



FCC PART 15C TEST REPORT No. 2012WLN0331

for

ZTE Corporation

WCDMA/GSM (GPRS) Dual-Mode Digital Mobile Phone

Type: ZTE-U V760

With

FCC ID: Q78-ZTEUV760

Hardware Version: WMAB

Software Version: CN-ZTE-B18S-P173A10V1.0.0

Issued Date: 2012-04-01



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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.

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1. TEST LABORATORY

1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT
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Telephone: 00861062304633
Fax: 00861062304793

1.2. Testing Environment

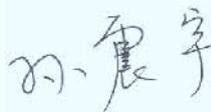
Normal Temperature: 15-30°C
Extreme Temperature: -20/+55°C
Relative Humidity: 30-60%
Air Pressure 990hPa-1040hPa

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

1.3. Project data

Testing Start Date: 2012-02-29
Testing End Date: 2012-03-31

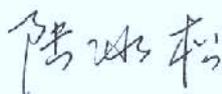
1.4. Signature



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

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2.2. Manufacturer Information

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Address /Post: ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R. China
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Fax: +86-21-50801070

3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY

EQUIPMENT(AE)

3.1. About EUT

Description	WCDMA/GSM (GPRS) Dual-Mode Digital Mobile Phone
Type	ZTE-U V760
FCC ID	Q78-ZTEUV760
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	23.96dBm(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	/	WMAB	CN-ZTE-B18S-P173A10V1.0.0
EUT2	/	WMAB	CN-ZTE-B18S-P173A10V1.0.0

*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	Li3713T42P3h415266-H	/
AE2	Travel Adapter	STC-A22O50I700USBA-Z	/

*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 WCDMA/GSM (GPRS) Dual-Mode Digital 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	2003
KDB558074	Measurement of Digital Transmission Systems Operating under Section 15.247	March 23, 2005

5. LABORATORY ENVIRONMENT

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

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

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

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

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

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

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

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

6. SUMMARY OF TEST RESULTS

6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15C	Sub-clause of IC	Verdict
Maximum Peak Output Power	15.247 (a)	/	P
Peak Power Spectral Density	15.247 (d)	/	P
Occupied 6dB Bandwidth	15.247 (d)	/	P
Band Edges Compliance	15.247 (b)	/	P
Transmitter Spurious Emission - Conducted	15.247	/	P
Transmitter Spurious Emission - Radiated	15.247, 15.209, 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 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°C
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

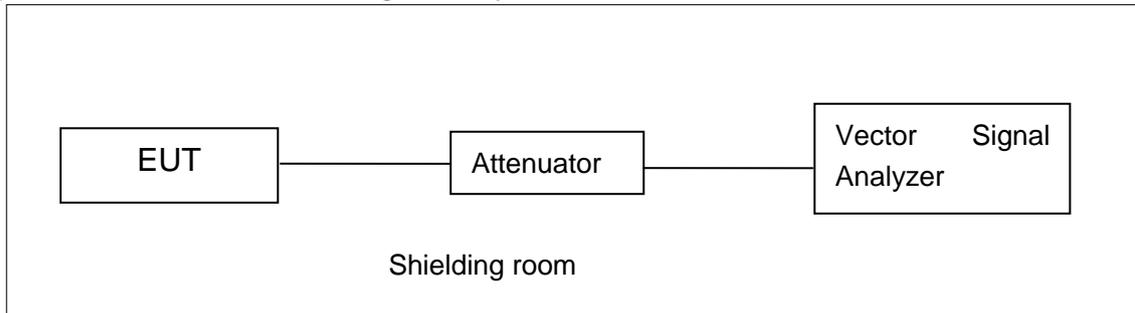
Anechoic chamber by Frankonia German.

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

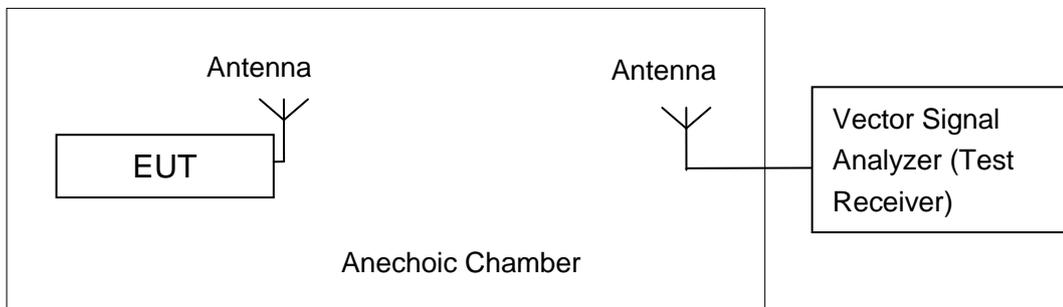


A.1.2. Radiated Emission Measurements

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

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 C63.4 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
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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	19.89	/	/
	2	20.04	/	/
	5.5	20.70	/	/
	11	22.30	22.24	21.72
802.11g	6	22.81	/	/
	9	23.19	/	/
	12	22.97	/	/
	18	23.06	/	/
	24	23.65	/	/
	36	23.40	/	/
	48	23.94	/	/
	54	23.96	23.54	23.68

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)		
		Low	Middle	High
802.11n (20MHz BW)	MCS0	22.91	/	/
	MCS1	23.02	/	/
	MCS2	23.05	/	/
	MCS3	23.64	/	/
	MCS4	23.74	/	/
	MCS5	23.88	/	/
	MCS6	23.59	/	/

	MCS7	23.94	23.54	23.66
802.11n (40MHz)	MCS0	21.21	/	/
	MCS1	21.47	/	/
	MCS2	21.59	/	/
	MCS3	21.74	/	/
	MCS4	21.88	21.43	21.42
	MCS5	21.77	/	/
	MCS6	21.62	/	/
	MCS7	21.40	/	/

The data rate index of HT20-MCS7 and HT40 MCS7 are 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 C63.4 and KDB558074

Measurement Uncertainty:

Measurement Uncertainty	0.75dB
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Measurement Results:

802.11b/g mode

Mode	Channel	Power Spectral Density (8 dBm/3 kHz)		Conclusion
		Fig.	Value	
802.11b	1	Fig.1	-7.29	P
	6	Fig.2	-10.79	P
	11	Fig.3	-4.67	P
802.11g	1	Fig.4	-14.92	P
	6	Fig.5	-9.09	P
	11	Fig.6	-8.57	P

802.11n mode

Mode	Channel	Power Spectral Density (dBm/3 kHz)		Conclusion
		Fig.	Value	
802.11n (20MHz)	1	Fig.7	-9.38	P
	6	Fig.8	-8.59	P
	11	Fig.9	-8.74	P
802.11n (40MHz)	3	Fig.10	-18.28	P
	6	Fig.11	-16.78	P
	9	Fig.12	-15.02	P

Conclusion: PASS

Test graphs as below:

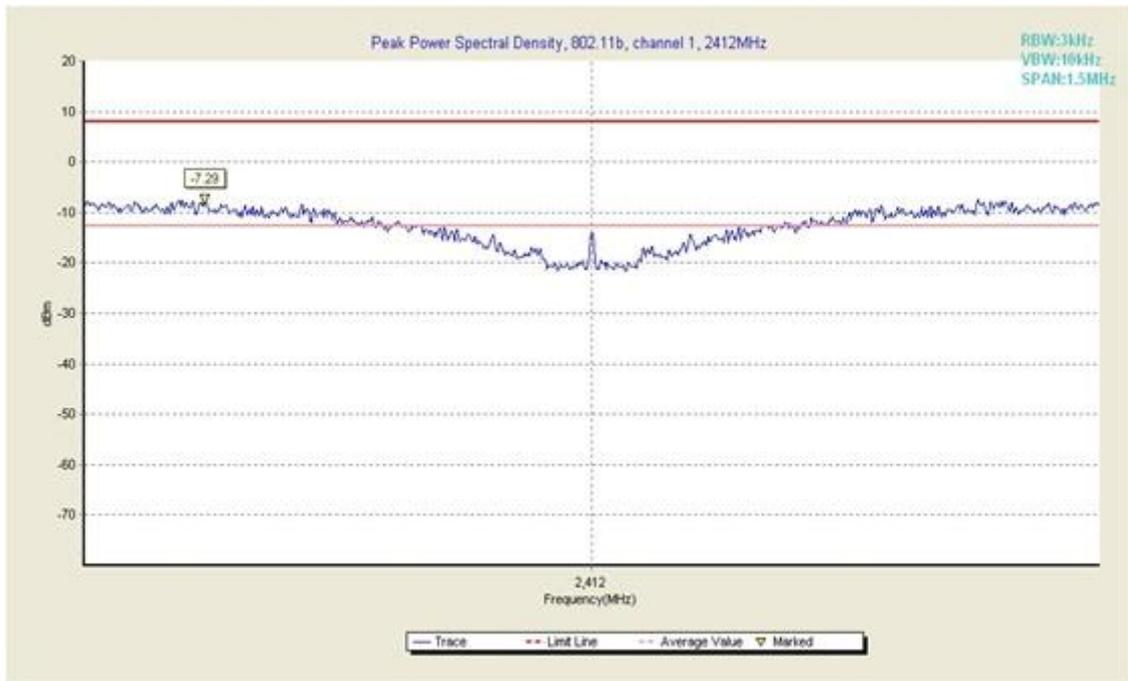


Fig. 1 Power Spectral Density (802.11b, Ch 1)

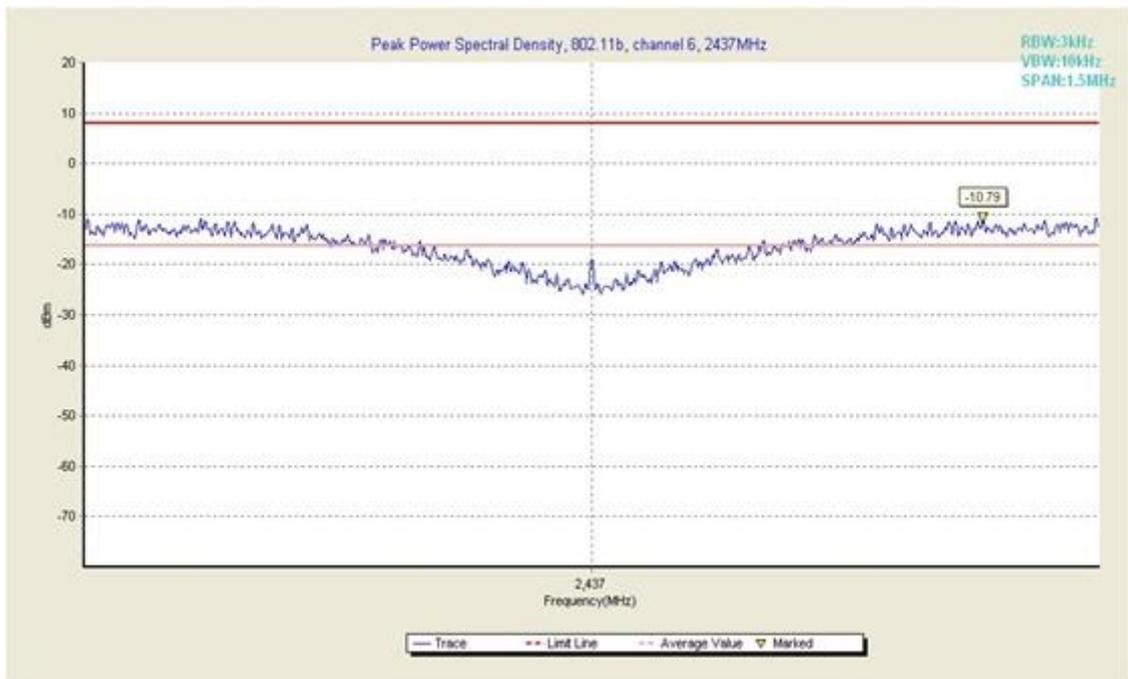


Fig. 2 Power Spectral Density (802.11b, Ch 6)

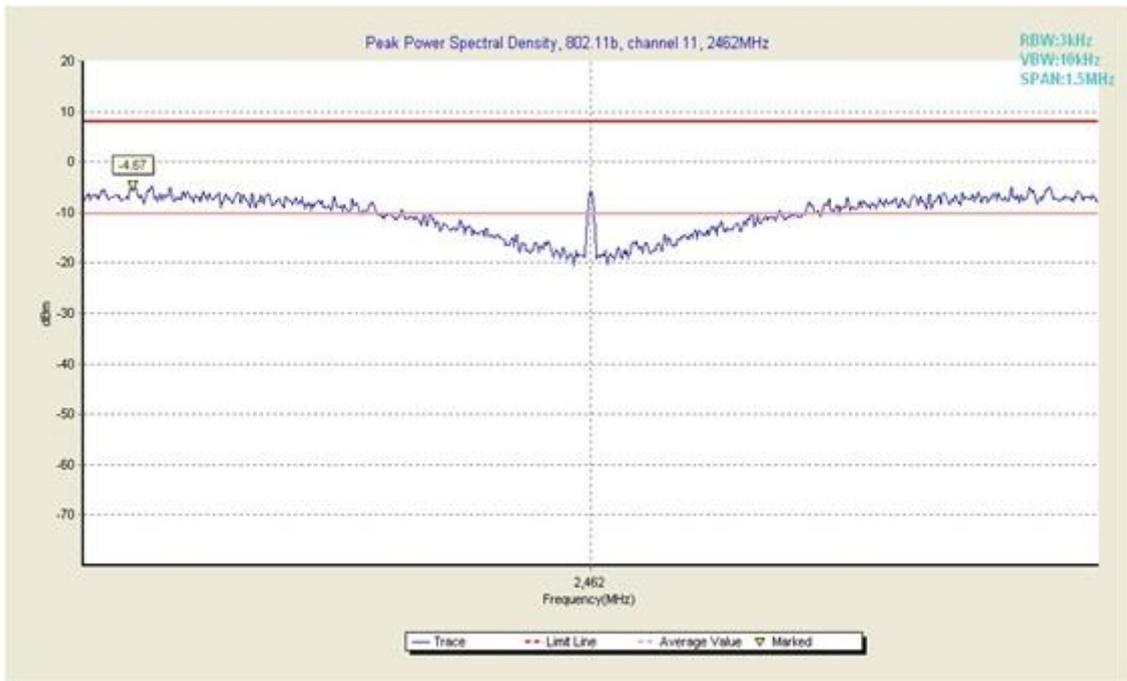


Fig. 3 Power Spectral Density (802.11b, Ch 11)

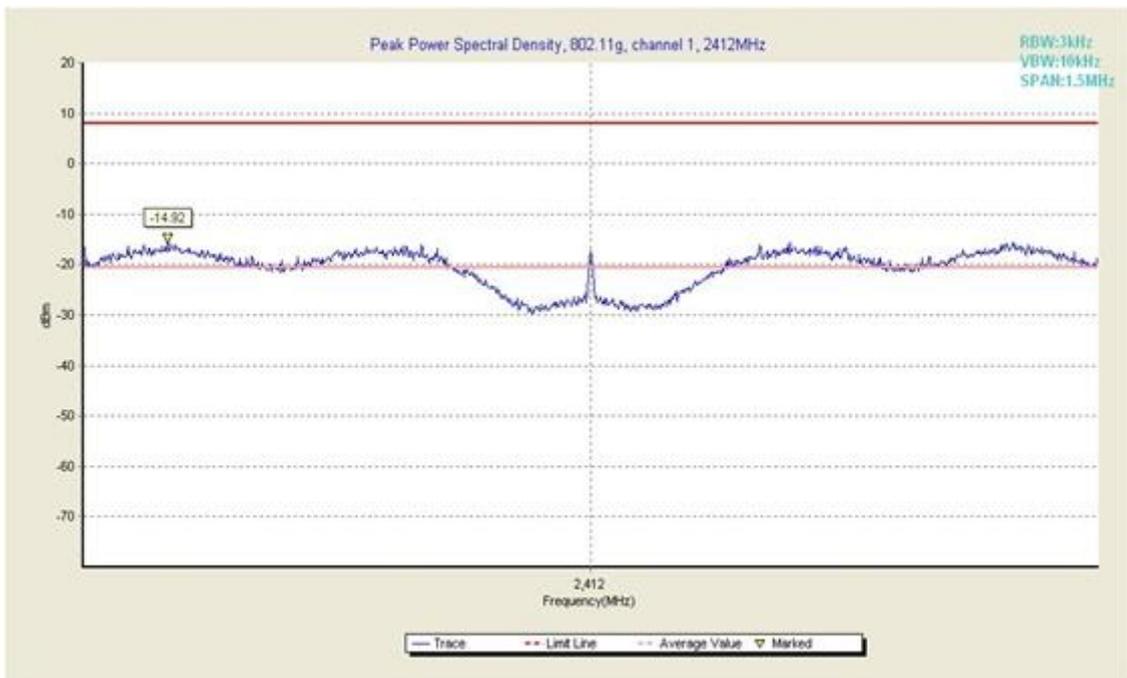


Fig. 4 Power Spectral Density (802.11g, Ch 1)

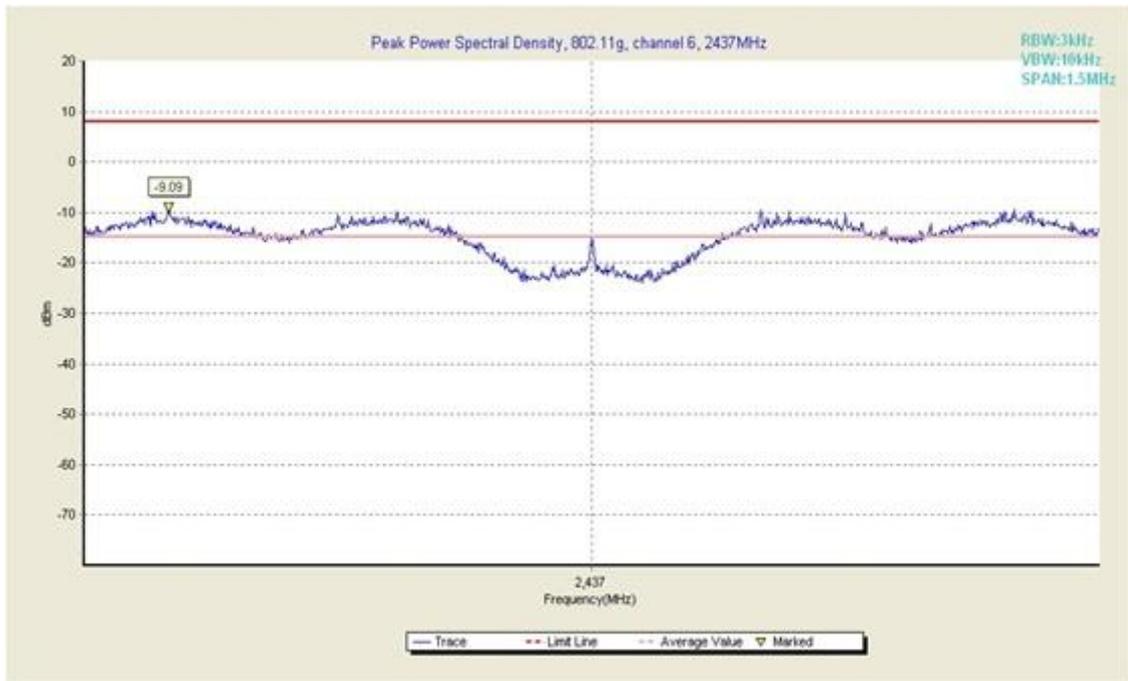


Fig. 5 Power Spectral Density (802.11g, Ch 6)

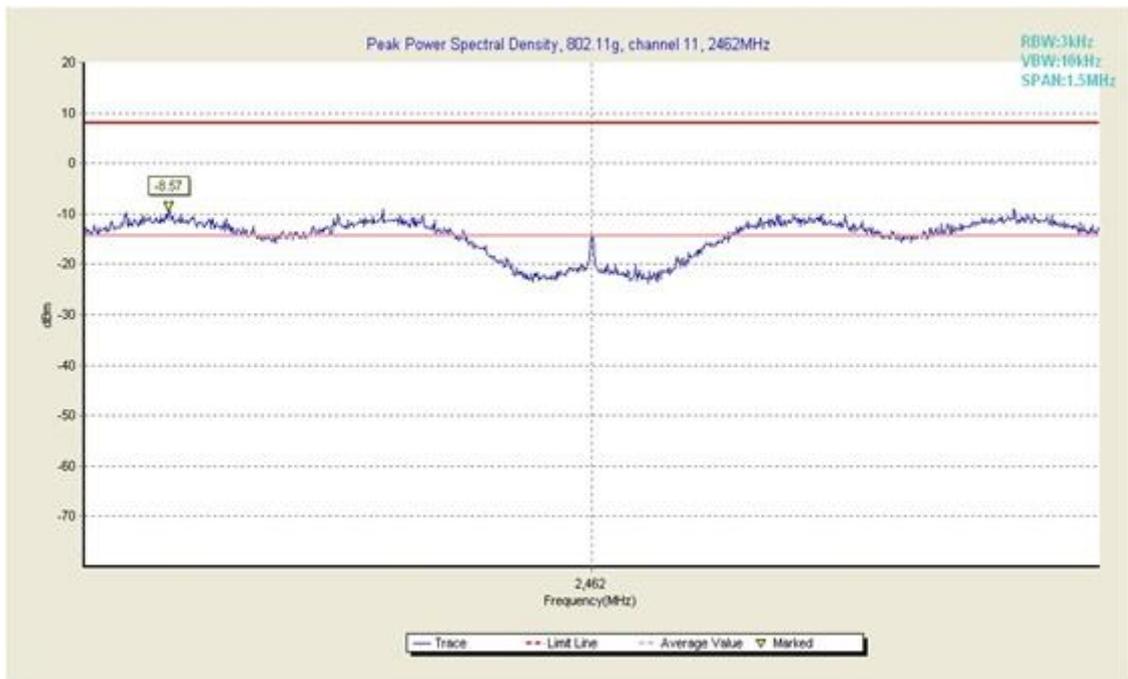


Fig. 6 Power Spectral Density (802.11g, Ch 11)

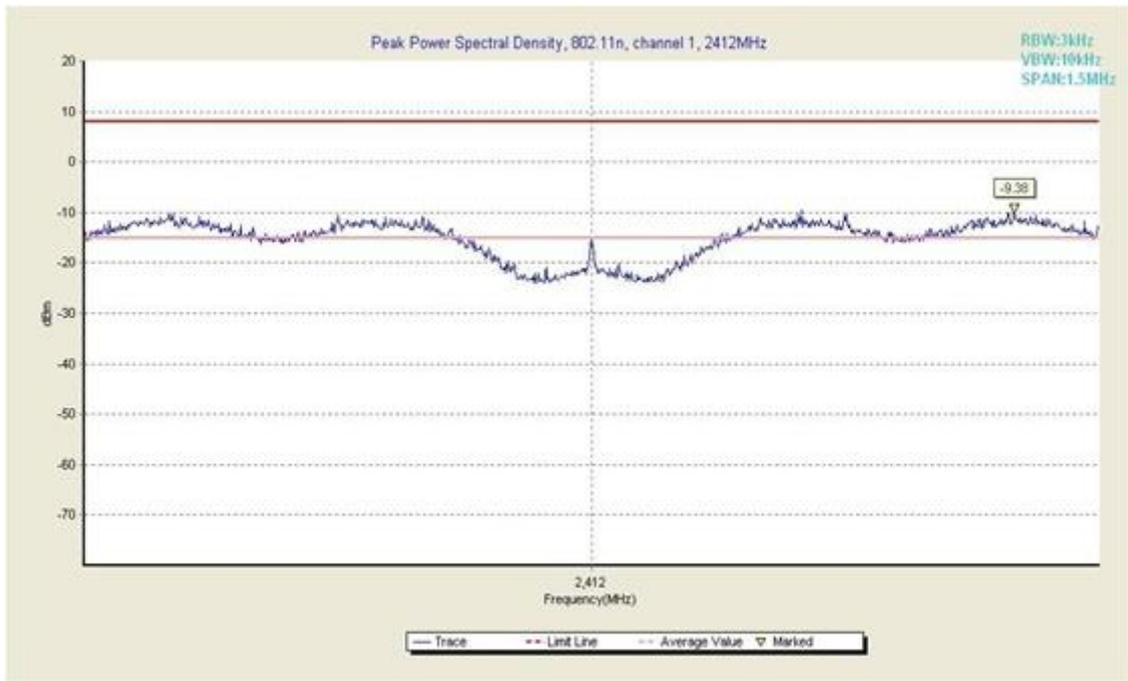


Fig. 7 Power Spectral Density (802.11n-20MHz, Ch 1)

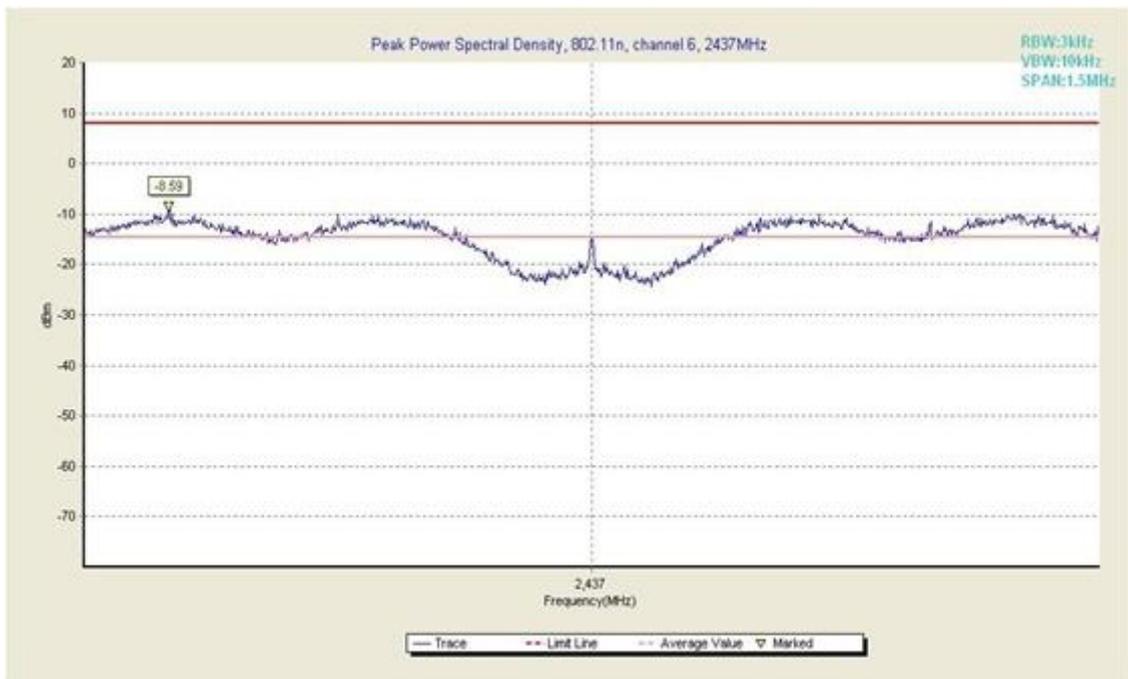


Fig. 8 Power Spectral Density (802.11n-20MHz, Ch 6)

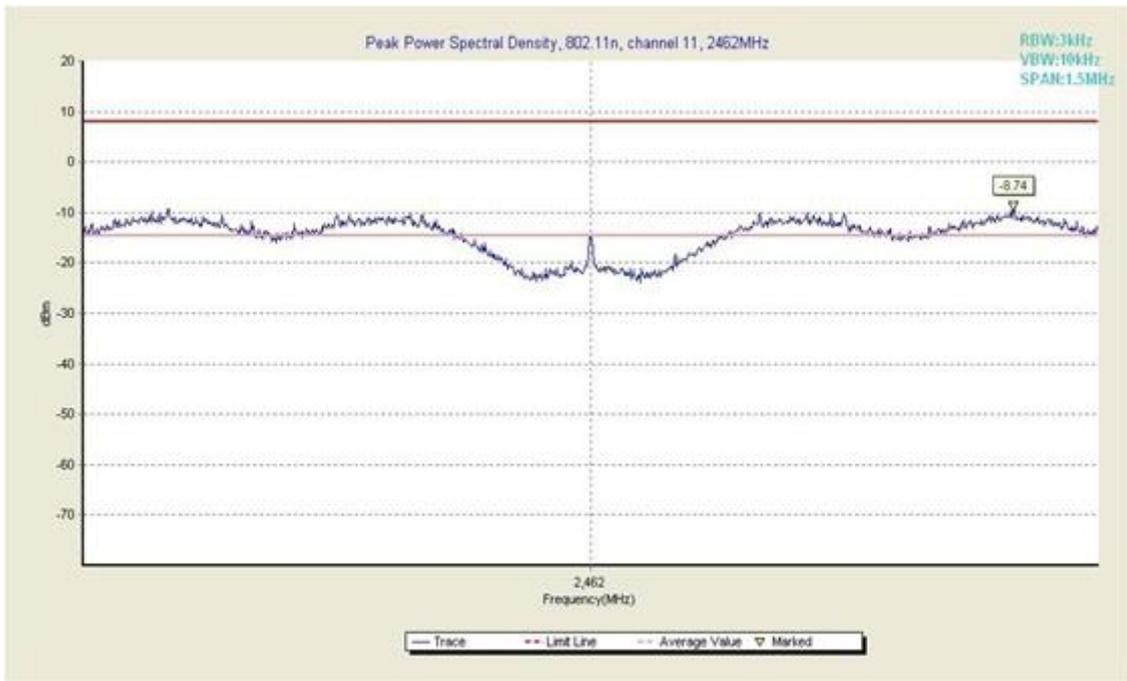


Fig. 9 Power Spectral Density (802.11n-20MHz, Ch 11)

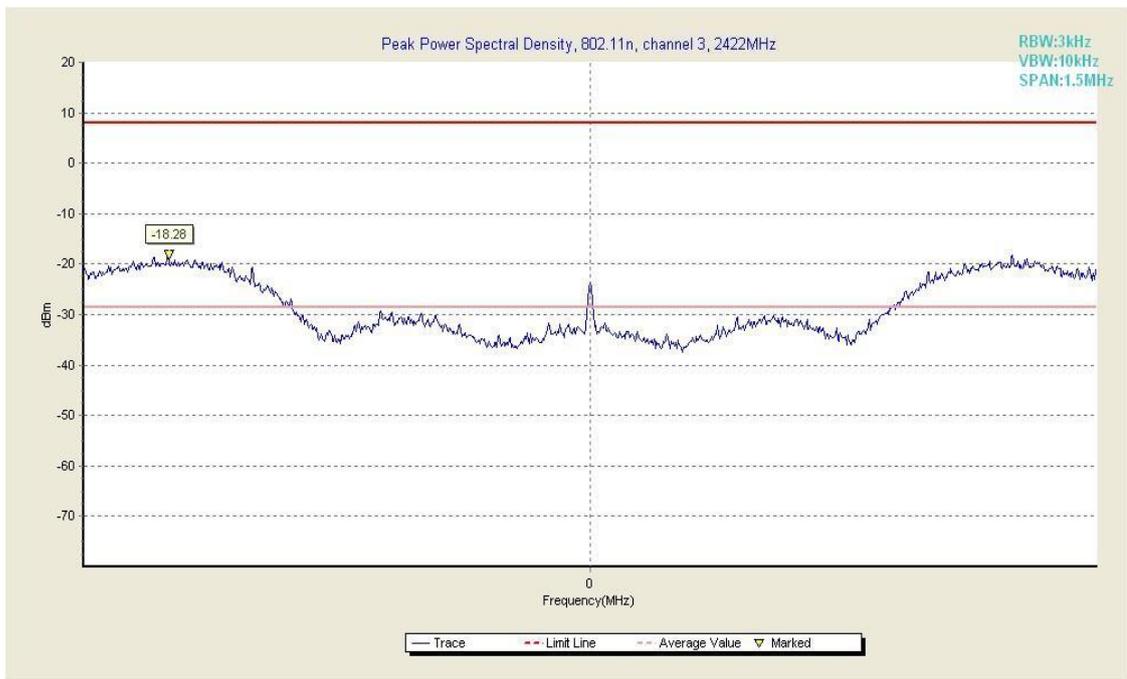


Fig. 10 Power Spectral Density (802.11n-40MHz, Ch 3)

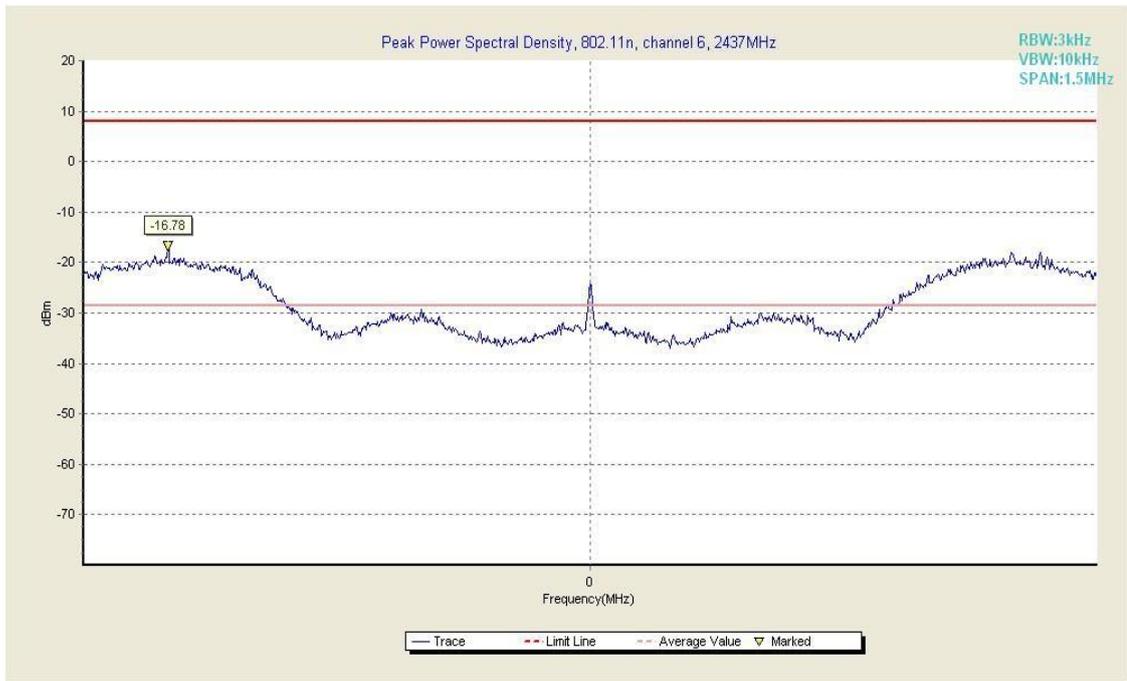


Fig. 11 Power Spectral Density (802.11n-40MHz, Ch 6)

