FCC PART 15C
TEST REPORT
No.2012WLN0308

for

Sierra Wireless Inc.

Mobile Hotspot

Model Name: AirCard 763S

Market Name: /

With

FCC ID: N7NAC763S

IC: 2417C-AC763S

Issued Date: 2012-1-5

Deutscher Akkreditierungs Rat DAR

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

DAR accreditation (DIN EN ISO/IEC 17025): No. DGA-PL-114/01-02

FCC 2.948 Listed: No.733176

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.

Test Laboratory:

TMC Beijing, Telecommunication Metrology Center of Ministry of Industry and Information Technology

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Tel:+86(0)10-62304633, Fax:+86(0)10-62304793 Email:welcome@emcite.com. www.emcite.com

CONTENTS

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℃
Extreme Temperature:	-20/+55℃
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 End Date: 2012-1-5

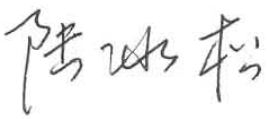
1.4. Signature

Sun Zhenyu

(Prepared this test report)

Gao Hong

(Reviewed this test report)



Lu Bingsong

Deputy Director of the laboratory

(Approved this test report)

2. CLIENT INFORMATION

2.1. Applicant Information

Company Name:	Sierra Wireless Inc.
Address /Post:	13811 Wireless Way Richmond, British Columbia, Canada, V6V 3A4.
City:	British Columbia
Postal Code:	/
Country:	Canada
Contact	British Columbia
Email	ywang@sierrawireless.com
Telephone:	+ 1 604 232 1440
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2.2. Manufacturer Information

Company Name:	Sierra Wireless Inc.
Address /Post:	13811 Wireless Way Richmond, British Columbia, Canada, V6V 3A4.
City:	British Columbia
Postal Code:	/
Country:	Canada
Contact	British Columbia
Email	ywang@sierrawireless.com
Telephone:	+ 1 604 232 1440
Fax:	/

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

3.1. About EUT

Description	Mobile Hotspot
Type	AirCard 763S
Market Name	Sierra Wireless
FCC ID	N7NAC763S
IC	2417C-AC763S

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

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version
EUT1	/	DV1	SWI9200H2_00.00.02.02AP

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

3.3. General Description

Equipment Under Test (EUT) is a model of AirCard 763S Mobile Hotspot 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 C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2003
KDB558074	Measurement of Digital Transmission Systems Operating under Section 15.247	March 23, 2005
IC RSS-210	RSS-210 Spectrum Management and Telecommunications Radio Standards Specification - Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment	Issue 8 Dec 2010

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 ℃, Max. = 30 ℃
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 ℃, Max. = 35 ℃
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 ℃, Max. = 30 ℃
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 ℃, Max. = 30 ℃
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)	RSS-210 Issue8 A8.4	**P**
Peak Power Spectral Density	15.247 (d)	RSS-210 Issue8 A8.2, A8.3	**P**
Occupied 6dB Bandwidth	15.247 (d)	RSS-210 Issue8 A8.2	**P**
Band Edges Compliance	15.247 (b)	RSS-210 Issue8 A8.5	**P**
Transmitter Spurious Emission - Conducted	15.247	RSS-210 Issue8 A8.5	**P**
Transmitter Spurious Emission - Radiated	15.247, 15.209, 15.209	RSS-210 Issue8 A8.5	**P**
Occupied bandwidth	/	RSS-Gen Issue3 4.6.1	***I***
AC Powerline Conducted Emission	15.107, 15.207	RSS-Gen Issue8 7.2.4	**P**

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

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

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 case listed above are tested under Normal Temperature and Normal Voltage, and also under norm humidity, the specific conditions as following:

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

7. TEST EQUIPMENTS UTILIZED

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	2012-07-19
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

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

Anechoic chamber

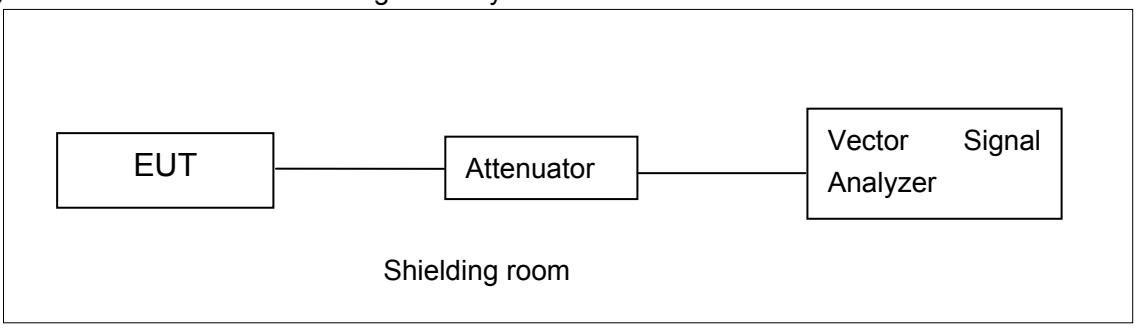
Anechoic chamber by Frankonia German.

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

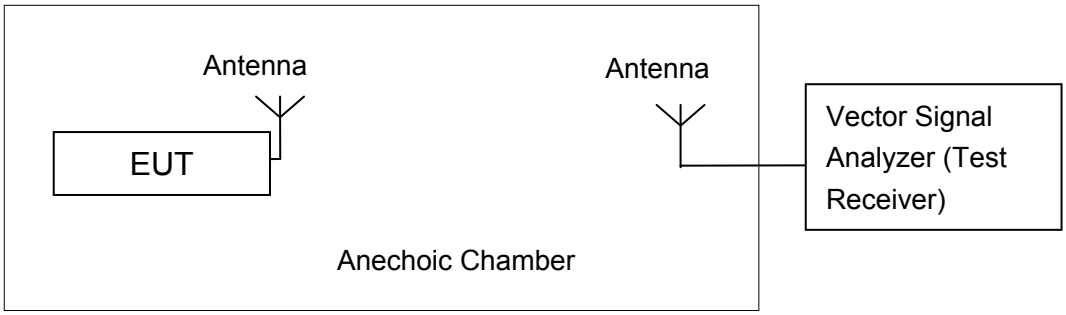
A.1.1. Conducted Measurements

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 C63.4 and KDB558074

A.2. Maximum Peak Output Power

Measurement Limit and Method:

Standard	Limit (dBm)
FCC CRF Part 15.247(b) RSS-210 Issue8 A8.4	< 30

The measurement is made according to ANSI C63.4 and KDB558074, and power output option 1 (RBW=20MHz) in KDB558074 is used for the test. EUT is operating in continuous transmitting mode

Measurement Uncertainty:

Measurement Uncertainty	0.75dB

A.2.1. Maximum Peak Output Power

Measurement Results:

802.11b/g mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11b	1	17.87	17.66	17.30
	2	18.18	18.04	17.63
	5.5	20.12	19.97	19.58
	11	21.62	21.57	21.08
802.11g	6	19.51	19.34	19.19
	9	19.50	19.37	19.14
	12	19.57	19.50	19.36
	18	19.68	19.56	19.30
	24	20.00	20.04	19.71
	36	20.01	19.88	19.70
	48	19.91	19.87	19.75
	54	19.95	19.94	19.61

The data rate 11Mbps and 24Mbps are selected as worse condition, and the following cases are performed with this condition.

802.11n mode

Mode	Data Rate (MCS Index)	Test Result (dBm)		
		2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11n (20MHz BW)	MCS0	17.52	17.44	17.13
	MCS1	17.54	17.73	17.29
	MCS2	17.66	17.62	17.31
	MCS3	18.10	17.92	17.53
	MCS4	18.05	17.89	17.41

	MCS5	17.93	17.88	17.37
	MCS6	18.04	17.96	17.60
	MCS7	17.95	17.81	17.32

The data rate index of MCS3 is selected as worse condition, and the following cases are performed with this condition.

Conclusion: PASS

A.2.2. Maximum Average Output Power-conducted

802.11b/g mode

Mode	Test Result (dBm)		
	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11b	15.21	14.91	14.61
802.11g	11.63	11.41	11.24

802.11n mode

Mode	Test Result (dBm)		
	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11n (20MHz)	11.56	11.47	11.17

Conclusion: PASS

A.3. Peak Power Spectral Density

Measurement Limit:

Standard	Limit
FCC CRF Part 15.247(d) RSS-210 Issue8 A8.2, A8.3	< 8 dBm/3 kHz

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

Measurement Uncertainty:

Measurement Uncertainty	0.75dB

Measurement Results:

802.11b/g mode

Mode	Channel	Power Spectral Density (8 dBm/3 kHz)		Conclusion
802.11b	1	Fig.1	-6.01	P
	6	Fig.2	-5.66	P
	11	Fig.3	-5.91	P
802.11g	1	Fig.4	-11.49	P
	6	Fig.5	-12.47	P
	11	Fig.6	-11.97	P

802.11n mode

Mode	Channel	Power Spectral Density (dBm/3 kHz)		Conclusion
802.11n (20MHz)	1	Fig.7	-14.47	P
	6	Fig.8	-14.52	P
	11	Fig.9	-14.85	P

Conclusion: PASS

Test graphs as below:

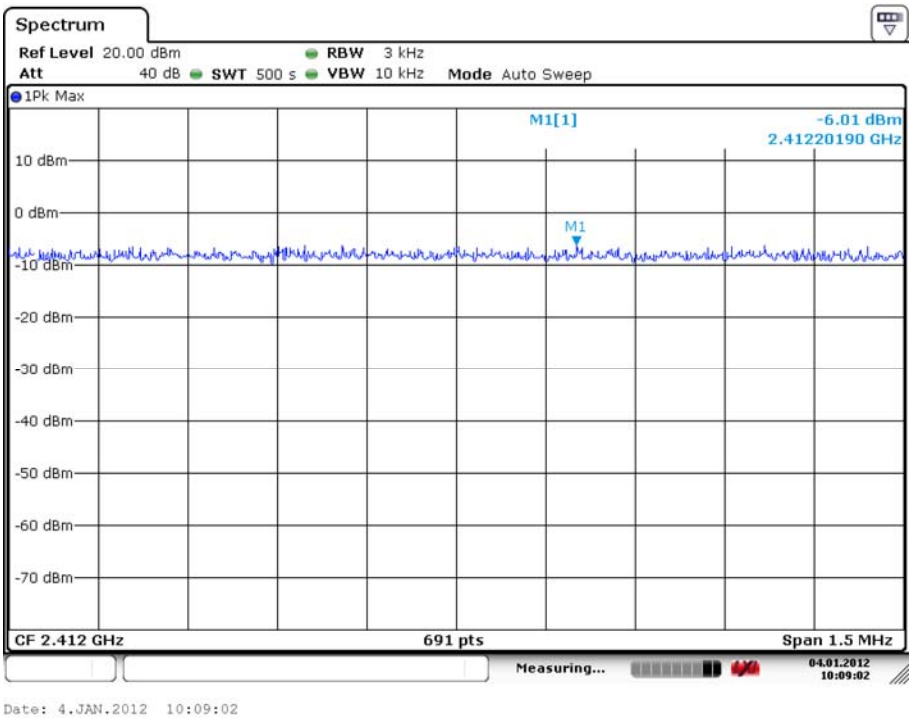


Fig. 1 Power Spectral Density (802.11b, Ch 1)

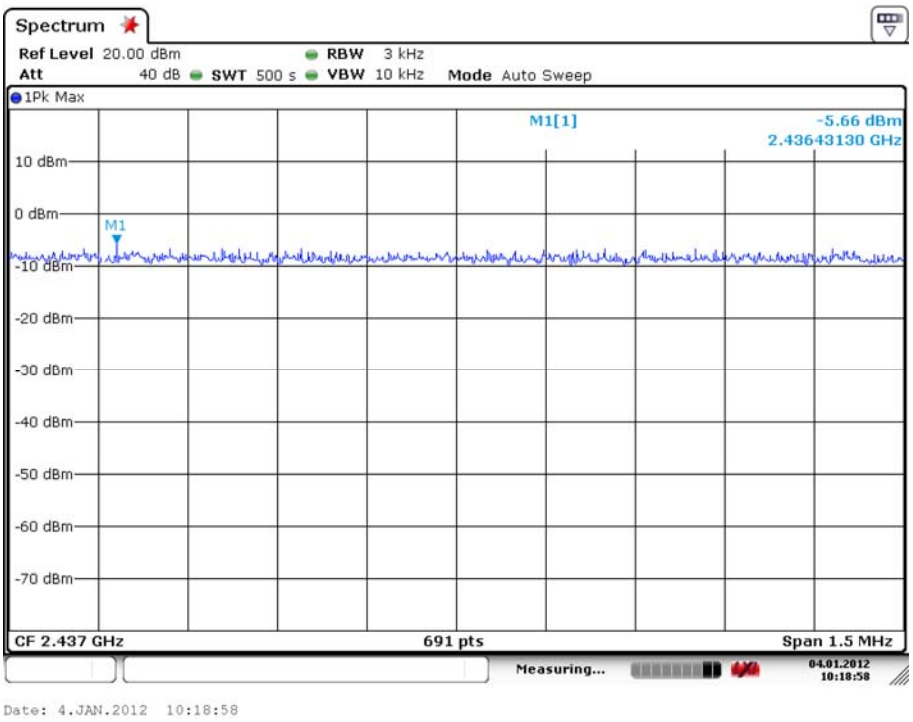


Fig. 2 Power Spectral Density (802.11b, Ch 6)

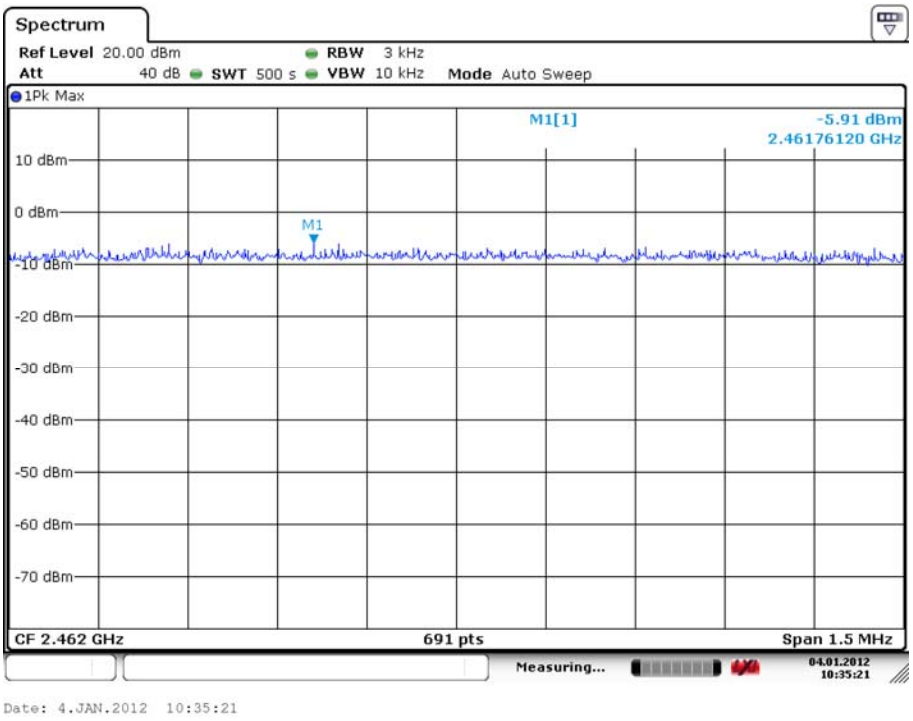


Fig. 3 Power Spectral Density (802.11b, Ch 11)

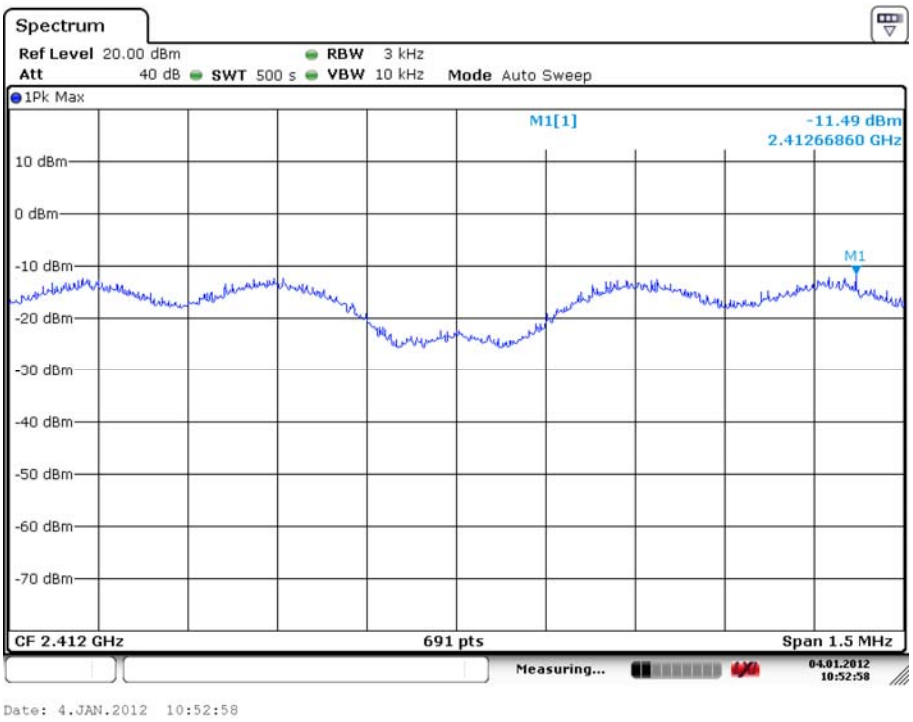


Fig. 4 Power Spectral Density (802.11g, Ch 1)

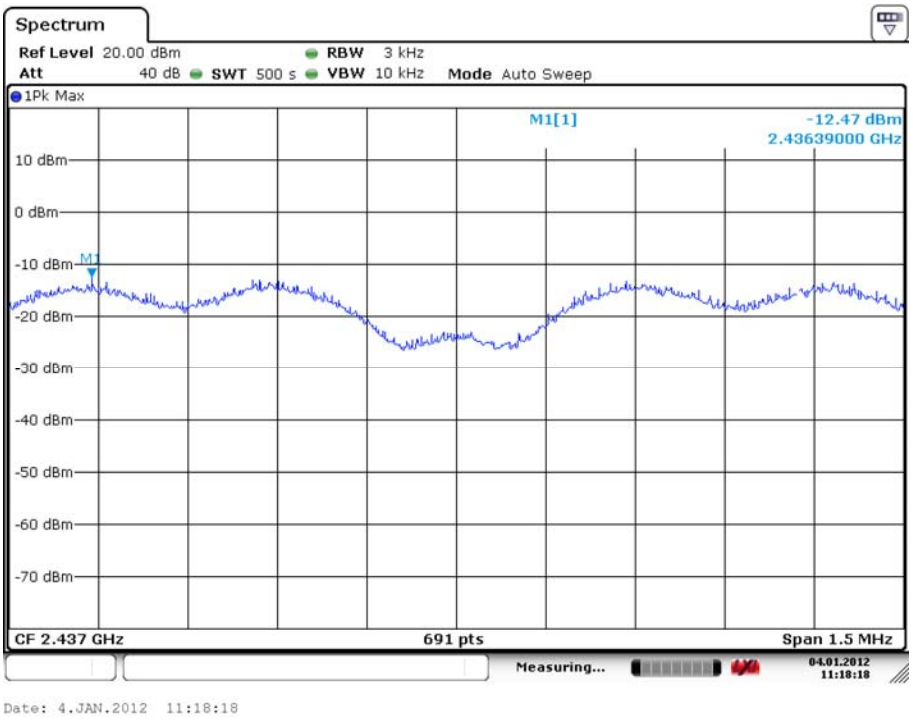


Fig. 5 Power Spectral Density (802.11g, Ch 6)

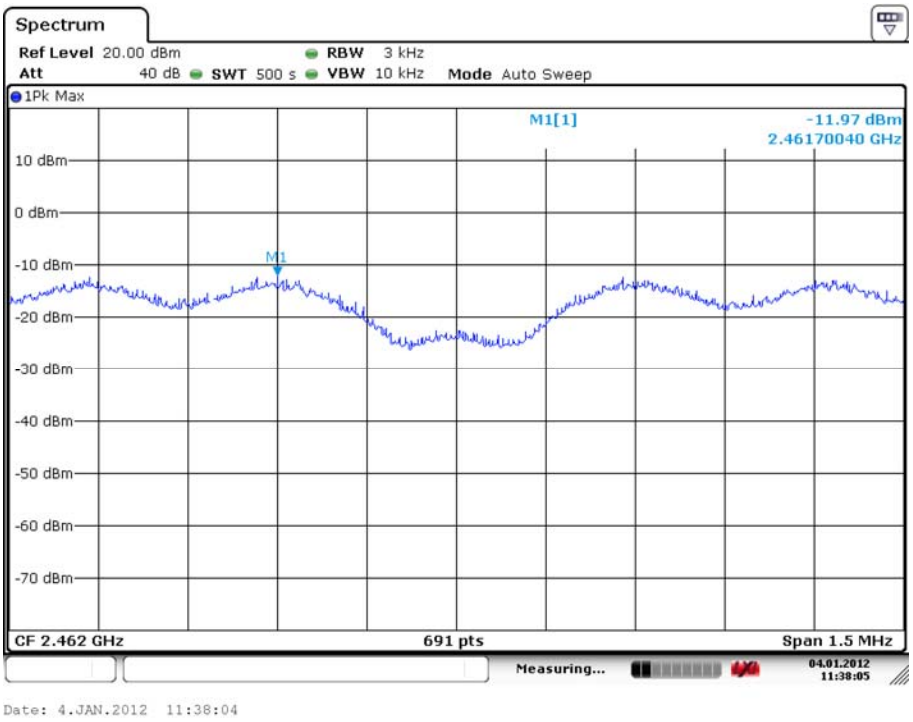


Fig. 6 Power Spectral Density (802.11g, Ch 11)

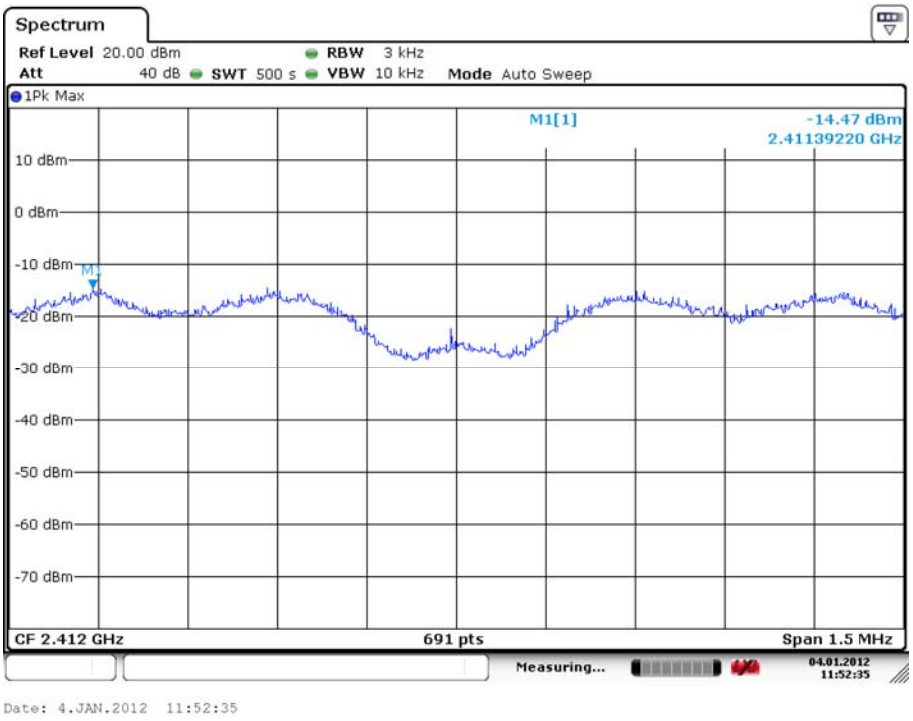


Fig. 7 Power Spectral Density (802.11n-20MHz, Ch 1)

