FCC PART 15C
TEST REPORT
No. I18N00243-WLAN

for

Doro AB

Doro 4GLTE Clamshell phone

DFC-0190

with

Hardware Version: 3011

Software Version: CALM01A-S01A_DFC0190_120_180321094522

FCC ID: WS5DFC0190

Issued Date: 2018-04-08

Designation Number: CN1210

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 SAICT.

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I18N00243-WLAN	Rev.0	1st edition	2018-04-08

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1. Test Laboratory

1.1. Testing Location

Location:	Shenzhen Academy of Information and Communications Technology
Address:	Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong Province ,China
Postal Code:	518026
Telephone:	+86(0)755-33322000
Fax:	+86(0)755-33322001

1.2. Testing Environment

Normal Temperature:	15-30℃
Relative Humidity:	35-60%

1.3. Project data

Testing Start Date:	2018-03-05
Testing End Date:	2018-03-22

1.4. Signature

An Ran

(Prepared this test report)

Tang Weisheng

(Reviewed this test report)

Zhang Bojun

(Approved this test report)

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2. Client Information

2.1. Applicant Information

Company Name:	Doro AB
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Contact Person	Per Carlenhag
E-Mail	per.carlenhag@doro.com
Telephone:	+46 46 280 5000
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2.2. Manufacturer Information

Company Name:	CK TELECOM LTD.
Address:	Technology Road. High-Tech Development Zone. Heyuan, Guangdong, P.R. China
Contact Person	Xin Li
E-Mail	xin.li@ck-telecom.com
Telephone:	0755-26739100 ext.8515
Fax:	0755-26739600

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3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	Doro 4GLTE Clamshell phone
Model Name	DFC-0190
Market Name	/
RF Protocol	IEEE 802.11 b/g/n-HT20
Operating Frequency	2412MHz~2462MHz
Number of Channels	11
Antenna Type	Integrated
Antenna Gain	-1.5dBi
Power Supply	3.85V DC by Battery
FCC ID	WS5DFC0190

Note: Components list, please refer to documents of the manufacturer.

3.2. Internal Identification of EUT

EUT ID*	IMEI	HW Version	SW Version	Receive Date
EUT1	/	3011	CALM01A-S01A_DFC0190_120_180321094522	2018-03-02

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

3.3. Internal Identification of AE

AE ID*	Description	Mode	Manufacturer
AE1	Battery	DBS-1350A	Veke
AE2	EU Charge	A2-3762-501000	Dongguan Aohai Power Techonolgy Co.,LTD
AE3	UK Charge	A806A-050100U-UK1	Dongguan Aohai Power Techonolgy Co.,LTD

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

3.4. General Description

The Equipment Under Test (EUT) are a model of Mobile Phone with integrated antenna.
It consists of normal options: travel Charger, USB cable.
Manual and specifications of the EUT were provided to fulfil the test.
Samples undergoing test were selected by the client.

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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.

Reference	Title	Version
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	2016
ANSI C63.10	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices	2013

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5. Test Results

5.1. Summary of Test Results

No	Test cases	Sub-clause of Part 15C	Sub-clause of IC	Verdict
0	Antenna Requirement	15.203	/	**P**
1	Maximum Output Power	15.247 (b)	RSS-247 section 5.4	**P**
2	Peak Power Spectral Density	15.247 (e)	RSS-247 section 5.2	**P**
3	6dB Bandwidth	15.247 (a)	RSS-247 section 5.2	**P**
4	Band Edges Compliance	15.247 (d)	RSS-247 section 5.5	**P**
5	Conducted Emission	15.247 (d)	RSS-247 section 5.5/ RSS-Gen section 6.13	**P**
6	Radiated Emission	15.247, 15.205, 15.209	RSS-247 section 5.5/ RSS-Gen section 6.13	**P**
7	AC Power line Conducted	15.207	RSS-Gen section 8.8	**P**

See **ANNEX A** for details.

5.2. Statements

SAICT has evaluated the test cases requested by the applicant/manufacturer as listed in section 5.1 of this report, for the EUT specified in section 3, according to the standards or reference documents listed in section 4.2.

5.3. Terms used in the result table

Terms used in Verdict column

P	Pass
NA	Not Available
F	Fail

Abbreviations

AC	Alternating Current
AFH	Adaptive Frequency Hopping
BW	Band Width
E.I.R.P.	equivalent isotropic radiated power
ISM	Industrial, Scientific and Medical
R&TTE	Radio and Telecommunications Terminal Equipment
RF	Radio Frequency
Tx	Transmitter

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5.4. Laboratory Environment

Semi-anechoic Chamber did not exceed following limits along the EMC testing

Temperature	Min. = 15 ˚C, Max. = 30 ˚C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	0.014MHz - 1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4Ω
Normalised site attenuation (NSA)	< ±4dB, 3m/10m distance, from 30 to 1000 MHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz

Shielded room did not exceed following limits along the EMC testing

Temperature	Min. = 15 ˚C, Max. = 30 ˚C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	0.014MHz - 1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω

Fully-anechoic Chamber did not exceed following limits along the EMC testing

Temperature	Min. = 15 ˚C, Max. = 30 ˚C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	0.014MHz - 1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4Ω
Voltage Standing Wave Ratio (VSWR)	≤6dB, from 1 to 18 GHz,3m distance

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6. Test Facilities Utilized

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1	Vector Signal Analyzer	FSV40	100903	Rohde & Schwarz	2019.01.17	1 year
2	Power Sensor	U2021XA	MY55430013	Agilent	2019.02.01	1 year
3	Test Receiver	ESCI	100702	Rohde & Schwarz	2018.06.25	1 year
4	LISN	ENV216	102067	Rohde & Schwarz	2018.07.19	1 year

Radiated test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1	Chamber	FACT3-2.0	1285	ETS-Lindgren	2019.11.27	3 years
2	Test Receiver	ESR7	101676	Rohde & Schwarz	2018.11.29	1 year
3	Spectrum Analyser	FSV40	102192	Rohde & Schwarz	2018.05.22	1 year
4	BiLog Antenna	VULB9163	9163 329	Schwarzbeck	2020.02.27	3 years
5	Horn Antenna	3117	00066577	ETS-Lindgren	2019.04.05	3 years
6	Loop Antenna	HLA6120	35779	TESEQ	2019.05.02	3 years
7	Horn Antenna	QSH-SL-1 8-26-S-20	17013	Q-par	2020.01.15	3 years

Test software

No.	Equipment	Manufacturer	Version
1	TechMgr Software	CAICT	2.1.1
2	EMC32	Rohde & Schwarz	8.53.0
3	EMC32	Rohde & Schwarz	10.01.00

EUT is engineering software provided by the customer to control the transmitting signal. The EUT was programmed to be in continuously transmitting mode.

Anechoic Chamber

Fully anechoic Chamber by ETS-Lindgren.

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7. Measurement Uncertainty

Test Name	Uncertainty	
1. RF Output Power - Conducted	±1.32dB	
2.Power Spectral Density - Conducted	±2.32dB	
3.Occupied channel bandwidth - Conducted	±66Hz	
4 Transmitter Spurious Emission - Conducted	30MHz≤f≤1GHz	±1.41dB
	1GHz≤f≤7GHz	±1.92dB
	7GHz≤f≤13GHz	±2.31dB
	13GHz≤f≤26GHz	±2.61dB
5. Transmitter Spurious Emission - Radiated	9kHz≤f≤30MHz	±1.84dB
	30MHz≤f≤1GHz	±4.90dB
	1GHz≤f≤18GHz	±5.32dB
	18GHz≤f≤40GHz	±4.66dB
6. AC Power line Conducted Emission	150kHz≤f≤30MHz	±2.72dB

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ANNEX A: Detailed Test Results

A.0 Antenna requirement

Measurement Limit:

Standard	Requirement
FCC CRF Part 15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

Conclusion: The Directional gains of antenna used for transmitting is -1.5 dBi.
The RF transmitter uses an integrate antenna without connector.

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A.1 Maximum Output Power - Conduced

Measurement of method :See ANSI C63.10-2013-Clause 11.9.2.3.2

Method AVGPM-G is a measurement using a gated RF average power meter.

Alternatively, measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Because the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Measurement Limit:

Standard	Limit (dBm)
FCC CRF Part 15.247(b) & RSS-247 Section 5.4	< 30

Measurement Results:

Mode	Channel	Frequency (MHz)	Data Rate	Average Conducted Power (dBm)	Conclusion
802.11b	CH 1	2412	1Mbps	15.27	**P**
	CH 6	2437		15.43	**P**
	CH 11	2462		15.38	**P**
802.11g	CH 1	2412	6Mbps	12.83	**P**
	CH 6	2437		12.65	**P**
	CH 11	2462		12.47	**P**
802.11n HT20	CH 1	2412	MCS0	12.68	**P**
	CH 6	2437		12.63	**P**
	CH 11	2462		12.58	**P**

Note:

Worst-case data rates as provided by the client were: 1Mbps (802.11b), 6Mbps (802.11g), MCS0 (802.11n). The following cases and test graphs are performed with this condition.

The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.

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A.2 Peak Power Spectral Density

Measurement Limit:

Standard	Limit
FCC CRF Part 15.247(e) & RSS-247 Section 5.2	< 8 dBm/3 kHz

Measurement Results:

Mode	Channel	Frequency (MHz)	Test Results (dBm)		Conclusion
802.11b	CH 1	2412	Fig.1	-7.34	**P**
	CH 6	2437	Fig.2	-6.26	**P**
	CH 11	2462	Fig.3	-5.33	**P**
802.11g	CH 1	2412	Fig.4	-11.68	**P**
	CH 6	2437	Fig.5	-12.58	**P**
	CH 11	2462	Fig.6	-12.09	**P**
802.11n HT20	CH 1	2412	Fig.7	-11.70	**P**
	CH 6	2437	Fig.8	-12.01	**P**
	CH 11	2462	Fig.9	-12.45	**P**

See below for test graphs.

Conclusion: PASS

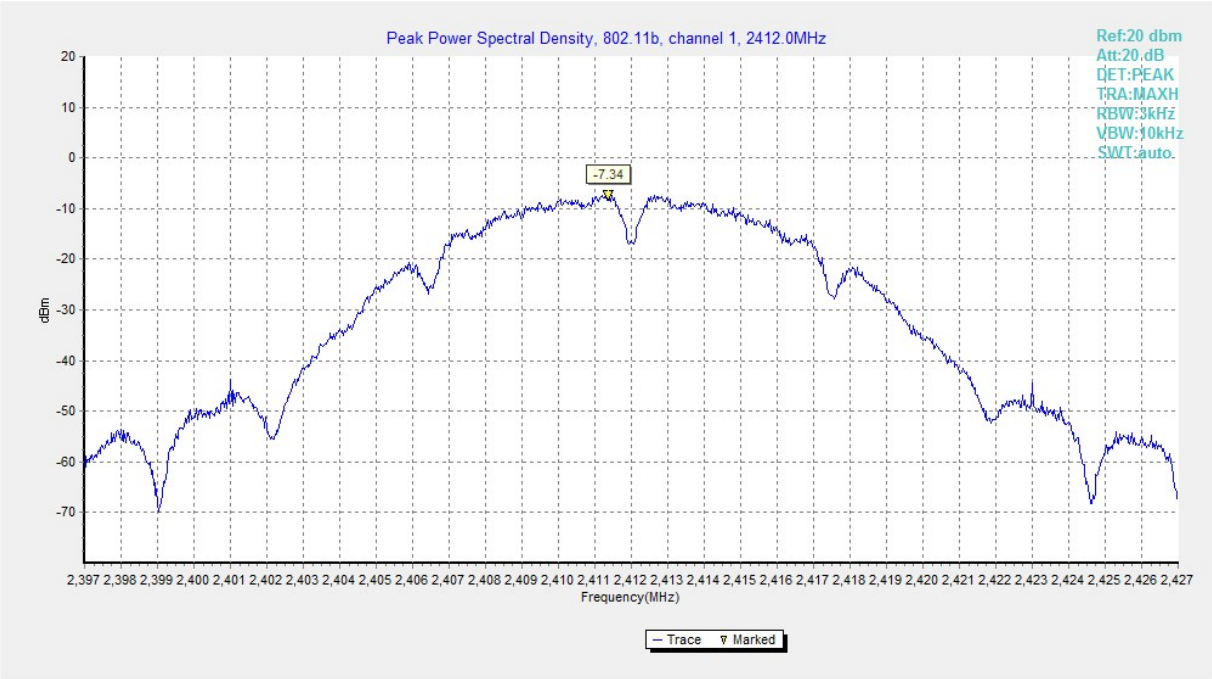

Fig.1 Power Spectral Density (802.11b, CH 1)

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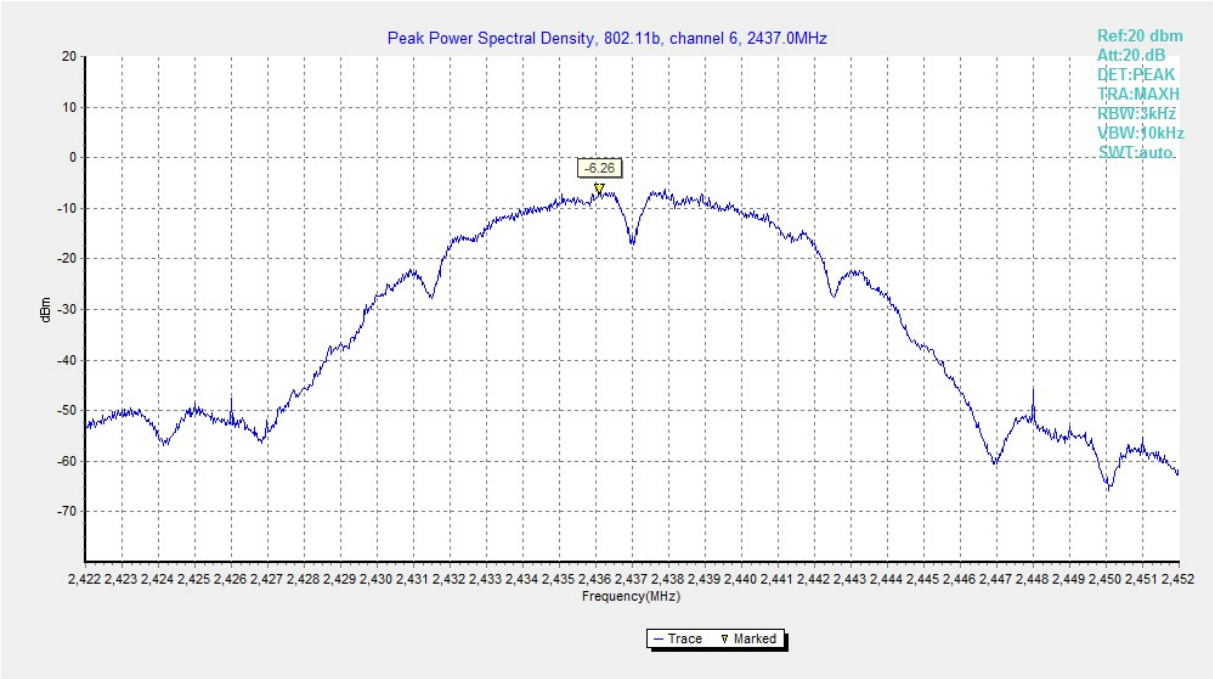

Fig.2 Power Spectral Density (802.11b, CH 6)

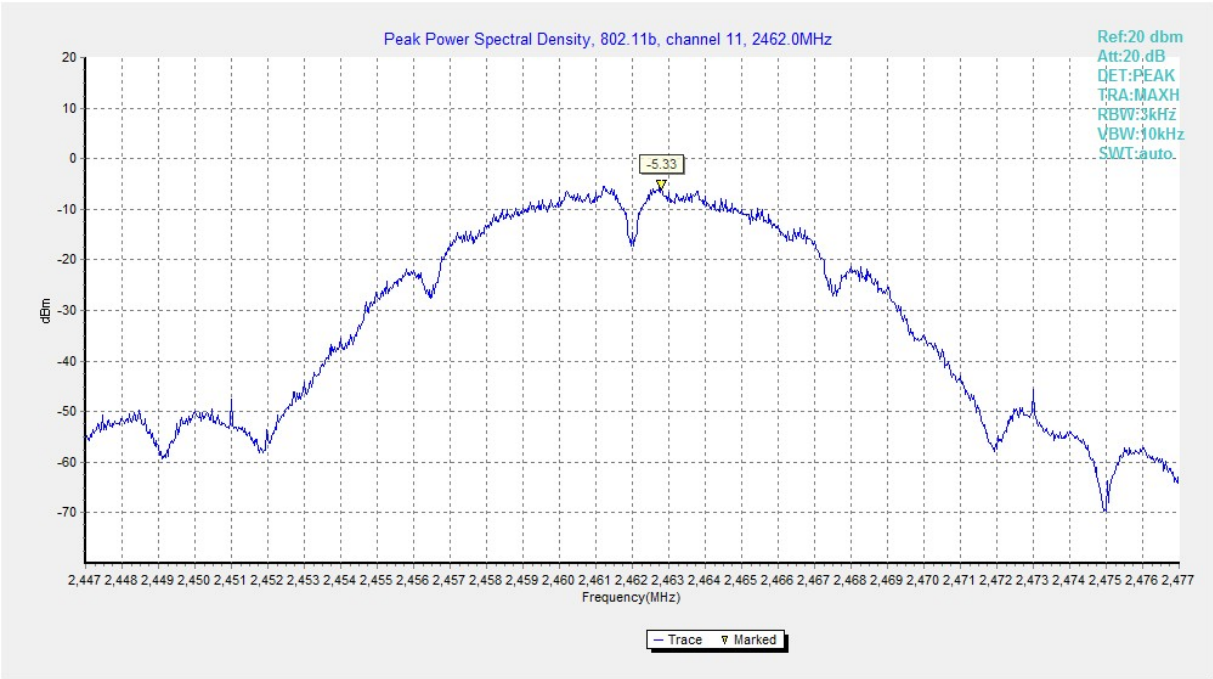

Fig.3 Power Spectral Density (802.11b, CH 11)

