

EMC TEST REPORT

FCC 47 CFR Part 15B
Industry Canada RSS-Gen

Electromagnetic compatibility - Unintentional radiators

Report Reference No. : G0M-1110-1487-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 : Leica Geosystems AG

Address : Heinrich Wild Strasse 1
9435 Heerbrugg
SWITZERLAND

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	GNNS Antenna	
Model No.	iCG60 Zenith50	
Hardware version	1.0	
Firmware / Software version	1.0	
Contains	FCC-ID: RFD-ICGXX	IC: 3177A-ICGXX
Test result	Passed	

Test Report No.: G0M-1110-1487-EF01-V01

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..... : 2011-12-14

Date (s) of performance of tests..... : 2011-12-12 – 2012-06-13

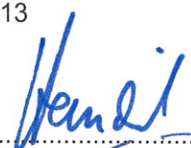
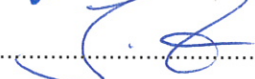
Compiled by..... : Christian Weber

Tested by (+ signature) : Matthias Handrik

Approved by (+ signature)..... : Jens Zimmermann

Date of issue..... : 2012-06-15

Total number of pages : 21



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	GNNS Antenna
Model	iCG60 Zenith50
Serial number	None
Hardware version	1.0
Software / Firmware version	1.0
FCC-ID	RFD-ICGXX
IC	3177A-ICGXX
Power supply	12 VDC (Battery only)
AC/DC-Adaptor	None
Manufacturer	Leica Geosystems AG Heinrich Wild Strasse 1 9435 Heerbrugg SWITZERLAND
Highest emission frequency	Fmax [MHz] = 400
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
None				
*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	Active GPRS 1900 / 1 Timeslot connection to communication tester. Bluetooth active.

1.6 Test Equipment Used During Testing

Radiated emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Biconical Antenna	R&S	HK 116	EF00012	2010-01	2013-01
LPD-Antenne	R&S	HL 223	EF00187	2011-02	2014-02
LPD-Antenna	R&S	HL 025	EF00327	2010-02	2013-02
EMI Test Receiver	R&S	ESU8	EF00379	2011-12	2012-12
EMI Test Receiver	R&S	ESCS30	EF00295	2011-06	2012-06

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	
47 CFR 15.107 RSS-Gen 7.2.4	AC power line conducted emissions	ANSI C63.4	N/A	
Remarks:				

3 Test Conditions and Results

3.1 Test Conditions and Results – Radiated emissions

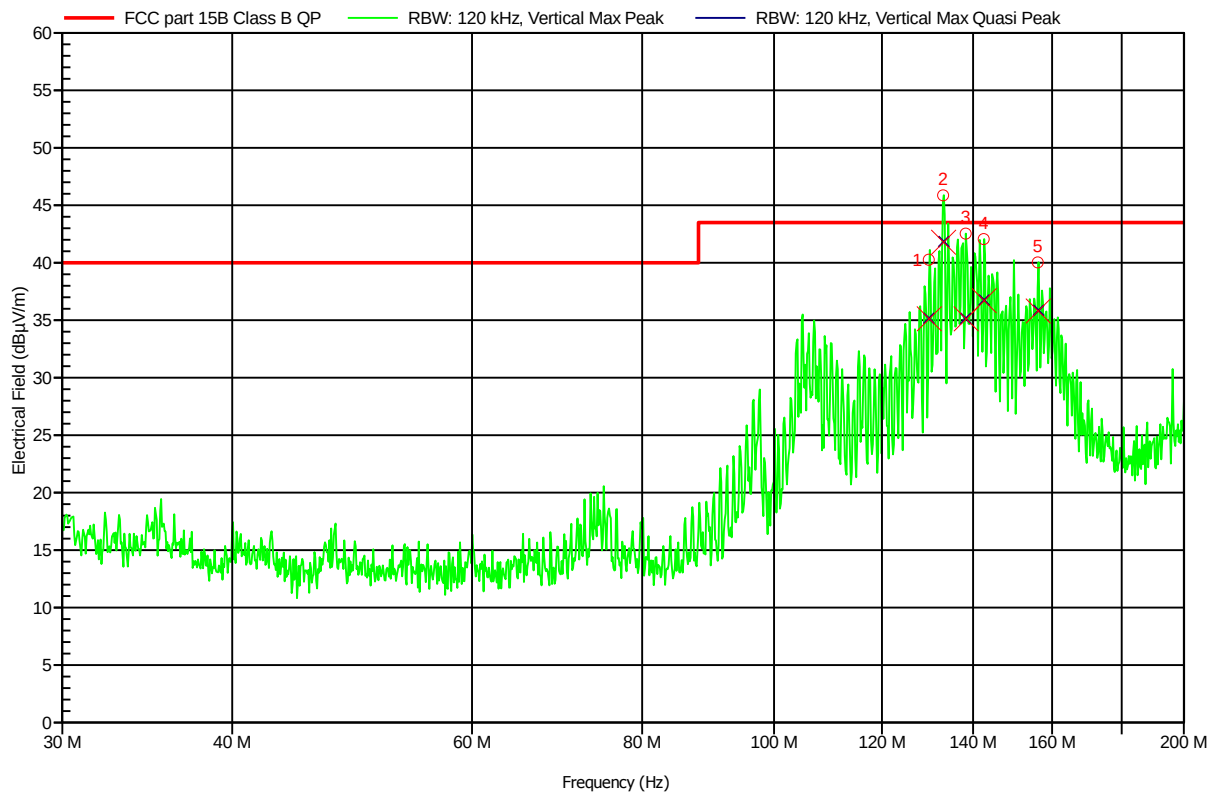
Radiated emissions acc. FCC 47 CFR 15.109 / IC RSS-Gen					Verdict: PASS	
Laboratory Parameters:		Required prior to the test		During the test		
Ambient Temperature		15 to 35 °C		22°C		
Relative Humidity		30 to 60 %		45%		
Test according referenced standards		Reference Method				
		ANSI C63.4				
Sample 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				
		Fmax [MHz] = 400				
Fully configured sample scanned over the following frequency range		Frequency range				
		30 MHz to 5 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: GOM-1110-1487

