802.11n HT20-Chain0	5180 MHz	1.39	P
	5200 MHz	1.09	P
	5240 MHz	1.19	P
802.11n HT20-Chain1	5180 MHz	3.91	P
	5200 MHz	4.07	P
	5240 MHz	4.07	P
802.11n HT40	5190 MHz	-2.06	P
	5230 MHz	-1.92	P
802.11n HT40-Chain1	5190 MHz	0.68	P
	5230 MHz	1.26	P

For MIMO measurement,  $10 \log(N_{ANT})$  dB is added, where  $N_{ANT}$  is the number of outputs. Here, the is  $N_{ANT} = 2$ , so the  $10 \log(N_{ANT})$  is equal to 3.01 dB.

**Conclusion: PASS**

### A.4. Occupied 26dB Bandwidth(conducted)

**Measurement Limit:**

Standard	Limit (kHz)
FCC 47 CFR Part 15.403 (i)	/

The measurement is made according to KDB 789033

**Measurement Result:**

Mode	Channel	Occupied 26dB Bandwidth ( kHz)		conclusion
		Fig.	Value	
802.11a	5180 MHz	Fig.1	32700	P
	5200 MHz	Fig.2	34950	P
	5240 MHz	Fig.3	34350	P
802.11n HT20	5180 MHz	Fig.4	26900	P
	5200 MHz	Fig.5	26850	P
	5240 MHz	Fig.6	26950	P
802.11n HT40	5190 MHz	Fig.7	50560	P
	5230 MHz	Fig.8	50640	P

**Conclusion: PASS**

Test graphs as below:



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

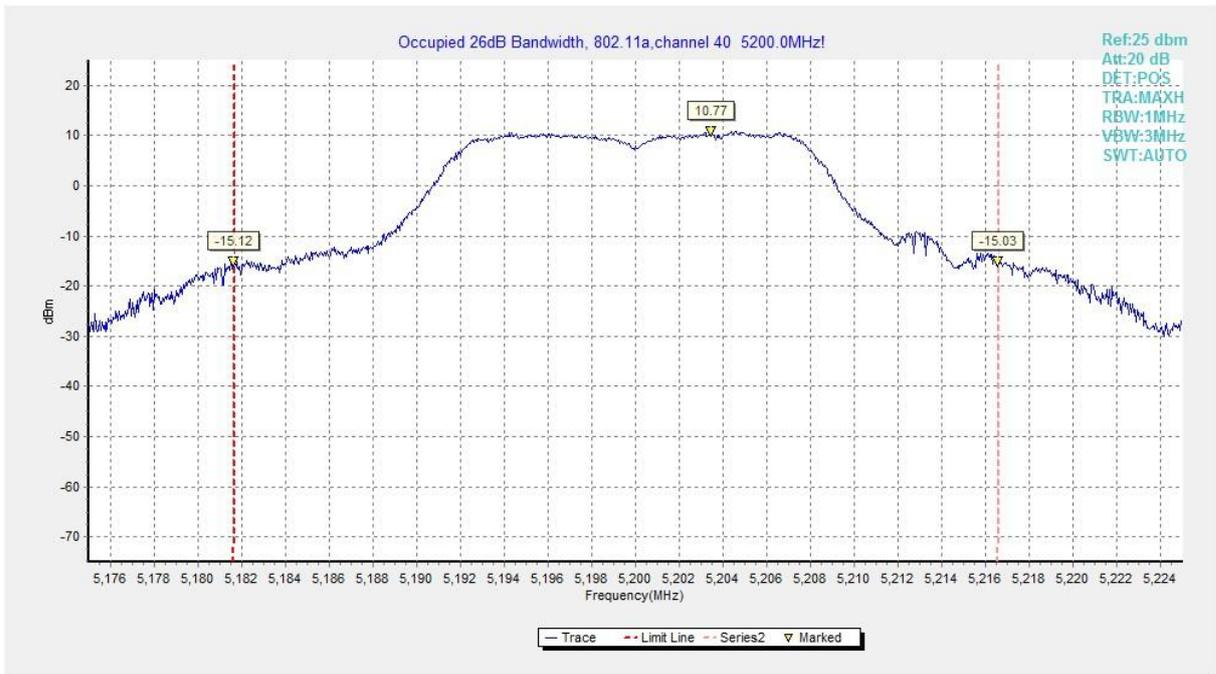


Fig. 2 Occupied 26dB Bandwidth (802.11a, 5200MHz)

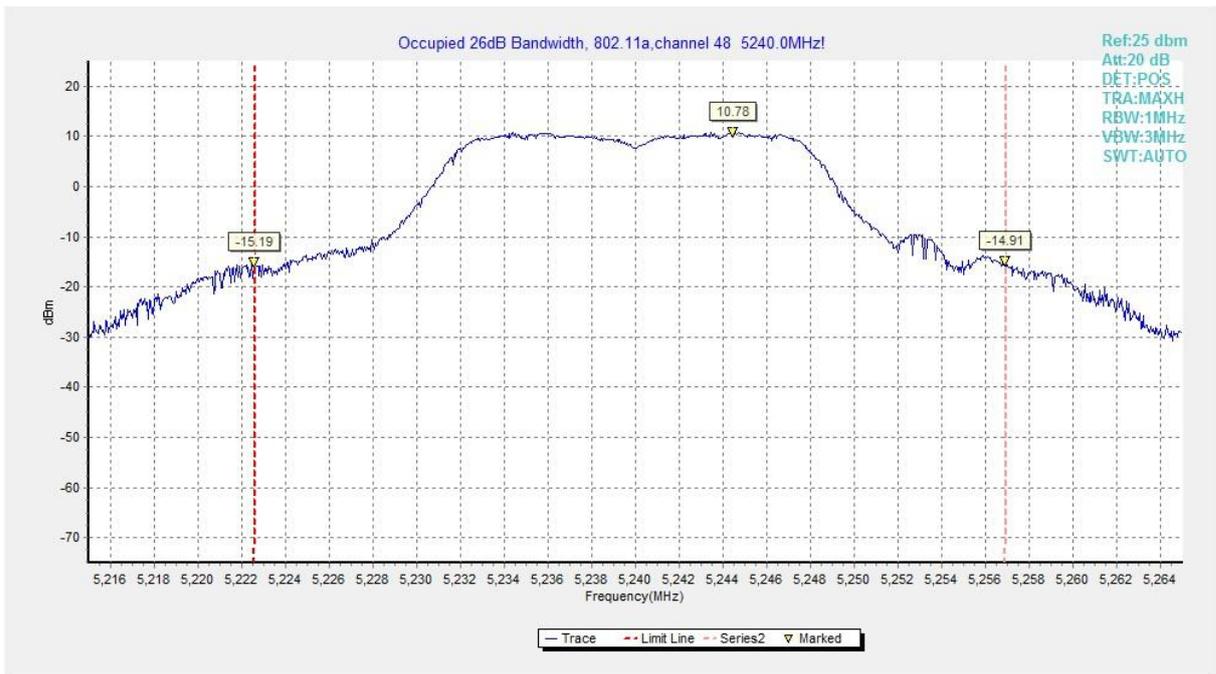


Fig. 3 Occupied 26dB Bandwidth (802.11a, 5240MHz)



Fig. 4 Occupied 26dB Bandwidth (802.11n-HT20, 5180MHz)

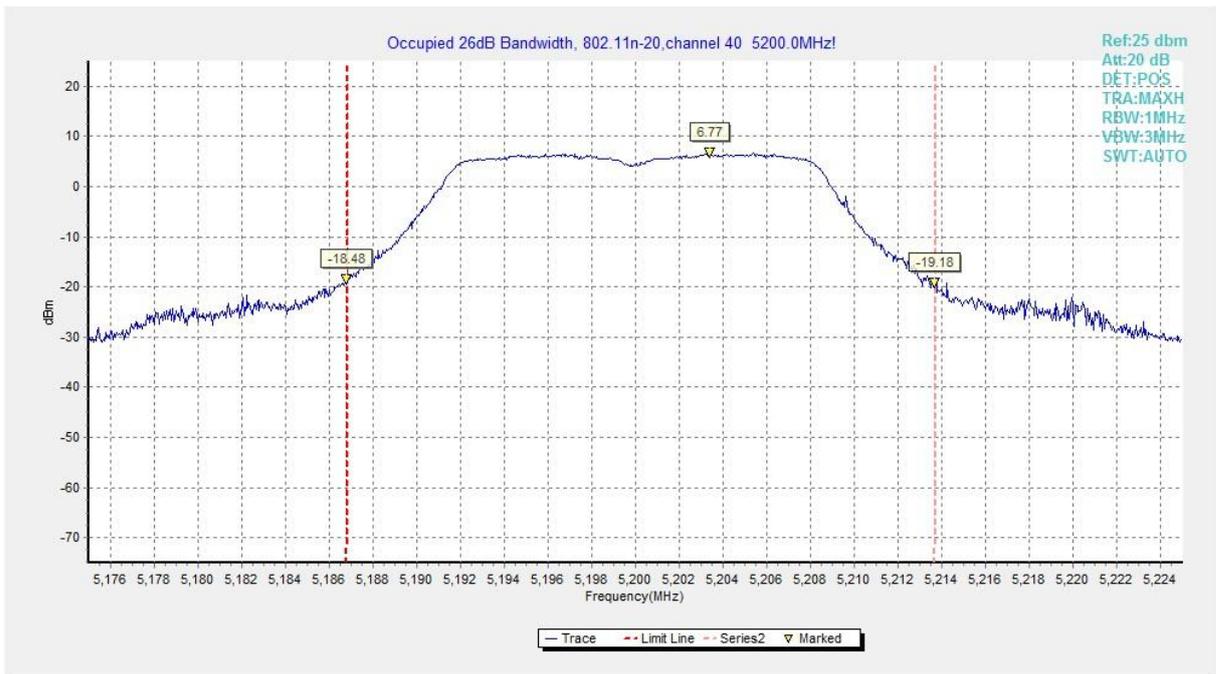


Fig. 5 Occupied 26dB Bandwidth (802.11n-HT20, 5200MHz)

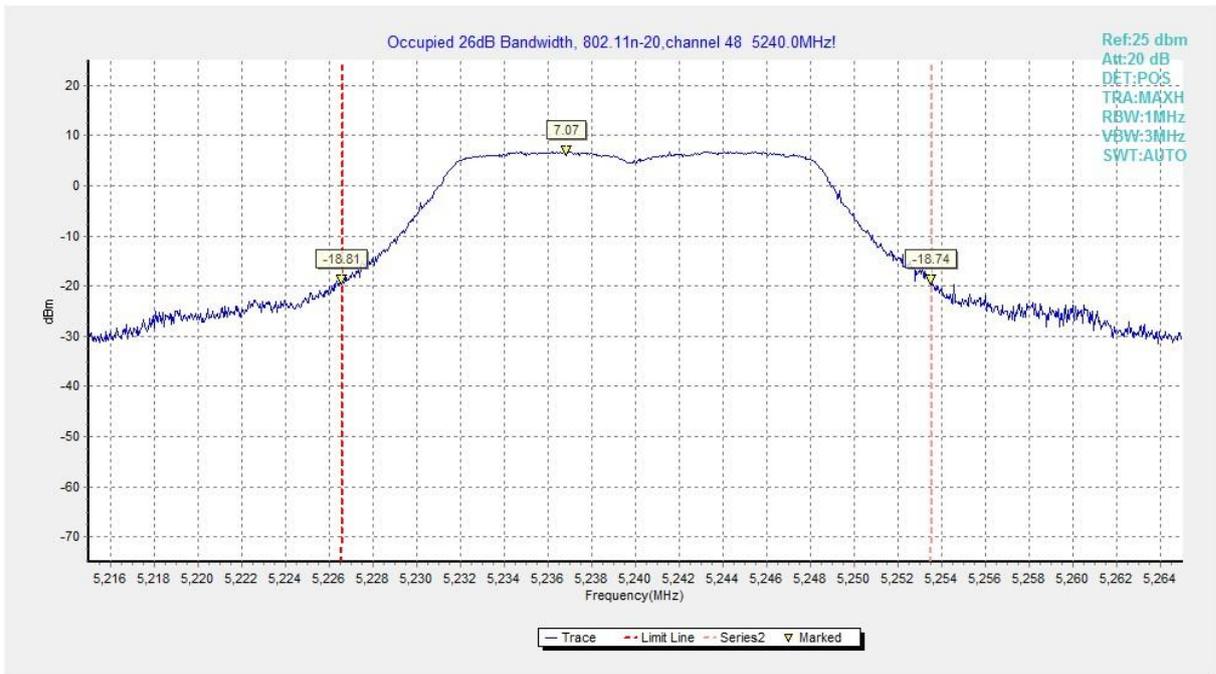
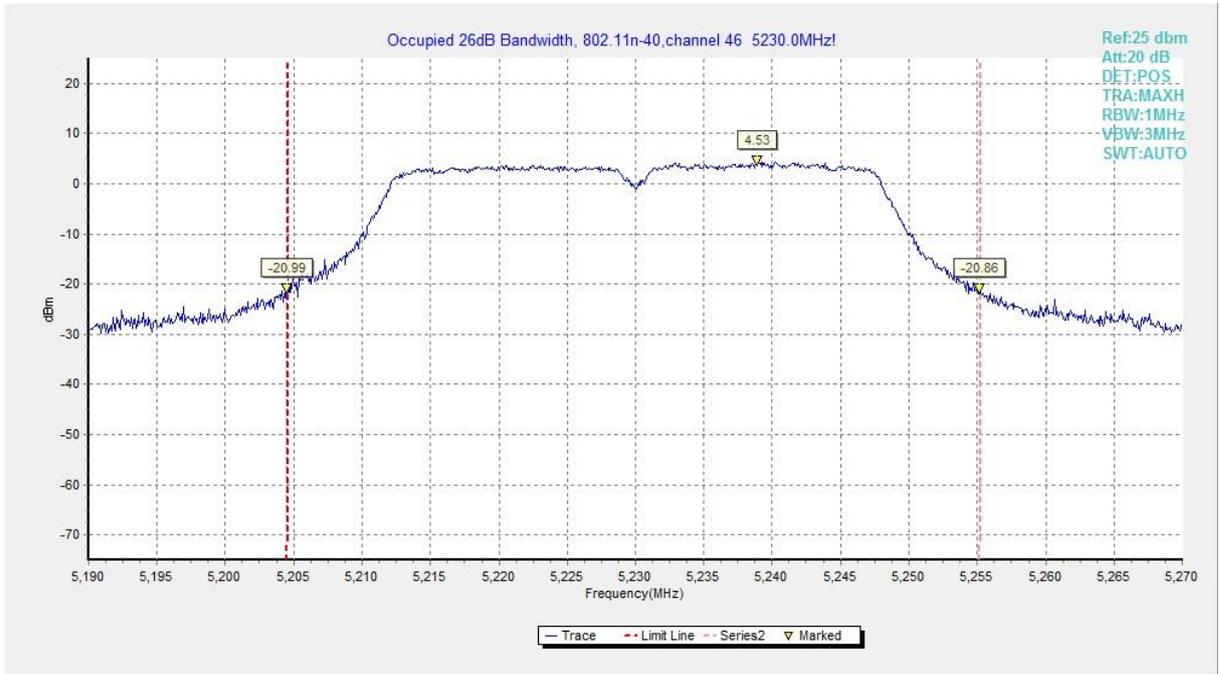


