FCC PART 15C/IC RSS-210 TEST REPORT

No. 2012WLN0309

for

Sony Ericsson Mobile Communications AB

GSM 850/900/1800/1900 quad bands and UMTS FDD 1/8 mobile

Type: AAD-3880130-BV

With

FCC ID: PY7A3880130

IC No.: 4170B-A3880130

Hardware Version: A

Software Version: ATP R1A034

Issued Date: 2012-04-06

Deutscher Akkreditierungs Rat

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

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

FCC 2.948 Listed: No.733176

IC O.A.T.S listed: No.6629A-1

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 LATORATORY

1.1. Testing Location

Company Name:	TMC Beijing, Telecommunication Metrology Center of MIIT
Address:	No. 52, Huayuan Bei Road, Haidian District, Beijing, P. R. China
Postal Code:	100191
Telephone:	00861062304633
Fax:	00861062304793

1.2. Testing Environment

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

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

1.3. Project data

Project Leader:	SunZhenyu
Testing Start Date:	2012-01-30
Testing End Date:	2012-02-17

1.4. Signature

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Sun Zhenyu

(Prepared this test report)

高宏

Gao Hong

(Reviewed this test report)

陆冰松

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(Approved this test report)

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2. CLIENT INFORMATION

2.1. Applicant Information

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2.2. Manufacturer Information

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

3.1. About EUT

Description	GSM 850/900/1800/1900 quad bands and UMTS FDD 1/8 mobile
Type	AAD-3880130-BV
FCC ID	PY7A3880130
IC No.	4170B-A3880130
Frequency Range	ISM 2400MHz~2483.5MHz
Type of modulation	DSSS/CCK/OFDM
Number of Channels	11
Cellular Frequency Band	GSM 850/900/1800/1900 and UMTS FDD 1/8
Support Functions	MP3, Camera, FM radio, USB memory, GPS receiver, Bluetooth (EDR), WLAN (802.11 b/g/n) and Wi-Fi hotspot
Antenna	Integral Antenna
MAX Radiated Power	24.30dBm(OFDM)
MAX Conducted Power	22.09dBm(OFDM)
Extreme Temperature	-20/+55°C
Normal Voltage	3.7V
Extreme Low Voltage	3.5V
Extreme High Voltage	4.1V

Note: Photographs of EUT are shown in ANNEX C of this test report. Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MIIT of People's Republic of China.

3.2. Internal Identification of EUT used during the test

EUT ID*	S/N	IMEI	HW Version	SW Version
EUT1	BX902ST8P4	004402144883489	A	ATP R1A034
EUT2	BX902ST8LF	004402144883521	A	ATP R1A034

*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	Travel Charger	CAA-0002016-BV	/
AE2	Battery	CBA-0002030	/

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

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3.4. General Description

Equipment Under Test (EUT) is a model of GSM 850/900/1800/1900 quad bands and UMTS FDD 1/8 mobile phone with integrated antenna.

It has MP3, Camera, FM radio, USB memory, GPS receiver, Bluetooth (EDR), WLAN (802.11 b/g/n) and Wi-Fi hotspot functions. It also supports GPRS function with multi-slots class 33 and EGPRS function with multi-slots class 33 too. It consists of normal options: Lithium Battery and Travel Charger.

Manual and specifications of the EUT were provided to fulfill the test. Samples undergoing test were selected by the Client.

4. REFERENCE DOCUMENTS

4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

FCC Part15	FCC CFR 47, Part 15, Subpart C: 15.205 Restricted bands of operation; 15.209 Radiated emission limits, general requirements; 15.247 Operation within the bands 902–928MHz, 2400–2483.5 MHz, and 5725–5850 MHz.	Oct, 2009 Edition
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2009
KDB558074 D01	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247	January 18, 2012
RSS-GEN	Spectrum Management and Telecommunications - Radio Standards Specification General Requirements and Information for the Certification of Radiocommunication Equipment	Issue 2
RSS-210	Spectrum Management and Telecommunications - Radio Standards Specification Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment	Issue 8

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5. LABORATORY ENVIRONMENT

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

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

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

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

Fully-anechoic chamber (6.8 meters×3.08 meters×3.53 meters) did not exceed following limits along the EMC testing:

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

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

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

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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)	A8.4	**P**
Peak Power Spectral Density	15.247 (d)	A8.2, A8.3	**P**
Occupied 6dB Bandwidth	15.247 (d)	A8.2	**P**
Band Edges Compliance	15.247 (b)	A8.5	**P**
Transmitter Spurious Emission - Conducted	15.247	A8.5	**P**
Transmitter Spurious Emission - Radiated	15.247, 15.209, 15.209	A8.5	**P**
AC Powerline Conducted Emission	15.107, 15.207	7.2.2	**P**
Occupied 20dB Bandwidth	15.247 (d)	A8.2	**P**

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

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

Terms used in Verdict column

P	Pass, The EUT complies with the essential requirements in the standard.
NM	Not measured, The test was not measured 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.

Test Conditions

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

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

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

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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	Test Receiver	ESS	847151/015	Rohde & Schwarz	2012-10-30
3	LISN	ESH2-Z5	829991/012	Rohde & Schwarz	2012-08-13

Radiated emission test system

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

Anechoic chamber

Fully anechoic chamber by Frankonia German.

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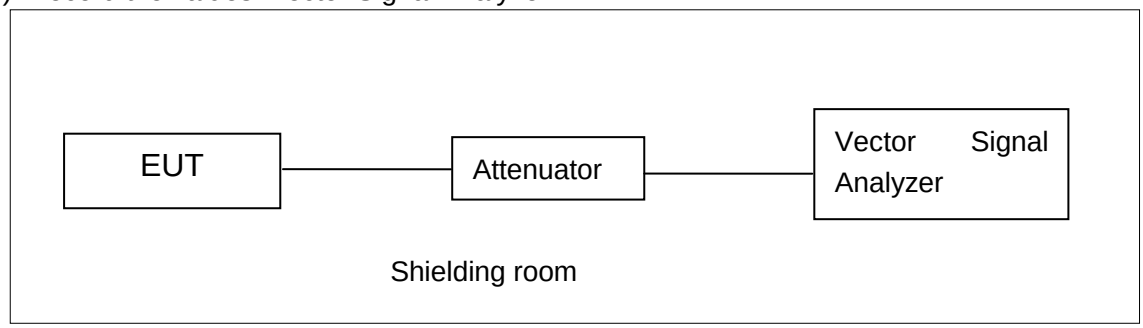
ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

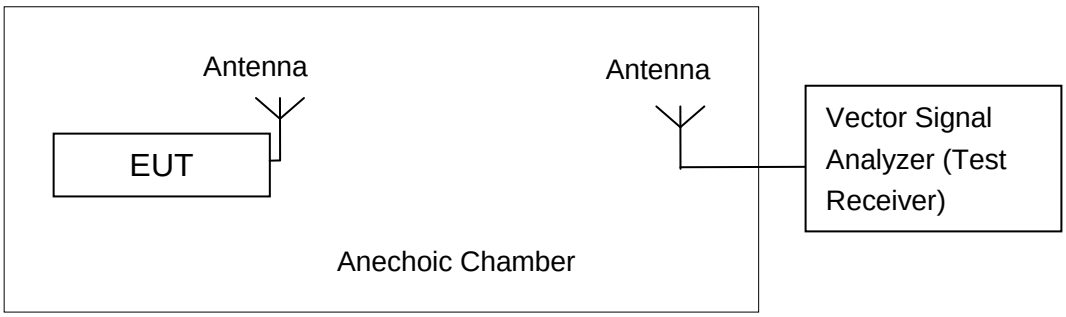
A.1.1. Conducted Measurements

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
The radiated emission test is performed in semi-anechoic chamber. The distance from the EUT to the reference point of measurement antenna is 3m. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated 360° and the measurement antenna is moved from 1m to 4m to get the maximization result.

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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 D01.

Measurement Uncertainty:

Measurement Uncertainty	0.75dB

A.2.1. Antenna Gain

The antenna gain of the complete system is calculated by the difference of radiated power and the conducted power of the EUT.

Test	Channel		
Tnom,Vnom	1	6	11
Conducted Power(dBm)	19.60	19.40	20.53
Radiated Power(dBm)	21.38	22.17	22.74
Gain(dBi)	1.78	2.77	2.21

Antenna Gain = Radiated value (with radiated sample) - Conducted values (with conducted samples)

A.2.2. Maximum Peak Output Power

Measurement Results:

Mode	Test Result (dBm)					
	2412MHz (Ch1)		2437MHz (Ch6)		2462 MHz (Ch11)	
	Conducted	Radiated	Conducted	Radiated	Conducted	Radiated
802.11b	19.60	21.38	19.40	22.17	20.53	22.74
802.11g	21.41	23.19	20.91	23.68	21.88	24.09
802.11n	21.15	22.93	21.20	23.97	22.09	24.30

The data rate 11Mbps (11b mode), 36Mbps (11g mode) and MCS3 (11nmode) are selected as the worst condition; as the maximum power is got with these data rate. 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 D01.

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Measurement Uncertainty:

Measurement Uncertainty	0.75dB

Measurement Results:

Mode	Channel	Power Spectral Density (dBm/3 kHz)	Conclusion
802.11b	1	-2.10	P
	6	-2.09	P
	11	-1.30	P
802.11g	1	-14.34	P
	6	-14.85	P
	11	-15.90	P
802.11n	1	-14.26	P
	6	-13.79	P
	11	-12.65	P

Conclusion: PASS

A.4. Occupied 6dB Bandwidth

Measurement Limit:

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

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

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz

Measurement Result:

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
802.11b	1	Fig.1	9760	P
	6	Fig.2	9615	P
	11	Fig.3	9808	P
802.11g	1	Fig.4	16490	P
	6	Fig.5	16490	P
	11	Fig.6	16490	P
802.11n	1	Fig.7	17693	P
	6	Fig.8	17693	P
	11	Fig.9	17692	P

Conclusion: PASS

Test graphs as below:

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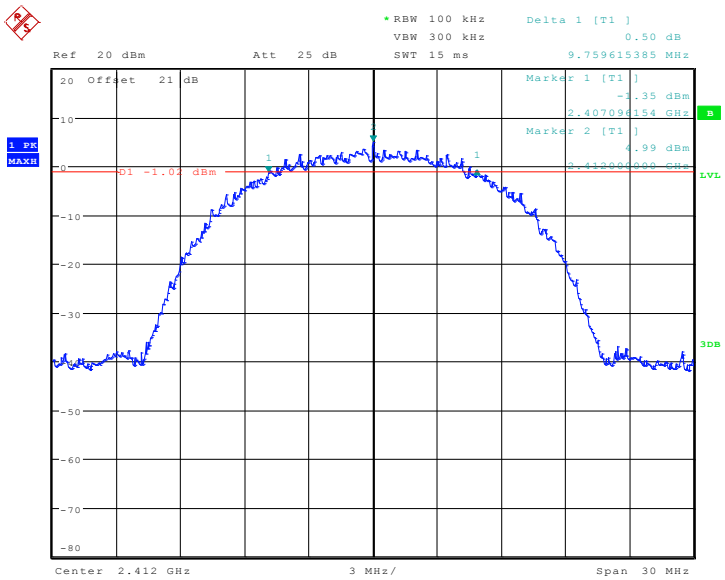

Date: 13.MAY.2003 09:25:09

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

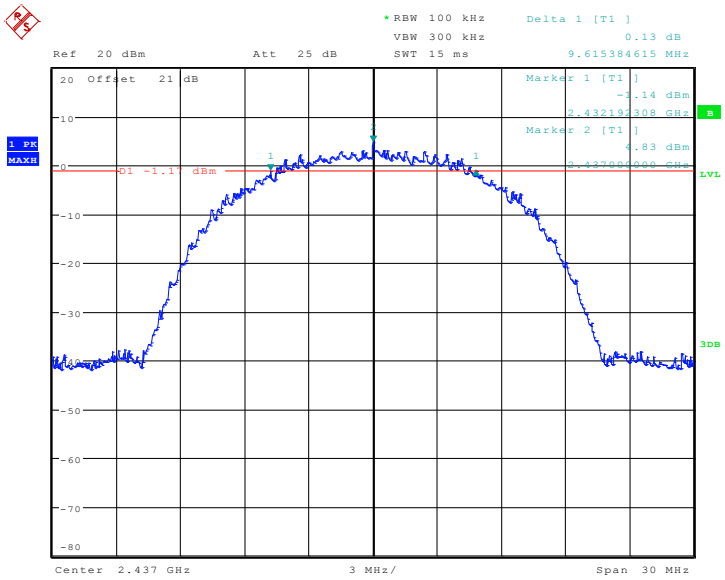

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Fig. 2 Occupied 6dB Bandwidth (802.11b, Ch 6)

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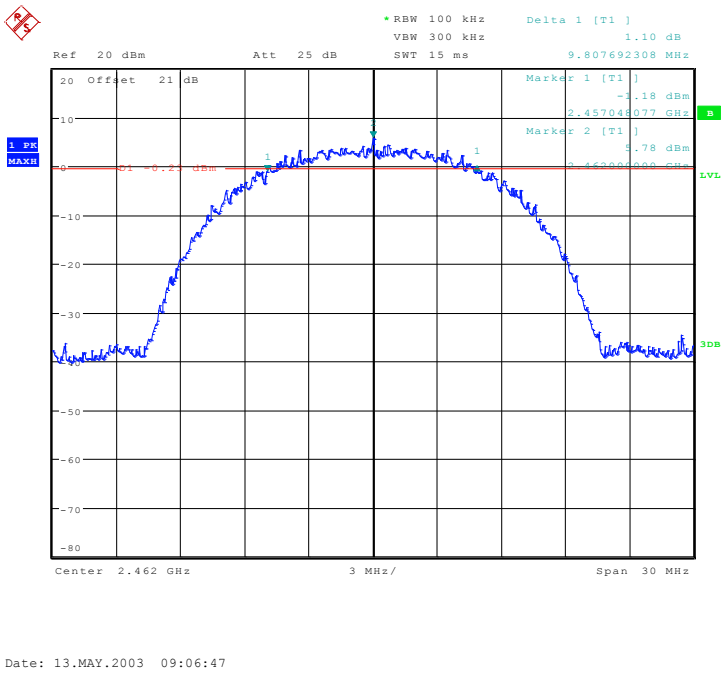

Fig. 3 Occupied 6dB Bandwidth (802.11b, Ch 11)

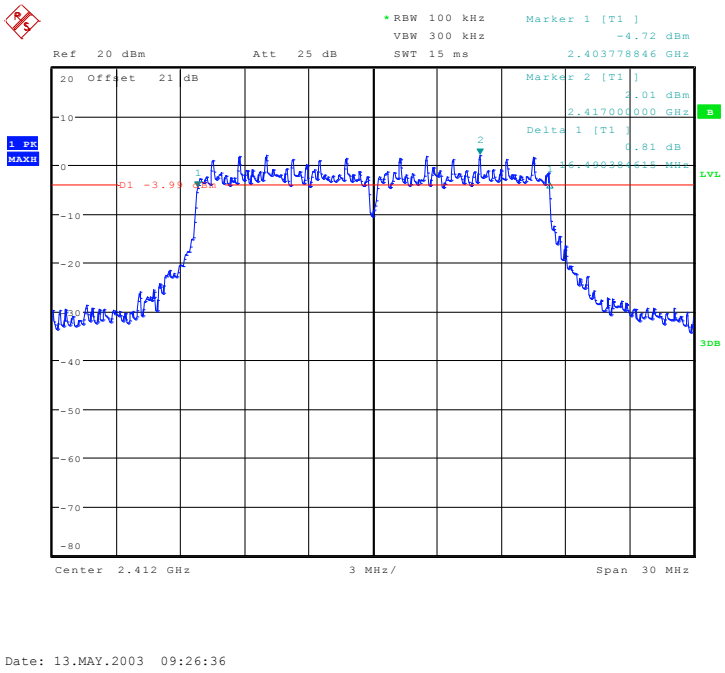

Fig. 4 Occupied 6dB Bandwidth (802.11g, Ch 1)

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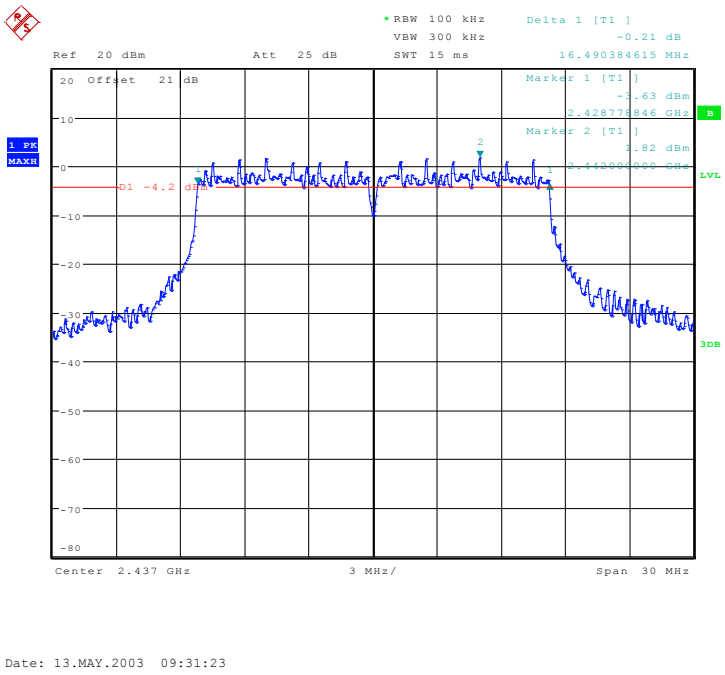

Fig. 5 Occupied 6dB Bandwidth (802.11g, Ch 6)

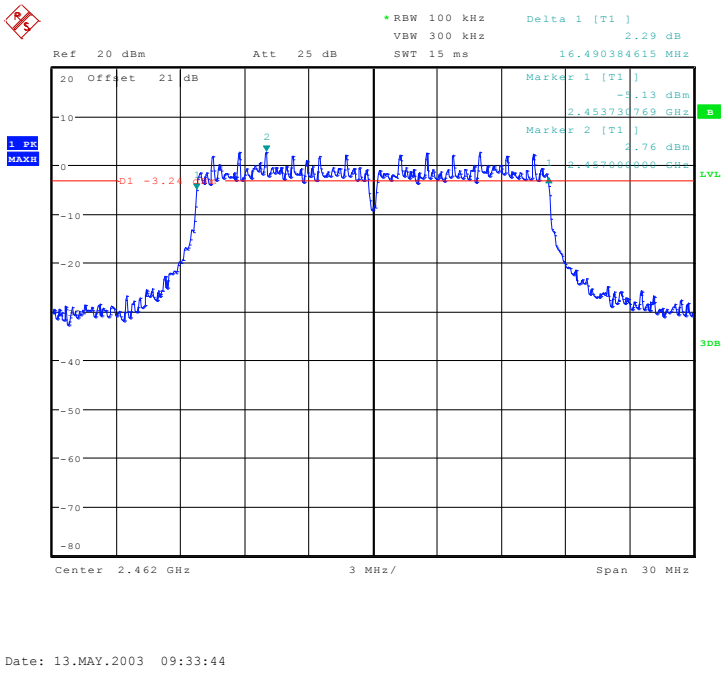

Fig. 6 Occupied 6dB Bandwidth (802.11g, Ch 11)

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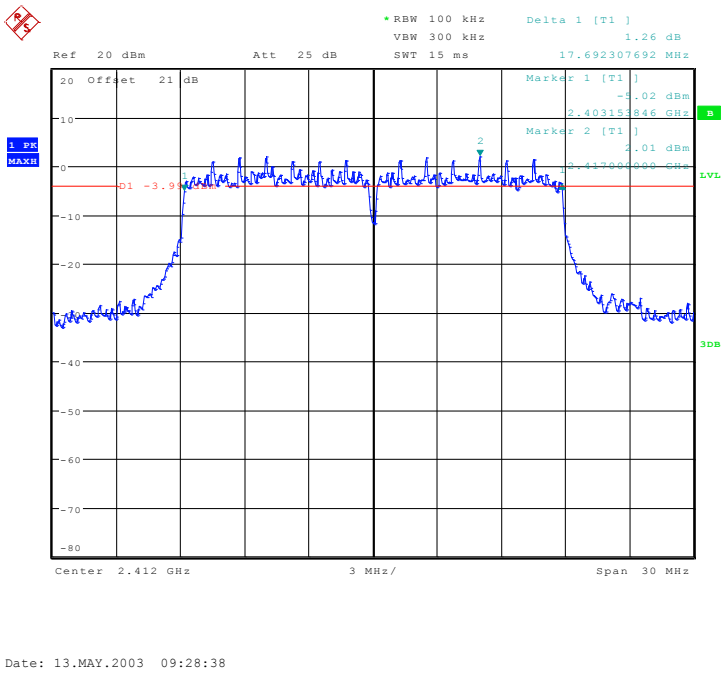

Fig. 7 Occupied 6dB Bandwidth (802.11n-HT20, Ch 1)

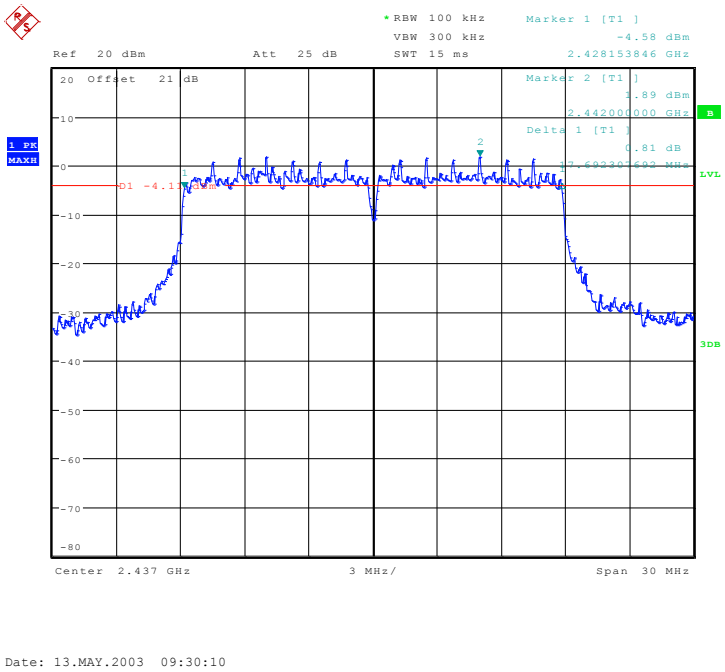

Fig. 8 Occupied 6dB Bandwidth (802.11n-HT20, Ch 6)

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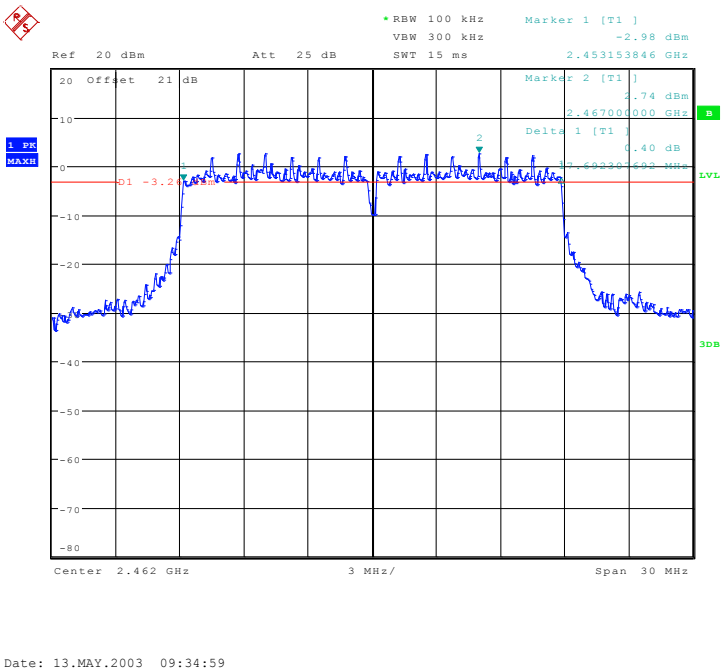

Fig. 9 Occupied 6dB Bandwidth (802.11n-HT20, Ch 11)

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A.5. Band Edges Compliance

Measurement Limit:

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

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

Measurement Uncertainty:

Measurement Uncertainty	0.75dB

Measurement Result:

Mode	Channel	Test Results	Conclusion
802.11b	1	Fig.10	P
	11	Fig.11	P
802.11g	1	Fig.12	P
	11	Fig.13	P
802.11n	1	Fig.14	P
	11	Fig.15	P

Conclusion: PASS

Test graphs as below:

