RADIO REPORT

FCC 47 CFR Part 15C
ISED Canada RSS-247

Frequency hopping systems operating within the 2400 – 2483.5 MHz band

Report Reference No	G0M-1812-7888-TFC247BT2-V03
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	A2LA Accredited Testing Laboratory, Certificate No.: 1983.01 FCC Test Firm Designation Number: DE0008 ISED Testing Laboratory site: 3470A-2
Applicant	Leica Geosystems AG
Address	Heinrich Wild Strasse 9435 Heerbrugg SWITZERLAND
Test Specification	According to FCC/ISED rules
Standard	47 CFR Part 15C RSS-247, Issue 2, 2017-02 RSS-Gen, Issue 5, 2018-04
Non-Standard Test Method	None
Equipment under Test (EUT):	
Product Description	Field Controller Win EC7
Model(s)	CS20 LTE Disto (US, CA)
Additional Model(s)	None
Brand Name(s)	Leica Geosystems
Hardware Version(s)	V1.0
Software Version(s)	V4.97
FCC-ID	RFD-CSNGG
IC	3177A-CSNGG
Test Result	**PASSED**

Possible test case verdicts:	
required by standard but not tested	N/T
not required by standard	N/R
not applicable to EUT	N/A
test object does meet the requirement	P(PASS)
test object does not meet the requirement	F(FAIL)

Testing:	
Test Lab Temperature	20 - 23 °C
Test Lab Humidity	32 – 38 %
Date of receipt of test item	2019-01-07

Report:		
Compiled by	Wilfried Treffke	
Tested by (+ signature) (Responsible for Test)	Wilfried Treffke	W. Treffke .....
Approved by (+ signature) (Head of Lab)	Christian Weber	C. Weber .....
Date of Issue	2019-07-16	
Total number of pages	77	

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:

The EUT can operate with different power requirements. (120V AC/DC adaptor and 11.1V DC Li- battery)

Test mode selection is based on comparative tests. The 120V AC power port was selected for compliance tests.

ADDITIONAL VARIANTS

Additional Variants (not tested and not evaluated variants)		
Not-tested Variant	**Description**	
1	Product Type Description	Field Controller Win EC7
	Model name	CS20 LTE (US, CA)
	Brand name	Geosystems
	Hardware Version	V1.00
	Software Version	V4.97
Comment: Those named additional variants above have not been tested. Those additional variants of the series have been declared by the manufacturer. The test report explicitly states that those variants were neither tested nor assessed nor evaluated.		

VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2019-03-15	Initial Release	
02	2019-05-10	Product description and model name corrected.	W. Treffke
03	2019-07-16	Applicant on the test plots corrected.	W. Treffke

ABBREVIATIONS AND ACRONYMS

Acronyms	
Acronym	Description
BR	Bluetooth Basic Rate mode
EDR	Bluetooth Enhanced Data Rate mode
EUT	Equipment Under Test
FCC	Federal Communications Commission
ISED	Innovation, Science and Economic Development Canada
RBW	Resolution bandwidth
RMS	Root mean square
VBW	Video bandwidth
V_{NOM}	Nominal supply voltage

REPORT INDEX

1 Equipment (Test Item) Under Test

Description	Field Controller Win EC7	
Model	CS20 LTE Disto (US, CA)	
Additional Model(s)	None	
Brand Name(s)	Leica Geosystems	
Serial Number(s)	2475478	
Hardware Version(s)	V1.0	
Software Version(s)	V4.97	
PMN	CS20 LTE Disto, CS20 LTE	
HVIN	CS20 LTE Disto, CS20 LTE	
FVIN	-/-	
HMN	-/-	
FCC-ID	RFD-CSNGG	
IC	3177A-CSNGG	
Equipment type	End Product	
Radio type	Transceiver	
Assigned frequency bands	2400 - 2483.5 MHz	
Radio technology	Bluetooth	
Modulation	GFSK	
Number of antenna ports	1	
Radio Module	Type	Stand-alone dual-mode Bluetooth modules
	Model	cB-OBS421x-c1
	Manufacturer	connectBlue/U-blox
	HW Version	B
	SW Version	5.2.0
	FCC-IC	PVH0946
	IC	5325A-0946
Antenna	Type	Integrated
	Model	1000146
	Manufacturer	AVX/Ethertronics
	Gain	1 dBi (manufacturer declaration)
Supply Voltage	V_{NOM}	120 VAC (adaptor)
Supply Voltage	V_{NOM}	11.1 VAC (Lithium Battery)
Operating Temperature	T_{NOM}	25 °C
AC/DC-Adaptor	Model	GEV276
	Vendor	Leica Geosystems
	Input	100 – 240; 50 / 60 Hz
	Output	15 VDC
Manufacturer	Leica Geosystems AG Heinrich Wild Strasse 9435 Heerbrugg SWITZERLAND	

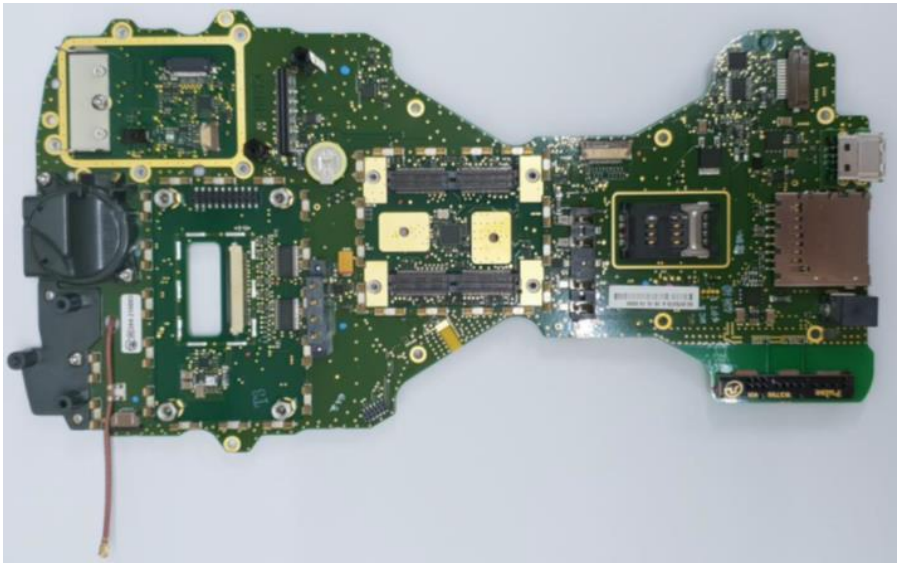
1.1 Photos – Equipment External

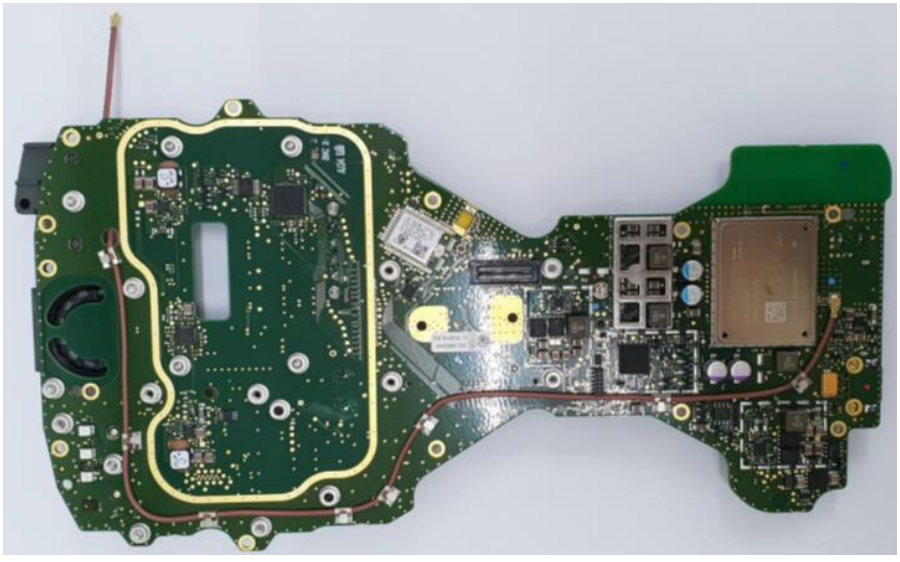
EUT Top


EUT Connector View

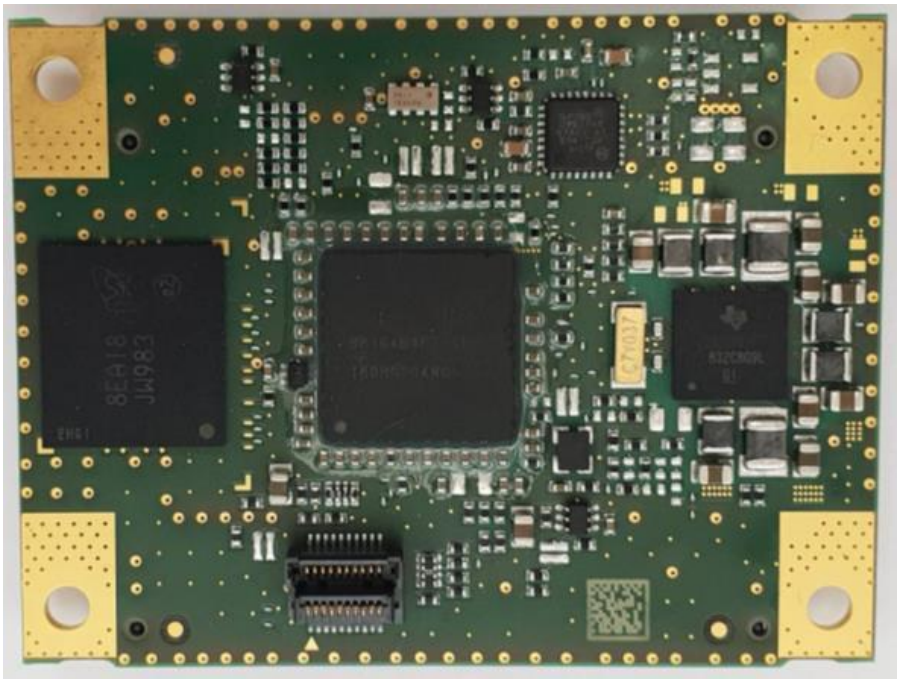

EUT Bottom

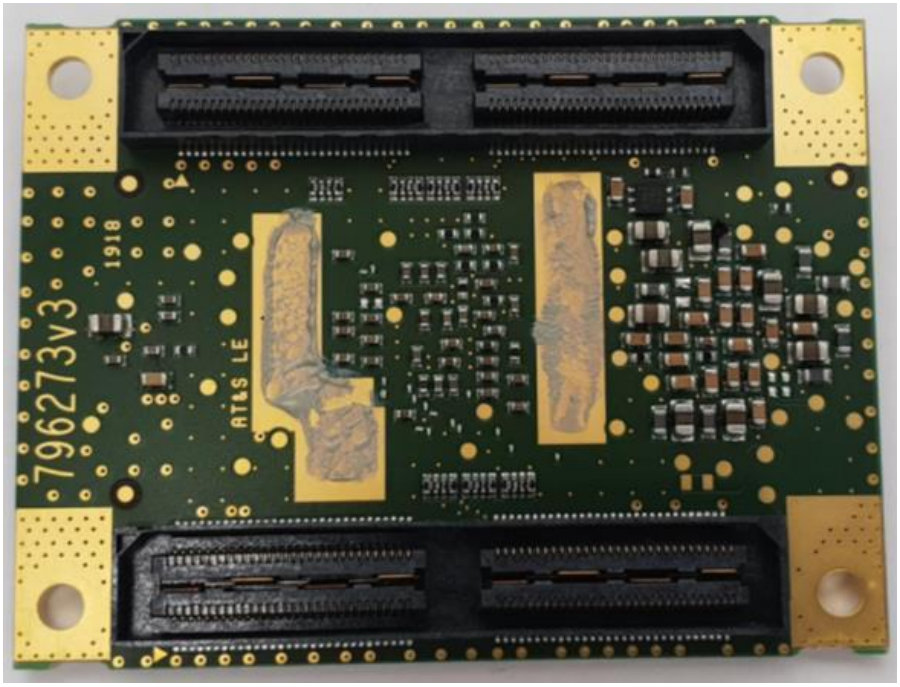

1.2 Photos – Equipment Internal

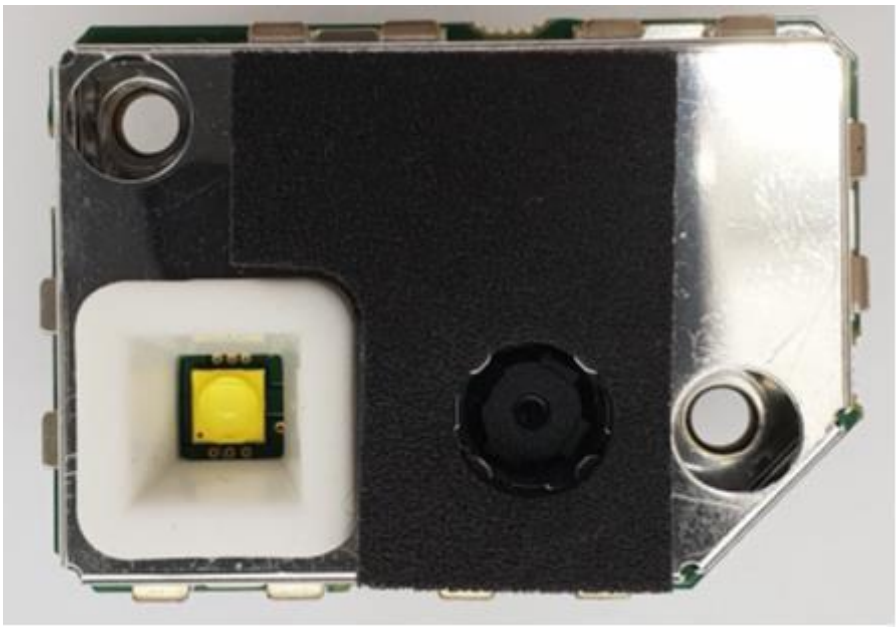
Base Board (Top View)