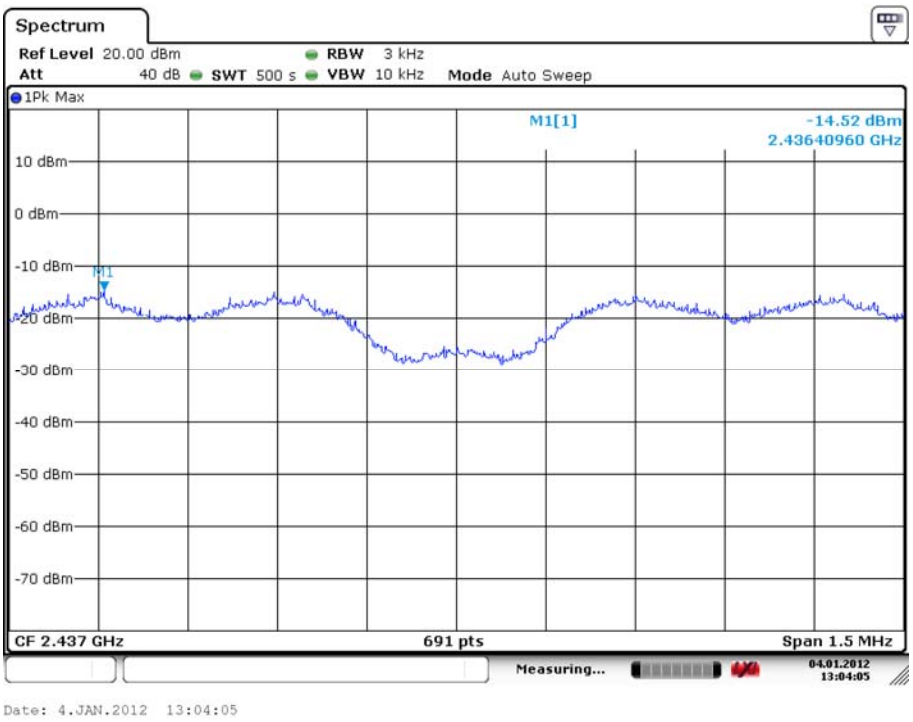


Fig. 8 Power Spectral Density (802.11n-20MHz, Ch 6)

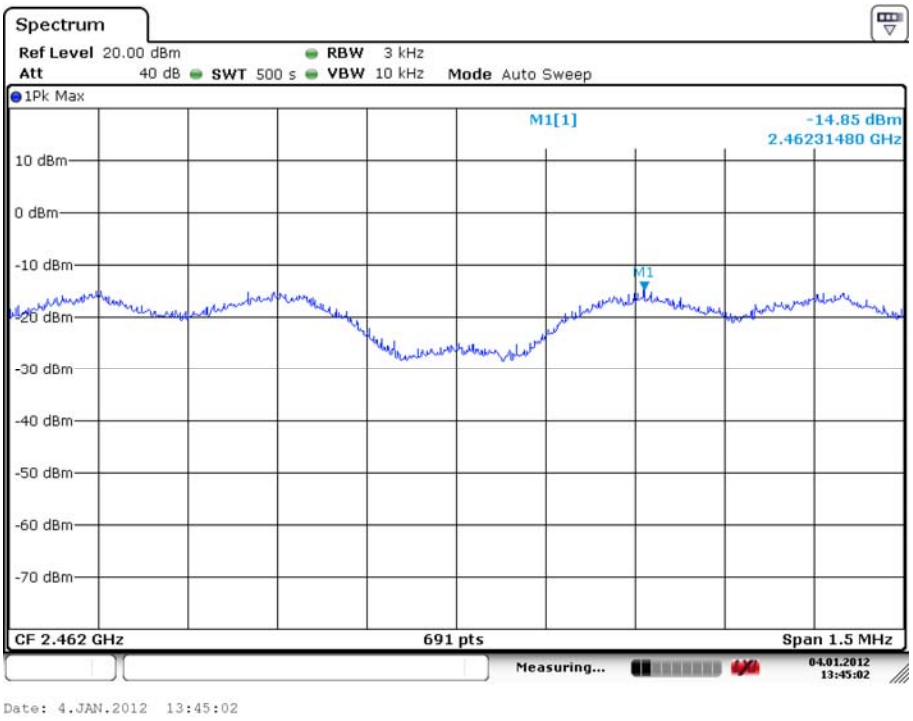


Fig. 9 Power Spectral Density (802.11n-20MHz, Ch 11)

A.4. Occupied 6dB Bandwidth

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.247 (a) RSS-210 Issue8 A8.2	≥ 500

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

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz

Measurement Result:

802.11b/g mode

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
802.11b	1	Fig.10	7602	P
	6	Fig.11	7898	P
	11	Fig.12	7529	P
802.11g	1	Fig.13	16421	P
	6	Fig.14	16496	P
	11	Fig.15	16200	P

802.11n mode

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
802.11n (20MHz)	1	Fig.16	16532	P
	6	Fig.17	17714	P
	11	Fig.18	16938	P

Conclusion: PASS

Test graphs as below:

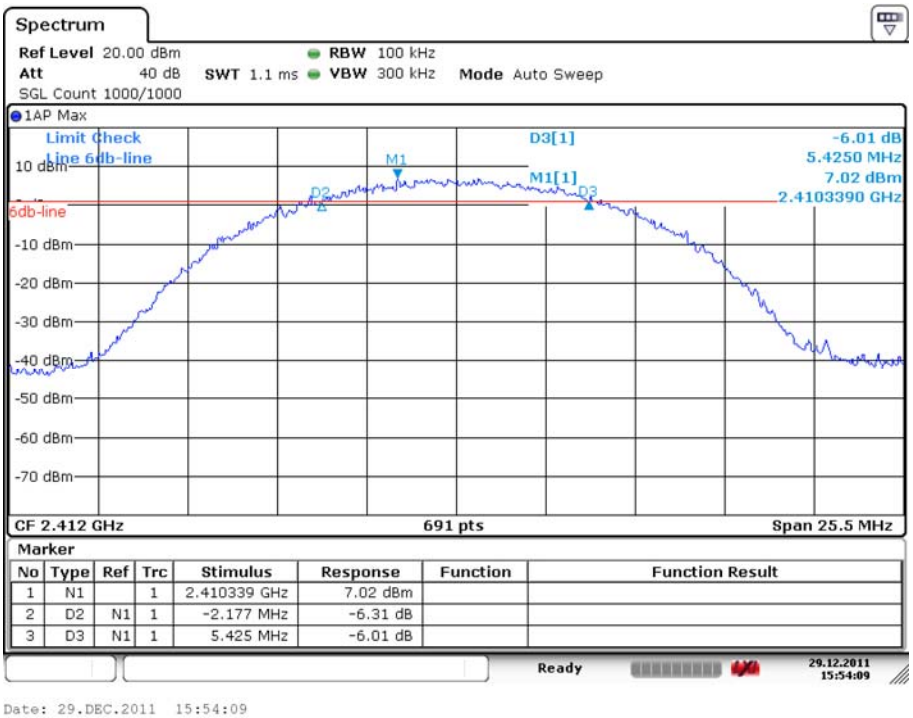


Fig. 10 Occupied 6dB Bandwidth (802.11b, Ch 1)

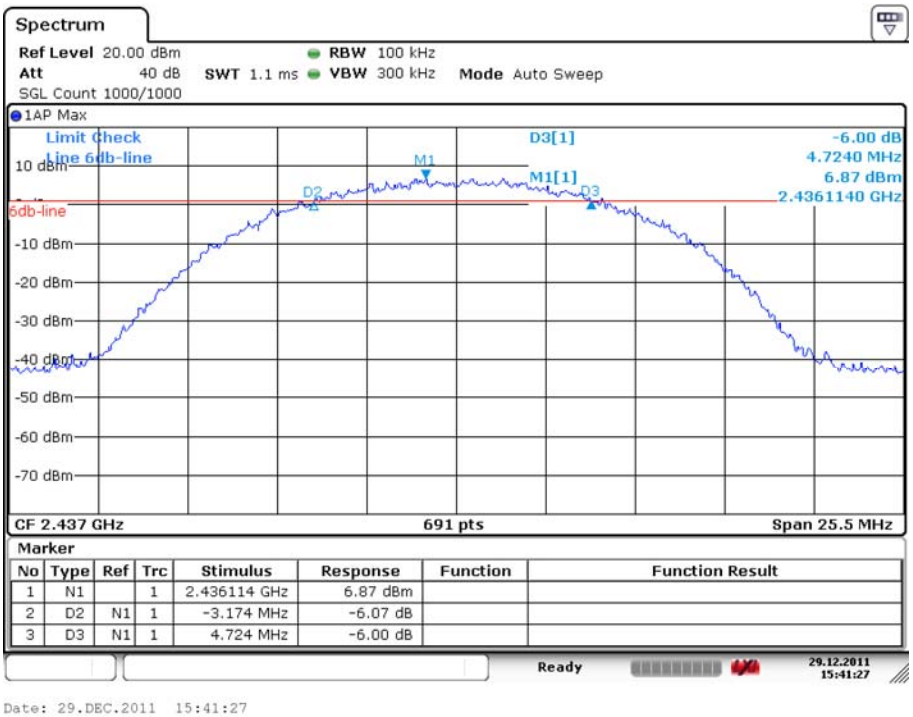


Fig. 11 Occupied 6dB Bandwidth (802.11b, Ch 6)

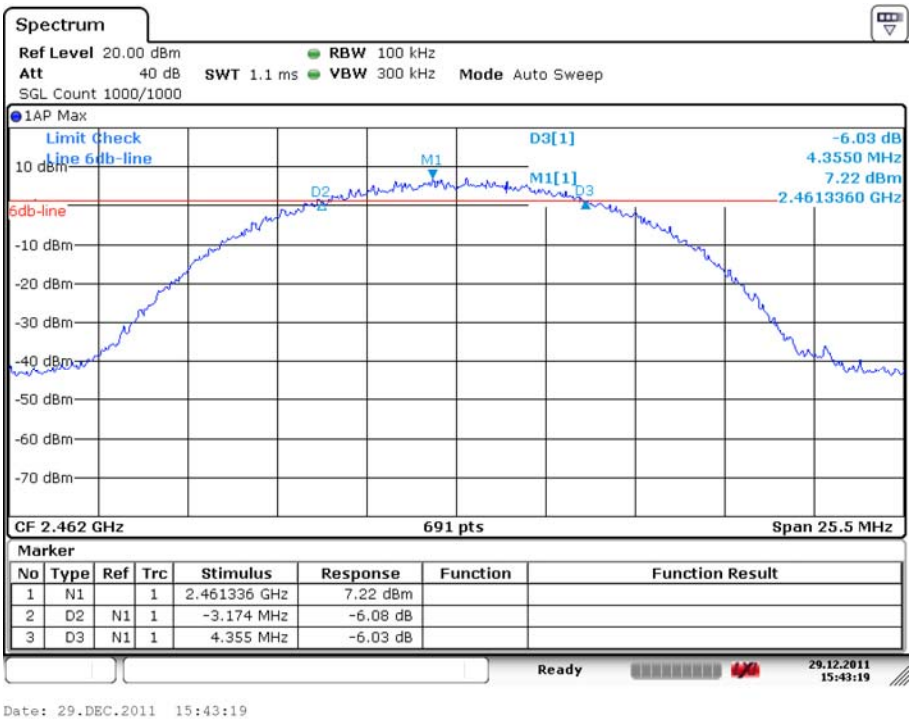


Fig. 12 Occupied 6dB Bandwidth (802.11b, Ch 11)

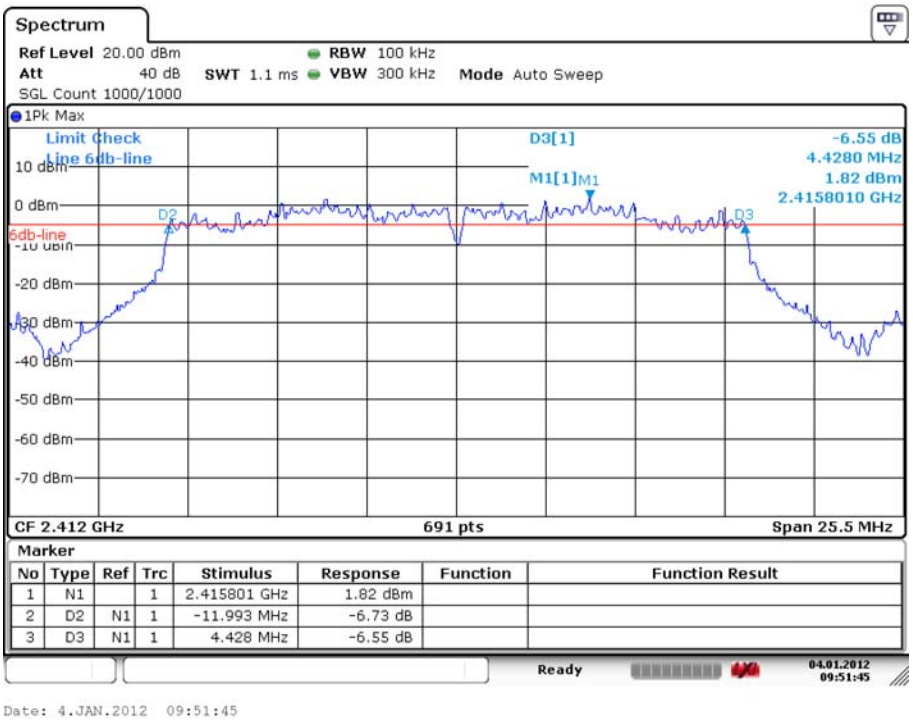


Fig. 13 Occupied 6dB Bandwidth (802.11g, Ch 1)

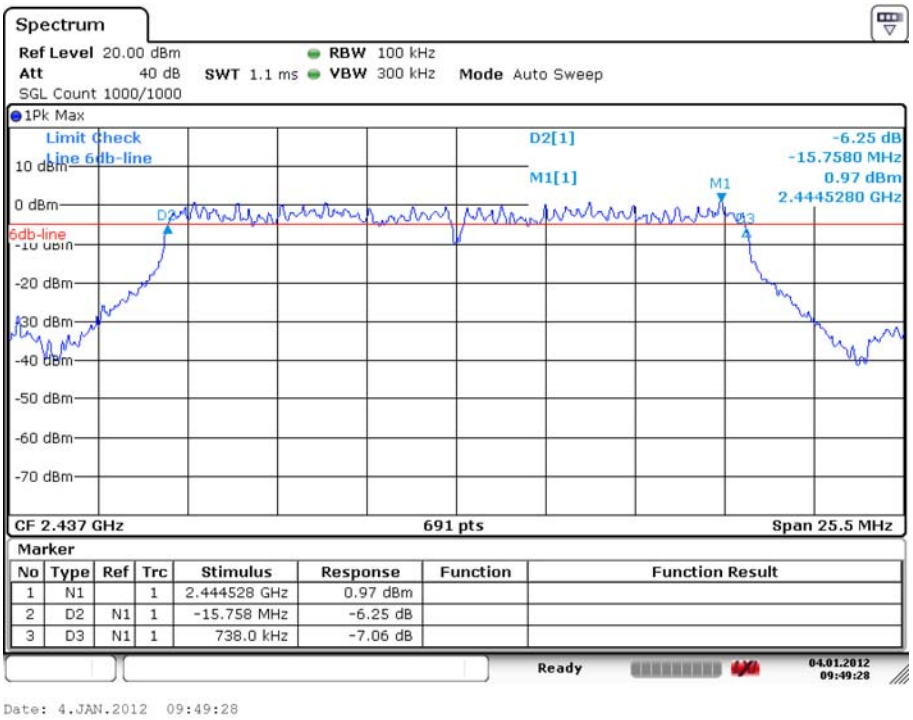


Fig. 14 Occupied 6dB Bandwidth (802.11g, Ch 6)

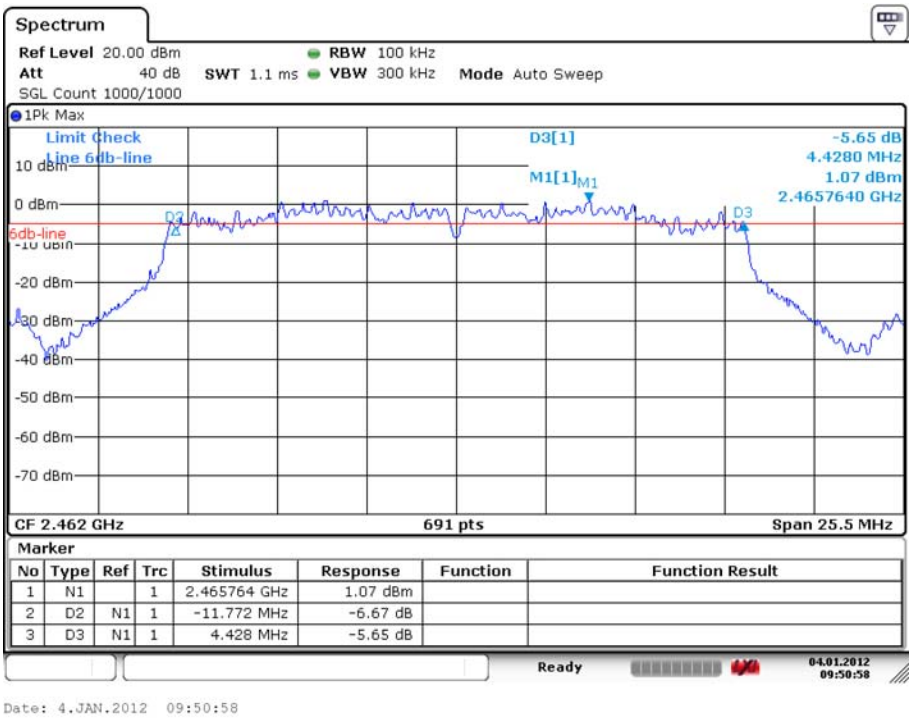


Fig. 15 Occupied 6dB Bandwidth (802.11g, Ch 11)

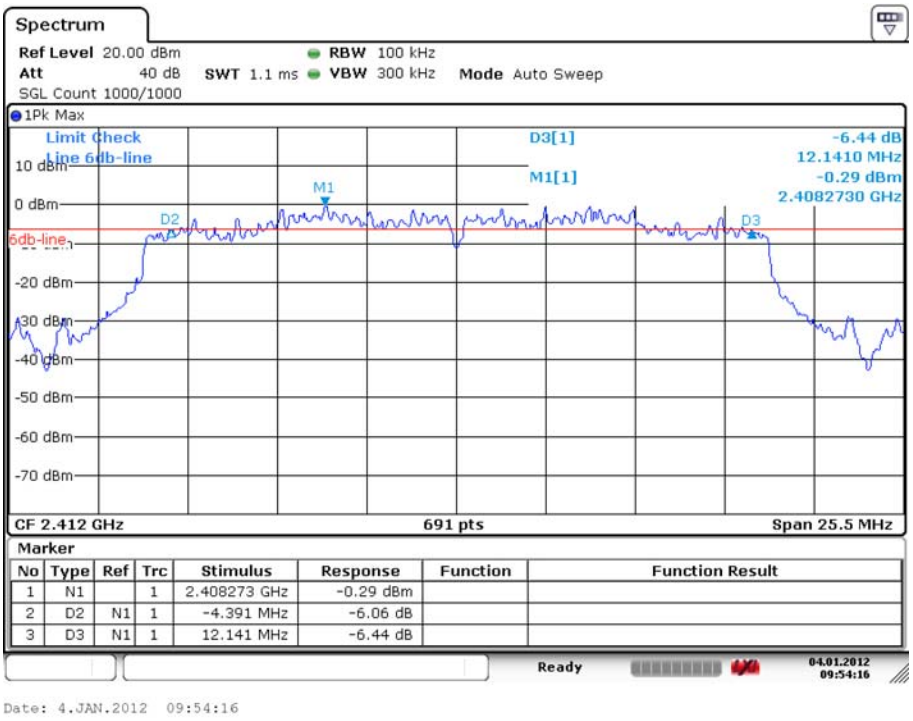


Fig. 16 Occupied 6dB Bandwidth (802.11 n-20MHz, Ch 1)

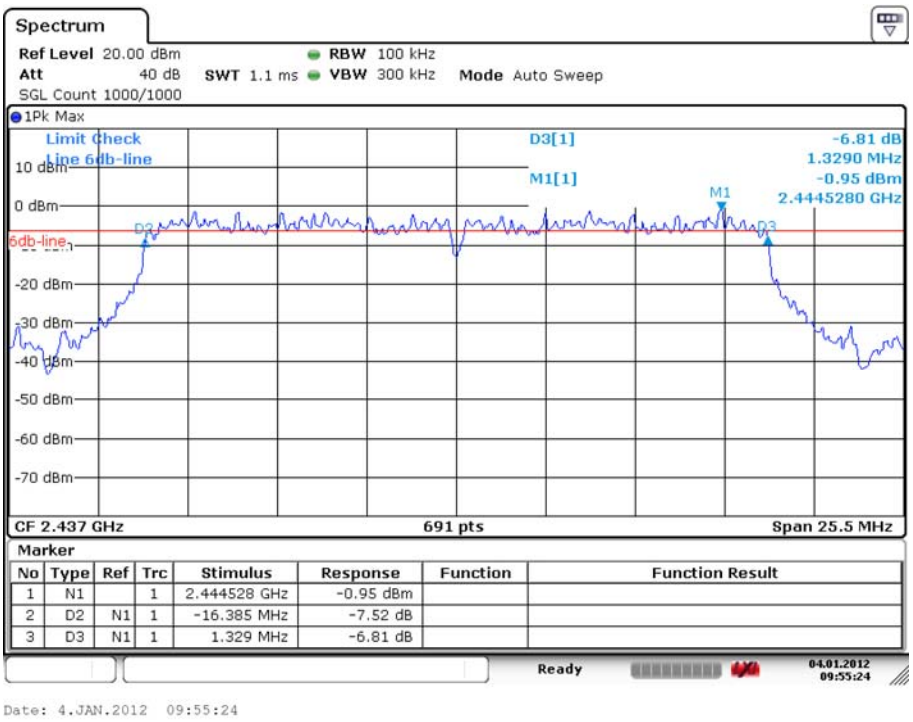


Fig. 17 Occupied 6dB Bandwidth (802.11 n-20MHz, Ch 6)

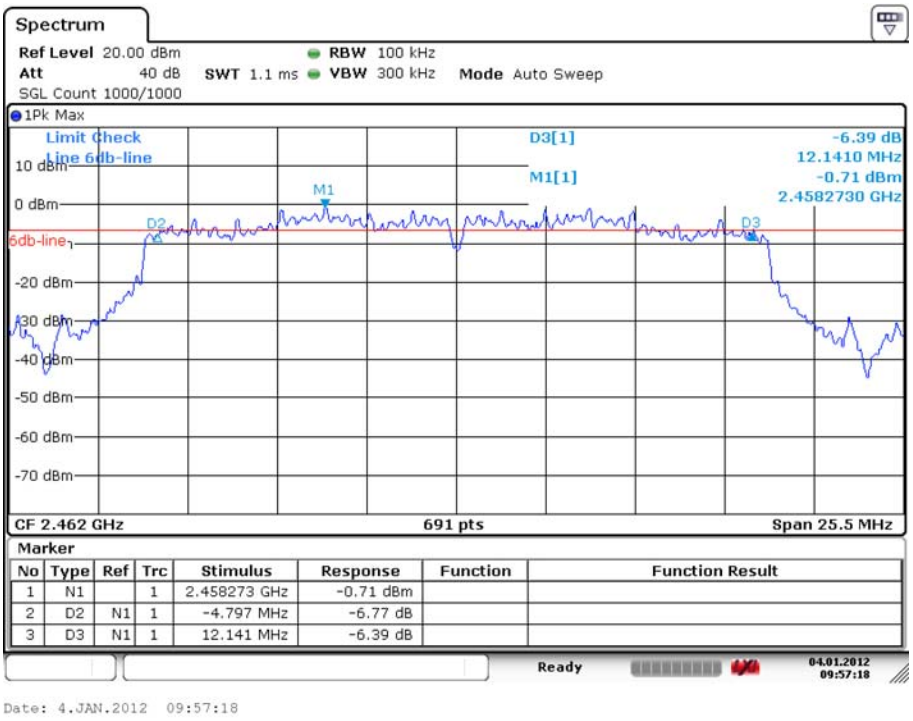


Fig. 18 Occupied 6dB Bandwidth (802.11n-20MHz, Ch 11)

A.5. Band Edges Compliance

Measurement Limit:

Standard	Limit (dBc)
FCC 47 CFR Part 15.247 (d) RSS-210 Issue8 A8.5	> 20

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

Measurement Uncertainty:

Measurement Uncertainty	0.75dB

Measurement Result:

802.11b/g mode

Mode	Channel	Test Results	Conclusion
802.11b	1	Fig.19	P
	11	Fig.20	P
802.11g	1	Fig.21	P
	11	Fig.22	P

802.11n mode

Mode	Channel	Test Results	Conclusion
802.11n (20MHz)	1	Fig.23	P
	11	Fig.24	P

Conclusion: PASS

Test graphs as below:

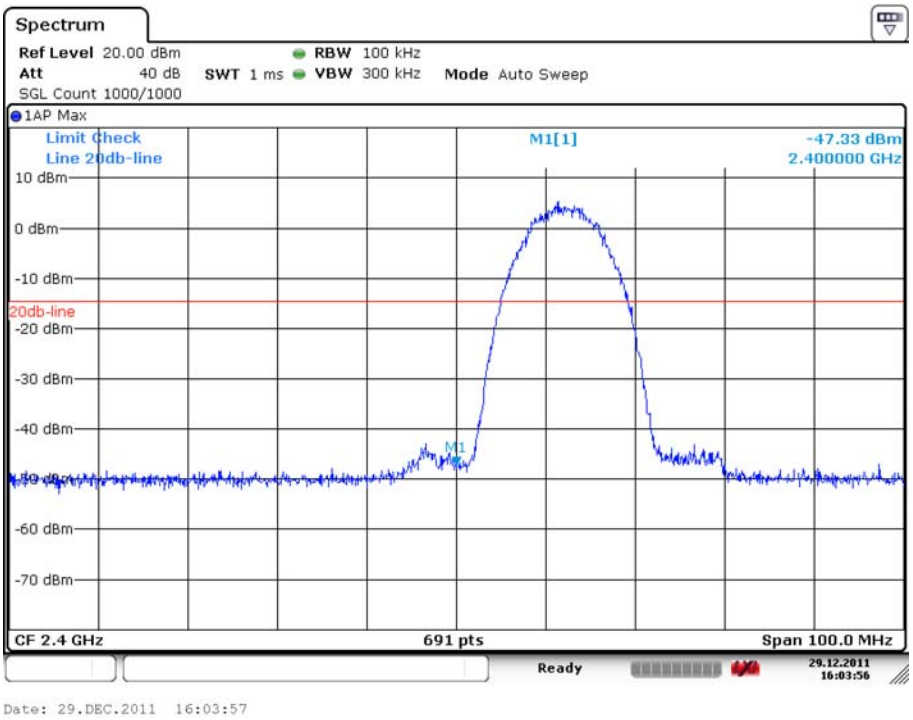


Fig. 19 Band Edges (802.11b, Ch 1)

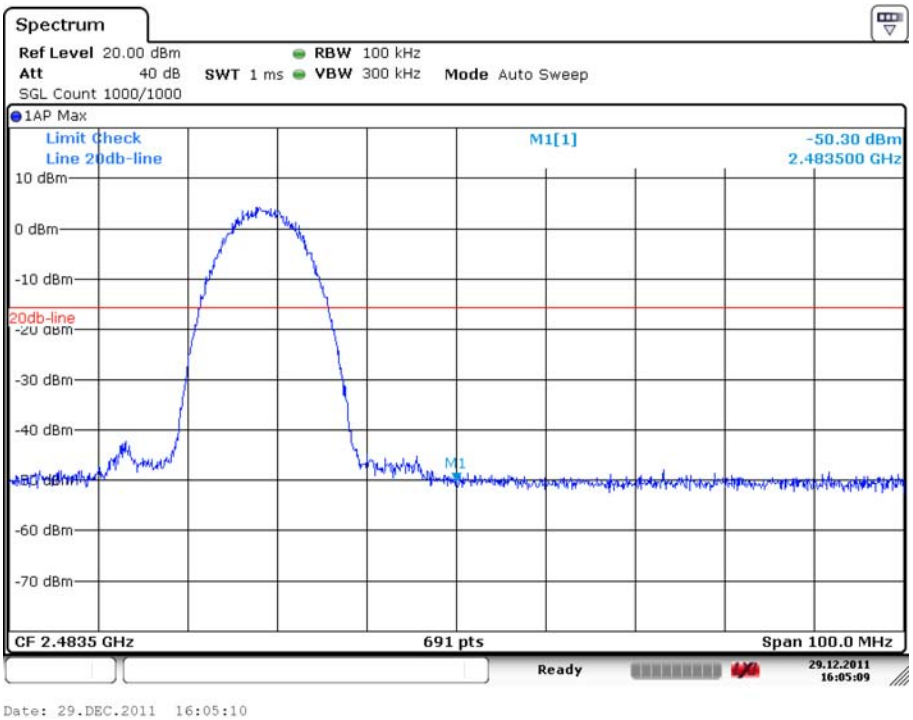


Fig. 20 Band Edges (802.11b, Ch 11)

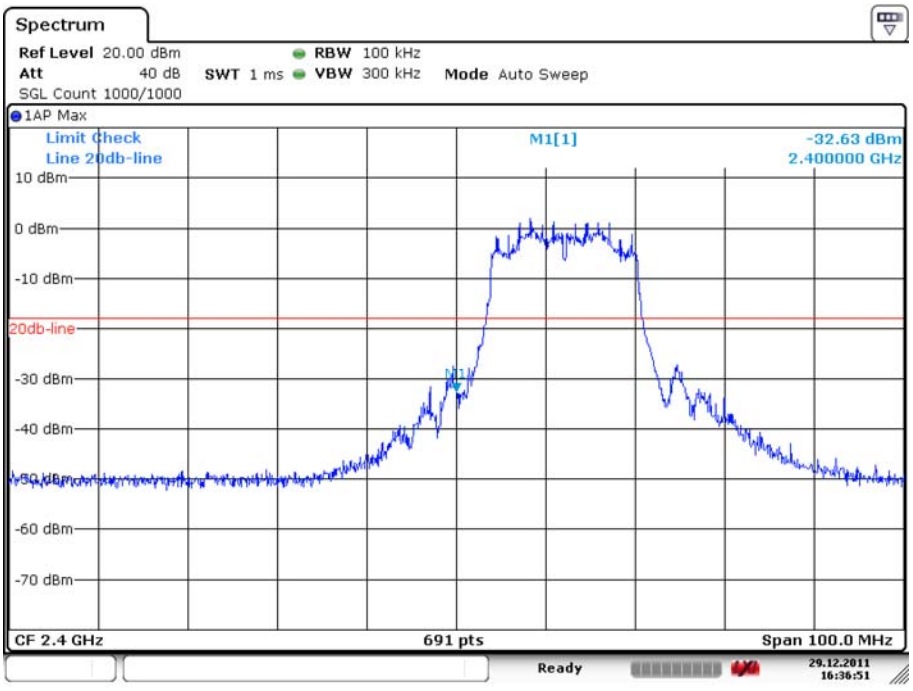


Fig. 21 Band Edges (802.11g, Ch 1)

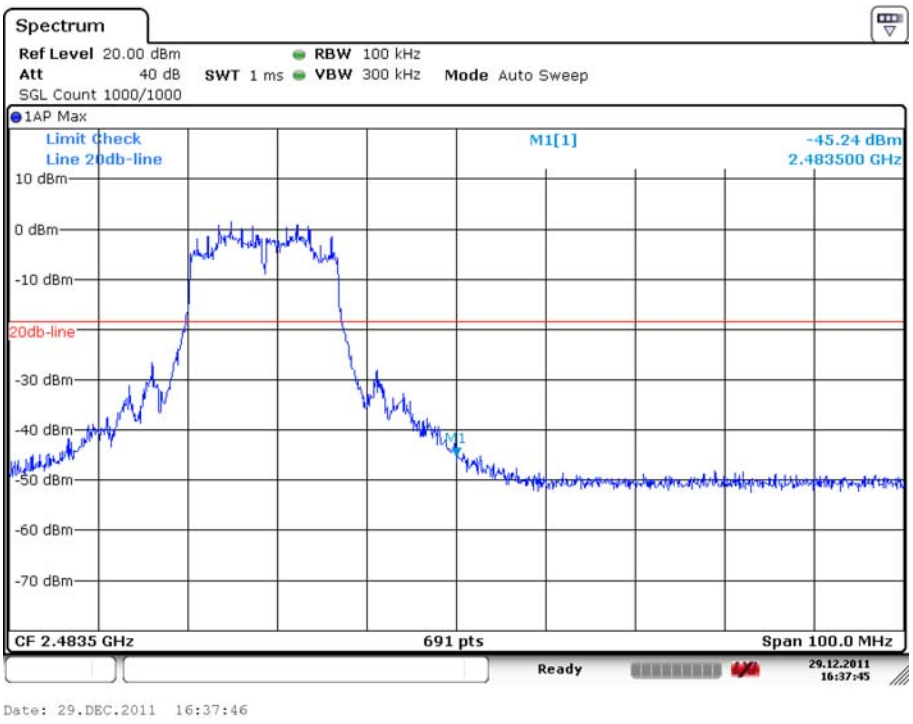


Fig. 22 Band Edges (802.11g, Ch 11)

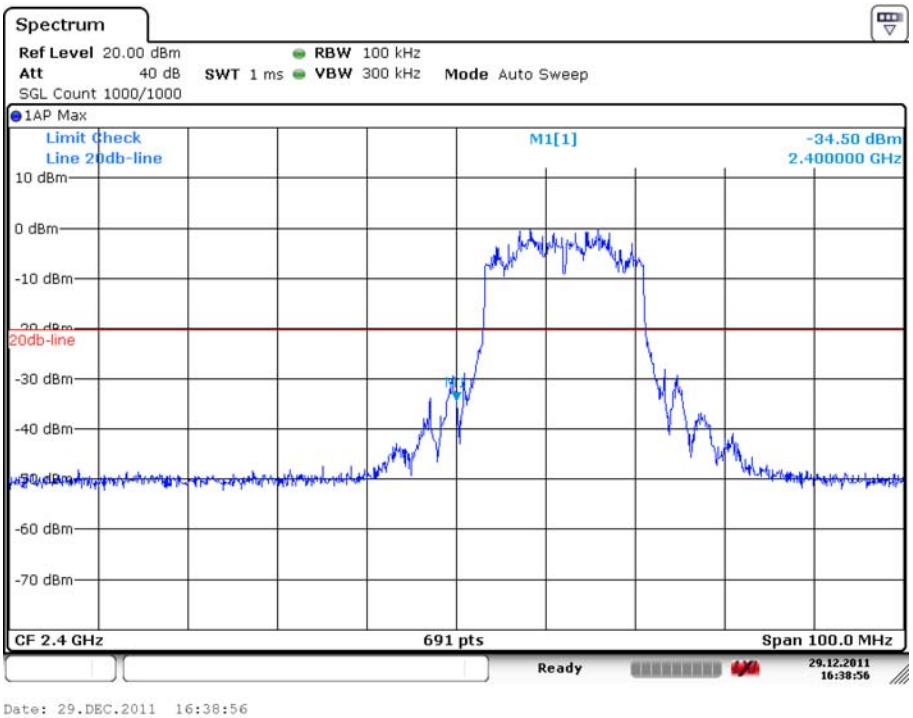


Fig. 23 Band Edges (802.11 n-20MHz, Ch 1)

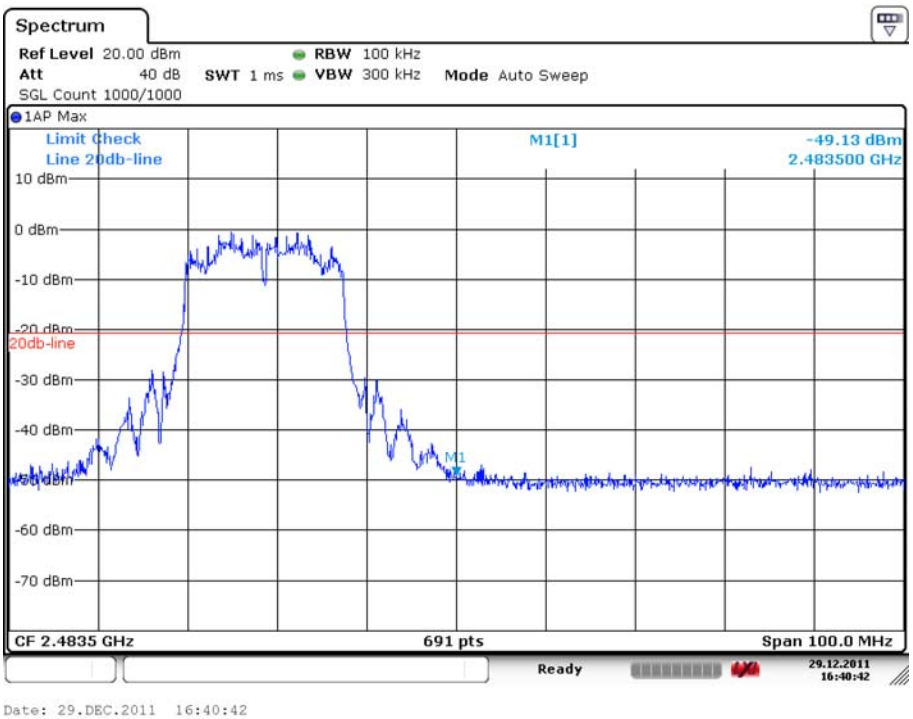


Fig. 24 Band Edges (802.11 n-20MHz, Ch 11)

A.6. Transmitter Spurious Emission

A.6.1 Transmitter Spurious Emission - Conducted

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247 (d) RSS-210 Issue8 A8.5	20dB below peak output power in 100 kHz bandwidth

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

Measurement Uncertainty:

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

Measurement Results:

802.11b/g mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	2.412 GHz	Fig.25	P
		30 MHz-26 GHz	Fig.26	P
	6	2.437 GHz	Fig.27	P
		30 MHz-26 GHz	Fig.28	P
	11	2.462 GHz	Fig.29	P
		30 MHz-26 GHz	Fig.30	P
802.11g	1	2.412 GHz	Fig.31	P
		30 MHz-26 GHz	Fig.32	P
	6	2.437 GHz	Fig.33	P
		30 MHz-26 GHz	Fig.34	P
	11	2.462 GHz	Fig.35	P
		30 MHz-26 GHz	Fig.36	P

802.11n mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n (20MHz)	1	2.412 GHz	Fig.37	P
		30 MHz-26 GHz	Fig.38	P
	6	2.437 GHz	Fig.39	P
		30 MHz-26 GHz	Fig.40	P
	11	2.462 GHz	Fig.41	P
		30 MHz-26 GHz	Fig.42	P

Conclusion: PASS

Test graphs as below:

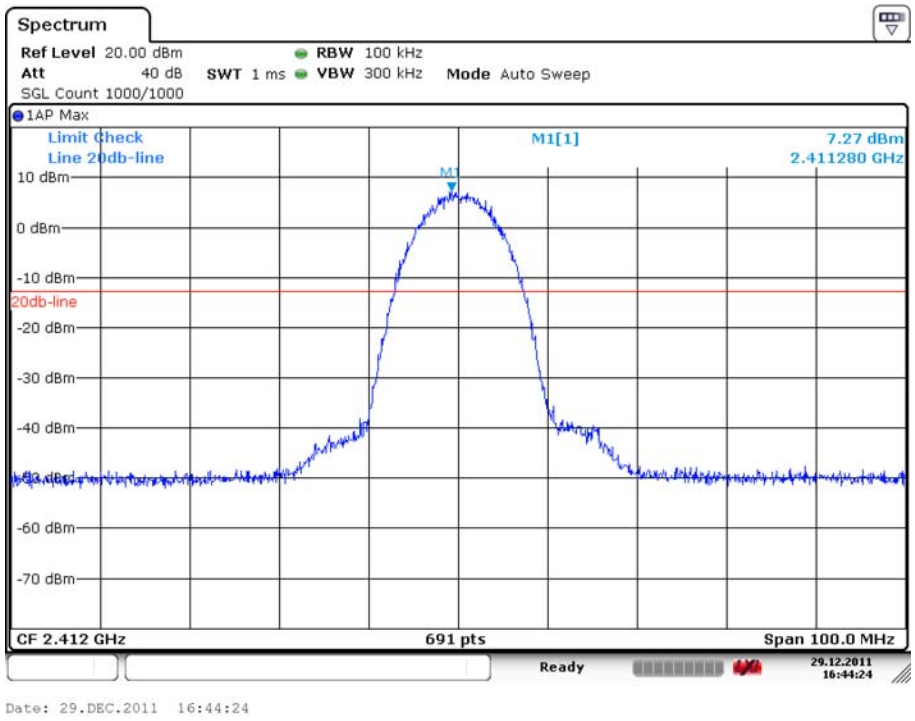


Fig. 25 Conducted Spurious Emission (802.11b, Ch1, Center Frequency)

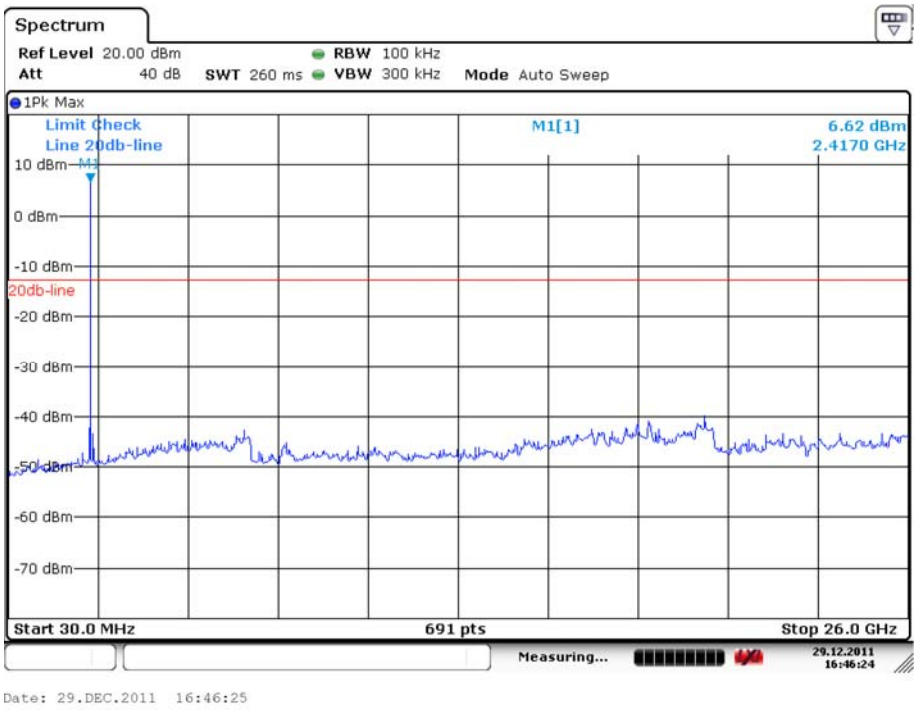


Fig. 26 Conducted Spurious Emission (802.11b, Ch1, 30 MHz-26 GHz)

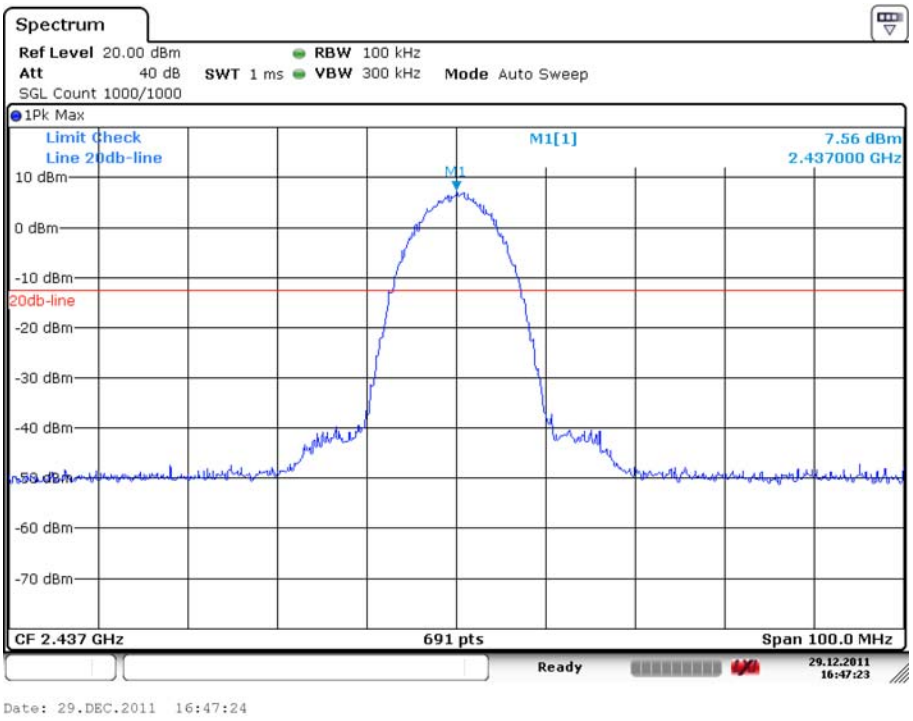


Fig. 27 Conducted Spurious Emission (802.11b, Ch6, Center Frequency)

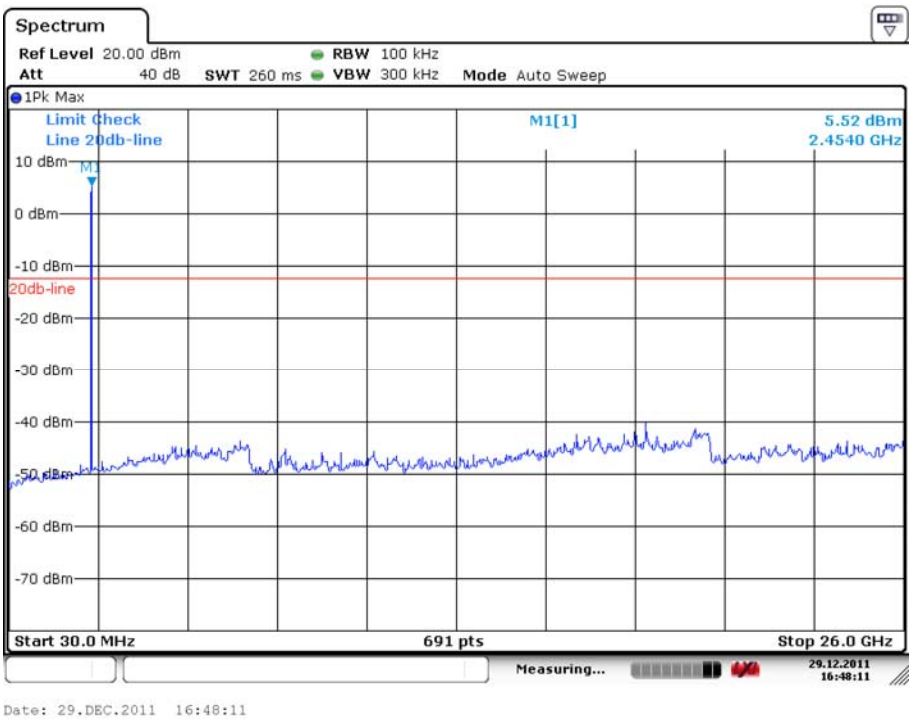


Fig. 28 Conducted Spurious Emission (802.11b, Ch6, 30 MHz-26 GHz)

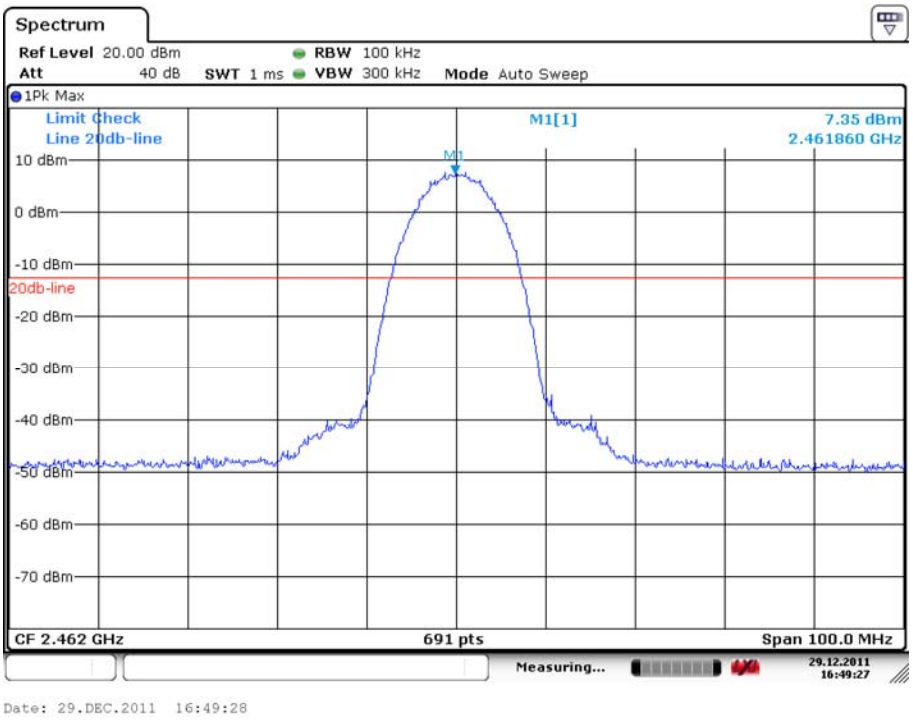


Fig. 29 Conducted Spurious Emission (802.11b, Ch11, Center Frequency)