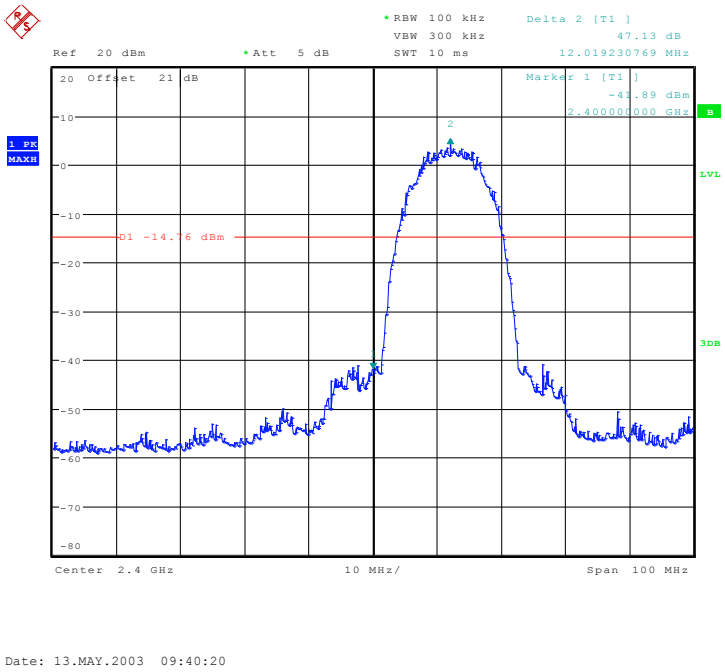

Fig. 10 Band Edges (802.11b, Ch 1)

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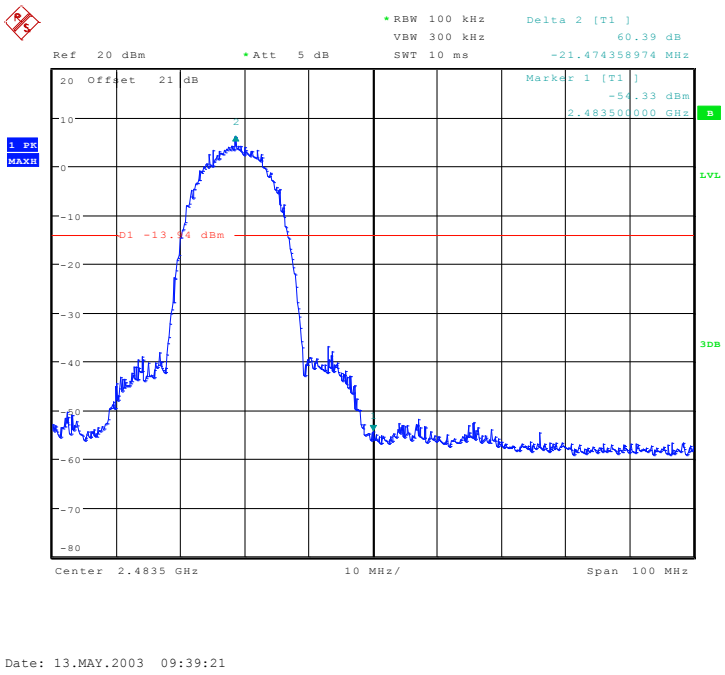

Fig. 11 Band Edges (802.11b, Ch 11)

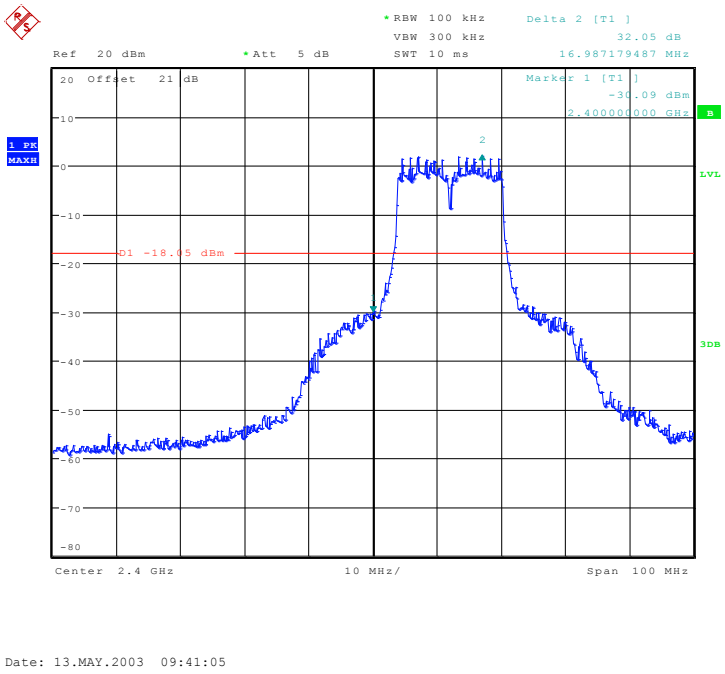

Fig. 12 Band Edges (802.11g, Ch 1)

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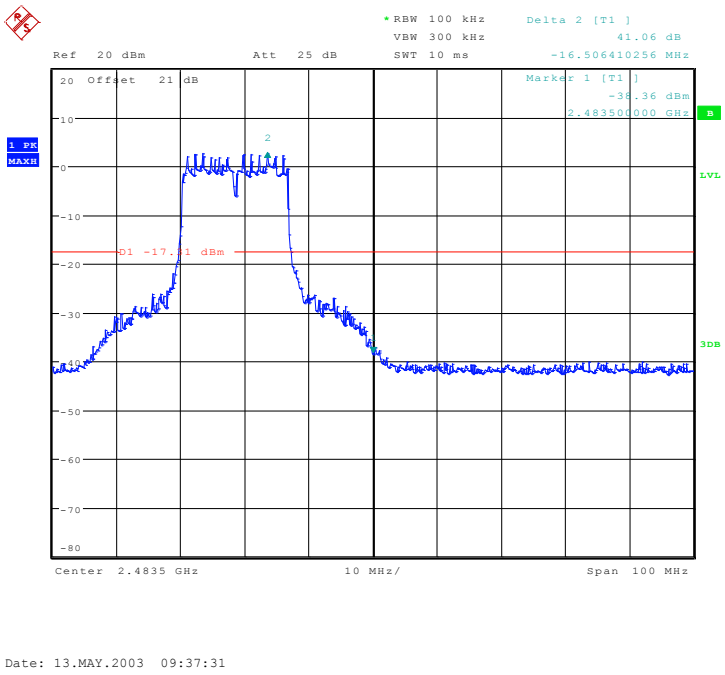

Fig. 13 Band Edges (802.11g, Ch 11)

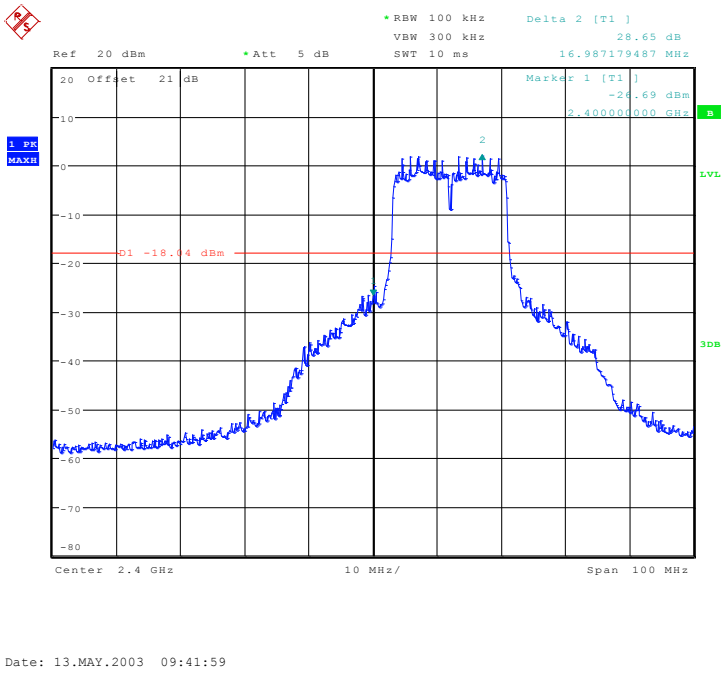

Fig. 14 Band Edges (802.11n-HT20, Ch 1)

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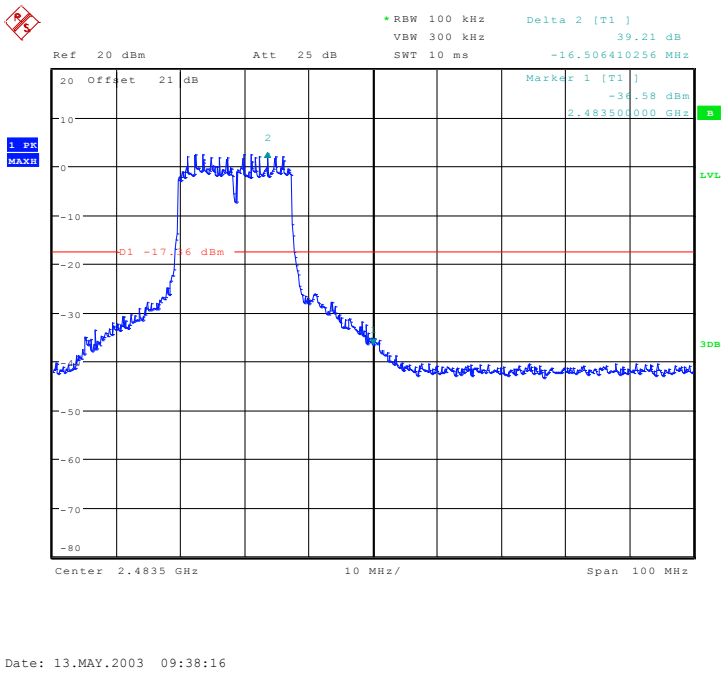

Fig. 15 Band Edges (802.11n-HT20, Ch 11)

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A.6. Transmitter Spurious Emission

Measurement Limit:

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

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

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

Measurement Uncertainty:

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

A.6.1 Transmitter Spurious Emission - Conducted

Measurement Results:

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	2.412 GHz	Fig.16	P
		30 MHz ~ 1 GHz	Fig.17	P
		1 GHz ~ 26 GHz	Fig.18	P
	6	2.437 GHz	Fig.19	P
		30 MHz ~ 1 GHz	Fig.20	P
		1 GHz ~ 26 GHz	Fig.21	P
	11	2.462 GHz	Fig.22	P
		30 MHz ~ 1 GHz	Fig.23	P
		1 GHz ~ 26 GHz	Fig.24	P
802.11g	1	2.412 GHz	Fig.25	P
		30 MHz ~ 1 GHz	Fig.26	P

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		1 GHz ~ 26 GHz	Fig.27	P
	6	2.437 GHz	Fig.28	P
		30 MHz ~ 1 GHz	Fig.29	P
		1 GHz ~ 26 GHz	Fig.30	P
	11	2.462 GHz	Fig.31	P
		30 MHz ~ 1 GHz	Fig.32	P
		1 GHz ~ 26 GHz	Fig.33	P
802.11n (20MHz)	1	2.412 GHz	Fig.34	P
		30 MHz ~ 1 GHz	Fig.35	P
		1 GHz ~ 26 GHz	Fig.36	P
	6	2.437 GHz	Fig.37	P
		30 MHz ~ 1 GHz	Fig.38	P
		1 GHz ~ 26 GHz	Fig.39	P
	11	2.462 GHz	Fig.40	P
		30 MHz ~ 1 GHz	Fig.41	P
		1 GHz ~ 26 GHz	Fig.42	P

Conclusion: PASS

Test graphs as below:

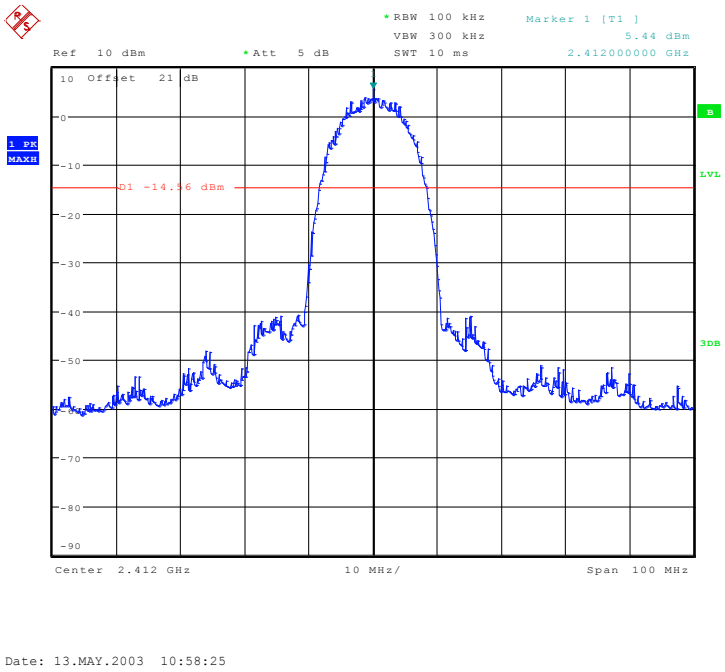

Fig. 16 Conducted Spurious Emission (802.11b, Ch1, Center Frequency)

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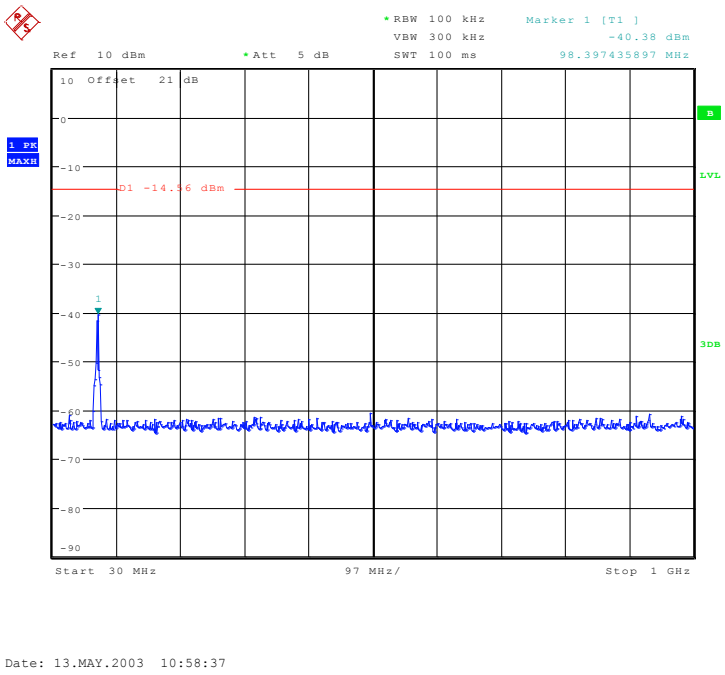

Fig. 17 Conducted Spurious Emission (802.11b, Ch1, 30 MHz-1 GHz)

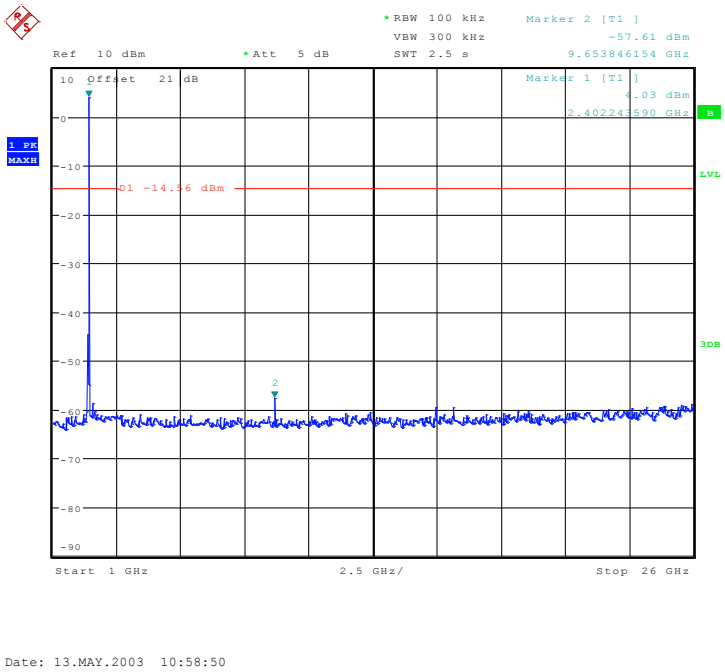

Fig. 18 Conducted Spurious Emission (802.11b, Ch1, 1 GHz-26 GHz)

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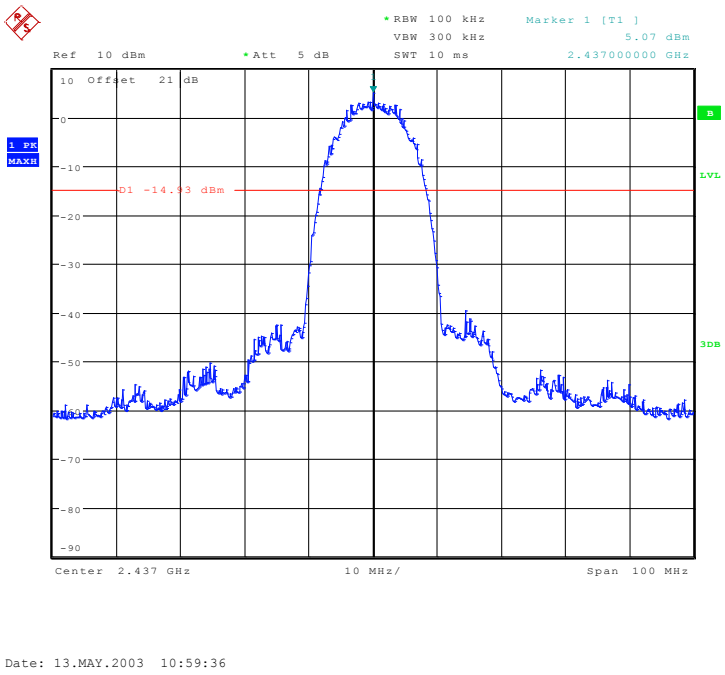

Fig. 19 Conducted Spurious Emission (802.11b, Ch6, Center Frequency)

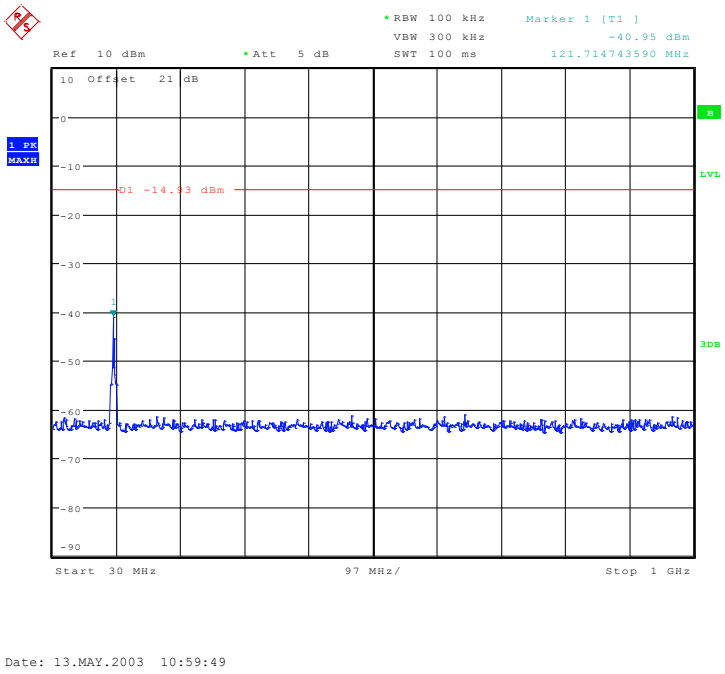

Fig. 20 Conducted Spurious Emission (802.11b, Ch6, 30 MHz-1 GHz)

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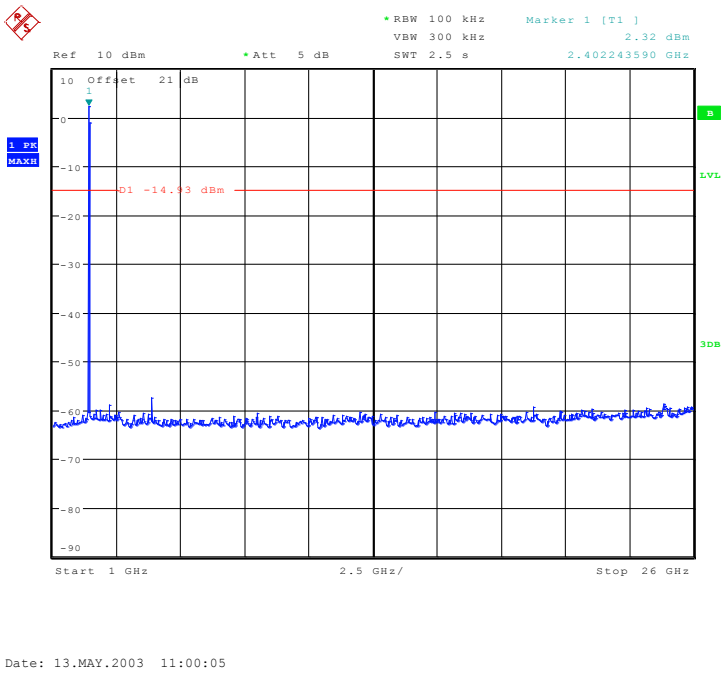

Fig. 21 Conducted Spurious Emission (802.11b, Ch6, 1 GHz-26 GHz)

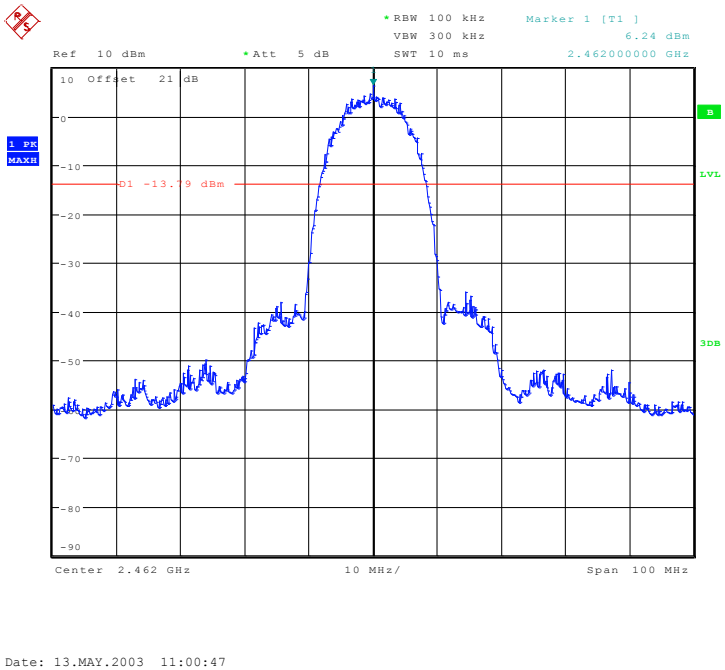

Fig. 22 Conducted Spurious Emission (802.11b, Ch11, Center Frequency)

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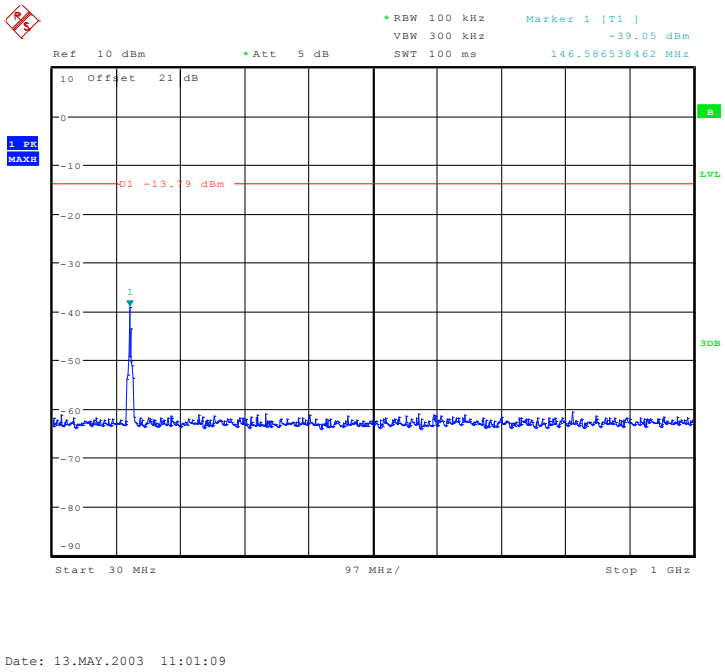

Fig. 23 Conducted Spurious Emission (802.11b, Ch11, 30 MHz-1 GHz)

