



# FCC PART 15 TEST REPORT

No. I15Z42998-SRD02

for

TCL Communication Ltd.

**GSM Quad-band / UMTS Tri-band / LTE 5-band mobile phone**

**Model Name: 5056O**

**FCC ID: 2ACCJB043**

**With**

**Hardware Version: 04**

**Software Version: vH55**

**Issued Date: 2016-01-19**



**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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## **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: 2015-12-01

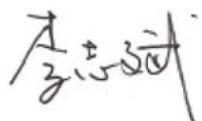
Testing End Date: 2015-12-17

### **1.3. Signature**



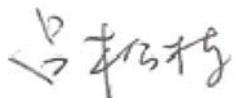
Xu Zhongfei

(Prepared this test report)



Li Zhibin

(Reviewed this test report)



Lv Songdong

(Approved this test report)



## **2. CLIENT INFORMATION**

### **2.1. Applicant Information**

Company Name: TCL Communication Ltd.  
Address: 5F, C building, No. 232, Liang Jing Road, ZhangJiang High-Tech Park, Pudong Area, Shanghai, 201203, P.R.China  
City: Shanghai  
Postal Code: 201203  
Country: China  
Telephone: (0)21 51798260  
Fax: (0)21 6146 0602

### **2.2. Manufacturer Information**

Company Name: TCL Communication Ltd.  
Address: 5F, C building, No. 232, Liang Jing Road, ZhangJiang High-Tech Park, Pudong Area, Shanghai, 201203, P.R.China  
City: Shanghai  
Postal Code: 201203  
Country: China  
Telephone: (0)21 51798260  
Fax: (0)21 6146 0602

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

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

Description	GSM Quad-band / UMTS Tril-band / LTE 5-band mobile phone
Model name	5056O
FCC ID	2ACCJB043
IC ID	/
WLAN Frequency Range	ISM Bands: -5150MHz~5250MHz -5250MHz~5350MHz -5470MHz~5725MHz
Type of modulation	OFDM
Antenna	Integral Antenna
Extreme Temperature	-20/+55°C
Extreme vol. Limits	3.5VDC to 4.35VDC (nominal: 3.7VDC)

Note: Photographs of EUT are shown in ANNEX C of this test report. 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**

EUT ID*	S/N	HW Version	SW Version
EUT1	014584000000130	04	vH55
EUT7	014584000000163	04	vH55

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

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

AE ID*	Description	Type	SN
AE1	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 GSM Quad-band / UMTS Tril-band / LTE 5-band mobile phone 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	/	P
Power Spectral Density	15.407	/	P
Occupied 26dB Bandwidth	15.403	/	P
Band edge compliance	15.209	/	P
Transmitter spurious emissions radiated	15.407	/	P
Spurious emissions radiated < 30 MHz	15.407	/	P
Spurious emissions conducted < 30 MHz	15.407	/	P
Peak Excursion	15.407	/	P
Frequency Stability	15.407	/	NA
Transmit Power Control	15.407	/	NA

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	3.7V
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	2015-07-08	2016-07-07
2	Test Receiver	ESS	847151/015	Rohde & Schwarz	2015-11-29	2016-11-28
3	LISN	ESH2-Z5	829991/012	Rohde & Schwarz	2015-4-15	2016-4-14
4	Shielding Room	S81	/	ETS-Lindgren	/	/

### **Radiated emission test system**

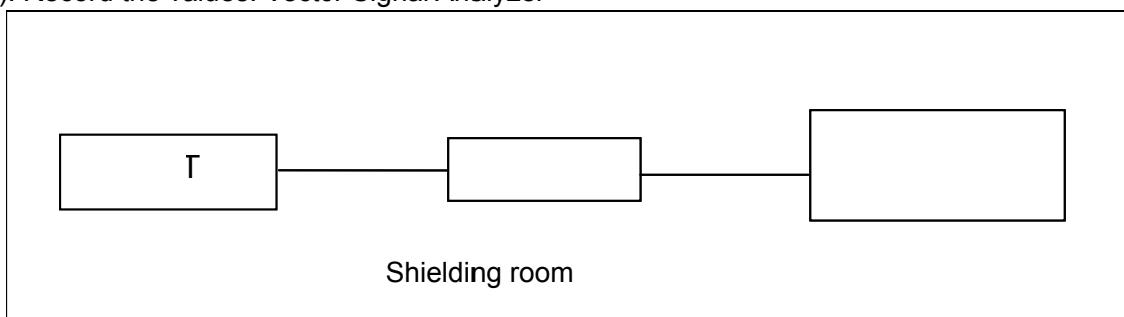
No.	Equipment	Model	Serial Number	Manufacturer	Calibration date	Calibration Due date
1	Test Receiver	ESU26	100376	Rohde & Schwarz	2015-11-6	2016-11-5
2	BiLog Antenna	VULB9163	9163-514	Schwarzbeck	2013-11-11	2016-11-10
3	Dual-Ridge Waveguide Horn Antenna	3117	00119024	ETS-Lindgren	2014-4-20	2017-4-19
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2013-7-1	2016-06-30
5	Loop antenna	HFH2-Z2	829324/007	Rohde & Schwarz	2013-12-21	2016-12-20
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 engineering mode, the transmitter's duty cycle is 100%. (Transmitter, receiver or transmitter & receiver).
- 3). Set the EUT to the required channel.
- 4). Set the spectrum analyzer to start measurement.
- 5). Record the values. Vector Signal Analyzer

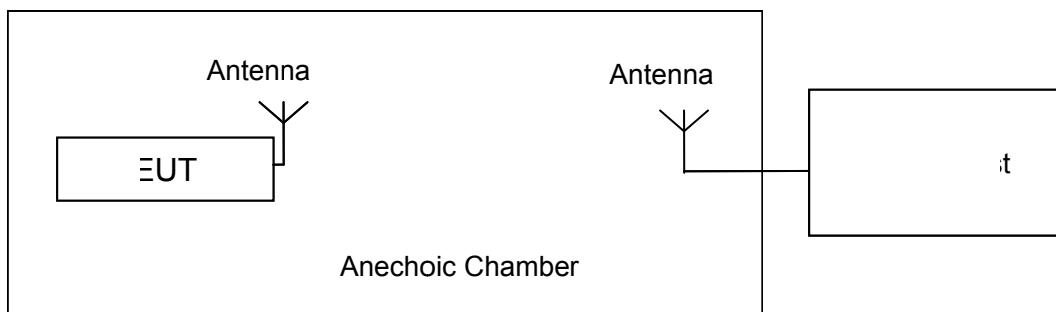


#### A.1.2. Radiated Emission Measurements

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
	5250MHz~5350MHz	24dBm or 11+10logB
	5470MHz~5725MHz	24dBm or 11+10logB

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)	6.93	6.87	6.89	6.85	6.79	6.74	6.64	6.62
	5200MHz (Ch40)	8.19	/	/	/	/	/	/	/
	5240MHz(Ch48)	8.99	/	/	/	/	/	/	/
	5260MHz(Ch52)	10.64	/	/	/	/	/	/	/
	5280MHz(Ch56)	10.75	/	/	/	/	/	/	/
	5320MHz(Ch64)	11.31	/	/	/	/	/	/	/
	5500MHz(Ch100)	6.67	/	/	/	/	/	/	/
	5580MHz(Ch116)	8.21	/	/	/	/	/	/	/
	5700MHz(Ch140)	8.86	/	/	/	/	/	/	/

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

#### 802.11n-HT20 mode

Mode	Channel	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT20)	5180MHz (Ch36)	6.09	6.01	5.97	5.90	5.84	5.77	5.74	5.69
	5200MHz (Ch40)	7.28	/	/	/	/	/	/	/
	5240MHz(Ch48)	8.13	/	/	/	/	/	/	/
	5260MHz(Ch52)	9.76	/	/	/	/	/	/	/
	5280MHz(Ch56)	9.84	/	/	/	/	/	/	/
	5320MHz(Ch64)	10.37	/	/	/	/	/	/	/
	5500MHz(Ch100)	5.79	/	/	/	/	/	/	/
	5580MHz(Ch116)	7.54	/	/	/	/	/	/	/
	5700MHz(Ch140)	8.62	/	/	/	/	/	/	/

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

**802.11n-HT40 mode**

Mode	Channel	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT40)	5190MHz (Ch38)	4.81	4.70	4.63	4.53	4.38	4.30	4.25	4.22
	5230MHz(Ch46)	8.13	/	/	/	/	/	/	/
	5270MHz(Ch54)	10.45	/	/	/	/	/	/	/
	5310MHz(Ch62)	9.61	/	/	/	/	/	/	/
	5510MHz(Ch102)	5.34	/	/	/	/	/	/	/
	5550MHz(Ch110)	6.88	/	/	/	/	/	/	/
	5670MHz(Ch134)	8.18	/	/	/	/	/	/	/

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

**Measurement Uncertainty:**

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

**A.3. Peak Power Spectral Density (conducted)**
**Measurement Limit:**

Standard	Frequency (MHz)	Limit (dBm/MHz)
FCC CRF Part 15.407(a)	5150MHz~5250MHz	11
	5250MHz~5350MHz	11
	5470MHz~5725MHz	11

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

**Measurement Uncertainty:**

Measurement Uncertainty	0.75dB
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**Measurement Results:**

Mode	Channel	Power Spectral Density (dBm/MHz)	Conclusion
802.11a	5180 MHz	-2.29	P
	5200 MHz	-0.80	P
	5240 MHz	-0.50	P
	5260 MHz	1.43	P
	5280 MHz	0.87	P
	5320 MHz	2.00	P
	5500 MHz	-2.29	P
	5580 MHz	-1.28	P
	5700 MHz	-0.68	P
802.11n HT20	5180 MHz	-3.12	P
	5200 MHz	-1.96	P
	5240 MHz	-1.58	P
	5260 MHz	-0.14	P
	5280 MHz	-0.16	P
	5320 MHz	0.69	P
	5500 MHz	-3.63	P
	5580 MHz	-2.16	P
	5700 MHz	-1.25	P
802.11n HT40	5190 MHz	-7.14	P
	5230 MHz	-4.11	P
	5270 MHz	-2.12	P
	5310 MHz	-3.03	P
	5510 MHz	-7.42	P
	5550 MHz	-4.88	P
	5670 MHz	-3.70	P

**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 Uncertainty:

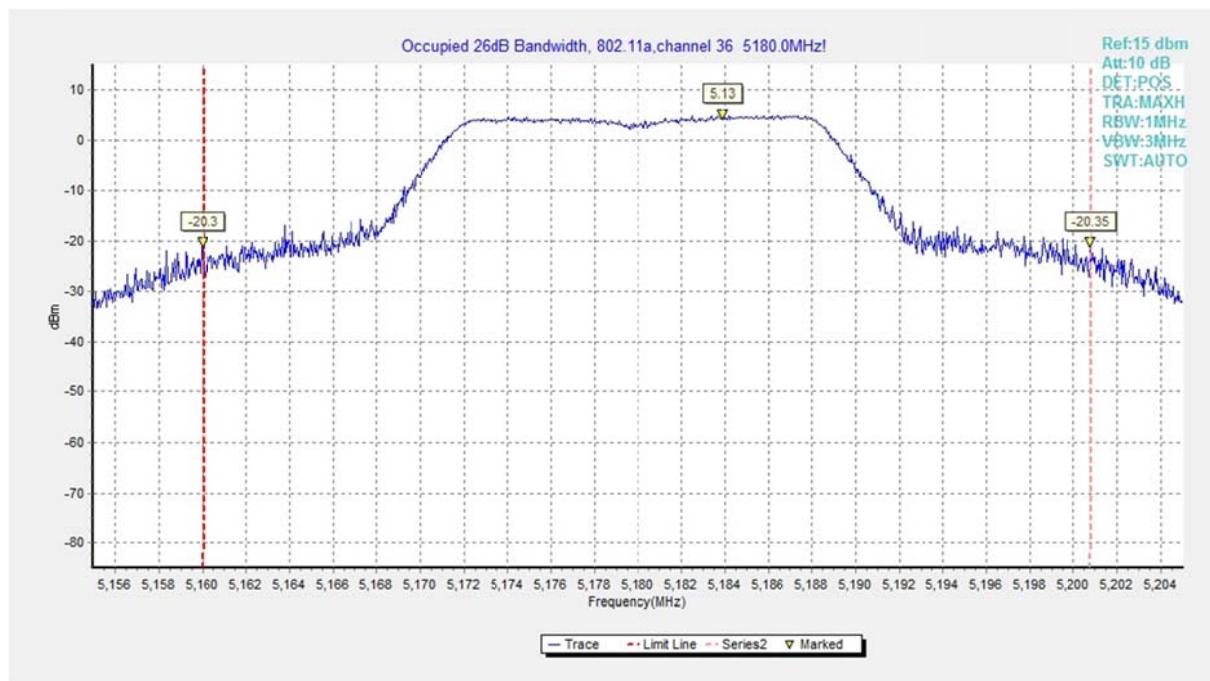
Measurement Uncertainty	60.80Hz
-------------------------	---------

##### Measurement Result:

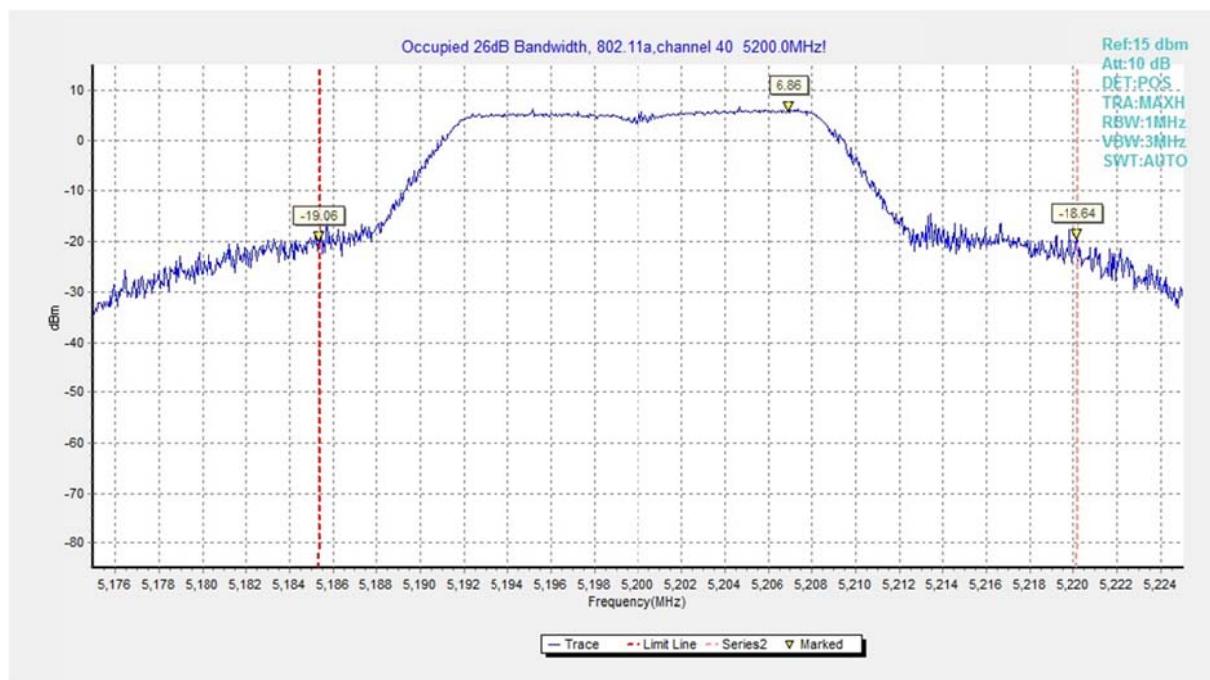
Mode	Channel	Occupied 26dB Bandwidth ( kHz)		conclusion
802.11a	5180 MHz	Fig.1	40800	P
	5200 MHz	Fig.2	34800	P
	5240 MHz	Fig.3	33450	P
	5260 MHz	Fig.4	33600	P
	5280 MHz	Fig.5	32850	P
	5320 MHz	Fig.6	35550	P
	5500 MHz	Fig.7	41200	P
	5580 MHz	Fig.8	39950	P
	5700 MHz	Fig.9	35150	P
802.11n HT20	5180 MHz	Fig.10	28900	P
	5200 MHz	Fig.11	29000	P
	5240 MHz	Fig.12	28650	P
	5260 MHz	Fig.13	26950	P
	5280 MHz	Fig.14	29350	P
	5320 MHz	Fig.15	32800	P
	5500 MHz	Fig.16	32800	P
	5580 MHz	Fig.17	34100	P
	5700 MHz	Fig.18	32200	P
802.11n HT40	5190 MHz	Fig.19	45680	P
	5230 MHz	Fig.20	51120	P
	5270 MHz	Fig.21	49680	P
	5310 MHz	Fig.22	46080	P
	5510 MHz	Fig.23	50480	P
	5550 MHz	Fig.24	73200	P
	5670 MHz	Fig.25	57200	P

**Conclusion: PASS**

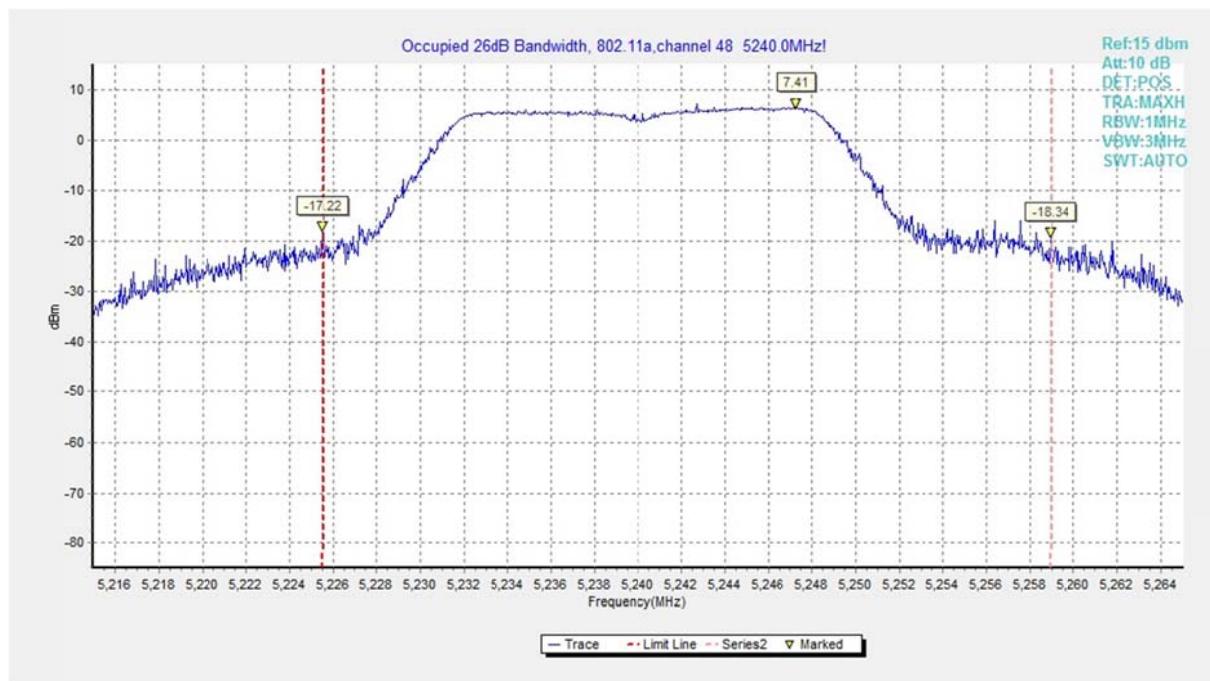
**Test graphs as below:**



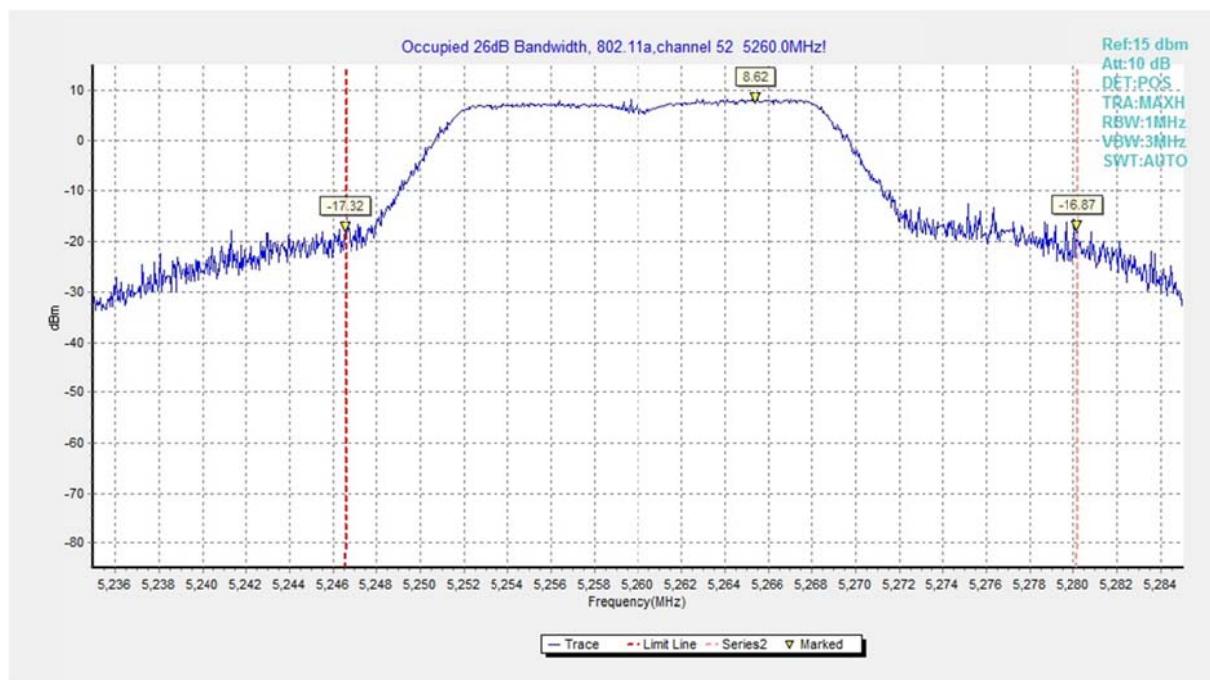
**Fig. 1 Occupied 26dB Bandwidth (802.11a, 5180MHz)**



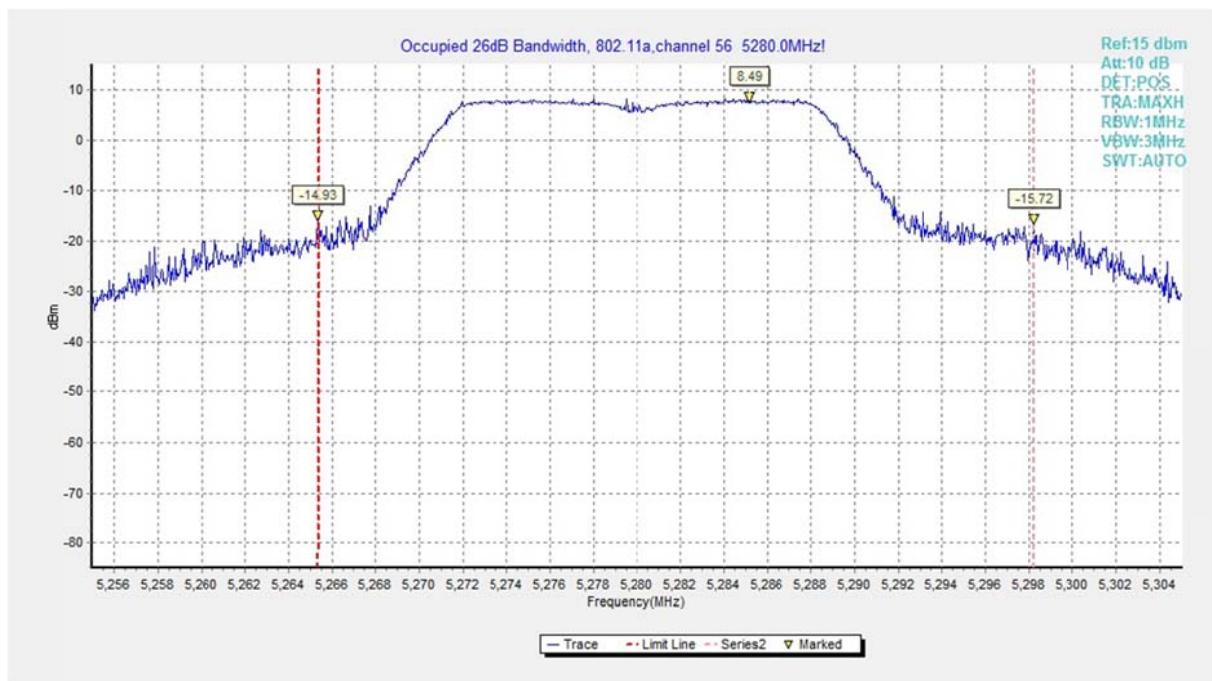
**Fig. 2 Occupied 26dB Bandwidth (802.11a, 5200MHz)**



