



**FCC PART 15C  
TEST REPORT  
No. 2012WLN0387**

for

**TCT Mobile Limited**

**GSM Quad Band and UMTS Dual Band Mobile Phone**

**Type: Blue3G**

**Market Name: Vodafone 655W**

With

**FCC ID: RAD281**

**Hardware Version: PIO1**

**Software Version: A27**

**Issued Date: 2012-08-09**



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**No. DGA-PL-114/01-02**

**IC O.A.T.S listed: No.6629A-1**

**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 LABORATORY

### 1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT  
Address: No. 52, Huayuan Bei Road, Haidian District, Beijing, P. R. China  
Postal Code: 100191  
Telephone: 00861062304633  
Fax: 00861062304793

### 1.2. Testing Environment

Normal Temperature: 15-30°C  
Extreme Temperature: -10/+55°C  
Relative Humidity: 30-60%  
Air Pressure 990hPa-1040hPa

Note: The climatic requirements above are general exclude the special requirements for dedicated test environments listed in section 5 and some specific test cases in other parts of this report.

### 1.3. Project data

Testing Start Date: 2012-07-09  
Testing End Date: 2012-08-09

### 1.4. Signature



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**Sun Zhenyu**  
**(Prepared this test report)**



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**Gao Hong**  
**(Reviewed this test report)**



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**Xiao Li**  
**Deputy Director of the laboratory**  
**(Approved this test report)**

## **2. CLIENT INFORMATION**

### **2.1. Applicant Information**

Company Name: TCT Mobile Limited  
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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,  
Pudong Area Shanghai, P.R. China. 201203  
City: Shanghai  
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	GSM Quad Band and UMTS Dual Band Mobile Phone
Type	Blue3G
Market name	Vodafone 655W
FCC ID	RAD281
IC ID	/
With WLAN Function	Yes
Frequency Range	ISM 2400MHz~2483.5MHz
Type of Modulation	DSSS/CCK/OFDM
Number of Channels	11
Antenna	Integral Antenna
MAX Conducted Power	20.63dBm(CCK)
Power Supply	3.7V DC by Battery

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

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

<b>EUT ID*</b>	<b>IMEI</b>	<b>HW Version</b>	<b>SW Version</b>
EUT1	865660010150139	PIO1	A27
EUT2	865660010150212	PIO1	A27

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

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

<b>AE ID*</b>	<b>Description</b>	<b>Type</b>	<b>SN</b>
AE1	Battery	CAB31L0000C1	/
AE2	Battery	CAB31L0000C2	/
AE3	Charger	CBA6050AA1C1	/

\*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 GSM Quad Band and UMTS Dual Band 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.

## 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, 2009 Edition
ANSI C63.10	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2009

## 5. LABORATORY ENVIRONMENT

**Shielding Room1** (6.0 meters×3.0 meters×2.7 meters) did not exceed following limits along the conducted RF performance testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz

**Control room** did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. =30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

**Semi-anechoic chamber** (23 meters×17meters×10meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	< ±3.2 dB, 10 m distance, from 30 to 1000 MHz
Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz

**Shielding Room2** (7.30 meters×4.00 meters×3.80 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz

## 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, 15.205, 15.209	/	P
AC Powerline Conducted Emission	15.107, 15.207	/	P

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

The measurement is made according to Public notice KDB558074 D01 and ANSI C63.10.

Terms used in Verdict column

P	Pass, The EUT complies with the essential requirements in the standard.
NP	Not Perform, The test was not performed 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.

Test Conditions

T nom	Normal Temperature
T min	Low Temperature
T max	High Temperature
V nom	Normal Voltage
V min	Low Voltage
V max	High Voltage
H nom	Norm Humidity
A nom	Norm Air Pressure

For this report, all the test cases listed above are tested under Normal Temperature and Normal Voltage which is using a new battery, and also under norm humidity, the specific conditions as following:

Temperature	T nom	26°C
Voltage	V nom	3.7V(By battery)
Humidity	H nom	44%
Air Pressure	A nom	1010hPa

## **7. TEST EQUIPMENTS UTILIZED**

### **Conducted test system**

<b>No.</b>	<b>Equipment</b>	<b>Model</b>	<b>Serial Number</b>	<b>Manufacturer</b>	<b>Calibration Due date</b>
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	2013-07-19
2	Spectrum Analyzer	MS2687B	6200819812	Anritsu	2012-09-22
3	Test Receiver	ESS	847151/015	Rohde & Schwarz	2012-10-30
4	LISN	ESH2-Z5	829991/012	Rohde & Schwarz	2012-08-12

### **Radiated emission test system**

<b>No.</b>	<b>Equipment</b>	<b>Model</b>	<b>Serial Number</b>	<b>Manufacturer</b>	<b>Calibration Due date</b>
1	Test Receiver	ESI40	831564/002	Rohde & Schwarz	2012-08-11
2	BiLog Antenna	3142B	9908-1403	EMCO	2013-03-15
3	Dual-Ridge Waveguide Horn Antenna	3115	9906-5827	EMCO	2012-12-25
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2013-06-30

### **Anechoic chamber**

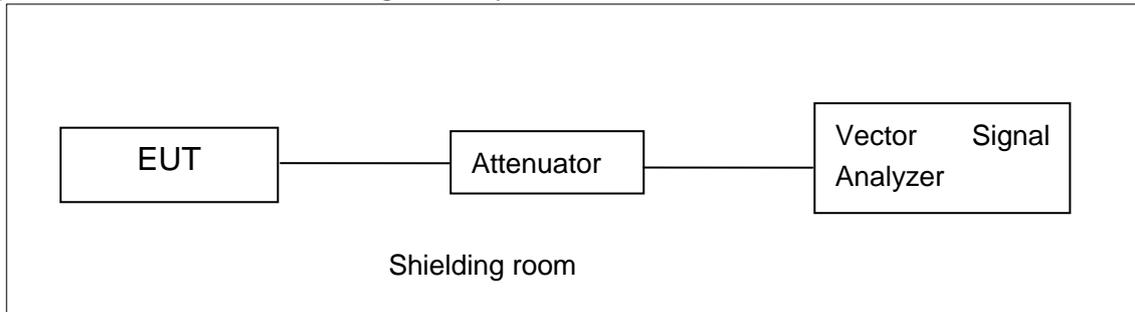
Anechoic chamber by Frankonia German.

## 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

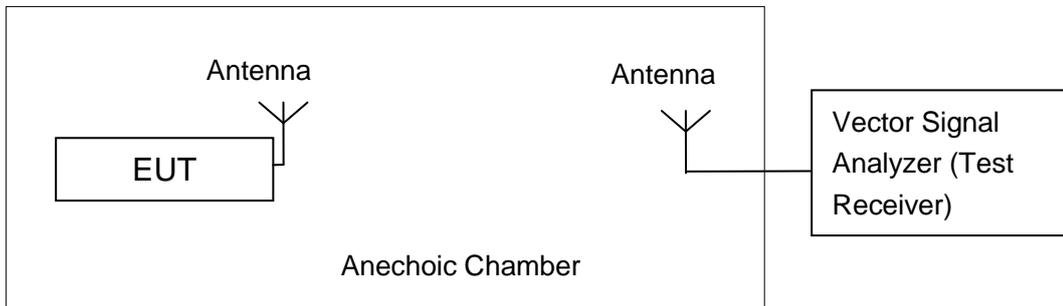


#### A.1.2. Radiated Emission Measurements

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 C63.10

## A.2. Maximum Output Power

### Measurement Limit and Method:

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

The measurement is made according to ANSI C63.10, EUT is operating in continuous transmitting mode

### Measurement Uncertainty:

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

### A.2.1. Maximum Peak Output Power-conducted

#### Measurement Results:

#### 802.11b/g mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11b	1	17.32	/	/
	2	17.54	/	/
	5.5	18.79	/	/
	11	20.35	20.61	20.63
802.11g	6	17.60	/	/
	9	17.61	/	/
	12	17.41	/	/
	18	17.41	/	/
	24	17.86	/	/
	36	17.84	/	/
	48	17.94	18.25	18.41
54	17.91	/	/	

The data rate 11Mbps and 48Mbps are selected as worse condition, and the following cases are performed with this condition.

### A.2.2. Maximum Average Output Power-conducted

#### 802.11b/g mode

Mode	Test Result (dBm)		
	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11b	14.24	14.31	14.42
802.11g	9.16	9.36	9.45

**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 C63.10

#### Measurement Uncertainty:

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

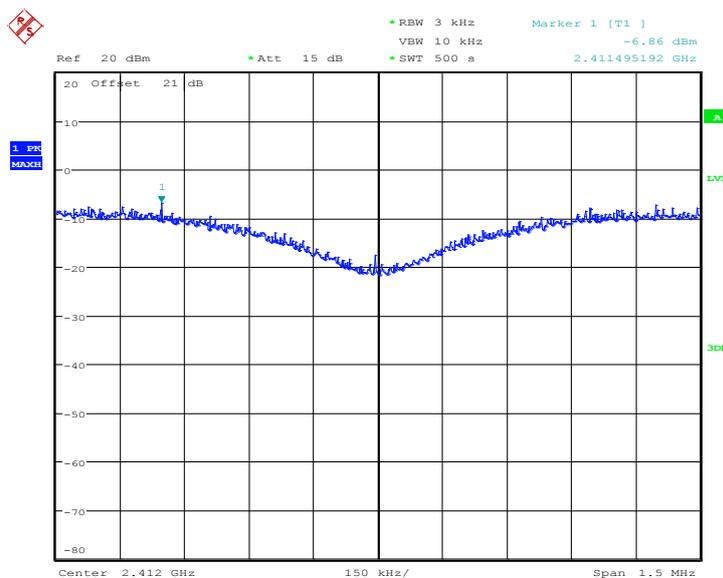
#### Measurement Results:

##### 802.11b/g mode

Mode	Channel	Power Spectral Density ( dBm/3 kHz )		Conclusion
802.11b	1	Fig.1	-6.86	P
	6	Fig.2	-6.27	P
	11	Fig.3	-6.43	P
802.11g	1	Fig.4	-9.43	P
	6	Fig.5	-8.07	P
	11	Fig.6	-9.29	P

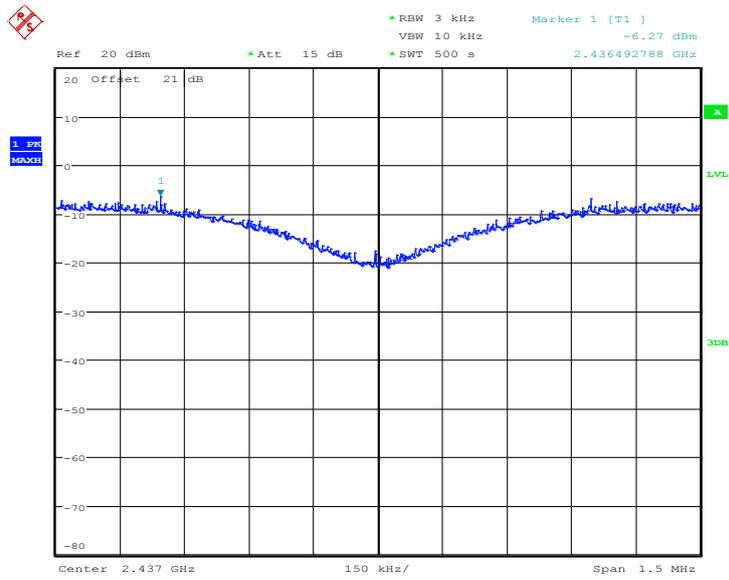
**Conclusion: PASS**

Test graphs as below:



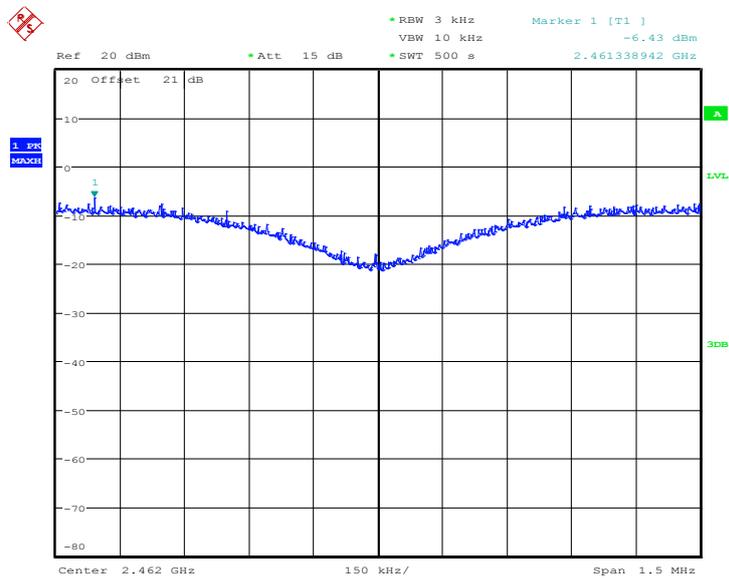
Date: 24.JUL.2012 16:22:51

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



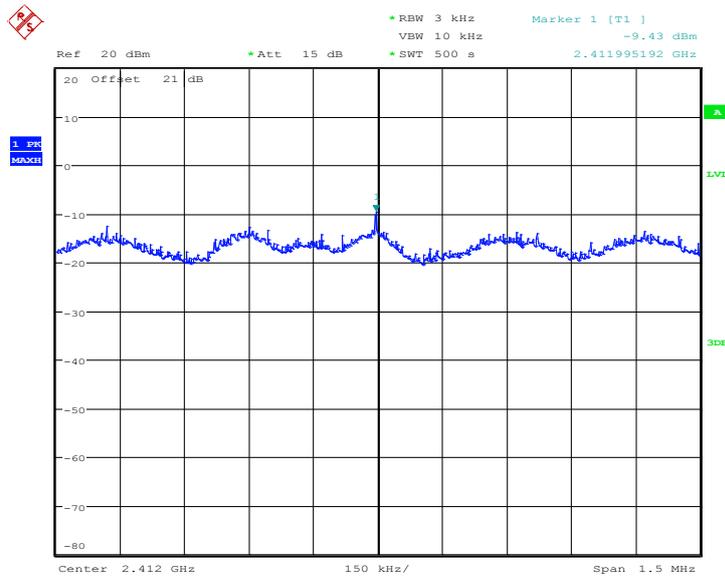
Date: 24.JUL.2012 16:47:32

**Fig. 2 Power Spectral Density (802.11b, Ch 6)**



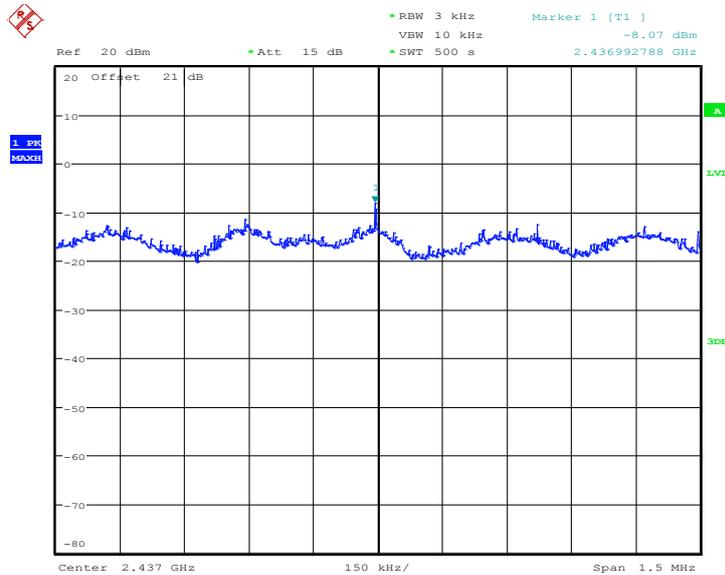
Date: 24.JUL.2012 16:56:19

**Fig. 3 Power Spectral Density (802.11b, Ch 11)**



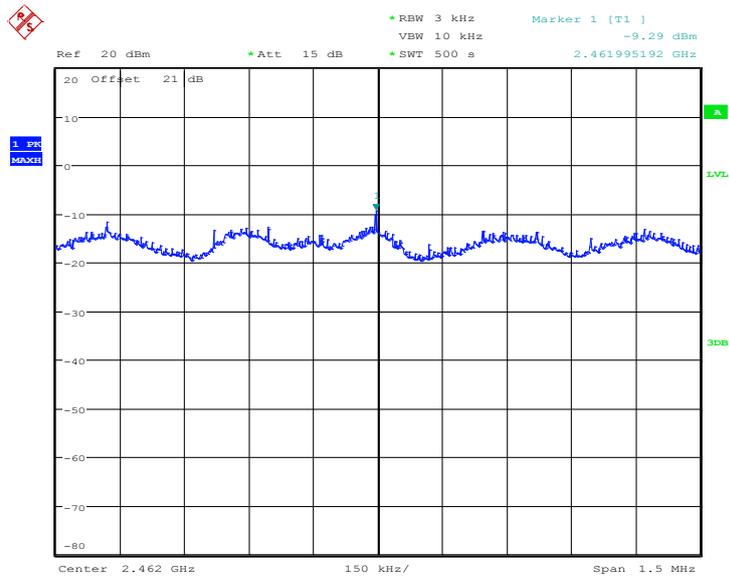
Date: 24.JUL.2012 17:05:10

**Fig. 4 Power Spectral Density (802.11g, Ch 1)**



Date: 24.JUL.2012 17:24:09

**Fig. 5 Power Spectral Density (802.11g, Ch 6)**



Date: 24.JUL.2012 17:34:57

**Fig. 6 Power Spectral Density (802.11g, Ch 11)**

### 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 C63.10

**Measurement Uncertainty:**

Measurement Uncertainty	60.80Hz
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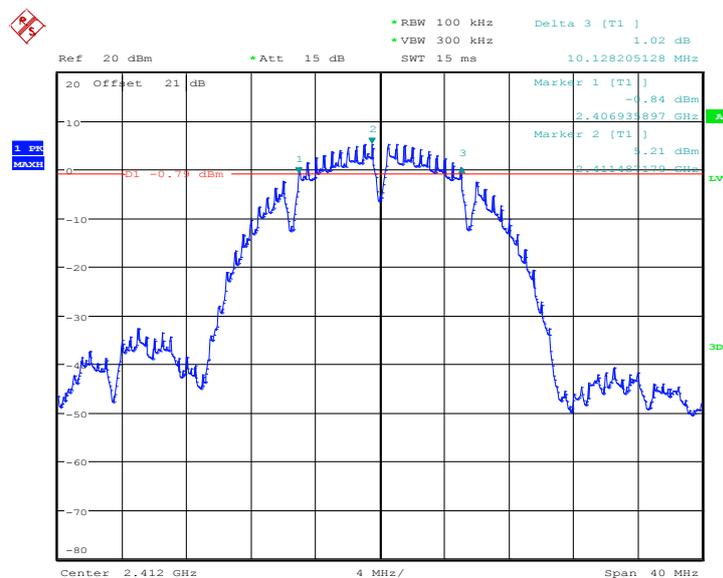
**Measurement Result:**

**802.11b/g mode**

Mode	Channel	Occupied 6dB Bandwidth ( kHz)		conclusion
802.11b	1	Fig.7	10128	P
	6	Fig.8	10128	P
	11	Fig.9	10128	P
802.11g	1	Fig.10	16538	P
	6	Fig.11	16474	P
	11	Fig.12	16538	P

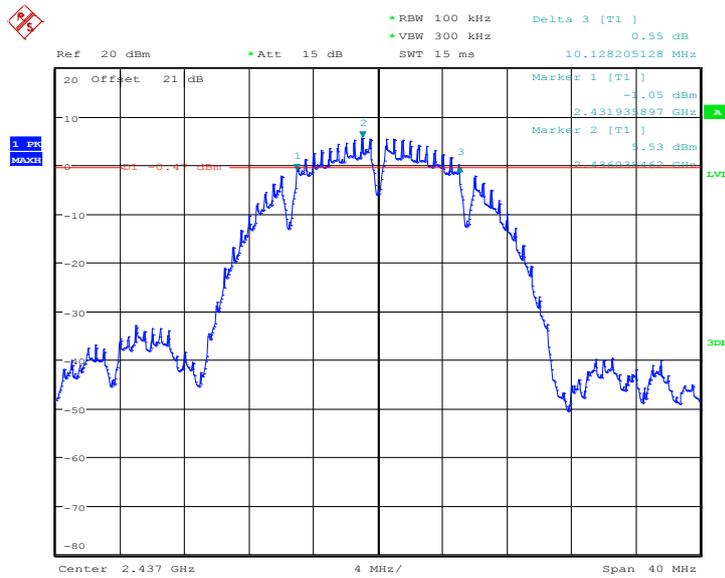
**Conclusion: PASS**

Test graphs as below:



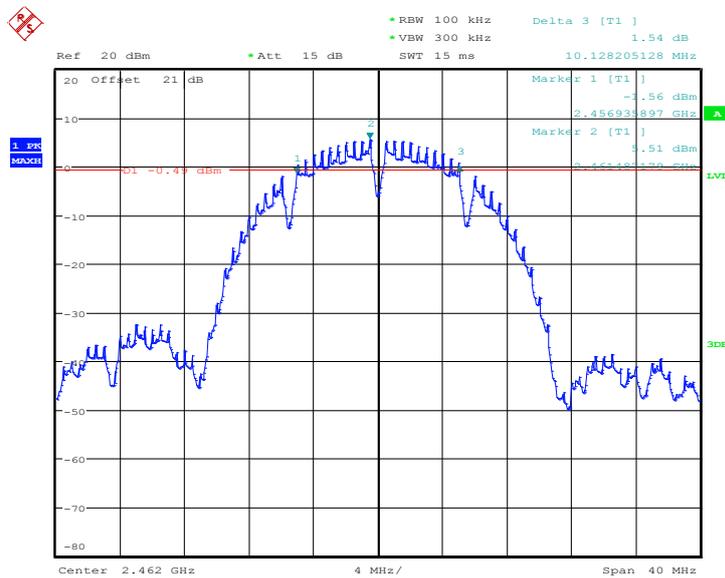
Date: 24.JUL.2012 15:01:29

**Fig. 7 Occupied 6dB Bandwidth (802.11b, Ch 1)**



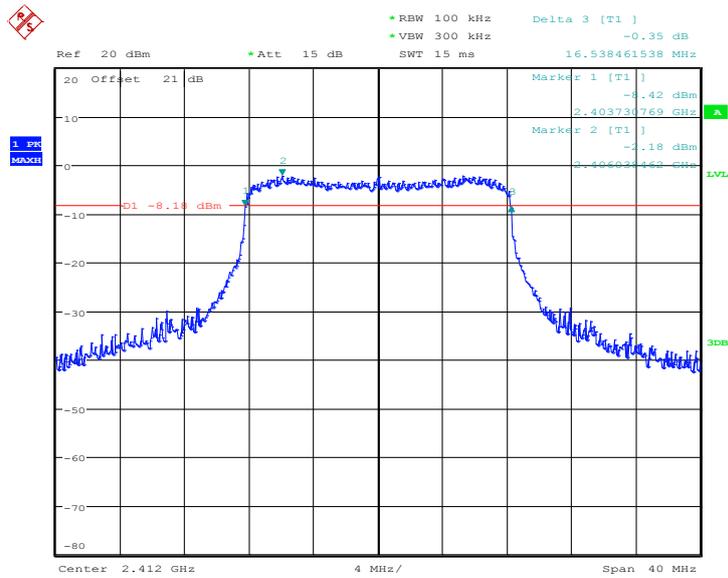
Date: 24.JUL.2012 15:03:05

**Fig. 8 Occupied 6dB Bandwidth (802.11b, Ch 6)**



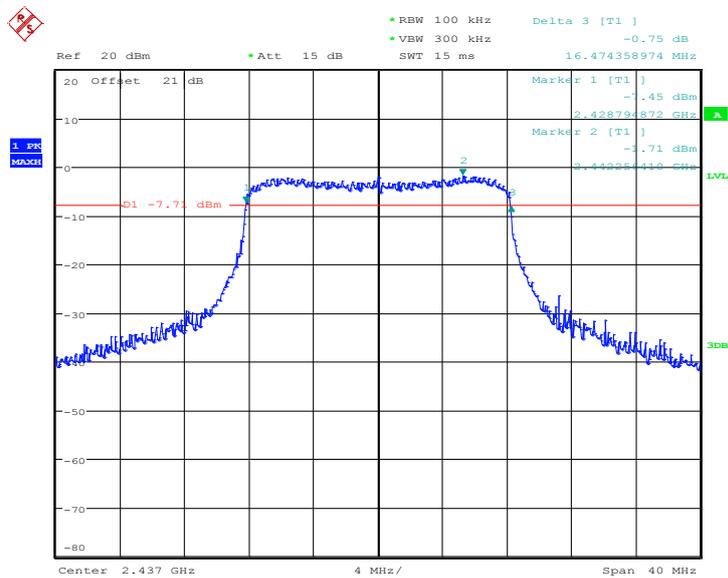
Date: 24.JUL.2012 15:05:21

**Fig. 9 Occupied 6dB Bandwidth (802.11b, Ch 11)**



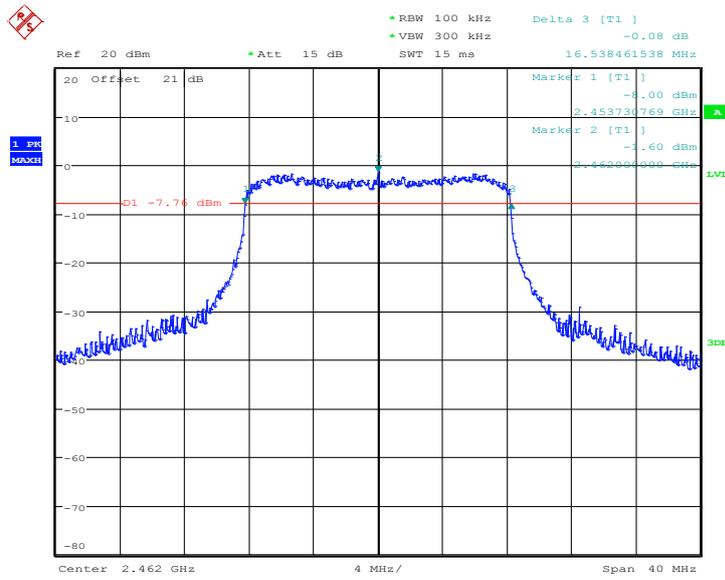
Date: 24.JUL.2012 15:08:56

**Fig. 10 Occupied 6dB Bandwidth (802.11g, Ch 1)**



Date: 24.JUL.2012 15:11:32

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



Date: 24.JUL.2012 15:07:02

**Fig. 12 Occupied 6dB Bandwidth (802.11g, Ch 11)**

### A.5. Band Edges Compliance

**Measurement Limit:**

Standard	Limit (dBc)
FCC 47 CFR Part 15.247 (d)	> 20

The measurement is made according to ANSI C63.10

**Measurement Uncertainty:**

Measurement Uncertainty	0.75dB
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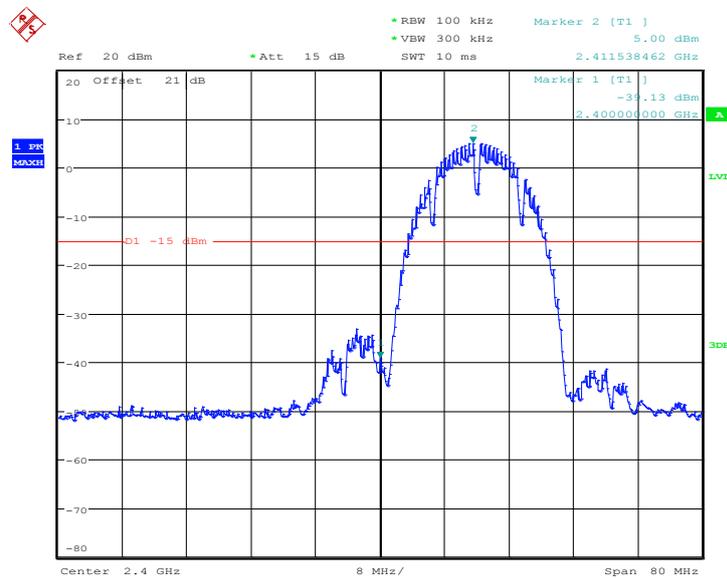
**Measurement Result:**

**802.11b/g mode**

Mode	Channel	Test Results	Conclusion
802.11b	1	Fig.13	P
	11	Fig.14	P
802.11g	1	Fig.15	P
	11	Fig.16	P

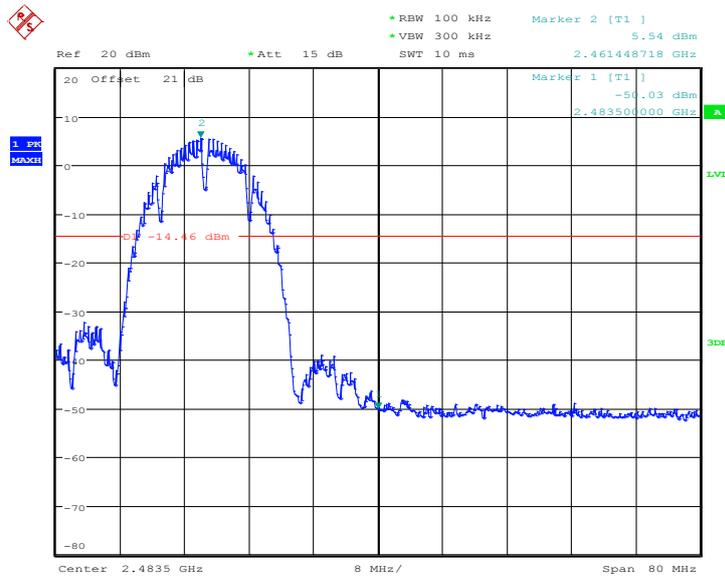
**Conclusion: PASS**

**Test graphs as below:**



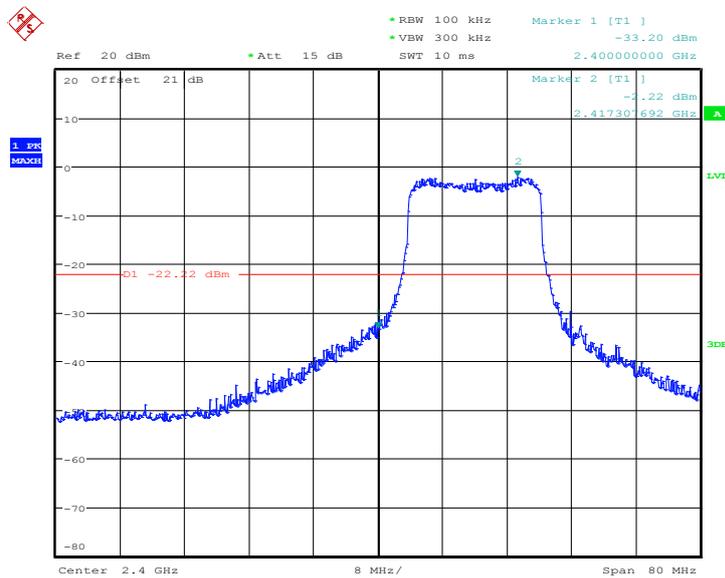
Date: 24.JUL.2012 15:17:05

**Fig. 13 Band Edges (802.11b, Ch 1)**



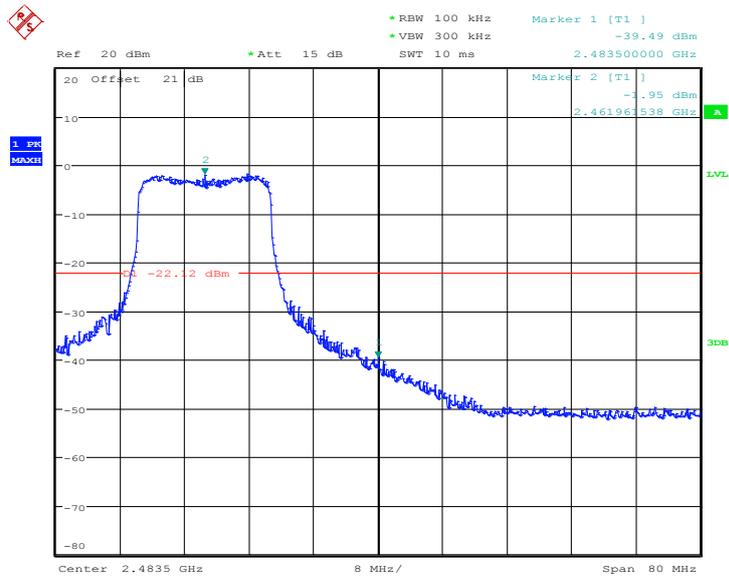
Date: 24.JUL.2012 15:19:21

**Fig. 14 Band Edges (802.11b, Ch 11)**



Date: 24.JUL.2012 15:21:11

**Fig. 15 Band Edges (802.11g, Ch 1)**



Date: 24.JUL.2012 15:23:12

**Fig. 16 Band Edges (802.11g, Ch 11)**

## A.6. Transmitter Spurious Emission

### A.6.1 Transmitter Spurious Emission - Conducted

#### 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 C63.10

#### Measurement Uncertainty:

Frequency Range	Uncertainty
$30\text{MHz} \leq f \leq 2\text{GHz}$	0.63
$2\text{GHz} \leq f \leq 3.6\text{GHz}$	0.82
$3.6\text{GHz} \leq f \leq 8\text{GHz}$	1.55
$8\text{GHz} \leq f \leq 20\text{GHz}$	1.86
$20\text{GHz} \leq f \leq 22\text{GHz}$	1.90
$22\text{GHz} \leq f \leq 26\text{GHz}$	2.20

#### Measurement Results:

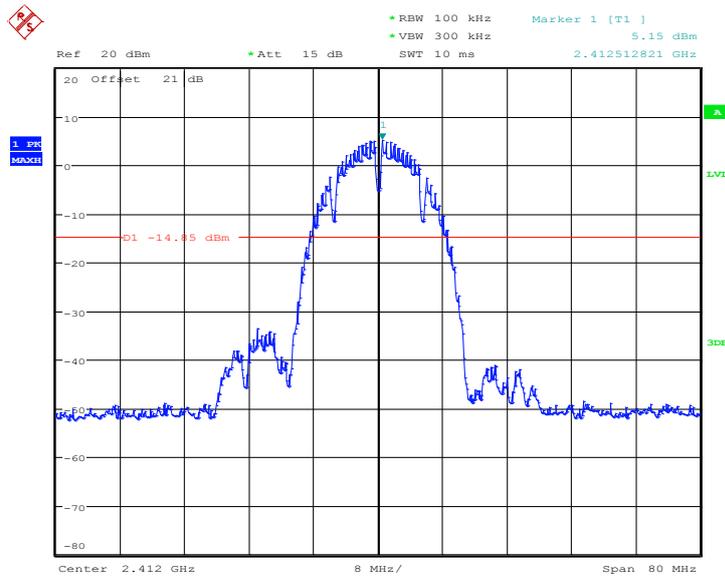
##### 802.11b/g mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	2.412 GHz	Fig.17	P
		30 MHz ~ 1 GHz	Fig.18	P
		1 GHz ~ 2.5 GHz	Fig.19	P
		2.5 GHz ~ 7.5 GHz	Fig.20	P
		7.5 GHz ~ 10 GHz	Fig.21	P
		10 GHz ~ 15 GHz	Fig.22	P
		15 GHz ~ 20 GHz	Fig.23	P
		20 GHz ~ 26 GHz	Fig.24	P
	6	2.437 GHz	Fig.25	P
		30 MHz ~ 1 GHz	Fig.26	P
		1 GHz ~ 2.5 GHz	Fig.27	P
		2.5 GHz ~ 7.5 GHz	Fig.28	P
		7.5 GHz ~ 10 GHz	Fig.29	P
		10 GHz ~ 15 GHz	Fig.30	P
		15 GHz ~ 20 GHz	Fig.31	P
		20 GHz ~ 26 GHz	Fig.32	P
	11	2.462 GHz	Fig.33	P
		30 MHz ~ 1 GHz	Fig.34	P
		1 GHz ~ 2.5 GHz	Fig.35	P
		2.5 GHz ~ 7.5 GHz	Fig.36	P

802.11g		7.5 GHz ~ 10 GHz	Fig.37	P	
		10 GHz ~ 15 GHz	Fig.38	P	
		15 GHz ~ 20 GHz	Fig.39	P	
		20 GHz ~ 26 GHz	Fig.40	P	
	1	2.412 GHz	Fig.41	P	
		30 MHz ~ 1 GHz	Fig.42	P	
		1 GHz ~ 2.5 GHz	Fig.43	P	
		2.5 GHz ~ 7.5 GHz	Fig.44	P	
		7.5 GHz ~ 10 GHz	Fig.45	P	
		10 GHz ~ 15 GHz	Fig.46	P	
		15 GHz ~ 20 GHz	Fig.47	P	
		20 GHz ~ 26 GHz	Fig.48	P	
		6	2.437 GHz	Fig.49	P
			30 MHz ~ 1 GHz	Fig.50	P
			1 GHz ~ 2.5 GHz	Fig.51	P
	2.5 GHz ~ 7.5 GHz		Fig.52	P	
	7.5 GHz ~ 10 GHz		Fig.53	P	
	10 GHz ~ 15 GHz		Fig.54	P	
	15 GHz ~ 20 GHz		Fig.55	P	
	20 GHz ~ 26 GHz		Fig.56	P	
	11	2.462 GHz	Fig.57	P	
		30 MHz ~ 1 GHz	Fig.58	P	
		1 GHz ~ 2.5 GHz	Fig.59	P	
		2.5 GHz ~ 7.5 GHz	Fig.60	P	
		7.5 GHz ~ 10 GHz	Fig.61	P	
		10 GHz ~ 15 GHz	Fig.62	P	
		15 GHz ~ 20 GHz	Fig.63	P	
		20 GHz ~ 26 GHz	Fig.64	P	

