

EMC TEST REPORT

FCC 47 CFR Part 15B
Industry Canada RSS-Gen

Electromagnetic compatibility - Unintentional radiators

Report Reference No. : G0M-1310-3347-EF01-V01

Testing Laboratory : Eurofins Product Service GmbH

Address : Storkower Str. 38c
15526 Reichenwalde
Germany

Accreditation :



A2LA Accredited Testing Laboratory, Certificate No.: 1983.01
FCC Filed Test Laboratory, Reg.-No.: 96970
IC OATS Filing assigned code: 3470A

Applicant's name : Saxonar GmbH

Address : Hauptstr. 54
02906 Waldhufen OT Nieder Seifersdorf
GERMANY

Test specification:

Standard..... : 47 CFR Part 15 Subpart B
RSS-Gen, Issue 3, 2010-12
ANSI C63.4:2009

Equipment under test (EUT):

Product description	powermeter for bicycle	
Model No.	power2max / P0004-7-C	
Additional Models	None	
Hardware version	BG0004-7-C	
Firmware / Software version	3.3.0.83	
Contains	FCC-ID: ZQ2-P0004-7-C	IC: 9766A-P0004-7-C
Test result	Passed	

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Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Possible test case verdicts:

- not applicable to test object : N/A
- test object does meet the requirement : P (Pass)
- test object does not meet the requirement : F (Fail)

Testing:

Date of receipt of test item : 2013-12-11

Date (s) of performance of tests : 2013-12-12

Compiled by : Marcus Klein

Tested by (+ signature) : Matthias Handrik

Approved by (+ signature) : Marcus Klein

Date of issue : 2013-12-17

Total number of pages : 20



General remarks:

The test results presented in this report relate only to the object tested.

The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

Additional comments:

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1 Equipment (Test item) Description

Description	powermeter for bicycle
Model	power2max / P0004-7-C
Additional Models	None
Serial number	None
Hardware version	BG0004-7-C
Software / Firmware version	Fehler! Verweisquelle konnte nicht gefunden werden.
Contains FCC-ID	ZQ2-P0004-7-C
Contains IC	9766A-P0004-7-C
Power supply	3 VDC
Manufacturer	Saxonar GmbH Hauptstr. 54 02906 Waldhufen OT Nieder Seifersdorf GERMANY
Highest emission frequency	2810 MHz
Device classification	Class B
Equipment type	Tabletop
Number of tested samples	1

1.4 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
AE	Notebook	Medion	Akoya P8614	-
AE	Companion device	Saxonar GmbH	-	-

***Note:** Use the following abbreviations:

AE : Auxiliary/Associated Equipment, or

SIM : Simulator (Not Subjected to Test)

CABL : Connecting cables

1.5 Operating Modes

Mode #	Description
1	Normal operation mode without motion. Communication link from EUT to companion device.

1.6 Test Equipment Used During Testing

Radiated emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Biconical Antenna	R&S	HK 116	EF00012	2013-02	2016-02
LPD-Antenne	R&S	HL 223	EF00187	2011-02	2014-02
LPD-Antenna	R&S	HL 025	EF00327	2013-02	2016-02
EMI Test Receiver	R&S	ESU8	EF00379	2013-03	2014-03
EMI Test Receiver	R&S	ESCS30	EF00295	2013-10	2014-10

1.7 Sample emission level calculation

The following is a description of terms and a sample calculation, as appears in the radiated emissions data table. The numbers used in the calculation are for example only. There is no direct correlation to the specific data taken for the product described in this document:

Reading:

This is the reading obtained on the spectrum analyzer in dB μ V. Any external preamplifiers used are taken into account through internal analyzer settings.

A.F.:

This is the antenna factor for the receiving antenna. It is a conversion factor, which converts electric fields strengths to voltages, which can be measured directly on the spectrum analyzer. It is treated as a loss in dB. Cable losses have been included with the A.F. to simplify the calculations. The antenna factor is used in calculations as follows:

$$\text{Reading on Analyzer (dB}\mu\text{V)} + \text{A.F. (dB)} = \text{Net field strength (dB}\mu\text{V/m)}$$

Net:

This is the net field strength measurement (as shown above).

