

FCC TEST REPORT FCC 47 CFR Part 15C Industry Canada RSS-210 Digital transmission systems operating within the 2400 – 2483.5 MHz band	
Report Reference No.	G0M-1406-3919-TFC247WF-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 9435 Heerbrugg SWITZERLAND
Test specification:	
Standard	47 CFR Part 15C KDB Publication No. 558074 D01 v03r02 RSS-210, Issue 8, 2010-12 RSS-Gen, Issue 4, 2014-11 ANSI C63.4:2009
Test scope	partial Radio compliance test
Equipment under test (EUT):	
Product description	Field Controller Win EC7
Model No.	CS20
Additional Model(s)	None
Brand Name(s)	Leica Geosystems
Hardware version	V5.0
Firmware / Software version	None
	FCC-ID: RFD-CSNGB IC: 3177A-CSNGB
Test result	Passed

Possible test case verdicts:

- neither assessed nor tested: N/N
- required by standard but not appl. to test object.....: N/A
- required by standard but not tested.....: N/T
- not required by standard for the test object: N/R
- test object does meet the requirement.....: P (Pass)
- test object does not meet the requirement.....: F (Fail)

Testing:

Test Lab Temperature.....: 20 – 23 °C

Test Lab Humidity: 32 – 38 %

Date of receipt of test item: 2015-02-26

Date (s) of performance of tests: 2014-08-07 - 2015-02-27

Compiled by: Burkhard Pudell

Tested by (+ signature).....: Burkhard Pudell *B. Pudell*

(Responsible for Test)

Approved by (+ signature): Christian Weber *C. Weber*

Date of issue: 2015-04-23

Total number of pages: 139

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:

Version History

Version	Issue Date	Remarks	Revised by
01	2015-04-23	Initial Release	

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1 Equipment (Test item) Description

Description	Field Controller Win EC7	
Model	CS20	
Additional Model(s)	None	
Brand Name(s)	Leica Geosystems	
Serial number	None	
Hardware version	V5.0	
Software / Firmware version	None	
FCC-ID	RFD-CSNGB	
IC	3177A-CSNGB	
Equipment type	End product	
Radio type	Transceiver	
Radio technology	IEEE 802.11 b/g/n	
Operating frequency range	2412 - 2462 MHz	
Assigned frequency band	2400 - 2483.5 MHz	
Main test frequencies	F _{LOW20}	2412 MHz
	F _{MID20}	2437 MHz
	F _{HIGH20}	2462 MHz
Spreading	CCK, DSSS, OFDM	
Modulations	BPSK, QPSK, 16-QAM, 64-QAM	
Number of channels	11	
Channel spacing	5 MHz	
Number of antennas	1	
Antenna	Type	integrated
	Model	W3008C
	Manufacturer	Pulse
	Gain	+2.2 dBi (manufacturer declaration)
Manufacturer	Leica Geosystems AG Heinrich Wild Strasse 9435 Heerbrugg SWITZERLAND	
Power supply	V _{NOM}	11.1 VDC
	V _{MIN}	N/R
	V _{MAX}	N/R
AC/DC-Adaptor	Model	AEL40US15
	Vendor	XP Power
	Input	100 - 240 V AC
	Output	15 V DC

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 Test Modes

Mode #	Description	
DSSS	General conditions:	EUT powered by battery.
	Radio conditions:	Mode = standalone transmit Spreading = DSSS Modulation = BPSK Data rate = 1 Mbps Bandwidth = 20 MHz Duty cycle = 99 % Power level = Max
OFDM	General conditions:	EUT powered by battery.
	Radio conditions:	Mode = standalone transmit Spreading = OFDM Modulation = BPSK Data rate = 6 Mbps Bandwidth = 20 MHz Duty cycle = 99 % Power level = Max
HT20	General conditions:	EUT powered by battery.
	Radio conditions:	Mode = standalone transmit Spreading = OFDM Modulation = BPSK Data rate = 7.2 Mbps Bandwidth = 20 MHz Duty cycle = 99 % Power level = Max
Receive	General conditions:	EUT powered by battery.
	Radio conditions:	Mode = standalone receive Spreading = DSSS / OFDM
AC-Powerline	General conditions:	EUT powered by dedicated AC/DC-Adaptor
	Radio conditions:	Mode = standalone transmit Spreading = DSSS Power level = Maximum

1.6 Test Equipment Used During Testing

Measurement Software			
Description	Manufacturer	Name	Version
EMC Test Software	Dare Instruments	Radimation	2014.1.15

Occupied Bandwidth					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	EF00312	2015-02	2016-02

6dB Bandwidth					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	EF00312	2015-02	2016-02

Maximum peak conducted power					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	EF00312	2015-02	2016-02

Power spectral density					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	EF00312	2015-02	2016-02

Band edge compliance					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	EF00312	2015-02	2016-02

Conducted spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	EF00312	2015-02	2016-02

Radiated spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Semi-anechoic chamber	Frankonia	AC 1	EF00062	-	-
Spectrum Analyzer	R&S	FSIQ26	EF00242	2014-03	2015-03
Biconical Antenna	R&S	HK 116	EF00012	2013-02	2016-02
LPD Antenna	R&S	HL 223	EF00187	2014-03	2017-03
LPD Antenna	R&S	HL 025	EF00327	2013-02	2016-02

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

AC powerline conducted emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
AMN	R&S	ESH2-Z5	EF00182	2014-11	2016-11
EMI Test Receiver	R&S	ESCS 30	EF00295	2014-10	2015-10

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:

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

Net:

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

Limit:

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

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

2 Result Summary

FCC 47 CFR Part 15C, IC RSS-210				
Product Specific Standard Section	Requirement – Test	Reference Method	Result	Remarks
RSS-Gen 6.6	Occupied Bandwidth	RSS-Gen 6.6	N/R	Informational only
FCC § 15.247(a)(2) IC RSS-210 § A8.2	6dB Bandwidth	KDB Publication No. 558074	PASS	
FCC § 15.247(b)(3) IC RSS-210 § A8.4	Maximum peak conducted power	KDB Publication No. 558074	PASS	
FCC § 15.247(e) IC RSS-210 § A8.2	Power spectral density	KDB Publication No. 558074	PASS	
47 CFR 15.207 RSS-Gen 8.8	AC power line conducted emissions	KDB Publication No. 558074 / ANSI C63.4	PASS	
FCC § 15.247(d) IC RSS-210 § A8.5	Band edge compliance	KDB Publication No. 558074	PASS	
FCC § 15.247(d) IC RSS-210 § A8.5	Conducted spurious emissions	KDB Publication No. 558074	PASS	
FCC § 15.247(d) FCC § 15.209 IC RSS-210 A8.5 IC RSS-Gen 6.13	Transmitter radiated spurious emissions	KDB Publication No. 558074 / ANSI C 63.4	PASS	
IC RSS-Gen 7.1	Receiver radiated spurious emissions	ANSI C 63.4	PASS	
Remarks:				

3 Test Conditions and Results

3.1 Test Conditions and Results – Occupied Bandwidth

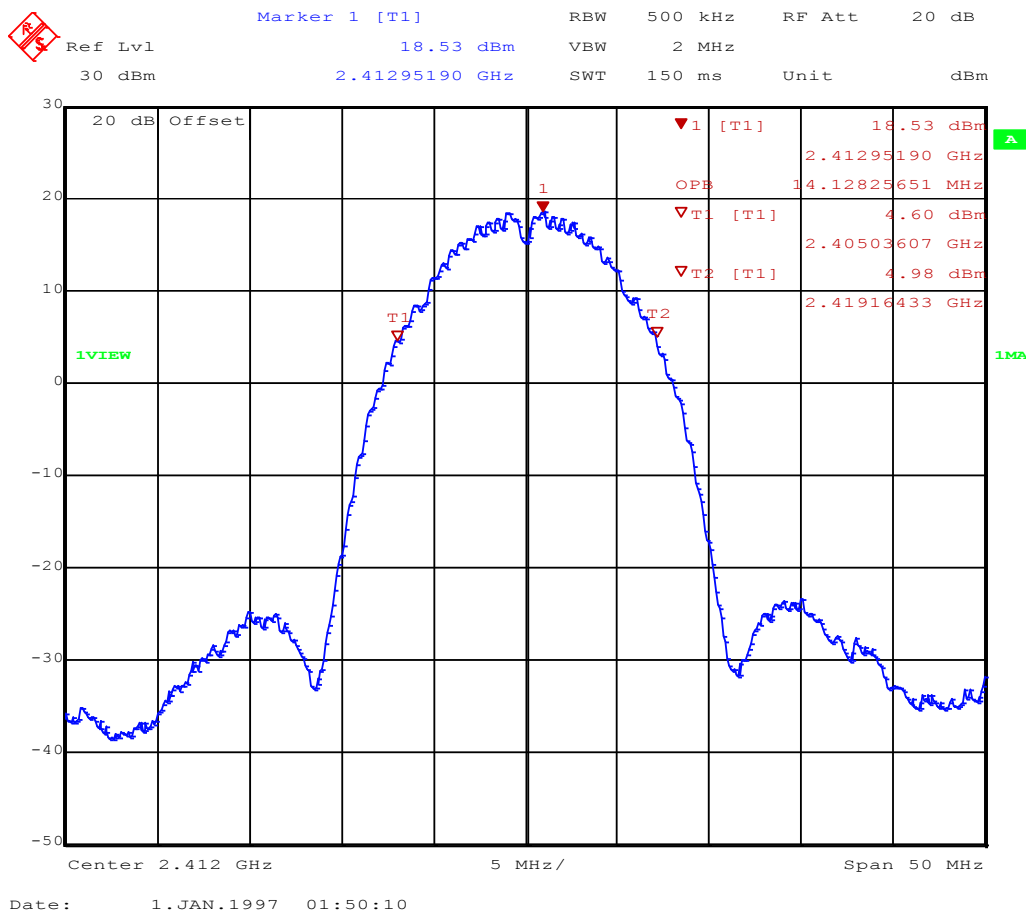
Occupied Bandwidth acc. to IC RSS-Gen			Verdict: N/R
Test according to measurement reference	Reference Method		
	RSS-Gen 6.6		
Test frequency range	Tested frequencies		
	F _{LOW} / F _{MID} / F _{HIGH}		
Limits			
None (Informational only)			
Test setup			
Spectrum Analyzer EUT			
Test procedure			
1. EUT set to test mode (Communication tester is used if needed) 2. Span set to at least twice the emission spectrum 3. Resolution bandwidth set to 1 % of span 4. Occupied Bandwidth (99 %) measurement with spectrum analyzer built in measurement function			
Test results			
Channel	Frequency [MHz]	Mode	Occupied Bandwidth [MHz]
F _{LOW20}	2412	DSSS	14.128
F _{MID20}	2437	DSSS	14.329
F _{HIGH20}	2462	DSSS	14.429
F _{LOW20}	2412	OFDM	17.635
F _{MID20}	2437	OFDM	17.936
F _{HIGH20}	2462	OFDM	18.437
F _{LOW20}	2412	HT20	19.539
F _{MID20}	2437	HT20	20.741
F _{HIGH20}	2462	HT20	22.846
Comments:			

Occupied Bandwidth – DSSS F_{LOW}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3919

Applicant: Leica Geosystems AG
EUT Name: Field Controller Win EC7
Model: CS20
Test Site: Eurofins Product Service GmbH
Operator: Burkhard Pudell
Test Conditions: Tnom / Vnom
Mode: Tx, WLAN 2.4G, 2412 MHz, DSSS, 1Mbps
Test Date: 2015-02-27
Verdict: NONE (INFORMATION ONLY)
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2: OBW= 14.128 MHz

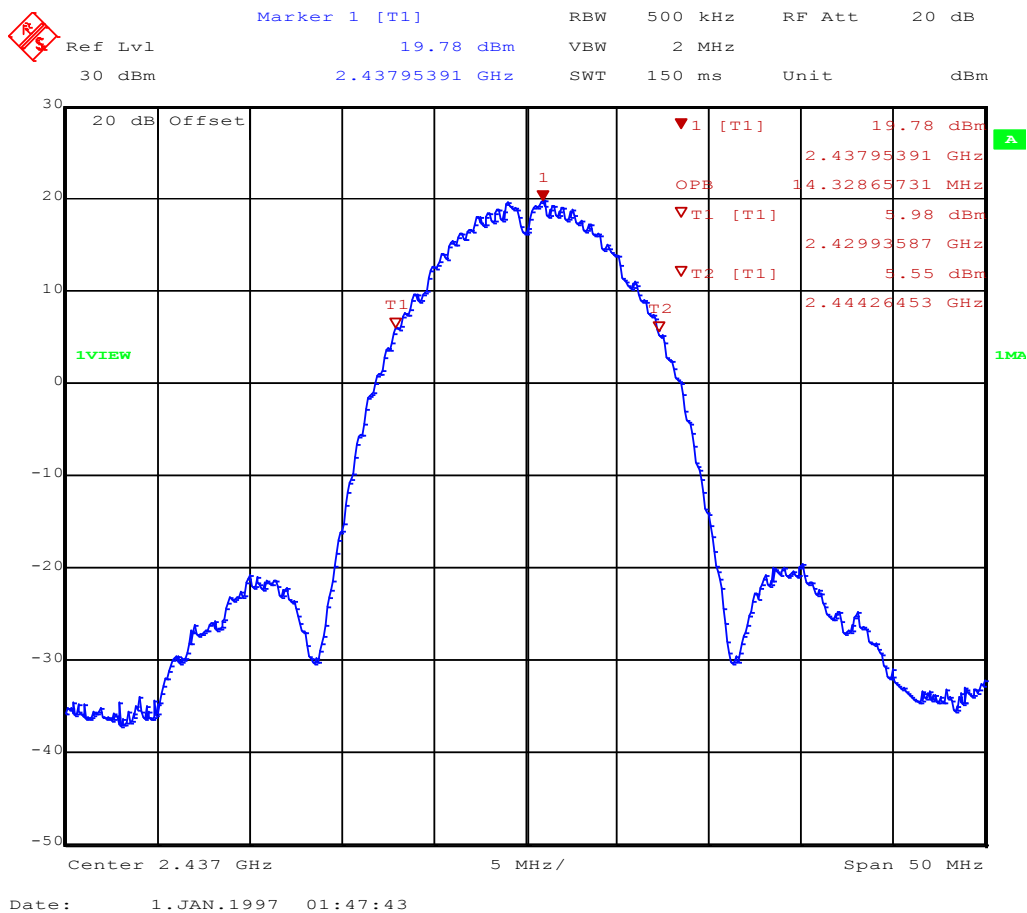


Occupied Bandwidth – DSSS F_{MID}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3919

Applicant: Leica Geosystems AG
EUT Name: Field Controller Win EC7
Model: CS20
Test Site: Eurofins Product Service GmbH
Operator: Burkhard Pudell
Test Conditions: Tnom / Vnom
Mode: Tx, WLAN 2.4G, 2437 MHz, DSSS, 1Mbps
Test Date: 2015-02-27
Verdict: NONE (INFORMATION ONLY)
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2: OBW = 14.329 MHz

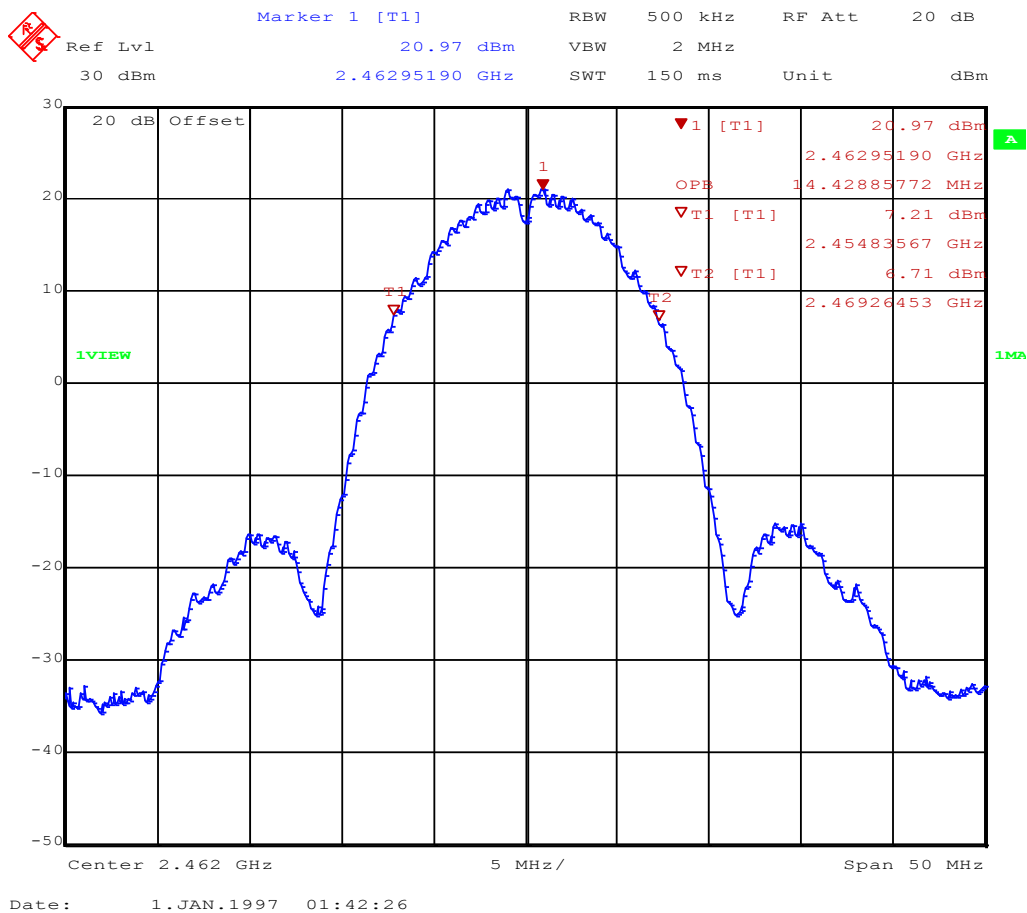


Occupied Bandwidth – DSSS F_{HIGH}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3919

Applicant: Leica Geosystems AG
EUT Name: Field Controller Win EC7
Model: CS20
Test Site: Eurofins Product Service GmbH
Operator: Burkhard Pudell
Test Conditions: Tnom / Vnom
Mode: Tx, WLAN 2.4G, 2462 MHz, DSSS, 1Mbps
Test Date: 2015-02-27
Verdict: NONE (INFORMATION ONLY)
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2: OBW= 14.429 MHz

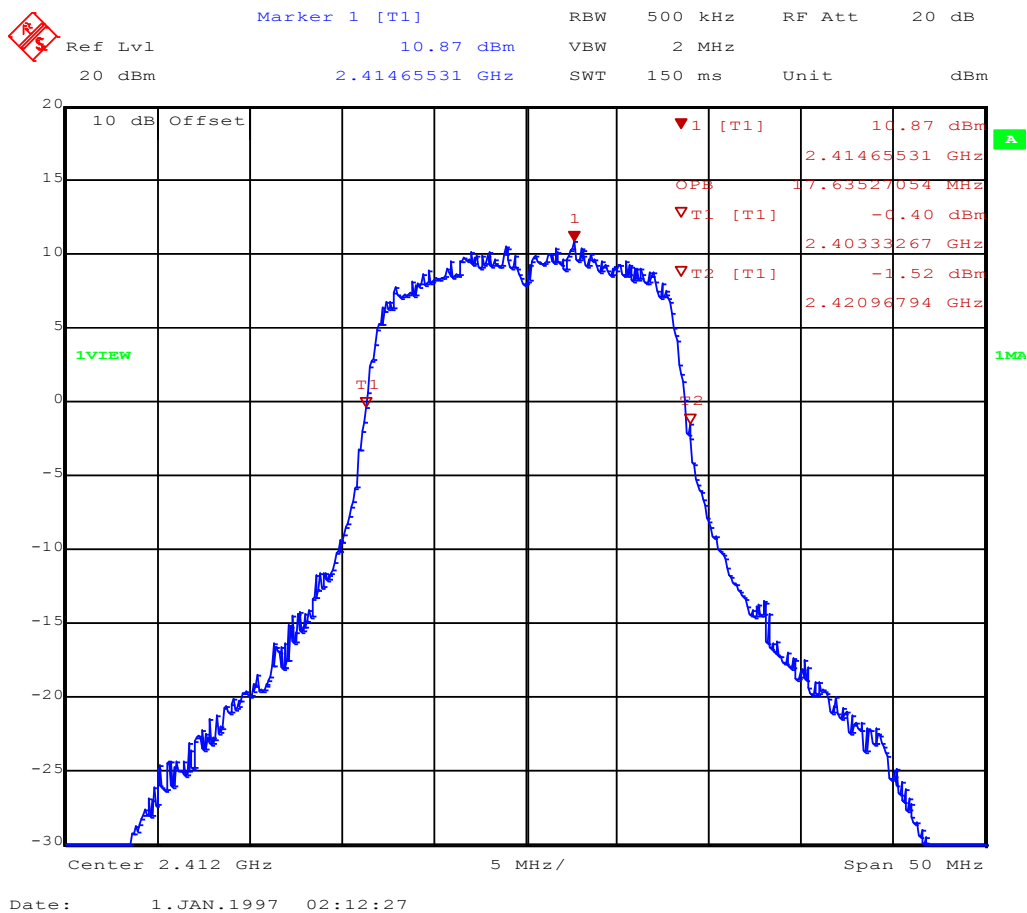


Occupied Bandwidth – OFDM F_{LOW}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3919

Applicant: Leica Geosystems AG
EUT Name: Field Controller Win EC7
Model: CS20
Test Site: Eurofins Product Service GmbH
Operator: Burkhard Pudell
Test Conditions: Tnom / Vnom
Mode: Tx, WLAN 2.4G, 2412 MHz, OFDM, 6Mbps
Test Date: 2015-02-27
Verdict: NONE (INFORMATION ONLY)
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2: OBW= 17.635 MHz

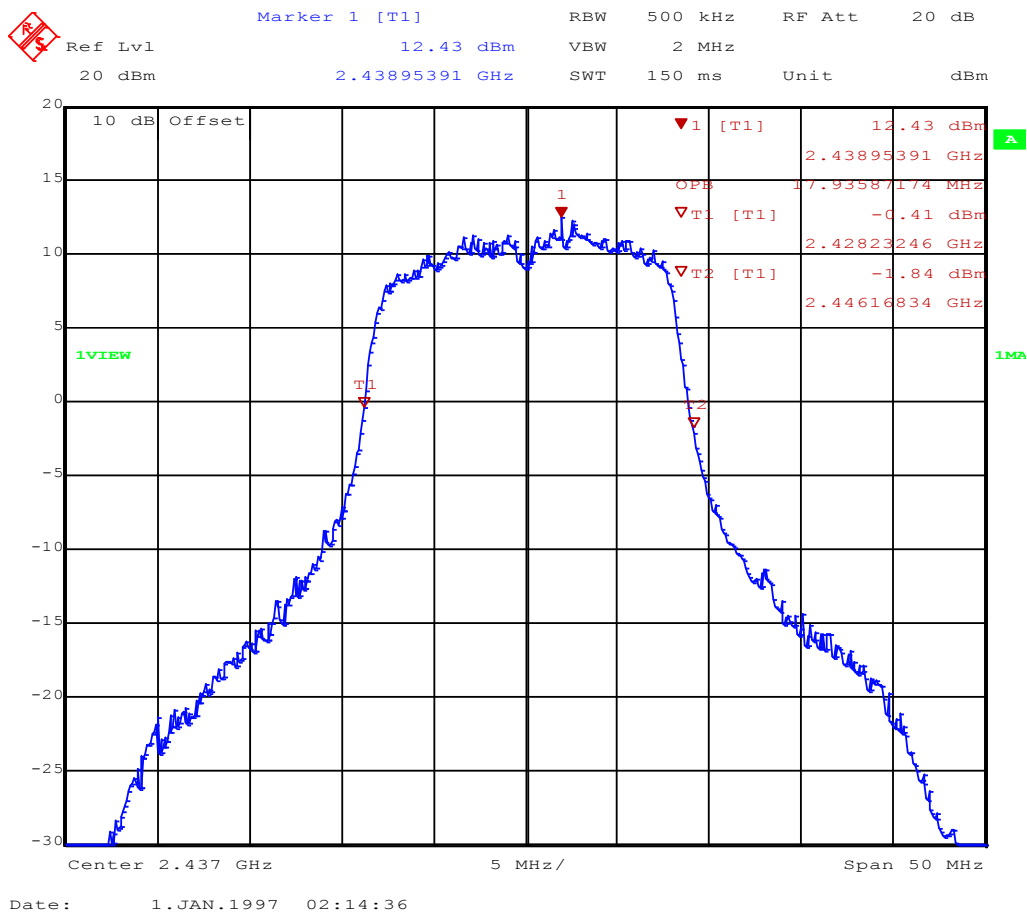


Occupied Bandwidth – OFDM F_{MID}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3919

Applicant: Leica Geosystems AG
EUT Name: Field Controller Win EC7
Model: CS20
Test Site: Eurofins Product Service GmbH
Operator: Burkhard Pudell
Test Conditions: Tnom / Vnom
Mode: Tx, WLAN 2.4G, 2437 MHz, OFDM, 6Mbps
Test Date: 2015-02-27
Verdict: NONE (INFORMATION ONLY)
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2: OBW= 17.936 MHz



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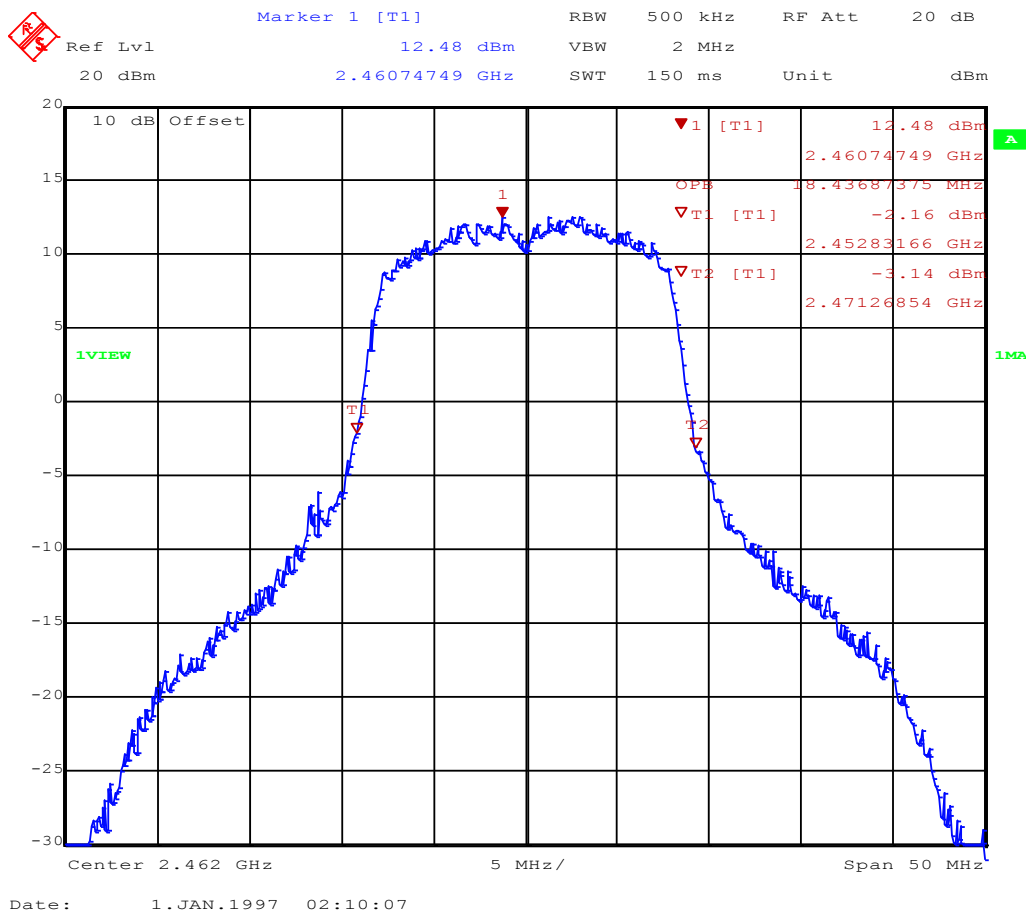
Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Occupied Bandwidth – OFDM F_{HIGH}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3919

Applicant: Leica Geosystems AG
EUT Name: Field Controller Win EC7
Model: CS20
Test Site: Eurofins Product Service GmbH
Operator: Burkhard Pudell
Test Conditions: Tnom / Vnom
Mode: Tx, WLAN 2.4G, 2462 MHz, OFDM, 6Mbps
Test Date: 2015-02-27
Verdict: NONE (INFORMATION ONLY)
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2: OBW = 18.437 MHz

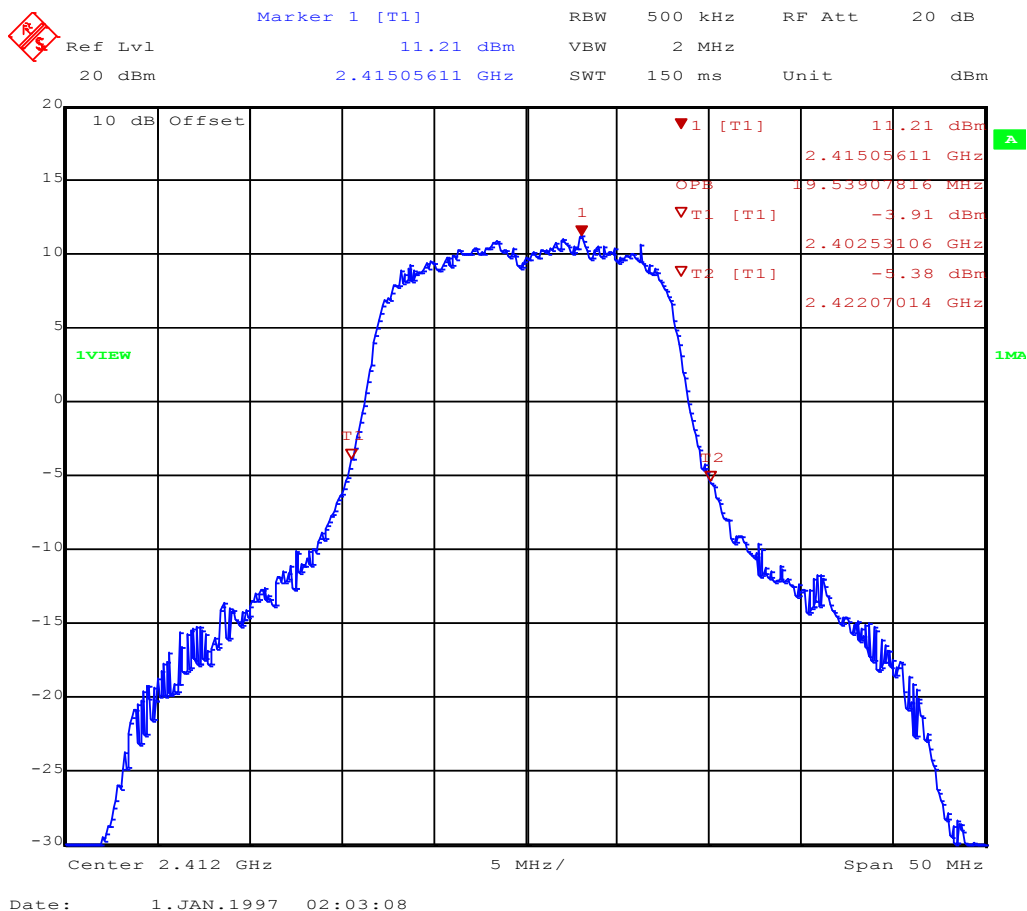


Occupied Bandwidth – HT20 F_{Low}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3919

Applicant: Leica Geosystems AG
EUT Name: Field Controller Win EC7
Model: CS20
Test Site: Eurofins Product Service GmbH
Operator: Burkhard Pudell
Test Conditions: Tnom / Vnom
Mode: Tx, WLAN 2.4G, 2412 MHz, OFDM, HT20, MCS0
Test Date: 2015-02-27
Verdict: NONE (INFORMATION ONLY)
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2: OBW = 19.539 MHz

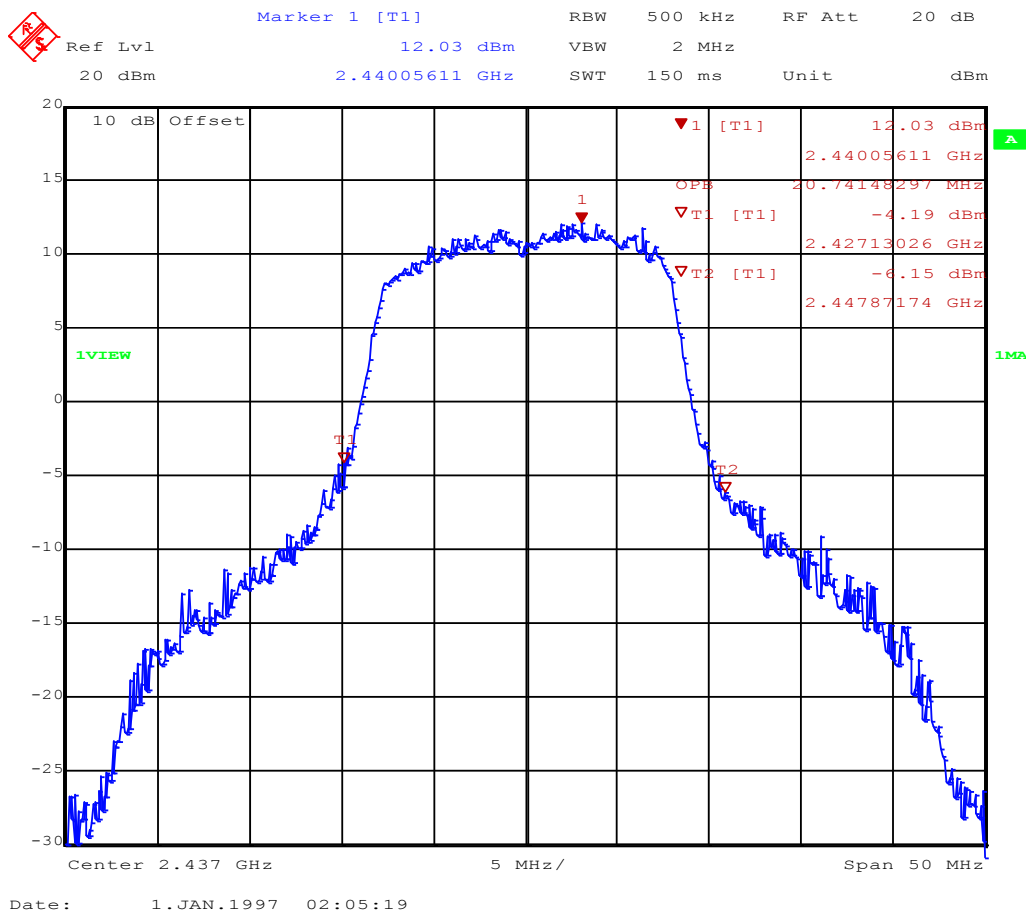


Occupied Bandwidth – HT20 F_{MID}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3919

Applicant: Leica Geosystems AG
EUT Name: Field Controller Win EC7
Model: CS20
Test Site: Eurofins Product Service GmbH
Operator: Burkhard Pudell
Test Conditions: Tnom / Vnom
Mode: Tx, WLAN 2.4G, 2437 MHz, OFDM, HT20, MCS0
Test Date: 2015-02-27
Verdict: NONE (INFORMATION ONLY)
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2: OBW = 20.741 MHz

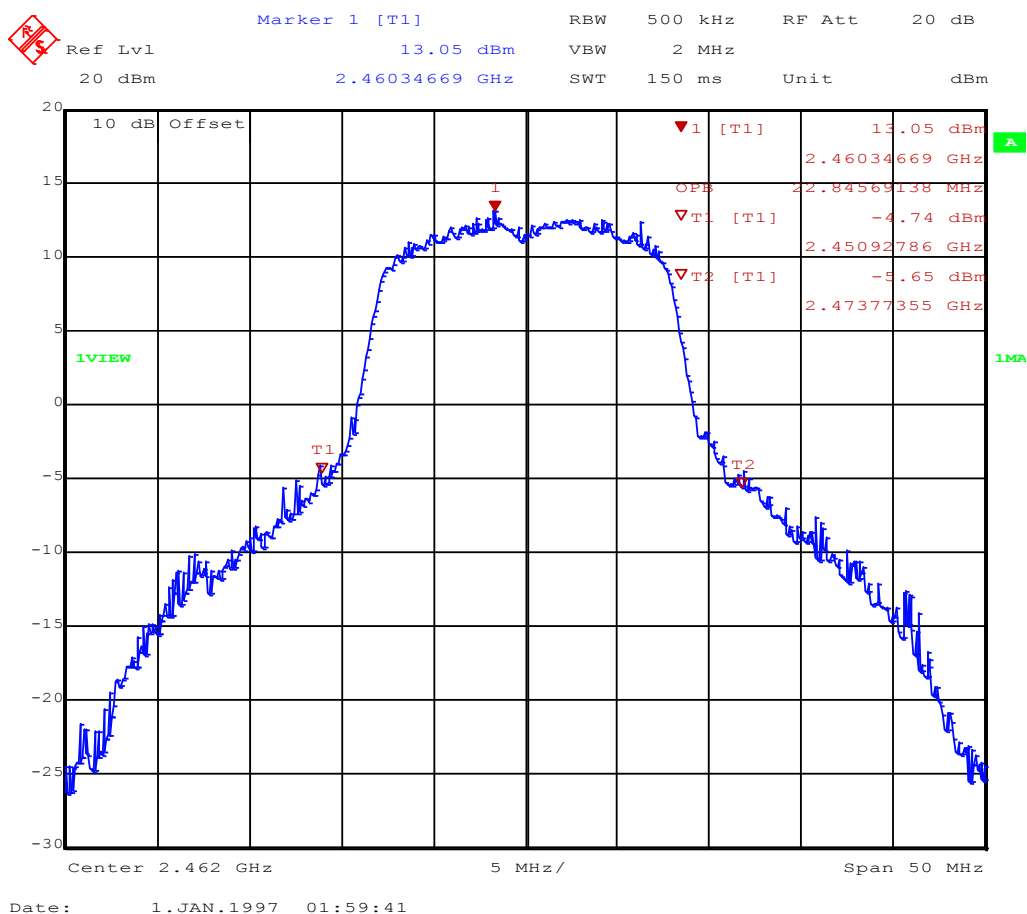


Occupied Bandwidth – HT20 F_{HIGH}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3919

Applicant: Leica Geosystems AG
EUT Name: Field Controller Win EC7
Model: CS20
Test Site: Eurofins Product Service GmbH
Operator: Burkhard Pudell
Test Conditions: Tnom / Vnom
Mode: Tx, WLAN 2.4G, 2462 MHz, OFDM, HT20, MCS0
Test Date: 2015-02-27
Verdict: NONE (INFORMATION ONLY)
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2: OBW = 22.846 MHz



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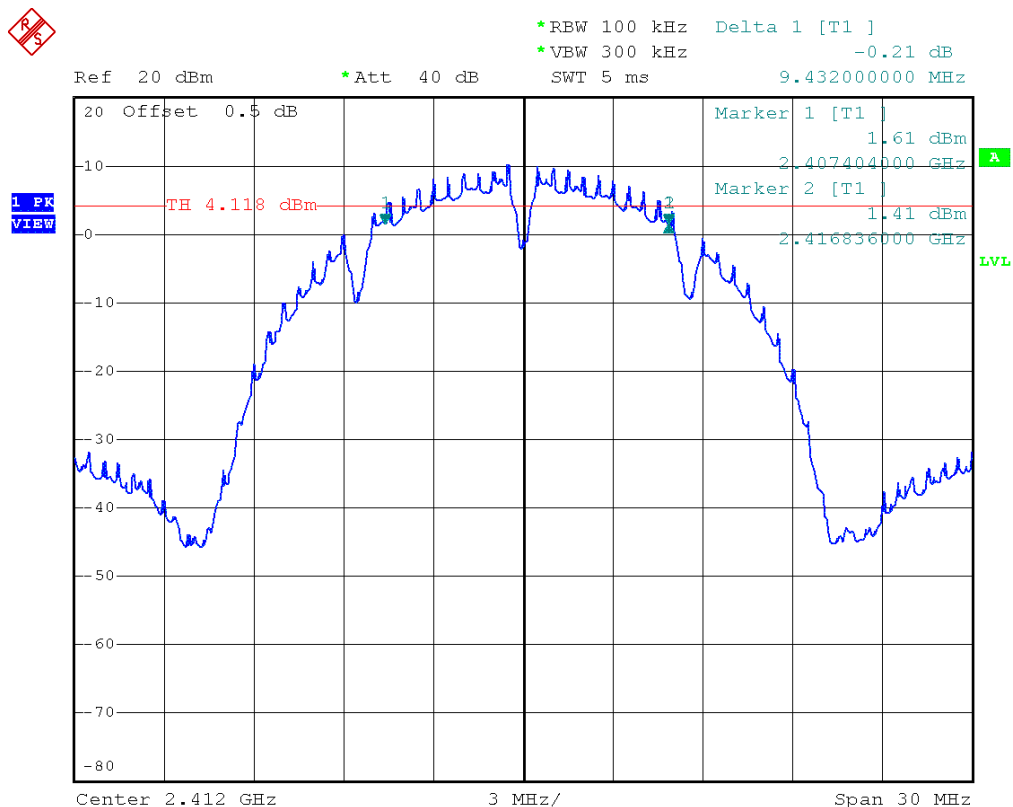
3.2 Test Conditions and Results – 6 dB Bandwidth

6dB Bandwidth acc. to FCC 15.247 / IC RSS-210				Verdict: PASS	
EUT requirement rule parts and clause	Reference				
	FCC 15.247(a)(2) / IC RSS-210 A8.2				
Test according to measurement reference	Reference Method				
	FCC KDB Publication No. 558074				
Test frequency range	Tested frequencies				
	F _{LOW} / F _{MID} / F _{HIGH}				
Limits					
Limit					
≥ 500kHz					
Test setup					
Spectrum Analyzer EUT					
Test procedure					
1. EUT set to test mode 2. Span set to at least twice the emission spectrum 3. Detector set to peak and max hold and RBW is set to 100 kHz 4. Envelope peak value of emission spectrum is selected 5. Marker on envelope of spectrum is set to level of -6 dB to the left of the peak 6. Marker on envelope of spectrum is set to level of -6 dB to the right of the peak 7. 6 dB Bandwidth is determined by marker frequency separation					
Test results					
Channel	Frequency [MHz]	Mode	6 dB Bandwidth [kHz]	Limit [kHz]	Result
F _{LOW}	2412	DSSS	9432	500	PASS
F _{MID}	2437	DSSS	9144	500	PASS
F _{HIGH}	2462	DSSS	9144	500	PASS
F _{LOW}	2412	OFDM	15636	500	PASS
F _{MID}	2437	OFDM	15888	500	PASS
F _{HIGH}	2462	OFDM	15384	500	PASS
F _{LOW}	2412	HT20	15756	500	PASS
F _{MID}	2437	HT20	15576	500	PASS
F _{HIGH}	2462	HT20	15.624	500	PASS
Comments:					

6 dB Bandwidth – DSSS F_{LOW}
Minimum 6 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, DSSS, 1Mbps, 2412 MHz, modulated
 Test Date: 2015-01-07
 Verdict: PASS
 Note 1: Procedure 8.1 DTS (558074 D01 Meas Guidance)
 Note 2: Minimum 6 dB Bandwidth conducted



Comment: 6 dB bandwidth: 9432 KHz > 500 KHz; verdict: PASS
 Date: 7.JAN.2015 15:36:57

Test Report No.: G0M-1406-3919-TFC247WF-V01

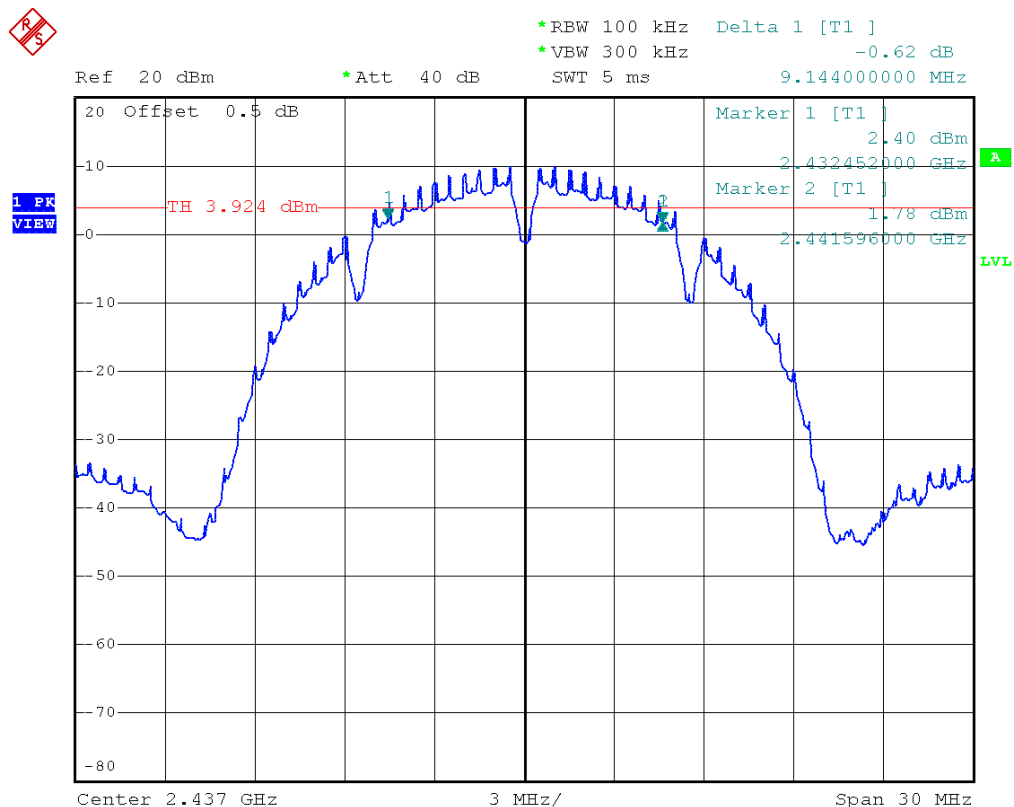
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6 dB Bandwidth – DSSS F_{MID}

Minimum 6 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom / Vnom
Mode:	Tx, WLAN, DSSS, 1Mbps, 2437 MHz, modulated
Test Date:	2015-01-07
Verdict:	PASS
Note 1:	Procedure 8.1 DTS (558074 D01 Meas Guidance)
Note 2:	Minimum 6 dB Bandwidth conducted

