eurofins | Product Service

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**

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 dBµV. 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:

Reading on Analyzer (dBµV) + A.F. (dB) = Net field strength (dBµV/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 dBµV/m). The FCC limits are given in units of µV/m. The following formula is used to convert the units of µV/m to dBµV/m:

Limit (dBµV/m) = 20*log (µV/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:

Reading	+	AF	=	Net Reading	:	Net reading - FCC limit	= Margin
21.5 dBµV	+	26 dB	=	47.5 dBµV/m	:	47.5 dBµV/m - 57.0 dBµV/m	= -9.5 dB

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

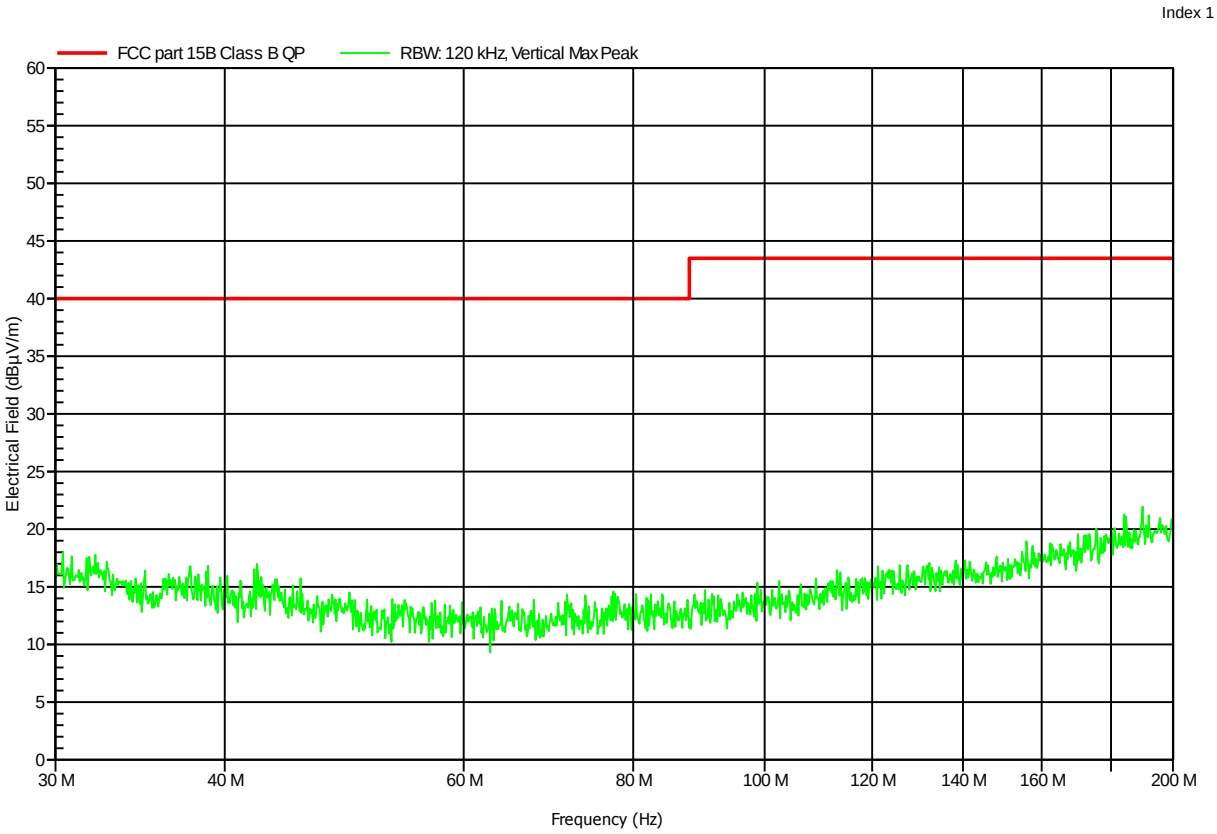
Frequency [MHz]	Quasi-Peak [dBµV/m]	Result	Average [dBµV/m]	Result	Peak [dBµV/m]	Result
30 – 88	40	PASS	-		-	-
88 – 216	43.5	PASS	-		-	-
216 – 960	46	PASS	-		-	-
960 – 1000	54	PASS	-		-	-
> 1000	-	-	54	PASS	74	PASS