Fig. 6 Occupied 26dB Bandwidth (802.11n-HT20, 5240MHz)



Fig. 7 Occupied 26dB Bandwidth (802.11n-HT40, 5190MHz)



**Fig. 8 Occupied 26dB Bandwidth (802.11n-HT40, 5230MHz)**

## A.5. Band Edges Compliance

### A5.1 Band Edges - conducted

#### Measurement Limit:

Standard	Limit (dBm/MHz)
FCC 47 CFR Part 15.407	< -27

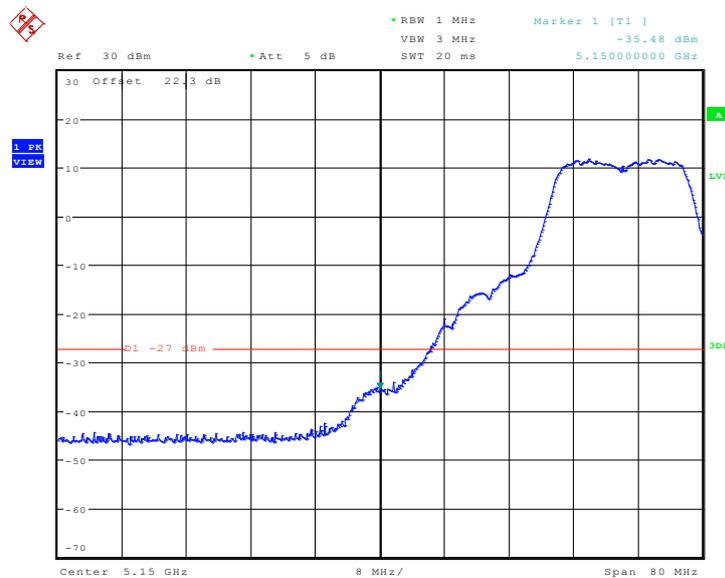
The measurement is made according to KDB 789033

#### Measurement Result:

Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.9	P
802.11n-HT20	5180 MHz	Fig.10	P
802.11n-HT40	5190 MHz	Fig.11	P

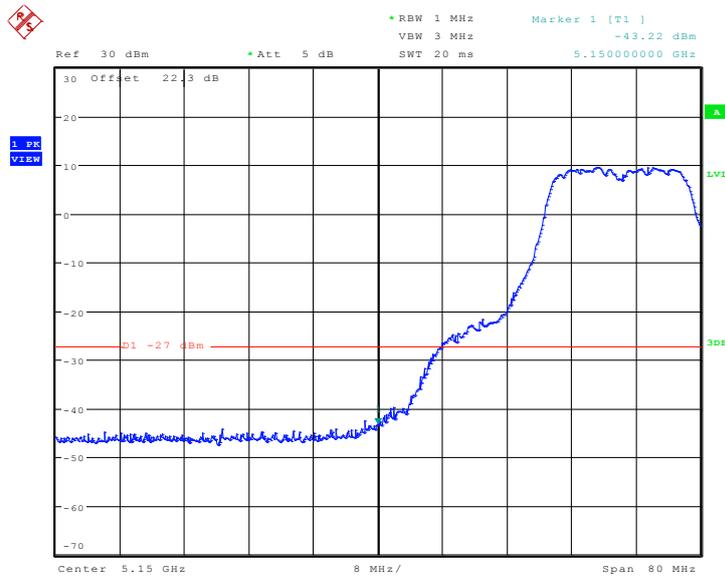
**Conclusion: PASS**

Test graphs as below:



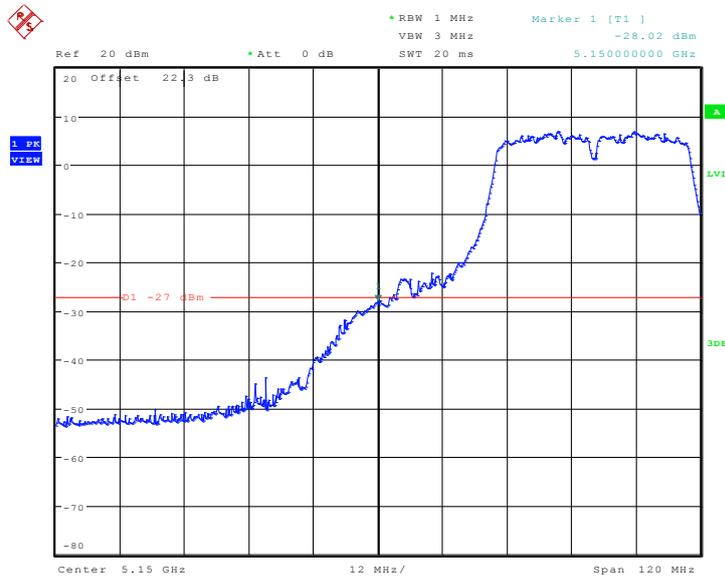
Date: 19.JUN.2015 15:01:34

**Fig. 9 Band Edges (802.11a, 5180MHz)**



Date: 19.JUN.2015 15:03:36

**Fig. 10 Band Edges (802.11n-HT20, 5180MHz)**



Date: 19.JUN.2015 15:09:16

**Fig. 11 Band Edges (802.11n-HT40, 5190MHz)**

**A5.2 Band Edges - Radiated**

**Measurement Limit:**

Standard	Limit (dB $\mu$ V/m)	
	FCC 47 CFR Part 15.209	Peak
	Average	54

The measurement is made according to KDB 789033

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

**Measurement Uncertainty:**

Measurement Uncertainty	0.75dB
-------------------------	--------

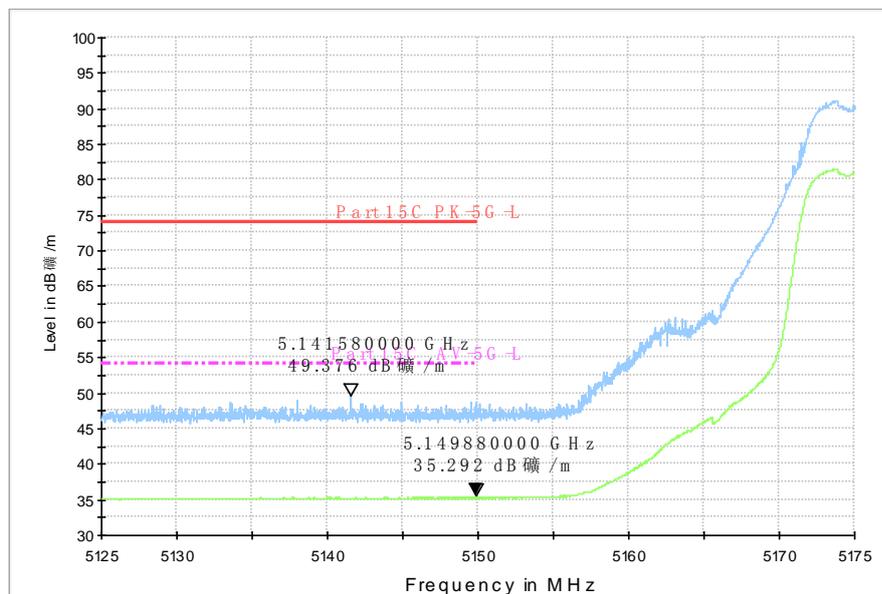
**Measurement Result:**

Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.12	P
802.11n-HT20	5180 MHz	Fig.13	P
802.11n-HT40	5190 MHz	Fig.14	P

**Conclusion: PASS**

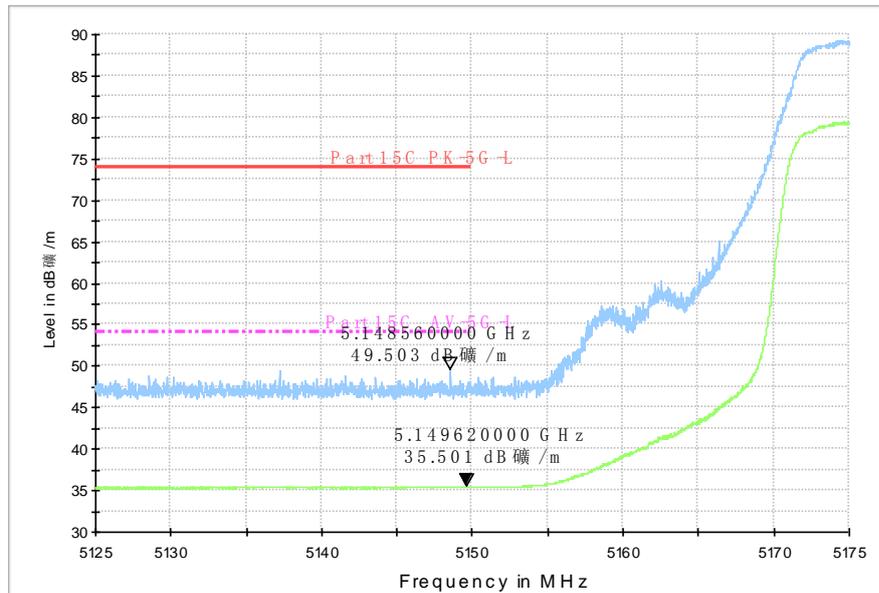
Test graphs as below:

RE - Power-5.125GHz-5.175GHz



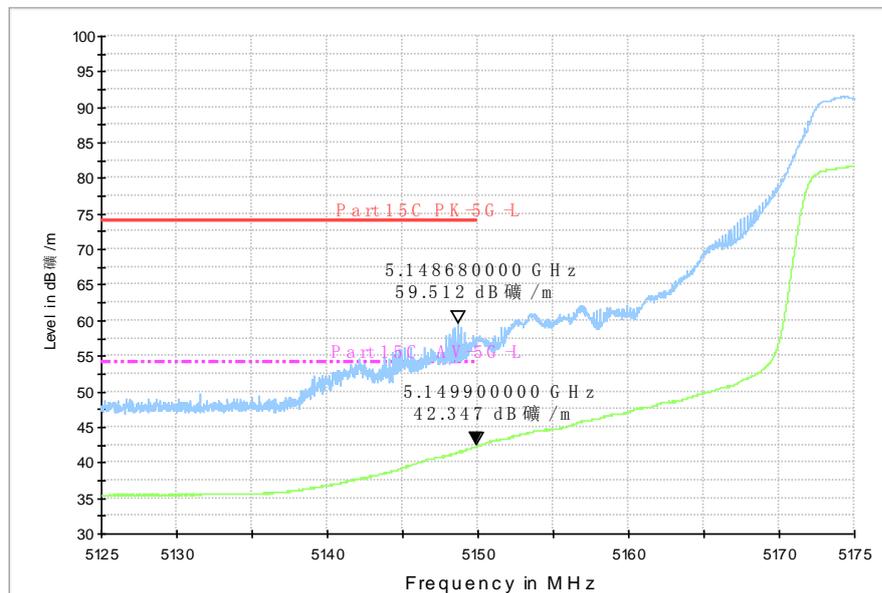
**Fig. 12 Band Edges (802.11a, 5180MHz)**

RE - Power-5.125GHz-5.175GHz



**Fig. 13 Band Edges (802.11n-HT20, 5180MHz)**

RE - Power-5.125GHz-5.175GHz



**Fig. 14 Band Edges (802.11n-HT40, 5190MHz)**

## A.6. Transmitter Spurious Emission

### Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.407	-27 dBm/MHz

The measurement is made according to KDB 789033

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

### Limit in restricted band:

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

Note: for frequency range below 960MHz, the limit in 15.209 is defined in 10m test distance. The limit used above is calculated from 10m to 3m

### Measurement uncertainty:

Expanded measurement uncertainty for this test item is U =3.9 dB, k=2.

### Measurement Results:

#### 802.11a mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	36(5180MHz)	1 GHz ~ 3 GHz	Fig.15	P
		3 GHz ~ 6 GHz	Fig.16	
		6 GHz ~ 18 GHz	Fig.17	P
	40(5200MHz)	30 MHz ~1 GHz	Fig.18	P
		1 GHz ~ 3 GHz	Fig.19	P
		3 GHz ~ 6 GHz	Fig.20	
		6 GHz ~ 18 GHz	Fig.21	P
		18 GHz ~ 26.5 GHz	Fig.22	P
		26.5 GHz ~ 40 GHz	Fig.23	P
	48(5240MHz)	1 GHz ~ 3 GHz	Fig.24	P
		3 GHz ~ 6 GHz	Fig.25	
		6 GHz ~ 18 GHz	Fig.26	P

**802.11n-HT20 mode**

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n -HT20	36(5180MHz)	1 GHz ~ 3 GHz	Fig.27	P
		3 GHz ~ 6 GHz	Fig.28	P
		6 GHz ~ 18 GHz	Fig.29	P
	40(5200MHz)	30 MHz ~1 GHz	Fig.30	P
		1 GHz ~ 3 GHz	Fig.31	P
		3 GHz ~ 6 GHz	Fig.32	P
		6 GHz ~ 18 GHz	Fig.33	P
		18 GHz ~ 26.5 GHz	Fig.34	P
	48(5240MHz)	26.5 GHz ~ 40 GHz	Fig.35	P
		1 GHz ~ 3 GHz	Fig.36	P
		3 GHz ~ 6 GHz	Fig.37	P
		6 GHz ~ 18 GHz	Fig.38	P

**802.11n-HT40 mode**

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n HT40	38(5190MHz)	30 MHz ~1 GHz	Fig.39	P
		1 GHz ~ 3 GHz	Fig.40	P
		3 GHz ~ 6 GHz	Fig.41	P
		6 GHz ~ 18 GHz	Fig.42	P
		18 GHz ~ 26.5 GHz	Fig.43	P
		26.5 GHz ~ 40 GHz	Fig.44	P
	46(5230MHz)	1 GHz ~ 3 GHz	Fig.45	P
		3 GHz ~ 6 GHz	Fig.46	P
		6 GHz ~ 18 GHz	Fig.47	P

**Conclusion: PASS**

**Note:**

A "reference path loss" is established and the  $A_{Rpl}$  is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

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

The measurement results are obtained as described below:

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



**802.11a**

Channel 36

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
5149.880	35.3	-34.3	34.5	35.066	V
17950.200	44.2	-23.3	41.0	26.533	H
17927.400	44.2	-23.3	41.0	26.533	V
17946.000	44.1	-23.3	41.0	26.433	H
17982.000	44.0	-23.3	41.0	26.333	V
17955.600	44.0	-23.3	41.0	26.333	V

Channel 40

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17496.600	44.2	-23.9	41.2	26.853	V
17944.800	44.1	-23.3	41.0	26.433	V
17995.200	44.1	-23.0	41.0	26.147	V
17937.000	44.1	-23.3	41.0	26.433	V
17982.600	44.1	-23.3	41.0	26.433	H
17947.800	44.1	-23.3	41.0	26.433	V

Channel 48

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17931.000	44.3	-23.3	41.0	26.633	V
17948.400	44.2	-23.3	41.0	26.533	H
17955.000	44.2	-23.3	41.0	26.533	V
17973.600	44.1	-23.3	41.0	26.433	V
17946.000	44.1	-23.3	41.0	26.433	V
17934.000	44.1	-23.3	41.0	26.433	V

