FCC PART 15C
TEST REPORT
No. 2013WLN0683

for

TCT Mobile Limited

UMTS Tri-band / GSM Quadband mobile phone

Model name: Beetle Lite FF

Marketing Name: ONE TOUCH 4012A

With

FCC ID: RAD331

Hardware Version: PIO

Software Version: 114

Issued Date: 2013-06-05

DAkkS
Deutsche
Akkreditierungsstelle
D-PL-12123-01-01

Test Laboratory:

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

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

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CONTENTS

1. TEST LABORATORY

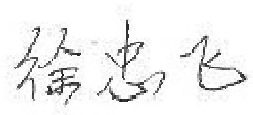
1.1. Testing Location

Company Name:	TMC Beijing, Telecommunication Metrology Center of MIIT
Address:	No. 52, Huayuan Bei Road, Haidian District, Beijing, P. R. China
Postal Code:	100191
Telephone:	008610623046332561
Fax:	008610623046332504

1.2. Project data

Testing Start Date:	2013-04-17
Testing End Date:	2013-04-24

1.3. Signature



Xu Zhongfei

(Prepared this test report)

Gao Hong

(Reviewed this test report)

Xiao Li

Deputy Director of the laboratory

(Approved this test report)

2. CLIENT INFORMATION

2.1. Applicant Information

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

2.2. Manufacturer Information

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

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

3.1. About EUT

Description	UMTS Tri-band / GSM Quadband mobile phone
Model name	Beetle Lite FF
Marketing name	ONE TOUCH 4012A
FCC ID	RAD331
IC	/
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	21.53dBm(OFDM)
GPRS Class	Class 12
GPRS operation mode	Class B
Power Supply	3.8V DC by Battery

3.2. Internal Identification of EUT Used During the Test

EUT ID*	IMEI	HW Version	SW Version
EUT1	013498000104241	PIO	114
EUT2	013498000104647	PIO	114

*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	CAB60B0000C1	/
AE2	Charger 1	CBA3007AG0C1	/
AE3	Charger 2	CBA3007AG0C3	/

*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 UMTS Tri-band / GSM Quadband mobile phone with integrated antenna. It consists of normal options: Battery and Charger.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the Client.

Normal Accessory setting:

1. A microSD card was being installed in the device during the test;
2. Fully charged battery should be used during the test.

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, 2012
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	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247	2012

5. LABORATORY ENVIRONMENT

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Fully-anechoic chamber.

6. SUMMARY OF TEST RESULTS

6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15C	Sub-clause of IC	Verdict
Maximum Peak Output Power	15.247 (a)	/	**P**
Peak Power Spectral Density	15.247 (d)	/	**P**
Occupied 6dB Bandwidth	15.247 (d)	/	**P**
Band Edges Compliance	15.247 (b)	/	**P**
Transmitter Spurious Emission - Conducted	15.247	/	**P**
Transmitter Spurious Emission - Radiated	15.247, 15.205, 15.209	/	**P**
AC Powerline Conducted Emission	15.107, 15.207	/	**P**

Please refer to **ANNEX A** for detail.
The measurement is made according to KDB558074.

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.

6.3. Test Conditions

For this report, all the test cases are tested under normal temperature and normal voltage, and also under norm humidity, the specific condition is shown as follows:

Temperature	26℃
Voltage	3.8V (By battery)
Humidity	44%

7. TEST EQUIPMENTS UTILIZED

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	2013-07-19
2	Test Receiver	ESS	847151/015	Rohde & Schwarz	2013-10-30
3	LISN	ESH2-Z5	829991/012	Rohde & Schwarz	2013-08-12
4	Shielding Room	S81	/	ETS LingGern	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Test Receiver	ESI40	831564/002	Rohde & Schwarz	2013-08-11
2	BiLog Antenna	3142B	9908-1403	EMCO	2014-03-15
3	Dual-Ridge Waveguide Horn Antenna	3115	9906-5827	EMCO	2014-12-25
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2013-06-30
5	Semi-anechoic chamber	/	CT000332-1074	Frankonia German	/

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

A.1.1. Conducted Measurements

Connect the EUT to the test system as Fig.A.1.1.1 shows.
Set the EUT to the required work mode.
Set the EUT to the required channel.
Set the Vector Signal Analyzer and start measurement.
Record the values. Vector Signal Analyzer

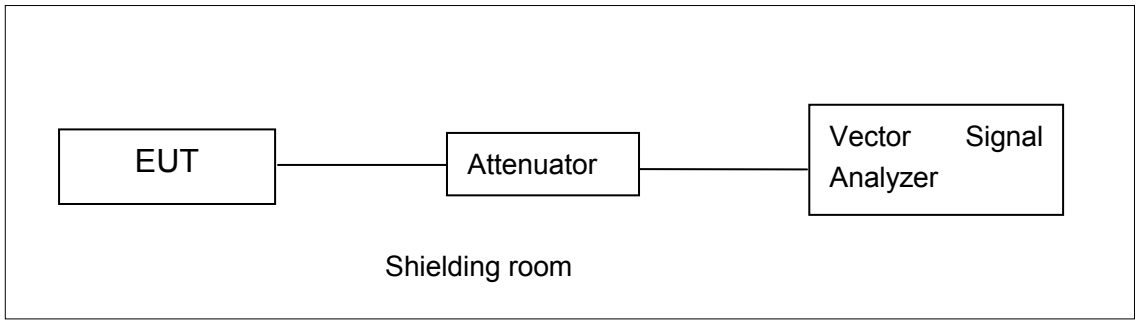


Fig.A.1.1.1: Test Setup Diagram for Conducted Measurements

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;

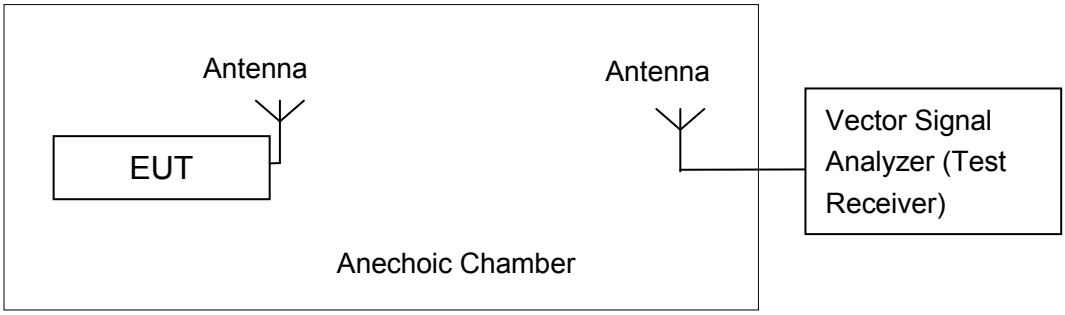


Fig.A.1.2.1: Test Setup Diagram for Conducted Measurements

A.2. Maximum Output Power

Measurement Limit and Method:

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

EUT ID: EUT2

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	18.08	/	/
	2	18.31	/	/
	5.5	19.75	/	/
	11	20.94	21.16	21.38
802.11g	6	20.55	/	/
	9	20.72	/	/
	12	20.89	/	/
	18	20.54	/	/
	24	21.10	/	/
	36	20.79	/	/
	48	20.90	/	/
	54	21.13	21.53	21.28

The data rate 11Mbps and 54Mbps are selected as worse condition, and the following cases are performed with this condition.

802.11n-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11n (20MHz)	MCS0	17.67	17.81	18.07
	MCS1	17.59	/	/
	MCS2	17.63	/	/
	MCS3	17.58	/	/
	MCS4	15.68	/	/
	MCS5	15.78	/	/
	MCS6	15.86	/	/
	MCS7	15.84	/	/

The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

802.11n-HT40 mode

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

Conclusion: PASS

A.2.2. Maximum Average Output Power-conducted

802.11b/g mode

Mode	Test Result (dBm)		
	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11b	14.07	14.45	14.18
802.11g	11.55	11.44	11.30

802.11n-HT20 mode

Mode	Test Result (dBm)		
	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch11)
802.11n (20MHz)	8.36	8.69	8.81

802.11n-HT40 mode

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

Conclusion: PASS

Measurement Uncertainty:

Measurement Uncertainty	0.75dB

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 KDB558074.

Modulation type and data rate tested:

802.11b	802.11g	802.11n
11Mbps(CCK)	54Mbps(OFDM)	HT20-MCS0(OFDM)

Measurement Results:

802.11b/g mode

Mode	Channel	Power Spectral Density (dBm/3 kHz)		Conclusion
802.11b	1	Fig.1	-8.88	P
	6	Fig.2	-8.40	P
	11	Fig.3	-8.35	P
802.11g	1	Fig.4	-14.22	P
	6	Fig.5	-13.48	P
	11	Fig.6	-13.49	P

802.11n-HT20 mode

Mode	Channel	Power Spectral Density (dBm/3 kHz)		Conclusion
802.11n (20MHz)	1	Fig.7	-16.65	P
	6	Fig.8	-17.29	P
	11	Fig.9	-16.77	P

802.11n-HT40 mode

Mode	Channel	Power Spectral Density (dBm/3 kHz)		Conclusion
802.11n (40MHz)	3	/	/	/
	6	/	/	/
	9	/	/	/

Conclusion: PASS

Measurement Uncertainty:

Measurement Uncertainty	0.75dB

Test graphs as below:

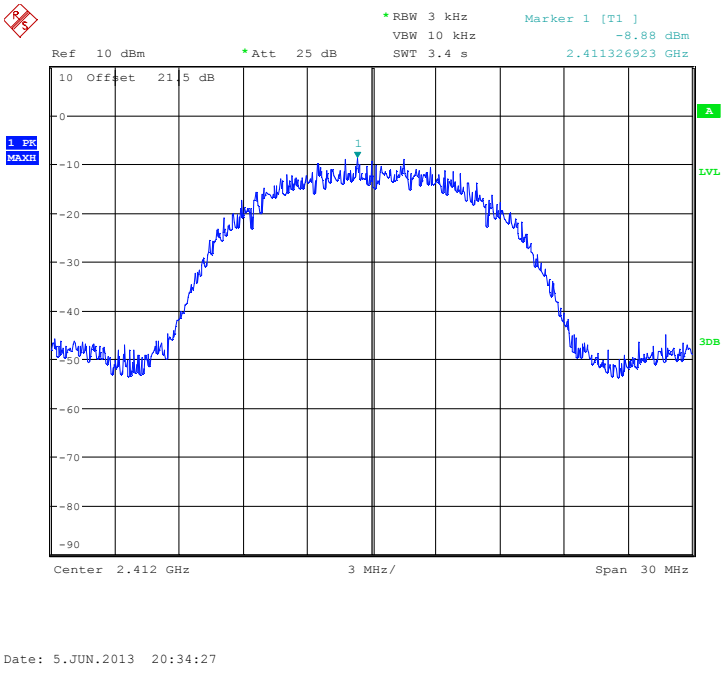


Fig. 1 Power Spectral Density (802.11b, Ch 1)

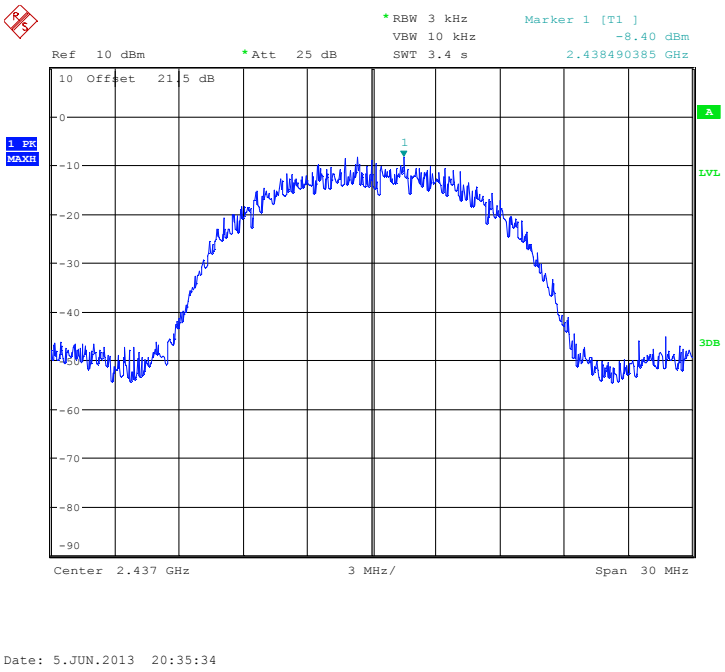


Fig. 2 Power Spectral Density (802.11b, Ch 6)

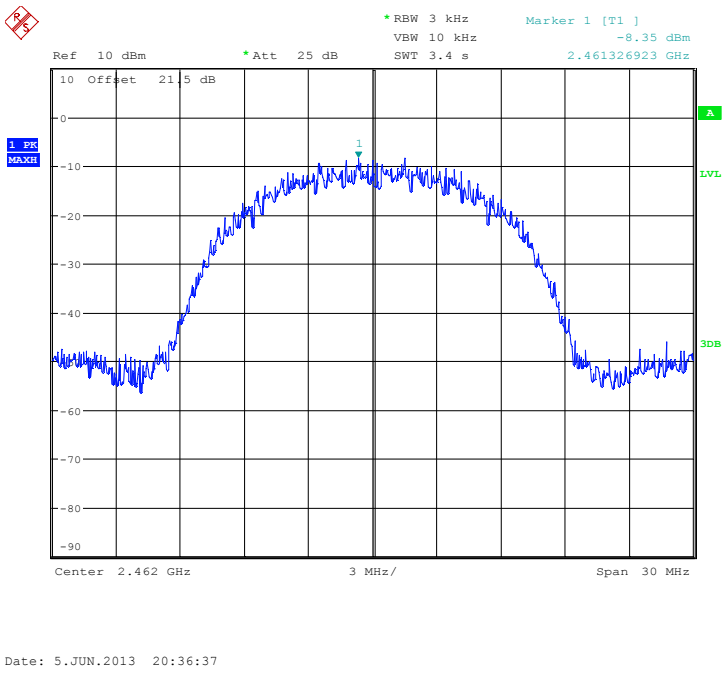


Fig. 3 Power Spectral Density (802.11b, Ch 11)

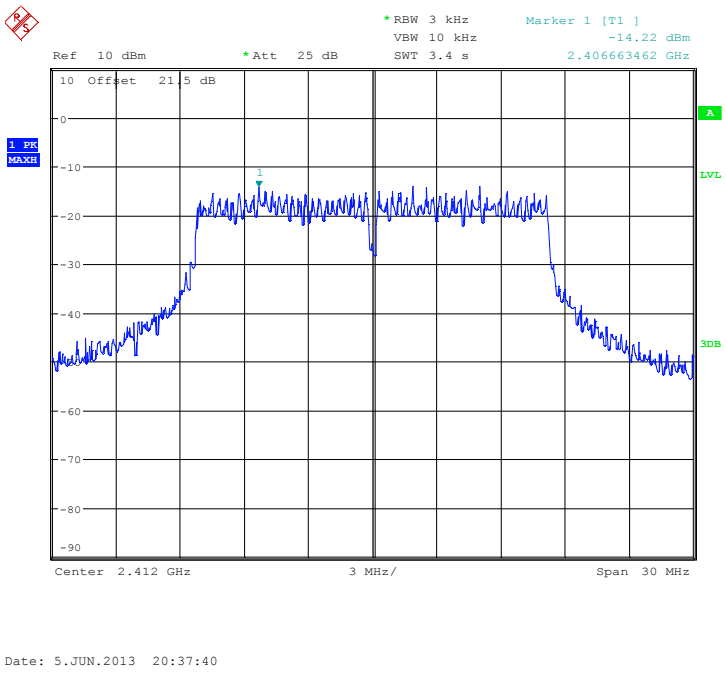


Fig. 4 Power Spectral Density (802.11g, Ch 1)

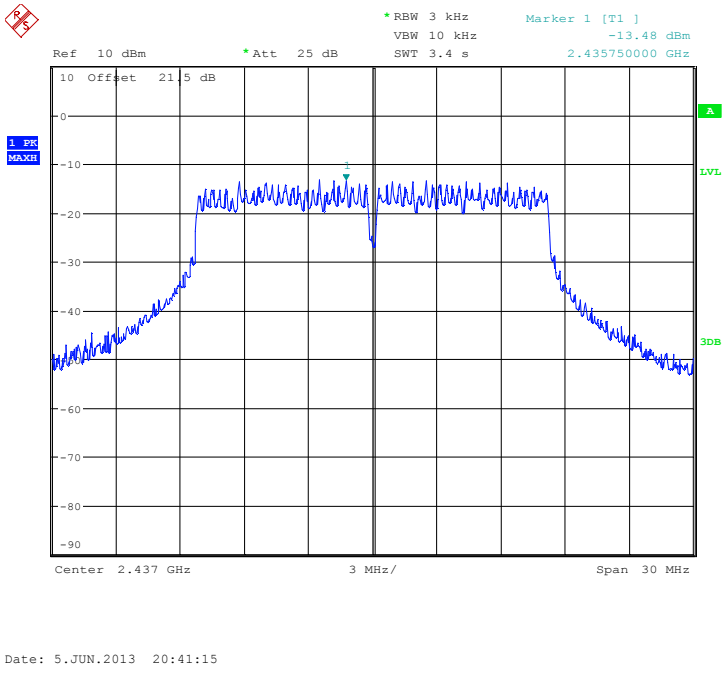


Fig. 5 Power Spectral Density (802.11g, Ch 6)

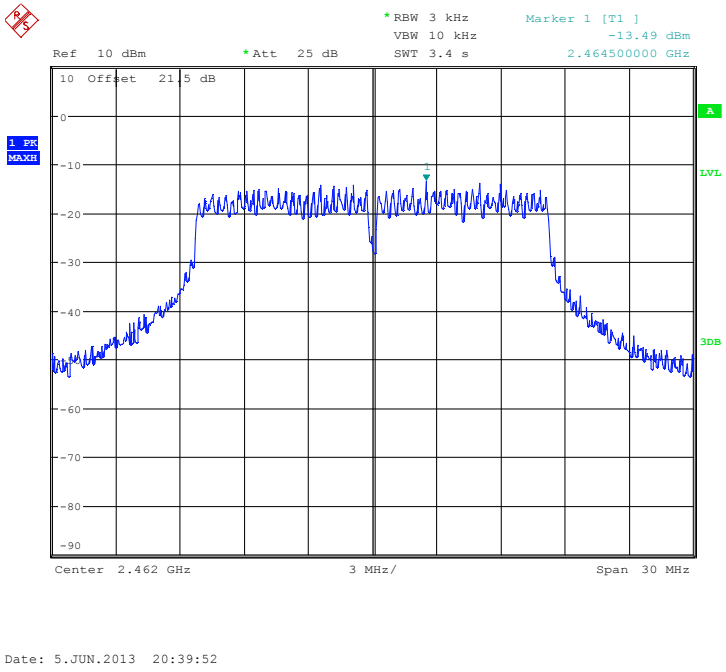


Fig. 6 Power Spectral Density (802.11g, Ch 11)

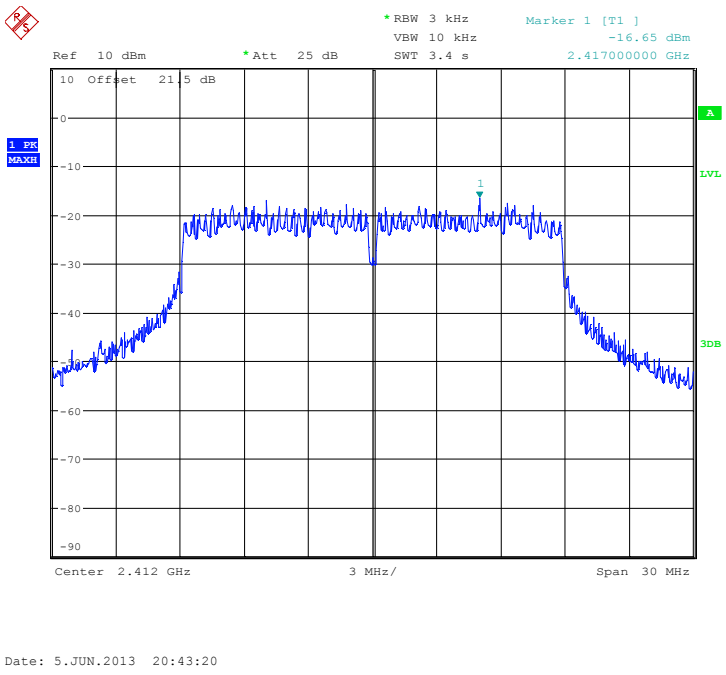


Fig. 7 Power Spectral Density (802.11n-20MHz, Ch 1)

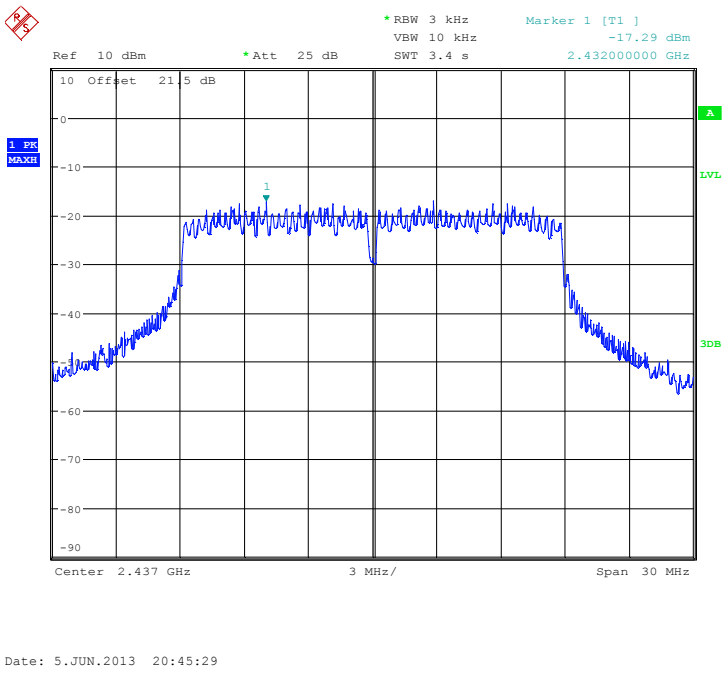


Fig. 8 Power Spectral Density (802.11n-20MHz, Ch 6)

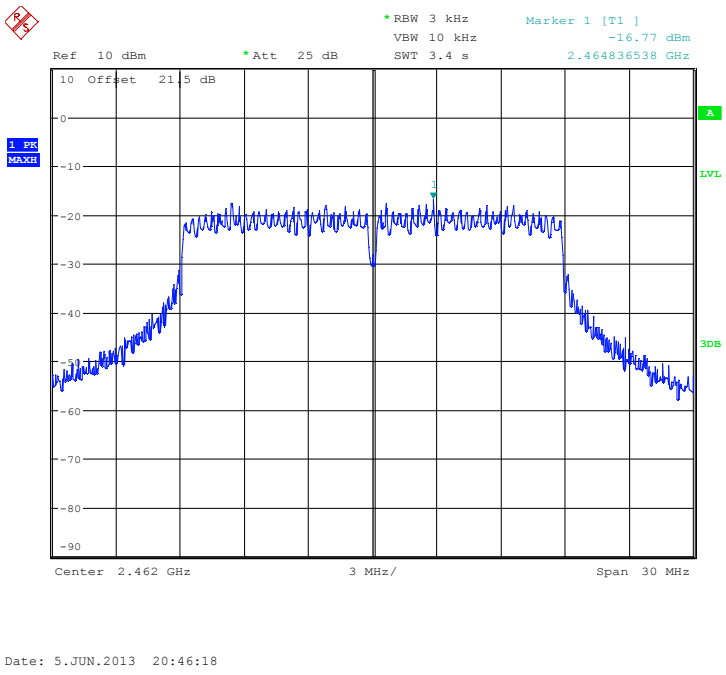


Fig. 9 Power Spectral Density (802.11n-20MHz, Ch 11)

A.4. Occupied 6dB Bandwidth

Measurement Limit:

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

The measurement is made according to KDB558074.

EUT ID: EUT2

Modulation type and data rate tested:

802.11b	802.11g	802.11n
11Mbps(CCK)	54Mbps(OFDM)	HT20-MCS0(OFDM)

Measurement Result:

802.11b/g mode

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
802.11b	1	Fig.10	10468	P
	6	Fig.11	10449	P
	11	Fig.12	11026	P
802.11g	1	Fig.13	16538	P
	6	Fig.14	16538	P
	11	Fig.15	16538	P

802.11n-HT20 mode

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
802.11n (20MHz)	1	Fig.16	17564	P
	6	Fig.17	17372	P
	11	Fig.18	16859	P

802.11n-HT40 mode

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
802.11n (40MHz)	3	/	/	/
	6	/	/	/
	9	/	/	/

Conclusion: PASS

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz

Test graphs as below:

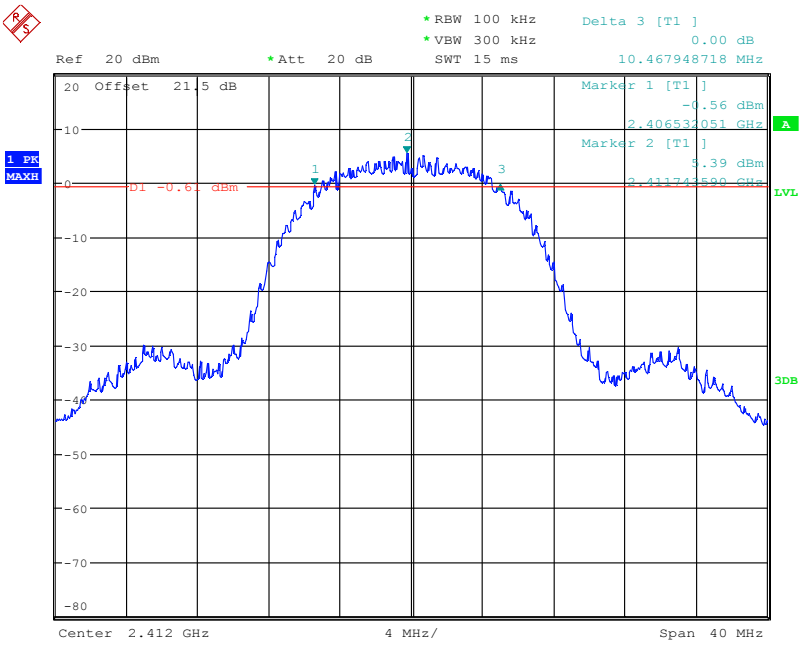


Fig. 10 Occupied 6dB Bandwidth (802.11b, Ch 1)

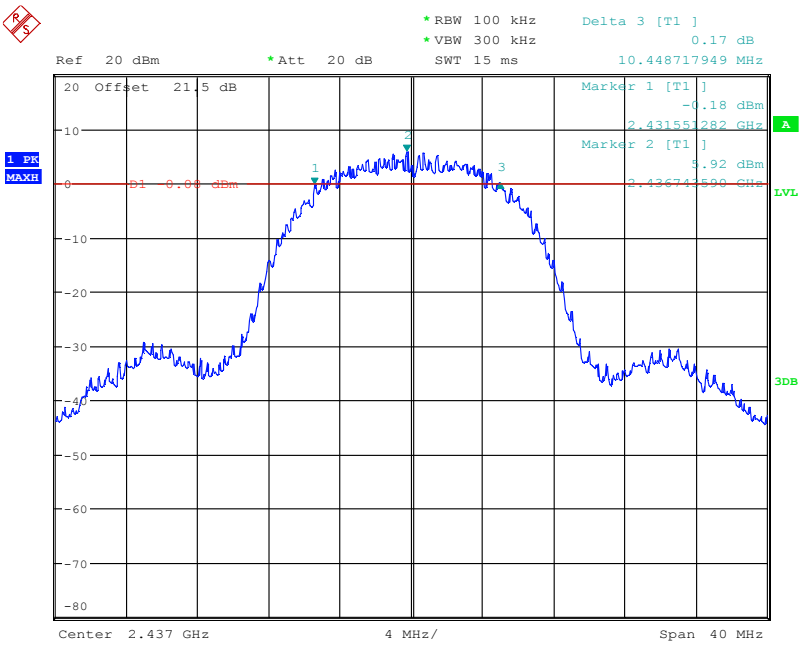


Fig. 11 Occupied 6dB Bandwidth (802.11b, Ch 6)

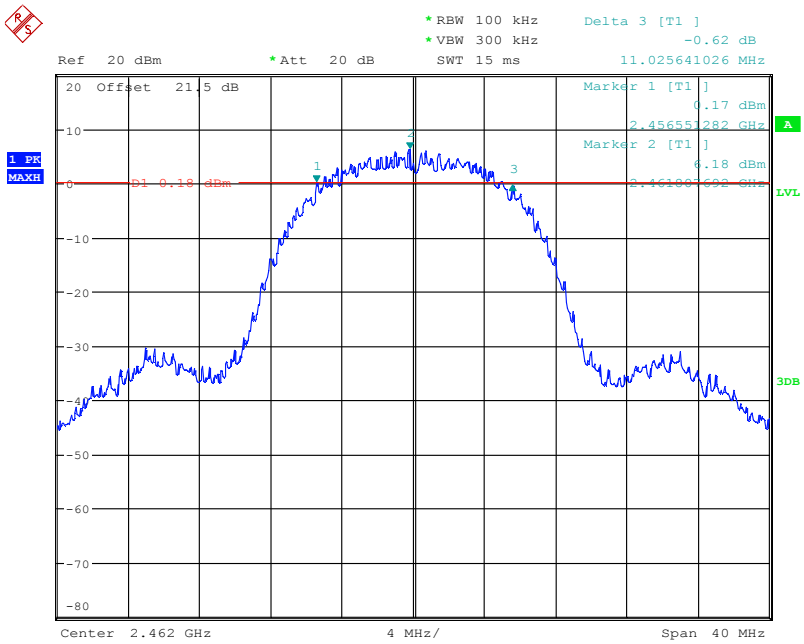


Fig. 12 Occupied 6dB Bandwidth (802.11b, Ch 11)

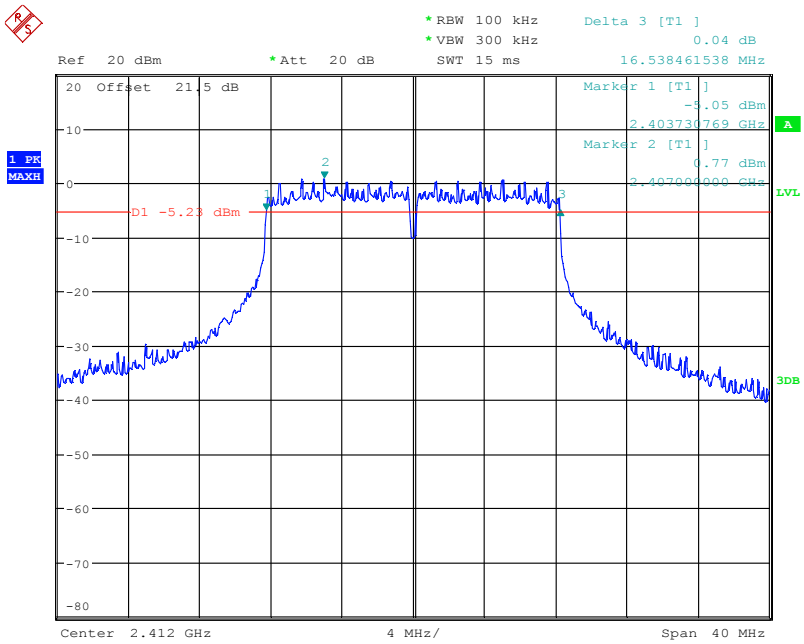


Fig. 13 Occupied 6dB Bandwidth (802.11g, Ch 1)

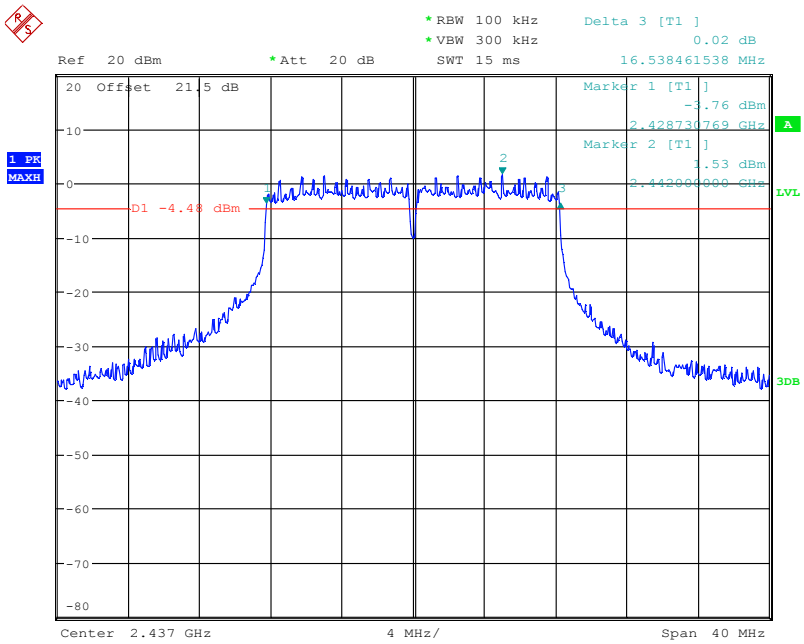


Fig. 14 Occupied 6dB Bandwidth (802.11g, Ch 6)

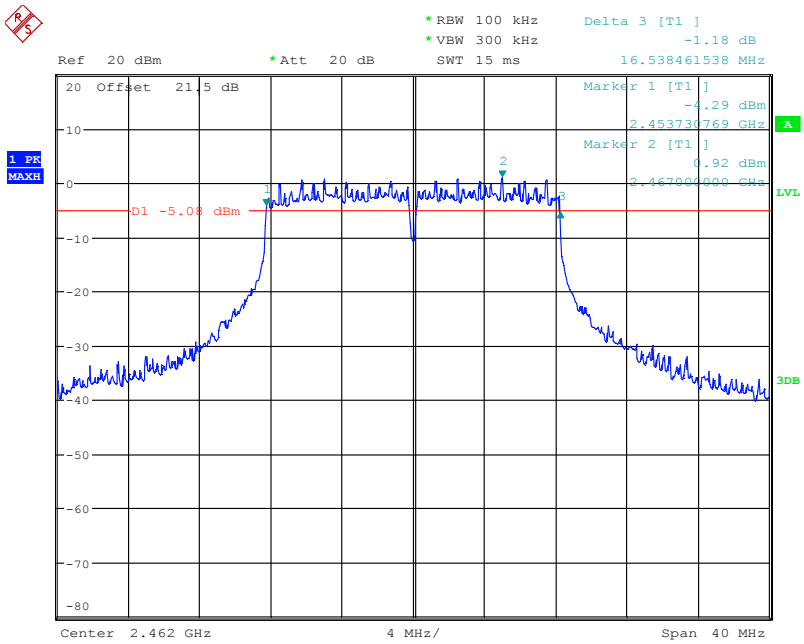


Fig. 15 Occupied 6dB Bandwidth (802.11g, Ch 11)