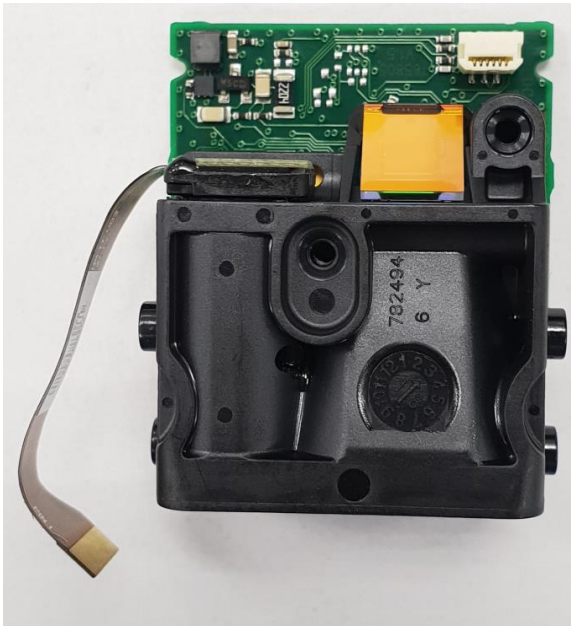
Base Board (Bottom View)


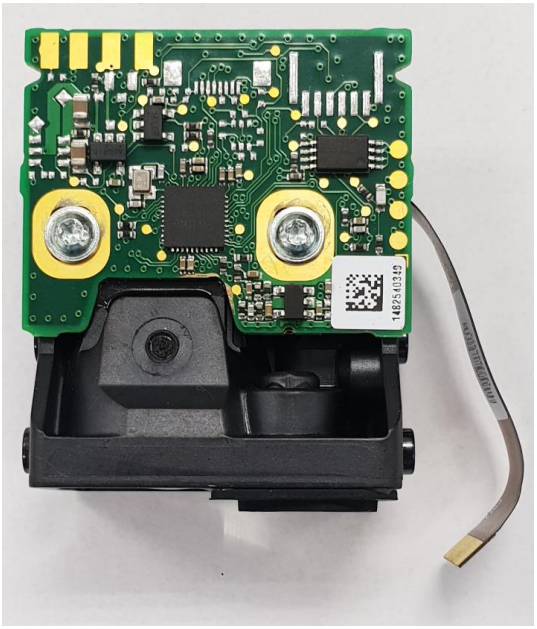
WLAN / Bluetooth Module


Core Module Board (Top View)


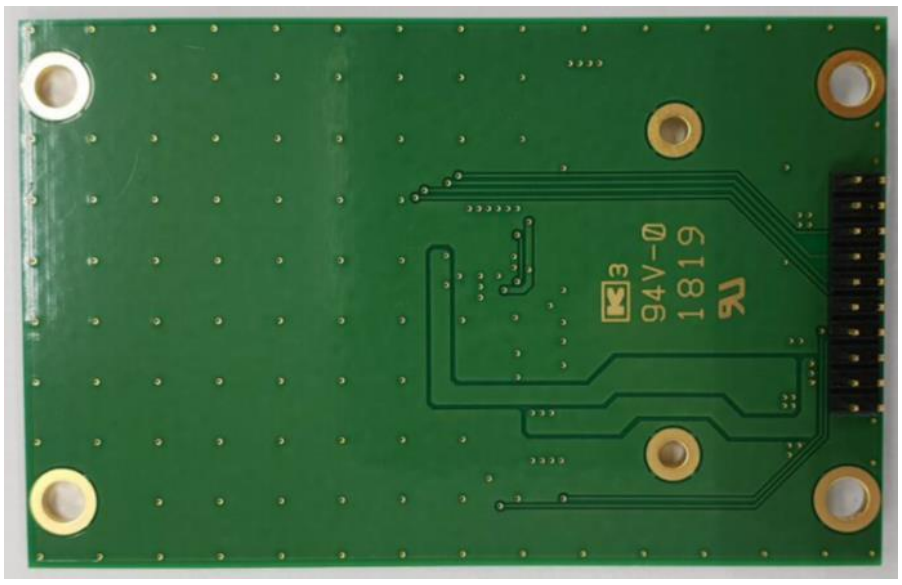
Core Module Board (Bottom View)


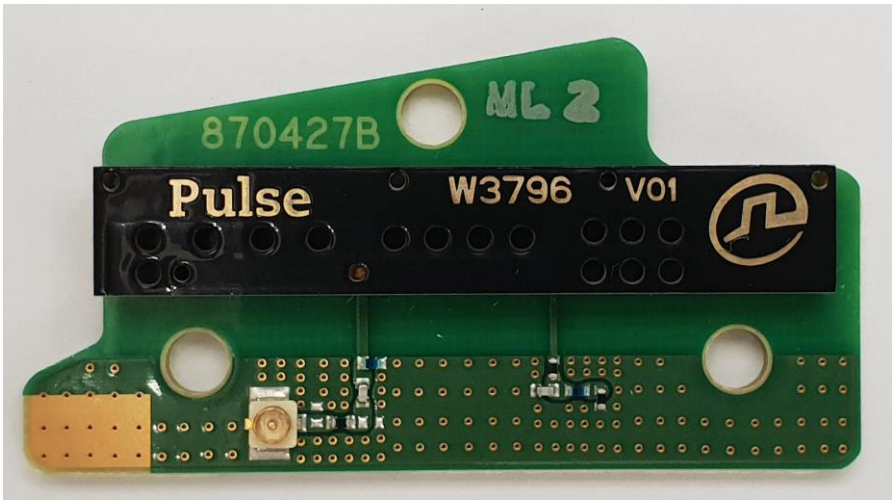
Camera Board (Top View)


Disto Board (Top View)


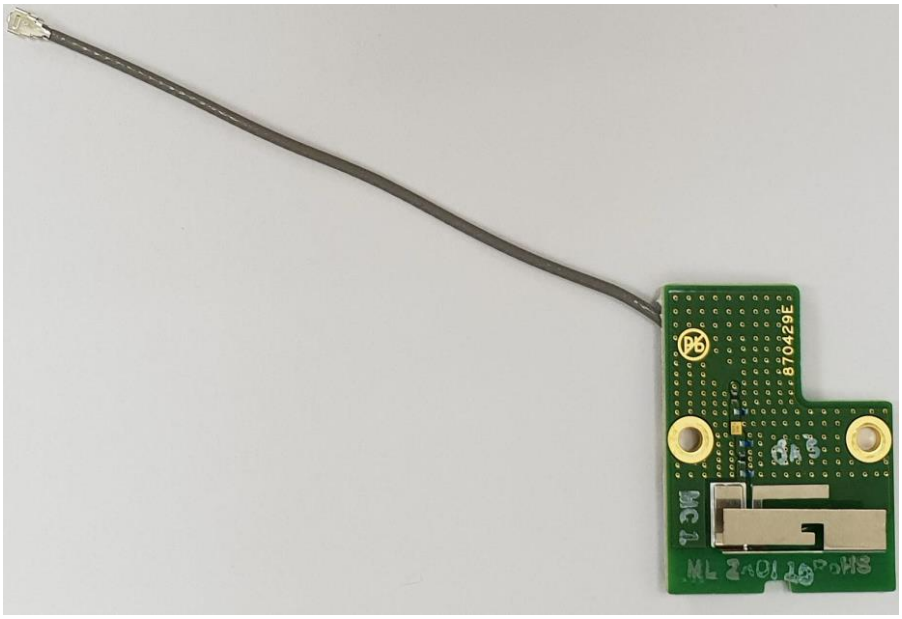
Disto Board (Bottom View)


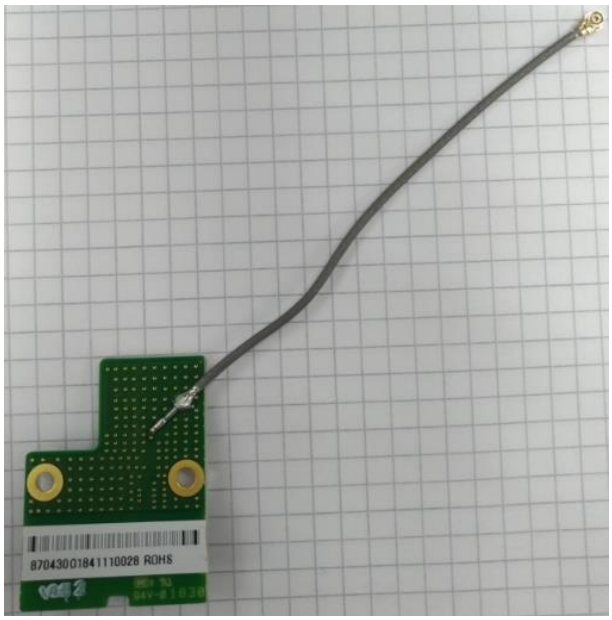
Long-Range Bluetooth Board (Top View)


Long-Range Bluetooth Board (Bottom View)


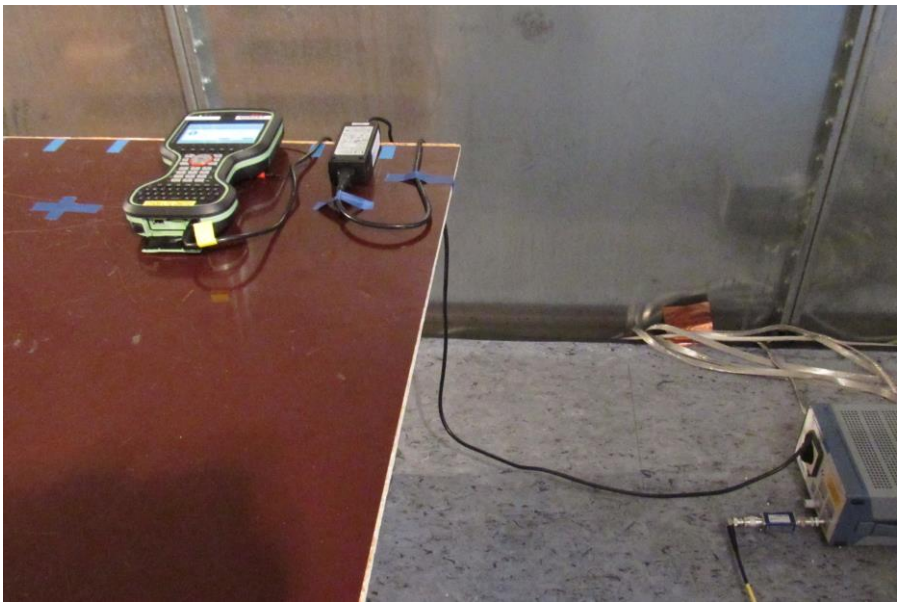
Diversity Antenna Board (Top View)


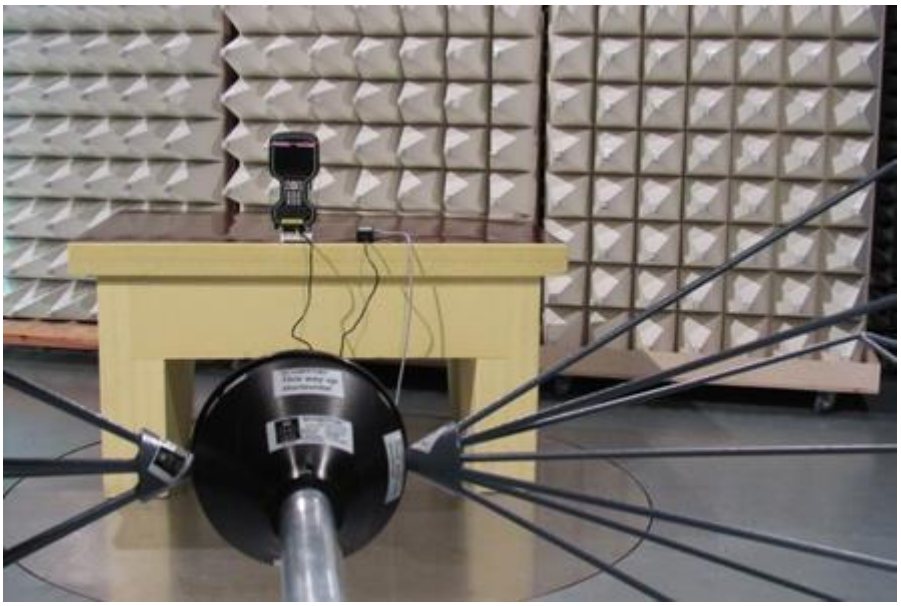
Diversity Antenna Board (Bottom View)