**802.11n-HT20**

Channel 36

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
5149.620	35.5	-34.3	34.5	35.266	V
17962.200	44.3	-23.3	41.0	26.633	H
17946.600	44.3	-23.3	41.0	26.633	V
17970.000	44.2	-23.3	41.0	26.533	V
17986.800	44.2	-23.3	41.0	26.533	V
17953.200	44.1	-23.3	41.0	26.433	H



Channel 40

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17931.000	44.3	-23.3	41.0	26.633	V
17944.200	44.3	-23.3	41.0	26.633	H
17990.400	44.1	-23.0	41.0	26.147	V
17947.800	44.1	-23.3	41.0	26.433	V
17451.000	44.1	-24.3	41.2	27.169	V
17985.000	44.1	-23.3	41.0	26.433	V

Channel 48

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17968.800	44.2	-23.3	41.0	26.533	V
17944.800	44.2	-23.3	41.0	26.533	H
17969.400	44.1	-23.3	41.0	26.433	V
17953.800	44.1	-23.3	41.0	26.433	V
17947.200	44.1	-23.3	41.0	26.433	H
17952.600	44.0	-23.3	41.0	26.333	V

**802.11n-HT40**

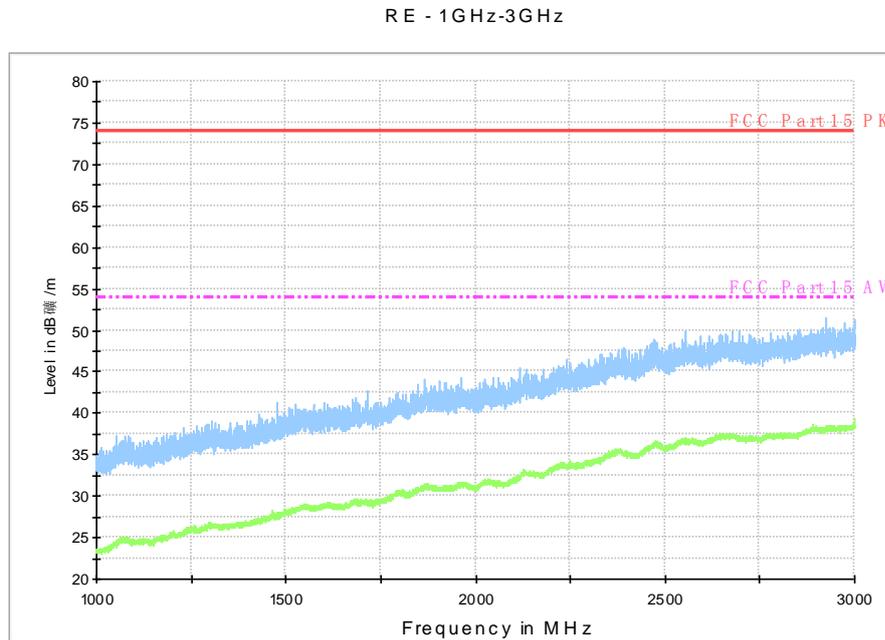
Channel 38

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
5149.900	42.3	-34.3	34.5	42.066	H
17981.400	44.2	-23.3	41.0	26.533	H
17462.400	44.2	-23.9	41.2	26.853	V
17950.200	44.2	-23.3	41.0	26.533	V
17971.800	44.1	-23.3	41.0	26.433	H
17929.200	44.1	-23.3	41.0	26.433	V

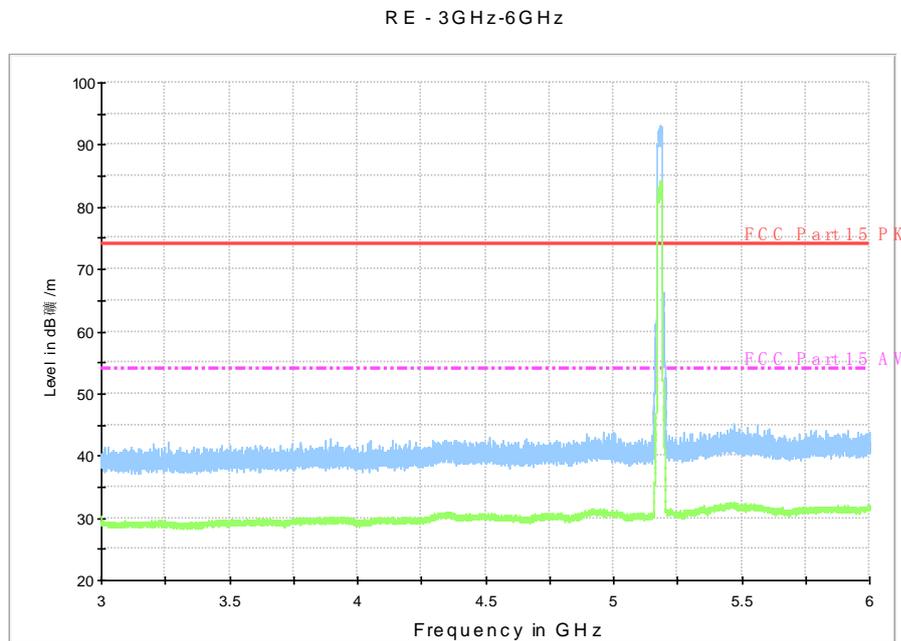
Channel 46

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17941.200	44.3	-23.3	41.0	26.633	V
17956.200	44.3	-23.3	41.0	26.633	H
17944.800	44.2	-23.3	41.0	26.533	V
17939.400	44.2	-23.3	41.0	26.533	V
17959.200	44.2	-23.3	41.0	26.533	H
17965.200	44.1	-23.3	41.0	26.433	H

Test graphs as below:

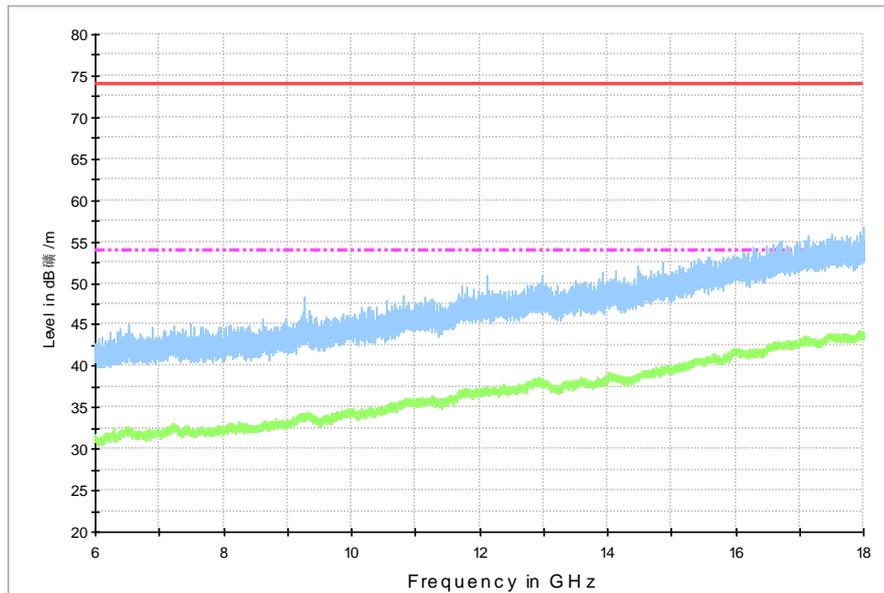


**Fig. 15 Radiated Spurious Emission (802.11a, ch36, 1 GHz-3 GHz)**



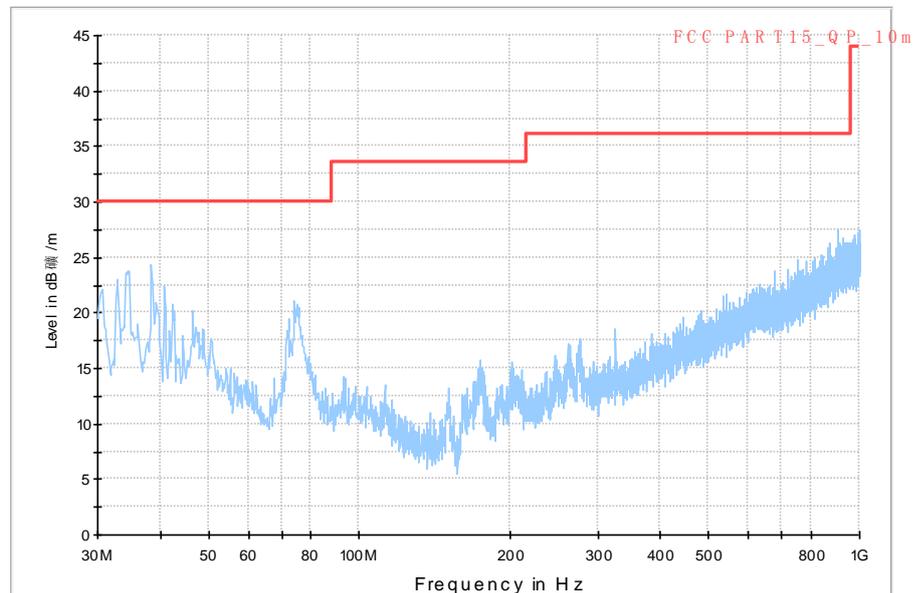
**Fig. 16 Radiated Spurious Emission (802.11a, ch36, 3 GHz-6 GHz)**

RE - 6GHz-18GHz



**Fig. 17 Radiated Spurious Emission (802.11a, ch36, 6 GHz-18 GHz)**

Normal RE\_30M-1GHz\_10m



**Fig. 18 Radiated Spurious Emission (802.11a, ch40, 30 MHz-1 GHz)**

RE - 1GHz-3GHz

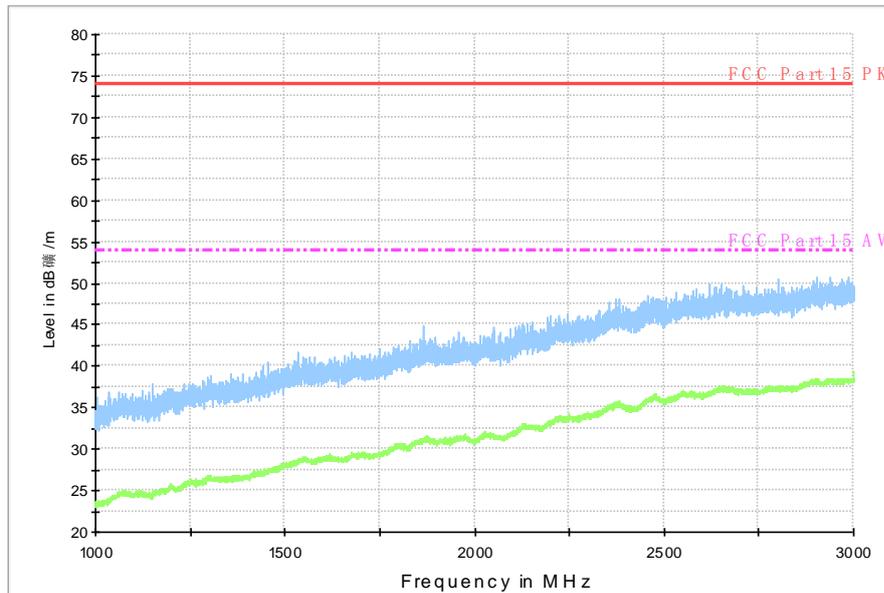


Fig. 19 Radiated Spurious Emission (802.11a, ch40, 1 GHz-3 GHz)

RE - 3GHz-6GHz

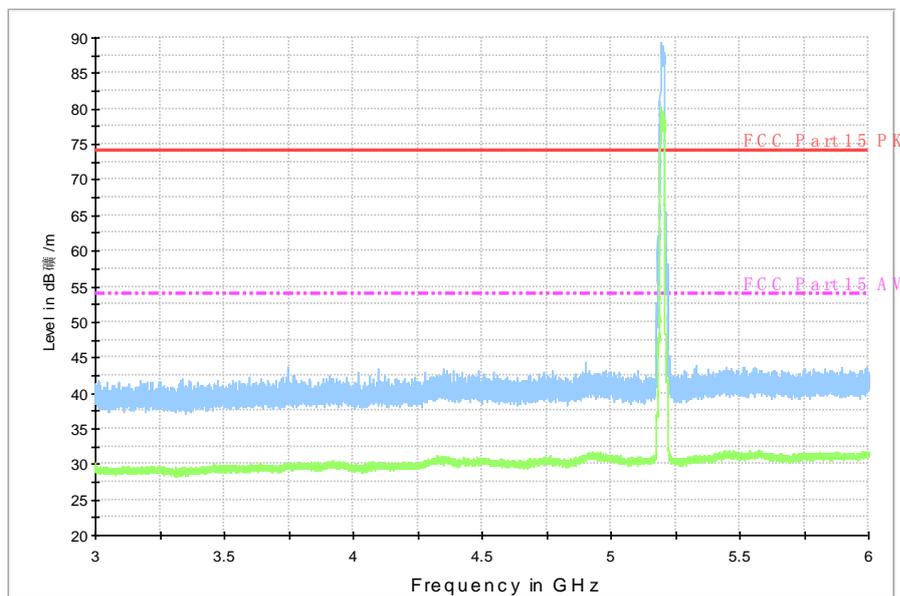


Fig. 20 Radiated Spurious Emission (802.11a, ch40, 3 GHz-6 GHz)

RE - 6GHz-18GHz

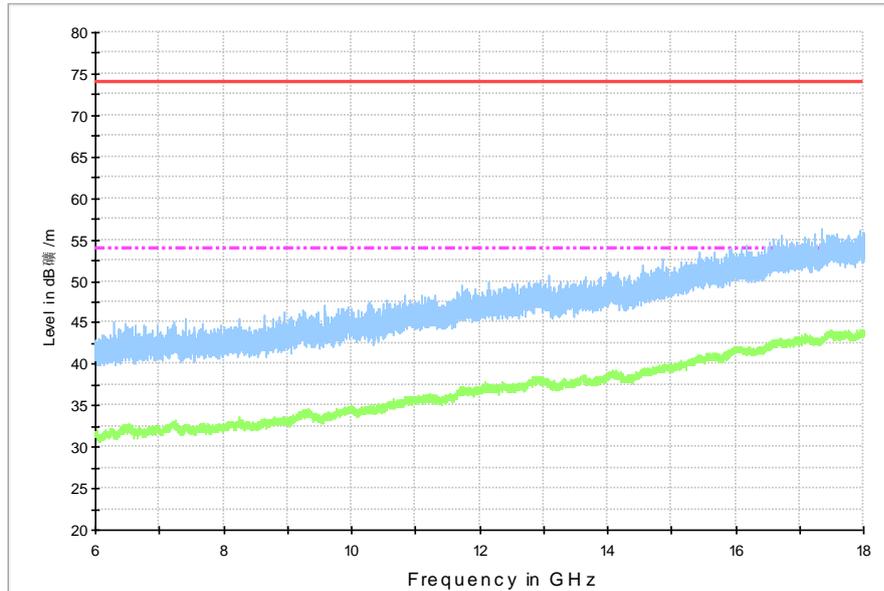


Fig. 21 Radiated Spurious Emission (802.11a, ch40, 6 GHz-18 GHz)