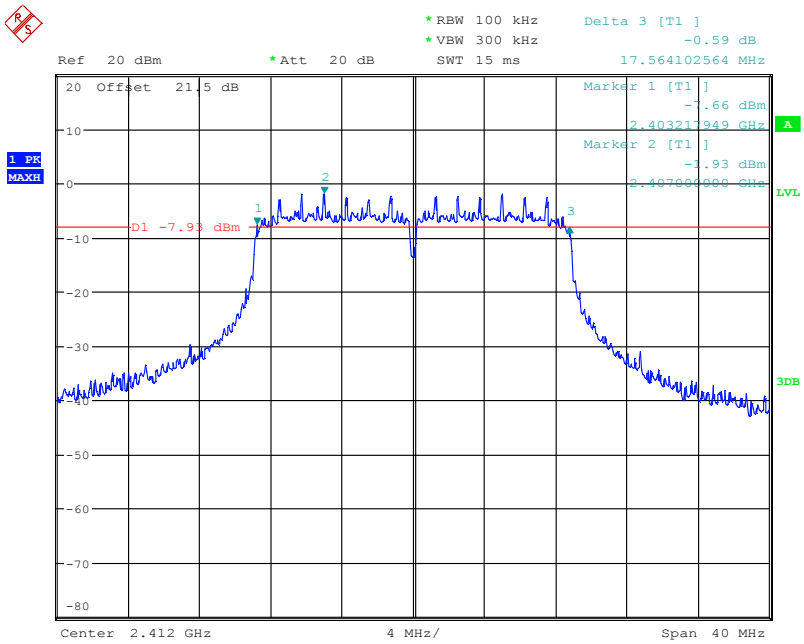


Fig. 16 Occupied 6dB Bandwidth (802.11n-20MHz, Ch 1)

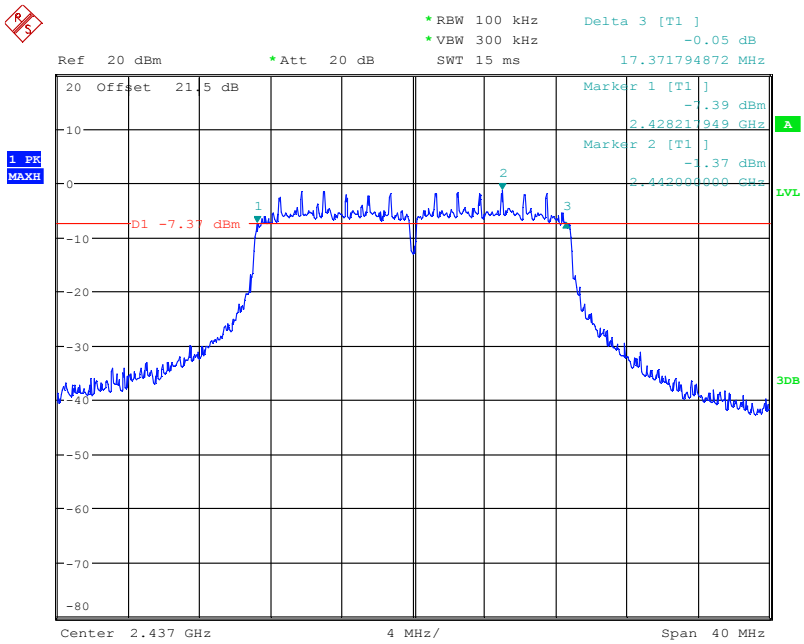


Fig. 17 Occupied 6dB Bandwidth (802.11n-20MHz, Ch 6)

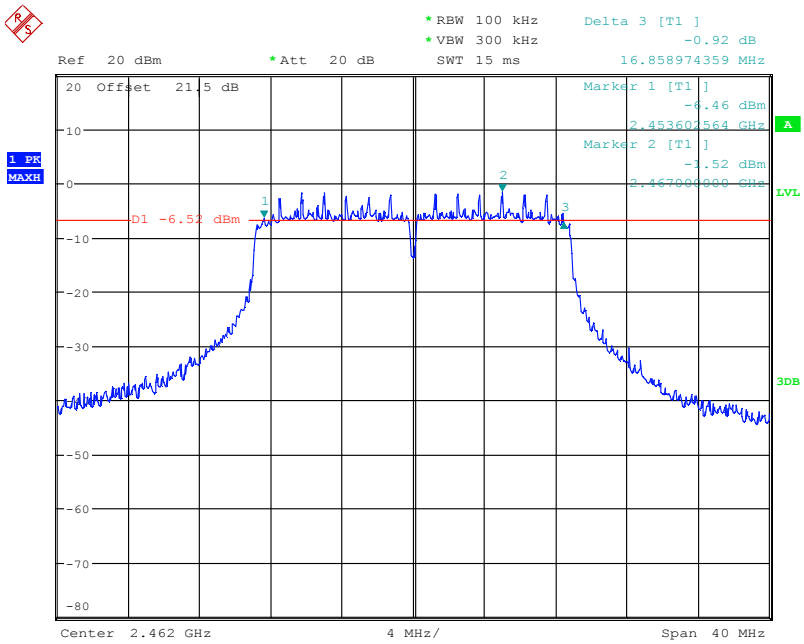


Fig. 18 Occupied 6dB Bandwidth (802.11n-20MHz, Ch 11)

A.5. Band Edges Compliance

Measurement Limit:

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

The measurement is made according to KDB558074.

EUT ID: EUT2

Modulation type and data rate tested:

802.11b	802.11g	802.11n
11Mbps(CCK)	54Mbps(OFDM)	HT20-MCS0(OFDM)

Measurement Result:

802.11b/g mode

Mode	Channel	Test Results	Conclusion
802.11b	1	Fig.19	P
	11	Fig.20	P
802.11g	1	Fig.21	P
	11	Fig.22	P

802.11n-HT20 mode

Mode	Channel	Test Results	Conclusion
802.11n (20MHz)	1	Fig.23	P
	11	Fig.24	P

802.11n-HT40 mode

Mode	Channel	Test Results	Conclusion
802.11n (40MHz)	3	/	/
	9	/	/

Conclusion: PASS

Measurement Uncertainty:

Measurement Uncertainty	0.75dB

Test graphs as below:

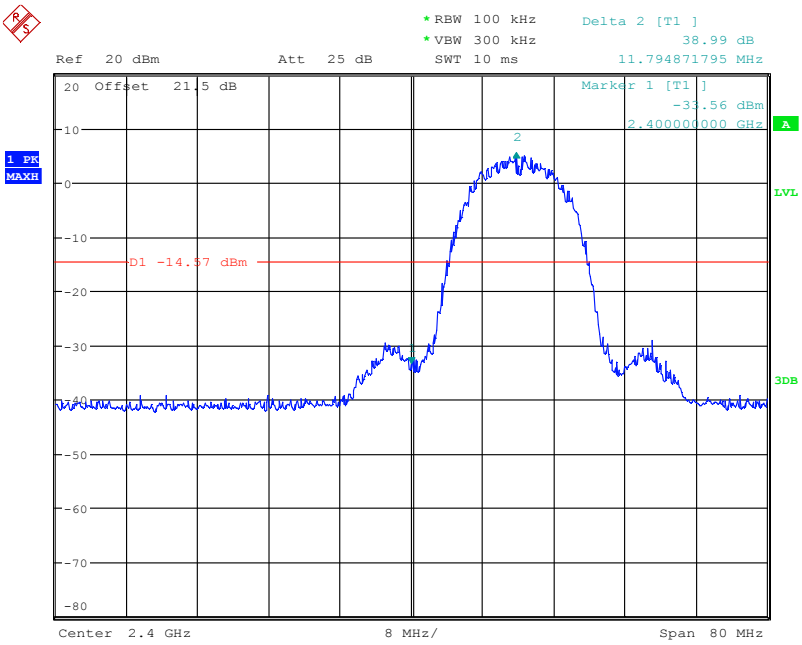


Fig. 19 Band Edges (802.11b, Ch 1)

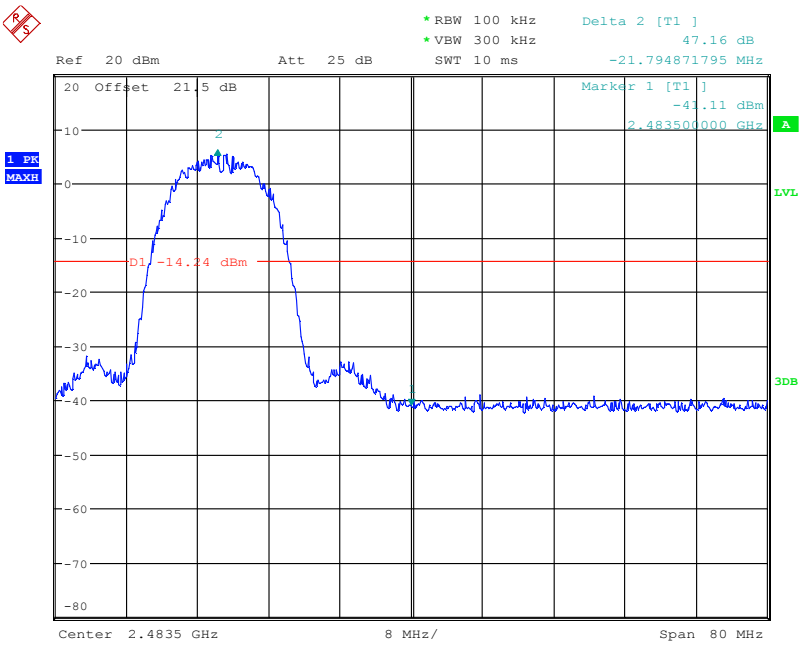


Fig. 20 Band Edges (802.11b, Ch 11)

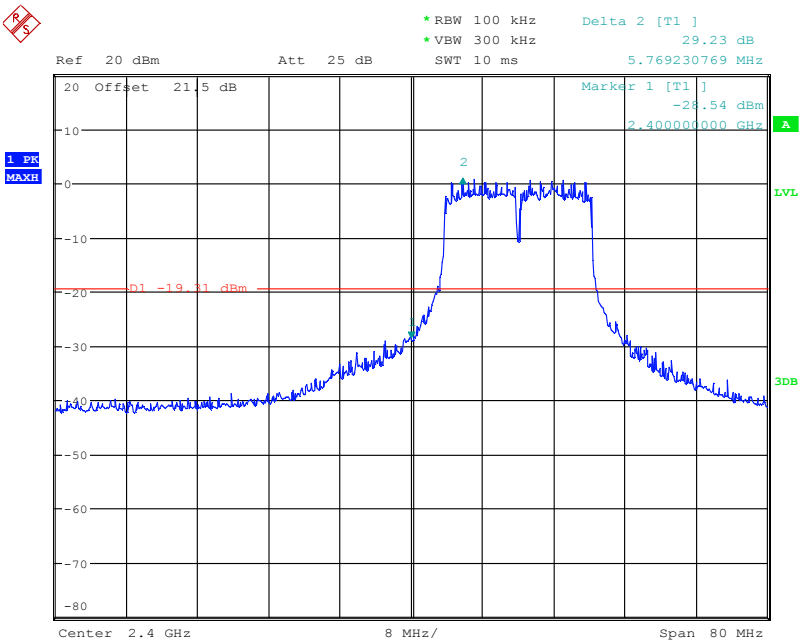


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Fig. 21 Band Edges (802.11g, Ch 1)

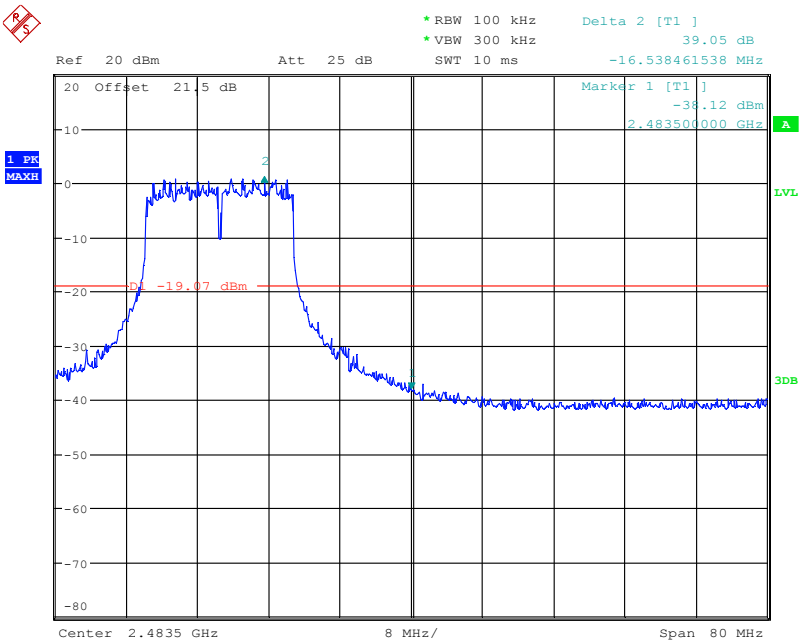

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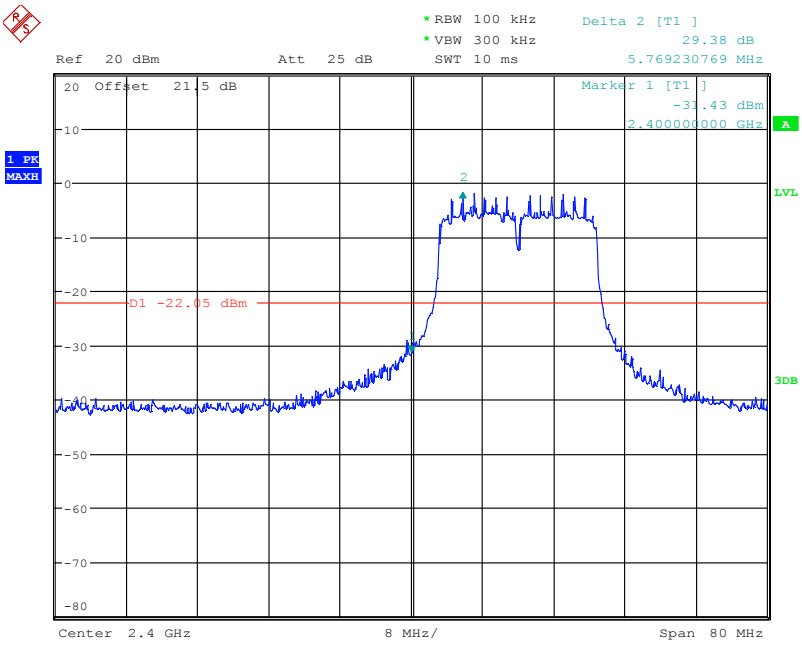
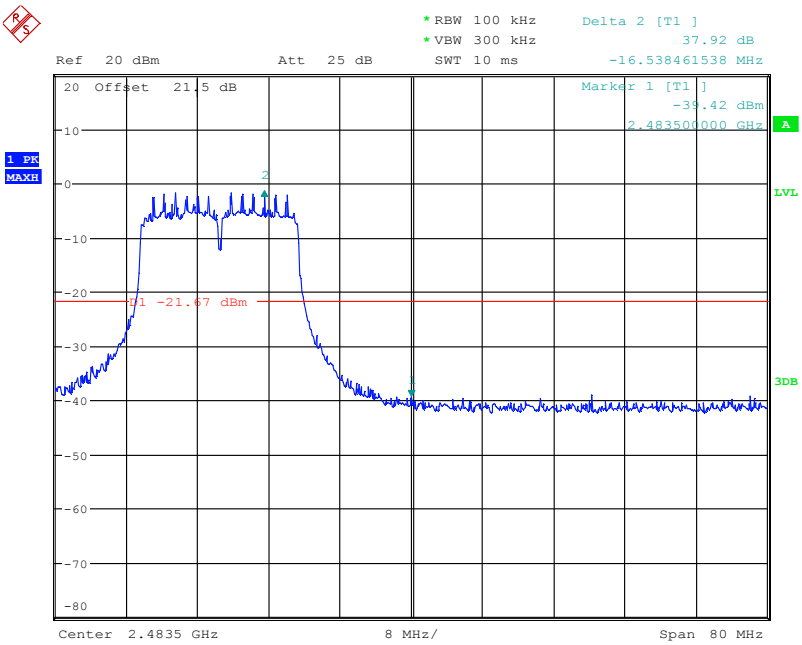
Fig. 22 Band Edges (802.11g, Ch 11)



Date: 23.APR.2013 18:02:56

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



Date: 23.APR.2013 18:03:51

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

A.6. Transmitter Spurious Emission

A.6.1 Transmitter Spurious Emission - Conducted

Measurement Limit:

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

The measurement is made according to KDB558074.

EUT ID: EUT2

Modulation type and data rate tested:

802.11b	802.11g	802.11n
11Mbps(CCK)	54Mbps(OFDM)	HT20-MCS0(OFDM)

Measurement Results:

802.11b/g mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	2.412 GHz	Fig.25	P
		30 MHz ~ 1 GHz	Fig.26	P
		1 GHz ~ 2.5 GHz	Fig.27	P
		2.5 GHz ~ 7.5 GHz	Fig.28	P
		7.5 GHz ~ 10 GHz	Fig.29	P
		10 GHz ~ 15 GHz	Fig.30	P
		15 GHz ~ 20 GHz	Fig.31	P
		20 GHz ~ 26 GHz	Fig.32	P
	6	2.437 GHz	Fig.33	P
		30 MHz ~ 1 GHz	Fig.34	P
		1 GHz ~ 2.5 GHz	Fig.35	P
		2.5 GHz ~ 7.5 GHz	Fig.36	P
		7.5 GHz ~ 10 GHz	Fig.37	P
		10 GHz ~ 15 GHz	Fig.38	P
		15 GHz ~ 20 GHz	Fig.39	P
		20 GHz ~ 26 GHz	Fig.40	P
	11	2.462 GHz	Fig.41	P
		30 MHz ~ 1 GHz	Fig.42	P
		1 GHz ~ 2.5 GHz	Fig.43	P
		2.5 GHz ~ 7.5 GHz	Fig.44	P
		7.5 GHz ~ 10 GHz	Fig.45	P
		10 GHz ~ 15 GHz	Fig.46	P
		15 GHz ~ 20 GHz	Fig.47	P
		20 GHz ~ 26 GHz	Fig.48	P
802.11g	1	2.412 GHz	Fig.49	P
		30 MHz ~ 1 GHz	Fig.50	P

		1 GHz ~ 2.5 GHz	Fig.51	P
		2.5 GHz ~ 7.5 GHz	Fig.52	P
		7.5 GHz ~ 10 GHz	Fig.53	P
		10 GHz ~ 15 GHz	Fig.54	P
		15 GHz ~ 20 GHz	Fig.55	P
		20 GHz ~ 26 GHz	Fig.56	P
	6	2.437 GHz	Fig.57	P
		30 MHz ~ 1 GHz	Fig.58	P
		1 GHz ~ 2.5 GHz	Fig.59	P
		2.5 GHz ~ 7.5 GHz	Fig.60	P
		7.5 GHz ~ 10 GHz	Fig.61	P
		10 GHz ~ 15 GHz	Fig.62	P
		15 GHz ~ 20 GHz	Fig.63	P
		20 GHz ~ 26 GHz	Fig.64	P
	11	2.462 GHz	Fig.65	P
		30 MHz ~ 1 GHz	Fig.66	P
		1 GHz ~ 2.5 GHz	Fig.67	P
		2.5 GHz ~ 7.5 GHz	Fig.68	P
		7.5 GHz ~ 10 GHz	Fig.69	P
		10 GHz ~ 15 GHz	Fig.70	P
		15 GHz ~ 20 GHz	Fig.71	P
		20 GHz ~ 26 GHz	Fig.72	P

802.11n-HT20 mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n (20MHz)	1	2.412 GHz	Fig.73	P
		30 MHz ~ 1 GHz	Fig.74	P
		1 GHz ~ 2.5 GHz	Fig.75	P
		2.5 GHz ~ 7.5 GHz	Fig.76	P
		7.5 GHz ~ 10 GHz	Fig.77	P
		10 GHz ~ 15 GHz	Fig.78	P
		15 GHz ~ 20 GHz	Fig.79	P
		20 GHz ~ 26 GHz	Fig.80	P
	6	2.437 GHz	Fig.81	P
		30 MHz ~ 1 GHz	Fig.82	P
		1 GHz ~ 2.5 GHz	Fig.83	P
		2.5 GHz ~ 7.5 GHz	Fig.84	P
		7.5 GHz ~ 10 GHz	Fig.85	P
		10 GHz ~ 15 GHz	Fig.86	P
		15 GHz ~ 20 GHz	Fig.87	P
		20 GHz ~ 26 GHz	Fig.88	P
	11	2.462 GHz	Fig.89	P
		30 MHz ~ 1 GHz	Fig.90	P
		1 GHz ~ 2.5 GHz	Fig.91	P
		2.5 GHz ~ 7.5 GHz	Fig.92	P
		7.5 GHz ~ 10 GHz	Fig.93	P
		10 GHz ~ 15 GHz	Fig.94	P
		15 GHz ~ 20 GHz	Fig.95	P
		20 GHz ~ 26 GHz	Fig.96	P

802.11n-HT40 mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n (40MHz)	3	2.422 GHz	/	/
		30 MHz ~ 1 GHz	/	/
		1 GHz ~ 2.5 GHz	/	/
		2.5 GHz ~ 7.5 GHz	/	/
		7.5 GHz ~ 10 GHz	/	/
		10 GHz ~ 15 GHz	/	/
		15 GHz ~ 20 GHz	/	/
		20 GHz ~ 26 GHz	/	/
	6	2.437 GHz	/	/
		30 MHz ~ 1 GHz	/	/
		1 GHz ~ 2.5 GHz	/	/
		2.5 GHz ~ 7.5 GHz	/	/
		7.5 GHz ~ 10 GHz	/	/
		10 GHz ~ 15 GHz	/	/

		15 GHz ~ 20 GHz	/	/
		20 GHz ~ 26 GHz	/	/
	9	2.452 GHz	/	/
		30 MHz ~ 1 GHz	/	/
		1 GHz ~ 2.5 GHz	/	/
		2.5 GHz ~ 7.5 GHz	/	/
		7.5 GHz ~ 10 GHz	/	/
		10 GHz ~ 15 GHz	/	/
		15 GHz ~ 20 GHz	/	/
		20 GHz ~ 26 GHz	/	/

Conclusion: PASS

Measurement Uncertainty:

Frequency Range	Uncertainty(dB)
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

Test graphs as below:

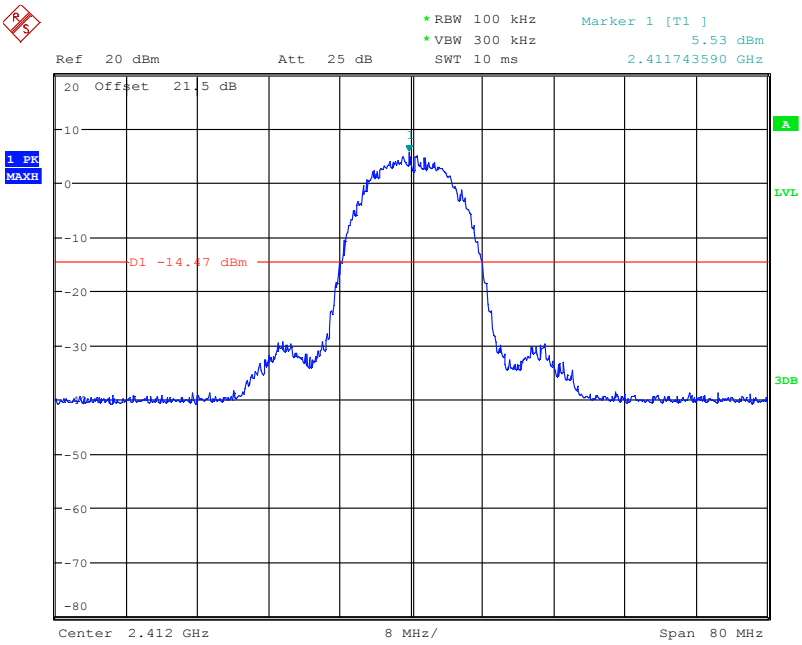


Fig. 25 Conducted Spurious Emission (802.11b, Ch1, Center Frequency)

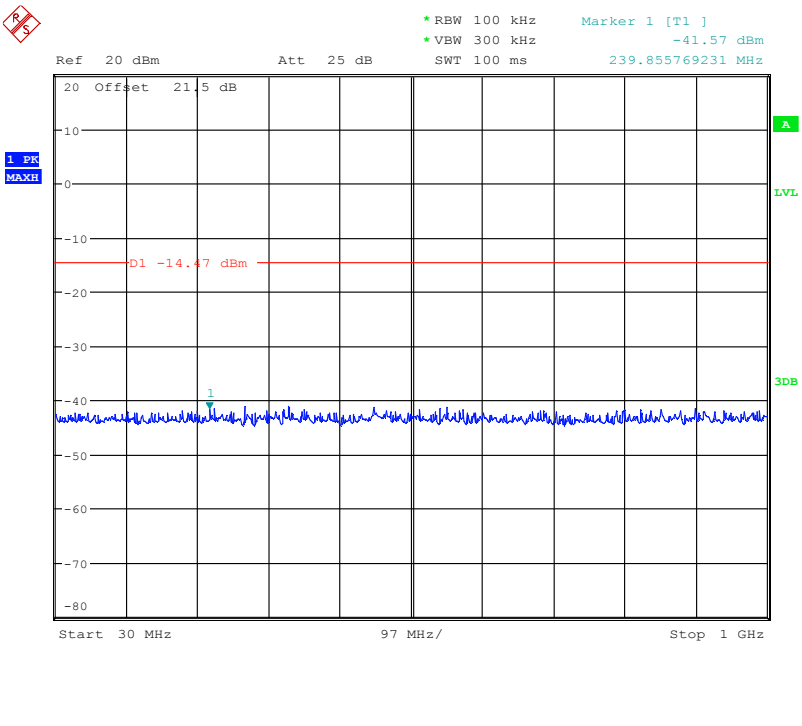


Fig. 26 Conducted Spurious Emission (802.11b, Ch1, 30 MHz-1 GHz)

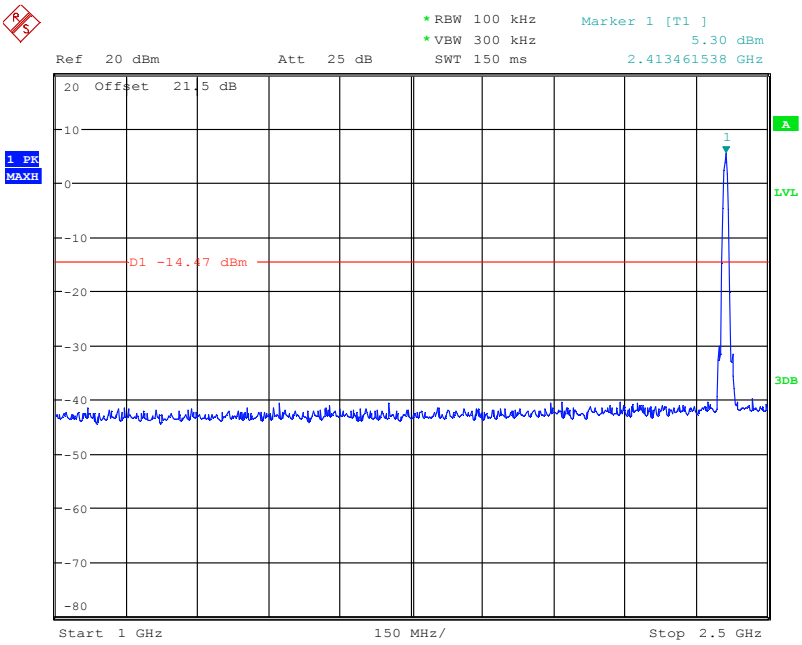


Fig. 27 Conducted Spurious Emission (802.11b, Ch1, 1 GHz-2.5 GHz)

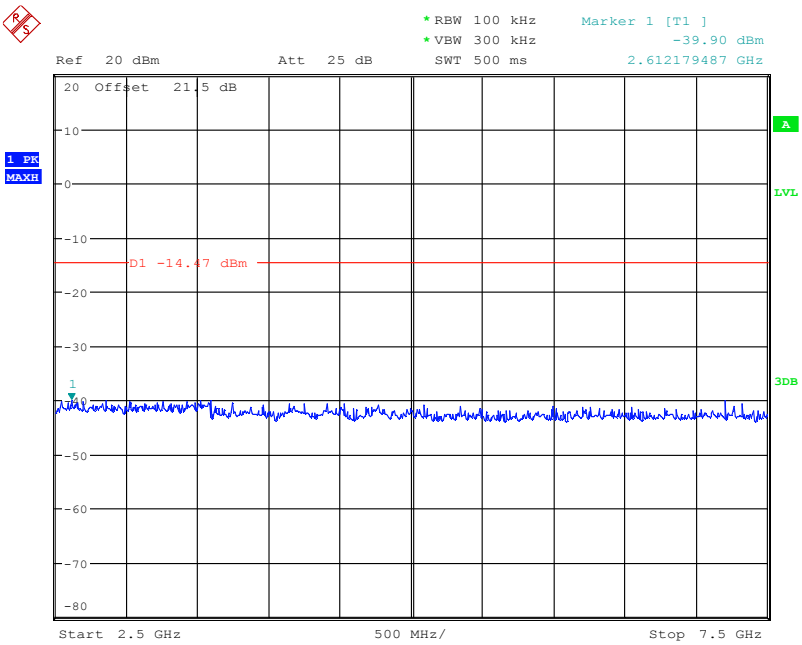


Fig. 28 Conducted Spurious Emission (802.11b, Ch1, 2.5 GHz-7.5 GHz)

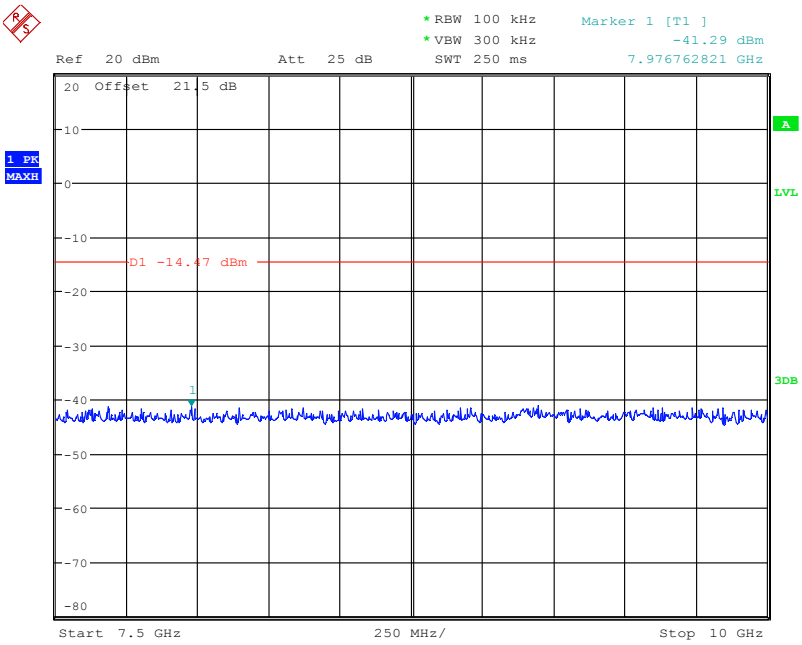


Fig. 29 Conducted Spurious Emission (802.11b, Ch1, 7.5 GHz-10 GHz)

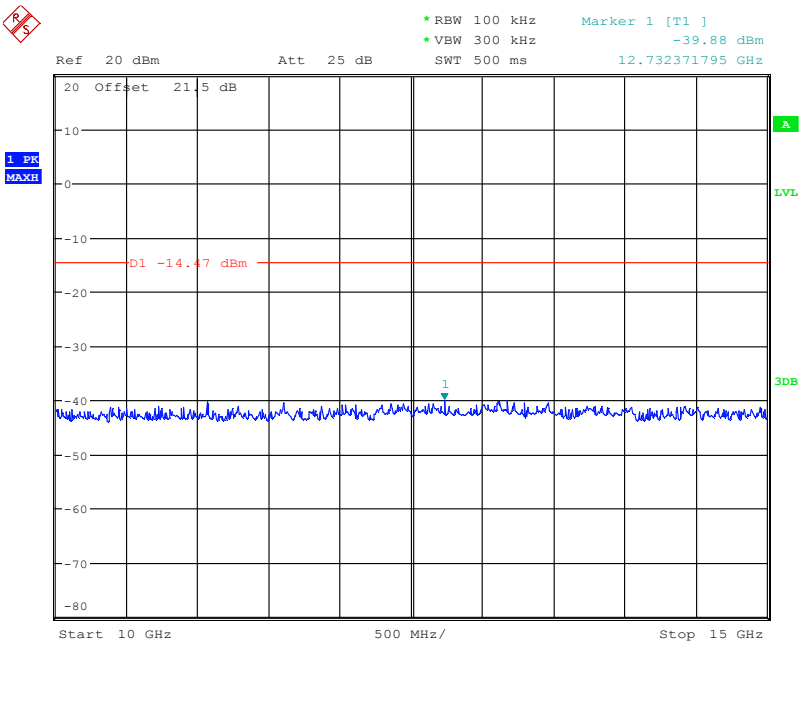


Fig. 30 Conducted Spurious Emission (802.11b, Ch1, 10 GHz-15 GHz)

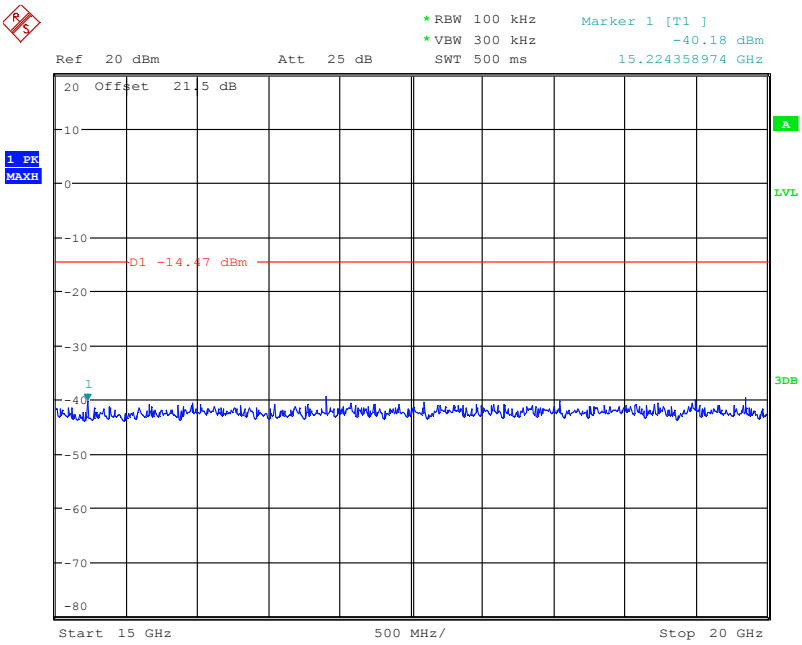


Fig. 31 Conducted Spurious Emission (802.11b, Ch1, 15 GHz-20 GHz)