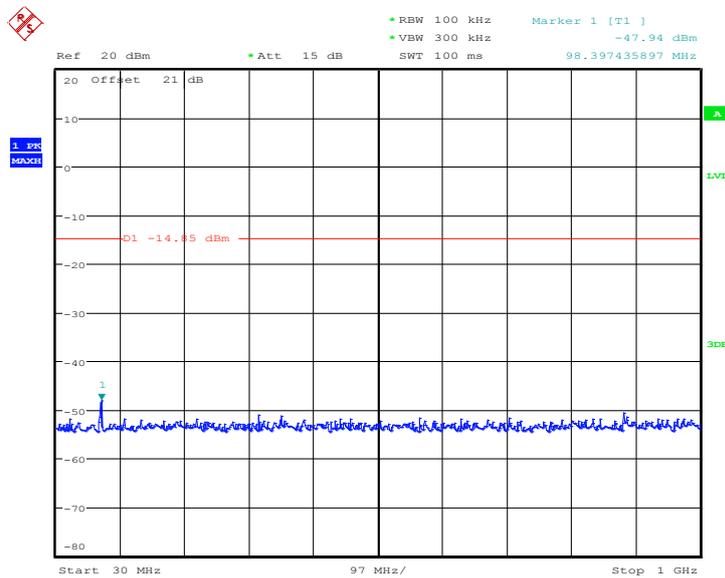
**Conclusion: PASS**

**Test graphs as below:**



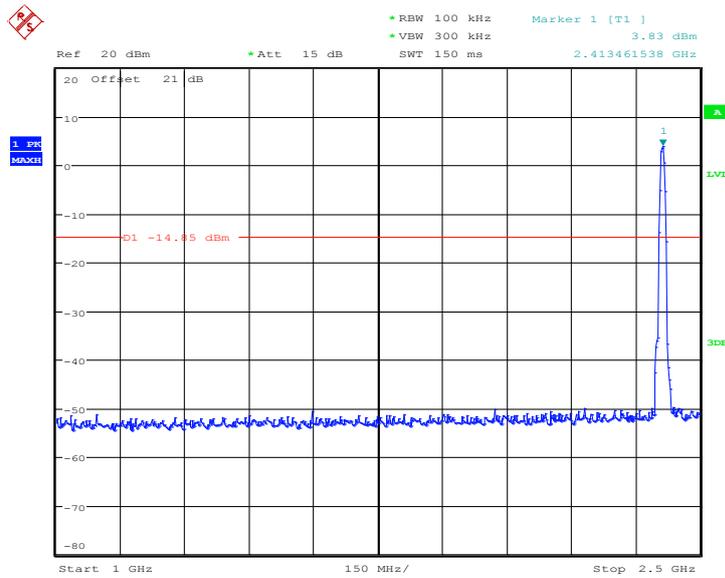
Date: 24.JUL.2012 15:28:24

**Fig. 17 Conducted Spurious Emission (802.11b, Ch1, Center Frequency)**



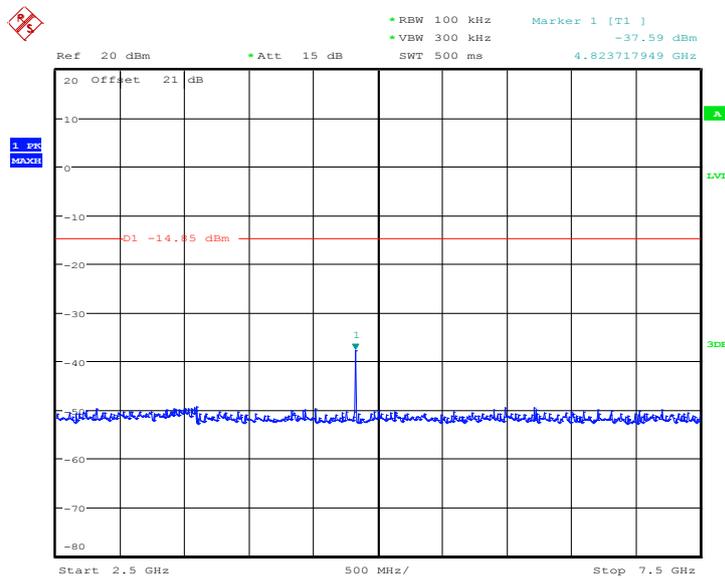
Date: 24.JUL.2012 15:28:44

**Fig. 18 Conducted Spurious Emission (802.11b, Ch1, 30 MHz-1 GHz)**



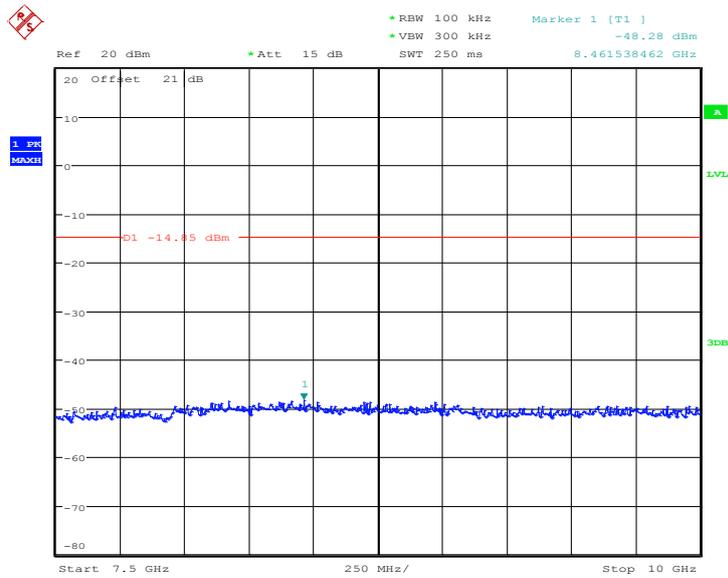
Date: 24.JUL.2012 15:29:07

**Fig. 19 Conducted Spurious Emission (802.11b, Ch1, 1 GHz-2.5 GHz)**



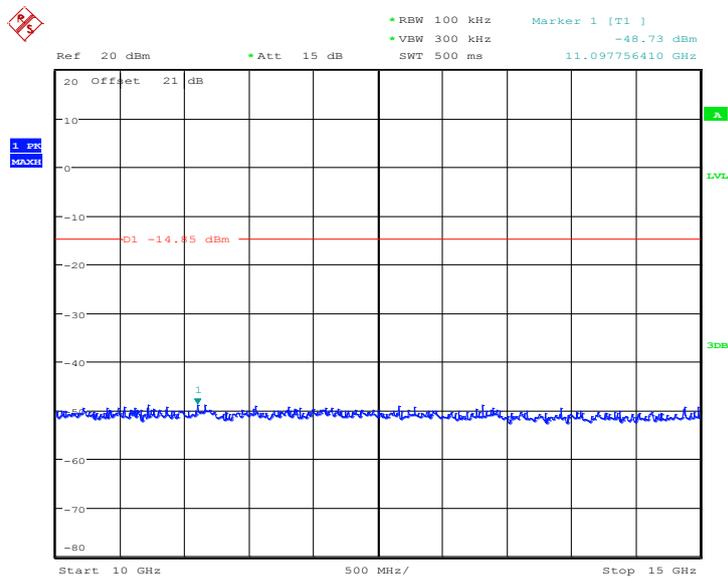
Date: 24.JUL.2012 15:29:41

**Fig. 20 Conducted Spurious Emission (802.11b, Ch1, 2.5 GHz-7.5 GHz)**



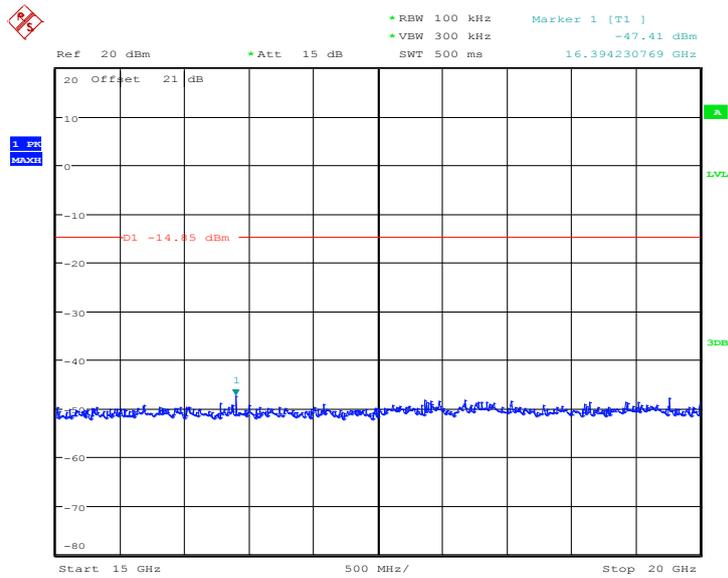
Date: 24.JUL.2012 15:30:15

**Fig. 21 Conducted Spurious Emission (802.11b, Ch1, 7.5 GHz-10 GHz)**



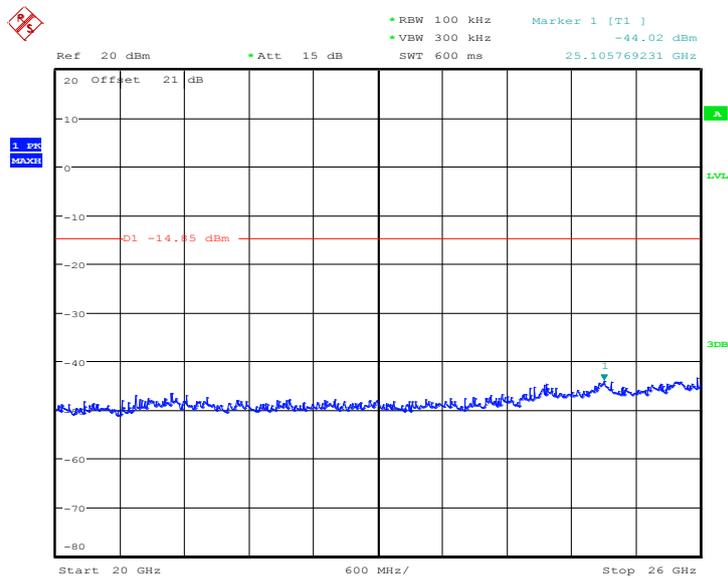
Date: 24.JUL.2012 15:30:49

**Fig. 22 Conducted Spurious Emission (802.11b, Ch1, 10 GHz-15 GHz)**



Date: 24.JUL.2012 15:31:09

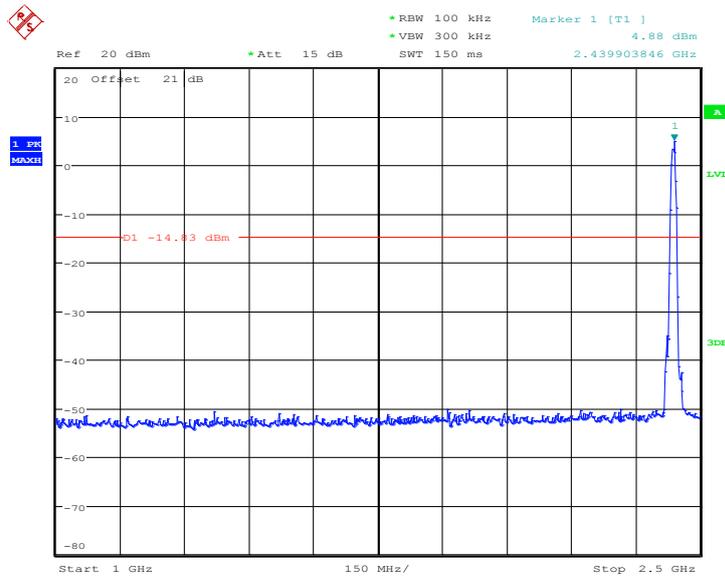
**Fig. 23 Conducted Spurious Emission (802.11b, Ch1, 15 GHz-20 GHz)**



Date: 24.JUL.2012 15:31:49

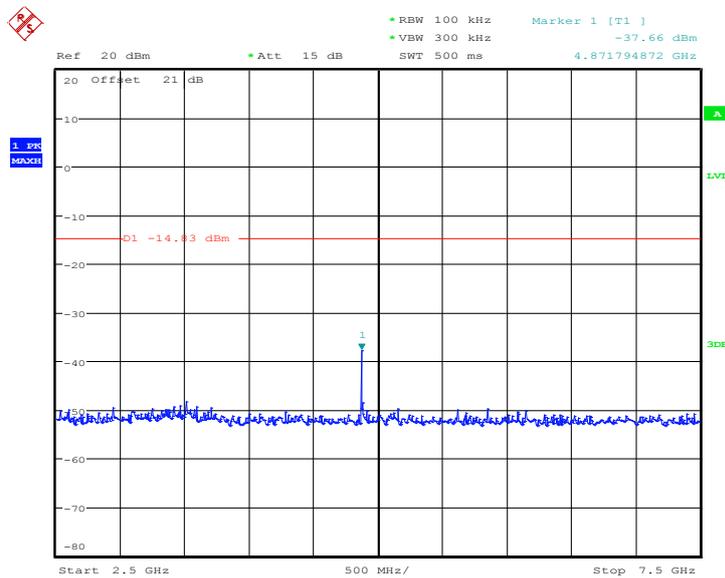
**Fig. 24 Conducted Spurious Emission (802.11b, Ch1, 20 GHz-26 GHz)**





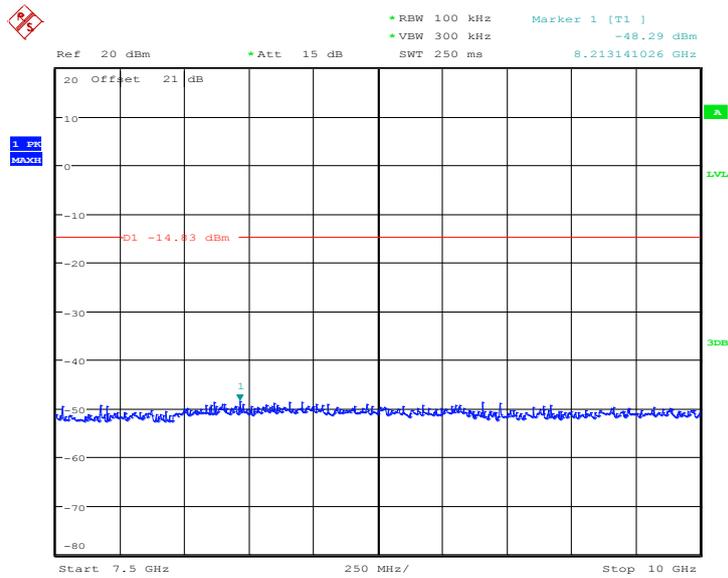
Date: 24.JUL.2012 17:39:15

**Fig. 27 Conducted Spurious Emission (802.11b, Ch6, 1 GHz-2.5 GHz)**



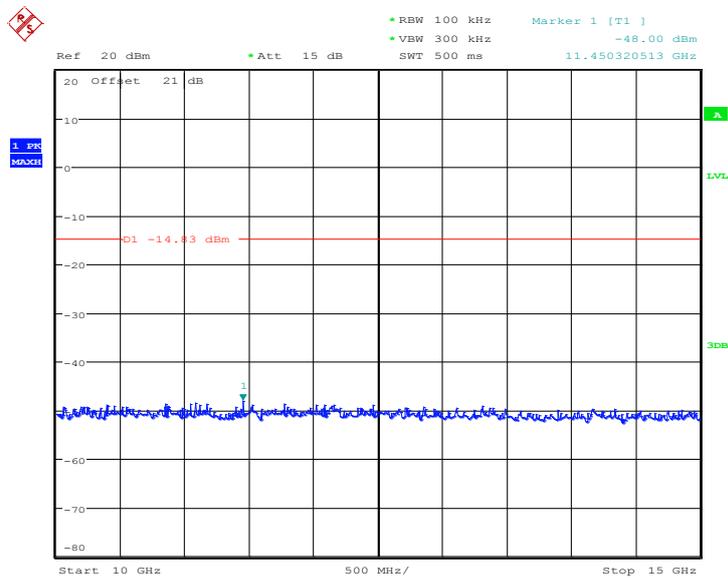
Date: 24.JUL.2012 17:39:32

**Fig. 28 Conducted Spurious Emission (802.11b, Ch6, 2.5 GHz-7.5 GHz)**



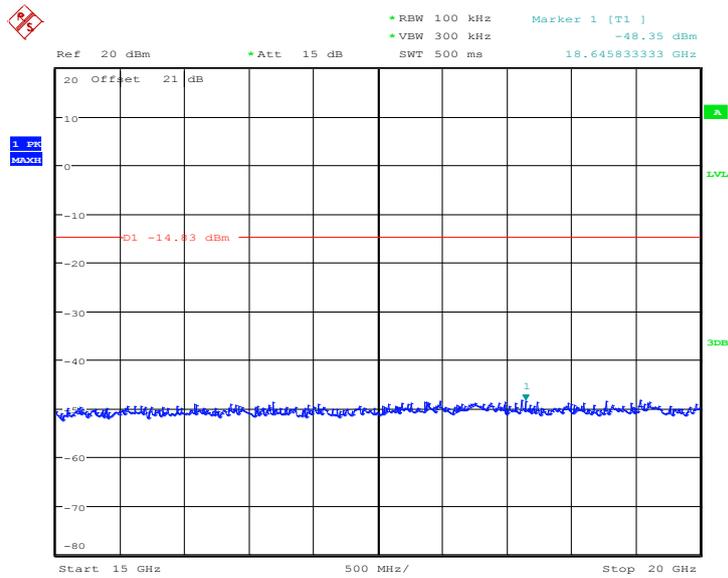
Date: 24.JUL.2012 17:39:57

**Fig. 29 Conducted Spurious Emission (802.11b, Ch6, 7.5 GHz-10 GHz)**



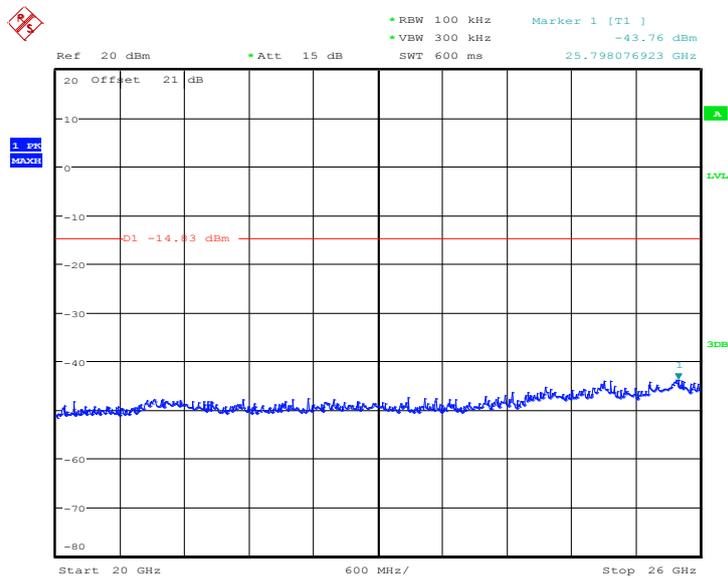
Date: 24.JUL.2012 17:40:23

**Fig. 30 Conducted Spurious Emission (802.11b, Ch6, 10 GHz-15 GHz)**



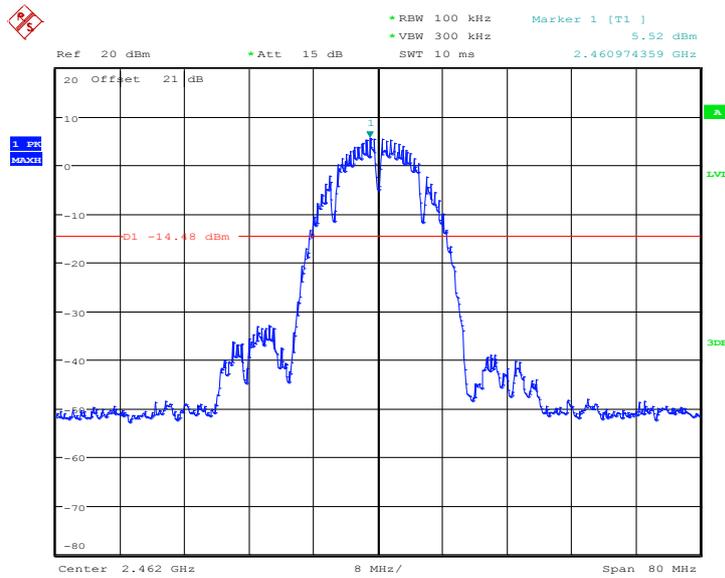
Date: 24.JUL.2012 17:40:49

**Fig. 31 Conducted Spurious Emission (802.11b, Ch6, 15 GHz-20 GHz)**



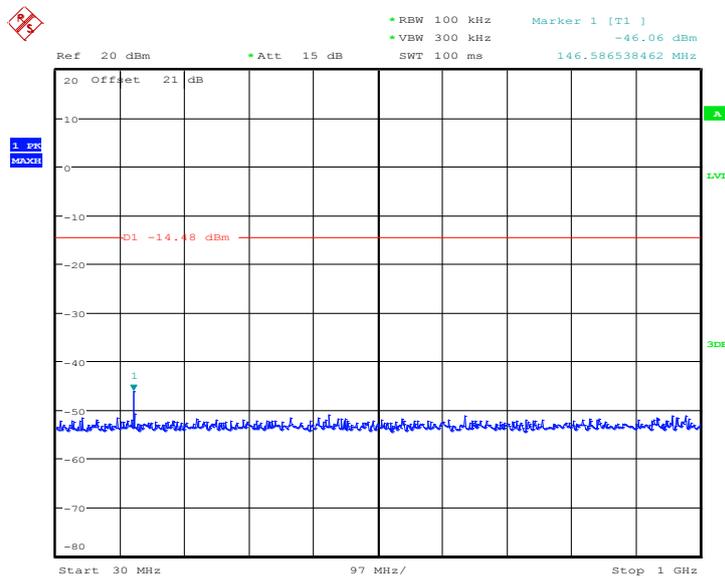
Date: 24.JUL.2012 17:41:10

**Fig. 32 Conducted Spurious Emission (802.11b, Ch6, 20 GHz-26 GHz)**



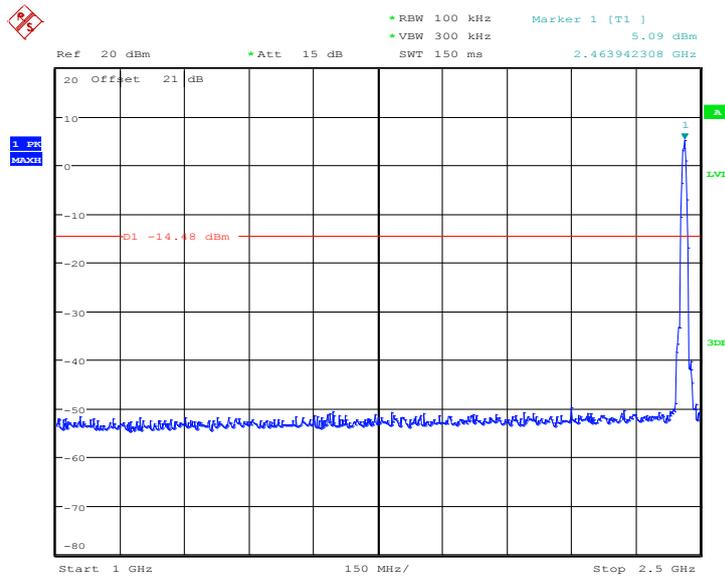
Date: 24.JUL.2012 16:00:58

**Fig. 33 Conducted Spurious Emission (802.11b, Ch11, Center Frequency)**



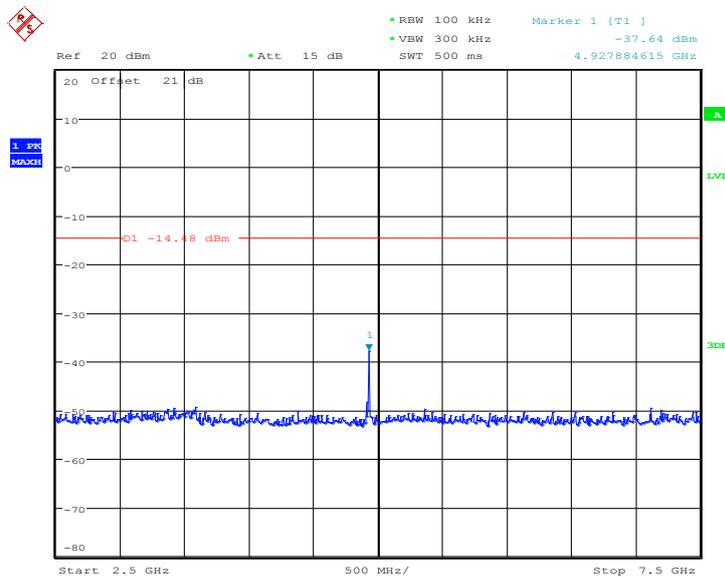
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**Fig. 34 Conducted Spurious Emission (802.11b, Ch11, 30 MHz-1 GHz)**