Normal RE\_18G-26.5GHz

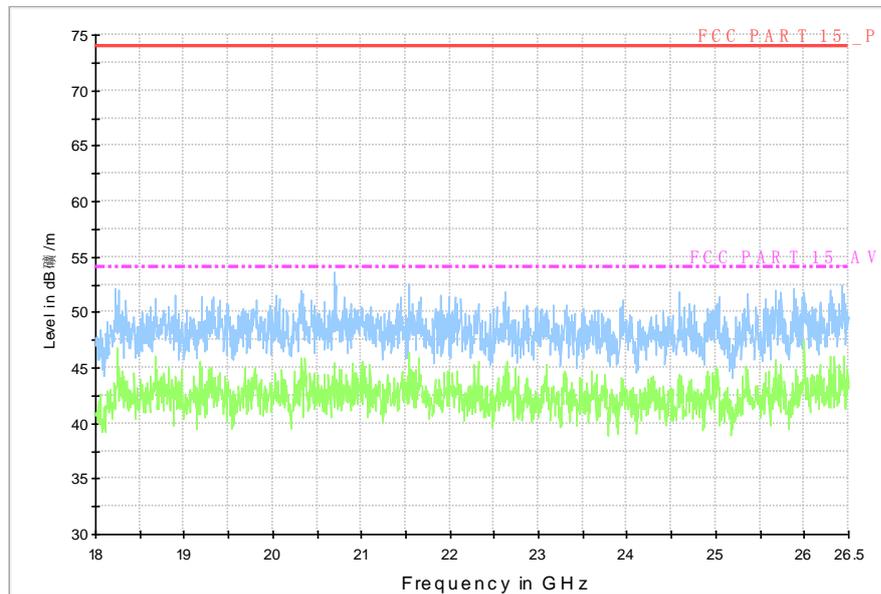
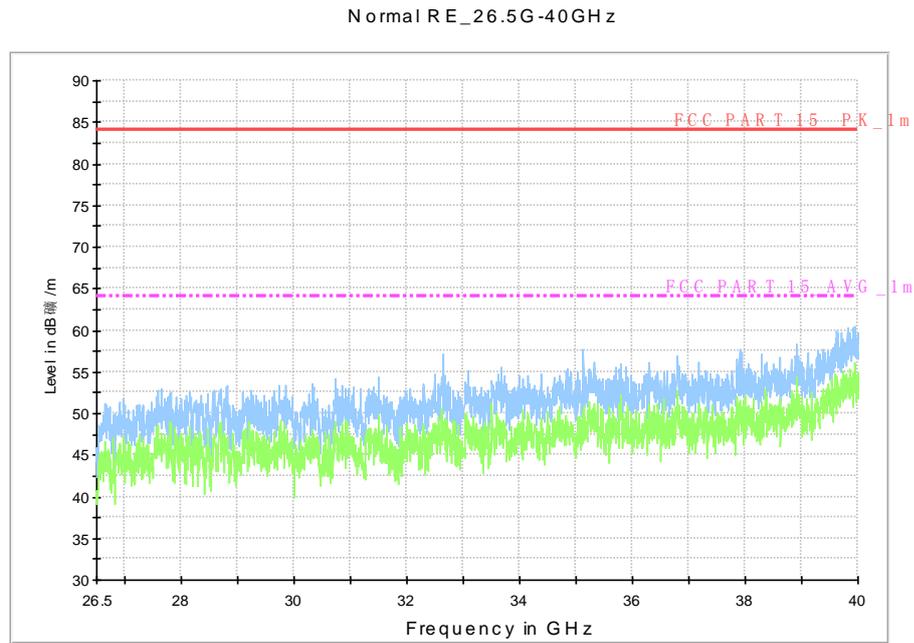
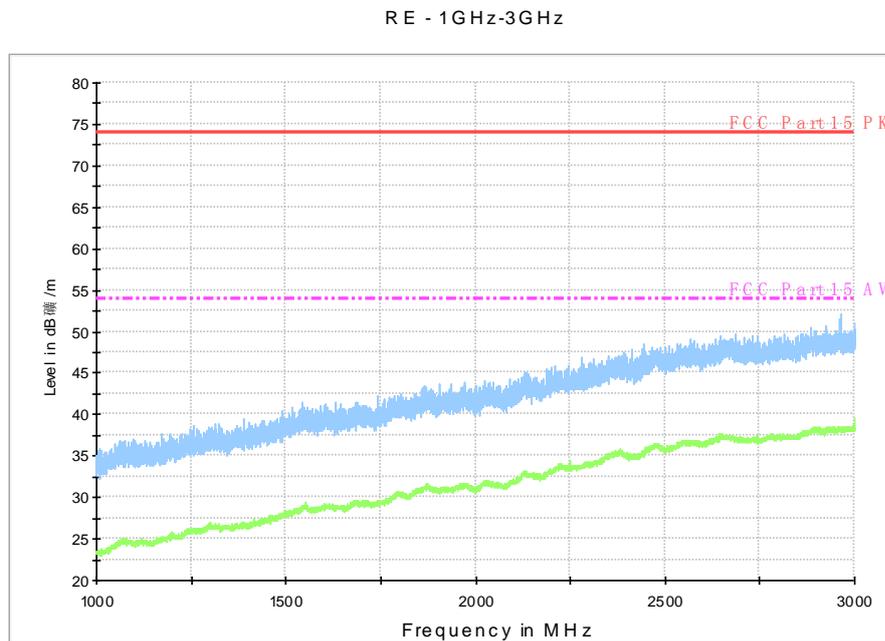


Fig. 22 Radiated Spurious Emission (802.11a, ch40, 18 GHz-26.5 GHz)

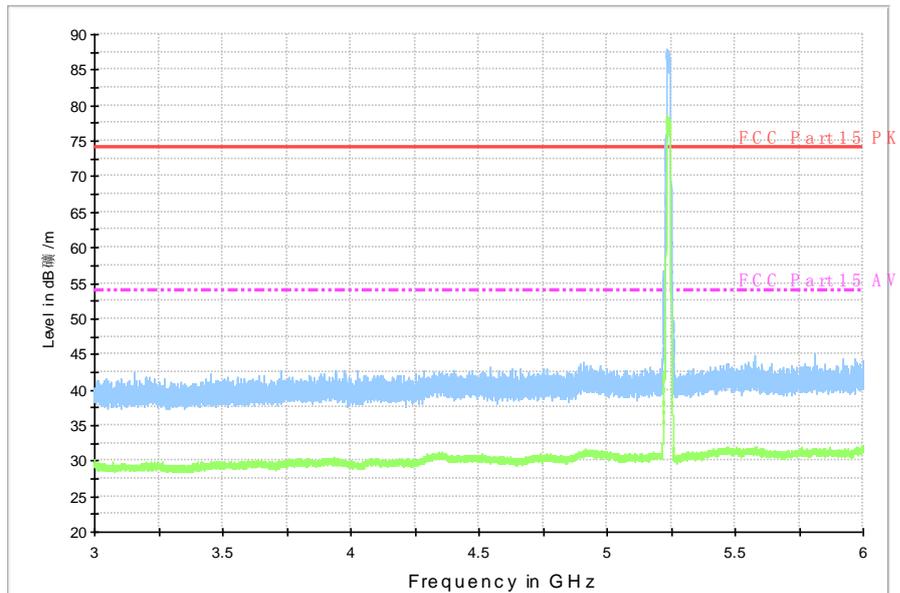


**Fig. 23 Radiated Spurious Emission (802.11a, ch40, 26.5 GHz-40 GHz)**



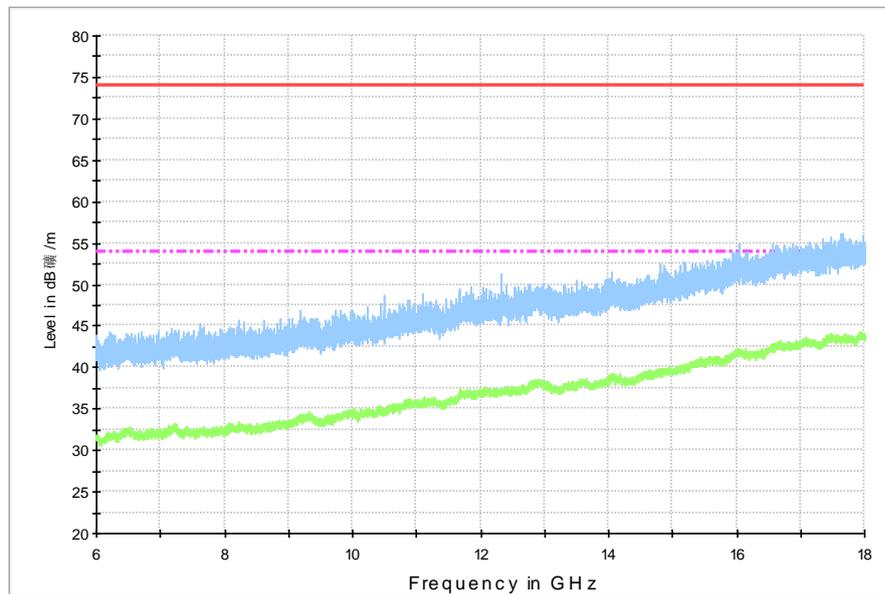
**Fig. 24 Radiated Spurious Emission (802.11a, ch48, 1 GHz-3 GHz)**

RE - 3GHz-6GHz



**Fig. 25 Radiated Spurious Emission (802.11a, ch48, 3 GHz-6 GHz)**

RE - 6GHz-18GHz



**Fig. 26 Radiated Spurious Emission (802.11a, ch48, 6 GHz-18 GHz)**

RE - 1GHz-3GHz

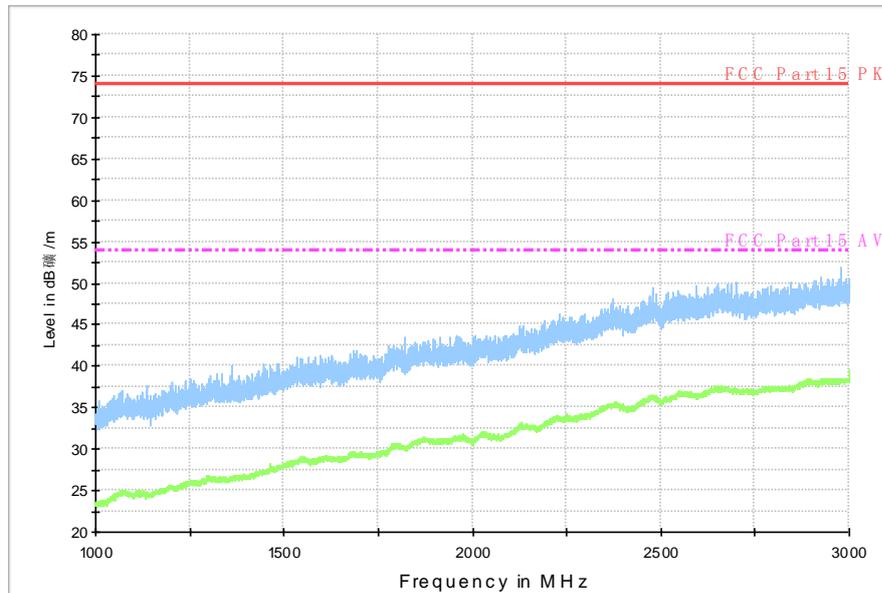


Fig. 27 Radiated Spurious Emission (802.11n-HT20, ch36, 1 GHz-3 GHz)

RE - 3GHz-6GHz

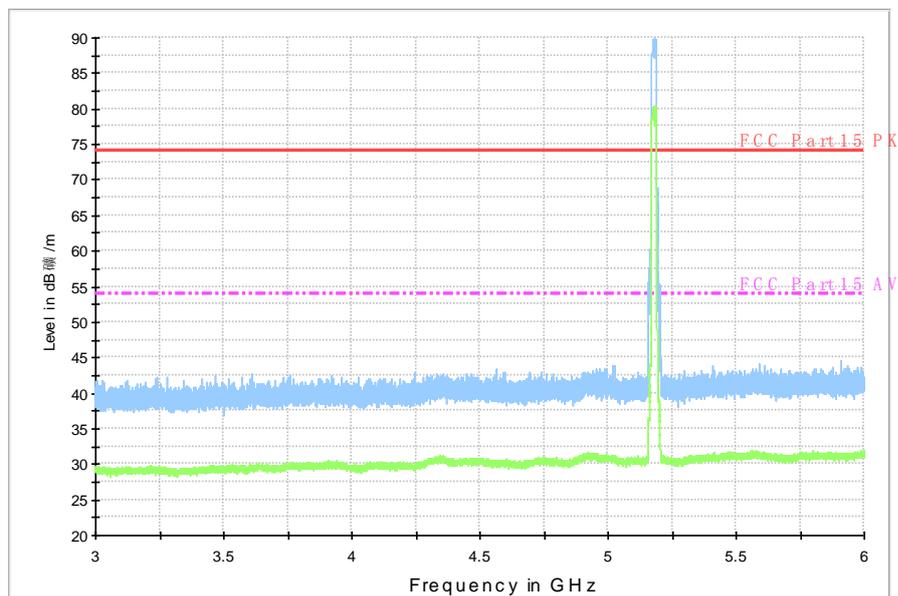


Fig. 28 Radiated Spurious Emission (802.11n-HT20, ch36, 3 GHz-6 GHz)

RE - 6GHz-18GHz

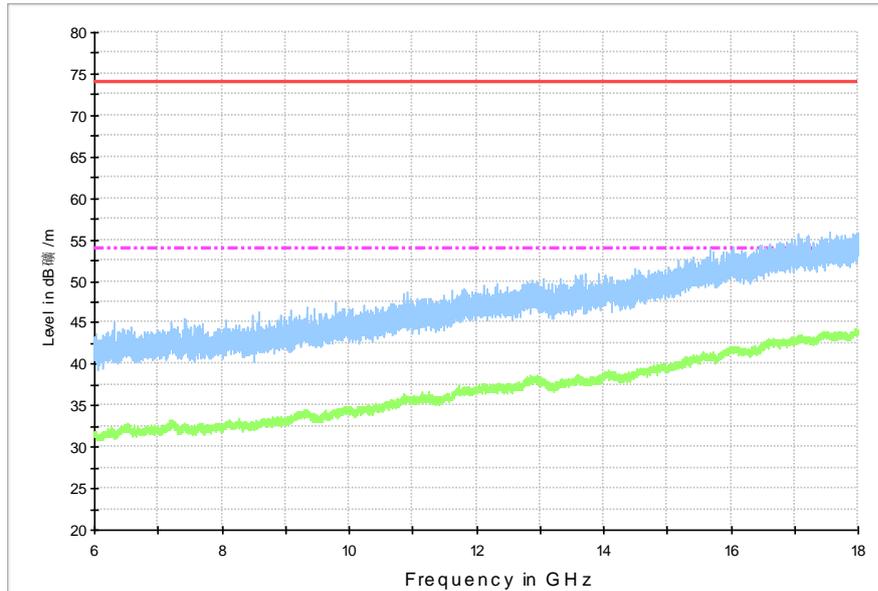


Fig. 29 Radiated Spurious Emission (802.11n-HT20, ch36, 6 GHz-18 GHz)