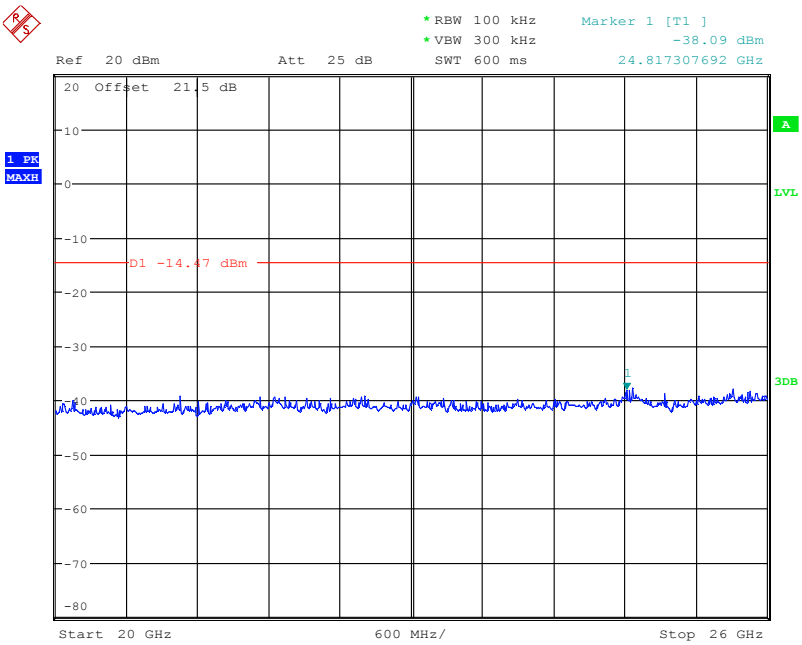


Fig. 32 Conducted Spurious Emission (802.11b, Ch1, 20 GHz-26 GHz)

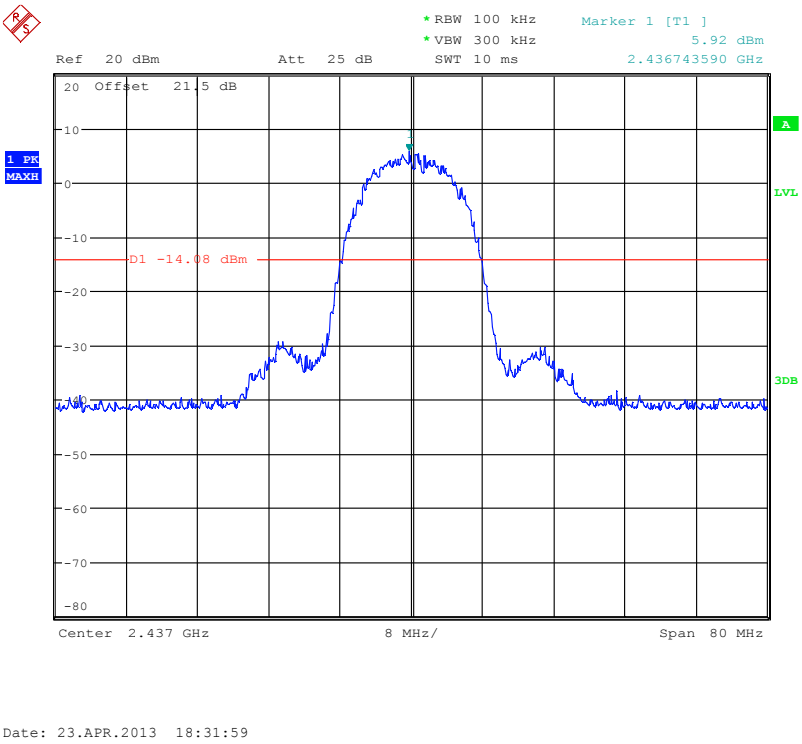


Fig. 33 Conducted Spurious Emission (802.11b, Ch6, Center Frequency)

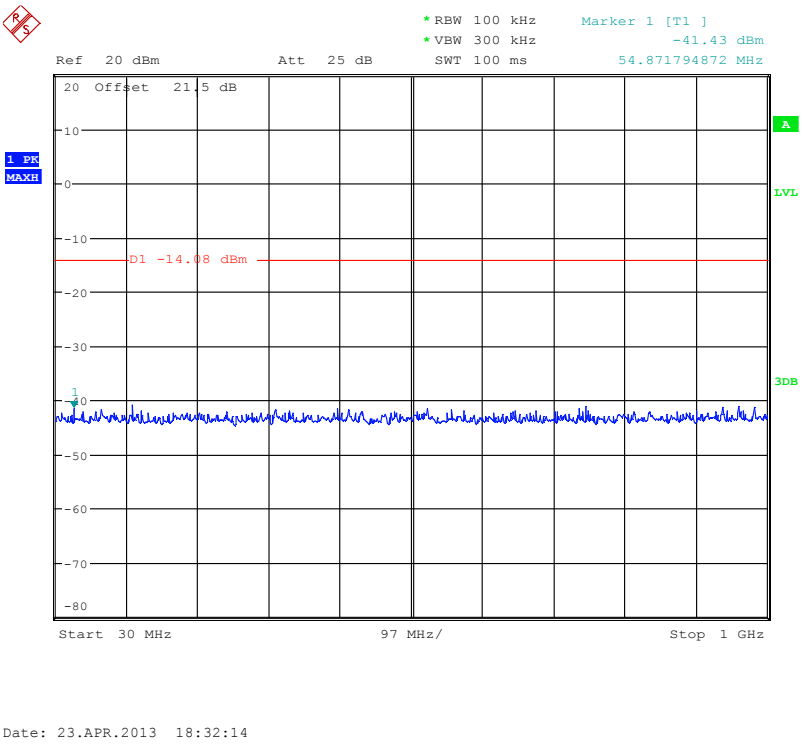


Fig. 34 Conducted Spurious Emission (802.11b, Ch6, 30 MHz-1 GHz)

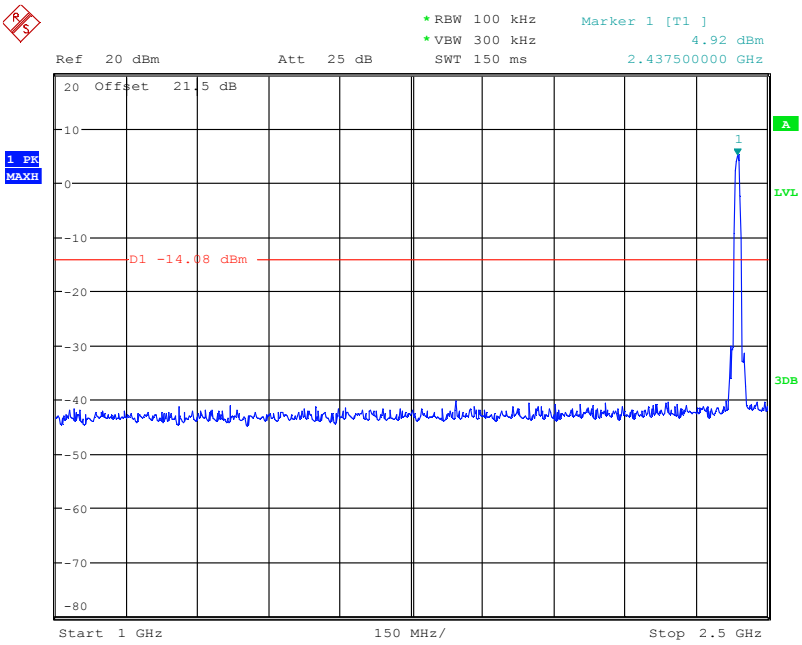


Fig. 35 Conducted Spurious Emission (802.11b, Ch6, 1 GHz-2.5 GHz)

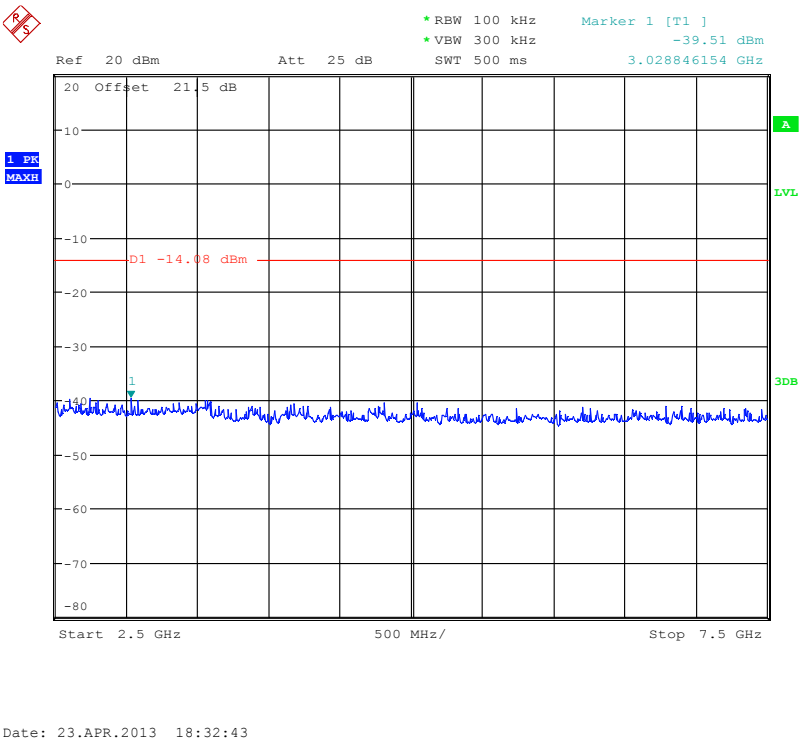


Fig. 36 Conducted Spurious Emission (802.11b, Ch6, 2.5 GHz-7.5 GHz)

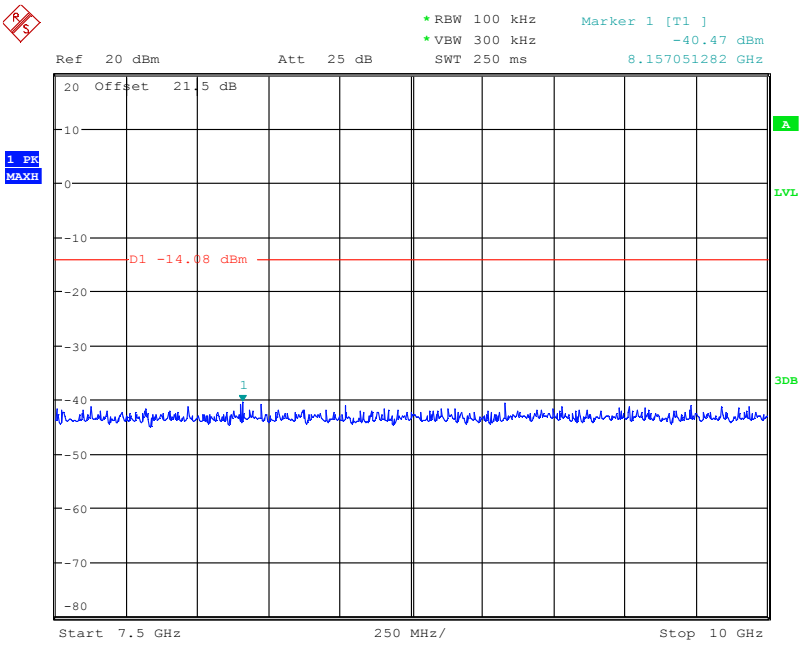


Fig. 37 Conducted Spurious Emission (802.11b, Ch6, 7.5 GHz-10 GHz)

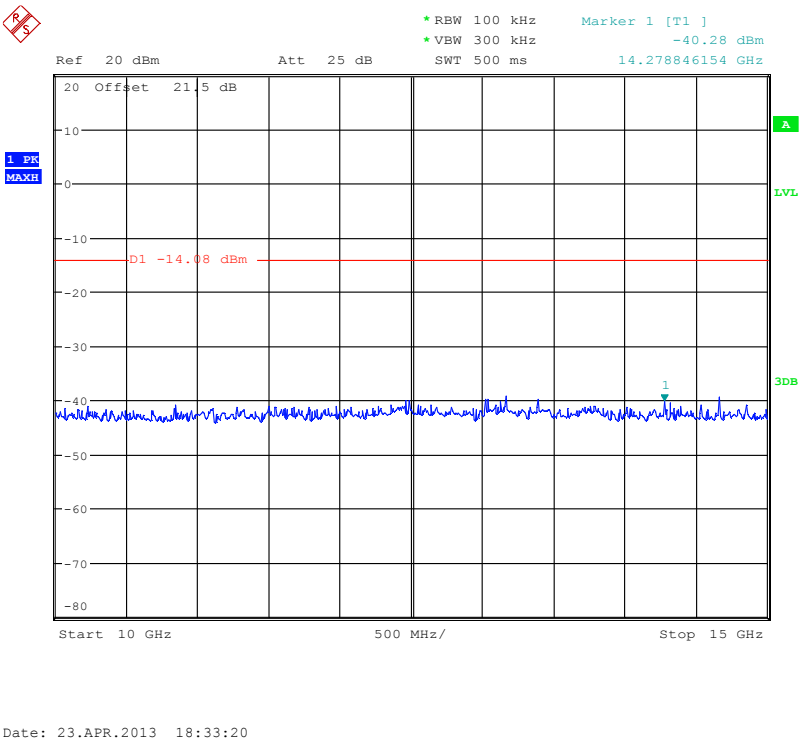


Fig. 38 Conducted Spurious Emission (802.11b, Ch6, 10 GHz-15 GHz)

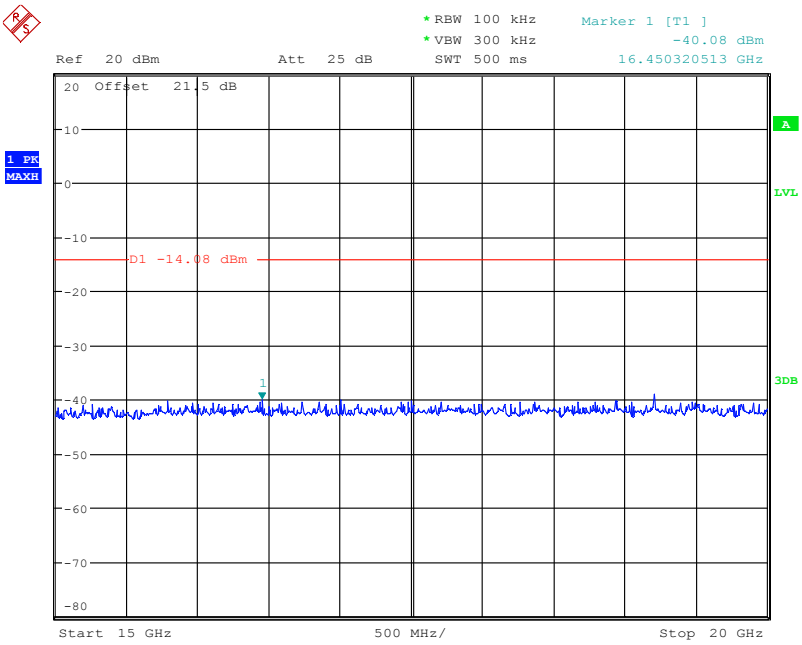


Fig. 39 Conducted Spurious Emission (802.11b, Ch6, 15 GHz-20 GHz)

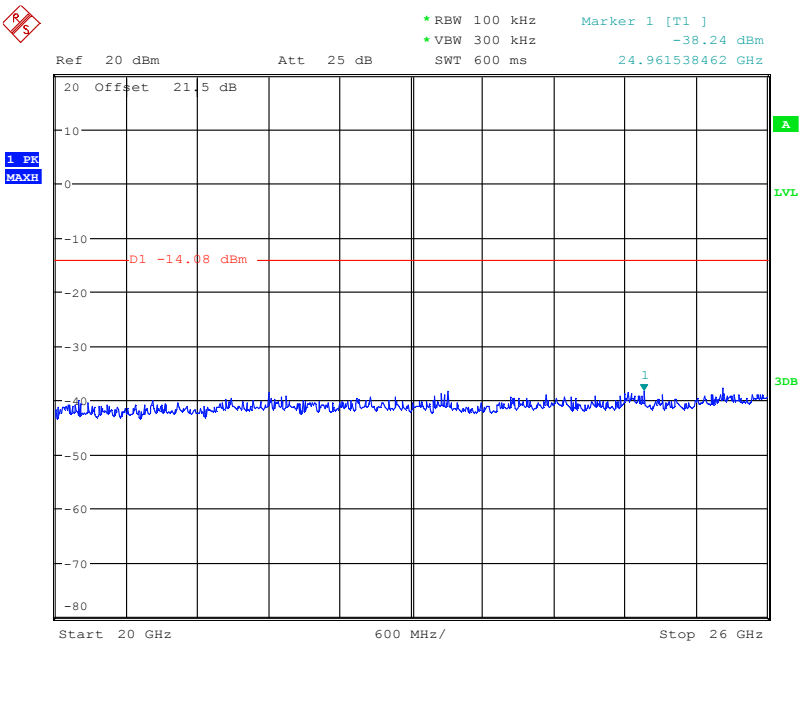


Fig. 40 Conducted Spurious Emission (802.11b, Ch6, 20 GHz-26 GHz)

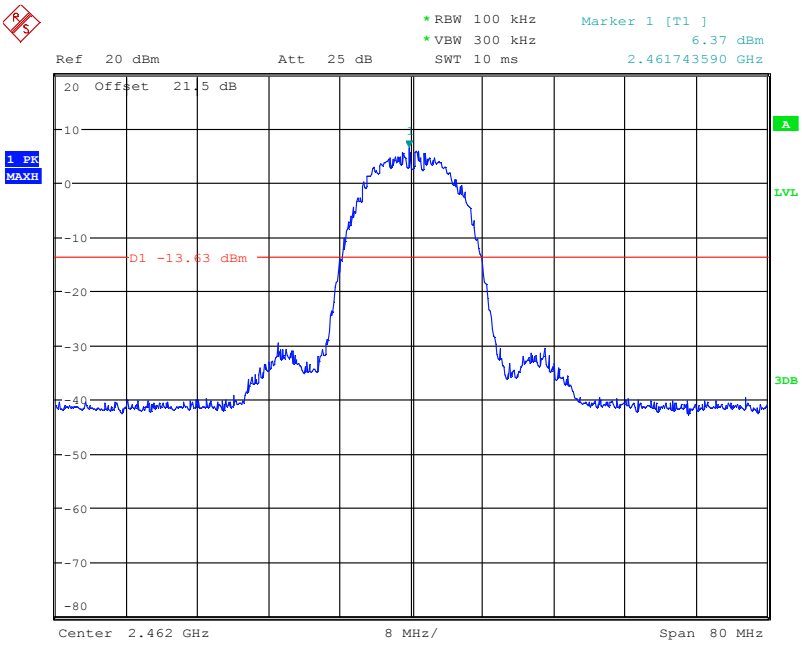


Fig. 41 Conducted Spurious Emission (802.11b, Ch11, Center Frequency)

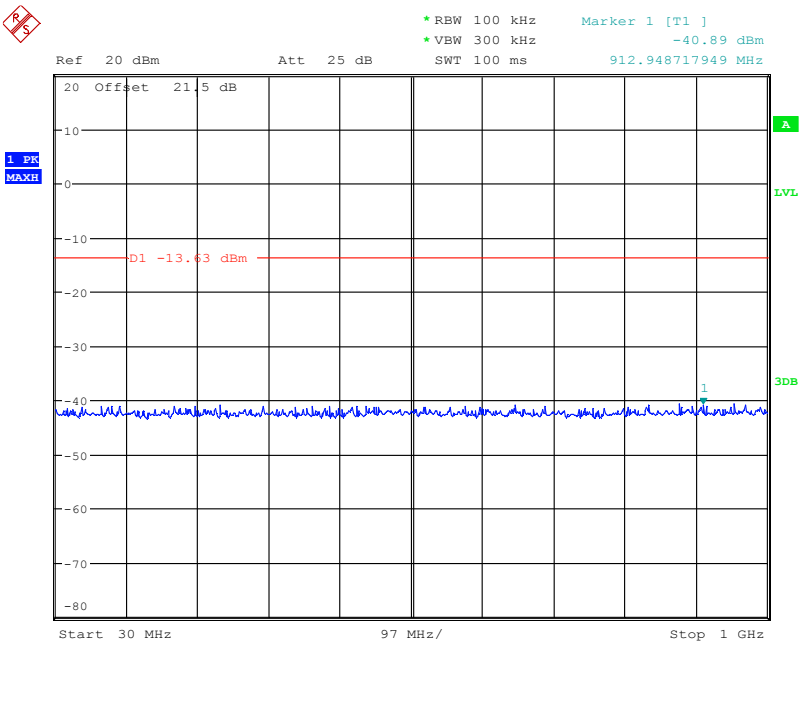


Fig. 42 Conducted Spurious Emission (802.11b, Ch11, 30 MHz-1 GHz)

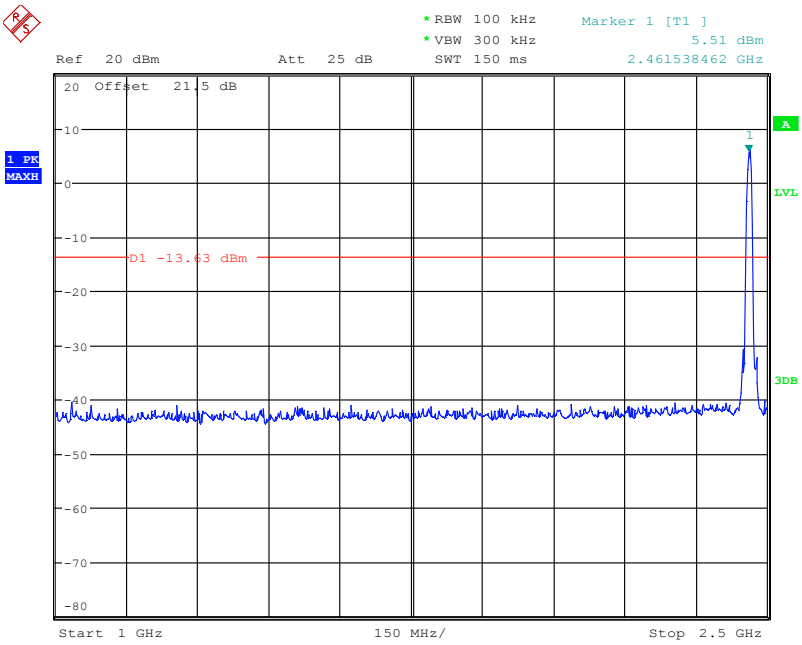


Fig. 43 Conducted Spurious Emission (802.11b, Ch11, 1 GHz-2.5 GHz)

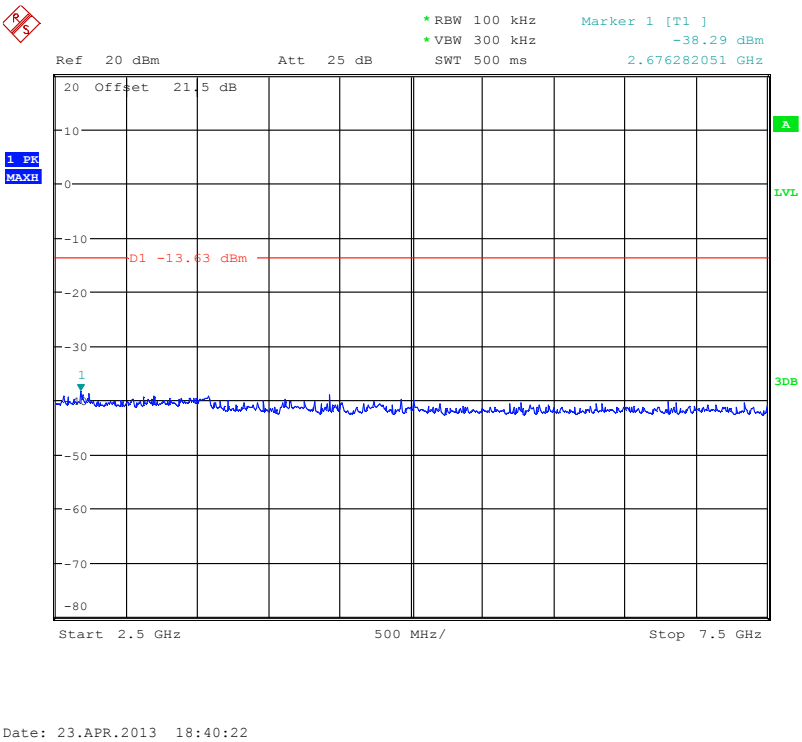


Fig. 44 Conducted Spurious Emission (802.11b, Ch11, 2.5 GHz-7.5 GHz)

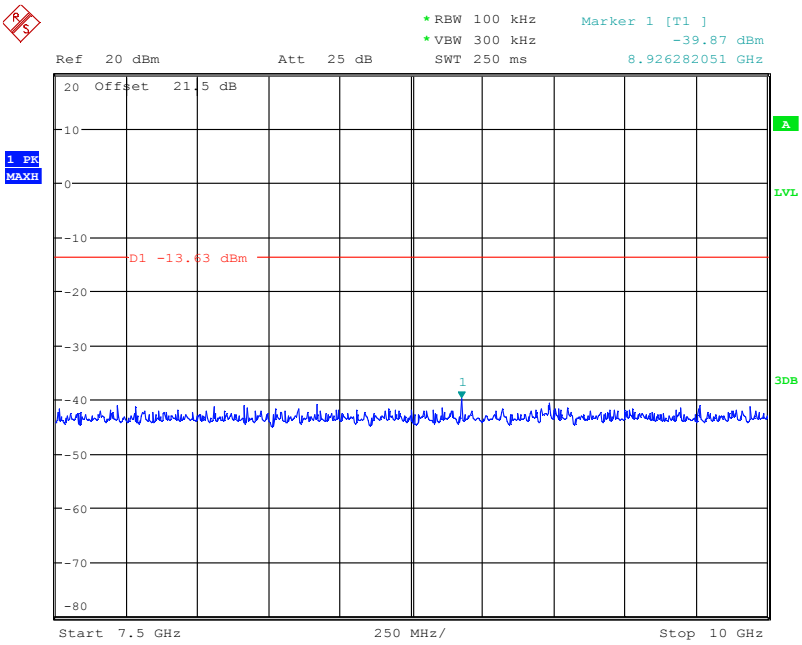


Fig. 45 Conducted Spurious Emission (802.11b, Ch11, 7.5 GHz-10 GHz)

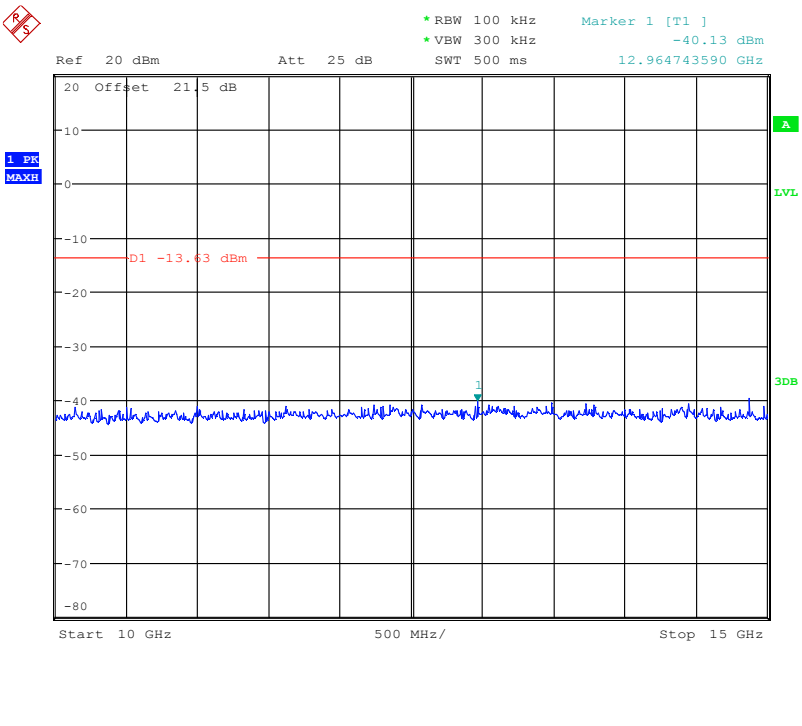


Fig. 46 Conducted Spurious Emission (802.11b, Ch11, 10 GHz-15 GHz)

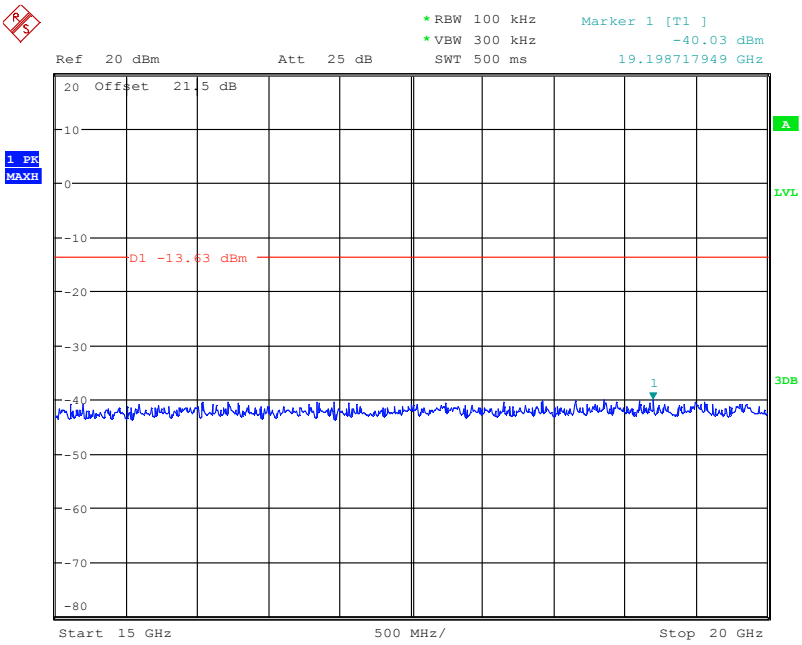


Fig. 47 Conducted Spurious Emission (802.11b, Ch11, 15 GHz-20 GHz)

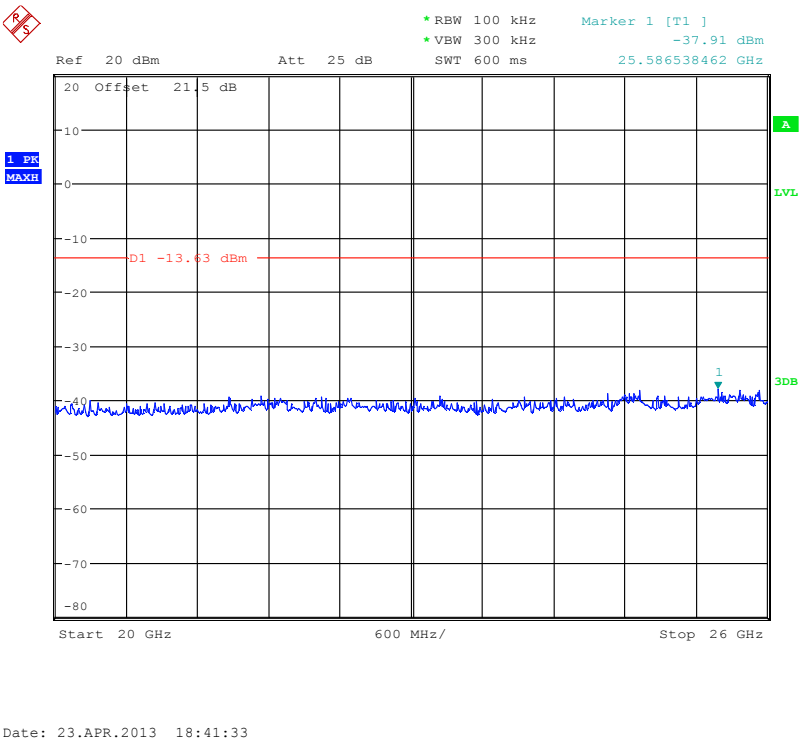


Fig. 48 Conducted Spurious Emission (802.11b, Ch11, 20 GHz-26 GHz)

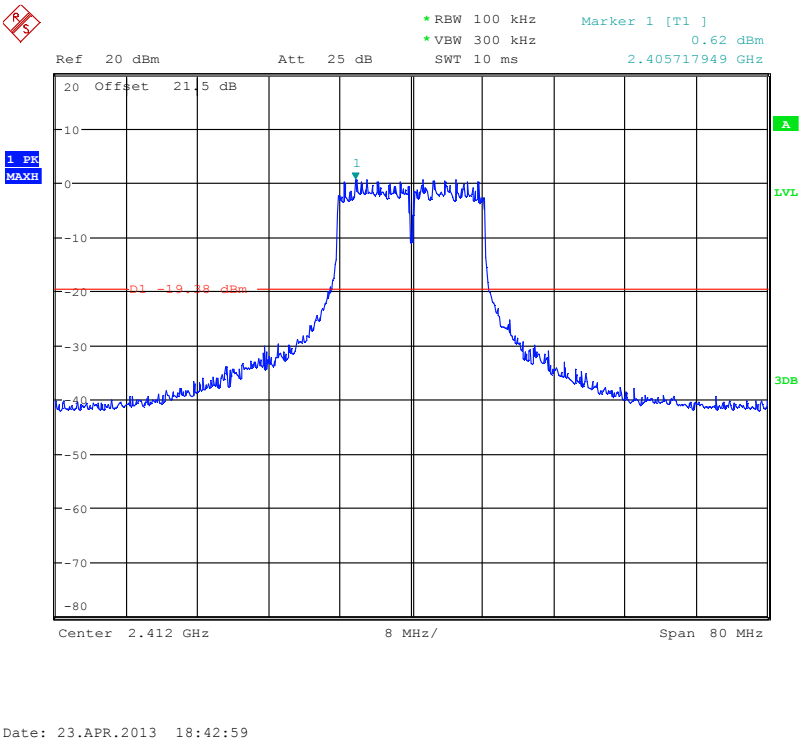


Fig. 49 Conducted Spurious Emission (802.11g, Ch1, Center Frequency)