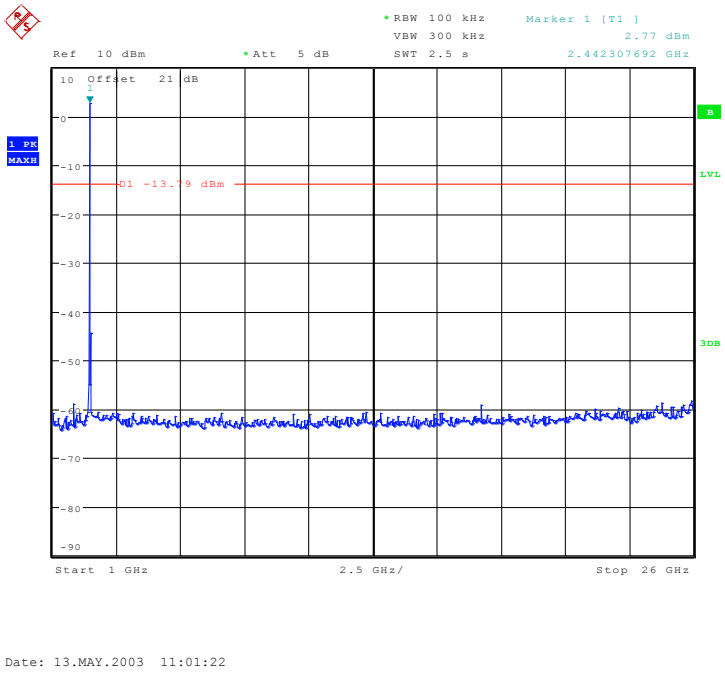

Fig. 24 Conducted Spurious Emission (802.11b, Ch11, 1 GHz-26 GHz)

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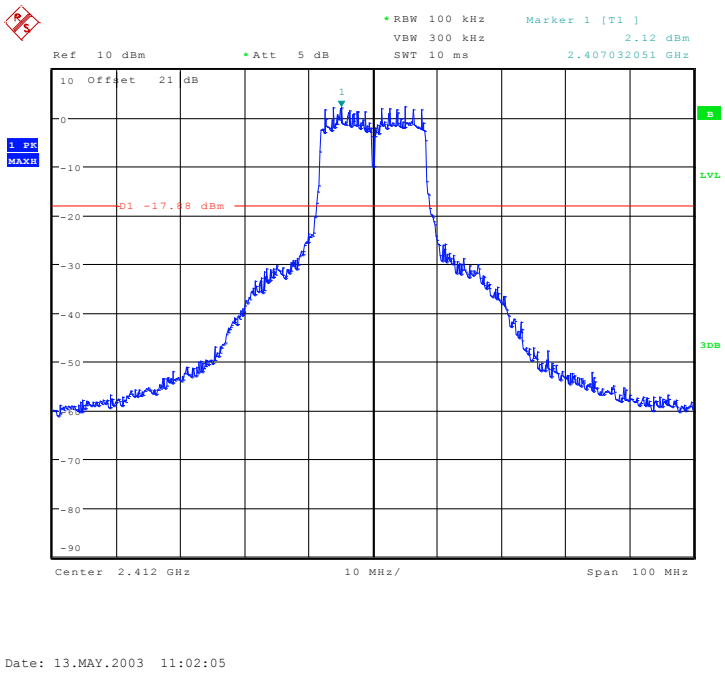

Fig. 25 Conducted Spurious Emission (802.11n-HT20, Ch1, Center Frequency)

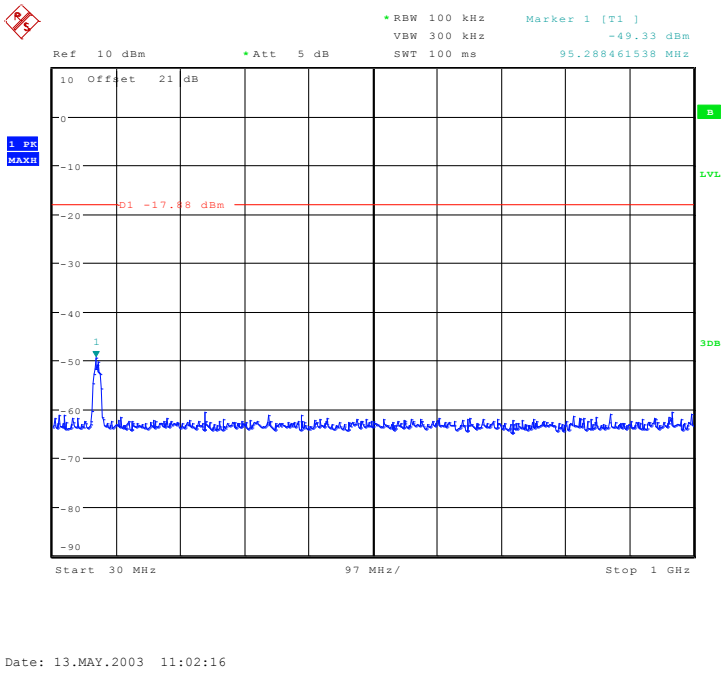

Fig. 26 Conducted Spurious Emission (802.11n-HT20, Ch1, 30 MHz-1 GHz)

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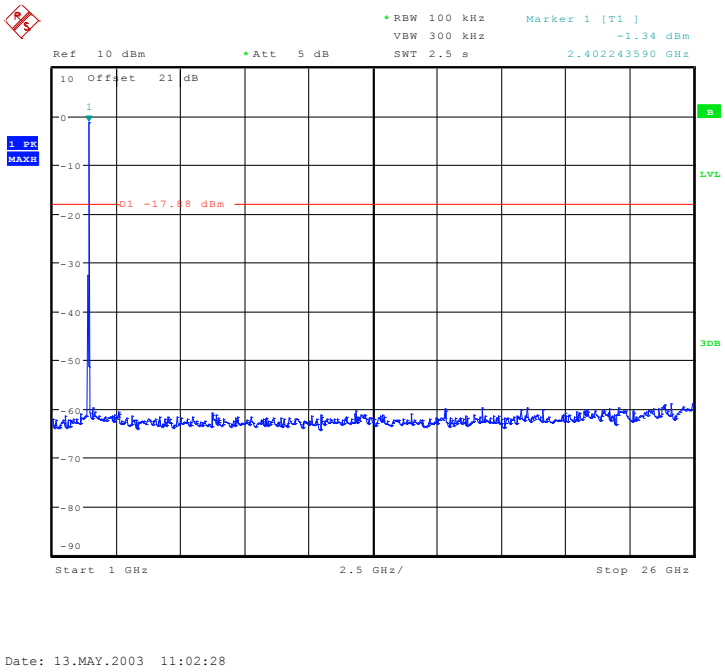

Fig. 27 Conducted Spurious Emission (802.11n-HT20, Ch1, 1 GHz-26 GHz)

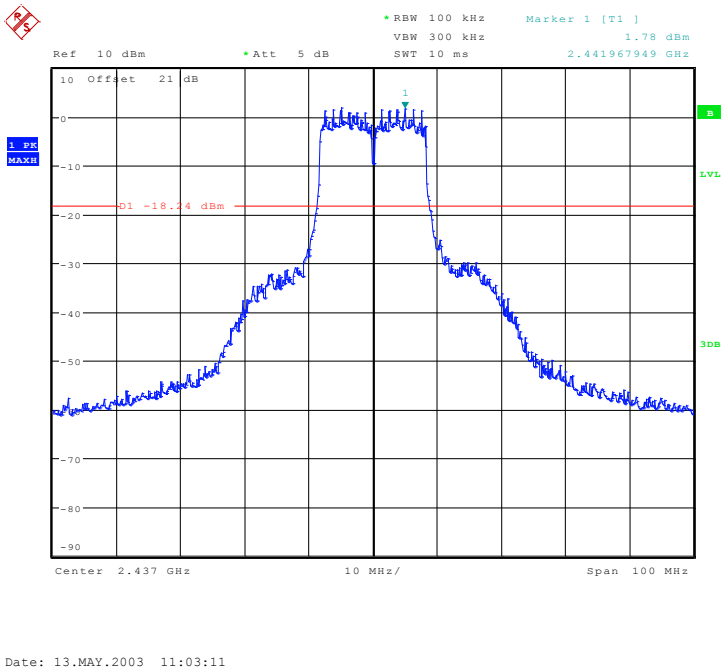

Fig. 28 Conducted Spurious Emission (802.11n-HT20, Ch6, Center Frequency)

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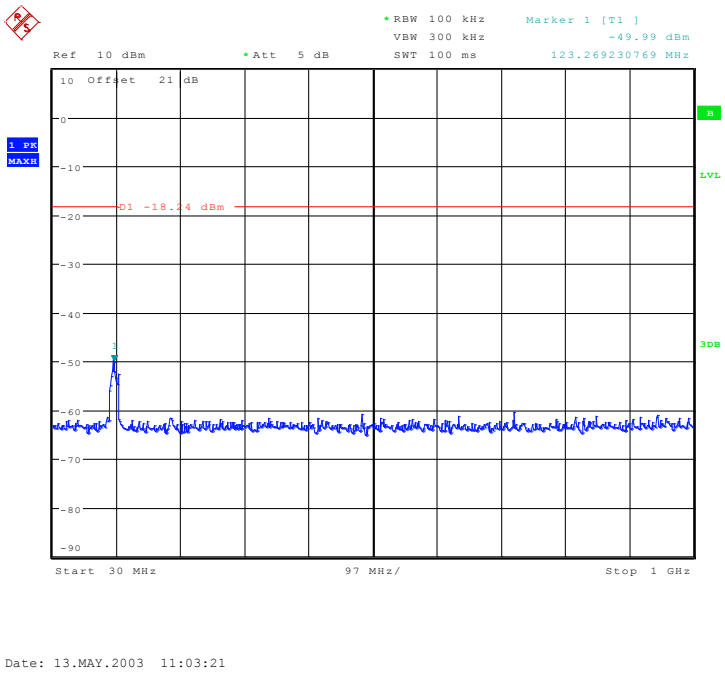

Fig. 29 Conducted Spurious Emission (802.11n-HT20, Ch6, 30 MHz-1 GHz)

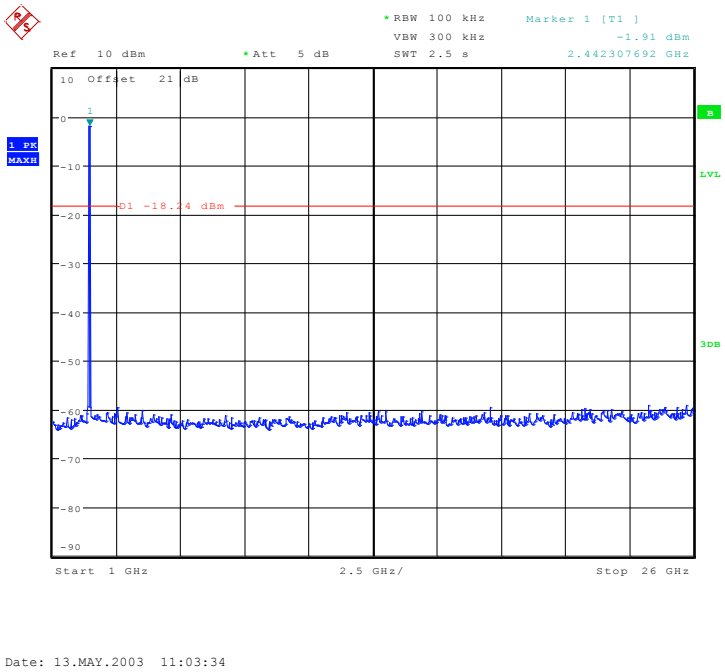

Fig. 30 Conducted Spurious Emission (802.11n-HT20, Ch6, 1 GHz-26 GHz)

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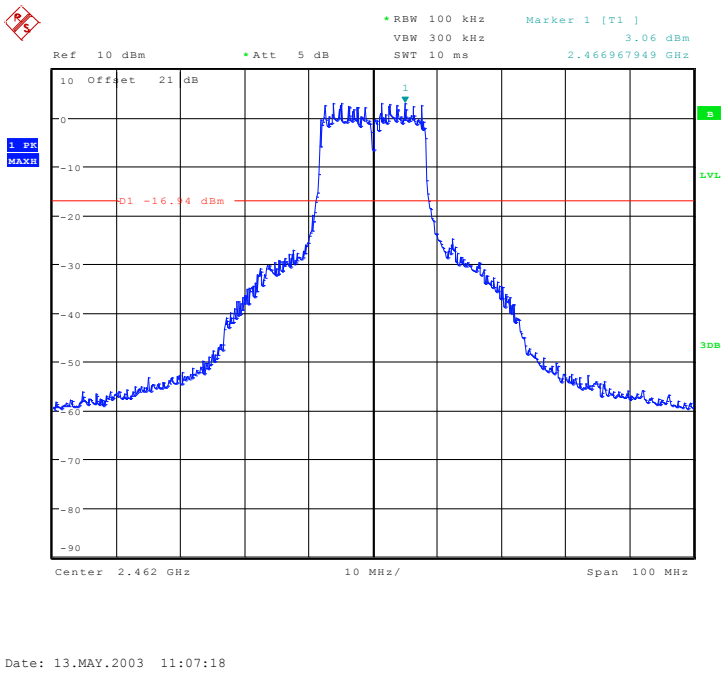

Fig. 31 Conducted Spurious Emission (802.11n-HT20, Ch11, Center Frequency)

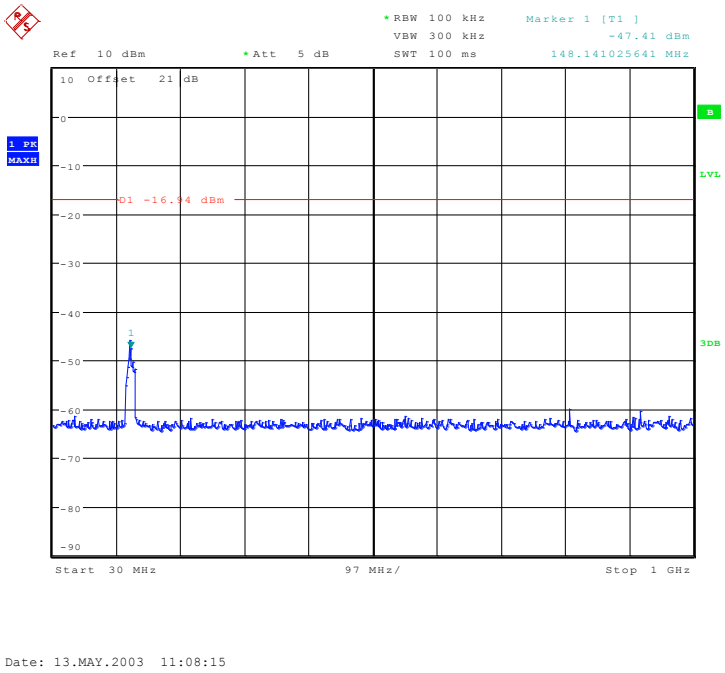

Fig. 32 Conducted Spurious Emission (802.11n-HT20, Ch11, 30 MHz-1 GHz)

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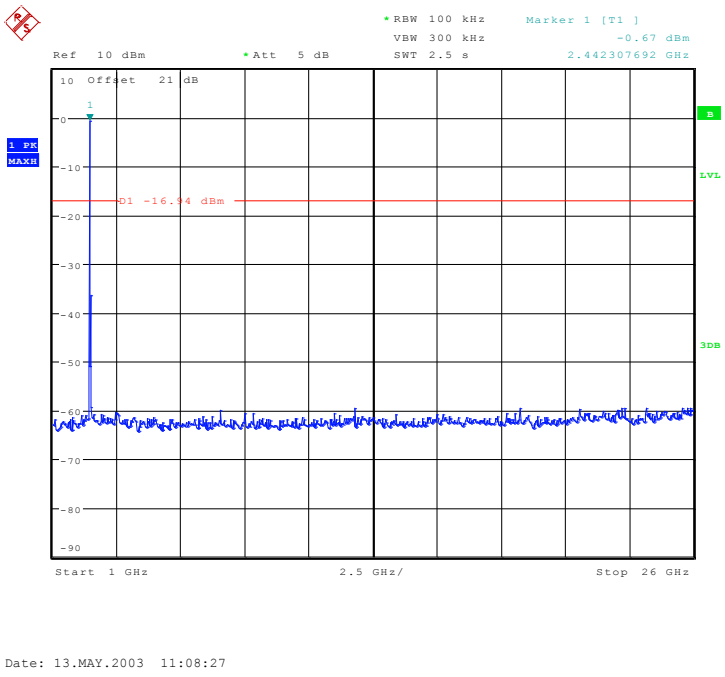

Fig. 33 Conducted Spurious Emission (802.11n-HT20, Ch11, 1 GHz-26 GHz)

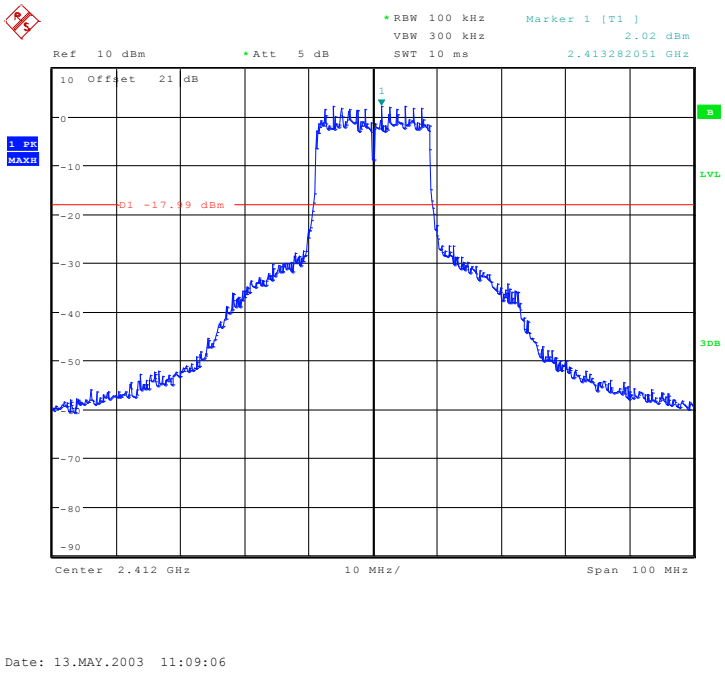

Fig. 34 Conducted Spurious Emission (802.11n-HT20, Ch1, Center Frequency)

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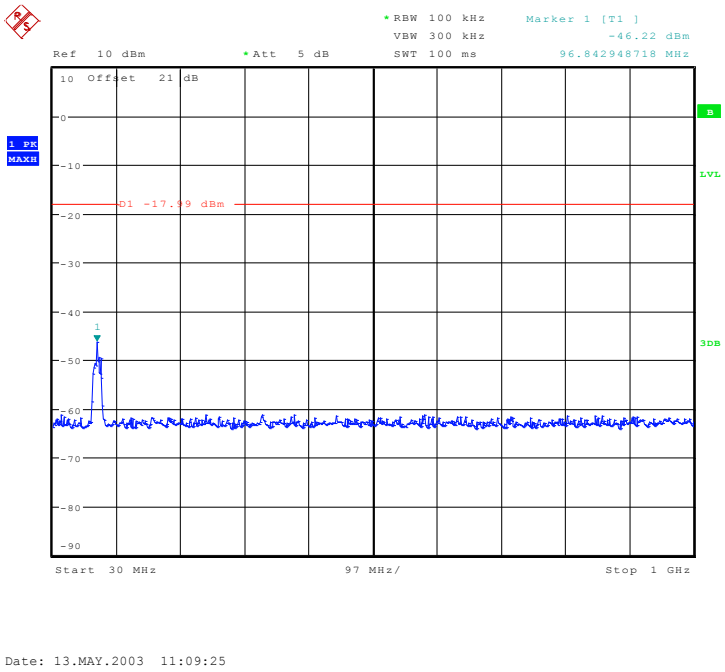

Fig. 35 Conducted Spurious Emission (802.11n-HT20, Ch1, 30 MHz-1 GHz)

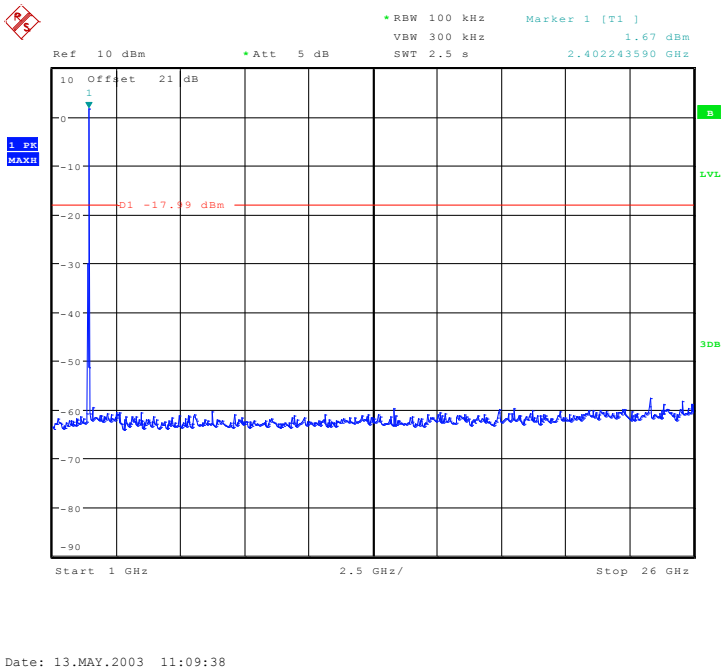

Fig. 36 Conducted Spurious Emission (802.11n-HT20, Ch1, 1 GHz-26 GHz)

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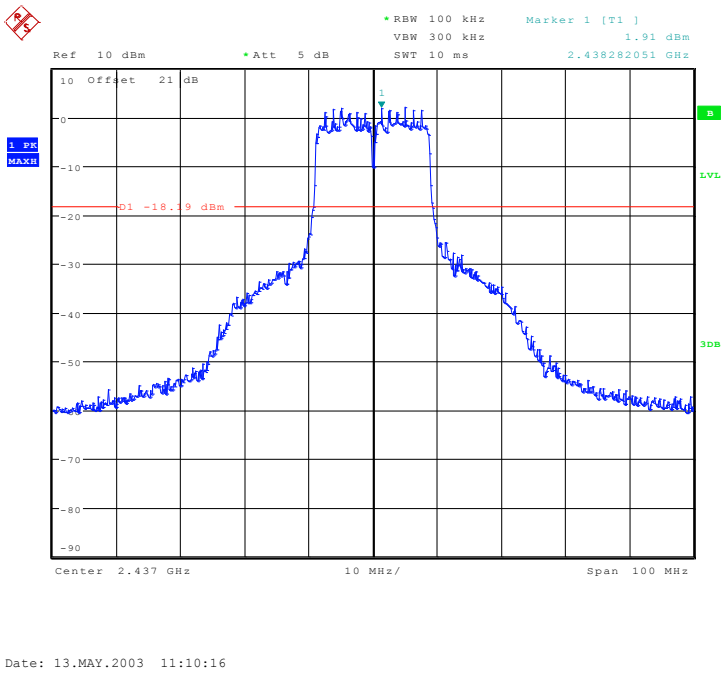

Fig. 37 Conducted Spurious Emission (802.11n-HT20, Ch6, Center Frequency)

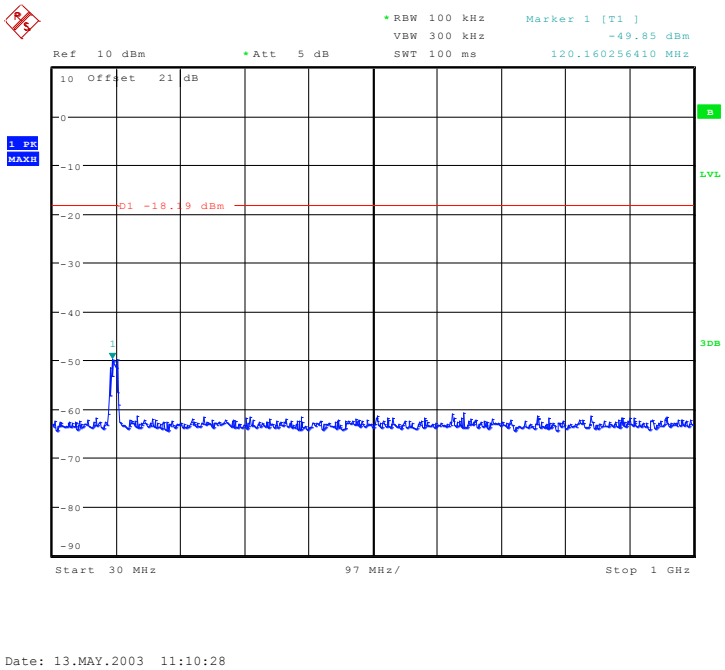

Fig. 38 Conducted Spurious Emission (802.11n-HT20, Ch6, 30 MHz-1 GHz)

