eurofins | Product Service

FCC TEST REPORT

FCC 47 CFR Part 22H
Industry Canada RSS-132, Issue 3
Cellular Telephones Operating in the Bands 824-849MHz and 869-894MHz
FCC 47 CFR Part 24E
Industry Canada RSS-133, Issue 6
2GHz Personal Communication Services

Report Reference No......:	G0M-1406-3915-TFC224GS-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 22H, 47 CFR Part 24E RSS-132, Issue 3 : 2013-01, RSS-133, Issue 6 : 2013-01 SRSP-503 Issue 7 : 2008-09, SRSP-510 Issue 5 : 2009-02 RSS-Gen, Issue 4, 2014-11, ANSI/TIA-603-C-2004
Equipment under test (EUT):	
Product description	Field Controller Win EC7
Model No.	CS20 CDMA Disto
Additional Model(s)	None
Brand Name(s)	Leica Geosystems
Hardware version	V5.0
Firmware / Software version	None
	FCC-ID: RFD-CSNGC IC: 3177A-CSNGC
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 .....: 2014-09-22

Date (s) of performance of tests .....: 2014-12-03 - 2014-12-04

Compiled by ..... : Christian Weber

Tested by (+ signature)..... : (Responsible for Test) Burkhard Pudell .....B. Pudell.....

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

Date of issue ..... : 2015-04-20

Total number of pages ..... : 122

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:

Test case selection is based on full modular approval of licensed transmitter module used by the EUT. The EUT uses a GSM/GPRS module with full modular approval according to FCC and IC rules. For details about the radio module see EUT description in section 1.

Version History

Version	Issue Date	Remarks	Revised by
01	2015-04-20	Initial Release	

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1 Equipment (Test item) Description

Description	Field Controller Win EC7		
Model	CS20 CDMA Disto		
Additional Model(s)	None		
Brand Name(s)	Leica Geosystems		
Serial number	None		
Hardware version	V5.0		
Software / Firmware version	None		
FCC-ID	RFD-CSNGC		
IC	3177A-CSNGC		
Equipment type	End product		
Equipment classification	Portable Device (Human Body distance < 20 cm)		
Radio type	Transceiver		
Radio technology	GSM850 / GSM1900		
Operating frequency range	GSM850 : TX = 824 - 849 MHz, RX = 869 - 894 MHz GSM1900 : TX = 1850 - 1910 MHz, RX = 1930 - 1990 MHz		
Assigned frequency band	Cell. Service Block A & B : 824 - 849 MHz & 869 - 894 MHz Broadband PCS : 1850 - 1910 MHz & 1930 - 1990 MHz		
Main test frequencies GSM850	F_{LOW}	CH : 128 UL: 824.2 MHz	CH : 128 DL: 869.2 MHz
	F_{MID}	CH : 188 UL: 836.2 MHz	CH : 188 DL: 881.2 MHz
	F_{HIGH}	CH : 251 UL: 848.8 MHz	CH : 251 DL: 893.8 MHz
Main test frequencies GSM1900	F_{LOW}	CH : 512 UL: 1850.2 MHz	CH : 512 DL: 1930.2 MHz
	F_{MID}	CH : 661 UL: 1880.0 MHz	CH : 661 DL: 1960.0 MHz
	F_{HIGH}	CH : 810 UL: 1909.8 MHz	CH : 810 DL: 1989.8 MHz
Supported transmission modes	GSM, GPRS, EGPRS		
Modulations	GSM, GPRS : GMSK, EGPRS : 8PSK		
Multislot class	12		
Number of antennas	1		
Radio module	Type	GSM/GPRS/EGPRS module	
	Model	PXS8	
	Manufacturer	Gemalto	
	HW Version	B2	
	SW Version	3.001	
	FCC-ID	QIPPXS8	
	IC	7830A-PXS8	
Antenna	Type	integrated	
	Model	P522303	
	Manufacturer	Ethertronics	
	Gain	2.8 dBi	

Manufacturer	Leica Geosystems AG Heinrich Wild Strasse 9435 Heerbrugg SWITZERLAND	
Power supply	V_{NOM}	11.1 VDC (Lithium Battery)
	V_{MIN}	N/A
	V_{MIN}	N/A
AC/DC-Adaptor	Model	N/A
	Vendor	N/A
	Input	N/A
	Output	N/A

1.4 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
SIM	Communication Tester	R&S	CMW500	

***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	
GPRS850	General conditions:	EUT powered by battery. Active call to communication tester.
	Radio conditions:	Mode = transmit Connection = packet switched Modulation = GMSK Slot configuration = 1 up / 1 down Power level = Maximum (GAMMA 3)
EGPRS850	General conditions:	EUT powered by battery. Active call to communication tester.
	Radio conditions:	Mode = transmit Connection = packet switched Modulation = 8-PSK Slot configuration = 1 up / 1 down Power level = Maximum (GAMMA 5)
GPRS1900	General conditions:	EUT powered by battery. Active call to communication tester.
	Radio conditions:	Mode = transmit Connection = packet switched Modulation = GMSK Slot configuration = 1 up / 1 down Power level = Maximum (GAMMA 3)
EGPR1900	General conditions:	EUT powered by battery. Active call to communication tester.
	Radio conditions:	Mode = transmit Connection = packet switched Modulation = 8-PSK Slot configuration = 1 up / 1 down Power level = Maximum (GAMMA 5)
IDLE850	General conditions:	EUT powered by battery.
	Radio conditions:	Mode = idle
IDLE1900	General conditions:	EUT powered by battery
	Radio conditions:	Mode = idle

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	FSEK 30	EF00168	2014-01	2015-01

Radiated power					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Semi-anechoic chamber	Frankonia	AC 1	EF00062	-	-
Spectrum Analyzer	R&S	FSEK 30	EF00168	2014-01	2015-01
Biconical Antenna	R&S	HK 116	EF00012	2013-02	2016-02
LPD Antenna	R&S	HL 223	EF00187	2014-03	2017-03
Horn antenna	Schwarzbeck	BBHA 9120D	EF00019	2014-03	2016-03

Radiated spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Semi-anechoic chamber	Frankonia	AC 1	EF00062	-	-
Spectrum Analyzer	R&S	FSEK 30	EF00168	2014-01	2015-01
Biconical Antenna	R&S	HK 116	EF00012	2013-02	2016-02
LPD Antenna	R&S	HL 223	EF00212	2013-02	2016-02
Horn antenna	Schwarzbeck	BBHA 9120D	EF00019	2014-03	2016-03

1.7 Sample emission level calculation

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

Reading:

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

A.F.:

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

Reading on Analyzer (dBµV) + A.F. (dB) = Net field strength (dBµV/m)

Net:

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

Limit:

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

Limit (dBµV/m) = 20*log (µV/m)

Margin:

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

Example only:

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

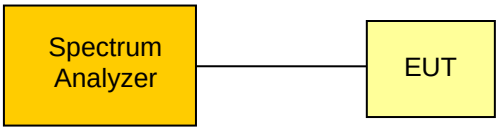
2 Result Summary

FCC 47 CFR Part 22H, 24E, IC RSS-132, 133				
Product Specific Standard Section	**Requirement – Test**	**Reference Method**	**Result**	**Remarks**
FCC § 2.1049 RSS-Gen 6.6	Occupied Bandwidth	RSS-Gen 6.6		Informational only
FCC § 24.235 FCC § 22.355 IC RSS-132 § 4.3 IC RSS-133 § 6.3	Frequency stability	FCC § 24.235 FCC § 22.355 IC RSS-132 § 4.3 IC RSS-133 § 6.3	N/R	Conducted results of licensed radio unaffected. See module radio report.
FCC § 22.913(a)	Effective radiated power	ANSI/TIA-603-C	PASS	
FCC § 24.232(c) IC RSS-132 § 4.4 IC RSS-133 § 6.4	Equivalent isotropic radiated power	ANSI/TIA-603-C	PASS	
FCC § 24.232(d) IC RSS-133 § 6.4	Peak to average ratio	FCC § 24.232(d) IC RSS-133 § 6.4	N/R	Conducted results of licensed radio unaffected. See module radio report
FCC § 22.917(b) FCC § 24.238(b) IC RSS-132 § 4.5 IC RSS-133 § 6.5	Band-edge compliance	FCC § 22.917(b) FCC § 24.238(b) IC RSS-132 § 4.5 IC RSS-133 § 6.5	N/R	Conducted results of licensed radio unaffected. See module radio report
FCC § 22.917(a) FCC § 24.238(a) IC RSS-132 § 4.5 IC RSS-133 § 6.5	Conducted out-of-band emissions	FCC § 22.917(a) FCC § 24.238(a) IC RSS-132 § 4.5 IC RSS-133 § 6.5	N/R	Conducted results of licensed radio unaffected. See module radio report
FCC § 22.917(a) FCC § 24.238(a) IC RSS-132 § 4.5 IC RSS-133 § 6.5	Radiated out-of-band emissions	ANSI/TIA-603-C	PASS	
IC RSS-132 § 4.6 IC RSS-133 § 6.6 IC RSS-Gen 7.1	Receiver radiated spurious emissions	IC RSS-132 § 4.6 IC RSS-133 § 6.6 IC RSS-Gen 7.1	PASS	
Remarks:				

3 Test Conditions and Results

3.1 Test Conditions and Results – Occupied Bandwidth

Occupied Bandwidth acc. to FCC Part 2 / IC RSS-Gen	
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	



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 – GSM850

Channel	Frequency [MHz]	Mode	Occupied Bandwidth [kHz]
F_{LOW}	824.2	GPRS850	244.489
F_{MID}	836.2	GPRS850	244.489
F_{HIGH}	848.8	GPRS850	242.485
F_{LOW}	824.2	EGPRS850	242.485
F_{MID}	836.2	EGPRS850	240.481
F_{HIGH}	848.8	EGPRS850	242.485

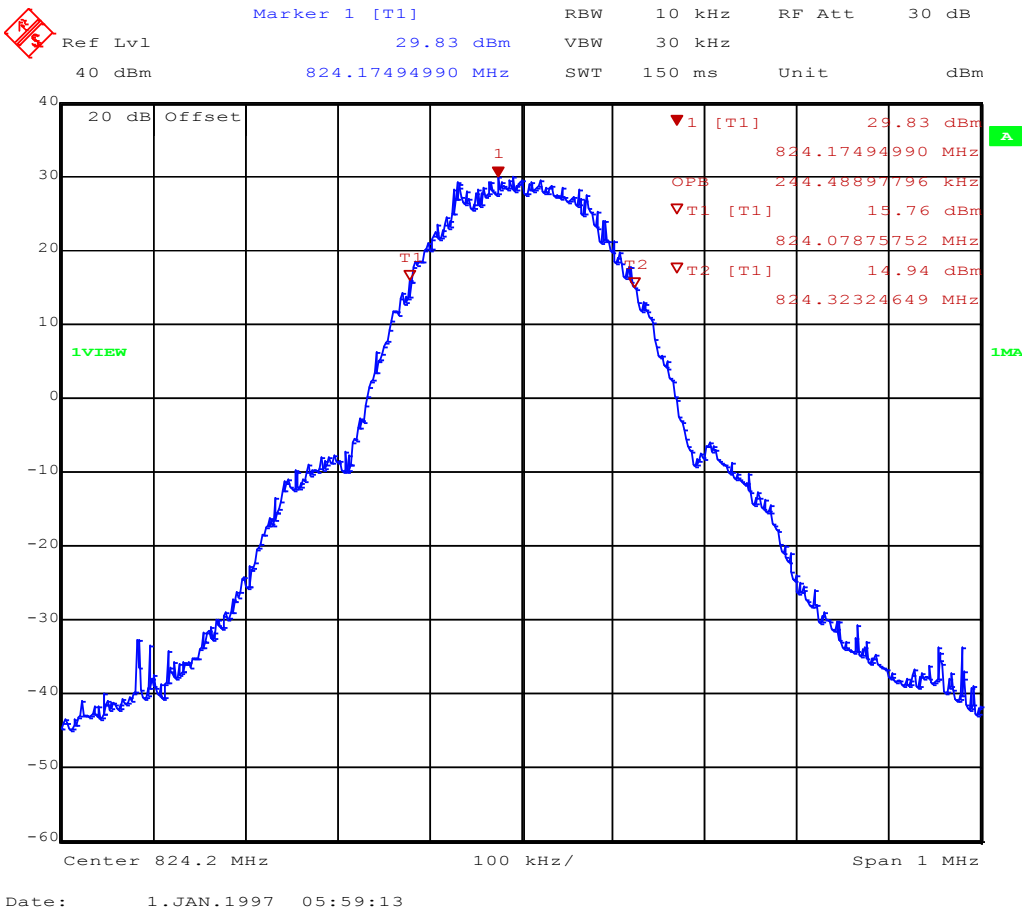
Test results – GSM1900			
Channel	Frequency [MHz]	Mode	Occupied Bandwidth [kHz]
F_{LOW}	1850.2	GPRS1900	244.489
F_{MID}	1880	GPRS1900	244.489
F_{HIGH}	1909.8	GPRS1900	244.489
F_{LOW}	1850.2	EGPRS1900	244.489
F_{MID}	1880	EGPRS1900	244.489
F_{HIGH}	1909.8	EGPRS1900	244.489
Comments:			

Occupied Bandwidth – GSM850 F_{LOW}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3915

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:	GPRS 850 / CH: 128 / Gamma:3 (33 dBm) / Main Slot 2
Test Date:	2014-12-04
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW = 244.489 kHz

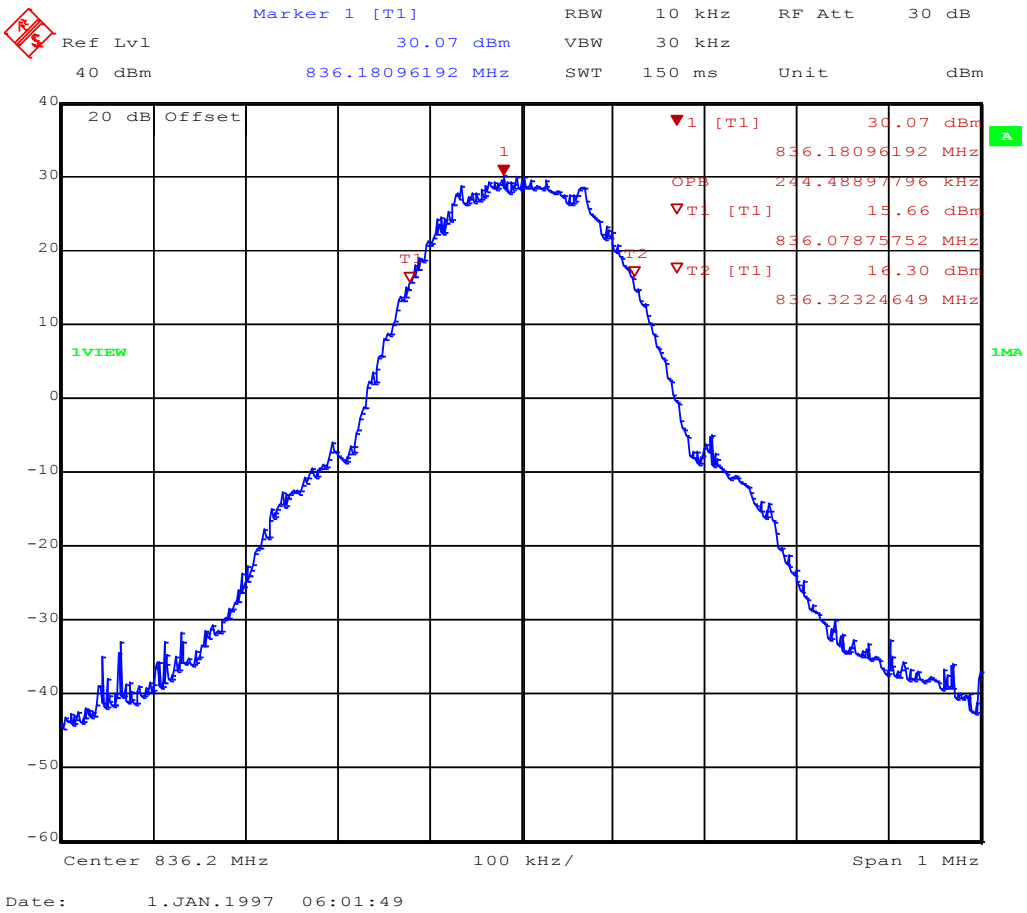


Occupied Bandwidth – GSM850 F_{MID}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3915

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:	GPRS 850 / CH: 188 / Gamma:3 (33 dBm) / Main Slot 2
Test Date:	2014-12-04
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW = 244.489 kHz

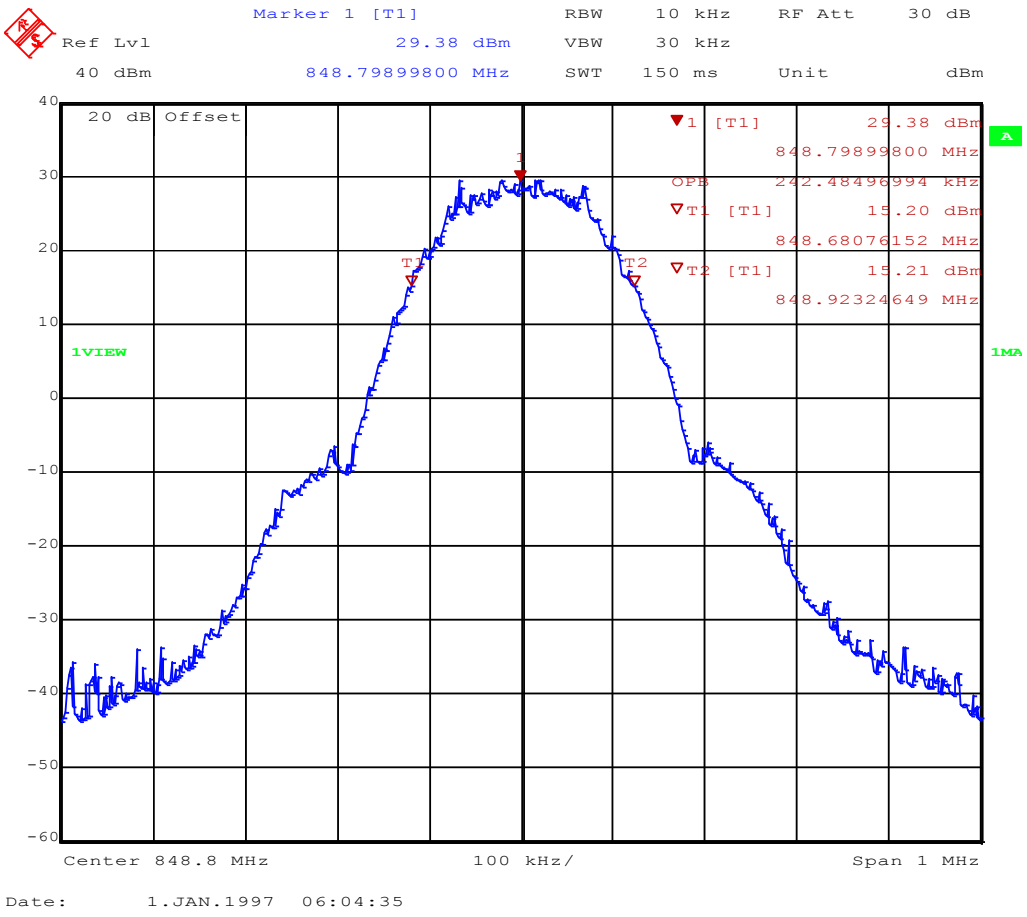


Occupied Bandwidth – GSM850 F_{HIGH}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3915

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:	GPRS 850 / CH: 251 / Gamma:3 (33 dBm) / Main Slot 2
Test Date:	2014-12-04
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW = 242.485 kHz

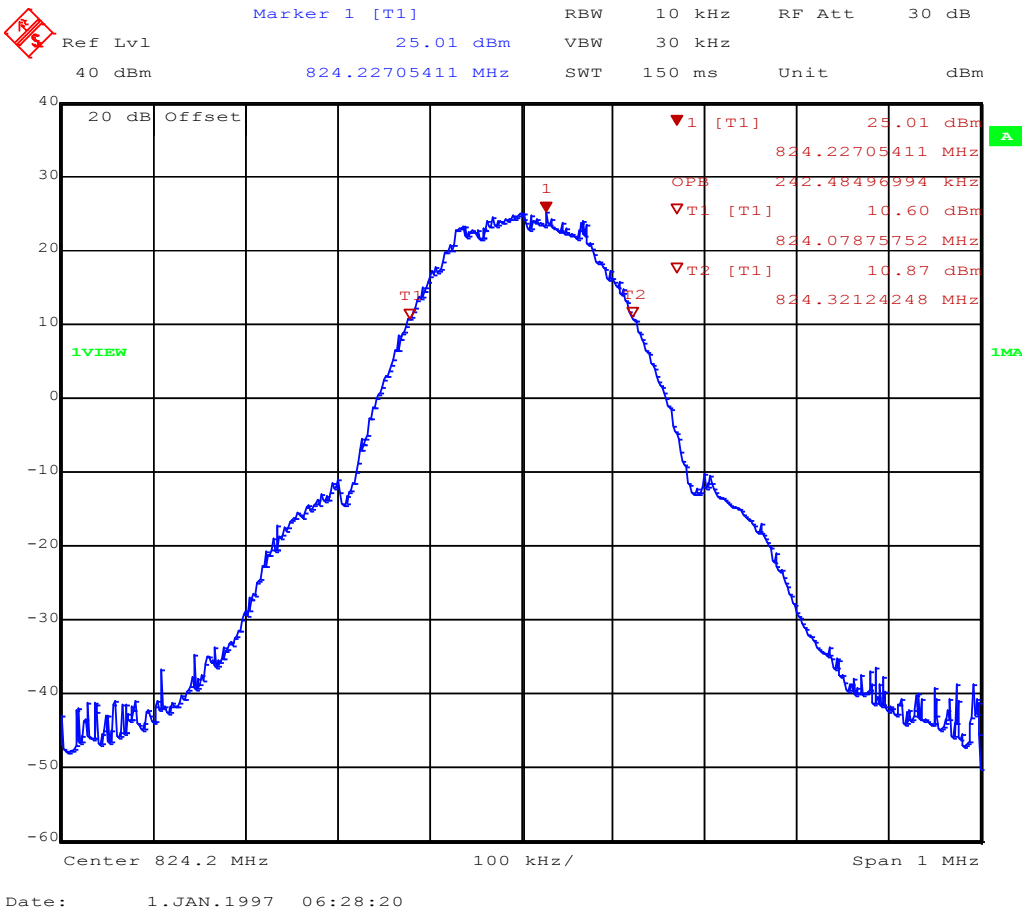


Occupied Bandwidth – EGPRS850 F_{LOW}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3915

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:	EDGE 850 / CH: 128 / Gamma:6 (27 dBm) / Main Slot 2
Test Date:	2014-12-04
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW = 242.485 kHz

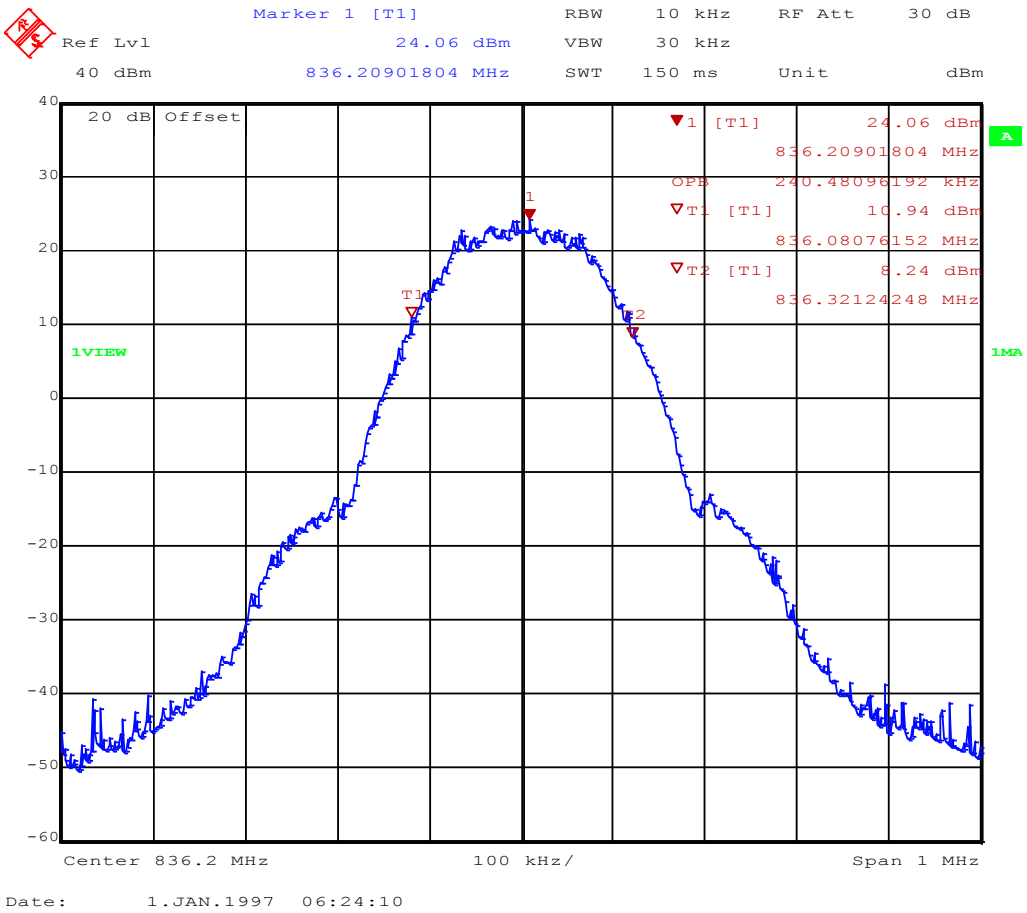


Occupied Bandwidth – EGPRS850 F_{MID}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3915

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:	EDGE 850 / CH: 188 / Gamma:6 (27 dBm) / Main Slot 2
Test Date:	2014-12-04
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW = 240.481 kHz

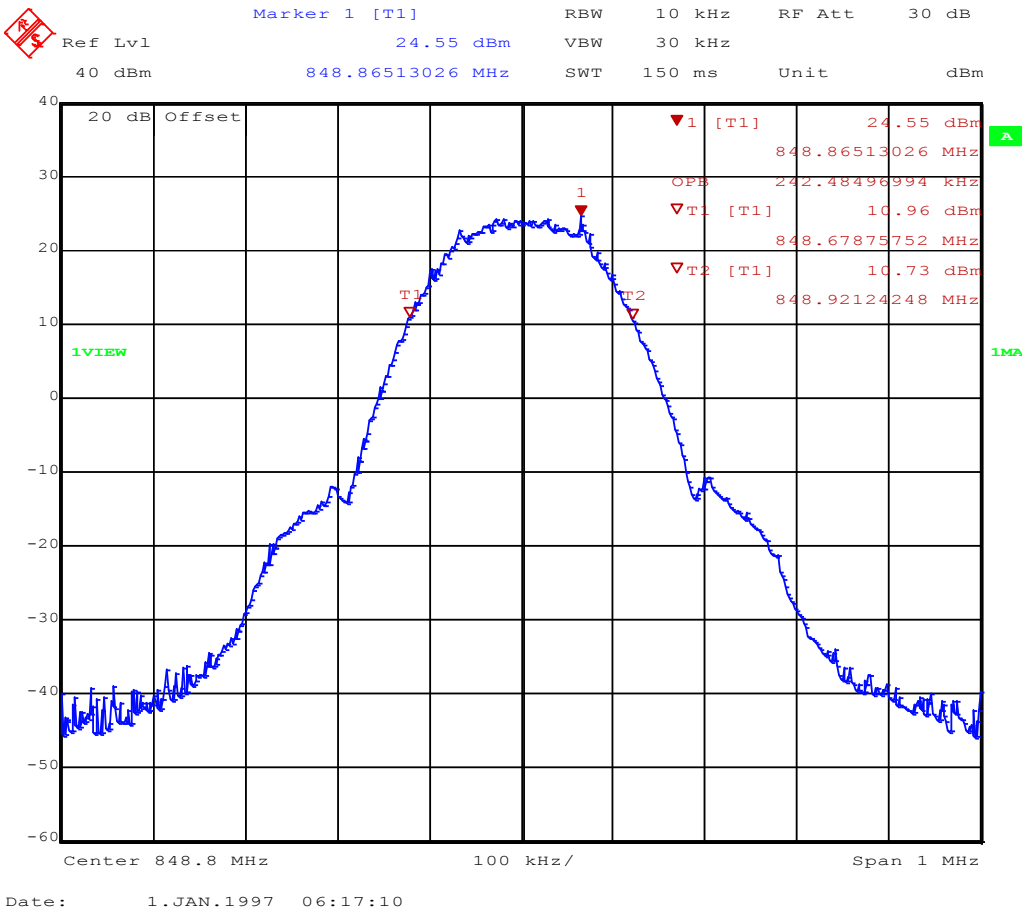


Occupied Bandwidth – EGPRS850 F_{HIGH}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3915

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:	EDGE 850 / CH: 251 / Gamma:6 (27 dBm) / Main Slot 2
Test Date:	2014-12-04
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW = 242.485 kHz

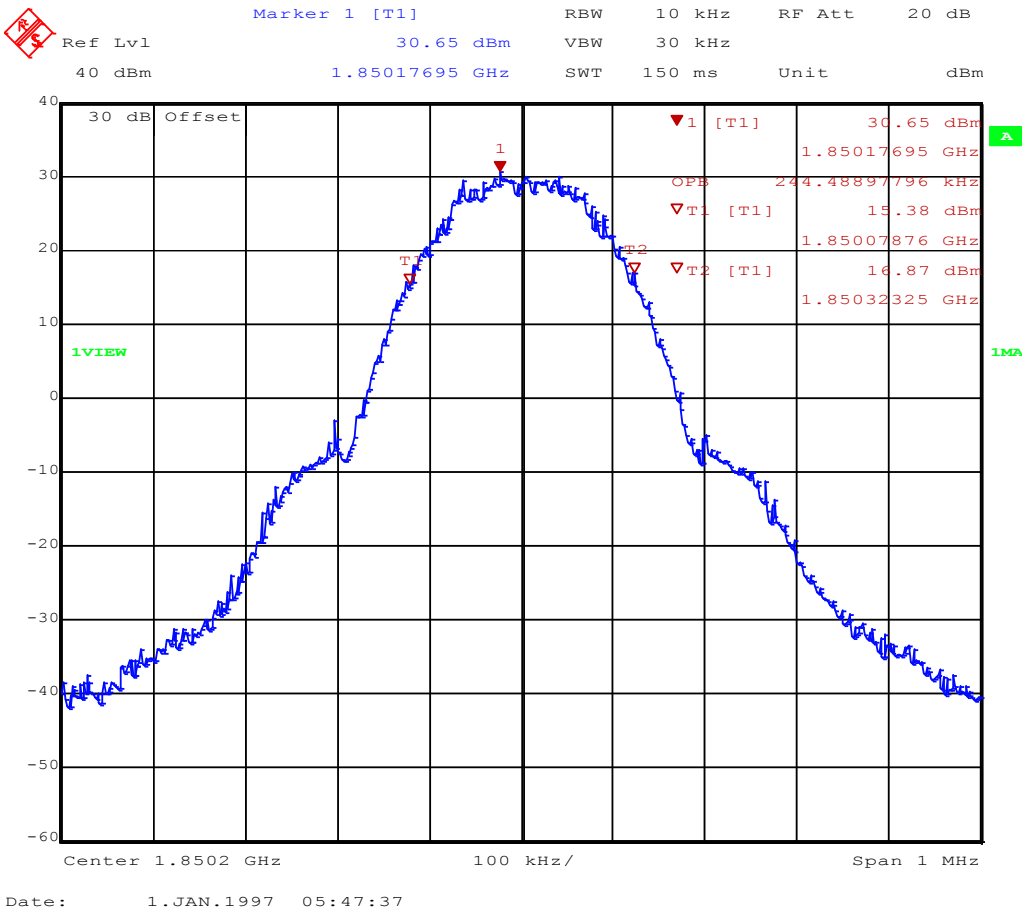


Occupied Bandwidth – GSM1900 F_{LOW}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3915

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:	GPRS 1900 / CH: 512 / Gamma:3 (30 dBm) / Main Slot 2
Test Date:	2014-12-04
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW = 244.489 kHz

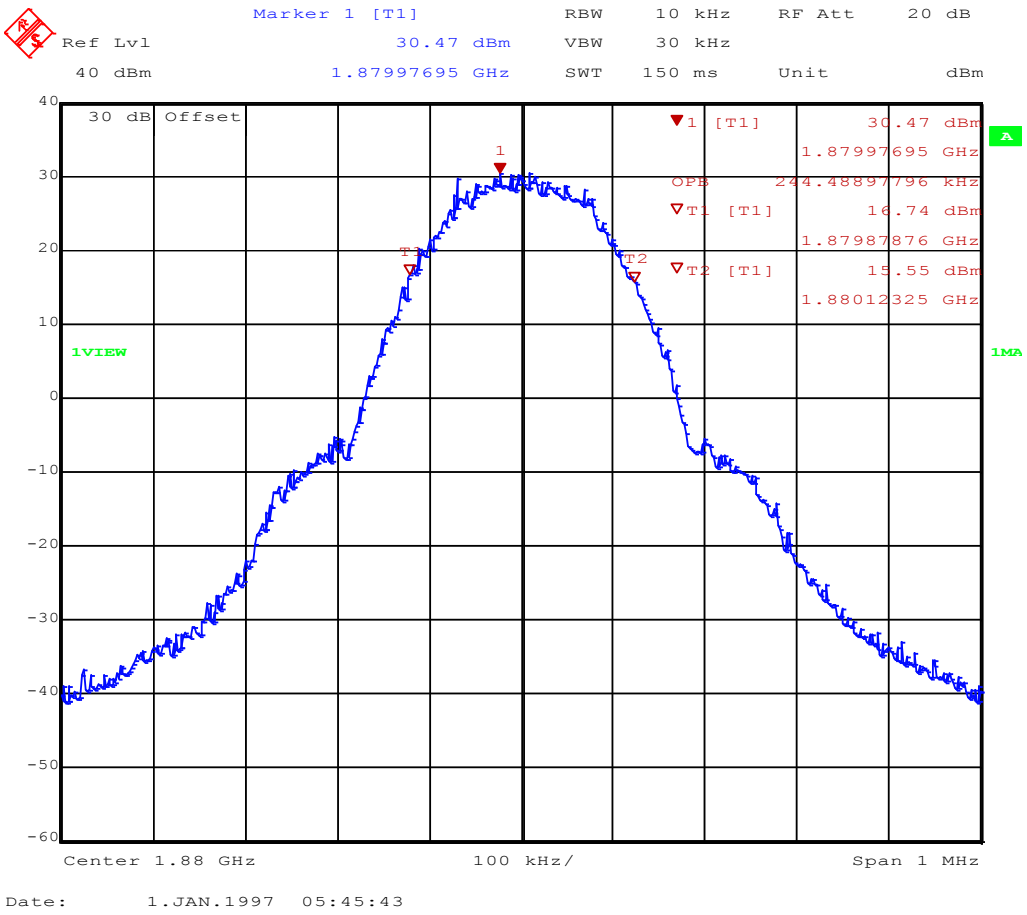


Occupied Bandwidth – GSM1900 F_{MID}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3915

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:	GPRS 1900 / CH: 661 / Gamma:3 (30 dBm) / Main Slot 2
Test Date:	2014-12-04
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW = 244.489 kHz

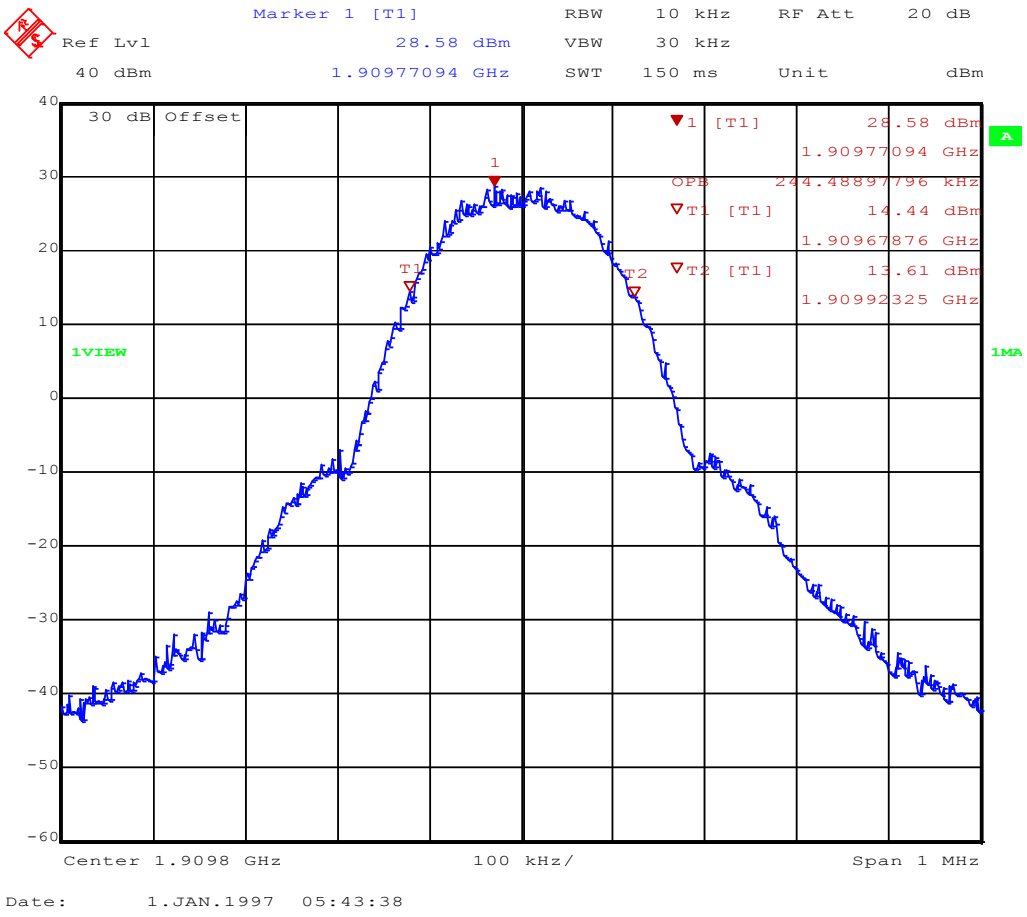


Occupied Bandwidth – GSM1900 F_{HIGH}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3915

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:	GPRS 1900 / CH: 810 / Gamma:3 (30 dBm) / Main Slot 2
Test Date:	2014-12-04
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW = 244.489 kHz

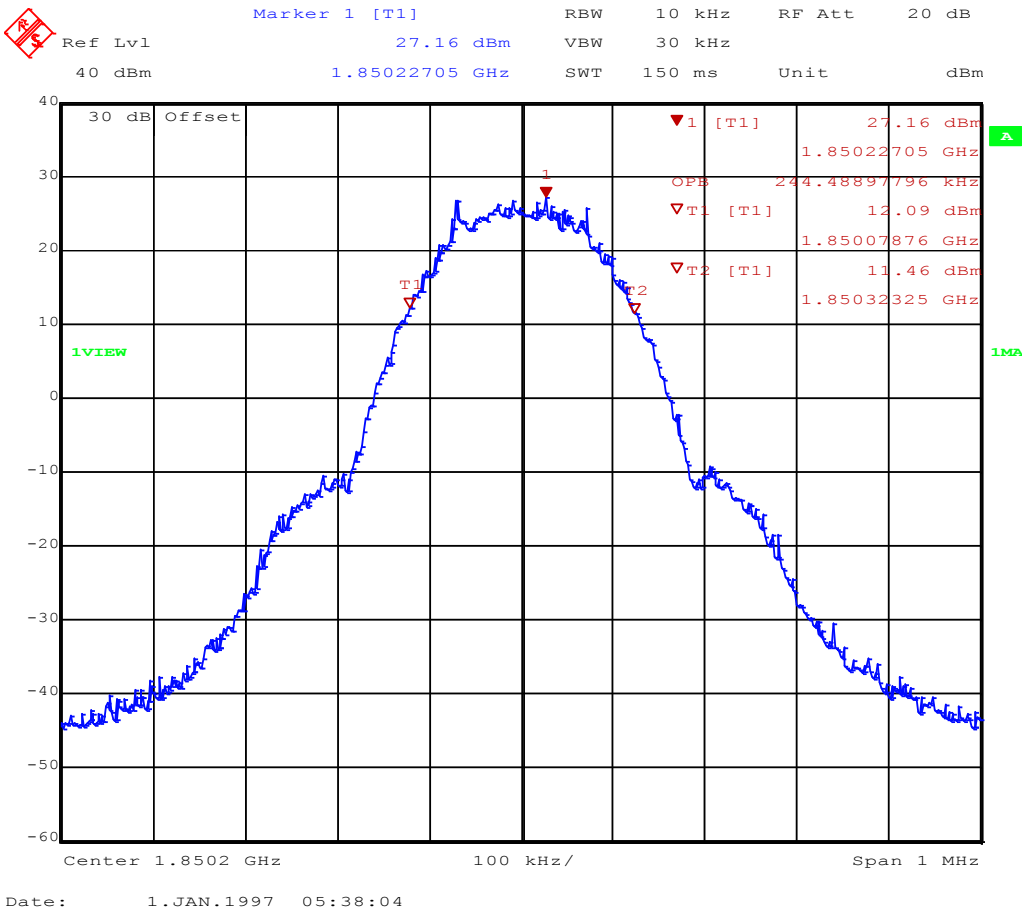


Occupied Bandwidth – EGPRS1900 F_{LOW}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3915

