FCC PART 15C
TEST REPORT
No. 2012WLN0328

for

TCT Mobile Limited

HSUPA/HSDPA/UMTS triband / GSM quadband mobile phone

Type: Mojitolite A

Market Name: ONE TOUCH 991A

With

FCC ID: RAD254

Hardware Version: PIO

Software Version: vF1I_US

Issued Date: 2012-05-29

DAR accreditation (DIN EN ISO/IEC 17025): No. DGA-PL-114/01-02
FCC 2.948 Listed: No.733176
***No.* DGA-PL-114/01-02** *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

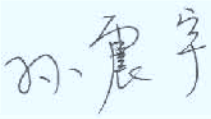
Normal Temperature:	15-30℃
Extreme Temperature:	-20/+55℃
Relative Humidity:	30-60%
Air Pressure	990hPa-1040hPa

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

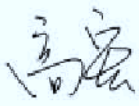
Testing Start Date:	2012-02-29
Testing End Date:	2012-04-26

1.4. Signature



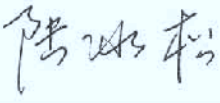
Sun Zhenyu

(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:	518057
Country:	China
Contact	Gong Zhizhou
Email	zhizhou.gong@jrdcom.com
Telephone:	0086-21-6146089
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:	518057
Country:	China
Contact	Gong Zhizhou
Email	zhizhou.gong@jrdcom.com
Telephone:	0086-21-6146089
Fax:	0086-21-61460602

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

3.1. About EUT

Description	HSUPA/HSDPA/UMTS triband / GSM quadband mobile phone
Type	Mojitolite A
Market Name	ONE TOUCH 991A
FCC ID	RAD254
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	23.07dBm(OFDM)
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	013111000020321	PIO	vF1I_US
EUT2	013111000020313	PIO	vF1I_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	CAB32A0000C2	/
AE2	Battery	CAB32A0000C1	/
AE3	Travel Adapter	CBA3002AG0C1	/
AE4	Travel Adapter	CBA3001AG0C1	/
AE5	Travel Adapter	CBA3001AG0C2	/
AE6	Travel Adapter	CBA3000AG0C1	/

*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 triband / GSM quadband 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
ANSI C63.10	American National Standard for Testing Unlicensed Wireless Devices	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, 15.205, 15.209	/	P
AC Powerline Conducted Emission	15.107, 15.207	/	P

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

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

Terms used in Verdict column

P	Pass, The EUT complies with the essential requirements in the standard.
NP	Not Perform, The test was not performed by TMC
NA	Not Applicable, The test was not applicable
F	Fail, The EUT does not comply with the essential requirements in the standard

6.2. Statements

TMC has evaluated the test cases requested by the client/manufacturer as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.1.

This report only deals with the WLAN function among the features described in section 3.

Test Conditions

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

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

Temperature	T nom	26℃
Voltage	V nom	3.7(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
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2012-06-30

Anechoic chamber

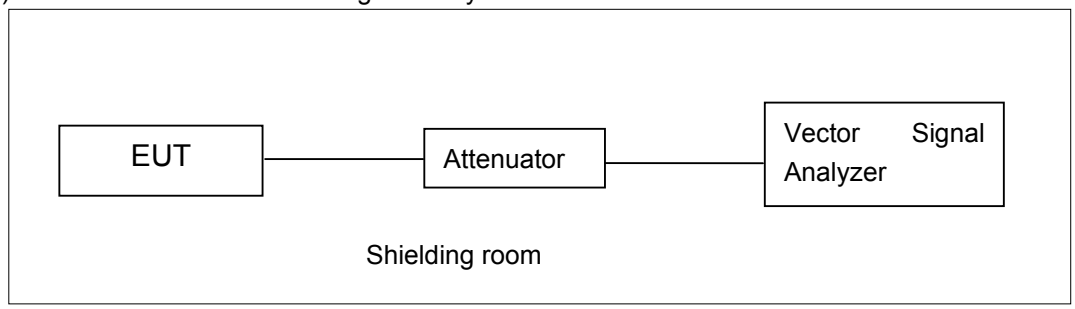
Anechoic chamber by Frankonia German.

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

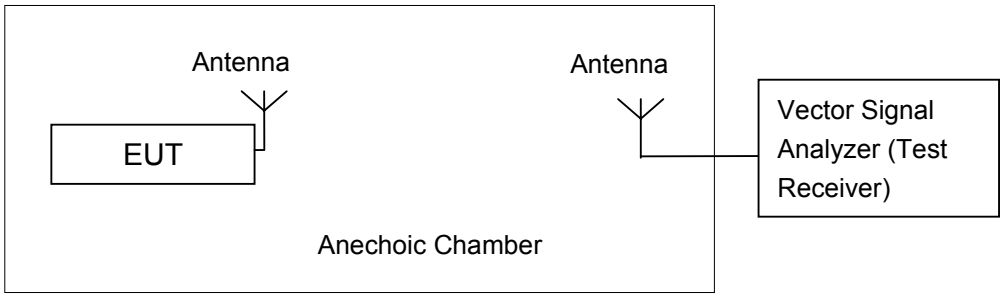
A.1.1. Conducted Measurements

1). Connect the EUT to the test system correctly.
2). Set the EUT to the required work mode.
3). Set the EUT to the required channel.
4). Set the spectrum analyzer to start measurement.
5). Record the values. Vector Signal Analyzer



A.1.2. Radiated Emission Measurements

In the case of radiated emission, the used settings are as follows,
Sweep frequency from 30 MHz to 1GHz, RBW = 100 kHz, VBW = 300 kHz;
Sweep frequency from 1 GHz to 26GHz, RBW = 1MHz, VBW = 10Hz;



The measurement is made according to ANSI C63.10

A.2. Maximum Peak Output Power

Measurement Limit and Method:

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

The measurement is made according to ANSI C63.10, and power output option 1 (RBW=20MHz) in ANSI C63.10 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	18.64	/	/
	2	18.92	/	/
	5.5	19.29	/	/
	11	20.92	20.34	20.80
802.11g	6	21.80	/	/
	9	21.85	/	/
	12	21.57	/	/
	18	21.28	/	/
	24	21.88	/	/
	36	21.91	/	/
	48	22.05	/	/
	54	22.11	22.45	23.07

The data rate 11Mbps and 54Mbps 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	21.59	/	/
	MCS1	21.67	/	/
	MCS2	21.72	/	/
	MCS3	21.89	/	/
	MCS4	21.99	/	/
	MCS5	22.13	/	/
	MCS6	22.14	/	/

	MCS7	22.16	22.43	22.67
802.11n (40MHz)	MCS0	/	/	/
	MCS1	/	/	/
	MCS2	/	/	/
	MCS3	/	/	/
	MCS4	/	/	/
	MCS5	/	/	/
	MCS6	/	/	/
	MCS7	/	/	/

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

Conclusion: PASS

A.3. Peak Power Spectral Density

Measurement Limit:

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

The measurement is made according to ANSI C63.10

Measurement Uncertainty:

Measurement Uncertainty	0.75dB

Measurement Results:

802.11b/g mode

Mode	Channel	Power Spectral Density (8 dBm/3 kHz)		Conclusion
802.11b	1	Fig.1	-6.01	P
	6	Fig.2	-6.33	P
	11	Fig.3	-6.46	P
802.11g	1	Fig.4	-10.35	P
	6	Fig.5	-10.07	P
	11	Fig.6	-9.48	P

802.11n mode

Mode	Channel	Power Spectral Density (dBm/3 kHz)		Conclusion
802.11n (20MHz)	1	Fig.7	-10.66	P
	6	Fig.8	-9.97	P
	11	Fig.9	-9.80	P
802.11n (40MHz)	/	/	/	/
	/	/	/	/
	/	/	/	/

Conclusion: PASS

Test graphs as below:

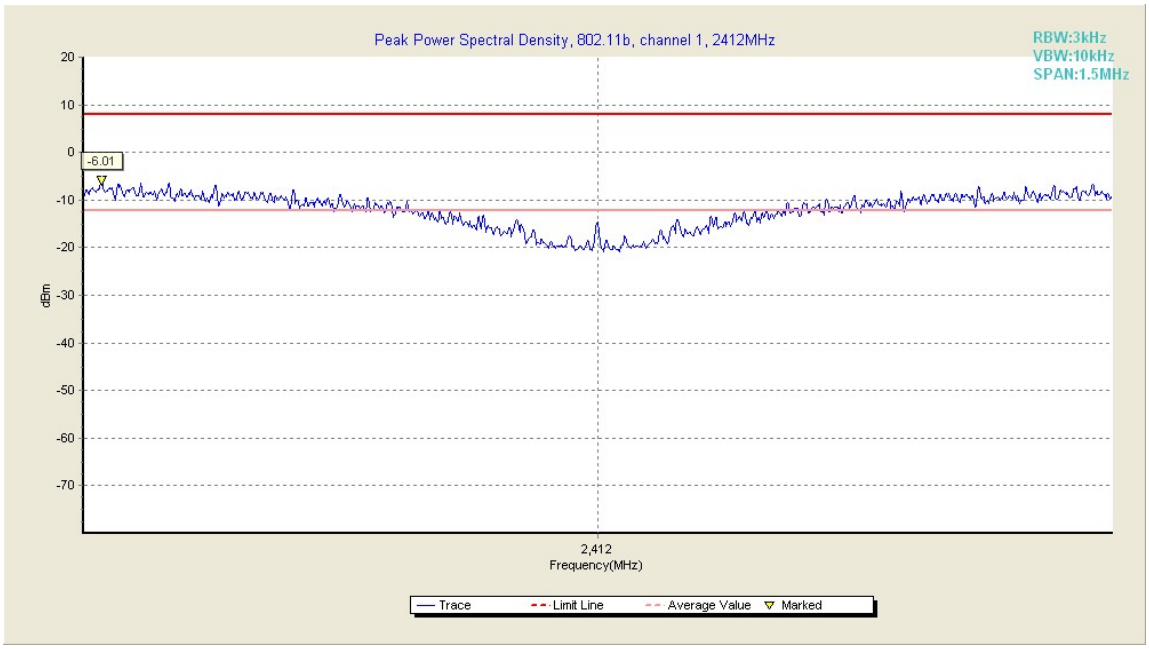


Fig. 1 Power Spectral Density (802.11b, Ch 1)

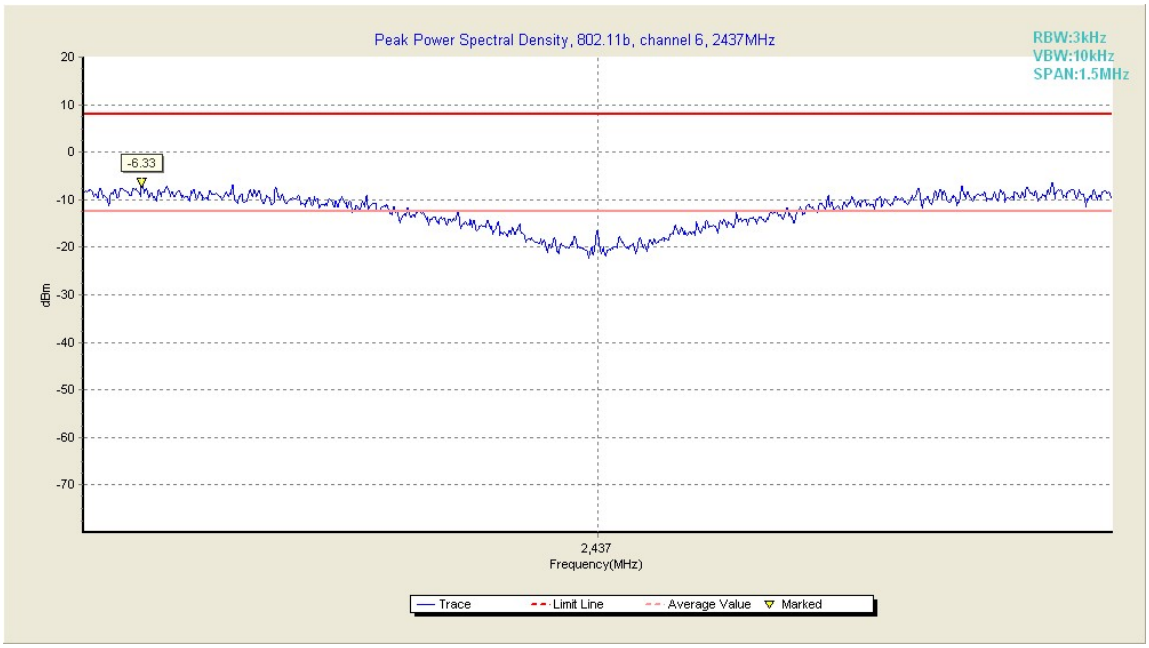


Fig. 2 Power Spectral Density (802.11b, Ch 6)

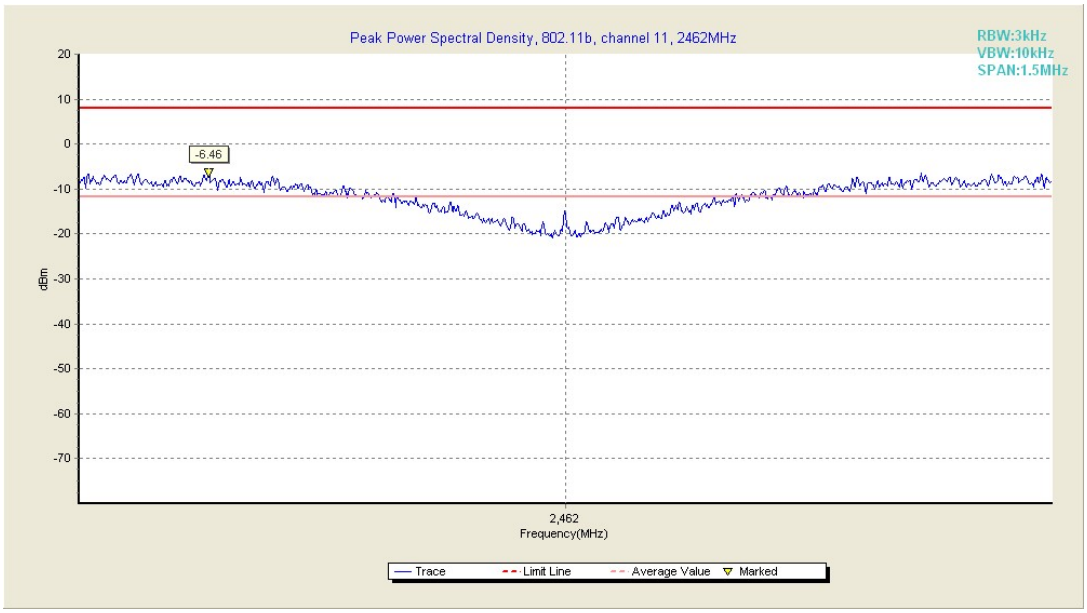


Fig. 3 Power Spectral Density (802.11b, Ch 11)