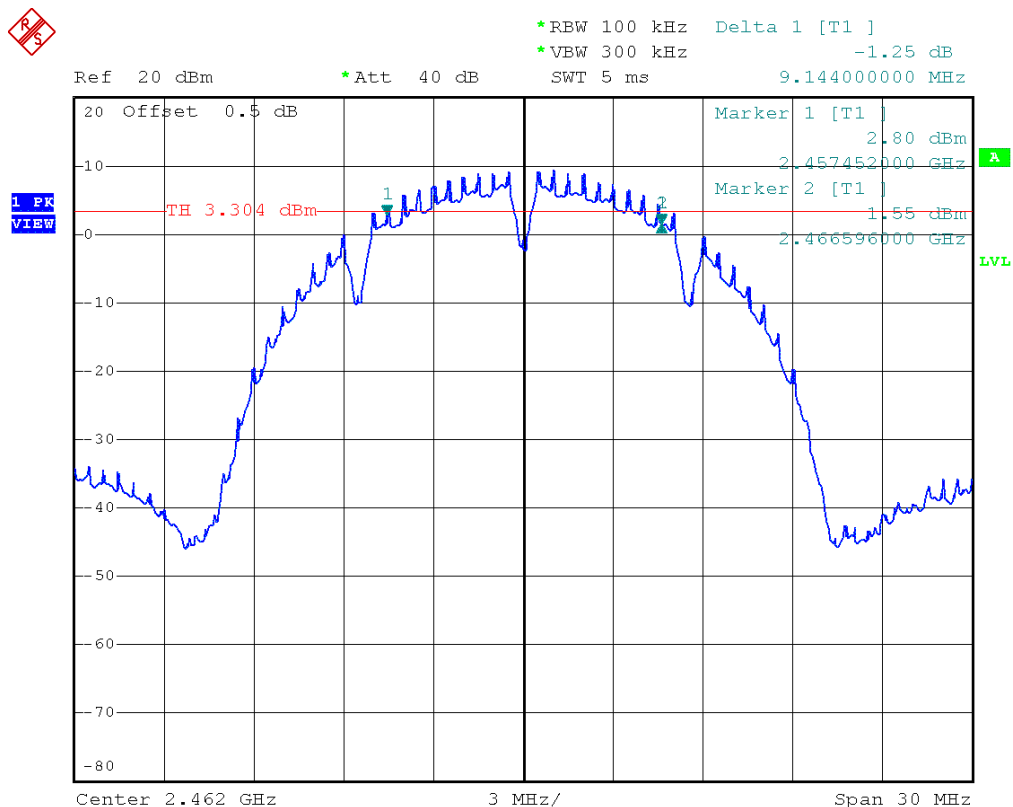


Comment: 6 dB bandwidth: 9144 KHz > 500 KHz; verdict: PASS
Date: 7.JAN.2015 15:39:12

6 dB Bandwidth – DSSS F_{HIGH}
Minimum 6 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, DSSS, 1Mbps, 2462 MHz, modulated
 Test Date: 2015-01-07
 Verdict: PASS
 Note 1: Procedure 8.1 DTS (558074 D01 Meas Guidance)
 Note 2: Minimum 6 dB Bandwidth conducted



Comment: 6 dB bandwidth: 9144 KHz > 500 KHz; verdict: PASS
 Date: 7.JAN.2015 15:42:05

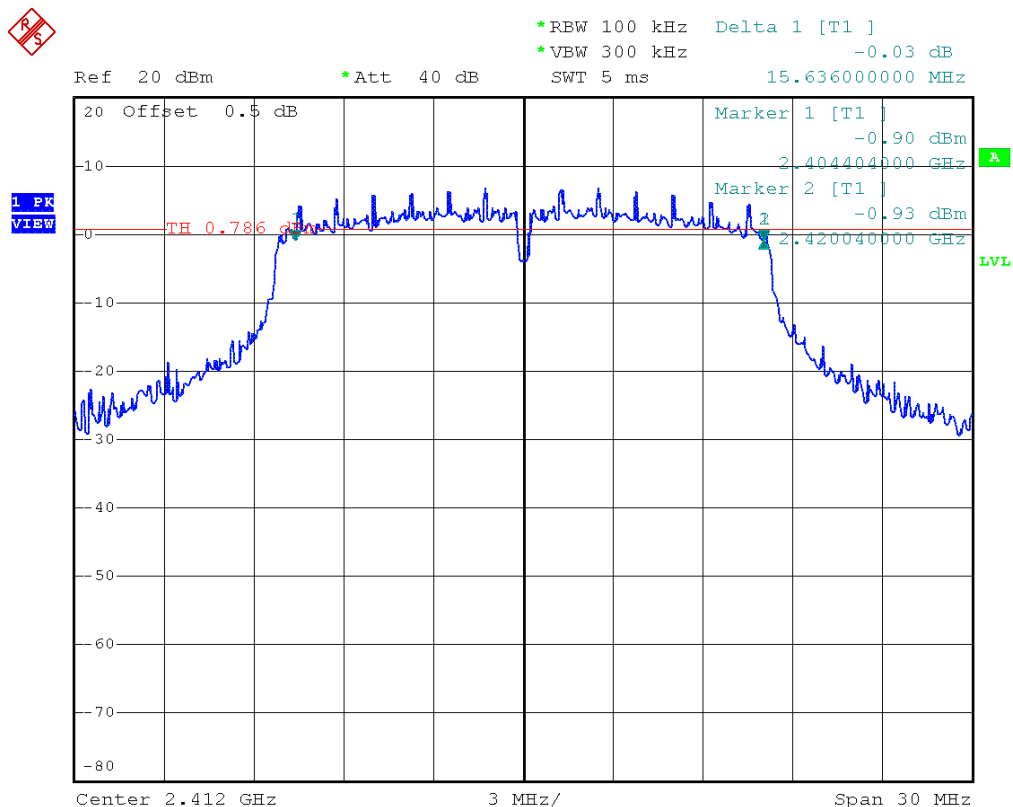
Test Report No.: G0M-1406-3919-TFC247WF-V01

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 Storkower Str. 38c, D-15526 Reichenwalde, Germany

6 dB Bandwidth – OFDM F_{LOW}
Minimum 6 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, OFDM, 6Mbps, 2412 MHz, modulated
 Test Date: 2015-01-07
 Verdict: PASS
 Note 1: Procedure 8.1 DTS (558074 D01 Meas Guidance)
 Note 2: Minimum 6 dB Bandwidth conducted



Comment: 6 dB bandwidth: 15636 KHz > 500 KHz; verdict: PASS
 Date: 7.JAN.2015 15:46:53

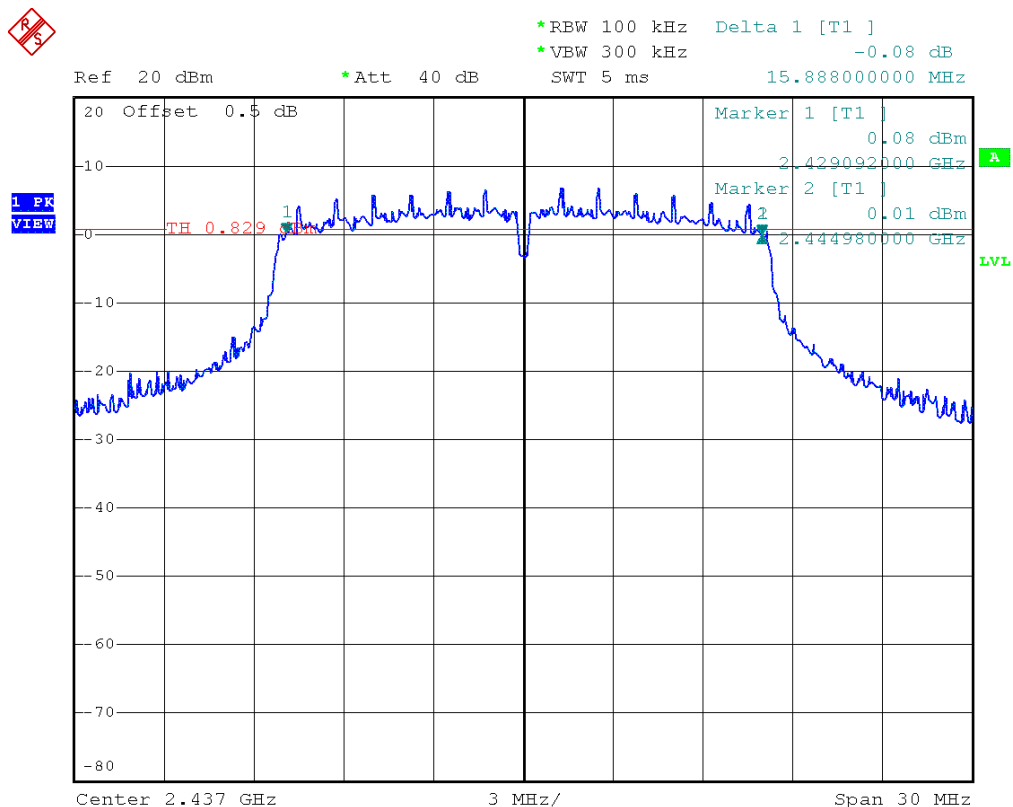
Test Report No.: G0M-1406-3919-TFC247WF-V01

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6 dB Bandwidth – OFDM F_{MD}
Minimum 6 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, OFDM, 6Mbps, 2437 MHz, modulated
 Test Date: 2015-01-07
 Verdict: PASS
 Note 1: Procedure 8.1 DTS (558074 D01 Meas Guidance)
 Note 2: Minimum 6 dB Bandwidth conducted



Comment: 6 dB bandwidth: 15888 KHz > 500 KHz; verdict: PASS
 Date: 7.JAN.2015 15:49:10

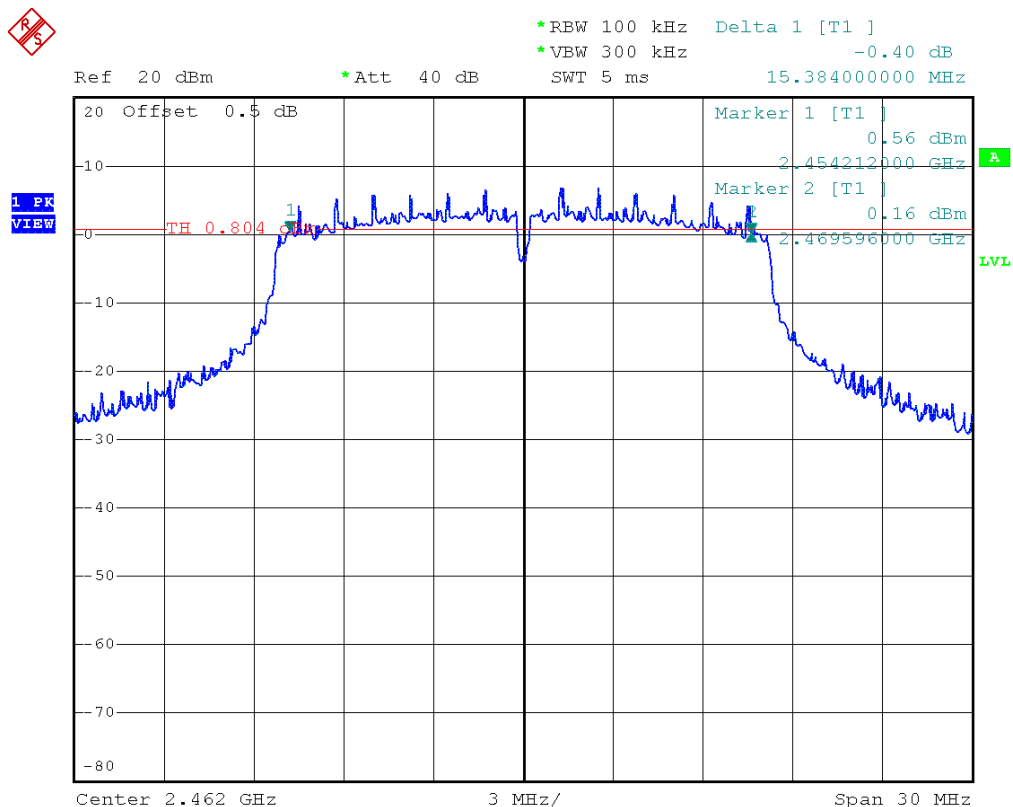
Test Report No.: G0M-1406-3919-TFC247WF-V01

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

6 dB Bandwidth – OFDM F_{HIGH}
Minimum 6 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, OFDM, 6Mbps, 2462 MHz, modulated
 Test Date: 2015-01-07
 Verdict: PASS
 Note 1: Procedure 8.1 DTS (558074 D01 Meas Guidance)
 Note 2: Minimum 6 dB Bandwidth conducted



Comment: 6 dB bandwidth: 15384 KHz > 500 KHz; verdict: PASS
 Date: 7.JAN.2015 15:51:13

Test Report No.: G0M-1406-3919-TFC247WF-V01

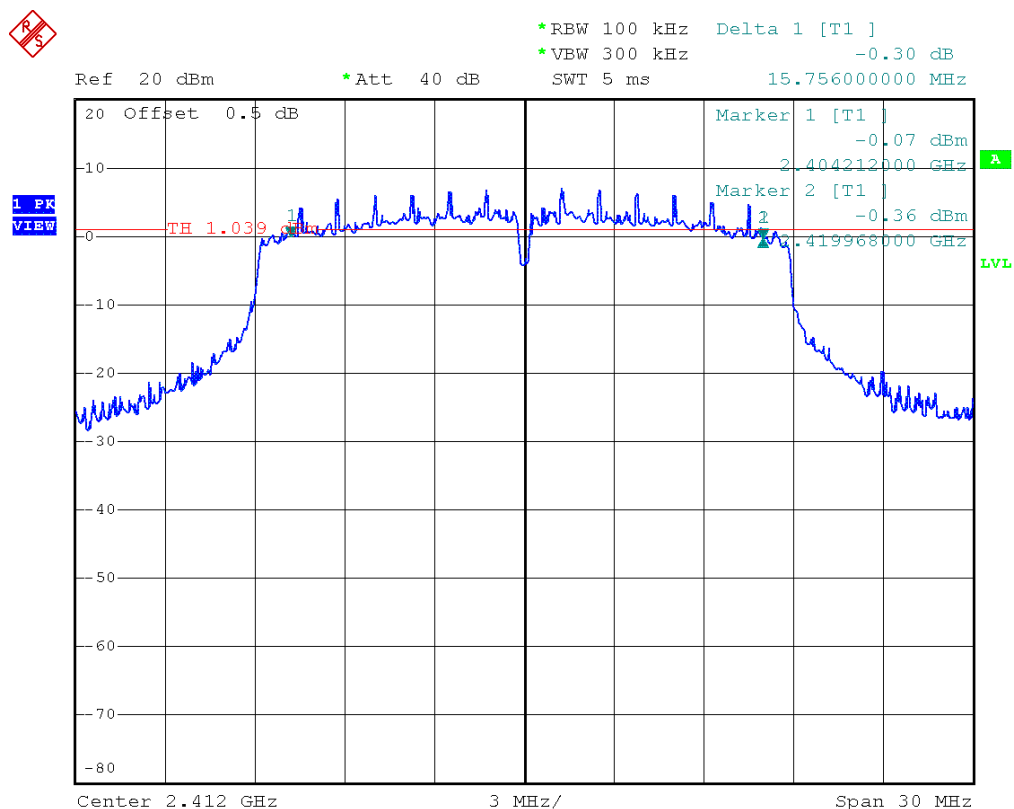
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

6 dB Bandwidth – HT20 F_{LOW}

Minimum 6 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom / Vnom
Mode:	Tx, WLAN, HT20, MCS0, 2412 MHz, modulated
Test Date:	2015-01-07
Verdict:	PASS
Note 1:	Procedure 8.1 DTS (558074 D01 Meas Guidance)
Note 2:	Minimum 6 dB Bandwidth conducted

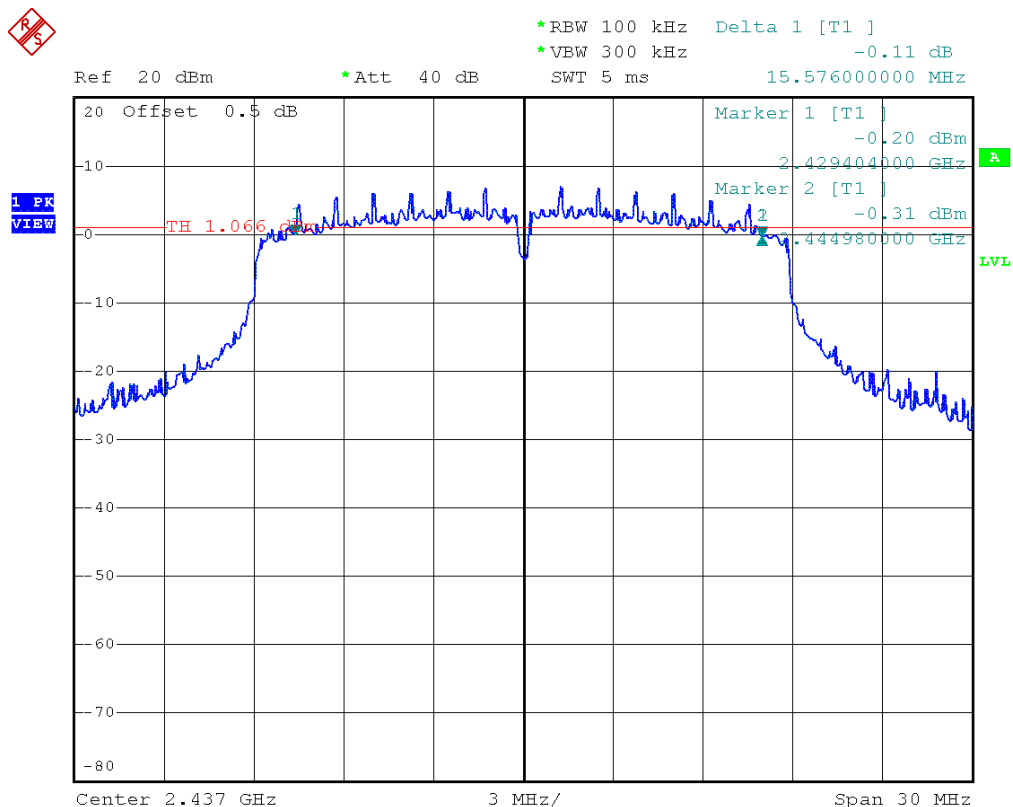


Comment: 6 dB bandwidth: 15756 KHz > 500 KHz; verdict: PASS
Date: 7.JAN.2015 15:55:15

6 dB Bandwidth – HT20_{MID}
Minimum 6 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, HT20, MCS0, 2437 MHz, modulated
 Test Date: 2015-01-07
 Verdict: PASS
 Note 1: Procedure 8.1 DTS (558074 D01 Meas Guidance)
 Note 2: Minimum 6 dB Bandwidth conducted



Comment: 6 dB bandwidth: 15576 KHz > 500 KHz; verdict: PASS
 Date: 7.JAN.2015 15:58:00

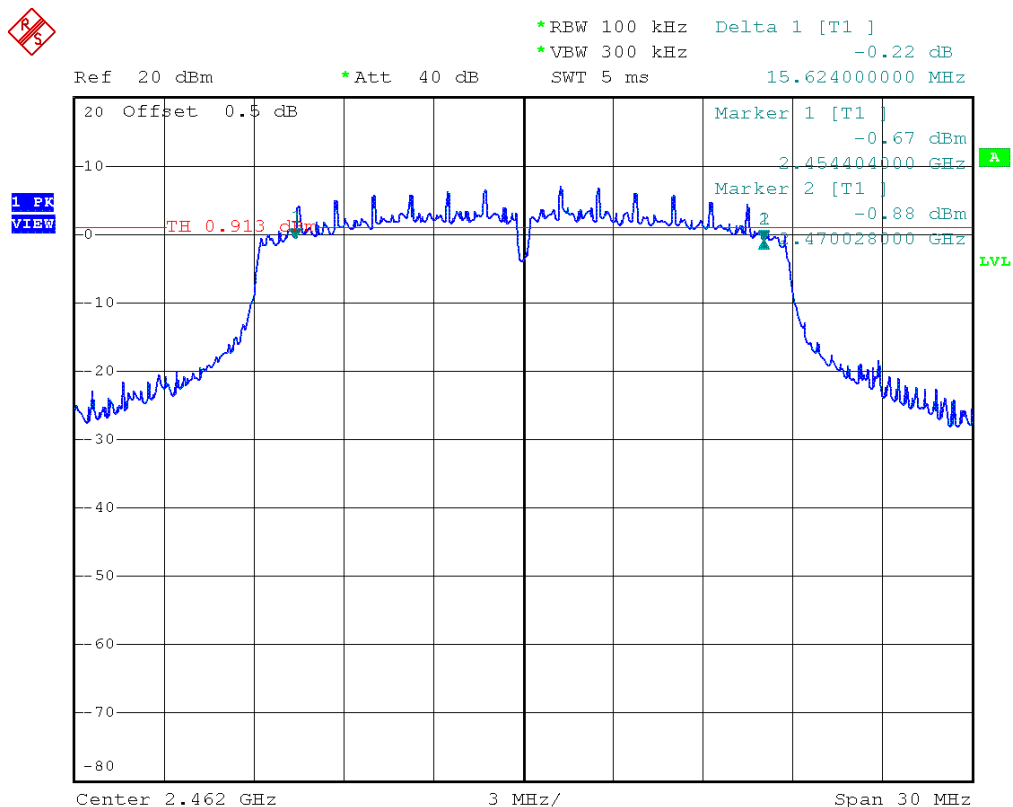
Test Report No.: G0M-1406-3919-TFC247WF-V01

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

6 dB Bandwidth – HT20 F_{HIGH}
Minimum 6 dB Bandwidth acc. to FCC 15.247

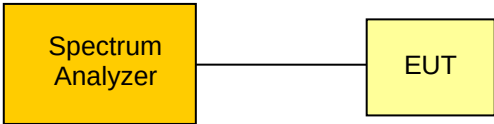
Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, HT20, MCS0, 2462 MHz, modulated
 Test Date: 2015-01-07
 Verdict: PASS
 Note 1: Procedure 8.1 DTS (558074 D01 Meas Guidance)
 Note 2: Minimum 6 dB Bandwidth conducted



Comment: 6 dB bandwidth: 15624 KHz > 500 KHz; verdict: PASS
 Date: 7.JAN.2015 16:00:01

3.3 Test Conditions and Results – Maximum peak conducted power

Maximum peak conducted power acc. to FCC 15.247 / IC RSS-210		Verdict: PASS
EUT requirement rule parts and clause	Reference	
	FCC 15.247(b)(3) / IC RSS-210 A8.4	
Test according to measurement reference	Reference Method	
	FCC KDB Publication No. 558074	
Test frequency range	Tested frequencies	
	$F_{\text{LOW}} / F_{\text{MID}} / F_{\text{HIGH}}$	
Measurement mode	Peak	
Maximum antenna gain	2.2 dBi $\Rightarrow$ Limit correction = 0 dB	
Limits		
Limit		
1 W (30 dBm)		
The conducted output power limit specified above is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in the table, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.		
Test setup		
		
Test procedure		
1. EUT set to test mode (Communication tester is used if needed) 2. Center frequency set to test channel center frequency 3. Span set to twice the 20 dB bandwidth and detector to peak and max hold 4. Resolution bandwidth is set to 3 MHz 5. Peak conducted power is determined from peak of spectrum envelope		

Test results							
Channel	Frequency [MHz]	Voltage	Mode	Peak power [dbm]	Peak power [W]	Limit [dBm]	Margin [dB]
F _{LOW}	2412	11.1 VDC	DSSS	20.3	0.107	30	-09.70
F _{MID}	2437	11.1 VDC	DSSS	20.0	0.100	30	-10.00
F _{HIGH}	2462	11.1 VDC	DSSS	19.9	0.098	30	-10.10
F _{LOW}	2412	11.1 VDC	OFDM	24.1	0.257	30	-05.90
F _{MID}	2437	11.1 VDC	OFDM	23.9	0.245	30	-06.10
F _{HIGH}	2462	11.1 VDC	OFDM	23.6	0.229	30	-06.40
F _{LOW}	2412	11.1 VDC	HT20	24.1	0.257	30	-05.90
F _{MID}	2437	11.1 VDC	HT20	23.9	0.245	30	-06.10
F _{HIGH}	2462	11.1 VDC	HT20	23.6	0.229	30	-06.40
Comments:							

3.4 Test Conditions and Results – Power spectral density

Power spectral density acc. to FCC 15.247 / IC RSS-210					Verdict: PASS	
EUT requirement rule parts and clause			Reference			
			FCC 15.247(e) / IC RSS-210 A8.2			
Test according to measurement reference			Reference Method			
			FCC KDB Publication No. 558074			
Test frequency range			Tested frequencies			
			F _{MID}			
Measurement mode			Peak			
Limits						
8 dBm / 3 kHz						
Test setup						
Spectrum Analyzer EUT						
Test procedure						
1. EUT set to test mode (Communication tester is used if needed) 2. Center frequency set to test channel center frequency 3. Span is set large enough to capture maximum emissions in passband, RBW is set to 3kHz 4. Peak power density is determined from peak emission of envelope						
Test results						
Channel	Frequency [MHz]	Test mode	Peak frequency [MHz]	Peak power density [dBm/10kHz]	Limit [dBm/3kHz]	Margin [dB]
F _{LOW}	2412	DSSS	2410.47	1.58	8.0	-06.42
F _{MID}	2437	DSSS	2436.46	1.26	8.0	-06.74
F _{HIGH}	2462	DSSS	2462.54	1.27	8.0	-06.73
F _{LOW}	2412	OFDM	2413.26	-0.81	8.0	-08.81
F _{MID}	2437	OFDM	2440.15	-1.89	8.0	-09.89
F _{HIGH}	2462	OFDM	2465.15	-1.85	8.0	-09.85
F _{LOW}	2412	HT20	2409.48	-1.32	8.0	-09.32
F _{MID}	2437	HT20	2438.26	-1.74	8.0	-09.74
F _{HIGH}	2462	HT20	2464.52	-2.87	8.0	-10.87
Comments:						

3.5 Test Conditions and Results – AC power line conducted emissions

Power line conducted emissions acc. to FCC 47 CFR 15.207 / IC RSS-Gen				Verdict: PASS	
Test according referenced standards		Reference Method			
		ANSI C63.4			
Fully configured sample scanned over the following frequency range		Frequency range			
		0.15 MHz to 30 MHz			
Points of Application		Application Interface			
AC Mains		LISN			
EUT test mode		AC-Powerline			
Limits and results					
Frequency [MHz]	Quasi-Peak [dBμV]	Result	Average [dBμV]	Result	
0.15 to 0.5	66 to 56*	PASS	56 to 46*	PASS	
0.5 to 5	56	PASS	46	PASS	
5 to 30	60	PASS	50	PASS	
Comments:					
* Limit decreases linearly with the logarithm of the frequency.					

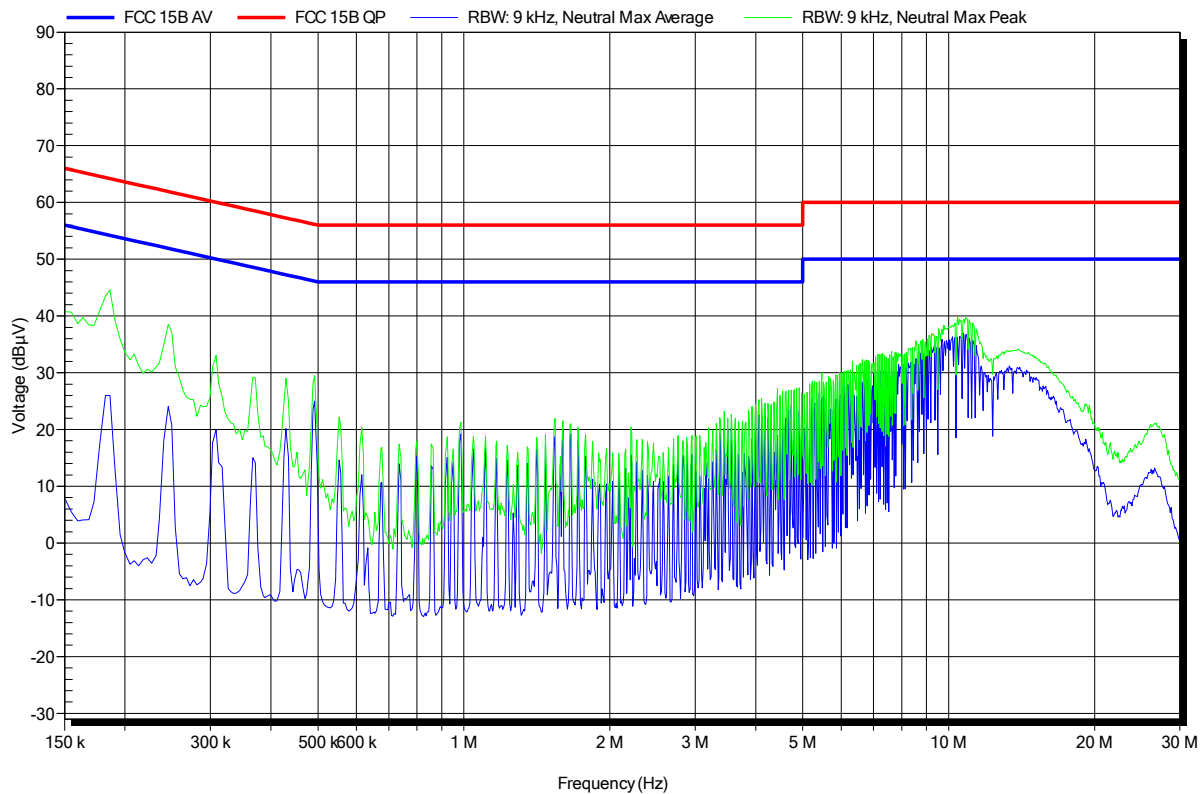
Conducted Emissions

EMI voltage test in the ac-mains according to FCC Part 15b

Project number: G0M-1406-3919

Manufacturer: Leica Geosystems AG
 EUT Name: Feld- Controller
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Zunke
 Test Conditions: Tnom: 25°C, Unom: 10.8VDC via AC/DC Adapter
 LISN: ESH2-Z5 N
 Mode: Basic, with power supply, WLAN link to AP, BT link to GPS Antenna
 Test Date: 2014-08-06
 Note:

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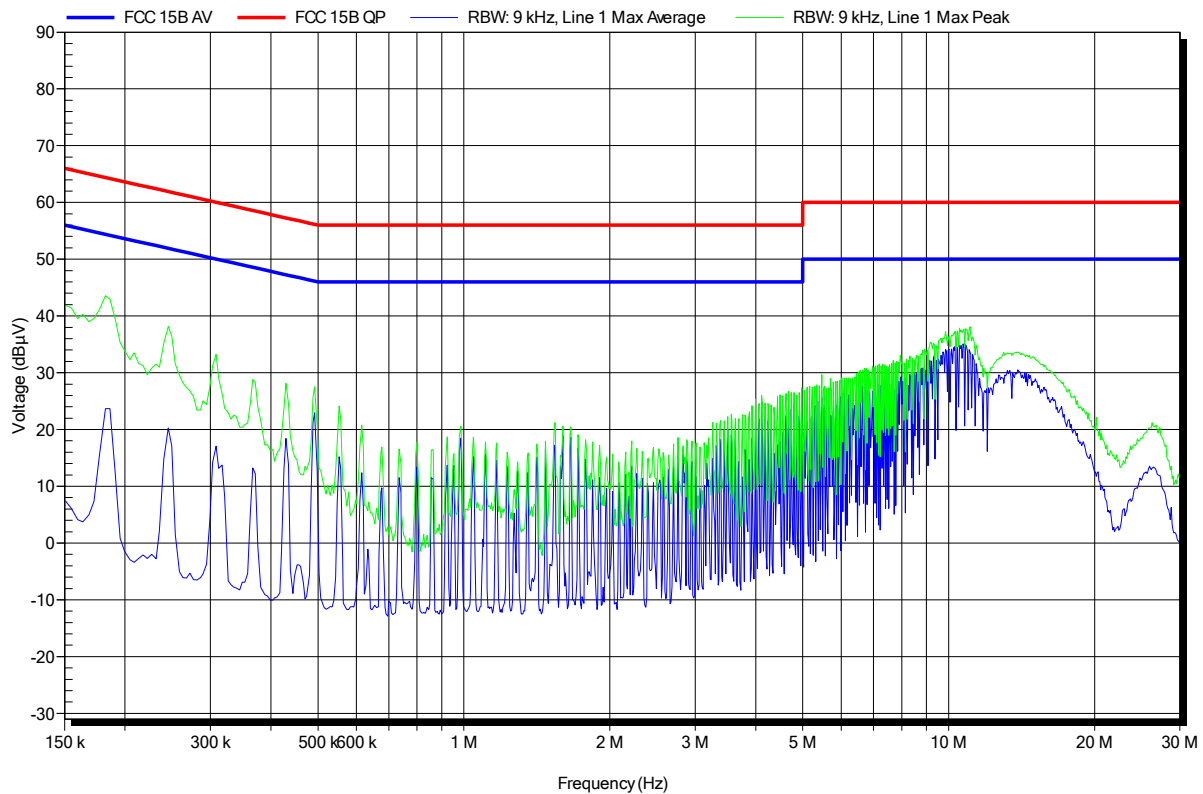
Conducted Emissions

EMI voltage test in the ac-mains according to FCC Part 15b

Project number: G0M-1406-3919

Manufacturer: Leica Geosystems AG
 EUT Name: Feld- Controller
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Zunke
 Test Conditions: Tnom: 25°C, Unom: 10.8VDC via AC/DC Adapter
 LISN: ESH2-Z5 L
 Mode: Basic, with power supply, WLAN link to AP, BT link to GPS Antenna
 Test Date: 2014-08-06
 Note:

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3.6 Test Conditions and Results – Band edge compliance

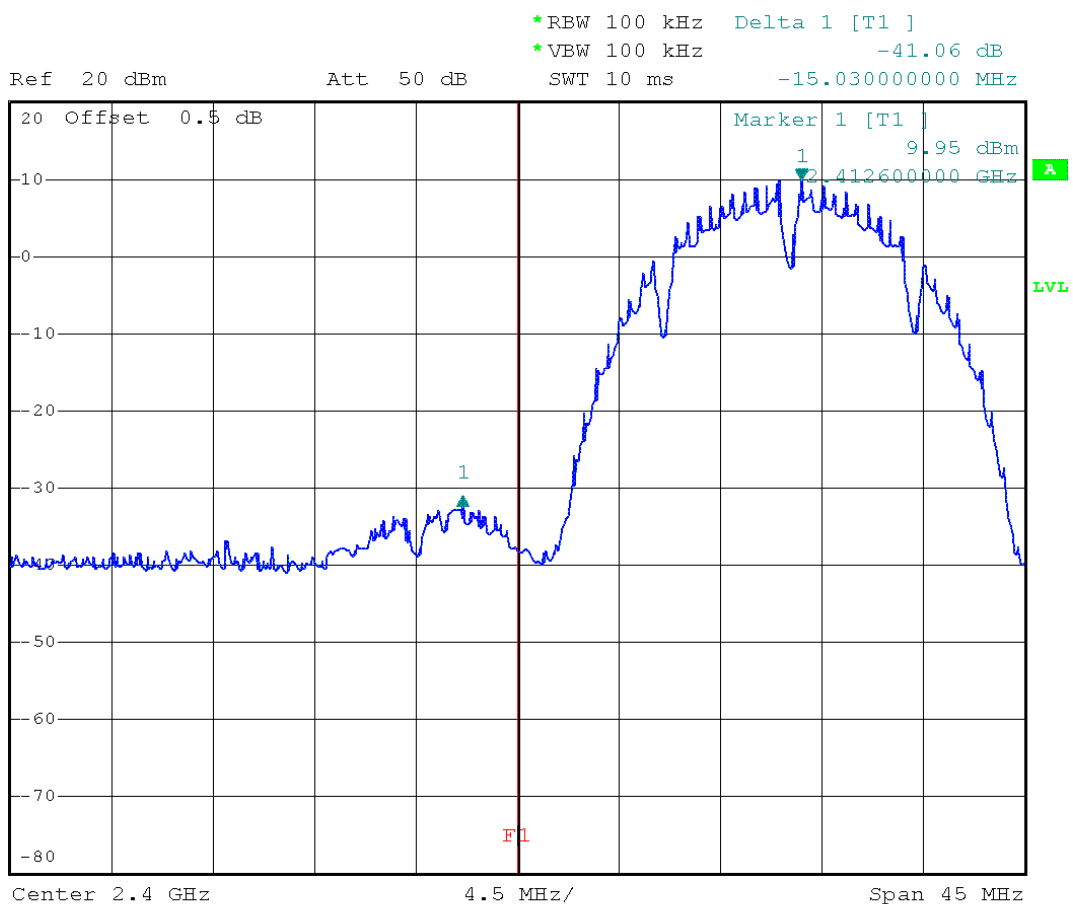
Band-edge compliance acc. to FCC 15.247 / IC RSS-210					Verdict: PASS
EUT requirement rule parts and clause		Reference			
		FCC 15.247(d) / IC RSS-210 A8.5			
Test according to measurement reference		Reference Method			
		FCC KDB Publication No. 558074			
Test frequency range		Tested frequencies			
		F _{LOW} / F _{HIGH}			
Measurement mode		Peak			
Limits					
Limit			Condition		
≤ -20 dB / 100 kHz			Peak power measurement detector = Peak		
≤ -30 dB / 100 kHz			Peak power measurement detector = RMS		
Test setup					
Spectrum Analyzer EUT					
Test procedure					
1. EUT set to test mode (Communication tester is used if needed) 2. Span set around lower band edge and detector is set to peak and max hold 3. Resolution bandwidth is set to 100 kHz 4. Markers are set to peak emission levels within frequency band and outside frequency band 5. Band edge attenuation is determined from level difference					
Test results					
Channel	Frequency [MHz]	Mode	Level [dBc]	Limit [dBc]	Margin [dB]
F _{LOW20}	2412	DSSS	-41.06	-20	-21.06
F _{HIGH20}	2462	DSSS	-46.65	-20	-26.65
F _{LOW20}	2412	OFDM	-27.73	-20	-07.73
F _{HIGH20}	2462	OFDM	-39.49	-20	-19.49
F _{LOW20}	2412	HT20	-27.02	-20	-07.02
F _{HIGH20}	2462	HT20	-38.86	-20	-18.86
Comments:					

Band-edge compliance – DSSS F_{LOW}

Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, DSSS, 1Mbps, 2412 MHz, modulated
 Test Date: 2015-01-08
 Verdict: PASS
 Note 1: Procedure 13.2 Marker-delta method (558074 D01 Meas Guidance)
 Note 2: lower Band-edge, conducted measurement



Comment: Limit: Marker Delta value >20 dB; Result: PASS
 Date: 8.JAN.2015 09:52:46

Test Report No.: G0M-1406-3919-TFC247WF-V01

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

Band-edge compliance – DSSS F_{HIGH}

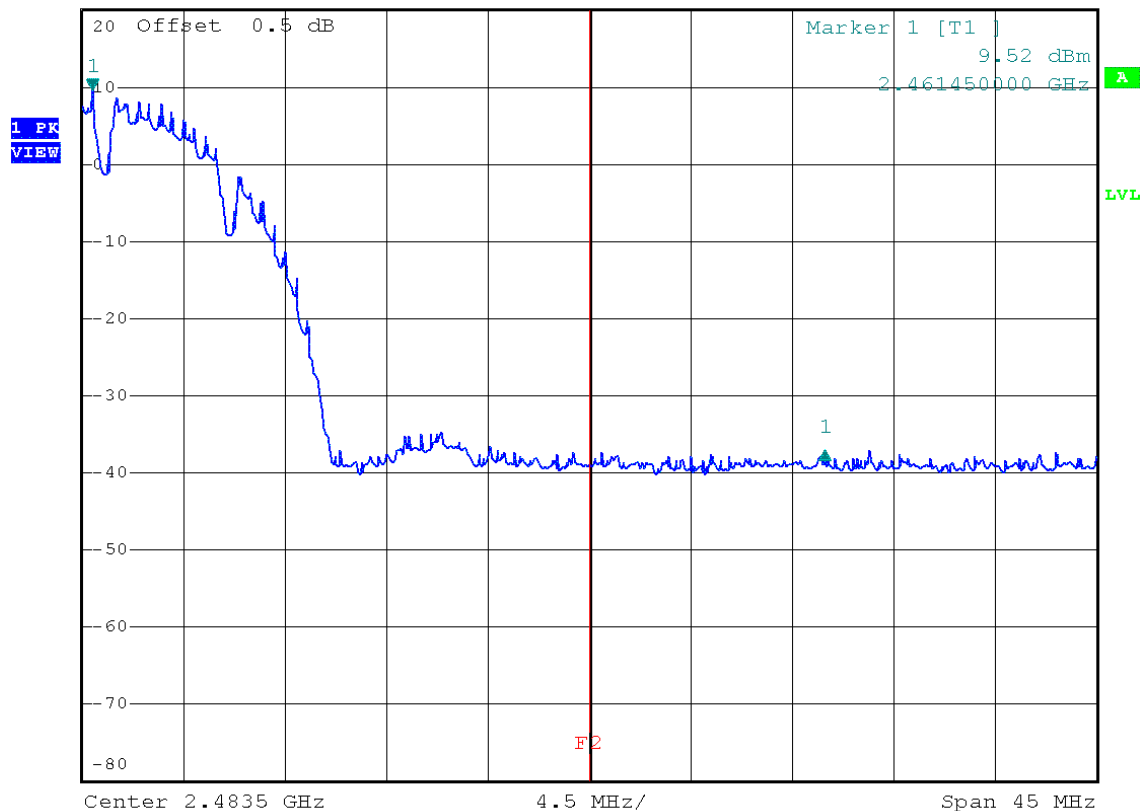
Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, DSSS, 1Mbps, 2462 MHz, modulated
 Test Date: 2015-01-08
 Verdict: PASS
 Note 1: Procedure 13.2 Marker-delta method (558074 D01 Meas Guidance)
 Note 2: upper Band-edge, conducted measurement



*RBW 100 kHz Delta 1 [T1]
 *VBW 100 kHz -46.65 dB
 Ref 20 dBm Att 50 dB SWT 10 ms 32.490000000 MHz



Date: 8.JAN.2015 09:59:45

Test Report No.: G0M-1406-3919-TFC247WF-V01

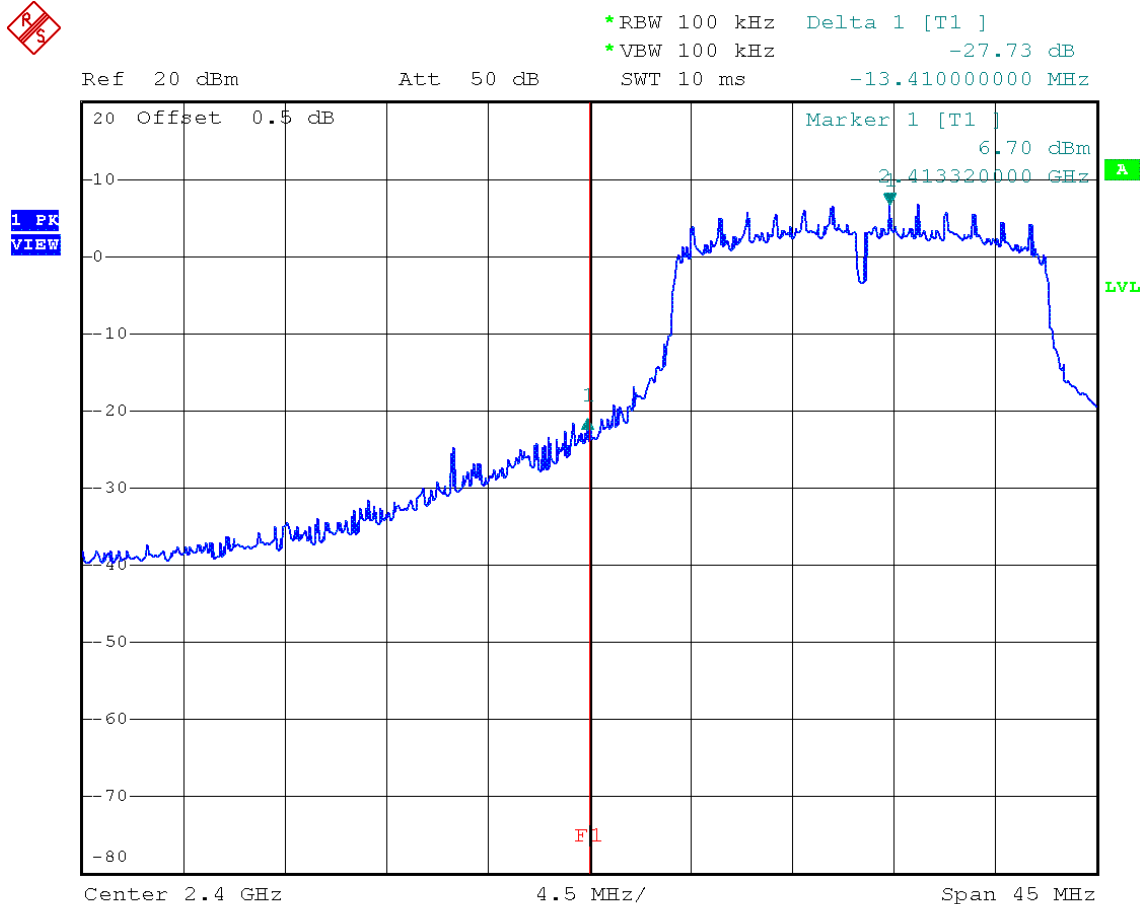
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Band-edge compliance – OFDM F_{LOW}

Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, OFDM, 6Mbps, 2412 MHz, modulated
 Test Date: 2015-01-08
 Verdict: PASS
 Note 1: Procedure 13.2 Marker-delta method (558074 D01 Meas Guidance)
 Note 2: lower Band-edge, conducted measurement



Comment: Limit: Marker Delta value >20 dB; Result: PASS
 Date: 8.JAN.2015 10:04:17

Test Report No.: G0M-1406-3919-TFC247WF-V01

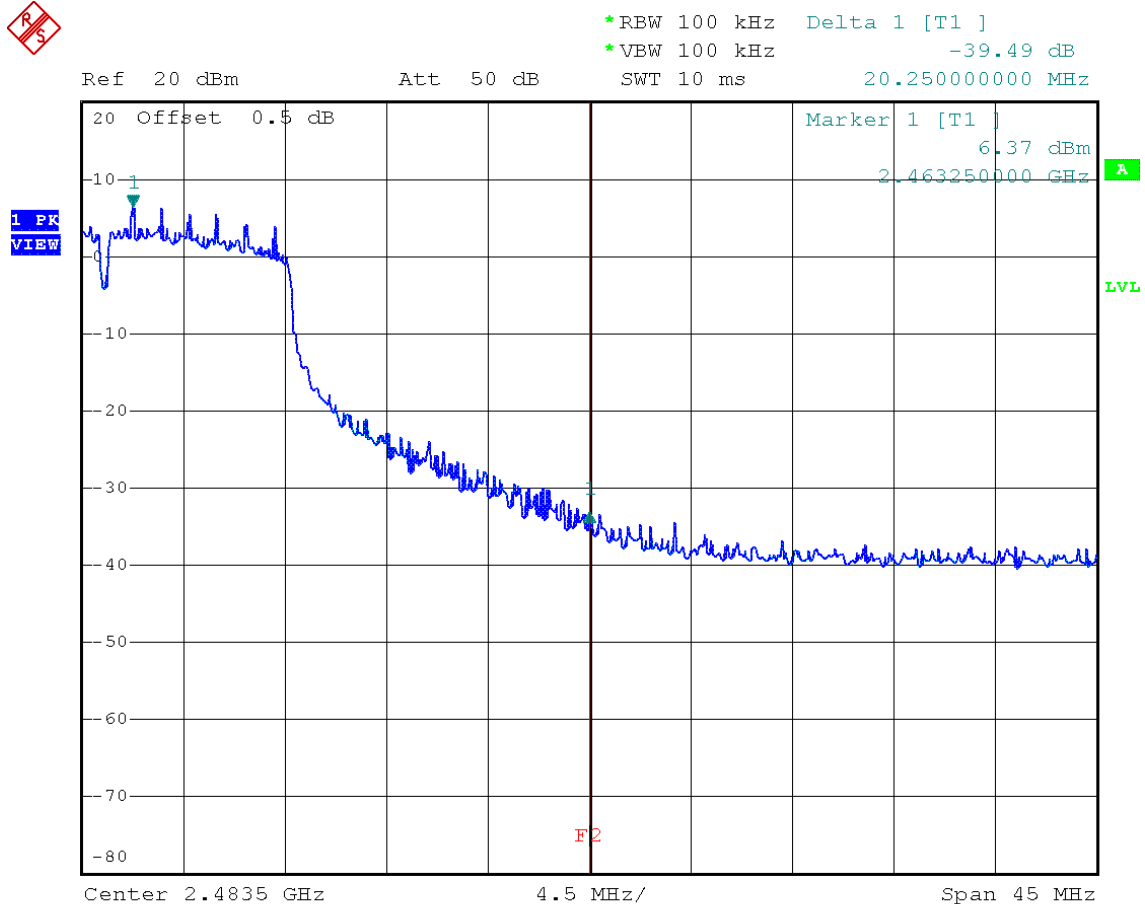
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Band-edge compliance – OFDM F_{HIGH}

Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, OFDM, 6Mbps, 2462 MHz, modulated
 Test Date: 2015-01-08
 Verdict: PASS
 Note 1: Procedure 13.2 Marker-delta method (558074 D01 Meas Guidance)
 Note 2: upper Band-edge, conducted measurement



Comment: Limit: Marker Delta value >20 dB; Result: PASS
 Date: 8.JAN.2015 10:02:08

Test Report No.: G0M-1406-3919-TFC247WF-V01

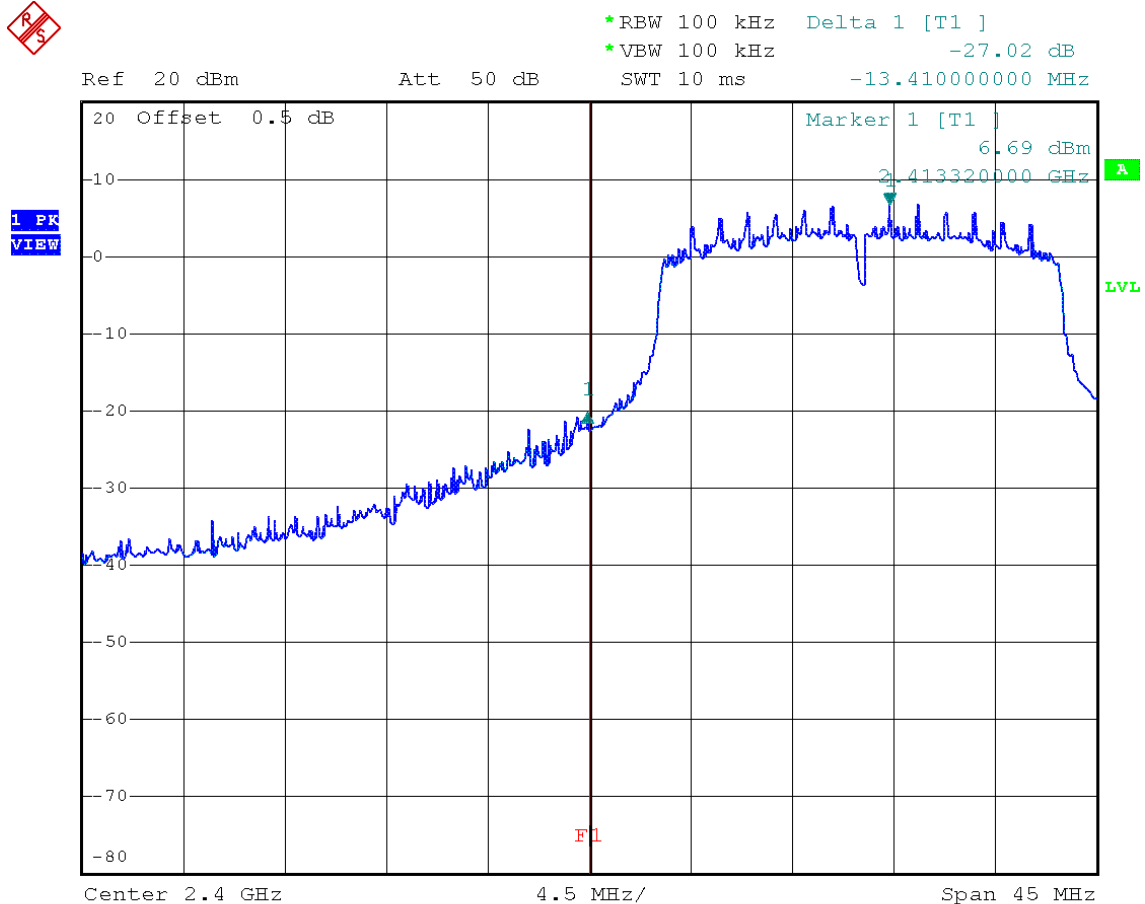
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Band-edge compliance – HT20 F_{Low}

Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, HT20, MCS0, 2412 MHz, modulated
 Test Date: 2015-01-08
 Verdict: PASS
 Note 1: Procedure 13.2 Marker-delta method (558074 D01 Meas Guidance)
 Note 2: lower Band-edge, conducted measurement



Comment: Limit: Marker Delta value >20 dB; Result: PASS
 Date: 8.JAN.2015 10:07:01

Test Report No.: G0M-1406-3919-TFC247WF-V01

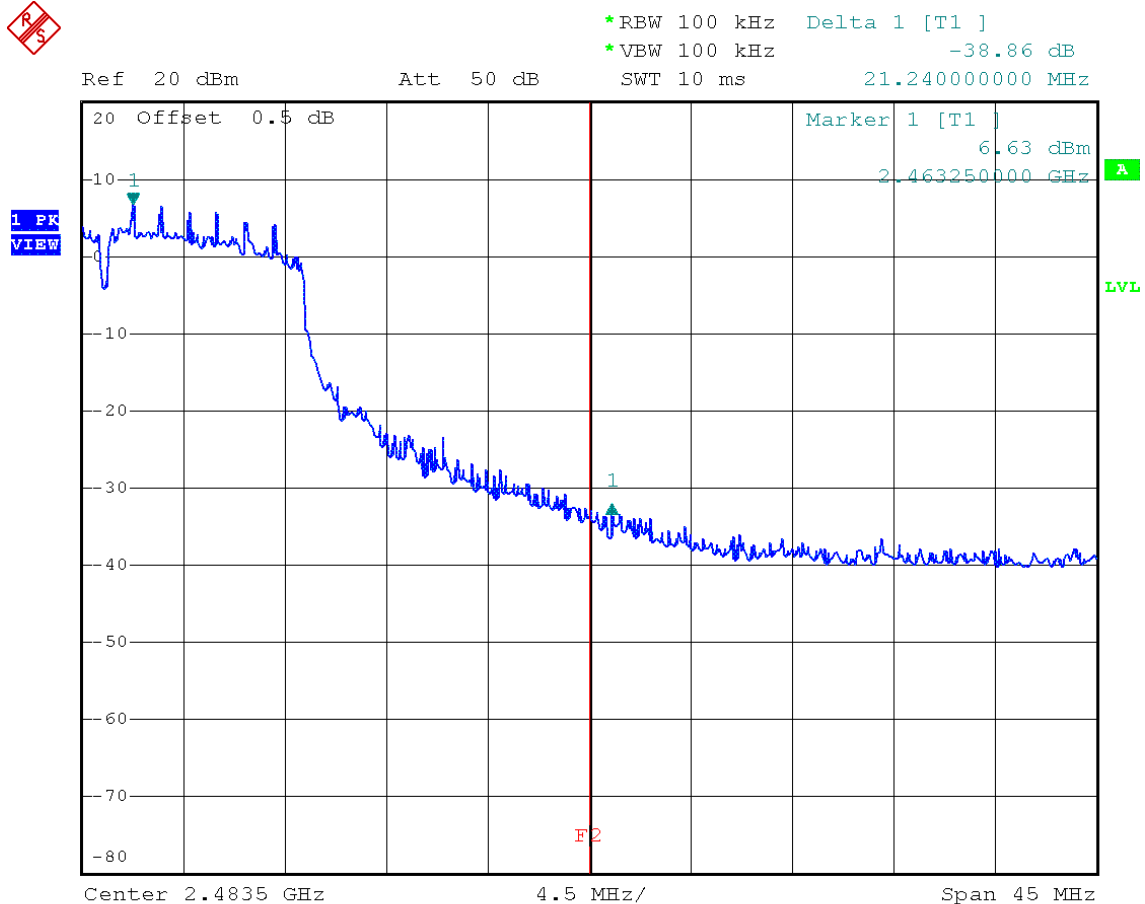
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Band-edge compliance – HT20 F_{HIGH}

Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, HT20, MCS0, 2462 MHz, modulated
 Test Date: 2015-01-08
 Verdict: PASS
 Note 1: Procedure 13.2 Marker-delta method (558074 D01 Meas Guidance)
 Note 2: upper Band-edge, conducted measurement



Comment: Limit: Marker Delta value >20 dB; Result: PASS
 Date: 8.JAN.2015 10:09:43

Test Report No.: G0M-1406-3919-TFC247WF-V01

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

3.7 Test Conditions and Results – Conducted spurious emissions

Conducted spurious emissions acc. to FCC 15.247 / IC RSS-210		Verdict: PASS
EUT requirement rule parts and clause	Reference	
	FCC 15.247(d) / IC RSS-210 A8.5	
Test according to measurement reference	Reference Method	
	FCC KDB Publication No. 558074	
Test frequency range	Tested frequencies	
	10 MHz – 10 th Harmonic	
Measurement mode	Peak	
Limits		
Limit	Condition	
≤ -20 dB / 100 kHz	Peak power measurement detector = Peak	
≤ -30 dB /100 kHz	Peak power measurement detector = RMS	
Test setup		
Spectrum Analyzer EUT		
Test procedure		
1. EUT set to test mode (Communication tester is used if needed) 2. Span it set according to measurement range 3. Resolution bandwidth is set to 100 kHz and detector to peak and max hold 4. Markers are set to peak emission levels within frequency band 5. Emission level is determined by second marker on emission peak 6. Attenuation is determined from level difference		

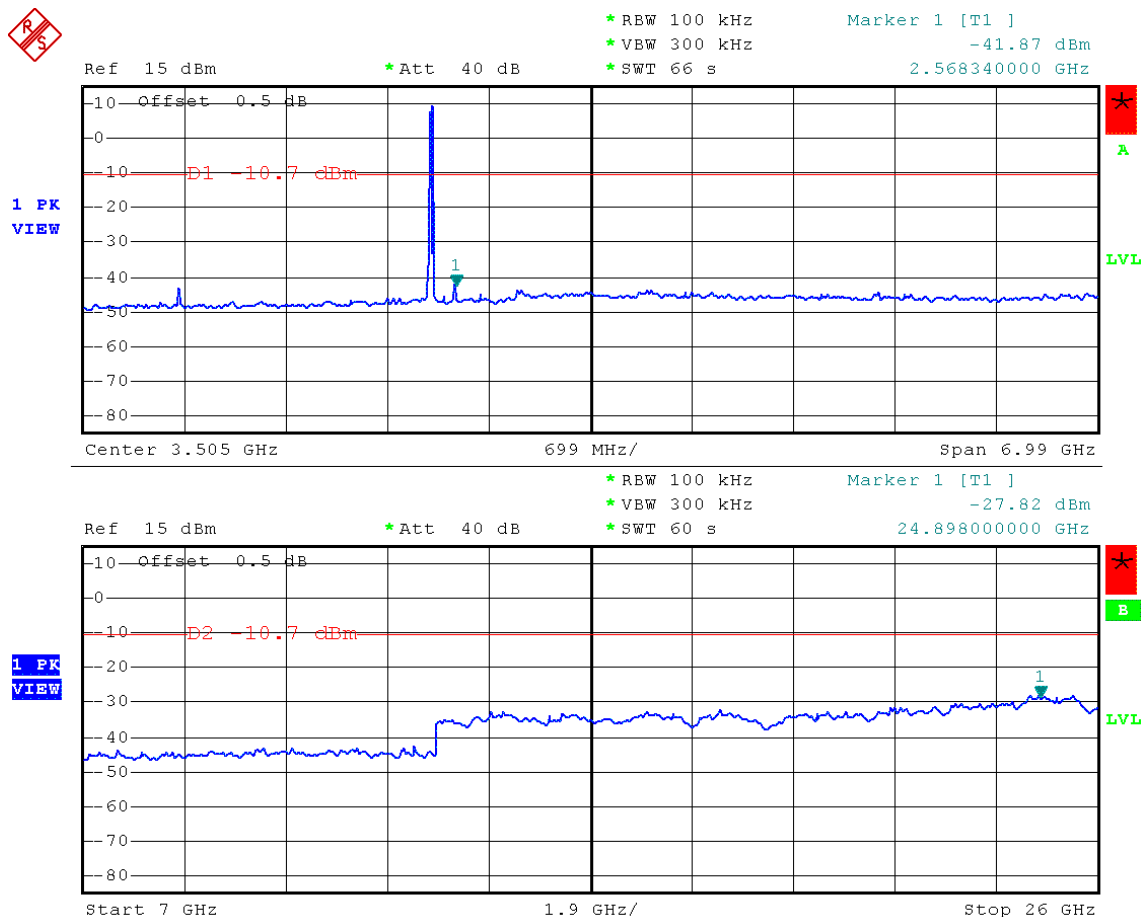
Test results							
Channel	Frequency [MHz]	Mode	Emission [MHz]	Emission Level [dbm]	Peak power [dBm]	Limit [dBm]	Margin [dB]
F _{LOW20}	2412	DSSS	24898.0	-27.82	9.3	-10.7	-17.12
F _{MID20}	2437	DSSS	24822.0	-27.73	8.3	-11.7	-16.03
F _{HIGH20}	2462	DSSS	25506.0	-27.35	8.6	-11.4	-15.95
F _{LOW20}	2412	OFDM	25544.0	-27.82	6.9	-13.1	-14.72
F _{MID20}	2437	OFDM	24974.0	-27.98	8.7	-14.3	-13.68
F _{HIGH20}	2462	OFDM	25012.0	-27.44	8.7	-14.3	-13.14
F _{LOW20}	2412	HT20	25468.0	-27.96	7.0	-13.0	-14.96
F _{MID20}	2437	HT20	24974.0	-27.52	7.2	-12.8	-14.72
F _{HIGH20}	2462	HT20	25582.0	-27.39	6.3	-13.7	-13.69
Comments:							

Conducted spurious emissions – DSSS F_{LOW}

Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, DSSS, 1Mbps, 2412 MHz, modulated
 Test Date: 2015-01-08
 Verdict: PASS
 Note 1: Spurious in non-restricted frequency bands (558074 D01 Meas Guidance)
 Note 2: conducted measurement



Date: 8.JAN.2015 10:50:07

Test Report No.: G0M-1406-3919-TFC247WF-V01

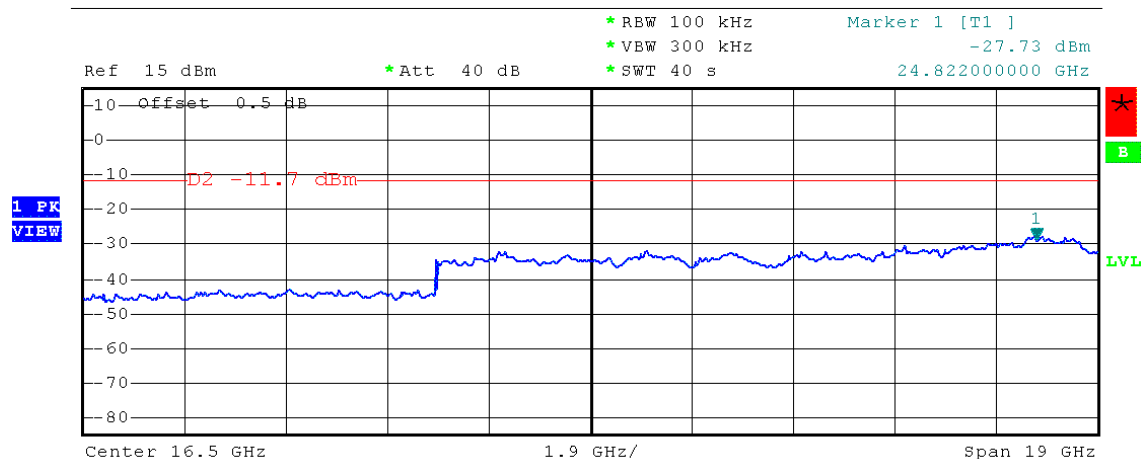
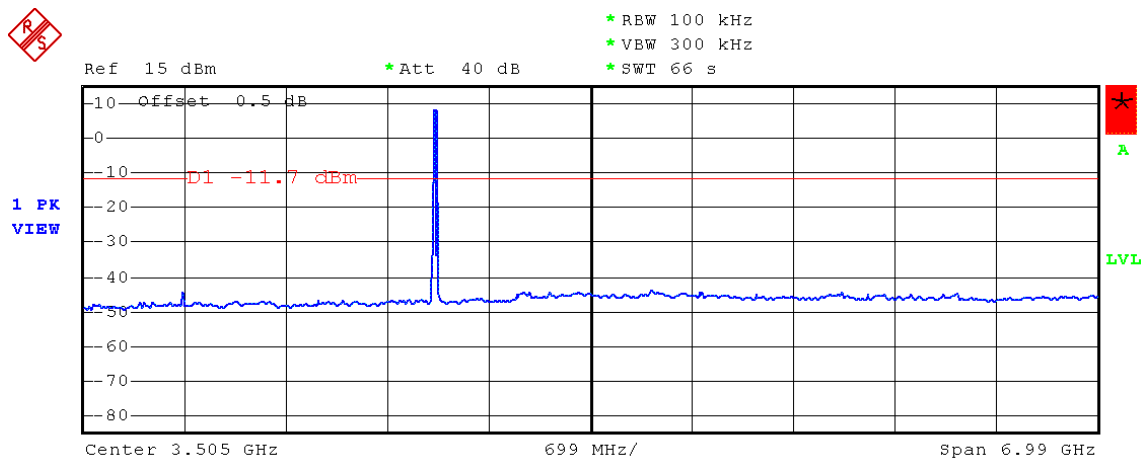
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted spurious emissions – DSSS F_{MID}

Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, DSSS, 1Mbps, 2437 MHz, modulated
 Test Date: 2015-01-08
 Verdict: PASS
 Note 1: Spurious in non-restricted frequency bands (558074 D01 Meas Guidance)
 Note 2: conducted measurement



Date: 8.JAN.2015 10:59:33

Test Report No.: G0M-1406-3919-TFC247WF-V01

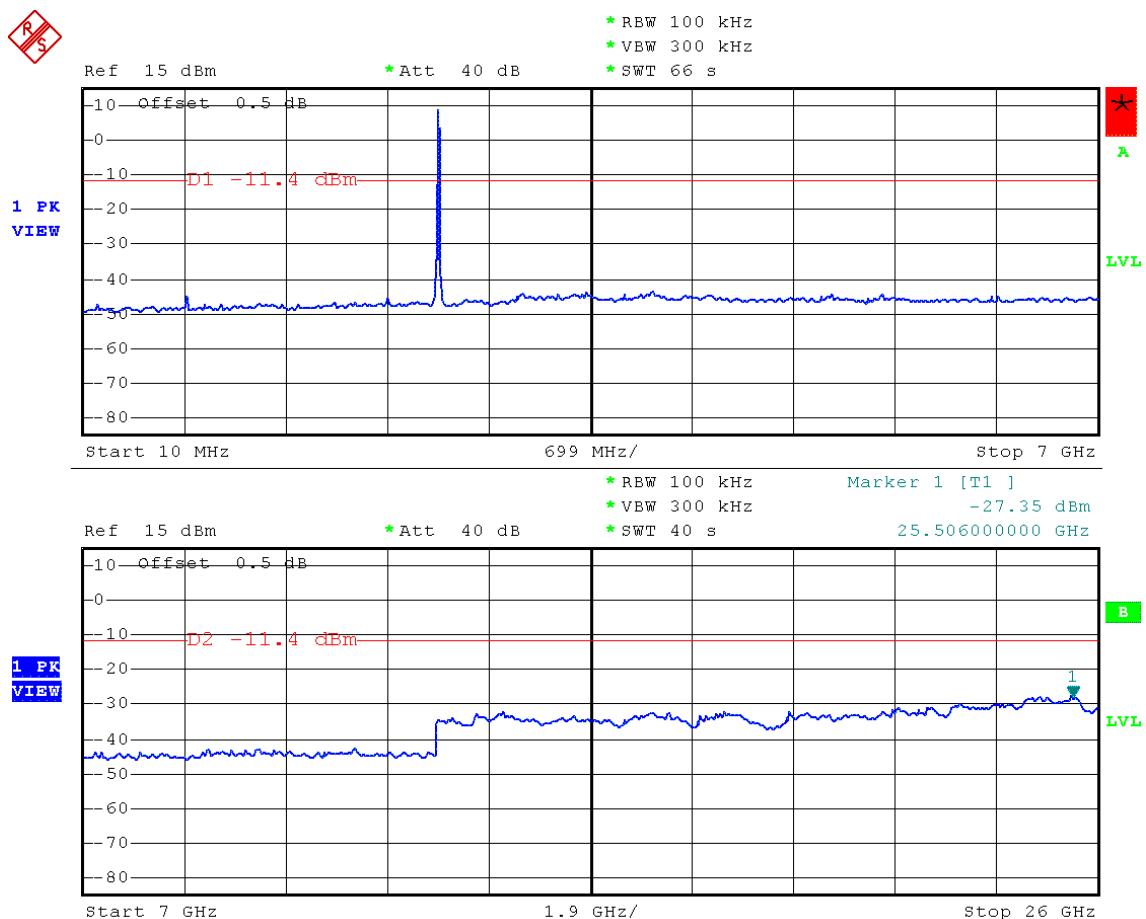
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted spurious emissions – DSSS F_{HIGH}

Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom / Vnom
Mode:	Tx, WLAN, DSSS, 1Mbps, 2462 MHz, modulated
Test Date:	2015-01-08
Verdict:	PASS
Note 1:	Spurious in non-restricted frequency bands (558074 D01 Meas Guidance)
Note 2:	conducted measurement



Date: 8.JAN.2015 11:20:55

Test Report No.: G0M-1406-3919-TFC247WF-V01

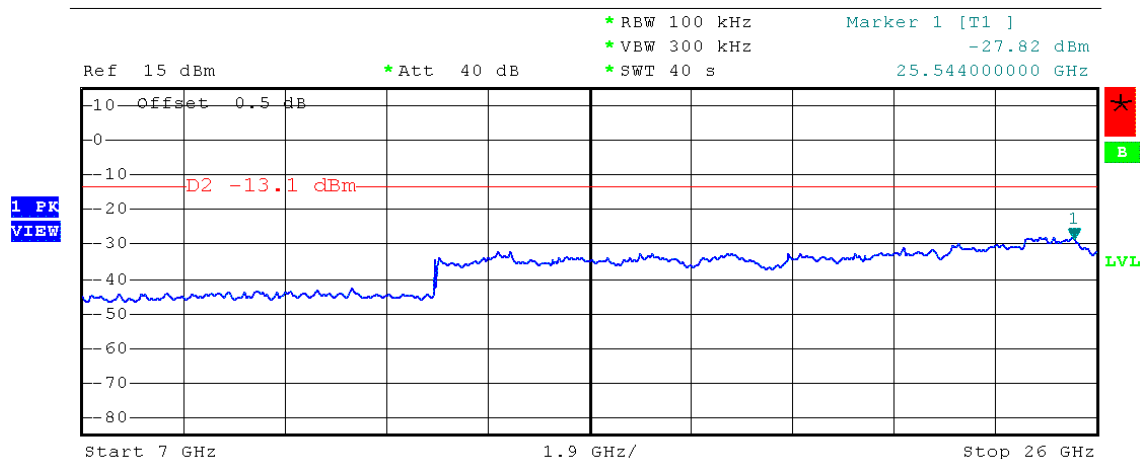
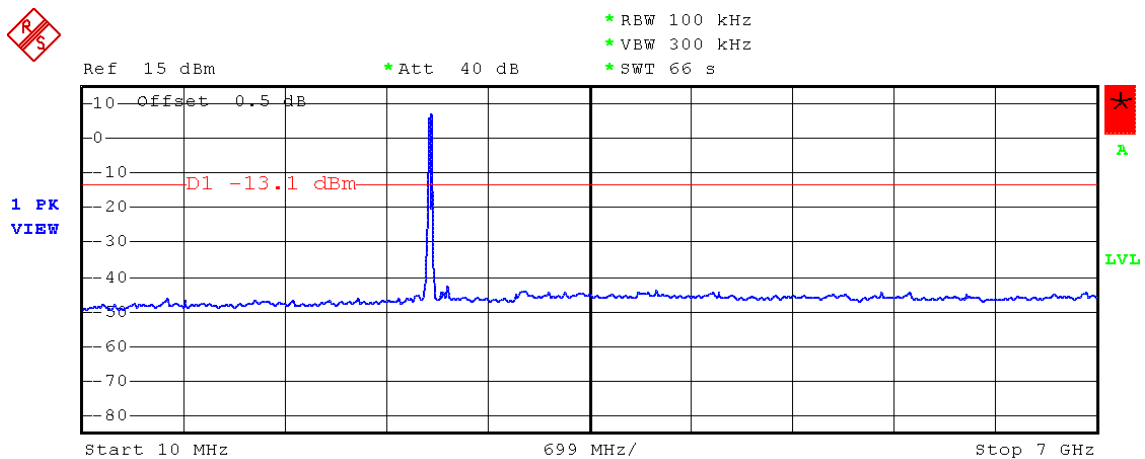
Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted spurious emissions – OFDM F_{Low}

Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, OFDM, 6Mbps, 2412 MHz, modulated
 Test Date: 2015-01-08
 Verdict: PASS
 Note 1: Spurious in non-restricted frequency bands (558074 D01 Meas Guidance)
 Note 2: conducted measurement



Date: 8.JAN.2015 11:27:24

Test Report No.: G0M-1406-3919-TFC247WF-V01

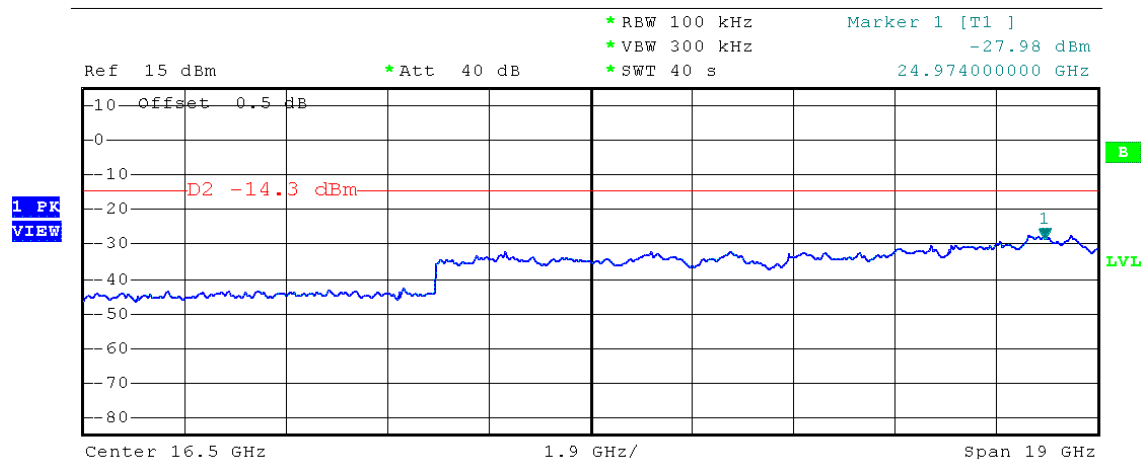
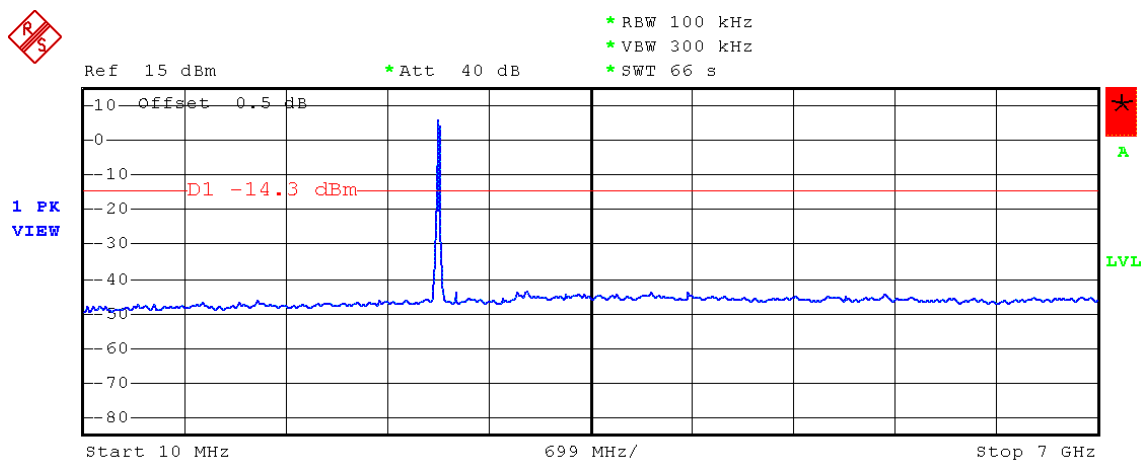
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted spurious emissions – OFDM F_{MID}

Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, OFDM, 6Mbps, 2437 MHz, modulated
 Test Date: 2015-01-08
 Verdict: PASS
 Note 1: Spurious in non-restricted frequency bands (558074 D01 Meas Guidance)
 Note 2: conducted measurement



Date: 8.JAN.2015 11:44:36

Test Report No.: G0M-1406-3919-TFC247WF-V01

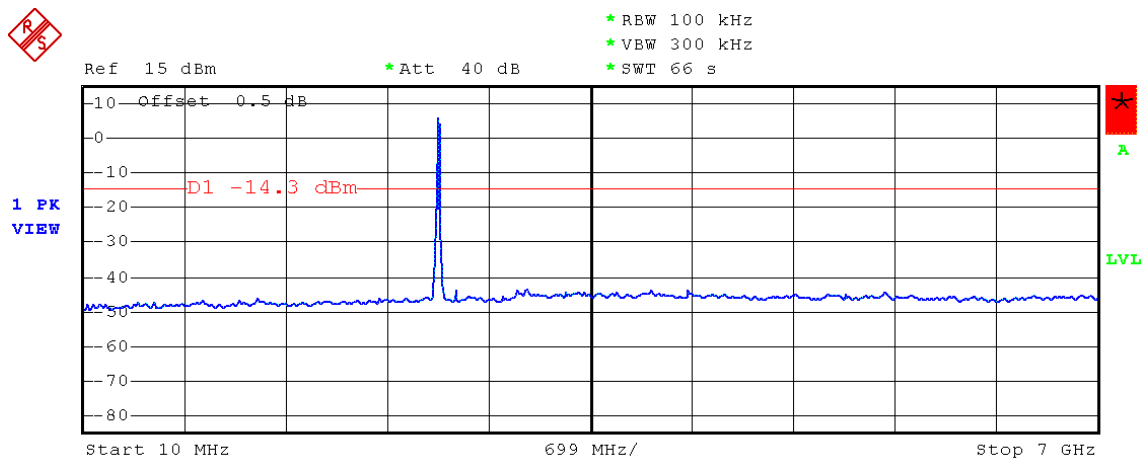
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted spurious emissions – OFDM F_{HIGH}

Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, OFDM, 6Mbps, 2462 MHz, modulated
 Test Date: 2015-01-08
 Verdict: PASS
 Note 1: Spurious in non-restricted frequency bands (558074 D01 Meas Guidance)
 Note 2: conducted measurement



Date: 8.JAN.2015 11:42:01

Test Report No.: G0M-1406-3919-TFC247WF-V01

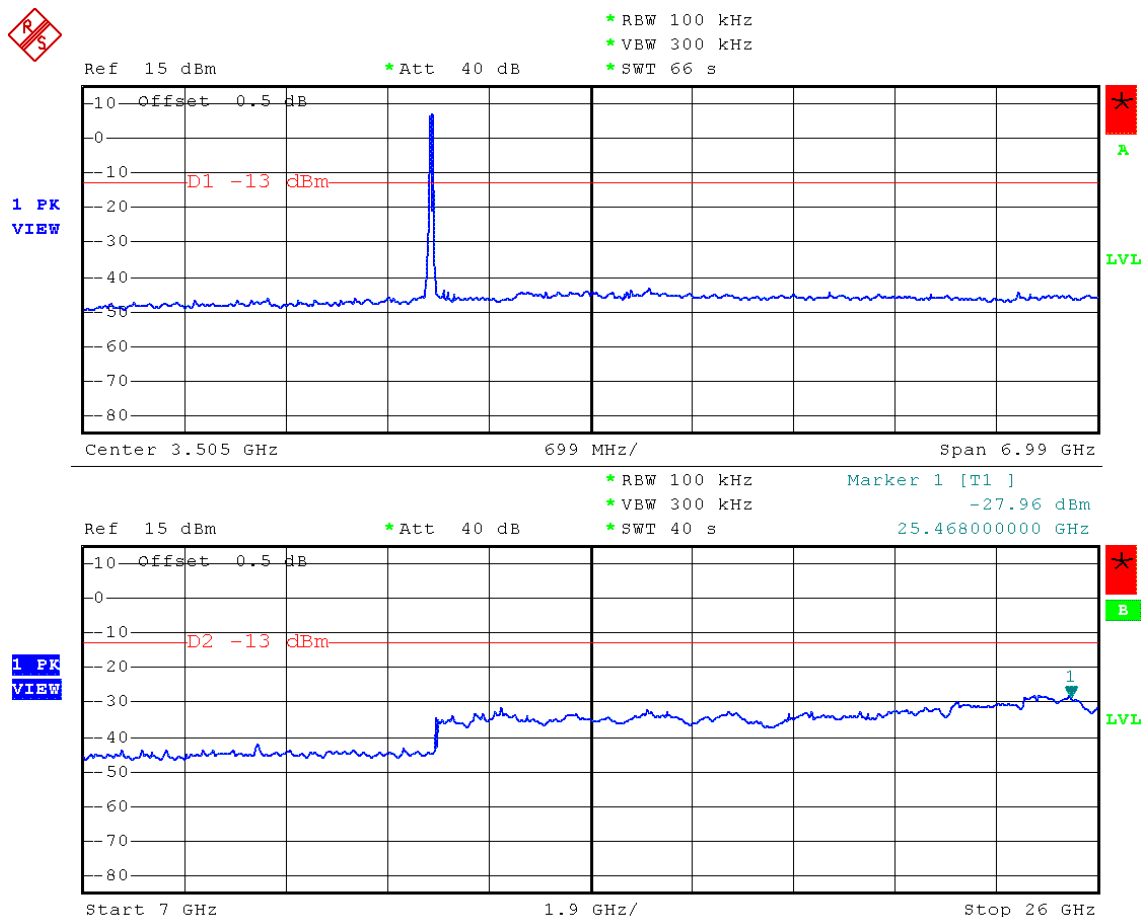
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted spurious emissions – HT20 F_{LOW}

Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, HT20, MCS0, 2412 MHz, modulated
 Test Date: 2015-01-08
 Verdict: PASS
 Note 1: Spurious in non-restricted frequency bands (558074 D01 Meas Guidance)
 Note 2: conducted measurement



Date: 8.JAN.2015 11:49:36

Test Report No.: G0M-1406-3919-TFC247WF-V01

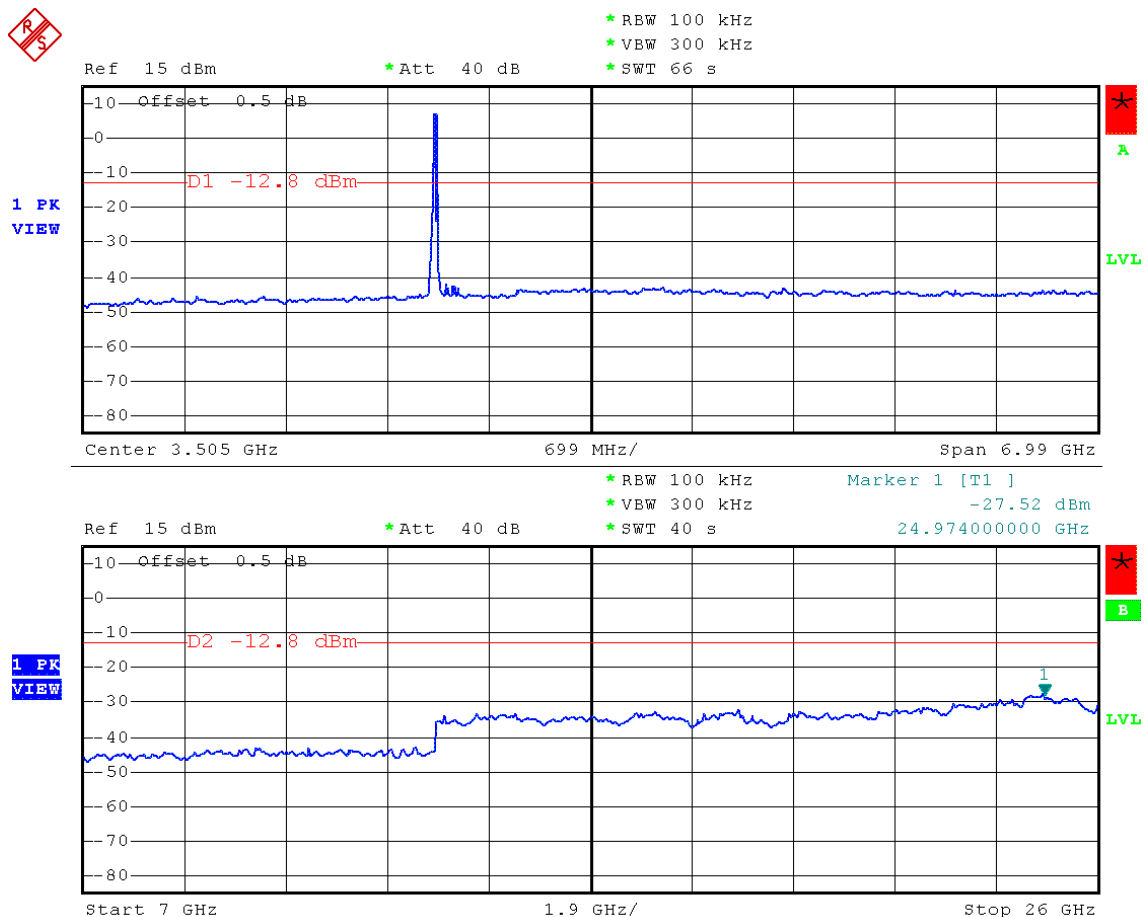
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted spurious emissions – HT20 F_{MID}

Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, HT20, MCS0, 2437 MHz, modulated
 Test Date: 2015-01-08
 Verdict: PASS
 Note 1: Spurious in non-restricted frequency bands (558074 D01 Meas Guidance)
 Note 2: conducted measurement



Date: 8.JAN.2015 12:33:48

Test Report No.: G0M-1406-3919-TFC247WF-V01

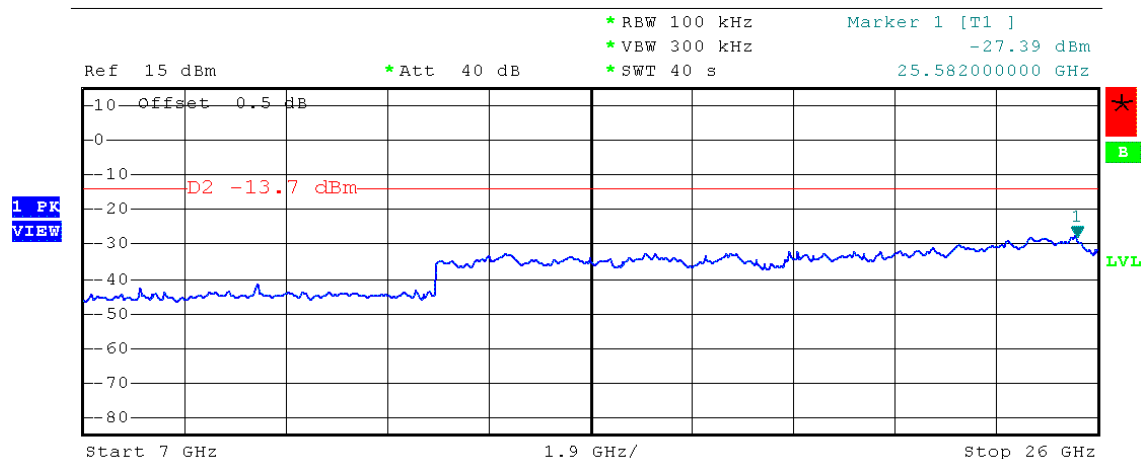
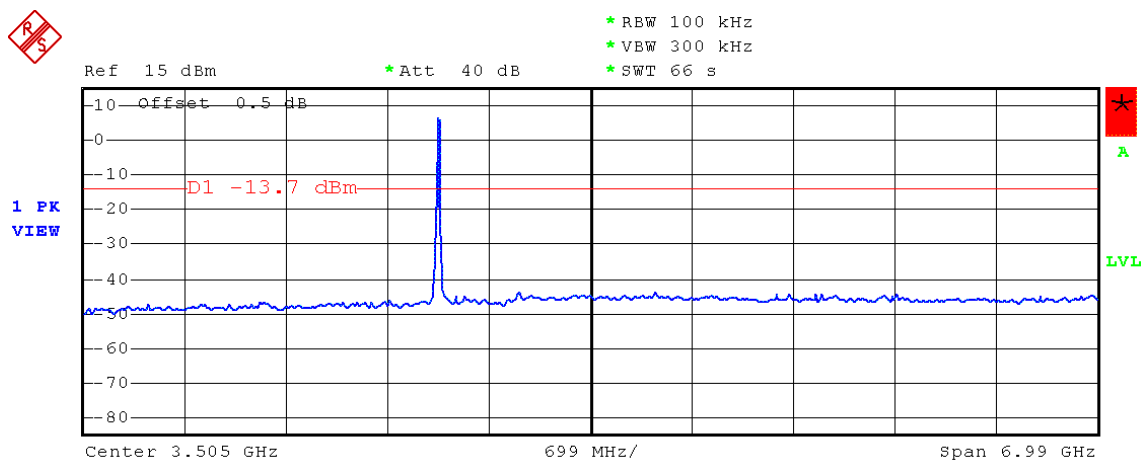
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted spurious emissions – HT20 F_{HIGH}

Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1406-3917

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Test Conditions: Tnom / Vnom
 Mode: Tx, WLAN, HT20, MCS0, 2462 MHz, modulated
 Test Date: 2015-01-08
 Verdict: PASS
 Note 1: Spurious in non-restricted frequency bands (558074 D01 Meas Guidance)
 Note 2: conducted measurement

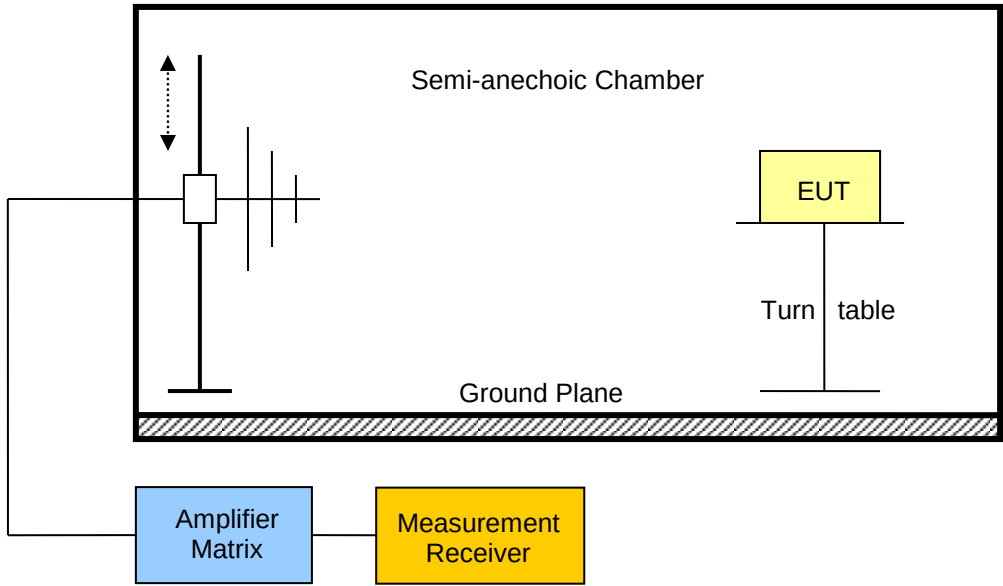


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Test Report No.: G0M-1406-3919-TFC247WF-V01

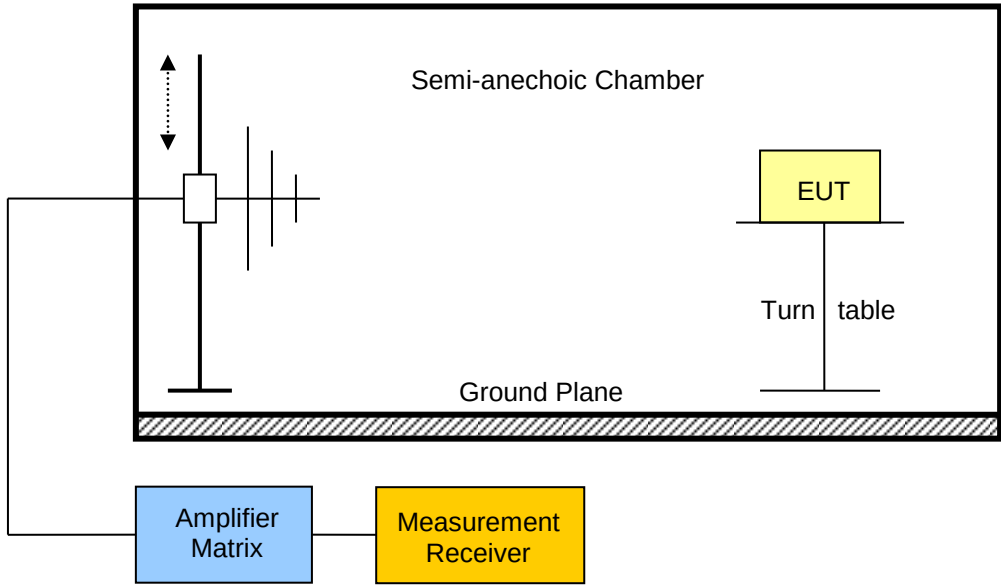
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

3.8 Test Conditions and Results – Transmitter radiated emissions

Transmitter radiated emissions acc. to FCC 47 CFR 15.247 / IC RSS-210				Verdict: PASS
Test according referenced standards	Reference Method			
	FCC 15.247(d) / IC RSS-210 A8.5			
Test according to measurement reference	Reference Method			
	FCC KDB Publication No. 558074 / ANSI C63.4			
Test frequency range	Tested frequencies			
	30 MHz – 10 th Harmonic			
Limits				
Frequency range [MHz]	Detector	Limit [μV/m]	Limit [dBμV/m]	Limit Distance [m]
30 – 88	Quasi-Peak	100	40	3
88 – 216	Quasi-Peak	150	43.5	3
216 – 960	Quasi-Peak	200	46	3
960 – 1000	Quasi-Peak	500	54	3
> 1000	Average	500	54	3
Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)). When average radiated emission measurements are specified, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test.				
Test setup				
				

Test procedure									
1. EUT set to test mode (Communication tester is used if needed) 2. Span it set according to measurement range 3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1 MHz with peak/average detector is used above 1 GHz 4. Markers are set to peak emission levels within restricted bands									
Test results									
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Limit dist. [m]*	Margin [dB]
F _{LOW}	2412	HT20	2386	55.88	pk	ver	74.00	3	-18.12
F _{LOW}	2412	HT20	2386	35.66	RMS	ver	54.00	3	-18.34
F _{LOW}	2412	HT20	2387	53.95	pk	hor	74.00	3	-20.05
F _{LOW}	2412	HT20	2387	34.10	RMS	hor	54.00	3	-19.90
F _{LOW}	2412	HT20	2389	56.86	pk	hor	74.00	3	-17.14
F _{LOW}	2412	HT20	2389	35.67	RMS	hor	54.00	3	-18.33
F _{LOW}	2412	HT20	2390	58.65	pk	ver	74.00	3	-15.35
F _{LOW}	2412	HT20	2390	40.20	RMS	ver	54.00	3	-13.80
F _{LOW}	2412	HT20	2390	56.82	pk	hor	74.00	3	-17.18
F _{LOW}	2412	HT20	2390	37.57	RMS	hor	54.00	3	-16.43
F _{LOW}	2412	HT20	2490	51.73	pk	ver	74.00	3	-22.27
F _{LOW}	2412	HT20	2493	51.08	pk	hor	74.00	3	-22.92
F _{HIGH}	2462	HT20	2484	64.15	pk	ver	74.00	3	-09.85
F _{HIGH}	2462	HT20	2484	39.56	RMS	ver	54.00	3	-14.44
F _{HIGH}	2462	HT20	2484	64.42	pk	hor	74.00	3	-09.58
F _{HIGH}	2462	HT20	2484	40.90	RMS	hor	54.00	3	-13.10
F _{HIGH}	2462	HT20	2486	62.76	pk	ver	74.00	3	-11.24
F _{HIGH}	2462	HT20	2486	39.71	RMS	ver	54.00	3	-14.29
F _{HIGH}	2462	HT20	2488	60.15	pk	ver	74.00	3	-13.85
F _{HIGH}	2462	HT20	2488	37.57	RMS	ver	54.00	3	-16.43
F _{HIGH}	2462	HT20	2489	57.50	pk	hor	74.00	3	-16.50
F _{HIGH}	2462	HT20	2489	36.49	RMS	hor	54.00	3	-17.51
F _{HIGH}	2462	HT20	2493	52.86	pk	hor	74.00	3	-21.14
F _{HIGH}	2462	HT20	2493	34.28	RMS	hor	54.00	3	-19.72
Comments: * Physical distance between EUT and measurement antenna.									