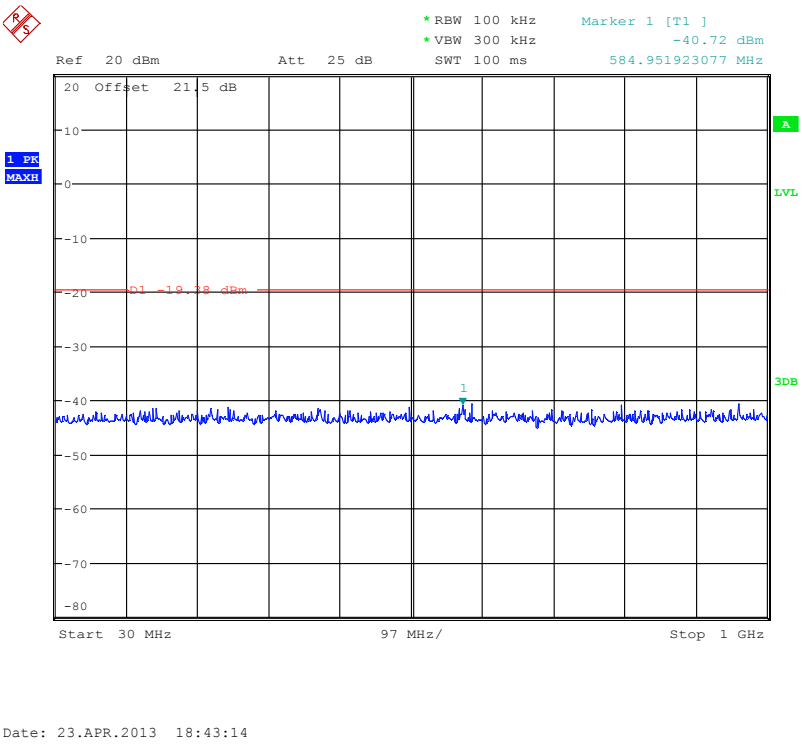


Fig. 50 Conducted Spurious Emission (802.11g, Ch1, 30 MHz-1 GHz)

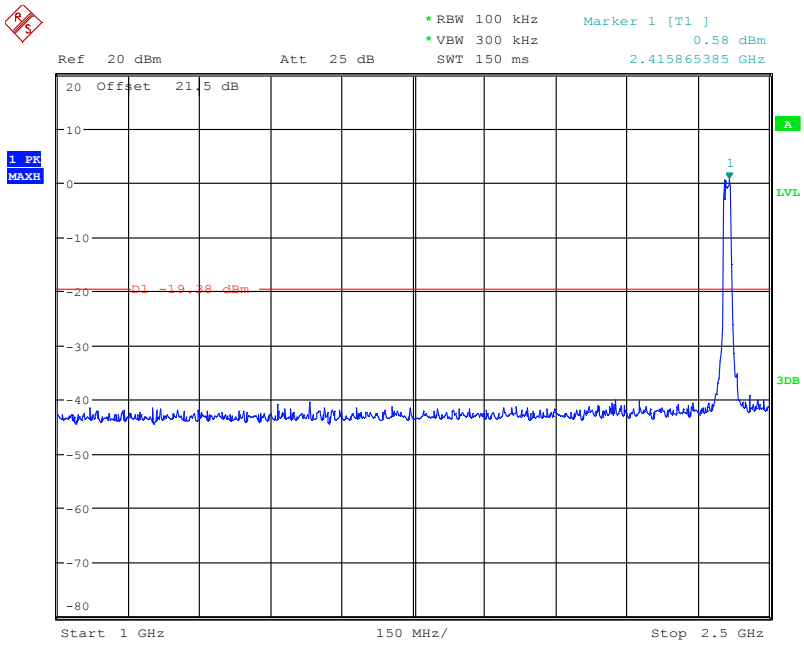


Fig. 51 Conducted Spurious Emission (802.11g, Ch1, 1 GHz-2.5 GHz)

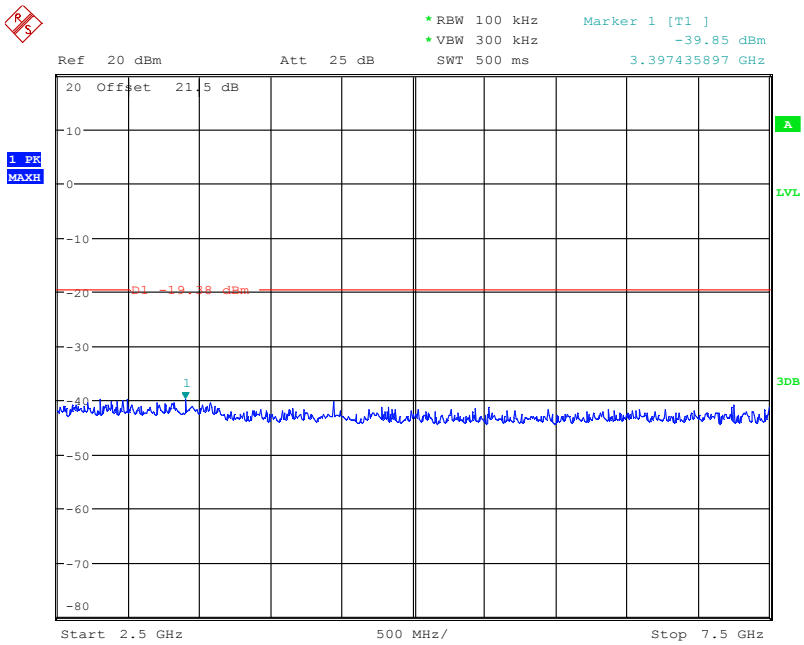


Fig. 52 Conducted Spurious Emission (802.11g, Ch1, 2.5 GHz-7.5 GHz)

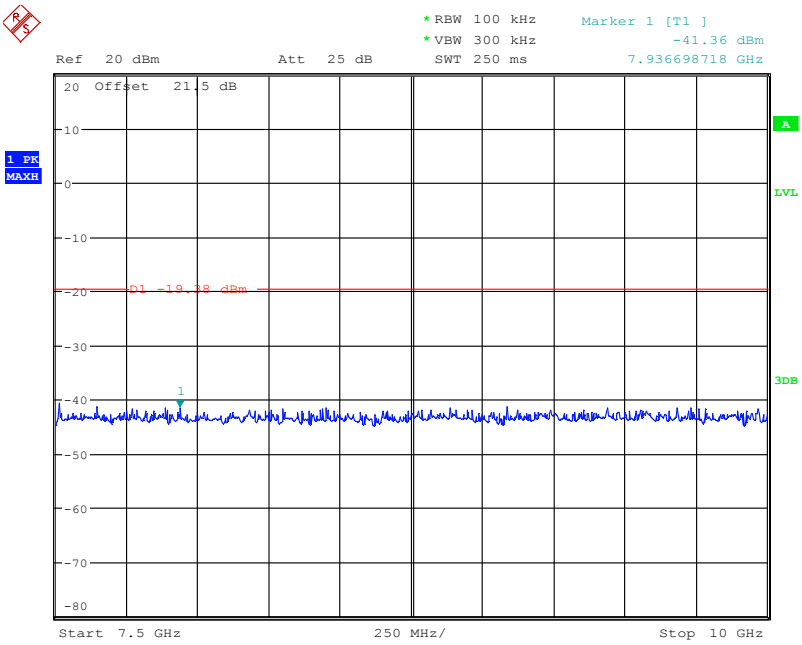


Fig. 53 Conducted Spurious Emission (802.11g, Ch1, 7.5 GHz-10 GHz)

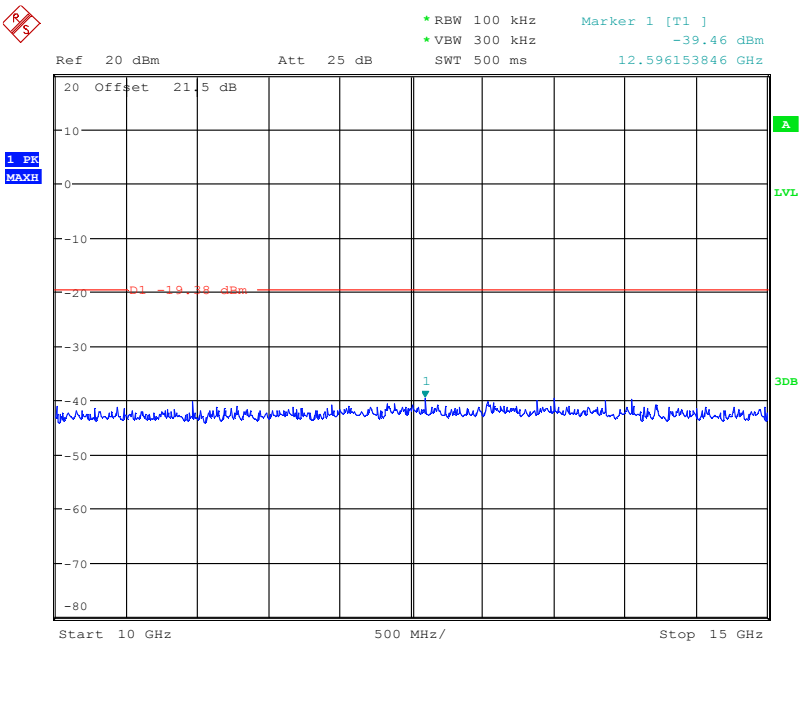


Fig. 54 Conducted Spurious Emission (802.11g, Ch1, 10 GHz-15 GHz)

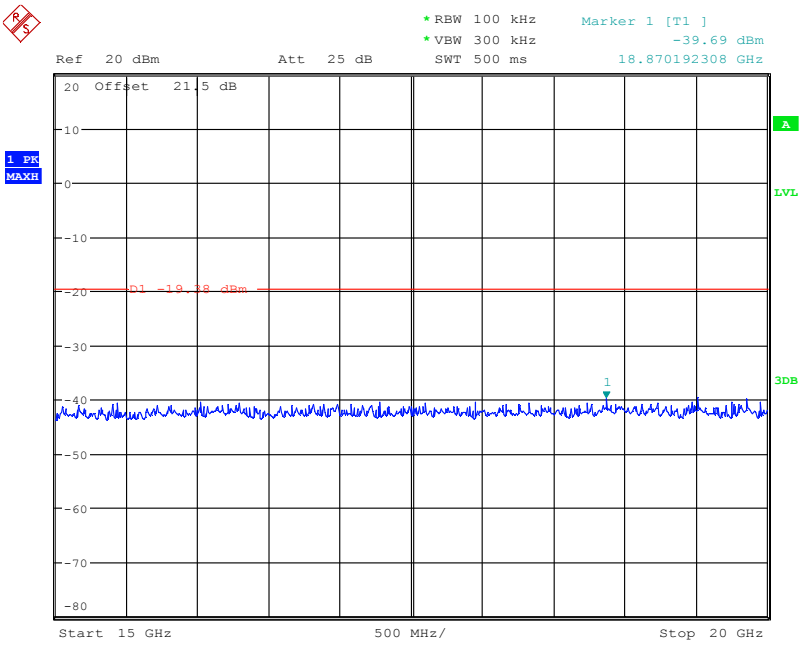


Fig. 55 Conducted Spurious Emission (802.11g, Ch1, 15 GHz-20 GHz)

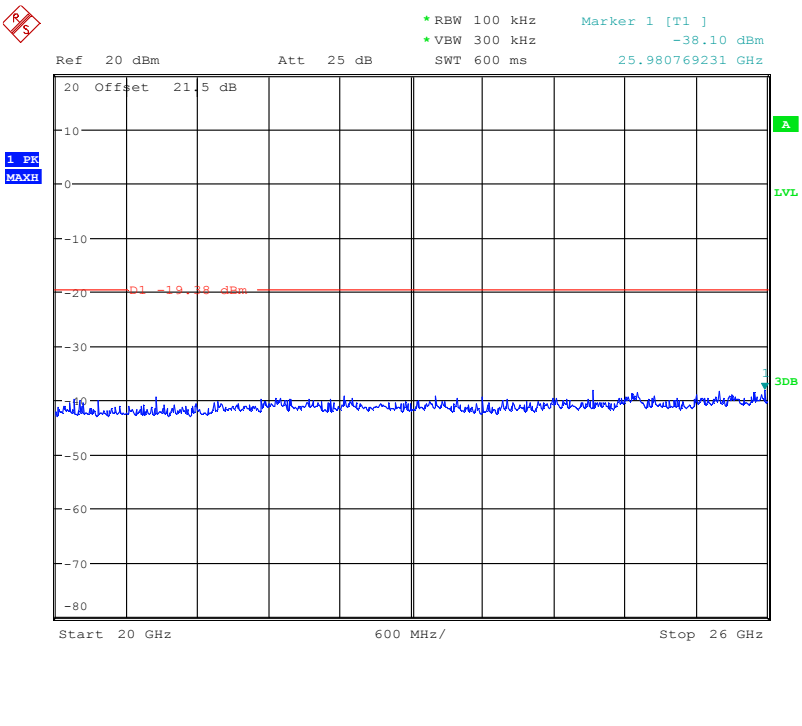


Fig. 56 Conducted Spurious Emission (802.11g, Ch1, 20 GHz-26 GHz)

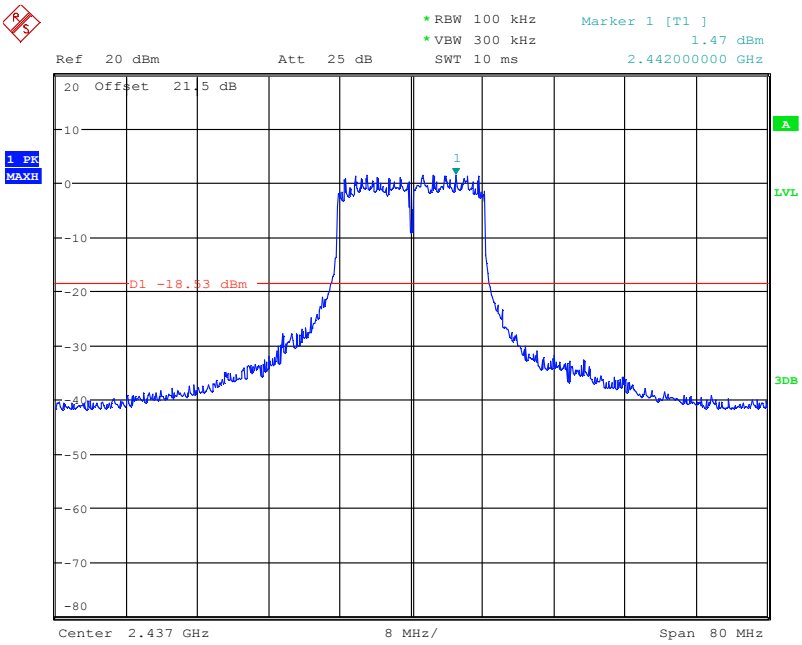


Fig. 57 Conducted Spurious Emission (802.11g, Ch6, Center Frequency)

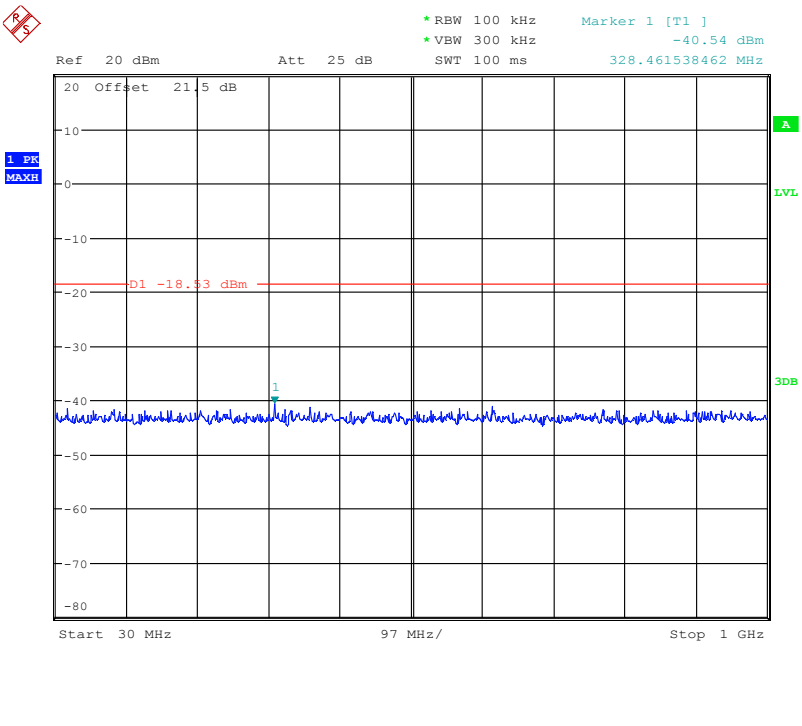


Fig. 58 Conducted Spurious Emission (802.11g, Ch6, 30 MHz-1 GHz)

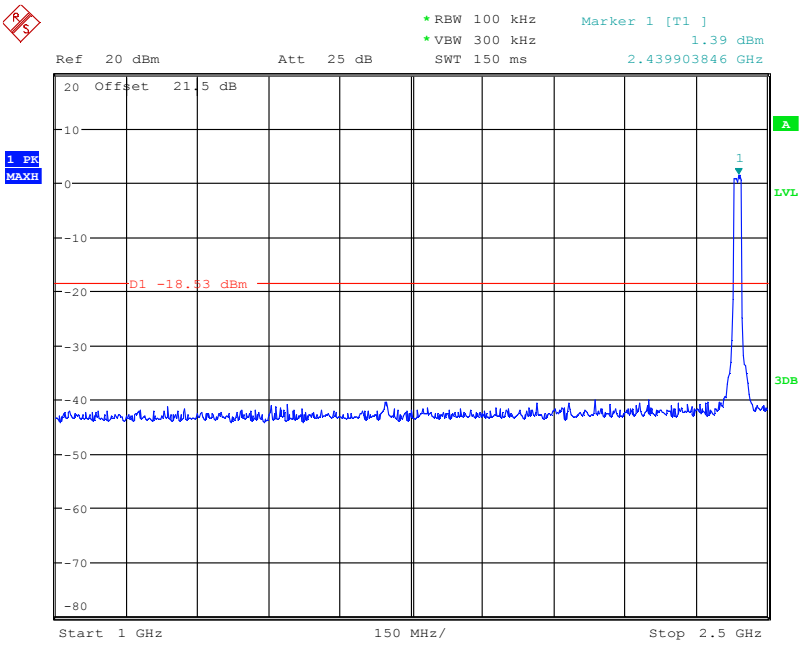


Fig. 59 Conducted Spurious Emission (802.11g, Ch6, 1 GHz-2.5 GHz)

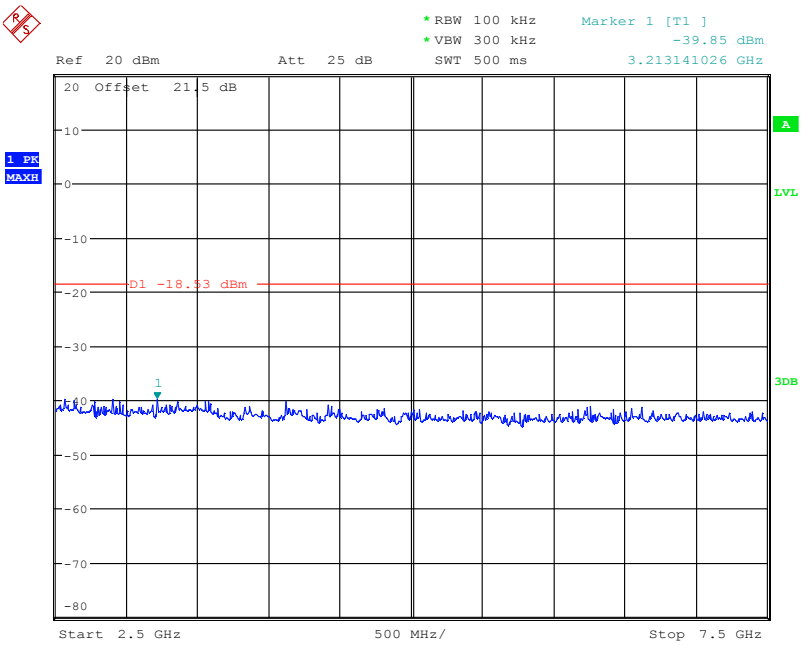


Fig. 60 Conducted Spurious Emission (802.11g, Ch6, 2.5 GHz-7.5 GHz)

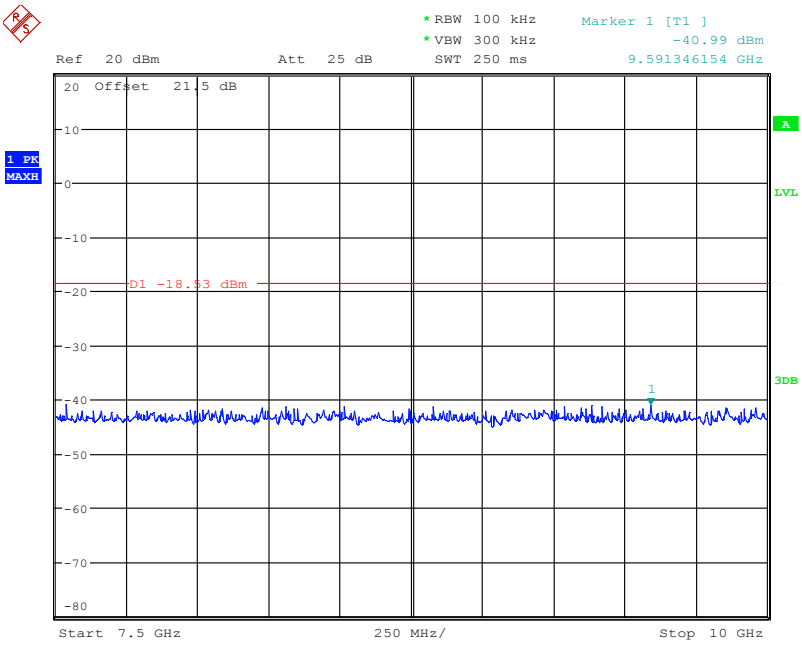


Fig. 61 Conducted Spurious Emission (802.11g, Ch6, 7.5 GHz-10 GHz)

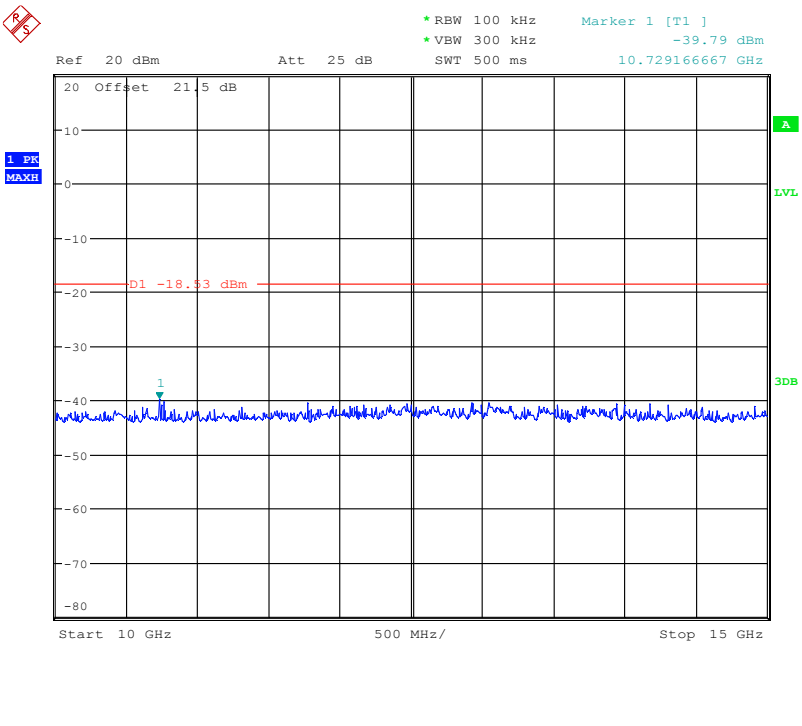


Fig. 62 Conducted Spurious Emission (802.11g, Ch6, 10 GHz-15 GHz)

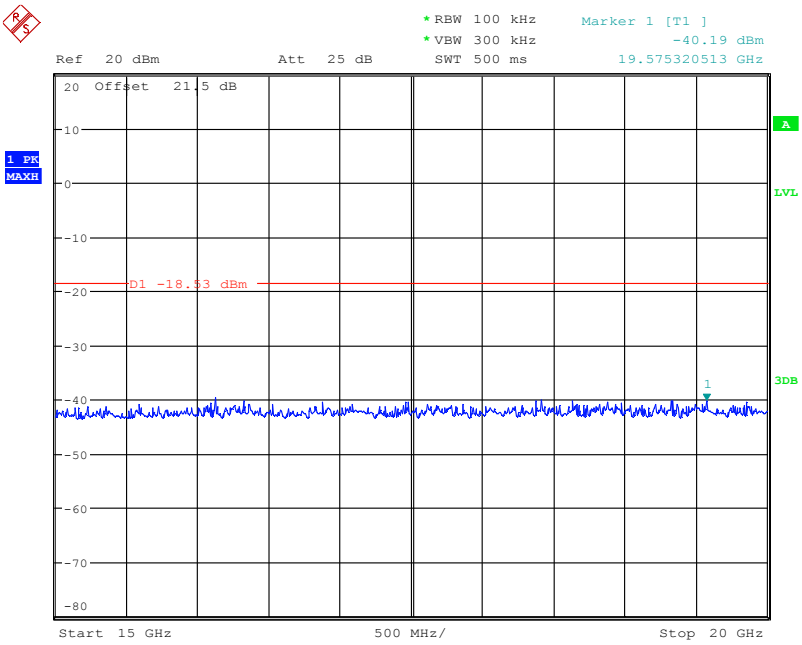


Fig. 63 Conducted Spurious Emission (802.11g, Ch6, 15 GHz-20 GHz)

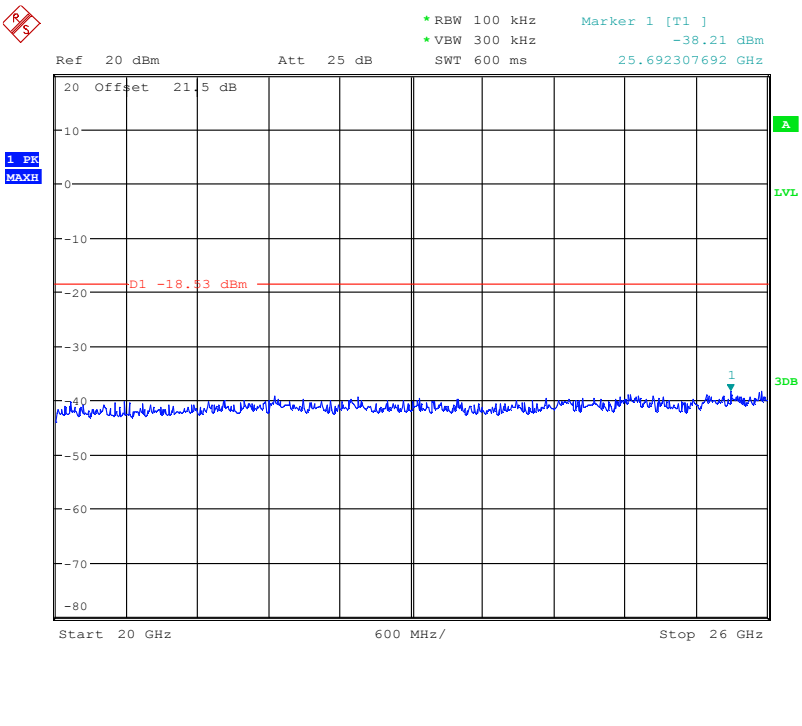


Fig. 64 Conducted Spurious Emission (802.11g, Ch6, 20 GHz-26 GHz)

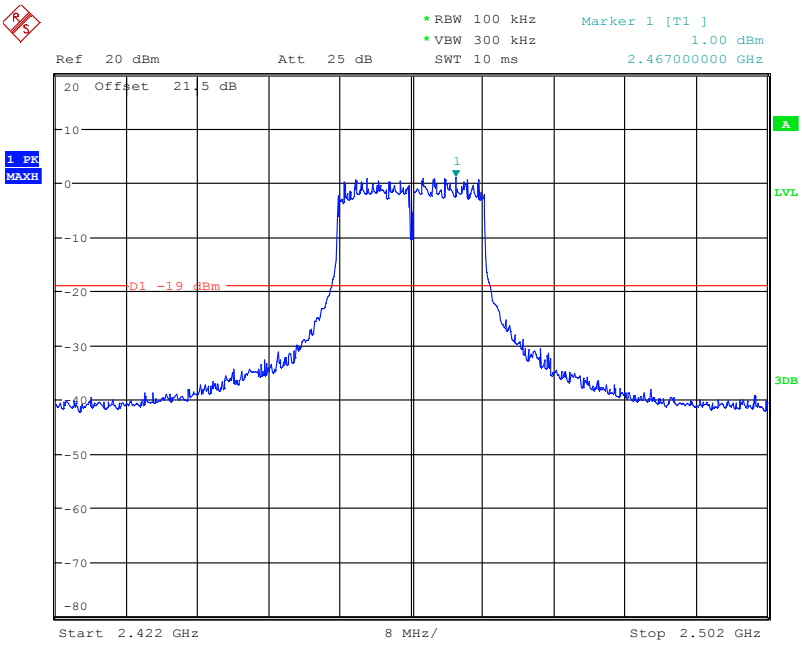


Fig. 65 Conducted Spurious Emission (802.11g, Ch11, Center Frequency)

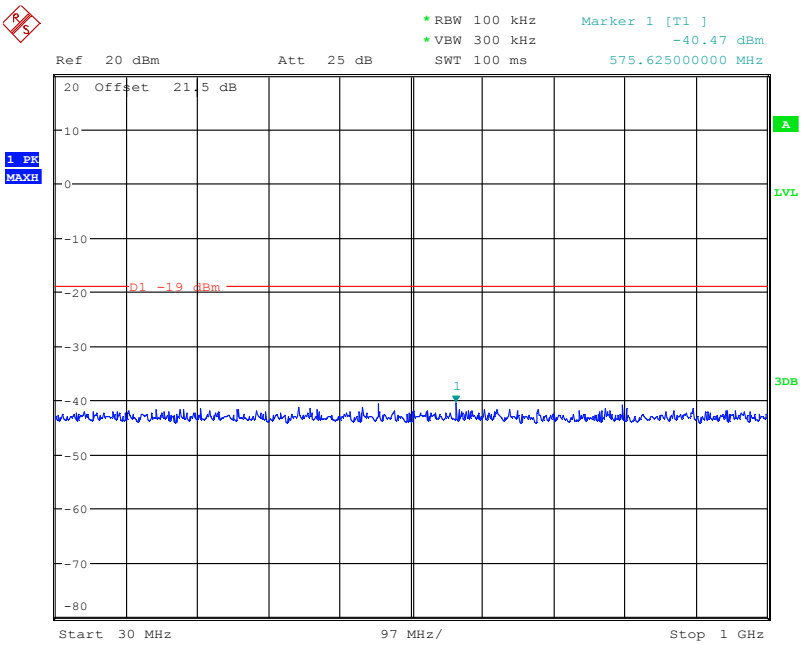


Fig. 66 Conducted Spurious Emission (802.11g, Ch11, 30 MHz-1 GHz)

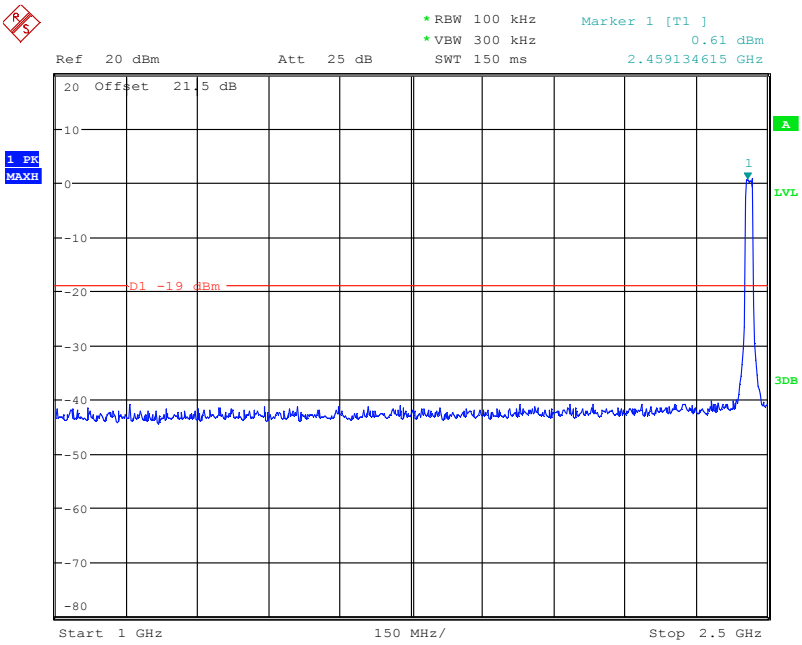


Fig. 67 Conducted Spurious Emission (802.11g, Ch11, 1 GHz-2.5 GHz)

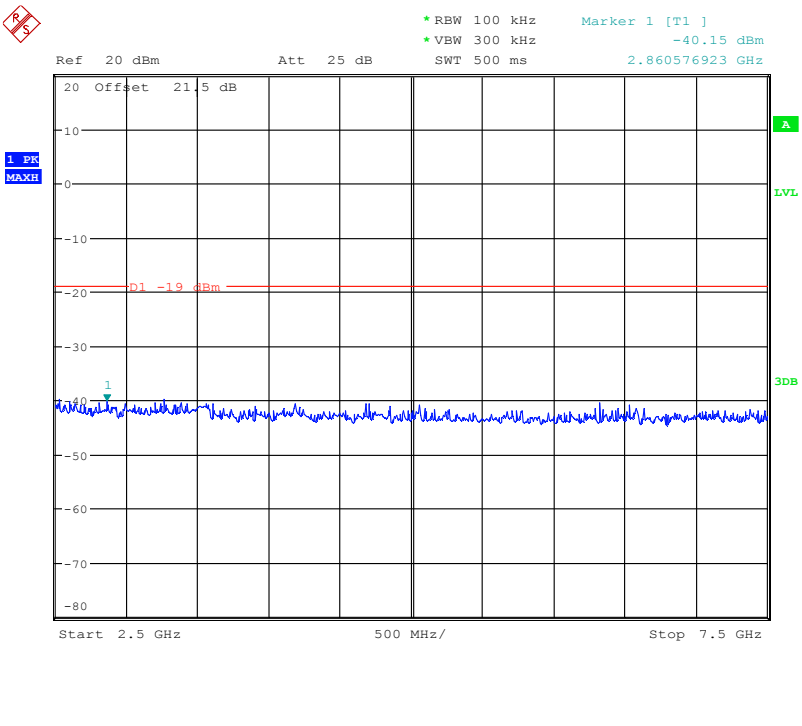


Fig. 68 Conducted Spurious Emission (802.11g, Ch11, 2.5 GHz-7.5 GHz)

