



**FCC PART 15C  
TEST REPORT  
No. 2013WLN0714**

**for**

**TCT Mobile Limited**

**HSDPA/HSUPA/UMTS Tri bands / GSM quad bands/LTE Quin bands**

**Mobile Phone**

**Model name: VIPER LTE**

**Marketing Name: ONE TOUCH 7030Y**

**With**

**FCC ID: RAD357**

**Hardware Version: PIO**

**Software Version: VA33**

**Issued Date: 2013-07-23**



Deutsche  
Akkreditierungsstelle  
D-PL-12123-01-01

**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 TMC Beijing.

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## 1. TEST LATORATORY

### 1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT  
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Postal Code: 100191  
Telephone: +86-10-62304633-2561  
Fax: +86-10-62304633-2504

### 1.2. Project data

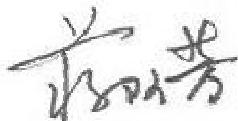
Testing Start Date: 2013-07-04  
Testing End Date: 2013-07-09

### 1.3. Signature



Xu Zhongfei

(Prepared this test report)



Jiang Afang

(Reviewed this test report)



Xiao Li

Deputy Director of the laboratory

(Approved this test report)

## **2. CLIENT INFORMATION**

### **2.1. Applicant Information**

Company Name: TCT Mobile Limited  
Address /Post: 5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,  
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Country: China  
Contact: Gong Zhizhou  
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### **2.2. Manufacturer Information**

Company Name: TCT Mobile Limited  
Address /Post: 5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,  
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Country: China  
Contact: Gong Zhizhou  
Email: zhizhou.gong @jrdcom.com  
Telephone: 0086-21-61460890  
Fax: 0086-21-61460602

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

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

Description	HSDPA/HSUPA/UMTS Tri bands / GSM quad bands/LTE Quin bands Mobile Phone
Model name	VIPER LTE
Marketing name	ONE TOUCH 7030Y
FCC ID	RAD357
WLAN Frequency Range	ISM Band: 5725MHz~5850MHz
Type of modulation	OFDM
Number of Channels	a/n-HT20 mode: 5 n-HT40 mode: 2
Antenna	Integral Antenna
MAX Conducted Power	19.75dBm(OFDM)
GPRS Class	Class 10
GPRS operation mode	Class B
Extreme Temperature	-20/+55°C
Normal Voltage	3.9VDC

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

EUT ID*	IMEI	HW Version	SW Version
EUT1	013580000100491	PIO	VA33
EUT2	013580000100400	PIO	VA33

\*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	Battery	TLi022A1	/
AE2	Charger	CBA3000AG0C2	/

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

#### **3.4. General Description**

Equipment Under Test (EUT) is a model of HSDPA/HSUPA/UMTS Tri bands / GSM quad bands/LTE Quin bands Mobile Phone with integrated antenna. It consists of normal options: Battery and Charger.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the Client.

Normal Accessory setting:

1. A microSD card was being installed in the device during the test;
2. Fully charged battery should be used during 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	FCC CFR 47, Part 15, Subpart C: 15.205 Restricted bands of operation; 15.209 Radiated emission limits, general requirements; 15.247 Operation within the bands 902–928MHz, 2400–2483.5 MHz, and 5725–5850 MHz.	Oct, 2010
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
KDB558074	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247	2012

## **5. LABORATORY ENVIRONMENT**

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Fully-anechoic chamber.

## **6. SUMMARY OF TEST RESULTS**

### **6.1. Summary of Test Results**

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15C	Sub-clause of IC	Verdict
Maximum Peak Output Power	15.247 (a)	/	P
Peak Power Spectral Density	15.247 (d)	/	P
Occupied 6dB Bandwidth	15.247 (d)	/	P
Band Edges Compliance	15.247 (b)	/	P
Transmitter Spurious Emission - Conducted	15.247	/	P
Transmitter Spurious Emission - Radiated	15.247, 15.209, 15.209	/	P
AC Powerline Conducted Emission	15.107, 15.207	/	P

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

Terms used in Verdict column

P	Pass, The EUT complies with the essential requirements in the standard.
NM	Not measured, The test was not measured by TMC
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**

TMC 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	3.9V (By battery)
Humidity	44%

## **7. TEST EQUIPMENTS UTILIZED**

### **Conducted test system**

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	2014-07-08
2	Test Receiver	ESS	847151/015	Rohde & Schwarz	2013-10-30
3	LISN	ESH2-Z5	829991/012	Rohde & Schwarz	2014-08-12
4	Shielding Room	S81	/	ETS•LingGern	/

### **Radiated emission test system**

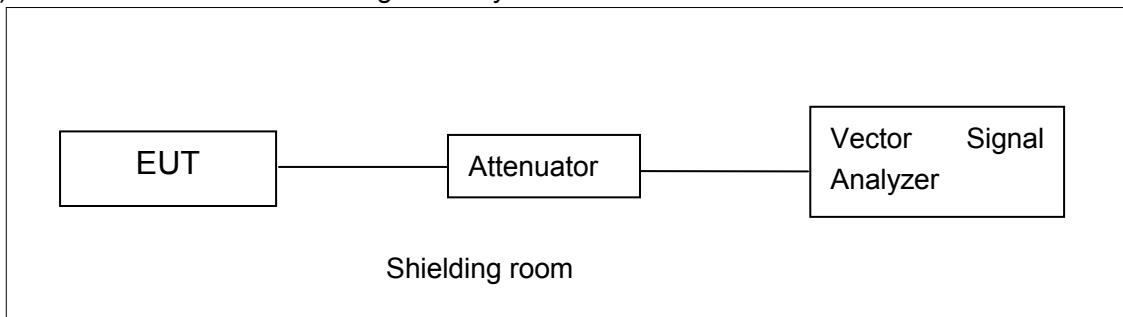
No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Test Receiver	ESI40	831564/002	Rohde & Schwarz	2014-08-11
2	BiLog Antenna	3142B	9908-1403	EMCO	2014-03-15
3	Dual-Ridge Waveguide Horn Antenna	3115	9906-5827	EMCO	2014-12-25
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2014-06-30
5	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

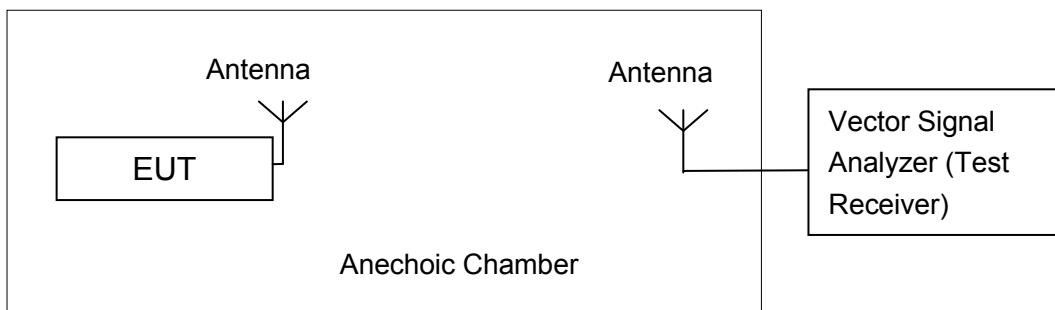


#### A.1.2. Radiated Emission Measurements

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 ANSI C63.4 and KDB558074

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

## A.2. Maximum Peak Output Power

### Measurement Limit and Method:

Standard	Limit (dBm)
FCC CRF Part 15.247(b)	< 30

The measurement is made according to ANSI C63.4 and KDB558074

### Measurement Uncertainty:

Measurement Uncertainty	0.75dB
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### A.2.1. Maximum Peak Output Power-conducted

#### Measurement Results:

##### 802.11a mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11a	6	19.52	/	/
	9	19.34	/	/
	12	19.28	/	/
	18	19.26	/	/
	24	19.72	/	/
	36	19.73	/	/
	48	19.75	16.67	15.74
	54	19.64	/	/

The data rate 48Mbps is selected as worse condition, and the following cases are performed with this condition.

##### 802.11n-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11n (20MHz)	MCS0	19.15	/	/
	MCS1	18.93	/	/
	MCS2	18.93	/	/
	MCS3	19.30	/	/
	MCS4	19.28	/	/
	MCS5	19.40	16.02	15.05
	MCS6	19.32	/	/
	MCS7	19.30	/	/

The data rate MCS5 is selected as worse condition, and the following cases are performed with this condition.

**802.11n-HT40 mode**

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11n (40MHz)	MCS0	17.13	/
	MCS1	17.15	/
	MCS2	17.42	/
	MCS3	17.50	/
	MCS4	17.78	/
	MCS5	17.95	16.06
	MCS6	17.49	/
	MCS7	17.46	/

The data rate MCS5 is selected as worse condition, and the following cases are performed with this condition.

**Conclusion: PASS**
**A.2.2. Maximum Average Output Power-conducted**
**802.11a mode**

Mode	Test Result (dBm)		
	5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11a	14.75	12.47	12.25

**802.11n-HT20 mode**

Mode	Test Result (dBm)		
	5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11n (20MHz)	13.76	11.96	11.11

**802.11n-HT40 mode**

Mode	Test Result (dBm)	
	5755MHz (Ch151)	5795MHz (Ch159)
802.11n (40MHz)	12.79	11.28

**Conclusion: PASS**

### A.3. Peak Power Spectral Density

**Measurement Limit:**

Standard	Limit
FCC CRF Part 15.247(d)	< 8 dBm/3 kHz

The measurement is made according to ANSI C63.4 and KDB558074

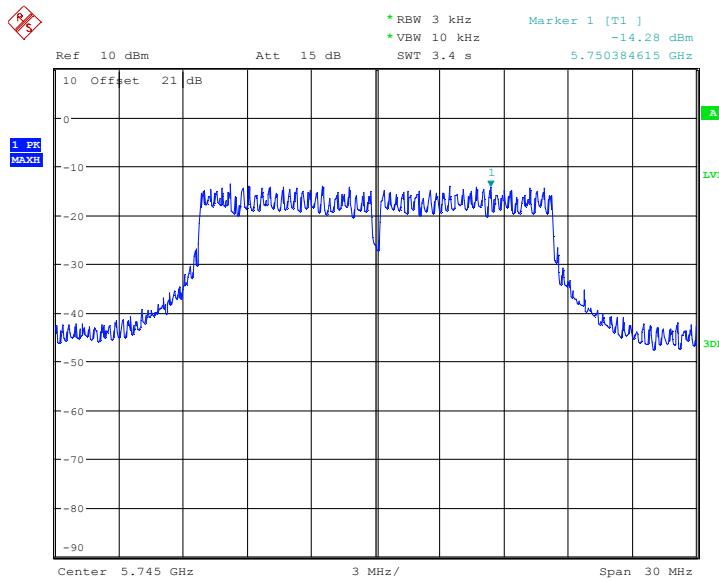
**Measurement Uncertainty:**

Measurement Uncertainty	0.75dB
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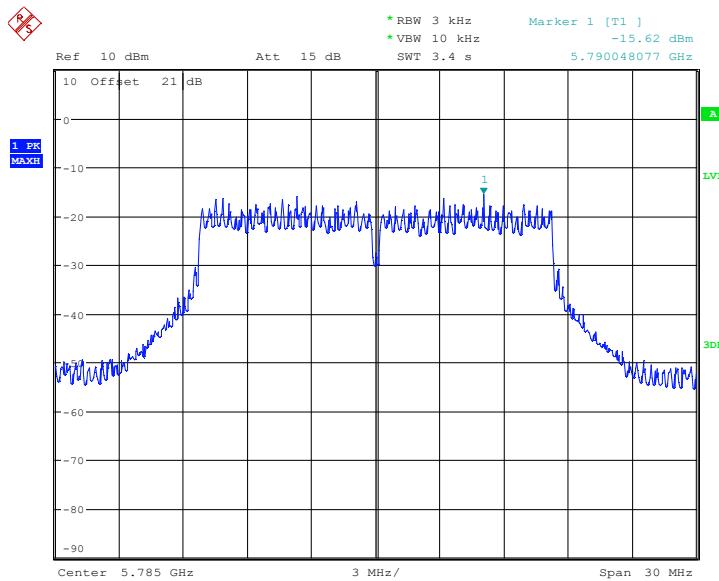
**Measurement Results:**

Mode	Channel	Power Spectral Density ( dBm/3 kHz )		Conclusion
802.11a	149	Fig.1	-14.28	P
	157	Fig.2	-15.62	P
	165	Fig.3	-16.99	P
802.11n HT20	149	Fig.4	-14.82	P
	157	Fig.5	-18.23	P
	165	Fig.6	-18.36	P
802.11n HT40	151	Fig.7	-18.72	P
	159	Fig.8	-20.47	P

**Conclusion: PASS**

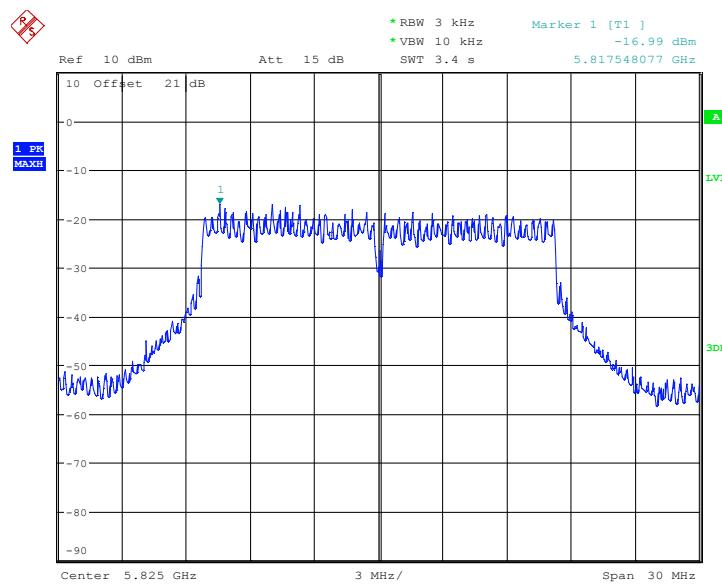


Date: 8.JUL.2013 11:12:39

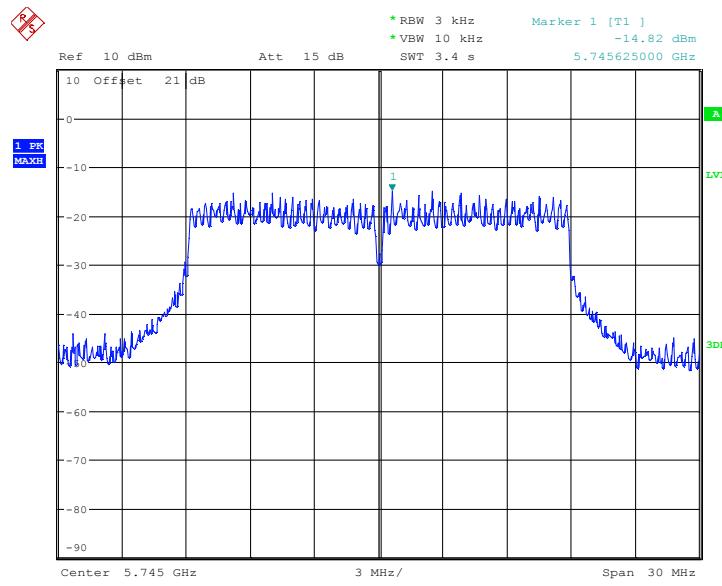
**Fig. 1 Power Spectral Density (802.11a, Ch 149)**


Date: 8.JUL.2013 11:13:44

**Fig. 2 Power Spectral Density (802.11a, Ch 157)**

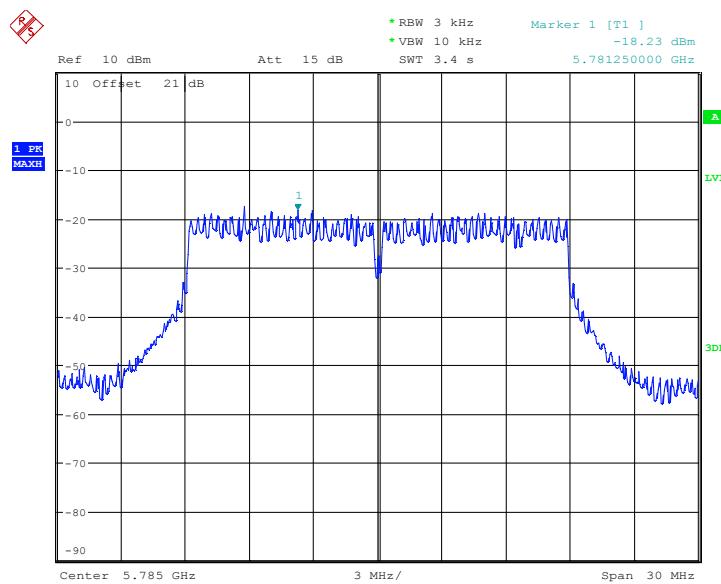


Date: 8.JUL.2013 11:14:38

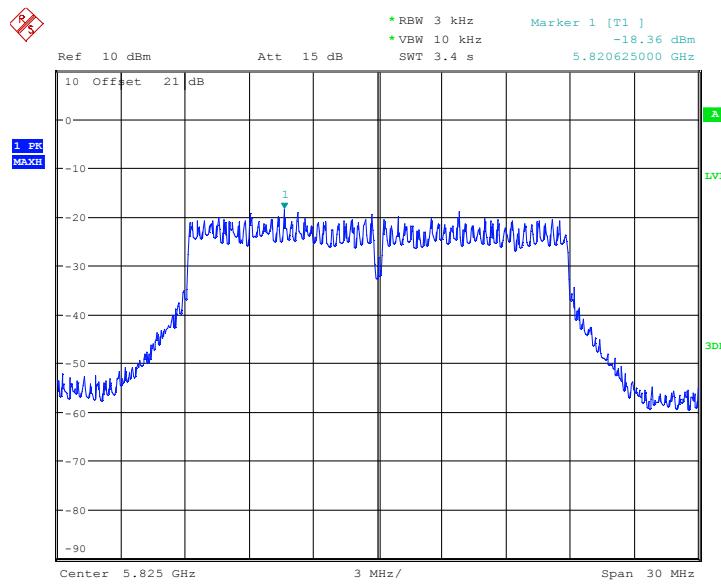
**Fig. 3 Power Spectral Density (802.11a, Ch 165)**


Date: 8.JUL.2013 11:19:05

**Fig. 4 Power Spectral Density (802.11n-HT20, Ch 149)**

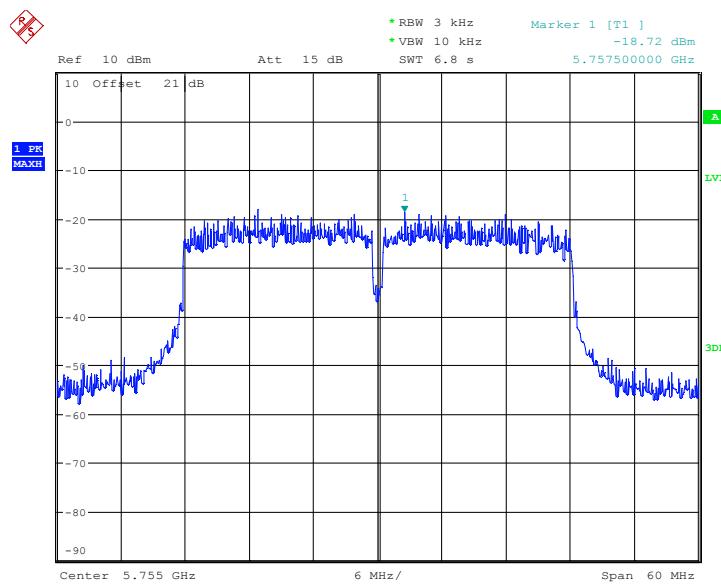


Date: 8.JUL.2013 11:17:47

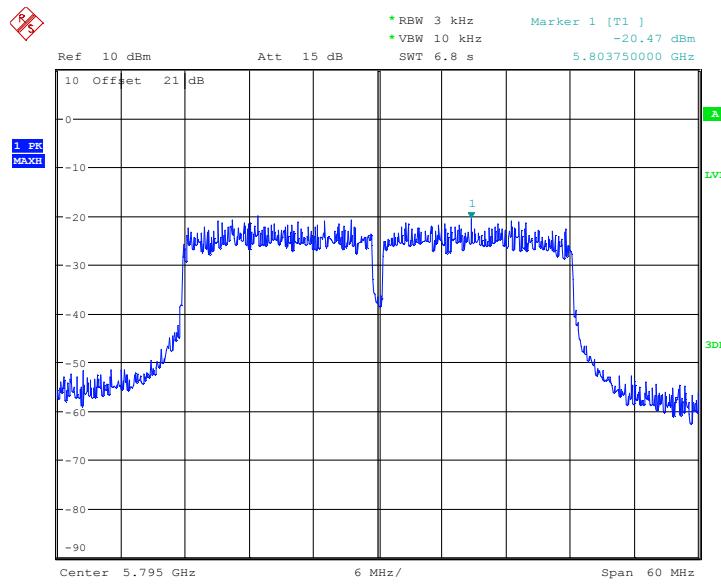
**Fig. 5 Power Spectral Density (802.11n-HT20, Ch 157)**


Date: 8.JUL.2013 11:18:34

**Fig. 6 Power Spectral Density (802.11n-HT20, Ch 165)**



Date: 8.JUL.2013 11:20:21

**Fig. 7 Power Spectral Density (802.11n-HT40, Ch 151)**


Date: 8.JUL.2013 11:21:29

**Fig. 8 Power Spectral Density (802.11n-HT40, Ch 159)**

**A.4. Occupied 6dB Bandwidth****Measurement Limit:**

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

The measurement is made according to ANSI C63.4 and KDB558074

**Measurement Uncertainty:**

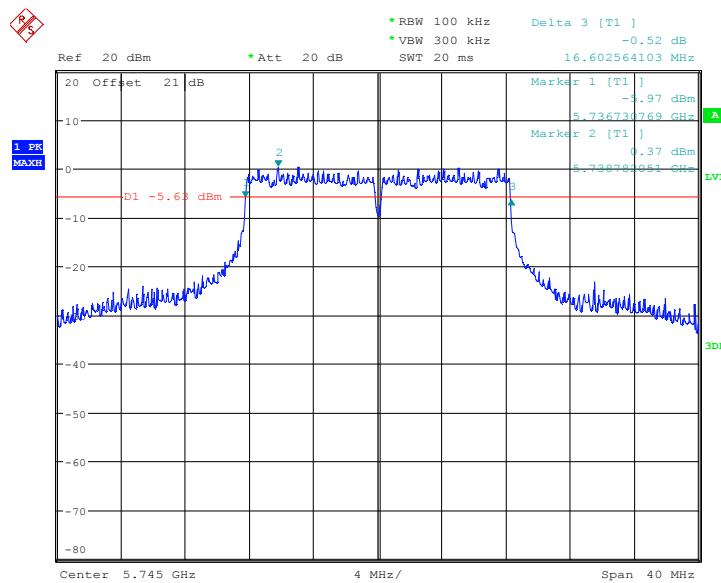
Measurement Uncertainty	60.80Hz
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**Measurement Result:**