Manufacturer: Leica Geosystems AG
 EUT Name: GMNS Antenna
 Model: iCG60
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 22°C, Unom: 12 V DC
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3m
 Mode: GPRS 1900, 1 slot; GPS: external antenna, external cable 50 ohm; uncoated
 Test Date: 12.12.2011
 Note: Pass

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Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Status
129,9 MHz	35,17 dBµV/m	43,5 dBµV/m	-8,33 dB	Pass
133,08 MHz	41,83 dBµV/m	43,5 dBµV/m	-1,67 dB	Pass
138,27 MHz	35,16 dBµV/m	43,5 dBµV/m	-8,34 dB	Pass
142,548 MHz	36,75 dBµV/m	43,5 dBµV/m	-6,75 dB	Pass
156,186 MHz	35,84 dBµV/m	43,5 dBµV/m	-7,66 dB	Pass

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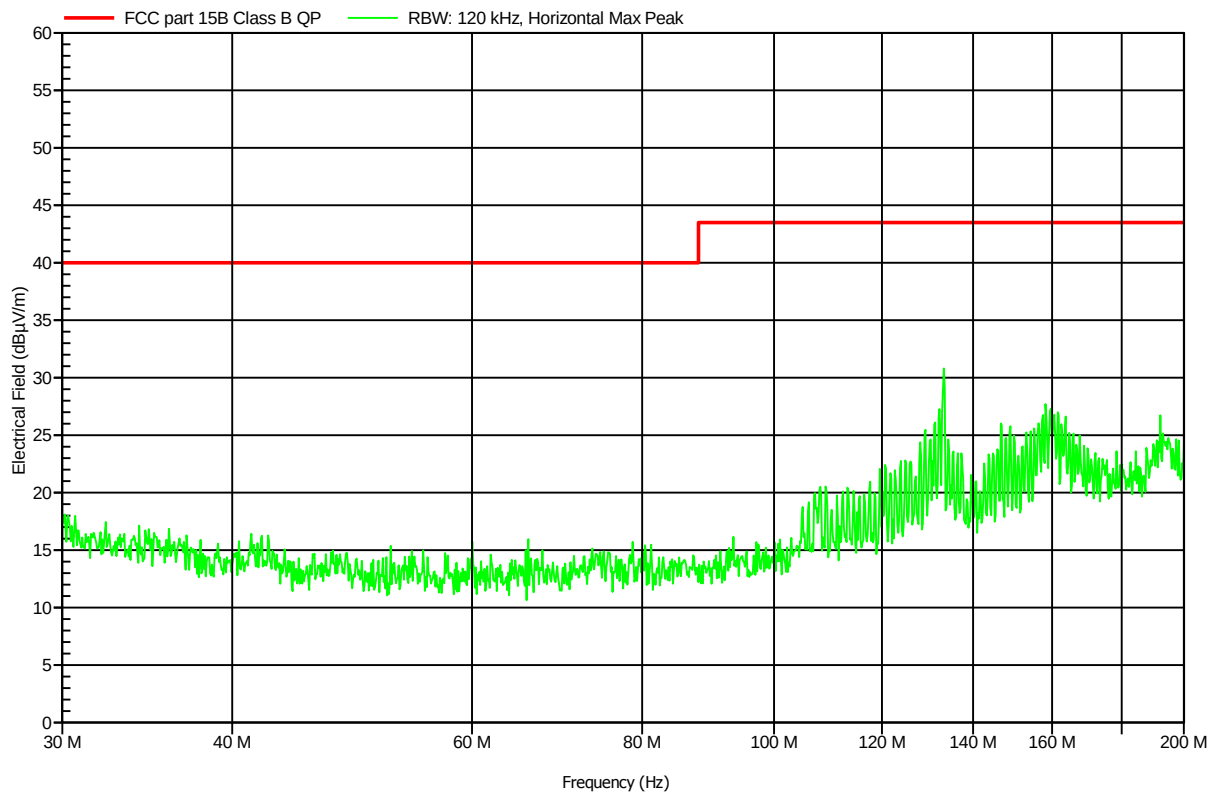
Eurofins Product Service GmbH
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Manufacturer:	Leica Geosystems AG
EUT Name:	GMNS Antenna
Model:	iCG60
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Handrik
Test Conditions:	Tnom: 22°C, Unom: 12 V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3m
Mode:	GPRS 1900, 1 slot; GPS: external antenna, external cable 50 ohm; uncoated
Test Date:	12.12.2011
Note:	Pass

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Test Report No.: GOM-1110-1487-EF01-V01

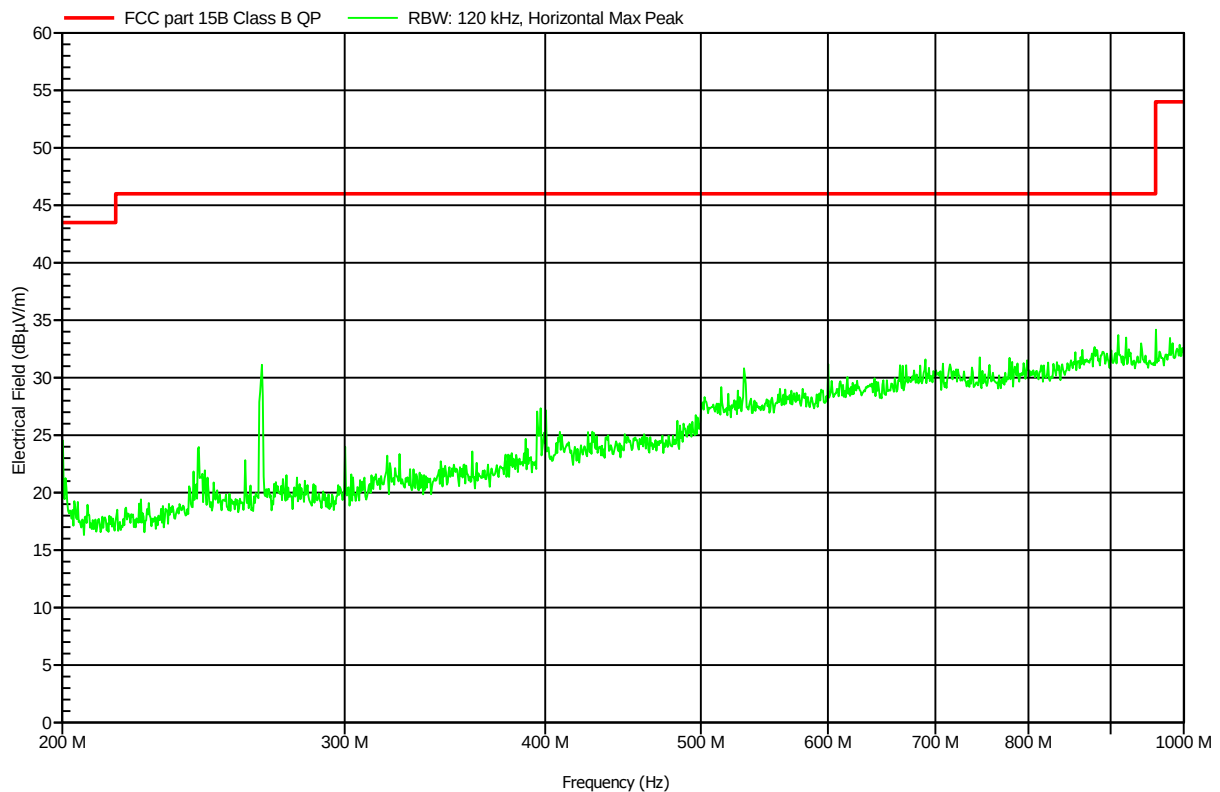
Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