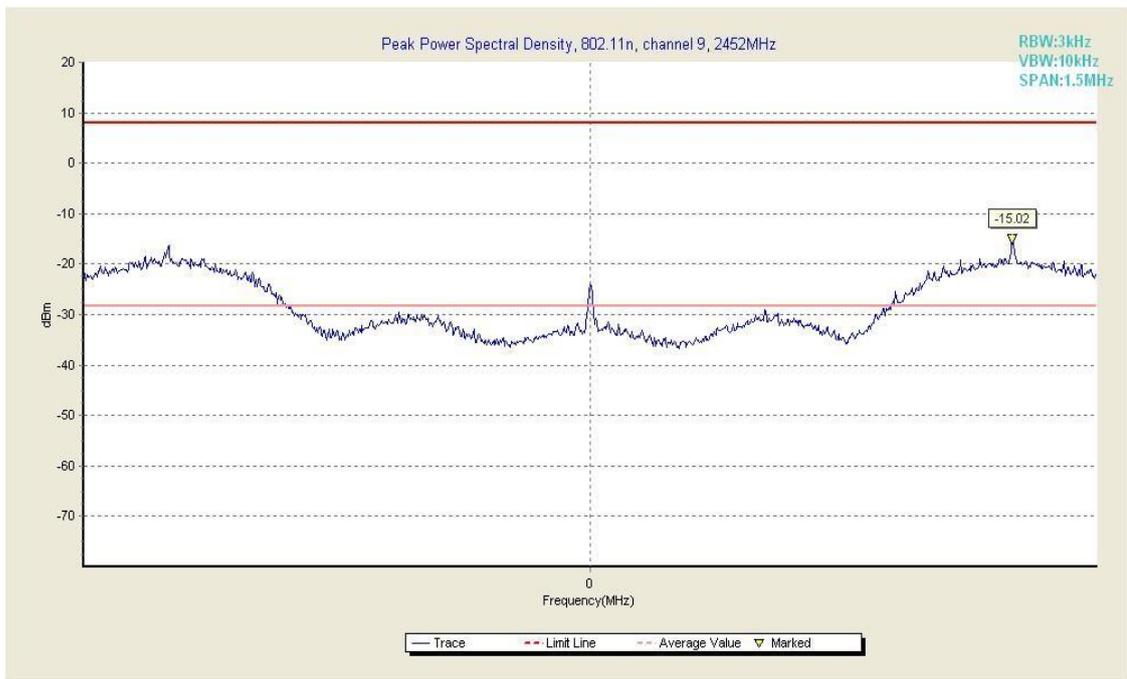


Fig. 12 Power Spectral Density (802.11n-40MHz, Ch 9)

A.4. Occupied 6dB Bandwidth

Measurement Limit:

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

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

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz
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Measurement Result:

802.11b/g mode

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
802.11b	1	Fig.13	9100	P
	6	Fig.14	9100	P
	11	Fig.15	9100	P
802.11g	1	Fig.16	16550	P
	6	Fig.17	16500	P
	11	Fig.18	16500	P

802.11n mode

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
802.11n (20MHz)	1	Fig.19	17700	P
	6	Fig.20	17750	P
	11	Fig.21	17700	P
802.11n (40MHz)	3	Fig.22	35950	P
	6	Fig.23	36000	P
	9	Fig.24	35850	P

Conclusion: PASS

Test graphs as below:



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

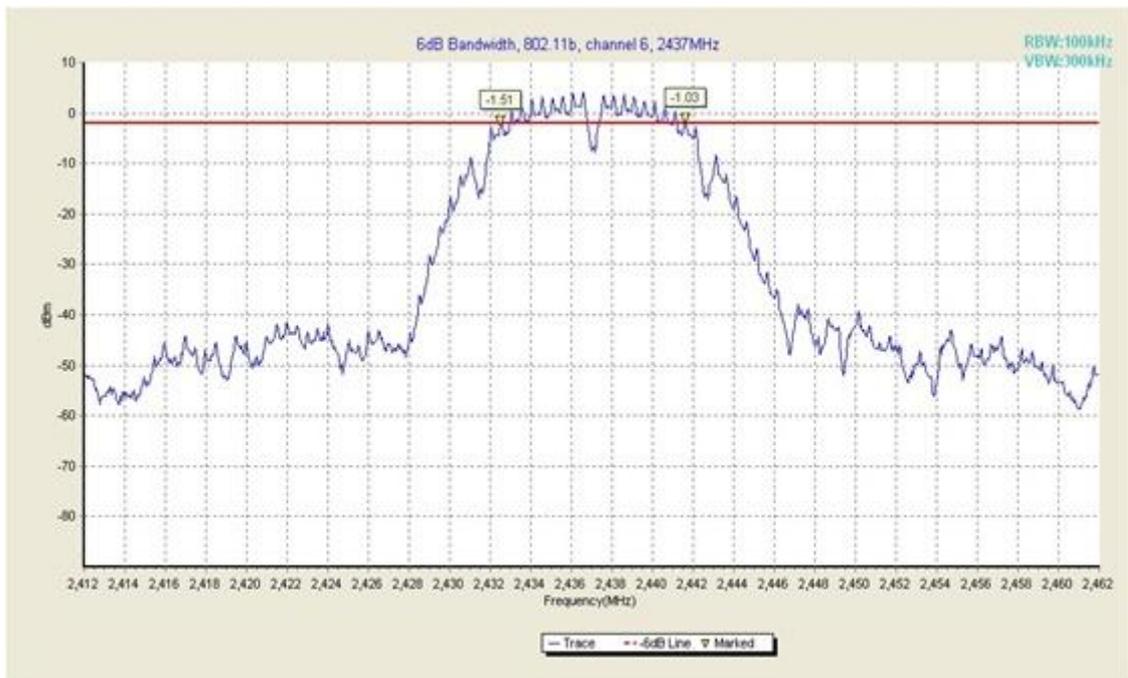


Fig. 14 Occupied 6dB Bandwidth (802.11b, Ch 6)

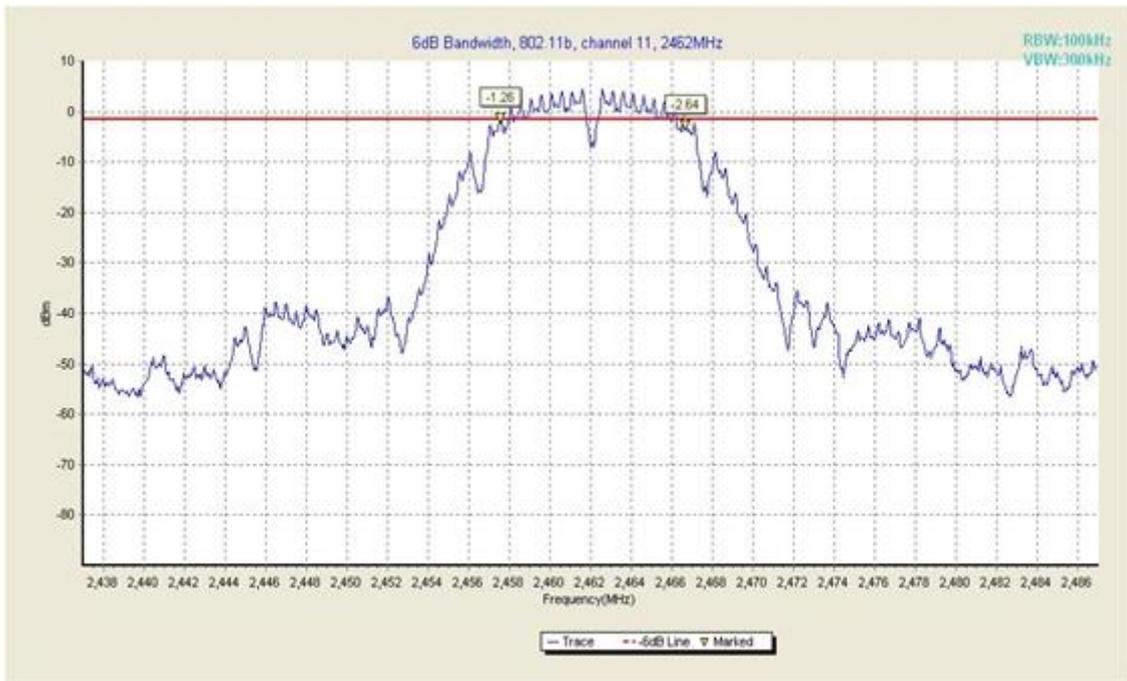


Fig. 15 Occupied 6dB Bandwidth (802.11b, Ch 11)

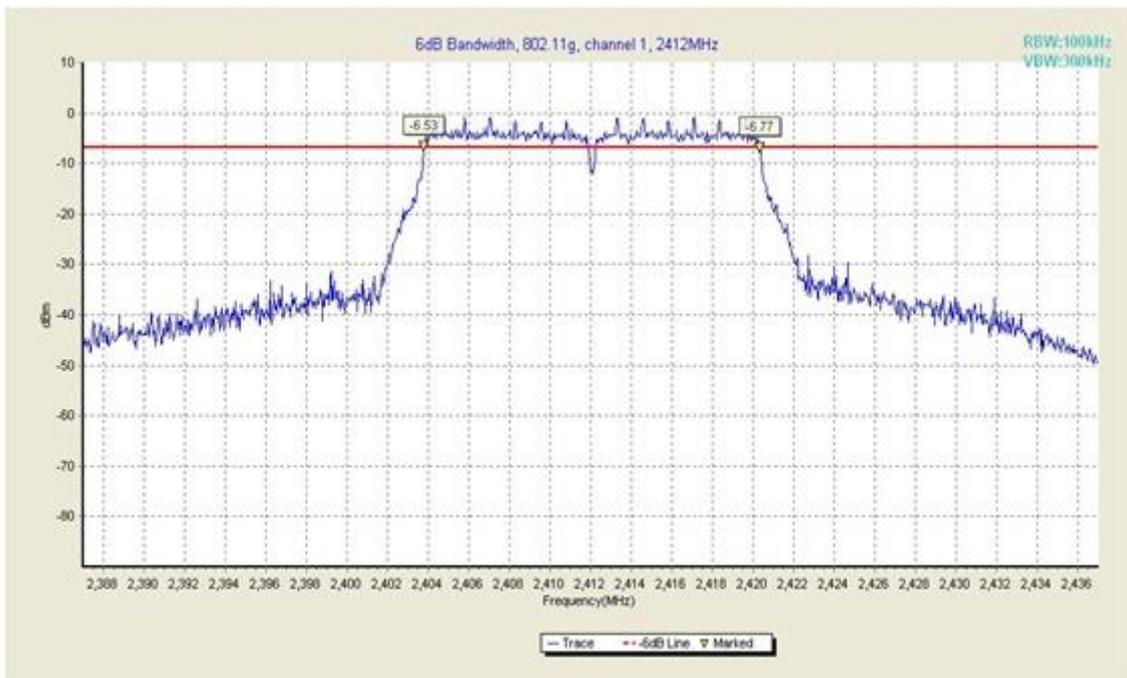


Fig. 16 Occupied 6dB Bandwidth (802.11g, Ch 1)

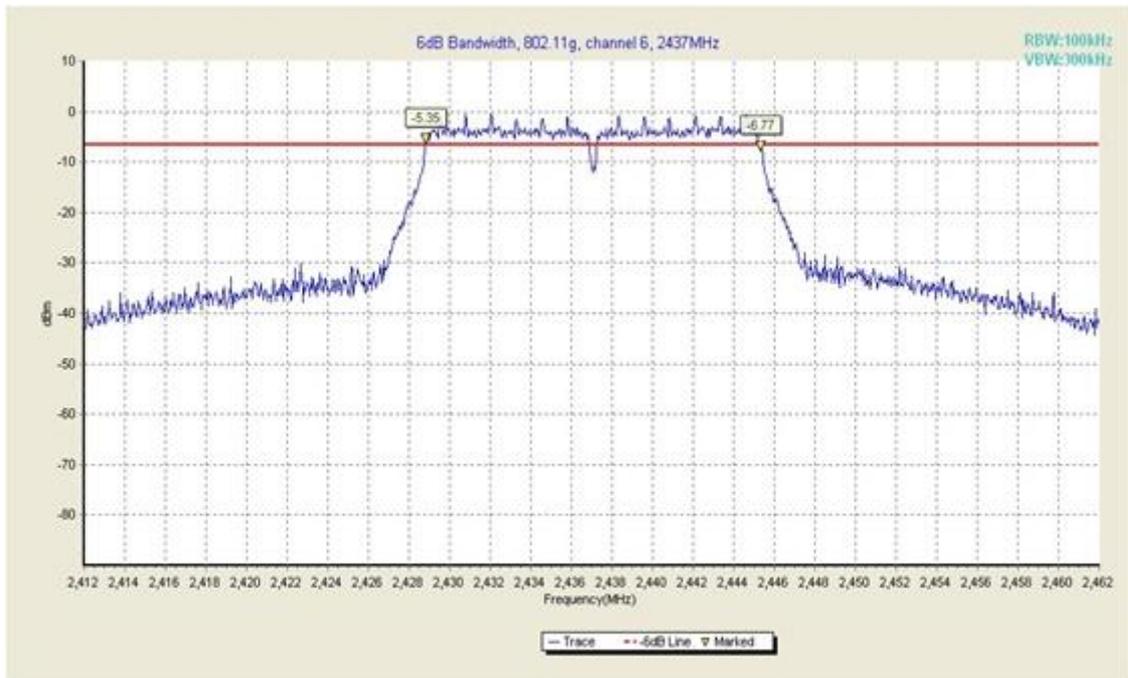


Fig. 17 Occupied 6dB Bandwidth (802.11g, Ch 6)

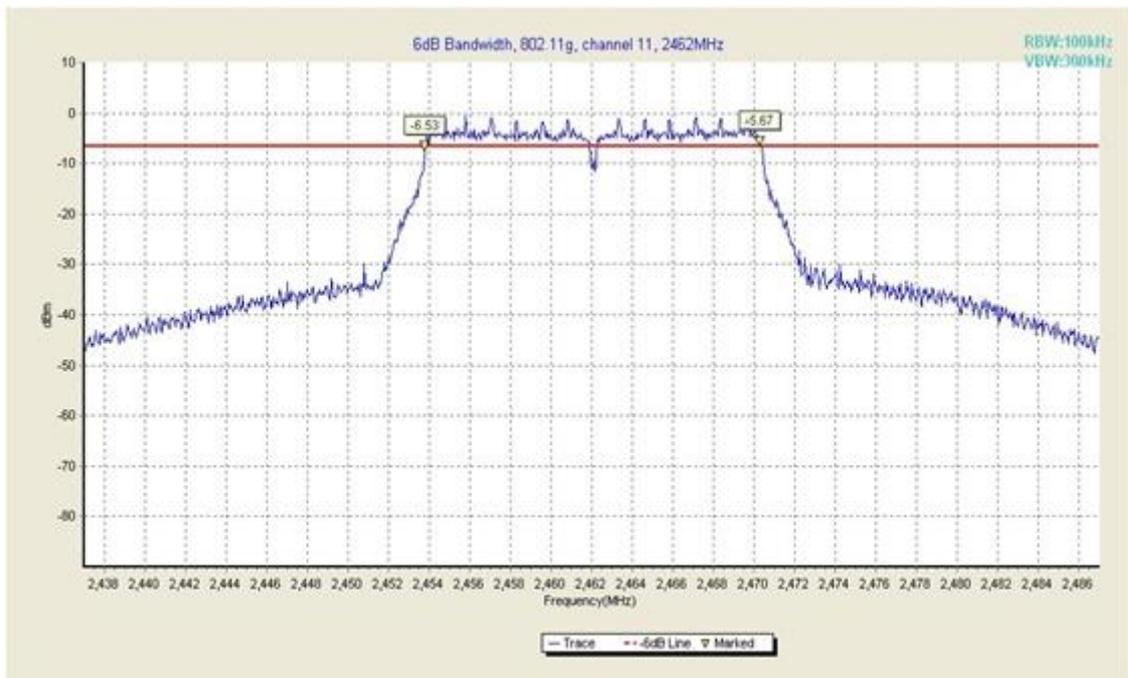


Fig. 18 Occupied 6dB Bandwidth (802.11g, Ch 11)

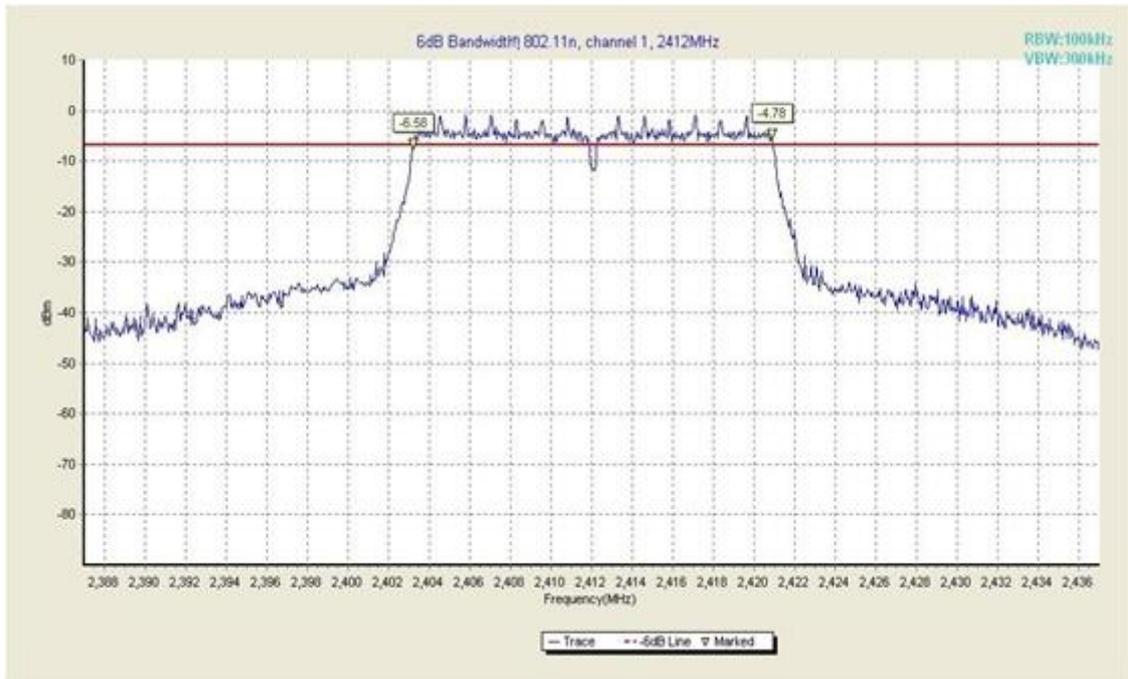


Fig. 19 Occupied 6dB Bandwidth (802.11 n-20MHz, Ch 1)

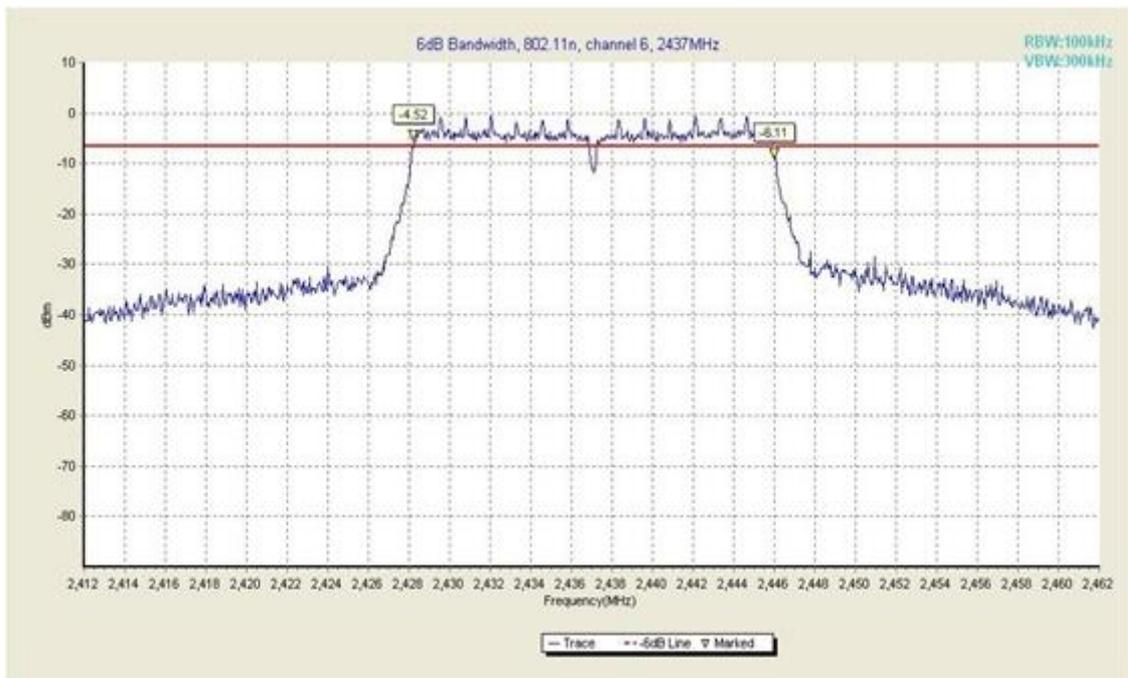


Fig. 20 Occupied 6dB Bandwidth (802.11 n-20MHz, Ch 6)

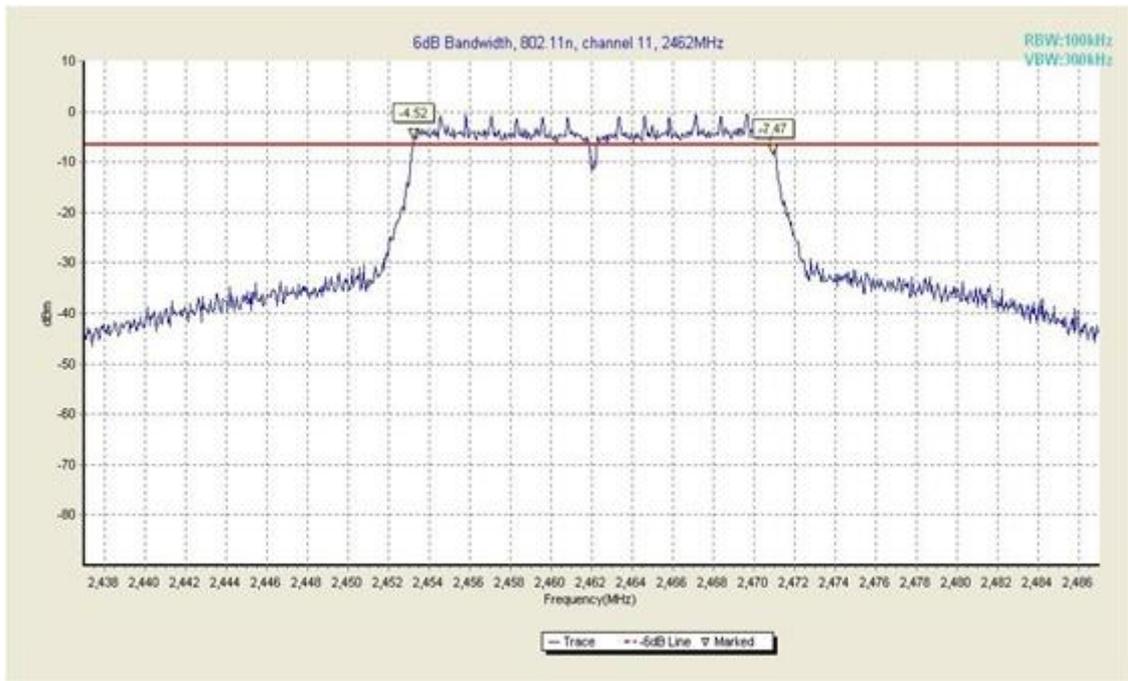


Fig. 21 Occupied 6dB Bandwidth (802.11n-20MHz, Ch 11)

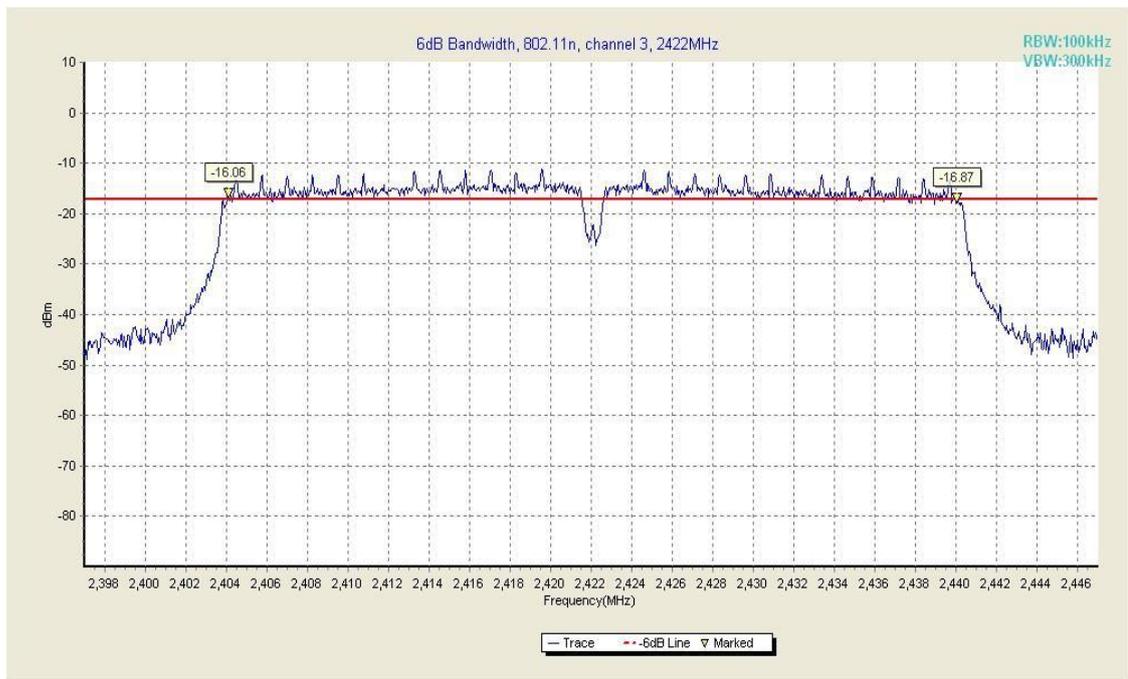


Fig. 22 Occupied 6dB Bandwidth (802.11 n-40MHz, Ch 3)

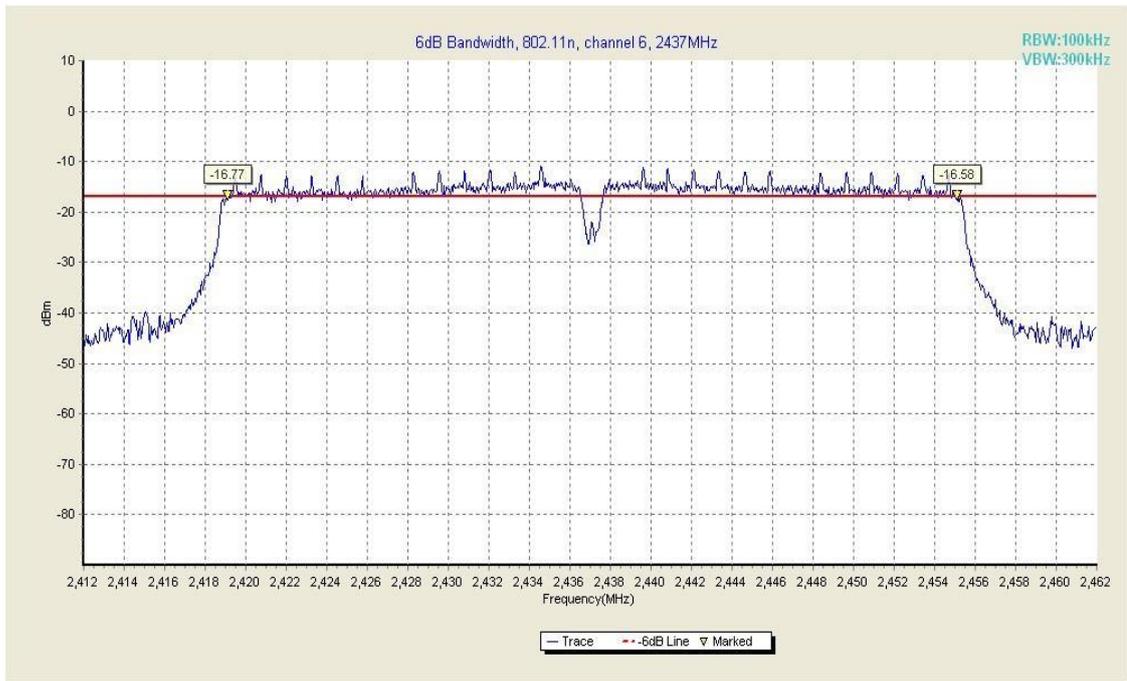


Fig. 23 Occupied 6dB Bandwidth (802.11 n-40MHz, Ch 6)

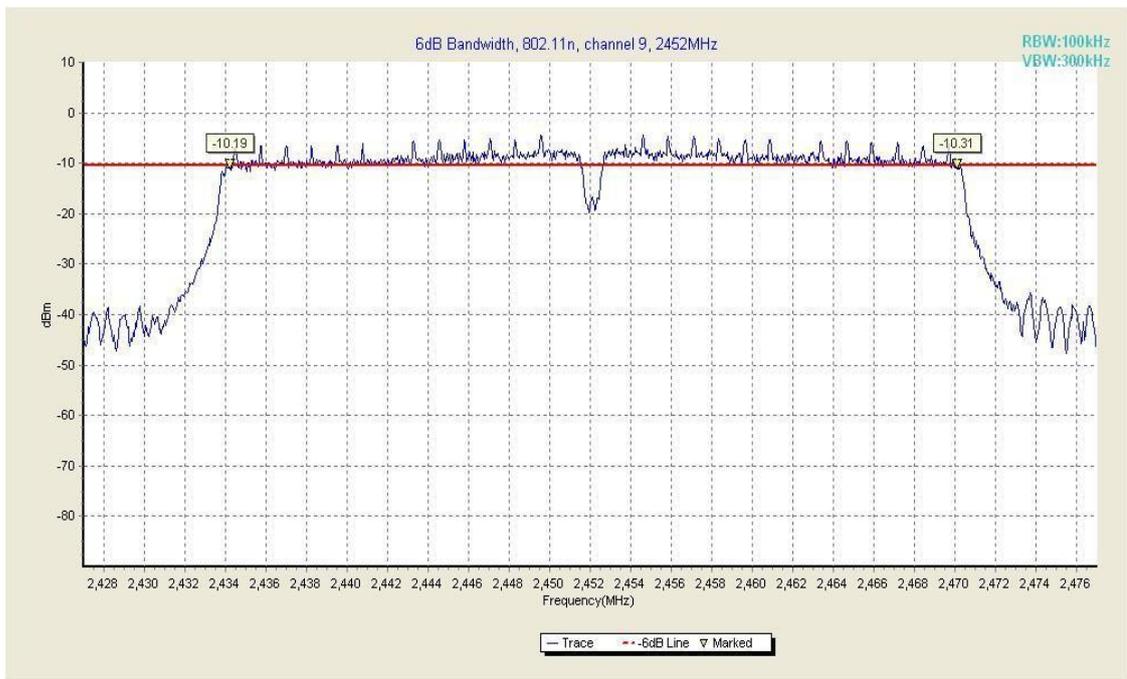


Fig. 24 Occupied 6dB Bandwidth (802.11n-40MHz, Ch 9)

A.5. Band Edges Compliance

Measurement Limit:

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

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

Measurement Uncertainty:

Measurement Uncertainty	0.75dB
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Measurement Result:

802.11b/g mode

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

802.11n mode

Mode	Channel	Test Results	Conclusion
802.11n (20MHz)	1	Fig.29	P
	11	Fig.30	P
802.11n (40MHz)	3	Fig.31	P
	9	Fig.32	P

Conclusion: PASS

Test graphs as below:



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



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



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

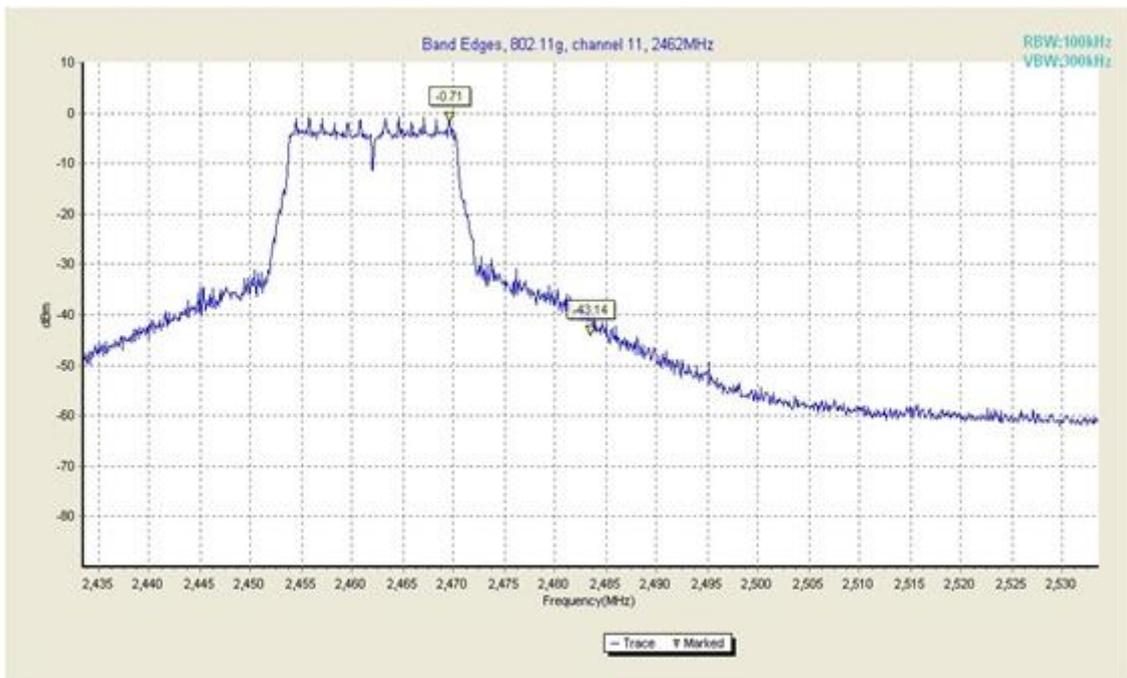


Fig. 28 Band Edges (802.11g, Ch 11)

