



**FCC PART 15C  
TEST REPORT  
No. 2013WLN0629**

**for**

**ZTE Corporation**

**HSPA+ Wireless Router**

**Model Name: MF25A**

**Marketing Name: MF25A**

**With**

**FCC ID: Q78-ZTEMF25A**

**Hardware Version: PCBMF25AV1.0.0**

**Software Version: EN\_ZTE\_MF25AV1.0.0B03**

**Issued Date: 2013-03-11**



**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  
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Postal Code: 100191  
Telephone: +86(0)10-62304633-2561  
Fax: +86(0)10-62304793

### 1.2. Testing Environment

Normal Temperature: 15-30°C  
Extreme Temperature: -20/+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: 2013-02-21  
Testing End Date: 2013-03-10

### 1.4. Signature



---

Sun Zhenyu

(Prepared this test report)



---

Gao Hong

(Reviewed this test report)



---

Xiao Li

Deputy Director of the laboratory  
(Approved this test report)

## **2. CLIENT INFORMATION**

### **2.1. Applicant Information**

Company Name: ZTE Corporation  
Address /Post: #68 Zijin Hua Road, Nanjing, Jiangsu Province, P. R. China  
City: Nan Jing  
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Country: China  
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Fax: +86-25-68897541

### **2.2. Manufacturer Information**

Company Name: ZTE Corporation  
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City: Nan Jing  
Postal Code: 210012  
Country: China  
Telephone: +86-25-52878232  
Fax: +86-25-68897541

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

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

Description	HSPA+ Wireless Router
Model	MF25A
FCC ID	Q78-ZTEMF25A
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	23.56dBm(CCK)
Power Supply	5.0V DC

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	/	PCBMF25AV1.0.0	EN_ZTE_MF25AV1.0.0B03
EUT2	/	PCBMF25AV1.0.0	EN_ZTE_MF25AV1.0.0B03

\*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	DC power supply	STC-A2O12015c55-A	/

\*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 HSPA+Wireless Router with integrated antenna. It consists of normal options: DC power supply.

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	Procedures for testing compliance of a wide variety of unlicensed wireless devices	2009

## 5. LABORATORY ENVIRONMENT

**Shielding Room1** (6.0 metersx3.0 metersx2.7 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

**Semi-anechoic chamber** (10 metersx6.7metersx6.15meters) 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	> 2 M ohm
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	< ±3.5 dB, 3 m distance
Site voltage standing-wave ratio ( $S_{VSWR}$ )	Between 0 and 6 dB, from 1GHz to 18GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz

**Shielding Room2** (7.30 metersx4.00 metersx3.80 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 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 DC power supply, and also under norm humidity, the specific conditions as following:

Temperature	T nom	26°C
Voltage	V nom	5.0VDC
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	2013-09-22
3	Test Receiver	ESS	847151/015	Rohde & Schwarz	2013-10-30
4	LISN	ESH2-Z5	829991/012	Rohde & Schwarz	2013-08-12

### **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	2013-08-11
2	BiLog Antenna	3142B	9908-1403	EMCO	2013-03-15
3	Dual-Ridge Waveguide Horn Antenna	3115	9906-5827	EMCO	2013-12-25
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2013-06-30

### **Anechoic chamber**

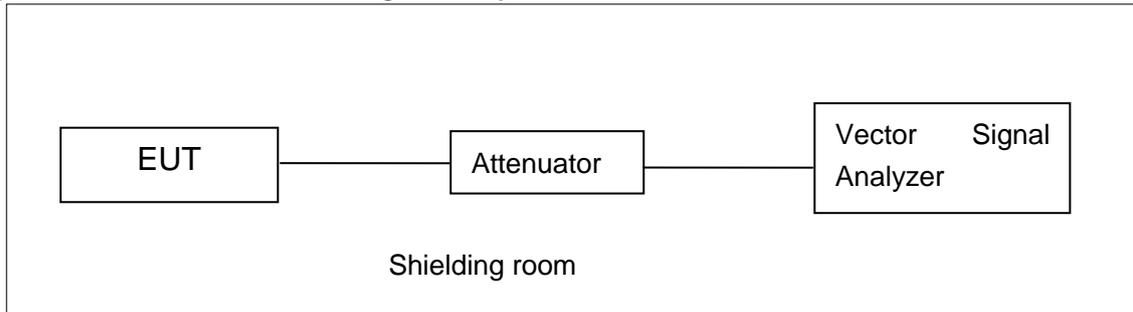
Anechoic chamber by Frankonia German.

## 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

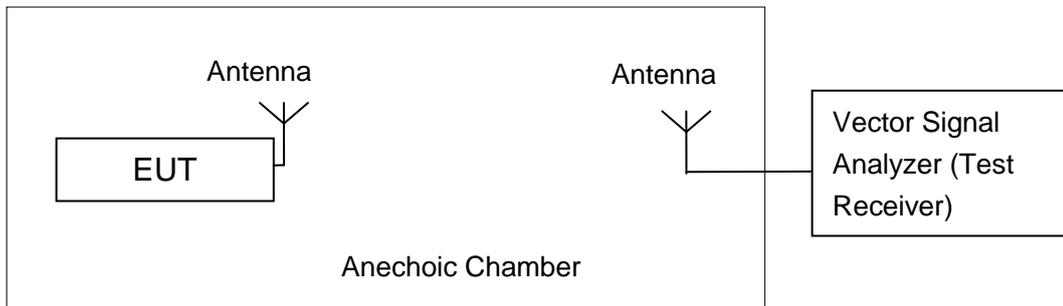


#### A.1.2. Radiated Emission Measurements

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, and 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	18.76	/	/
	2	19.25	/	/
	5.5	20.39	/	/
	11	21.56	21.36	21.43
802.11g	6	20.82	/	/
	9	21.09	/	/
	12	21.10	/	/
	18	21.12	/	/
	24	21.32	/	/
	36	21.68	/	/
	48	21.52	/	/
	54	21.79	21.15	21.08

The data rate 11Mbps and 54Mbps are selected as worse condition, and the following cases are performed with this condition.

#### 802.11n-HT20 mode

模式	速率 (Mbps)	测试结果 (dBm)		
		Low	Middle	High
802.11n HT20	MCS0	21.57	/	/
	MCS1	21.07	/	/
	MCS2	21.11	/	/
	MCS3	21.31	/	/
	MCS4	21.28	/	/
	MCS5	21.39	/	/
	MCS6	21.09	/	/
	MCS7	21.52	21.32	21.12

	MCS8	22.69	/	/
	MCS9	22.86	/	/
	MCS10	22.82	/	/
	MCS11	23.08	/	/
	MCS12	23.35	/	/
	MCS13	23.28	/	/
	MCS14	23.32	/	/
	MCS15	23.56	23.33	23.55

The data rate MCS7 and MCS15 are selected as worse condition, and the following cases are performed with this condition.

**802.11n-HT40 mode**

模式	速率 (Mbps)	测试结果 (dBm)		
		Low	Middle	High
802.11n (40MHz)	MCS0	20.80	/	/
	MCS1	20.45	/	/
	MCS2	20.69	/	/
	MCS3	20.52	/	/
	MCS4	20.81	20.71	22.25
	MCS5	20.72	/	/
	MCS6	20.68	/	/
	MCS7	21.46	/	/
	MCS8	21.25	/	/
	MCS9	21.21	/	/
	MCS10	21.58	/	/
	MCS11	21.72	/	/
	MCS12	21.95	/	/
	MCS13	21.92	/	/
	MCS14	22.09	/	/
MCS15	22.06	21.79	21.85	

The data rate MCS4 and MCS15 are selected as worse condition, and the following cases are performed with this condition.

**Conclusion: PASS**

**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	16.76	16.83	16.86
802.11g	13.64	13.74	13.70

**802.11n-HT20 mode**

Mode	Test Result (dBm)		
	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11n (20MHz)	13.45	13.51	13.52

**802.11n-HT40 mode**

Mode	Test Result (dBm)		
	2422MHz (Ch3)	2437MHz (Ch6)	2452 MHz (Ch9)
802.11n (40MHz)	12.97	13.01	13.14

**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	-6.00	P
	6	Fig.2	-6.45	P
	11	Fig.3	-6.85	P
802.11g	1	Fig.4	-9.07	P
	6	Fig.5	-9.66	P
	11	Fig.6	-10.35	P

**802.11n-HT20 mode**

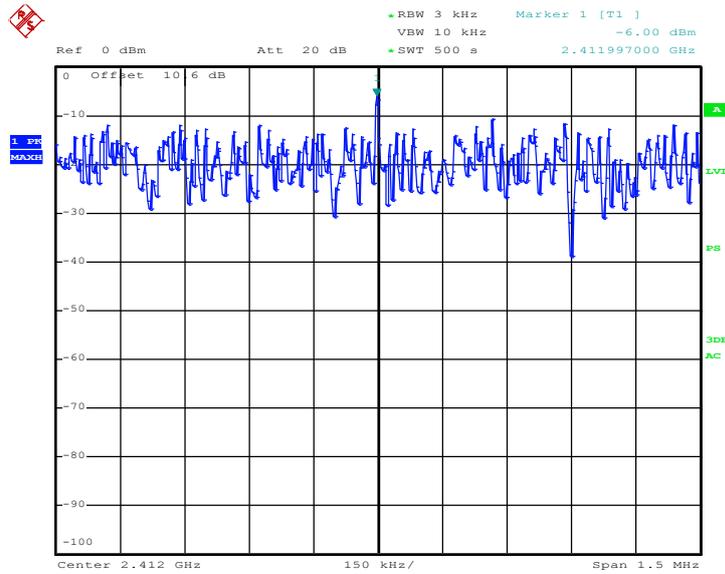
Mode	Channel	Power Spectral Density ( dBm/3 kHz )		Conclusion
802.11n (20MHz)	1	Fig.7	-8.77	P
	6	Fig.8	-9.42	P
	11	Fig.9	-10.49	P

**802.11n-HT40 mode**

Mode	Channel	Power Spectral Density ( dBm/3 kHz )		Conclusion
802.11n (40MHz)	3	Fig.10	-9.93	P
	6	Fig.11	-10.15	P
	9	Fig.12	-10.44	P

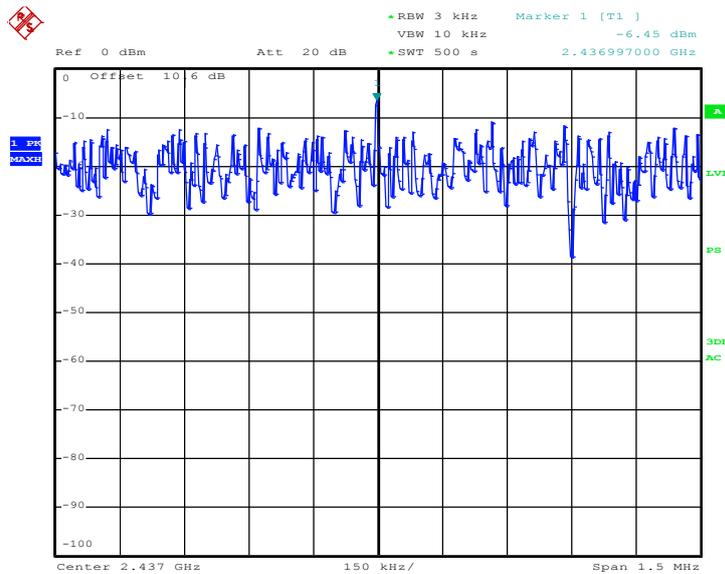
**Conclusion: PASS**

**Test graphs as below:**



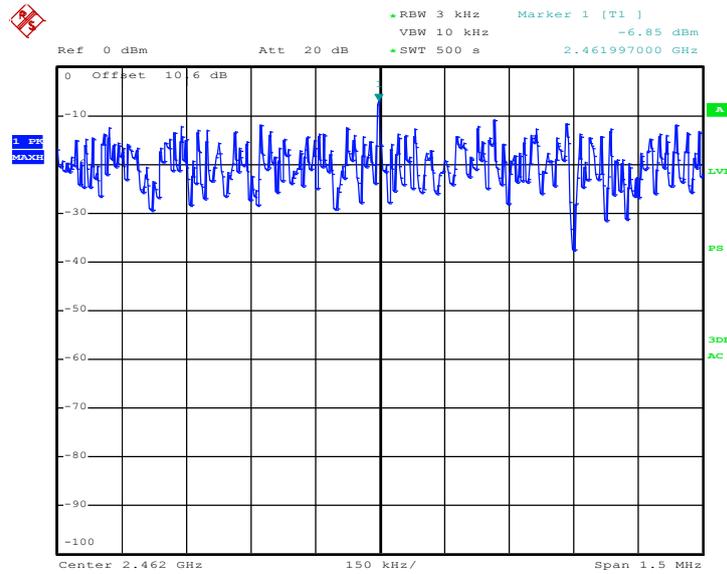
Date: 10.MAR.2013 16:12:44

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



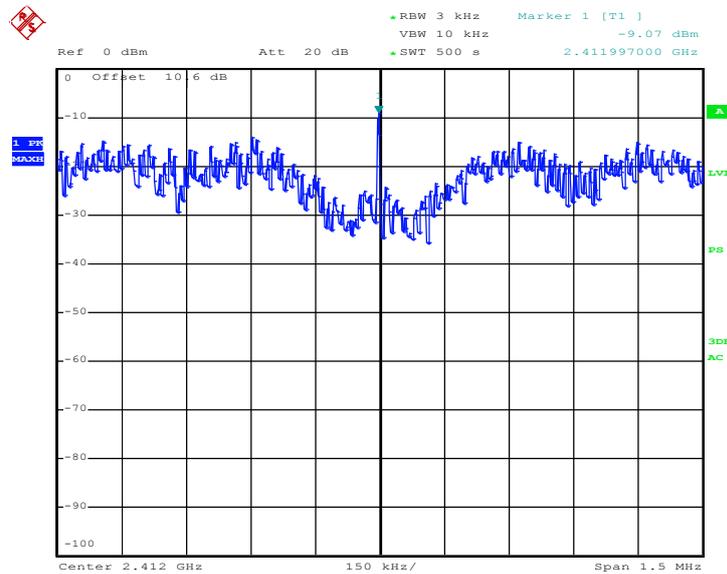
Date: 10.MAR.2013 16:23:47

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



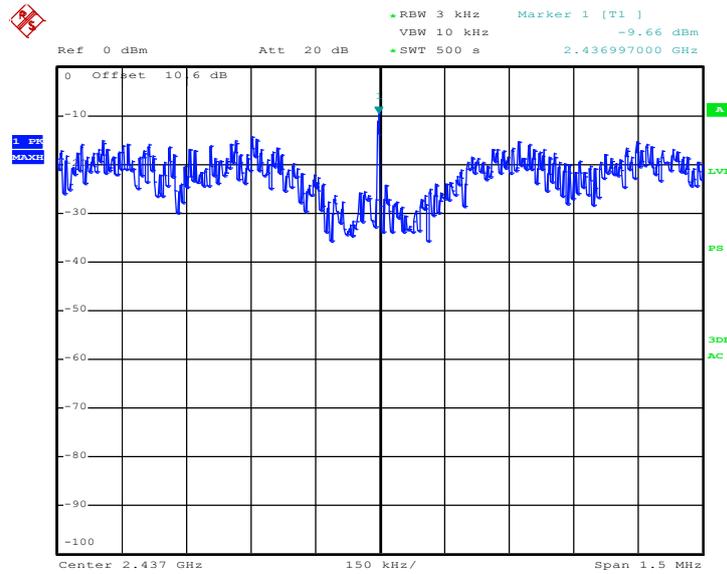
Date: 10.MAR.2013 17:00:03

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



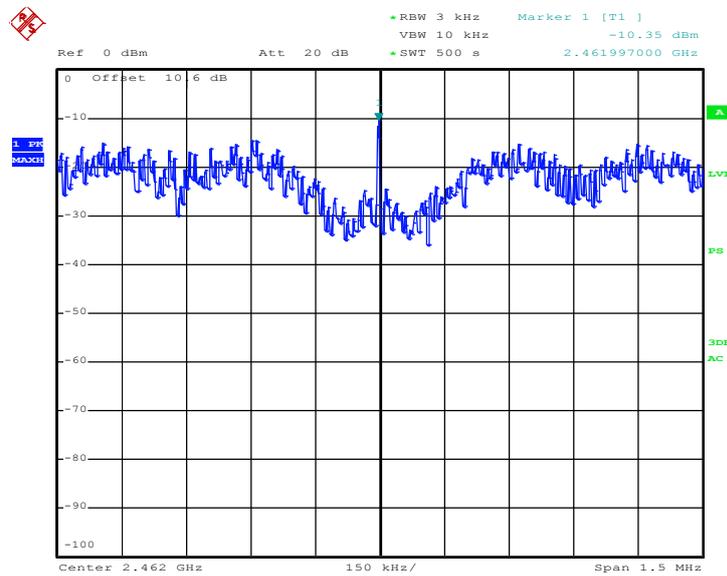
Date: 10.MAR.2013 17:12:55

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



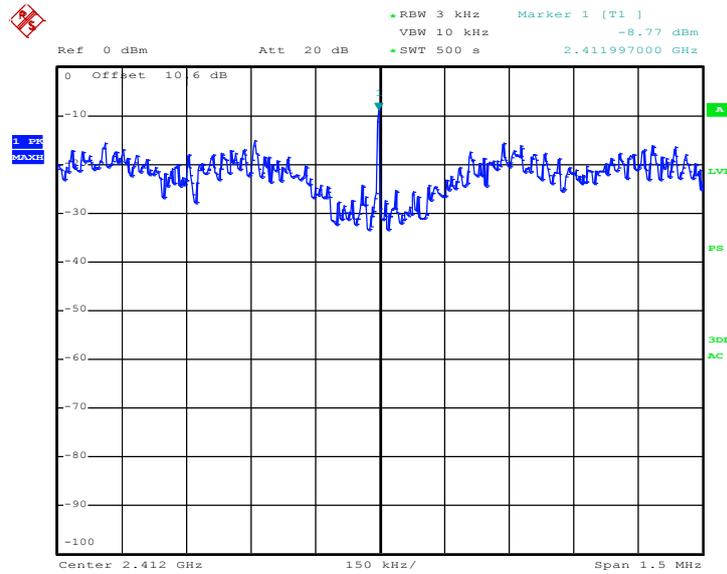
Date: 10.MAR.2013 17:31:17

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



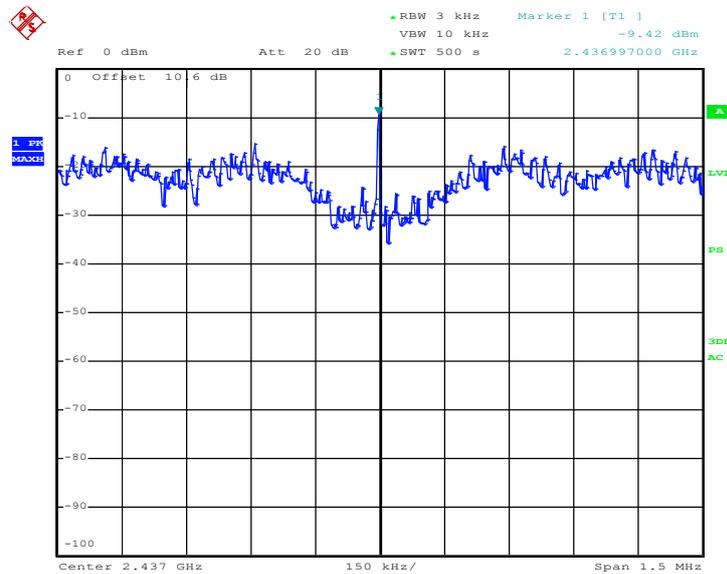
Date: 10.MAR.2013 17:50:34

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



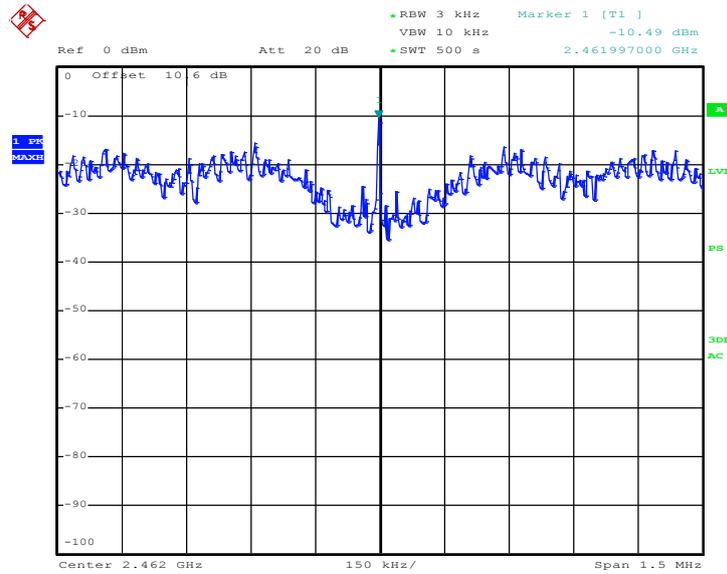
Date: 10.MAR.2013 18:32:20

**Fig. 7 Power Spectral Density (802.11n-HT20, Ch 1)**



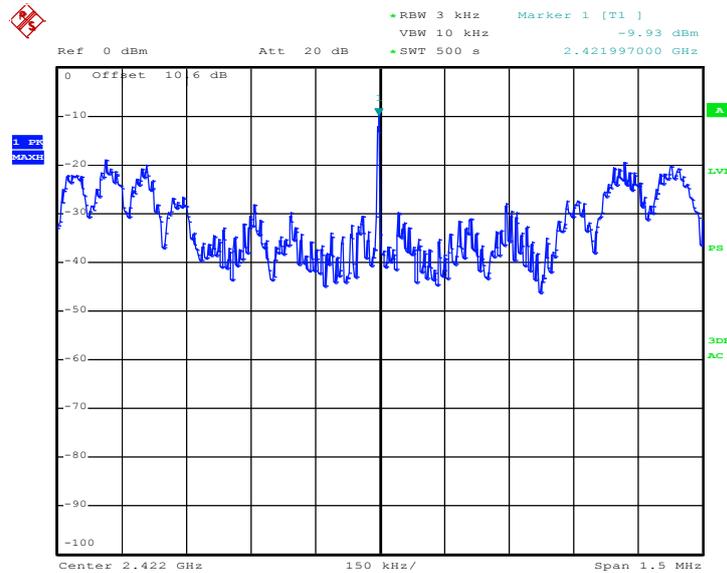
Date: 10.MAR.2013 19:17:52

**Fig. 8 Power Spectral Density (802.11n-HT20, Ch 6)**



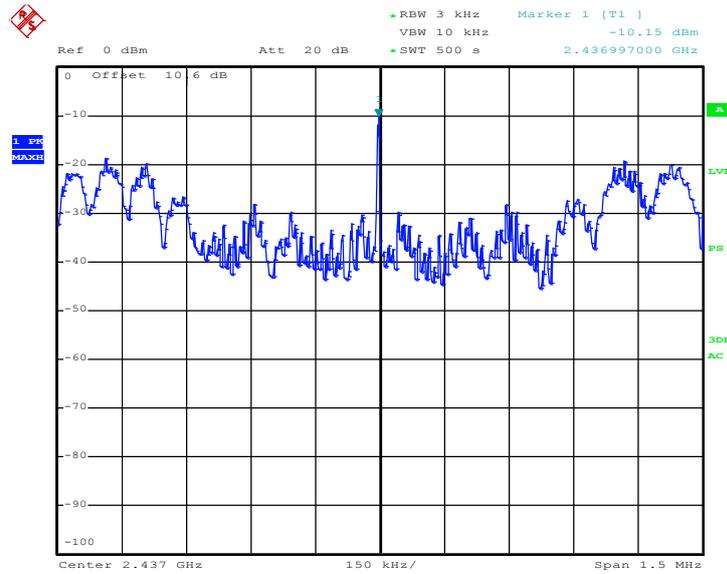
Date: 10.MAR.2013 19:36:47

**Fig. 9 Power Spectral Density (802.11n-HT20, Ch 11)**



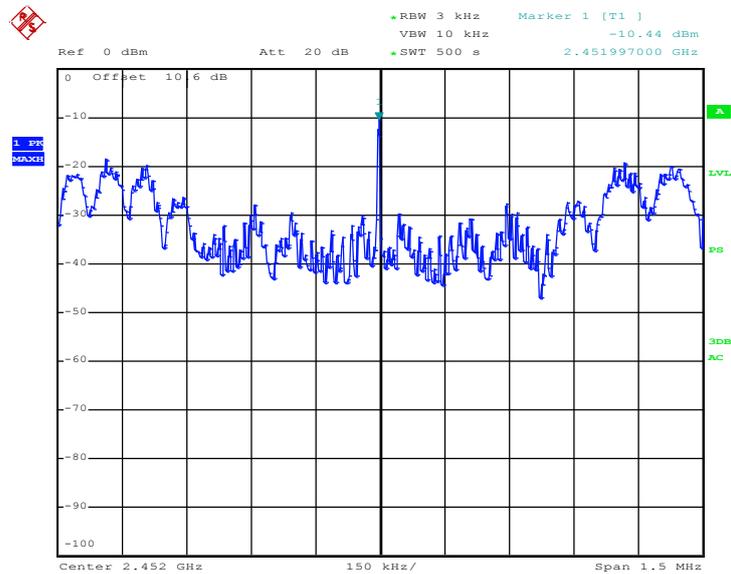
Date: 10.MAR.2013 15:29:32

**Fig. 10 Power Spectral Density (802.11n-HT40, Ch 3)**



Date: 10.MAR.2013 15:41:02

**Fig. 11 Power Spectral Density (802.11n-HT40, Ch 6)**



Date: 10.MAR.2013 15:51:19

**Fig. 12 Power Spectral Density (802.11n-HT40, Ch 9)**

#### 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.13	11800.0	P
	6	Fig.14	11300.0	P
	11	Fig.15	11300.0	P
802.11g	1	Fig.16	16600.0	P
	6	Fig.17	16600.0	P
	11	Fig.18	16600.0	P

###### 802.11n-HT20 mode

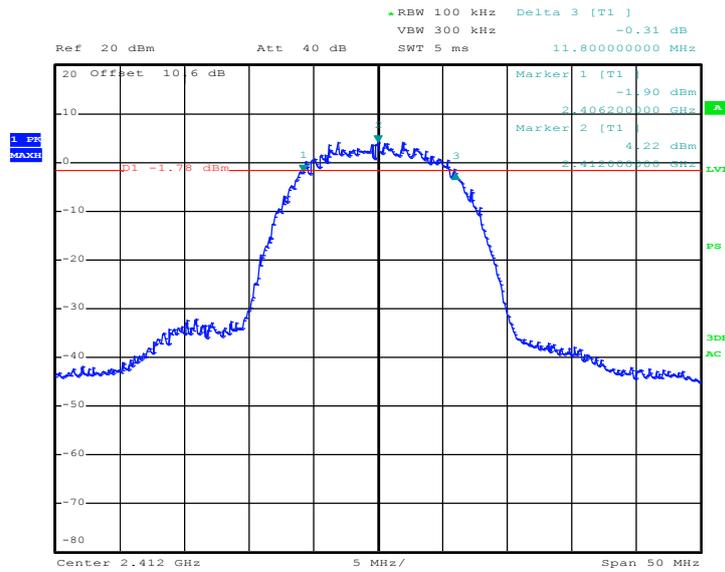
Mode	Channel	Occupied 6dB Bandwidth ( kHz)		conclusion
802.11n (20MHz)	1	Fig.19	17403.8	P
	6	Fig.20	17500.0	P
	11	Fig.21	17692.3	P

###### 802.11n-HT40 mode

Mode	Channel	Occupied 6dB Bandwidth ( kHz)		conclusion
802.11n (40MHz)	3	Fig.22	35865.3	P
	6	Fig.23	36442.3	P
	9	Fig.24	35961.5	P

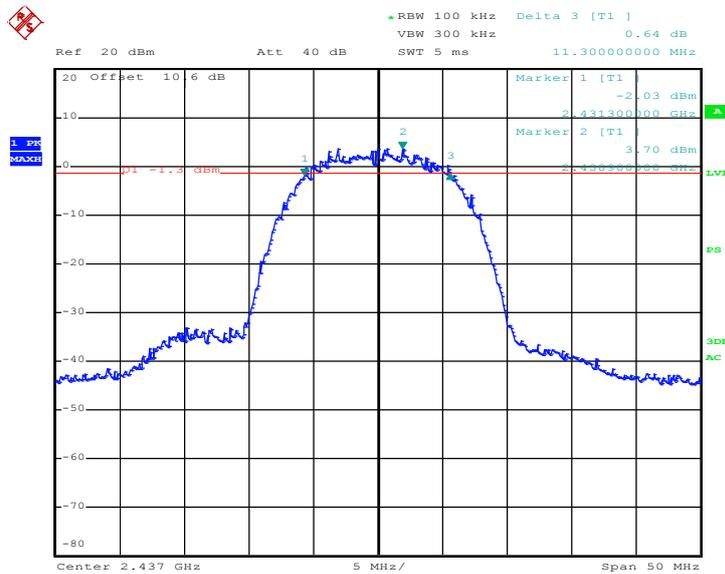
**Conclusion: PASS**

Test graphs as below:



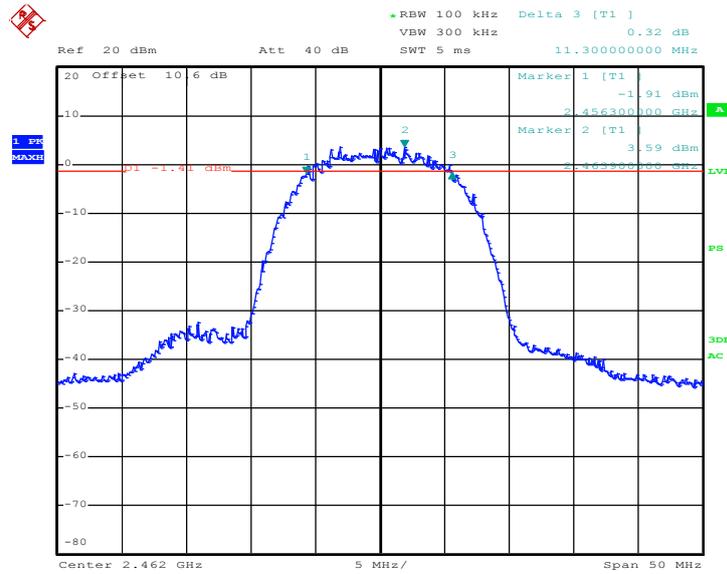
Date: 10.MAR.2013 14:37:45

**Fig. 13 Occupied 6dB Bandwidth (802.11b, Ch 1)**



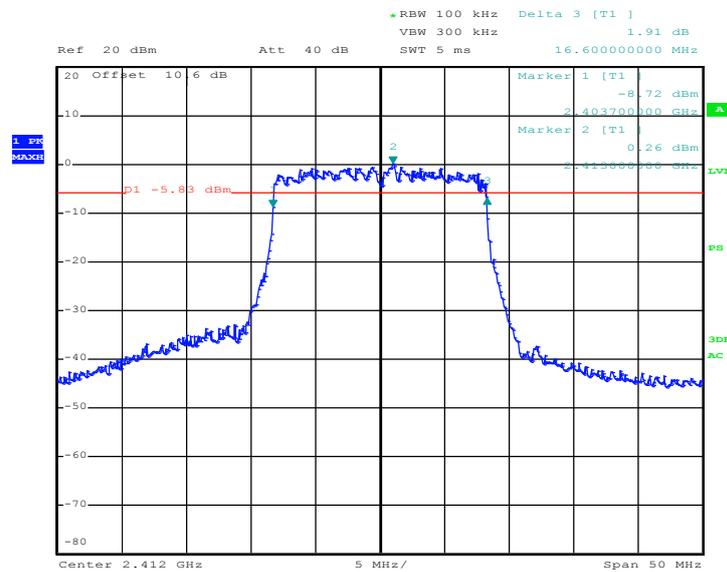
Date: 10.MAR.2013 14:55:09

**Fig. 14 Occupied 6dB Bandwidth (802.11b, Ch 6)**



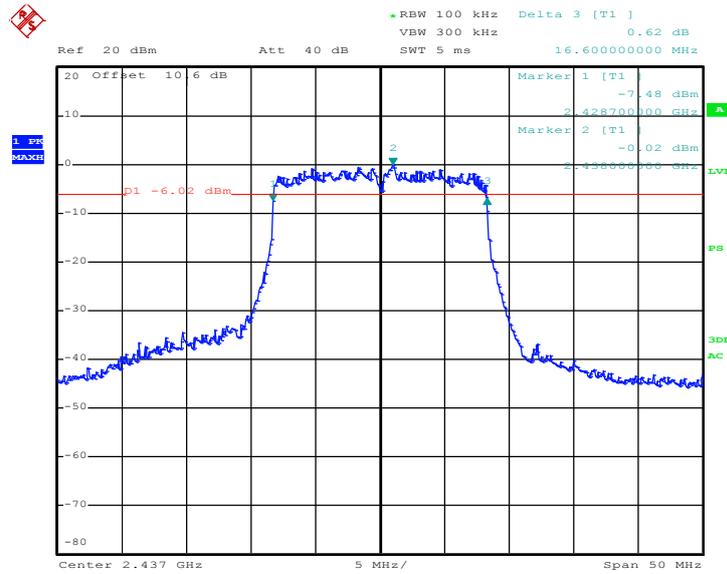
Date: 10.MAR.2013 14:56:47

**Fig. 15 Occupied 6dB Bandwidth (802.11b, Ch 11)**



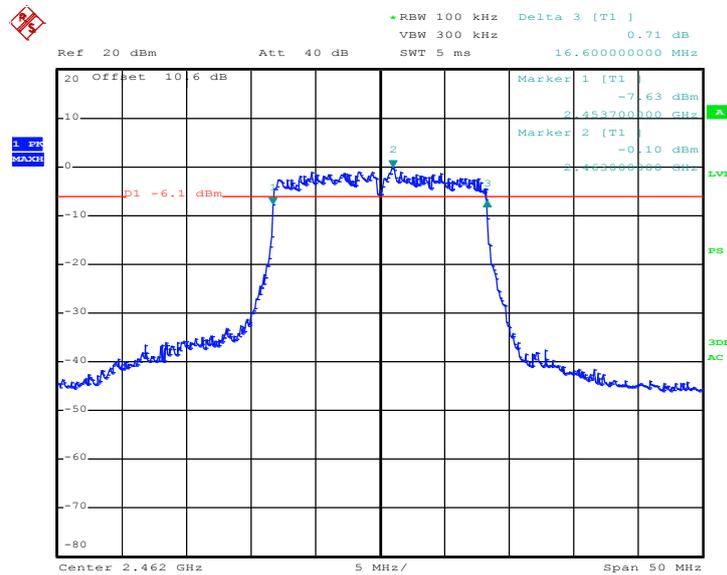
Date: 10.MAR.2013 14:39:29

**Fig. 16 Occupied 6dB Bandwidth (802.11g, Ch 1)**



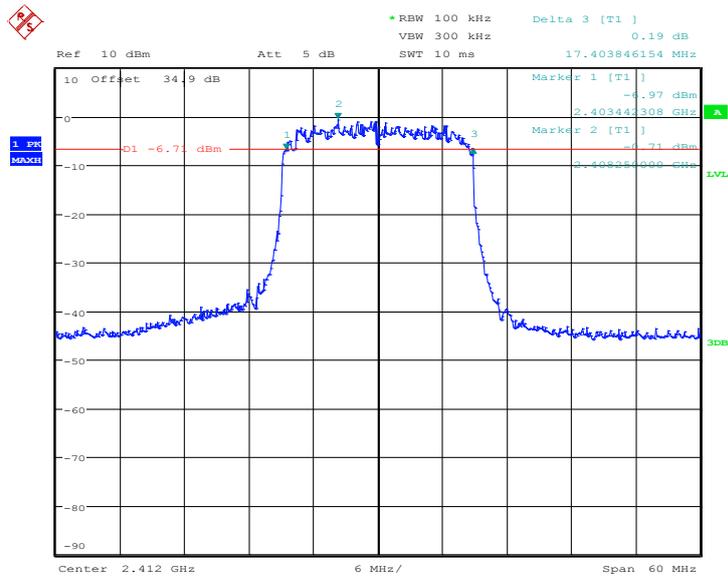
Date: 10.MAR.2013 14:50:40

**Fig. 17 Occupied 6dB Bandwidth (802.11g, Ch 6)**



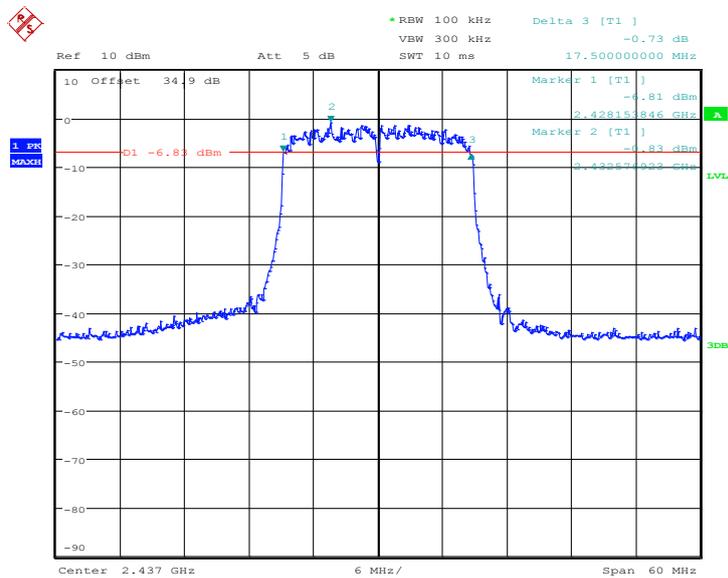
Date: 10.MAR.2013 14:57:57

**Fig. 18 Occupied 6dB Bandwidth (802.11g, Ch 11)**



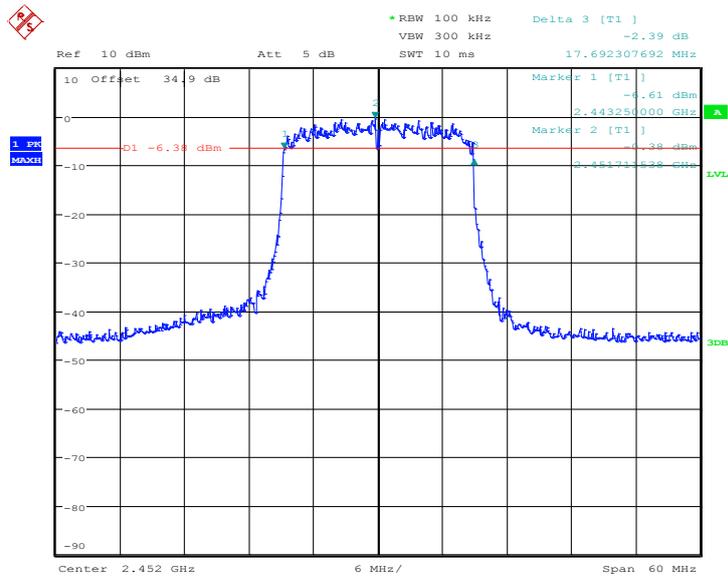
Date: 8.MAR.2013 18:21:44

**Fig. 19 Occupied 6dB Bandwidth (802.11n-HT20, Ch 1)**



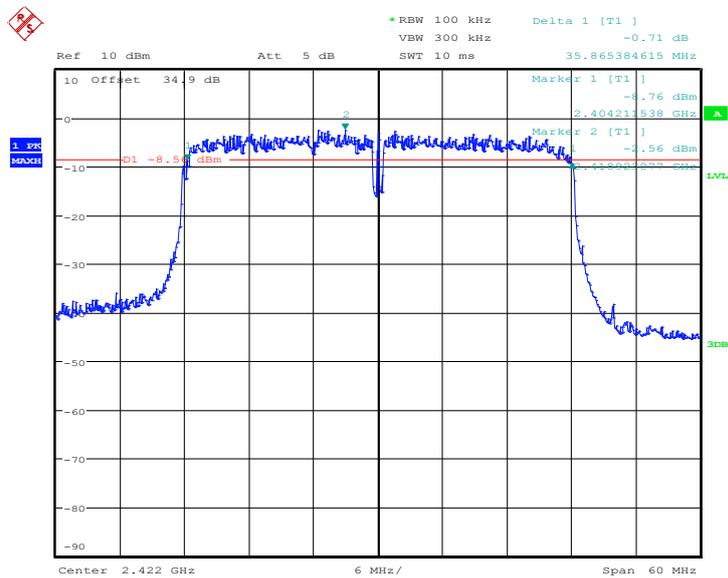
Date: 8.MAR.2013 18:57:24

**Fig. 20 Occupied 6dB Bandwidth (802.11n-HT20, Ch 6)**



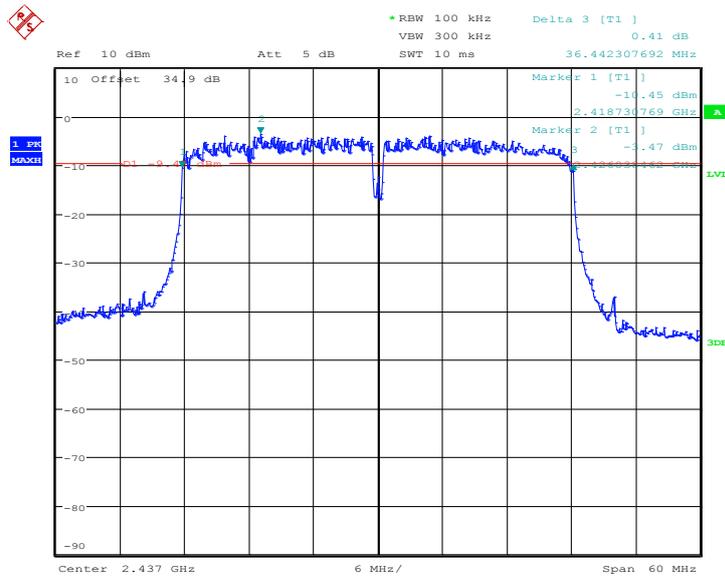
Date: 8.MAR.2013 18:44:55

**Fig. 21 Occupied 6dB Bandwidth (802.11n-HT20, Ch 11)**



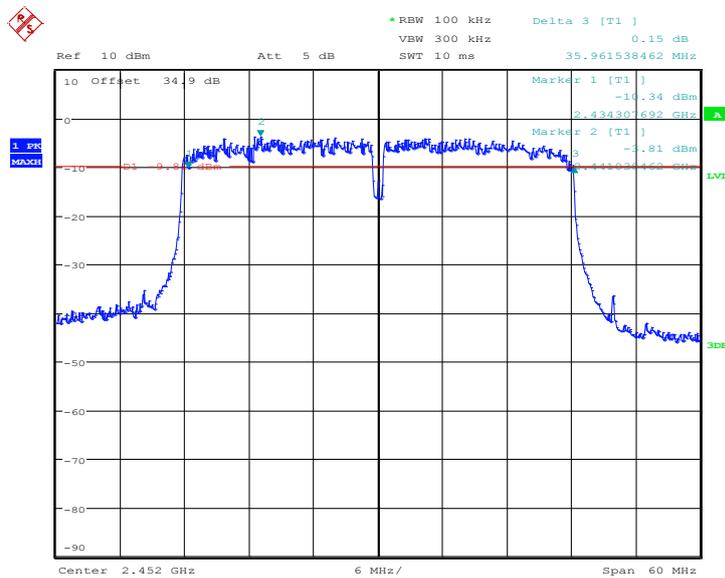
Date: 8.MAR.2013 18:32:36

**Fig. 22 Occupied 6dB Bandwidth (802.11n-HT40, Ch 3)**



Date: 8.MAR.2013 18:40:58

**Fig. 23 Occupied 6dB Bandwidth (802.11n-HT40, Ch 6)**



Date: 8.MAR.2013 18:42:43

**Fig. 24 Occupied 6dB Bandwidth (802.11n-HT40, Ch 9)**

### 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
-------------------------	--------

**Measurement Result:**

**802.11b/g mode**

Mode	Channel	Test Results	Conclusion
802.11b	1	Fig.25	P
	11	Fig.26	P
802.11g	1	Fig.27	P
	11	Fig.28	P