Limit:

This is the FCC Class B radiated emission limit (in units of dB μ V/m). The FCC limits are given in units of μ V/m. The following formula is used to convert the units of μ V/m to dB μ V/m:

$$\text{Limit (dB}\mu\text{V/m)} = 20 * \log (\mu\text{V/m})$$

Margin:

This is the margin of compliance below the FCC limit. The units are given in dB. A negative margin indicates the emission was below the limit. A positive margin indicates that the emission exceeds the limit.

Example only:

$$\begin{array}{rclclcl} \text{Reading} & + & \text{AF} & = & \text{Net Reading} & : & \text{Net reading - FCC limit} & = & \text{Margin} \\ 21.5 \text{ dB}\mu\text{V} & + & 26 \text{ dB} & = & 47.5 \text{ dB}\mu\text{V/m} & : & 47.5 \text{ dB}\mu\text{V/m} - 57.0 \text{ dB}\mu\text{V/m} & = & -9.5 \text{ dB} \end{array}$$

2 Result Summary

FCC 47 CFR Part 15B, Industry Canada RSS-Gen				
Product Specific Standard	Requirement – Test	Reference Method	Result	Remarks
47 CFR 15.109 RSS-Gen 4.9 & 4.10	Radiated emissions	ANSI C 63.4	PASS	For results above 5GHz see Report G0M-1310-3347-TFC247W
47 CFR 15.107 RSS-Gen 7.2.4	AC power line conducted emissions	ANSI C63.4	N/A	No relevant port available
Remarks:				

3 Test Conditions and Results

3.1 Test Conditions and Results – Radiated emissions

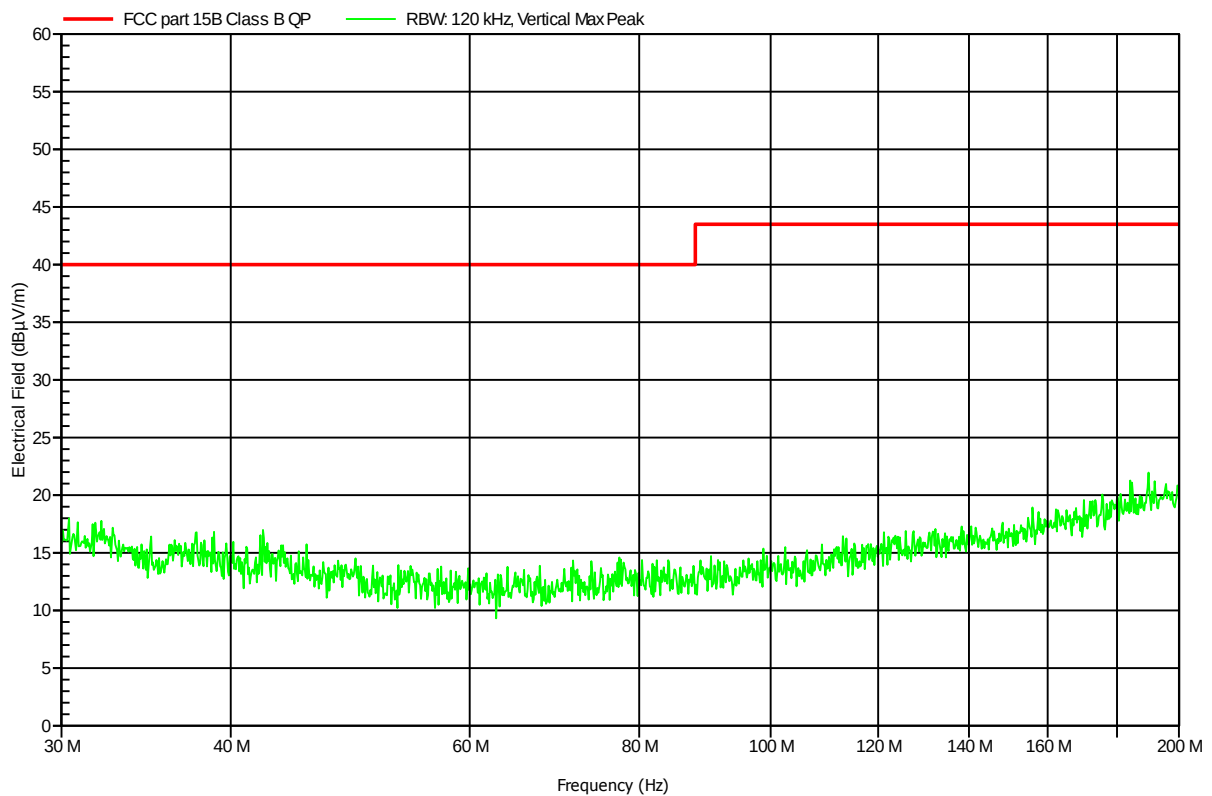
Radiated emissions acc. FCC 47 CFR 15.109 / IC RSS-Gen					Verdict: PASS	
Laboratory Parameters:		Required prior to the test		During the test		
Ambient Temperature		15 to 35 °C		22°C		
Relative Humidity		30 to 60 %		31%		
Test according referenced standards		Reference Method				
		ANSI C63.4				
Sample is tested with respect to the requirements of the equipment class		Equipment class				
		Class B				
Test frequency range determined from highest emission frequency		Highest emission frequency				
		Fehler! Verweisquelle konnte nicht gefunden werden.				
Fully configured sample scanned over the following frequency range		Frequency range				
		30 MHz to 1 GHz				
Operating mode		1				
Limits and results Class B						
Frequency [MHz]	Quasi-Peak [dBµV/m]	Result	Average [dBµV/m]	Result	Peak [dBµV/m]	Result
30 – 88	40	PASS	-		-	-
88 – 216	43.5	PASS	-		-	-
216 – 960	46	PASS	-		-	-
960 – 1000	54	PASS	-		-	-
> 1000	-	-	54	PASS	74	PASS
Comments:						