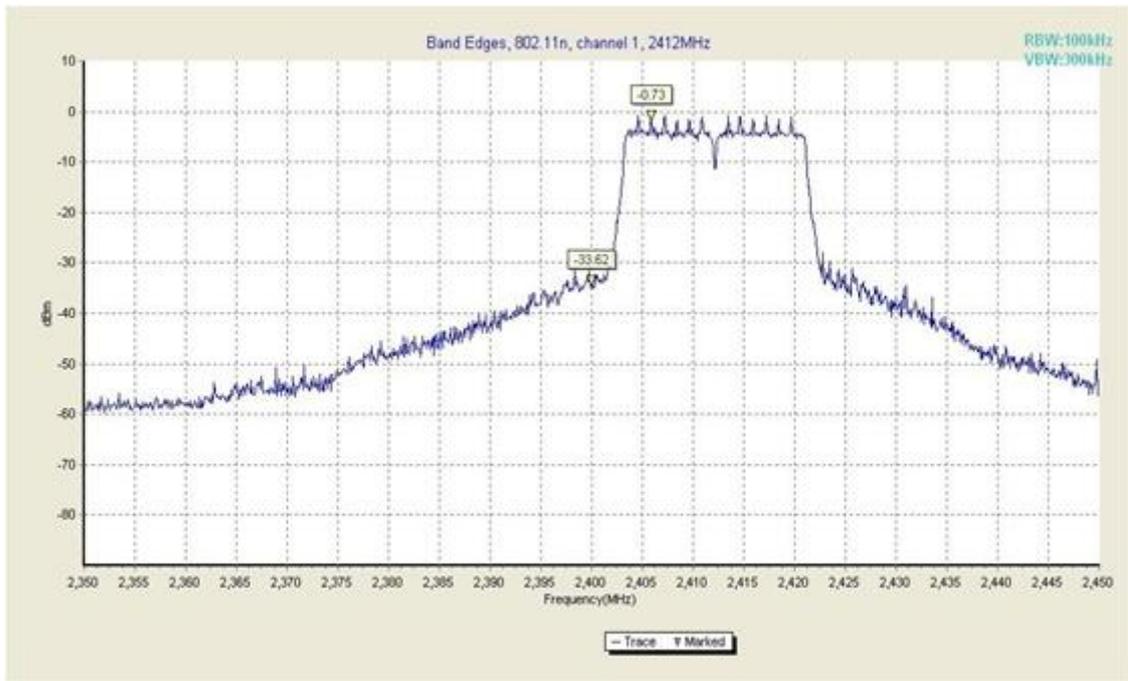


Fig. 29 Band Edges (802.11 n-20MHz, Ch 1)

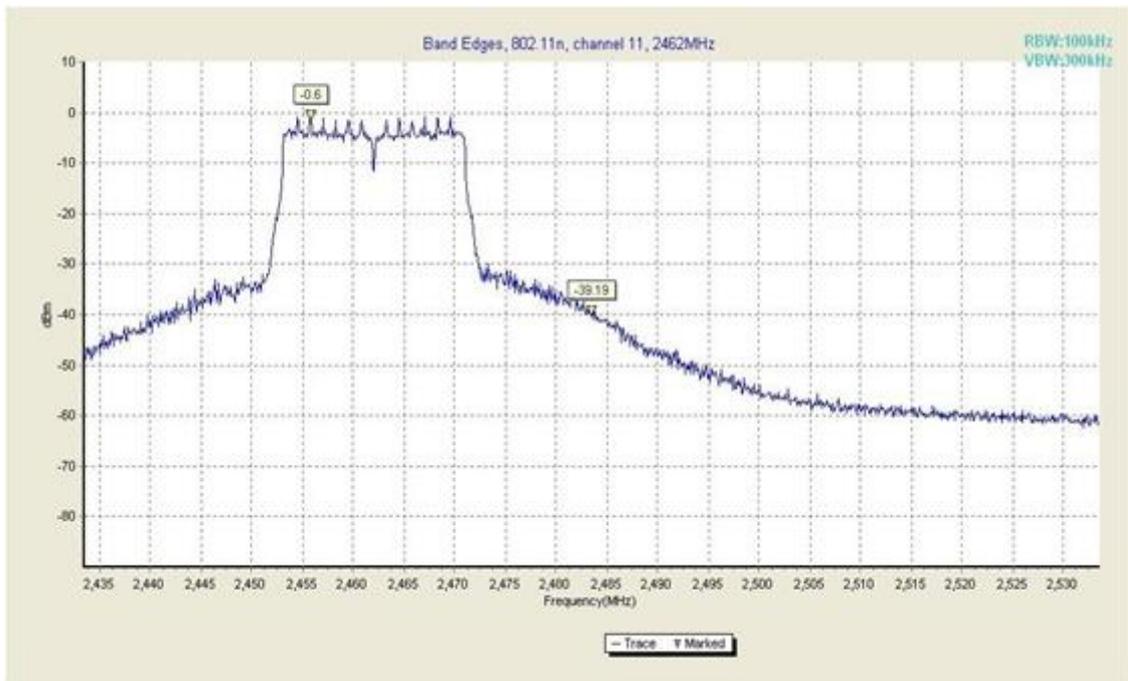


Fig. 30 Band Edges (802.11 n-20MHz, Ch 11)

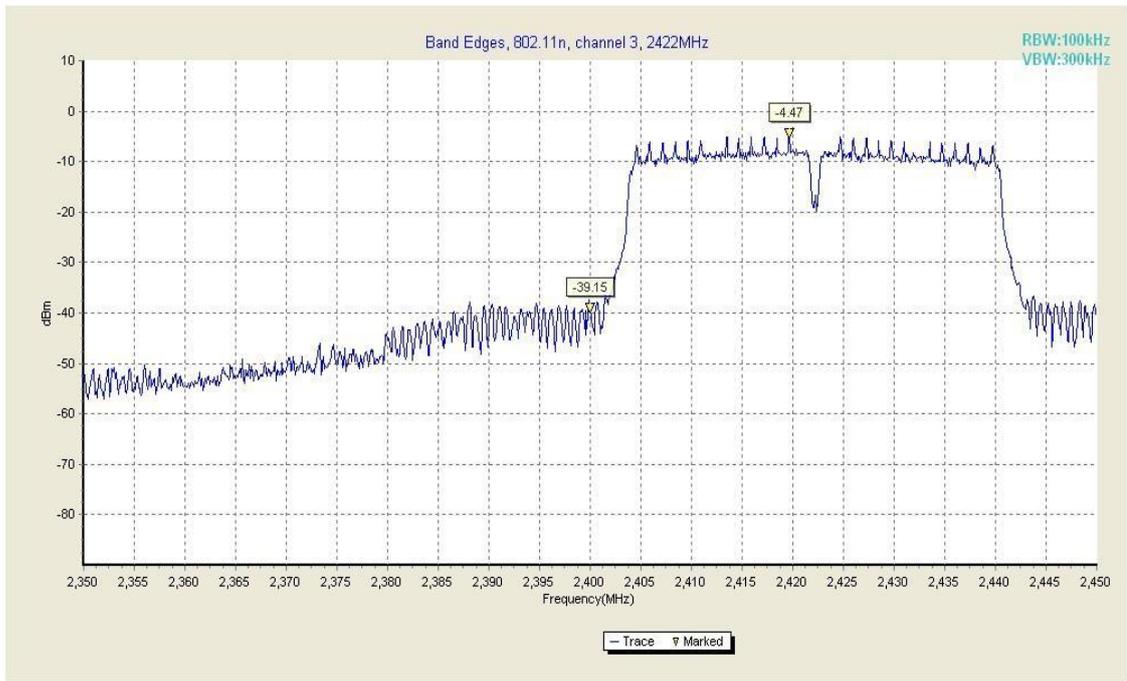


Fig. 31 Band Edges (802.11 n-40MHz, Ch 3)

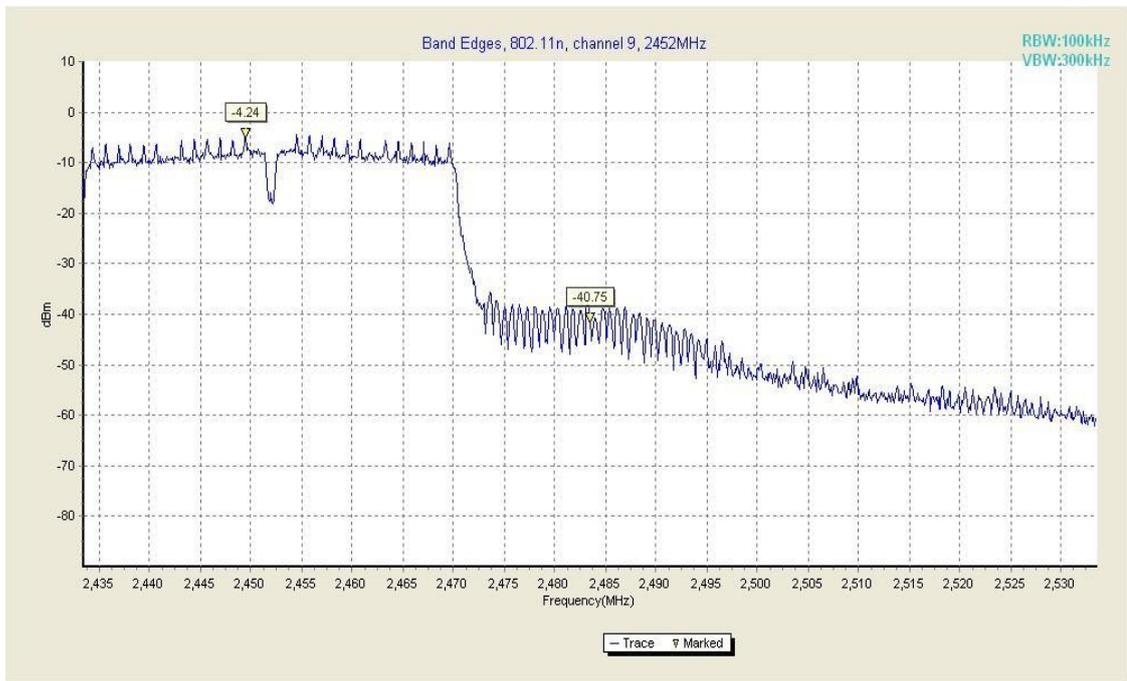


Fig. 32 Band Edges (802.11 n-40MHz, Ch 9)

A.6. Transmitter Spurious Emission

A.6.1 Transmitter Spurious Emission - Conducted

Measurement Limit:

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

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

Measurement Uncertainty:

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

Measurement Results:

802.11b/g mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	2.412 GHz	Fig.33	P
		30 MHz-26 GHz	Fig.34	P
	6	2.437 GHz	Fig.35	P
		30 MHz-26 GHz	Fig.36	P
	11	2.462 GHz	Fig.37	P
		30 MHz-26 GHz	Fig.38	P
802.11g	1	2.412 GHz	Fig.39	P
		30 MHz-26 GHz	Fig.40	P
	6	2.437 GHz	Fig.41	P
		30 MHz-26 GHz	Fig.42	P
	11	2.462 GHz	Fig.43	P
		30 MHz-26 GHz	Fig.44	P

802.11n mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n (20MHz)	1	2.412 GHz	Fig.45	P
		30 MHz-26 GHz	Fig.46	P
	6	2.437 GHz	Fig.47	P
		30 MHz-26 GHz	Fig.48	P

	11	2.462 GHz	Fig.49	P
		30 MHz-26 GHz	Fig.50	P
802.11n (40MHz)	3	2.422 GHz	Fig.51	P
		30 MHz-26 GHz	Fig.52	P
	6	2.437 GHz	Fig.53	P
		30 MHz-26 GHz	Fig.54	P
	9	2.452 GHz	Fig.55	P
		30 MHz-26 GHz	Fig.56	P

Conclusion: PASS
Test graphs as below:



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

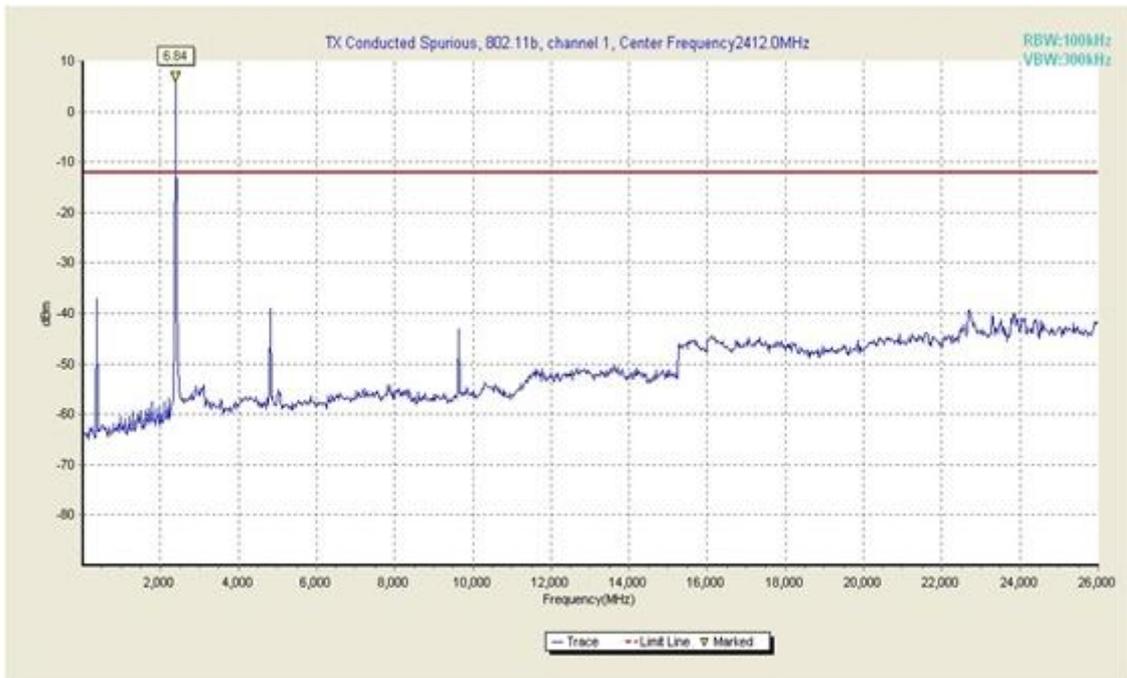


Fig. 34 Conducted Spurious Emission (802.11b, Ch1, 30 MHz-26 GHz)

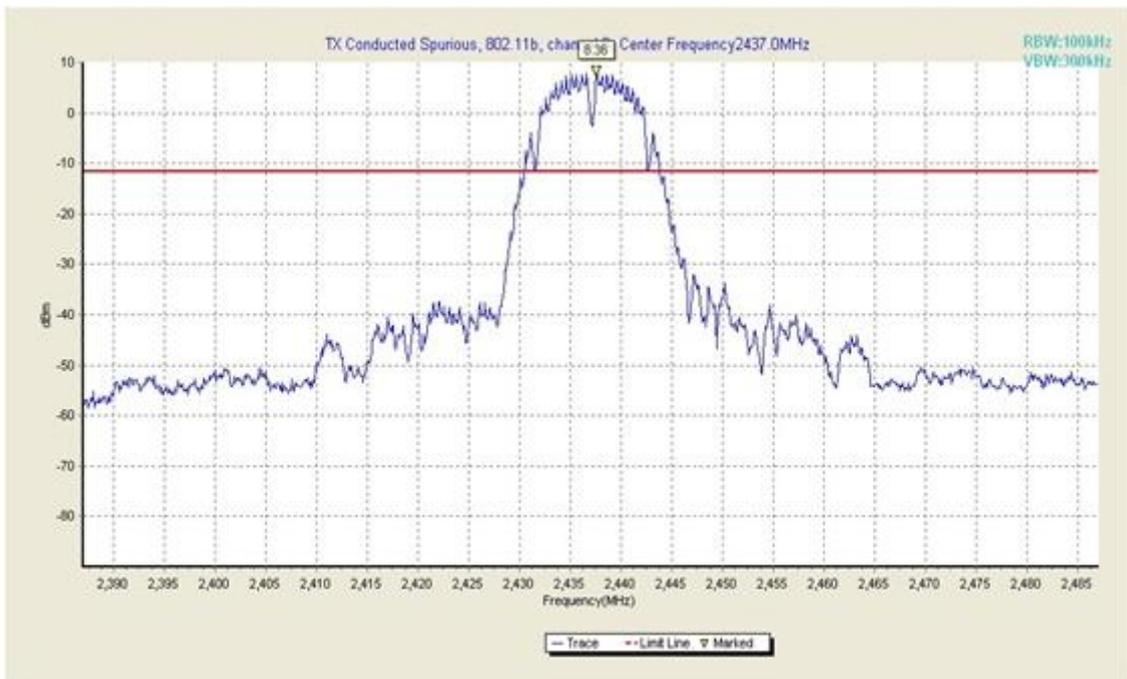


Fig. 35 Conducted Spurious Emission (802.11b, Ch6, Center Frequency)

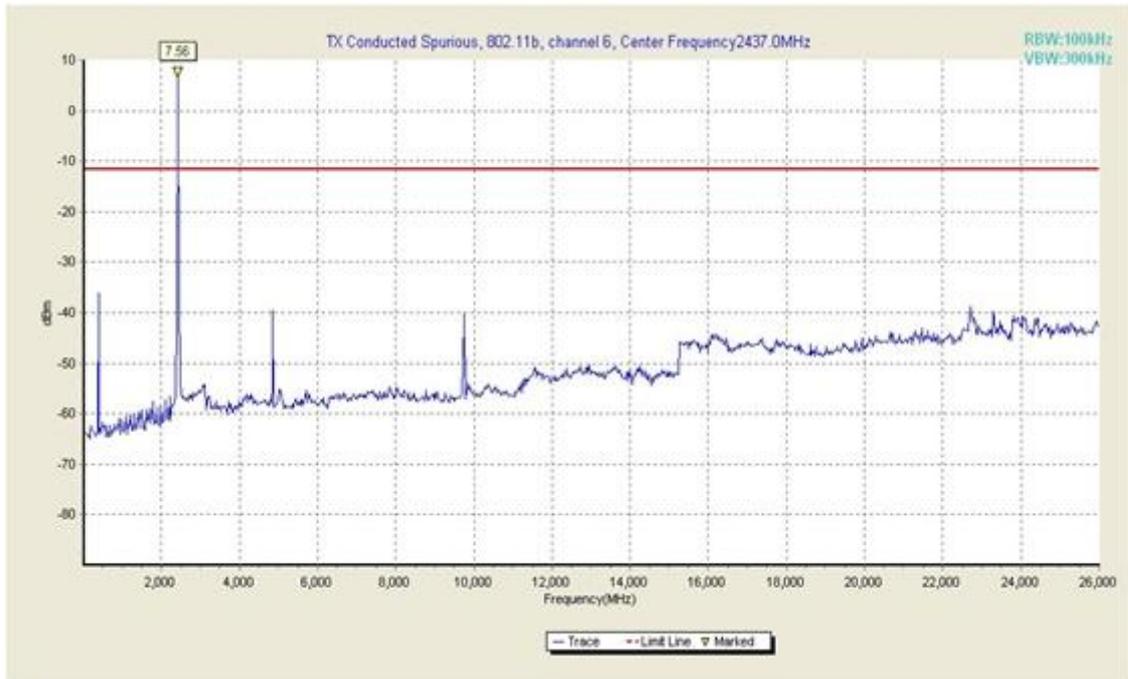


Fig. 36 Conducted Spurious Emission (802.11b, Ch6, 30 MHz-26 GHz)



Fig. 37 Conducted Spurious Emission (802.11b, Ch11, Center Frequency)

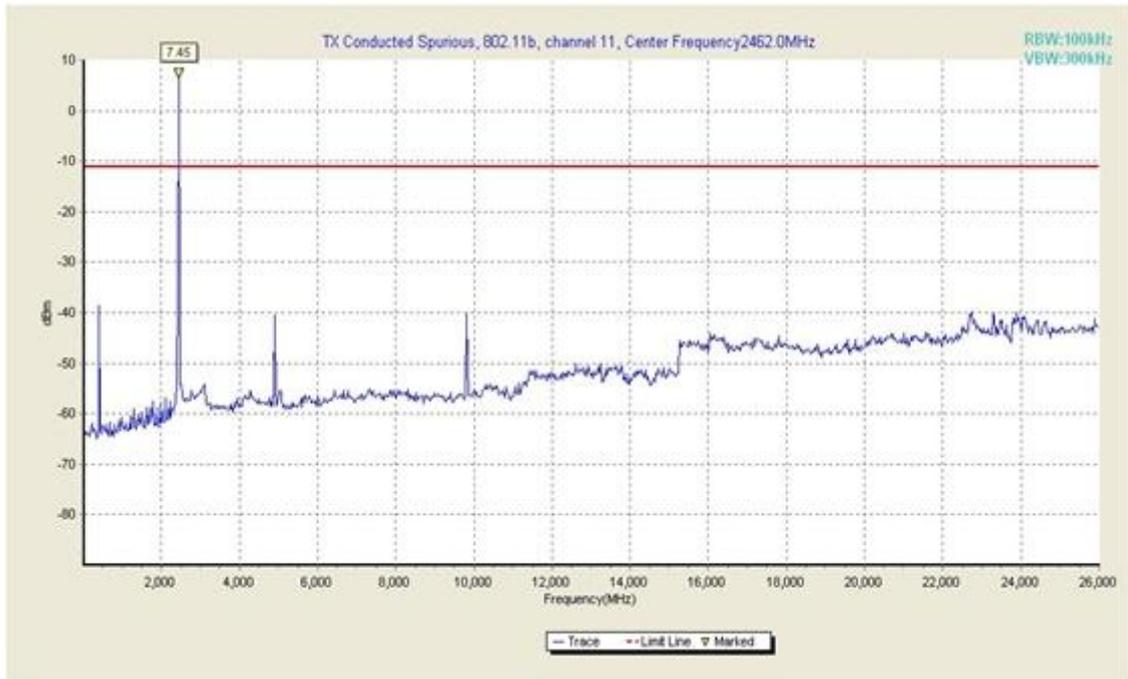


Fig. 38 Conducted Spurious Emission (802.11b, Ch11, 30 MHz-26 GHz)



Fig. 39 Conducted Spurious Emission (802.11g, Ch1, Center Frequency)



Fig. 40 Conducted Spurious Emission (802.11g, Ch1, 30 MHz-26 GHz)

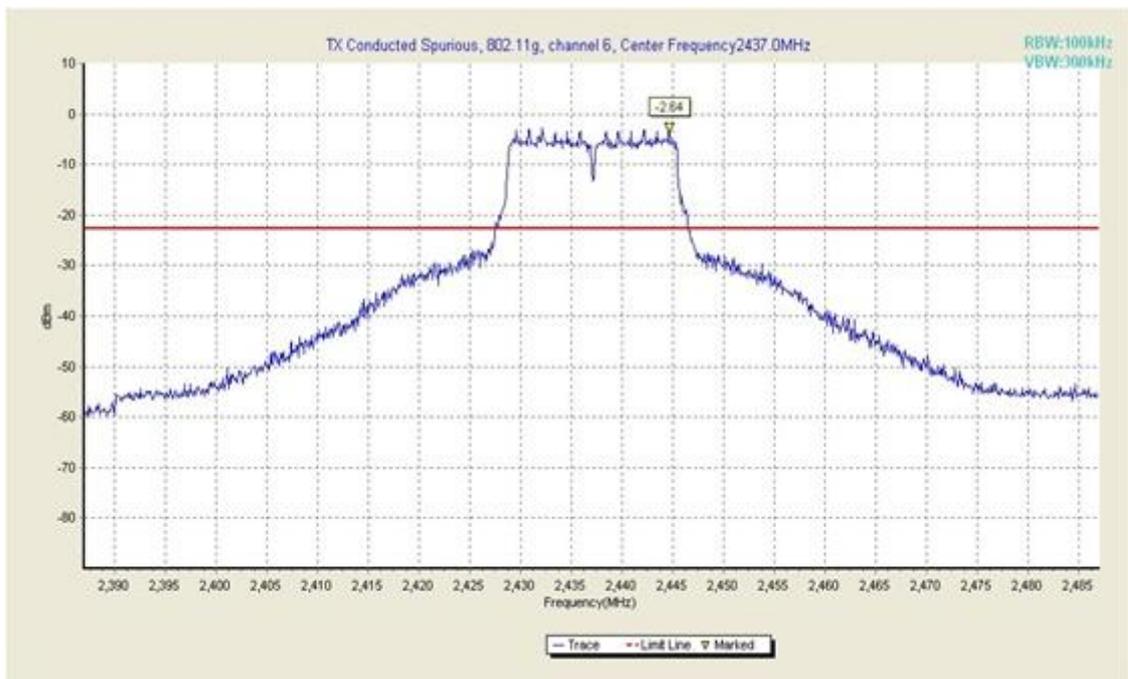


Fig. 41 Conducted Spurious Emission (802.11g, Ch6, Center Frequency)



Fig. 42 Conducted Spurious Emission (802.11g, Ch6, 30 MHz-26 GHz)



Fig. 43 Conducted Spurious Emission (802.11g, Ch11, Center Frequency)

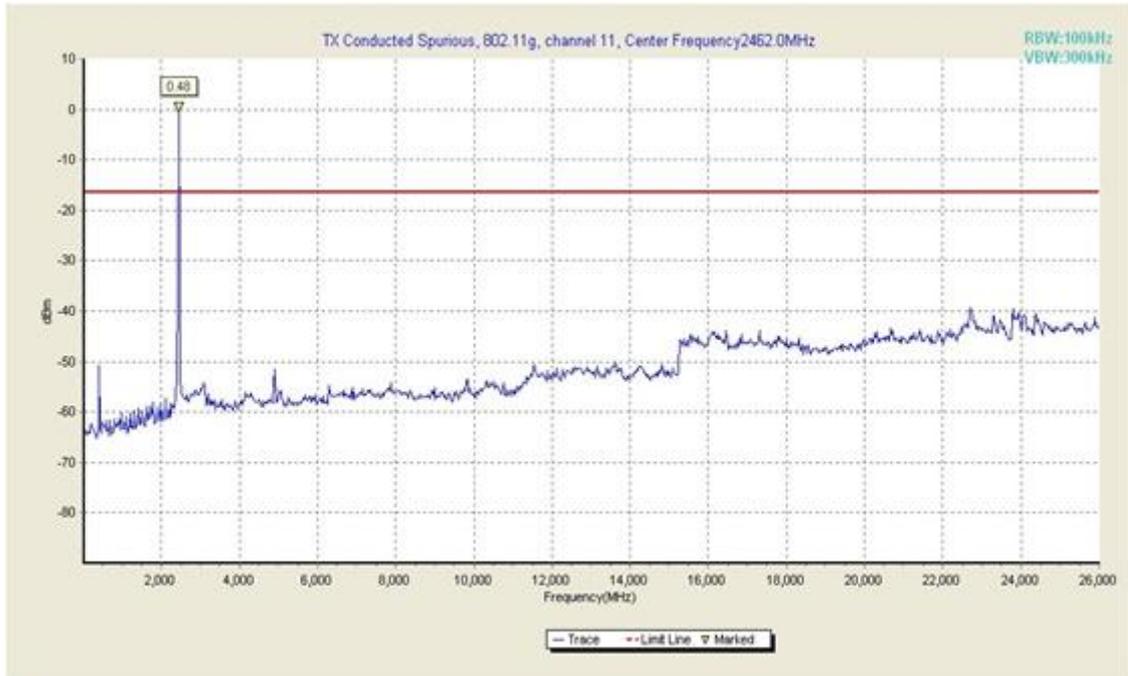


Fig. 44 Conducted Spurious Emission (802.11g, Ch11, 30 MHz-26 GHz)

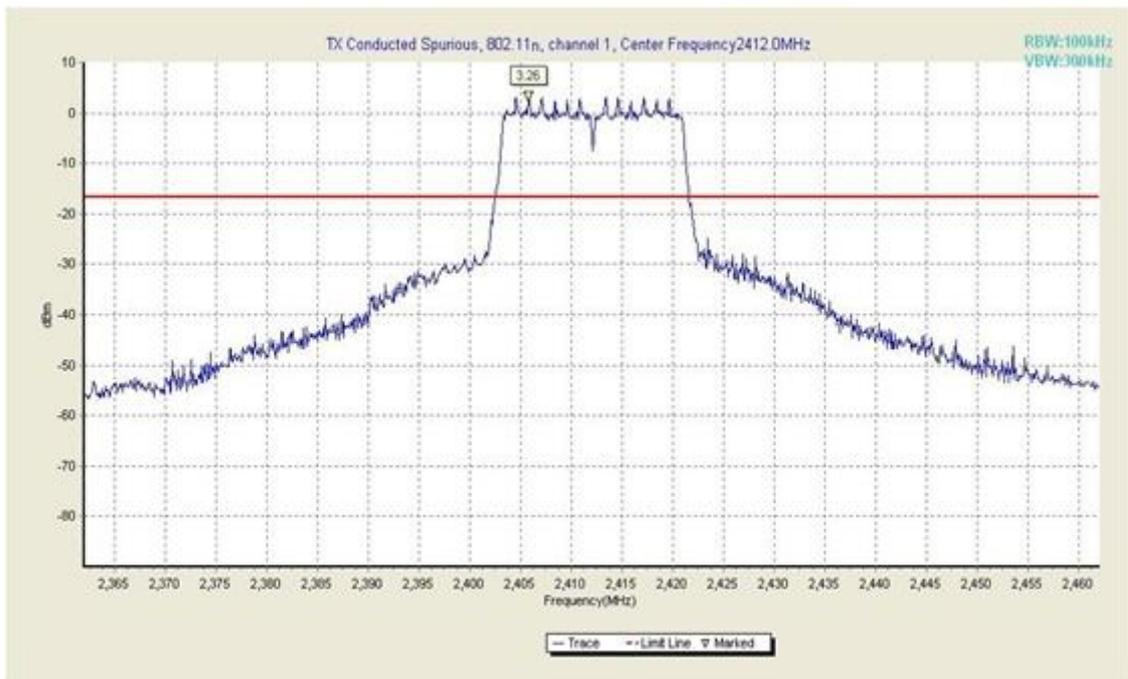


Fig. 45 Conducted Spurious Emission (802.11n-20MHz, Ch1, Center Frequency)

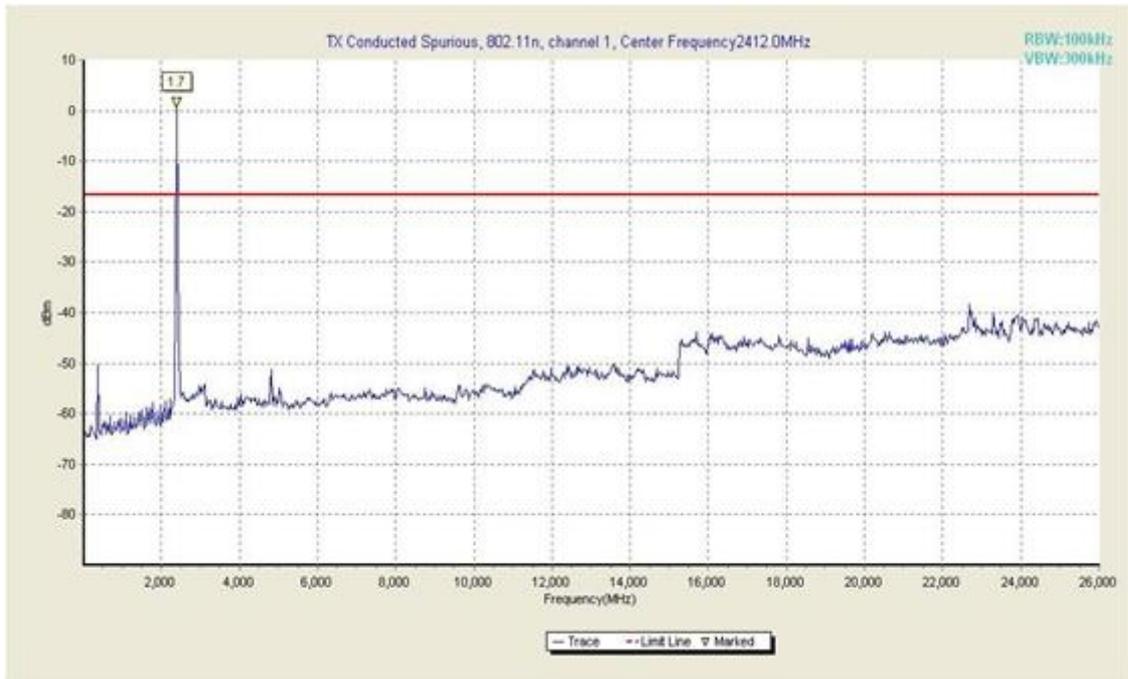


Fig. 46 Conducted Spurious Emission (802.11 n-20MHz, Ch1, 30 MHz-26 GHz)

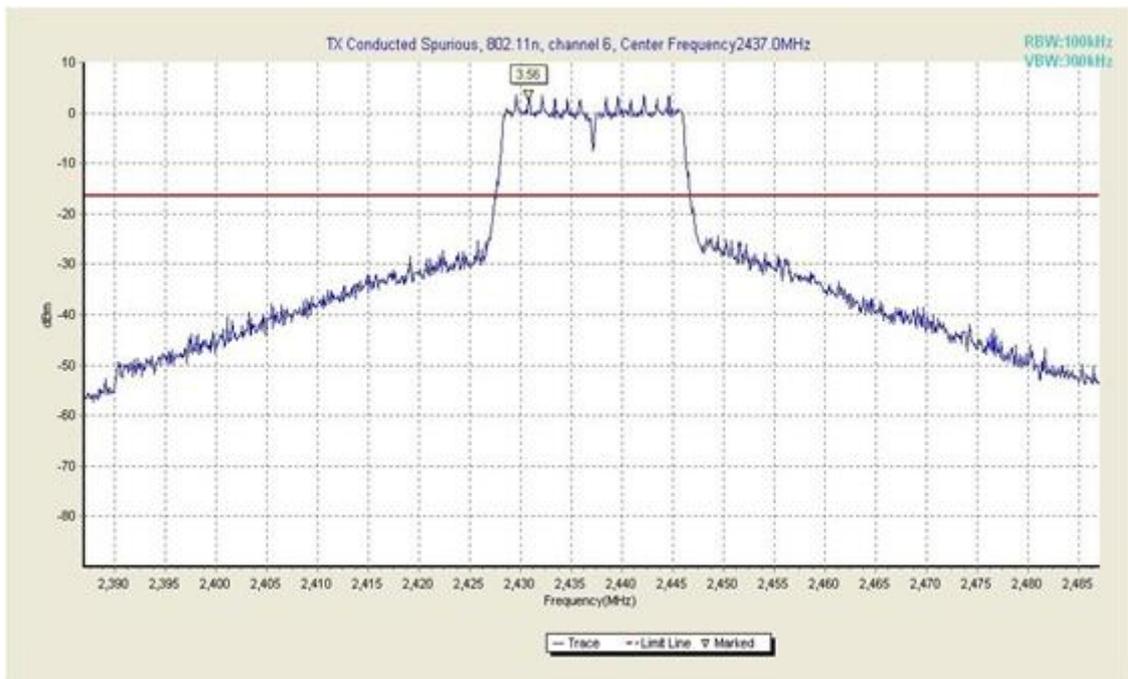


Fig. 47 Conducted Spurious Emission (802.11 n-20MHz, Ch6, Center Frequency)