**802.11n-HT20 mode**

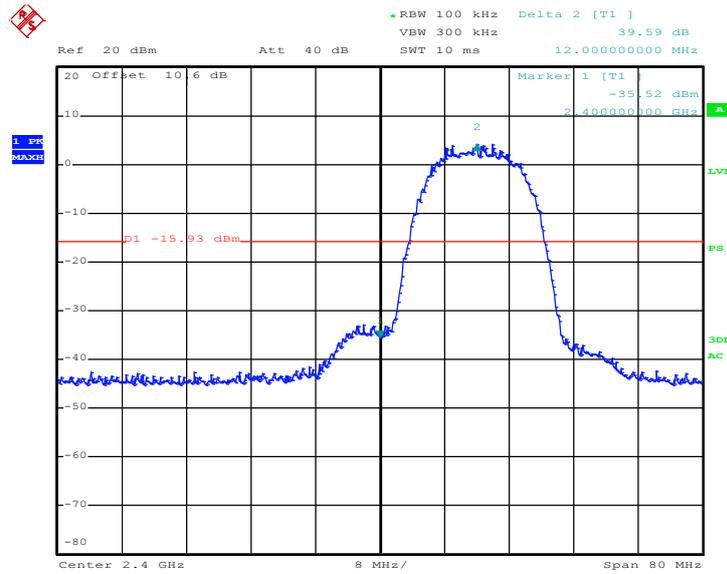
Mode	Channel	Test Results	Conclusion
802.11n (20MHz)	1	Fig.29	P
	11	Fig.30	P

**802.11n-HT40 mode**

Mode	Channel	Test Results	Conclusion
802.11n (40MHz)	3	Fig.31	P
	9	Fig.32	P

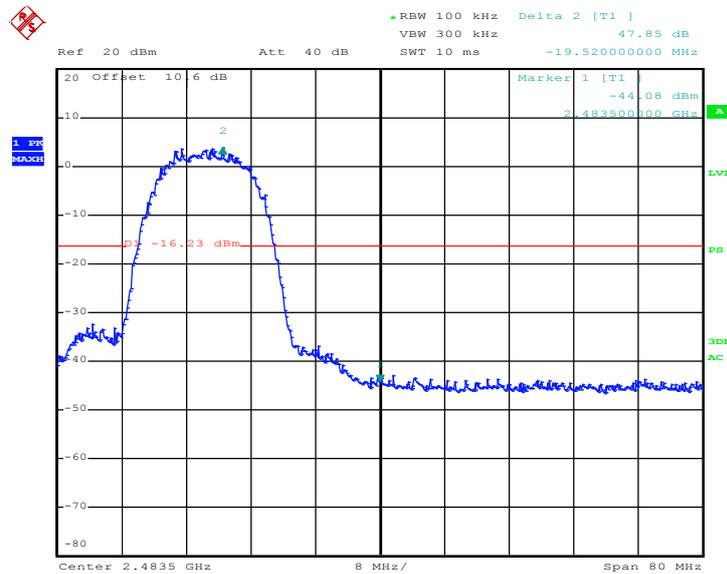
**Conclusion: PASS**

**Test graphs as below:**



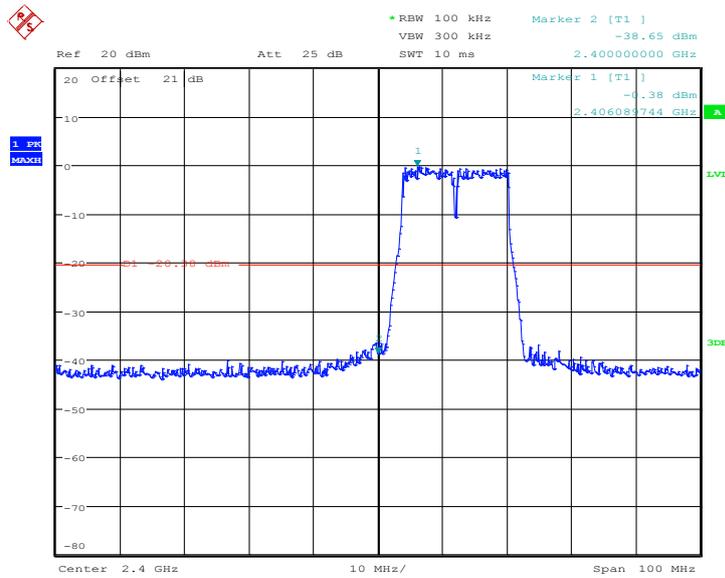
Date: 10.MAR.2013 15:09:50

**Fig. 25 Band Edges (802.11b, Ch 1)**



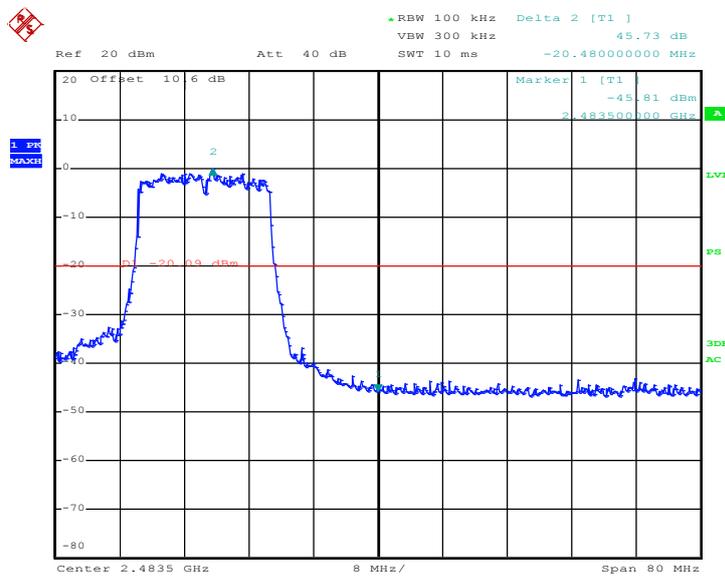
Date: 10.MAR.2013 15:08:35

**Fig. 26 Band Edges (802.11b, Ch 11)**



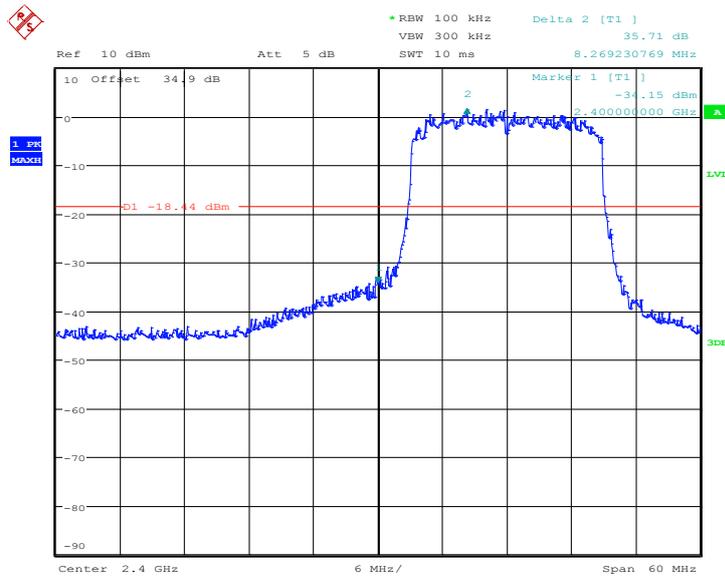
Date: 15.JAN.2013 15:33:03

**Fig. 27 Band Edges (802.11g, Ch 1)**



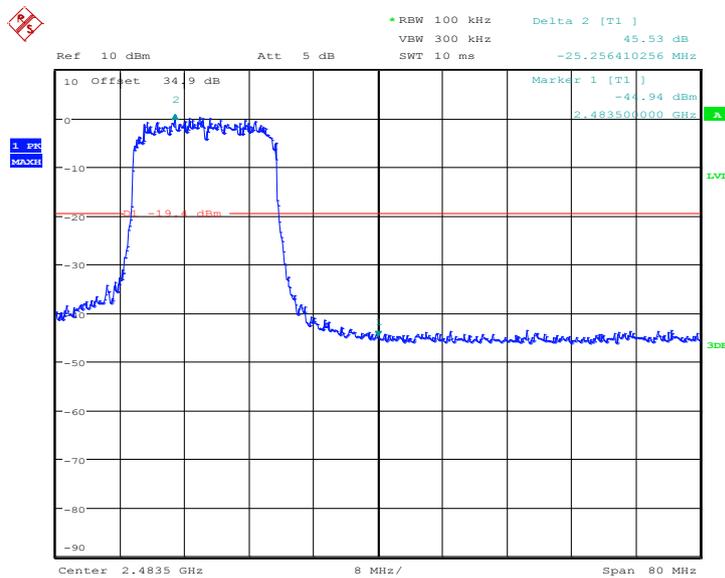
Date: 10.MAR.2013 15:07:52

**Fig. 28 Band Edges (802.11g, Ch 11)**



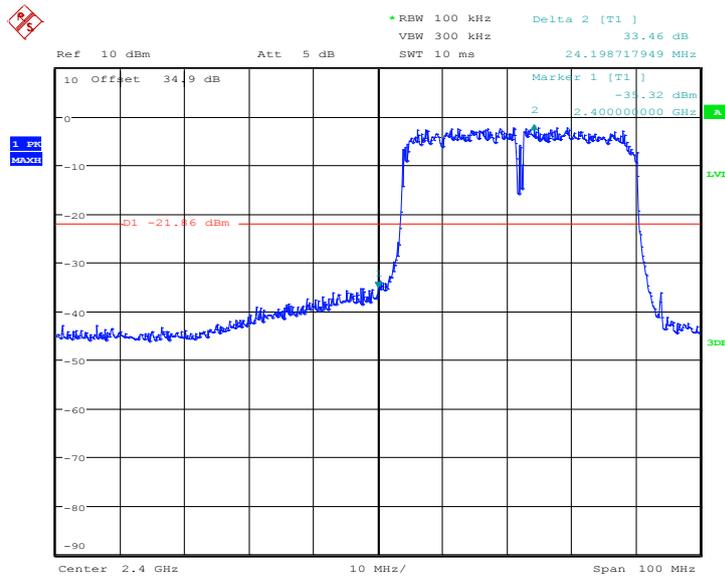
Date: 9.MAR.2013 09:19:24

**Fig. 29 Band Edges (802.11n-HT20, Ch 1)**



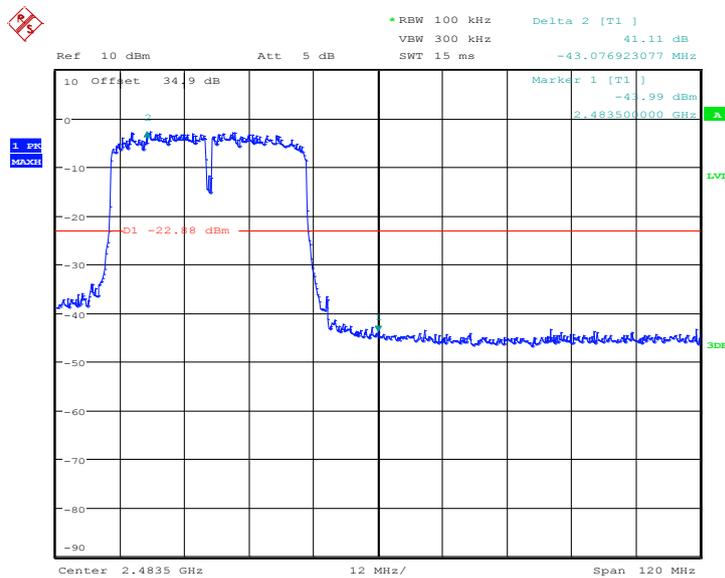
Date: 9.MAR.2013 09:25:15

**Fig. 30 Band Edges (802.11n-HT20, Ch 11)**



Date: 9.MAR.2013 09:21:13

**Fig. 31 Band Edges (802.11n-HT40, Ch 3)**



Date: 9.MAR.2013 09:22:49

**Fig. 32 Band Edges (802.11n-HT40, Ch 9)**

## 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.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
		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
	6	2.437 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
	11	2.462 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
802.11g	1	2.412 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
	6	2.437 GHz	Fig.65	P
		30 MHz ~ 1 GHz	Fig.66	P
		1 GHz ~ 2.5 GHz	Fig.67	P
		2.5 GHz ~ 7.5 GHz	Fig.68	P
		7.5 GHz ~ 10 GHz	Fig.69	P
		10 GHz ~ 15 GHz	Fig.70	P
		15 GHz ~ 20 GHz	Fig.71	P
		20 GHz ~ 26 GHz	Fig.72	P
	11	2.462 GHz	Fig.73	P
		30 MHz ~ 1 GHz	Fig.74	P
		1 GHz ~ 2.5 GHz	Fig.75	P
		2.5 GHz ~ 7.5 GHz	Fig.76	P
		7.5 GHz ~ 10 GHz	Fig.77	P
		10 GHz ~ 15 GHz	Fig.78	P
		15 GHz ~ 20 GHz	Fig.79	P
		20 GHz ~ 26 GHz	Fig.80	P

**802.11n-HT20 mode**

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n (20MHz)	1	2.412 GHz	Fig.81	P
		30 MHz ~ 1 GHz	Fig.82	P
		1 GHz ~ 2.5 GHz	Fig.83	P
		2.5 GHz ~ 7.5 GHz	Fig.84	P
		7.5 GHz ~ 10 GHz	Fig.85	P
		10 GHz ~ 15 GHz	Fig.86	P
		15 GHz ~ 20 GHz	Fig.87	P
		20 GHz ~ 26 GHz	Fig.88	P
	6	2.437 GHz	Fig.89	P
		30 MHz ~ 1 GHz	Fig.90	P
		1 GHz ~ 2.5 GHz	Fig.91	P
		2.5 GHz ~ 7.5 GHz	Fig.92	P
		7.5 GHz ~ 10 GHz	Fig.93	P
		10 GHz ~ 15 GHz	Fig.94	P
		15 GHz ~ 20 GHz	Fig.95	P
		20 GHz ~ 26 GHz	Fig.96	P
	11	2.462 GHz	Fig.97	P
		30 MHz ~ 1 GHz	Fig.98	P
		1 GHz ~ 2.5 GHz	Fig.99	P
		2.5 GHz ~ 7.5 GHz	Fig.100	P
		7.5 GHz ~ 10 GHz	Fig.101	P
		10 GHz ~ 15 GHz	Fig.102	P
		15 GHz ~ 20 GHz	Fig.103	P
		20 GHz ~ 26 GHz	Fig.104	P

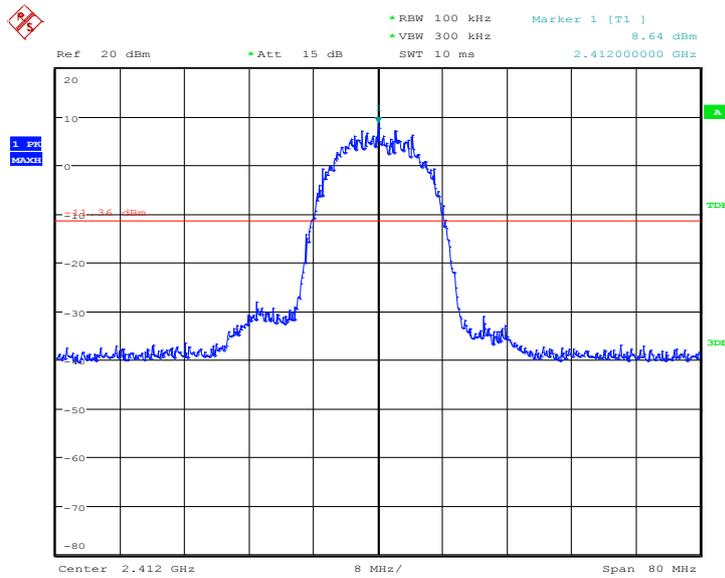
**802.11n-HT40 mode**

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n (40MHz)	3	2.422 GHz	Fig.105	P
		30 MHz ~ 1 GHz	Fig.106	P
		1 GHz ~ 2.5 GHz	Fig.107	P
		2.5 GHz ~ 7.5 GHz	Fig.108	P
		7.5 GHz ~ 10 GHz	Fig.109	P
		10 GHz ~ 15 GHz	Fig.110	P
		15 GHz ~ 20 GHz	Fig.111	P
		20 GHz ~ 26 GHz	Fig.112	P
	6	2.437 GHz	Fig.113	P
		30 MHz ~ 1 GHz	Fig.114	P
		1 GHz ~ 2.5 GHz	Fig.115	P
		2.5 GHz ~ 7.5 GHz	Fig.116	P
		7.5 GHz ~ 10 GHz	Fig.117	P
		10 GHz ~ 15 GHz	Fig.118	P

		15 GHz ~ 20 GHz	Fig.119	P
		20 GHz ~ 26 GHz	Fig.120	P
	9	2.452 GHz	Fig.121	P
		30 MHz ~ 1 GHz	Fig.122	P
		1 GHz ~ 2.5 GHz	Fig.123	P
		2.5 GHz ~ 7.5 GHz	Fig.124	P
		7.5 GHz ~ 10 GHz	Fig.125	P
		10 GHz ~ 15 GHz	Fig.126	P
		15 GHz ~ 20 GHz	Fig.127	P
		20 GHz ~ 26 GHz	Fig.128	P

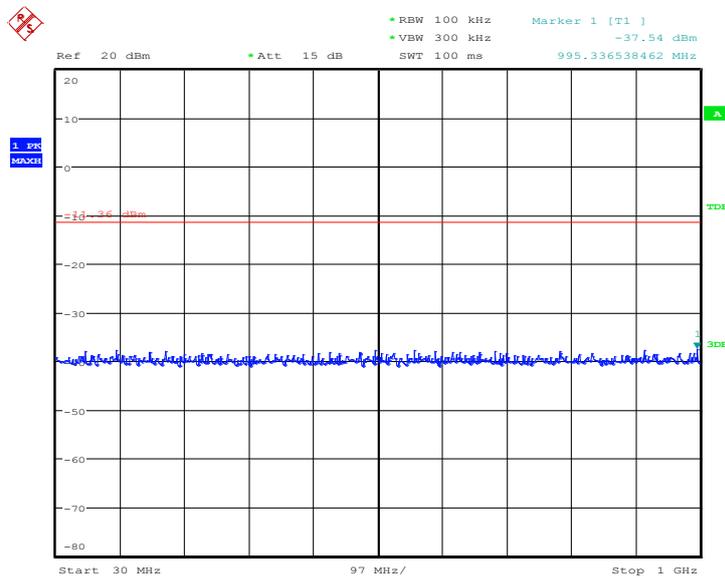
**Conclusion: PASS**

**Test graphs as below:**



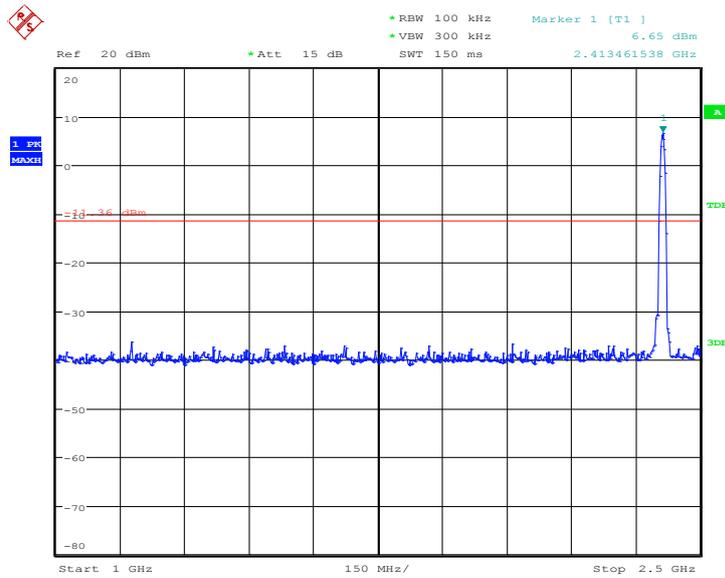
Date: 10.MAR.2013 21:06:53

**Fig. 33 Conducted Spurious Emission (802.11b, Ch1, Center Frequency)**



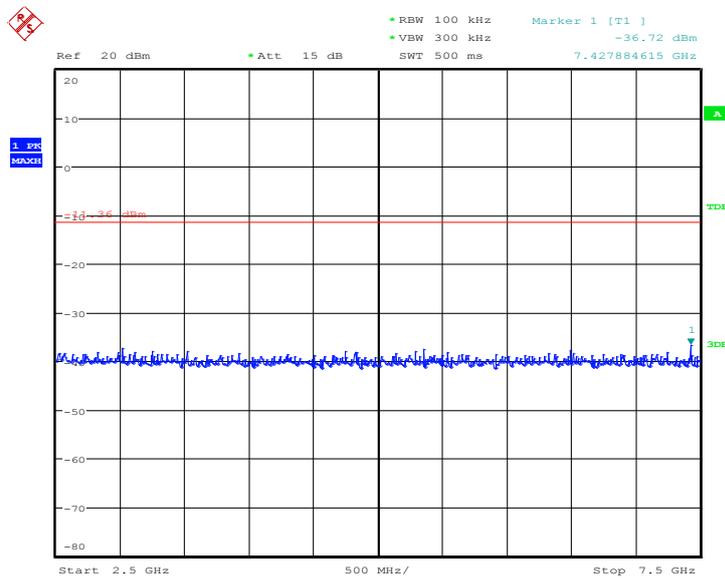
Date: 10.MAR.2013 21:07:00

**Fig. 34 Conducted Spurious Emission (802.11b, Ch1, 30 MHz-1 GHz)**



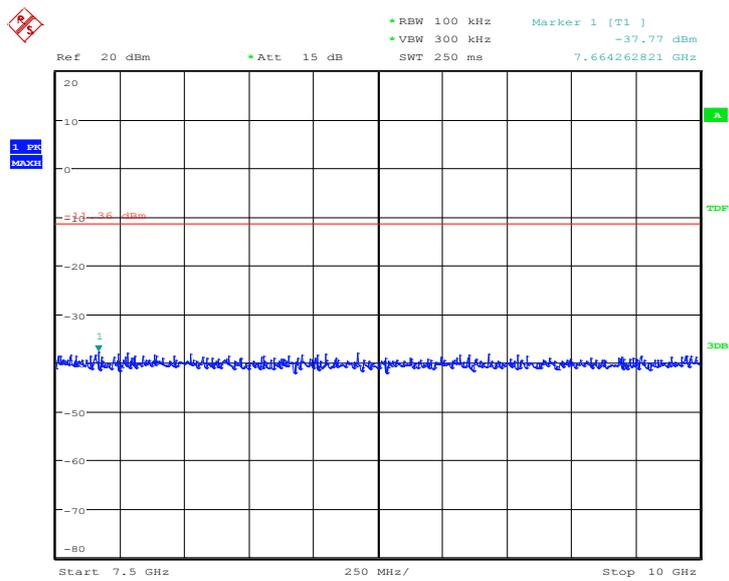
Date: 10.MAR.2013 21:07:07

**Fig. 35 Conducted Spurious Emission (802.11b, Ch1, 1 GHz-2.5 GHz)**



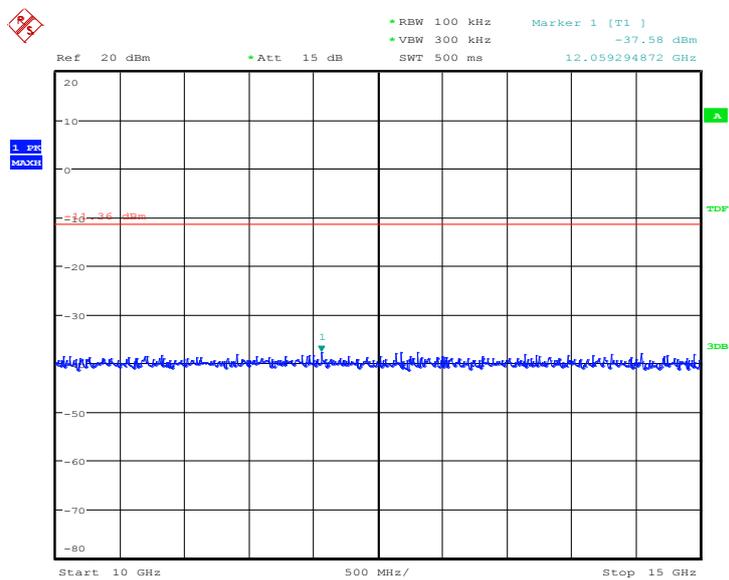
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**Fig. 36 Conducted Spurious Emission (802.11b, Ch1, 2.5 GHz-7.5 GHz)**



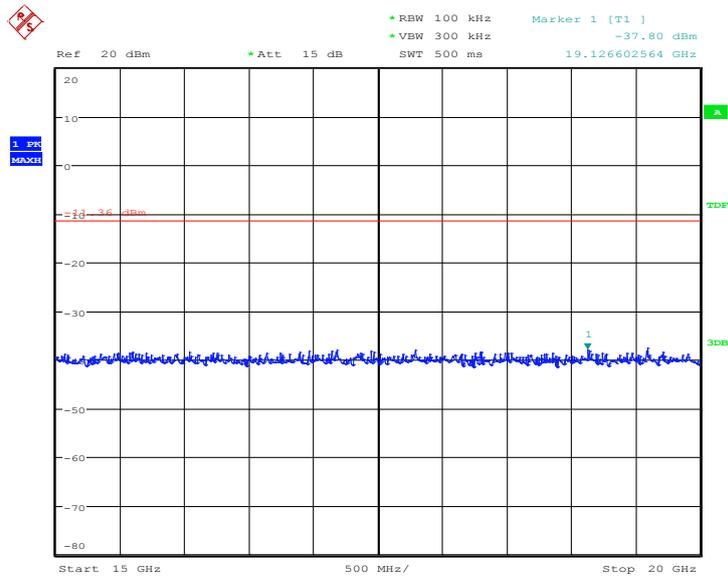
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**Fig. 37 Conducted Spurious Emission (802.11b, Ch1, 7.5 GHz-10 GHz)**



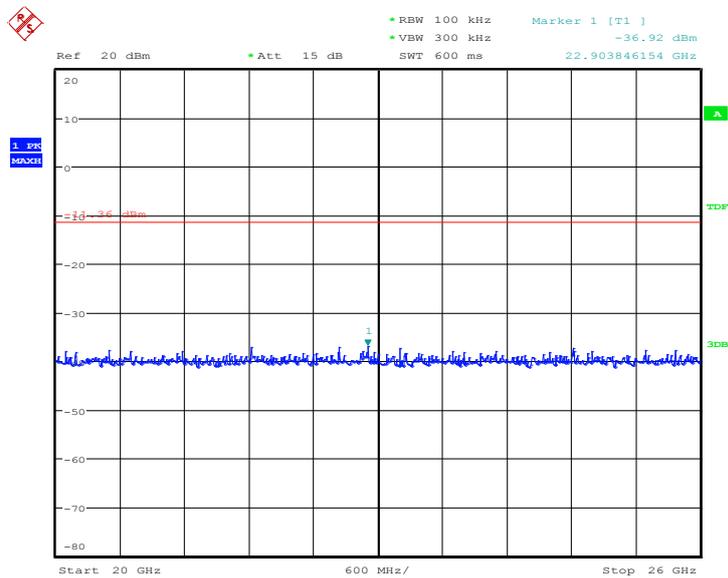
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**Fig. 38 Conducted Spurious Emission (802.11b, Ch1, 10 GHz-15 GHz)**



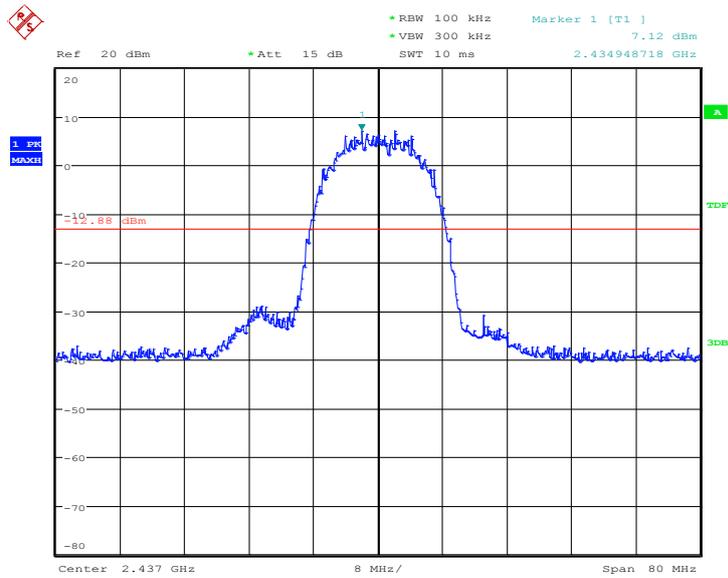
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**Fig. 39 Conducted Spurious Emission (802.11b, Ch1, 15 GHz-20 GHz)**



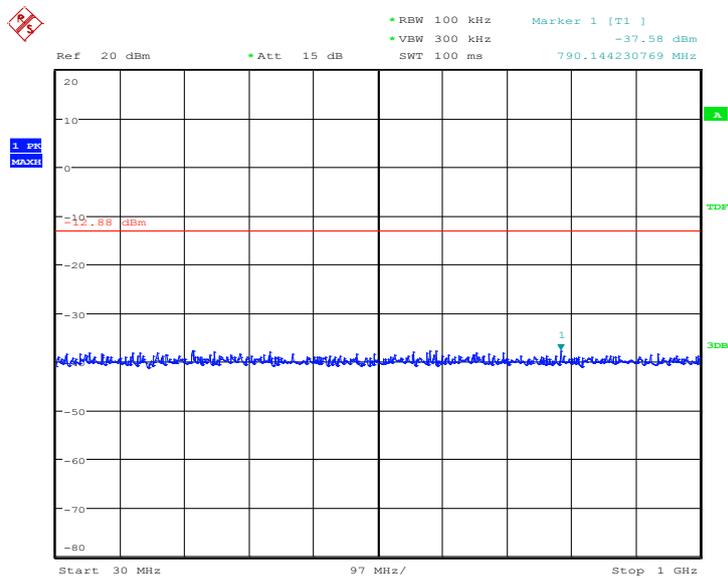
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**Fig. 40 Conducted Spurious Emission (802.11b, Ch1, 20 GHz-26 GHz)**



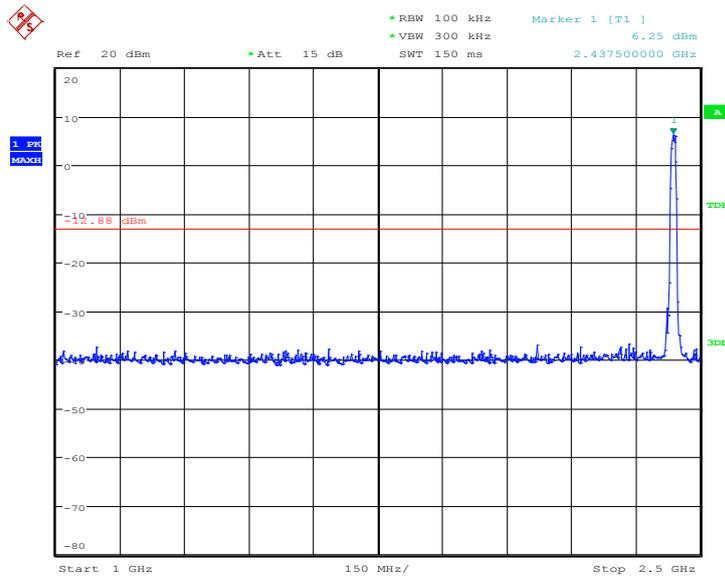
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**Fig. 41 Conducted Spurious Emission (802.11b, Ch6, Center Frequency)**



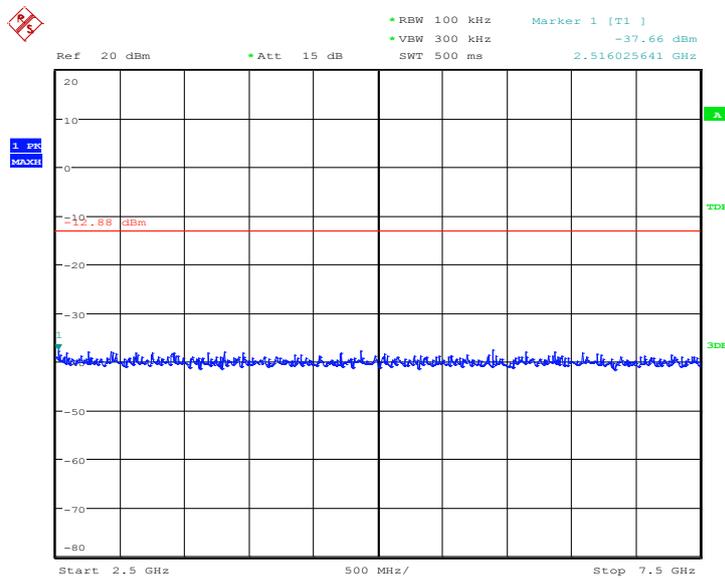
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**Fig. 42 Conducted Spurious Emission (802.11b, Ch6, 30 MHz-1 GHz)**



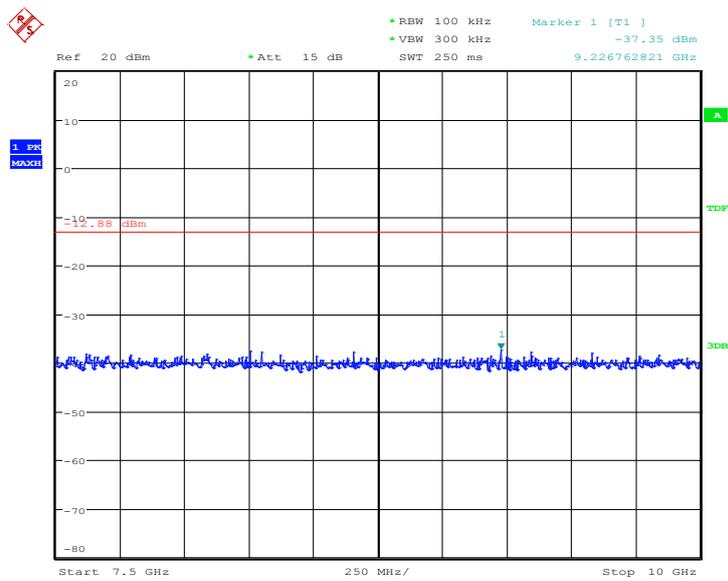
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**Fig. 43 Conducted Spurious Emission (802.11b, Ch6, 1 GHz-2.5 GHz)**