3.9 Test Conditions and Results – Receiver radiated emissions

Receiver radiated emissions acc. to IC RSS-210				Verdict: PASS
Test according referenced standards	Reference Method			
	IC RSS-210 A8.5			
Test according to measurement reference	Reference Method			
	ANSI C63.4			
Test frequency range	Tested frequencies			
	30 MHz – 3 th Harmonic			
EUT test mode	Receive			
Limits				
Frequency range [MHz]	Detector	Limit [μV/m]	Limit [dBμV/m]	Limit Distance [m]
30 – 88	Quasi-Peak	100	40	3
88 – 216	Quasi-Peak	150	43.5	3
216 – 960	Quasi-Peak	200	46	3
960 – 1000	Quasi-Peak	500	54	3
> 1000	Average	500	54	3
Test setup				
				

Test procedure							
1. EUT set to receive mode (Communication tester is used if needed) 2. Span it set according to measurement range 3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1 MHz with peak/average detector is used above 1 GHz 4. Markers are set to peak emission levels							
Test results							
Channel	Frequency [MHz]	Emission [MHz]	Emission Level [dBμV/m]	Det.	Limit* Distance [m]	Limit [dBμV/m]	Margin [μV/m]
F _{MID}	2437	141.568	34.25	pk	3	43.50	-9.25 dB
F _{MID}	2437	416	36.46	pk	3	46.00	-9.54 dB
Comments: * Physical distance between EUT and measurement antenna. ** Emission level corresponds to ambient noise floor							

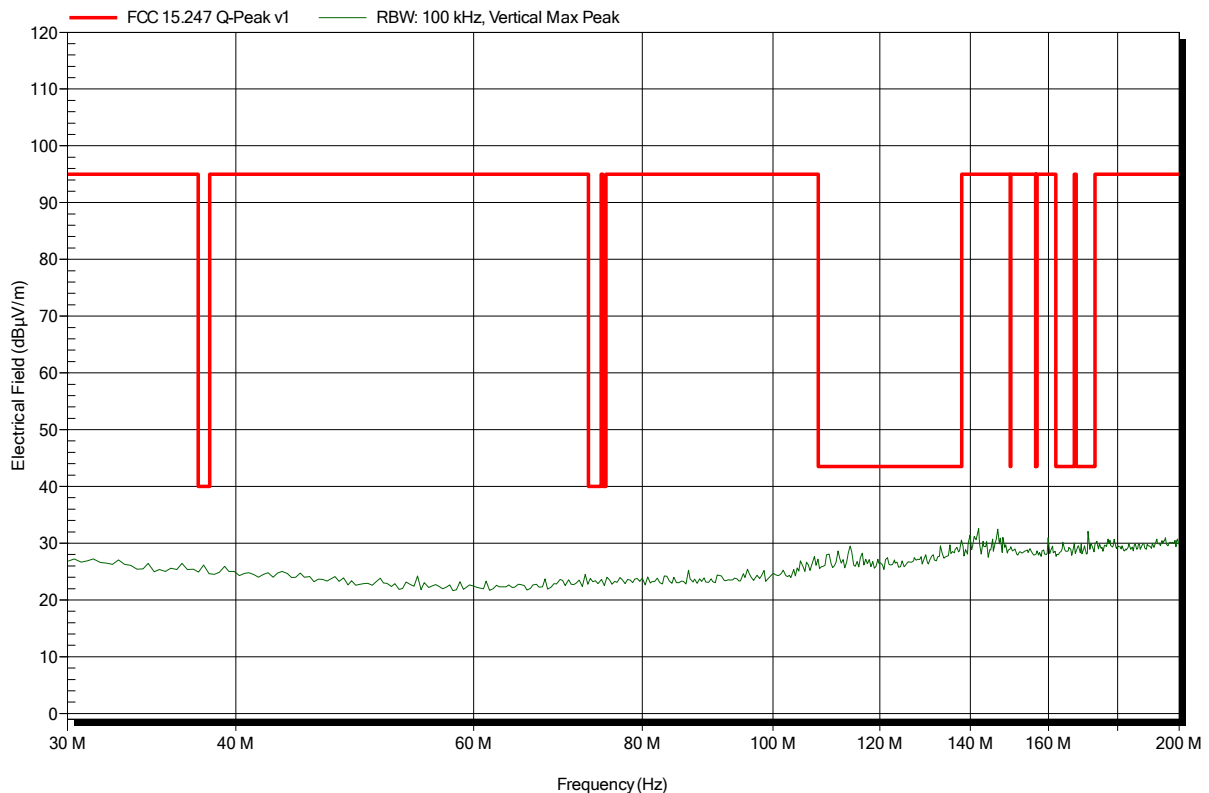
ANNEX A Transmitter radiated spurious emissions

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1 V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; WLAN 2.4G; CH: 1; DSSS; 1Mbps
Test Date:	2015-02-27
Note:	EUT vertical

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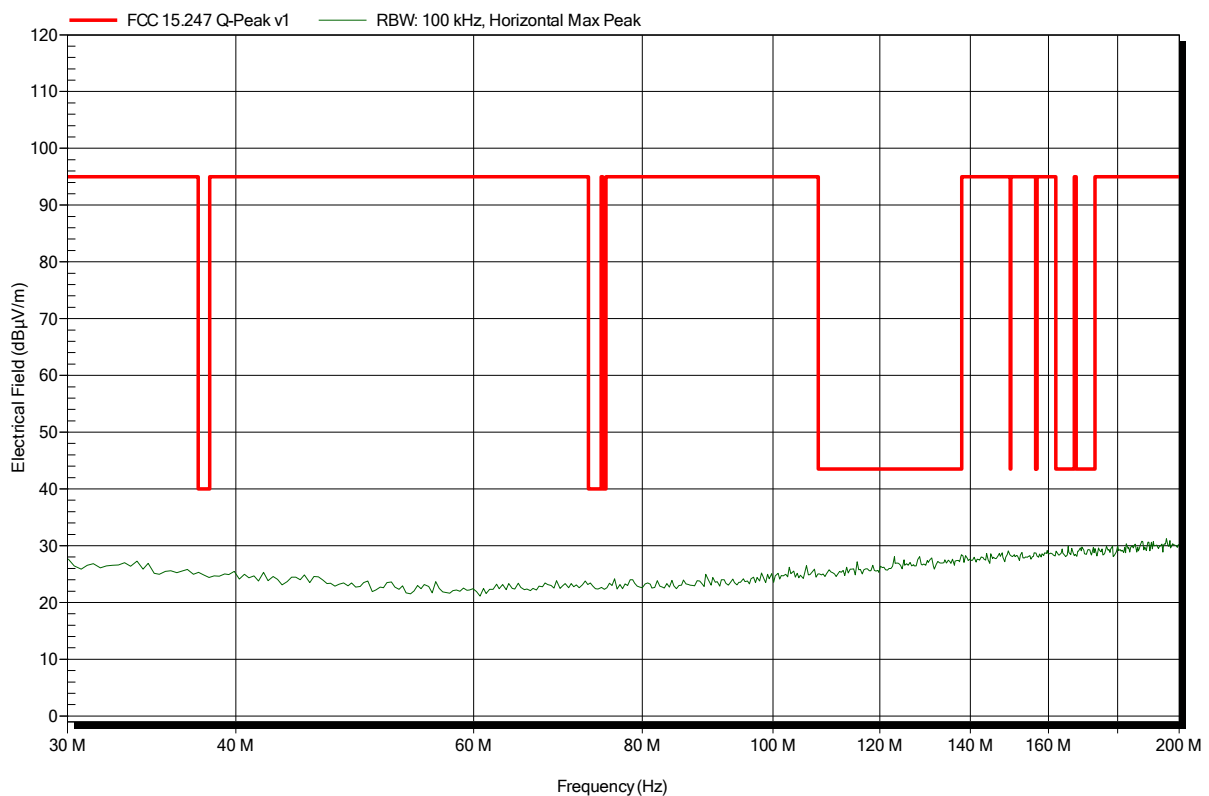


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 1; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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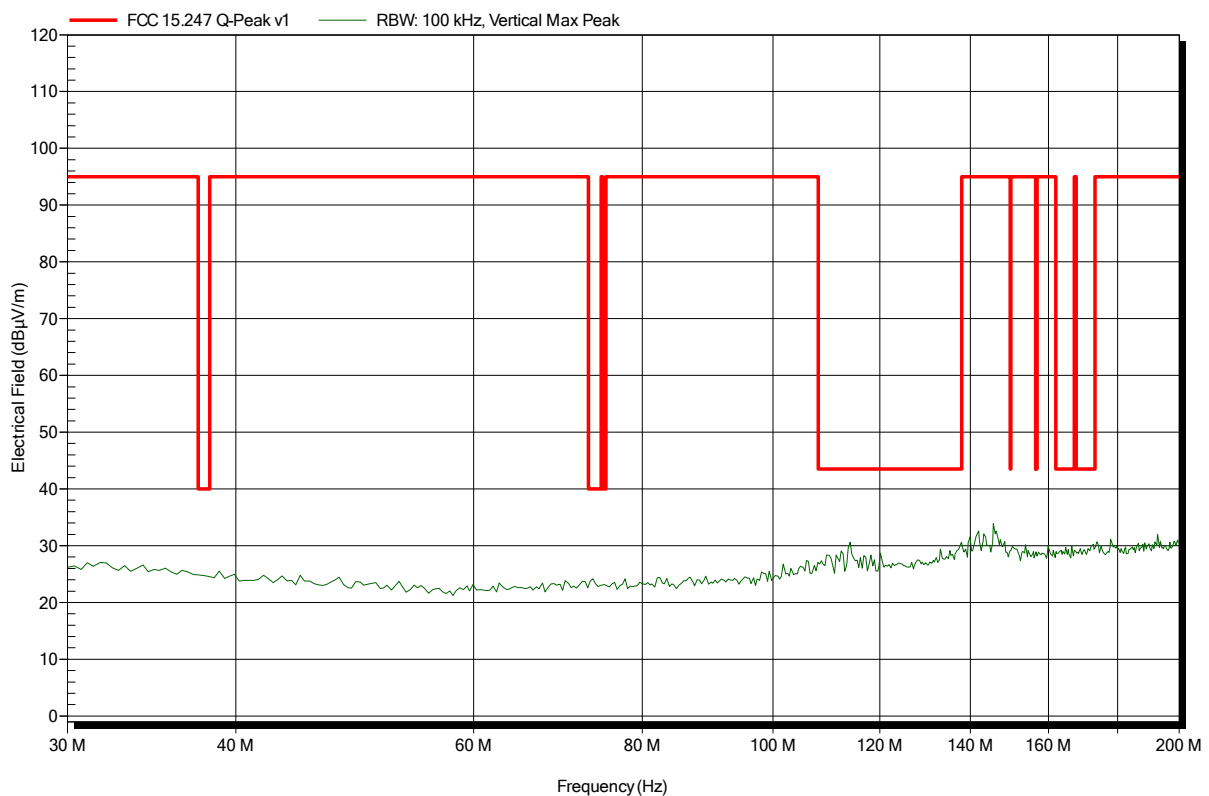


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1 V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; WLAN 2.4G; CH: 6; DSSS; 1Mbps
Test Date:	2015-02-27
Note:	EUT vertical

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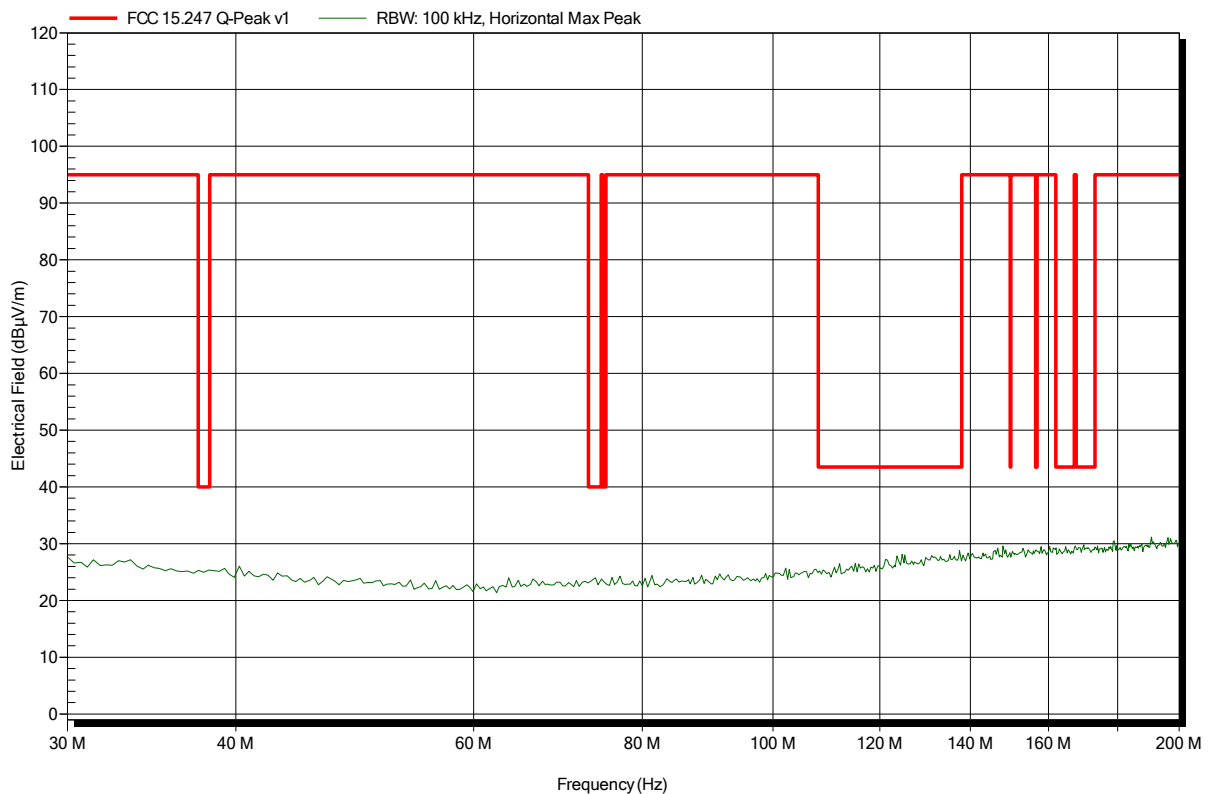


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1 V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; WLAN 2.4G; CH: 6; DSSS; 1Mbps
Test Date:	2015-02-27
Note:	EUT vertical

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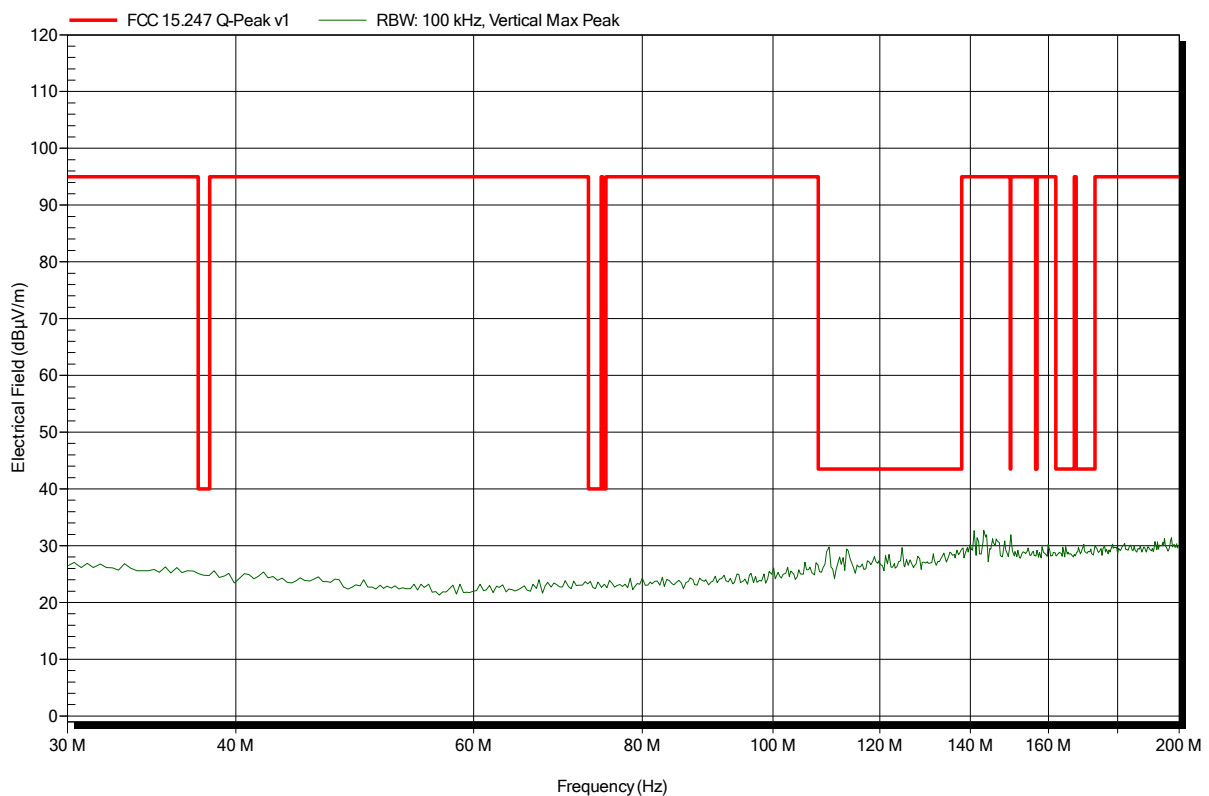


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1 V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; WLAN 2.4G; CH: 11; DSSS; 1Mbps
Test Date:	2015-02-27
Note:	EUT vertical

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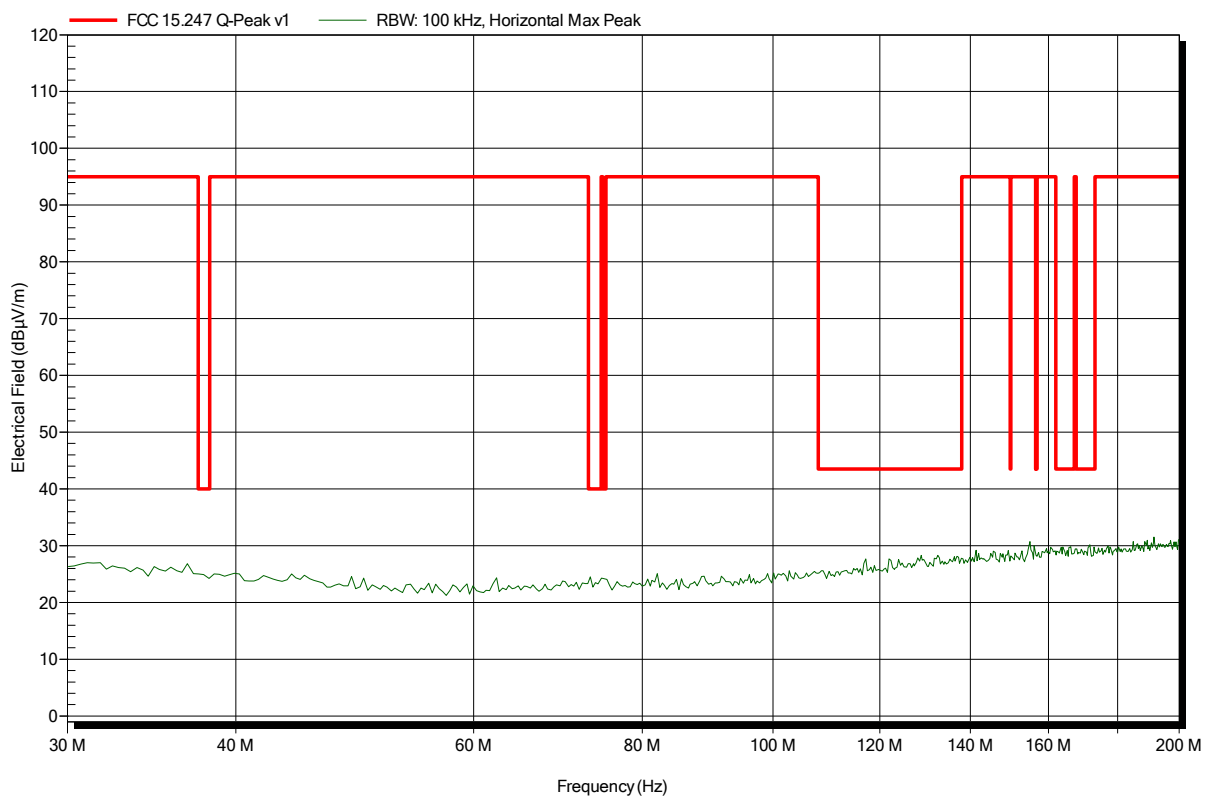


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1 V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; WLAN 2.4G; CH: 11; DSSS; 1Mbps
Test Date:	2015-02-27
Note:	EUT vertical

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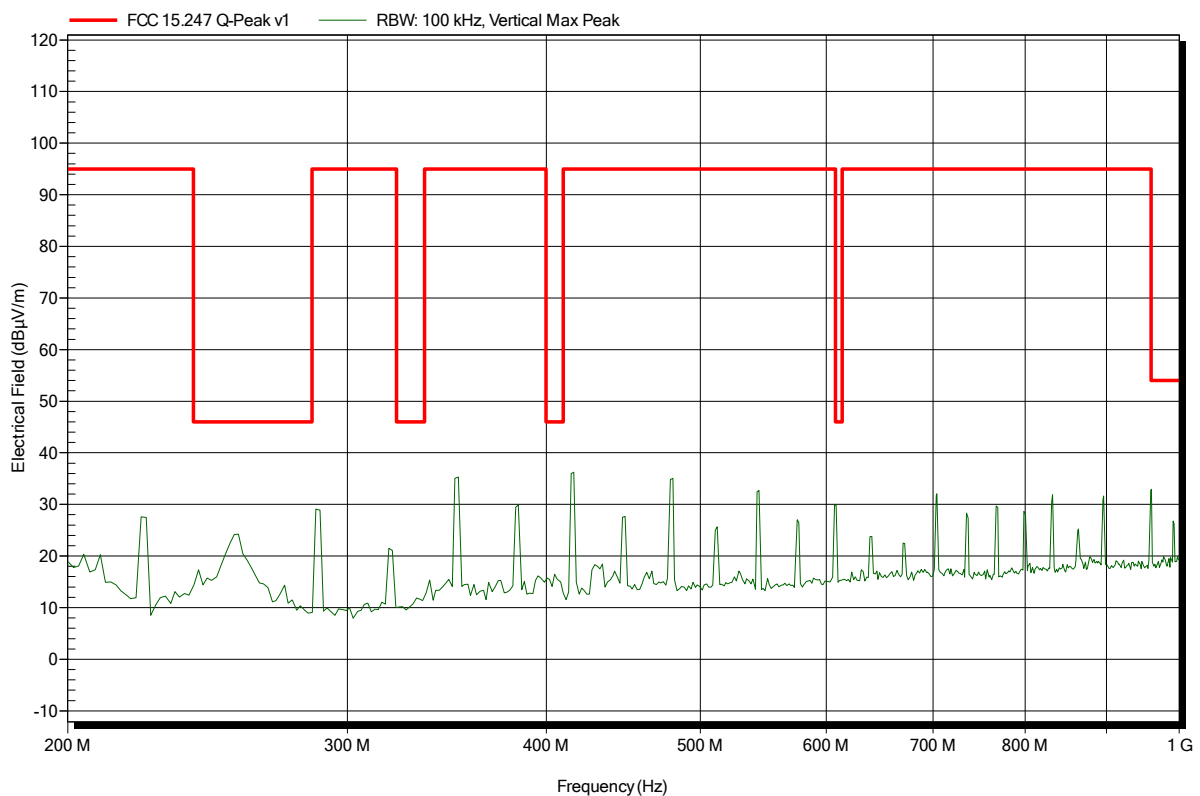


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1 V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; WLAN 2.4G; CH: 1; DSSS; 1Mbps
Test Date:	2015-02-27
Note:	EUT vertical

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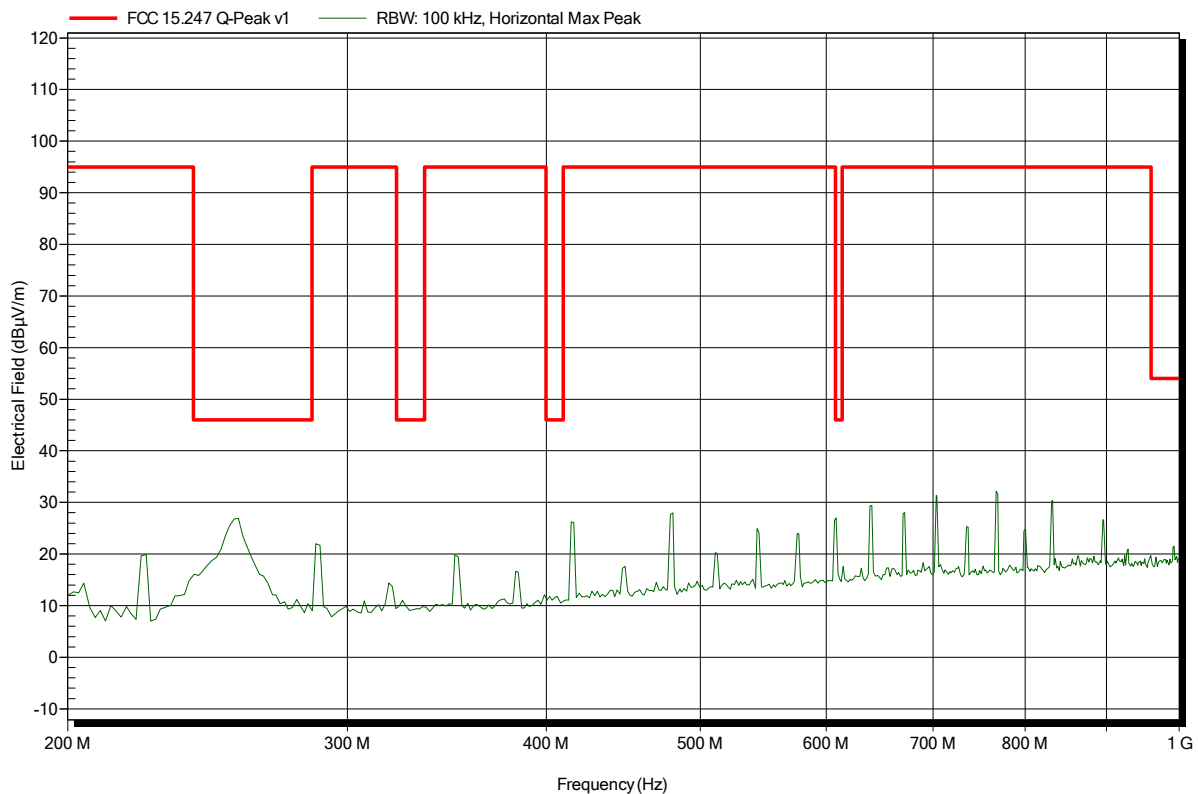


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1 V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; WLAN 2.4G; CH: 1; DSSS; 1Mbps
Test Date:	2015-02-27
Note:	EUT vertical

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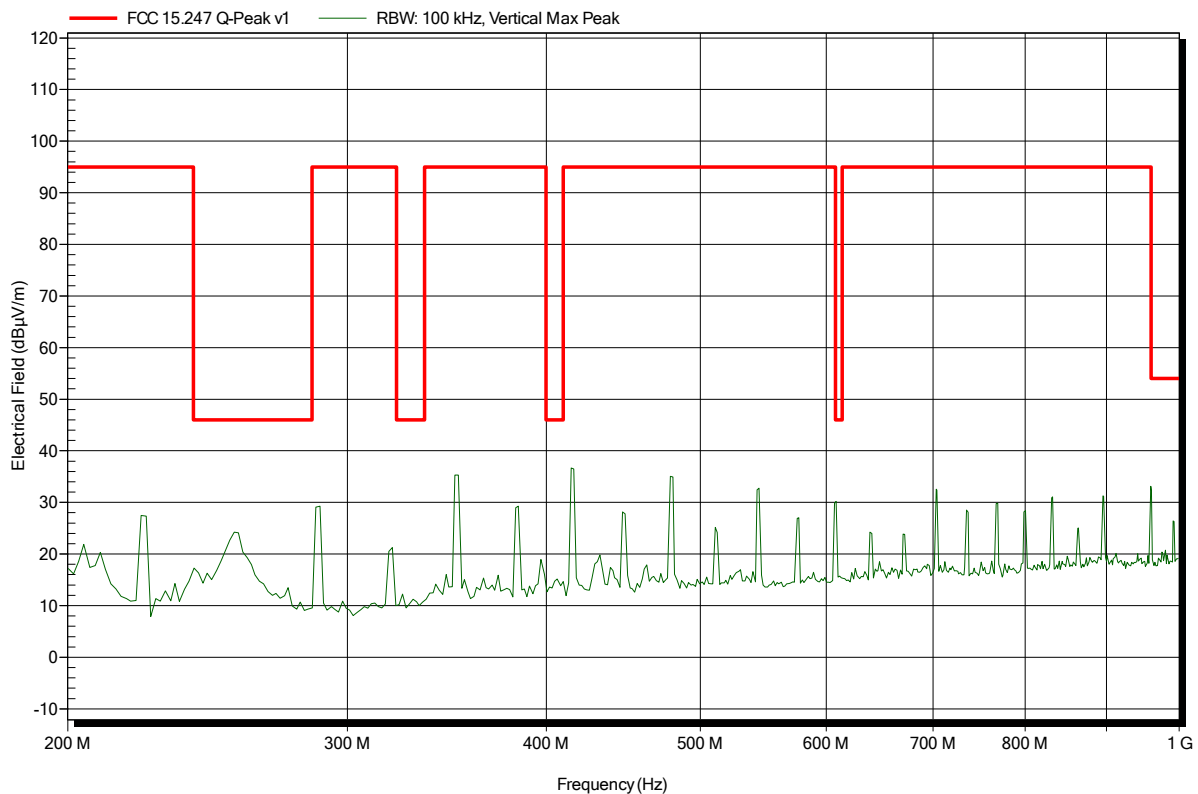


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1 V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; WLAN 2.4G; CH: 6; DSSS; 1Mbps
Test Date:	2015-02-27
Note:	EUT vertical

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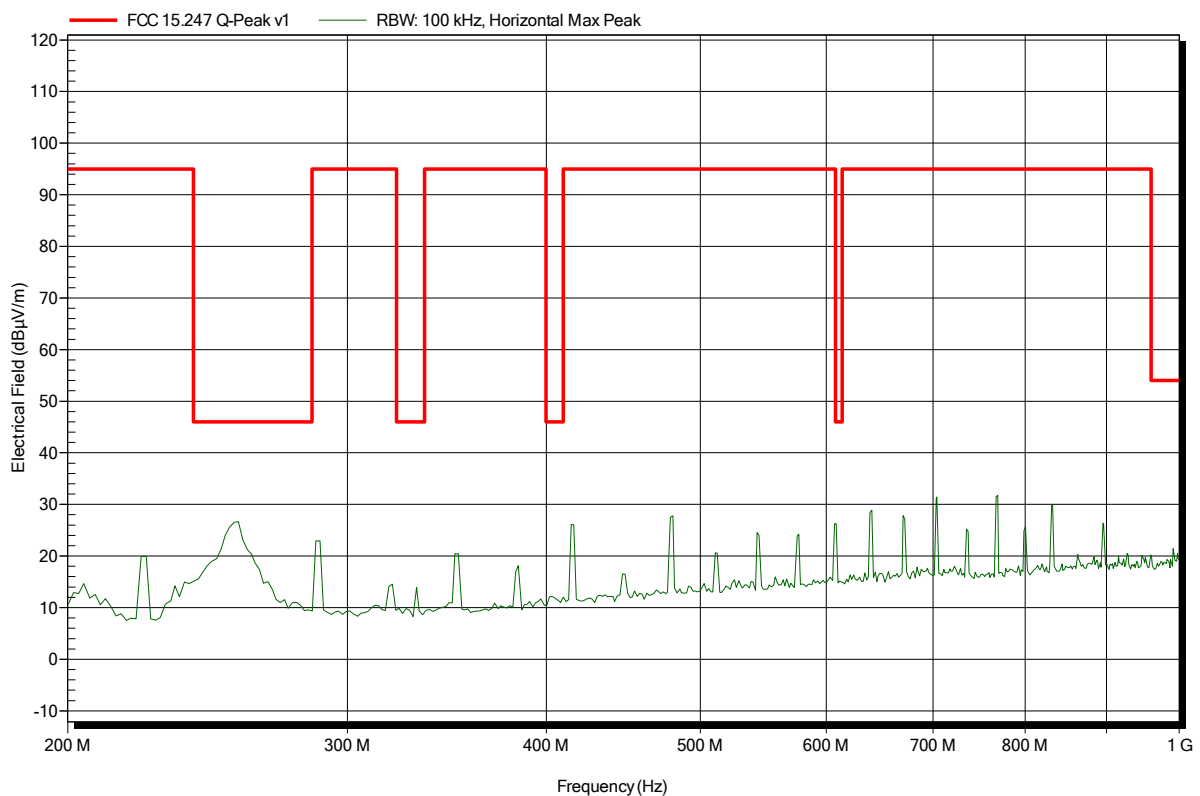


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 6; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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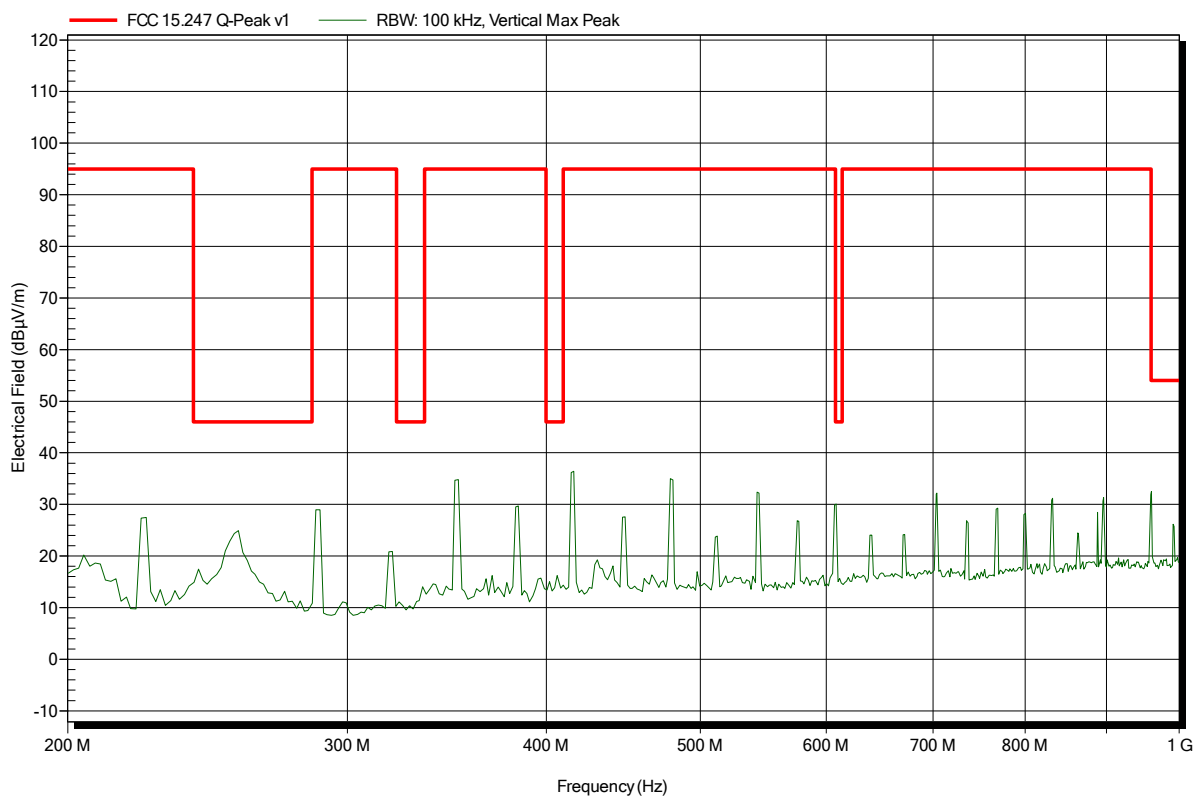


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1 V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; WLAN 2.4G; CH: 11; DSSS; 1Mbps
Test Date:	2015-02-27
Note:	EUT vertical

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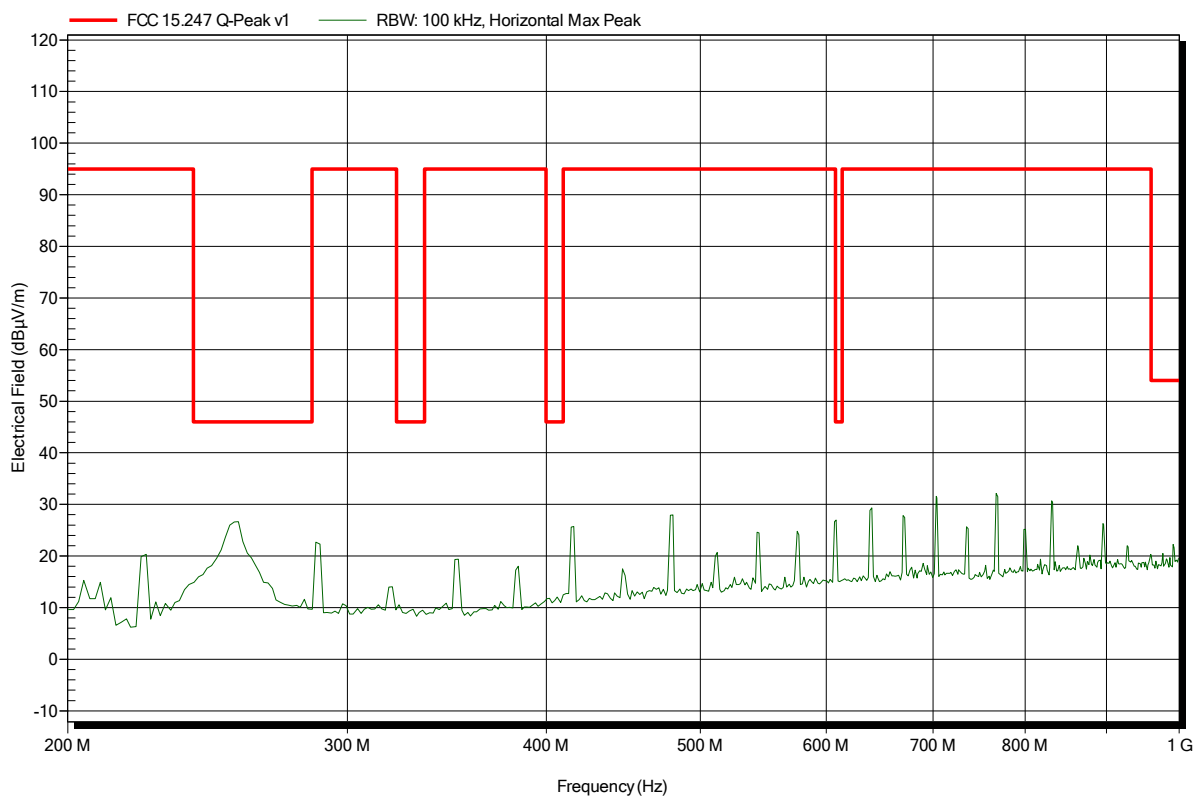


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 11; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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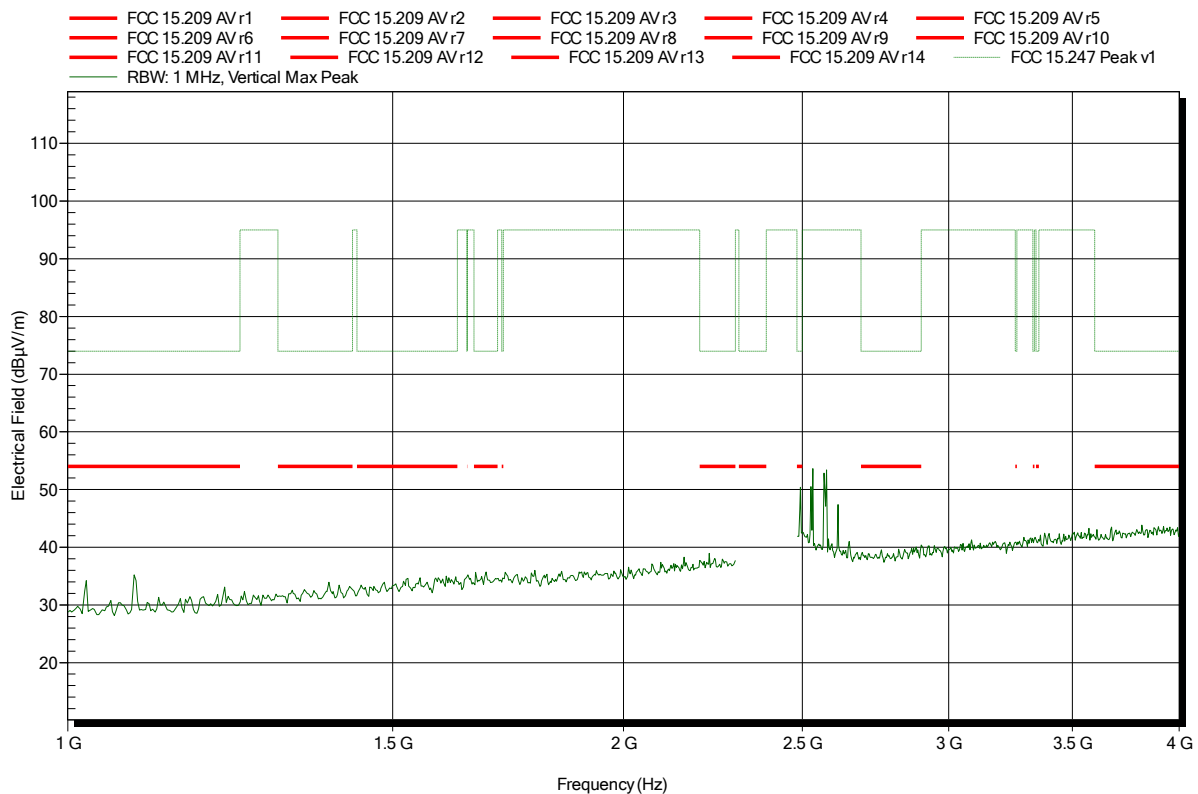


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 1; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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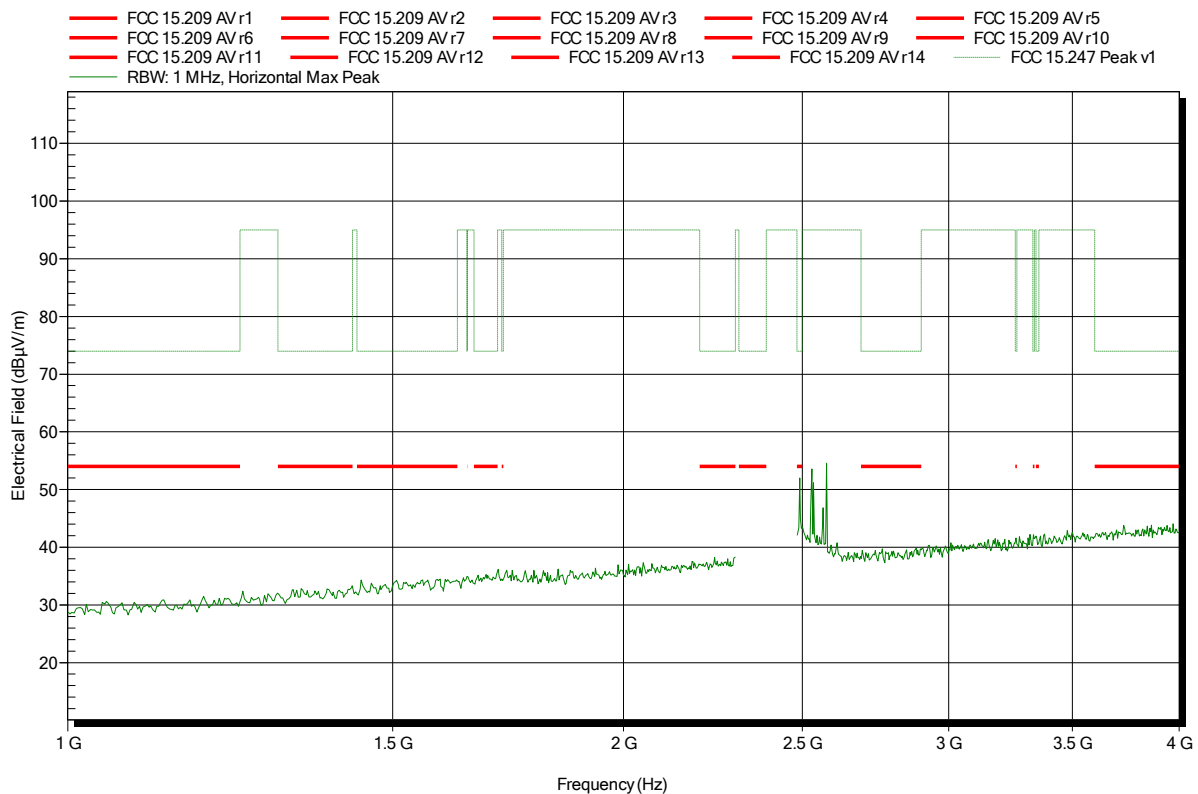