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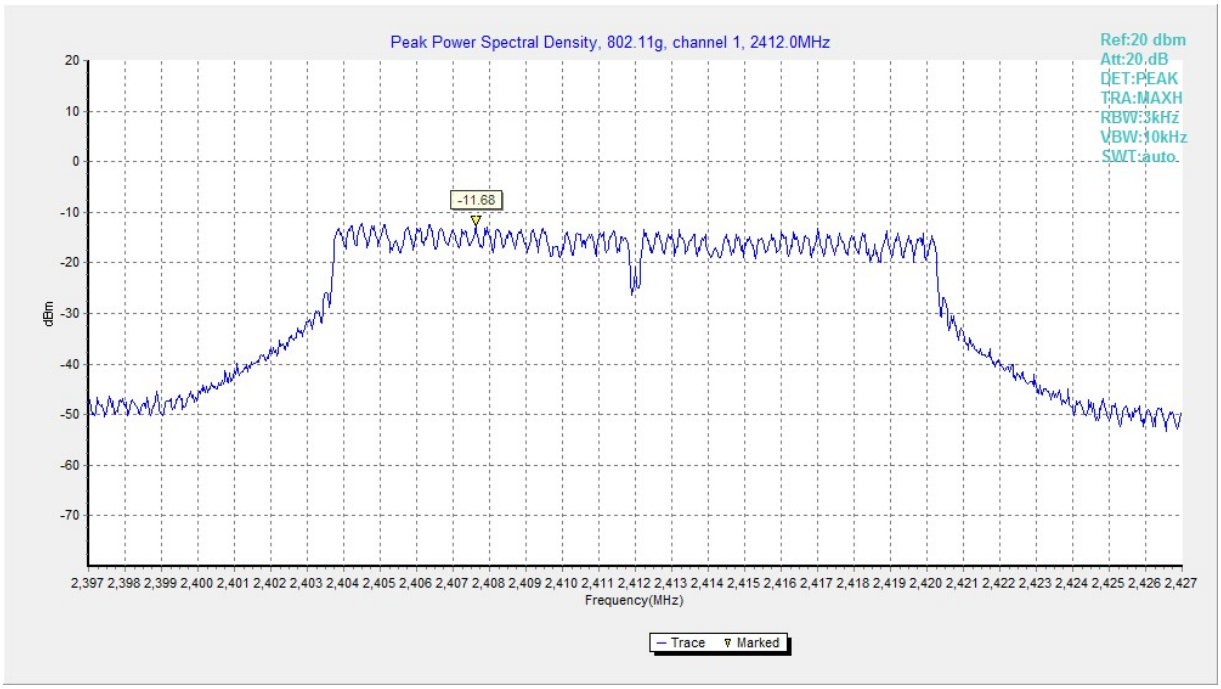

Fig.4 Power Spectral Density (802.11g, CH 1)

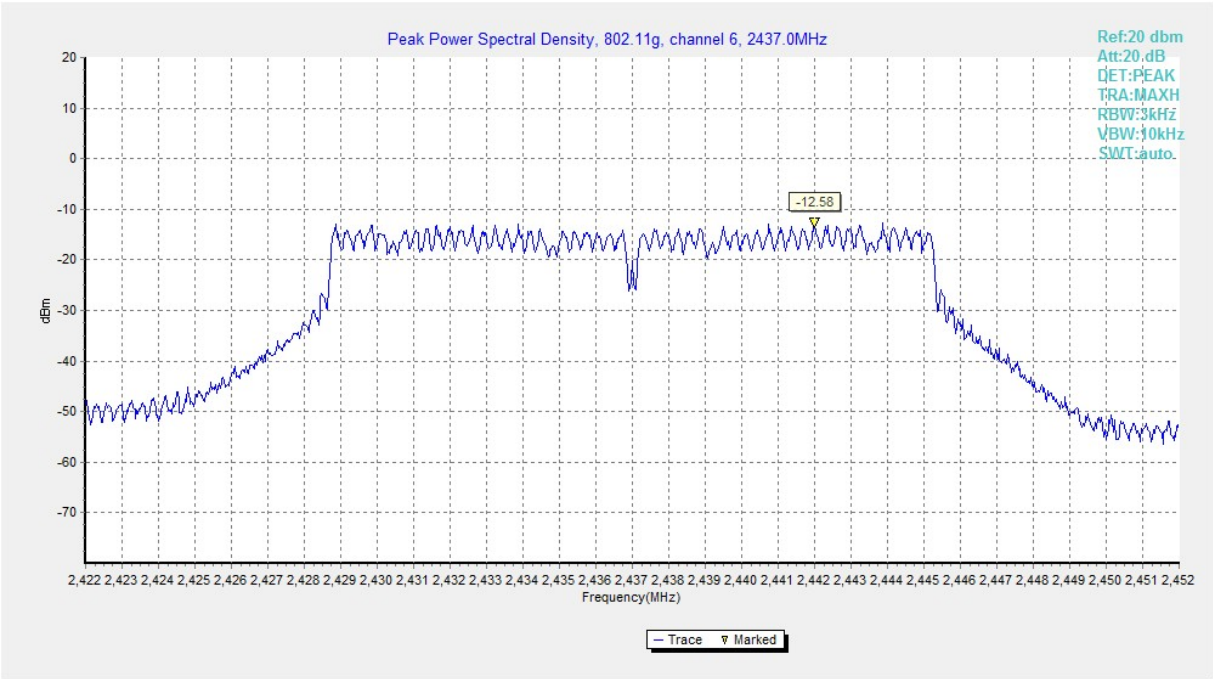

Fig.5 Power Spectral Density (802.11g, CH 6)

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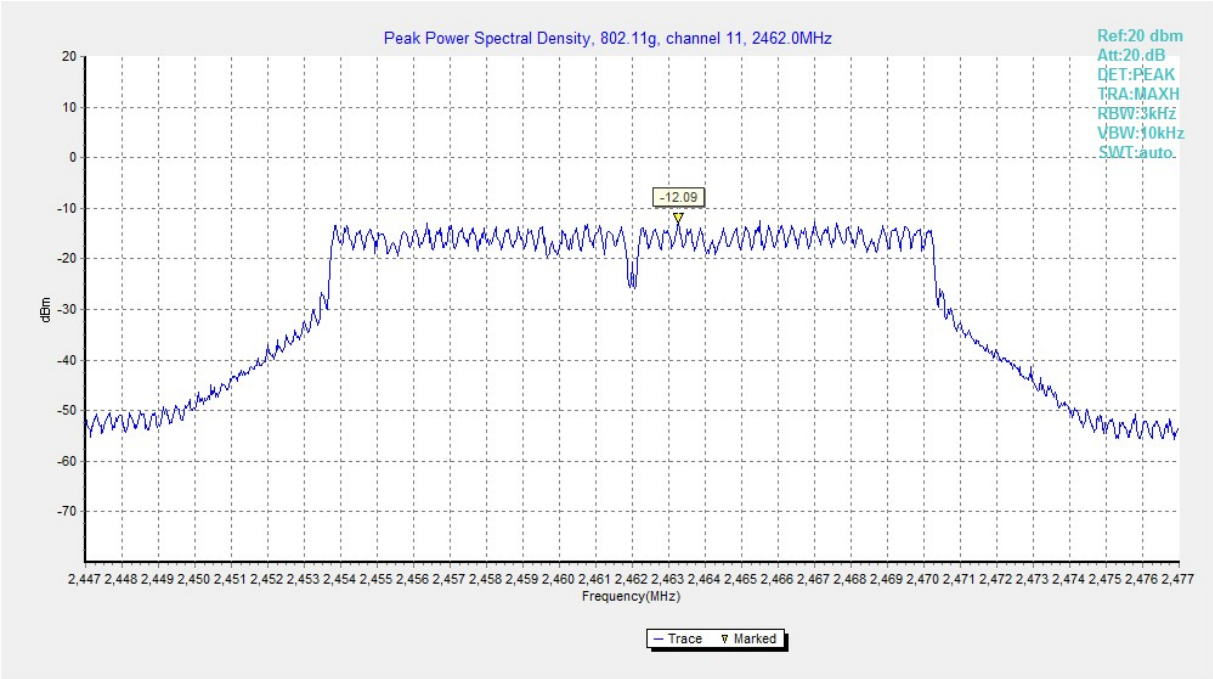

Fig.6 Power Spectral Density (802.11g, CH 11)

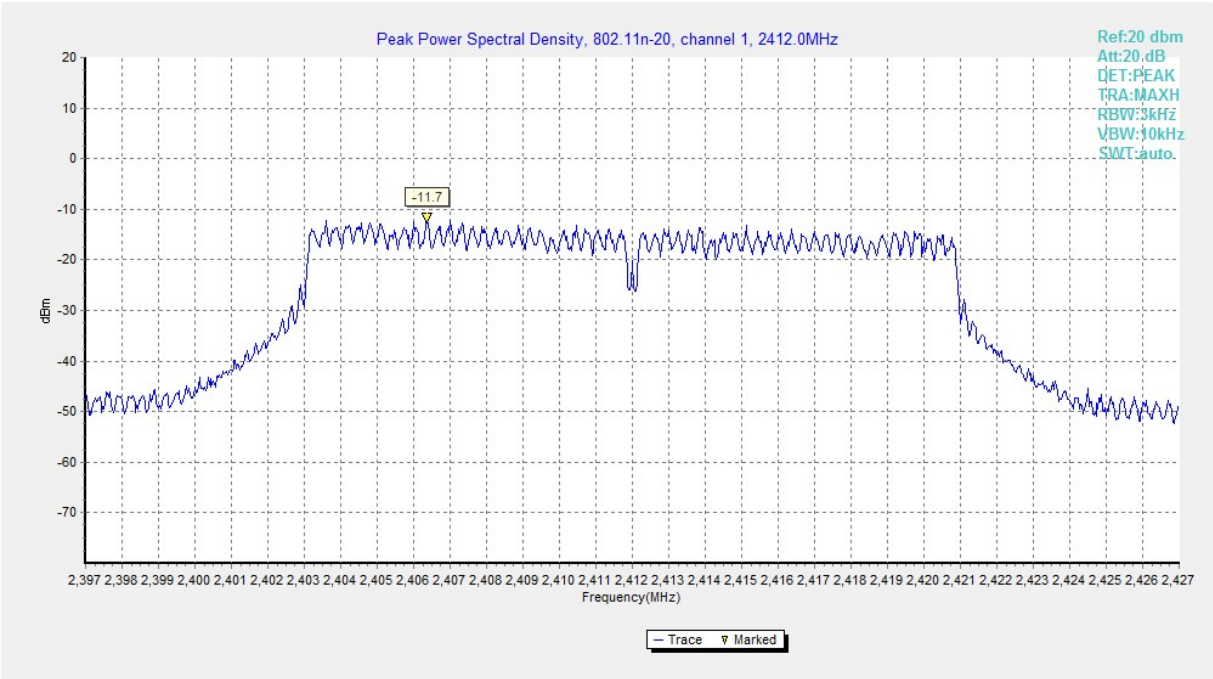

Fig.7 Power Spectral Density (802.11n HT20, CH 1)

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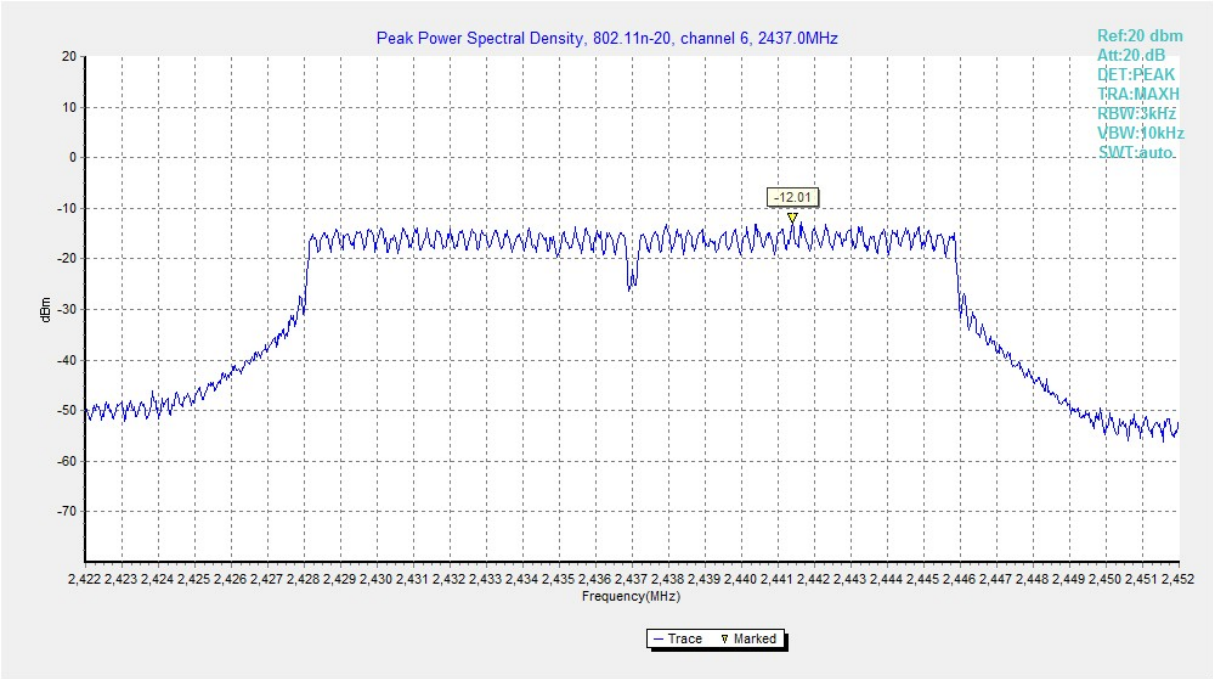

Fig.8 Power Spectral Density (802.11n HT20, CH 6)

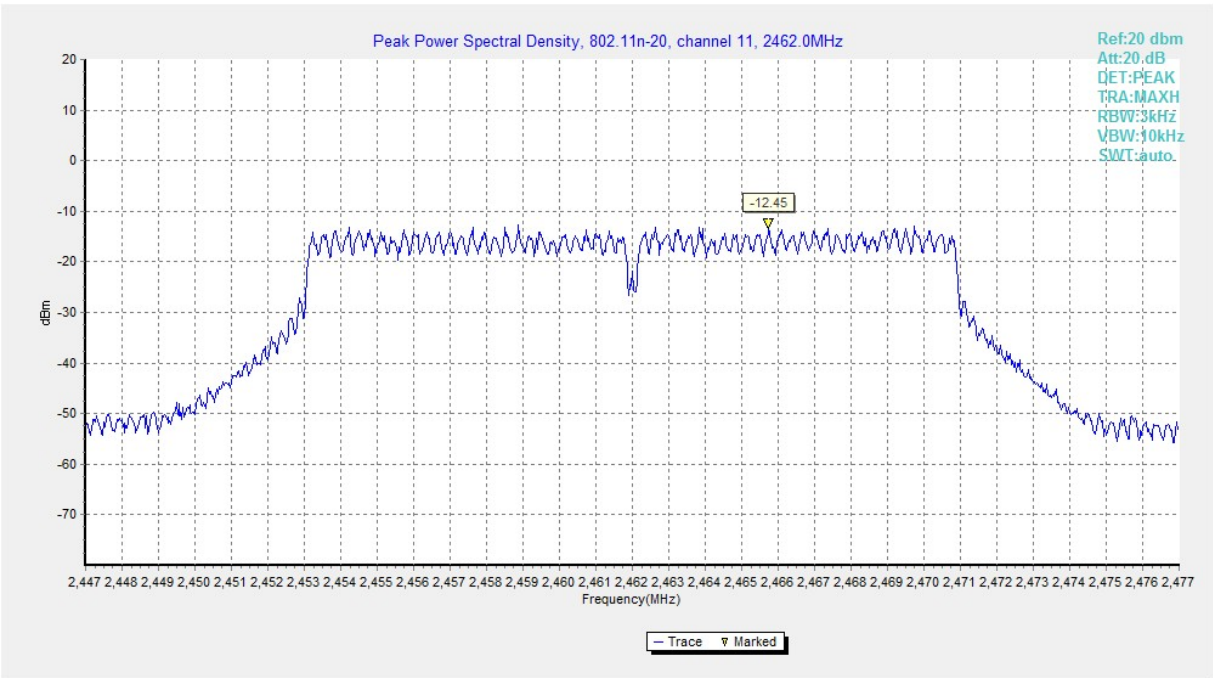

Fig.9 Power Spectral Density (802.11n HT20, CH 11)

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A.3 6dB Bandwidth

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.247 (a) & RSS-247 Section 5.2	≥ 500

Measurement Result:

Mode	Channel	Frequency (MHz)	Test Results (kHz)		Conclusion
802.11b	CH 1	2412	Fig.10	7550	**P**
	CH 6	2437	Fig.11	7050	**P**
	CH 11	2462	Fig.12	7100	**P**
802.11g	CH 1	2412	Fig.13	16050	**P**
	CH 6	2437	Fig.14	16350	**P**
	CH 11	2462	Fig.15	16350	**P**
802.11n HT20	CH 1	2412	Fig.16	16950	**P**
	CH 6	2437	Fig.17	17600	**P**
	CH 11	2462	Fig.18	17600	**P**

See below for test graphs.

Conclusion: PASS

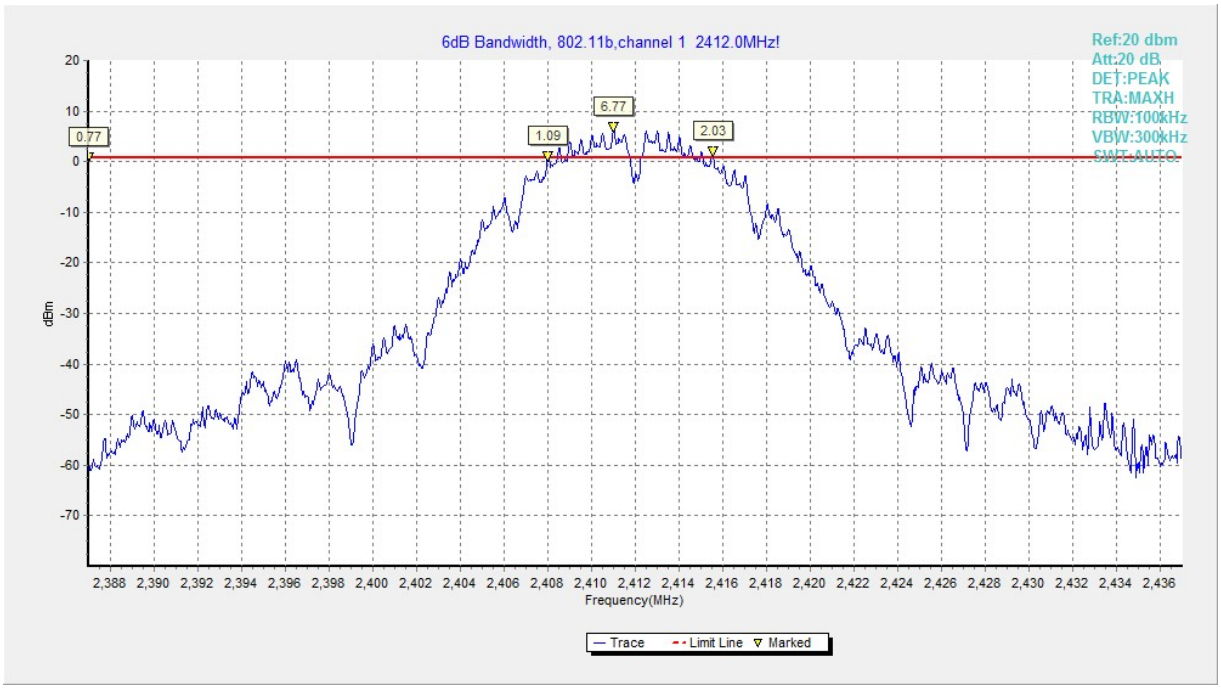

Fig.10 6dB Bandwidth (802.11b, CH 1)