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:	EDGE 1900 / CH: 512 / Gamma:5 (26 dBm) / Main Slot 2
Test Date:	2014-12-04
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW = 244.489 kHz

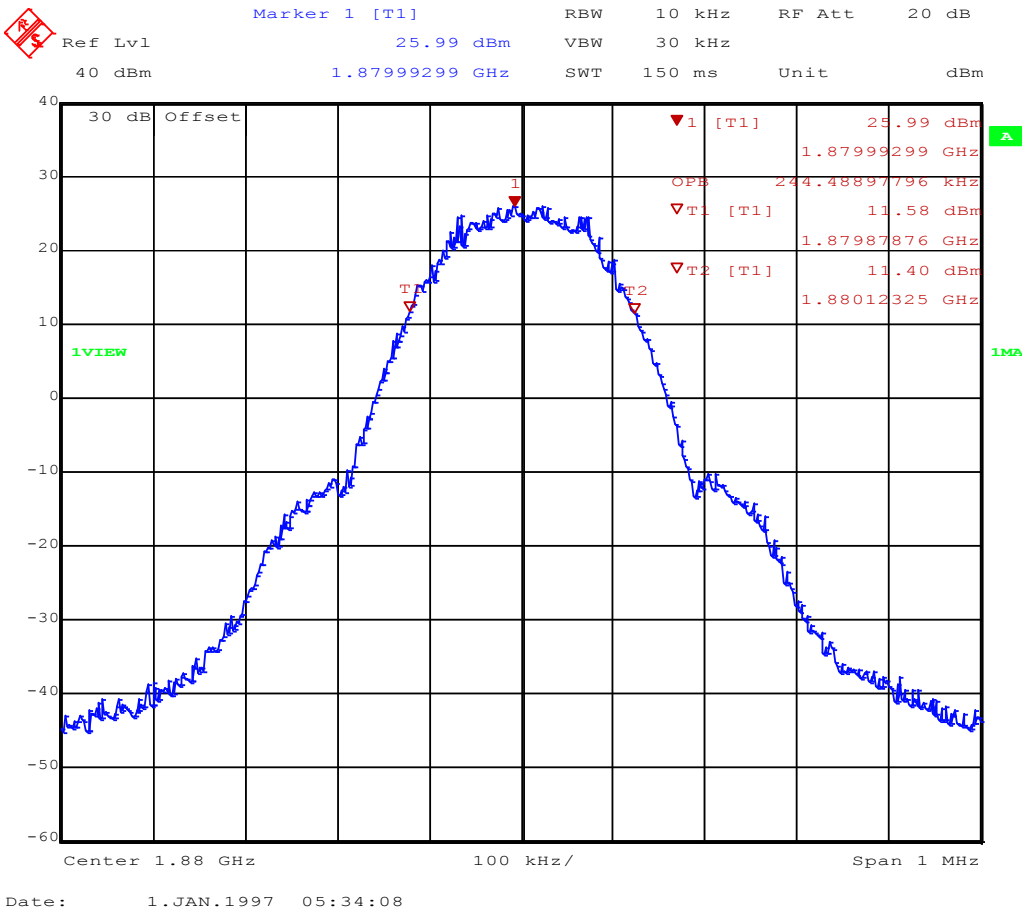


Occupied Bandwidth – EGPRS1900 F_{MID}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3915

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:	EDGE 1900 / CH: 661 / Gamma:5 (26 dBm) / Main Slot 2
Test Date:	2014-12-04
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW = 244.89 kHz

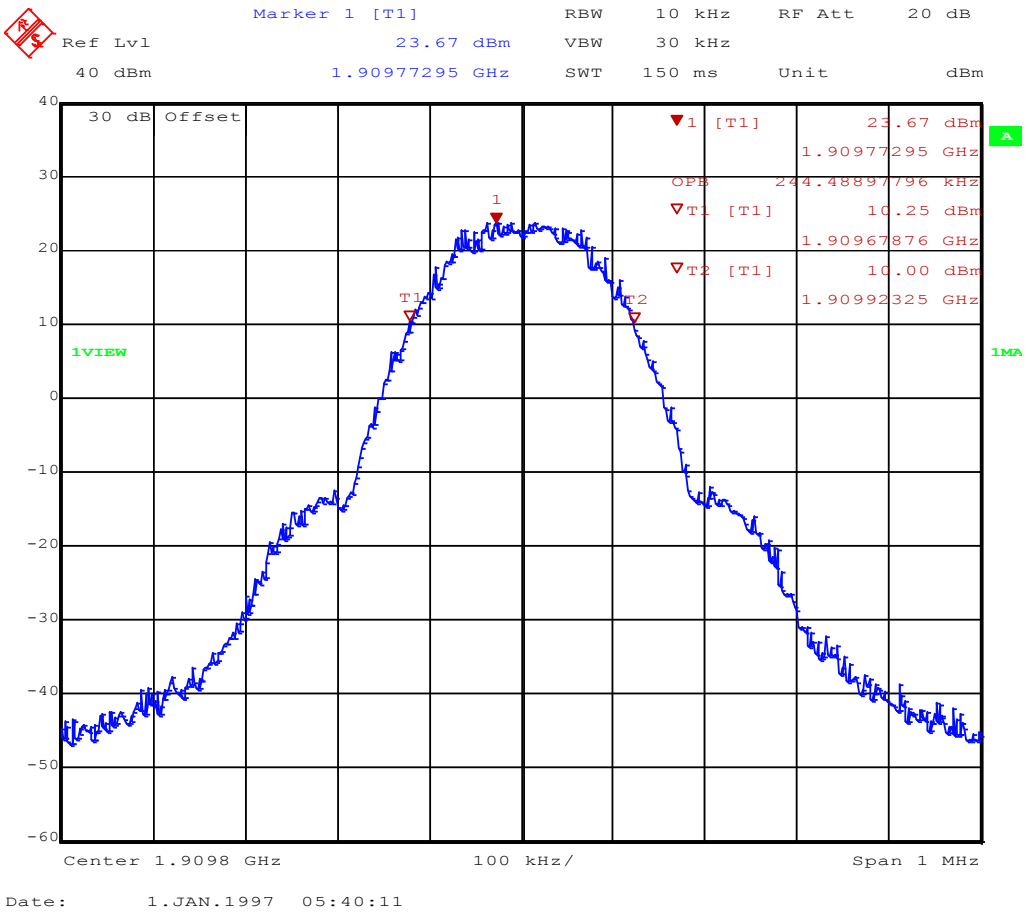


Occupied Bandwidth – EGPRS1900 F_{HIGH}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1406-3915

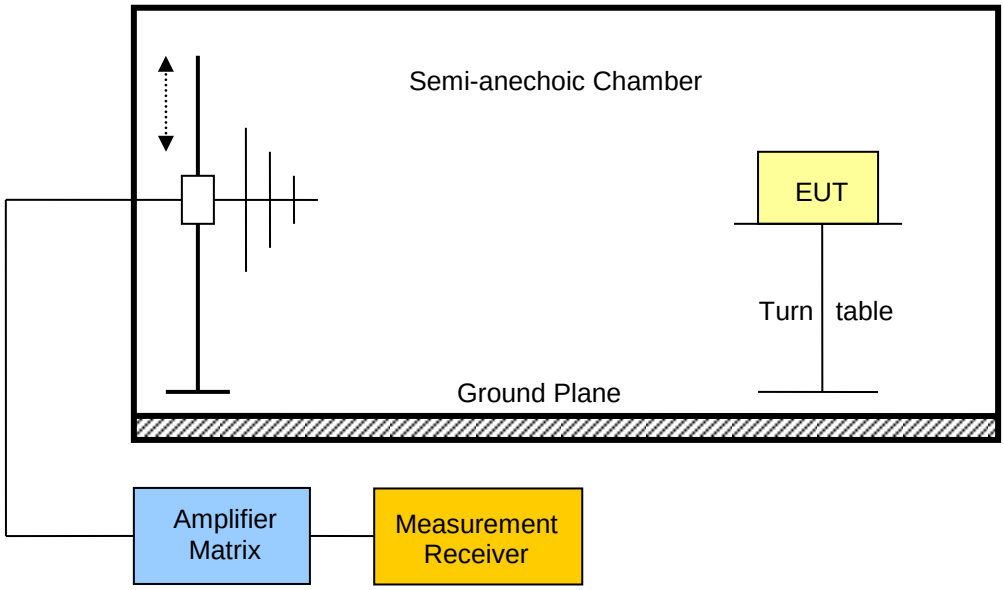
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20
Test Site:	Eurofins Product Service GmbH
Operator:	Burkhard Pudell
Test Conditions:	Tnom / Vnom
Mode:	EDGE 1900 / CH: 810 / Gamma:5 (26 dBm) / Main Slot 2
Test Date:	2014-12-04
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW = 244.489 kHz



3.2 Test Conditions and Results – Effective radiated power / Equivalent isotropic radiated power

Radiated power acc. to FCC 22H / FCC 24E / IC RSS-132 / IC RSS-133		Verdict: PASS
EUT requirement rule parts and clause	Reference	
	FCC § 22.913(a) / FCC § 24.232(c) IC RSS-132 § 4.4 /IC RSS-133 § 6.4	
Test according to measurement reference	Reference Method	
	FCC § 22.913(a) / FCC § 24.232(c) / ANSI/TIA-603-C IC RSS-132 § 4.4 /IC RSS-133 § 6.4	
Test frequency range	Tested frequencies	
	F_{LOW} / F_{MID} / F_{HIGH}	
Limits		
Frequency range	Equipment type	Power limit
824-849 MHz	Mobile transmitter	FCC : 7 Watts (38.45 dBm) e.r.p. IC : 11.5 Watts (40.6 dBm) e.i.r.p.
1850-1910 MHz	Mobile transmitter	FCC : 2 Watts (33 dBm) e.i.r.p. IC : 2 Watts (33 dBm) e.i.r.p.

Test setup



Test procedure

1. EUT set to test mode
2. The radiated power is measured with a measurement antenna in vertical polarization
3. To obtain maximum level the EUT is rotated
4. The EUT is replaced with a half-wave dipole and the power to the dipole is adjusted to obtain same radiated power measurement value

Test results – GSM850 E.R.P.							
Channel	Frequency [MHz]	Mode	Pol.	Power [dBm e.r.p]	Limit [dBm e.r.p]	Margin [dB]	Result
F_{LOW}	824.2	GPRS850	hor	28.2	38.45	-10.25	PASS
F_{MID}	836.2	GPRS850	hor	28.4	38.45	-10.05	PASS
F_{HIGH}	848.8	GPRS850	hor	28.6	38.45	-09.85	PASS
F_{LOW}	824.2	EGPRS850	hor	22.6	38.45	-15.85	PASS
F_{MID}	836.2	EGPRS850	hor	22.8	38.45	-15.65	PASS
F_{HIGH}	848.8	EGPRS850	hor	22.6	38.45	-15.85	PASS
Test results – GSM850 E.I.R.P.							
Channel	Frequency [MHz]	Mode	Pol.	Power [dBm e.i.r.p]	Limit [dBm e.i.r.p]	Margin [dB]	Result
F_{LOW}	824.2	GPRS850	hor	30.35	40.6	-10.25	PASS
F_{MID}	836.2	GPRS850	hor	30.55	40.6	-10.05	PASS
F_{HIGH}	848.8	GPRS850	hor	30.75	40.6	-09.85	PASS
F_{LOW}	824.2	EGPRS850	hor	24.75	40.6	-15.85	PASS
F_{MID}	836.2	EGPRS850	hor	24.95	40.6	-15.65	PASS
F_{HIGH}	848.8	EGPRS850	hor	24.75	40.6	-15.85	PASS
Test results – GSM1900 E.I.R.P.							
Channel	Frequency [MHz]	Mode	Pol.	Power [dBm e.i.r.p]	Limit [dBm e.i.r.p]	Margin [dB]	Result
F_{LOW}	1850.2	GPRS1900	hor	32.7	33	-00.30	PASS
F_{MID}	1880	GPRS1900	hor	31.9	33	-01.10	PASS
F_{HIGH}	1909.8	GPRS1900	hor	31.1	33	-01.90	PASS
F_{LOW}	1850.2	EGPRS1900	hor	28.9	33	-04.10	PASS
F_{MID}	1880	EGPRS1900	hor	28.0	33	-05.00	PASS
F_{HIGH}	1909.8	EGPRS1900	hor	26.8	33	-06.20	PASS
Comments:							

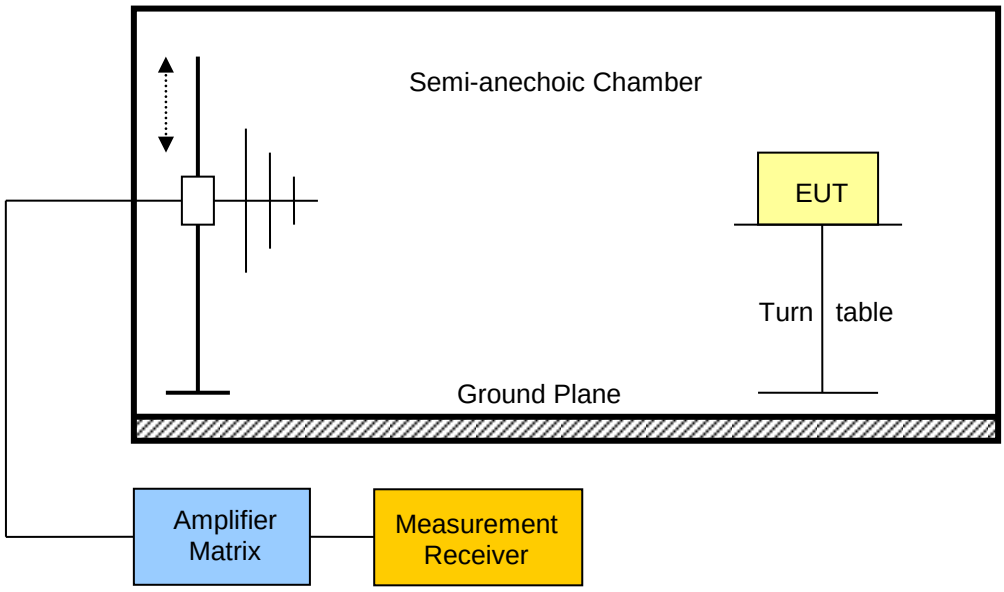
3.3 Test Conditions and Results – Transmitter radiated emissions

Transmitter radiated power acc. to FCC 22H / FCC 24E / IC RSS-132 / IC RSS-133	**Verdict: PASS**
Test according referenced standards	Reference Method
	FCC § 22.917(a) / FCC § 24.238(a) IC RSS-132 § 4.5 / IC RSS-133 § 6.5
Test according to measurement reference	Reference Method
	ANSI/TIA-603-C
Test frequency range	Tested frequencies
	30 MHz – 10th Harmonic

Limits

Frequency range	Limit
824-849 MHz	Attenuation below transmitter power ≥ 43 + 10 · $\log_{10}$(P) [dB] = -13 dBm
1850-1910 MHz	Attenuation below transmitter power ≥ 43 + 10 · $\log_{10}$(P) [dB] = -13 dBm

Test setup



Test procedure

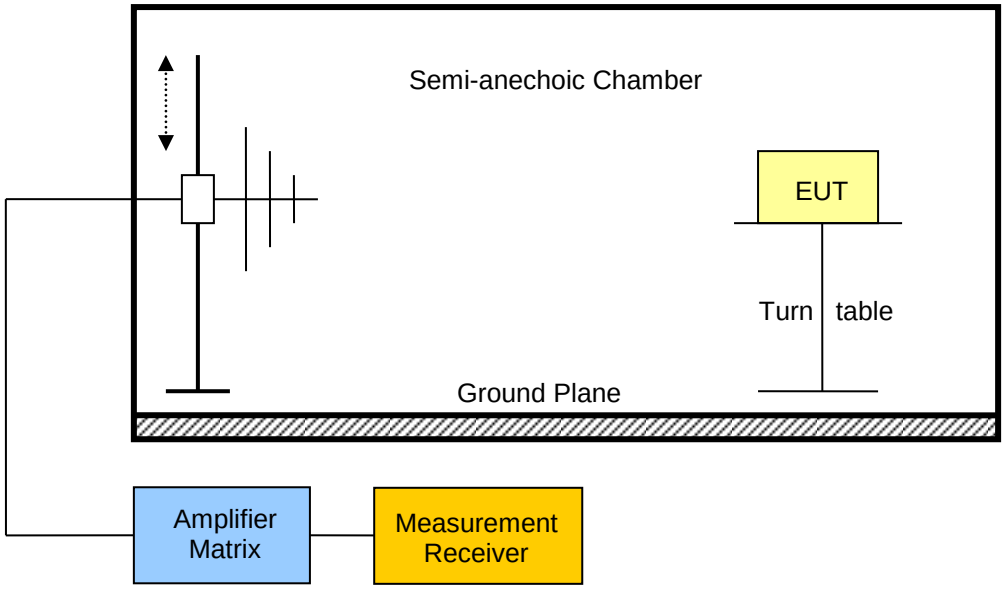
1. EUT set to test mode
2. Maximum emission level is measured by rotating the EUT and adjusting the antenna height for vertical polarization
3. The EUT is replaced by a substitution antenna and generator
4. The power level is set to obtain the same power reading
5. Measurement is repeated for horizontal polarization

Test results – GSM850							
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dbm]	Pol.	Limit [dBm]	Margin [dB]
128	824.2	GPRS850	823.984	-18.40	hor	-13.00	-05.40
128	824.2	GPRS850	823.992	-20.50	ver	-13.00	-07.53
128	824.2	GPRS850	1648	-25.50	ver	-13.00	-12.47
128	824.2	GPRS850	1648	-19.20	hor	-13.00	-06.24
188	836.2	GPRS850	1666	-20.10	hor	-13.00	-07.05
188	836.2	GPRS850	1672	-29.90	ver	-13.00	-16.92
251	848.8	GPRS850	849.016	-17.50	hor	-13.00	-04.51
251	848.8	GPRS850	849.028	-22.40	ver	-13.00	-09.41
251	848.8	GPRS850	1696	-28.40	ver	-13.00	-15.42
251	848.8	GPRS850	1696	-24.70	hor	-13.00	-11.67
251	848.8	GPRS850	2543	-27.50	hor	-13.00	-14.46
128	824.2	EGPRS850	823.972	-28.50	ver	-13.00	-15.55
128	824.2	EGPRS850	823.996	-23.20	hor	-13.00	-10.18
251	848.8	EGPRS850	849.04	-26.50	ver	-13.00	-13.55
251	848.8	EGPRS850	849.04	-23.60	hor	-13.00	-10.60
Comments:							

Test results – GSM1900							
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dbm]	Pol.	Limit [dBm]	Margin [dB]
512	1850.2	GPRS1900	374.4	-23.90	ver	-13.00	-10.93
512	1850.2	GPRS1900	819.319	-24.80	hor	-13.00	-11.83
512	1850.2	GPRS1900	1850	-22.70	ver	-13.00	-09.75
512	1850.2	GPRS1900	1850	-15.90	hor	-13.00	-02.90
810	1909.8	GPRS1900	1910	-21.70	ver	-13.00	-08.75
810	1909.8	GPRS1900	1910	-16.00	hor	-13.00	-03.04
512	1850.2	EGPRS1900	1850	-27.00	ver	-13.00	-13.97
512	1850.2	EGPRS1900	1850	-20.80	hor	-13.00	-07.79
810	1909.8	EGPRS1900	1910	-25.50	ver	-13.00	-12.49
810	1909.8	EGPRS1900	1910	-23.10	hor	-13.00	-10.15
Comments:							

3.4 Test Conditions and Results – Receiver radiated emissions

Receiver radiated emissions acc. to IC RSS-132 / IC RSS-133				Verdict: PASS
Test according to measurement reference	Reference Method			
	ANSI C63.4			
Test frequency range	Tested frequencies			
	30 MHz – 3th 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 1GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1MHz with peak/average detector is used above 1GHz 4. Markers are set to peak emission levels

Test results – GSM850

Channel	Frequency [MHz]	Emission [MHz]	Emission Level [dBµV/m]	Pol.	Det.	Limit [dBµV/m]	Margin dB[dB]
188	IDLE850	374.4	36.44	ver	pk	46.00	-09.56
188	IDLE850	750.4	37.38	hor	pk	46.00	-08.62

Test results – GSM1900

Channel	Frequency [MHz]	Emission [MHz]	Emission Level [dBµV/m]	Pol.	Det.	Limit [dBµV/m]	Margin [dB]
661	IDLE1900	374.4	36.56	ver	pk	46.00	-09.44
661	IDLE1900	750.4	37.54	hor	pk	46.00	-08.46
661	IDLE1900	7864	52.46	hor	pk	53.98	-01.52
661	IDLE1900	7984	51.57	ver	pk	53.98	-02.41

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 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 188, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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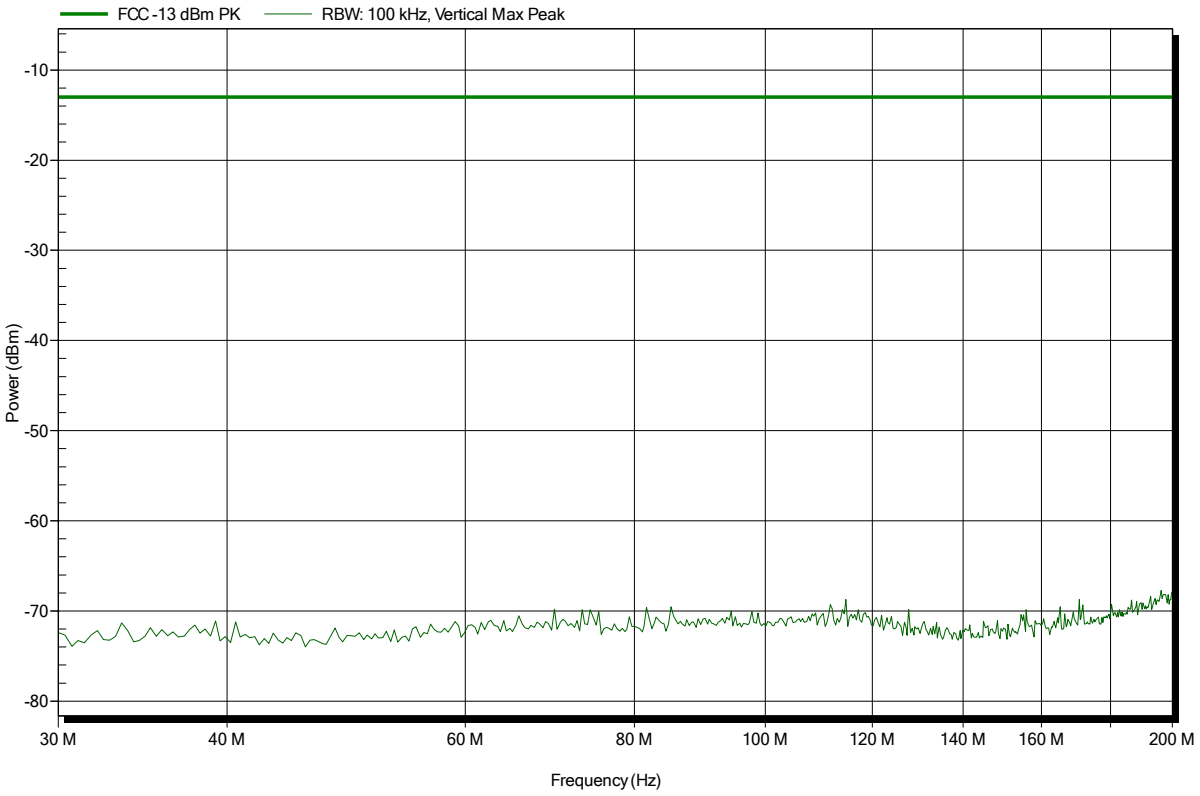

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 188, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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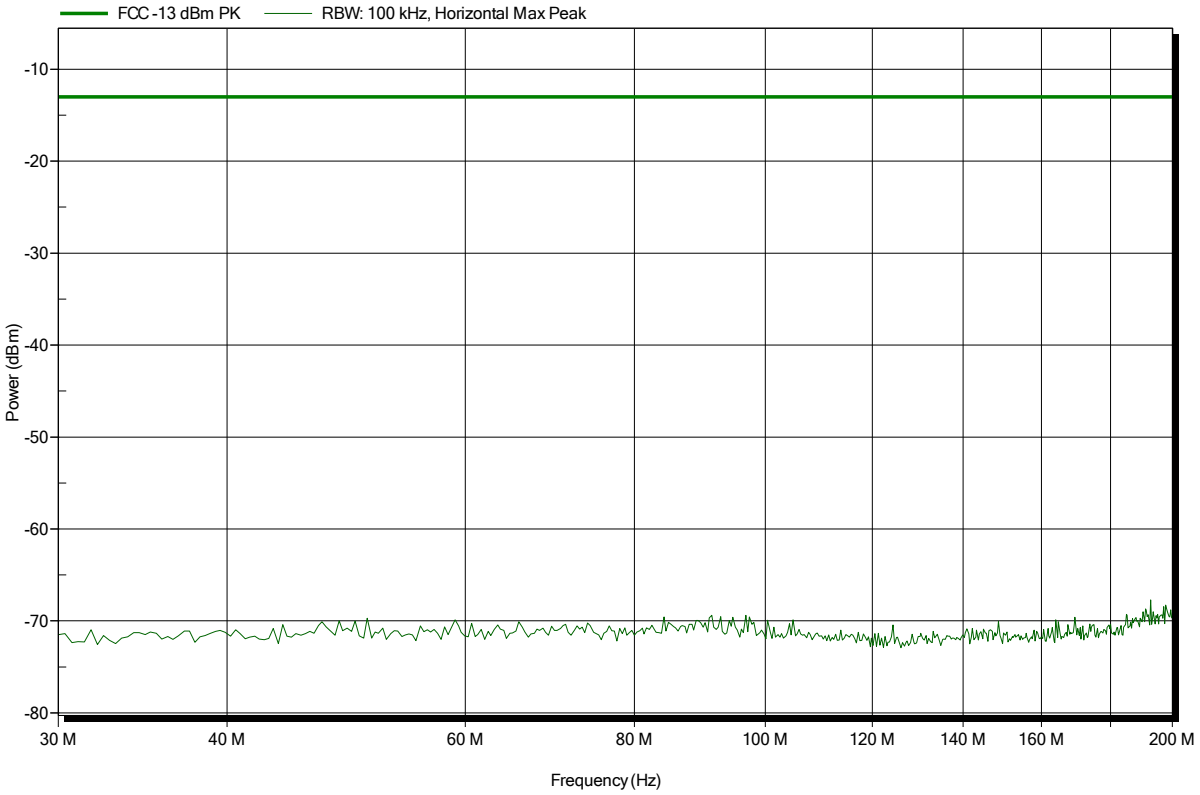

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 128, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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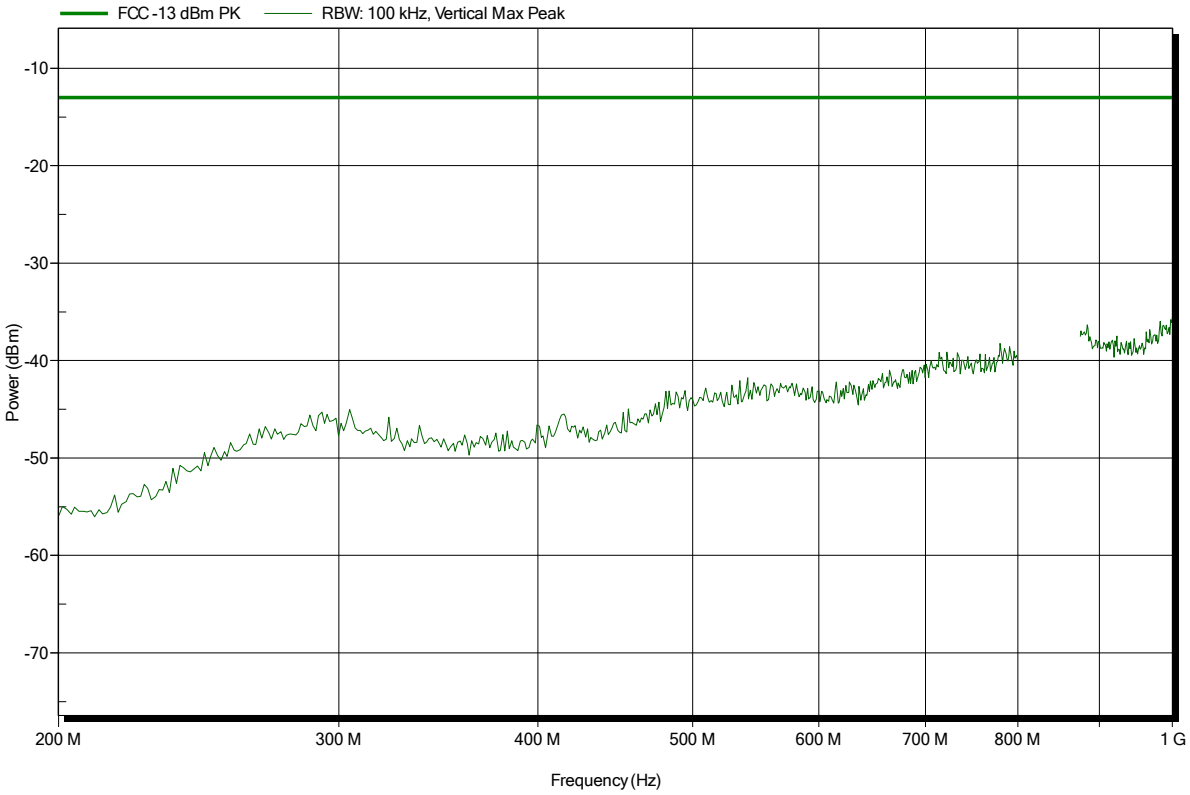

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 128, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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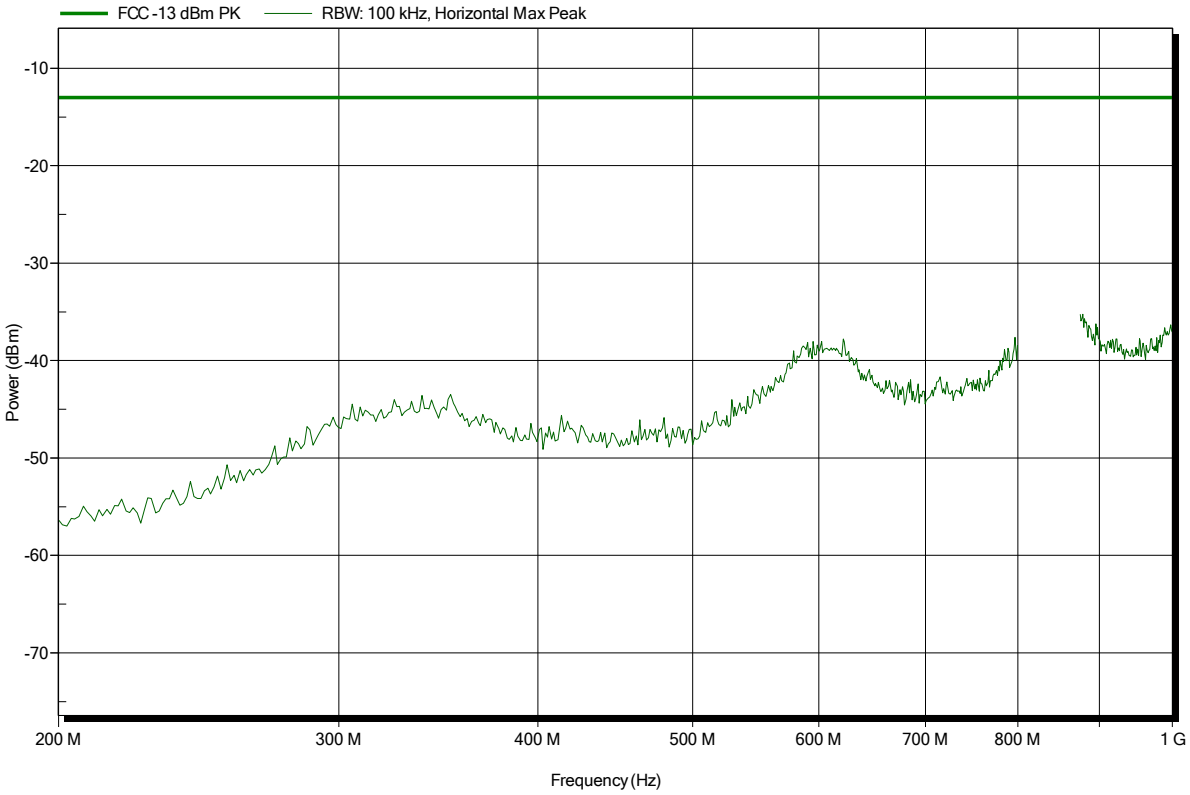

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 128, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical

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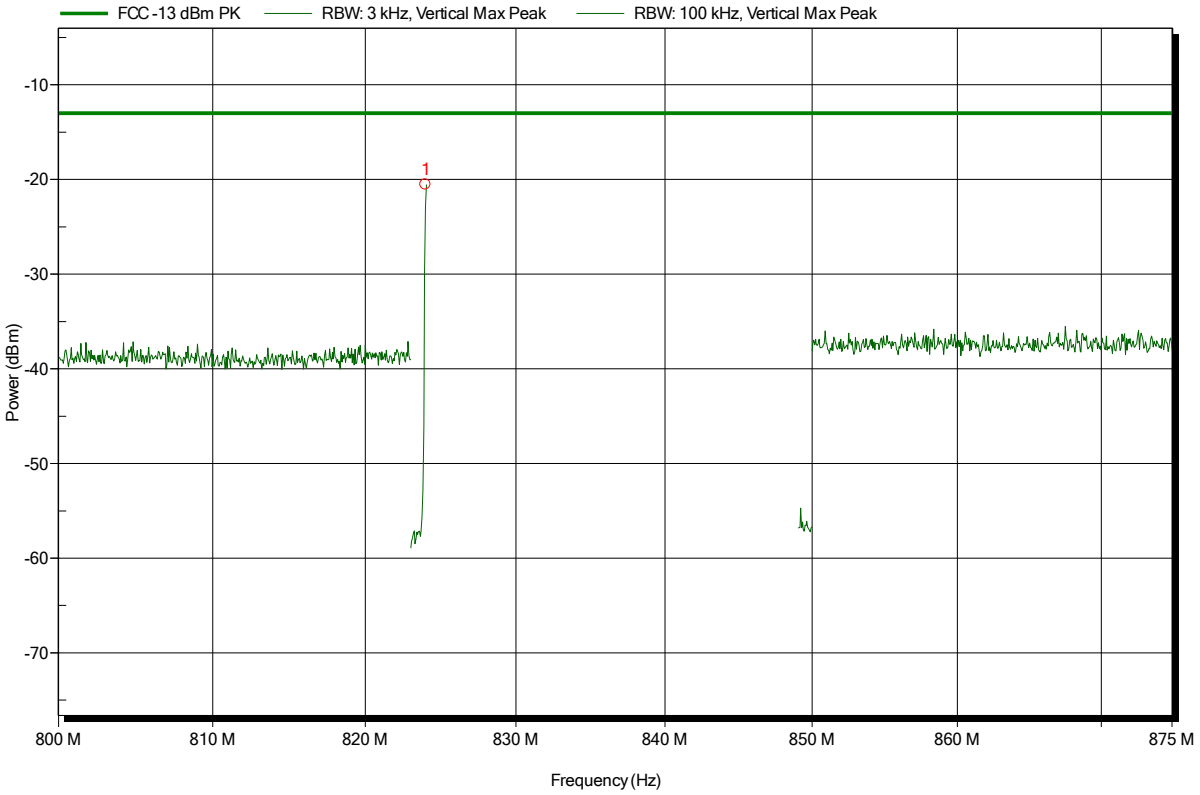

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
823.992 MHz	-20.5 dBm	-13 dBm	-7.53 dB	Pass

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 128, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical

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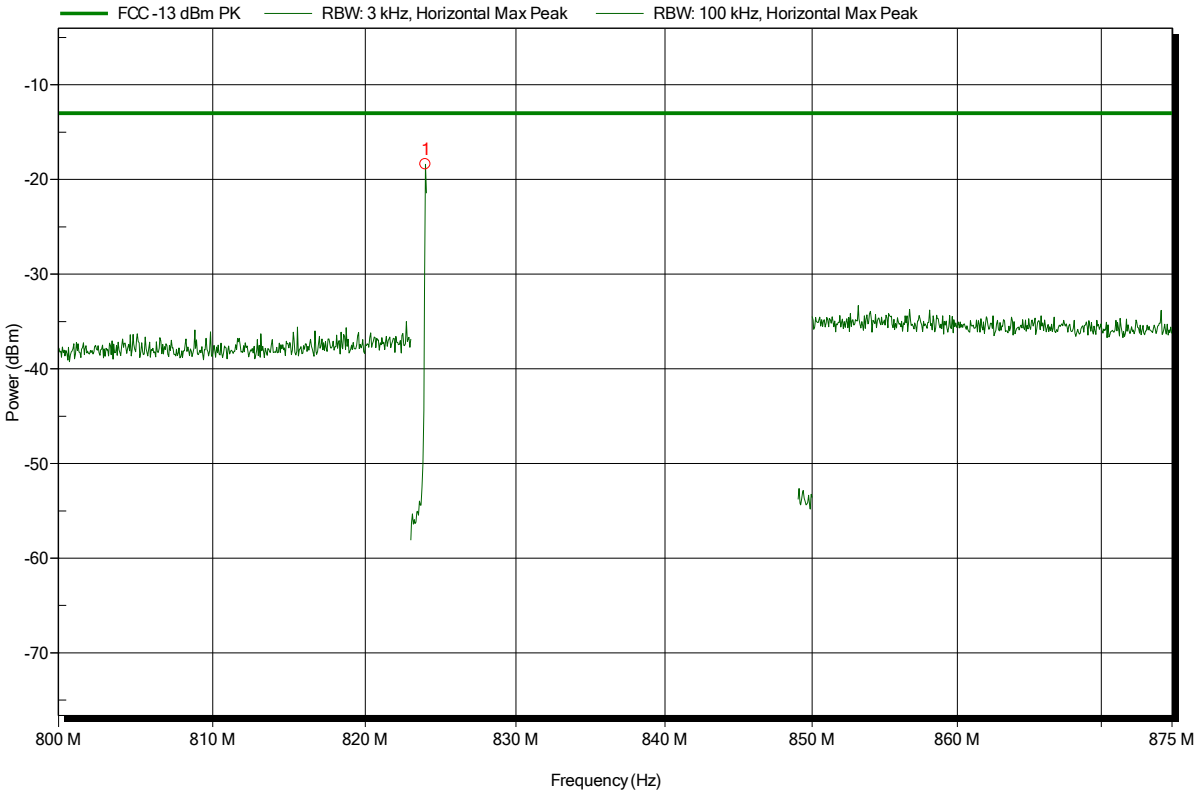

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
823.984 MHz	-18.4 dBm	-13 dBm	-5.4 dB	Pass