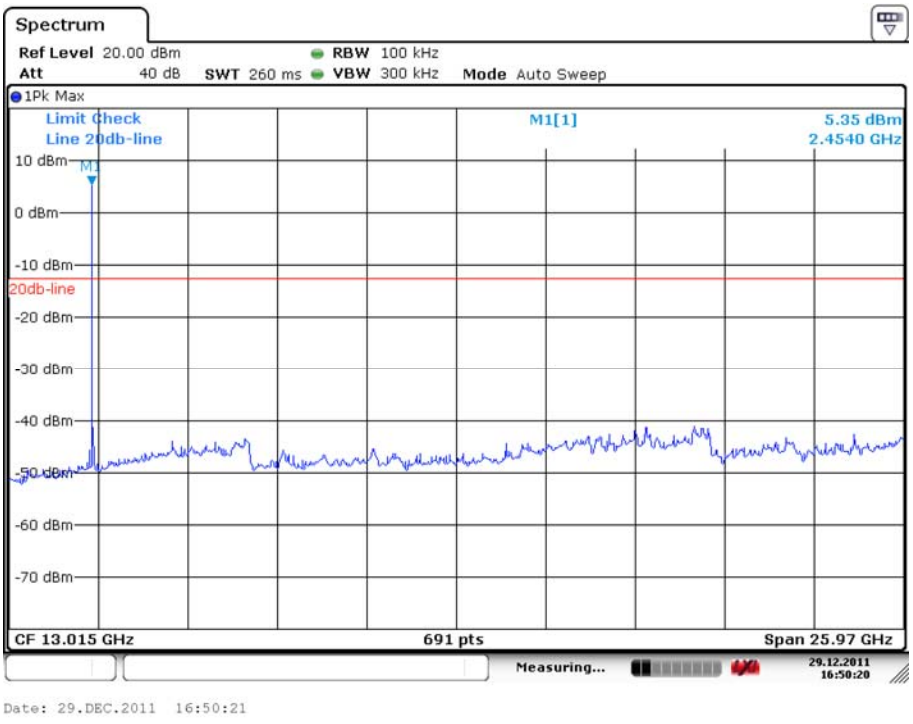


Fig. 30 Conducted Spurious Emission (802.11b, Ch11, 30 MHz-26 GHz)

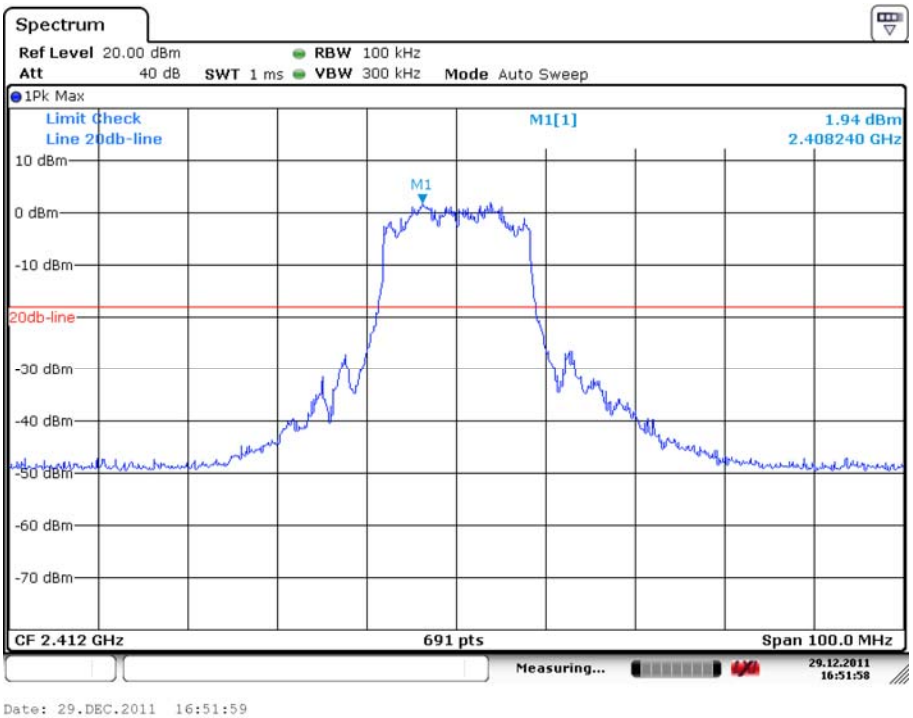


Fig. 31 Conducted Spurious Emission (802.11g, Ch1, Center Frequency)

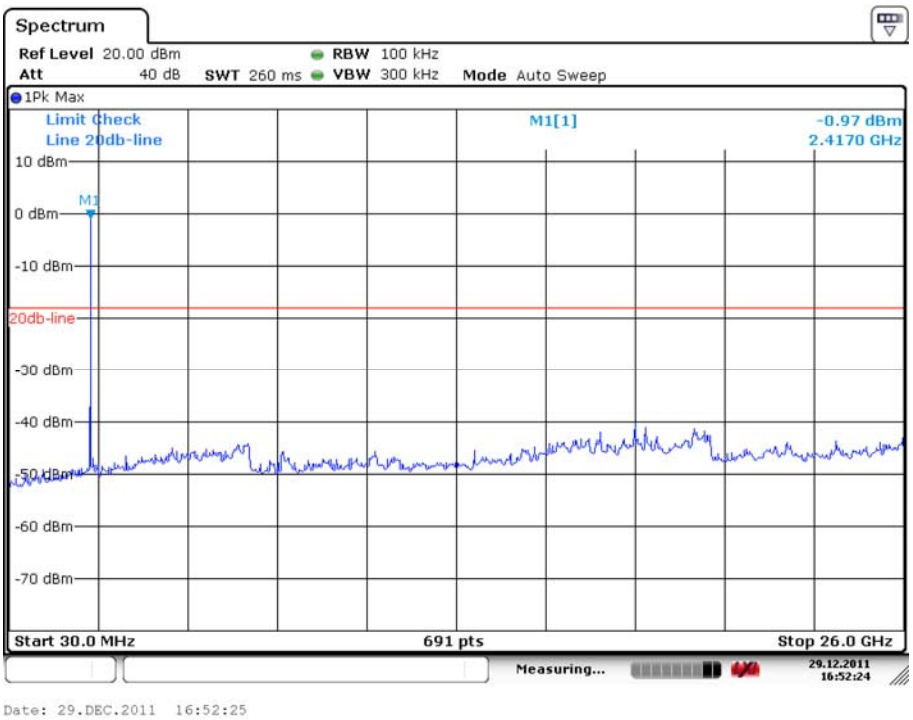


Fig. 32 Conducted Spurious Emission (802.11g, Ch1, 30 MHz-26 GHz)

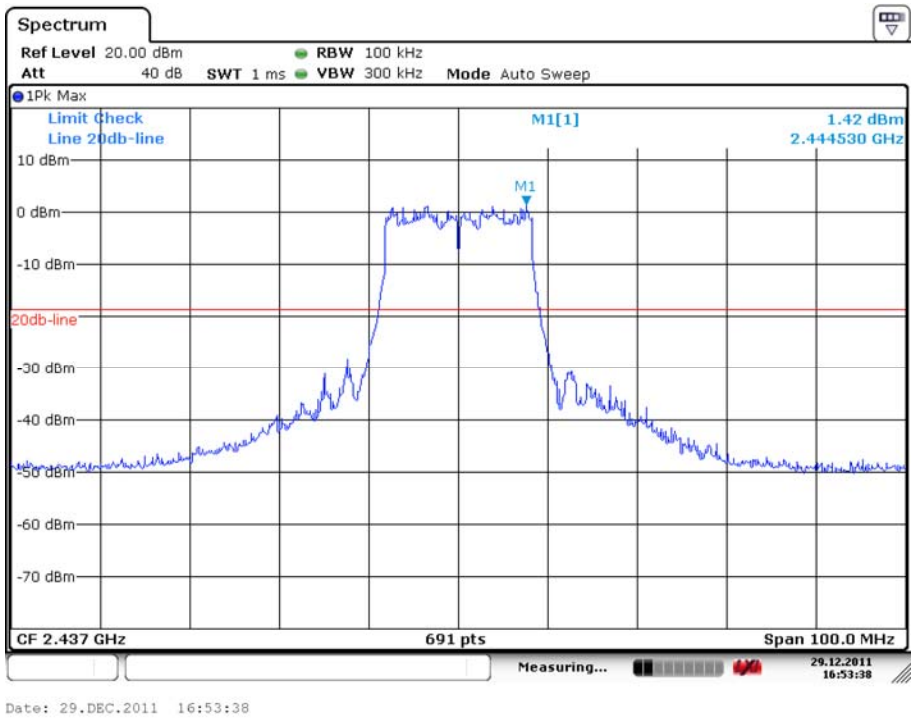


Fig. 33 Conducted Spurious Emission (802.11g, Ch6, Center Frequency)

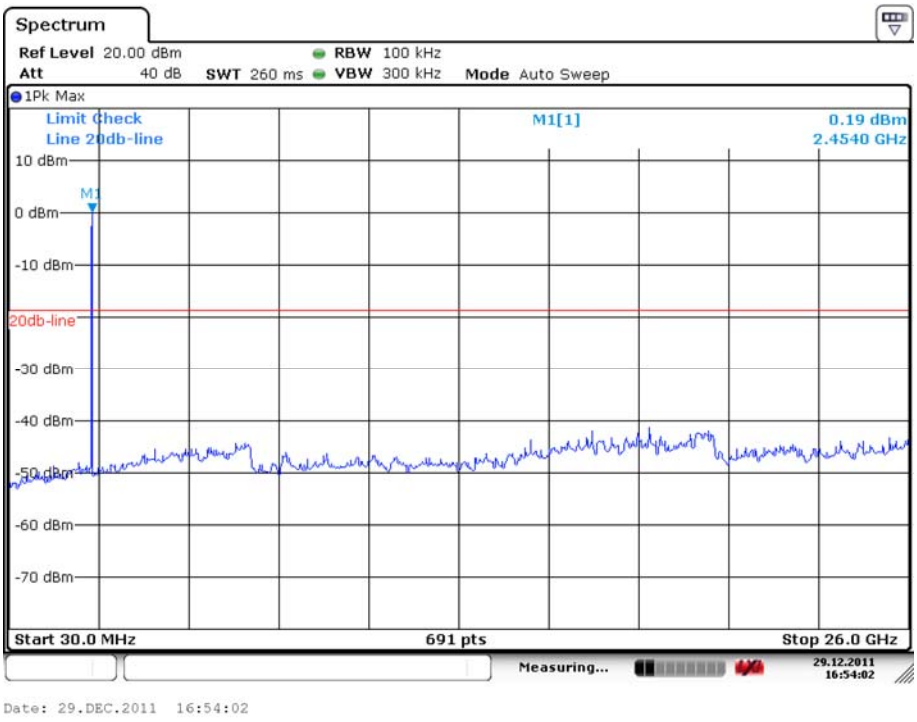


Fig. 34 Conducted Spurious Emission (802.11g, Ch6, 30 MHz-26 GHz)

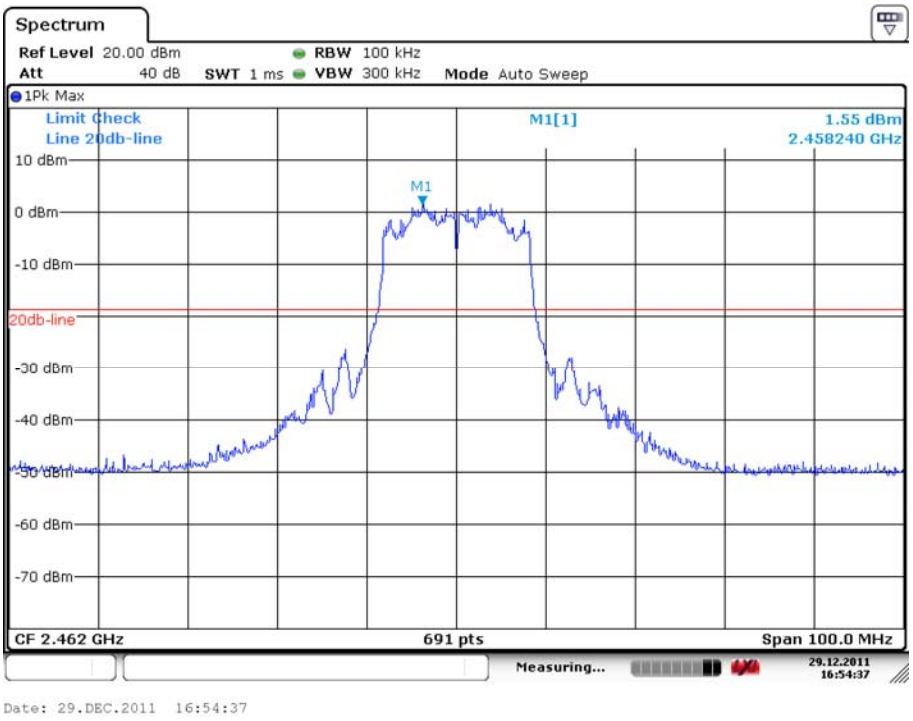


Fig. 35 Conducted Spurious Emission (802.11g, Ch11, Center Frequency)

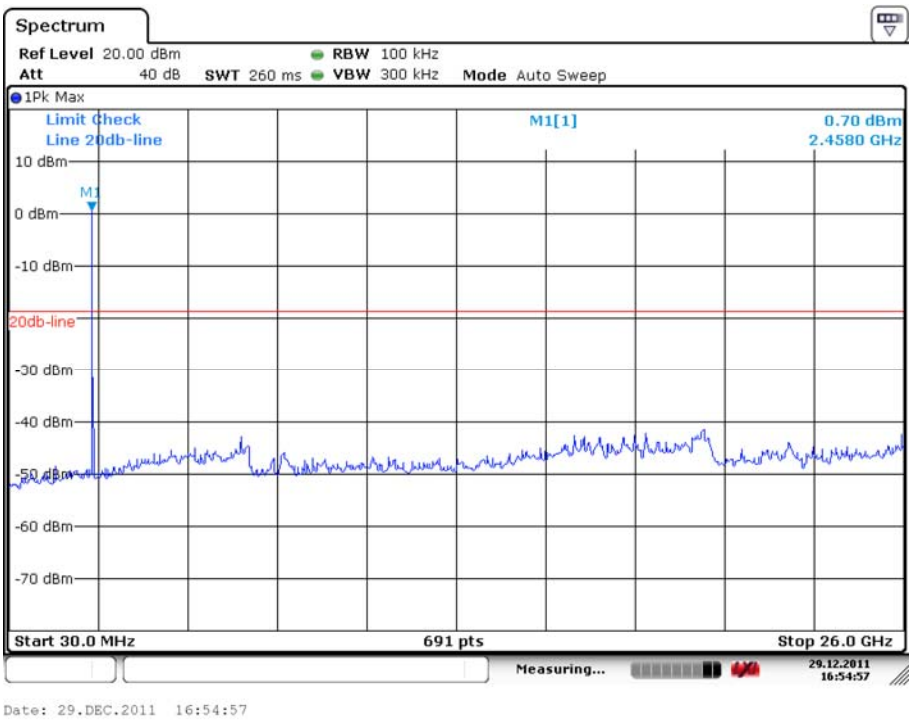


Fig. 36 Conducted Spurious Emission (802.11g, Ch11, 30 MHz-26 GHz)

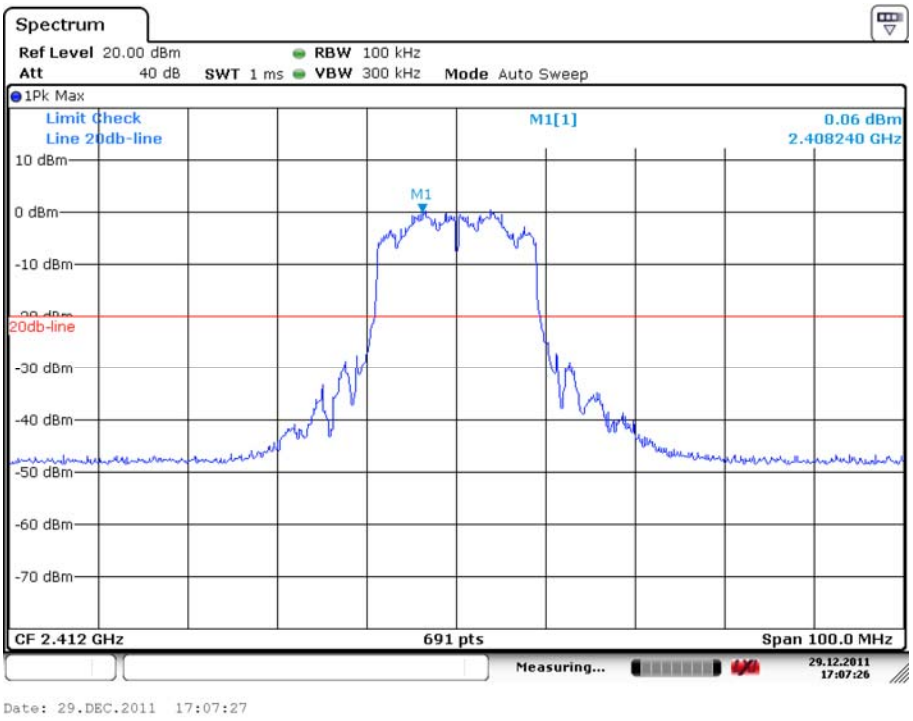


Fig. 37 Conducted Spurious Emission (802.11n-20MHz, Ch1, Center Frequency)

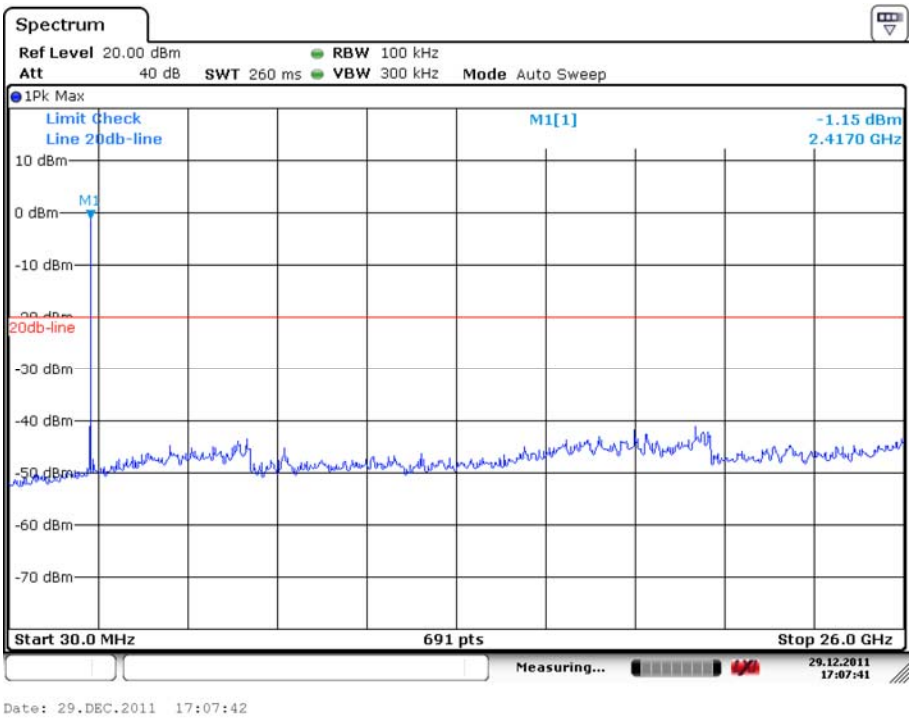


Fig. 38 Conducted Spurious Emission (802.11 n-20MHz, Ch1, 30 MHz-26 GHz)

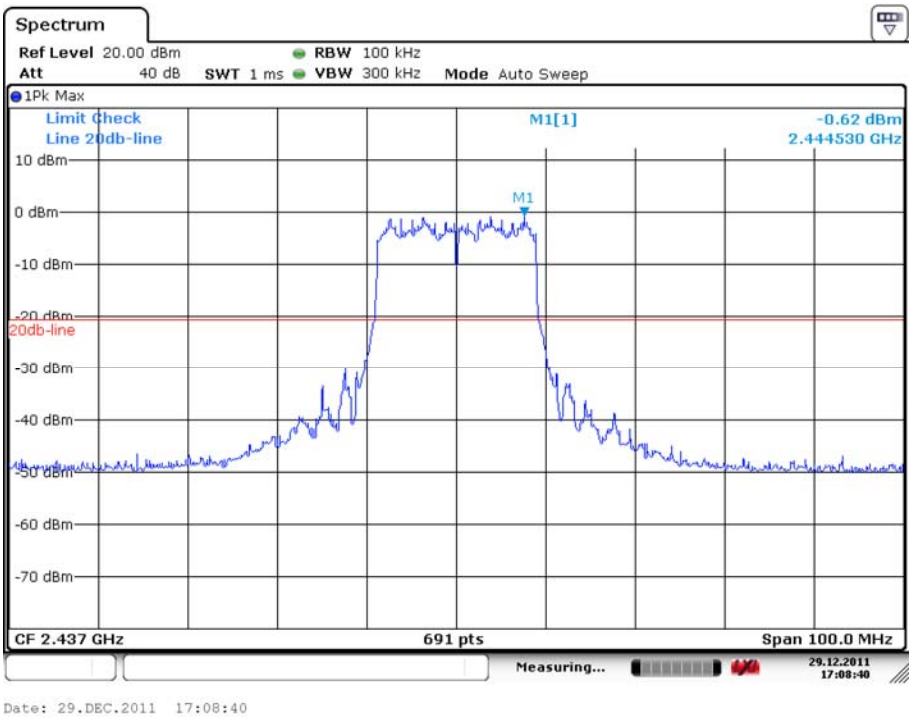


Fig. 39 Conducted Spurious Emission (802.11 n-20MHz, Ch6, Center Frequency)

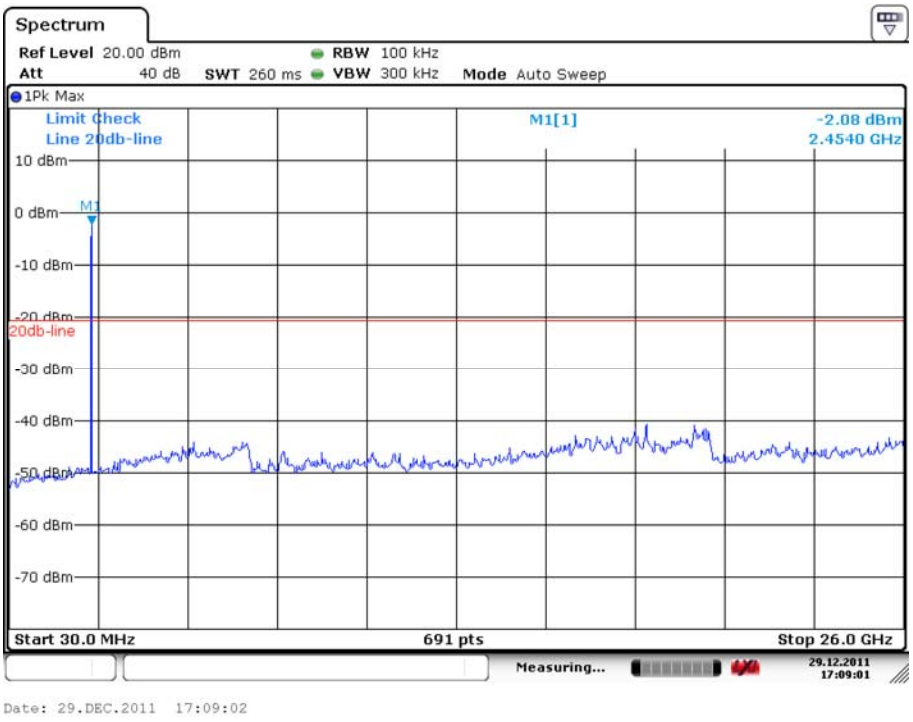


Fig. 40 Conducted Spurious Emission (802.11 n-20MHz, Ch6, 30 MHz-26 GHz)

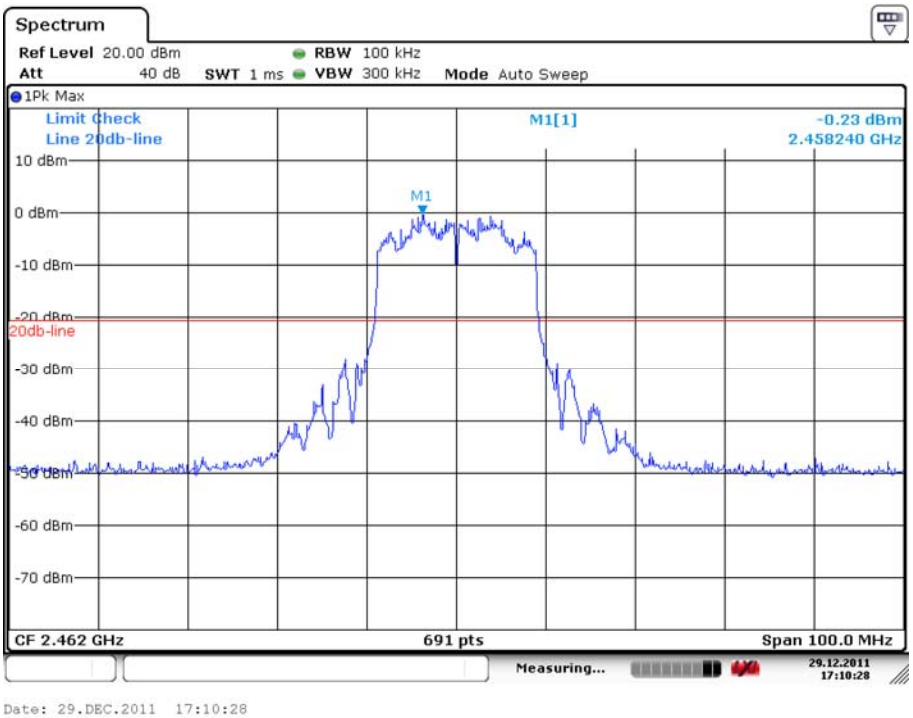


Fig. 41 Conducted Spurious Emission (802.11 n-20MHz, Ch11, Center Frequency)

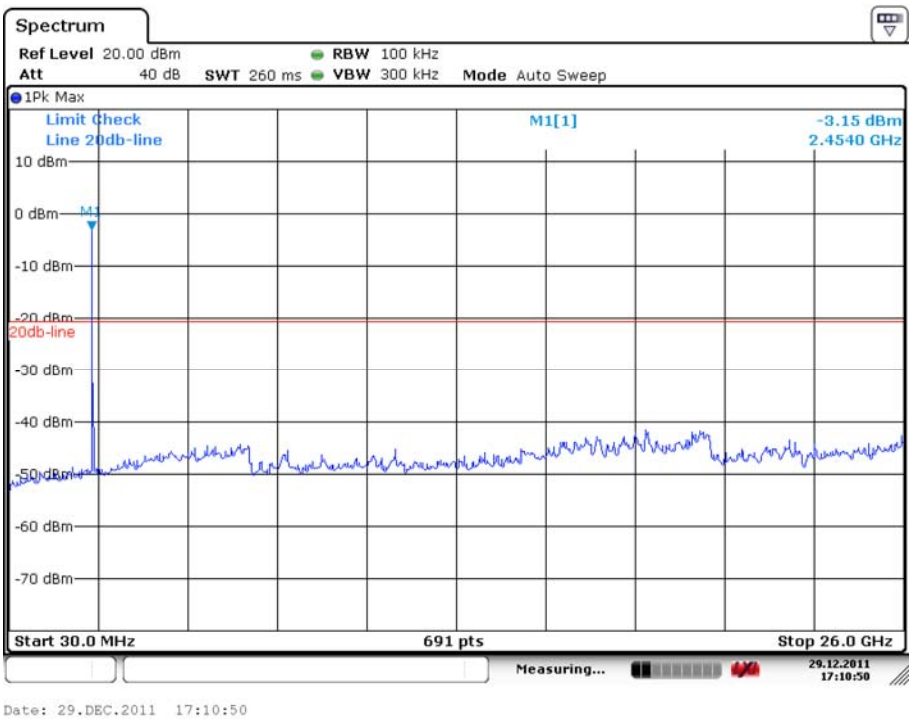


Fig. 42 Conducted Spurious Emission (802.11 n-20MHz, Ch11, 30 MHz-26 GHz)

A.6.2 Transmitter Spurious Emission - Radiated

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209 RSS-210 Issue8 A8.5	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 C63.4 and KDB558074.