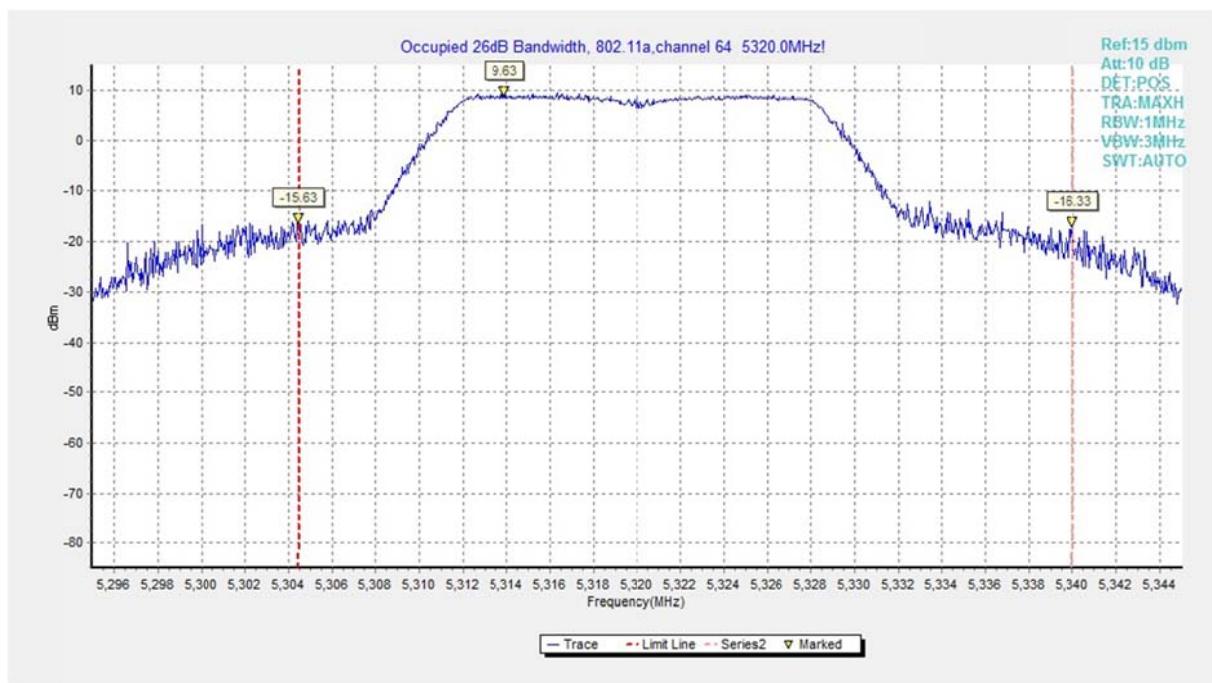
**Fig. 3 Occupied 26dB Bandwidth (802.11a, 5240MHz)**



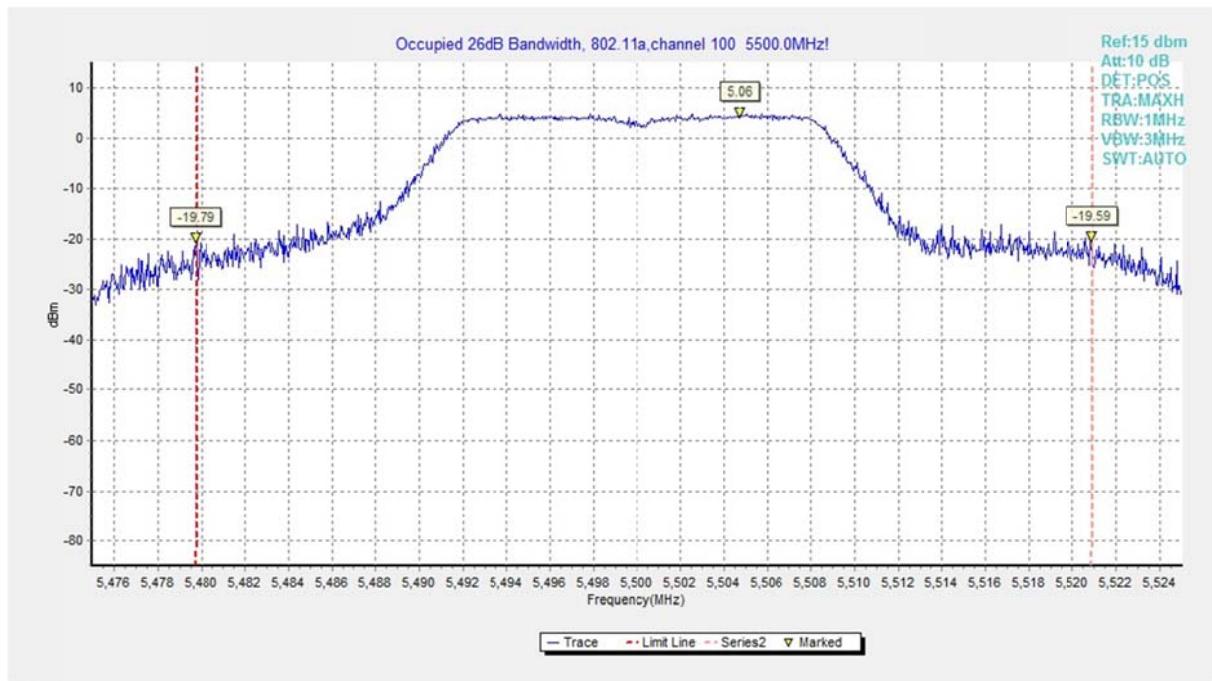
**Fig. 4 Occupied 26dB Bandwidth (802.11a, 5260MHz)**



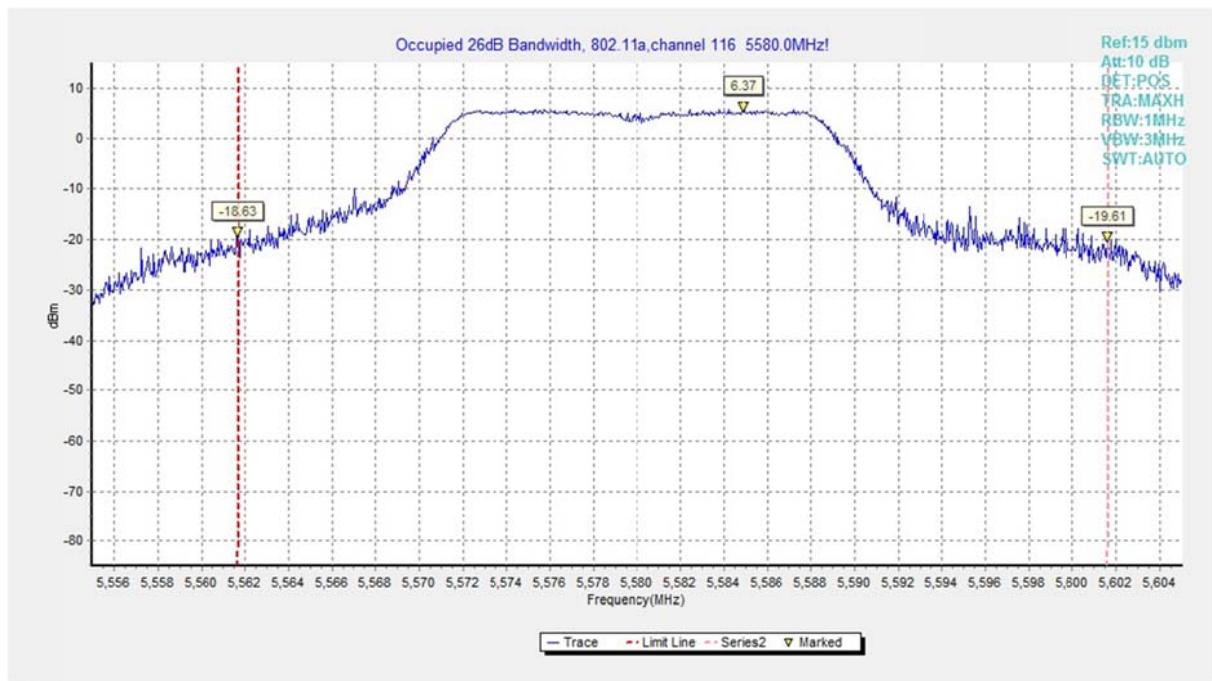
**Fig. 5 Occupied 26dB Bandwidth (802.11a, 5280MHz)**



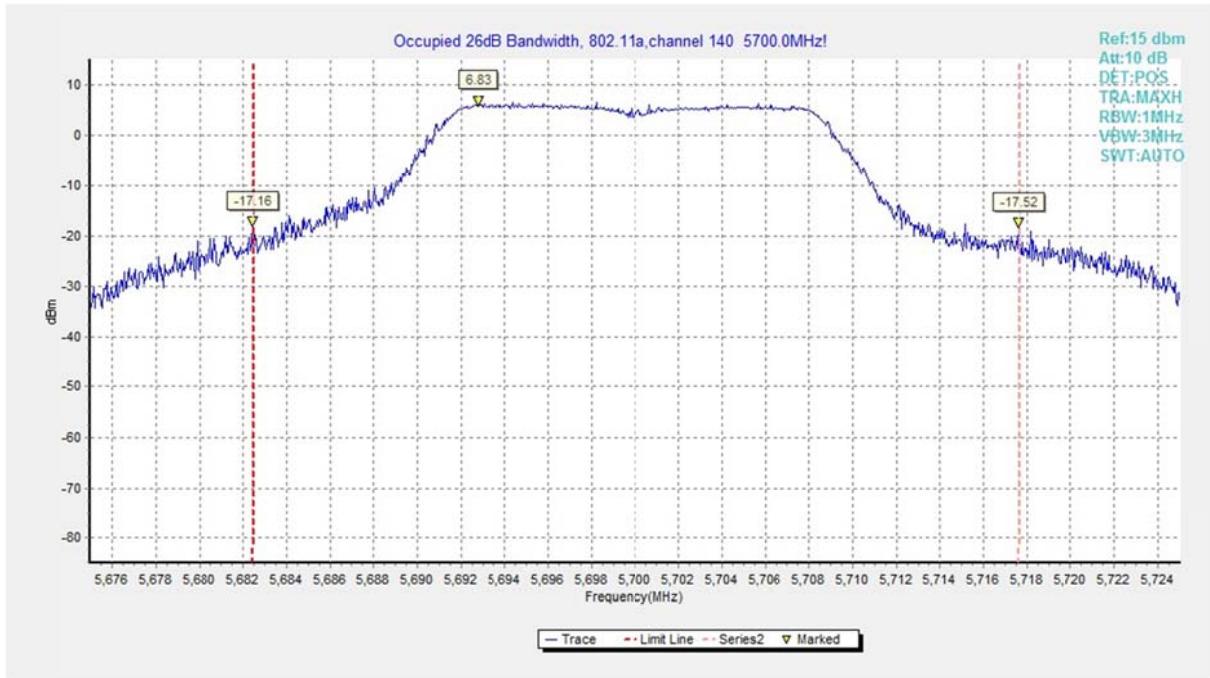
**Fig. 6 Occupied 26dB Bandwidth (802.11a, 5320MHz)**



**Fig. 7 Occupied 26dB Bandwidth (802.11a, 5500MHz)**



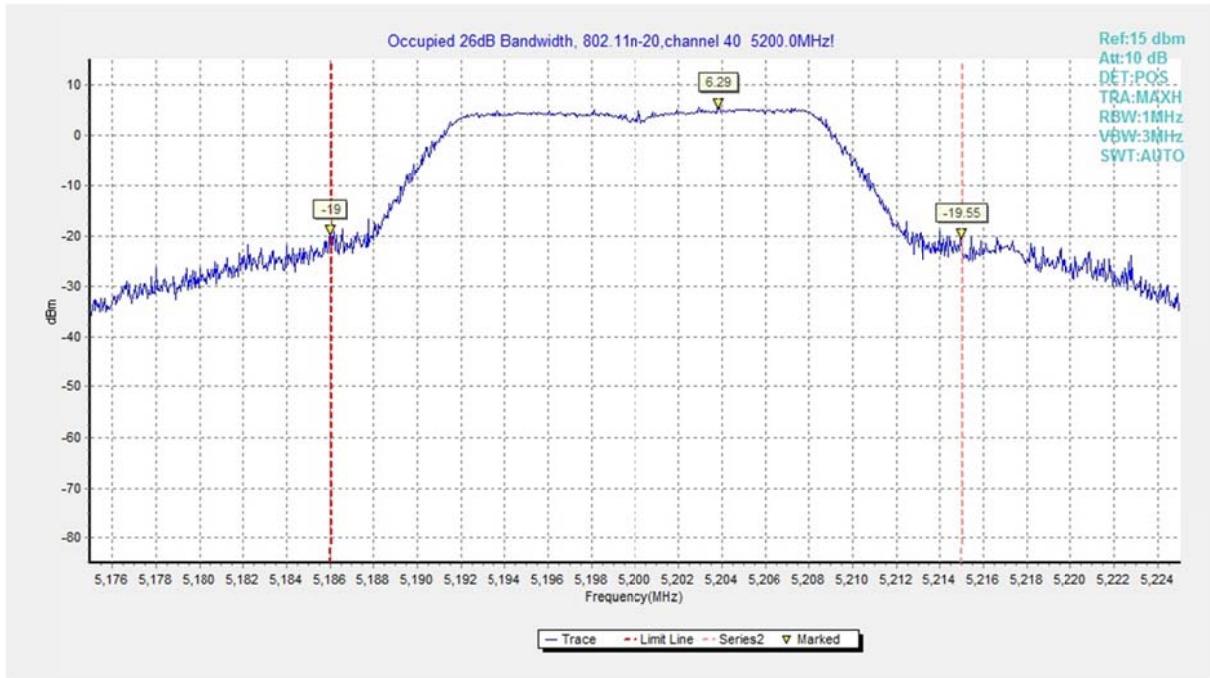
**Fig. 8 Occupied 26dB Bandwidth (802.11a, 5600MHz)**



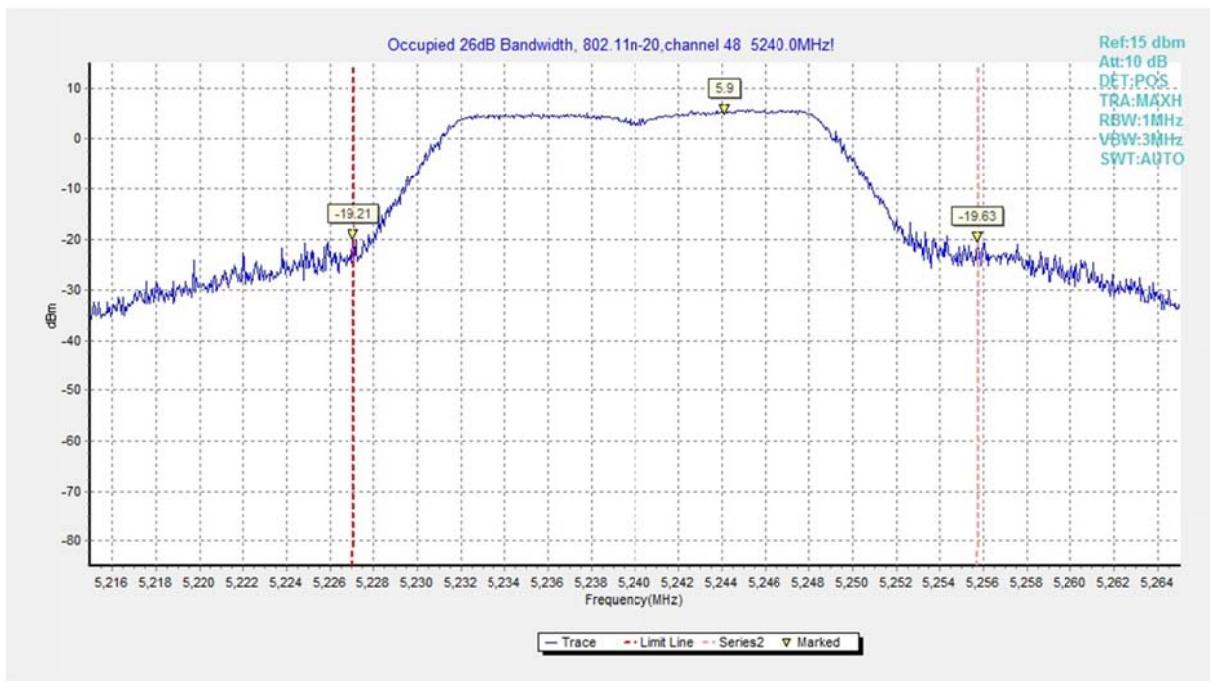
**Fig. 9 Occupied 26dB Bandwidth (802.11a, 5700MHz)**



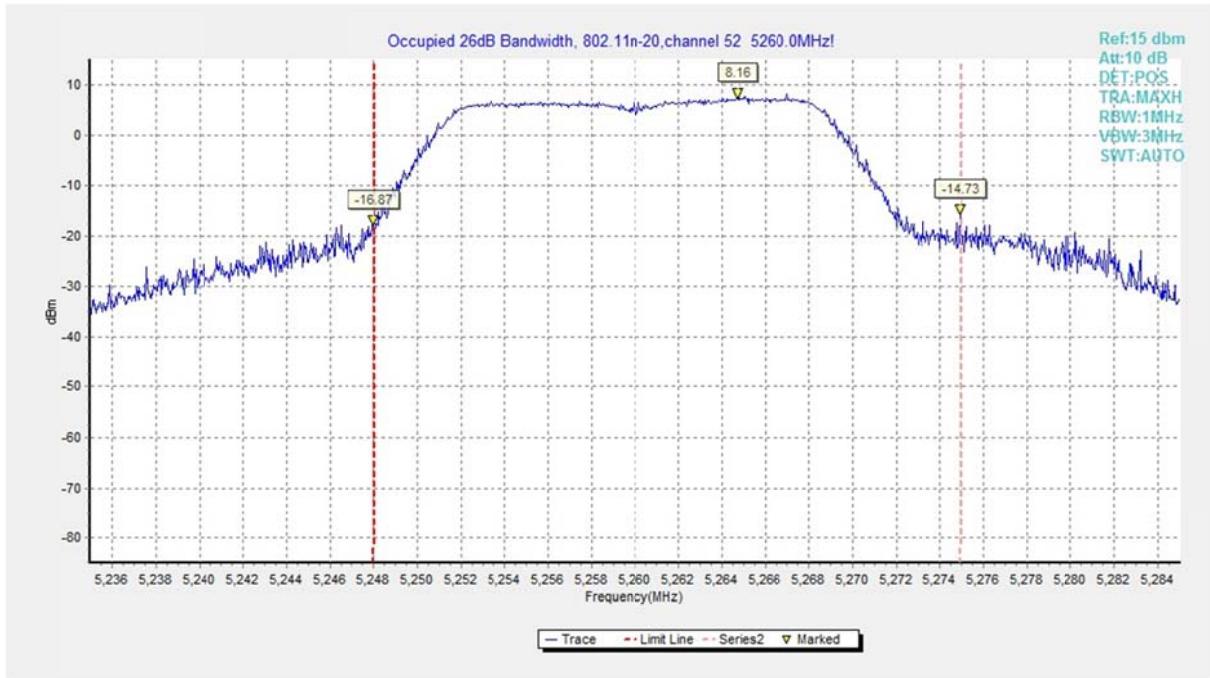
**Fig. 10 Occupied 26dB Bandwidth (802.11n-HT20, 5180MHz)**



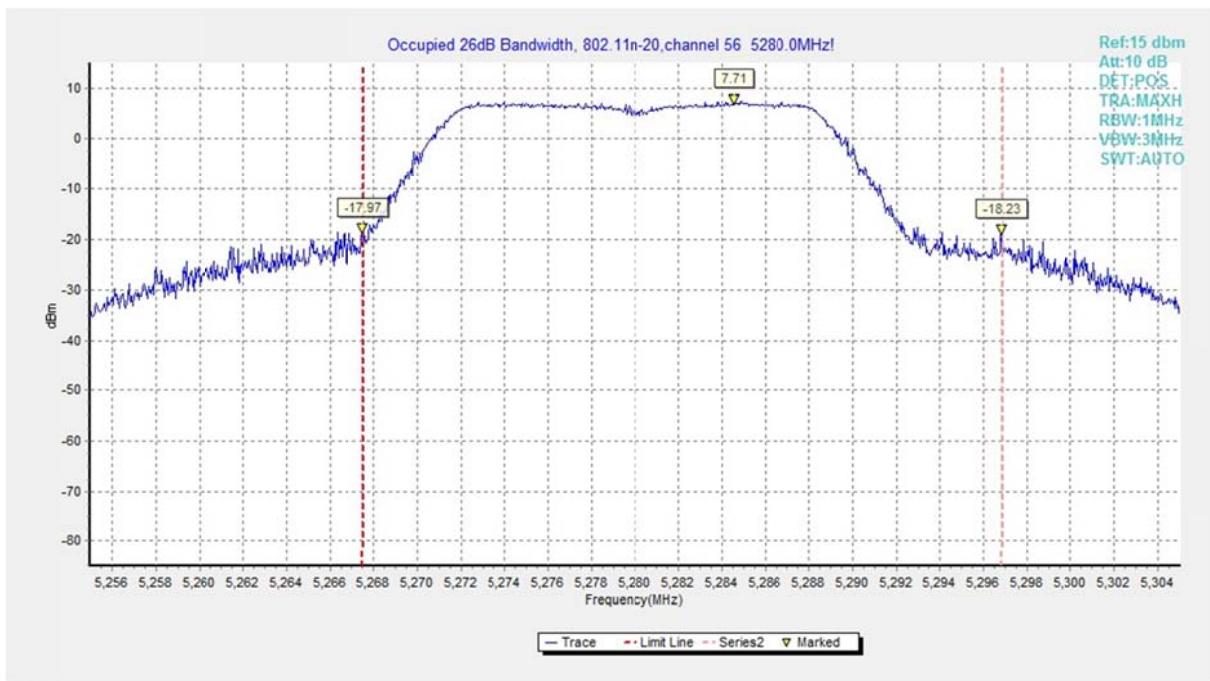
**Fig. 11 Occupied 26dB Bandwidth (802.11n-HT20, 5200MHz)**



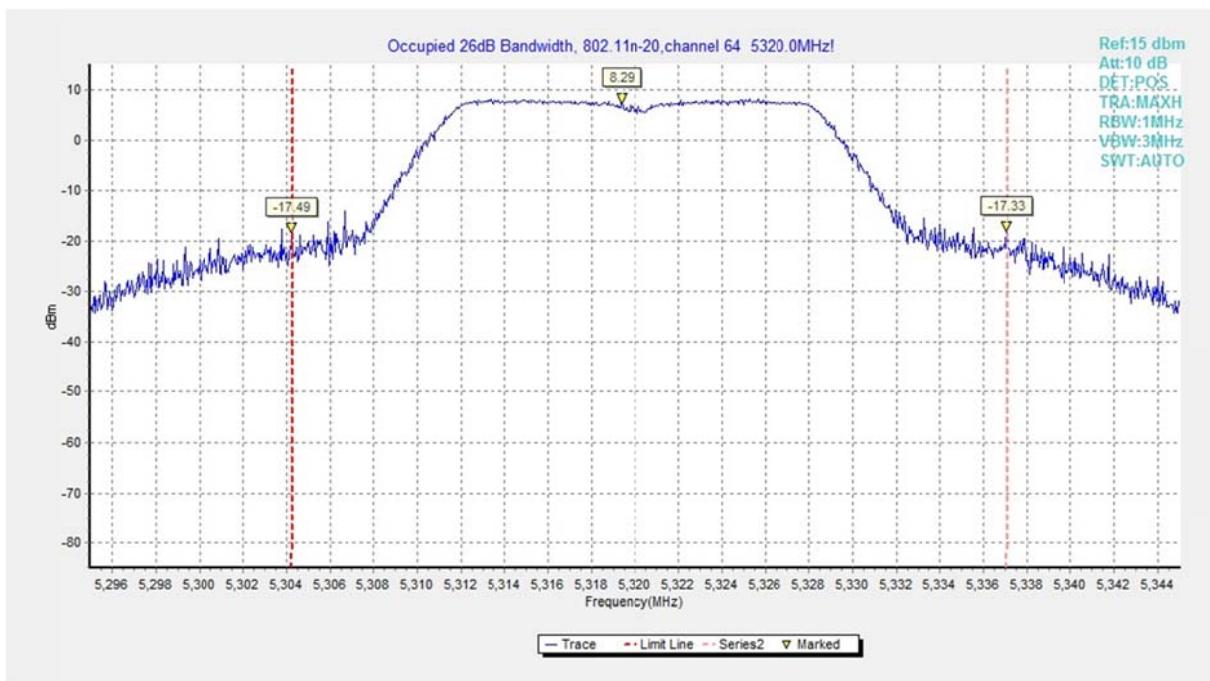
**Fig. 12 Occupied 26dB Bandwidth (802.11n-HT20, 5240MHz)**



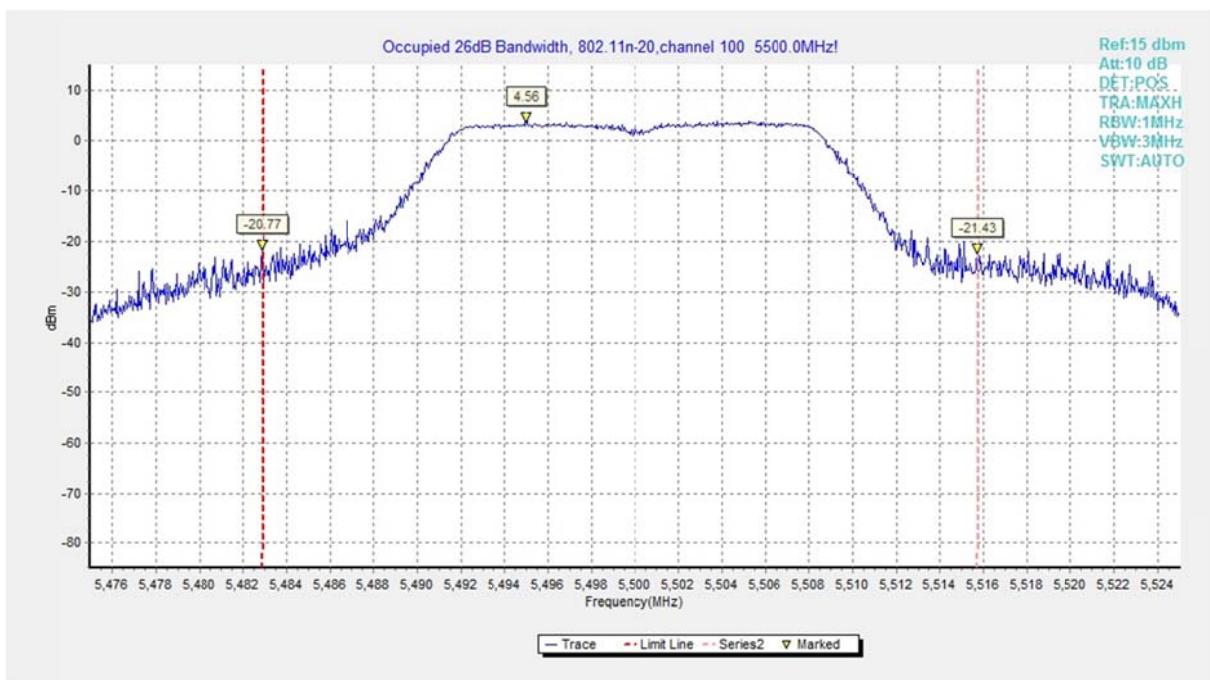
**Fig. 13 Occupied 26dB Bandwidth (802.11n-HT20, 5260MHz)**



