FCC PART 15C
TEST REPORT
No.2012WLN0335

for

TCT Mobile Limited

HSUPA/HSDPA/UMTS dual band / GSM quad bands mobile phone

Type: Pisco A

Market Name: ONE TOUCH 916A

With

FCC ID: RAD251

Hardware Version: PIO01

Software Version: Pisco-AboutPhone-US

Issued Date: 2012-05-04

Deutscher Akkreditierungs Rat

***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

Test Laboratory:

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

No. 52, Huayuan Bei Road, Haidian District, Beijing, P. R. China, 100191

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 Start Date:	2012-03-20
Testing End Date:	2012-05-03

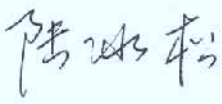
1.4. Signature

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:	TCT Mobile Limited
Address /Post:	5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China. 201203
City:	Shanghai
Postal Code:	201203
Country:	China
Contact	Gong Zhizhou
Email	zhizhou.gong @jrdcom.com
Telephone:	0086-21-61460890
Fax:	0086-21-61460602

2.2. Manufacturer Information

Company Name:	TCT Mobile Limited
Address /Post:	5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China. 201203
City:	Shanghai
Postal Code:	201203
Country:	China
Contact	Gong Zhizhou
Email	zhizhou.gong @jrdcom.com
Telephone:	0086-21-61460890
Fax:	0086-21-61460602

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

3.1. About EUT

Description	HSUPA/HSDPA/UMTS dual band / GSM quad bands mobile phone
Type	Pisco A
Market name	ONE TOUCH 916A
FCC ID	RAD251
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	23.97dBm(CCK)
Power Supply	3.7V DC by Battery

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

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version
EUT1	013105000001117	PIO01	Pisco-AboutPhone-US
EUT2	013105000001844	PIO01	Pisco-AboutPhone-US

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

3.3. Internal Identification of AE used during the test

AE ID*	Description	Type	SN
AE1	Battery	CAB32A0000C1	/
AE2	Battery	CAB32A0000C2	/
AE3	Traveller Charger	CBA3002AG0C1	/

*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 HSUPA/HSDPA/UMTS dual band / GSM quad bands mobile phone with integrated antenna. It consists of normal options: Battery and Charger.
Manual and specifications of the EUT were provided to fulfil the test.
Samples undergoing test were selected by the Client.

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	2009
KDB558074 D01	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247	January 18, 2012

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)	/	P
Peak Power Spectral Density	15.247 (d)	/	P
Occupied 6dB Bandwidth	15.247 (d)	/	P
Band Edges Compliance	15.247 (b)	/	P
Transmitter Spurious Emission - Conducted	15.247	/	P
Transmitter Spurious Emission - Radiated	15.247, 15.209, 15.209	/	P
AC Powerline Conducted Emission	15.107, 15.207	/	P

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

The measurement is made according to Public notice KDB558074 D01 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	2013-03-15
3	Dual-Ridge Waveguide Horn Antenna	3115	9906-5827	EMCO	2012-12-25

Anechoic chamber

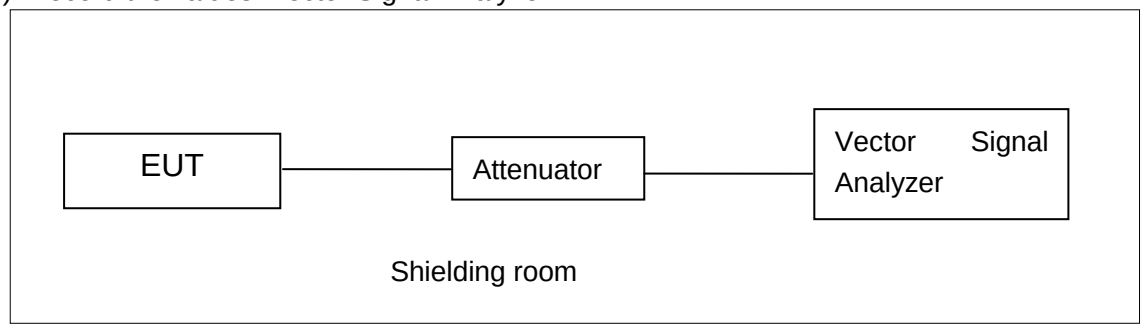
Anechoic chamber by Frankonia German.

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

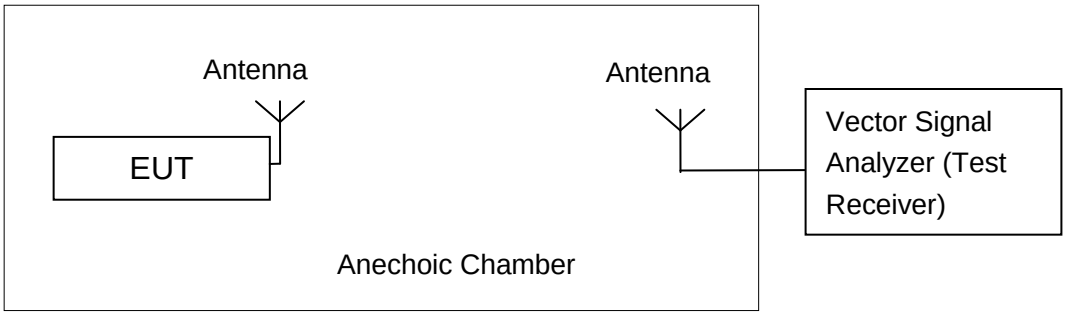
A.1.1. Conducted Measurements

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 D01

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 C63.4 and KDB558074 D01, and power output option 1 (RBW=20MHz) in KDB558074 D01 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-conducted

Measurement Results:

802.11b/g mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11b	1	21.15	/	/
	2	21.20	/	/
	5.5	22.58	/	/
	11	23.71	23.97	23.90
802.11g	6	22.38	/	/
	9	22.55	/	/
	12	22.57	/	/
	18	22.37	/	/
	24	22.82	23.30	23.54
	36	22.77	/	/
	48	22.66	/	/
	54	22.80	/	/

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

802.11n-HT20MHz mode

Mode	Data Rate (Index)	Test Result (dBm)		
		2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11n (20MHz)	MCS0	22.41	/	/
	MCS1	22.21	/	/
	MCS2	22.28	/	/
	MCS3	22.38	/	/
	MCS4	22.78	/	/
	MCS5	22.90	23.24	23.15

	MCS6	22.62	/	/
	MCS7	22.72	/	/

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

802.11n-HT40MHz mode

Mode	Data Rate (Index)	Test Result (dBm)		
		2422MHz (Ch3)	2437MHz (Ch6)	2452 MHz (Ch9)
802.11n (40MHz)	MCS0	/	/	/
	MCS1	/	/	/
	MCS2	/	/	/
	MCS3	/	/	/
	MCS4	/	/	/
	MCS5	/	/	/
	MCS6	/	/	/
	MCS7	/	/	/

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	17.72	17.53	17.79
802.11g	14.85	14.85	14.69

802.11n-HT20MHz mode

Mode	Test Result (dBm)		
	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11n (20MHz)	14.76	14.45	14.50

802.11n-HT40MHz mode

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

Conclusion: PASS

A.3. Peak Power Spectral Density

Measurement Limit:

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

The measurement is made according to ANSI C63.4 and KDB558074 D01

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	-7.19	P
	6	Fig.2	-6.62	P
	11	Fig.3	-5.52	P
802.11g	1	Fig.4	-14.07	P
	6	Fig.5	-10.25	P
	11	Fig.6	-9.46	P

802.11n-HT20MHz mode

Mode	Channel	Power Spectral Density (dBm/3 kHz)		Conclusion
802.11n (20MHz)	1	Fig.7	-10.61	P
	6	Fig.8	-9.63	P
	11	Fig.9	-10.04	P
802.11n (40MHz)	3	/	/	/
	6	/	/	/
	9	/	/	/

Conclusion: PASS

Test graphs as below:

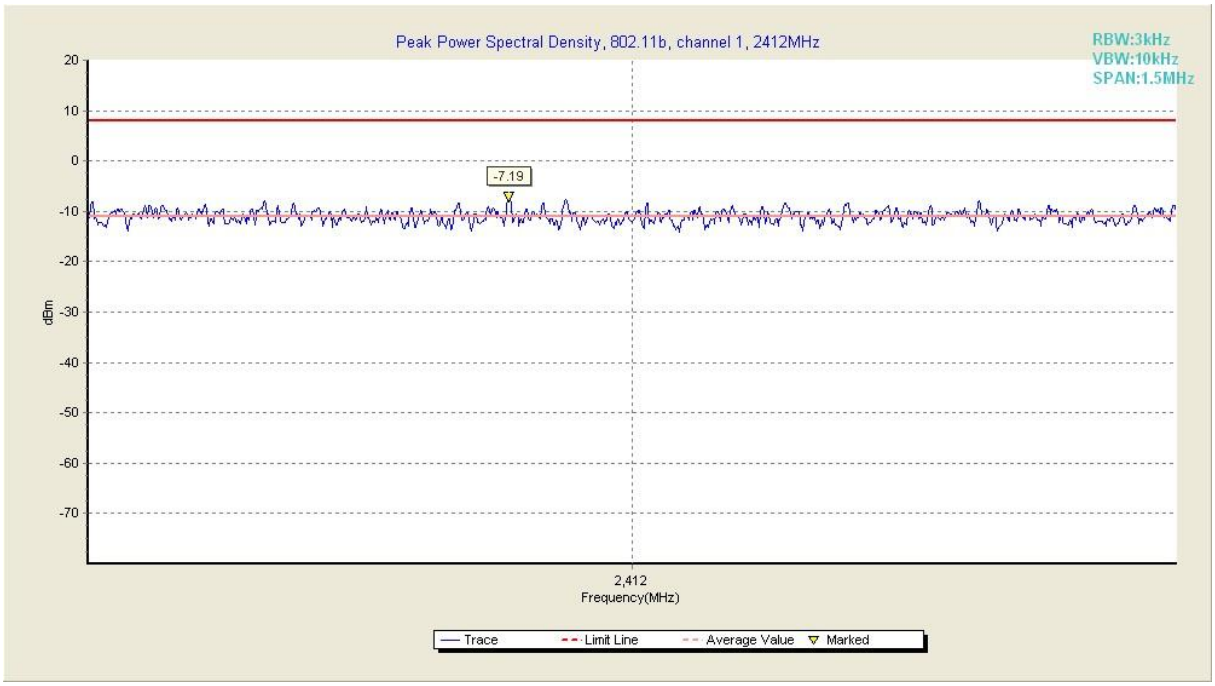


Fig. 1 Power Spectral Density (802.11b, Ch 1)

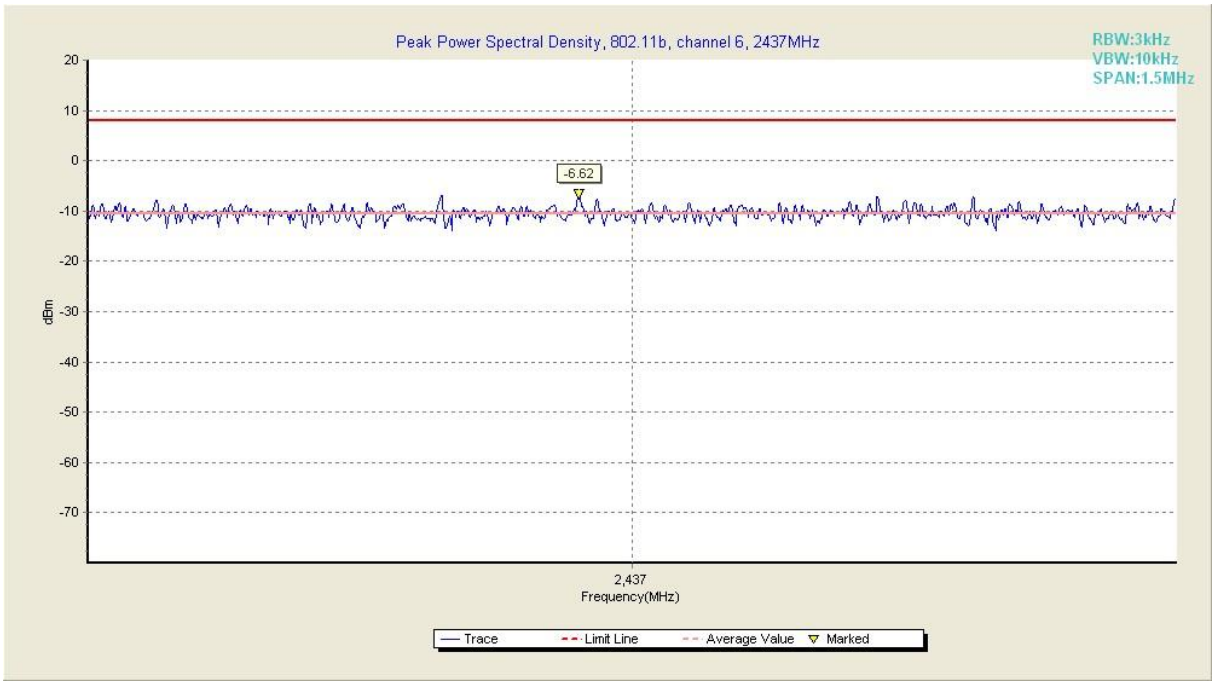


Fig. 2 Power Spectral Density (802.11b, Ch 6)

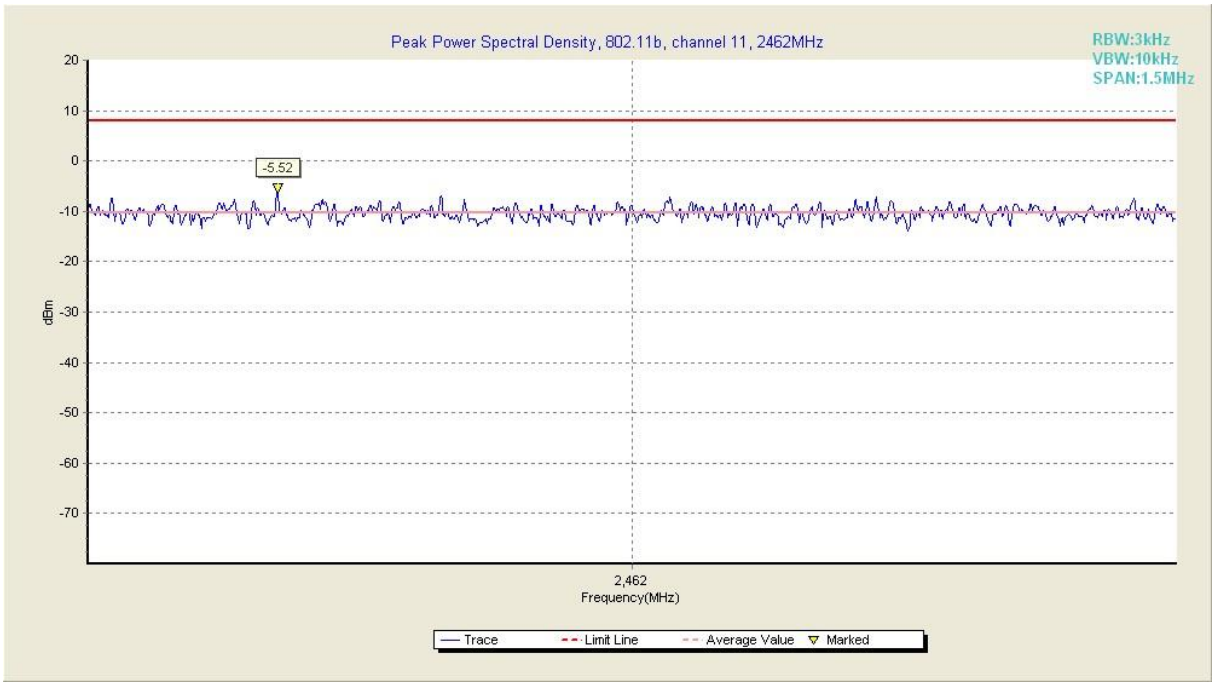


Fig. 3 Power Spectral Density (802.11b, Ch 11)

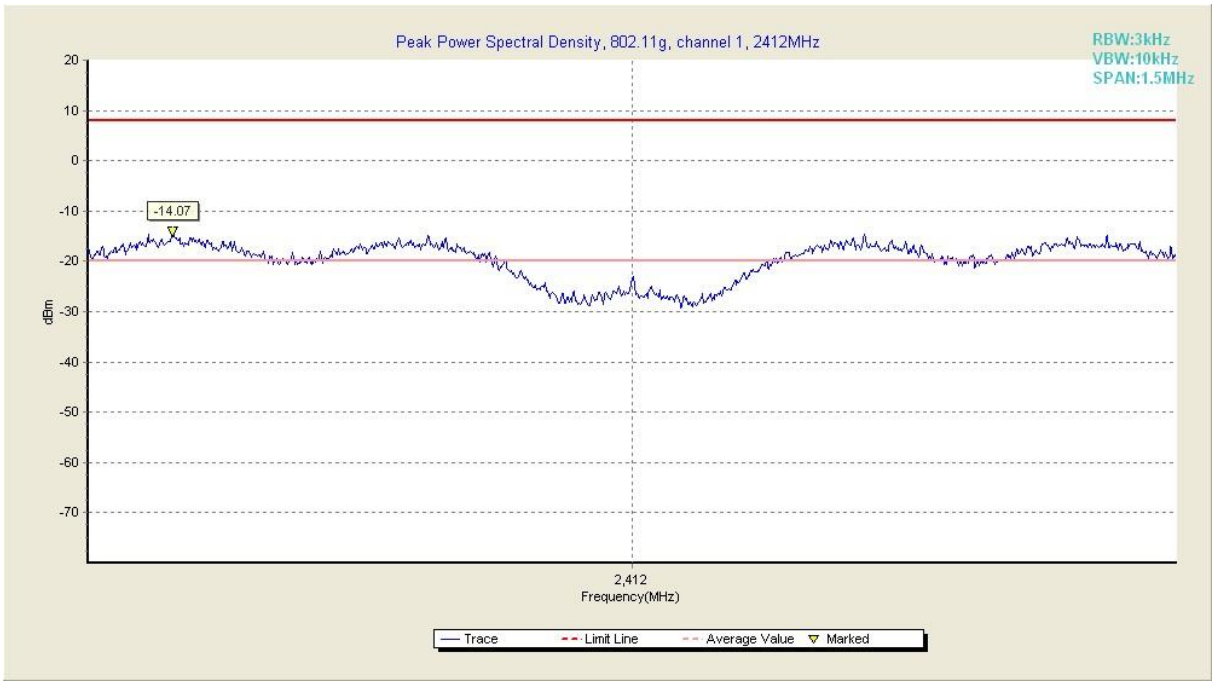


Fig. 4 Power Spectral Density (802.11g, Ch 1)

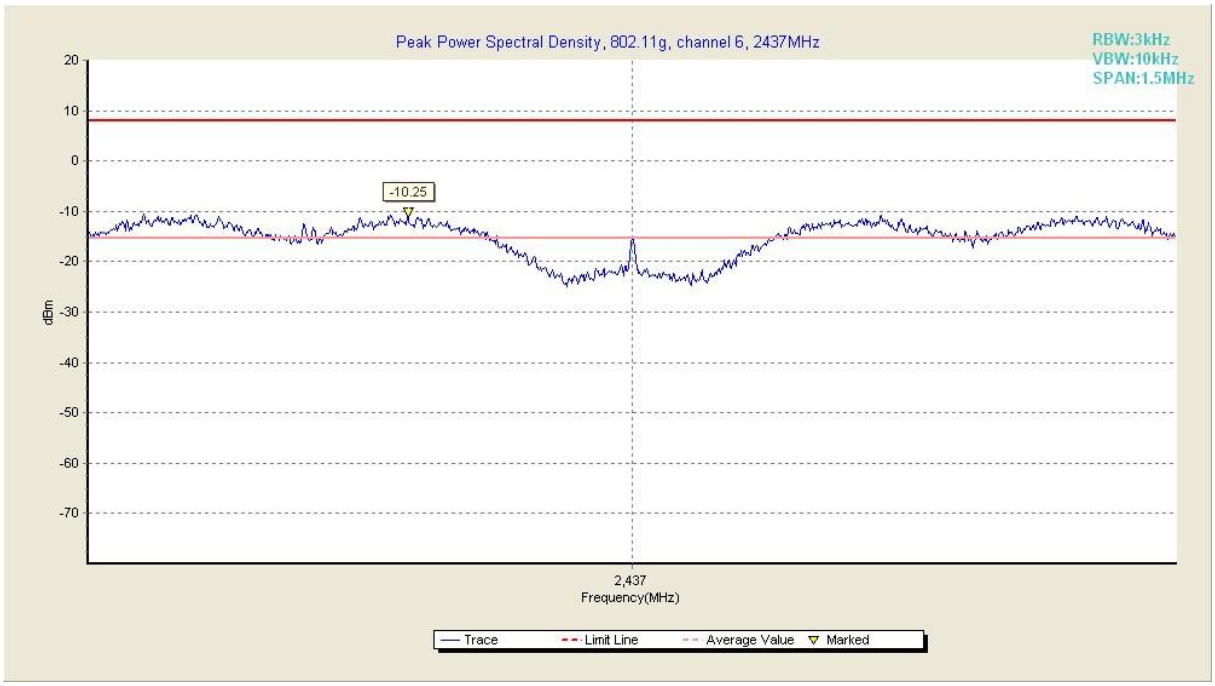


Fig. 5 Power Spectral Density (802.11g, Ch 6)

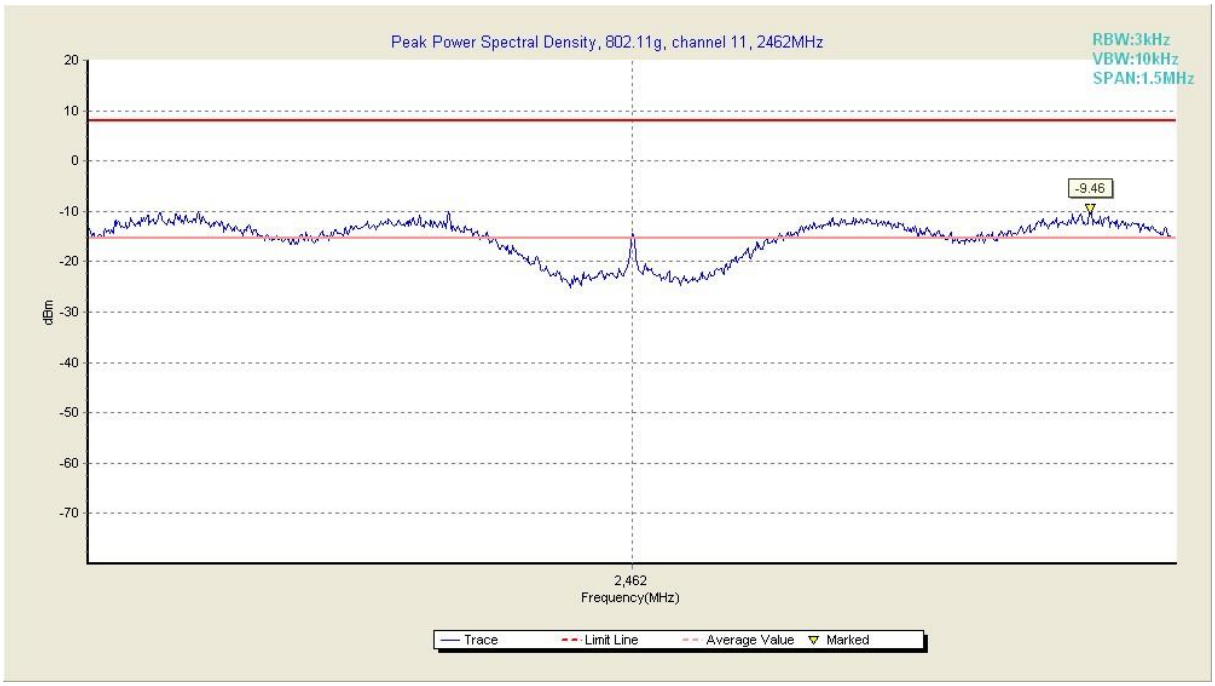


Fig. 6 Power Spectral Density (802.11g, Ch 11)

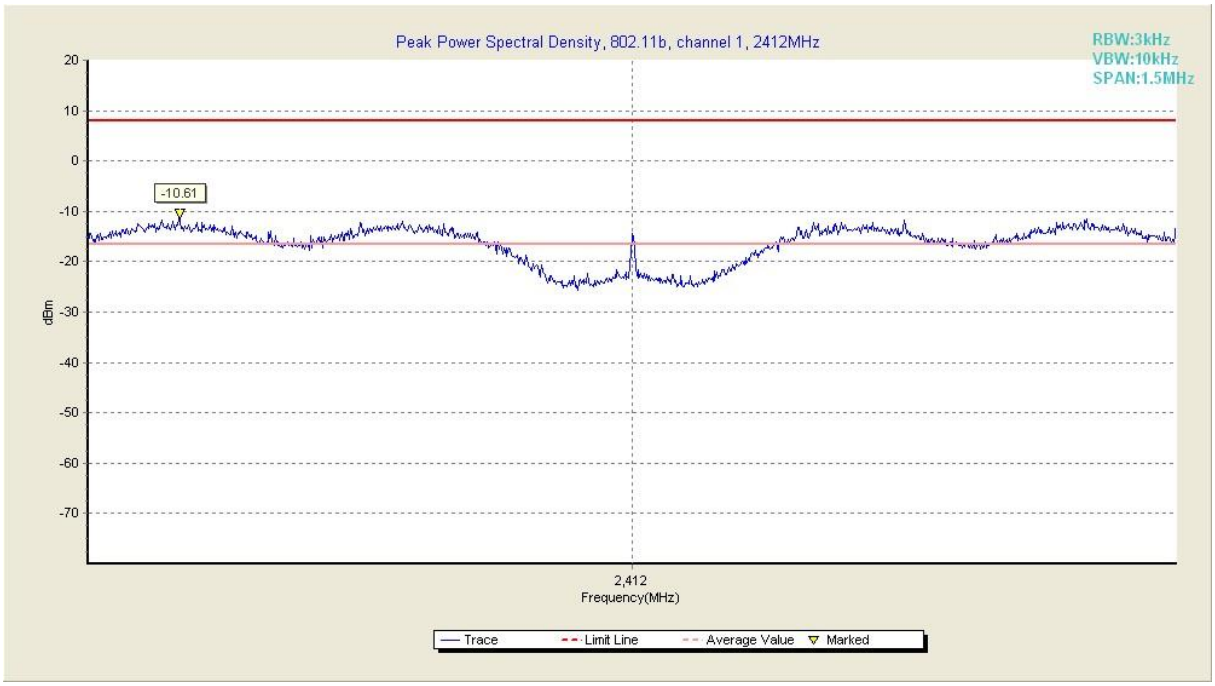


Fig. 7 Power Spectral Density (802.11n-20MHz, Ch 1)

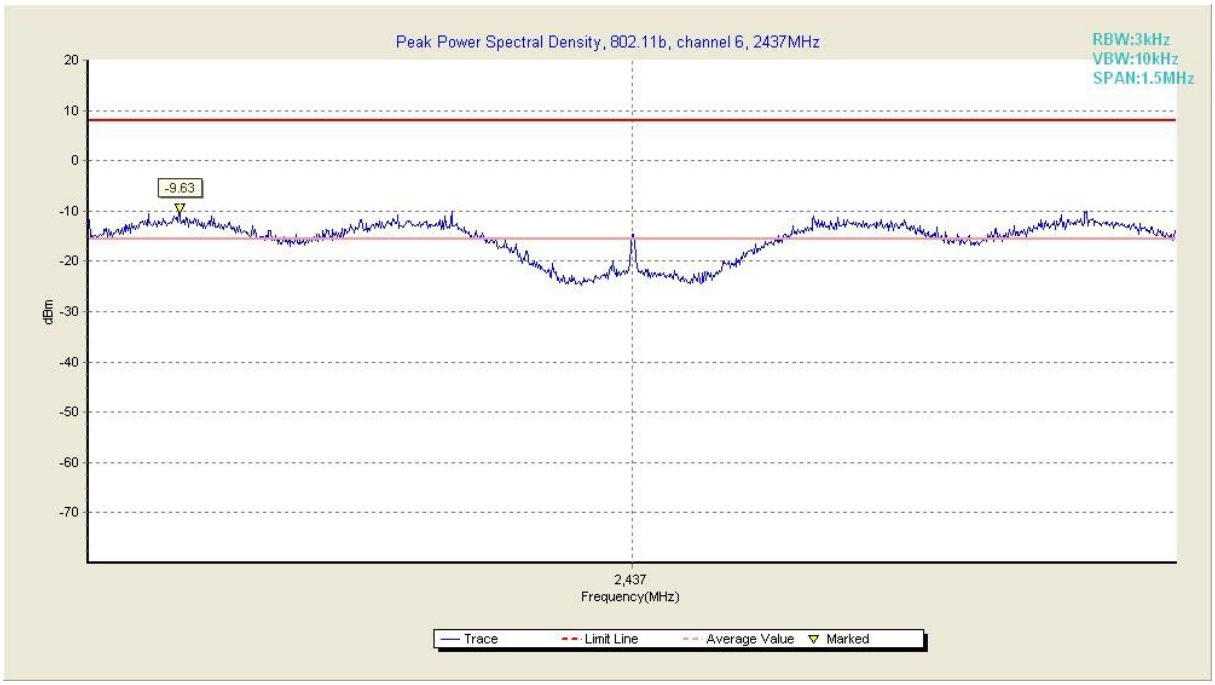


Fig. 8 Power Spectral Density (802.11n-20MHz, Ch 6)