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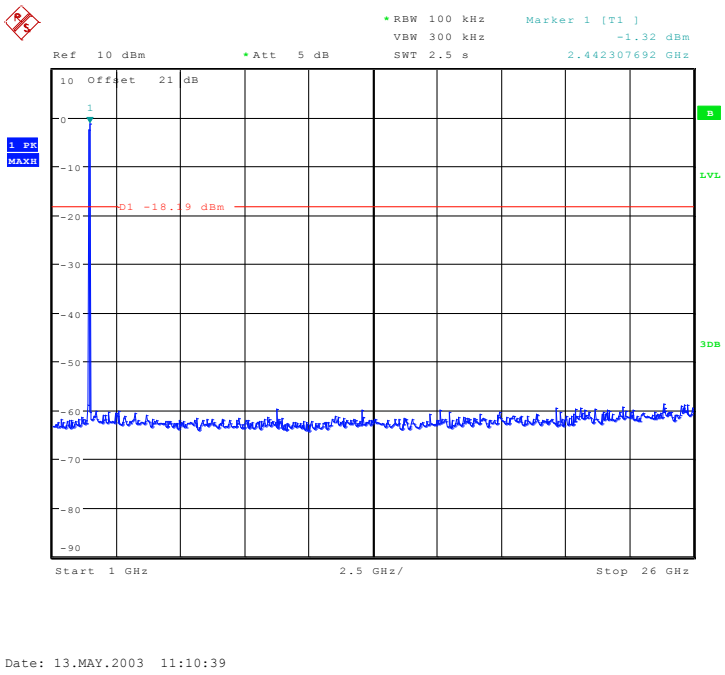

Fig. 39 Conducted Spurious Emission (802.11n-HT20, Ch6, 1 GHz-26 GHz)

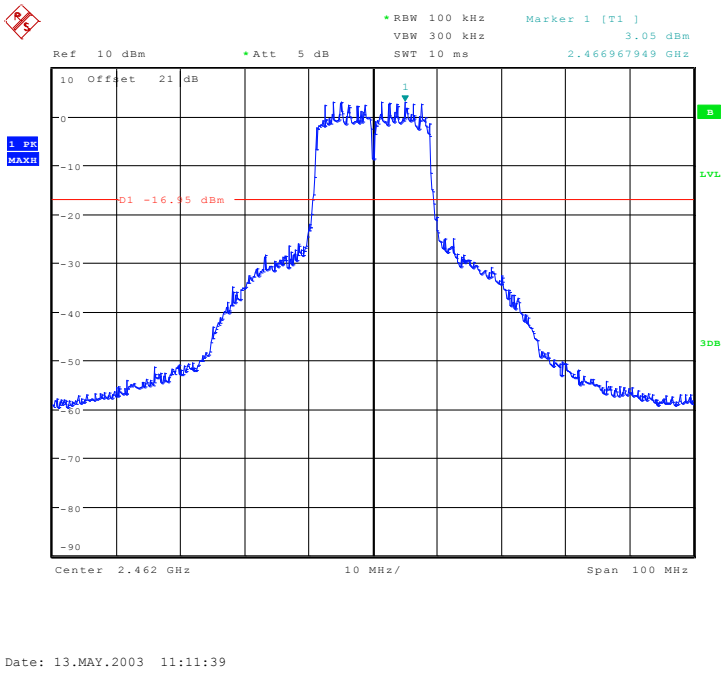

Fig. 40 Conducted Spurious Emission (802.11n-HT20, Ch11, Center Frequency)

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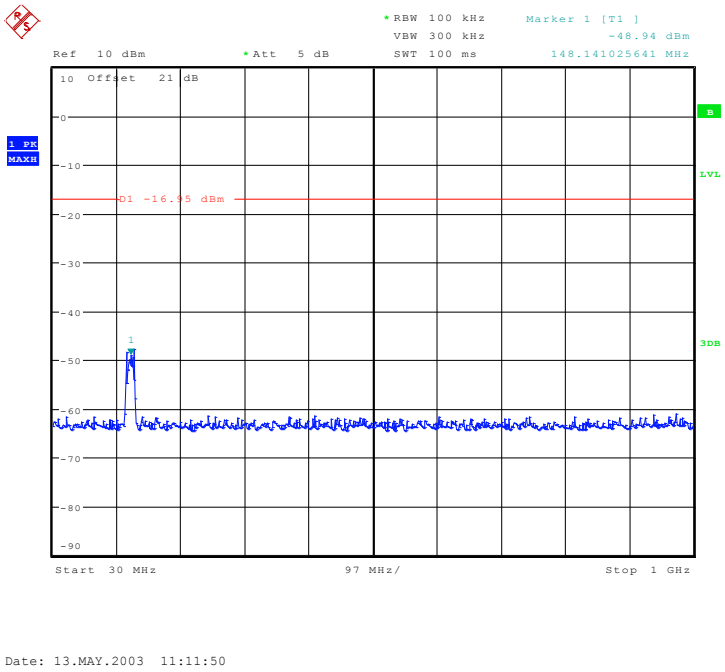

Fig. 41 Conducted Spurious Emission (802.11n-HT20, Ch11, 30 MHz-1 GHz)

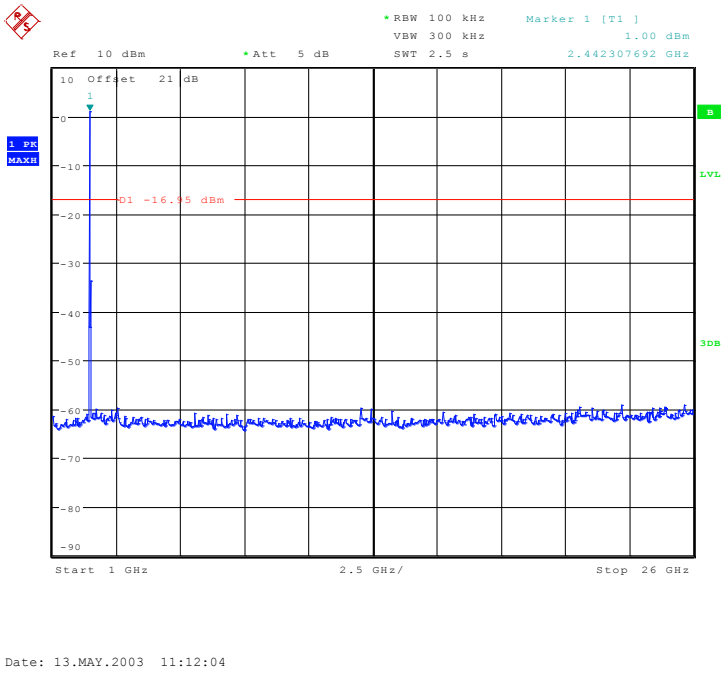

Fig. 42 Conducted Spurious Emission (802.11n-HT20, Ch11, 1 GHz-26 GHz)

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A.6.2 Transmitter Spurious Emission - Radiated

Limit in restricted band:

Measurement Results:

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	Power	2.38GHz ~2.45GHz	Fig.43	P
	1	30 MHz ~1 GHz	Fig.44	P
		1 GHz ~ 4 GHz	Fig.45	P
		4 GHz ~ 18 GHz	Fig.46	P
	6	30 MHz ~1 GHz	Fig.47	P
		1 GHz ~ 4 GHz	Fig.48	P
		4 GHz ~ 18 GHz	Fig.49	P
	Power	2.45GHz ~2.5GHz	Fig.50	P
	11	30 MHz ~1 GHz	Fig.51	P
		1 GHz ~ 4 GHz	Fig.52	P
		4 GHz ~ 18 GHz	Fig.53	P
802.11g	Power	2.38GHz ~2.45GHz	Fig.54	P
	1	30 MHz ~1 GHz	Fig.55	P
		1 GHz ~ 4 GHz	Fig.56	P
		4 GHz ~ 18 GHz	Fig.57	P
	6	30 MHz ~1 GHz	Fig.58	P
		1 GHz ~ 4 GHz	Fig.59	P
		4 GHz ~ 18 GHz	Fig.60	P
	Power	2.45GHz~2.5GHz	Fig.61	P
	11	30 MHz ~1 GHz	Fig.62	P
		1 GHz ~ 4 GHz	Fig.63	P
		4 GHz ~ 18 GHz	Fig.64	P
/	All channels	18 GHz~ 26 GHz	Fig.65	P
802.11g	Power	2.38GHz ~2.45GHz	Fig.66	P
	1	30 MHz ~1 GHz	Fig.67	P
		1 GHz ~ 4 GHz	Fig.68	P
		4 GHz ~ 18 GHz	Fig.69	P
	6	30 MHz ~1 GHz	Fig.70	P
		1 GHz ~ 4 GHz	Fig.71	P
		4 GHz ~ 18 GHz	Fig.72	P
	Power	2.45GHz~2.5GHz	Fig.73	P
	11	30 MHz ~1 GHz	Fig.74	P
		1 GHz ~ 4 GHz	Fig.75	P
		4 GHz ~ 18 GHz	Fig.76	P
/	All channels	18 GHz~ 26 GHz	Fig.77	P

Conclusion: PASS

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Test graphs as below:

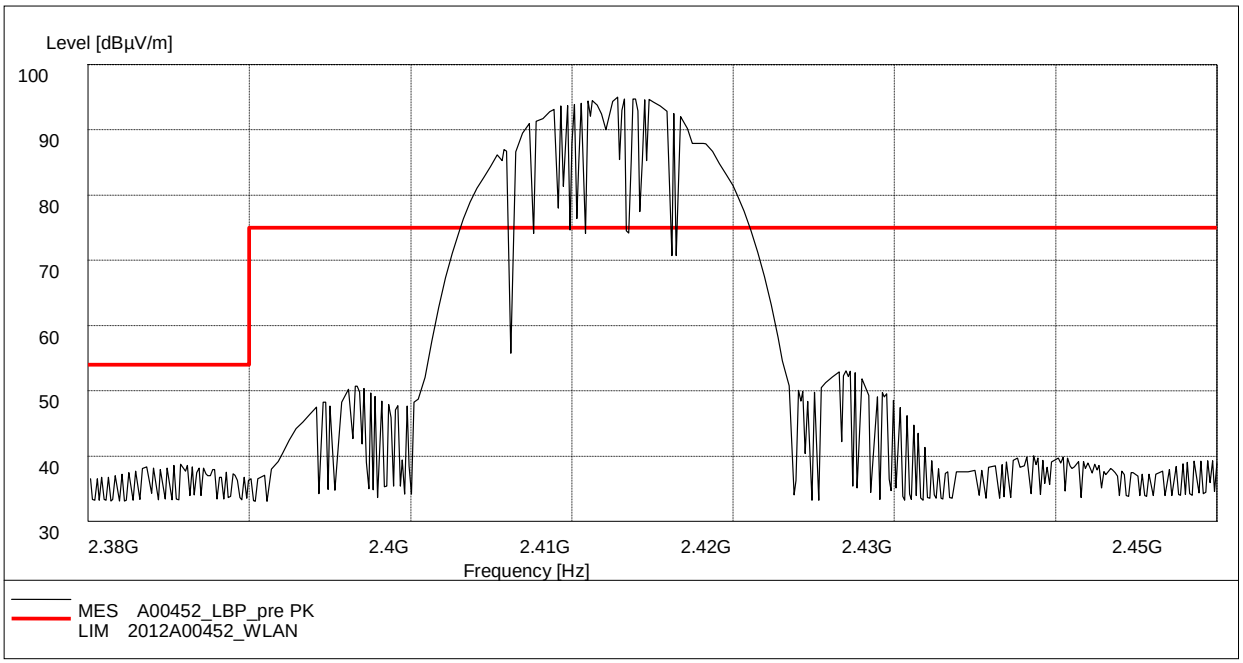

Fig. 43 Radiated Spurious Emission (Power): 802.11b, ch1, 2.38 GHz - 2.45GHz

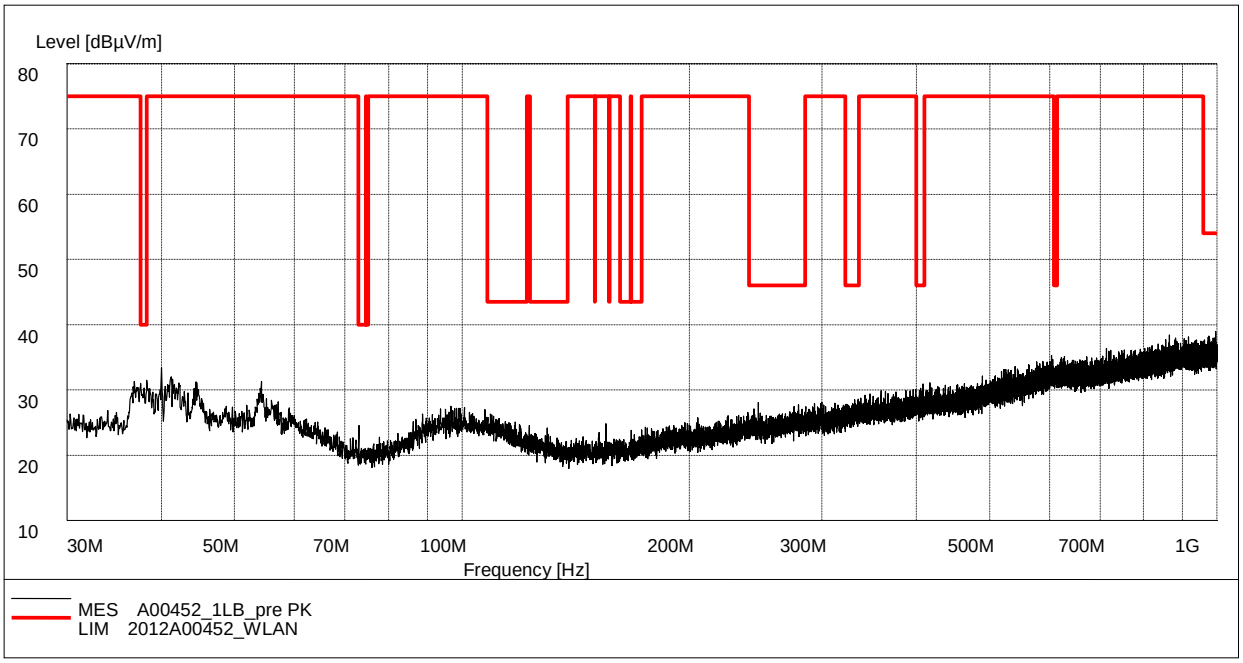

Fig. 44 Radiated Spurious Emission (802.11b, Ch1, 30 MHz-1 GHz)

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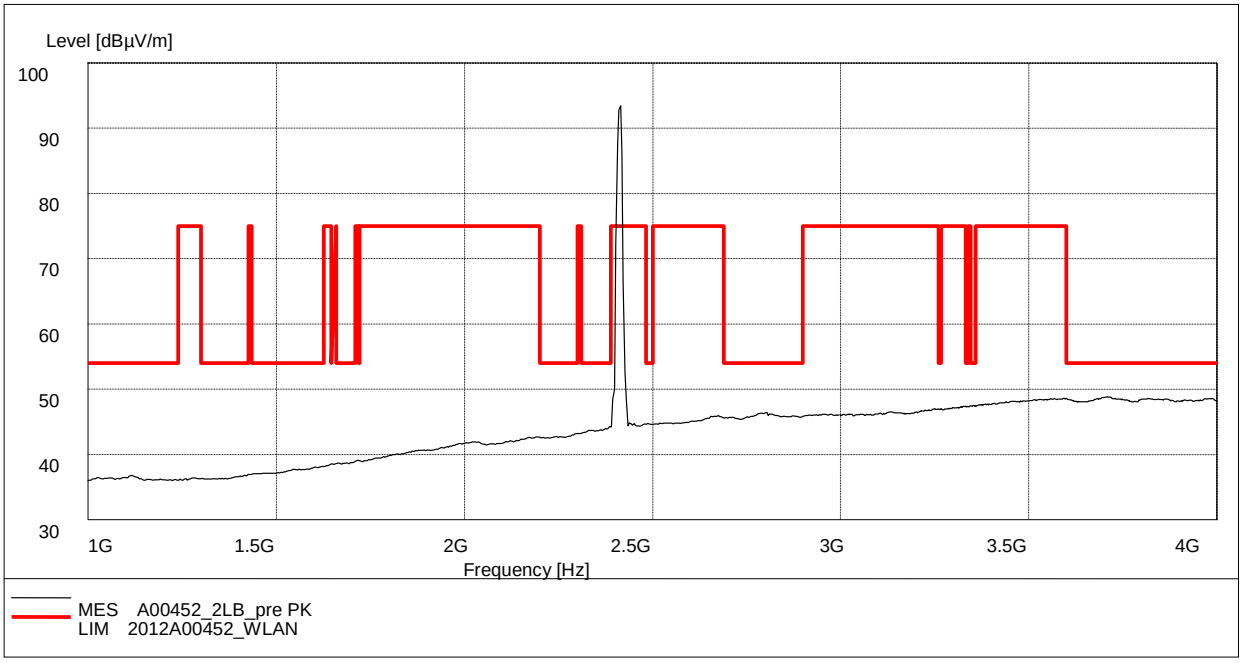

Fig. 45 Radiated Spurious Emission (802.11b, Ch1, 1 GHz-4 GHz)

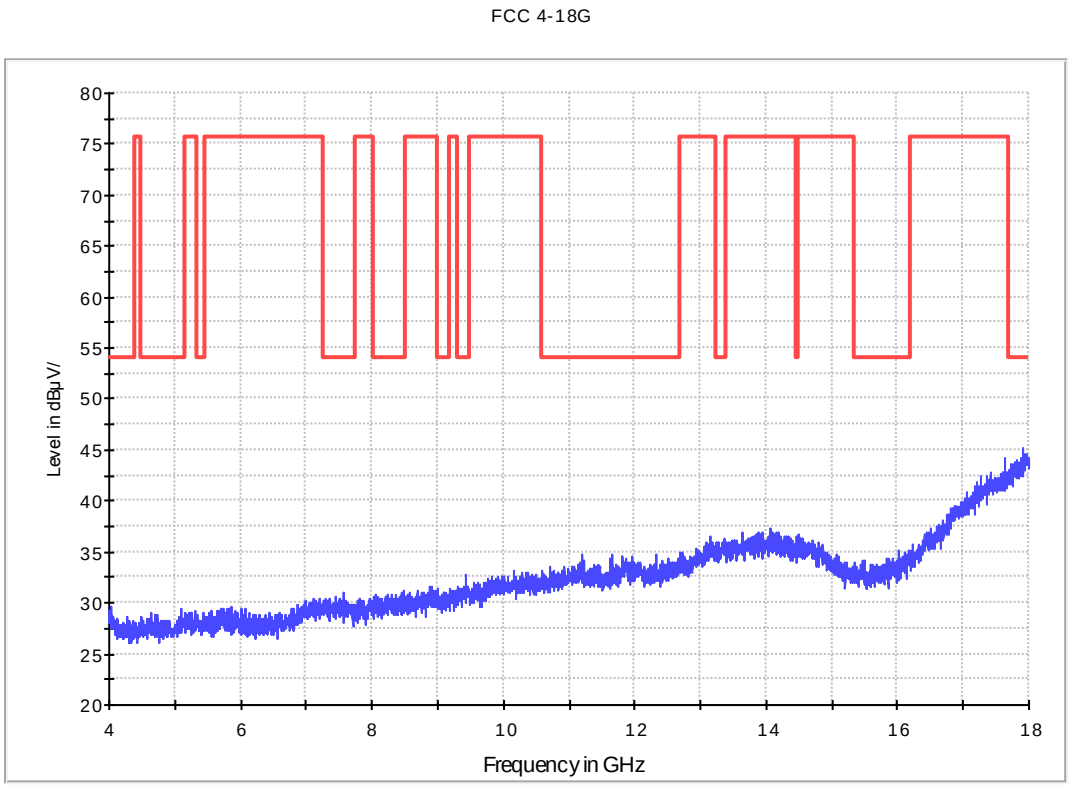

Fig. 46 Radiated Spurious Emission (802.11b, Ch1, 4 GHz-18 GHz)

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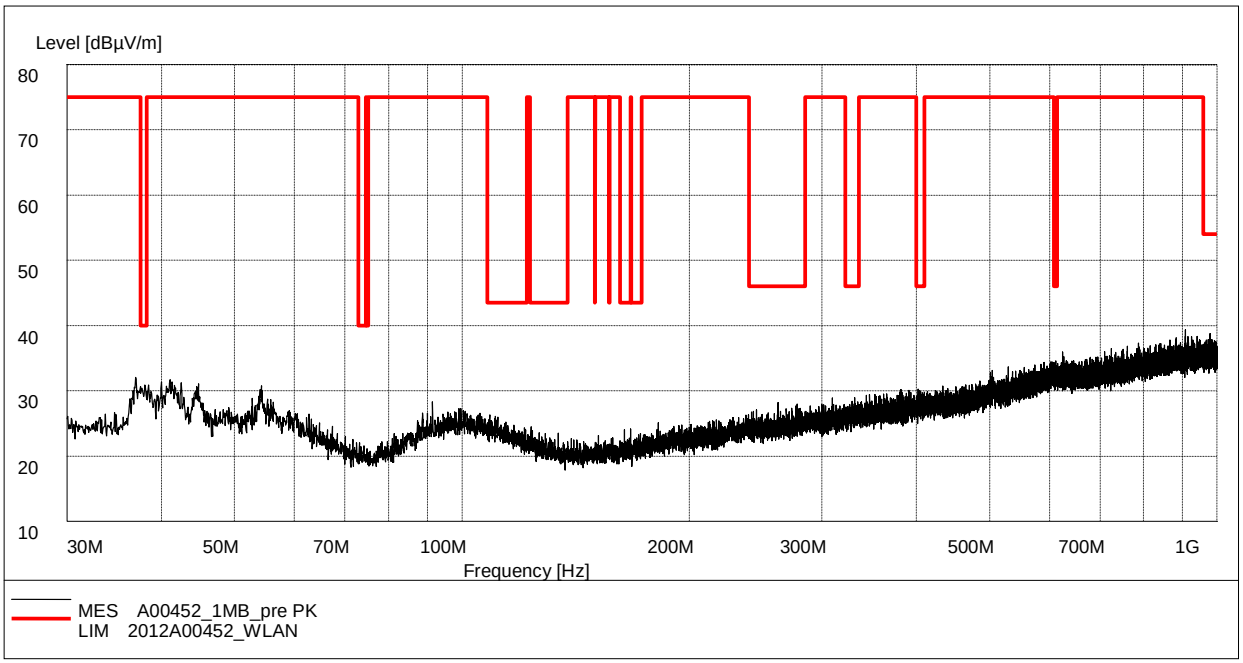

Fig. 47 Radiated Spurious Emission (802.11b, Ch6, 30 MHz-1 GHz)

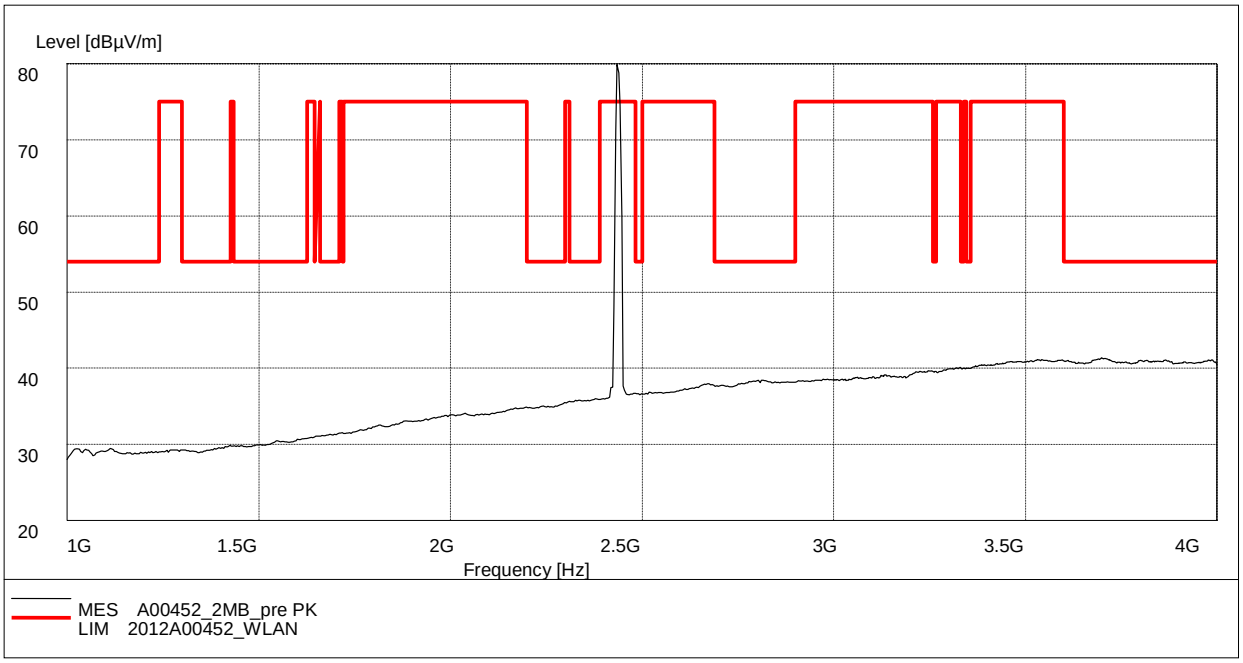

Fig. 48 Radiated Spurious Emission (802.11b, Ch6, 1 GHz-4 GHz)