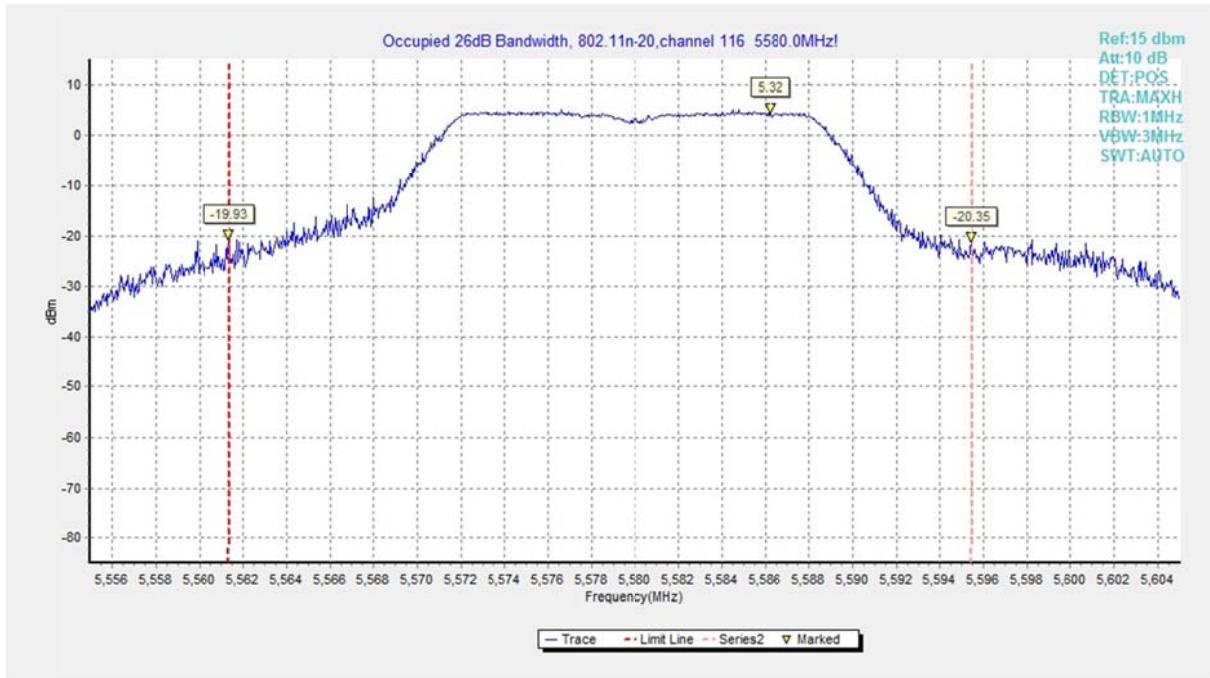
**Fig. 14 Occupied 26dB Bandwidth (802.11n-HT20, 5280MHz)**



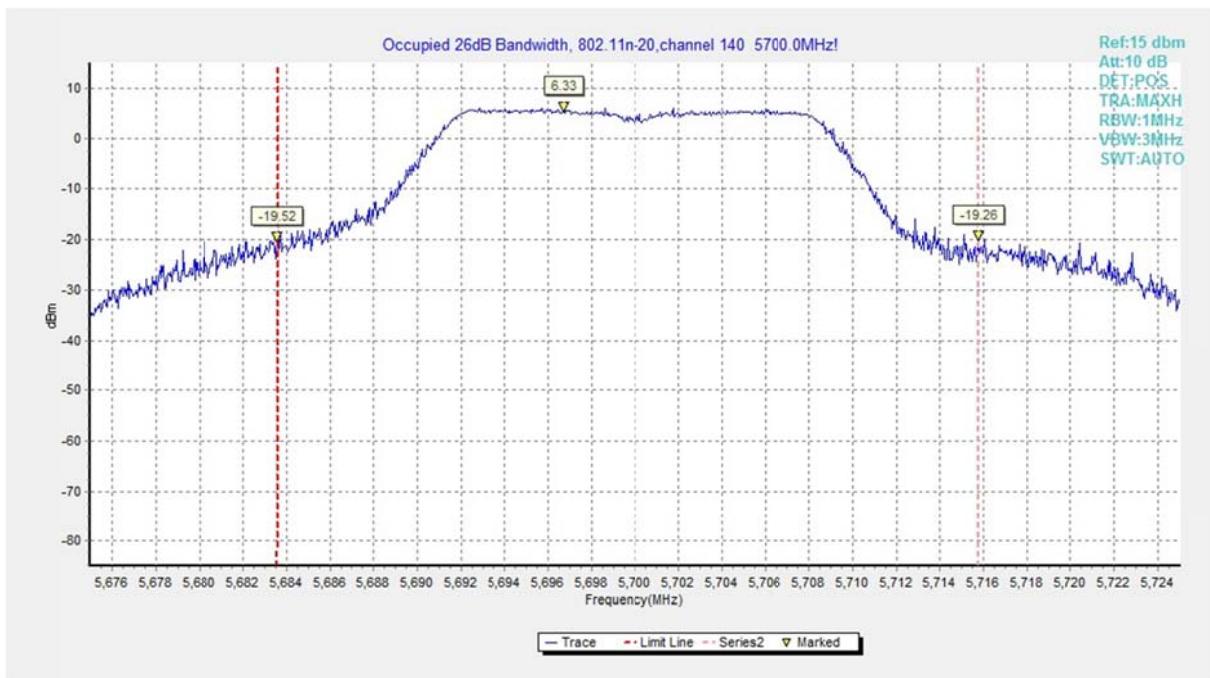
**Fig. 15 Occupied 26dB Bandwidth (802.11n-HT20, 5320MHz)**



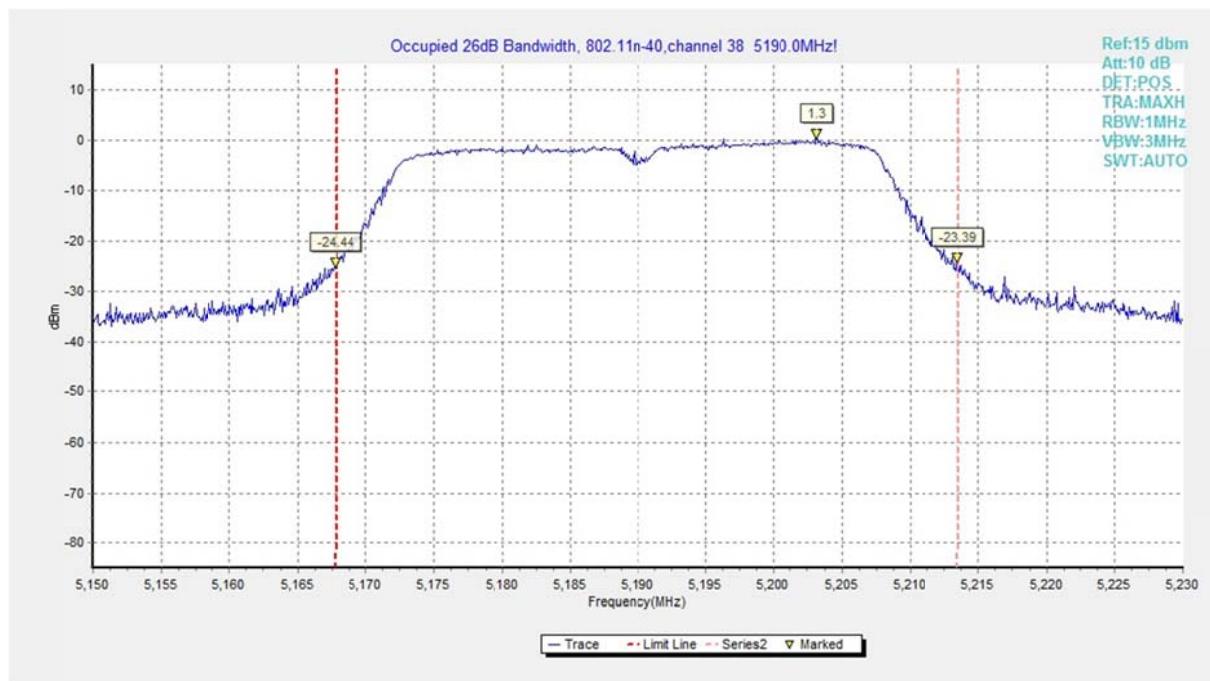
**Fig. 16 Occupied 26dB Bandwidth (802.11n-HT20, 5500MHz)**



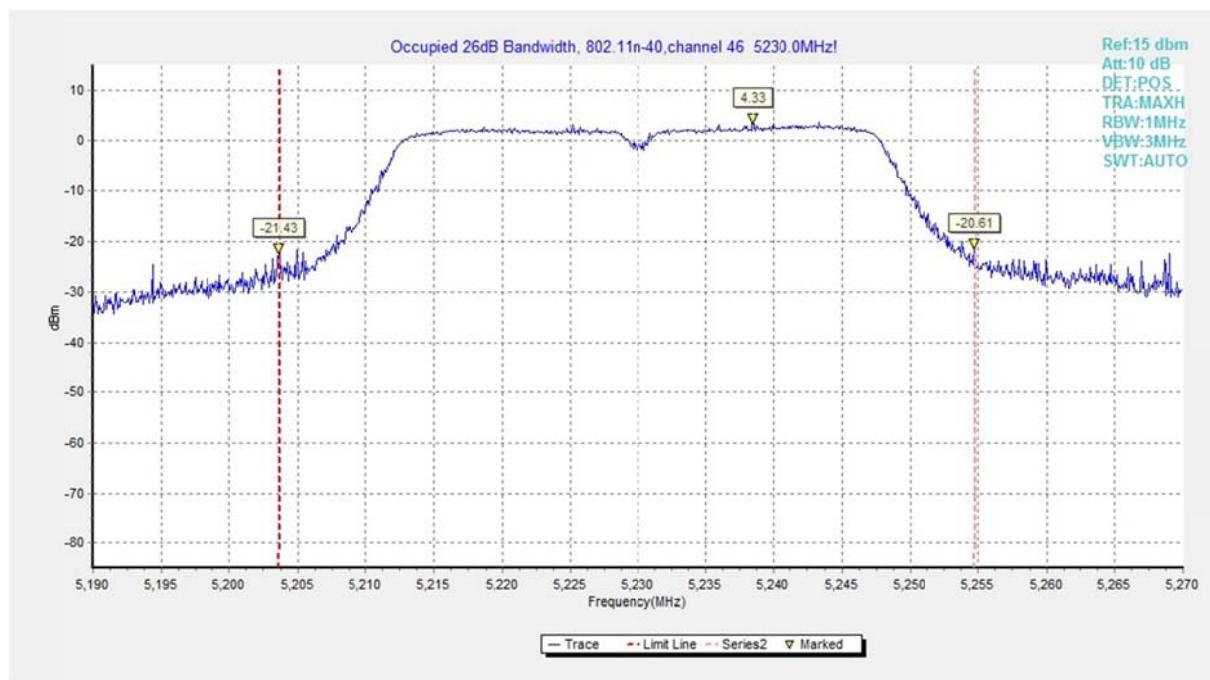
**Fig. 17 Occupied 26dB Bandwidth (802.11n-HT20, 5600MHz)**



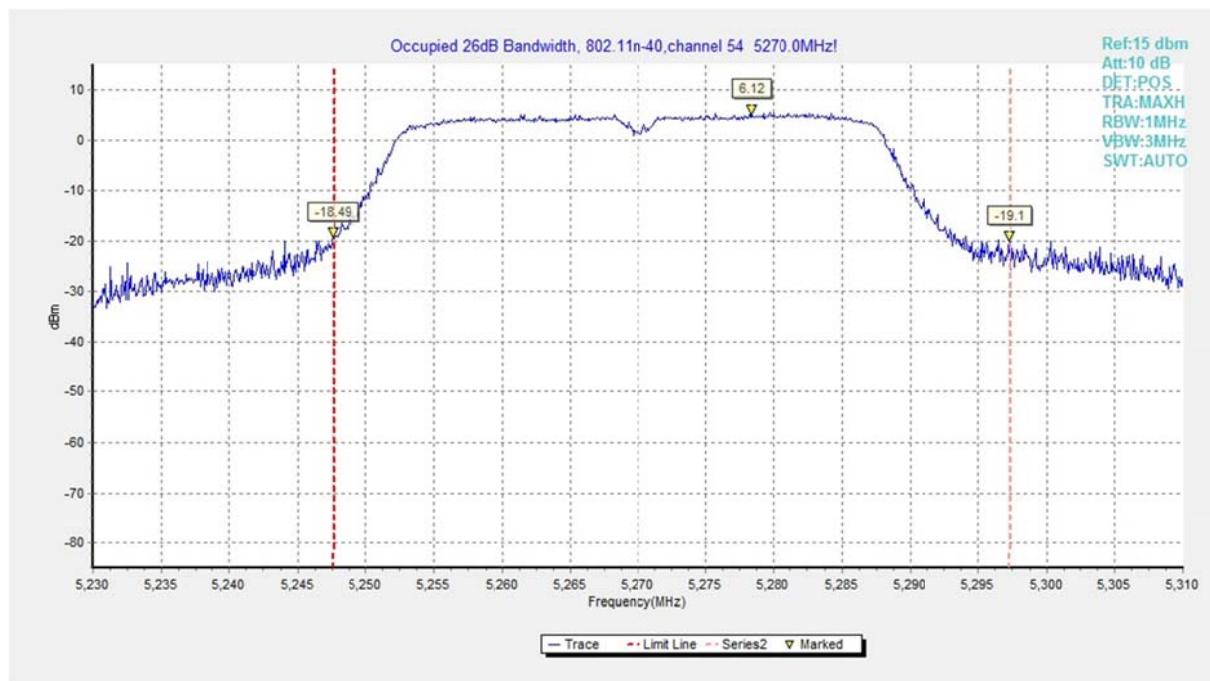
**Fig. 18 Occupied 26dB Bandwidth (802.11n-HT20, 5700MHz)**



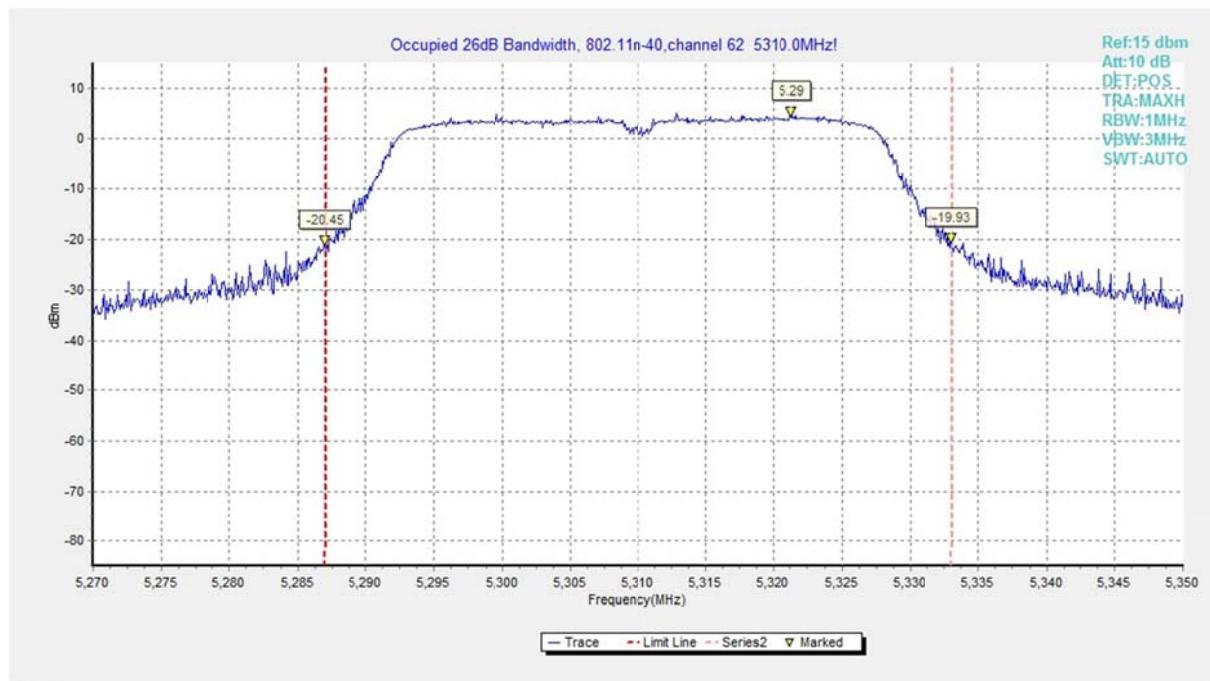
**Fig. 19 Occupied 26dB Bandwidth (802.11n-HT40, 5190MHz)**



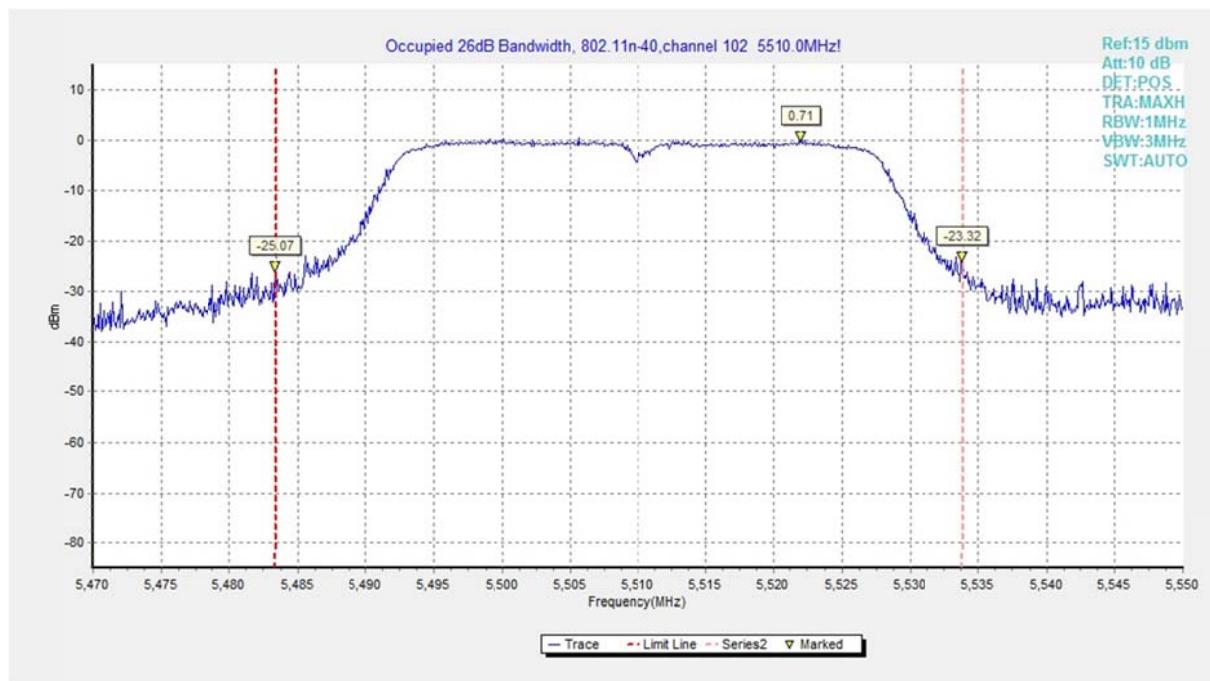
**Fig. 20 Occupied 26dB Bandwidth (802.11n-HT40, 5230MHz)**



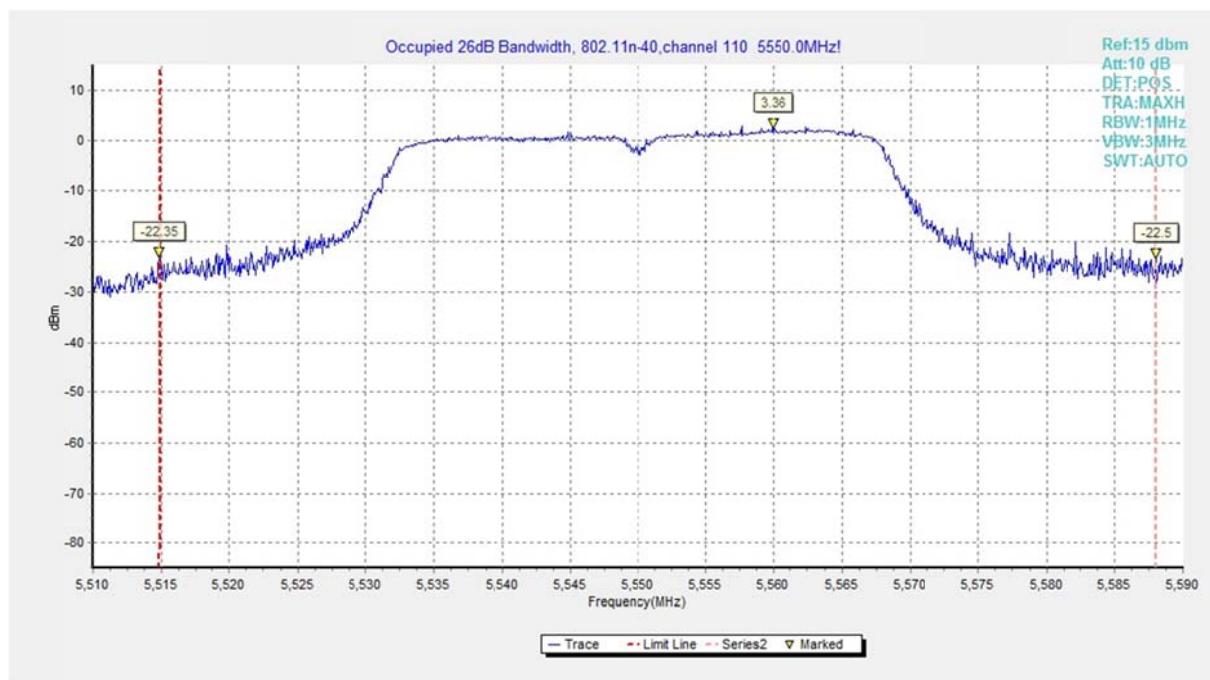
**Fig. 21 Occupied 26dB Bandwidth (802.11n-HT40, 5270MHz)**



**Fig. 22 Occupied 26dB Bandwidth (802.11n-HT40, 5310MHz)**



**Fig. 23 Occupied 26dB Bandwidth (802. 11n-HT40, 5510MHz)**



**Fig. 24 Occupied 26dB Bandwidth (802. 11n-HT40, 5590MHz)**

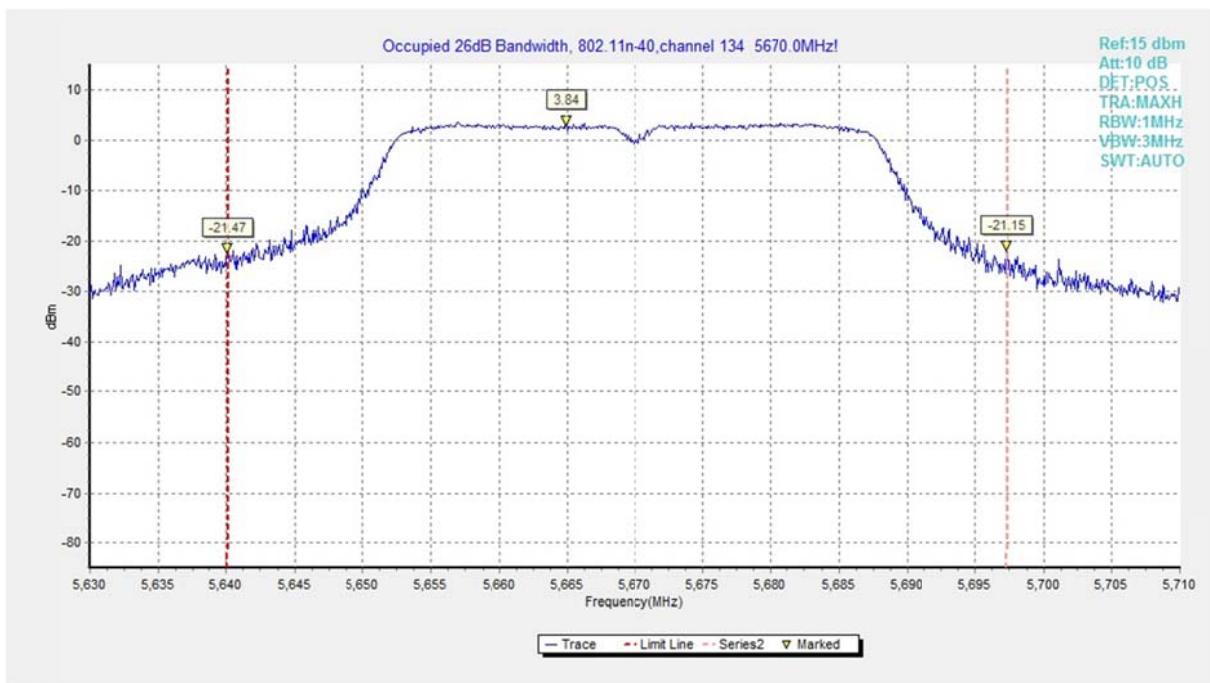


Fig. 25 Occupied 26dB Bandwidth (802.11n-HT40, 5670MHz)