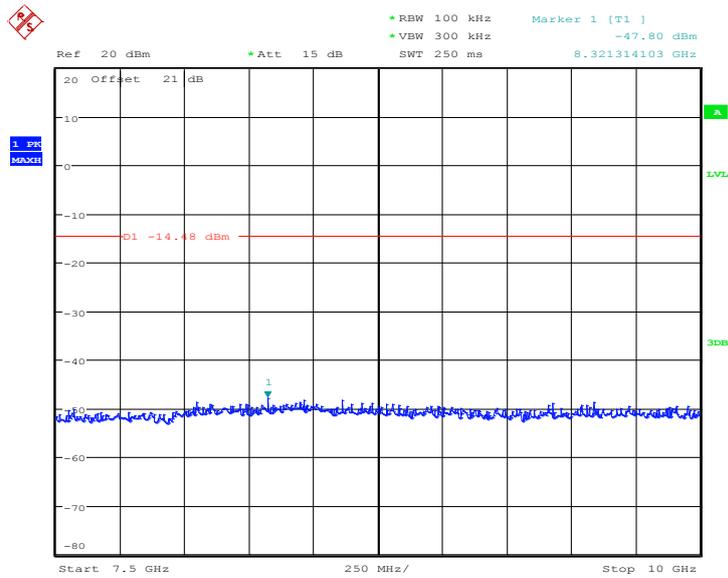
Date: 24.JUL.2012 16:01:38

**Fig. 35 Conducted Spurious Emission (802.11b, Ch11, 1 GHz-2.5 GHz)**



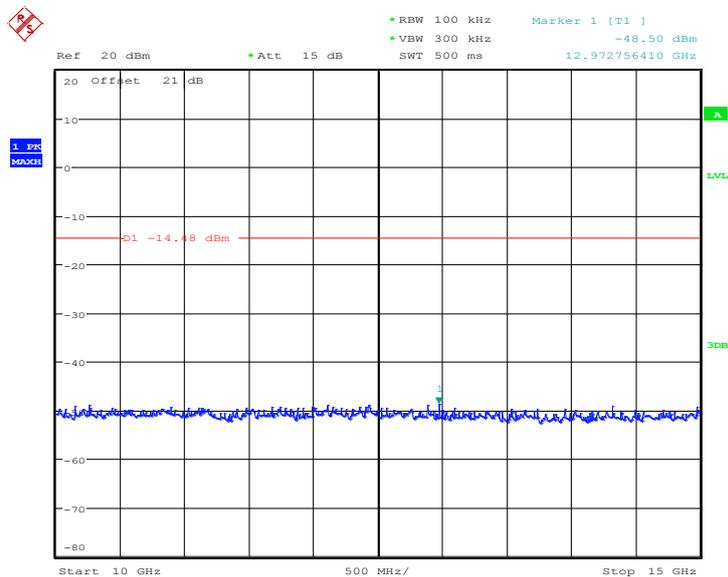
Date: 24.JUL.2012 16:01:57

**Fig. 36 Conducted Spurious Emission (802.11b, Ch11, 2.5 GHz-7.5 GHz)**



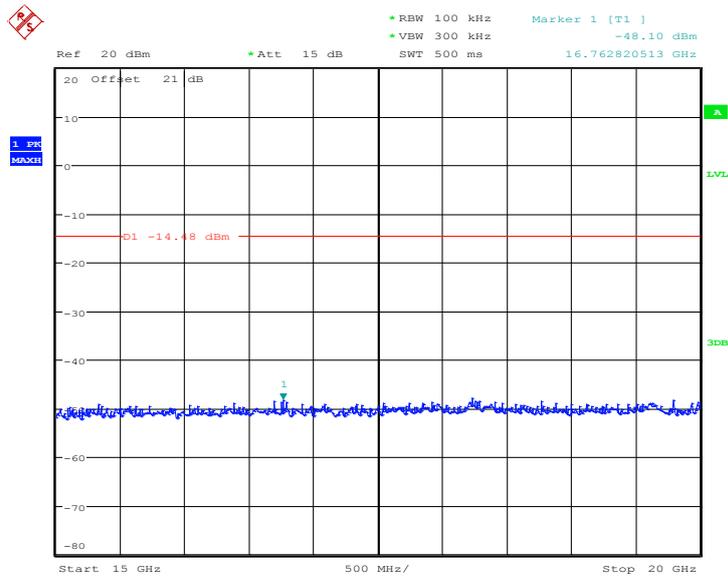
Date: 24.JUL.2012 16:02:17

**Fig. 37 Conducted Spurious Emission (802.11b, Ch11, 7.5 GHz-10 GHz)**



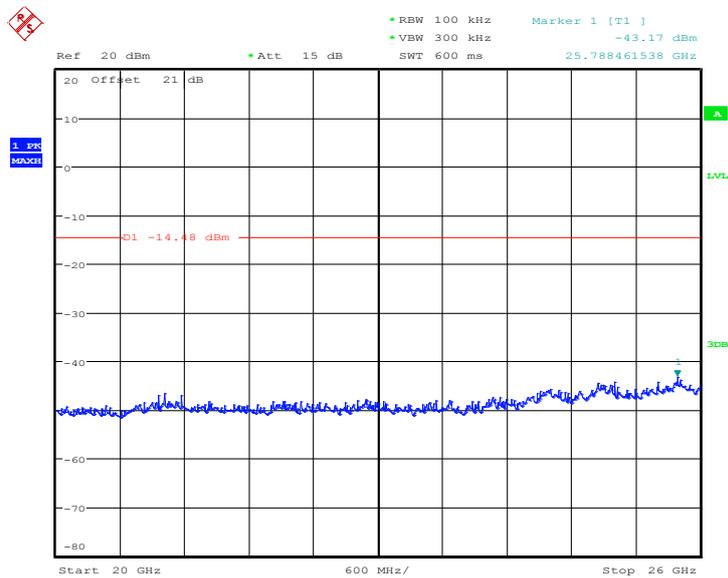
Date: 24.JUL.2012 16:02:41

**Fig. 38 Conducted Spurious Emission (802.11b, Ch11, 10 GHz-15 GHz)**



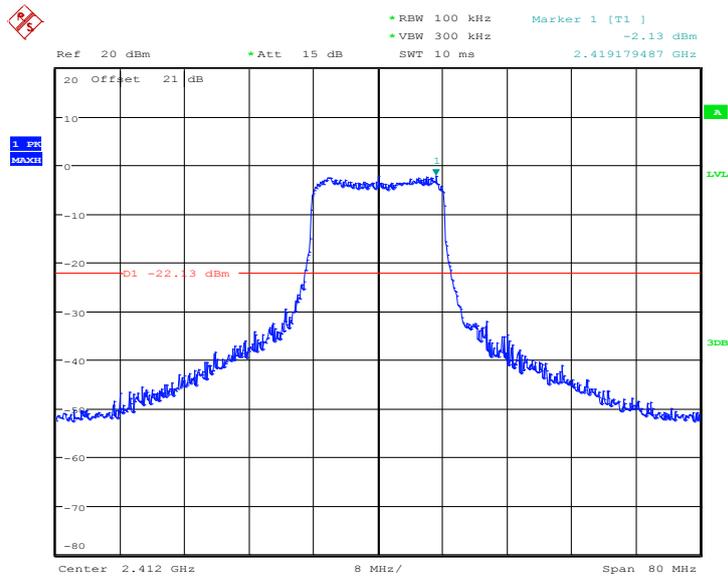
Date: 24.JUL.2012 16:03:09

**Fig. 39 Conducted Spurious Emission (802.11b, Ch11, 15 GHz-20 GHz)**



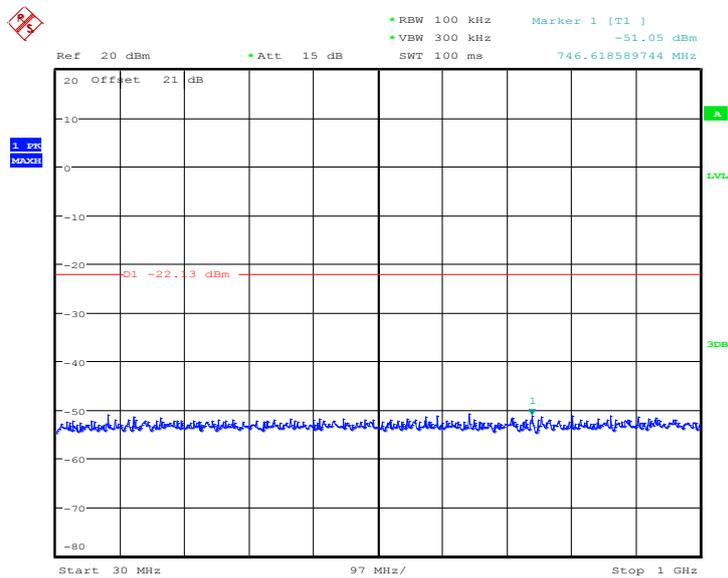
Date: 24.JUL.2012 16:03:35

**Fig. 40 Conducted Spurious Emission (802.11b, Ch11, 20 GHz-26 GHz)**



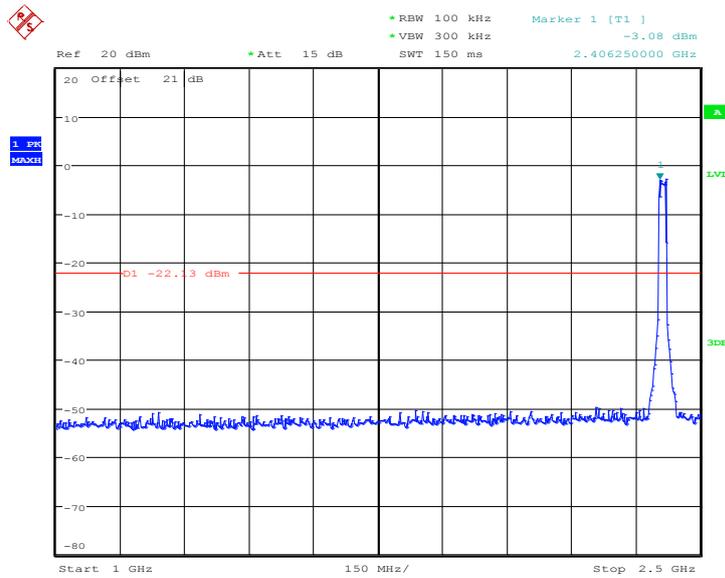
Date: 24.JUL.2012 16:06:50

**Fig. 41 Conducted Spurious Emission (802.11g, Ch1, Center Frequency)**



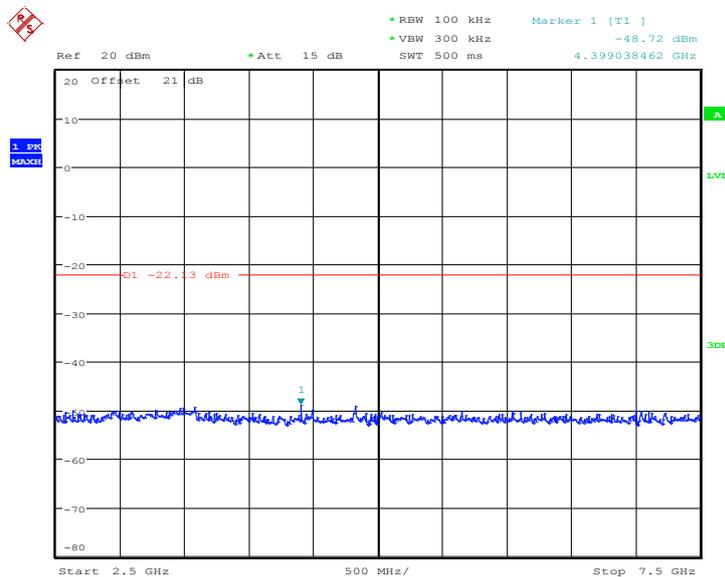
Date: 24.JUL.2012 16:07:14

**Fig. 42 Conducted Spurious Emission (802.11g, Ch1, 30 MHz-1 GHz)**



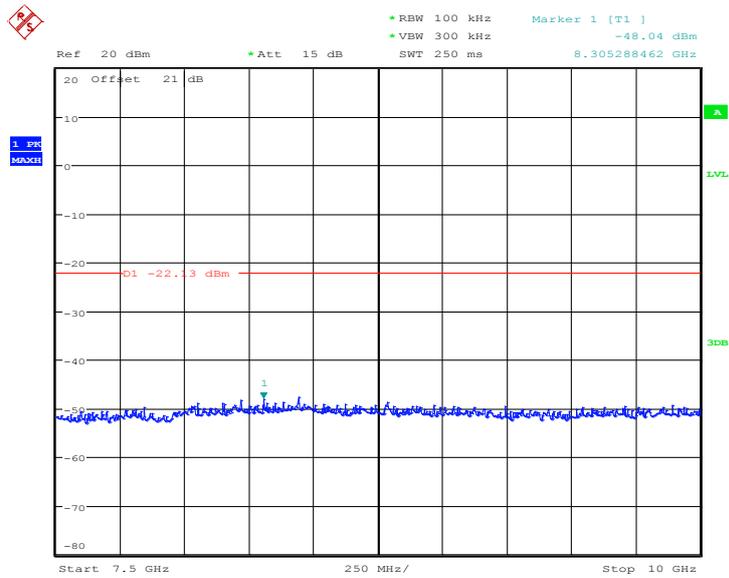
Date: 24.JUL.2012 16:07:35

**Fig. 43 Conducted Spurious Emission (802.11g, Ch1, 1 GHz-2.5 GHz)**



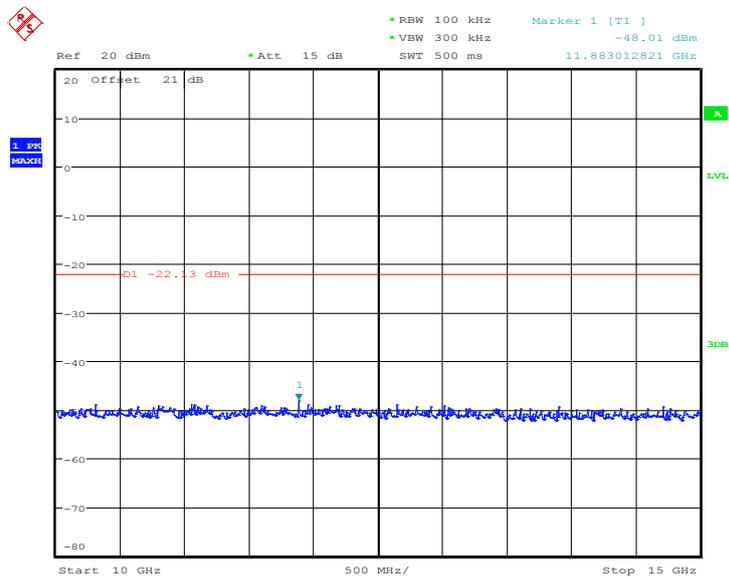
Date: 24.JUL.2012 16:07:59

**Fig. 44 Conducted Spurious Emission (802.11g, Ch1, 2.5 GHz-7.5 GHz)**



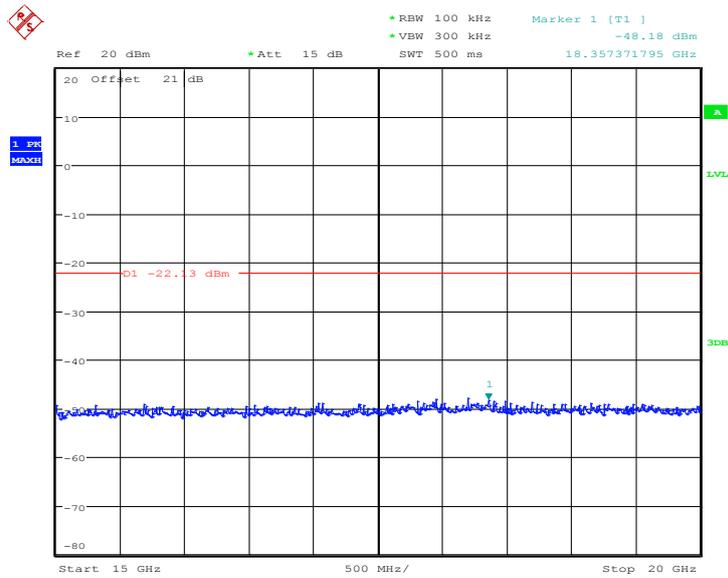
Date: 24.JUL.2012 16:08:21

**Fig. 45 Conducted Spurious Emission (802.11g, Ch1, 7.5 GHz-10 GHz)**



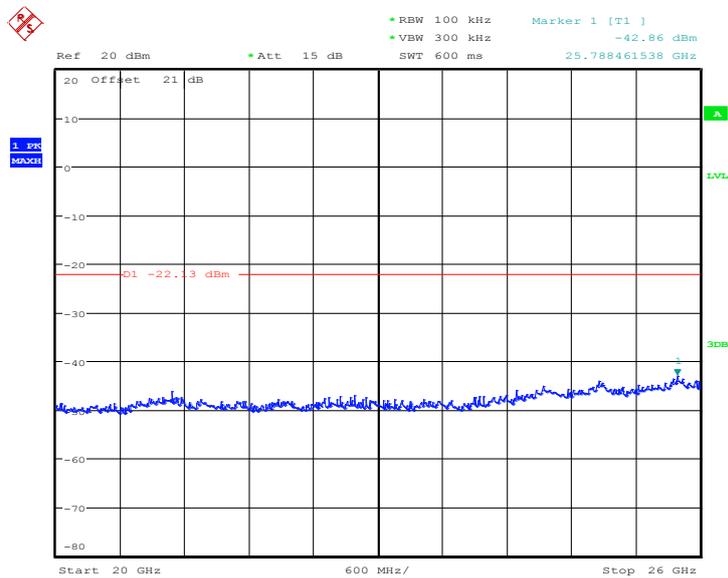
Date: 24.JUL.2012 16:08:49

**Fig. 46 Conducted Spurious Emission (802.11g, Ch1, 10 GHz-15 GHz)**



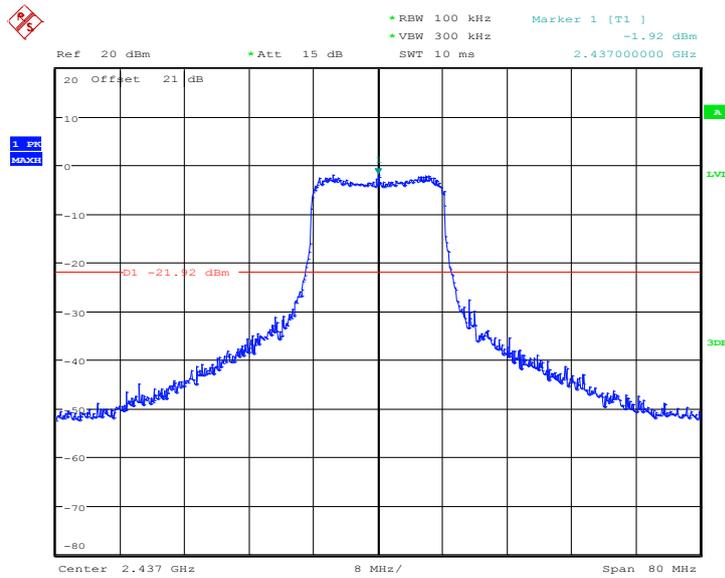
Date: 24.JUL.2012 16:09:14

**Fig. 47 Conducted Spurious Emission (802.11g, Ch1, 15 GHz-20 GHz)**



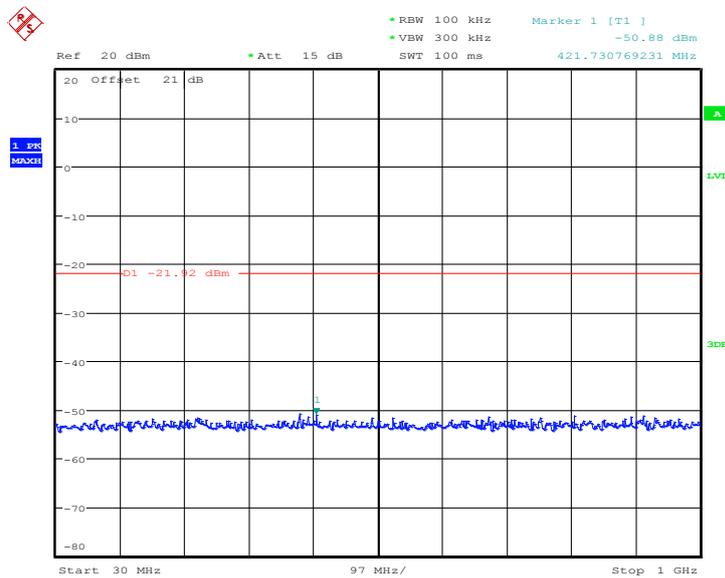
Date: 24.JUL.2012 16:10:12

**Fig. 48 Conducted Spurious Emission (802.11g, Ch1, 20 GHz-26 GHz)**



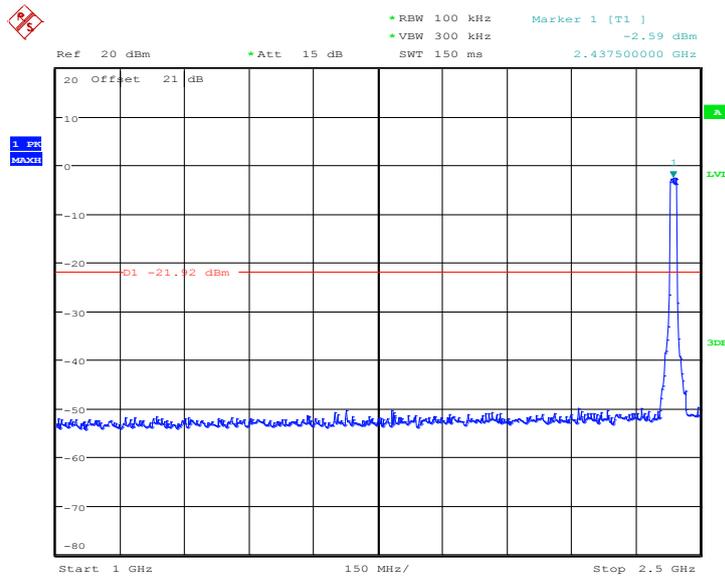
Date: 24.JUL.2012 15:49:14

**Fig. 49 Conducted Spurious Emission (802.11g, Ch6, Center Frequency)**



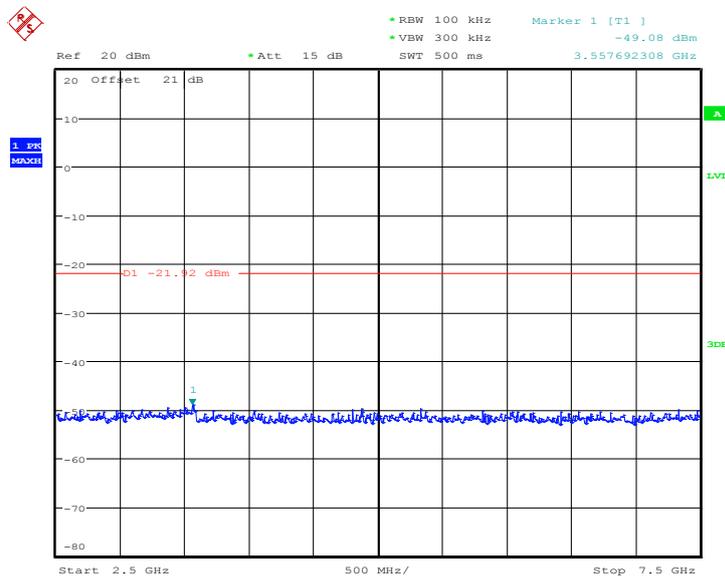
Date: 24.JUL.2012 15:49:38