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.43	P
	1	30 MHz ~1 GHz	Fig.44	P
		1 GHz ~ 3 GHz	Fig.45	P
		3 GHz ~ 18 GHz	Fig.46	P
	6	30 MHz ~1 GHz	Fig.47	P
		1 GHz ~ 3 GHz	Fig.48	P
		3 GHz ~ 18 GHz	Fig.49	P
	Power	2.44GHz ~2.49GHz	Fig.50	P
	11	30 MHz ~1 GHz	Fig.51	P
		1 GHz ~ 3 GHz	Fig.52	P
		3 GHz ~ 18 GHz	Fig.53	P
802.11g	Power	2.38GHz ~2.45GHz	Fig.54	P
	1	30 MHz ~1 GHz	Fig.55	P
		1 GHz ~ 3 GHz	Fig.56	P
		3 GHz ~ 18 GHz	Fig.57	P
	6	30 MHz ~1 GHz	Fig.58	P
		1 GHz ~ 3 GHz	Fig.59	P
		3 GHz ~ 18 GHz	Fig.60	P
	Power	2.44GHz ~2.49GHz	Fig.61	P
	11	30 MHz ~1 GHz	Fig.62	P
		1 GHz ~ 3 GHz	Fig.63	P
		3 GHz ~ 18 GHz	Fig.64	P

802.11n mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (20MHz)	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	2.44GHz ~2.49GHz	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
/	All channels	18 GHz~ 26.5 GHz	Fig.76	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:

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

802.11b

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss + Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2398.9	24.23	-10.8	35.03	Vertical
2405.84	49.05	-10.8	59.85	Vertical
2413.45	64.06	-10.8	74.86	Vertical
2419.34	51.35	-10.7	62.05	Vertical
2424.86	25.56	-10.7	36.26	Vertical
2437.92	20.73	-10.4	31.13	Vertical

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss + Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2414.75	21.31	-10.8	32.11	Vertical
2423.62	40.01	-10.7	50.71	Vertical
2436.87	72.12	-10.4	82.52	Vertical
2450.62	43.73	-10.5	54.23	Vertical
2455.00	30.98	-10.6	41.58	Vertical
2462.37	19.36	-10.8	30.16	Vertical

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss + Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2385.87	23.06	-11.1	34.16	Vertical
2438.25	22.78	-10.4	33.18	Vertical
2448.75	41.82	-10.5	52.32	Vertical
2460.62	71.60	-10.7	82.30	Vertical
2475.62	40.97	-10.9	51.87	Vertical
2497.12	18.31	-11.1	29.41	Vertical

802.11g

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss + Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2376.75	23.25	-11.2	34.45	Vertical
2399.12	51.60	-10.8	62.40	Vertical
2408.87	68.47	-10.8	79.27	Vertical
2424.62	51.61	-10.7	62.31	Vertical
2443.00	29.54	-10.4	39.94	Vertical
2484.50	21.38	-11.00	32.38	Vertical

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss + Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2402.50	23.50	-10.8	34.30	Vertical
2418.87	38.44	-10.7	49.14	Vertical
2429.75	66.70	-10.6	77.30	Vertical
2444.00	67.06	-10.4	77.46	Vertical
2452.00	45.10	-10.7	55.80	Vertical
2464.37	25.42	-10.8	36.22	Vertical

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss + Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2439.50	24.19	-10.4	34.59	Vertical
2449.25	38.32	-10.5	48.82	Vertical
2456.50	62.44	-10.6	73.04	Vertical
2466.50	61.66	-10.8	72.46	Vertical
2472.87	36.00	-10.9	46.90	Vertical
2481.62	24.51	-10.9	35.41	Vertical

802.11n-20MHz

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss + Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2382.62	18.96	-11.2	30.16	Vertical
2396.37	36.06	-10.9	46.96	Vertical
2406.00	61.96	-10.8	72.76	Vertical
2416.75	62.91	-10.8	73.71	Vertical
2425.12	37.90	-10.7	48.60	Vertical
2439.12	20.46	-10.4	30.86	Vertical

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss + Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2413.37	22.35	-10.8	33.15	Vertical
2424.12	33.65	-10.7	44.35	Vertical
2429.75	62.36	-10.6	72.96	Vertical
2444.62	64.17	-10.4	74.57	Vertical
2449.87	35.94	-10.5	46.44	Vertical
2462.62	19.88	-10.8	30.68	Vertical

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss + Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2446.47	25.33	-10.5	35.83	Vertical
2449.36	29.54	-10.5	40.04	Vertical
2458.26	58.23	-10.7	68.93	Vertical
2465.80	58.02	-10.8	68.82	Vertical
2474.46	27.79	-10.9	38.69	Vertical
2477.77	23.07	-10.9	33.97	Vertical

Test graphs as below:

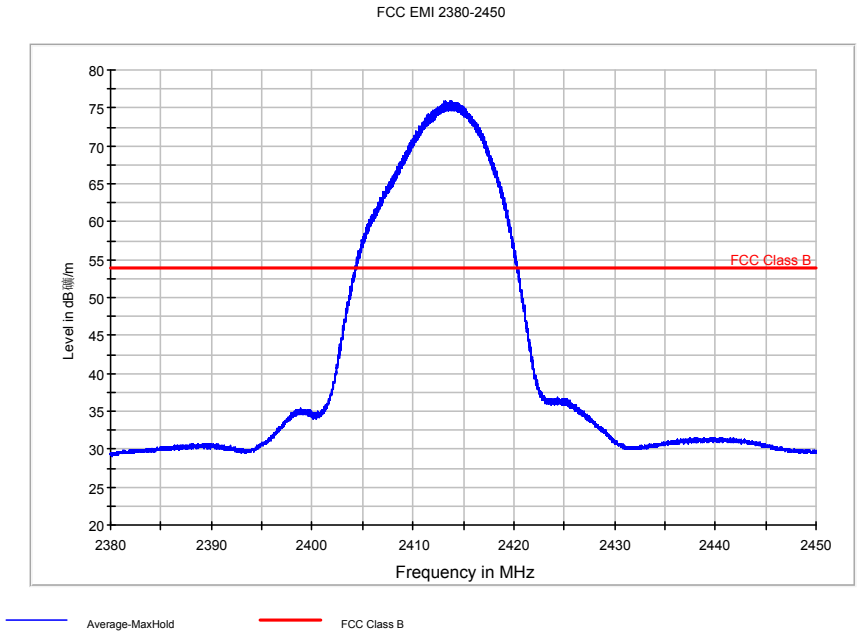


Fig. 43 Radiated Spurious Emission (Power): 802.11b, ch1, 2.38 GHz - 245GHz

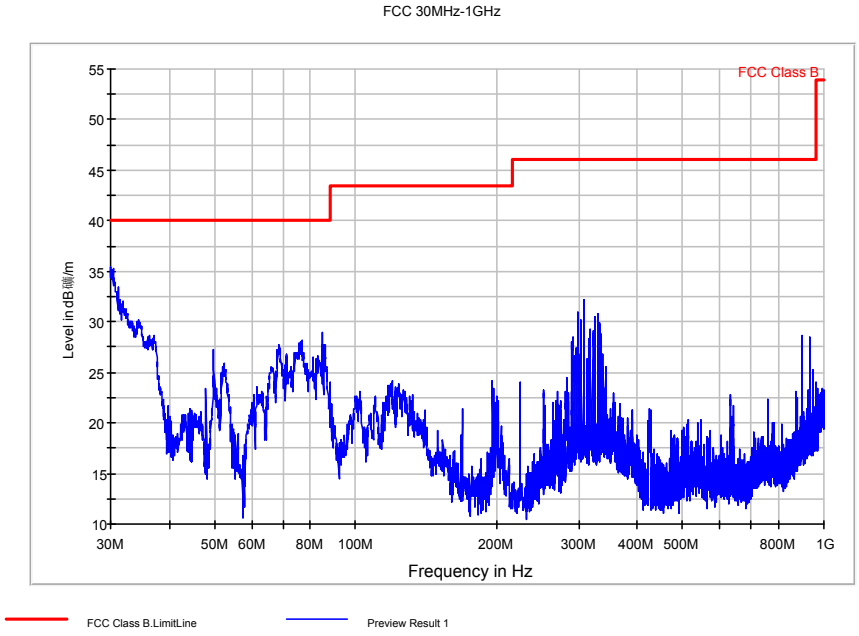


Fig. 44 Radiated Spurious Emission (802.11b, Ch1, 30 MHz-1 GHz)

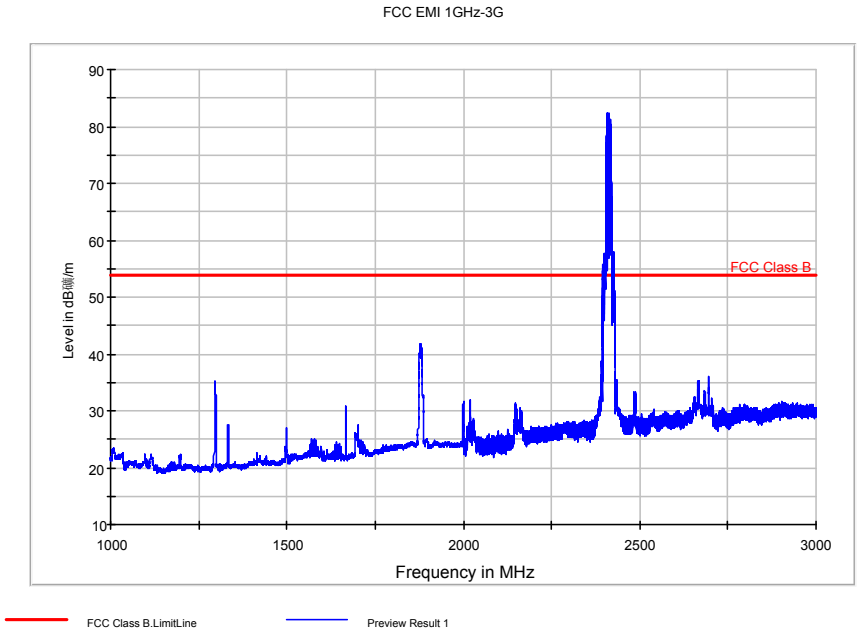


Fig. 45 Radiated Spurious Emission (802.11b, Ch1, 1 GHz-3 GHz)

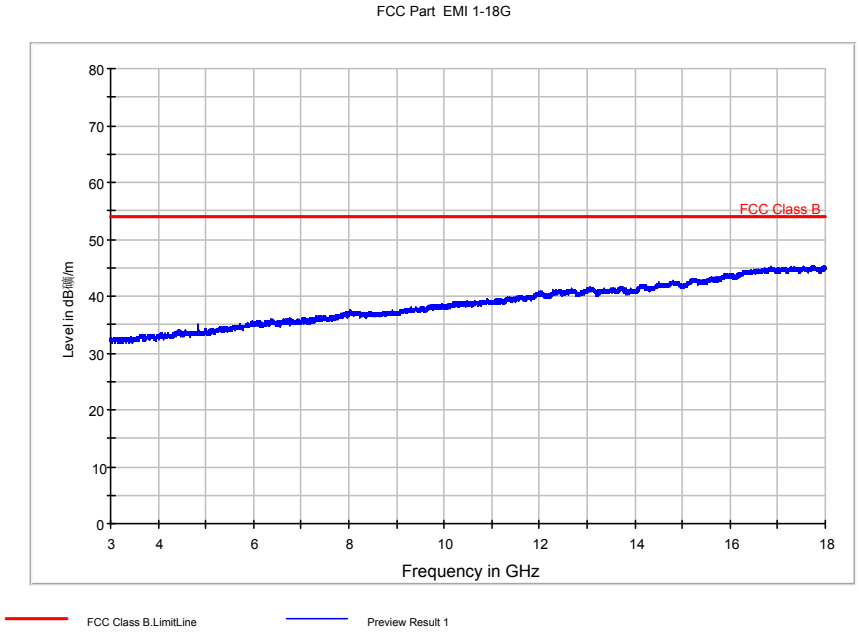


Fig. 46 Radiated Spurious Emission (802.11b, Ch1, 3 GHz-18 GHz)

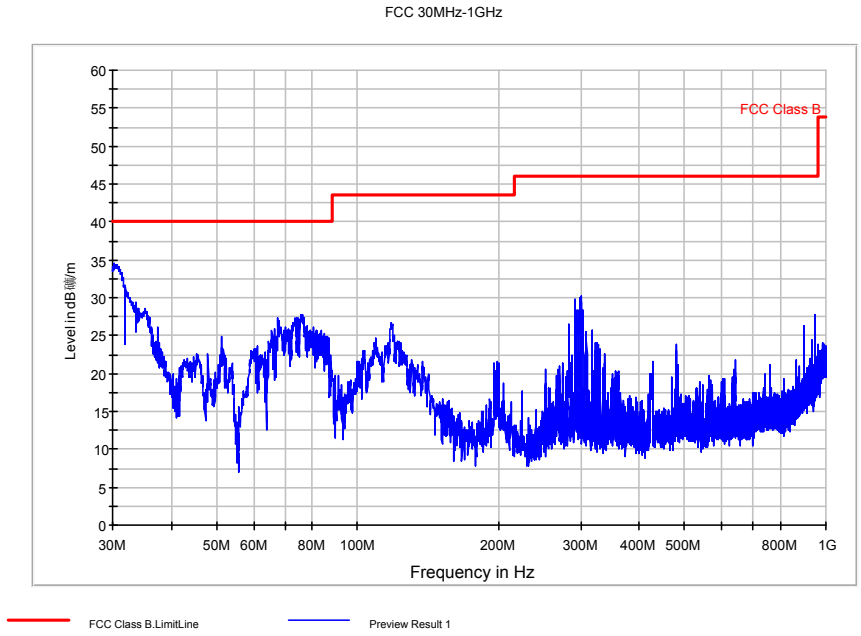


Fig. 47 Radiated Spurious Emission (802.11b, Ch6, 30 MHz-1 GHz)

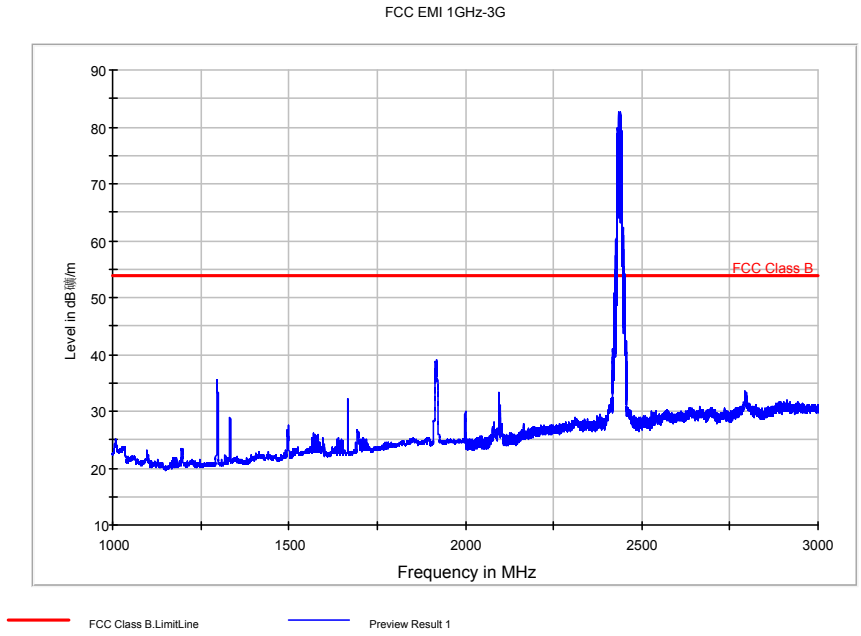


Fig. 48 Radiated Spurious Emission (802.11b, Ch6, 1 GHz-3 GHz)

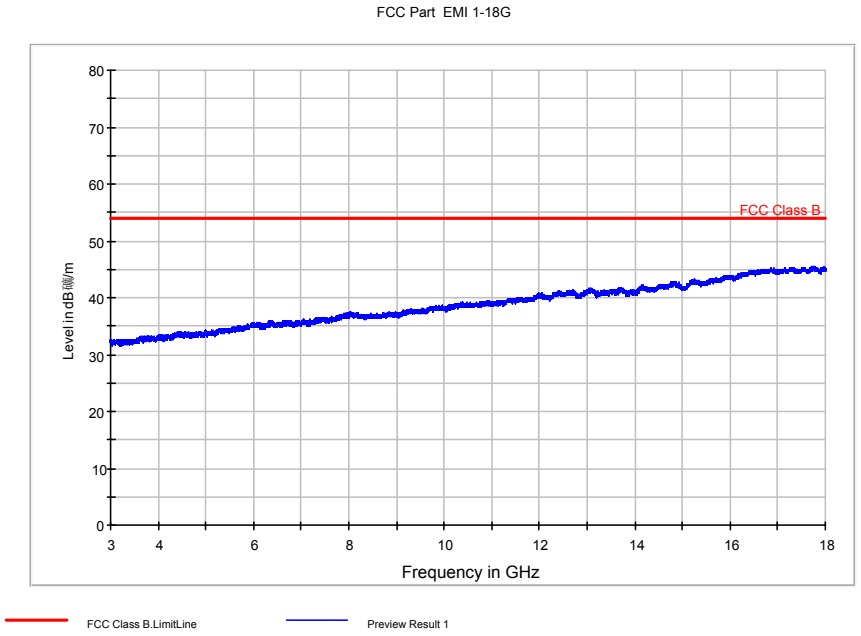


Fig. 49 Radiated Spurious Emission (802.11b, Ch6, 3 GHz-18 GHz)

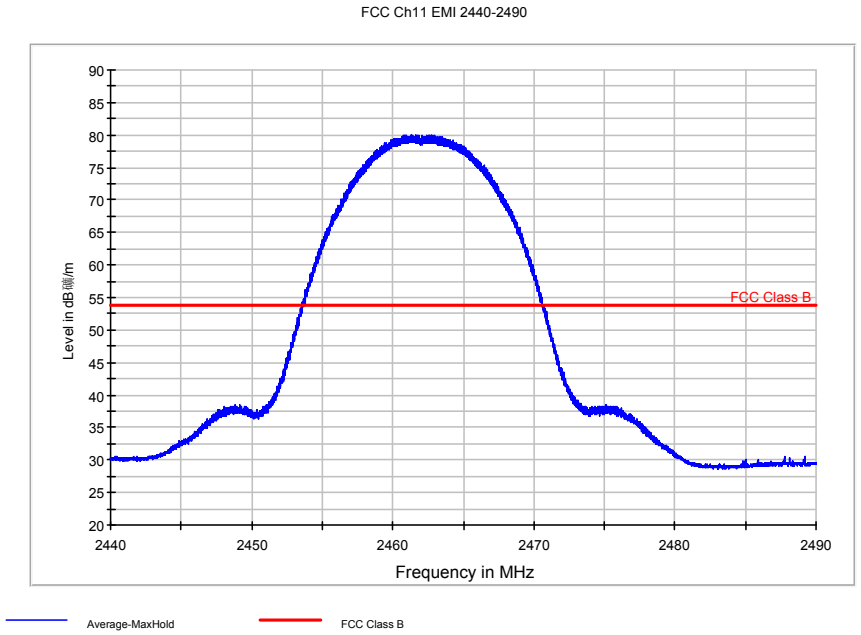


Fig. 50 Radiated Spurious Emission (Power): 802.11b, ch11, 2.44 GHz - 2.49GHz

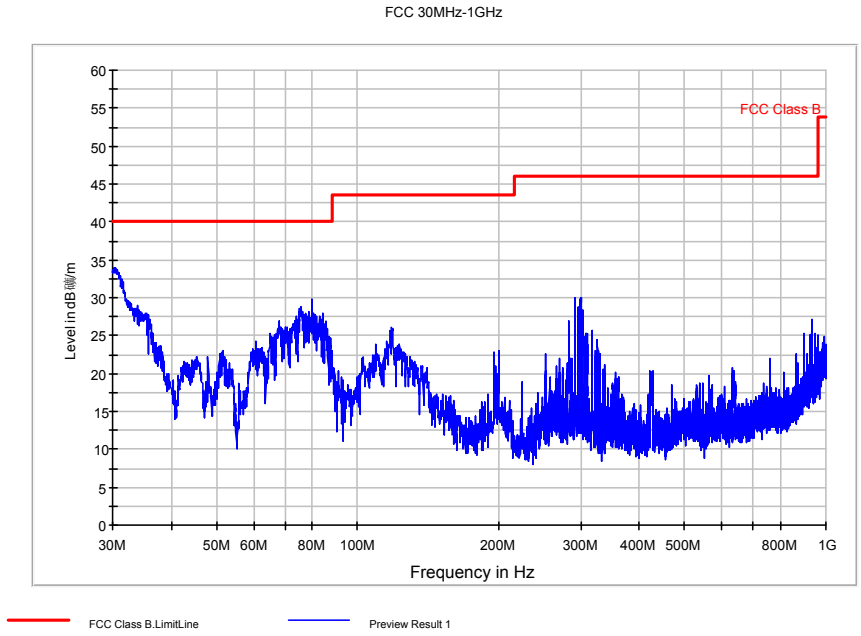


Fig. 51 Radiated Spurious Emission (802.11b, Ch11, 30 MHz-1 GHz)

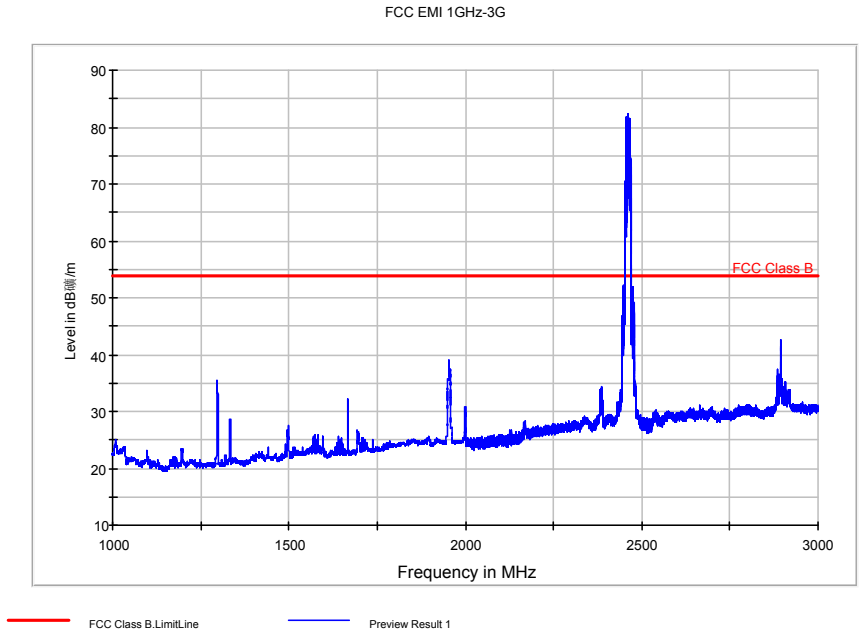


Fig. 52 Radiated Spurious Emission (802.11b, Ch11, 1 GHz-3 GHz)