## 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 Uncertainty:

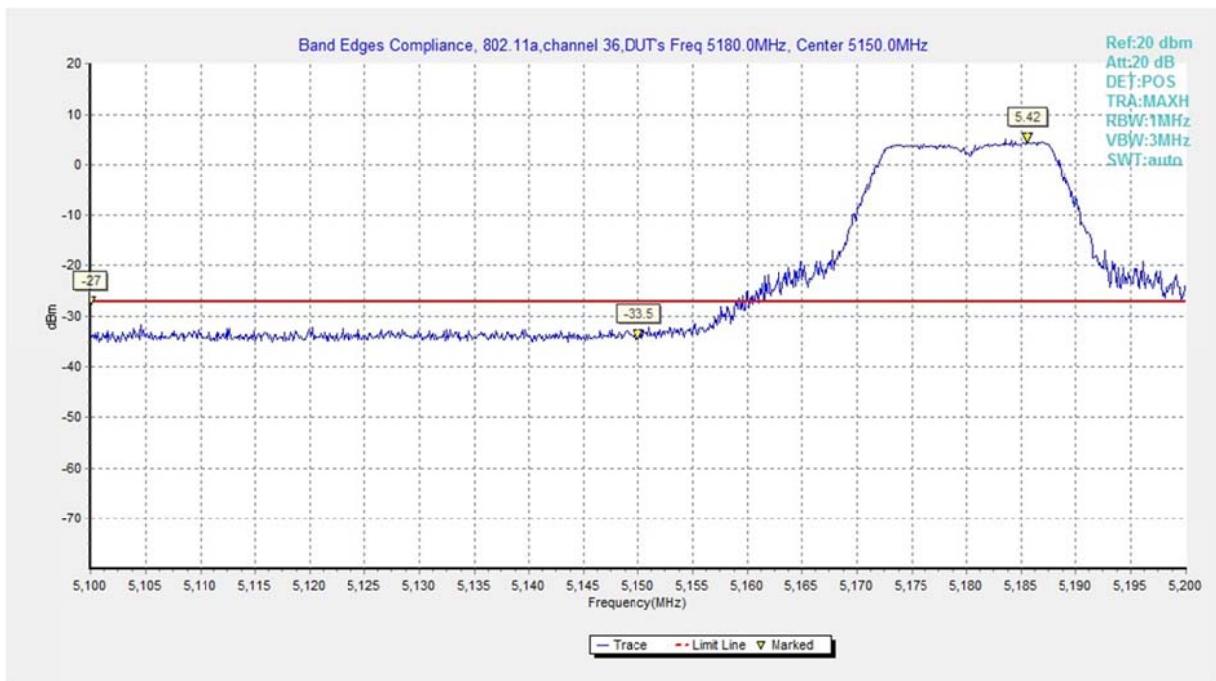
Measurement Uncertainty	0.75dB
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#### Measurement Result:

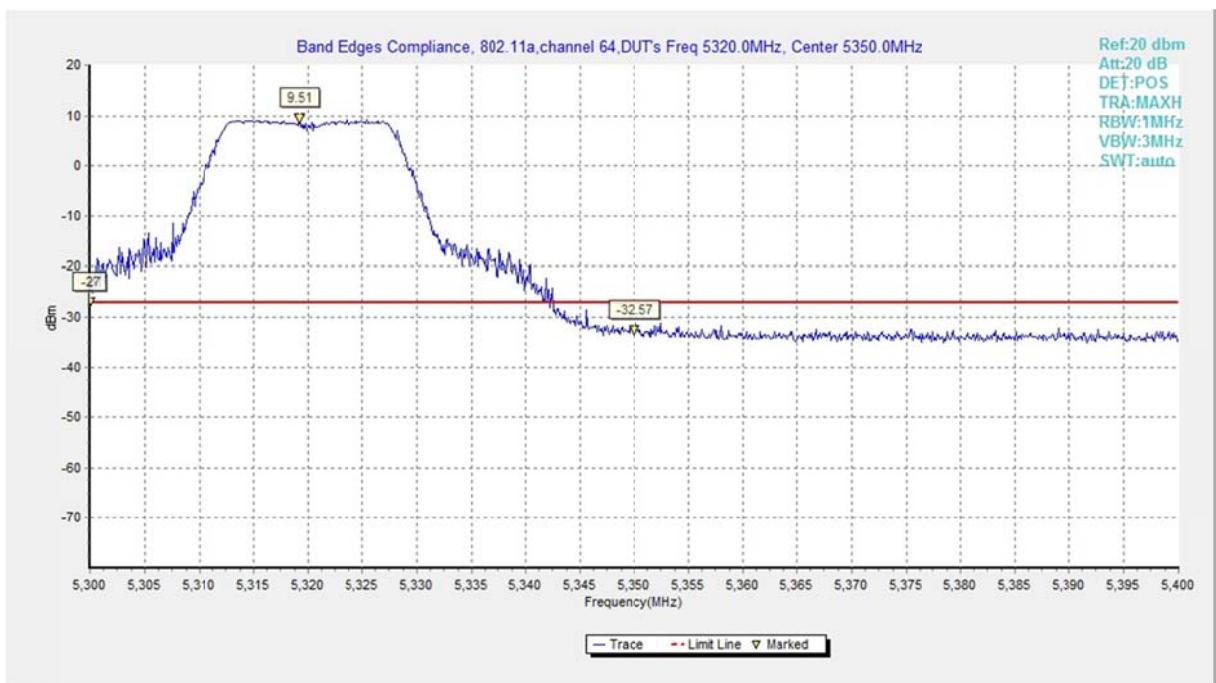
Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.26	P
	5320 MHz	Fig.27	P
	5500 MHz	Fig.28	P
	5700 MHz	Fig.29	P
802.11n HT20	5180 MHz	Fig.30	P
	5320 MHz	Fig.31	P
	5500 MHz	Fig.32	P
	5700 MHz	Fig.33	P
802.11n HT40	5190 MHz	Fig.34	P
	5310 MHz	Fig.35	P
	5510 MHz	Fig.36	P
	5670 MHz	Fig.37	P

**Conclusion: PASS**

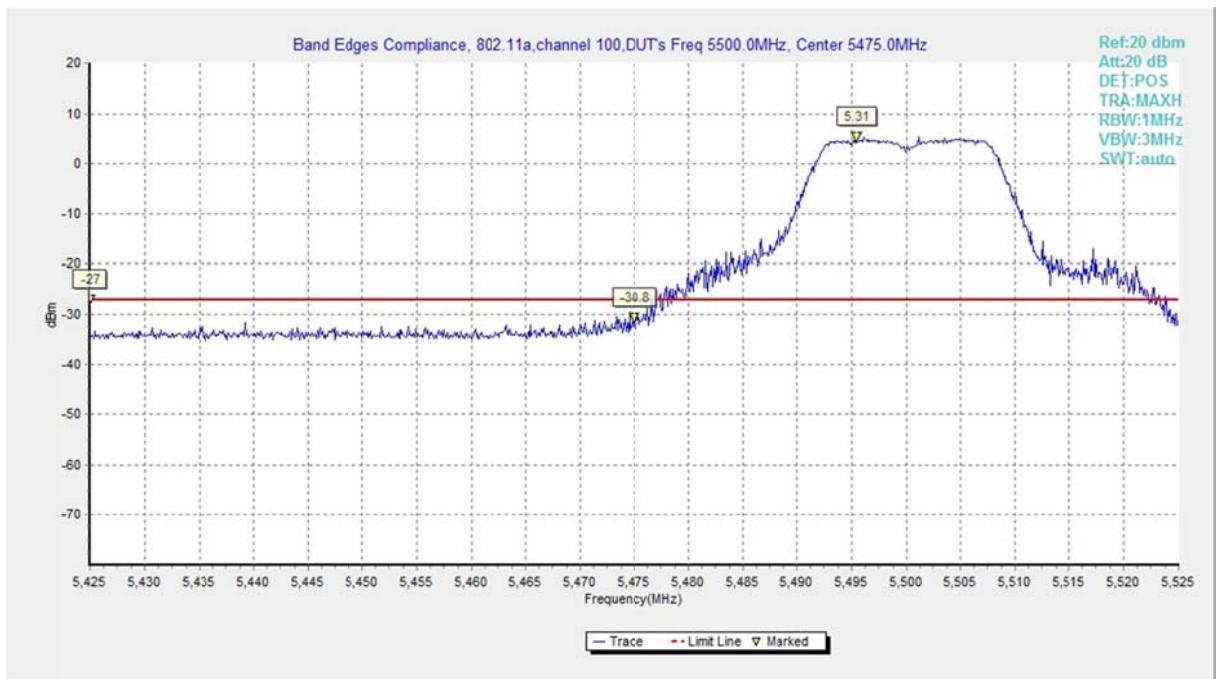
**Test graphs as below:**



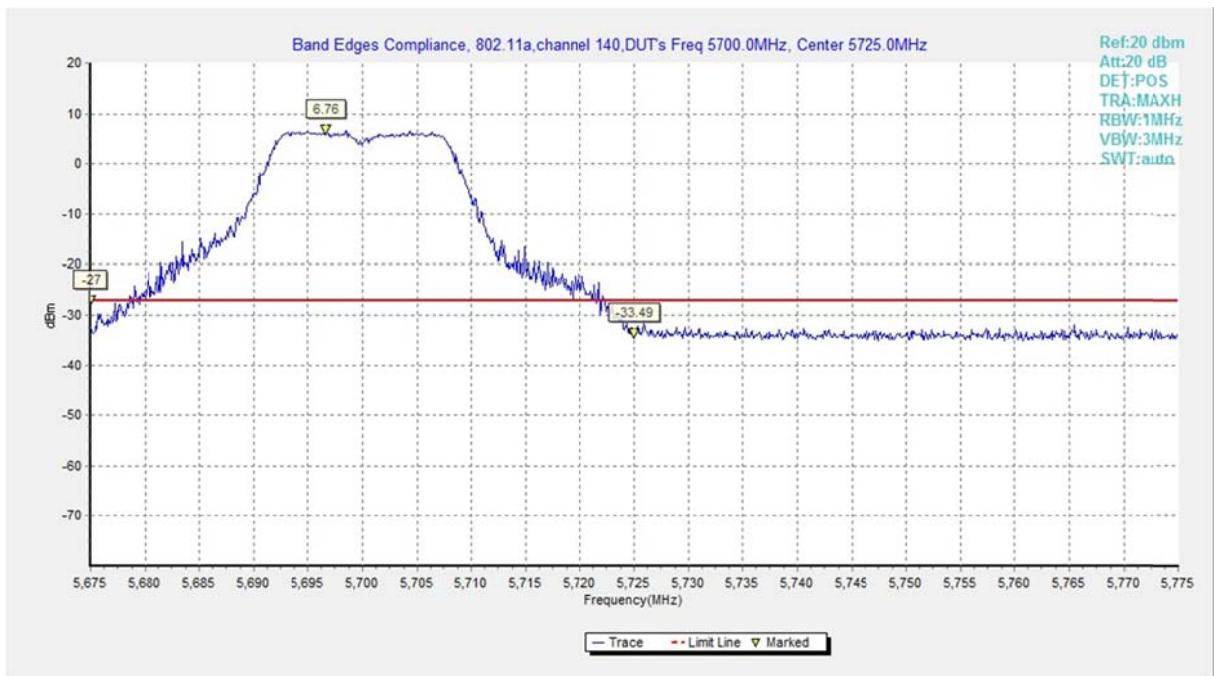
**Fig. 26 Band Edges (802.11a, 5180MHz)**



**Fig. 27 Band Edges (802.11a, 5320MHz)**



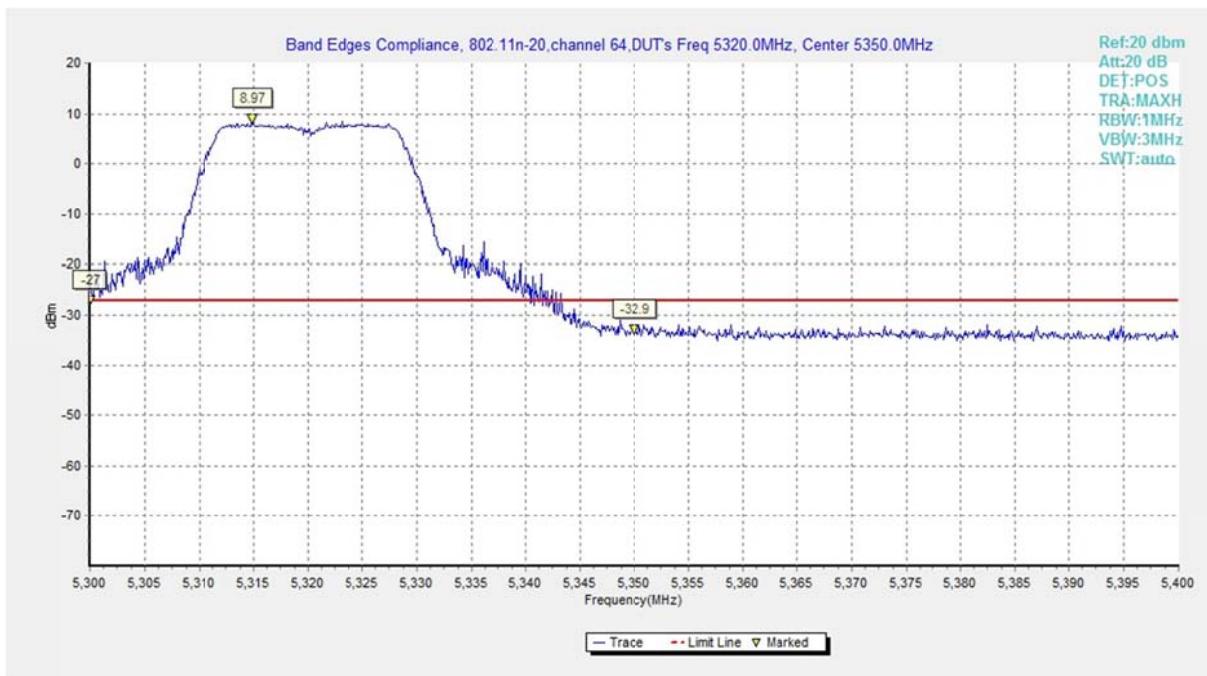
**Fig. 28 Band Edges (802.11a, 5500MHz)**



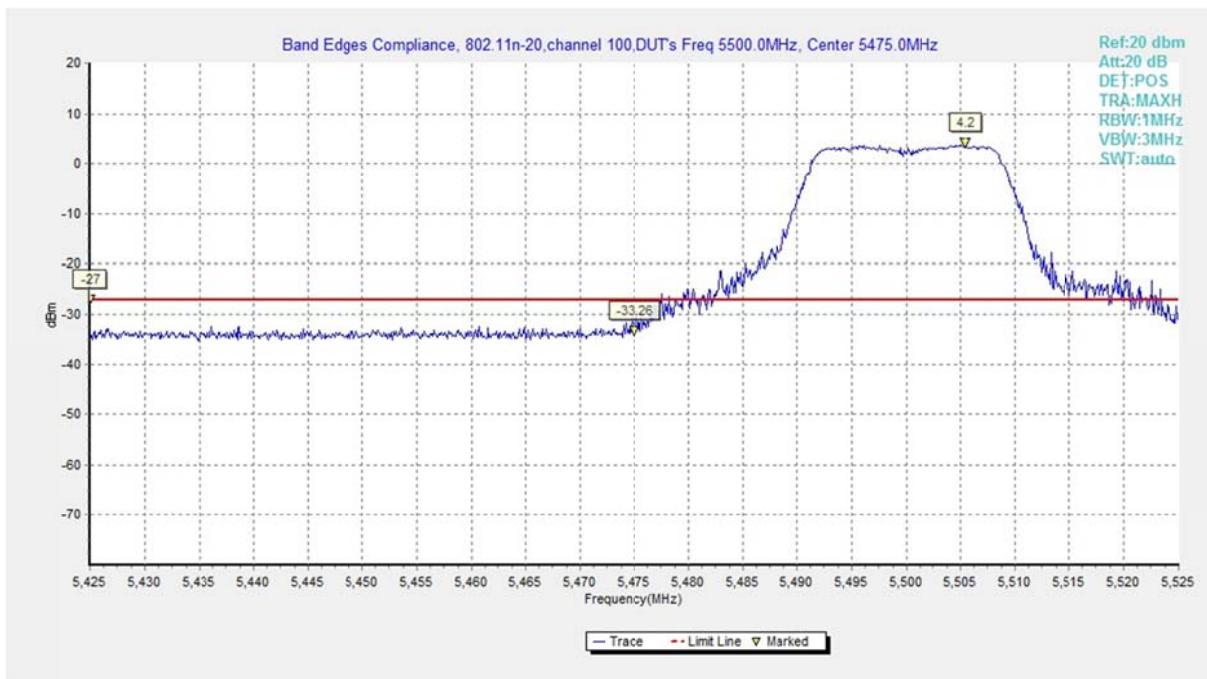
**Fig. 29 Band Edges (802.11a, 5700MHz)**



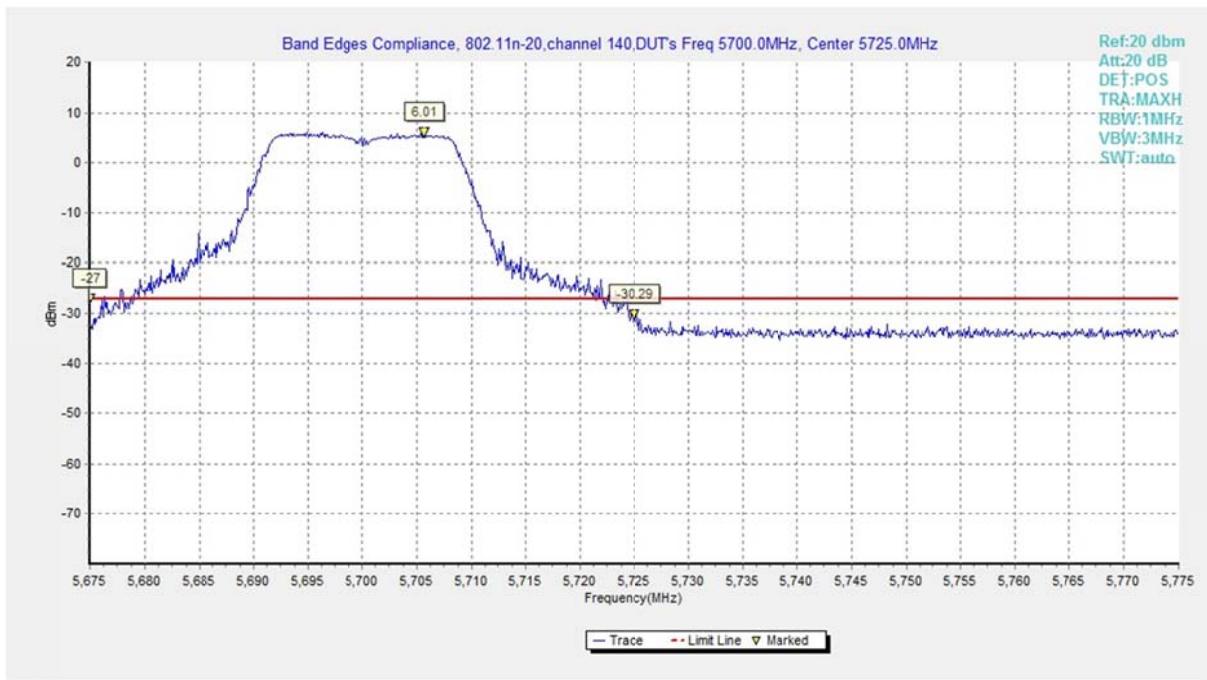
**Fig. 30 Band Edges (802.11n-HT20, 5180MHz)**



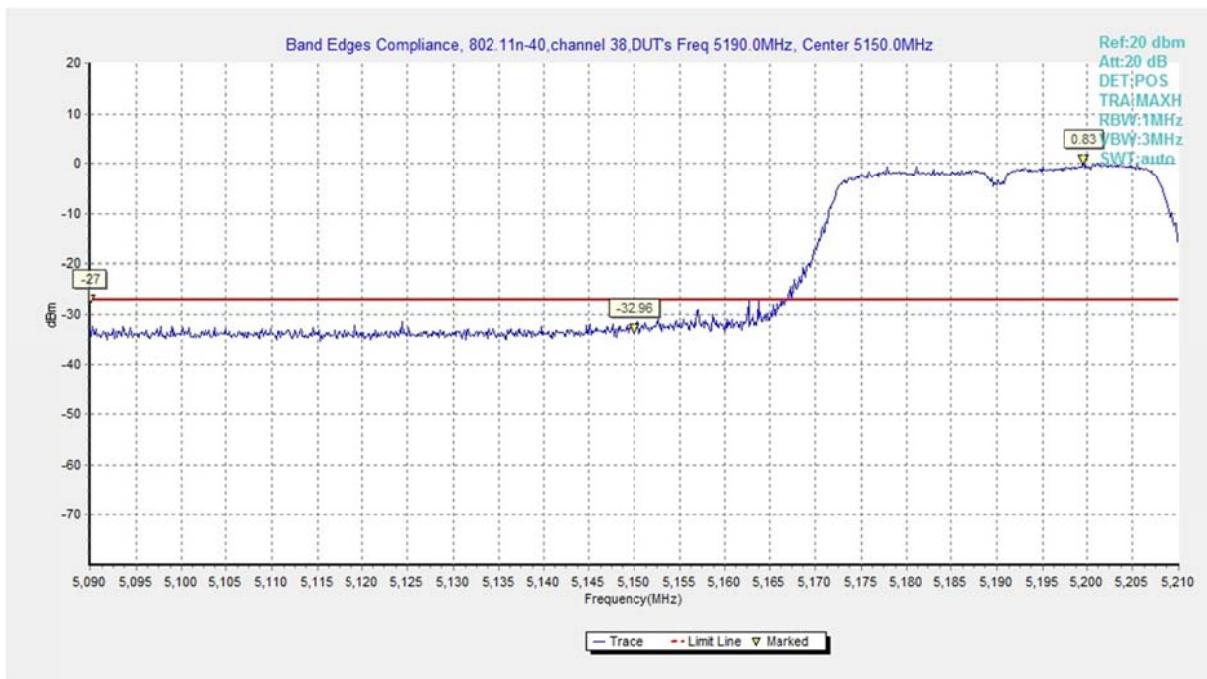
**Fig. 31 Band Edges (802.11n-HT20, 5320MHz)**



**Fig. 32 Band Edges (802.11n-HT20, 5500MHz)**



**Fig. 33 Band Edges (802.11n-HT20, 5700MHz)**



**Fig. 34 Band Edges (802.11n-HT40, 5190MHz)**



**Fig. 35 Band Edges (802.11n-HT40, 5310MHz)**



**Fig. 36 Band Edges (802.11n-HT40, 5510MHz)**



**Fig. 37 Band Edges (802.11n-HT40, 5670MHz)**

**A5.2 Band Edges - Radiated****Measurement Limit:**

Standard	Limit (dB $\mu$ V/m)	
FCC 47 CFR Part 15.209	Peak	74
	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)).

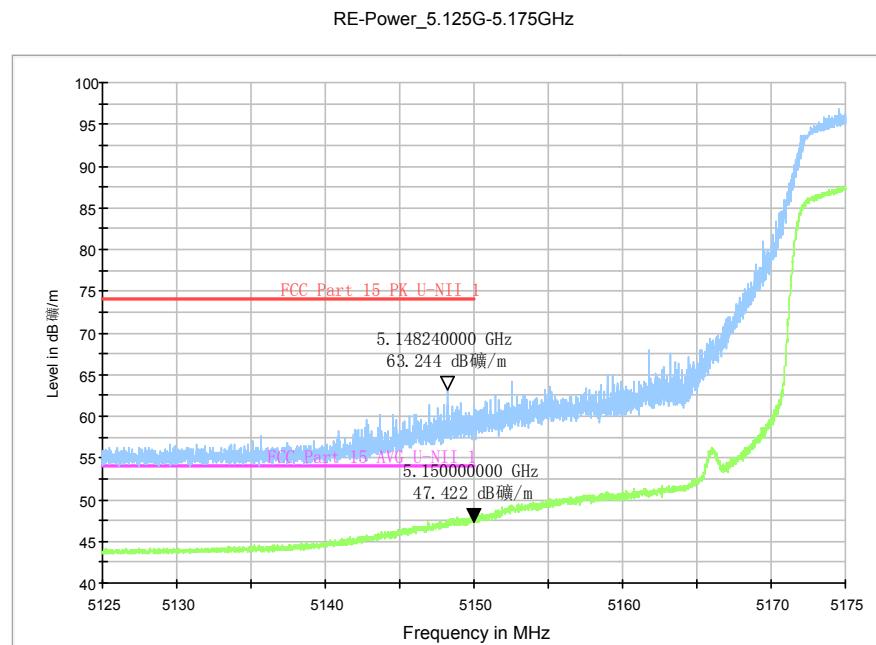
**Measurement Uncertainty:**

Measurement Uncertainty	0.75dB
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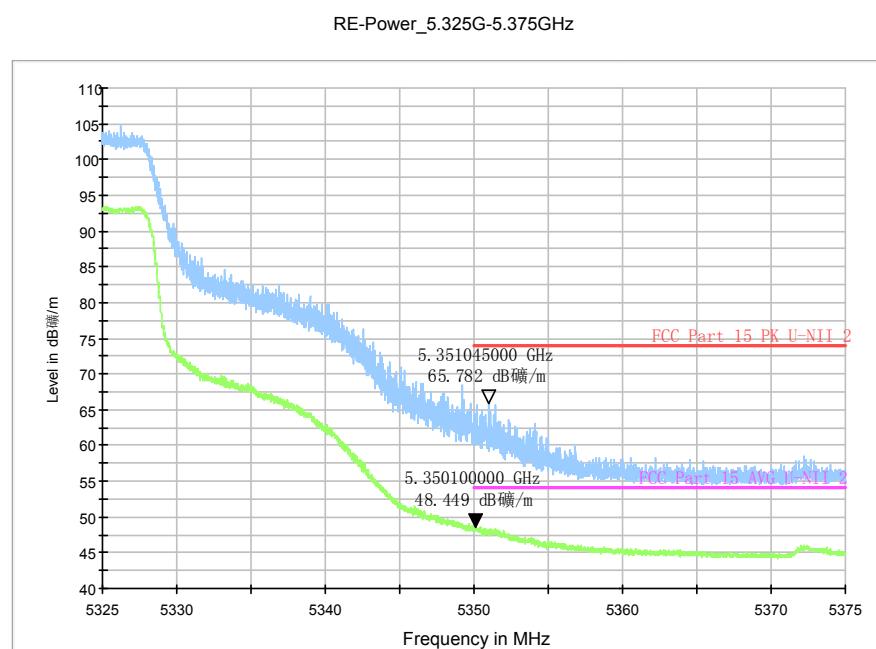
**Measurement Result:**

Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.38	P
	5320 MHz	Fig.39	P
	5500 MHz	Fig.40	P
	5700 MHz	Fig.41	P
802.11n HT20	5180 MHz	Fig.42	P
	5320 MHz	Fig.43	P
	5500 MHz	Fig.44	P
	5700 MHz	Fig.45	P
802.11n HT40	5190 MHz	Fig.46	P
	5310 MHz	Fig.47	P
	5510 MHz	Fig.48	P
	5670 MHz	Fig.49	P