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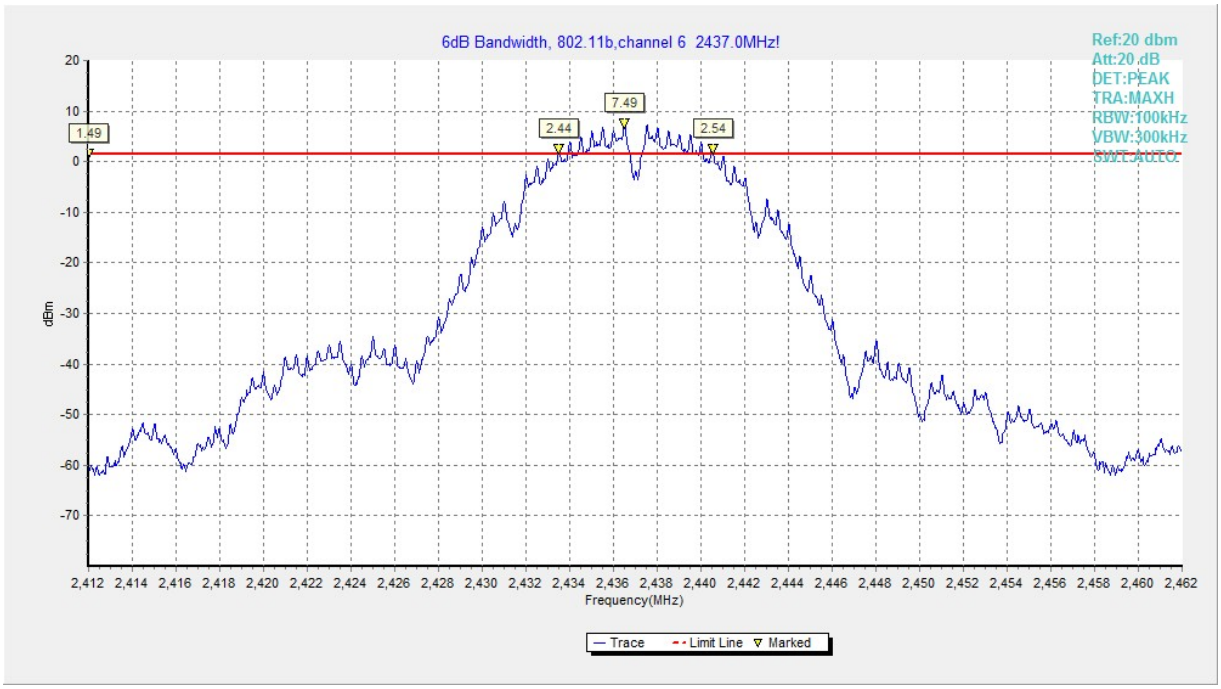

Fig.11 6dB Bandwidth (802.11b, CH 6)

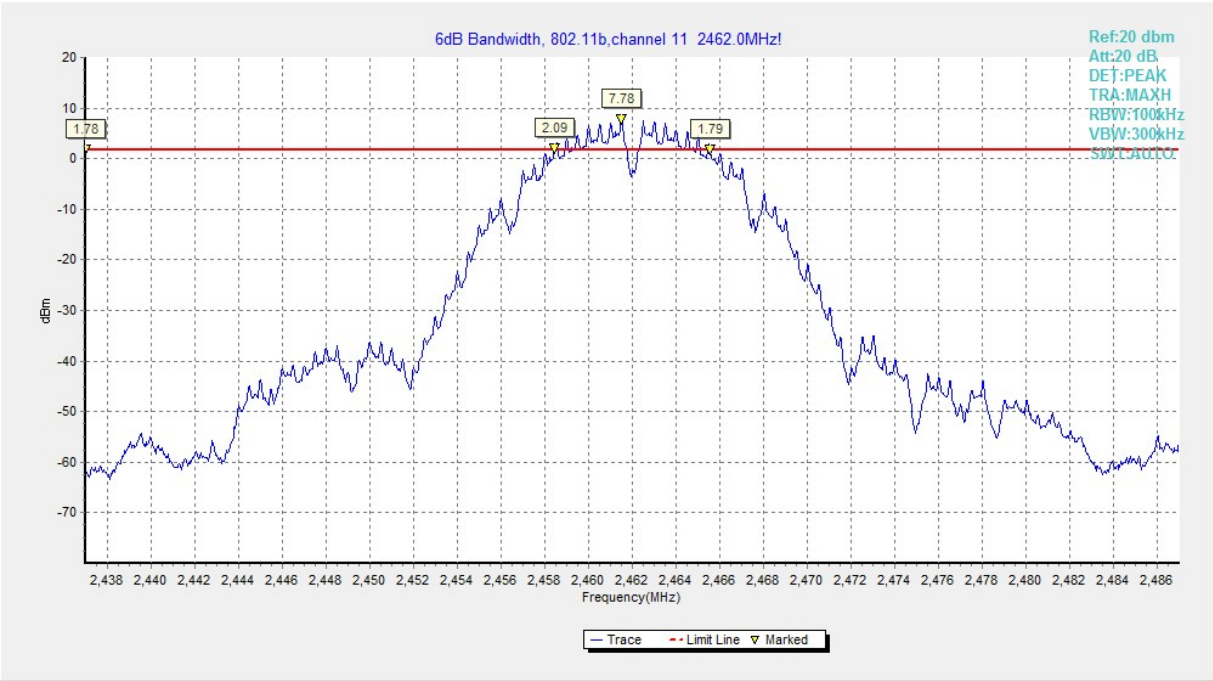

Fig.12 6dB Bandwidth (802.11b, CH 11)

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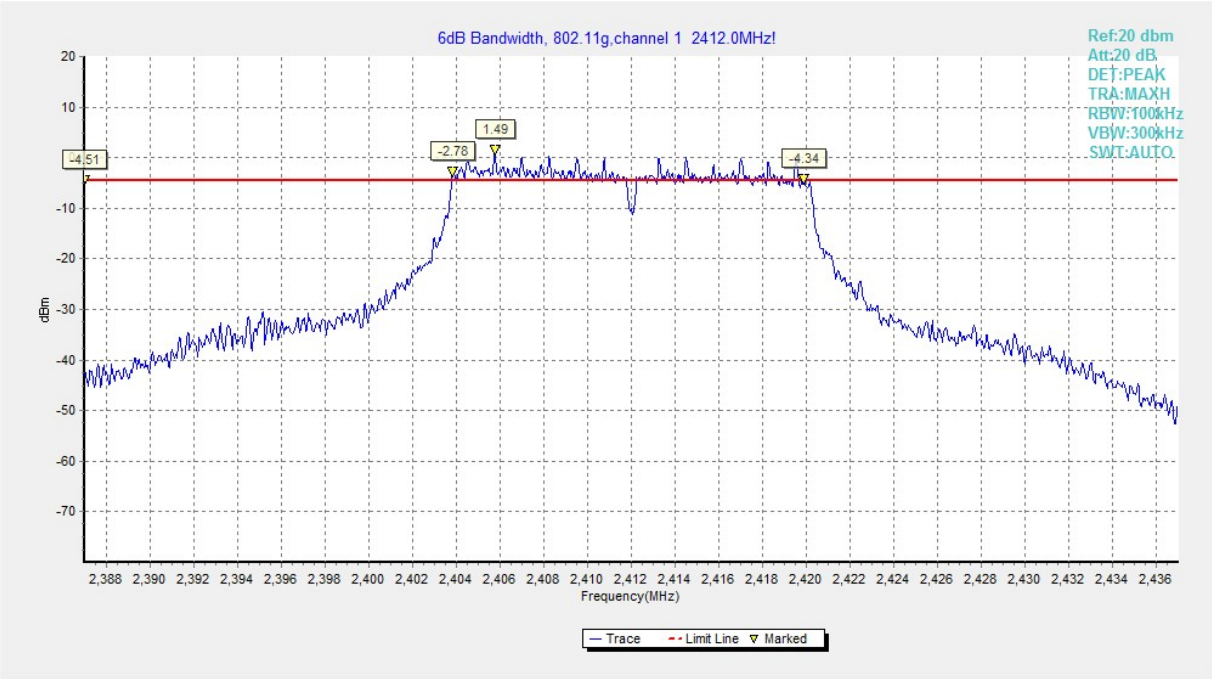

Fig.13 6dB Bandwidth (802.11g, CH 1)

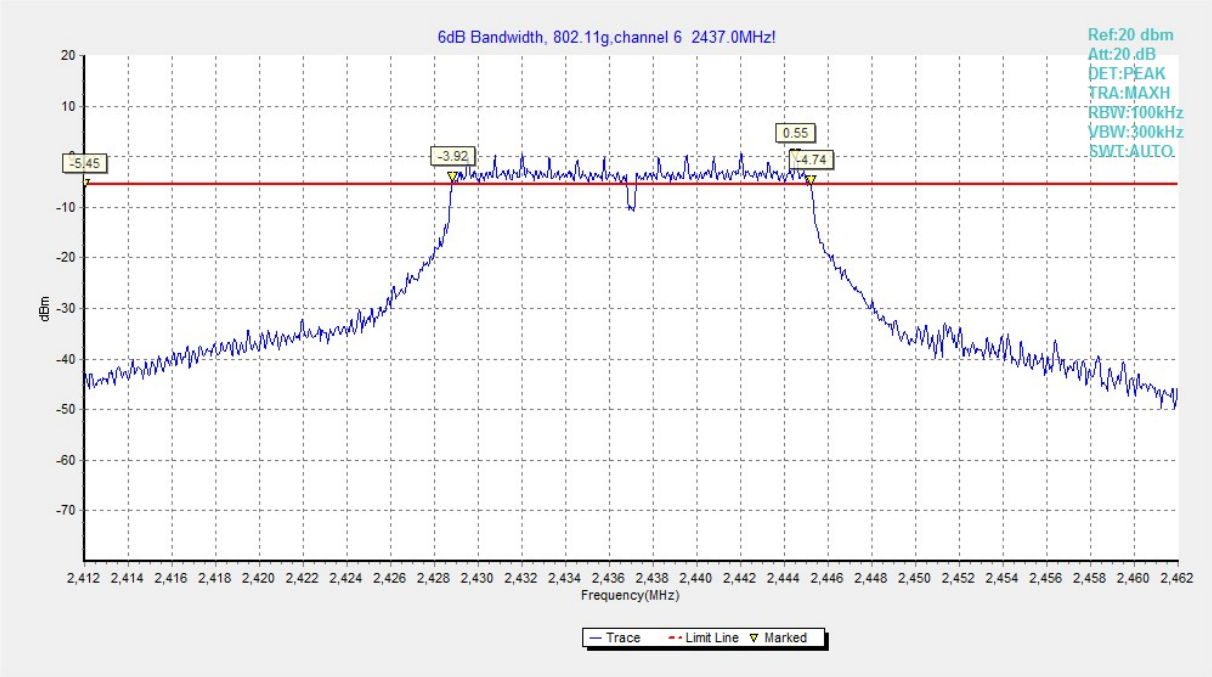

Fig.14 6dB Bandwidth (802.11g, CH 6)

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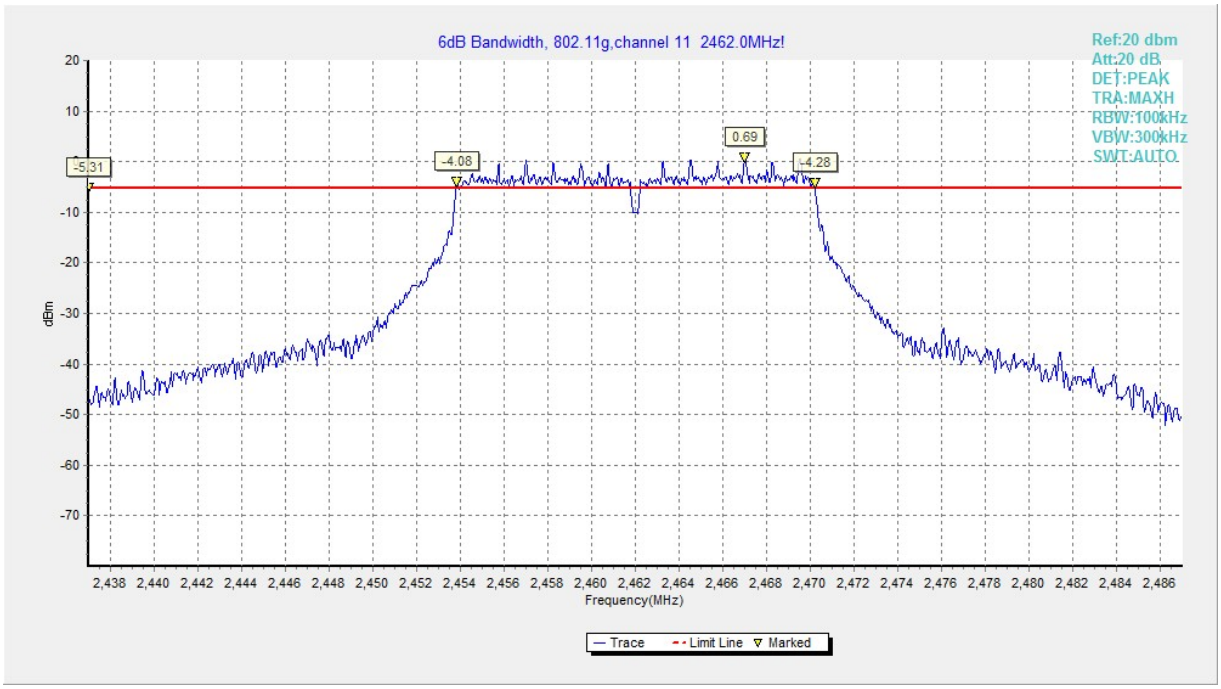

Fig.15 6dB Bandwidth (802.11g, CH 11)

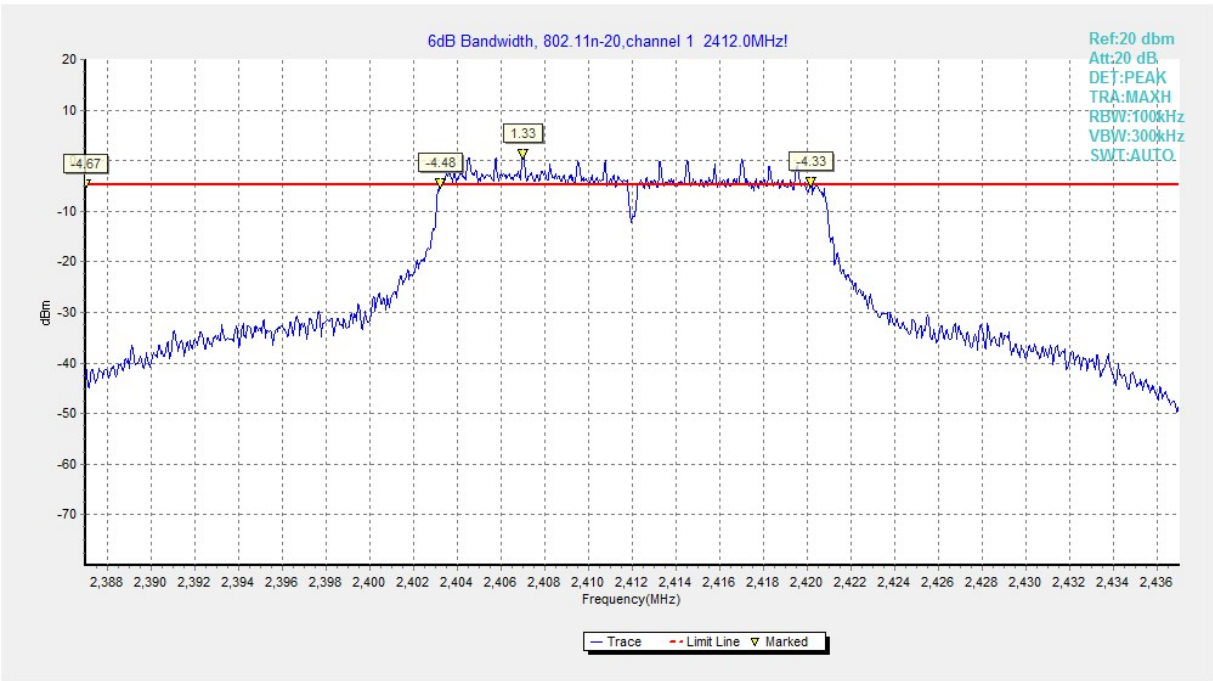

Fig.16 6dB Bandwidth (802.11n HT20, CH 1)

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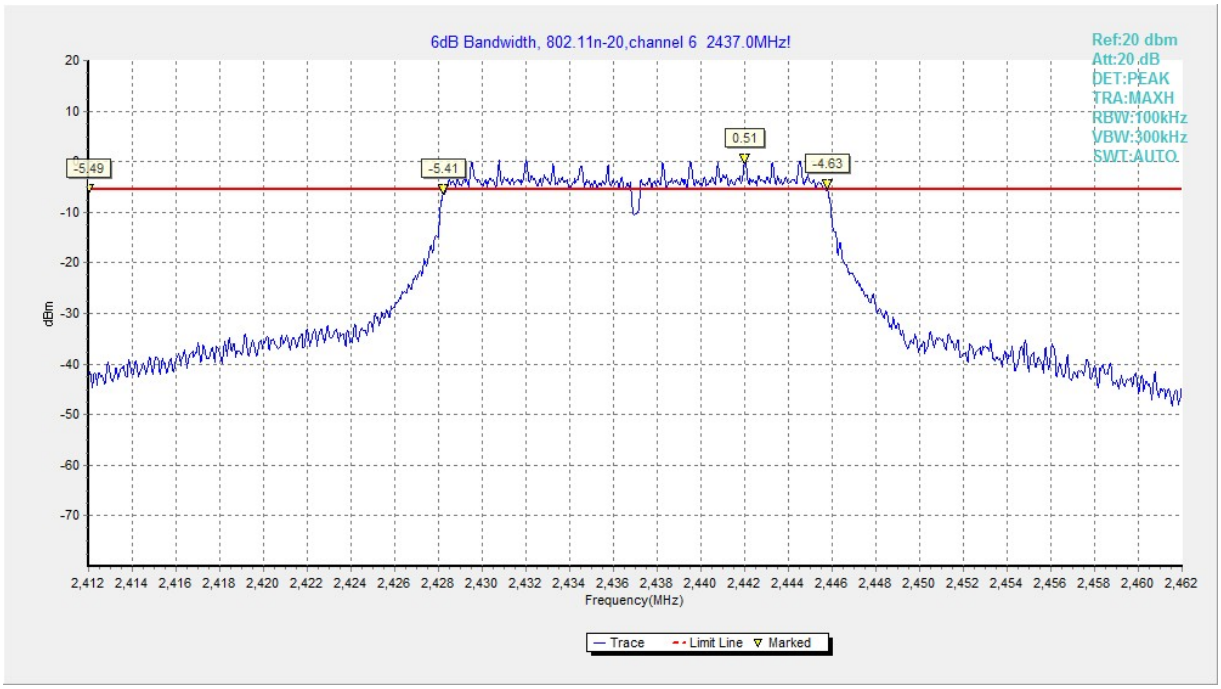

Fig.17 6dB Bandwidth (802.11n HT20, CH 6)