Long-Range Bluetooth Antenna Board (Top View)


Long-Range Bluetooth Antenna Board (Bottom View)


1.3 Photos – Test Setup

Conducted Setup


Radiated Setup


1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
SIM	Communication Tester	R&S	CBT	Signalling
AE	Laptop	Dell	Latitude E6420	S/N HPJ4R1
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
Comment:				

1.5 Test Modes

Mode	Description
DH5 Single	Mode = Transmit Modulation = GFSK Spreading = None Packet type = DH5 Duty cycle = 78%
Receive	Mode = Receive
Comment:	

1.6 Test Frequencies

Designator	Mode	Channel	Frequency [MHz]
F1	Tx / Rx	0	2402
F2	Tx / Rx	39	2441
F4	Tx / Rx	78	2480

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/m) = 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/m	= 47.5 dBµV/m	:	47.5 dBµV/m - 57.0 dBµV/m	= -9.5 dB

2 Result Summary

FCC 47 CFR Part 15C, ISED RSS-247				
Product Standard Reference	**Requirement**	**Reference Method**	**Result**	**Remarks**
ISED RSS-Gen, Issue 5 (section 6.6)	Occupied Bandwidth	ANSI C63.10-2013	N/R	Informational only
FCC § 15.247(a)(1) ISED RSS-247 § 5.1 Issue 2	20 dB Bandwidth	ANSI C63.10-2013	N/T	
FCC § 15.247(a)(1)(iii) ISED RSS-247, Issue 2 (section 5.1)	Number of hopping frequencies	ANSI C63.10-2013	N/T	
FCC § 15.247(a)(1) ISED RSS-247, Issue 2 (section 5.1)	Frequency hopping channel separation	ANSI C63.10-2013	N/T	
FCC § 15.247(a)(1)(iii) ISED RSS-247, Issue 2 (section 5.1)	Time of occupancy (Dwell time)	ANSI C63.10-2013	N/T	
FCC § 15.247(b)(1) ISED RSS-247, Issue 2 (section 5.4)	Maximum peak conducted power	ANSI C63.10-2013	N/T	
FCC § 15.207 ISED RSS-247, Issue 2 (section 3.1)	AC power line conducted emissions	ANSI C63.10-2013	PASS	
FCC § 15.247(d) ISED RSS-247, Issue 2 (section 5.5)	Band edge compliance	ANSI C63.10-2013	N/T	
FCC § 15.247(d) ISED RSS-247, Issue 2 (section 5.5)	Conducted spurious emissions	ANSI C63.10-2013	N/T	
FCC § 15.247(d) FCC § 15.209 ISED RSS-Gen, Issue 5 (section 6.13)	Transmitter radiated spurious emissions	ANSI C63.10-2013	PASS	
ISED RSS-247, Issue 2 (section 3.1)	Receiver radiated spurious emissions	ANSI C63.10-2013	PASS	
Comment:				

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

3 Test Conditions and Results

3.1 Test Conditions and Results - Occupied bandwidth

3.1.1 Information

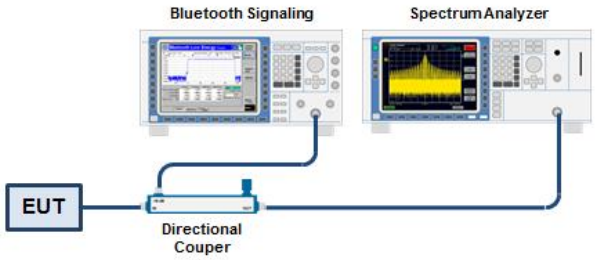
Test Information	
Reference	ISED RSS-Gen, Issue 5 (section 6.6)
Measurement Method	ANSI C63.10 6.9.3
Operator	Wilfried Treffke
Date	2019-02-09

3.1.2 Limits

Limits
None (Informational only)

3.1.3 Setup

Test Setup



3.1.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01407	2018-12	2019-12

3.1.5 Procedure

Test Procedure

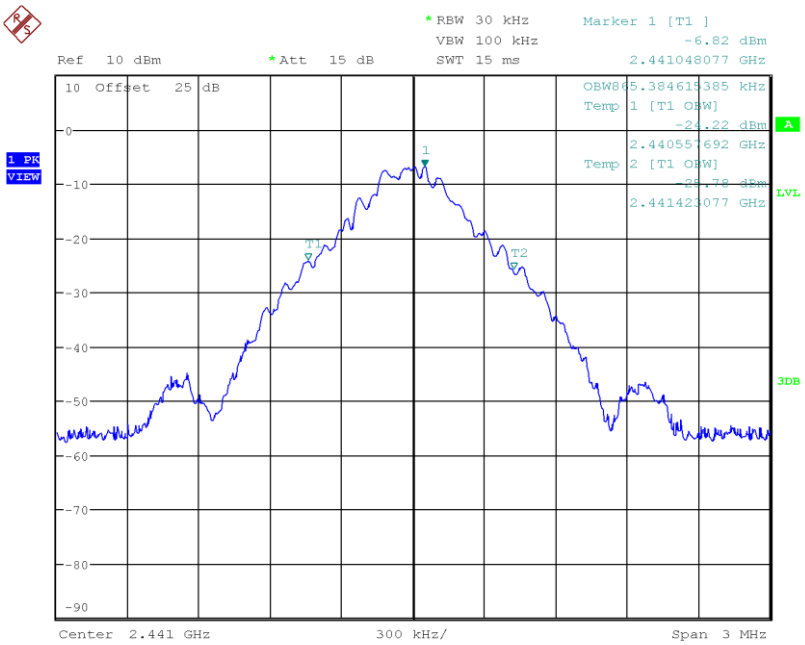
1. EUT transmitter is activated in test mode under normal conditions
2. The spectrum analyzer is set to peak detection and maximum hold with a span twice the emission spectrum
3. The resolution bandwidth is set to the range of 1 % to 5 % of the occupied bandwidth
4. The occupied bandwidth is measured with the build-in analyzer function

3.1.6 Results

Test Results		
Mode	Frequency [MHz]	Bandwidth [MHz]
DH5	2441	0.865
Comment	worst case	

Occupied Bandwidth

Project Number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
Model Description:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Sample ID:	22136
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	DH5, Channel: 39, 2441 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-03-06
Occupied Bandwidth [MHz]:	0.865



3.2 Test Conditions and Results - AC powerline conducted emissions

3.2.1 Information

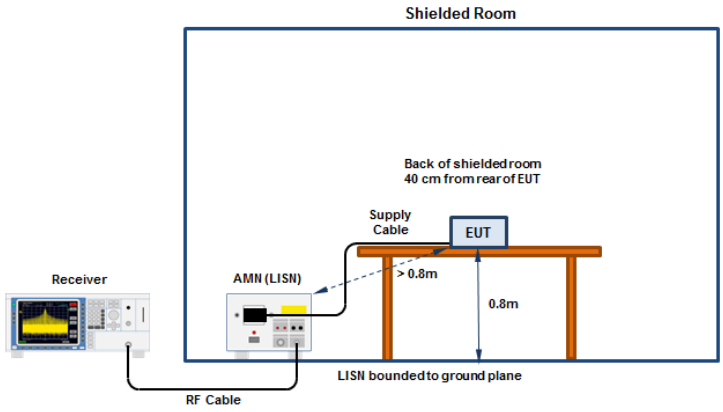
Test Information	
Reference	FCC § 15.207; ISED RSS-247, Issue 2 (section 3.1)
Measurement Method	ANSI C63.10 6.2
Operator	Wilfried Treffke
Date	2019-02-09

3.2.2 Limits

Limits		
Frequency [MHz]	Quasi-Peak [dBµV]	Average [dBµV]
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5	56	46
5 - 30	60	50
* Limit decreases linearly with the logarithm of the frequency		

3.2.3 Setup

Test Setup



3.2.4 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	RadiMation	2016.1.10

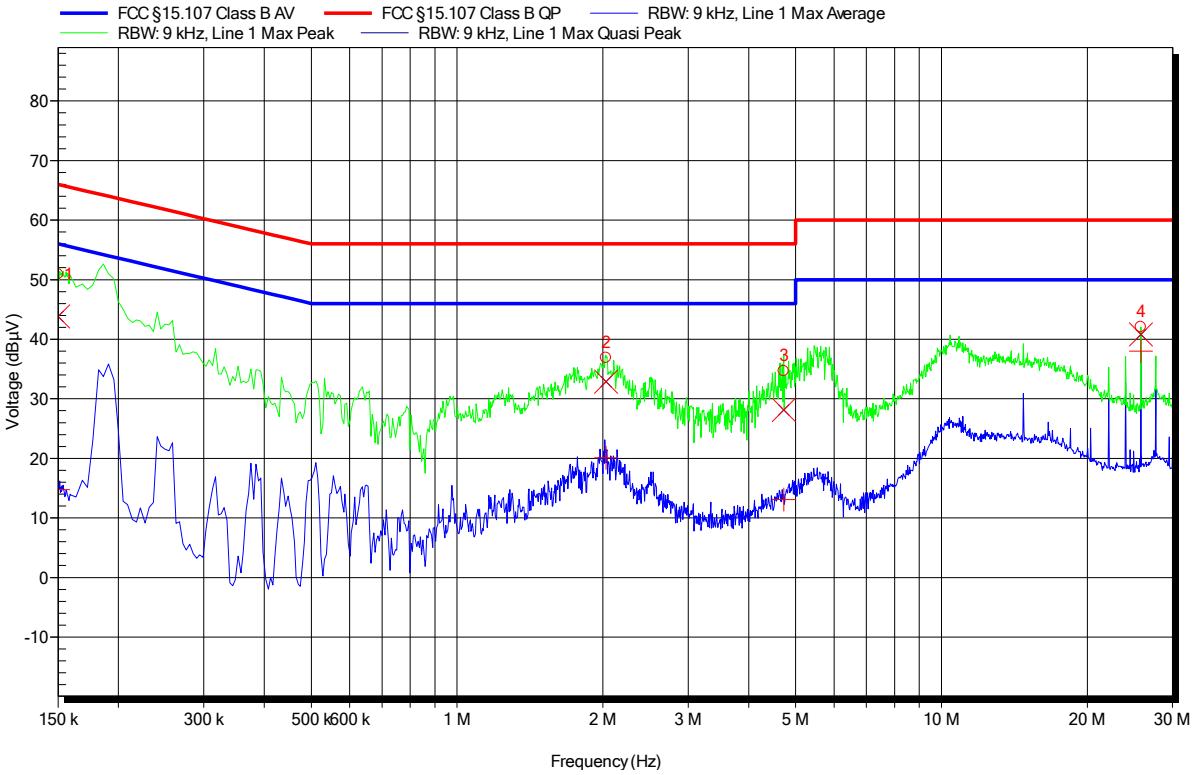
Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Test Receiver	R&S	ESR7	EF00943	2018-07	2019-07
LISN	R&S	ESH3-Z5	EF00036	2017-01	2019-07

EMI voltage test in the ac-mains according to FCC part 15B

Project number: G0M-1812-7888

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 23°C, Unom: 120 VAC / 60Hz
LISN:	ESH3-Z5 (L)
Mode:	Tx BT long range; GFSK, 2441 MHz
Test Date:	2019-02-09
Note:	

Index 2



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
1	150 kHz	43.85 dBµV	66 dBµV	-22.15 dB	Pass
2	2.031 MHz	32.9 dBµV	56 dBµV	-23.1 dB	Pass
3	4.727 MHz	28.11 dBµV	56 dBµV	-27.89 dB	Pass
4	25.807 MHz	40.8 dBµV	60 dBµV	-19.2 dB	Pass