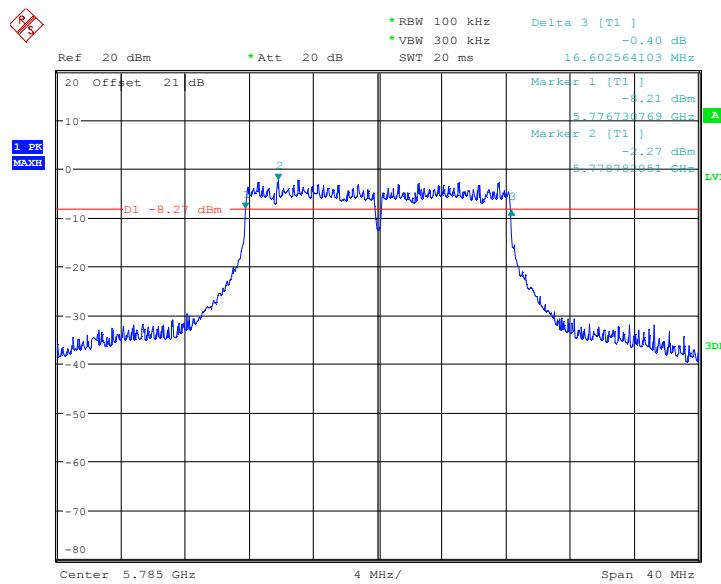
Mode	Channel	Occupied 6dB Bandwidth ( kHz)		conclusion
802.11a	149	Fig.9	16602.56	P
	157	Fig.10	16602.56	P
	165	Fig.11	16602.56	P
802.11n HT20	149	Fig.12	17820.51	P
	157	Fig.13	17820.51	P
	165	Fig.14	17820.51	P
802.11n HT40	151	Fig.15	36410.26	P
	159	Fig.16	36538.46	P

**Conclusion: PASS**

**Test graphs as below:**

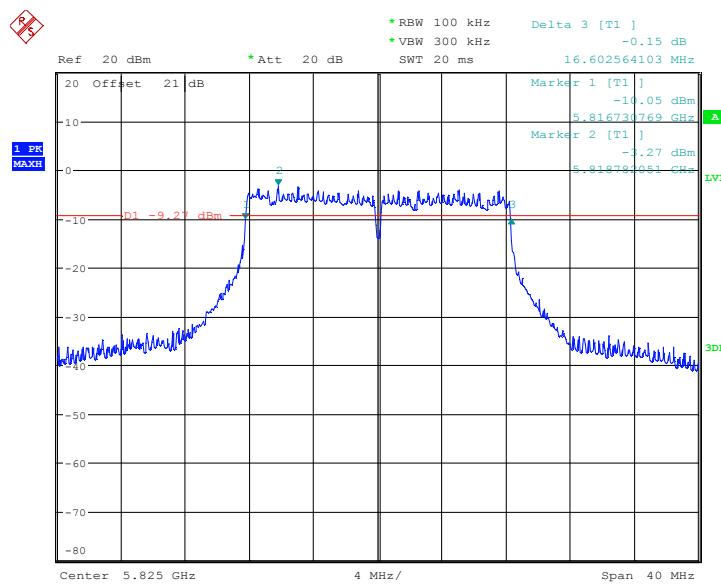


Date: 8.JUL.2013 11:25:20

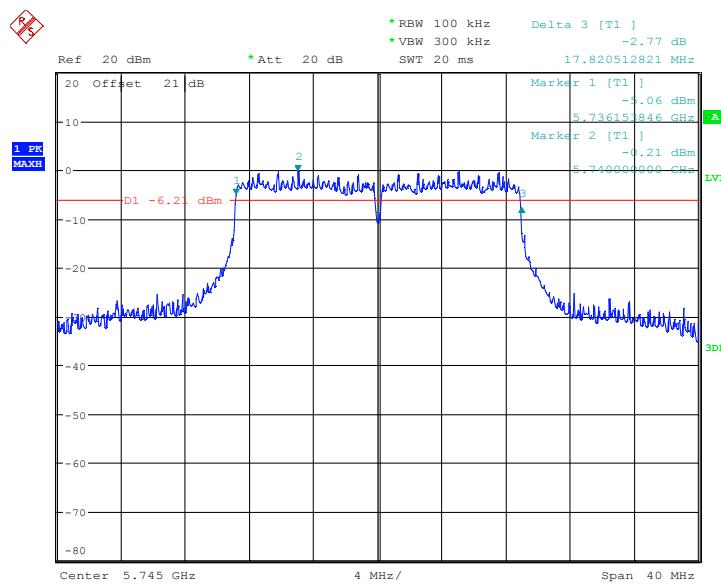
**Fig. 9 Occupied 6dB Bandwidth (802.11a, Ch 149)**


Date: 8.JUL.2013 13:09:52

**Fig. 10 Occupied 6dB Bandwidth (802.11a, Ch 157)**

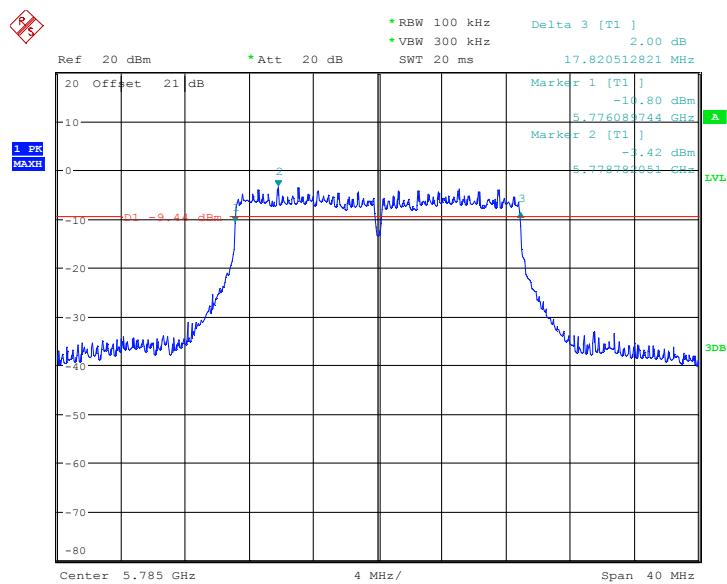


Date: 8.JUL.2013 13:11:42

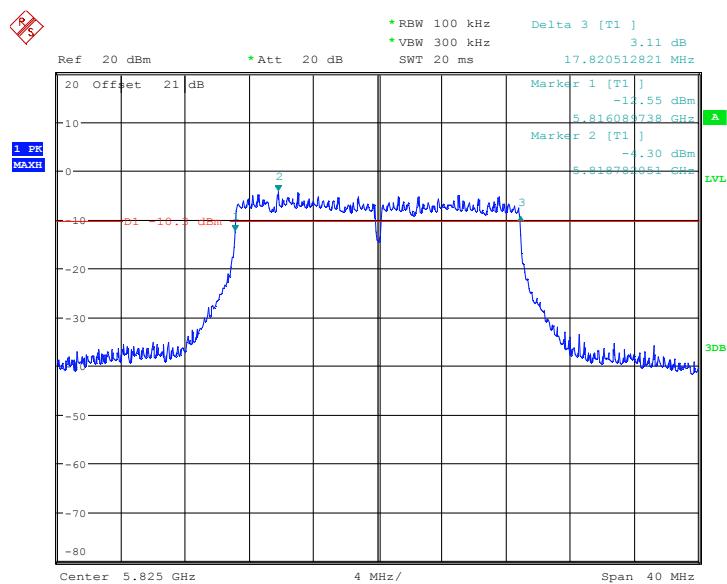
**Fig. 11 Occupied 6dB Bandwidth (802.11a, Ch 165)**


Date: 8.JUL.2013 13:13:10

**Fig. 12 Occupied 6dB Bandwidth (802.11n-HT20, Ch 149)**

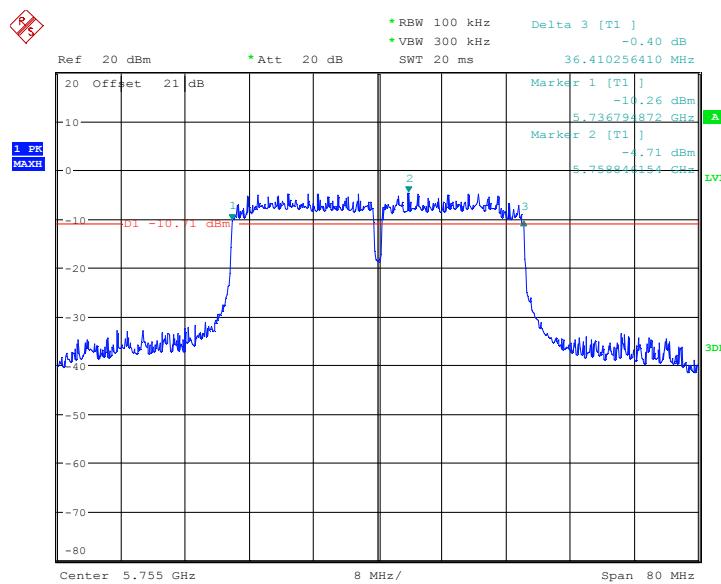


Date: 8.JUL.2013 13:14:40

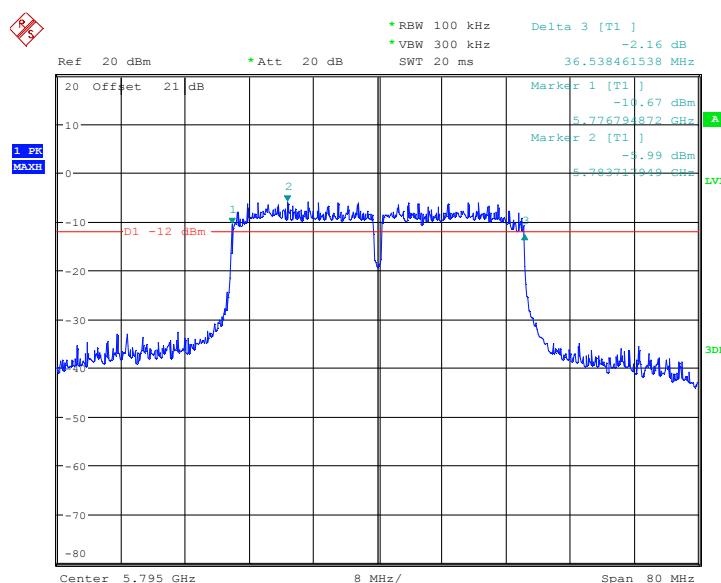
**Fig. 13 Occupied 6dB Bandwidth (802.11n-HT20, Ch 157)**


Date: 8.JUL.2013 13:17:17

**Fig. 14 Occupied 6dB Bandwidth (802.11n-HT20, Ch 165)**



Date: 8.JUL.2013 13:18:47

**Fig. 15 Occupied 6dB Bandwidth (802.11n-HT40, Ch 151)**


Date: 8.JUL.2013 13:20:24

**Fig. 16 Occupied 6dB Bandwidth (802.11n-HT40, Ch 157)**

## A.5. Transmitter Spurious Emission

### Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247 (d)	20dB below peak output power in 100 kHz bandwidth

The measurement is made according to ANSI C63.4 and KDB558074

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)).

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

### Measurement Uncertainty:

Frequency Range	Uncertainty
30MHz ≤ f ≤ 2GHz	0.63
2GHz ≤ f ≤ 3.6GHz	0.82
3.6GHz ≤ f ≤ 8GHz	1.55
8GHz ≤ f ≤ 20GHz	1.86
20GHz ≤ f ≤ 22GHz	1.90
22GHz ≤ f ≤ 26GHz	2.20

## A.6.1 Transmitter Spurious Emission - Conducted

### Measurement Results:

#### 802.11a mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11a	149	5.745 GHz	Fig.17	P
		30 MHz ~ 12 GHz	Fig.18	P
		12 GHz ~ 25 GHz	Fig.19	P
		25 GHz ~ 40 GHz	Fig.20	P
	157	5.785 GHz	Fig.21	P
		30 MHz ~ 12 GHz	Fig.22	P
		12 GHz ~ 25 GHz	Fig.23	P
		25 GHz ~ 40 GHz	Fig.24	P
	165	5.825 GHz	Fig.25	P
		30 MHz ~ 12 GHz	Fig.26	P
		12 GHz ~ 25 GHz	Fig.27	P
		25 GHz ~ 40 GHz	Fig.28	P

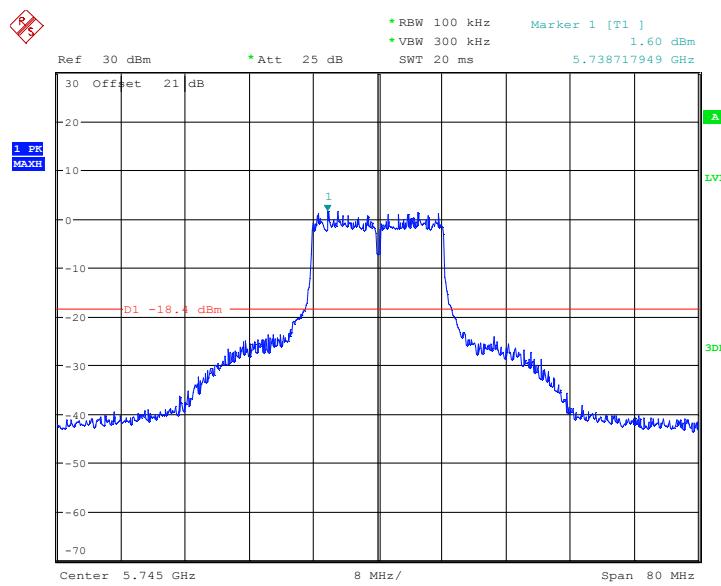
**802.11n-HT20 mode**

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n HT20	149	5.745 GHz	Fig.29	P
		30 MHz ~ 12 GHz	Fig.30	P
		12 GHz ~ 25 GHz	Fig.31	P
		25 GHz ~ 40 GHz	Fig.32	P
	157	5.785 GHz	Fig.33	P
		30 MHz ~ 12 GHz	Fig.34	P
		12 GHz ~ 25 GHz	Fig.35	P
		25 GHz ~ 40 GHz	Fig.36	P
	165	5.825 GHz	Fig.37	P
		30 MHz ~ 12 GHz	Fig.38	P
		12 GHz ~ 25 GHz	Fig.39	P
		25 GHz ~ 40 GHz	Fig.40	P

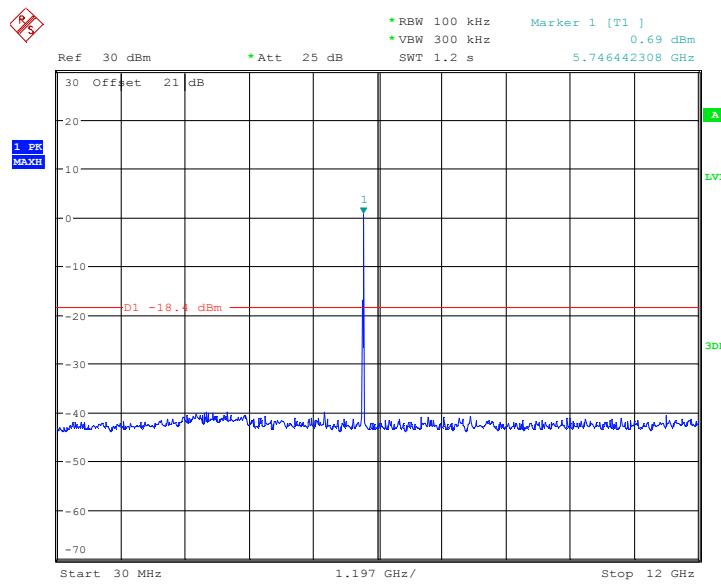
**802.11n-HT40 mode**

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n (40MHz)	151	5.755 GHz	Fig.41	P
		30 MHz ~ 12 GHz	Fig.42	P
		12 GHz ~ 25 GHz	Fig.43	P
		25 GHz ~ 40 GHz	Fig.44	P
	159	5.795 GHz	Fig.45	P
		30 MHz ~ 12 GHz	Fig.46	P
		12 GHz ~ 25 GHz	Fig.47	P
		25 GHz ~ 40 GHz	Fig.48	P

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

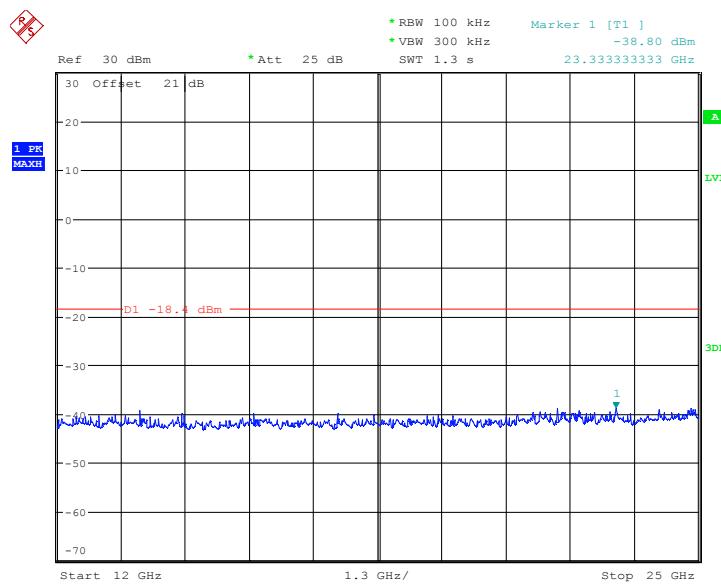


Date: 1.JAN.2003 00:35:46

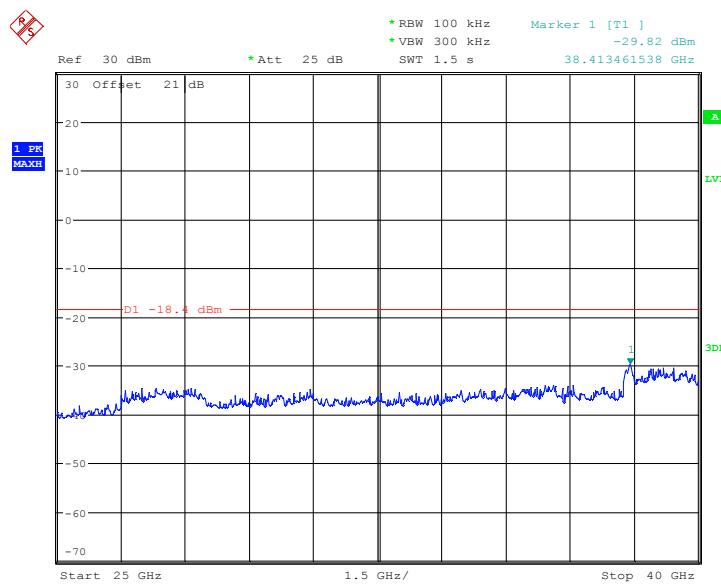
**Fig. 17 Conducted Spurious Emission (802.11a, Ch149, Center Frequency)**


Date: 1.JAN.2003 00:36:04

**Fig. 18 Conducted Spurious Emission (802.11a, Ch149, 30 MHz-12 GHz)**

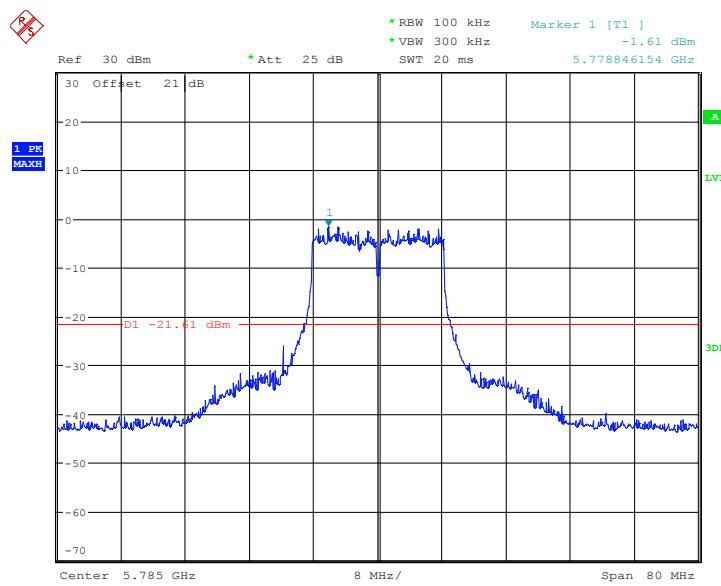


Date: 1.JAN.2003 00:36:29

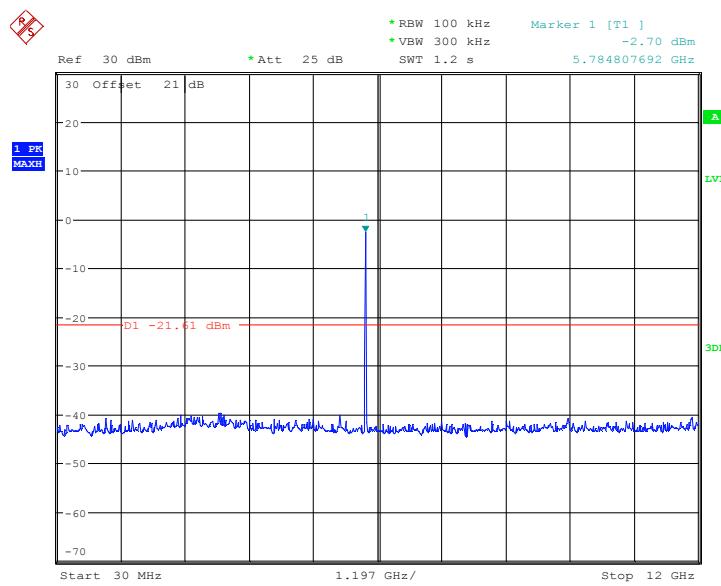
**Fig. 19 Conducted Spurious Emission (802.11a, Ch149, 12 GHz-25 GHz)**