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

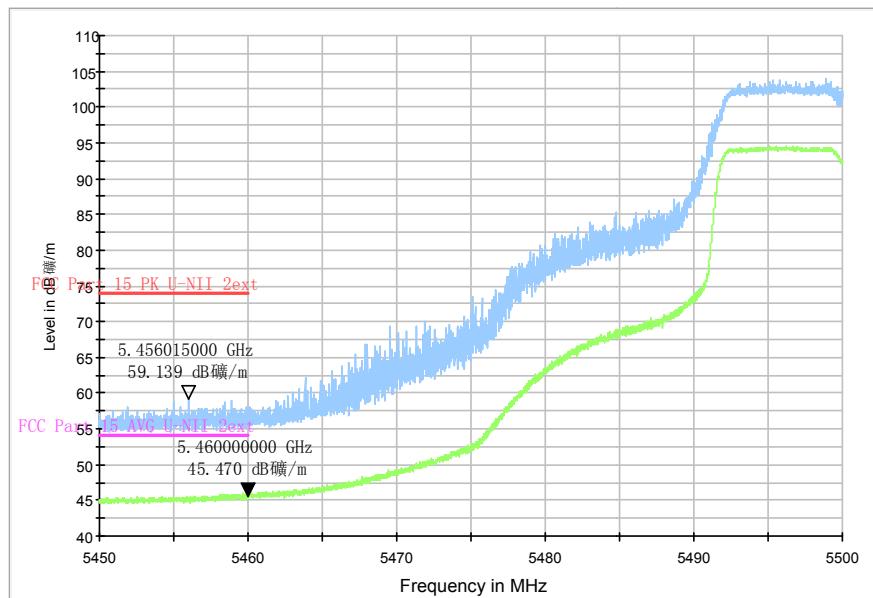


**Fig. 38 Band Edges (802.11a, 5180MHz)**



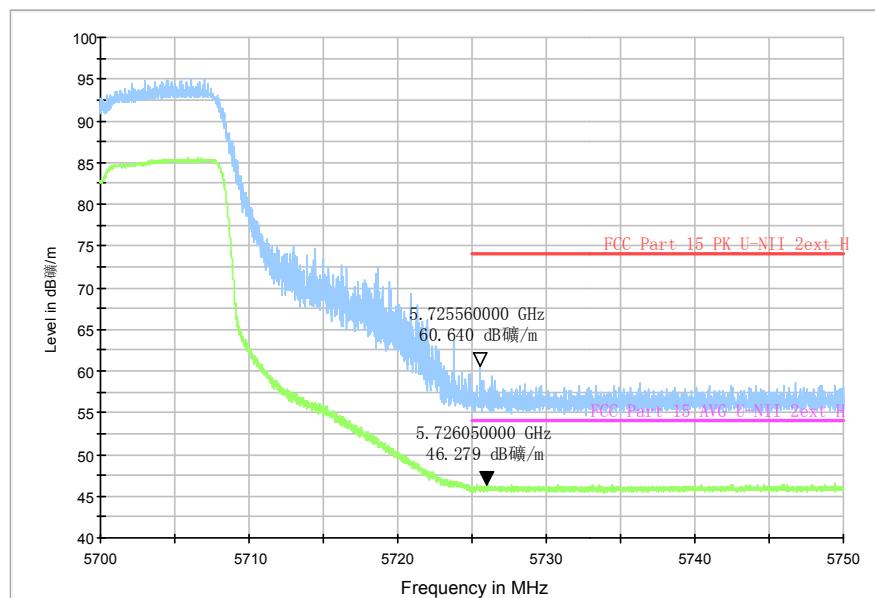
**Fig. 39 Band Edges (802.11a, 5320MHz)**

RE-Power\_5.45G-5.5GHz

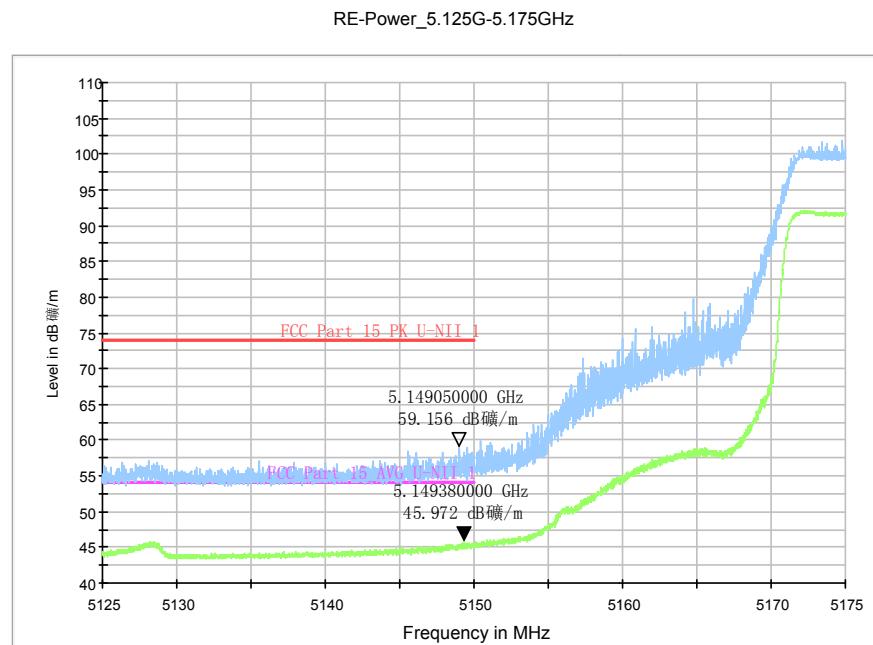


**Fig. 40 Band Edges (802.11a, 5500MHz)**

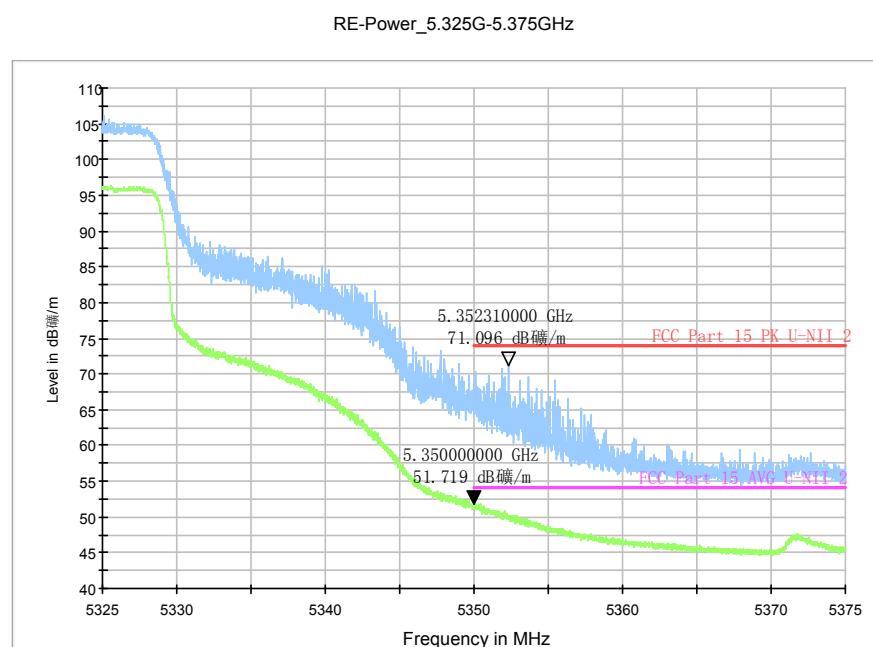
RE-Power\_5.7G-5.750GHz



**Fig. 41 Band Edges (802.11a, 5700MHz)**

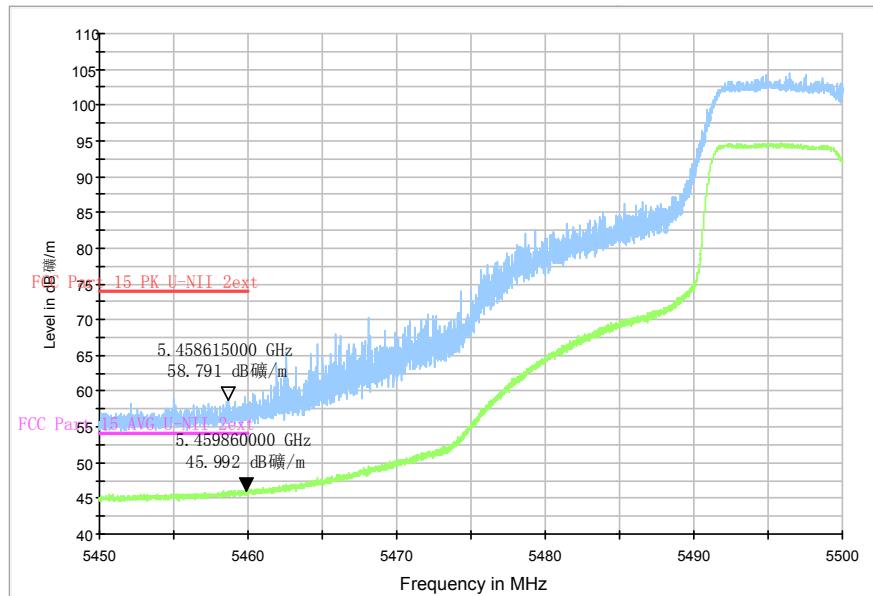


**Fig. 42 Band Edges (802.11n-HT20, 5180MHz)**



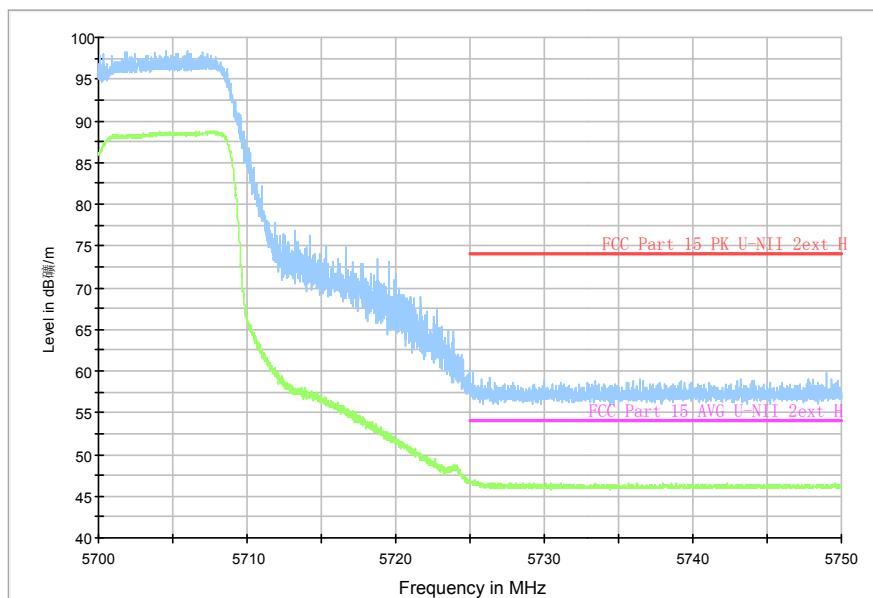
**Fig. 43 Band Edges (802.11n-HT20, 5320MHz)**

RE-Power\_5.45G-5.5GHz

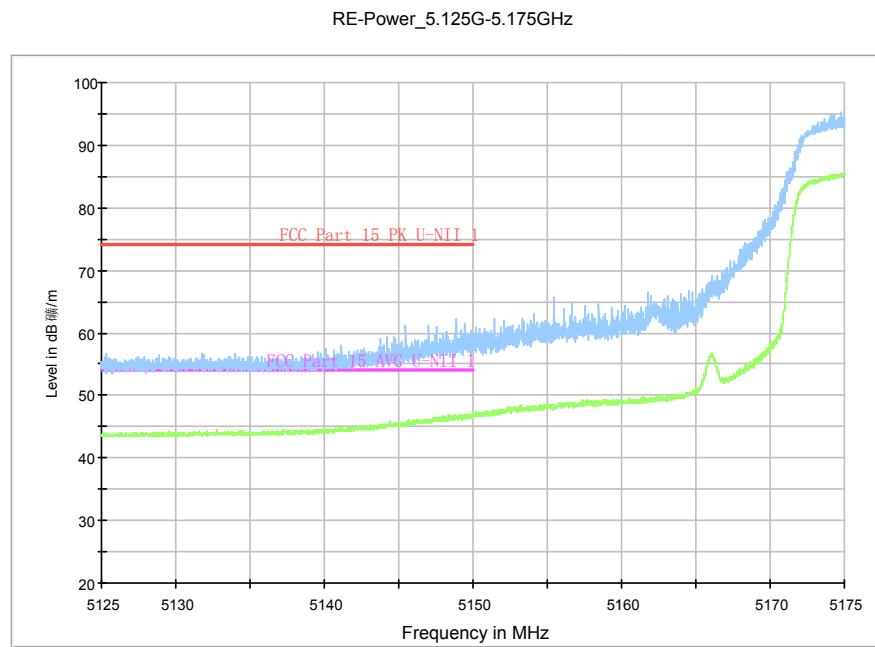


**Fig. 44 Band Edges (802.11n-HT20, 5500MHz)**

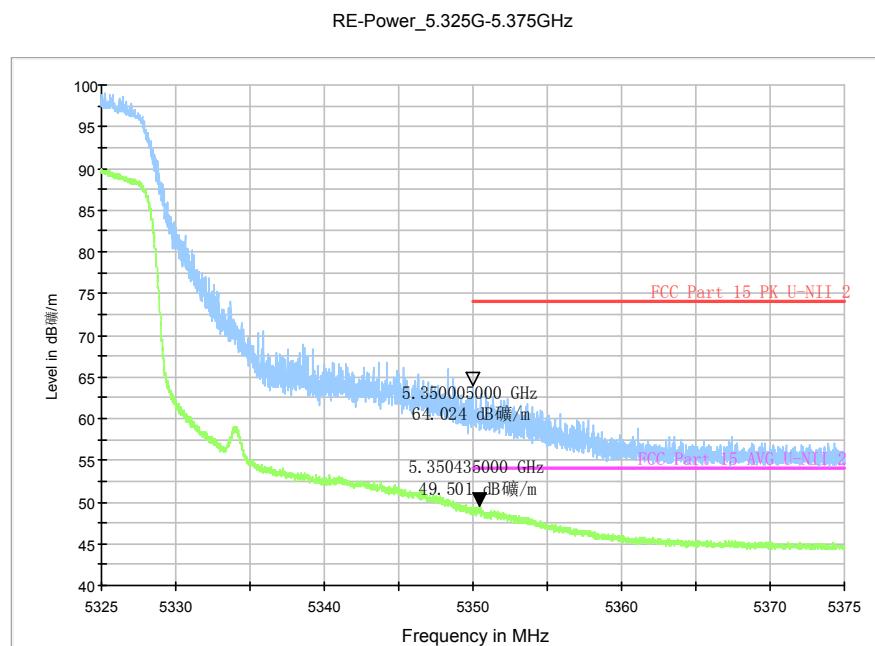
RE-Power\_5.7G-5.750GHz



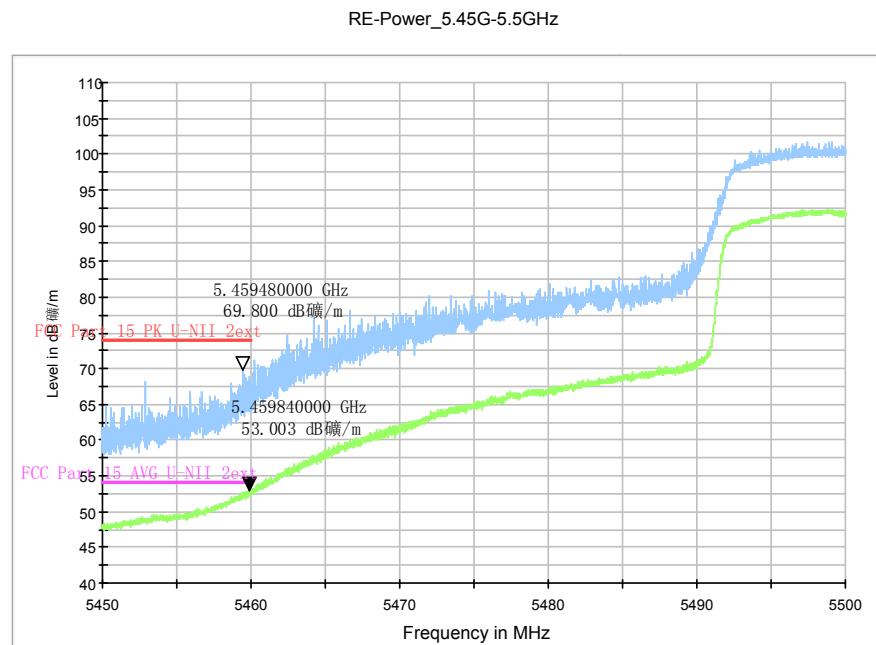
**Fig. 45 Band Edges (802.11n-HT20, 5700MHz)**



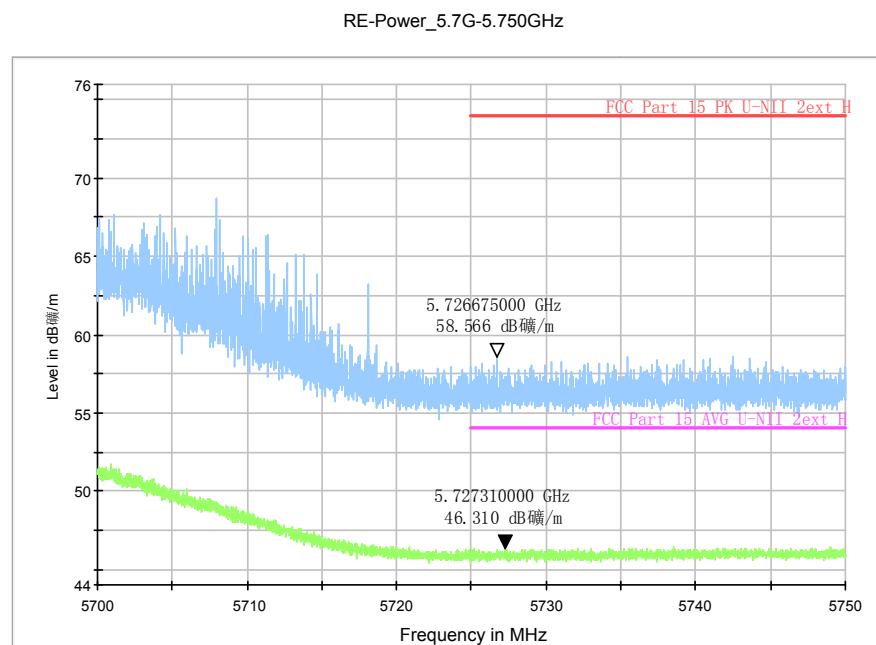
**Fig. 46 Band Edges (802.11n-HT40, 5190MHz)**



**Fig. 47 Band Edges (802.11n-HT40, 5310MHz)**



**Fig. 48 Band Edges (802.11n-HT40, 5510MHz)**



**Fig. 49 Band Edges (802.11n-HT40, 5670MHz)**

## 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(dB $\mu$ V/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**

<b>Mode</b>	<b>Channel</b>	<b>Frequency Range</b>	<b>Test Results</b>	<b>Conclusion</b>
802.11a	36(5180MHz)	1 GHz ~ 6 GHz	Fig.50	P
		6 GHz ~ 18 GHz	Fig.51	P
	40(5200MHz)	30 MHz ~1 GHz	Fig.52	P
		1 GHz ~ 6 GHz	Fig.53	P
		6 GHz ~ 18 GHz	Fig.54	P
		18 GHz ~ 26.5 GHz	Fig.55	P
		26.5 GHz ~ 40 GHz	Fig.56	P
	48(5240MHz)	1 GHz ~ 6 GHz	Fig.57	P
		6 GHz ~ 18 GHz	Fig.58	P
	52(5260MHz)	1 GHz ~ 6 GHz	Fig.59	P
		6 GHz ~ 18 GHz	Fig.60	P
	56(5280MHz)	30 MHz ~1 GHz	Fig.61	P
		1 GHz ~ 6 GHz	Fig.62	P
		6 GHz ~ 18 GHz	Fig.63	P
		18 GHz ~ 26.5 GHz	Fig.64	P
		26.5 GHz ~ 40 GHz	Fig.65	P
	64(5320MHz)	1 GHz ~ 6 GHz	Fig.66	P
		6 GHz ~ 18 GHz	Fig.67	P
	100(5500MHz)	1 GHz ~ 6 GHz	Fig.68	P
		6 GHz ~ 18 GHz	Fig.69	P
	120(5600MHz)	30 MHz ~1 GHz	Fig.70	P
		6 GHz ~ 18 GHz	Fig.71	P
		18 GHz ~ 26.5 GHz	Fig.72	P
		26.5 GHz ~ 40 GHz	Fig.73	P
	140(5700MHz)	1 GHz ~ 6 GHz	Fig.74	P
		6 GHz ~ 18 GHz	Fig.75	P

**802.11n-HT20 mode**

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n -HT20	36(5180MHz)	1 GHz ~ 6 GHz	Fig.76	P
		6 GHz ~ 18 GHz	Fig.77	P
	40(5200MHz)	30 MHz ~1 GHz	Fig.78	P
		1 GHz ~ 6 GHz	Fig.79	P
		6 GHz ~ 18 GHz	Fig.80	P
		18 GHz ~ 26.5 GHz	Fig.81	P
		26.5 GHz ~ 40 GHz	Fig.82	P
	48(5240MHz)	1 GHz ~ 6 GHz	Fig.83	P
		6 GHz ~ 18 GHz	Fig.84	P
	52(5260MHz)	1 GHz ~ 6 GHz	Fig.85	P
		6 GHz ~ 18 GHz	Fig.86	P
	56(5280MHz)	30 MHz ~1 GHz	Fig.87	P
		1 GHz ~ 6 GHz	Fig.88	P
		6 GHz ~ 18 GHz	Fig.89	P
		18 GHz ~ 26.5 GHz	Fig.90	P
		26.5 GHz ~ 40 GHz	Fig.91	P
	64(5320MHz)	1 GHz ~ 6 GHz	Fig.92	P
		6 GHz ~ 18 GHz	Fig.93	P
	100(5500MHz)	1 GHz ~ 6 GHz	Fig.94	P
		6 GHz ~ 18 GHz	Fig.95	P
	120(5600MHz)	30 MHz ~1 GHz	Fig.96	P
		1 GHz ~ 6 GHz	Fig.97	P
		6 GHz ~ 18 GHz	Fig.98	P
		18 GHz ~ 26.5 GHz	Fig.99	P
		26.5 GHz ~ 40 GHz	Fig.100	P
	140(5700MHz)	1 GHz ~ 6 GHz	Fig.101	P
		6 GHz ~ 18 GHz	Fig.102	P

**802.11n-HT40 mode**

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n HT40	38(5190MHz)	30 MHz ~1 GHz	Fig.103	P
		1 GHz ~ 6 GHz	Fig.104	P
		6 GHz ~ 18 GHz	Fig.105	P
		18 GHz ~ 26.5 GHz	Fig.106	P
		26.5 GHz ~ 40 GHz	Fig.107	P
	46(5230MHz)	1 GHz ~ 6 GHz	Fig.108	P
		6 GHz ~ 18 GHz	Fig.109	P
		1 GHz ~ 6 GHz	Fig.110	P
		6 GHz ~ 18 GHz	Fig.111	P
	62(5310MHz)	30 MHz ~1 GHz	Fig.112	P
		1 GHz ~ 6 GHz	Fig.113	P
		6 GHz ~ 18 GHz	Fig.114	P
		18 GHz ~ 26.5 GHz	Fig.115	P
		26.5 GHz ~ 40 GHz	Fig.116	P
	102(5510MHz)	1 GHz ~ 6 GHz	Fig.117	P
		6 GHz ~ 18 GHz	Fig.118	P
	118(5590MHz)	30 MHz ~1 GHz	Fig.119	P
		1 GHz ~ 6 GHz	Fig.120	P
		6 GHz ~ 18 GHz	Fig.121	P
		18 GHz ~ 26.5 GHz	Fig.122	P
		26.5 GHz ~ 40 GHz	Fig.123	P
	134(5670MHz)	1 GHz ~ 6 GHz	Fig.124	P
		6 GHz ~ 18 GHz	Fig.125	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
5149.410	61.8	-35.1	34.6	62.300	H
17931.600	63.3	-17.7	45.6	35.400	H
17892.800	63.3	-18.5	45.6	36.200	V
17947.600	63.2	-17.7	45.6	35.300	H
17923.200	63.1	-17.7	45.6	35.200	V
17976.000	63.0	-17.7	45.6	35.100	H

Channel 40

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17938.400	63.7	-17.7	45.6	35.800	H
17997.600	63.5	-17.7	45.6	35.600	V
17883.600	63.5	-18.5	45.6	36.400	H
17910.800	63.2	-18.5	45.6	36.100	V
17981.600	63.1	-17.7	45.6	35.200	V
17940.400	62.8	-17.7	45.6	34.900	H

Channel 48

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17966.400	63.2	-17.7	45.6	35.300	H
17980.000	63.1	-17.7	45.6	35.200	V
17853.200	63.0	-18.5	45.6	35.900	H
17955.600	63.0	-17.7	45.6	35.100	H
17879.600	62.9	-18.5	45.6	35.800	H
17925.600	62.9	-17.7	45.6	35.000	V

Channel 52

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17989.600	63.5	-17.7	45.6	35.6	V
17894.000	63.3	-18.5	45.6	36.2	H
17994.000	63.1	-17.7	45.6	35.2	V
17919.200	63.1	-17.7	45.6	35.2	H
17967.600	63.0	-17.7	45.6	35.1	V
17932.800	62.9	-17.7	45.6	35.0	H

## Channel 56

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17949.200	63.0	-17.7	45.6	35.1	H
17925.600	62.9	-17.7	45.6	35.0	H
17862.800	62.9	-18.5	45.6	35.8	V
17967.200	62.9	-17.7	45.6	35.0	H
17992.000	62.8	-17.7	45.6	34.9	H
17960.800	62.8	-17.7	45.6	34.9	V

## Channel 64

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
5351.045	65.8	-34.8	34.6	66.0	H
17951.200	63.4	-17.7	45.6	35.5	V
17892.800	62.8	-18.5	45.6	35.7	V
17922.800	62.7	-17.7	45.6	34.8	V
17928.800	62.7	-17.7	45.6	34.8	H
17870.000	62.7	-18.5	45.6	35.6	V