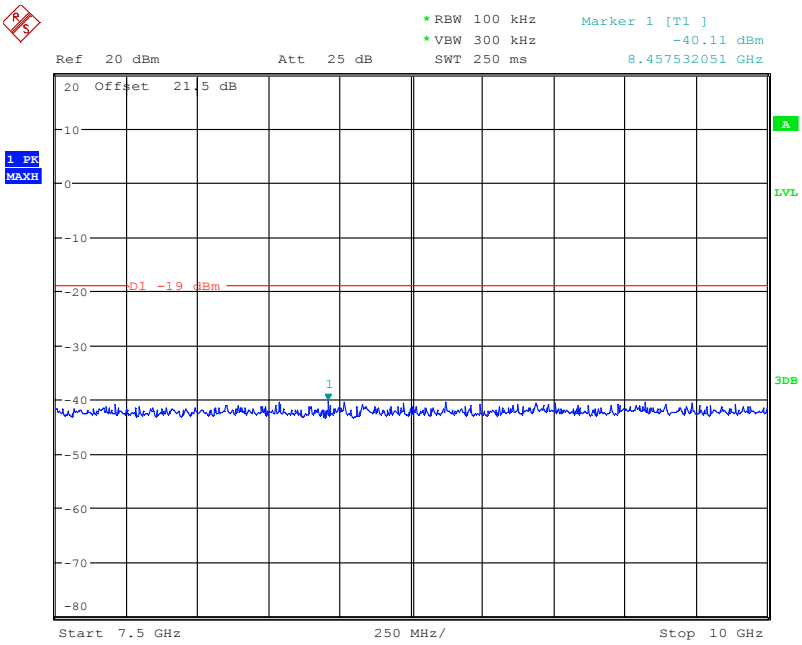


Fig. 69 Conducted Spurious Emission (802.11g, Ch11, 7.5 GHz-10 GHz)

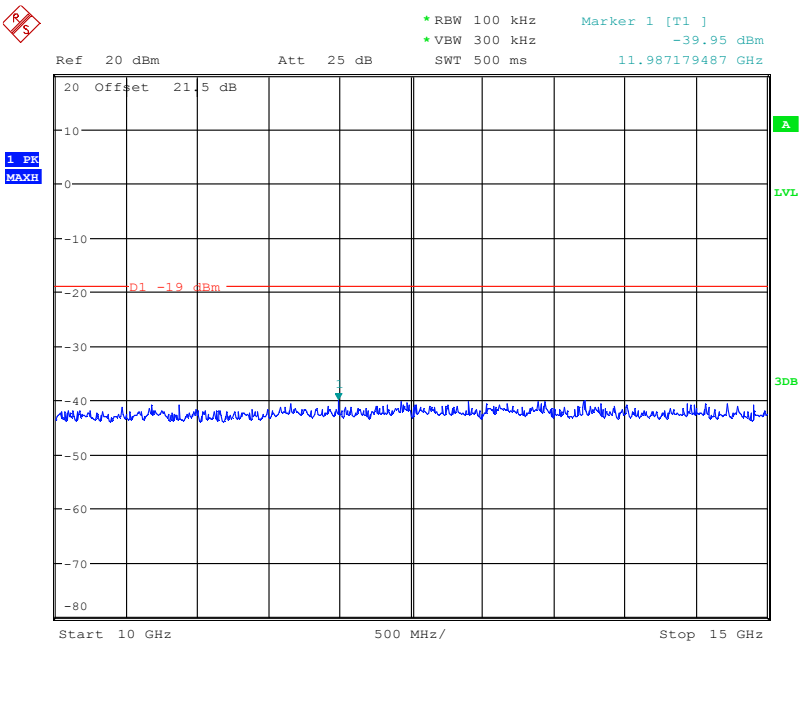


Fig. 70 Conducted Spurious Emission (802.11g, Ch11, 10 GHz-15 GHz)

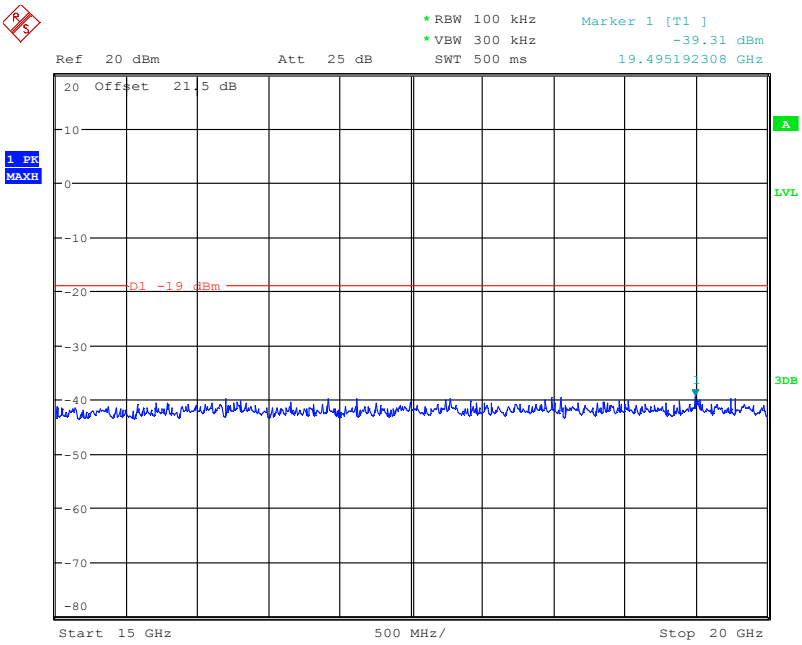


Fig. 71 Conducted Spurious Emission (802.11g, Ch11, 15 GHz-20 GHz)

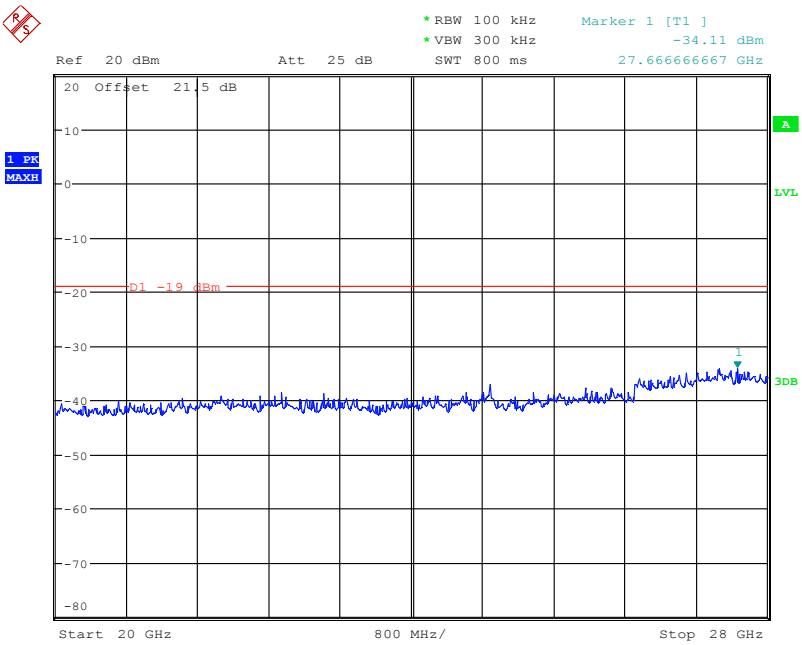


Fig. 72 Conducted Spurious Emission (802.11g, Ch11, 20 GHz-26 GHz)

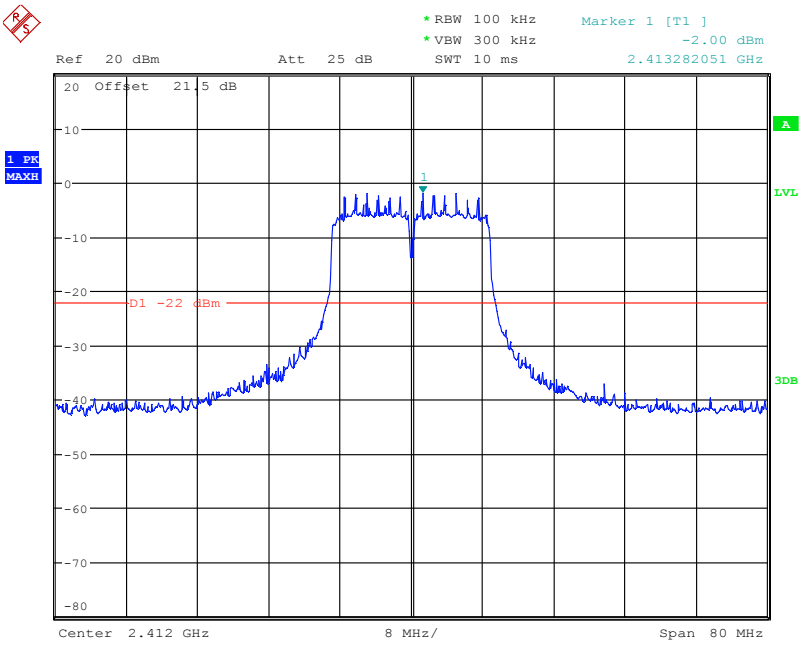


Fig. 73 Conducted Spurious Emission (802.11n-HT20, Ch1, Center Frequency)

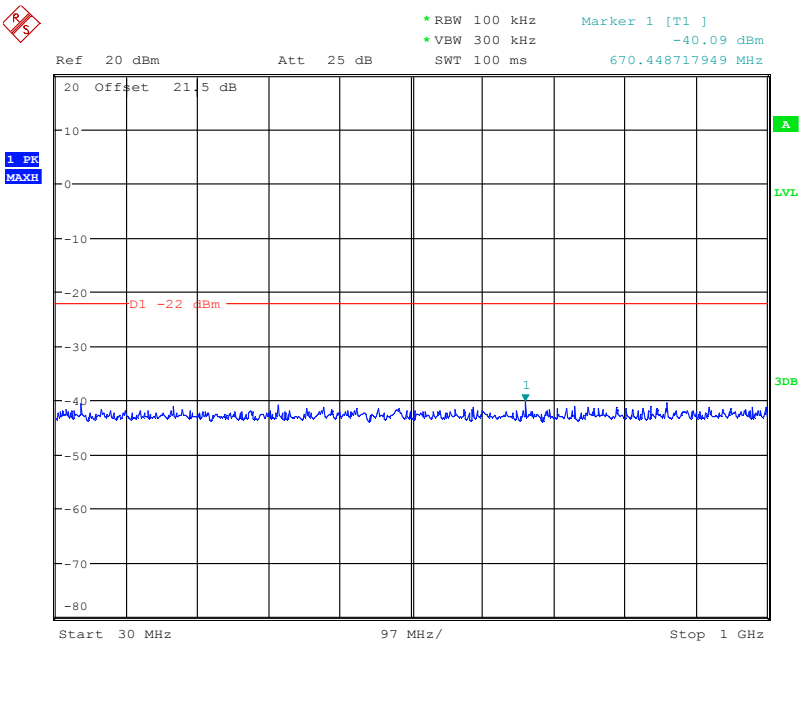


Fig. 74 Conducted Spurious Emission (802.11n-HT20, Ch1, 30 MHz-1 GHz)

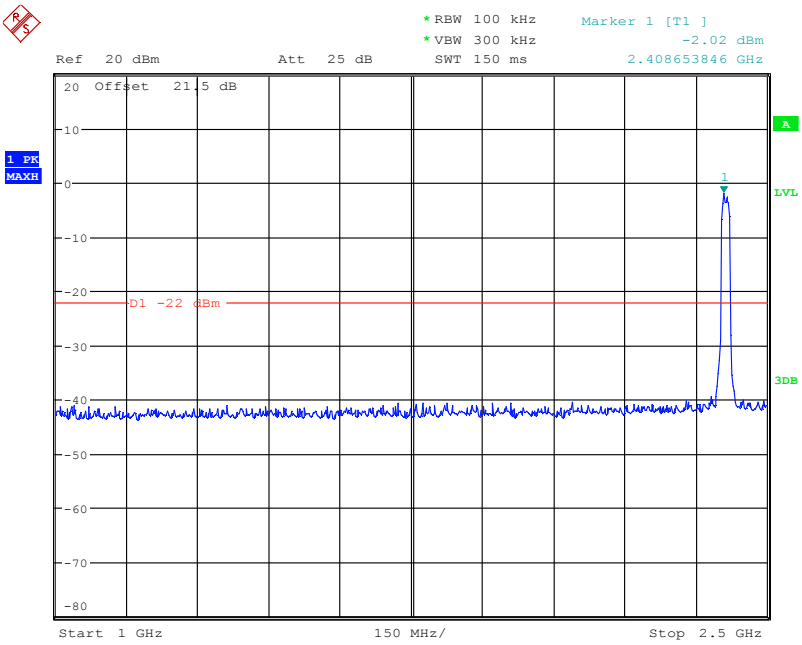


Fig. 75 Conducted Spurious Emission (802.11n-HT20, Ch1, 1 GHz-2.5 GHz)

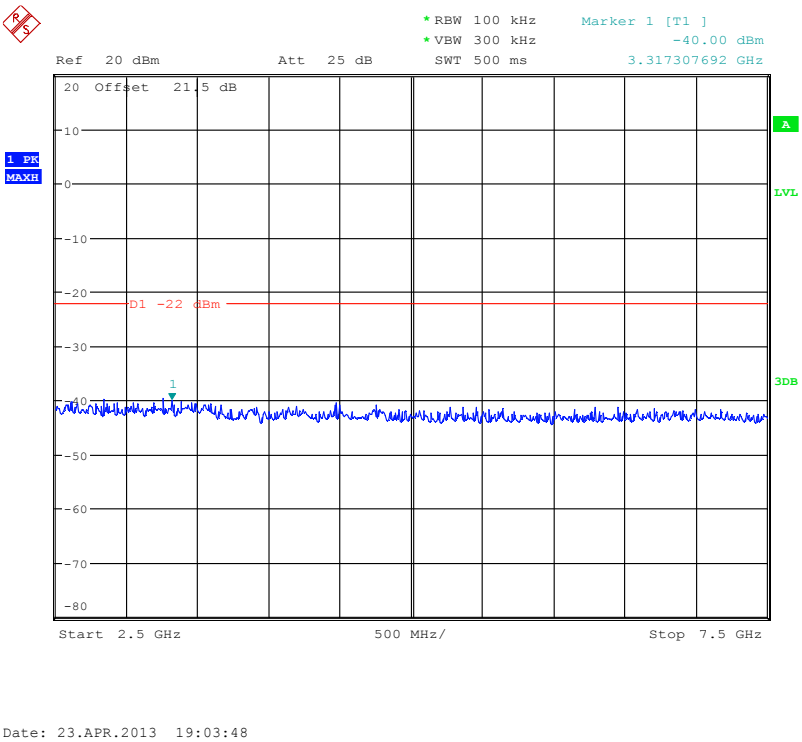


Fig. 76 Conducted Spurious Emission (802.11n-HT20, Ch1, 2.5 GHz-7.5 GHz)

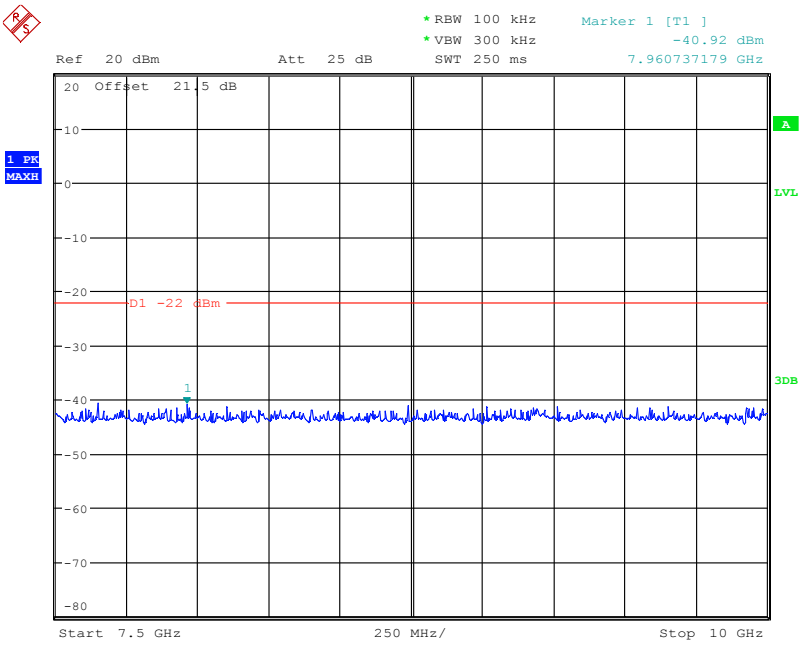


Fig. 77 Conducted Spurious Emission (802.11n-HT20, Ch1, 7.5 GHz-10 GHz)

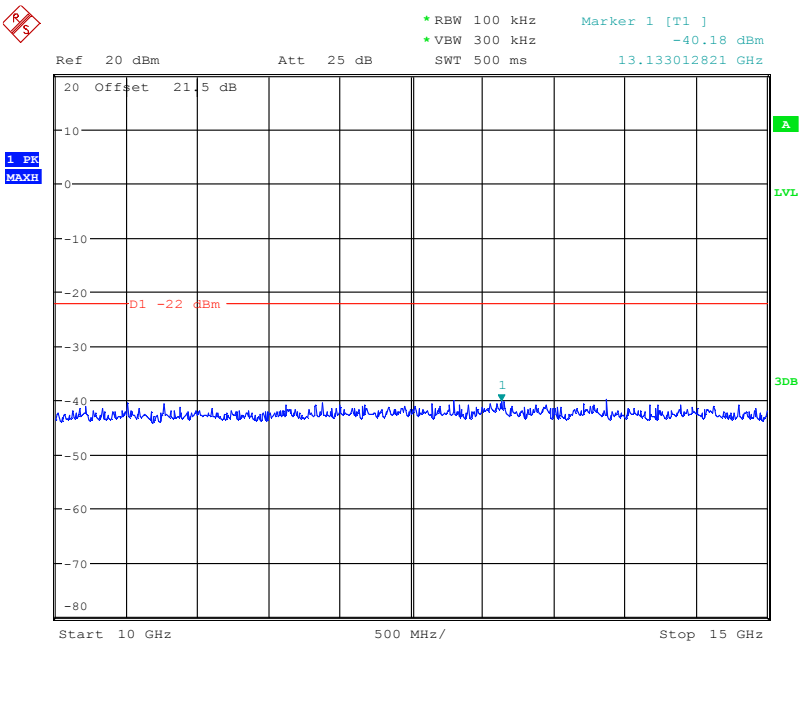


Fig. 78 Conducted Spurious Emission (802.11n-HT20, Ch1, 10 GHz-15 GHz)

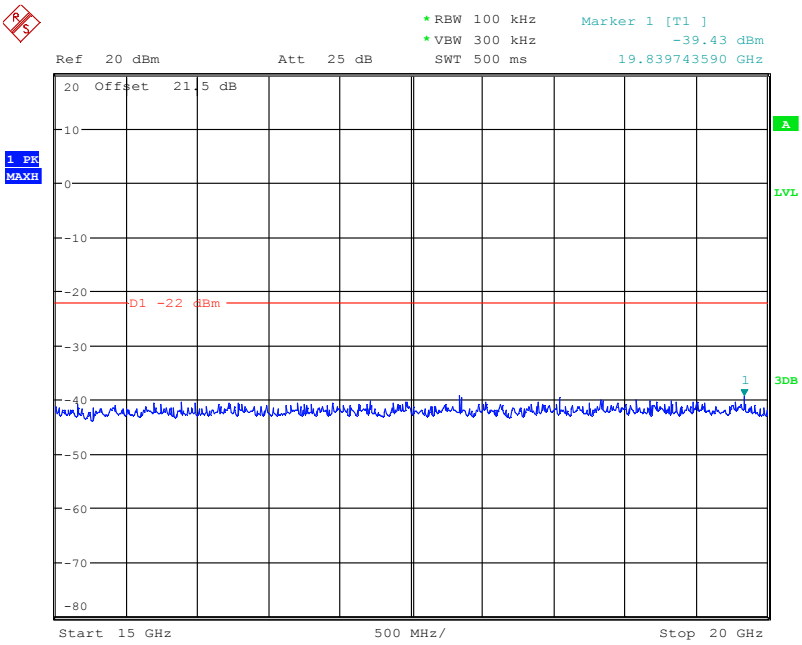


Fig. 79 Conducted Spurious Emission (802.11n-HT20, Ch1, 15 GHz-20 GHz)

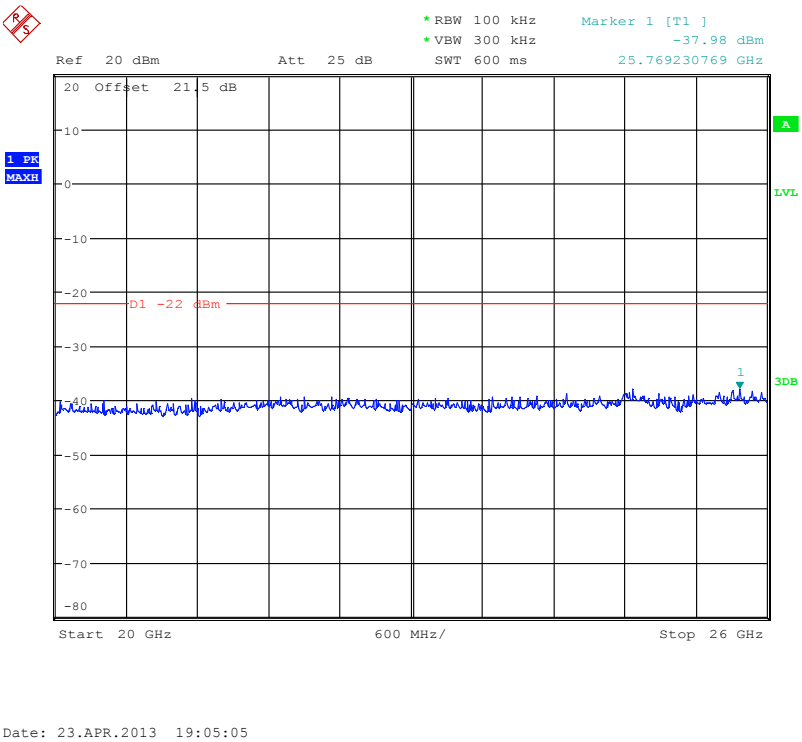


Fig. 80 Conducted Spurious Emission (802.11n-HT20, Ch1, 20 GHz-26 GHz)

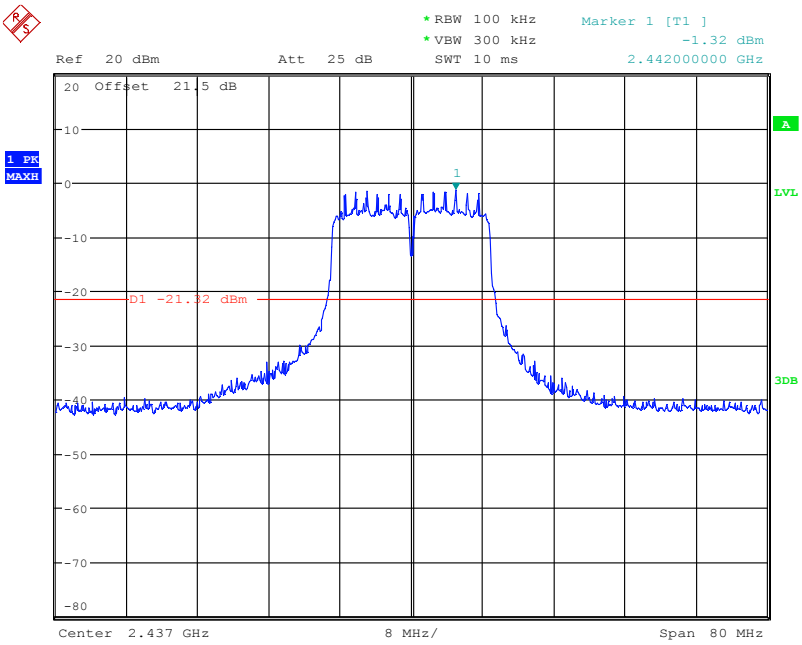


Fig. 81 Conducted Spurious Emission (802.11n-HT20, Ch6, Center Frequency)

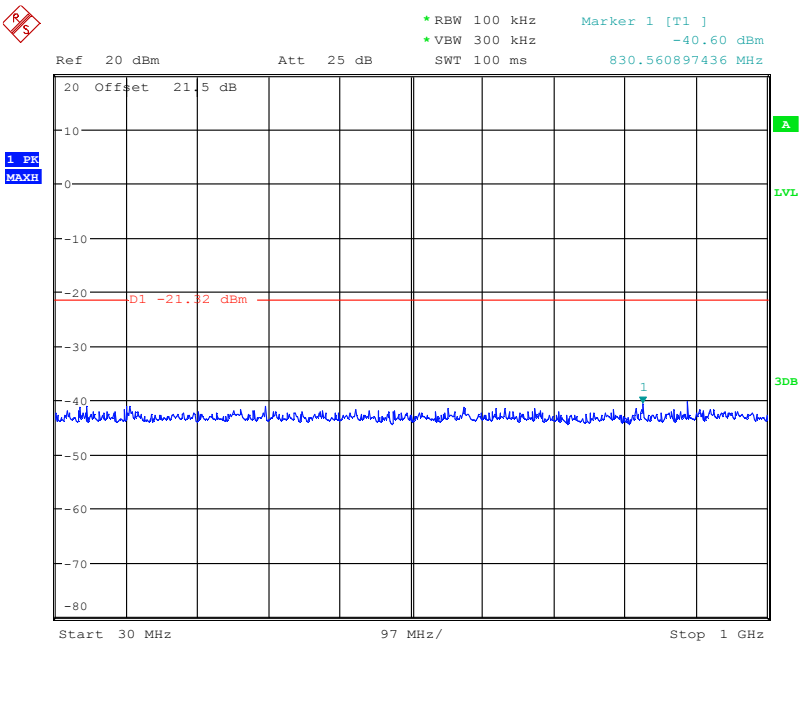


Fig. 82 Conducted Spurious Emission (802.11n-HT20, Ch6, 30 MHz-1 GHz)

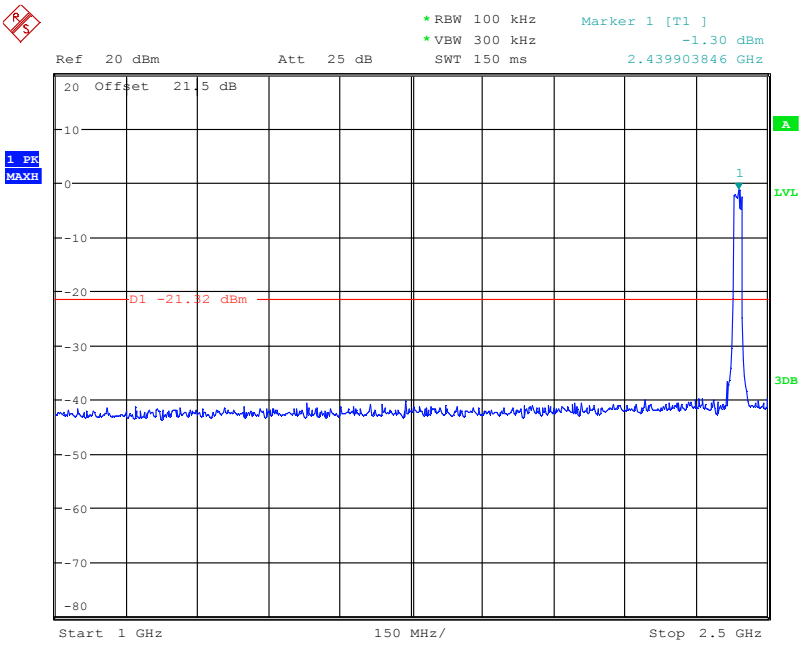


Fig. 83 Conducted Spurious Emission (802.11n-HT20, Ch6, 1 GHz-2.5 GHz)

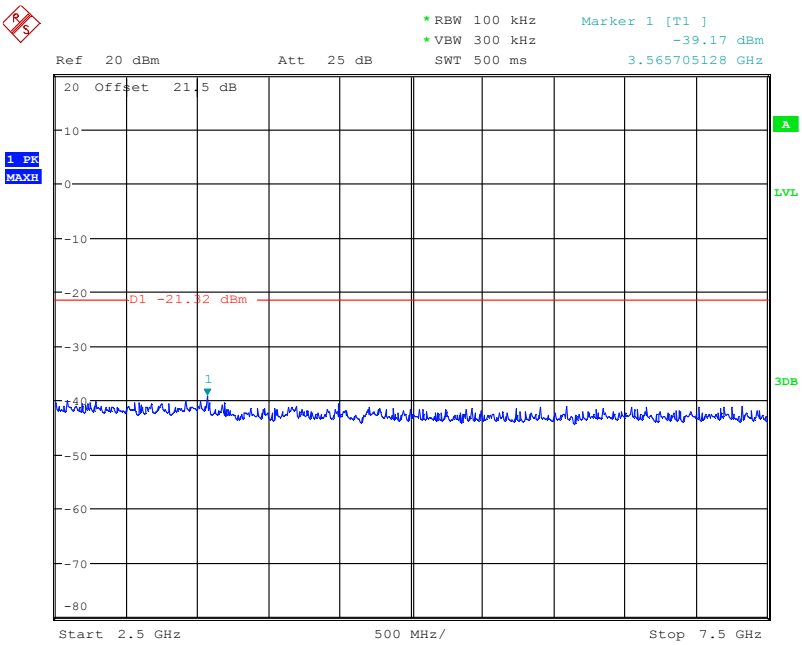


Fig. 84 Conducted Spurious Emission (802.11n-HT20, Ch6, 2.5 GHz-7.5 GHz)

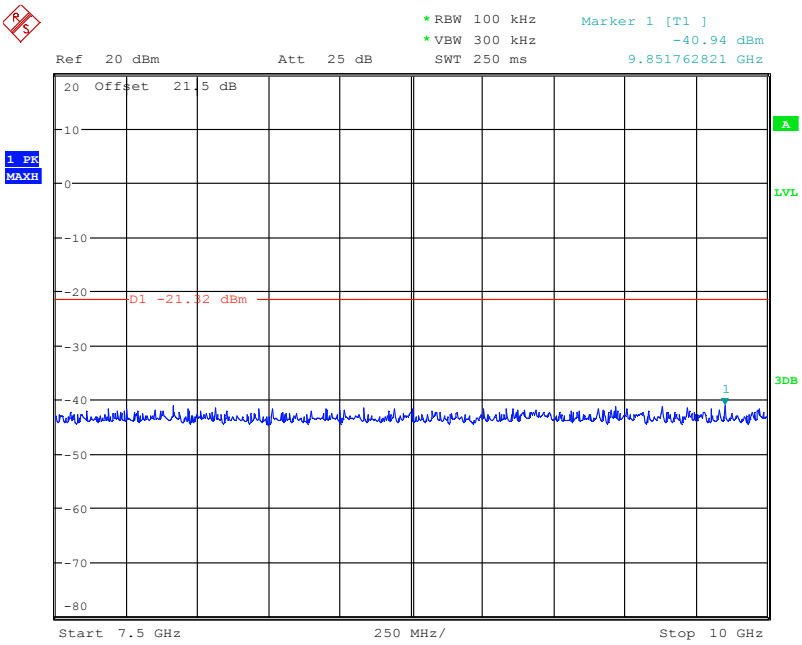


Fig. 85 Conducted Spurious Emission (802.11n-HT20, Ch6, 7.5 GHz-10 GHz)

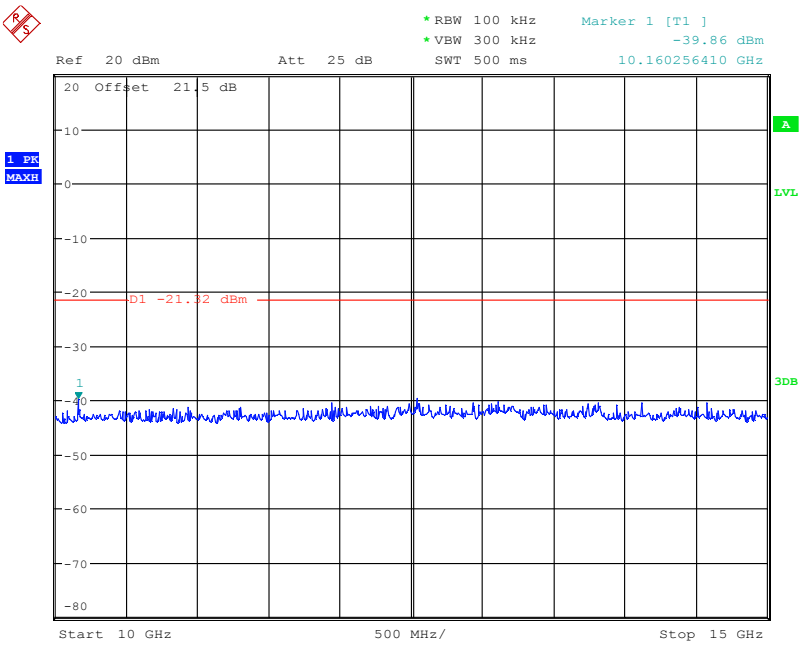


Fig. 86 Conducted Spurious Emission (802.11n-HT20, Ch6, 10 GHz-15 GHz)

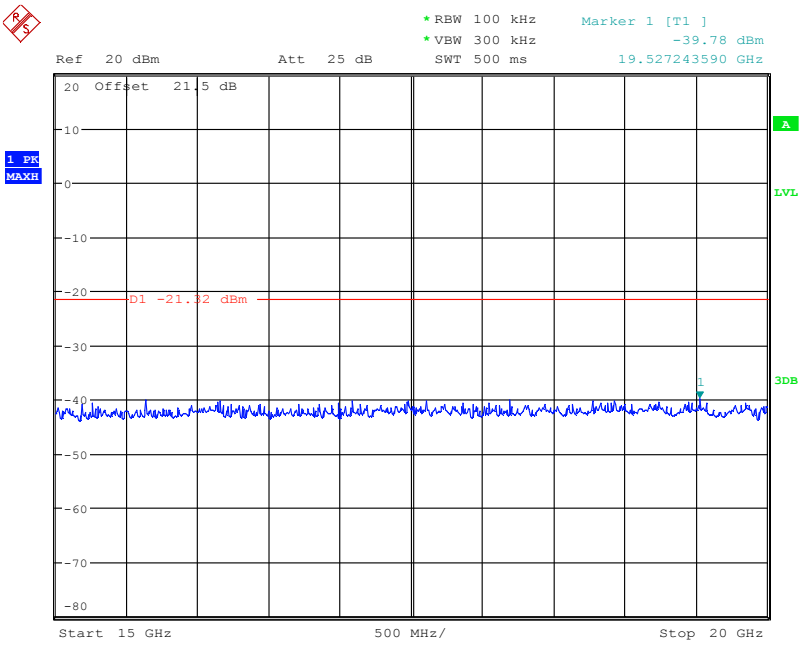


Fig. 87 Conducted Spurious Emission (802.11n-HT20, Ch6, 15 GHz-20 GHz)