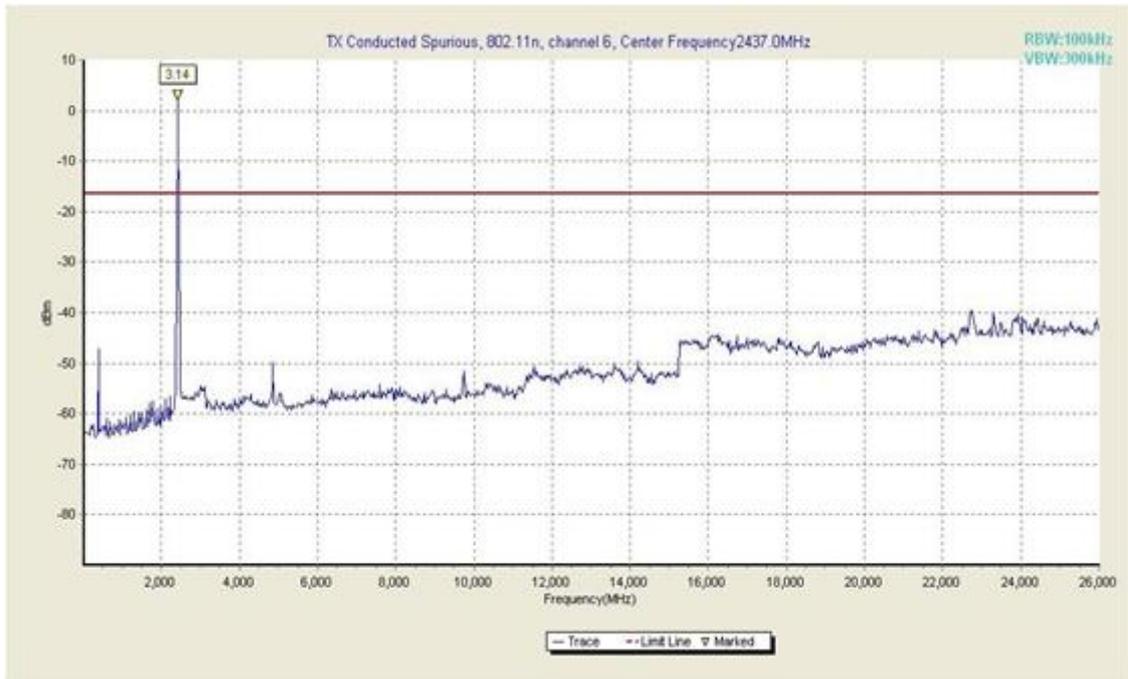


Fig. 48 Conducted Spurious Emission (802.11 n-20MHz, Ch6, 30 MHz-26 GHz)

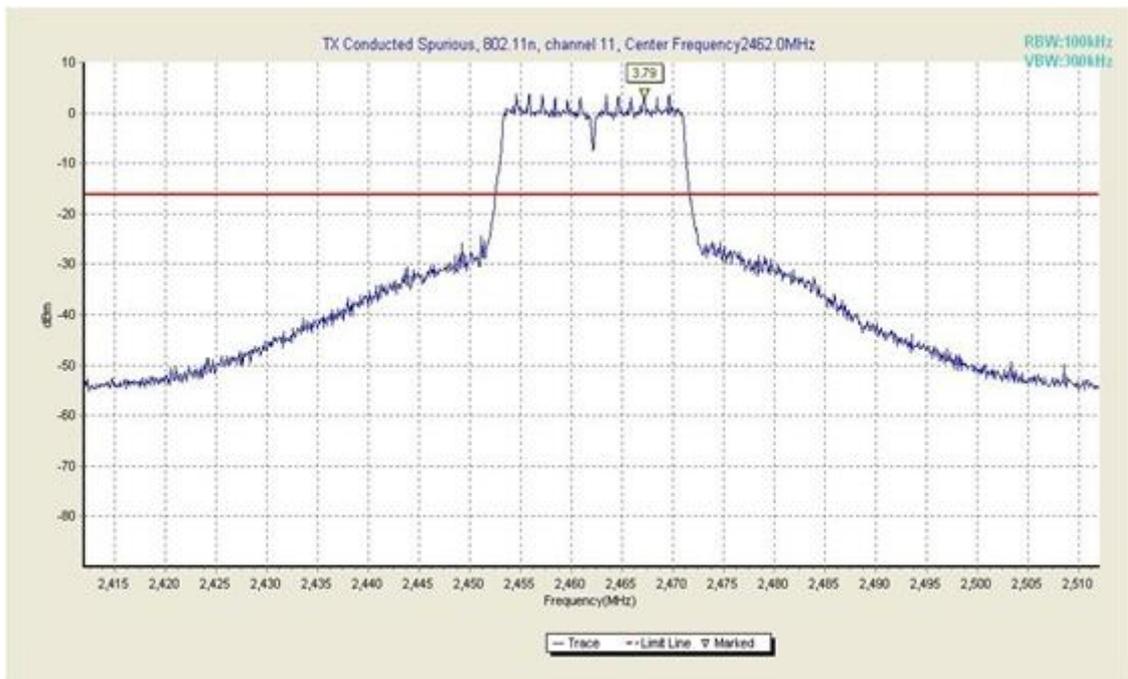


Fig. 49 Conducted Spurious Emission (802.11 n-20MHz, Ch11, Center Frequency)

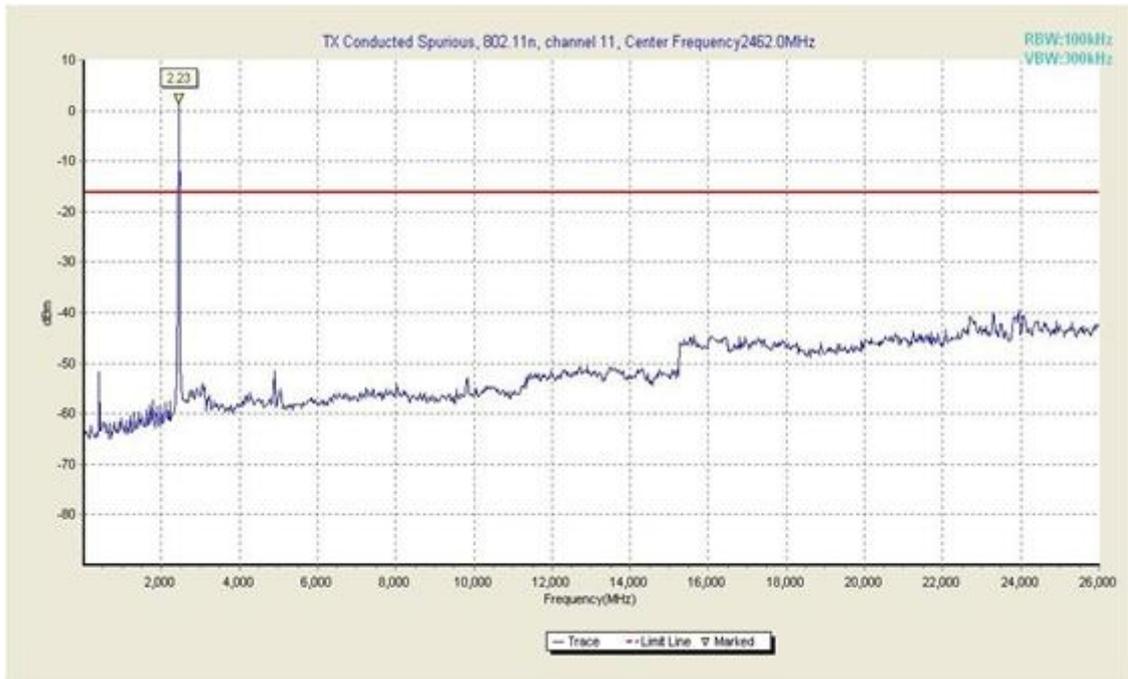


Fig. 50 Conducted Spurious Emission (802.11 n-20MHz, Ch11, 30 MHz-26 GHz)

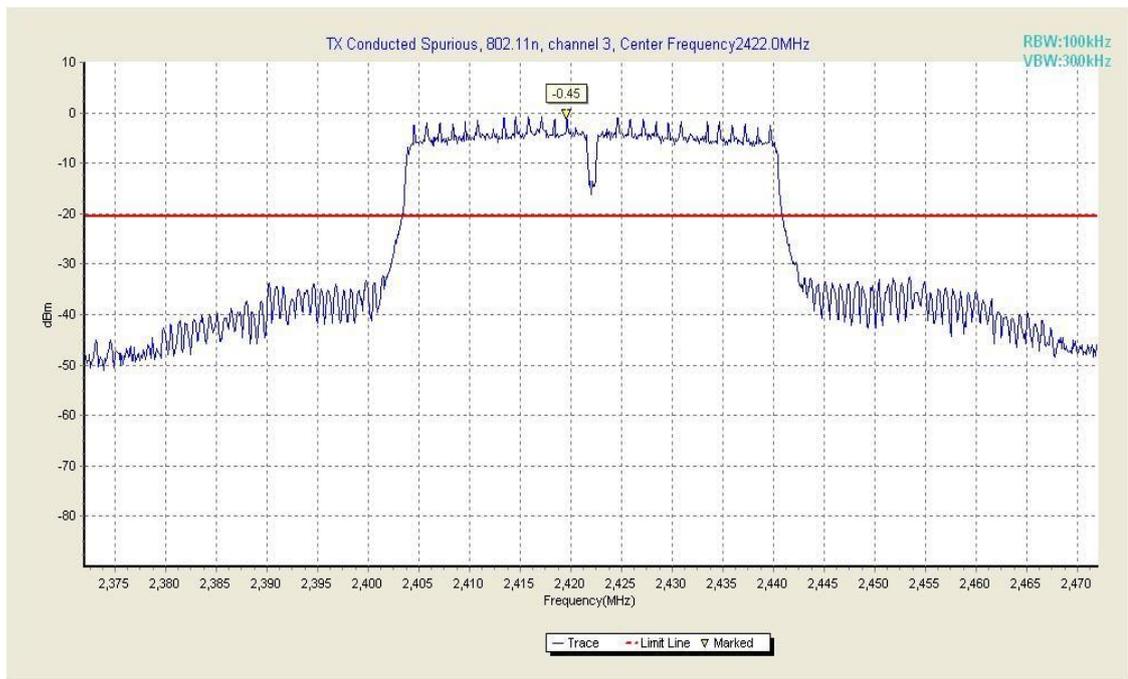


Fig. 51 Conducted Spurious Emission (802.11n-40MHz, Ch3, Center Frequency)



Fig. 52 Conducted Spurious Emission (802.11 n-40MHz, Ch3, 30 MHz-26 GHz)

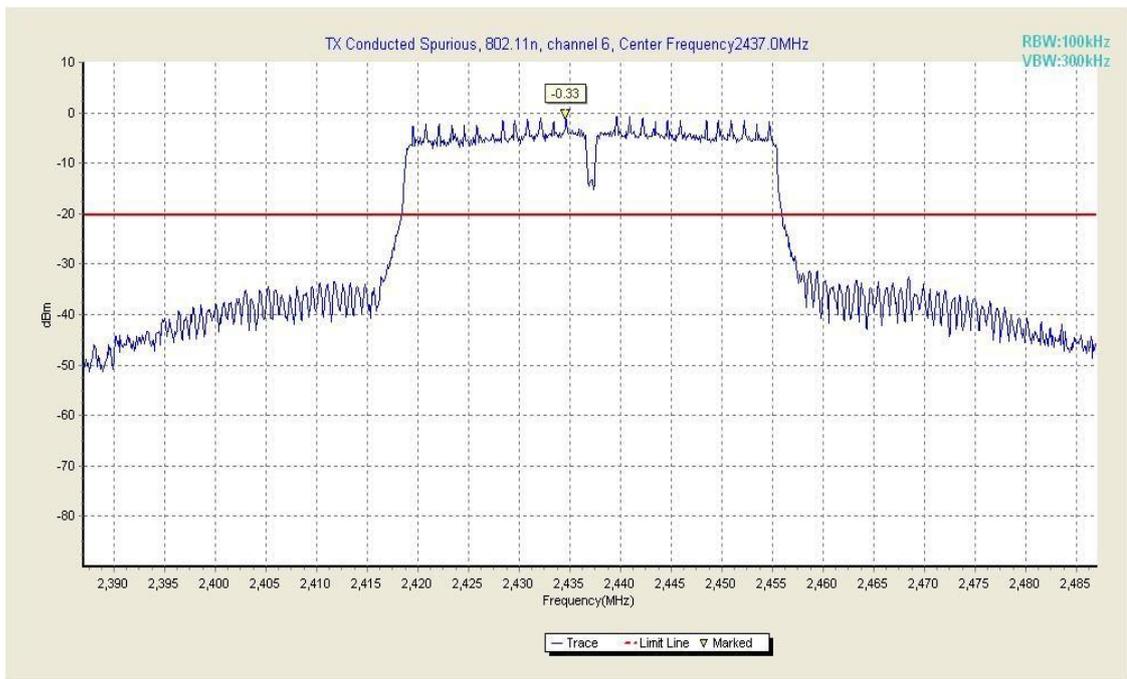


Fig. 53 Conducted Spurious Emission (802.11 n-40MHz, Ch6, Center Frequency)

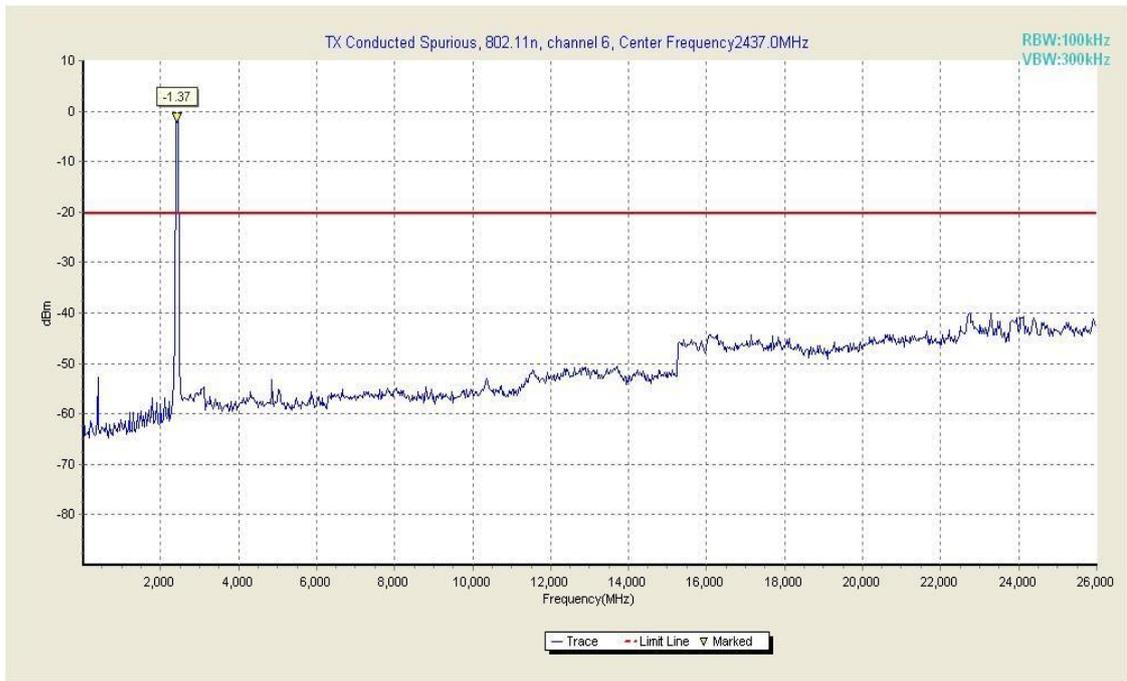


Fig. 54 Conducted Spurious Emission (802.11 n-40MHz, Ch6, 30 MHz-26 GHz)

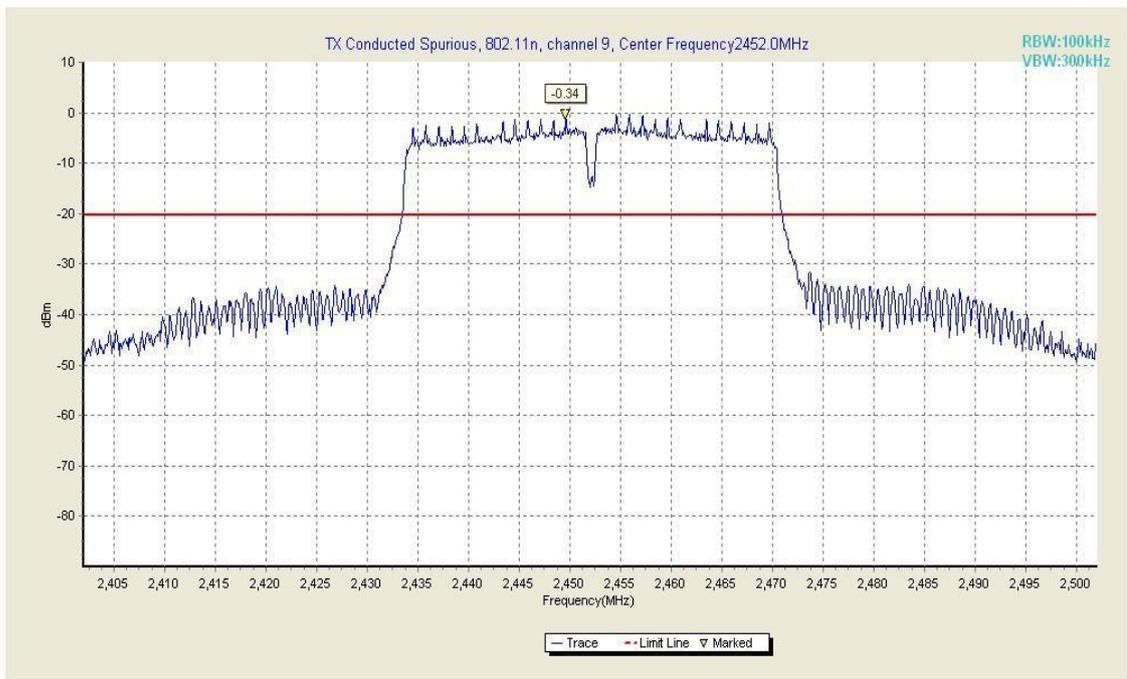


Fig. 55 Conducted Spurious Emission (802.11 n-40MHz, Ch9, Center Frequency)



Fig. 56 Conducted Spurious Emission (802.11 n-40MHz, Ch9, 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.

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 ~2.43GHz	Fig.57	P
	1	30 MHz ~1 GHz	Fig.58	P
		1 GHz ~ 4 GHz	Fig.59	P
		4 GHz ~ 18 GHz	Fig.60	P
	6	30 MHz ~1 GHz	Fig.61	P
		1 GHz ~ 4 GHz	Fig.62	P
		4 GHz ~ 18 GHz	Fig.63	P
	Power	2.45GHz ~2.5GHz	Fig.64	P
	11	30 MHz ~1 GHz	Fig.65	P
		1 GHz ~ 4 GHz	Fig.66	P
		4 GHz ~ 18 GHz	Fig.67	P
	802.11g	Power	2.38GHz ~2.43GHz	Fig.68
1		30 MHz ~1 GHz	Fig.69	P
		1 GHz ~ 4 GHz	Fig.70	P
		4 GHz ~ 18 GHz	Fig.71	P
6		30 MHz ~1 GHz	Fig.72	P
		1 GHz ~ 4 GHz	Fig.73	P
		4 GHz ~ 18 GHz	Fig.74	P
Power		2.45GHz ~2.5GHz	Fig.75	P
11		30 MHz ~1 GHz	Fig.76	P
		1 GHz ~ 4 GHz	Fig.77	P
		4 GHz ~ 18 GHz	Fig.78	P

802.11n mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (20MHz)	Power	2.38GHz ~2.43GHz	Fig.79	P
	1	30 MHz ~1 GHz	Fig.80	P
		1 GHz ~ 4 GHz	Fig.81	P
		4 GHz ~ 18 GHz	Fig.82	P
	6	30 MHz ~1 GHz	Fig.83	P
		1 GHz ~ 4 GHz	Fig.84	P
		4 GHz ~ 18 GHz	Fig.85	P
	Power	2.45GHz ~2.5GHz	Fig.86	P
	11	30 MHz ~1 GHz	Fig.87	P
		1 GHz ~ 4 GHz	Fig.88	P
		4 GHz ~ 18 GHz	Fig.89	P
	802.11n (40MHz)	Power	2.38GHz ~2.43GHz	Fig.90
3		30 MHz ~1 GHz	Fig.91	P
		1 GHz ~ 4 GHz	Fig.92	P

		4 GHz ~ 18 GHz	Fig.93	P
	6	30 MHz ~1 GHz	Fig.94	P
		1 GHz ~ 4 GHz	Fig.95	P
		4 GHz ~ 18 GHz	Fig.96	P
	Power	2.45GHz ~2.5GHz	Fig.97	P
	9	30 MHz ~1 GHz	Fig.98	P
		1 GHz ~ 4 GHz	Fig.99	P
		4 GHz ~ 18 GHz	Fig.100	P
/	All channels	18 GHz~ 26.5 GHz	Fig.101	P

Conclusion: PASS

Note:

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

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

The measurement results are obtained as described below:

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

802.11b

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	PMea (dBuV/m)	Polarization
2414.83	92.65	-18.7	27.5	83.85	VERTICAL
2410.822	92.29	-18.7	27.5	83.49	VERTICAL
2406.814	86.81	-18.7	27.5	78.01	VERTICAL
2418.838	84.26	-18.7	27.5	75.46	VERTICAL
2402.806	69.25	-18.7	27.5	60.45	VERTICAL
2422.846	62.28	-18.8	27.5	53.58	VERTICAL

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	PMea (dBuV/m)	Polarization
2434.87	83.05	-18.9	27.5	74.45	VERTICAL
2438.878	81.63	-18.9	27.5	73.03	VERTICAL
2442.886	72.17	-18.9	27.5	63.57	HORIZONTAL
2430.862	69.87	-18.9	27.5	61.27	HORIZONTAL
2446.894	43.11	-18.9	27.5	34.51	VERTICAL
3699.399	41.58	-19.2	33.4	27.38	HORIZONTAL

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	PMea (dBuV/m)	Polarization
2458.918	75.01	-18.7	27.5	66.21	HORIZONTAL
2462.926	74.84	-18.6	27.5	65.94	HORIZONTAL
2466.934	67.17	-18.6	27.5	58.27	VERTICAL
2454.91	60.94	-18.7	27.5	52.14	HORIZONTAL
2470.942	49.36	-18.4	27.5	40.26	HORIZONTAL
3699.399	39.02	-19.2	33.4	24.82	HORIZONTAL

802.11g

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	PMea (dBuV/m)	Polarization
2414.83	91.61	-18.7	27.5	82.81	VERTICAL
2418.838	91.57	-18.7	27.5	82.77	VERTICAL
2406.814	91.35	-18.7	27.5	82.55	VERTICAL
2410.822	90.73	-18.7	27.5	81.93	VERTICAL
2402.806	81.6	-18.7	27.5	72.8	VERTICAL
2422.846	72.5	-18.8	27.5	63.8	VERTICAL

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	PMea (dBuV/m)	Polarization
2434.87	82.97	-18.9	27.5	74.37	VERTICAL
2438.878	81.57	-18.9	27.5	72.97	VERTICAL
2442.886	72.11	-18.9	27.5	63.51	HORIZONTAL
2430.862	69.82	-18.9	27.5	61.22	VERTICAL
2446.894	43.03	-18.9	27.5	34.43	VERTICAL
3699.399	41.58	-19.2	33.4	27.38	VERTICAL

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	PMea (dBuV/m)	Polarization
2458.918	77.43	-18.7	27.5	68.63	VERTICAL
2454.91	76.6	-18.7	27.5	67.8	VERTICAL
2462.926	74.69	-18.6	27.5	65.79	VERTICAL
2466.934	70.86	-18.6	27.5	61.96	VERTICAL
2470.942	67.78	-18.4	27.5	58.68	VERTICAL
2450.902	48.5	-18.7	27.5	39.7	VERTICAL

802.11n-20MHz

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	PMea (dBuV/m)	Polarization
2414.83	91.41	-18.7	27.5	82.61	VERTICAL
2418.838	91.4	-18.7	27.5	82.6	VERTICAL
2406.814	91.3	-18.7	27.5	82.5	VERTICAL
2410.822	90.54	-18.7	27.5	81.74	VERTICAL
2402.806	81.81	-18.7	27.5	73.01	VERTICAL
2422.846	73.03	-18.8	27.5	64.33	VERTICAL

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	PMea (dBuV/m)	Polarization
2434.87	82.93	-18.9	27.5	74.33	HORIZONTAL
2438.878	81.51	-18.9	27.5	72.91	VERTICAL
2442.886	72.08	-18.9	27.5	63.48	HORIZONTAL
2430.862	69.79	-18.9	27.5	61.19	HORIZONTAL
2446.894	42.99	-18.9	27.5	34.39	VERTICAL
3699.399	41.58	-19.2	33.4	27.38	HORIZONTAL

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	PMea (dBuV/m)	Polarization
2458.918	78.72	-18.7	27.5	69.92	VERTICAL
2454.91	78.68	-18.7	27.5	69.88	VERTICAL
2462.926	77.31	-18.6	27.5	68.41	HORIZONTAL
2466.934	74.96	-18.6	27.5	66.06	VERTICAL
2470.942	70.67	-18.4	27.5	61.57	VERTICAL
2450.902	54.36	-18.7	27.5	45.56	HORIZONTAL

802.11n-40MHz

Ch3

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	PMea (dBuV/m)	Polarization
2434.87	71.99	-18.9	27.5	63.39	VERTICAL
2430.862	71.93	-18.9	27.5	63.33	VERTICAL
2426.854	70.75	-18.8	27.5	62.05	HORIZONTAL
2414.83	69.86	-18.7	27.5	61.06	VERTICAL
2438.878	69.25	-18.9	27.5	60.65	VERTICAL
2410.822	69.15	-18.7	27.5	60.35	HORIZONTAL

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	PMea (dBuV/m)	Polarization
2434.87	74.17	-18.9	27.5	65.57	VERTICAL
2430.862	72.88	-18.9	27.5	64.28	HORIZONTAL
2438.878	72.11	-18.9	27.5	63.51	VERTICAL
2442.886	71.03	-18.9	27.5	62.43	VERTICAL
2450.902	70.74	-18.7	27.5	61.94	HORIZONTAL
2426.854	70.05	-18.8	27.5	61.35	HORIZONTAL

Ch9

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	PMea (dBuV/m)	Polarization
2454.91	73.94	-18.7	27.5	65.14	HORIZONTAL
2458.918	72.91	-18.7	27.5	64.11	VERTICAL
2450.902	71.88	-18.7	27.5	63.08	HORIZONTAL
2438.878	71.37	-18.9	27.5	62.77	VERTICAL
2462.926	71	-18.6	27.5	62.1	VERTICAL
2442.886	70.48	-18.9	27.5	61.88	VERTICAL

Test graphs as below:

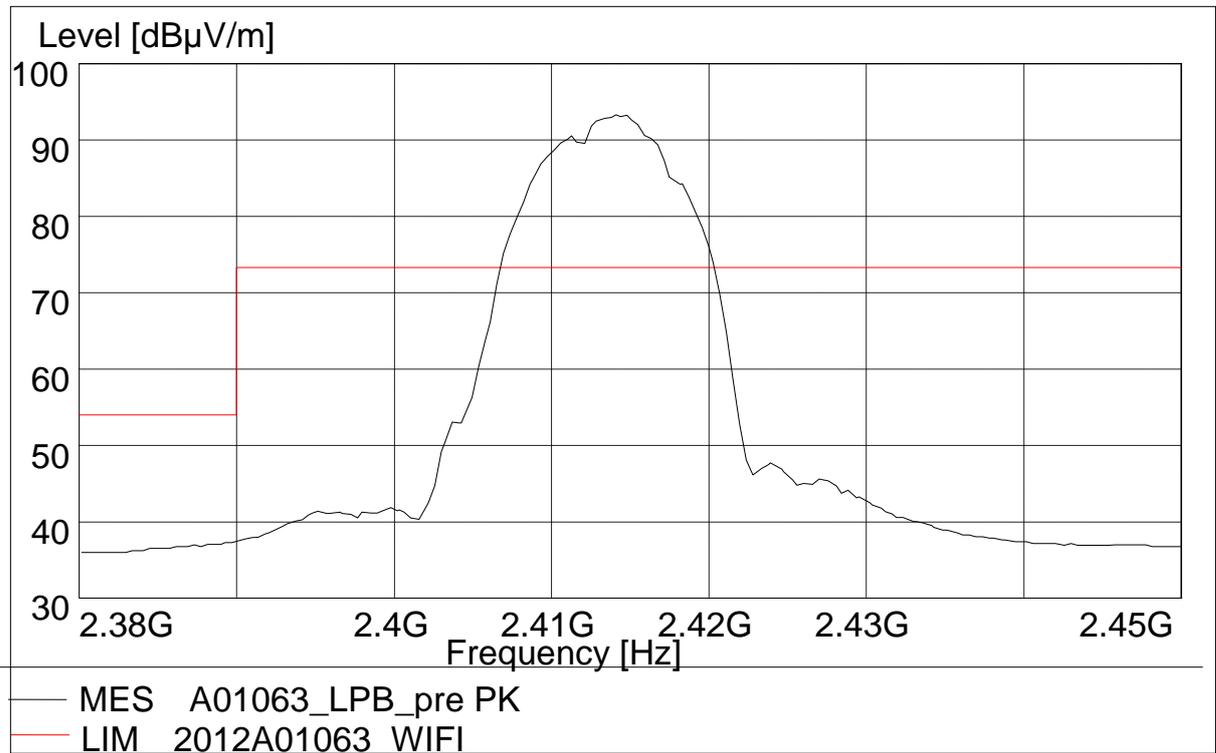


Fig. 57 Radiated Spurious Emission (Power): 802.11b, ch1, 2.38 GHz - 245GHz

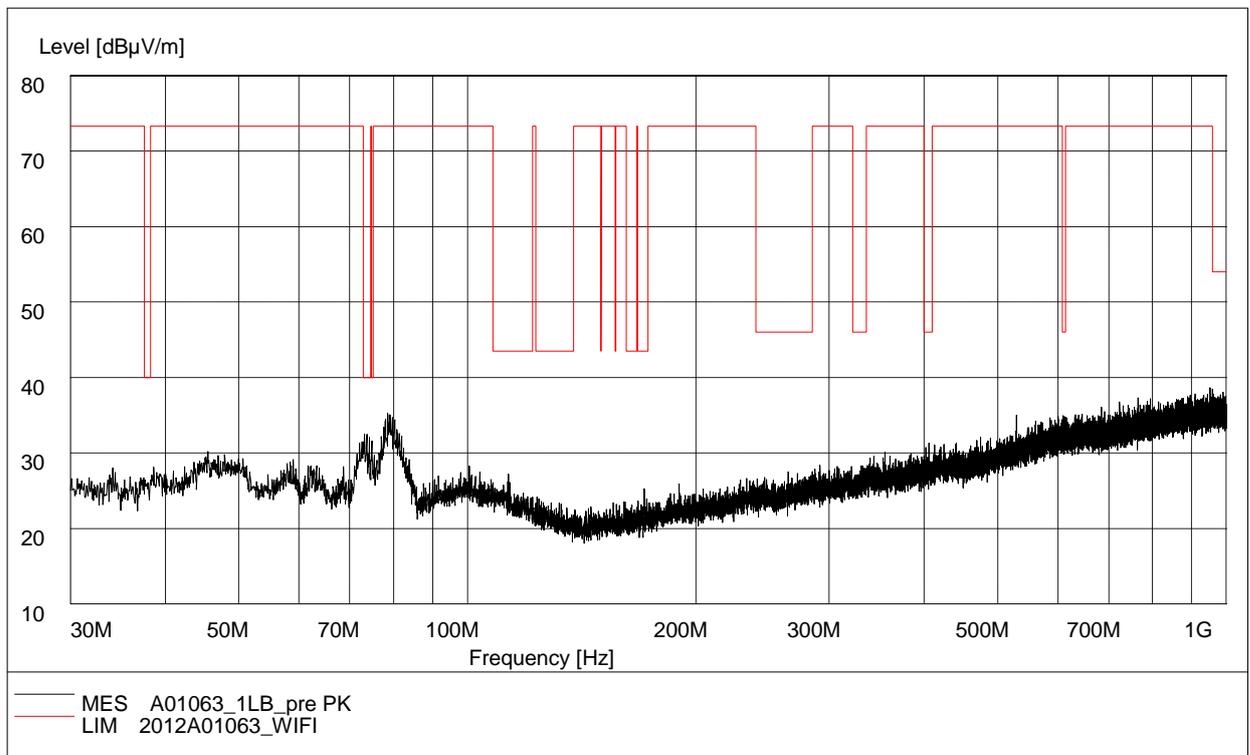


Fig. 58 Radiated Spurious Emission (802.11b, Ch1, 30 MHz-1 GHz)

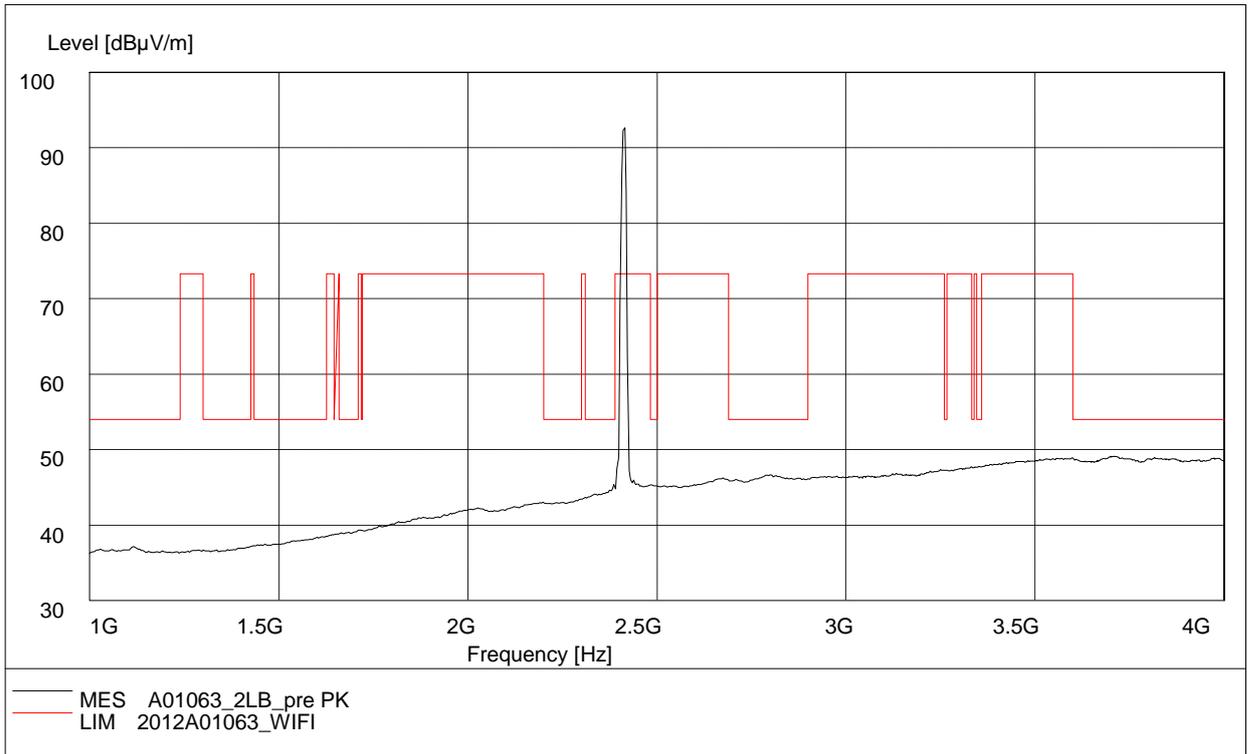


Fig. 59 Radiated Spurious Emission (802.11b, Ch1, 1 GHz-4 GHz)

