



<b>RADIO REPORT</b> <b>FCC 47 CFR Part 15E</b> <b>Unlicensed National Information Infrastructure Devices in the 5 GHz Bands</b>	
<b>Report Reference No</b>	G0M-1905-8271-TFC407WF-V02
<b>Testing Laboratory</b>	Eurofins Product Service GmbH
<b>Address</b>	Storkower Str. 38c 15526 Reichenwalde Germany
<b>Accreditation</b>	  DAKKS - Registration number : D-PL-12092-01-04 FCC Filed Test Laboratory, Reg.-No.: 96970
<b>Applicant</b>	Leica Geosystems AG
<b>Address</b>	Heinrich Wild Strasse 9435 Heerbrugg SWITZERLAND
<b>Test Specification</b>	According to FCC rules
<b>Standard</b>	47 CFR Part 15E
<b>Non-Standard Test Method</b>	None
<b>Equipment under Test (EUT):</b>	
<b>Product Description</b>	Imaging Laser Scanner
<b>Model(s)</b>	BLK2GO
<b>Additional Model(s)</b>	None
<b>Brand Name(s)</b>	Leica
<b>Hardware Version(s)</b>	HW Rev. B
<b>Software Version(s)</b>	EDM FPGA SW V1.3; Main_FPGA SW V0.4; Alcapone SW V.0.4.8; Android V. 3.1
<b>FCC-ID</b>	RFD-BLK2GO
<b>Test Result</b>	<b>PASSED</b>

<b>Possible test case verdicts:</b>		
required by standard but not tested	N/T	
not required by standard	N/R	
not applicable to EUT	N/A	
test object does meet the requirement	P(PASS)	
test object does not meet the requirement	F(FAIL)	
<b>Testing:</b>		
Test Lab Temperature	20 - 23 °C	
Test Lab Humidity	32 – 38 %	
Date of receipt of test item	2019-09-19	
<b>Report:</b>		
Compiled by	Toralf Jahn	
Tested by (+ signature) (Responsible for Test)	Toralf Jahn	 .....
Approved by (+ signature) (Head of Lab)	Christian Weber	 .....
Date of Issue	2019-12-12	
Total number of pages	60	
<b>General Remarks:</b>		
<p>The test results presented in this report relate only to the object tested.</p> <p>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.</p> <p>This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p>		
<b>Additional Comments:</b>		

**VERSION HISTORY**

Version History			
Version	Issue Date	Remarks	Revised By
01	2019-10-01	Initial Release	
02	2019-12-12	Replaced document: G0M-1905-8271-TFC407WF-V01 Replaced by: G0M-1905-8271-TFC407WF-V02  Reason: Page 6, 17, 18, 26 and Annex A Frequency band 5725 – 5850 MHz removed.	T. Jahn

**ABBREVIATIONS AND ACRONYMS**

Acronyms	
Acronym	Description
BPSK	Binary Phase Shift Keying
EIRP	Equivalent Isotropic Radiated Power
EUT	Equipment Under Test
FCC	Federal Communications Commission
HT	High Throughput
IEEE 802.11	MAC and PHY Layer for WiFi
OFDM	Orthogonal Frequency Division Multiplexing
QAM	Quadrature Amplitude Modulation
QPSK	Quadrature Phase Shift Keying
RBW	Resolution bandwidth
RMS	Root mean square
TPC	Transmit Power Control
VBW	Video bandwidth
VHT	Very High Throughput

**REPORT INDEX**

<b>1</b>	<b>Equipment (Test Item) Under Test.....</b>	<b>6</b>
1.1	Photos – Equipment External.....	8
1.2	Photos – Equipment Internal.....	10
1.3	Photos – Test Setup.....	13
1.4	Support Equipment.....	14
1.5	Test mode duty cycle evaluation.....	15
1.6	Test Modes.....	17
1.7	Test Frequencies.....	18
1.8	Sample emission level calculation.....	19
1.9	Normative References.....	20
<b>2</b>	<b>Result Summary.....</b>	<b>21</b>
<b>3</b>	<b>Test Conditions and Results.....</b>	<b>22</b>
3.1	Test Conditions and Results - Transmitter radiated emissions.....	22
ANNEX A	Transmitter spurious emissions.....	27

**1 Equipment (Test Item) Under Test**

Description	Imaging Laser Scanner	
Model	BLK2GO	
Additional Model(s)	None	
Brand Name(s)	Leica	
Serial Number(s)	3630046 (LiDAR Laser deactivated)	
Hardware Version(s)	HW Rev. B	
Software Version(s)	EDM FPGA SW V1.3; Main_FPGA SW V0.4; Alcapone SW V.0.4.8; Android V. 3.1	
FCC-ID	RFD-BLK2GO	
Equipment type	End Product	
Device type	Client	
Radio type	Transceiver	
Assigned frequency bands	5150 - 5250 MHz 5250 - 5350 MHz 5470 - 5725 MHz	
Radio technology	IEEE 802.11a IEEE 802.11n (HT20) IEEE 802.11n (HT40) IEEE 802.11ac (VHT20) IEEE 802.11ac (VHT40) IEEE 802.11ac (VHT80)	
Modulation	BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM	
Number of antenna ports	2	
Transmit power control	Yes	
Radio Module	Type	WLAN, Bluetooth
	Model	NFA324A-12H32
	Manufacturer	Foxconn
	HW Version	V02
	SW Version	BSP 3.1
	FCC-ID	PPD-QCNFA324
Antenna 1	Type	Integral
	Model	2458N (120-232-01)
	Manufacturer	Wepotec electronic solutions gmbh
	Gain	-1.4 dBi
Antenna 2	Type	Integral
	Model	2458S (120-233-01)
	Manufacturer	Wepotec electronic solutions gmbh
	Gain	-1.6 dBi
Supply Voltage	V <sub>NOM</sub>	7.2 V battery
	V <sub>MIN</sub>	N/A
	V <sub>MAX</sub>	N/A
Operating Temperature	T <sub>NOM</sub>	25 °C
	T <sub>MIN</sub>	N/A
	T <sub>MAX</sub>	N/A
Battery supply	Yes	
AC/DC-Adaptor	Model	None
	Vendor	None
	Input	None
	Output	None

Manufacturer	Leica Geosystems AG Heinrich Wild Strasse 9435 Heerbrugg SWITZERLAND
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**1.4 Support Equipment.**

Product Type	Device	Manufacturer	Model	Comment
AE	Laptop	acer	N17H2	Disconnected during measurements.
SFT	Radio Control Toolkit	Qualcomm	QRCT	Setting radio parameters.
CBL	USB cable	AUKEY	USB 3.0	For test mode only. Setting radio parameters. Connected during measurements.
AE	External batterie adaptor	Leica	GLK821	For test mode only. Connected during measurements.
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
SFT	Software			
Comment:				



## 1.5 Test mode duty cycle evaluation

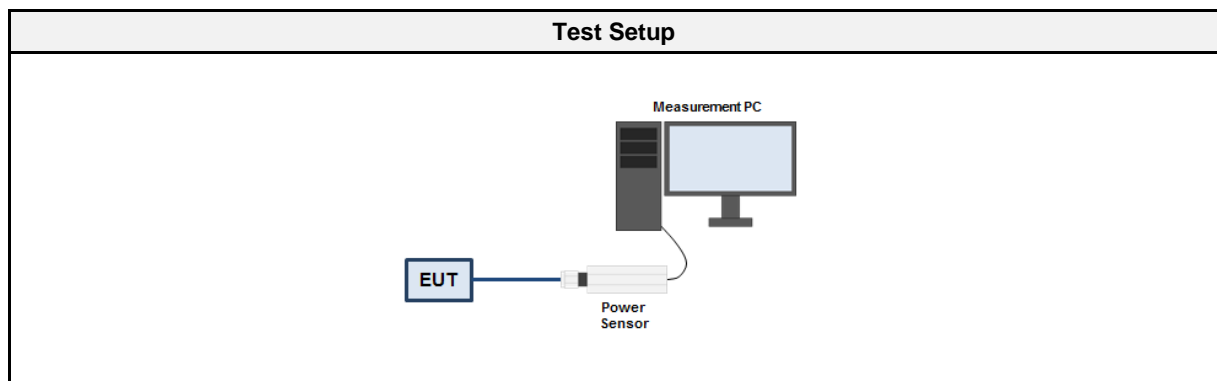
### 1.5.1 Information

Test Information	
Measurement Method	ANSI C63.10 12.2

### 1.5.2 Requirements

Requirements	
Duty cycle	Duty cycle correction
≥ 98 %	No correction required
< 98 %	Correction required ( $10 \times \log_{10}(1/DC)$ )

### 1.5.3 Setup



### 1.5.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Power Sensor	ETS-Lindgren	7002-006	EF00934	2019-08	2020-08

### 1.5.5 Procedure

Test Procedure
<ol style="list-style-type: none"> <li>1. EUT set to test mode</li> <li>2. Sweep time is set long enough to capture at least 5 bursts</li> <li>3. The maximum burst duration <math>T_{ON}</math> is measured</li> <li>4. The minimum idle duration <math>T_{OFF}</math> is measured</li> <li>5. The duty cycle is calculated by <math>DC = T_{ON} / (T_{ON} + T_{OFF})</math></li> <li>6. The duty cycle correction is calculated by <math>DC = 10 \times \log_{10}(T_{ON} / (T_{ON} + T_{OFF}))</math></li> </ol>

## 1.5.6 Results

Duty Cycle Results				
Mode	Channel [MHz]	Data rate	Duty Cycle	Correction Factor [dB]
VHT20	5600	MCS 8	98%	N/R

## 1.6 Test Modes

Mode	Description
VHT20 (IEEE 802.11ac)	Mode = Transmit Modulation = BPSK Spreading = OFDM Bandwidth = 20 MHz Power setting (2 Simultaneous Tx) = 15 (5180 to 5700 MHz) MCS (2 Simultaneous Tx) = 0
Comment: The above settings were found as worst case from module test report and during pre-tests.	

### 1.7 Test Frequencies

Designator	Mode	Channel	Frequency [MHz]
F1	Tx / Rx	48	5240
F2	Tx / Rx	52	5260
F3	Tx / Rx	120	5600

### 1.8 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:

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

Net:

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

Limit:

This is the FCC Class B radiated emission limit (in units of 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:

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

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:

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

## 1.9 Normative References

References	
Designator	Reference
KDB 789033	KDB 789033 D02 v02r01
ANSI C63.10	ANSI C63.10:2013

## 2 Result Summary

FCC 47 CFR Part 15E				
Product Standard Reference	Requirement	Reference Method	Result	Remarks
FCC 15.407(e)	6 dB bandwidth	KDB 789033 C.2	N/T	Only required in 5725-5850 MHz band.
FCC 15.407(a)(2),(a)(5),(h)(2)	26 dB bandwidth	KDB 789033 C.1	N/T	No limit. Basis for other measurements.
FCC 15.407(a)	Maximum output power	KDB 789033 E	N/T	
FCC 15.407(a)	Transmit power control	KDB 789033 E	N/T	Required in 5250-5350 and 5470-5725 MHz bands. Not required for EIRP < 500 mW.
FCC 15.407(a)	Power spectral density	KDB 789033 F	N/T	
FCC 15.407(g)	Frequency stability	ANSI C63.10 6.8	N/T	
FCC 15.207	AC power line conducted emissions	ANSI C63.10 6.2	N/T	
FCC 15.407(b)	Transmitter radiated emissions	KDB 789033 G	PASS	
FCC 15.407(a)	Radiation pattern	KDB 789033 H	N/T	5150-5250 MHz band only with EIRP > 21 dBm
Comment:				

Possible Test Case Verdicts	
PASS	Test object does meet the requirements
FAIL	Test object does not meet the requirements
N/T	Required by standard but not tested
N/R	Not required by standard for the test object

### 3 Test Conditions and Results

#### 3.1 Test Conditions and Results - Transmitter radiated emissions

##### 3.1.1 Information

Test Information	
Reference	FCC 15.407(b)
Measurement Method	KDB 789033 G
Operator	Toralf Jahn
Date	2019-09-30

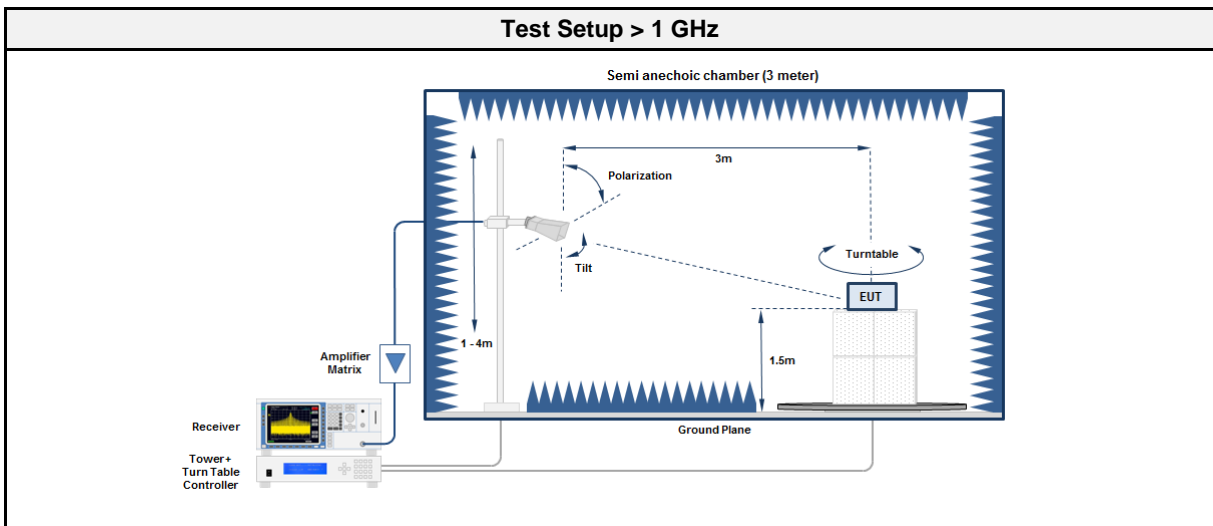
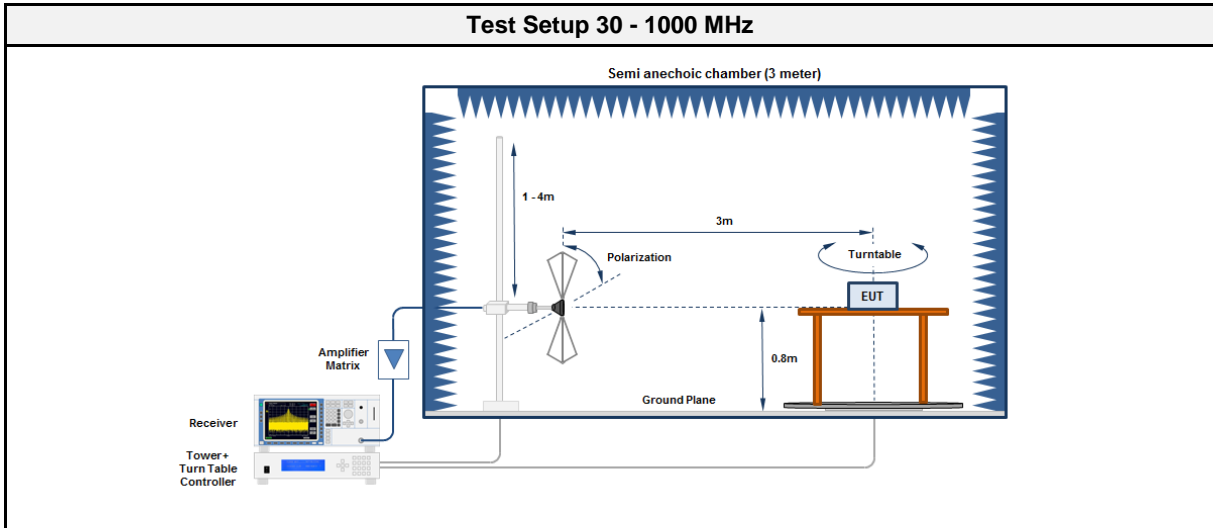
##### 3.1.2 Limits