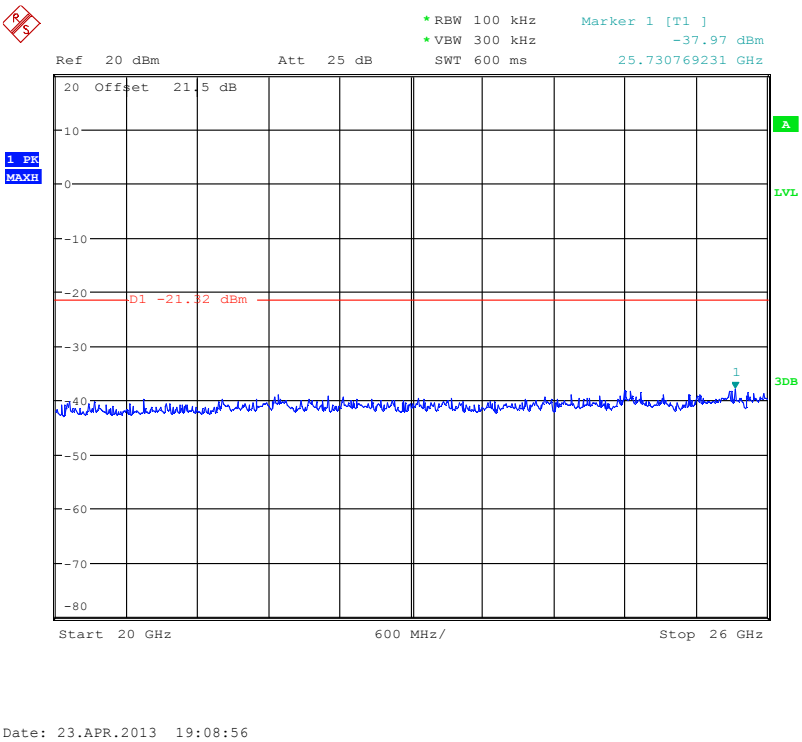


Fig. 88 Conducted Spurious Emission (802.11n-HT20, Ch6, 20 GHz-26 GHz)

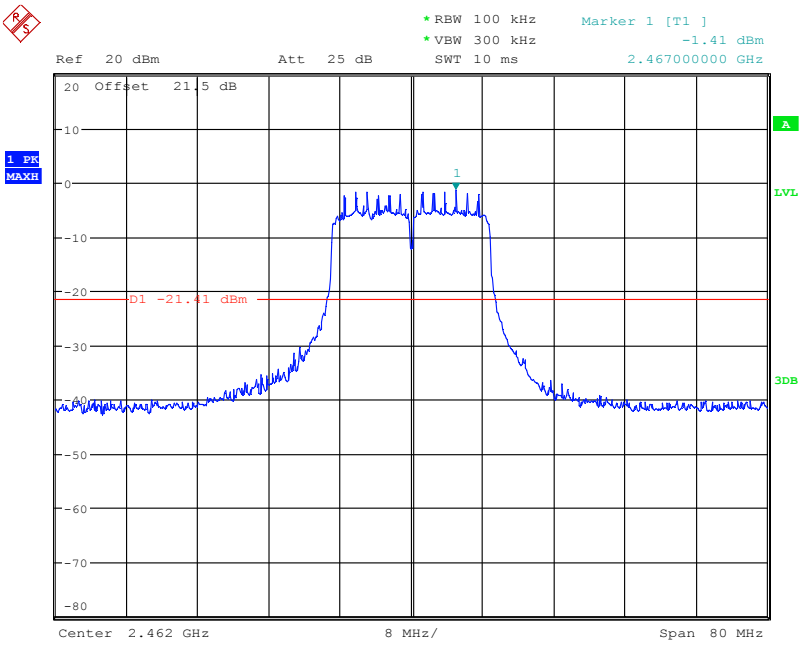


Fig. 89 Conducted Spurious Emission (802.11n-HT20, Ch11, Center Frequency)

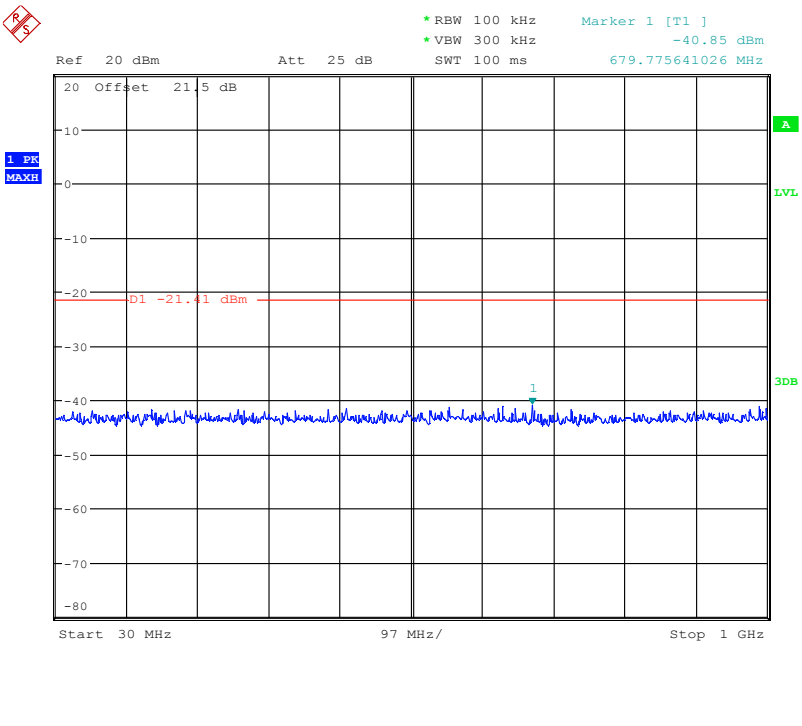


Fig. 90 Conducted Spurious Emission (802.11n-HT20, Ch11, 30 MHz-1 GHz)

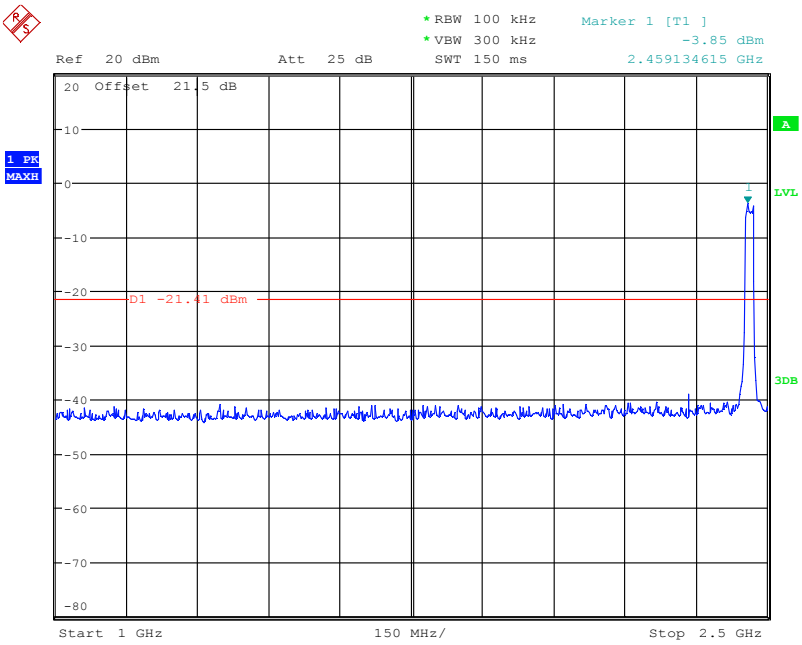


Fig. 91 Conducted Spurious Emission (802.11n-HT20, Ch11, 1 GHz-2.5 GHz)

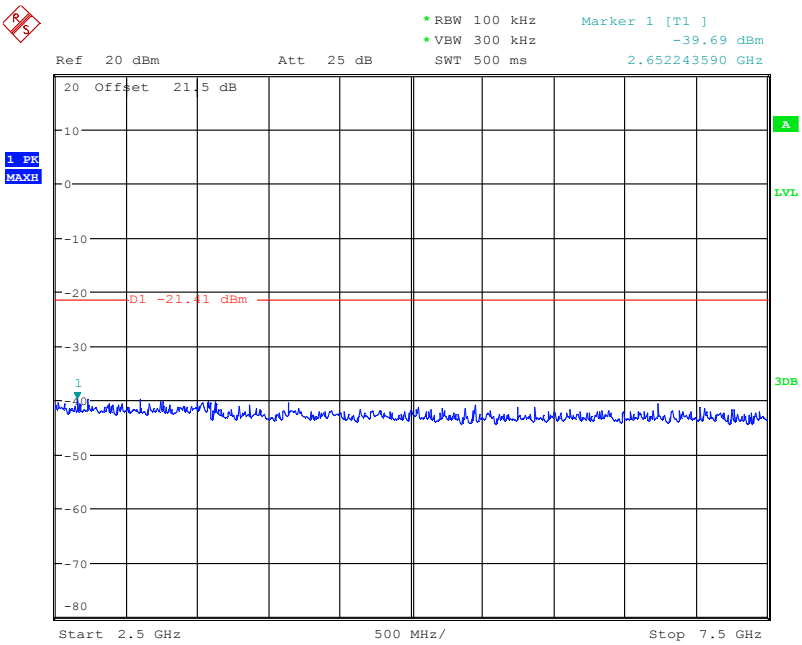


Fig. 92 Conducted Spurious Emission (802.11n-HT20, Ch11, 2.5 GHz-7.5 GHz)

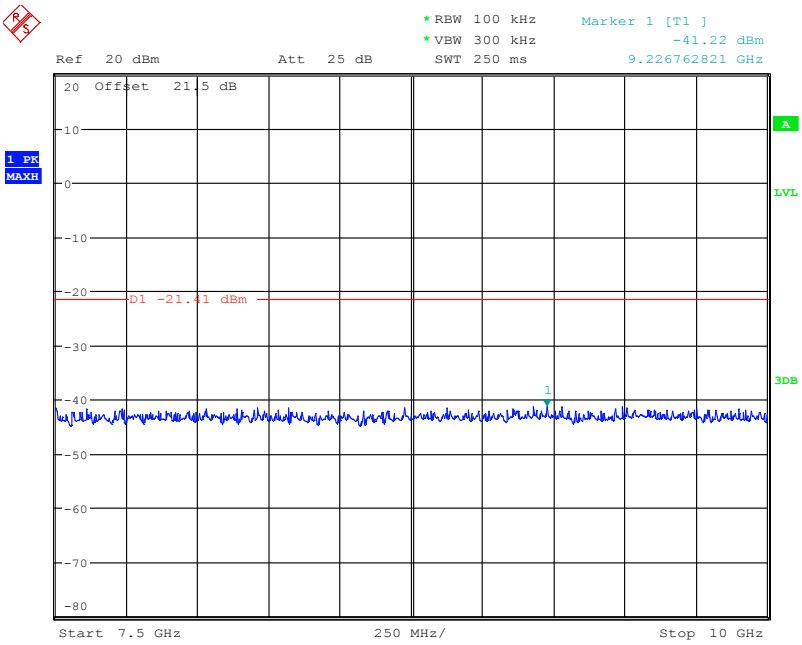


Fig. 93 Conducted Spurious Emission (802.11n-HT20, Ch11, 7.5 GHz-10 GHz)

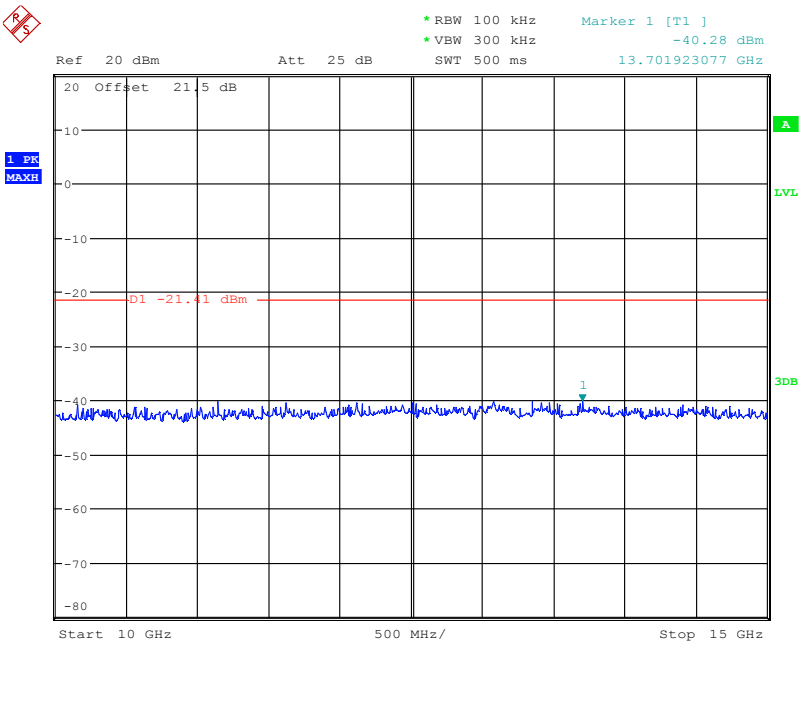


Fig. 94 Conducted Spurious Emission (802.11n-HT20, Ch11, 10 GHz-15 GHz)

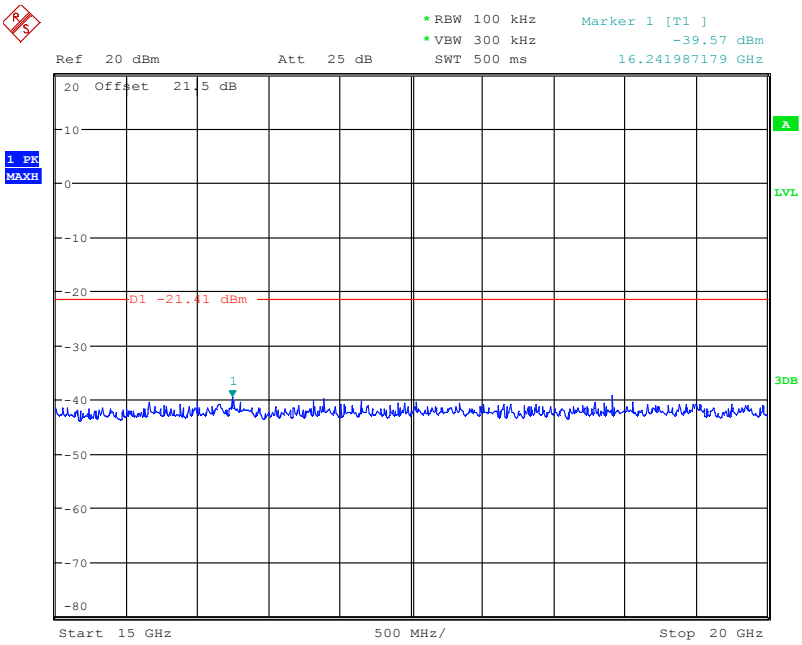


Fig. 95 Conducted Spurious Emission (802.11n-HT20, Ch11, 15 GHz-20 GHz)

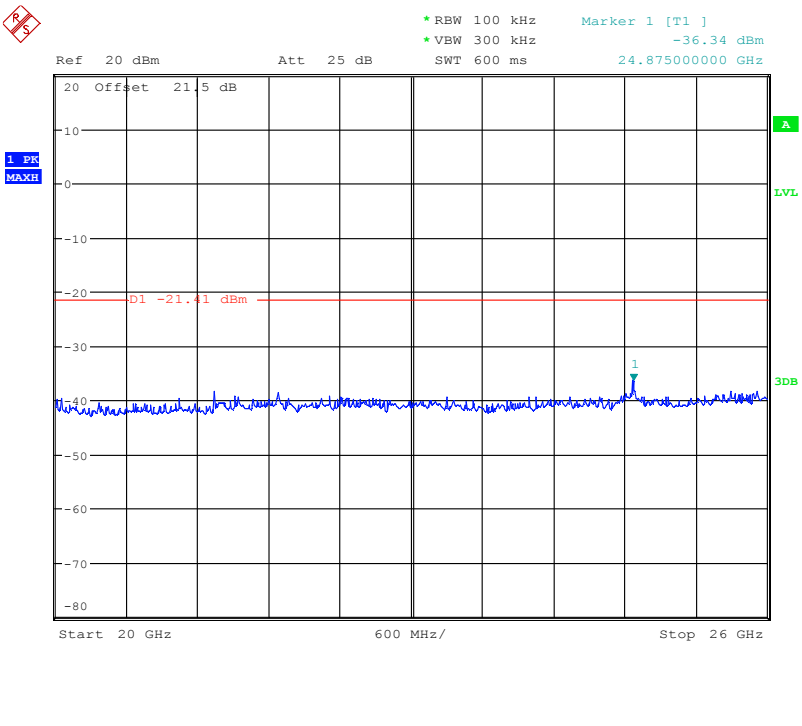


Fig. 96 Conducted Spurious Emission (802.11n-HT20, Ch11, 20 GHz-26 GHz)

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 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

EUT ID:EUT1

Modulation type and data rate tested:

802.11b	802.11g	802.11n
11Mbps(CCK)	54Mbps(OFDM)	HT20-MCS0(OFDM)

Measurement Results:

802.11b/g mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	Power	2.38GHz ~2.45GHz	Fig.97	P
	1	30 MHz ~1 GHz	Fig.98	P
		1 GHz ~ 3 GHz	Fig.99	P
		3 GHz ~ 18 GHz	Fig.100	P
	6	30 MHz ~1 GHz	Fig.101	P
		1 GHz ~ 3 GHz	Fig.102	P
		3 GHz ~ 18 GHz	Fig.103	P
	Power	2.45GHz ~2.5GHz	Fig.104	P
	11	30 MHz ~1 GHz	Fig.105	P
		1 GHz ~ 3 GHz	Fig.106	P
		3 GHz ~ 18 GHz	Fig.107	P
802.11g	Power	2.38GHz ~2.43GHz	Fig.108	P
	1	30 MHz ~1 GHz	Fig.109	P
		1 GHz ~ 3 GHz	Fig.110	P
		3 GHz ~ 18 GHz	Fig.111	P
	6	30 MHz ~1 GHz	Fig.112	P
		1 GHz ~ 3 GHz	Fig.113	P
		3 GHz ~ 18 GHz	Fig.114	P
	Power	2.45GHz ~2.5GHz	Fig.115	P
	11	30 MHz ~1 GHz	Fig.116	P
		1 GHz ~ 3 GHz	Fig.117	P
		3 GHz ~ 18 GHz	Fig.118	P

802.11n mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (20MHz)	Power	2.38GHz ~2.45GHz	Fig.119	P
	1	30 MHz ~1 GHz	Fig.120	P
		1 GHz ~ 3 GHz	Fig.121	P
		3 GHz ~ 18 GHz	Fig.122	P
	6	30 MHz ~1 GHz	Fig.123	P
		1 GHz ~ 3 GHz	Fig.124	P
		3 GHz ~ 18 GHz	Fig.125	P
	Power	2.45GHz ~2.5GHz	Fig.126	P
	11	30 MHz ~1 GHz	Fig.127	P
		1 GHz ~ 3 GHz	Fig.128	P
		3 GHz ~ 18 GHz	Fig.129	P
802.11n (40MHz)	Power	2.38GHz ~2.45GHz	/	/
	3	30 MHz ~1 GHz	/	/
		1 GHz ~ 3 GHz	/	/
		3 GHz ~ 18 GHz	/	/

	6	30 MHz ~1 GHz	/	/
		1 GHz ~ 3 GHz	/	/
		3 GHz ~ 18 GHz	/	/
	Power	2.45GHz ~2.5GHz	/	/
	9	30 MHz ~1 GHz	/	/
		1 GHz ~ 3 GHz	/	/
		3 GHz ~ 18 GHz	/	/
/	All channels	18 GHz~ 26.5 GHz	Fig.130	P

Conclusion: PASS

Note:

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

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

The measurement results are obtained as described below:

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

802.11b

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
17500.500	43.7	-25.3	42.8	26.197	VERTICAL
17523.750	43.7	-25.3	42.8	26.197	VERTICAL
17513.250	43.6	-25.3	42.8	26.097	HORIZONTAL
17554.500	43.6	-25.3	42.3	26.597	HORIZONTAL
17976.750	43.6	-25.2	42.3	26.528	VERTICAL
17465.250	43.6	-25.3	42.6	26.297	HORIZONTAL

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
17529.750	43.6	-25.3	42.9	25.997	HORIZONTAL
17511.000	43.6	-25.3	42.8	26.097	VERTICAL
17542.500	43.5	-25.3	42.9	25.897	HORIZONTAL
17495.250	43.5	-25.3	43.0	25.797	HORIZONTAL
17503.500	43.5	-25.3	42.8	25.997	HORIZONTAL
17514.750	43.5	-25.3	42.8	25.997	HORIZONTAL

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
17505.750	43.7	-25.3	42.8	26.197	VERTICAL
17538.750	43.7	-25.3	42.9	26.097	HORIZONTAL
17991.000	43.7	-24.7	42.3	26.114	HORIZONTAL
17515.500	43.6	-25.3	42.8	26.097	HORIZONTAL
17511.000	43.6	-25.3	42.8	26.097	HORIZONTAL
17499.000	43.6	-25.3	43.0	25.897	HORIZONTAL

802.11g

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
17502.000	43.7	-25.3	42.8	26.197	VERTICAL
17995.500	43.6	-24.7	42.3	26.014	VERTICAL
17511.750	43.6	-25.3	42.8	26.097	HORIZONTAL
17502.750	43.6	-25.3	42.8	26.097	VERTICAL
17983.500	43.5	-25.2	42.3	26.428	HORIZONTAL
17499.750	43.5	-25.3	43.0	25.797	VERTICAL

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
17504.250	43.7	-25.3	42.8	26.197	VERTICAL
17529.750	43.6	-25.3	42.9	25.997	HORIZONTAL
17497.500	43.6	-25.3	43.0	25.897	VERTICAL
17514.750	43.5	-25.3	42.8	25.997	VERTICAL
17491.500	43.5	-25.3	43.0	25.797	VERTICAL
17469.750	43.5	-25.3	42.6	26.197	HORIZONTAL

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
17523.750	43.6	-25.3	42.8	26.097	HORIZONTAL
17451.000	43.5	-26.3	42.6	27.217	HORIZONTAL
17534.250	43.5	-25.3	42.9	25.897	VERTICAL
17505.000	43.5	-25.3	42.8	25.997	HORIZONTAL
17507.250	43.5	-25.3	42.8	25.997	VERTICAL
17481.000	43.5	-25.3	43.0	25.797	HORIZONTAL

802.11n-HT20

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
17500.500	43.7	-25.3	42.8	26.197	VERTICAL
17505.000	43.6	-25.3	42.8	26.097	HORIZONTAL
17469.750	43.6	-25.3	42.6	26.297	VERTICAL
17473.500	43.6	-25.3	42.6	26.297	VERTICAL
17493.750	43.6	-25.3	43.0	25.897	HORIZONTAL
17491.500	43.6	-25.3	43.0	25.897	VERTICAL

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
17517.000	43.8	-25.3	42.8	26.297	VERTICAL
17457.750	43.7	-26.3	42.6	27.417	VERTICAL
17500.500	43.7	-25.3	42.8	26.197	VERTICAL
17534.250	43.6	-25.3	42.9	25.997	HORIZONTAL
17486.250	43.6	-25.3	43.0	25.897	VERTICAL
17979.750	43.6	-25.2	42.3	26.528	VERTICAL

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
17485.500	43.8	-25.3	43.0	26.097	HORIZONTAL
17508.000	43.7	-25.3	42.8	26.197	HORIZONTAL
17510.250	43.7	-25.3	42.8	26.197	VERTICAL
17500.500	43.7	-25.3	42.8	26.197	HORIZONTAL
17487.000	43.6	-25.3	43.0	25.897	VERTICAL
17502.000	43.5	-25.3	42.8	25.997	HORIZONTAL

802.11n-HT40

Ch3

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

Ch6

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

Ch9

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

Test graphs as below:

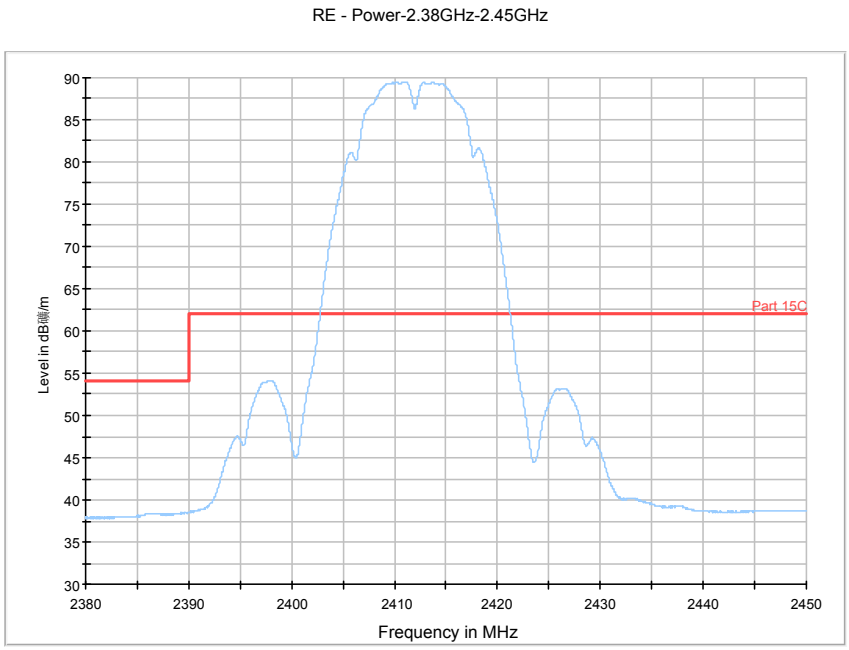


Fig. 97 Radiated Spurious Emission (Power): 802.11b, ch1, 2.38 GHz - 245GHz

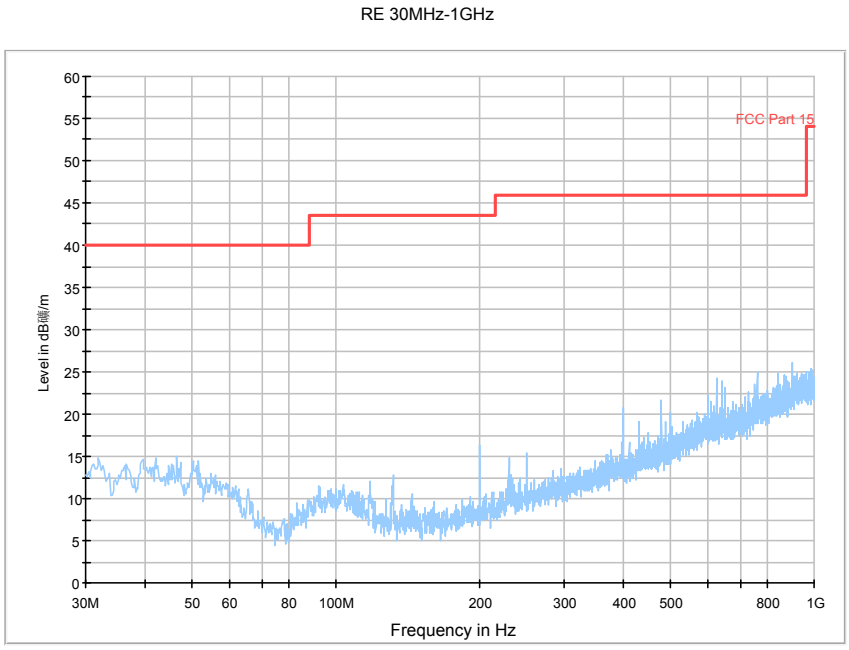


Fig. 98 Radiated Spurious Emission (802.11b, Ch1, 30 MHz-1 GHz)

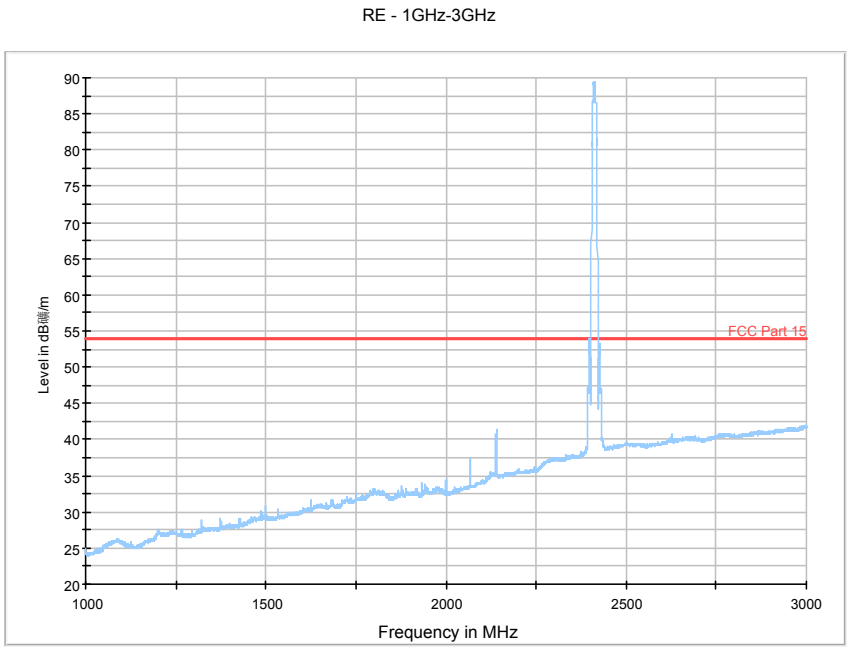


Fig. 99 Radiated Spurious Emission (802.11b, Ch1, 1 GHz-3 GHz)

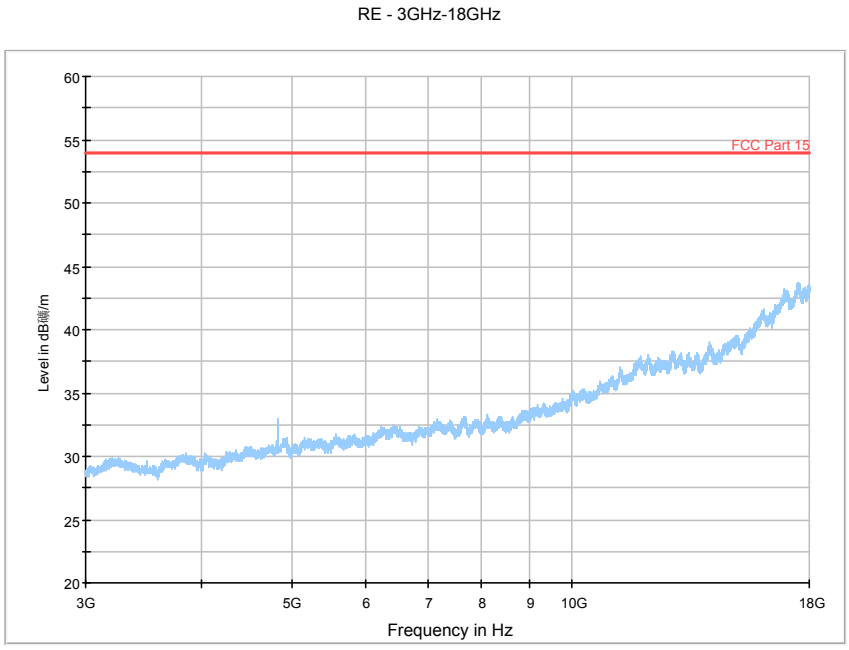


Fig. 100 Radiated Spurious Emission (802.11b, Ch1, 3 GHz-18 GHz)

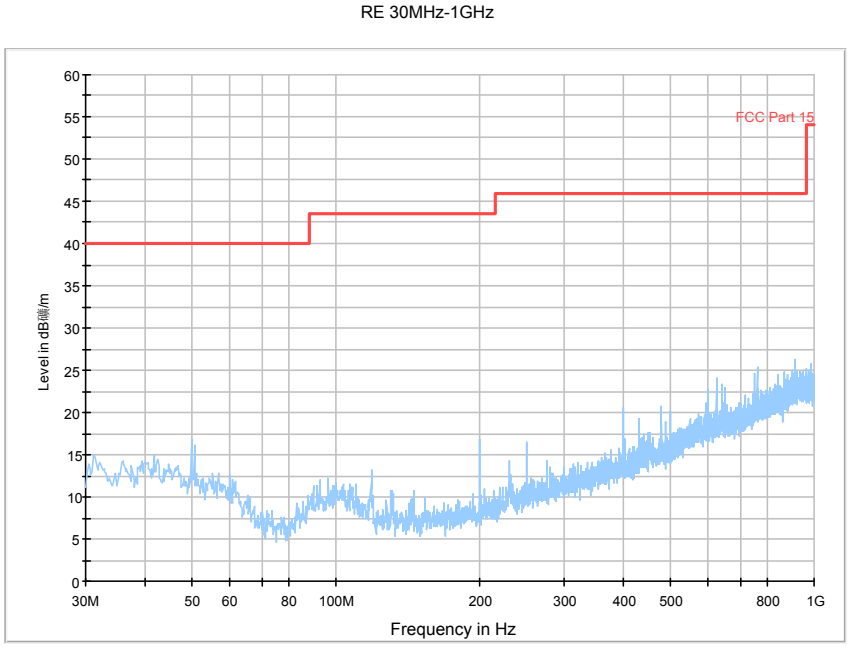


Fig. 101 Radiated Spurious Emission (802.11b, Ch6, 30 MHz-1 GHz)

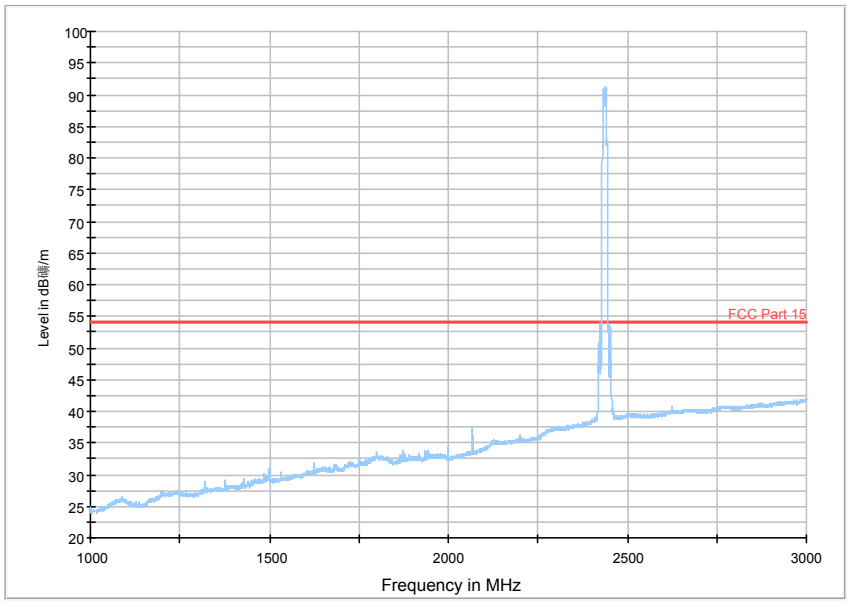


Fig. 102 Radiated Spurious Emission (802.11b, Ch6, 1 GHz-3 GHz)