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:	



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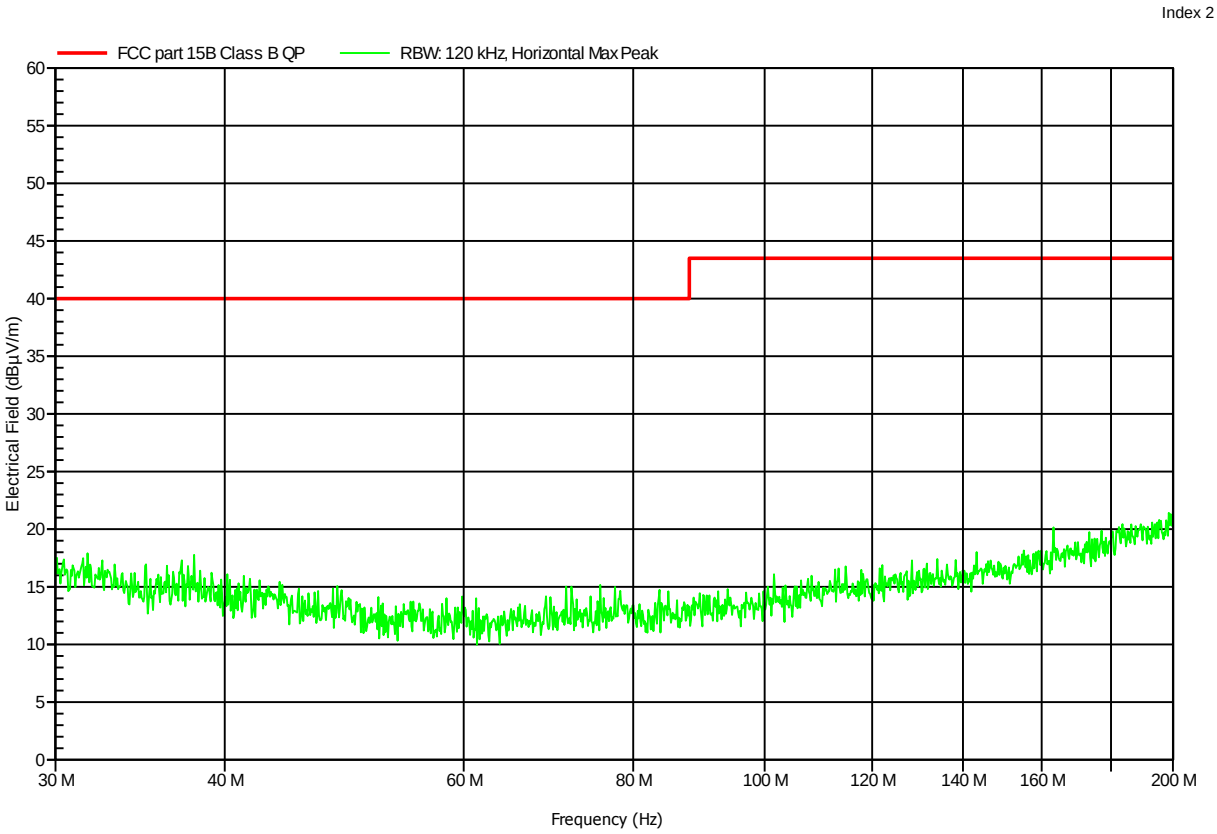
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3m
Mode:	active
Test Date:	2013-12-12
Note:	



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Operator:	Mr. Handrik
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:	