Date: 1.JAN.2003 00:36:52

**Fig. 20 Conducted Spurious Emission (802.11a, Ch149, 25 GHz-40 GHz)**

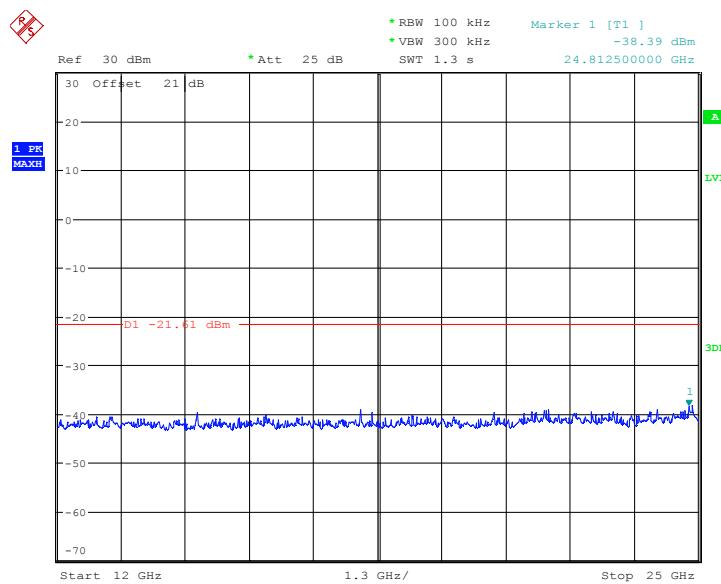


Date: 1.JAN.2003 00:37:42

**Fig. 21 Conducted Spurious Emission (802.11a, Ch157, Center Frequency)**


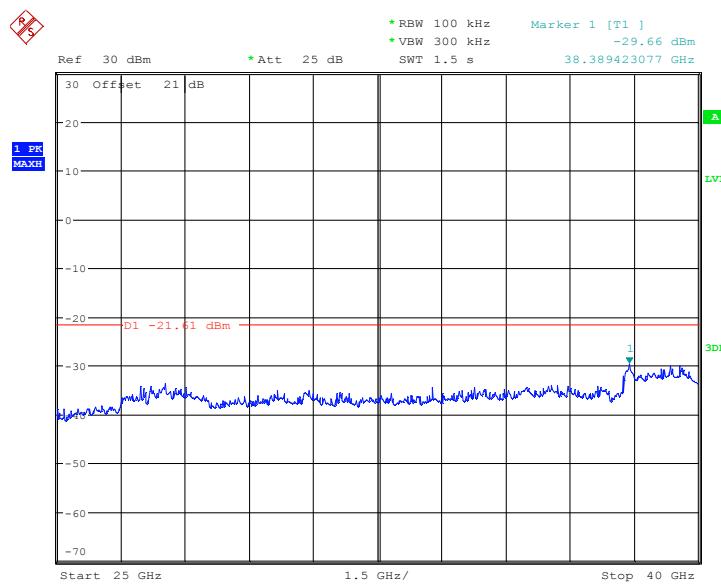
Date: 1.JAN.2003 00:37:54

**Fig. 22 Conducted Spurious Emission (802.11a, Ch157, 30 MHz-12 GHz)**



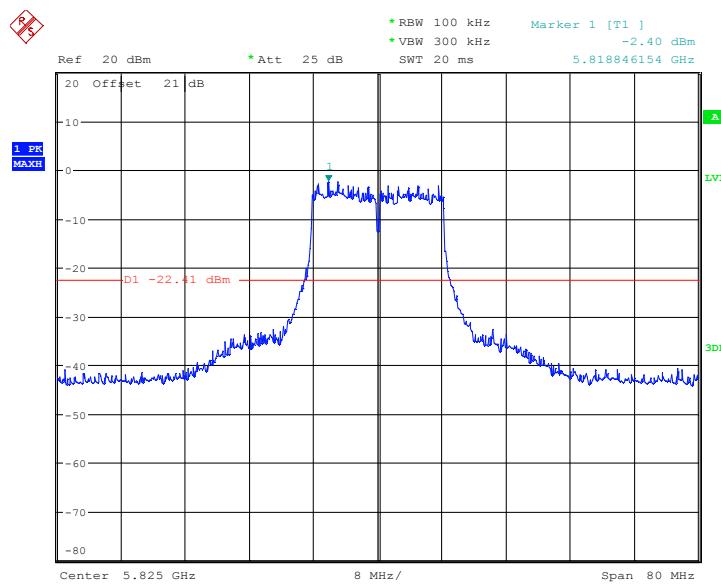
Date: 1.JAN.2003 00:38:09

**Fig. 23 Conducted Spurious Emission (802.11a, Ch157, 12 GHz-25 GHz)**

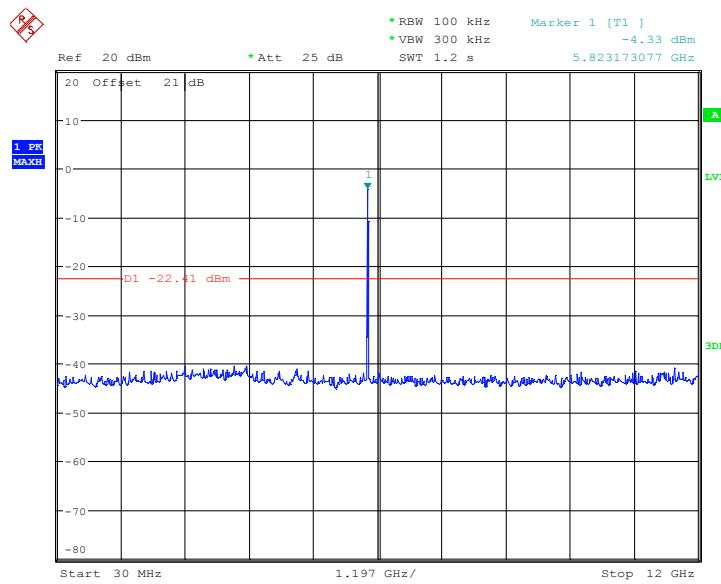


Date: 1.JAN.2003 00:38:36

**Fig. 24 Conducted Spurious Emission (802.11a, Ch157, 25 GHz-40 GHz)**

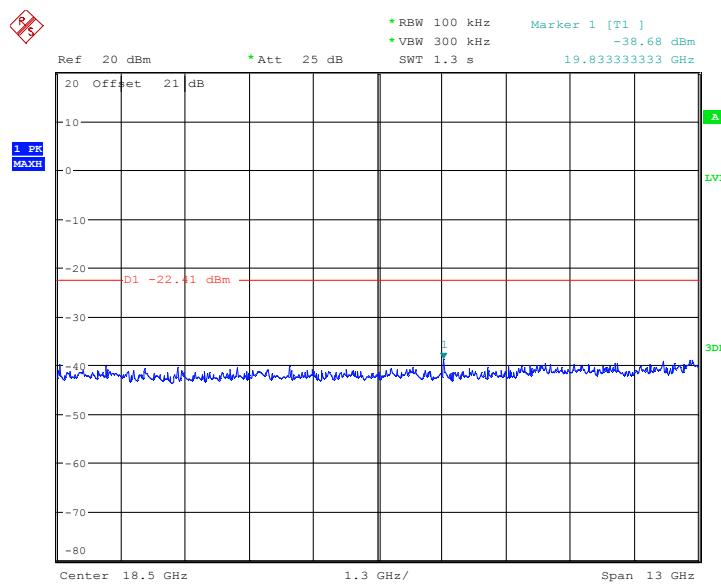


Date: 1.JAN.2003 00:39:44

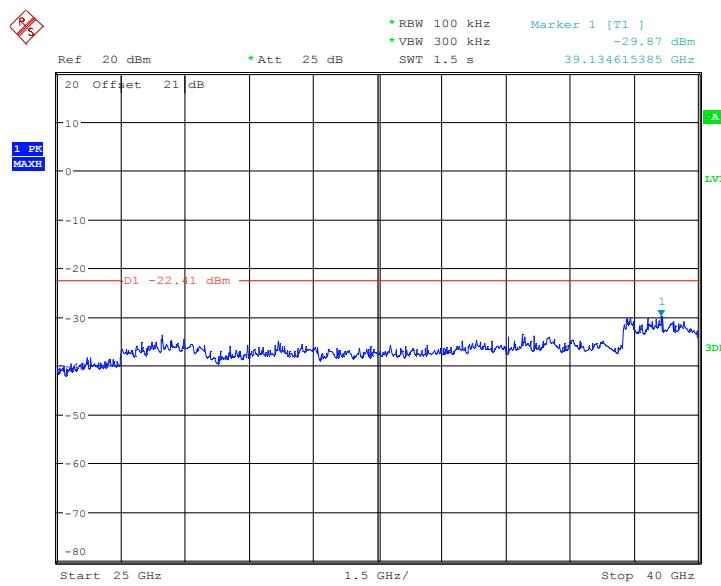
**Fig. 25 Conducted Spurious Emission (802.11a, Ch165, Center Frequency)**


Date: 1.JAN.2003 00:39:57

**Fig. 26 Conducted Spurious Emission (802.11a, Ch165, 30 MHz-12 GHz)**

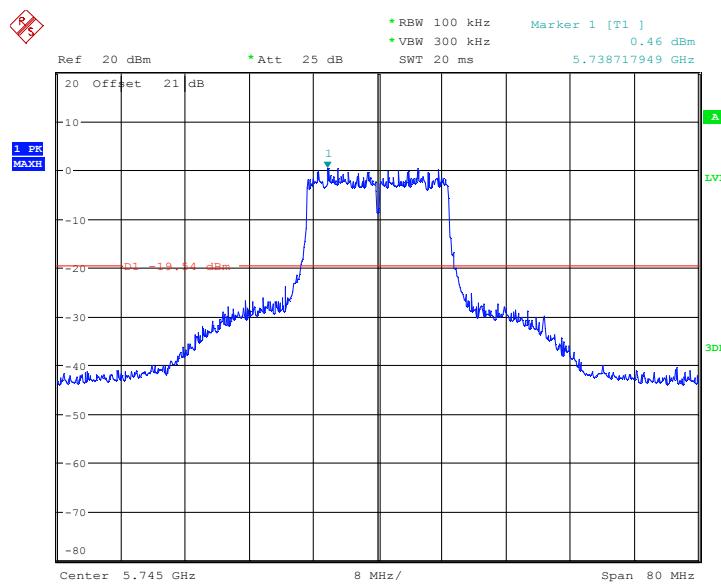


Date: 1.JAN.2003 00:40:24

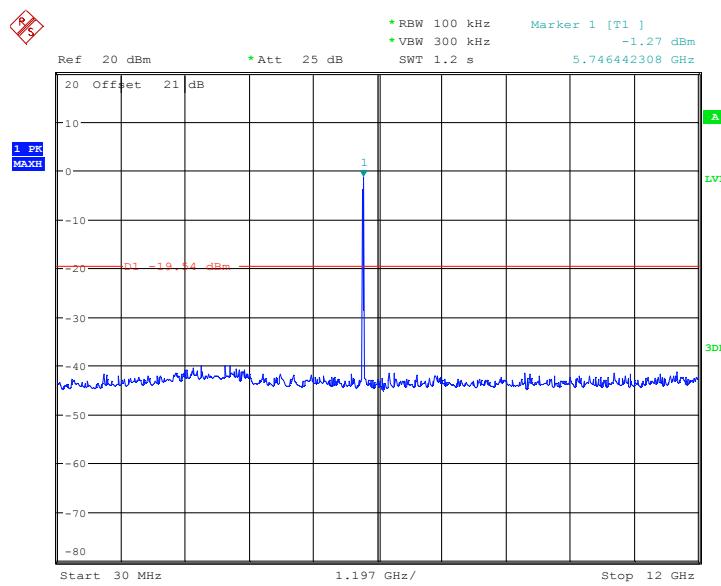
**Fig. 27 Conducted Spurious Emission (802.11a, Ch165, 12 GHz-25 GHz)**


Date: 1.JAN.2003 00:40:46

**Fig. 28 Conducted Spurious Emission (802.11a, Ch165, 25 GHz-40 GHz)**

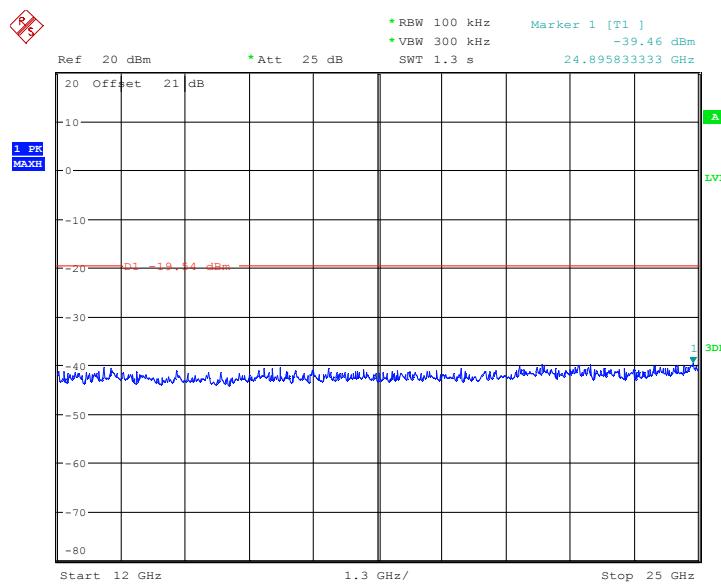


Date: 1.JAN.2003 00:41:39

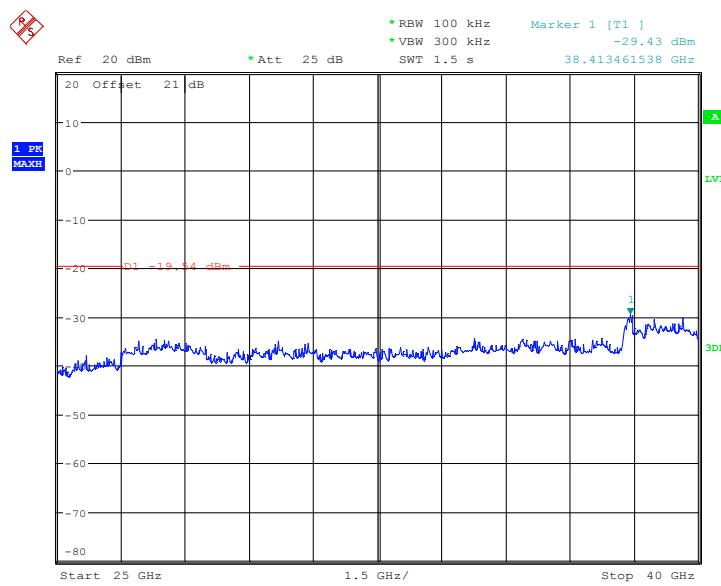
**Fig. 29 Conducted Spurious Emission (802.11n-HT20, Ch149, Center Frequency)**


Date: 1.JAN.2003 00:41:55

**Fig. 30 Conducted Spurious Emission (802.11n-HT20, Ch149, 30 MHz-12 GHz)**

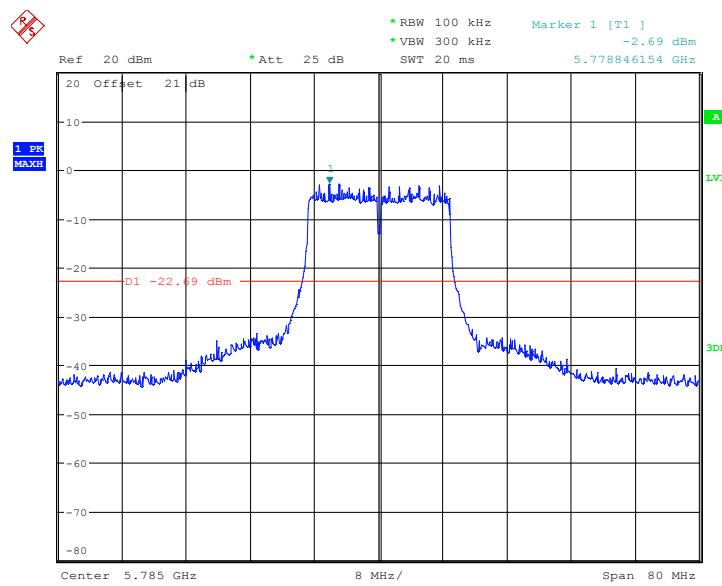


Date: 1.JAN.2003 00:42:08

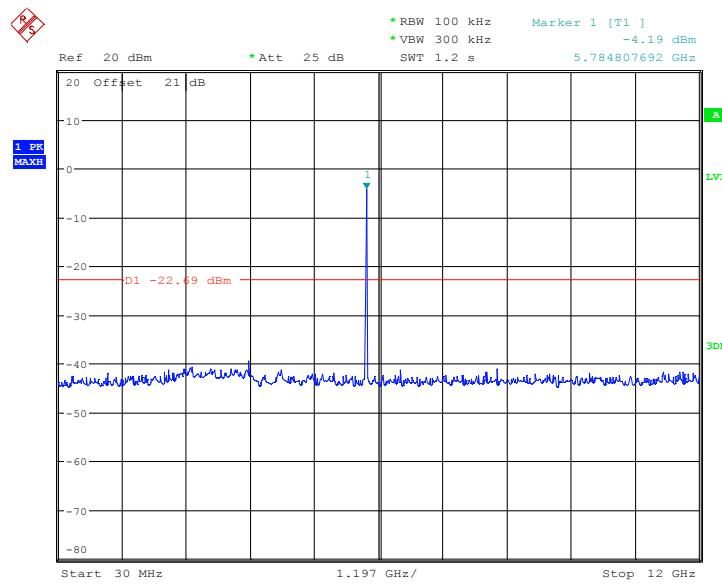
**Fig. 31 Conducted Spurious Emission (802.11n-HT20, Ch149, 12 GHz-25 GHz)**


Date: 1.JAN.2003 00:42:23

**Fig. 32 Conducted Spurious Emission (802.11n-HT20, Ch149, 25 GHz-40 GHz)**

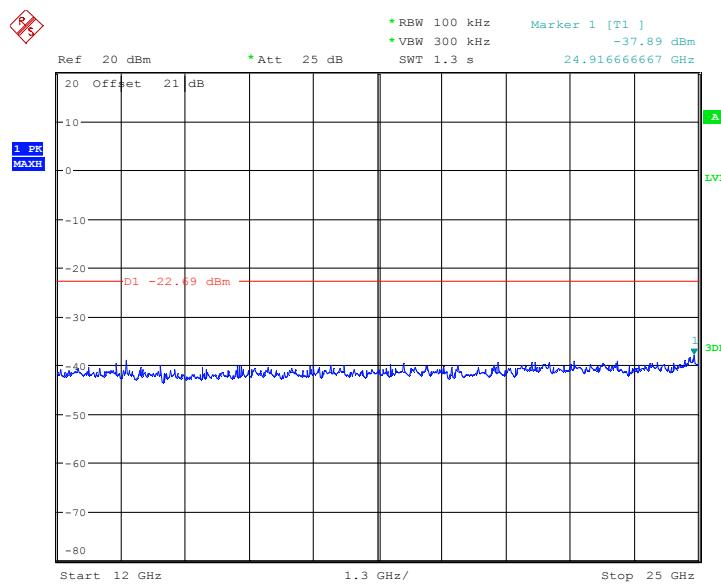


Date: 1.JAN.2003 00:43:19

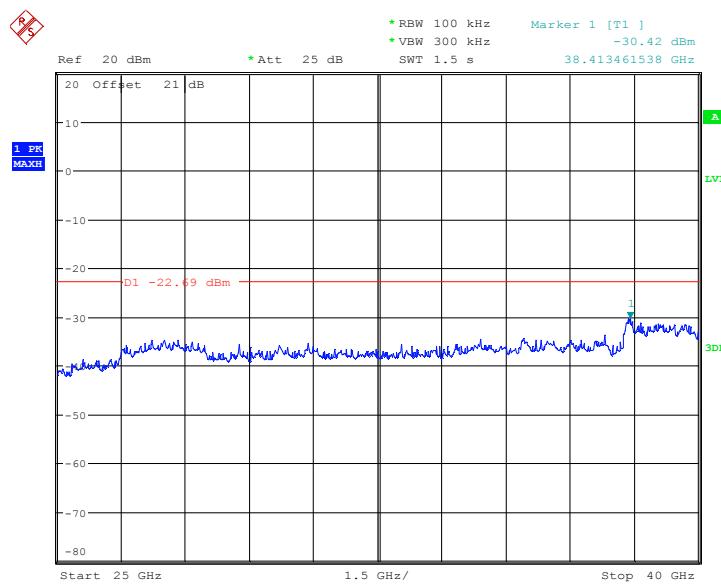
**Fig. 33 Conducted Spurious Emission (802.11n-HT20, Ch157, Center Frequency)**


Date: 1.JAN.2003 00:43:34

**Fig. 34 Conducted Spurious Emission (802.11n-HT20, Ch157, 30 MHz-12 GHz)**

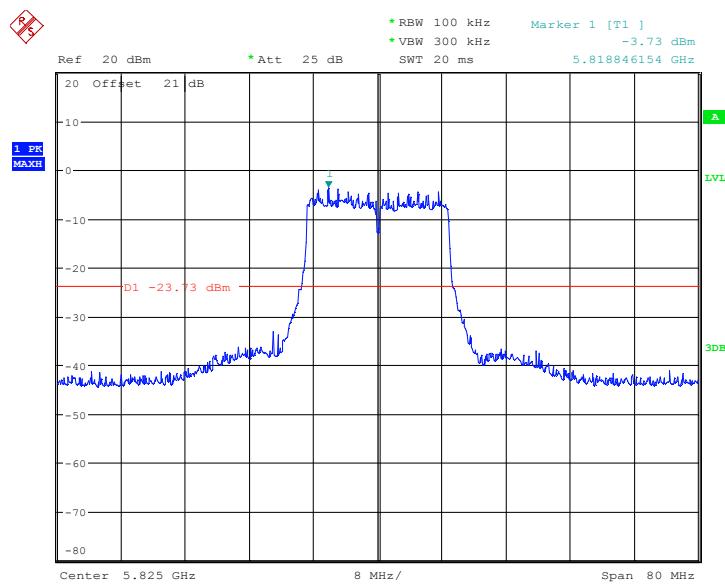


Date: 1.JAN.2003 00:44:27

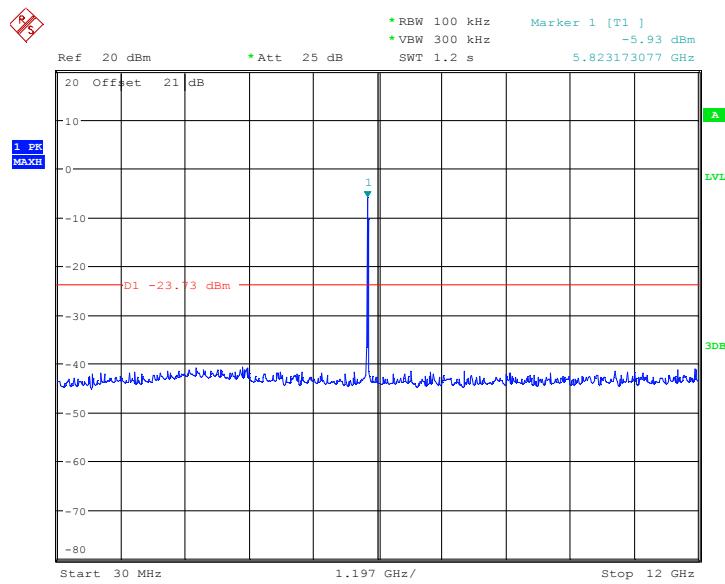
**Fig. 35 Conducted Spurious Emission (802.11n-HT20, Ch157, 12 GHz-25 GHz)**