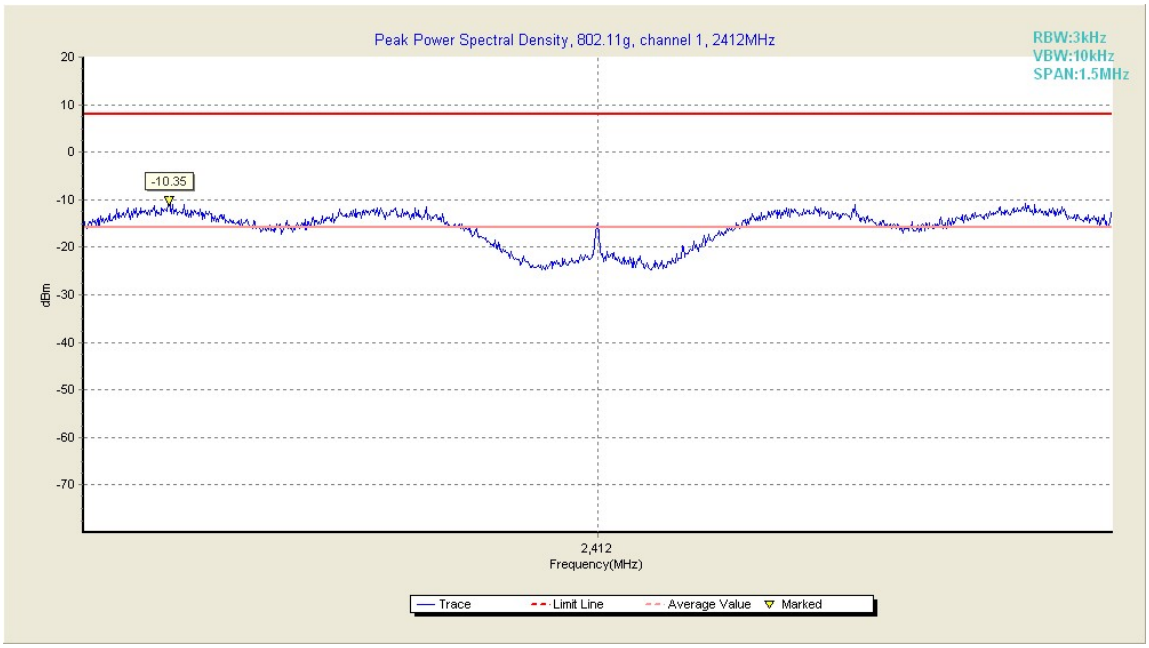


Fig. 4 Power Spectral Density (802.11g, Ch 1)

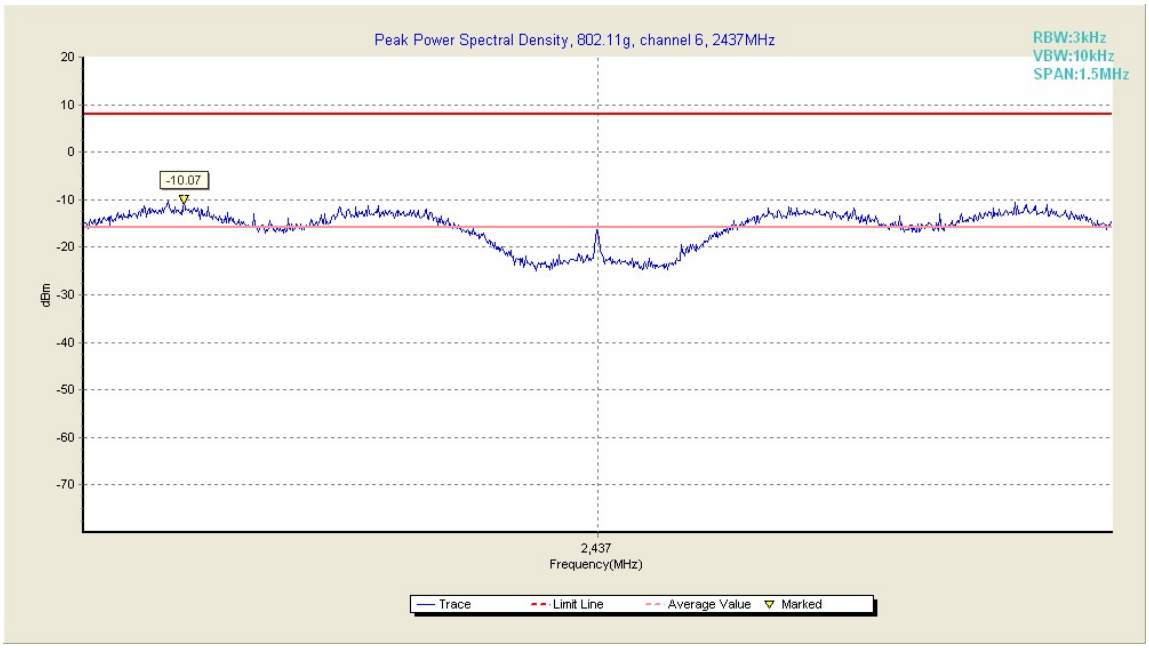


Fig. 5 Power Spectral Density (802.11g, Ch 6)

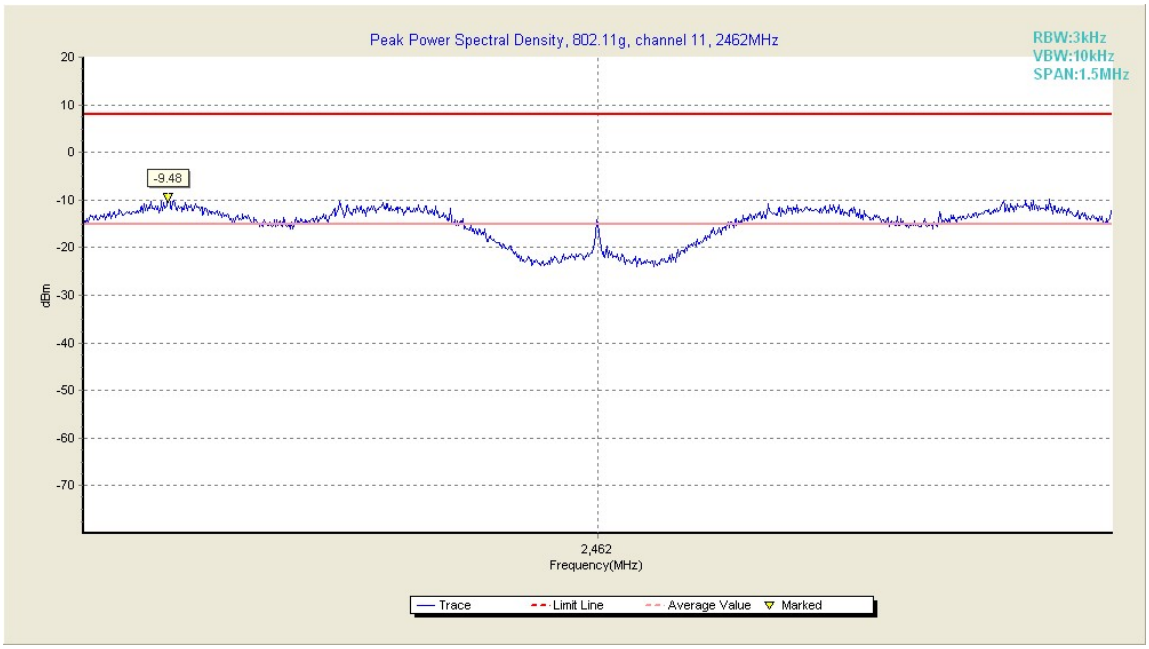


Fig. 6 Power Spectral Density (802.11g, Ch 11)

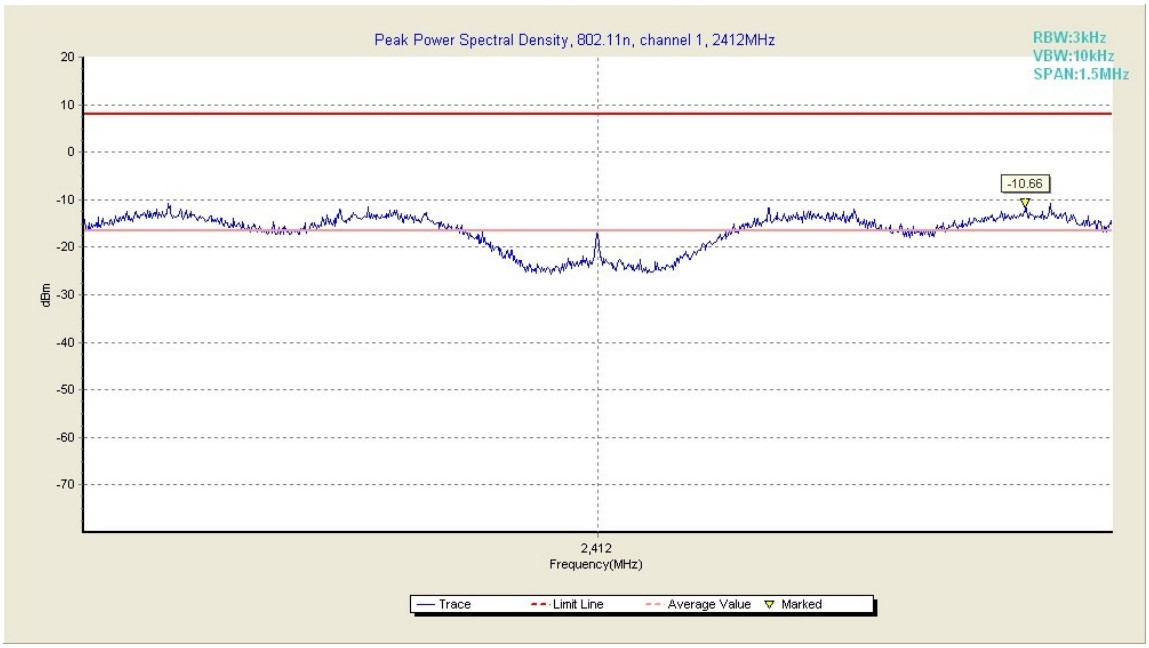


Fig. 7 Power Spectral Density (802.11n-20MHz, Ch 1)

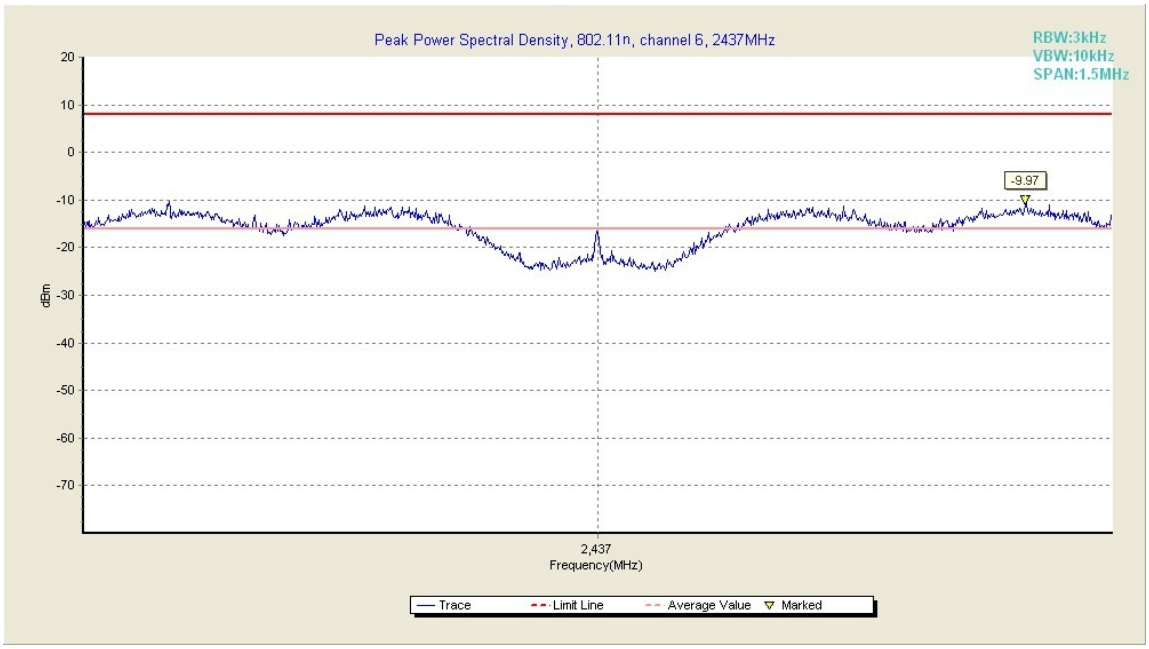


Fig. 8 Power Spectral Density (802.11n-20MHz, Ch 6)