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 188, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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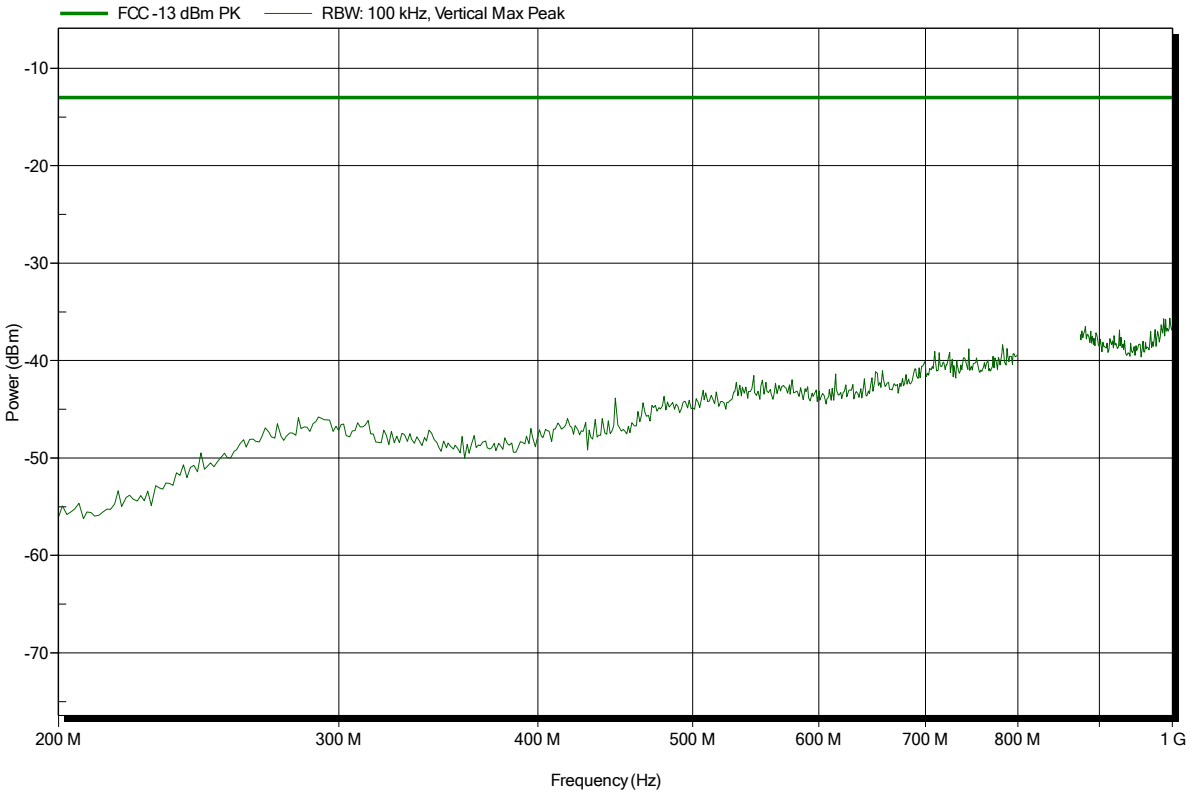

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 188, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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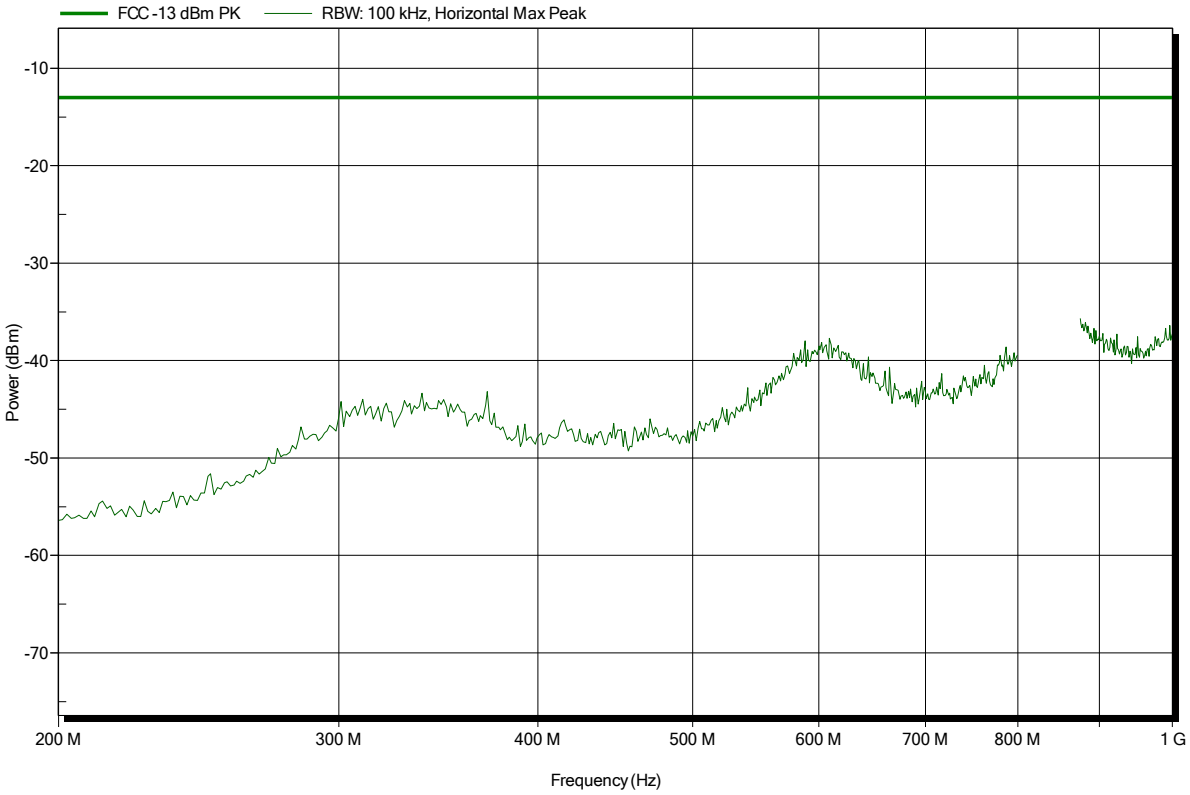

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 188, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical

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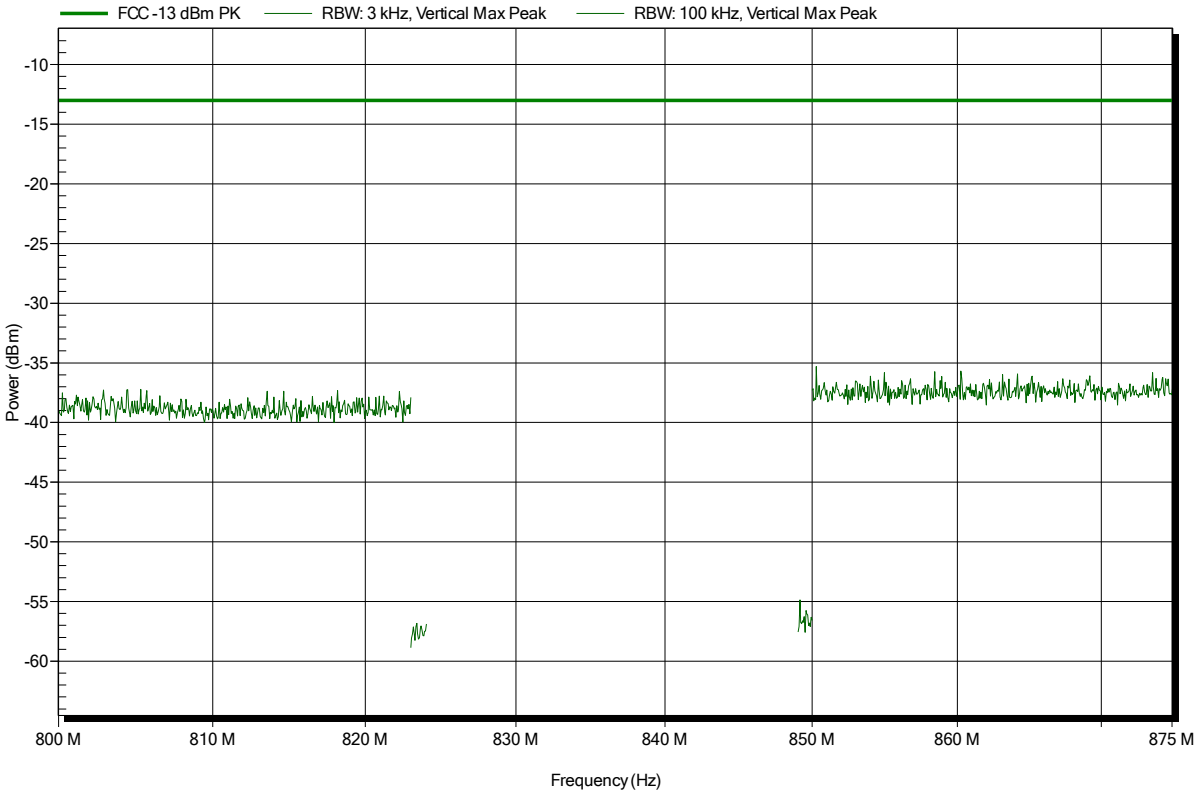

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 188, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical

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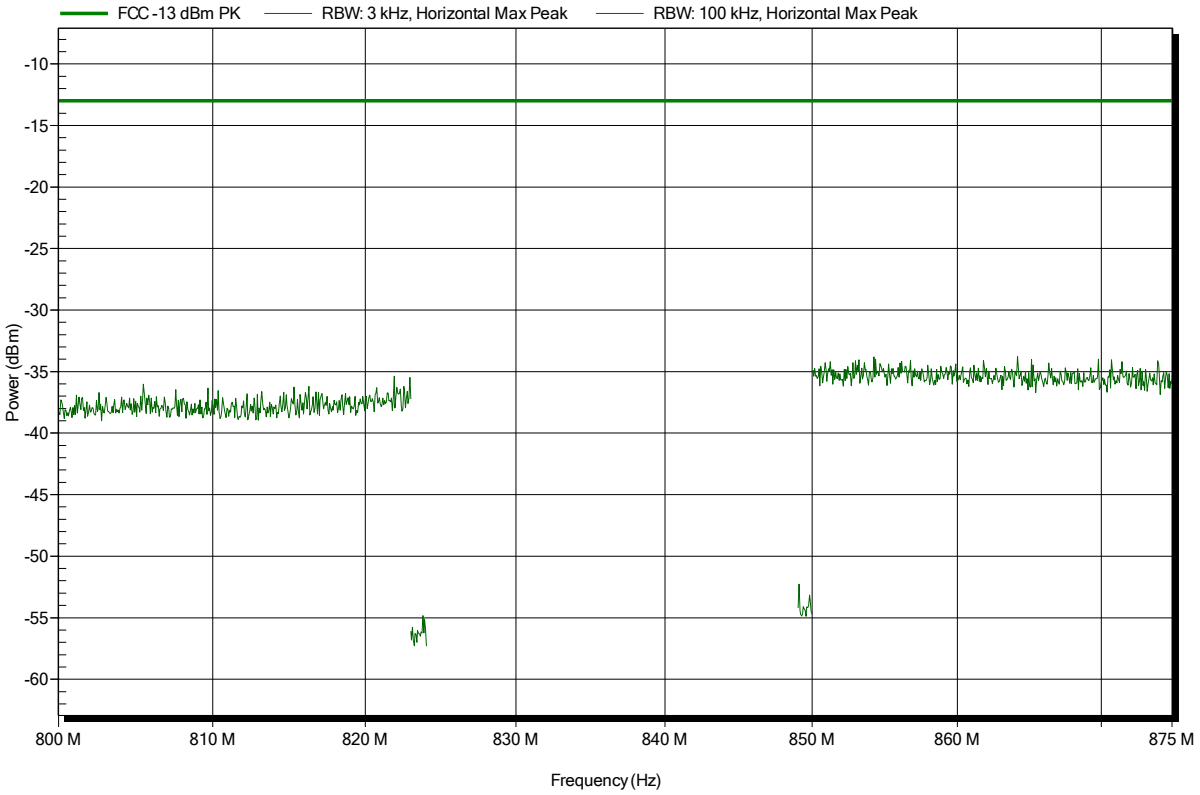

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 251, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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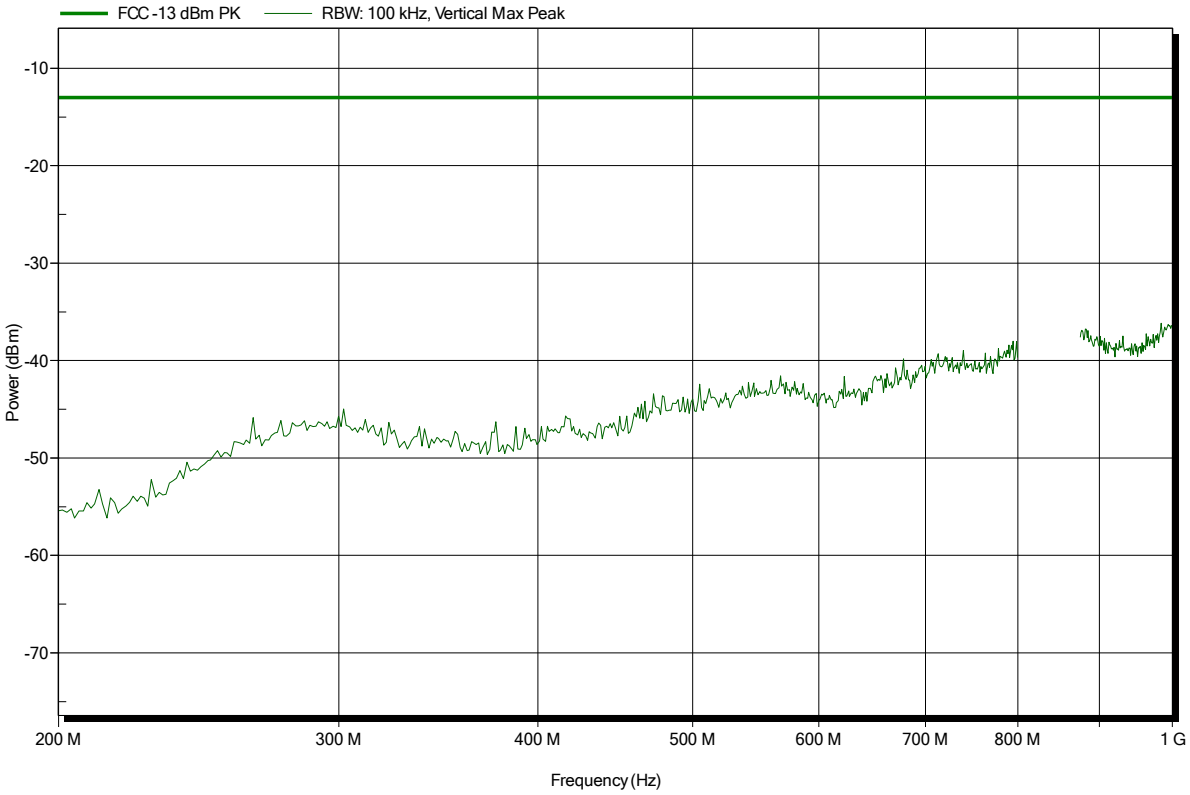

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 251, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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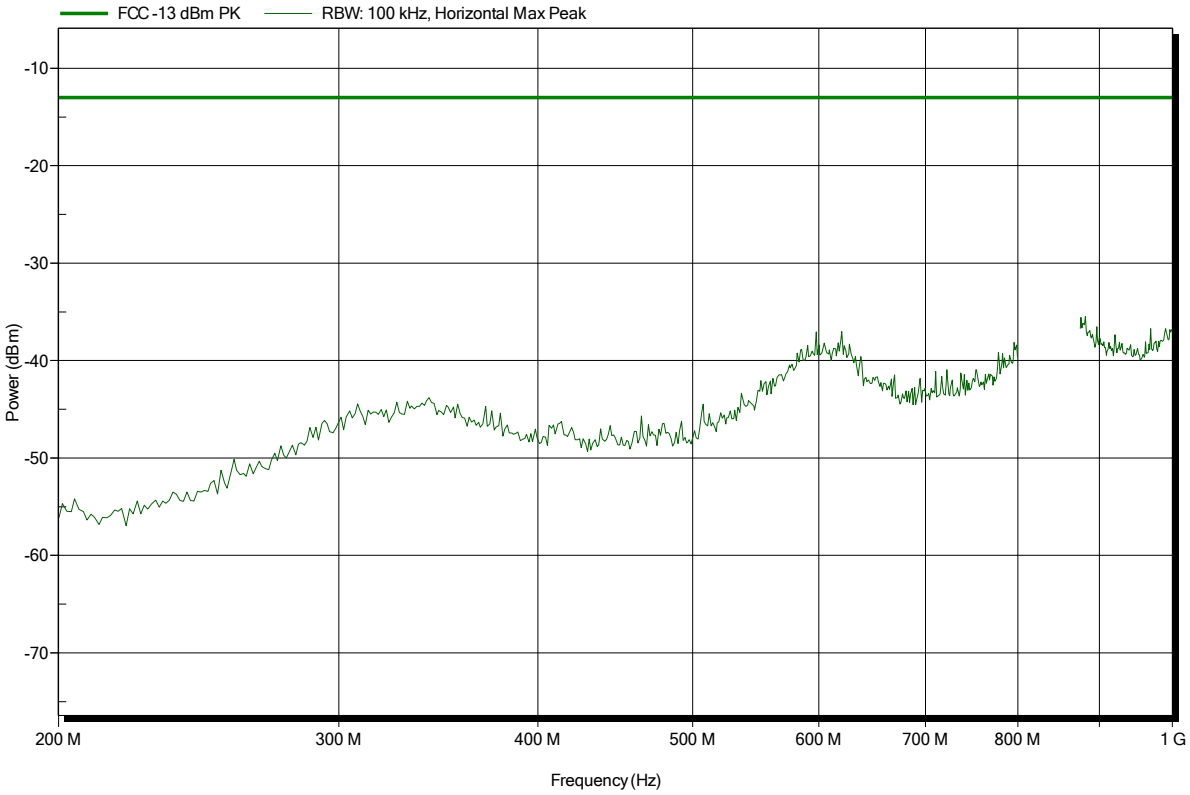

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 251, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical

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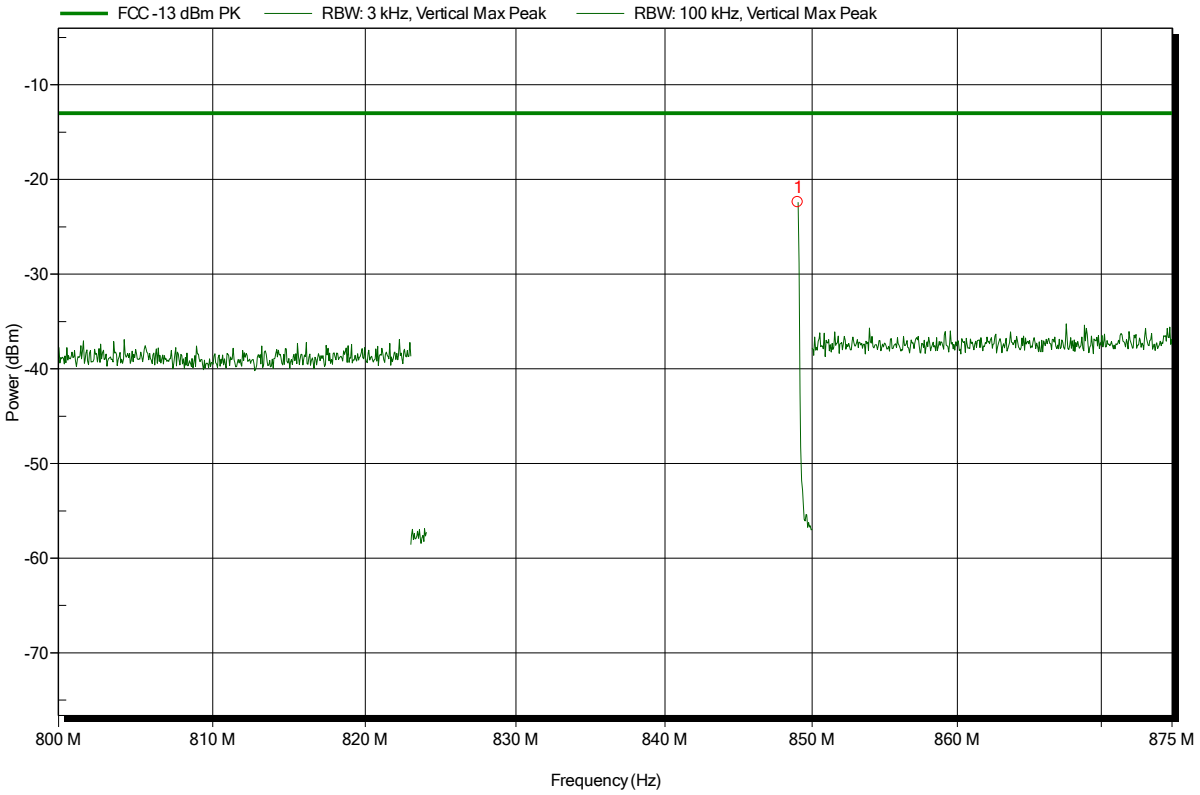

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
849.028 MHz	-22.4 dBm	-13 dBm	-9.41 dB	Pass

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 251, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical

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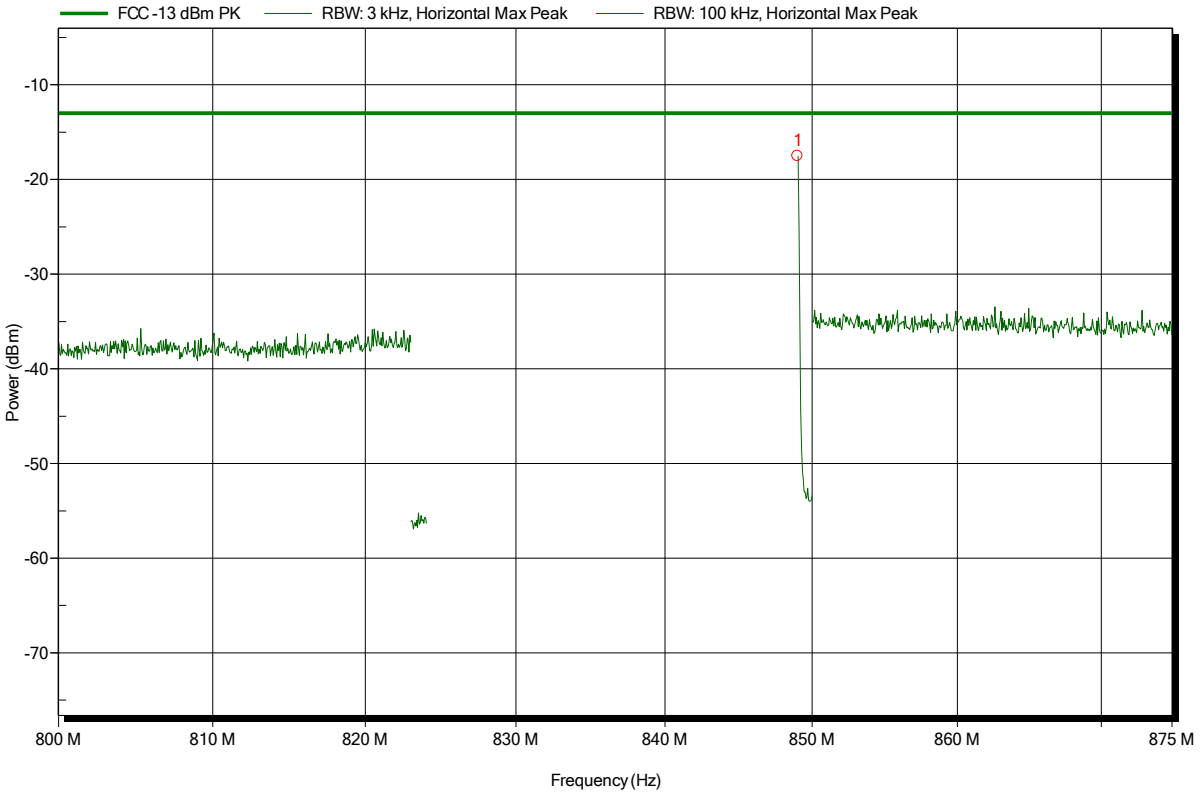

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
849.016 MHz	-17.5 dBm	-13 dBm	-4.51 dB	Pass

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; EDGE 850, CH: 128, 1 uplink slot, Gamma 6
Test Date:	2014-12-03
Note:	EUT vertical

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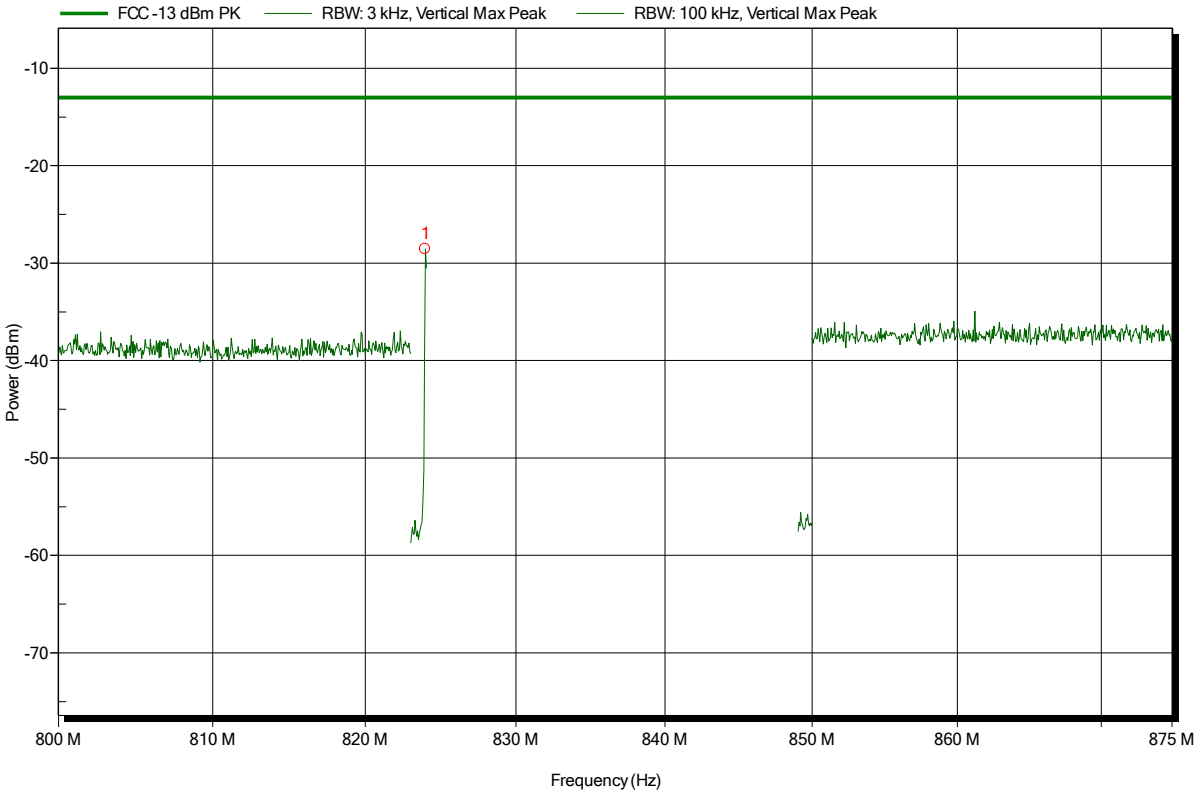

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
823.972 MHz	-28.5 dBm	-13 dBm	-15.55 dB	Pass

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; EDGE 850, CH: 128, 1 uplink slot, Gamma 6
Test Date:	2014-12-03
Note:	EUT vertical

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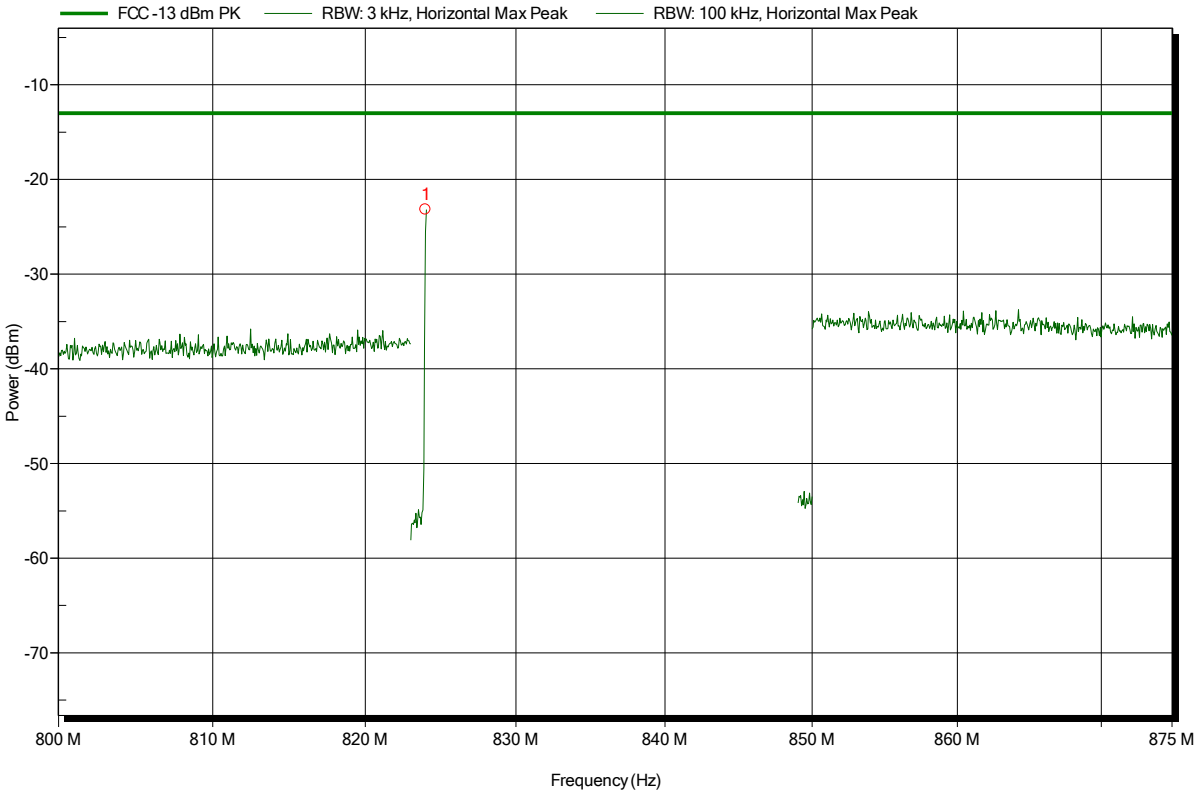

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
823.996 MHz	-23.2 dBm	-13 dBm	-10.18 dB	Pass

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; EDGE 850, CH: 188, 1 uplink slot, Gamma 6
Test Date:	2014-12-03
Note:	EUT vertical

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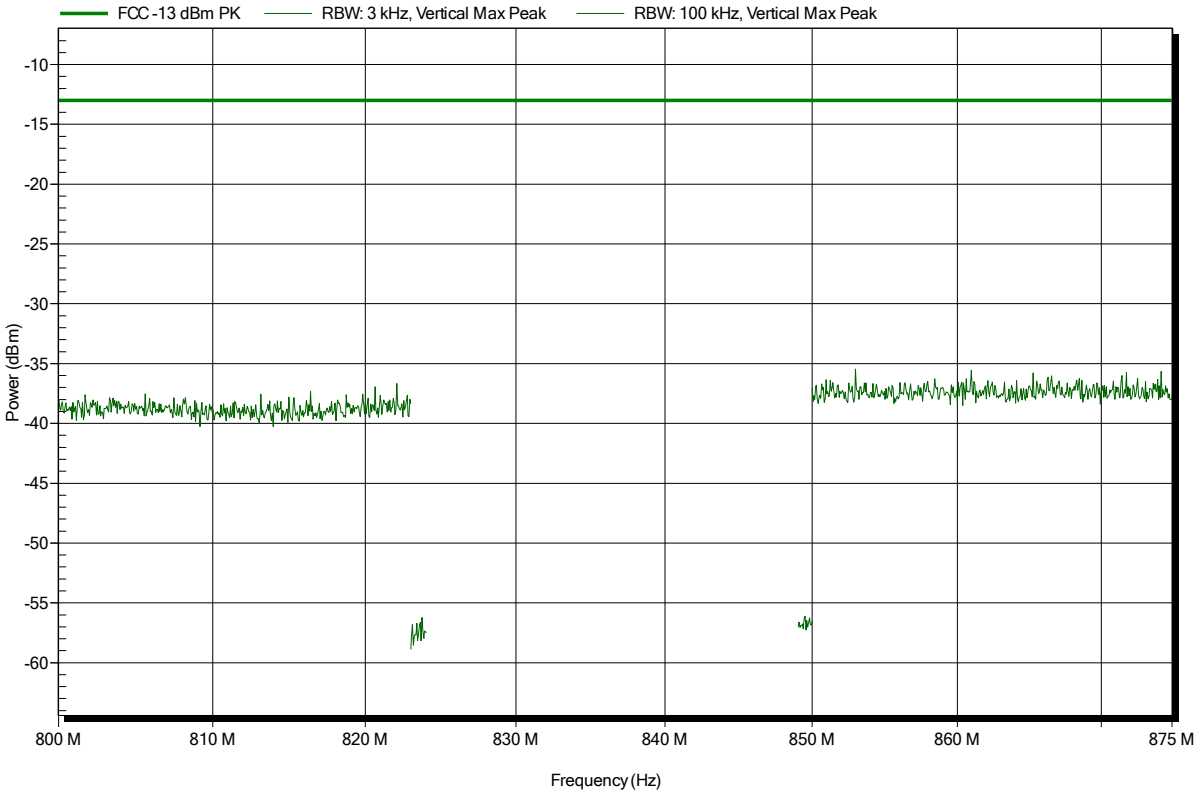

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; EDGE 850, CH: 188, 1 uplink slot, Gamma 6
Test Date:	2014-12-03
Note:	EUT vertical

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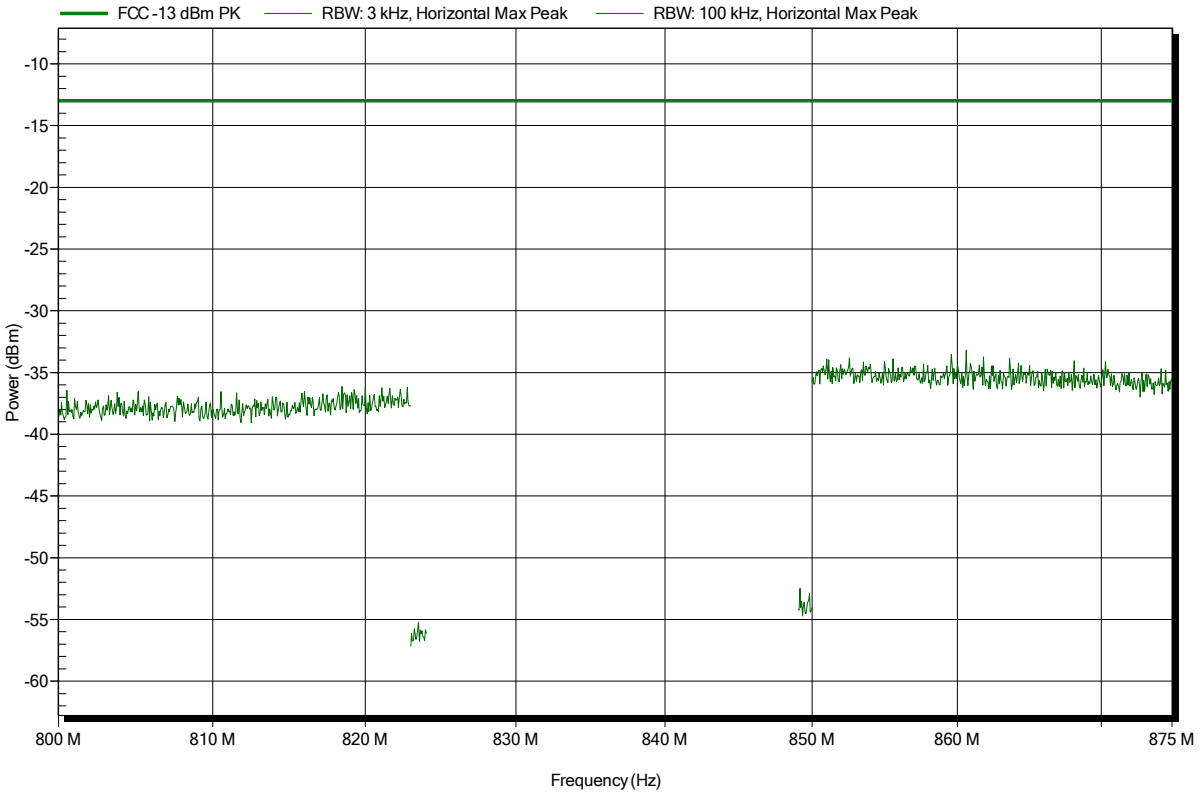

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; EDGE 850, CH: 251, 1 uplink slot, Gamma 6
Test Date:	2014-12-03
Note:	EUT vertical

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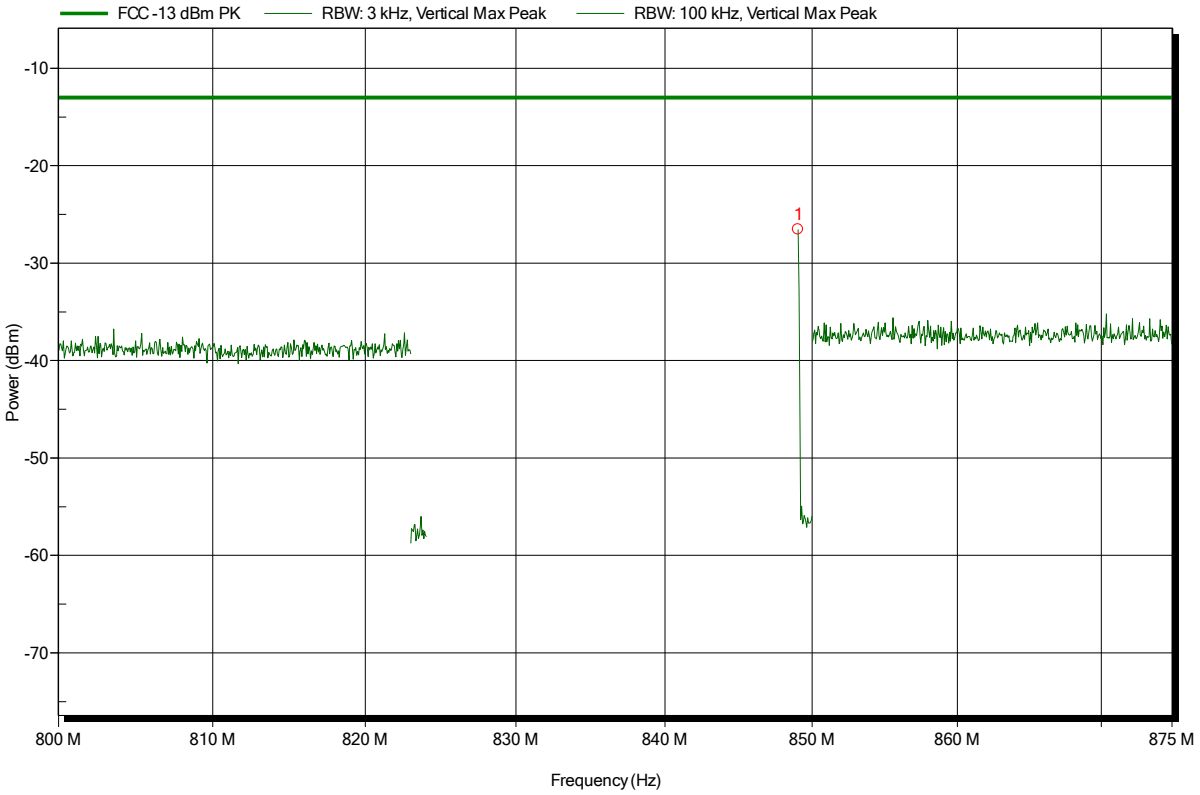

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
849.04 MHz	-26.5 dBm	-13 dBm	-13.55 dB	Pass

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; EDGE 850, CH: 251, 1 uplink slot, Gamma 6
Test Date:	2014-12-03
Note:	EUT vertical

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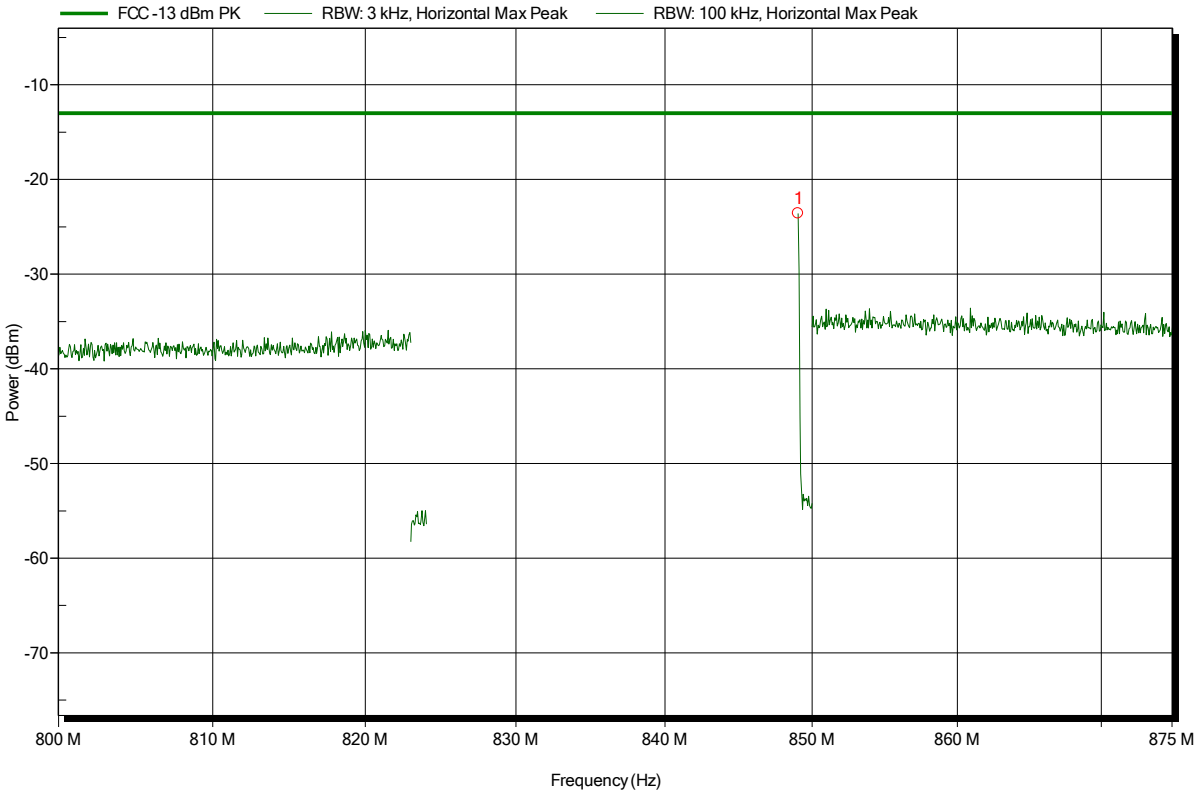