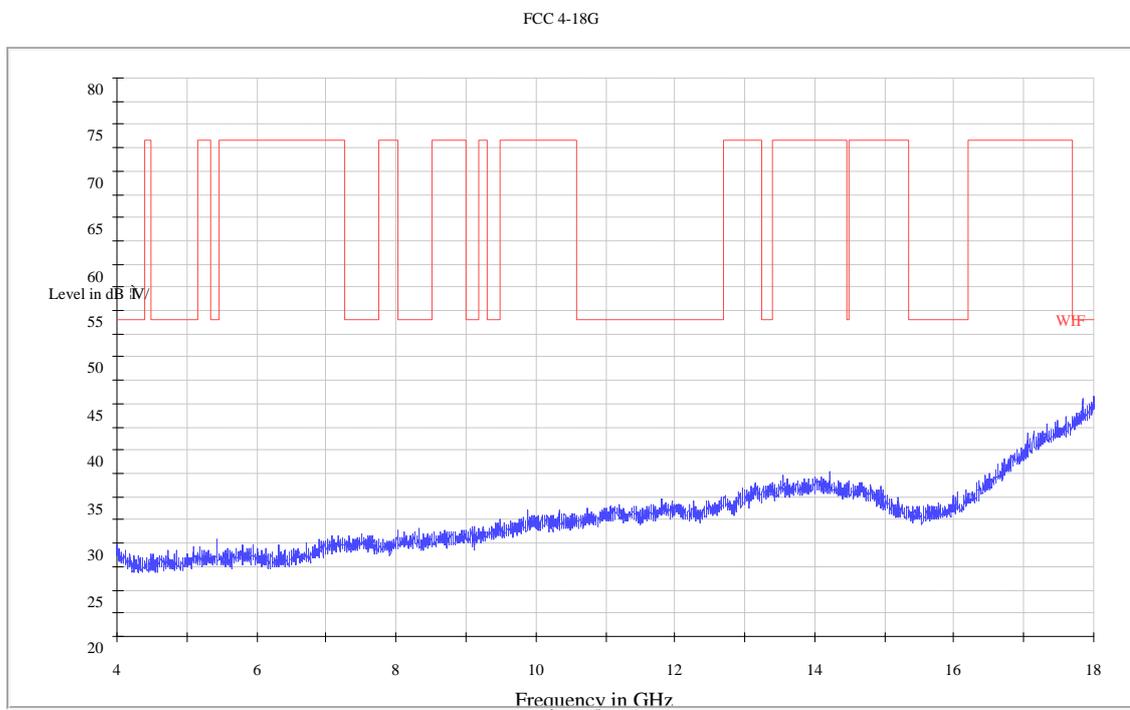


Fig. 60 Radiated Spurious Emission (802.11b, Ch1, 4 GHz-18 GHz)

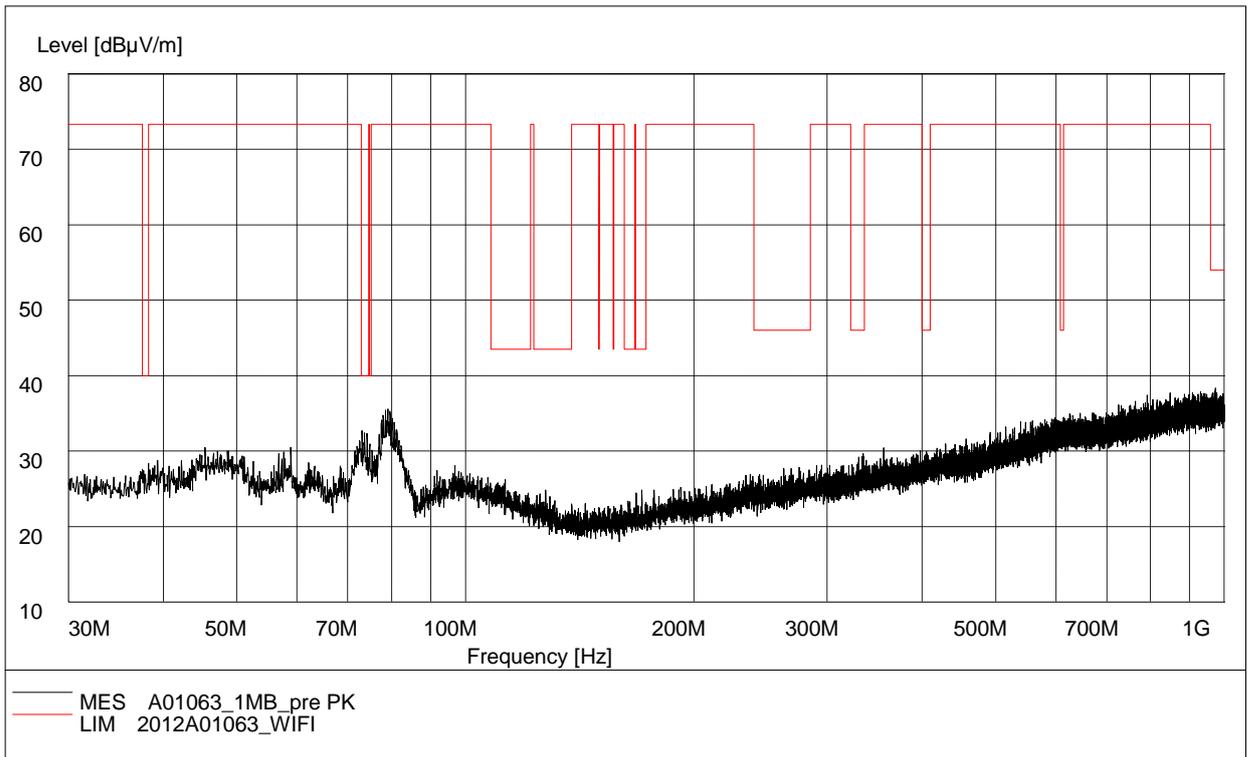


Fig. 61 Radiated Spurious Emission (802.11b, Ch6, 30 MHz-1 GHz)

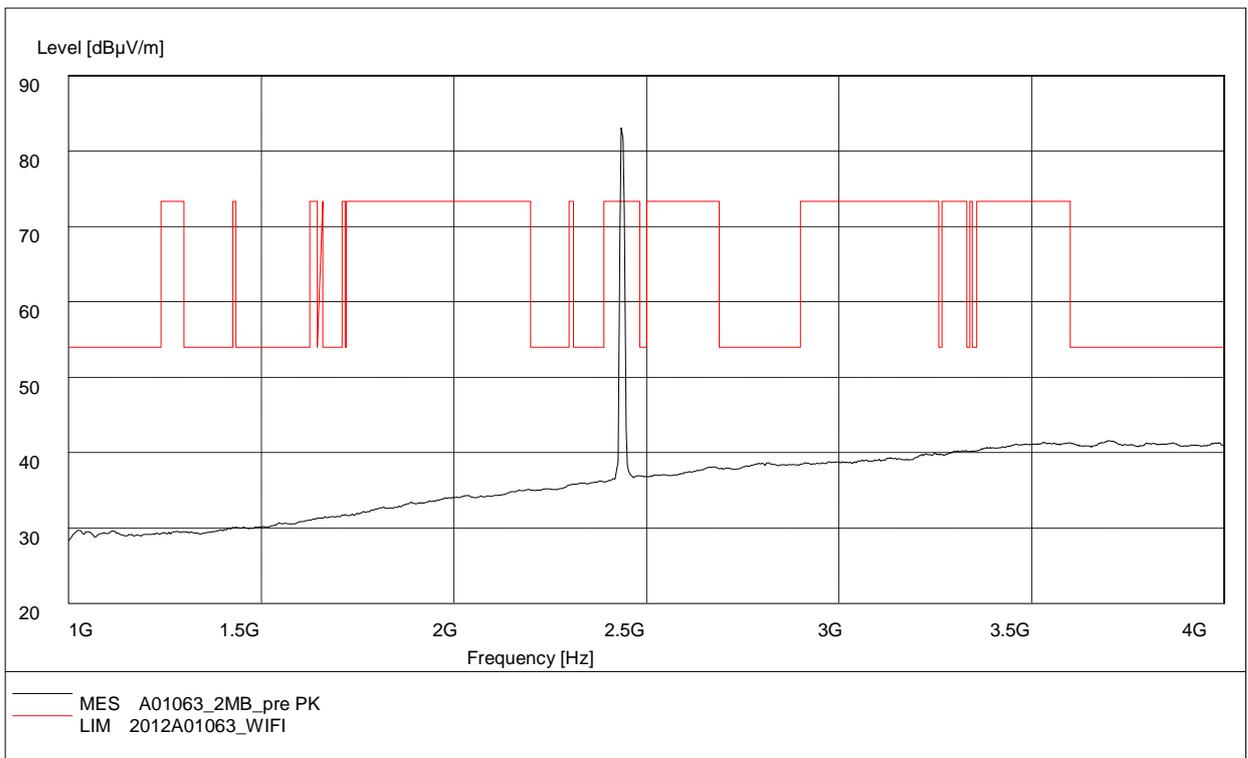


Fig. 62 Radiated Spurious Emission (802.11b, Ch6, 1 GHz-4 GHz)

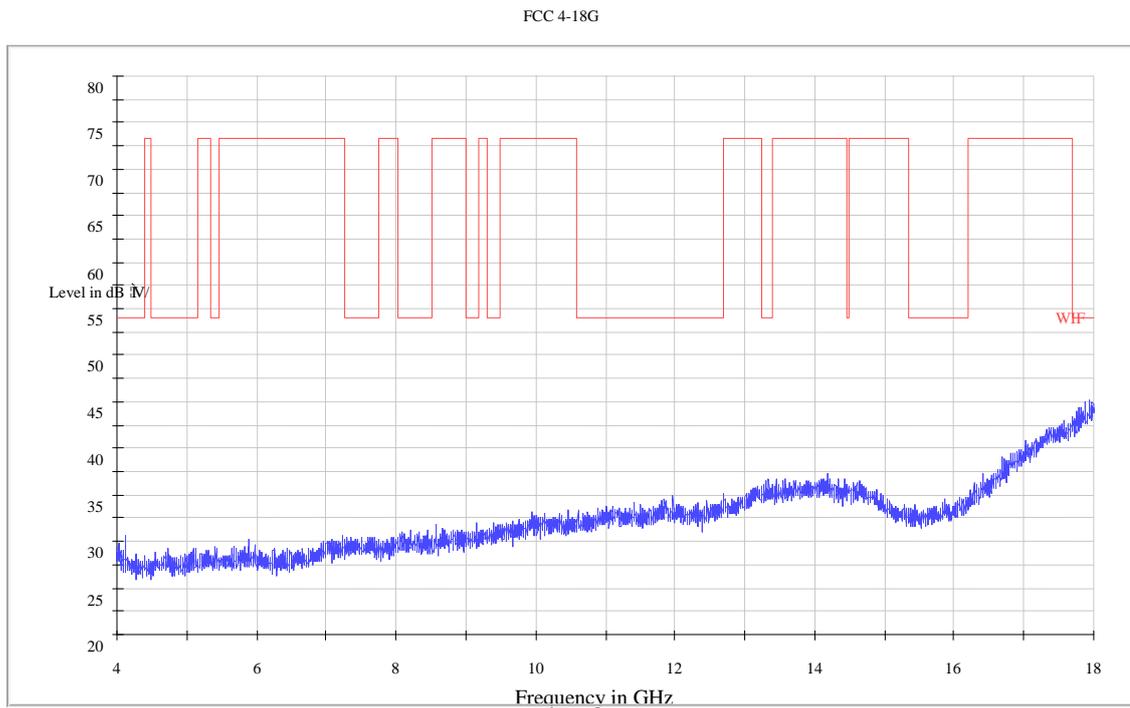


Fig. 63 Radiated Spurious Emission (802.11b, Ch6, 4 GHz-18 GHz)

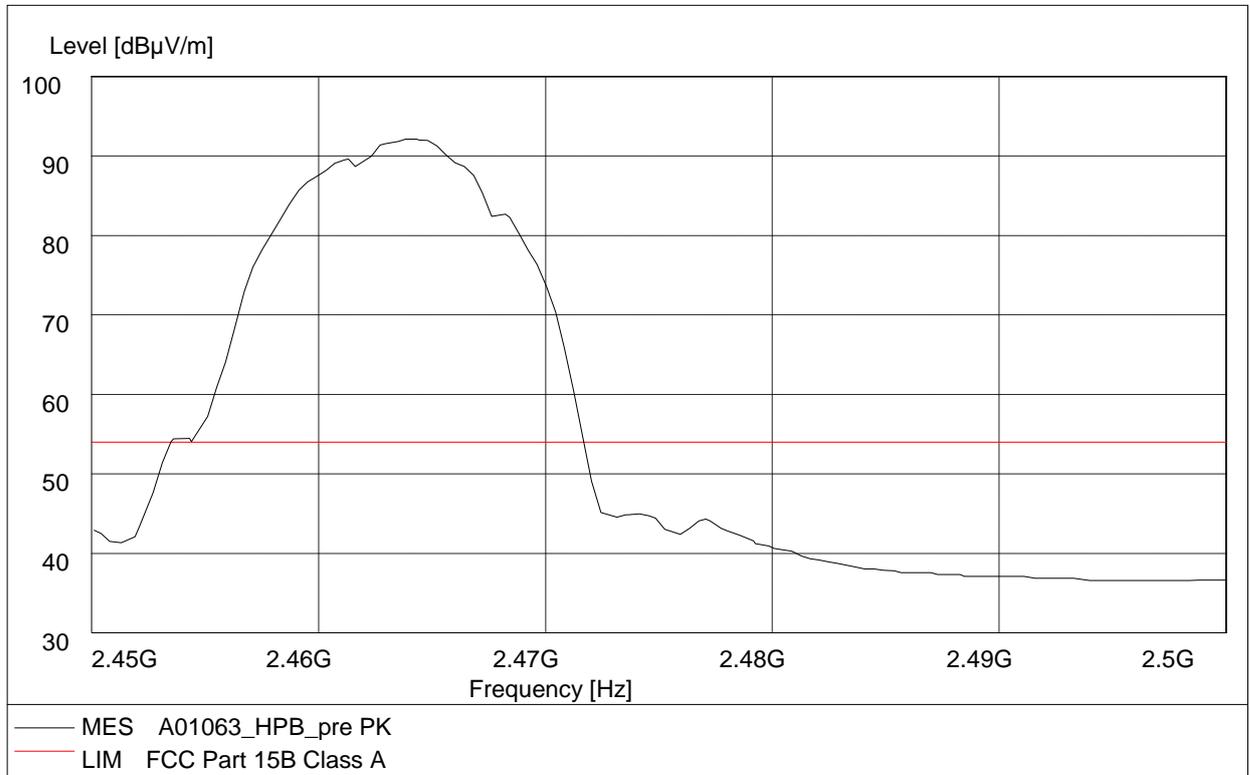


Fig. 64 Radiated Spurious Emission (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

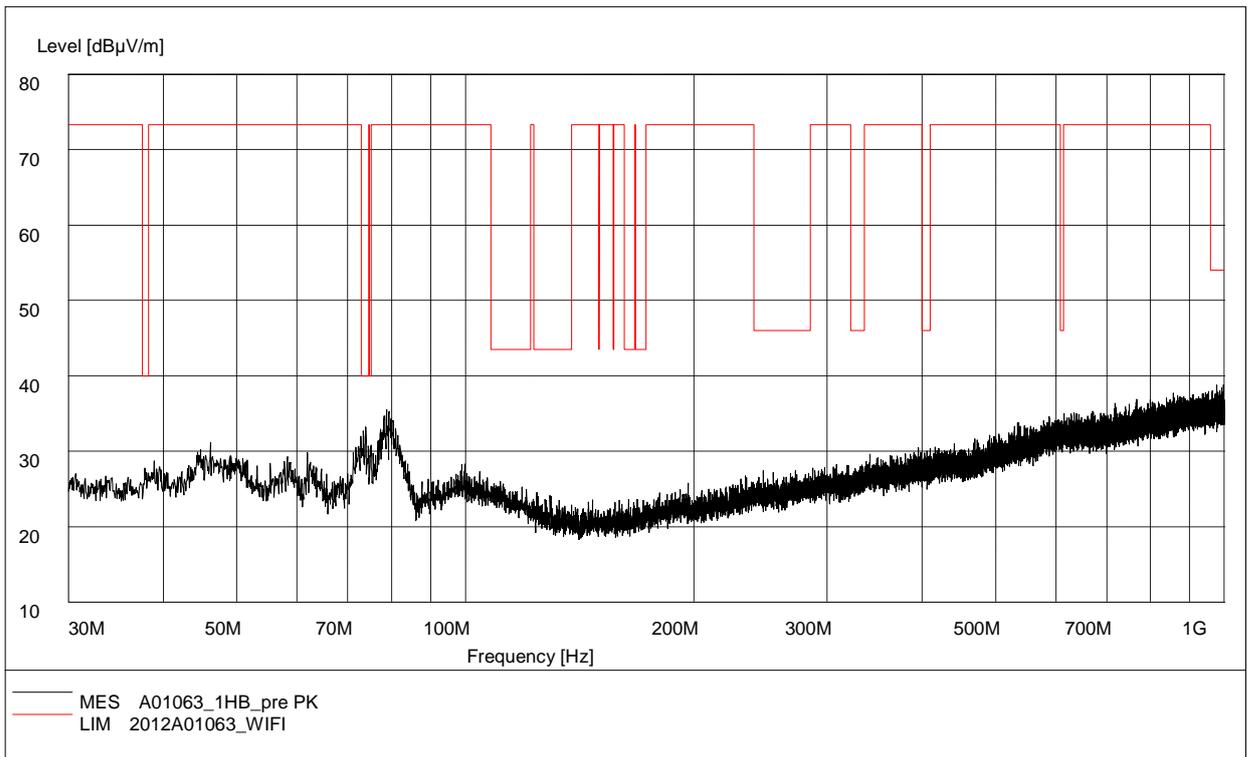


Fig. 65 Radiated Spurious Emission (802.11b, Ch11, 30 MHz-1 GHz)

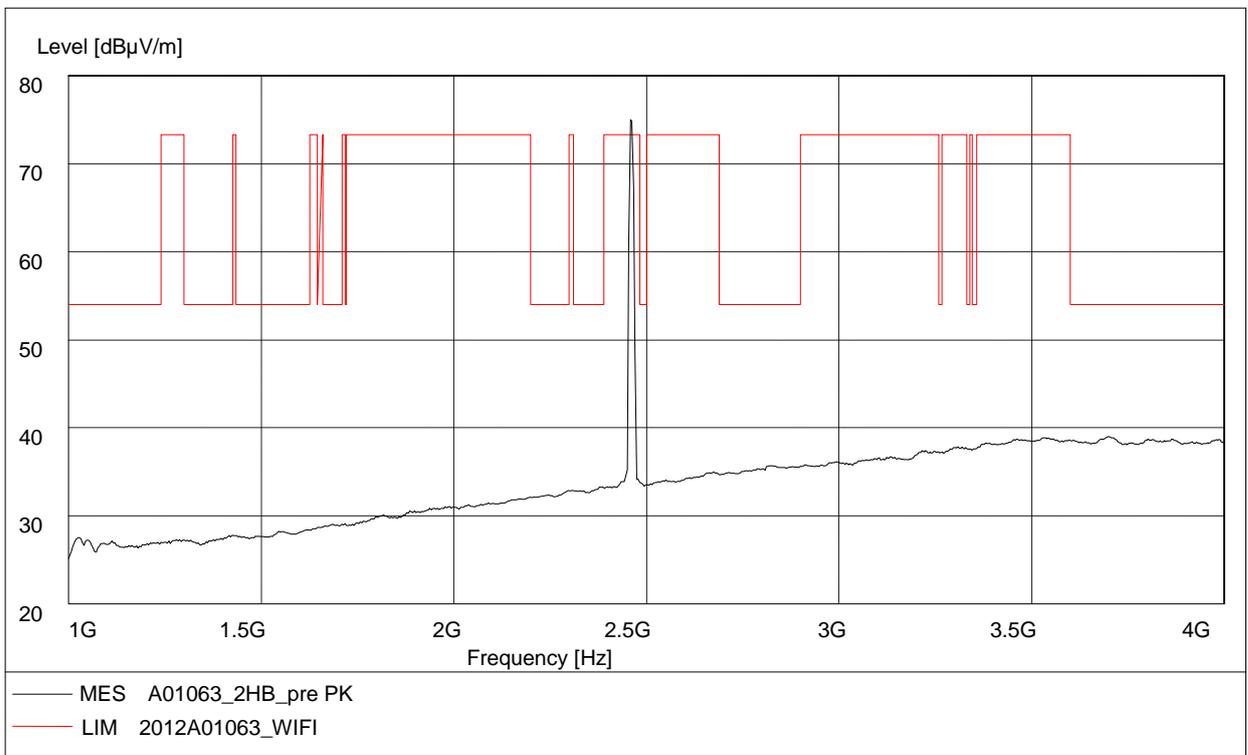


Fig. 66 Radiated Spurious Emission (802.11b, Ch11, 1 GHz-4 GHz)

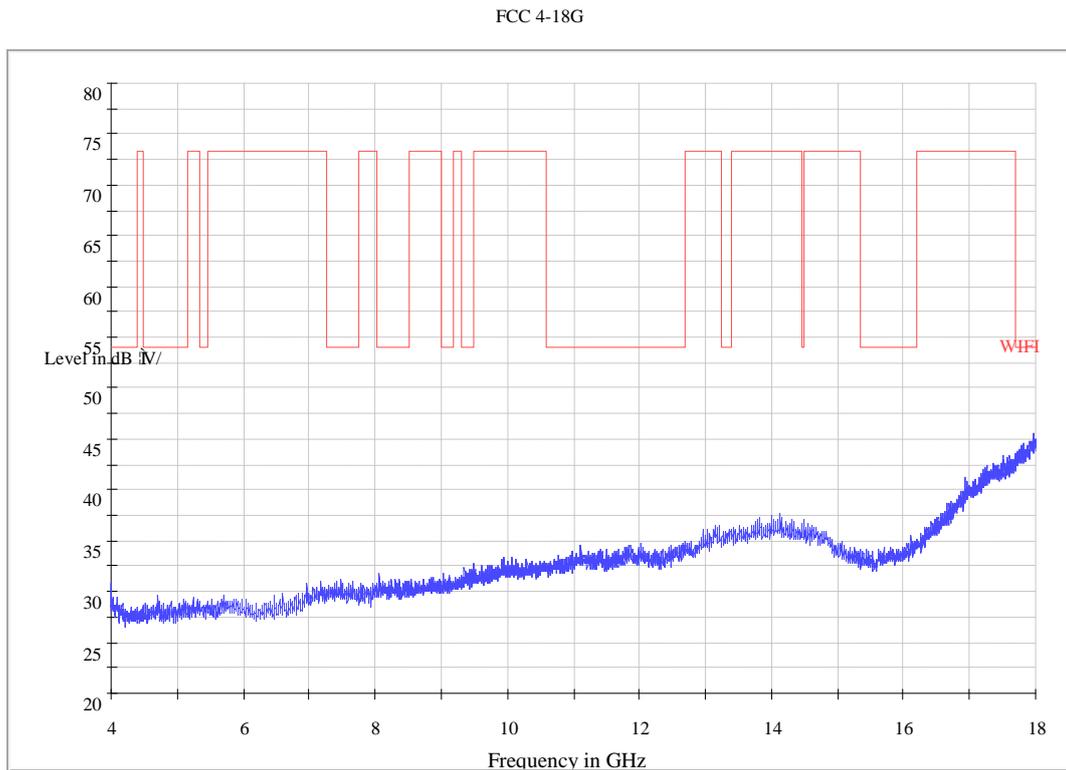


Fig. 67 Radiated Spurious Emission (802.11b, Ch11, 4 GHz-18 GHz)

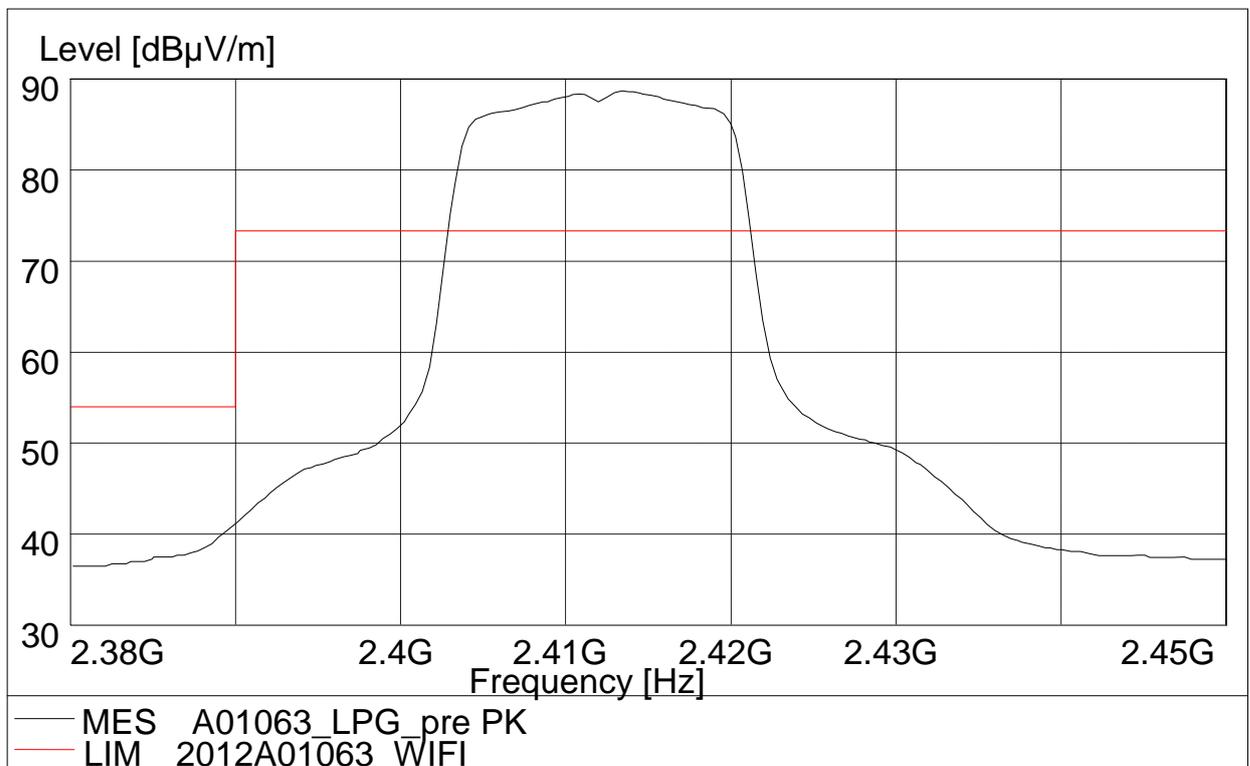


Fig. 68 Radiated Spurious Emission (Power): 802.11g, ch1, 2.38 GHz - 2.45GHz

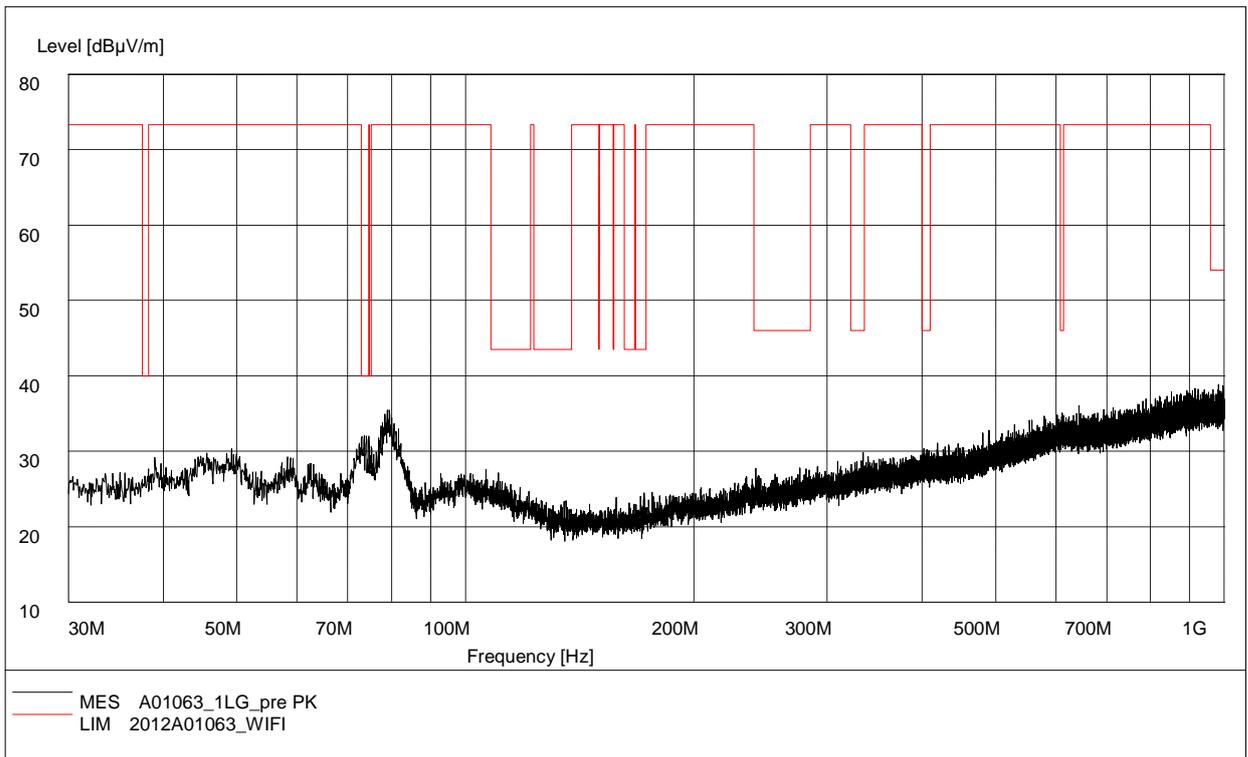


Fig. 69 Radiated Spurious Emission (802.11g, Ch1, 30 MHz-1 GHz)

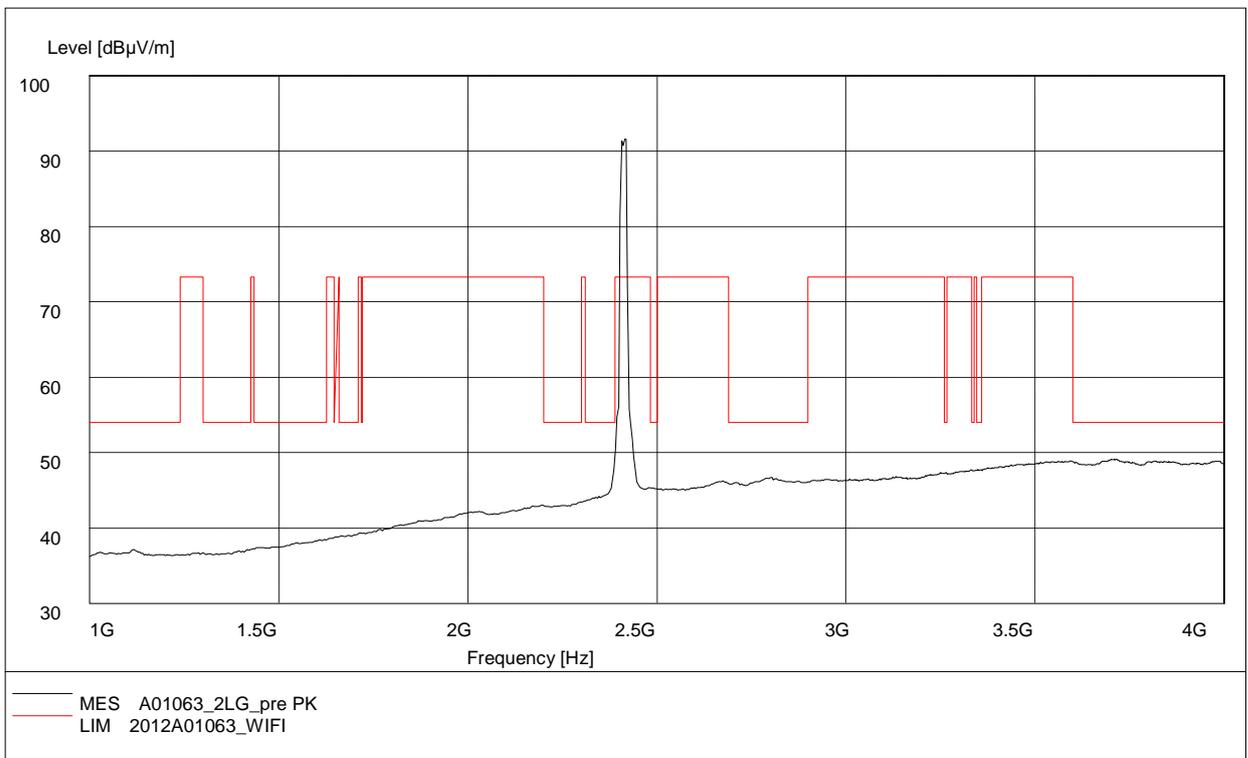


Fig. 70 Radiated Spurious Emission (802.11g, Ch1, 1 GHz-4 GHz)