Limits - Restricted frequency bands and below 1 GHz			
Frequency [MHz]	Detector	Field strength [ $\mu\text{V}/\text{m}$ ]	Measurement distance [m]
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

Limits - Outside restricted frequency bands above 1 GHz			
Frequency band [MHz]	Power limit [dBm EIRP]	Field strength limit [dB $\mu\text{V}/\text{m}$ ]	Measurement distance [m]
5150 - 5250	-27 dBm/MHz	68.2	3
5250 - 5350	-27 dBm/MHz	68.2	3
5470 - 5725	-27 dBm/MHz	68.2	3
5725 - 5850	-27 dBm/MHz @ $\pm 75$ MHz from band edge	68.2	3
5725 - 5850	10 to -27 dBm/MHz @ $\pm 25$ to $\pm 75$ MHz from band edge	105.2 to 68.2	3
5725 - 5850	15.6 to 10 dBm/MHz @ $\pm 5$ to $\pm 25$ MHz from band edge	110.8 to 105.2	3
5725 - 5850	27 to 15.6 dBm/MHz @ $\pm 0$ to $\pm 5$ MHz from band edge	122.2 to 110.8	3



3.1.3 Setup



## 3.1.4 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	RadiMation	2015.2.4

Test Equipment 30 - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2018-07	2021-07
Measurement Receiver	R&S	ESU 26	EF00887	2019-07	2020-07
Antenna	R&S	HK 116	EF00030	2019-04	2022-04
Antenna	R&S	HL 223	EF00212	2019-05	2020-05

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2018-07	2021-07
Measurement Receiver	R&S	ESU 26	EF00887	2019-07	2020-07
Measurement Receiver	R&S	FSW 43	EF00896	2019-07	2020-07
Antenna	Schwarzbeck	BBHA 9120D	EF01153	2018-09	2019-09
Antenna	Amplifier Research	AT4560	EF00302	2019-05	2020-05
Antenna	Flann Microwave Ltd	22240-25 Amp. CBL26402075	EF00301	2016-11	2019-11

## 3.1.5 Procedure

<b>Test Procedure 30 - 1000 MHz</b>
<ol style="list-style-type: none"><li>1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground</li><li>2. EUT set to test mode</li><li>3. The receiver is set to peak detection with max hold</li><li>4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m</li><li>5. All significant emissions are measured again using the corresponding final detector</li></ol>

<b>Test Procedure &gt; 1 GHz</b>
<ol style="list-style-type: none"><li>1. EUT is placed on a non conducting support at the center of a turn table 1.5 m above the ground</li><li>2. EUT set to test mode</li><li>3. The receiver is set to peak detection with max hold</li><li>4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m</li><li>5. All significant emissions are measured again using the corresponding final detector</li></ol>

3.1.6 Results

Test Results - Channel 48 / 5240 MHz					
Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
7438	51.39	pk	ver	74.00	-22.61
7438	39.85	RMS	ver	54.00	-14.15
10480	47.54	pk	hor	68.20	-20.66
20960	46.70	pk	hor	74.00	-27.30
20960	40.60	RMS	hor	54.00	-13.40
20966	44.66	pk	ver	74.00	-29.34
20966	34.06	RMS	ver	54.00	-19.94

Test Results - Channel 52 / 5260 MHz					
Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
172.866	31.10	qpk	hor	43.50	-12.43
1293	53.74	pk	ver	68.20	-14.46
1293	40.56	RMS	ver	54.00	-13.44
7592	50.70	pk	hor	74.00	-23.30
7592	39.83	RMS	hor	54.00	-14.17
10512	48.40	pk	hor	68.20	-19.80
21032	38.43	pk	hor	74.00	-35.57
21032	27.19	RMS	hor	54.00	-26.81
21038	42.58	pk	ver	74.00	-31.42
21038	30.43	RMS	ver	54.00	-23.57

Test Results - Channel 120 / 5600 MHz					
Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
7466	52.51	pk	ver	74.00	-21.49
7466	42.09	RMS	ver	54.00	-11.91
7486	50.47	pk	hor	74.00	-23.53
7486	39.97	RMS	hor	54.00	-14.03
22402	45.88	pk	ver	74.00	-28.12
22402	32.67	RMS	ver	54.00	-21.33

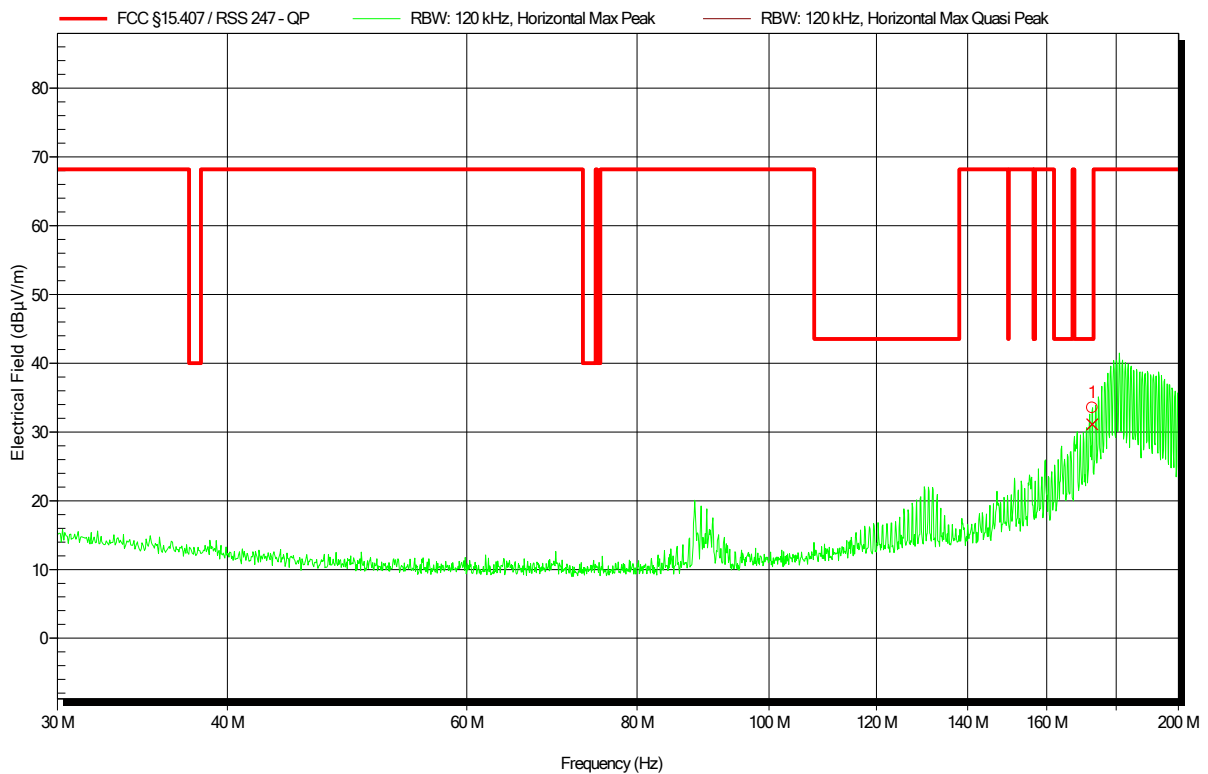
## ANNEX A Transmitter spurious emissions

### Spurious emissions according to FCC 15.407

Project number: G0M-1905-8271

Applicant: Leica Geosystems AG  
 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Rohde & Schwarz HK 116, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TXchain 01, 5260 MHz  
 Test Date: 2019-09-30  
 Note:

Index 37



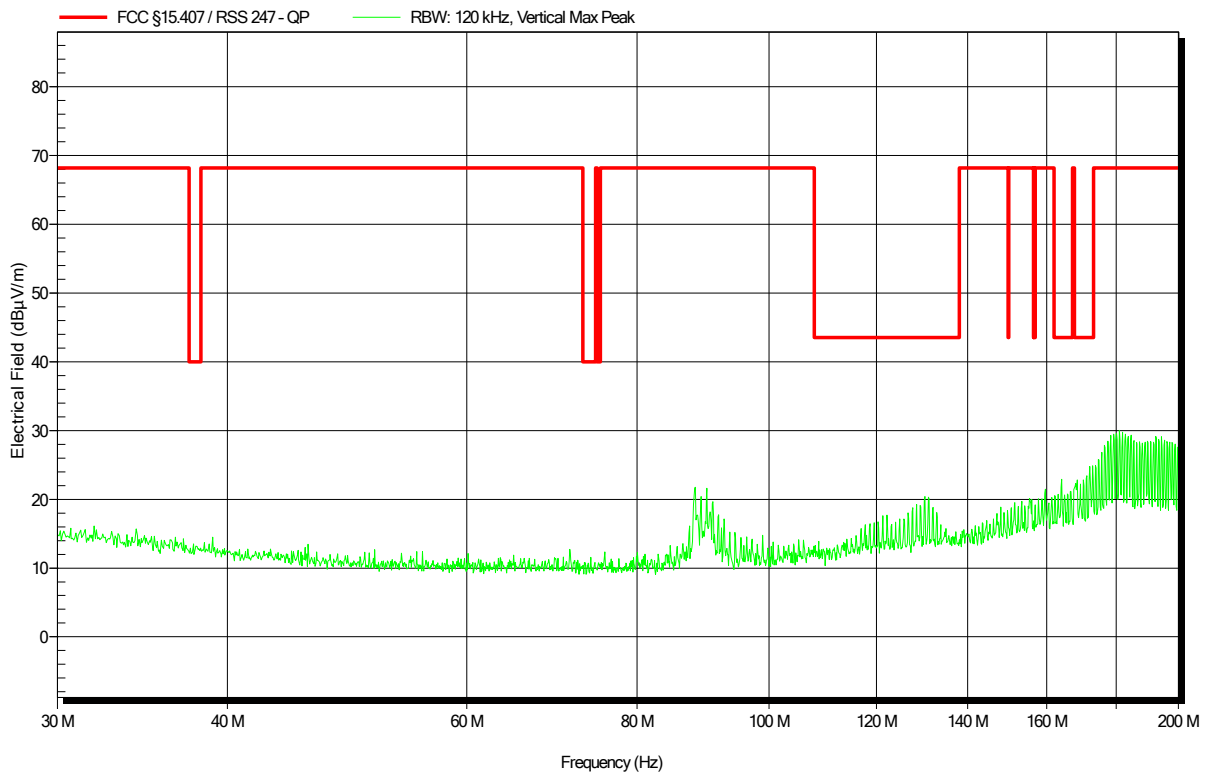
Frequency	Peak	Peak Limit	Peak Difference	Status
172.866 MHz	33.5 dBµV/m	43.5 dBµV/m	-9.97 dB	Pass
Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
172.866 MHz	31.1 dBµV/m	43.5 dBµV/m	-12.43 dB	Pass

**Spurious emissions according to FCC 15.407**

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 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Rohde & Schwarz HK 116, Vertical  
 Measurement distance: 3 m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TXchain 01, 5260 MHz  
 Test Date: 2019-09-30  
 Note:

Index 38

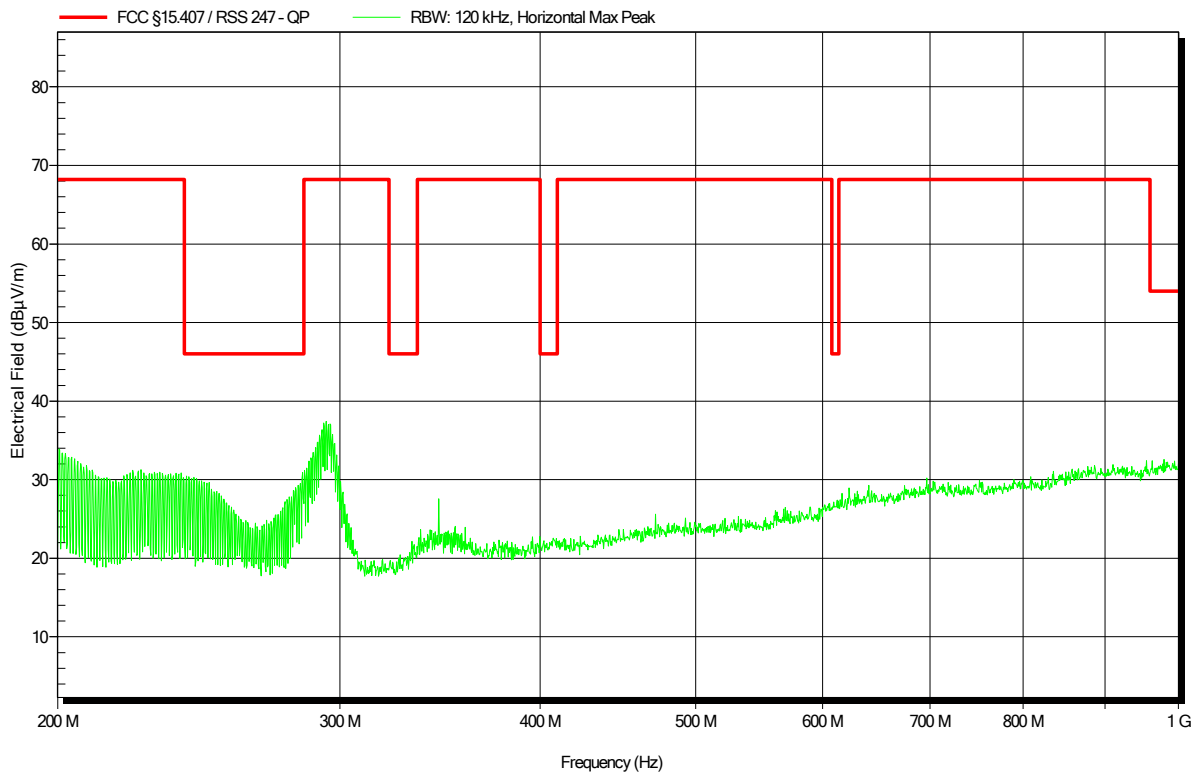


**Spurious emissions according to FCC 15.407**

Project number: G0M-1905-8271

Applicant: Leica Geosystems AG  
 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Rohde & Schwarz HL 223, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TXchain 01, 5260 MHz  
 Test Date: 2019-09-30  
 Note:

Index 39

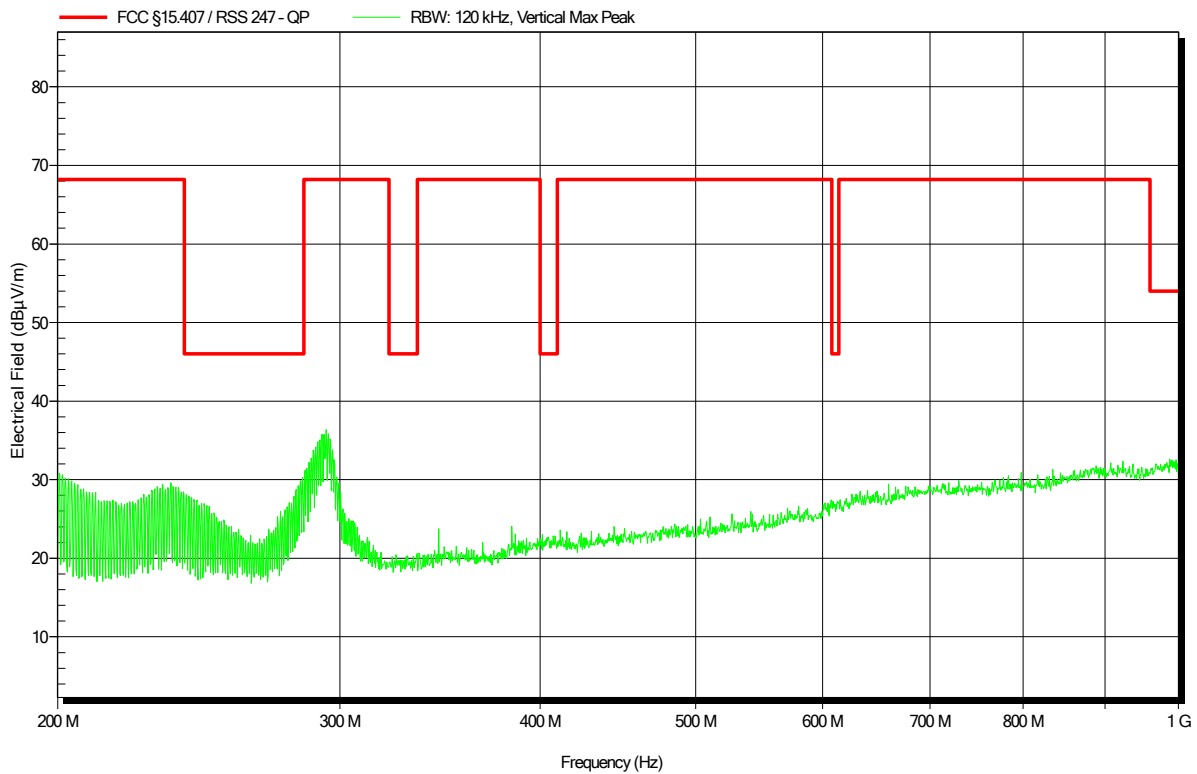


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 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Rohde & Schwarz HL 223, Vertical  
 Measurement distance: 3 m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TXchain 01, 5260 MHz  
 Test Date: 2019-09-30  
 Note:

Index 40



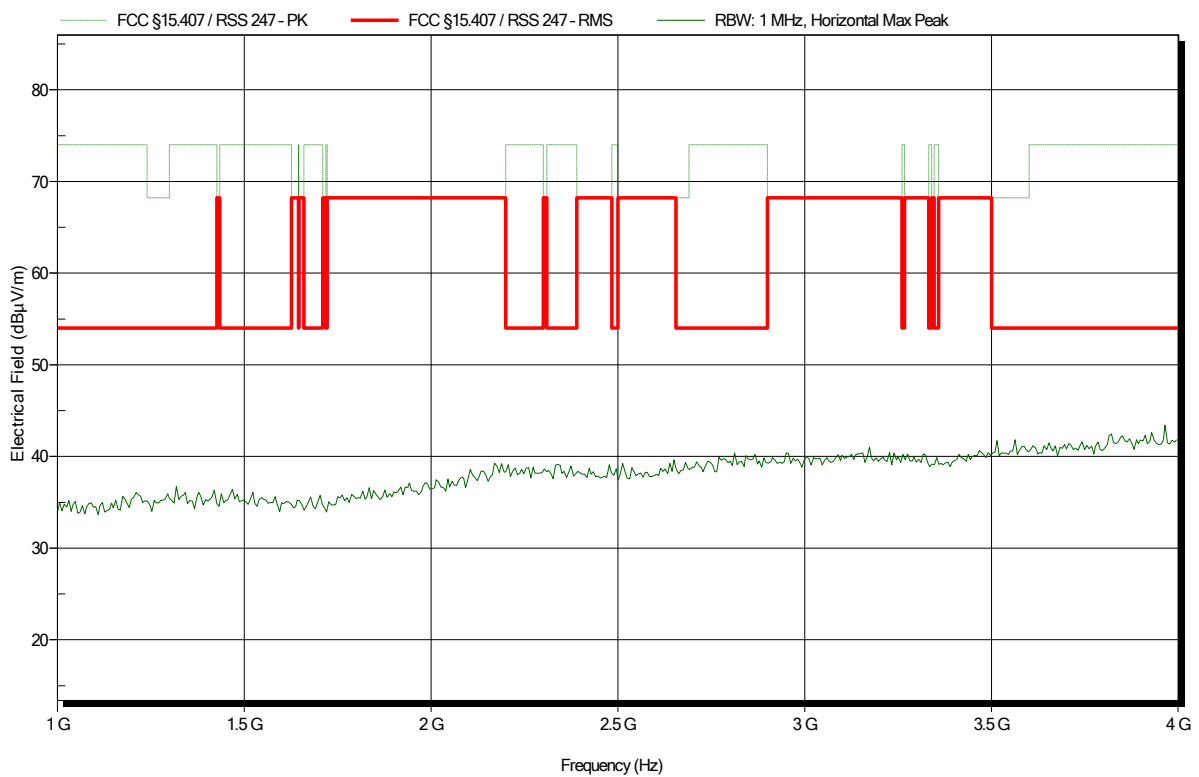


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Applicant: Leica Geosystems AG  
 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5240 MHz  
 Test Date: 2019-09-27  
 Note:

Index 145

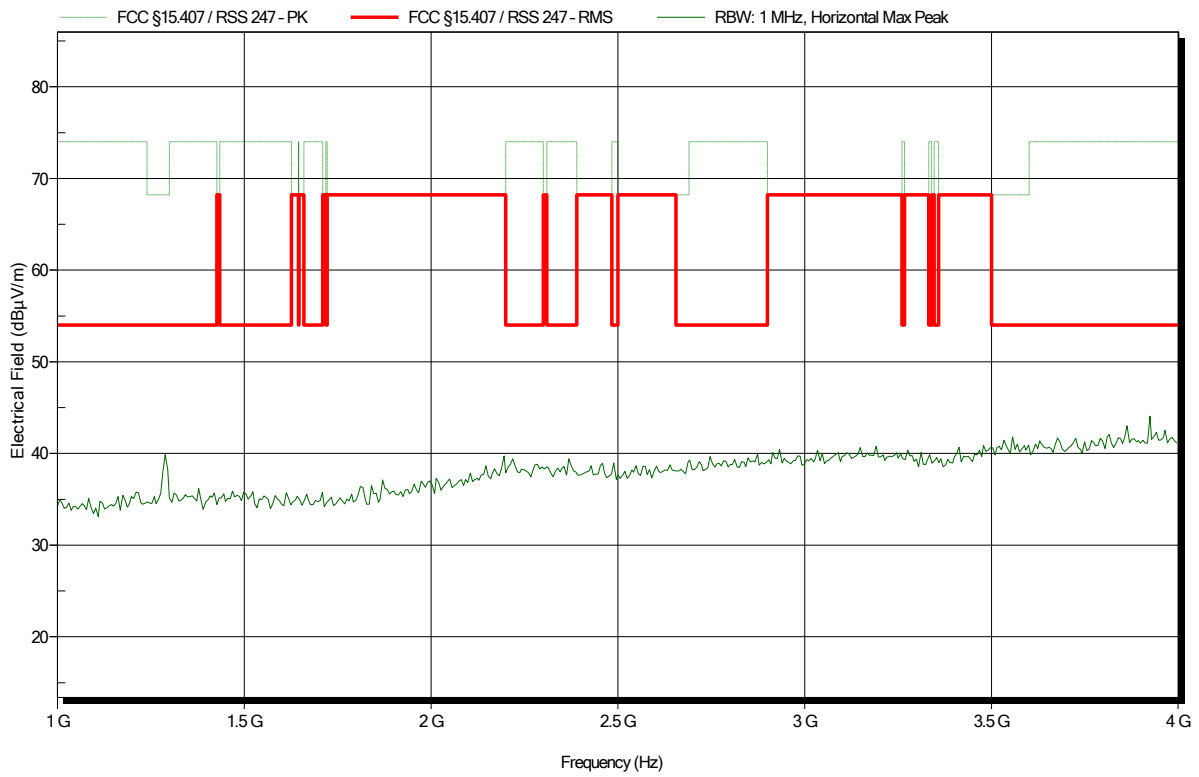


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 Model: BLK2GO  
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 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5260 MHz  
 Test Date: 2019-09-30  
 Note:

Index 156

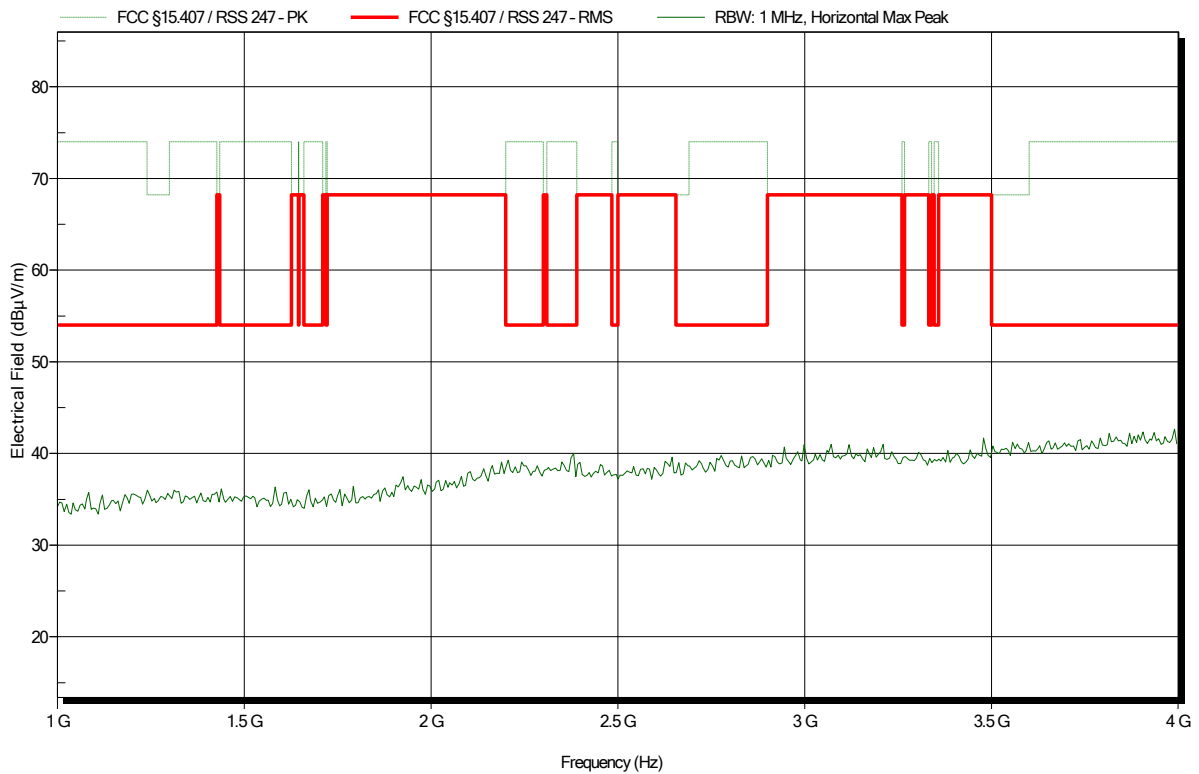


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 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5600 MHz  
 Test Date: 2019-10-01  
 Note:

Index 192

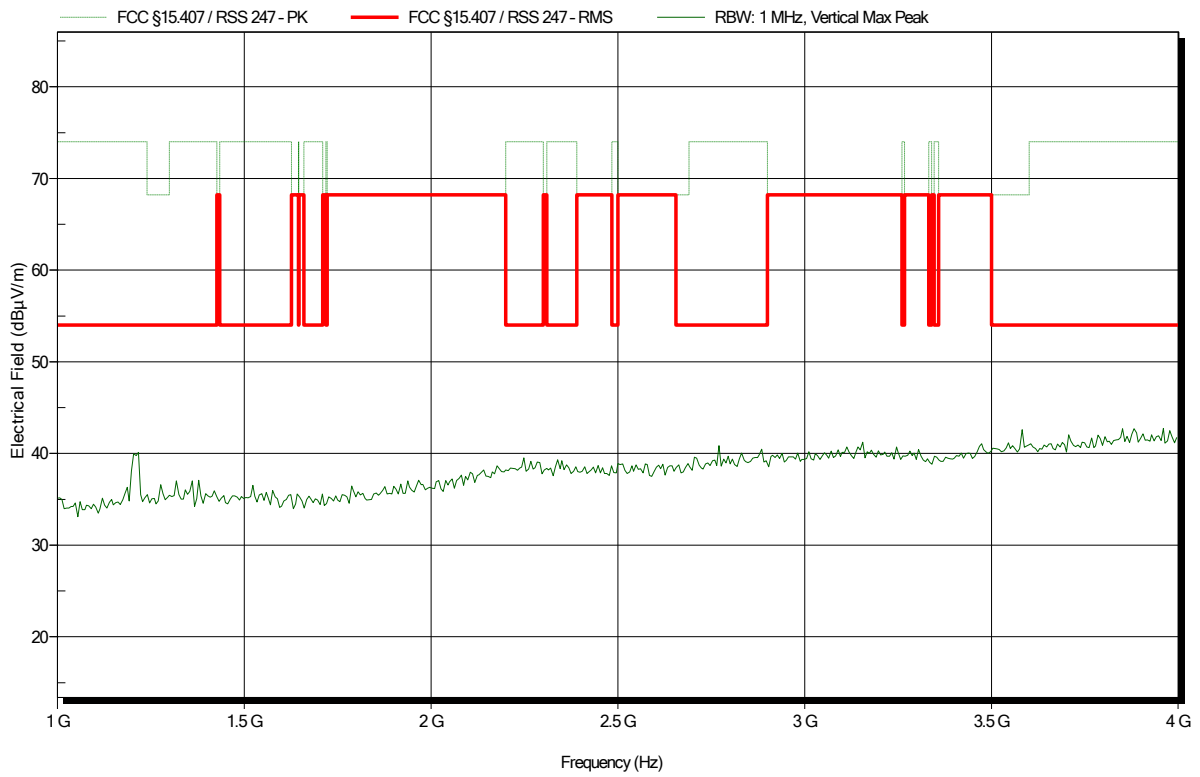


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 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5240 MHz  
 Test Date: 2019-09-27  
 Note:

Index 146

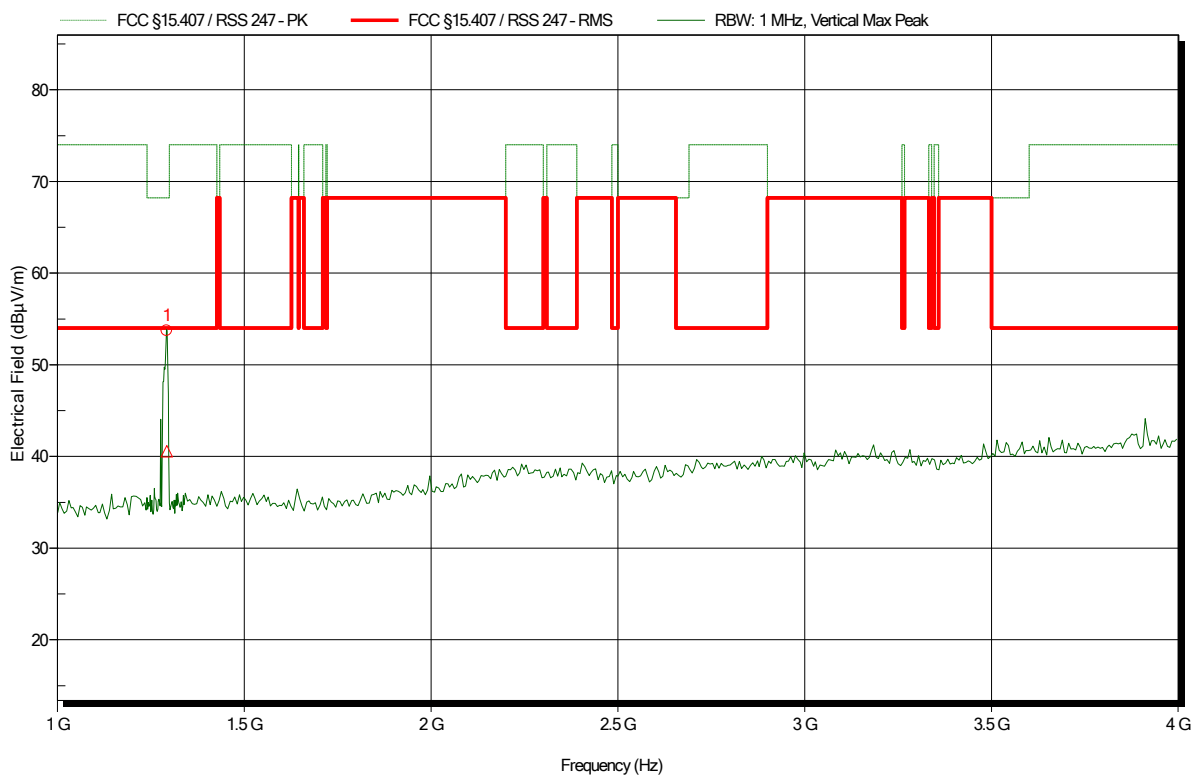


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 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5260 MHz  
 Test Date: 2019-09-30  
 Note:

Index 158



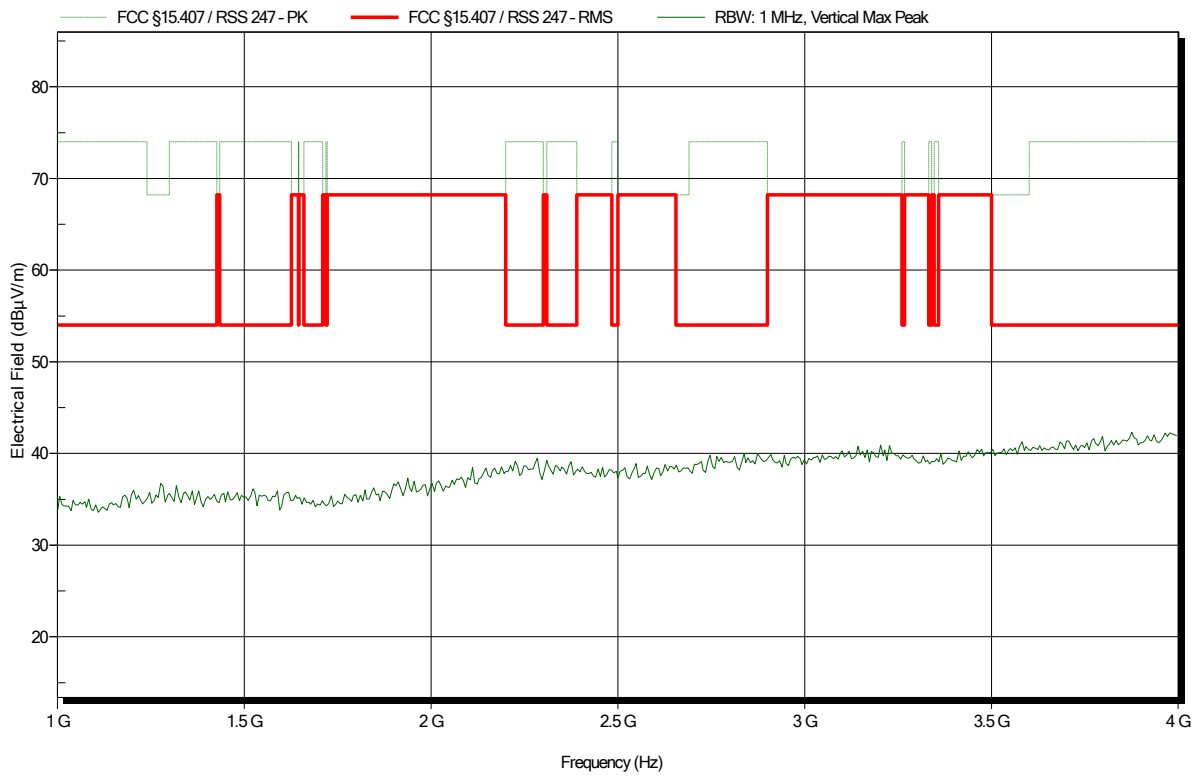
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.293 GHz	53.74 dBµV/m	68.2 dBµV/m	-14.46 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
1.293 GHz	40.56 dBµV/m	54 dBµV/m	-13.44 dB	Pass

### Spurious emissions according to FCC 15.407

Project number: G0M-1905-8271

Applicant: Leica Geosystems AG  
 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5600 MHz  
 Test Date: 2019-10-01  
 Note:

Index 193

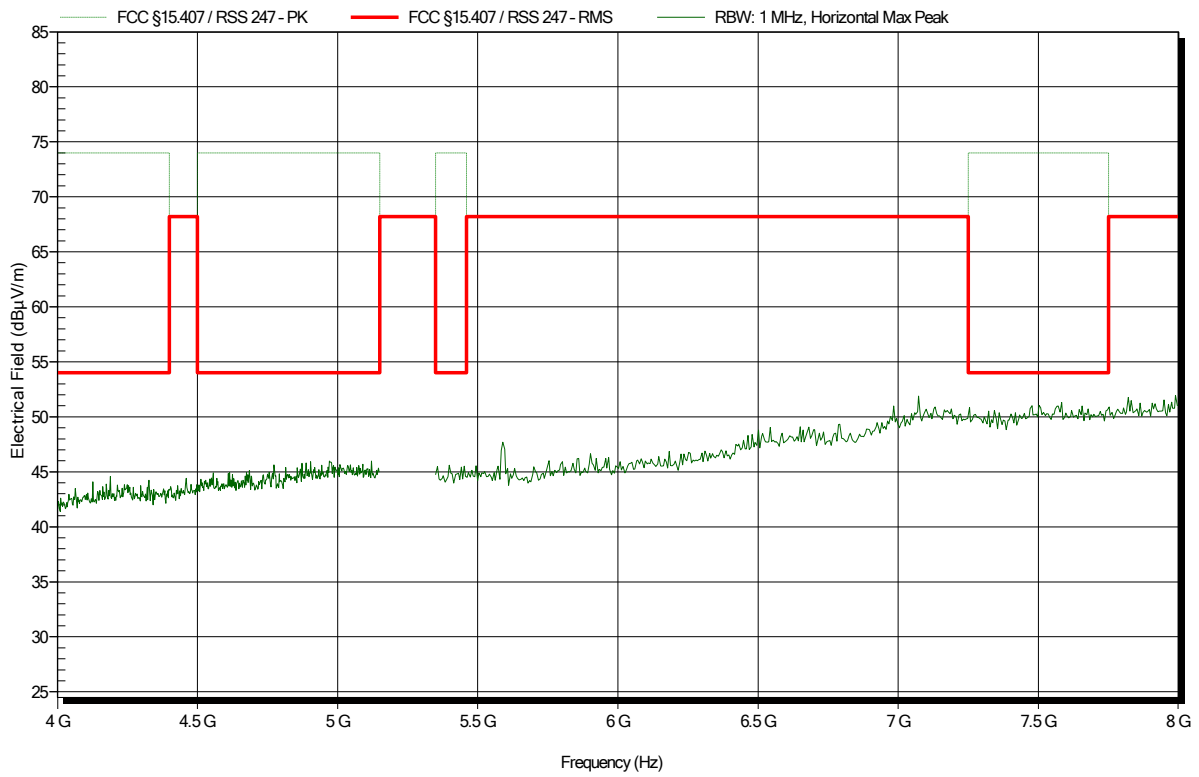


**Spurious emissions according to FCC 15.407**

Project number: G0M-1905-8271

Applicant: Leica Geosystems AG  
 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5240 MHz  
 Test Date: 2019-09-30  
 Note:

Index 154

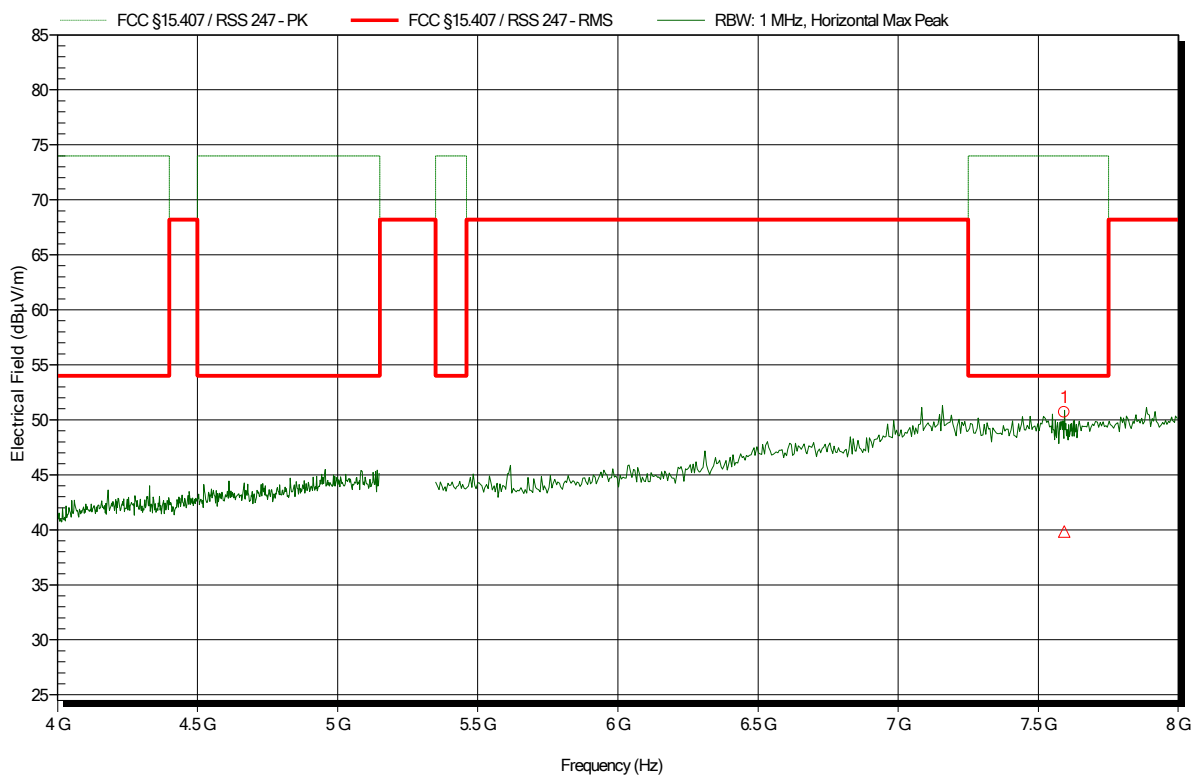


### Spurious emissions according to FCC 15.407

Project number: G0M-1905-8271

Applicant: Leica Geosystems AG  
 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5260 MHz  
 Test Date: 2019-09-30  
 Note:

Index 157



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.592 GHz	50.7 dBµV/m	74 dBµV/m	-23.3 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
7.592 GHz	39.83 dBµV/m	54 dBµV/m	-14.17 dB	Pass

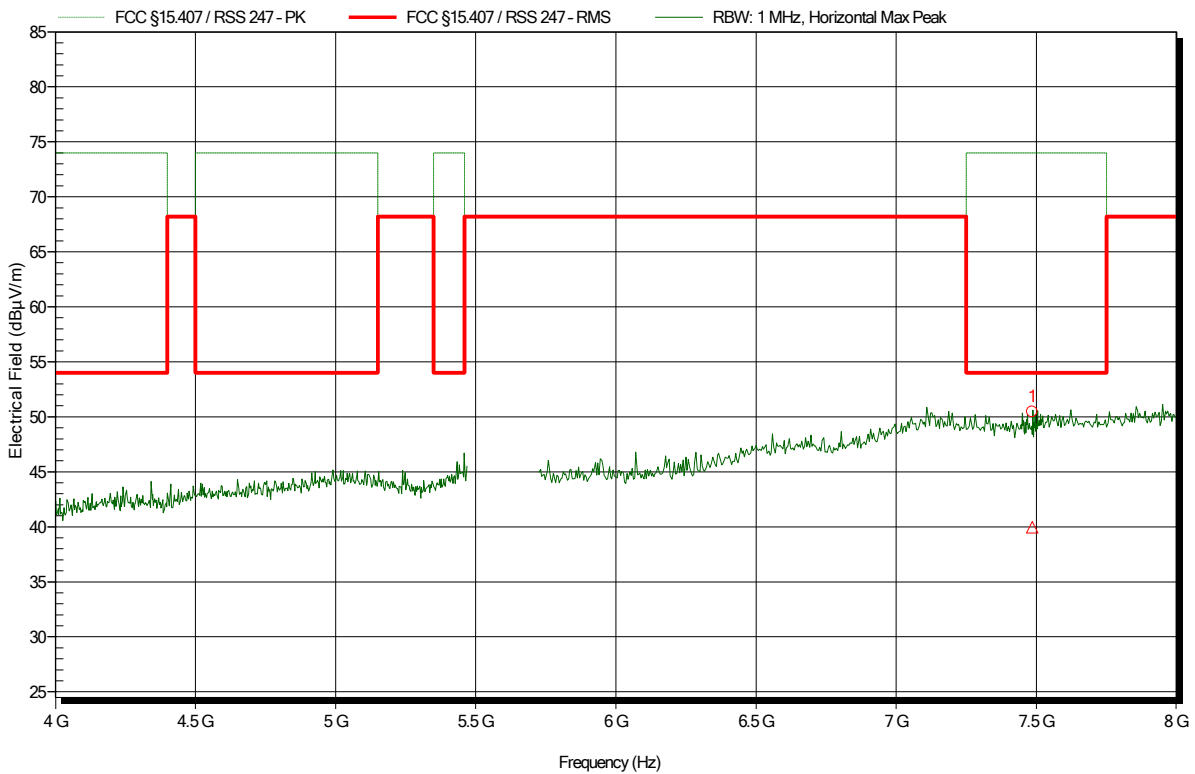


**Spurious emissions according to FCC 15.407**

Project number: G0M-1905-8271

Applicant: Leica Geosystems AG  
 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5600 MHz  
 Test Date: 2019-10-01  
 Note:

Index 194



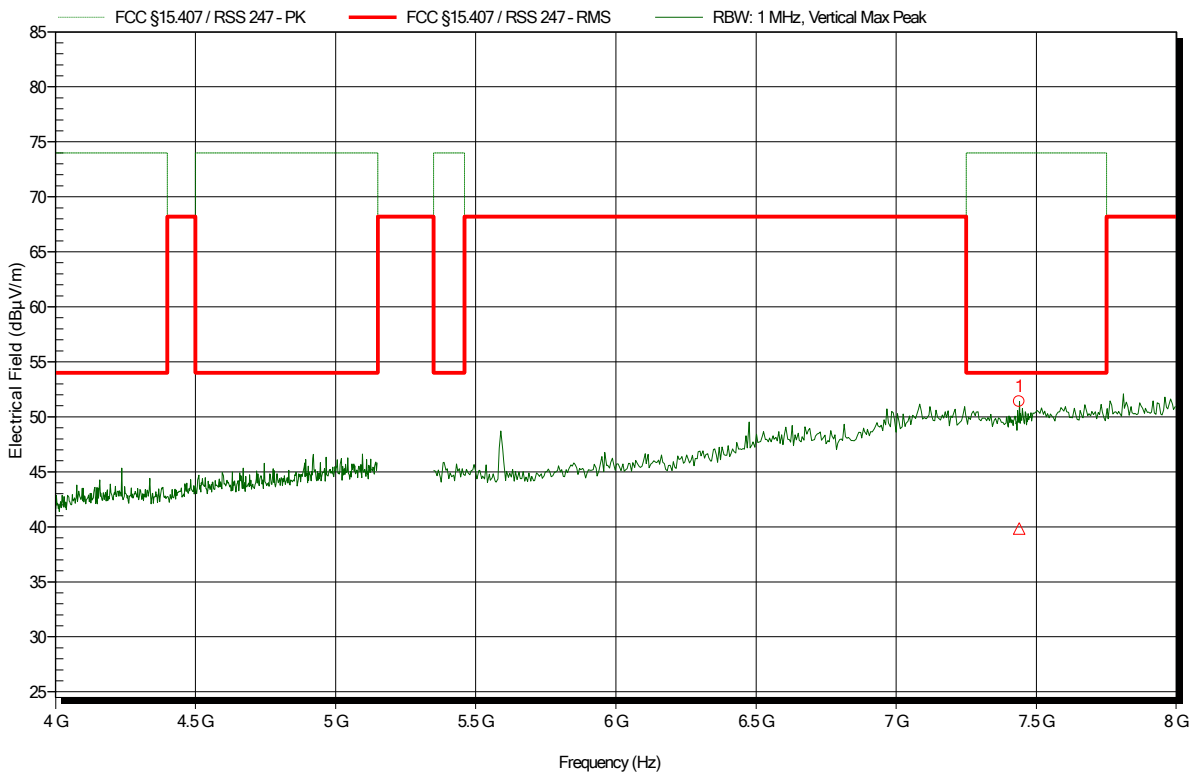
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.486 GHz	50.47 dBµV/m	74 dBµV/m	-23.53 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
7.486 GHz	39.97 dBµV/m	54 dBµV/m	-14.03 dB	Pass

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 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5240 MHz  
 Test Date: 2019-09-30  
 Note:

Index 155



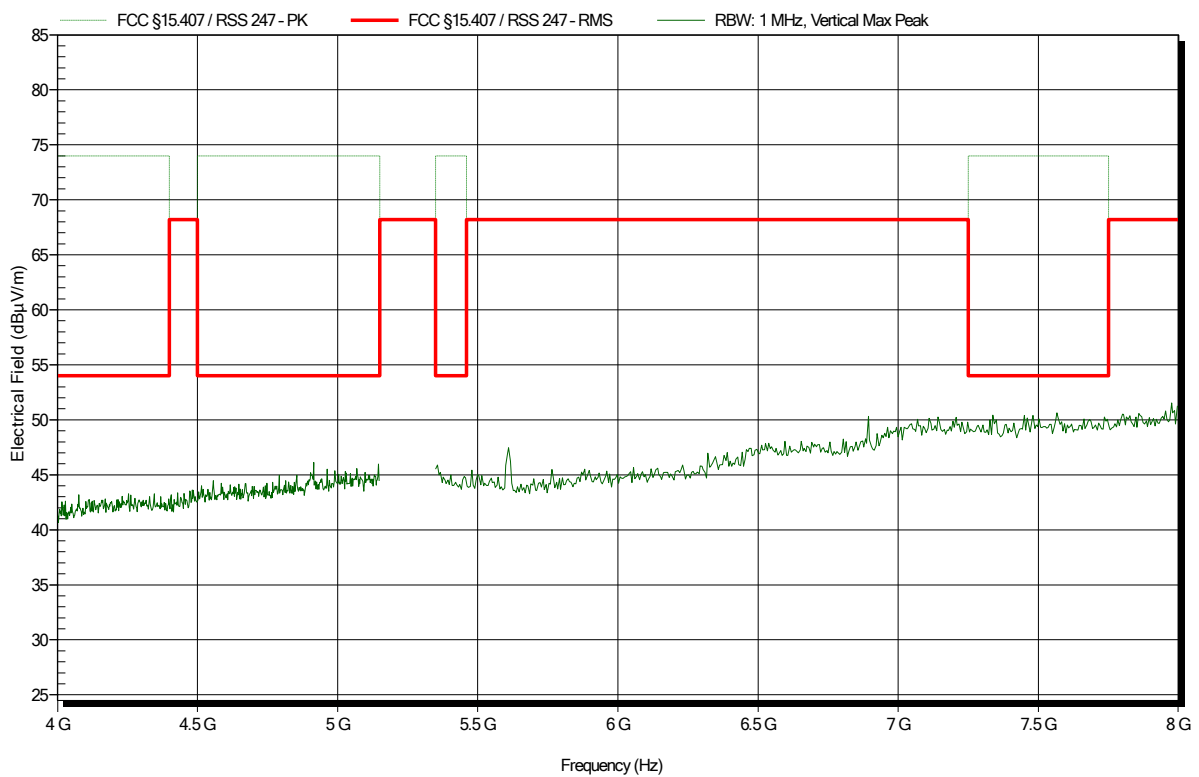
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.438 GHz	51.39 dBµV/m	74 dBµV/m	-22.61 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
7.438 GHz	39.85 dBµV/m	54 dBµV/m	-14.15 dB	Pass

### Spurious emissions according to FCC 15.407

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 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5260 MHz  
 Test Date: 2019-09-30  
 Note:

Index 159

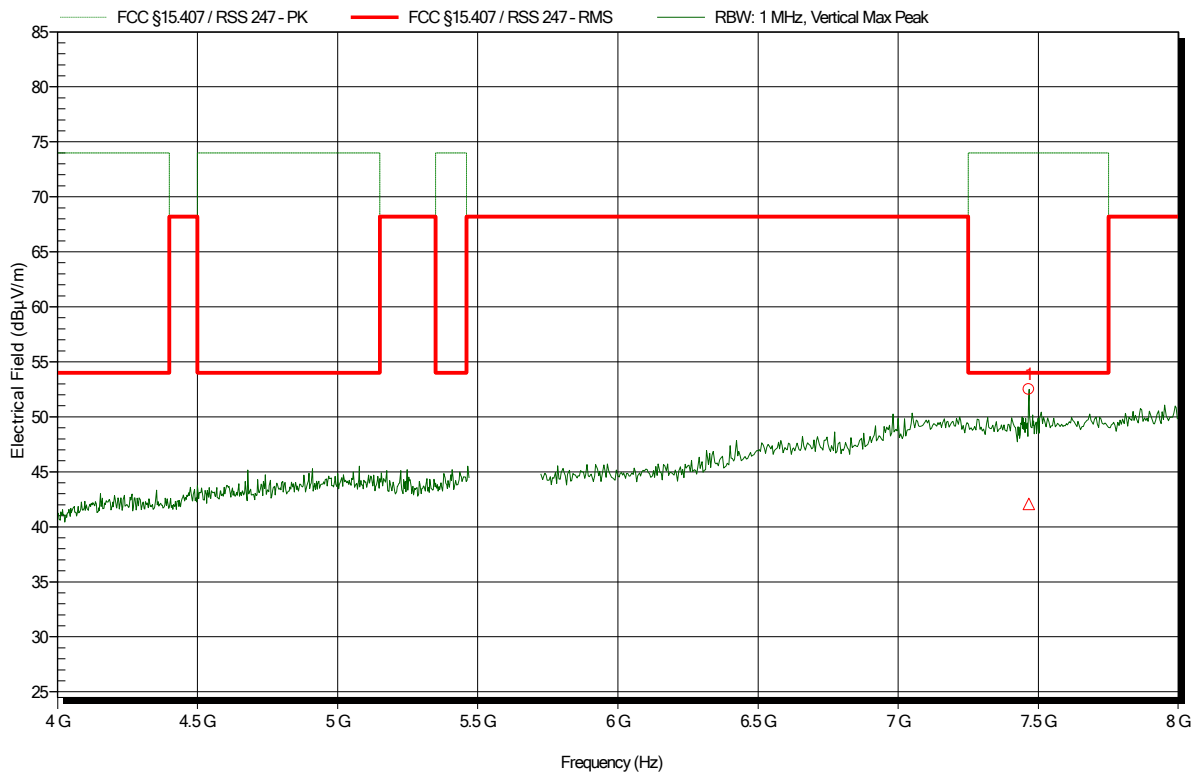


**Spurious emissions according to FCC 15.407**

Project number: G0M-1905-8271

Applicant: Leica Geosystems AG  
 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
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 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5600 MHz  
 Test Date: 2019-10-01  
 Note:

Index 195



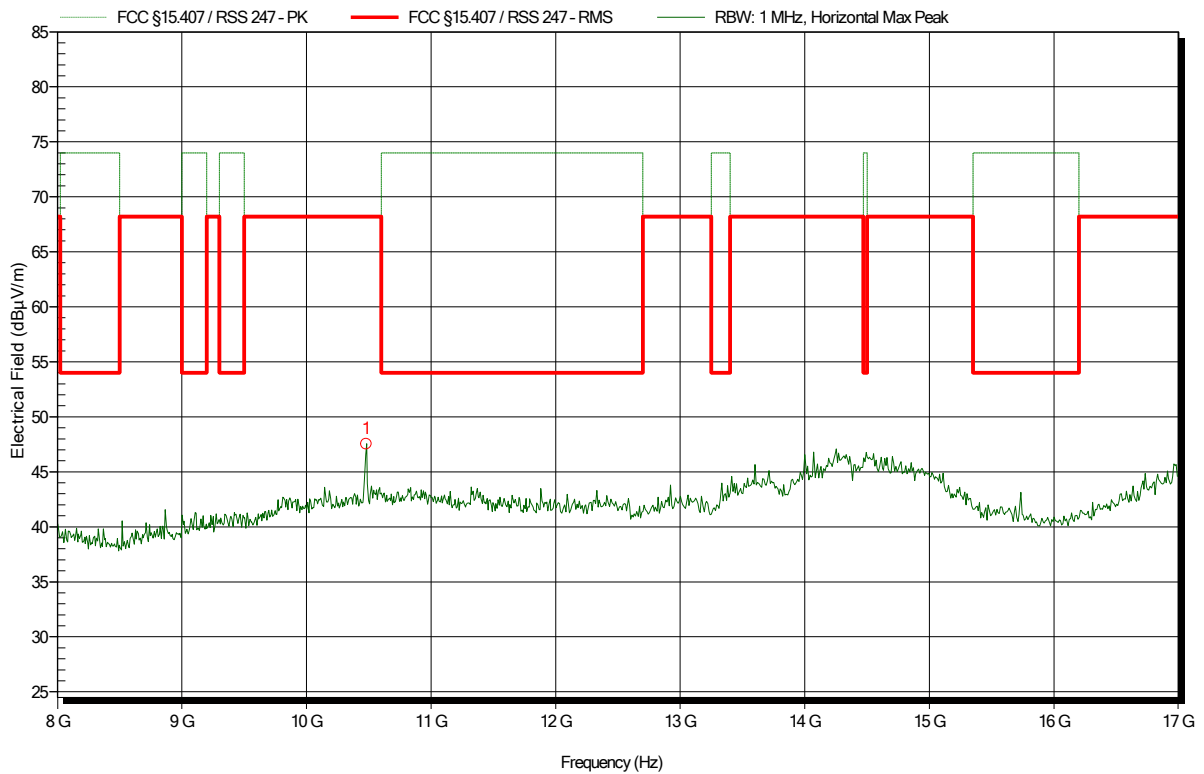
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.466 GHz	52.51 dBµV/m	74 dBµV/m	-21.49 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
7.466 GHz	42.09 dBµV/m	54 dBµV/m	-11.91 dB	Pass

### Spurious emissions according to FCC 15.407

Project number: G0M-1905-8271

Applicant: Leica Geosystems AG  
 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5240 MHz  
 Test Date: 2019-09-30  
 Note:

Index 163



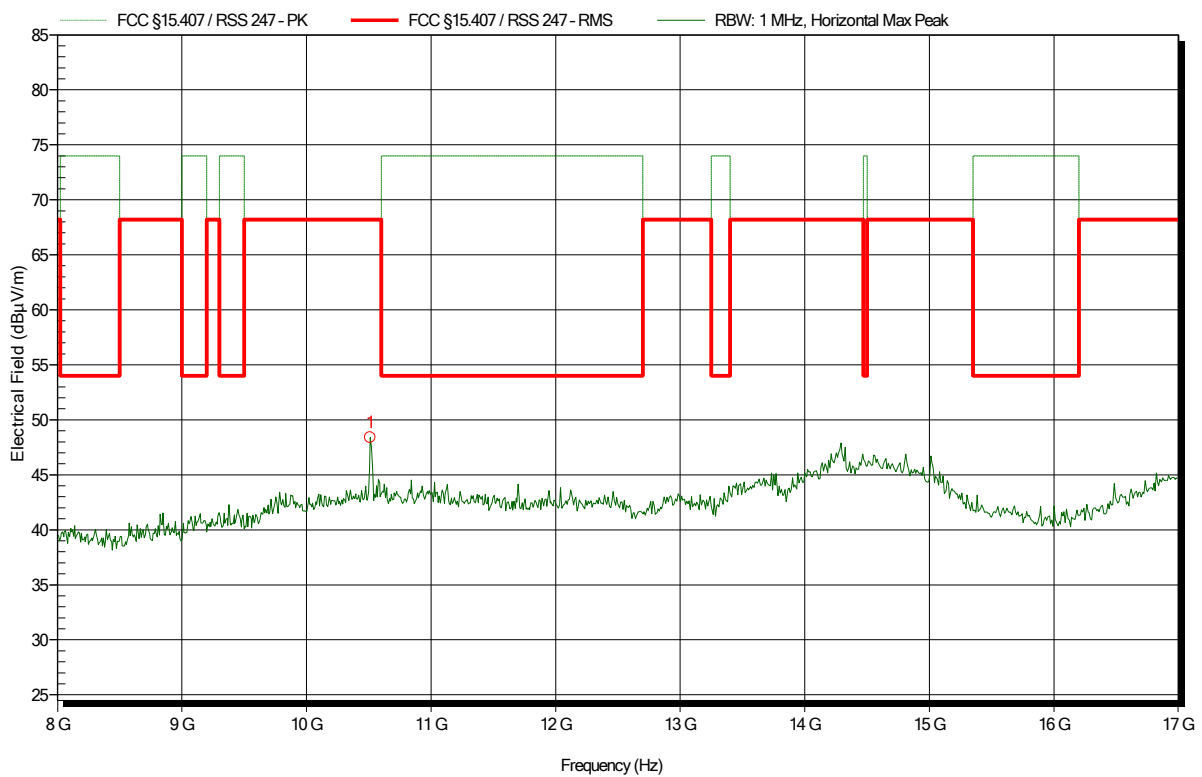
Frequency	Peak	Peak Limit	Peak Difference	Status
10.48 GHz	47.54 dBµV/m	68.2 dBµV/m	-20.66 dB	Pass