**Fig. 50 Conducted Spurious Emission (802.11g, Ch6, 30 MHz-1 GHz)**



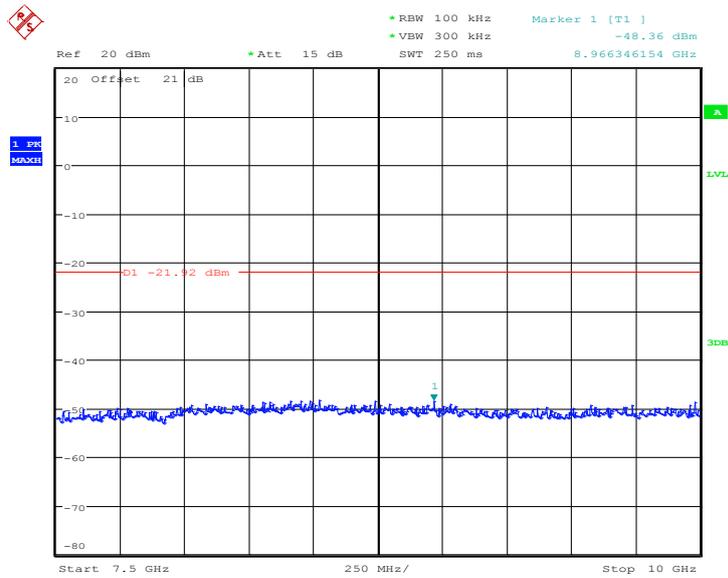
Date: 24.JUL.2012 15:49:58

**Fig. 51 Conducted Spurious Emission (802.11g, Ch6, 1 GHz-2.5 GHz)**



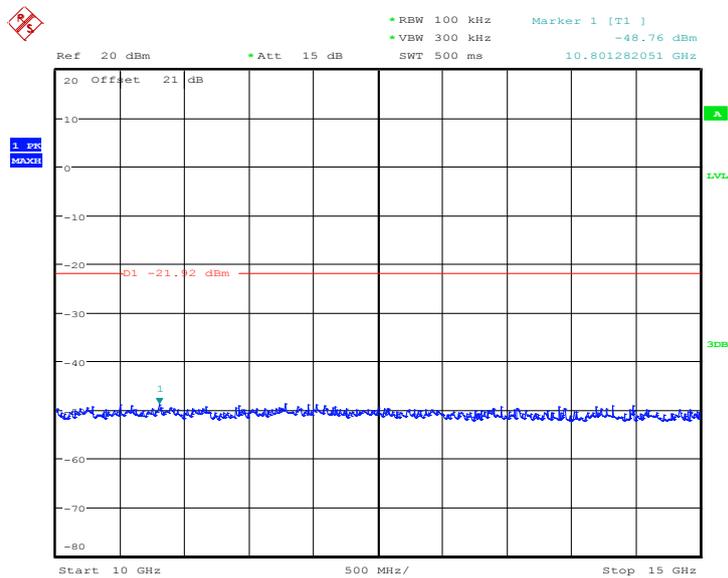
Date: 24.JUL.2012 15:50:25

**Fig. 52 Conducted Spurious Emission (802.11g, Ch6, 2.5 GHz-7.5 GHz)**



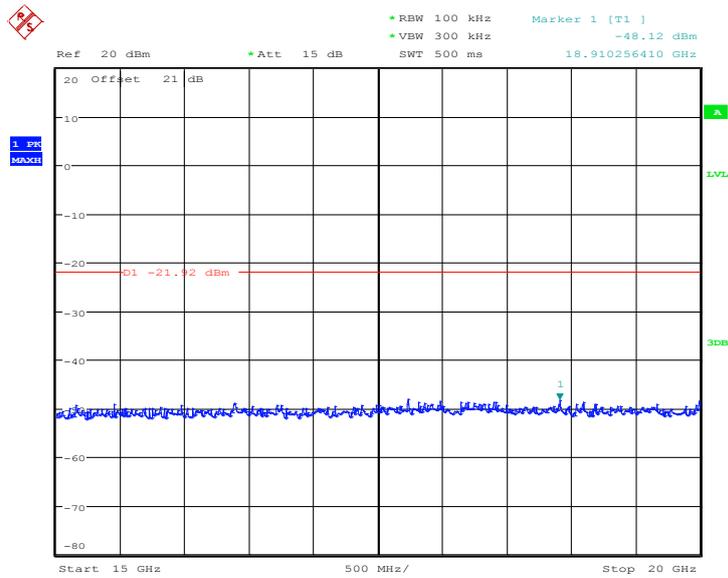
Date: 24.JUL.2012 15:50:49

**Fig. 53 Conducted Spurious Emission (802.11g, Ch6, 7.5 GHz-10 GHz)**



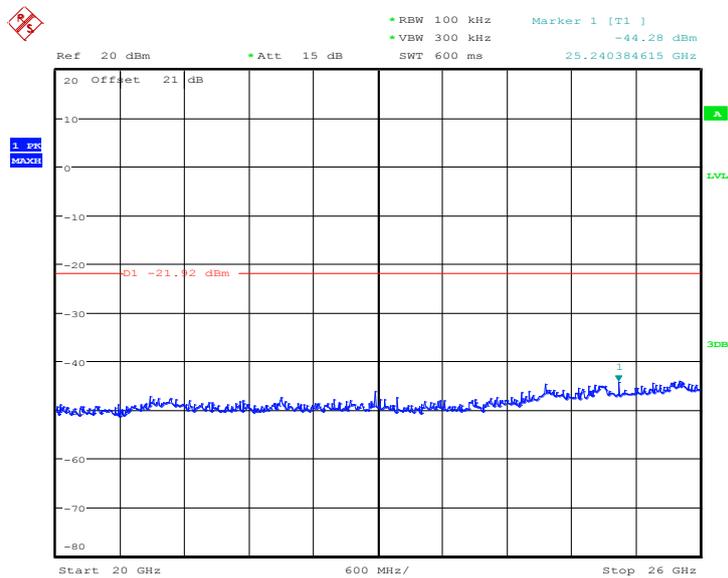
Date: 24.JUL.2012 15:53:01

**Fig. 54 Conducted Spurious Emission (802.11g, Ch6, 10 GHz-15 GHz)**



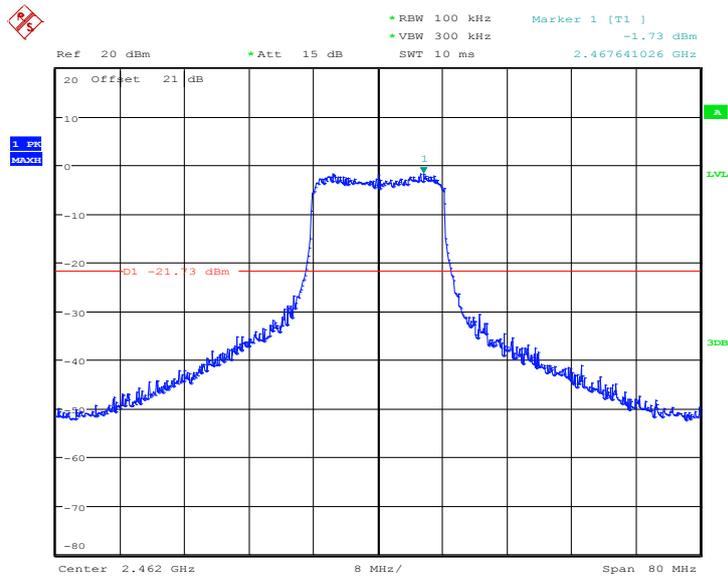
Date: 24.JUL.2012 15:53:22

**Fig. 55 Conducted Spurious Emission (802.11g, Ch6, 15 GHz-20 GHz)**



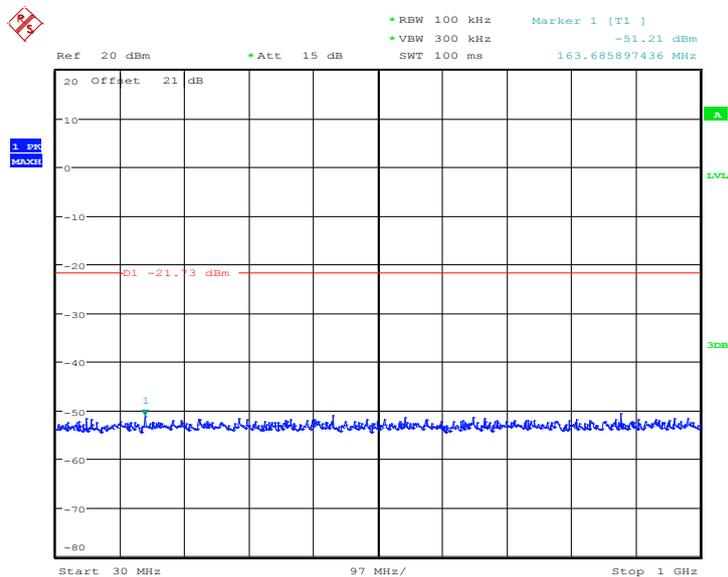
Date: 24.JUL.2012 15:53:47

**Fig. 56 Conducted Spurious Emission (802.11g, Ch6, 20 GHz-26 GHz)**



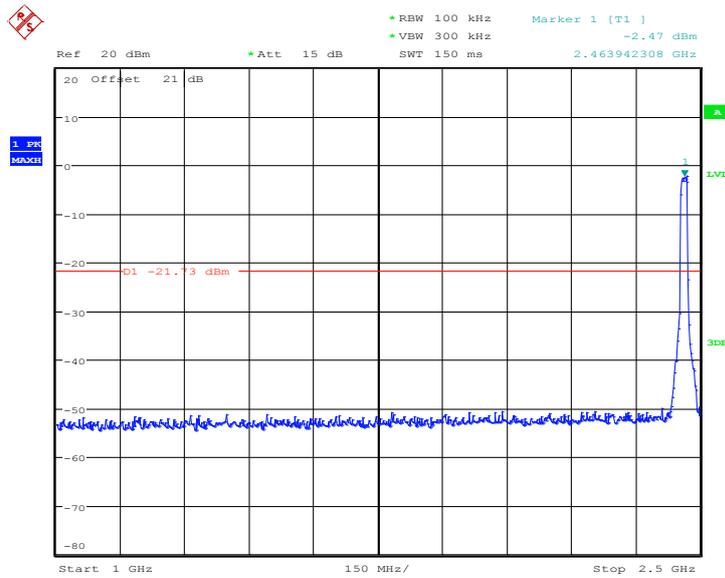
Date: 24.JUL.2012 15:55:14

**Fig. 57 Conducted Spurious Emission (802.11g, Ch11, Center Frequency)**



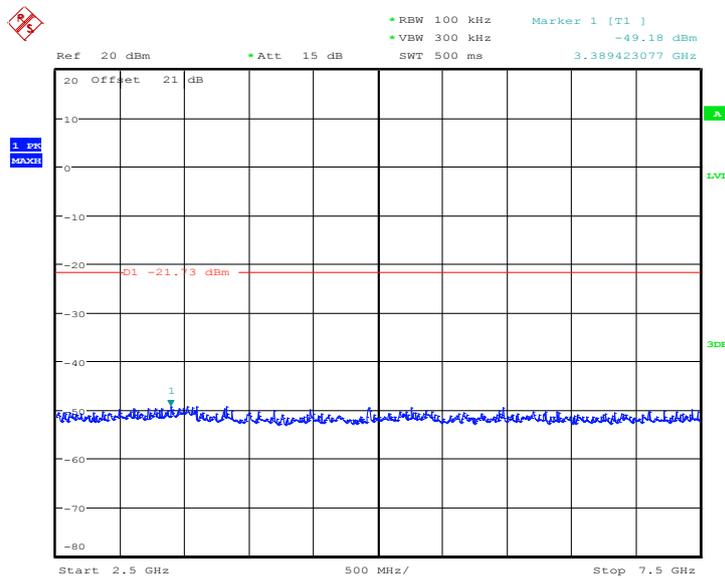
Date: 24.JUL.2012 15:55:38

**Fig. 58 Conducted Spurious Emission (802.11g, Ch11, 30 MHz-1 GHz)**



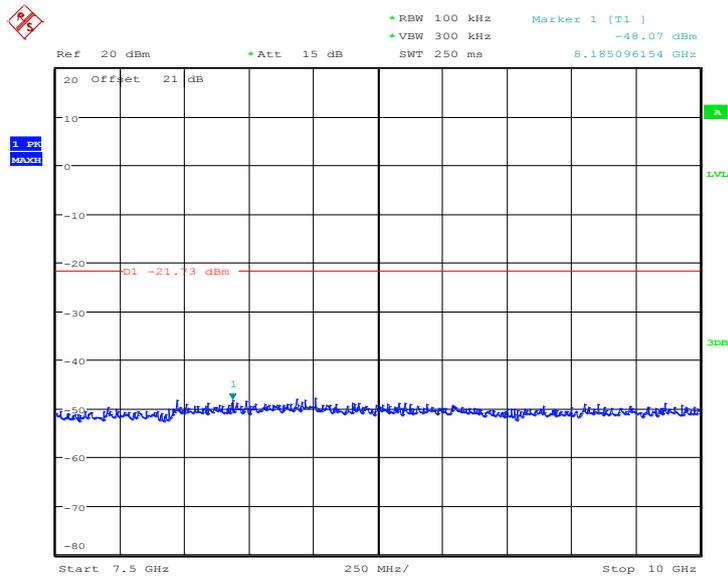
Date: 24.JUL.2012 15:55:56

**Fig. 59 Conducted Spurious Emission (802.11g, Ch11, 1 GHz-2.5 GHz)**



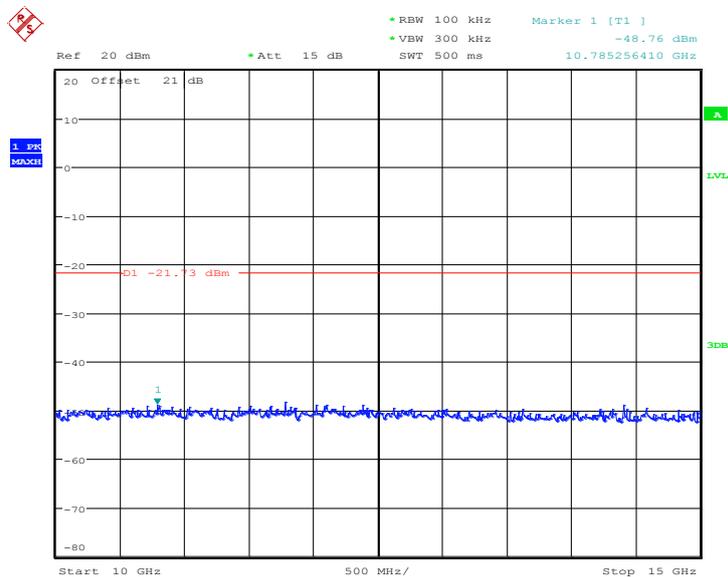
Date: 24.JUL.2012 15:56:19

**Fig. 60 Conducted Spurious Emission (802.11g, Ch11, 2.5 GHz-7.5 GHz)**



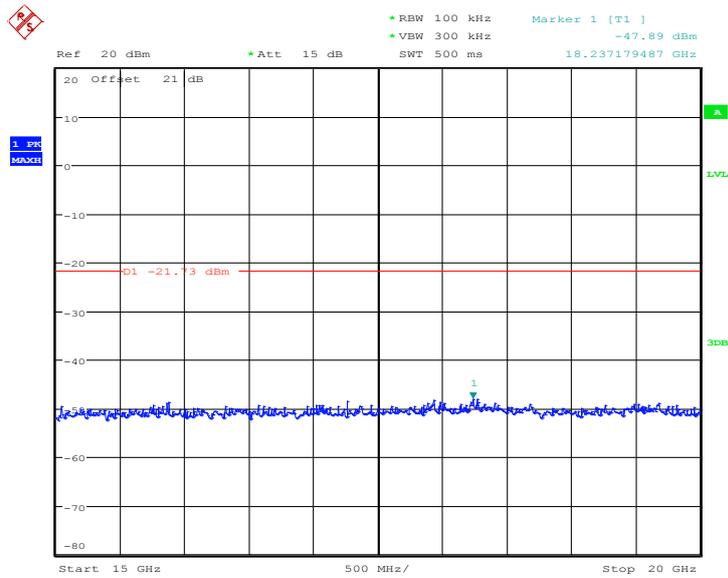
Date: 24.JUL.2012 15:56:48

**Fig. 61 Conducted Spurious Emission (802.11g, Ch11, 7.5 GHz-10 GHz)**



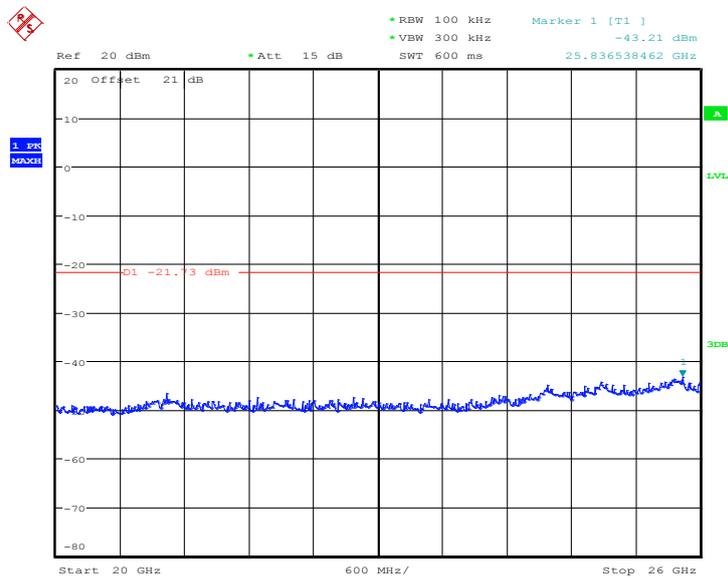
Date: 24.JUL.2012 15:57:14

**Fig. 62 Conducted Spurious Emission (802.11g, Ch11, 10 GHz-15 GHz)**



Date: 24.JUL.2012 15:57:37

**Fig. 63 Conducted Spurious Emission (802.11g, Ch11, 15 GHz-20 GHz)**



Date: 24.JUL.2012 15:58:13

**Fig. 64 Conducted Spurious Emission (802.11g, Ch11, 20 GHz-26 GHz)**

### A.6.2 Transmitter Spurious Emission - Radiated

#### Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power

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)).

The measurement is made according to ANSI C63.10.