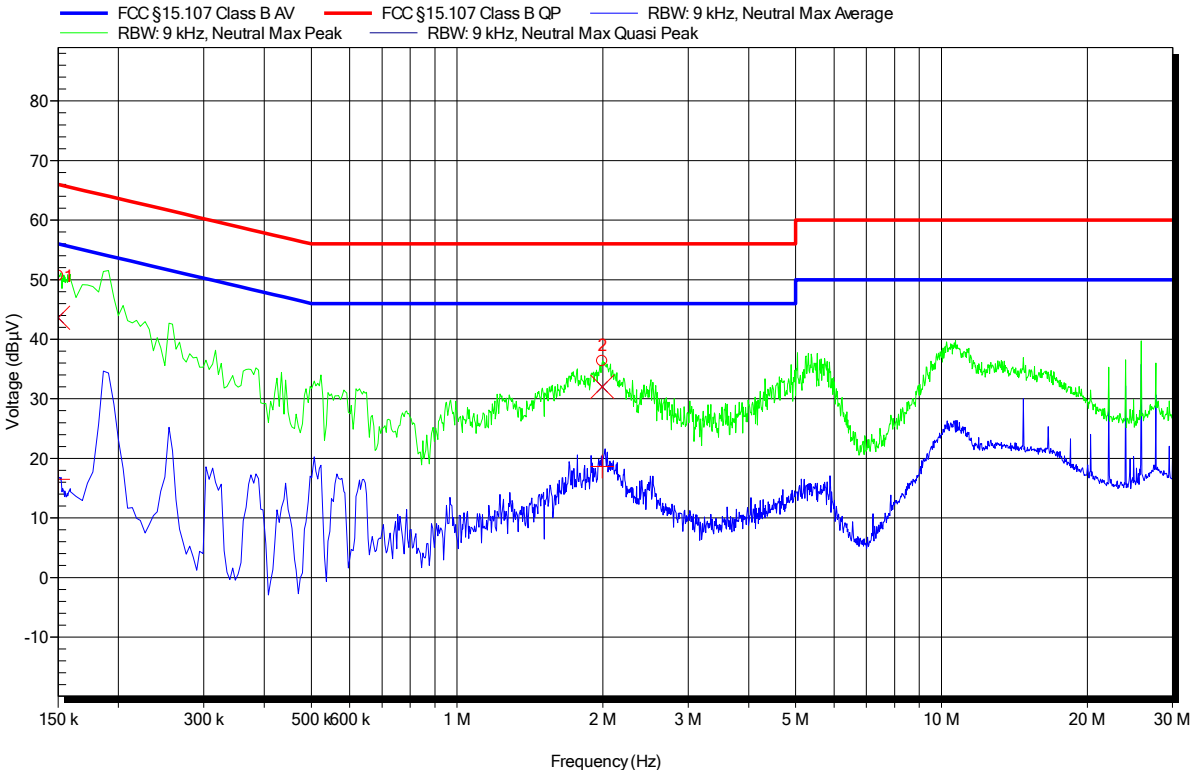
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status
1	150 kHz	14.76 dBµV	56 dBµV	-41.24 dB	Pass
2	2.031 MHz	20.09 dBµV	46 dBµV	-25.91 dB	Pass
3	4.727 MHz	13.06 dBµV	46 dBµV	-32.94 dB	Pass
4	25.807 MHz	37.98 dBµV	50 dBµV	-12.02 dB	Pass

EMI voltage test in the ac-mains according to FCC part 15B

Project number: G0M-1812-7888

Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Unom: 120 VAC / 60Hz
LISN:	ESH3-Z5 (N)
Mode:	Tx BT long range; GFSK, 2441 MHz
Test Date:	2019-02-09
Note:	

Index 1



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
1	150 kHz	43.61 dBµV	66 dBµV	-22.39 dB	Pass
2	1.995 MHz	32.02 dBµV	56 dBµV	-23.98 dB	Pass

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status
1	150 kHz	16.48 dBµV	56 dBµV	-39.52 dB	Pass
2	1.995 MHz	18.62 dBµV	46 dBµV	-27.38 dB	Pass

3.3 Test Conditions and Results - Transmitter radiated emissions

3.3.1 Information

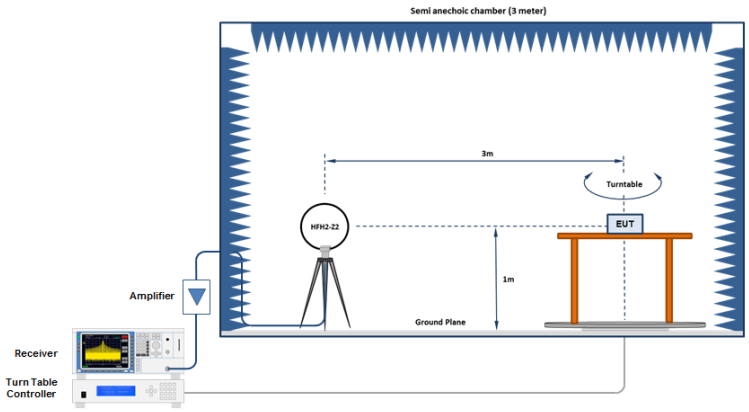
Test Information	
Reference	FCC § 15.247(d); FCC § 15.209; ISED RSS-Gen, Issue 5 (section 6.13)
Measurement Method	ANSI C63.10 6.4, 6.5, 6.6
Operator	Wilfried Treffke
Date	2019-02-09

3.3.2 Limits

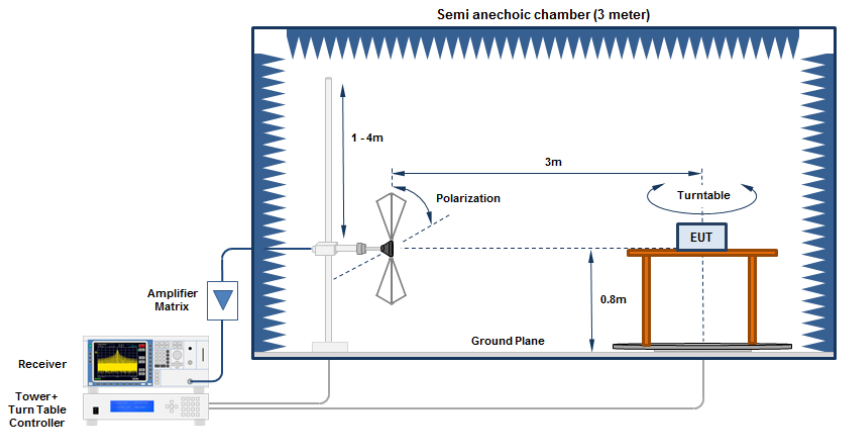
Limits			
Frequency [MHz]	Detector	Field strength [µV/m]	Measurement distance [m]
0.009 - 0.09	Average	2400/F[kHz]	300
0.09 - 0.110	Quasi-Peak	2400/F[kHz]	300
0.110 - 0.490	Average	2400/F[kHz]	300
0.490 - 1.705	Quasi-Peak	24000/F[kHz]	30
1.705 - 30.0	Quasi-Peak	30	30
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

3.3.3 Setup

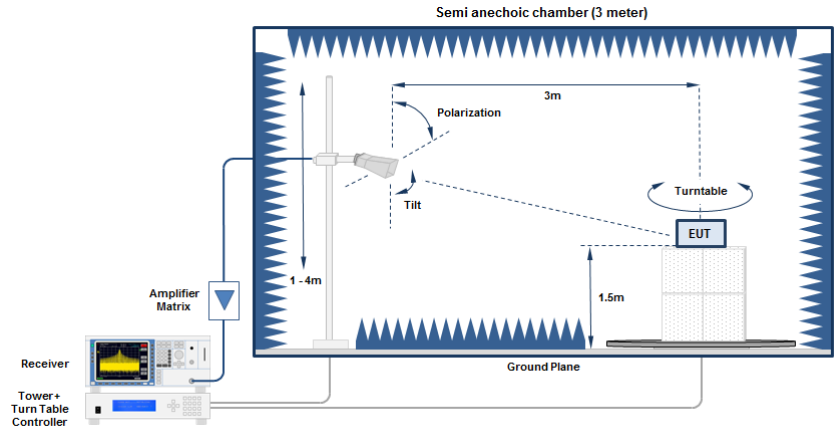
Test Setup < 30 MHz



Test Setup 30 - 1000 MHz



Test Setup > 1 GHz



3.3.4 Equipment

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

Test Equipment 30 - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2018-07	2021-07
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2018-08	2019-08
Antenna	R&S	VULB 9162	EF00978	2016-11	2019-11
Antenna	R&S	HK 116	EF00030	2016-04	2019-04
Antenna	R&S	HL 223	EF00187	2016-05	2019-05

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2018-07	2021-07
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2018-08	2019-08
Antenna	Schwarzbeck	BBHA 9120D	EF00018	2016-09	2019-09
Antenna	Amplifier Research	AT4560	EF00302	2018-04	2019-04

3.3.5 Procedure

Test Procedure < 30 MHz
1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground
2. EUT set to test mode
3. The EUT is rotated through 360°
4. The emissions are measured with peak detector and max hold
5. All significant emissions are measured again using the corresponding final detector

Test Procedure 30 - 1000 MHz
1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground
2. EUT set to test mode
3. The receiver is set to peak detection with max hold
4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m
5. All significant emissions are measured again using the corresponding final detector

Test Procedure > 1 GHz
1. EUT is placed on a non conducting support at the center of a turn table 1.5 m above the ground
2. EUT set to test mode
3. The receiver is set to peak detection with max hold
4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m
5. All significant emissions are measured again using the corresponding final detector

3.3.6 Results

Test Results - DH5						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2402	2389.6	50.90	pk	hor	74.00	-23.10
2402	2389.6	38.43	RMS	hor	54.00	-15.57
2402	4804	48.11	pk	hor	74.00	-25.89
2402	4804	46.27	RMS	hor	54.00	-07.73
2402	4804	49.97	pk	ver	74.00	-24.03
2402	4804	48.46	RMS	ver	54.00	-05.54
2441	2491.7	45.69	pk	ver	74.00	-28.31
2441	2491.7	19.64	RMS	ver	54.00	-34.36
2441	2491.9	46.36	pk	hor	74.00	-27.64
2441	2491.9	22.91	RMS	hor	54.00	-31.09
2480	2483.6	56.32	pk	hor	74.00	-17.68
2480	2483.6	40.53	RMS	hor	54.00	-13.47
2480	2483.6	54.59	pk	ver	74.00	-19.41
2480	2483.6	40.17	RMS	ver	54.00	-13.83

3.4 Test Conditions and Results - Receiver radiated emissions

3.4.1 Information

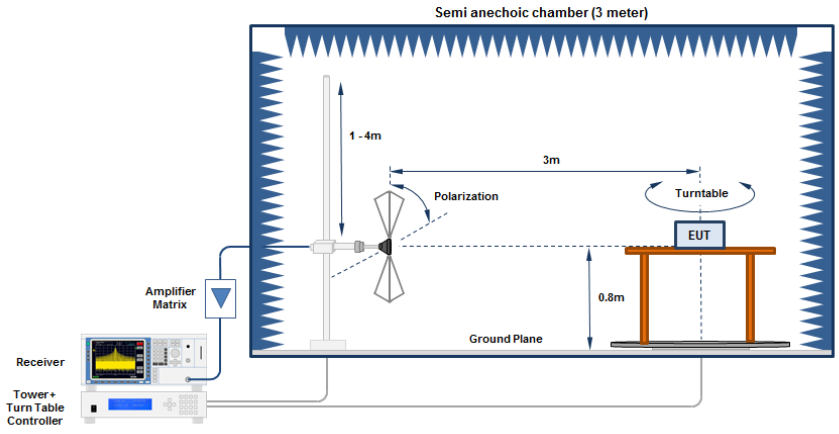
Test Information	
Reference	ISED RSS-247, Issue 2 (section 3.1)
Measurement Method	ANSI C63.10 6.5, 6.6
Operator	Wilfried Treffke
Date	2019-02-09

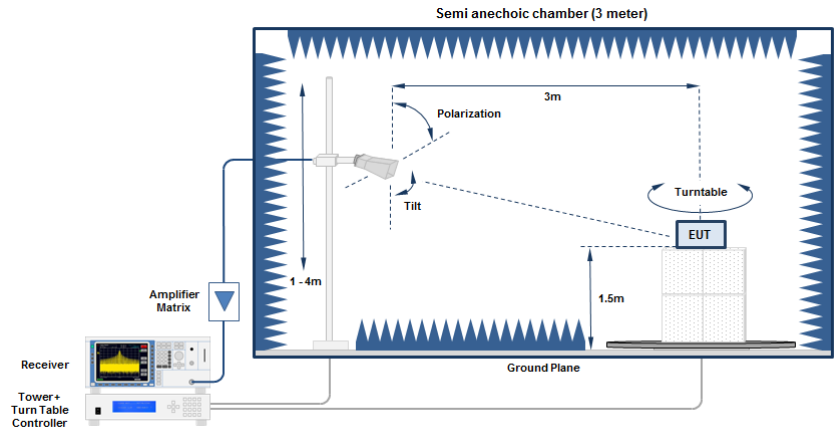
3.4.2 Limits

Limits			
Frequency [MHz]	Detector	Field strength [dBµV/m]	Measurement distance [m]
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

3.4.3 Setup

Test Setup 30 - 1000 MHz



Test Setup > 1 GHz


3.4.4 Equipment

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

Test Equipment 30 - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2018-07	2021-07
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2018-08	2019-08
Antenna	R&S	VULB 9162	EF00978	2016-11	2019-11
Antenna	R&S	HK 116	EF00030	2016-04	2019-04
Antenna	R&S	HL 223	EF00187	2016-05	2019-05

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2018-07	2021-07
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2018-08	2019-08
Antenna	Schwarzbeck	BBHA 9120D	EF00018	2016-09	2019-09
Antenna	Amplifier Research	AT4560	EF00302	2018-04	2019-04

3.4.5 Procedure

Test Procedure 30 - 1000 MHz
1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground
2. EUT set to test mode
3. The receiver is set to peak detection with max hold
4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m
5. All significant emissions are measured again using the corresponding final detector

Test Procedure > 1 GHz
1. EUT is placed on a non conducting support at the center of a turn table 1.5 m above the ground
2. EUT set to test mode
3. The receiver is set to peak detection with max hold
4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m
5. All significant emissions are measured again using the corresponding final detector