FCC 4-18G

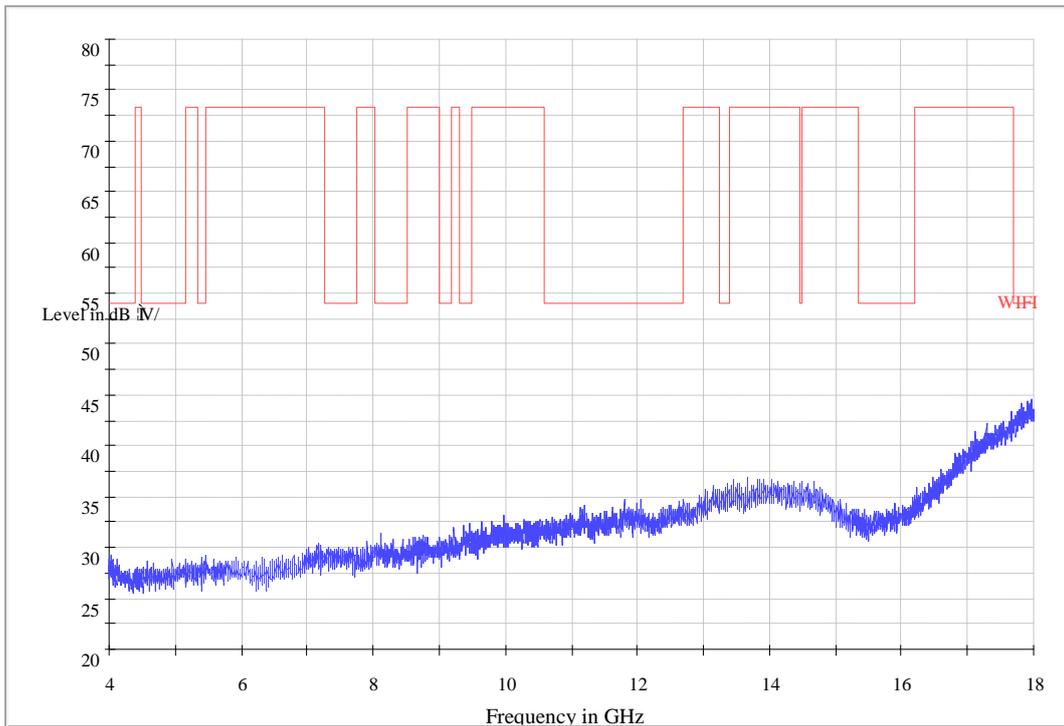


Fig. 71 Radiated Spurious Emission (802.11g, Ch1, 4 GHz-18 GHz)

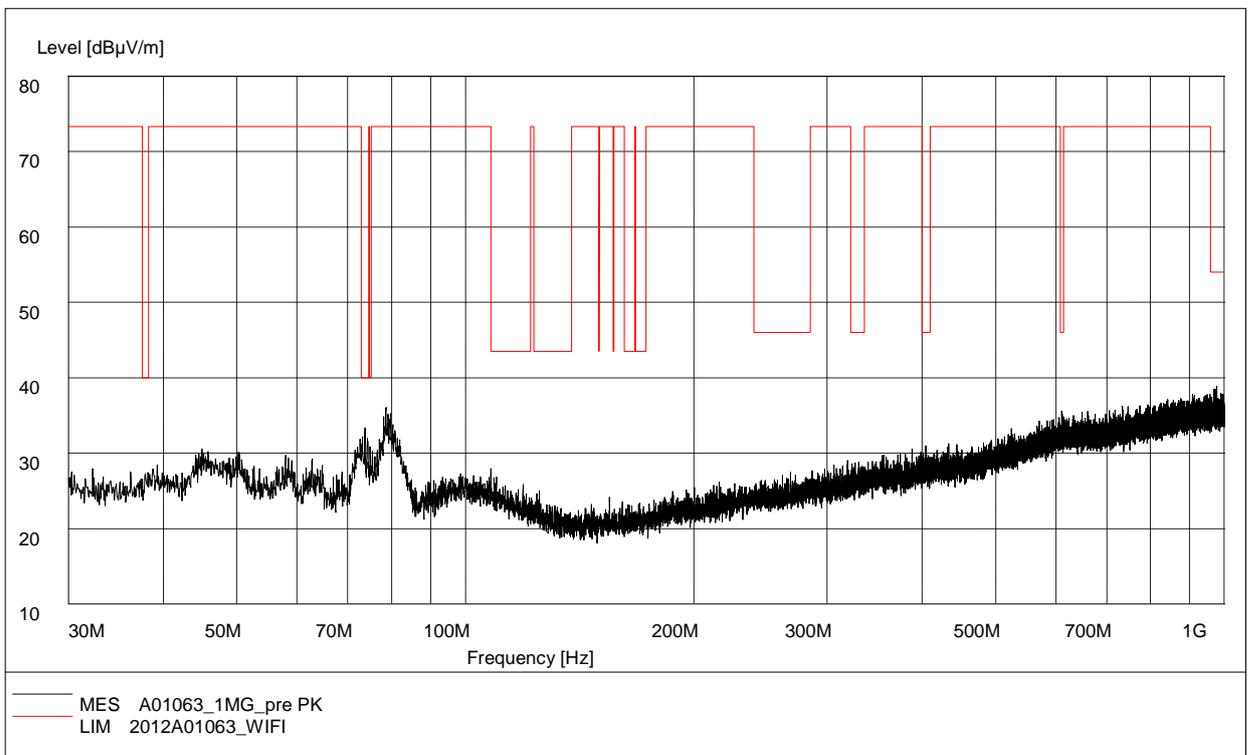


Fig. 72 Radiated Spurious Emission (802.11g, Ch6, 30 MHz-1 GHz)

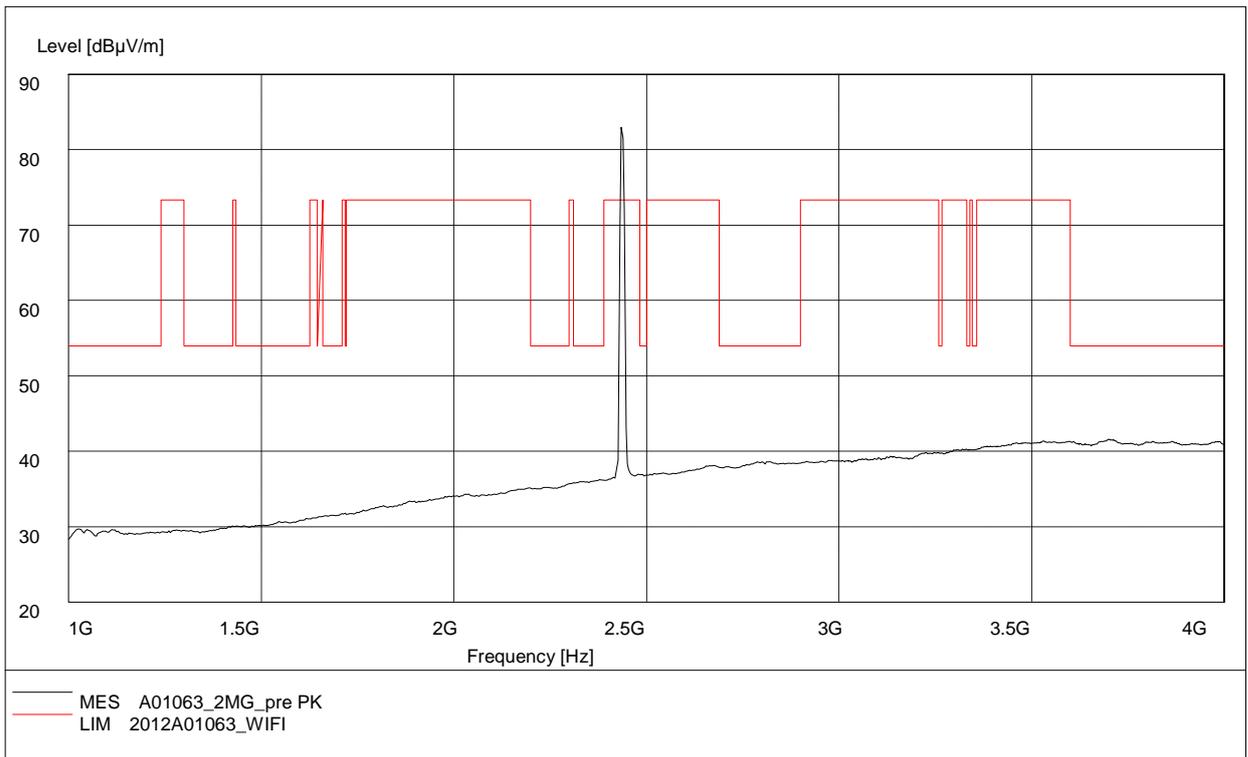


Fig. 73 Radiated Spurious Emission (802.11g, Ch6, 1 GHz-4 GHz)

FCC 4-18G

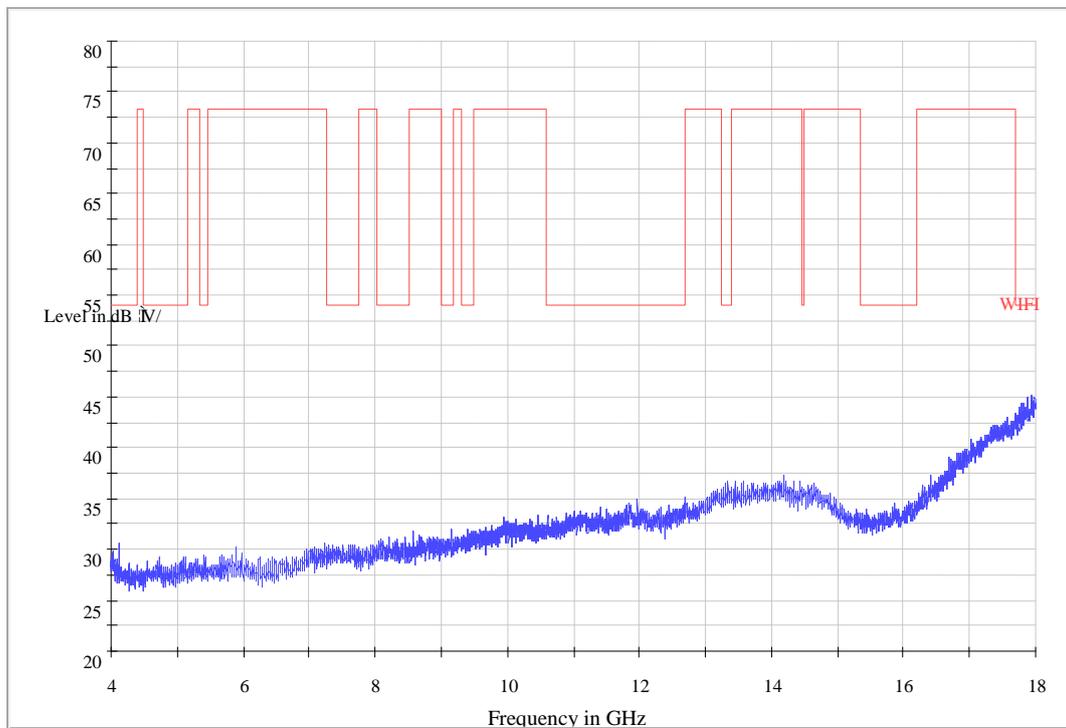


Fig. 74 Radiated Spurious Emission (802.11g, Ch6, 4 GHz-18 GHz)

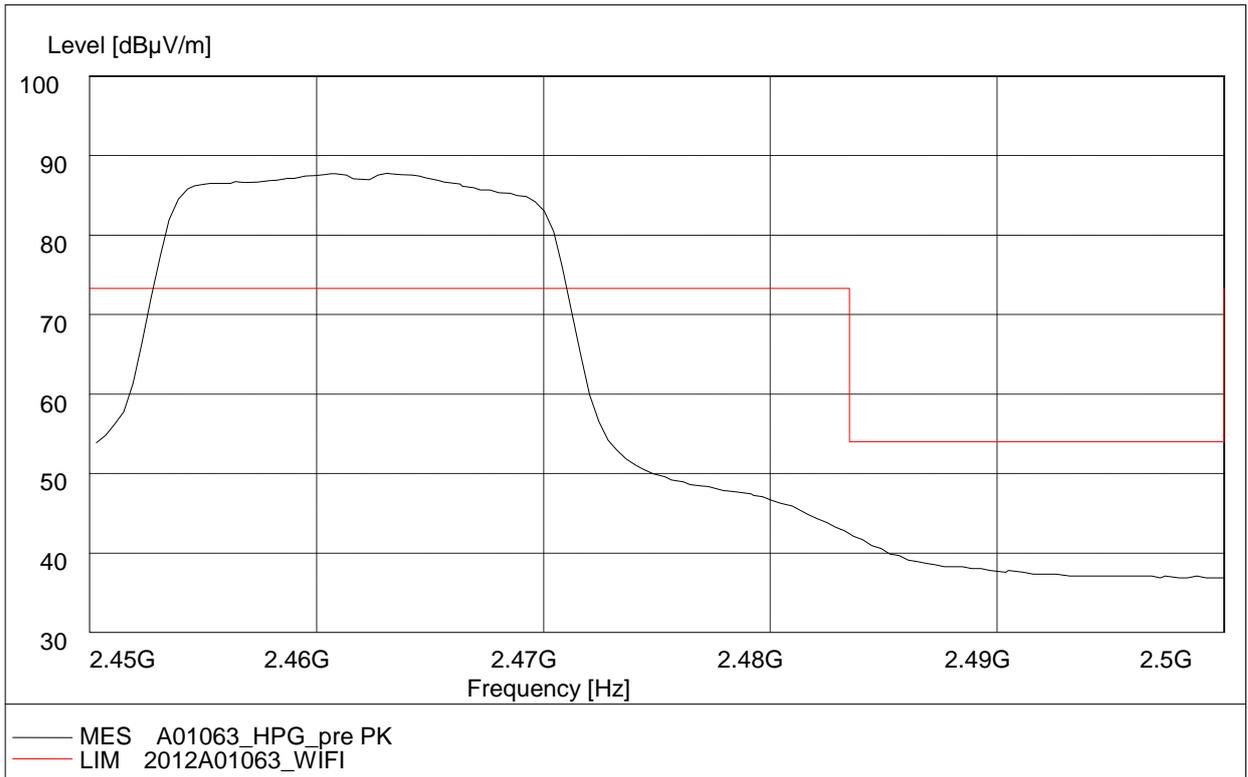


Fig. 75 Radiated Spurious Emission (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

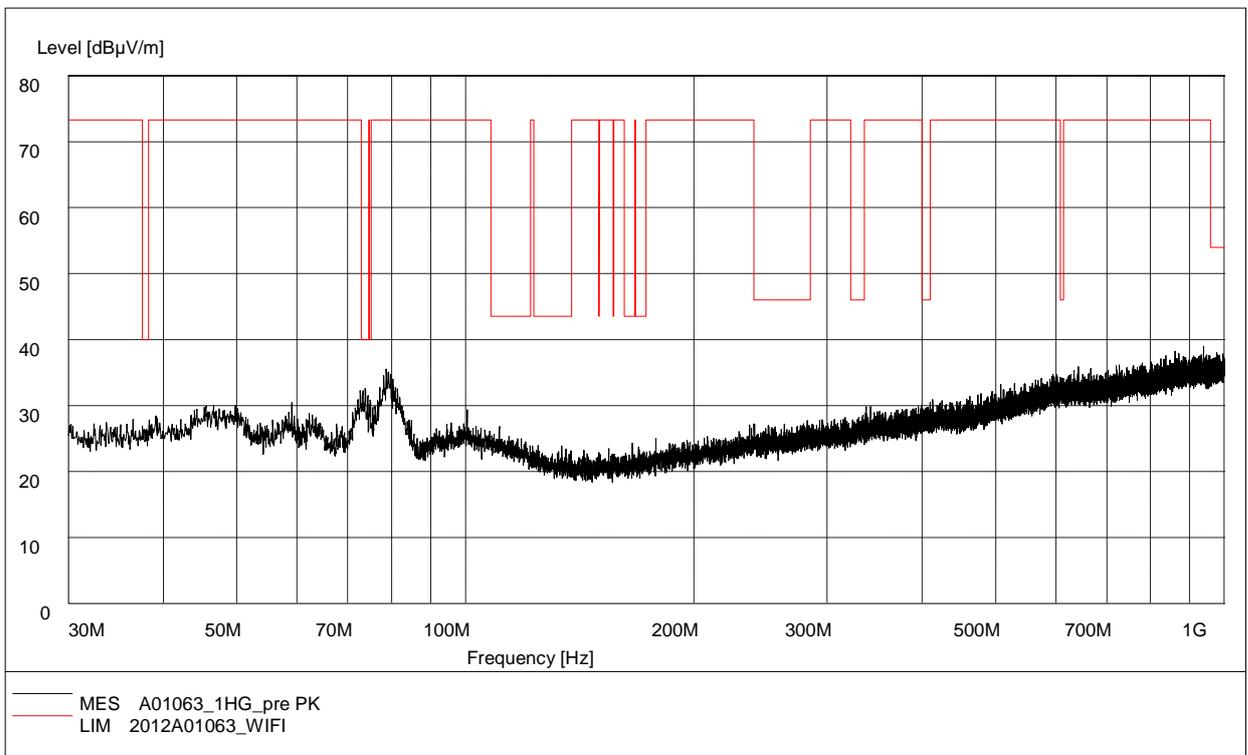


Fig. 76 Radiated Spurious Emission (802.11g, Ch11, 30 MHz-1 GHz)

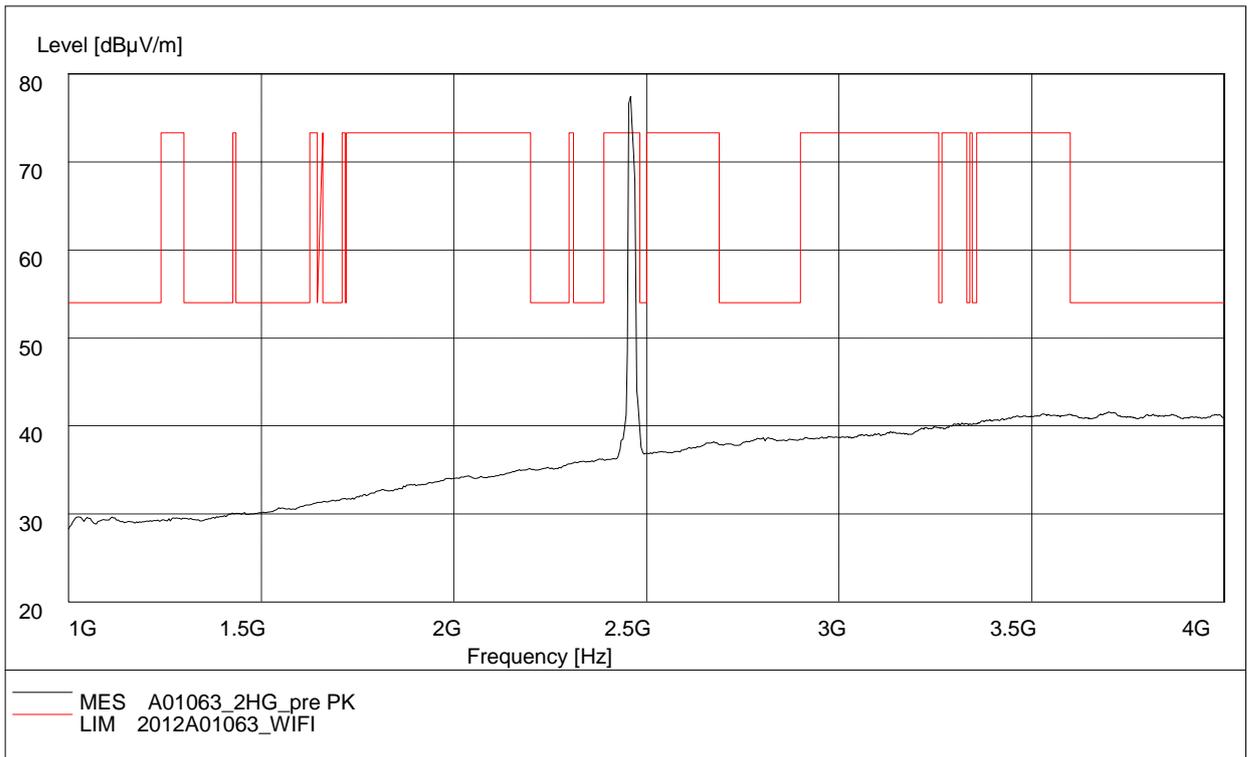


Fig. 77 Radiated Spurious Emission (802.11g, Ch11, 1 GHz-4 GHz)

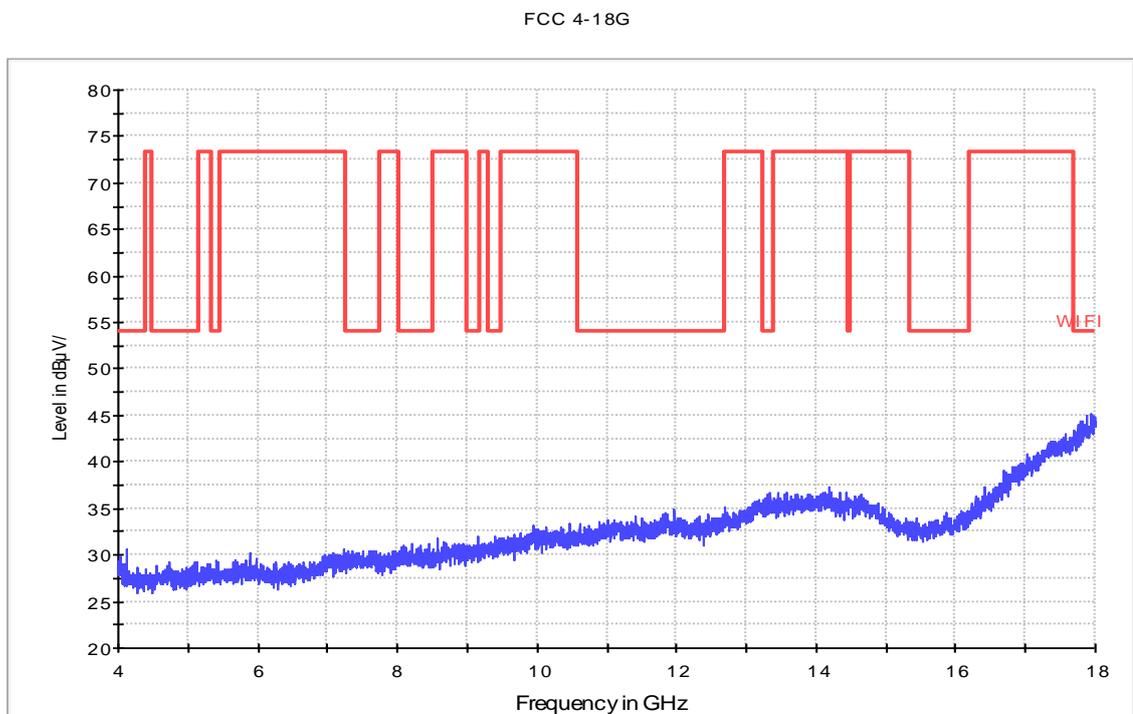


Fig. 78 Radiated Spurious Emission (802.11g, Ch11, 4 GHz-18 GHz)

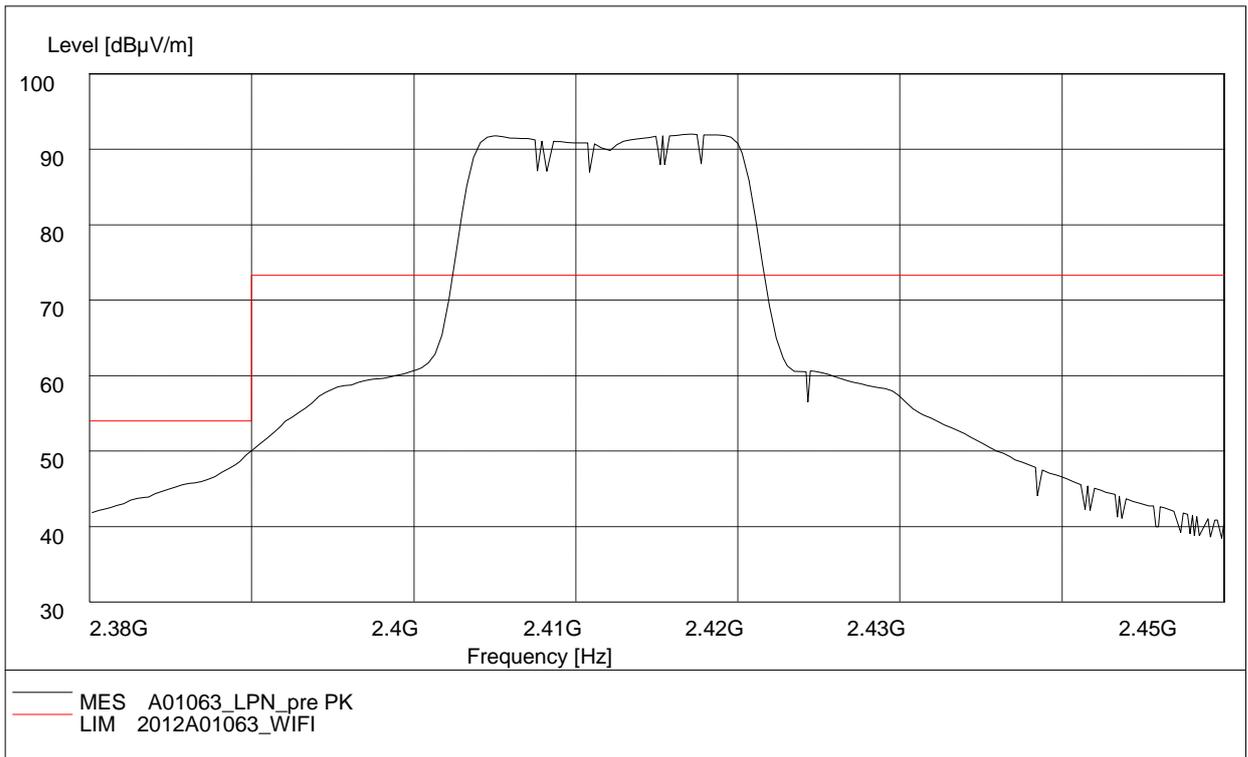


Fig. 79 Radiated Spurious Emission (Power): 802.11n-20MHz, ch1, 2.38 GHz - 2.45GHz

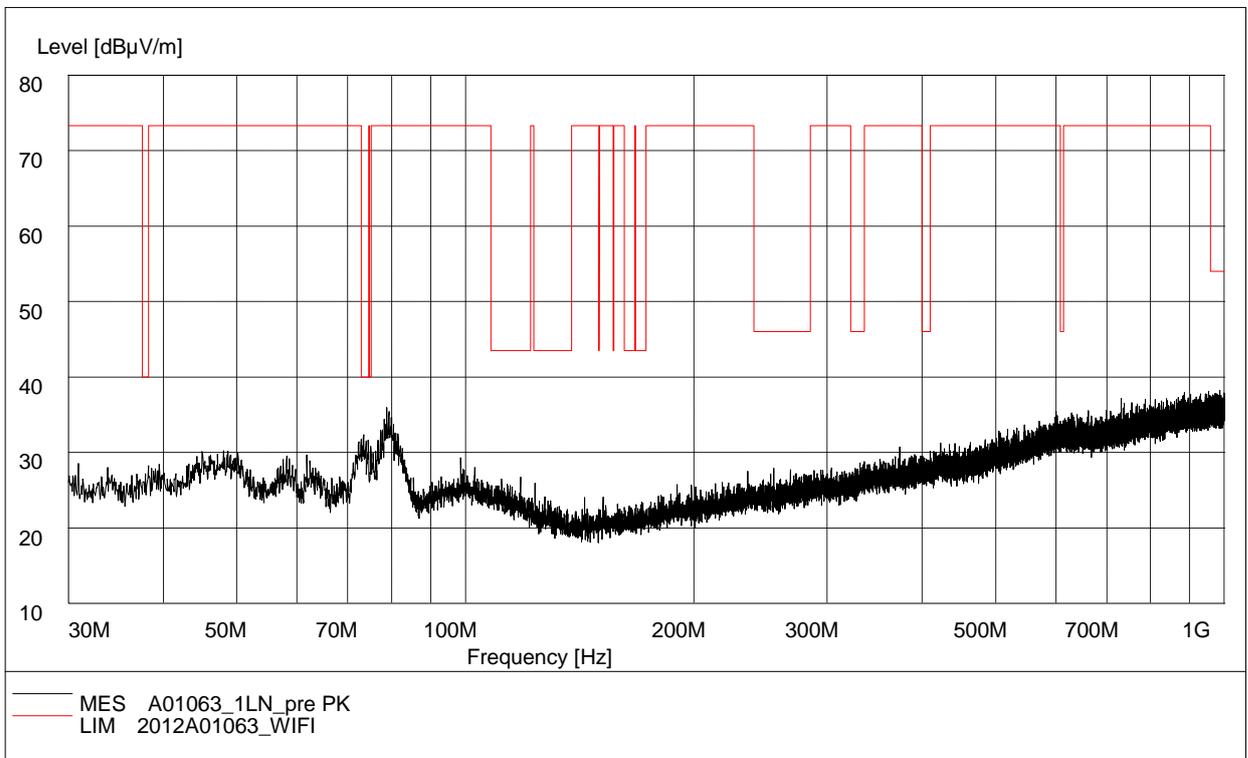


Fig. 80 Radiated Spurious Emission (802.11n-20MHz, Ch1, 30 MHz-1 GHz)

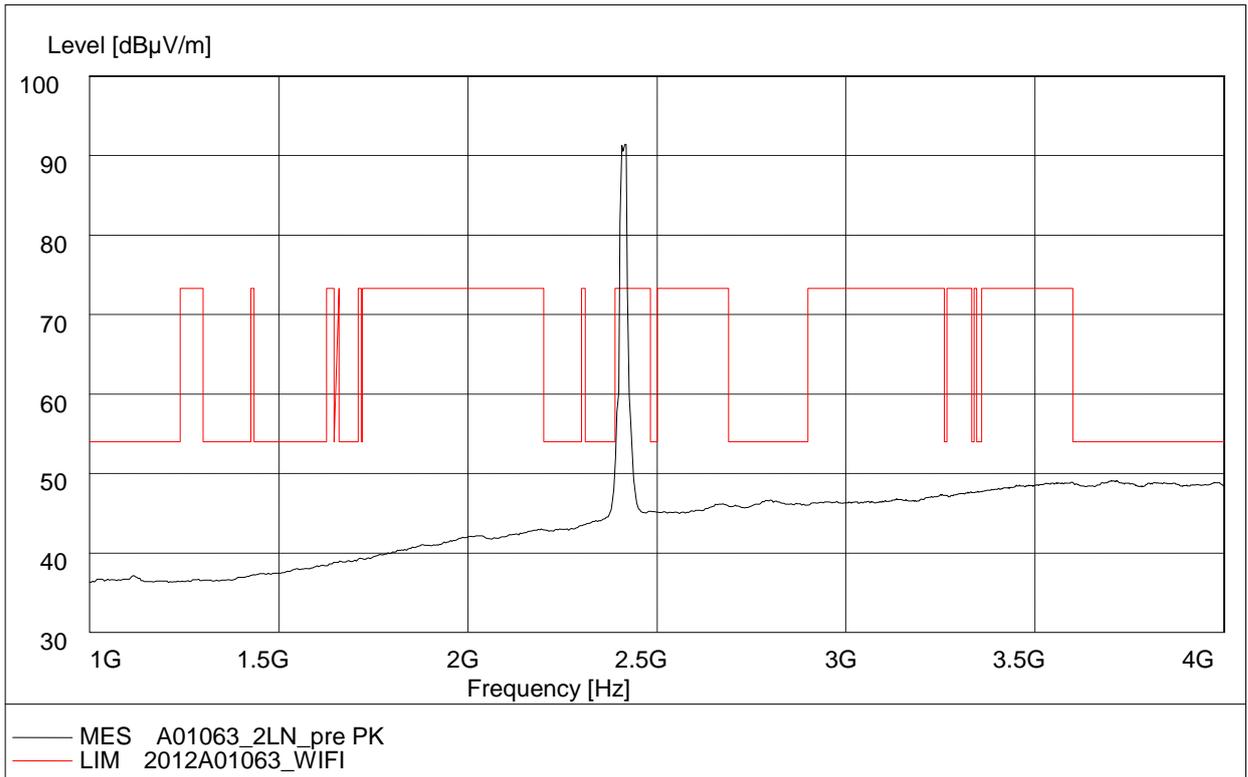


Fig. 81 Radiated Spurious Emission (802.11n-20MHz, Ch1, 1 GHz-4 GHz)

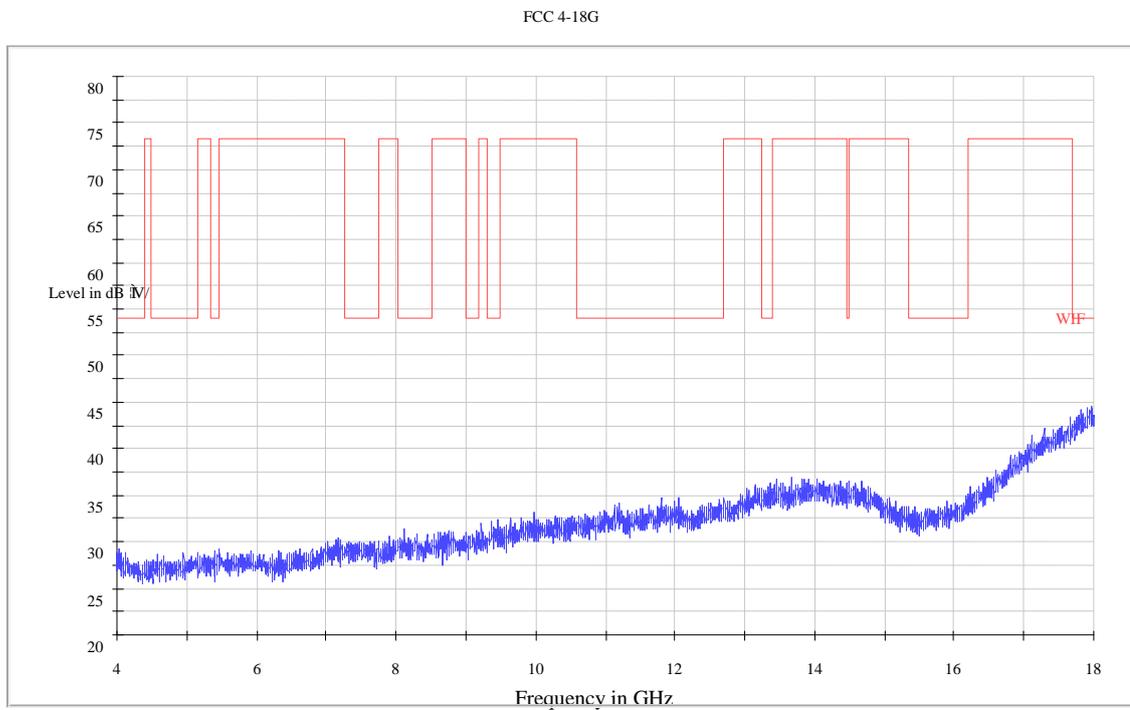


Fig. 82 Radiated Spurious Emission (802.11n-20MHz, Ch1, 4 GHz-18 GHz)