#### Limit in restricted band:

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

#### Test Condition

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100KHz/300KHz	5
1000-4000	1MHz/1MHz	15
4000-18000	1MHz/1MHz	40
18000-26500	1MHz/1MHz	20

**Measurement Results:**

**802.11b/g mode**

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	Power	2.38GHz ~2.45GHz	Fig.65	P
	1	30 MHz ~1 GHz	Fig.66	P
		1 GHz ~ 3 GHz	Fig.67	P
		3 GHz ~ 18 GHz	Fig.68	P
	6	30 MHz ~1 GHz	Fig.69	P
		1 GHz ~ 3 GHz	Fig.70	P
		3 GHz ~ 18 GHz	Fig.71	P
	Power	2.45GHz ~2.5GHz	Fig.72	P
	11	30 MHz ~1 GHz	Fig.73	P
		1 GHz ~ 3 GHz	Fig.74	P
		3 GHz ~ 18 GHz	Fig.75	P
	802.11g	Power	2.38GHz ~2.43GHz	Fig.76
1		30 MHz ~1 GHz	Fig.77	P
		1 GHz ~ 3 GHz	Fig.78	P
		3 GHz ~ 18 GHz	Fig.79	P
6		30 MHz ~1 GHz	Fig.80	P
		1 GHz ~ 3 GHz	Fig.81	P
		3 GHz ~ 18 GHz	Fig.82	P
Power		2.45GHz ~2.5GHz	Fig.83	P
11		30 MHz ~1 GHz	Fig.84	P
		1 GHz ~ 3 GHz	Fig.85	P
		3 GHz ~ 18 GHz	Fig.86	P
/		All channels	18 GHz~ 26.5 GHz	Fig.87

**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:

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

**802.11b**

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17505	42.89099	-25.2973	42.77	25.41827	VERTICAL
17526.75	42.86589	-25.2973	42.93	25.23317	VERTICAL
17497.5	42.85995	-25.2973	43.04	25.11723	VERTICAL
17880.75	42.81042	-25.228	42.49	25.54846	VERTICAL
17527.5	42.80658	-25.2973	42.93	25.17386	VERTICAL
17515.5	42.80196	-25.2973	42.77	25.32924	VERTICAL

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17516.25	43.0487	-25.2973	42.77	25.57598	VERTICAL
17553.75	42.69608	-25.2973	42.26	25.73336	VERTICAL
17517	42.67935	-25.2973	42.77	25.20663	VERTICAL
17511	42.67821	-25.2973	42.77	25.20549	VERTICAL
17524.5	42.66403	-25.2973	42.77	25.19131	VERTICAL
17520	42.65532	-25.2973	42.77	25.1826	VERTICAL

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17529.75	42.85232	-25.2973	42.93	25.2196	VERTICAL
17532.75	42.841	-25.2973	42.93	25.20828	VERTICAL
17507.25	42.776	-25.2973	42.77	25.30328	VERTICAL
17981.25	42.73622	-25.228	42.26	25.70426	VERTICAL
17542.5	42.72076	-25.2973	42.93	25.08804	VERTICAL
17508.75	42.7075	-25.2973	42.77	25.23478	VERTICAL

**802.11g**

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17570.25	42.85441	-25.2973	42.26	25.89168	VERTICAL
17518.5	42.793	-25.2973	42.77	25.32028	VERTICAL
17537.25	42.72435	-25.2973	42.93	25.09163	VERTICAL
17508	42.72312	-25.2973	42.77	25.2504	VERTICAL
17548.5	42.71979	-25.2973	42.93	25.08707	VERTICAL
17496	42.69253	-25.2973	43.04	24.94981	VERTICAL

Ch6

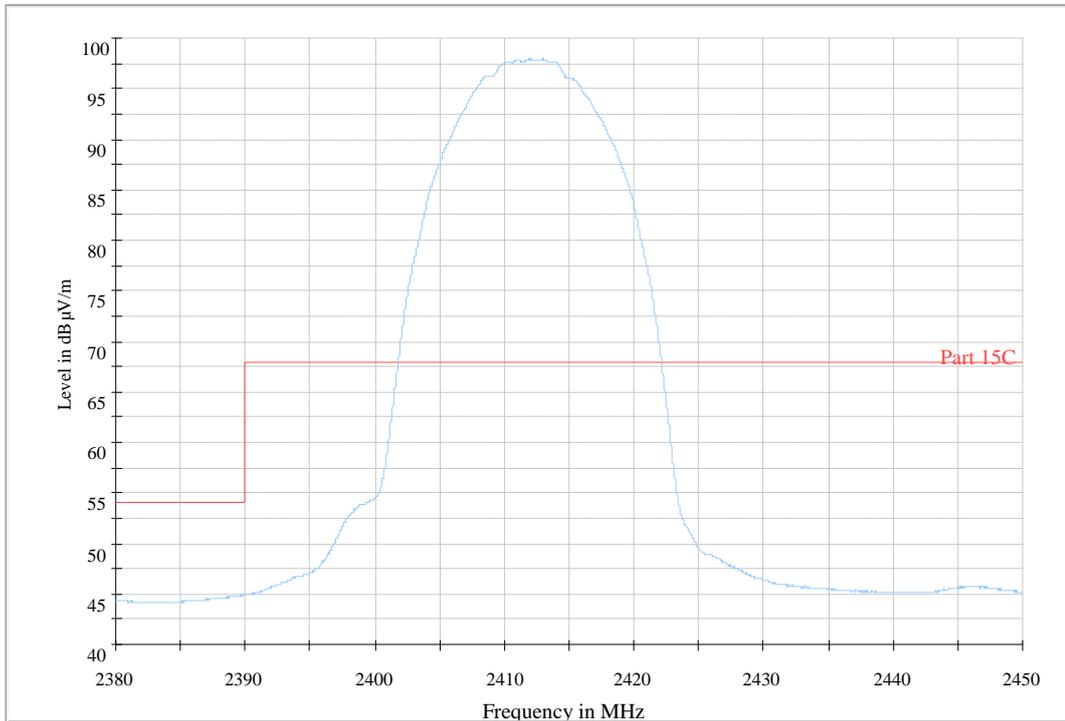
Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17991	42.80649	-24.7144	42.26	25.26085	VERTICAL
17515.5	42.78261	-25.2973	42.77	25.30989	VERTICAL
17511.75	42.72728	-25.2973	42.77	25.25456	VERTICAL
17540.25	42.70668	-25.2973	42.93	25.07395	VERTICAL
17558.25	42.70484	-25.2973	42.26	25.74212	VERTICAL
17562.75	42.69545	-25.2973	42.26	25.73273	VERTICAL

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17506.5	42.9771	-25.2973	42.77	25.50438	VERTICAL
17919	42.73425	-25.228	42.65	25.31229	VERTICAL
17526.75	42.71979	-25.2973	42.93	25.08707	VERTICAL
17533.5	42.68623	-25.2973	42.93	25.05351	VERTICAL
17549.25	42.68469	-25.2973	42.93	25.05197	VERTICAL
17992.5	42.67859	-24.7144	42.26	25.13295	VERTICAL

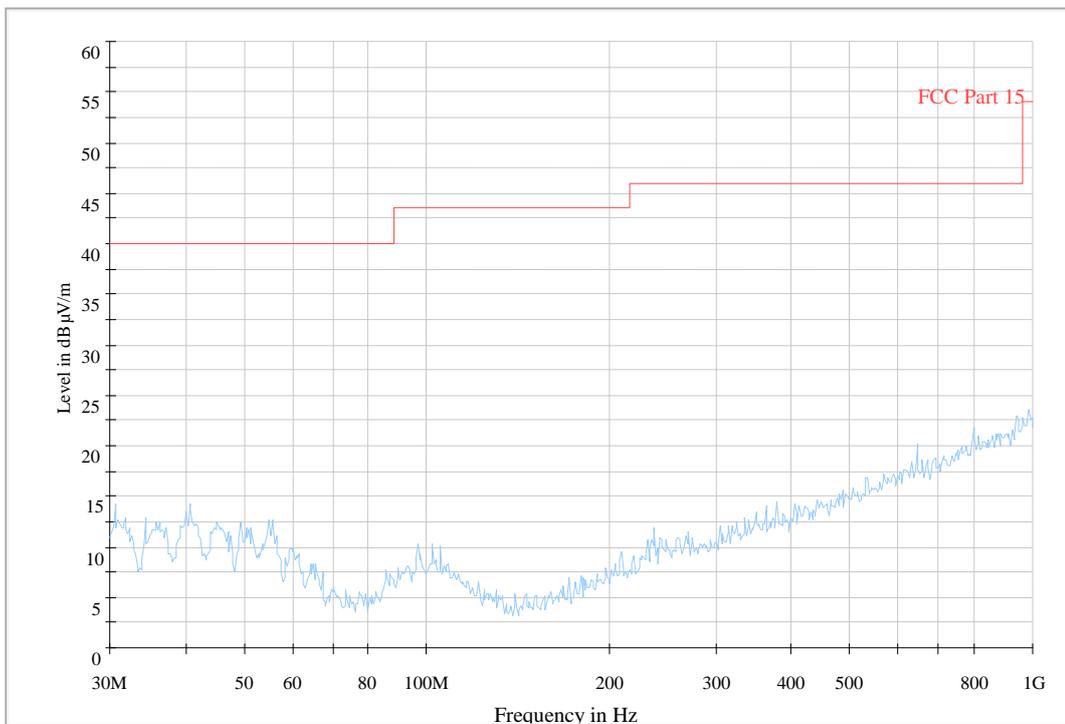
**Test graphs as below:**

RE - Power-2.38GHz-2.45GHz



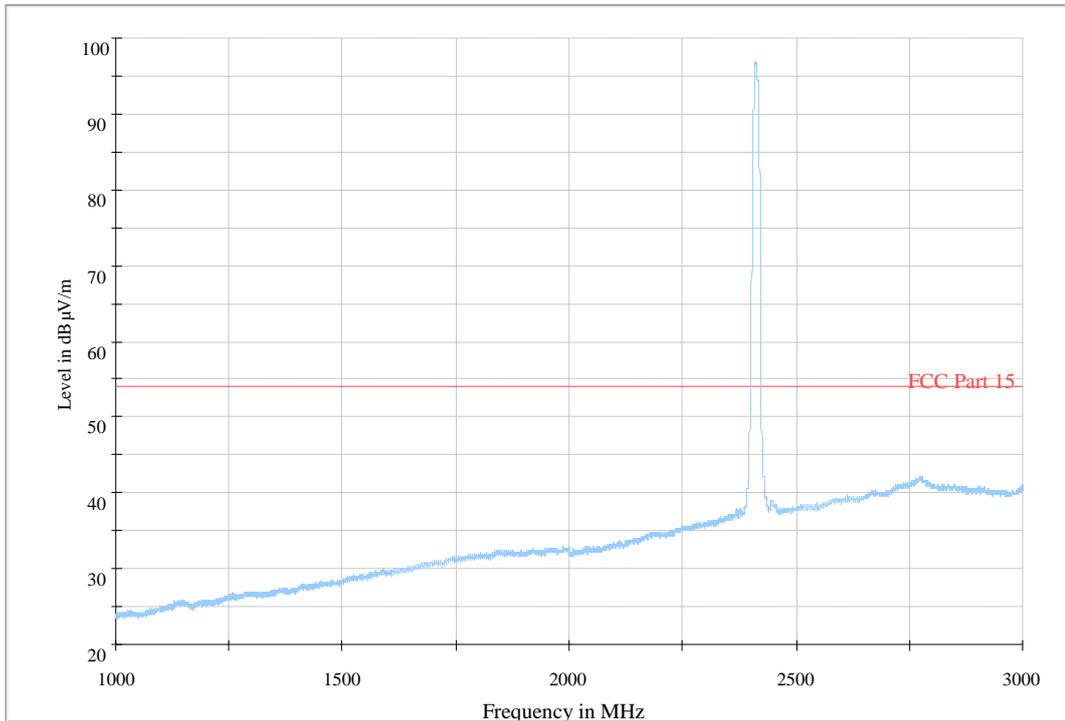
**Fig. 65 Radiated Spurious Emission (Power): 802.11b, ch1, 2.38 GHz - 245GHz**

RE - 30MHz-1GHz



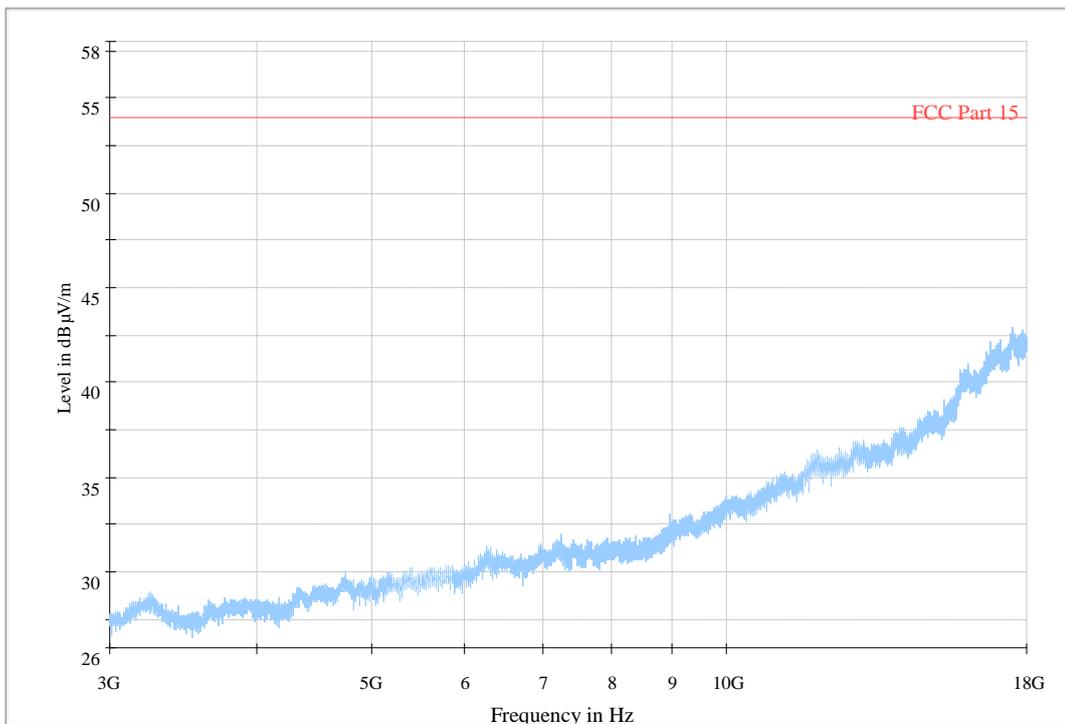
**Fig. 66 Radiated Spurious Emission (802.11b, Ch1, 30 MHz-1 GHz)**

RE - 1GHz-3GHz



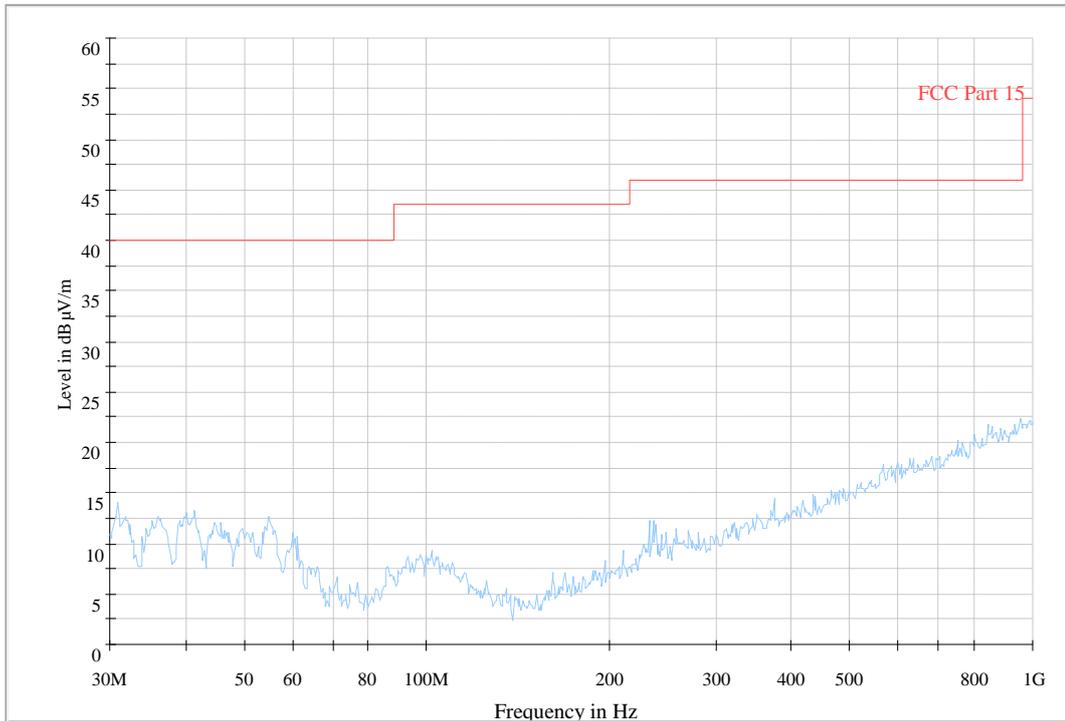
**Fig. 67 Radiated Spurious Emission (802.11b, Ch1, 1 GHz-3 GHz)**

RE - 3GHz-18GHz



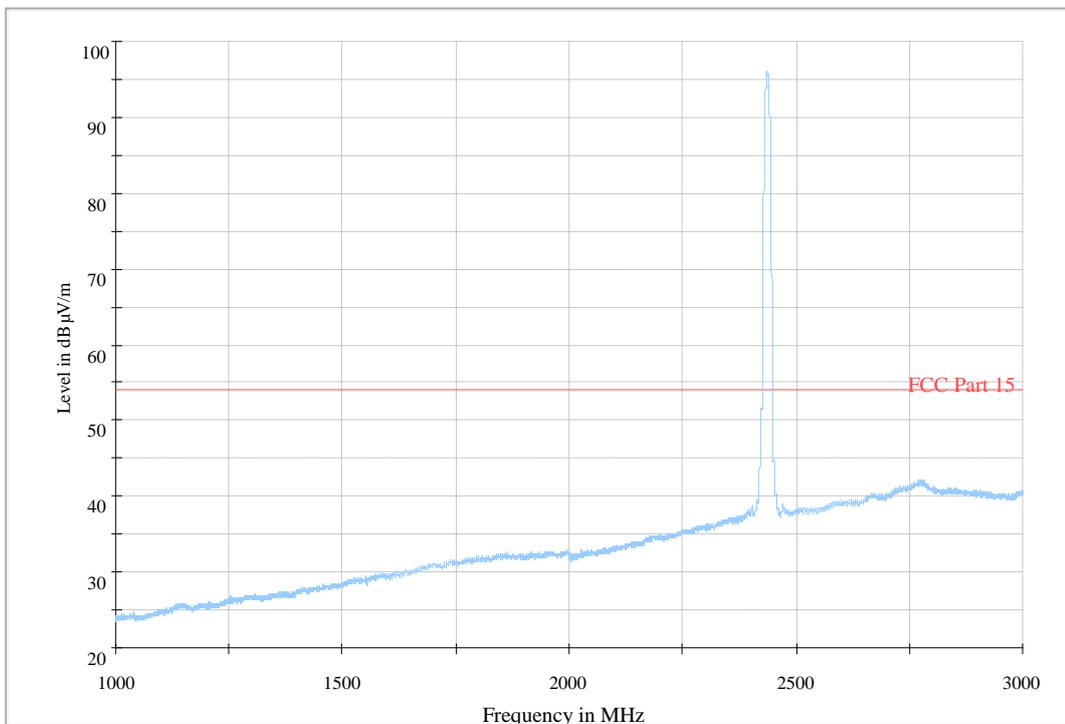
**Fig. 68 Radiated Spurious Emission (802.11b, Ch1, 3 GHz-18 GHz)**

RE - 30MHz-1GHz



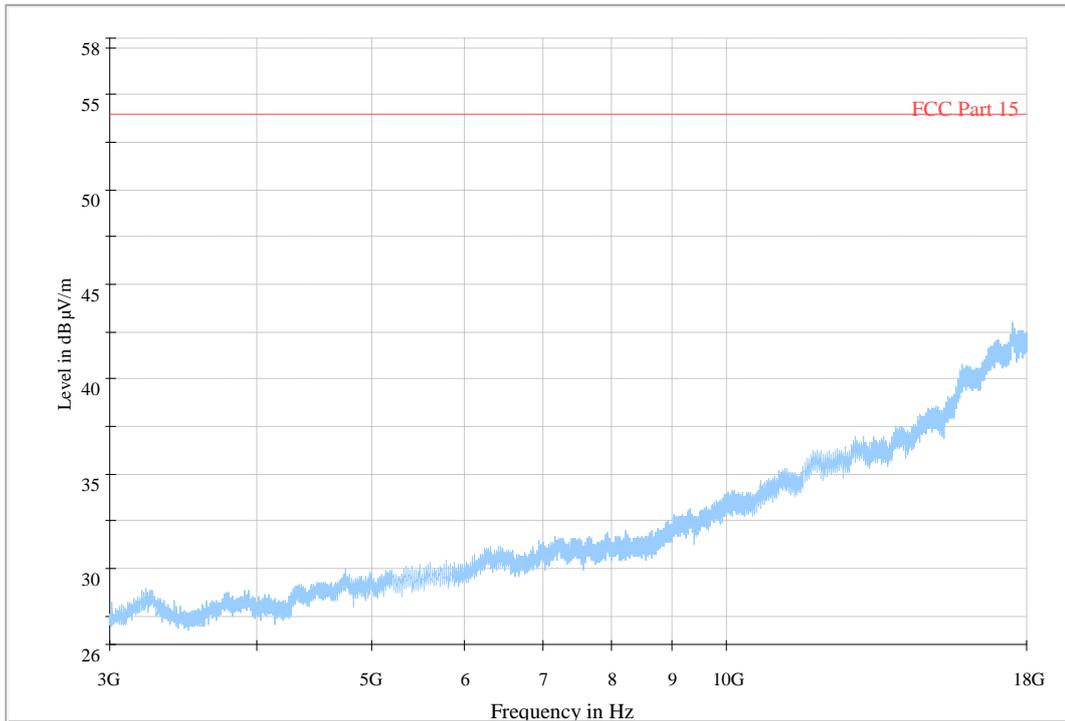
**Fig. 69 Radiated Spurious Emission (802.11b, Ch6, 30 MHz-1 GHz)**

RE - 1GHz-3GHz



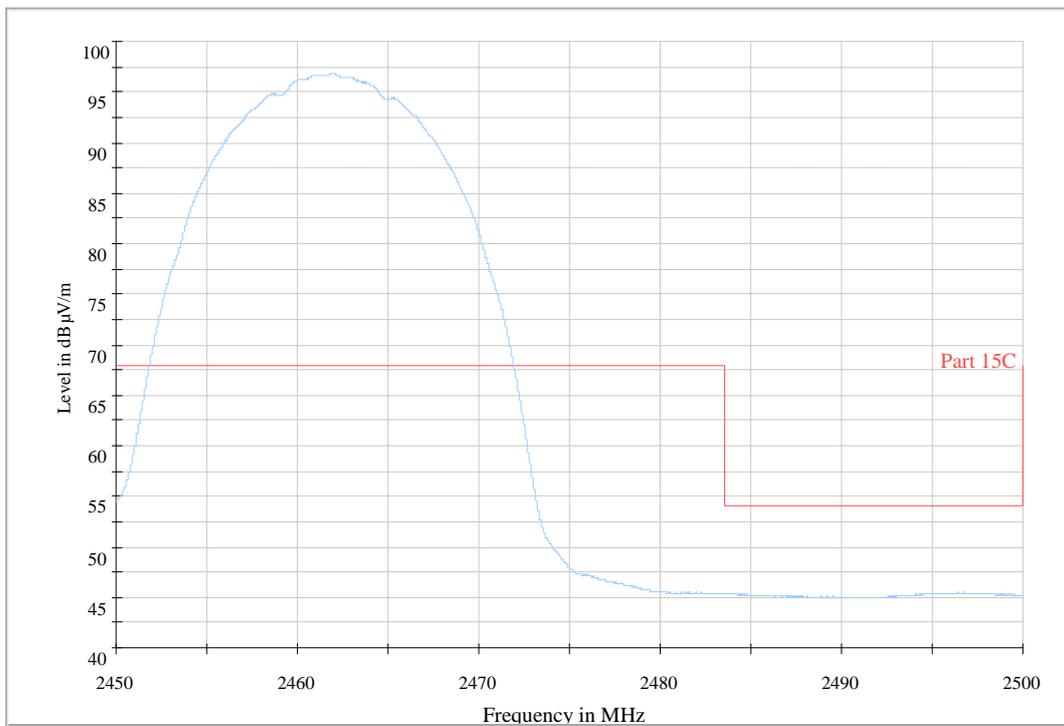
**Fig. 70 Radiated Spurious Emission (802.11b, Ch6, 1 GHz-3 GHz)**