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Project number: GOM-1110-1487

Manufacturer: Leica Geosystems AG
 EUT Name: GMNS Antenna
 Model: iCG60
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 22°C, Unom: 12 V DC
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3m
 Mode: GPRS 1900, 1 slot; GPS: external antenna, external cable 50 ohm; uncoated
 Test Date: 12.12.2011
 Note: Pass

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Test Report No.: GOM-1110-1487-EF01-V01

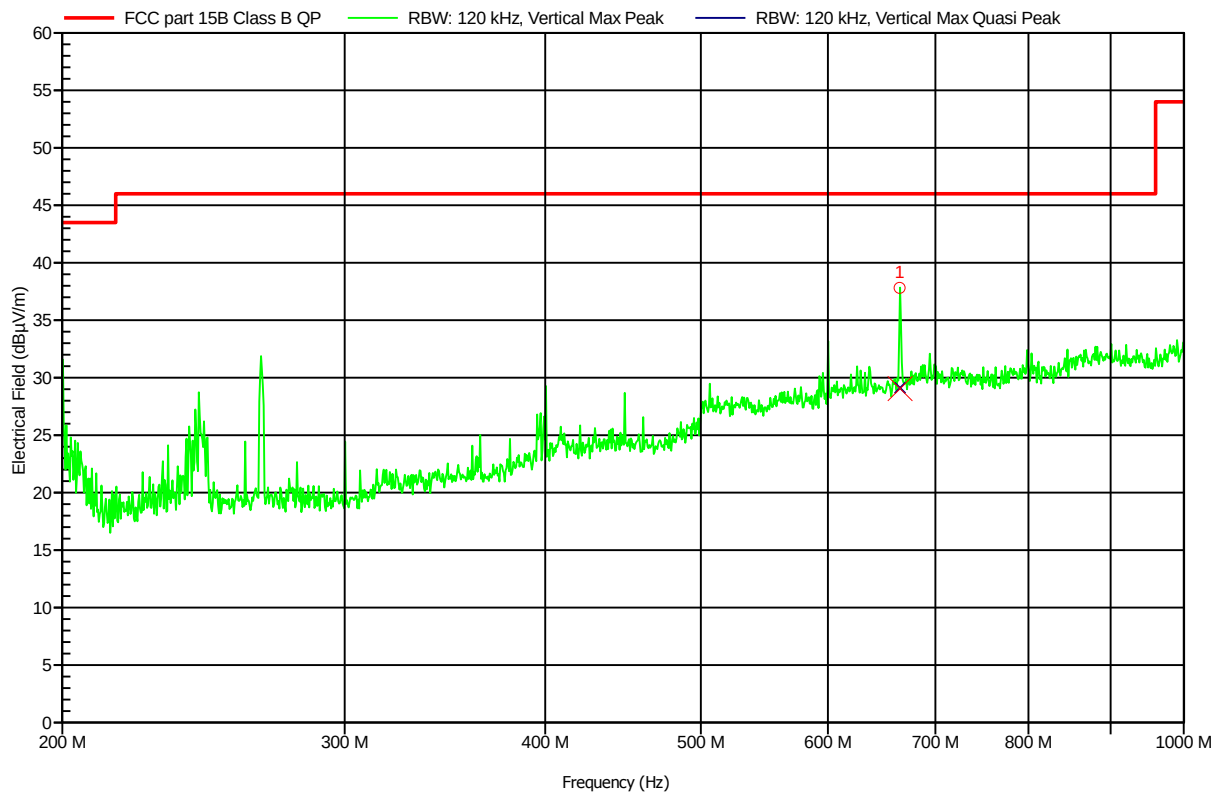
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 EUT Name: GMNS Antenna
 Model: iCG60
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 22°C, Unom: 12 V DC
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3m
 Mode: GPRS 1900, 1 slot; GPS: external antenna, external cable 50 ohm; uncoated
 Test Date: 12.12.2011
 Note: Pass