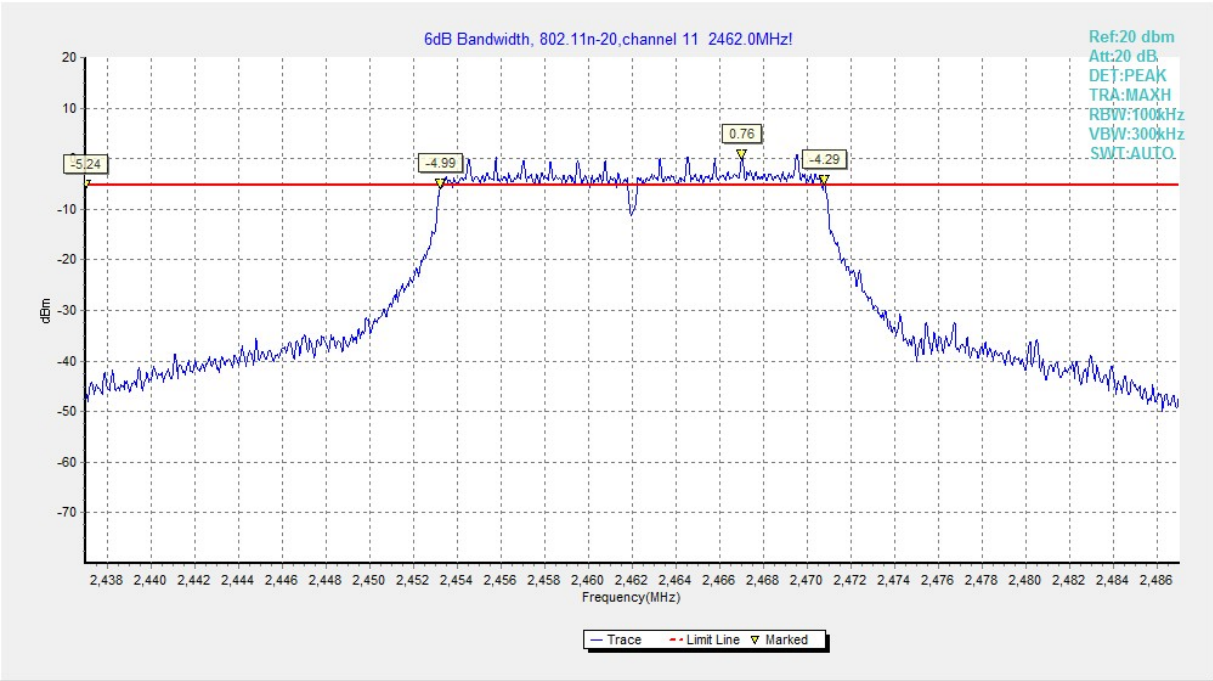

Fig.18 6dB Bandwidth (802.11n HT20, CH 11)

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A.4 Band Edges Compliance

Measurement Limit:

Standard	Limit (dBc)
FCC 47 CFR Part 15.247 (d) & RSS-247 Section 5.5	> 20

Measurement Result:

Mode	Channel	Frequency (MHz)	Test Results (dBc)		Conclusion
802.11b	CH1	2412	Fig.19	43.68	**P**
	CH11	2462	Fig.20	67.87	**P**
802.11g	CH1	2412	Fig.21	29.50	**P**
	CH11	2462	Fig.22	43.39	**P**
802.11n HT20	CH1	2412	Fig.23	32.77	**P**
	CH11	2462	Fig.24	43.26	**P**

See below for test graphs.

Conclusion: PASS

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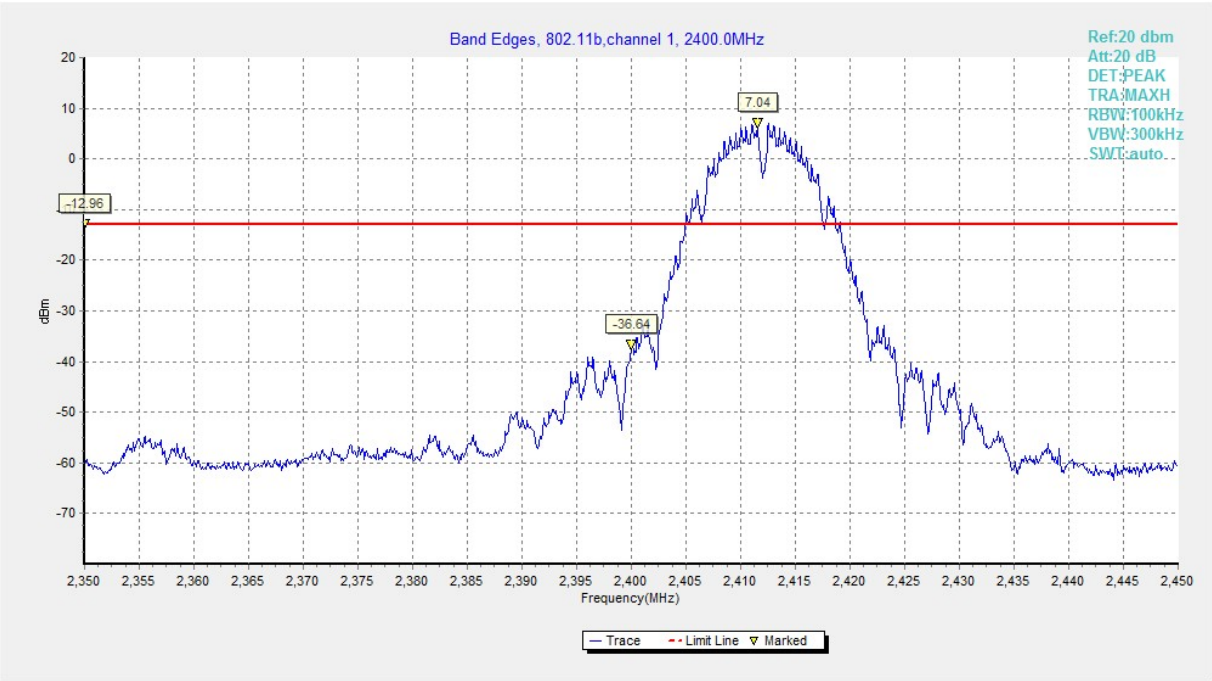

Fig.19 Band Edges (802.11b, CH 1)

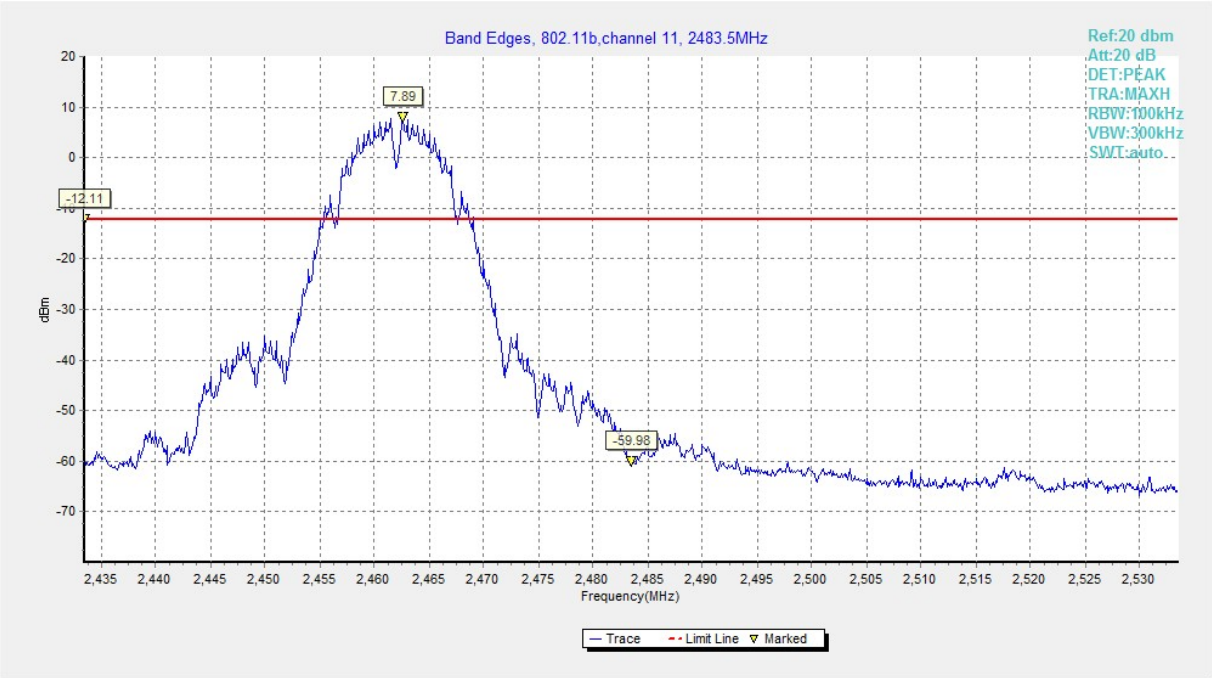

Fig.20 Band Edges (802.11b, CH 11)

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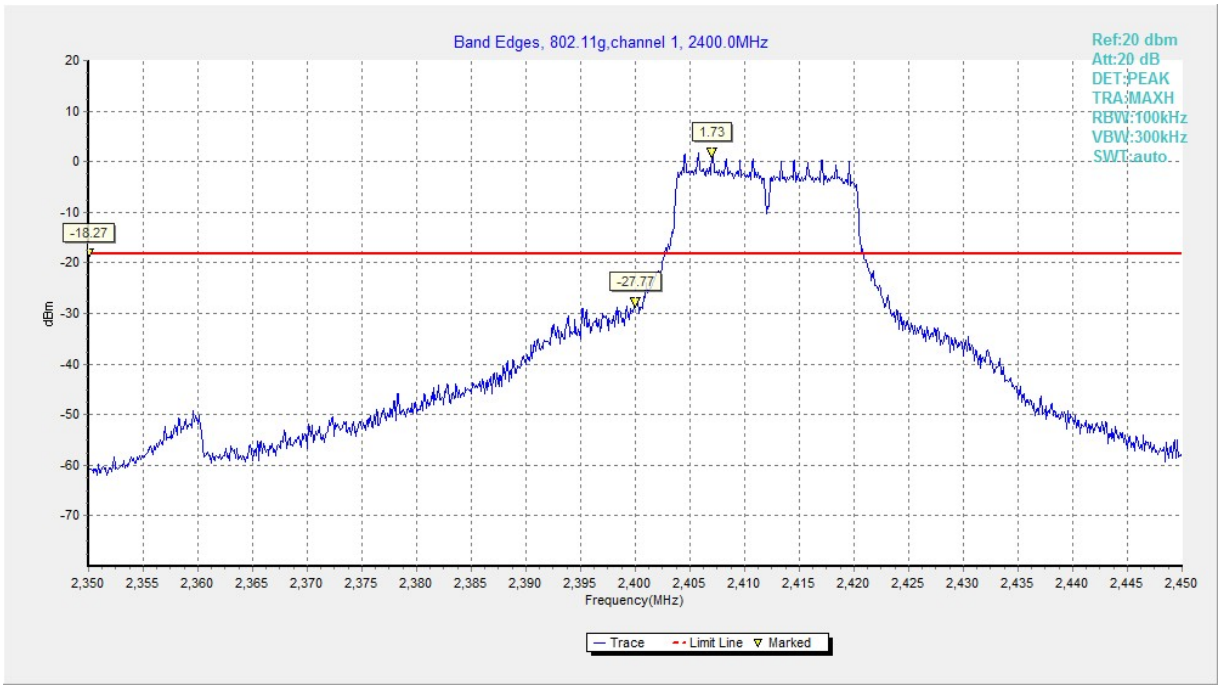

Fig.21 Band Edges (802.11g, CH 1)

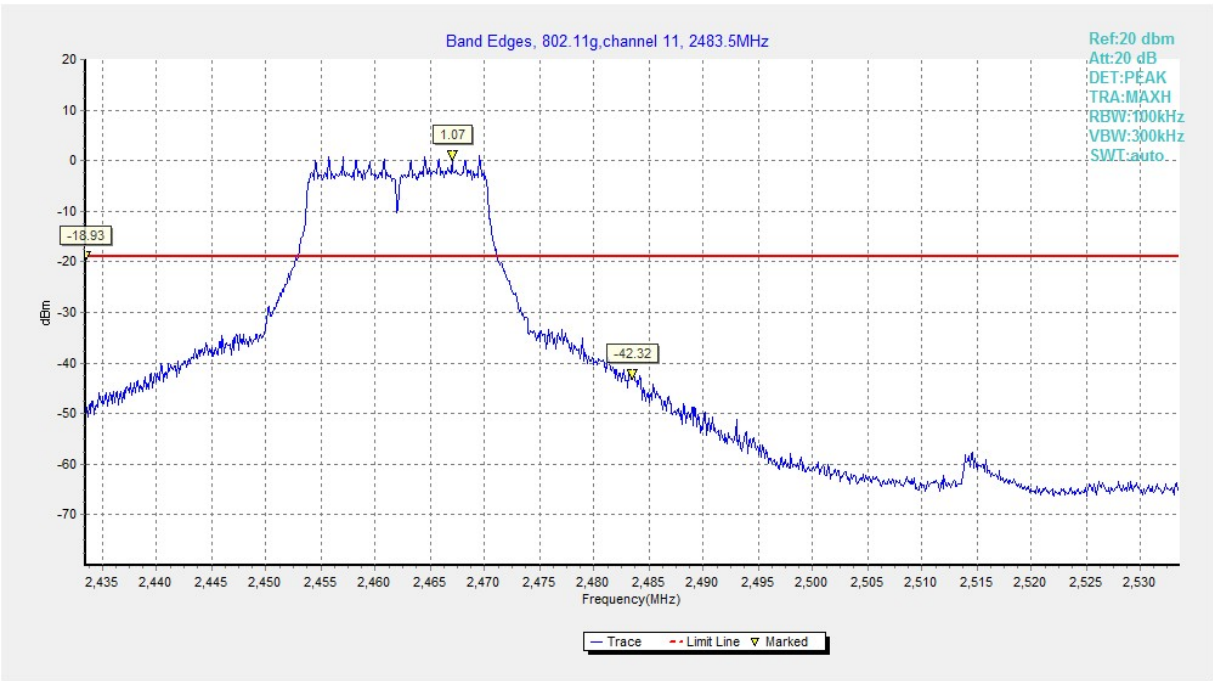

Fig.22 Band Edges (802.11g, CH 11)

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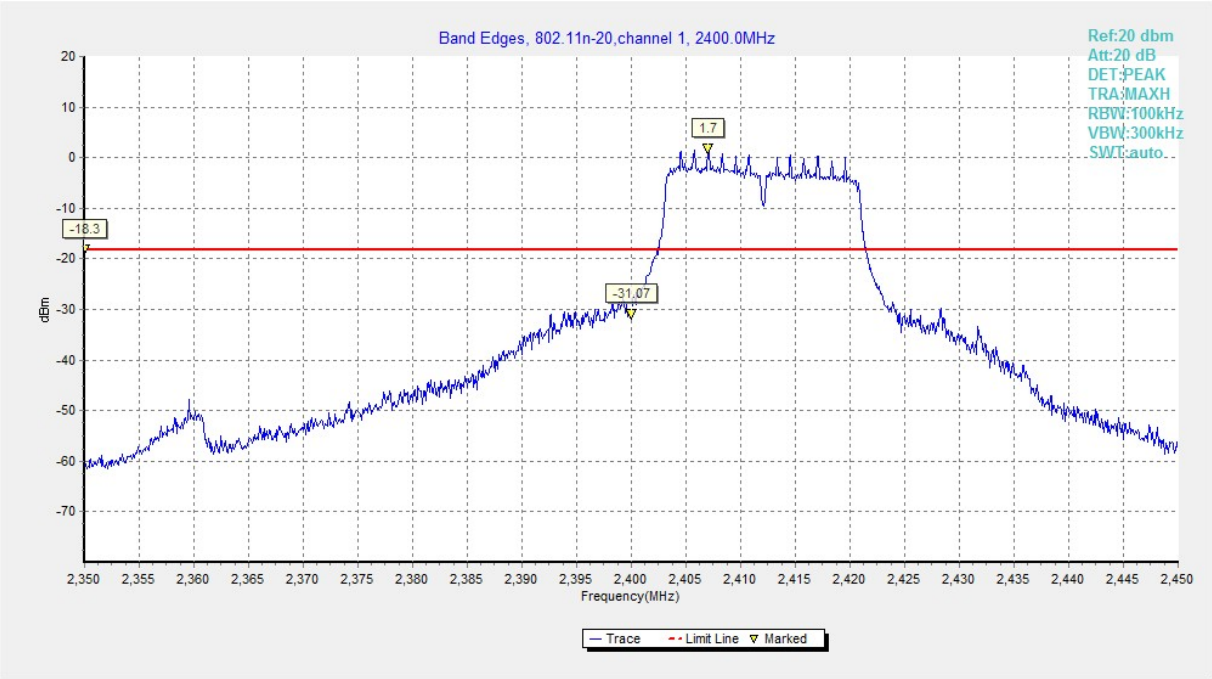

Fig.23 Band Edges (802.11n HT20, CH 1)

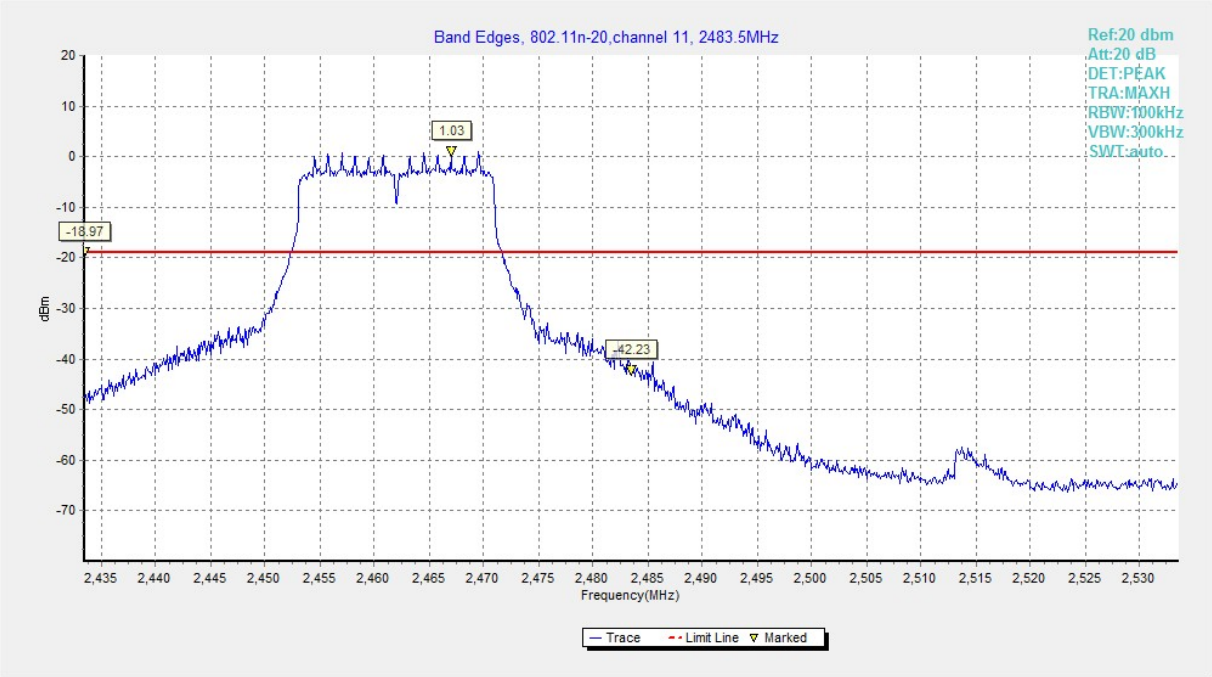

Fig.24 Band Edges (802.11n HT20, CH 11)

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A.5 Conducted Emission

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247 (d) & RSS-247 Section 5.5/RSS-Gen 6.13	20dB below peak output power in 100 kHz bandwidth

Measurement Results:

Mode	Channel	Frequency (MHz)	Frequency Range	Test Results	Conclusion
802.11b	CH 1	2412	30MHz-26GHz	Fig.25	**P**
	CH 6	2437	30MHz-26GHz	Fig.26	**P**
	CH 11	2462	30MHz-26GHz	Fig.27	**P**
802.11g	CH 1	2412	30MHz-26GHz	Fig.28	**P**
	CH 6	2437	30MHz-26GHz	Fig.29	**P**
	CH 11	2462	30MHz-26GHz	Fig.30	**P**
802.11n HT20	CH 1	2412	30MHz-26GHz	Fig.31	**P**
	CH 6	2437	30MHz-26GHz	Fig.32	**P**
	CH 11	2462	30MHz-26GHz	Fig.33	**P**

See below for test graphs.