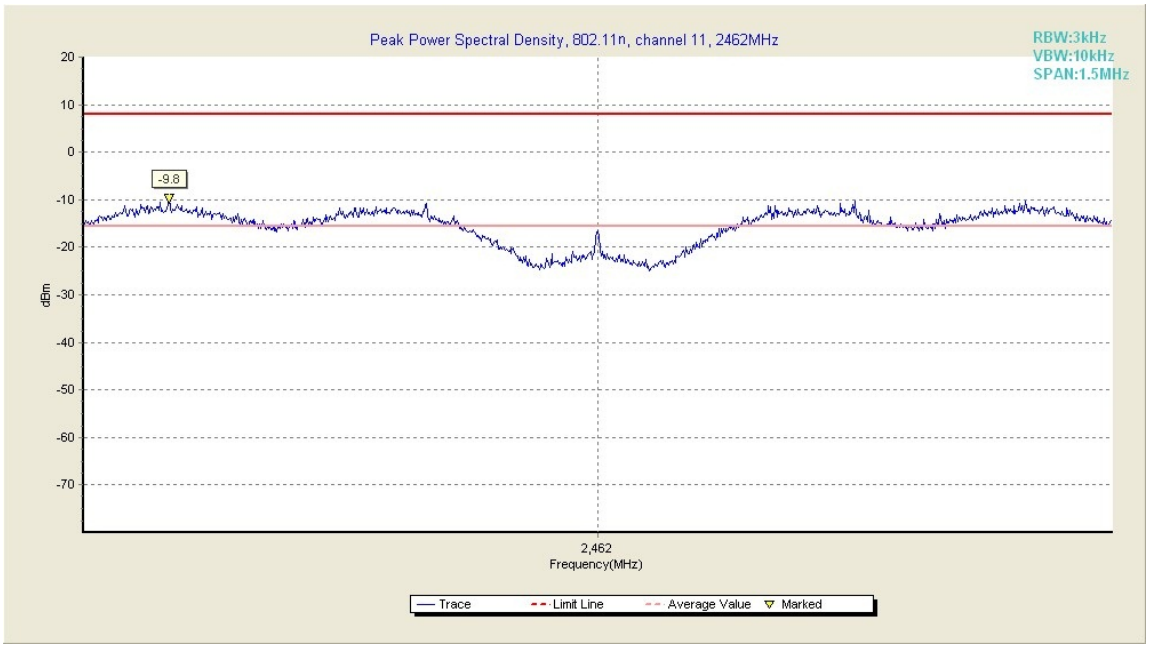


Fig. 9 Power Spectral Density (802.11n-20MHz, Ch 11)

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 C63.10

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz

Measurement Result:

802.11b/g mode

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
802.11b	1	Fig.10	9100	P
	6	Fig.11	9100	P
	11	Fig.12	9100	P
802.11g	1	Fig.13	16550	P
	6	Fig.14	16500	P
	11	Fig.15	16450	P

802.11n mode

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
802.11n (20MHz)	1	Fig.16	17700	P
	6	Fig.17	17800	P
	11	Fig.18	17750	P
802.11n (40MHz)	/	/	/	/
	/	/	/	/
	/	/	/	/

Conclusion: PASS

Test graphs as below:

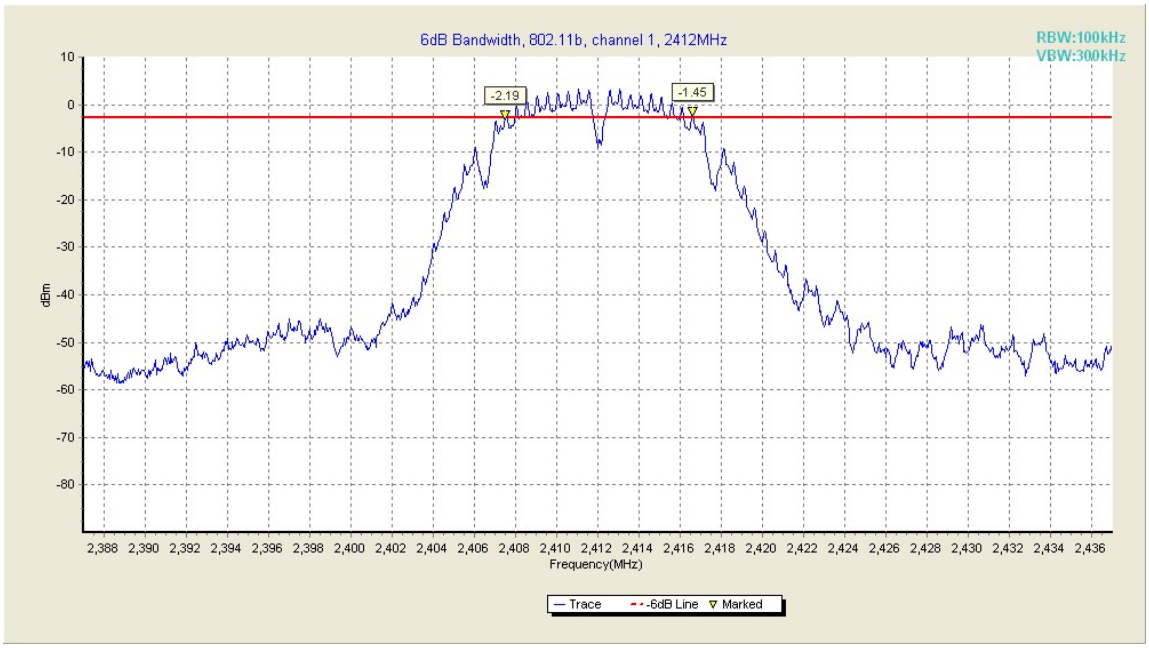


Fig. 10 Occupied 6dB Bandwidth (802.11b, Ch 1)

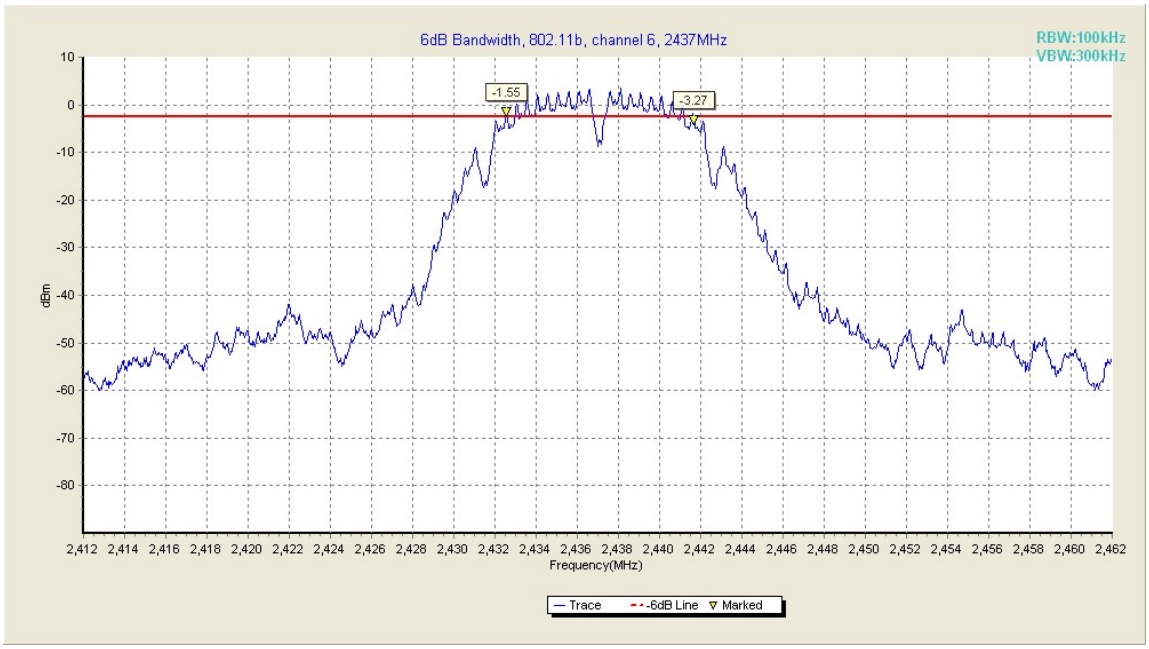


Fig. 11 Occupied 6dB Bandwidth (802.11b, Ch 6)

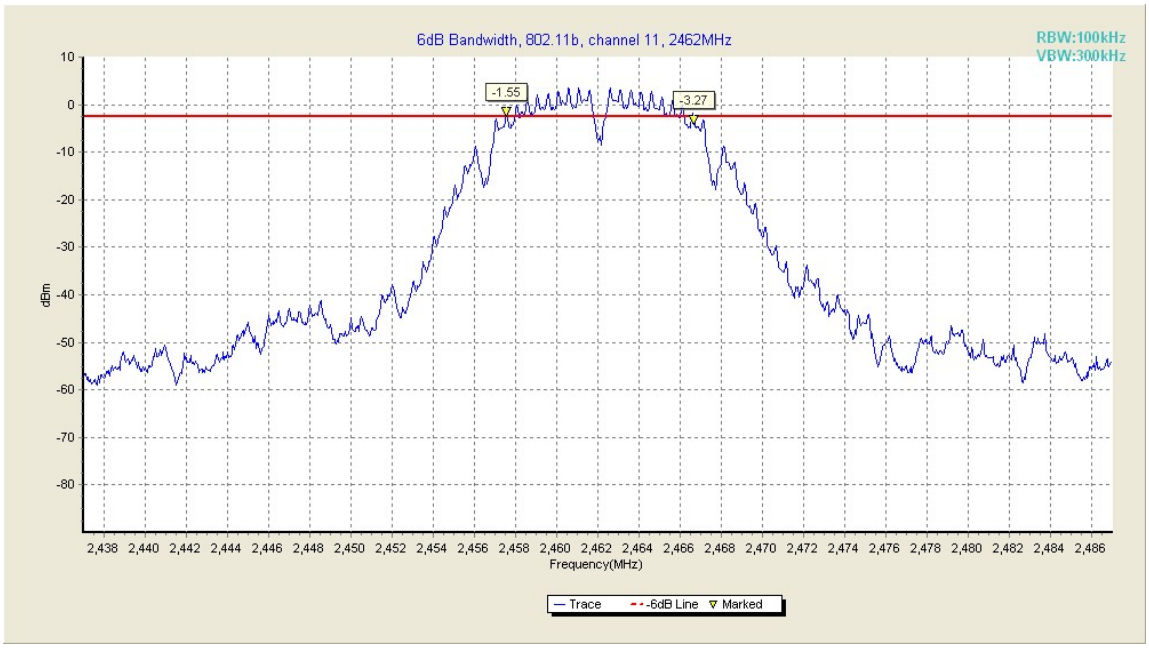


Fig. 12 Occupied 6dB Bandwidth (802.11b, Ch 11)

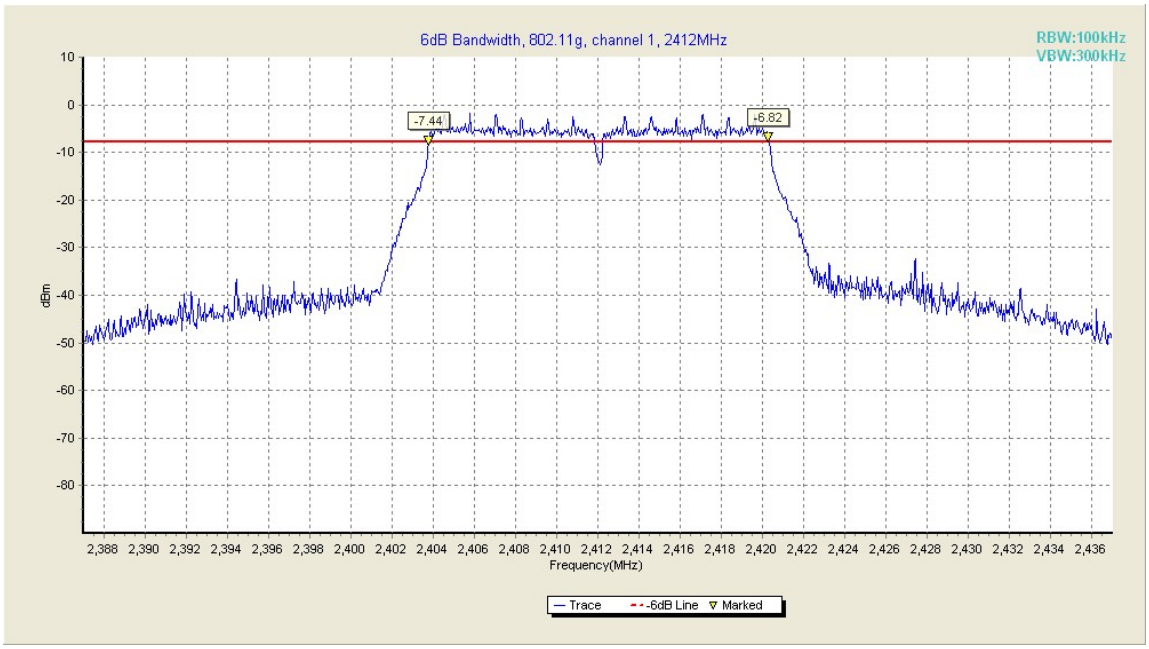


Fig. 13 Occupied 6dB Bandwidth (802.11g, Ch 1)

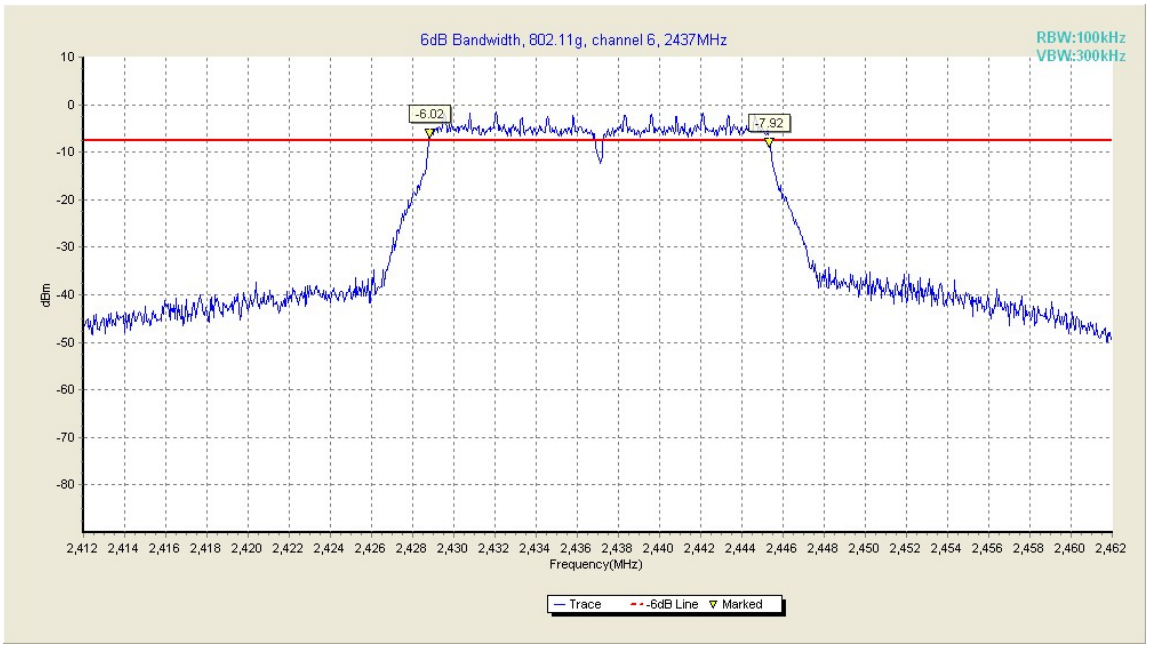


Fig. 14 Occupied 6dB Bandwidth (802.11g, Ch 6)