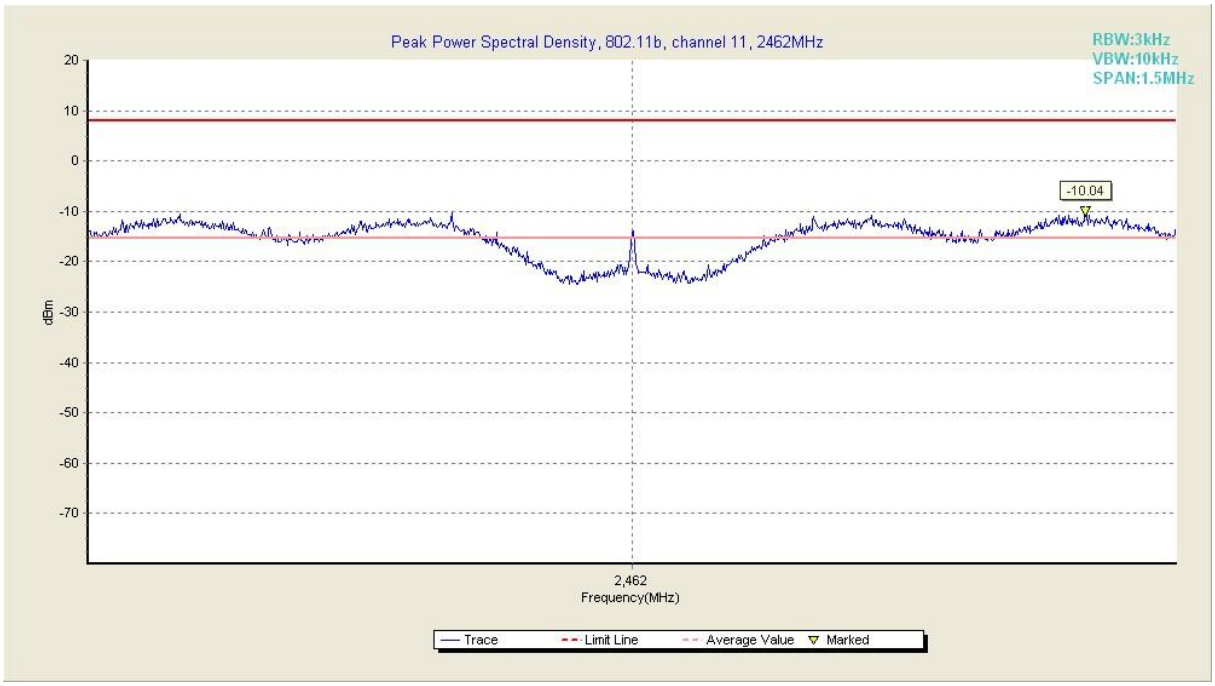


Fig. 9 Power Spectral Density (802.11n-20MHz, Ch 11)

A.4. Occupied 6dB Bandwidth

Measurement Limit:

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

The measurement is made according to ANSI C63.4 and KDB558074 D01

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz

Measurement Result:

802.11b/g mode

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
802.11b	1	Fig.10	9250	P
	6	Fig.11	8700	P
	11	Fig.12	9300	P
802.11g	1	Fig.13	16550	P
	6	Fig.14	16550	P
	11	Fig.15	16550	P

802.11n mode

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
802.11n (20MHz)	1	Fig.16	17750	P
	6	Fig.17	17700	P
	11	Fig.18	17750	P
802.11n (40MHz)	3	/	/	/
	6	/	/	/
	9	/	/	/

Conclusion: PASS

Test graphs as below:

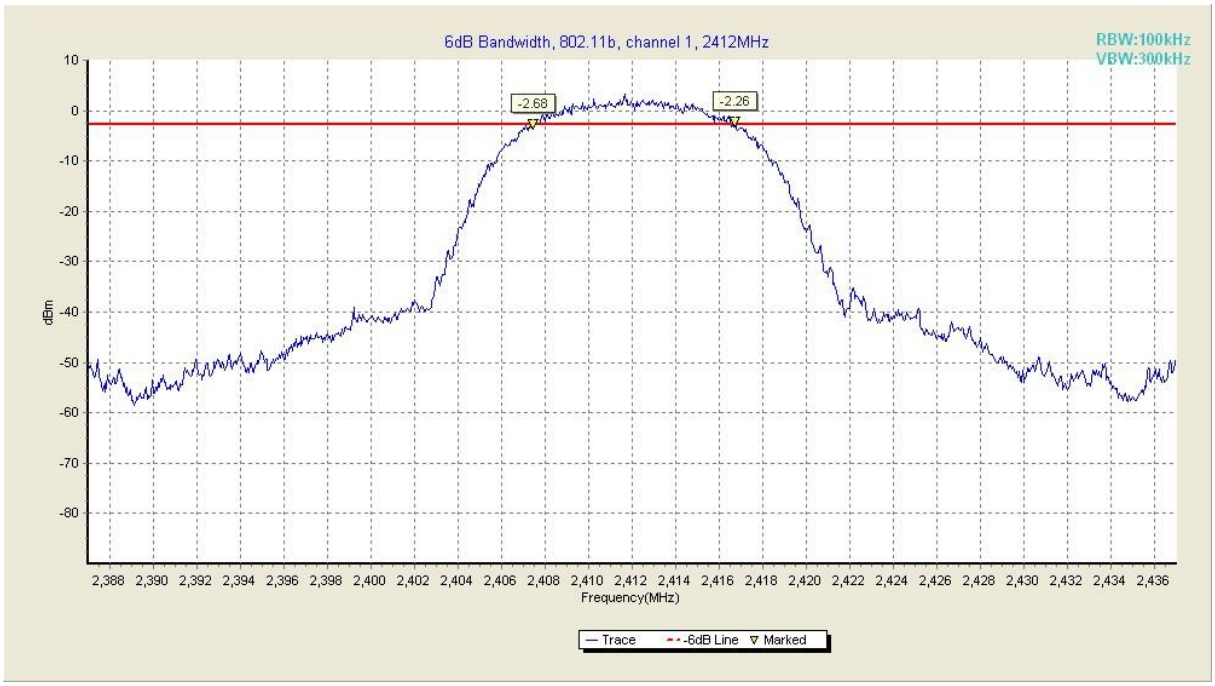


Fig. 10 Occupied 6dB Bandwidth (802.11b, Ch 1)

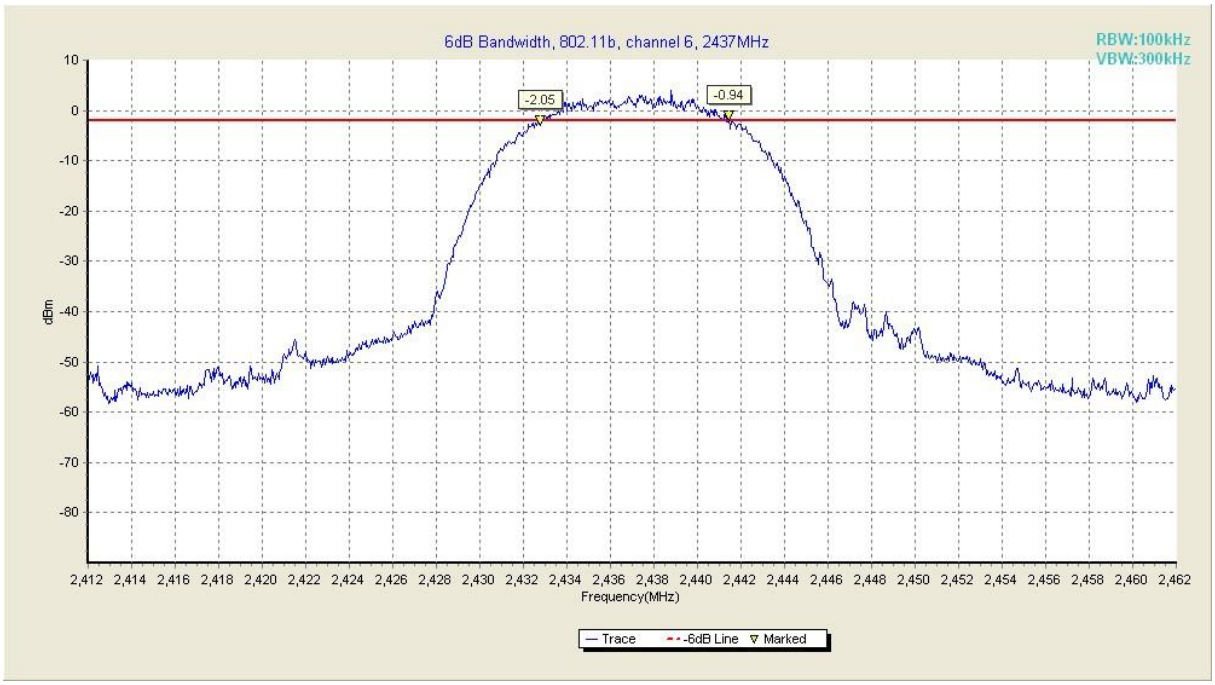


Fig. 11 Occupied 6dB Bandwidth (802.11b, Ch 6)

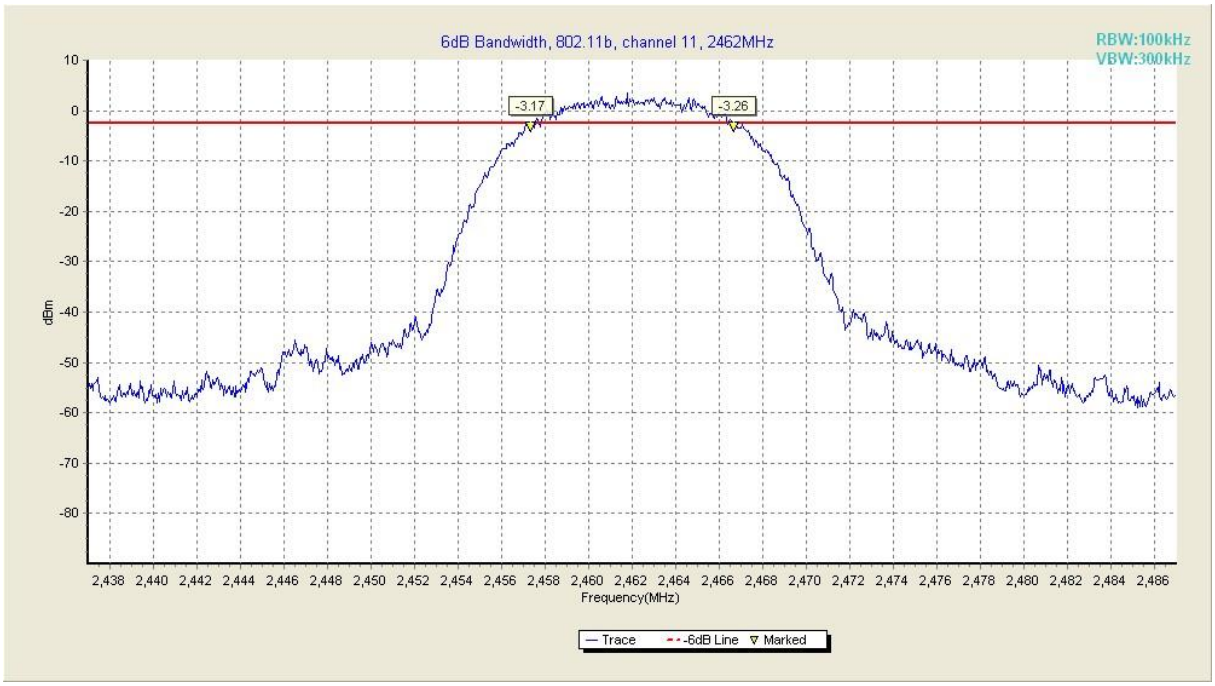


Fig. 12 Occupied 6dB Bandwidth (802.11b, Ch 11)

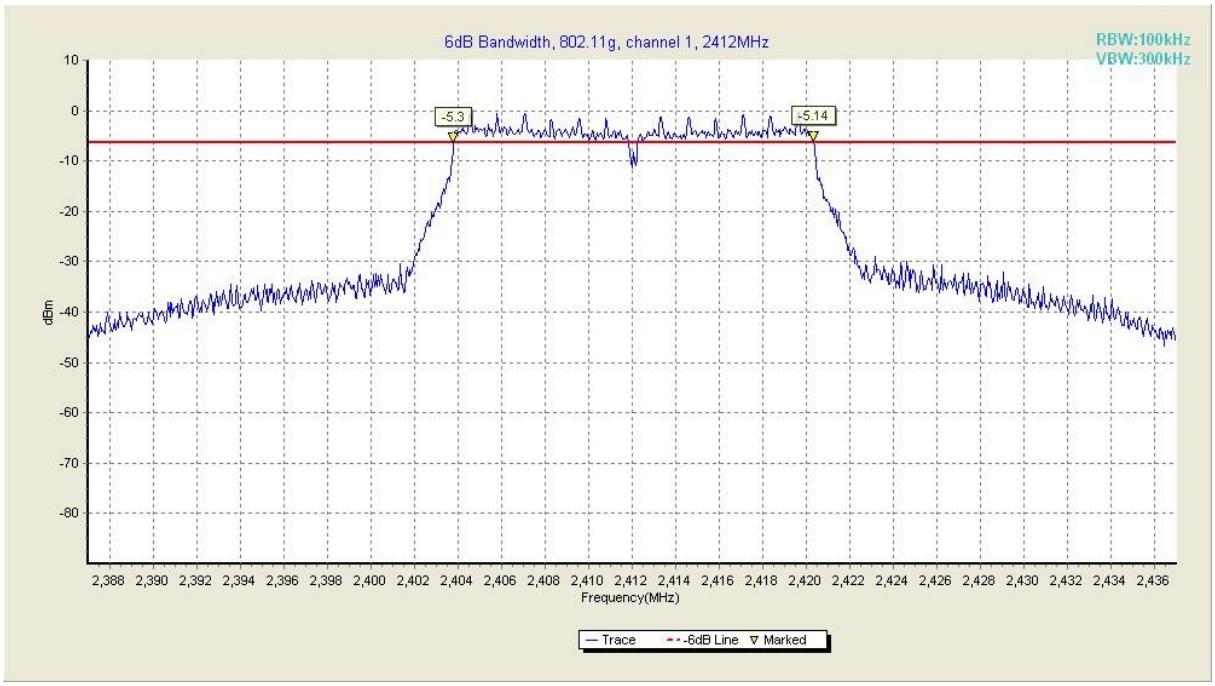


Fig. 13 Occupied 6dB Bandwidth (802.11g, Ch 1)

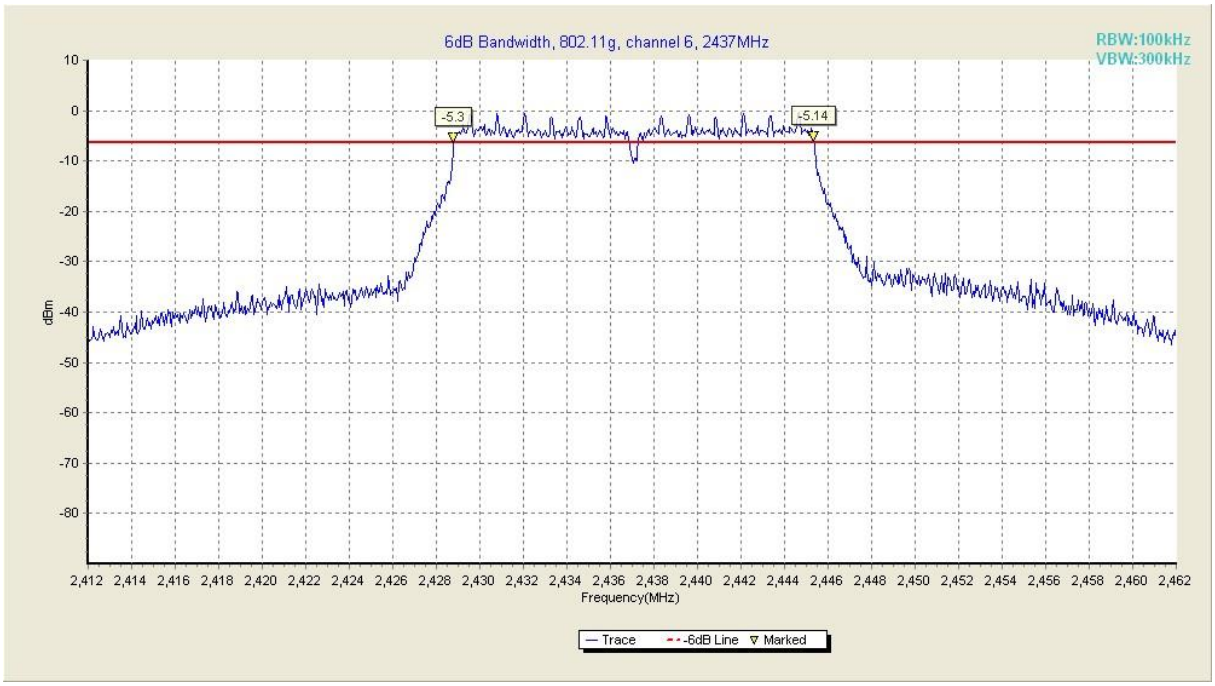


Fig. 14 Occupied 6dB Bandwidth (802.11g, Ch 6)

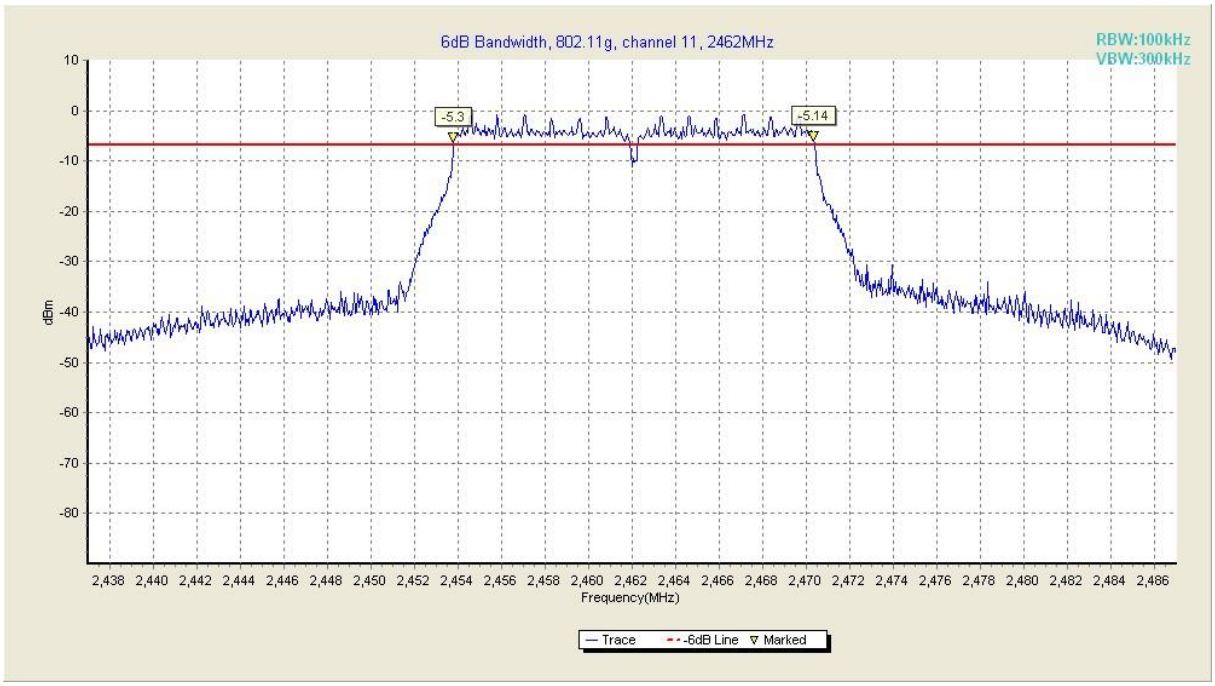


Fig. 15 Occupied 6dB Bandwidth (802.11g, Ch 11)

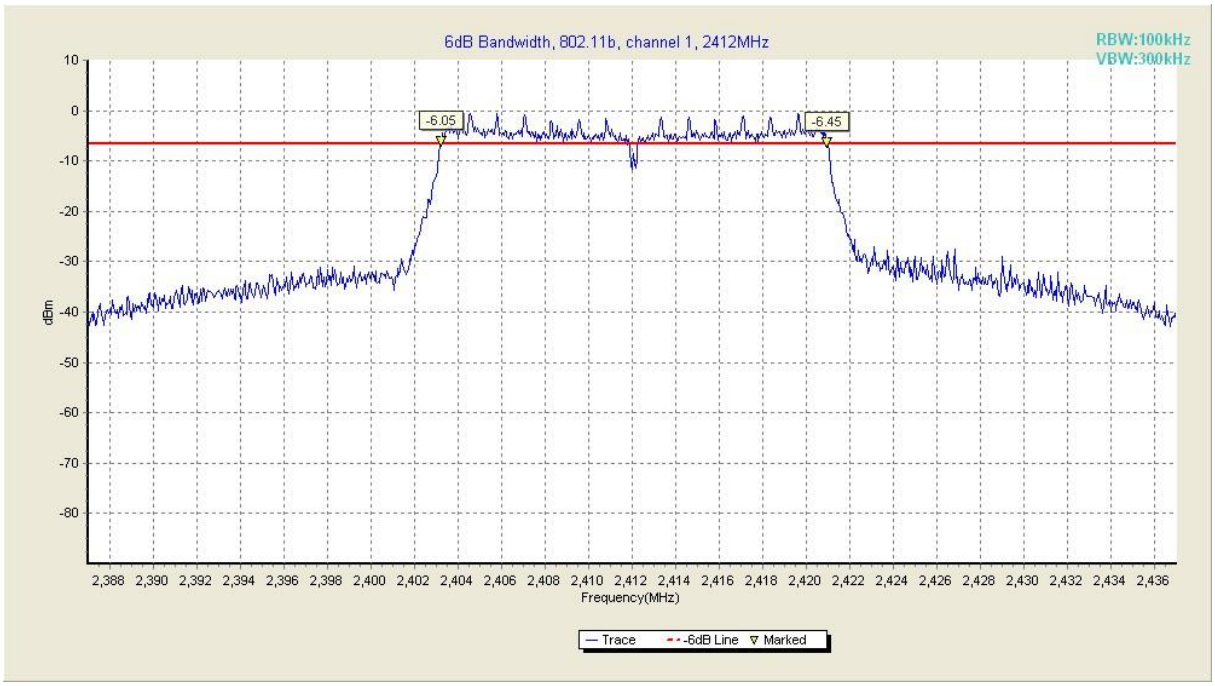


Fig. 16 Occupied 6dB Bandwidth (802.11n-20MHz, Ch 1)

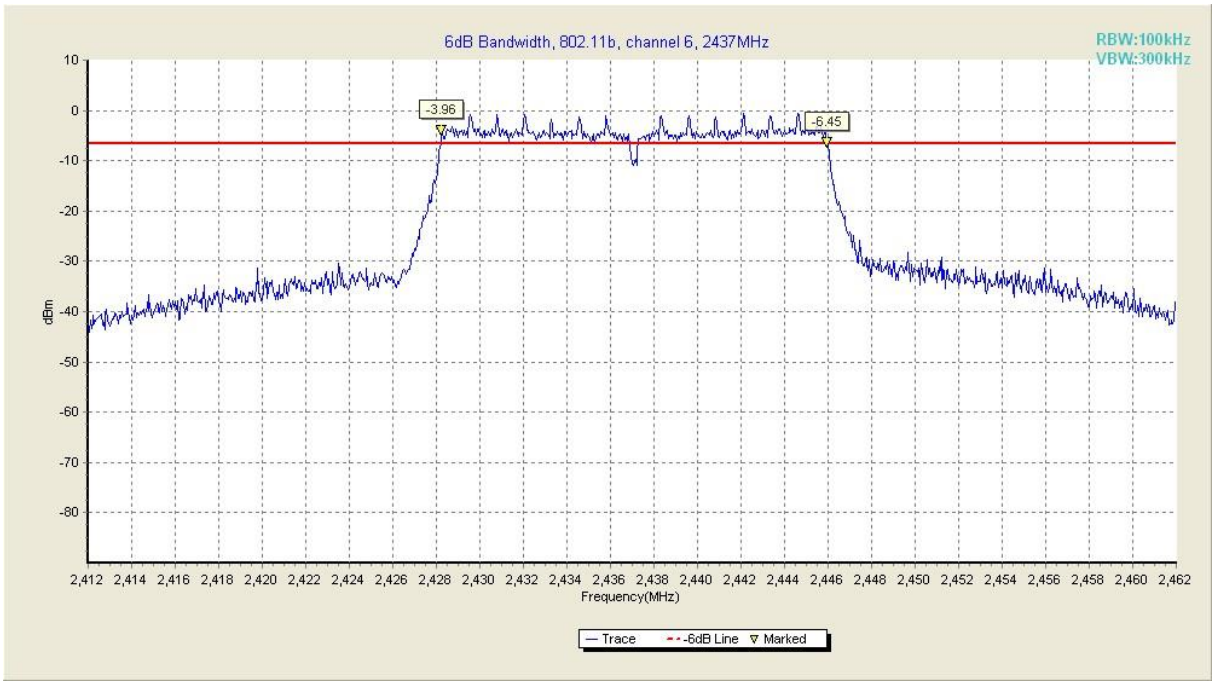


Fig. 17 Occupied 6dB Bandwidth (802.11n-20MHz, Ch 6)

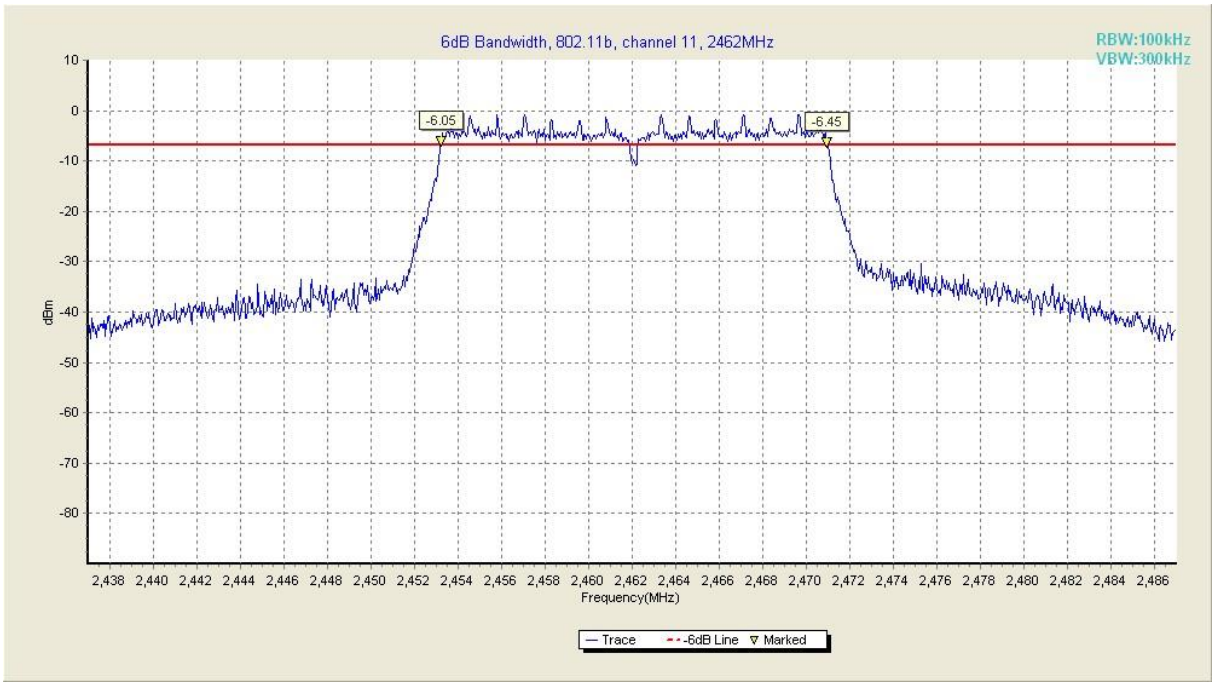


Fig. 18 Occupied 6dB Bandwidth (802.11n-20MHz, Ch 11)