## Channel 100

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
5460.000	45.5	-34.9	34.6	45.8	V
17979.200	51.2	-17.7	45.6	23.3	H
17977.200	51.0	-17.7	45.6	23.1	V
17993.600	51.0	-17.7	45.6	23.1	V
17969.600	50.9	-17.7	45.6	23.0	V
17991.200	50.9	-17.7	45.6	23.0	H

## Channel 120

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17976.000	51.1	-17.7	45.6	23.2	V
17972.400	51.1	-17.7	45.6	23.2	V
17969.600	51.0	-17.7	45.6	23.1	H
17976.400	51.0	-17.7	45.6	23.1	V
17983.200	50.9	-17.7	45.6	23.0	V
17984.800	50.9	-17.7	45.6	23.0	V

## Channel 140

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
5726.050	46.3	-33.8	35.1	45.0	H
17992.800	51.1	-17.7	45.6	23.2	V
17960.800	50.9	-17.7	45.6	23.0	H
17986.800	50.9	-17.7	45.6	23.0	H
17985.200	50.8	-17.7	45.6	22.9	V
17982.400	50.8	-17.7	45.6	22.9	H

**802.11n-HT20**

## Channel 36

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
5148.915	62.2	-35.1	34.6	62.700	V
17926.800	63.5	-17.7	45.6	35.600	V
17969.600	63.2	-17.7	45.6	35.300	H
17996.000	63.1	-17.7	45.6	35.200	V
17998.400	63.0	-17.7	45.6	35.100	H
17910.800	63.0	-18.5	45.6	35.900	H

## Channel 40

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17867.200	63.3	-18.5	45.6	36.200	V
17920.400	63.2	-17.7	45.6	35.300	V
17988.800	63.0	-17.7	45.6	35.100	H
17798.000	62.8	-18.5	45.6	35.700	H
17962.400	62.7	-17.7	45.6	34.800	V
17843.200	62.7	-18.5	45.6	35.600	V

## Channel 48

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17960.000	63.5	-17.7	45.6	35.600	V
17950.000	62.8	-17.7	45.6	34.900	H
17942.400	62.8	-17.7	45.6	34.900	H
17968.800	62.6	-17.7	45.6	34.700	V
17982.400	62.6	-17.7	45.6	34.700	V
17988.000	62.6	-17.7	45.6	34.700	V

## Channel 52

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17995.200	64.3	-17.7	45.6	36.4	V
17837.600	64.1	-18.5	45.6	37.0	V
17958.000	63.4	-17.7	45.6	35.5	V
17970.400	62.9	-17.7	45.6	35.0	H
17737.600	62.9	-18.5	45.6	35.8	H
17948.800	62.8	-17.7	45.6	34.9	H

## Channel 56

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17941.600	63.1	-17.7	45.6	35.2	V
17992.800	62.7	-17.7	45.6	34.8	V
17918.800	62.6	-17.7	45.6	34.7	H
17714.800	62.6	-18.9	45.6	35.9	V
17892.000	62.5	-18.5	45.6	35.4	V
17902.000	62.5	-18.5	45.6	35.4	H

## Channel 64

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
5352.310	71.1	-34.8	34.6	71.3	V
17966.400	63.2	-17.7	45.6	35.3	V
17912.800	63.0	-18.5	45.6	35.9	V
17907.200	63.0	-18.5	45.6	35.9	H
17982.400	63.0	-17.7	45.6	35.1	V
17958.400	62.8	-17.7	45.6	34.9	V

## Channel 100

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
5459.860	46.0	-34.9	34.6	46.3	V
17967.600	50.9	-17.7	45.6	23.0	H
17980.000	50.9	-17.7	45.6	23.0	V
17927.600	50.8	-17.7	45.6	22.9	V
17996.400	50.8	-17.7	45.6	22.9	H
17956.800	50.8	-17.7	45.6	22.9	V

## Channel 120

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17980.800	51.0	-17.7	45.6	23.1	V
17981.200	50.9	-17.7	45.6	23.0	V
17984.000	50.8	-17.7	45.6	22.9	H
17976.800	50.7	-17.7	45.6	22.8	H
17971.600	50.7	-17.7	45.6	22.8	V
17990.400	50.7	-17.7	45.6	22.8	H

## Channel 140

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
5725.000	46.8	-33.8	35.1	45.5	V
17988.000	50.9	-17.7	45.6	23.0	V
17993.200	50.9	-17.7	45.6	23.0	H
17980.000	50.8	-17.7	45.6	22.9	V
17971.200	50.8	-17.7	45.6	22.9	H
17982.000	50.8	-17.7	45.6	22.9	V

**802.11n-HT40**

## Channel 38

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
5148.240	63.2	-35.1	34.6	63.700	H
17980.800	63.2	-17.7	45.6	35.300	H
17985.200	62.8	-17.7	45.6	34.900	H
17976.800	62.8	-17.7	45.6	34.900	V
17856.800	62.8	-18.5	45.6	35.700	V
17973.200	62.8	-17.7	45.6	34.900	H

## Channel 46

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17892.000	63.4	-18.5	45.6	36.300	V
17828.000	63.2	-18.5	45.6	36.100	V
17981.600	62.9	-17.7	45.6	35.000	V
17868.000	62.9	-18.5	45.6	35.800	H
17901.600	62.9	-18.5	45.6	35.800	V
17999.200	62.7	-17.7	45.6	34.800	H

## Channel 54

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17929.600	63.9	-17.7	45.6	36.0	H
17924.400	63.5	-17.7	45.6	35.6	V
17874.000	63.2	-18.5	45.6	36.1	H
17880.400	63.2	-18.5	45.6	36.1	H
17900.400	63.1	-18.5	45.6	36.0	V
17902.400	62.9	-18.5	45.6	35.8	H

## Channel 62

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
5350.000	64.0	-34.8	34.6	64.2	V
17981.600	63.8	-17.7	45.6	35.9	H
17876.800	63.0	-18.5	45.6	35.9	H
17985.200	63.0	-17.7	45.6	35.1	V
17918.800	62.8	-17.7	45.6	34.9	V
17845.200	62.8	-18.5	45.6	35.7	H

## Channel 102

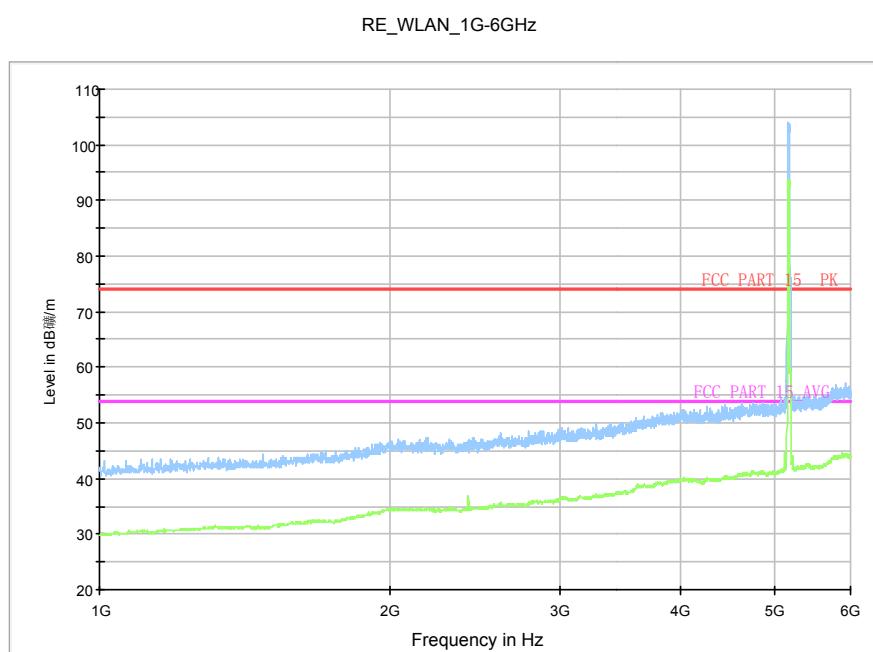
Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
5459.840	53.0	-34.9	34.6	53.3	H
17975.600	50.9	-17.7	45.6	23.0	V
17953.600	50.9	-17.7	45.6	23.0	H
17983.200	50.9	-17.7	45.6	23.0	H
17980.400	50.9	-17.7	45.6	23.0	V
17968.000	50.8	-17.7	45.6	22.9	H

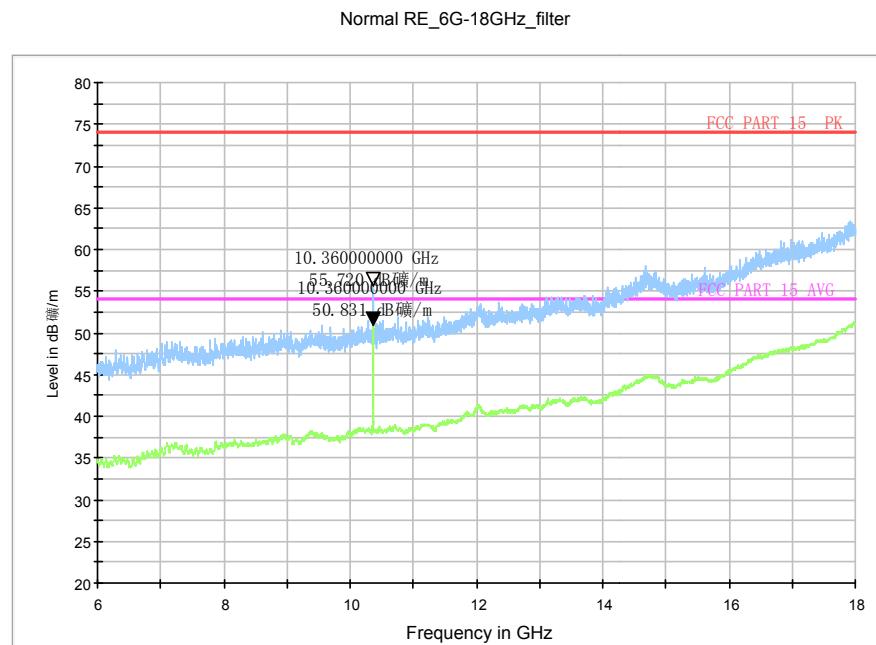
## Channel 118

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17972.400	51.1	-17.7	45.6	23.2	H
17962.800	50.9	-17.7	45.6	23.0	V
17977.600	50.8	-17.7	45.6	22.9	H
17989.600	50.8	-17.7	45.6	22.9	V
17912.000	50.8	-18.5	45.6	23.7	H
17959.600	50.8	-17.7	45.6	22.9	V

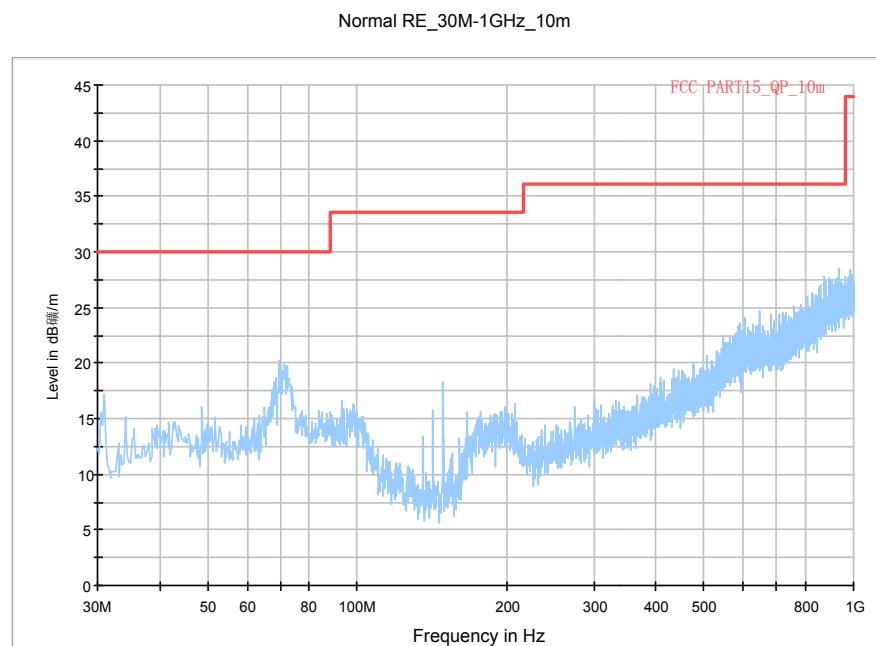
## Channel 134

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
5727.310	46.3	-33.8	35.1	45.0	H
17972.800	51.0	-17.7	45.6	23.1	V
17988.400	51.0	-17.7	45.6	23.1	V
17979.600	50.9	-17.7	45.6	23.0	V
17961.600	50.8	-17.7	45.6	22.9	V
17967.200	50.8	-17.7	45.6	22.9	H

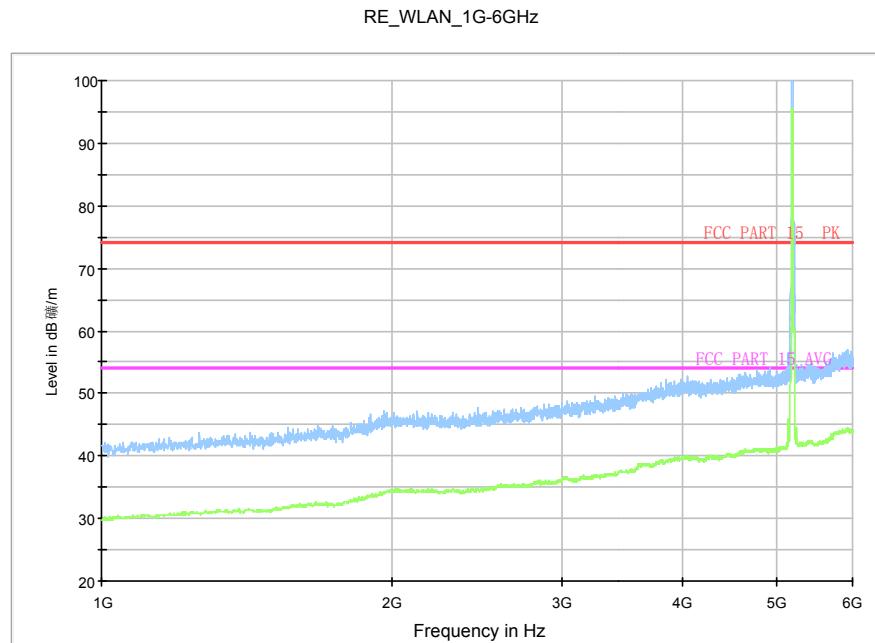
**Test graphs as below:**

**Fig. 50 Radiated Spurious Emission (802.11a, ch36, 1 GHz-6 GHz)**



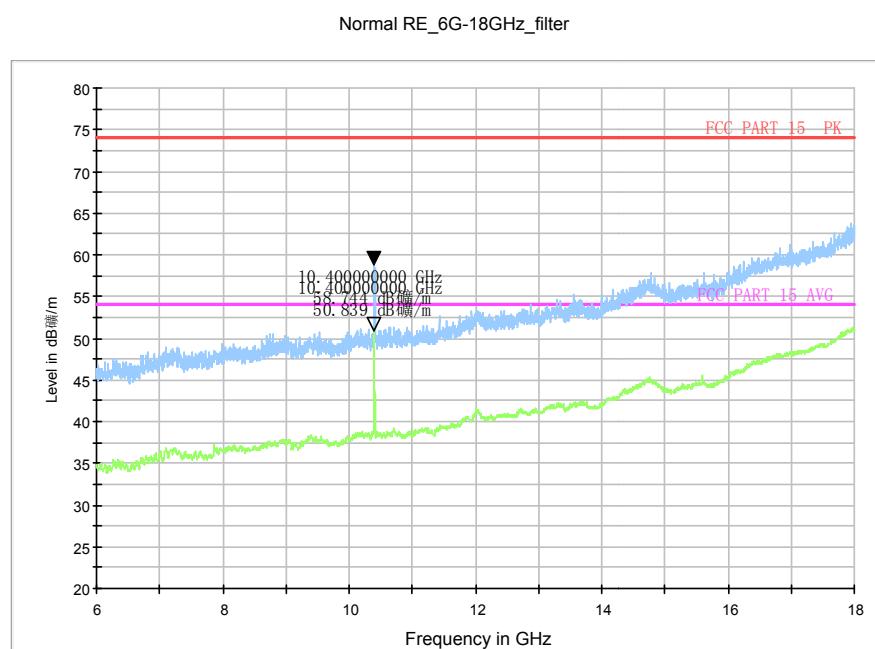
**Fig. 51 Radiated Spurious Emission (802.11a, ch36, 6 GHz-18 GHz)**



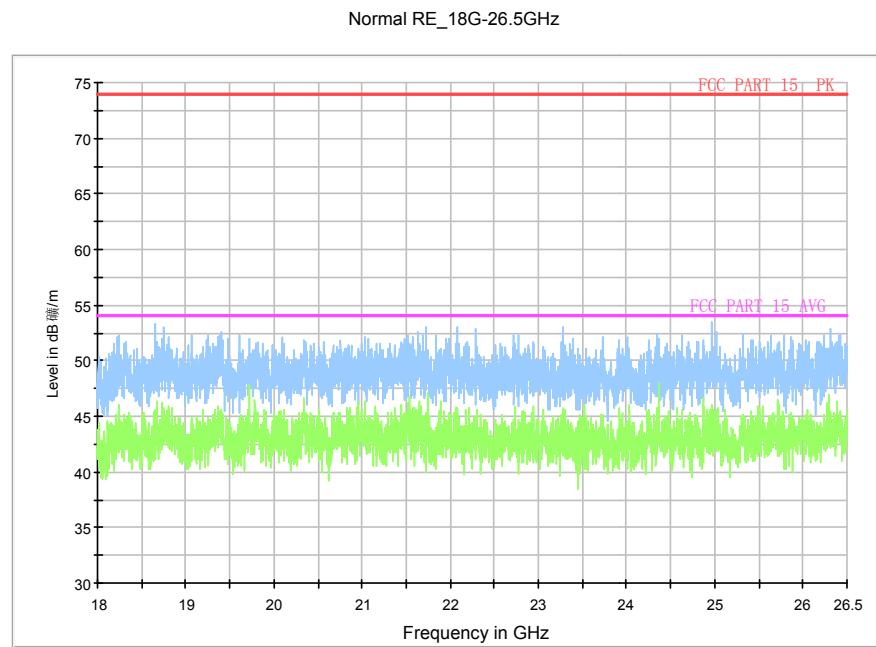
**Fig. 52 Radiated Spurious Emission (802.11a, ch40, 30 MHz-1 GHz)**



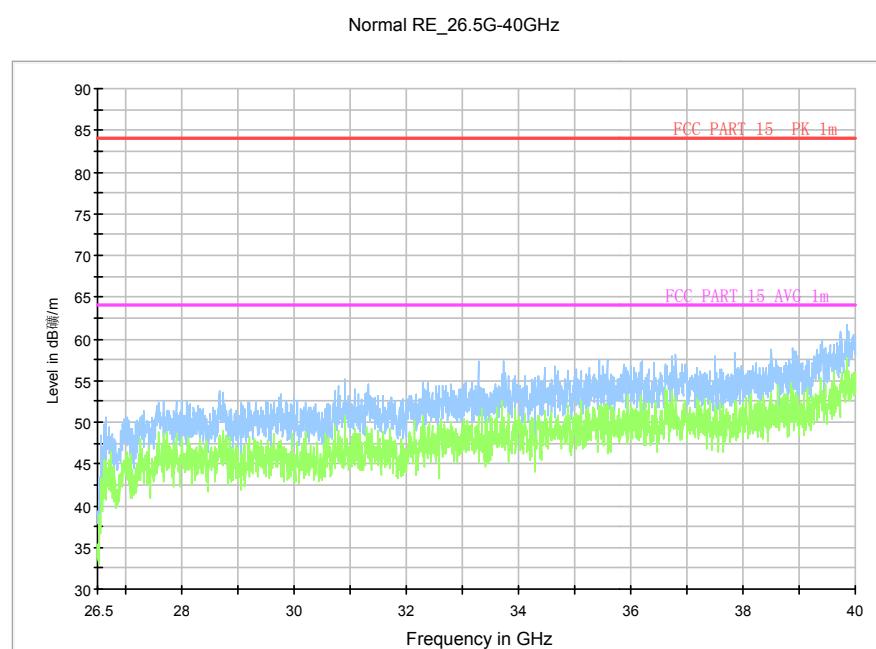
**Fig. 53 Radiated Spurious Emission (802.11a, ch40, 1 GHz-6 GHz)**



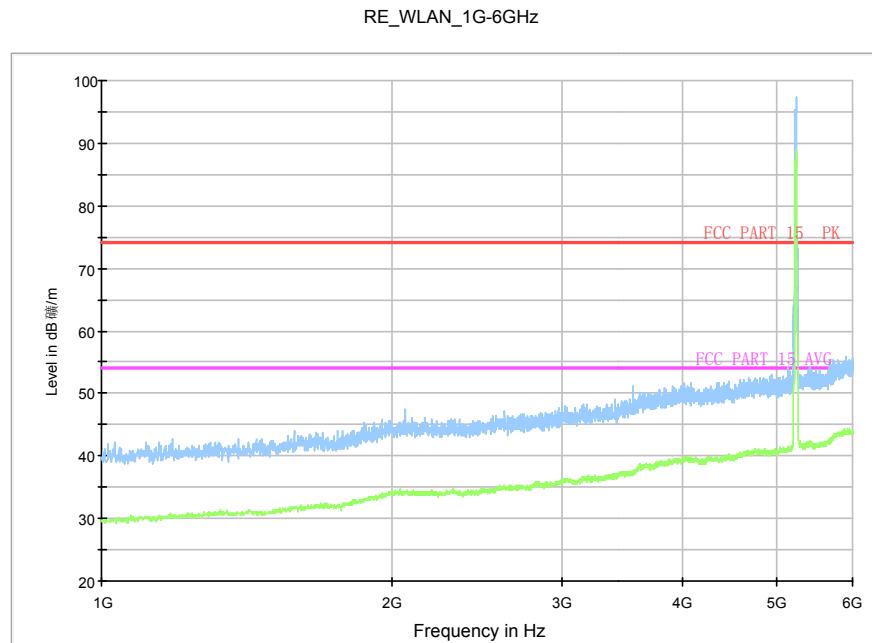
**Fig. 54 Radiated Spurious Emission (802.11a, ch40, 6 GHz-18 GHz)**



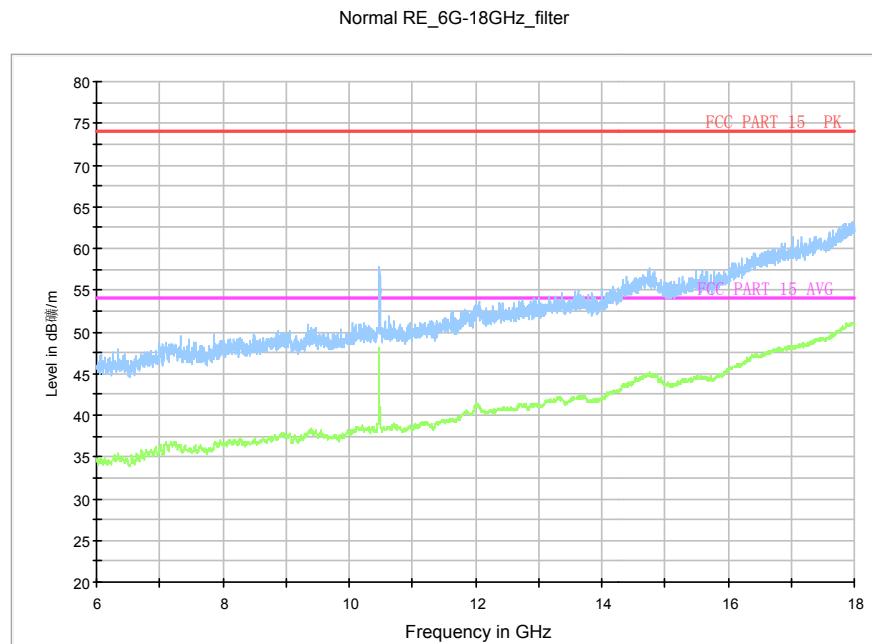
**Fig. 55 Radiated Spurious Emission (802.11a, ch40, 18 GHz-26.5 GHz)**



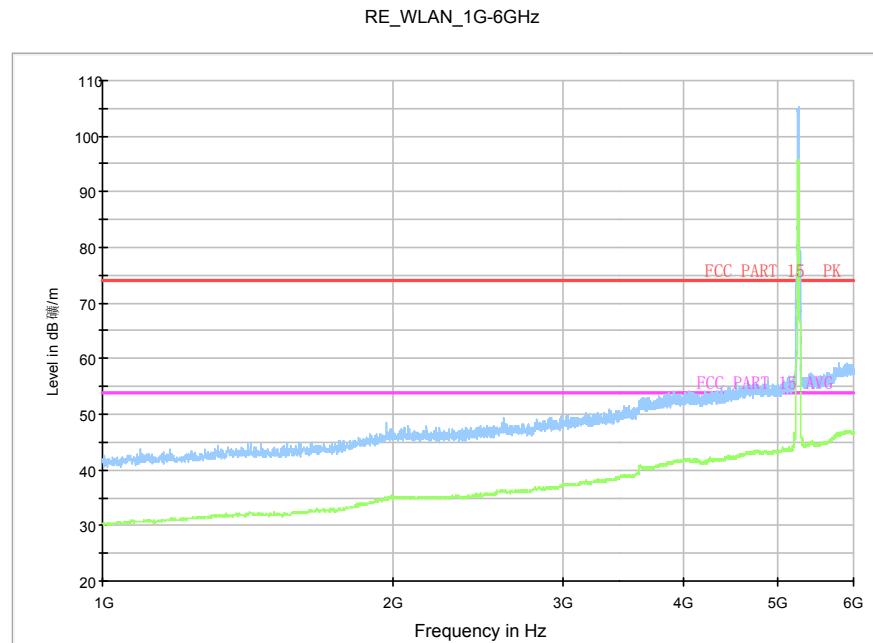
**Fig. 56 Radiated Spurious Emission (802.11a, ch40, 26.5 GHz-40 GHz)**