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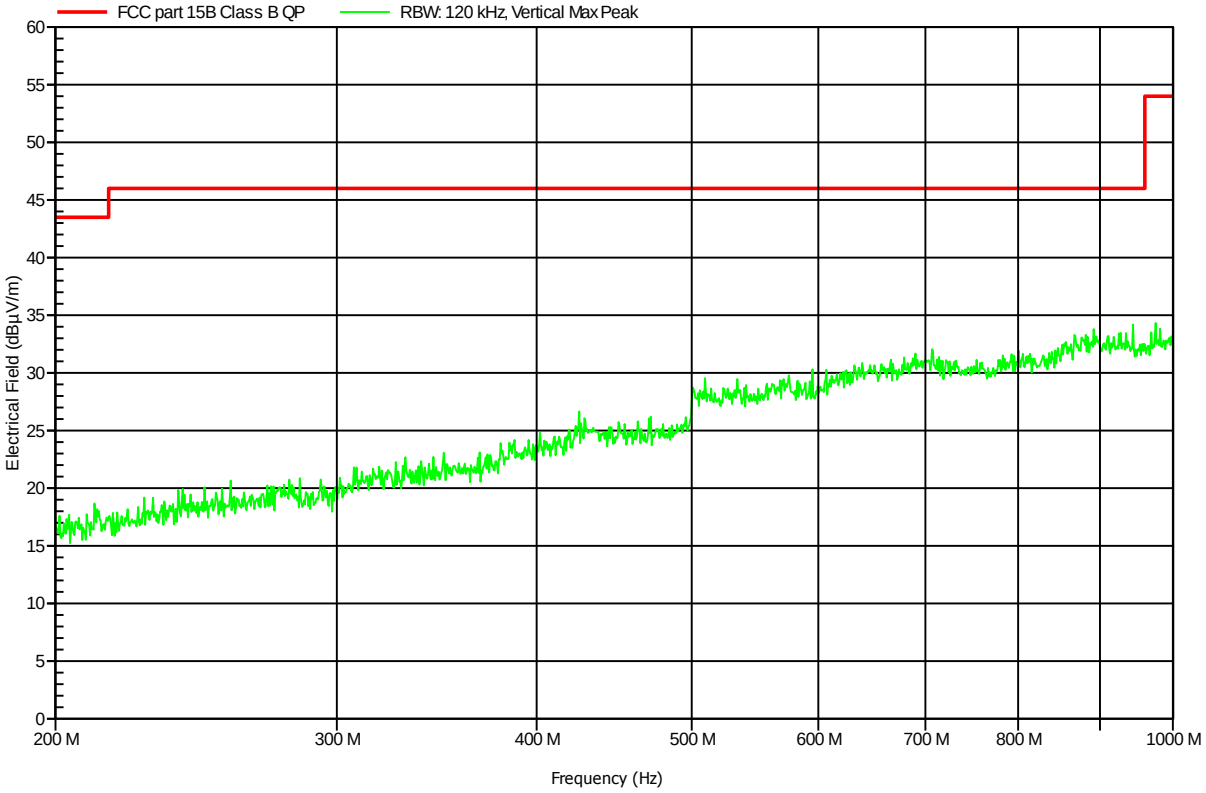

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Mode:	active
Test Date:	2013-12-12
Note:	