### Spurious emissions according to FCC 15.407

Project number: G0M-1905-8271

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 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5260 MHz  
 Test Date: 2019-09-30  
 Note:

Index 160



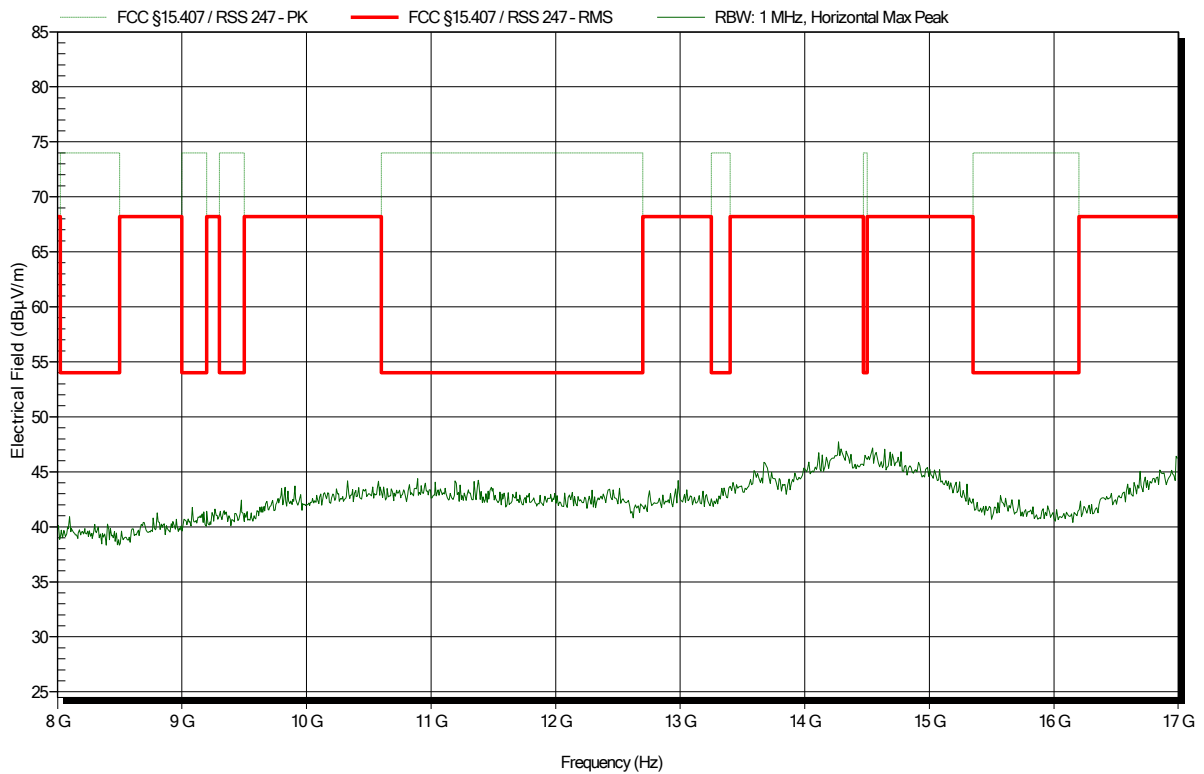
Frequency	Peak	Peak Limit	Peak Difference	Status
10.512 GHz	48.4 dBµV/m	68.2 dBµV/m	-19.8 dB	Pass

**Spurious emissions according to FCC 15.407**

Project number: G0M-1905-8271

Applicant: Leica Geosystems AG  
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 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5600 MHz  
 Test Date: 2019-10-01  
 Note:

Index 182

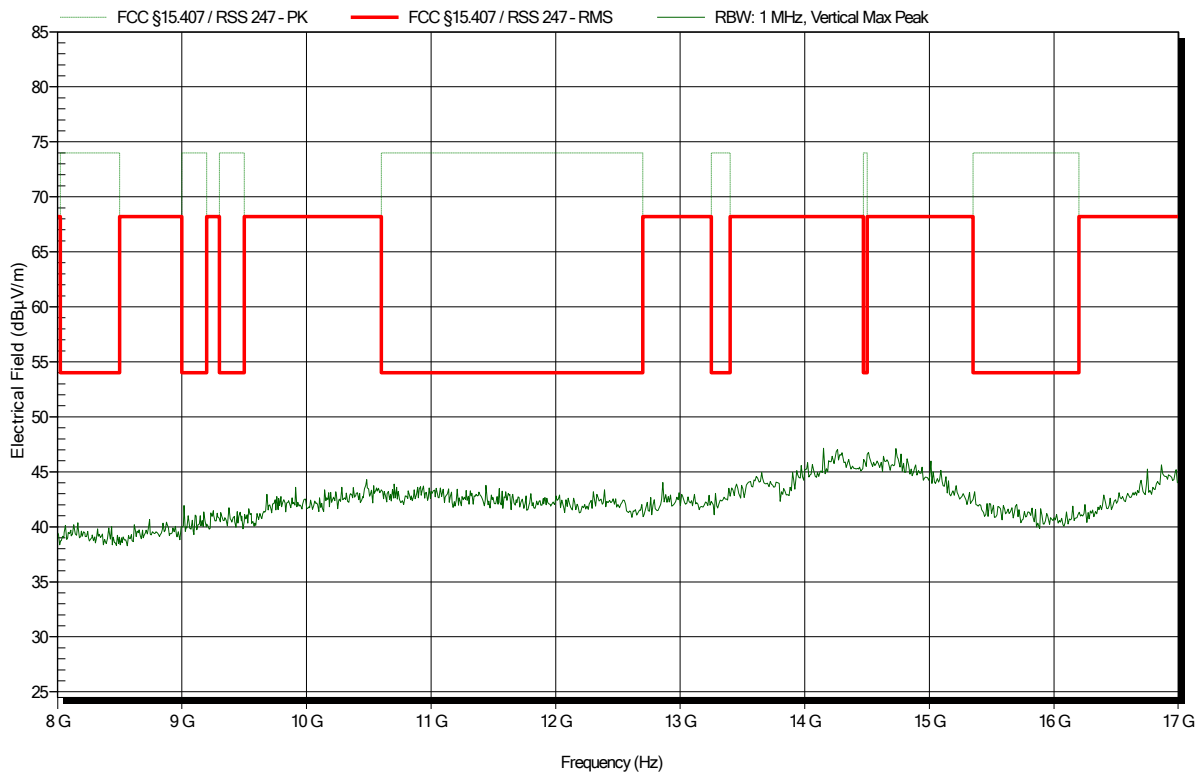


**Spurious emissions according to FCC 15.407**

Project number: G0M-1905-8271

Applicant: Leica Geosystems AG  
 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
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 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5240 MHz  
 Test Date: 2019-09-30  
 Note:

Index 162



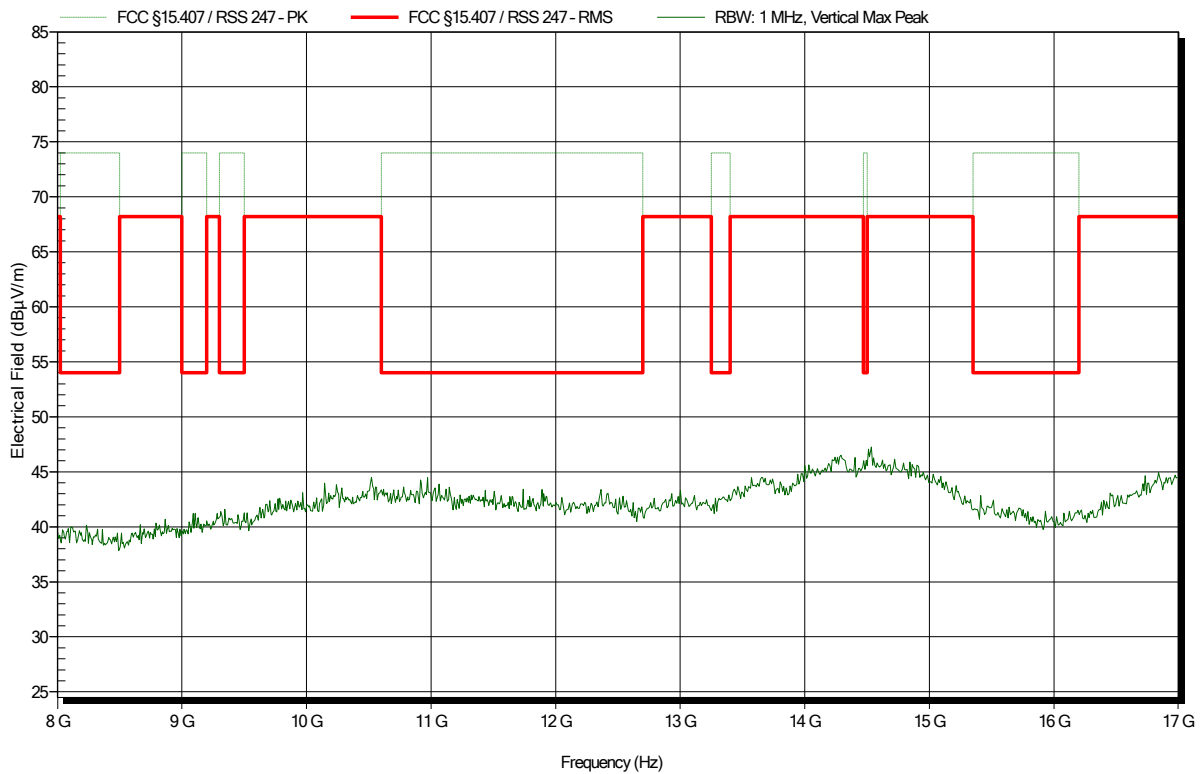


**Spurious emissions according to FCC 15.407**

Project number: G0M-1905-8271

Applicant: Leica Geosystems AG  
 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
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 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5260 MHz  
 Test Date: 2019-09-30  
 Note:

Index 161



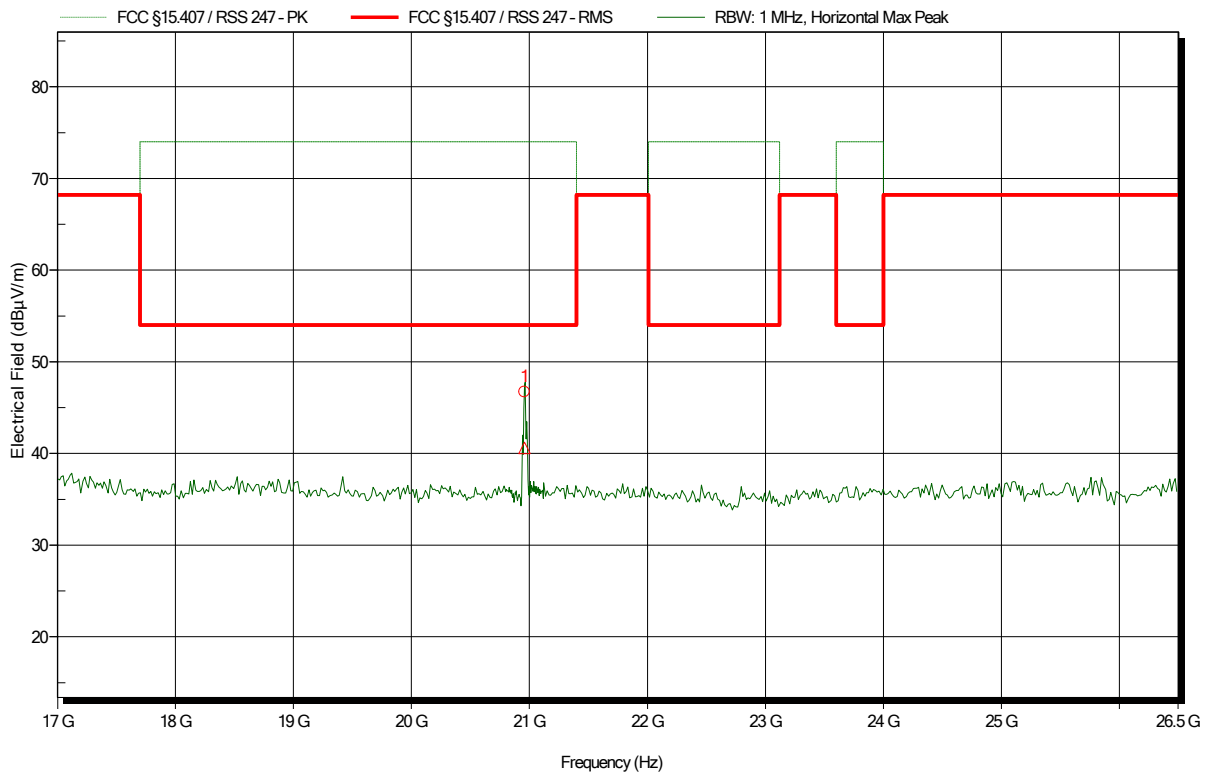


**Spurious emissions according to FCC 15.407**

Project number: G0M-1905-8271

Applicant: Leica Geosystems AG  
 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Amplifier Research AT4560, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5240 MHz  
 Test Date: 2019-09-30  
 Note:

Index 165



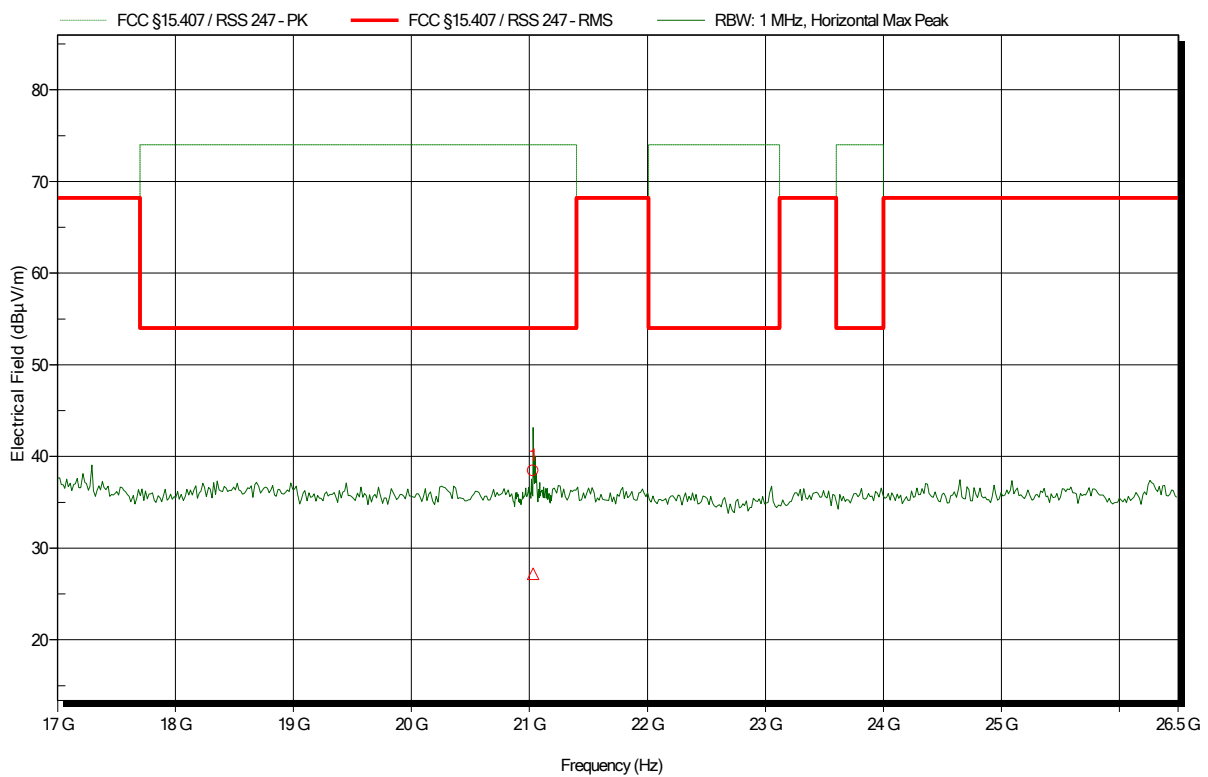
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
20.96 GHz	46.7 dBµV/m	74 dBµV/m	-27.3 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
20.96 GHz	40.6 dBµV/m	54 dBµV/m	-13.4 dB	Pass