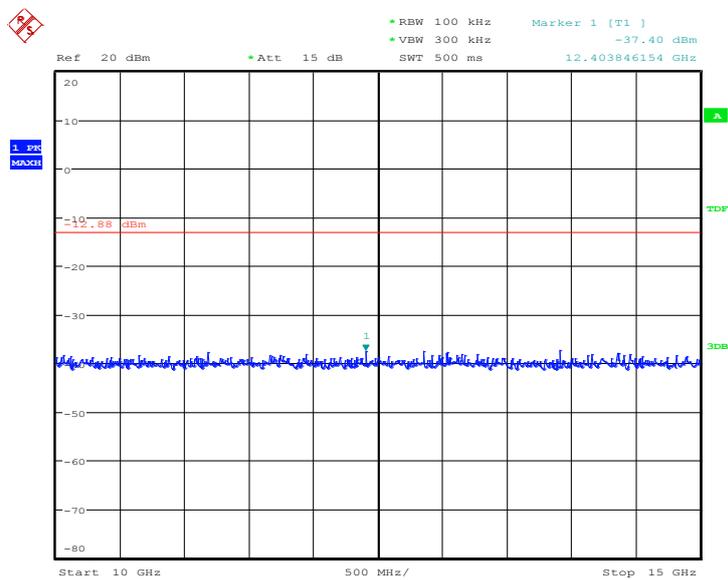
Date: 10.MAR.2013 21:08:31

**Fig. 44 Conducted Spurious Emission (802.11b, Ch6, 2.5 GHz-7.5 GHz)**



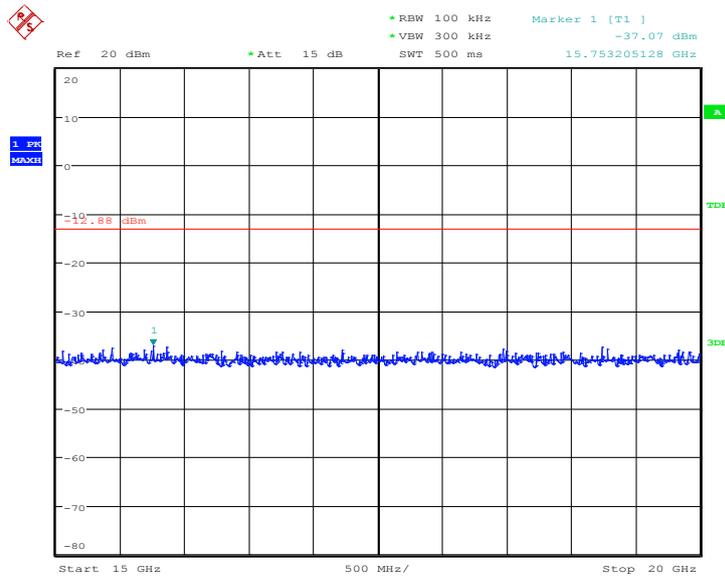
Date: 10.MAR.2013 21:08:38

**Fig. 45 Conducted Spurious Emission (802.11b, Ch6, 7.5 GHz-10 GHz)**



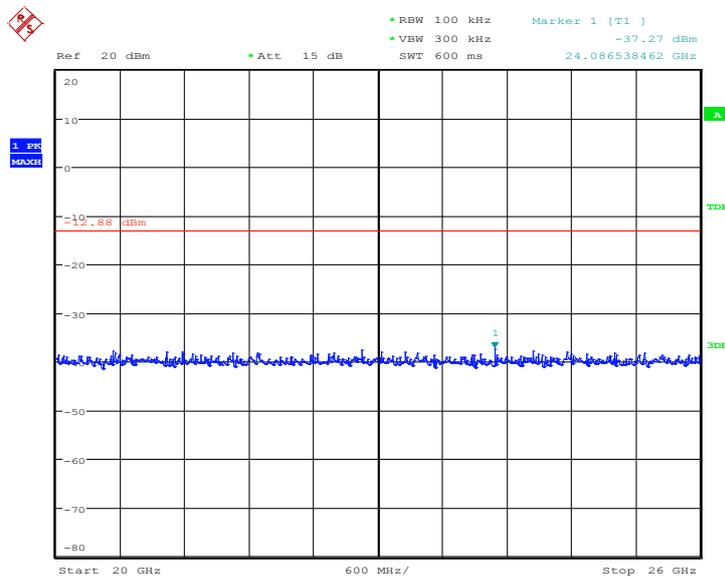
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**Fig. 46 Conducted Spurious Emission (802.11b, Ch6, 10 GHz-15 GHz)**



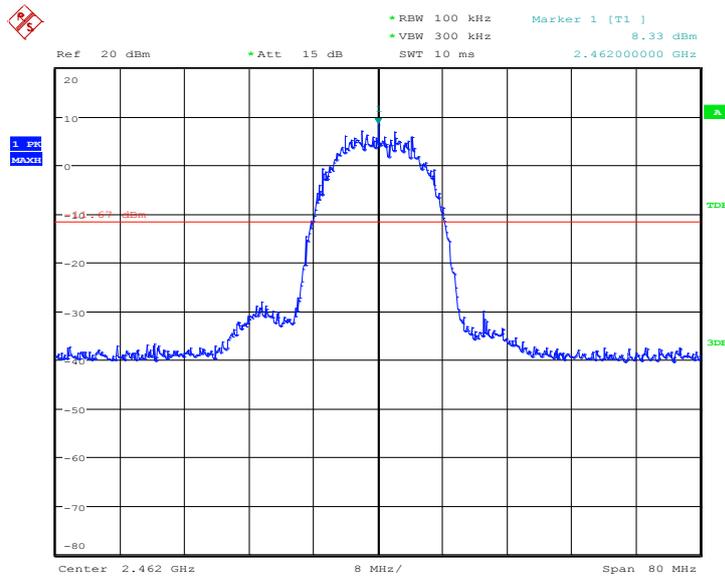
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**Fig. 47 Conducted Spurious Emission (802.11b, Ch6, 15 GHz-20 GHz)**



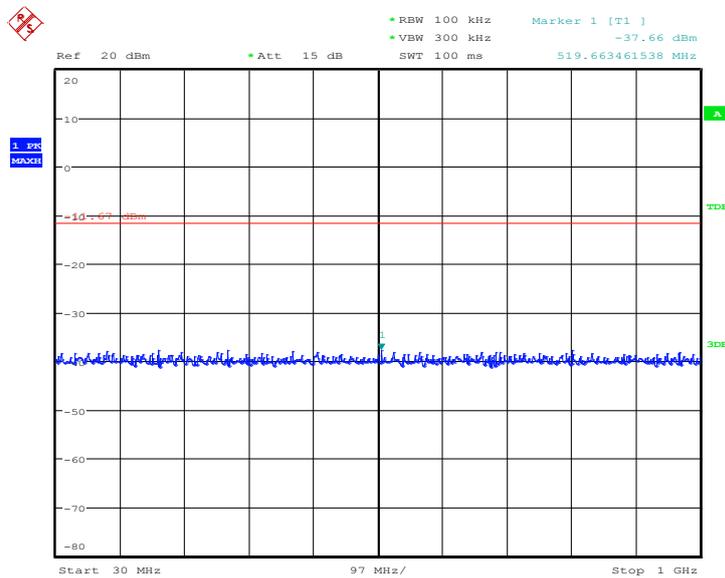
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**Fig. 48 Conducted Spurious Emission (802.11b, Ch6, 20 GHz-26 GHz)**



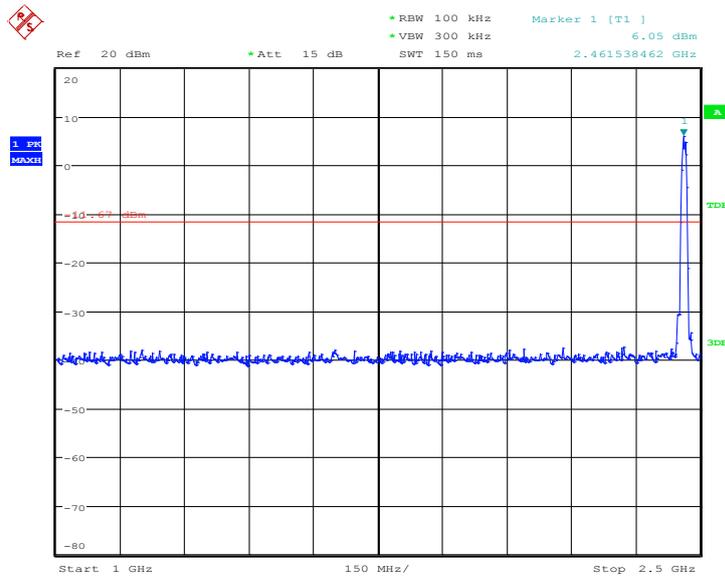
Date: 10.MAR.2013 21:09:25

**Fig. 49 Conducted Spurious Emission (802.11b, Ch11, Center Frequency)**



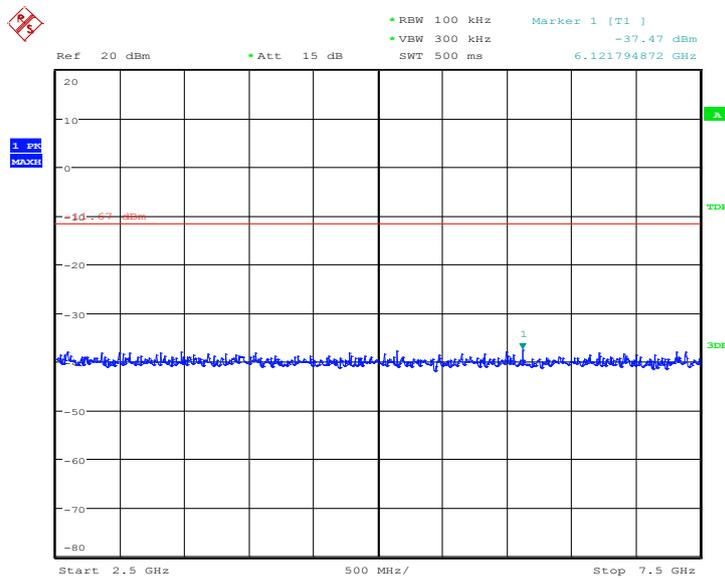
Date: 10.MAR.2013 21:09:31

**Fig. 50 Conducted Spurious Emission (802.11b, Ch11, 30 MHz-1 GHz)**



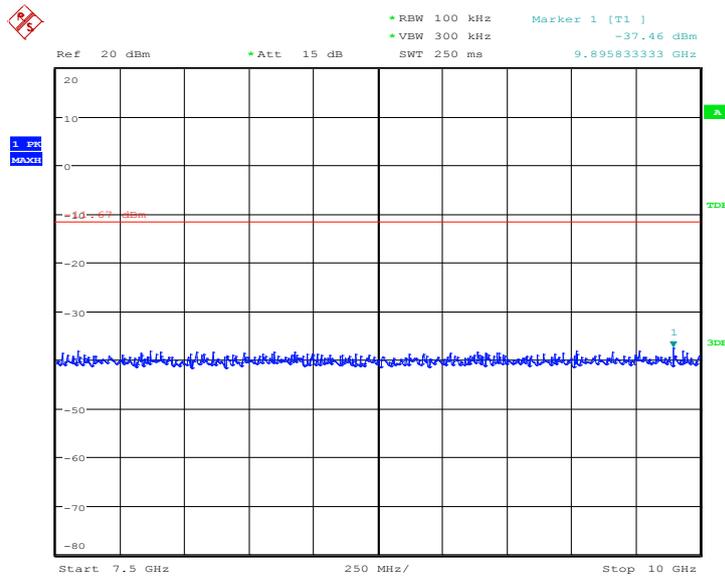
Date: 10.MAR.2013 21:09:38

**Fig. 51 Conducted Spurious Emission (802.11b, Ch11, 1 GHz-2.5 GHz)**



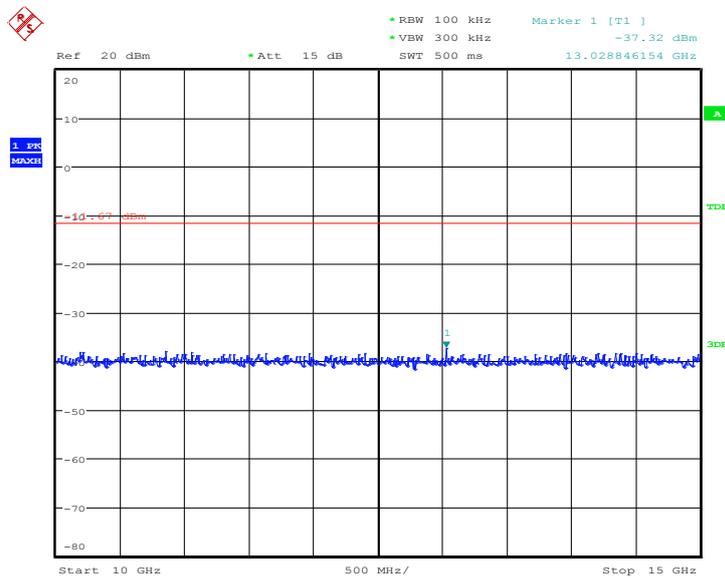
Date: 10.MAR.2013 21:09:45

**Fig. 52 Conducted Spurious Emission (802.11b, Ch11, 2.5 GHz-7.5 GHz)**



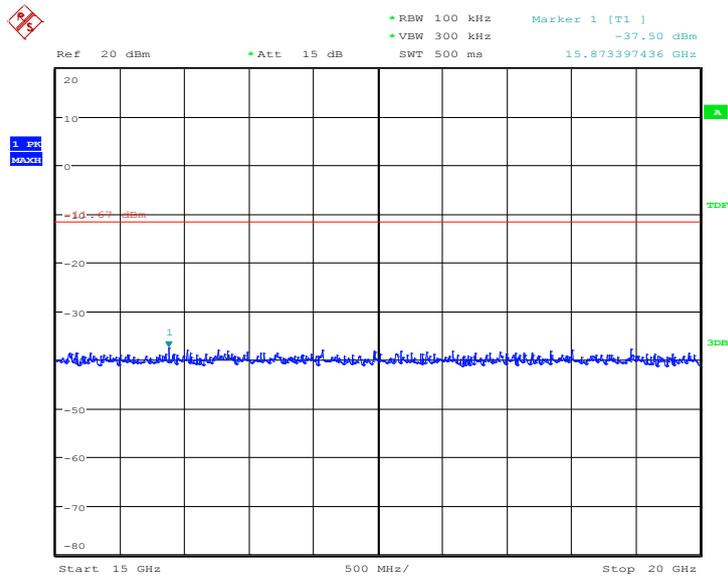
Date: 10.MAR.2013 21:09:52

**Fig. 53 Conducted Spurious Emission (802.11b, Ch11, 7.5 GHz-10 GHz)**



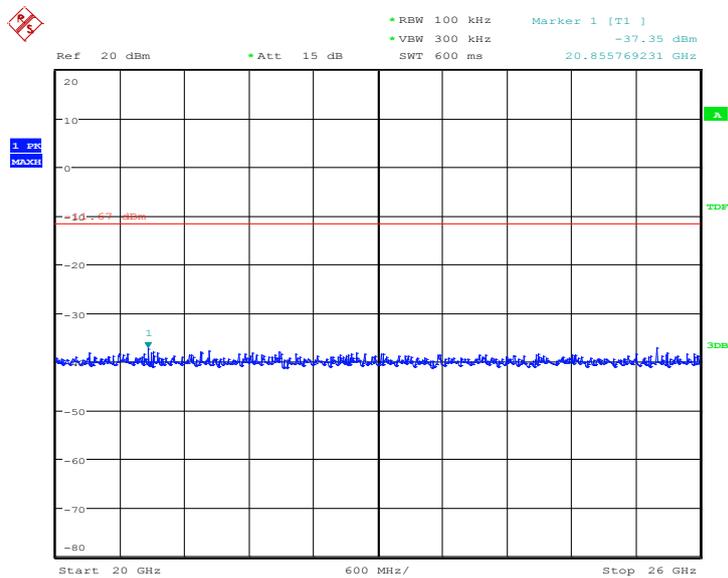
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**Fig. 54 Conducted Spurious Emission (802.11b, Ch11, 10 GHz-15 GHz)**



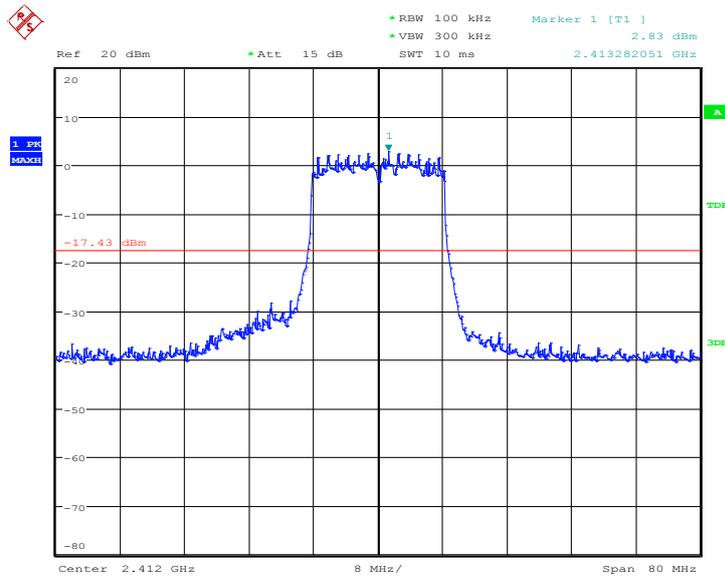
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**Fig. 55 Conducted Spurious Emission (802.11b, Ch11, 15 GHz-20 GHz)**



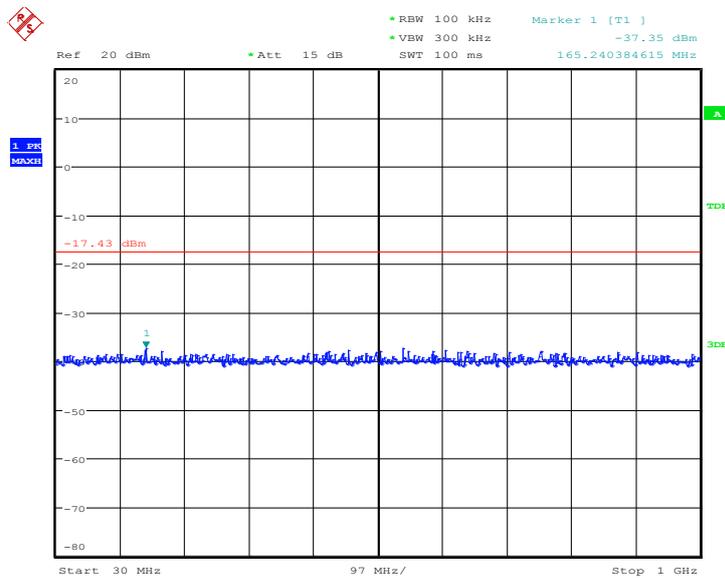
Date: 10.MAR.2013 21:10:13

**Fig. 56 Conducted Spurious Emission (802.11b, Ch11, 20 GHz-26 GHz)**



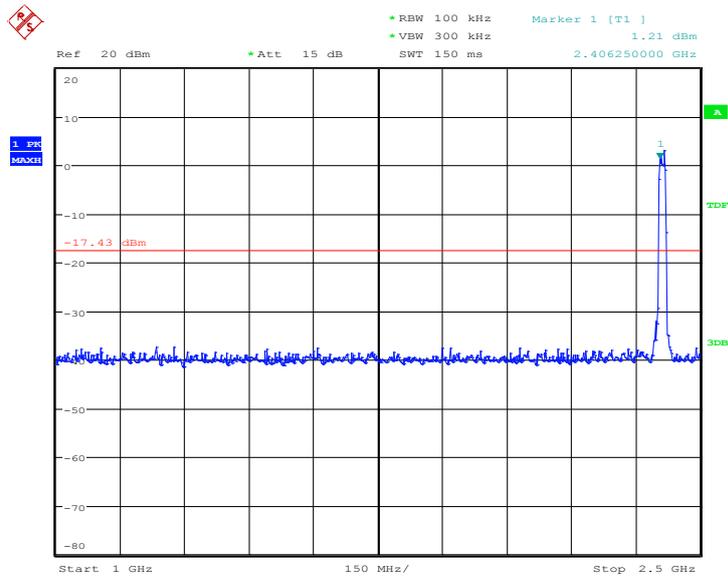
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**Fig. 57 Conducted Spurious Emission (802.11g, Ch1, Center Frequency)**



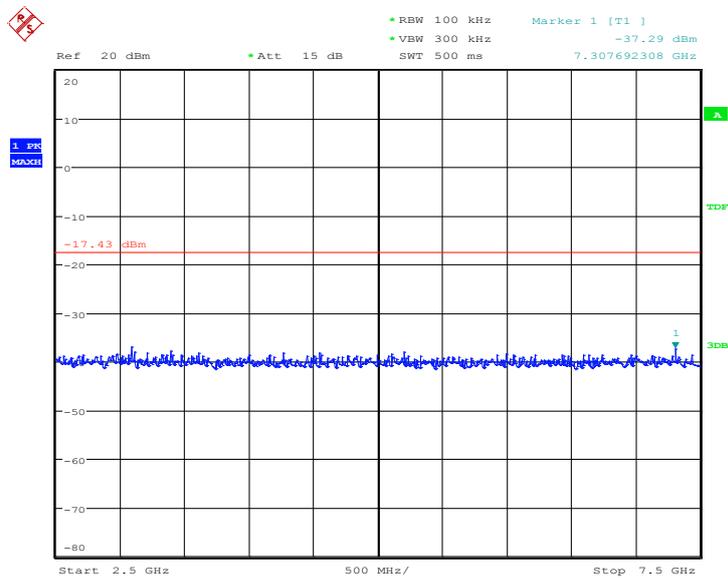
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**Fig. 58 Conducted Spurious Emission (802.11g, Ch1, 30 MHz-1 GHz)**



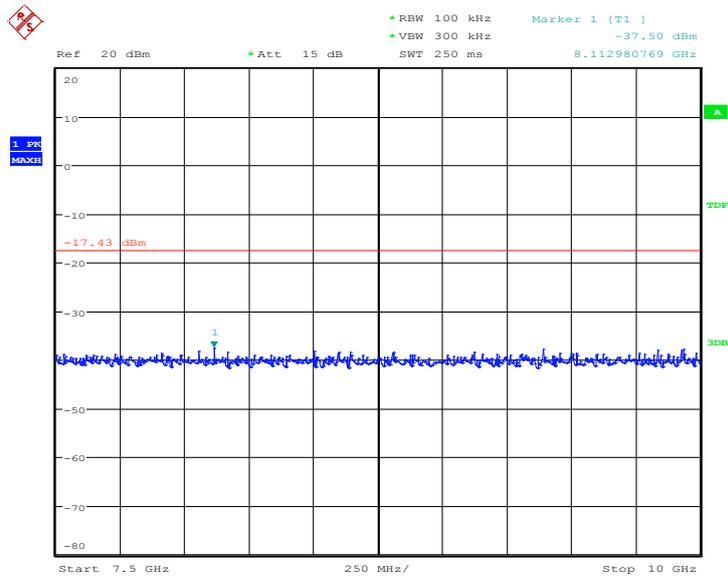
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**Fig. 59 Conducted Spurious Emission (802.11g, Ch1, 1 GHz-2.5 GHz)**



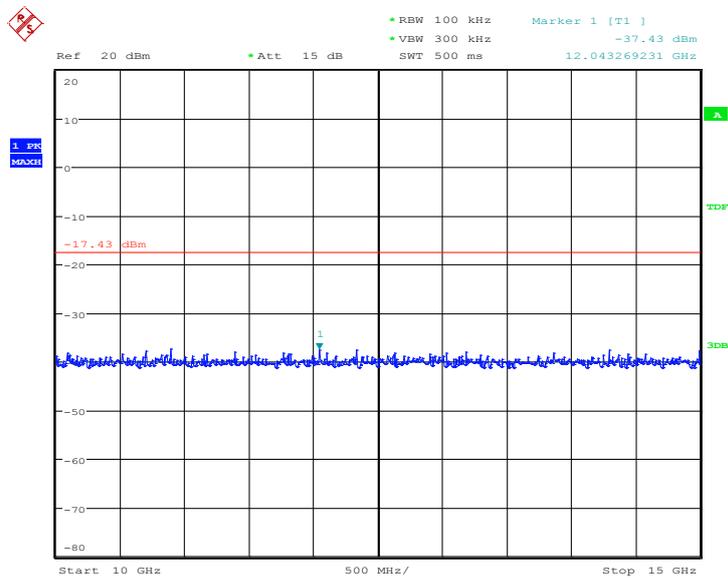
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**Fig. 60 Conducted Spurious Emission (802.11g, Ch1, 2.5 GHz-7.5 GHz)**



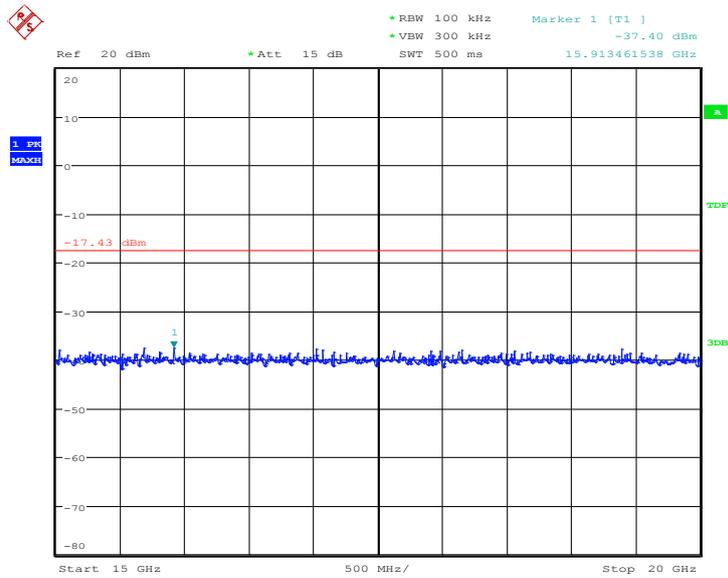
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**Fig. 61 Conducted Spurious Emission (802.11g, Ch1, 7.5 GHz-10 GHz)**



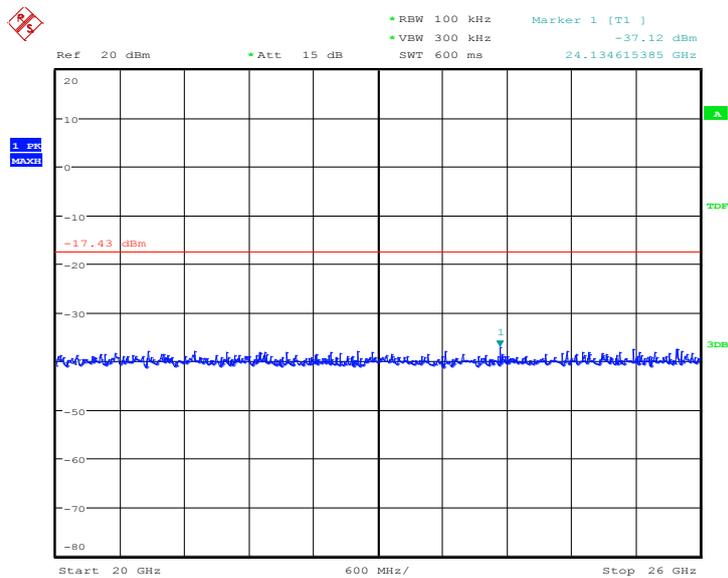
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**Fig. 62 Conducted Spurious Emission (802.11g, Ch1, 10 GHz-15 GHz)**



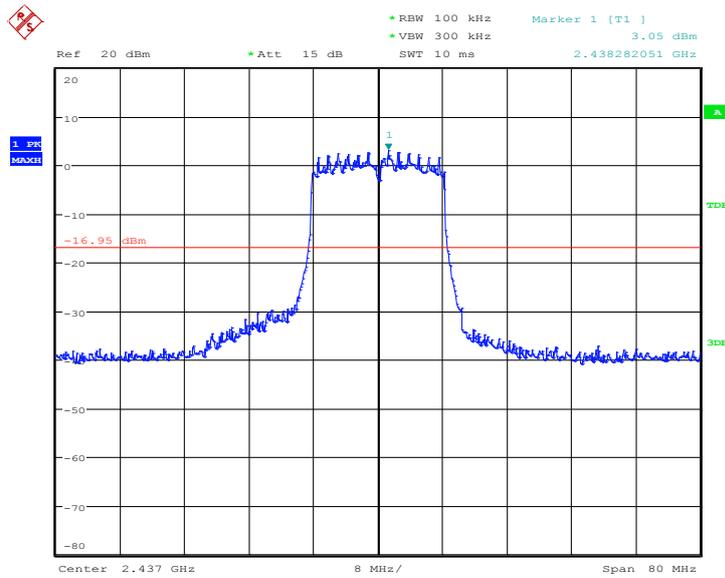
Date: 10.MAR.2013 21:11:22

**Fig. 63 Conducted Spurious Emission (802.11g, Ch1, 15 GHz-20 GHz)**



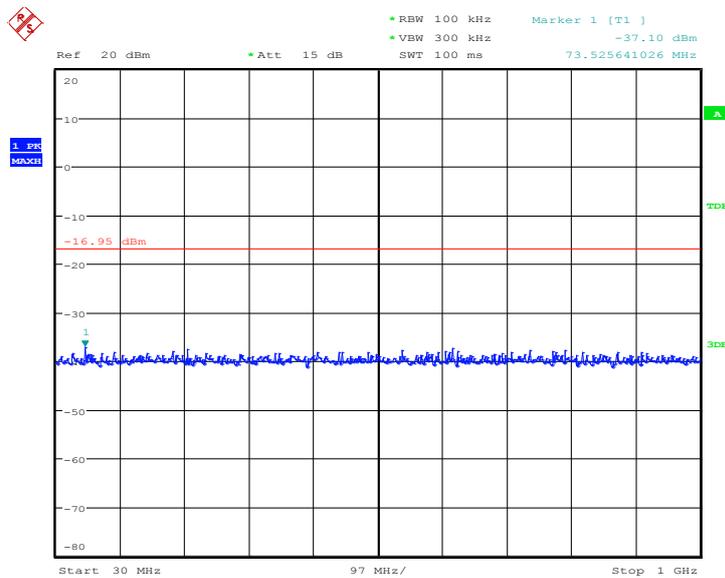
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**Fig. 64 Conducted Spurious Emission (802.11g, Ch1, 20 GHz-26 GHz)**



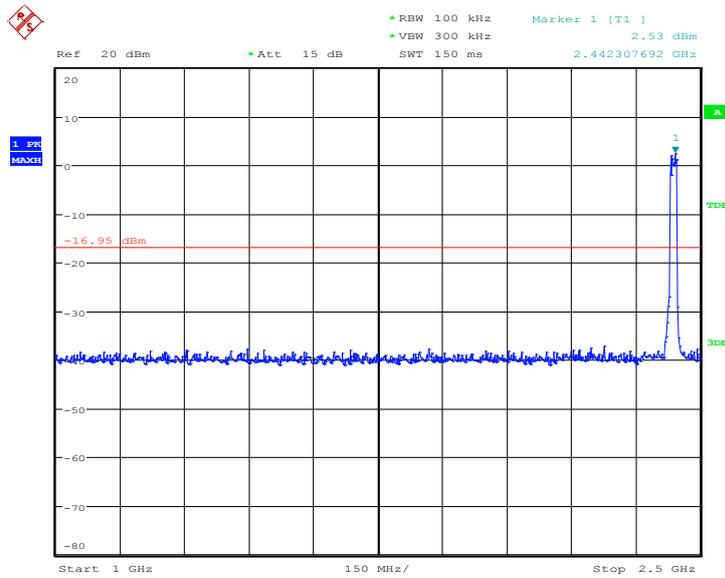
Date: 10.MAR.2013 21:12:10

**Fig. 65 Conducted Spurious Emission (802.11g, Ch6, Center Frequency)**



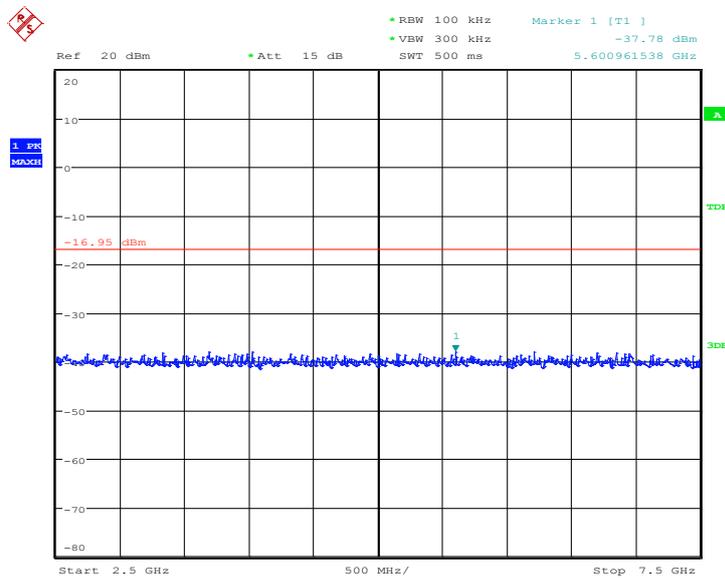
Date: 10.MAR.2013 21:12:17

**Fig. 66 Conducted Spurious Emission (802.11g, Ch6, 30 MHz-1 GHz)**



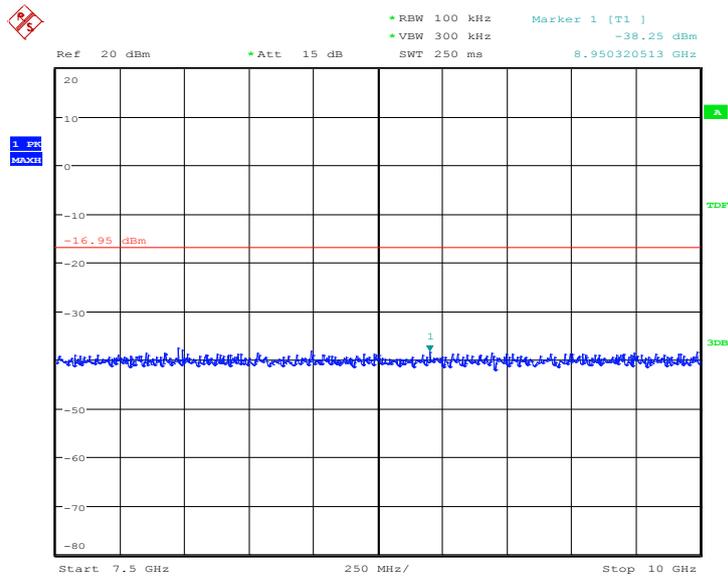
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**Fig. 67 Conducted Spurious Emission (802.11g, Ch6, 1 GHz-2.5 GHz)**



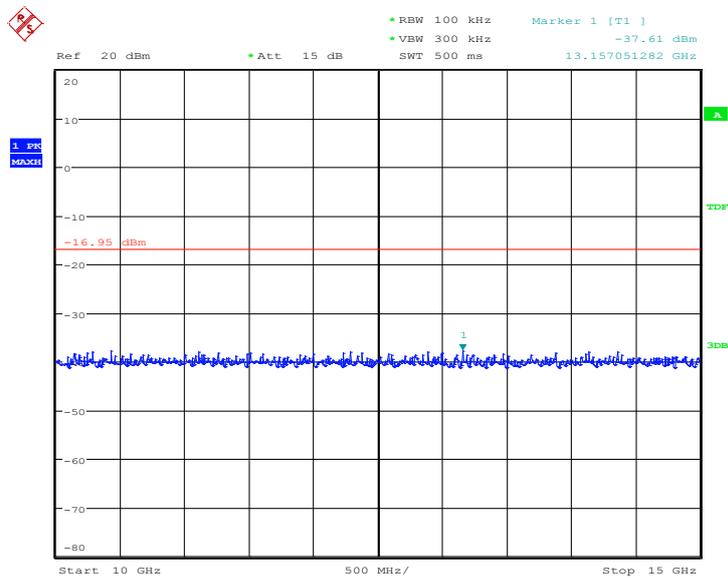
Date: 10.MAR.2013 21:12:31

**Fig. 68 Conducted Spurious Emission (802.11g, Ch6, 2.5 GHz-7.5 GHz)**



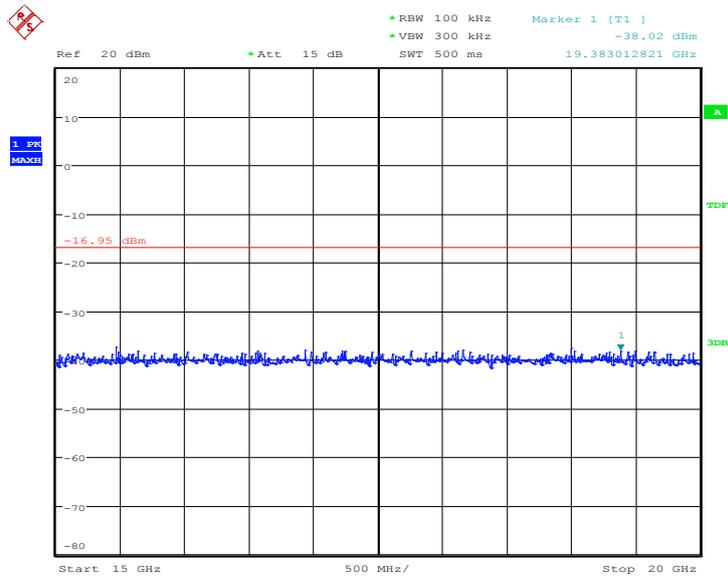
Date: 10.MAR.2013 21:12:38

**Fig. 69 Conducted Spurious Emission (802.11g, Ch6, 7.5 GHz-10 GHz)**



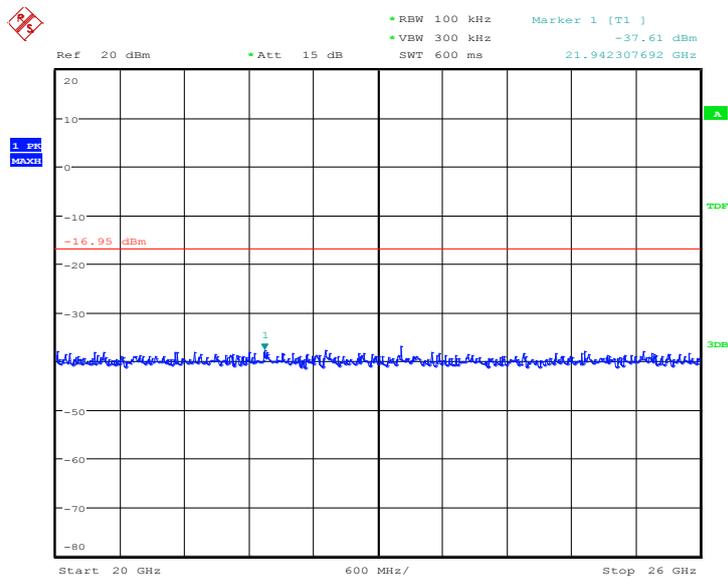
Date: 10.MAR.2013 21:12:45

**Fig. 70 Conducted Spurious Emission (802.11g, Ch6, 10 GHz-15 GHz)**



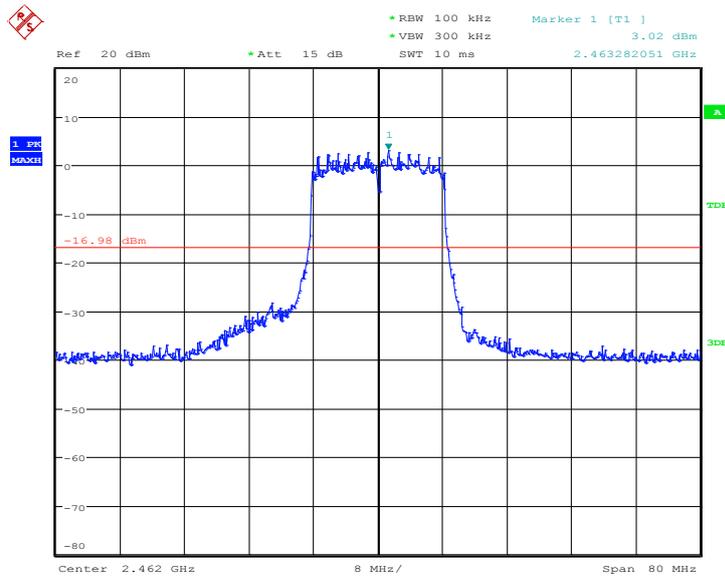
Date: 10.MAR.2013 21:12:52

**Fig. 71 Conducted Spurious Emission (802.11g, Ch6, 15 GHz-20 GHz)**



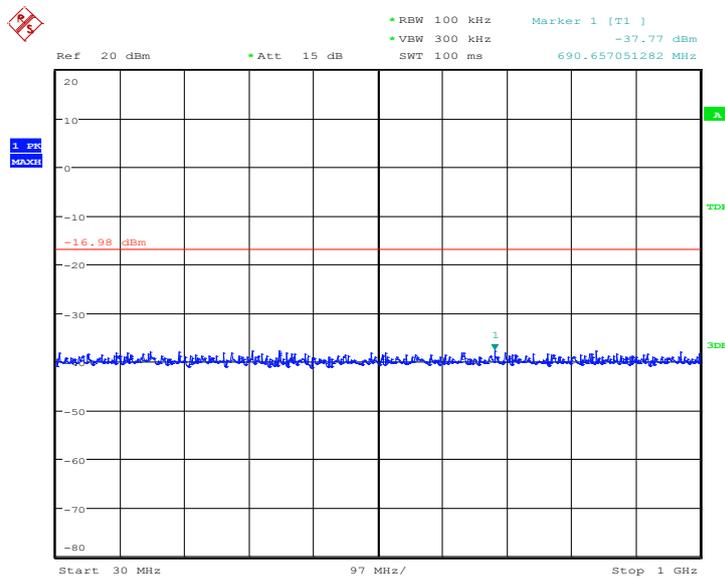
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**Fig. 72 Conducted Spurious Emission (802.11g, Ch6, 20 GHz-26 GHz)**