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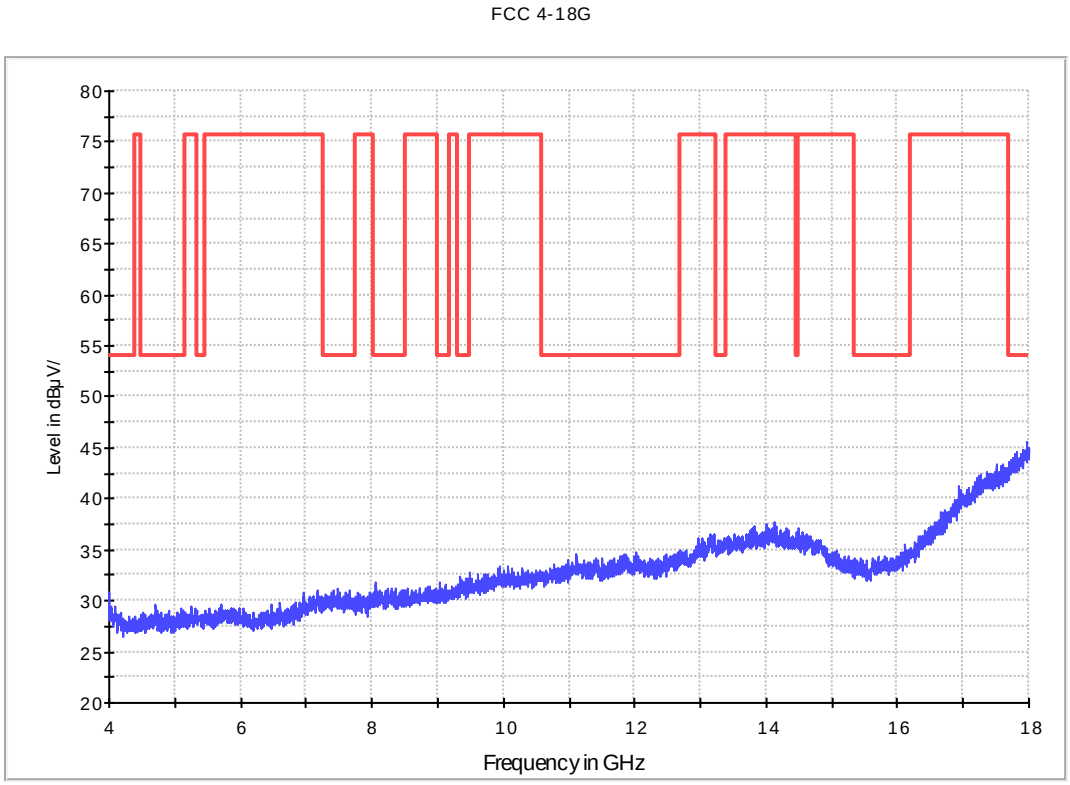

Fig. 49 Radiated Spurious Emission (802.11b, Ch6, 4 GHz-18 GHz)

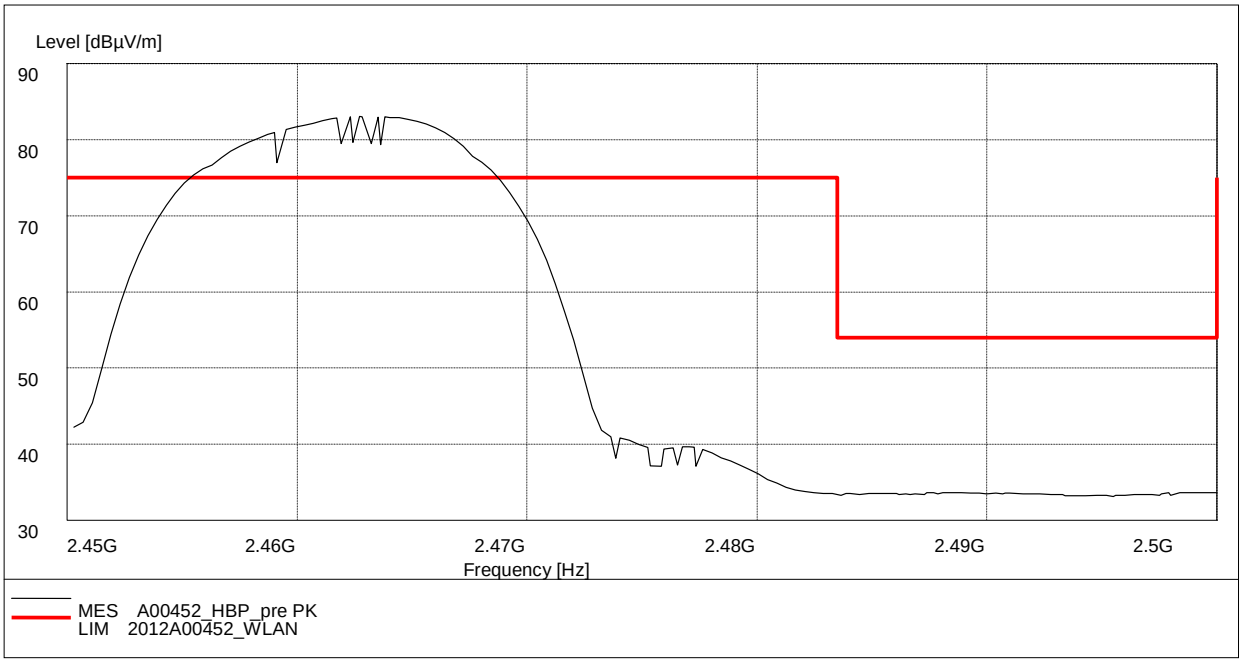

Fig. 50 Radiated Spurious Emission (Power): 802.11b, ch11, 2.45 GHz - 2.5GHz

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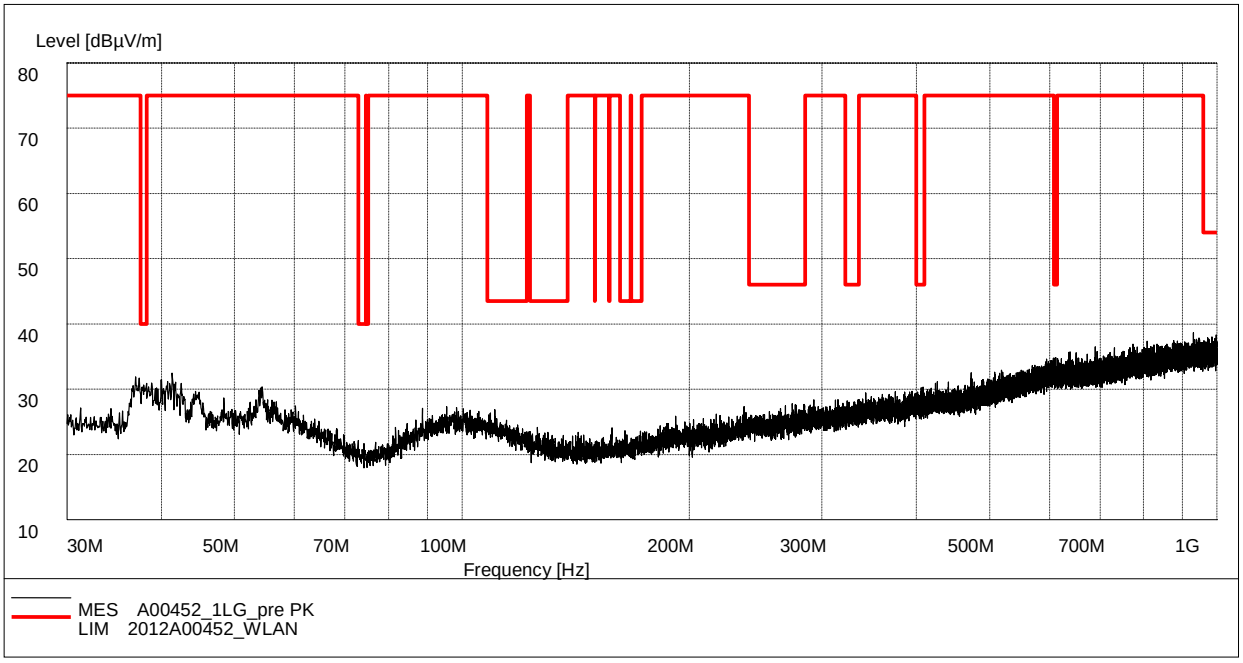

Fig. 51 Radiated Spurious Emission (802.11b, Ch11, 30 MHz-1 GHz)

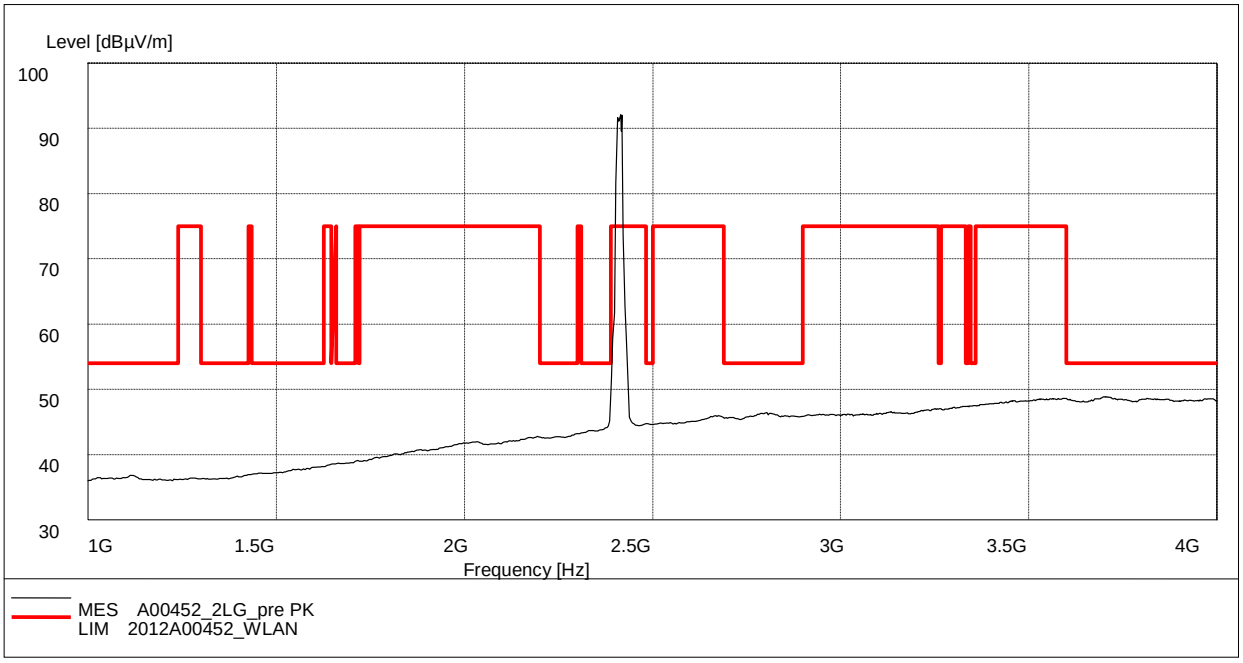

Fig. 52 Radiated Spurious Emission (802.11b, Ch11, 1 GHz-4 GHz)

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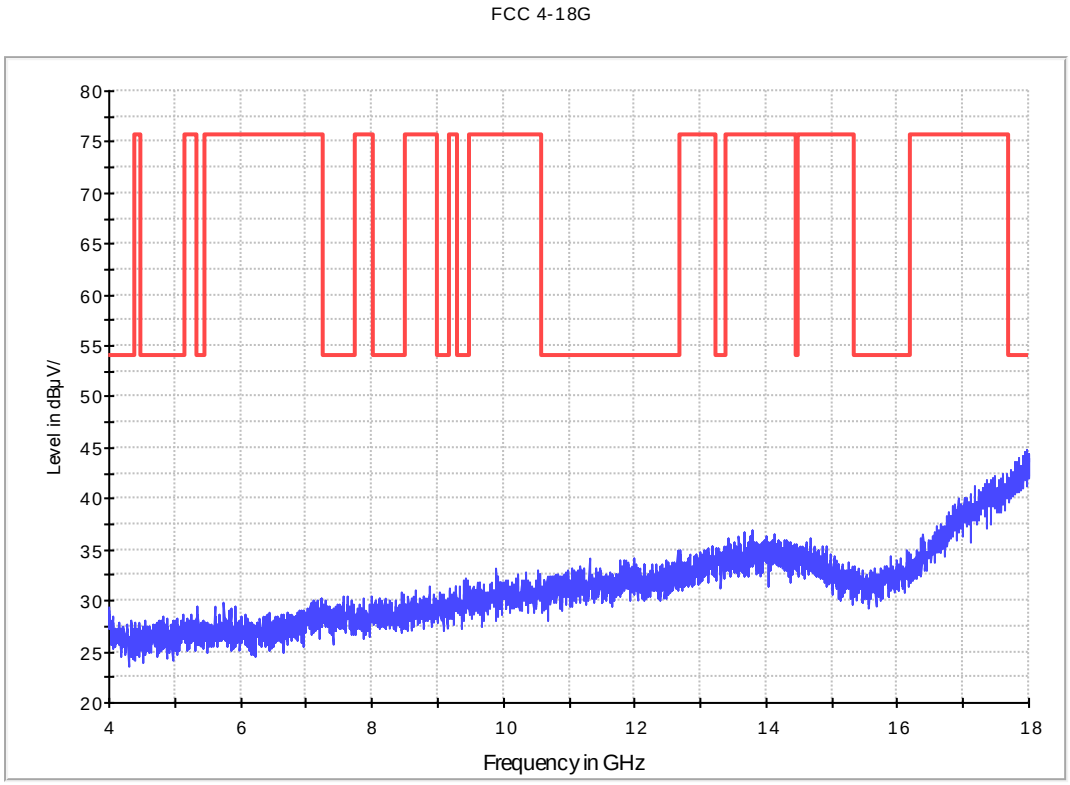

Fig. 53 Radiated Spurious Emission (802.11b, Ch11, 4 GHz-18 GHz)

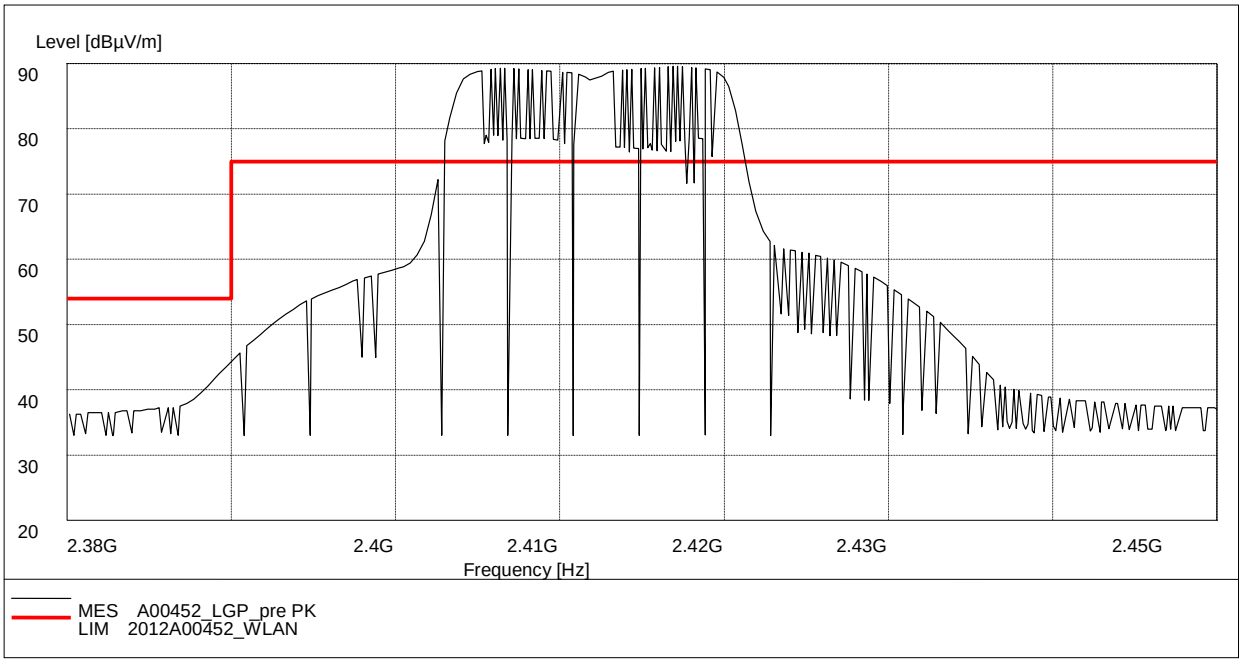

Fig. 54 Radiated Spurious Emission (Power): 802.11g, ch1, 2.38 GHz - 2.45GHz

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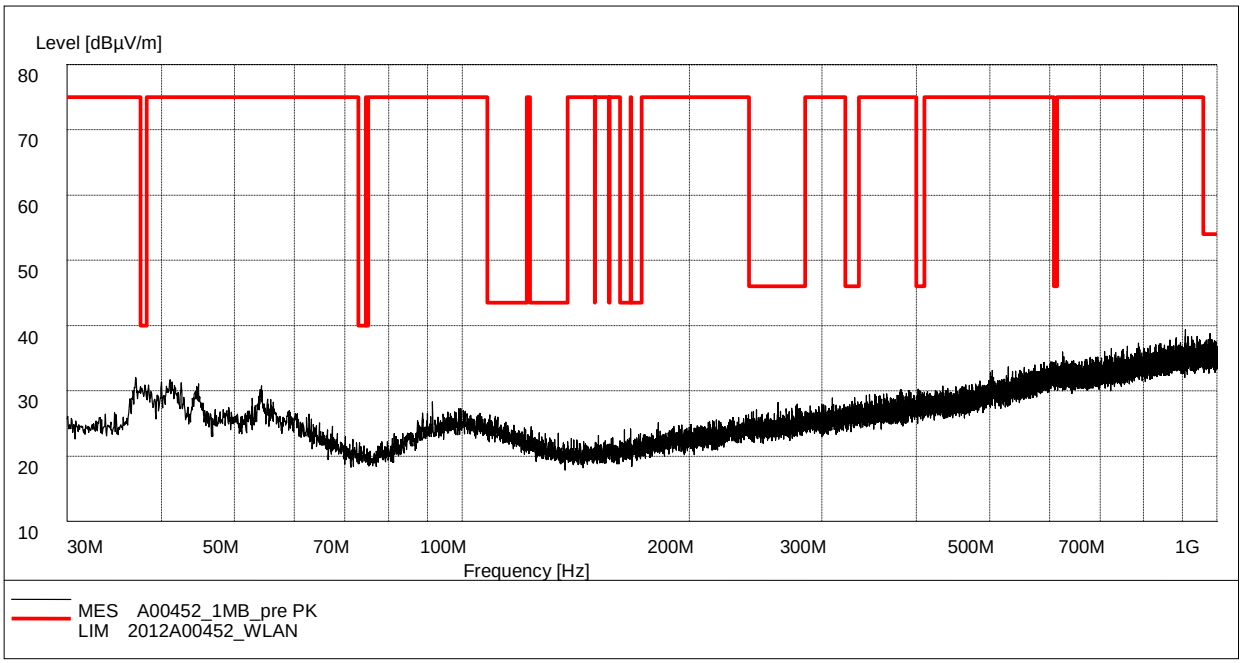

Fig. 55 Radiated Spurious Emission (802.11g, Ch1, 30 MHz-1 GHz)

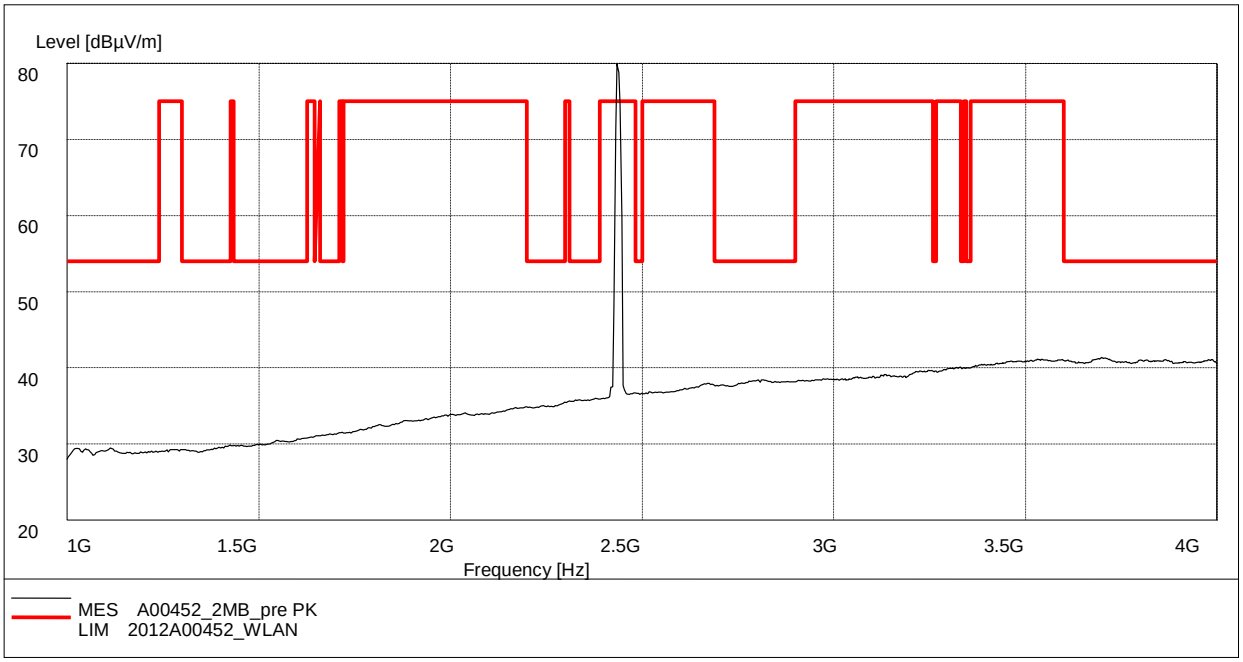

Fig. 56 Radiated Spurious Emission (802.11g, Ch1, 1 GHz-4 GHz)

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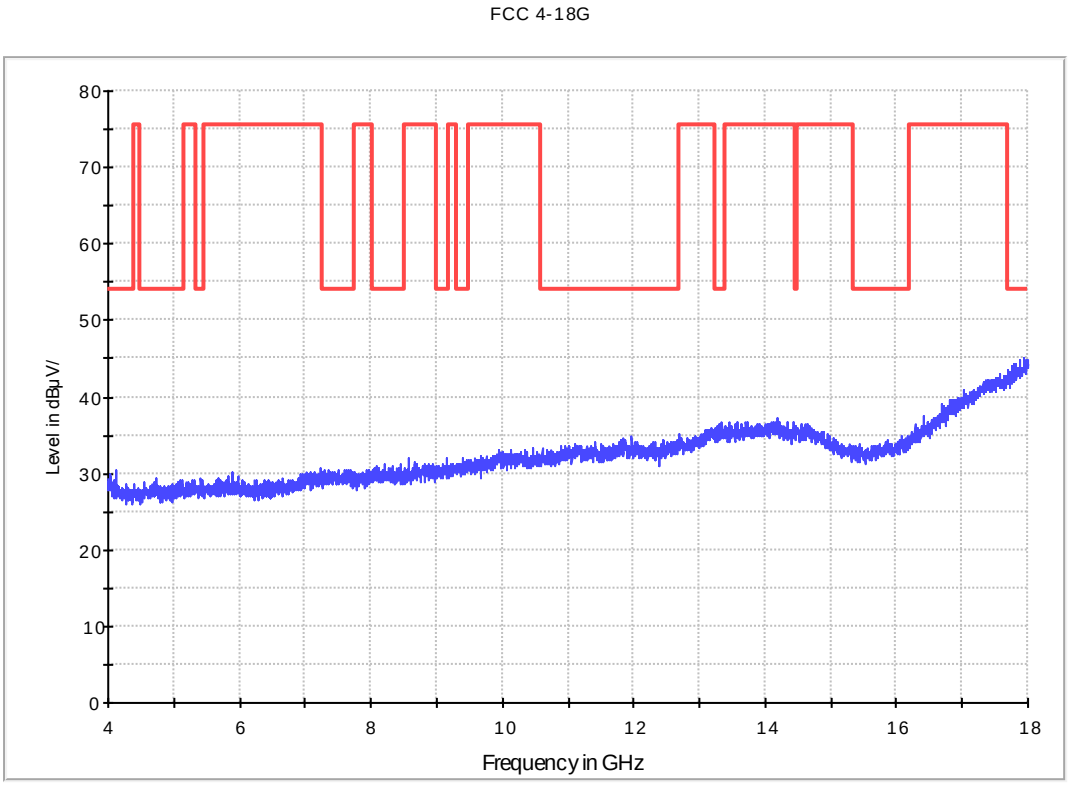

Fig. 57 Radiated Spurious Emission (802.11g, Ch1, 4 GHz-18 GHz)