Conclusion: PASS

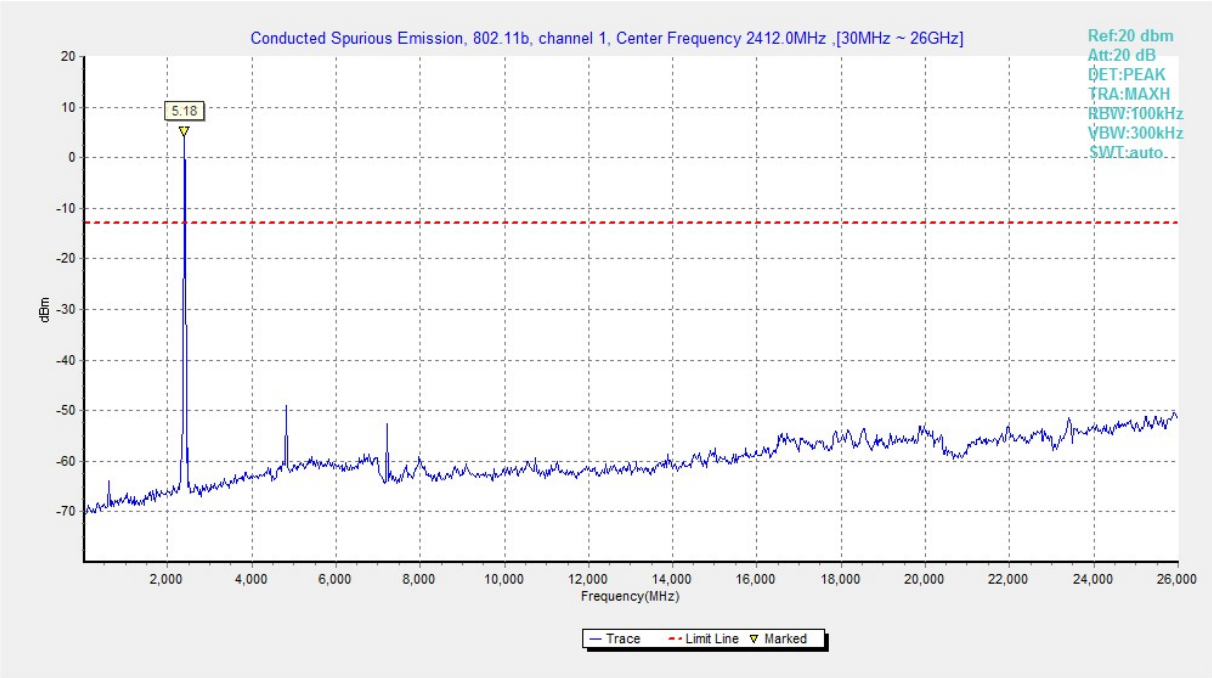

Fig.25 Conducted Spurious Emission (802.11b, CH1)

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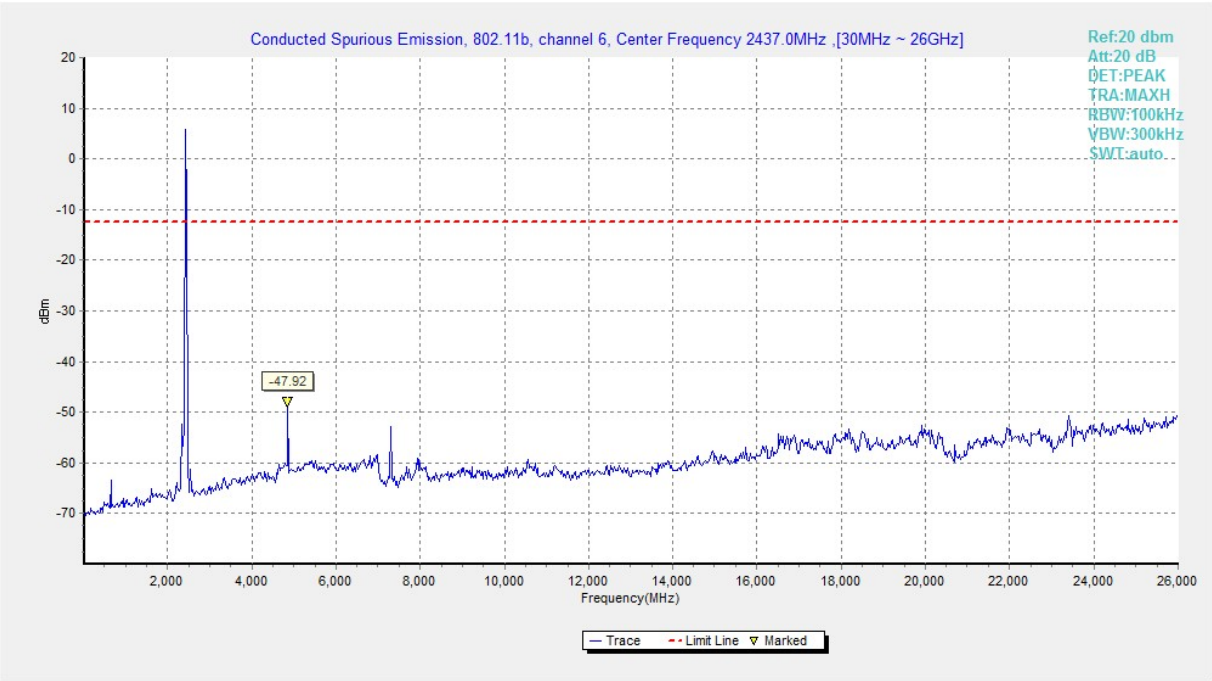

Fig.26 Conducted Spurious Emission (802.11b, CH6)

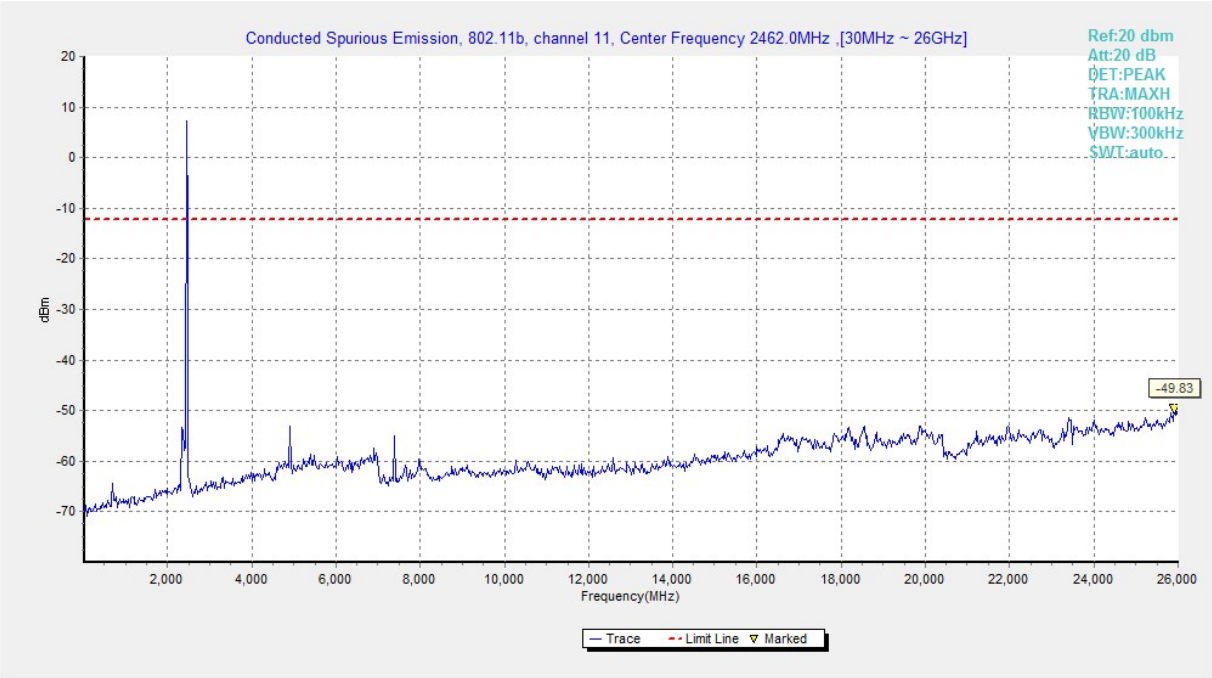

Fig.27 Conducted Spurious Emission (802.11b, CH11)

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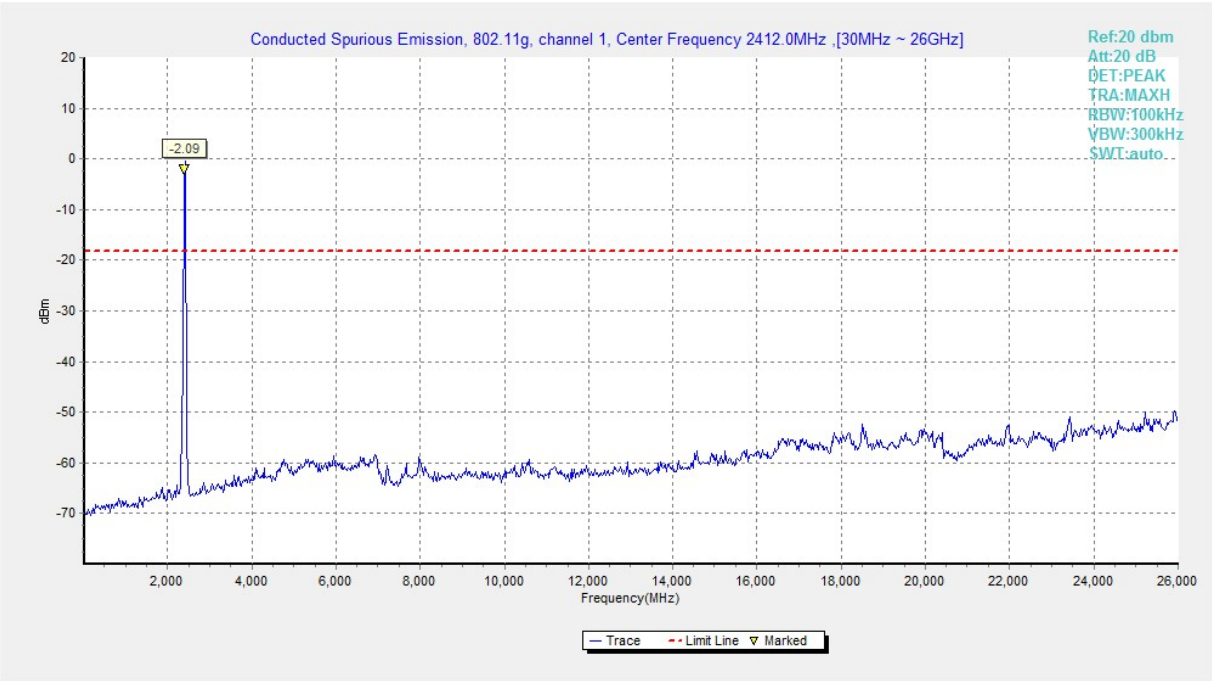

Fig.28 Conducted Spurious Emission (802.11g, CH1)

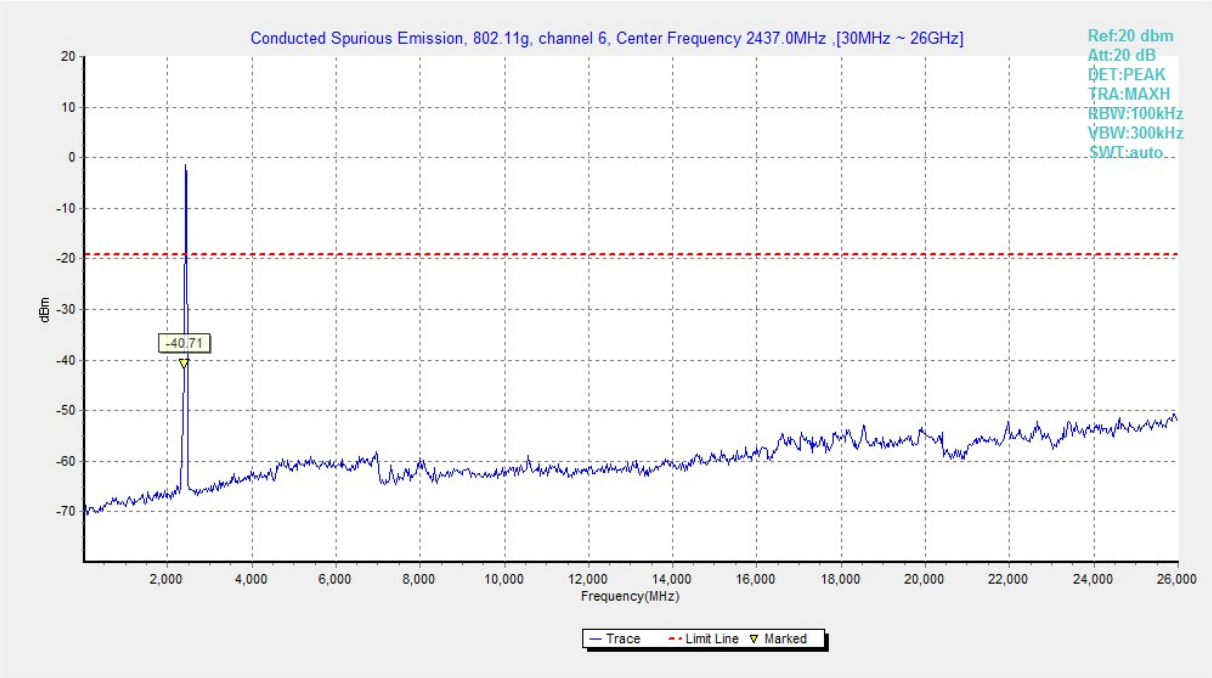

Fig.29 Conducted Spurious Emission (802.11g, CH6)

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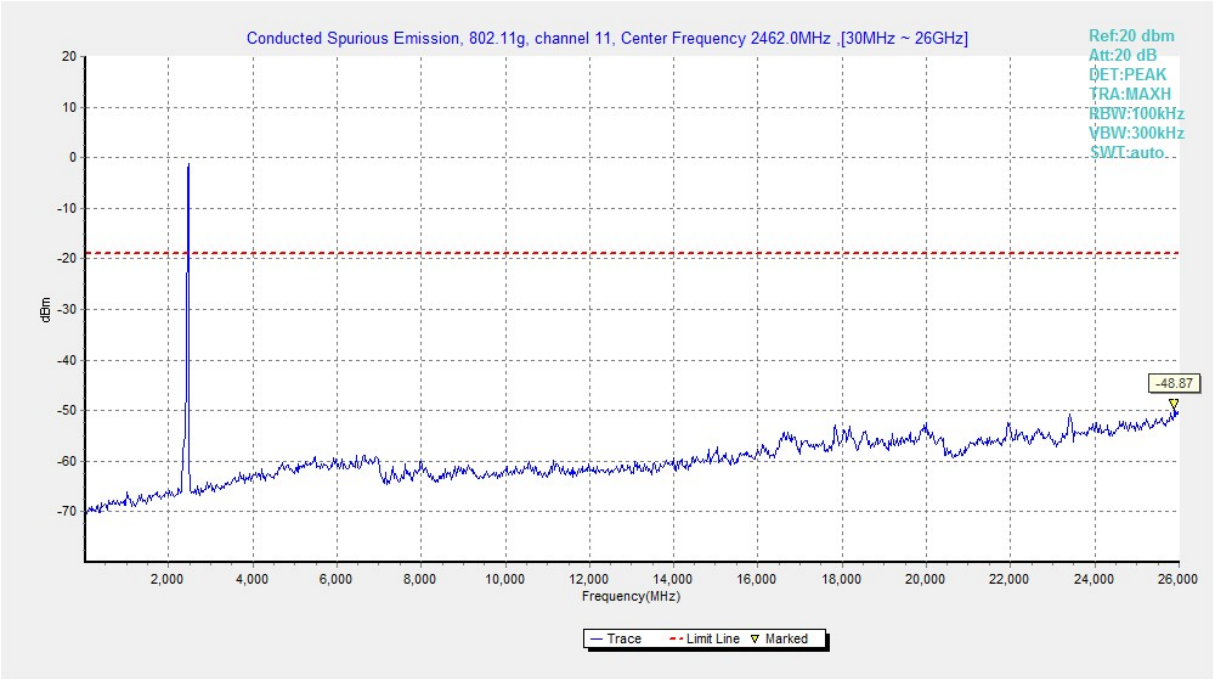

Fig.30 Conducted Spurious Emission (802.11g, CH11)

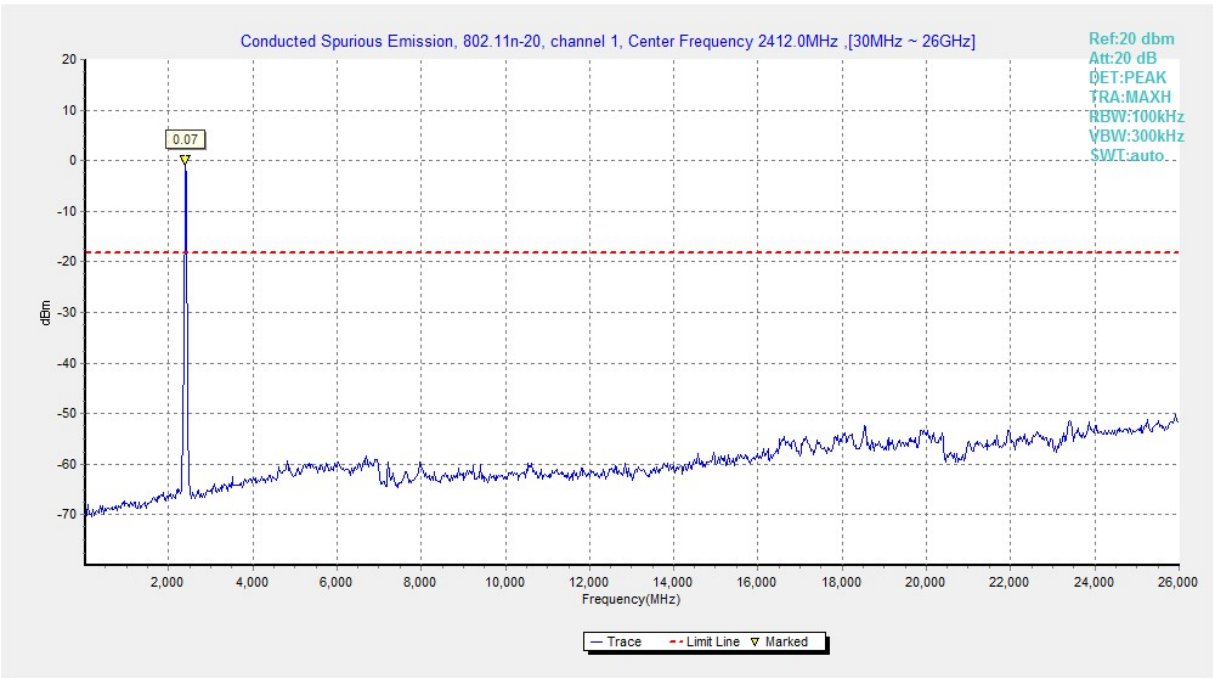

Fig.31 Conducted Spurious Emission (802.11n HT20, CH1)