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 1; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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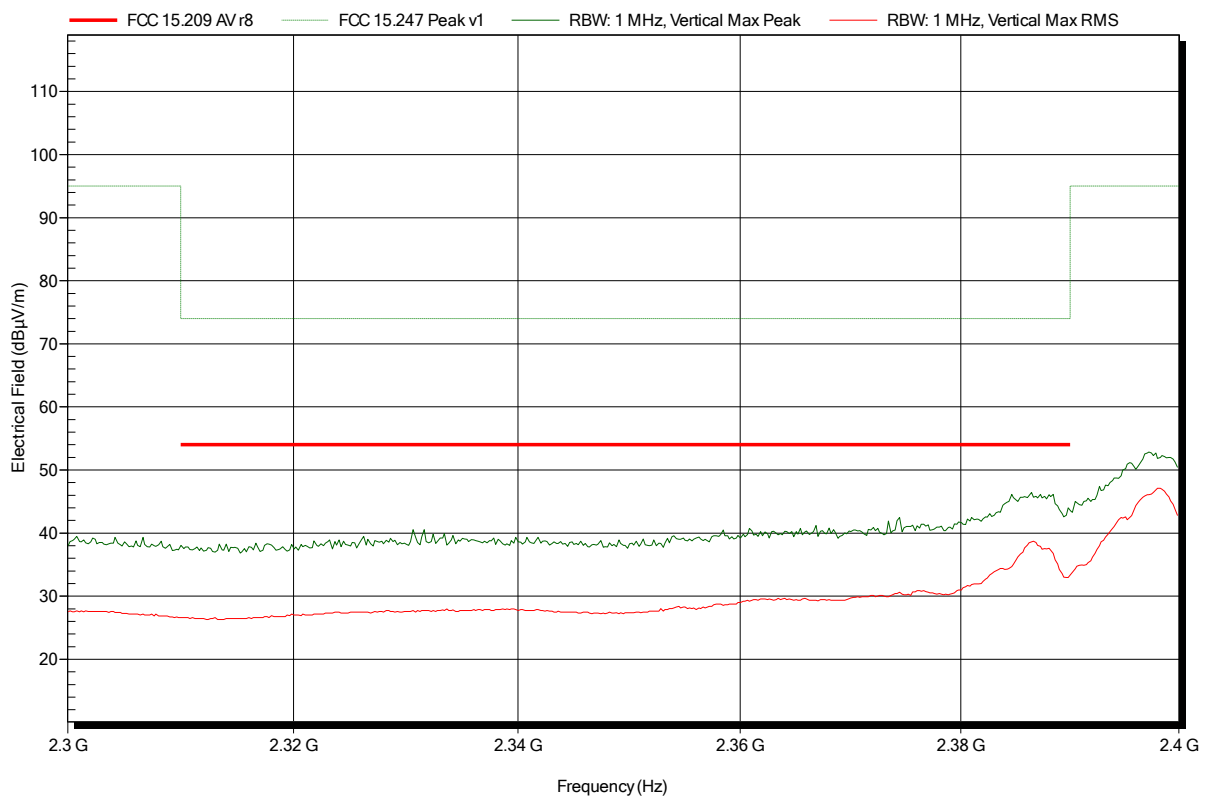


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 1; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical; lower bandedge

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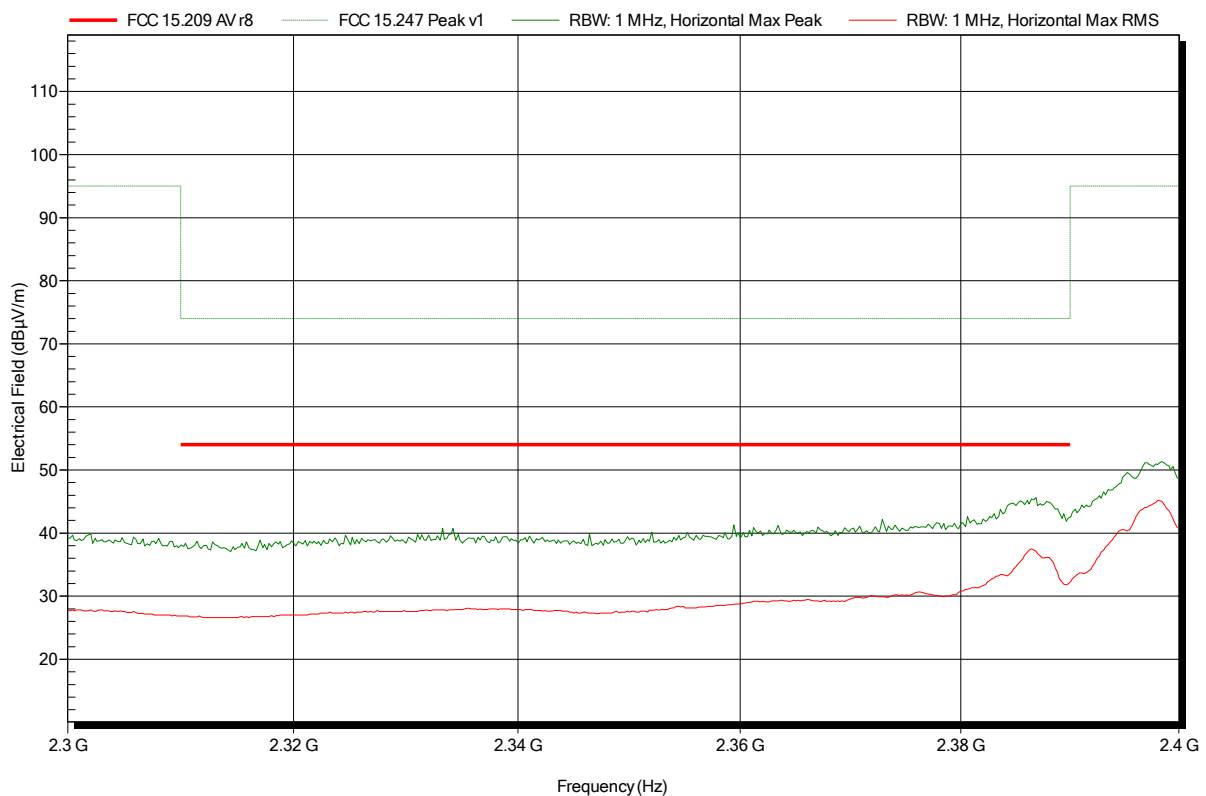


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; WLAN 2.4G; CH: 1; DSSS; 1Mbps
Test Date:	2015-02-27
Note:	EUT vertical; lower bandedge

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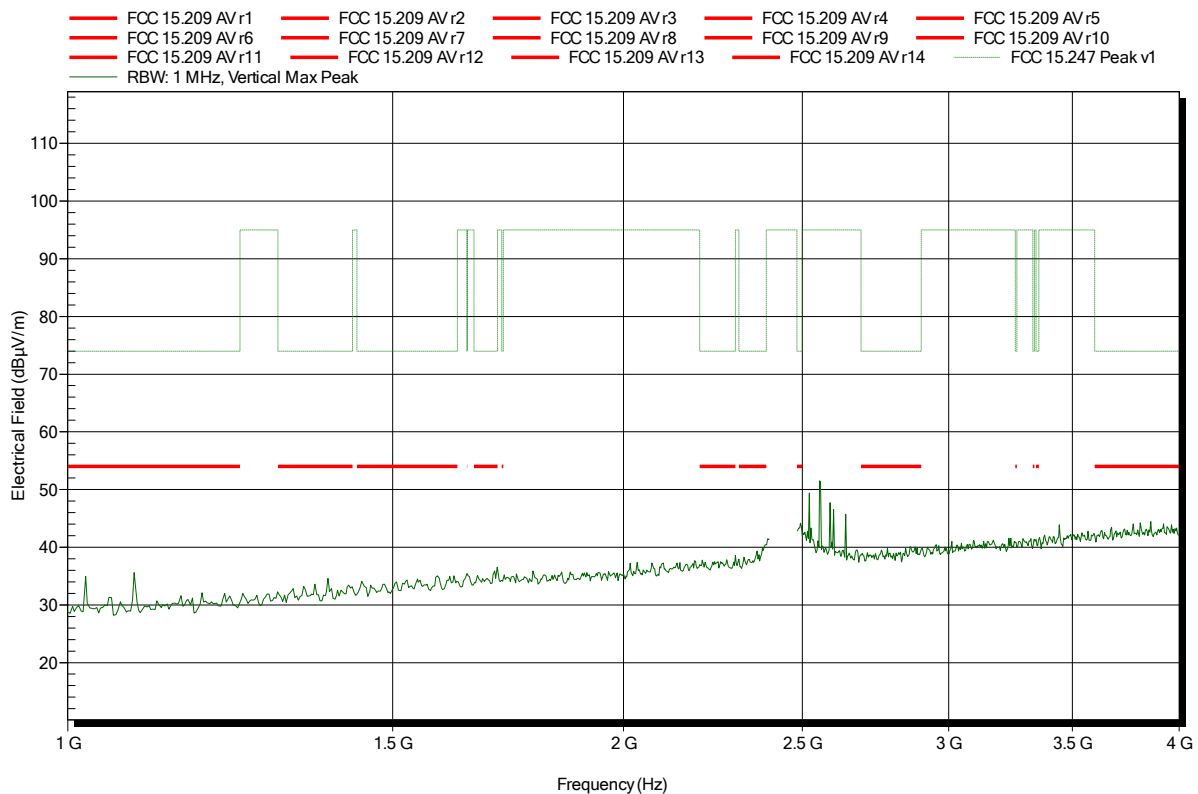


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 6; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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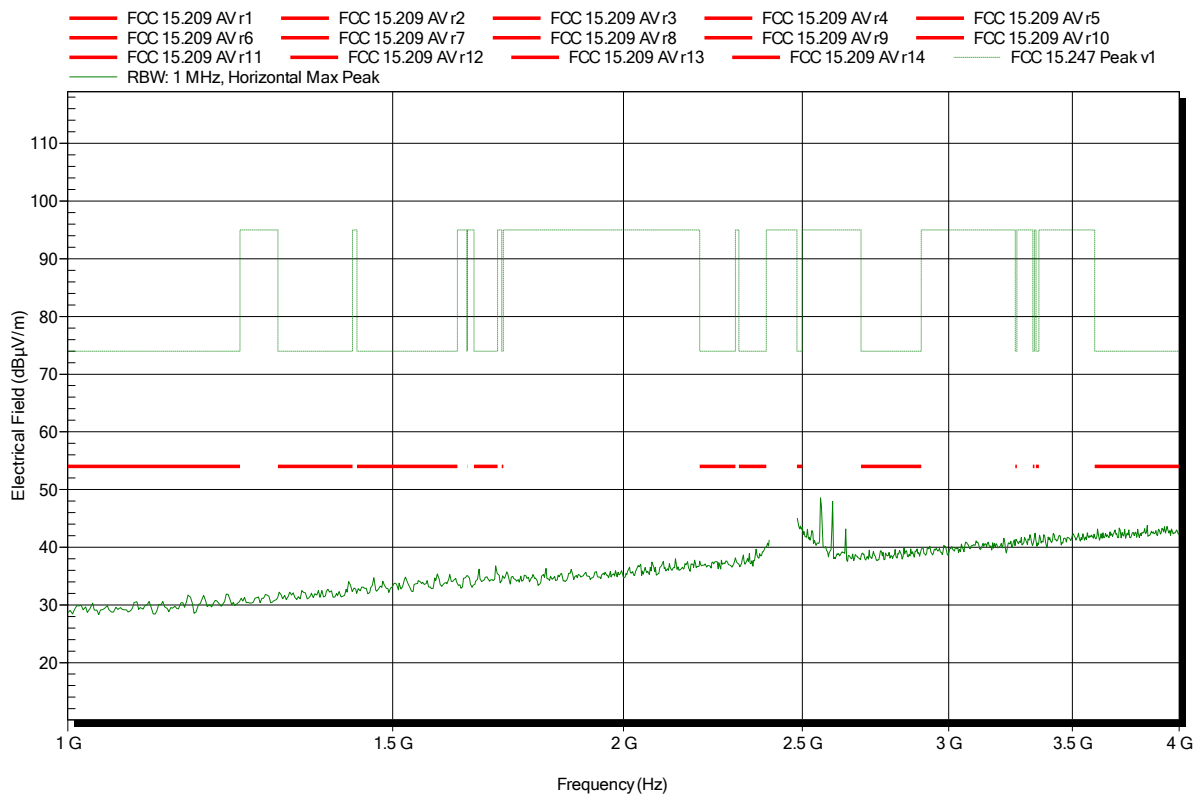


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 6; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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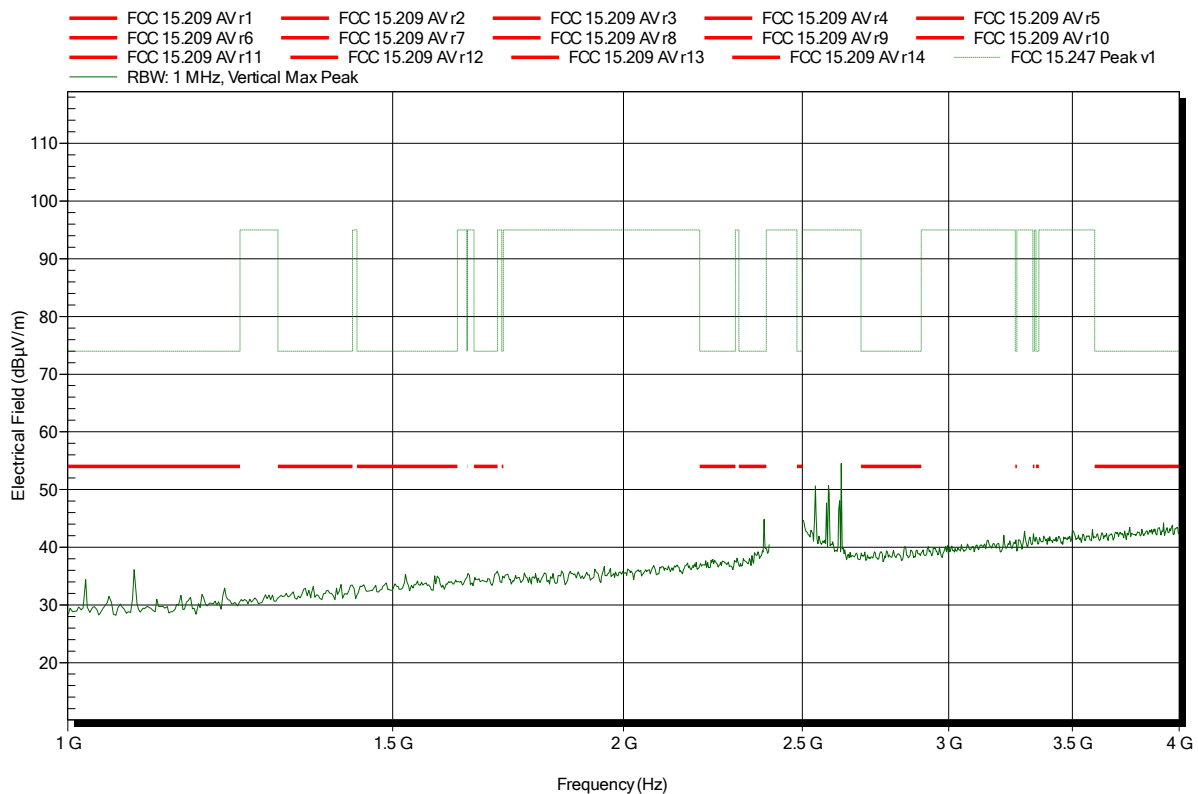


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 11; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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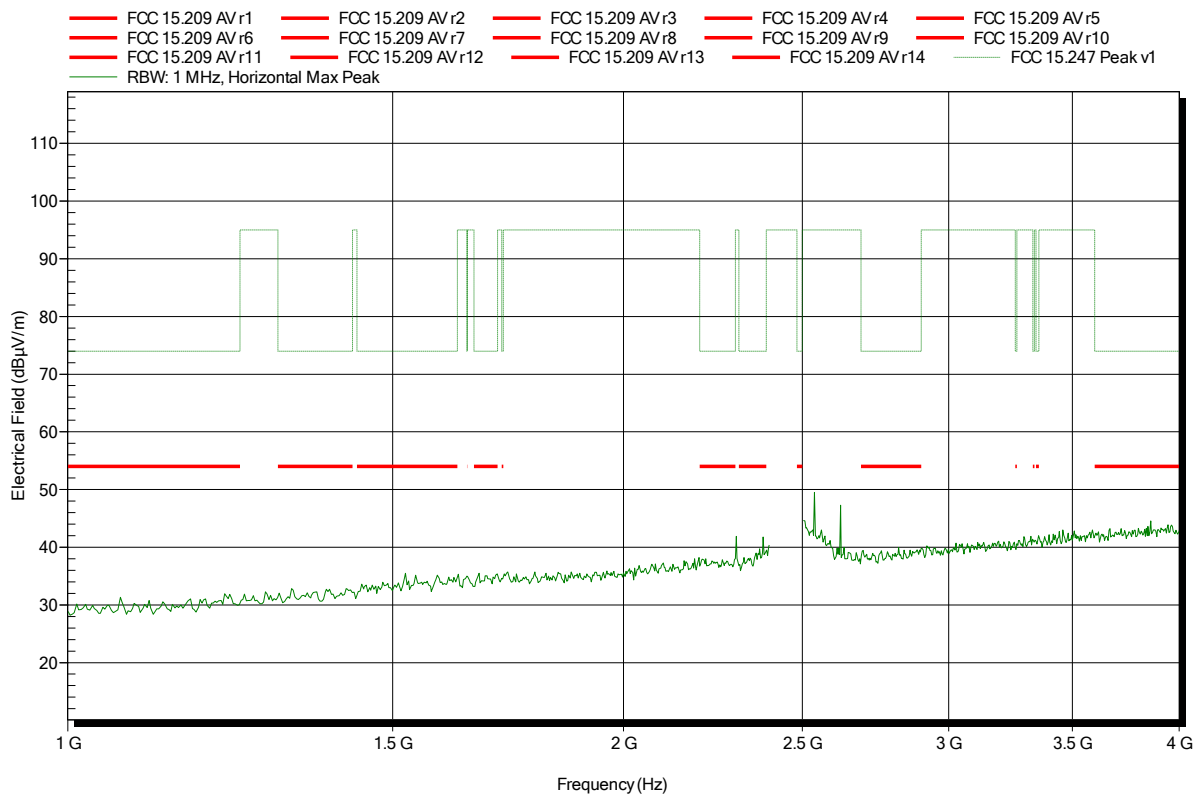


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 11; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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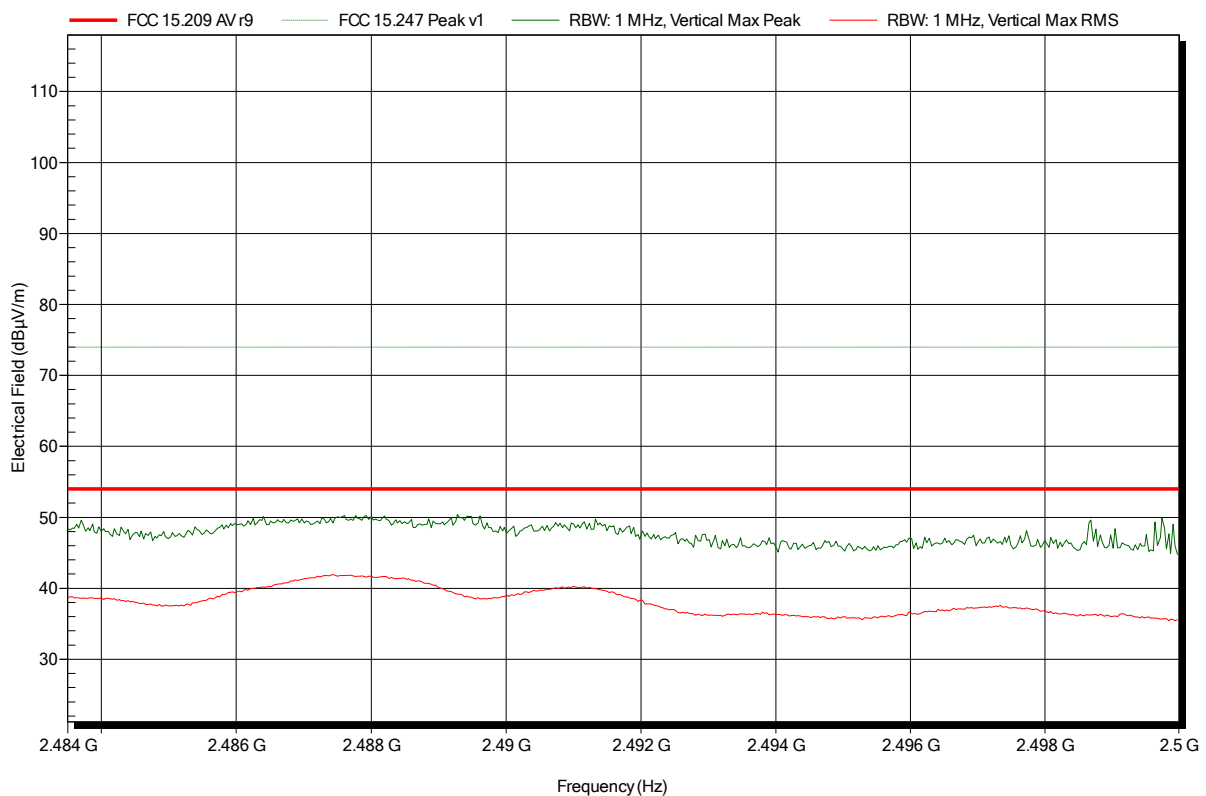


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 11; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical; higher bandedge

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Test Report No.: G0M-1406-3919-TFC247WF-V01

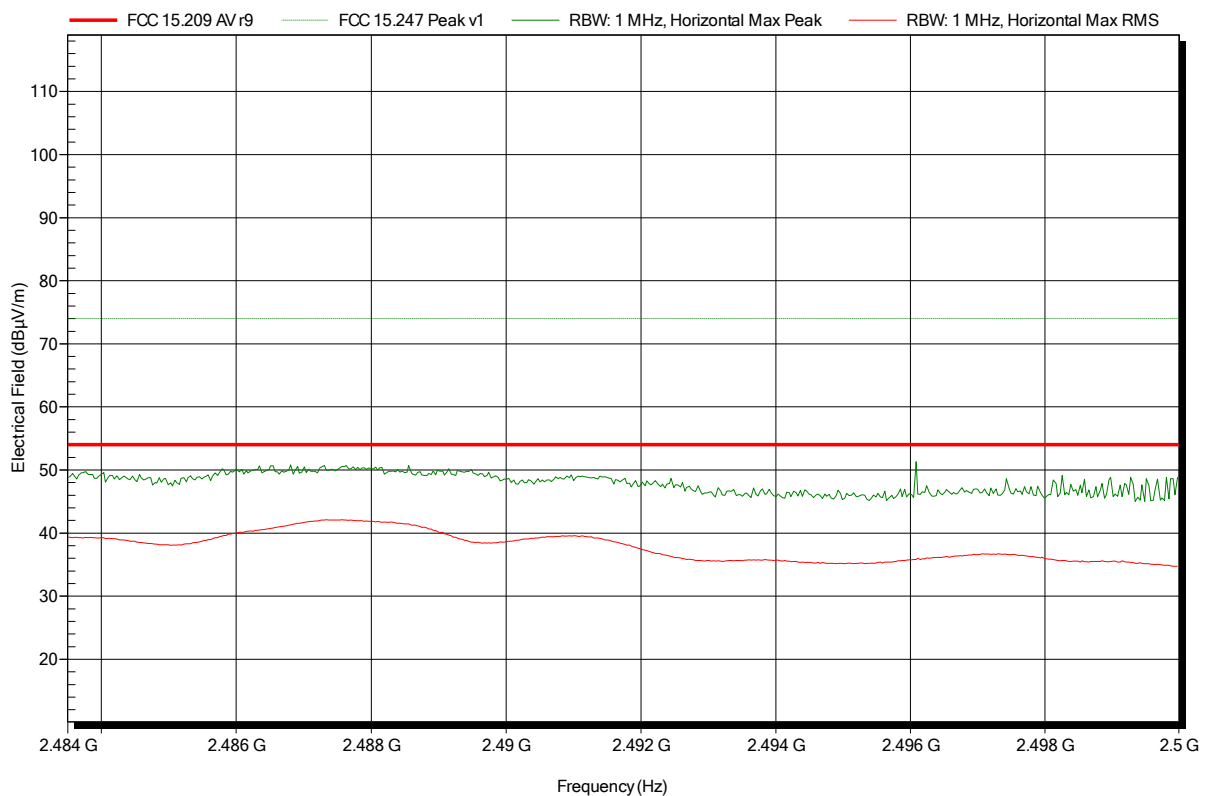
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; WLAN 2.4G; CH: 11; DSSS; 1Mbps
Test Date:	2015-02-27
Note:	EUT vertical; higher bandedge

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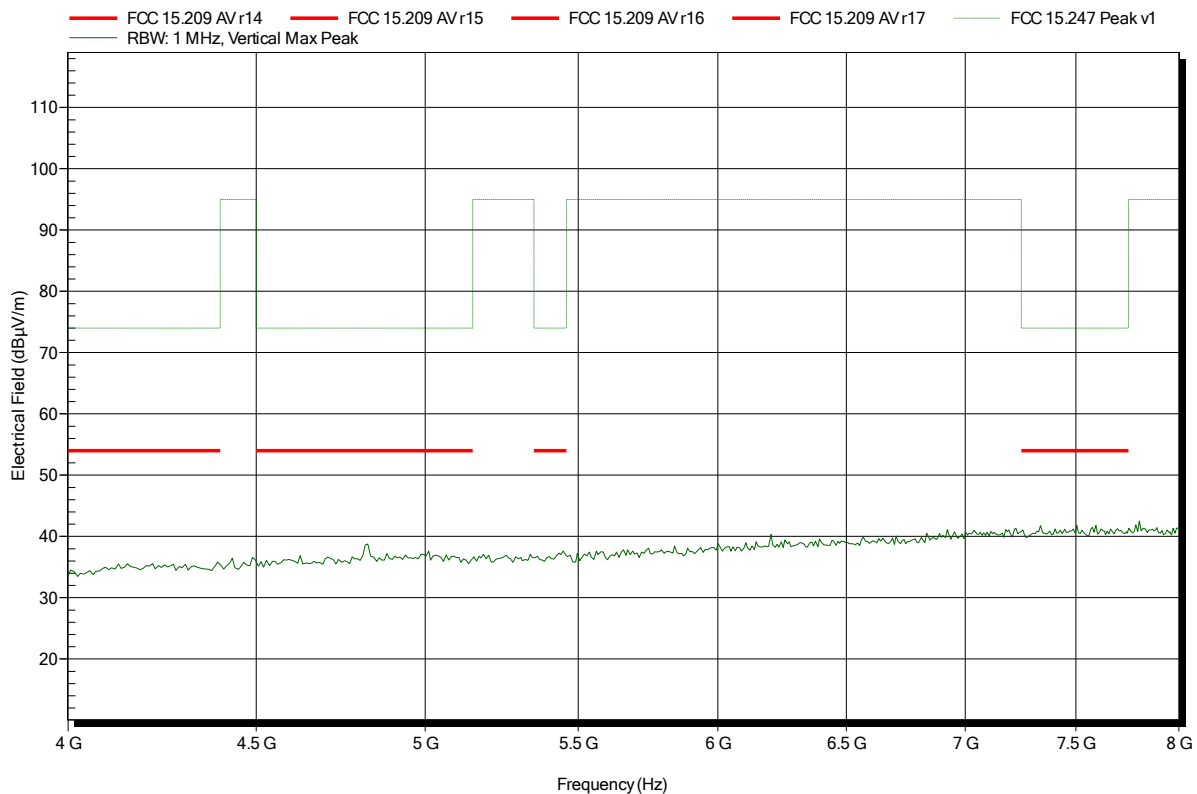


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 1; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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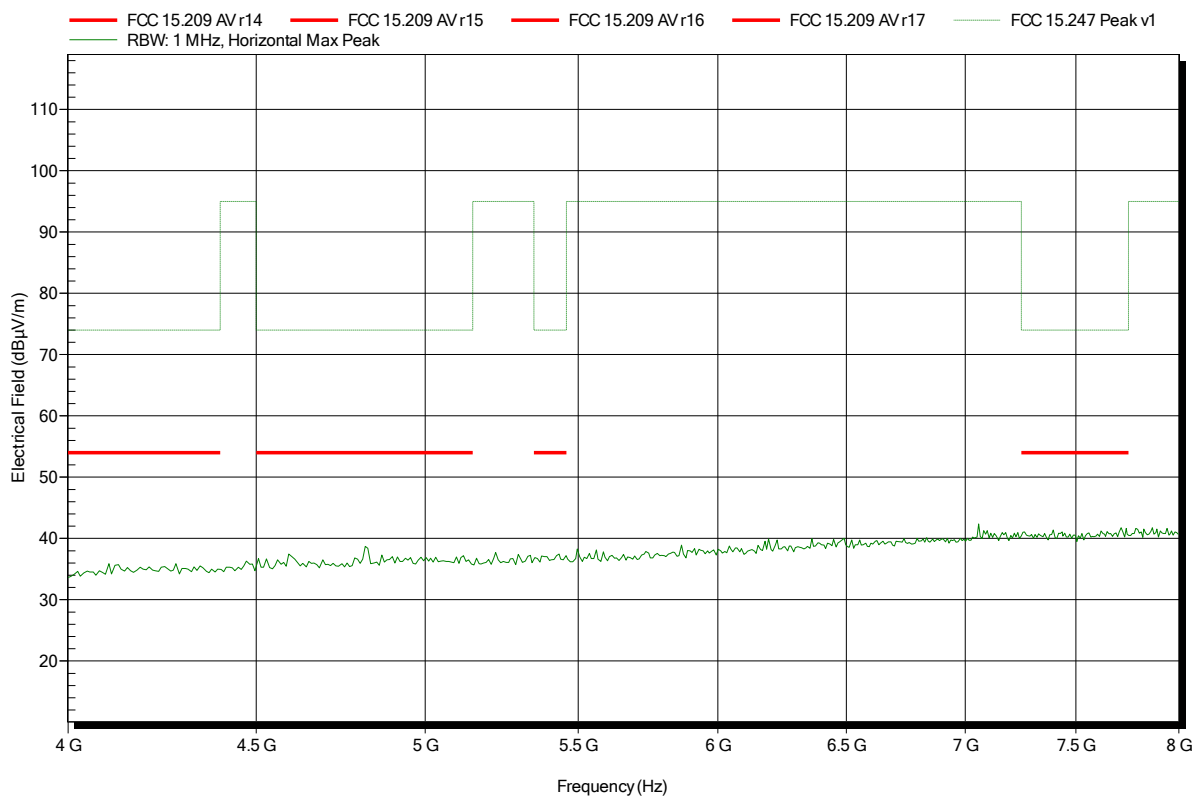


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 1; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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Test Report No.: G0M-1406-3919-TFC247WF-V01

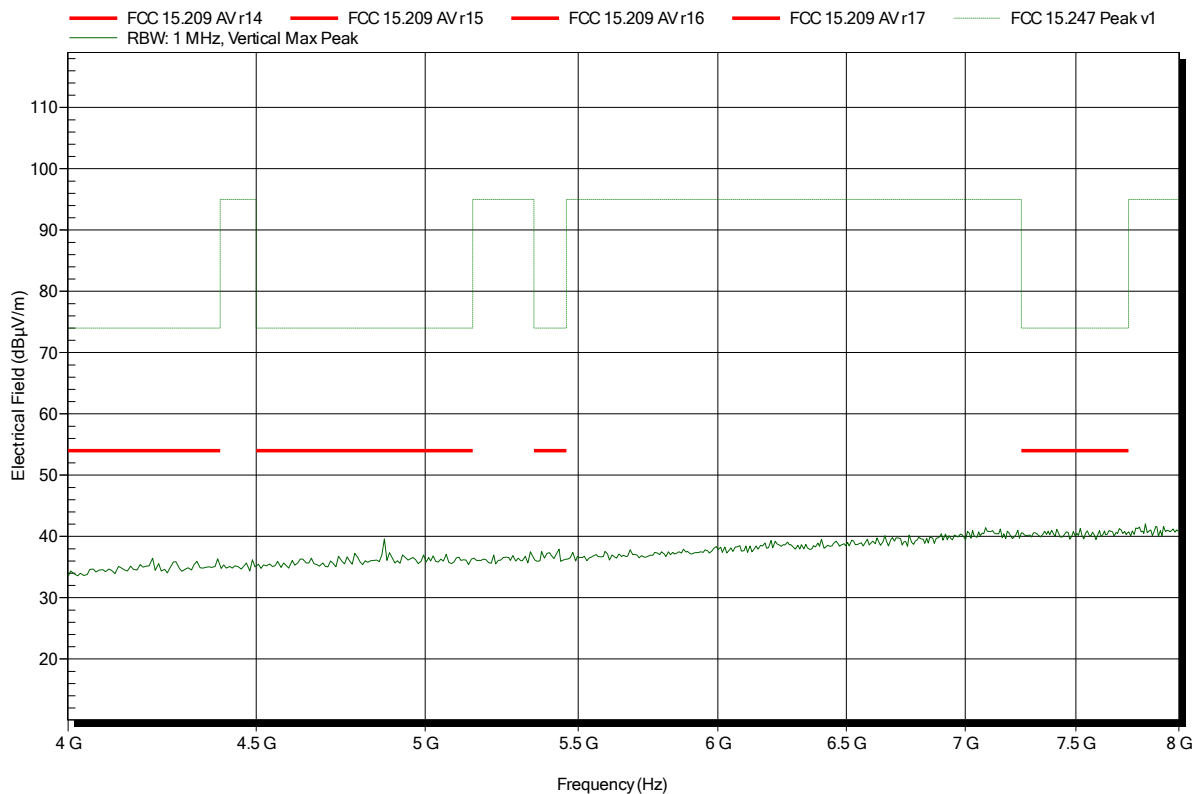
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 6; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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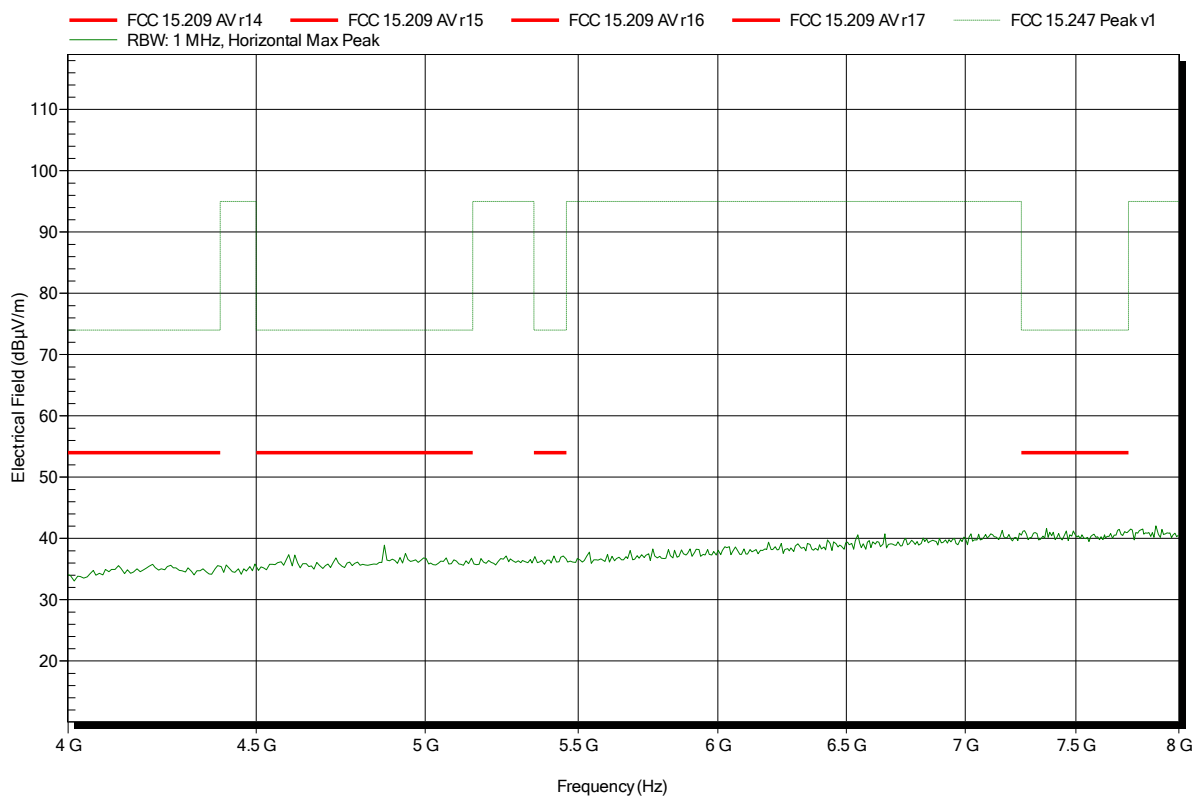


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 6; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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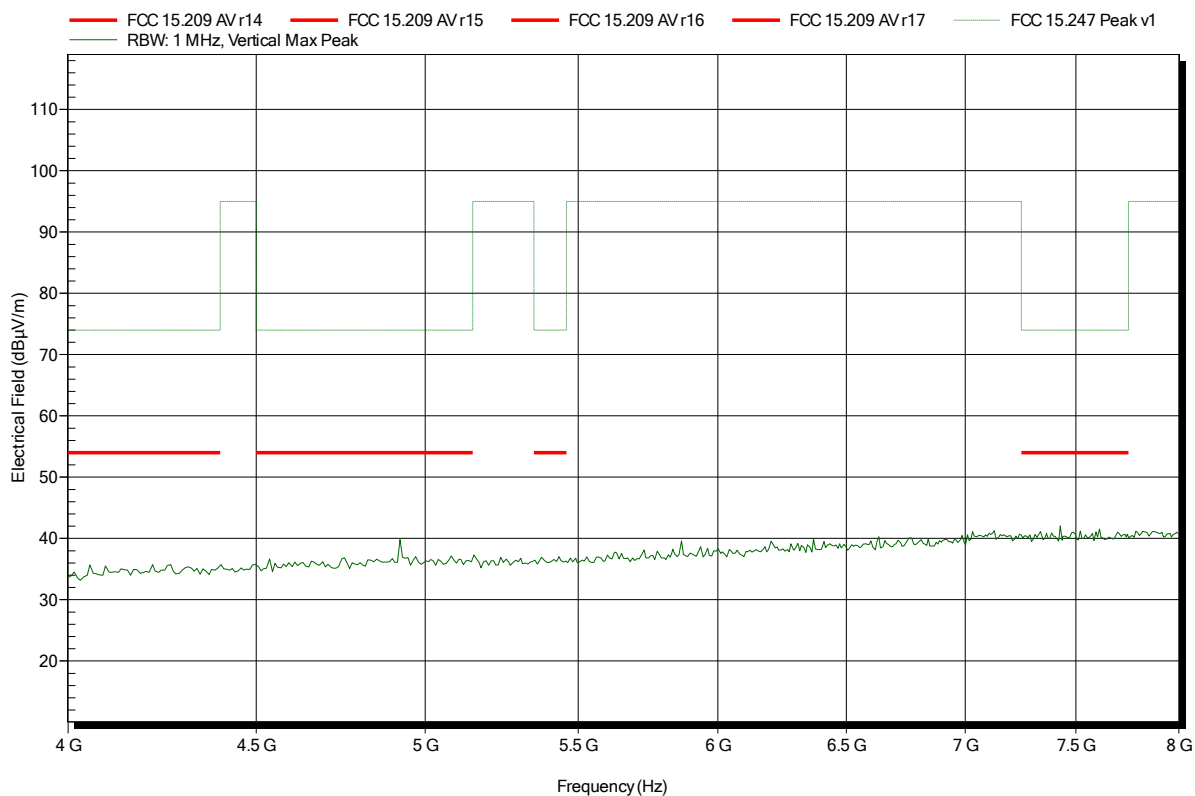


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 11; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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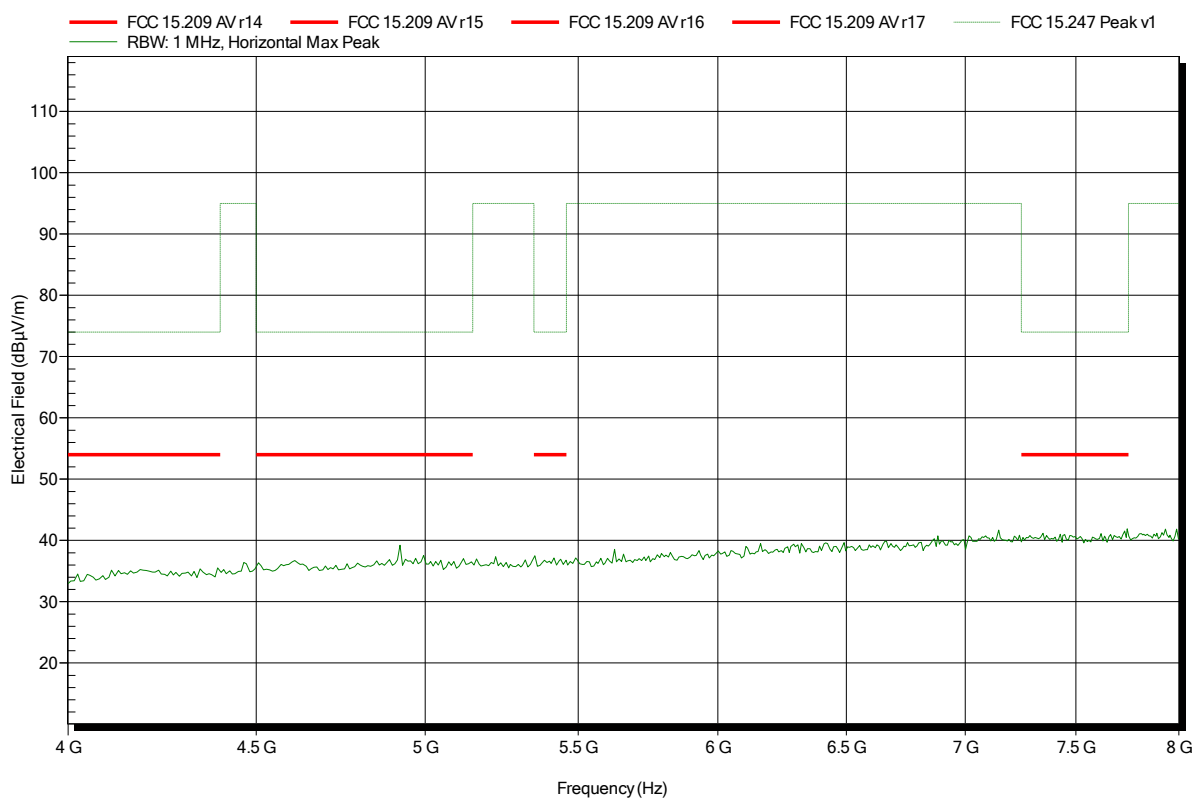


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 11; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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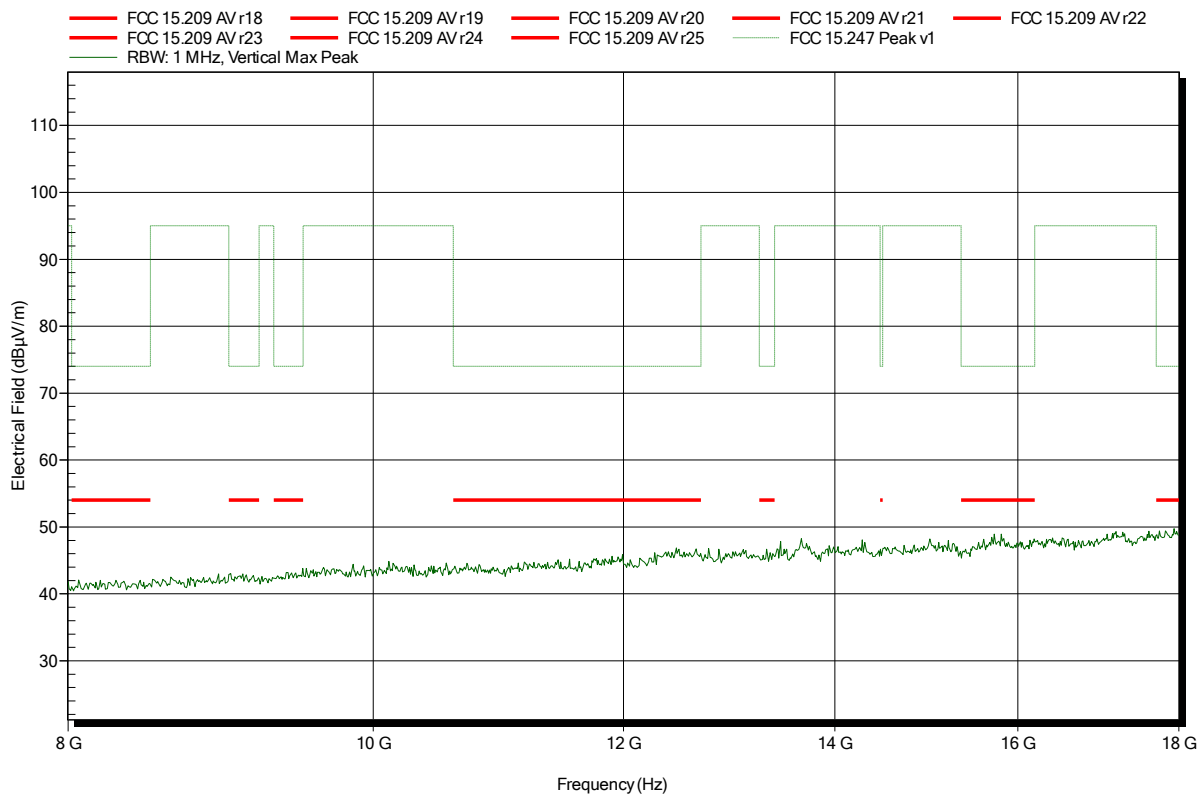


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 1; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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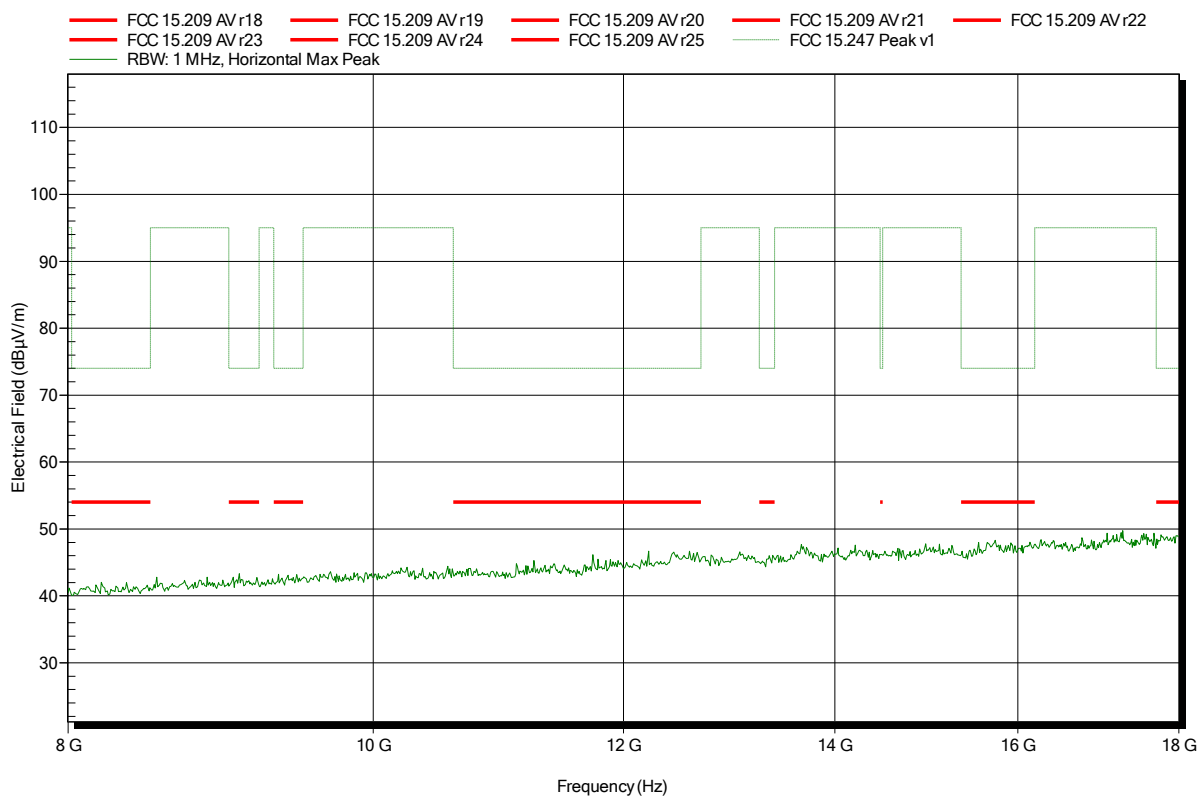