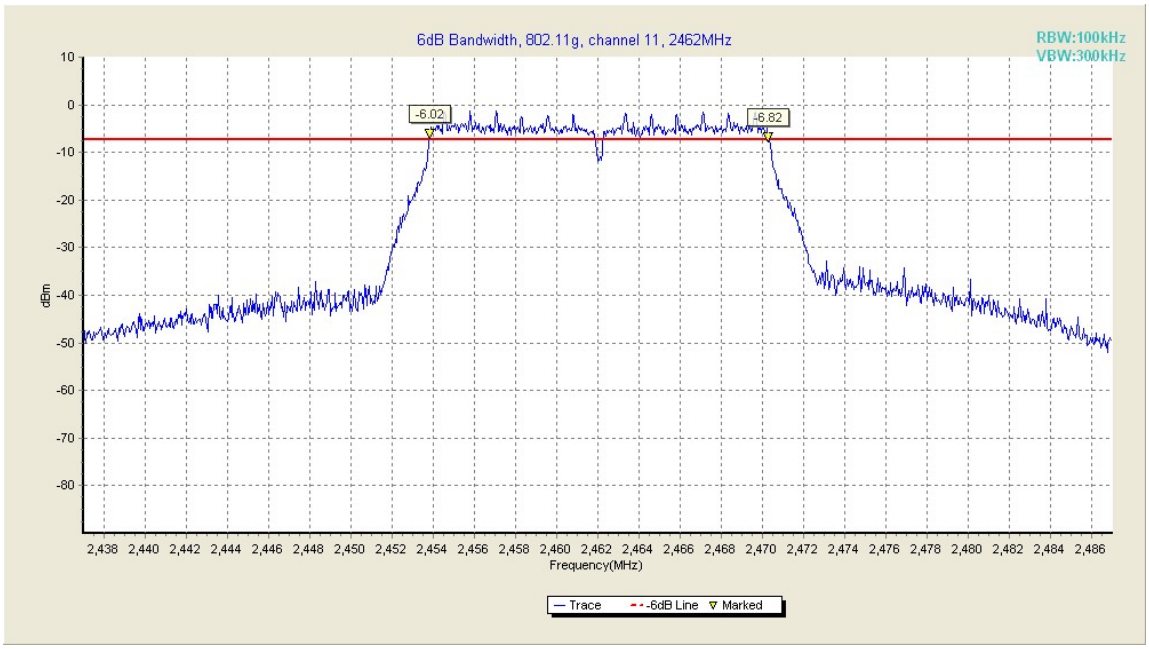


Fig. 15 Occupied 6dB Bandwidth (802.11g, Ch 11)

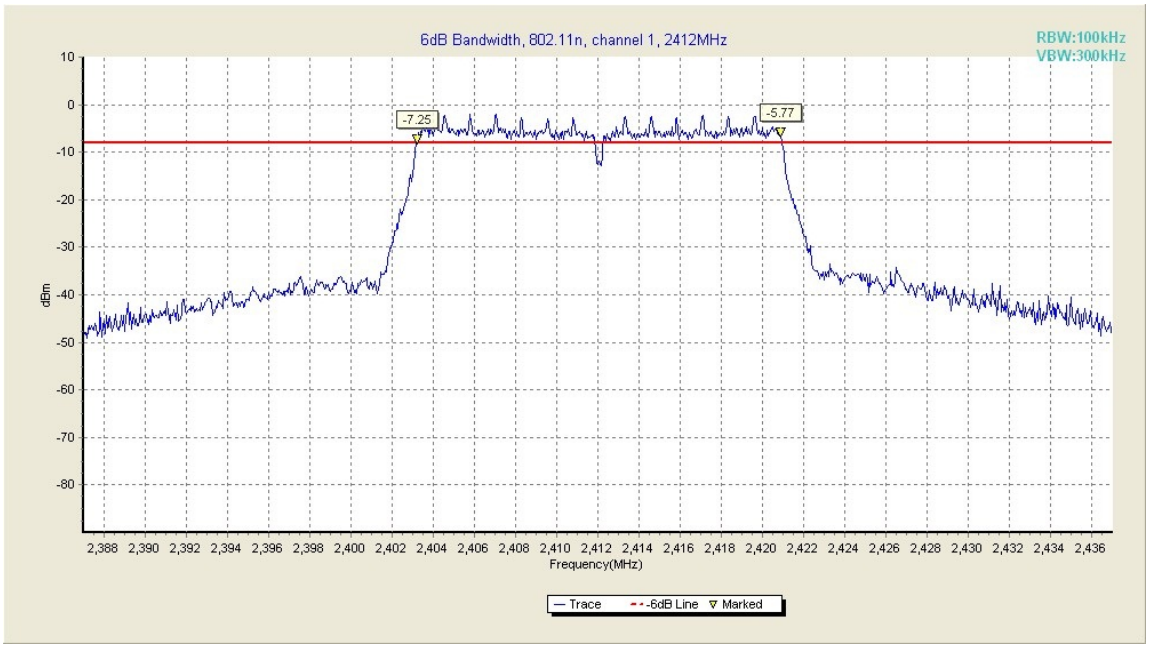


Fig. 16 Occupied 6dB Bandwidth (802.11 n-20MHz, Ch 1)

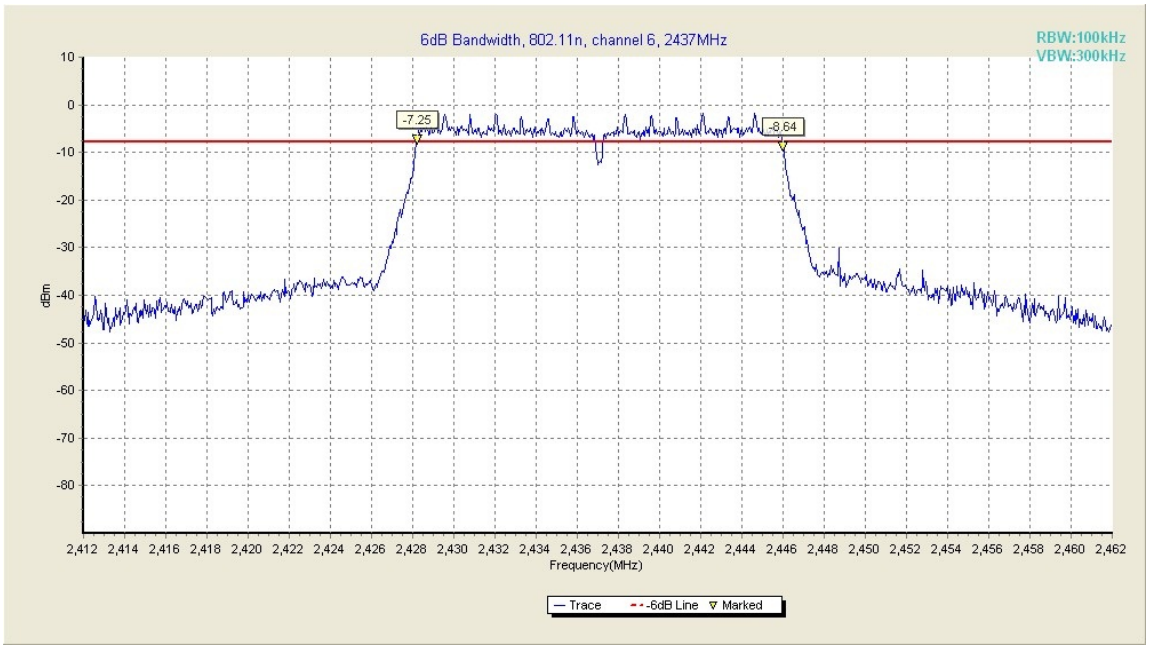


Fig. 17 Occupied 6dB Bandwidth (802.11 n-20MHz, Ch 6)

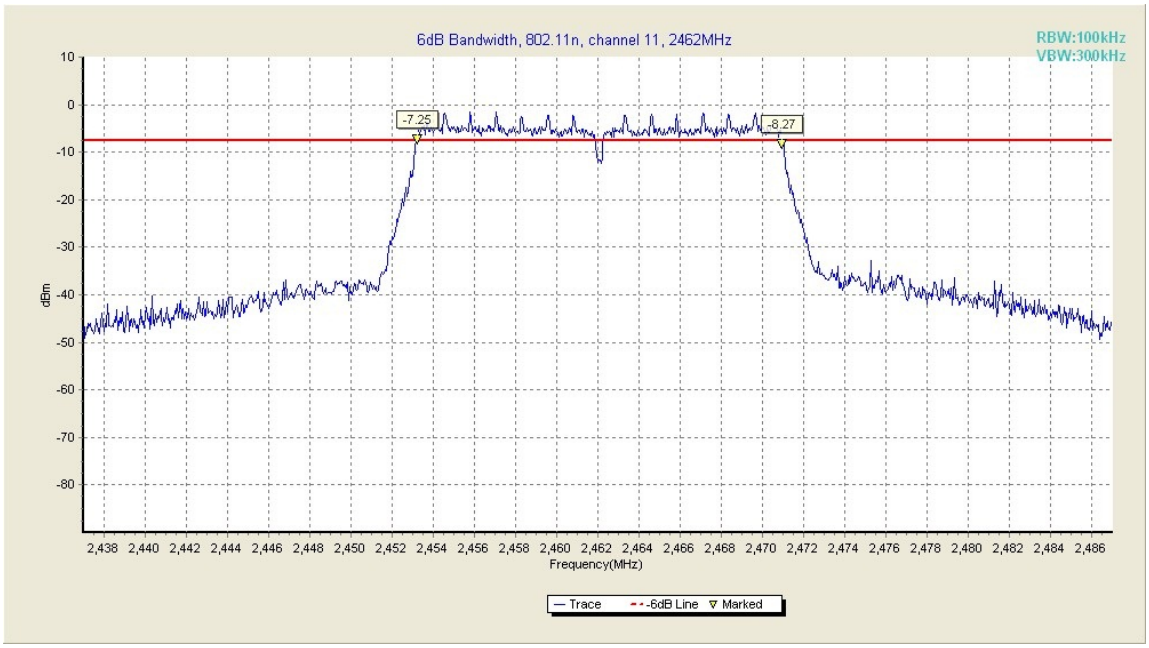


Fig. 18 Occupied 6dB Bandwidth (802.11n-20MHz, Ch 11)

A.5. Band Edges Compliance

Measurement Limit:

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

The measurement is made according to ANSI C63.10

Measurement Uncertainty:

Measurement Uncertainty	0.75dB

Measurement Result:

802.11b/g mode

Mode	Channel	Test Results	Conclusion
802.11b	1	Fig.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)	/	/	/
	/	/	/

Conclusion: PASS

Test graphs as below:

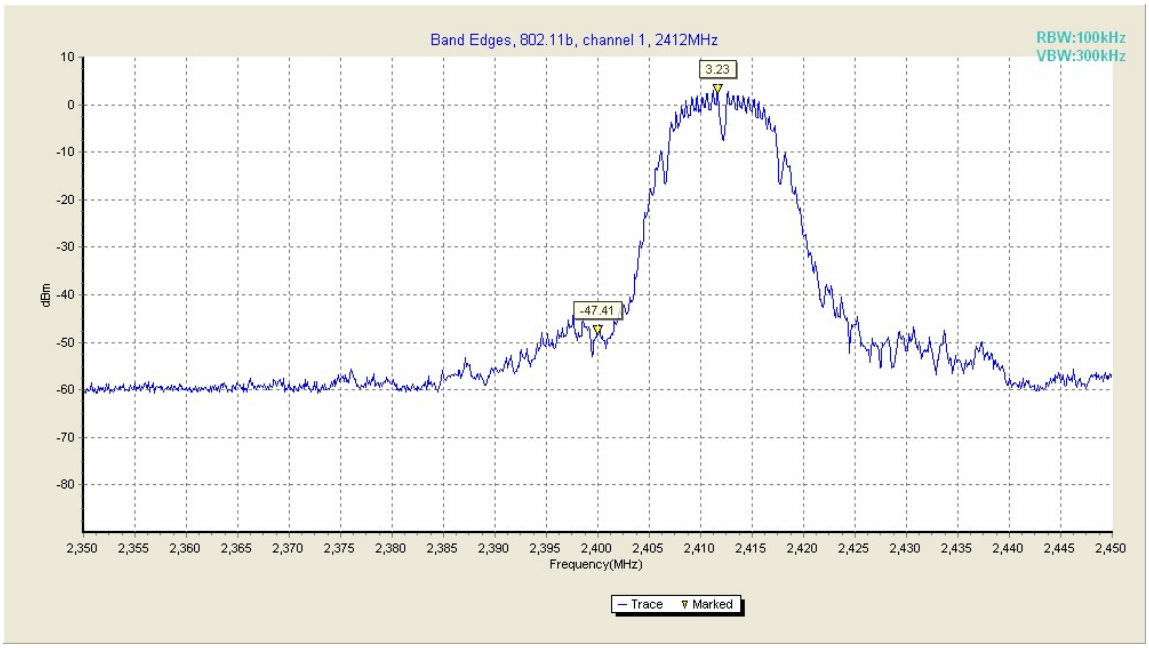


Fig. 19 Band Edges (802.11b, Ch 1)