3.4.6 Results

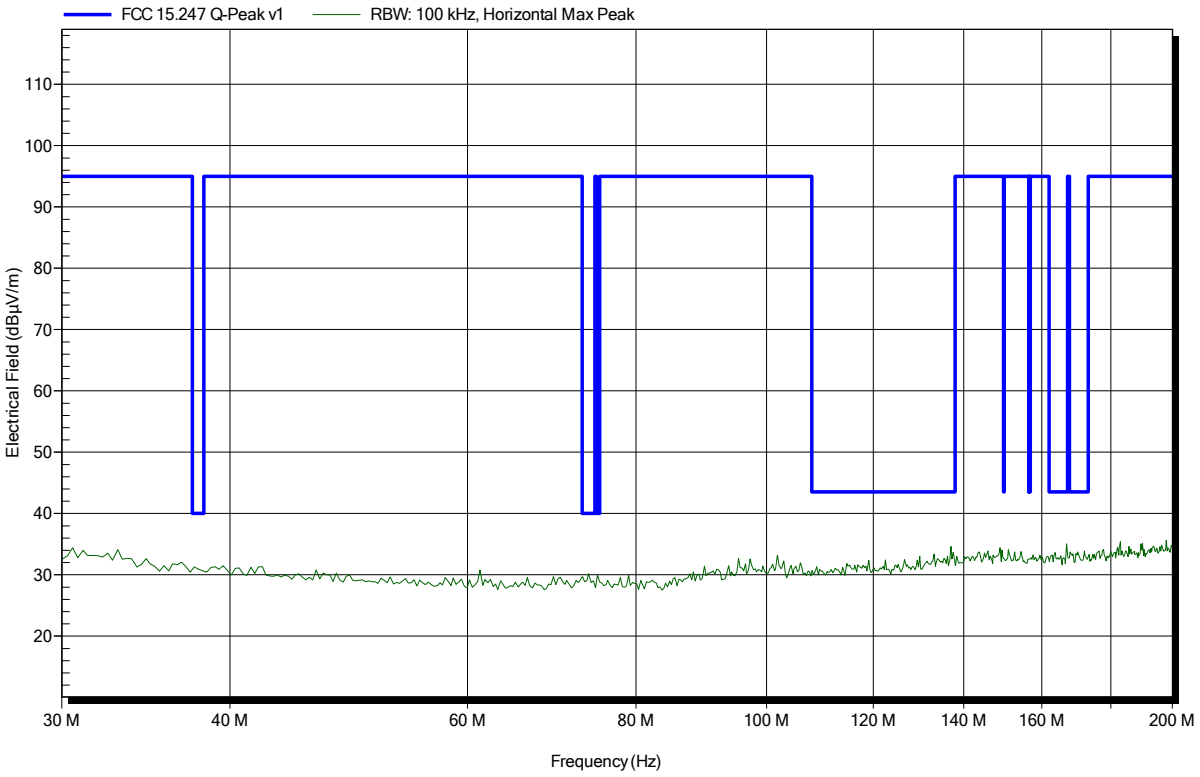
Test Results						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2441	31.344	30.40	qpk	hor	40.00	-09.60
2441	7987	39.65	pk	ver	53.98	-14.33
2441	10642	44.62	pk	hor	53.98	-09.36

ANNEX A Transmitter spurious emissions

Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; BT long range; DH5; 2402 MHz
Test Date:	2019-02-13
Note:	

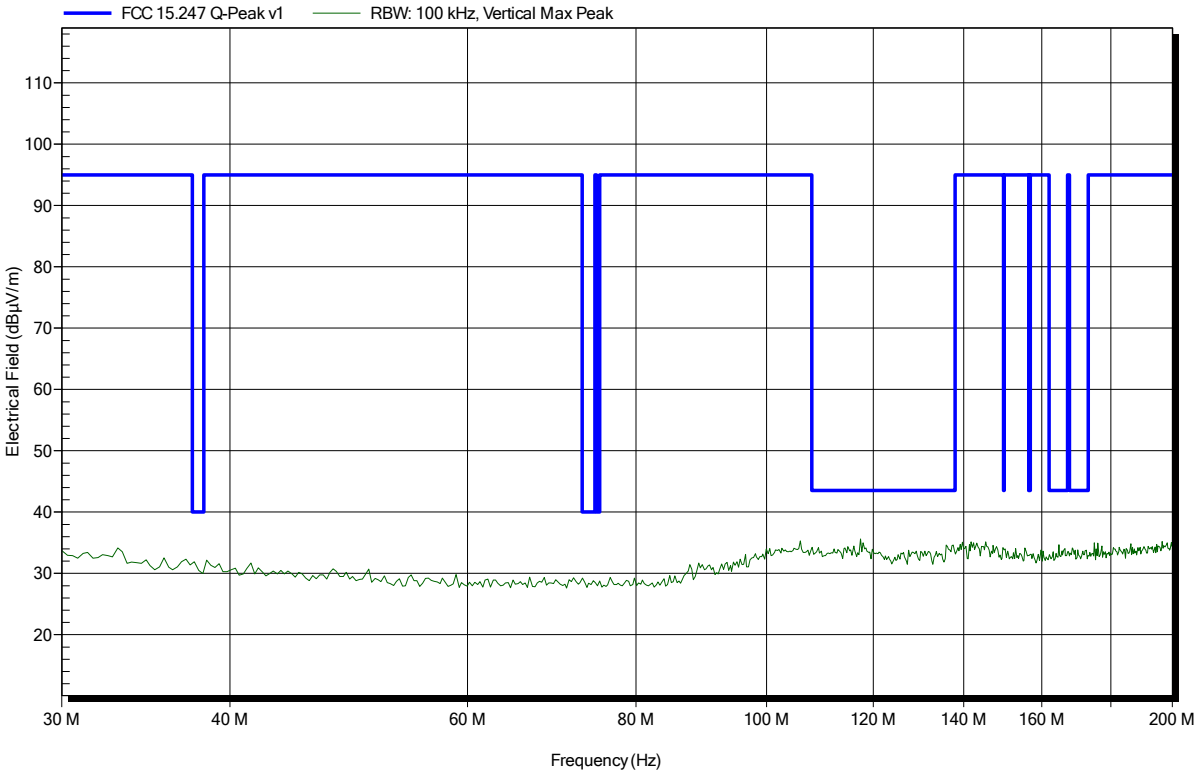
Index 35



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; BT long range; DH5; 2402 MHz
Test Date:	2019-02-13
Note:	

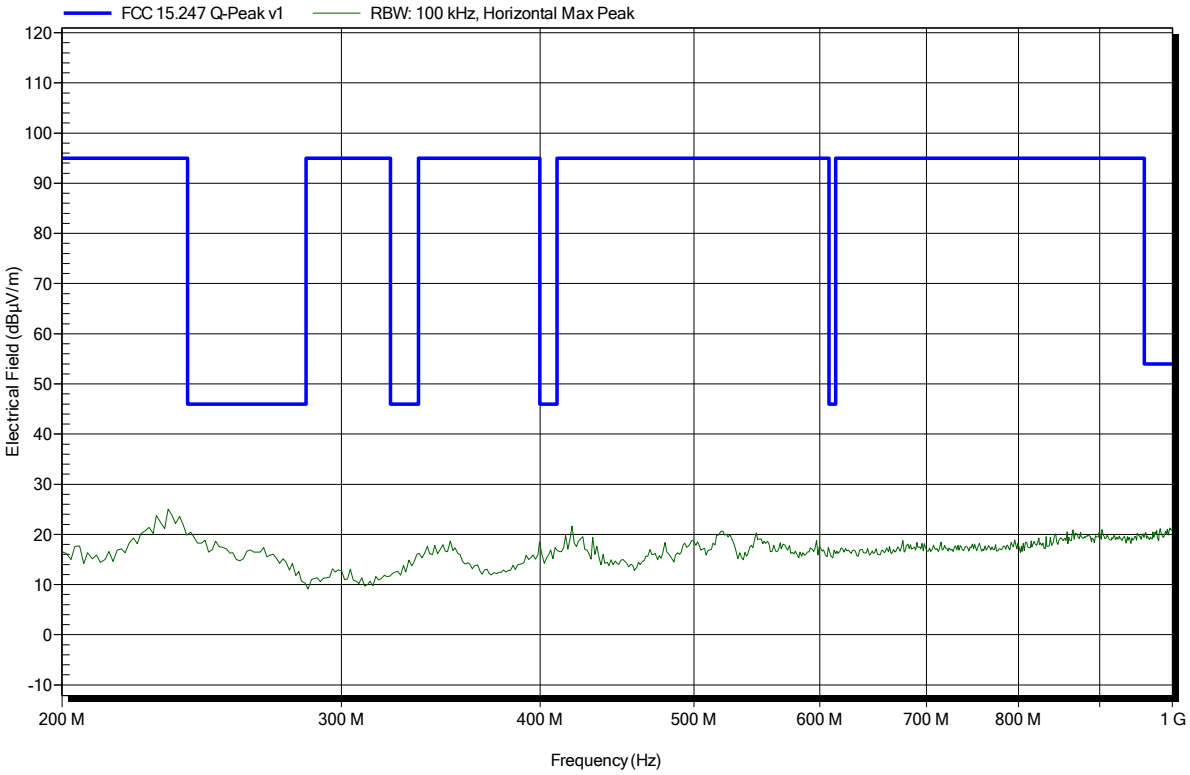
Index 36



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; BT long range; DH5; 2402 MHz
Test Date:	2019-02-13
Note:	

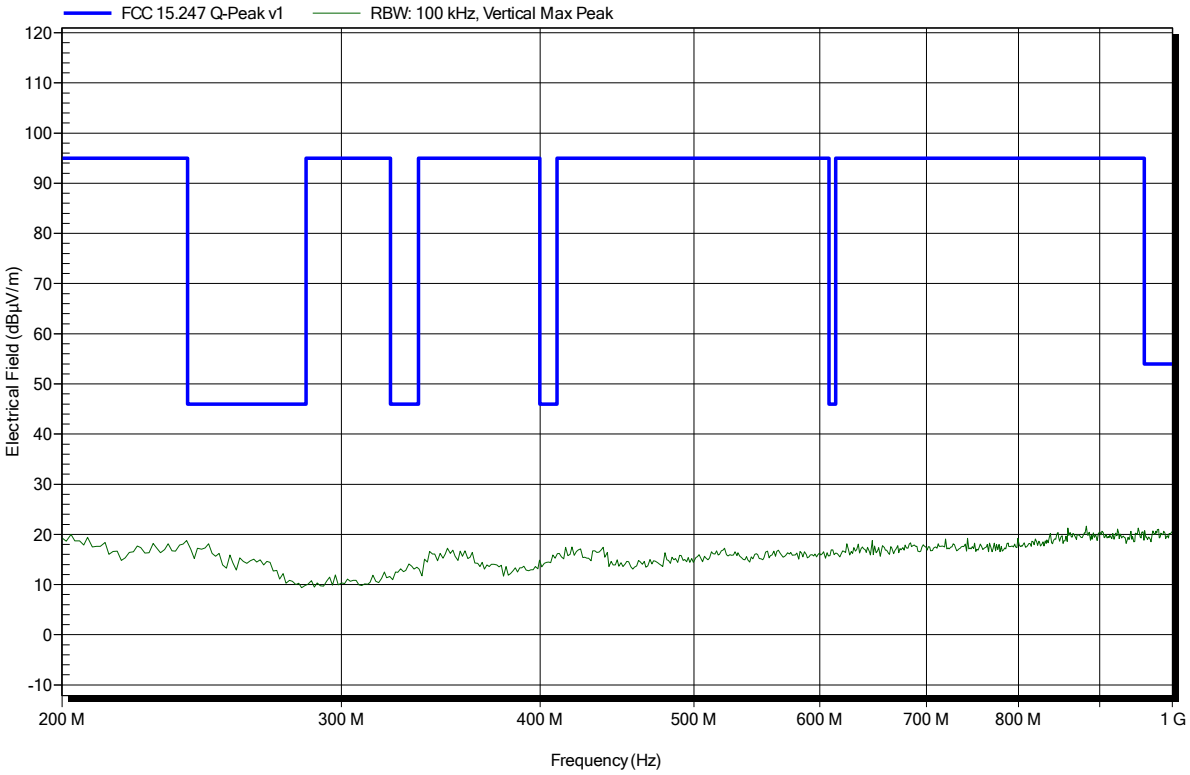
Index 37



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; BT long range; DH5; 2402 MHz
Test Date:	2019-02-13
Note:	