Normal RE\_30M-1GHz\_10m

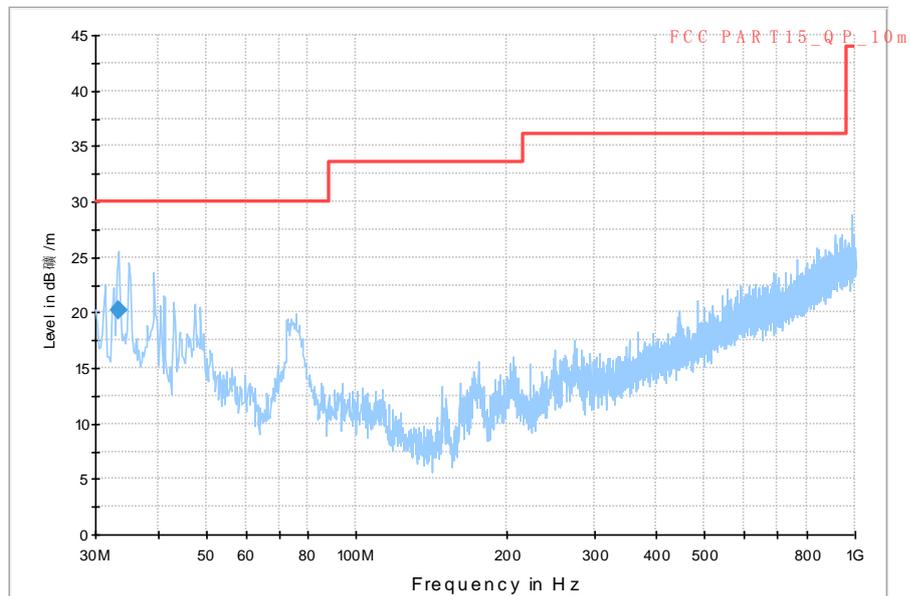
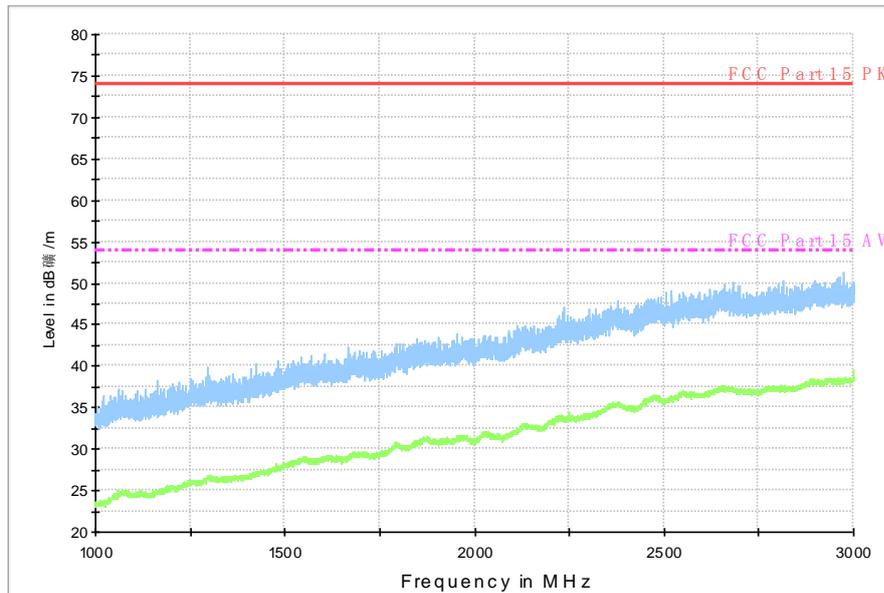


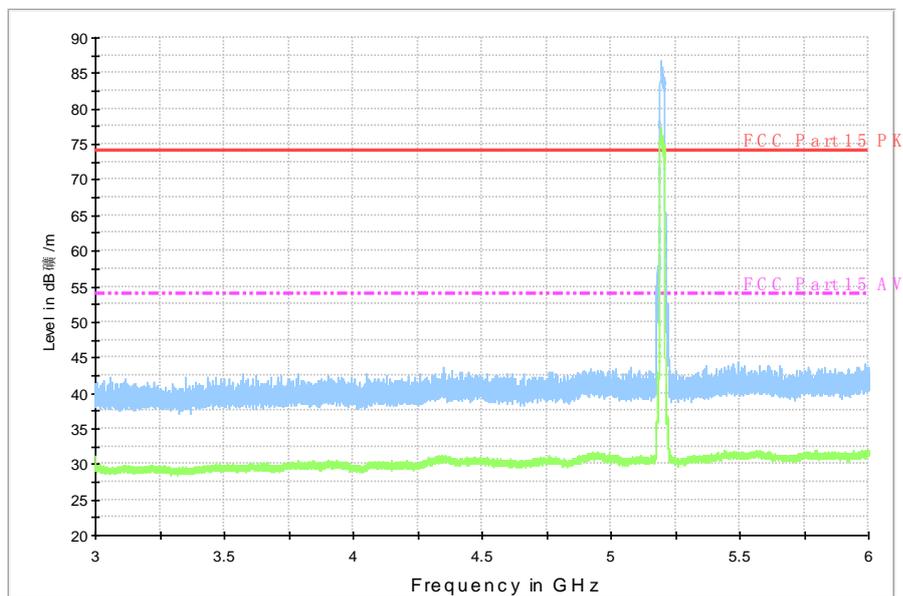
Fig. 30 Radiated Spurious Emission (802.11n-HT20, ch40, 30 MHz-1 GHz)

RE - 1GHz-3GHz



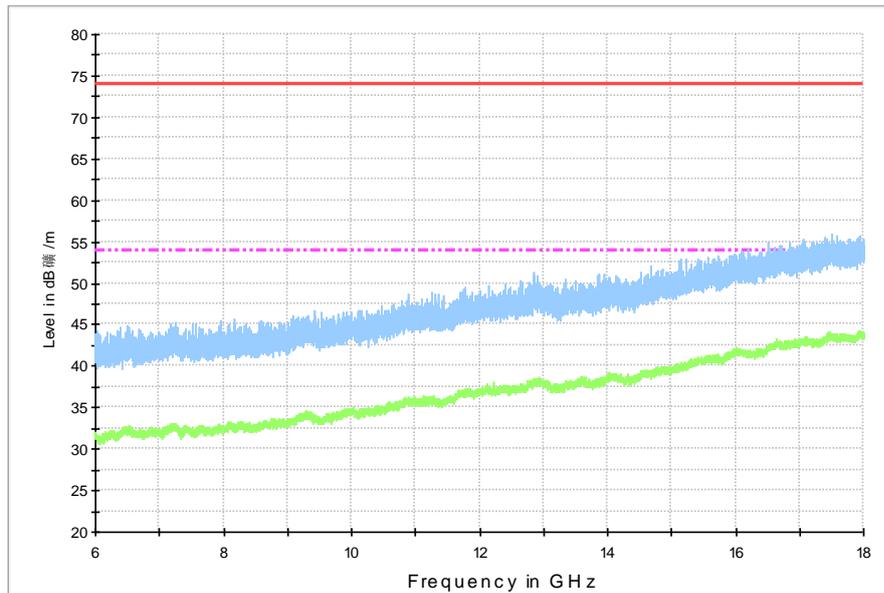
**Fig. 31 Radiated Spurious Emission (802.11n-HT20, ch40, 1 GHz-3 GHz)**

RE - 3GHz-6GHz



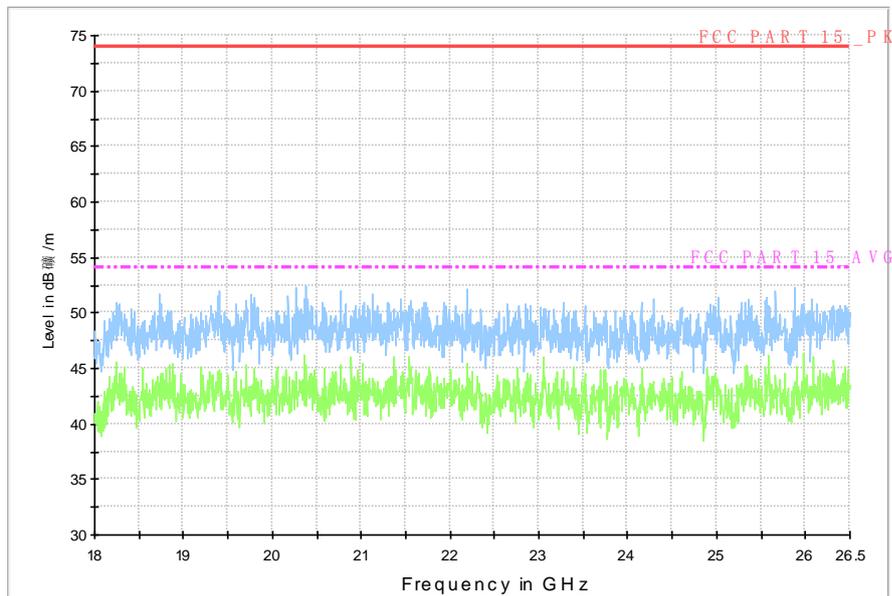
**Fig. 32 Radiated Spurious Emission (802.11n-HT20, ch40, 3 GHz-6 GHz)**

RE - 6GHz-18GHz



**Fig. 33 Radiated Spurious Emission (802.11n-HT20, ch40, 6 GHz-18 GHz)**

Normal RE\_18G-26.5GHz



**Fig. 34 Radiated Spurious Emission (802.11n-HT20, ch40, 18 GHz-26.5 GHz)**

Normal RE\_26.5G-40GHz

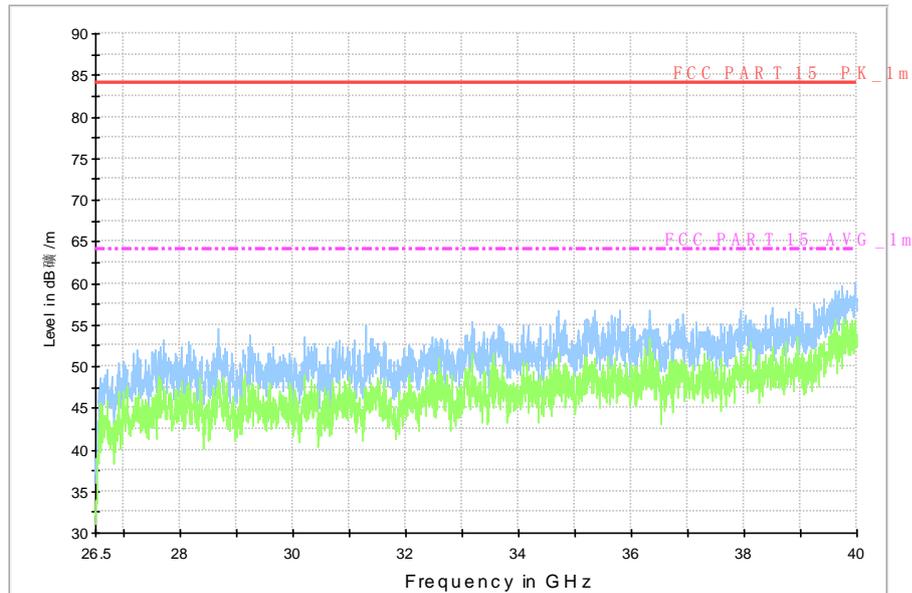


Fig. 35 Radiated Spurious Emission (802.11n-HT20, ch40, 26.5 GHz-40 GHz)

RE - 1GHz-3GHz

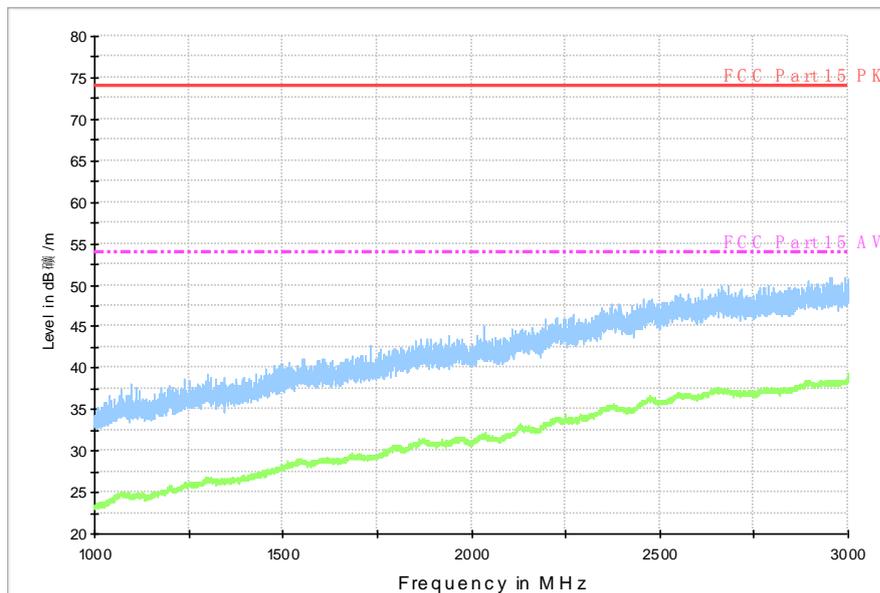


Fig. 36 Radiated Spurious Emission (802.11n-HT20, ch48, 1 GHz-3 GHz)

RE - 3GHz-6GHz

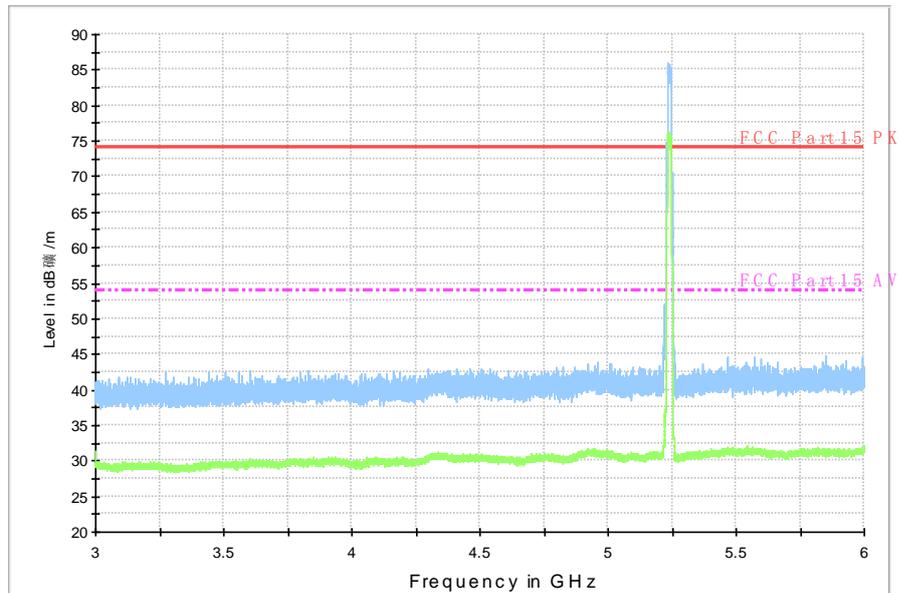


Fig. 37 Radiated Spurious Emission (802.11n-HT20, ch48, 3 GHz-6 GHz)