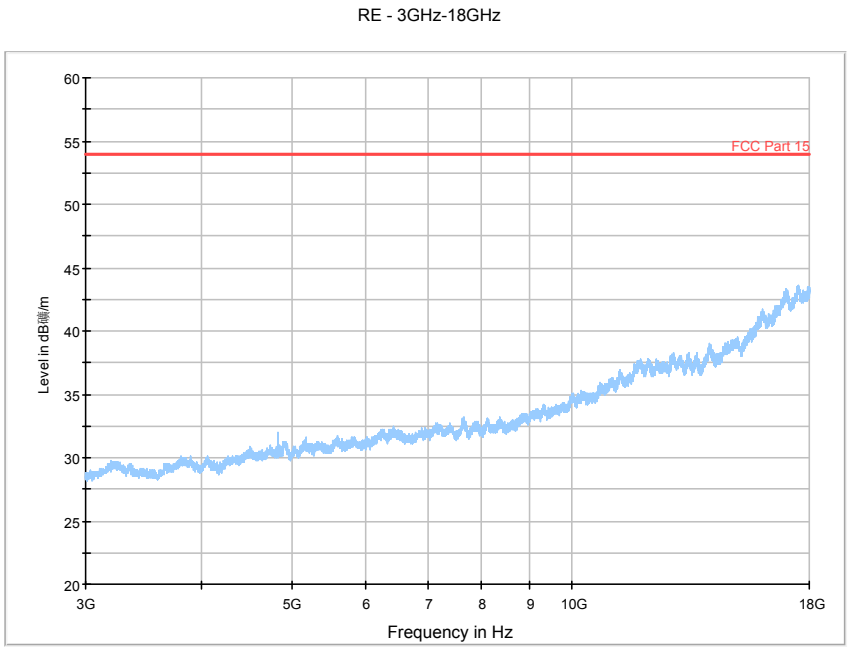


Fig. 103 Radiated Spurious Emission (802.11b, Ch6, 3 GHz-18 GHz)

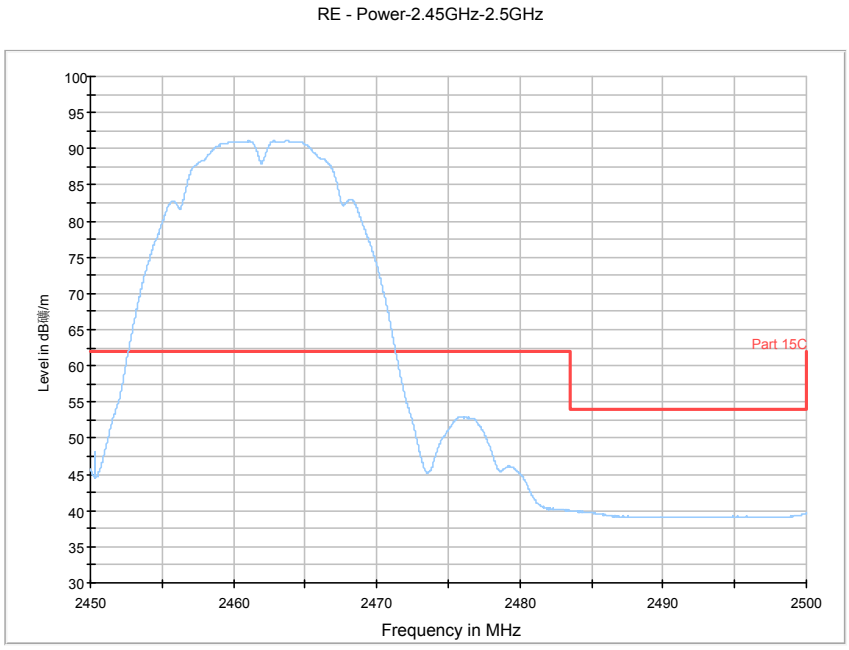


Fig. 104 Radiated Spurious Emission (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

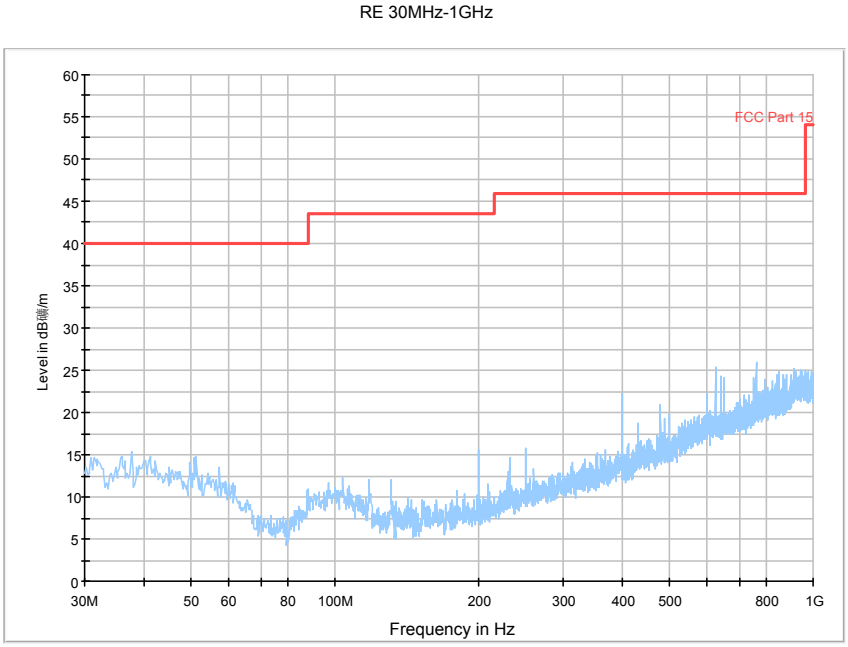


Fig. 105 Radiated Spurious Emission (802.11b, Ch11, 30 MHz-1 GHz)

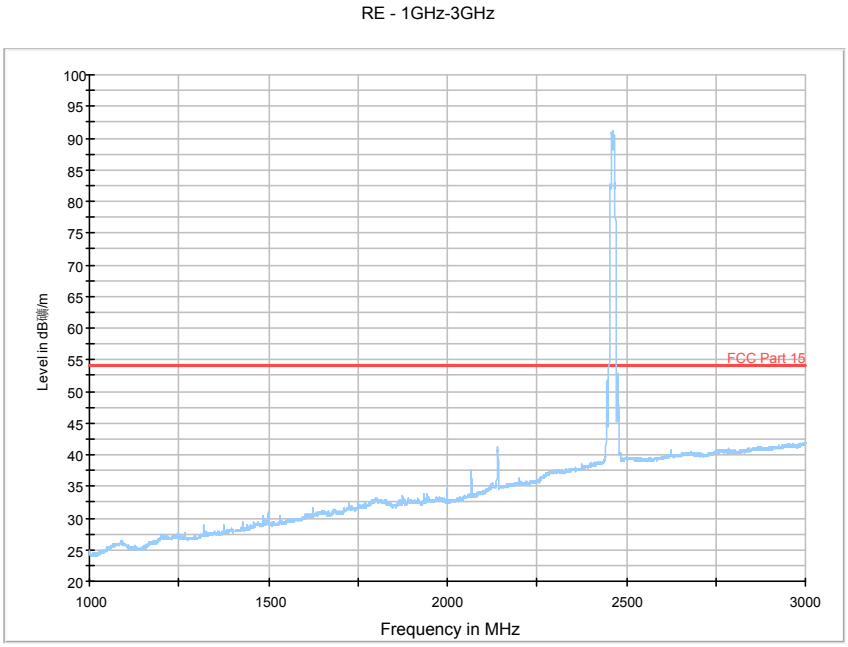


Fig. 106 Radiated Spurious Emission (802.11b, Ch11, 1 GHz-3 GHz)

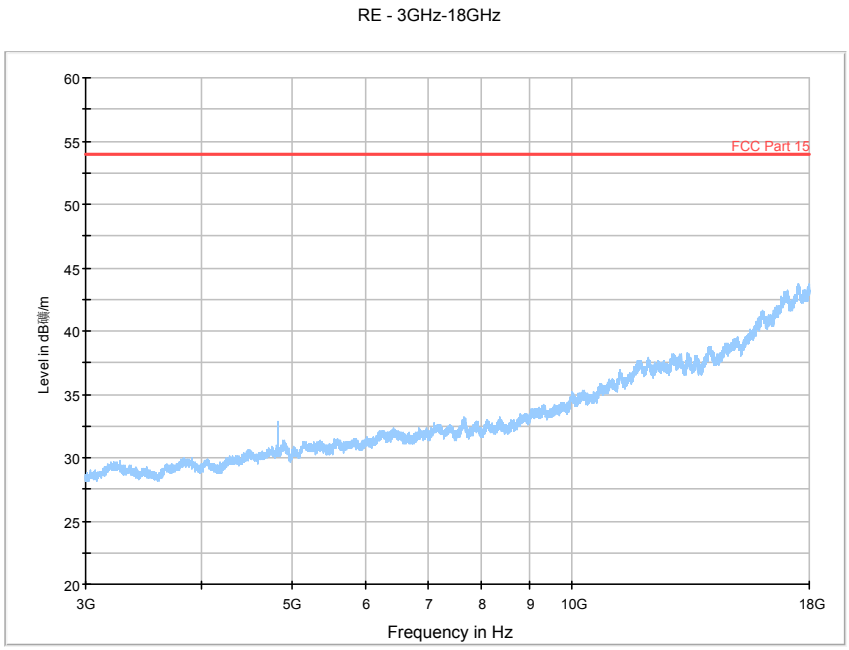


Fig. 107 Radiated Spurious Emission (802.11b, Ch11, 3 GHz-18 GHz)

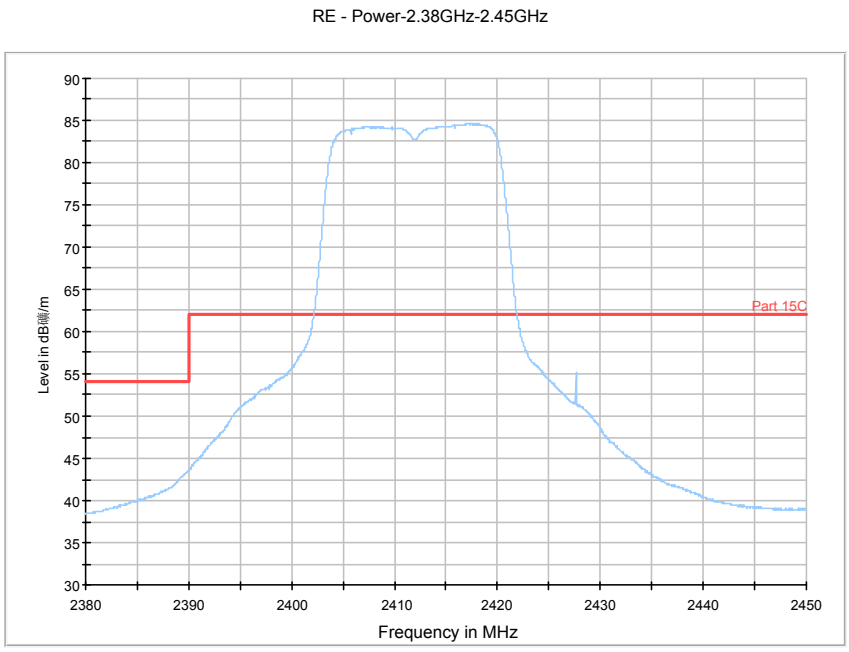


Fig. 108 Radiated Spurious Emission (Power): 802.11g, ch1, 2.38 GHz - 2.45GHz

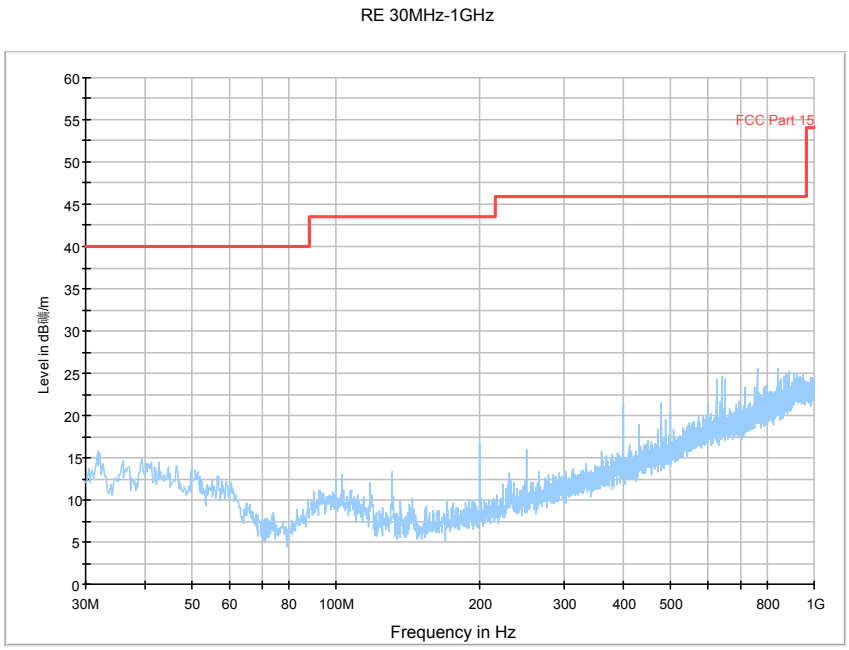


Fig. 109 Radiated Spurious Emission (802.11g, Ch1, 30 MHz-1 GHz)

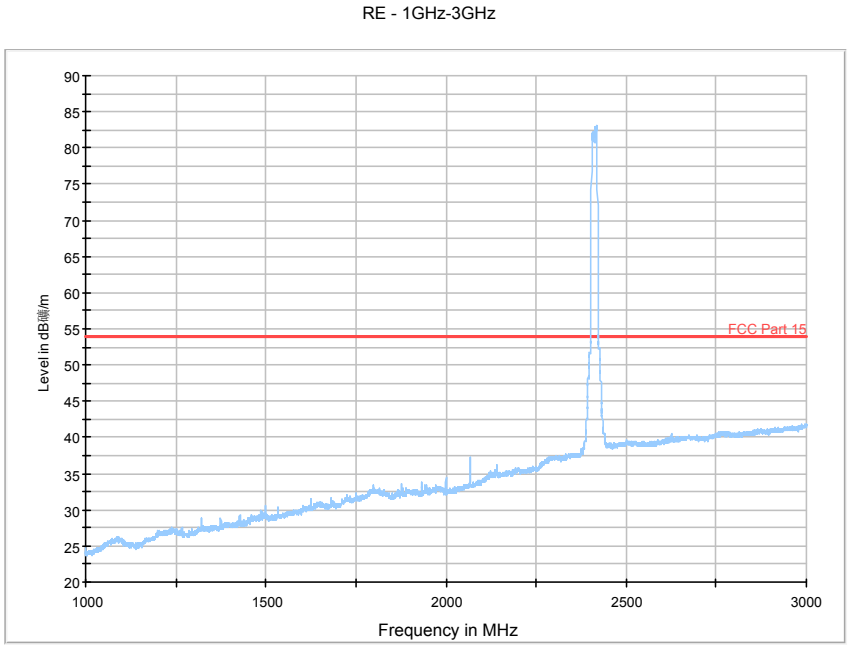


Fig. 110 Radiated Spurious Emission (802.11g, Ch1, 1 GHz-3 GHz)

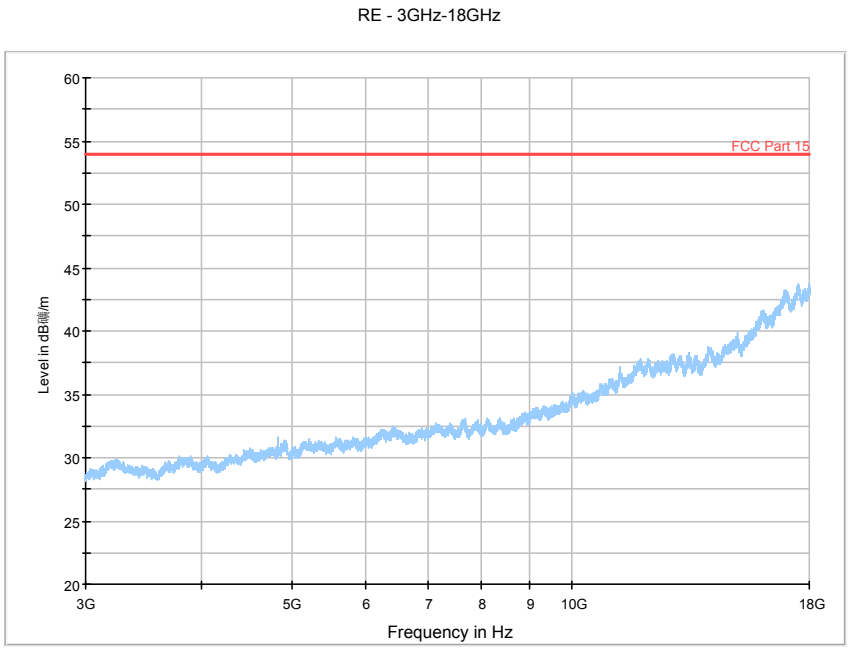


Fig. 111 Radiated Spurious Emission (802.11g, Ch1, 3 GHz-18 GHz)

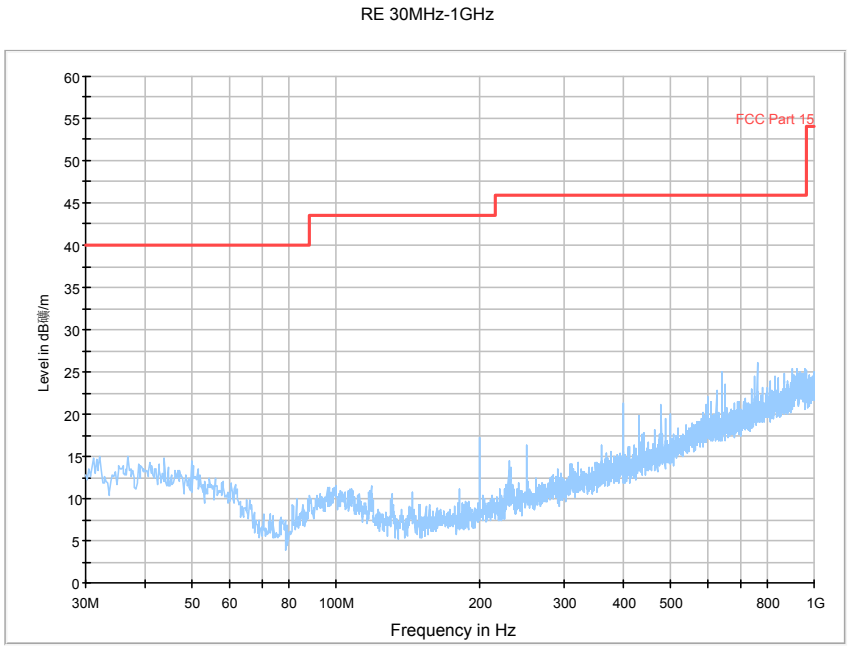


Fig. 112 Radiated Spurious Emission (802.11g, Ch6, 30 MHz-1 GHz)

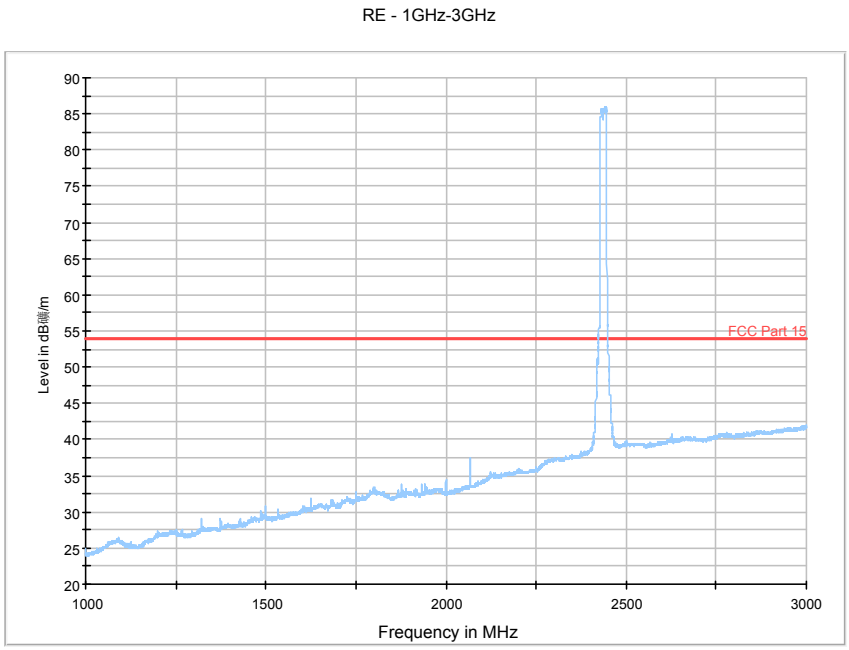


Fig. 113 Radiated Spurious Emission (802.11g, Ch6, 1 GHz-3 GHz)

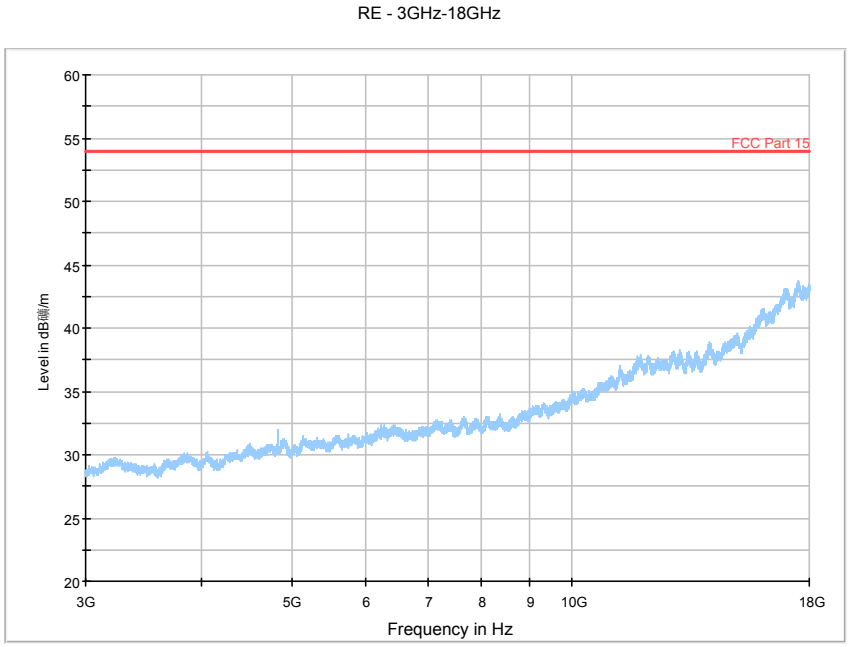


Fig. 114 Radiated Spurious Emission (802.11g, Ch6, 3 GHz-18 GHz)

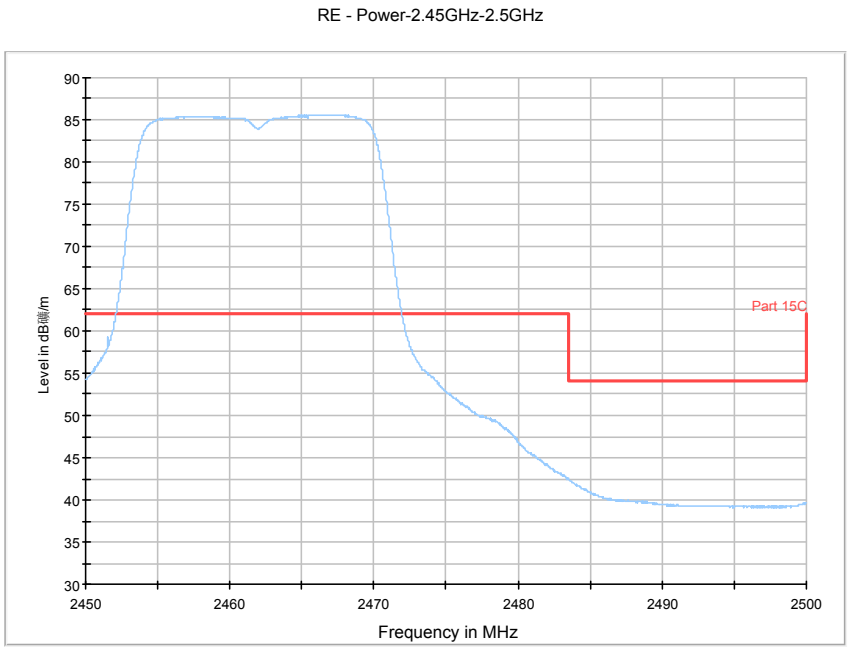


Fig. 115 Radiated Spurious Emission (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

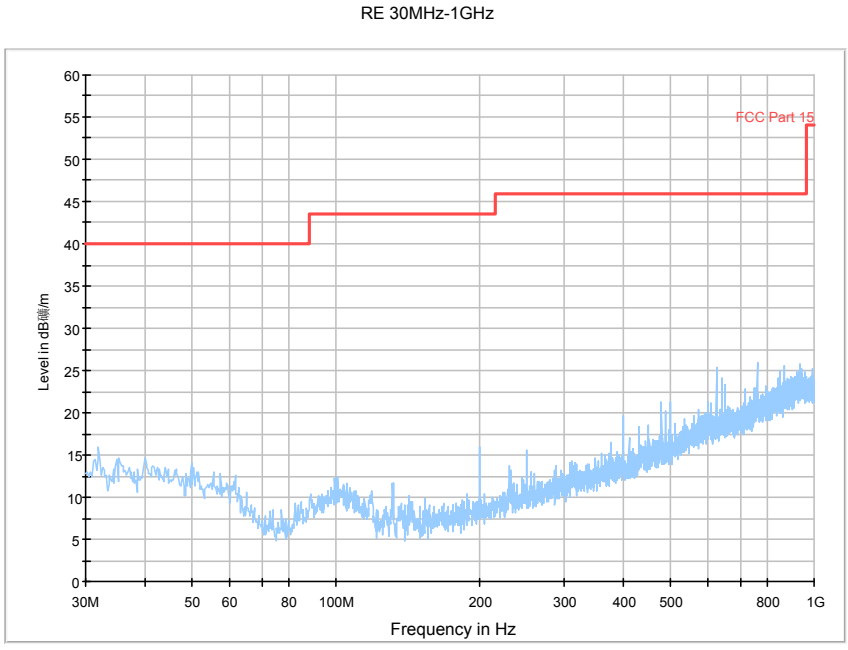


Fig. 116 Radiated Spurious Emission (802.11g, Ch11, 30 MHz-1 GHz)

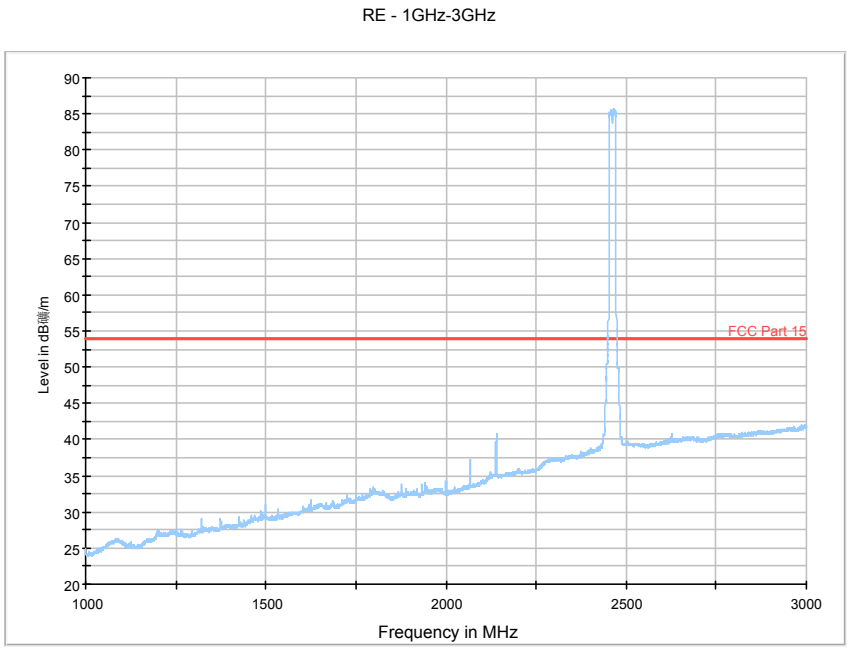


Fig. 117 Radiated Spurious Emission (802.11g, Ch11, 1 GHz-3 GHz)

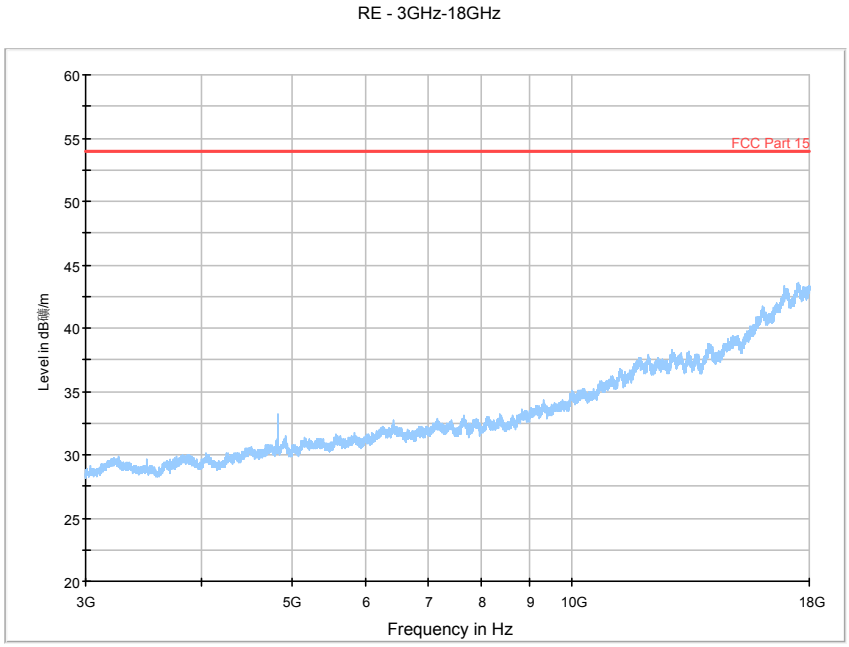


Fig. 118 Radiated Spurious Emission (802.11g, Ch11, 3 GHz-18 GHz)

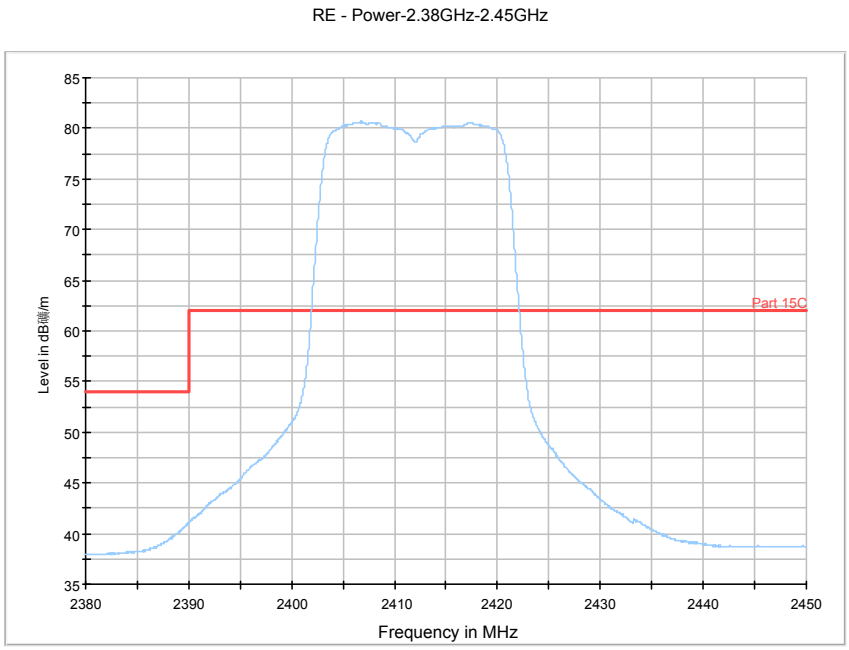


Fig. 119 Radiated Spurious Emission (Power): 802.11n-20MHz, ch1, 2.38 GHz - 2.45GHz

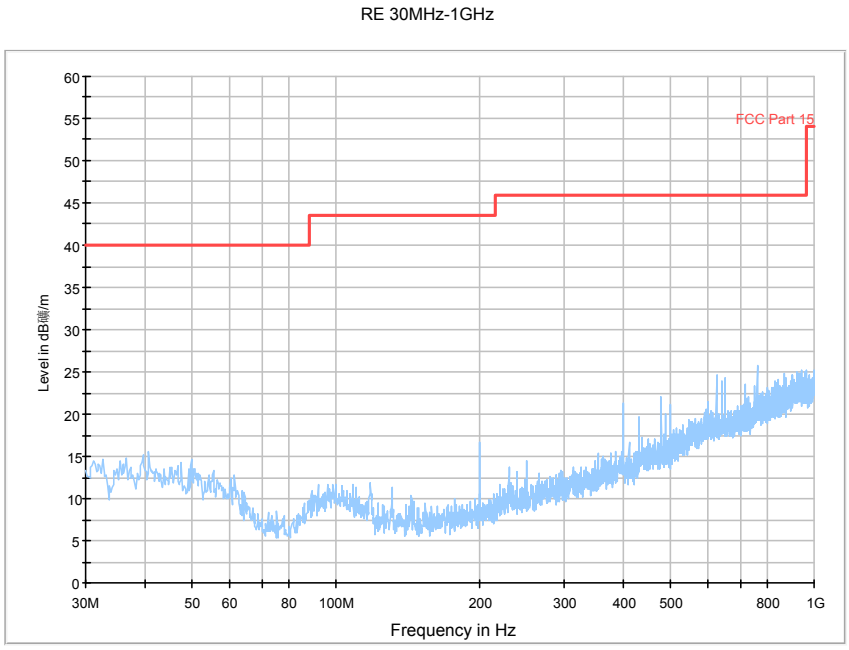


Fig. 120 Radiated Spurious Emission (802.11n-20MHz, Ch1, 30 MHz-1 GHz)