Date: 1.JAN.2003 00:44:44

**Fig. 36 Conducted Spurious Emission (802.11n-HT20, Ch157, 25 GHz-40 GHz)**

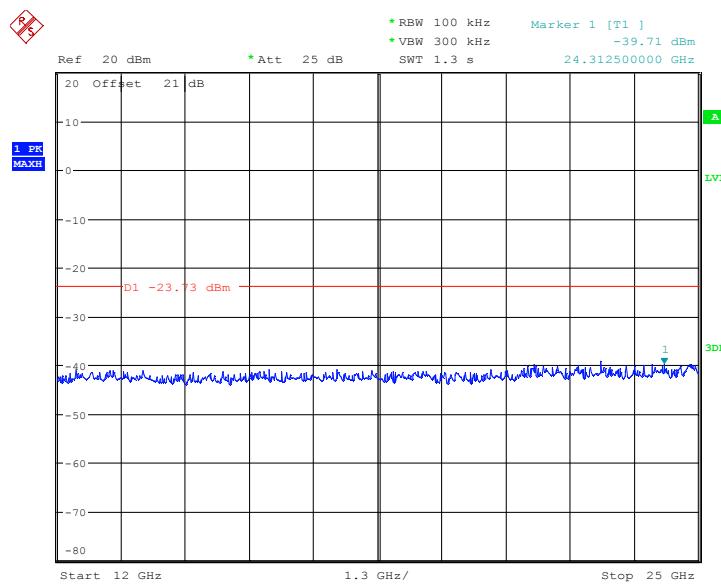


Date: 1.JAN.2003 00:45:22

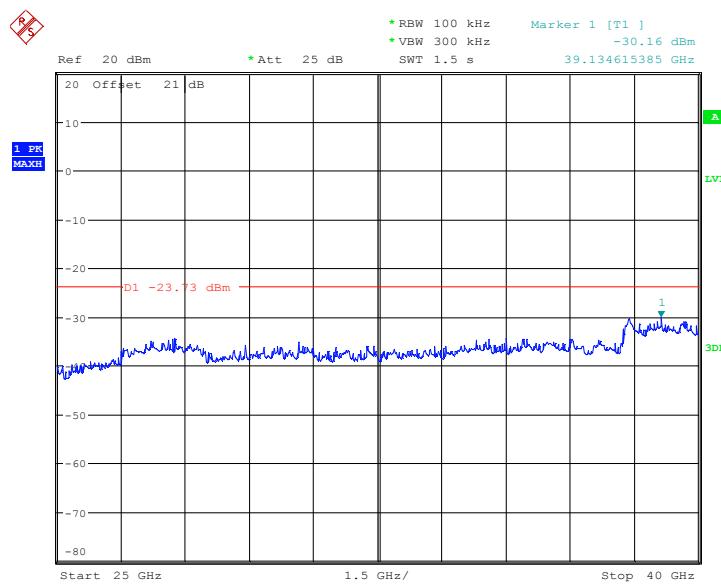
**Fig. 37 Conducted Spurious Emission (802.11n-HT20, Ch165, Center Frequency)**


Date: 1.JAN.2003 00:45:35

**Fig. 38 Conducted Spurious Emission (802.11n-HT20, Ch165, 30 MHz-12 GHz)**

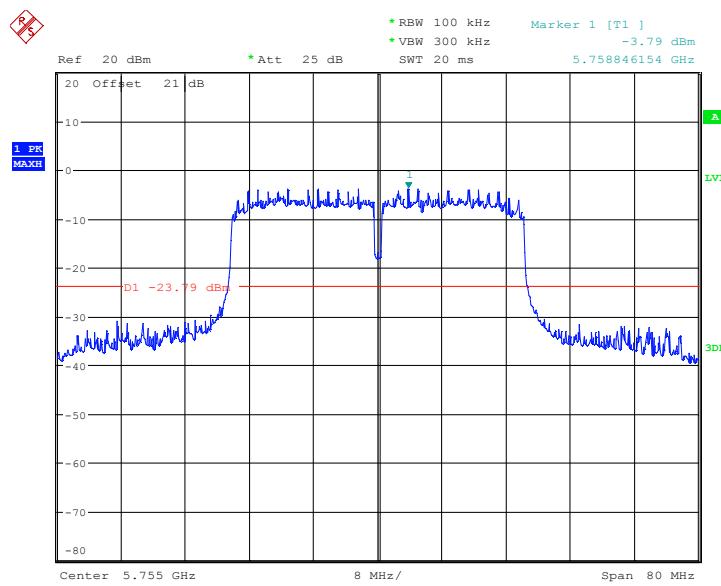


Date: 1.JAN.2003 00:45:48

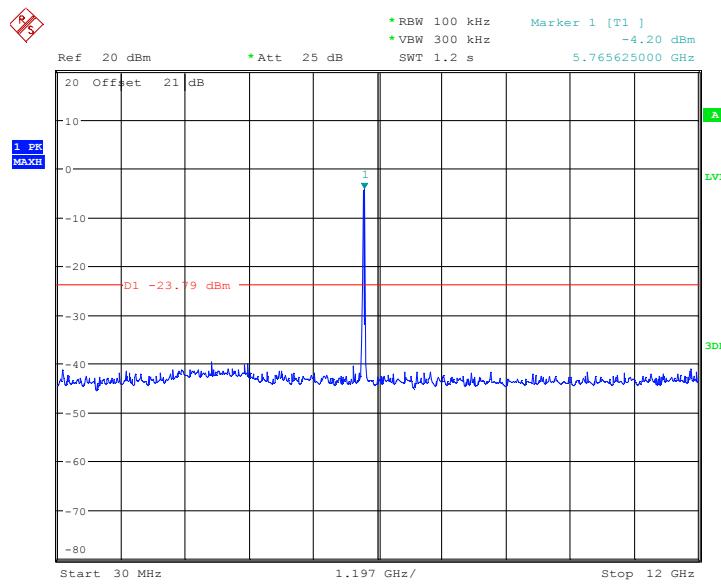
**Fig. 39 Conducted Spurious Emission (802.11n-HT20, Ch165, 12 GHz-25 GHz)**


Date: 1.JAN.2003 00:46:02

**Fig. 40 Conducted Spurious Emission (802.11n-HT20, Ch165, 25 GHz-40 GHz)**

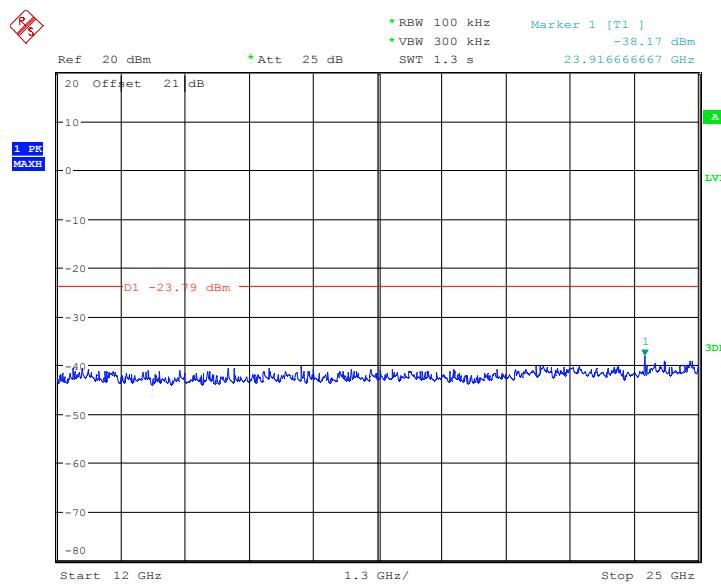


Date: 1.JAN.2003 00:46:56

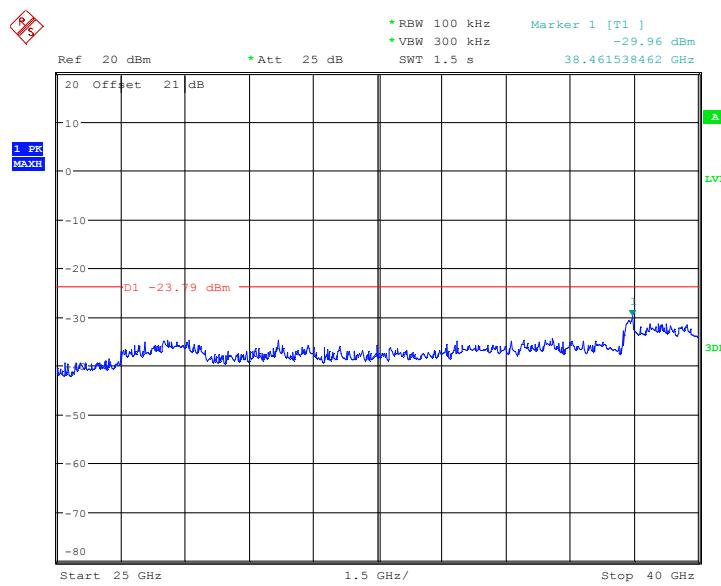
**Fig. 41 Conducted Spurious Emission (802.11n-HT40, Ch151, Center Frequency)**


Date: 1.JAN.2003 00:47:11

**Fig. 42 Conducted Spurious Emission (802.11n-HT40, Ch151, 30 MHz-12 GHz)**

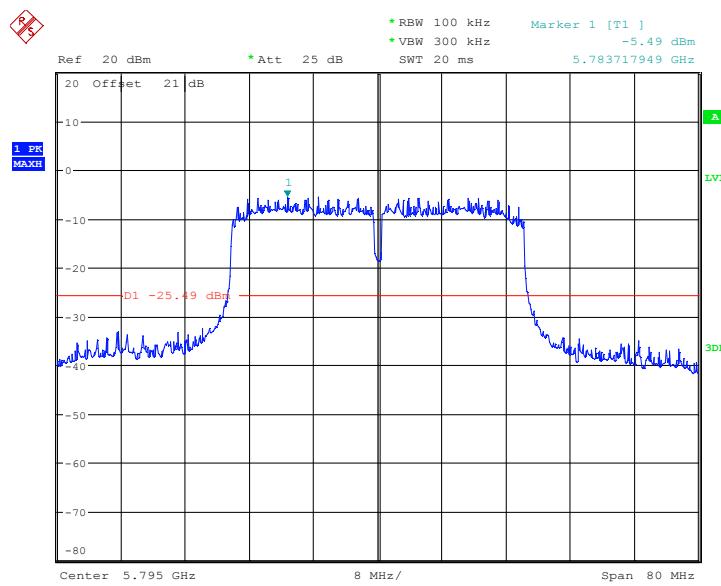


Date: 1.JAN.2003 00:47:25

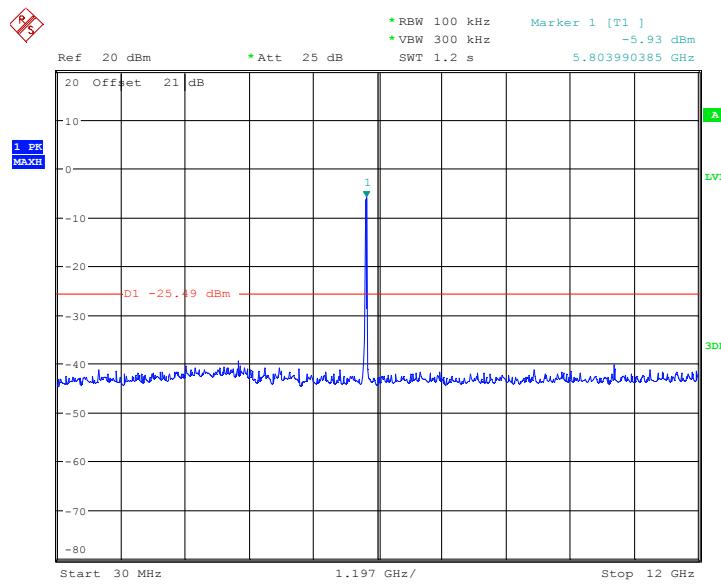
**Fig. 43 Conducted Spurious Emission (802.11n-HT40, Ch151, 12 GHz-25 GHz)**


Date: 1.JAN.2003 00:47:56

**Fig. 44 Conducted Spurious Emission (802.11n-HT40, Ch151, 25 GHz-40 GHz)**

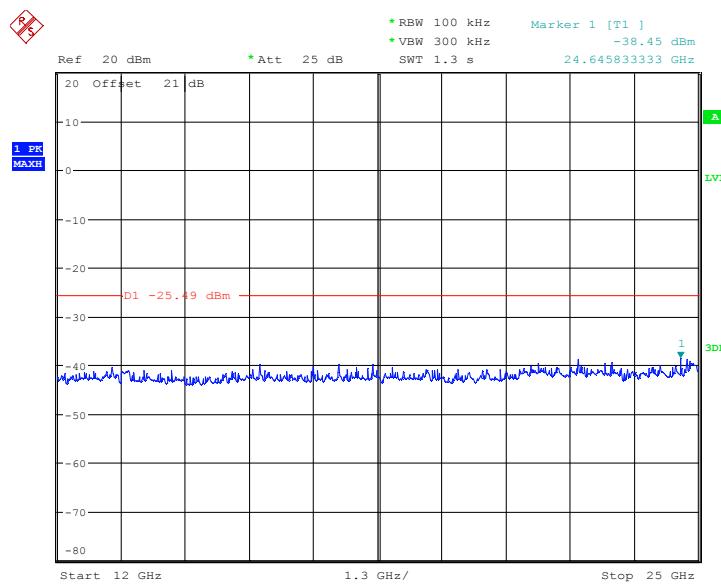


Date: 1.JAN.2003 00:49:05

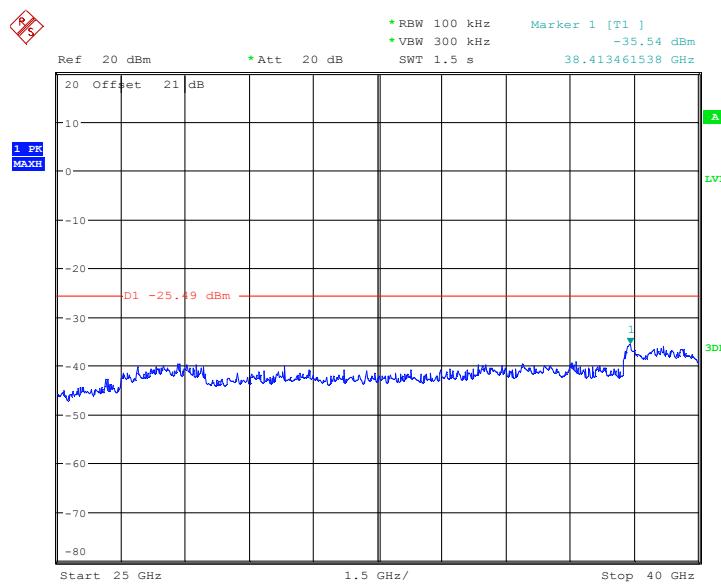
**Fig. 45 Conducted Spurious Emission (802.11n-HT40, Ch159, Center Frequency)**


Date: 1.JAN.2003 00:49:28

**Fig. 46 Conducted Spurious Emission (802.11n-HT40, Ch159, 30 MHz-12 GHz)**



Date: 1.JAN.2003 00:49:43

**Fig. 47 Conducted Spurious Emission (802.11n-HT40, Ch159, 12 GHz-25 GHz)**


Date: 1.JAN.2003 00:50:12

**Fig. 48 Conducted Spurious Emission (802.11n-HT40, Ch151, 25 GHz-40 GHz)**

**A.6.2 Transmitter Spurious Emission - Radiated****Limit in restricted band:****Measurement Results:****802.11a mode**

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	149	30 MHz ~1 GHz	Fig.49	P
		1 GHz ~ 3 GHz	Fig.50	P
		3 GHz ~ 6 GHz	Fig.51	P
		6 GHz ~ 18 GHz	Fig.52	P
		18 GHz ~ 26.5 GHz	Fig.53	P
		26.5 GHz ~ 40 GHz	Fig.54	P
	157	30 MHz ~1 GHz	Fig.55	P
		1 GHz ~ 3 GHz	Fig.56	P
		3 GHz ~ 6 GHz	Fig.57	P
		6 GHz ~ 18 GHz	Fig.58	P
		18 GHz ~ 26.5 GHz	Fig.59	P
		26.5 GHz ~ 40 GHz	Fig.60	P
	165	30 MHz ~1 GHz	Fig.61	P
		1 GHz ~ 3 GHz	Fig.62	P
		3 GHz ~ 6 GHz	Fig.63	P
		6 GHz ~ 18 GHz	Fig.64	P
		18 GHz ~ 26.5 GHz	Fig.65	P
		26.5 GHz ~ 40 GHz	Fig.66	P

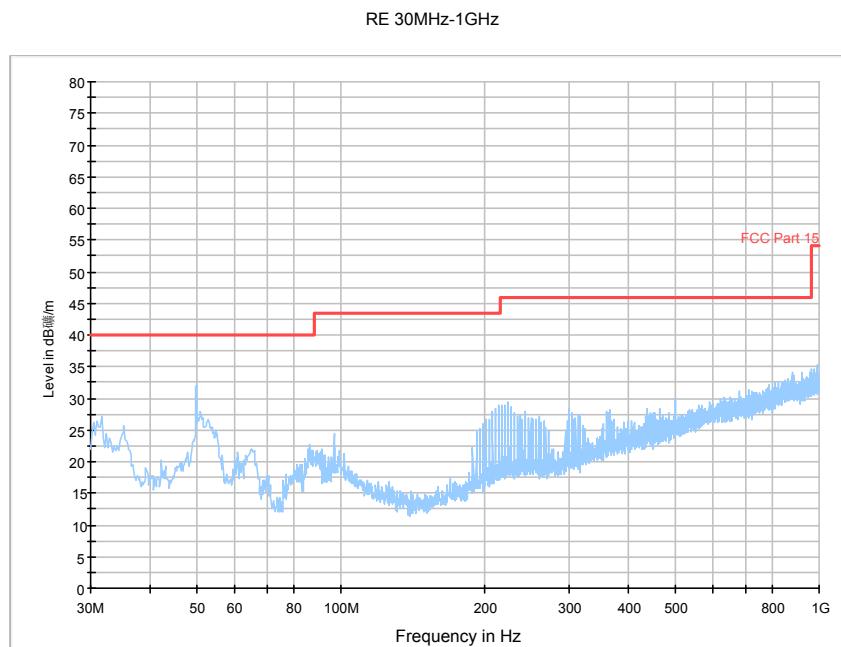
**802.11n-HT20 mode**

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	149	30 MHz ~1 GHz	Fig.67	P
		1 GHz ~ 3 GHz	Fig.68	P
		3 GHz ~ 6 GHz	Fig.69	P
		6 GHz ~ 18 GHz	Fig.70	P
		18 GHz ~ 26.5 GHz	Fig.71	P
		26.5 GHz ~ 40 GHz	Fig.72	P
	157	30 MHz ~1 GHz	Fig.73	P
		1 GHz ~ 3 GHz	Fig.74	P
		3 GHz ~ 6 GHz	Fig.75	P
		6 GHz ~ 18 GHz	Fig.76	P
		18 GHz ~ 26.5 GHz	Fig.77	P
		26.5 GHz ~ 40 GHz	Fig.78	P
	165	30 MHz ~1 GHz	Fig.79	P
		1 GHz ~ 3 GHz	Fig.80	P
		3 GHz ~ 6 GHz	Fig.81	P
		6 GHz ~ 18 GHz	Fig.82	P
		18 GHz ~ 26.5 GHz	Fig.83	P
		26.5 GHz ~ 40 GHz	Fig.84	P

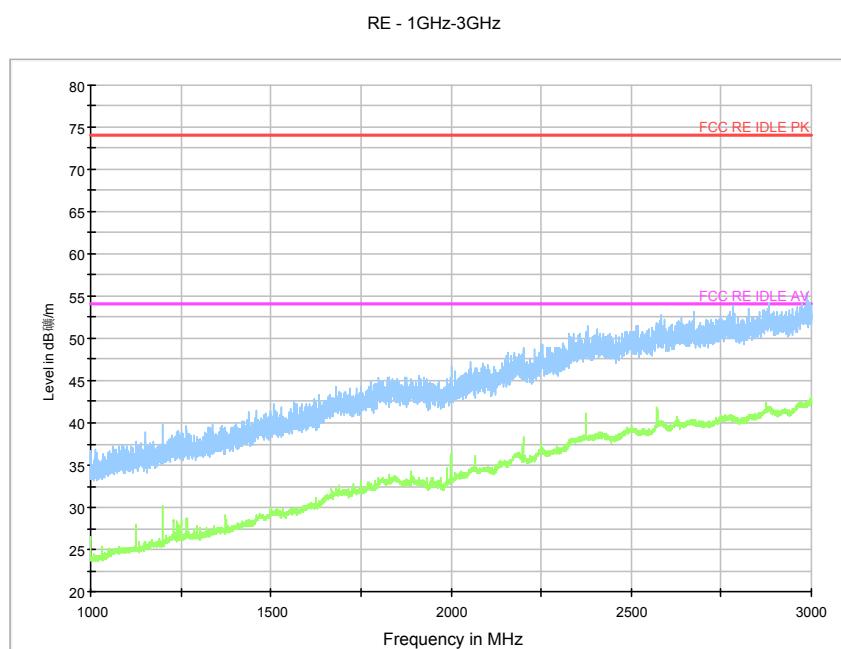
**802.11n-HT40 mode**

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT40)	151	30 MHz ~1 GHz	Fig.85	P
		1 GHz ~ 3 GHz	Fig.86	P
		3 GHz ~ 6 GHz	Fig.87	P
		6 GHz ~ 18 GHz	Fig.88	P
		18 GHz ~ 26.5 GHz	Fig.89	P
		26.5 GHz ~ 40 GHz	Fig.90	P
	159	30 MHz ~1 GHz	Fig.91	P
		1 GHz ~ 3 GHz	Fig.92	P
		3 GHz ~ 6 GHz	Fig.93	P
		6 GHz ~ 18 GHz	Fig.94	P
		18 GHz ~ 26.5 GHz	Fig.95	P
		26.5 GHz ~ 40 GHz	Fig.96	P