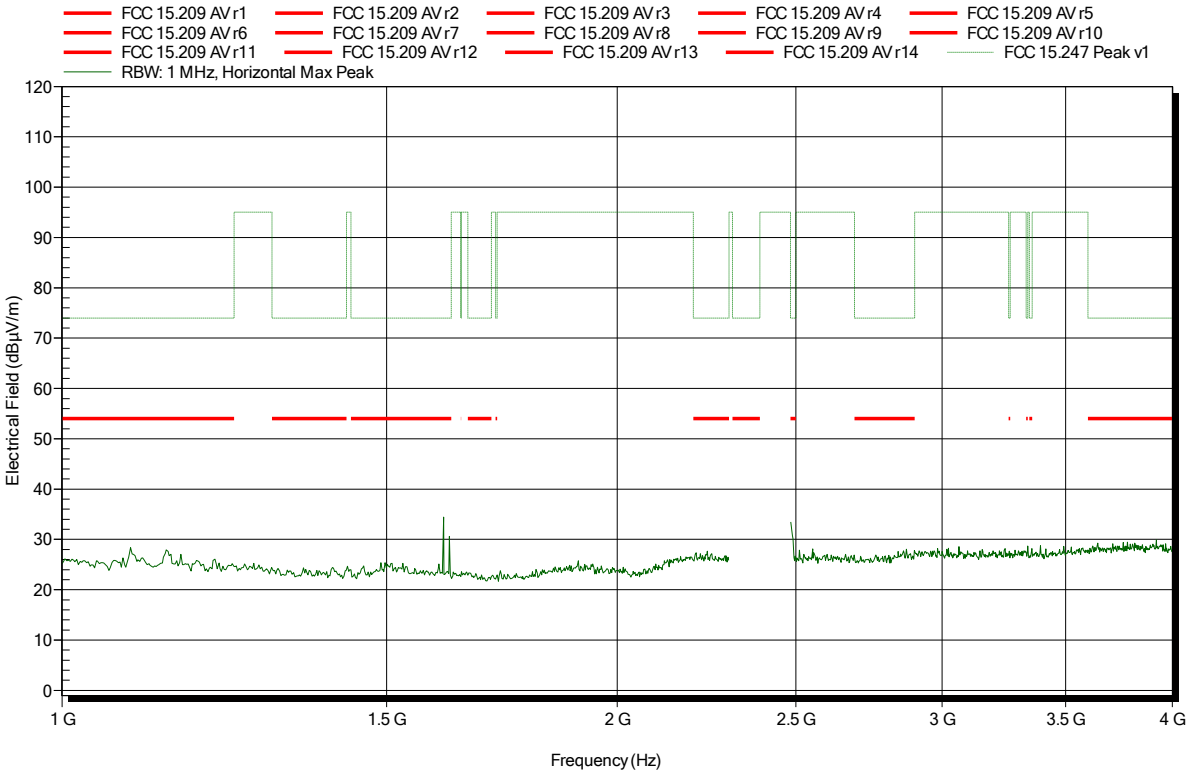
Index 38



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2402 MHz
Test Date:	2019-02-13
Note:	

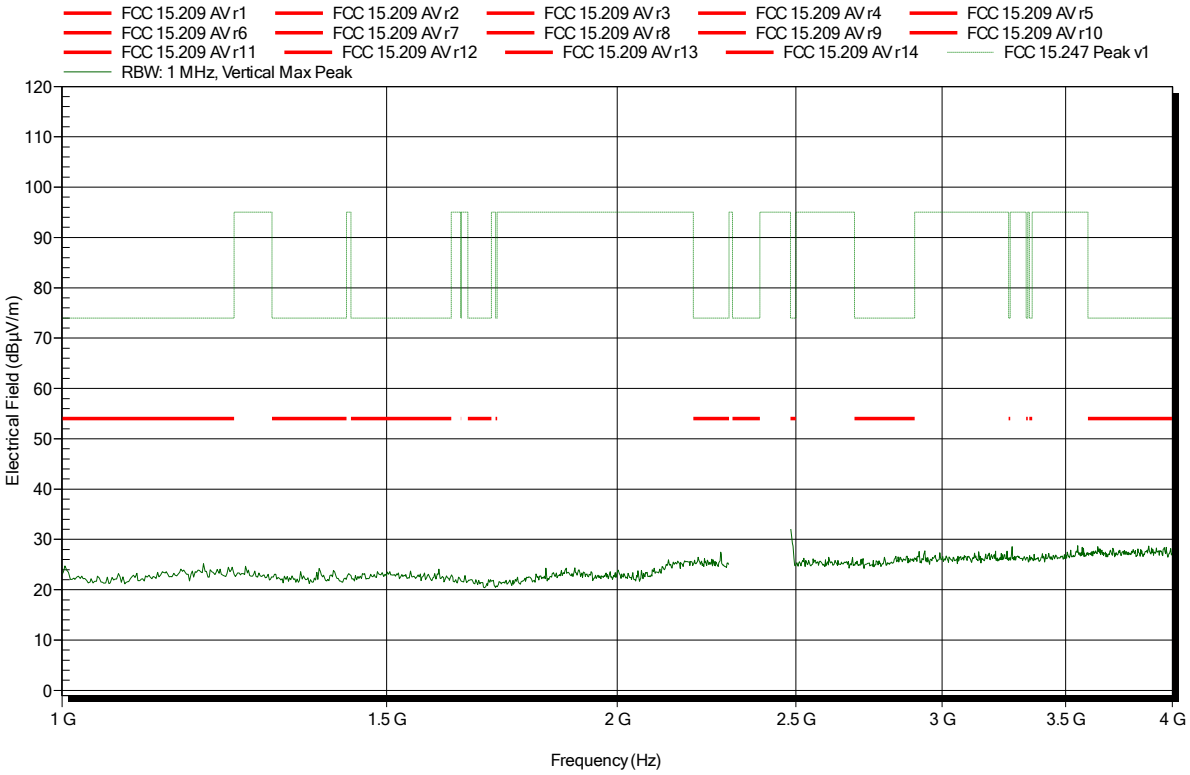
Index 41



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2402 MHz
Test Date:	2019-02-13
Note:	

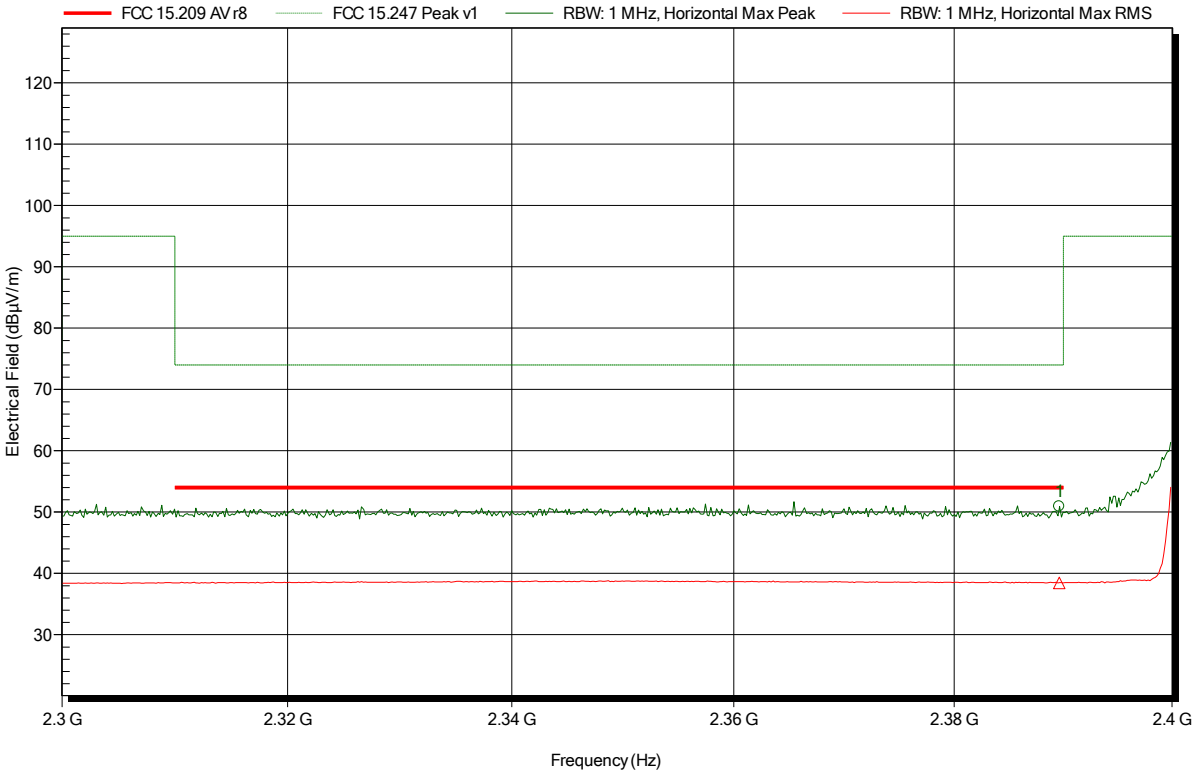
Index 45



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2402 MHz
Test Date:	2019-02-13
Note:	lower bandedge

Index 42



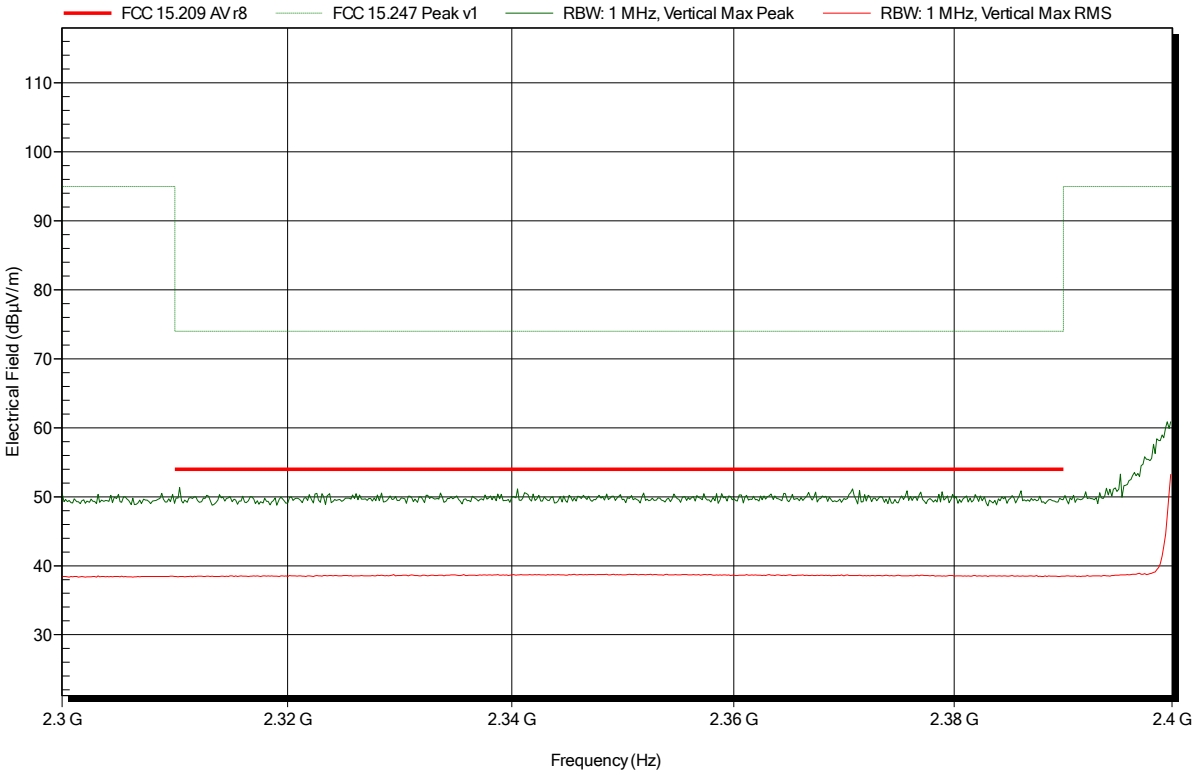
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.3896 GHz	50.9 dBµV/m	74 dBµV/m	-23.1 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.3896 GHz	38.43 dBµV/m	54 dBµV/m	-15.57 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2402 MHz
Test Date:	2019-02-13
Note:	lower bandedge

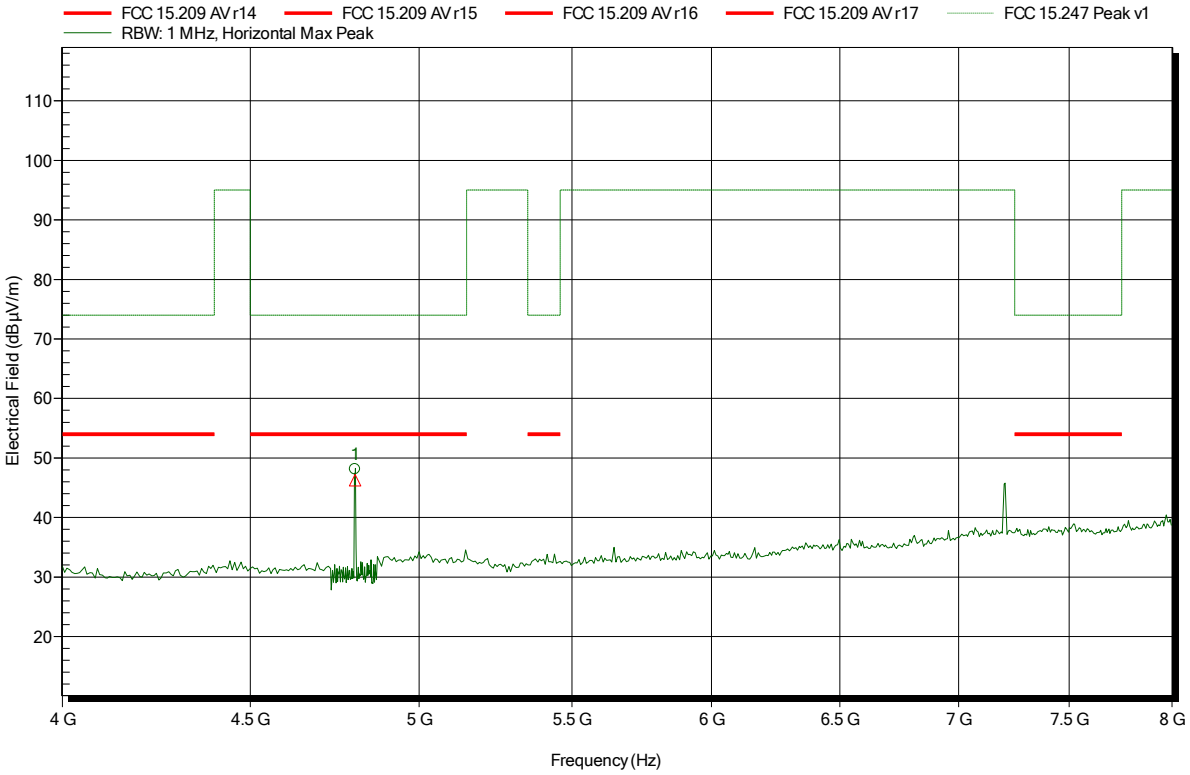
Index 46



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2402 MHz
Test Date:	2019-02-13
Note:	