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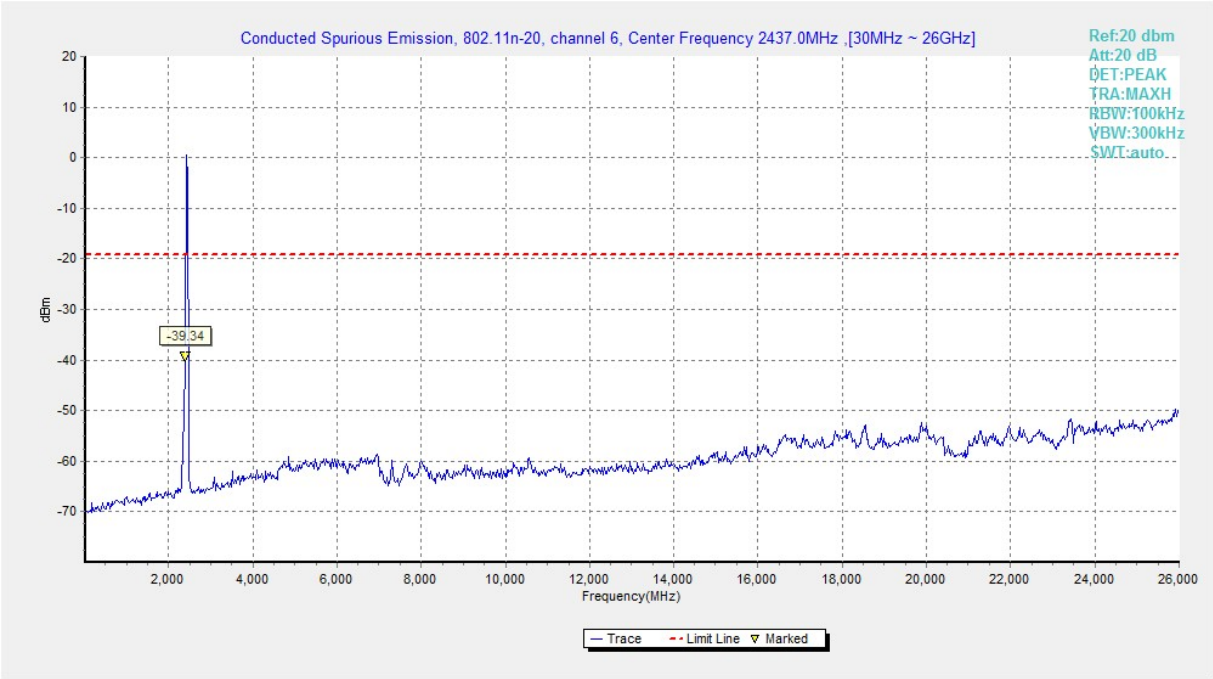

Fig.32 Conducted Spurious Emission (802.11n HT20, CH6)

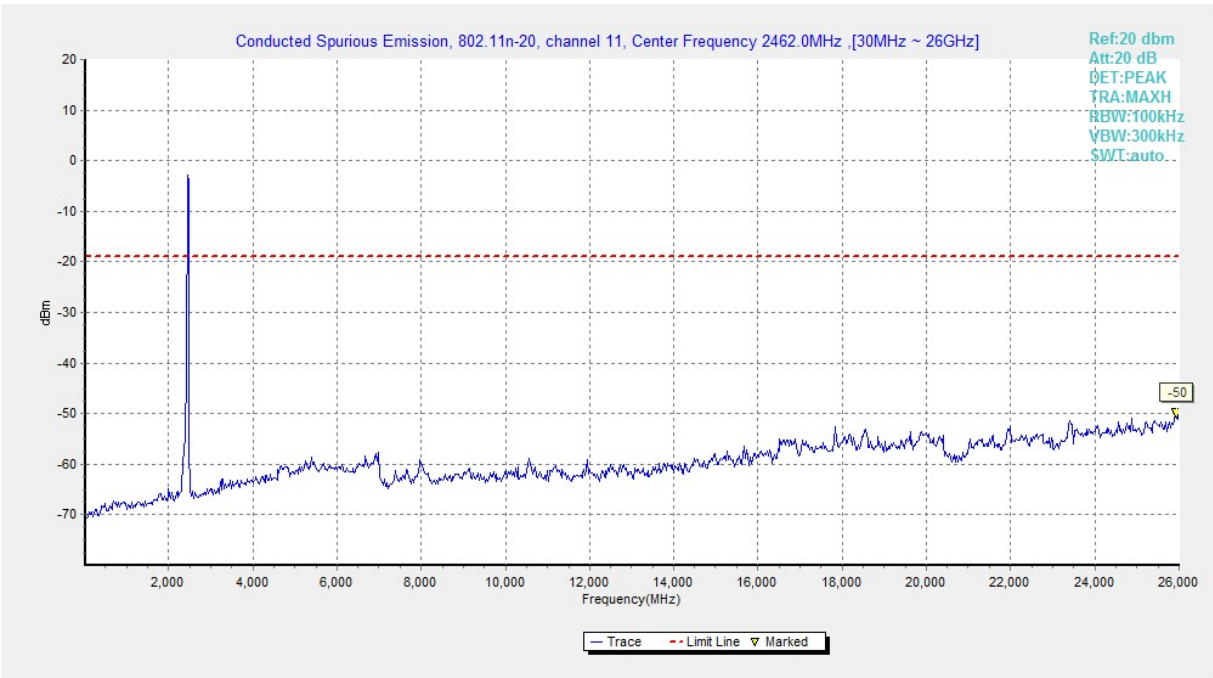

Fig.33 Conducted Spurious Emission (802.11n HT20, CH11)

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A.6 Radiated Emission

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209 & RSS-247 Section 5.5/RSS-Gen 6.13	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)).

Limit in restricted band:

Frequency of emission (MHz)	Field strength(μV/m)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

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	120kHz/300kHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

Note:

According to the performance evaluation, the radiated emission margin of EUT is over 20dB in the band below 30MHz. Therefore, the measurement starts from 30MHz to tenth harmonic.

The measurement results include the horizontal polarization and vertical polarization measurements.

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Measurement Results:

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	CH 1	1 GHz ~18 GHz	Fig.34	**P**
	CH 6	1 GHz ~18 GHz	Fig.35	**P**
	CH 11	1 GHz ~18 GHz	Fig.36	**P**
	Restricted Band (CH1)	2.38 GHz ~ 2.45 GHz	Fig.37	**P**
	Restricted Band (CH11)	2.45 GHz ~ 2.5 GHz	Fig.38	**P**
802.11g	CH 1	1 GHz ~18 GHz	Fig.39	**P**
	CH 6	1 GHz ~18 GHz	Fig.40	**P**
	CH 11	1 GHz ~18 GHz	Fig.41	**P**
	Restricted Band (CH1)	2.38 GHz ~ 2.45 GHz	Fig.42	**P**
	Restricted Band (CH11)	2.45 GHz ~ 2.5 GHz	Fig.43	**P**
802.11n HT20	CH 1	1 GHz ~18 GHz	Fig.44	**P**
	CH 6	1 GHz ~18 GHz	Fig.45	**P**
	CH 11	1 GHz ~18 GHz	Fig.46	**P**
	Restricted Band (CH1)	2.38 GHz ~ 2.45 GHz	Fig.47	**P**
	Restricted Band (CH11)	2.45 GHz ~ 2.5 GHz	Fig.48	**P**
/	All Channels	9 kHz ~30 MHz	Fig.49	**P**
		30 MHz ~1 GHz	Fig.50	**P**
		18 GHz ~26.5 GHz	Fig.51	**P**

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Worst-Case Result:

802.11b CH6 (1-18GHz)

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
13952.000000	58.91	74.00	15.09	H	20.1
14704.000000	57.31	74.00	16.69	H	21.5
15137.500000	60.52	74.00	13.48	H	22.3
15917.000000	62.87	74.00	11.13	H	24.6
16585.500000	63.56	74.00	10.44	H	26.4
17727.000000	63.75	74.00	10.25	V	27.4

Frequency (MHz)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
13907.500000	45.66	54.00	8.34	V	21.0
14685.000000	45.87	54.00	8.13	H	21.5
15577.500000	49.64	54.00	4.36	H	23.8
15968.500000	50.74	54.00	3.26	V	25.6
16589.500000	51.60	54.00	2.40	H	26.3
17709.000000	51.92	54.00	2.08	V	27.6

802.11g CH1 (1GHz-18GHz)

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
13890.500000	57.35	74.00	16.65	H	20.2
14685.000000	58.17	74.00	15.83	V	21.5
15554.000000	61.35	74.00	12.65	V	23.3
15954.500000	62.58	74.00	11.42	V	25.0
16900.000000	63.35	74.00	10.65	V	26.7
17691.500000	63.51	74.00	10.49	V	26.9

Frequency (MHz)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
13910.500000	45.92	54.00	8.08	V	21.1
14696.000000	46.16	54.00	7.84	V	21.6
15575.500000	49.70	54.00	4.30	V	23.8
15965.000000	50.87	54.00	3.13	H	25.5
16582.000000	51.64	54.00	2.36	V	26.4
17709.000000	52.06	54.00	1.94	H	27.6

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802.11n HT20 CH1 (1GHz-18GHz)

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
13909.000000	57.62	74.00	16.38	H	21.1
14681.000000	58.11	74.00	15.89	H	21.5
15305.500000	61.30	74.00	12.70	V	22.4
16060.500000	62.80	74.00	11.20	V	25.4
16578.000000	63.51	74.00	10.49	H	26.4
17883.000000	63.56	74.00	10.44	V	28.1

Frequency (MHz)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol	Corr. (dB)
13911.000000	45.95	54.00	8.05	V	21.1
14685.500000	46.17	54.00	7.83	H	21.5
15575.500000	49.75	54.00	4.25	V	23.8
15965.000000	50.79	54.00	3.21	H	25.5
16586.000000	51.66	54.00	2.34	H	26.3
17707.000000	52.10	54.00	1.90	H	27.6

Note:

A "reference path loss" is established and the A_{Rpl} is the attenuation of “reference path loss”, and Antenna Factor, 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} +Cable Loss +Antenna Factor-Gain of the preamplifier.

See below for test graphs.

Conclusion: PASS

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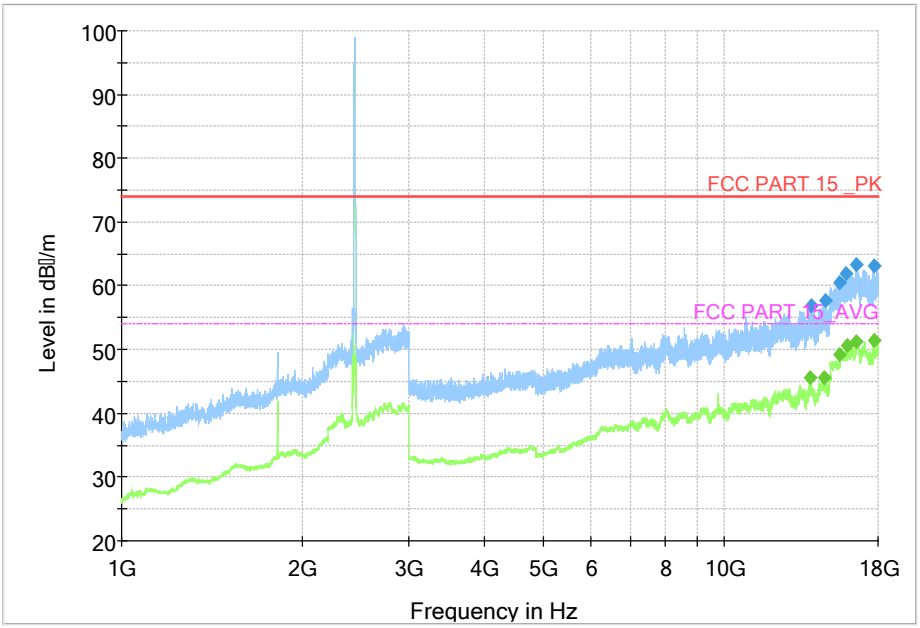

Fig.34 Radiated Spurious Emission (802.11b, CH1, 1 GHz-18GHz)

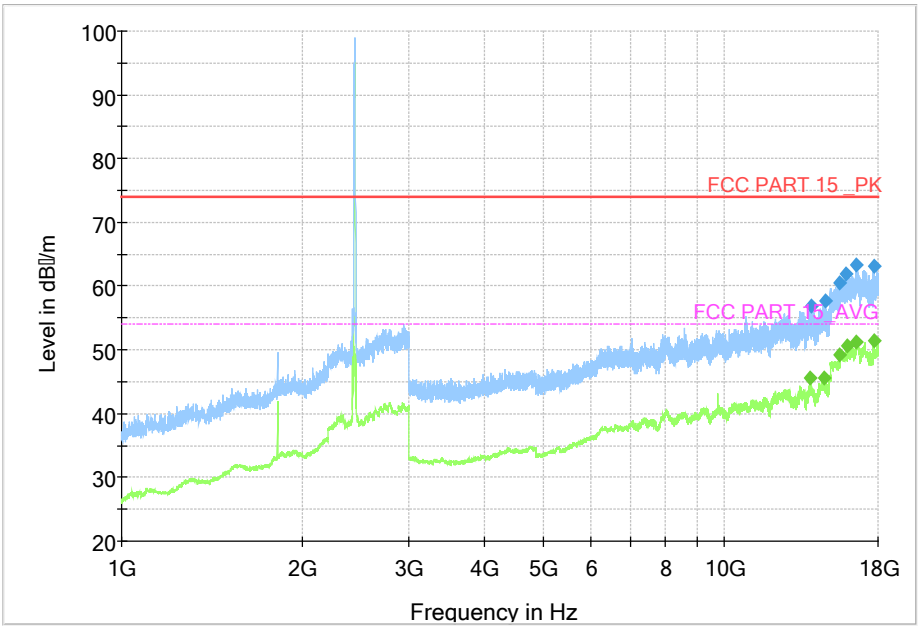

Fig.35 Radiated Spurious Emission (802.11b, CH6, 1 GHz-18GHz)

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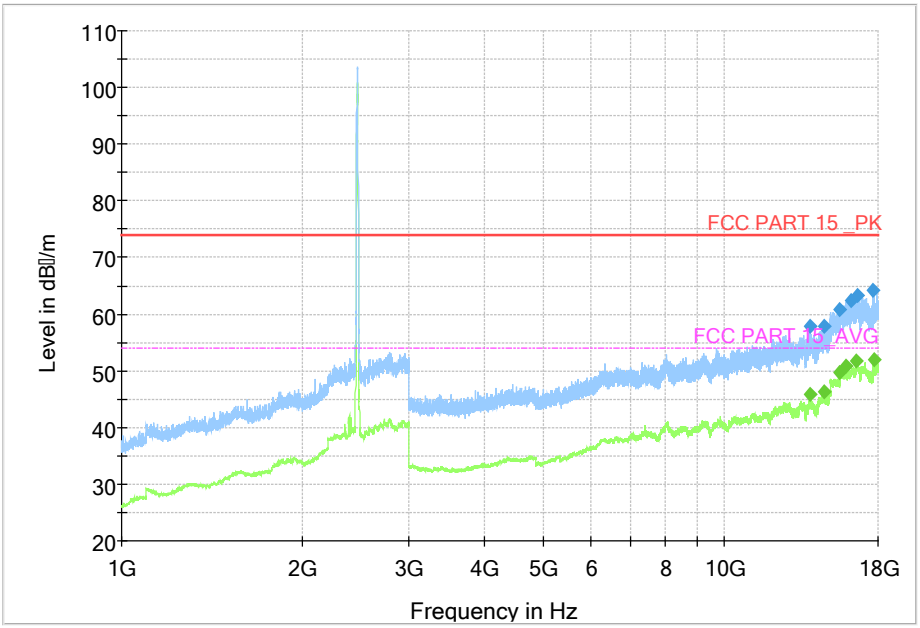

Fig.36 Radiated Spurious Emission (802.11b, CH11, 1 GHz-18GHz)

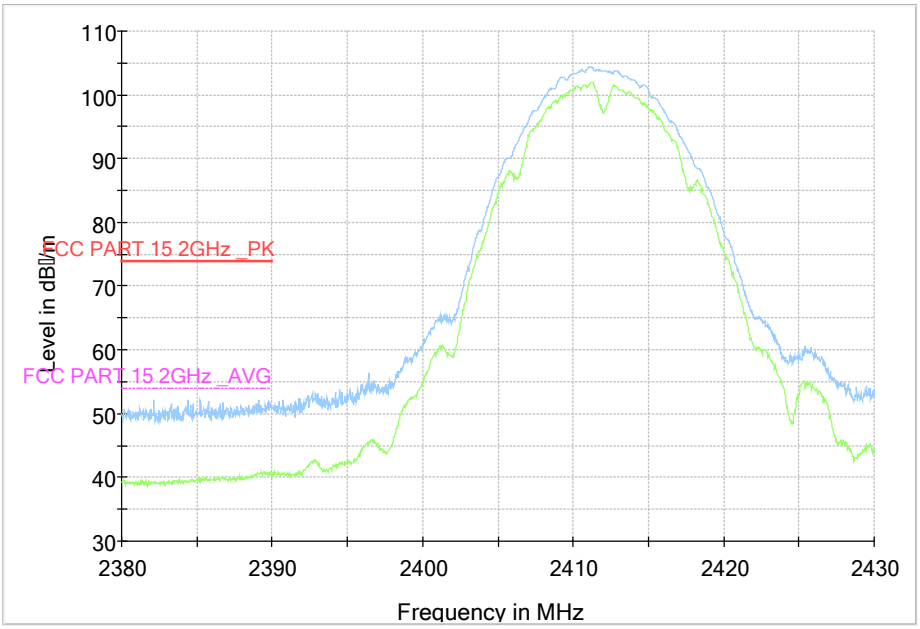

Fig.37 Radiated Restricted Band (802.11b, CH1, 2.38GHz~2.45GHz)