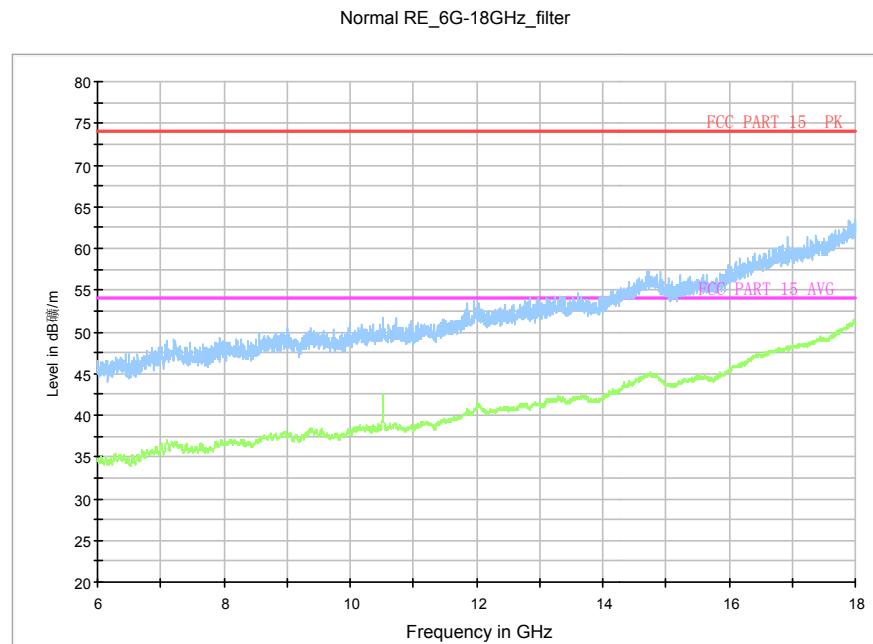
**Fig. 57 Radiated Spurious Emission (802.11a, ch48, 1 GHz-6 GHz)**



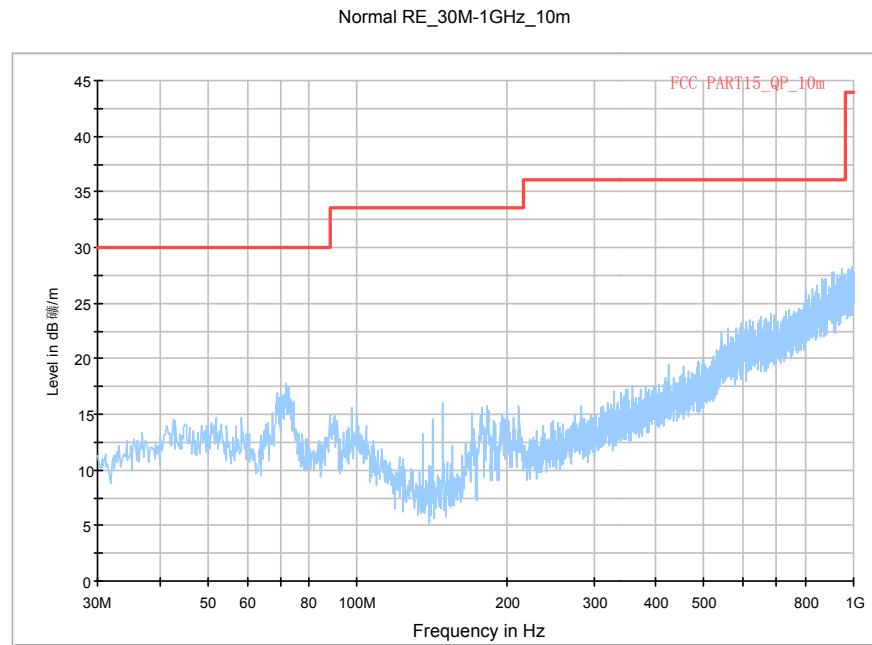
**Fig. 58 Radiated Spurious Emission (802.11a, ch48, 6 GHz-18 GHz)**



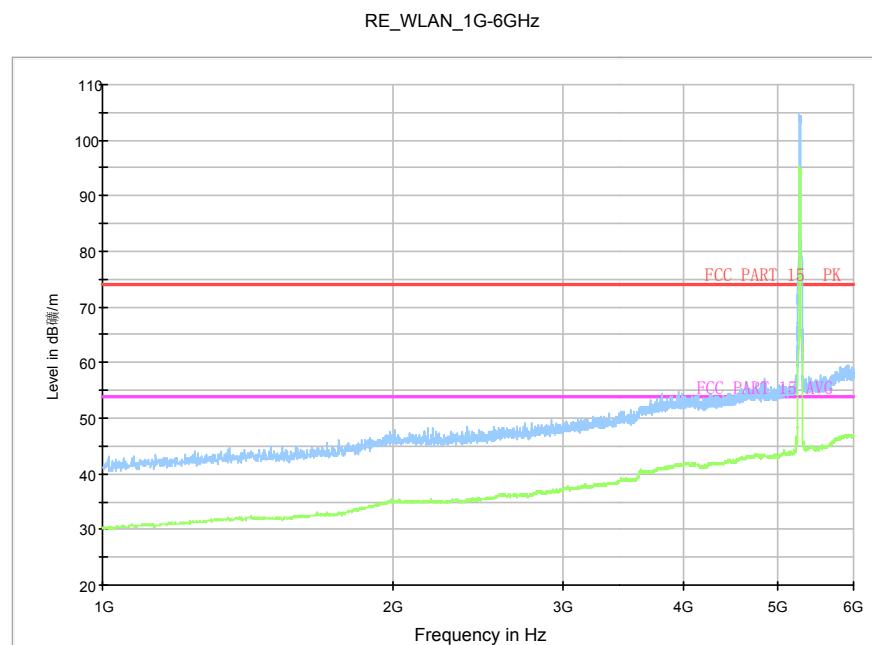
**Fig. 59 Radiated Spurious Emission (802.11a, ch52, 1 GHz-6 GHz)**



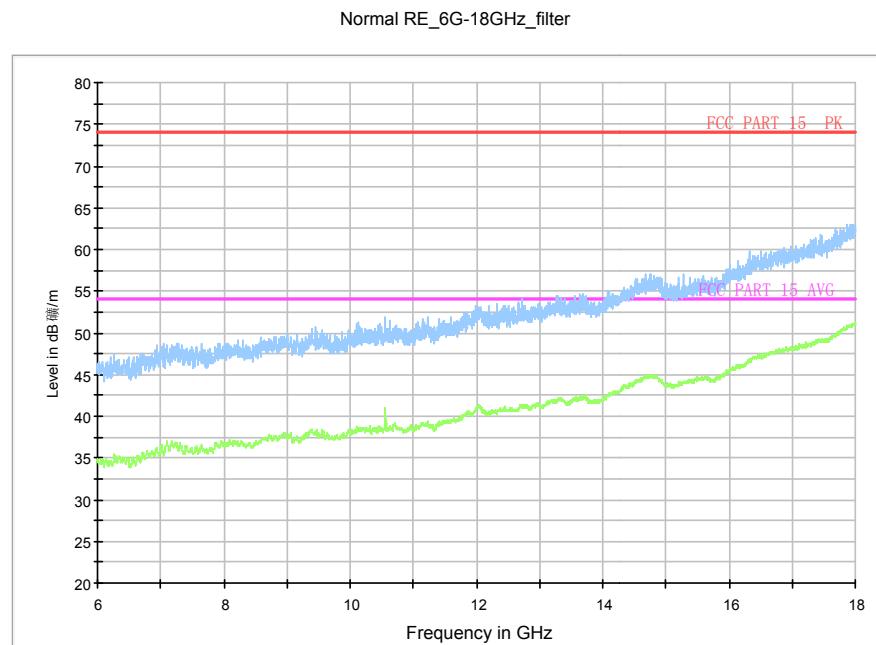
**Fig. 60 Radiated Spurious Emission (802.11a, ch52, 6 GHz-18 GHz)**



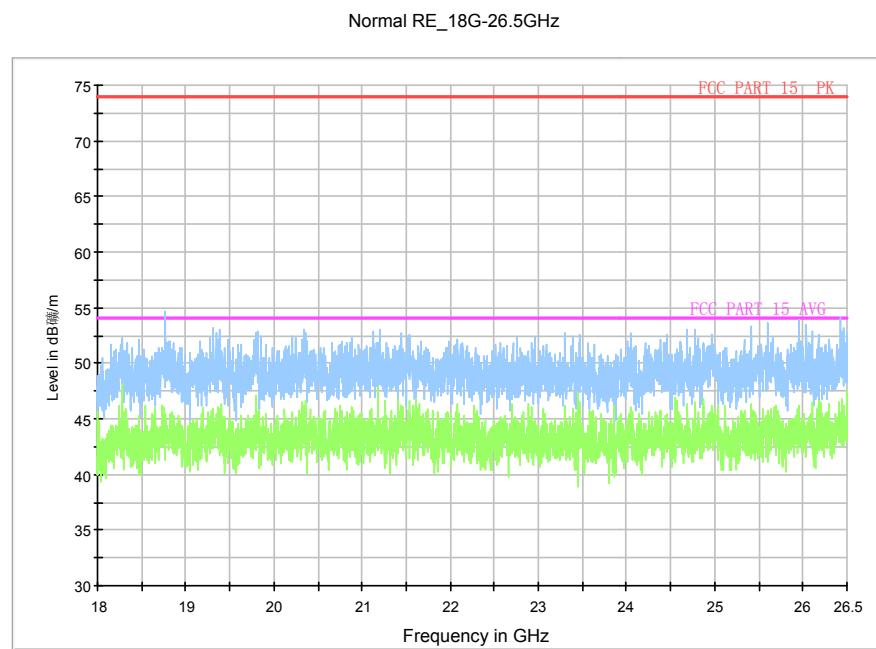
**Fig. 61 Radiated Spurious Emission (802.11a, ch56, 30 MHz-1 GHz)**



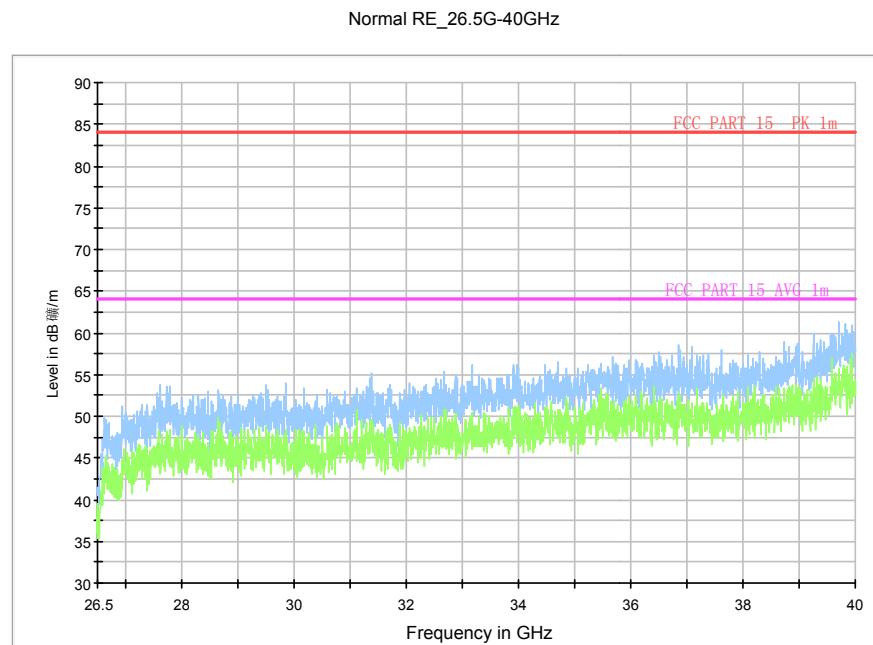
**Fig. 62 Radiated Spurious Emission (802.11a, ch56, 1 GHz-6 GHz)**



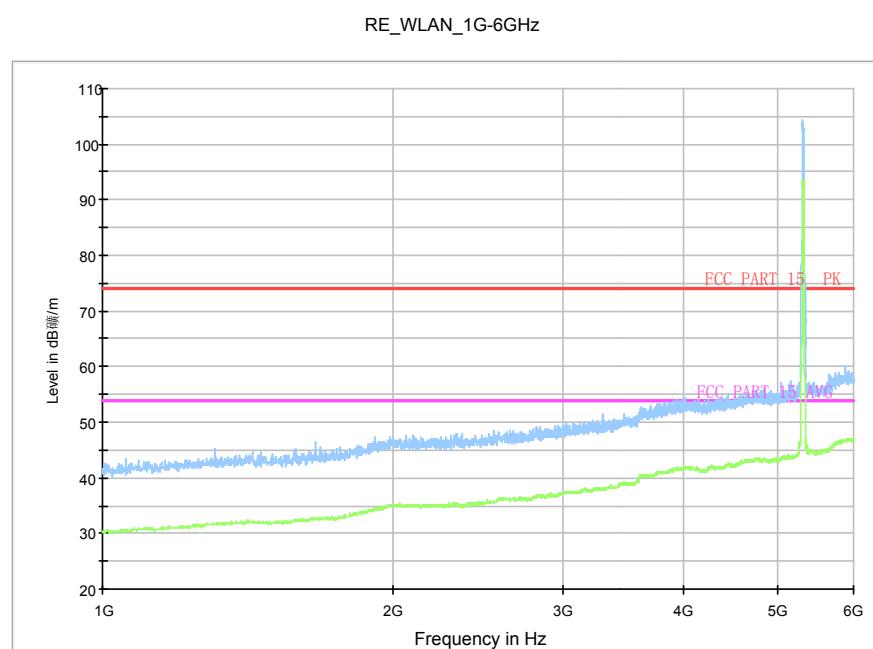
**Fig. 63 Radiated Spurious Emission (802.11a, ch56, 6 GHz-18 GHz)**



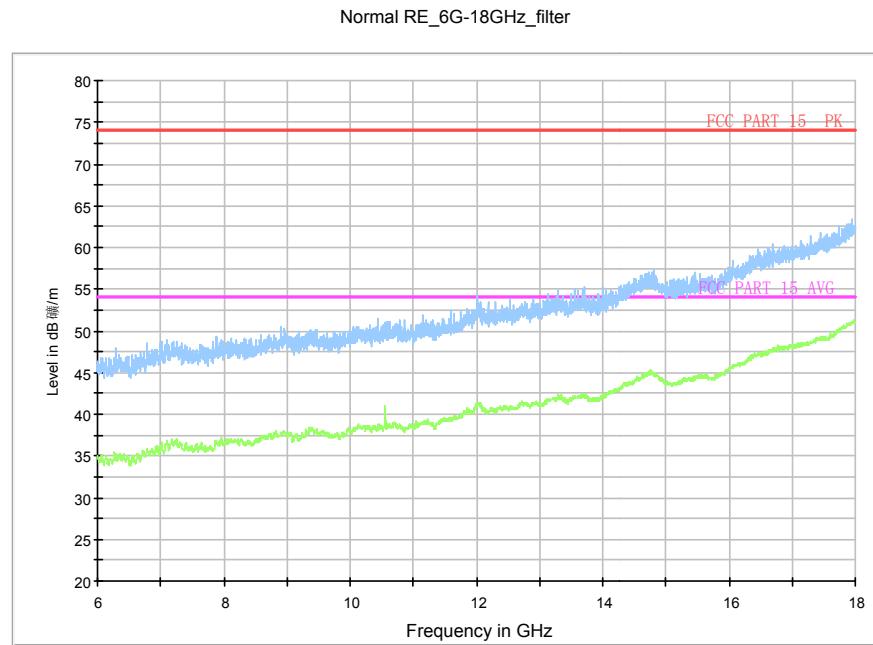
**Fig. 64 Radiated Spurious Emission (802.11a, ch56, 18 GHz-26.5 GHz)**



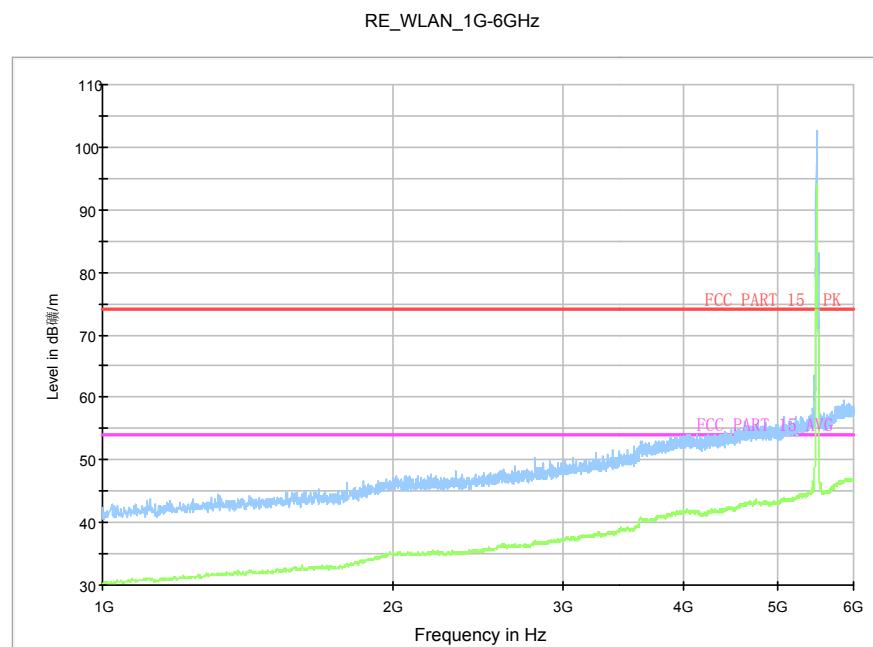
**Fig. 65 Radiated Spurious Emission (802.11a, ch56, 26.5 GHz-40 GHz)**



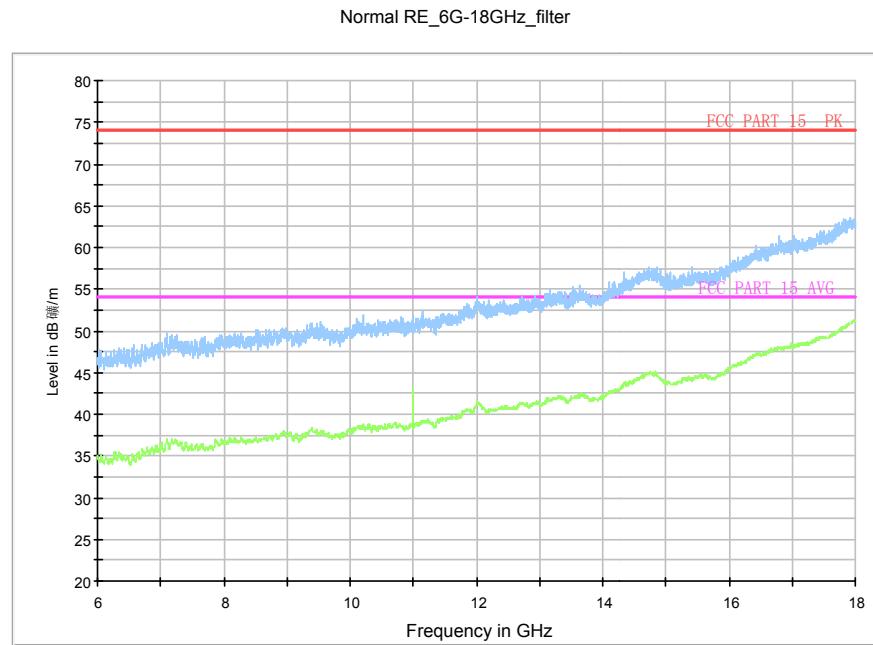
**Fig. 66 Radiated Spurious Emission (802.11a, ch64, 1 GHz-6 GHz)**



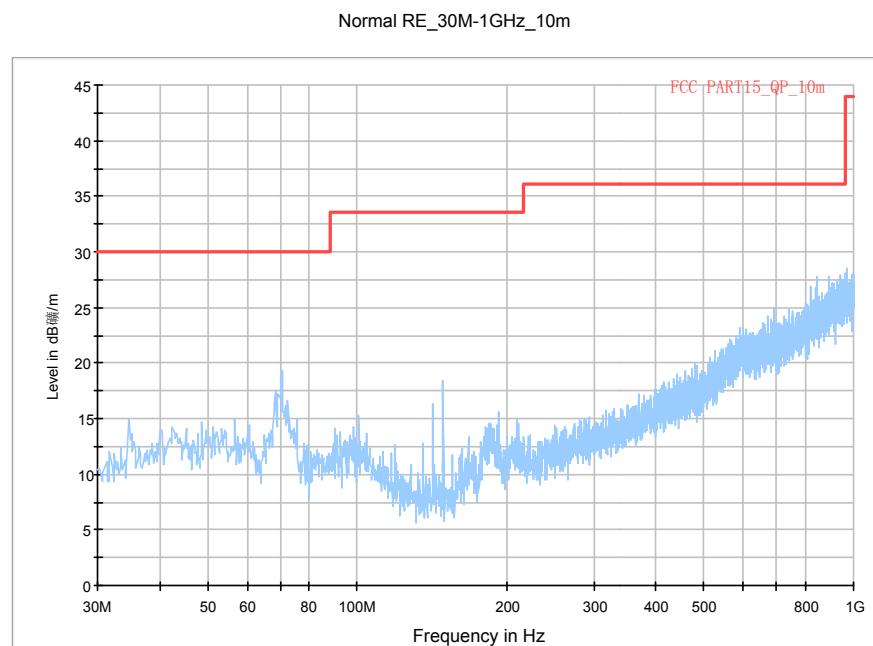
**Fig. 67 Radiated Spurious Emission (802.11a, ch64, 6 GHz-18 GHz)**



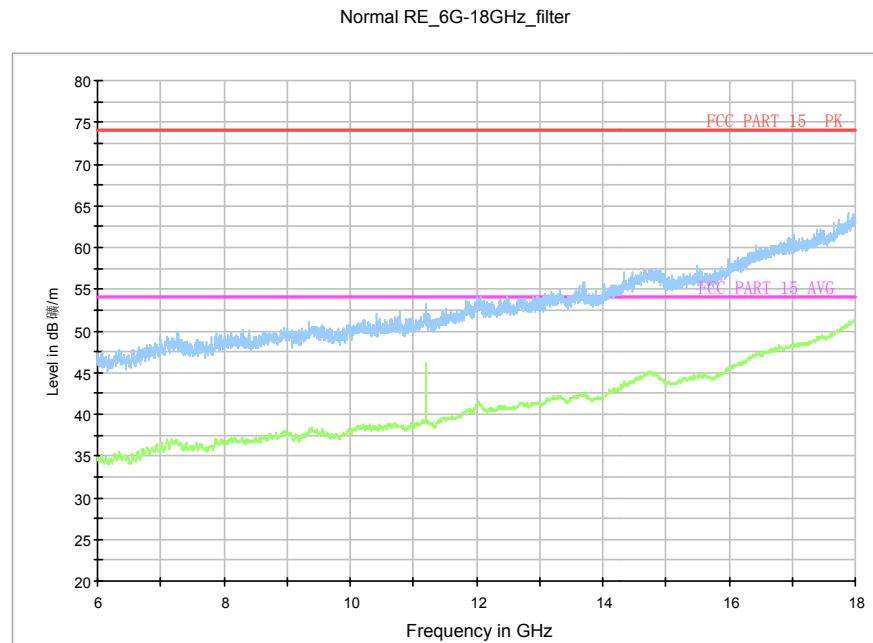
**Fig. 68 Radiated Spurious Emission (802.11a, ch100, 1 GHz-6 GHz)**



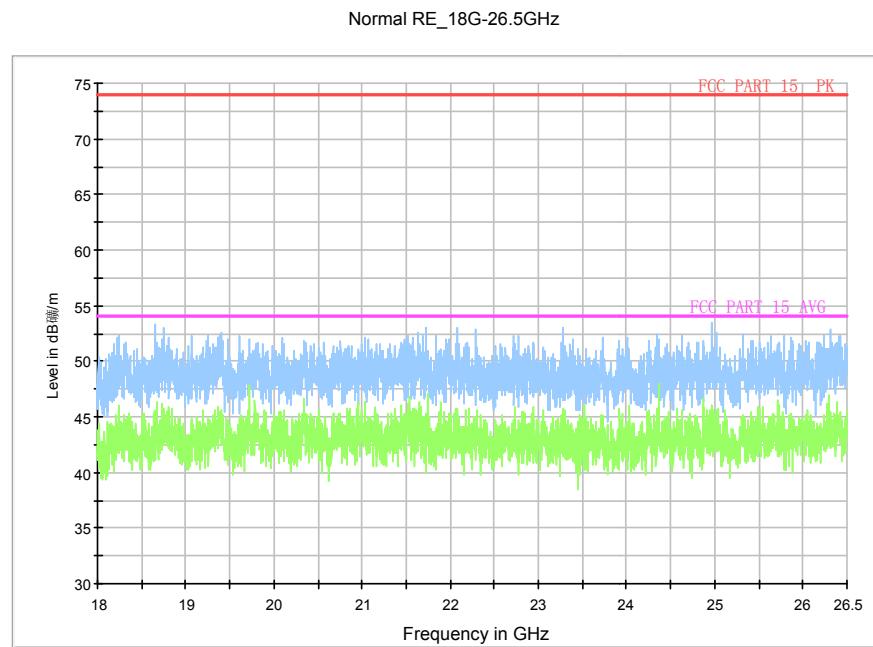
**Fig. 69 Radiated Spurious Emission (802.11a, ch100, 6 GHz-18 GHz)**



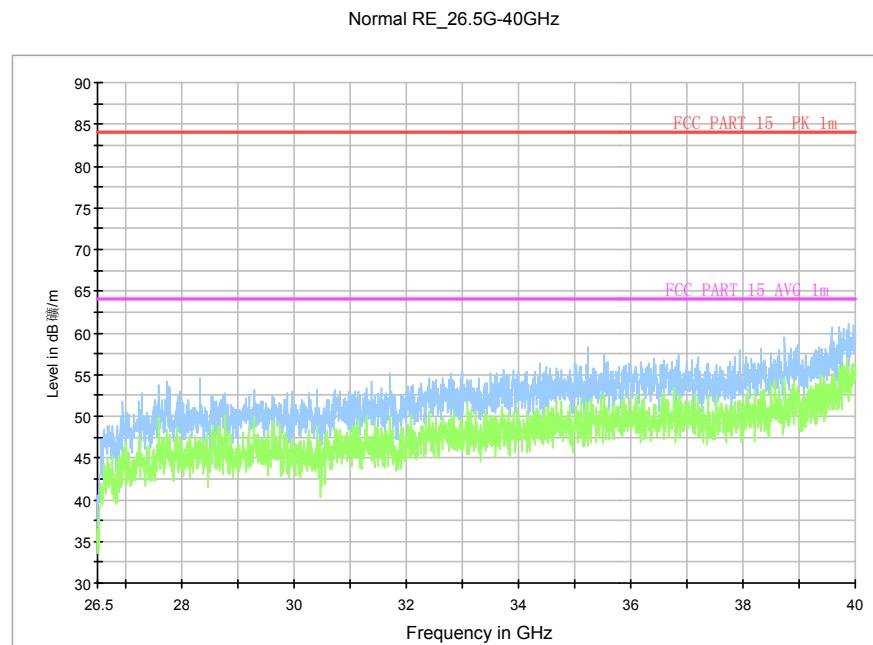
**Fig. 70 Radiated Spurious Emission (802.11a, ch120, 30 MHz-1 GHz)**