### Spurious emissions according to FCC 15.407

Project number: G0M-1905-8271

Applicant: Leica Geosystems AG  
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 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Amplifier Research AT4560, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5260 MHz  
 Test Date: 2019-09-30  
 Note:

Index 168



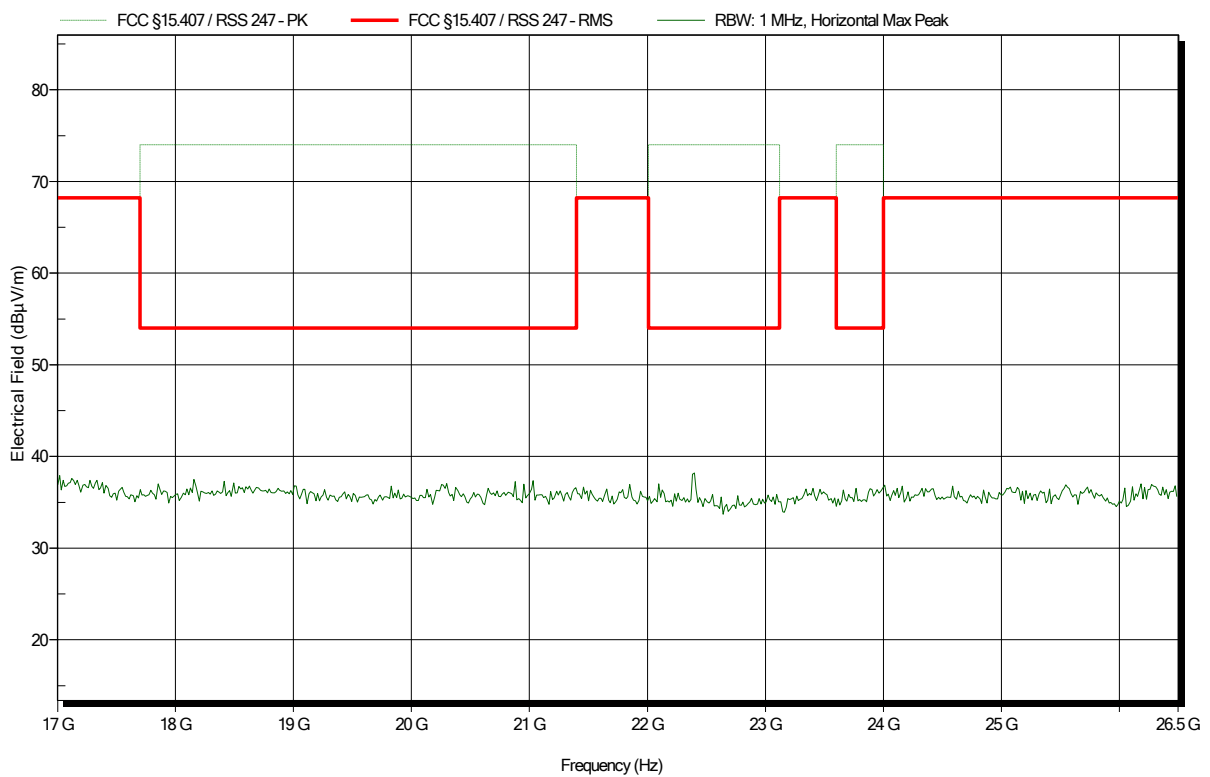
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
21.032 GHz	38.43 dBµV/m	74 dBµV/m	-35.57 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
21.032 GHz	27.19 dBµV/m	54 dBµV/m	-26.81 dB	Pass

### Spurious emissions according to FCC 15.407

Project number: G0M-1905-8271

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 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Amplifier Research AT4560, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5600 MHz  
 Test Date: 2019-09-30  
 Note:

Index 169

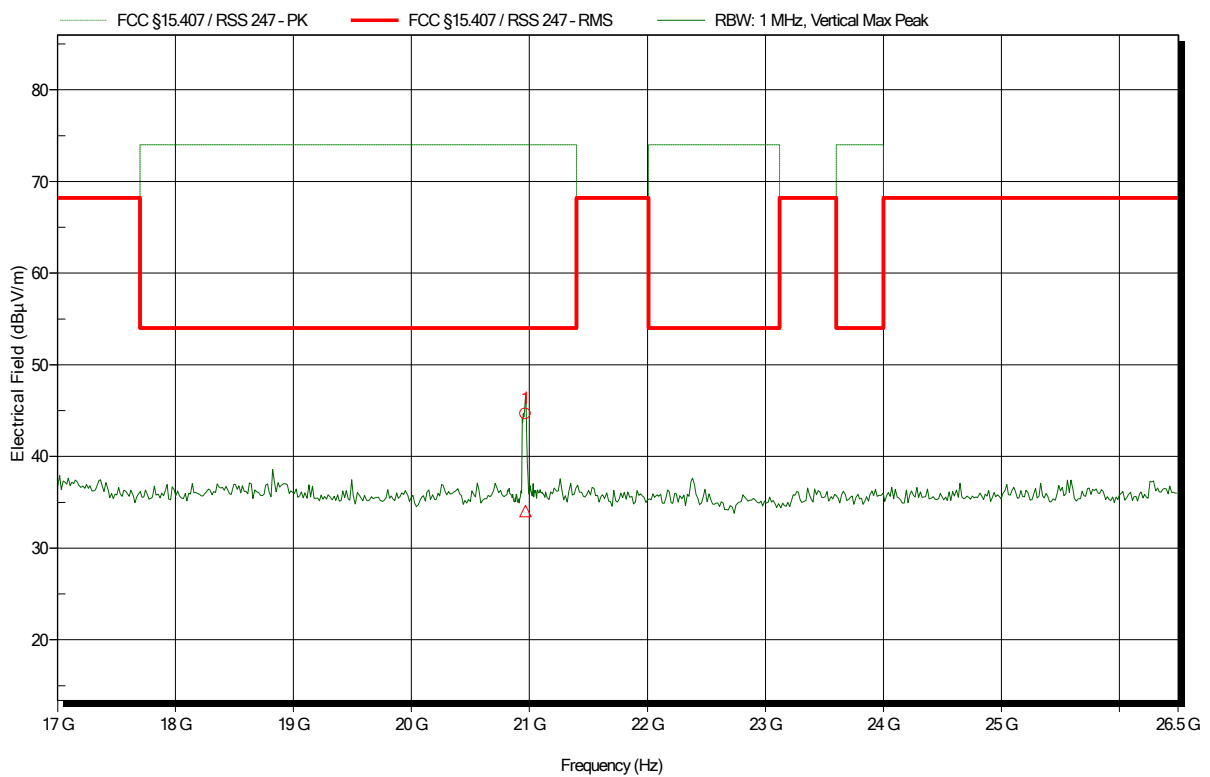


### Spurious emissions according to FCC 15.407

Project number: G0M-1905-8271

Applicant: Leica Geosystems AG  
 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Amplifier Research AT4560, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5240 MHz  
 Test Date: 2019-09-30  
 Note:

Index 166



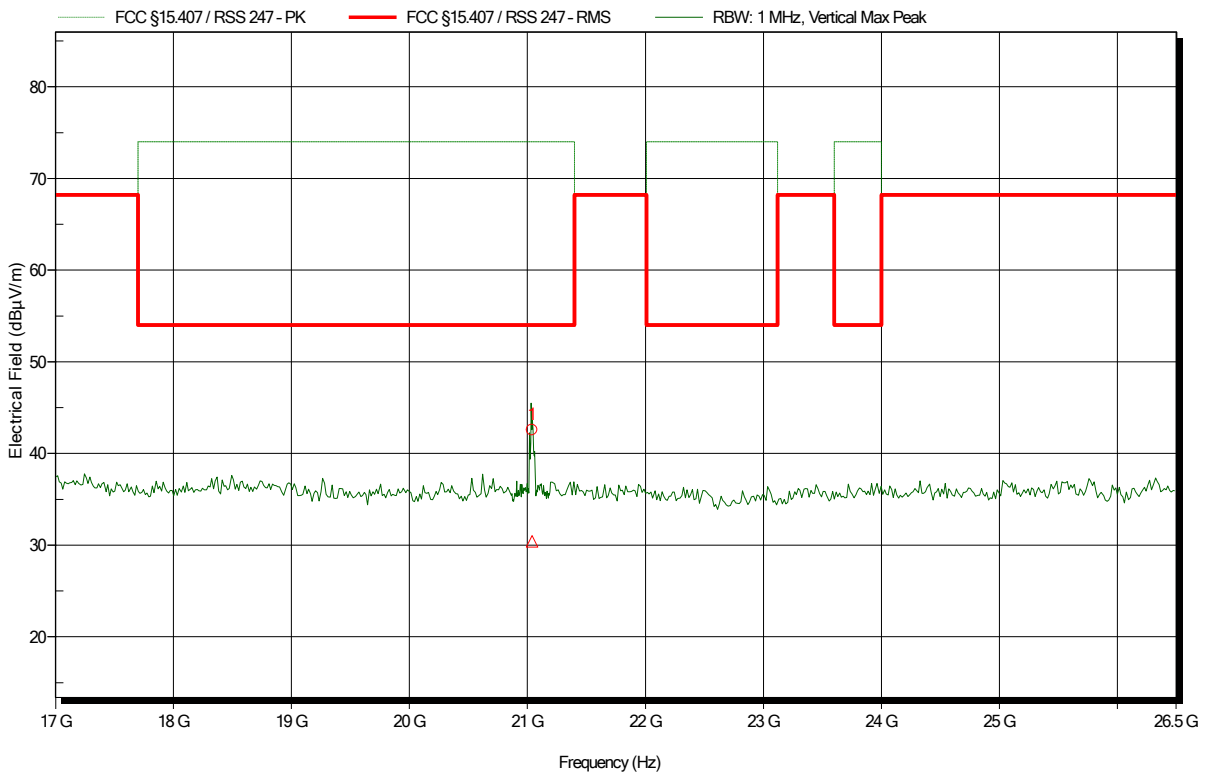
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
20.966 GHz	44.66 dBµV/m	74 dBµV/m	-29.34 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
20.966 GHz	34.06 dBµV/m	54 dBµV/m	-19.94 dB	Pass

**Spurious emissions according to FCC 15.407**

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 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Amplifier Research AT4560, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5260 MHz  
 Test Date: 2019-09-30  
 Note:

Index 167



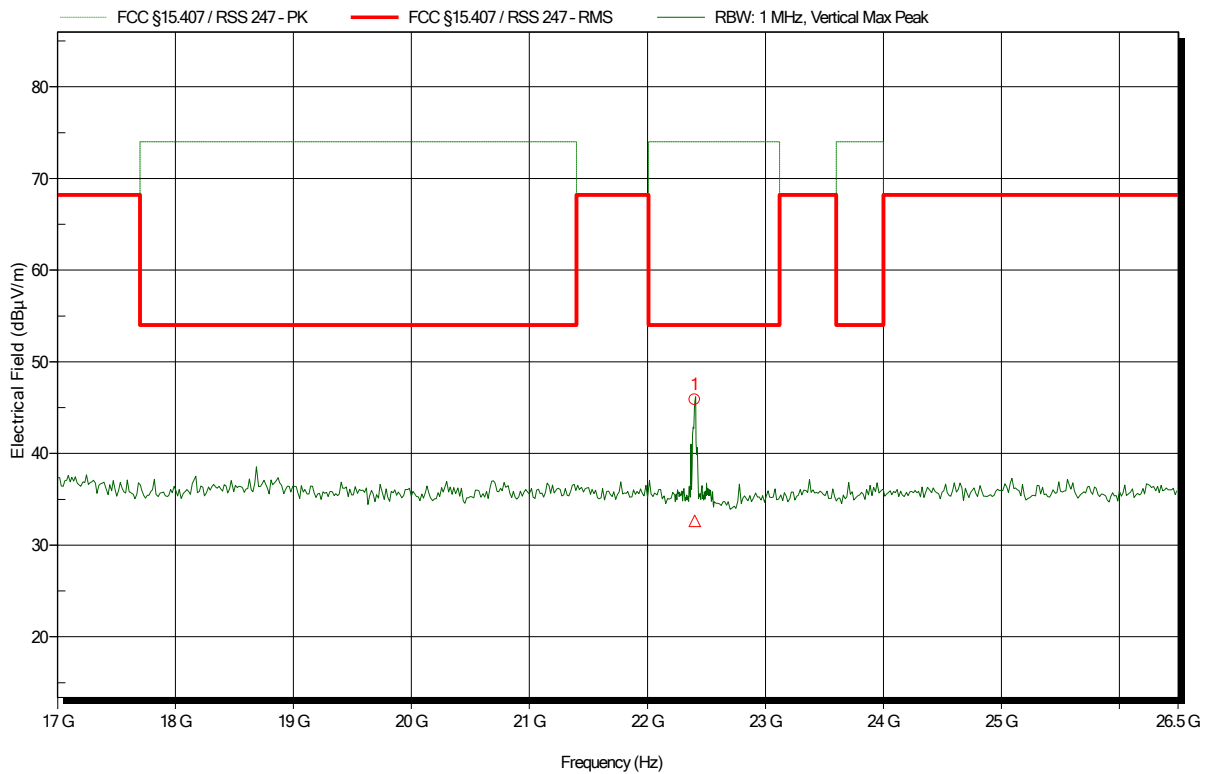
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
21.038 GHz	42.58 dBµV/m	74 dBµV/m	-31.42 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
21.038 GHz	30.43 dBµV/m	54 dBµV/m	-23.57 dB	Pass

**Spurious emissions according to FCC 15.407**

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 Antenna: Amplifier Research AT4560, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5600 MHz  
 Test Date: 2019-09-30  
 Note:

Index 170



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
22.402 GHz	45.88 dBµV/m	74 dBµV/m	-28.12 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
22.402 GHz	32.67 dBµV/m	54 dBµV/m	-21.33 dB	Pass