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 1; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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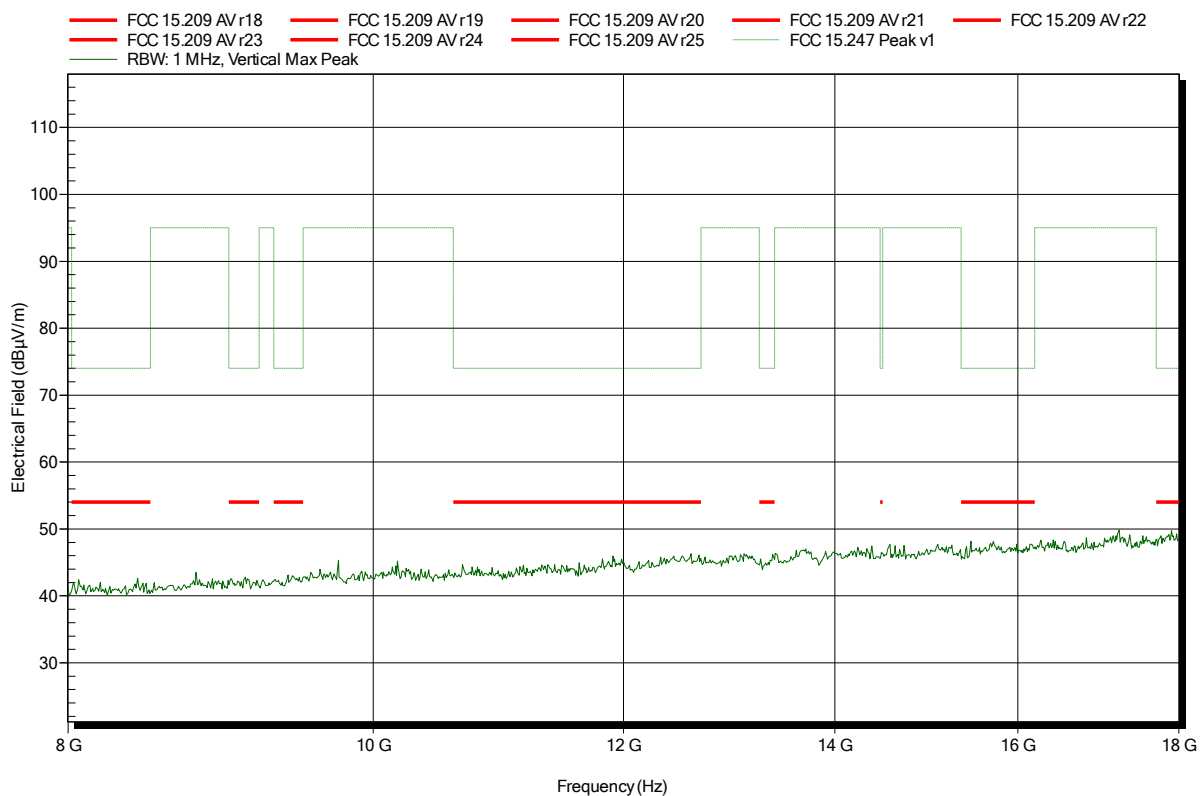


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 6; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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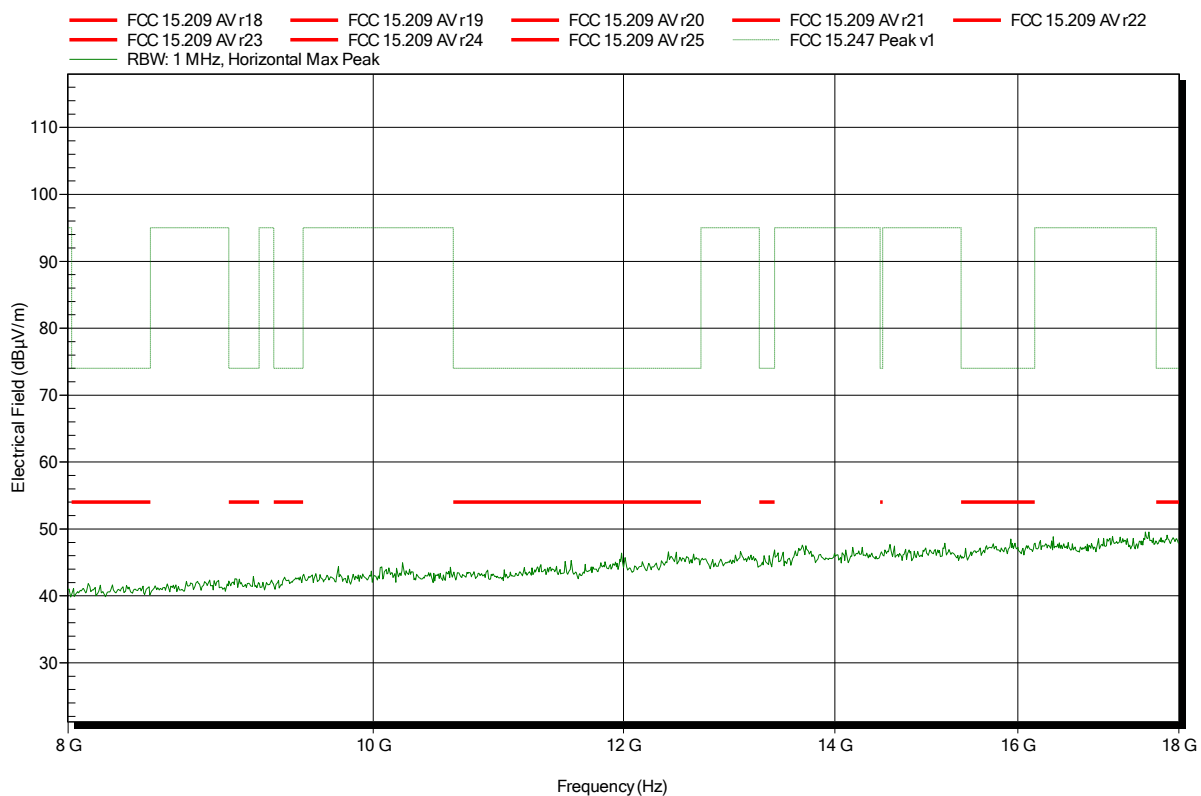


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 6; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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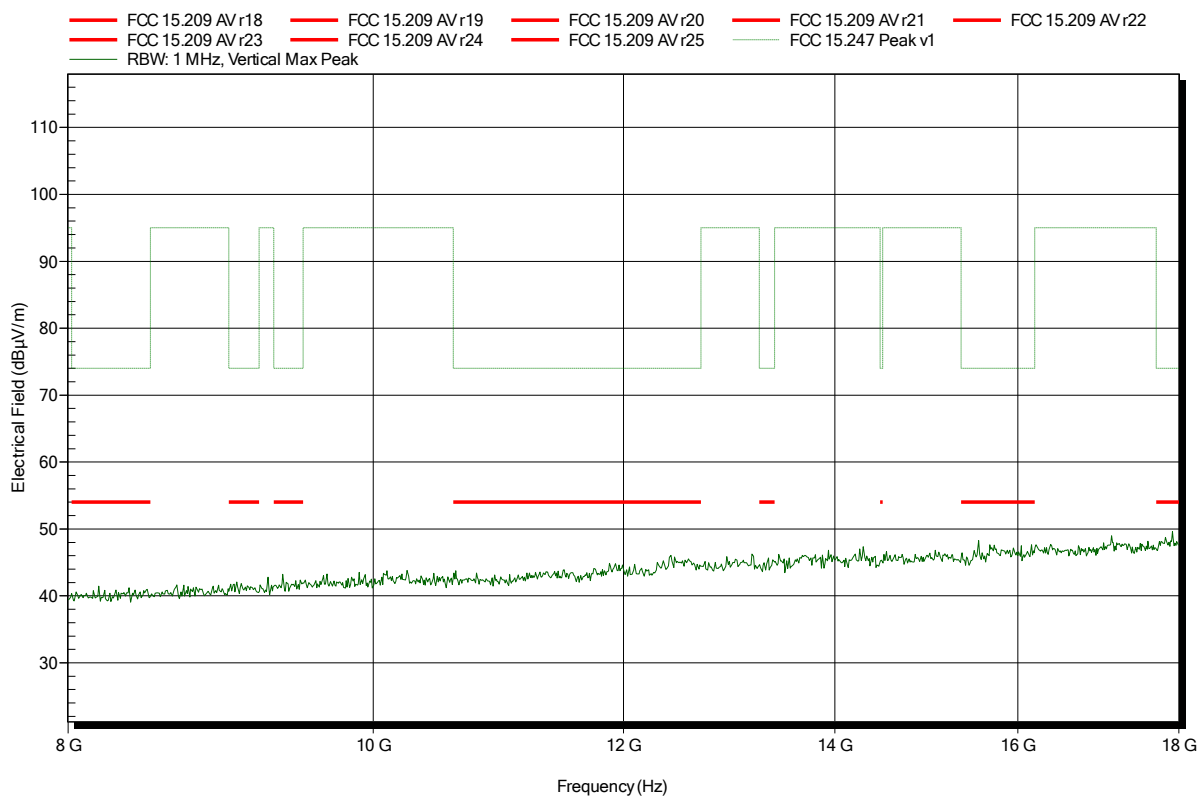


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 11; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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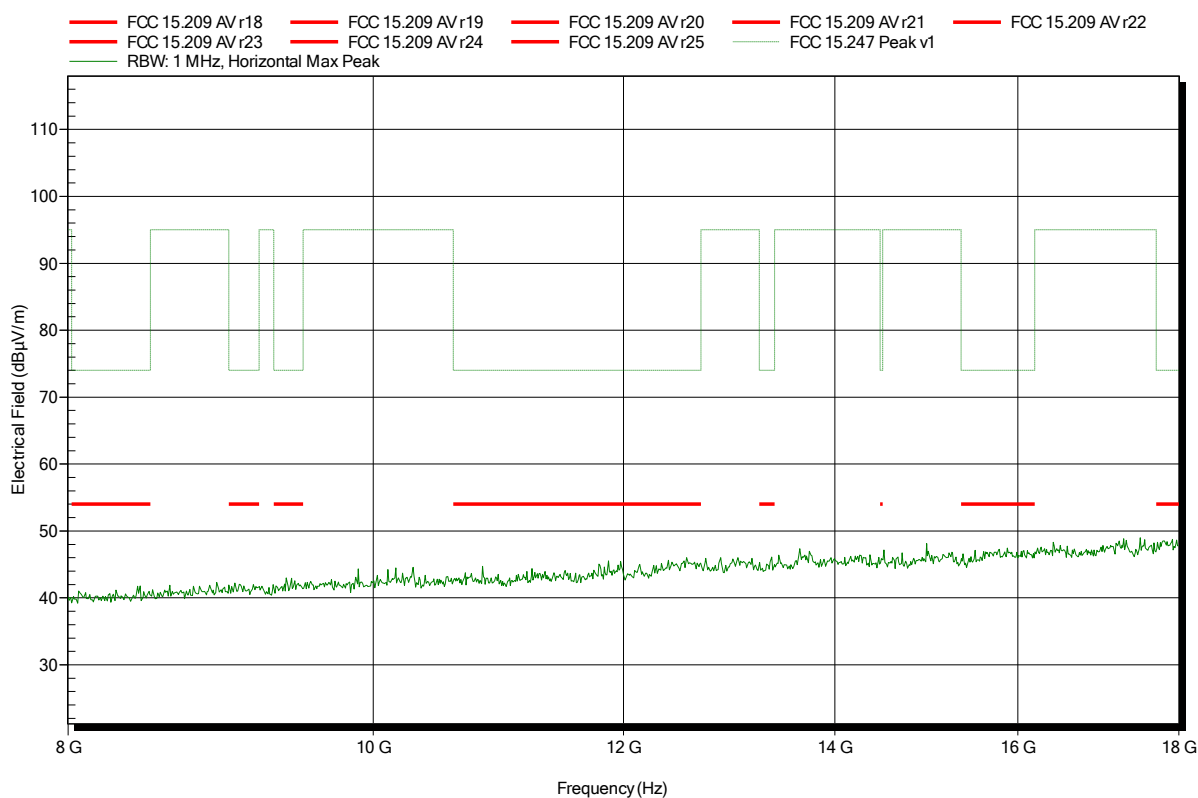


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 11; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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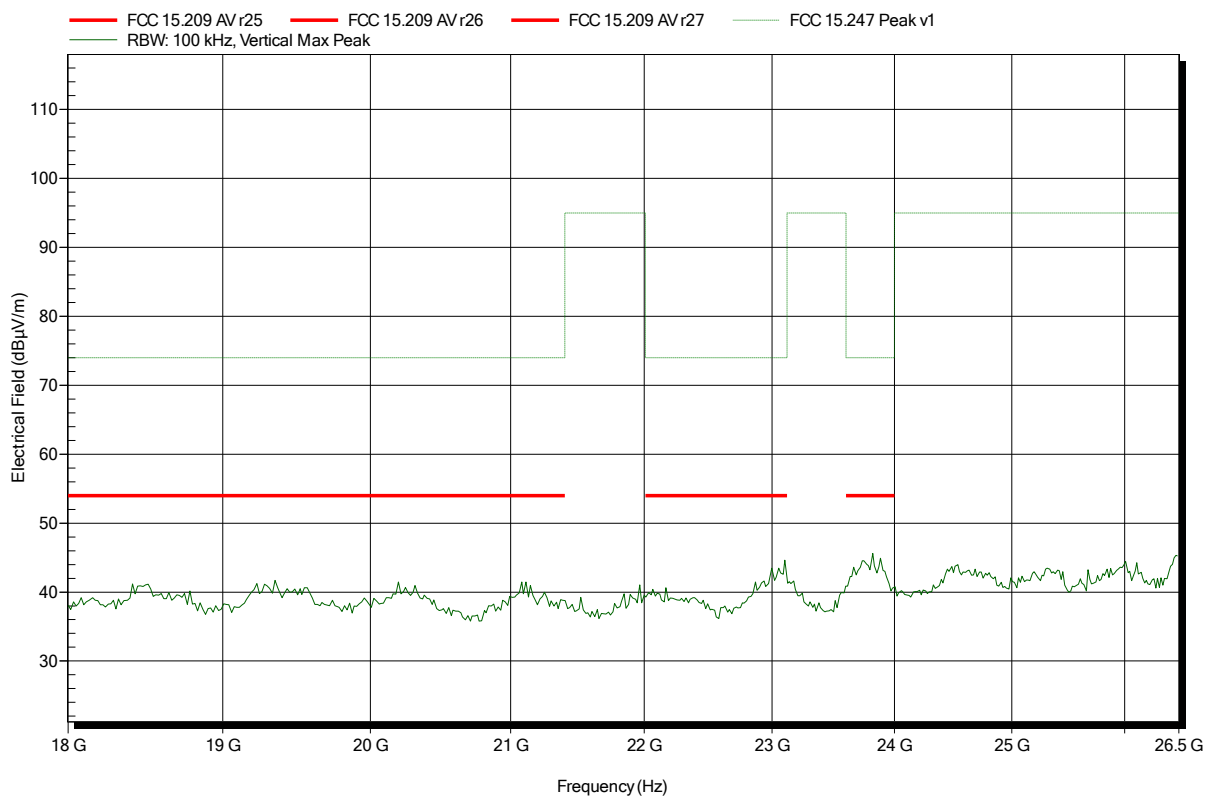


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 1; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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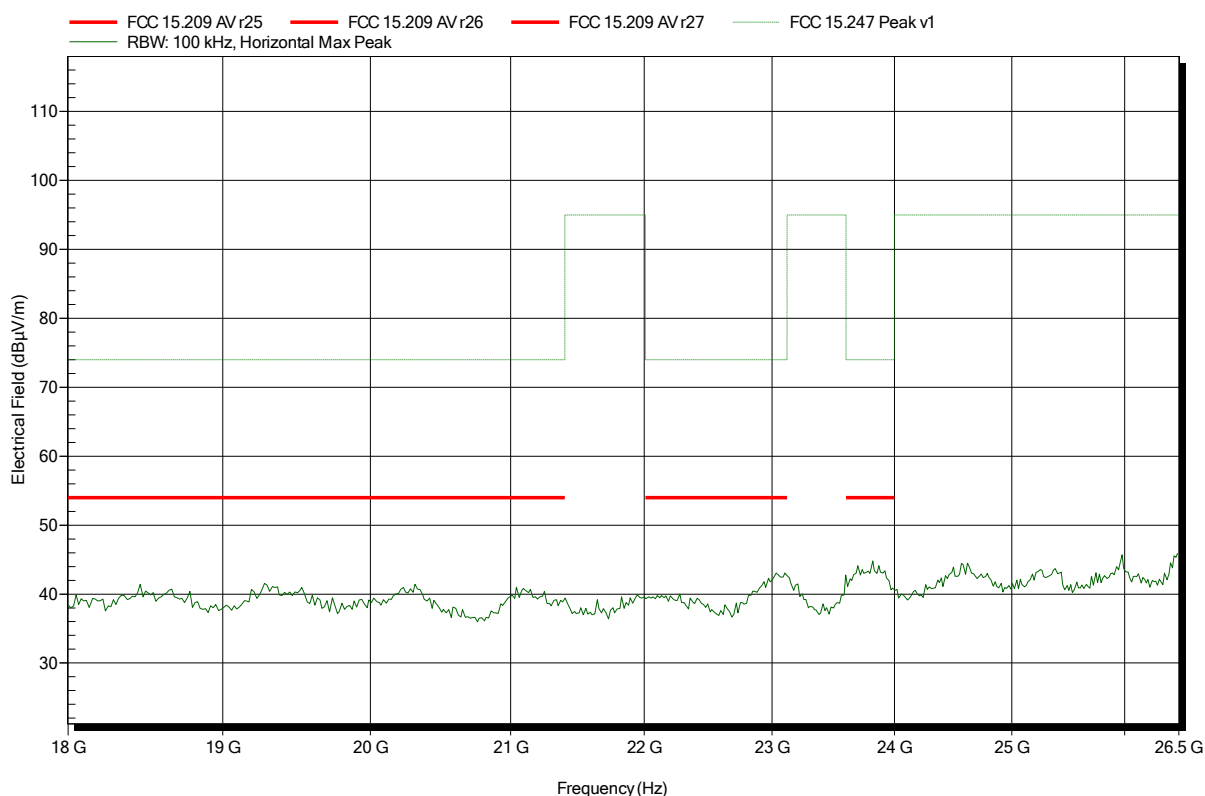


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 1; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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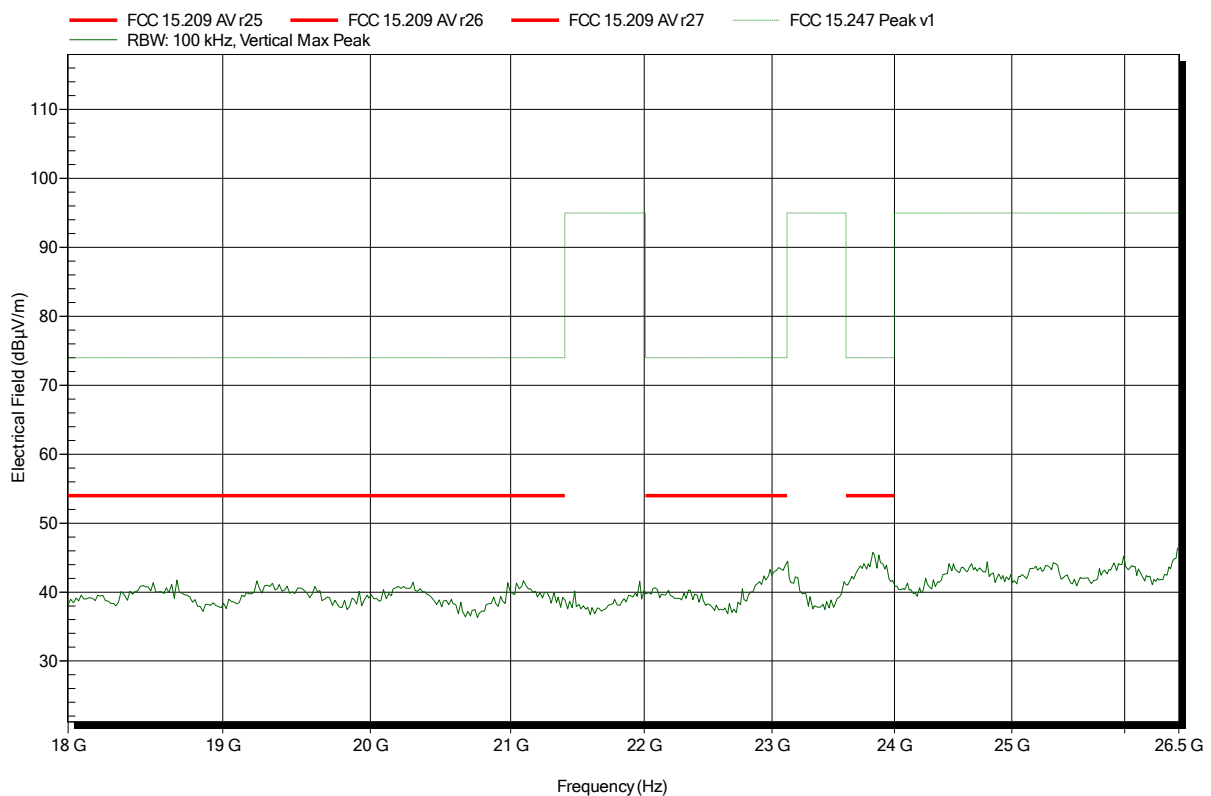


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; WLAN 2.4G; CH: 6; DSSS; 1Mbps
Test Date:	2015-02-27
Note:	EUT vertical

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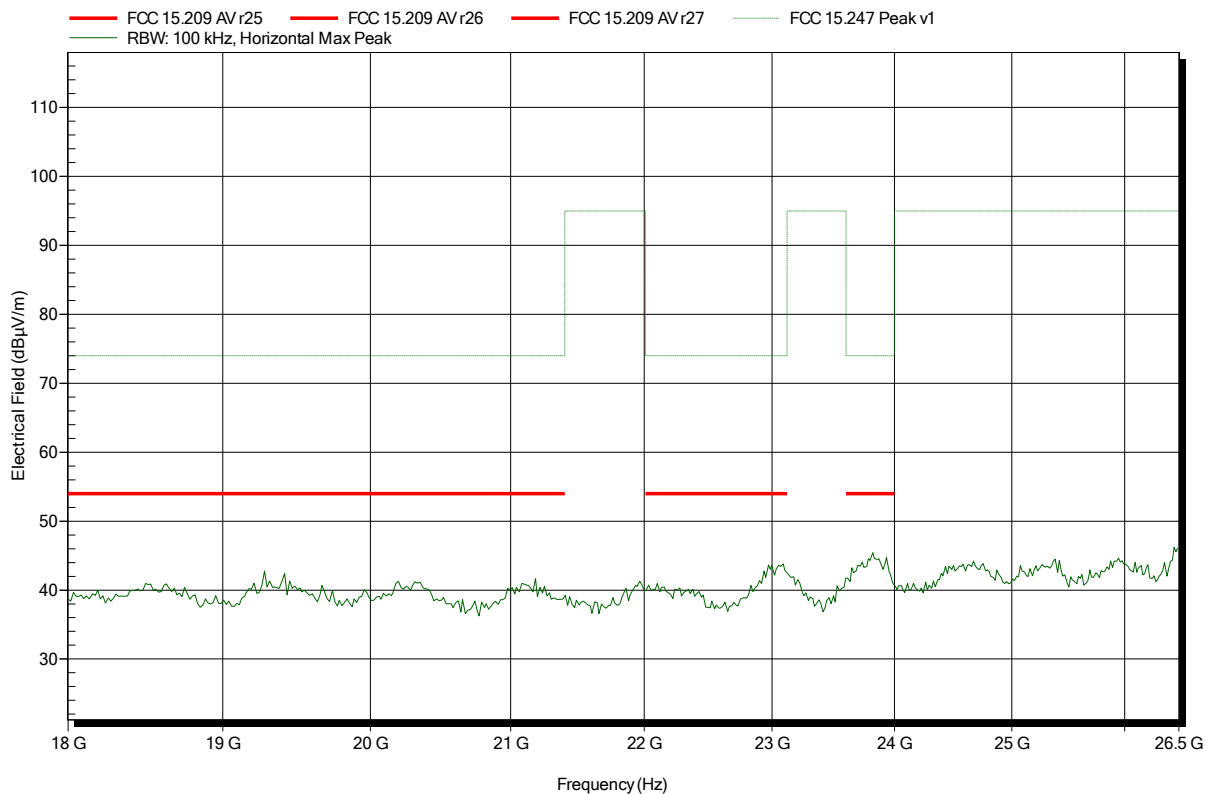


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; WLAN 2.4G; CH: 6; DSSS; 1Mbps
Test Date:	2015-02-27
Note:	EUT vertical

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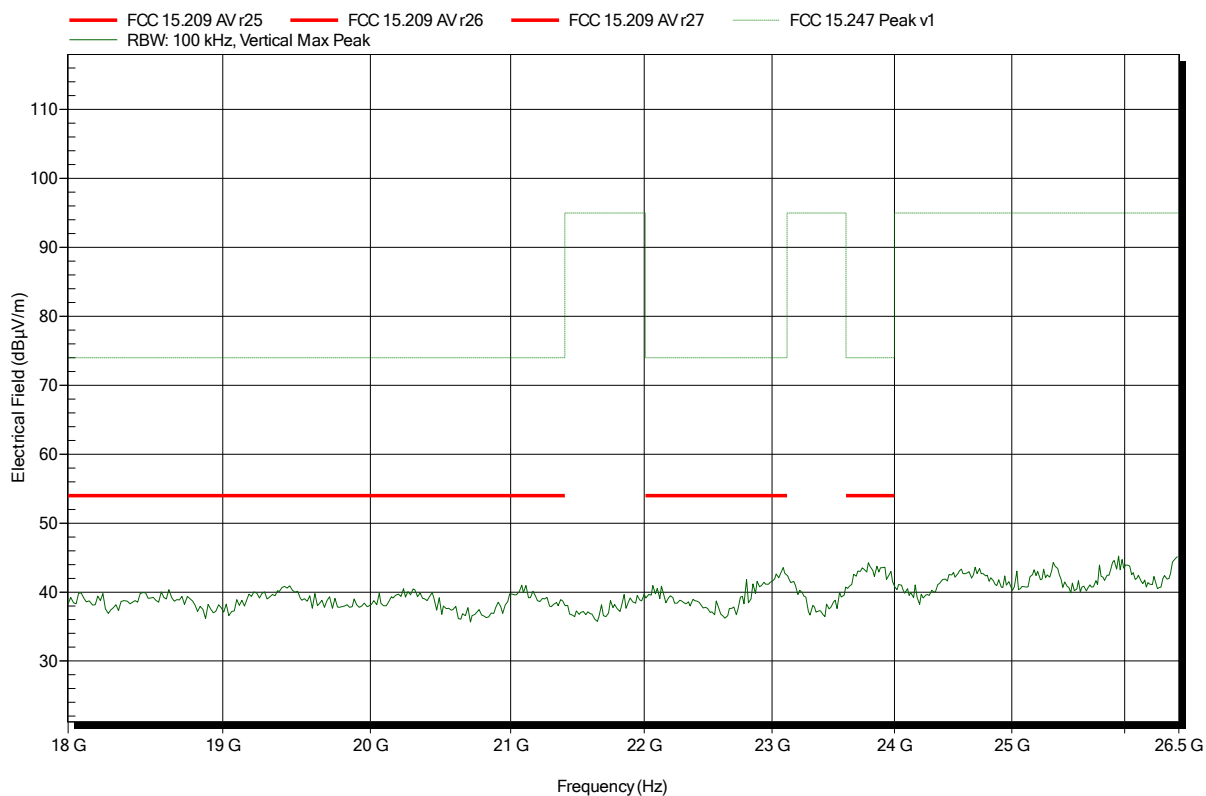


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; WLAN 2.4G; CH: 11; DSSS; 1Mbps
Test Date:	2015-02-27
Note:	EUT vertical

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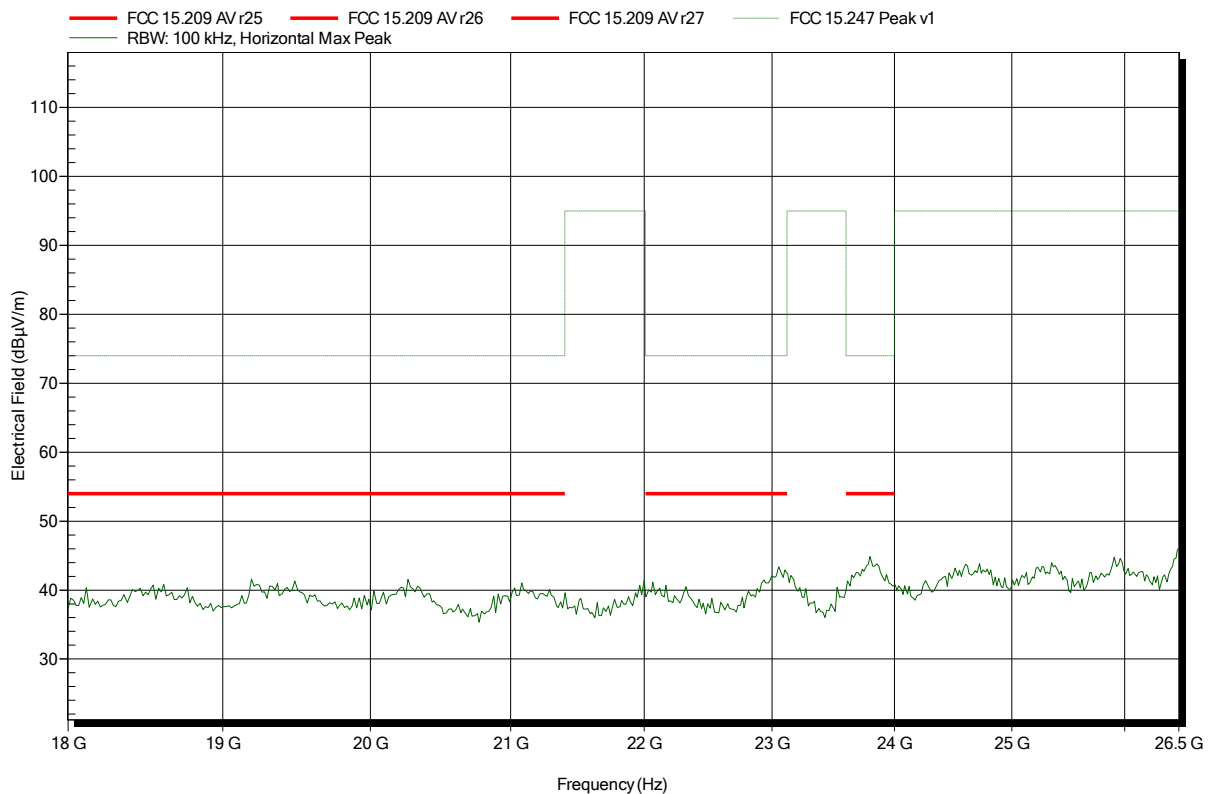


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 11; DSSS; 1Mbps
 Test Date: 2015-02-27
 Note: EUT vertical

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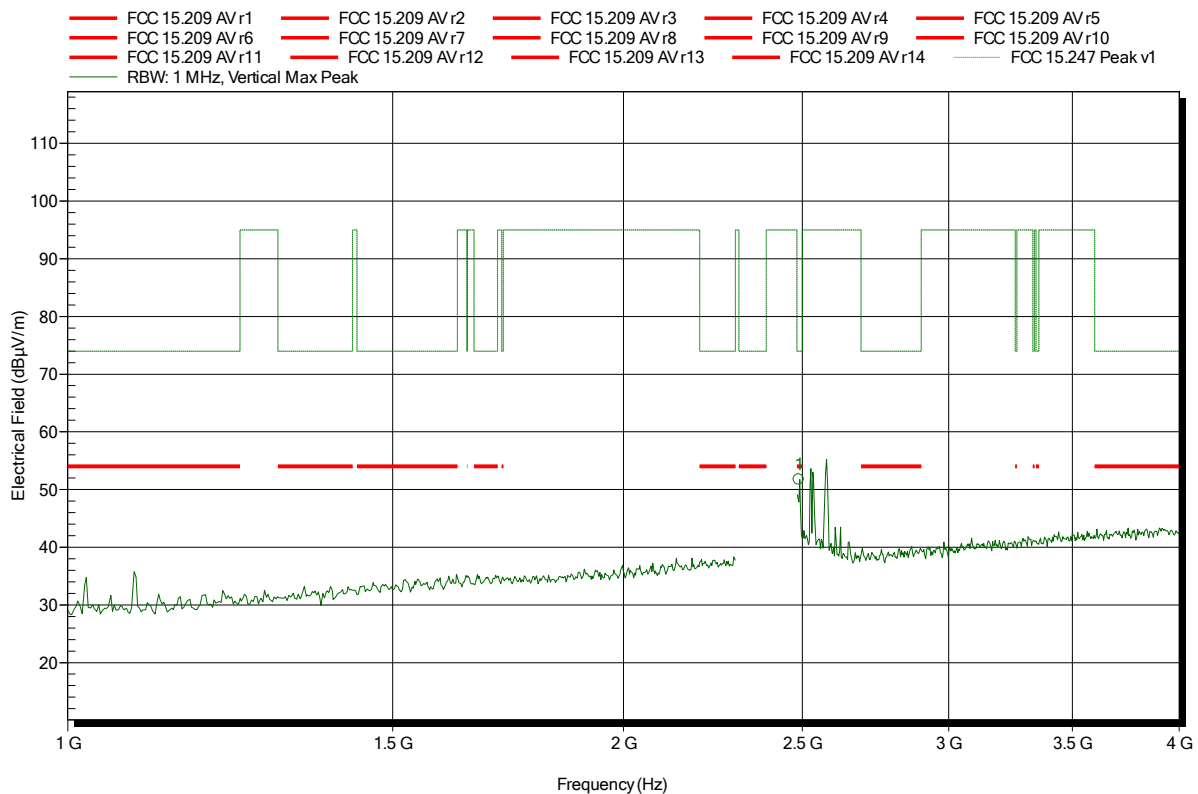


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 1; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.49 GHz	51.73 dBµV/m	74 dBµV/m	-22.27 dB	Pass

Test Report No.: G0M-1406-3919-TFC247WF-V01

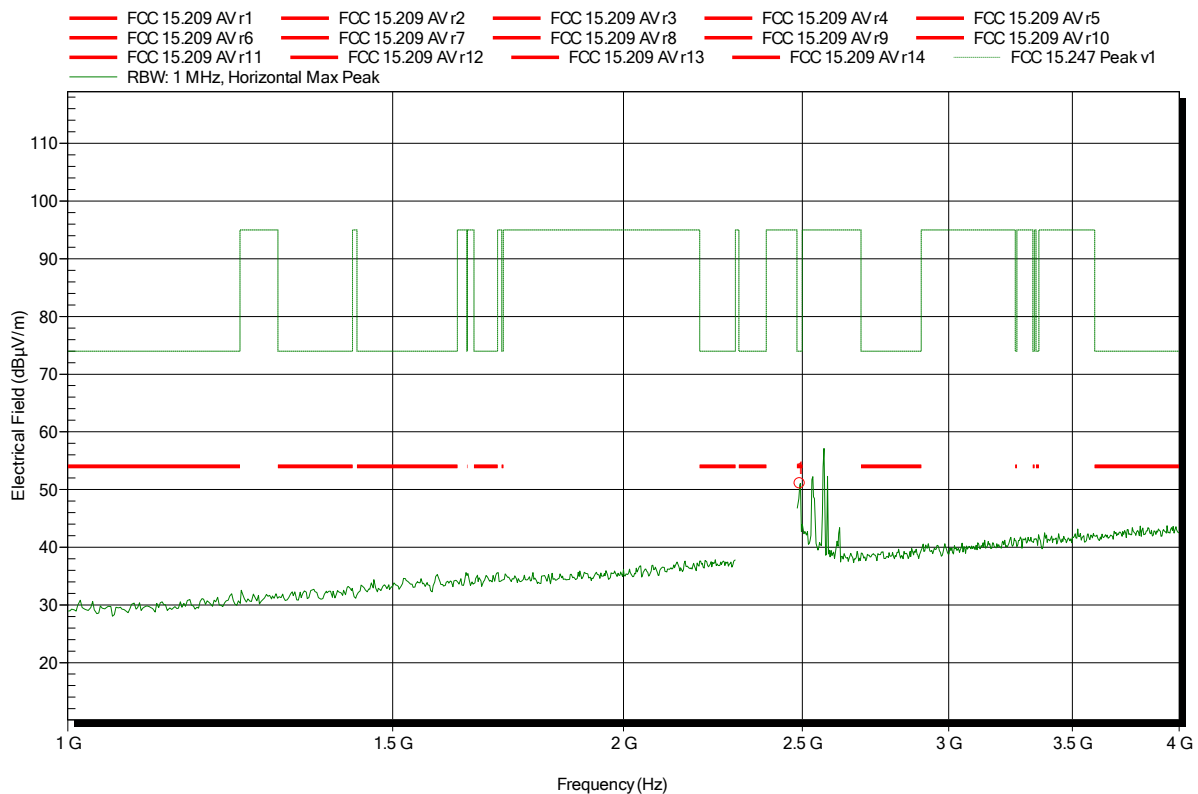
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 1; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.493 GHz	51.08 dBµV/m	74 dBµV/m	-22.92 dB	Pass

Test Report No.: G0M-1406-3919-TFC247WF-V01

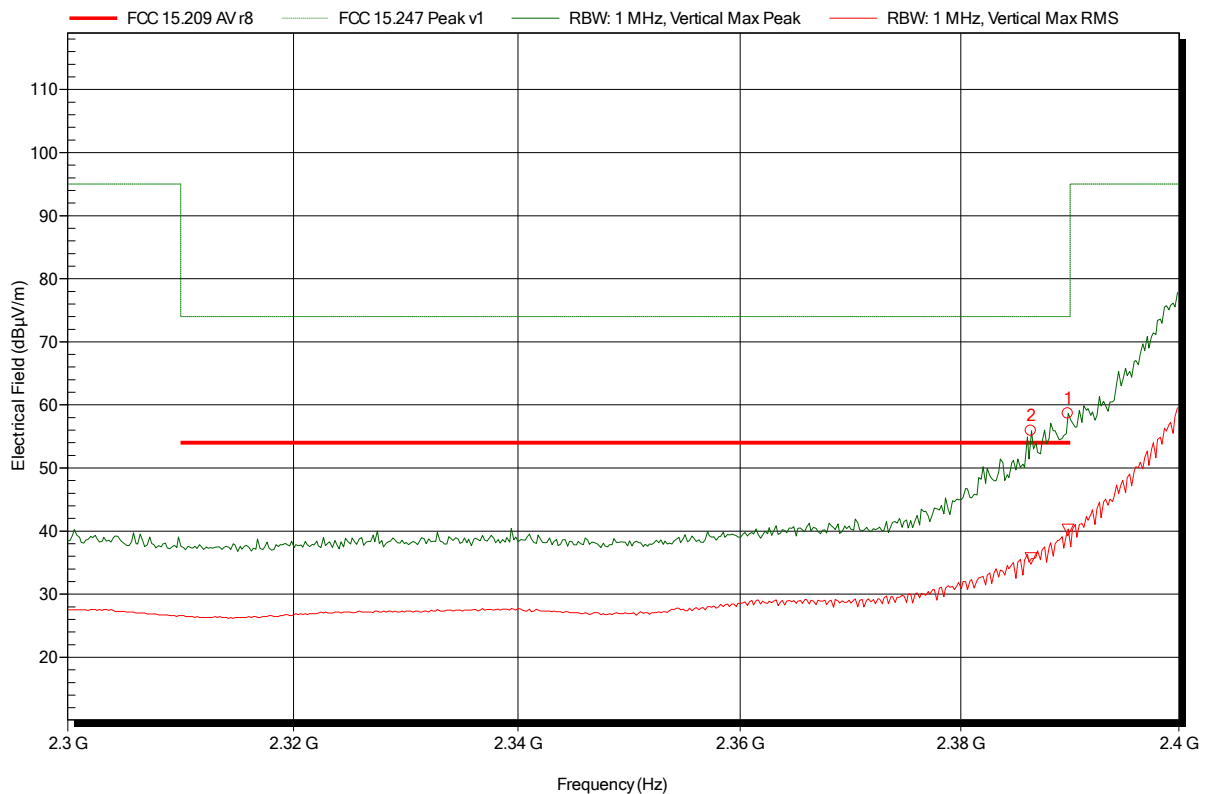
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 1; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical; lower bandedge

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.386 GHz	55.88 dBµV/m	74 dBµV/m	-18.12 dB	Pass
2.39 GHz	58.65 dBµV/m	74 dBµV/m	-15.35 dB	Pass

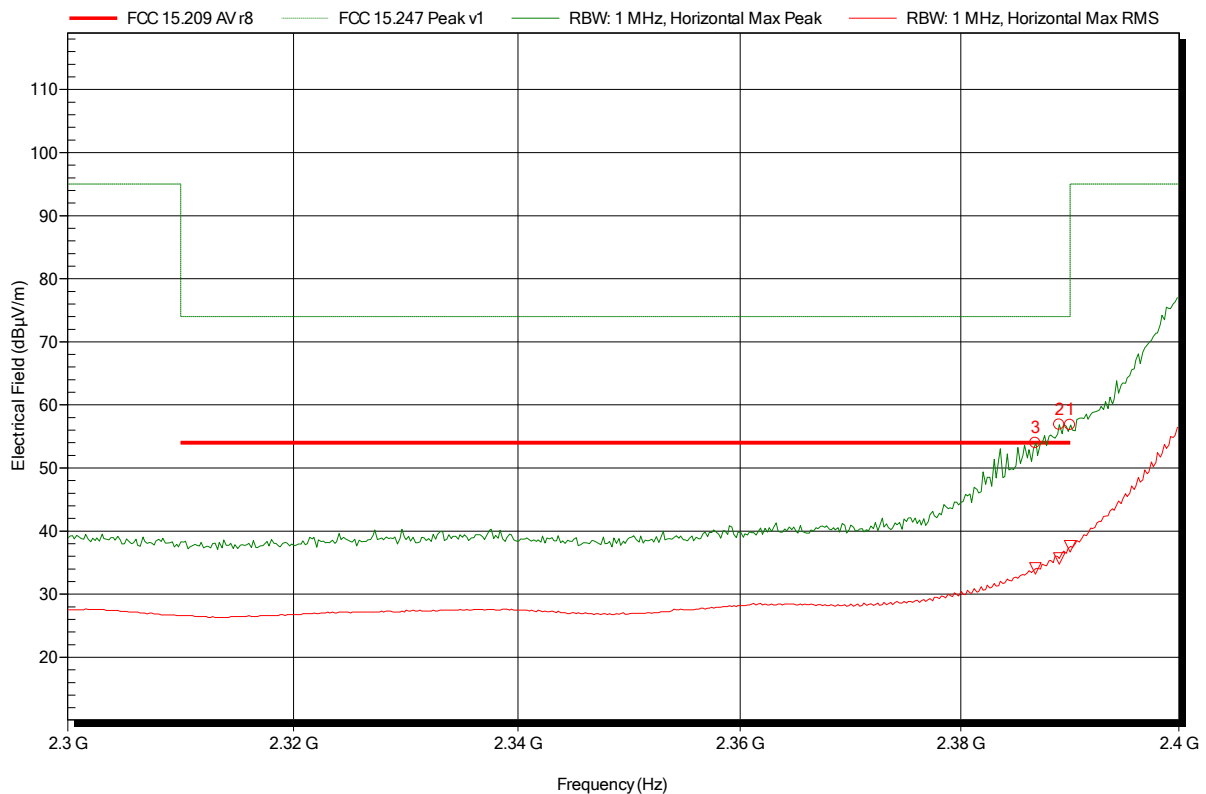
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.386 GHz	35.66 dBµV/m	54 dBµV/m	-18.34 dB	Pass
2.39 GHz	40.2 dBµV/m	54 dBµV/m	-13.8 dB	Pass

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 1; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical; lower bandedge

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.387 GHz	53.95 dBµV/m	74 dBµV/m	-20.05 dB	Pass
2.389 GHz	56.86 dBµV/m	74 dBµV/m	-17.14 dB	Pass
2.39 GHz	56.82 dBµV/m	74 dBµV/m	-17.18 dB	Pass

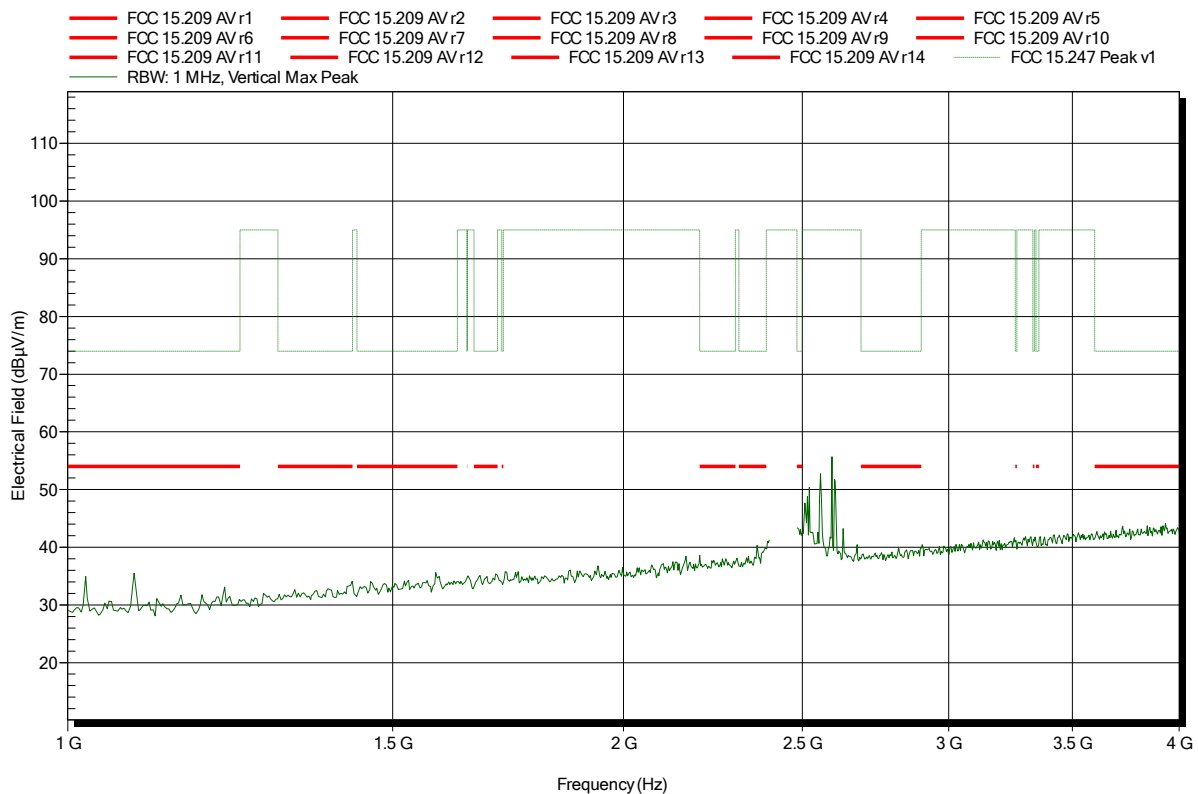
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.387 GHz	34.1 dBµV/m	54 dBµV/m	-19.9 dB	Pass
2.389 GHz	35.67 dBµV/m	54 dBµV/m	-18.33 dB	Pass
2.39 GHz	37.57 dBµV/m	54 dBµV/m	-16.43 dB	Pass