RE - 6GHz-18GHz

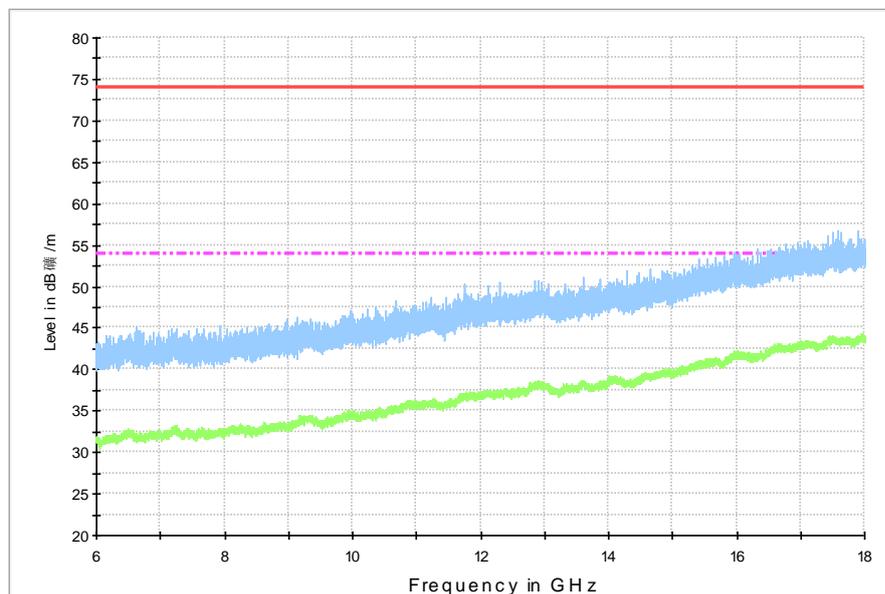
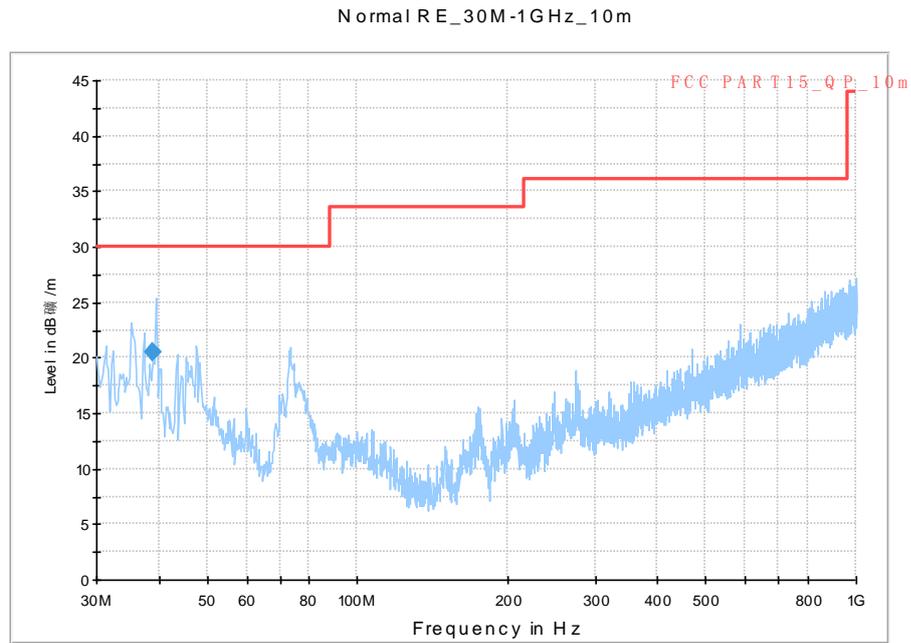
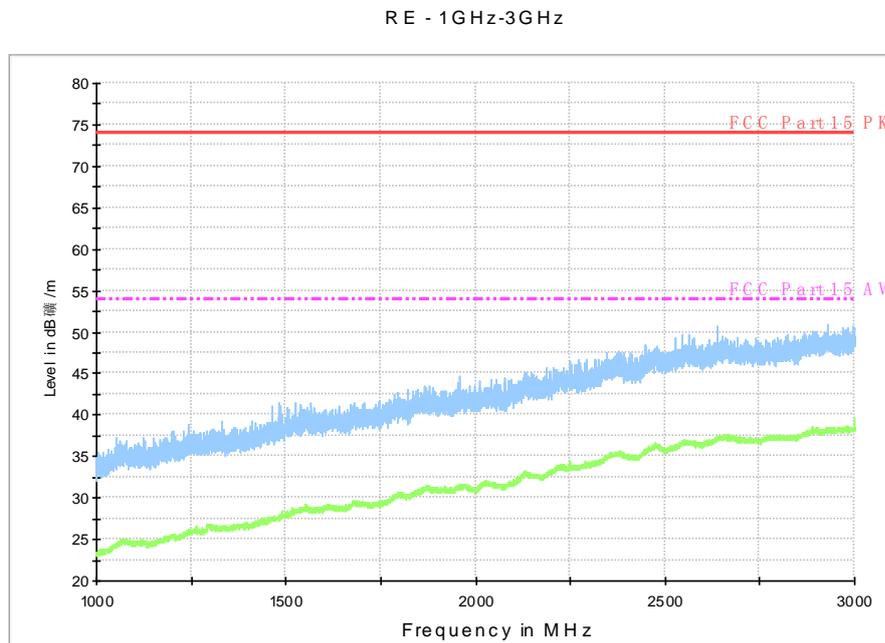


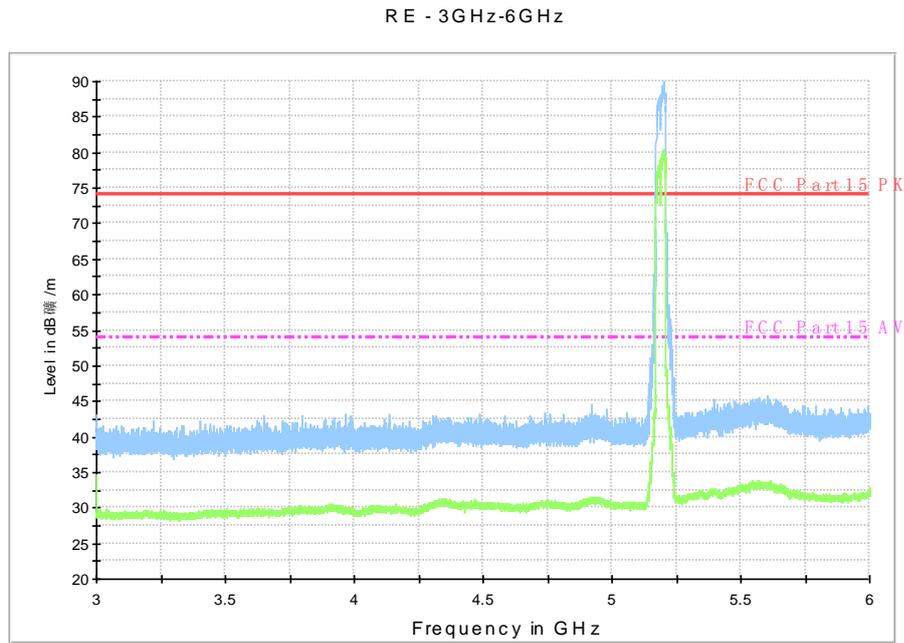
Fig. 38 Radiated Spurious Emission (802.11n-HT20, ch48, 6 GHz-18 GHz)



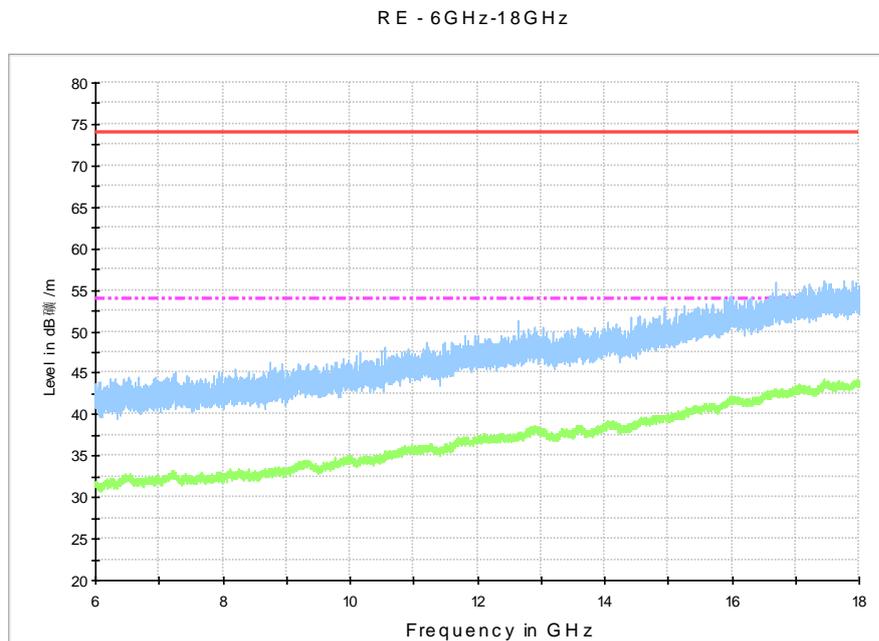
**Fig. 39 Radiated Spurious Emission (802.11n-HT40, ch38, 30 MHz-1 GHz)**



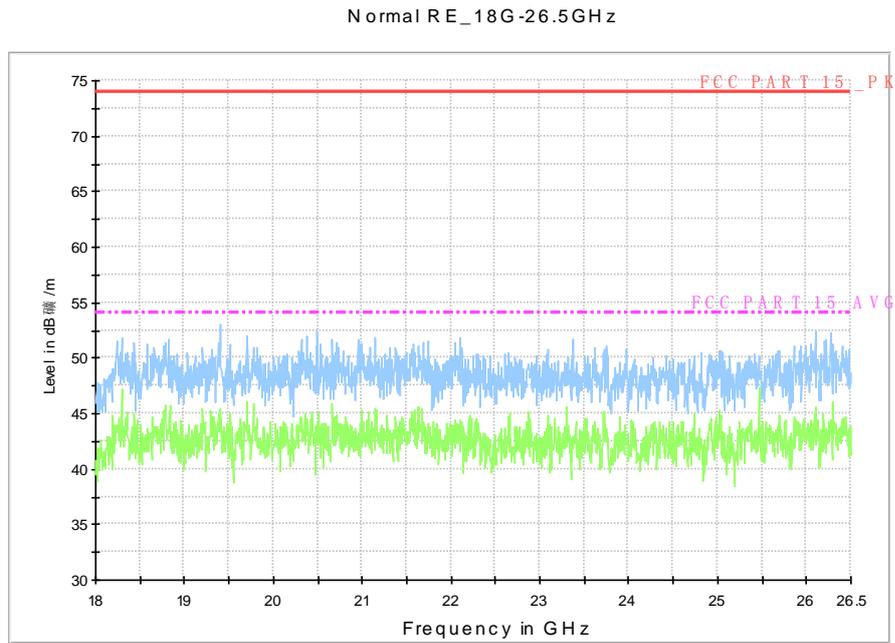
**Fig. 40 Radiated Spurious Emission (802.11n-HT40, ch38, 1 GHz-3 GHz)**



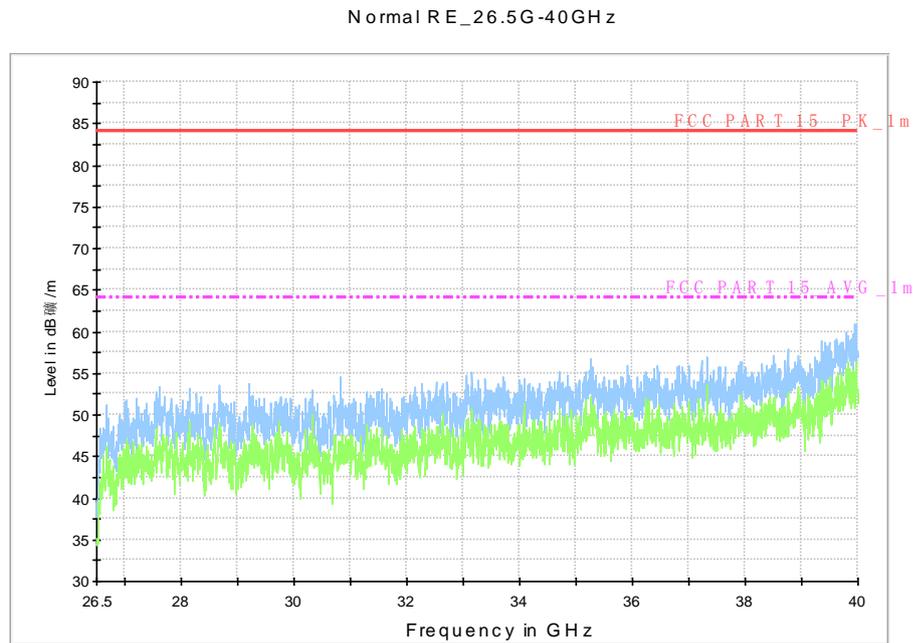
**Fig. 41 Radiated Spurious Emission (802.11n-HT40, ch38, 3 GHz-6 GHz)**



**Fig. 42 Radiated Spurious Emission (802.11n-HT40, ch38, 6 GHz-18 GHz)**

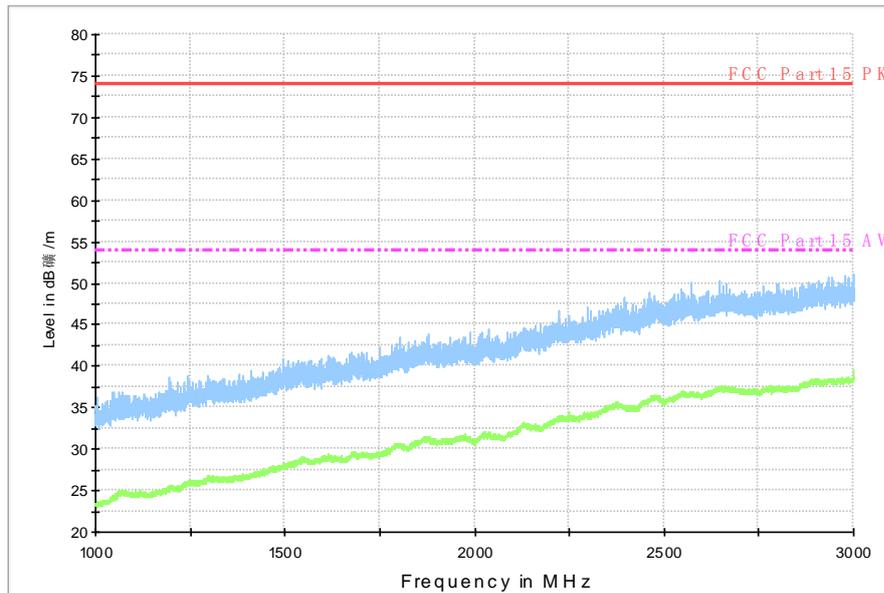


**Fig. 43 Radiated Spurious Emission (802.11n-HT40, ch38, 18 GHz-26.5 GHz)**



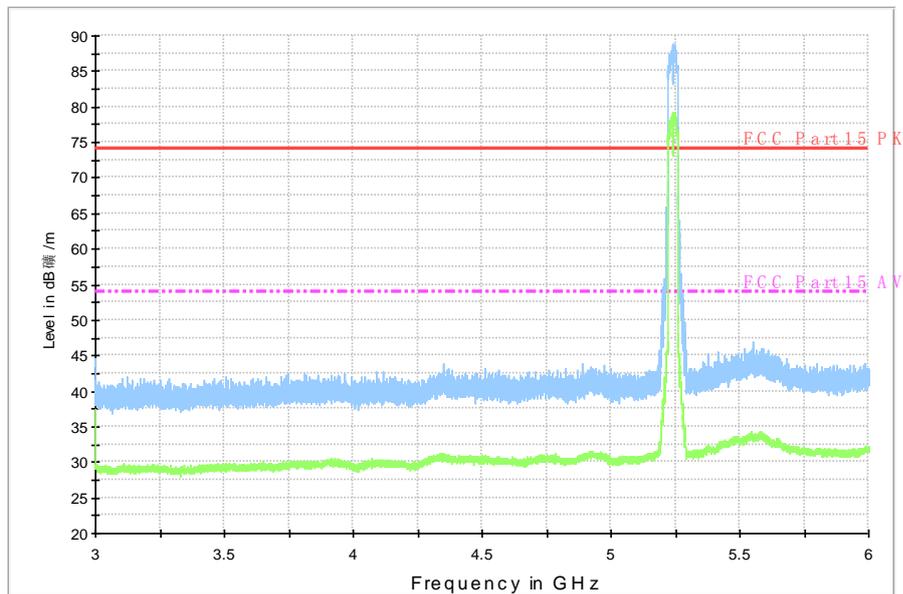
**Fig. 44 Radiated Spurious Emission (802.11n-HT40, ch38, 26.5 GHz-40 GHz)**