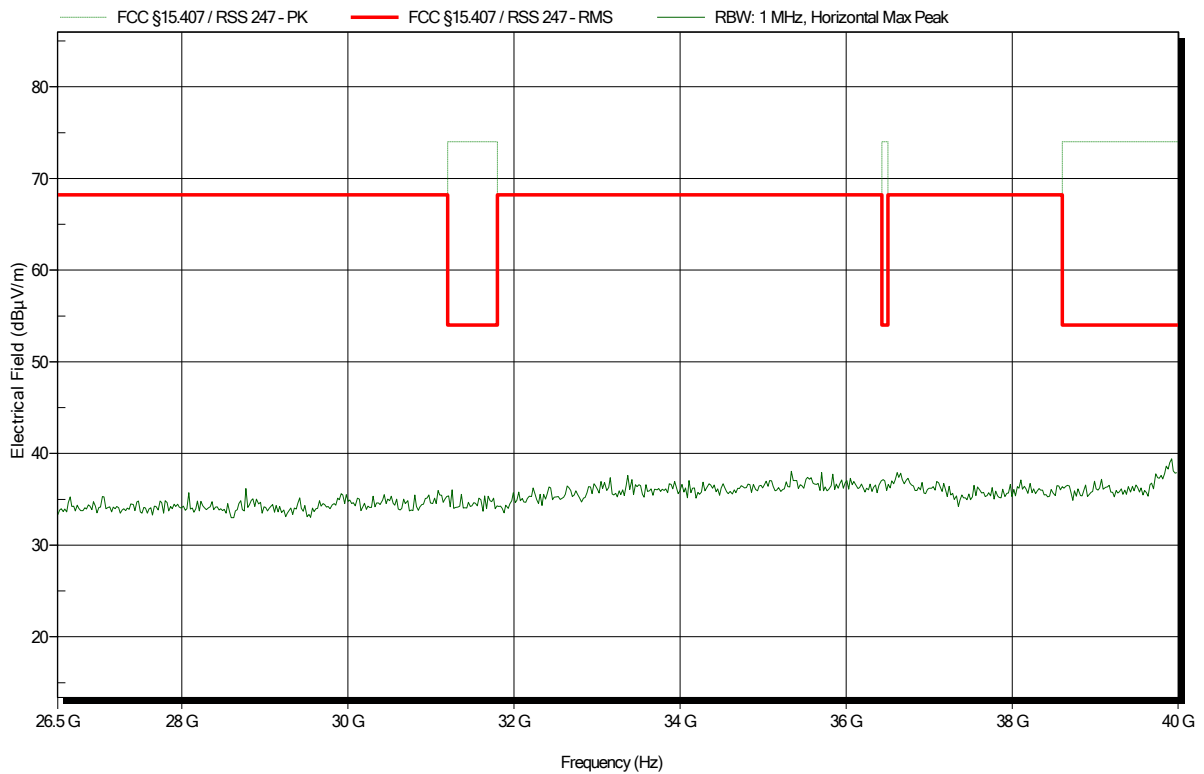


### Spurious emissions according to FCC 15.407

Project number: G0M-1905-8271

Applicant: Leica Geosystems AG  
 EUT Name: Imaging Laser Scanner  
 Model: BLK2GO  
 Test Site: Eurofins Product Service GmbH  
 Operator: Toralf Jahn  
 Test Conditions: Tnom: 23°C, Vnom: 7.2 VDC battery  
 Antenna: Flann HORN 22240-25, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5240 MHz  
 Test Date: 2019-09-30  
 Note:

Index 176

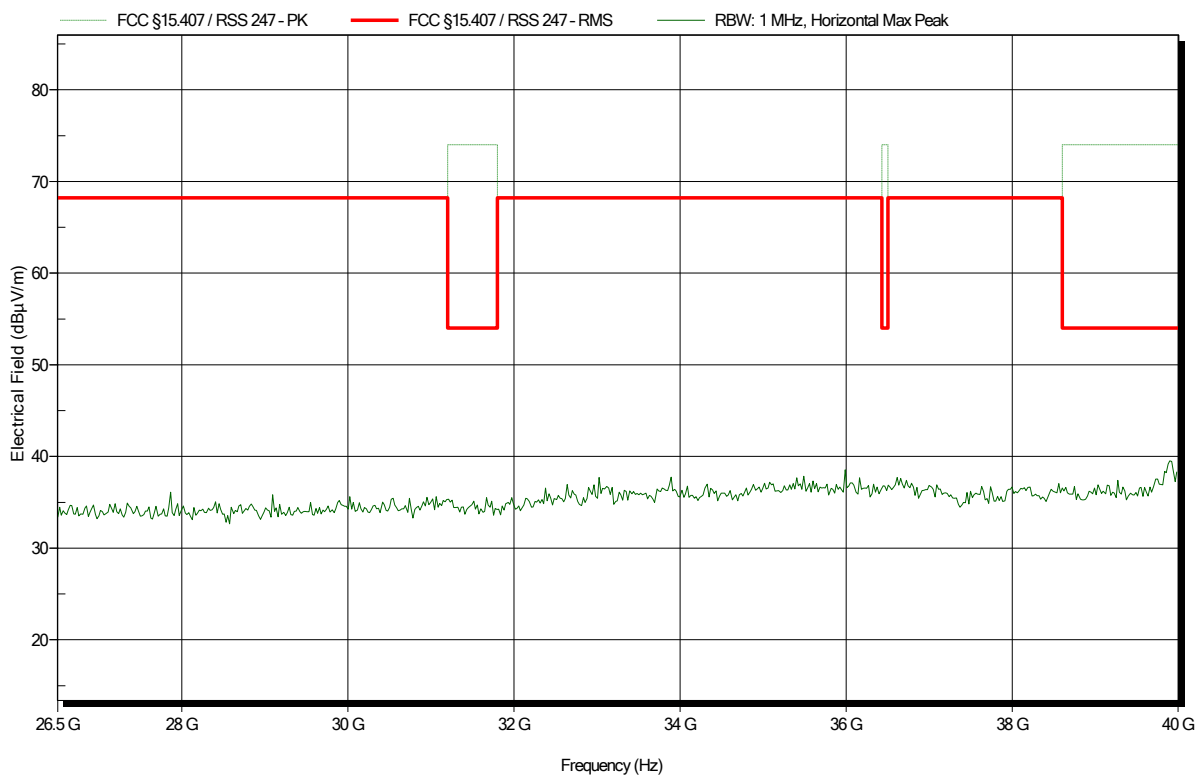


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Project number: G0M-1905-8271

Applicant: Leica Geosystems AG  
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 Antenna: Flann HORN 22240-25, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5260 MHz  
 Test Date: 2019-09-30  
 Note:

Index 177

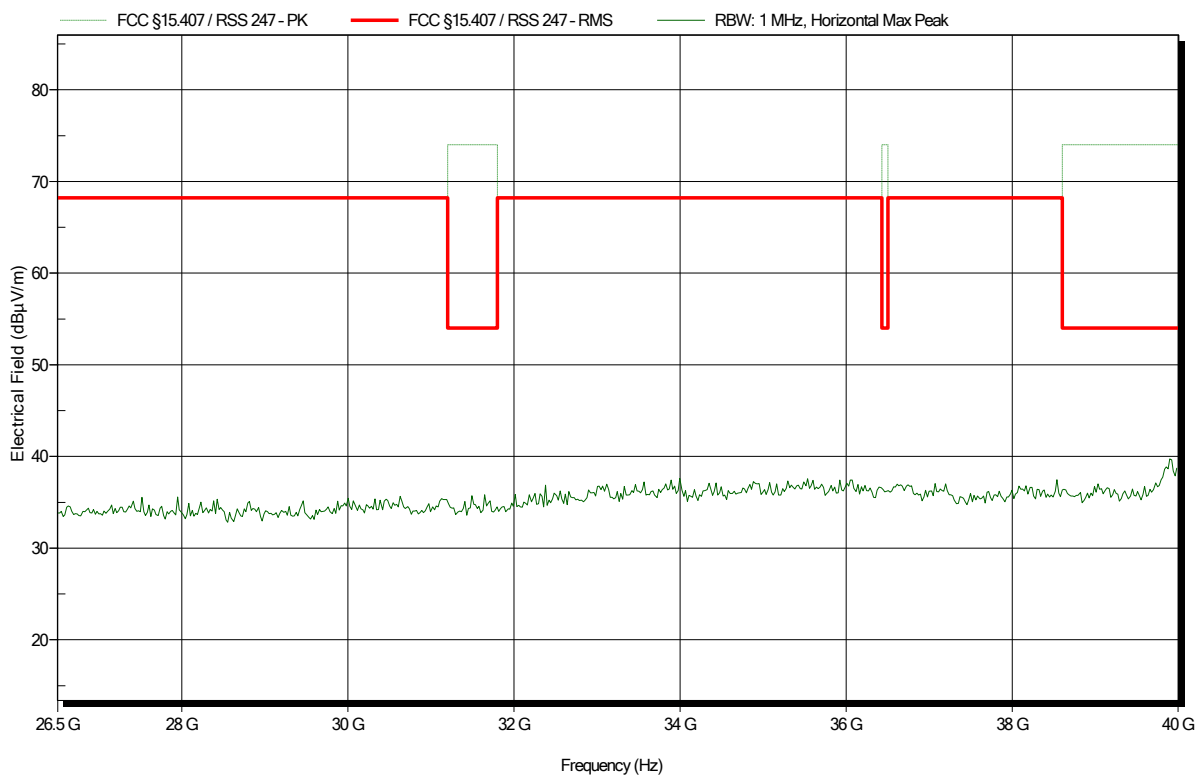


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 Measurement distance: 1 m converted to 3m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5600 MHz  
 Test Date: 2019-09-30  
 Note:

Index 180

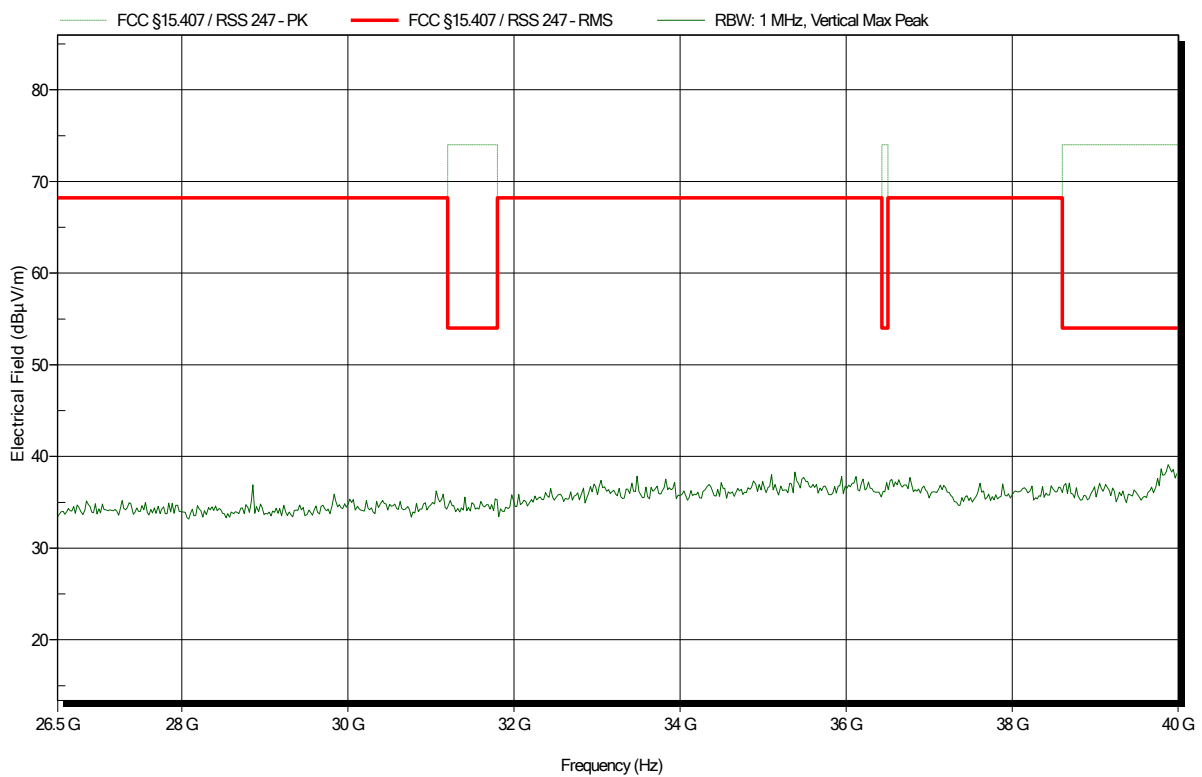


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Project number: G0M-1905-8271

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 Antenna: Flann HORN 22240-25, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5240 MHz  
 Test Date: 2019-09-30  
 Note:

Index 175

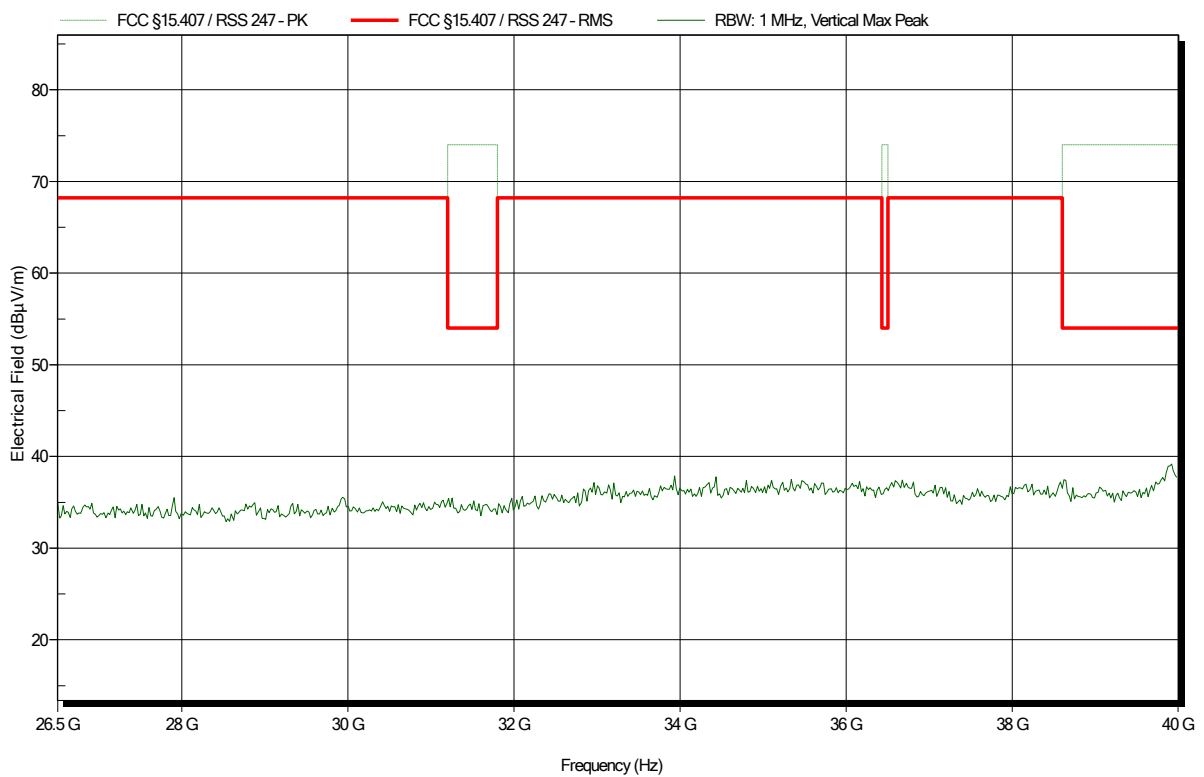


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 Measurement distance: 1 m converted to 3m  
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 Test Date: 2019-09-30  
 Note:

Index 178



### Spurious emissions according to FCC 15.407

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 Antenna: Flann HORN 22240-25, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; Power 15, IEEE 802.11 ac VHT-20, TxChain 01, 5600 MHz  
 Test Date: 2019-09-30  
 Note:

Index 179