Spurious emissions under normal conditions according to FCC part 15B

Project number: G0M-1310-3347

Manufacturer: Saxonar GmbH
 EUT Name: powermeter for bicycle
 Model: power2max / P0004-7-C
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 21°C, Unom: 3 V DC (battery)
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3m
 Mode: aktiv
 Test Date: 2013-12-12
 Note:

Index 1

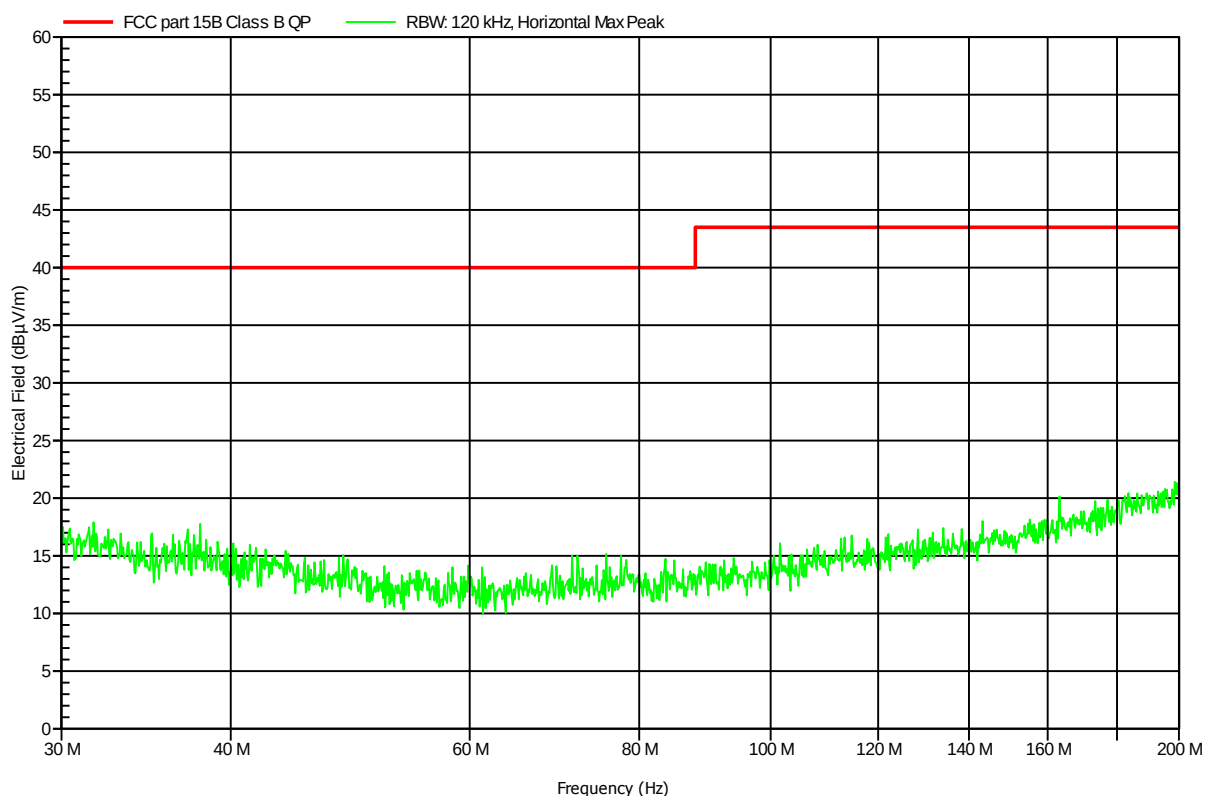


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 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3m
 Mode: active
 Test Date: 2013-12-12
 Note:

Index 2

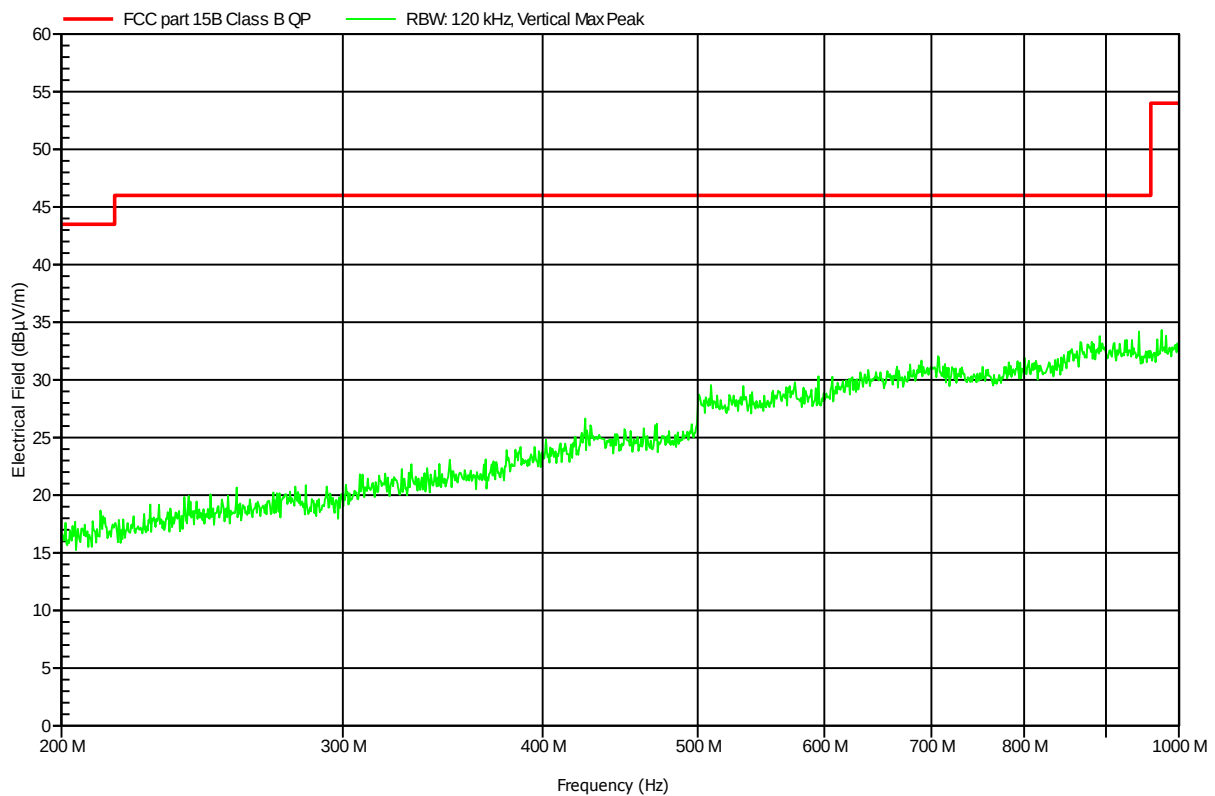


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 Test Conditions: Tnom: 21°C, Unom: 3 V DC (battery)
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3m
 Mode: active
 Test Date: 2013-12-12
 Note:

Index 4

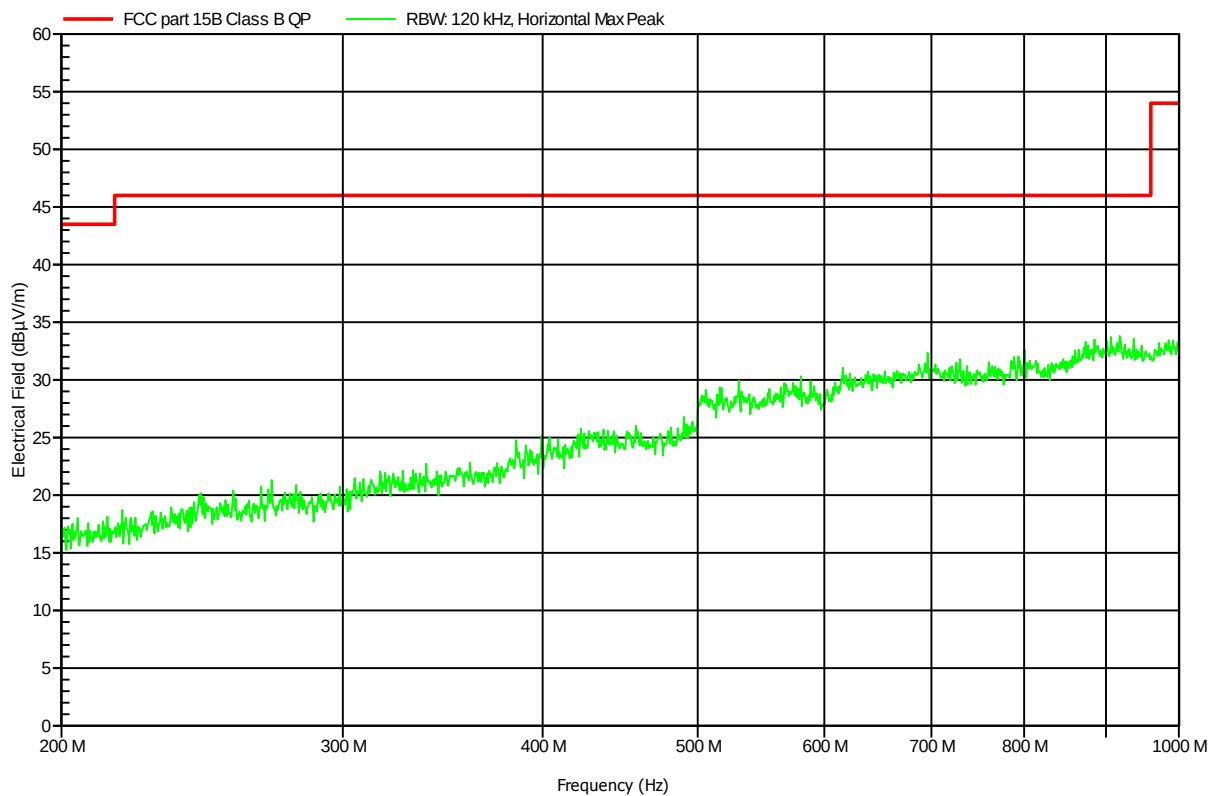


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 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3m
 Mode: active
 Test Date: 2013-12-12
 Note:

Index 3

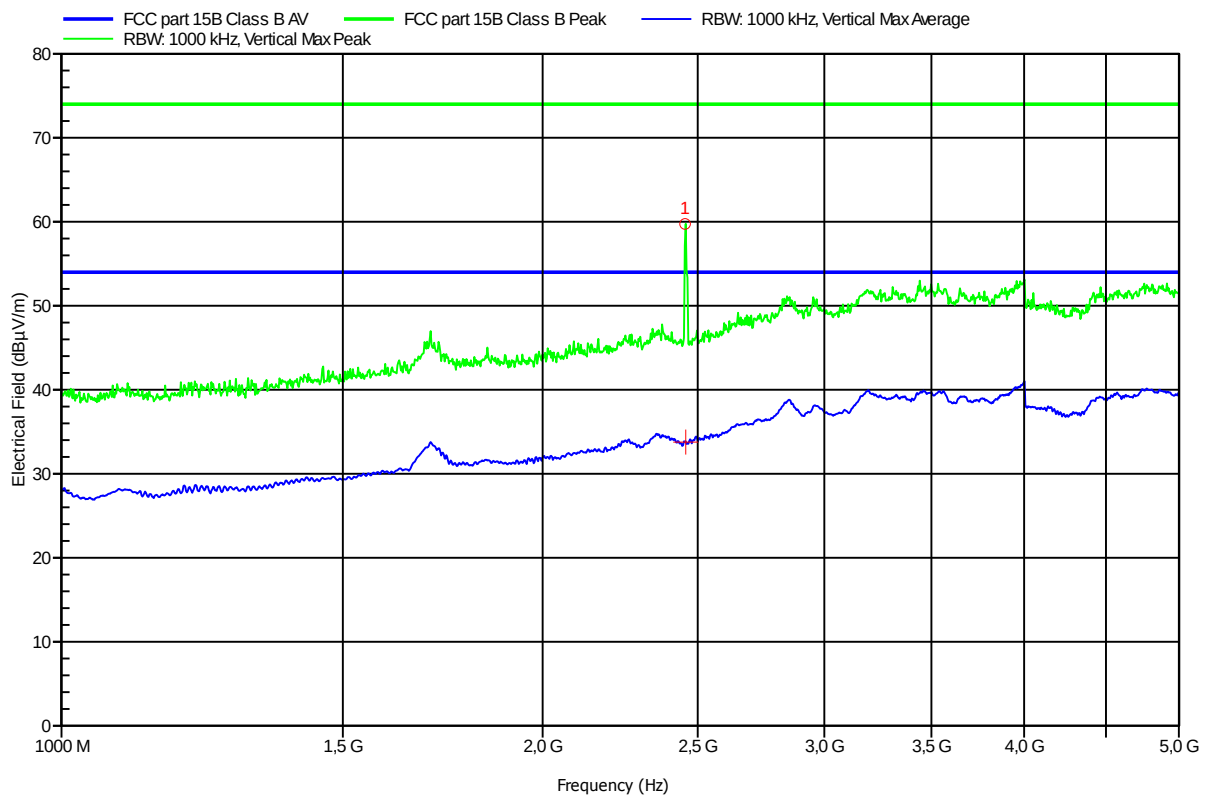


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 Test Site: Eurofins Product Service GmbH
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 Test Conditions: Tnom: 21°C, Unom: 3 V DC (battery)
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 3m
 Mode: active
 Test Date: 2013-12-12
 Note:

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Nr	Frequency	Peak
1	2,455 GHz	59,74 dBμV/m

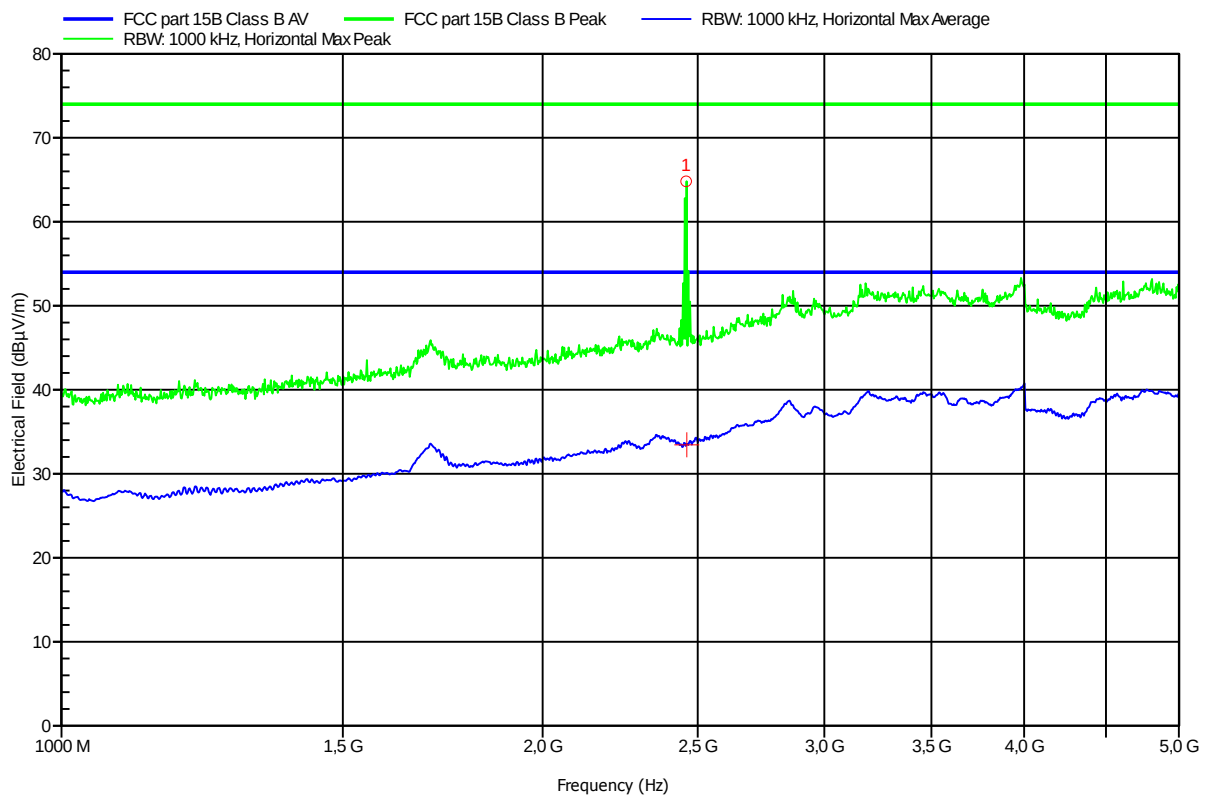
Nr	Frequency	Average	Average Limit	Average Difference	Average Status
1	2,455 GHz	33,85 dBμV/m	54 dBμV/m	-20,15 dB	Pass

Spurious emissions under normal conditions according to FCC part 15B

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 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 3m
 Mode: active
 Test Date: 2013-12-12
 Note:

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Nr	Frequency	Peak
1	2,459 GHz	64,81 dBµV/m

Nr	Frequency	Average	Average Limit	Average Difference	Average Status
1	2,459 GHz	33,52 dBµV/m	54 dBµV/m	-20,48 dB	Pass

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