Date: 10.MAR.2013 21:13:25

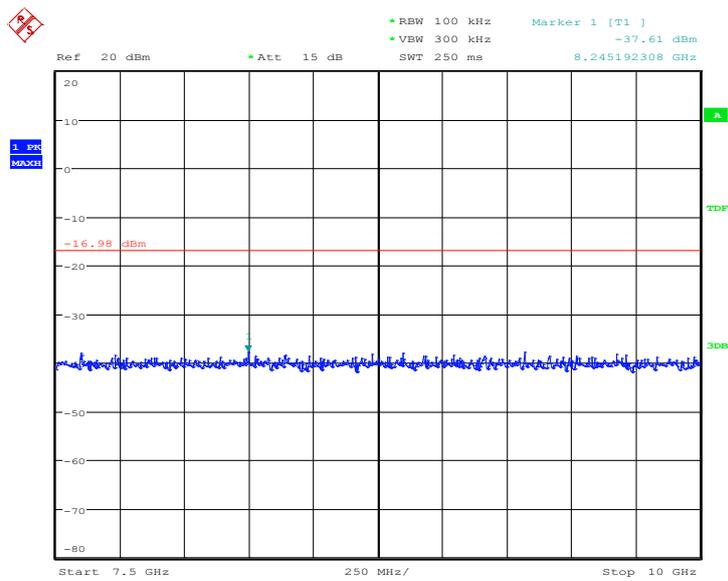
**Fig. 73 Conducted Spurious Emission (802.11g, Ch11, Center Frequency)**



Date: 10.MAR.2013 21:13:32

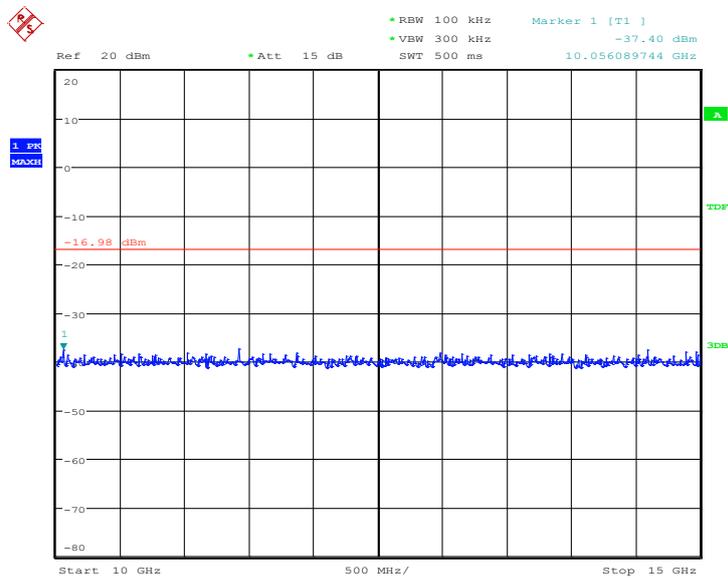
**Fig. 74 Conducted Spurious Emission (802.11g, Ch11, 30 MHz-1 GHz)**