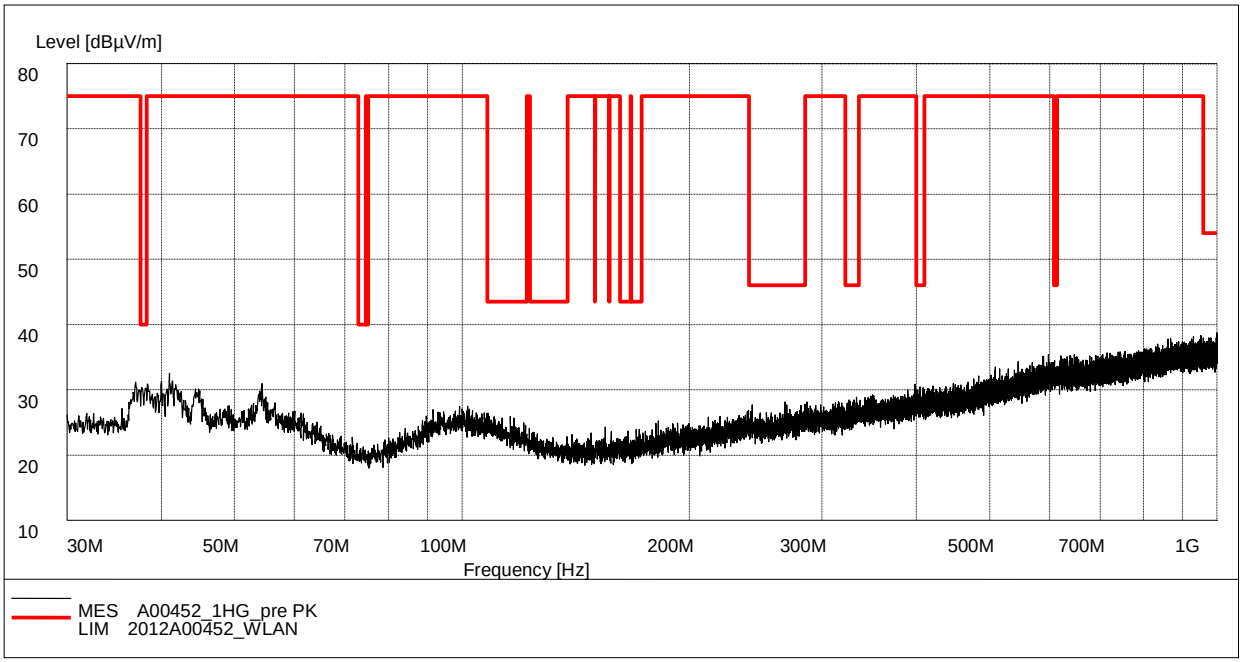

Fig. 58 Radiated Spurious Emission (802.11g, Ch6, 30 MHz-1 GHz)

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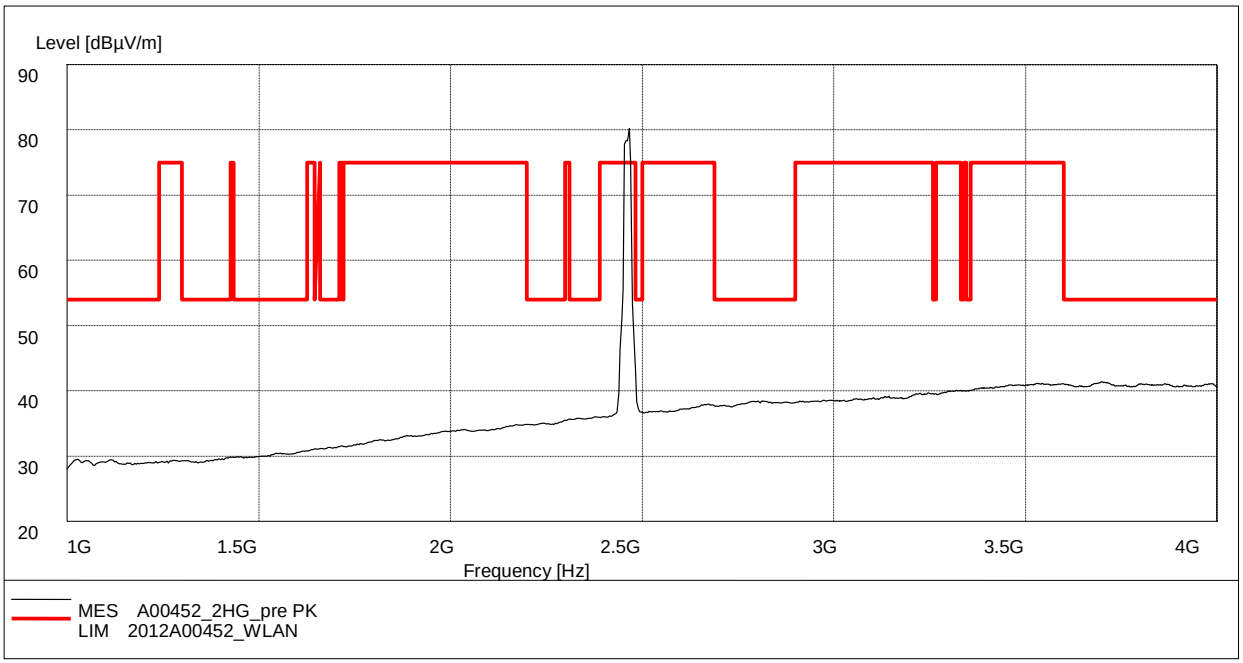

Fig. 59 Radiated Spurious Emission (802.11g, Ch6, 1 GHz-4 GHz)

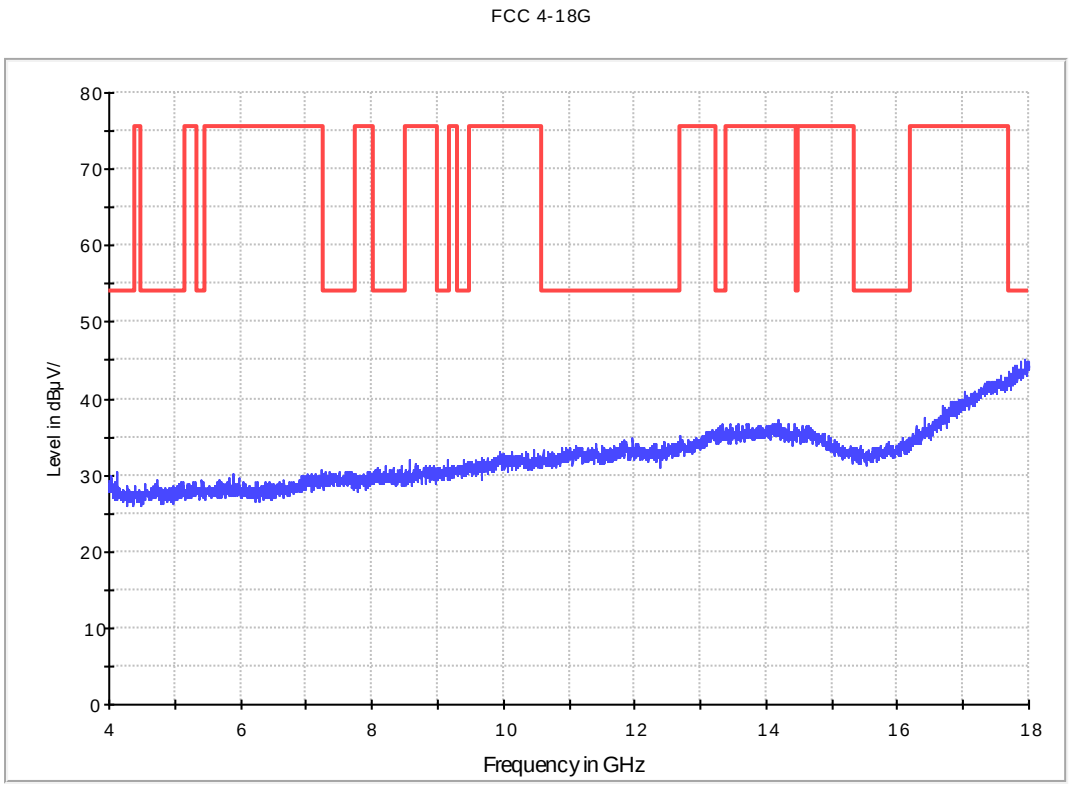

Fig. 60 Radiated Spurious Emission (802.11g, Ch6, 4 GHz-18 GHz)

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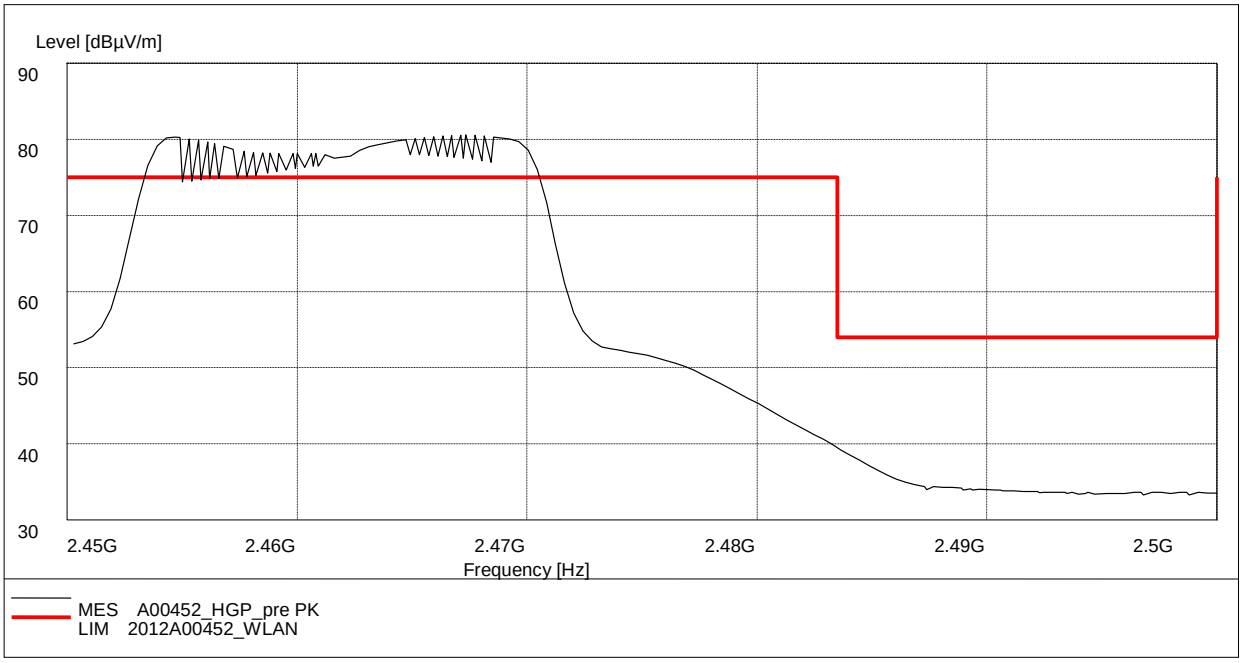

Fig. 61 Radiated Spurious Emission (Power): 802.11g, ch11, 2.45 GHz - 2.5GHz

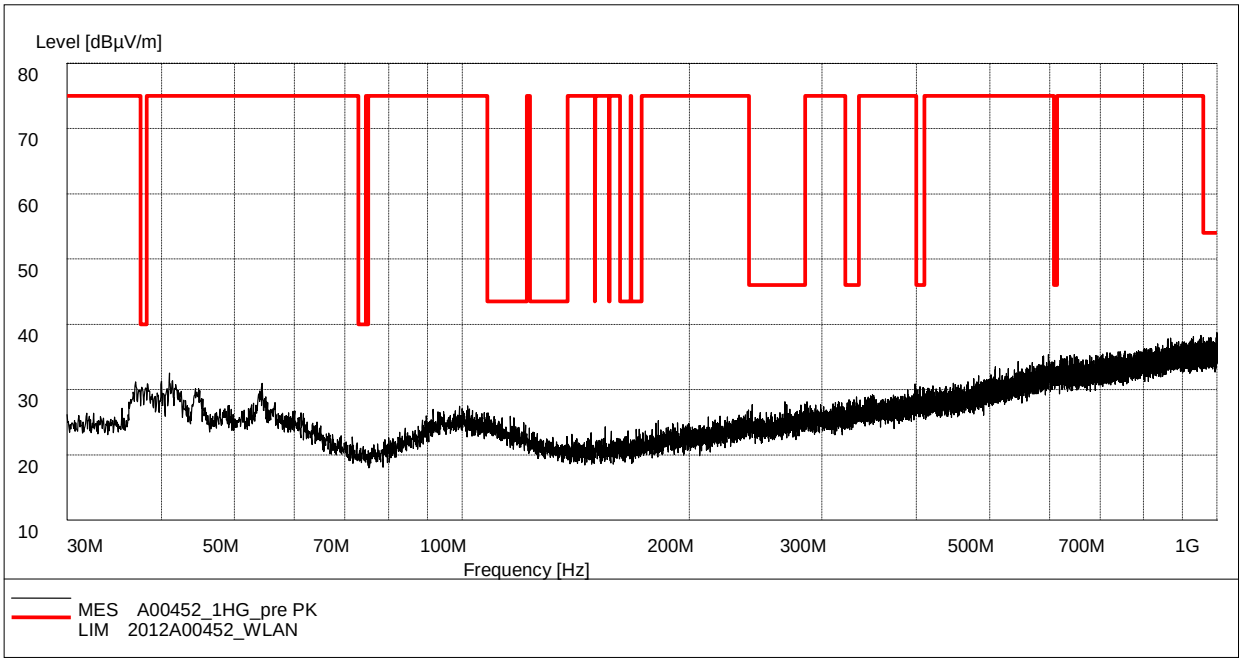

Fig. 62 Radiated Spurious Emission (802.11g, Ch11, 30 MHz-1 GHz)

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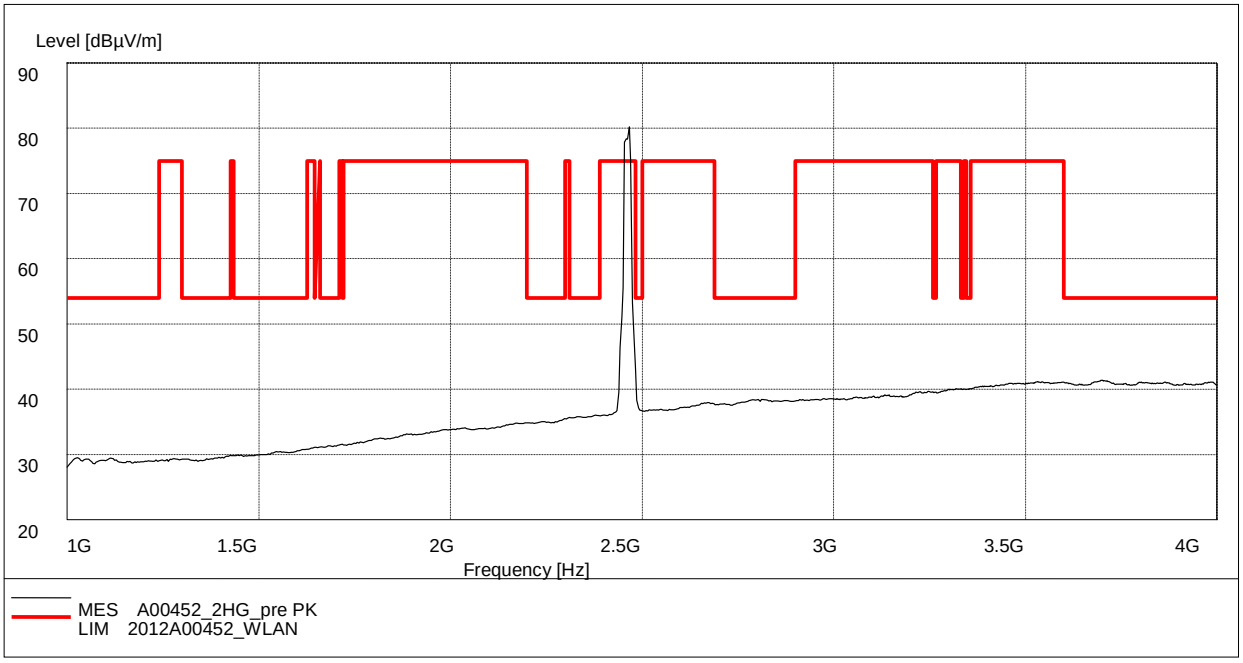

Fig. 63 Radiated Spurious Emission (802.11g, Ch11, 1 GHz-4 GHz)

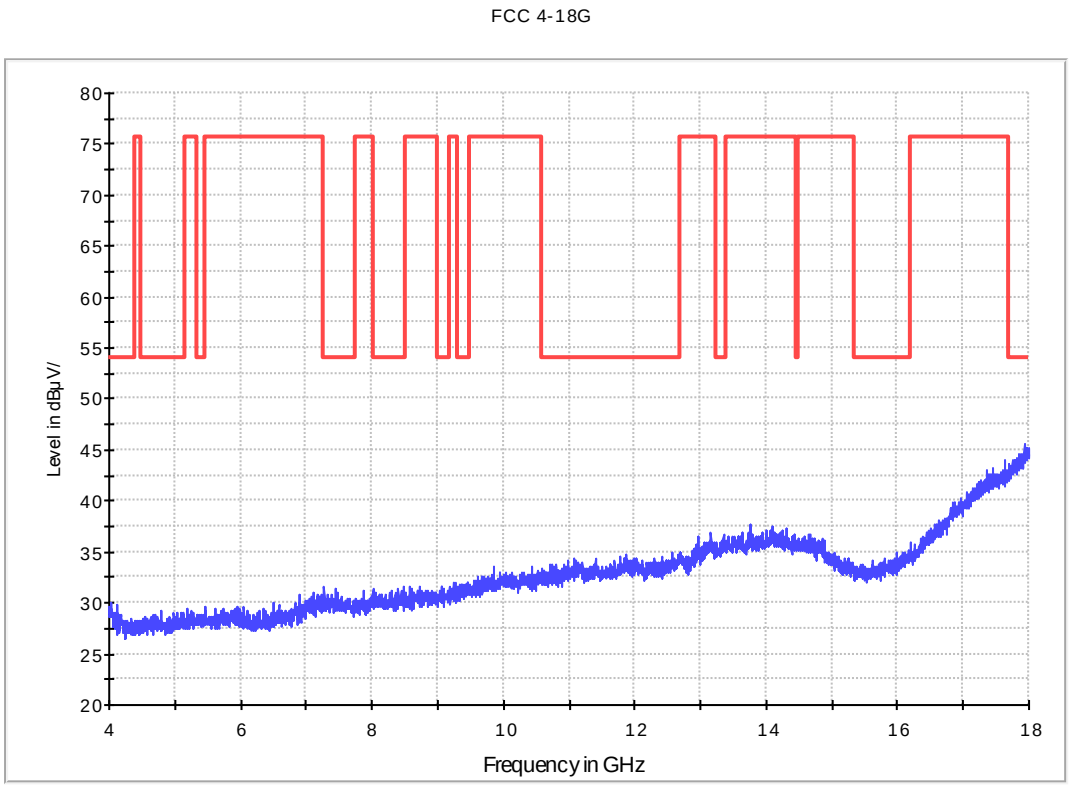

Fig. 64 Radiated Spurious Emission (802.11g, Ch11, 4 GHz-18 GHz)

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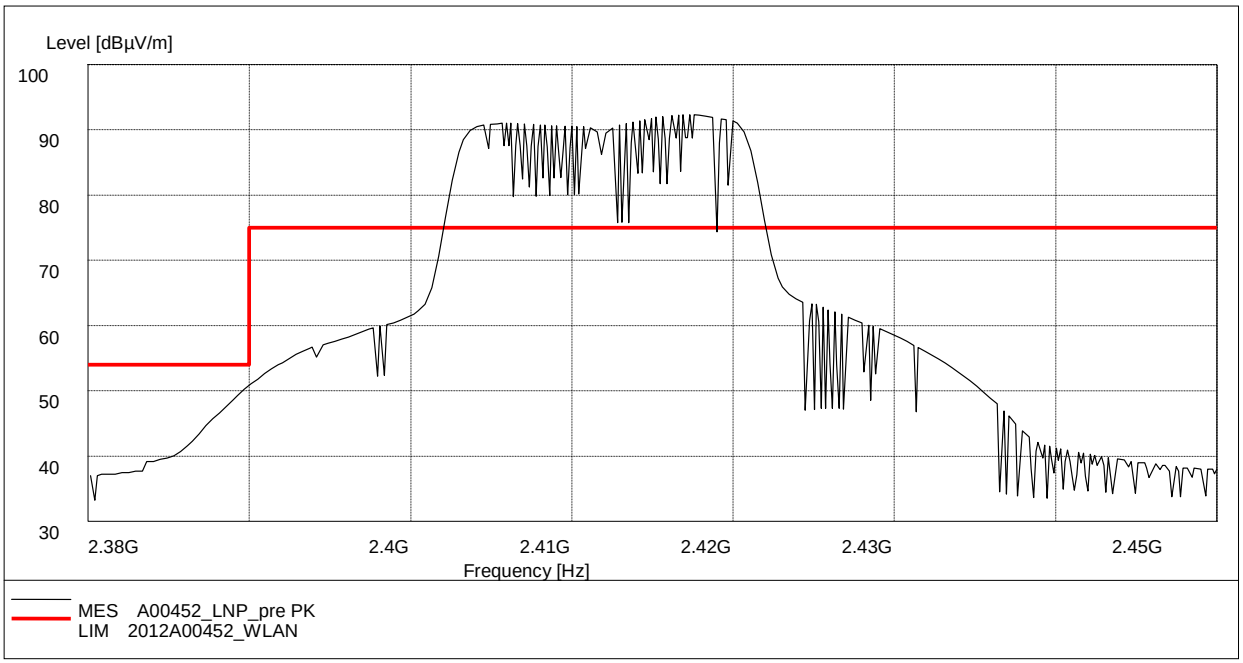

Fig. 65 Radiated Spurious Emission (Power): 802.11n-HT20, ch1, 2.38 GHz - 2.45GHz

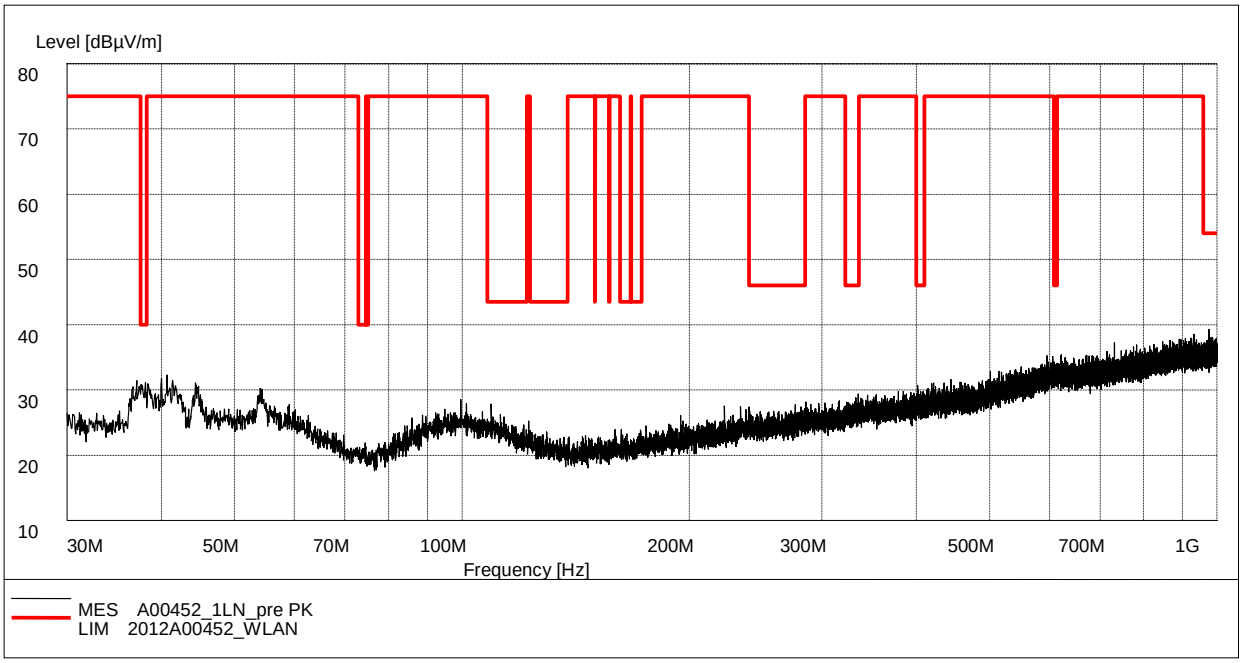

Fig. 66 Radiated Spurious Emission (802.11n-HT20, Ch1, 30 MHz-1 GHz)