RE - 3GHz-18GHz



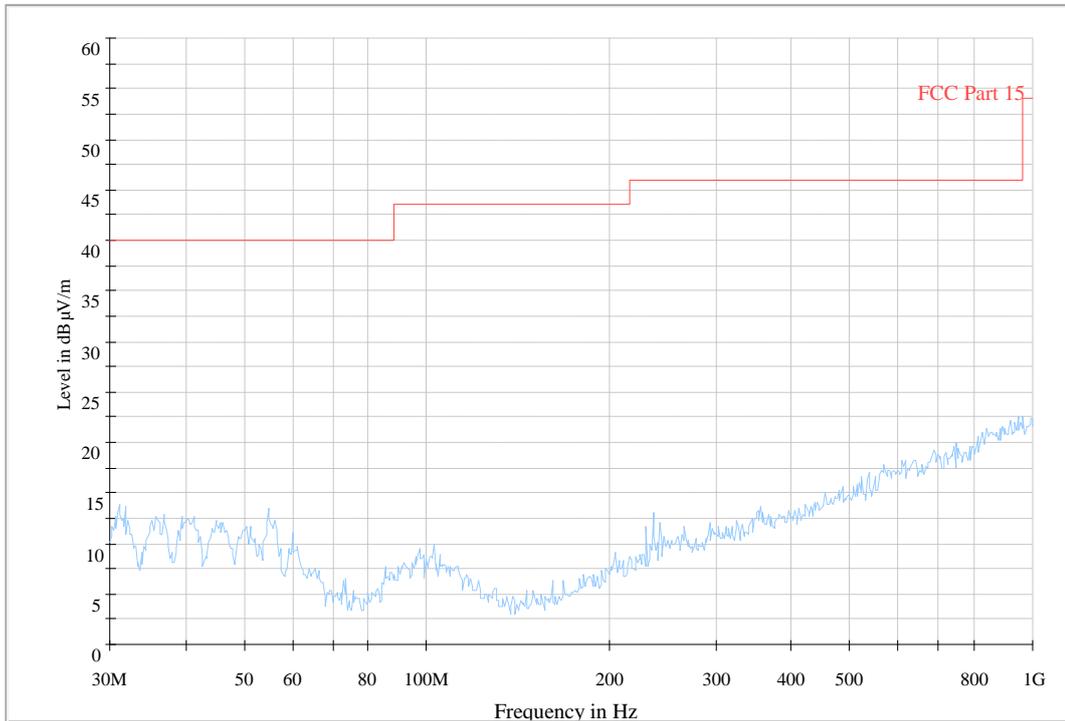
**Fig. 71 Radiated Spurious Emission (802.11b, Ch6, 3 GHz-18 GHz)**

RE - Power-2.45GHz-2.5GHz



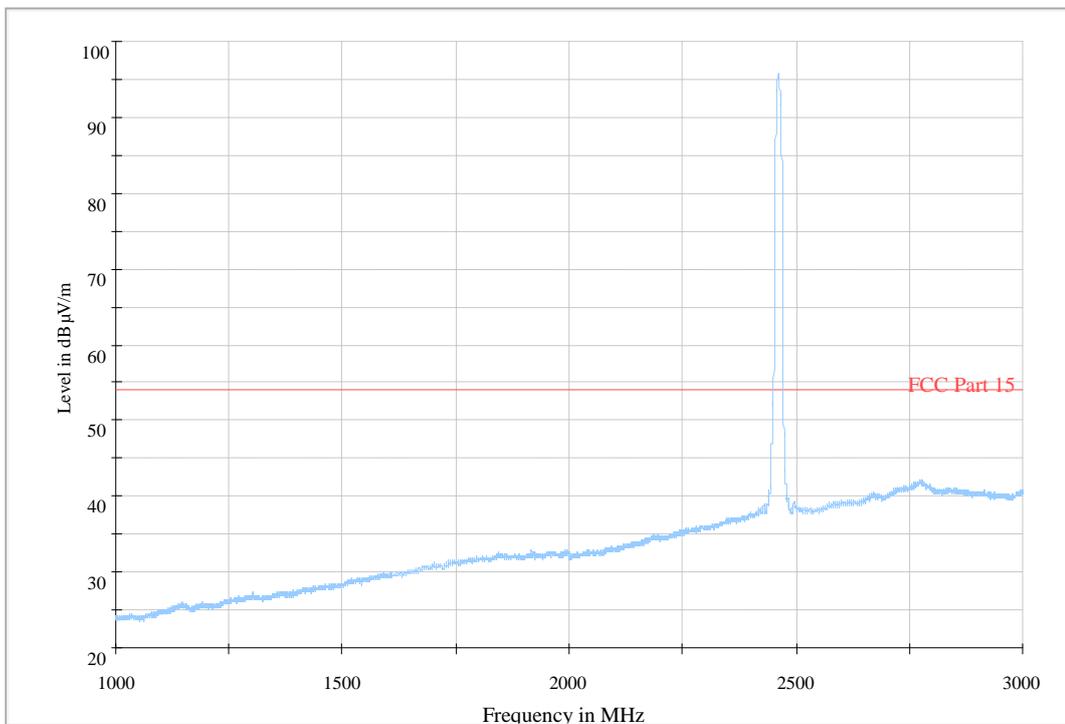
**Fig. 72 Radiated Spurious Emission (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz**

RE - 30MHz-1GHz



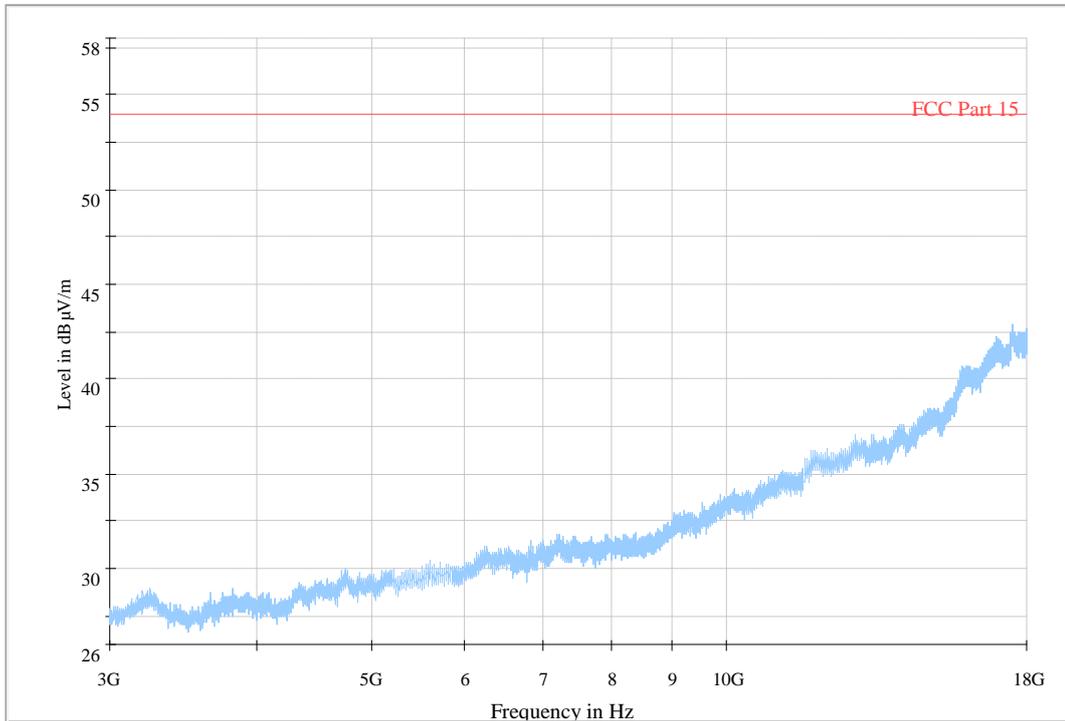
**Fig. 73 Radiated Spurious Emission (802.11b, Ch11, 30 MHz-1 GHz)**

RE - 1GHz-3GHz



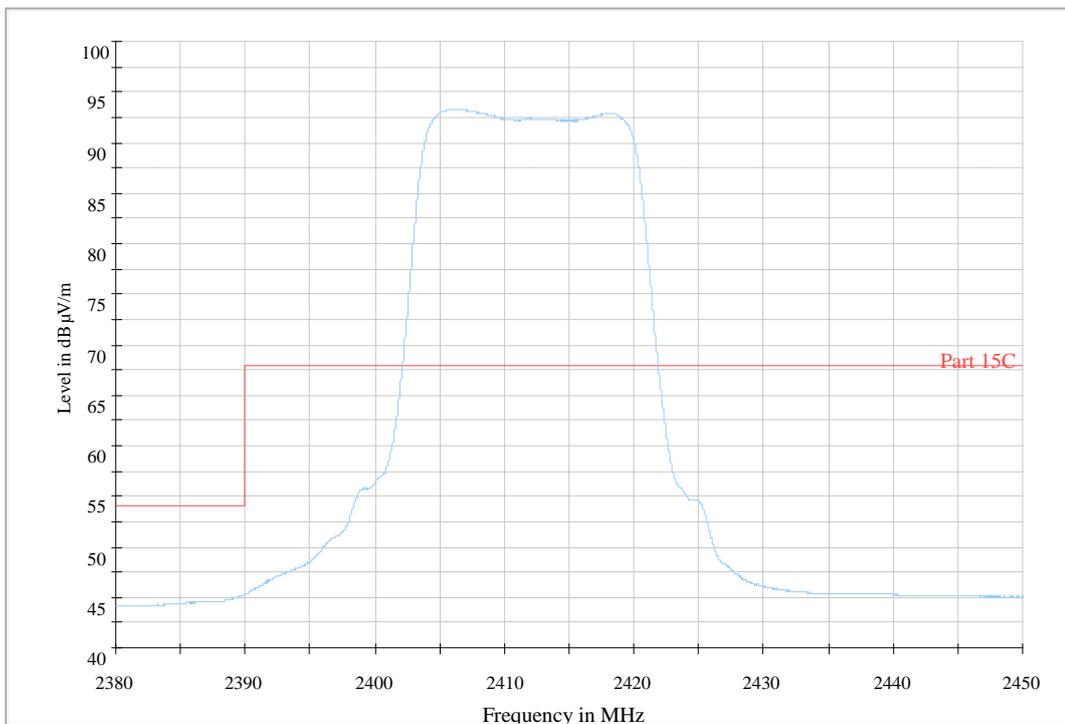
**Fig. 74 Radiated Spurious Emission (802.11b, Ch11, 1 GHz-3 GHz)**

RE - 3GHz-18GHz



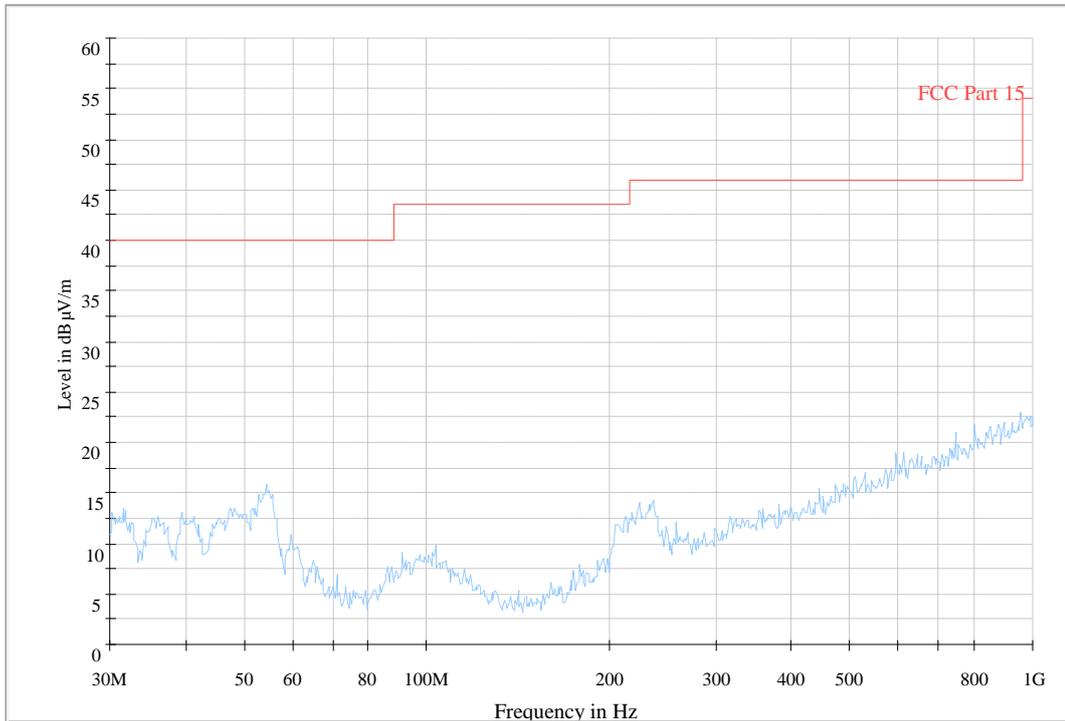
**Fig. 75 Radiated Spurious Emission (802.11b, Ch11, 3 GHz-18 GHz)**

RE - Power-2.38GHz-2.45GHz



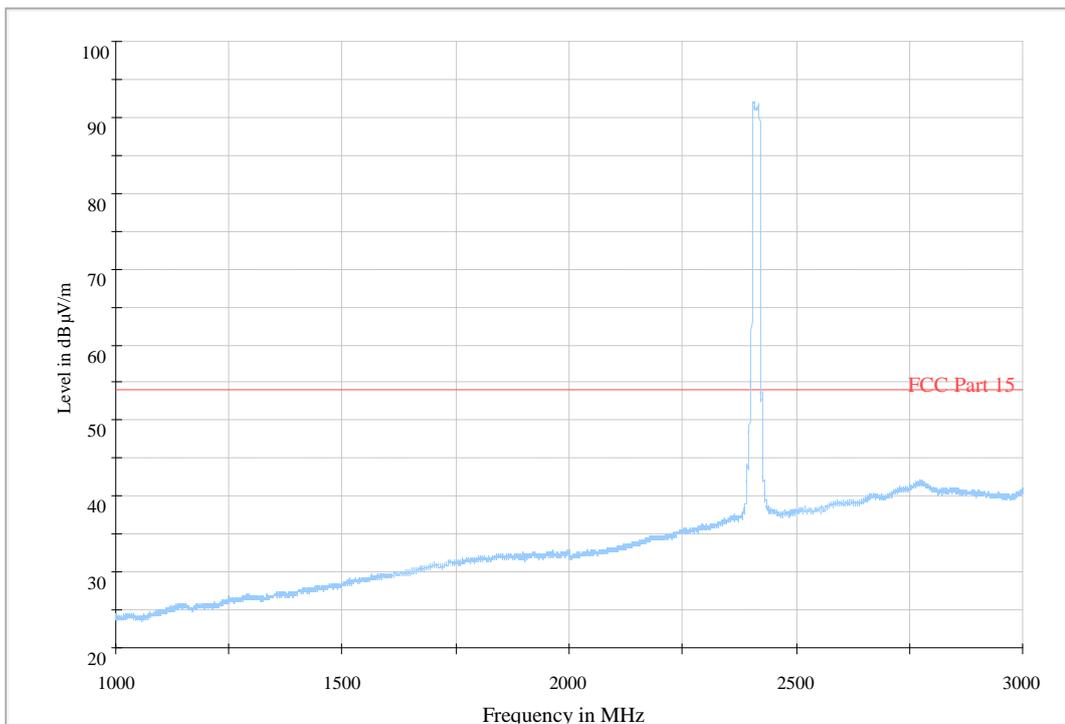
**Fig. 76 Radiated Spurious Emission (Power): 802.11g, ch1, 2.38 GHz - 2.45GHz**

RE - 30MHz-1GHz



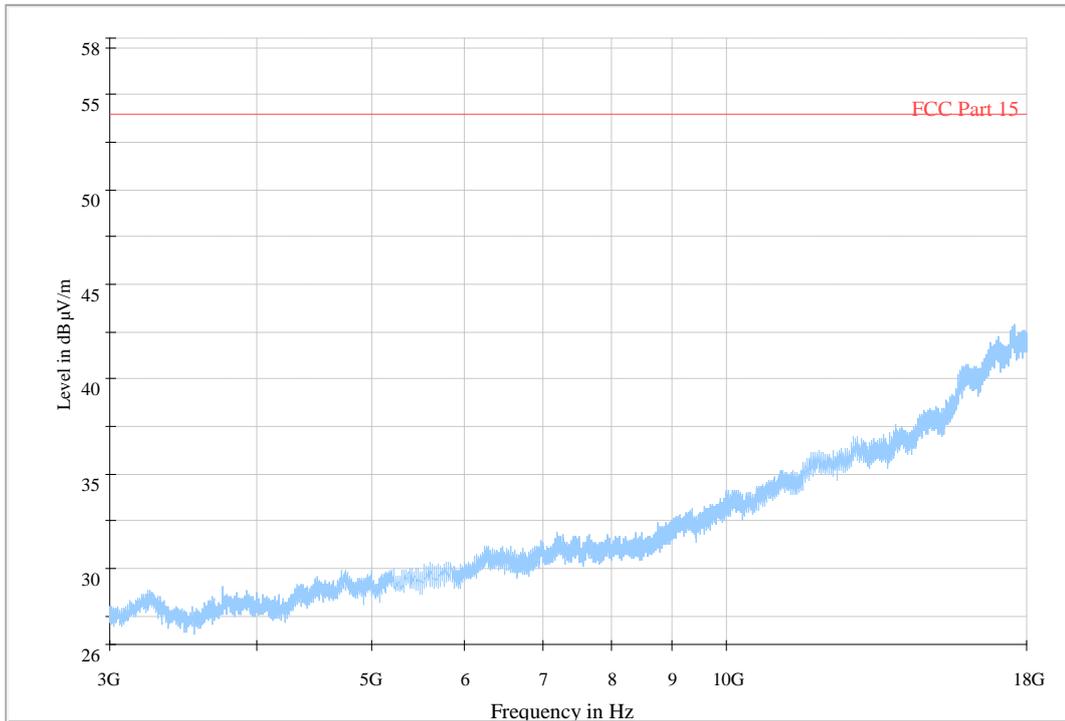
**Fig. 77 Radiated Spurious Emission (802.11g, Ch1, 30 MHz-1 GHz)**

RE - 1GHz-3GHz



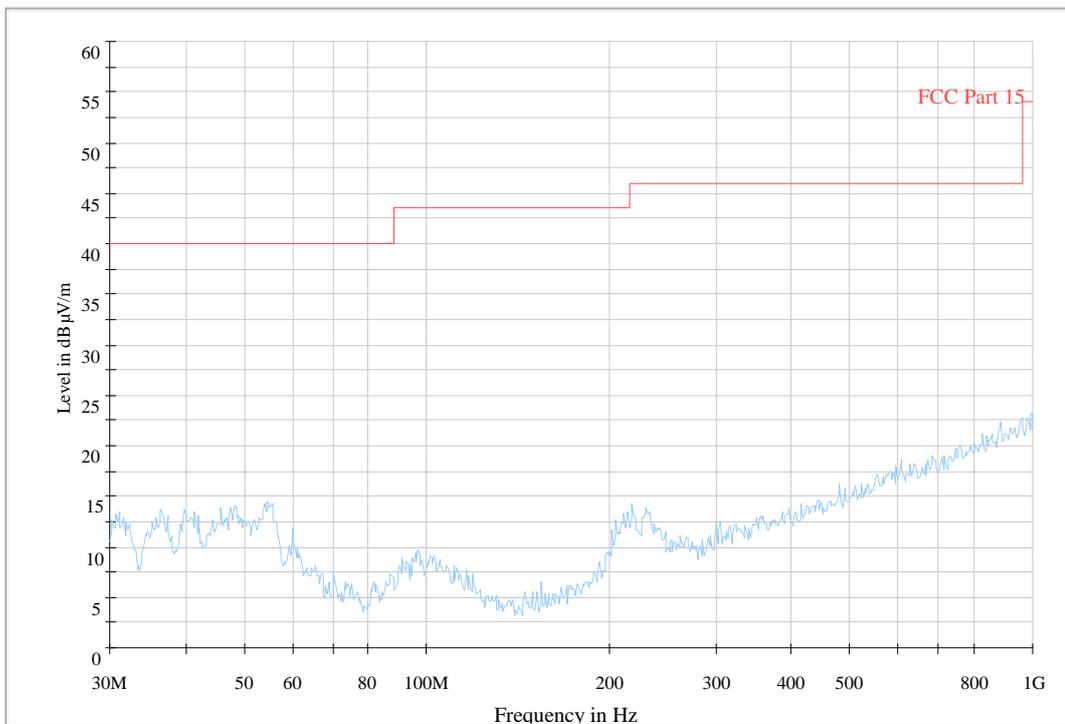
**Fig. 78 Radiated Spurious Emission (802.11g, Ch1, 1 GHz-3 GHz)**