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
849.04 MHz	-23.6 dBm	-13 dBm	-10.6 dB	Pass

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 128, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical

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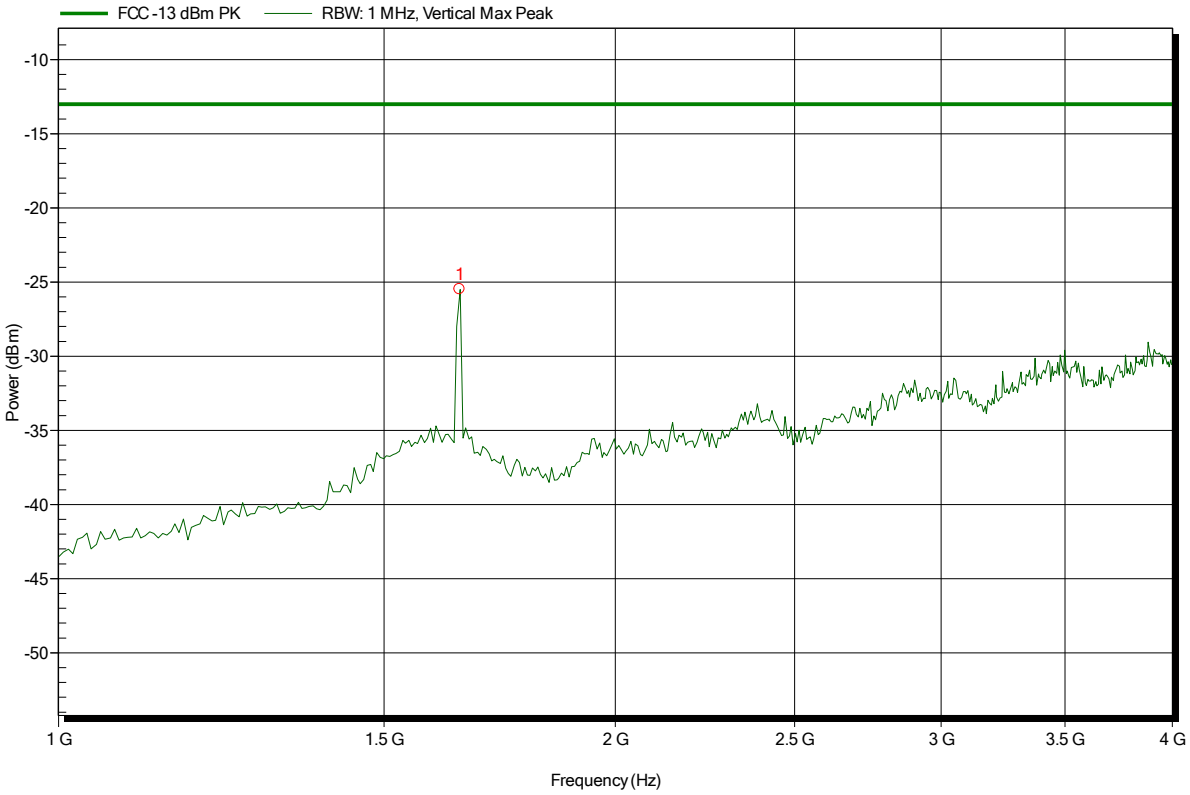

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.648 GHz	-25.5 dBm	-13 dBm	-12.47 dB	Pass

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 128, 1 uplink slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical

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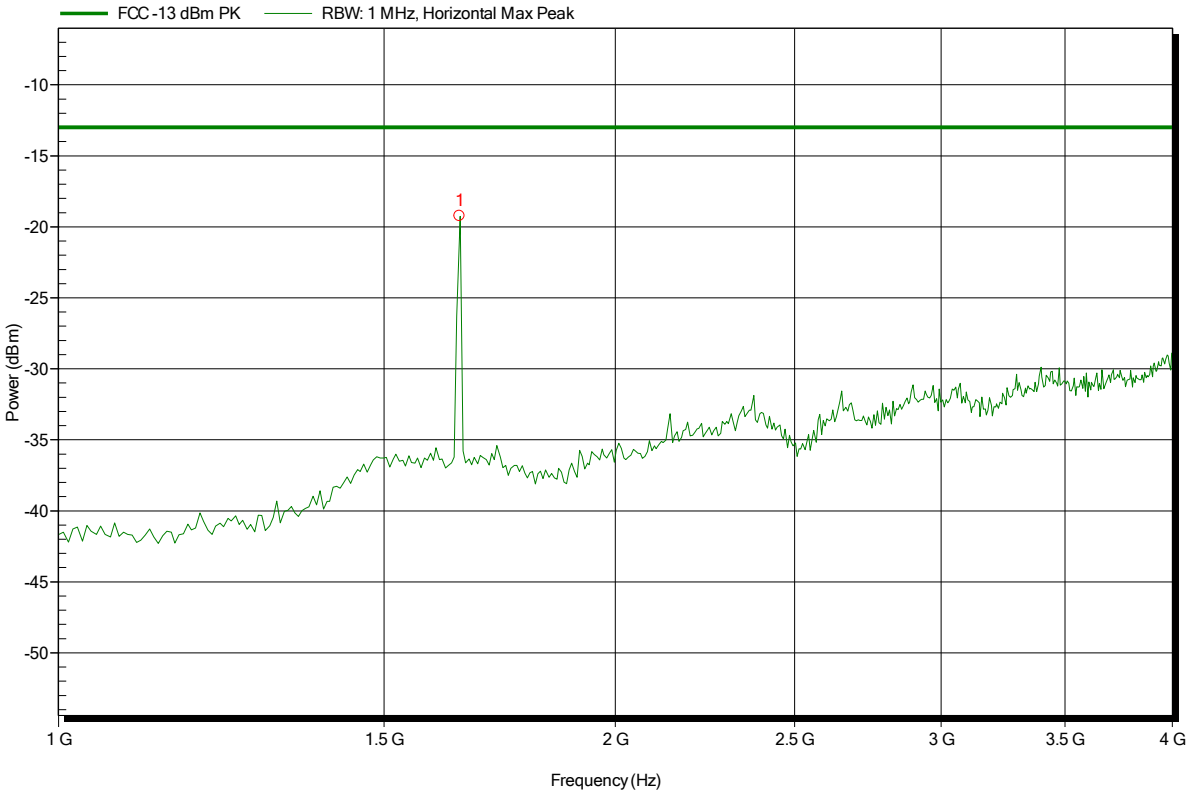

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.648 GHz	-19.2 dBm	-13 dBm	-6.24 dB	Pass

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 188, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical

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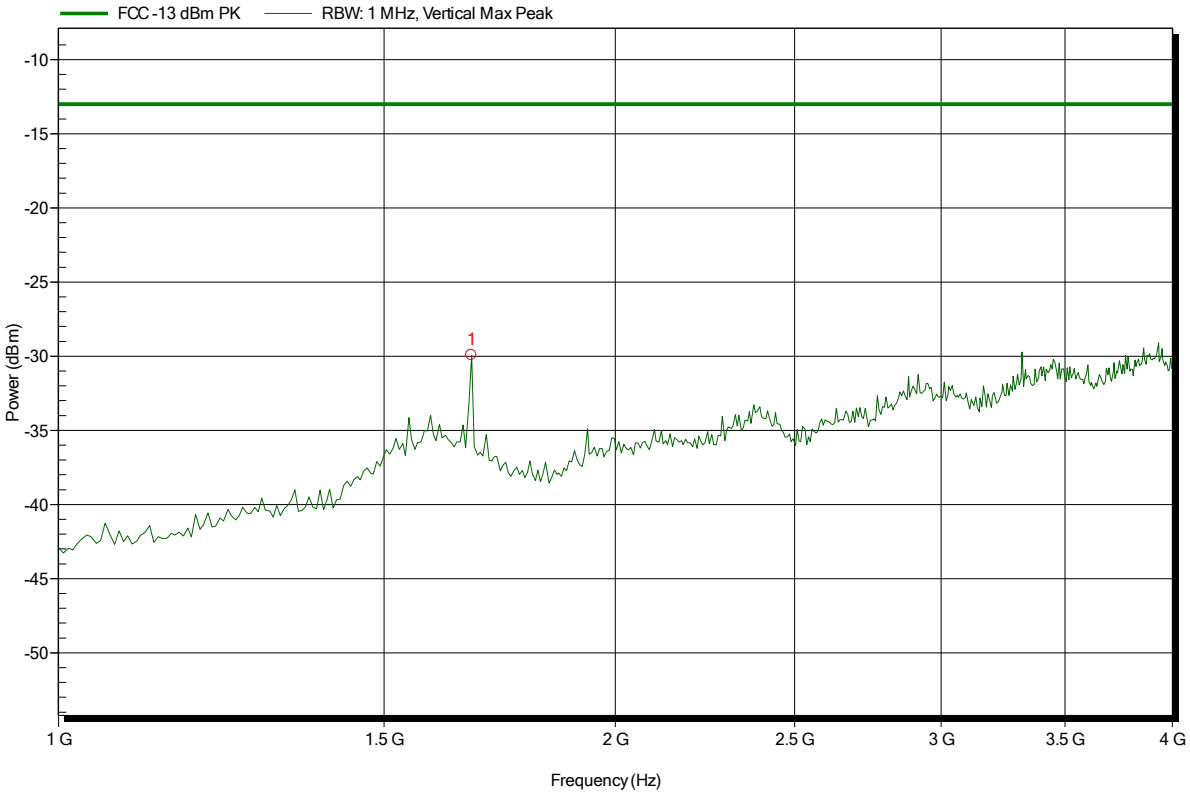

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.672 GHz	-29.9 dBm	-13 dBm	-16.92 dB	Pass

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 188, 1 uplink slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical

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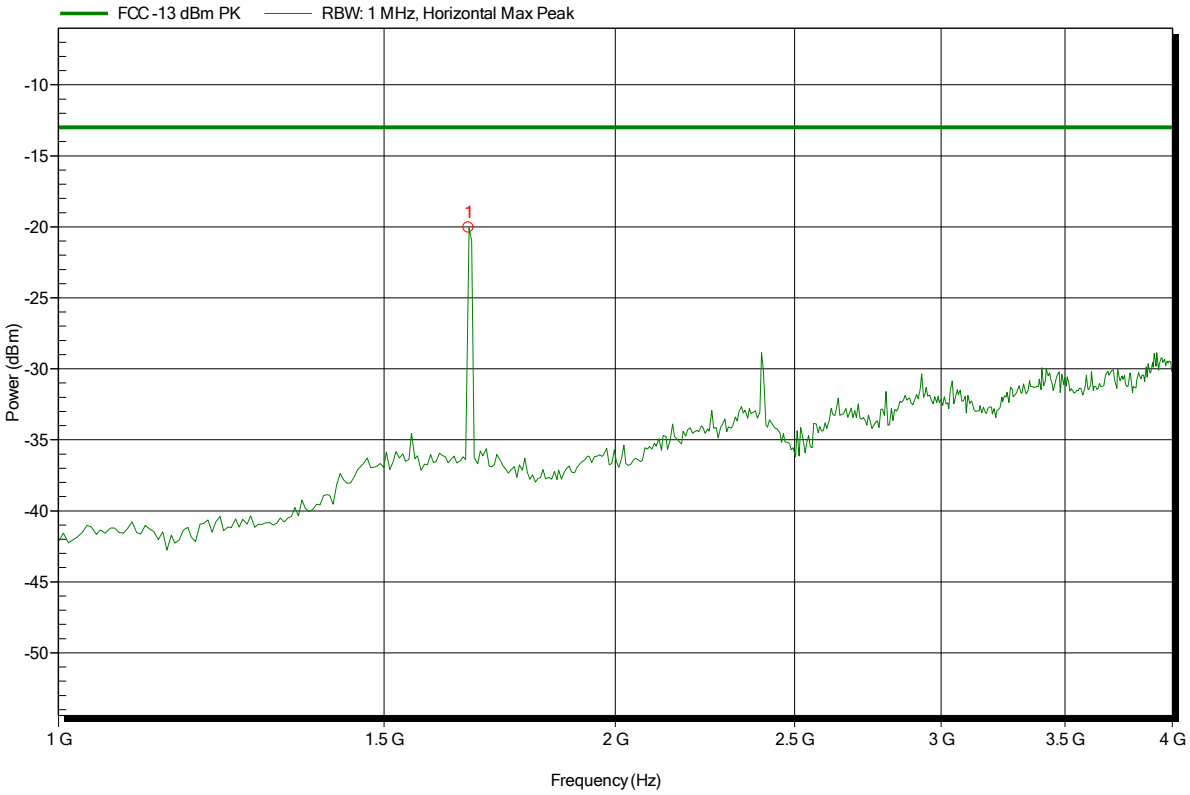

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.666 GHz	-20.1 dBm	-13 dBm	-7.05 dB	Pass

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 251, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical

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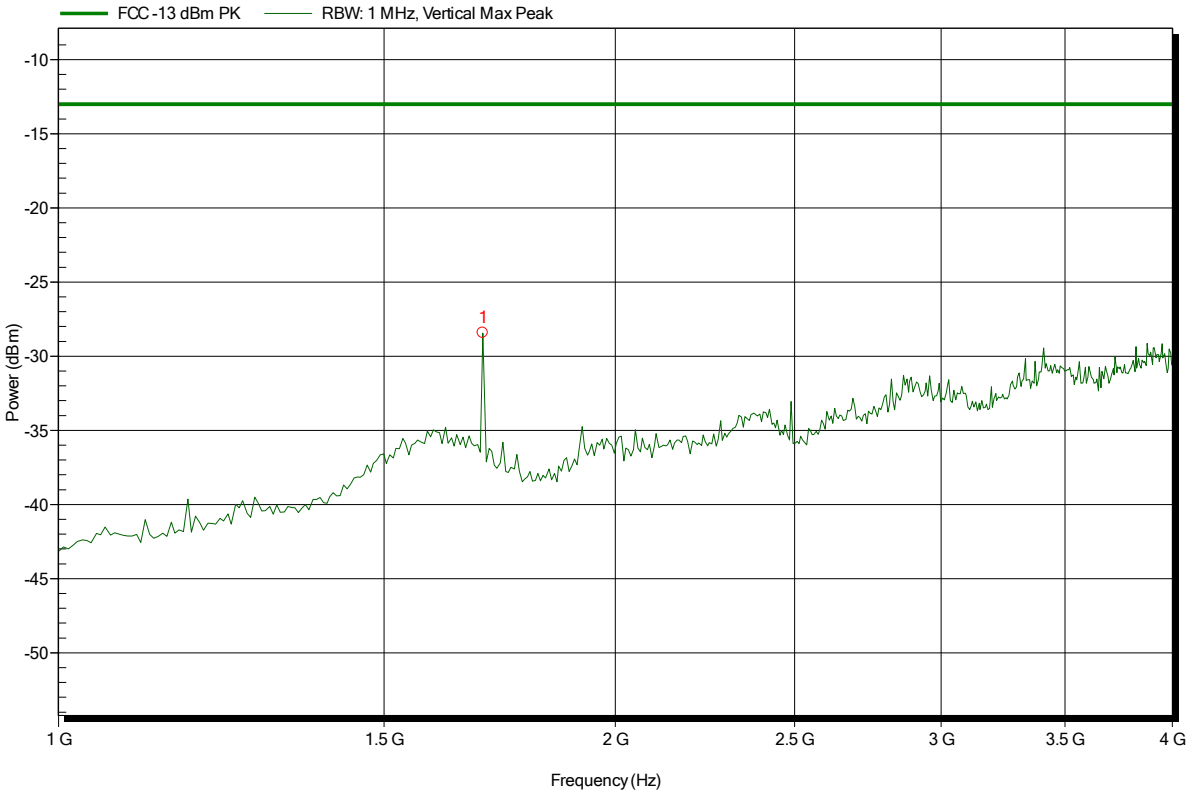

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.696 GHz	-28.4 dBm	-13 dBm	-15.42 dB	Pass

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 251, 1 uplink slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical

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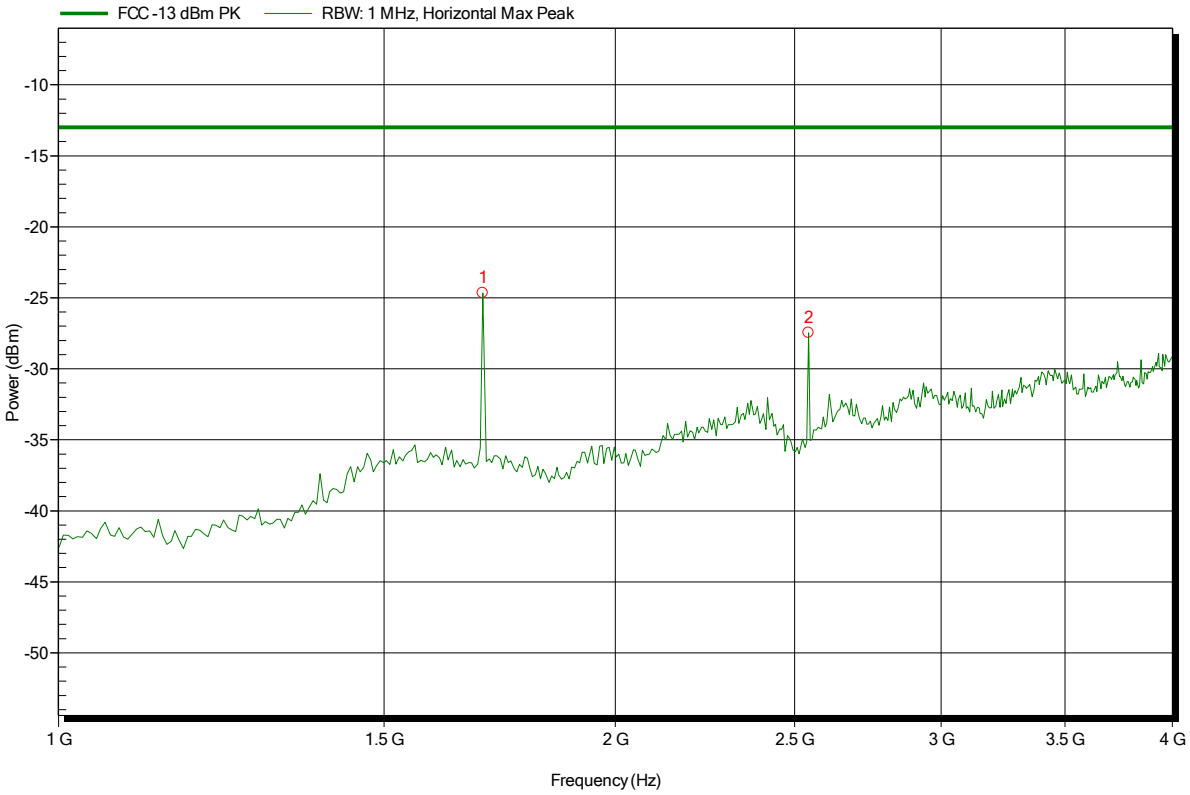

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.696 GHz	-24.7 dBm	-13 dBm	-11.67 dB	Pass
2.543 GHz	-27.5 dBm	-13 dBm	-14.46 dB	Pass

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; EDGE 850, CH: 128, 1 uplink slot, Gamma 6
Test Date:	2014-12-03
Note:	EUT vertical

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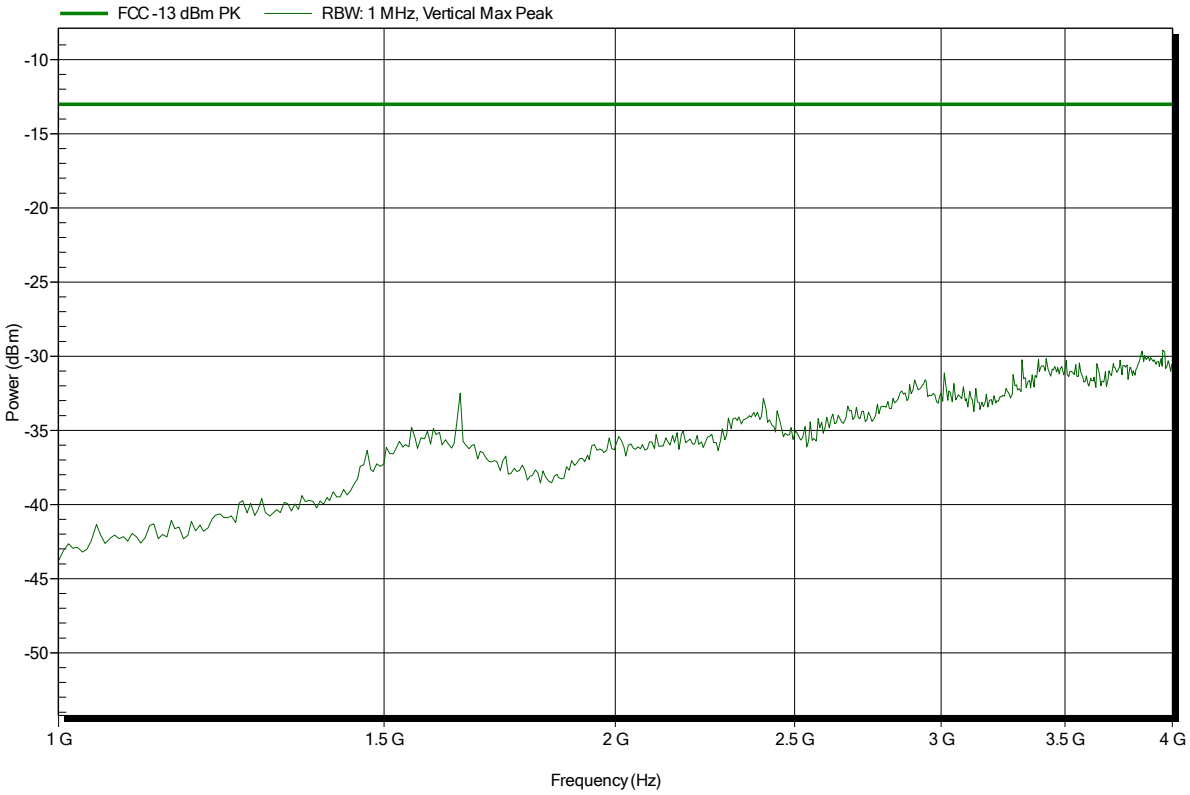

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; EDGE 850, CH: 128, 1 uplink slot, Gamma 6
Test Date:	2014-12-03
Note:	EUT vertical

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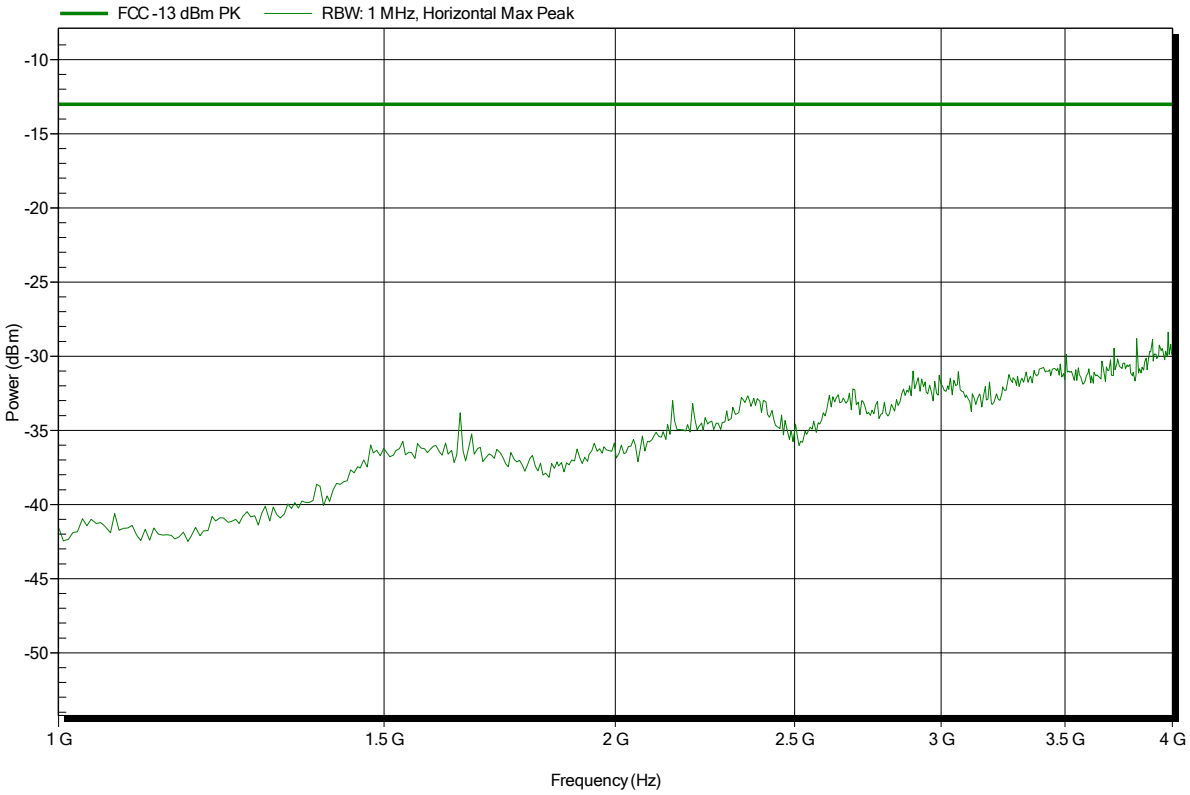

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; EDGE 850, CH: 188, 1 uplink slot, Gamma 6
Test Date:	2014-12-03
Note:	EUT vertical

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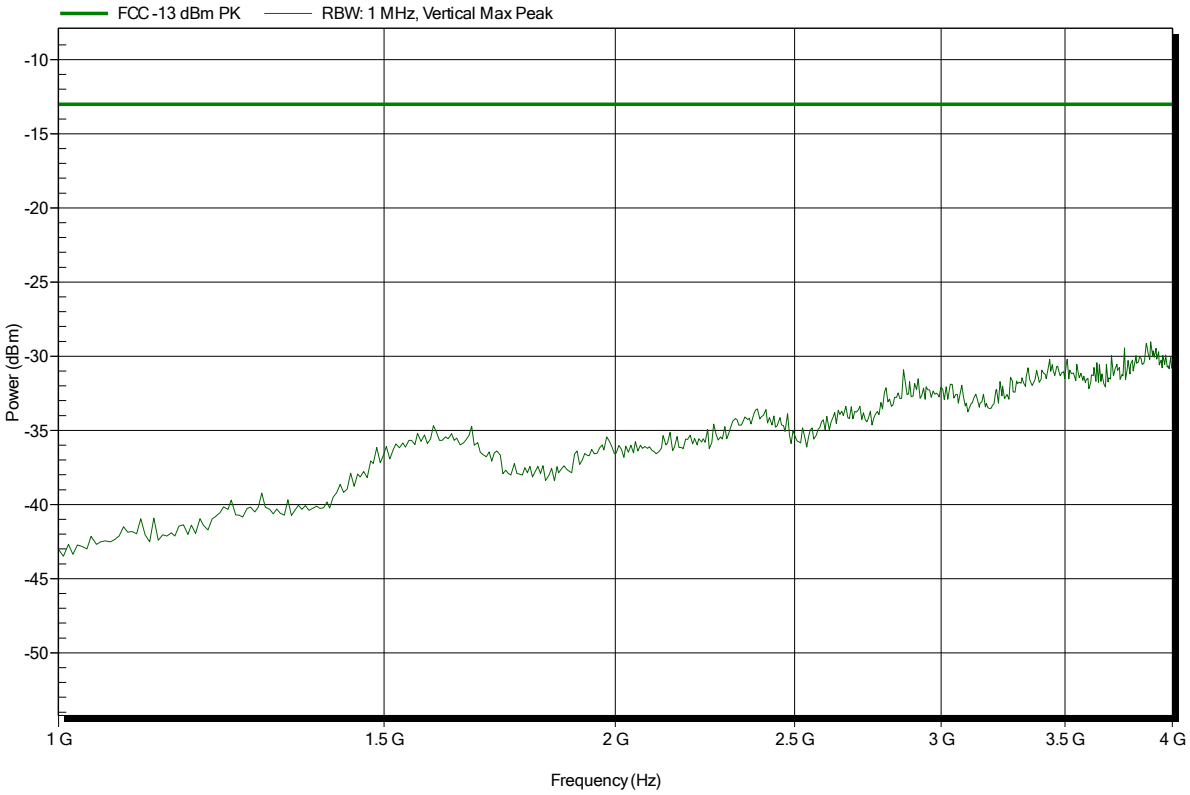

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; EDGE 850, CH: 188, 1 uplink slot, Gamma 6
Test Date:	2014-12-03
Note:	EUT vertical

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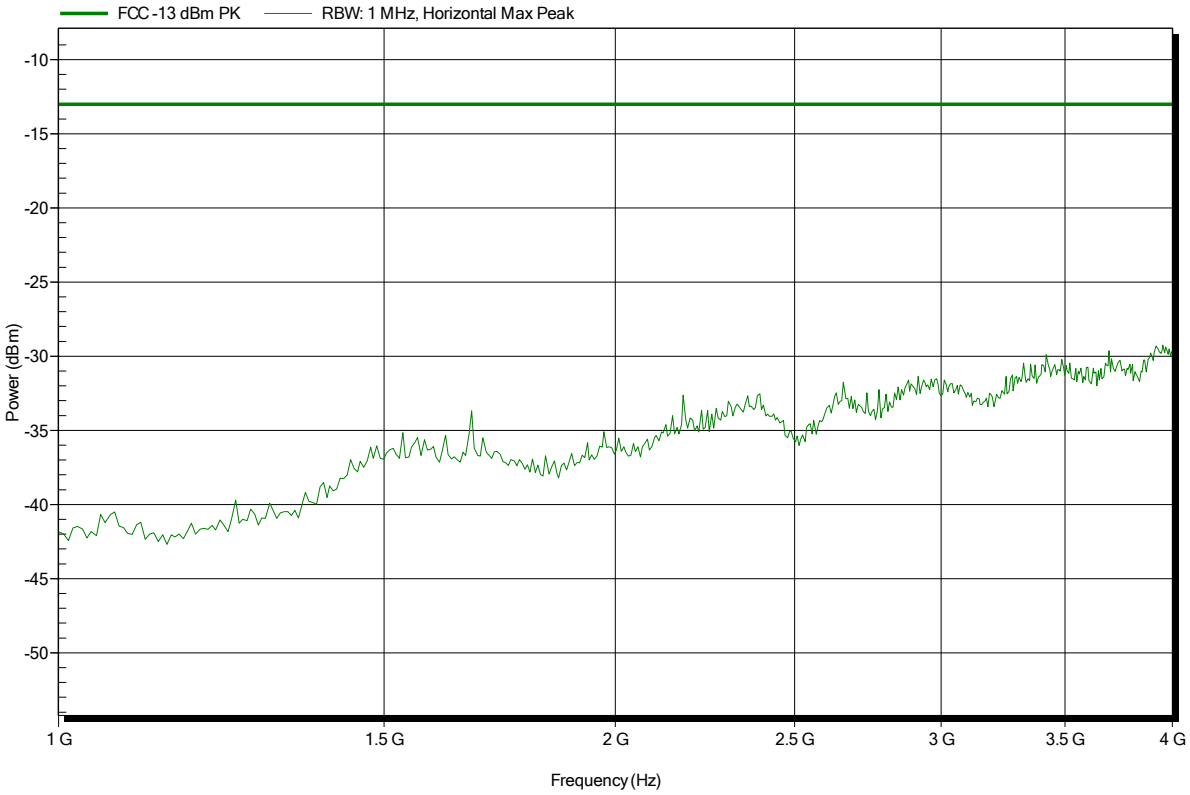

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; EDGE 850, CH: 251, 1 uplink slot, Gamma 6
Test Date:	2014-12-03
Note:	EUT vertical

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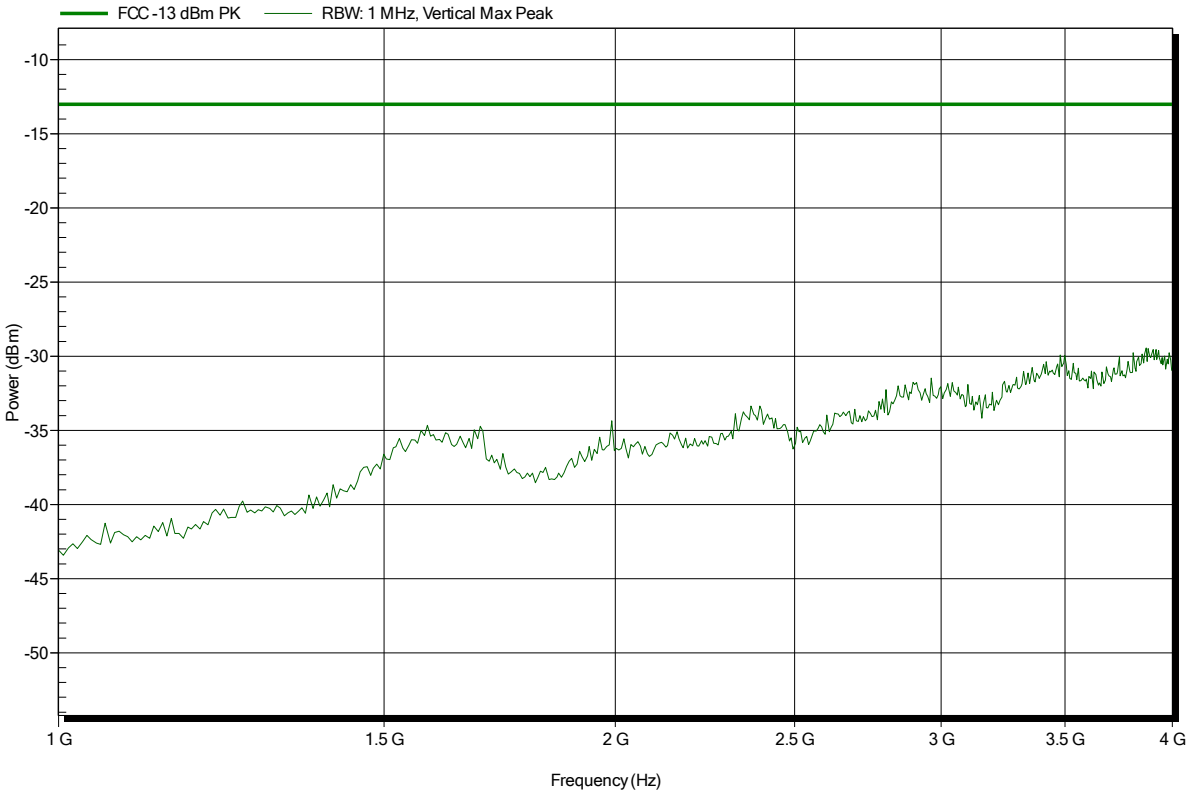

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; EDGE 850, CH: 251, 1 uplink slot, Gamma 6
Test Date:	2014-12-03
Note:	EUT vertical

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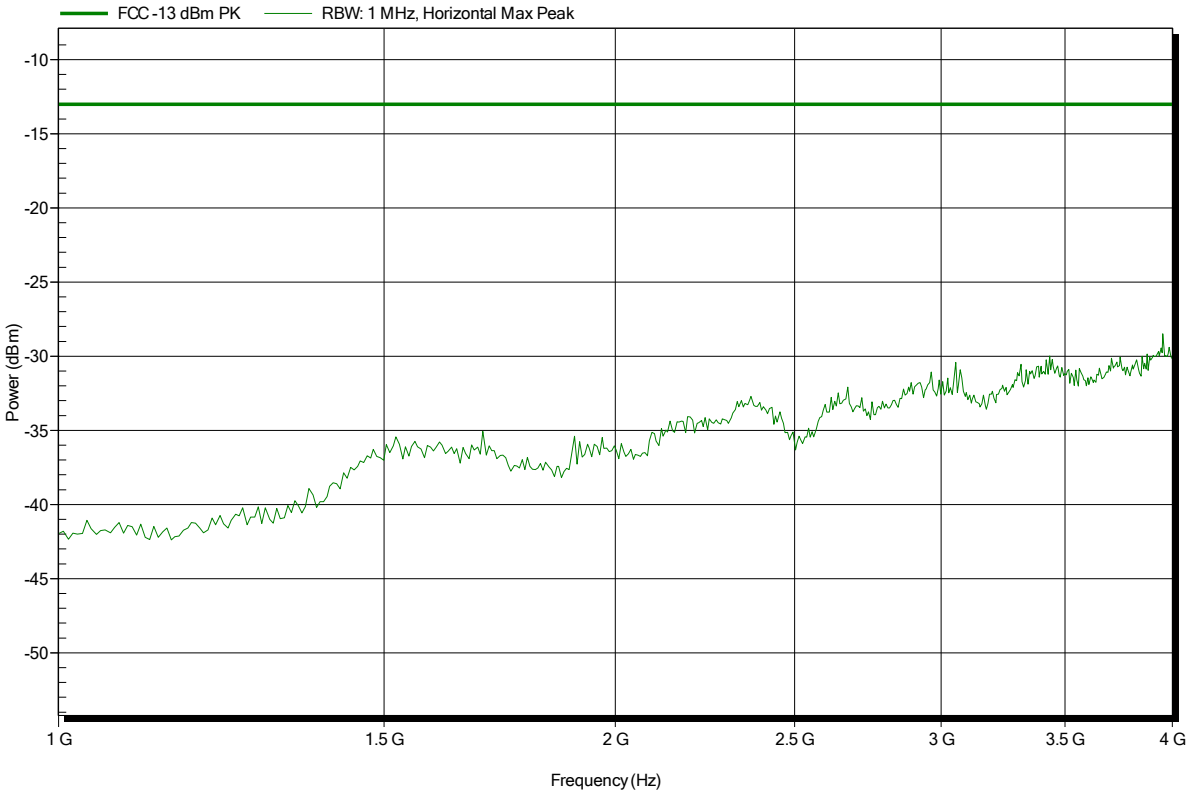

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 128, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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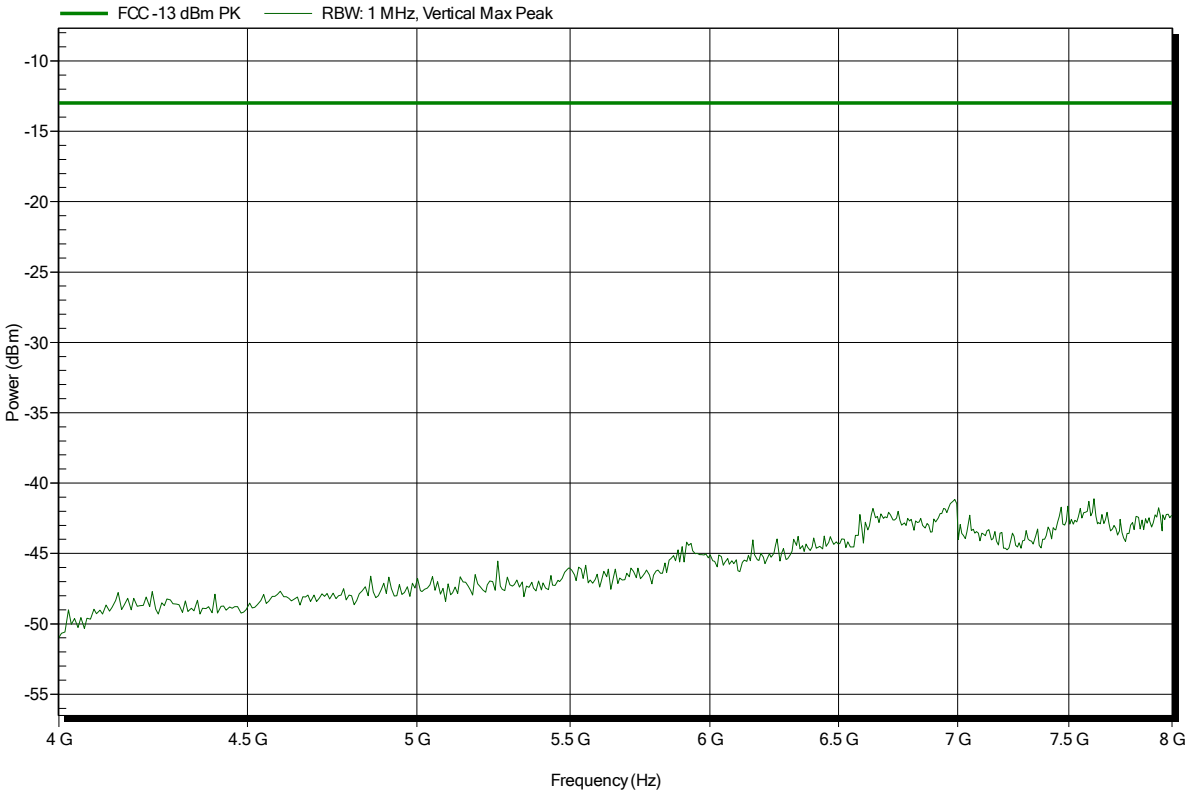