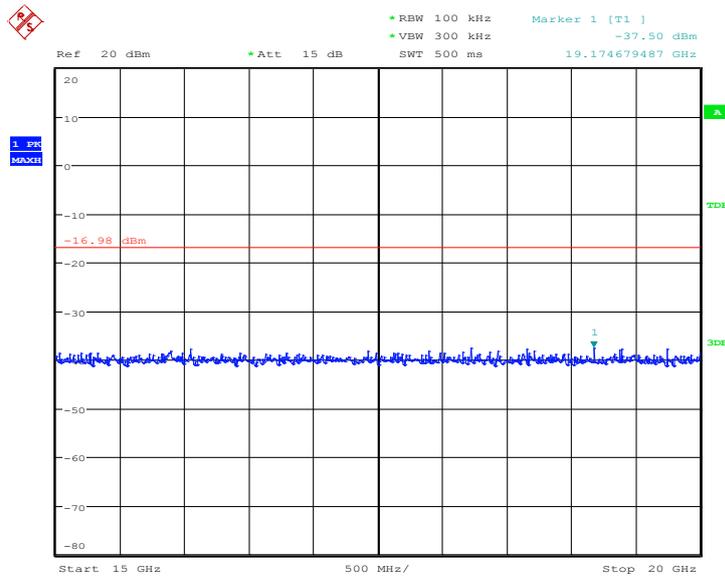
Date: 10.MAR.2013 21:13:53

**Fig. 77 Conducted Spurious Emission (802.11g, Ch11, 7.5 GHz-10 GHz)**



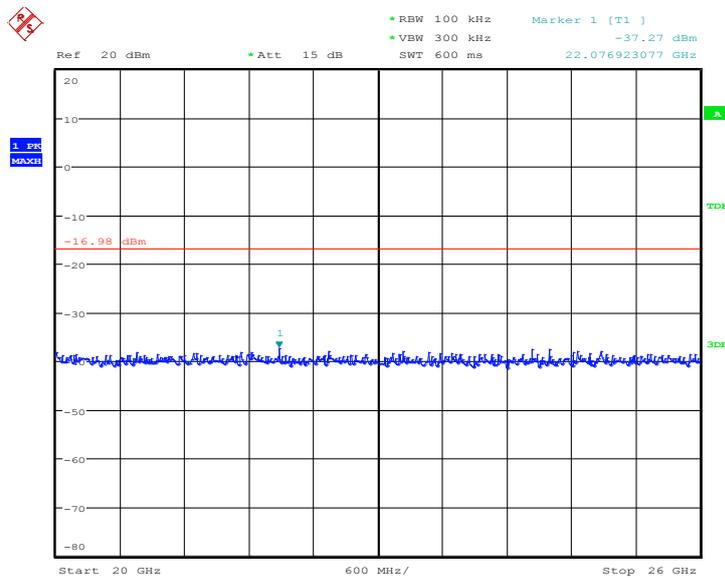
Date: 10.MAR.2013 21:14:00

**Fig. 78 Conducted Spurious Emission (802.11g, Ch11, 10 GHz-15 GHz)**



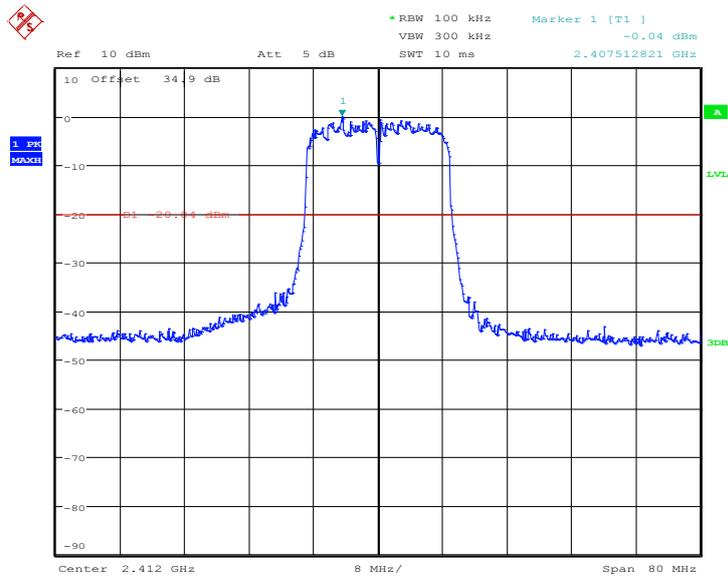
Date: 10.MAR.2013 21:14:06

**Fig. 79 Conducted Spurious Emission (802.11g, Ch11, 15 GHz-20 GHz)**



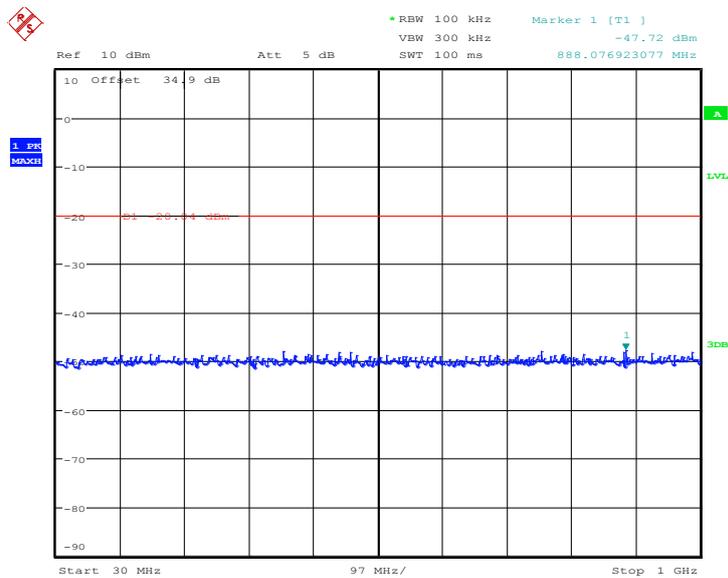
Date: 10.MAR.2013 21:14:13

**Fig. 80 Conducted Spurious Emission (802.11g, Ch11, 20 GHz-26 GHz)**



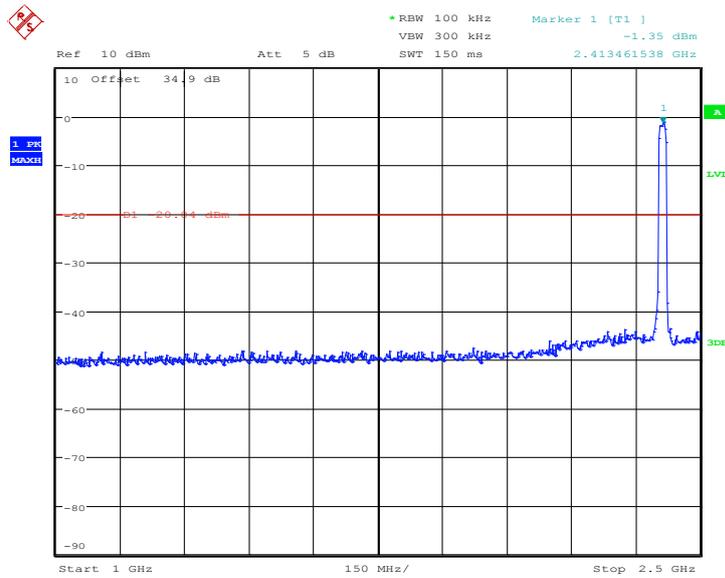
Date: 9.MAR.2013 09:56:50

**Fig. 81 Conducted Spurious Emission (802.11n-HT20, Ch1, Center Frequency)**



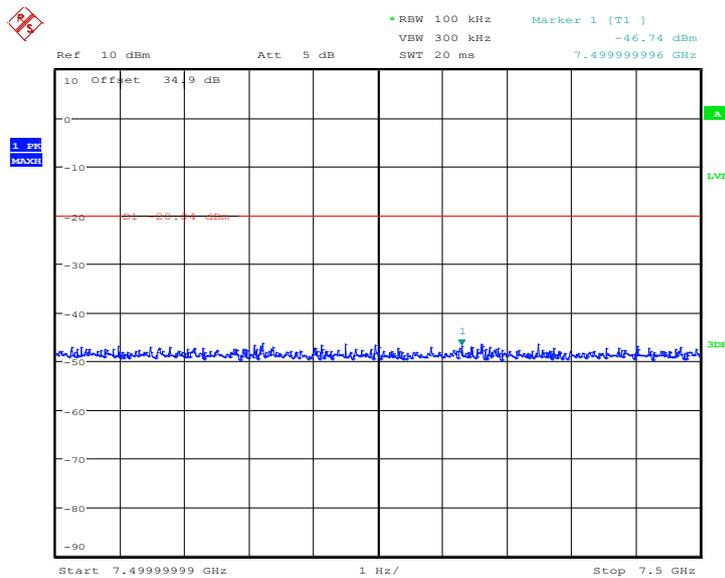
Date: 9.MAR.2013 09:57:21

**Fig. 82 Conducted Spurious Emission (802.11n-HT20, Ch1, 30 MHz-1 GHz)**



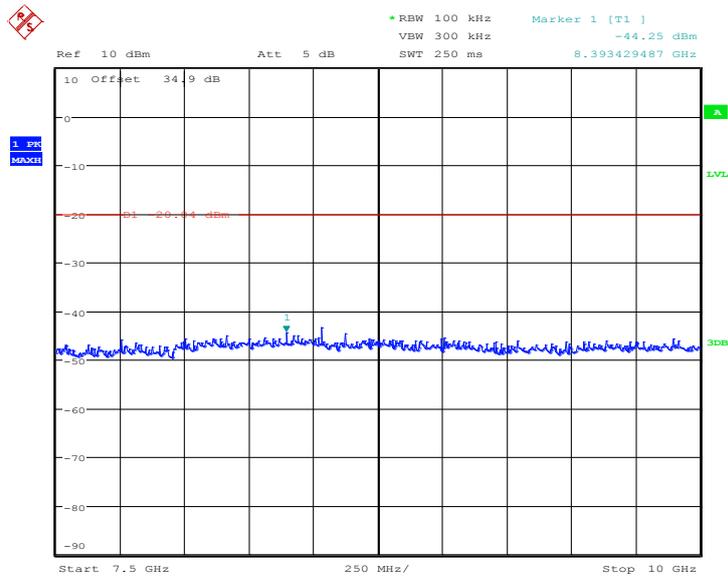
Date: 9.MAR.2013 09:57:39

**Fig. 83 Conducted Spurious Emission (802.11n-HT20, Ch1, 1 GHz-2.5 GHz)**



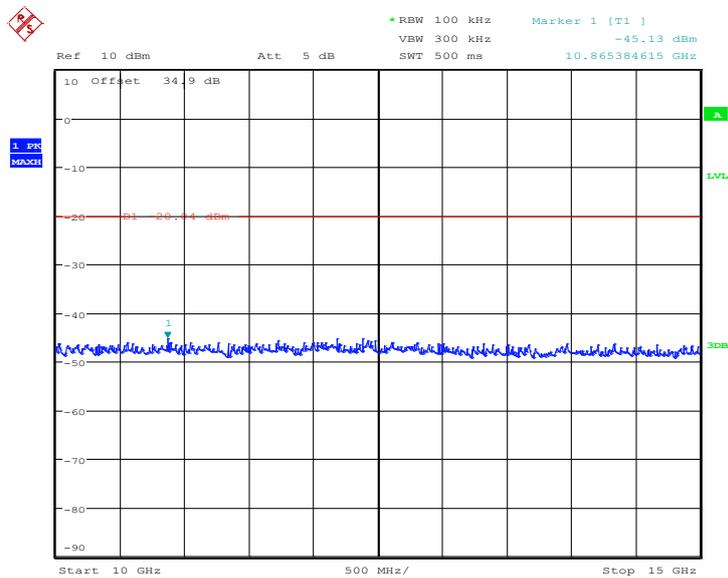
Date: 9.MAR.2013 09:57:58

**Fig. 84 Conducted Spurious Emission (802.11n-HT20, Ch1, 2.5 GHz-7.5 GHz)**



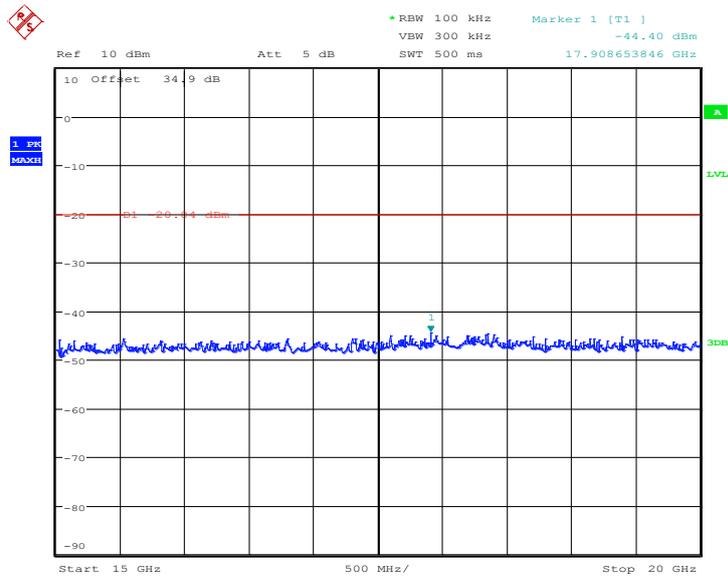
Date: 9.MAR.2013 09:58:23

**Fig. 85 Conducted Spurious Emission (802.11n-HT20, Ch1, 7.5 GHz-10 GHz)**



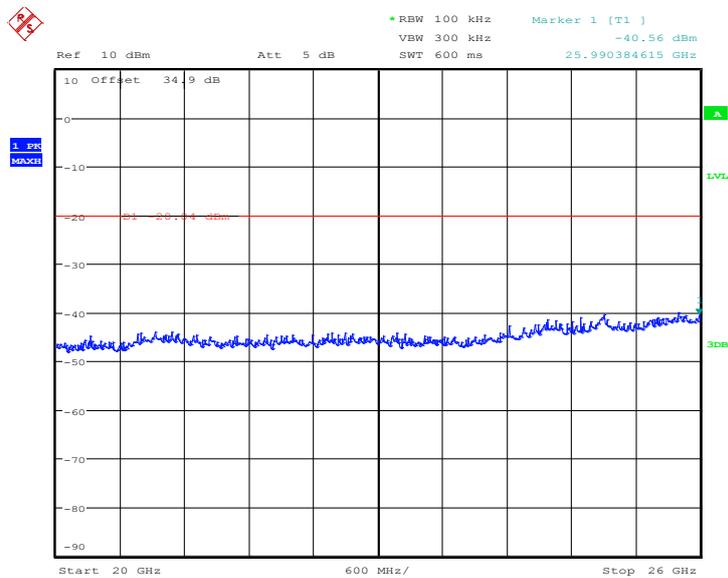
Date: 9.MAR.2013 09:58:47

**Fig. 86 Conducted Spurious Emission (802.11n-HT20, Ch1, 10 GHz-15 GHz)**



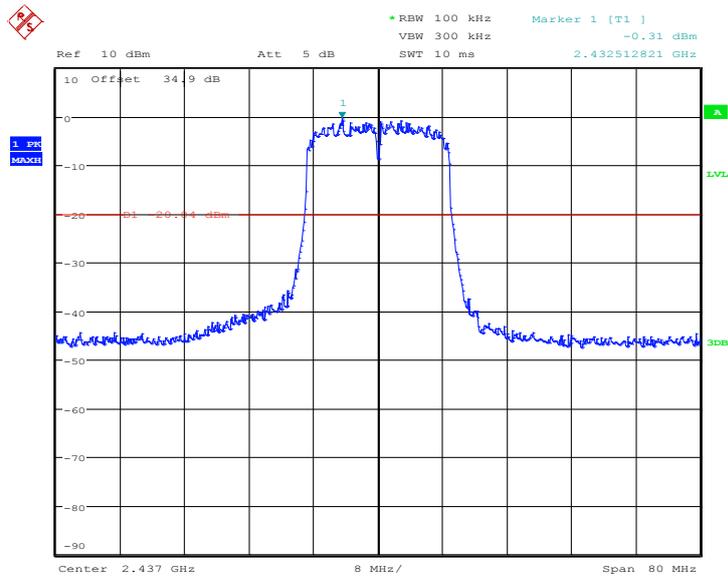
Date: 9.MAR.2013 09:59:06

**Fig. 87 Conducted Spurious Emission (802.11n-HT20, Ch1, 15 GHz-20 GHz)**



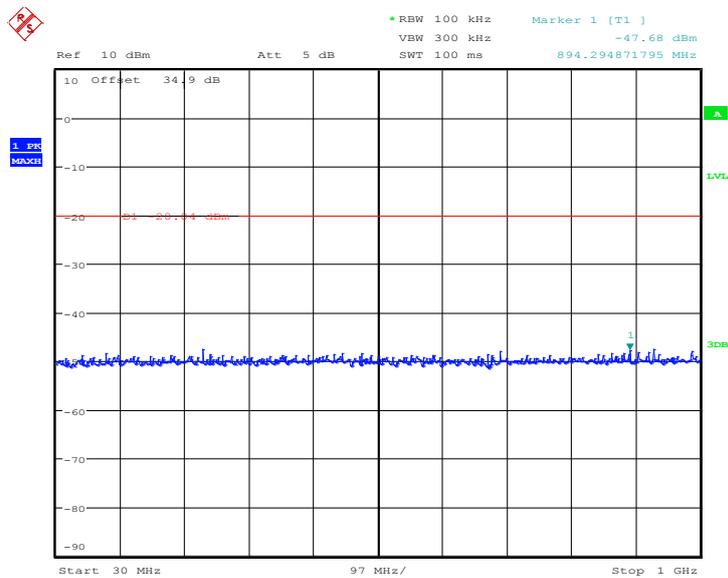
Date: 9.MAR.2013 09:59:28

**Fig. 88 Conducted Spurious Emission (802.11n-HT20, Ch1, 20 GHz-26 GHz)**



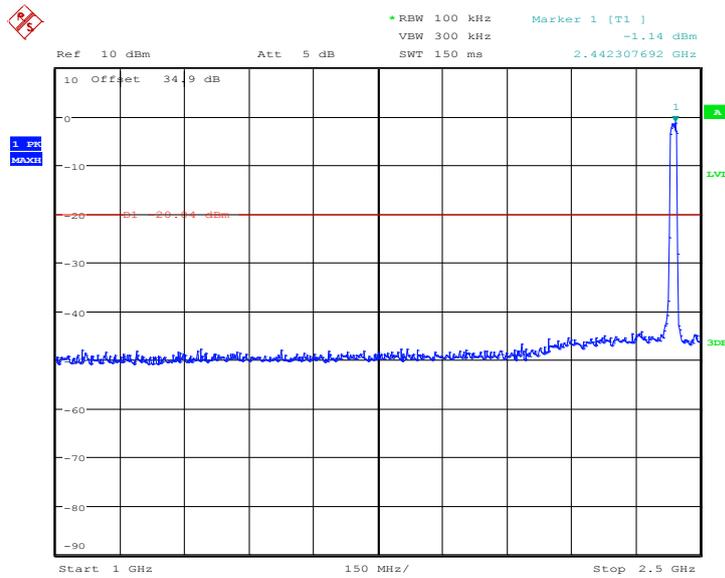
Date: 9.MAR.2013 10:00:55

**Fig. 89 Conducted Spurious Emission (802.11n-HT20, Ch6, Center Frequency)**



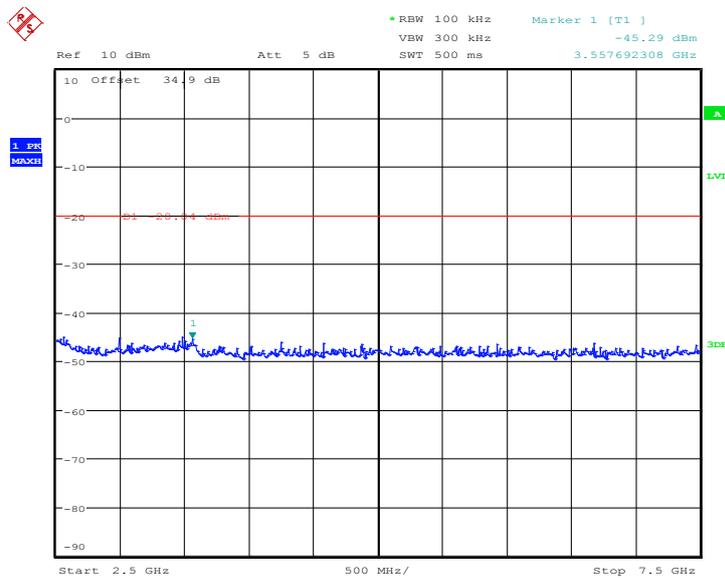
Date: 9.MAR.2013 10:02:04

**Fig. 90 Conducted Spurious Emission (802.11n-HT20, Ch6, 30 MHz-1 GHz)**



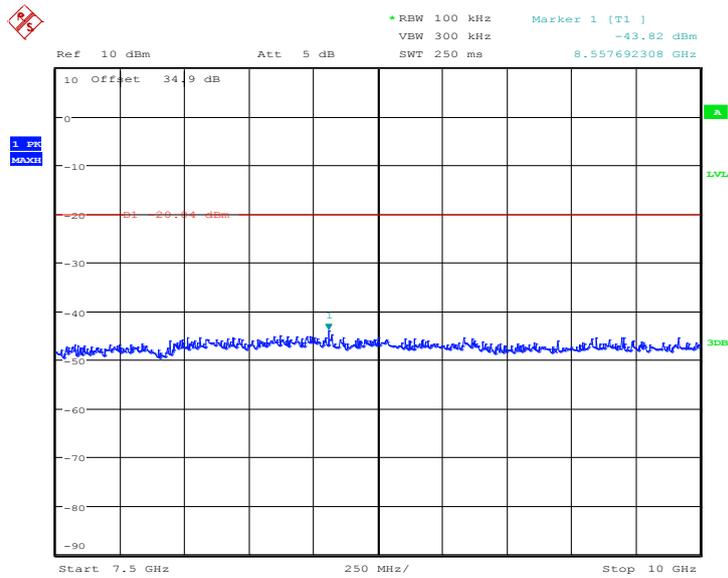
Date: 9.MAR.2013 10:02:52

**Fig. 91 Conducted Spurious Emission (802.11n-HT20, Ch6, 1 GHz-2.5 GHz)**



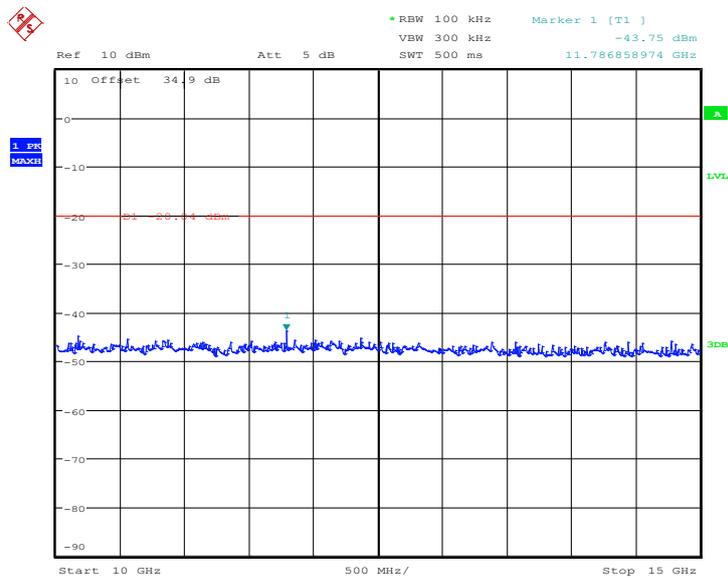
Date: 9.MAR.2013 10:03:30

**Fig. 92 Conducted Spurious Emission (802.11n-HT20, Ch6, 2.5 GHz-7.5 GHz)**



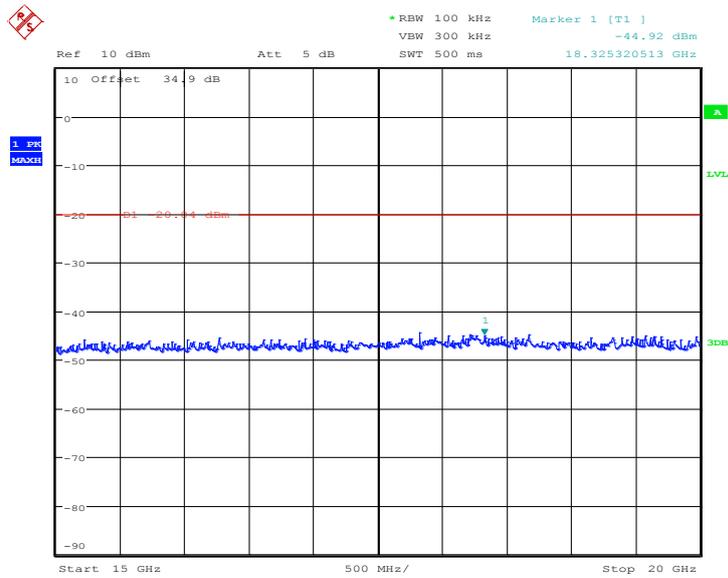
Date: 9.MAR.2013 10:03:55

**Fig. 93 Conducted Spurious Emission (802.11n-HT20, Ch6, 7.5 GHz-10 GHz)**



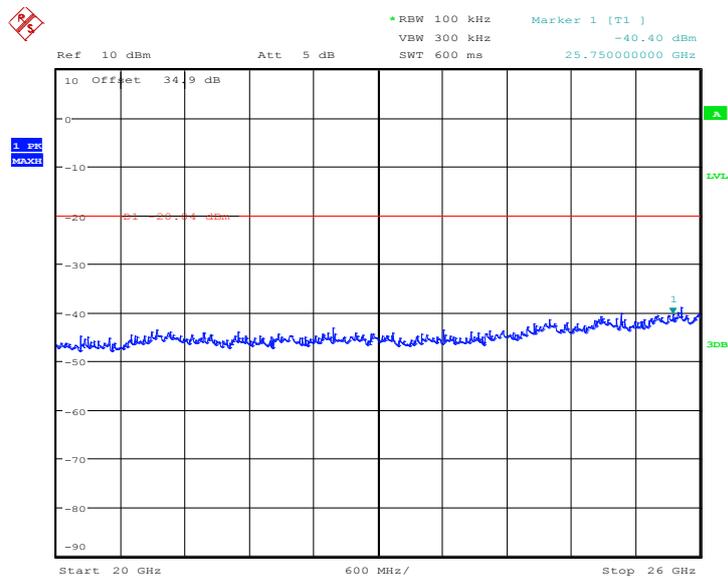
Date: 9.MAR.2013 10:04:31

**Fig. 94 Conducted Spurious Emission (802.11n-HT20, Ch6, 10 GHz-15 GHz)**



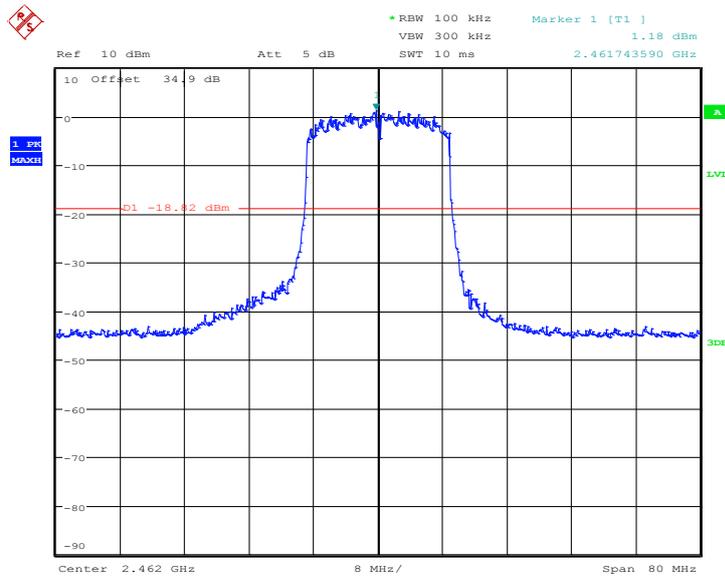
Date: 9.MAR.2013 10:04:57

**Fig. 95 Conducted Spurious Emission (802.11n-HT20, Ch6, 15 GHz-20 GHz)**



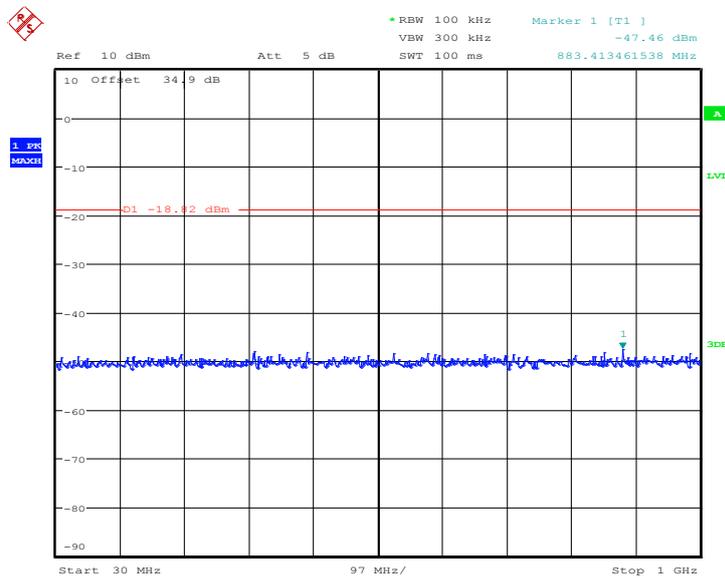
Date: 9.MAR.2013 10:05:23

**Fig. 96 Conducted Spurious Emission (802.11n-HT20, Ch6, 20 GHz-26 GHz)**



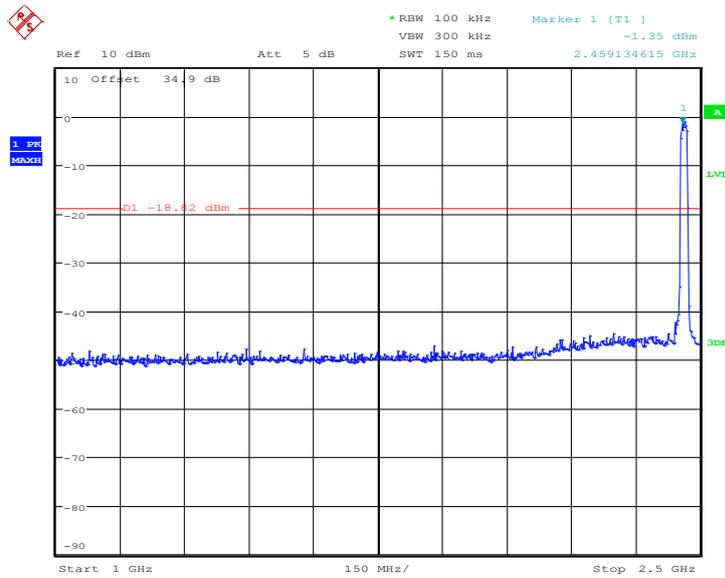
Date: 9.MAR.2013 09:48:05

**Fig. 97 Conducted Spurious Emission (802.11n-HT20, Ch11, Center Frequency)**



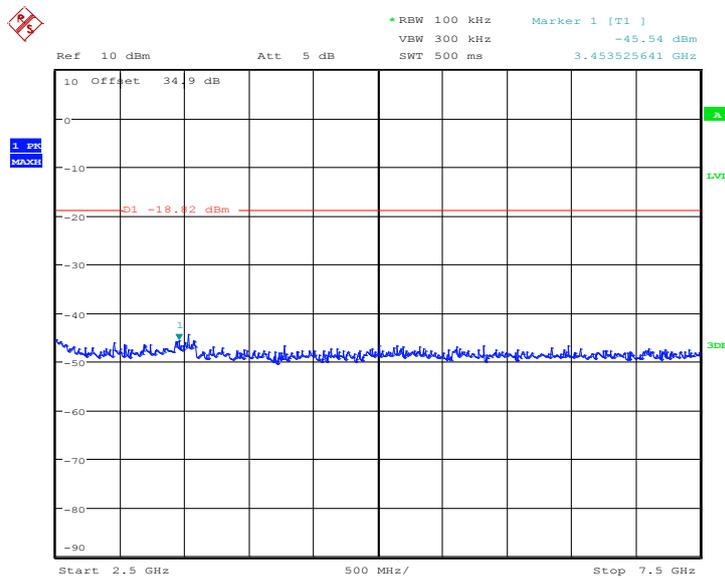
Date: 9.MAR.2013 09:48:22

**Fig. 98 Conducted Spurious Emission (802.11n-HT20, Ch11, 30 MHz-1 GHz)**



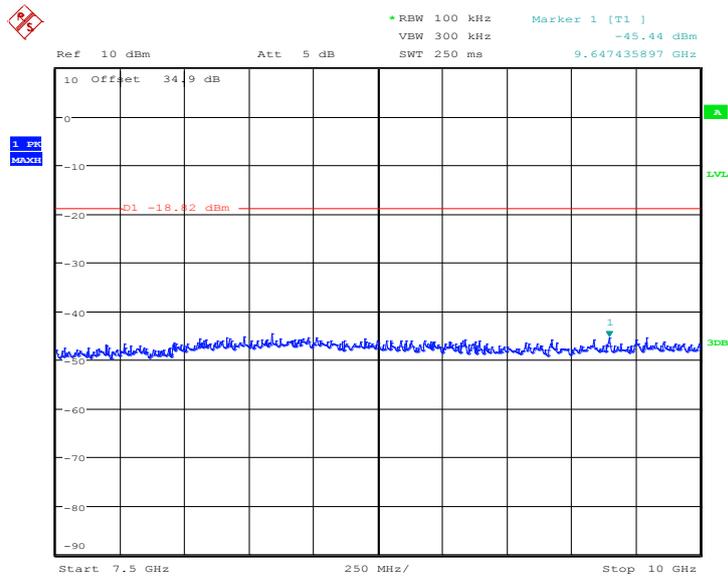
Date: 9.MAR.2013 09:48:44

**Fig. 99 Conducted Spurious Emission (802.11n-HT20, Ch11, 1 GHz-2.5 GHz)**



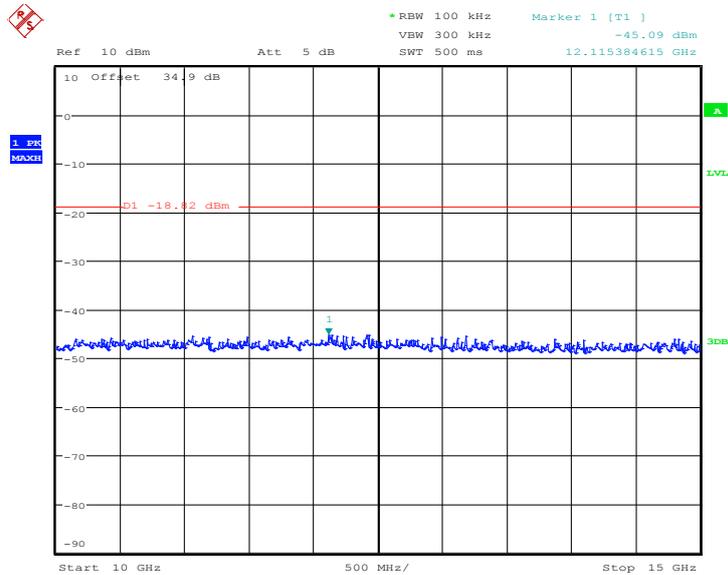
Date: 9.MAR.2013 09:49:51

**Fig. 100 Conducted Spurious Emission (802.11n-HT20, Ch11, 2.5 GHz-7.5 GHz)**



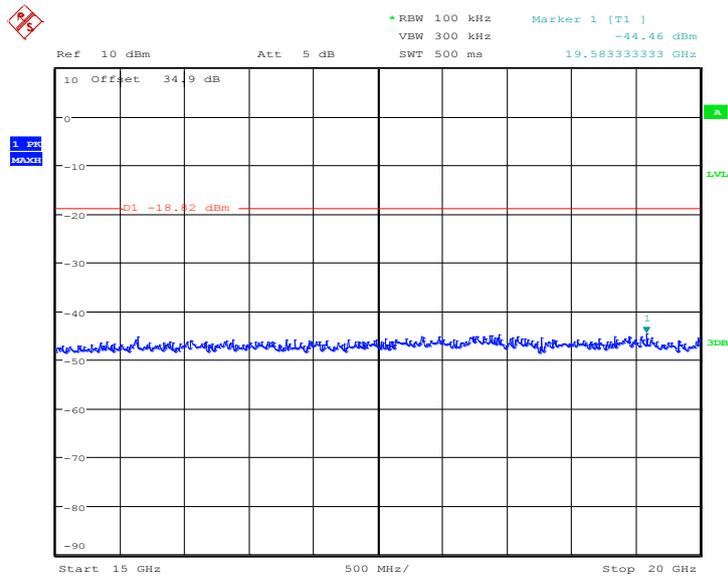
Date: 9.MAR.2013 09:50:21

**Fig. 101 Conducted Spurious Emission (802.11n-HT20, Ch11, 7.5 GHz-10 GHz)**



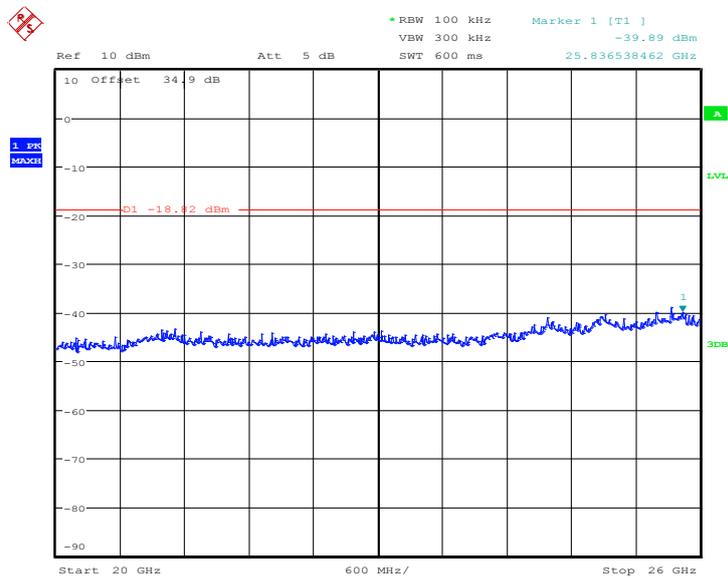
Date: 9.MAR.2013 09:50:50

**Fig. 102 Conducted Spurious Emission (802.11n-HT20, Ch11, 10 GHz-15 GHz)**



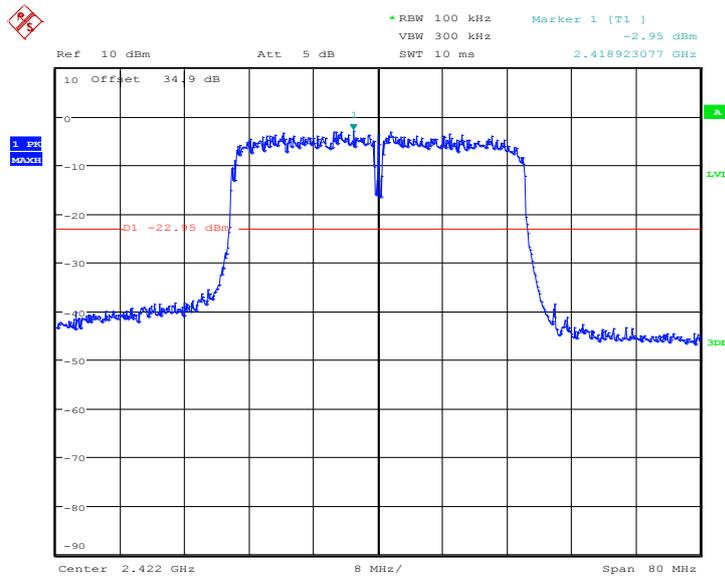
Date: 9.MAR.2013 09:51:18

**Fig. 103 Conducted Spurious Emission (802.11n-HT20, Ch11, 15 GHz-20 GHz)**



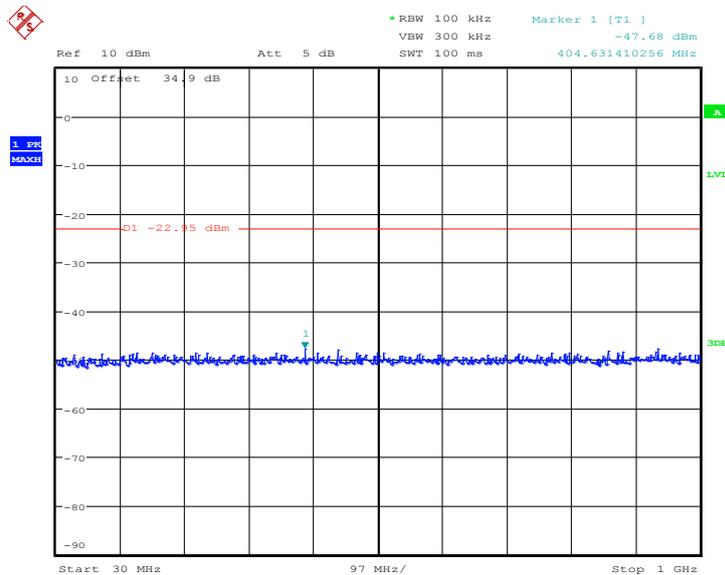
Date: 9.MAR.2013 09:51:42

**Fig. 104 Conducted Spurious Emission (802.11n-HT20, Ch11, 20 GHz-26 GHz)**



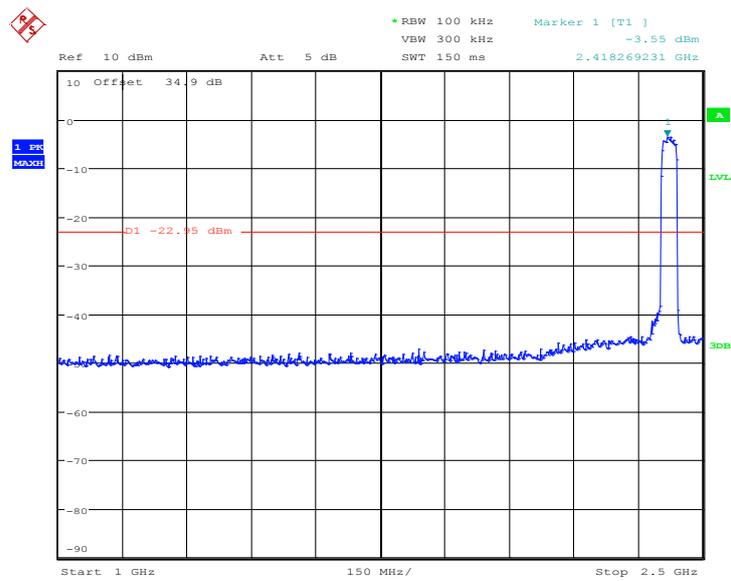
Date: 9.MAR.2013 10:07:11

**Fig. 105 Conducted Spurious Emission (802.11n-HT40, Ch3, Center Frequency)**



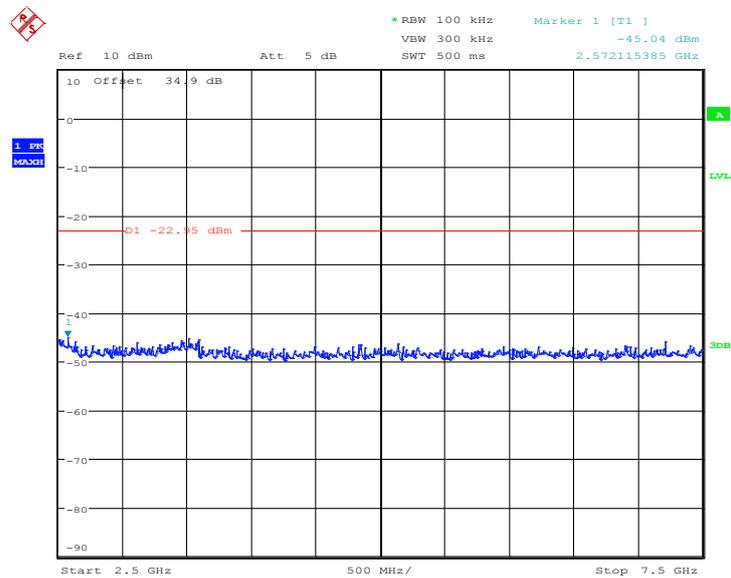
Date: 9.MAR.2013 10:07:41

**Fig. 106 Conducted Spurious Emission (802.11n-HT40, Ch3, 30 MHz-1 GHz)**



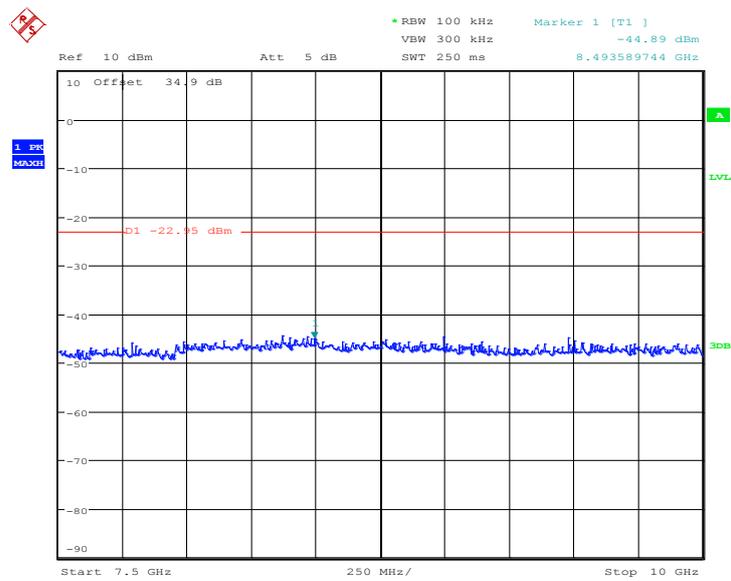
Date: 9.MAR.2013 10:08:05

**Fig. 107 Conducted Spurious Emission (802.11n-HT40, Ch3, 1 GHz-2.5 GHz)**



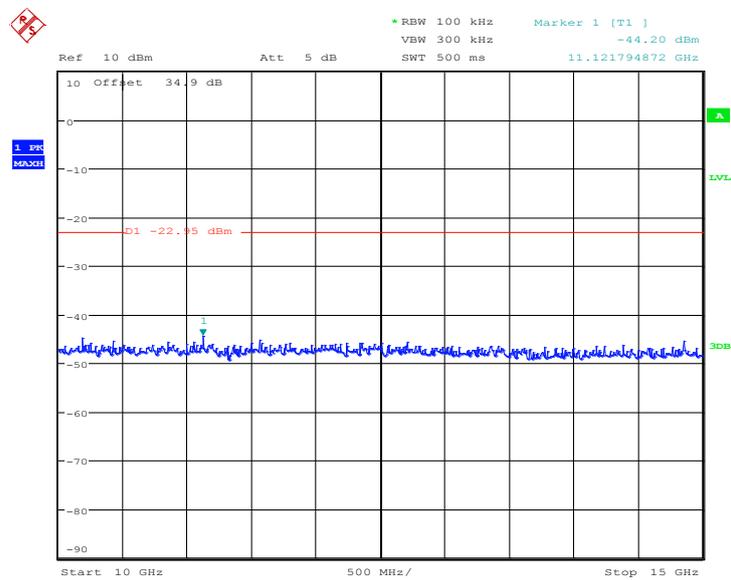
Date: 9.MAR.2013 10:08:52

**Fig. 108 Conducted Spurious Emission (802.11n-HT40, Ch3, 2.5 GHz-7.5 GHz)**



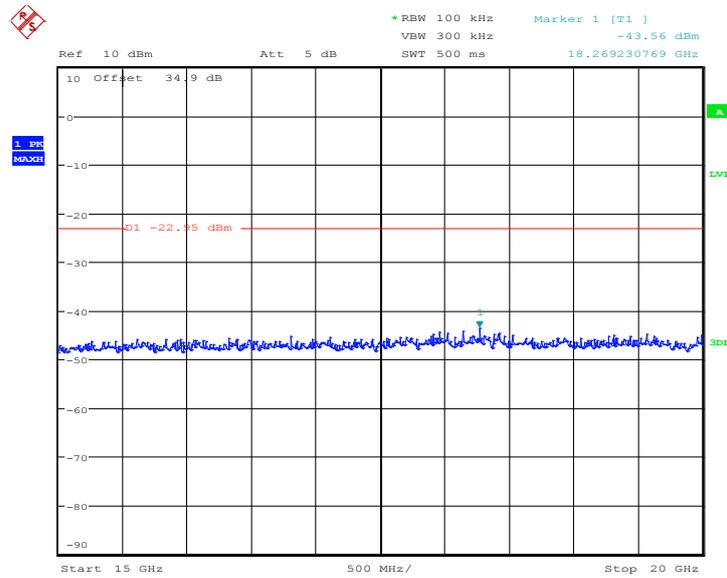
Date: 9.MAR.2013 10:09:21

**Fig. 109 Conducted Spurious Emission (802.11n-HT40, Ch3, 7.5 GHz-10 GHz)**



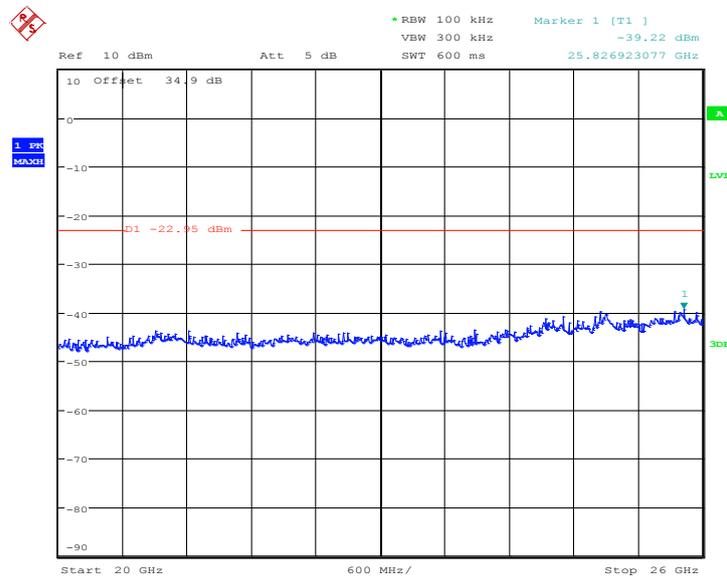
Date: 9.MAR.2013 10:10:19

**Fig. 110 Conducted Spurious Emission (802.11n-HT40, Ch3, 10 GHz-15 GHz)**



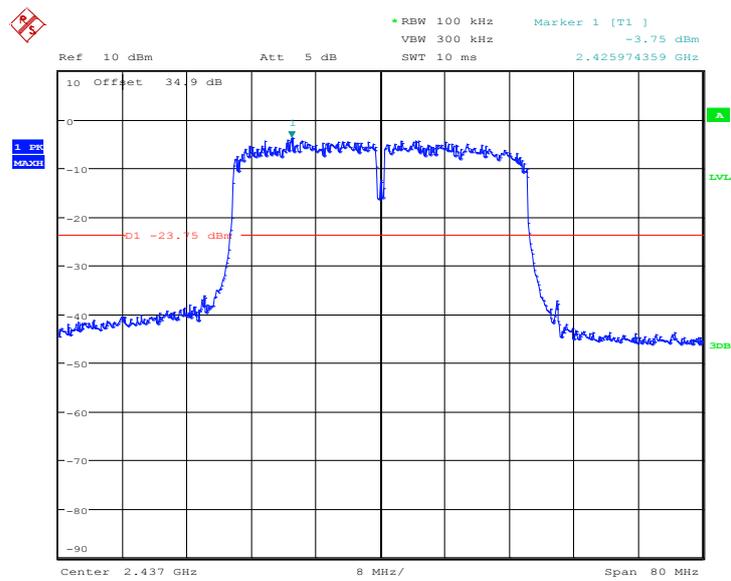
Date: 9.MAR.2013 10:10:47

**Fig. 111 Conducted Spurious Emission (802.11n-HT40, Ch3, 15 GHz-20 GHz)**



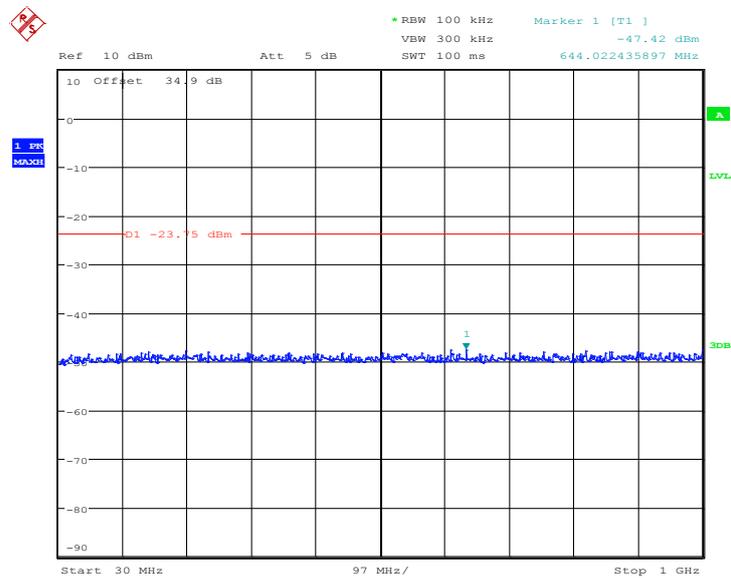
Date: 9.MAR.2013 10:11:08

**Fig. 112 Conducted Spurious Emission (802.11n-HT40, Ch3, 20 GHz-26 GHz)**



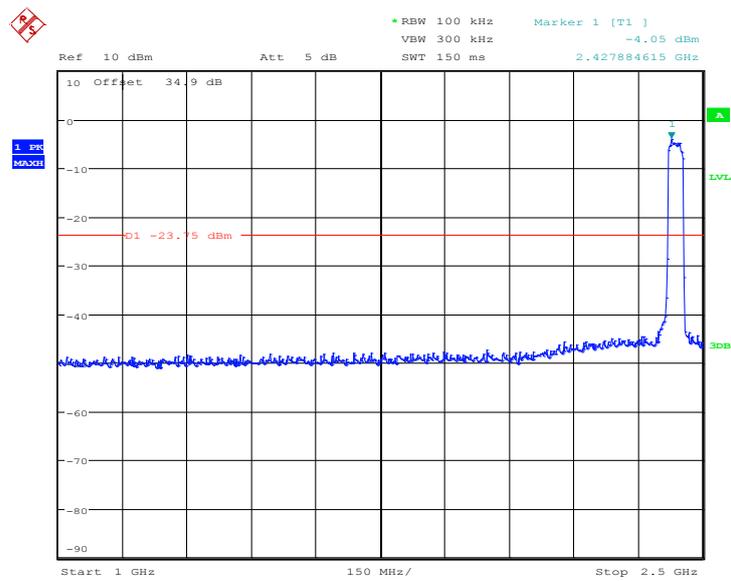
Date: 9.MAR.2013 10:15:23

**Fig. 113 Conducted Spurious Emission (802.11n-HT40, Ch6, Center Frequency)**



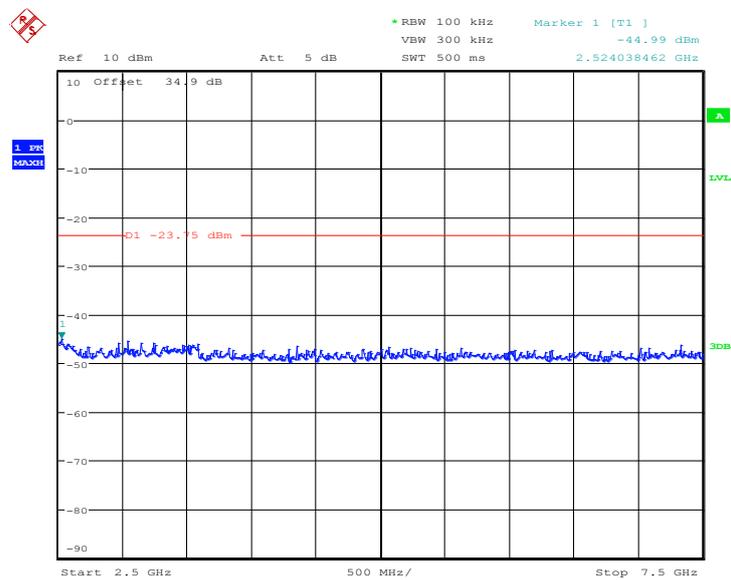
Date: 9.MAR.2013 10:17:55

**Fig. 114 Conducted Spurious Emission (802.11n-HT40, Ch6, 30 MHz-1 GHz)**



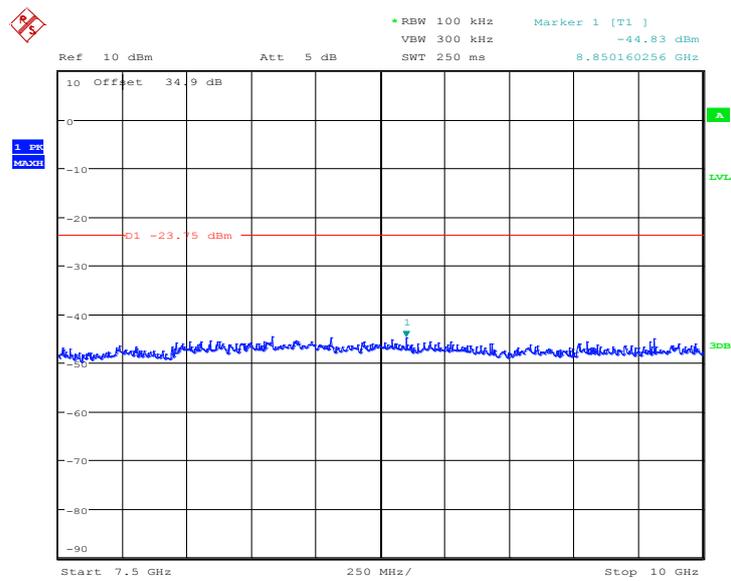
Date: 9.MAR.2013 10:20:24

Fig. 115 Conducted Spurious Emission (802.11n-HT40, Ch6, 1 GHz-2.5 GHz)

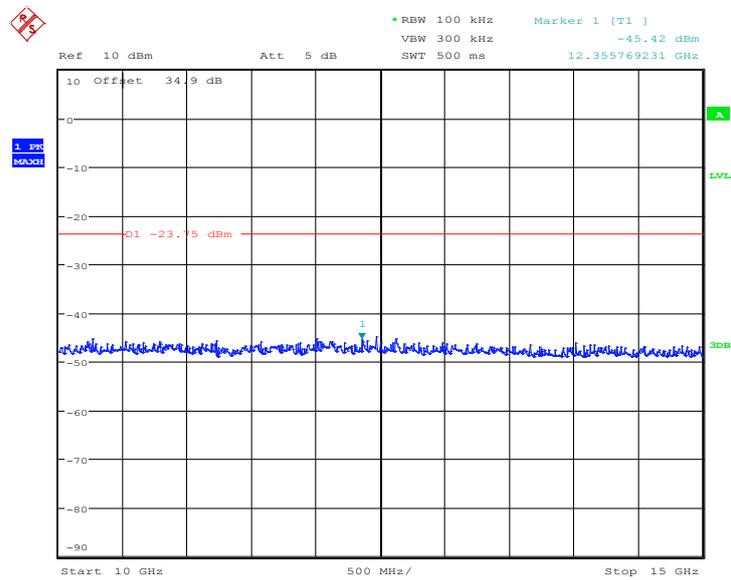


Date: 9.MAR.2013 10:21:44

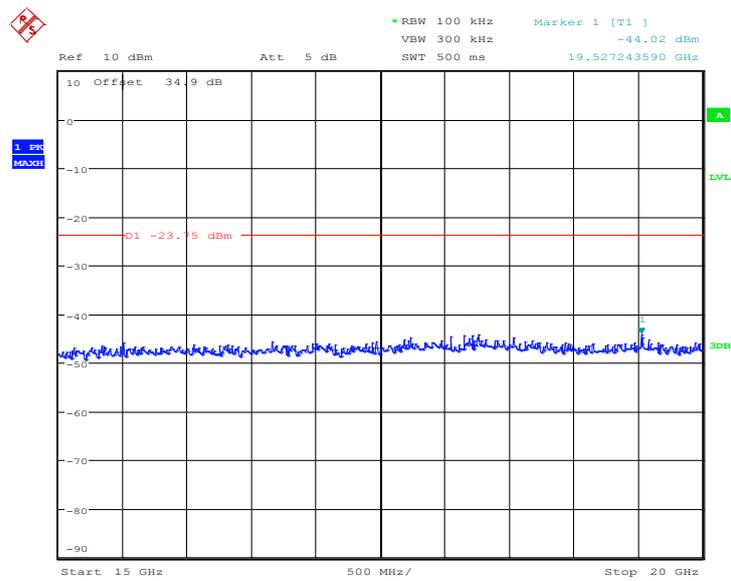
Fig. 116 Conducted Spurious Emission (802.11n-HT40, Ch6, 2.5 GHz-7.5 GHz)



**Fig. 117 Conducted Spurious Emission (802.11n-HT40, Ch6, 7.5 GHz-10 GHz)**

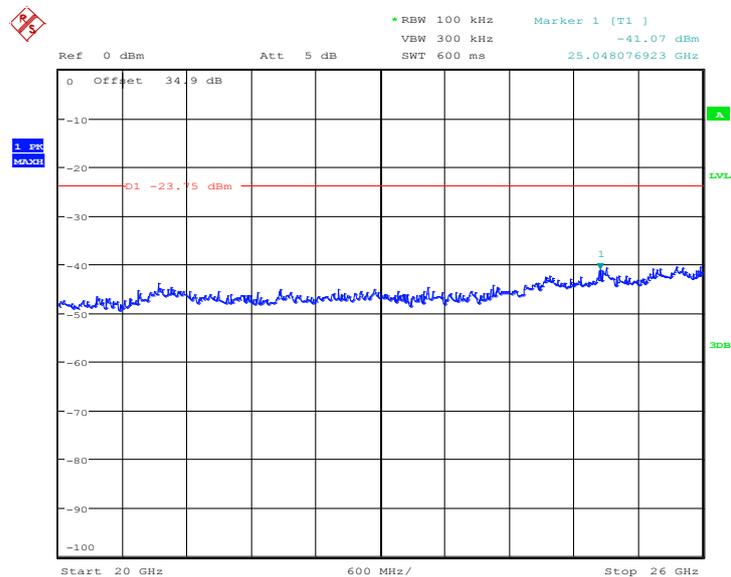


**Fig. 118 Conducted Spurious Emission (802.11n-HT40, Ch6, 10 GHz-15 GHz)**



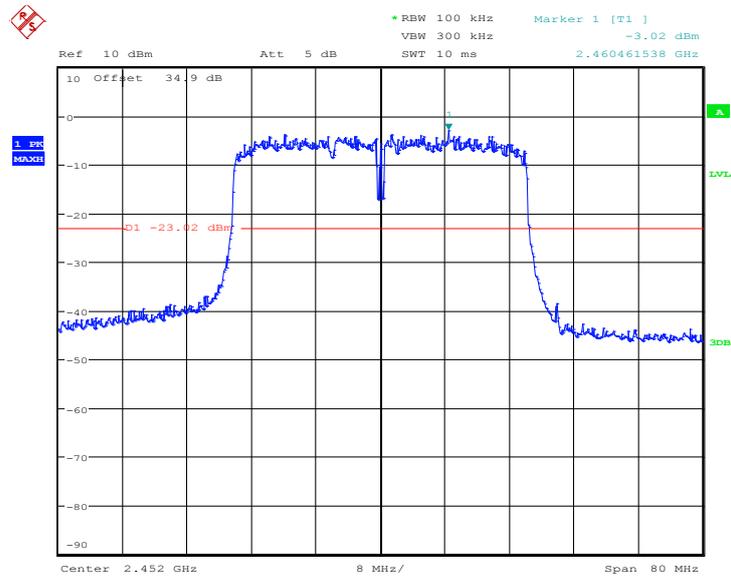
Date: 9.MAR.2013 10:33:18

**Fig. 119 Conducted Spurious Emission (802.11n-HT40, Ch6, 15GHz-20 GHz)**



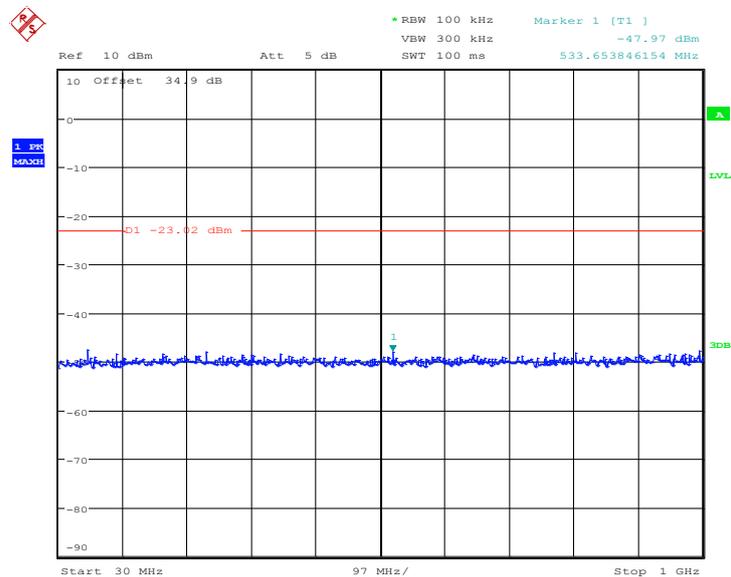
Date: 9.MAR.2013 10:33:53

**Fig. 120 Conducted Spurious Emission (802.11n-HT40, Ch6, 20GHz-26 GHz)**



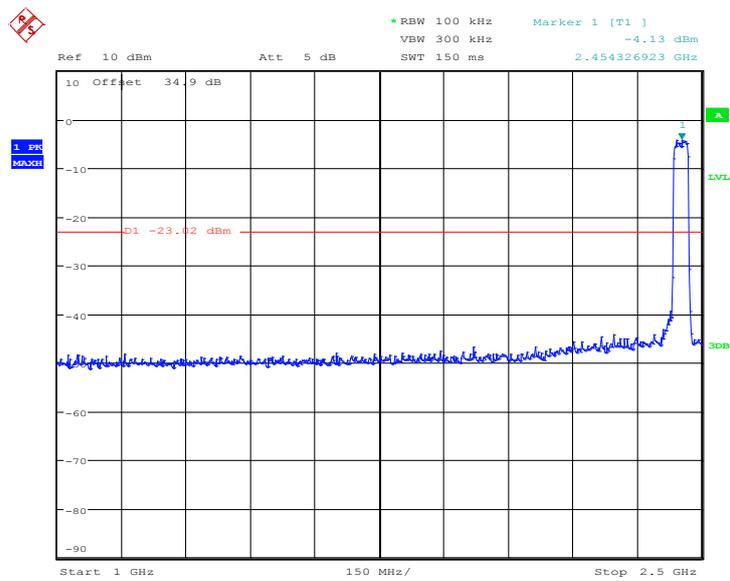
Date: 9.MAR.2013 10:35:29

**Fig. 121 Conducted Spurious Emission (802.11n-HT40, Ch9, Center Frequency)**



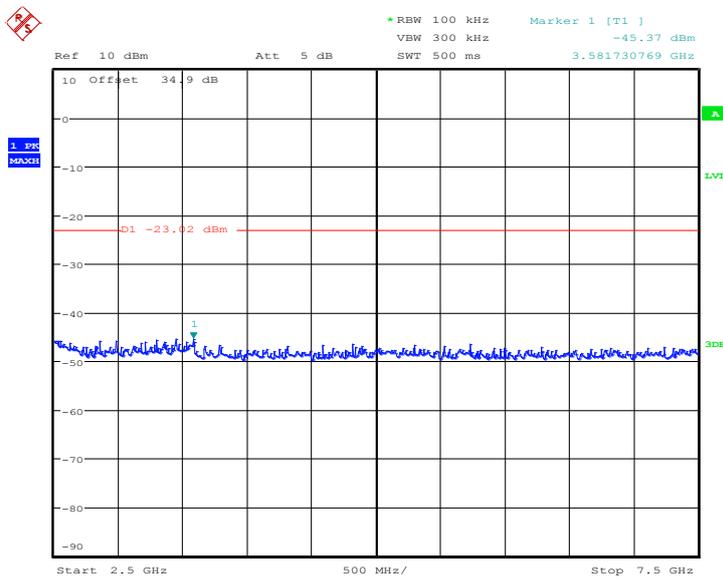
Date: 9.MAR.2013 10:35:55

**Fig. 122 Conducted Spurious Emission (802.11n-HT40, Ch9, 30 MHz-1 GHz)**



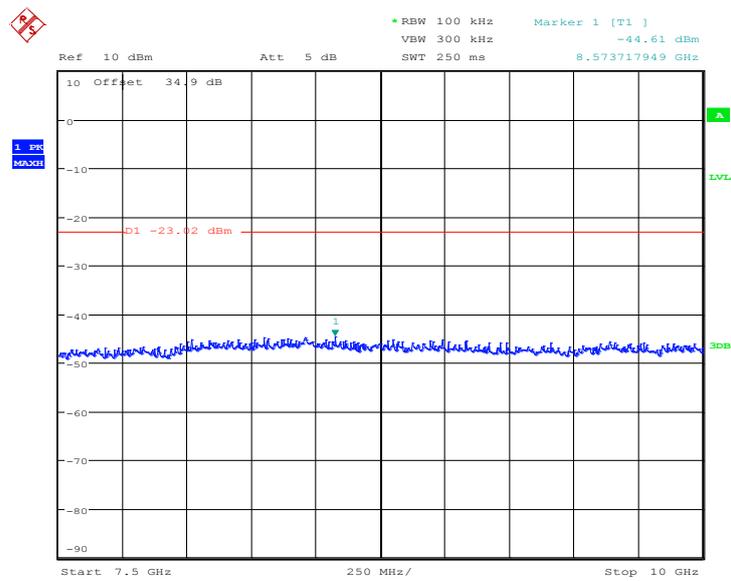
Date: 9.MAR.2013 10:36:19

**Fig. 123 Conducted Spurious Emission (802.11n-HT40, Ch9, 1GHz-2.5 GHz)**



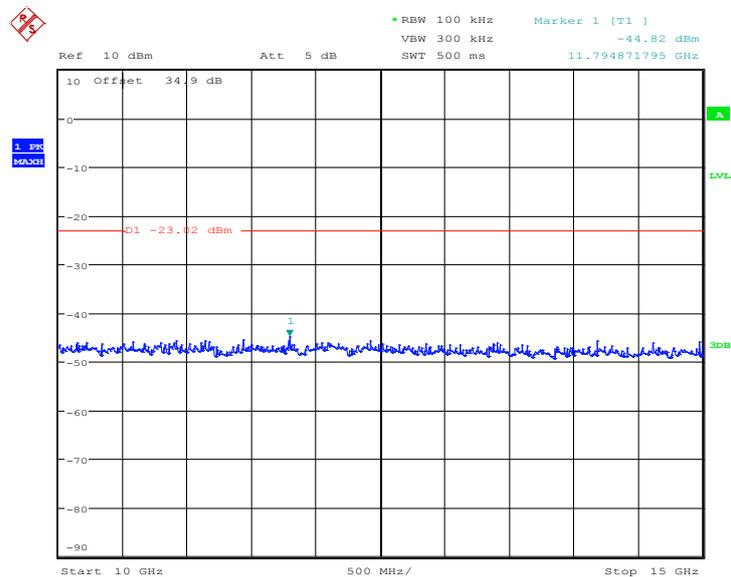
Date: 9.MAR.2013 10:36:46

**Fig. 124 Conducted Spurious Emission (802.11n-HT40, Ch9, 2.5GHz-7.5 GHz)**



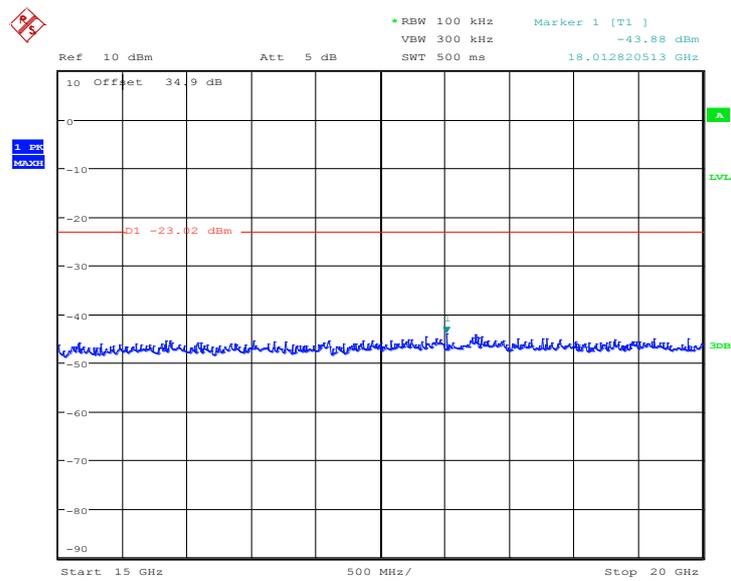
Date: 9.MAR.2013 10:37:24

**Fig. 125 Conducted Spurious Emission (802.11n-HT40, Ch9, 7.5GHz-10 GHz)**



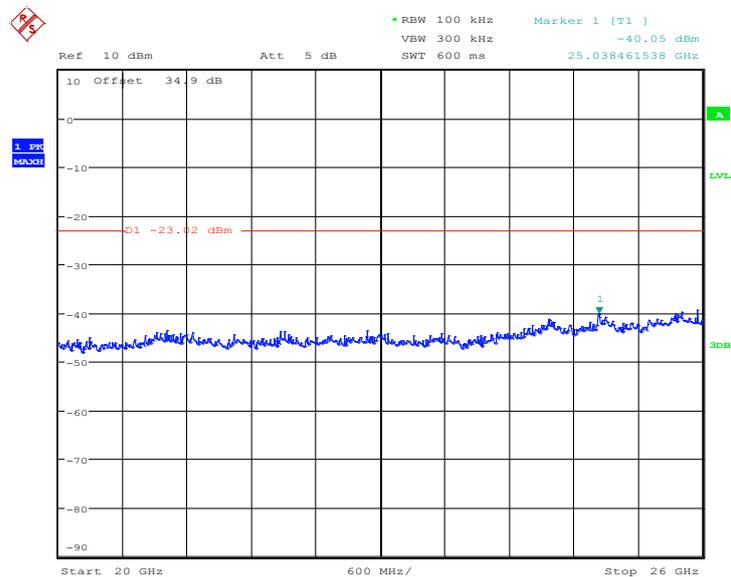
Date: 9.MAR.2013 10:37:46

**Fig. 126 Conducted Spurious Emission (802.11n-HT40, Ch9, 10GHz-15 GHz)**



Date: 9.MAR.2013 10:38:37

**Fig. 127 Conducted Spurious Emission (802.11n-HT40, Ch9, 15GHz-20 GHz)**



Date: 9.MAR.2013 10:38:59

**Fig. 128 Conducted Spurious Emission (802.11n-HT40, Ch9, 20GHz-28 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.129	P
	1	30 MHz ~1 GHz	Fig.130	P
		1 GHz ~ 3 GHz	Fig.131	P
		3 GHz ~ 18 GHz	Fig.132	P
	6	30 MHz ~1 GHz	Fig.133	P
		1 GHz ~ 3 GHz	Fig.134	P
		3 GHz ~ 18 GHz	Fig.135	P
	Power	2.45GHz ~2.5GHz	Fig.136	P
	11	30 MHz ~1 GHz	Fig.137	P
		1 GHz ~ 3 GHz	Fig.138	P
		3 GHz ~ 18 GHz	Fig.139	P
	802.11g	Power	2.38GHz ~2.43GHz	Fig.140
1		30 MHz ~1 GHz	Fig.141	P
		1 GHz ~ 3 GHz	Fig.142	P
		3 GHz ~ 18 GHz	Fig.143	P
6		30 MHz ~1 GHz	Fig.144	P
		1 GHz ~ 3 GHz	Fig.145	P
		3 GHz ~ 18 GHz	Fig.146	P
Power		2.45GHz ~2.5GHz	Fig.147	P
11		30 MHz ~1 GHz	Fig.148	P
		1 GHz ~ 3 GHz	Fig.149	P
		3 GHz ~ 18 GHz	Fig.150	P