RE - 1GHz-3GHz



**Fig. 45 Radiated Spurious Emission (802.11n-HT40, ch46, 1 GHz-3 GHz)**

RE - 3GHz-6GHz



**Fig. 46 Radiated Spurious Emission (802.11n-HT40, ch46, 3 GHz-6 GHz)**

RE - 6GHz-18GHz

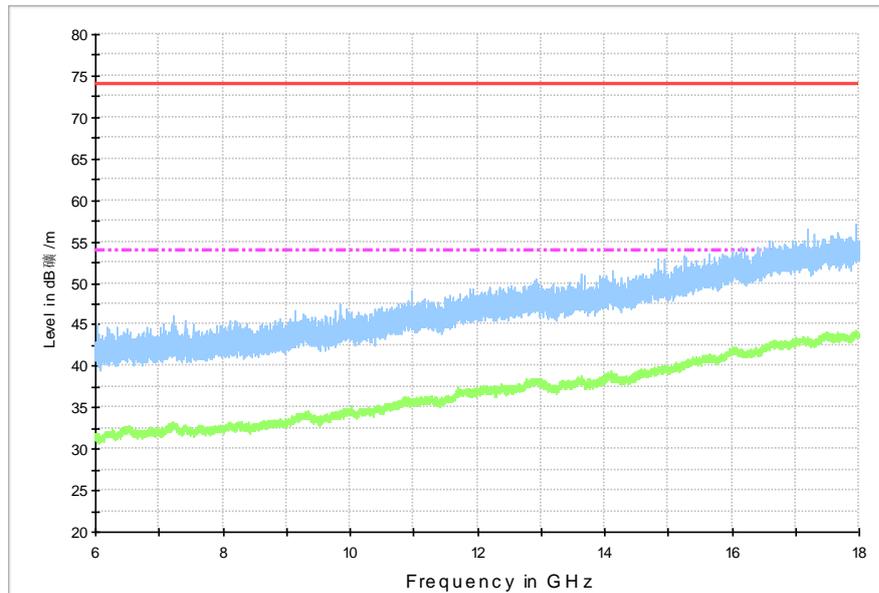


Fig. 47 Radiated Spurious Emission (802.11n-HT40, ch46, 6 GHz-18 GHz)

### A.7. Spurious Emissions Radiated < 30MHz

#### Measurement Limit(15.209, 9kHz-30MHz):

Frequency (MHz)	Field strength( $\mu\text{V}/\text{m}$ )	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

The measurement is made according to KDB 789033

Note: The measurement distance during the test is 3m. The limit used in plots is recalculated based on the extrapolation factor of 40 dB/decade.

#### Measurement uncertainty:

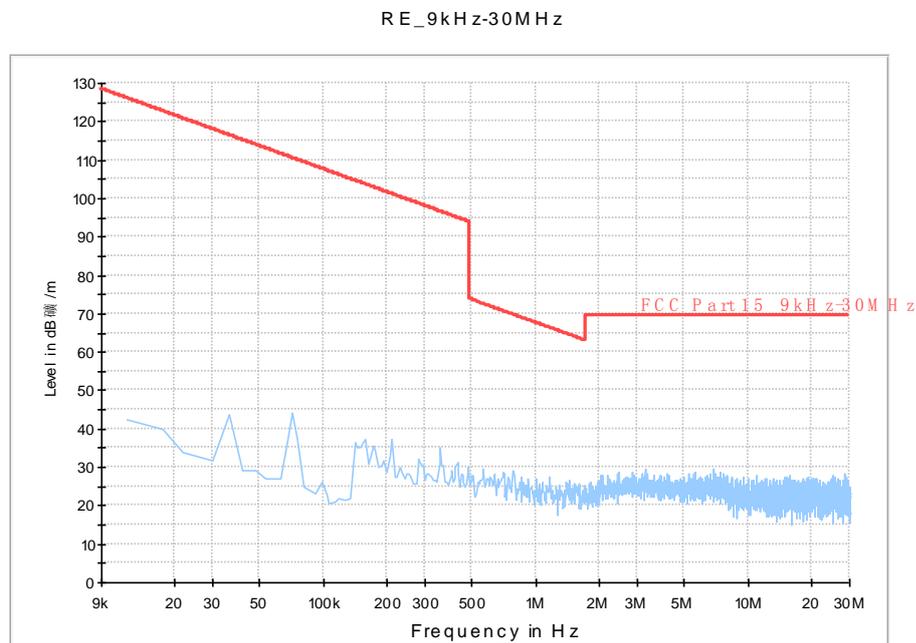
Expanded measurement uncertainty for this test item is  $U = 2.6\text{dB}$ ,  $k=2$ .

#### Measurement Results:

Mode	Frequency Range	Test Results	Conclusion
802.11a	9 kHz ~30 MHz	Fig.48	P

**Conclusion: PASS**

Test graphs as below:



**Fig. 48 Radiated Spurious Emission (802.11a, ch40, 9 kHz ~30 MHz)**

### A.8. Conducted Emission (150kHz- 30MHz)

**Test Condition:**

Voltage (V)	Frequency (Hz)
110	60

**Measurement uncertainty:**

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

**Measurement Result and limit:**

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	66 to 56	Fig. 49	Fig. 50	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.

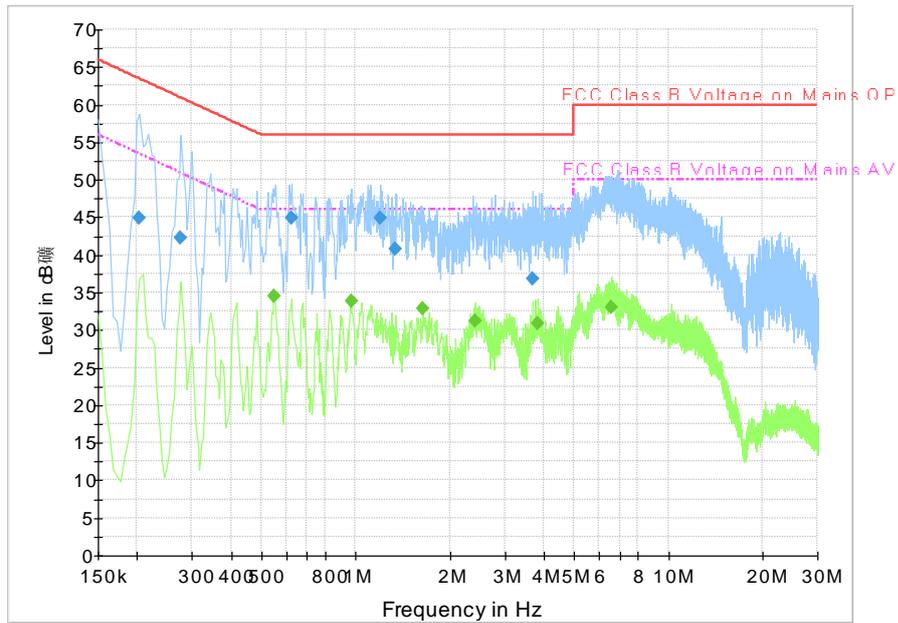
WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	56 to 46	Fig.49	Fig.50	P
0.5 to 5	46			
5 to 30	50			

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

**Conclusion: PASS**

**Test graphs as below:**



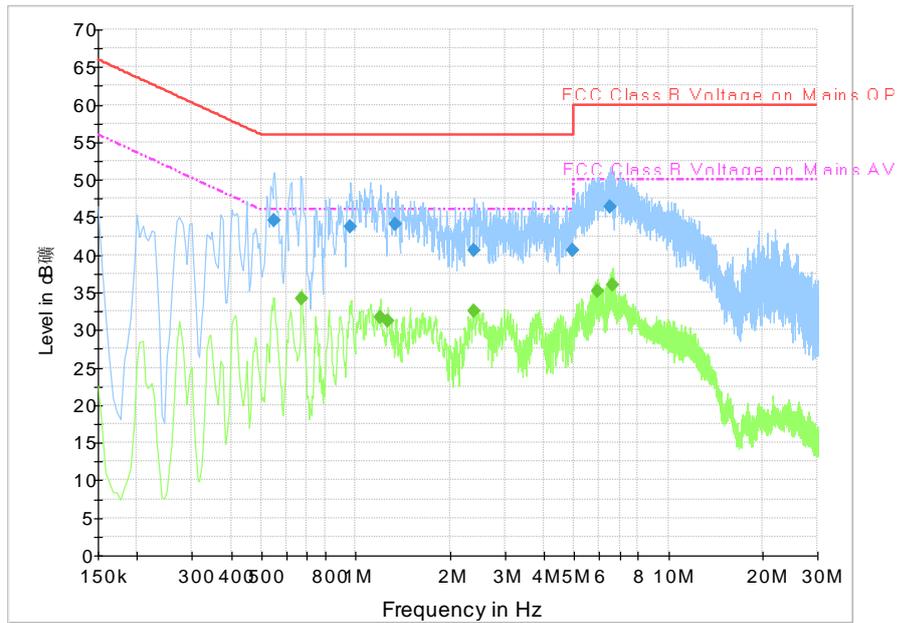
**Fig. 49 Conducted Emission(802.11a, Ch40, TX)**

Measurement Result:

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.204000	44.9	2000.0	9.000	On	L1	19.8	18.6	63.4
0.276000	42.2	2000.0	9.000	On	L1	19.8	18.7	60.9
0.622500	44.9	2000.0	9.000	On	L1	19.8	11.1	56.0
1.194000	44.9	2000.0	9.000	On	L1	19.7	11.1	56.0
1.342500	40.8	2000.0	9.000	On	N	19.6	15.2	56.0
3.687000	36.8	2000.0	9.000	On	N	19.7	19.2	56.0

Measurement Result:

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.550500	34.5	2000.0	9.000	On	N	19.8	11.5	46.0
0.969000	33.9	2000.0	9.000	On	N	19.7	12.1	46.0
1.639500	32.9	2000.0	9.000	On	N	19.7	13.1	46.0
2.413500	31.2	2000.0	9.000	On	N	19.6	14.8	46.0
3.822000	30.9	2000.0	9.000	On	N	19.7	15.1	46.0
6.558000	32.9	2000.0	9.000	On	N	19.7	17.1	50.0



**Fig. 50 Conducted Emission(802.11a, IDLE)**

Measurement Result:

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.550500	44.6	2000.0	9.000	On	N	19.8	11.4	56.0
0.964500	43.8	2000.0	9.000	On	N	19.7	12.2	56.0
1.338000	44.0	2000.0	9.000	On	L1	19.6	12.0	56.0
2.395500	40.7	2000.0	9.000	On	L1	19.6	15.4	56.0
4.960500	40.6	2000.0	9.000	On	L1	19.6	15.4	56.0
6.517500	46.3	2000.0	9.000	On	L1	19.7	13.7	60.0

Measurement Result:

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.672000	34.1	2000.0	9.000	On	N	19.8	11.9	46.0
1.203000	31.7	2000.0	9.000	On	L1	19.7	14.3	46.0
1.270500	31.2	2000.0	9.000	On	L1	19.7	14.8	46.0
2.391000	32.5	2000.0	9.000	On	N	19.6	13.5	46.0
5.919000	35.1	2000.0	9.000	On	L1	19.7	14.9	50.0
6.666000	36.0	2000.0	9.000	On	N	19.7	14.0	50.0

### A.9. Occupied 6dB Bandwidth

#### Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.247 (a)	≥ 500

The measurement is made according to KDB558074 D01 .