RE - 3GHz-18GHz



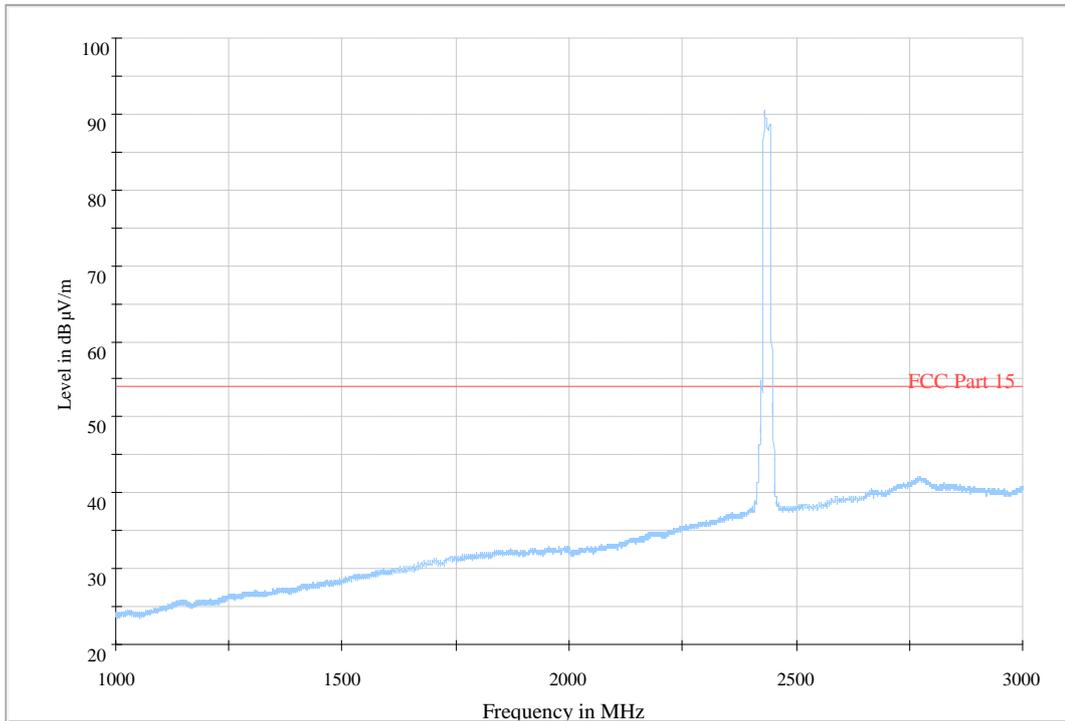
**Fig. 79 Radiated Spurious Emission (802.11g, Ch1, 3 GHz-18 GHz)**

RE - 30MHz-1GHz



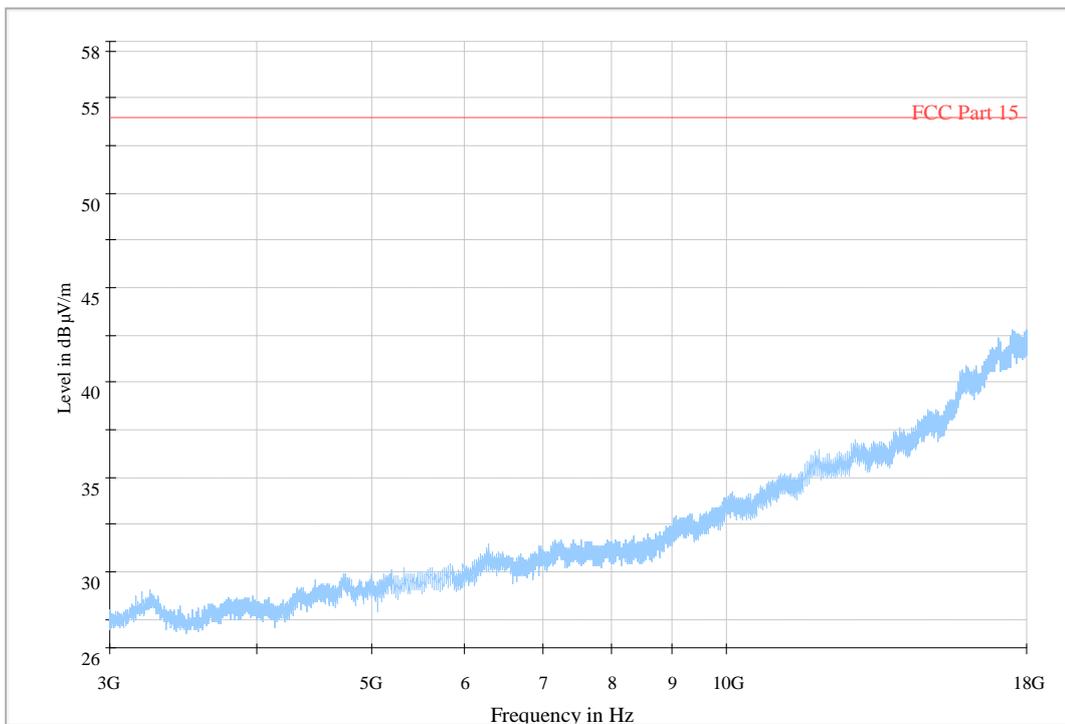
**Fig. 80 Radiated Spurious Emission (802.11g, Ch6, 30 MHz-1 GHz)**

RE - 1GHz-3GHz



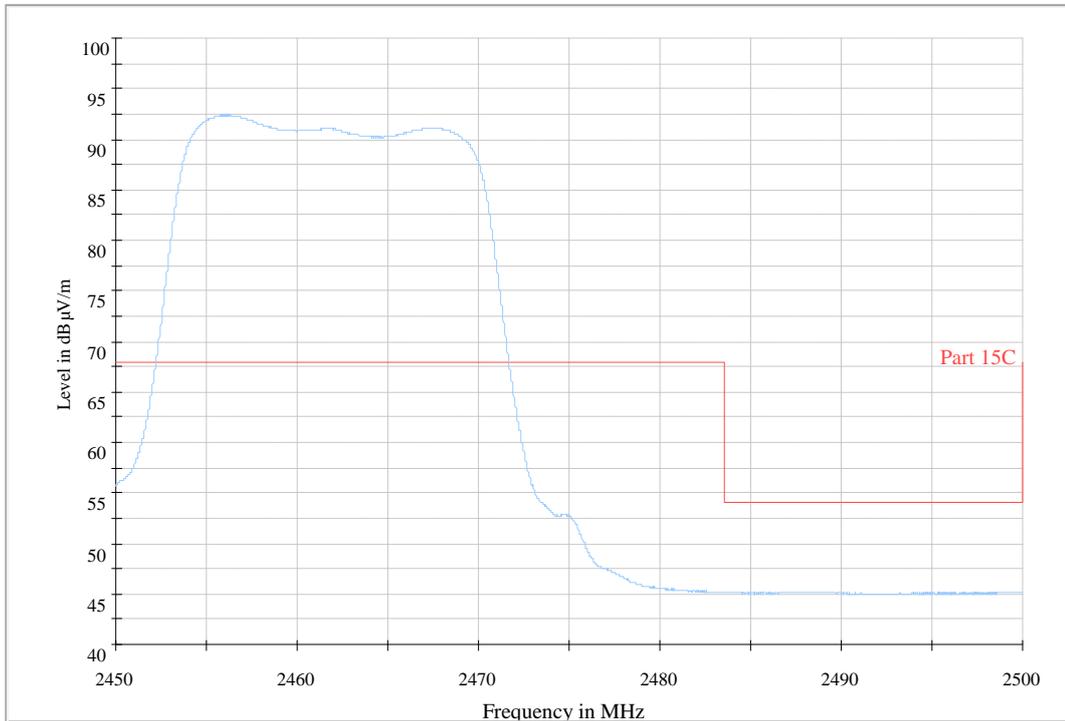
**Fig. 81 Radiated Spurious Emission (802.11g, Ch6, 1 GHz-3 GHz)**

RE - 3GHz-18GHz



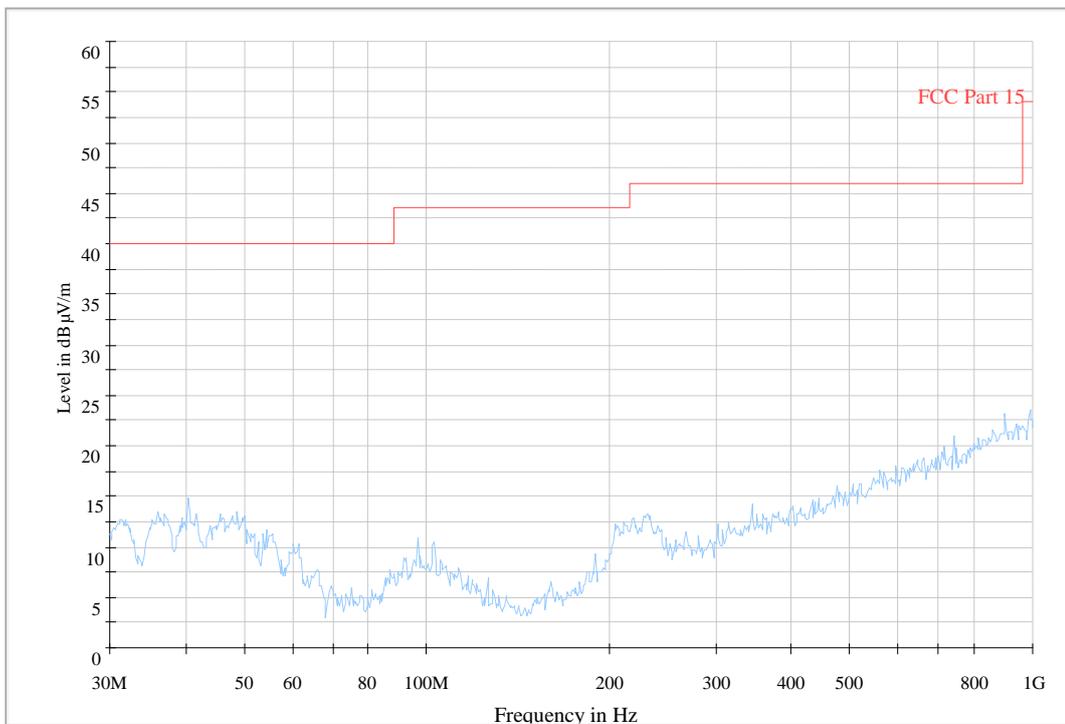
**Fig. 82 Radiated Spurious Emission (802.11g, Ch6, 3 GHz-18 GHz)**

RE - Power-2.45GHz-2.5GHz



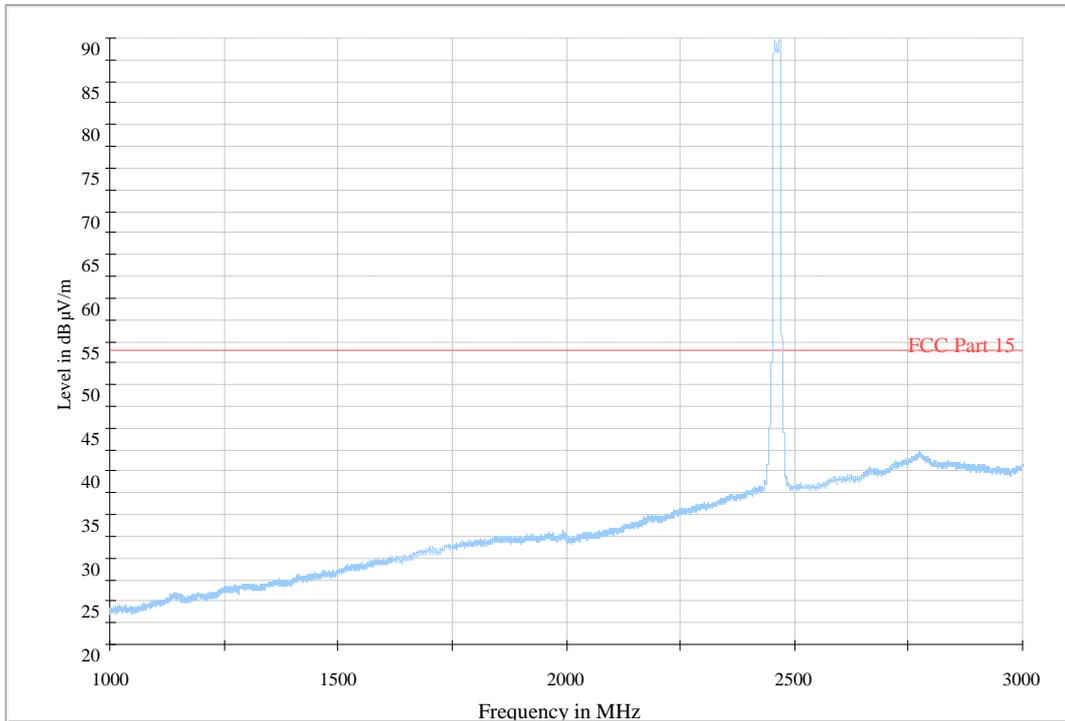
**Fig. 83 Radiated Spurious Emission (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz**

RE - 30MHz-1GHz



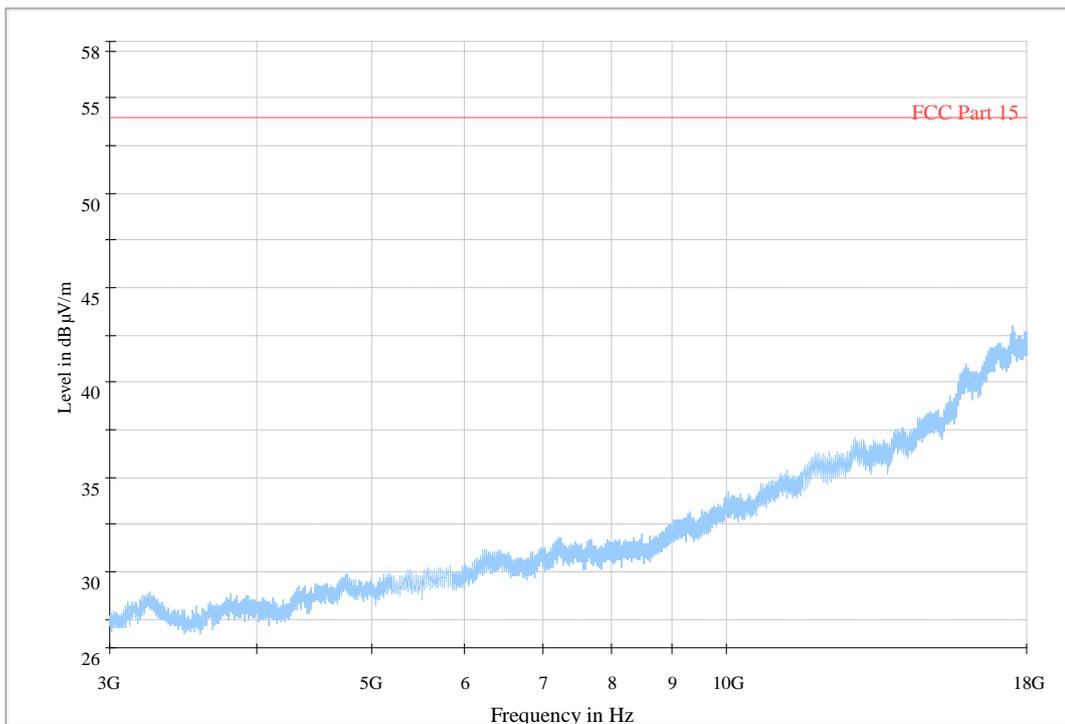
**Fig. 84 Radiated Spurious Emission (802.11g, Ch11, 30 MHz-1 GHz)**

RE - 1GHz-3GHz

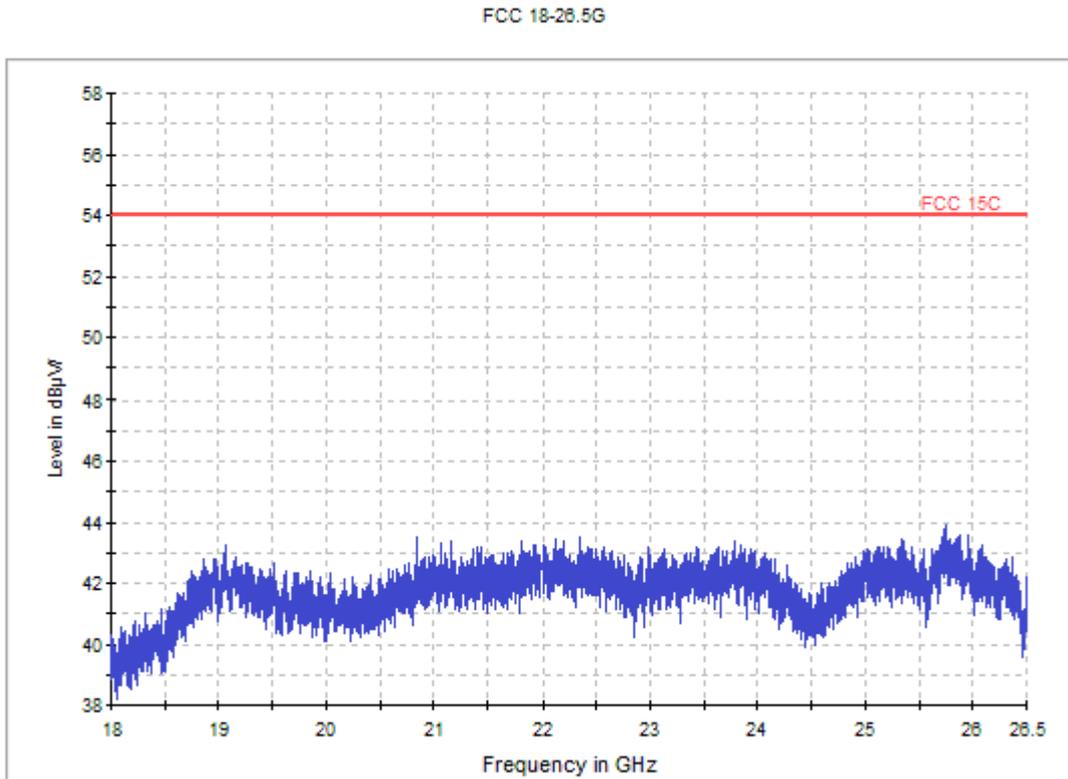


**Fig. 85 Radiated Spurious Emission (802.11g, Ch11, 1 GHz-3 GHz)**

RE - 3GHz-18GHz



**Fig. 86 Radiated Spurious Emission (802.11g, Ch11, 3 GHz-18 GHz)**



**Fig. 87 Radiated Spurious Emission (All channels): 18GHz – 26.5GHz**

### A.7. AC Powerline Conducted Emission

Test Condition:

Voltage (V)	Frequency (Hz)
120	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	
0.15 to 0.5	66 to 56	802.11b	P
0.5 to 5	56	Fig. 88	
5 to 30	60		

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		With charger	
0.15 to 0.5	56 to 46	802.11b	P
0.5 to 5	46	Fig. 88	
5 to 30	50		

The measurement is made according to ANSI C63.10

Conclusion: PASS

Test graphs as below:

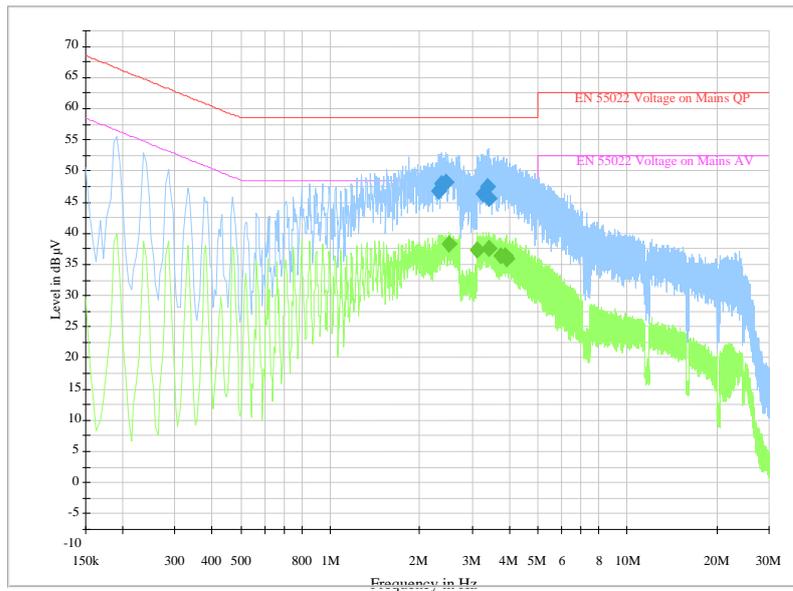


Fig. 88 AC Powerline Conducted Emission-802.11b

Final Result 1

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
2.310000	44.3	GND	L1	10.0	11.7	56.0
2.368500	45.4	GND	L1	10.0	10.6	56.0
2.454000	45.7	GND	L1	10.0	10.3	56.0
3.268500	43.9	GND	L1	10.0	12.1	56.0
3.367500	44.9	GND	L1	10.0	11.1	56.0
3.412500	43.1	GND	L1	10.0	12.9	56.0

Final Result 2

Frequency (MHz)	CAverage (dB $\mu$ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
2.503500	35.9	GND	L1	10.0	10.1	46.0
3.133500	34.9	GND	L1	10.0	11.1	46.0
3.399000	35.1	GND	L1	10.0	10.9	46.0
3.750000	34.0	GND	L1	10.0	12.0	46.0
3.862500	33.9	GND	L1	10.0	12.1	46.0
3.912000	33.3	GND	L1	10.0	12.7	46.0

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