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Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Status
664,964 MHz	29,09 dBµV/m	46 dBµV/m	-16,91 dB	Pass

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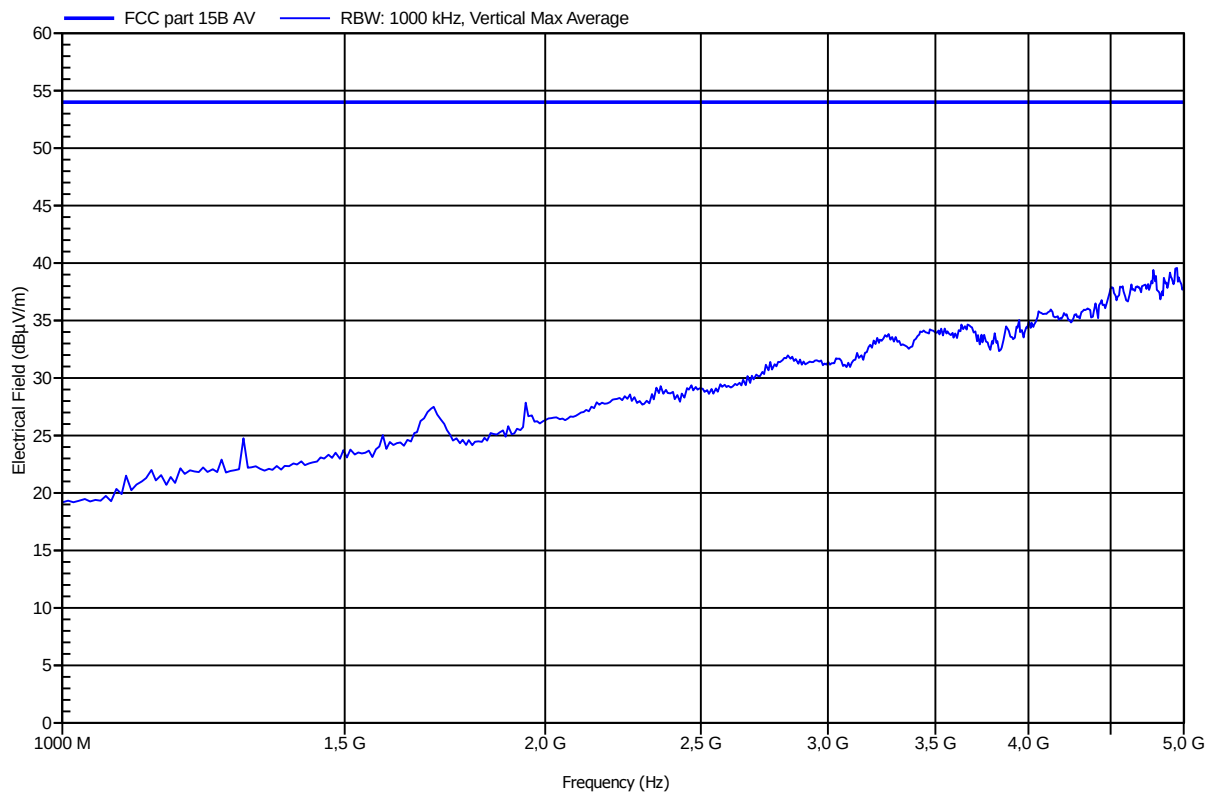
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Spurious emissions under normal conditions according to FCC Part 15b

Project number: G0M-1110-1487

Manufacturer: Leica Geosystems AG
 EUT Name: GMNS Antenna
 Model: iCG60
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 22°C, Unom: 12 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 3m
 Mode: GPRS 1900, 1 slot; GPS: external antenna, external cable 50 ohm; uncoated
 Test Date: 13.12.2011
 Note: Pass

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Spurious emissions under normal conditions according to FCC Part 15b

Project number: G0M-1110-1487

Manufacturer: Leica Geosystems AG
 EUT Name: GMNS Antenna
 Model: iCG60
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 22°C, Unom: 12 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 3m
 Mode: GPRS 1900, 1 slot; GPS: external antenna, external cable 50 ohm; uncoated
 Test Date: 13.12.2011
 Note: Pass

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