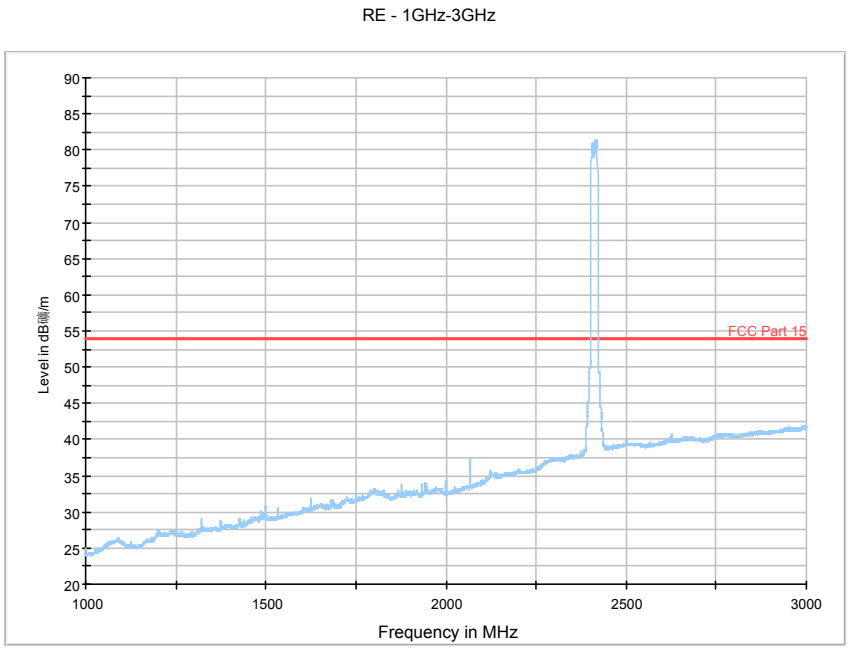


Fig. 121 Radiated Spurious Emission (802.11n-20MHz, Ch1, 1 GHz-3 GHz)

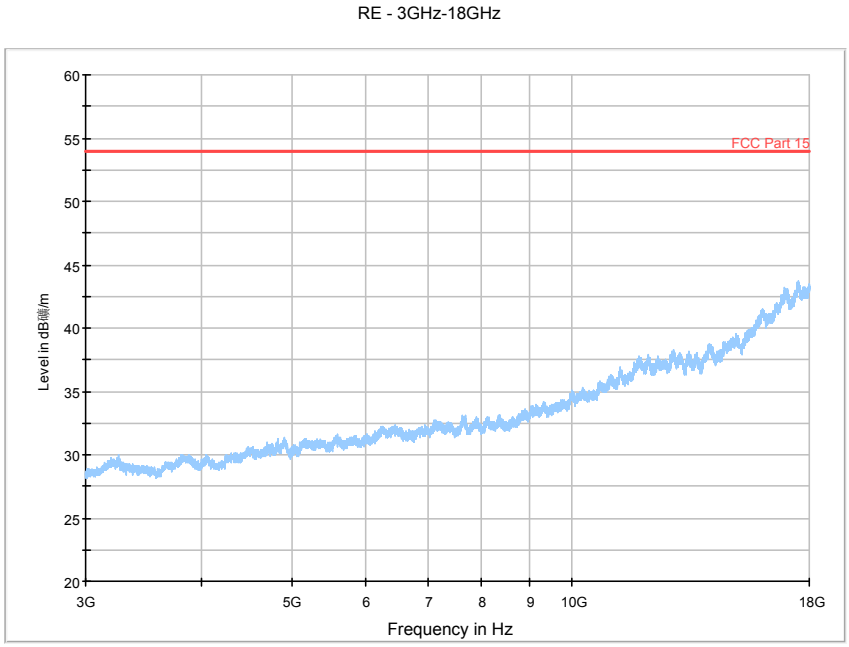


Fig. 122 Radiated Spurious Emission (802.11n-20MHz, Ch1, 3 GHz-18 GHz)

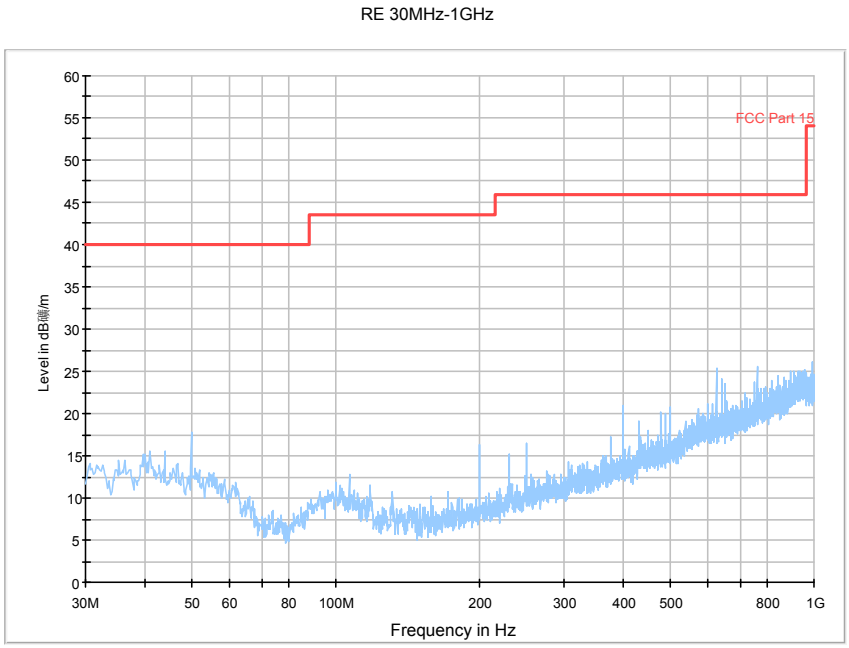


Fig. 123 Radiated Spurious Emission (802.11n-20MHz, Ch6, 30 MHz-1 GHz)

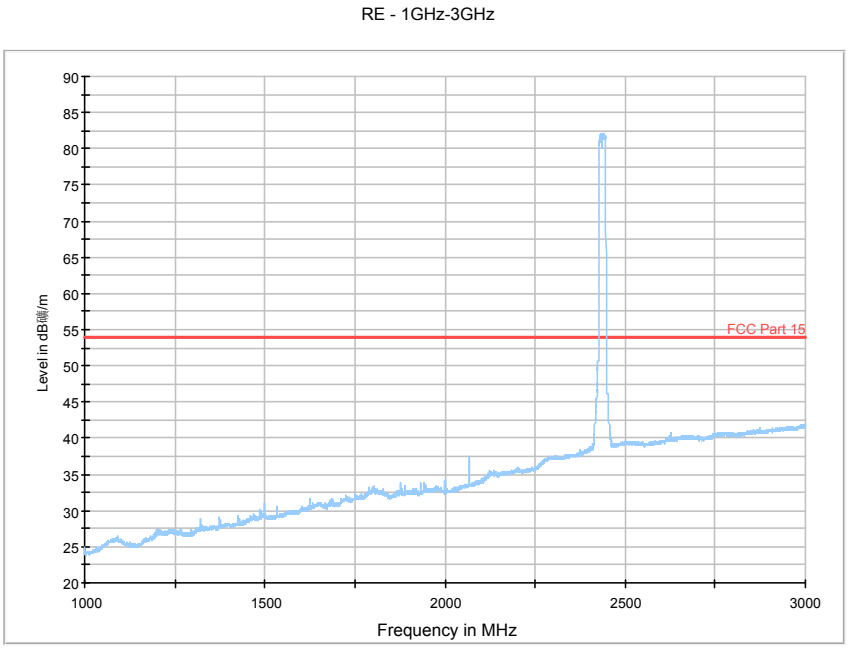


Fig. 124 Radiated Spurious Emission (802.11n-20MHz, Ch6, 1 GHz-3 GHz)

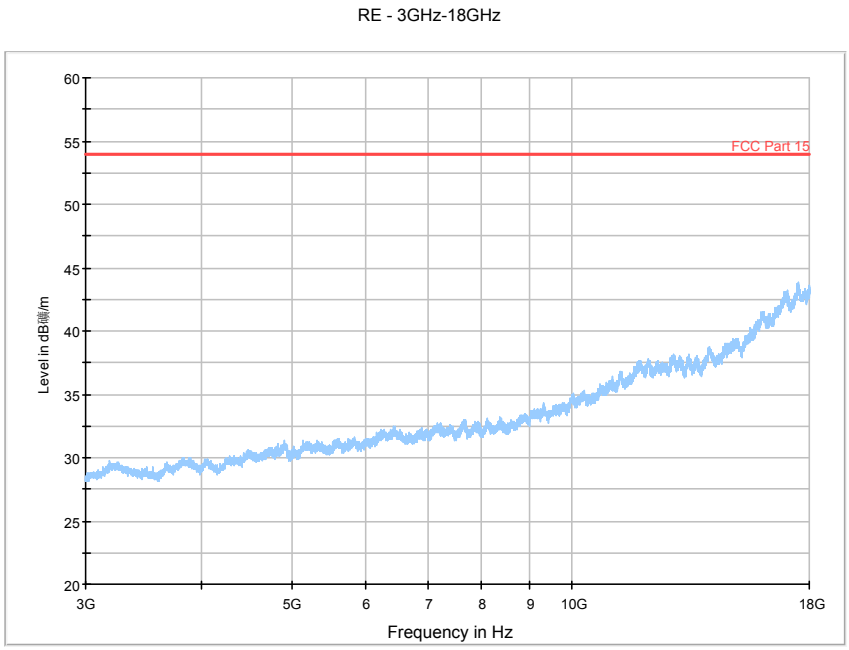


Fig. 125 Radiated Spurious Emission (802.11n-20MHz, Ch6, 3 GHz-18 GHz)

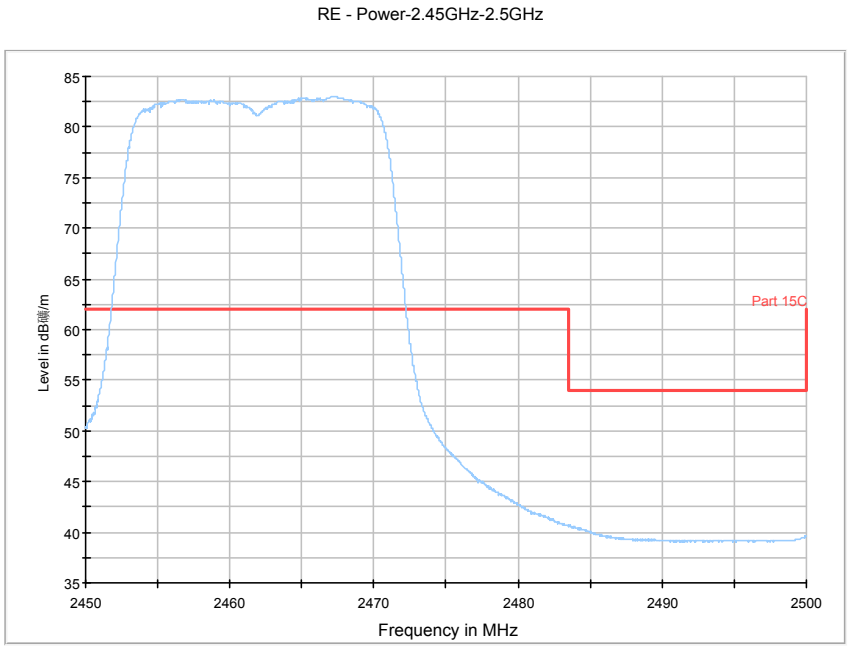


Fig. 126 Radiated Spurious Emission (Power): 802.11n-20MHz, ch11, 2.45 GHz - 2.50GHz

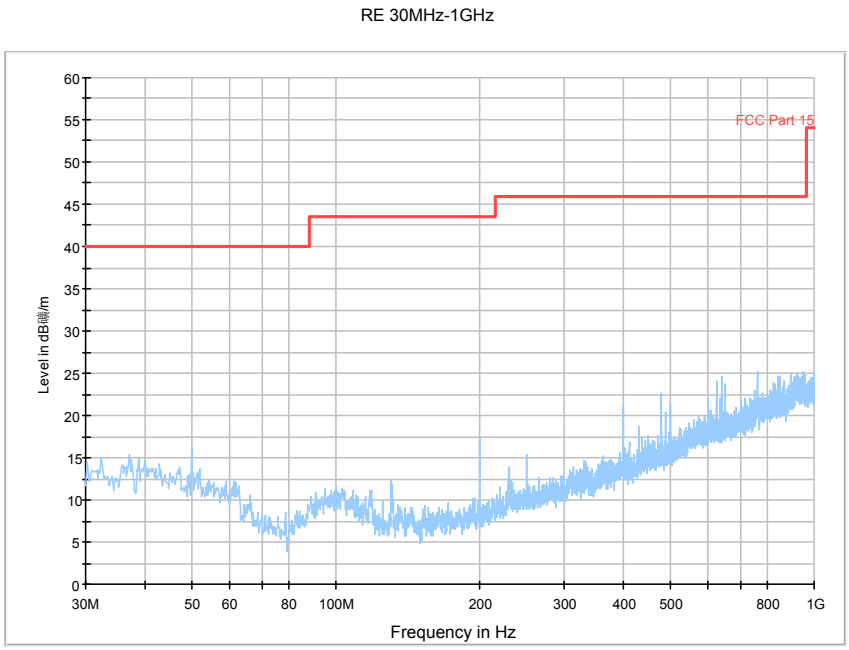


Fig. 127 Radiated Spurious Emission (802.11n-20MHz, Ch11, 30 MHz-1 GHz)

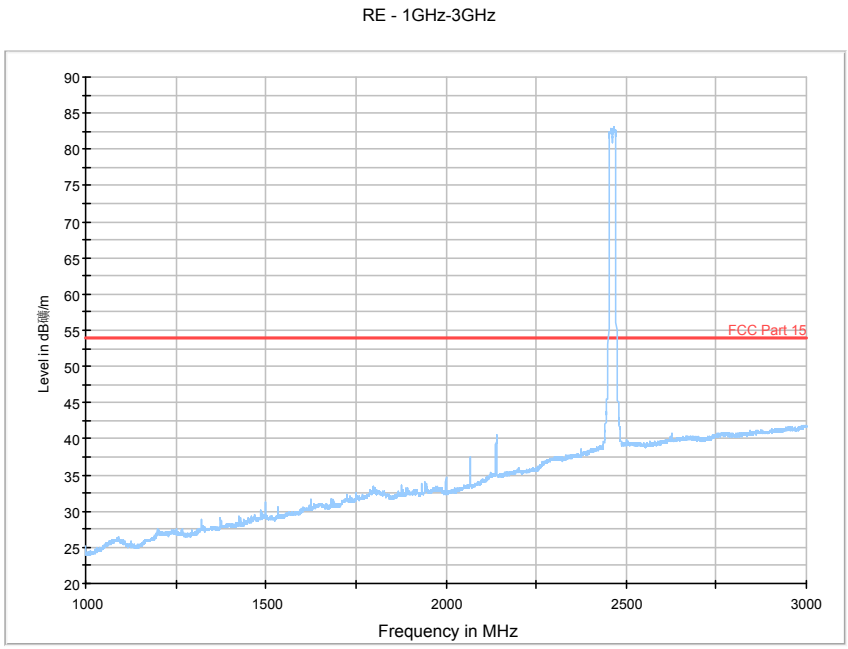


Fig. 128 Radiated Spurious Emission (802.11n-20MHz, Ch11, 1 GHz-3 GHz)

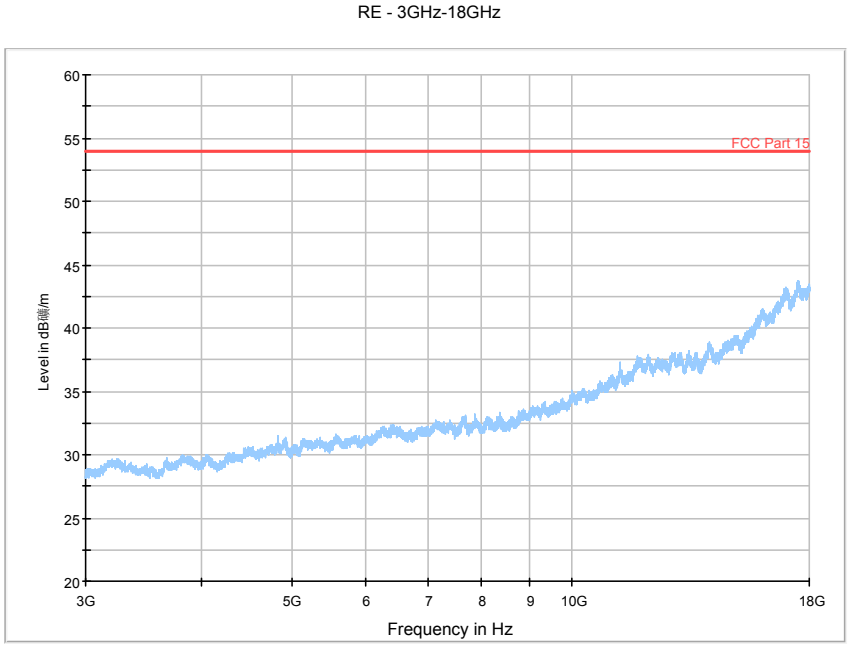


Fig. 129 Radiated Spurious Emission (802.11n-20MHz, Ch11, 3 GHz-18 GHz)

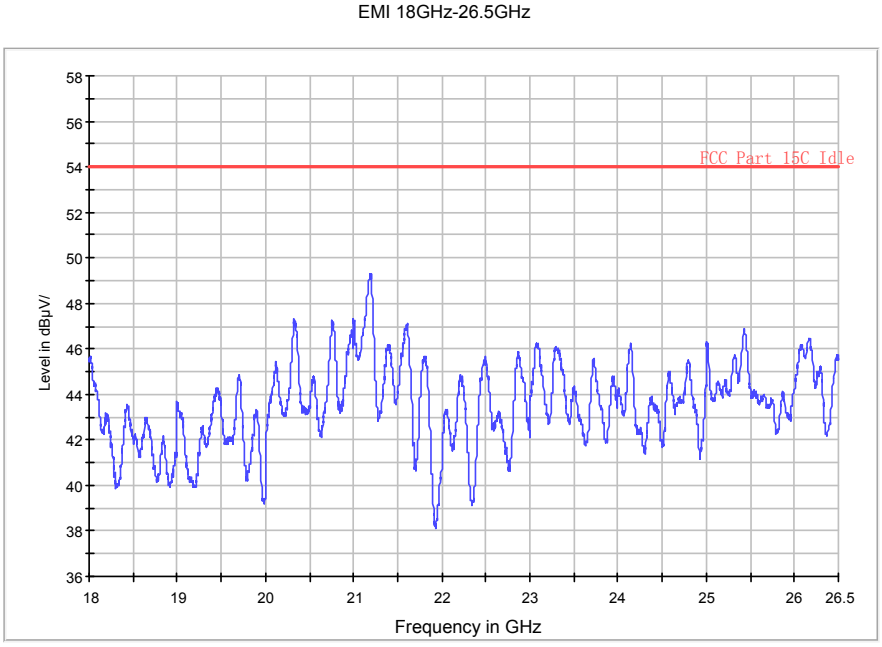


Fig. 130 Radiated Spurious Emission (All channels): 18GHz – 26.5GHz

A.7. AC Powerline Conducted Emission

Test Condition:

Voltage（V）	Frequency（Hz）
120	60

Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)						Conclusion
		Charger 1			Charger 2			
		802.11b	802.11g	802.11n	802.11b	802.11g	802.11n	
0.15 to 0.5	66 to 56	Fig. 131	Fig.132	Fig.133	Fig. 134	Fig.135	Fig.136	P
0.5 to 5	56							
5 to 30	60							
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.								

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)						Conclusion
		Charger 1			Charger 2			
		802.11b	802.11g	802.11b	802.11g	802.11b	802.11g	
0.15 to 0.5	56 to 46	Fig.131	Fig.132	Fig.133	Fig.134	Fig.135	Fig.136	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 KDB558074.

Conclusion: PASS

Measurement uncertainty:

Expanded measurement uncertainty for this test item is U =3.2dB, k=2.

Test graphs as below:

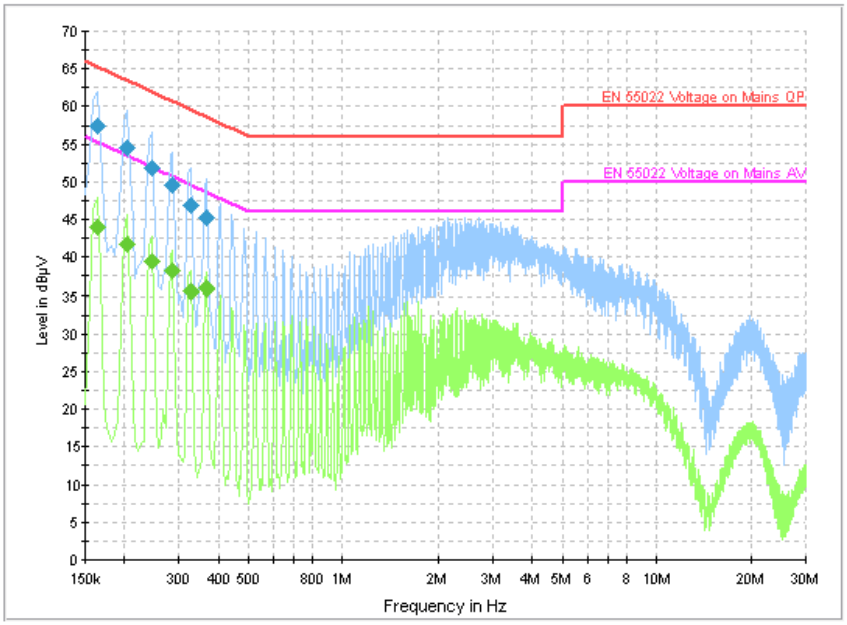


Fig. 131 AC Powerline Conducted Emission-802.11b

Charger 1:

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.163501	57.4	GND	L1	8.6	7.9	65.3
0.204001	54.5	GND	L1	8.8	8.9	63.4
0.244501	51.8	GND	L1	8.9	10.2	61.9
0.285001	49.5	GND	L1	9.0	11.2	60.7
0.325501	47.0	GND	L1	9.2	12.6	59.6
0.366001	45.3	GND	L1	9.3	13.3	58.6

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.163501	44.1	GND	L1	8.6	11.2	55.3
0.204001	41.8	GND	L1	8.8	11.6	53.4
0.244501	39.4	GND	L1	8.9	12.6	51.9
0.285001	38.1	GND	L1	9.0	12.6	50.7
0.325501	35.6	GND	L1	9.2	14.0	49.6
0.366001	35.9	GND	L1	9.3	12.7	48.6

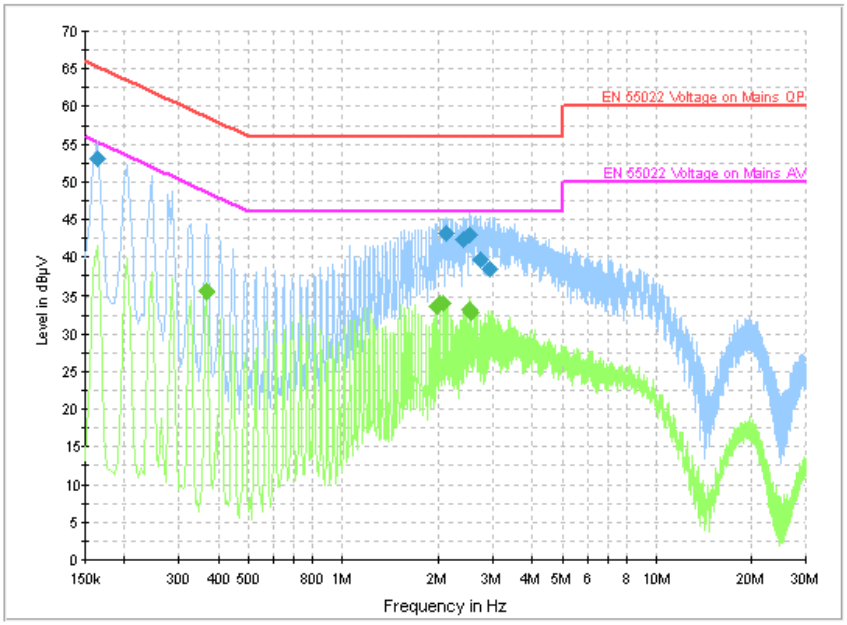


Fig. 132 AC Powerline Conducted Emission-802.11g

Charger 1:

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.163501	53.1	GND	L1	8.6	12.2	65.3
2.112001	43.1	GND	L1	9.9	12.9	56.0
2.395501	42.3	GND	L1	9.8	13.7	56.0
2.517001	42.9	GND	L1	9.8	13.1	56.0
2.715001	39.7	GND	L1	9.8	16.3	56.0
2.913001	38.4	GND	L1	9.8	17.6	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.366001	35.5	GND	N	9.4	13.1	48.6
1.990501	33.7	GND	L1	9.9	12.3	46.0
2.031001	34.1	GND	L1	9.9	11.9	46.0
2.071501	34.0	GND	L1	9.9	12.0	46.0
2.517001	33.2	GND	L1	9.8	12.8	46.0
2.557501	32.9	GND	L1	9.8	13.1	46.0

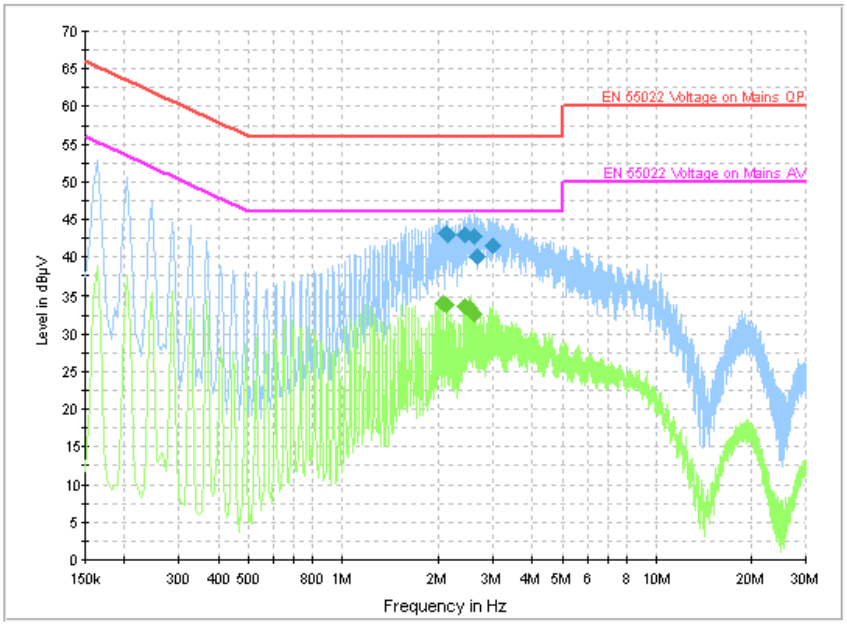


Fig. 133 AC Powerline Conducted Emission-802.11n

Charger 1:

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
2.116501	43.1	GND	L1	9.9	12.9	56.0
2.157001	42.9	GND	L1	9.9	13.1	56.0
2.440501	43.0	GND	L1	9.9	13.0	56.0
2.602501	42.7	GND	L1	9.8	13.3	56.0
2.679001	40.0	GND	L1	9.8	16.0	56.0
3.007501	41.4	GND	L1	9.8	14.6	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
2.076001	34.1	GND	L1	9.9	11.9	46.0
2.116501	33.9	GND	L1	9.9	12.1	46.0
2.440501	33.6	GND	L1	9.9	12.4	46.0
2.521501	33.4	GND	L1	9.8	12.6	46.0
2.562001	33.1	GND	L1	9.8	12.9	46.0
2.602501	32.5	GND	L1	9.8	13.5	46.0

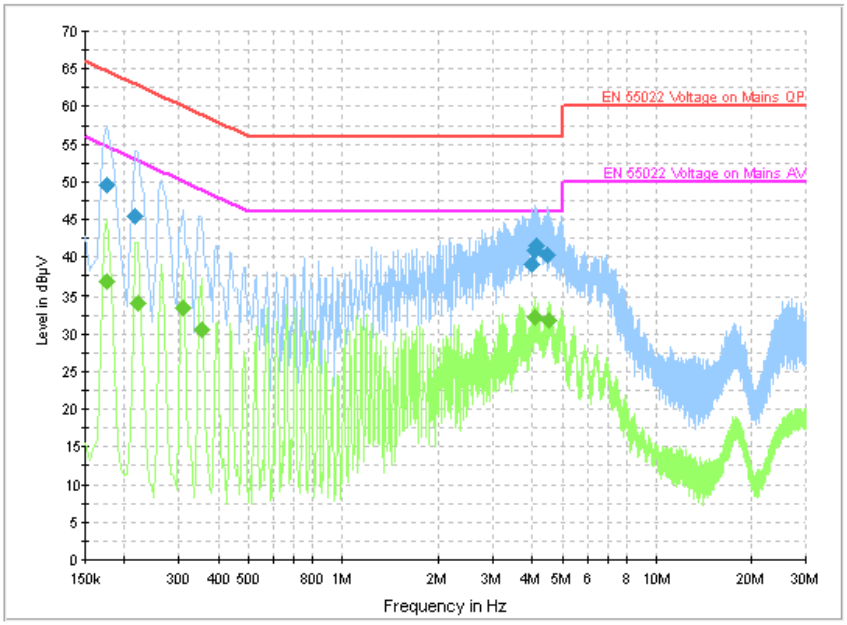


Fig. 134 AC Powerline Conducted Emission-802.11b

Charger 2:

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.177001	49.5	GND	L1	8.7	15.1	64.6
0.217501	45.5	GND	L1	8.8	17.5	62.9
3.975001	39.1	GND	L1	9.8	16.9	56.0
4.101001	40.8	GND	L1	9.8	15.2	56.0
4.128001	41.4	GND	L1	9.8	14.6	56.0
4.447501	40.3	GND	L1	9.8	15.7	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.177001	36.8	GND	L1	8.7	17.8	54.6
0.222001	34.1	GND	L1	8.8	18.6	52.7
0.307501	33.4	GND	L1	9.1	16.7	50.0
0.352501	30.6	GND	L1	9.2	18.3	48.9
4.092001	32.2	GND	L1	9.8	13.8	46.0
4.542001	31.8	GND	L1	9.8	14.2	46.0

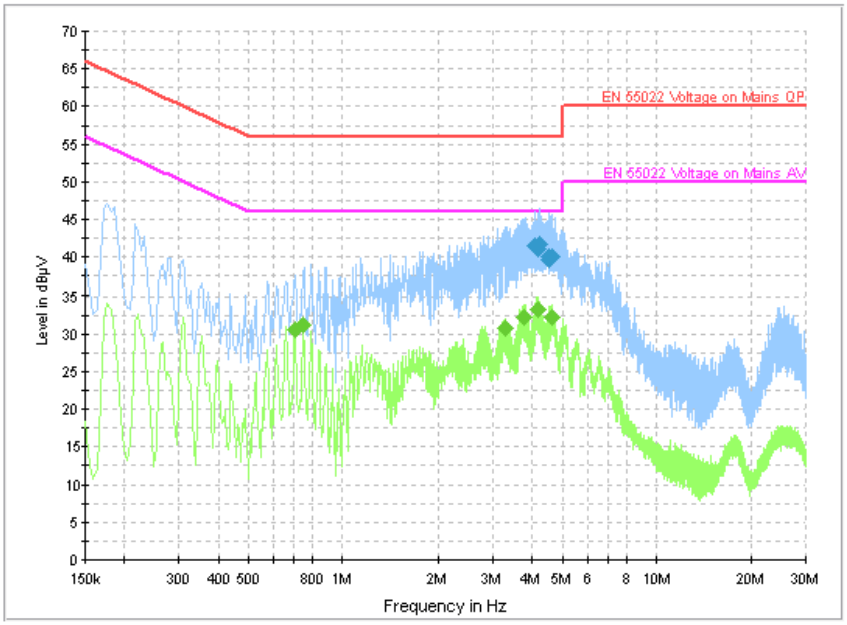


Fig. 135 AC Powerline Conducted Emission-802.11g

Charger 2:

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
4.092001	41.5	GND	L1	9.8	14.5	56.0
4.173001	41.1	GND	L1	9.8	14.9	56.0
4.231501	41.8	GND	L1	9.8	14.2	56.0
4.501501	40.1	GND	L1	9.8	15.9	56.0
4.528501	39.7	GND	L1	9.8	16.3	56.0
4.632001	40.1	GND	L1	9.8	15.9	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.703501	30.6	GND	L1	9.8	15.4	46.0
0.748501	31.3	GND	L1	9.8	14.7	46.0
3.291001	30.8	GND	L1	9.8	15.2	46.0
3.745501	32.2	GND	L1	9.8	13.8	46.0
4.182001	33.2	GND	L1	9.8	12.8	46.0
4.632001	32.2	GND	L1	9.8	13.8	46.0

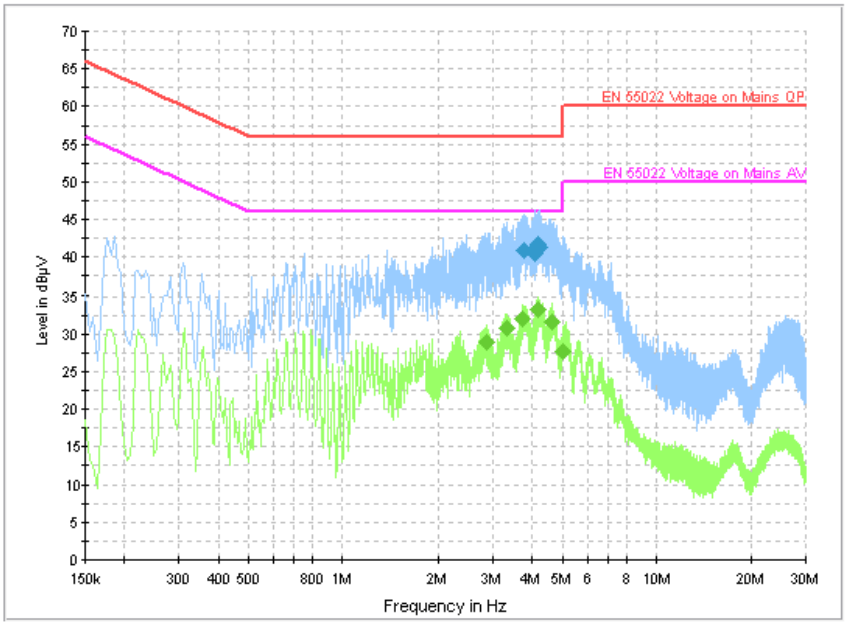


Fig. 136 AC Powerline Conducted Emission-802.11n

Charger 2:

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
3.759001	40.8	GND	L1	9.8	15.2	56.0
4.087501	40.5	GND	L1	9.8	15.5	56.0
4.096501	41.2	GND	L1	9.8	14.8	56.0
4.186501	41.7	GND	L1	9.8	14.3	56.0
4.209001	41.3	GND	L1	9.8	14.8	56.0
4.236001	41.3	GND	L1	9.8	14.7	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
2.868001	28.8	GND	L1	9.8	17.2	46.0
3.304501	30.7	GND	L1	9.8	15.3	46.0
3.741001	32.0	GND	L1	9.8	14.0	46.0
4.195501	33.3	GND	L1	9.8	12.7	46.0
4.605001	31.5	GND	L1	9.8	14.5	46.0
4.992001	27.6	GND	L1	9.8	18.4	46.0

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