**802.11n mode**

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (20MHz)	Power	2.38GHz ~2.45GHz	Fig.151	P
	1	30 MHz ~1 GHz	Fig.152	P
		1 GHz ~ 3 GHz	Fig.153	P
		3 GHz ~ 18 GHz	Fig.154	P
	6	30 MHz ~1 GHz	Fig.155	P
		1 GHz ~ 3 GHz	Fig.156	P
		3 GHz ~ 18 GHz	Fig.157	P
	Power	2.45GHz ~2.5GHz	Fig.158	P
	11	30 MHz ~1 GHz	Fig.159	P
		1 GHz ~ 3 GHz	Fig.160	P
		3 GHz ~ 18 GHz	Fig.161	P
	802.11n (40MHz)	Power	2.38GHz ~2.45GHz	Fig.162
3		30 MHz ~1 GHz	Fig.163	P
		1 GHz ~ 3 GHz	Fig.164	P

		3 GHz ~ 18 GHz	Fig.165	P
	6	30 MHz ~1 GHz	Fig.166	P
		1 GHz ~ 3 GHz	Fig.167	P
		3 GHz ~ 18 GHz	Fig.168	P
	Power	2.45GHz ~2.5GHz	Fig.169	P
	9	30 MHz ~1 GHz	Fig.170	P
		1 GHz ~ 3 GHz	Fig.171	P
		3 GHz ~ 18 GHz	Fig.172	P
/	All channels	18 GHz~ 26.5 GHz	Fig.173	P

**Conclusion: PASS**

**Note:**

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

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

The measurement results are obtained as described below:

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

**802.11b**

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17518.500	42.9	-25.3	42.8	25.425	VERTICAL
17526.750	42.9	-25.3	42.9	25.224	HORIZONTAL
17532.750	42.7	-25.3	42.9	25.085	VERTICAL
17509.500	42.7	-25.3	42.8	25.214	HORIZONTAL
17561.250	42.7	-25.3	42.3	25.720	VERTICAL
17525.250	42.7	-25.3	42.9	25.048	VERTICAL

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17966.250	43.0	-25.2	42.7	25.497	VERTICAL
17897.250	42.9	-25.2	42.5	25.615	HORIZONTAL
17523.000	42.9	-25.3	42.8	25.383	VERTICAL
17499.000	42.8	-25.3	43.0	25.070	HORIZONTAL
17520.000	42.8	-25.3	42.8	25.327	VERTICAL
17532.000	42.7	-25.3	42.9	25.115	VERTICAL

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17934.750	42.8	-25.2	42.4	25.675	HORIZONTAL
17520.750	42.8	-25.3	42.8	25.327	HORIZONTAL
17526.750	42.8	-25.3	42.9	25.128	HORIZONTAL
17538.750	42.8	-25.3	42.9	25.123	VERTICAL
17523.750	42.7	-25.3	42.8	25.268	VERTICAL
17547.000	42.7	-25.3	42.9	25.069	VERTICAL

**802.11g**

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17529.750	42.8	-25.3	42.9	25.202	HORIZONTAL
17981.250	42.8	-25.2	42.3	25.771	VERTICAL
17526.000	42.8	-25.3	42.9	25.149	HORIZONTAL
17503.500	42.7	-25.3	42.8	25.277	VERTICAL
17505.000	42.7	-25.3	42.8	25.265	VERTICAL
17781.000	42.7	-25.4	42.0	26.218	VERTICAL

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17574.750	42.8	-25.3	42.3	25.809	HORIZONTAL
17577.000	42.8	-25.3	42.7	25.357	VERTICAL
17514.750	42.8	-25.3	42.8	25.294	HORIZONTAL
17535.750	42.7	-25.3	42.9	25.090	VERTICAL
17513.250	42.7	-25.3	42.8	25.229	VERTICAL
17565.000	42.7	-25.3	42.3	25.729	HORIZONTAL

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17520.750	42.9	-25.3	42.8	25.457	HORIZONTAL
17529.000	42.9	-25.3	42.9	25.268	HORIZONTAL
17505.750	42.8	-25.3	42.8	25.328	HORIZONTAL
17750.250	42.8	-25.4	42.2	26.040	VERTICAL
17524.500	42.7	-25.3	42.8	25.275	HORIZONTAL
17529.750	42.7	-25.3	42.9	25.109	VERTICAL

**802.11n-HT20**

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17532.750	42.9	-25.3	42.9	25.253	HORIZONTAL
17500.500	42.8	-25.3	42.8	25.369	HORIZONTAL
17548.500	42.8	-25.3	42.9	25.137	VERTICAL
17498.250	42.8	-25.3	43.0	25.023	HORIZONTAL
17517.000	42.8	-25.3	42.8	25.287	HORIZONTAL
17524.500	42.7	-25.3	42.8	25.271	VERTICAL

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17539.500	42.9	-25.3	42.9	25.317	HORIZONTAL
17497.500	42.7	-25.3	43.0	24.972	HORIZONTAL
17540.250	42.7	-25.3	42.9	25.051	HORIZONTAL
17503.500	42.7	-25.3	42.8	25.205	VERTICAL
17517.000	42.7	-25.3	42.8	25.205	HORIZONTAL
17519.250	42.7	-25.3	42.8	25.182	VERTICAL

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17535.000	42.8	-25.3	42.9	25.180	HORIZONTAL
17526.000	42.8	-25.3	42.9	25.142	VERTICAL
17533.500	42.7	-25.3	42.9	25.112	HORIZONTAL
17488.500	42.7	-25.3	43.0	24.985	HORIZONTAL
17519.250	42.7	-25.3	42.8	25.251	HORIZONTAL
17514.750	42.7	-25.3	42.8	25.246	VERTICAL

**802.11n-HT40**

Ch3

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17526.750	43.2	-25.3	42.9	25.558	VERTICAL
17497.500	43.1	-25.3	43.0	25.362	HORIZONTAL
17476.500	43.0	-25.3	43.0	25.241	HORIZONTAL
17489.250	43.0	-25.3	43.0	25.233	VERTICAL
17528.250	42.9	-25.3	42.9	25.315	VERTICAL
17770.500	42.9	-25.4	42.2	26.199	HORIZONTAL

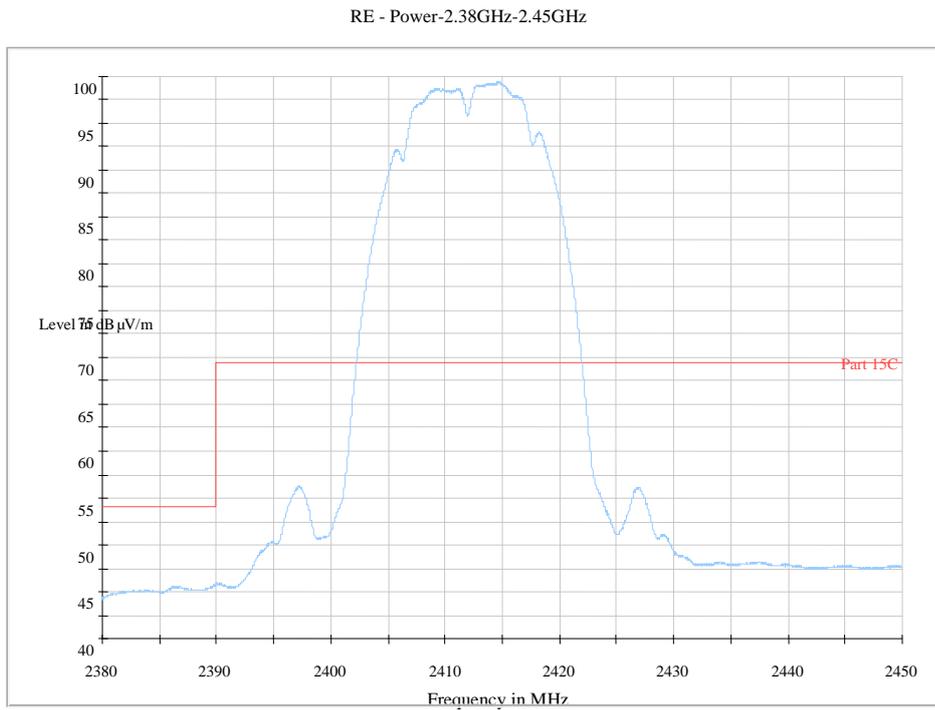
Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17499.750	43.2	-25.3	43.0	25.445	VERTICAL
17511.000	43.1	-25.3	42.8	25.578	HORIZONTAL
17921.250	43.0	-25.2	42.7	25.562	VERTICAL
17494.500	42.9	-25.3	43.0	25.183	HORIZONTAL
17497.500	42.9	-25.3	43.0	25.180	HORIZONTAL
17986.500	42.9	-25.2	42.3	25.860	VERTICAL

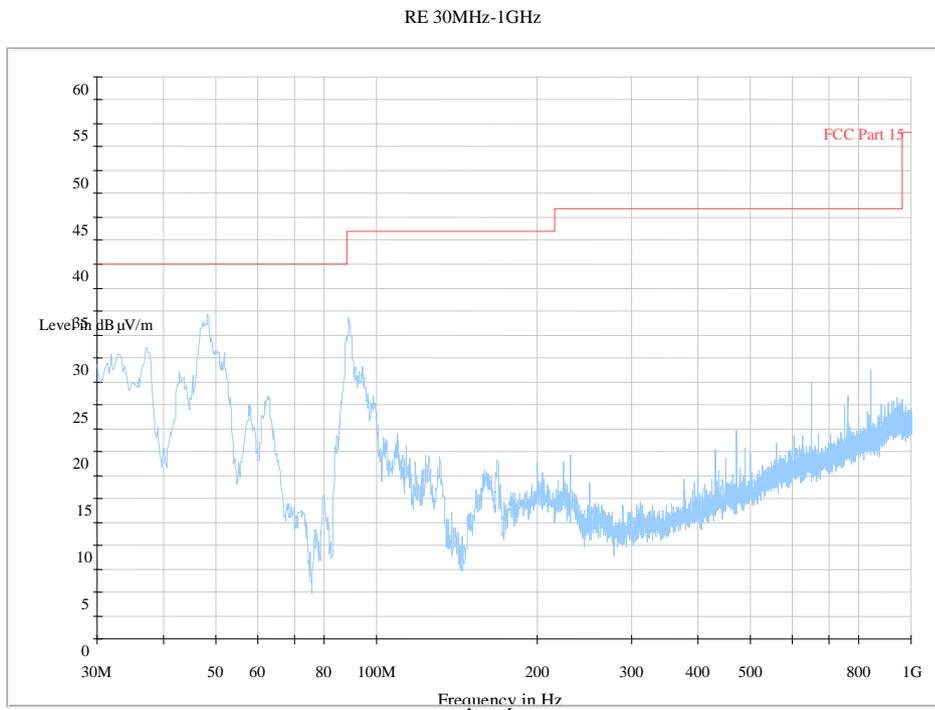
Ch9

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P <sub>Mea</sub> (dBuV/m)	Polarization
17509.500	43.2	-25.3	42.8	25.772	HORIZONTAL
17997.750	43.2	-24.7	42.3	25.633	VERTICAL
17503.500	43.1	-25.3	42.8	25.580	HORIZONTAL
17502.750	43.0	-25.3	42.8	25.529	HORIZONTAL
17499.750	43.0	-25.3	43.0	25.255	VERTICAL
17518.500	43.0	-25.3	42.8	25.492	HORIZONTAL

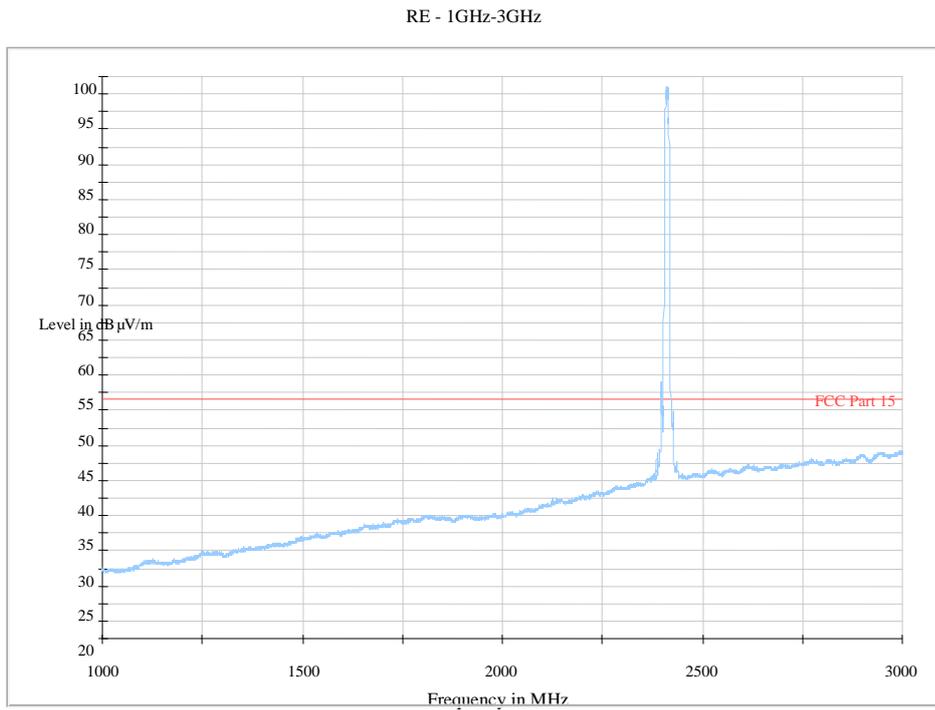
**Test graphs as below:**



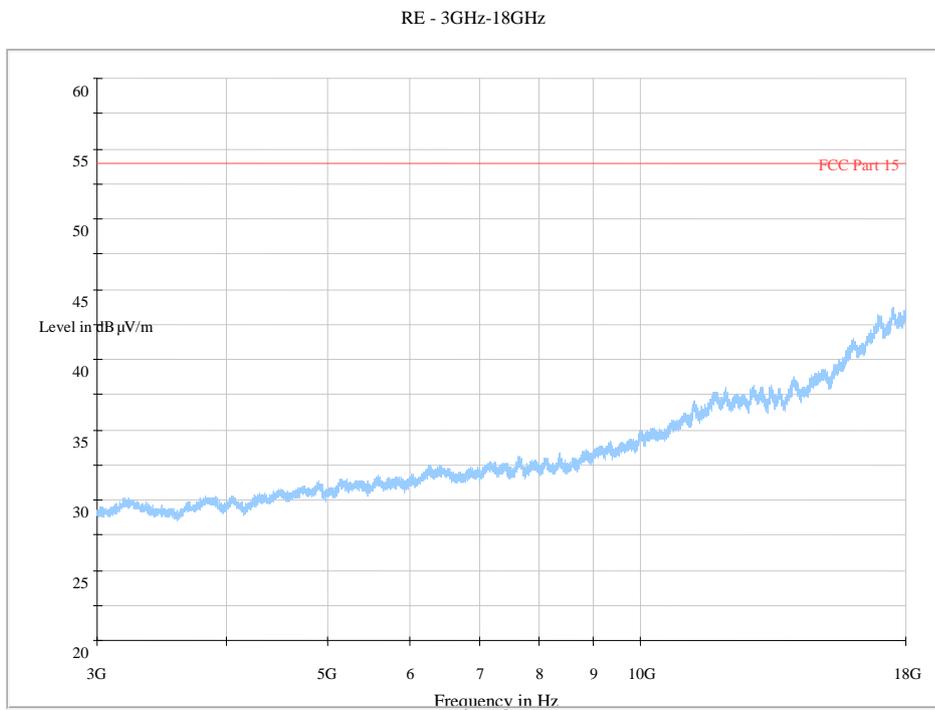
**Fig. 129 Radiated Spurious Emission (Power): 802.11b, ch1, 2.38 GHz - 245GHz**



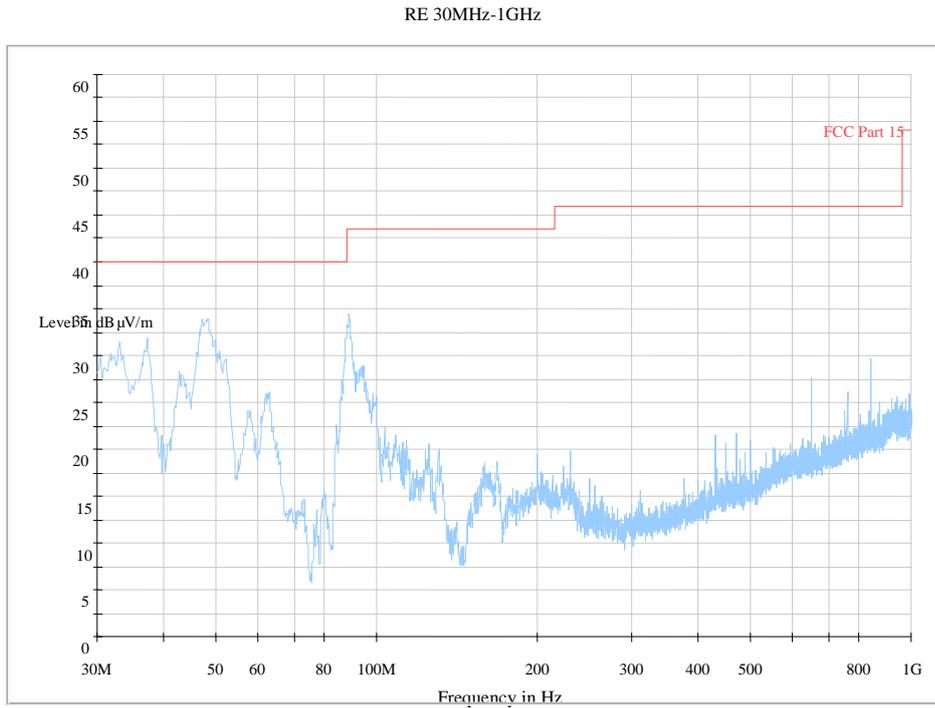
**Fig. 130 Radiated Spurious Emission (802.11b, Ch1, 30 MHz-1 GHz)**



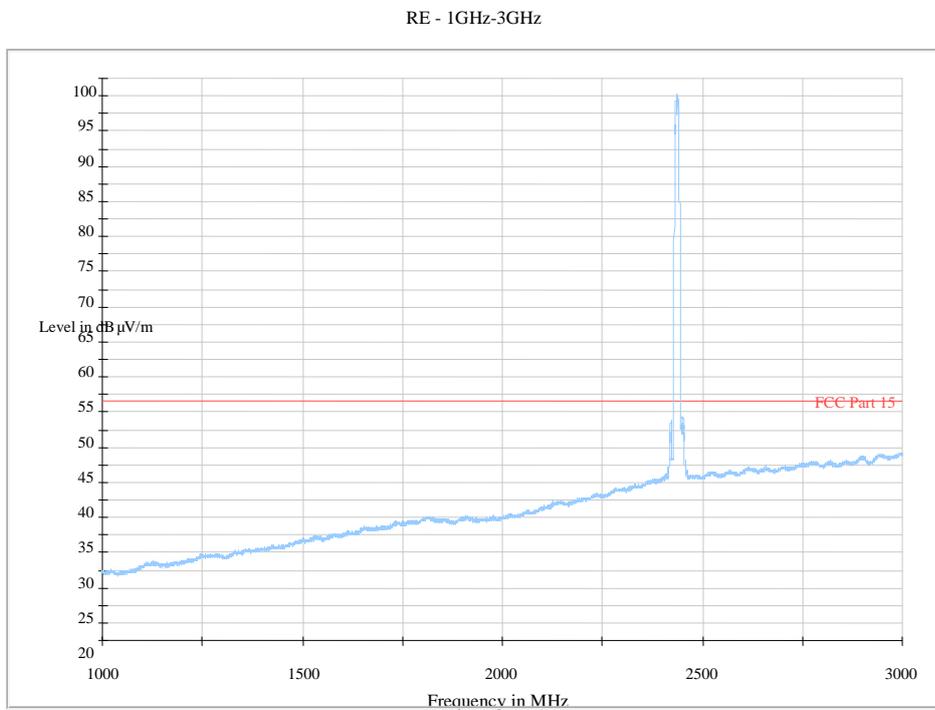
**Fig. 131 Radiated Spurious Emission (802.11b, Ch1, 1 GHz-3 GHz)**



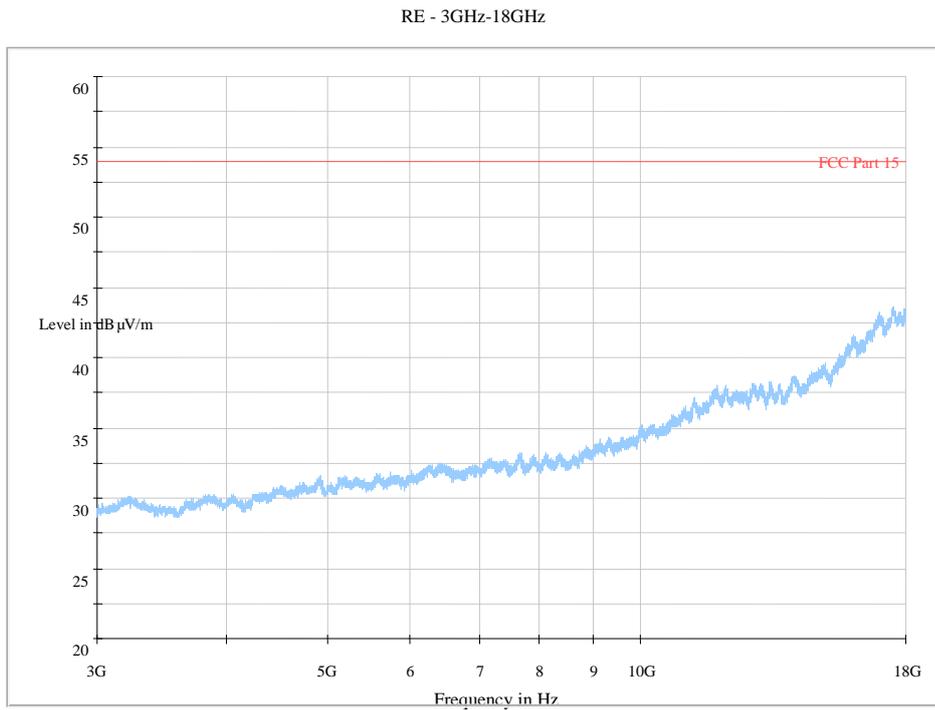
**Fig. 132 Radiated Spurious Emission (802.11b, Ch1, 3 GHz-18 GHz)**



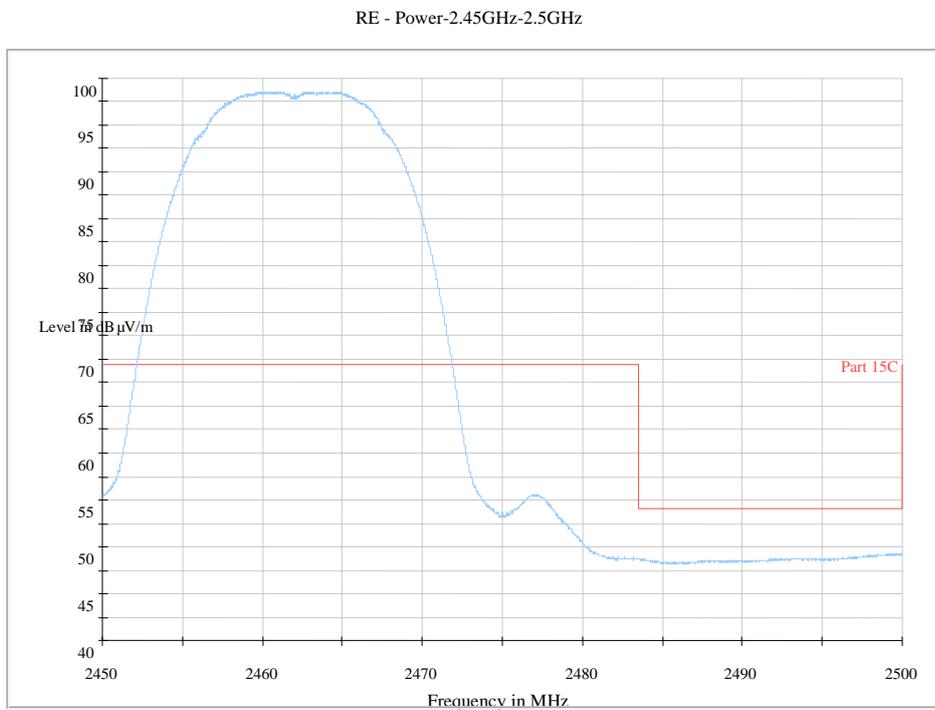
**Fig. 133 Radiated Spurious Emission (802.11b, Ch6, 30 MHz-1 GHz)**



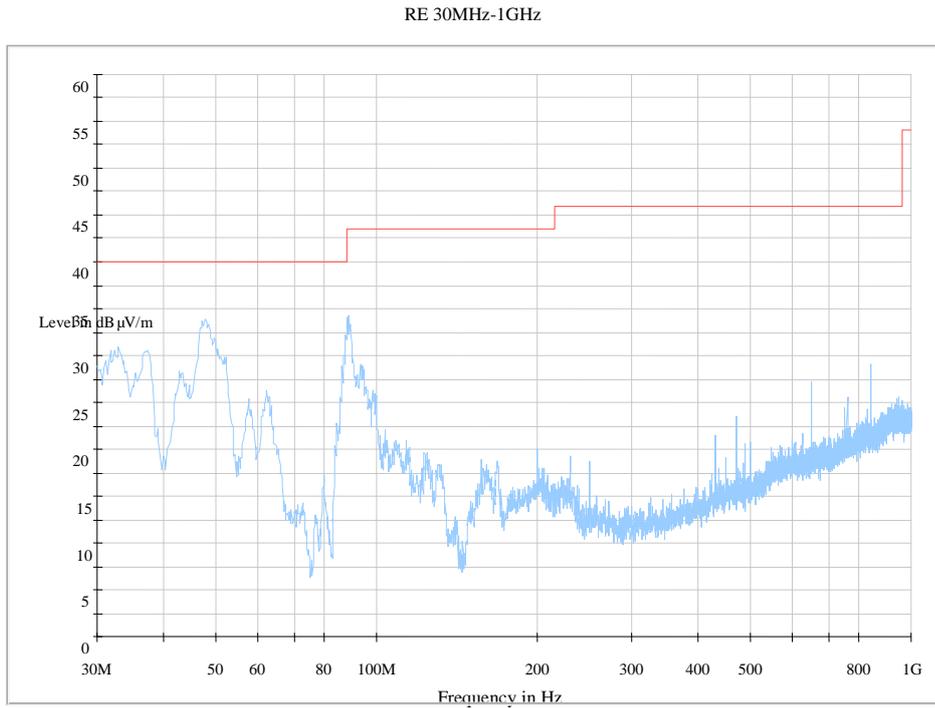
**Fig. 134 Radiated Spurious Emission (802.11b, Ch6, 1 GHz-3 GHz)**



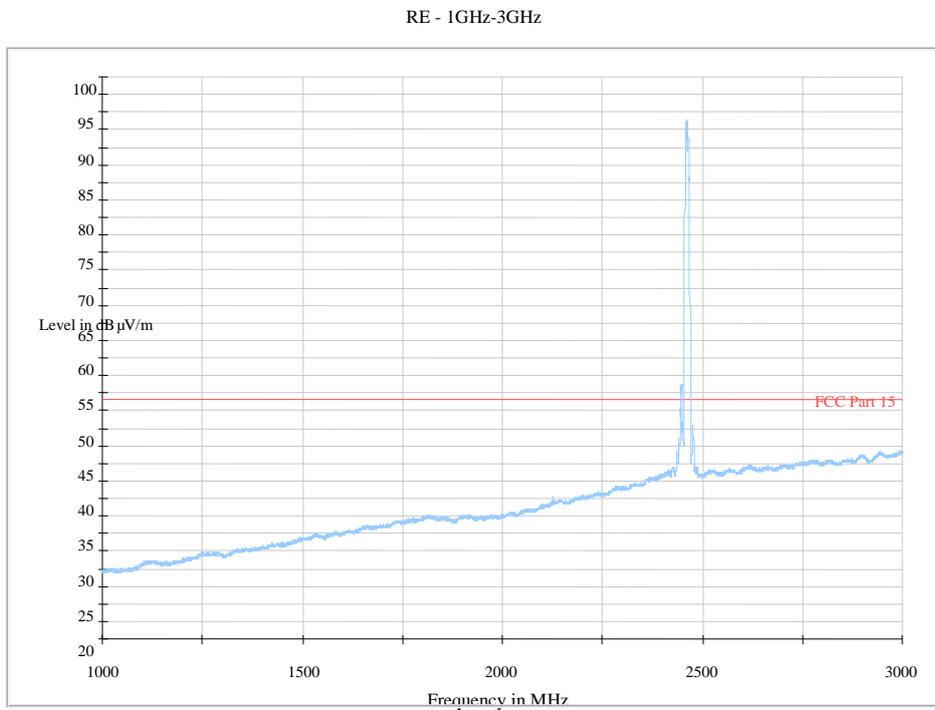
**Fig. 135 Radiated Spurious Emission (802.11b, Ch6, 3 GHz-18 GHz)**



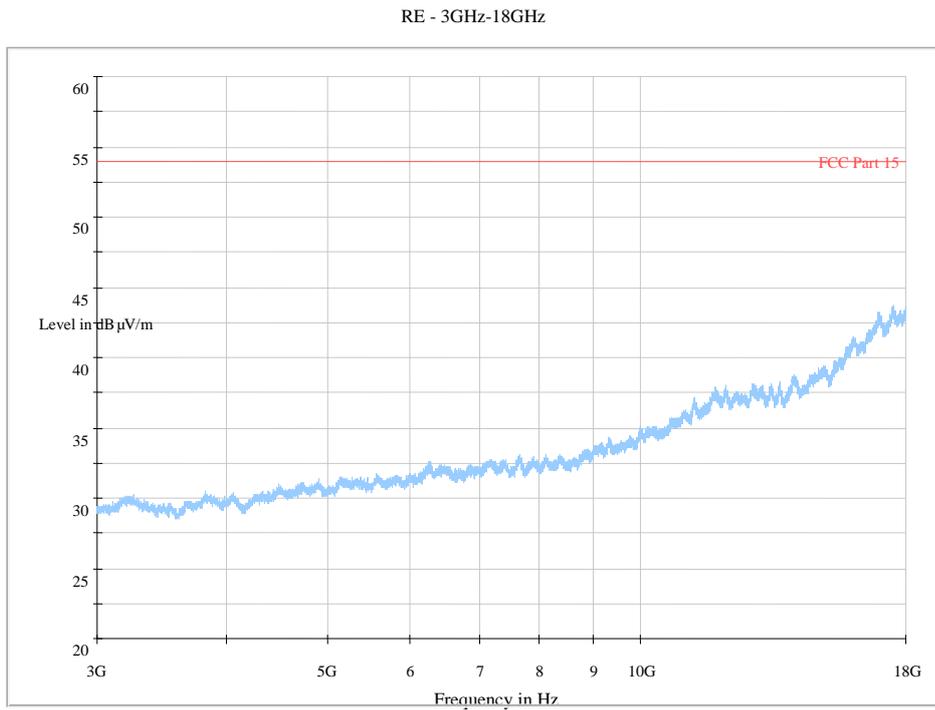
**Fig. 136 Radiated Spurious Emission (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz**



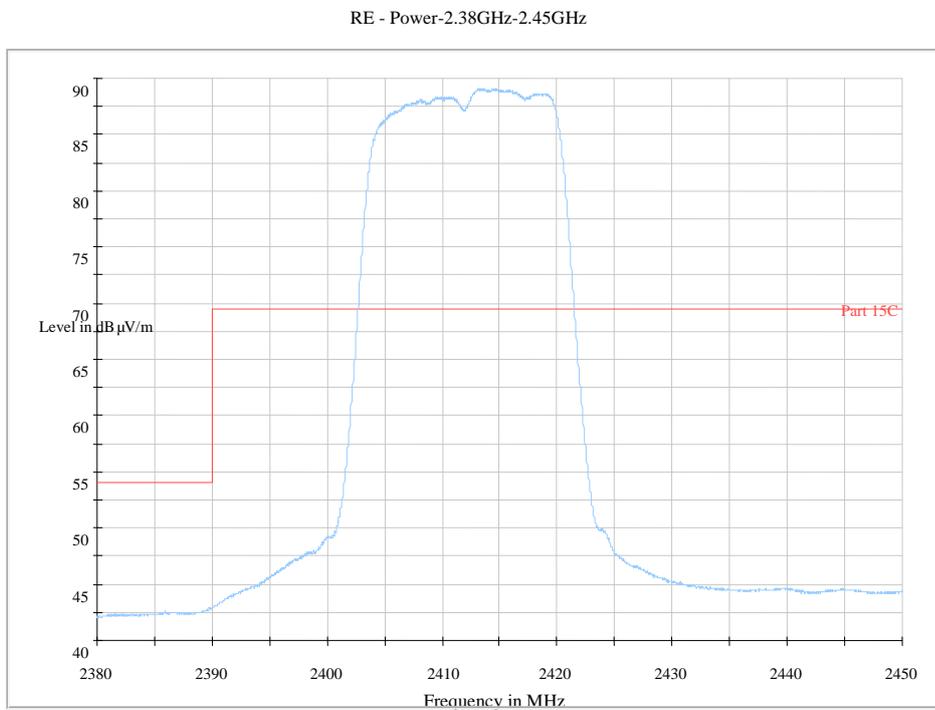
**Fig. 137 Radiated Spurious Emission (802.11b, Ch11, 30 MHz-1 GHz)**



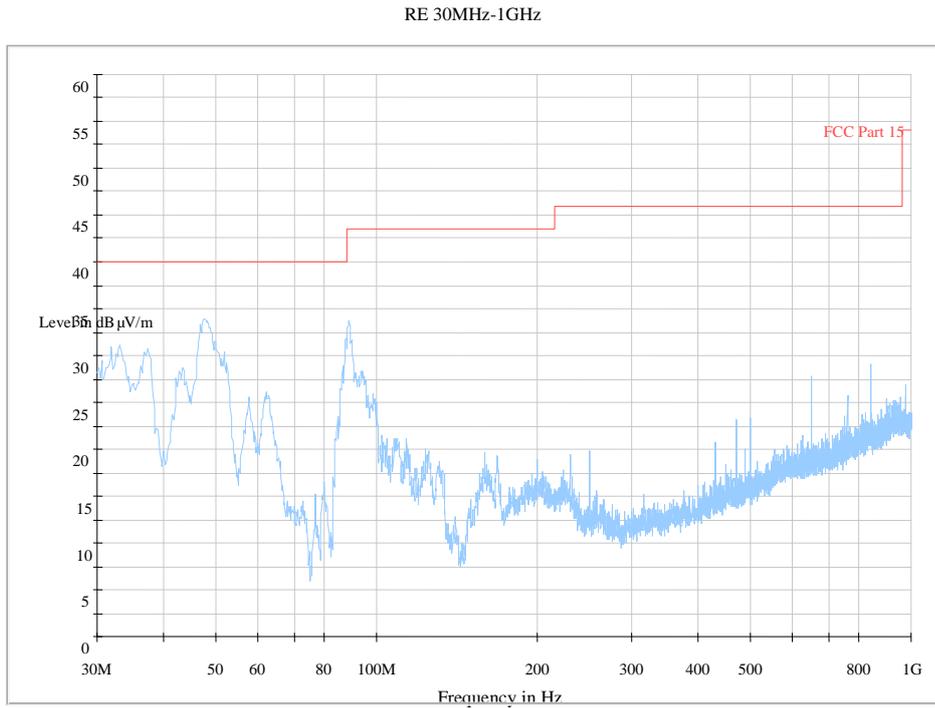
**Fig. 138 Radiated Spurious Emission (802.11b, Ch11, 1 GHz-3 GHz)**



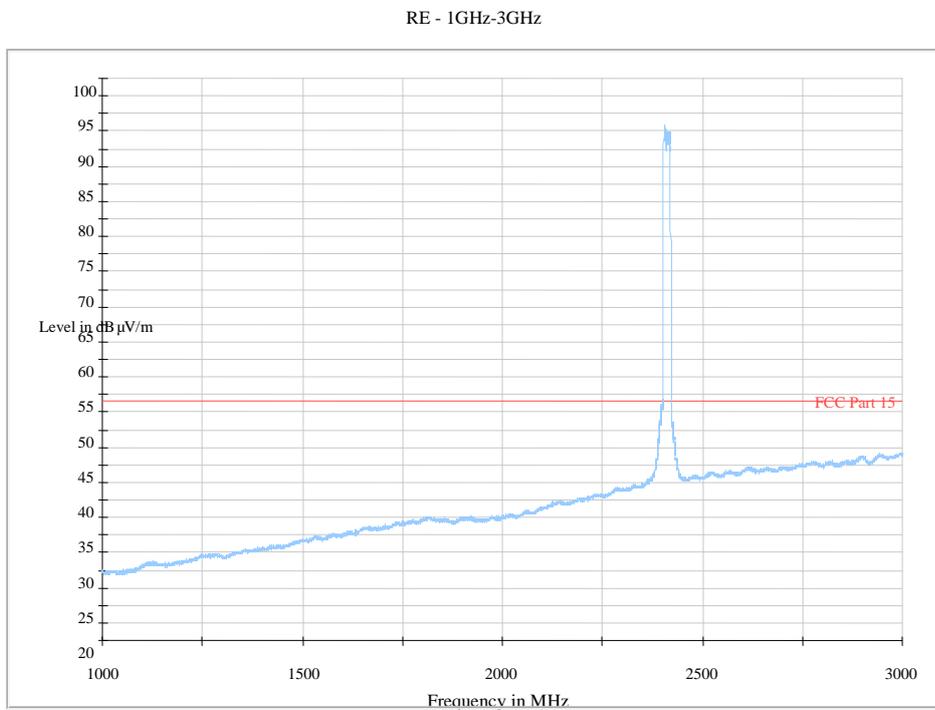
**Fig. 139 Radiated Spurious Emission (802.11b, Ch11, 3 GHz-18 GHz)**



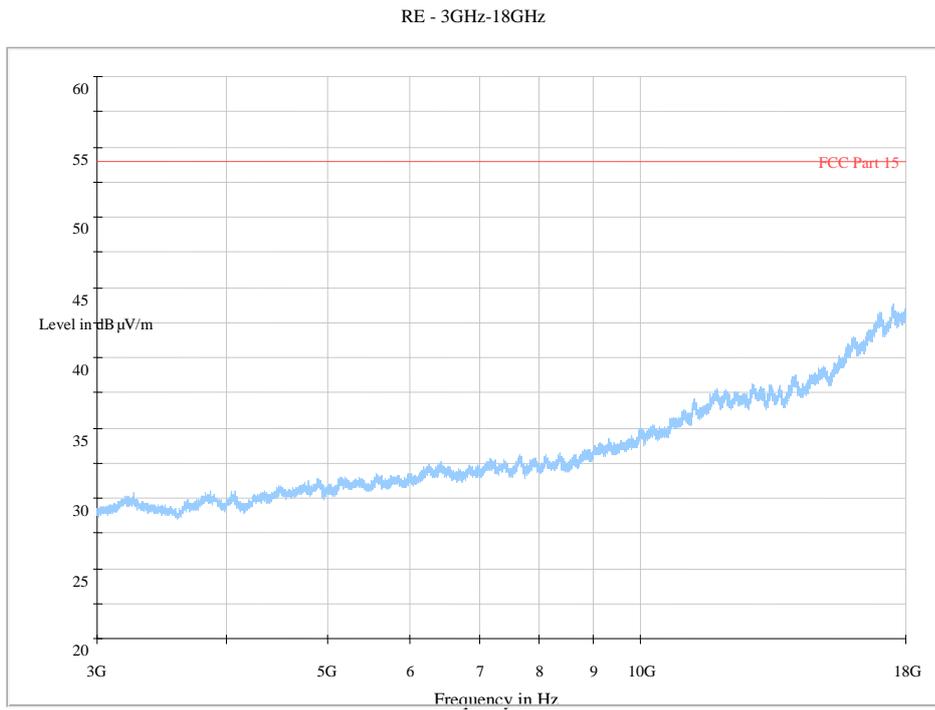
**Fig. 140 Radiated Spurious Emission (Power): 802.11g, ch1, 2.38 GHz - 2.45GHz**