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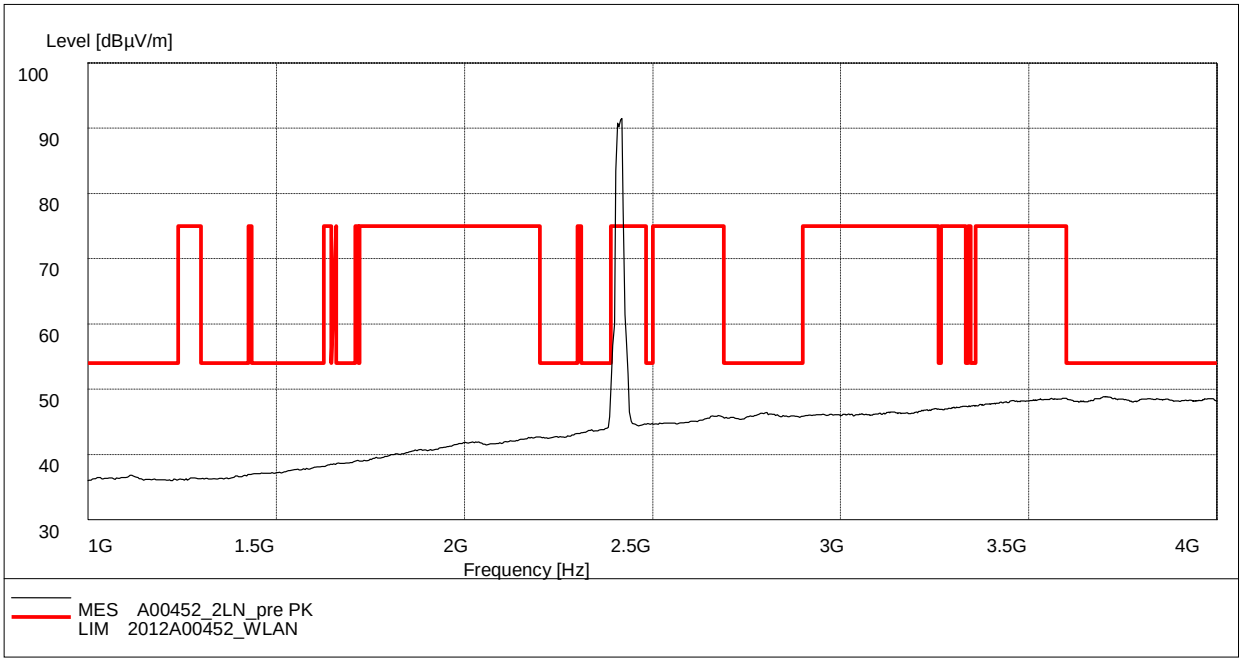

Fig. 67 Radiated Spurious Emission (802.11n-HT20, Ch1, 1 GHz-4 GHz)

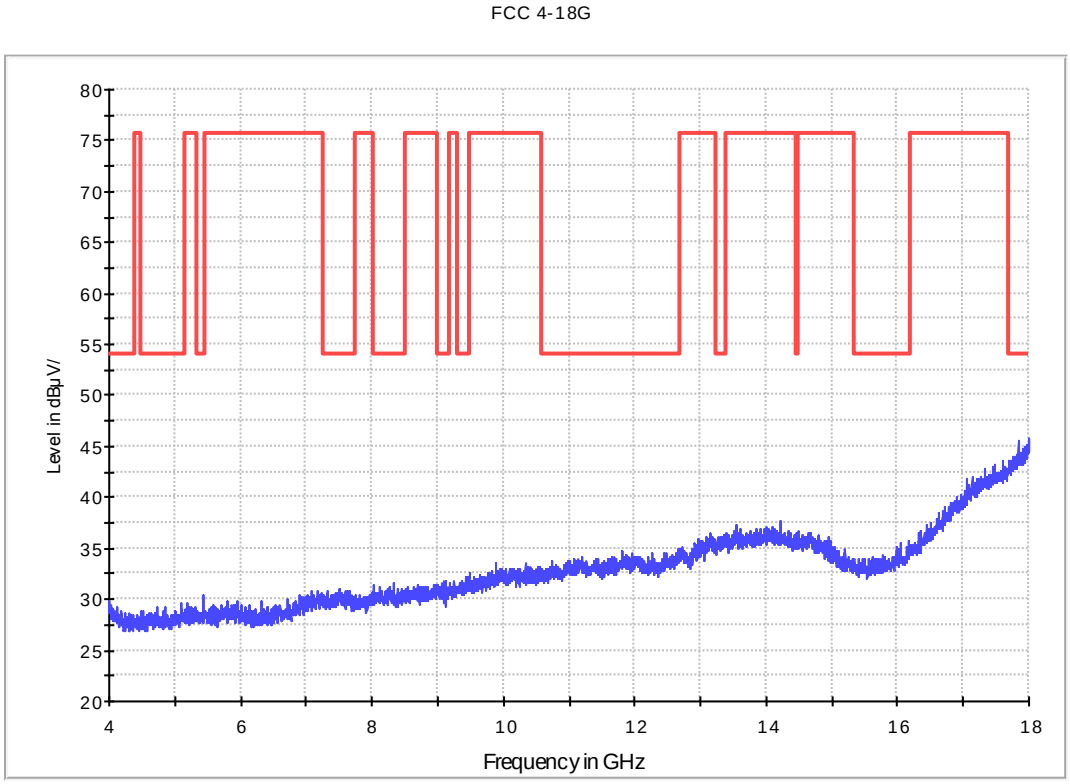

Fig. 68 Radiated Spurious Emission (802.11n-HT20, Ch1, 4 GHz-18 GHz)

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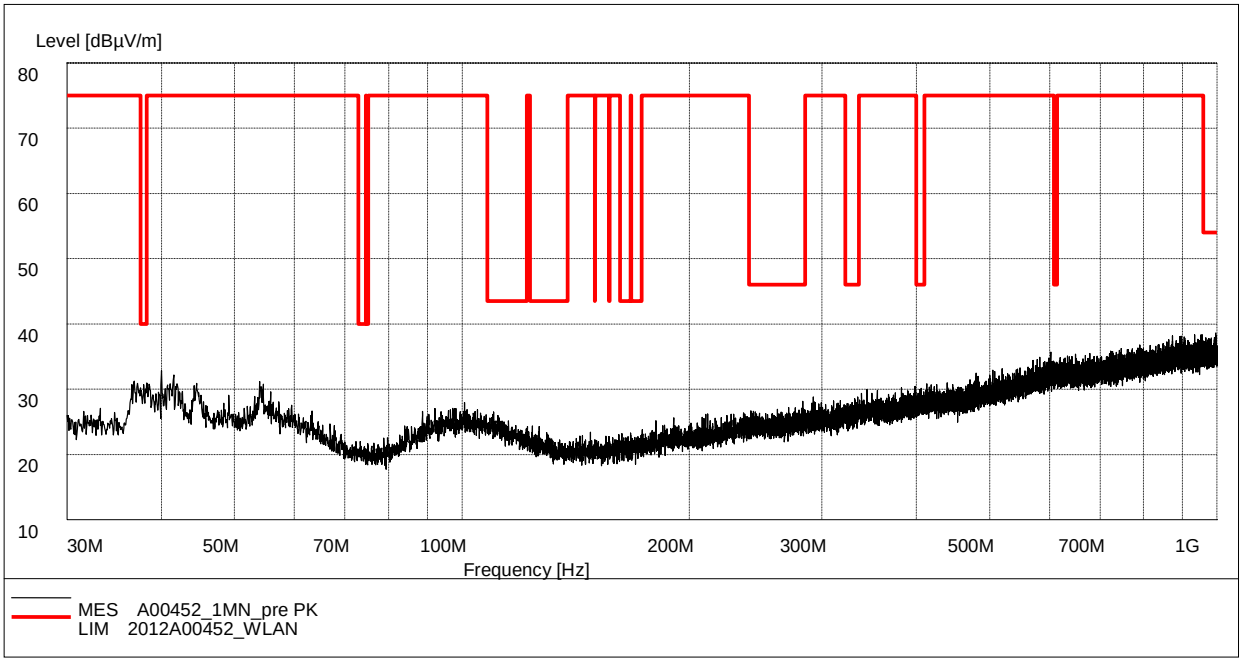

Fig. 69 Radiated Spurious Emission (802.11n-HT20, Ch6, 30 MHz-1 GHz)

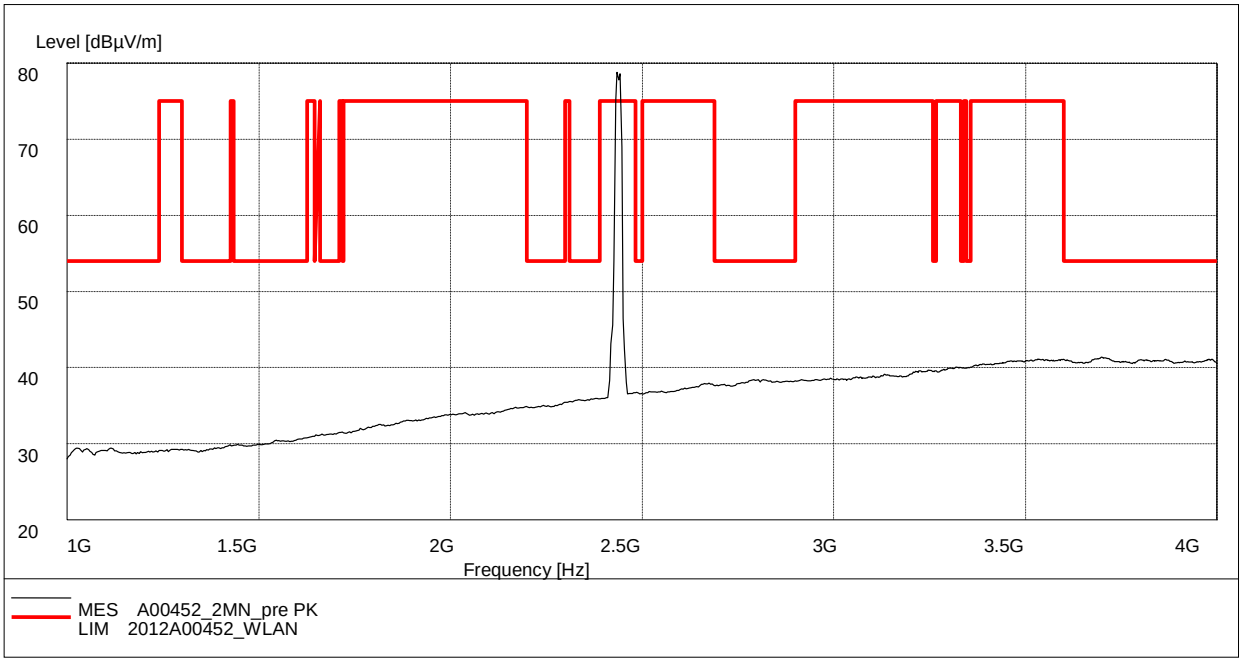

Fig. 70 Radiated Spurious Emission (802.11n-HT20, Ch6, 1 GHz-4 GHz)

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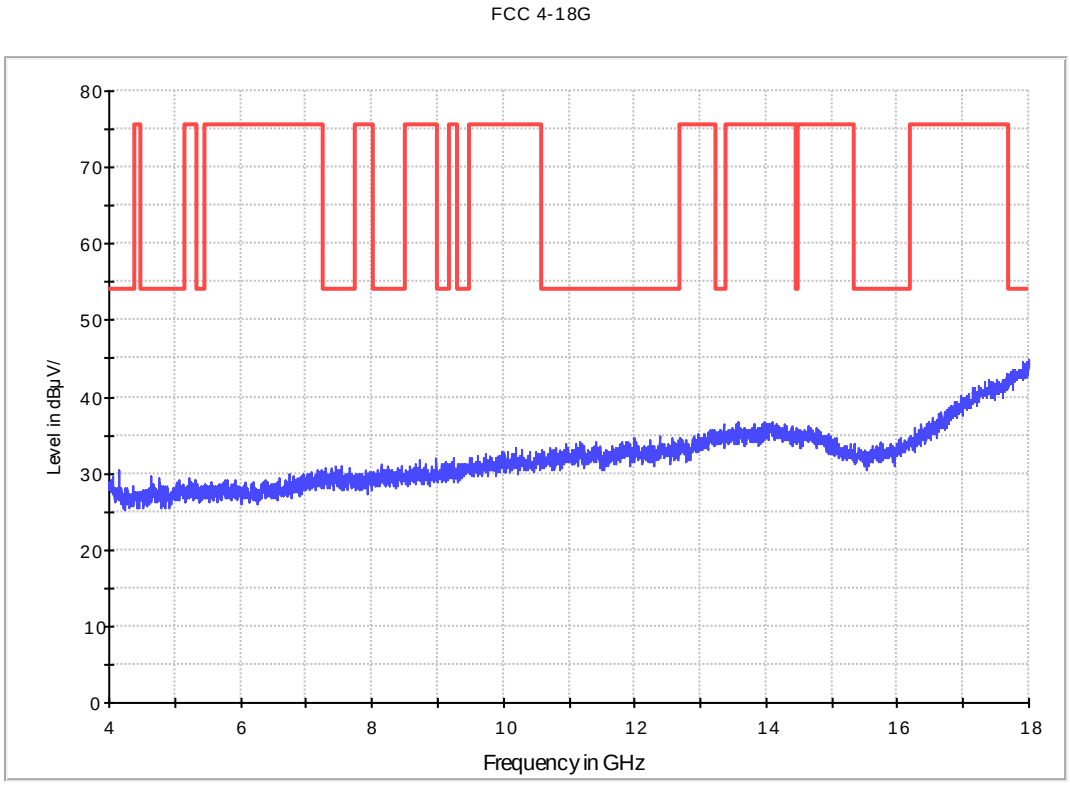

Fig. 71 Radiated Spurious Emission (802.11n-HT20, Ch6, 4 GHz-18 GHz)

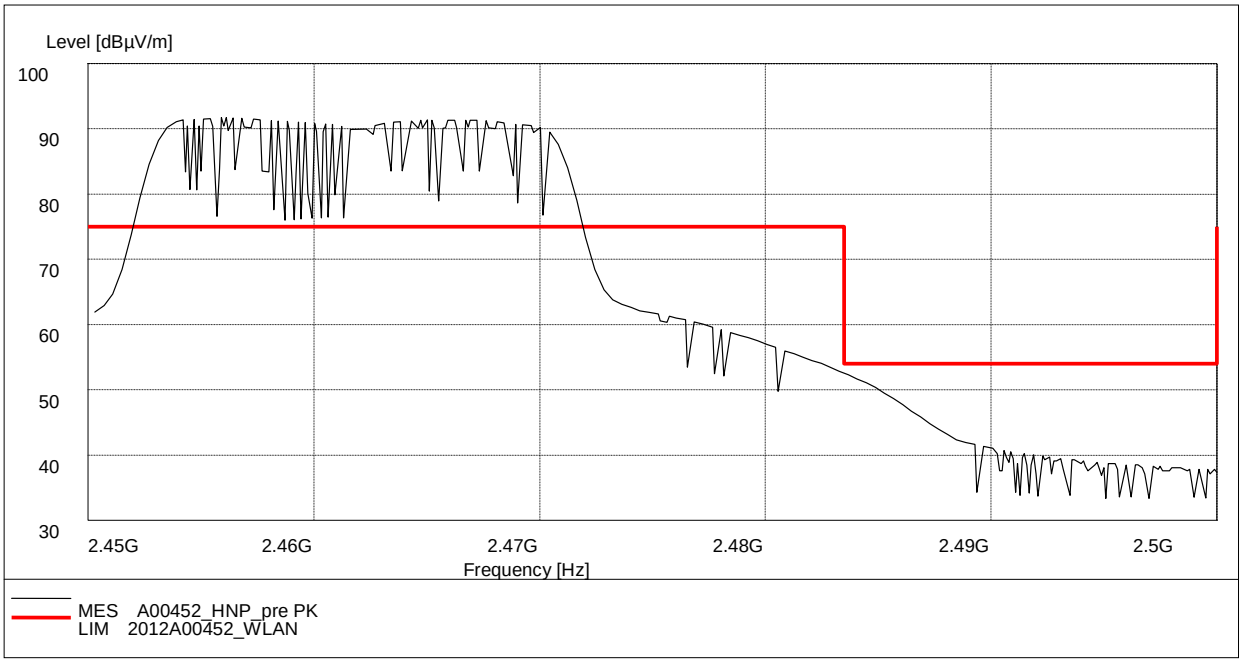

Fig. 72 Radiated Spurious Emission (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.5GHz

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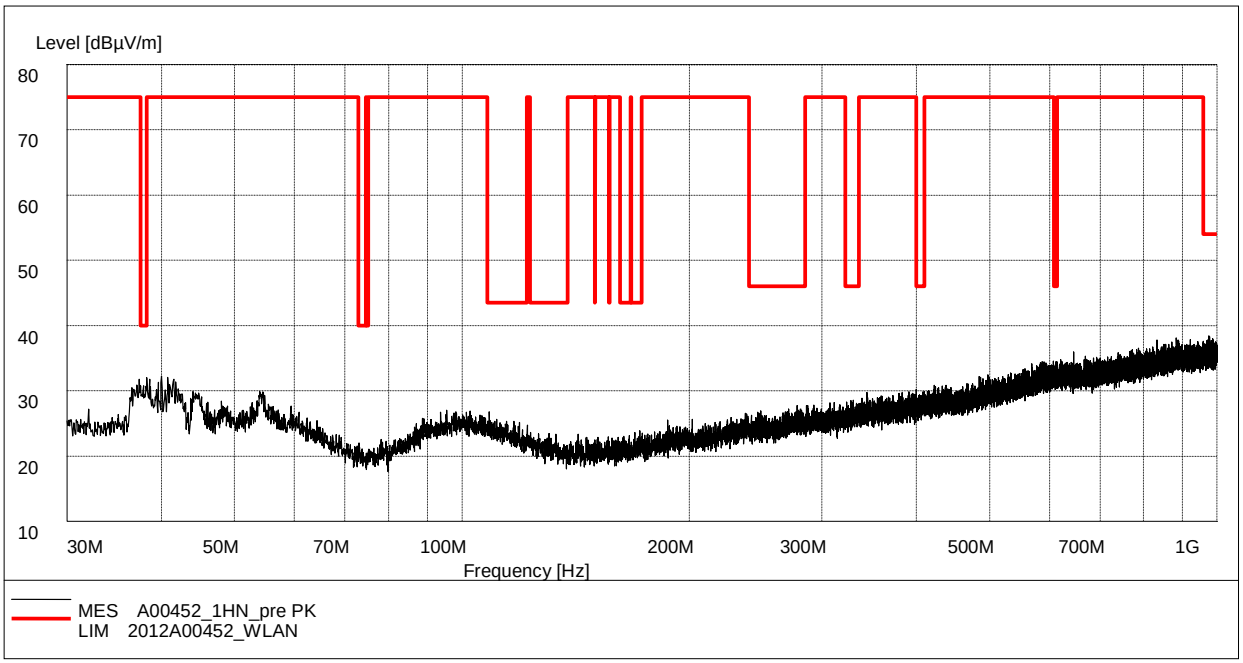

Fig. 73 Radiated Spurious Emission (802.11n-HT20, Ch11, 30 MHz-1 GHz)

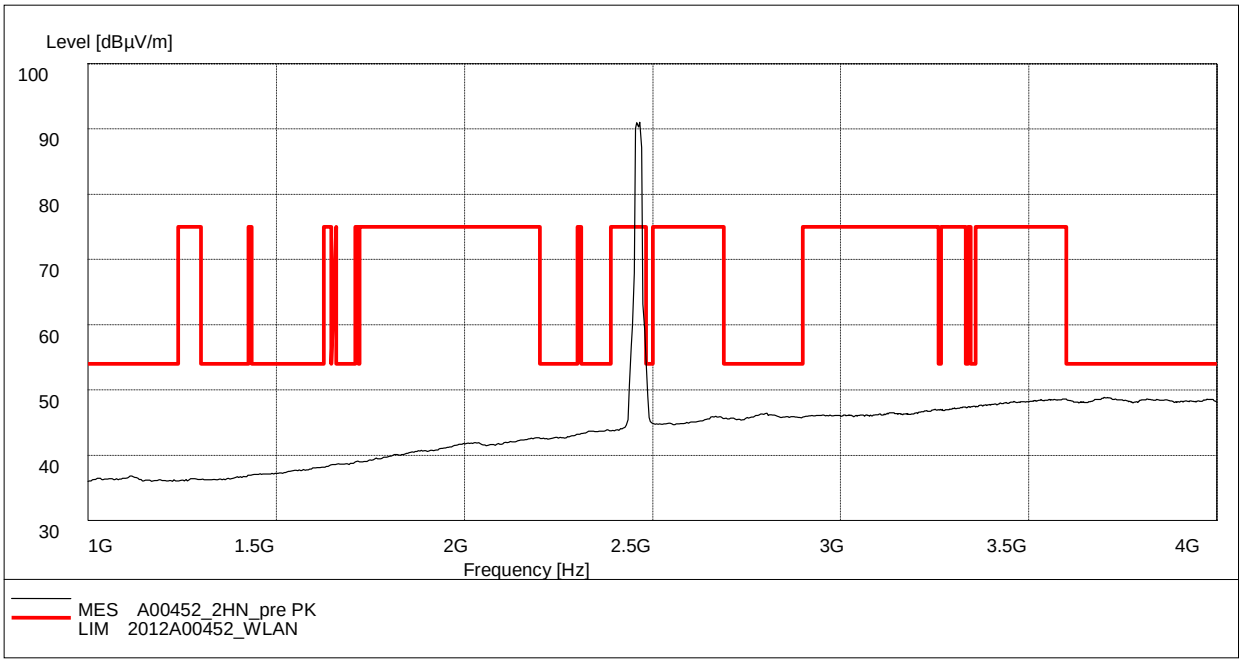

Fig. 74 Radiated Spurious Emission (802.11n-HT20, Ch11, 1 GHz-4 GHz)

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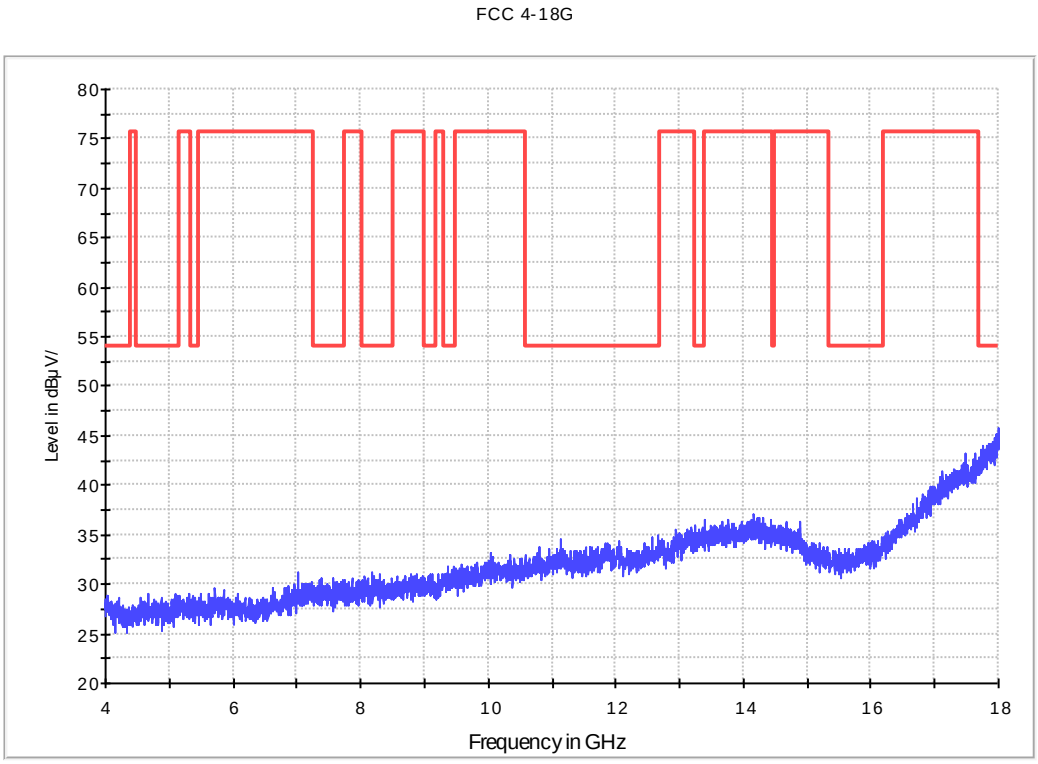

Fig. 75 Radiated Spurious Emission (802.11n-HT20, Ch11, 4 GHz-18 GHz)