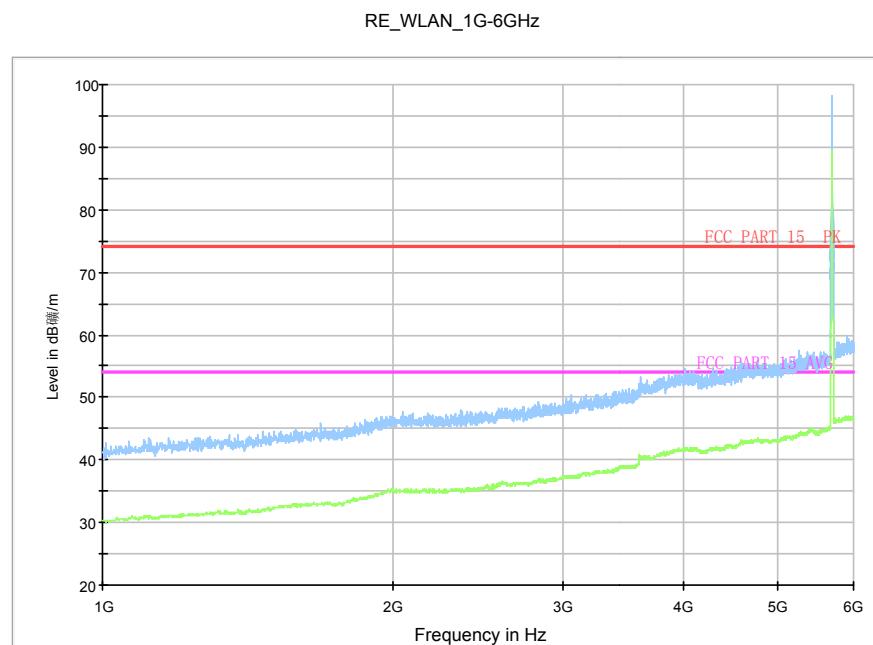
**Fig. 71 Radiated Spurious Emission (802.11a, ch120, 6 GHz-18 GHz)**



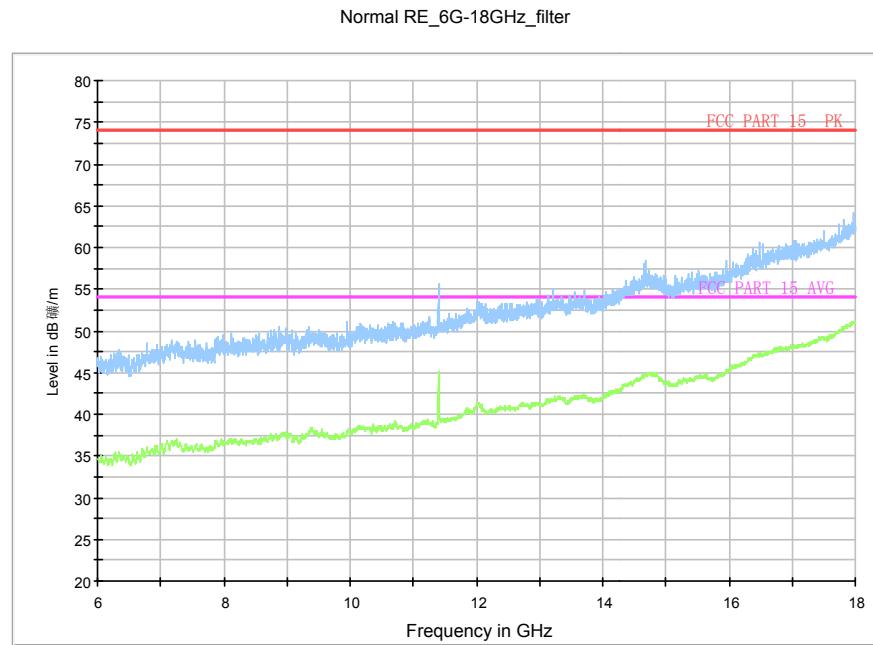
**Fig. 72 Radiated Spurious Emission (802.11a, ch120, 18 GHz-26.5 GHz)**



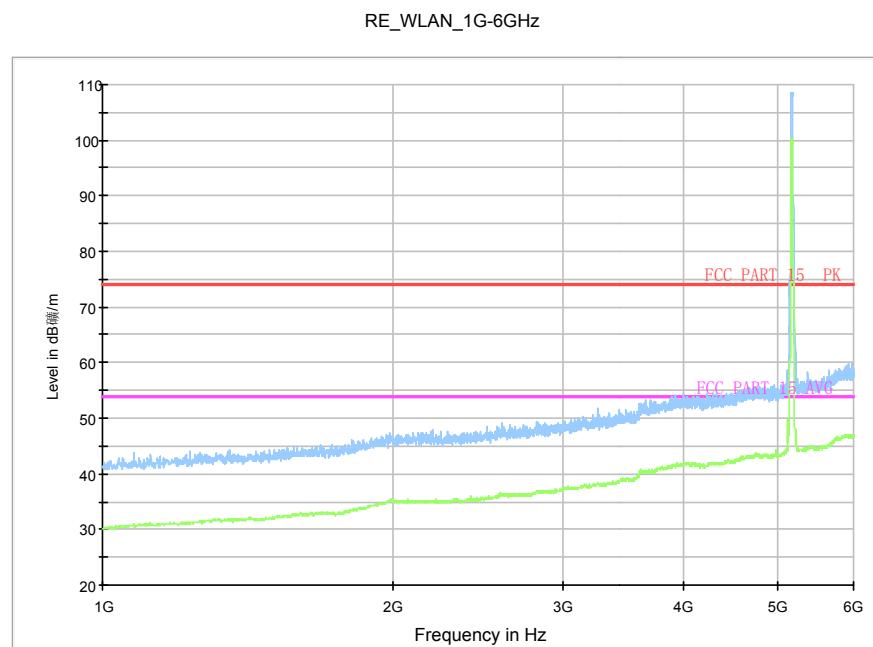
**Fig. 73 Radiated Spurious Emission (802.11a, ch120, 26.5 GHz-40 GHz)**



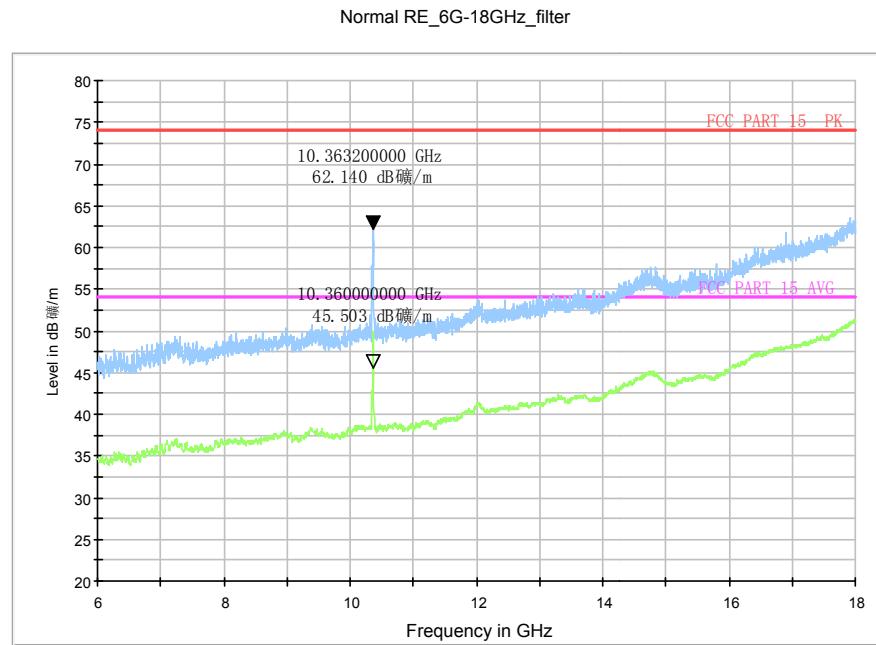
**Fig. 74 Radiated Spurious Emission (802.11a, ch140, 1 GHz-6 GHz)**



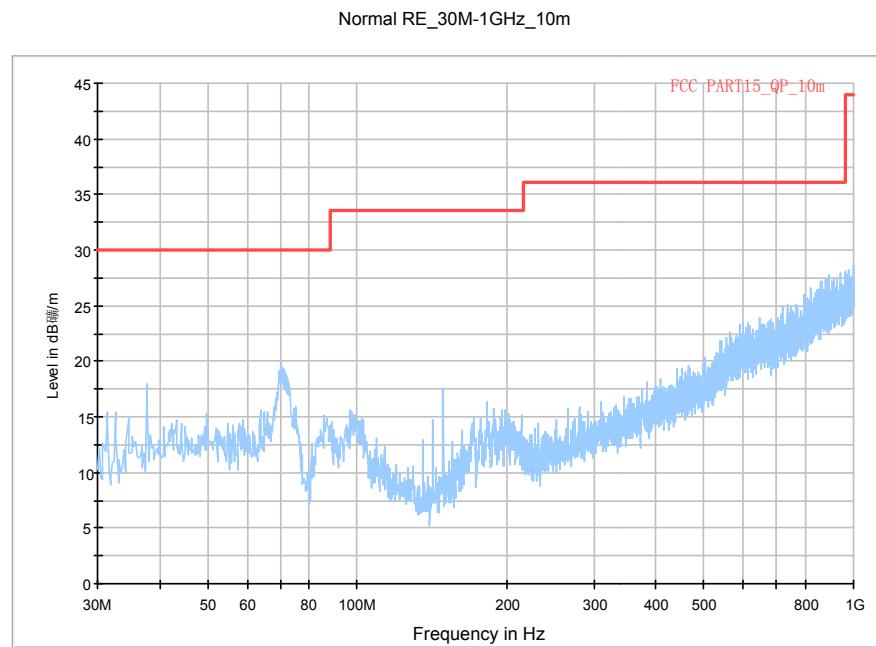
**Fig. 75 Radiated Spurious Emission (802.11a, ch140, 6 GHz-18 GHz)**



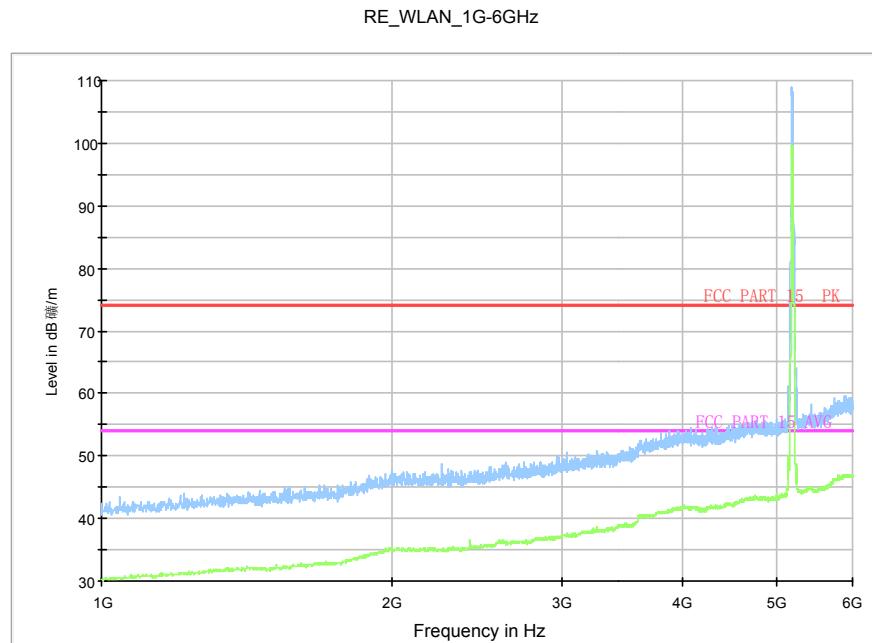
**Fig. 76 Radiated Spurious Emission (802.11n-HT20, ch36, 1 GHz-6 GHz)**



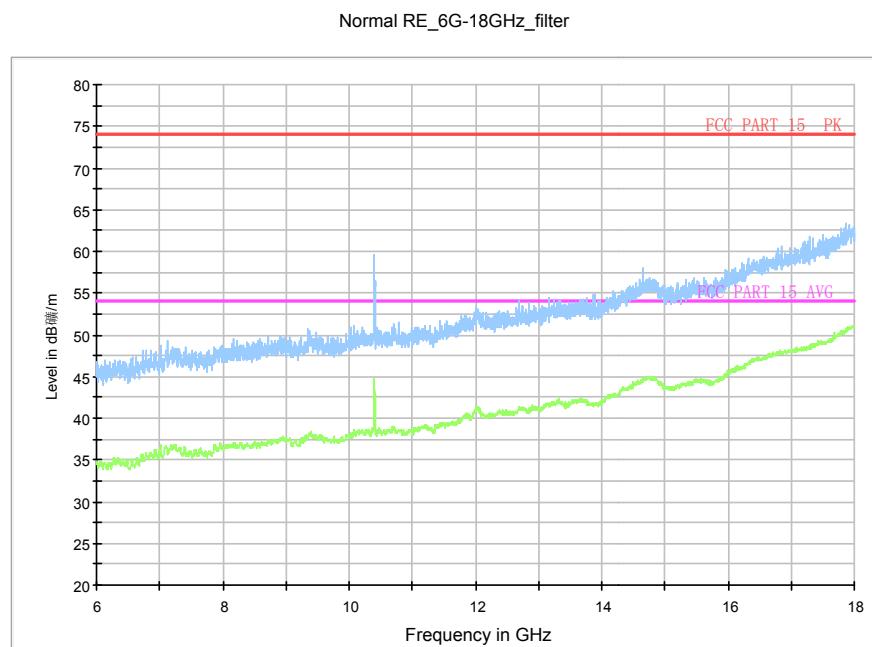
**Fig. 77 Radiated Spurious Emission (802.11n-HT20, ch36, 6 GHz-18 GHz)**



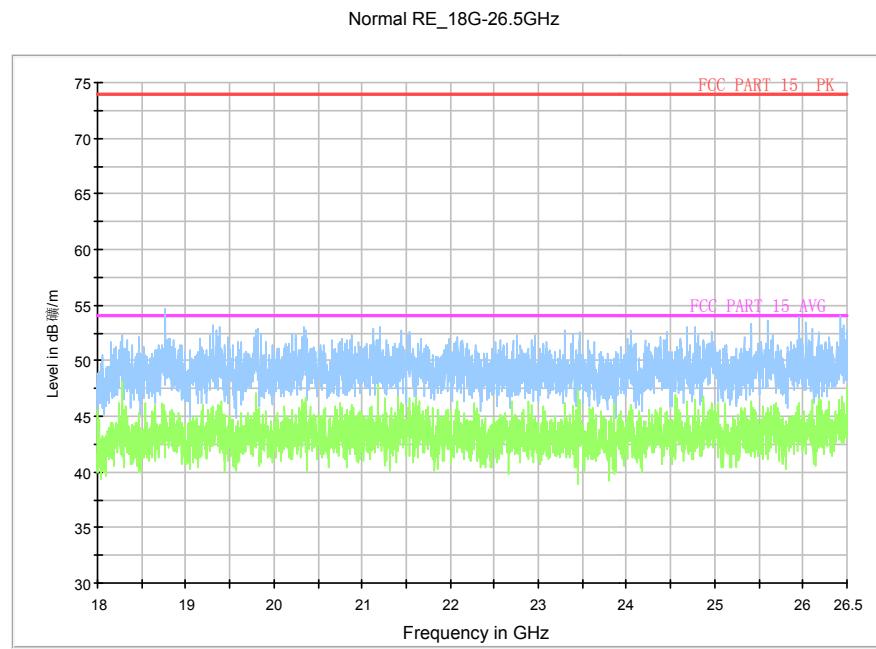
**Fig. 78 Radiated Spurious Emission (802.11n-HT20, ch40, 30 MHz-1 GHz)**



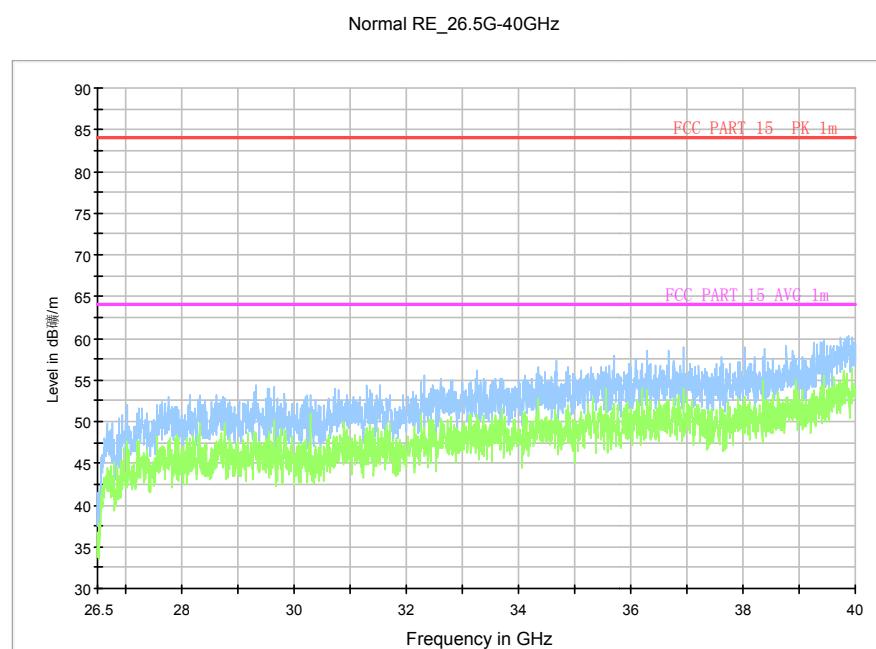
**Fig. 79 Radiated Spurious Emission (802.11n-HT20, ch40, 1 GHz-6 GHz)**



**Fig. 80 Radiated Spurious Emission (802.11n-HT20, ch40, 6 GHz-18 GHz)**



**Fig. 81 Radiated Spurious Emission (802.11n-HT20, ch40, 18 GHz-26.5 GHz)**



**Fig. 82 Radiated Spurious Emission (802.11n-HT20, ch40, 26.5 GHz-40 GHz)**

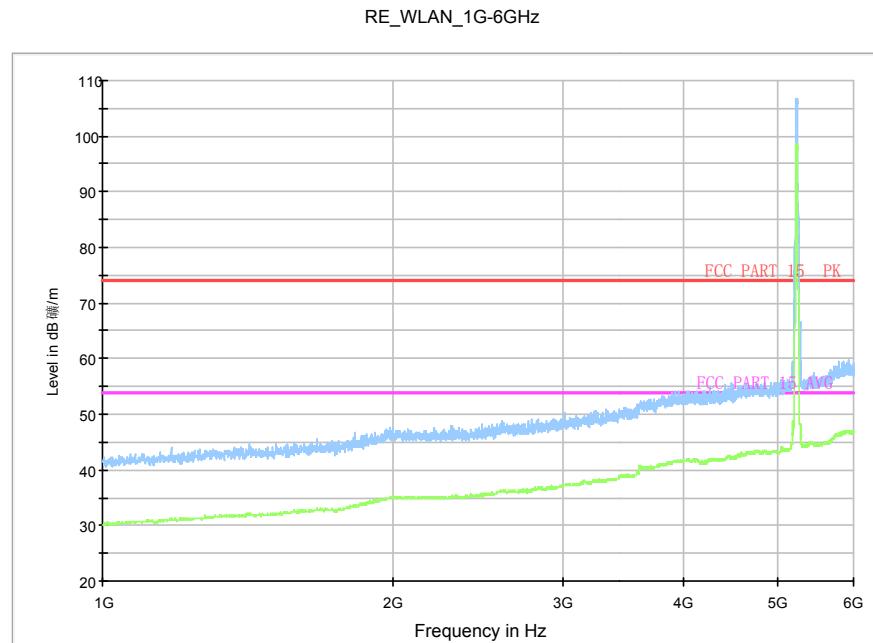


Fig. 83 Radiated Spurious Emission (802.11n-HT20, ch48, 1 GHz-6 GHz)

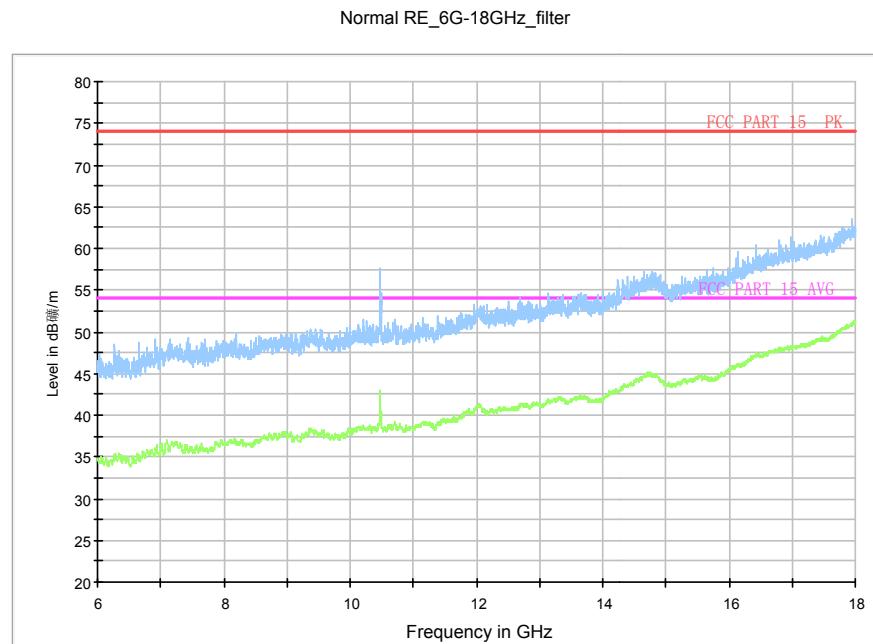
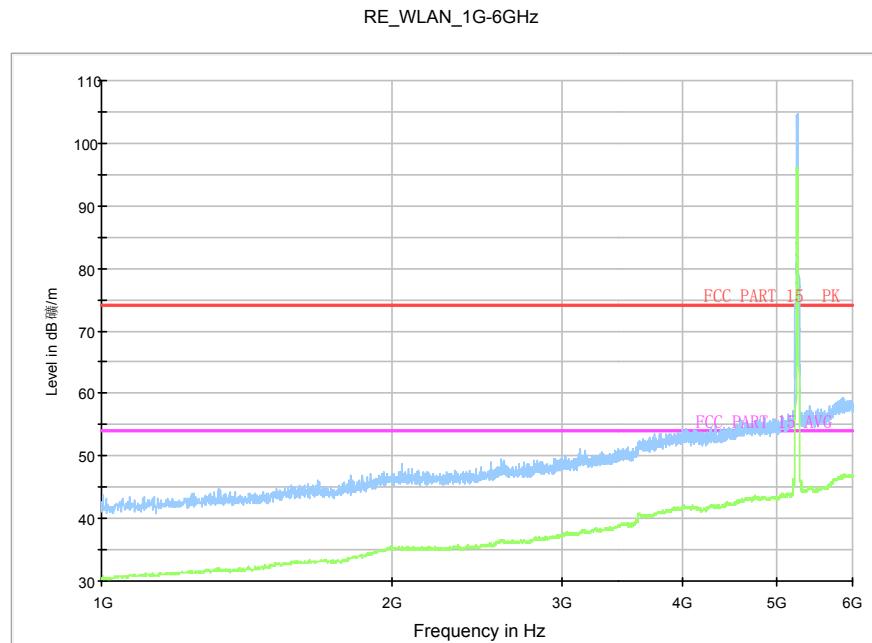
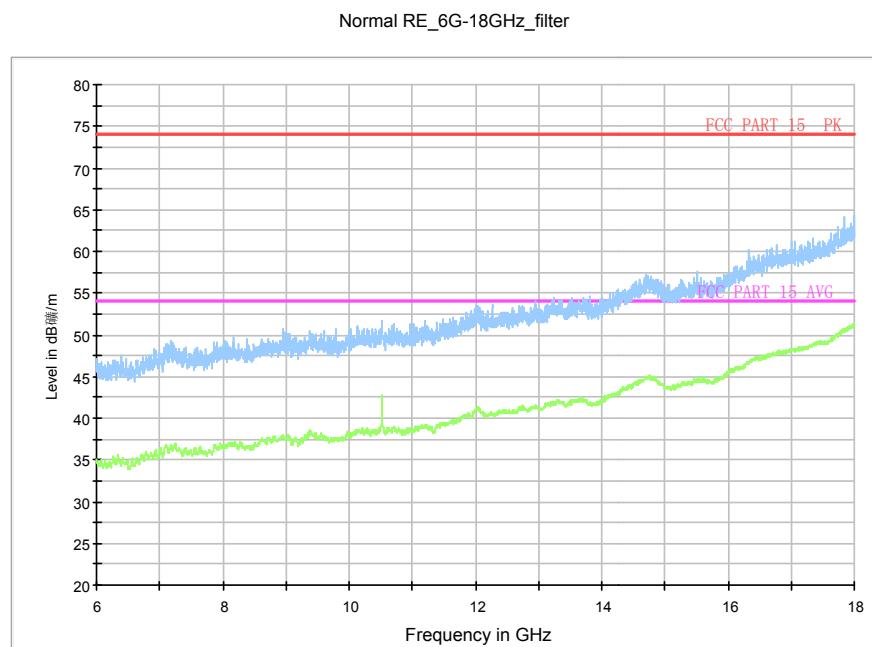


Fig. 84 Radiated Spurious Emission (802.11n-HT20, ch48, 6 GHz-18 GHz)



**Fig. 85 Radiated Spurious Emission (802.11n-HT20, ch52, 1 GHz-6 GHz)**



**Fig. 86 Radiated Spurious Emission (802.11n-HT20, ch52, 6 GHz-18 GHz)**