A.5. Band Edges Compliance

Measurement Limit:

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

The measurement is made according to ANSI C63.4 and KDB558074 D01

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
802.11n (40MHz)	3	/	/
	9	/	/

Conclusion: PASS

Test graphs as below:

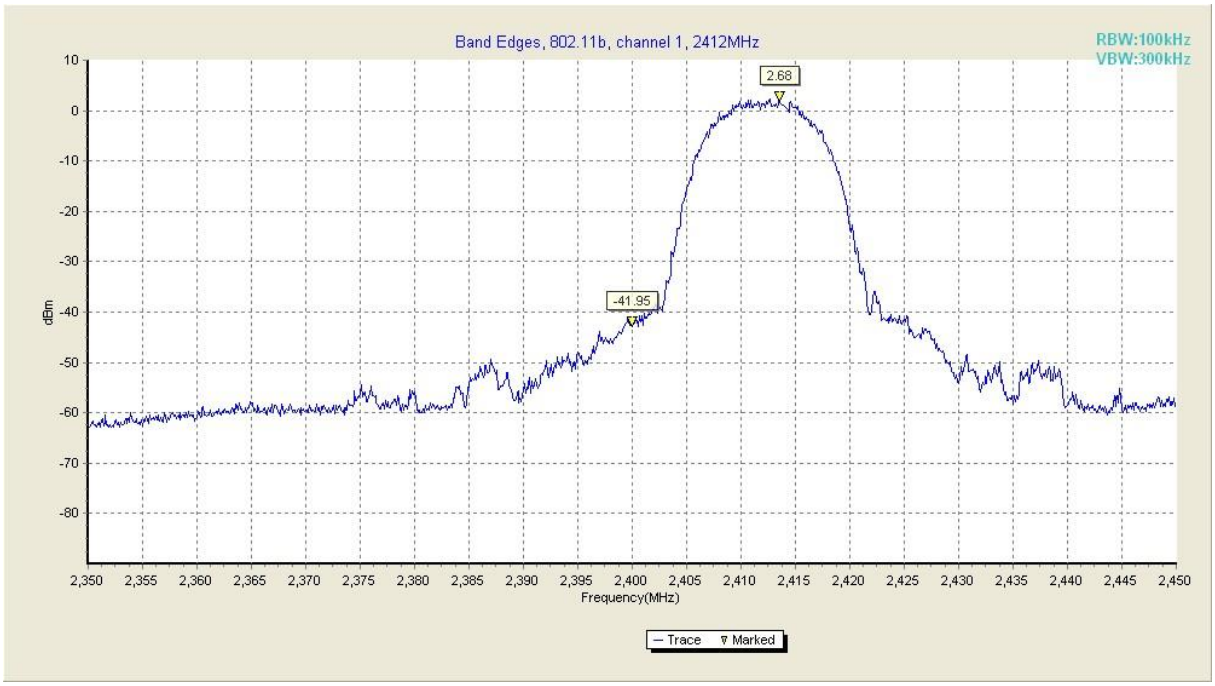


Fig. 19 Band Edges (802.11b, Ch 1)

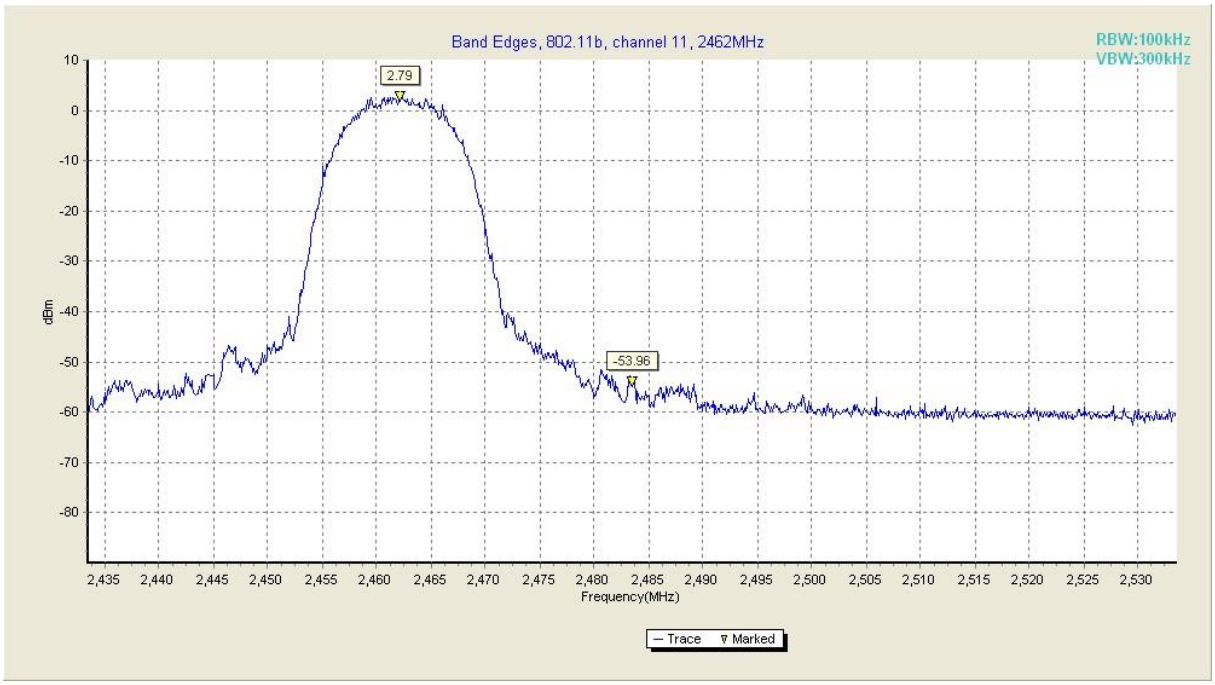


Fig. 20 Band Edges (802.11b, Ch 11)

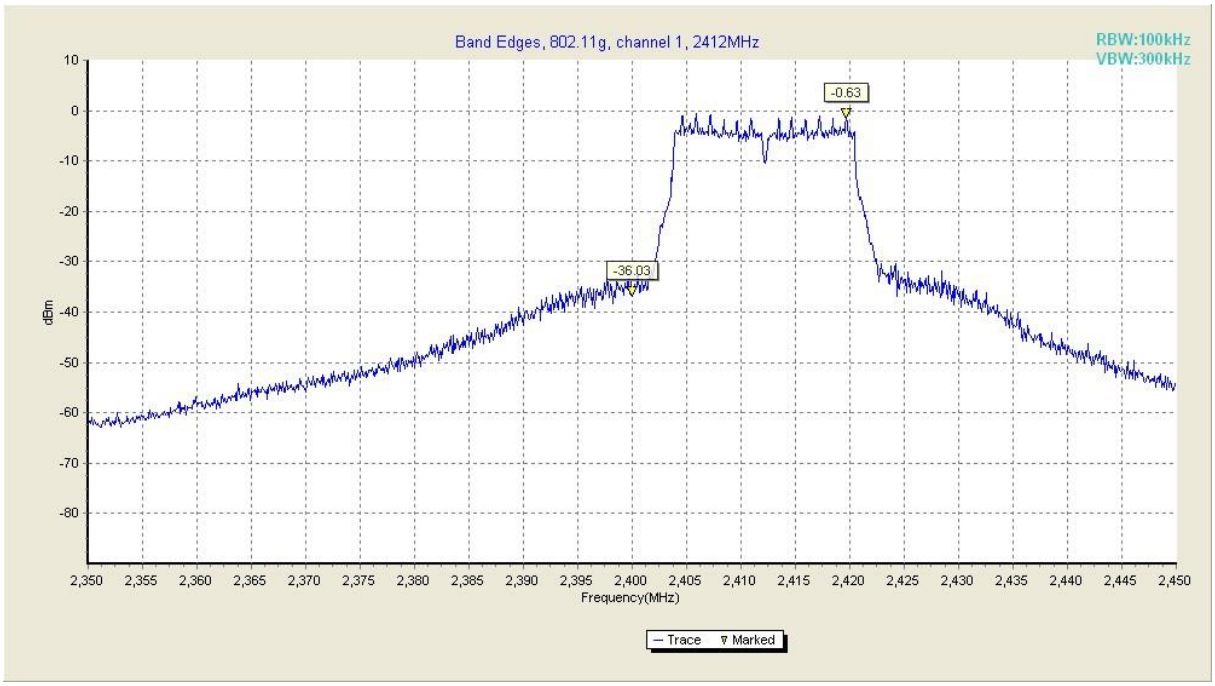


Fig. 21 Band Edges (802.11g, Ch 1)

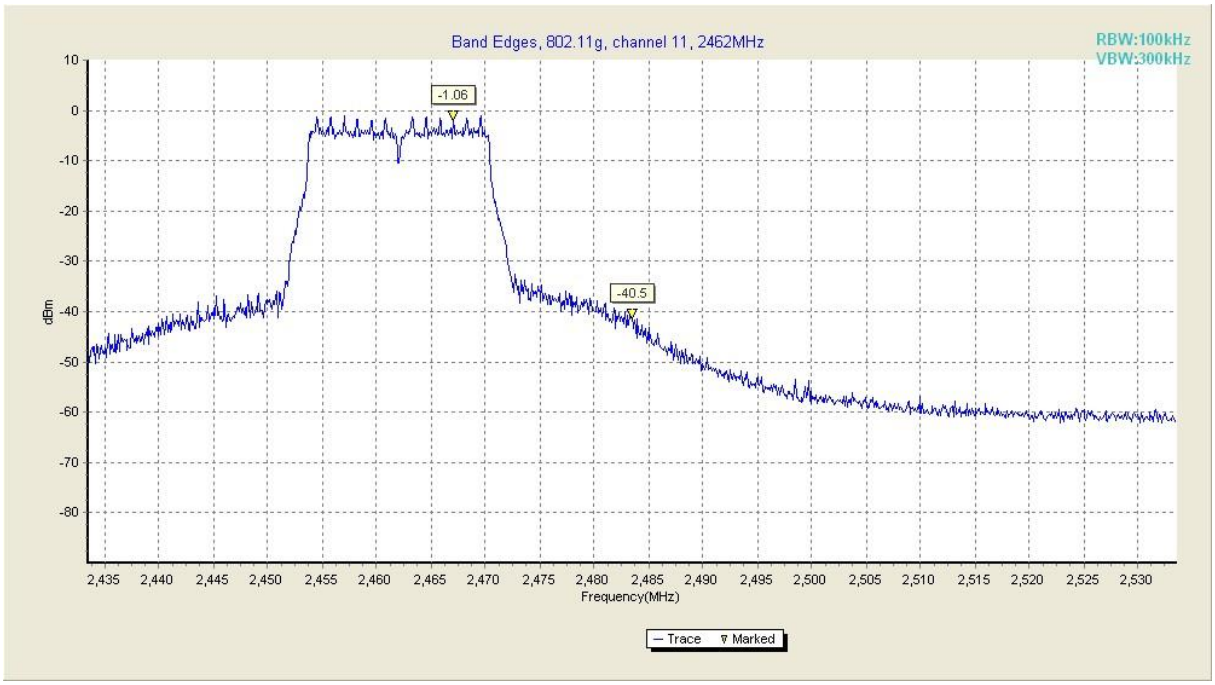


Fig. 22 Band Edges (802.11g, Ch 11)

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

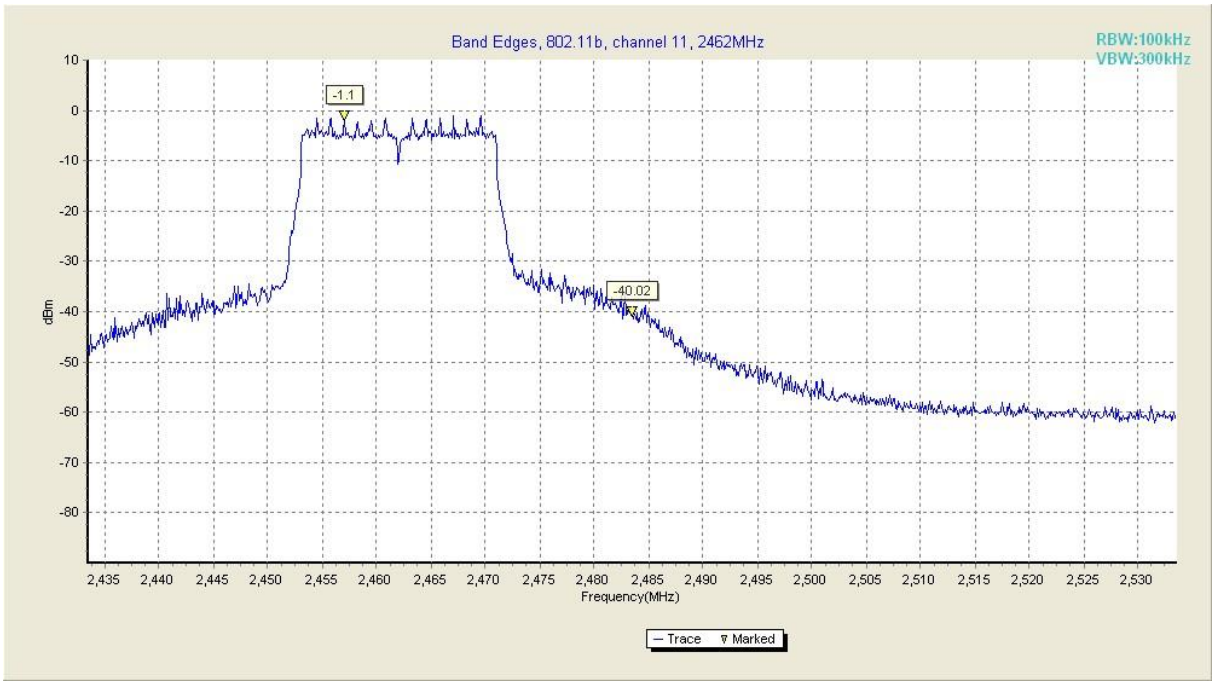


Fig. 24 Band Edges (802.11n-20MHz, Ch 11)

A.6. Transmitter Spurious Emission

A.6.1 Transmitter Spurious Emission - Conducted

Measurement Limit:

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

The measurement is made according to ANSI C63.4 and KDB558074 D01

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
802.11n (40MHz)	3	2.422 GHz	/	/
		30 MHz ~ 26 GHz	/	/
	6	2.437 GHz	/	/
		30 MHz ~ 26 GHz	/	/
	9	2.452 GHz	/	/
		30 MHz ~ 26 GHz	/	/

Conclusion: PASS

Test graphs as below:

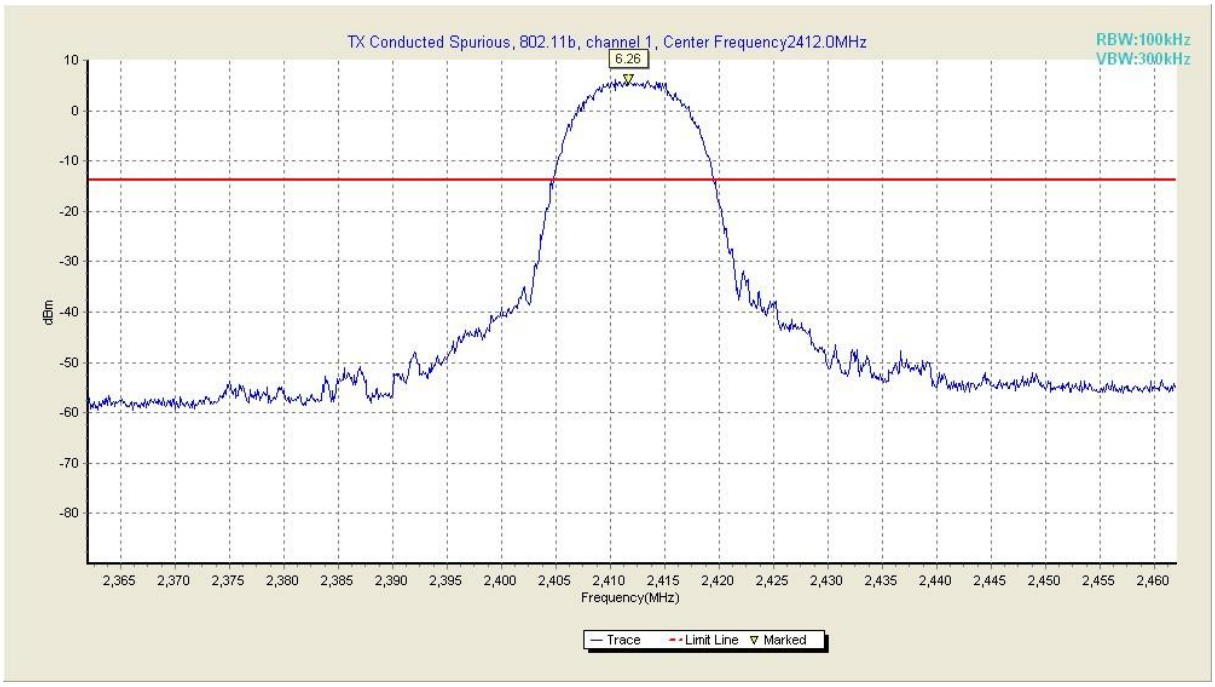


Fig. 25 Conducted Spurious Emission (802.11b, Ch1, Center Frequency)

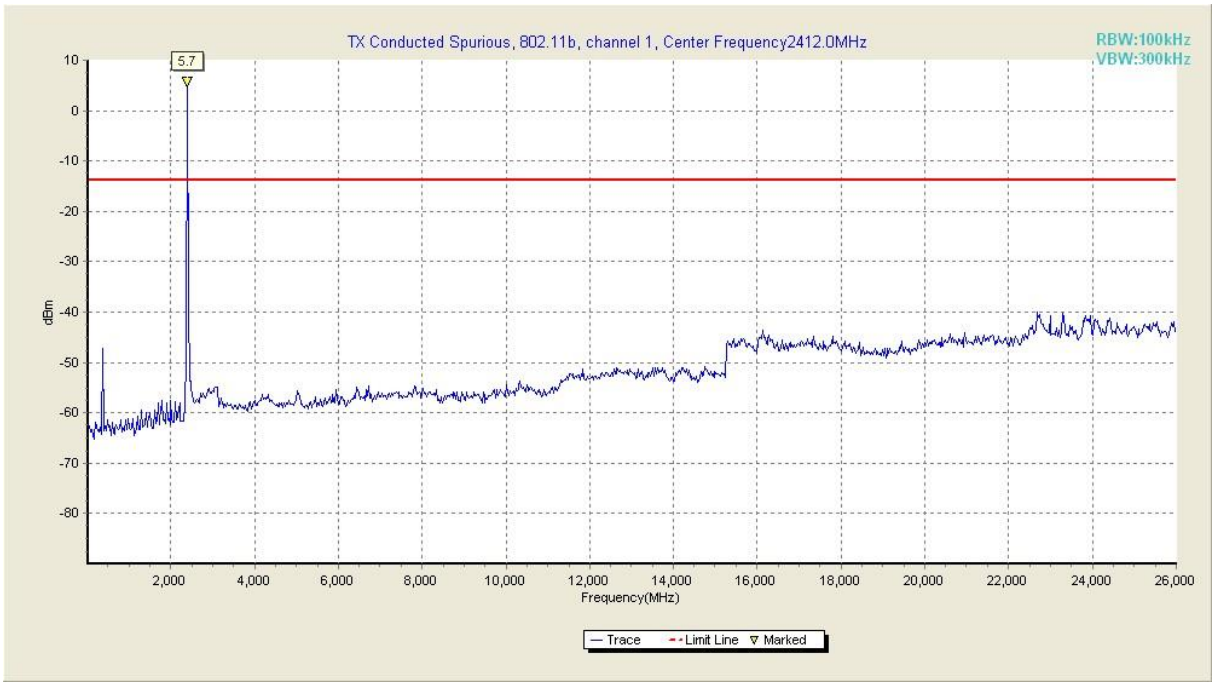


Fig. 26 Conducted Spurious Emission (802.11b, Ch1, 30 MHz-26 GHz)

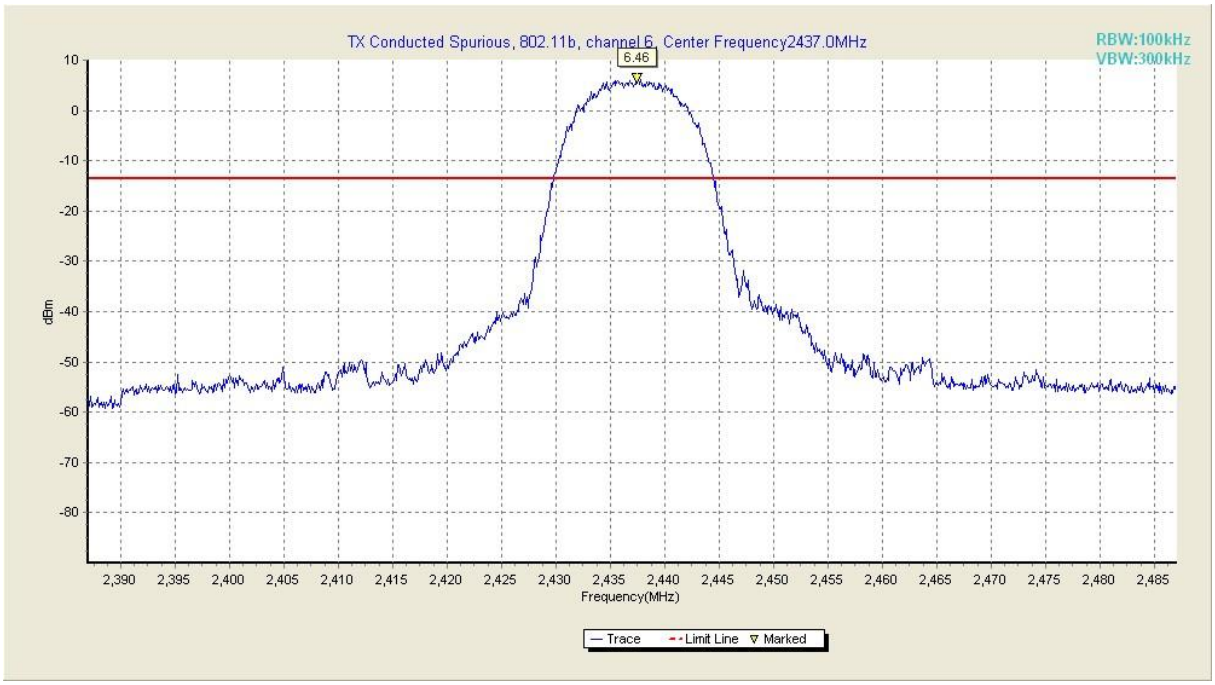


Fig. 27 Conducted Spurious Emission (802.11b, Ch6, Center Frequency)

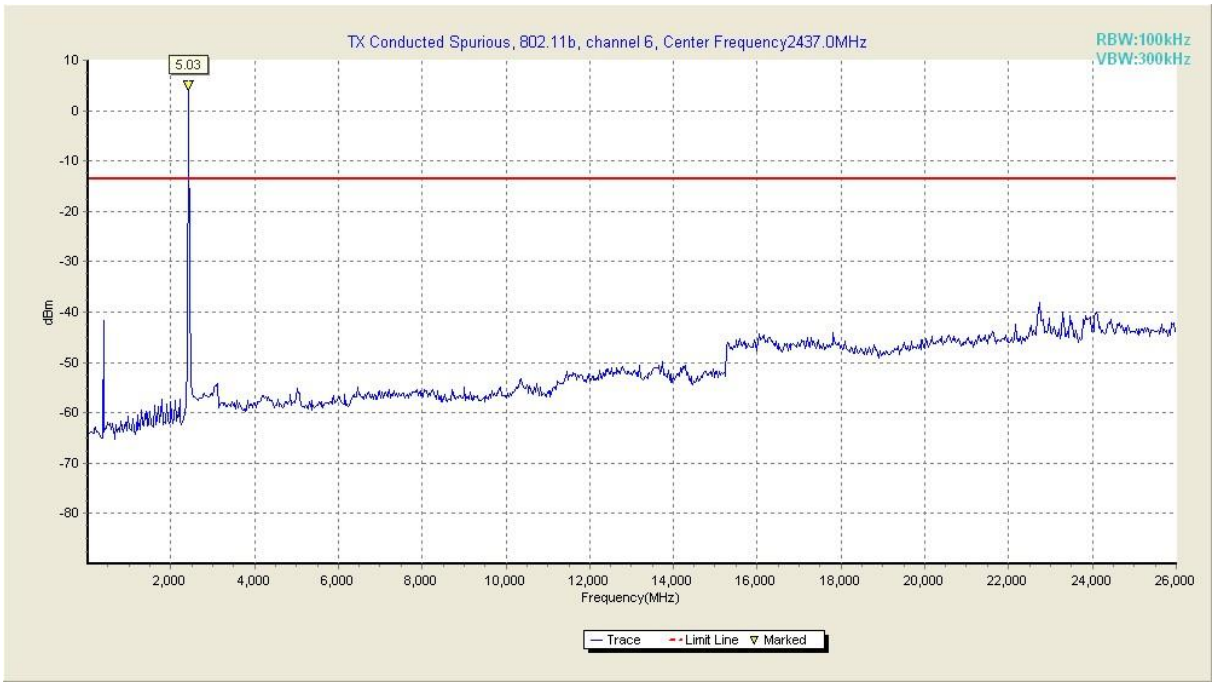


Fig. 28 Conducted Spurious Emission (802.11b, Ch6, 30 MHz-26 GHz)

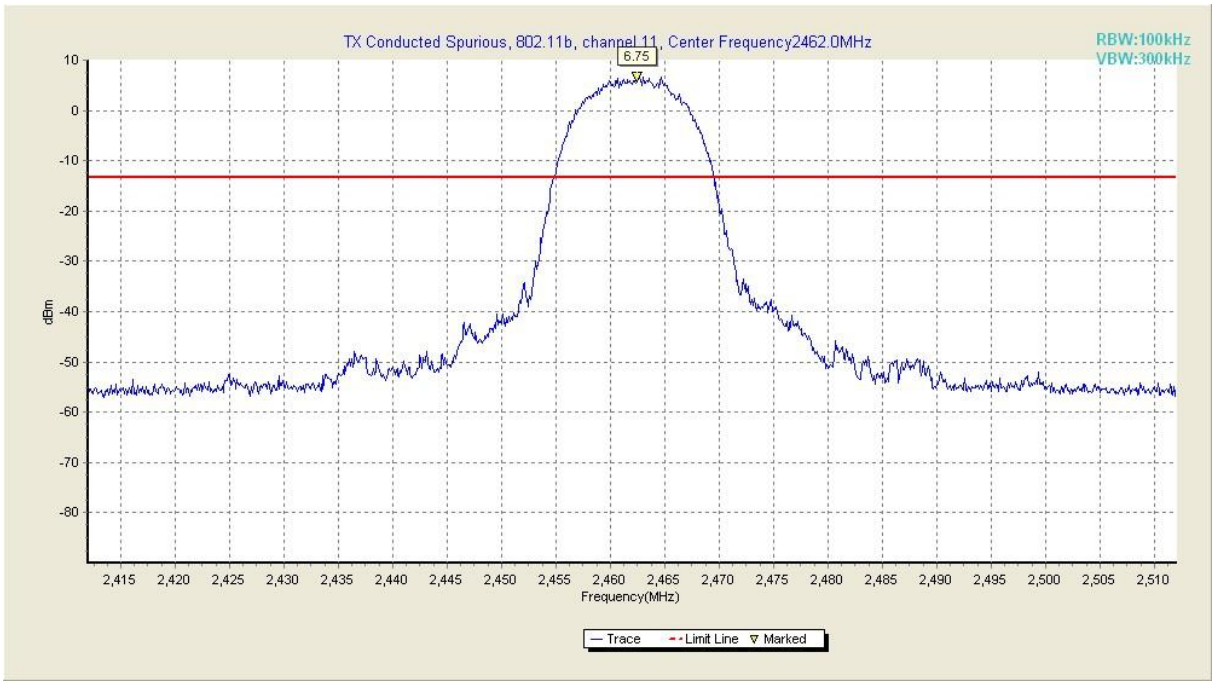


Fig. 29 Conducted Spurious Emission (802.11b, Ch11, Center Frequency)