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

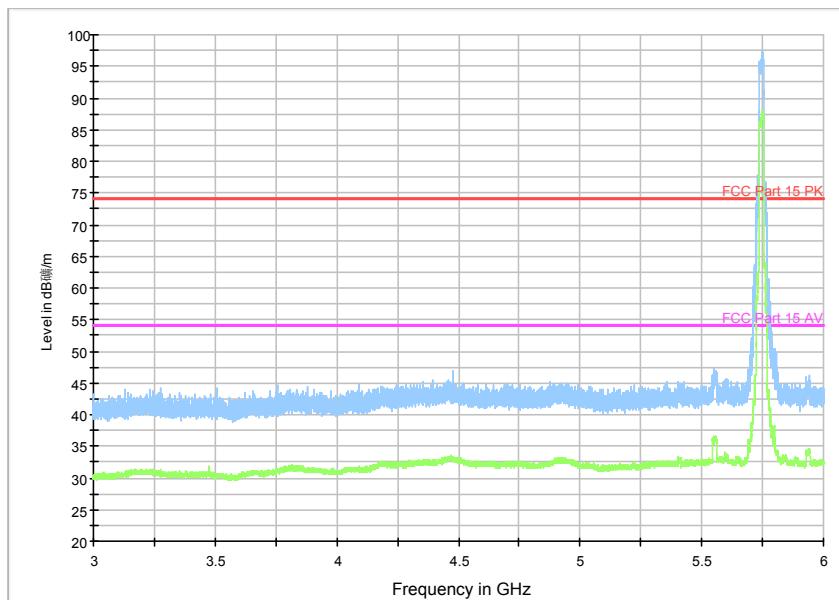


**Fig. 49 Radiated Spurious Emission (802.11a, Ch149, 30 MHz-1 GHz)**

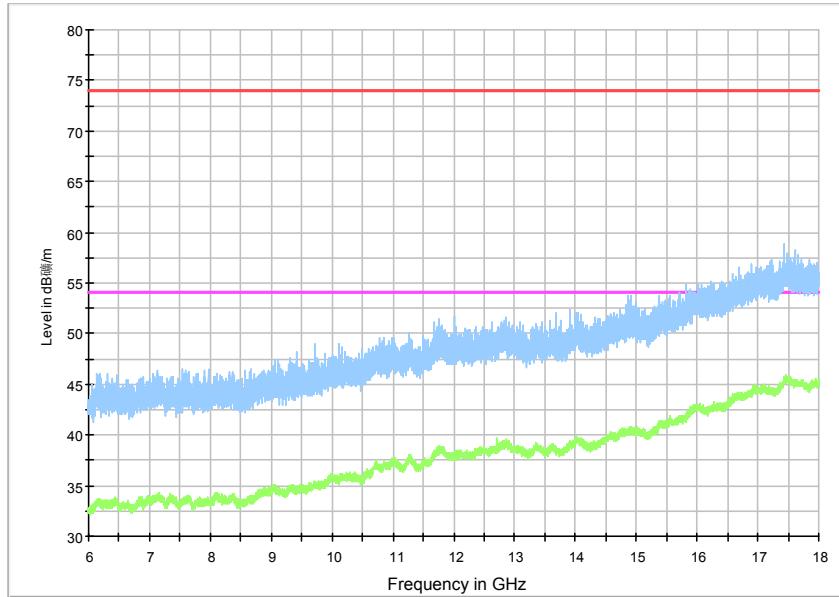


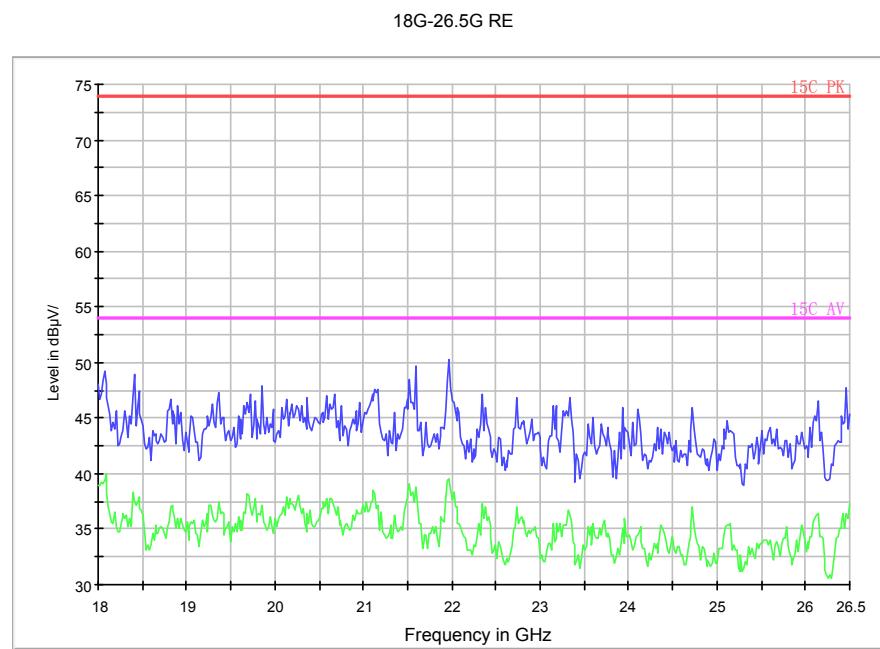
**Fig. 50 Radiated Spurious Emission (802.11a, Ch149, 1 GHz-3 GHz)**

RE - 3GHz-6GHz

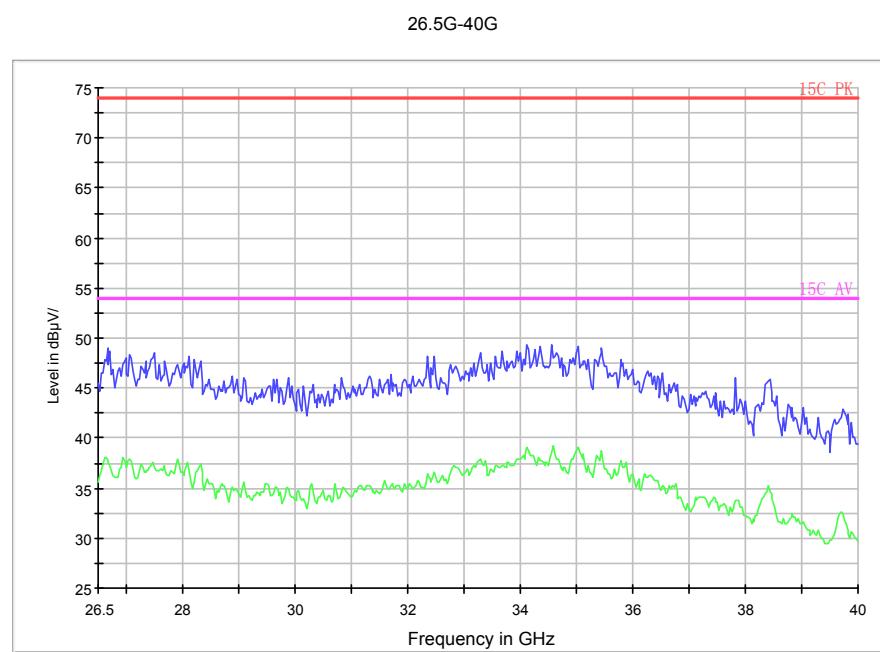
**Fig. 51 Radiated Spurious Emission (802.11a, Ch149, 3 GHz-6 GHz)**

RE - 6GHz-18GHz

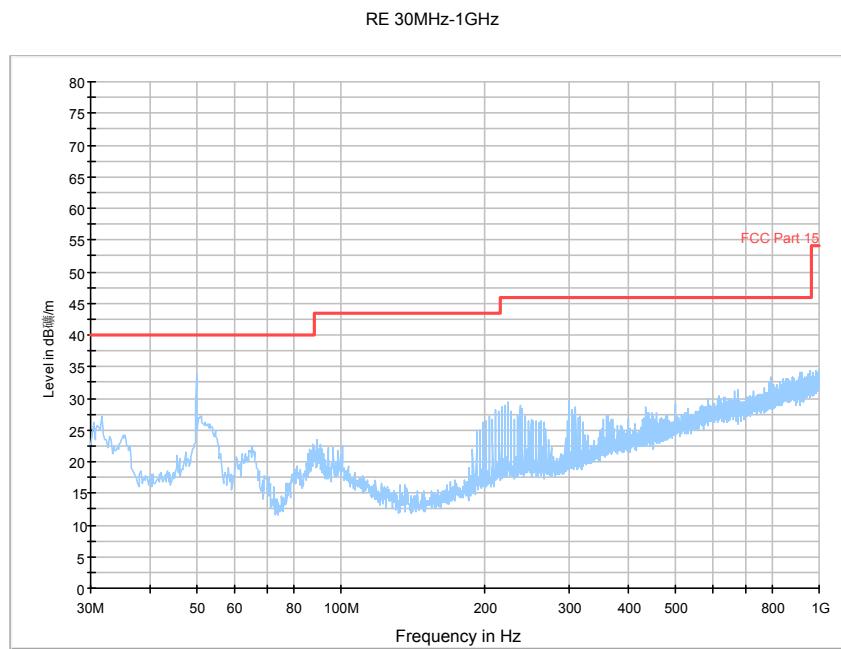
**Fig. 52 Radiated Spurious Emission (802.11a, Ch149, 6 GHz-18 GHz)**



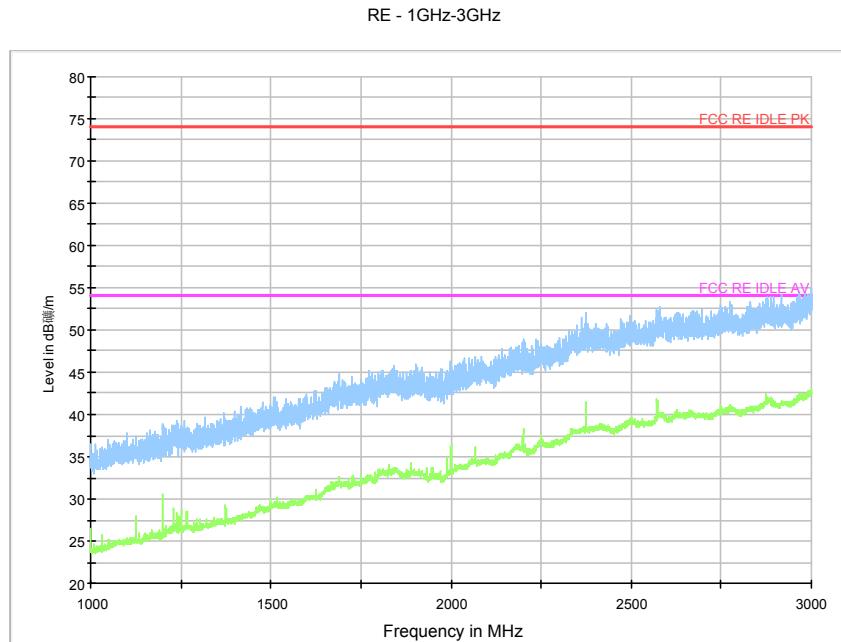
**Fig. 53 Radiated Spurious Emission (802.11a, Ch149, 18 GHz-26.5 GHz)**



**Fig. 54 Radiated Spurious Emission (802.11a, Ch149, 26.5 GHz-40 GHz)**

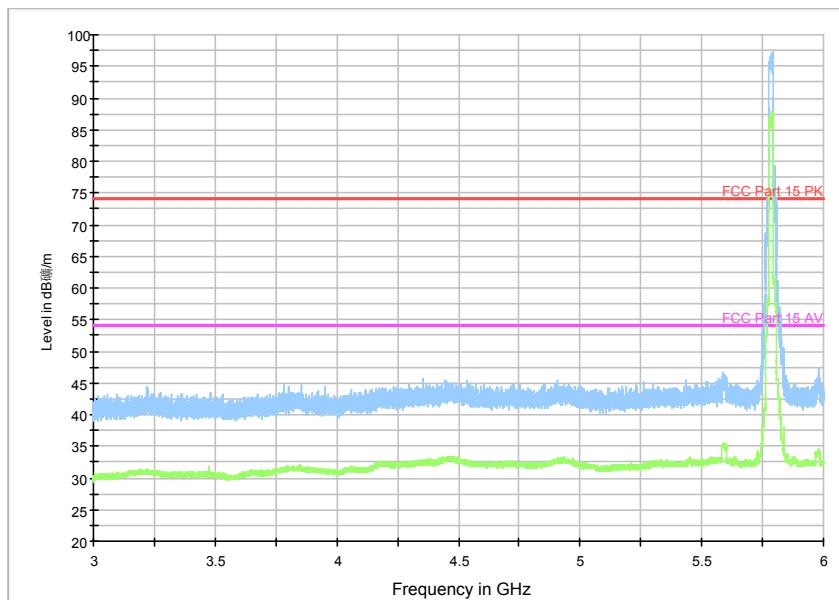


**Fig. 55 Radiated Spurious Emission (802.11a, Ch157, 30 MHz-1 GHz)**

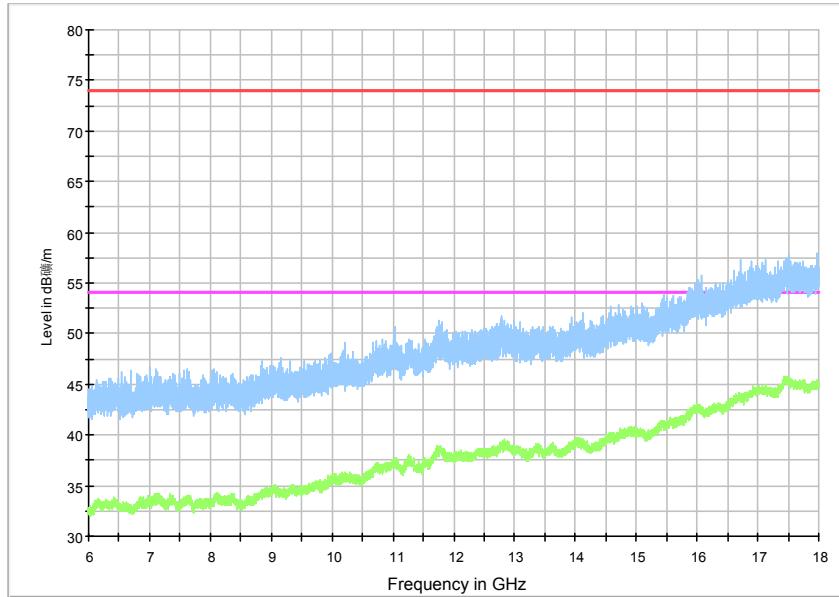


**Fig. 56 Radiated Spurious Emission (802.11a, Ch157, 1 GHz-3 GHz)**

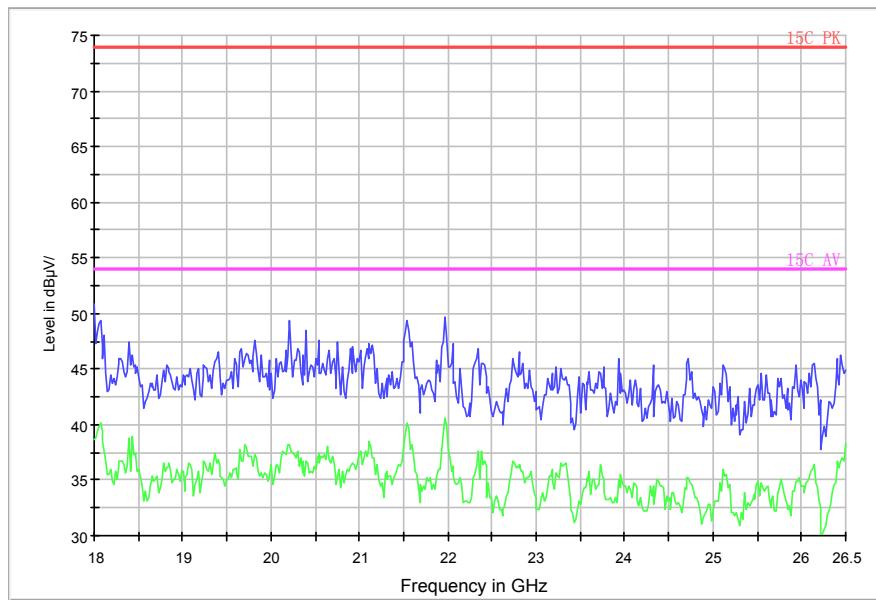
RE - 3GHz-6GHz

**Fig. 57 Radiated Spurious Emission (802.11a, Ch157, 3 GHz-6 GHz)**

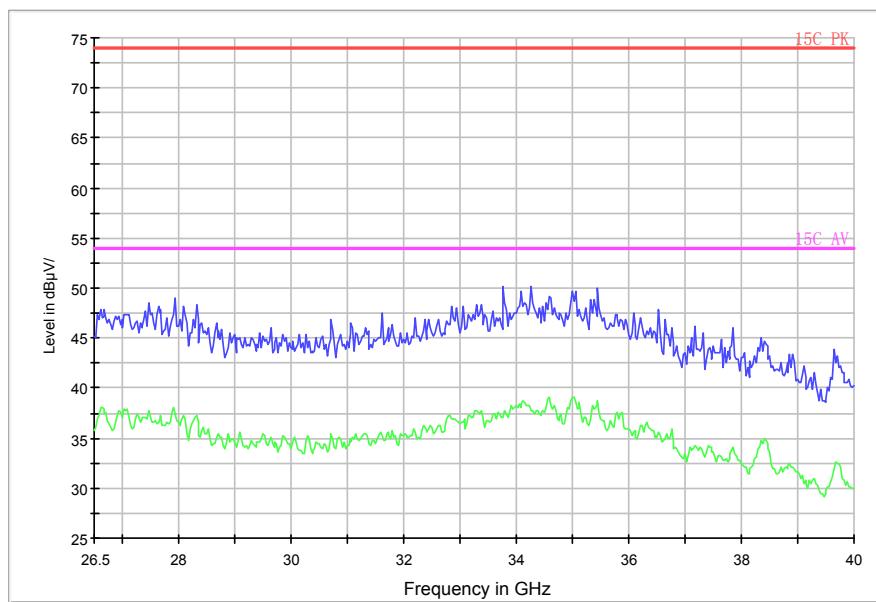
RE - 6GHz-18GHz

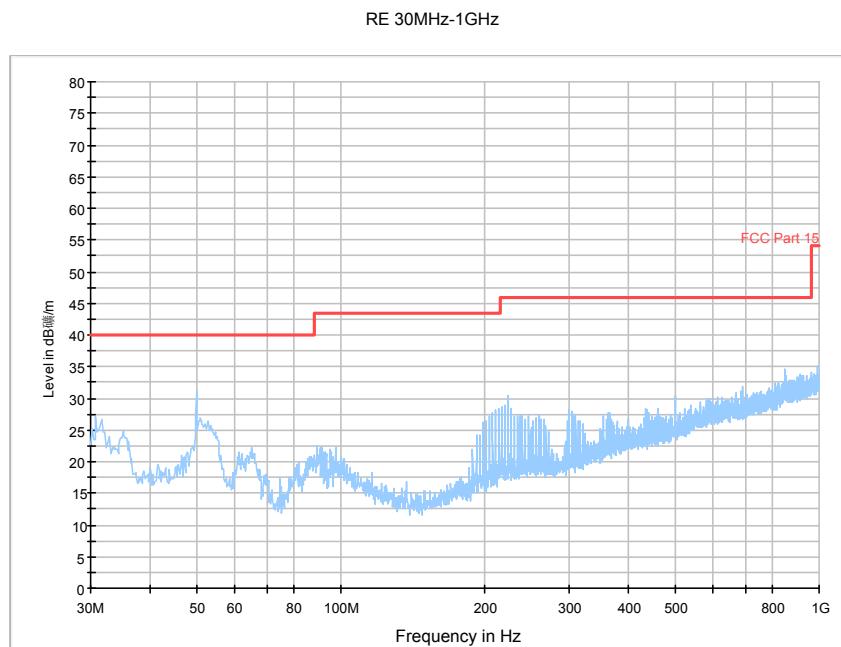
**Fig. 58 Radiated Spurious Emission (802.11a, Ch157, 6 GHz-18 GHz)**

18G-26.5G RE

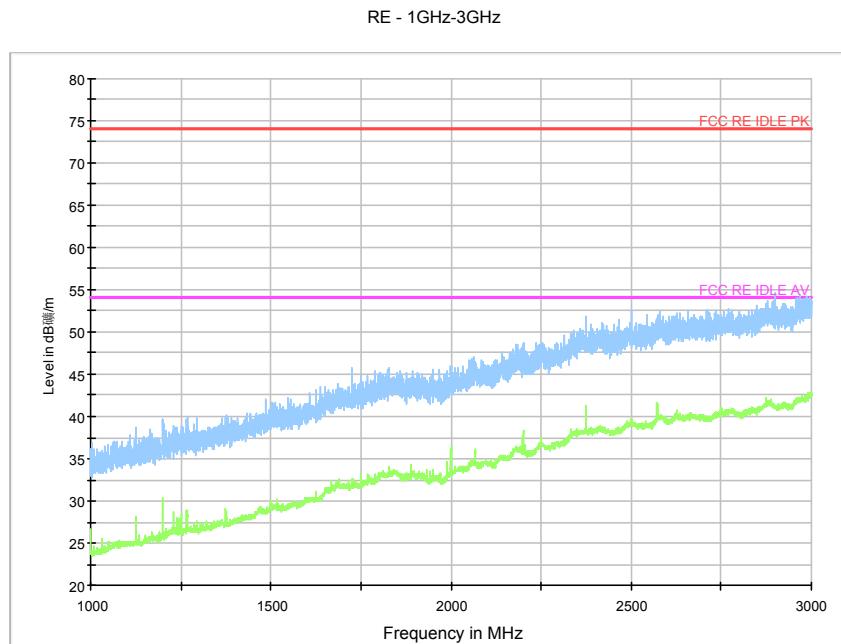
**Fig. 59 Radiated Spurious Emission (802.11a, Ch157, 18 GHz-26.5 GHz)**