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 128, 1 uplink slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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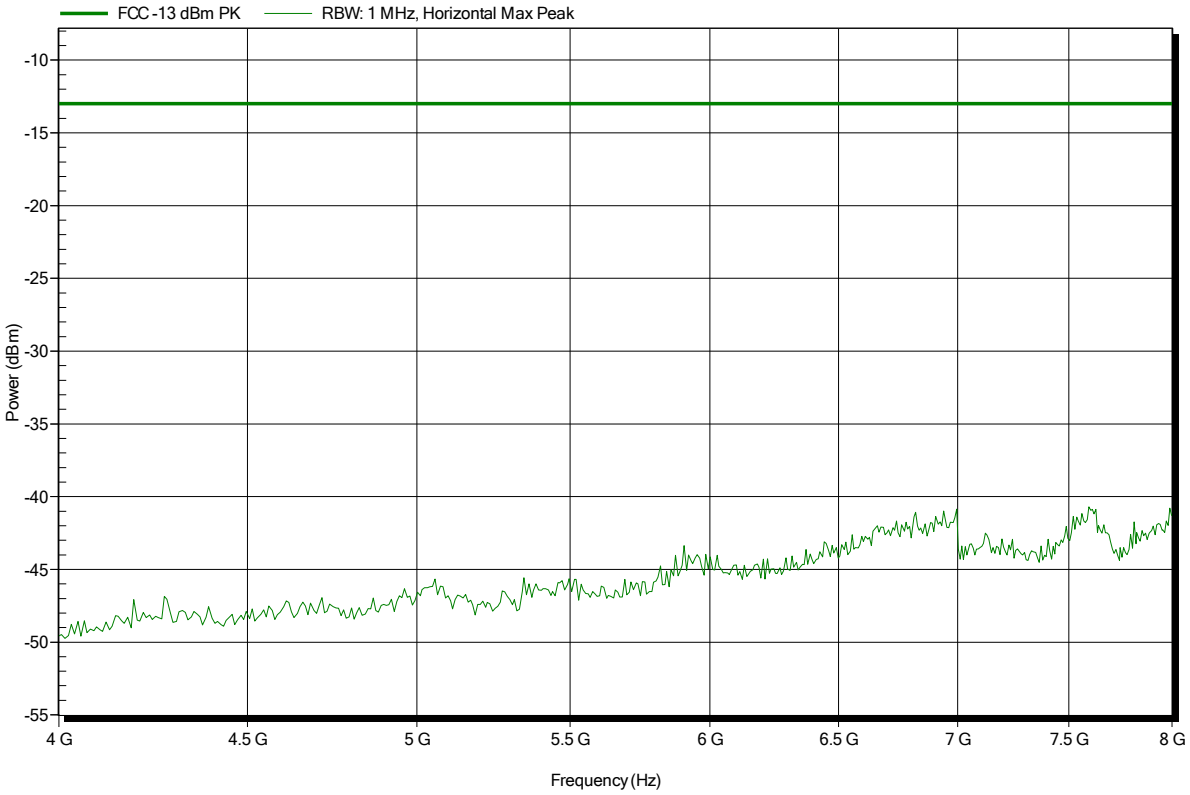

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 188, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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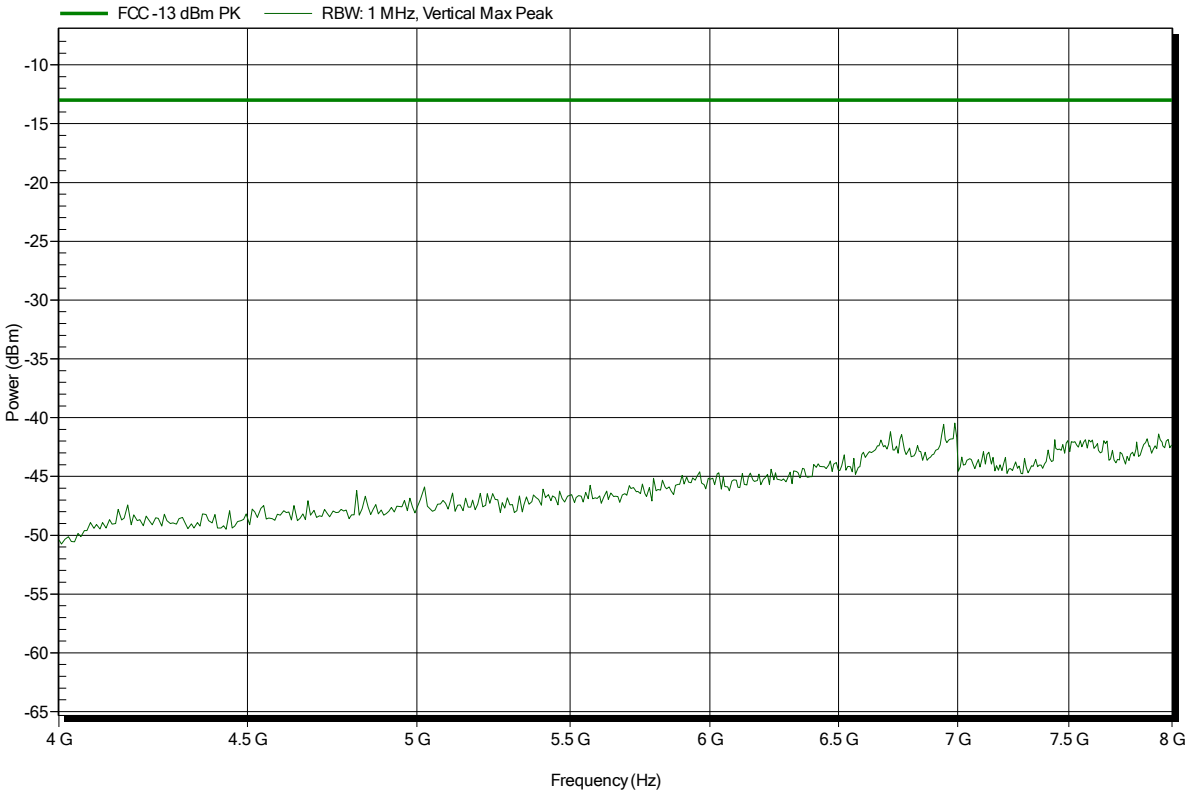

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 188, 1 uplink slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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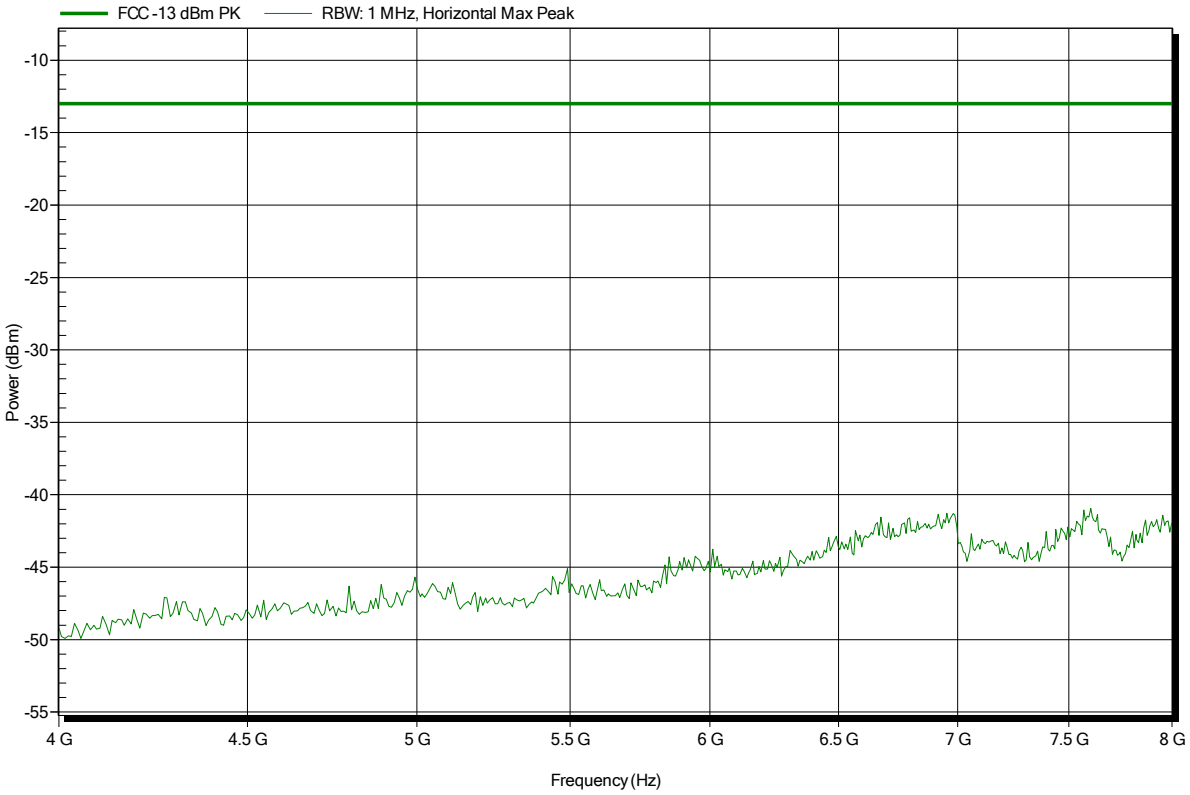

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 251, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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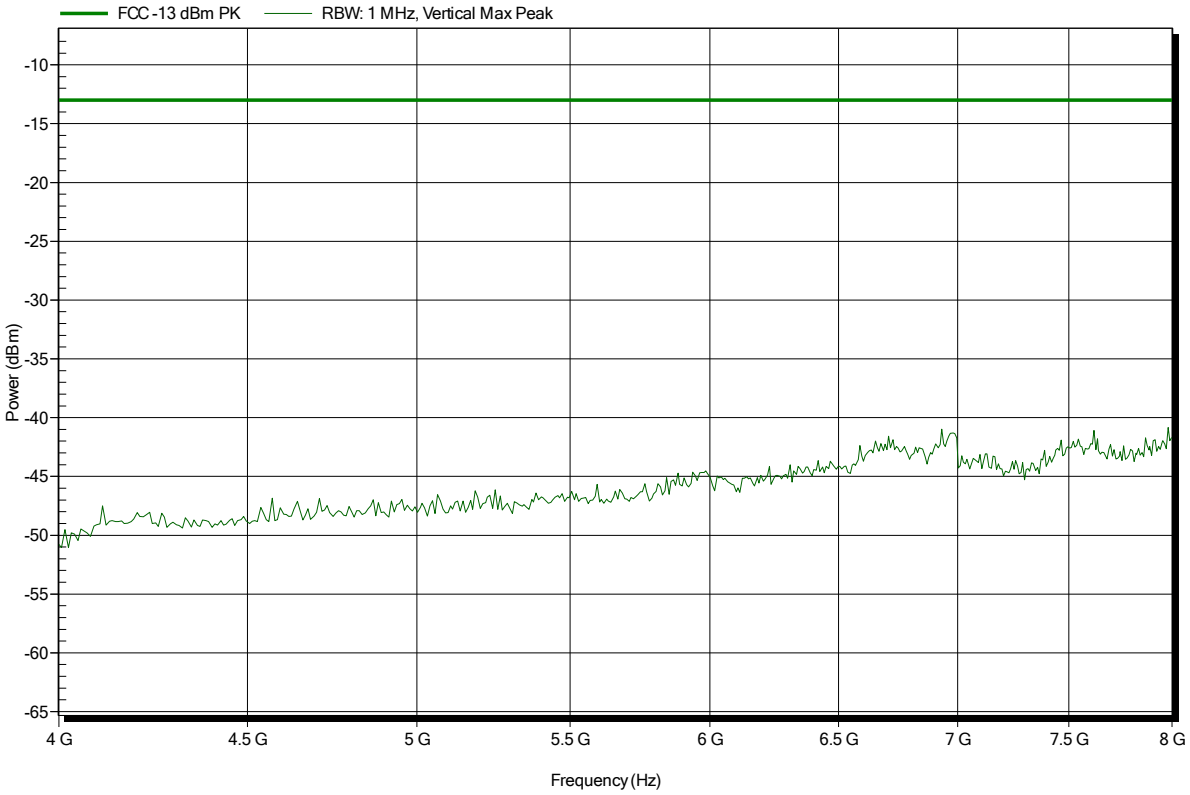

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 251, 1 uplink slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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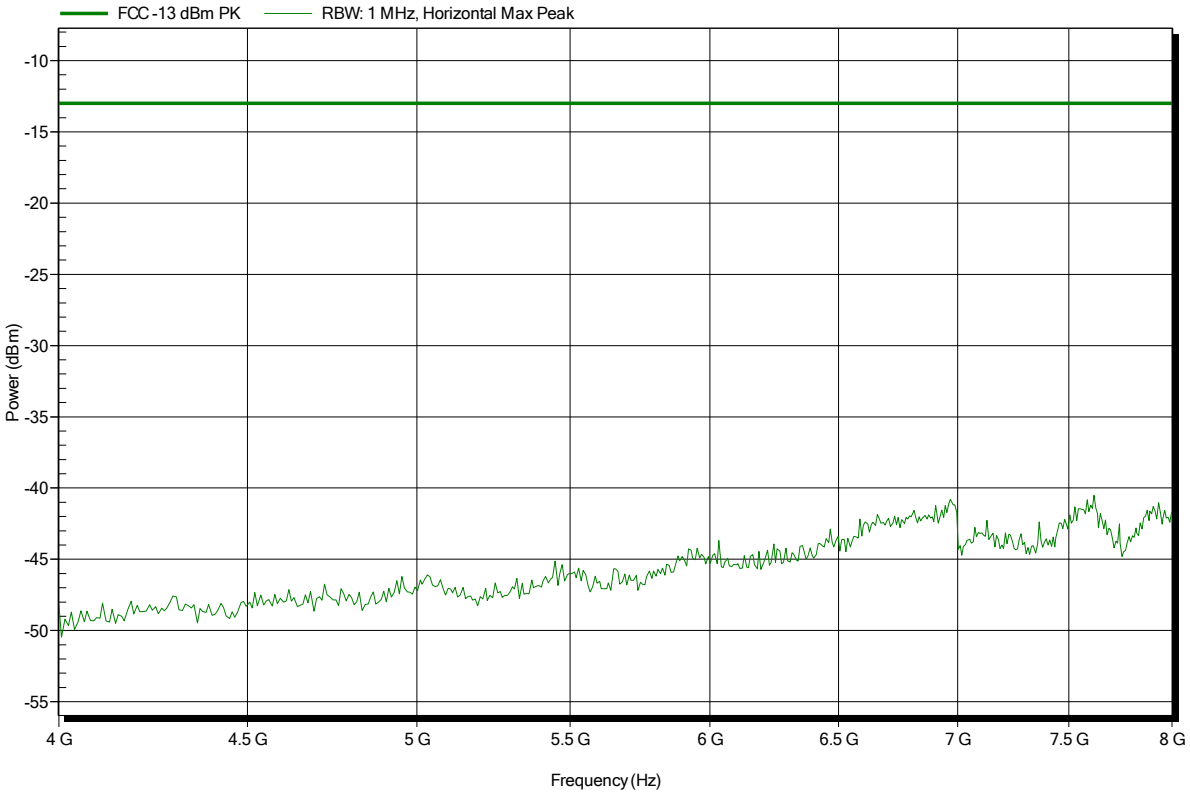

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 128, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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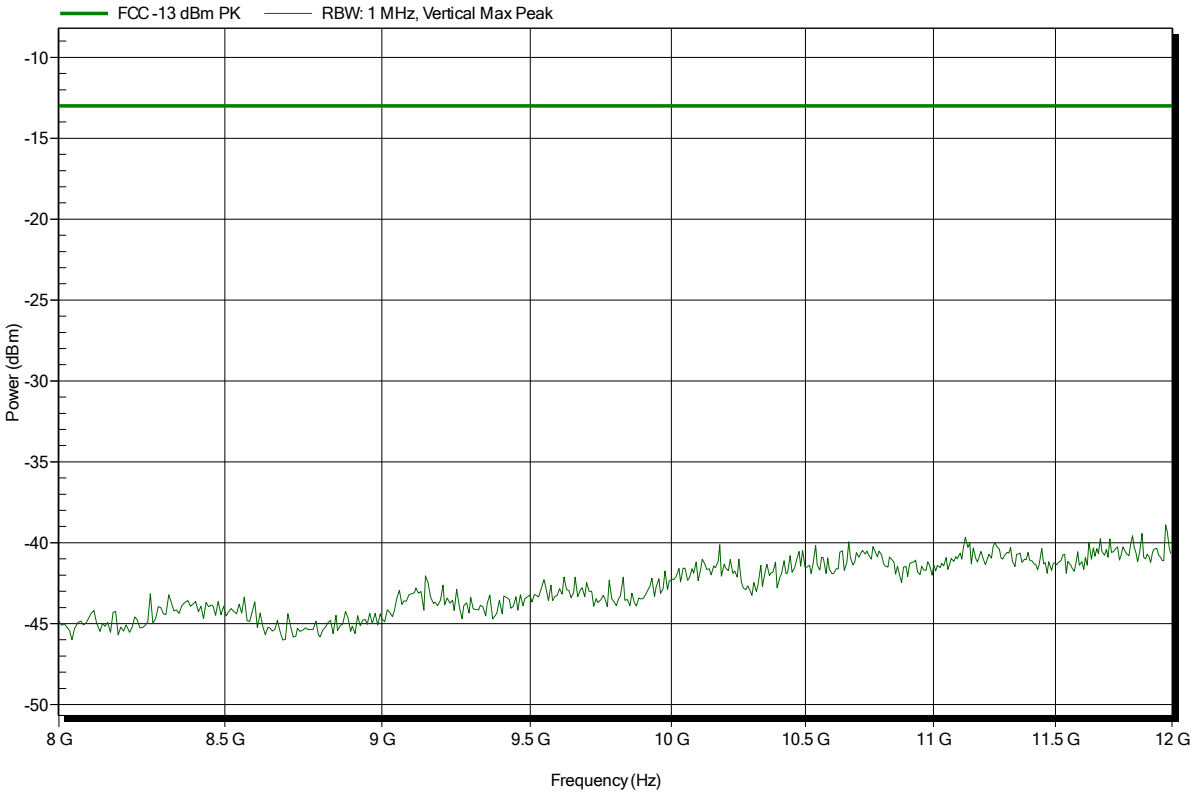

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 128, 1 uplink slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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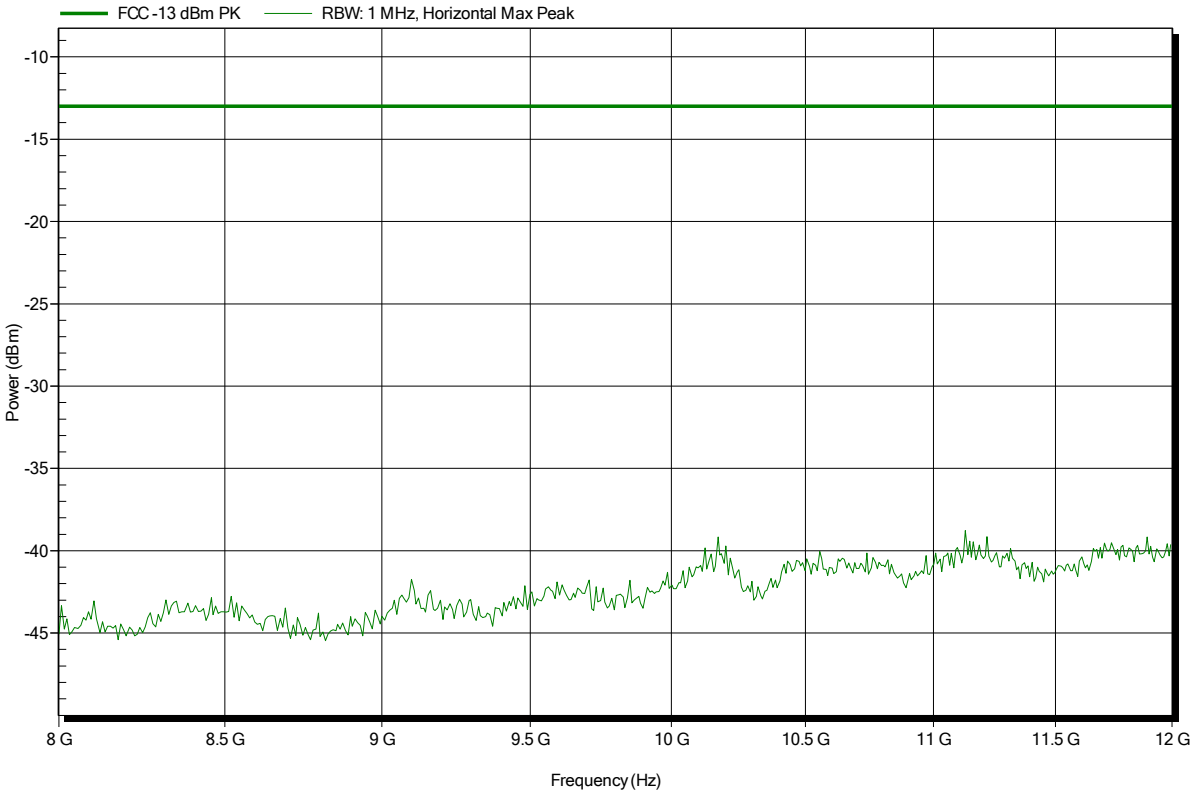

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 188, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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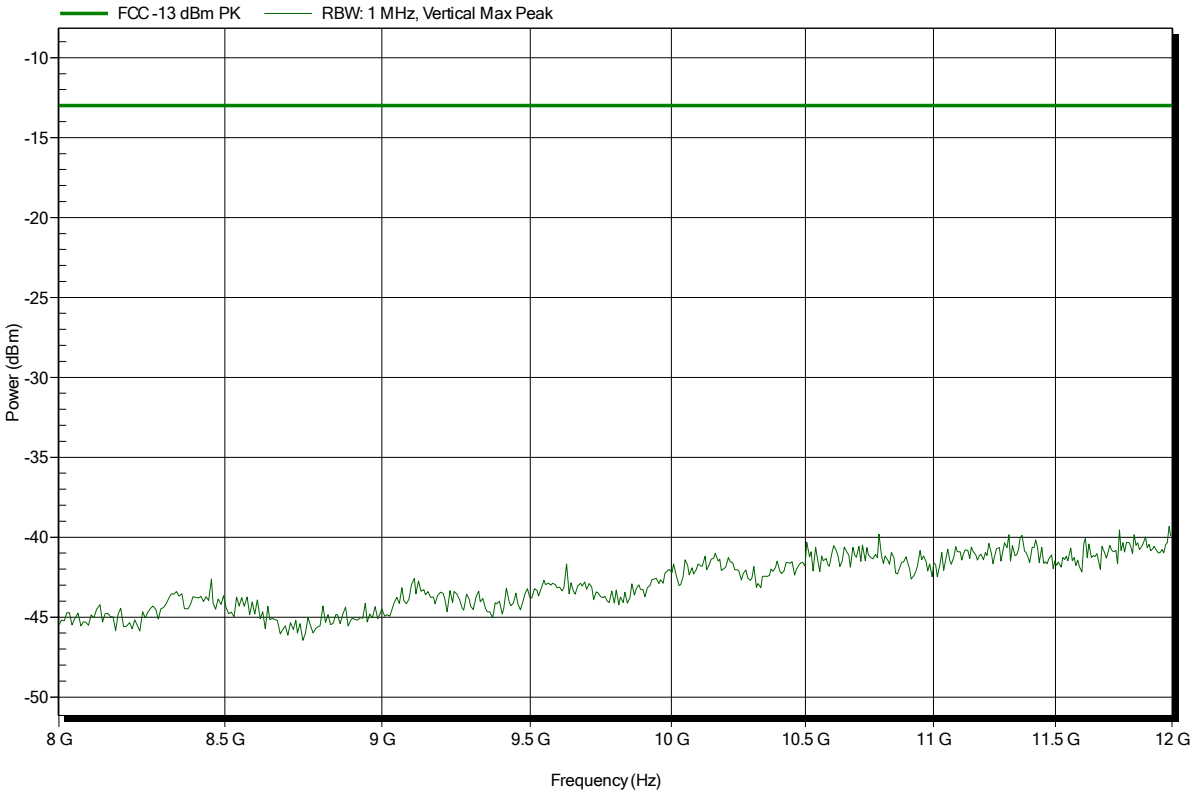

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 188, 1 uplink slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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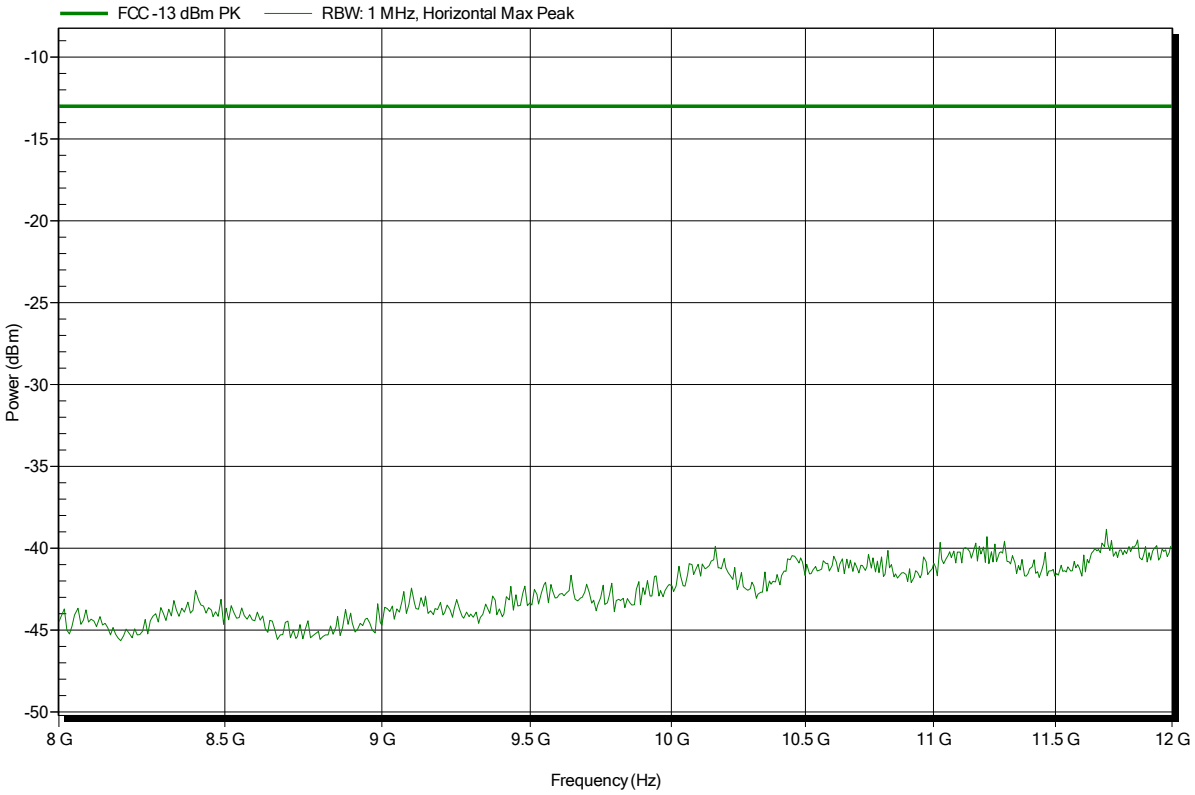

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 251, 1 uplink slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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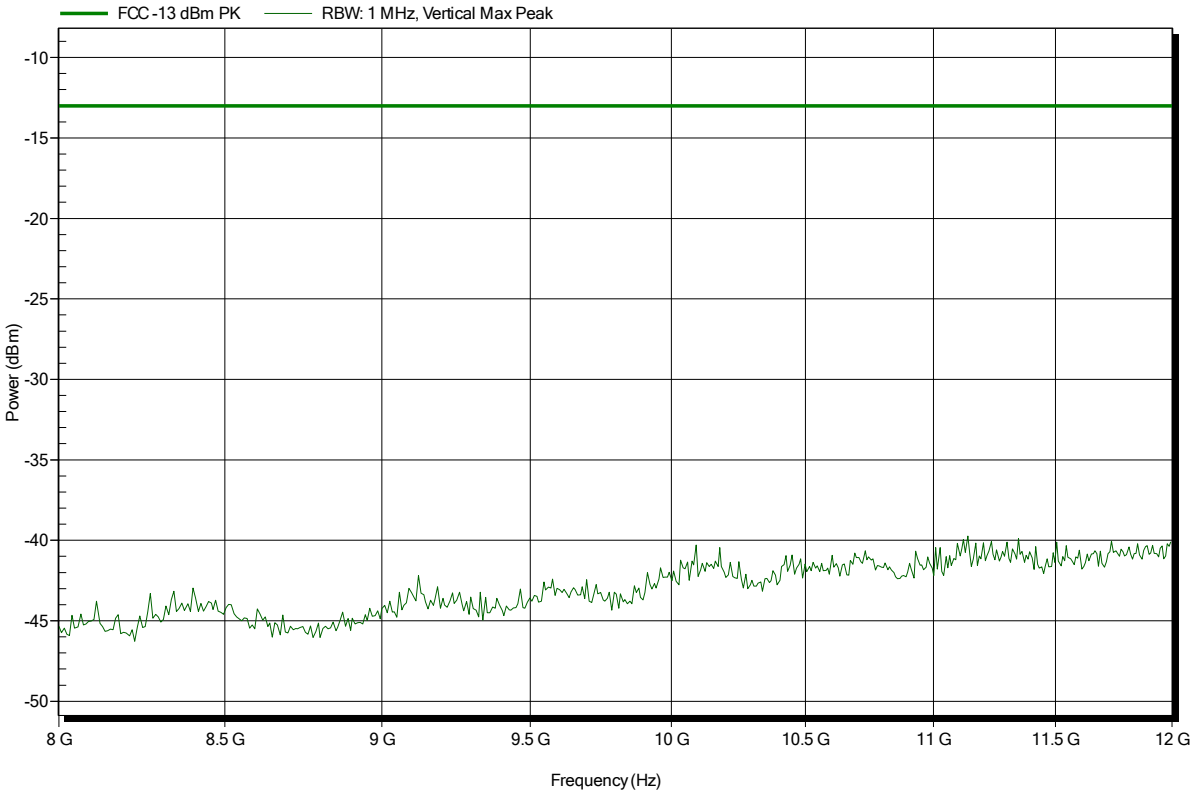

Spurious emissions according to FCC part 22 Subpart H, IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 850, CH: 251, 1 uplink slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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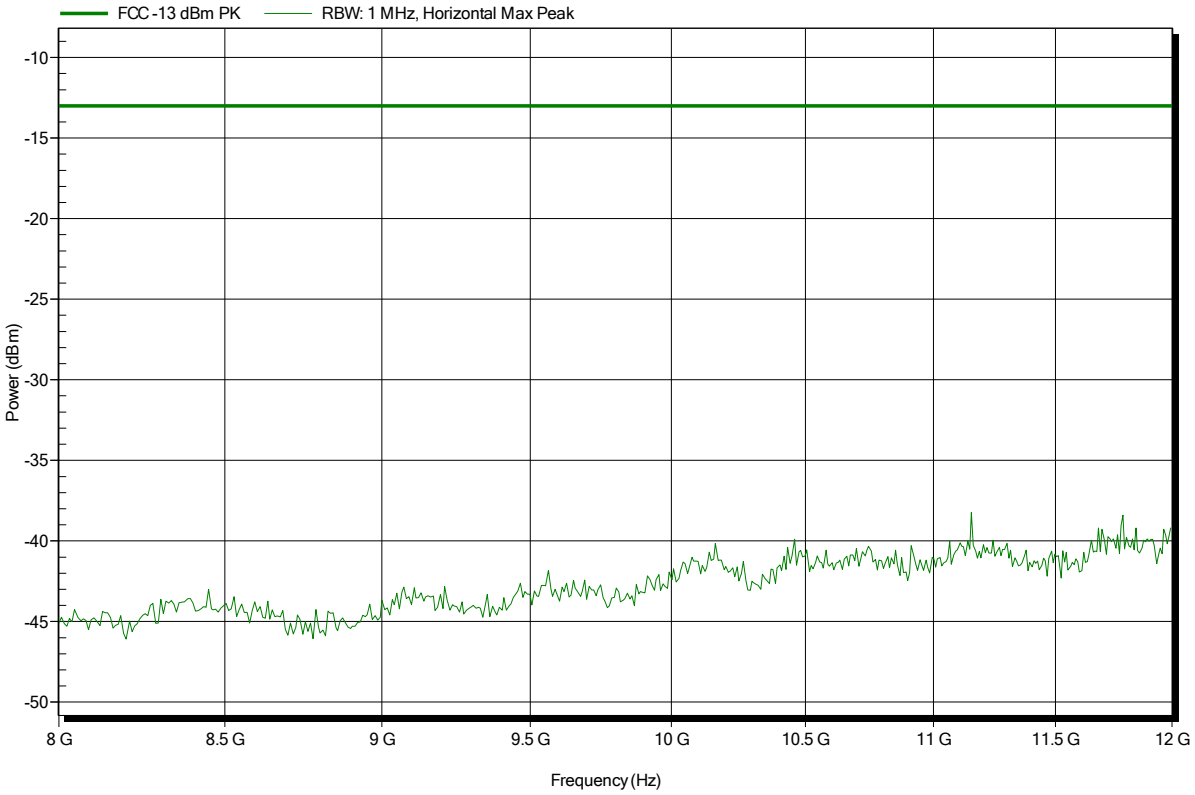

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 512, UL 1x Slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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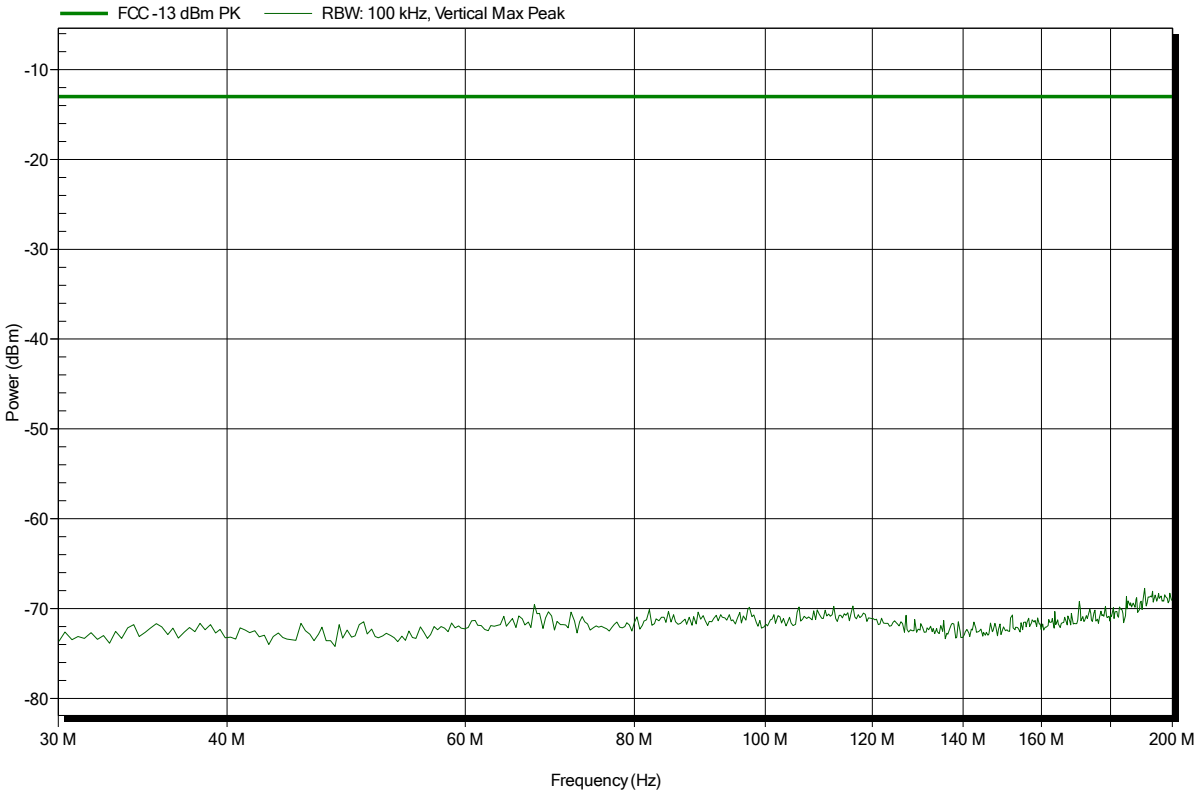

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 512, UL 1x Slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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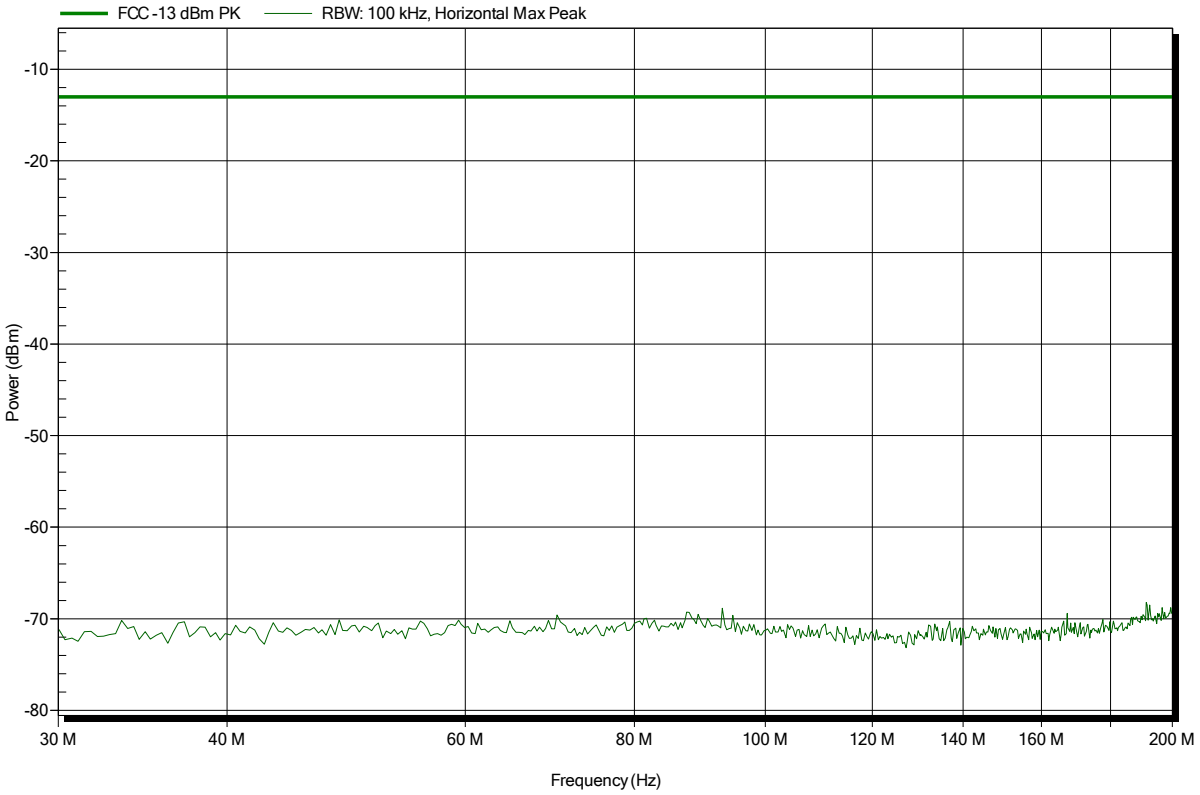