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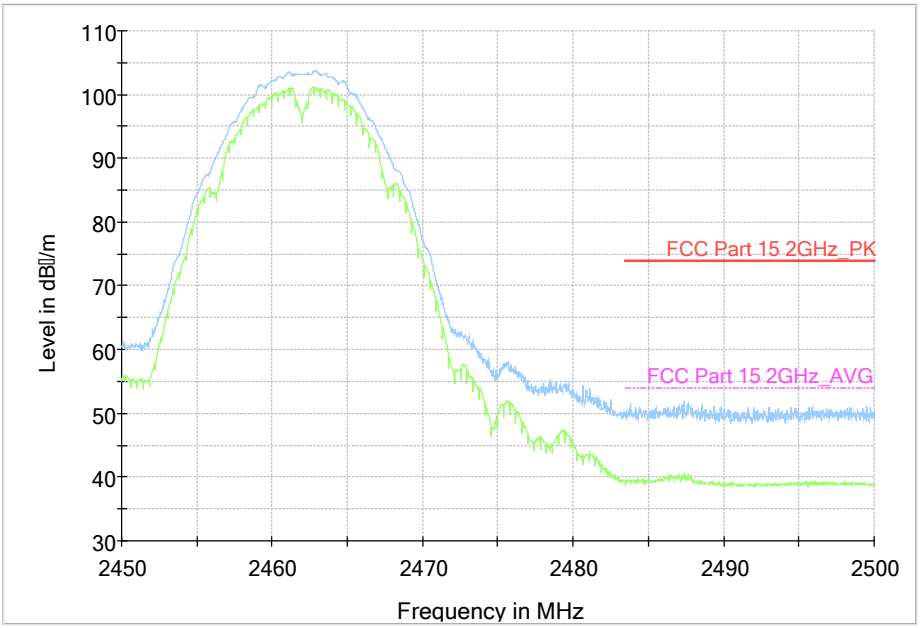

Fig.38 Radiated Restricted Band (802.11b, CH11, 2.45GHz~2.5GHz)

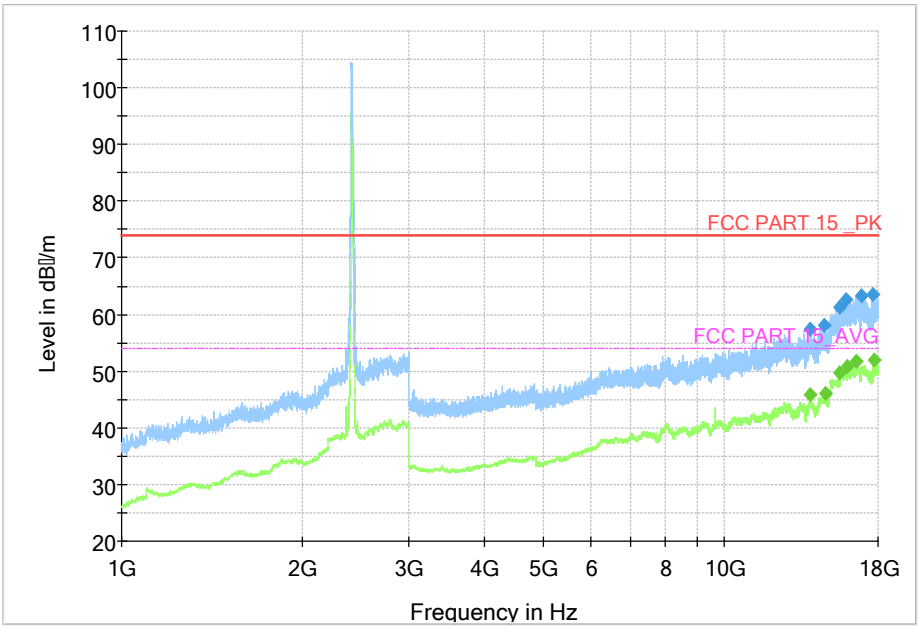

Fig.39 Radiated Spurious Emission (802.11g, CH1, 1 GHz-18 GHz)

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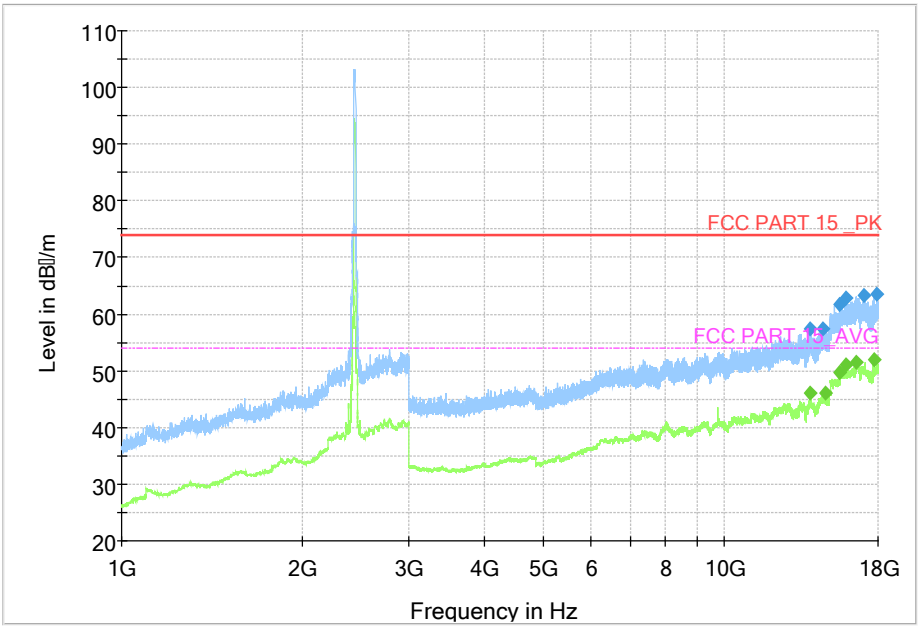

Fig.40 Radiated Spurious Emission (802.11g, CH6, 1 GHz-18 GHz)

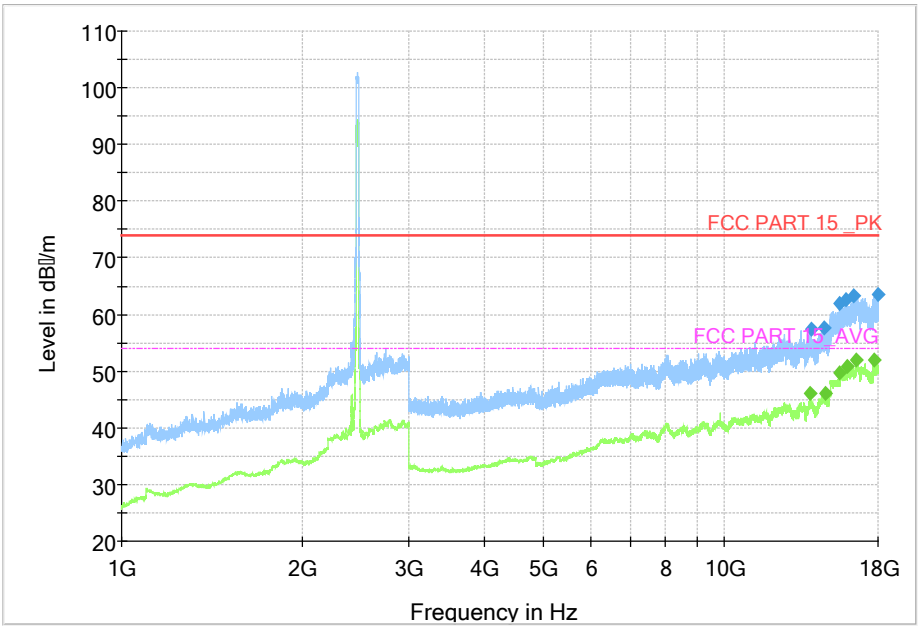

Fig.41 Radiated Spurious Emission (802.11g, CH11, 1 GHz-18 GHz)

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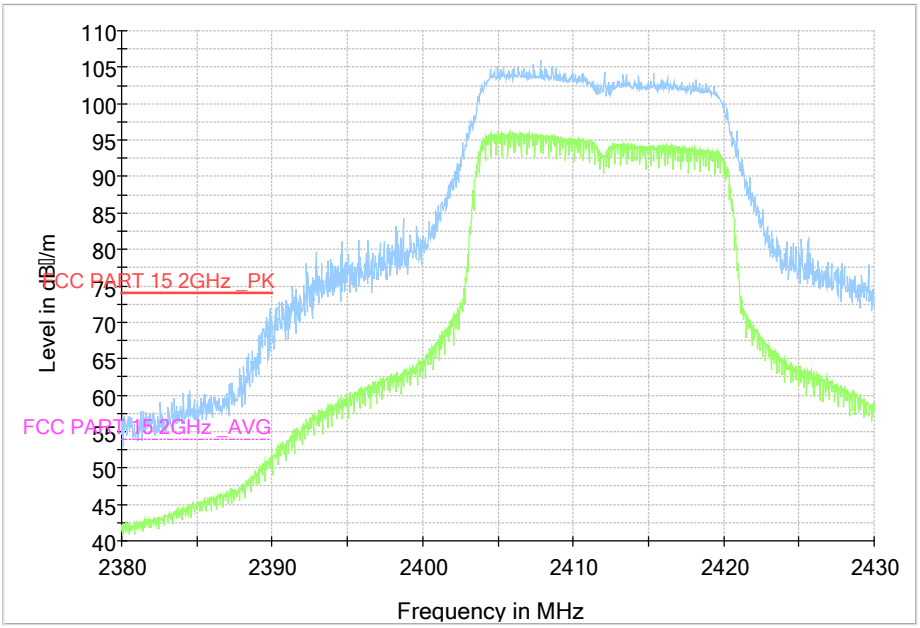

Fig.42 Radiated Restricted Band (802.11g, CH1, 2.38GHz~2.45GHz)

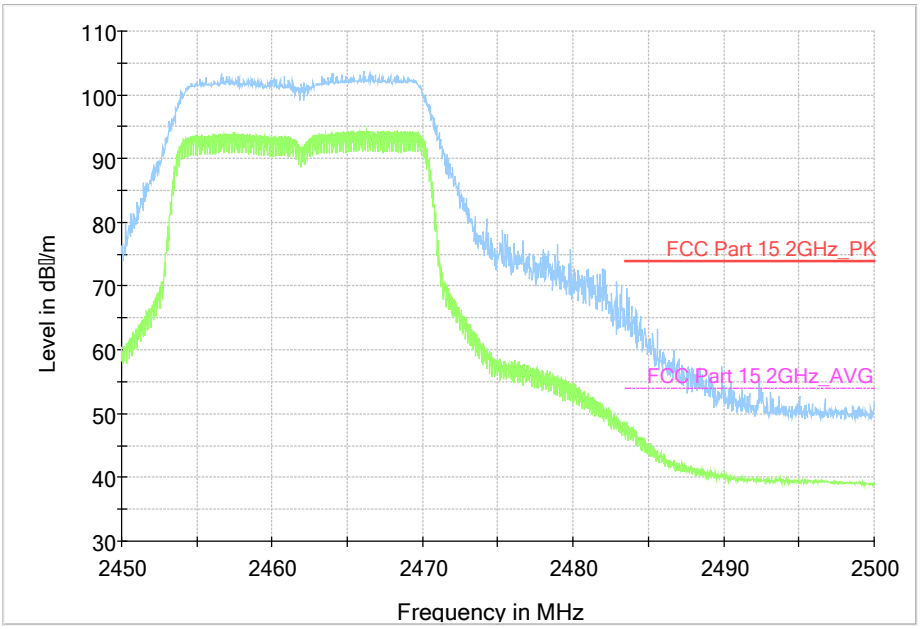

Fig.43 Radiated Restricted Band (802.11g, CH11, 2.45GHz~2.5GHz)

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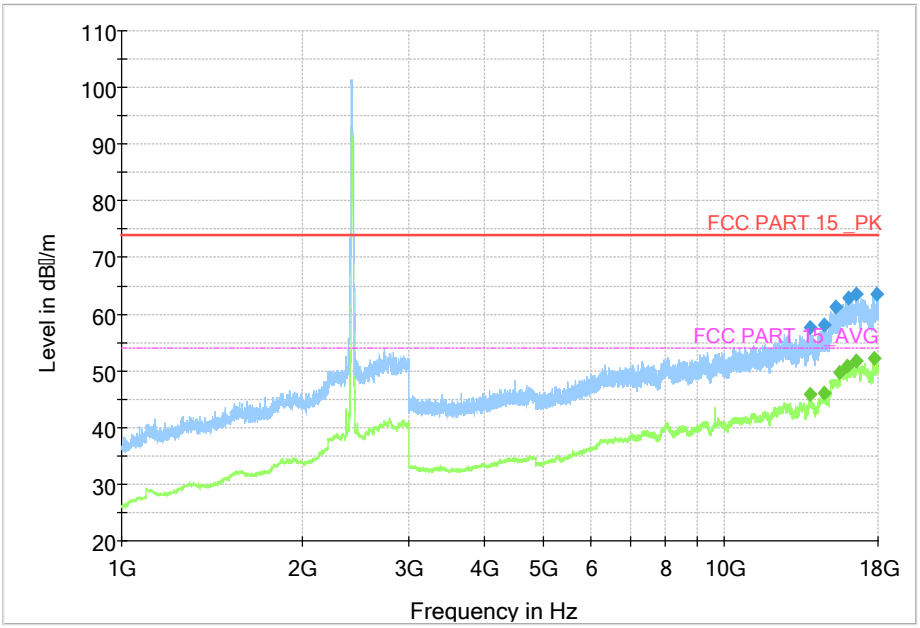

Fig.44 Radiated Spurious Emission (802.11n HT20, CH1, 1 GHz-18 GHz)

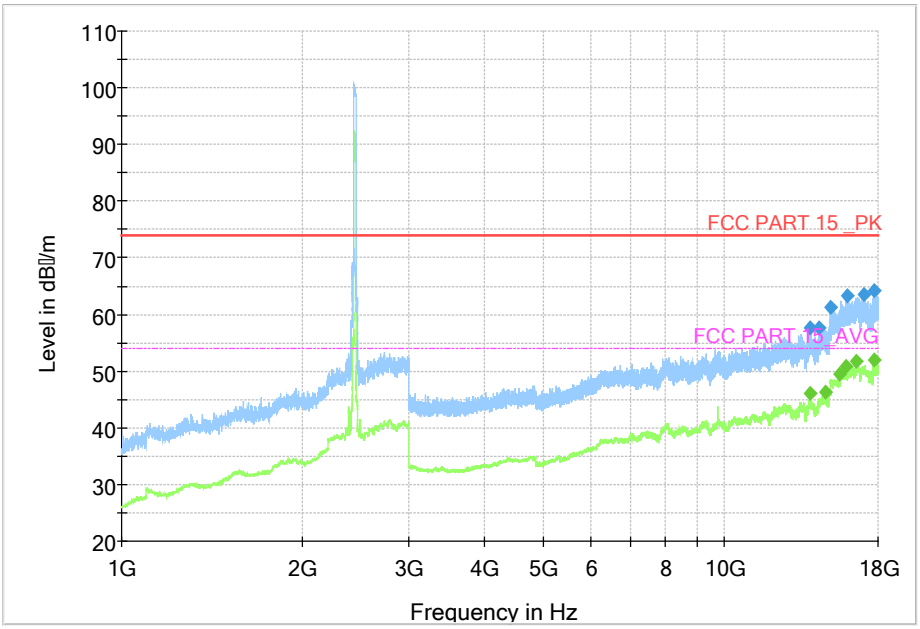

Fig.45 Radiated Spurious Emission (802.11n HT20, CH6, 1 GHz-18 GHz)

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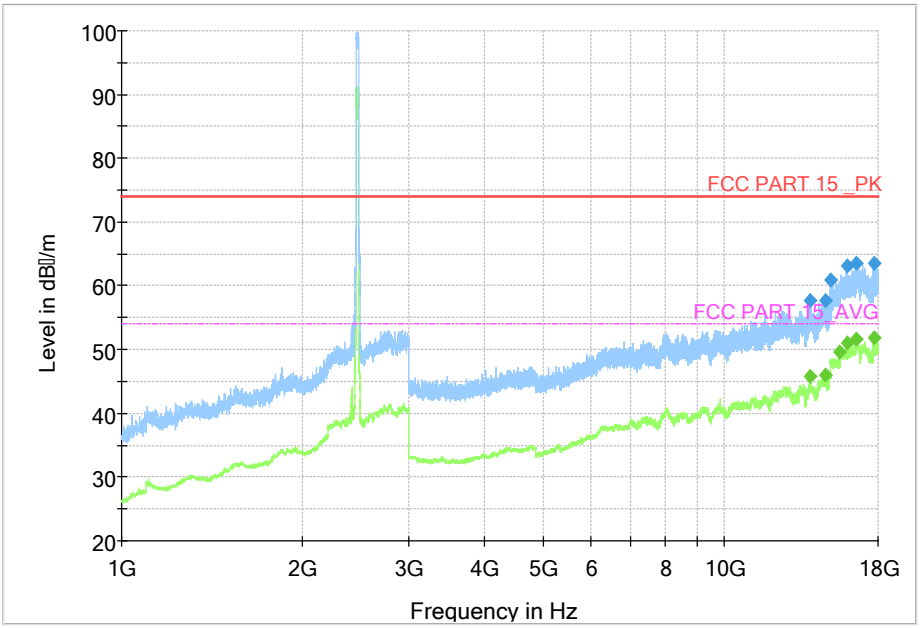

Fig.46 Radiated Spurious Emission (802.11n HT20, CH11, 1 GHz-18 GHz)

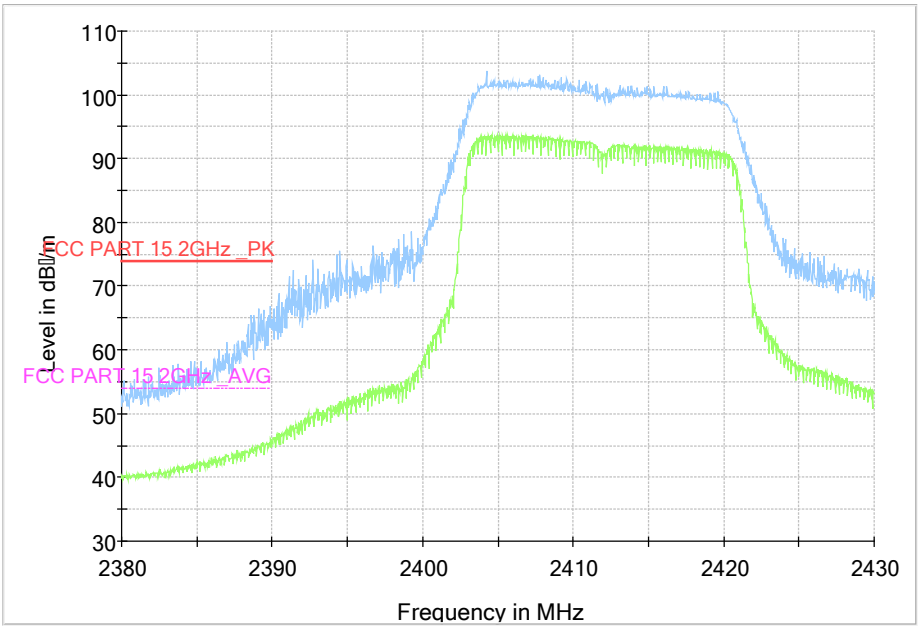

Fig.47 Radiated Restricted Band (802.11n HT20, CH1, 2.38GHz~2.45GHz)