26.5G-40G

**Fig. 60 Radiated Spurious Emission (802.11a, Ch165, 26.5 GHz-40 GHz)**

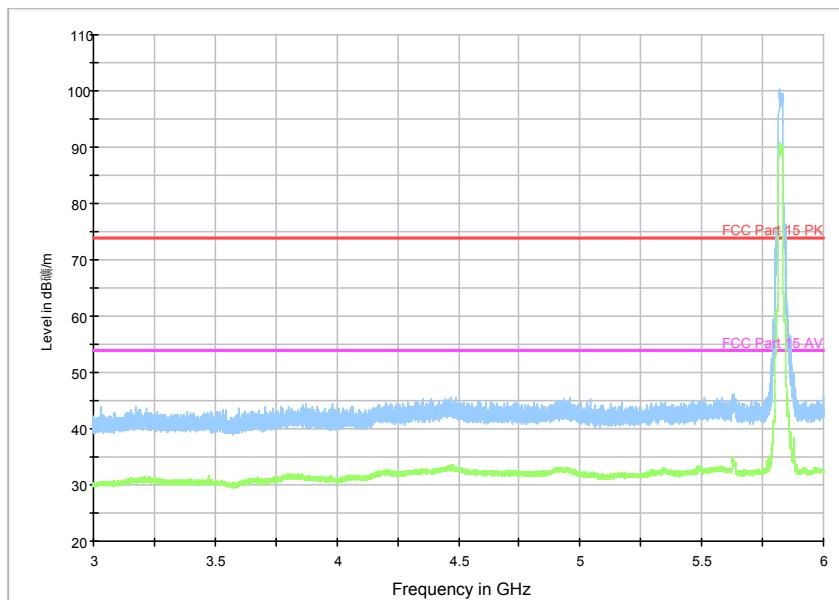


**Fig. 61 Radiated Spurious Emission (802.11a, Ch165, 30 MHz-1 GHz)**

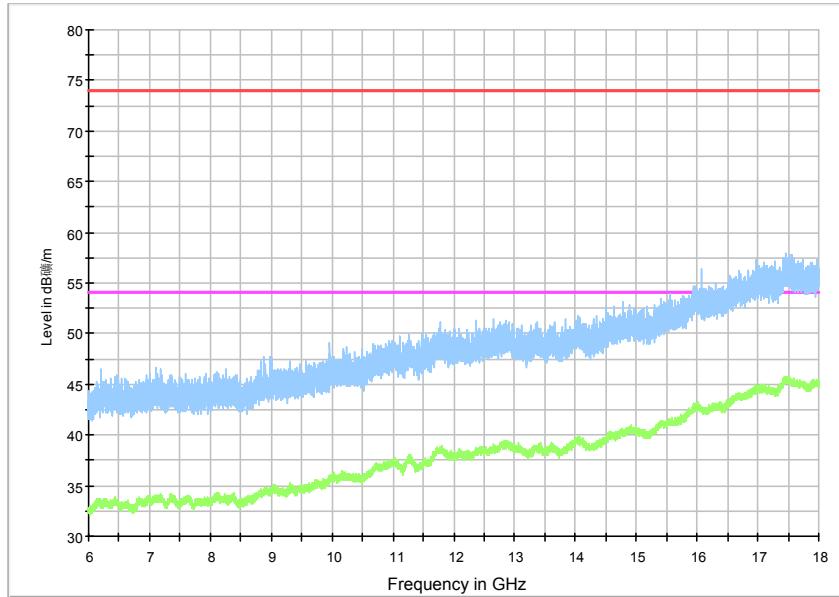


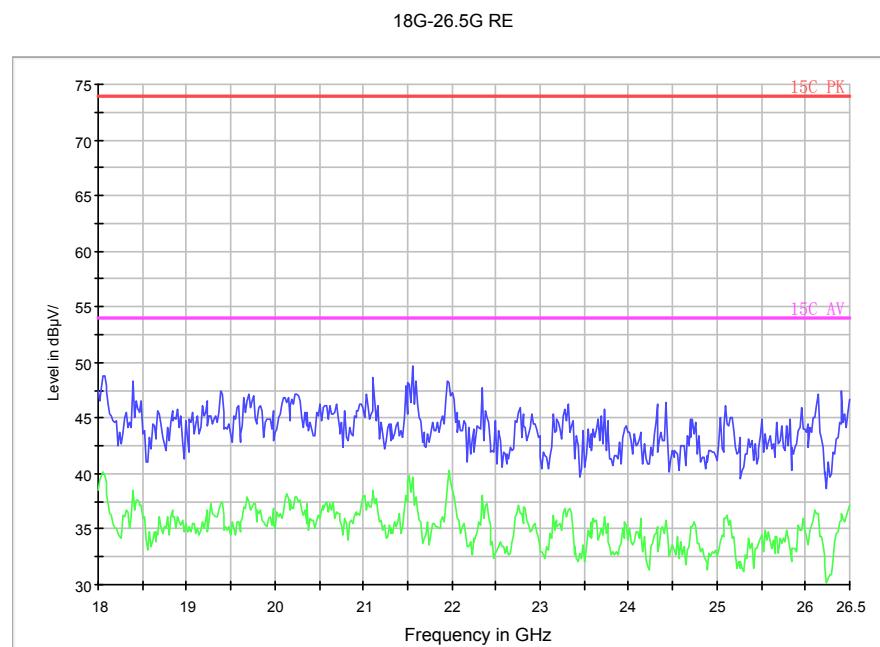
**Fig. 62 Radiated Spurious Emission (802.11a, Ch165, 1 GHz-3 GHz)**

RE - 3GHz-6GHz

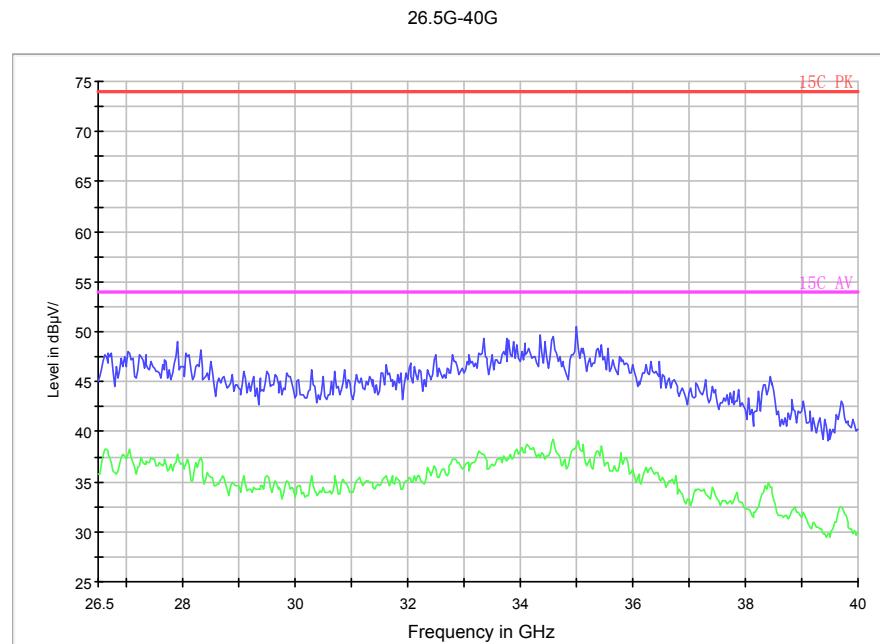
**Fig. 63 Radiated Spurious Emission (802.11a, Ch165, 3 GHz-6 GHz)**

RE - 6GHz-18GHz

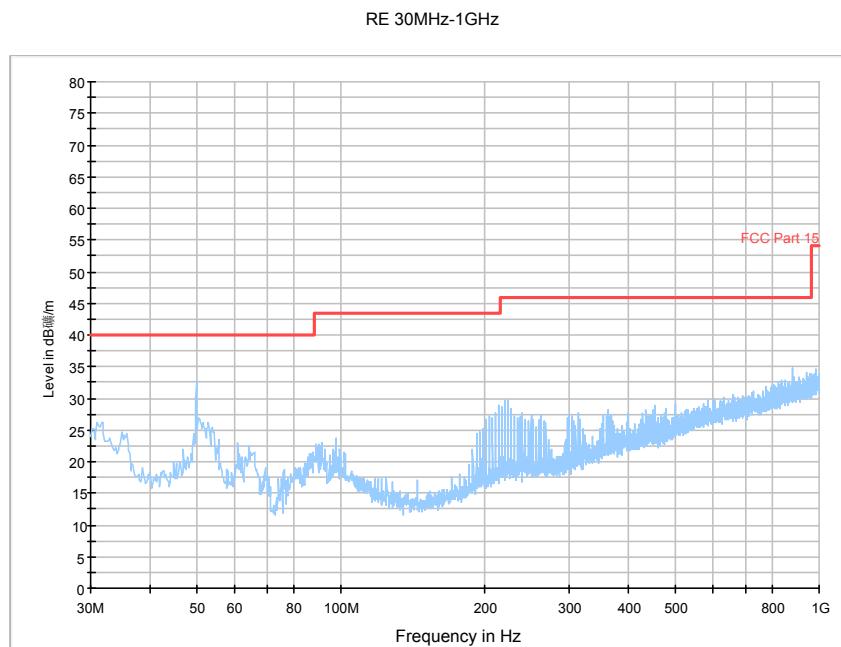
**Fig. 64 Radiated Spurious Emission (802.11a, Ch165, 6 GHz-18 GHz)**



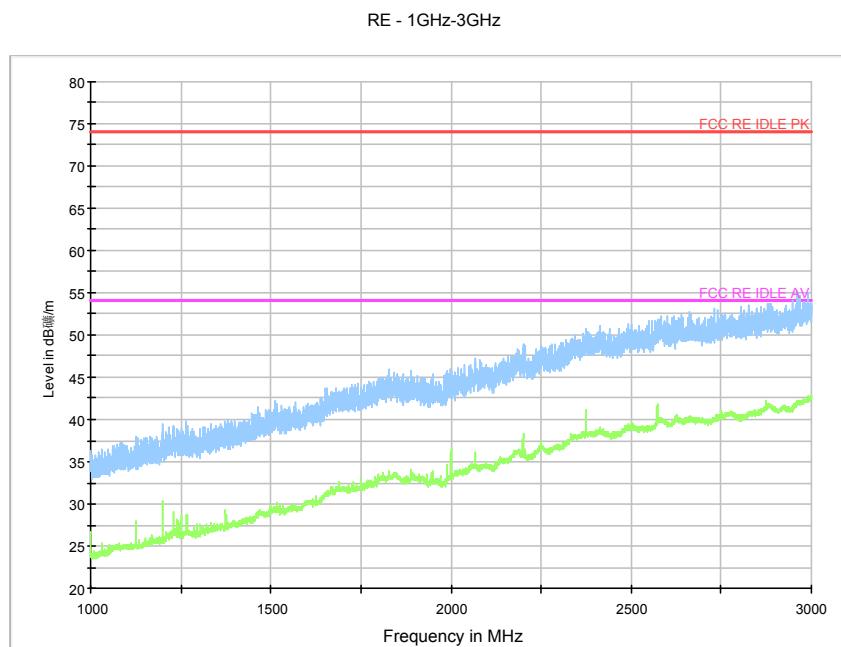
**Fig. 65 Radiated Spurious Emission (802.11a, Ch165, 18 GHz-26.5 GHz)**



**Fig. 66 Radiated Spurious Emission (802.11a, Ch165, 26.5 GHz-40 GHz)**

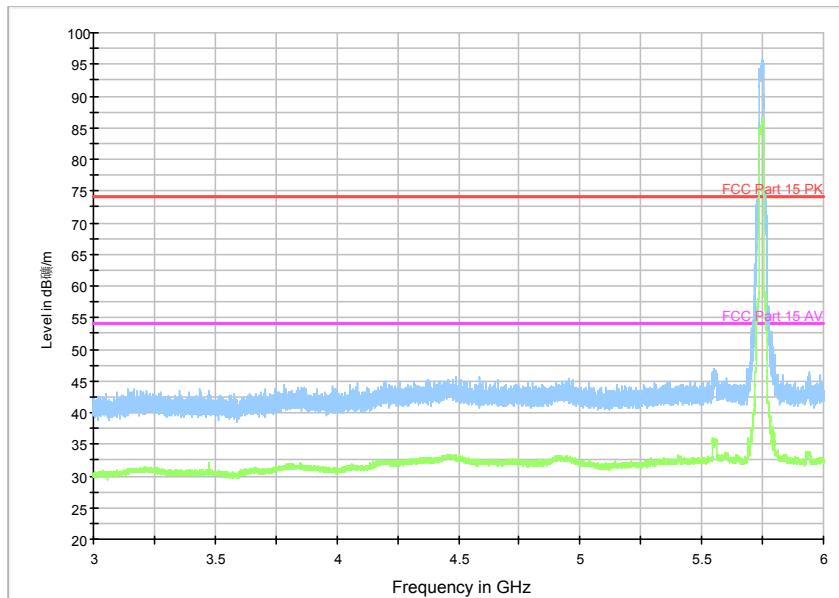


**Fig. 67 Radiated Spurious Emission (802.11n-HT20, Ch149, 30 MHz-1 GHz)**

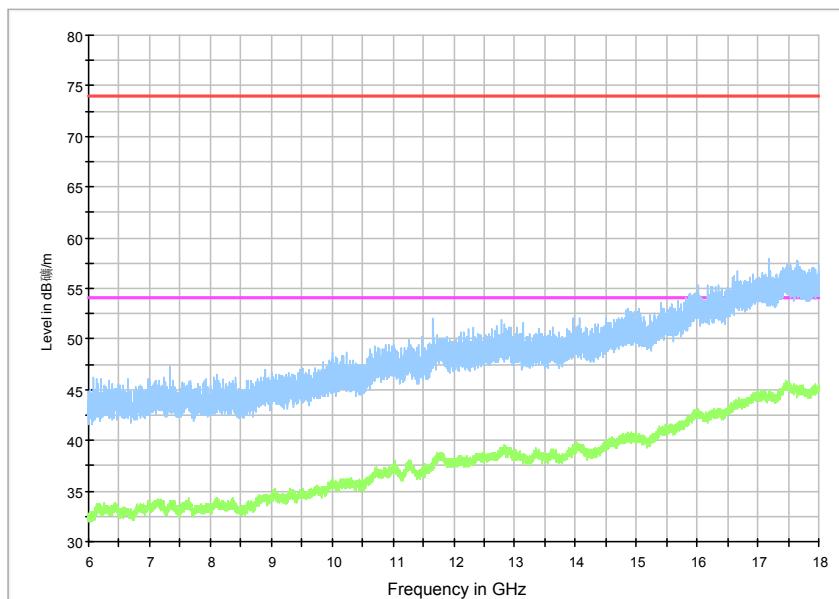


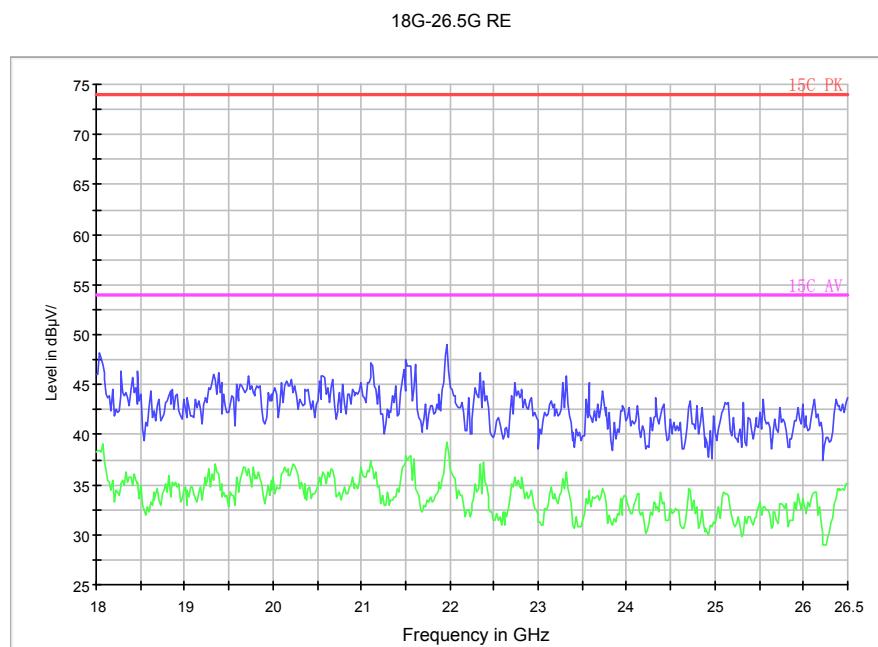
**Fig. 68 Radiated Spurious Emission (802.11n-HT20, Ch149, 1 GHz-3 GHz)**

RE - 3GHz-6GHz

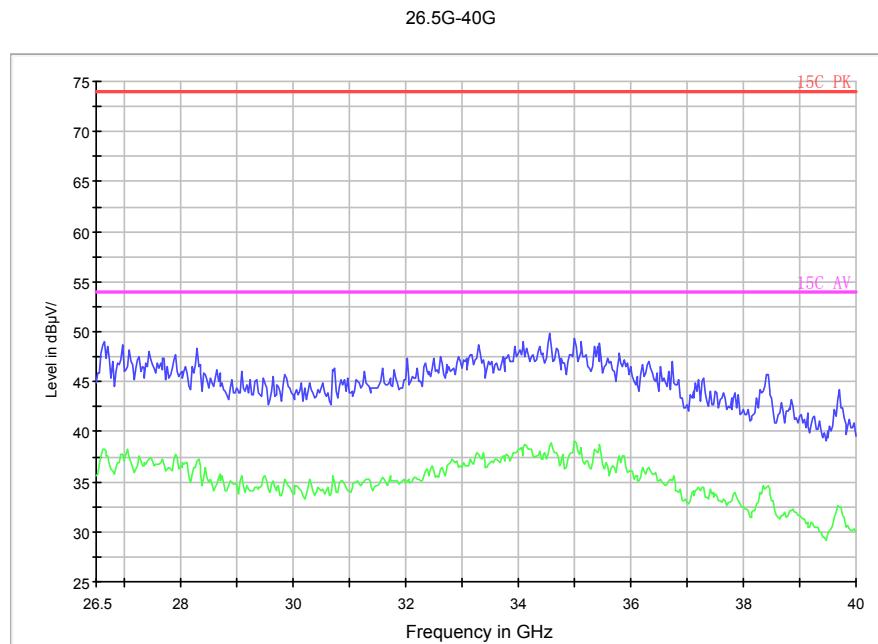
**Fig. 69 Radiated Spurious Emission (802.11n-HT20, Ch149, 3 GHz-6 GHz)**

RE - 6GHz-18GHz

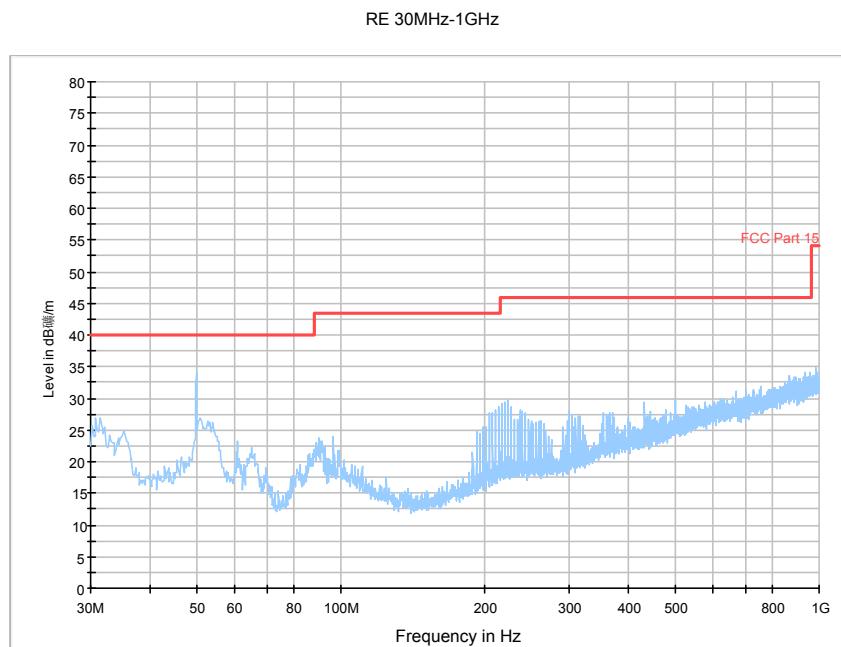
**Fig. 70 Radiated Spurious Emission (802.11n-HT20, Ch149, 6 GHz-18 GHz)**



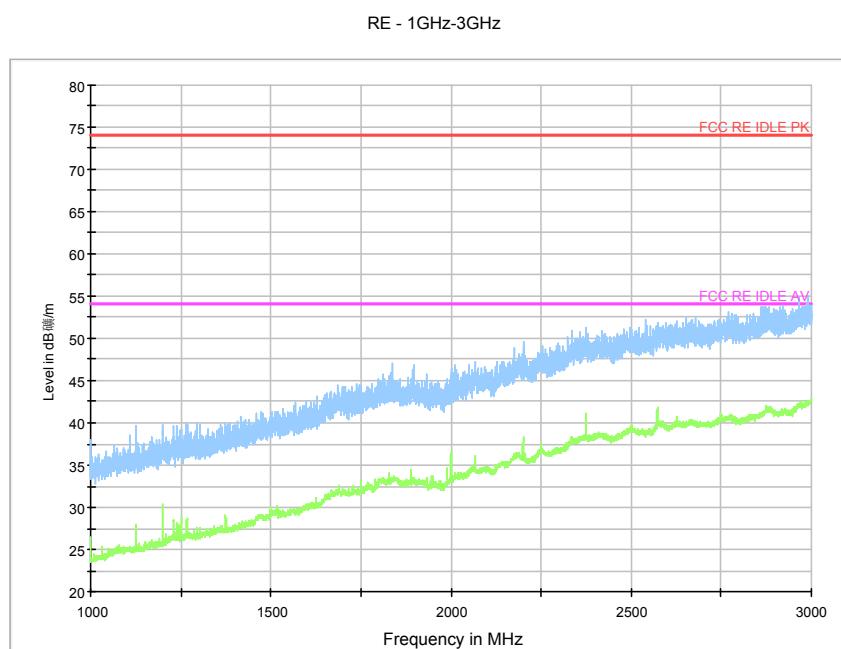
**Fig. 71 Radiated Spurious Emission (802.11n-HT20, Ch149, 18 GHz-26.5 GHz)**



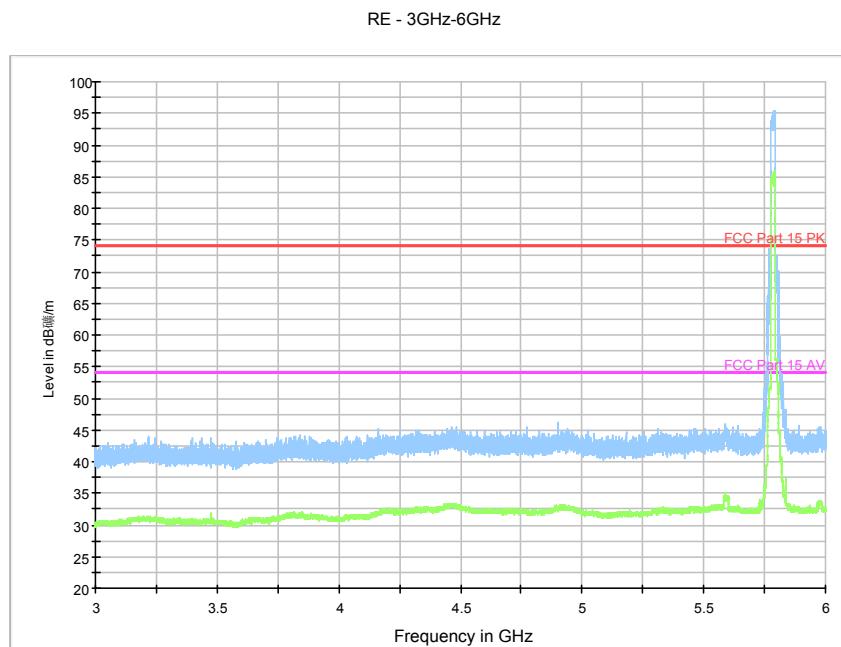
**Fig. 72 Radiated Spurious Emission (802.11n-HT20, Ch149, 26.5 GHz-40 GHz)**