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 512, UL 1x Slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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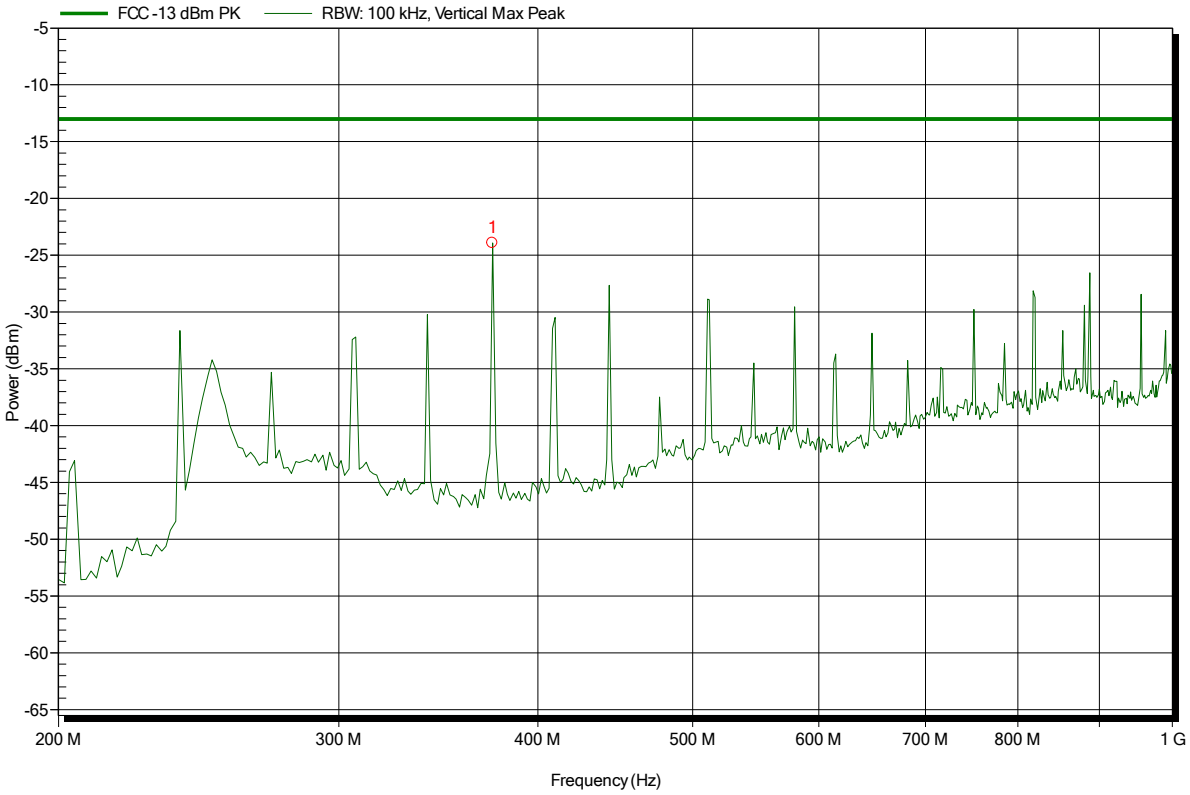

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
374.4 MHz	-23.9 dBm	-13 dBm	-10.93 dB	Pass

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 512, UL 1x Slot, Gamma 3
Test Date:	2014-12-03
Note:	EUT vertical; worst case

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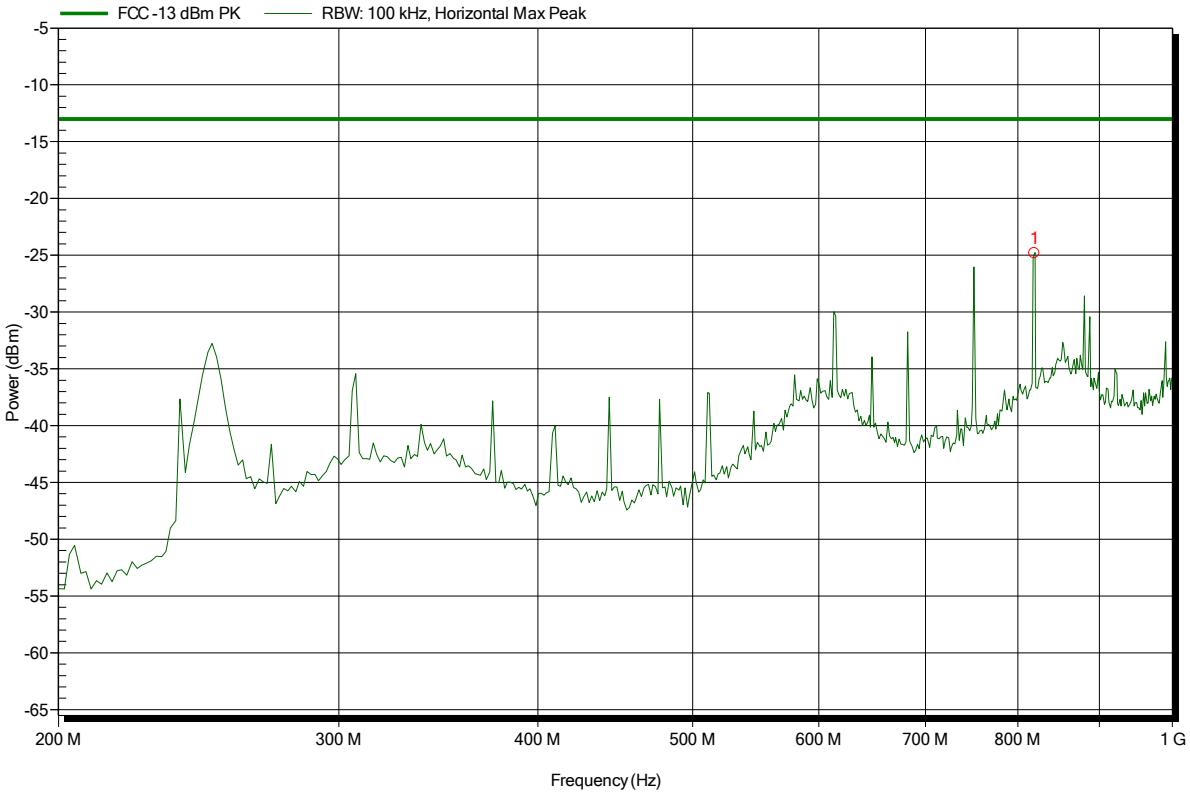

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
819.319 MHz	-24.8 dBm	-13 dBm	-11.83 dB	Pass

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 512, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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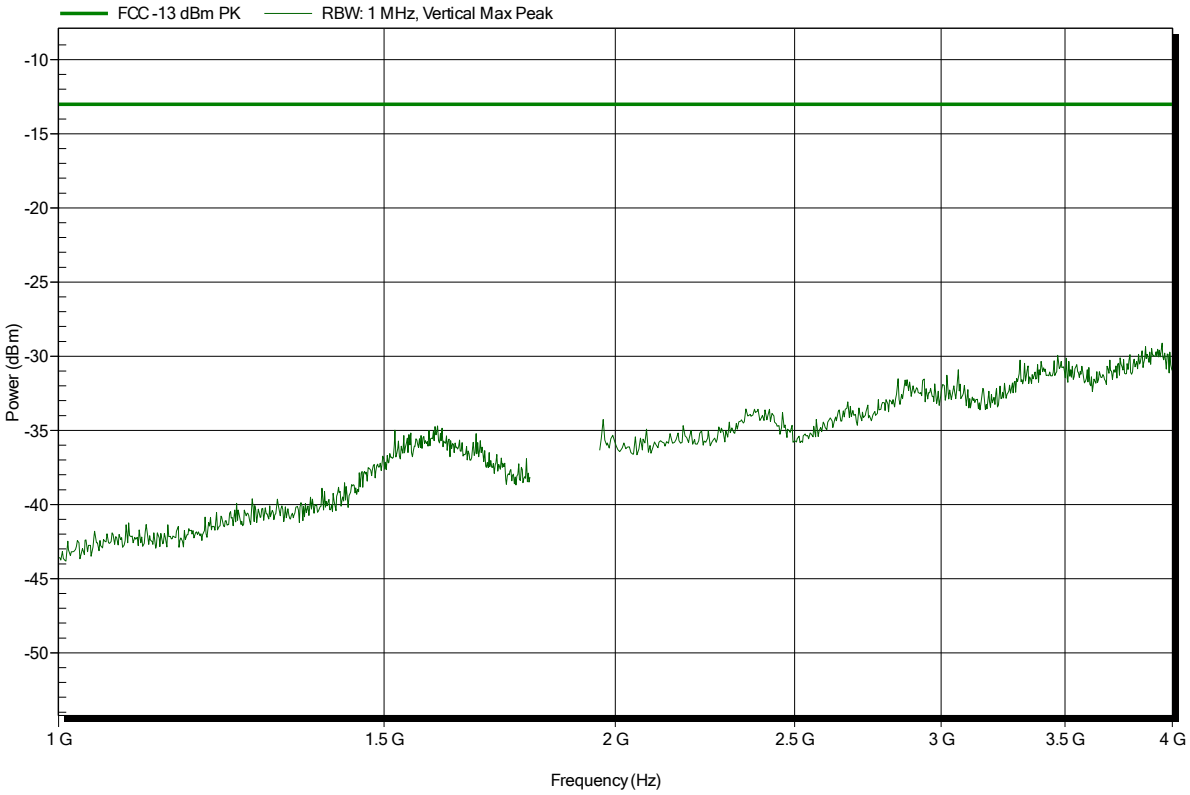

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 512, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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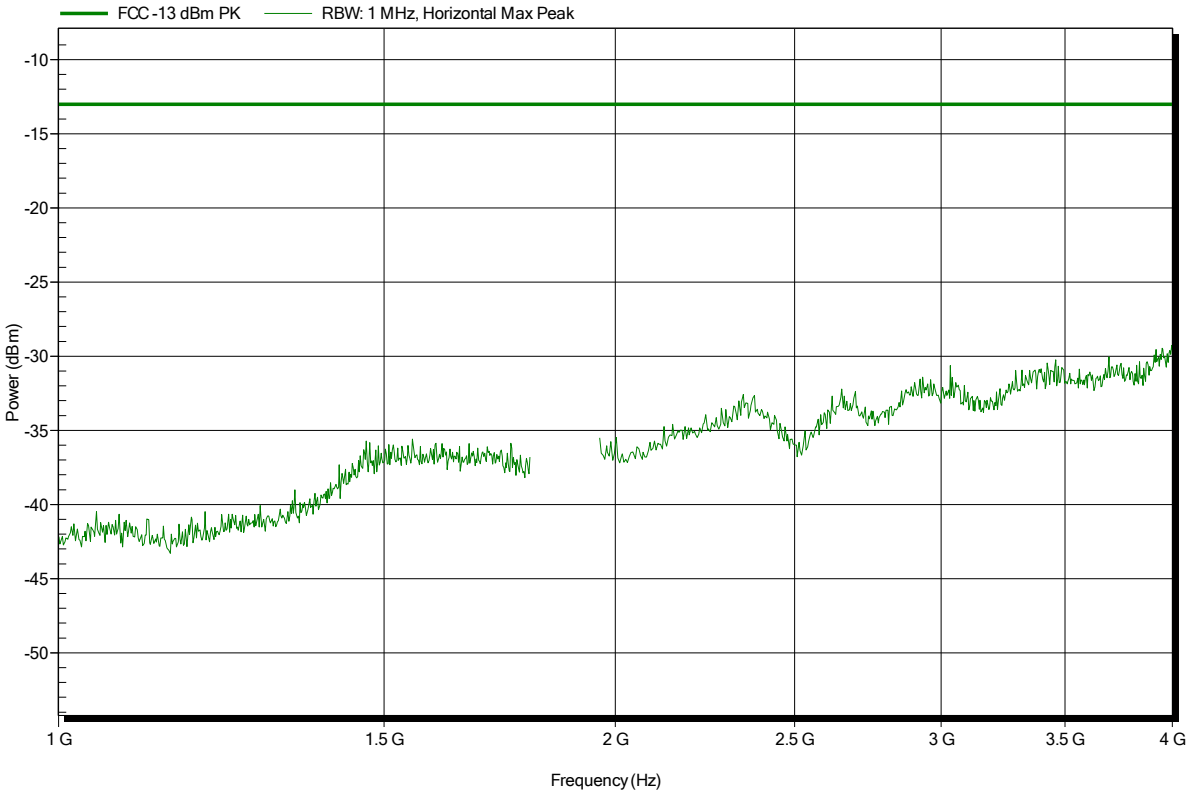

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 512, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical

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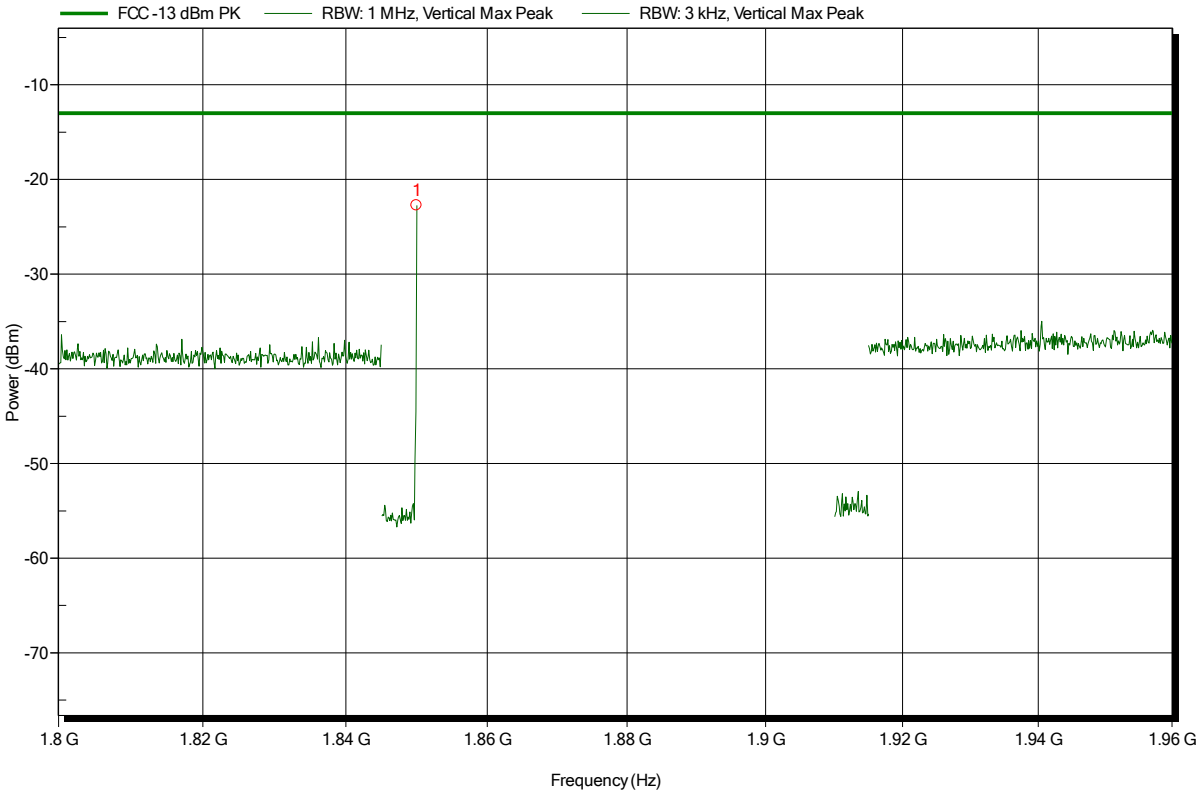

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.85 GHz	-22.7 dBm	-13 dBm	-9.75 dB	Pass

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 512, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical

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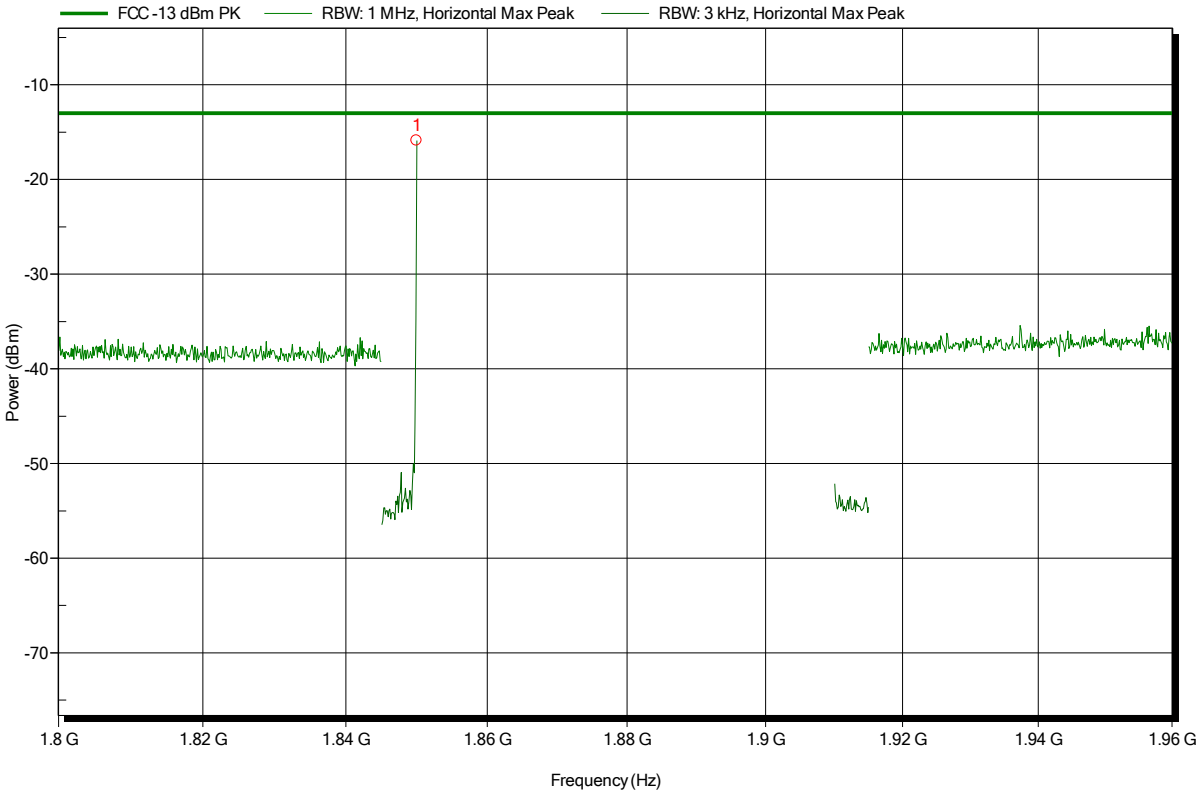

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.85 GHz	-15.9 dBm	-13 dBm	-2.9 dB	Pass

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; EDGE 1900, CH. 512, UL 1x Slot, Gamma 5
Test Date:	2014-12-04
Note:	EUT vertical

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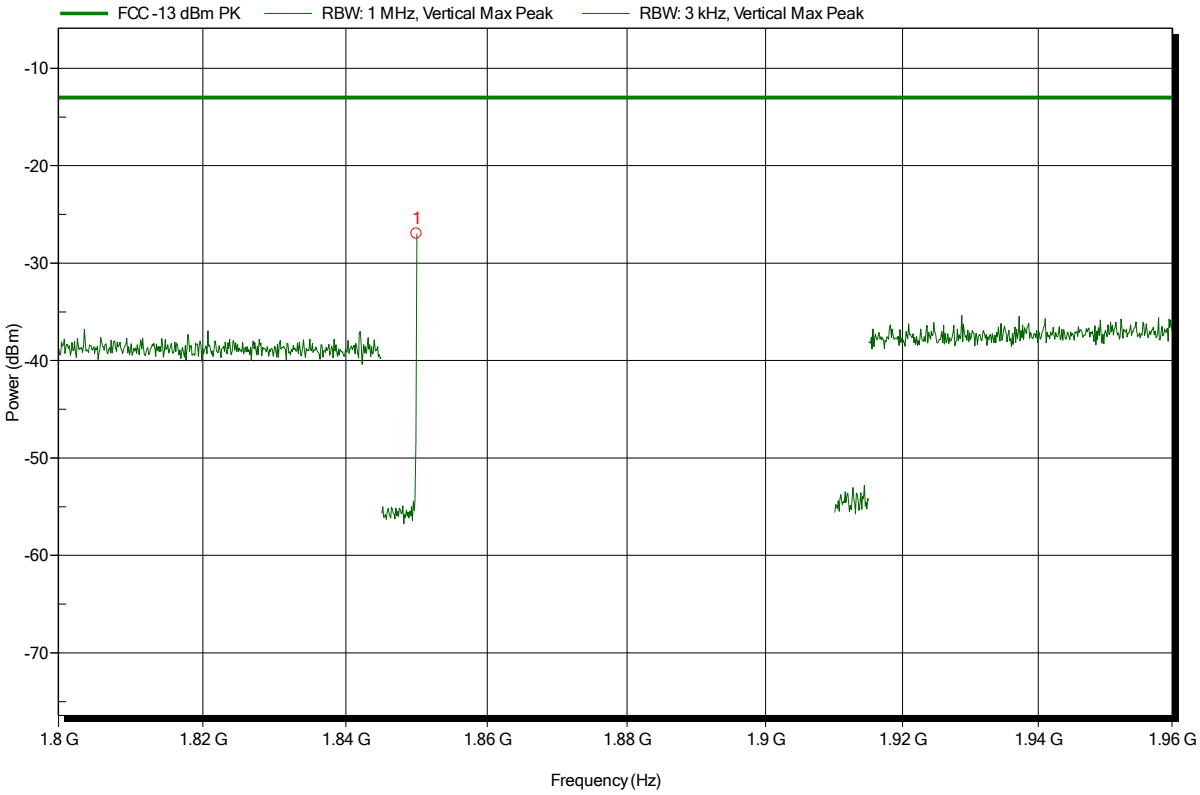

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.85 GHz	-27 dBm	-13 dBm	-13.97 dB	Pass

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; EDGE 1900, CH. 512, UL 1x Slot, Gamma 5
Test Date:	2014-12-04
Note:	EUT vertical

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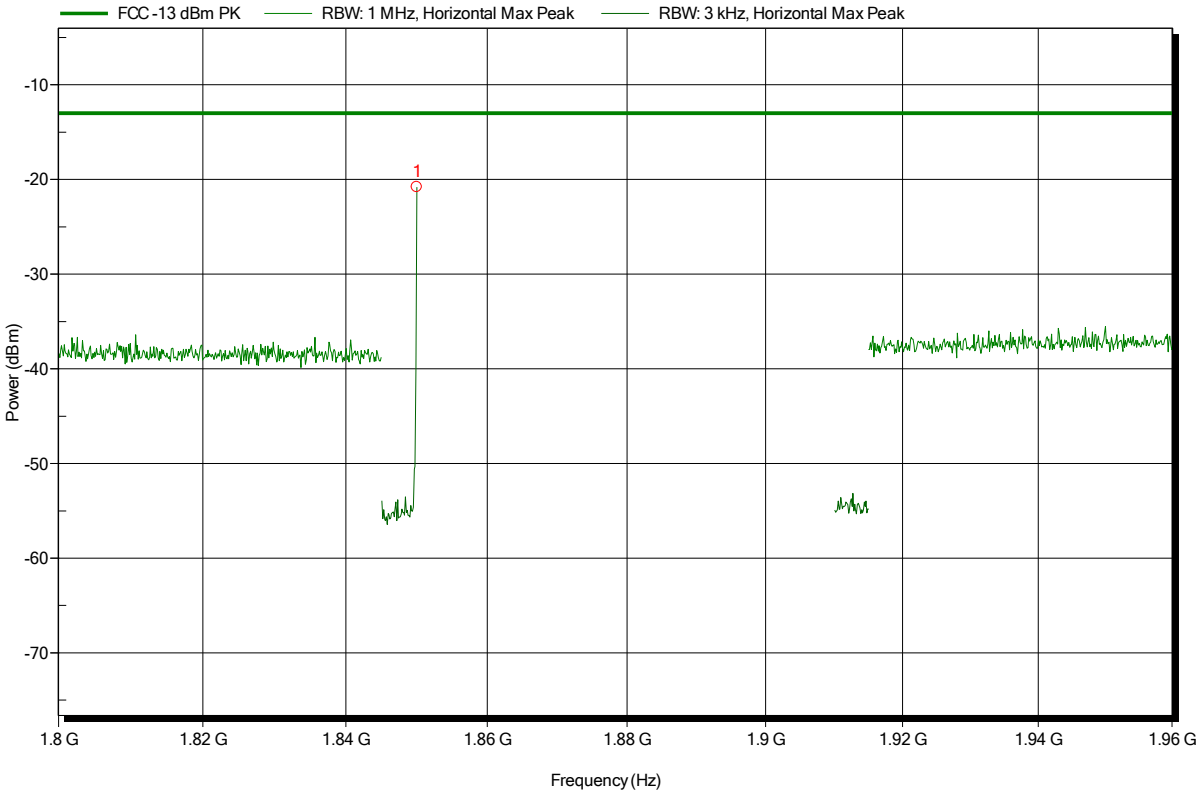

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.85 GHz	-20.8 dBm	-13 dBm	-7.79 dB	Pass

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 661, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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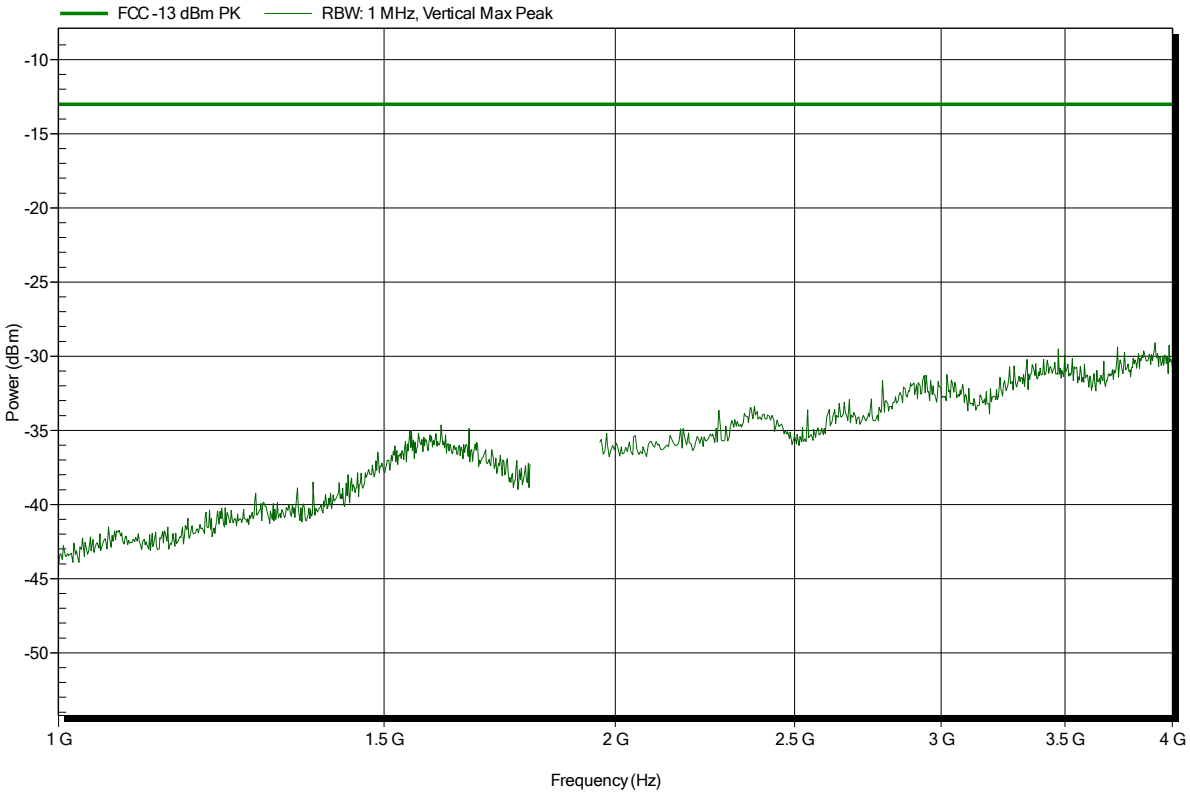

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 661, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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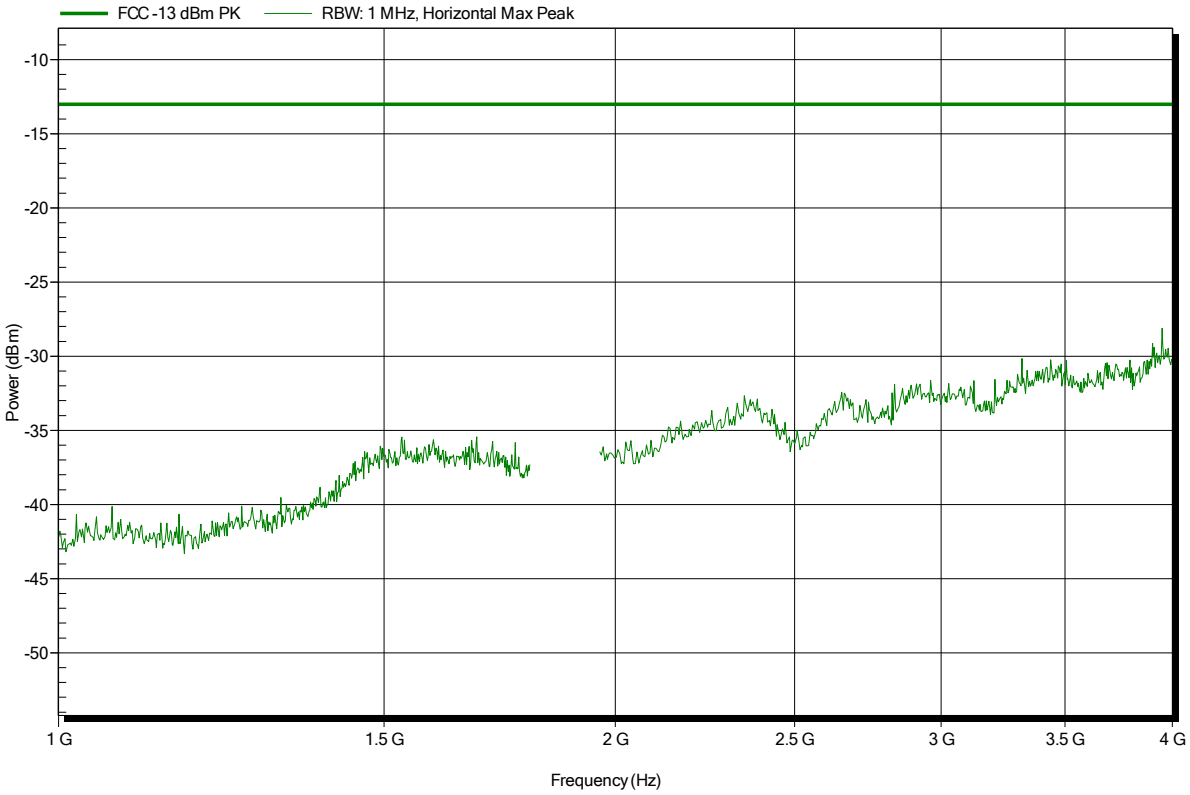

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 661, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical

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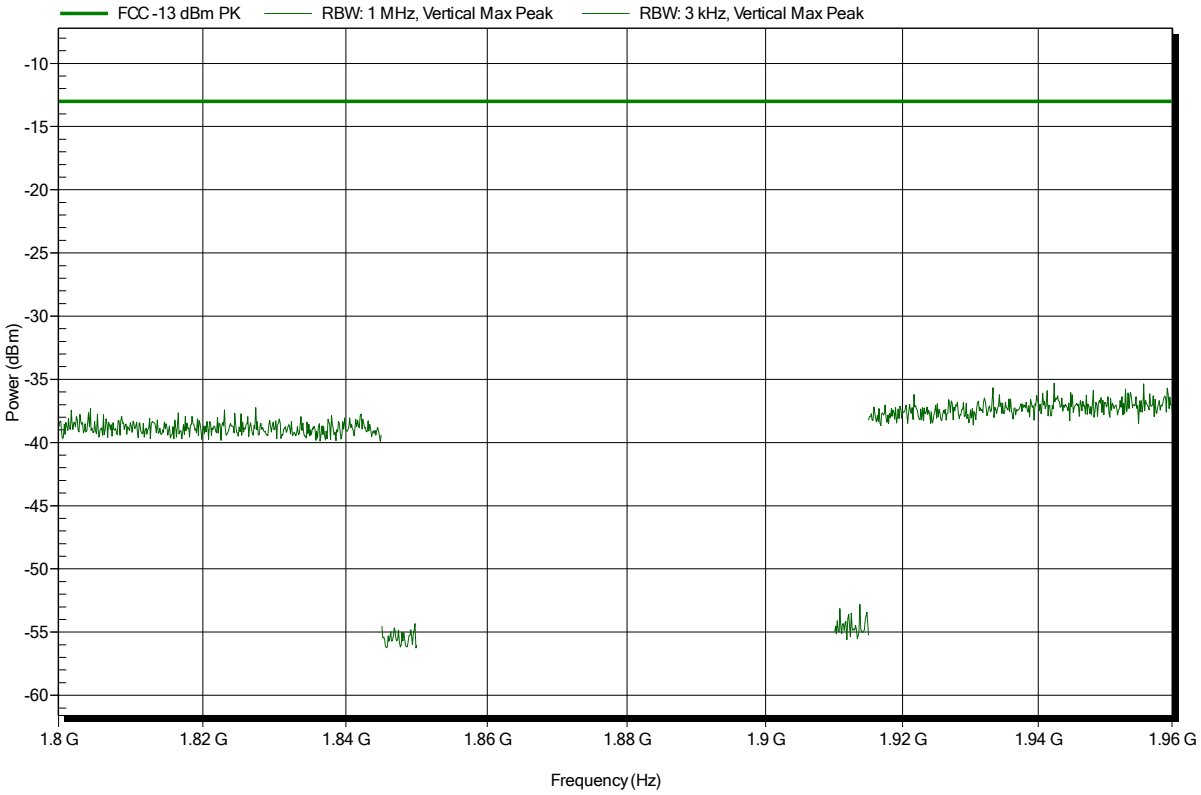

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 661, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical

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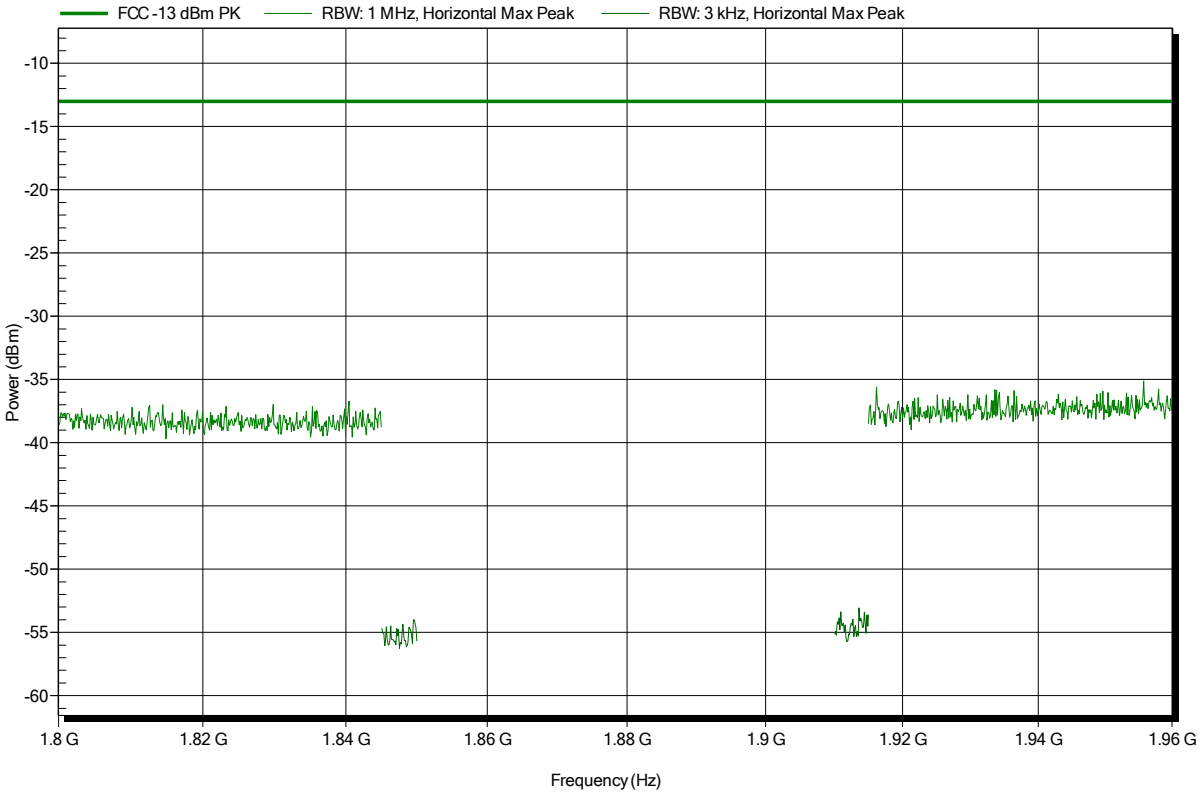

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; EDGE 1900, CH. 661, UL 1x Slot, Gamma 5
Test Date:	2014-12-04
Note:	EUT vertical

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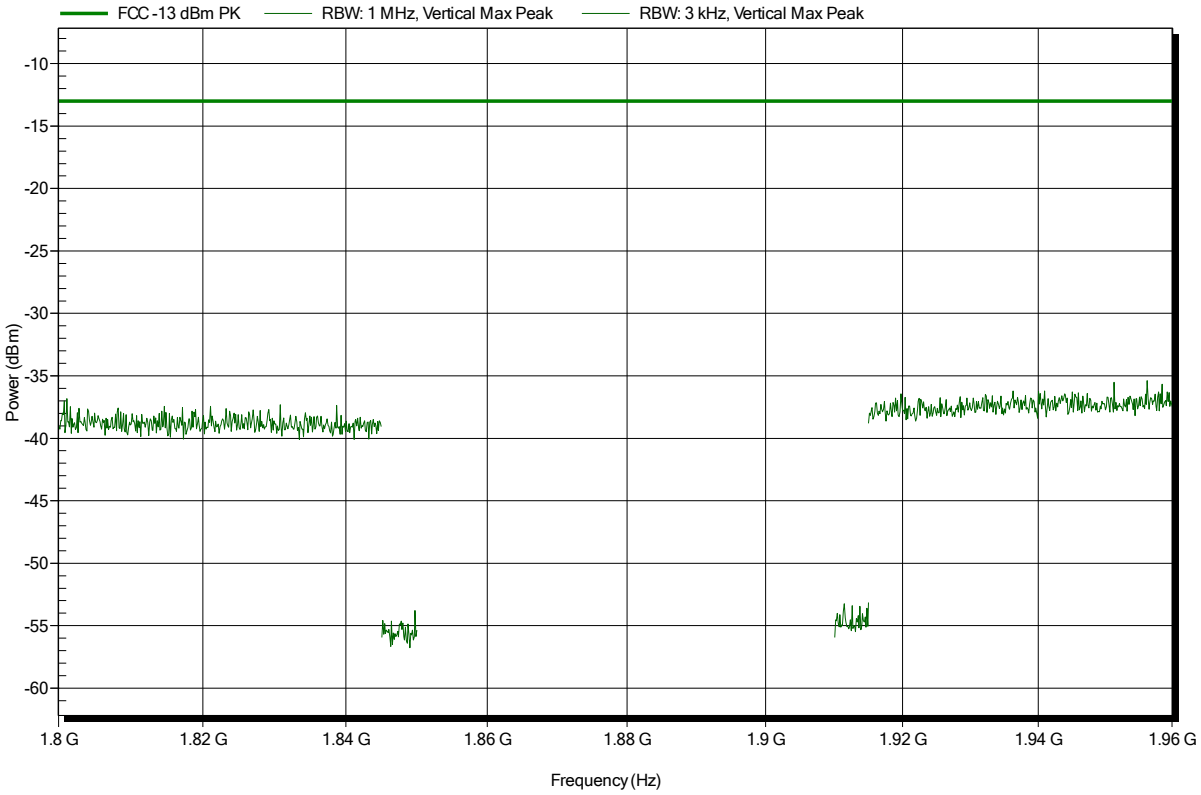

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; EDGE 1900, CH. 661, UL 1x Slot, Gamma 5
Test Date:	2014-12-04
Note:	EUT vertical