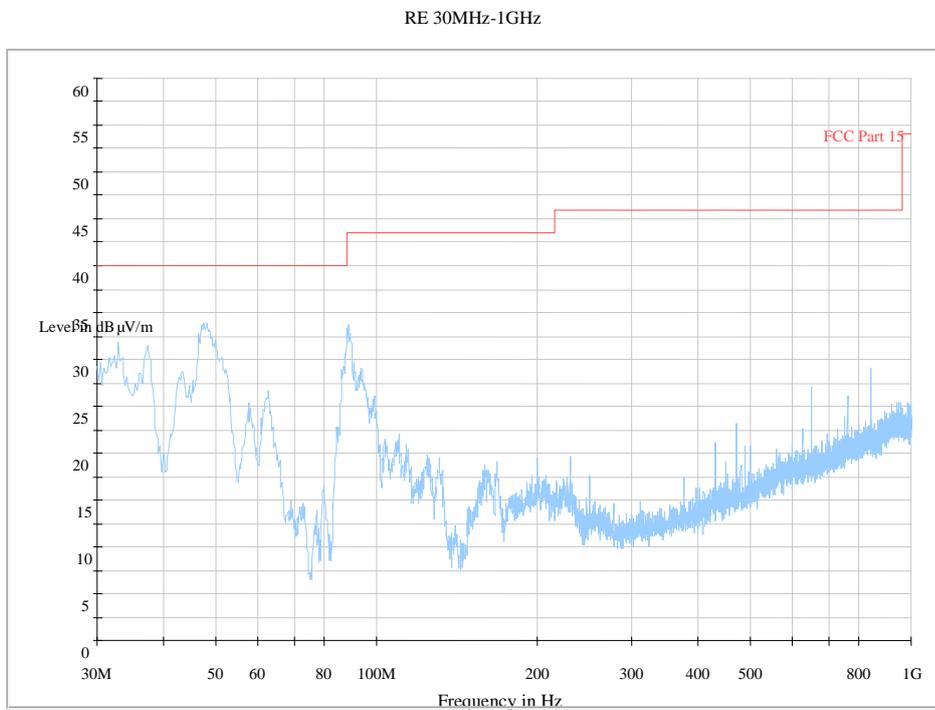
**Fig. 141 Radiated Spurious Emission (802.11g, Ch1, 30 MHz-1 GHz)**



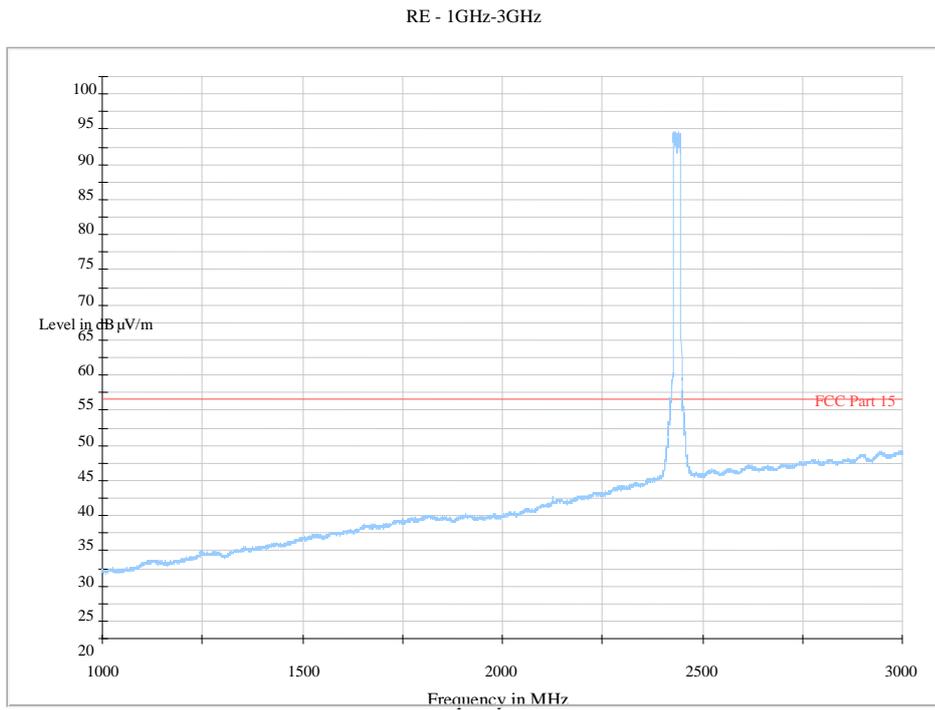
**Fig. 142 Radiated Spurious Emission (802.11g, Ch1, 1 GHz-3 GHz)**



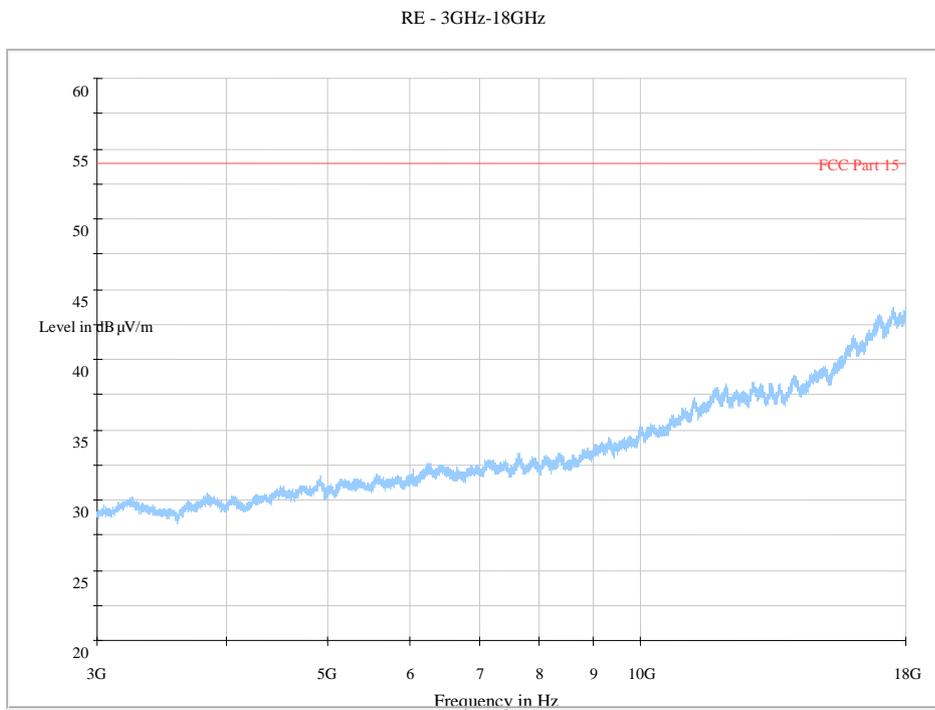
**Fig. 143 Radiated Spurious Emission (802.11g, Ch1, 3 GHz-18 GHz)**



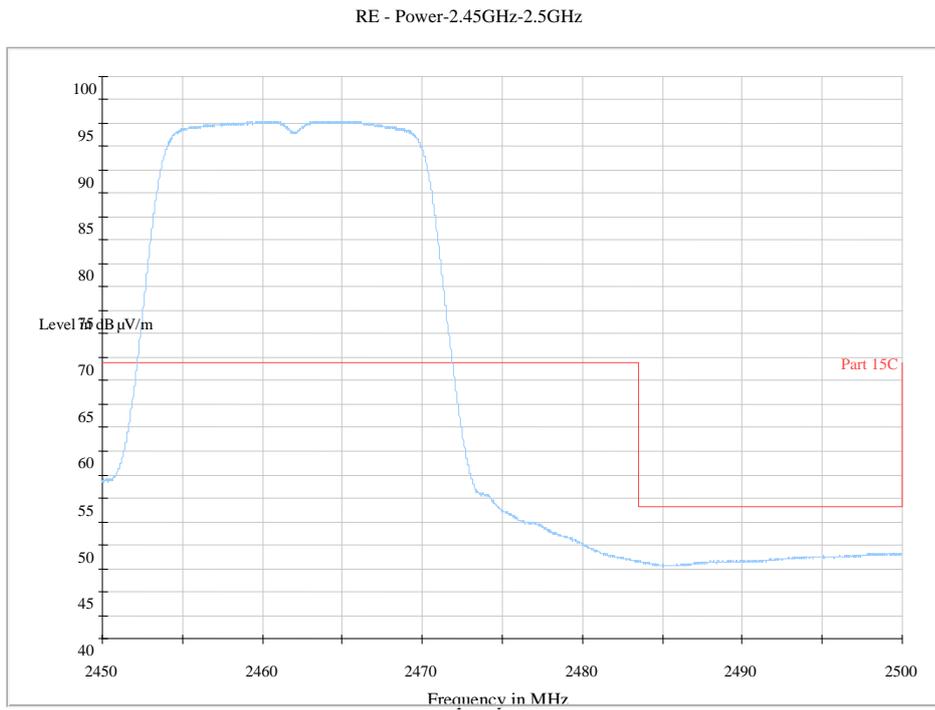
**Fig. 144 Radiated Spurious Emission (802.11g, Ch6, 30 MHz-1 GHz)**



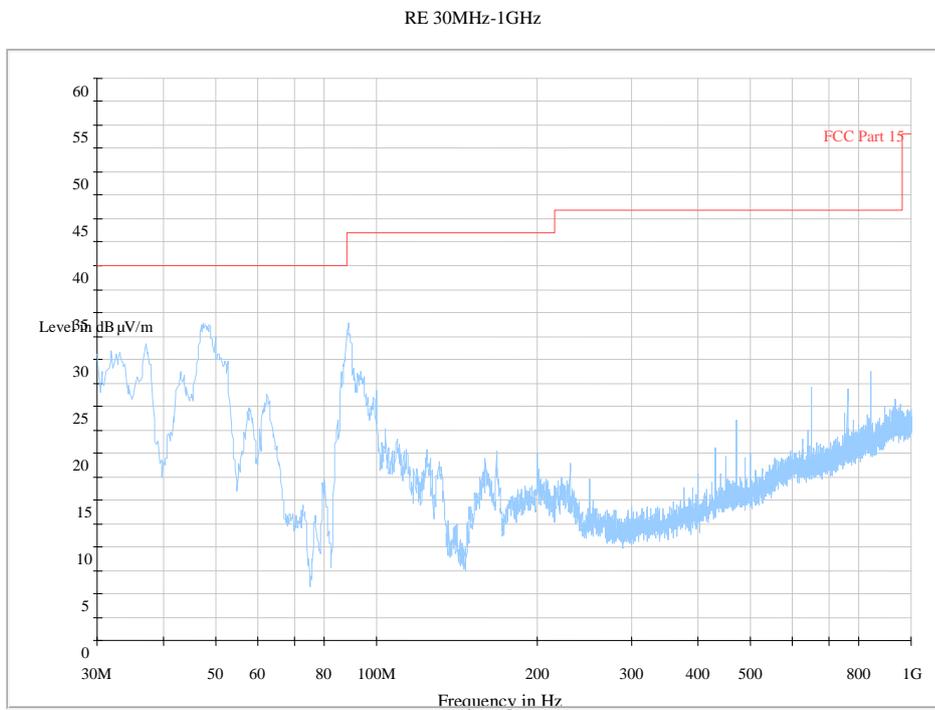
**Fig. 145 Radiated Spurious Emission (802.11g, Ch6, 1 GHz-3 GHz)**



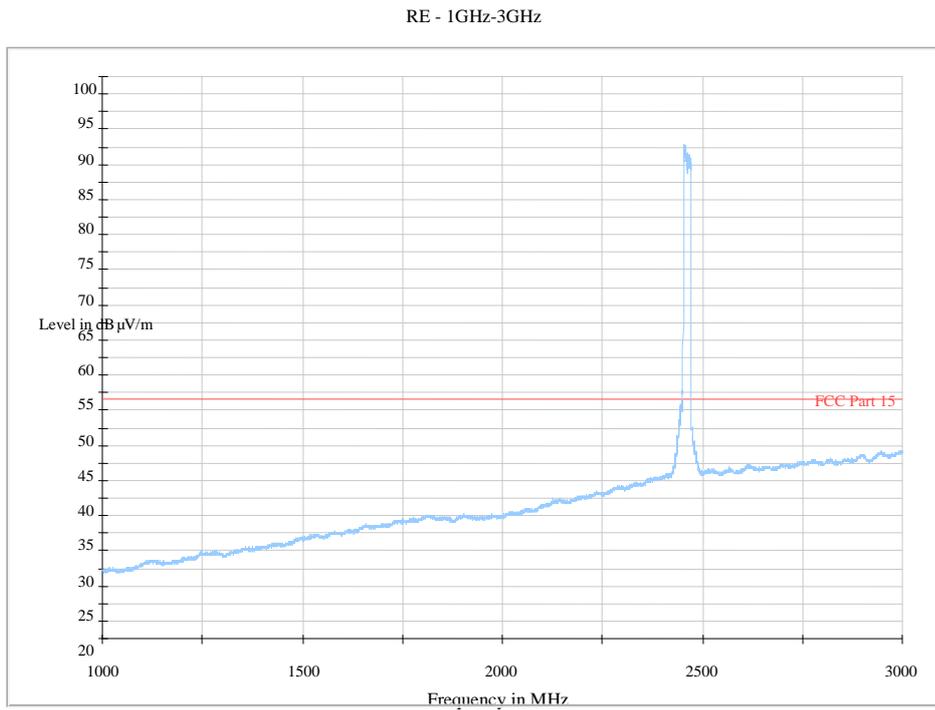
**Fig. 146 Radiated Spurious Emission (802.11g, Ch6, 3 GHz-18 GHz)**



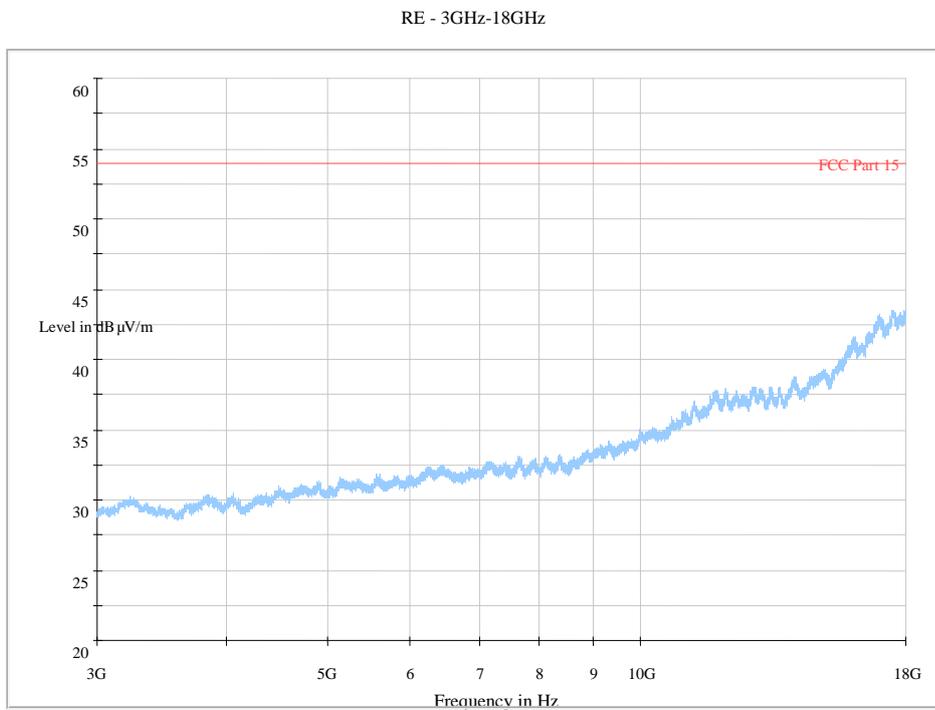
**Fig. 147 Radiated Spurious Emission (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz**



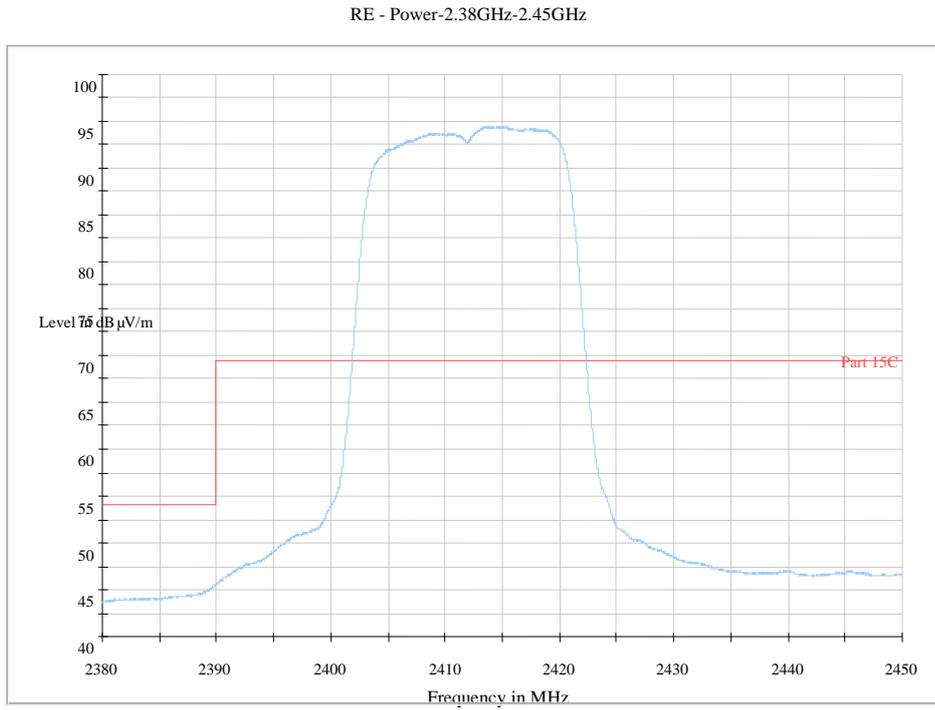
**Fig. 148 Radiated Spurious Emission (802.11g, Ch11, 30 MHz-1 GHz)**



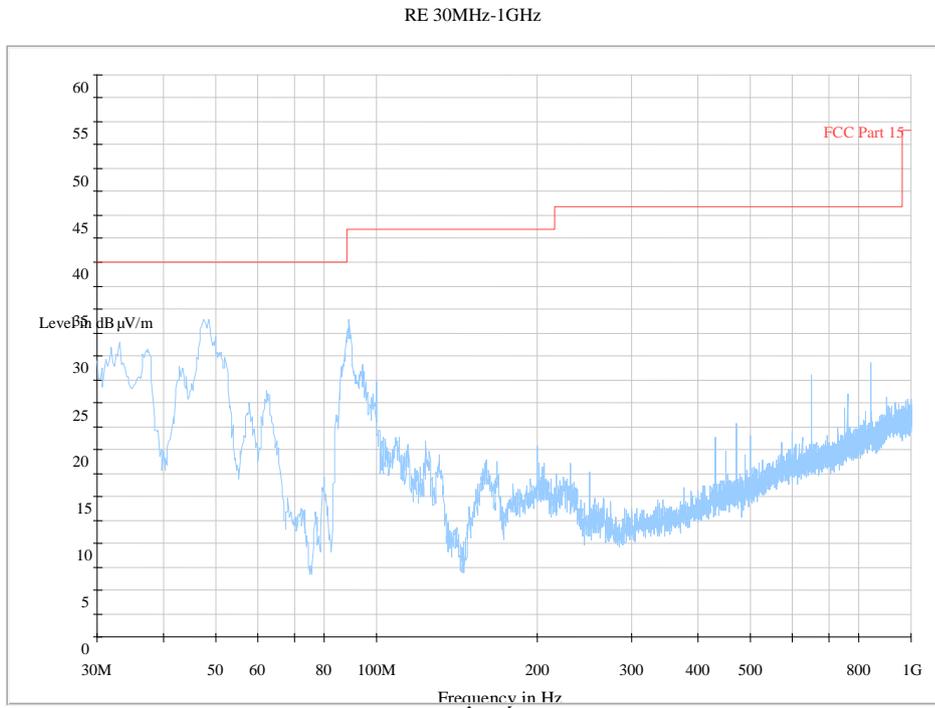
**Fig. 149 Radiated Spurious Emission (802.11g, Ch11, 1 GHz-3 GHz)**



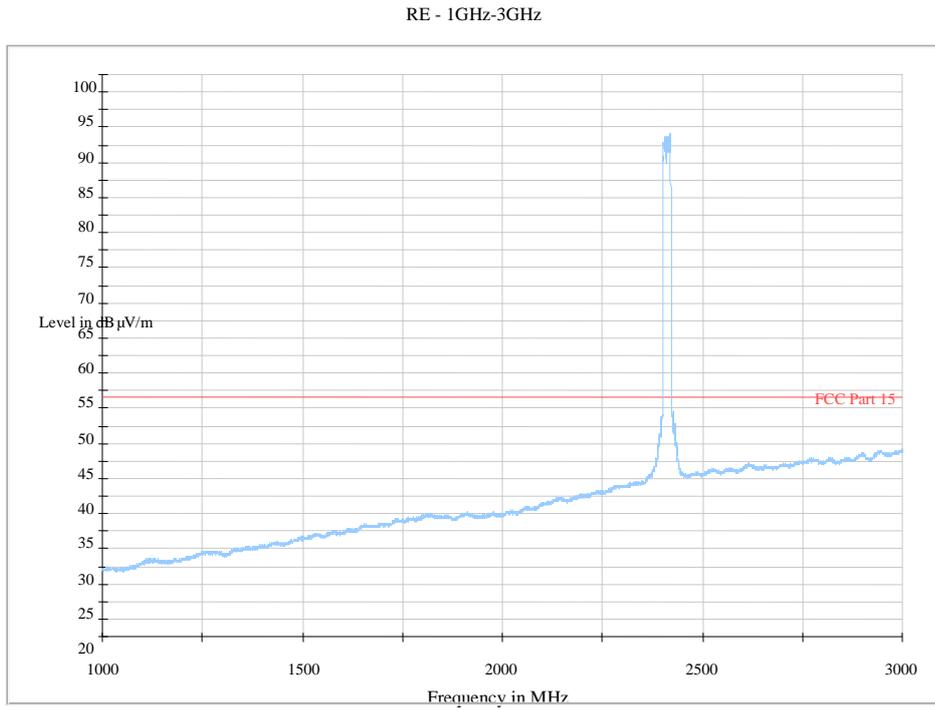
**Fig. 150 Radiated Spurious Emission (802.11g, Ch11, 3 GHz-18 GHz)**



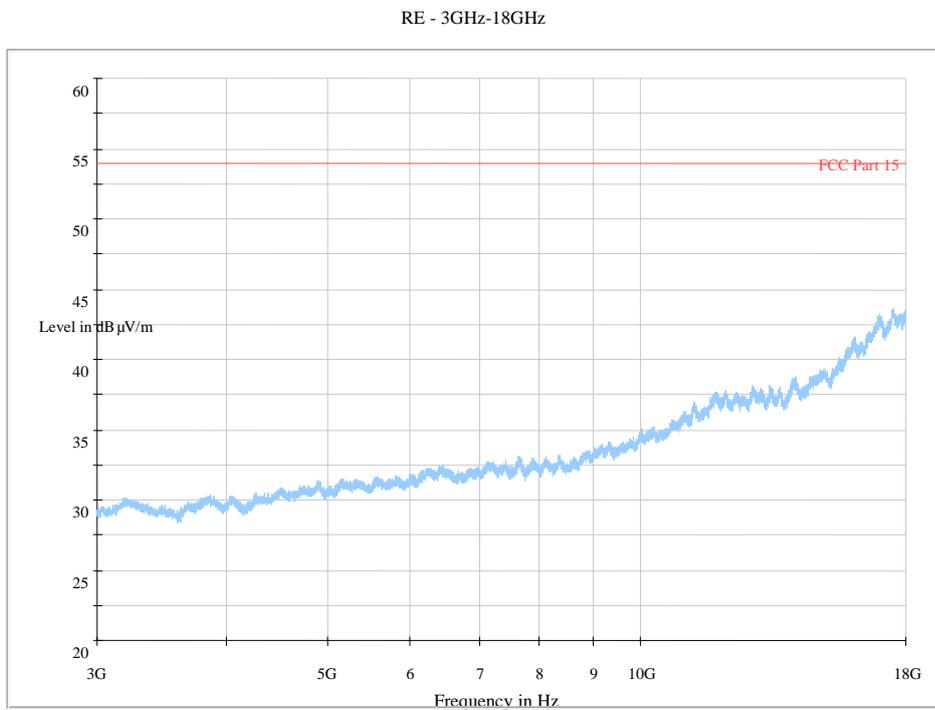
**Fig. 151 Radiated Spurious Emission (Power): 802.11n-20MHz, ch1, 2.38 GHz - 2.45GHz**



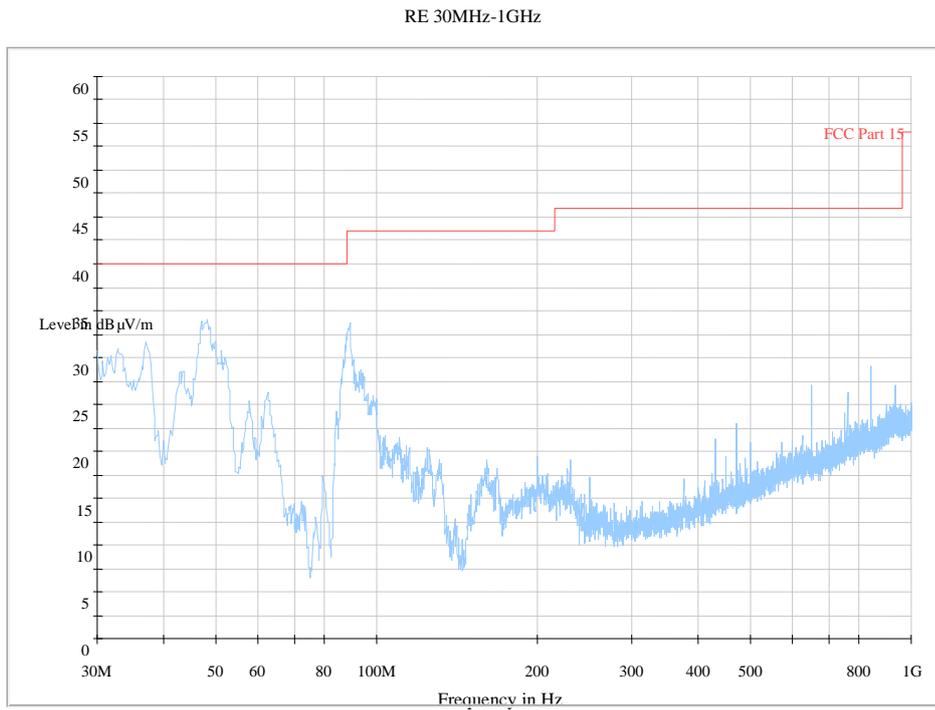
**Fig. 152 Radiated Spurious Emission (802.11n-20MHz, Ch1, 30 MHz-1 GHz)**



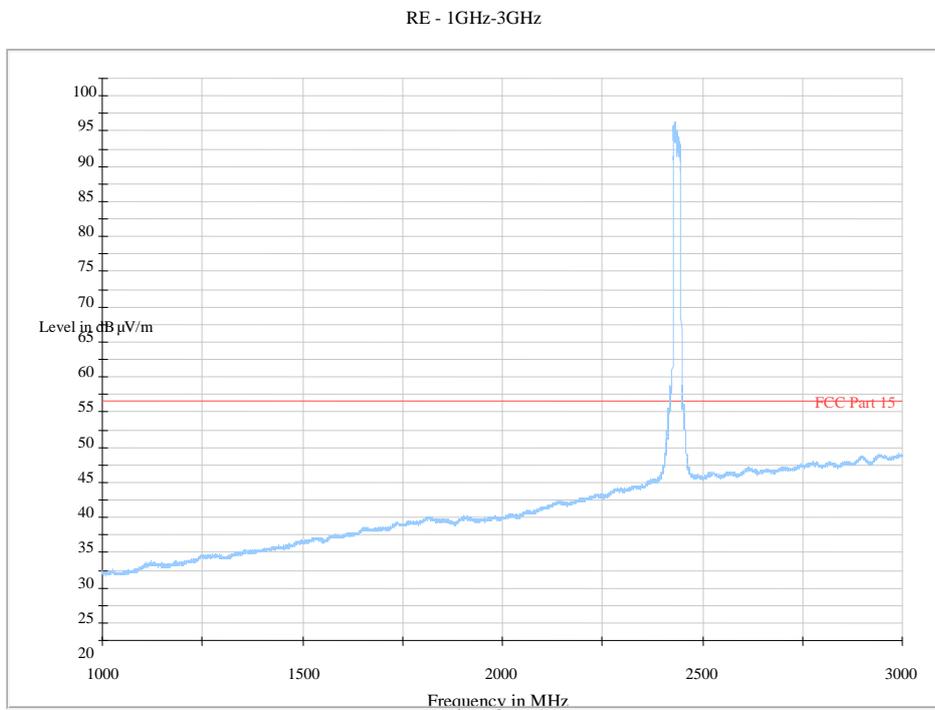
**Fig. 153 Radiated Spurious Emission (802.11n-20MHz, Ch1, 1 GHz-3 GHz)**



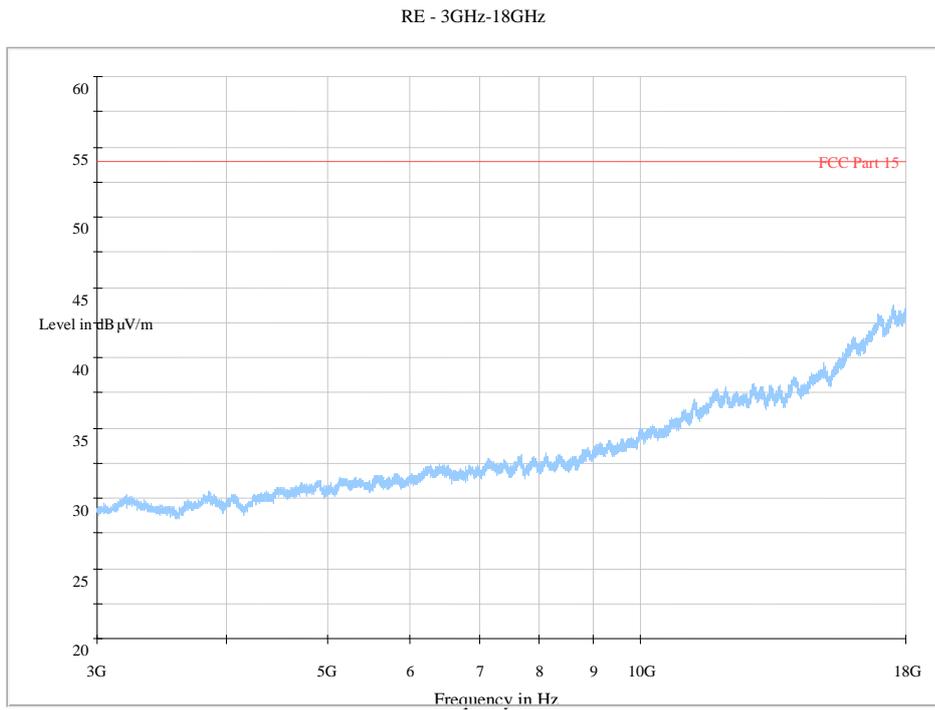
**Fig. 154 Radiated Spurious Emission (802.11n-20MHz, Ch1, 3 GHz-18 GHz)**



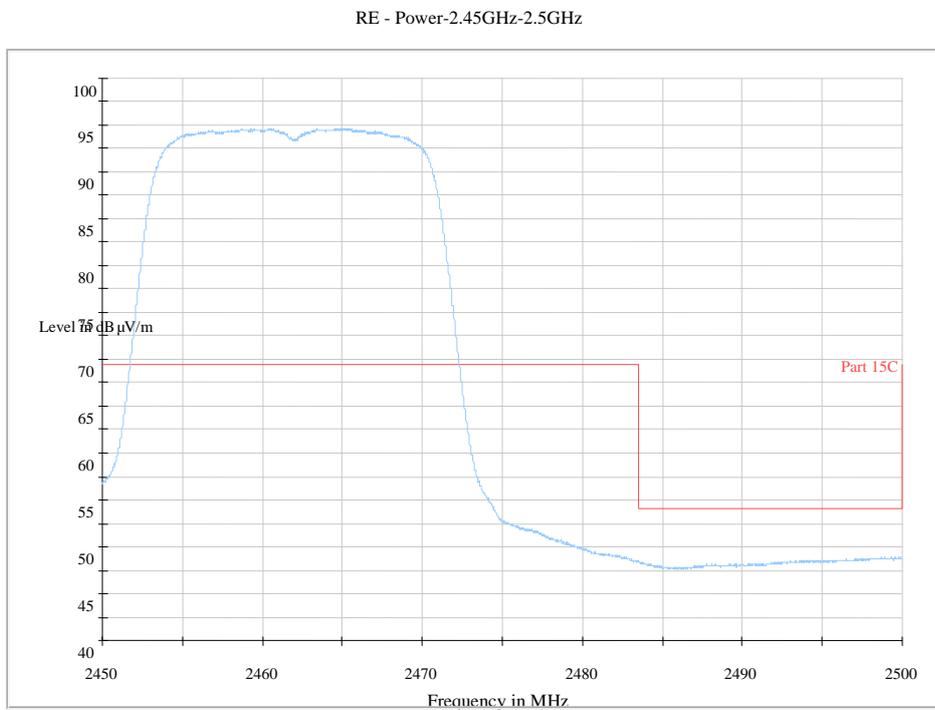
**Fig. 155 Radiated Spurious Emission (802.11n-20MHz, Ch6, 30 MHz-1 GHz)**



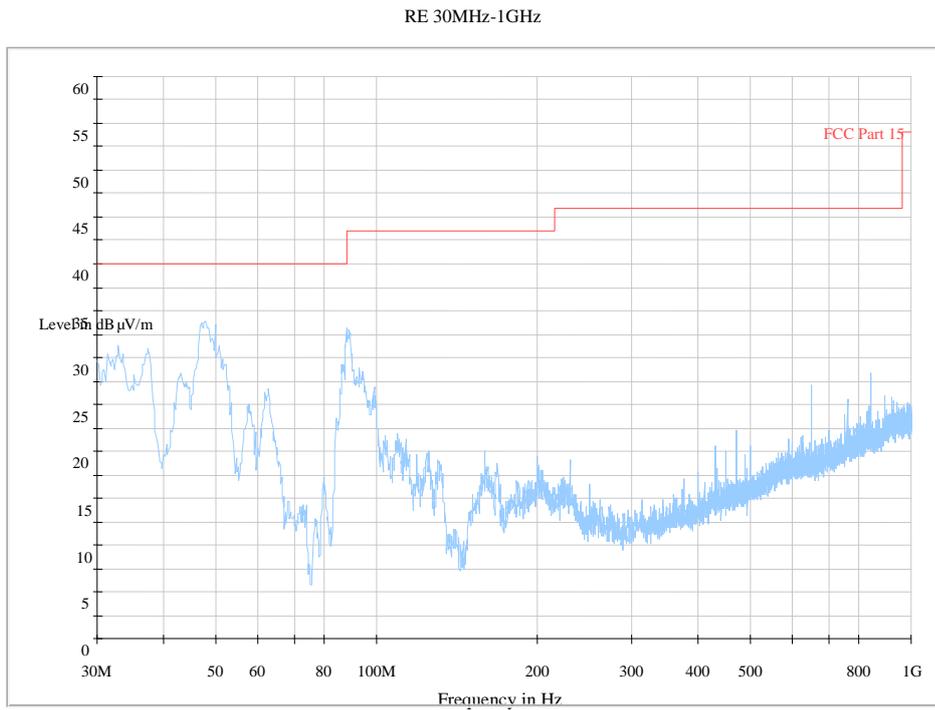
**Fig. 156 Radiated Spurious Emission (802.11n-20MHz, Ch6, 1 GHz-3 GHz)**



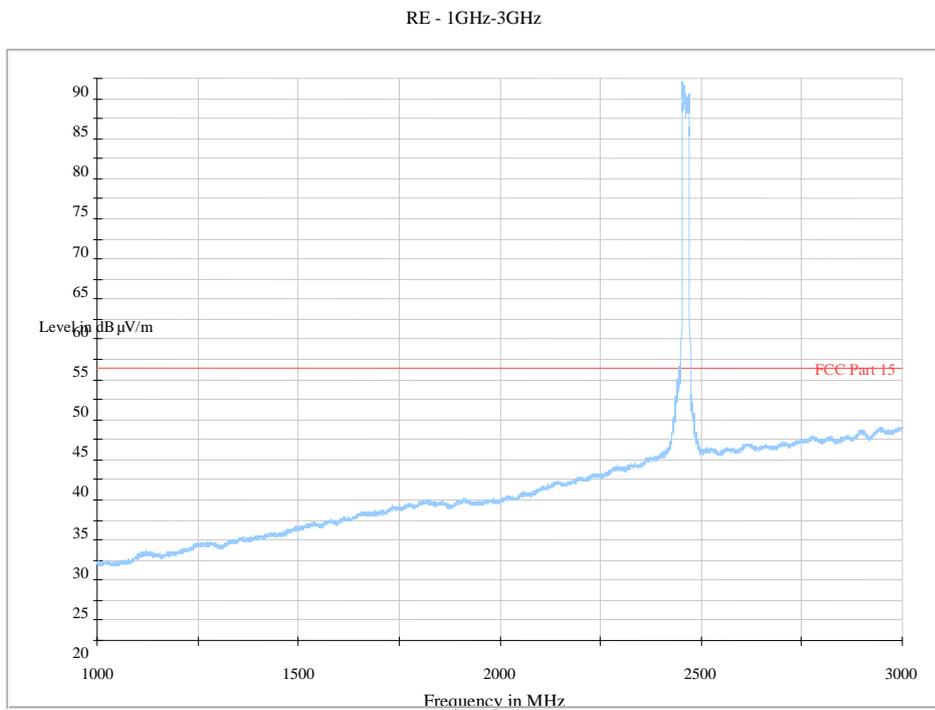
**Fig. 157 Radiated Spurious Emission (802.11n-20MHz, Ch6, 3 GHz-18 GHz)**



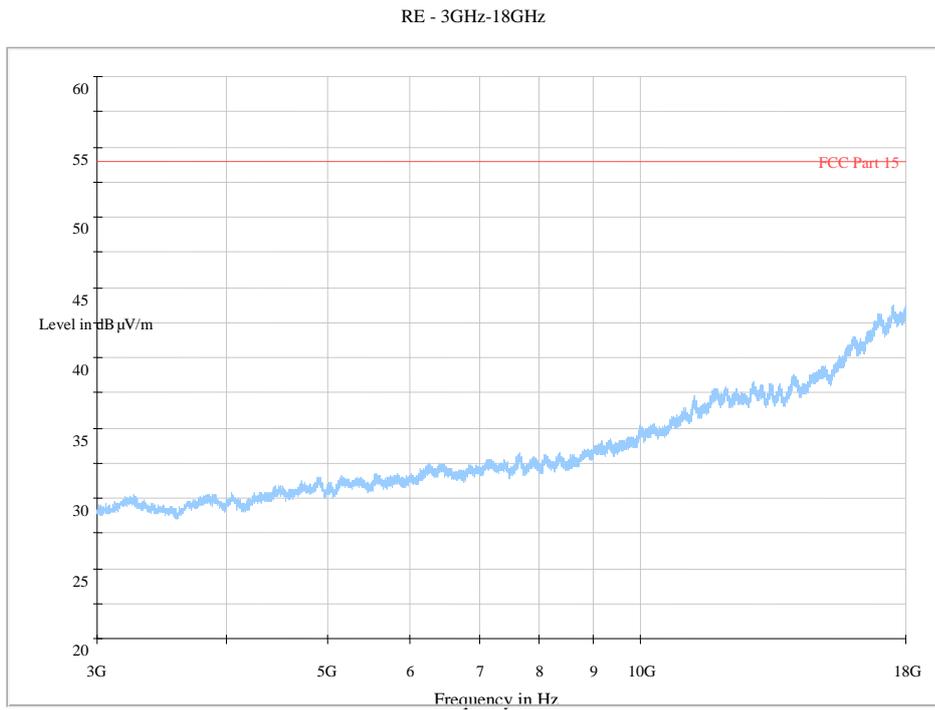
**Fig. 158 Radiated Spurious Emission (Power): 802.11n-20MHz, ch11, 2.45 GHz - 2.50GHz**