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

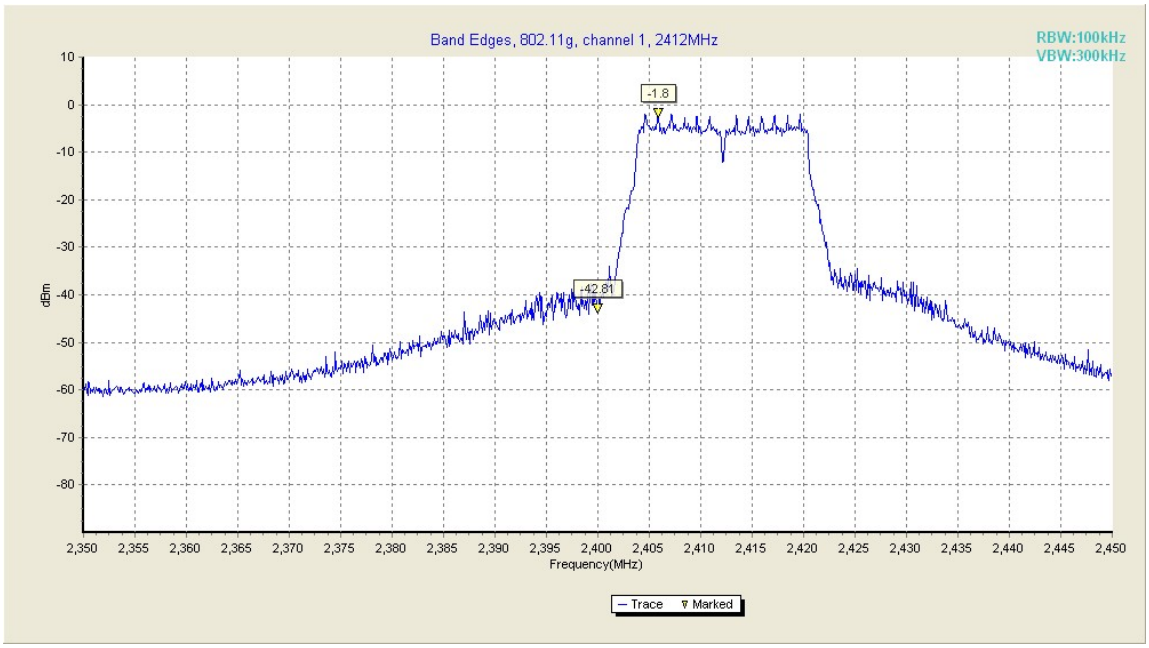


Fig. 21 Band Edges (802.11g, Ch 1)

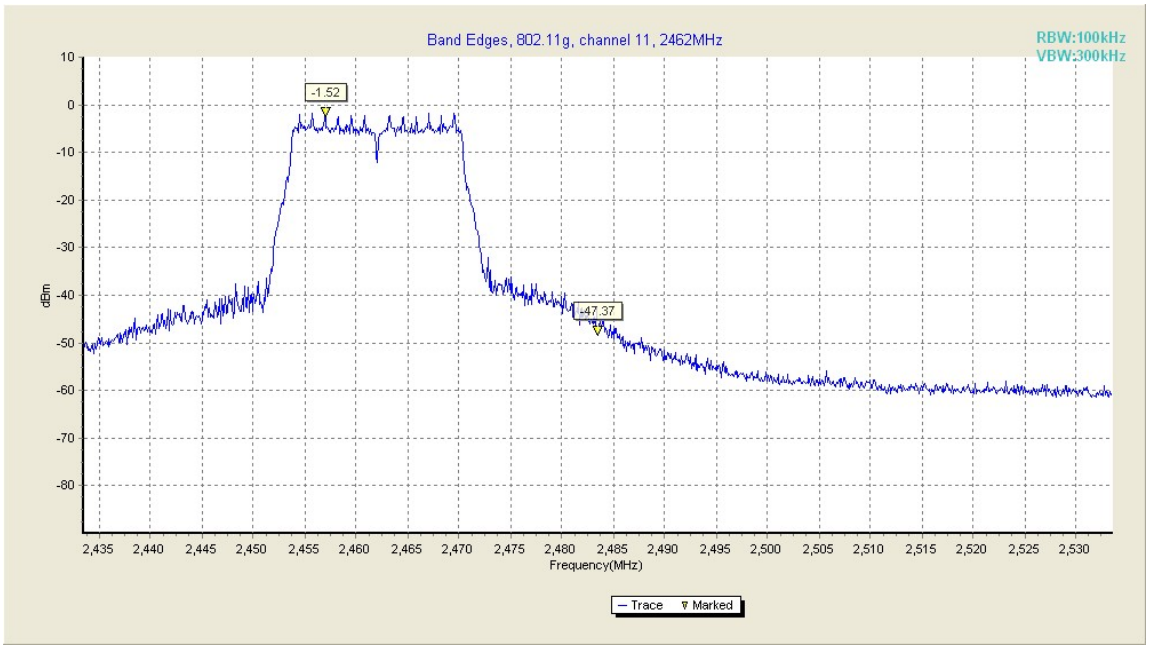


Fig. 22 Band Edges (802.11g, Ch 11)

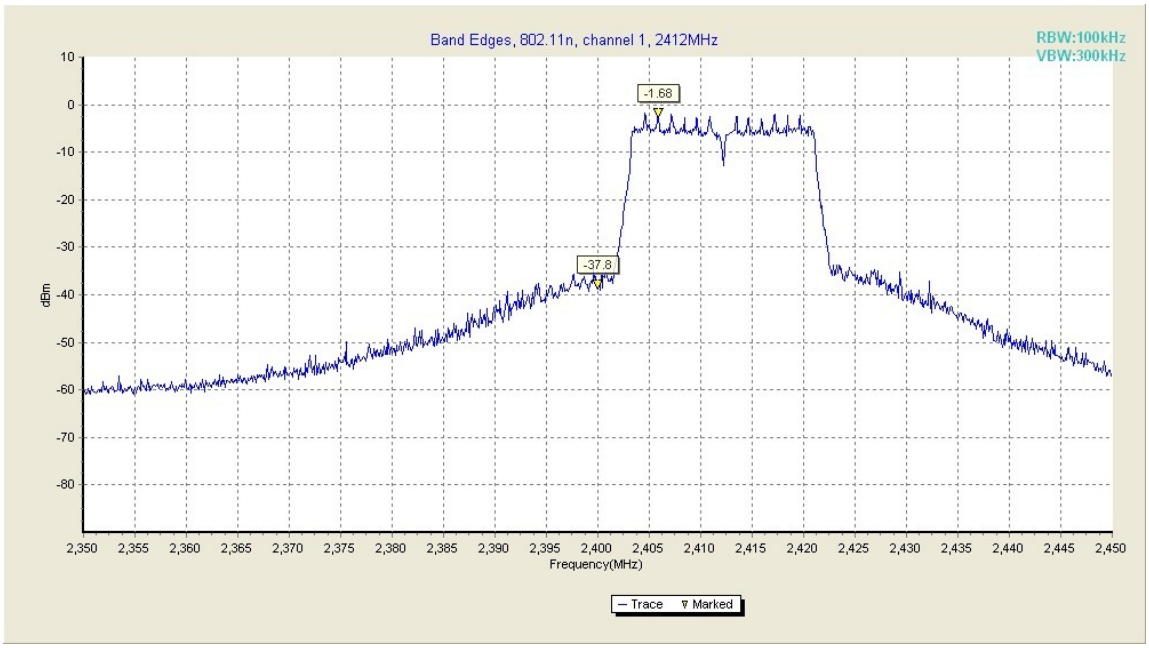


Fig. 23 Band Edges (802.11 n-20MHz, Ch 1)

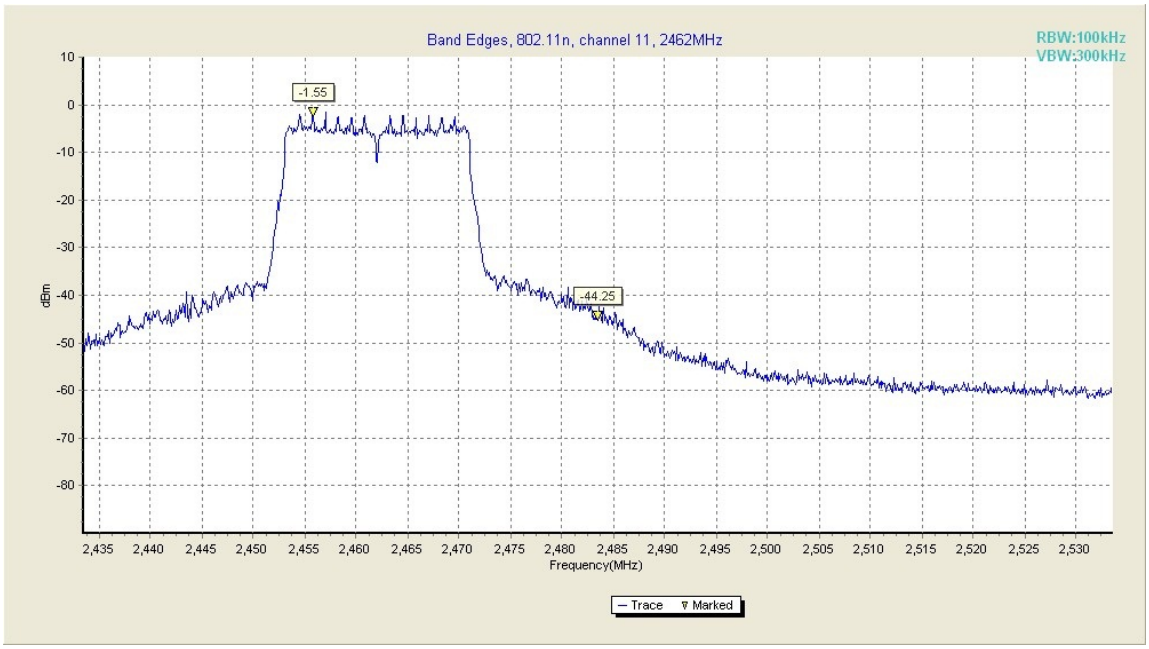


Fig. 24 Band Edges (802.11 n-20MHz, Ch 11)

A.6. Transmitter Spurious Emission

A.6.1 Transmitter Spurious Emission - Conducted

Measurement Limit:

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

The measurement is made according to ANSI C63.10

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

802.11n (40MHz)	/	30 MHz-26 GHz	Fig.42	P
		/	/	/
		/	/	/
	/	/	/	/
		/	/	/
	/	/	/	/
		/	/	/

Conclusion: PASS

Test graphs as below:

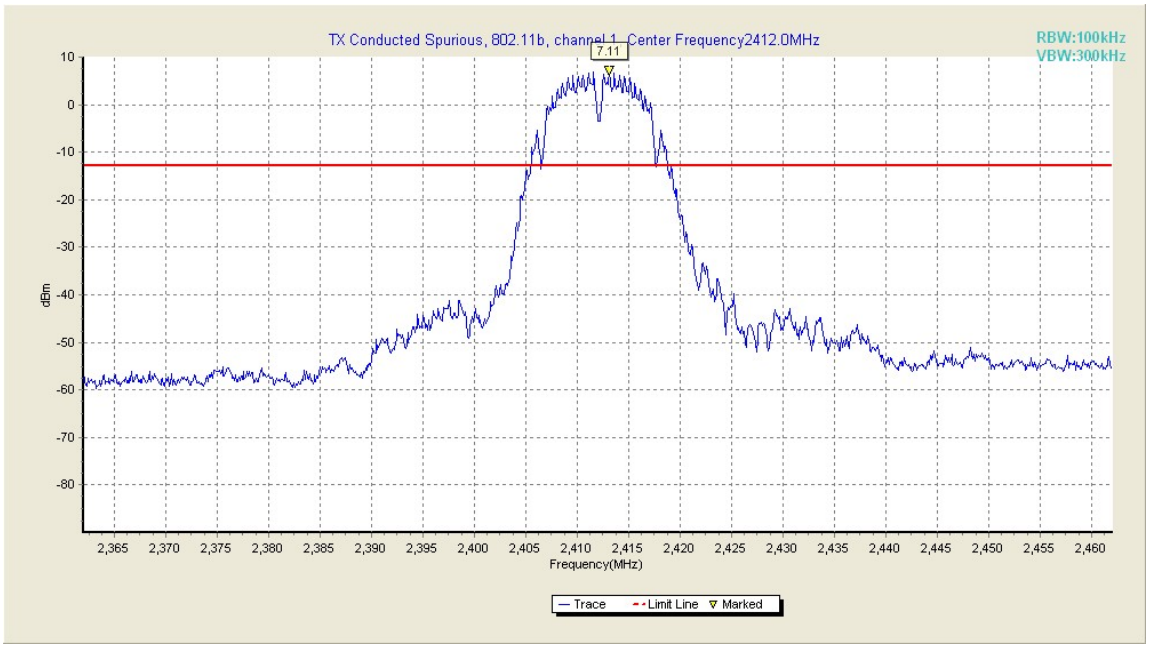


Fig. 25 Conducted Spurious Emission (802.11b, Ch1, Center Frequency)