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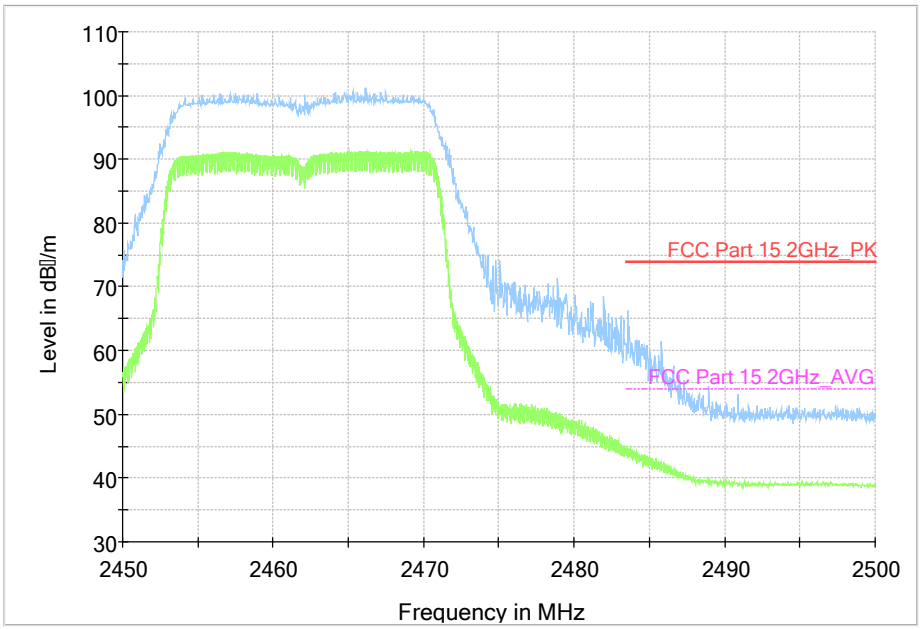

Fig.48 Radiated Restricted Band (802.11n HT20, CH11, 2.45GHz~2.5GHz)

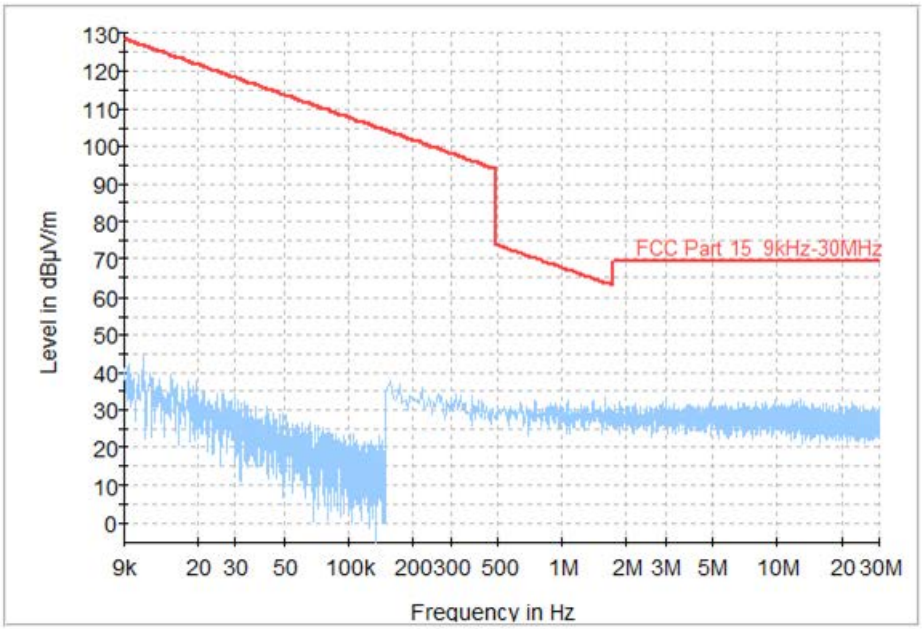

Fig.49 Radiated Spurious Emission (All Channels, 9KHz-30 MHz)

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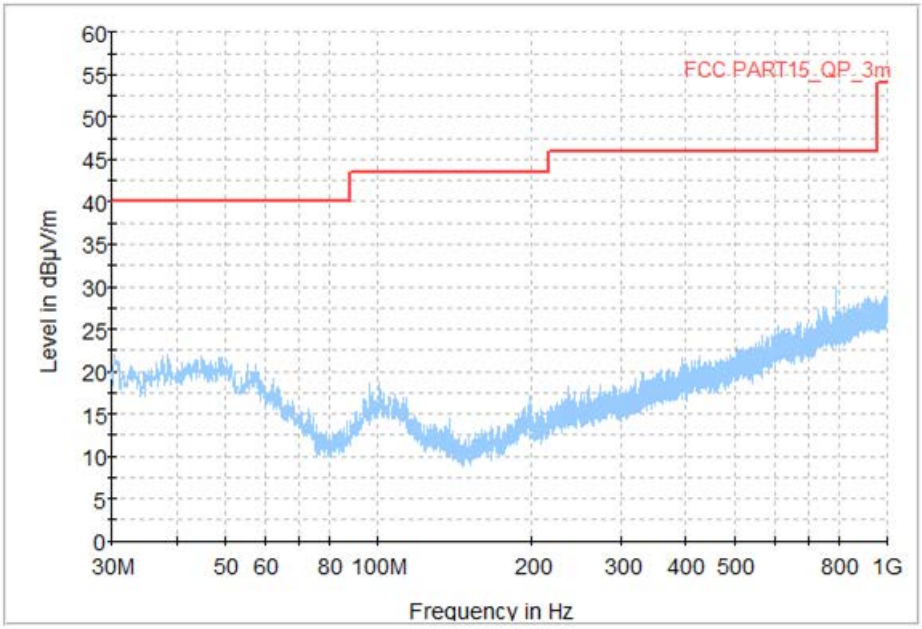

Fig.50 Radiated Spurious Emission (All Channels, 30MHz-1 GHz)

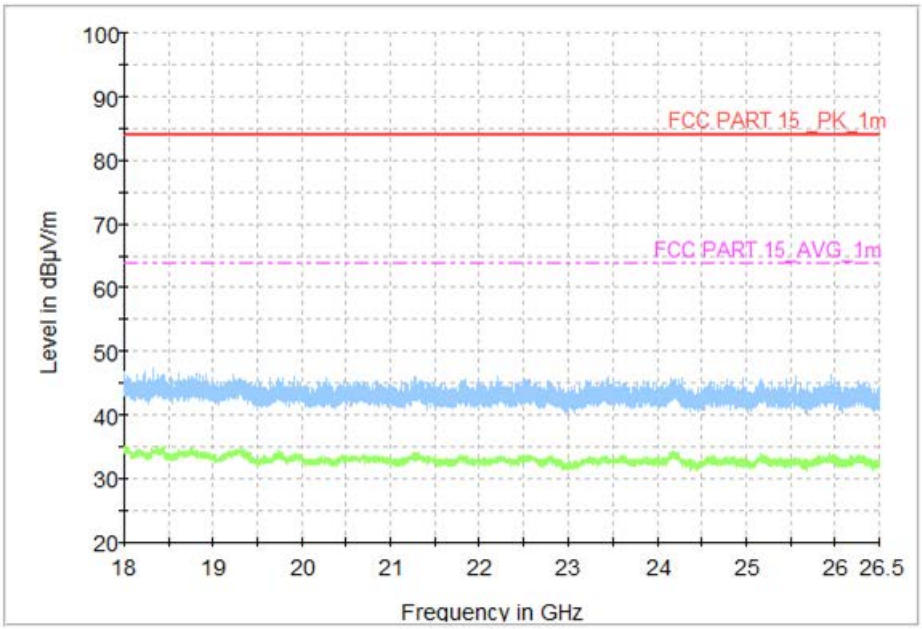

Fig.51 Radiated Spurious Emission (All Channels, 18 GHz-26.5 GHz)

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A.7 AC Powerline Conducted Emission

Test Condition:

Voltage（V）	Frequency（Hz）
120	60

Measurement Result and limit-AE2:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.15 to 0.5	66 to 56	Fig.52	Fig.53	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-peak Limit (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.15 to 0.5	56 to 46	Fig 52	Fig 53	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.				

Note: The measurement results include the L1 and N measurements.

See below for test graphs.

Conclusion: PASS

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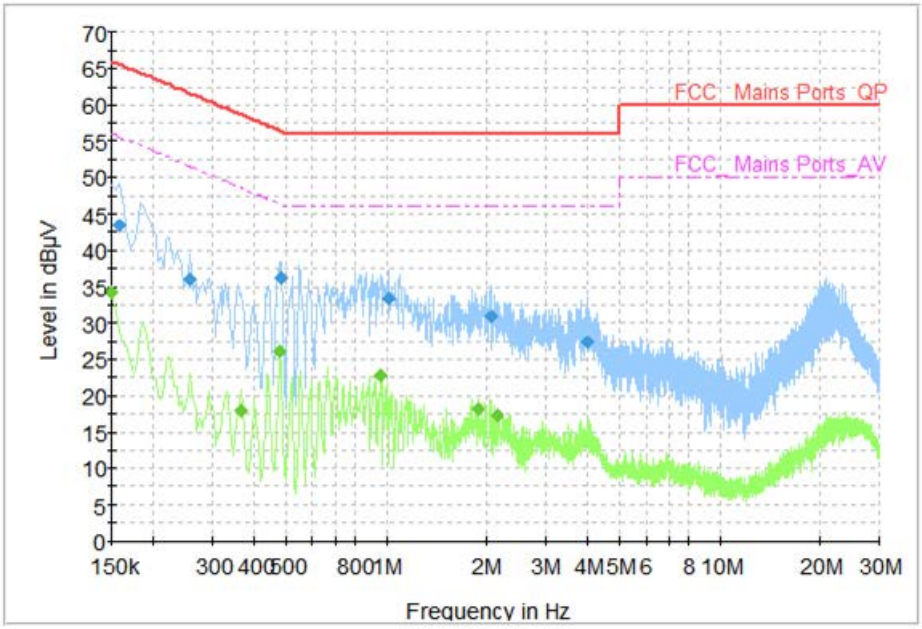

Fig.52 AC Power line Conducted Emission (Traffic)

Measurement Results: Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	43.35	65.57	22.22	N	ON	9.6
0.258000	35.94	61.50	25.55	L1	ON	9.7
0.482000	36.11	56.31	20.19	N	ON	9.7
1.014000	33.28	56.00	22.72	N	ON	9.7
2.066000	30.84	56.00	25.16	N	ON	9.7
4.030000	27.26	56.00	28.74	N	ON	9.7

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	34.15	56.00	21.85	N	ON	9.6
0.366000	17.90	48.59	30.69	L1	ON	9.7
0.478000	26.14	46.37	20.23	N	ON	9.7
0.958000	22.75	46.00	23.25	N	ON	9.7
1.882000	18.10	46.00	27.90	N	ON	9.7
2.146000	17.24	46.00	28.76	N	ON	9.7

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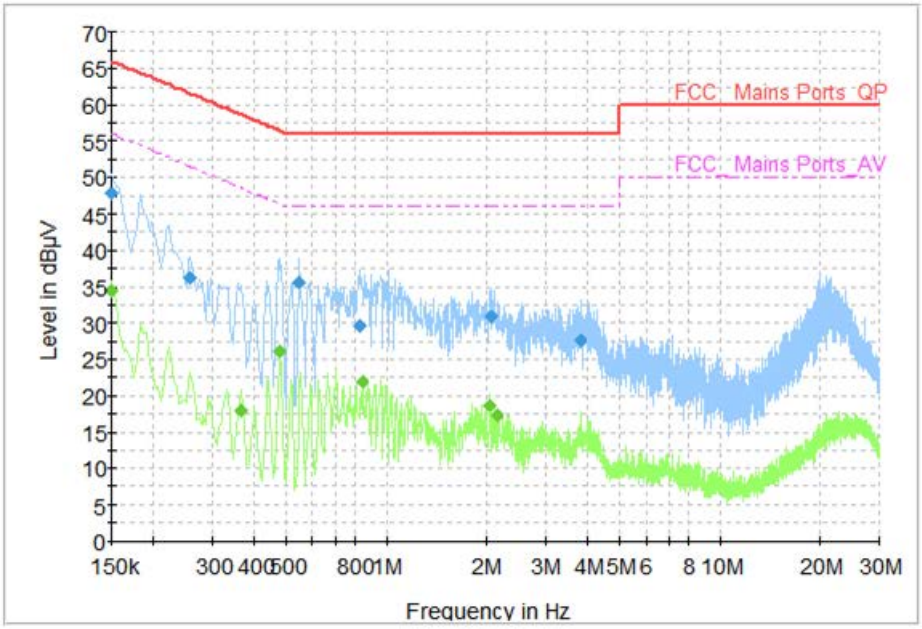

Fig.53 AC Power line Conducted Emission (Idle)

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150000	47.77	66.00	18.23	N	ON	9.6
0.258000	36.20	61.50	25.30	L1	ON	9.7
0.546000	35.56	56.00	20.44	N	ON	9.7
0.826000	29.65	56.00	26.35	L1	ON	9.7
2.074000	30.81	56.00	25.19	N	ON	9.7
3.814000	27.64	56.00	28.36	N	ON	9.7

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150000	34.40	56.00	21.60	N	ON	9.6
0.366000	17.99	48.59	30.60	L1	ON	9.7
0.478000	26.15	46.37	20.22	N	ON	9.7
0.846000	21.88	46.00	24.12	N	ON	9.7
2.030000	18.69	46.00	27.31	N	ON	9.7
2.142000	17.33	46.00	28.67	N	ON	9.7

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Measurement Result and limit-AE3:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.16 to 0.5	66 to 56	Fig.54	Fig.55	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-peak Limit (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.15 to 0.5	56 to 46	Fig 54	Fig 55	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.				

Note: The measurement results include the L1 and N measurements.

See below for test graphs.

Conclusion: PASS

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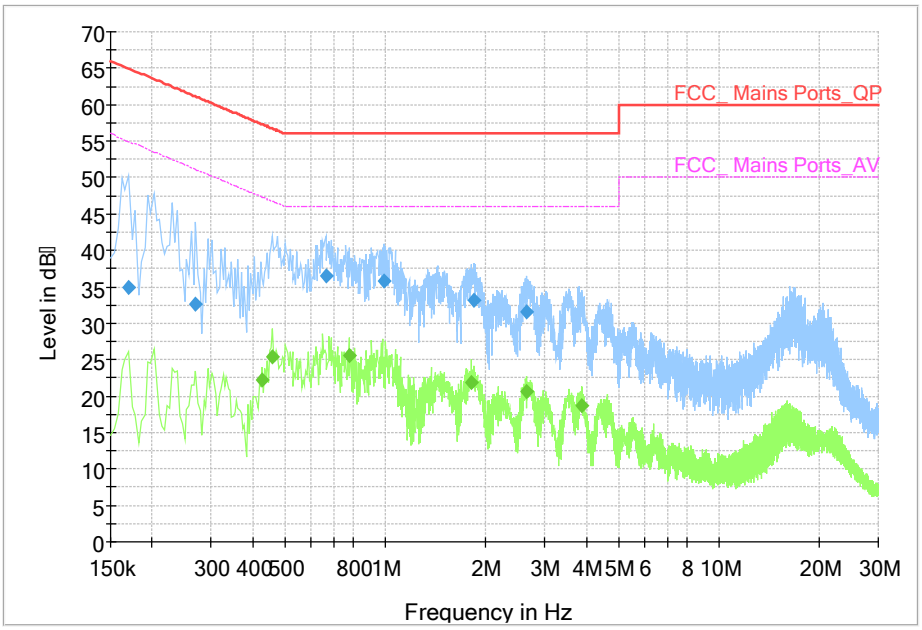

Fig.54 AC Power line Conducted Emission (Traffic)

Measurement Results: Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.170000	34.89	64.96	30.07	L1	ON	9.7
0.270000	32.57	61.12	28.55	L1	ON	9.7
0.662000	36.47	56.00	19.53	N	ON	9.7
0.994000	35.79	56.00	20.21	N	ON	9.7
1.842000	33.07	56.00	22.93	N	ON	9.7
2.650000	31.55	56.00	24.45	N	ON	9.7

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.426000	22.29	47.33	25.04	N	ON	9.7
0.458000	25.43	46.73	21.30	N	ON	9.6
0.778000	25.48	46.00	20.52	N	ON	9.7
1.810000	21.90	46.00	24.10	N	ON	9.7
2.650000	20.59	46.00	25.41	N	ON	9.7
3.862000	18.66	46.00	27.34	N	ON	9.7

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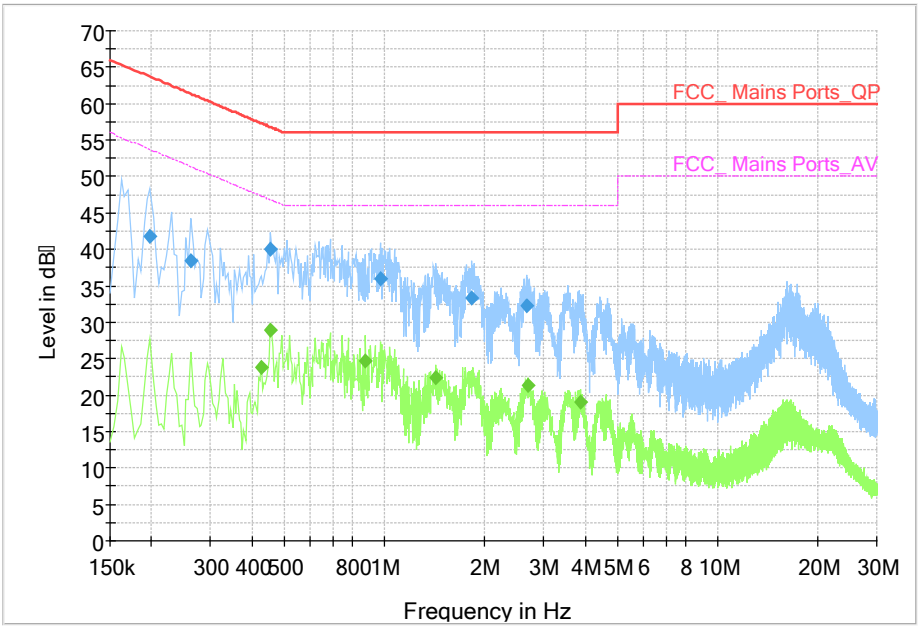

Fig.55 AC Power line Conducted Emission (Idle)

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.198000	41.79	63.69	21.91	N	ON	9.6
0.262000	38.51	61.37	22.86	N	ON	9.6
0.454000	39.98	56.80	16.82	N	ON	9.7
0.970000	36.01	56.00	19.99	N	ON	9.7
1.826000	33.32	56.00	22.68	N	ON	9.7
2.662000	32.24	56.00	23.76	N	ON	9.7

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.426000	23.89	47.33	23.44	N	ON	9.7
0.454000	28.88	46.80	17.92	N	ON	9.7
0.878000	24.76	46.00	21.24	N	ON	9.7
1.426000	22.33	46.00	23.67	N	ON	9.7
2.694000	21.27	46.00	24.73	N	ON	9.7
3.878000	18.98	46.00	27.02	N	ON	9.7

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

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