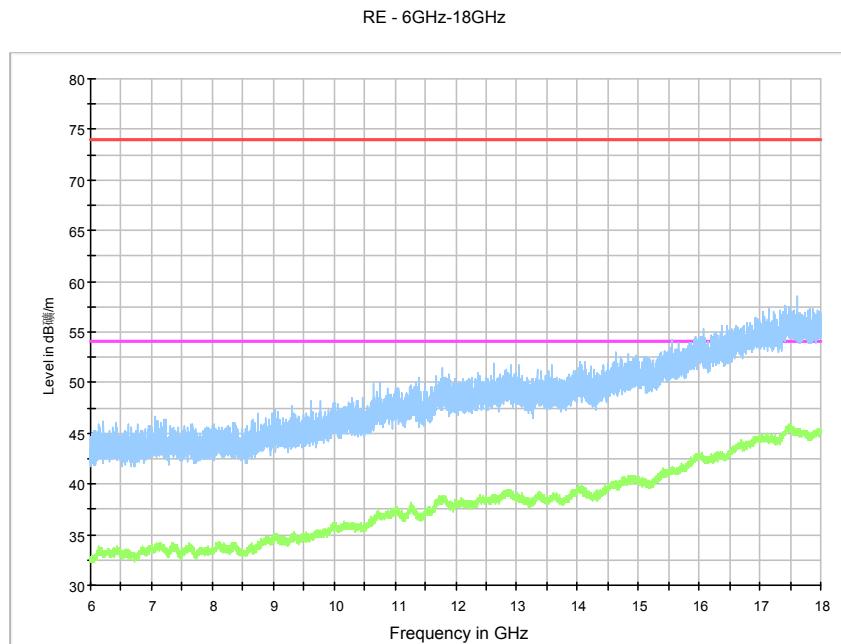
**Fig. 73 Radiated Spurious Emission (802.11n-HT20, Ch157, 30 MHz-1 GHz)**



**Fig. 74 Radiated Spurious Emission (802.11n-HT20, Ch157, 1 GHz-3 GHz)**

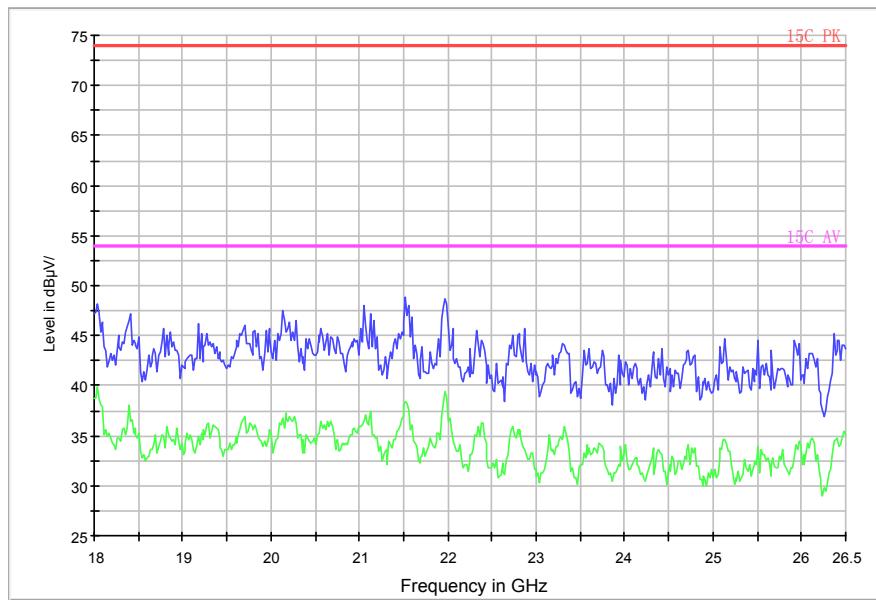


**Fig. 75 Radiated Spurious Emission (802.11n-HT20, Ch157, 3 GHz-6 GHz)**

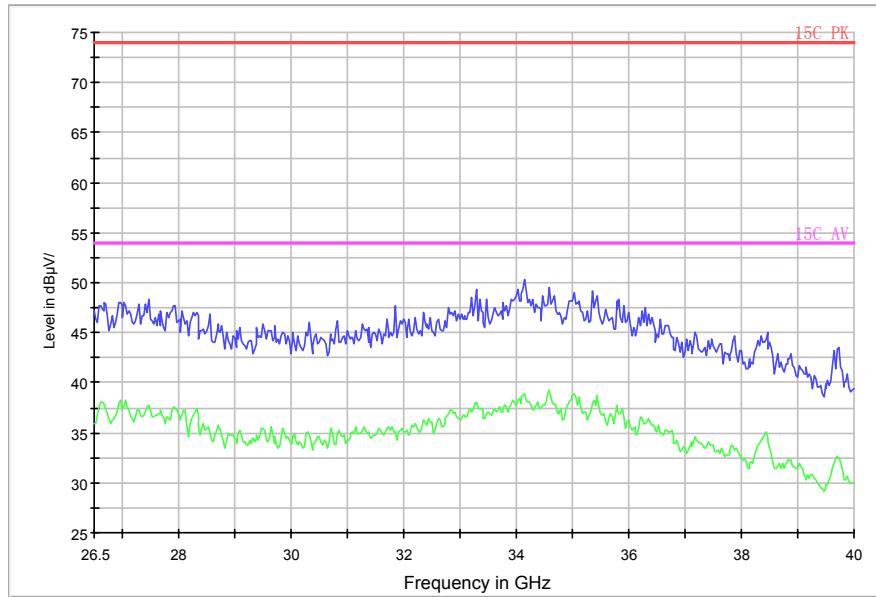


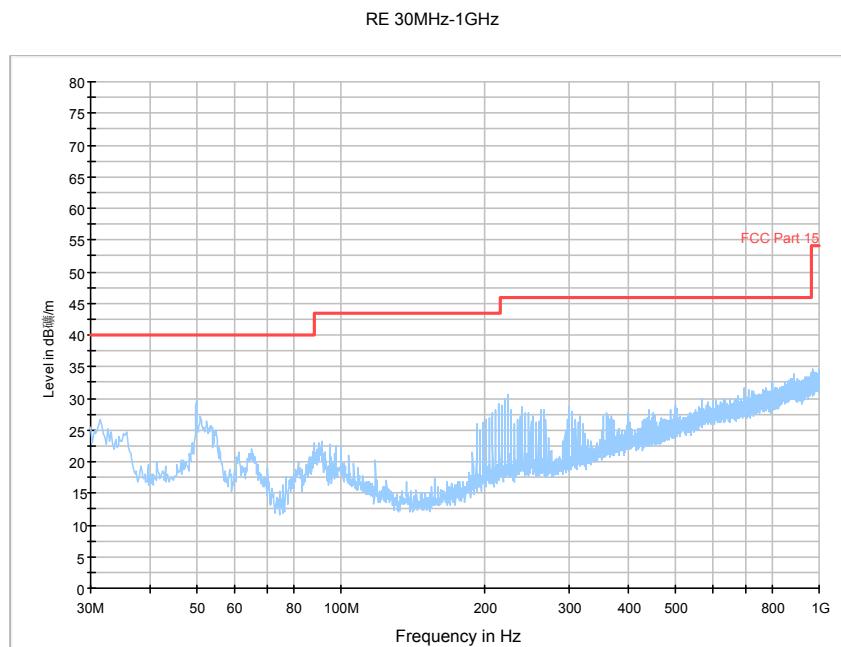
**Fig. 76 Radiated Spurious Emission (802.11n-HT20, Ch157, 6 GHz-18 GHz)**

18G-26.5G RE

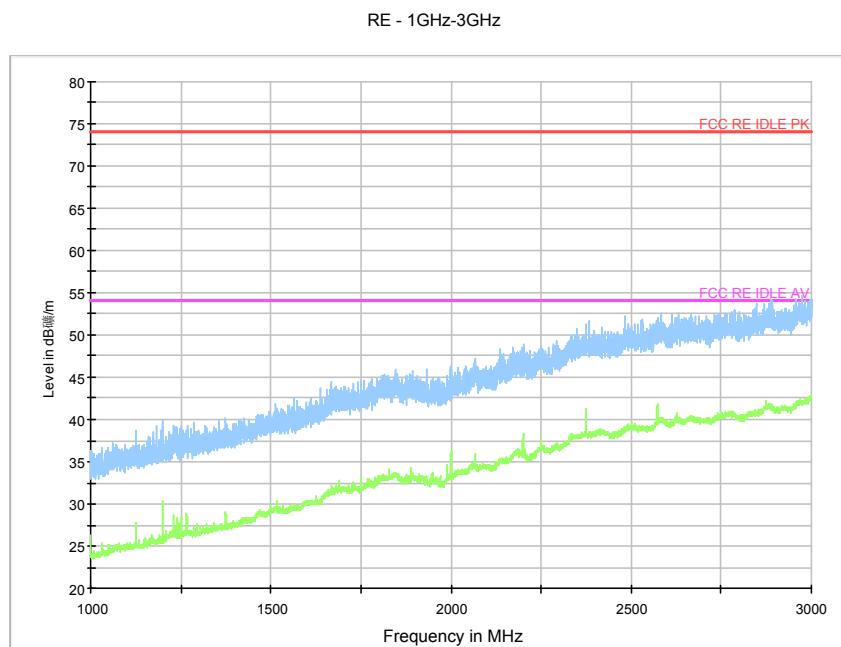
**Fig. 77 Radiated Spurious Emission (802.11n-HT20, Ch157, 18 GHz-26.5 GHz)**

26.5G-40G

**Fig. 78 Radiated Spurious Emission (802.11n-HT20, Ch157, 26.5 GHz-40 GHz)**

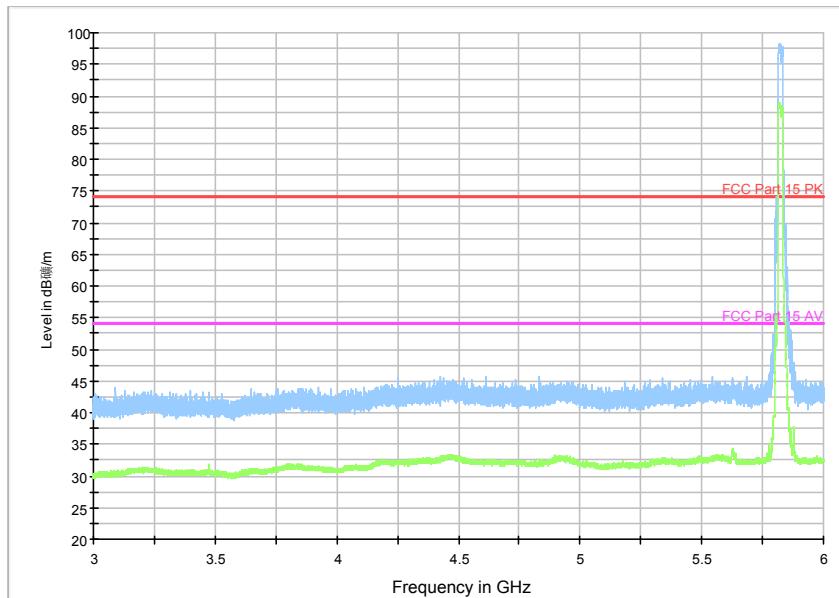


**Fig. 79 Radiated Spurious Emission (802.11n-HT20, Ch165, 30 MHz-1 GHz)**

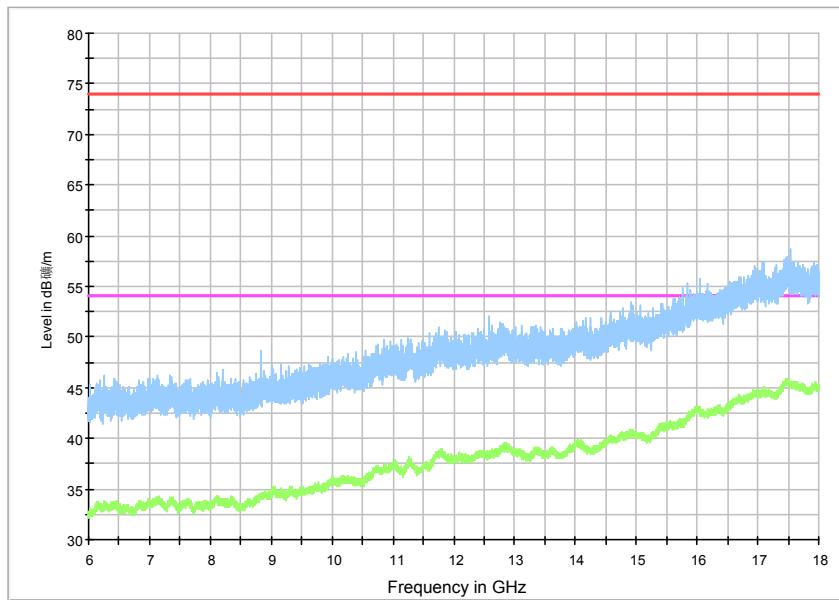


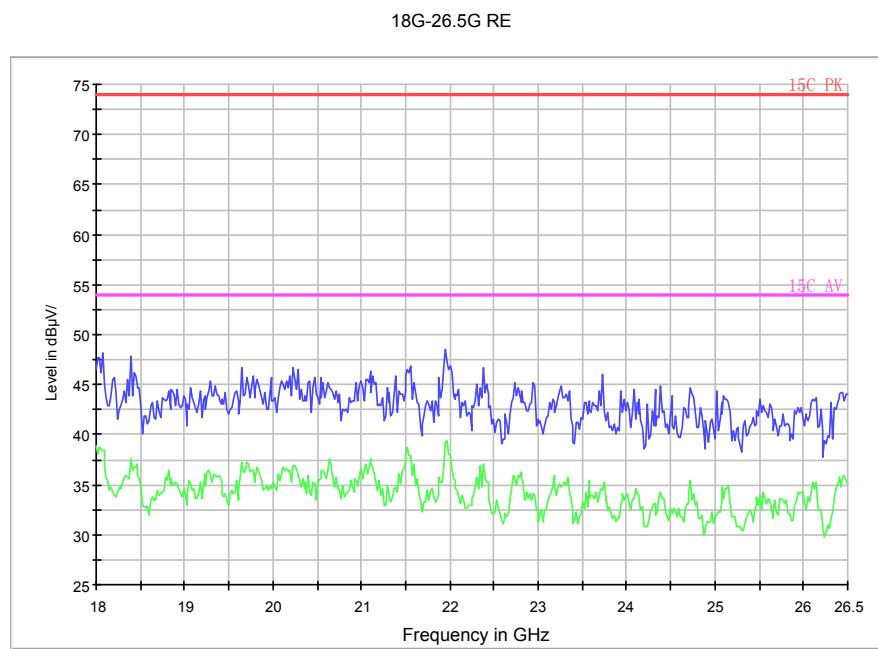
**Fig. 80 Radiated Spurious Emission (802.11n-HT20, Ch165, 1 GHz-3 GHz)**

RE - 3GHz-6GHz

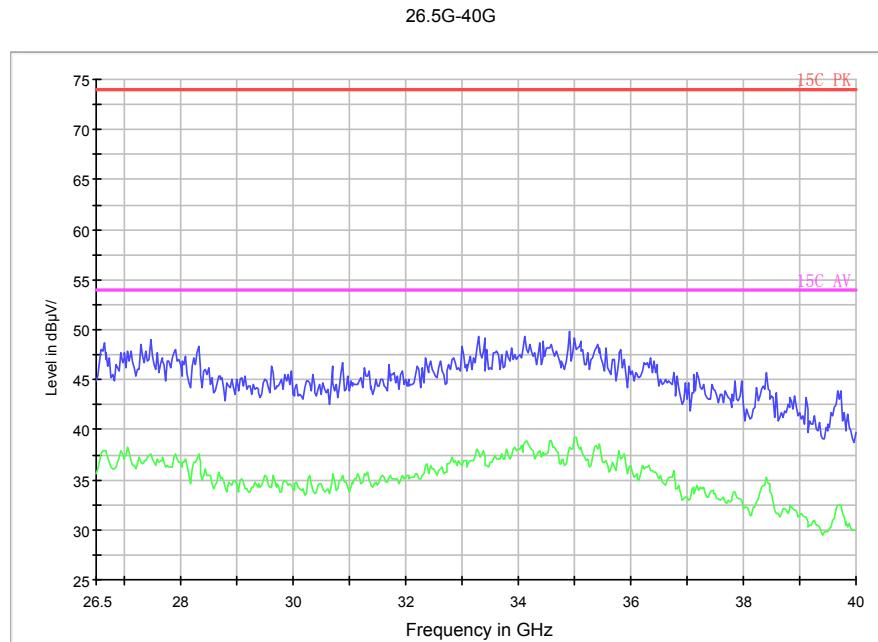
**Fig. 81 Radiated Spurious Emission (802.11n-HT20, Ch165, 3 GHz-6 GHz)**

RE - 6GHz-18GHz

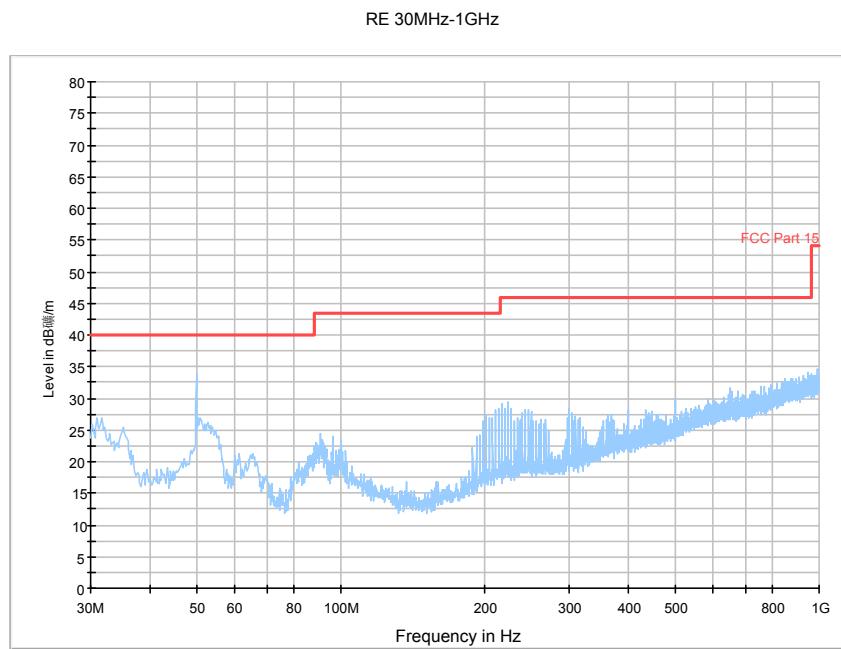
**Fig. 82 Radiated Spurious Emission (802.11n-HT20, Ch165, 6 GHz-18 GHz)**



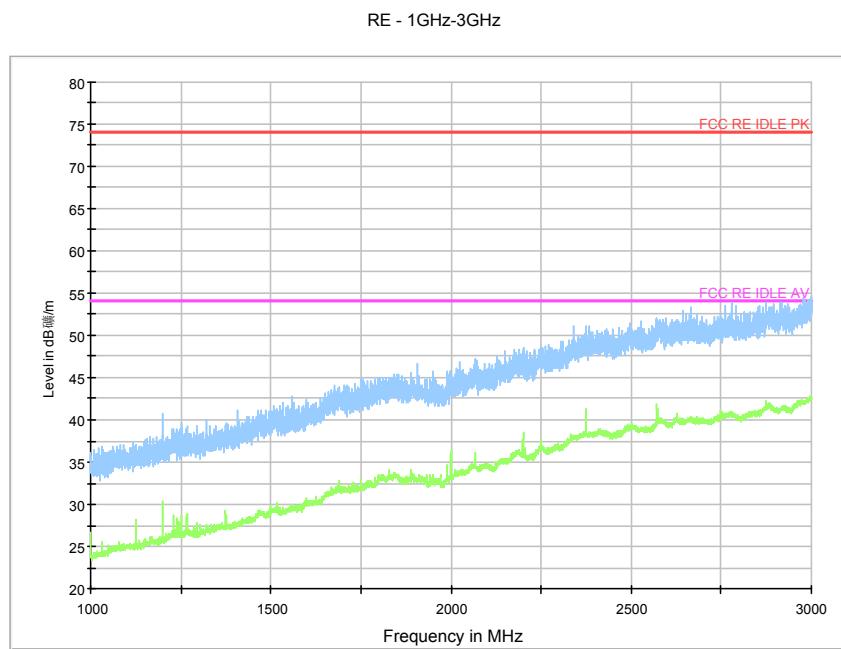
**Fig. 83 Radiated Spurious Emission (802.11n-HT20, Ch165, 18 GHz-26.5 GHz)**



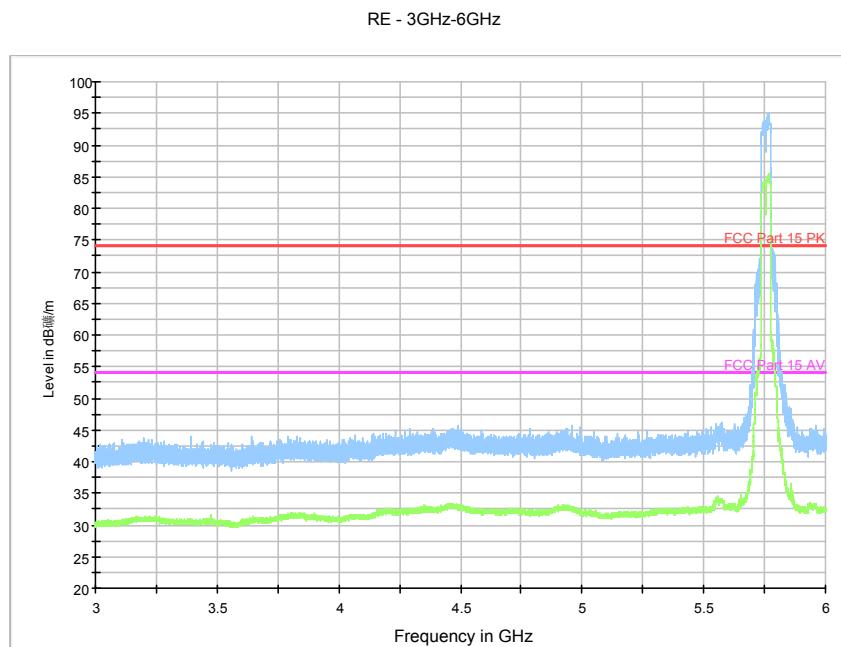
**Fig. 84 Radiated Spurious Emission (802.11n-HT20, Ch165, 26.5 GHz-40 GHz)**