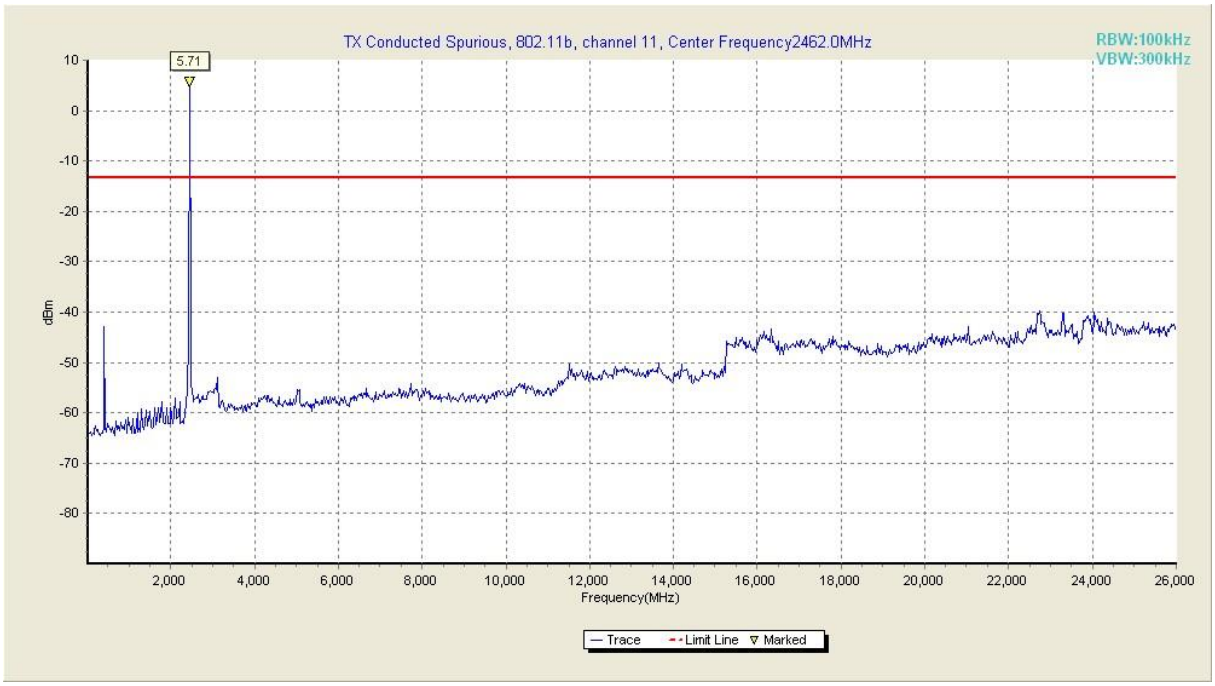


Fig. 30 Conducted Spurious Emission (802.11b, Ch11, 30 MHz-26 GHz)

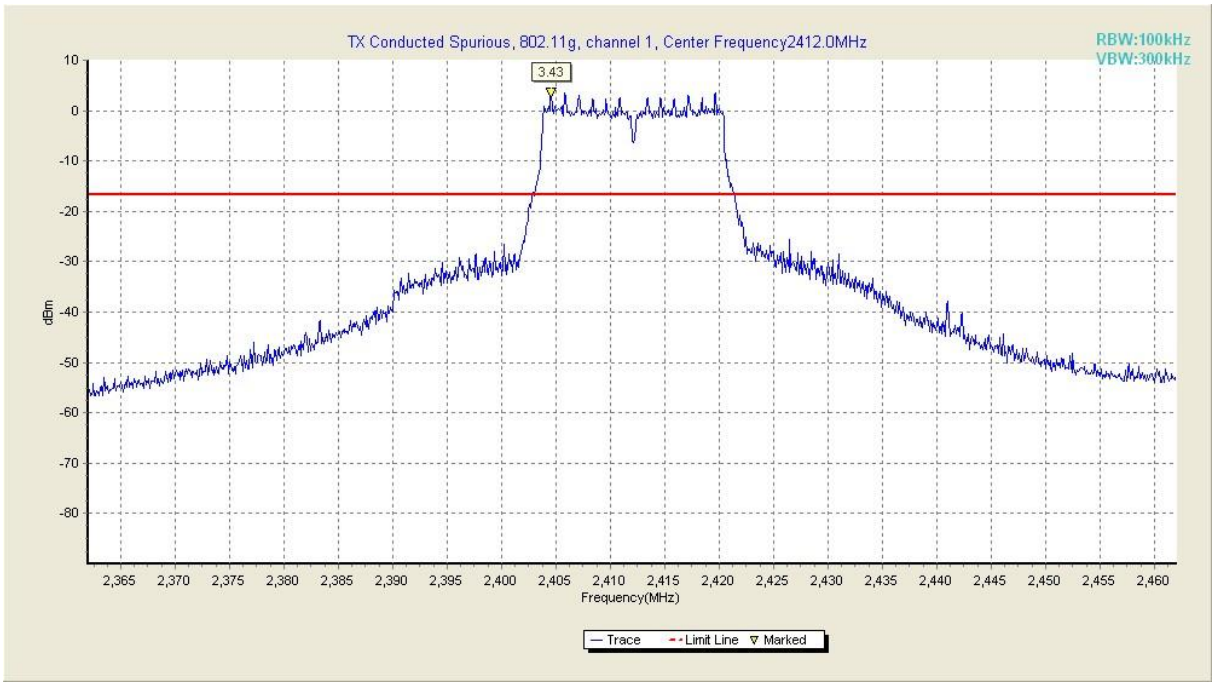


Fig. 31 Conducted Spurious Emission (802.11g, Ch1, Center Frequency)

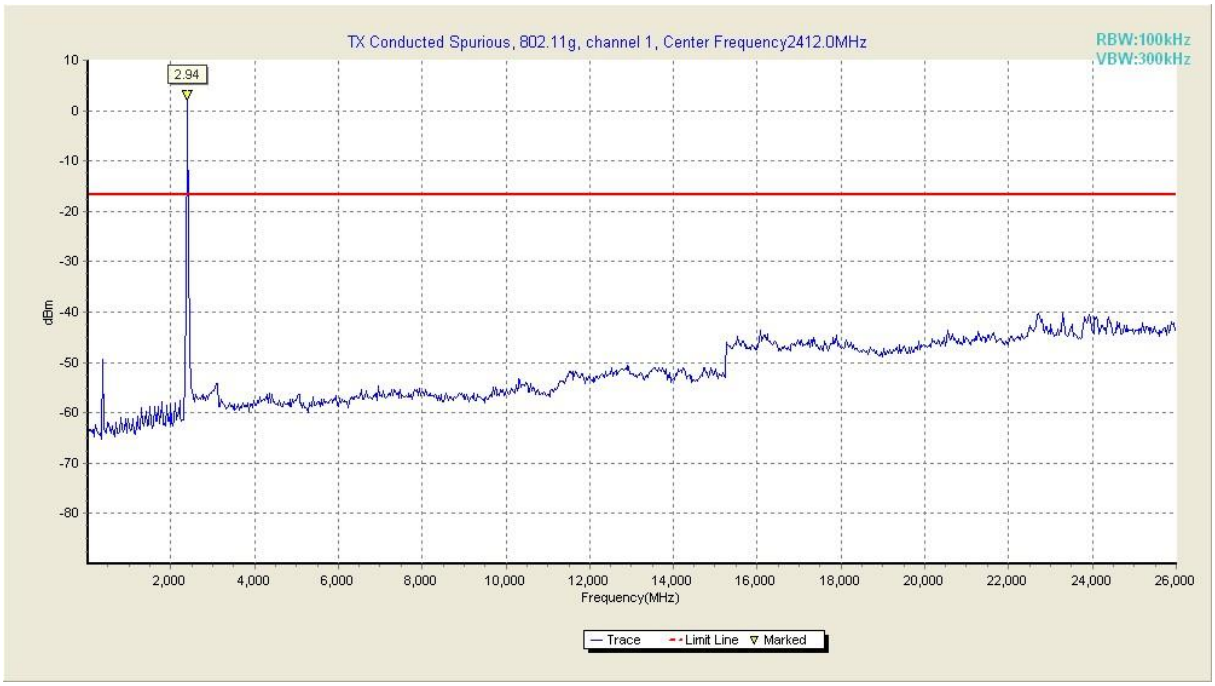


Fig. 32 Conducted Spurious Emission (802.11g, Ch1, 30 MHz-26 GHz)

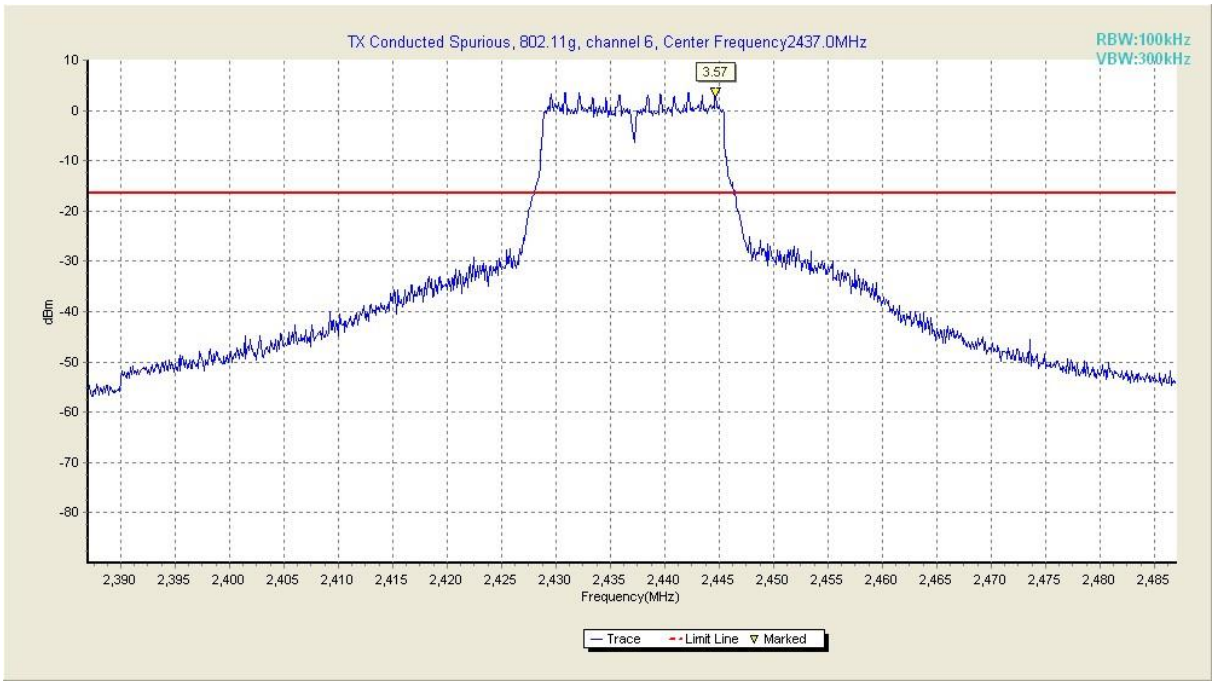


Fig. 33 Conducted Spurious Emission (802.11g, Ch6, Center Frequency)

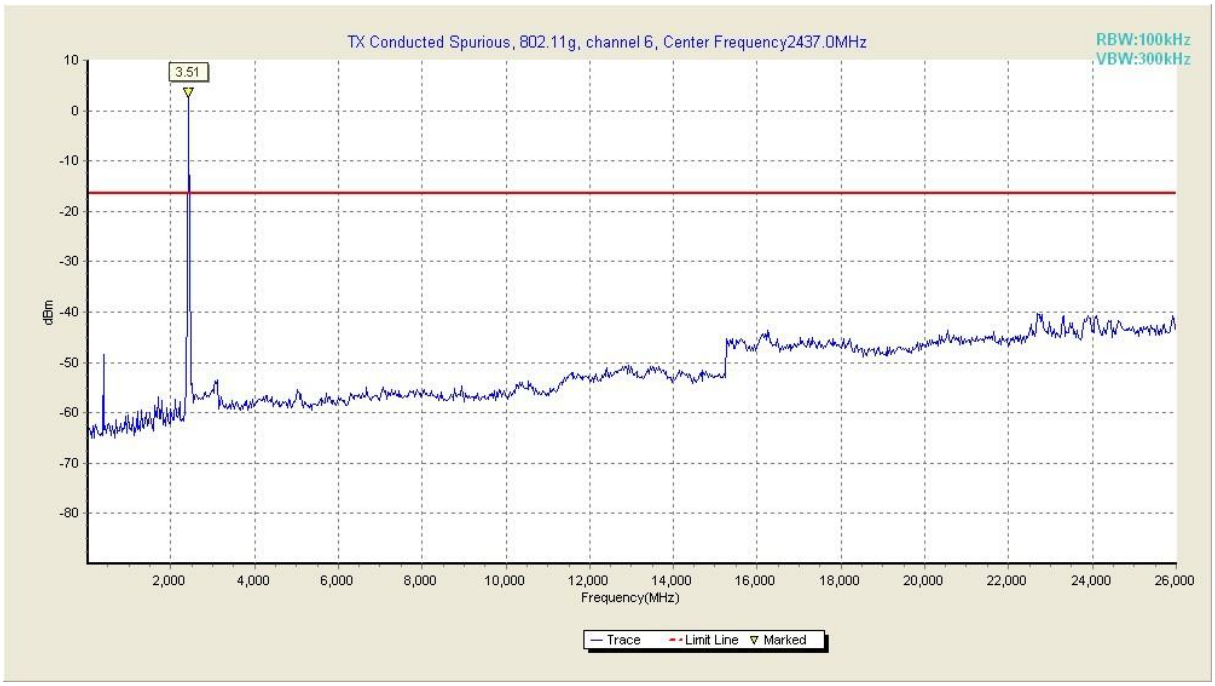


Fig. 34 Conducted Spurious Emission (802.11g, Ch6, 30 MHz-26 GHz)

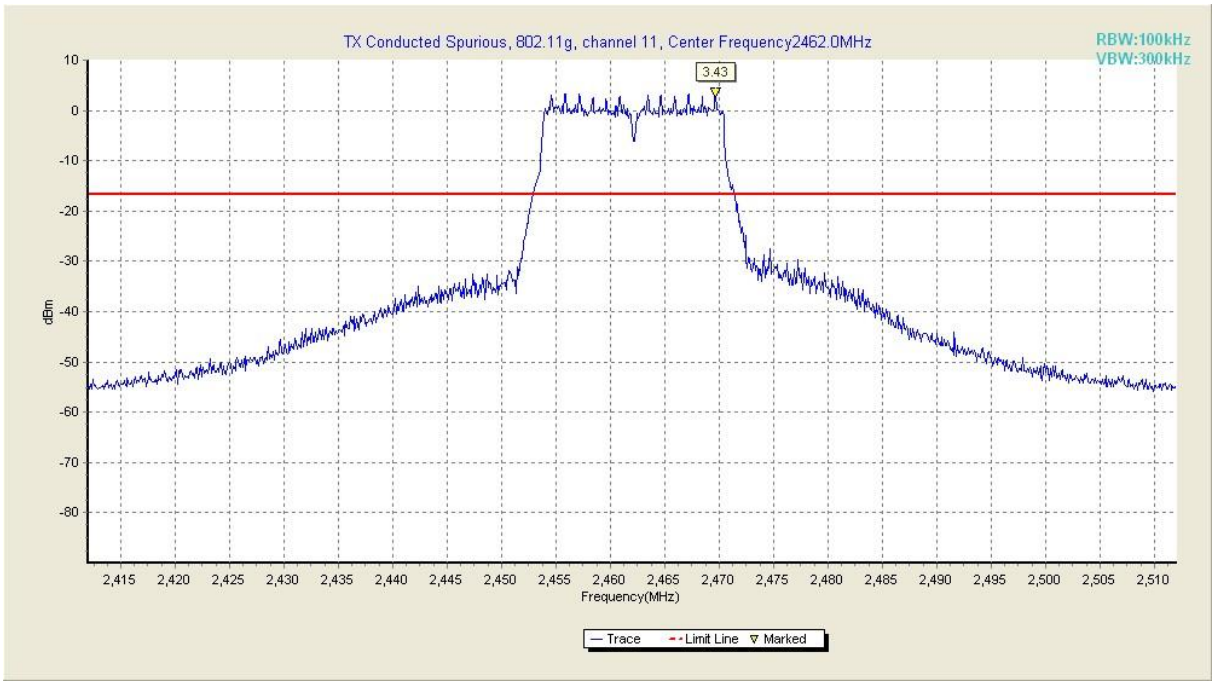


Fig. 35 Conducted Spurious Emission (802.11g, Ch11, Center Frequency)

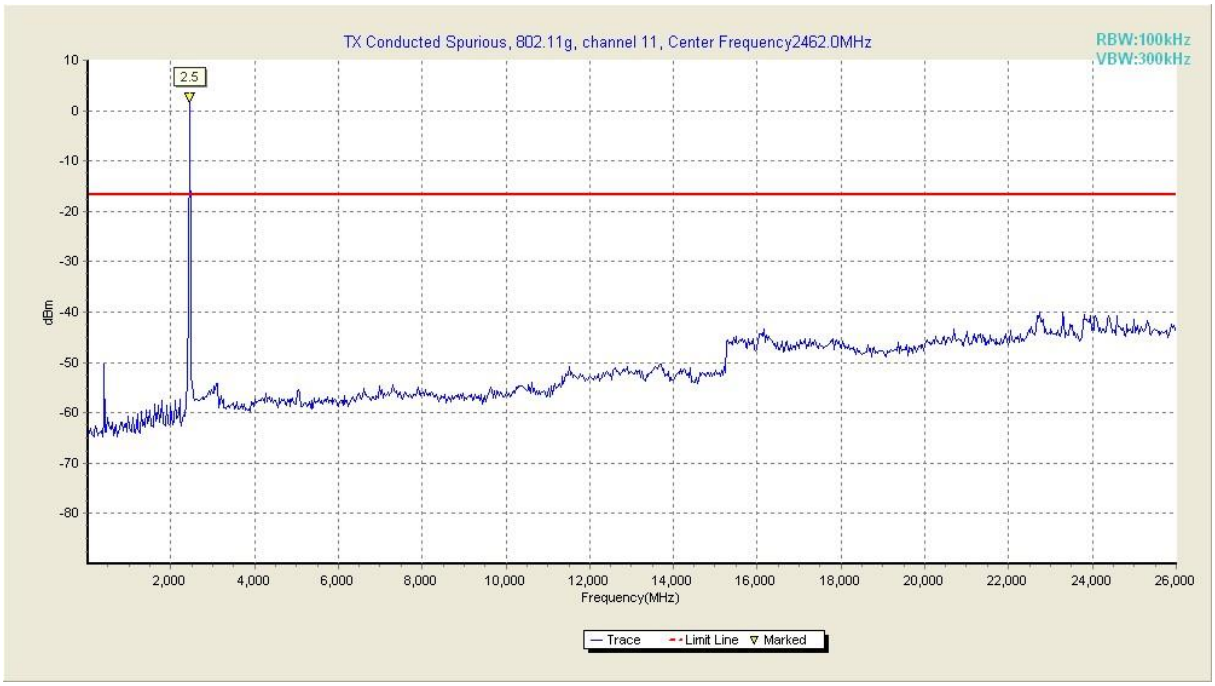


Fig. 36 Conducted Spurious Emission (802.11g, Ch11, 30 MHz-26 GHz)

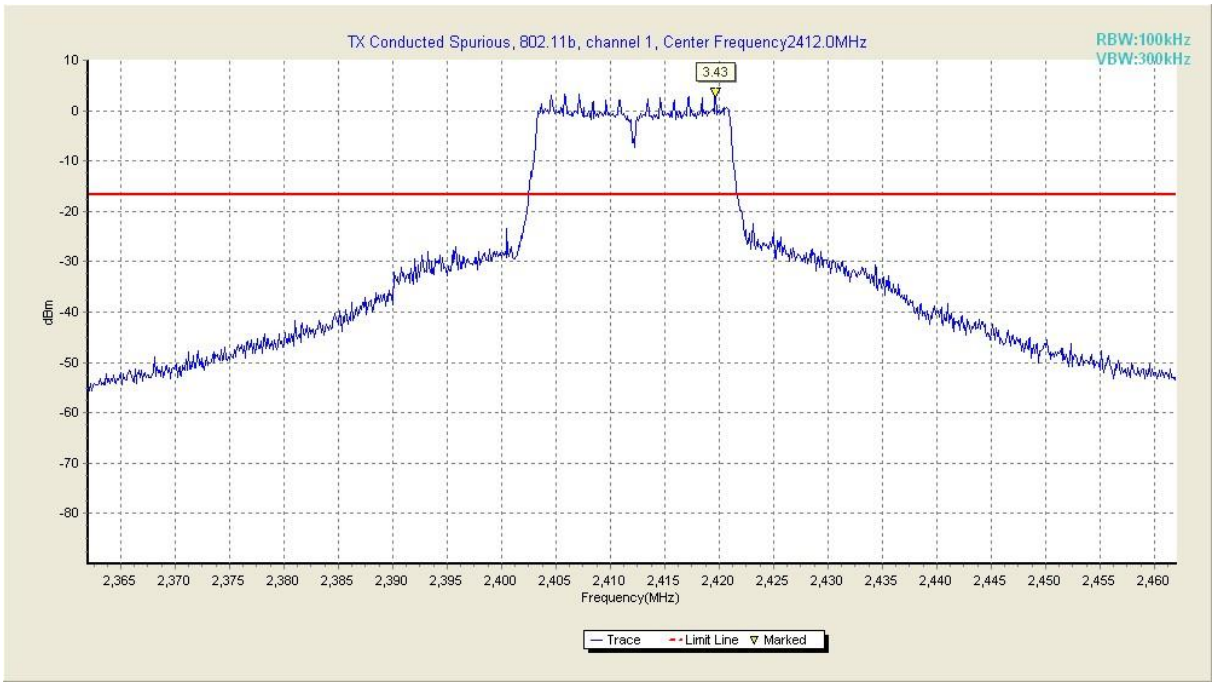


Fig. 37 Conducted Spurious Emission (802.11n-20MHz, Ch1, Center Frequency)

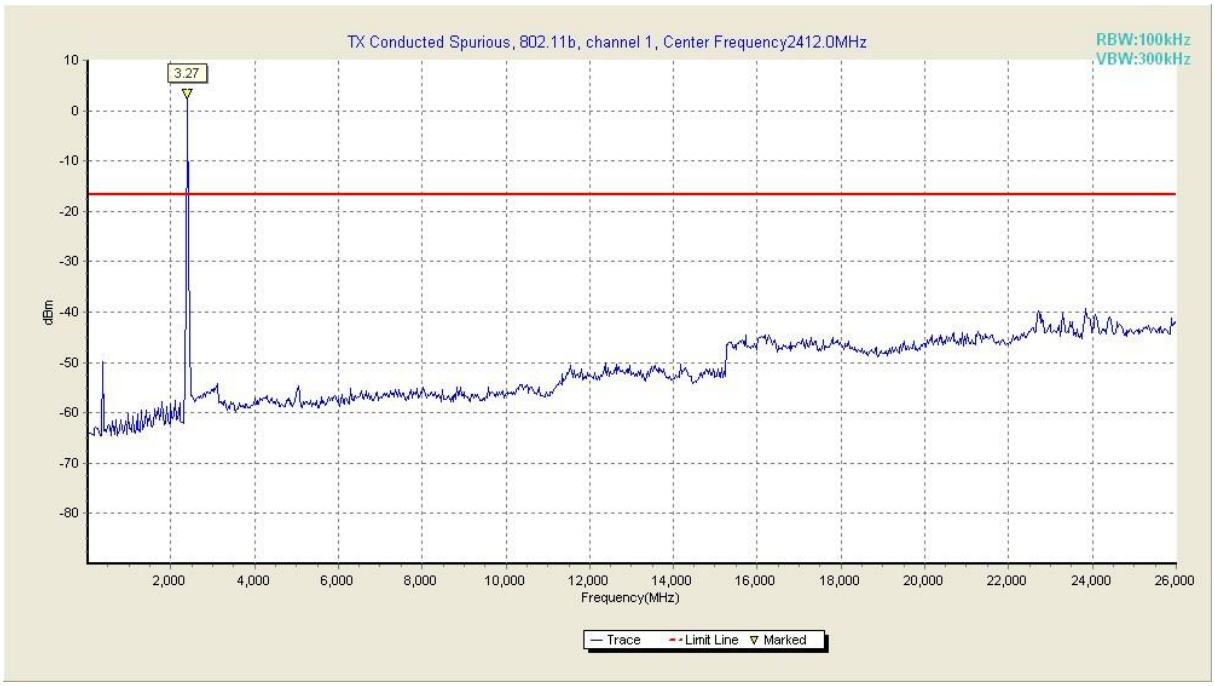


Fig. 38 Conducted Spurious Emission (802.11n-20MHz, Ch1, 30 MHz-26 GHz)

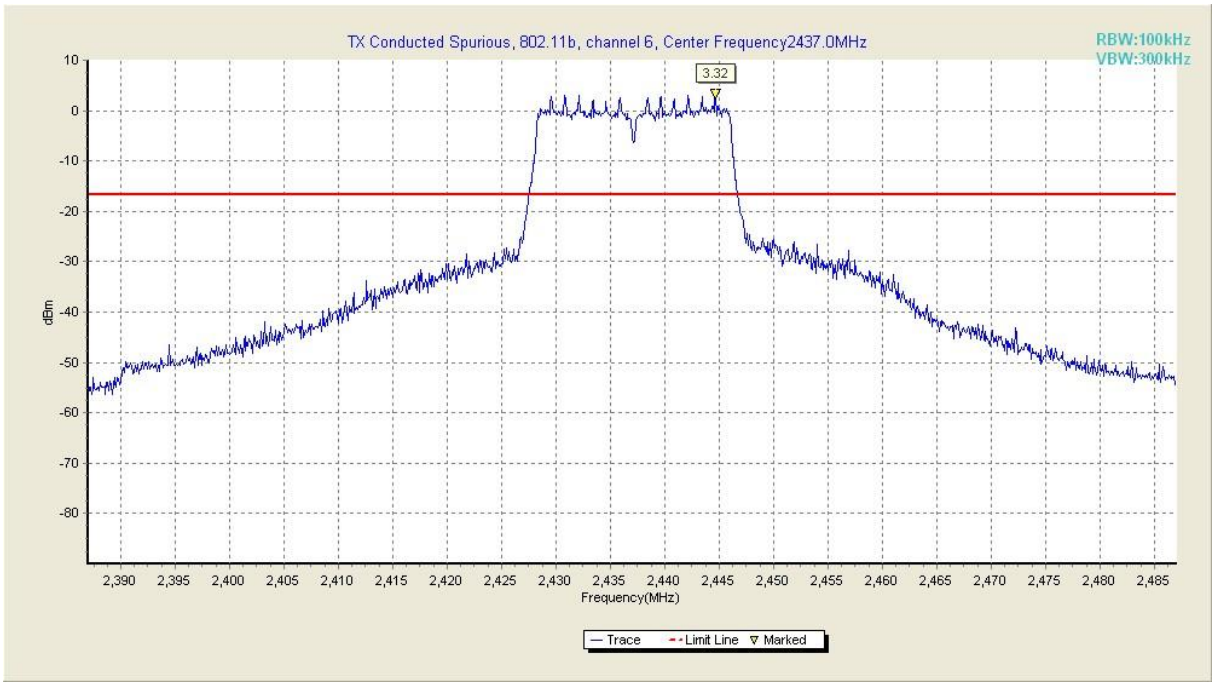


Fig. 39 Conducted Spurious Emission (802.11n-20MHz, Ch6, Center Frequency)