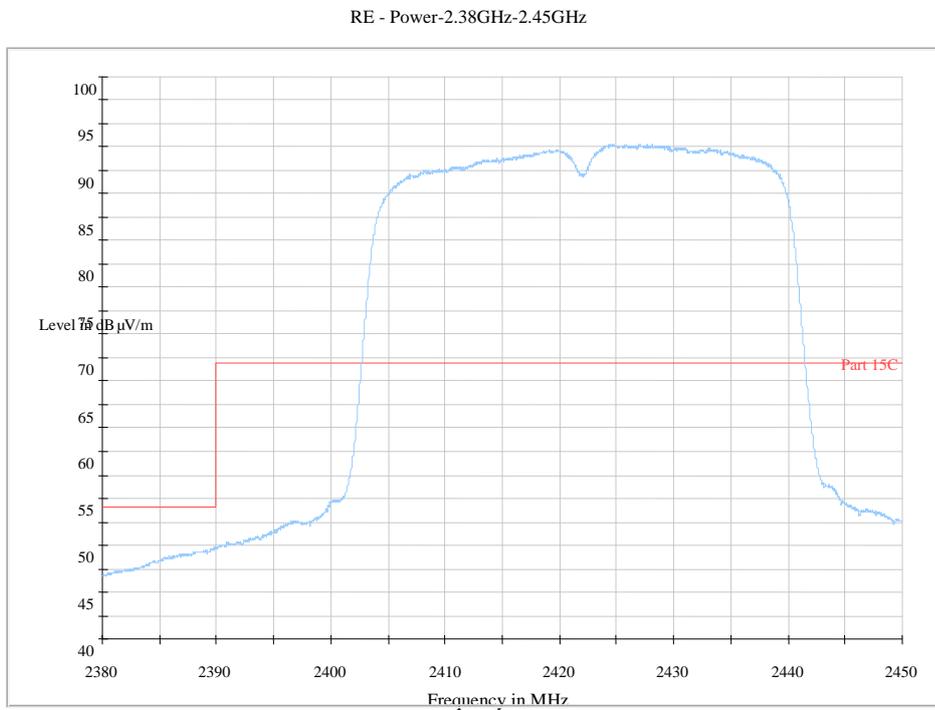
**Fig. 159 Radiated Spurious Emission (802.11n-20MHz, Ch11, 30 MHz-1 GHz)**



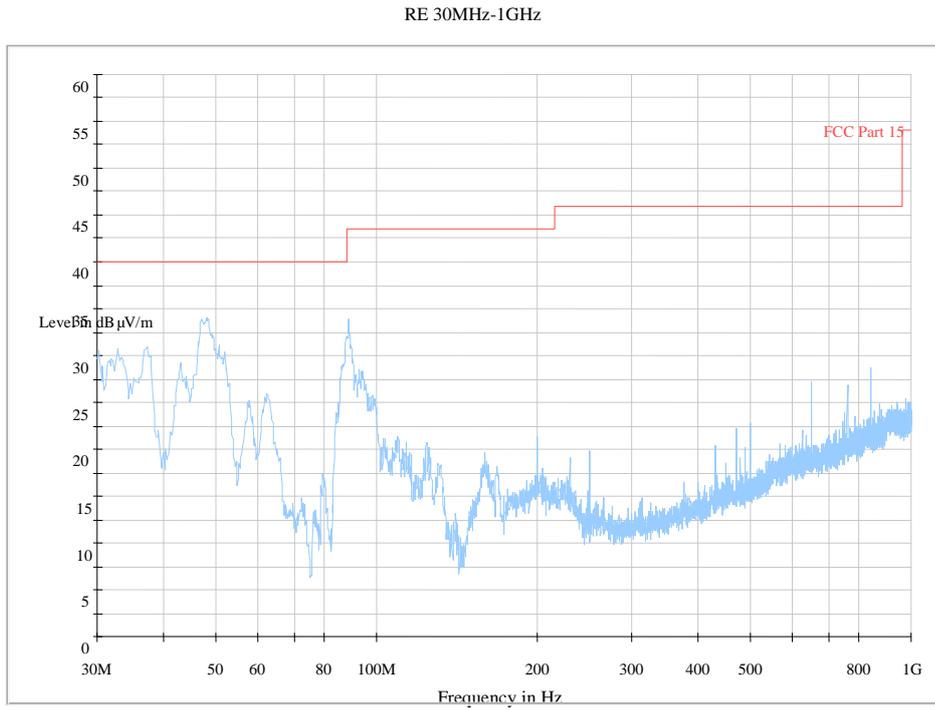
**Fig. 160 Radiated Spurious Emission (802.11n-20MHz, Ch11, 1 GHz-3 GHz)**



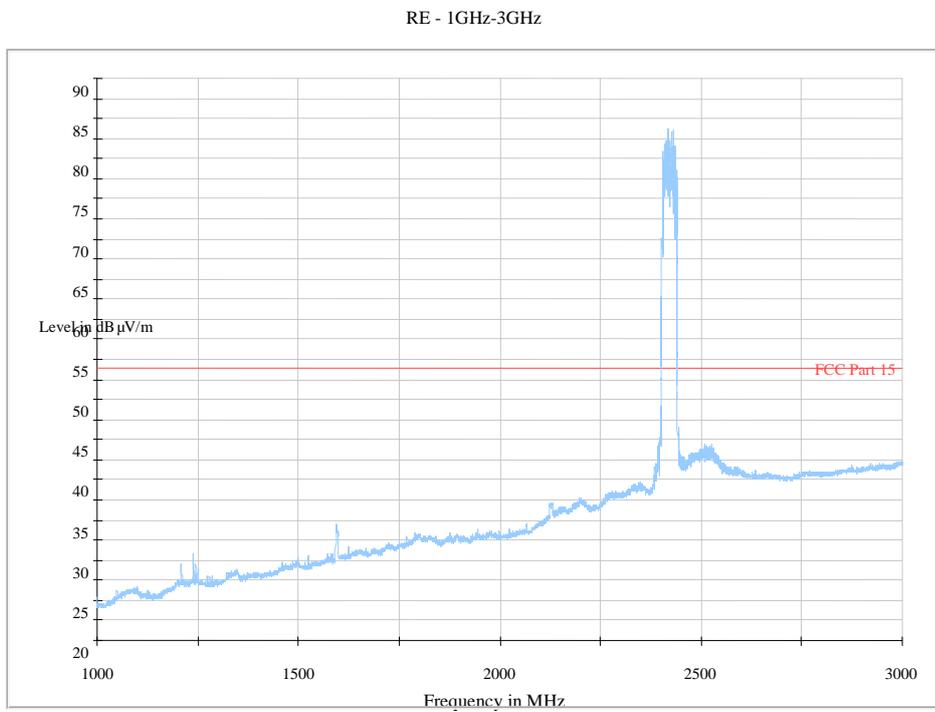
**Fig. 161 Radiated Spurious Emission (802.11n-20MHz, Ch11, 3 GHz-18 GHz)**



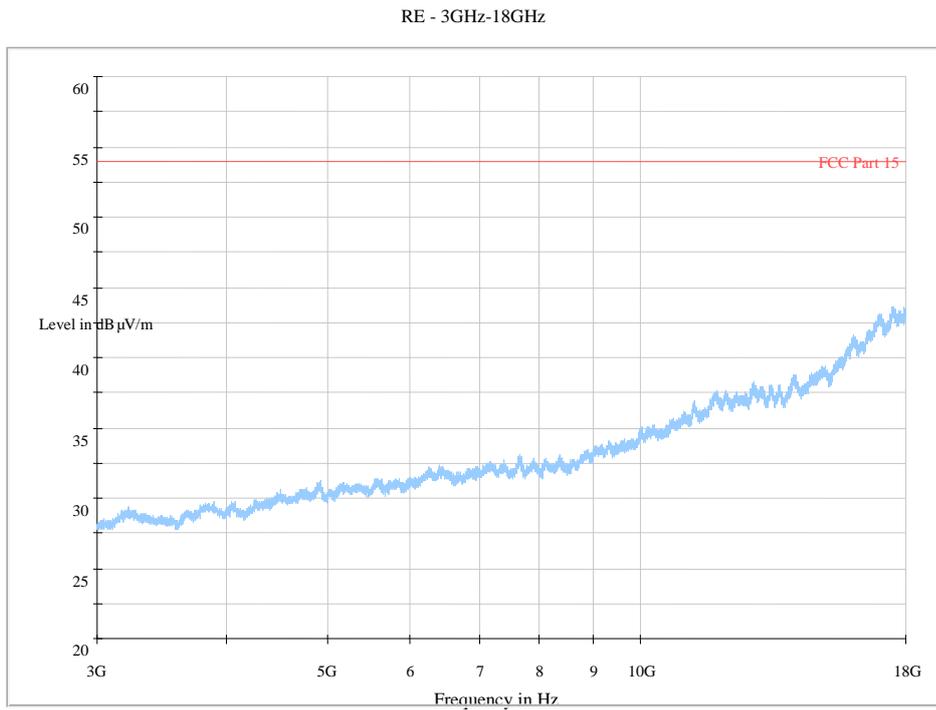
**Fig. 162 Radiated Spurious Emission (Power): 802.11n-HT40, ch3, 2.38 GHz - 2.45GHz**



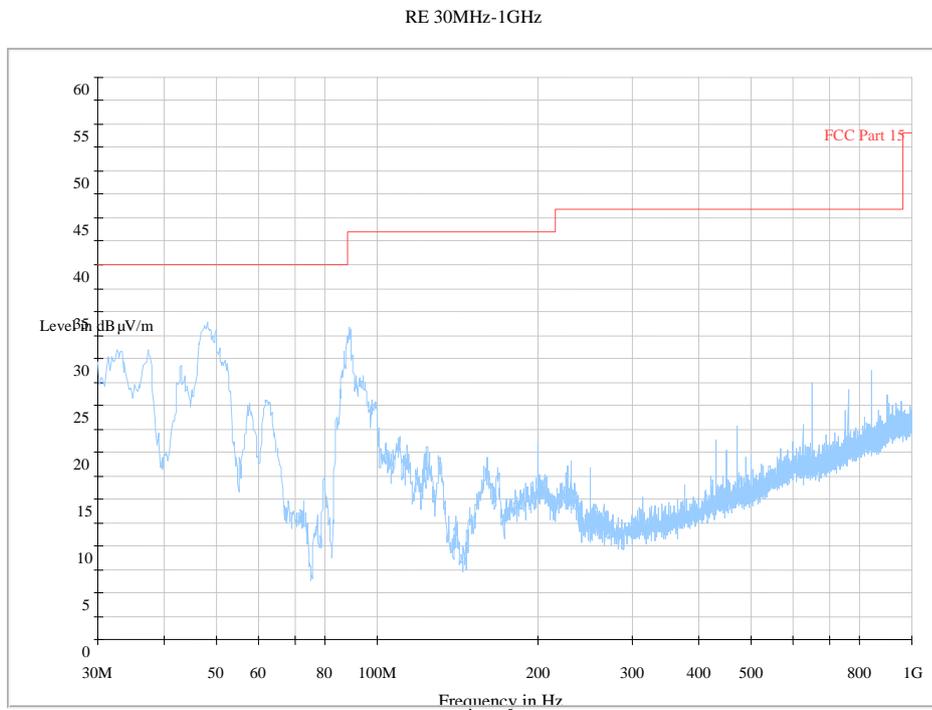
**Fig. 163 Radiated Spurious Emission (802.11n-HT40, Ch3, 30 MHz-1 GHz)**



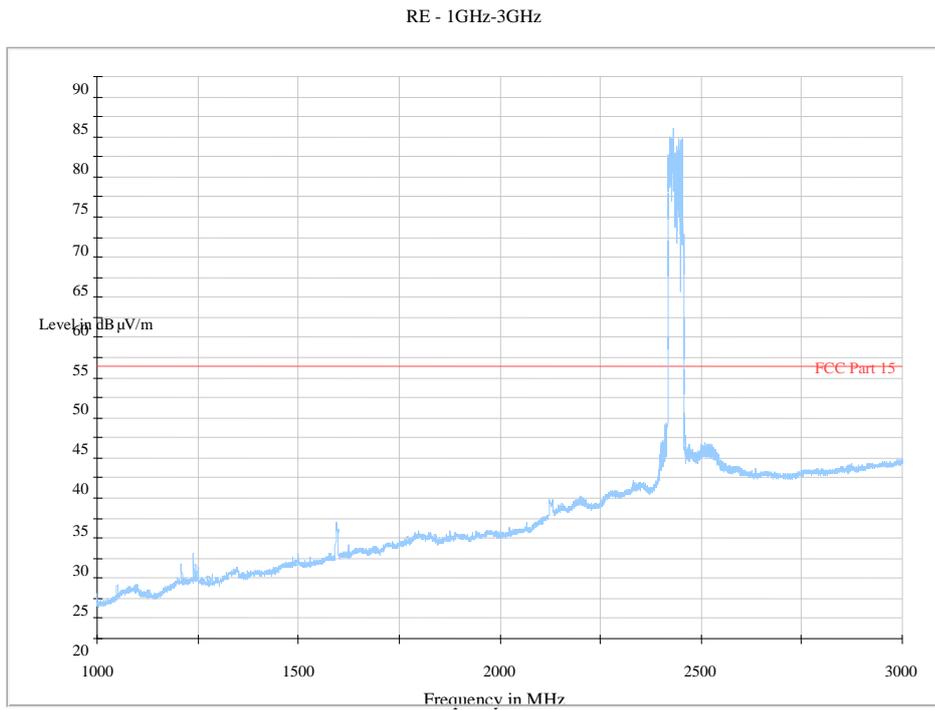
**Fig. 164 Radiated Spurious Emission (802.11n-HT40, Ch3, 1 GHz-3 GHz)**



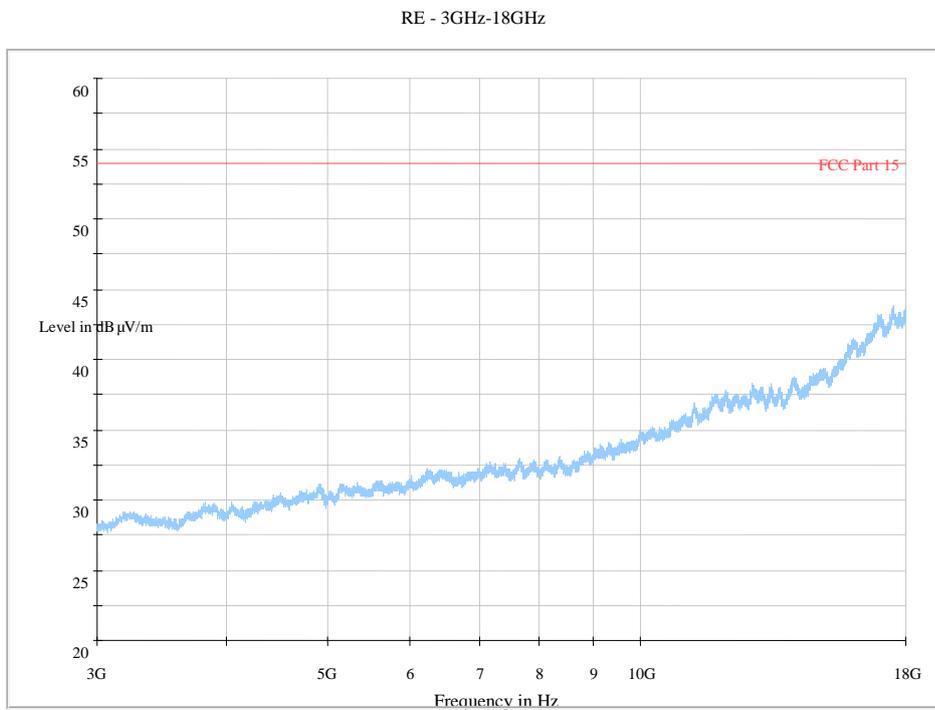
**Fig. 165 Radiated Spurious Emission (802.11n-HT40, Ch3, 3 GHz-18 GHz)**



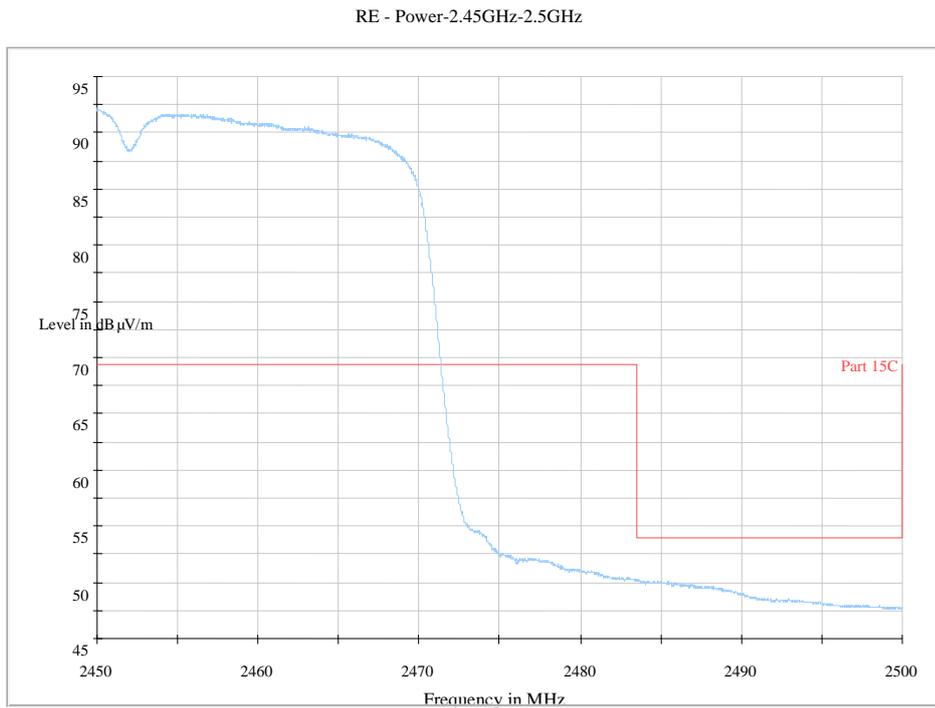
**Fig. 166 Radiated Spurious Emission (802.11n-HT40, Ch6, 30 MHz-1 GHz)**



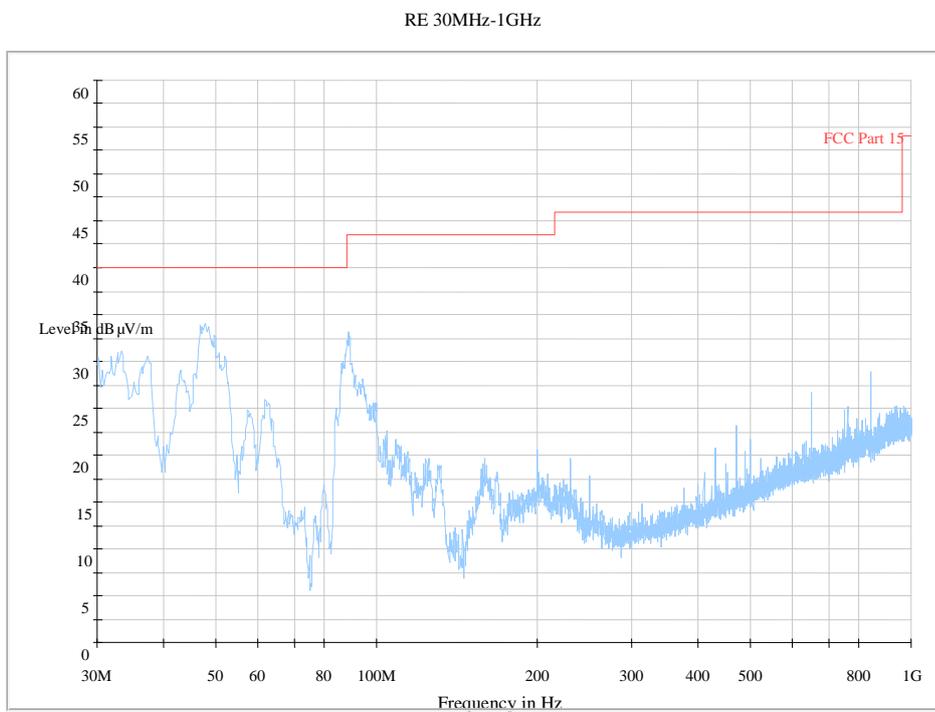
**Fig. 167 Radiated Spurious Emission (802.11n-HT40, Ch6, 1 GHz-3 GHz)**



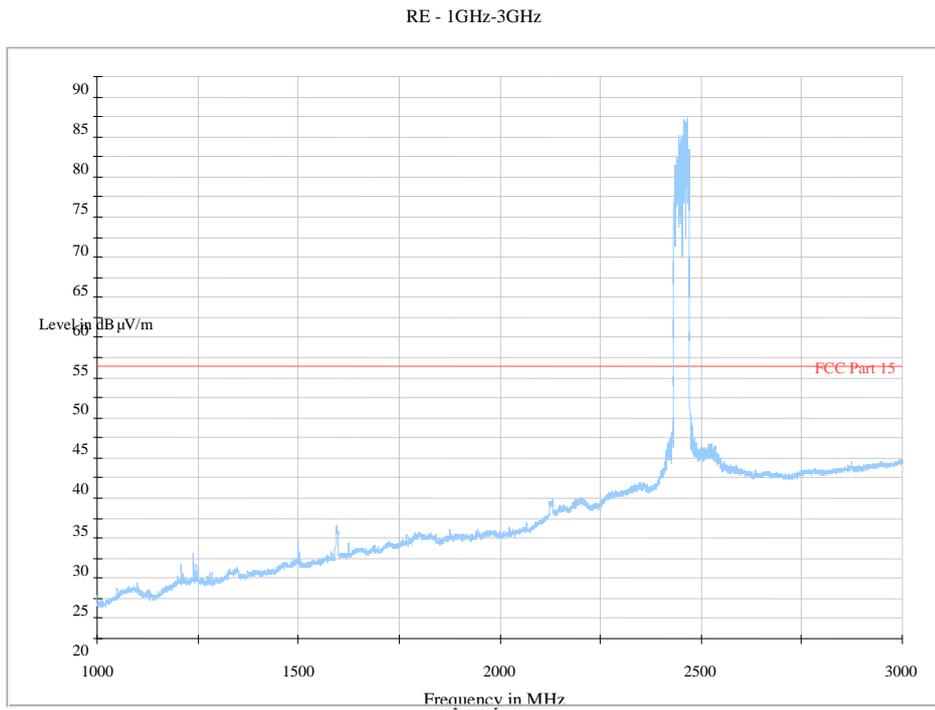
**Fig. 168 Radiated Spurious Emission (802.11n-HT40, Ch6, 3 GHz-18 GHz)**



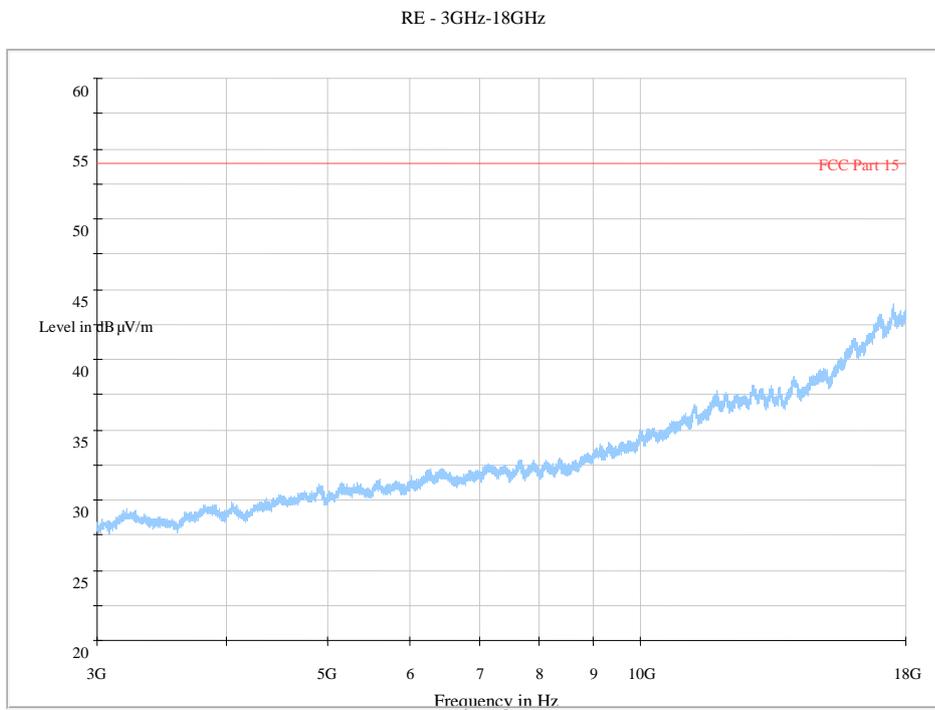
**Fig. 169 Radiated Spurious Emission (Power): 802.11n-HT40, ch9, 2.45 GHz - 2.50GHz**



**Fig. 170 Radiated Spurious Emission (802.11n-HT40, Ch9, 30 MHz-1 GHz)**

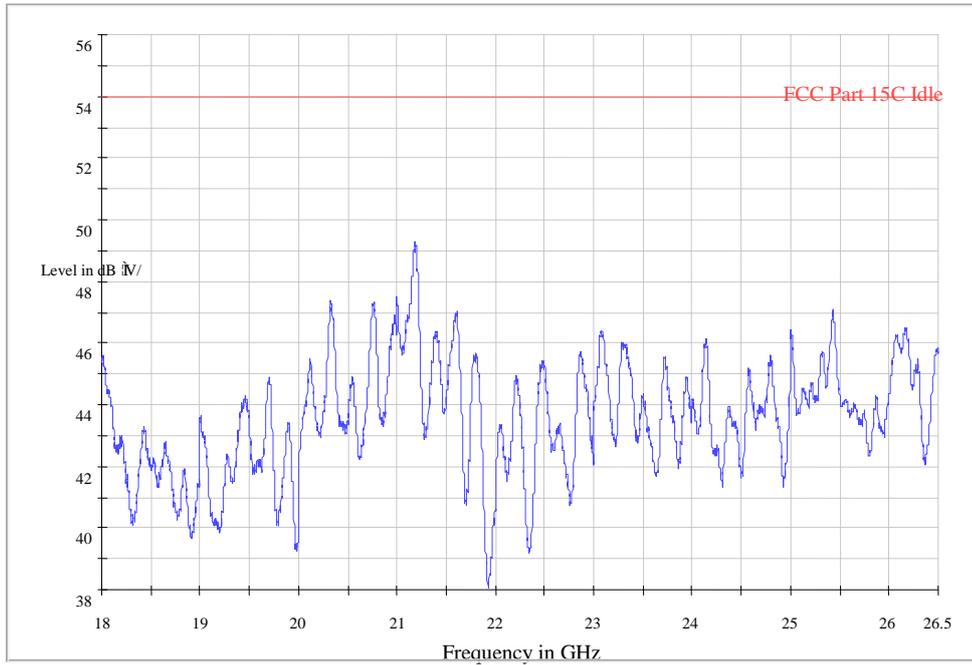


**Fig. 171 Radiated Spurious Emission (802.11n-HT40, Ch9, 1 GHz-3 GHz)**



**Fig. 172 Radiated Spurious Emission (802.11n-HT40, Ch9, 3 GHz-18 GHz)**

EMI 18GHz-26.5GHz



**Fig. 173 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 DC power supply				
		802.11b	802.11g	802.11n (HT20)	802.11n (HT40)	
0.15 to 0.5	66 to 56	Fig. 174	Fig.175	Fig.176	Fig.177	P
0.5 to 5	56					
5 to 30	60					
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.						

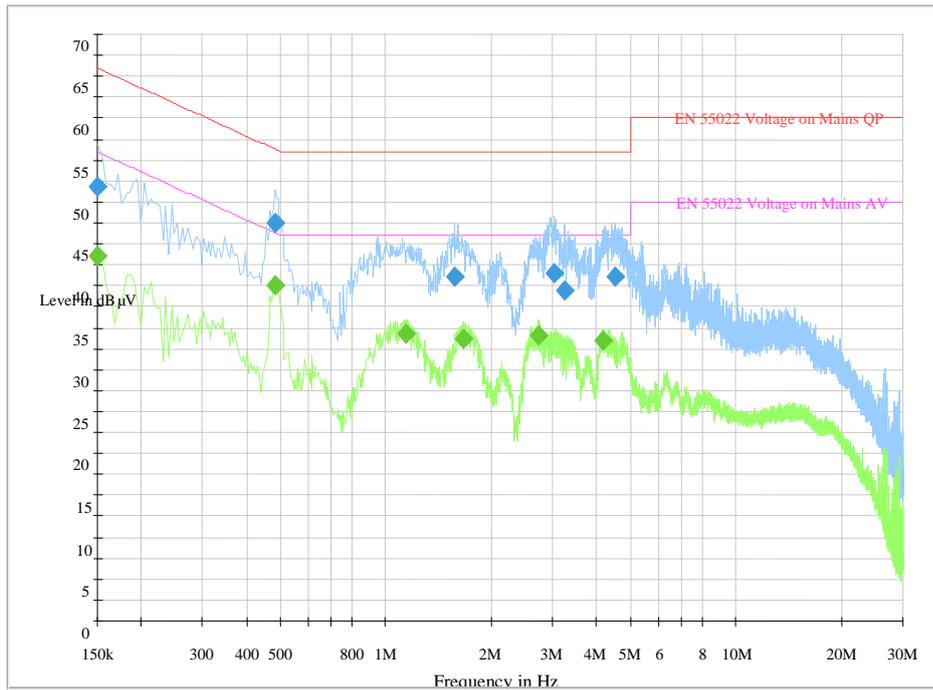
WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dB $\mu$ V)	Result (dB $\mu$ V)				Conclusion
		With DC power supply				
		802.11b	802.11g	802.11n (HT20)	802.11n (HT40)	
0.15 to 0.5	56 to 46	Fig.174	Fig.175	Fig.176	Fig.177	P
0.5 to 5	46					
5 to 30	50					
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.						

The measurement is made according to ANSI C63.10

**Conclusion: PASS**

**Test graphs as below:**



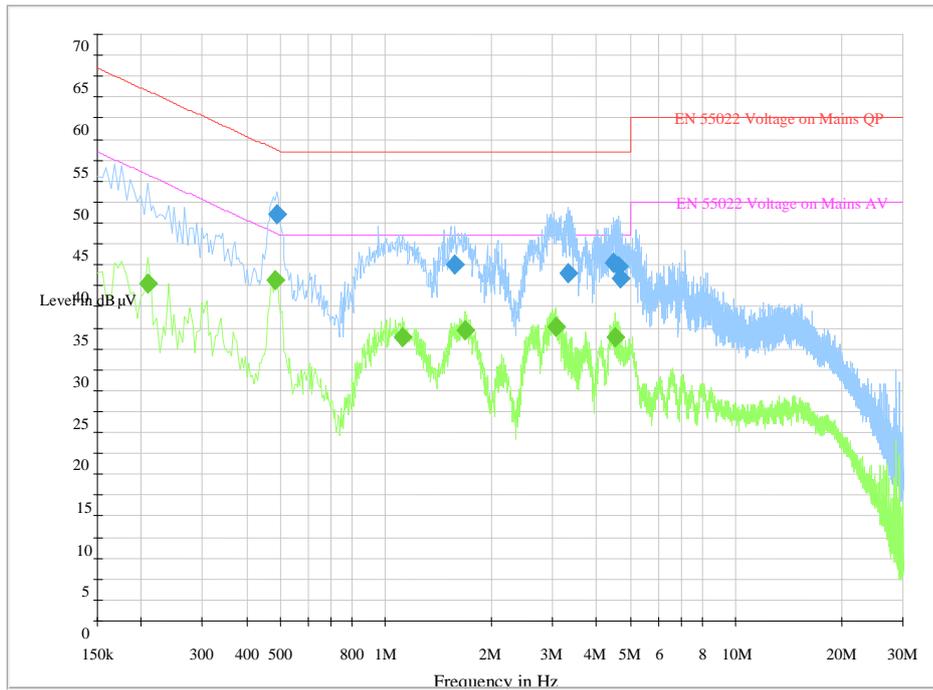
**Fig. 174 AC Powerline Conducted Emission-802.11b**

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	51.9	GND	N	10.0	14.1	66.0
0.483000	47.5	GND	N	10.0	8.8	56.3
1.576500	41.0	GND	L1	10.0	15.0	56.0
3.039000	41.4	GND	N	10.0	14.6	56.0
3.250500	39.4	GND	L1	10.0	16.6	56.0
4.501500	41.0	GND	N	10.0	15.0	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	43.5	GND	N	10.0	12.5	56.0
0.483000	40.0	GND	N	10.0	6.3	46.3
1.140000	34.3	GND	N	10.0	11.7	46.0
1.666500	33.6	GND	L1	10.0	12.4	46.0
2.733000	34.0	GND	N	10.0	12.0	46.0
4.182000	33.5	GND	N	10.0	12.5	46.0



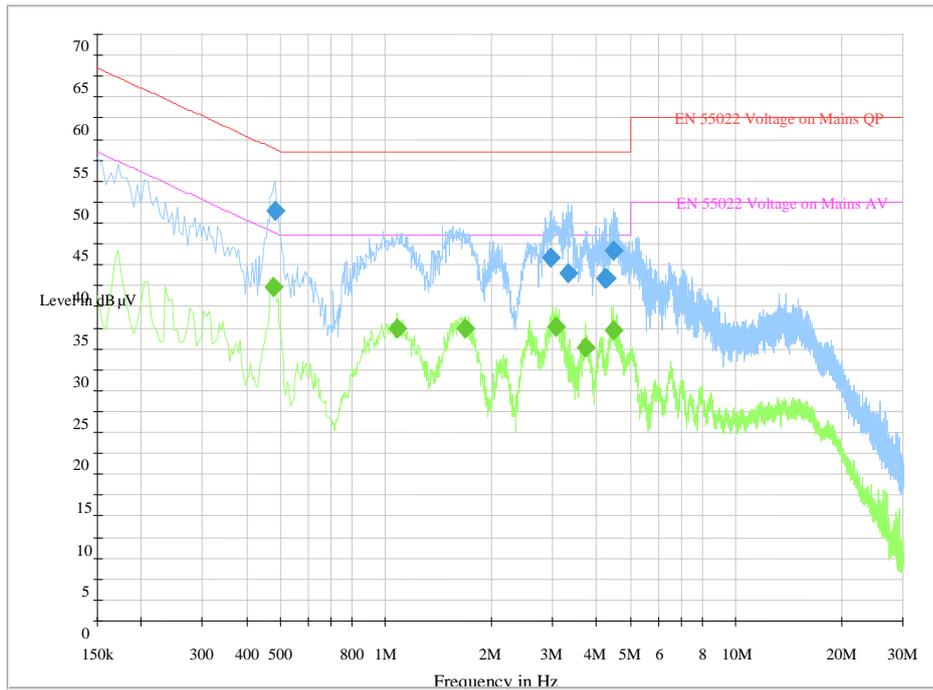
**Fig. 175 AC Powerline Conducted Emission-802.11g**

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.487500	48.5	GND	N	10.0	7.7	56.2
1.581000	42.6	GND	N	10.0	13.4	56.0
3.300000	41.4	GND	L1	10.0	14.6	56.0
4.488000	42.8	GND	L1	10.0	13.2	56.0
4.605000	42.3	GND	N	10.0	13.7	56.0
4.699500	40.9	GND	N	10.0	15.1	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.208500	40.3	GND	N	10.0	13.0	53.3
0.483000	40.7	GND	N	10.0	5.6	46.3
1.117500	33.8	GND	L1	10.0	12.2	46.0
1.680000	34.8	GND	N	10.0	11.2	46.0
3.066000	35.1	GND	L1	10.0	10.9	46.0
4.506000	34.0	GND	N	10.0	12.0	46.0



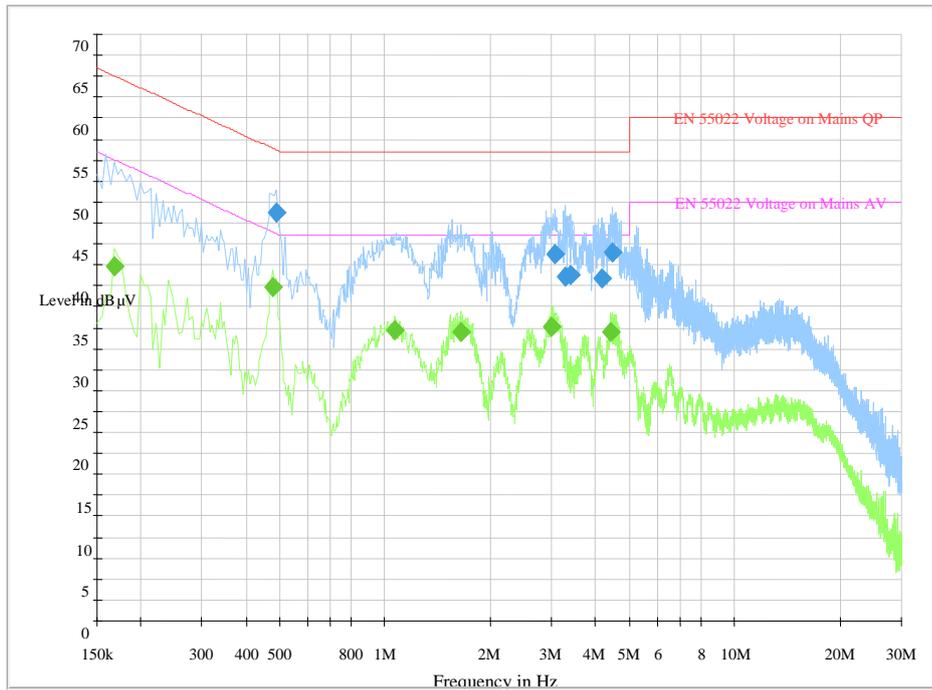
**Fig. 176 AC Powerline Conducted Emission-802.11n**

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.483000	49.0	GND	N	10.0	7.3	56.3
2.962500	43.5	GND	N	10.0	12.5	56.0
3.331500	41.4	GND	L1	10.0	14.6	56.0
4.231500	40.9	GND	N	10.0	15.1	56.0
4.254000	40.8	GND	N	10.0	15.2	56.0
4.479000	44.2	GND	N	10.0	11.8	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.478500	39.9	GND	L1	10.0	6.5	46.4
1.072500	34.8	GND	N	10.0	11.2	46.0
1.684500	34.9	GND	N	10.0	11.1	46.0
3.052500	35.1	GND	L1	10.0	10.9	46.0
3.723000	32.6	GND	N	10.0	13.4	46.0
4.479000	34.7	GND	N	10.0	11.3	46.0



**Fig. 177 AC Powerline Conducted Emission-802.11n**

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.487500	48.7	GND	N	10.0	7.5	56.2
3.075000	43.8	GND	N	10.0	12.2	56.0
3.268500	41.2	GND	N	10.0	14.8	56.0
3.390000	41.3	GND	N	10.0	14.7	56.0
4.159500	41.0	GND	N	10.0	15.0	56.0
4.474500	44.0	GND	N	10.0	12.0	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.168000	42.4	GND	N	10.0	12.6	55.1
0.478500	39.9	GND	L1	10.0	6.4	46.4
1.068000	34.6	GND	N	10.0	11.4	46.0
1.653000	34.4	GND	L1	10.0	11.6	46.0
3.007500	35.1	GND	L1	10.0	10.9	46.0
4.420500	34.5	GND	N	10.0	11.5	46.0

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