Index 43



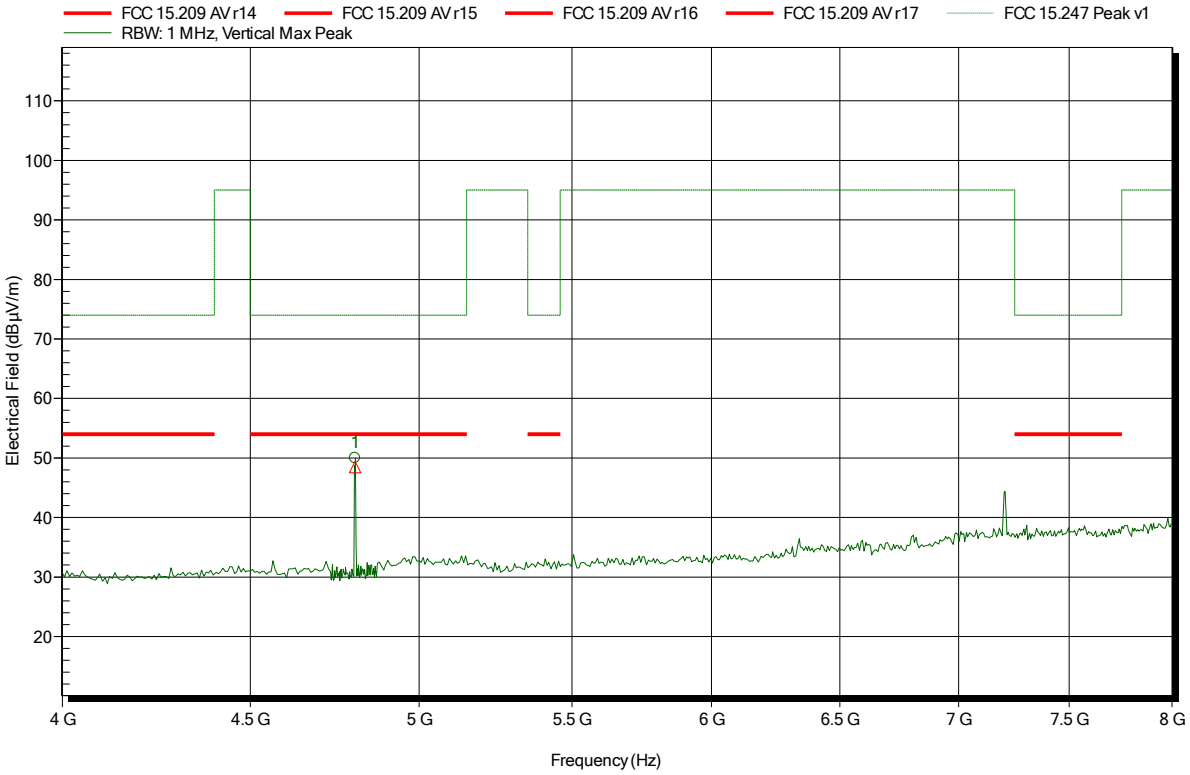
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.804 GHz	48.11 dBµV/m	74 dBµV/m	-25.89 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
4.804 GHz	46.27 dBµV/m	54 dBµV/m	-7.73 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2402 MHz
Test Date:	2019-02-13
Note:	

Index 47



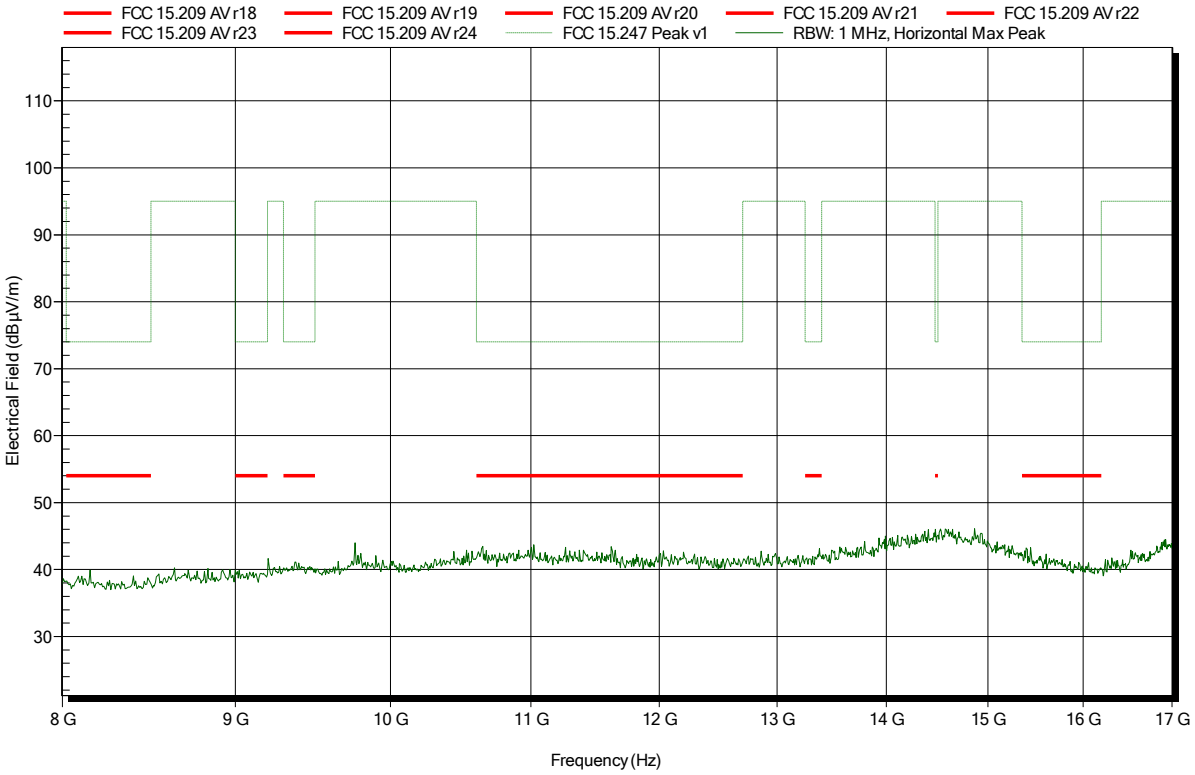
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.804 GHz	49.97 dBµV/m	74 dBµV/m	-24.03 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
4.804 GHz	48.46 dBµV/m	54 dBµV/m	-5.54 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2402 MHz
Test Date:	2019-02-13
Note:	

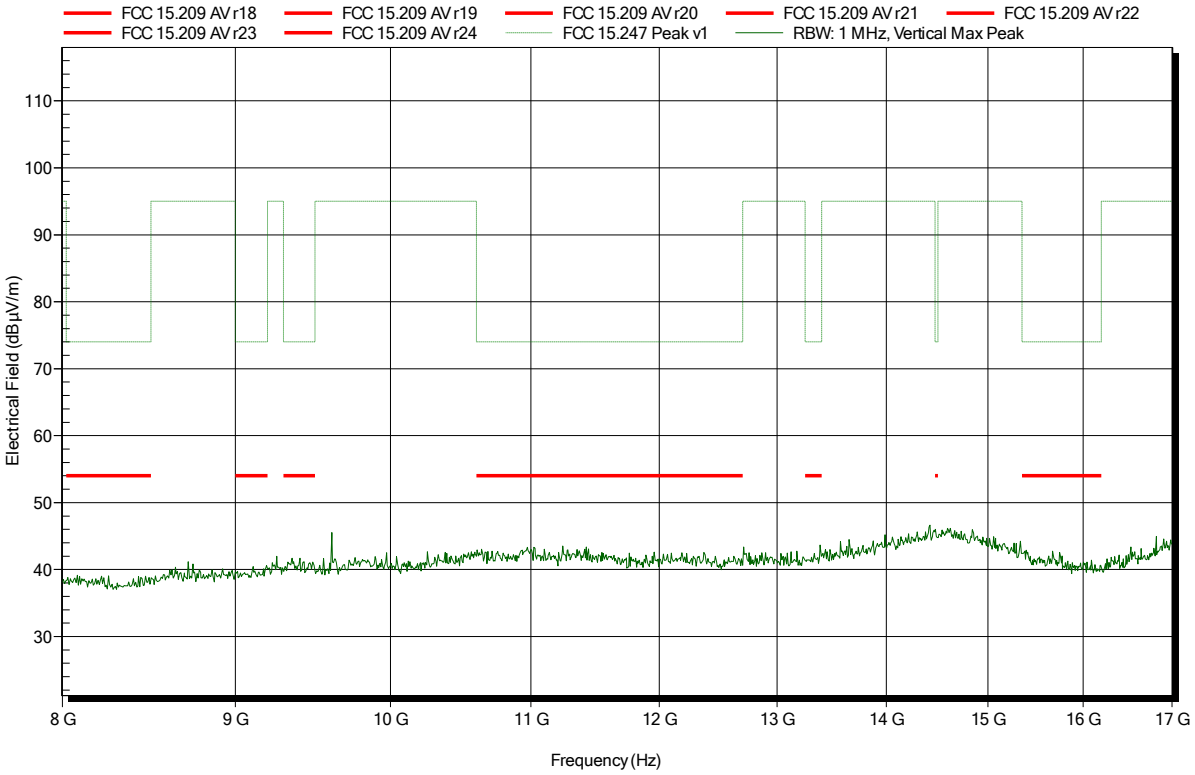
Index 52



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2402 MHz
Test Date:	2019-02-13
Note:	

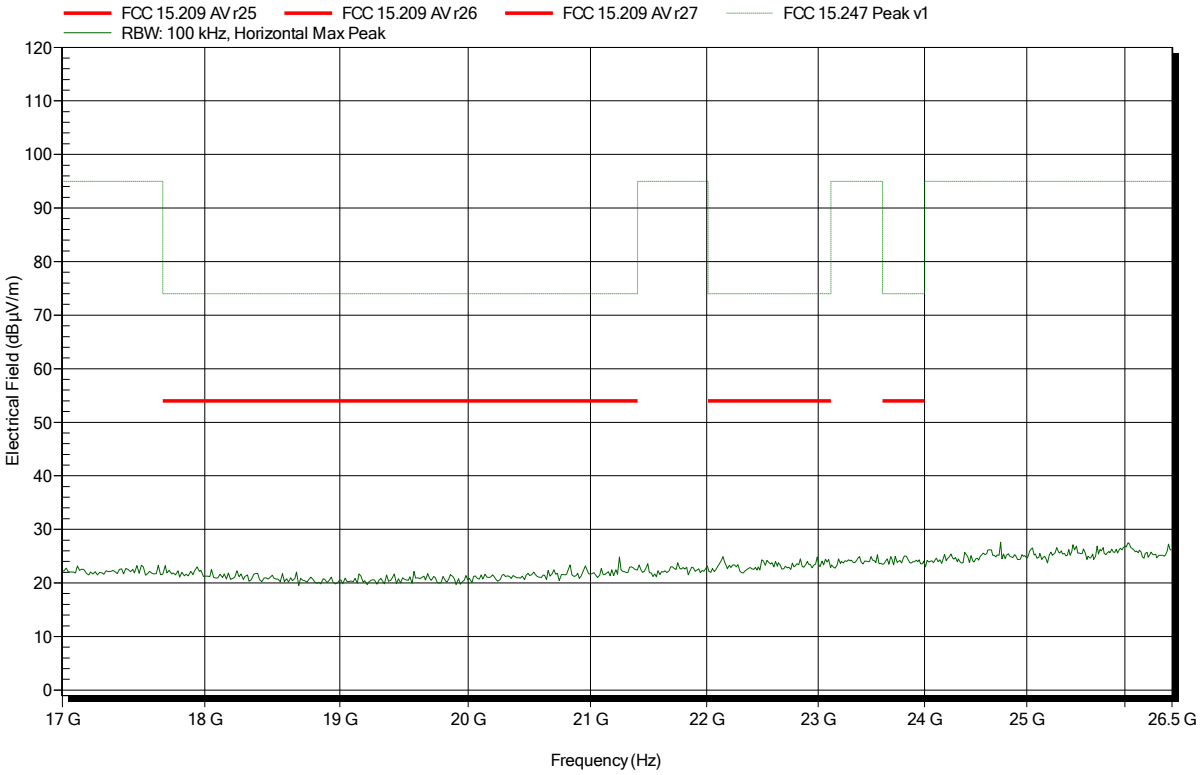
Index 48



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Amplifier Research AT4560, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2402 MHz
Test Date:	2019-02-13
Note:	