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 6; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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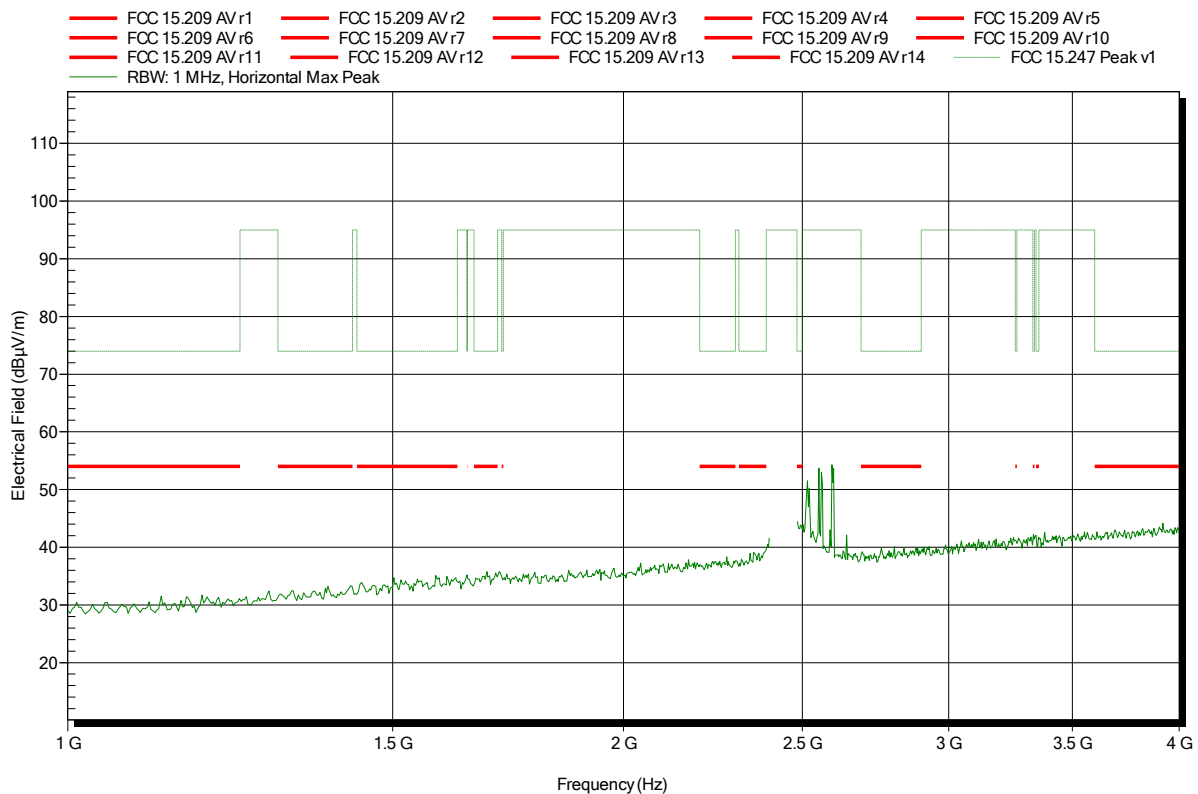


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 6; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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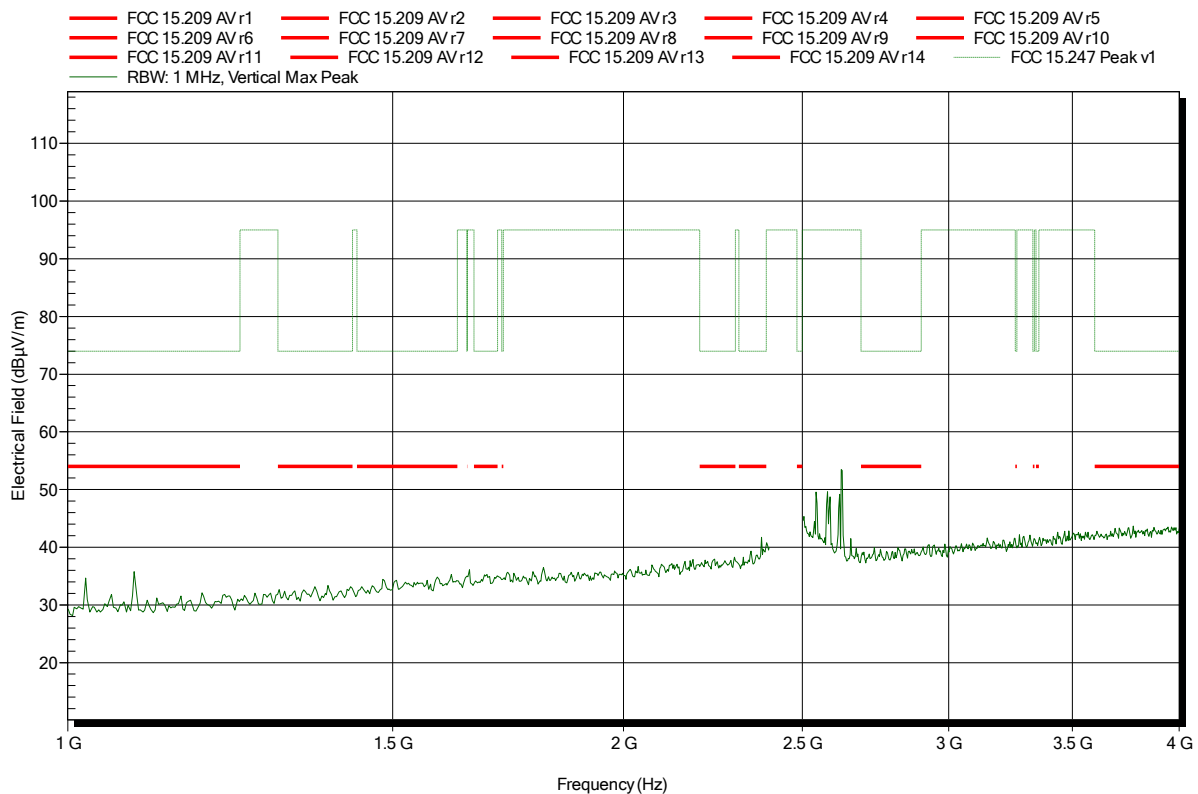


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 11; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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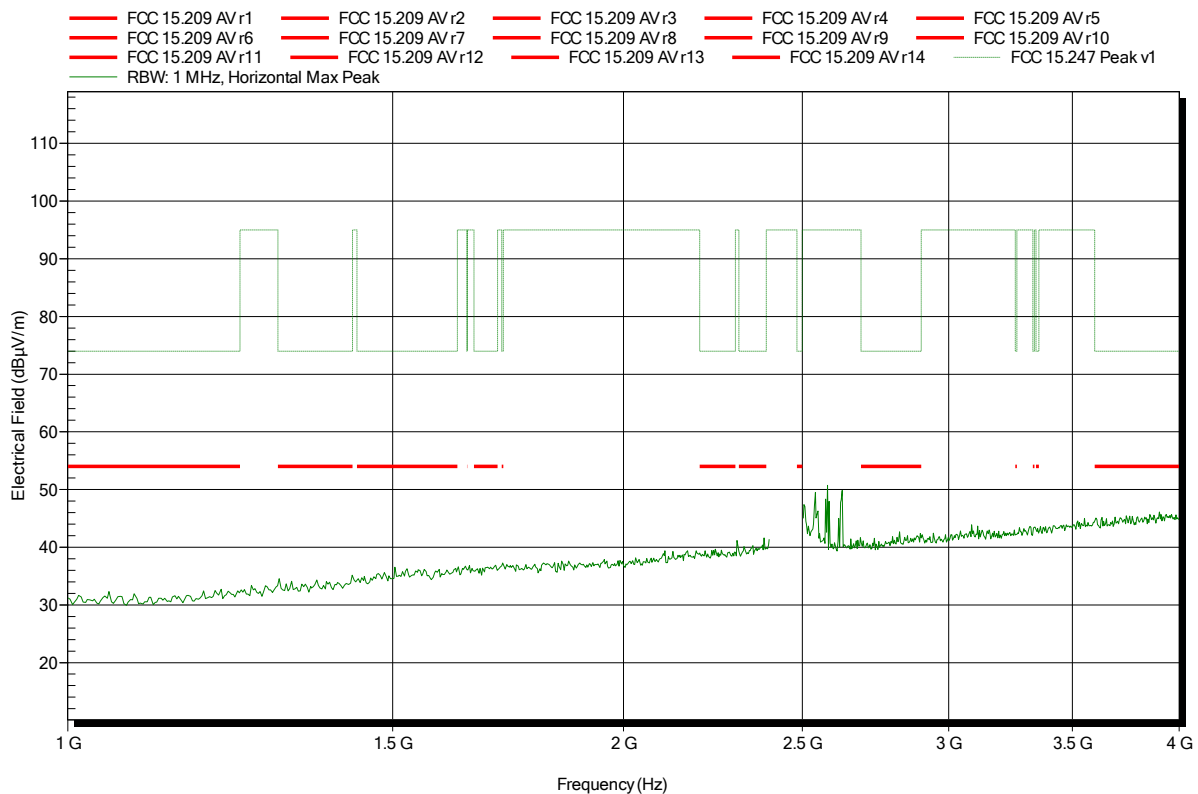


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 11; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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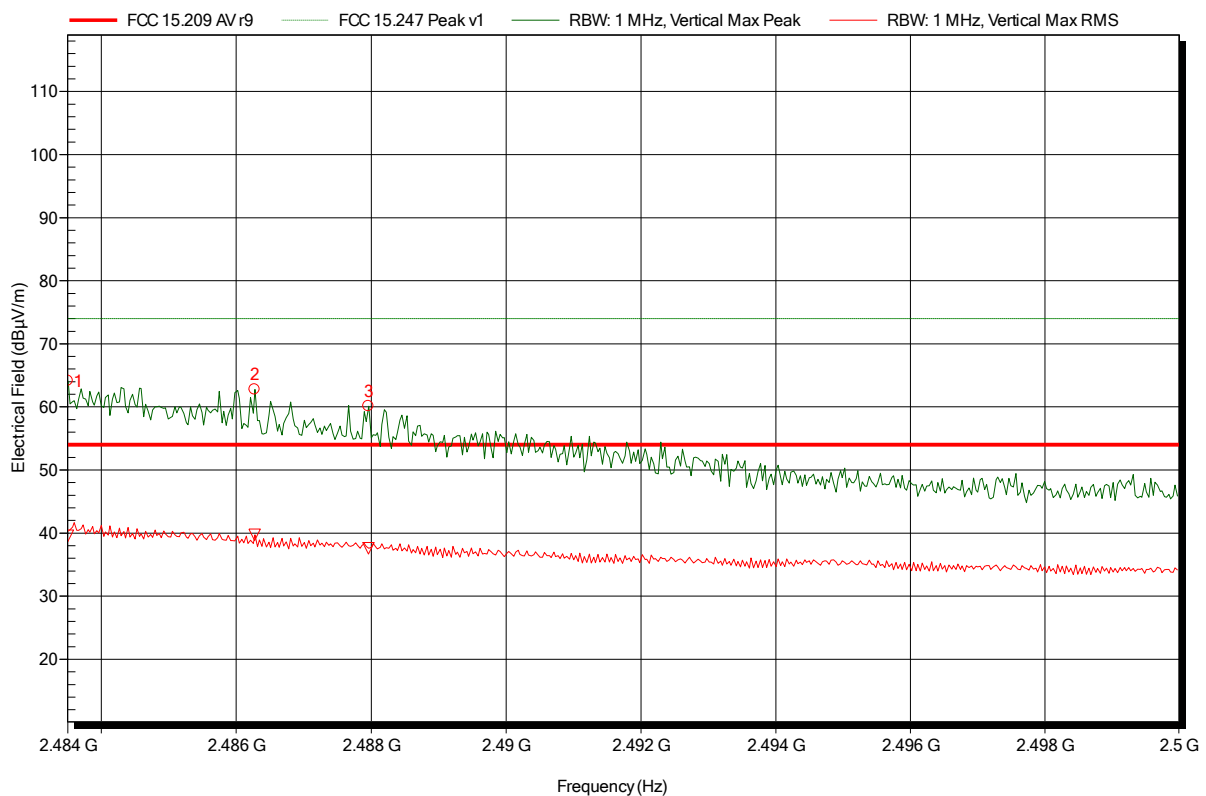


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 11; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical; higher bandedge

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.484 GHz	64.15 dBμV/m	74 dBμV/m	-9.85 dB	Pass
2.486 GHz	62.76 dBμV/m	74 dBμV/m	-11.24 dB	Pass
2.488 GHz	60.15 dBμV/m	74 dBμV/m	-13.85 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.484 GHz	39.56 dBμV/m	54 dBμV/m	-14.44 dB	Pass
2.486 GHz	39.71 dBμV/m	54 dBμV/m	-14.29 dB	Pass
2.488 GHz	37.57 dBμV/m	54 dBμV/m	-16.43 dB	Pass

Test Report No.: G0M-1406-3919-TFC247WF-V01

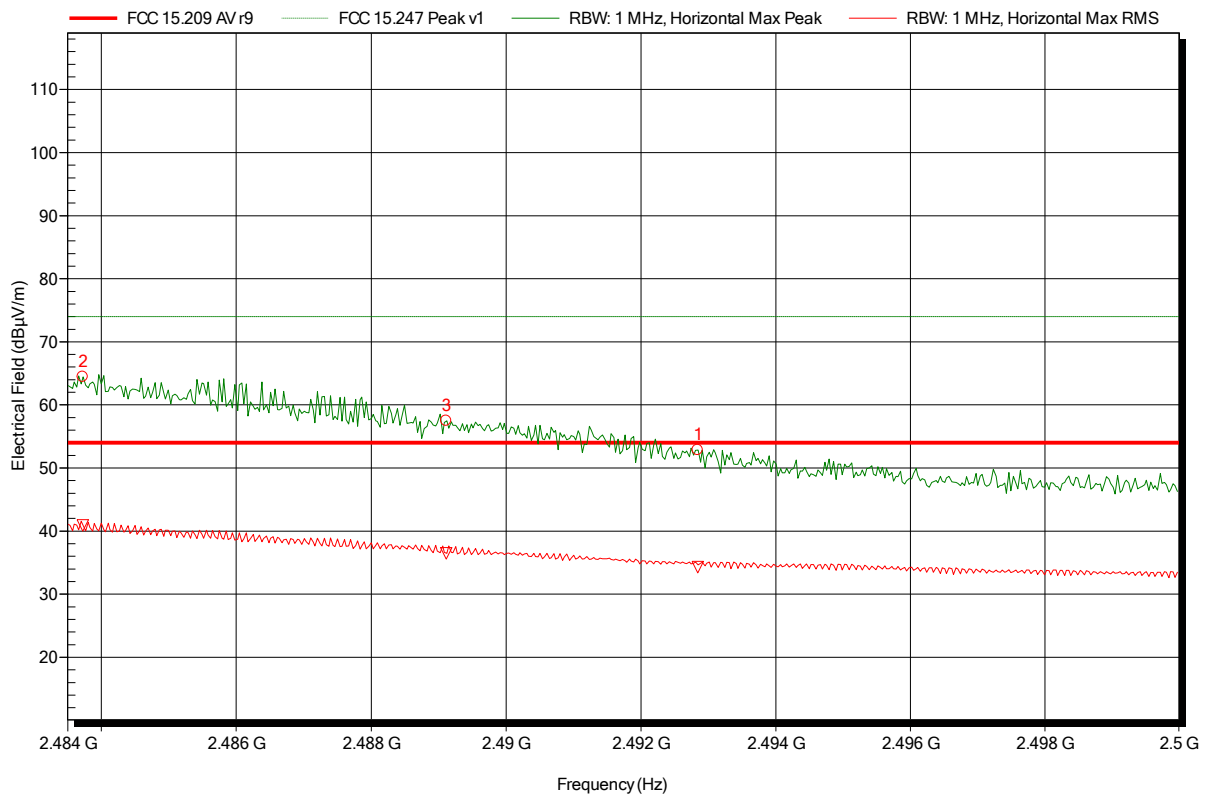
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4G; CH: 11; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical; higher bandedge

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.484 GHz	64.42 dBμV/m	74 dBμV/m	-9.58 dB	Pass
2.489 GHz	57.5 dBμV/m	74 dBμV/m	-16.5 dB	Pass
2.493 GHz	52.86 dBμV/m	74 dBμV/m	-21.14 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.484 GHz	40.9 dBμV/m	54 dBμV/m	-13.1 dB	Pass
2.489 GHz	36.49 dBμV/m	54 dBμV/m	-17.51 dB	Pass
2.493 GHz	34.28 dBμV/m	54 dBμV/m	-19.72 dB	Pass

Test Report No.: G0M-1406-3919-TFC247WF-V01

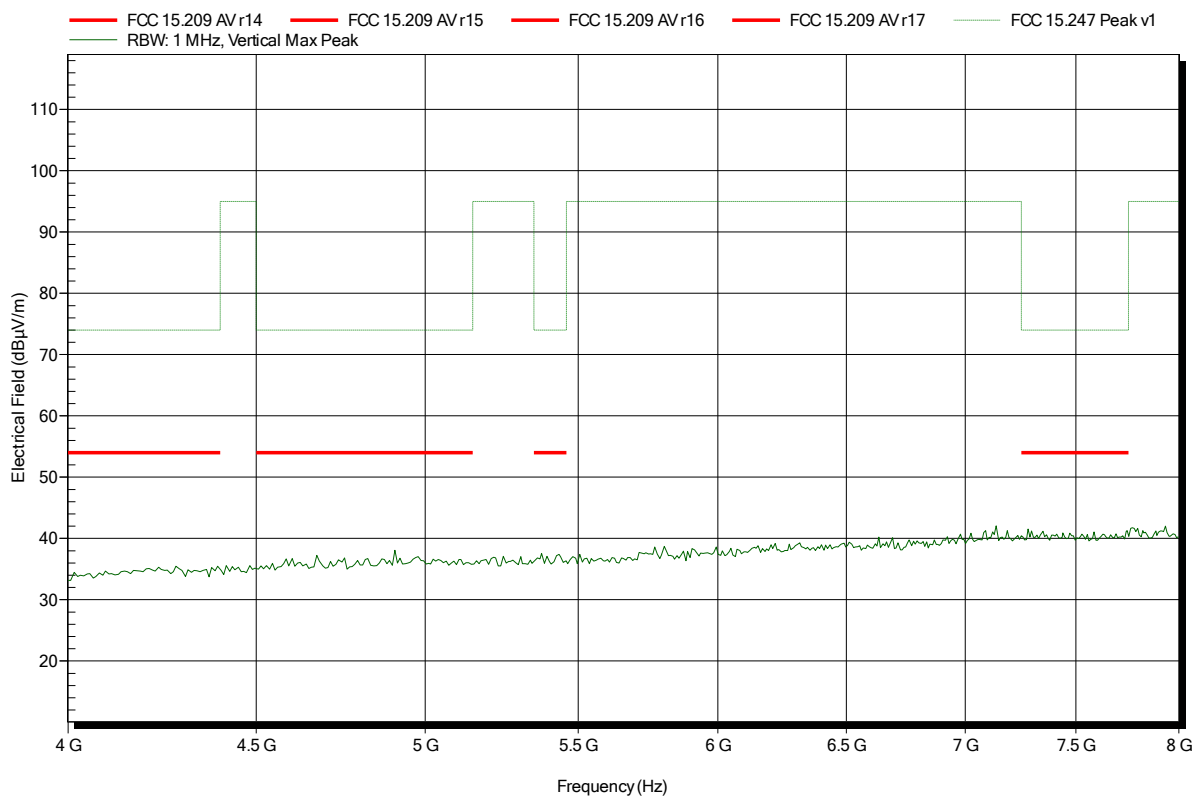
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 1; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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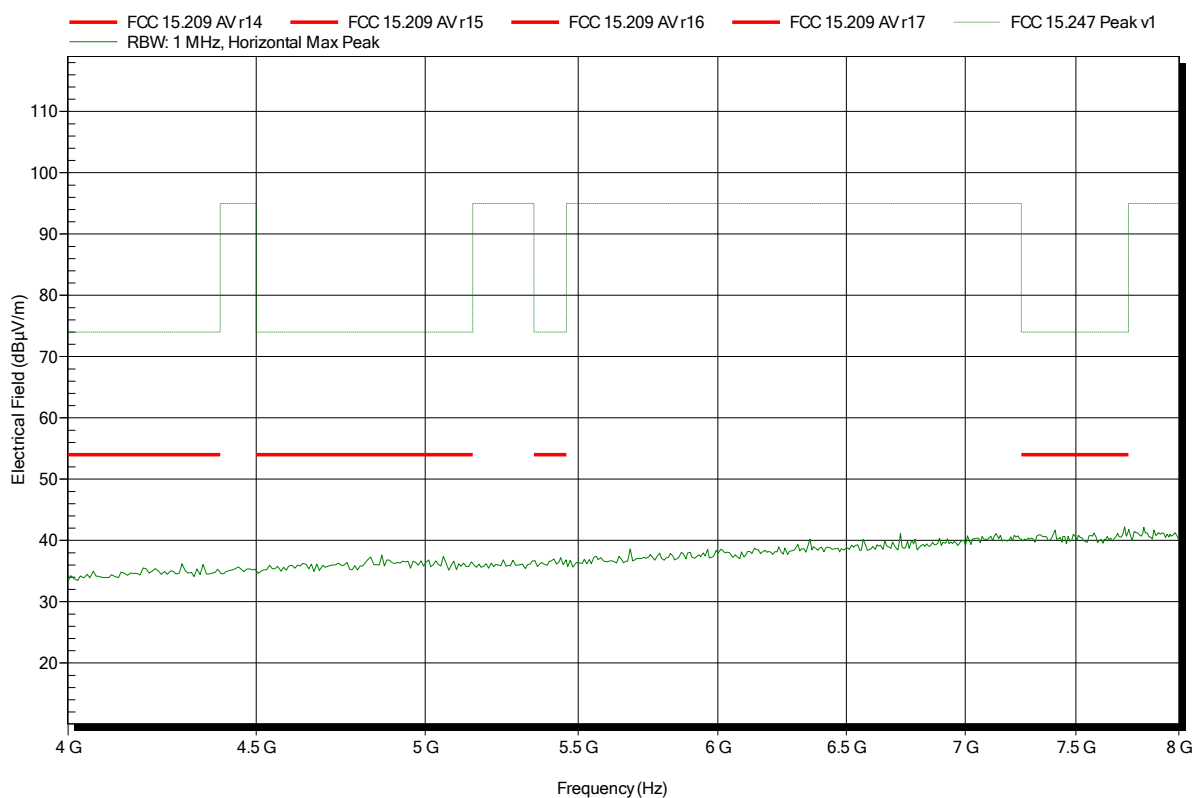


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 1; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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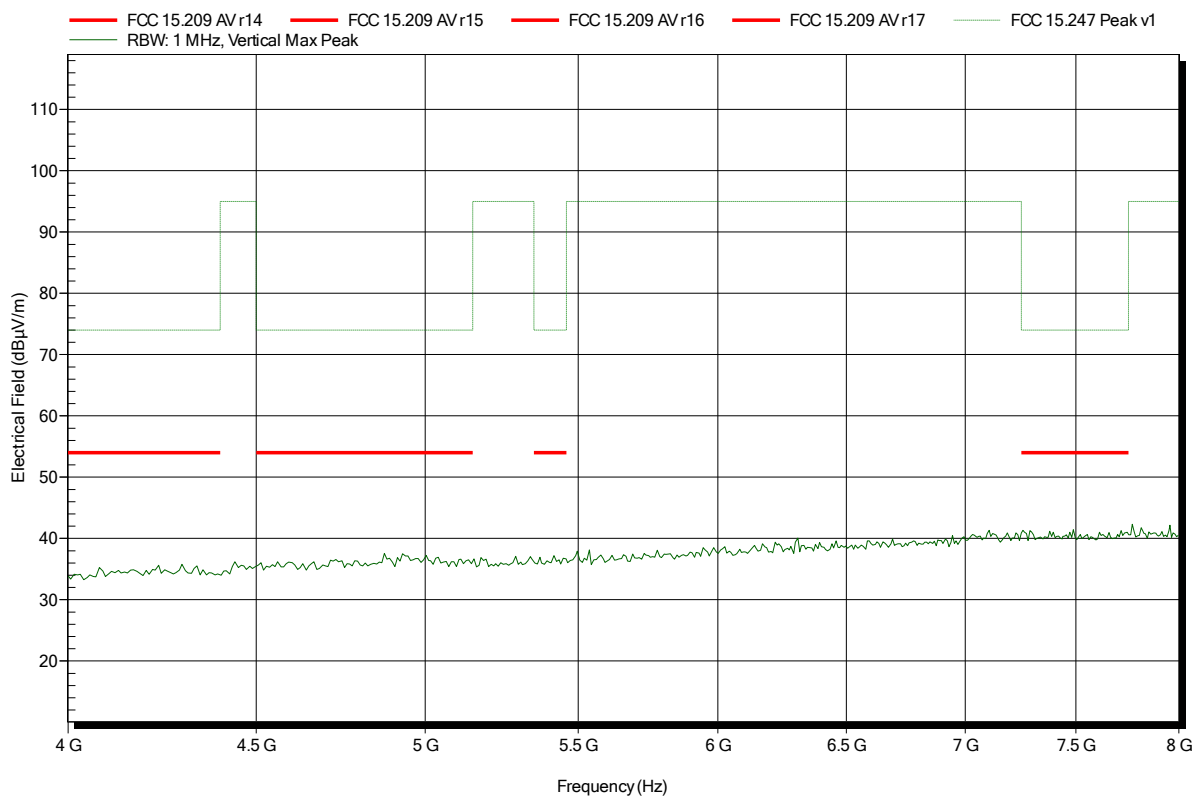


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 6; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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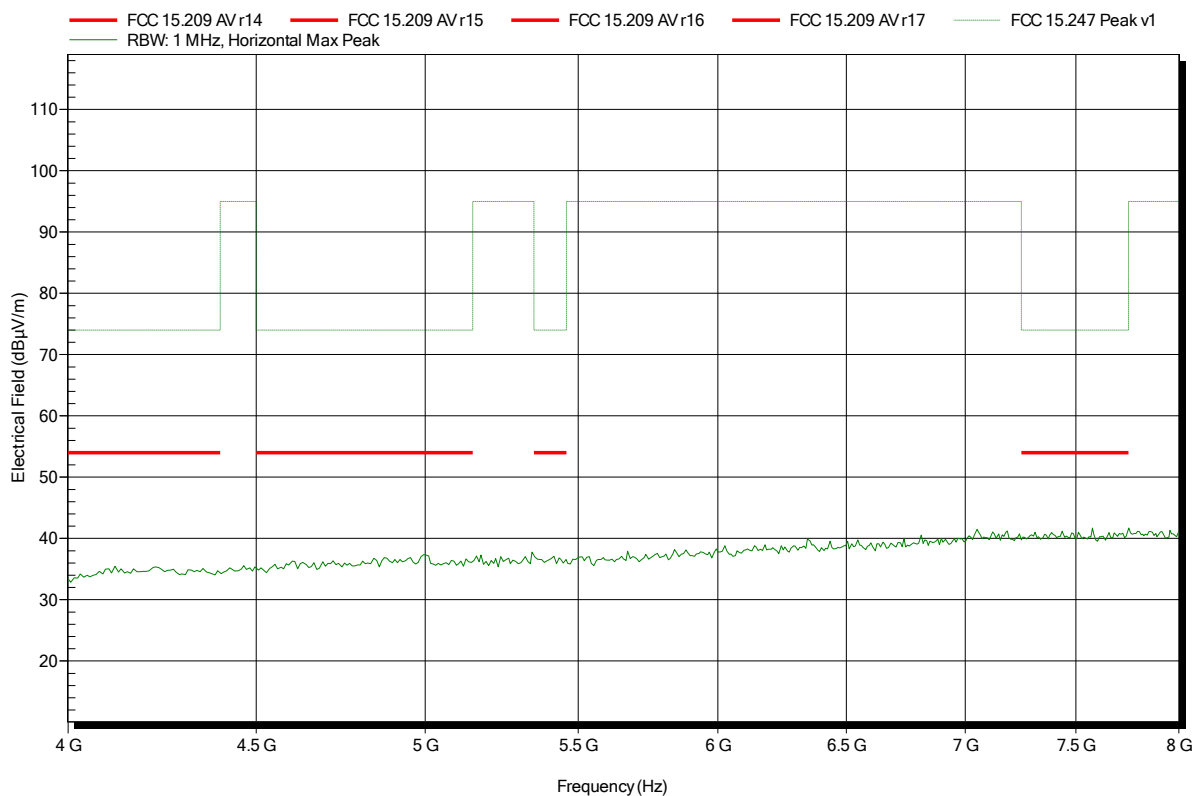


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 6; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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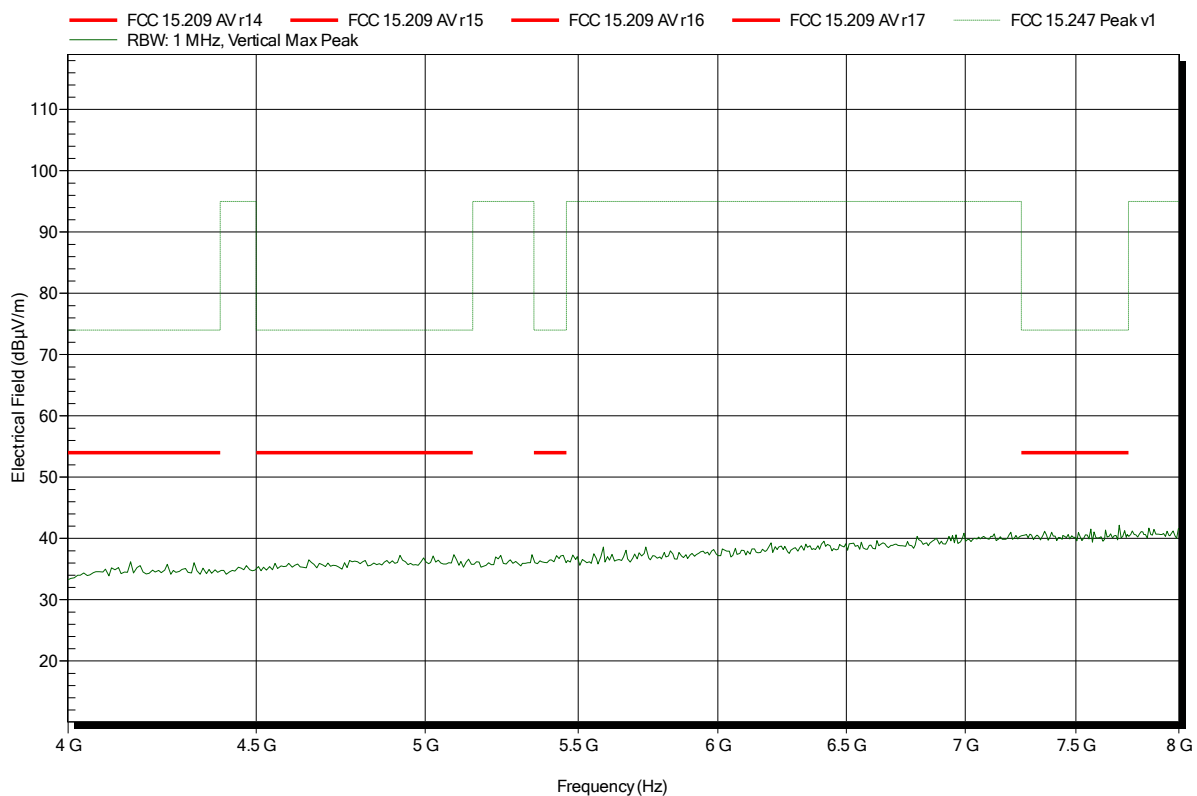


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 11; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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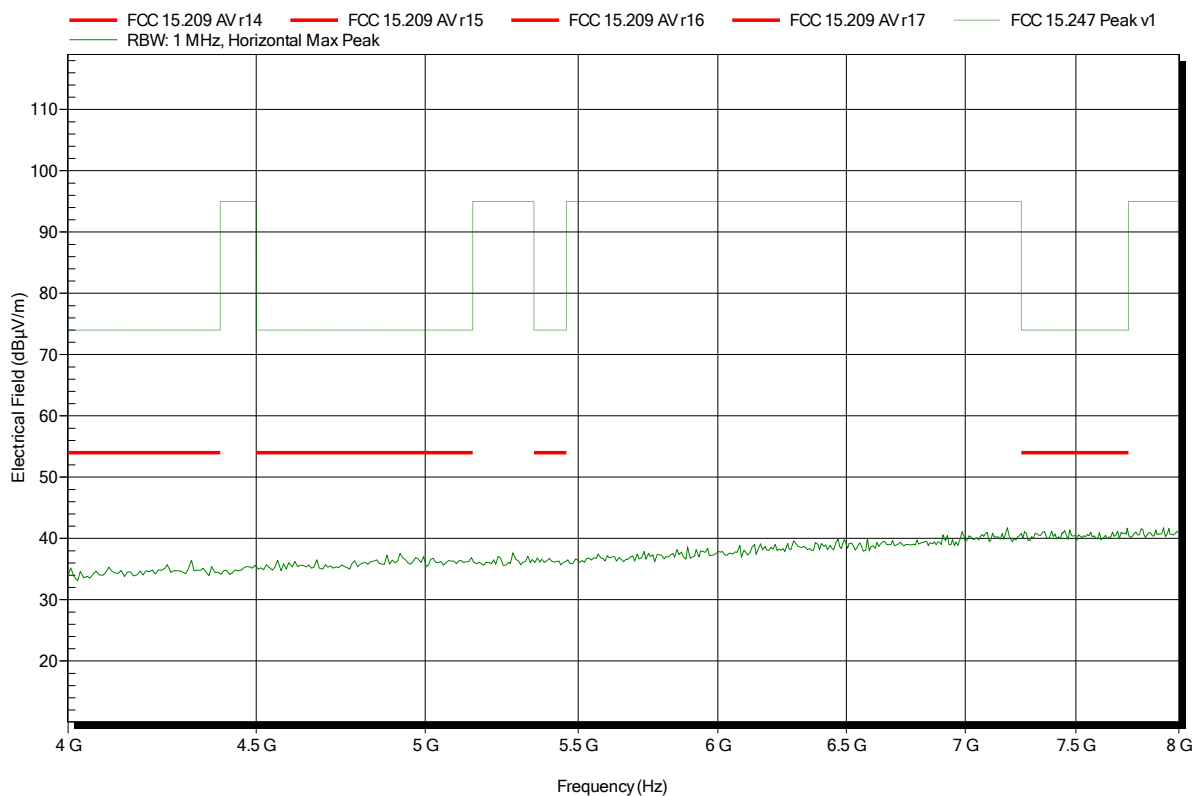


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 11; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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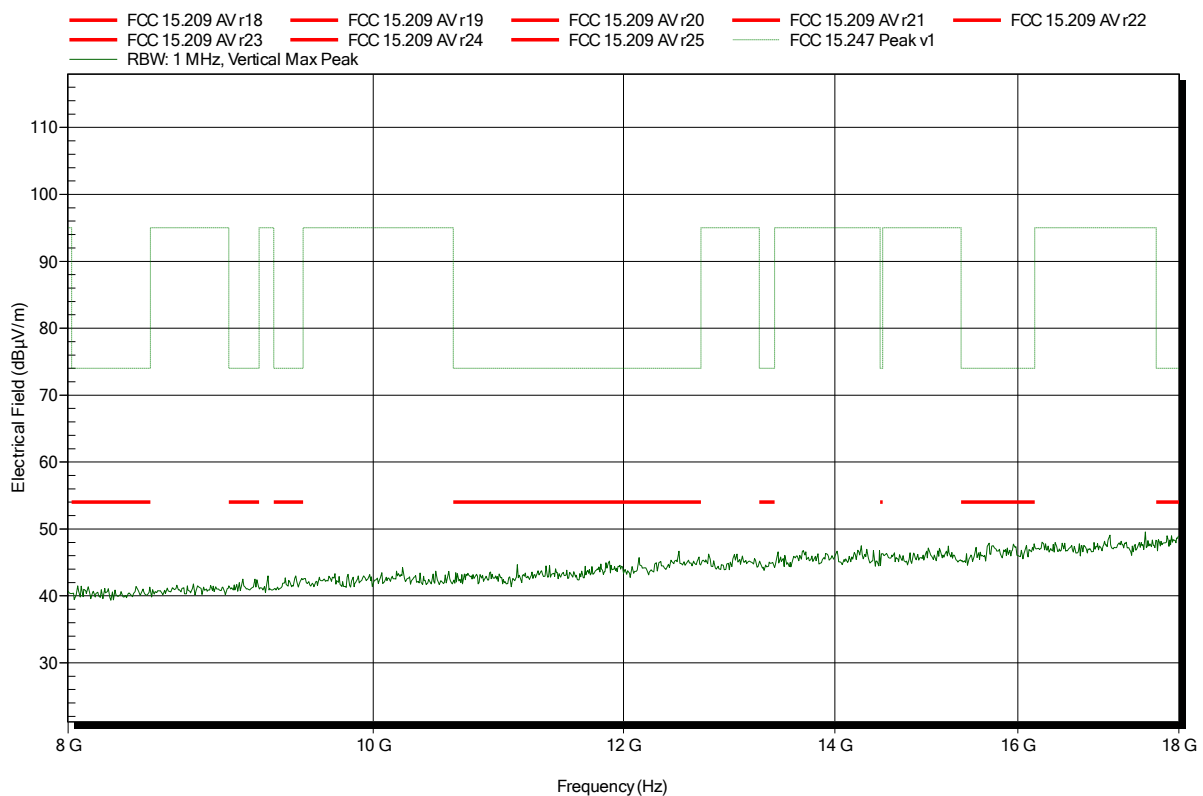


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 1; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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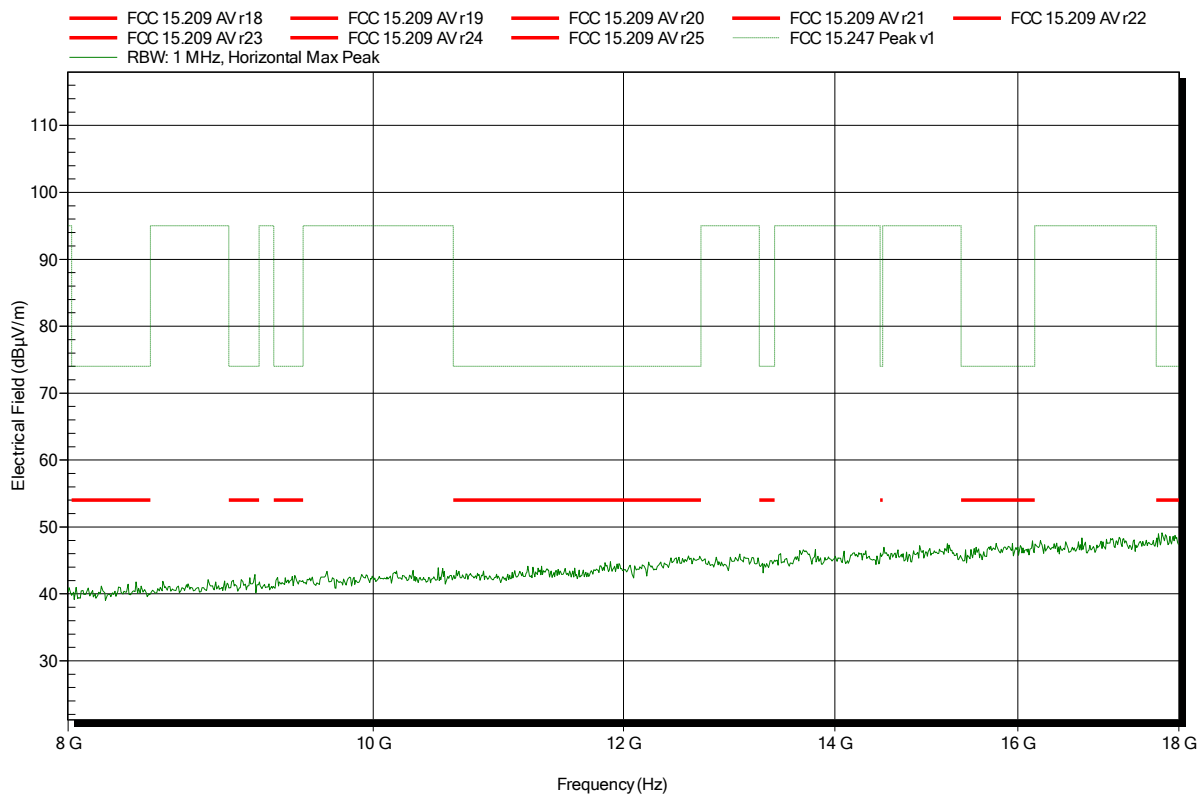


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 1; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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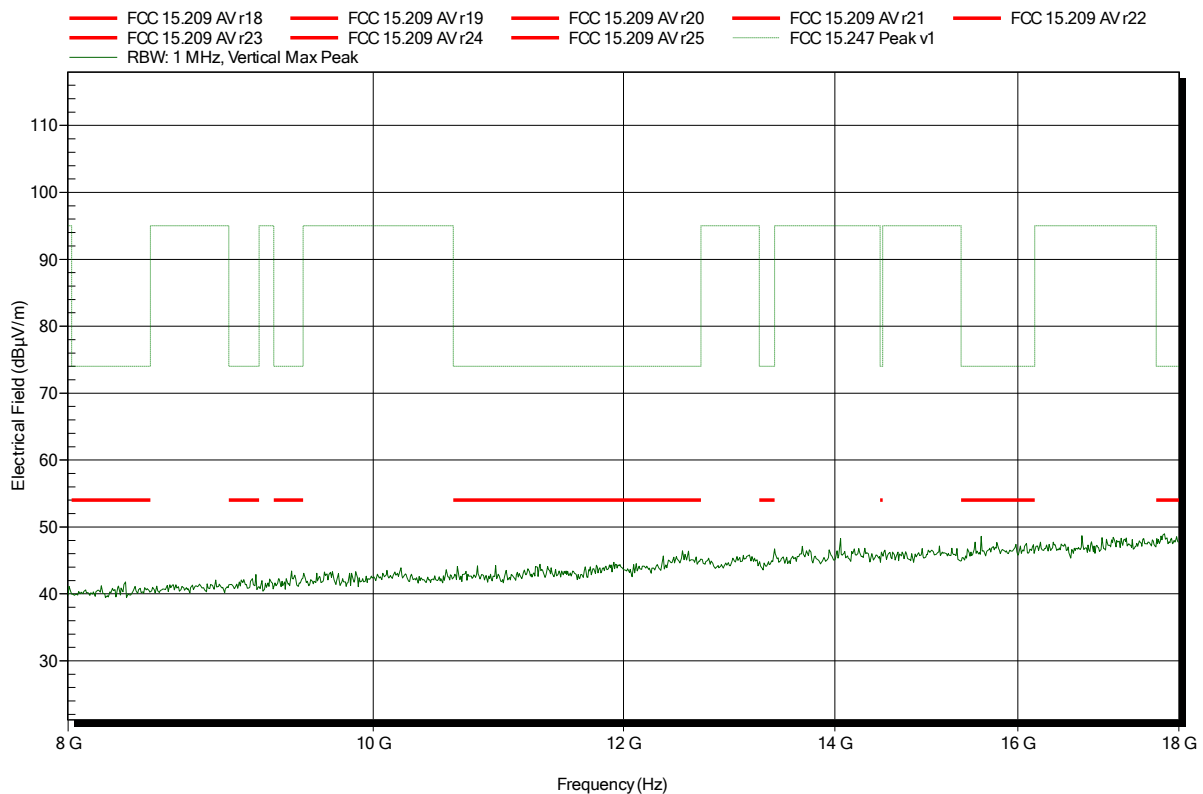


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 6; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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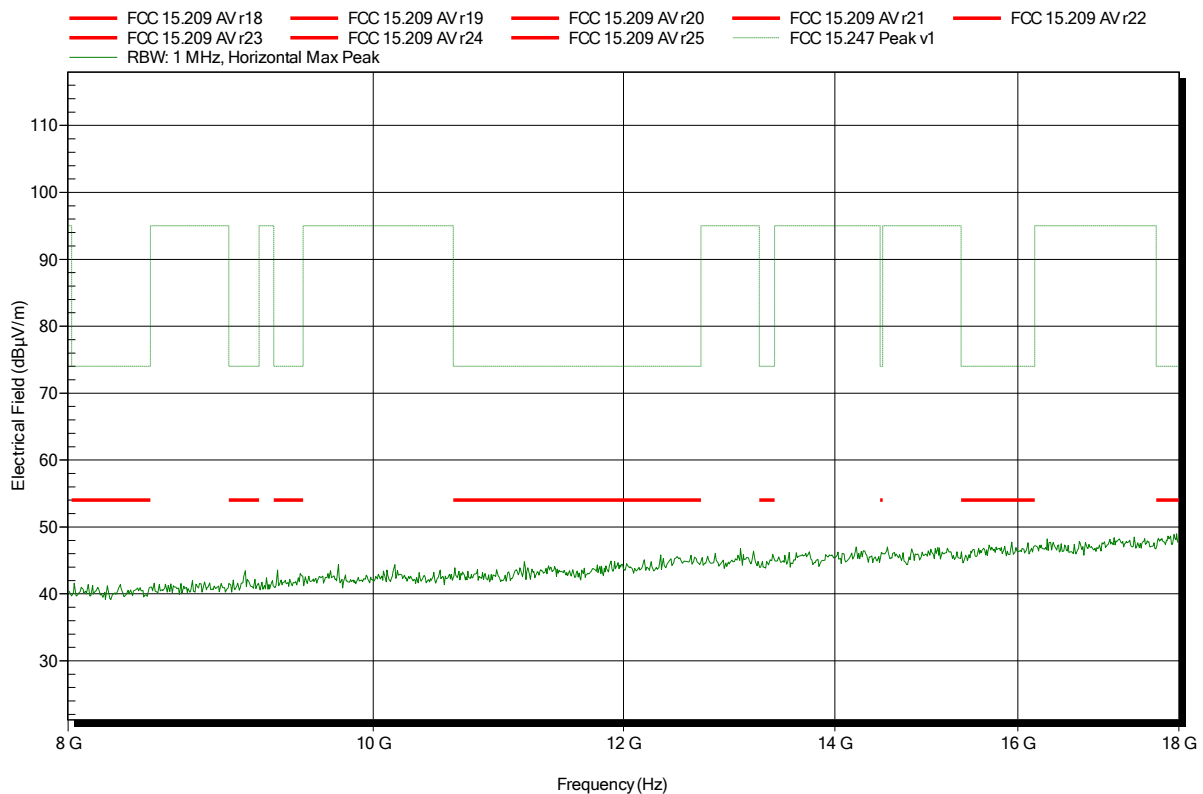