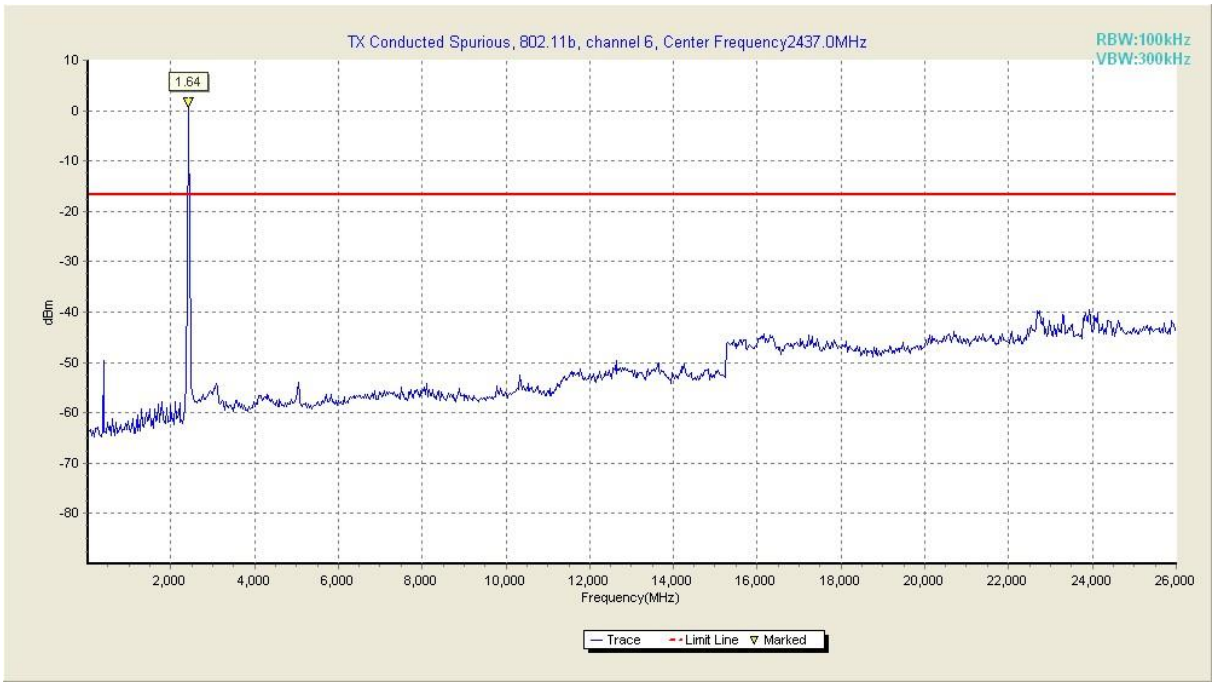


Fig. 40 Conducted Spurious Emission (802.11n-20MHz, Ch6, 30 MHz-26 GHz)

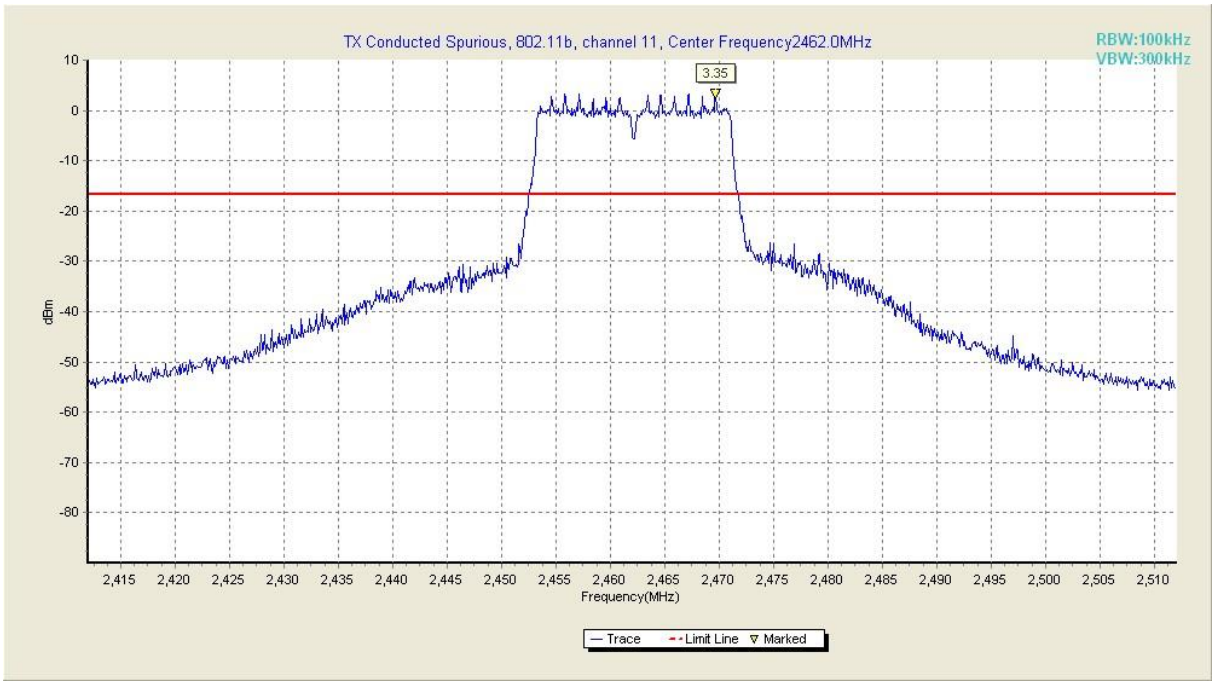


Fig. 41 Conducted Spurious Emission (802.11n-20MHz, Ch11, Center Frequency)

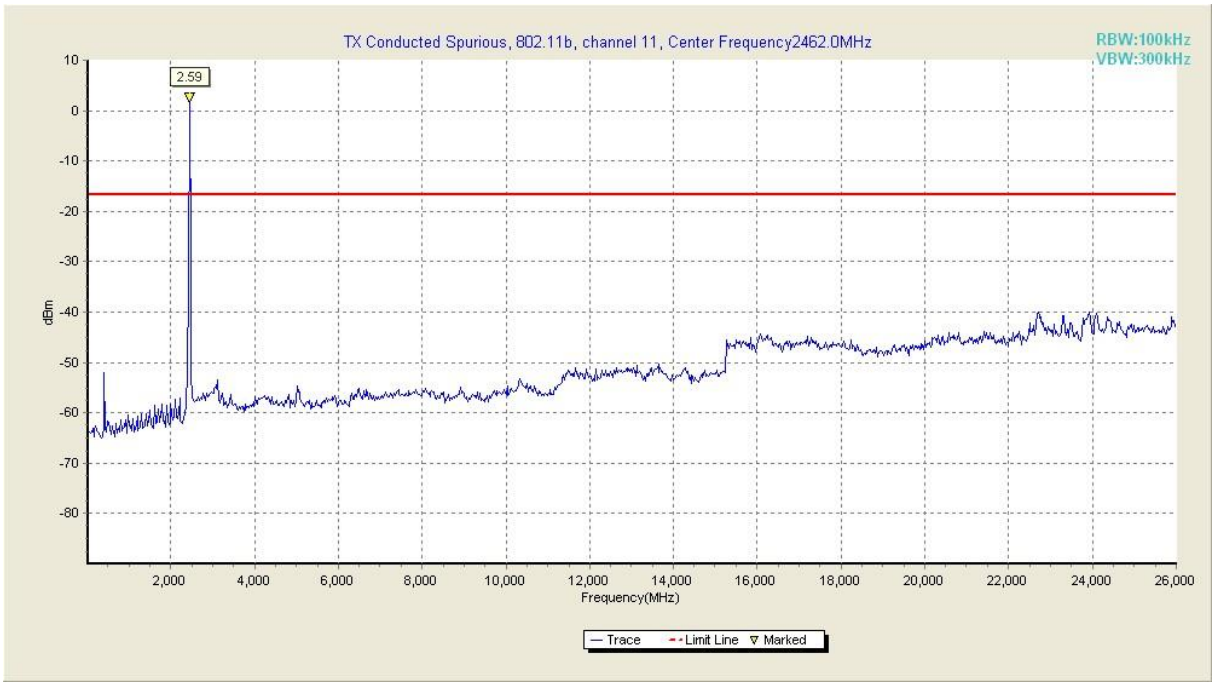


Fig. 42 Conducted Spurious Emission (802.11n-20MHz, Ch11, 30 MHz-26 GHz)

A.6.2 Transmitter Spurious Emission - Radiated

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	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 D01.

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 ~ 4 GHz	Fig.45	P
		4 GHz ~ 18 GHz	Fig.46	P
	6	30 MHz ~1 GHz	Fig.47	P
		1 GHz ~ 4 GHz	Fig.48	P
		4 GHz ~ 18 GHz	Fig.49	P
	Power	2.45GHz ~2.5GHz	Fig.50	P
	11	30 MHz ~1 GHz	Fig.51	P
		1 GHz ~ 4 GHz	Fig.52	P
		4 GHz ~ 18 GHz	Fig.53	P
802.11g	Power	2.38GHz ~2.43GHz	Fig.54	P
	1	30 MHz ~1 GHz	Fig.55	P
		1 GHz ~ 4 GHz	Fig.56	P
		4 GHz ~ 18 GHz	Fig.57	P
	6	30 MHz ~1 GHz	Fig.58	P
		1 GHz ~ 4 GHz	Fig.59	P
		4 GHz ~ 18 GHz	Fig.60	P
	Power	2.45GHz ~2.5GHz	Fig.61	P
	11	30 MHz ~1 GHz	Fig.62	P
		1 GHz ~ 4 GHz	Fig.63	P
		4 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 ~ 4 GHz	Fig.67	P
		4 GHz ~ 18 GHz	Fig.68	P
	6	30 MHz ~1 GHz	Fig.69	P
		1 GHz ~ 4 GHz	Fig.70	P
		4 GHz ~ 18 GHz	Fig.71	P
	Power	2.45GHz ~2.5GHz	Fig.72	P
	11	30 MHz ~1 GHz	Fig.73	P
		1 GHz ~ 4 GHz	Fig.74	P
		4 GHz ~ 18 GHz	Fig.75	P
802.11n (40MHz)	Power	2.38GHz ~2.45GHz	/	/
	3	30 MHz ~1 GHz	/	/
		1 GHz ~ 4 GHz	/	/

		4 GHz ~ 18 GHz	/	/
	6	30 MHz ~1 GHz	/	/
		1 GHz ~ 4 GHz	/	/
		4 GHz ~ 18 GHz	/	/
	Power	2.45GHz ~2.5GHz	/	/
	9	30 MHz ~1 GHz	/	/
		1 GHz ~ 4 GHz	/	/
		4 GHz ~ 18 GHz	/	/
/	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
2414.83	89.18	-18.7	27.5	80.38	HORIZONTAL
2410.822	89.16	-18.7	27.5	80.36	HORIZONTAL
2406.814	81.46	-18.7	27.5	72.66	HORIZONTAL
2418.838	77.25	-18.7	27.5	68.45	HORIZONTAL
2402.806	53.67	-18.7	27.5	44.87	HORIZONTAL
3703.407	49.29	-19.1	33.4	34.99	HORIZONTAL

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2438.878	79.3	-18.9	27.5	70.7	VERTICAL
2434.87	78.7	-18.9	27.5	70.1	VERTICAL
2442.886	71.28	-18.9	27.5	62.68	VERTICAL
2430.862	65.6	-18.9	27.5	57	HORIZONTAL
2446.894	43.76	-18.9	27.5	35.16	VERTICAL
3705.411	41.52	-19.1	33.4	27.22	VERTICAL

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2462.926	77.93	-18.6	27.5	69.03	VERTICAL
2458.918	75.49	-18.7	27.5	66.69	HORIZONTAL
2466.934	74.38	-18.6	27.5	65.48	VERTICAL
2454.91	58.06	-18.7	27.5	49.26	HORIZONTAL
2470.942	52.25	-18.4	27.5	43.15	HORIZONTAL
3701.403	38.95	-19.1	33.4	24.65	VERTICAL

802.11g

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2418.838	81.01	-18.7	27.5	72.21	VERTICAL
2414.83	80.88	-18.7	27.5	72.08	VERTICAL
2406.814	80.73	-18.7	27.5	71.93	VERTICAL
2410.822	79.95	-18.7	27.5	71.15	VERTICAL
2402.806	70.44	-18.7	27.5	61.64	VERTICAL
2422.846	61.22	-18.8	27.5	52.52	VERTICAL

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2434.87	75.56	-18.9	27.5	66.96	VERTICAL
2442.886	75.37	-18.9	27.5	66.77	VERTICAL
2438.878	75.15	-18.9	27.5	66.55	VERTICAL
2430.862	75.02	-18.9	27.5	66.42	VERTICAL
2446.894	65	-18.9	27.5	56.4	VERTICAL
2426.854	55.17	-18.8	27.5	46.47	VERTICAL

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2466.934	73.97	-18.6	27.5	65.07	HORIZONTAL
2458.918	73.22	-18.7	27.5	64.42	HORIZONTAL
2462.926	73.07	-18.6	27.5	64.17	HORIZONTAL
2454.91	71.43	-18.7	27.5	62.63	HORIZONTAL
2470.942	68.83	-18.4	27.5	59.73	HORIZONTAL
2450.902	42.9	-18.7	27.5	34.1	HORIZONTAL

802.11n-20MHz

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2418.838	80.46	-18.7	27.5	71.66	VERTICAL
2414.83	80.44	-18.7	27.5	71.64	VERTICAL
2406.814	80.22	-18.7	27.5	71.42	VERTICAL
2410.822	80.21	-18.7	27.5	71.41	VERTICAL
2402.806	72.66	-18.7	27.5	63.86	VERTICAL
2422.846	66.76	-18.8	27.5	58.06	VERTICAL

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2430.862	80.24	-18.9	27.5	71.64	HORIZONTAL
2434.87	79.7	-18.9	27.5	71.1	HORIZONTAL
2438.878	78.58	-18.9	27.5	69.98	HORIZONTAL
2442.886	78.22	-18.9	27.5	69.62	HORIZONTAL
2446.894	71.13	-18.9	27.5	62.53	HORIZONTAL
2426.854	66.53	-18.8	27.5	57.83	HORIZONTAL

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2466.934	72.89	-18.6	27.5	63.99	VERTICAL
2458.918	72.63	-18.7	27.5	63.83	VERTICAL
2462.926	72.28	-18.6	27.5	63.38	VERTICAL
2454.91	72.09	-18.7	27.5	63.29	VERTICAL
2470.942	69.35	-18.4	27.5	60.25	VERTICAL
2450.902	56.6	-18.7	27.5	47.8	VERTICAL

802.11n-40MHz

Ch3

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
/	/	/	/	/	/
/	/	/	/	/	/
/	/	/	/	/	/
/	/	/	/	/	/
/	/	/	/	/	/
/	/	/	/	/	/

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
/	/	/	/	/	/
/	/	/	/	/	/
/	/	/	/	/	/
/	/	/	/	/	/
/	/	/	/	/	/
/	/	/	/	/	/

Ch9

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
/	/	/	/	/	/
/	/	/	/	/	/
/	/	/	/	/	/
/	/	/	/	/	/
/	/	/	/	/	/
/	/	/	/	/	/

Test graphs as below:

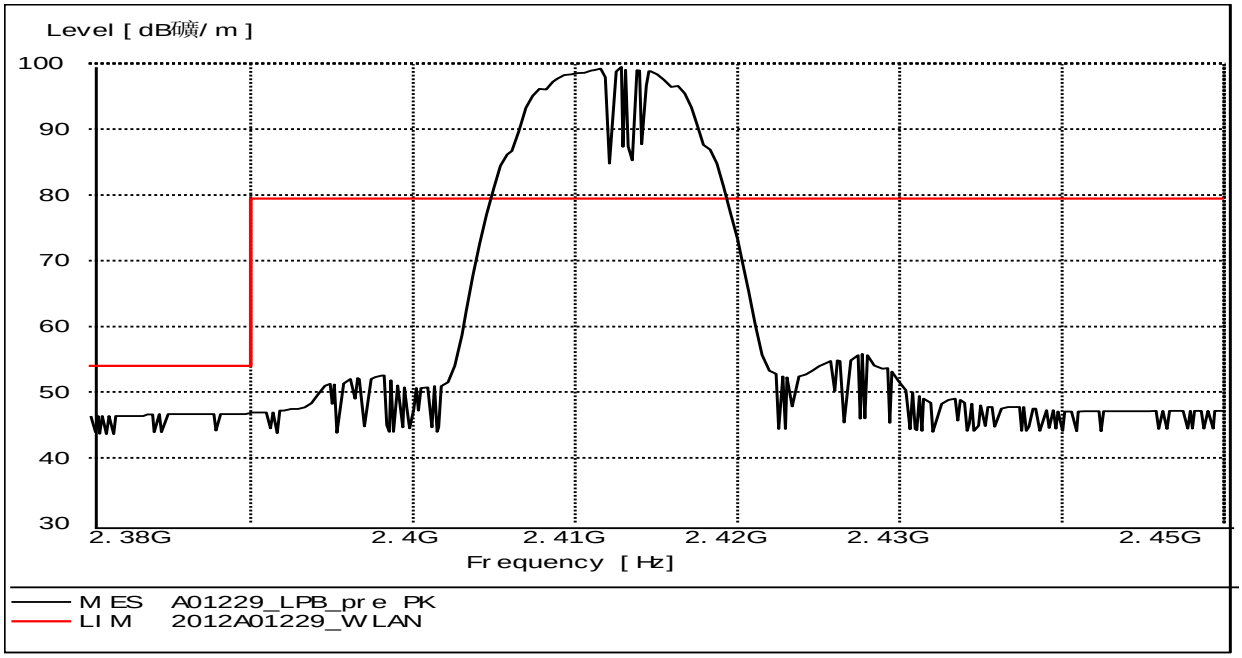


Fig. 43 Radiated Spurious Emission (Power): 802.11b, ch1, 2.38 GHz - 245GHz

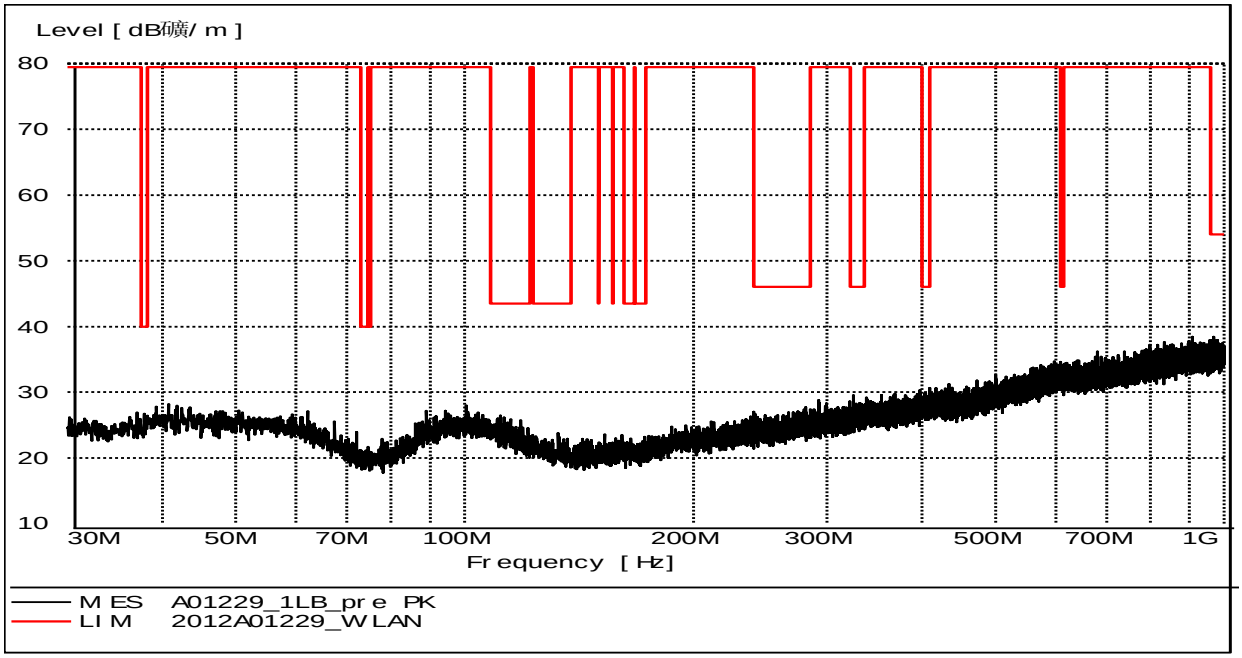


Fig. 44 Radiated Spurious Emission (802.11b, Ch1, 30 MHz-1 GHz)

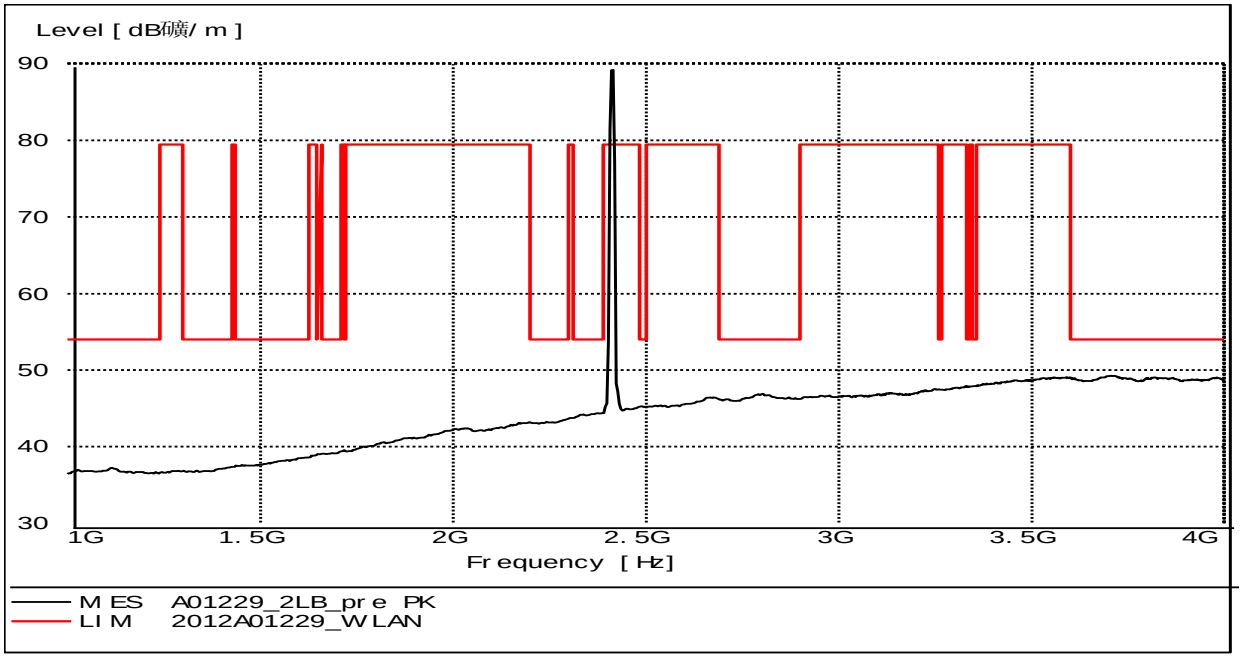


Fig. 45 Radiated Spurious Emission (802.11b, Ch1, 1 GHz-4 GHz)

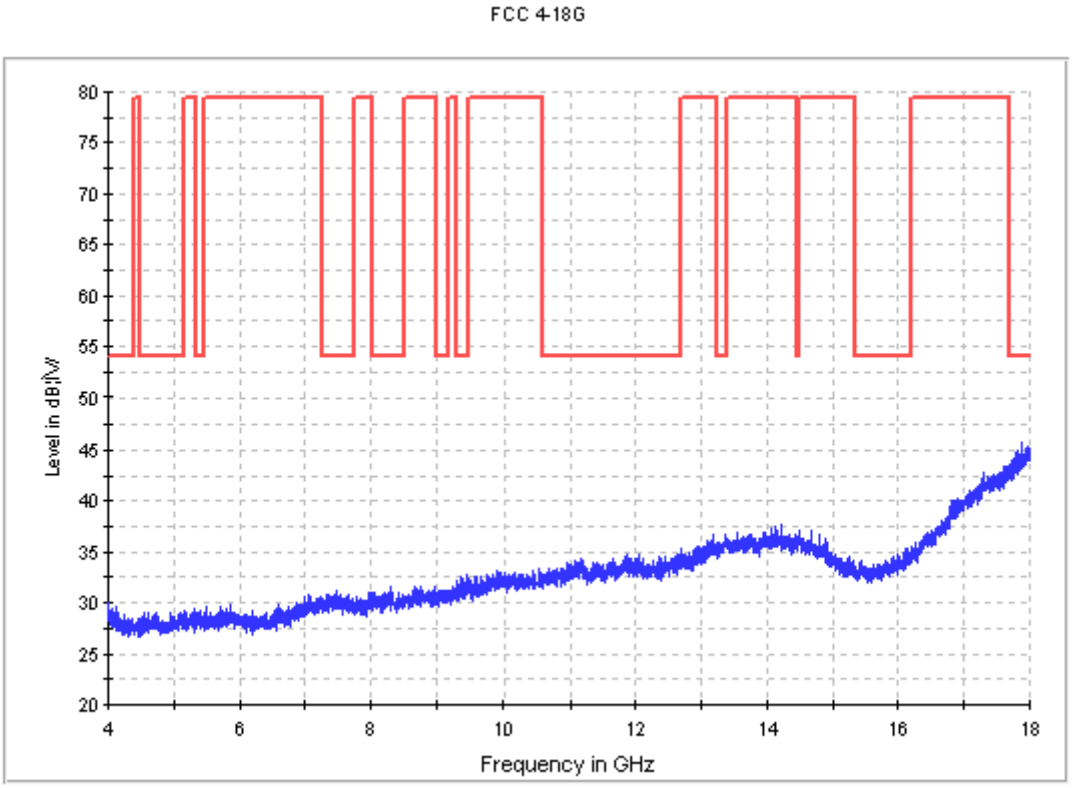


Fig. 46 Radiated Spurious Emission (802.11b, Ch1, 4 GHz-18 GHz)

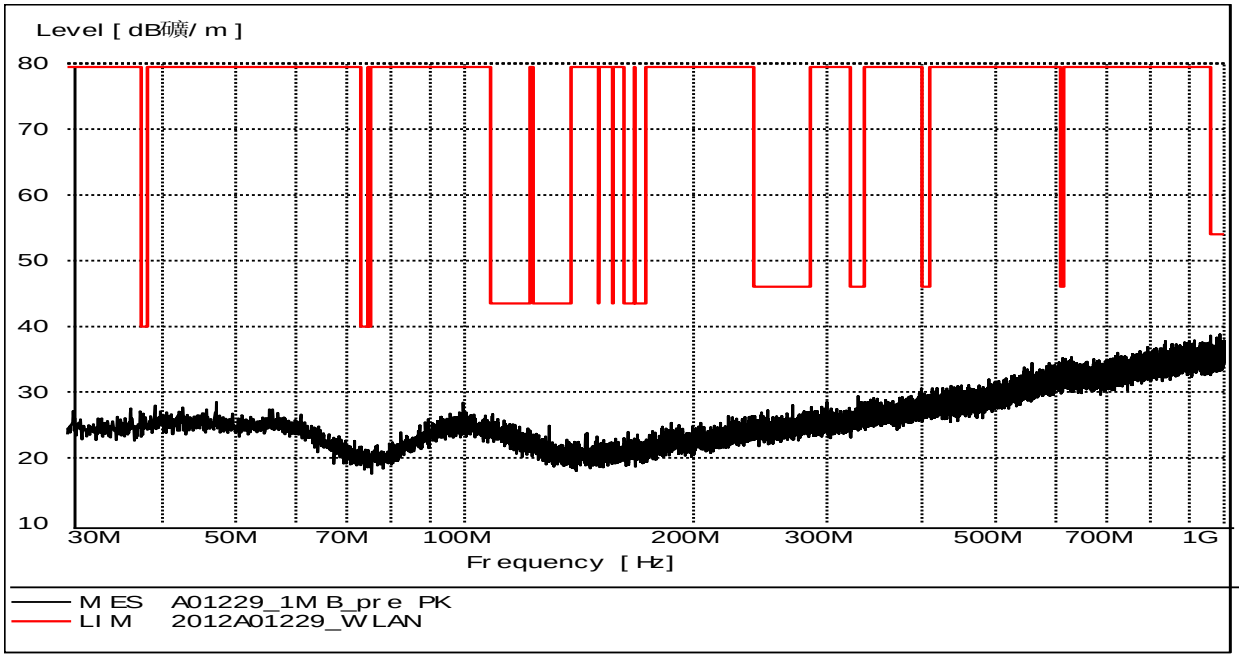


Fig. 47 Radiated Spurious Emission (802.11b, Ch6, 30 MHz-1 GHz)