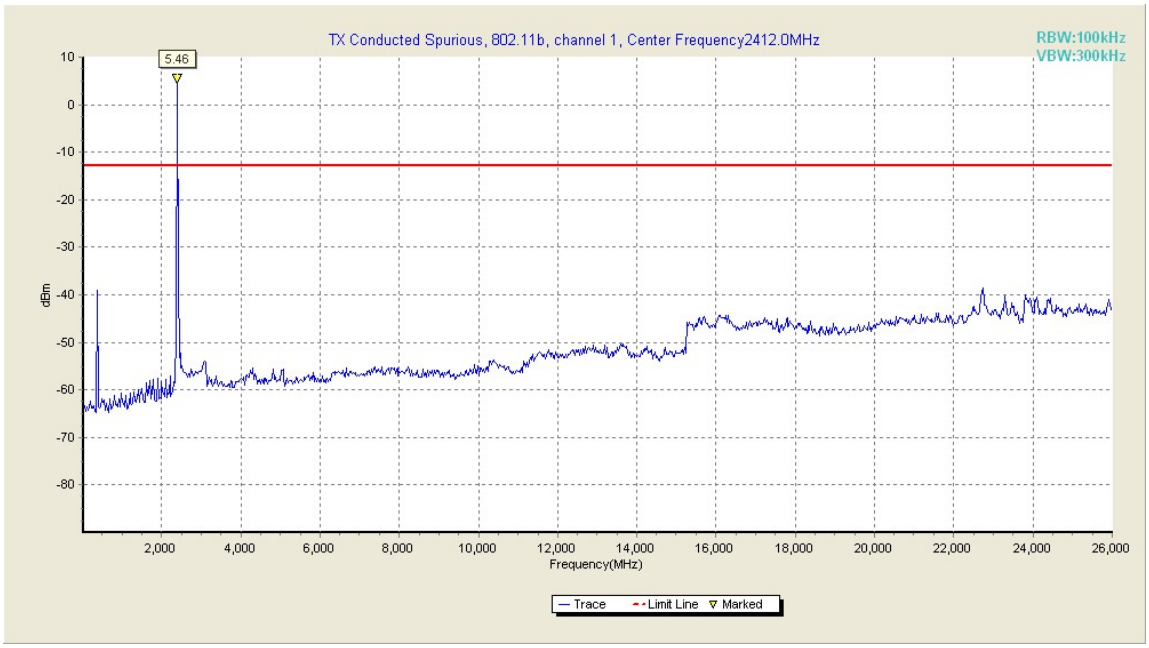


Fig. 26 Conducted Spurious Emission (802.11b, Ch1, 30 MHz-26 GHz)

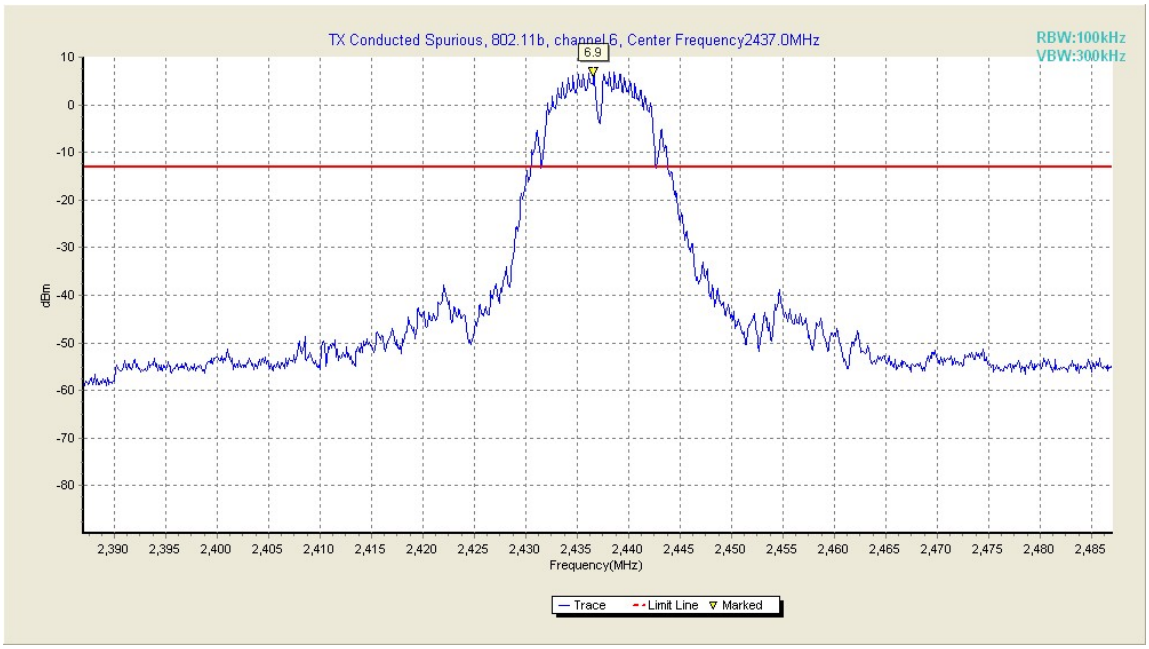


Fig. 27 Conducted Spurious Emission (802.11b, Ch6, Center Frequency)

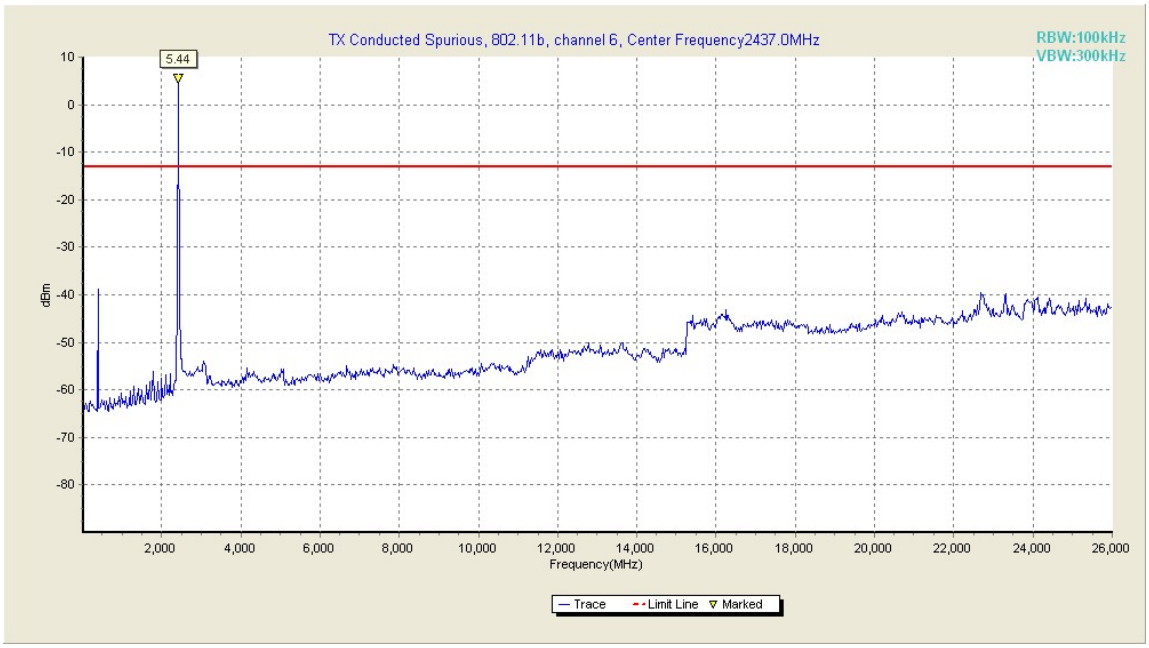


Fig. 28 Conducted Spurious Emission (802.11b, Ch6, 30 MHz-26 GHz)

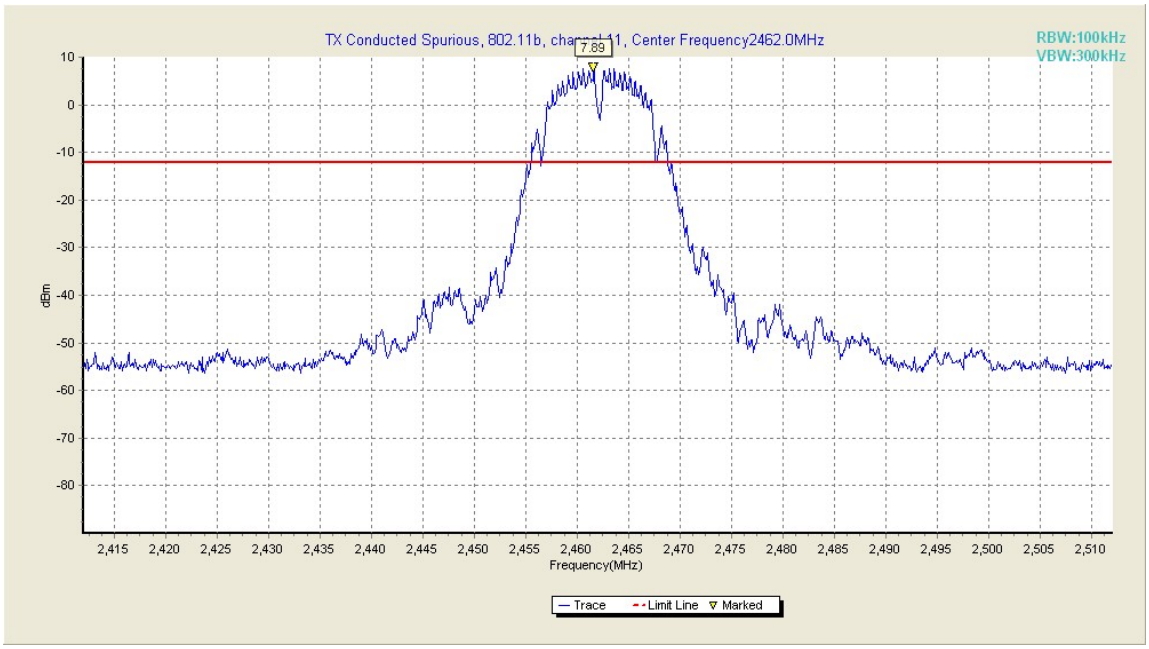


Fig. 29 Conducted Spurious Emission (802.11b, Ch11, Center Frequency)

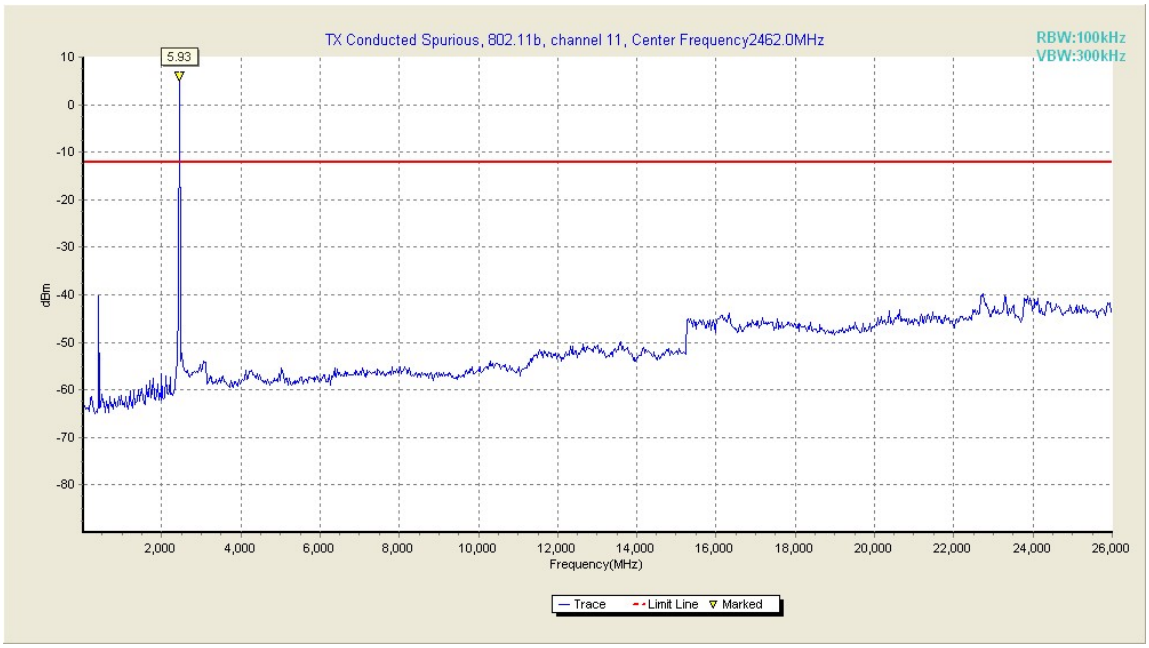


Fig. 30 Conducted Spurious Emission (802.11b, Ch11, 30 MHz-26 GHz)

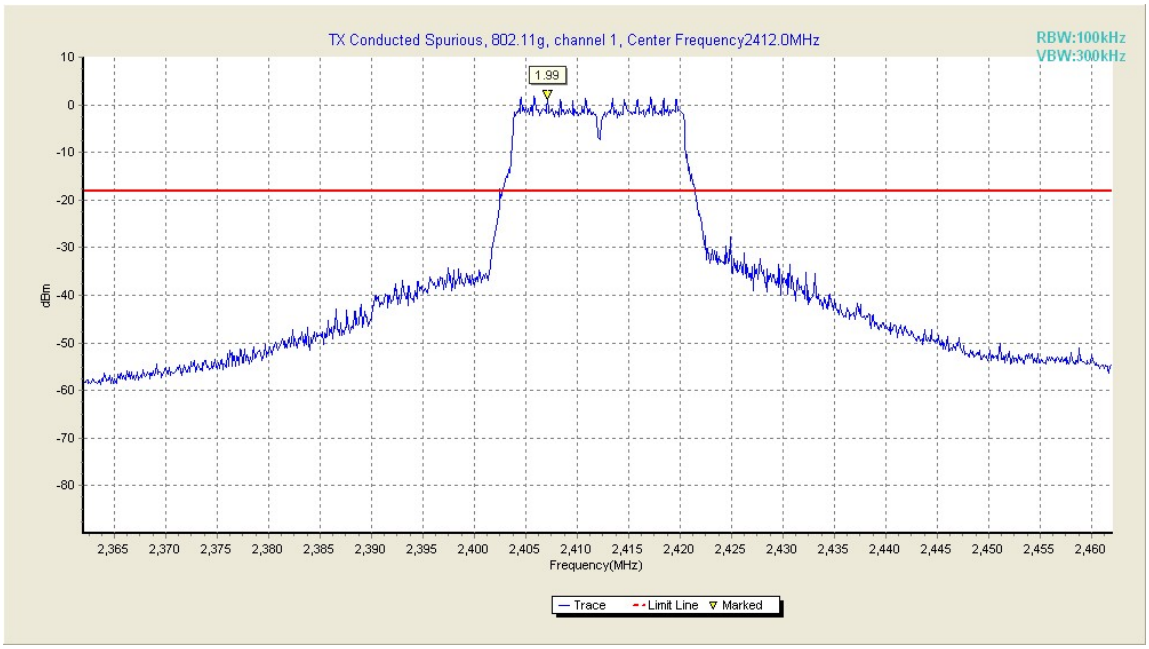


Fig. 31 Conducted Spurious Emission (802.11g, Ch1, Center Frequency)