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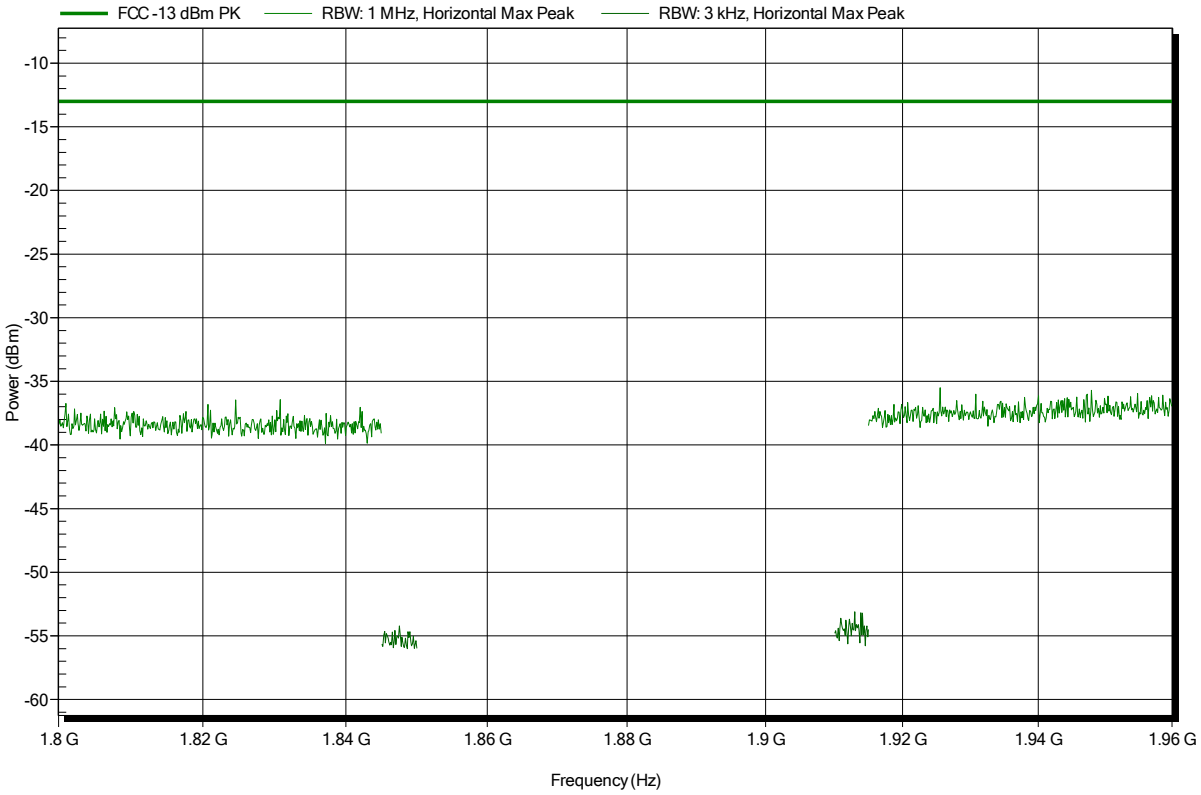

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 810, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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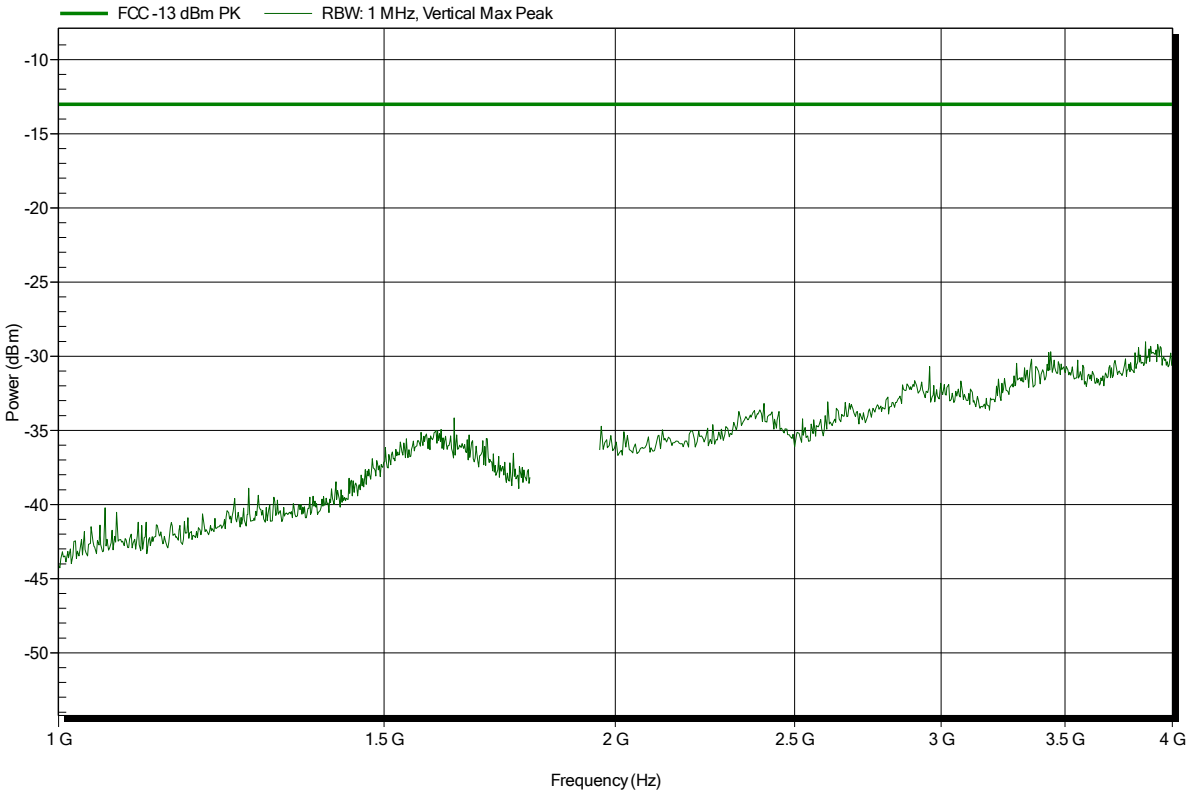

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 810, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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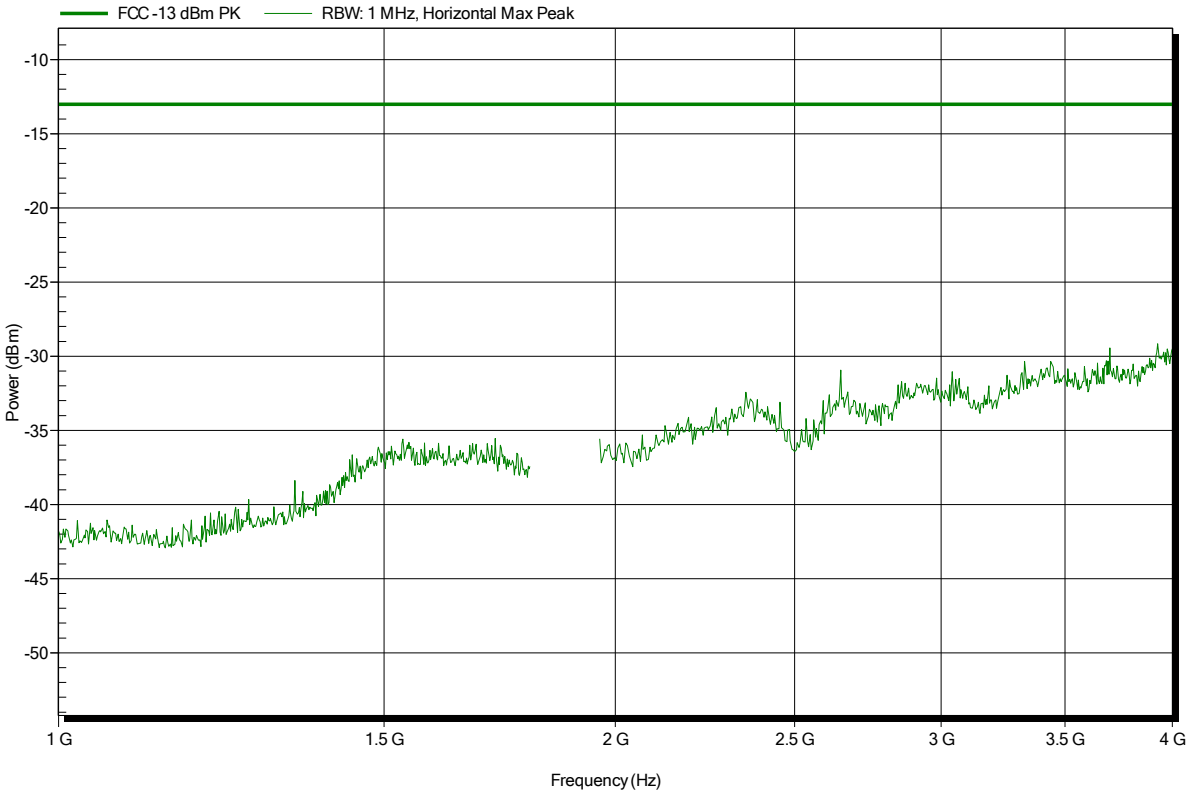

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 810, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical

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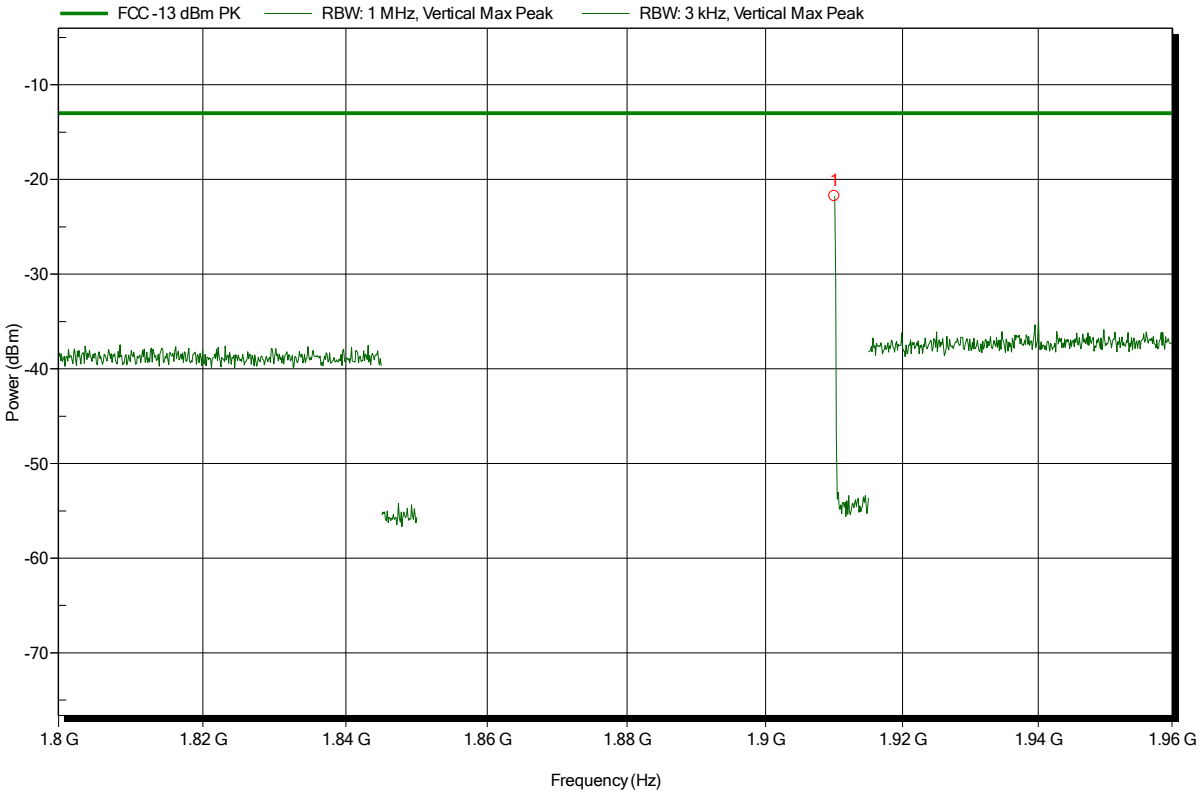

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.91 GHz	-21.7 dBm	-13 dBm	-8.75 dB	Pass

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 810, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical

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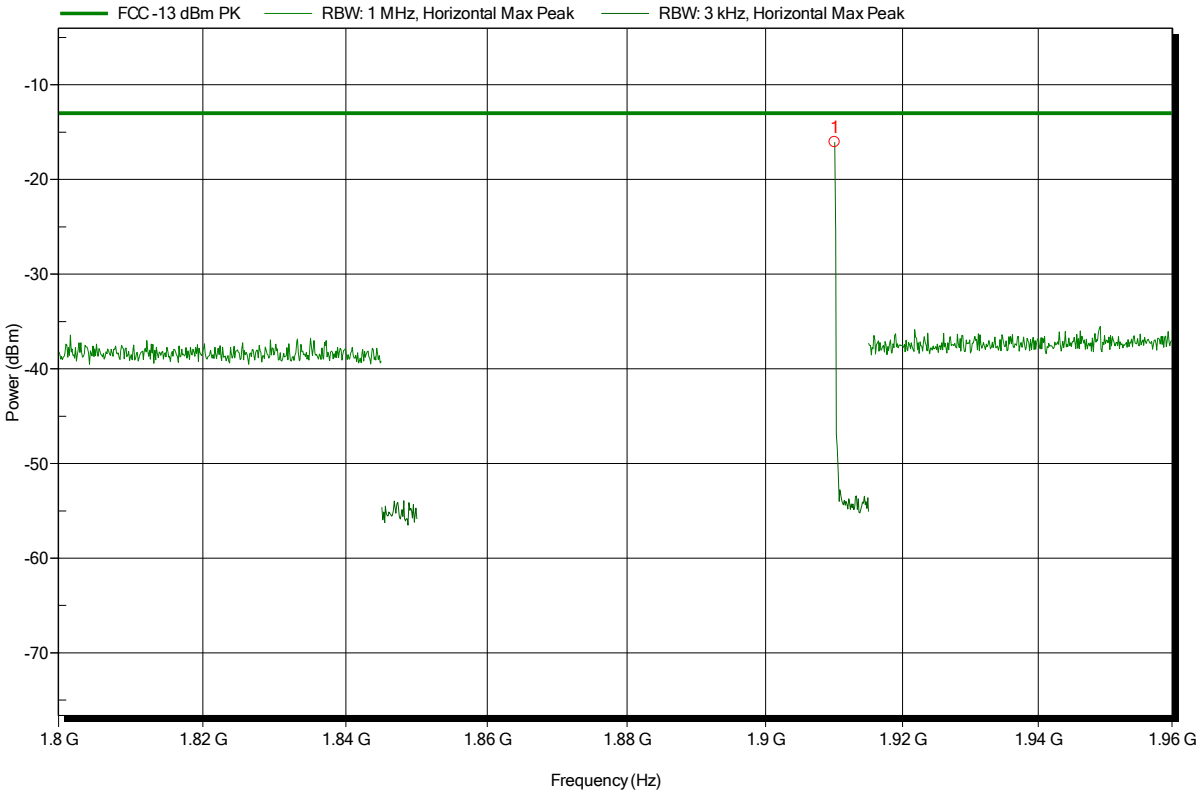

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.91 GHz	-16 dBm	-13 dBm	-3.04 dB	Pass

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; EDGE 1900, CH. 810, UL 1x Slot, Gamma 5
Test Date:	2014-12-04
Note:	EUT vertical

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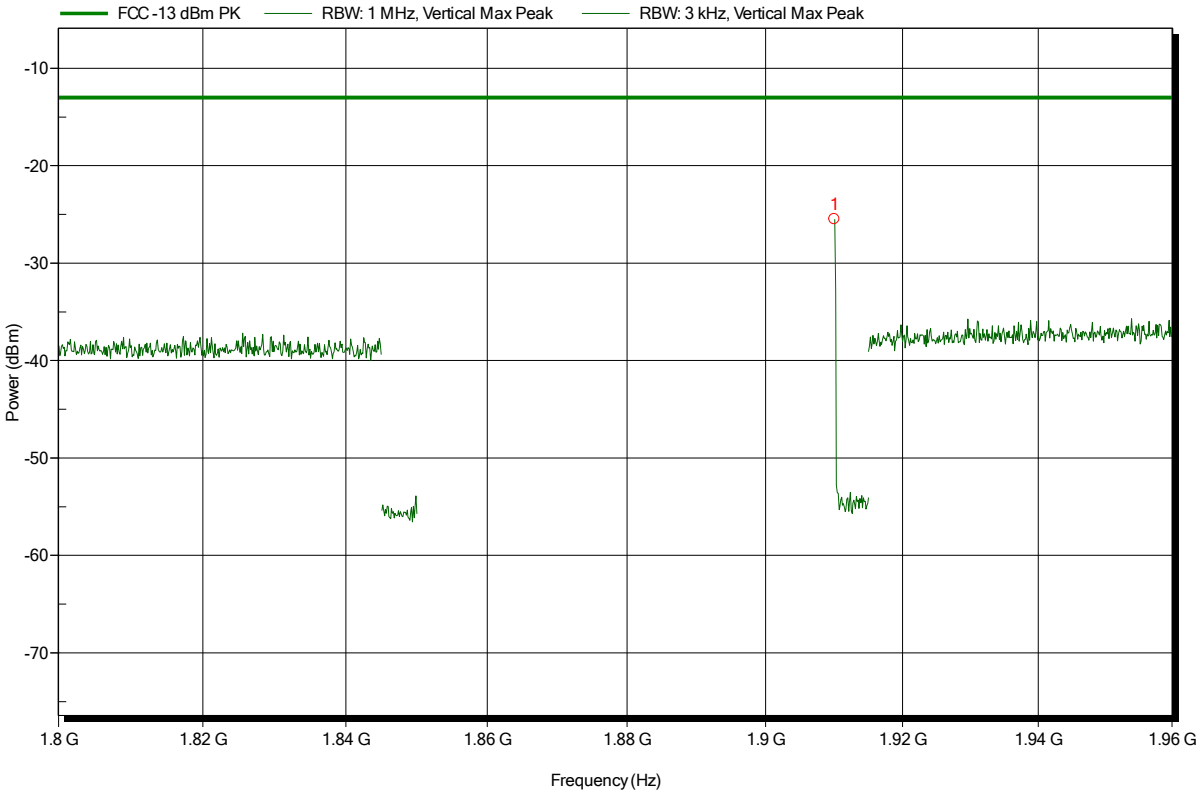

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.91 GHz	-25.5 dBm	-13 dBm	-12.49 dB	Pass

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; EDGE 1900, CH. 810, UL 1x Slot, Gamma 5
Test Date:	2014-12-04
Note:	EUT vertical

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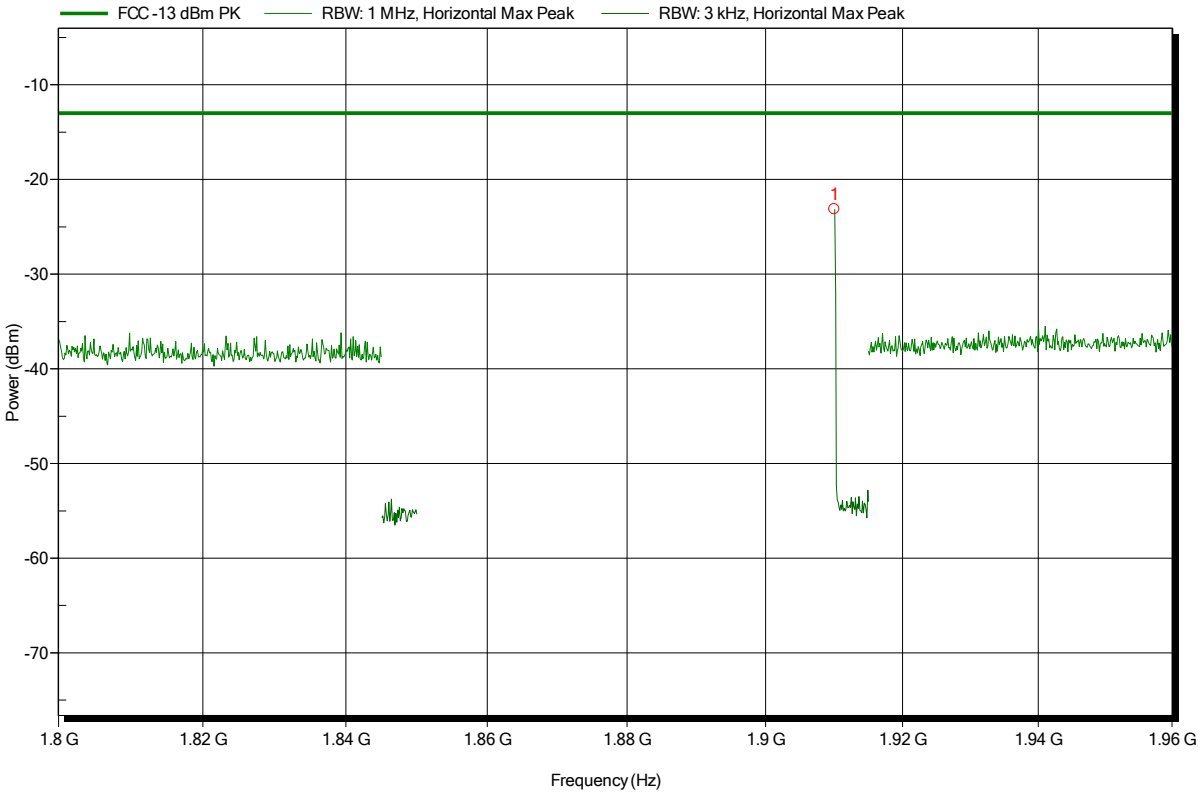

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.91 GHz	-23.1 dBm	-13 dBm	-10.15 dB	Pass

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 512, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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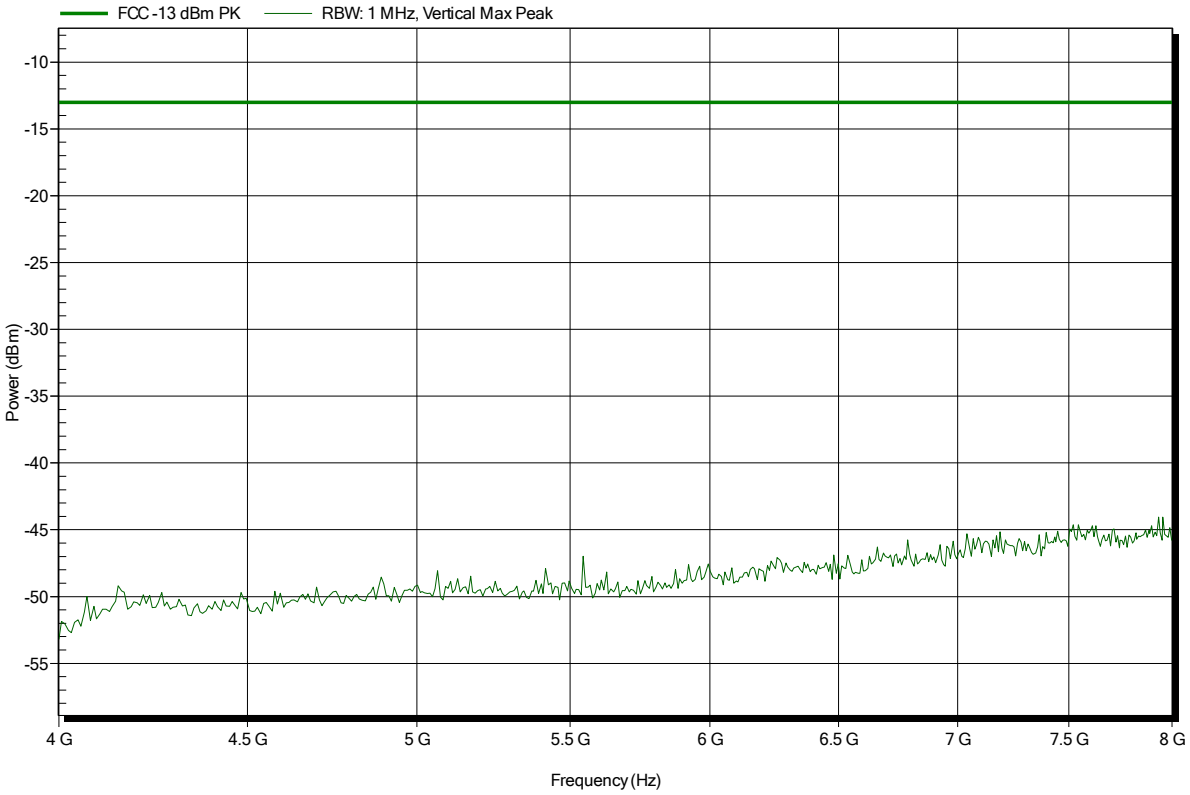

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 512, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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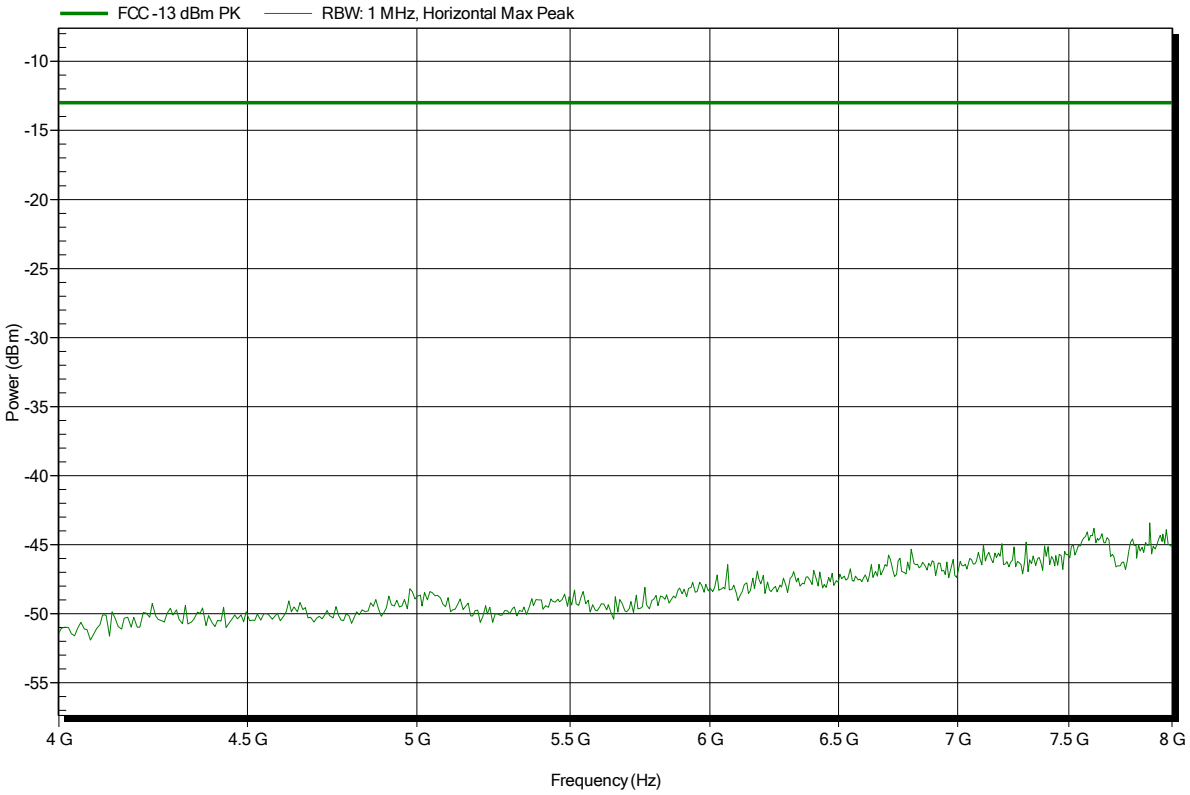

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 512, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 512, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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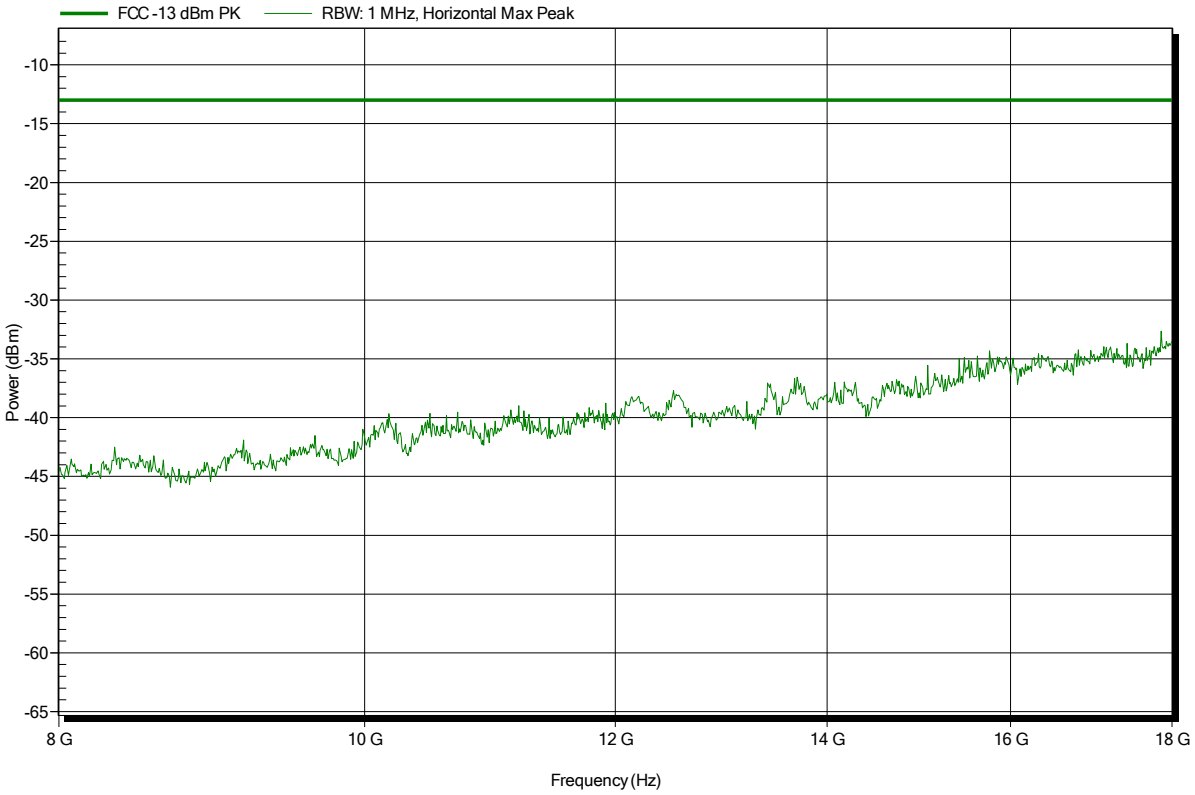

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 512, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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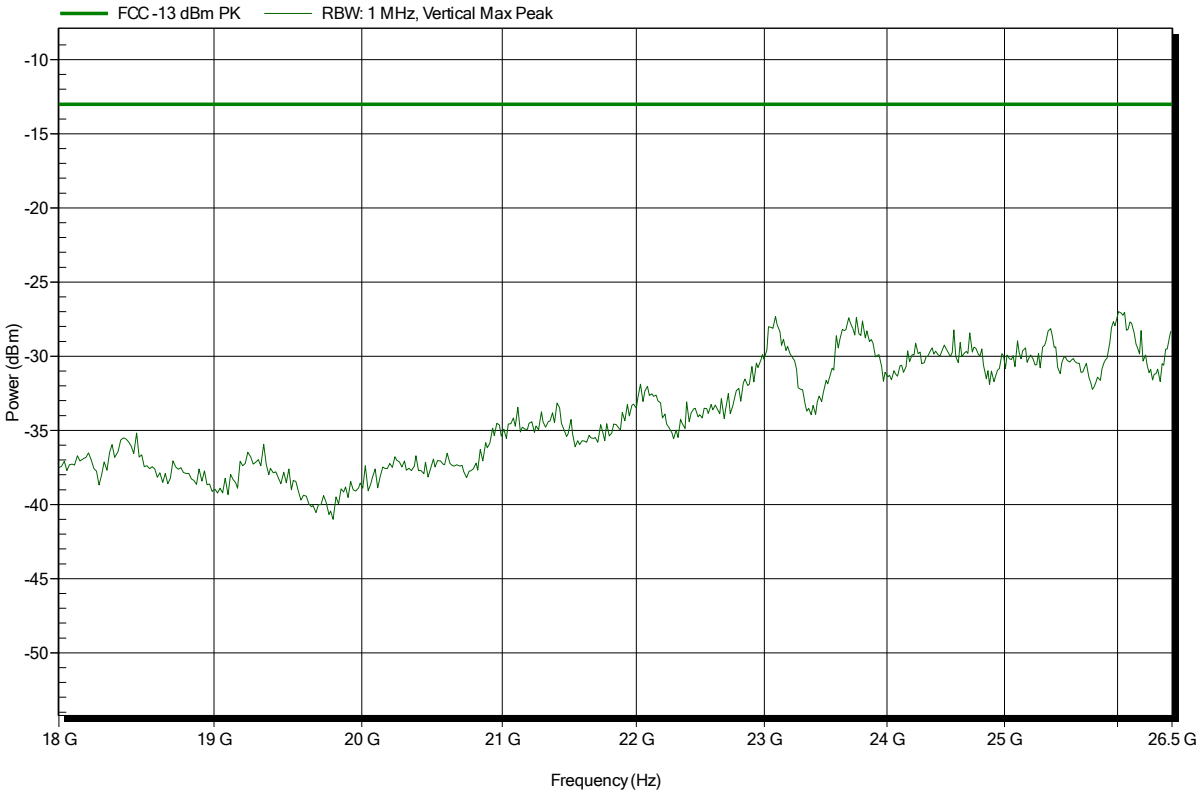

Spurious emissions according to FCC part 24 Subpart E, IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; GPRS 1900, CH. 512, UL 1x Slot, Gamma 3
Test Date:	2014-12-04
Note:	EUT vertical; worst case

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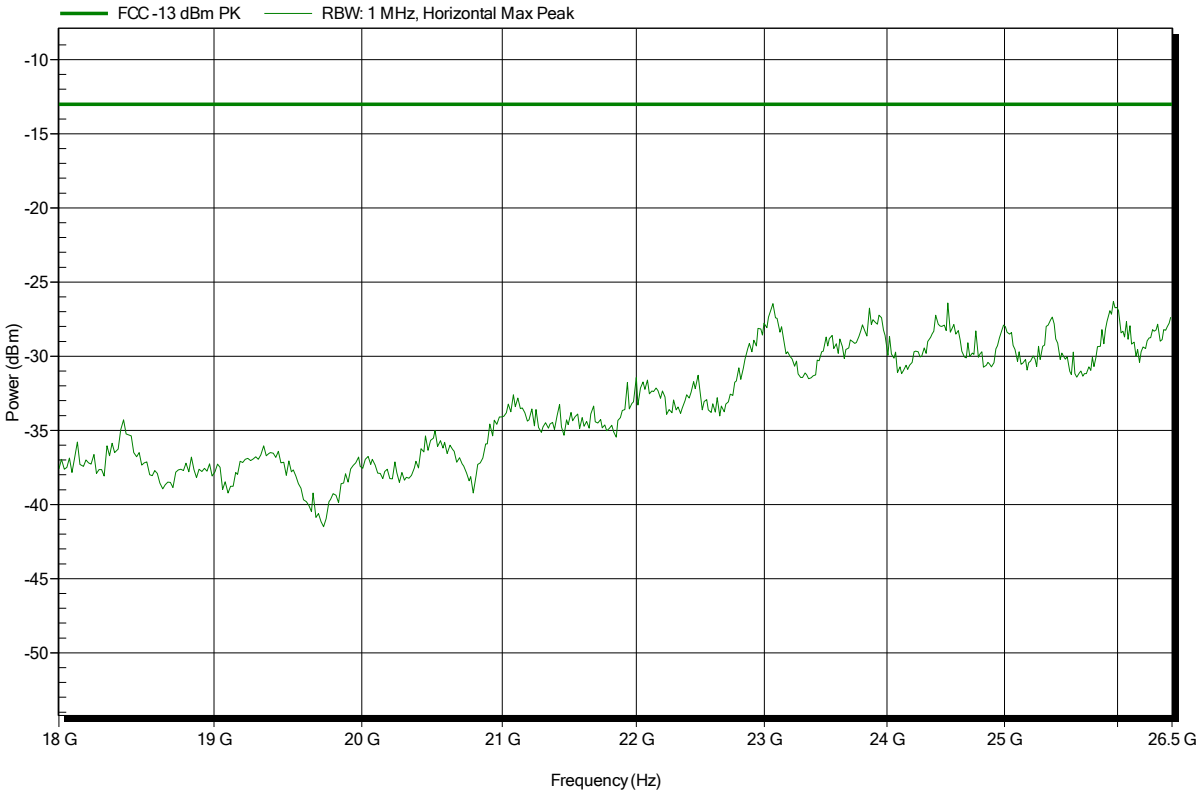

ANNEX B Receiver radiated spurious emissions

Spurious emissions according to IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	RX; GSM 850, CH. 188, RX-Idle Mode
Test Date:	2014-12-03
Note:	EUT vertical

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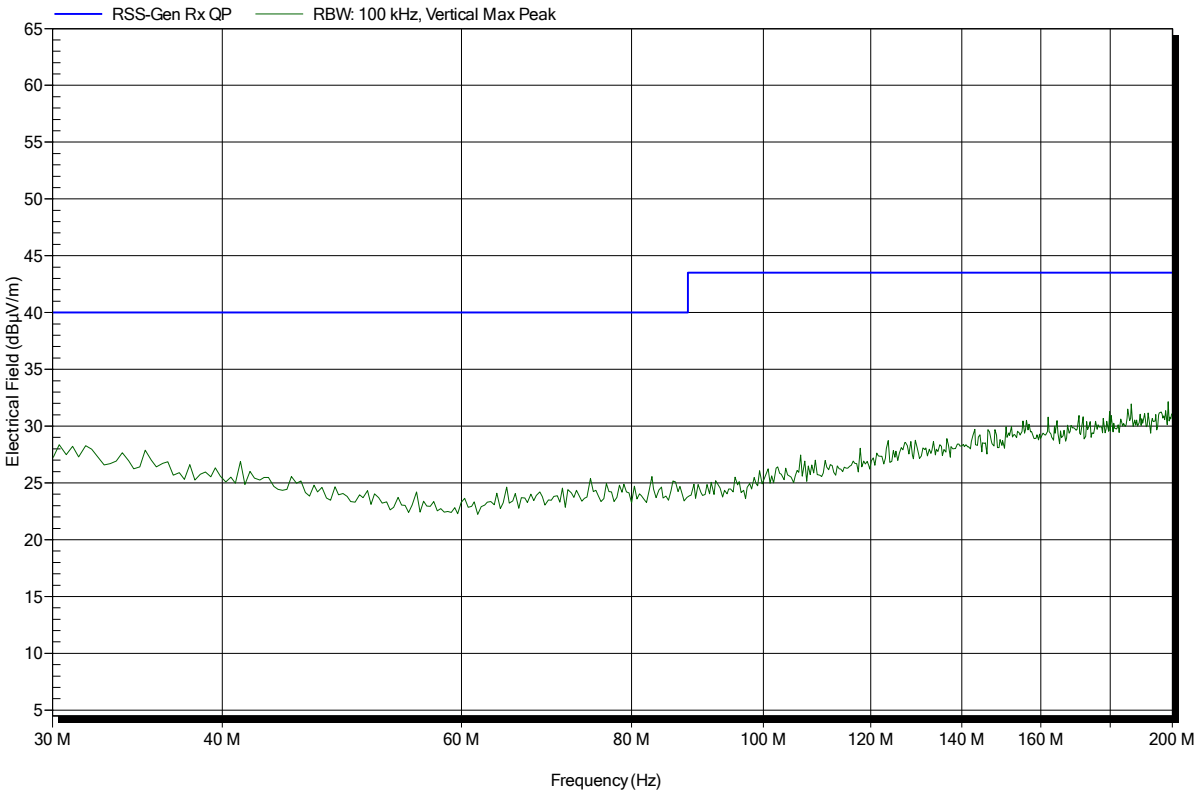

Spurious emissions according to IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	RX; GSM 850, CH. 188, RX-Idle Mode
Test Date:	2014-12-03
Note:	EUT vertical