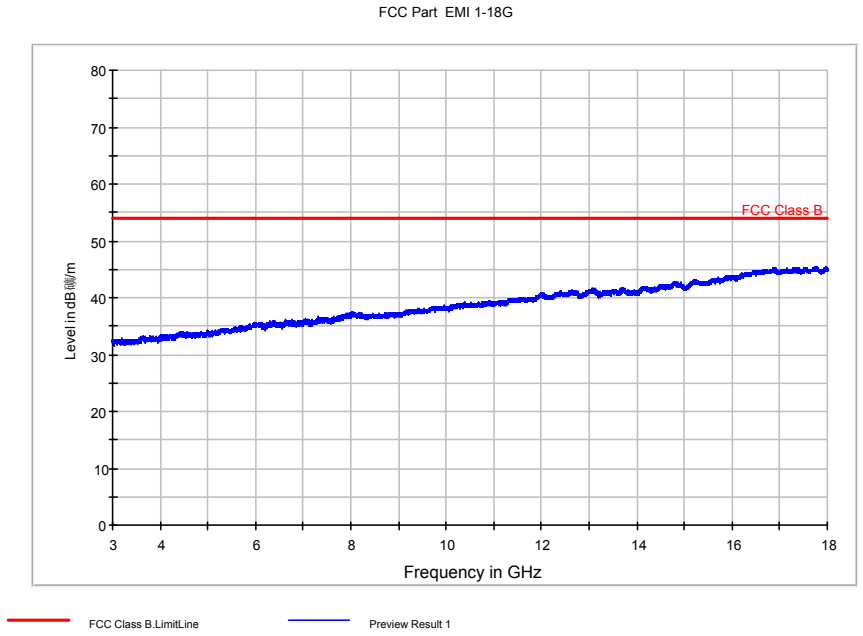


Fig. 53 Radiated Spurious Emission (802.11b, Ch11, 3 GHz-18 GHz)

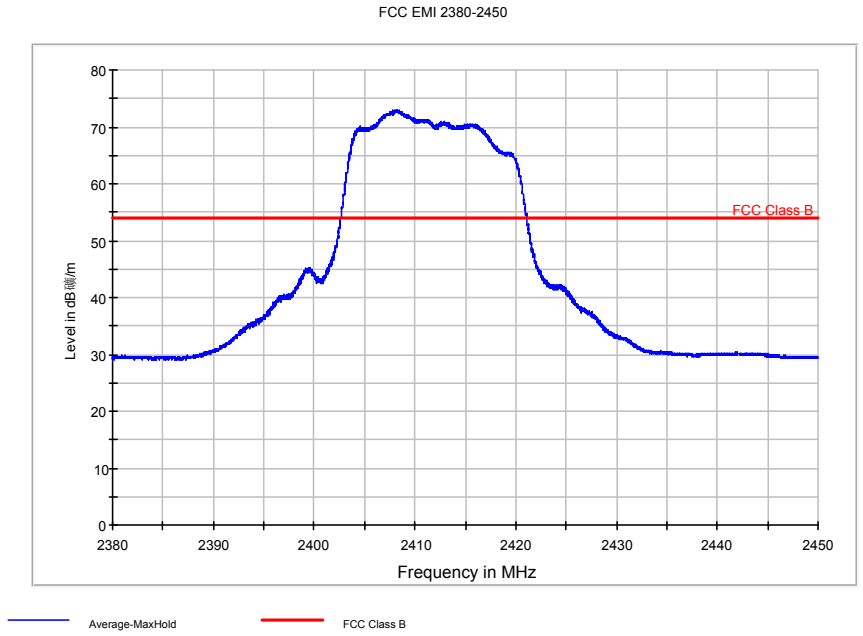


Fig. 54 Radiated Spurious Emission (Power): 802.11g, ch1, 2.38 GHz - 2.45GHz

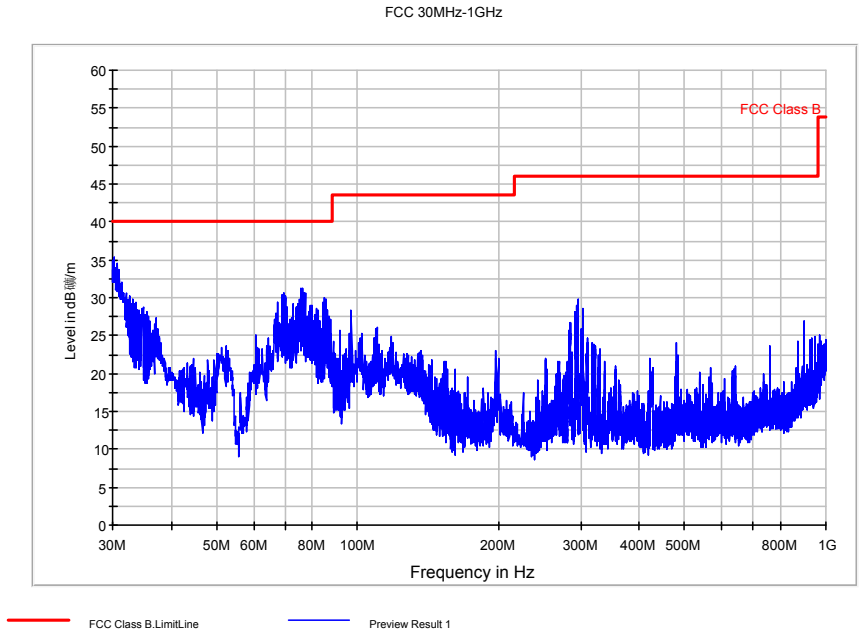


Fig. 55 Radiated Spurious Emission (802.11g, Ch1, 30 MHz-1 GHz)

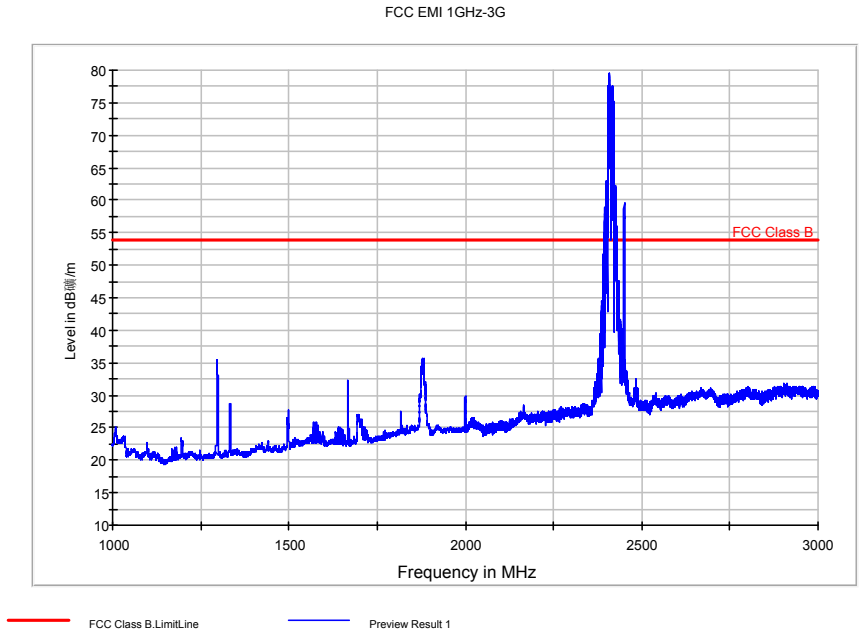


Fig. 56 Radiated Spurious Emission (802.11g, Ch1, 1 GHz-3 GHz)

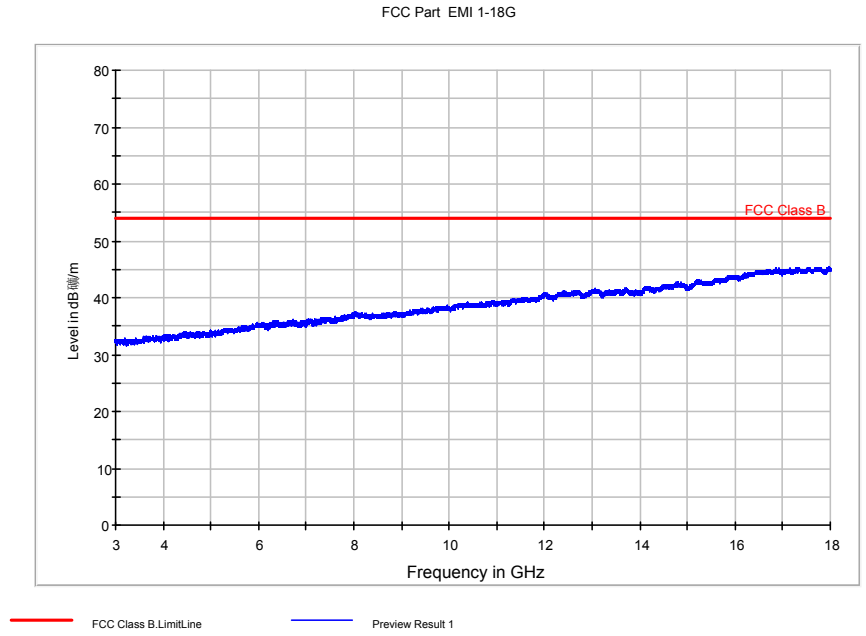


Fig. 57 Radiated Spurious Emission (802.11g, Ch1, 3 GHz-18 GHz)

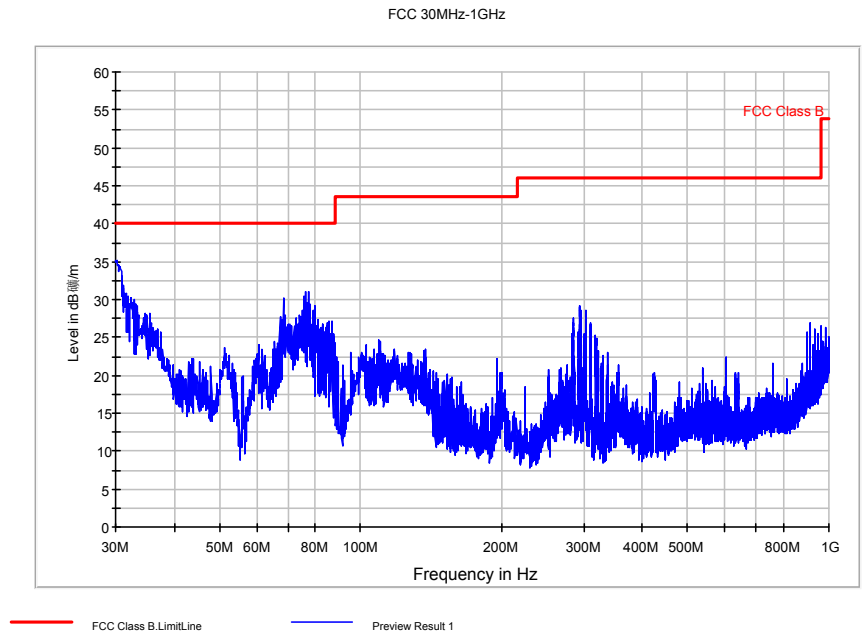


Fig. 58 Radiated Spurious Emission (802.11g, Ch6, 30 MHz-1 GHz)

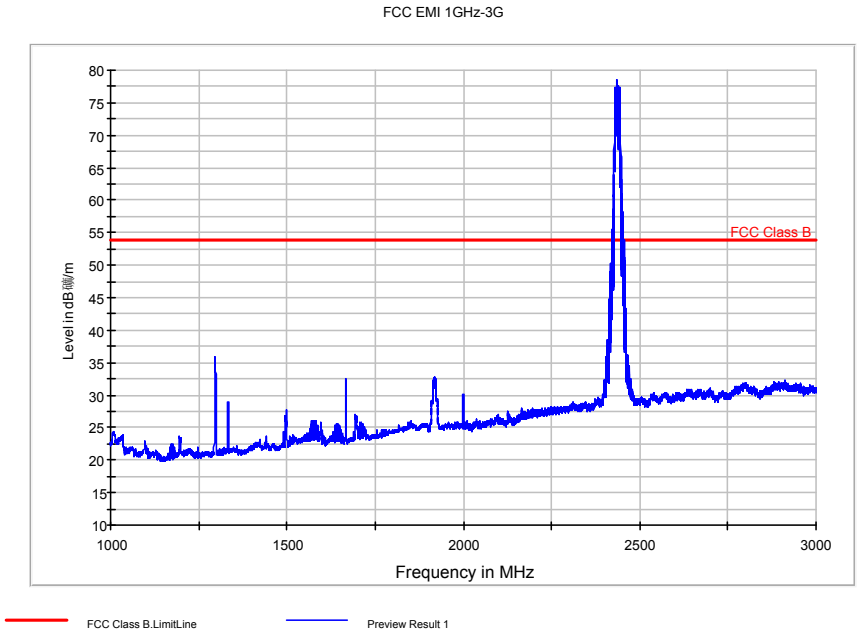


Fig. 59 Radiated Spurious Emission (802.11g, Ch6, 1 GHz-3 GHz)

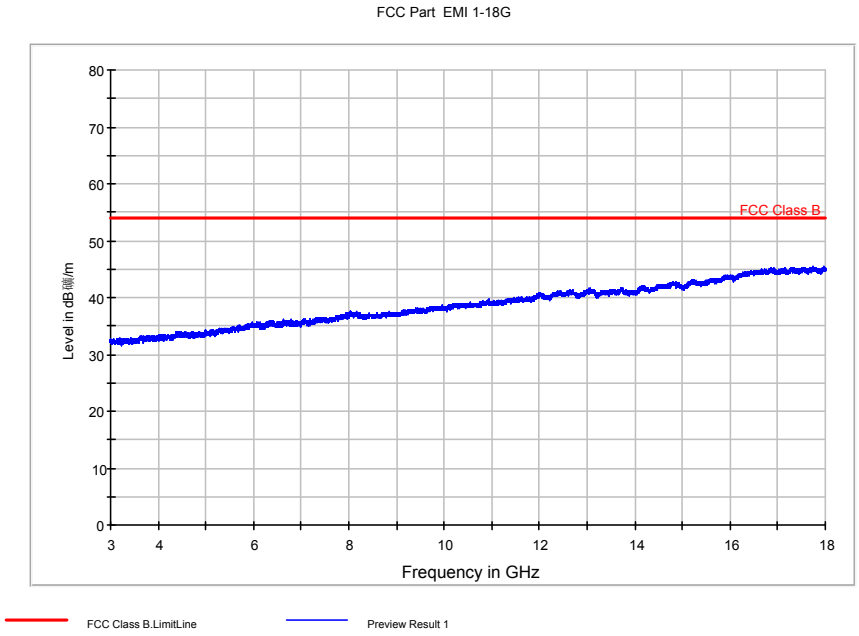


Fig. 60 Radiated Spurious Emission (802.11g, Ch6, 3 GHz-18 GHz)

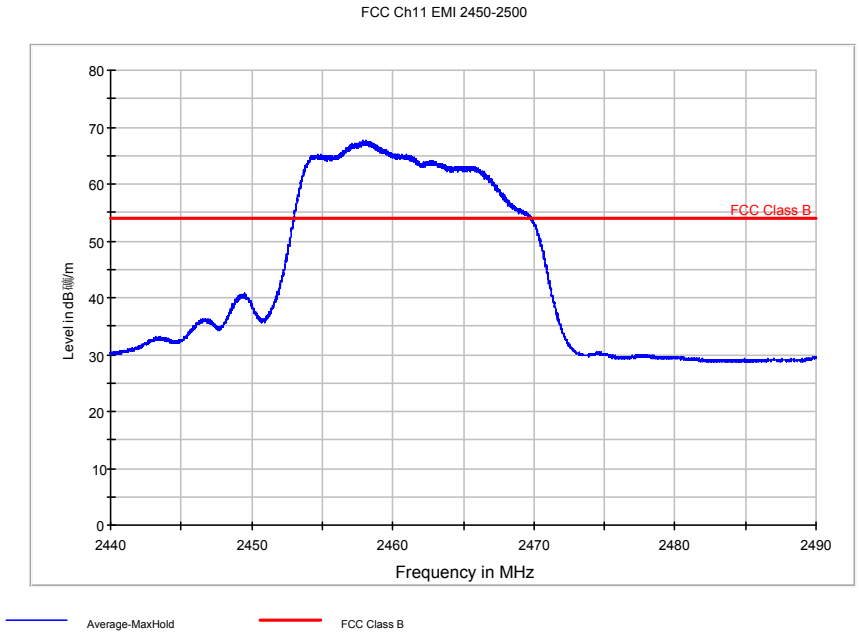


Fig. 61 Radiated Spurious Emission (Power): 802.11g, ch11, 2.44 GHz - 2.49GHz

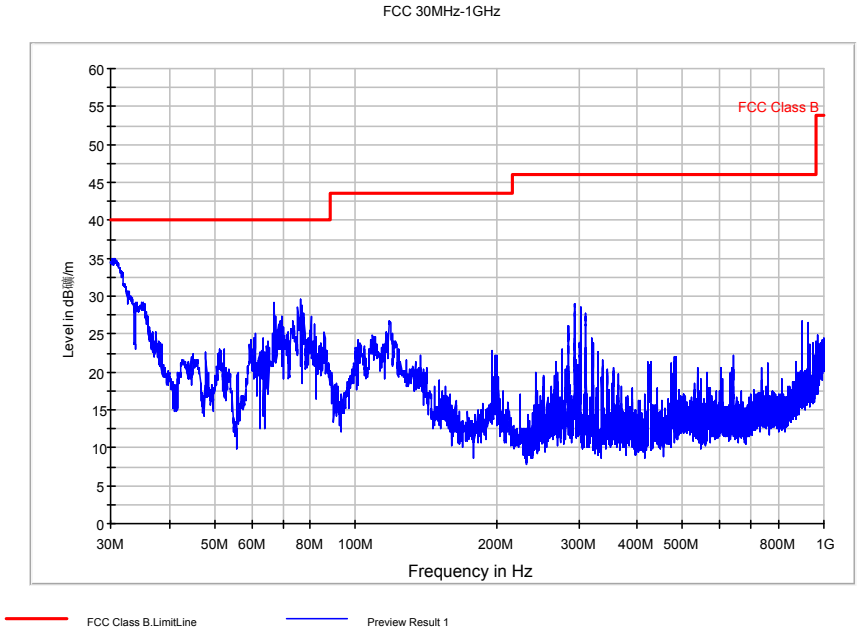


Fig. 62 Radiated Spurious Emission (802.11g, Ch11, 30 MHz-1 GHz)

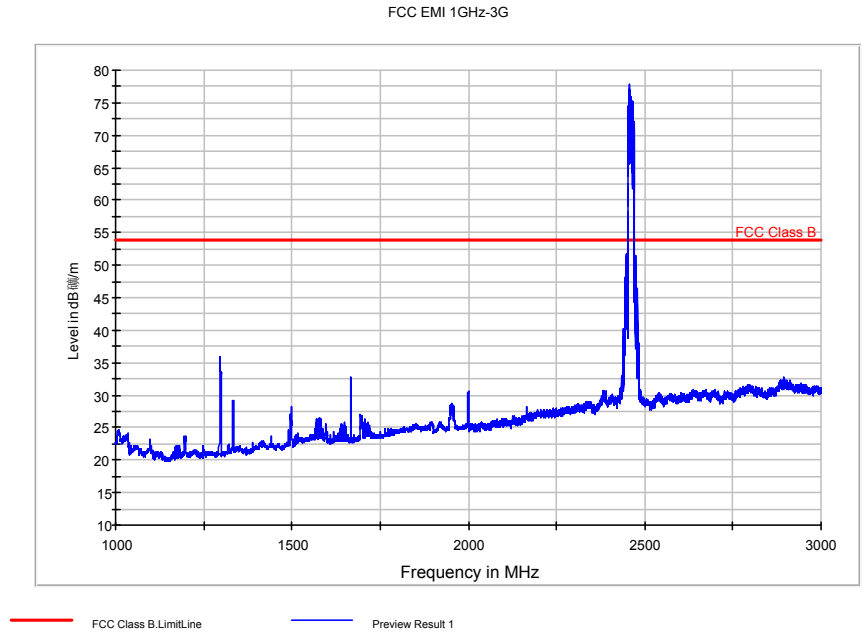


Fig. 63 Radiated Spurious Emission (802.11g, Ch11, 1 GHz-3 GHz)

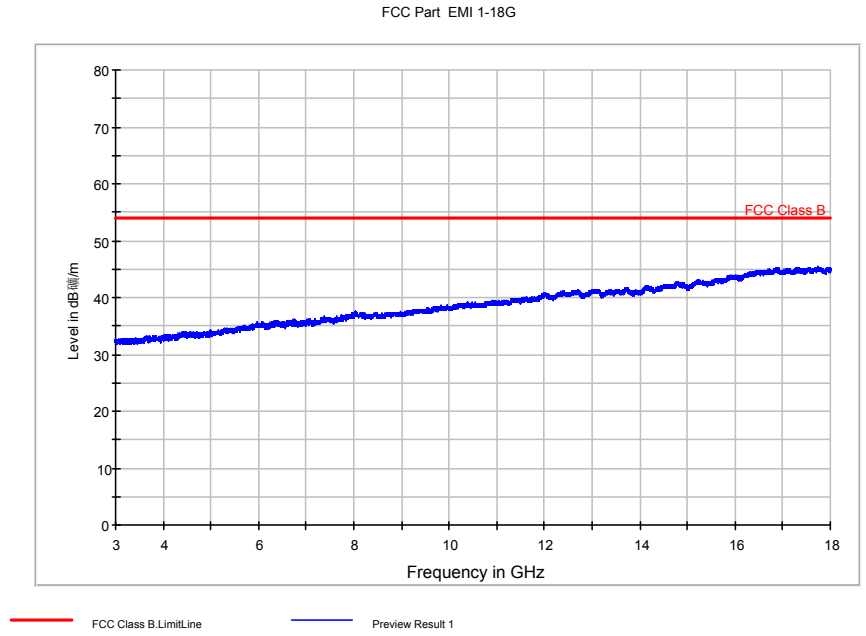


Fig. 64 Radiated Spurious Emission (802.11g, Ch11, 3 GHz-18 GHz)

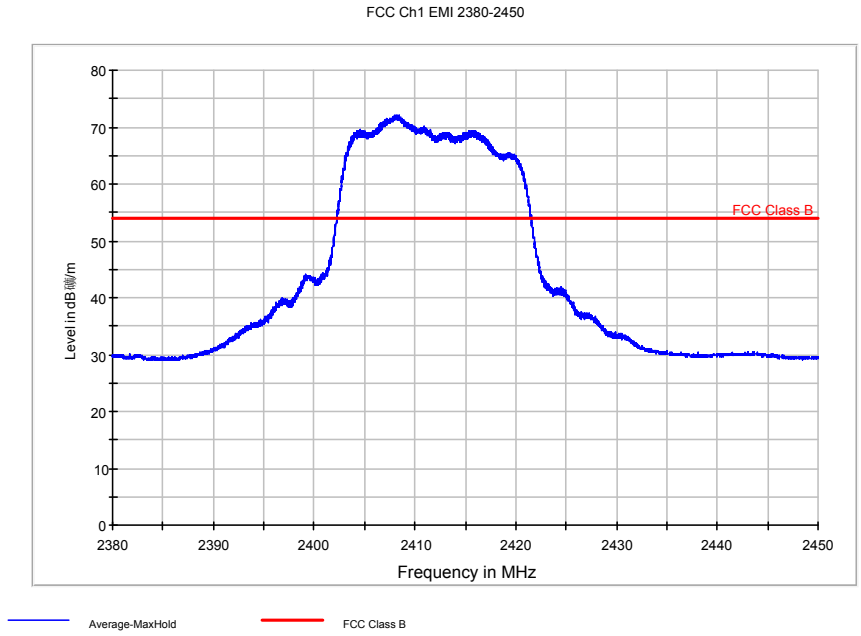


Fig. 65 Radiated Spurious Emission (Power): 802.11n-20MHz, ch1, 2.38 GHz - 2.45GHz