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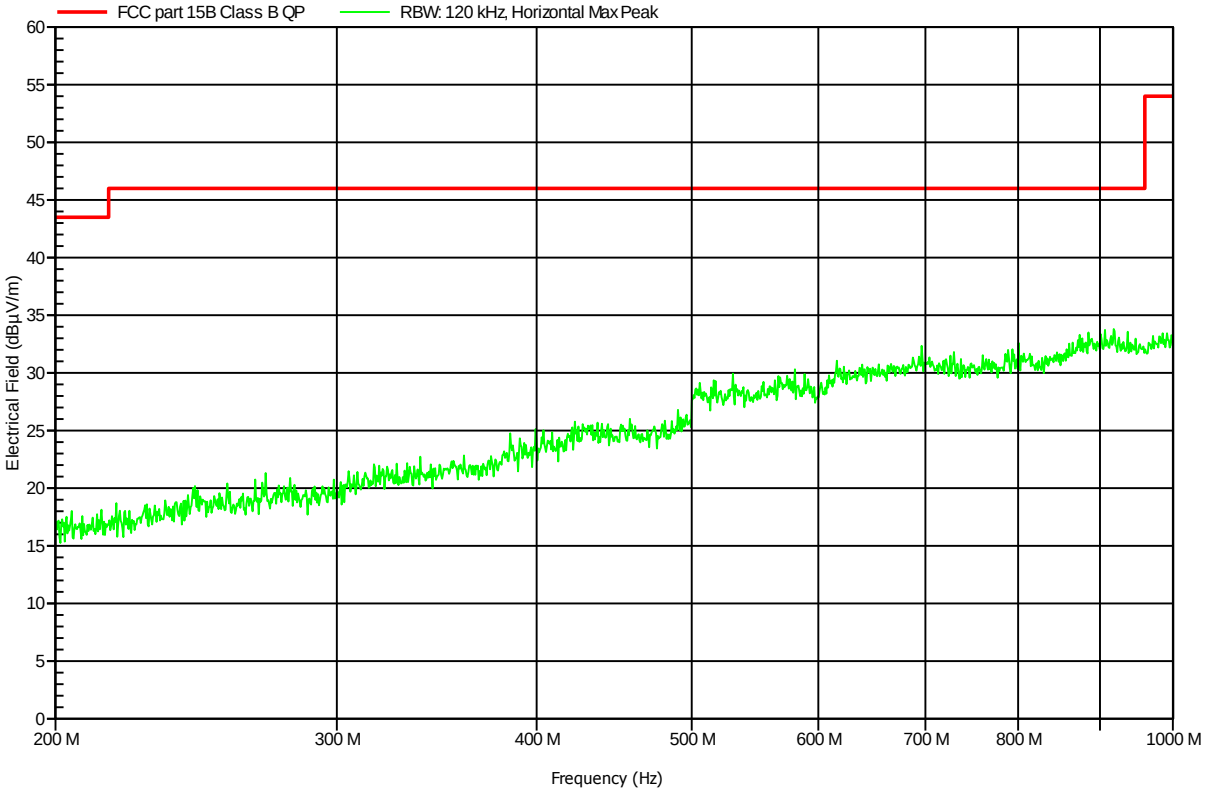

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EUT Name:	powermeter for bicycle
Model:	power2max / P0004-7-C
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Handrik
Test Conditions:	Tnom: 21°C, Unom: 3 V DC (battery)
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3m
Mode:	active
Test Date:	2013-12-12
Note:	

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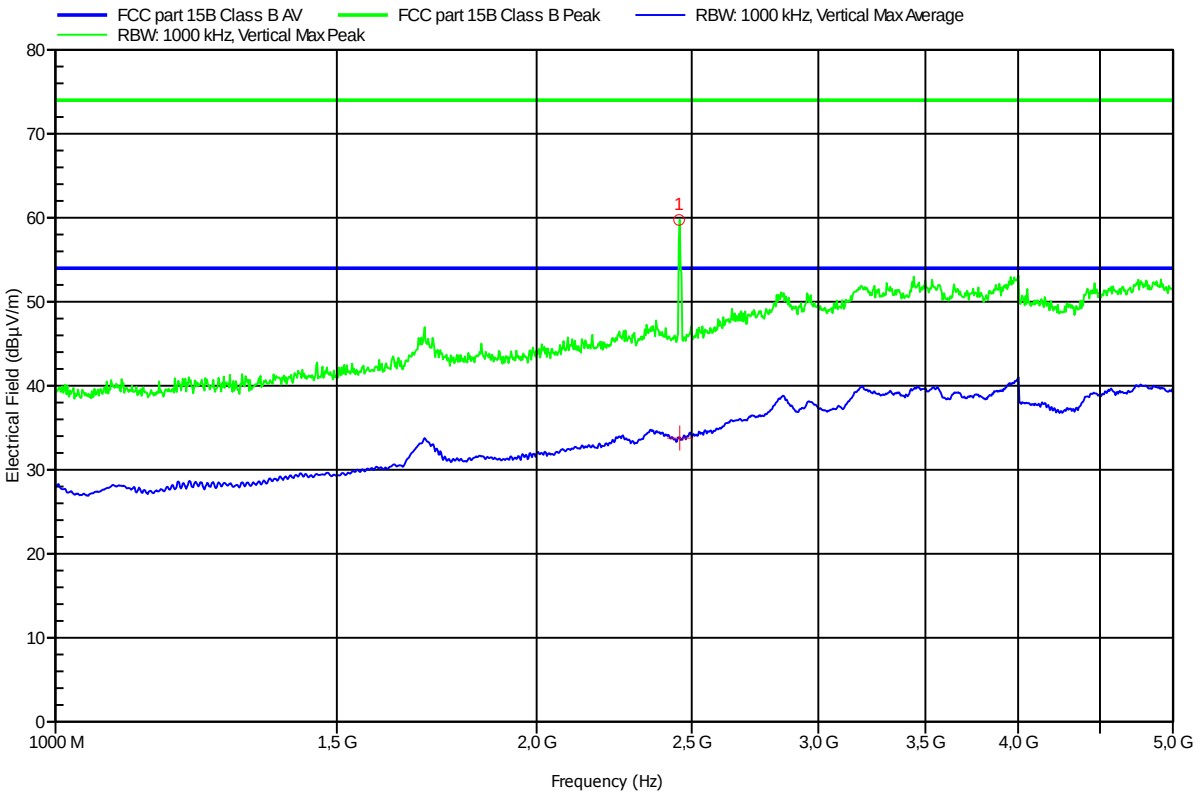