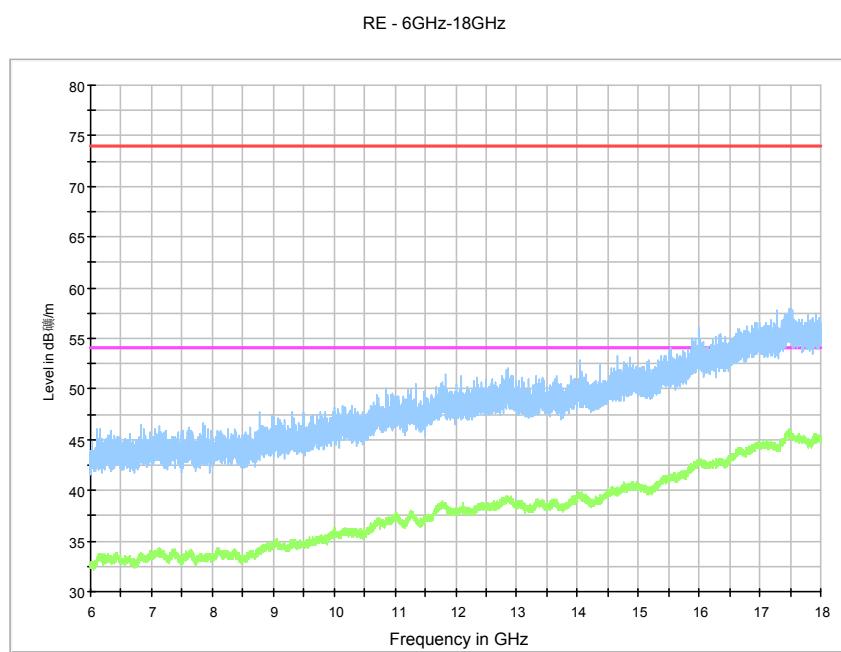
**Fig. 85 Radiated Spurious Emission (802.11n-HT40, Ch151, 30 MHz-1 GHz)**



**Fig. 86 Radiated Spurious Emission (802.11n-HT40, Ch151, 1 GHz-3 GHz)**

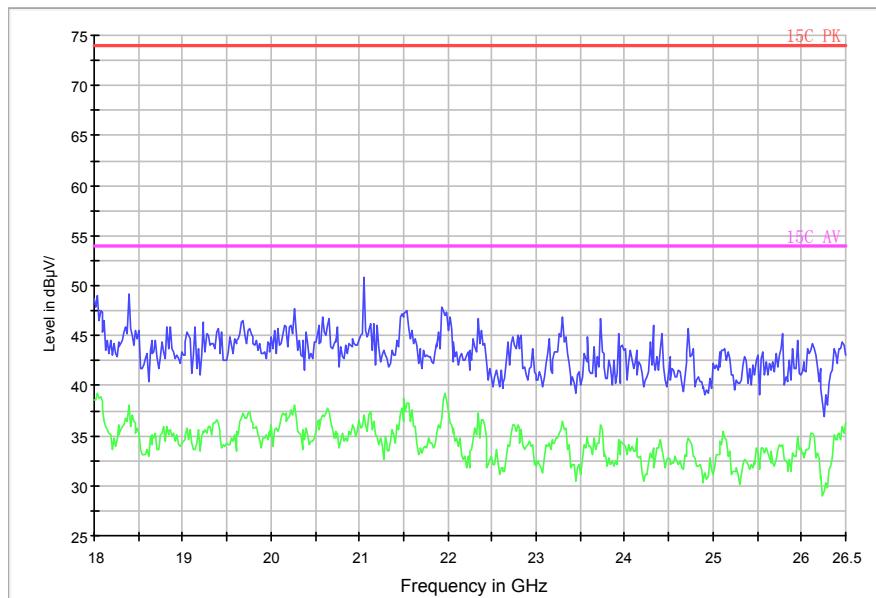


**Fig. 87 Radiated Spurious Emission (802.11n-HT40, Ch151, 3 GHz-6 GHz)**

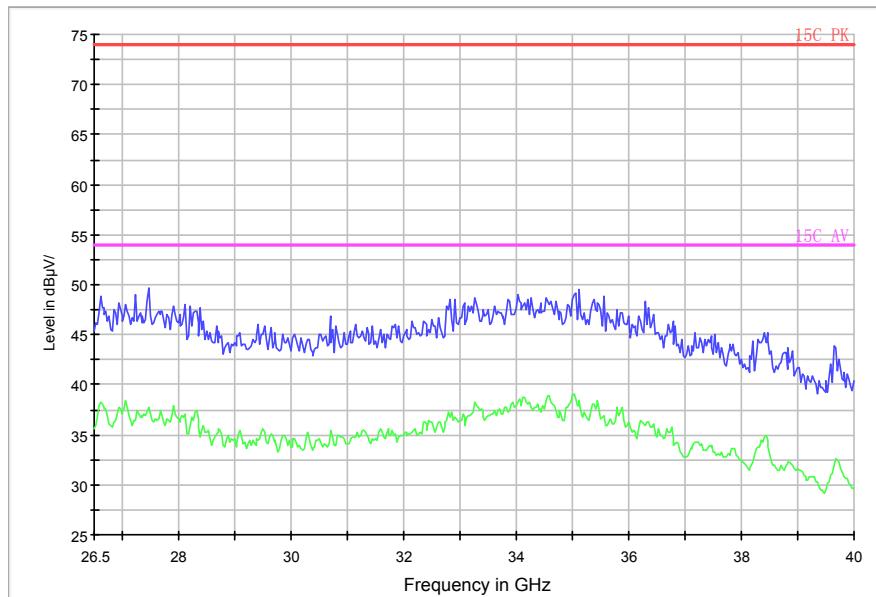


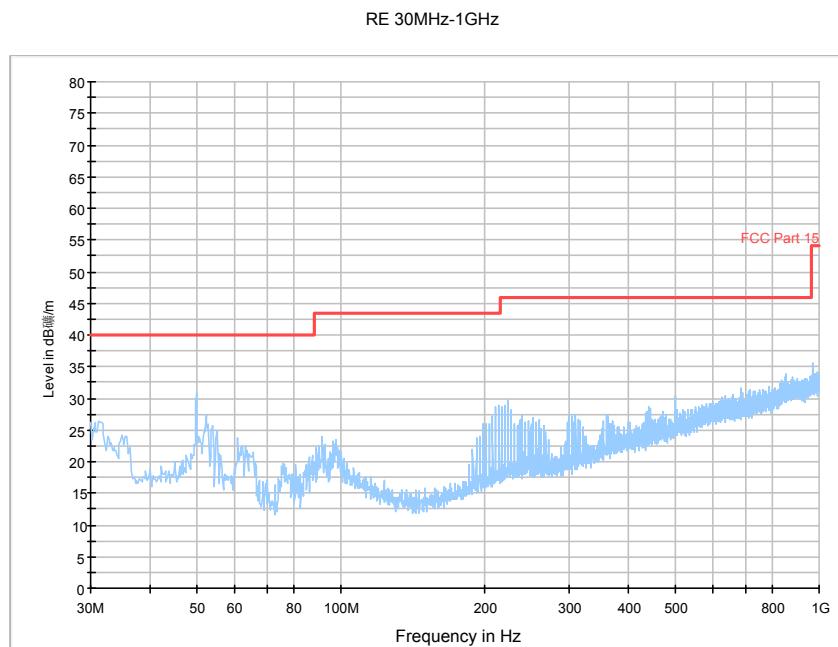
**Fig. 88 Radiated Spurious Emission (802.11n-HT40, Ch151, 6 GHz-18 GHz)**

18G-26.5G RE

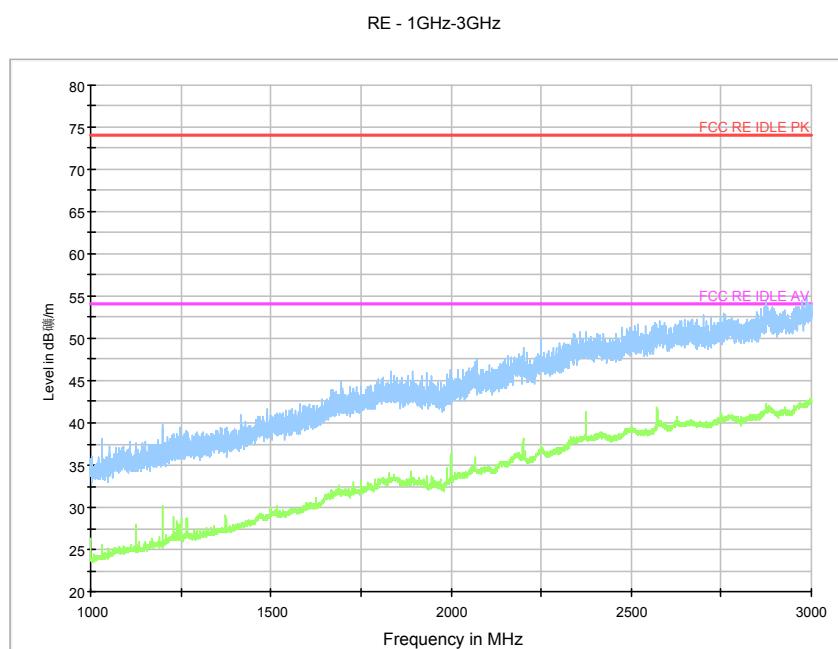
**Fig. 89 Radiated Spurious Emission (802.11n-HT40, Ch151, 18 GHz-26.5 GHz)**

26.5G-40G

**Fig. 90 Radiated Spurious Emission (802.11n-HT40, Ch151, 26.5 GHz-40 GHz)**

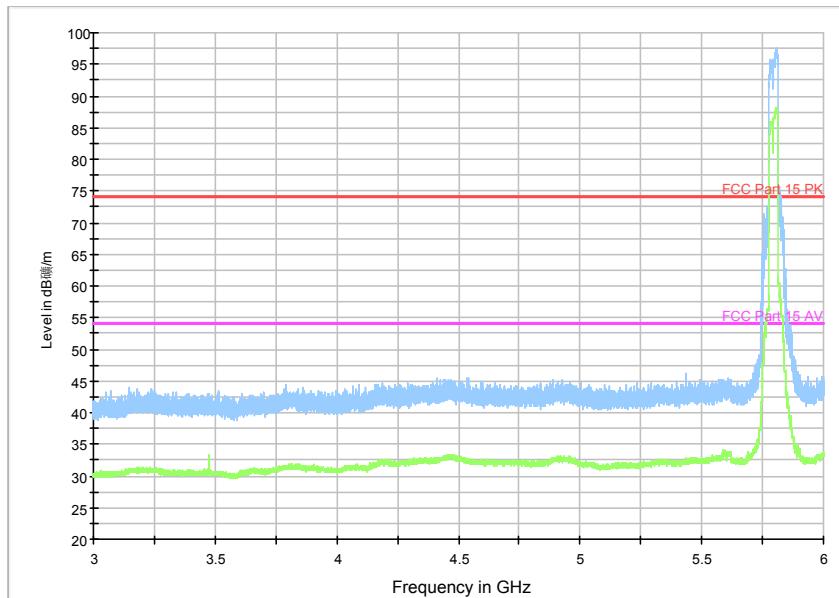


**Fig. 91 Radiated Spurious Emission (802.11n-HT40, Ch159, 30 MHz-1 GHz)**

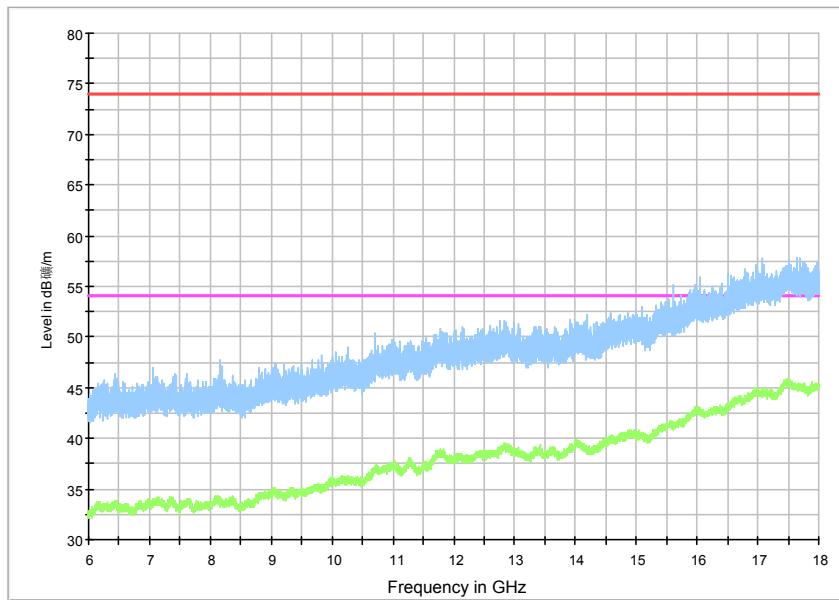


**Fig. 92 Radiated Spurious Emission (802.11n-HT40, Ch159, 1 GHz-3 GHz)**

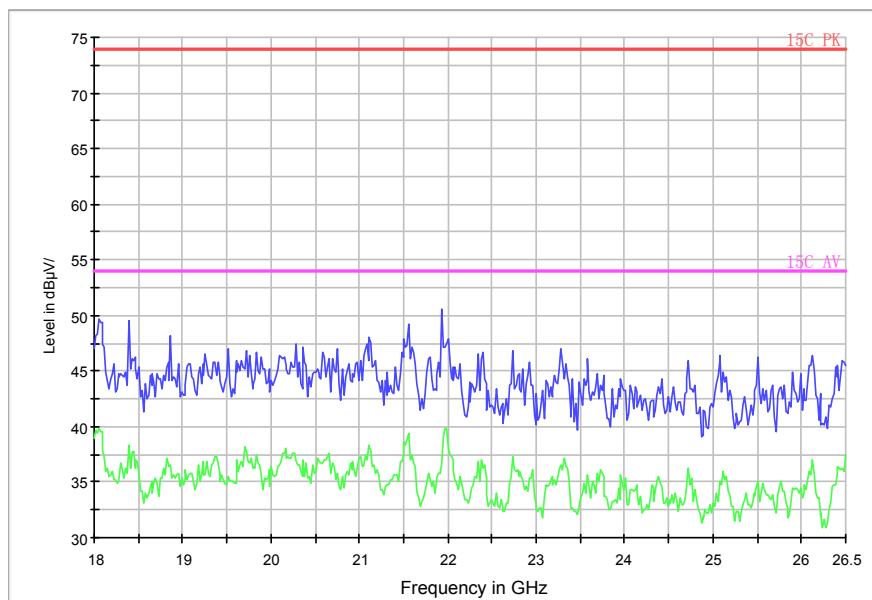
RE - 3GHz-6GHz

**Fig. 93 Radiated Spurious Emission (802.11n-HT40, Ch159, 3 GHz-6 GHz)**

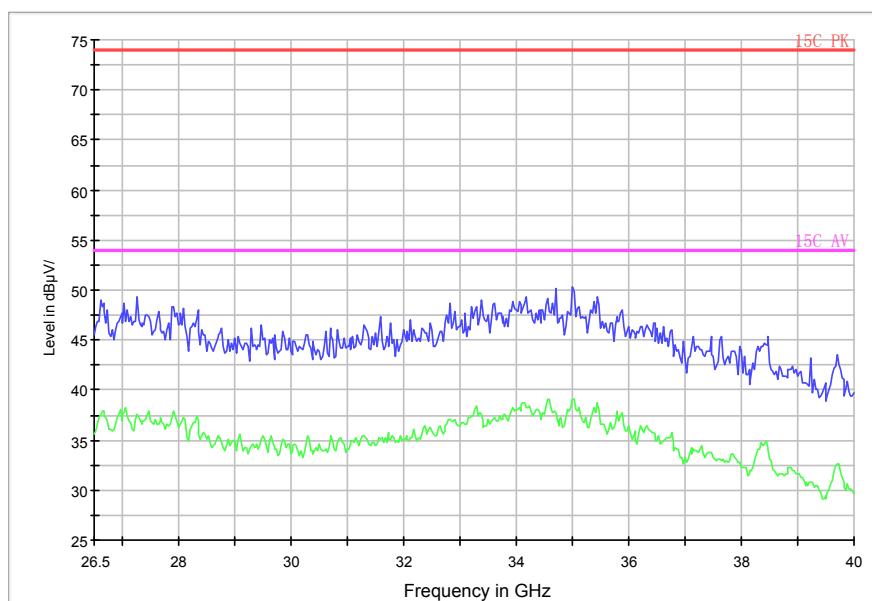
RE - 6GHz-18GHz

**Fig. 94 Radiated Spurious Emission (802.11n-HT40, Ch159, 6 GHz-18 GHz)**

18G-26.5G RE

**Fig. 95 Radiated Spurious Emission (802.11n-HT40, Ch159, 18 GHz-26.5 GHz)**

26.5G-40G

**Fig. 96 Radiated Spurious Emission (802.11n-HT40, Ch159, 26.5 GHz - 40 GHz)**

### A.7. AC Powerline Conducted Emission

**Test Condition:**

Voltage (V)	Frequency (Hz)
110	60

**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				
0.5 to 5	56	Fig. 97	Fig. 98	P	
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.

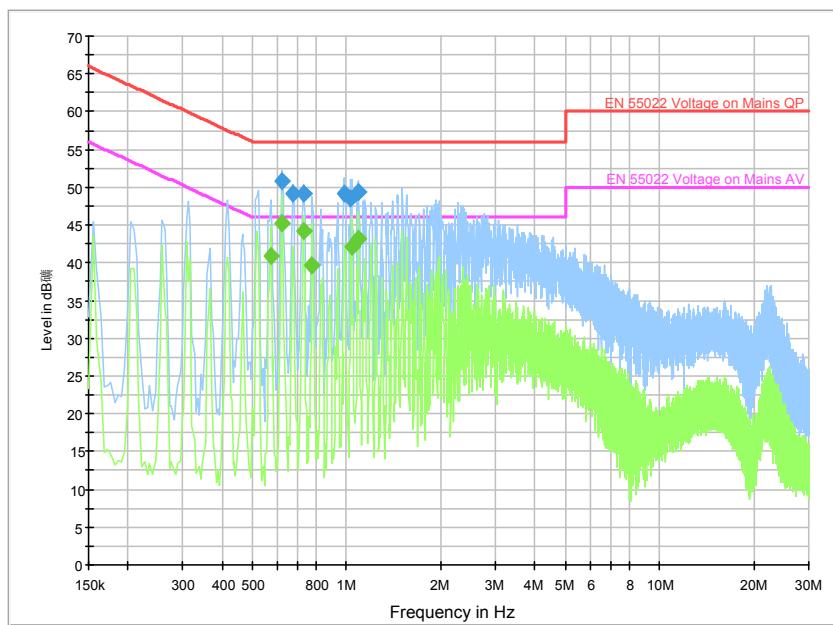
WLAN (Average Limit)

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				
0.5 to 5	46	Fig.97	Fig.98	P	
5 to 30	50				

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

The measurement is made according to ANSI C63.4 and KDB558074

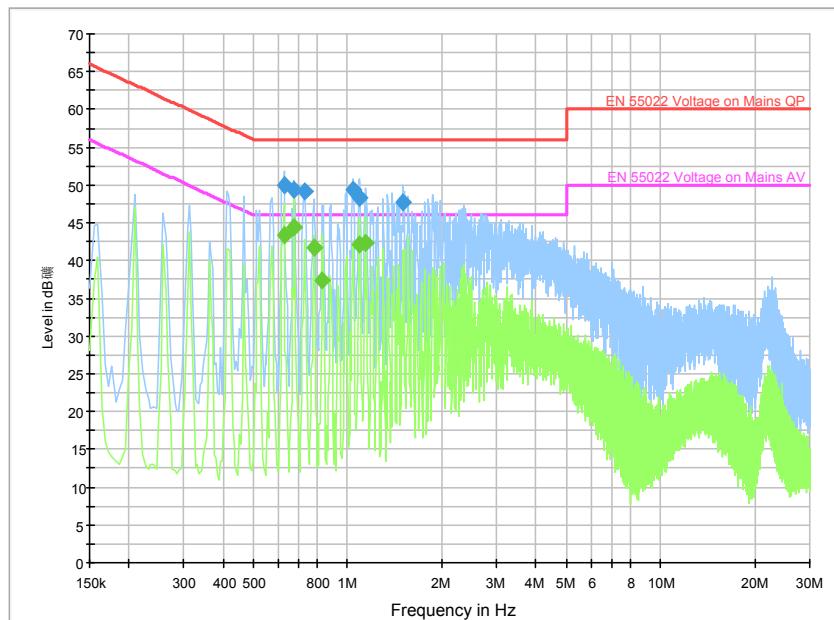
**Conclusion: PASS****Test graphs as below:**


**Fig. 97 AC Powerline Conducted Emission-802.11a mode**
**Final Result 1**

<b>Frequency (MHz)</b>	<b>QuasiPeak (dB<math>\mu</math>V)</b>	<b>PE</b>	<b>Line</b>	<b>Corr. (dB)</b>	<b>Margin (dB)</b>	<b>Limit (dB<math>\mu</math>V)</b>
0.622501	50.7	GND	N	9.9	5.3	56.0
0.676501	49.2	GND	N	9.9	6.8	56.0
0.726001	49.2	GND	N	9.9	6.8	56.0
0.982501	49.2	GND	N	9.9	6.8	56.0
1.032001	48.5	GND	N	9.9	7.5	56.0
1.090501	49.3	GND	N	9.9	6.7	56.0

**Final Result 2**

<b>Frequency (MHz)</b>	<b>CAverage (dB<math>\mu</math>V)</b>	<b>PE</b>	<b>Line</b>	<b>Corr. (dB)</b>	<b>Margin (dB)</b>	<b>Limit (dB<math>\mu</math>V)</b>
0.573001	40.8	GND	N	9.9	5.2	46.0
0.622501	45.3	GND	N	9.9	0.7	46.0
0.726001	44.2	GND	N	9.9	1.8	46.0
0.775501	39.6	GND	N	9.9	6.4	46.0
1.041001	42.1	GND	N	9.9	3.9	46.0
1.090501	43.1	GND	N	9.9	2.9	46.0


**Fig. 98 AC Powerline Conducted Emission-Idle**

Final Result1

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
1.734000	41.5	GND	L1	10.0	14.5	56.0
1.846500	42.9	GND	L1	10.0	13.1	56.0
1.932000	41.5	GND	L1	10.0	14.5	56.0
1.972500	40.1	GND	L1	10.0	15.9	56.0
2.724000	40.9	GND	L1	10.0	15.1	56.0
2.809500	39.4	GND	L1	10.0	16.6	56.0

Final Result2

Frequency (MHz)	Average (dB $\mu$ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.397500	31.4	GND	L1	10.0	16.5	47.9
0.672000	26.3	GND	L1	10.0	19.7	46.0
1.698000	27.3	GND	L1	10.0	18.7	46.0
1.770000	29.5	GND	L1	10.0	16.5	46.0
1.896000	28.6	GND	L1	10.0	17.4	46.0
2.724000	27.5	GND	L1	10.0	18.5	46.0

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