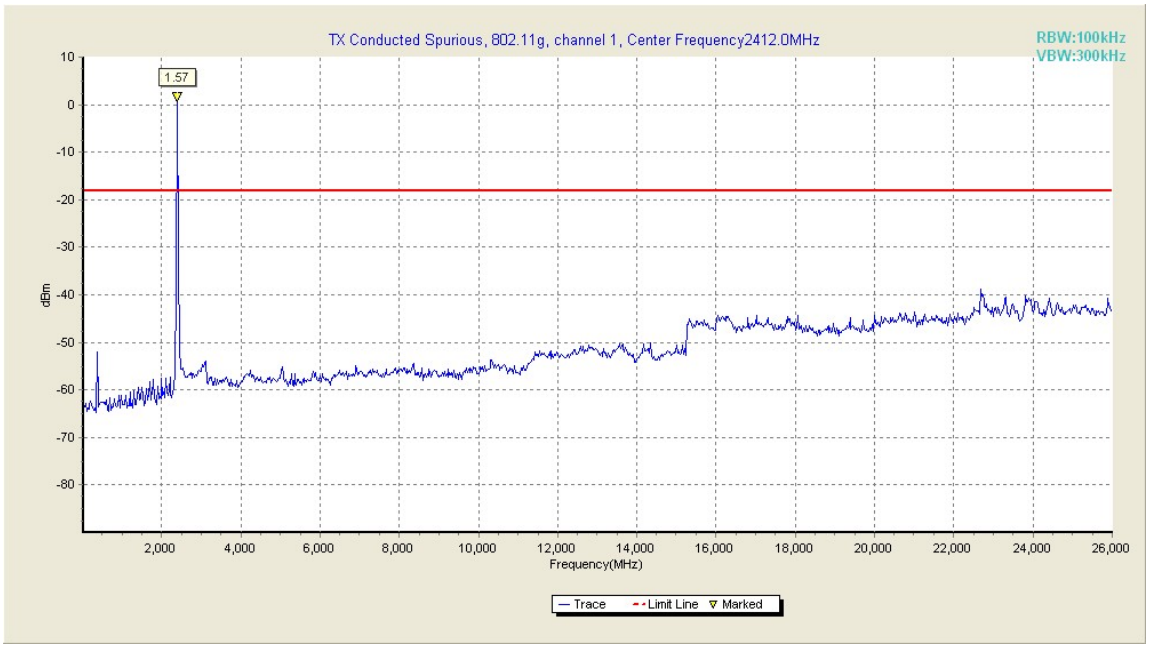


Fig. 32 Conducted Spurious Emission (802.11g, Ch1, 30 MHz-26 GHz)

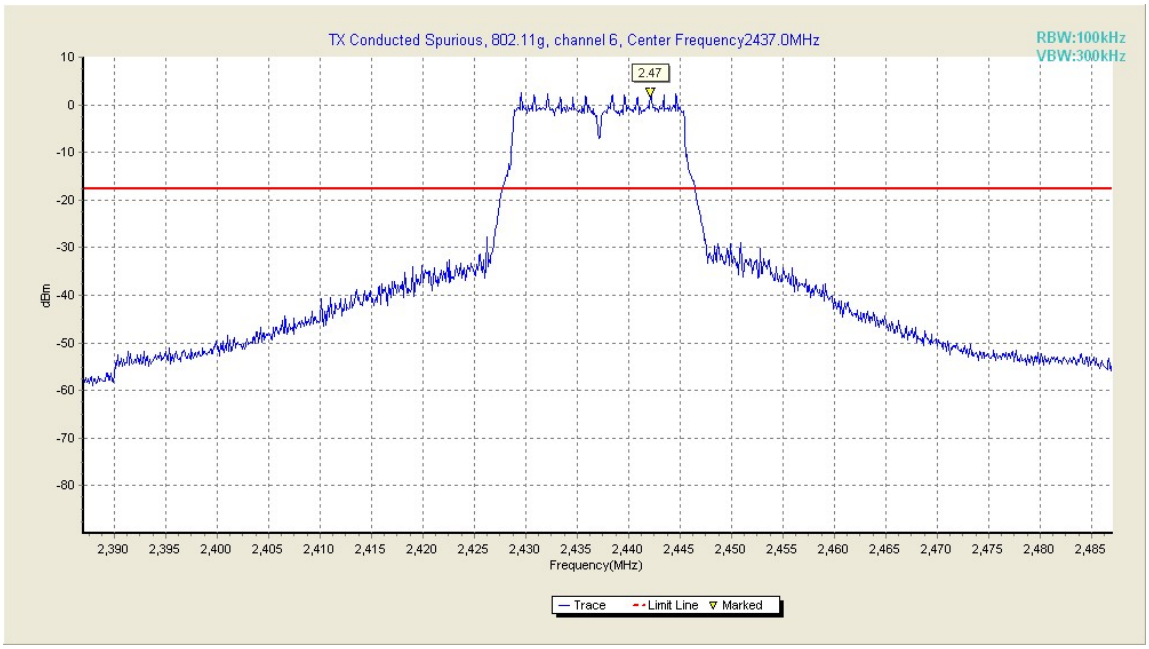


Fig. 33 Conducted Spurious Emission (802.11g, Ch6, Center Frequency)

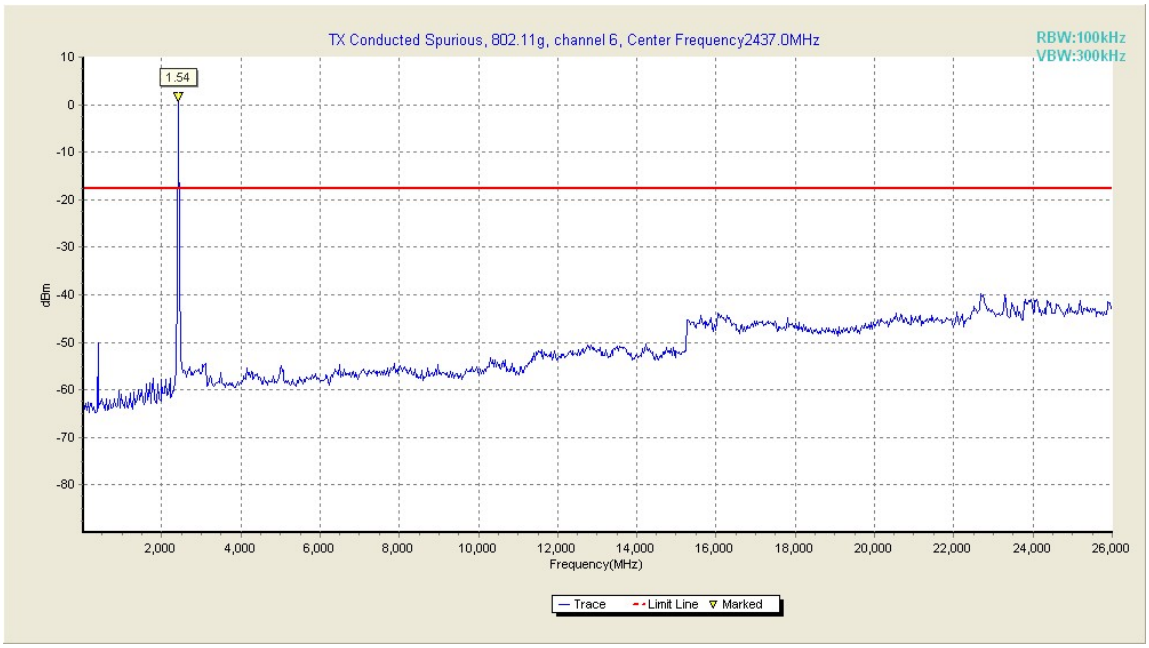


Fig. 34 Conducted Spurious Emission (802.11g, Ch6, 30 MHz-26 GHz)

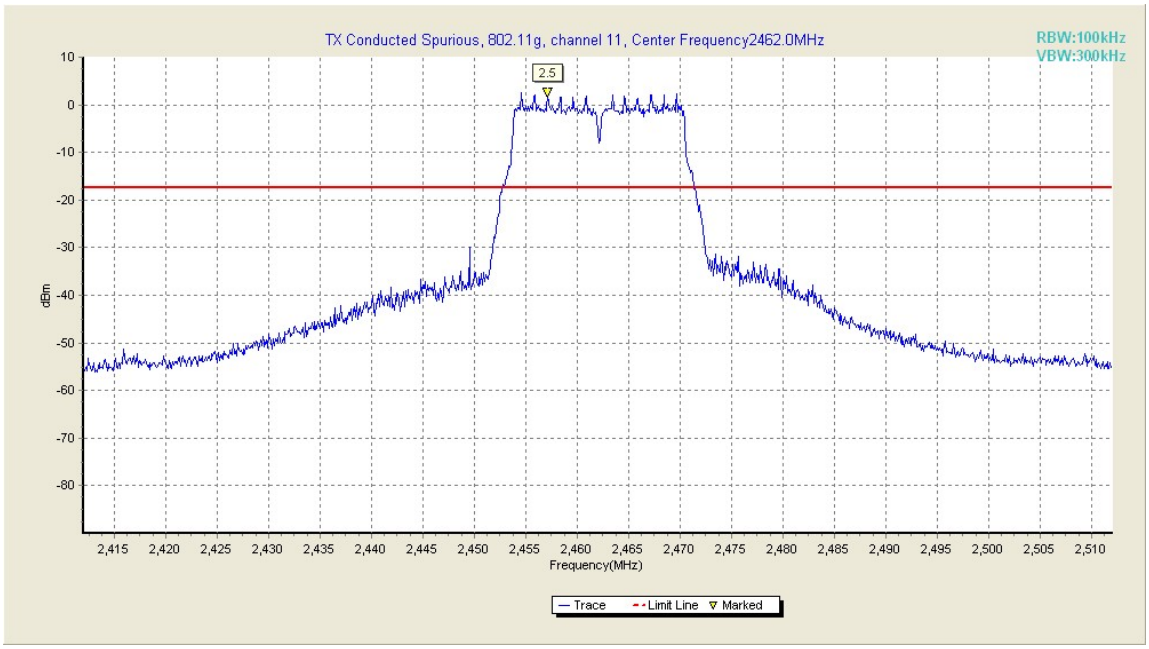


Fig. 35 Conducted Spurious Emission (802.11g, Ch11, Center Frequency)

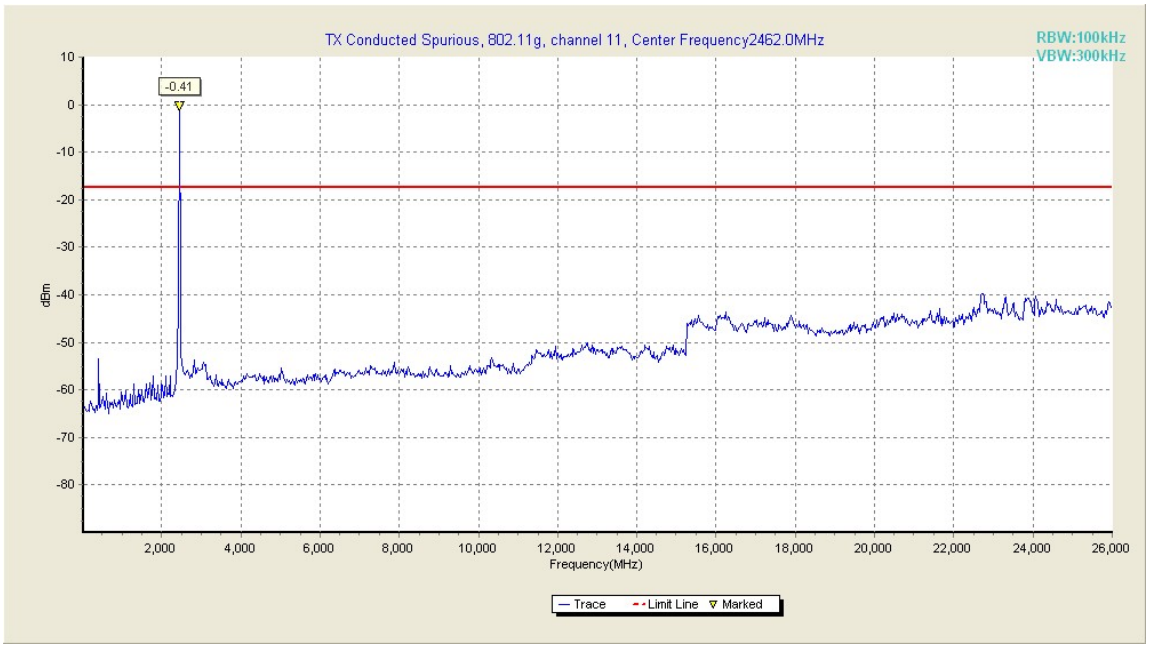


Fig. 36 Conducted Spurious Emission (802.11g, Ch11, 30 MHz-26 GHz)

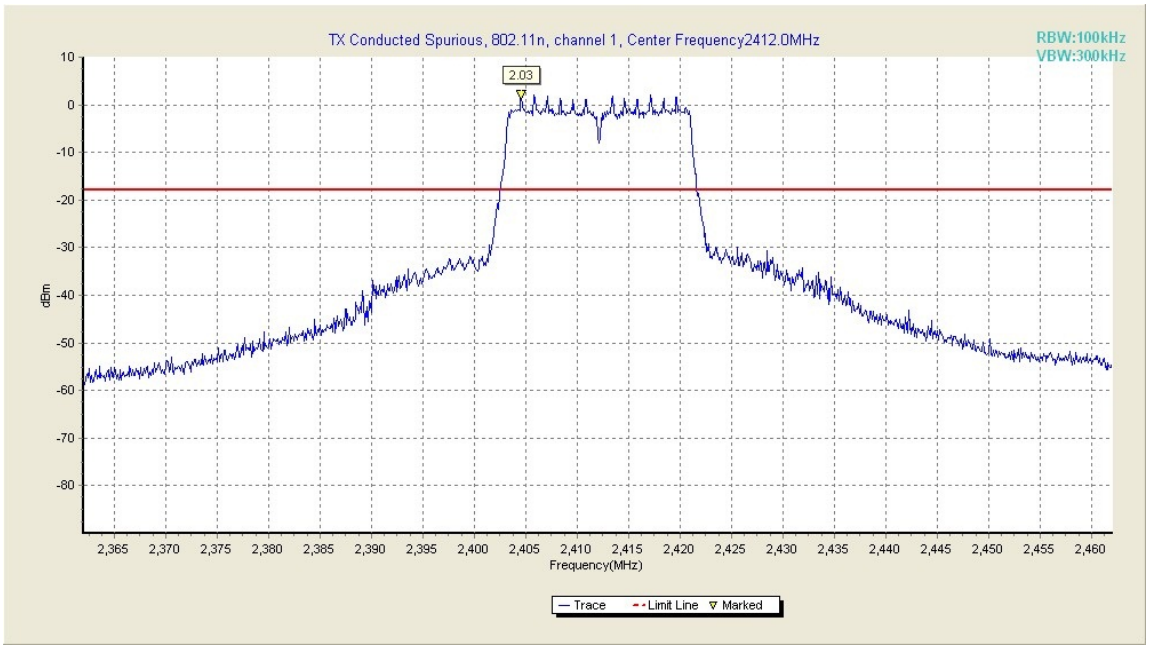


Fig. 37 Conducted Spurious Emission (802.11n-20MHz, Ch1, Center Frequency)