Nr	Frequency	Peak
1	2,455 GHz	59,74 dBµV/m

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

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

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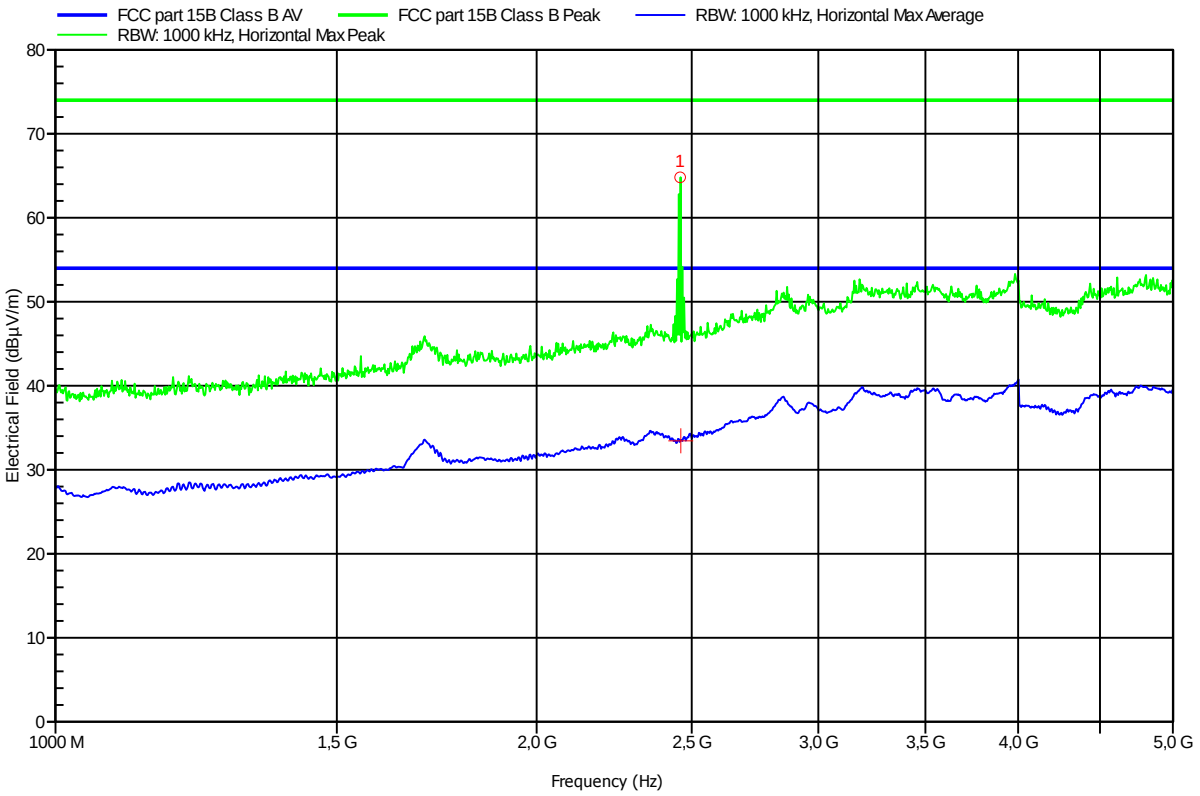

Nr	Frequency	Peak
1	2,459 GHz	64,81 dBµV/m

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