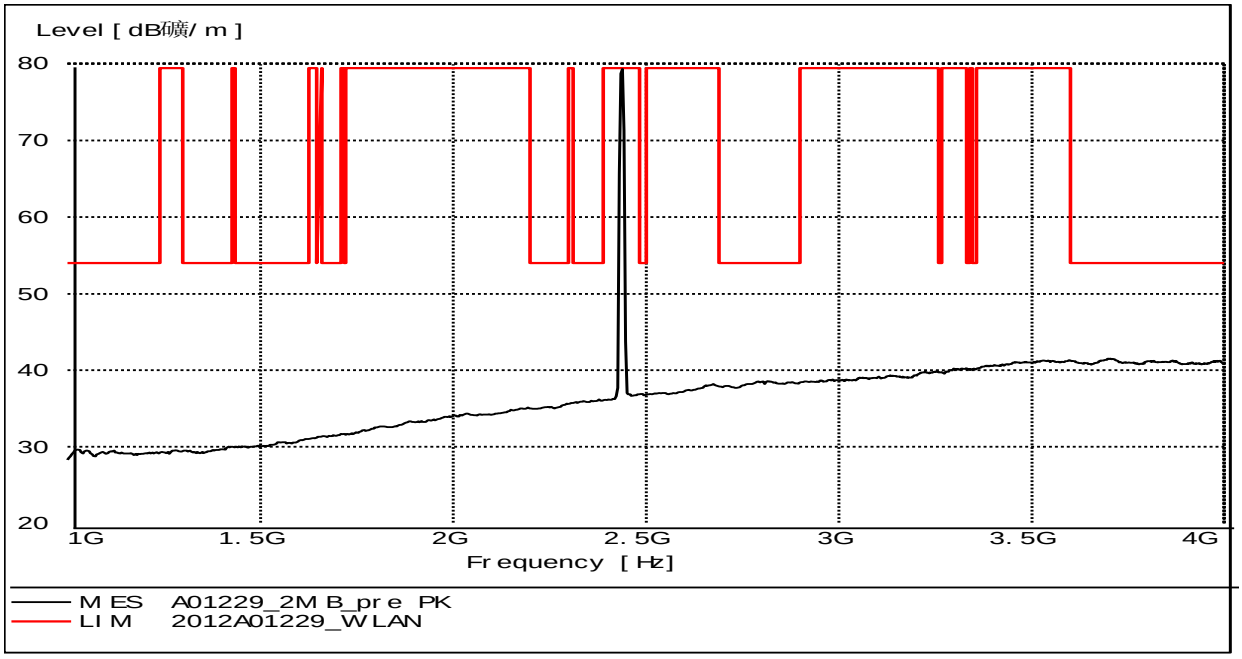


Fig. 48 Radiated Spurious Emission (802.11b, Ch6, 1 GHz-4 GHz)

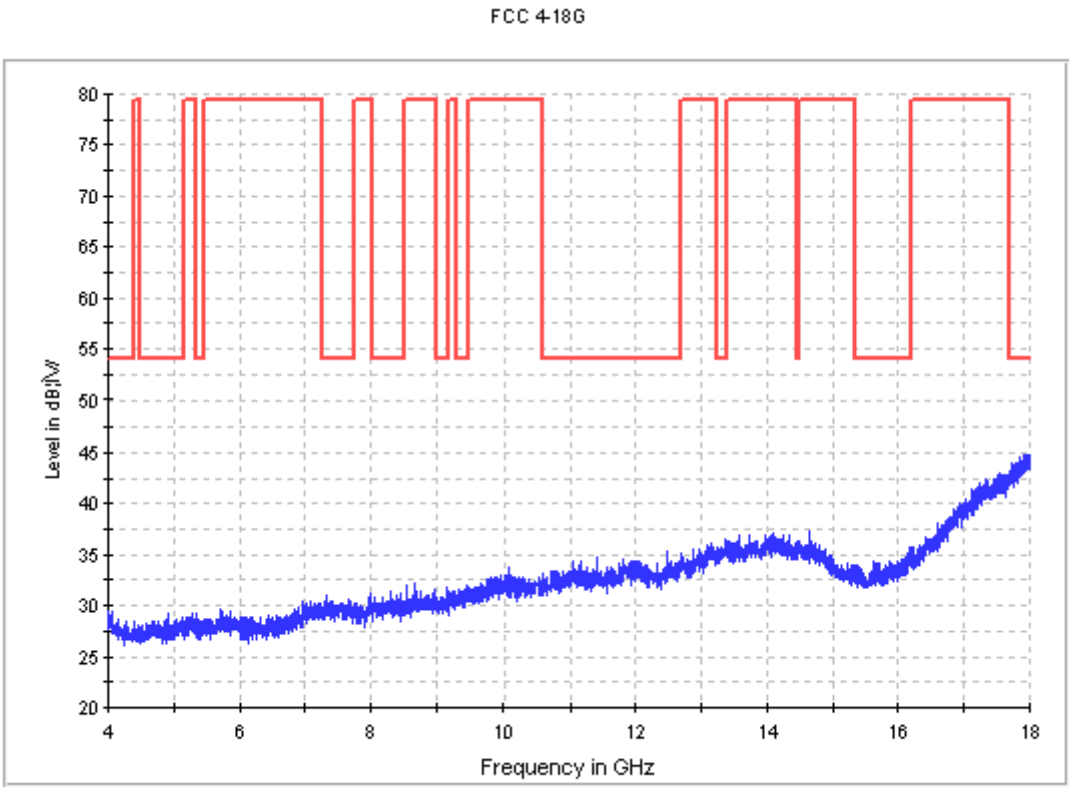


Fig. 49 Radiated Spurious Emission (802.11b, Ch6, 4 GHz-18 GHz)

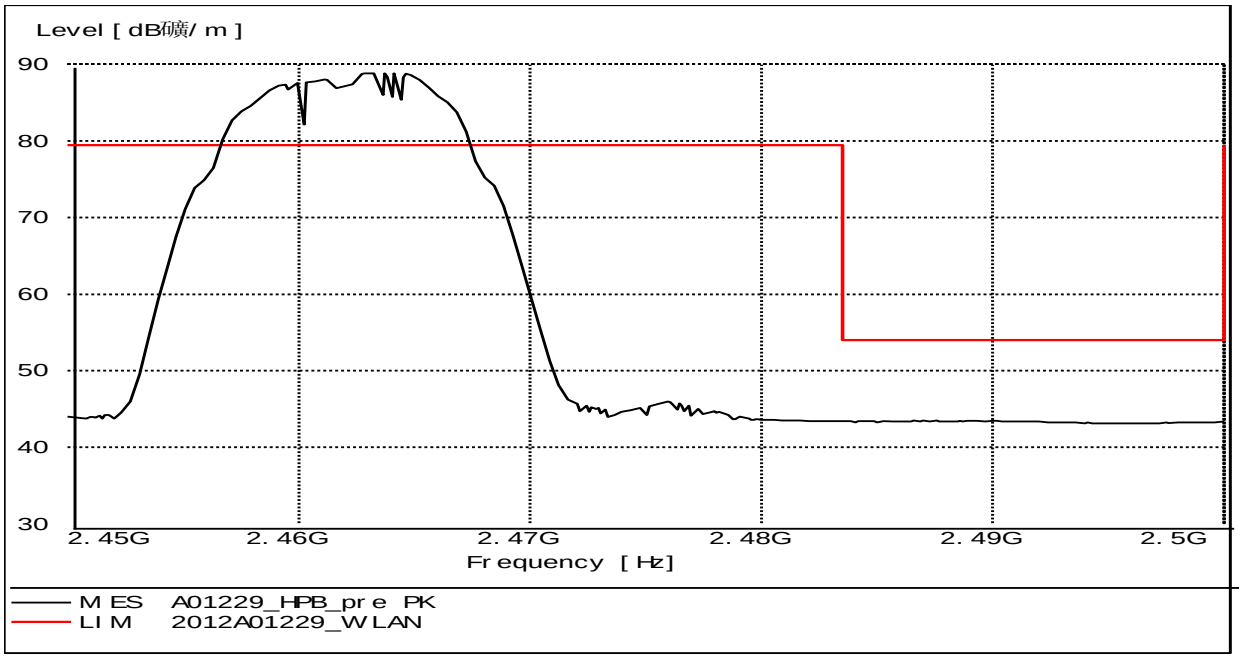


Fig. 50 Radiated Spurious Emission (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

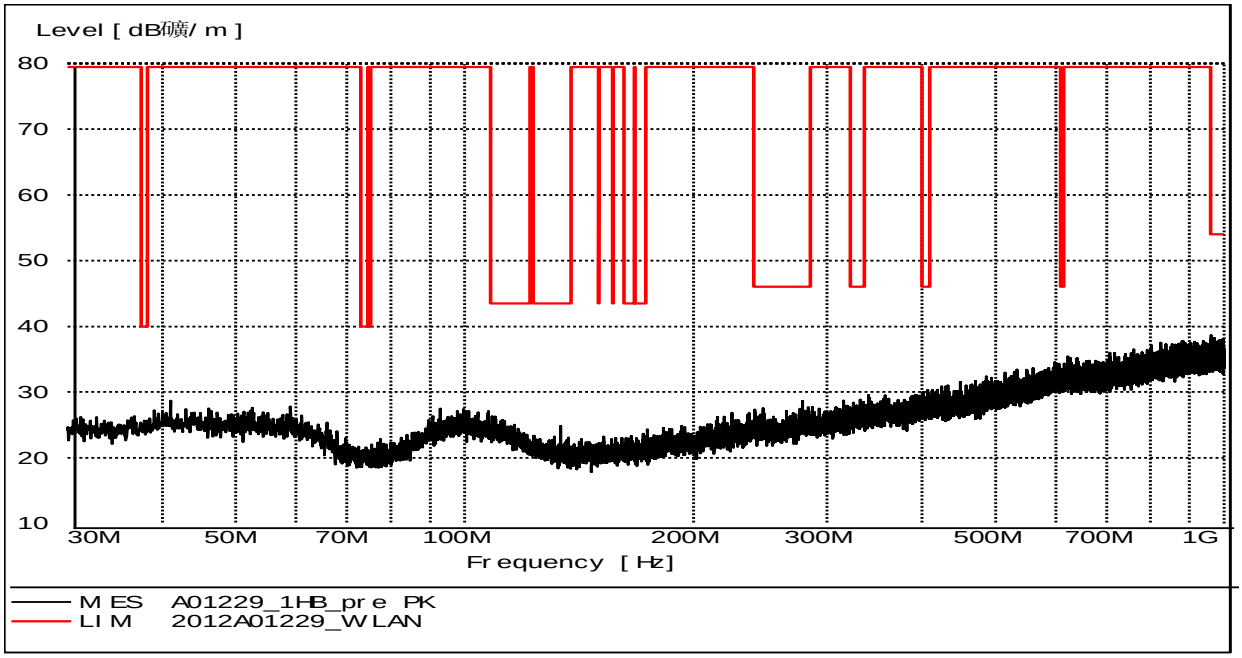


Fig. 51 Radiated Spurious Emission (802.11b, Ch11, 30 MHz-1 GHz)

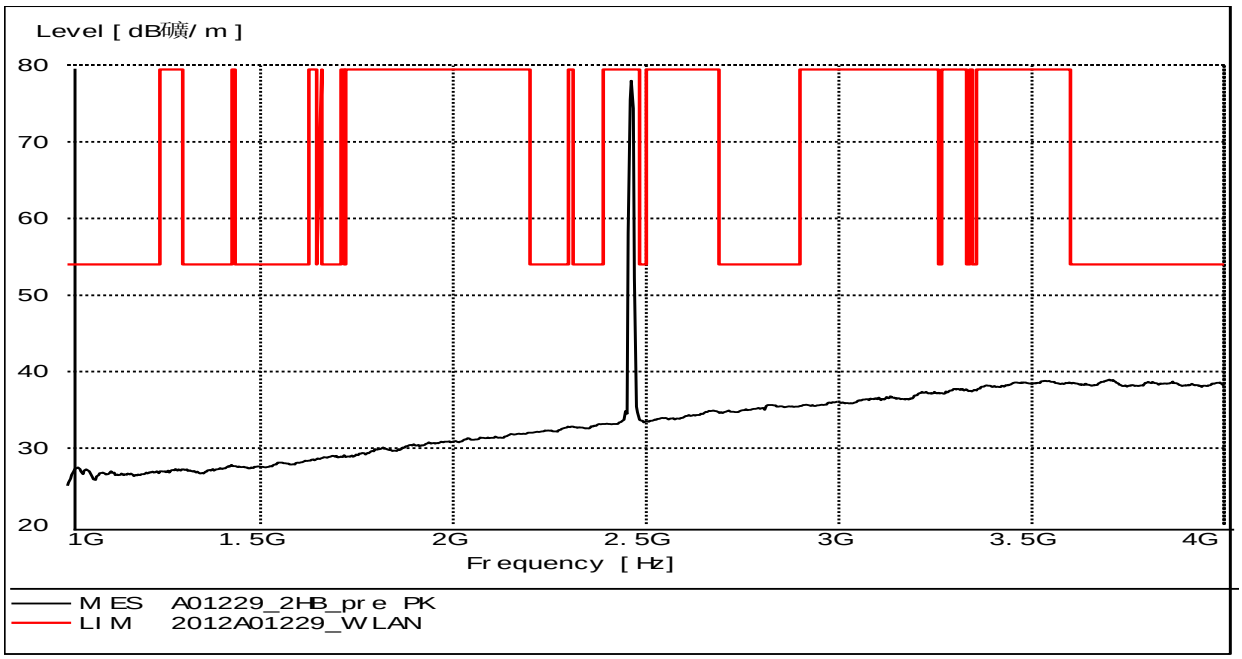


Fig. 52 Radiated Spurious Emission (802.11b, Ch11, 1 GHz-4 GHz)

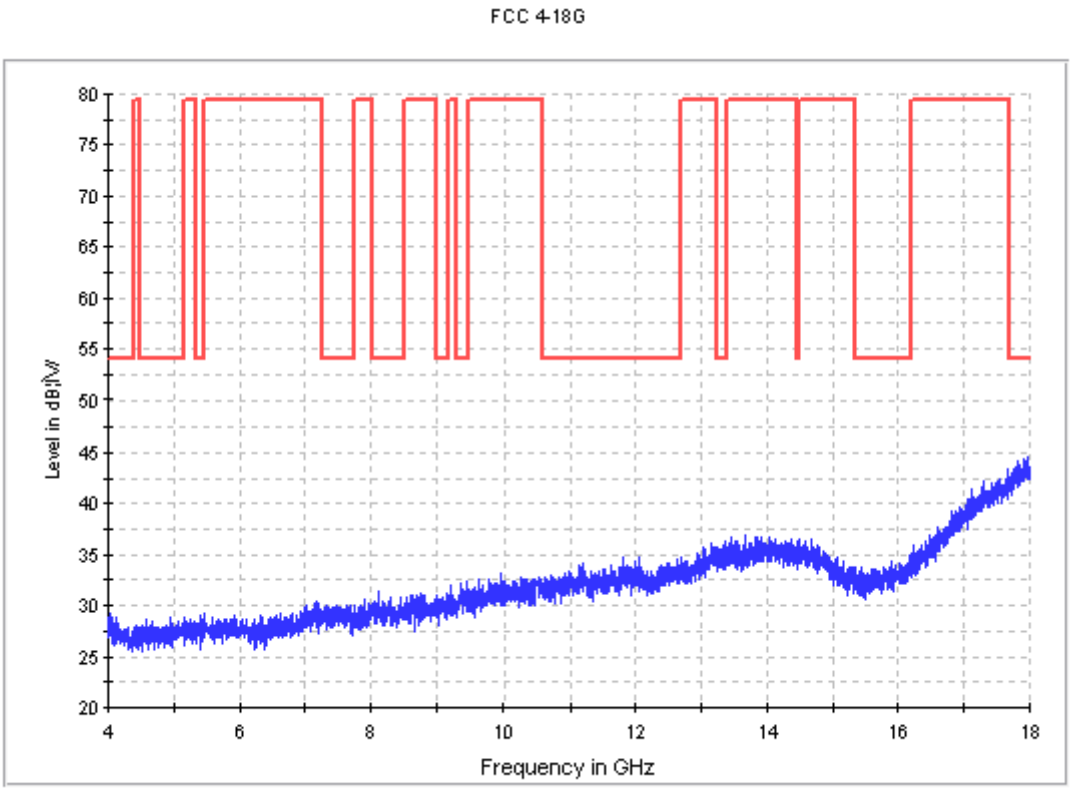


Fig. 53 Radiated Spurious Emission (802.11b, Ch11, 4 GHz-18 GHz)

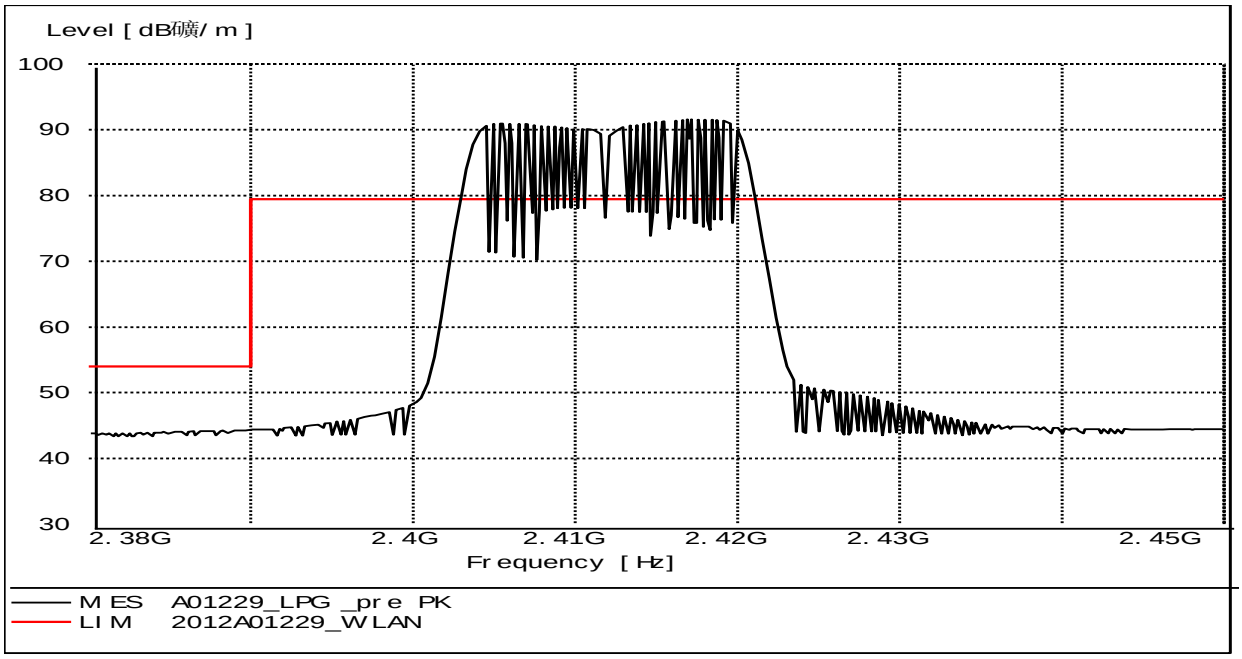


Fig. 54 Radiated Spurious Emission (Power): 802.11g, ch1, 2.38 GHz - 2.45GHz

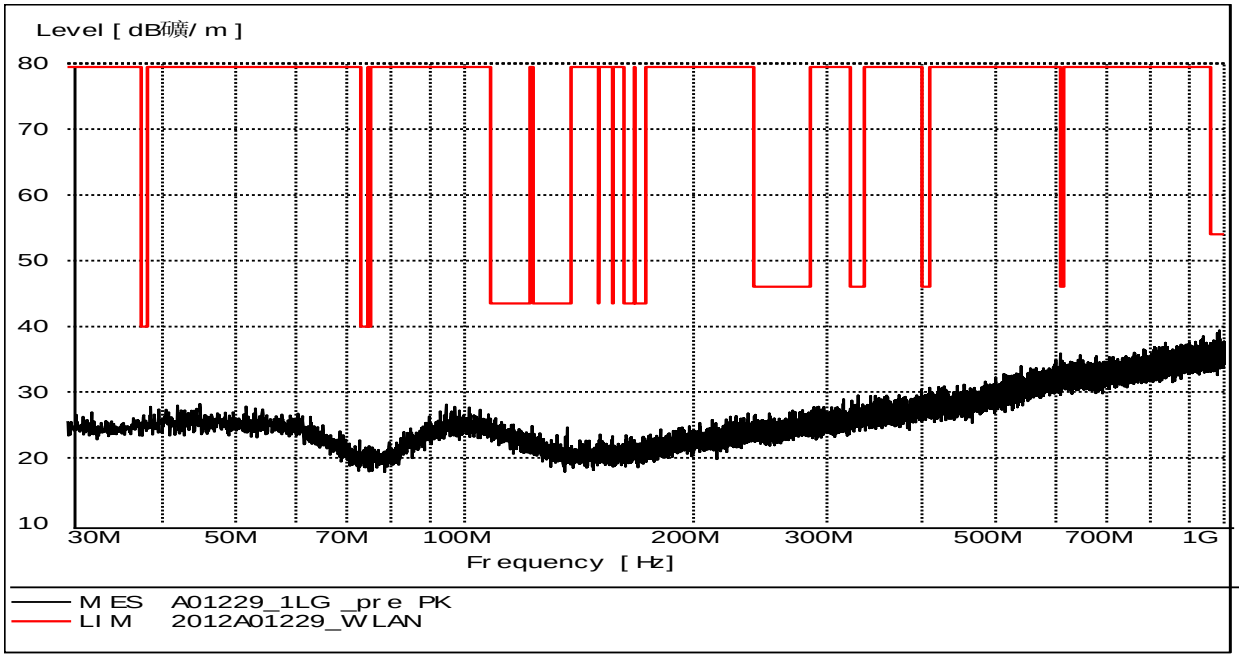


Fig. 55 Radiated Spurious Emission (802.11g, Ch1, 30 MHz-1 GHz)

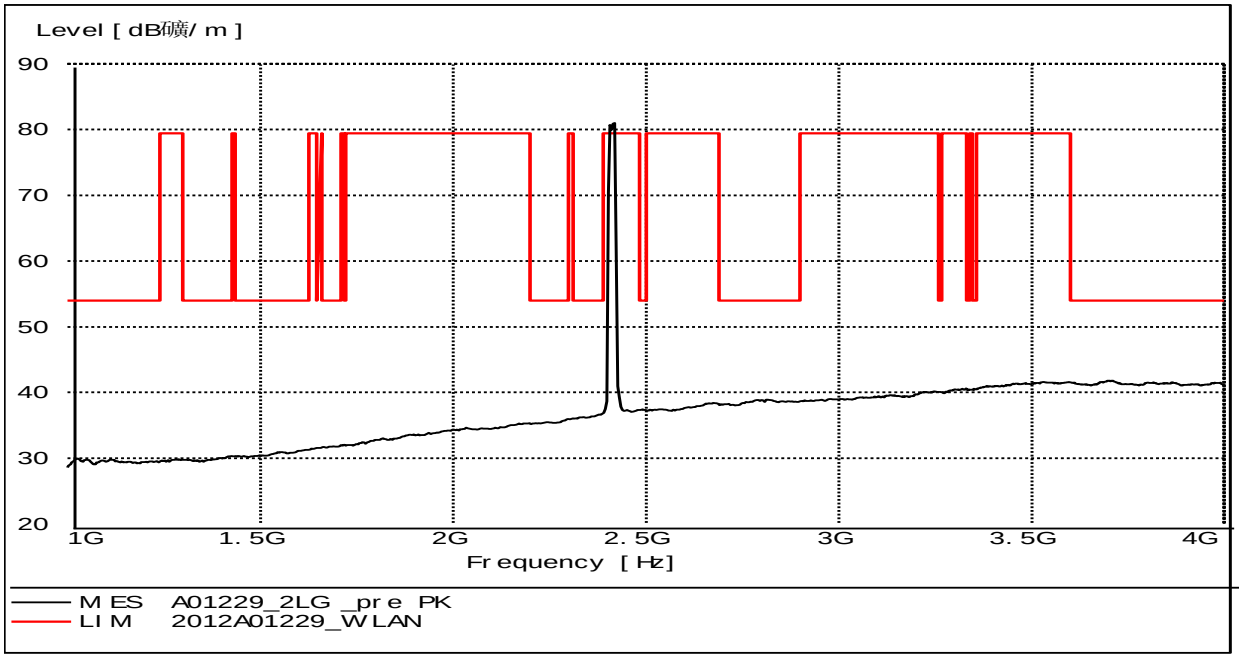


Fig. 56 Radiated Spurious Emission (802.11g, Ch1, 1 GHz-4 GHz)

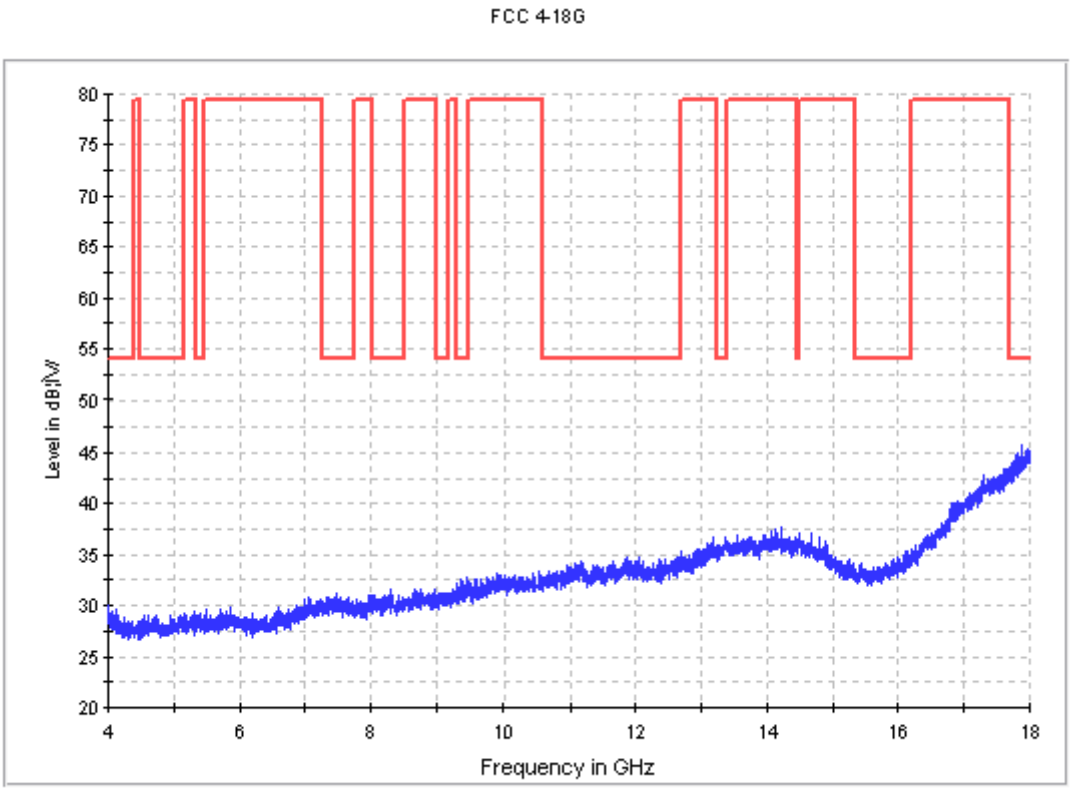


Fig. 57 Radiated Spurious Emission (802.11g, Ch1, 4 GHz-18 GHz)

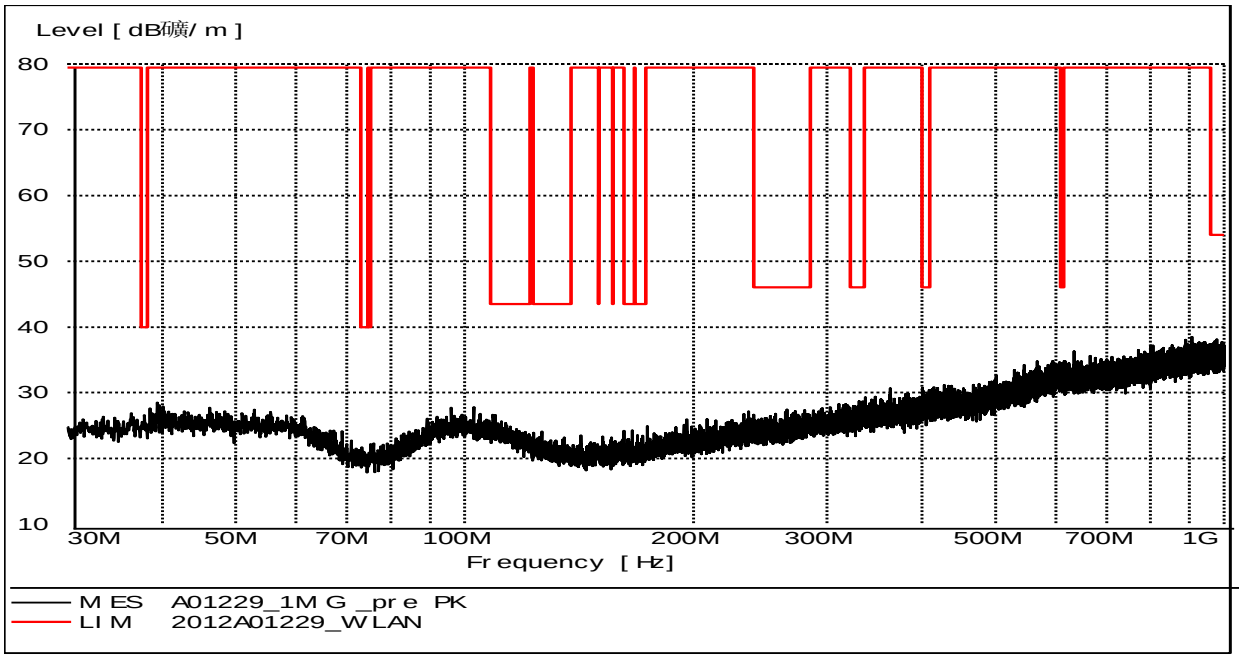


Fig. 58 Radiated Spurious Emission (802.11g, Ch6, 30 MHz-1 GHz)