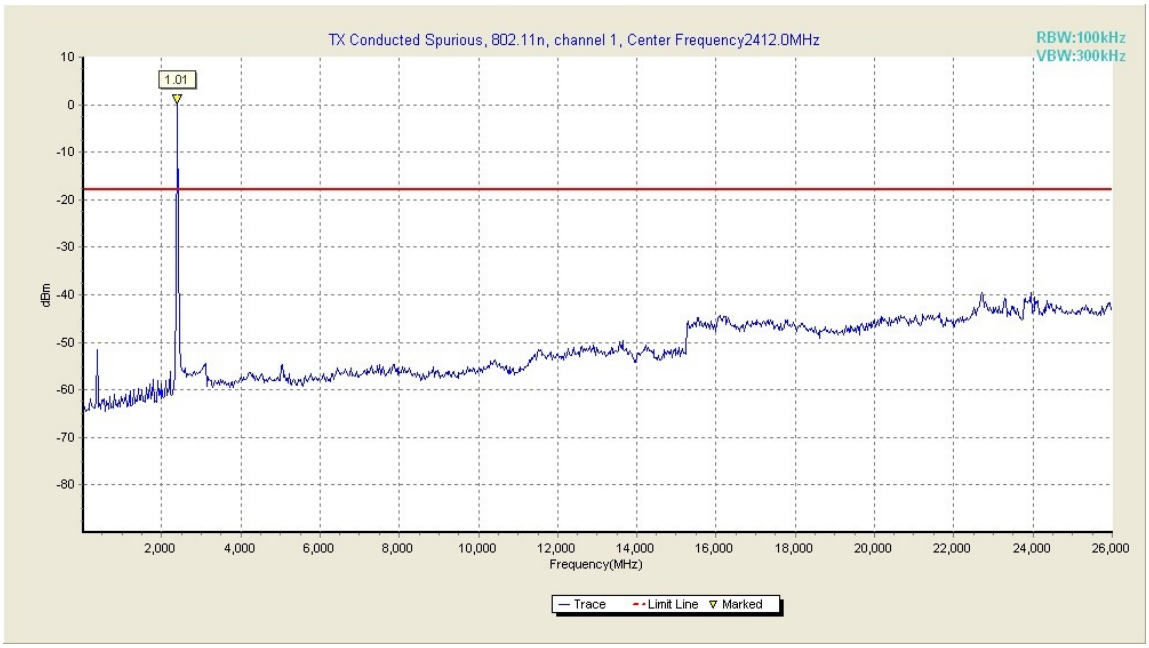


Fig. 38 Conducted Spurious Emission (802.11 n-20MHz, Ch1, 30 MHz-26 GHz)

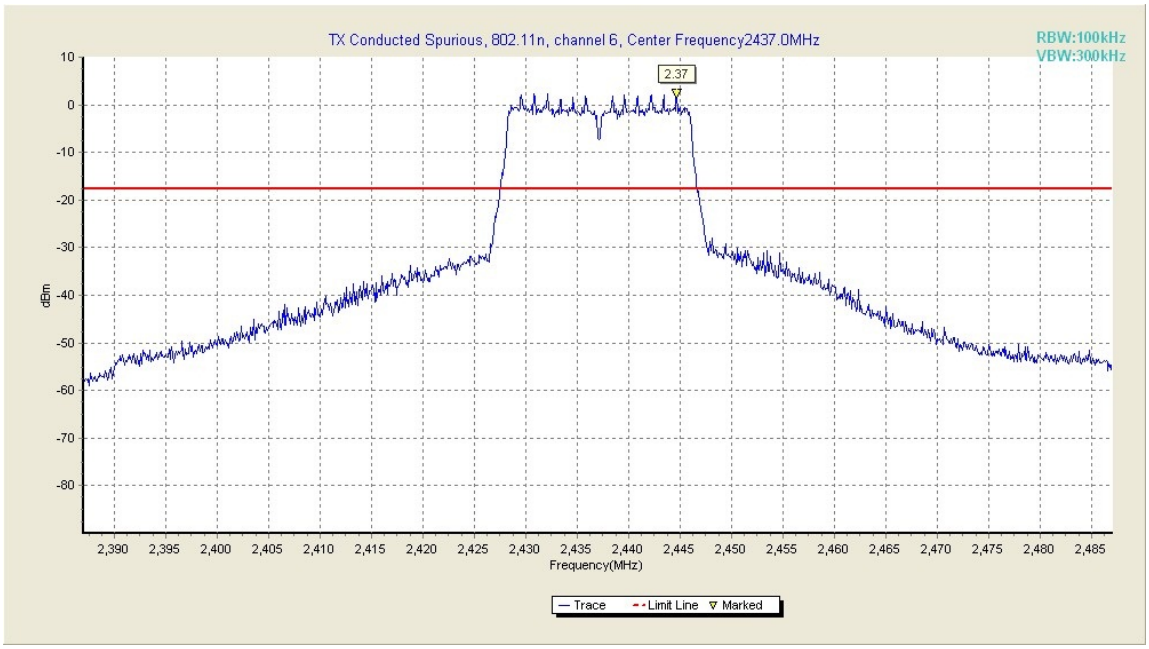


Fig. 39 Conducted Spurious Emission (802.11 n-20MHz, Ch6, Center Frequency)

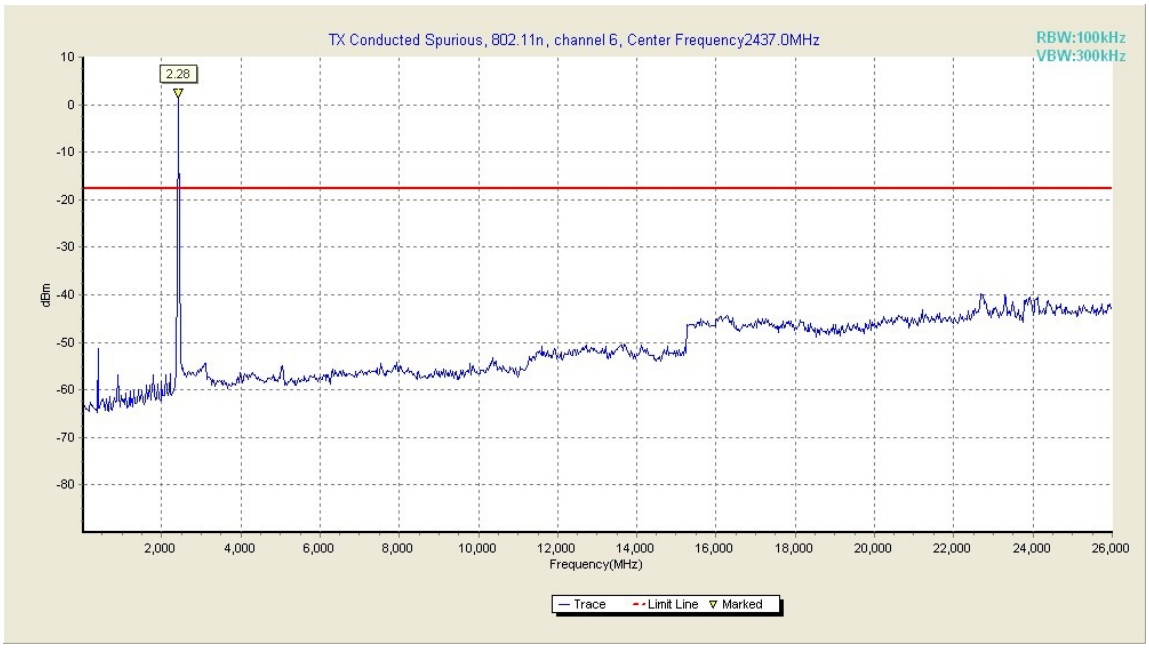


Fig. 40 Conducted Spurious Emission (802.11 n-20MHz, Ch6, 30 MHz-26 GHz)

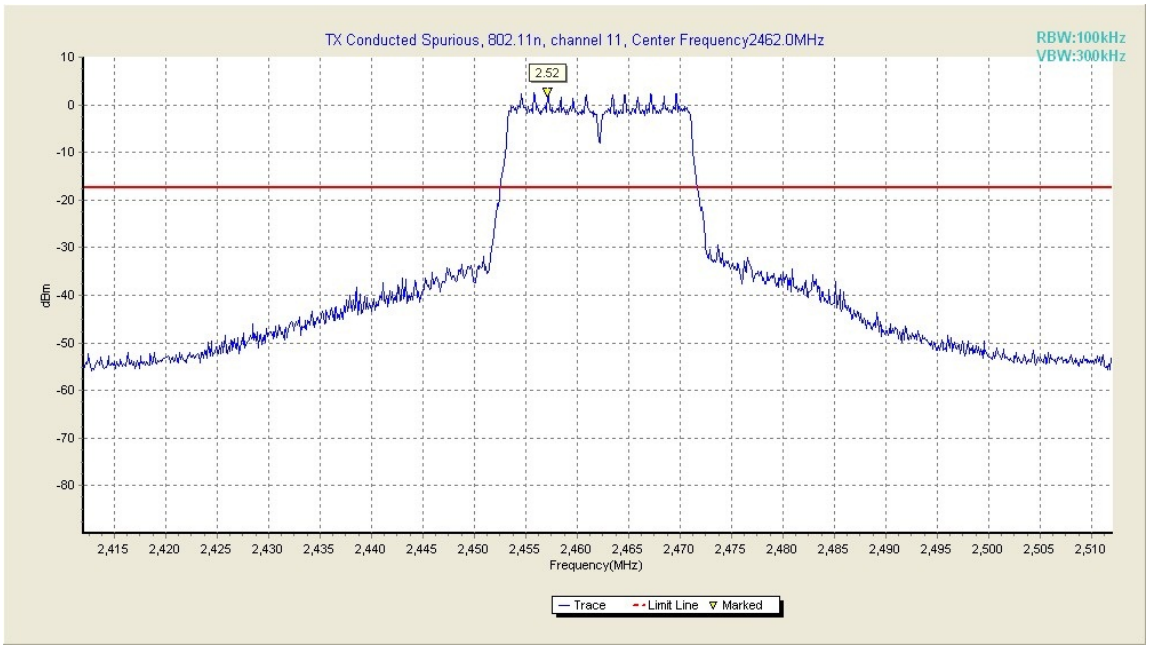


Fig. 41 Conducted Spurious Emission (802.11 n-20MHz, Ch11, Center Frequency)

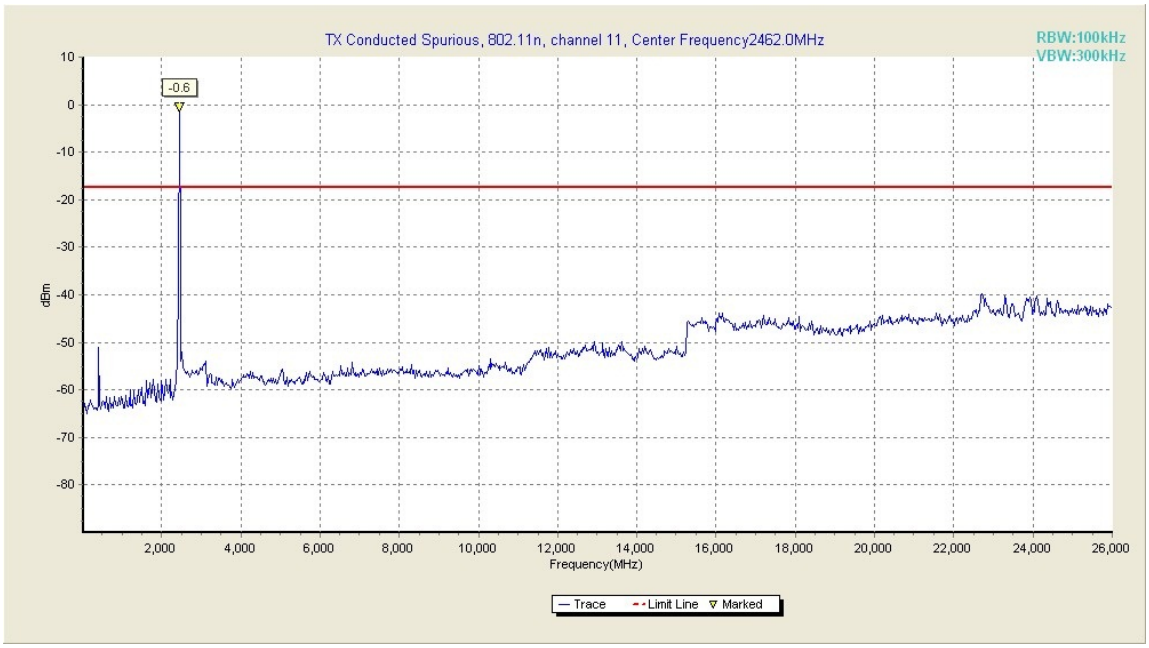


Fig. 42 Conducted Spurious Emission (802.11 n-20MHz, Ch11, 30 MHz-26 GHz)