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 6; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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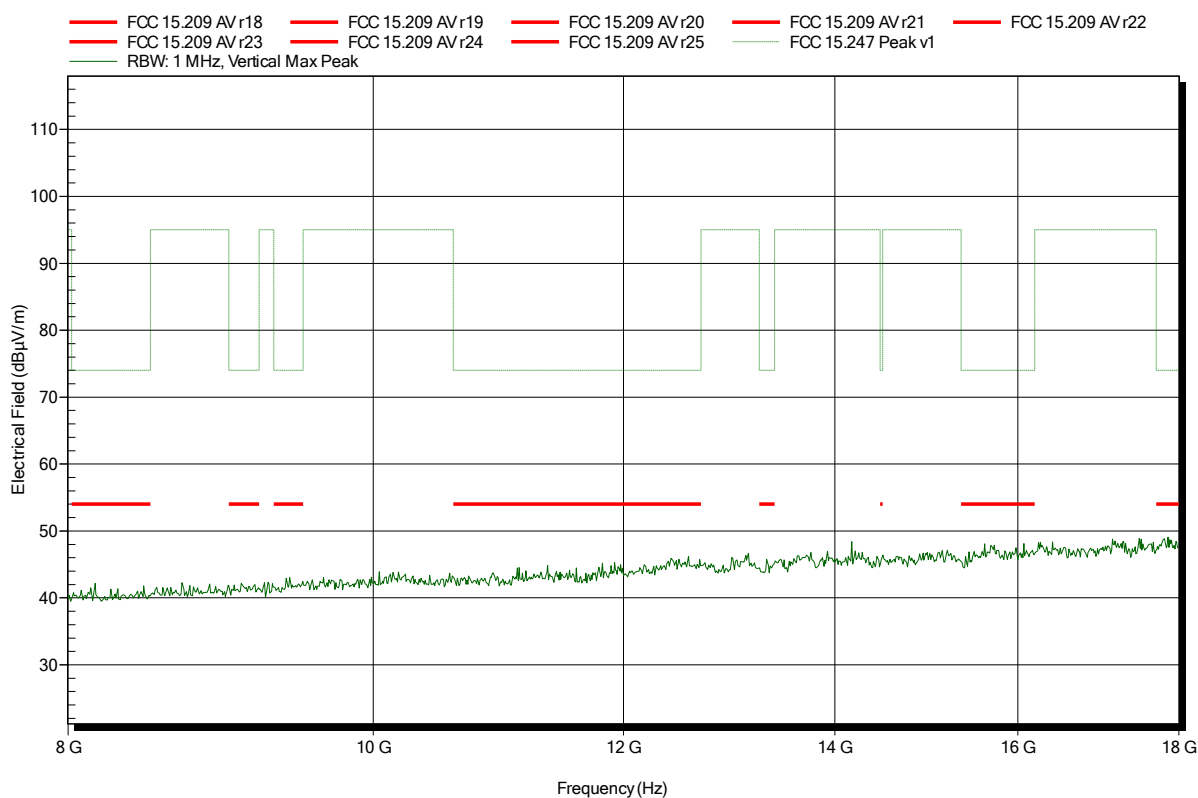


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 11; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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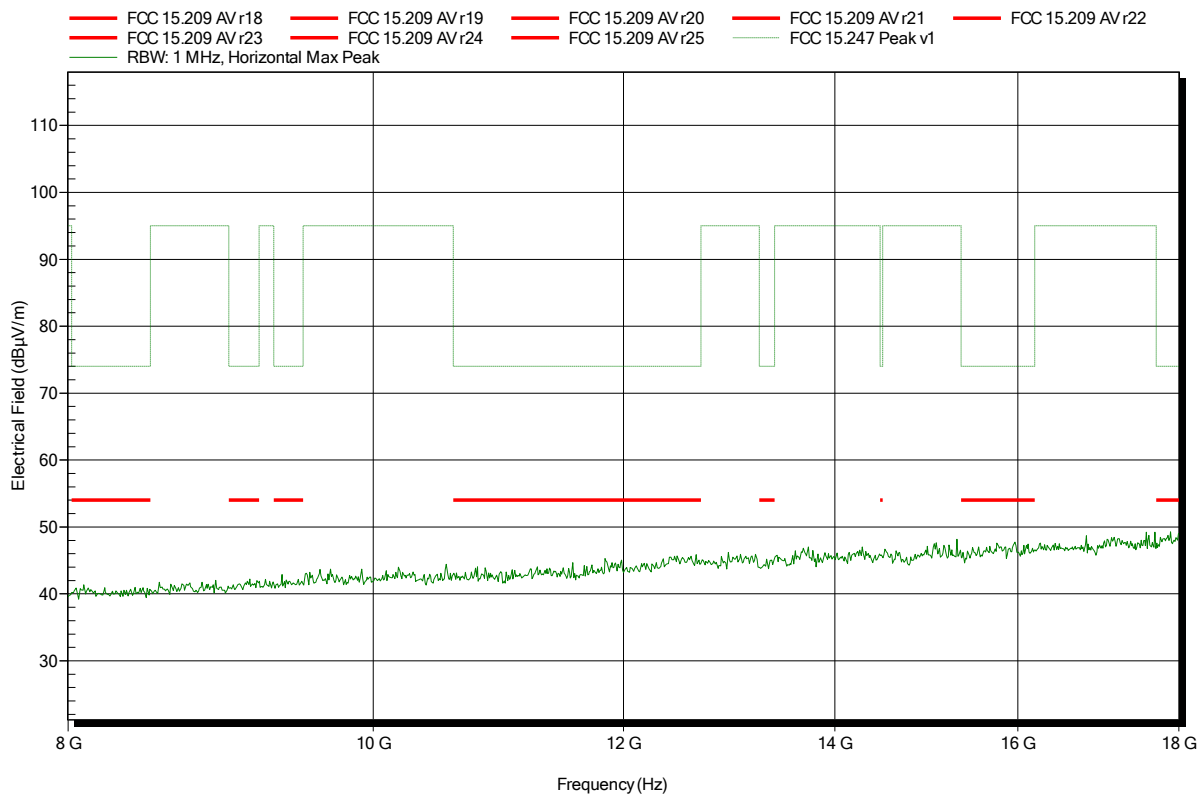


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 11; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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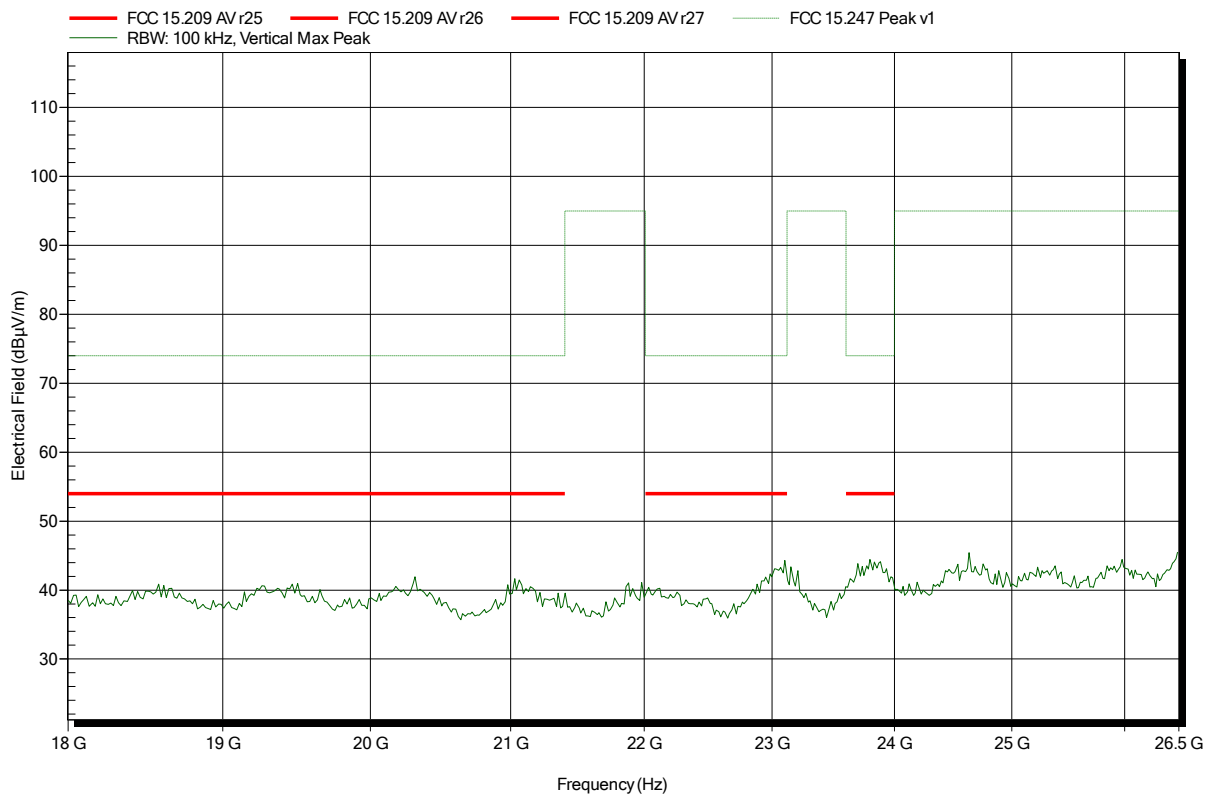


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 1; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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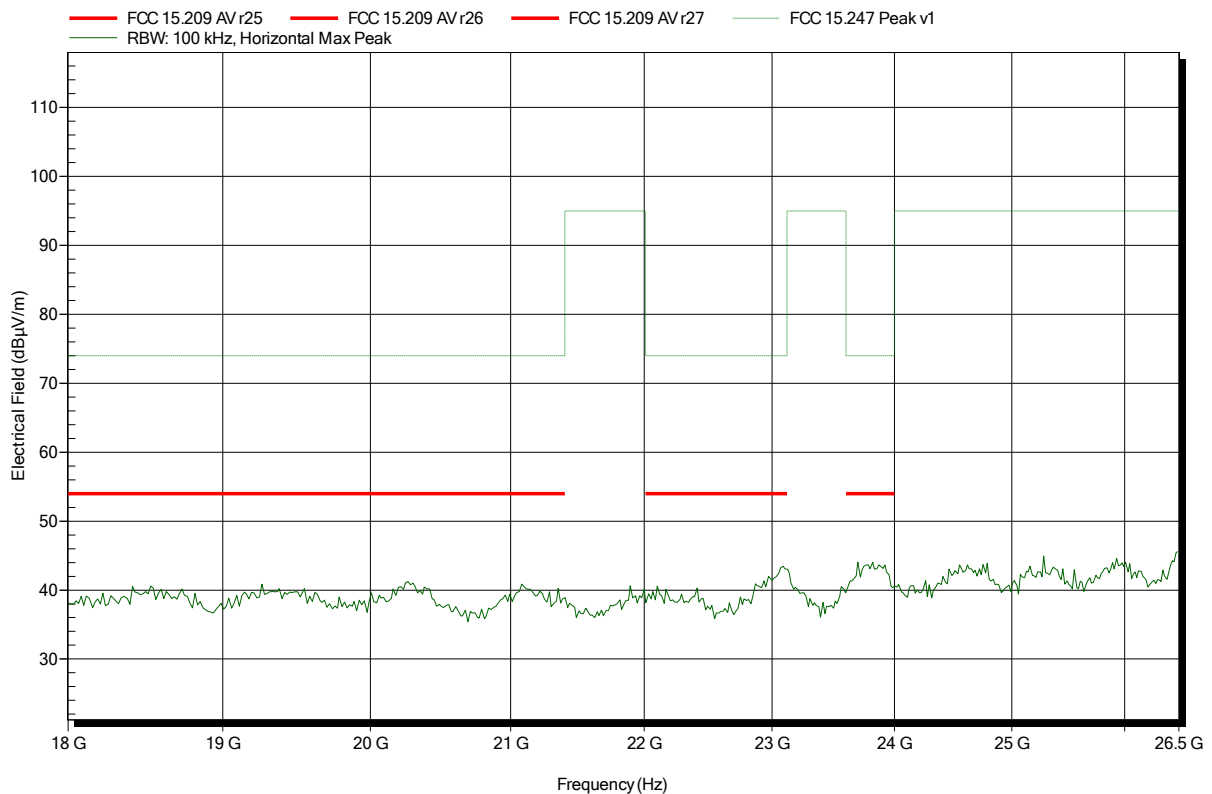


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 1; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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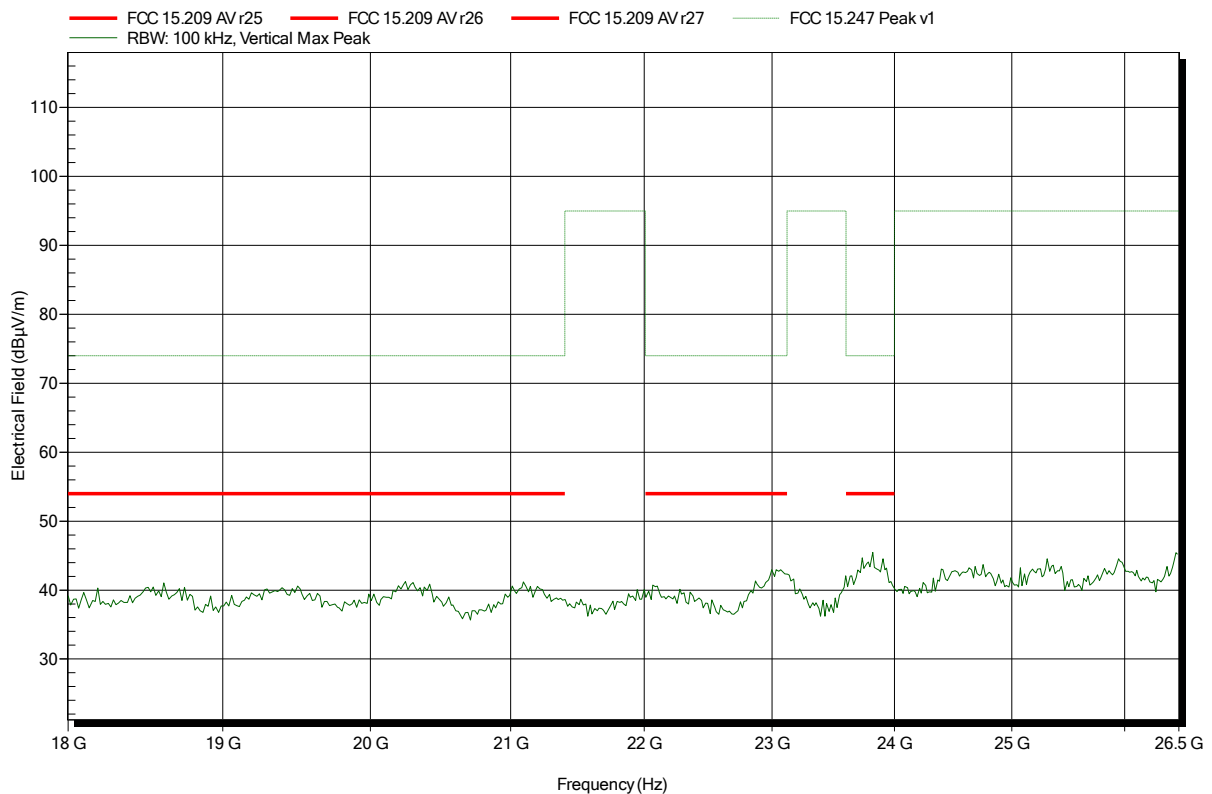


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 6; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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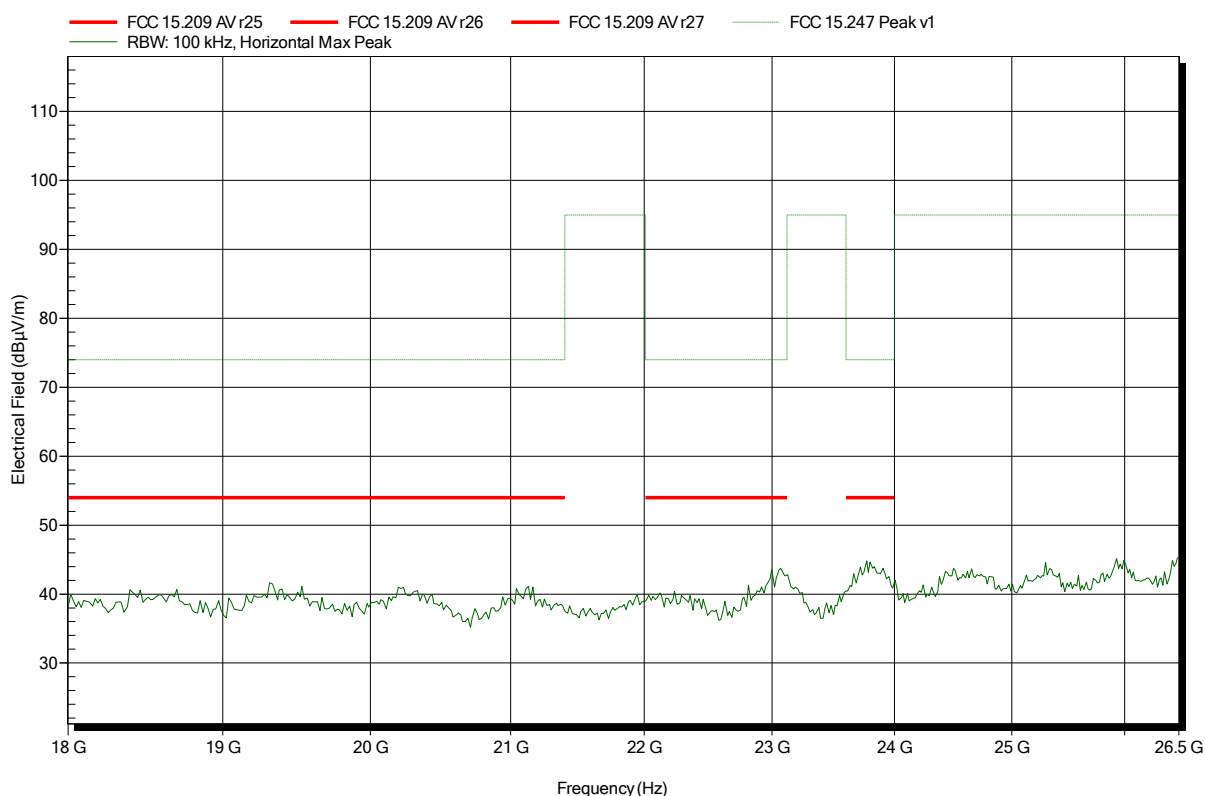


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 6; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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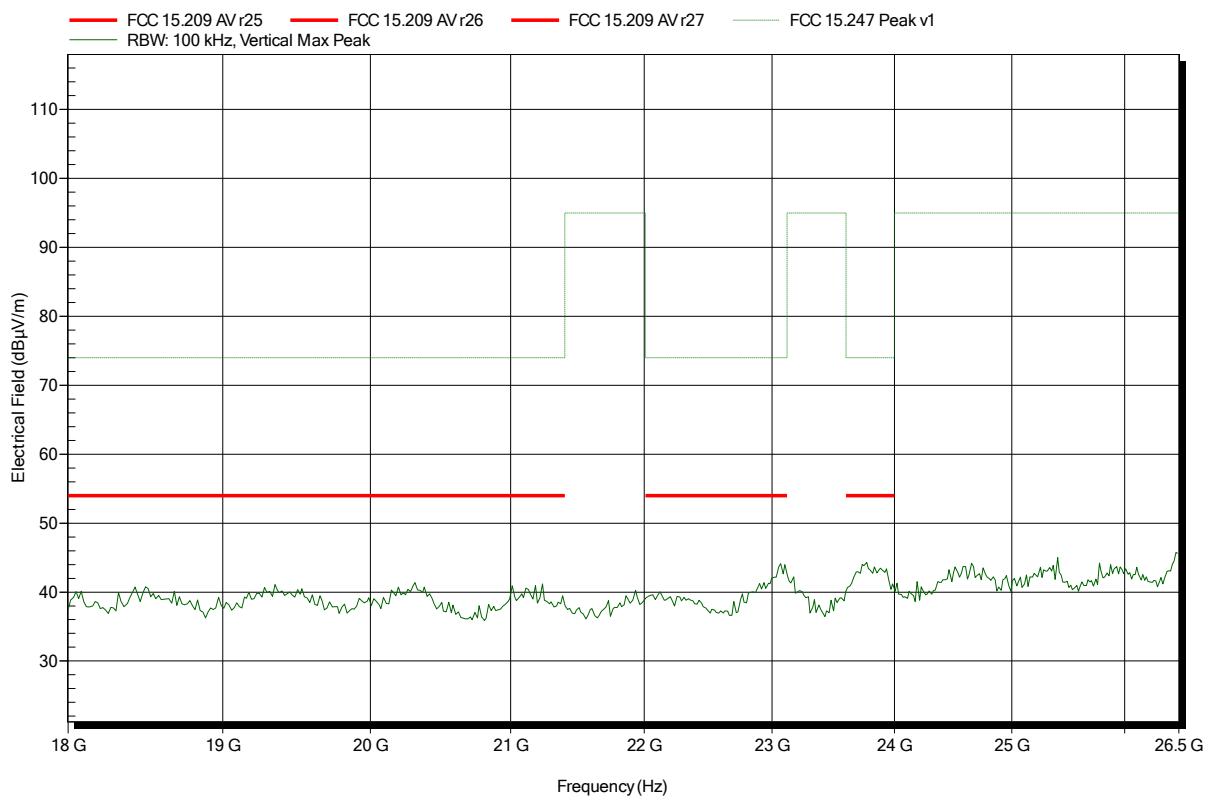


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; WLAN 2.4G; CH: 11; OFDM; HT20; MCS0
Test Date:	2015-02-27
Note:	EUT vertical

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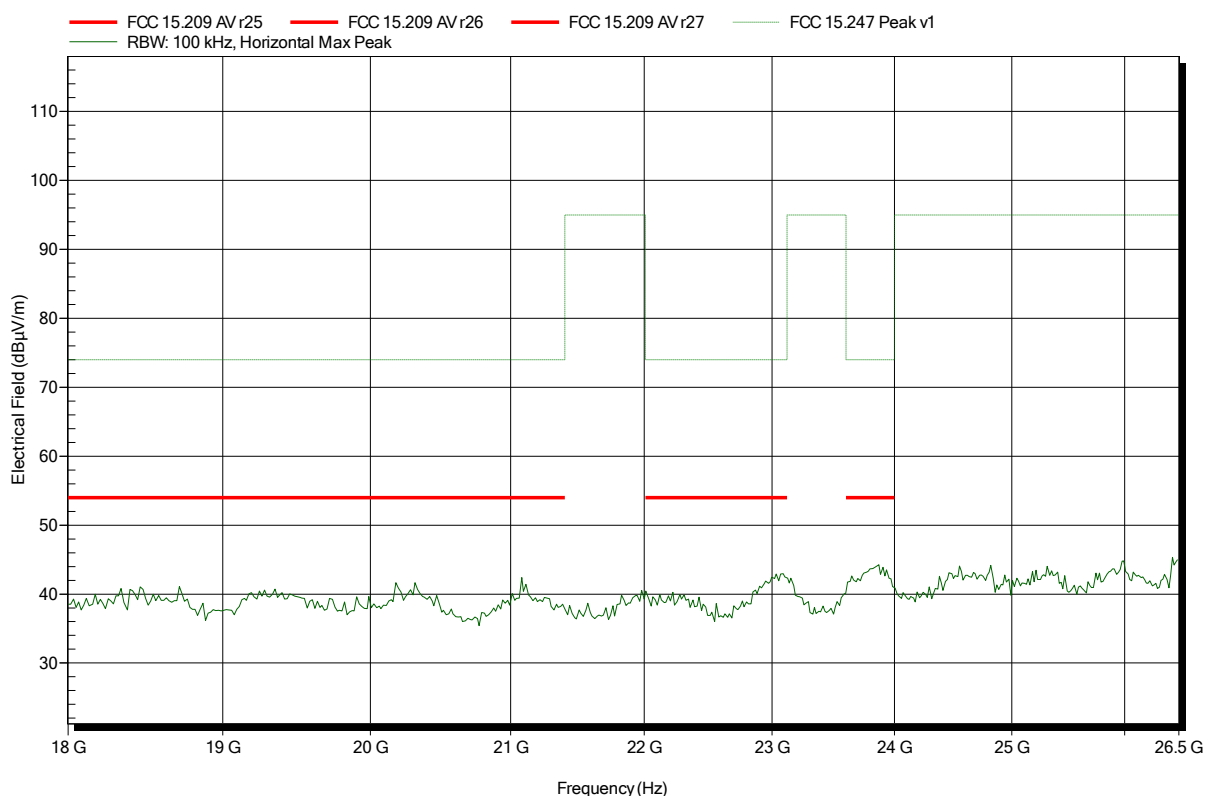


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; WLAN 2.4G; CH: 11; OFDM; HT20; MCS0
 Test Date: 2015-02-27
 Note: EUT vertical

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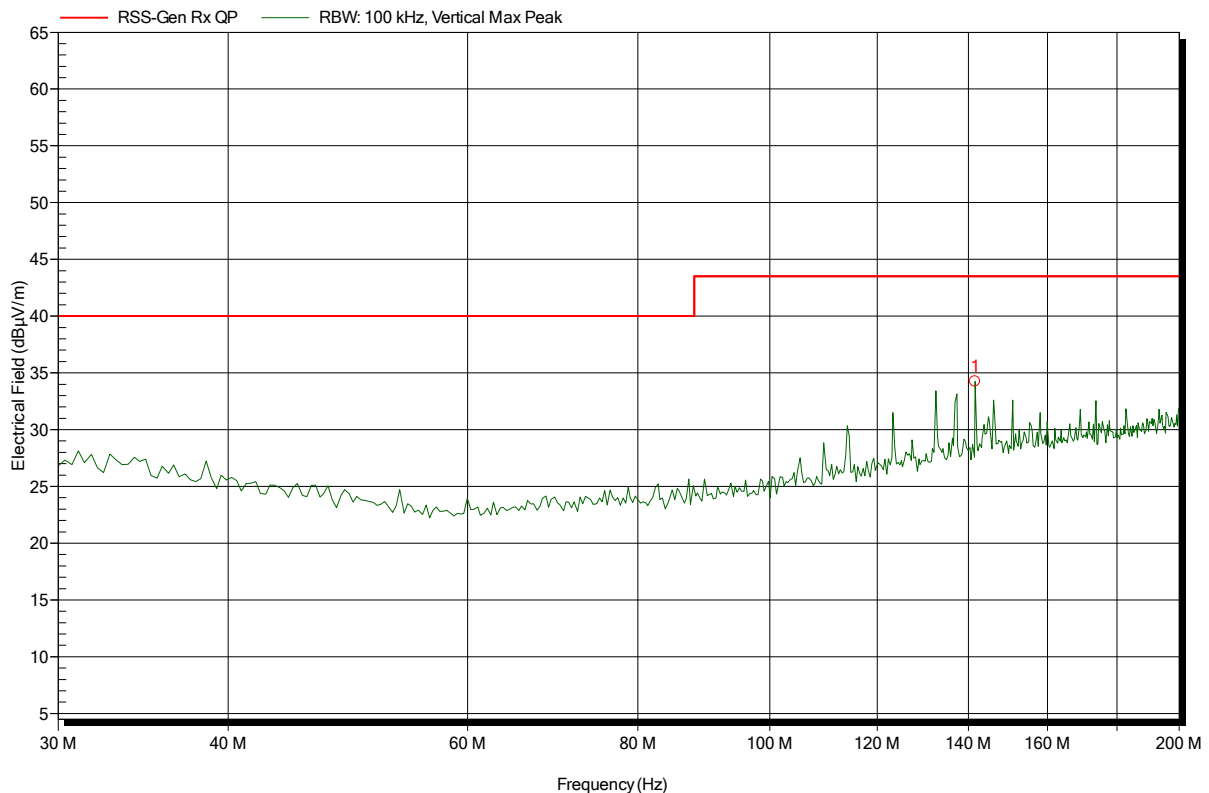
ANNEX B Receiver radiated spurious emissions

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-210

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1VDC
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3 m
 Mode: RX; WLAN 2.4G; CH: 6; RX -Test-Mode
 Test Date: 2015-02-27
 Note: EUT vertical

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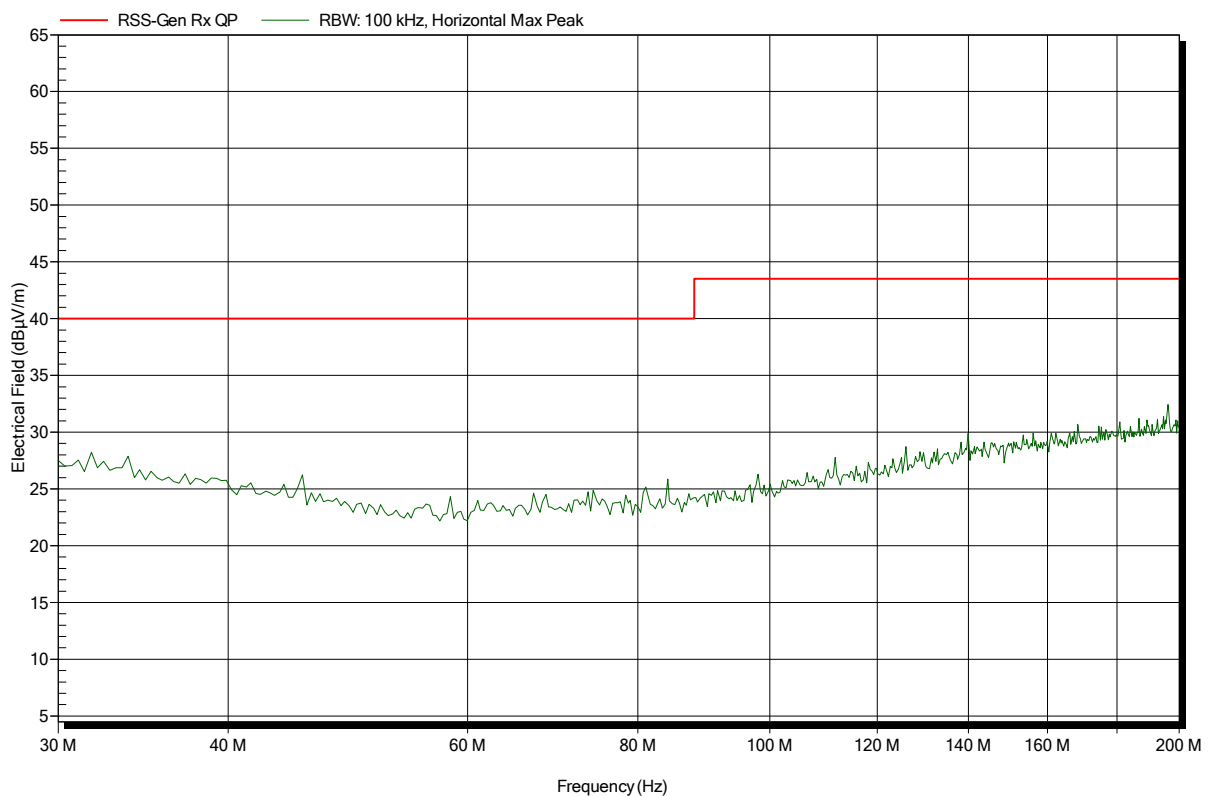
Frequency	Peak	Peak Limit	Peak Difference	Status
141.568 MHz	34.25 dBµV/m	43.5 dBµV/m	-9.25 dB	Pass

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-210

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1VDC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	RX; WLAN 2.4G; CH: 6; RX -Test-Mode
Test Date:	2015-02-27
Note:	EUT vertical

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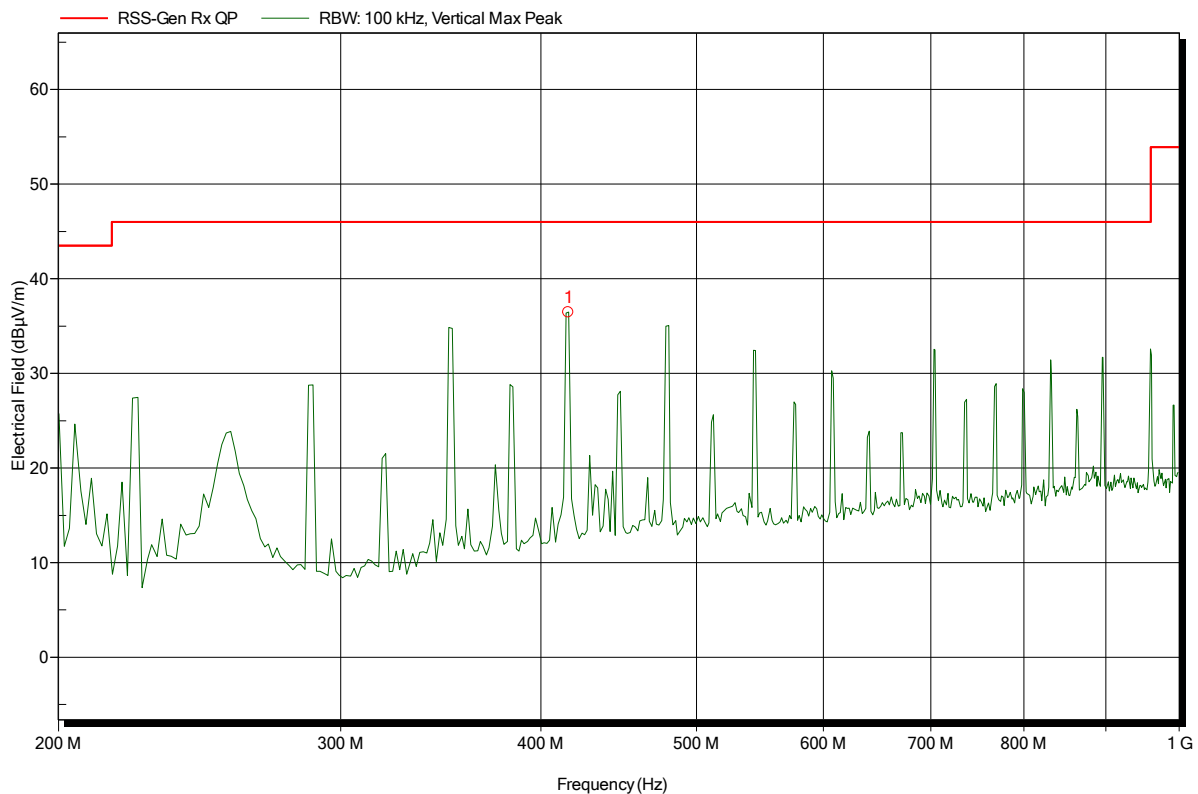


Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-210

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1VDC
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3 m
 Mode: RX; WLAN 2.4G; CH: 6; RX -Test-Mode
 Test Date: 2015-02-27
 Note: EUT vertical

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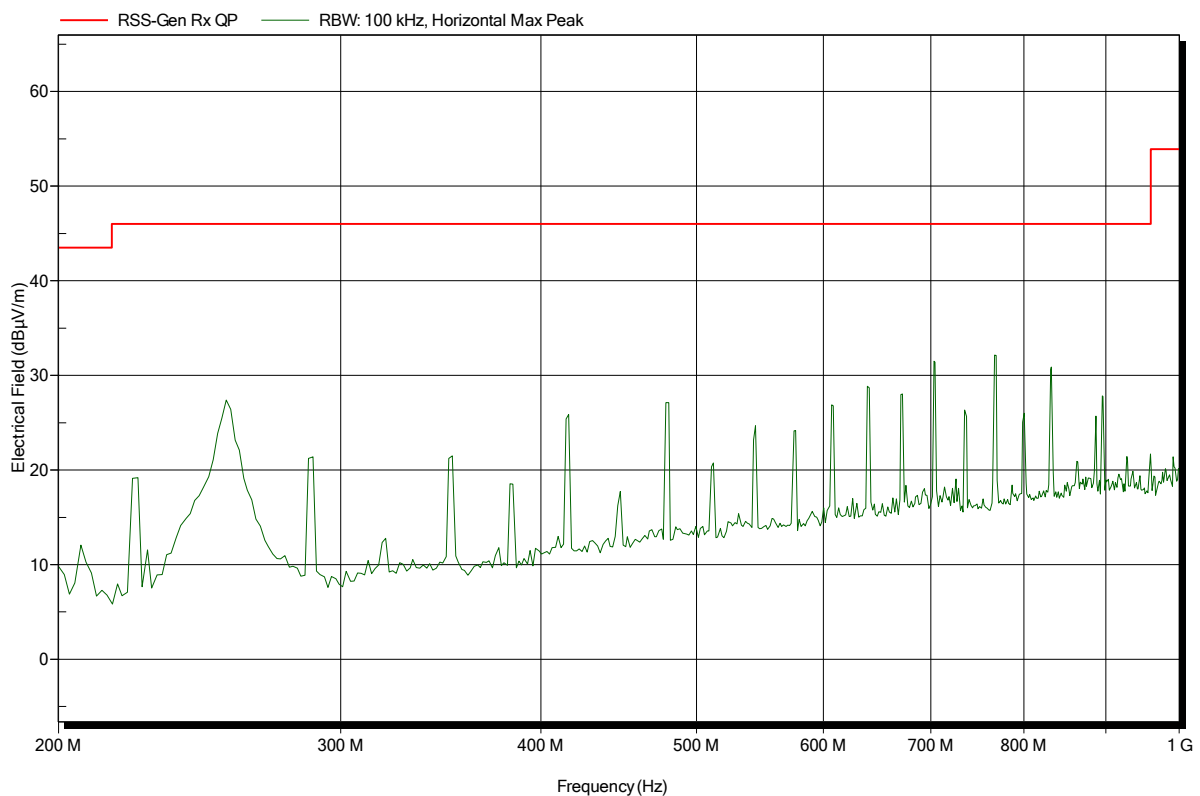
Frequency	Peak	Peak Limit	Peak Difference	Status
416 MHz	36.46 dBµV/m	46 dBµV/m	-9.54 dB	Pass

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-210

Project number: G0M-1406-3919

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 11.1VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	RX; WLAN 2.4G; CH: 6; RX -Test-Mode
Test Date:	2015-02-27
Note:	EUT vertical

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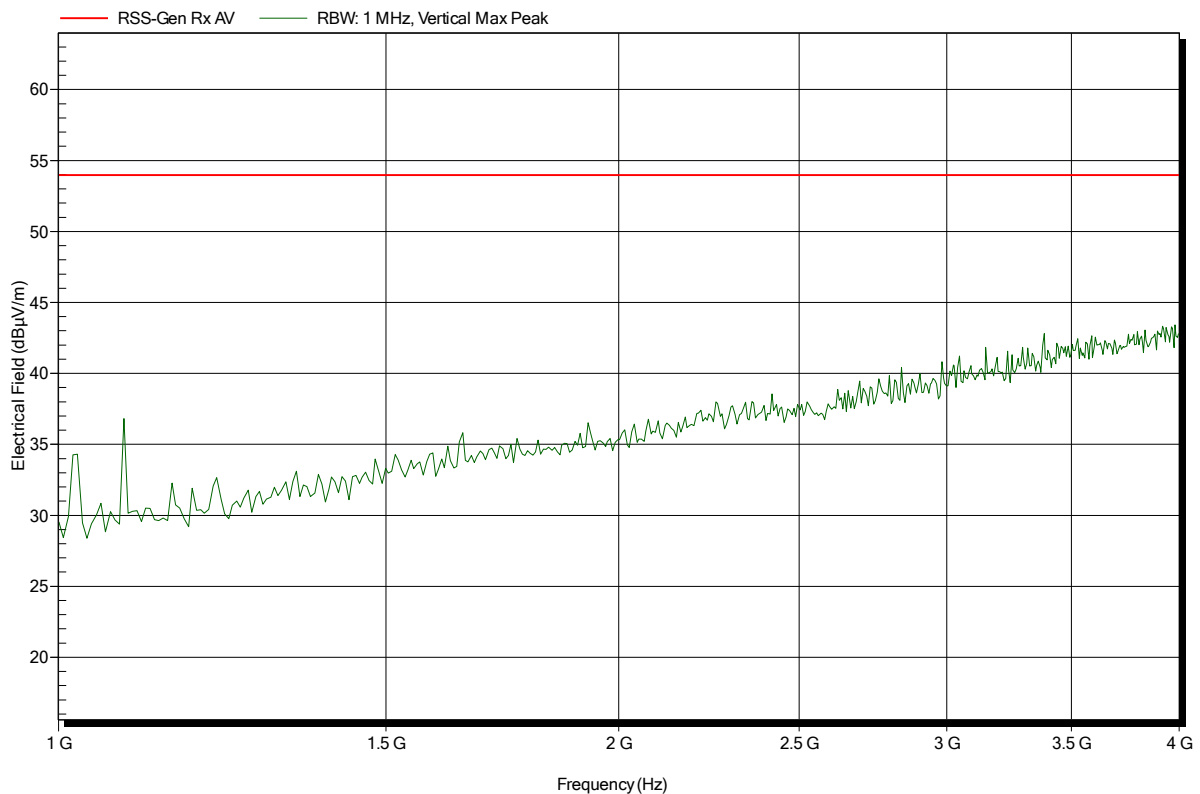


Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-210

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1VDC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 3 m
 Mode: RX; WLAN 2.4G; CH: 6; RX -Test-Mode
 Test Date: 2015-02-27
 Note: EUT vertical

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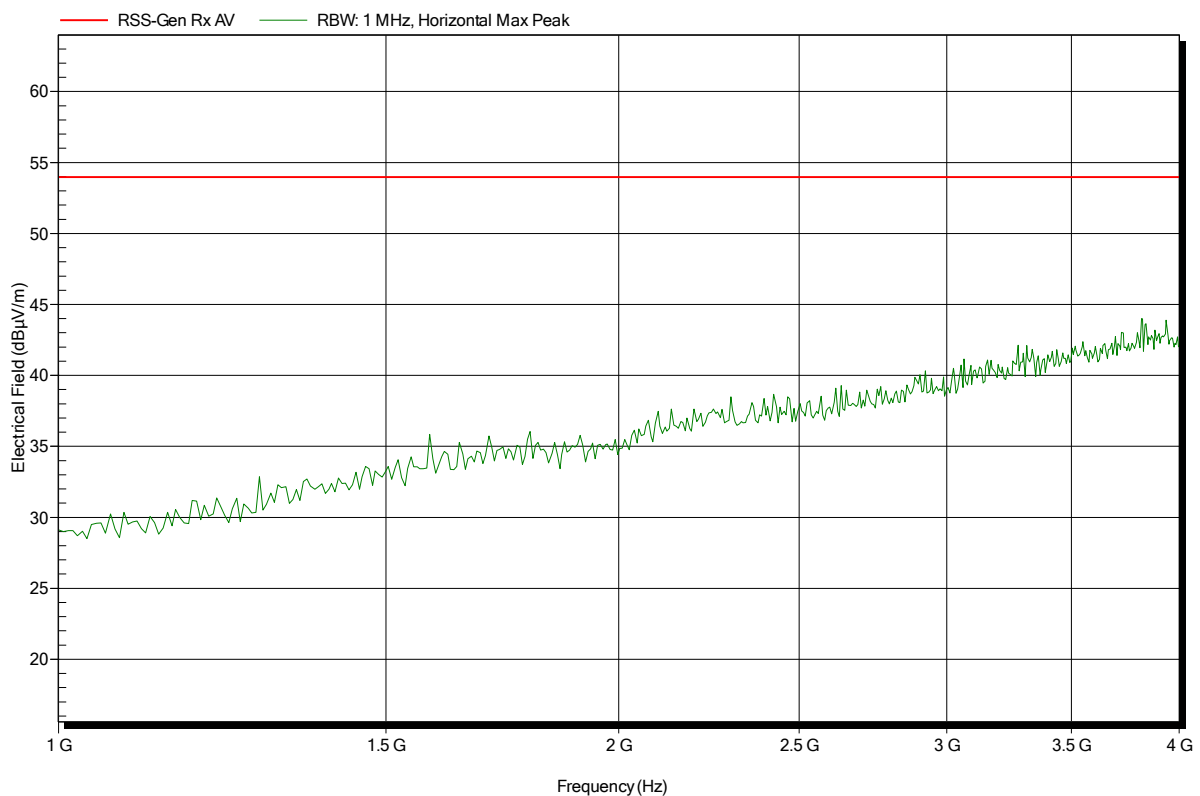


Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-210

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1VDC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 3 m
 Mode: RX; WLAN 2.4G; CH: 6; RX -Test-Mode
 Test Date: 2015-02-27
 Note: EUT vertical

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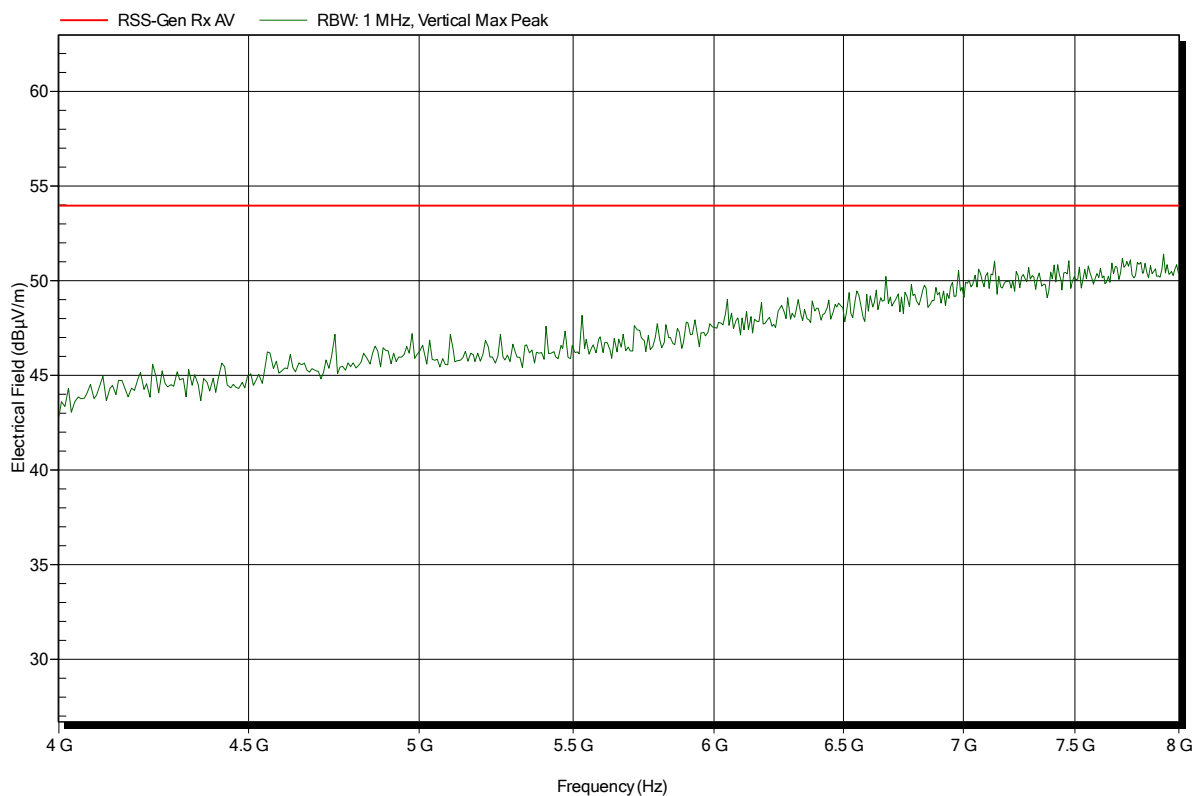


Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-210

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1VDC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 3 m
 Mode: RX; WLAN 2.4G; CH: 6; RX -Test-Mode
 Test Date: 2015-02-27
 Note: EUT vertical

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Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-210

Project number: G0M-1406-3919

Applicant: Leica Geosystems AG
 EUT Name: Field Controller Win EC7
 Model: CS20
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pudell
 Test Conditions: Tnom: 24°C, Vnom: 11.1VDC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 3 m
 Mode: RX; WLAN 2.4G; CH: 6; RX -Test-Mode
 Test Date: 2015-02-27
 Note: EUT vertical

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