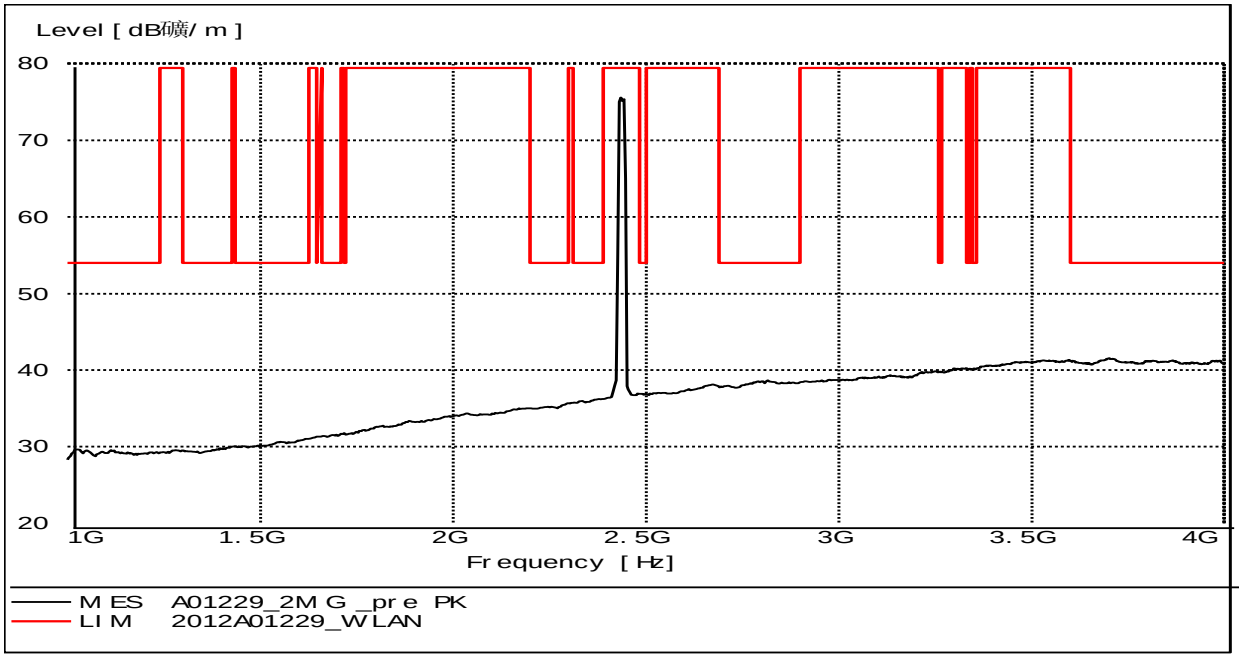


Fig. 59 Radiated Spurious Emission (802.11g, Ch6, 1 GHz-4 GHz)

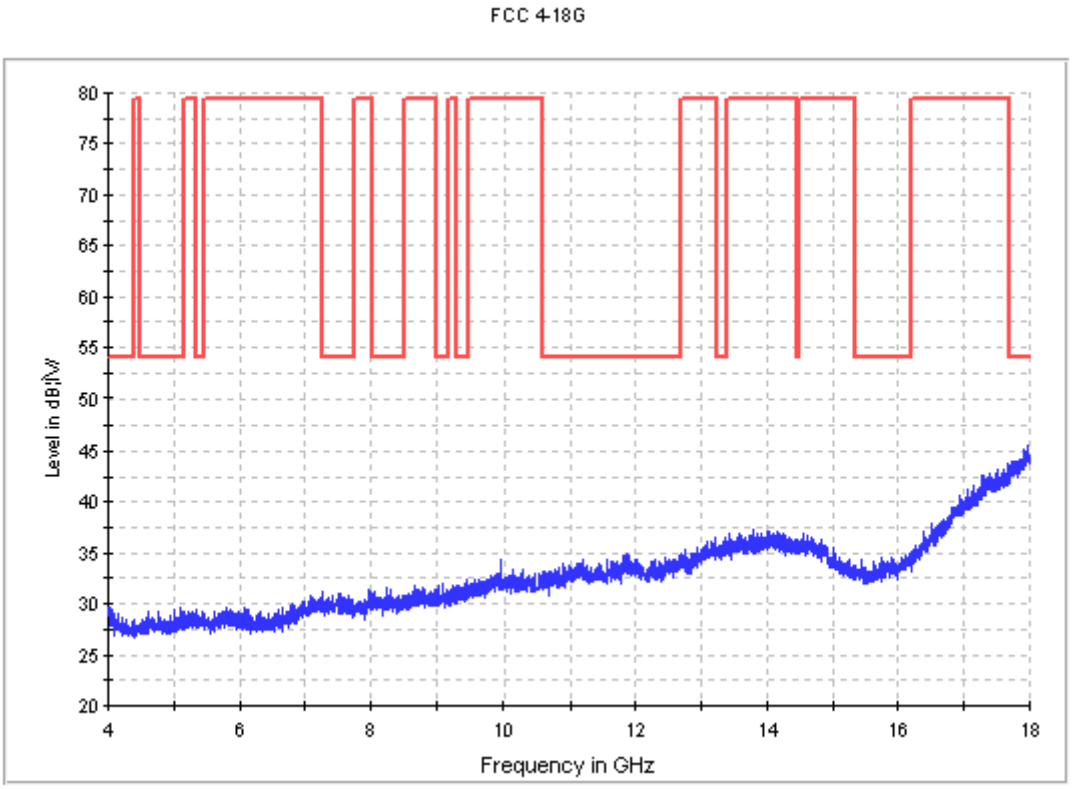


Fig. 60 Radiated Spurious Emission (802.11g, Ch6, 4 GHz-18 GHz)

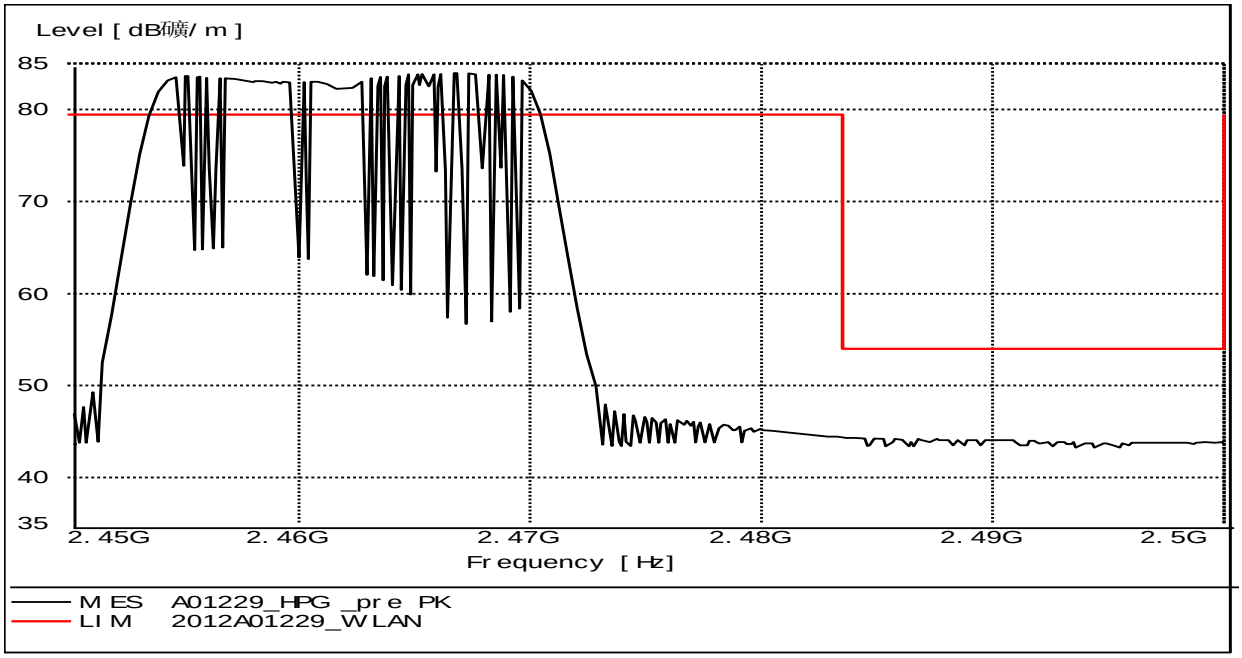


Fig. 61 Radiated Spurious Emission (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

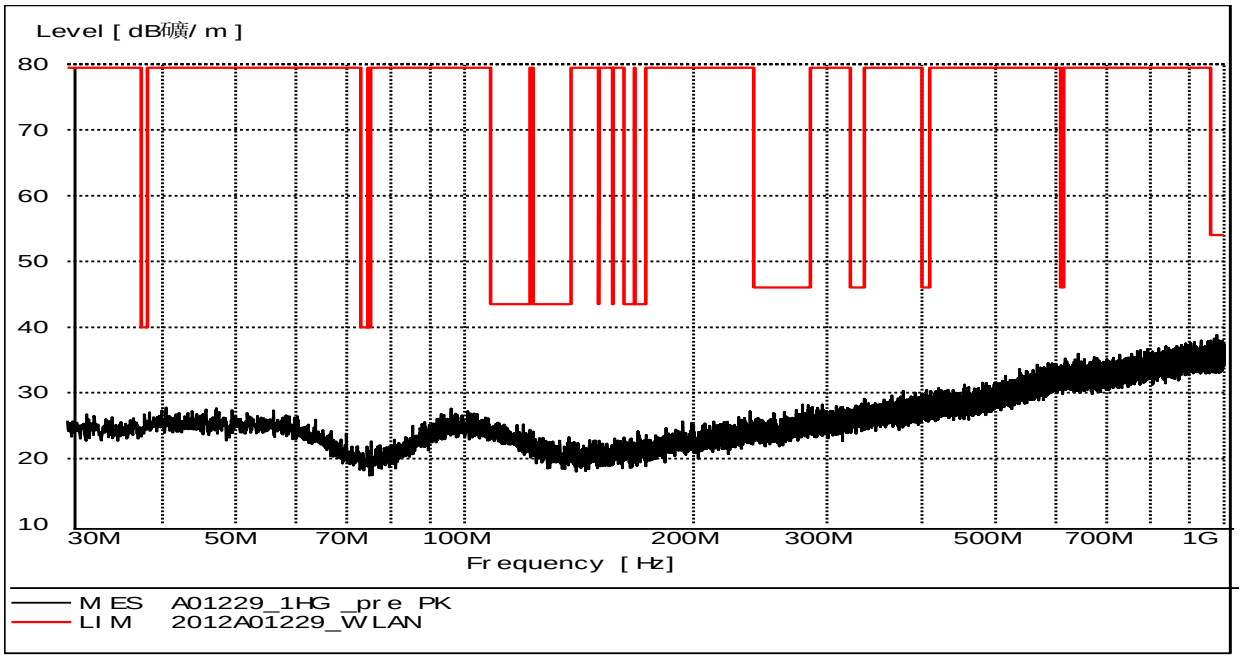


Fig. 62 Radiated Spurious Emission (802.11g, Ch11, 30 MHz-1 GHz)

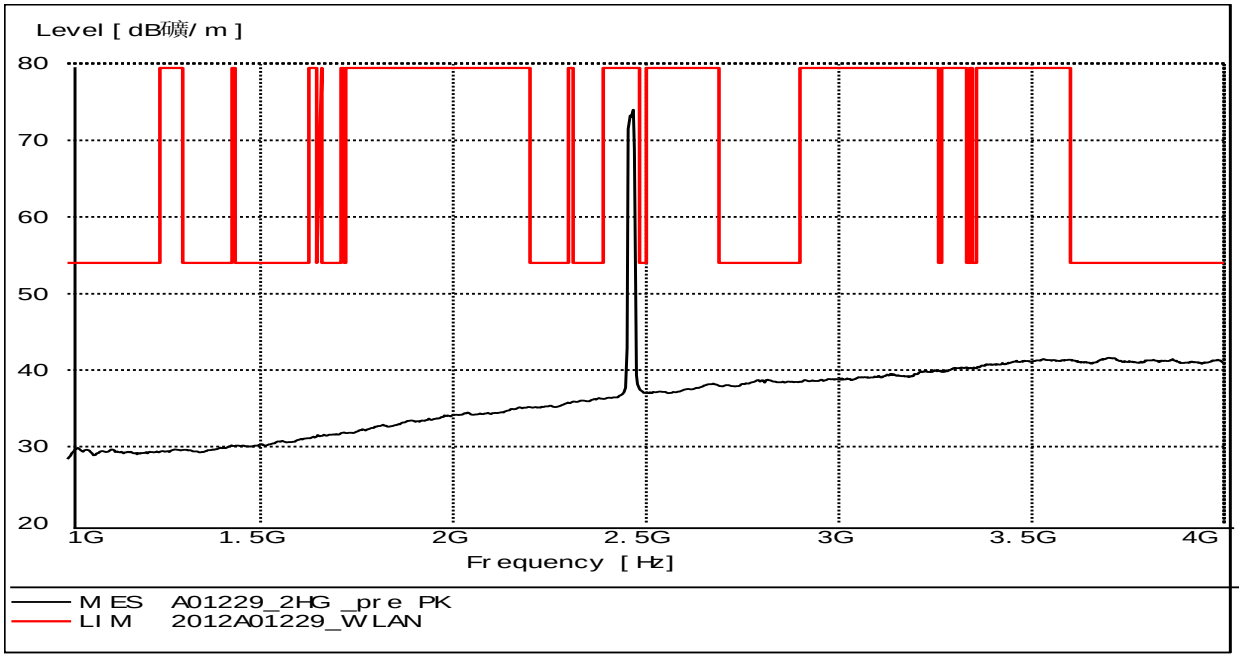


Fig. 63 Radiated Spurious Emission (802.11g, Ch11, 1 GHz-4 GHz)

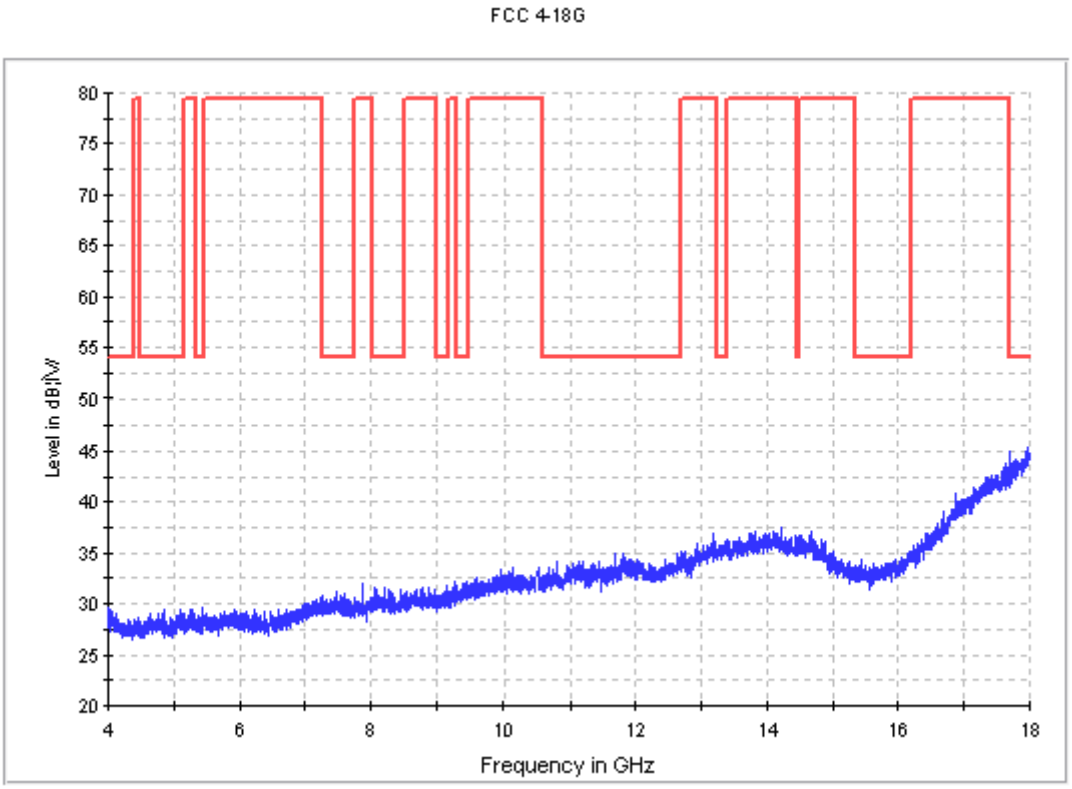


Fig. 64 Radiated Spurious Emission (802.11g, Ch11, 4 GHz-18 GHz)

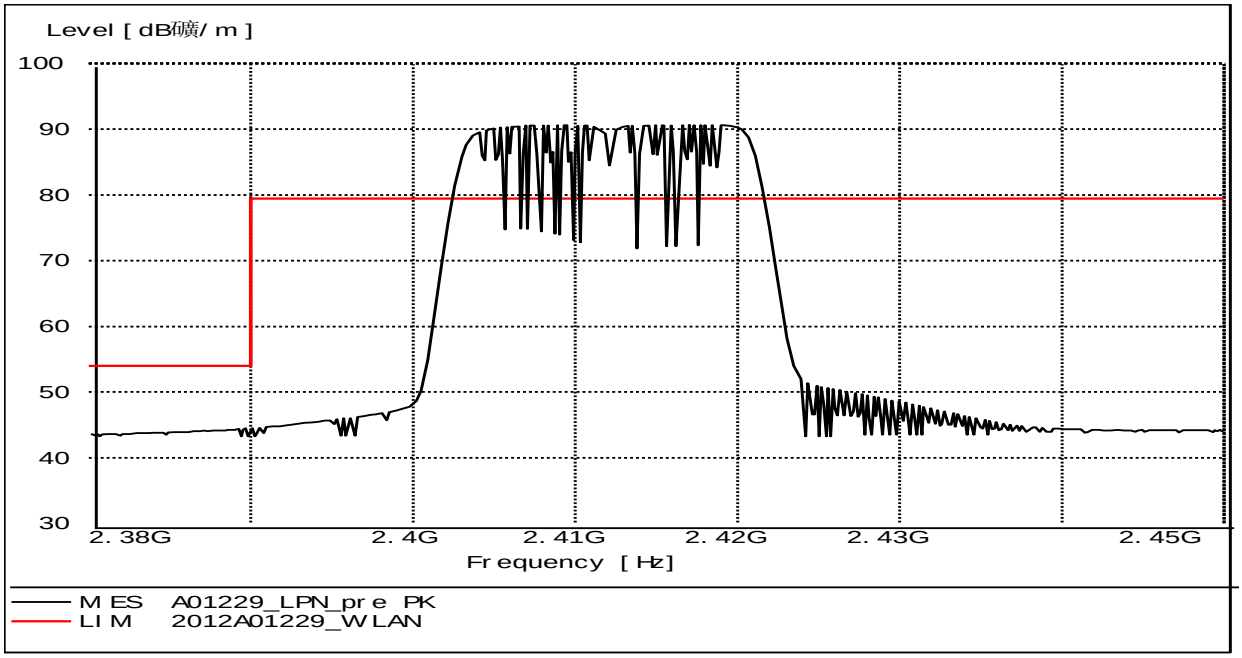


Fig. 65 Radiated Spurious Emission (Power): 802.11n-20MHz, ch1, 2.38 GHz - 2.45GHz

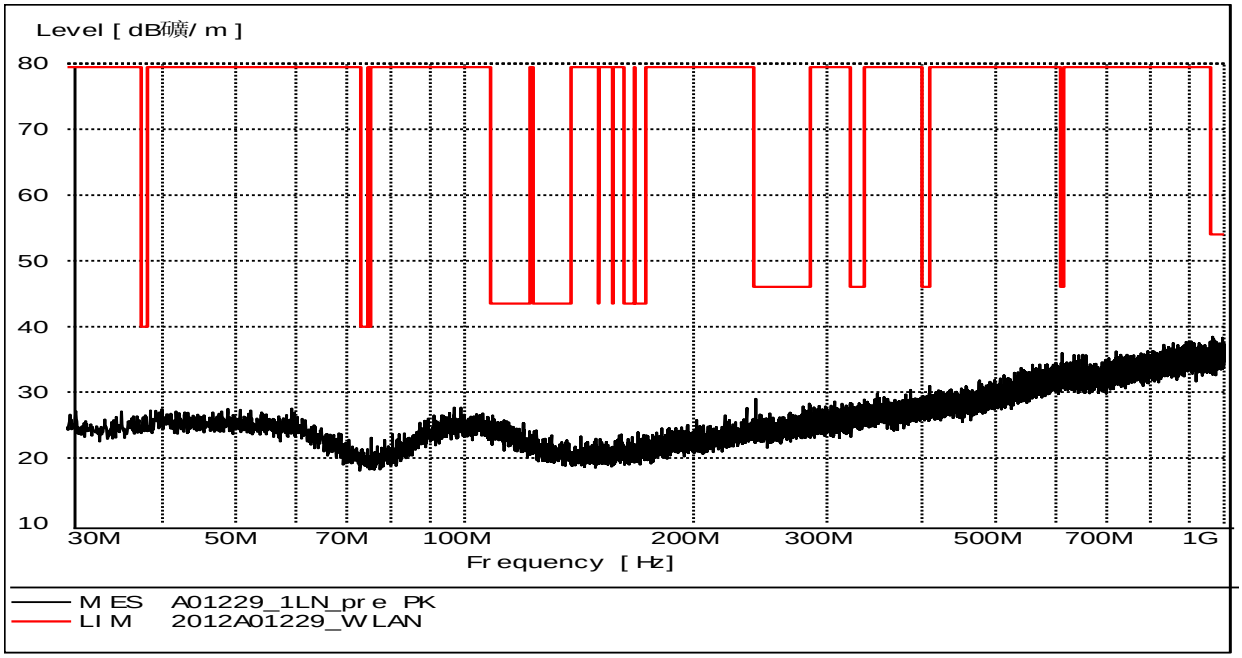


Fig. 66 Radiated Spurious Emission (802.11n-20MHz, Ch1, 30 MHz-1 GHz)

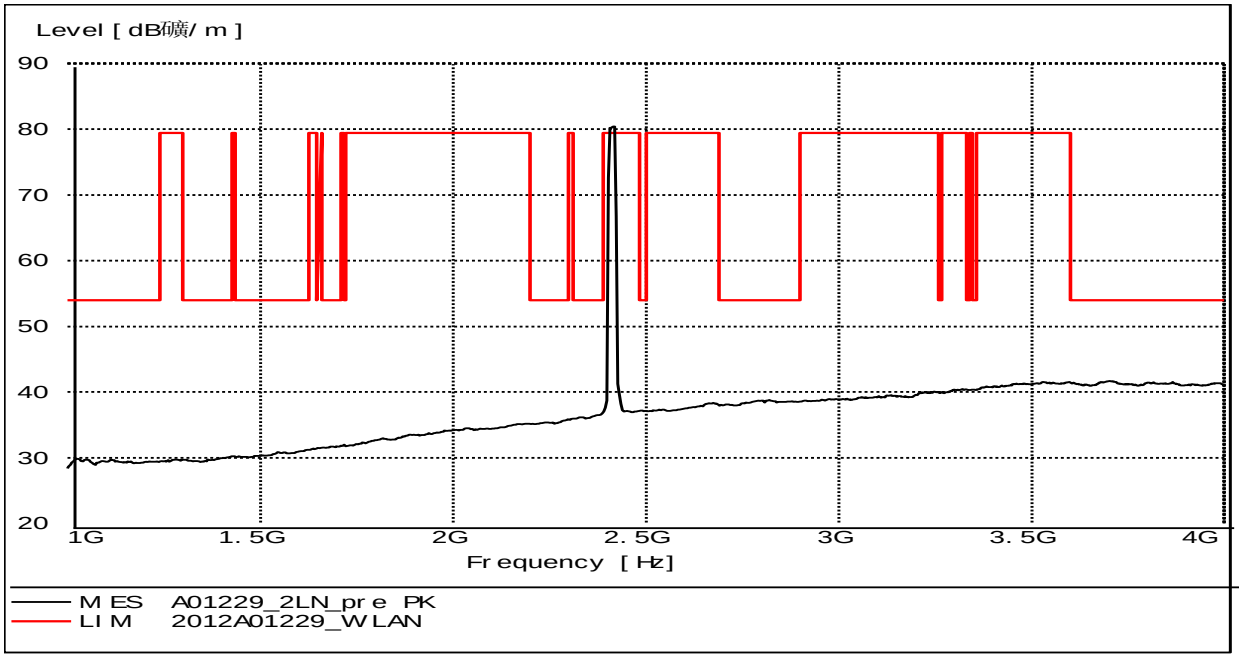


Fig. 67 Radiated Spurious Emission (802.11n-20MHz, Ch1, 1 GHz-4 GHz)

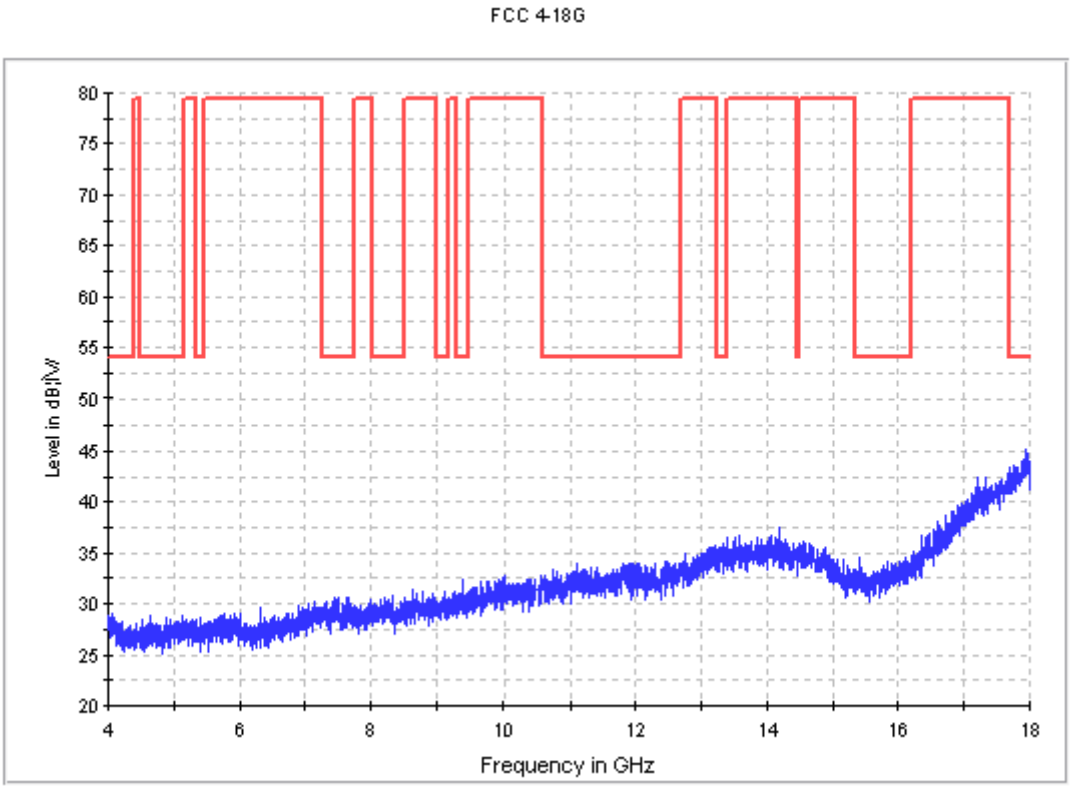


Fig. 68 Radiated Spurious Emission (802.11n-20MHz, Ch1, 4 GHz-18 GHz)