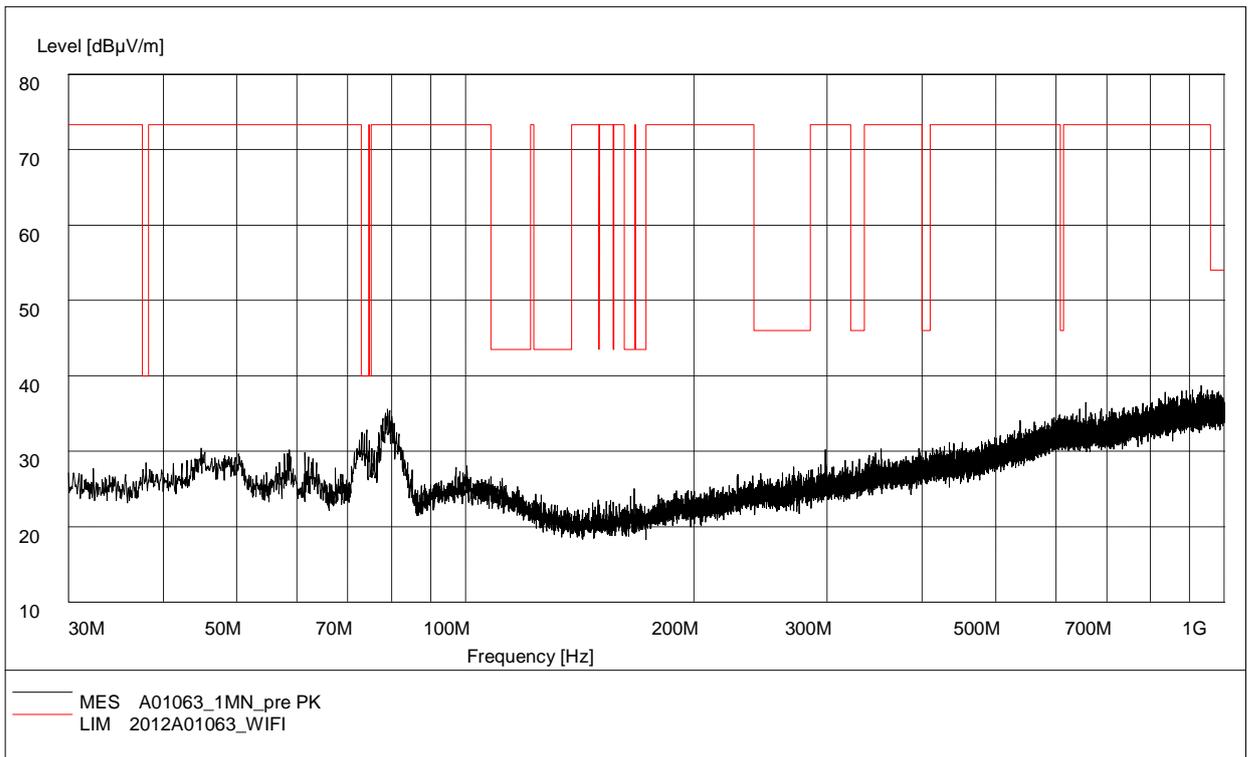


Fig. 83 Radiated Spurious Emission (802.11n-20MHz, Ch6, 30 MHz-1 GHz)

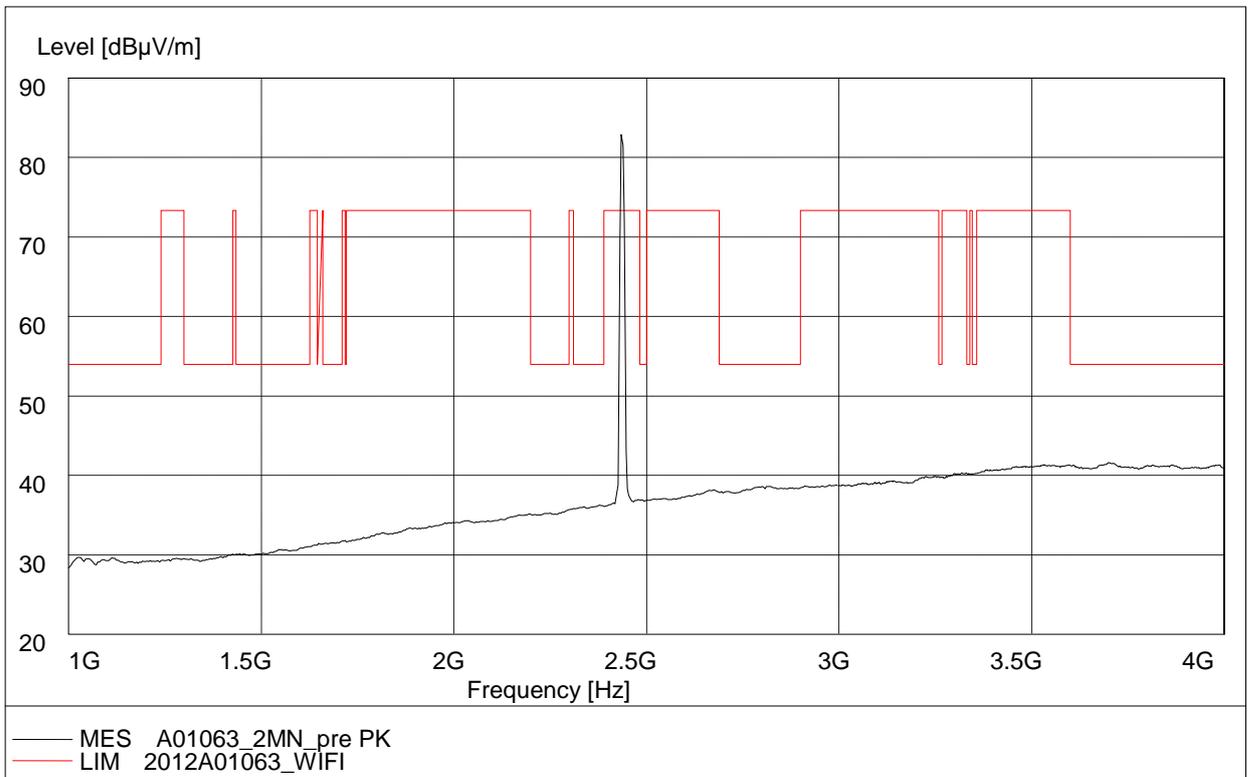


Fig. 84 Radiated Spurious Emission (802.11n-20MHz, Ch6, 1 GHz-4 GHz)

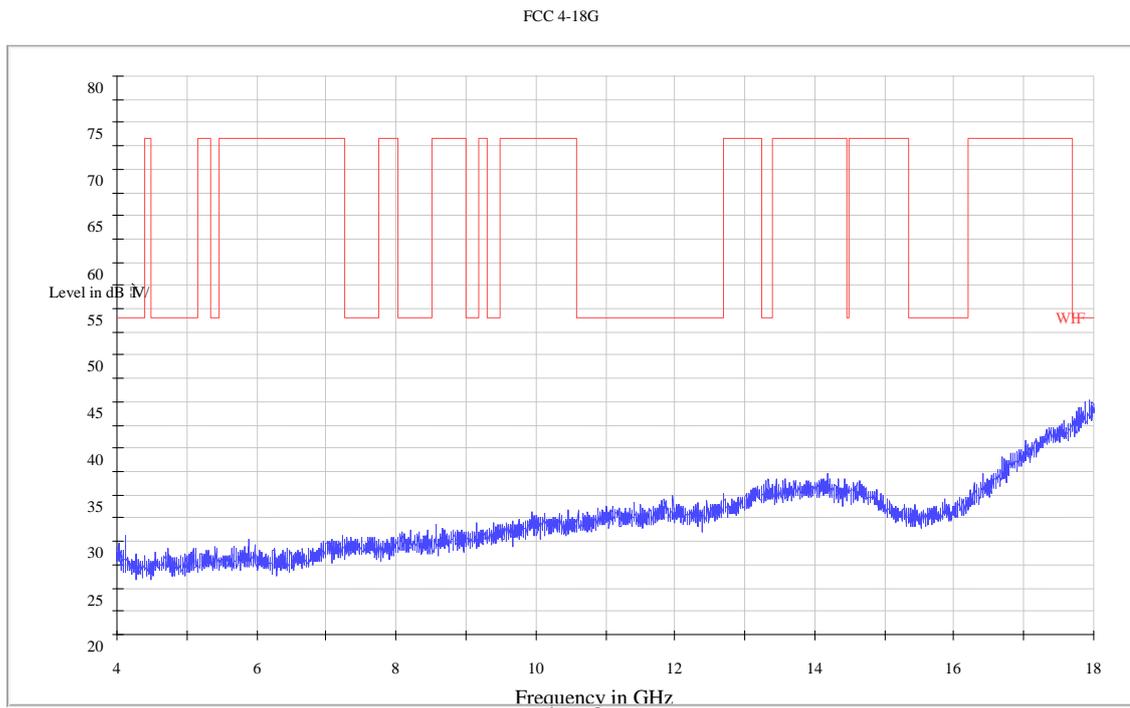


Fig. 85 Radiated Spurious Emission (802.11n-20MHz, Ch6, 4 GHz-18 GHz)

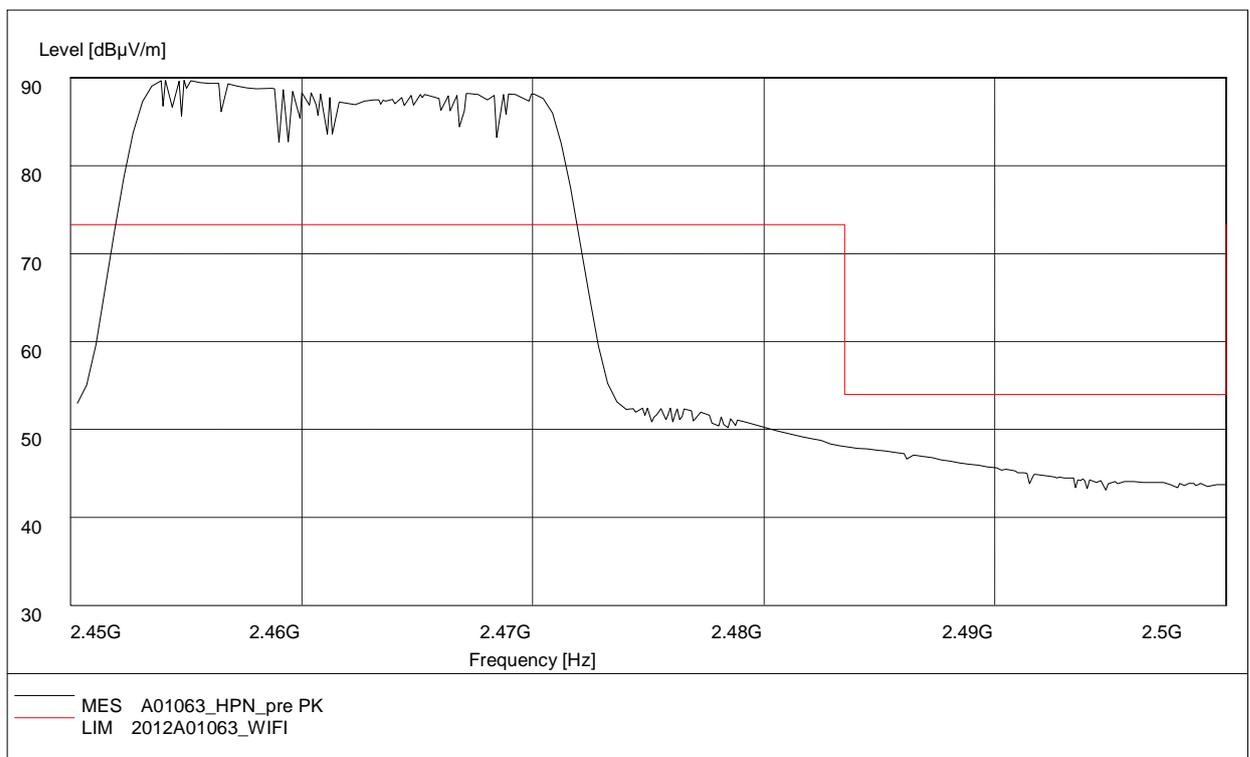


Fig. 86 Radiated Spurious Emission (Power): 802.11n-20MHz, ch11, 2.45 GHz - 2.50GHz

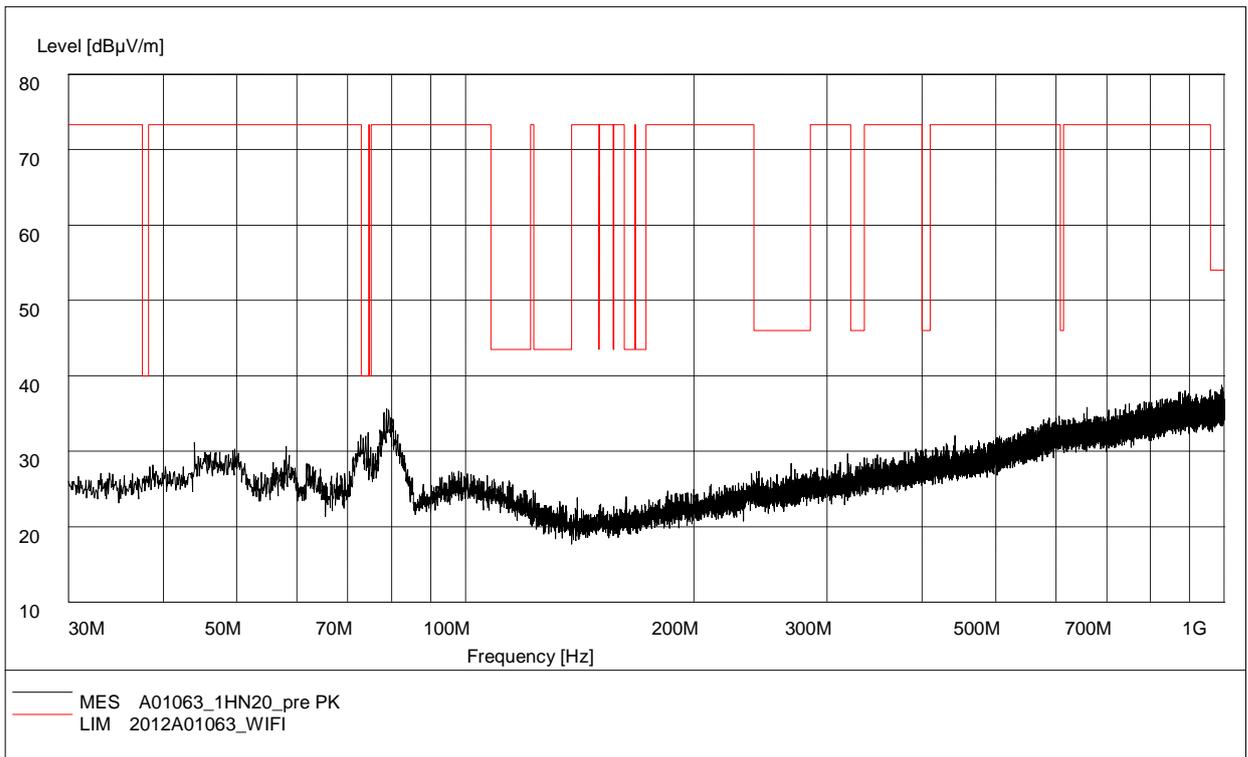


Fig. 87 Radiated Spurious Emission (802.11n-20MHz, Ch11, 30 MHz-1 GHz)

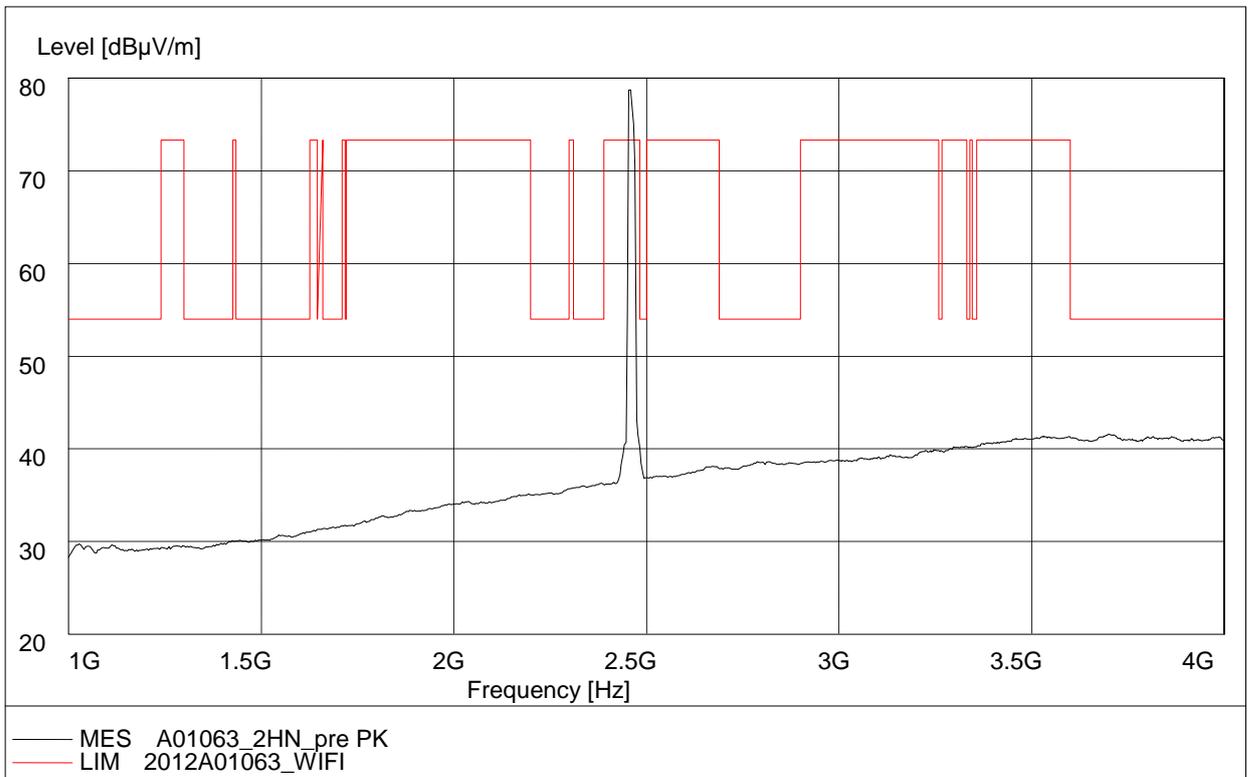


Fig. 88 Radiated Spurious Emission (802.11n-20MHz, Ch11, 1 GHz-4 GHz)

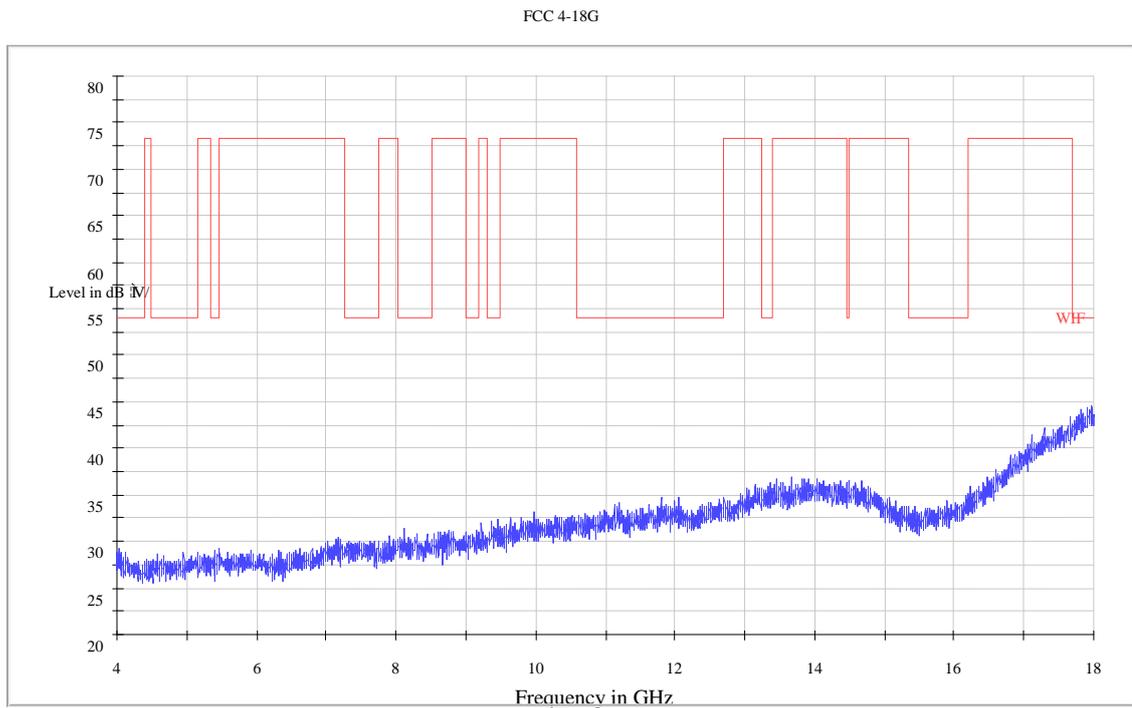


Fig. 89 Radiated Spurious Emission (802.11n-20MHz, Ch11, 4 GHz-18 GHz)

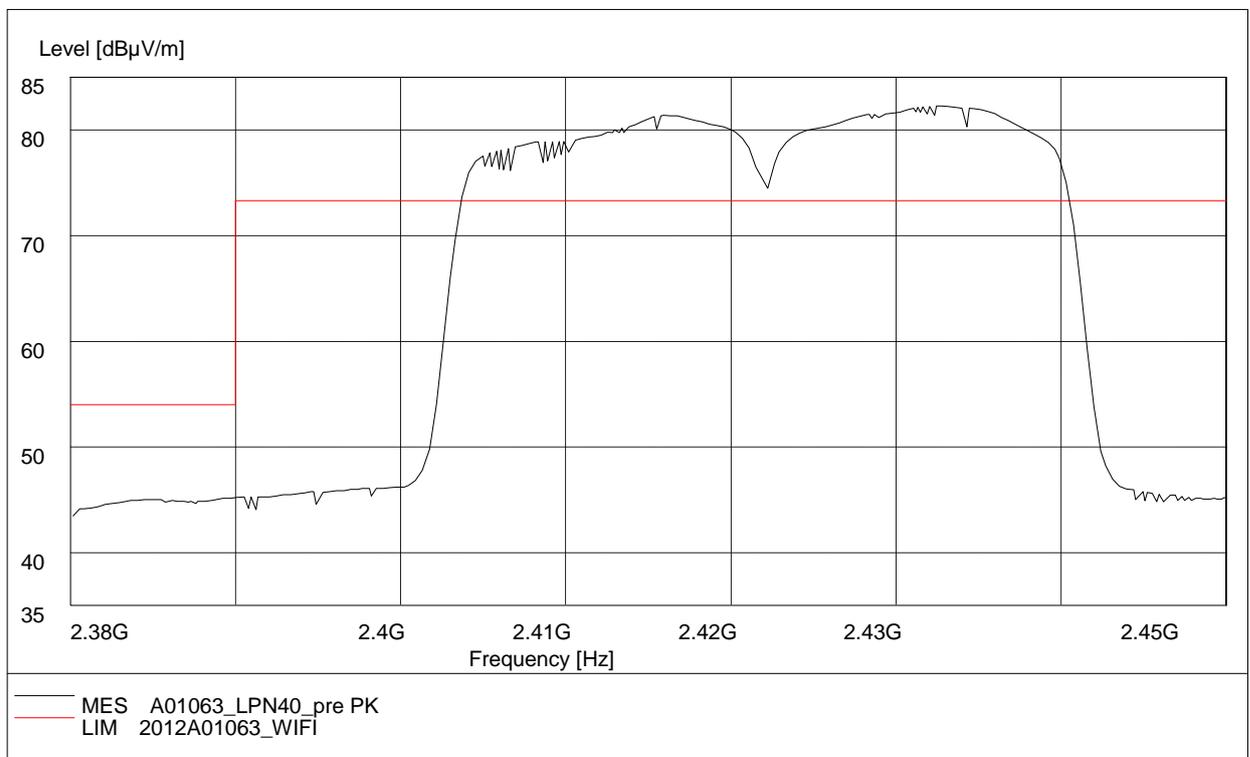


Fig. 90 Radiated Spurious Emission (Power): 802.11n-40MHz, ch3, 2.38 GHz - 2.45GHz

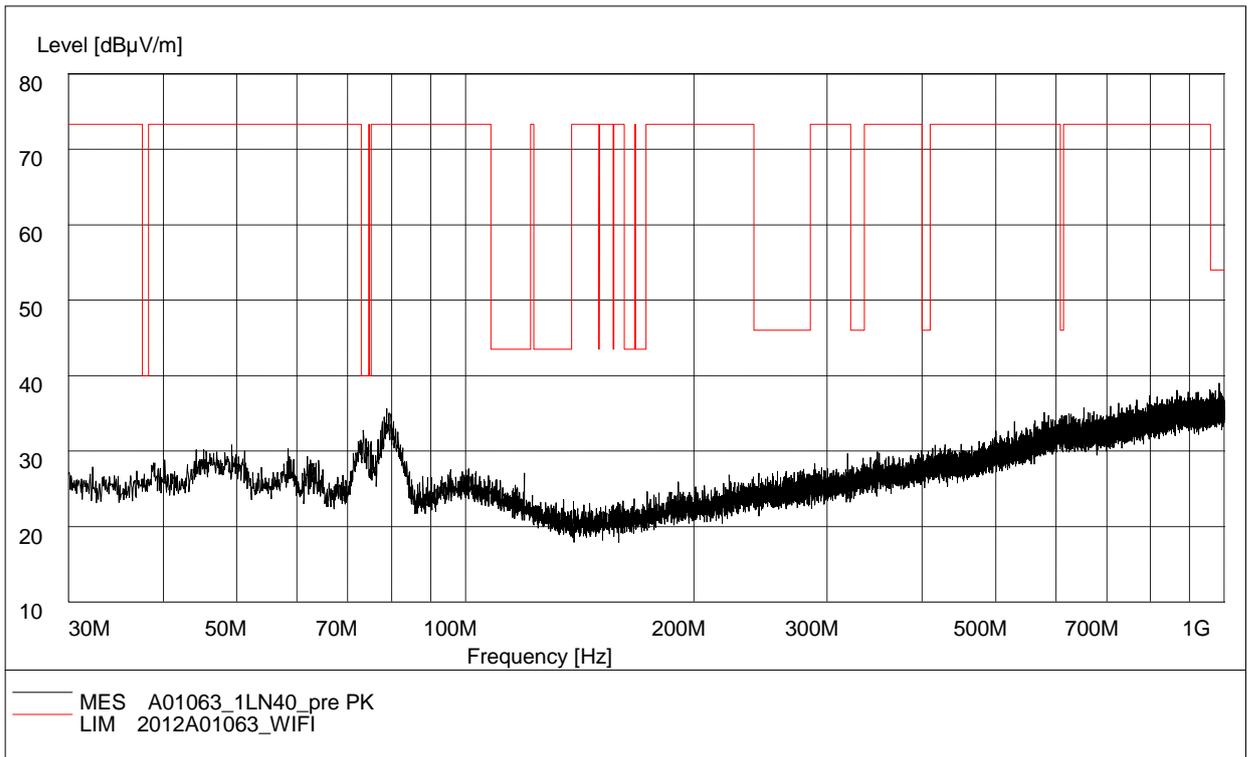


Fig. 91 Radiated Spurious Emission (802.11n-40MHz, Ch3, 30 MHz-1 GHz)

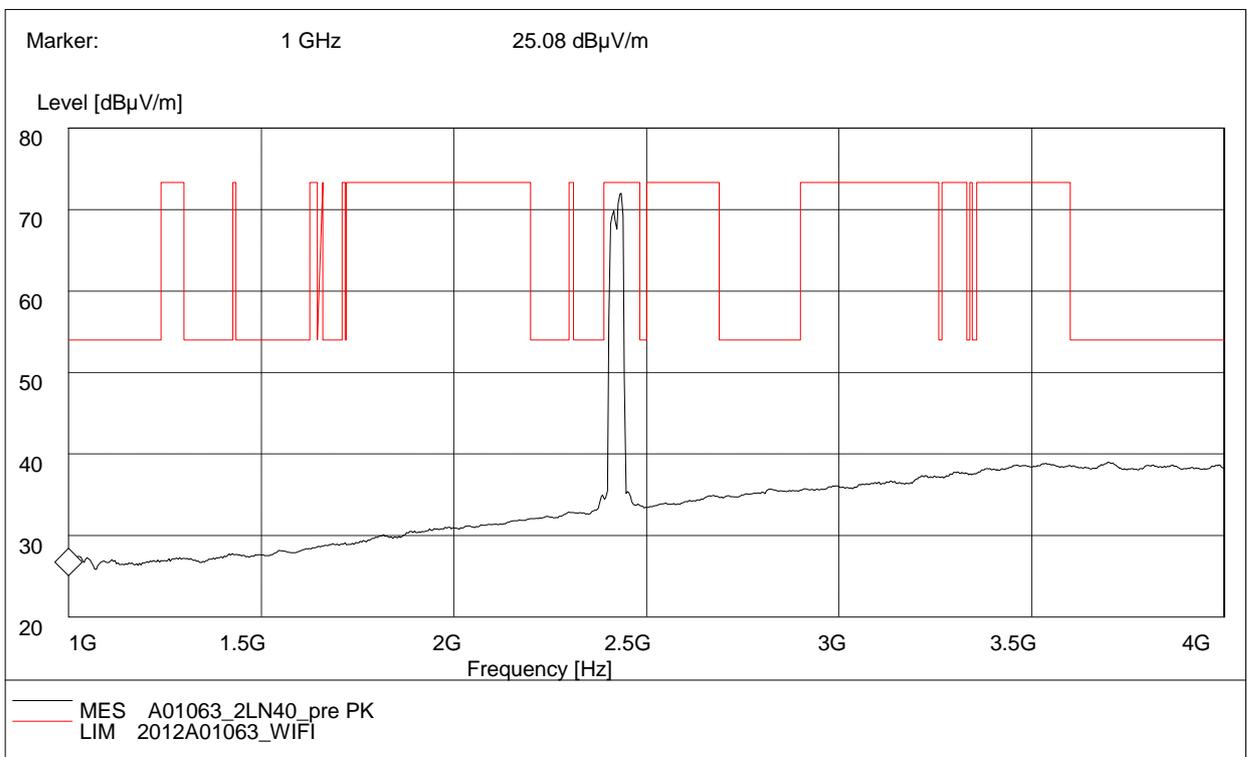


Fig. 92 Radiated Spurious Emission (802.11n-40MHz, Ch3, 1 GHz-4 GHz)

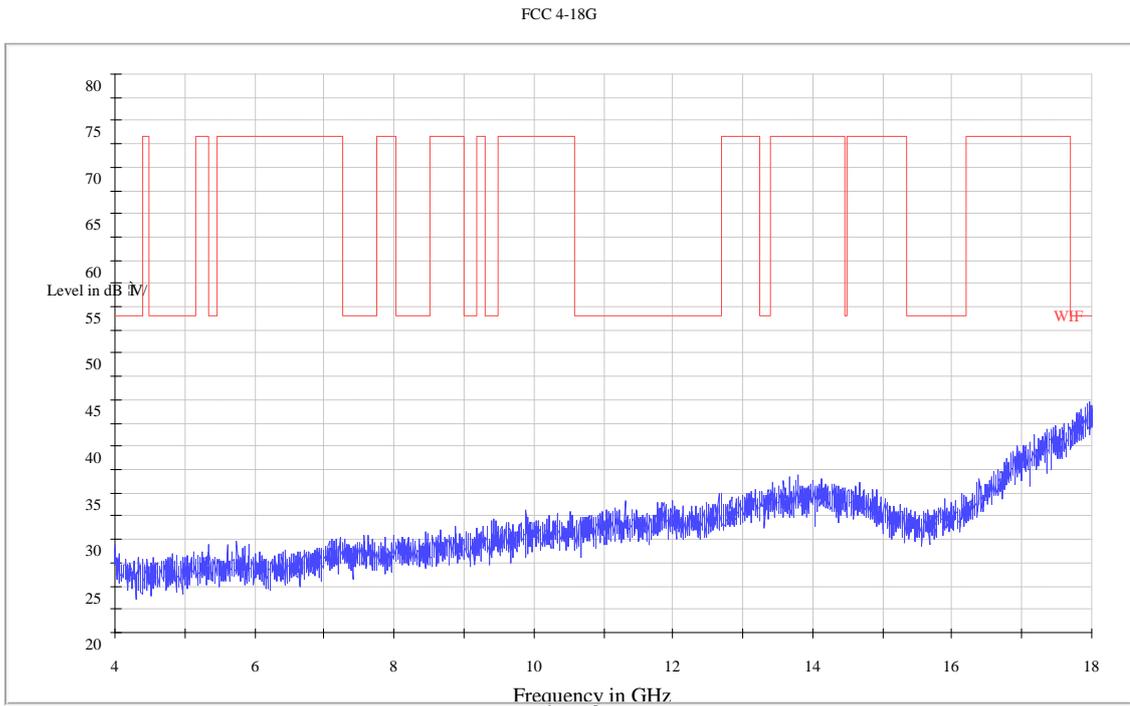


Fig. 93 Radiated Spurious Emission (802.11n-40MHz, Ch3, 4 GHz-18 GHz)