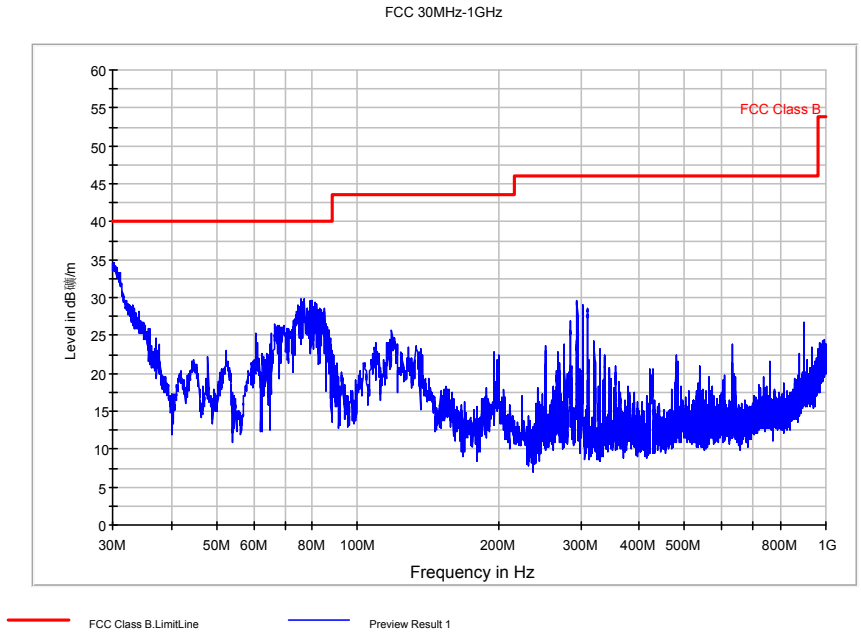


Fig. 66 Radiated Spurious Emission (802.11n-20MHz, Ch1, 30 MHz-1 GHz)

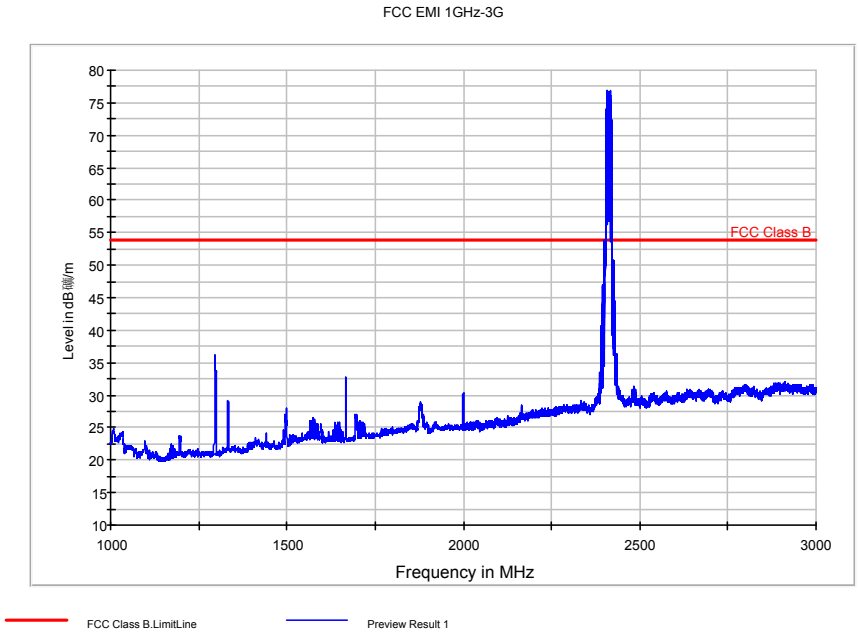


Fig. 67 Radiated Spurious Emission (802.11n-20MHz, Ch1, 1 GHz-3 GHz)

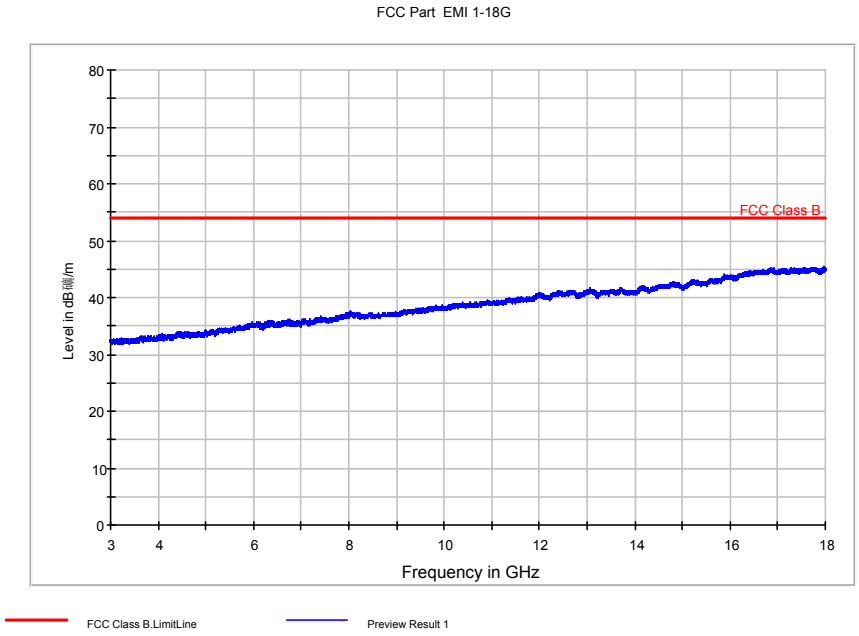


Fig. 68 Radiated Spurious Emission (802.11n-20MHz, Ch1, 3 GHz-18 GHz)

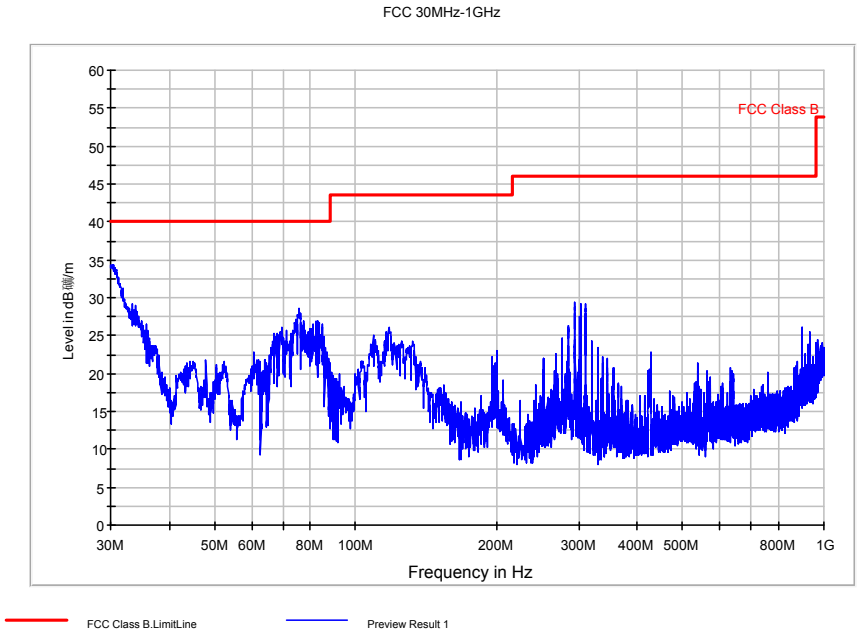


Fig. 69 Radiated Spurious Emission (802.11n-20MHz, Ch6, 30 MHz-1 GHz)

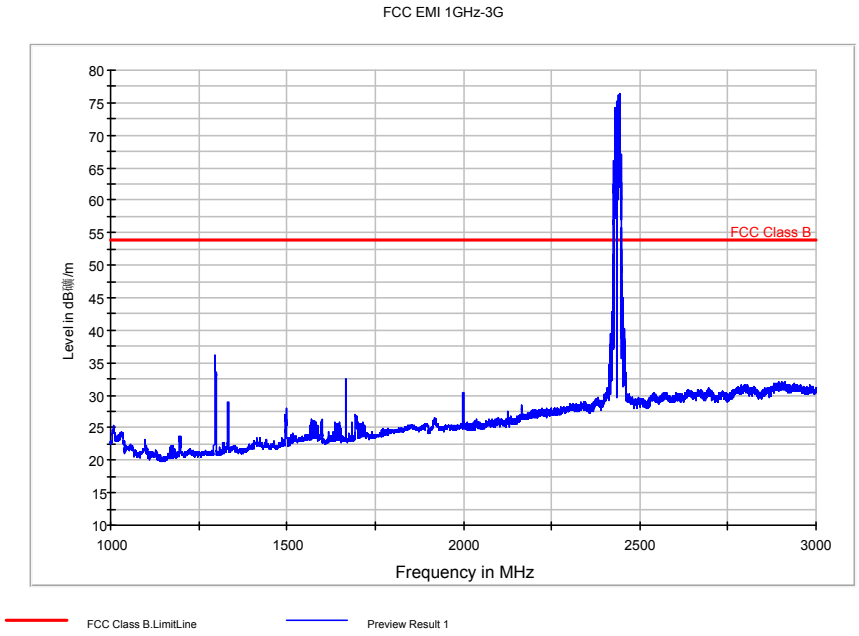


Fig. 70 Radiated Spurious Emission (802.11n-20MHz, Ch6, 1 GHz-3 GHz)

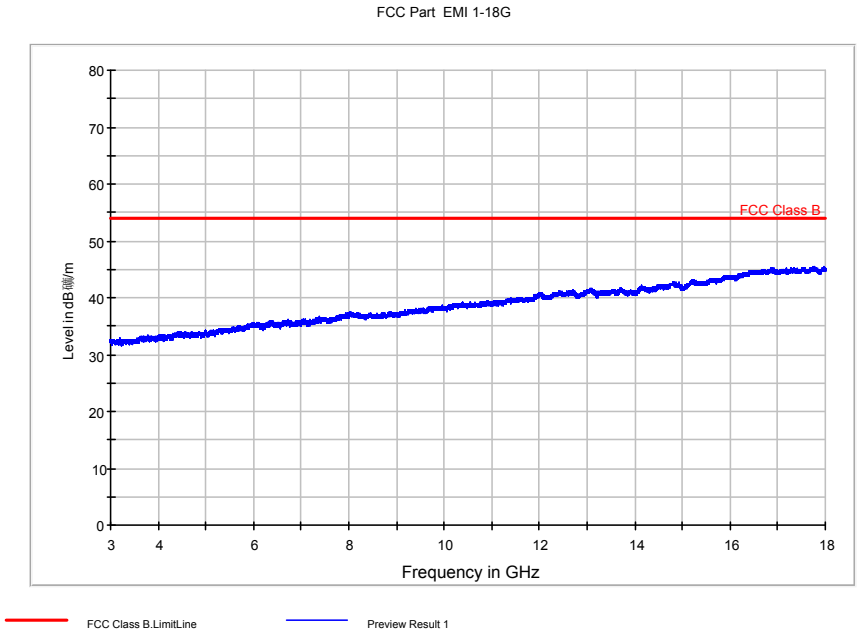


Fig. 71 Radiated Spurious Emission (802.11n-20MHz, Ch6, 3 GHz-18 GHz)

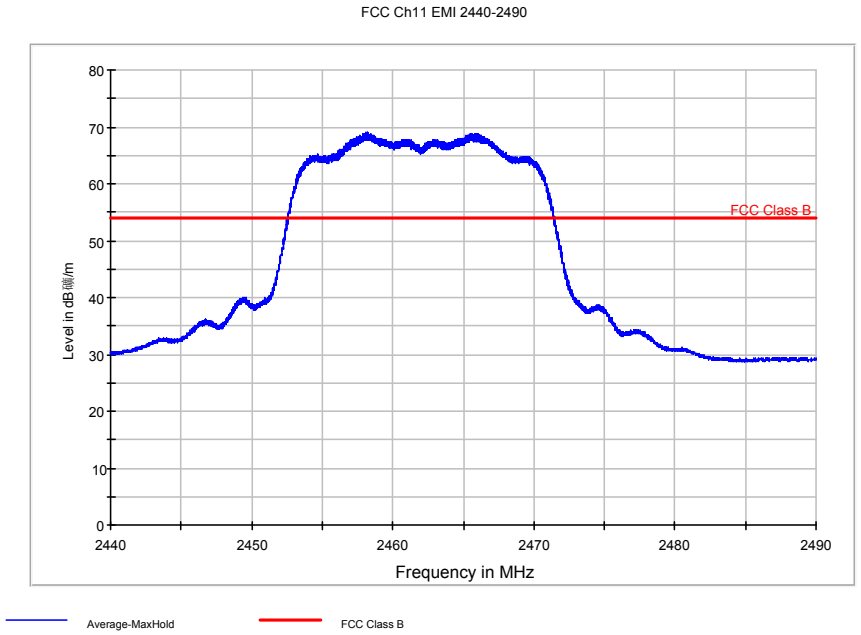


Fig. 72 Radiated Spurious Emission (Power): 802.11n-20MHz, ch11, 2.44 GHz - 2.49 GHz

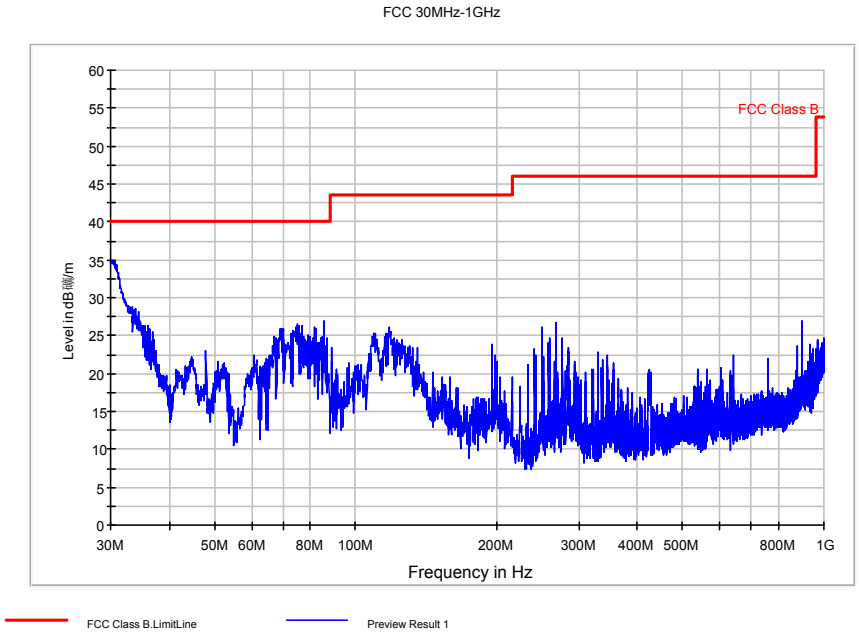


Fig. 73 Radiated Spurious Emission (802.11n-20MHz, Ch11, 30 MHz-1 GHz)

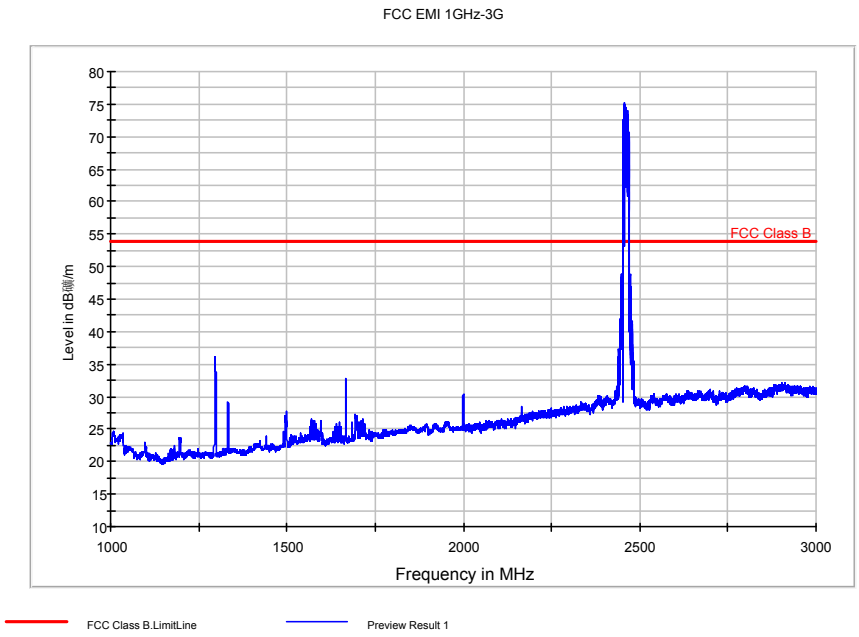


Fig. 74 Radiated Spurious Emission (802.11n-20MHz, Ch11, 1 GHz-3 GHz)

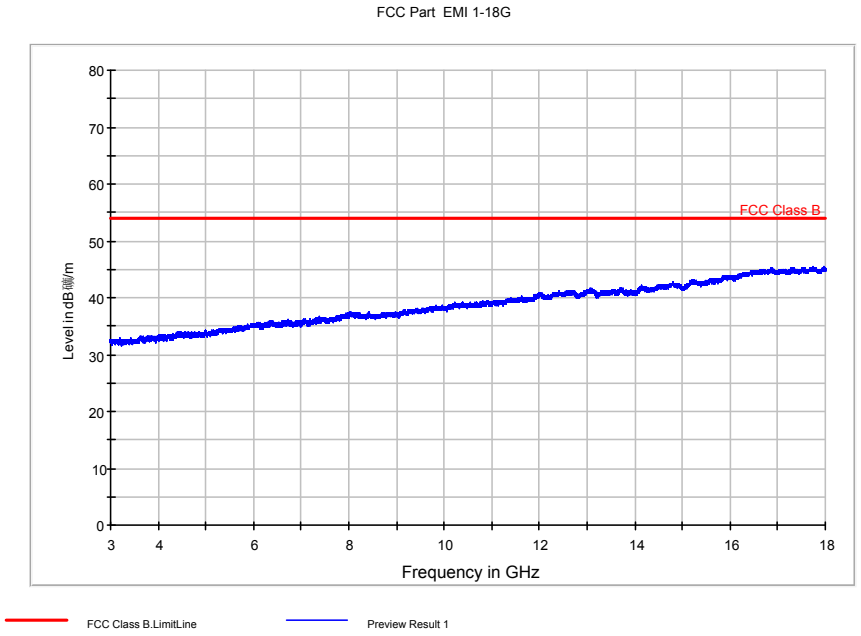


Fig. 75 Radiated Spurious Emission (802.11n-20MHz, Ch11, 3 GHz-18 GHz)

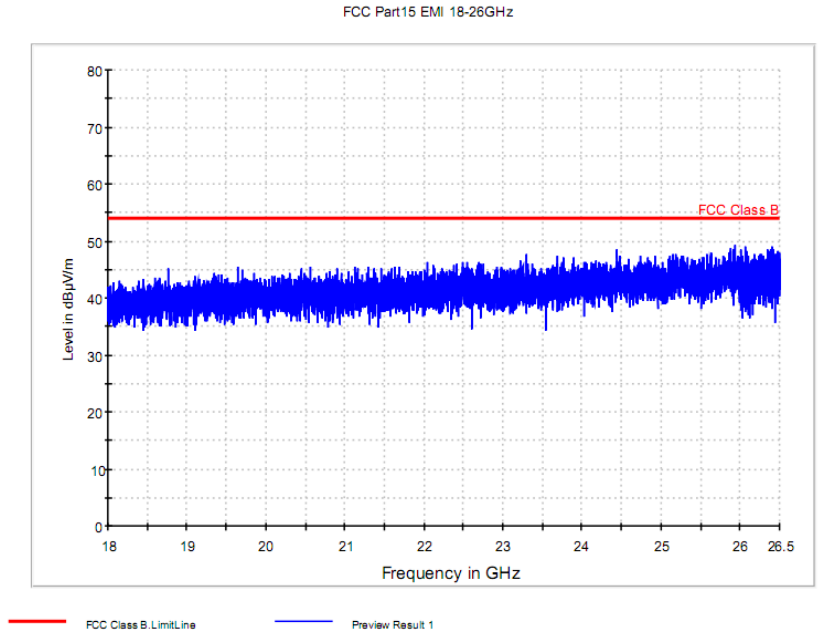


Fig. 76 Radiated emission: 18 GHz - 26.5 GHz

A.7. Occupied Bandwidth

Measurement Limit:

Standard	Limit
RSS-Gen Issue3 4.6.1	/

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

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz

Measurement Result:

802.11b/g mode

Mode	Channel	Occupied Bandwidth (kHz)		conclusion
802.11b	1	Fig.77	12445.73	/
	6	Fig.78	12518.09	/
	11	Fig.79	12662.80	/
802.11g	1	Fig.80	16353.11	/
	6	Fig.81	16497.83	/
	11	Fig.82	16353.11	/

802.11n mode

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
802.11n (20MHz)	1	Fig.83	17510.85	/
	6	Fig.84	17583.21	/
	11	Fig.85	17510.85	/

Conclusion: PASS

Test graphs as below:

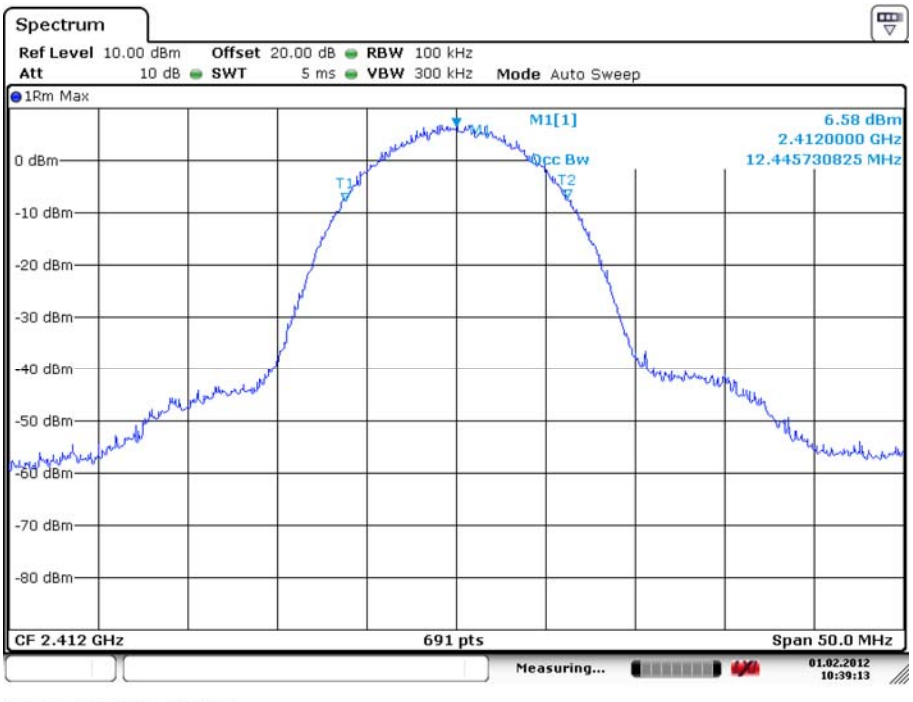


Fig. 77 Occupied Bandwidth (802.11b, Ch 1)

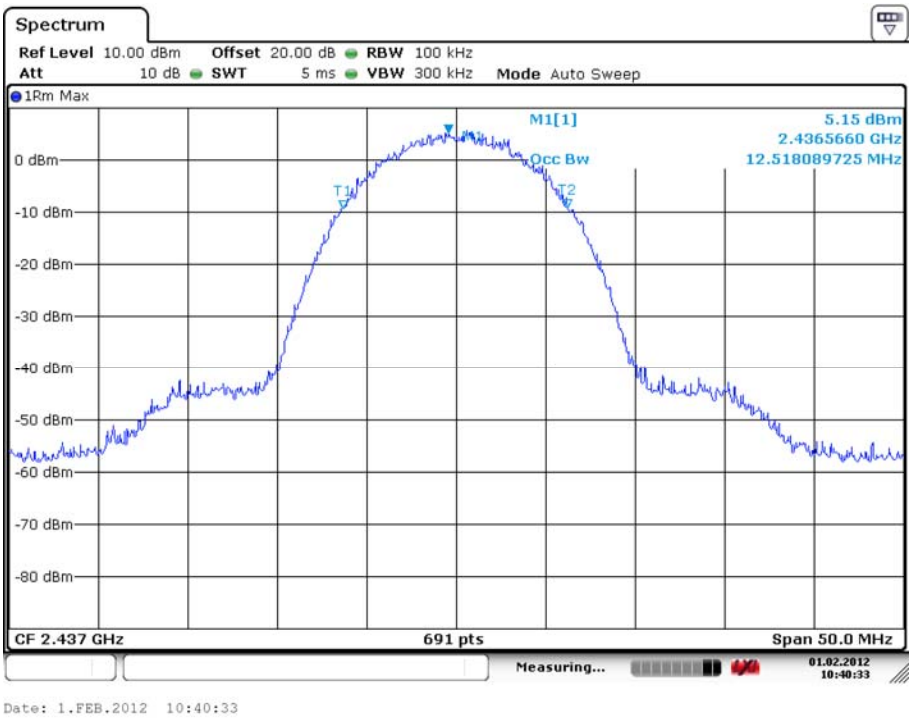


Fig. 78 Occupied Bandwidth (802.11b, Ch 6)