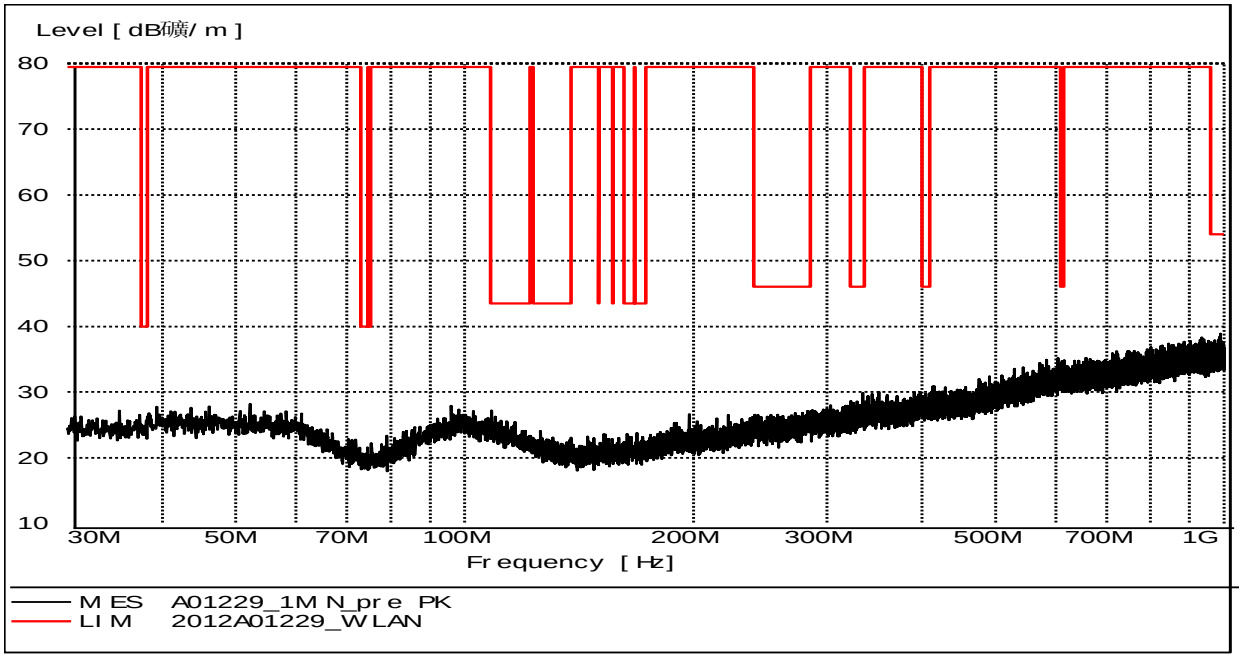


Fig. 69 Radiated Spurious Emission (802.11n-20MHz, Ch6, 30 MHz-1 GHz)

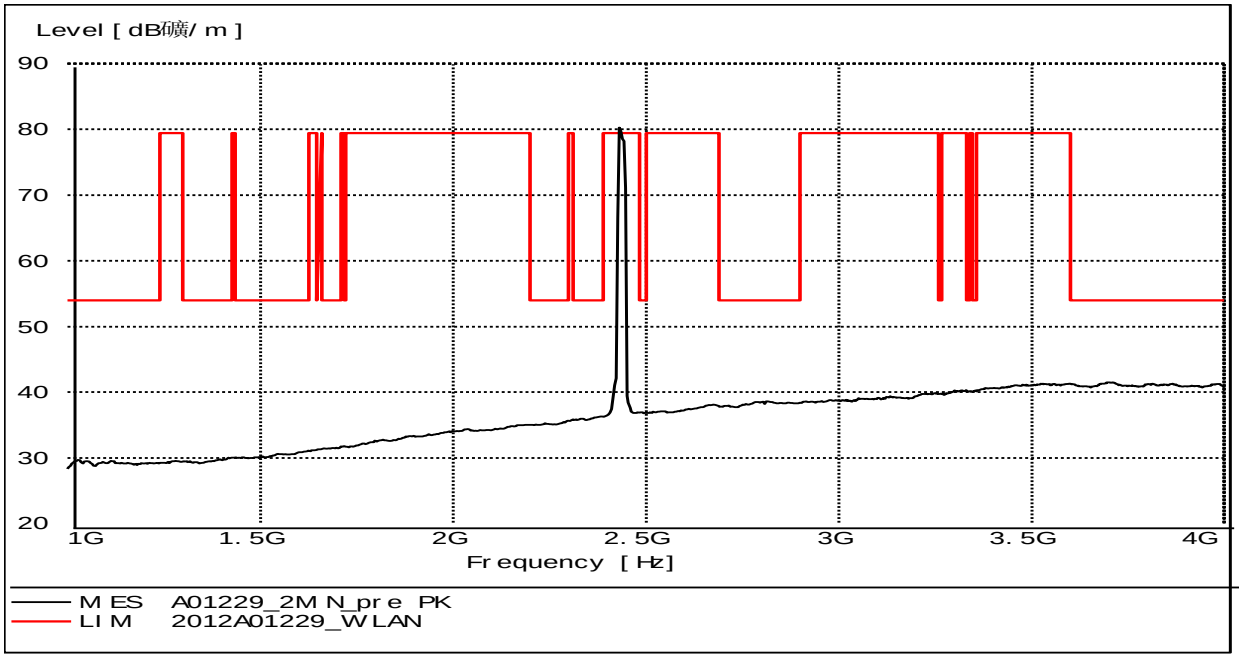


Fig. 70 Radiated Spurious Emission (802.11n-20MHz, Ch6, 1 GHz-4 GHz)

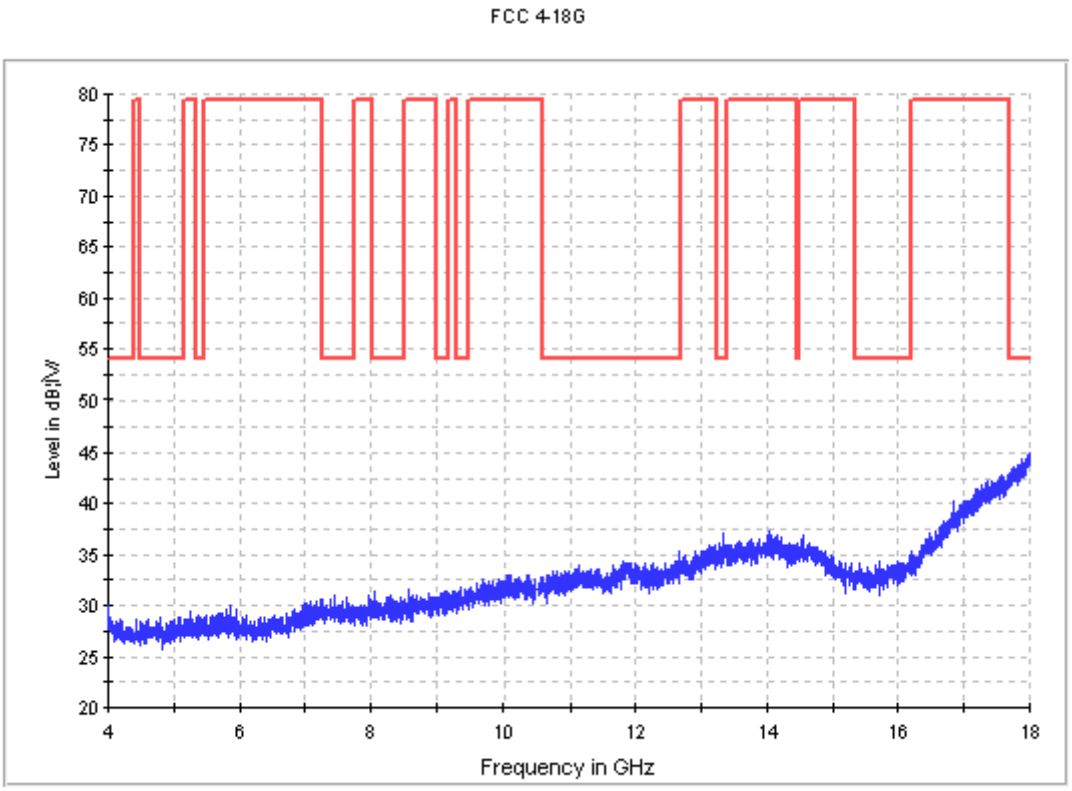


Fig. 71 Radiated Spurious Emission (802.11n-20MHz, Ch6, 4 GHz-18 GHz)

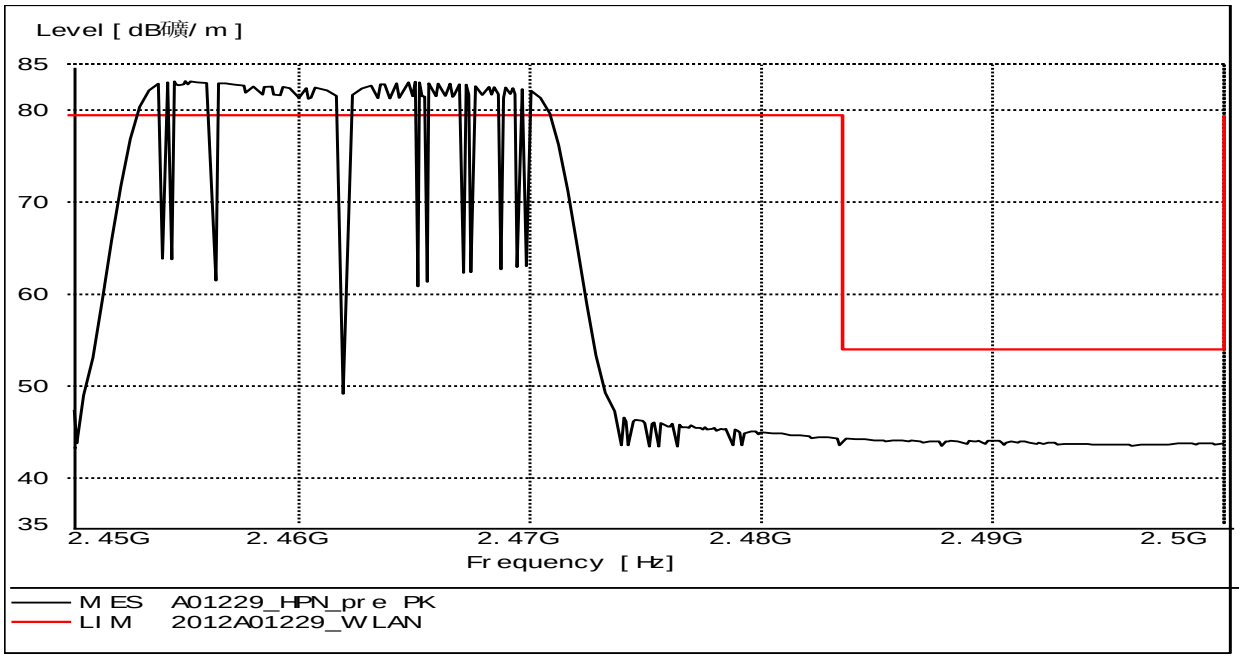


Fig. 72 Radiated Spurious Emission (Power): 802.11n-20MHz, ch11, 2.45 GHz - 2.50GHz

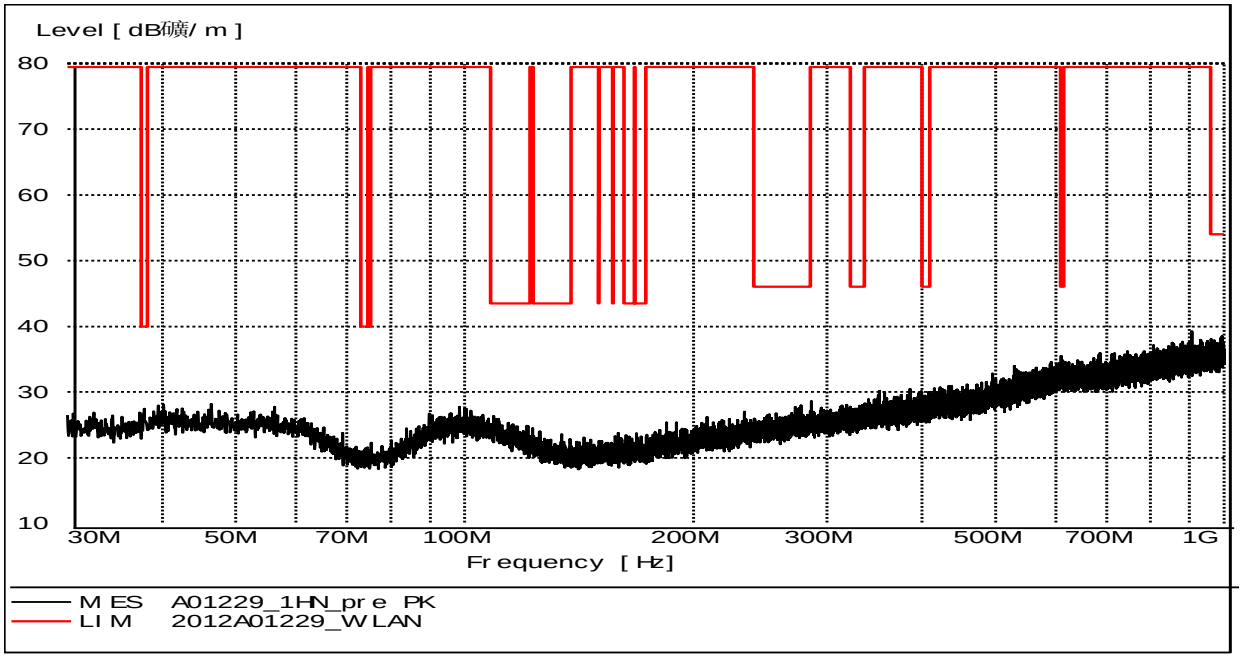


Fig. 73 Radiated Spurious Emission (802.11n-20MHz, Ch11, 30 MHz-1 GHz)

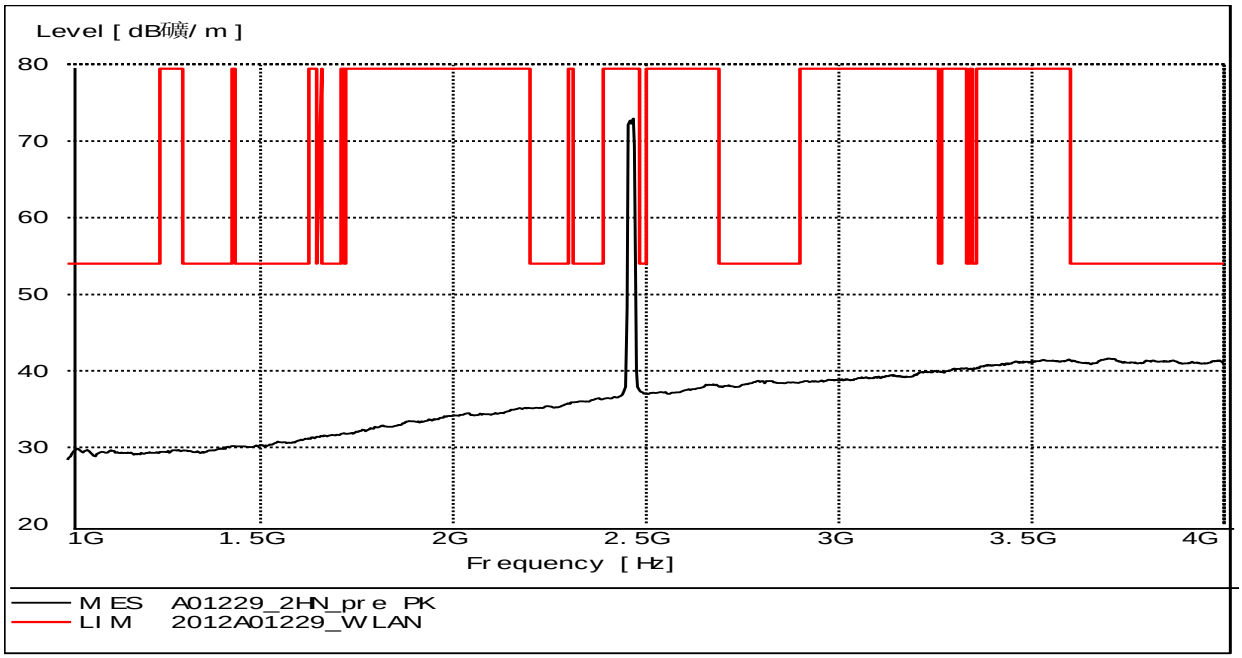


Fig. 74 Radiated Spurious Emission (802.11n-20MHz, Ch11, 1 GHz-4 GHz)

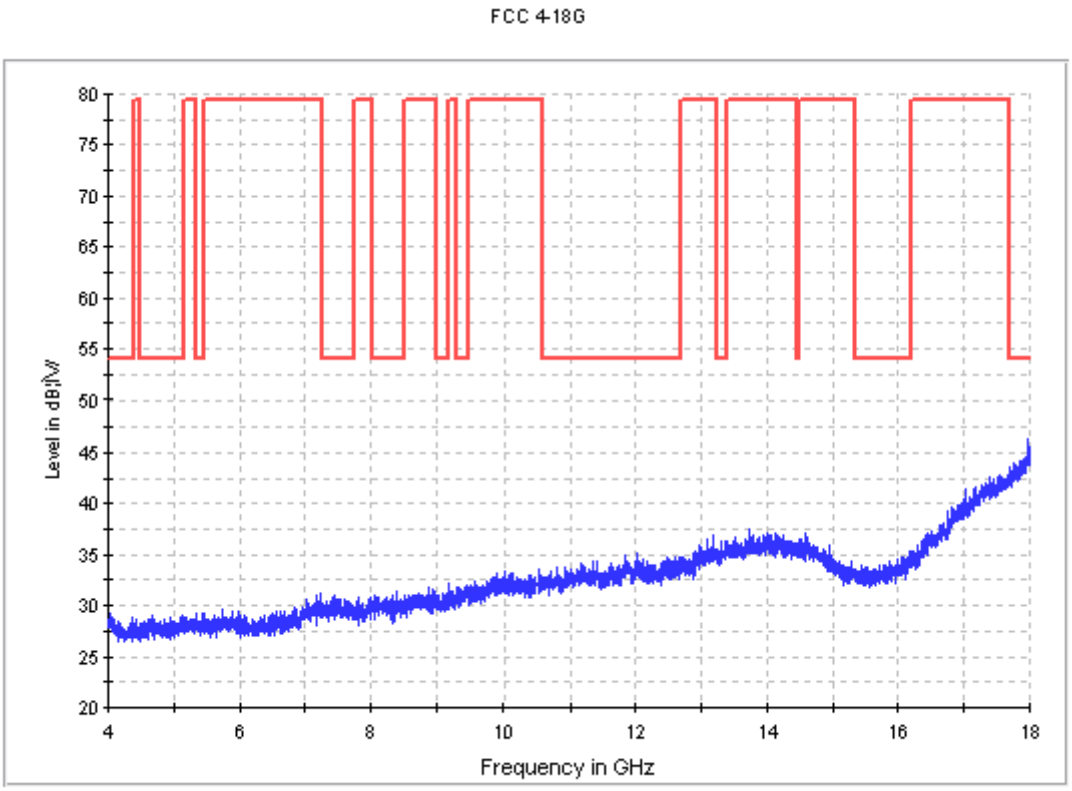


Fig. 75 Radiated Spurious Emission (802.11n-20MHz, Ch11, 4 GHz-18 GHz)

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 (dBμV)	Result (dBμV)			Conclusion
		With charger			
		802.11b	802.11g	802.11n	
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			
		802.11b	802.11g	802.11n	
0.15 to 0.5	56 to 46	Fig.77	Fig.78	Fig.79	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 D01

Conclusion: PASS

Test graphs as below:

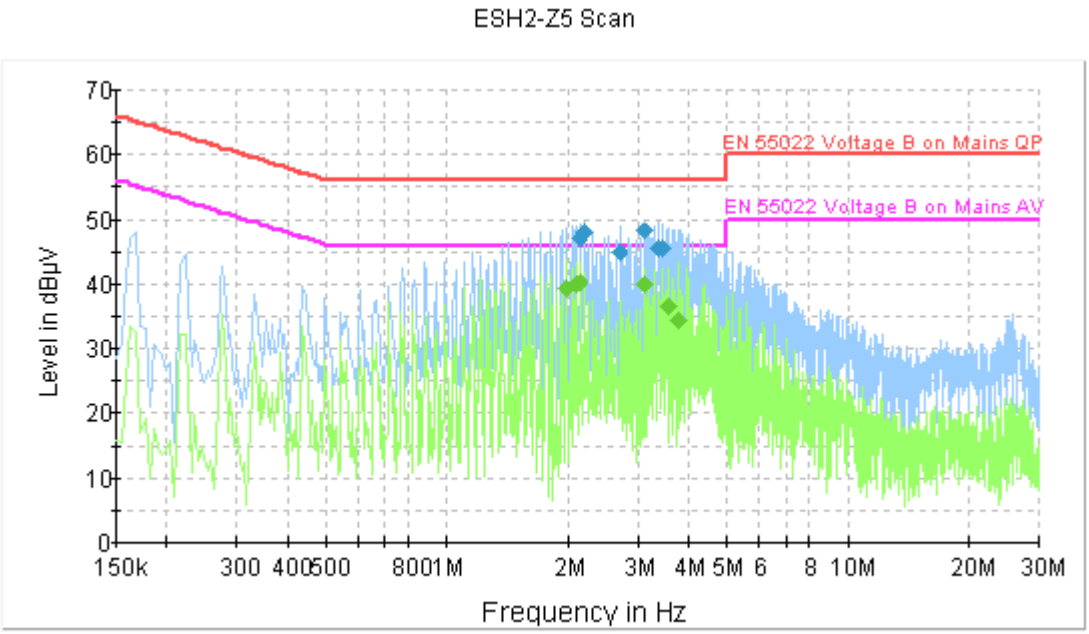


Fig. 76 AC Powerline Conducted Emission-802.11b

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
2.149156	46.9	GND	L1	10.0	9.1	56.0
2.201307	47.9	GND	L1	10.0	8.1	56.0
2.698909	45.0	GND	N	9.9	11.0	56.0
3.135215	48.2	GND	L1	9.9	7.8	56.0
3.355598	45.4	GND	L1	9.9	10.6	56.0
3.464603	45.5	GND	L1	9.9	10.5	56.0

Final Result 2

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.986000	39.3	GND	L1	10.0	6.7	46.0
2.094053	40.1	GND	L1	10.0	5.9	46.0
2.149156	40.2	GND	L1	10.0	5.8	46.0
3.135215	40.1	GND	L1	9.9	5.9	46.0
3.577149	36.5	GND	L1	9.9	9.5	46.0
3.798120	34.3	GND	L1	9.9	11.7	46.0

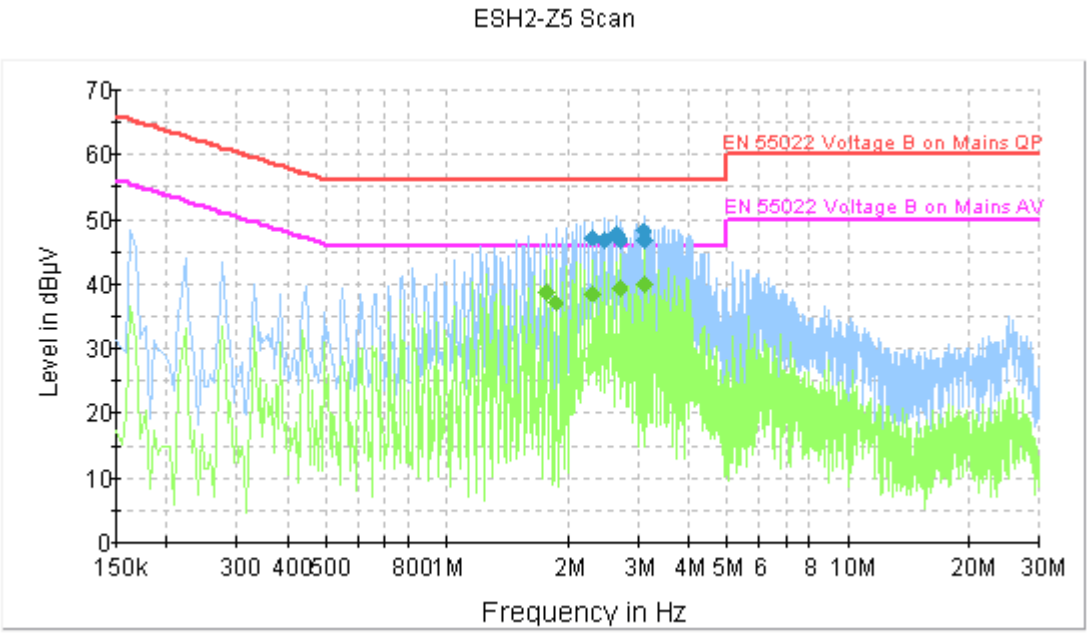


Fig. 77 AC Powerline Conducted Emission-802.11g

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
2.309436	47.1	GND	L1	10.0	8.9	56.0
2.476716	46.8	GND	L1	10.0	9.2	56.0
2.640239	47.7	GND	L1	9.9	8.3	56.0
2.693522	46.7	GND	L1	9.9	9.3	56.0
3.079342	48.1	GND	L1	9.9	7.9	56.0
3.135215	46.7	GND	L1	9.9	9.3	56.0

Final Result 2

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.765500	38.6	GND	L1	10.0	7.4	46.0
1.873500	37.0	GND	L1	10.0	9.0	46.0
2.309436	38.4	GND	L1	10.0	7.6	46.0
2.693522	39.3	GND	L1	9.9	6.7	46.0
3.079342	40.0	GND	L1	9.9	6.0	46.0
3.135215	39.9	GND	L1	9.9	6.1	46.0

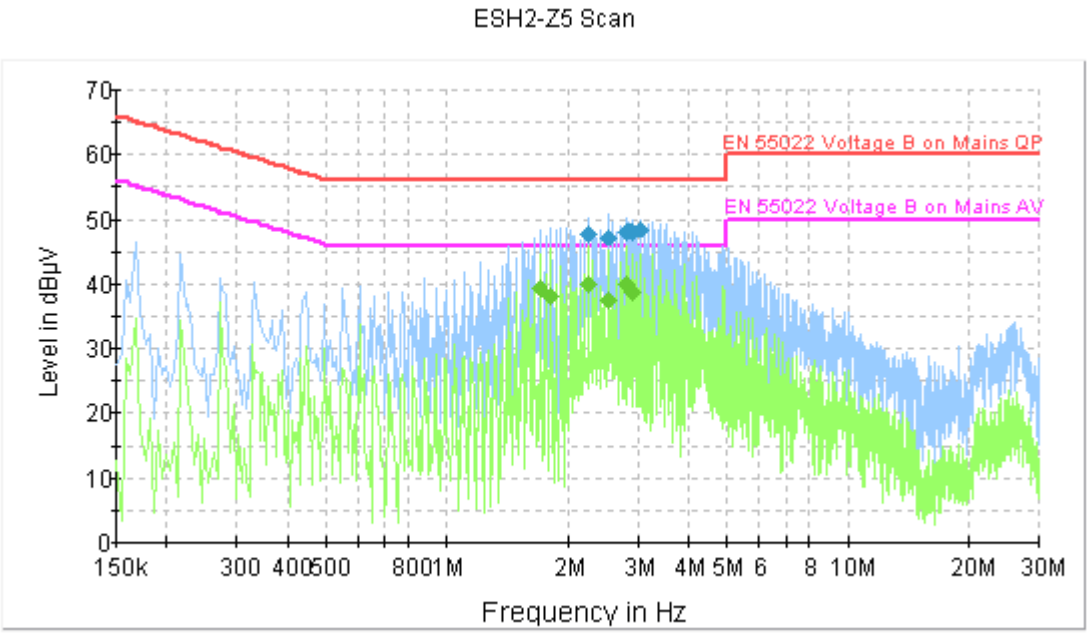


Fig. 78 AC Powerline Conducted Emission-802.11n

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
2.254724	47.7	GND	L1	10.0	8.3	56.0
2.531752	47.1	GND	L1	9.9	8.9	56.0
2.803335	47.9	GND	L1	10.0	8.1	56.0
2.859909	48.1	GND	L1	10.0	7.9	56.0
2.911801	47.8	GND	L1	10.0	8.2	56.0
3.024464	48.4	GND	L1	9.9	7.6	56.0

Final Result 2

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.707000	39.3	GND	L1	10.0	6.7	46.0
1.815000	38.1	GND	L1	10.0	7.9	46.0
2.254724	40.0	GND	L1	10.0	6.0	46.0
2.531752	37.4	GND	L1	9.9	8.6	46.0
2.803335	39.9	GND	L1	10.0	6.1	46.0
2.911801	38.8	GND	L1	10.0	7.2	46.0

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