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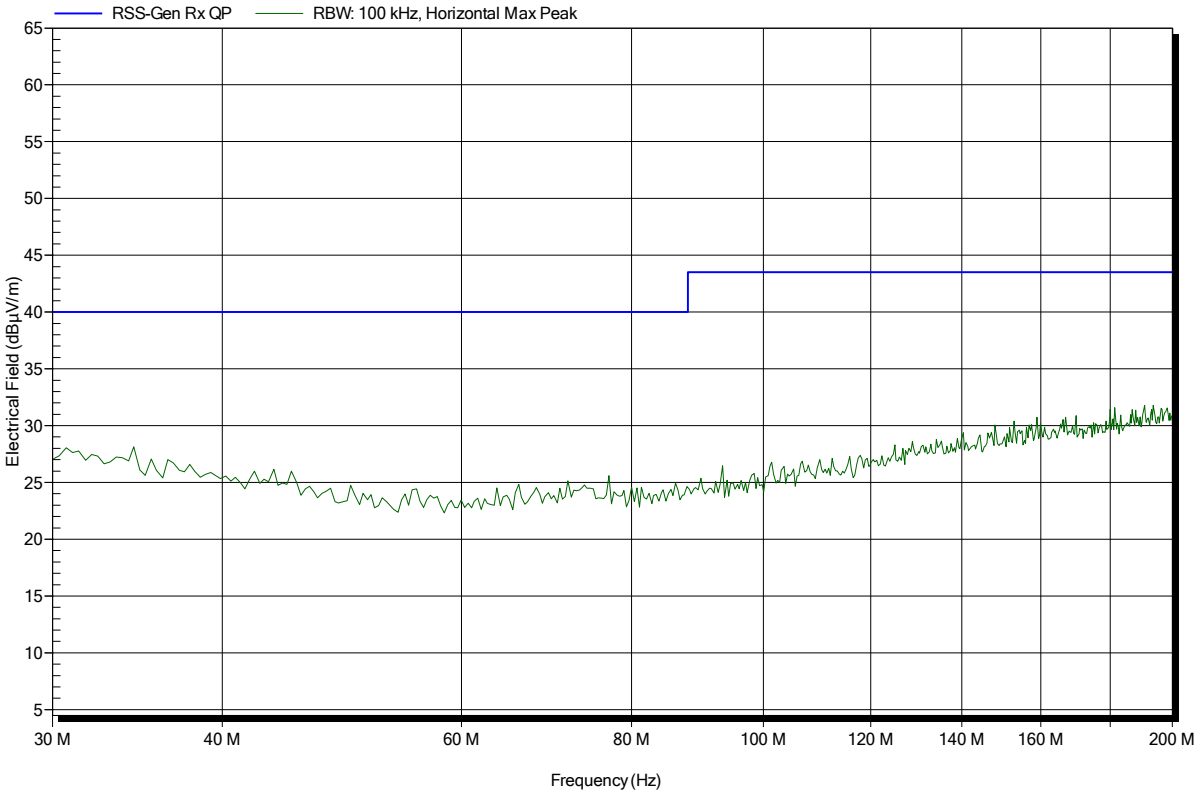

Spurious emissions according to IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	RX; GSM 850, CH. 188, RX-Idle Mode
Test Date:	2014-12-03
Note:	EUT vertical

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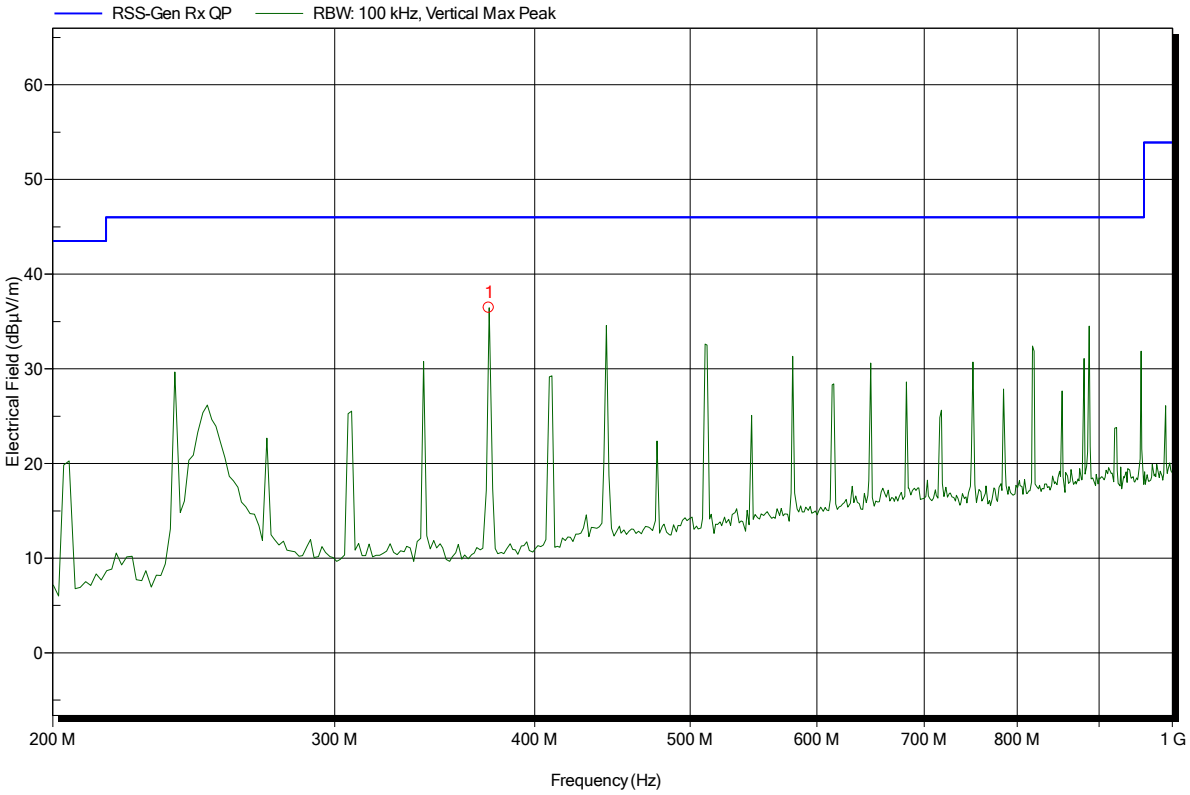

Frequency	Peak	Peak Limit	Peak Difference	Status
374.4 MHz	36.44 dBµV/m	46 dBµV/m	-9.56 dB	Pass

Spurious emissions according to IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	RX; GSM 850, CH. 188, RX-Idle Mode
Test Date:	2014-12-03
Note:	EUT vertical

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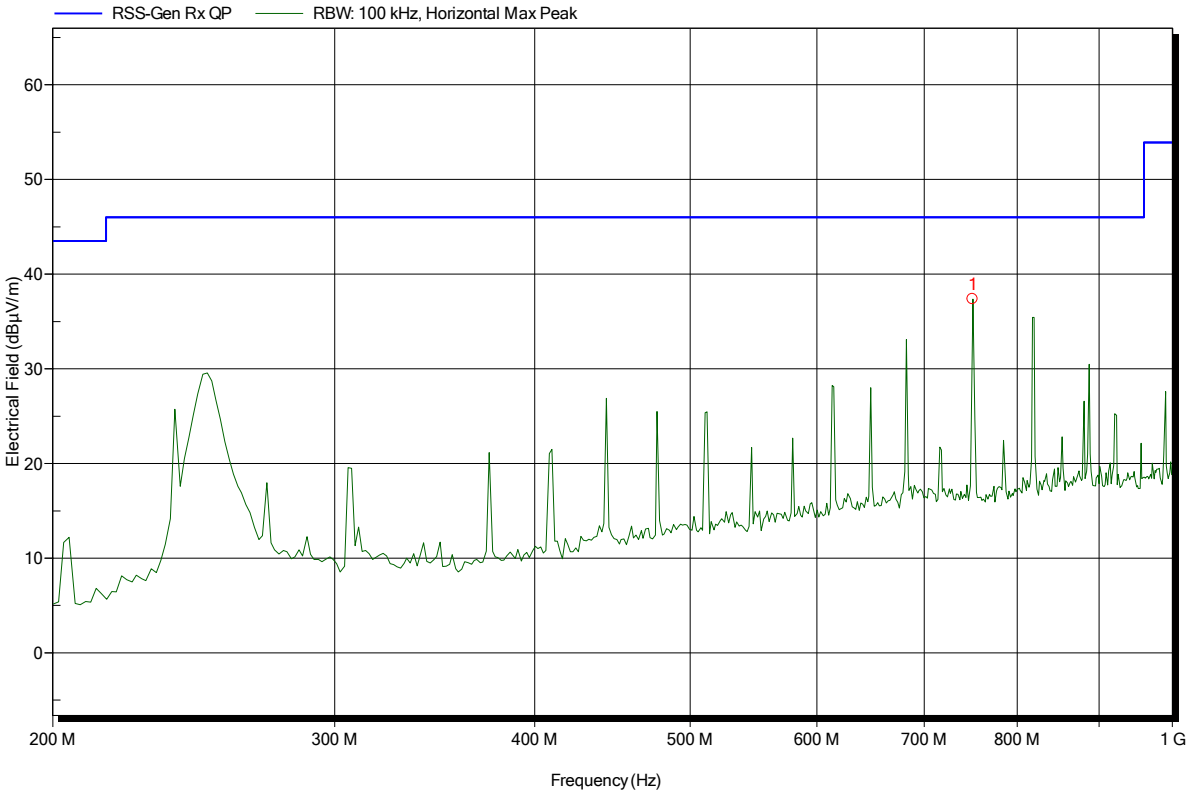

Frequency	Peak	Peak Limit	Peak Difference	Status
750.4 MHz	37.38 dBµV/m	46 dBµV/m	-8.62 dB	Pass

Spurious emissions according to IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	RX; GSM 850, CH. 188, RX-Idle Mode
Test Date:	2014-12-03
Note:	EUT vertical

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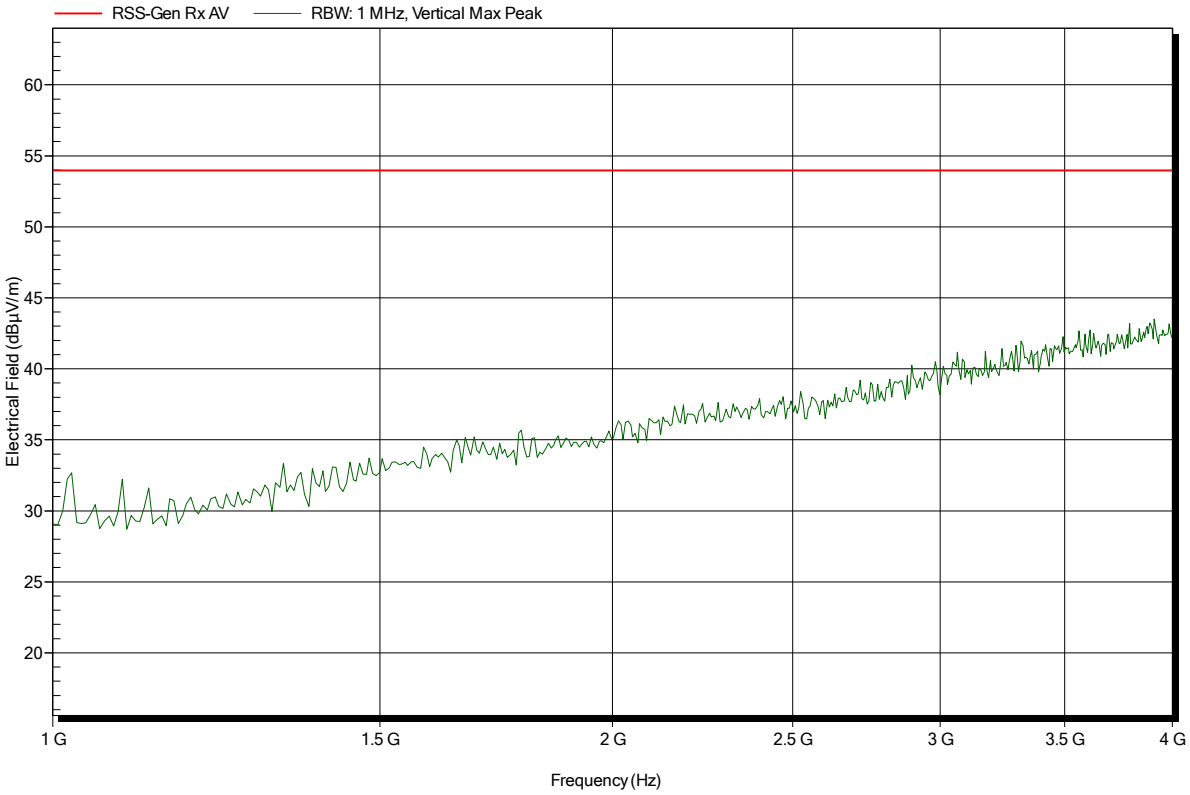

Spurious emissions according to IC RSS-132

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	RX; GSM 850, CH. 188, RX-Idle Mode
Test Date:	2014-12-03
Note:	EUT vertical

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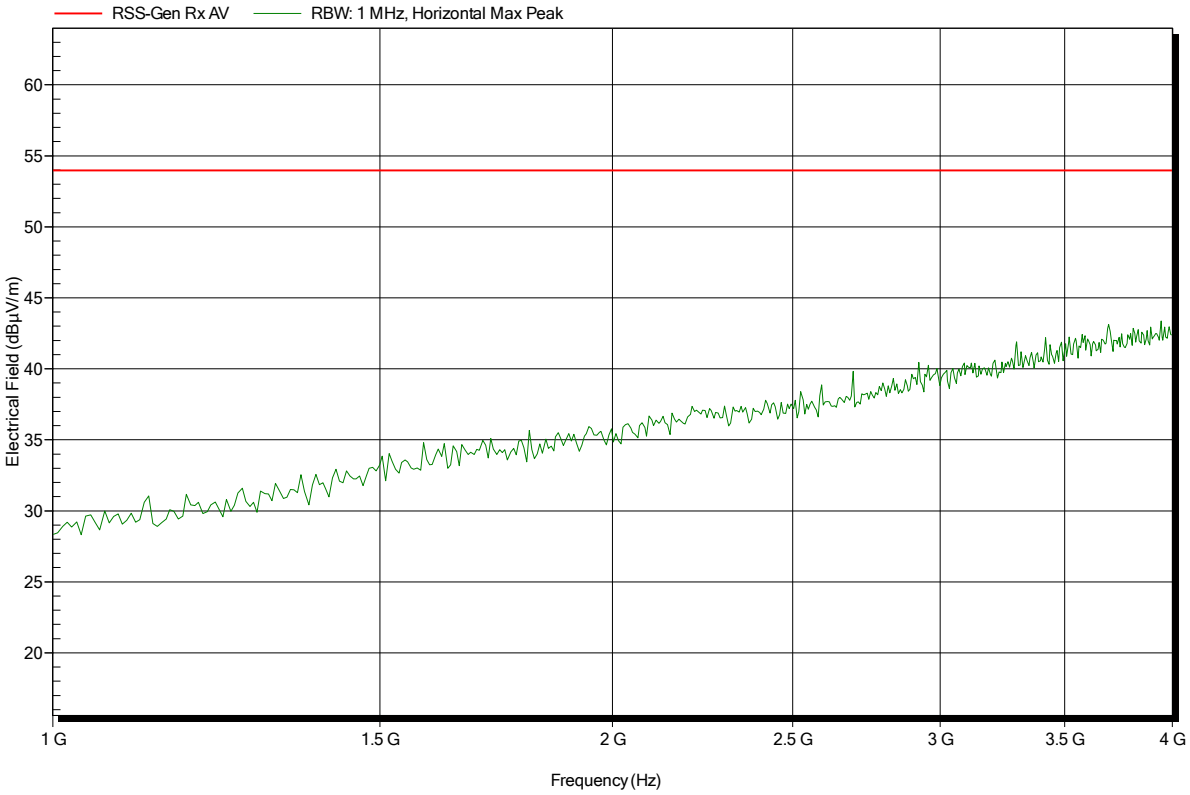

Spurious emissions according to IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	RX; GSM 1900, CH. 661, RX-Idle Mode
Test Date:	2014-12-03
Note:	EUT vertical

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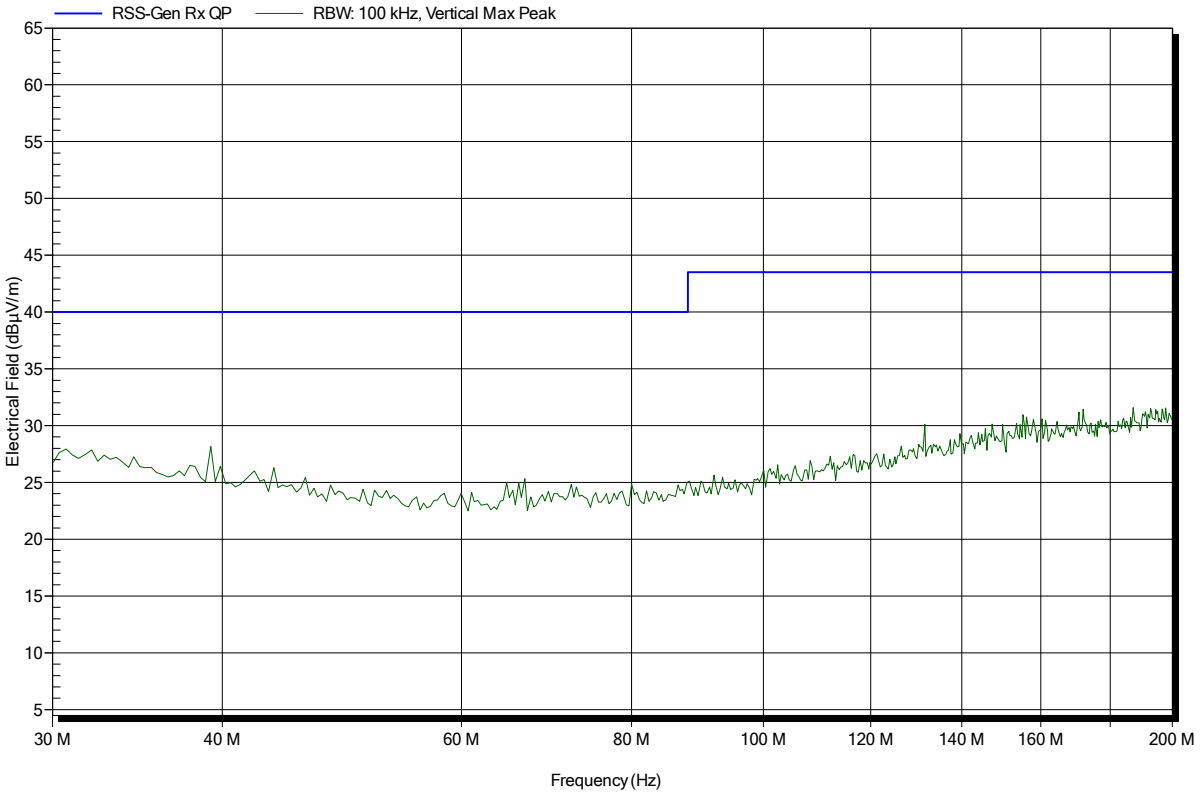

Spurious emissions according to IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	RX; GSM 1900, CH. 661, RX-Idle Mode
Test Date:	2014-12-03
Note:	EUT vertical

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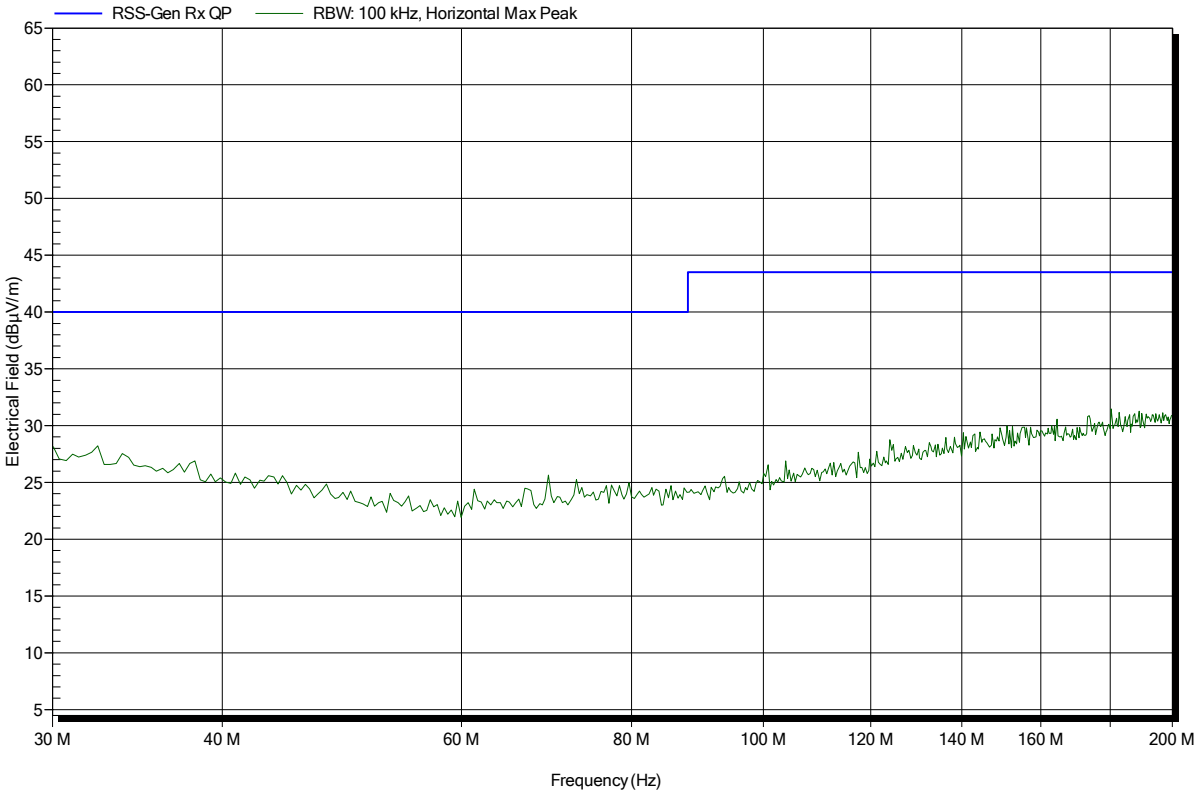

Spurious emissions according to IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	RX; GSM 1900, CH. 661, RX-Idle Mode
Test Date:	2014-12-03
Note:	EUT vertical

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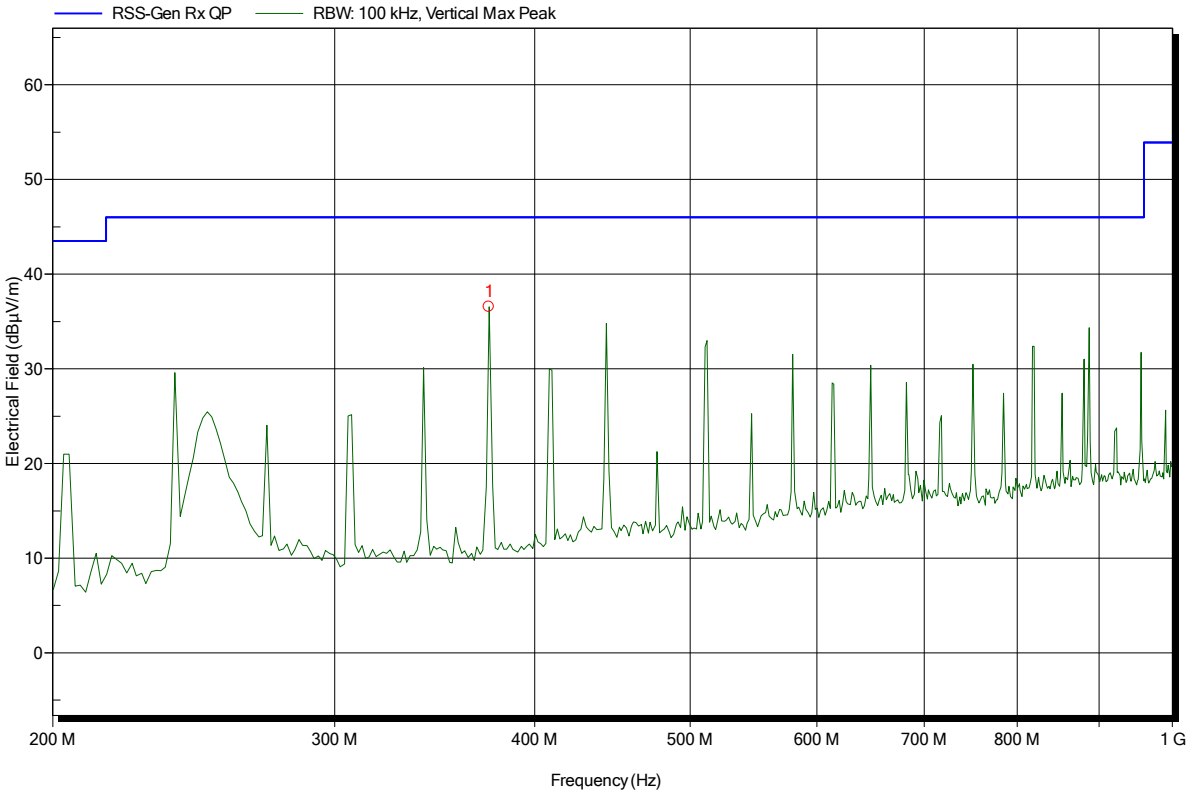

Frequency	Peak	Peak Limit	Peak Difference	Status
374.4 MHz	36.56 dBµV/m	46 dBµV/m	-9.44 dB	Pass

Spurious emissions according to IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	RX; GSM 1900, CH. 661, RX-Idle Mode
Test Date:	2014-12-03
Note:	EUT vertical

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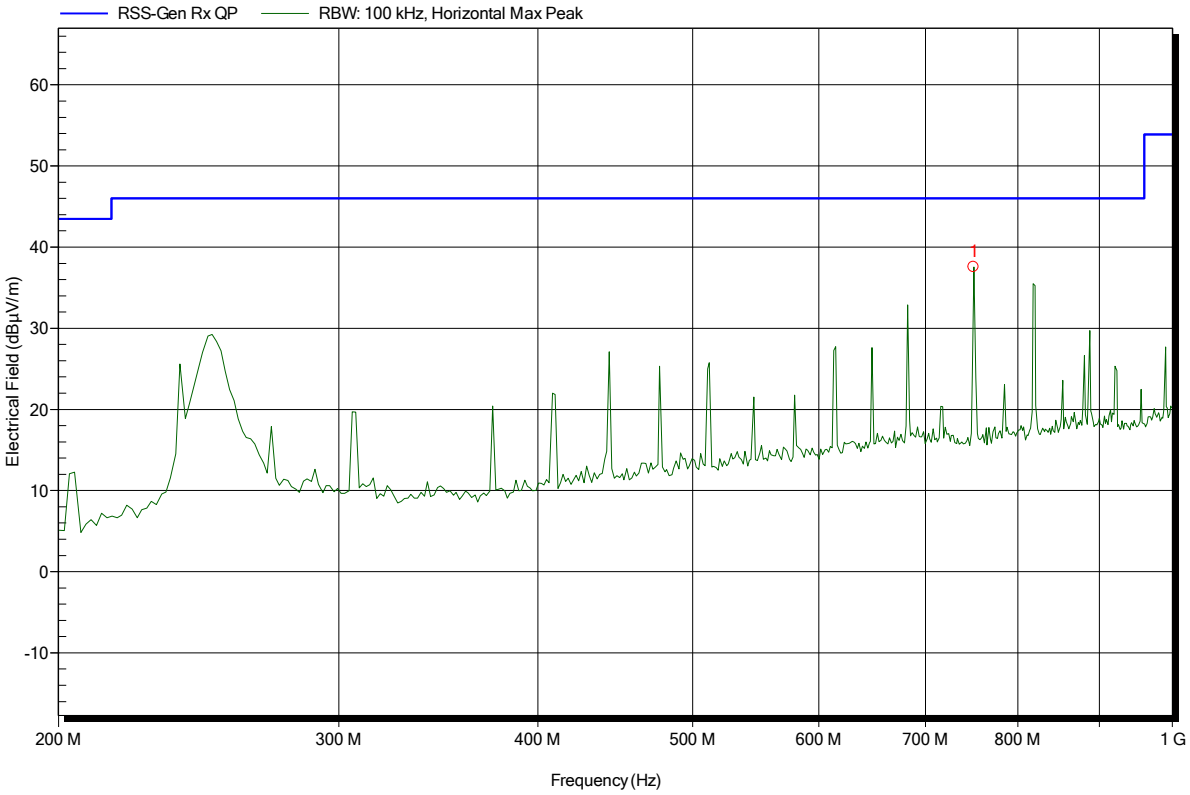

Frequency	Peak	Peak Limit	Peak Difference	Status
750.4 MHz	37.54 dBµV/m	46 dBµV/m	-8.46 dB	Pass

Spurious emissions according to IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	RX; GSM 1900, CH. 661, RX-Idle Mode
Test Date:	2014-12-03
Note:	EUT vertical

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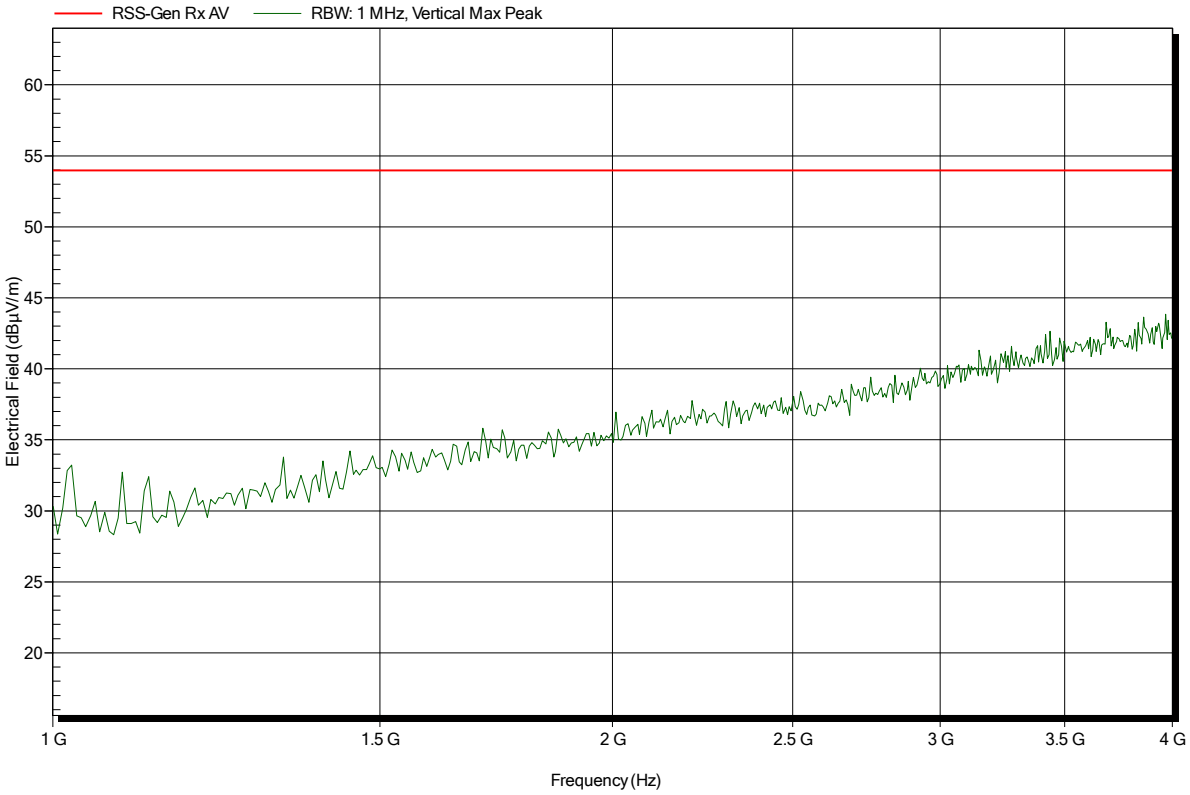

Spurious emissions according to IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	RX; GSM 1900, CH. 661, RX-Idle Mode
Test Date:	2014-12-03
Note:	EUT vertical

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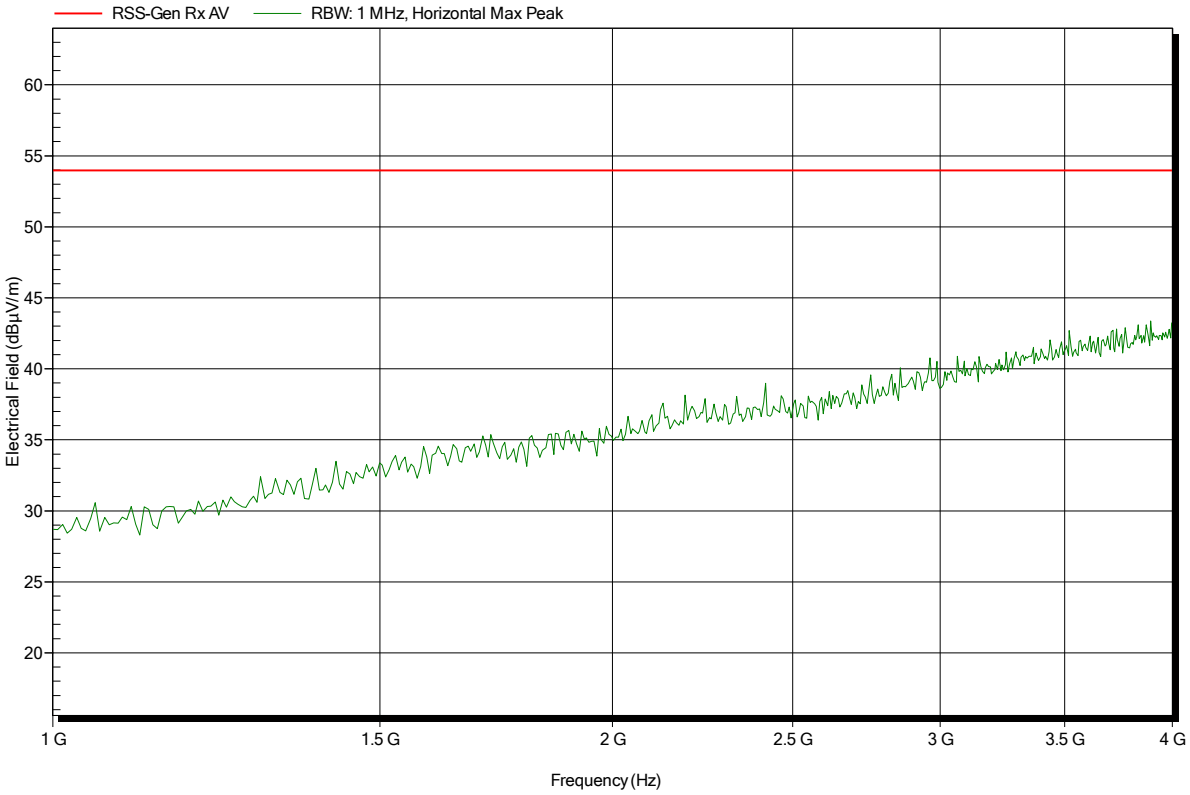

Spurious emissions according to IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	RX; GSM 1900, CH. 661, RX-Idle Mode
Test Date:	2014-12-03
Note:	EUT vertical

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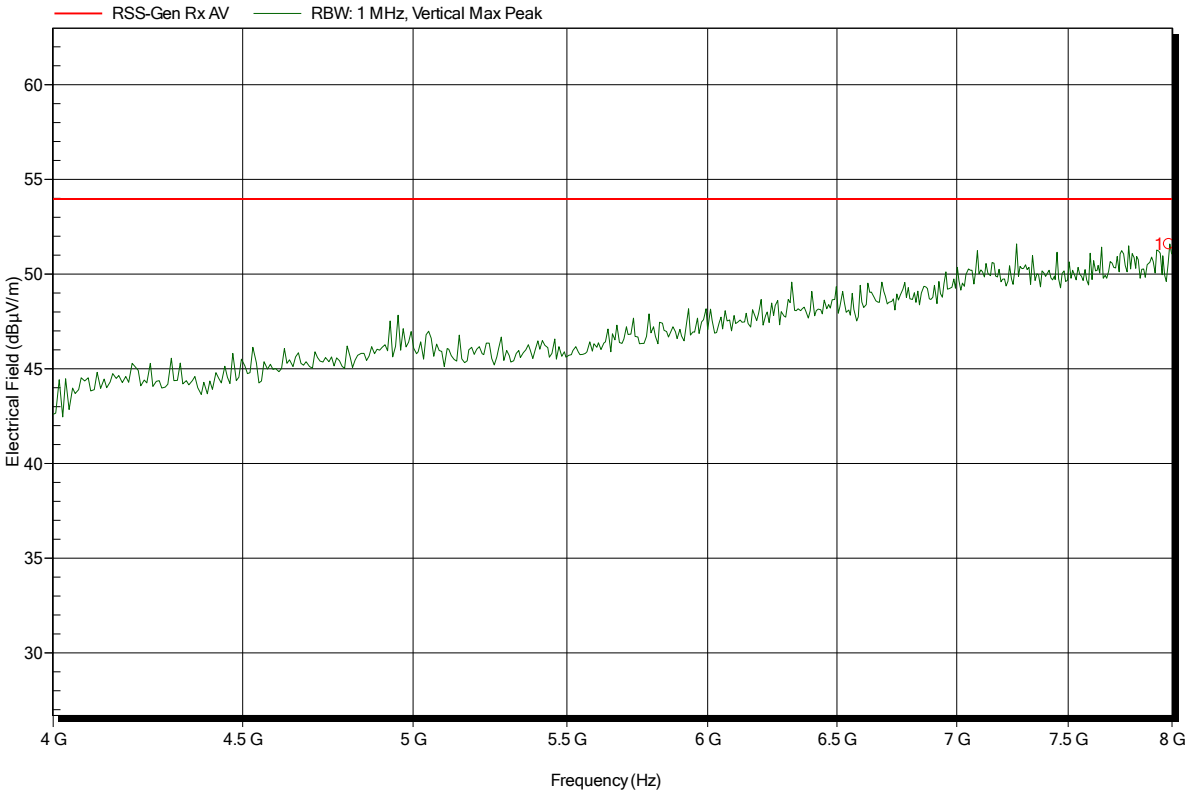

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.984 GHz	51.57 dBµV/m	53.98 dBµV/m	-2.41 dB	Pass

Spurious emissions according to IC RSS-133

Project number: G0M-1406-3915

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 VDC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	RX; GSM 1900, CH. 661, RX-Idle Mode
Test Date:	2014-12-03
Note:	EUT vertical

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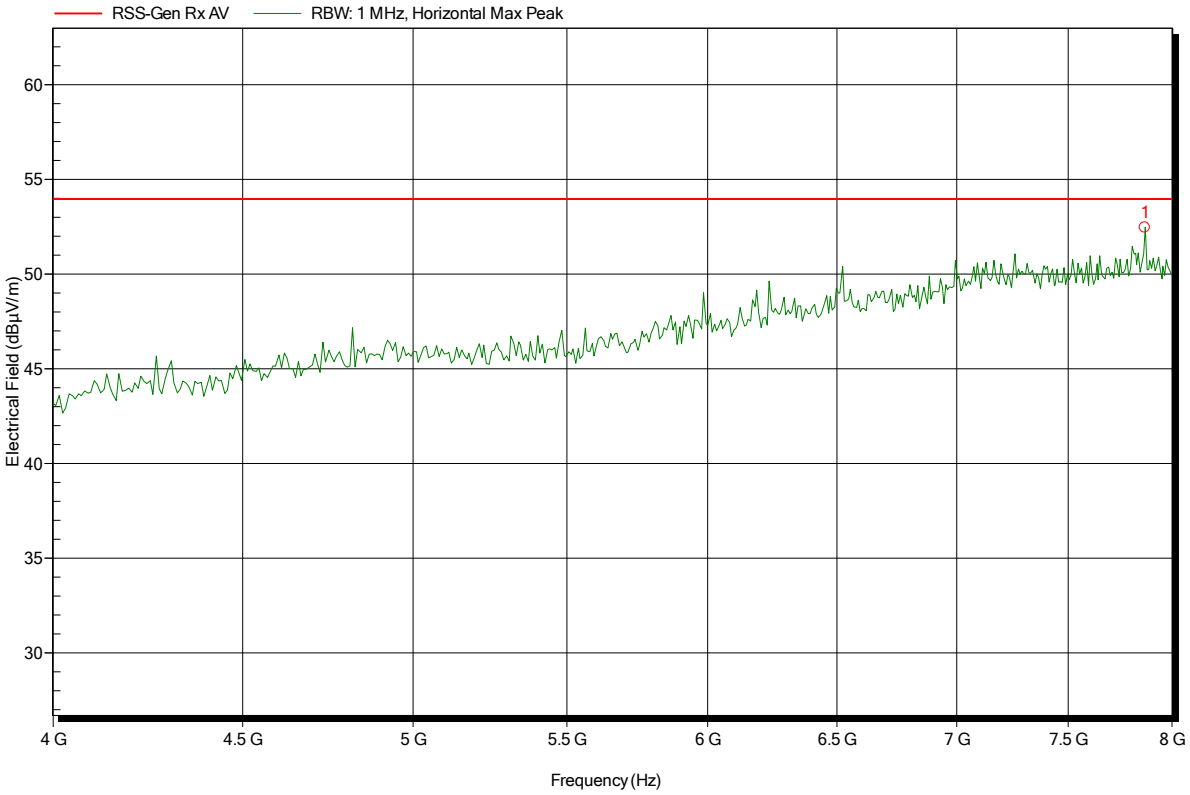

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.864 GHz	52.46 dBµV/m	53.98 dBµV/m	-1.52 dB	Pass