#### Measurement Result:

Mode	Channel	Occupied 6dB Bandwidth ( kHz)		Conclusion
802.11a	5180 MHz	Fig.51	16050	P
	5200 MHz	Fig.52	16050	P
	5240 MHz	Fig.53	16300	P
802.11n HT20	5180 MHz	Fig.54	17250	P
	5200 MHz	Fig.55	16900	P
	5240 MHz	Fig.56	16800	P
802.11n HT40	5190 MHz	Fig.57	35120	P
	5230 MHz	Fig.58	35200	P

**Conclusion: PASS**

Test graphs as below:



**Fig. 51 Occupied 6dB Bandwidth (802.11a, Ch 36)**



Fig. 52 Occupied 6dB Bandwidth (802.11a, Ch 40)

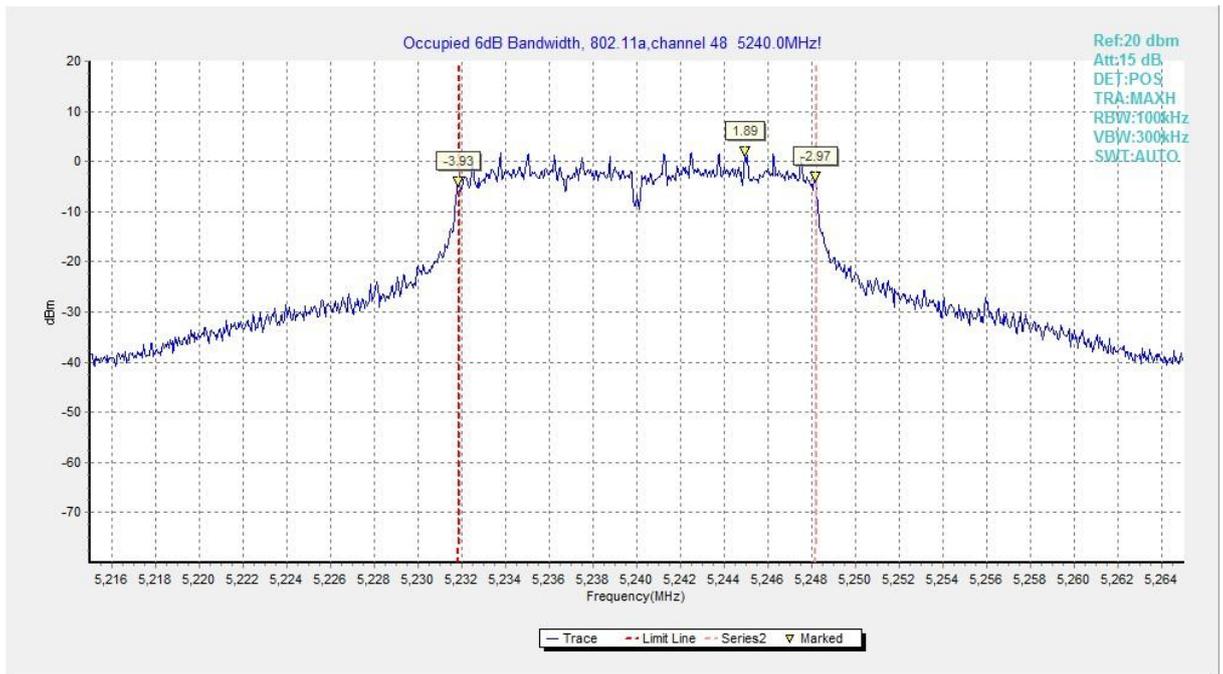


Fig. 53 Occupied 6dB Bandwidth (802.11a, Ch 48)

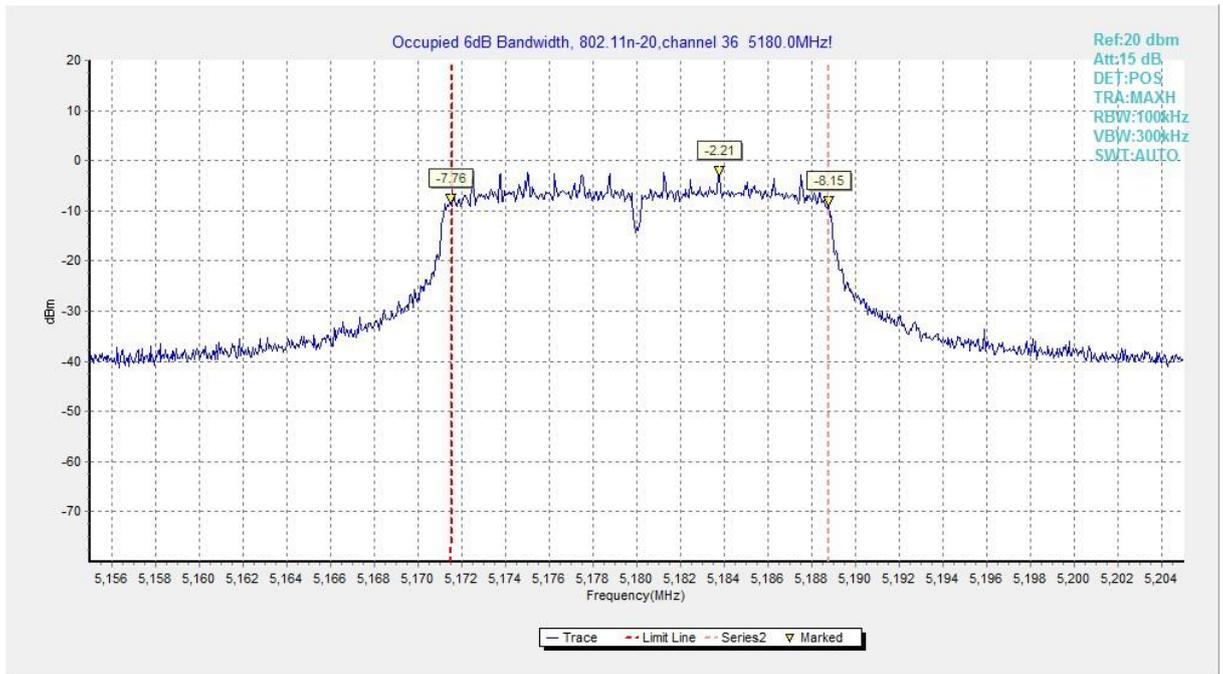


Fig. 54 Occupied 6dB Bandwidth (802.11n-HT20, Ch 36)

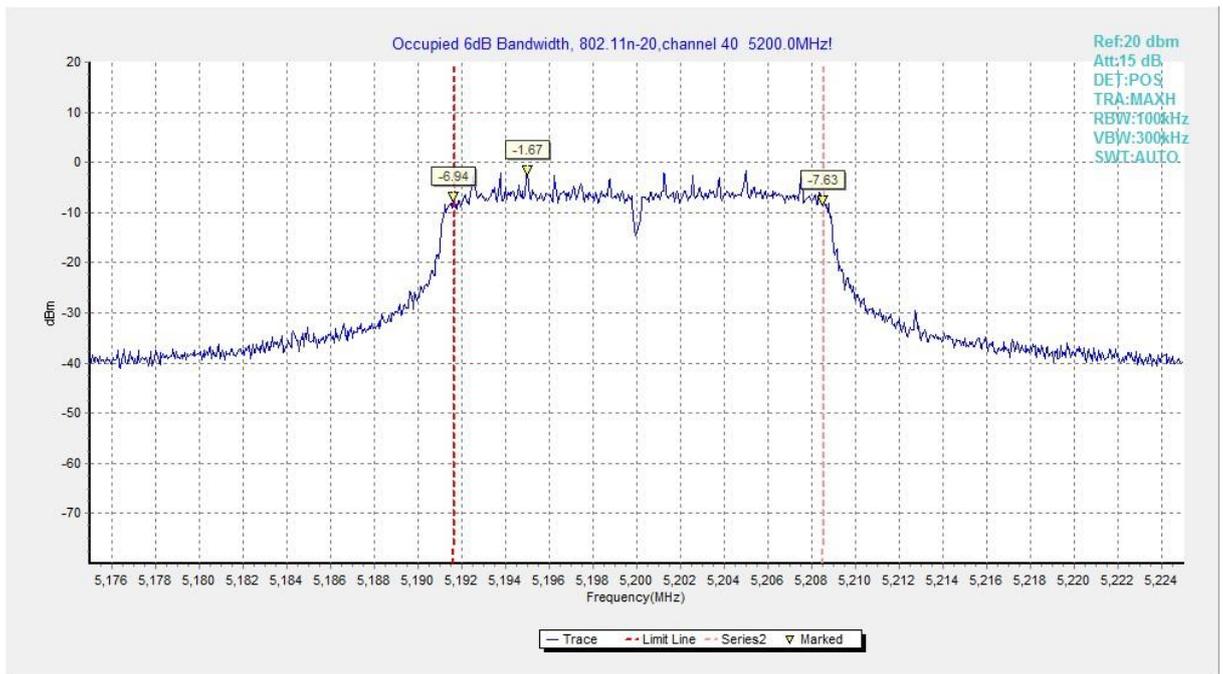


Fig. 55 Occupied 6dB Bandwidth (802.11n-HT20, Ch 40)

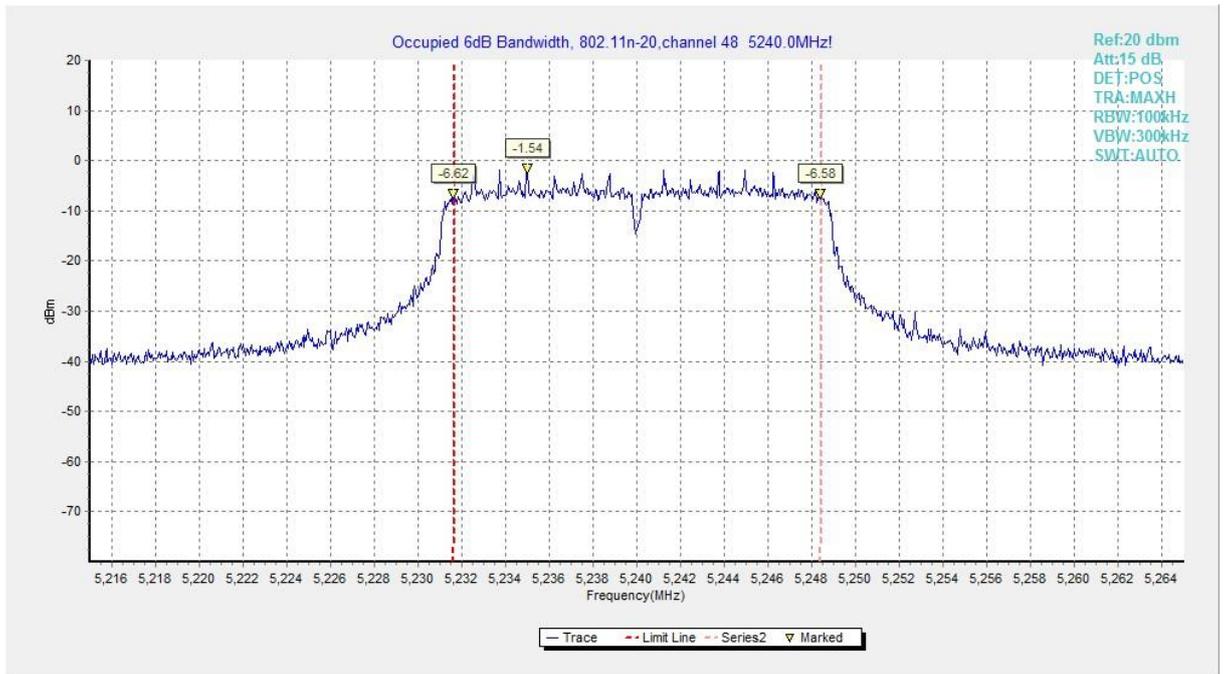


Fig. 56 Occupied 6dB Bandwidth (802.11n-HT20, Ch 48)

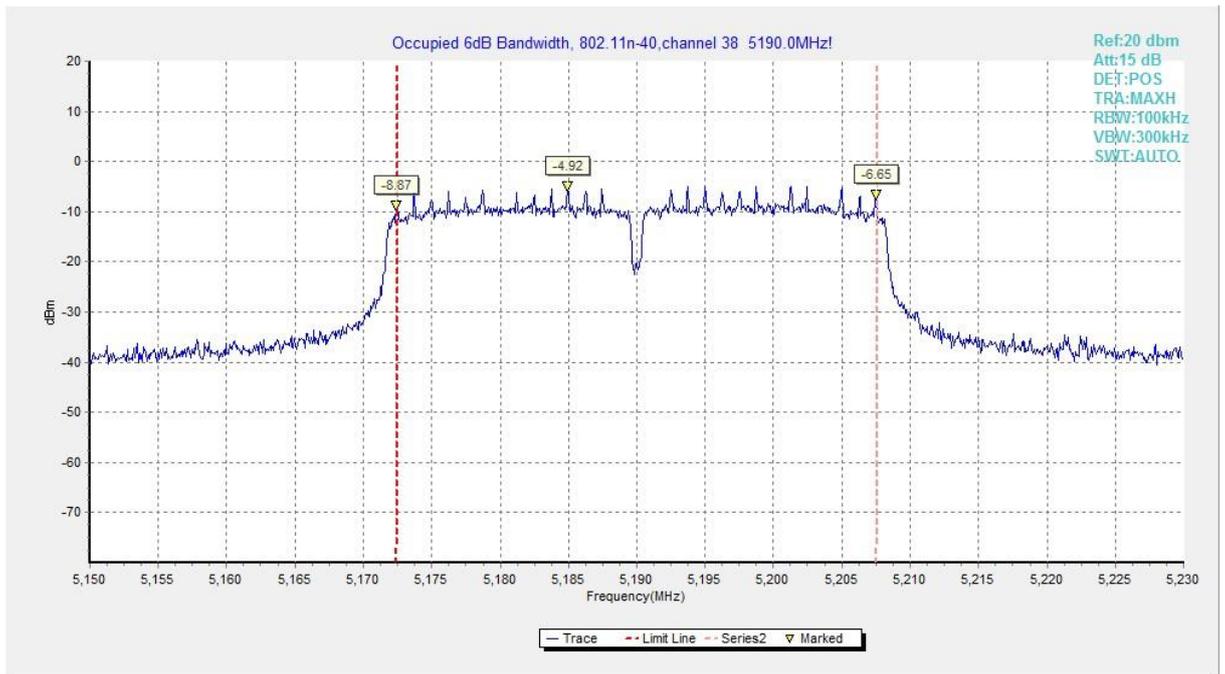


Fig. 57 Occupied 6dB Bandwidth (802.11n-HT40, Ch 38)

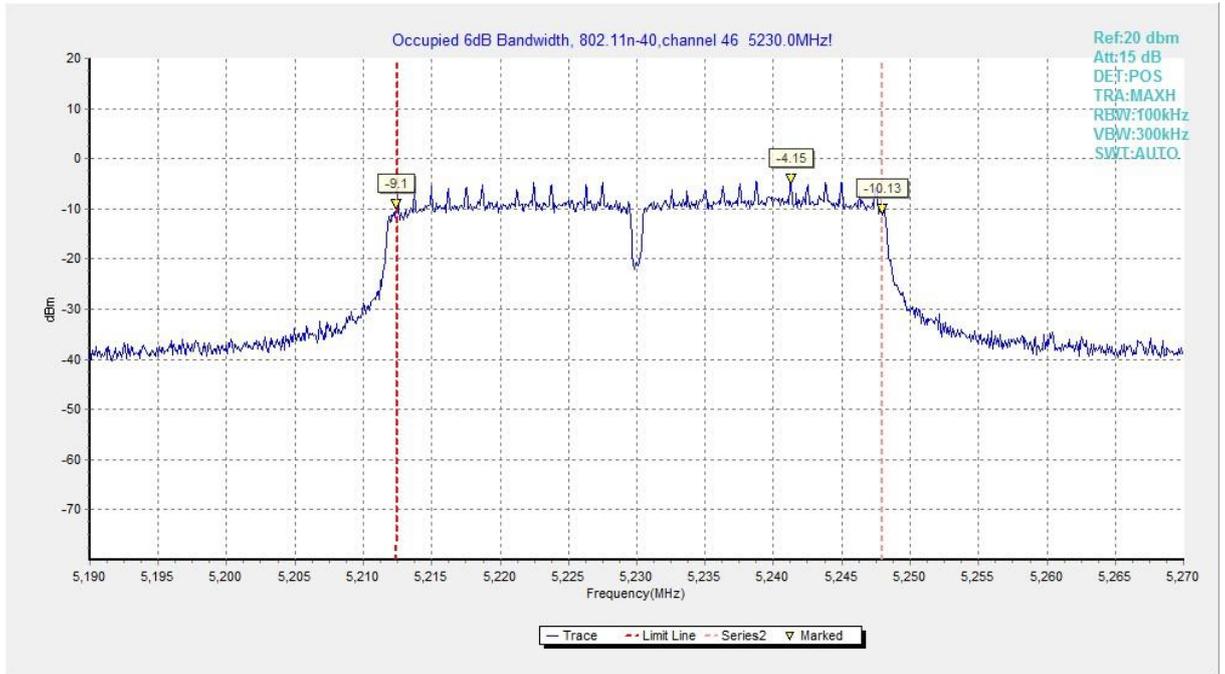


Fig. 58 Occupied 6dB Bandwidth (802.11n-HT40, Ch 46)

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