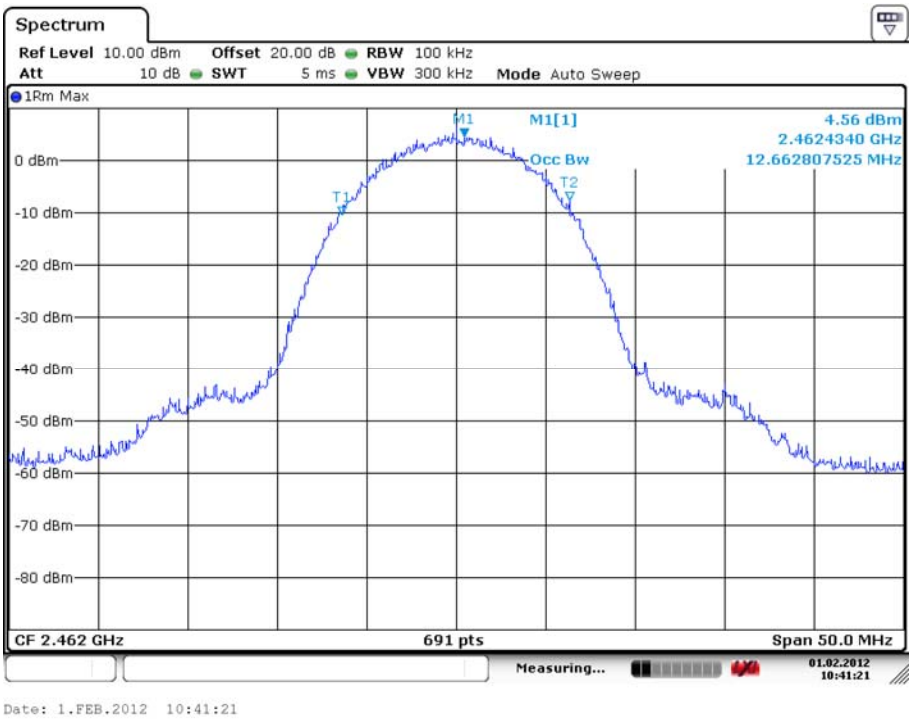


Fig. 79 Occupied Bandwidth (802.11b, Ch 11)

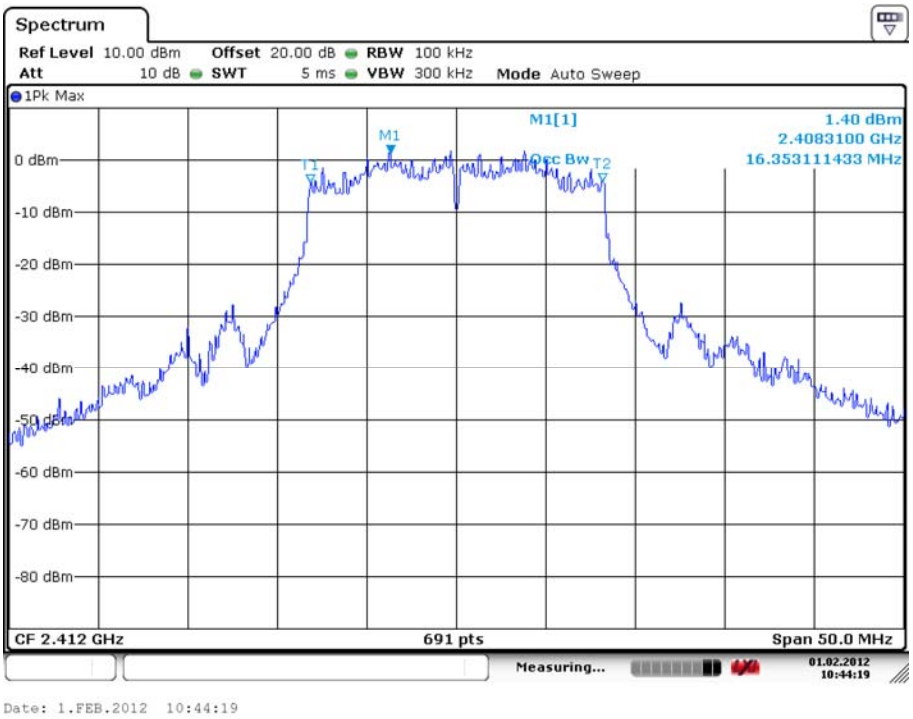


Fig. 80 Occupied Bandwidth (802.11g, Ch 1)

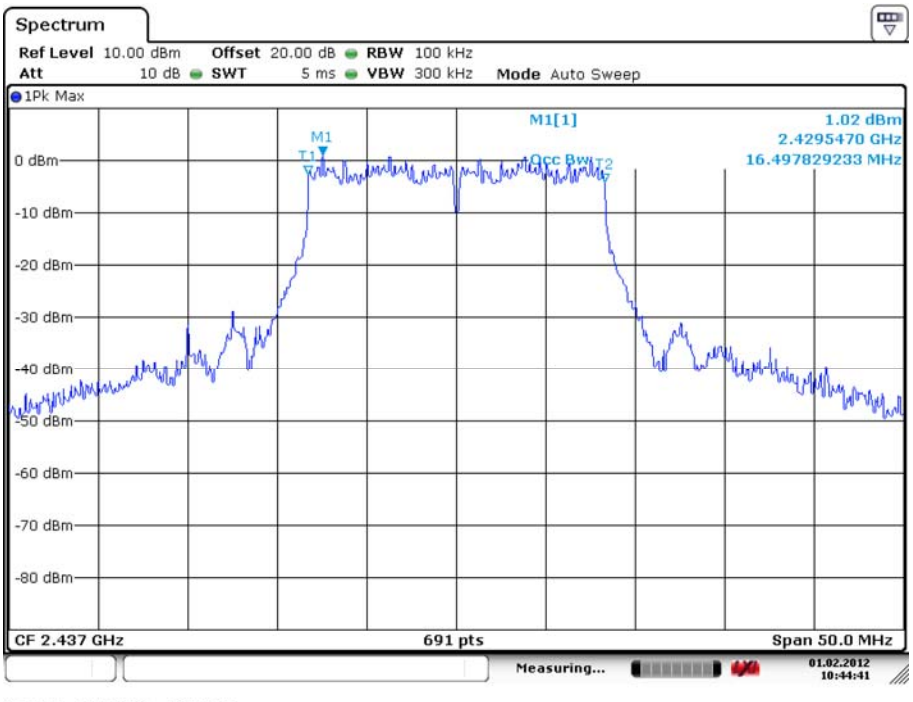


Fig. 81 Occupied Bandwidth (802.11g, Ch 6)

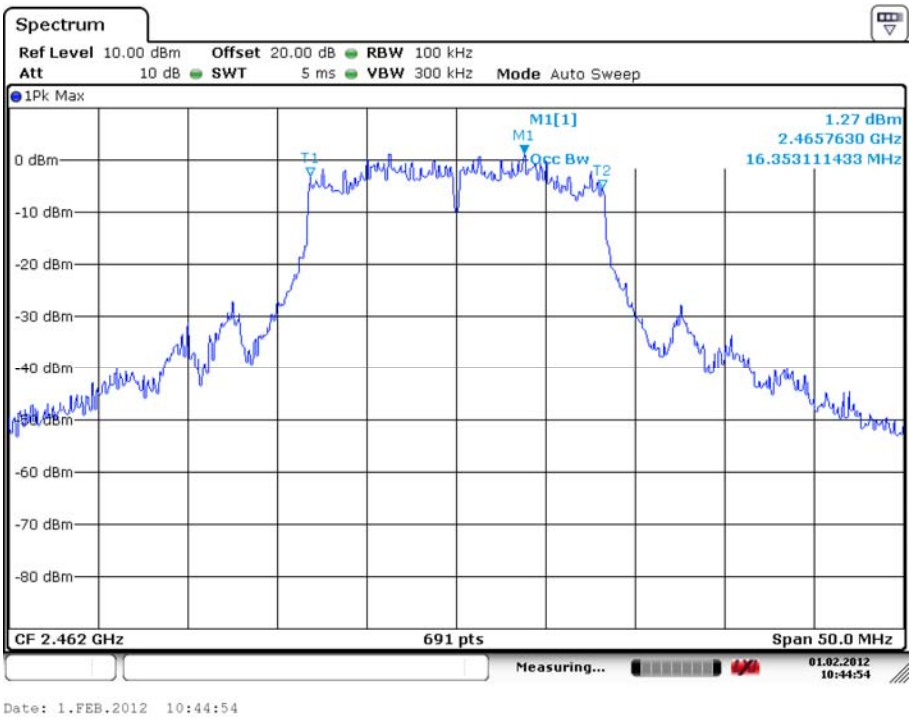


Fig. 82 Occupied Bandwidth (802.11g, Ch 11)

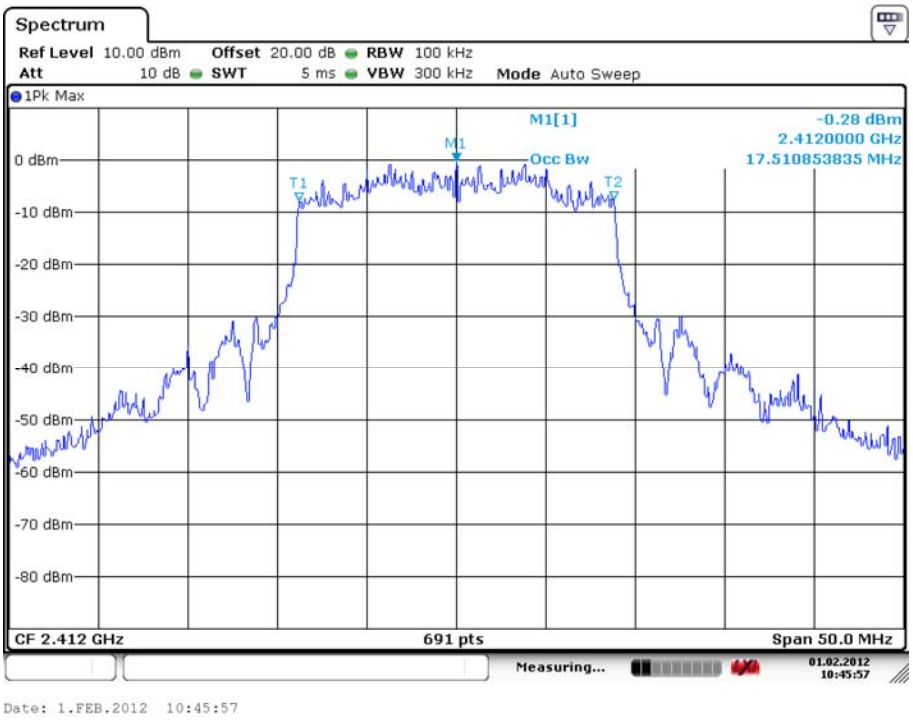


Fig. 83 Occupied Bandwidth (802.11 n-20MHz, Ch 1)

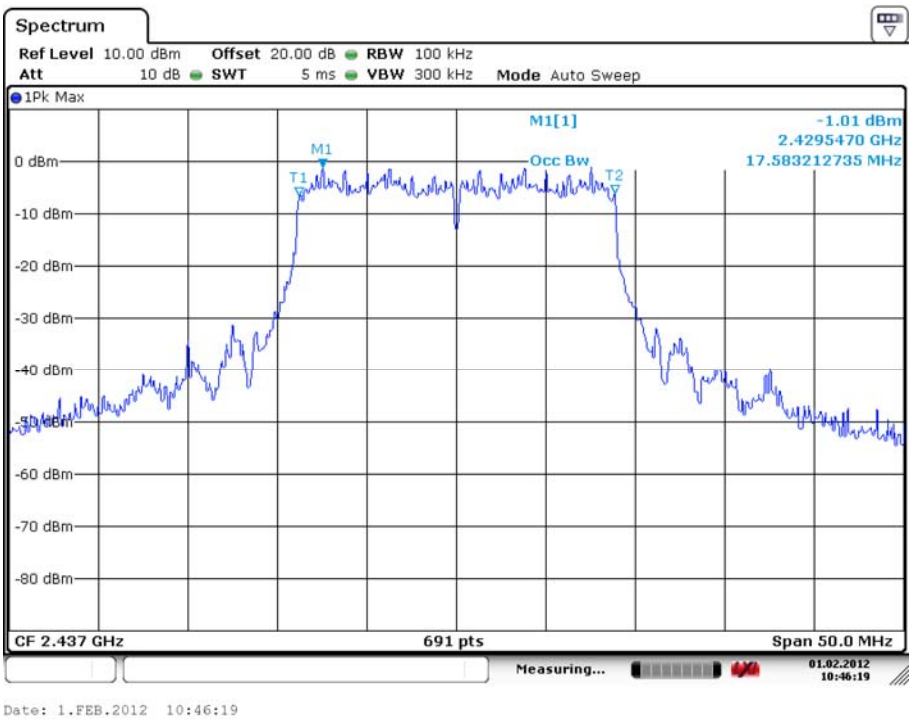


Fig. 84 Occupied Bandwidth (802.11 n-20MHz, Ch 6)

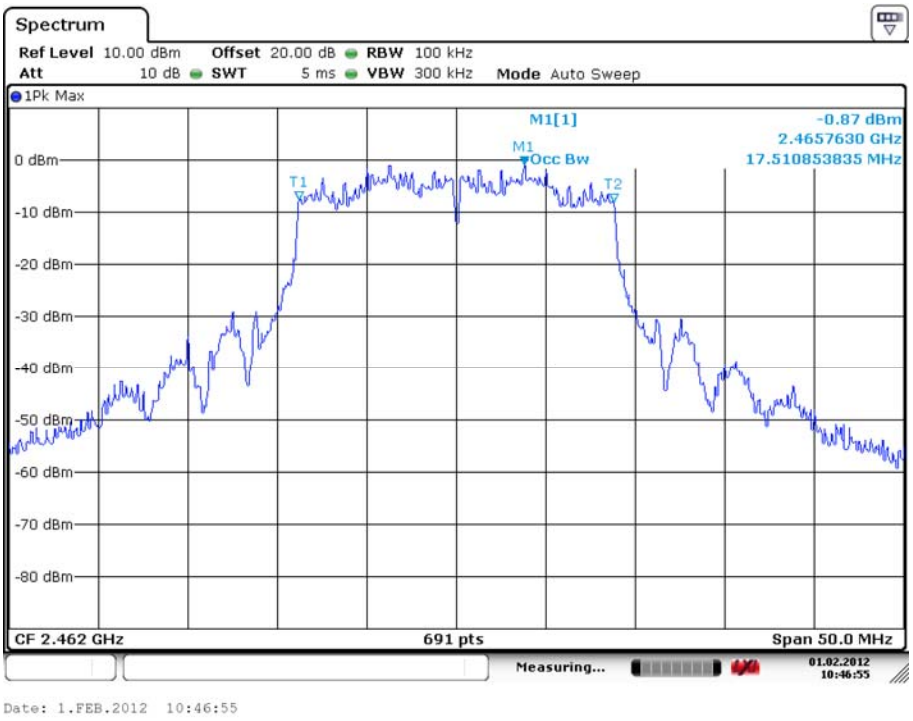


Fig. 85 Occupied Bandwidth (802.11n-20MHz, Ch 11)

A.8. 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 (dBμV)	Result (dBμV)			Conclusion
		With charger			
		11b mode	11g mode	11n mode	
0.15 to 0.5	66 o 56	Fig. 77	Fig.78	Fig.79	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 (dBμV)	Result (dBμV)			Conclusion
		With charger			
		11b mode	11g mode	11n mode	
0.15 to 0.5	56 to 46	Fig.86	Fig.87	Fig.88	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 C63.4 and KDB558074

Conclusion: PASS

Test graphs as below:

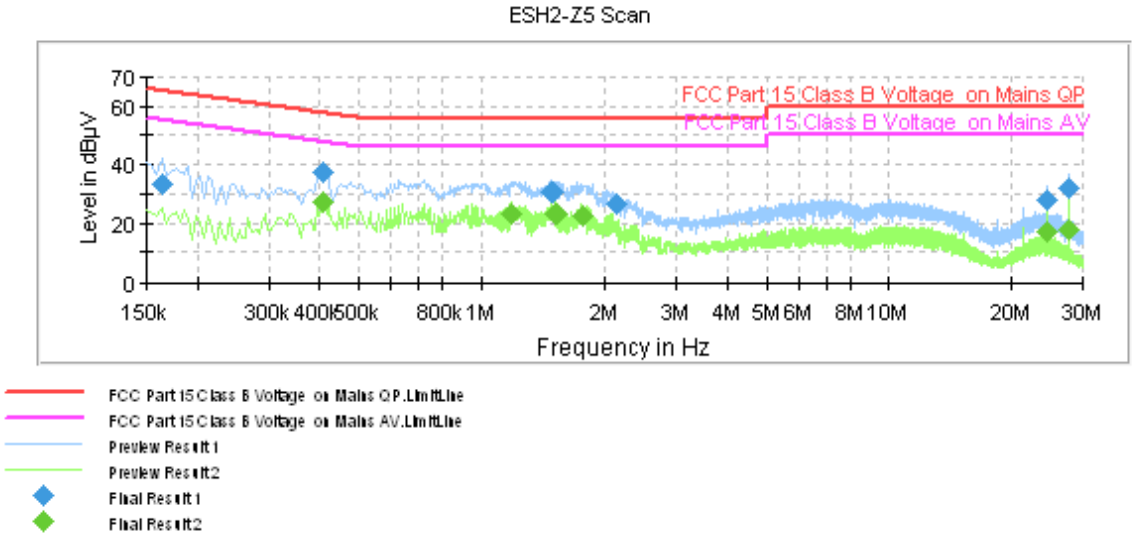


Fig. 86 AC Powerline Conducted Emission-802.11b

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	Level (dBµV)	Transd (dB)	Limit (dBµV)	Margin (dB)	Line	PE
0.163500	33.1	10.0	65.3	32.2	L1	FLO
0.406500	37.4	10.1	57.7	20.3	N	FLO
1.491000	30.7	10.1	56.0	25.3	N	FLO
2.125500	26.5	10.2	56.0	29.5	N	FLO
24.535500	27.5	10.6	60.0	32.5	N	FLO
27.604500	32.2	10.6	60.0	27.8	N	FLO

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Level (dBµV)	Transd (dB)	Limit (dBµV)	Margin (dB)	Line	PE
0.406500	26.9	10.1	47.7	20.8	N	FLO
1.194000	22.9	10.1	46.0	23.1	N	FLO
1.522500	23.2	10.1	46.0	22.8	N	FLO
1.770000	22.3	10.1	46.0	23.7	N	FLO
24.535500	16.8	10.6	50.0	33.2	N	FLO
27.604500	17.6	10.6	50.0	32.4	L1	FLO

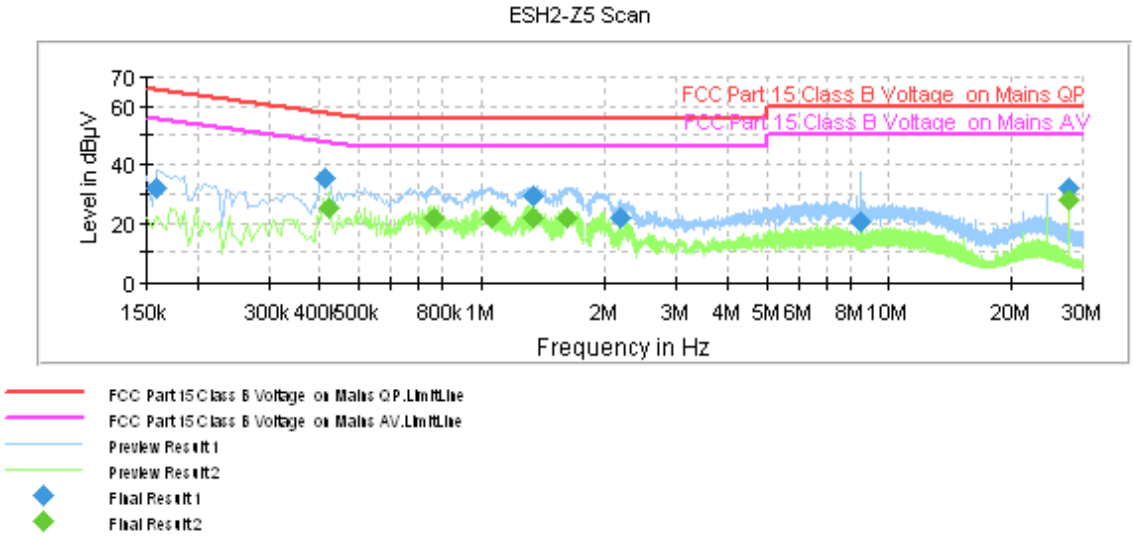


Fig. 87 AC Powerline Conducted Emission-802.11g

MEASUREMENT RESULT: " QuasiPeak "

Frequency (MHz)	Level (dBµV)	Transd (dB)	Limit (dBµV)	Margin (dB)	Line	PE
0.159000	31.9	10.1	65.5	33.6	N	FLO
0.411000	35.3	10.1	57.6	22.3	N	FLO
1.347000	29.3	10.1	56.0	26.7	N	FLO
2.179500	21.5	10.2	56.0	34.5	N	FLO
8.515500	20.3	10.4	60.0	39.7	N	FLO
27.600000	31.8	10.6	60.0	28.2	N	FLO

MEASUREMENT RESULT: " Average "

Frequency (MHz)	Level (dBµV)	Transd (dB)	Limit (dBµV)	Margin (dB)	Line	PE
0.420000	25.1	10.0	47.4	22.3	L1	FLO
0.766500	22.1	10.1	46.0	23.9	N	FLO
1.059000	22.0	10.1	46.0	24.0	N	FLO
1.347000	22.1	10.1	46.0	24.0	N	FLO
1.617000	21.5	10.1	46.0	24.5	N	FLO
27.595500	27.8	10.6	50.0	22.2	N	FLO

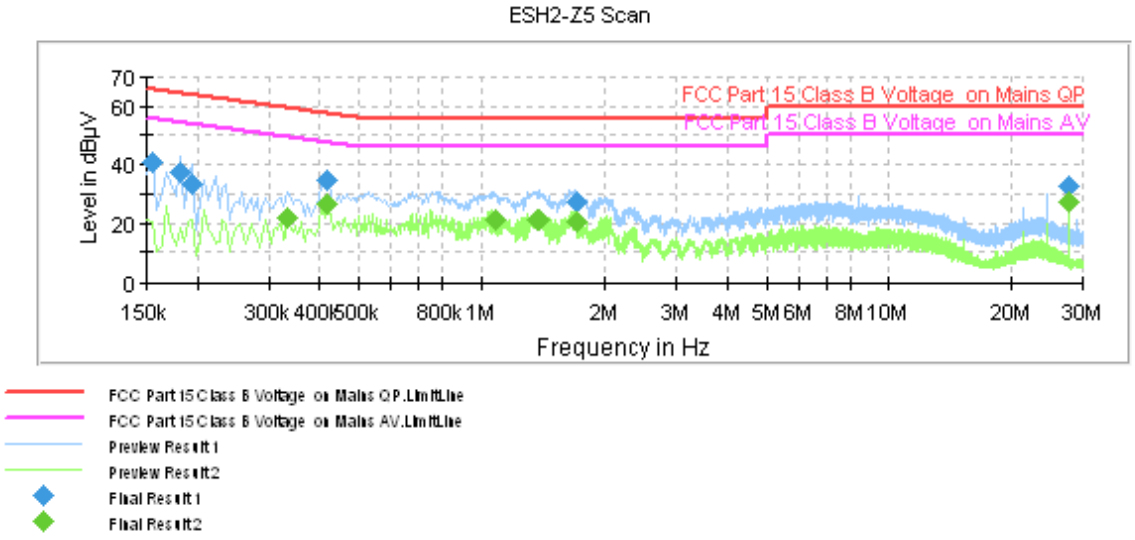


Fig. 88 AC Powerline Conducted Emission-802.11n-20MHz

MEASUREMENT RESULT: "5567_MNC _fin QP"

Frequency (MHz)	Level (dBµV)	Transd (dB)	Limit (dBµV)	Margin (dB)	Line	PE
0.154500	40.9	10.0	65.8	24.9	L1	FLO
0.181500	37.4	10.1	64.4	27.0	N	FLO
0.195000	33.6	10.1	63.8	30.2	N	FLO
0.415500	34.4	10.1	57.5	23.1	N	FLO
1.711500	27.5	10.1	56.0	28.5	N	FLO
27.591000	32.5	10.6	60.0	27.5	N	FLO

MEASUREMENT RESULT: "5567_MNC _fin AV"

Frequency (MHz)	Level (dBµV)	Transd (dB)	Limit (dBµV)	Margin (dB)	Line	PE
0.334500	21.8	10.0	49.3	27.5	N	FLO
0.415500	26.8	10.1	47.5	20.7	N	FLO
1.081500	20.7	10.1	46.0	25.3	N	FLO
1.374000	21.1	10.1	46.0	24.9	N	FLO
1.711500	20.4	10.1	46.0	25.6	N	FLO
27.591000	27.5	10.6	50.0	22.5	N	FLO

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