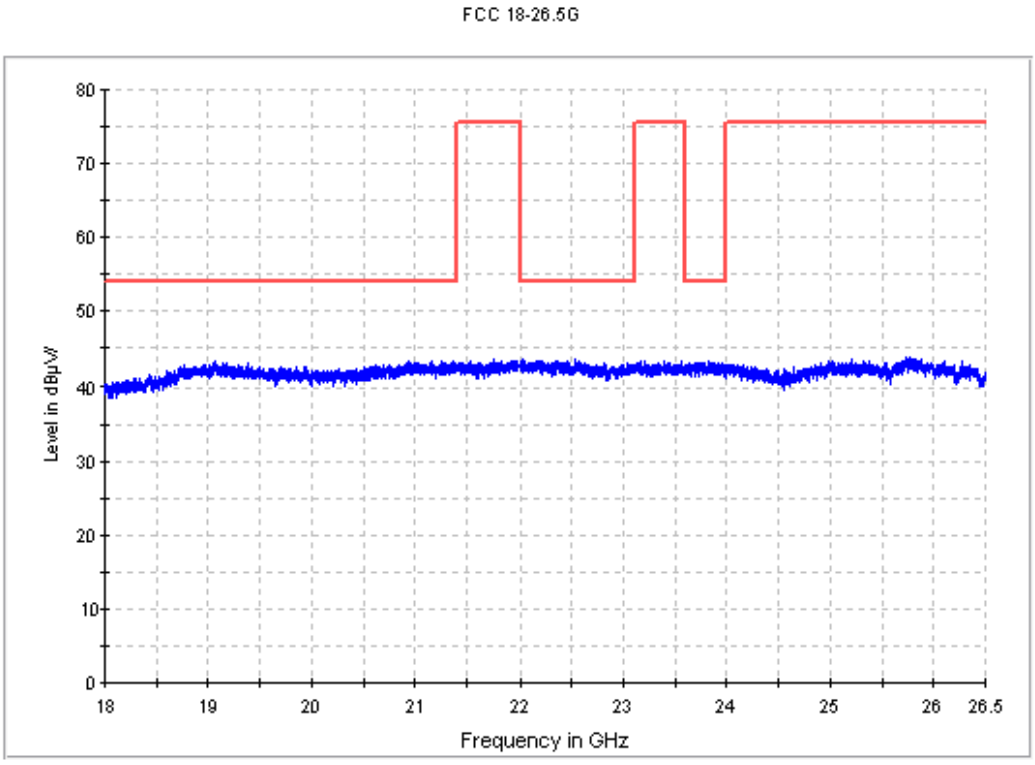

Fig. 76 Radiated emission: 18 GHz - 26 GHz

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A.7. Occupied 20dB Bandwidth

Measurement Limit:

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

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

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz

Measurement Result:

Mode	Channel	Occupied 20dB Bandwidth (kHz)		conclusion
802.11b	1	Fig.78	16731	P
	6	Fig.79	16683	P
	11	Fig.80	16683	P
802.11g	1	Fig.81	17596	P
	6	Fig.82	17644	P
	11	Fig.83	17644	P
802.11n (HT20)	1	Fig.84	18558	P
	6	Fig.85	18558	P
	11	Fig.86	18798	P

Conclusion: Pass

Test graphs as below:

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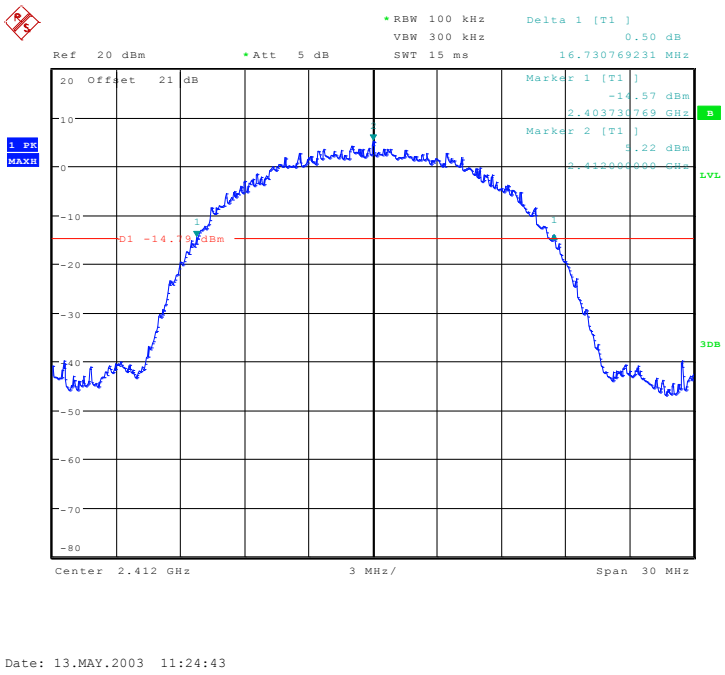

Fig. 77 Occupied 20dB Bandwidth (802.11b, Ch 1)

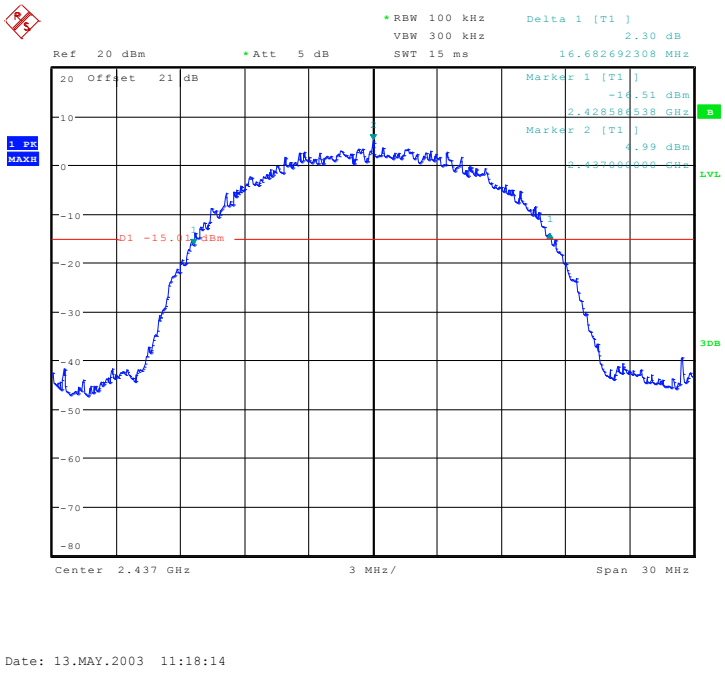

Fig. 78 Occupied 20dB Bandwidth (802.11b, Ch 6)

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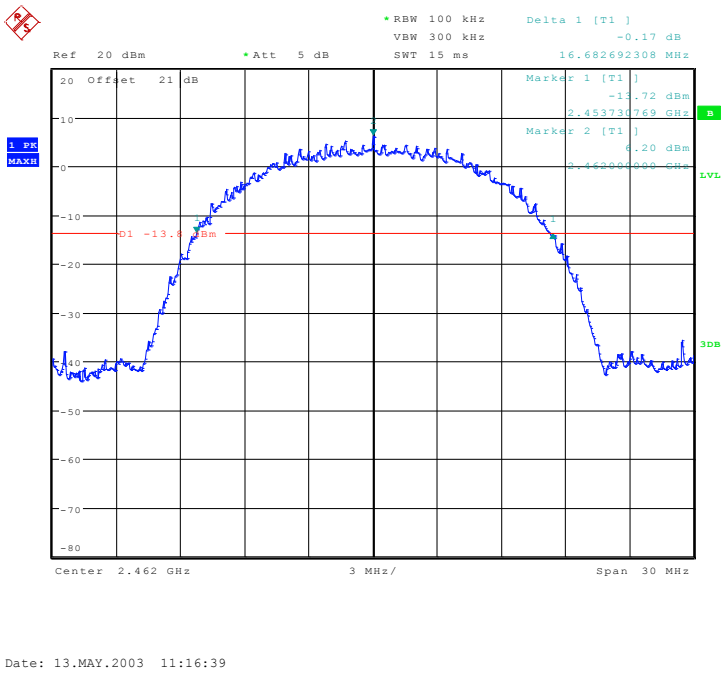

Fig. 79 Occupied 20dB Bandwidth (802.11b, Ch 11)

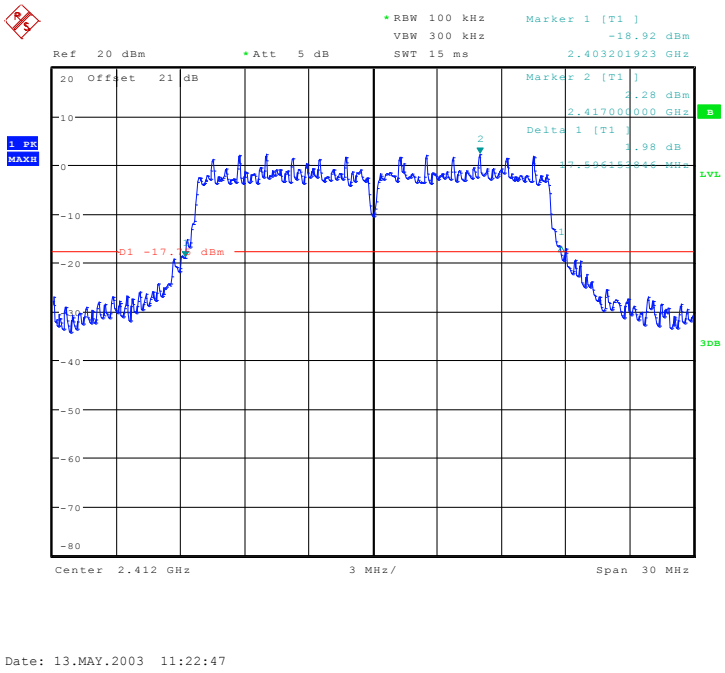

Fig. 80 Occupied 20dB Bandwidth (802.11g, Ch 1)

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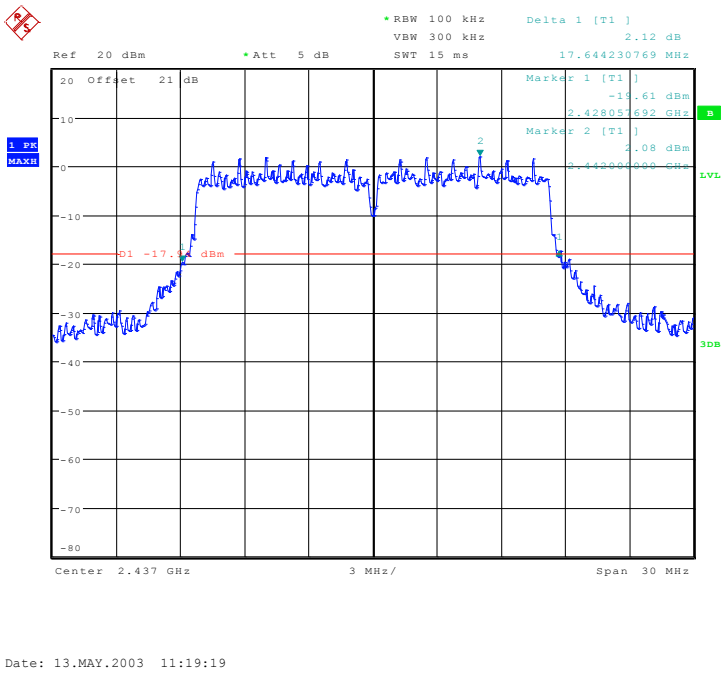

Fig. 81 Occupied 20dB Bandwidth (802.11g, Ch 6)

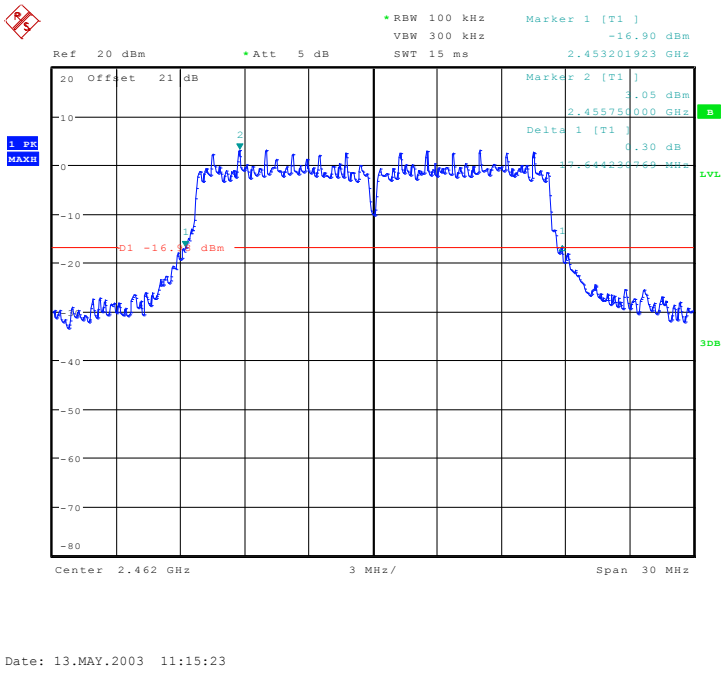

Fig. 82 Occupied 20dB Bandwidth (802.11g, Ch 11)

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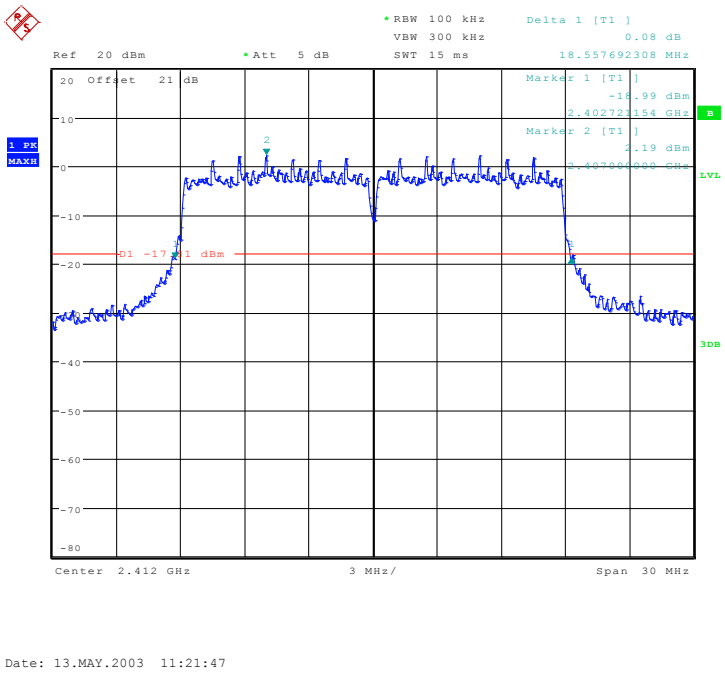

Fig. 83 Occupied 20dB Bandwidth (802.11n-HT20, Ch 1)

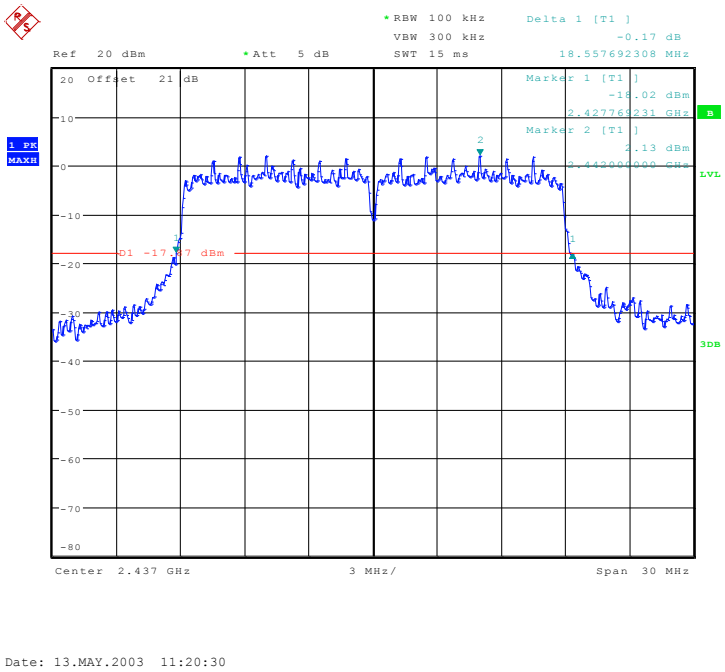

Fig. 84 Occupied 20dB Bandwidth (802.11n-HT20, Ch 6)

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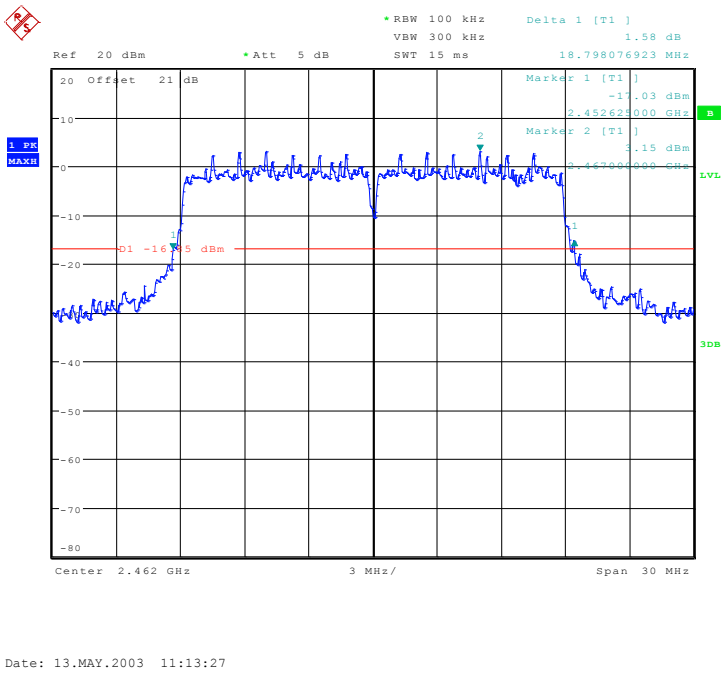

Fig. 85 Occupied 20dB Bandwidth (802.11n-HT20, Ch 11)

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A.8. AC Powerline Conducted Emission

Test Condition:

Voltage（V）	Frequency（Hz）
110	60

Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV) With charger		Conclusion
		11n mode	Idle	
0.15 to 0.5	66 to 56	Fig. 87	Fig. 88	P
0.5 to 5	56			
5 to 30	60			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV) With charger		Conclusion
		11n mode	Idle	
0.15 to 0.5	56 to 46	Fig.87	Fig.88	P
0.5 to 5	46			
5 to 30	50			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

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

Conclusion: PASS

Test graphs as below:

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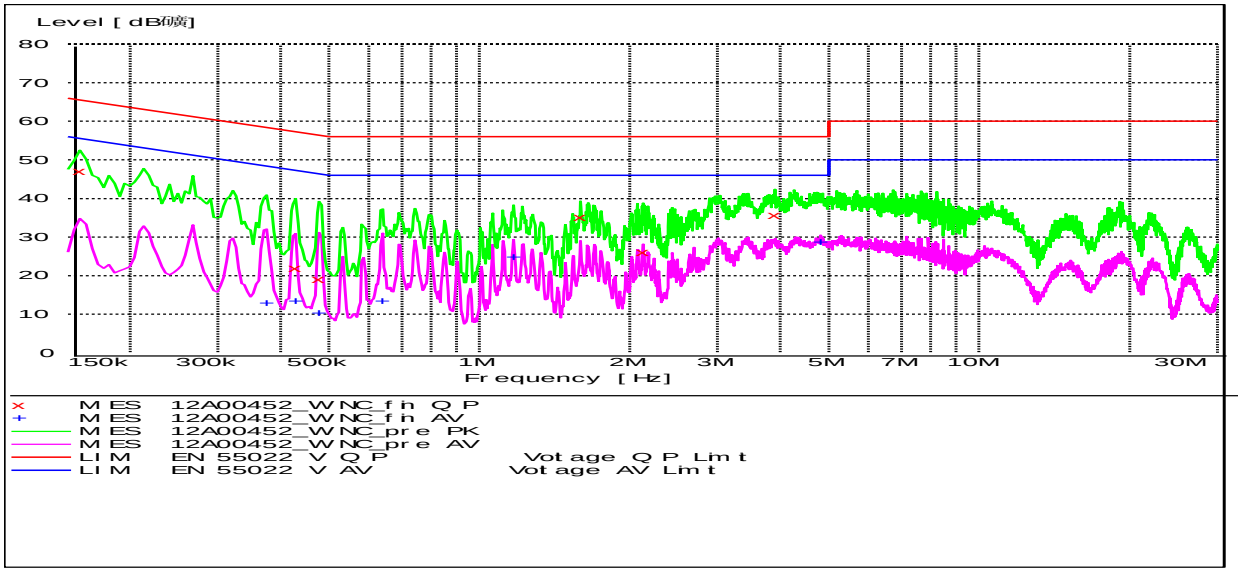

Fig. 86 AC Powerline Conducted Emission

Measurement Result: “12A00452_WNC_fin QP”

Frequency (MHz)	Level (dBμV)	Transd (dB)	Limit (dBμV)	Margin (dB)	Line	PE
0.159	47	10.1	66	18.6	L1	GND
0.429	22	10.1	57	35.2	L1	GND
0.4785	19.2	10.1	56	37.1	L1	GND
1.5945	35.1	10.1	56	20.9	L1	GND
2.127793	26.1	10.1	56	29.9	N	GND
3.90586	35.8	10.1	56	20.2	L1	GND

Measurement Result: “12A00452_WNC_fin AV”

Frequency (MHz)	Level (dBμV)	Transd (dB)	Limit (dBμV)	Margin (dB)	Line	PE
0.375	12.9	10.1	48	35.5	N	GND
0.429	13.5	10.1	47	33.8	L1	GND
0.4785	10.3	10.1	46	36.1	L1	GND
0.6405	13.5	10.1	46	32.5	L1	GND
1.1715	24.7	10.1	46	21.3	L1	GND
4.827199	28.6	10.2	46	17.4	L1	GND

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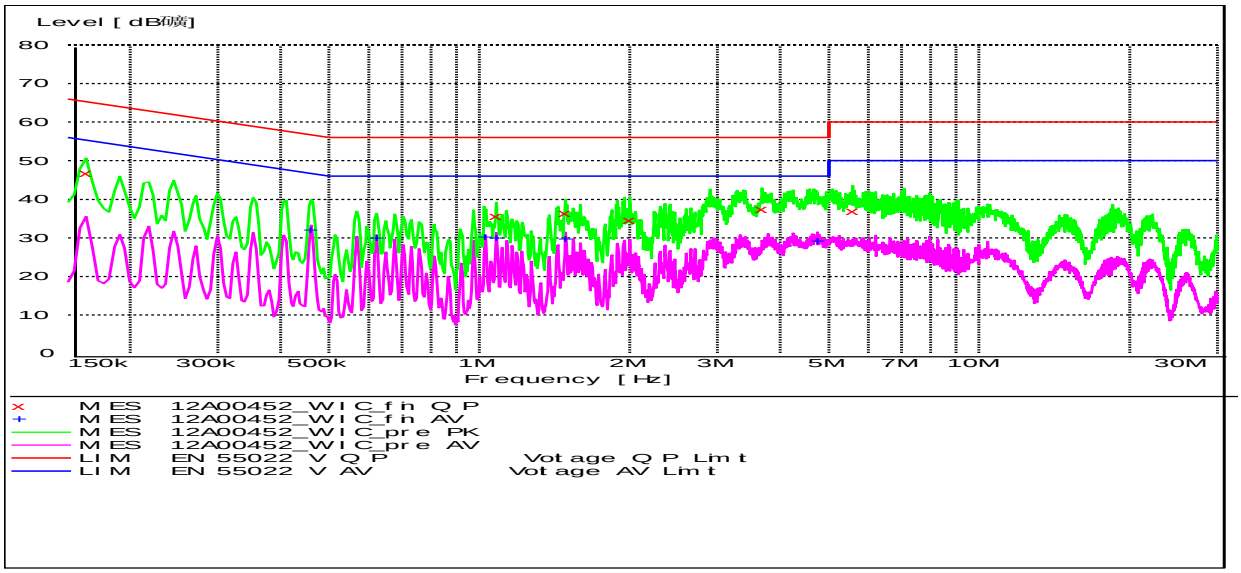

Fig. 87 AC Powerline Conducted Emission

Measurement Result: “12A00452_WIC_fin QP”

Frequency (MHz)	Level (dBµV)	Transd (dB)	Limit (dBµV)	Margin (dB)	Line	PE
0.1635	46.9	10.1	65	18.3	L1	GND
1.0815	35.7	10.1	56	20.3	L1	GND
1.4865	36.5	10.1	56	19.5	L1	GND
2	34.5	10.1	56	21.5	L1	GND
3.678621	37.5	10.1	56	18.5	L1	GND
5.585202	36.9	10.2	60	23.1	L1	GND

Measurement Result: “2A00452_WIC_fin AV”

Frequency (MHz)	Level (dBµV)	Transd (dB)	Limit (dBµV)	Margin (dB)	Line	PE
0.4605	32.1	10.1	47	14.6	N	GND
0.6225	30	10.1	46	16	L1	GND
1.0275	30.1	10.1	46	15.9	L1	GND
1.0815	29.9	10.1	46	16.1	L1	GND
1.4865	29.6	10.1	46	16.4	L1	GND
4.760156	29.1	10.2	46	16.9	L1	GND

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