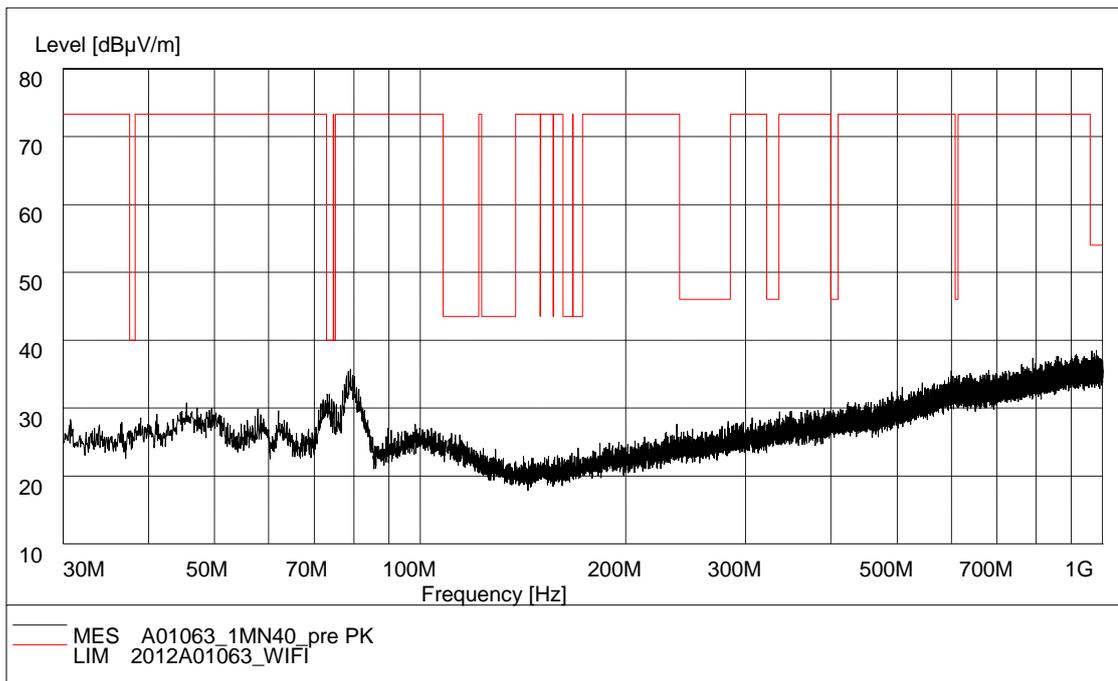


Fig. 94 Radiated Spurious Emission (802.11n-40MHz, Ch6, 30 MHz-1 GHz)

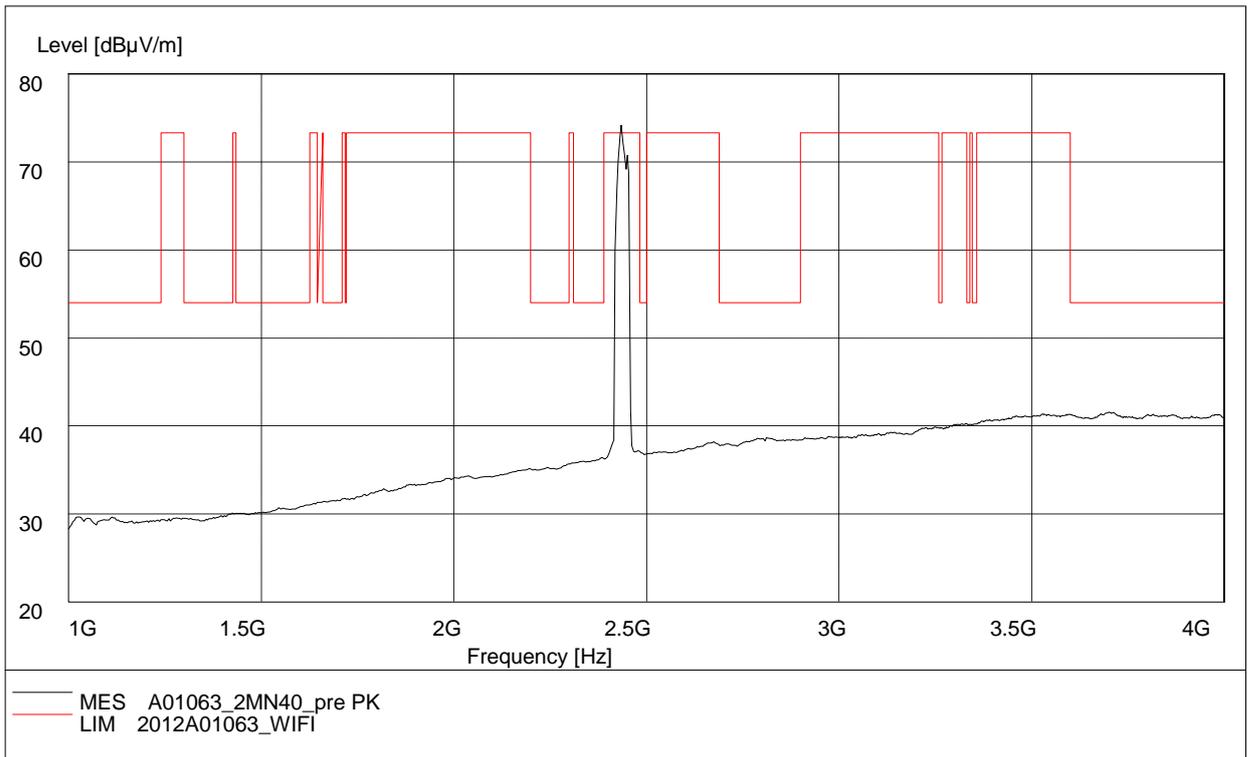


Fig. 95 Radiated Spurious Emission (802.11n-40MHz, Ch6, 1 GHz-4 GHz)

FCC 4-18G

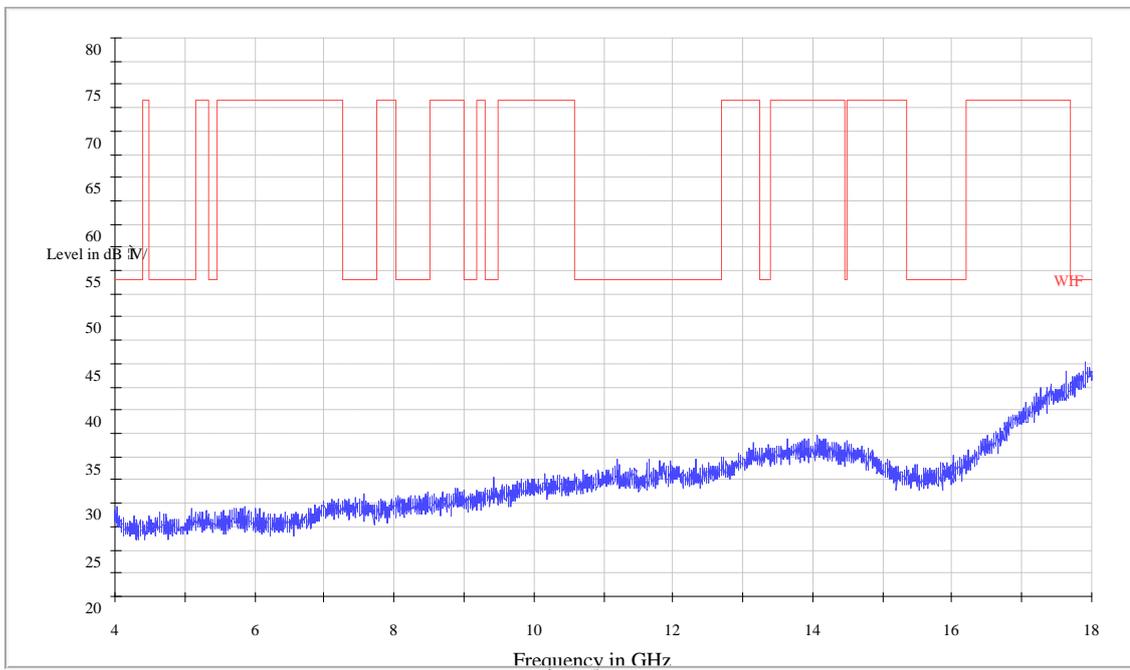


Fig. 96 Radiated Spurious Emission (802.11n-40MHz, Ch6, 4 GHz-18 GHz)

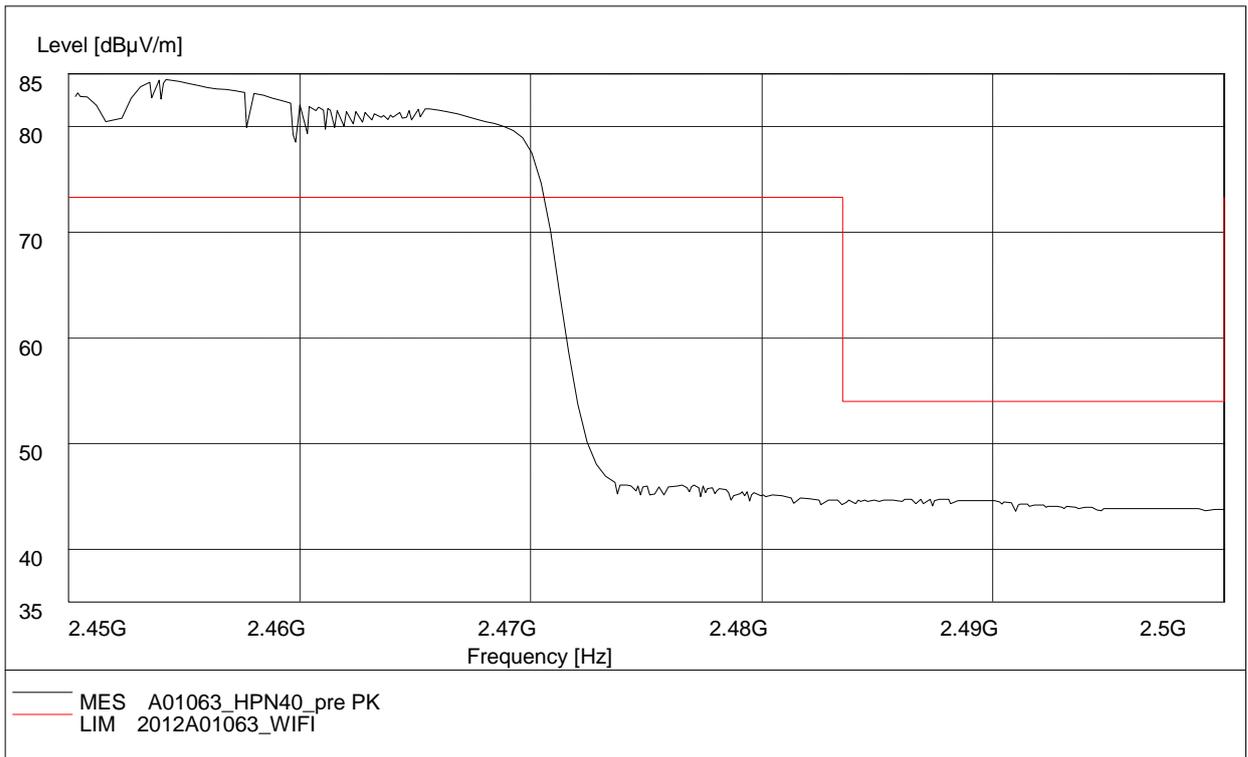


Fig. 97 Radiated Spurious Emission (Power): 802.11n-40MHz, ch9, 2.45 GHz - 2.50GHz

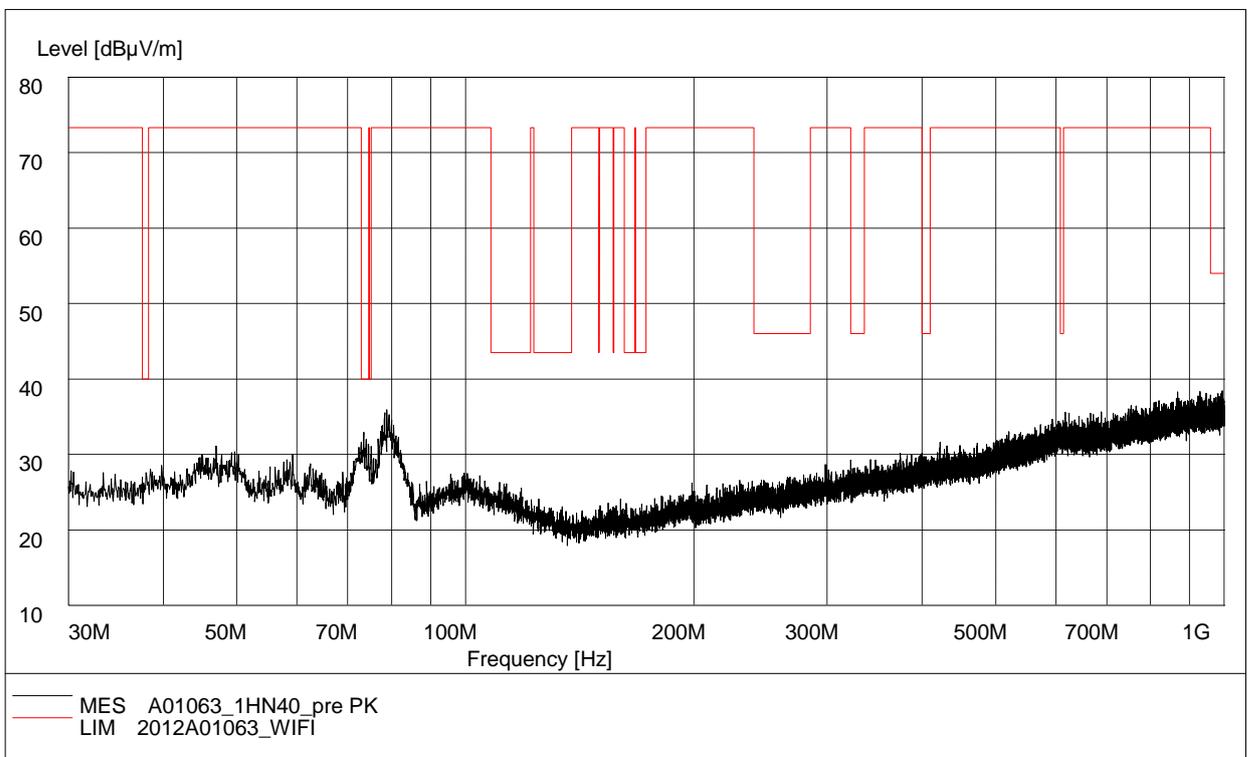


Fig. 98 Radiated Spurious Emission (802.11n-40MHz, Ch9, 30 MHz-1 GHz)

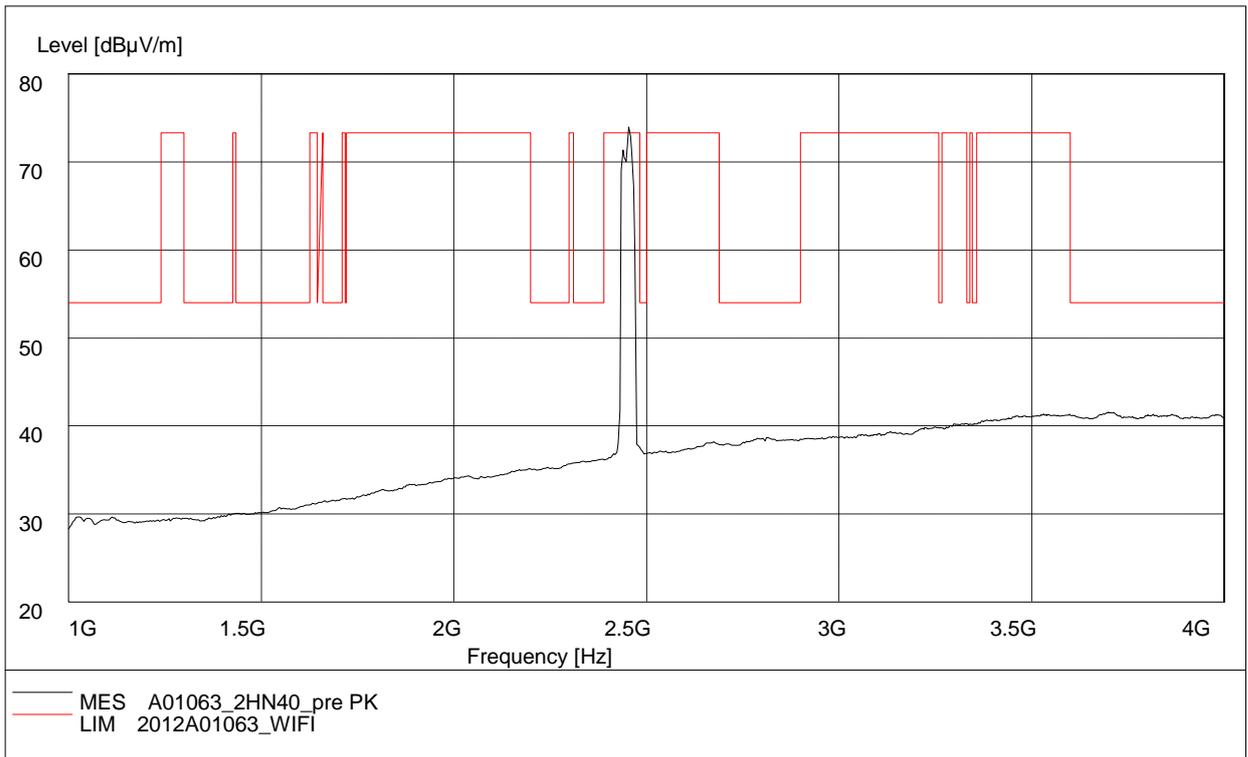


Fig. 99 Radiated Spurious Emission (802.11n-40MHz, Ch9, 1 GHz-4 GHz)

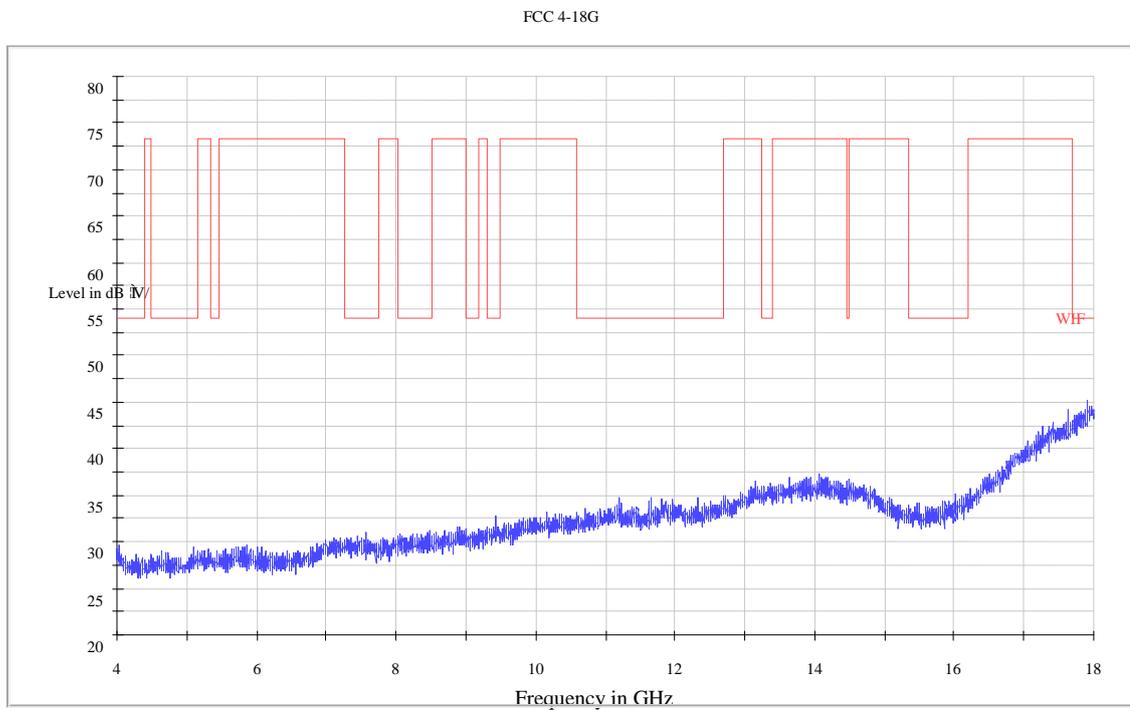


Fig. 100 Radiated Spurious Emission (802.11n-40MHz, Ch9, 4 GHz-18 GHz)

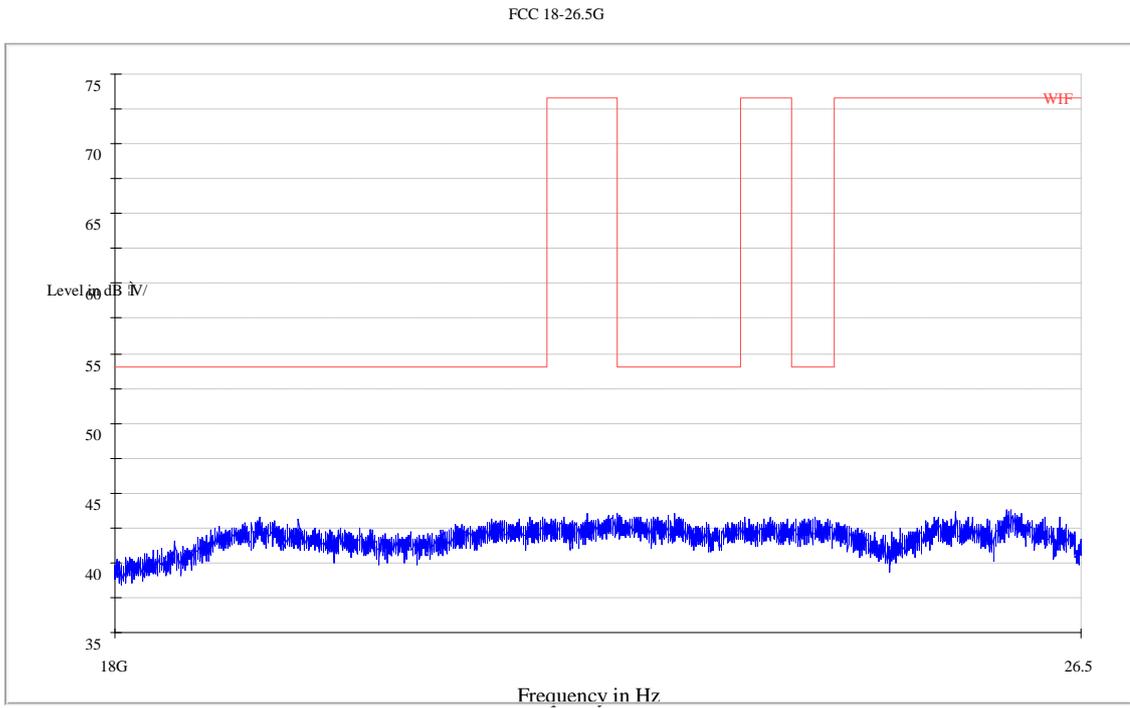


Fig. 101 Radiated emission: 18 GHz - 26.5 GHz

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 (dB μ V)	Result (dB μ V)			Conclusion
		With charger			
		11b mode	11g mode	11n mode	
0.15 to 0.5	66 to 56	Fig. 102	Fig.103	Fig.104	P
0.5 to 5	56				
5 to 30	60				

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dB μ V)	Result (dB μ V)			Conclusion
		With charger			
		11b mode	11g mode	11n mode	
0.15 to 0.5	56 to 46	Fig.102	Fig.103	Fig.104	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:

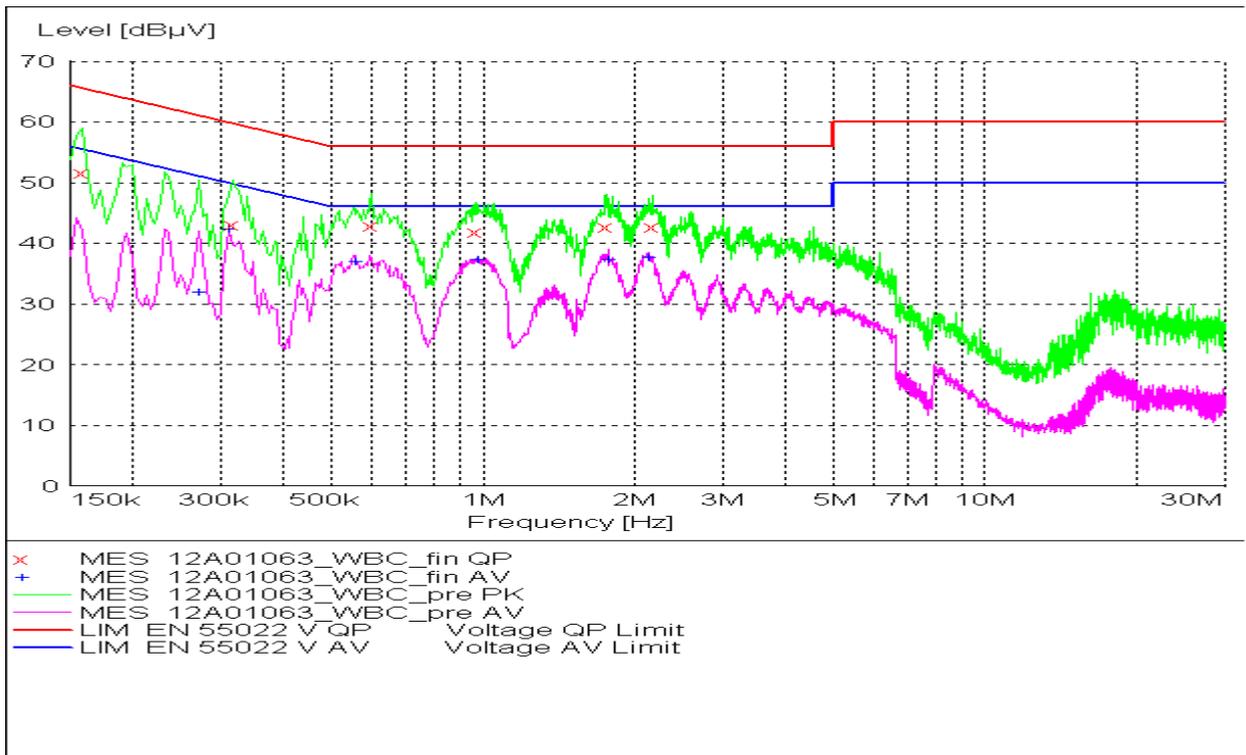


Fig. 102 AC Powerline Conducted Emission-802.11b

MEASUREMENT RESULT: "12A01063_WBC_fin QP "

Frequency (MHz)	Level (dBµV)	Transd (dB)	Limit (dBµV)	Margin (dB)	Line	PE
0.159000	51.70	10.1	66	13.8	L1	GND
0.316500	43.20	10.1	60	16.6	N	GND
0.600000	42.90	10.1	56	13.1	N	GND
0.964500	42.00	10.1	56	14.0	N	GND
1.765500	42.70	10.1	56	13.3	N	GND
2.183784	42.70	10.1	56	13.3	N	GND

MEASUREMENT RESULT: "12A01063_WBC_fin AV"

Frequency (MHz)	Level (dBµV)	Transd (dB)	Limit (dBµV)	Margin (dB)	Line	PE
0.271500	32.00	10.1	51	19.1	N	GND
0.312000	42.50	10.1	50	7.4	N	GND
0.555000	37.10	10.1	46	8.9	N	GND
0.978000	37.40	10.1	46	8.6	N	GND
1.774500	37.40	10.1	46	8.6	N	GND
2.140585	37.40	10.1	46	8.2	N	GND

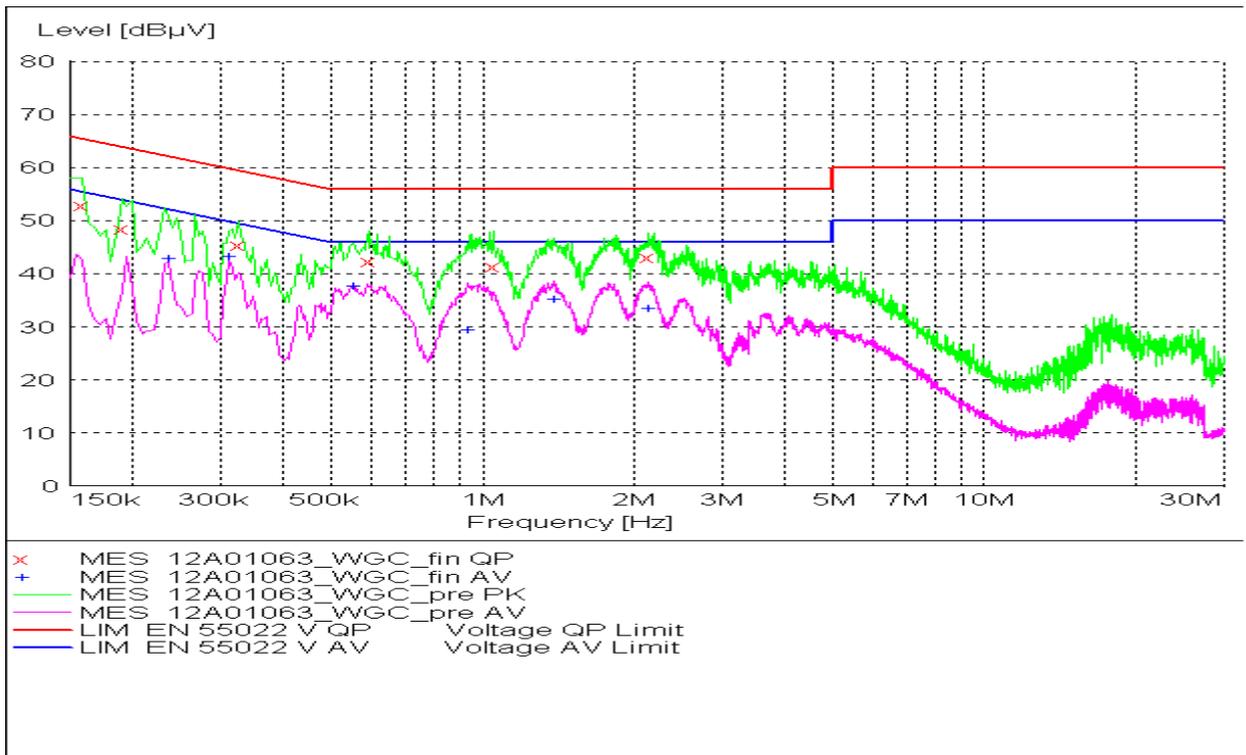


Fig. 103 AC Powerline Conducted Emission-802.11g

MEASUREMENT RESULT: "12A01063_WGC_fin QP"

Frequency (MHz)	Level (dBµV)	Transd (dB)	Limit (dBµV)	Margin (dB)	Line	PE
0.159000	53.00	10.1	66	12.6	N	GND
0.190500	48.50	10.1	64	15.6	N	GND
0.325500	45.40	10.1	60	14.2	N	GND
0.591000	42.30	10.1	56	13.7	N	GND
1.050000	41.30	10.1	56	14.7	N	GND
2.140585	43.20	10.1	56	12.8	N	GND

MEASUREMENT RESULT: "12A01063_WGC_fin AV"

Frequency (MHz)	Level (dBµV)	Transd (dB)	Limit (dBµV)	Margin (dB)	Line	PE
0.235500	42.90	10.1	52	9.4	N	GND
0.312000	43.40	10.1	50	6.5	N	GND
0.550500	37.70	10.1	46	8.3	N	GND
0.933000	29.50	10.1	46	16.5	N	GND
1.387500	35.30	10.1	46	10.7	N	GND
2.132049	33.50	10.1	46	12.5	N	GND

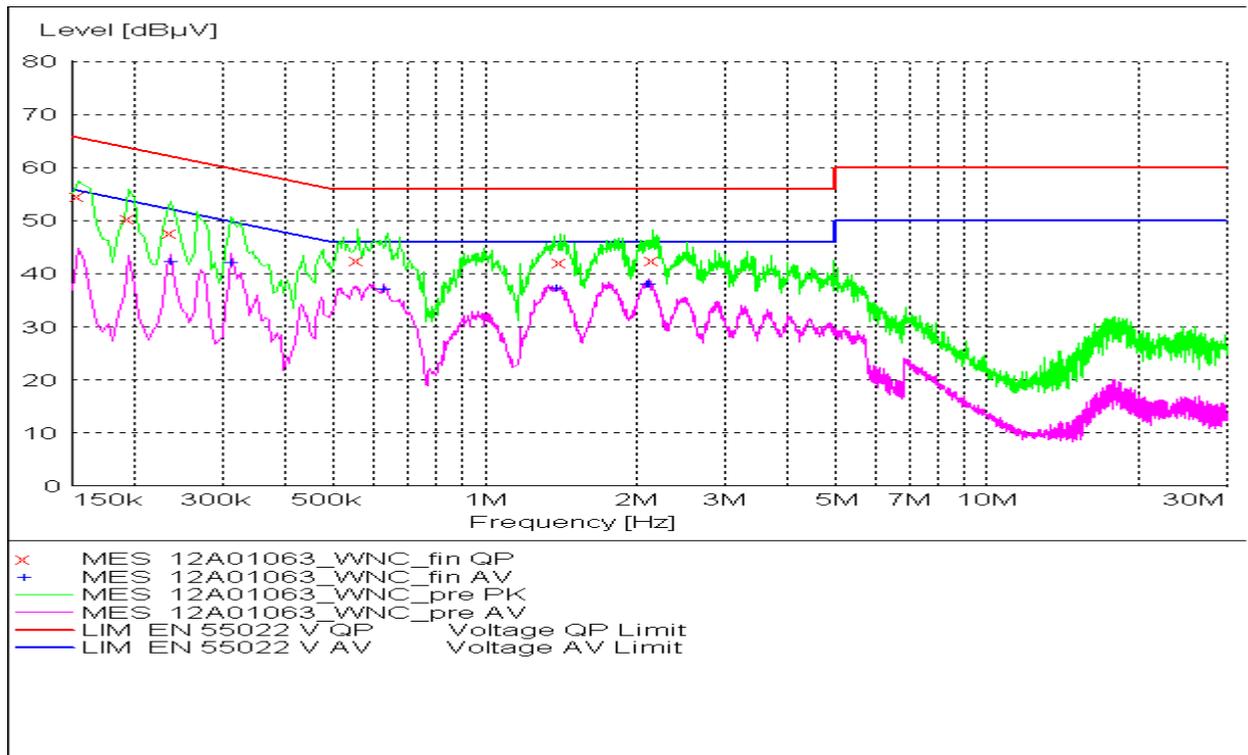


Fig. 104 AC Powerline Conducted Emission-802.11n

MEASUREMENT RESULT: "12A01063_WNC_fin QP"

Frequency (MHz)	Level (dBµV)	Transd (dB)	Limit (dBµV)	Margin (dB)	Line	PE
0.154500	54.60	10.1	66	11.2	L1	GND
0.195000	50.50	10.1	64	13.4	L1	GND
0.235500	47.80	10.1	62	14.5	L1	GND
0.559500	42.60	10.1	56	13.4	N	GND
1.405500	42.20	10.1	56	13.8	N	GND
2.166401	42.60	10.1	56	13.4	N	GND

MEASUREMENT RESULT: "12A01063_WNC_fin AV"

Frequency (MHz)	Level (dBµV)	Transd (dB)	Limit (dBµV)	Margin (dB)	Line	PE
0.235500	42.40	10.1	52	9.9	N	GND
0.312000	42.10	10.1	50	7.8	N	GND
0.627000	37.20	10.1	46	8.8	N	GND
1.387500	37.30	10.1	46	8.7	N	GND
2.106642	38.20	10.1	46	7.8	N	GND
2.123546	38.10	10.1	46	7.9	N	GND

*** END OF REPORT BODY ***