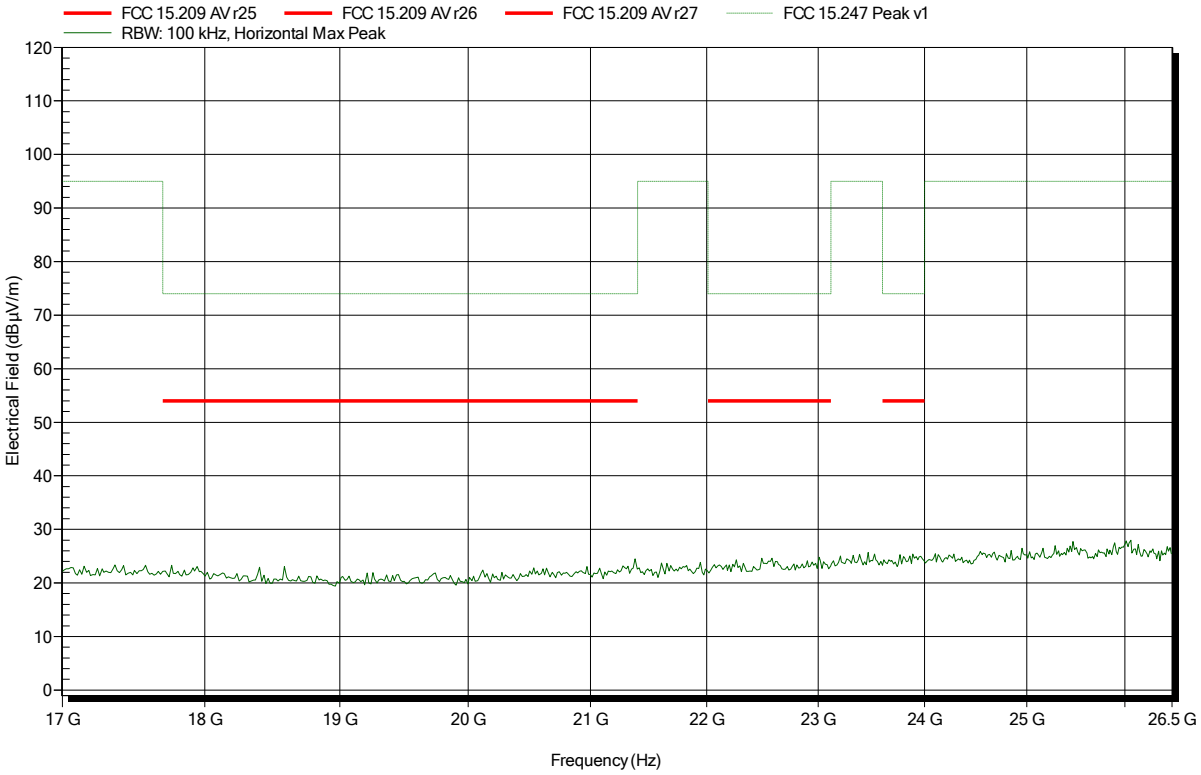
Index 44



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Amplifier Research AT4560, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2402 MHz
Test Date:	2019-02-13
Note:	

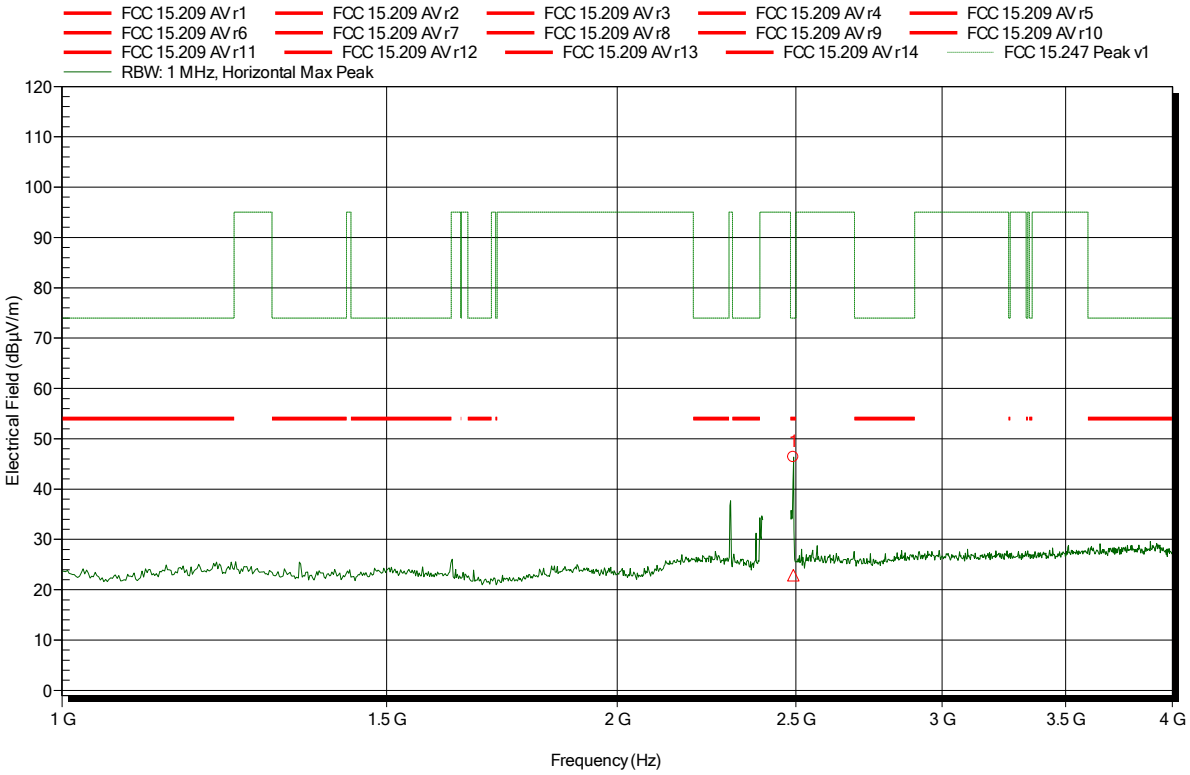
Index 49



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2441 MHz
Test Date:	2019-02-13
Note:	

Index 50



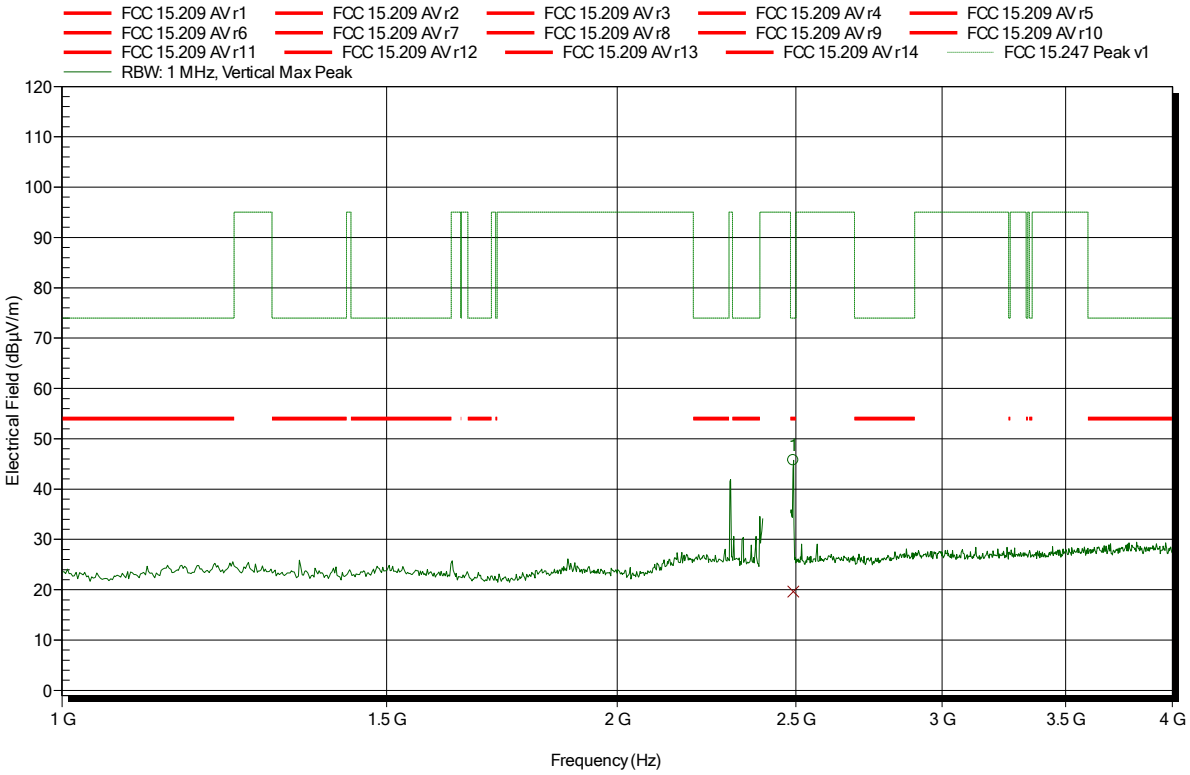
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4919 GHz	46.36 dBµV/m	74 dBµV/m	-27.64 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.4919 GHz	22.91 dBµV/m	54 dBµV/m	-31.09 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2441 MHz
Test Date:	2019-02-13
Note:	

Index 55



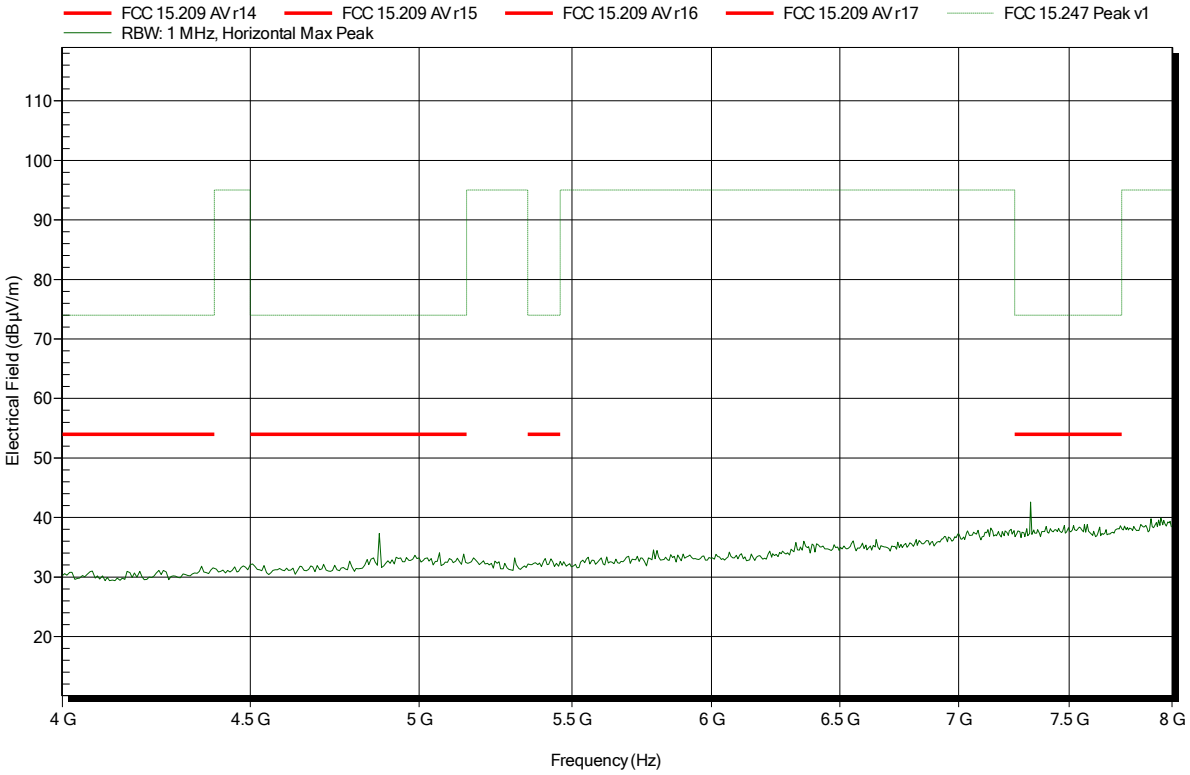
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4917 GHz	45.69 dBµV/m	74 dBµV/m	-28.31 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.4917 GHz	19.64 dBµV/m	54 dBµV/m	-34.36 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2441 MHz
Test Date:	2019-02-13
Note:	

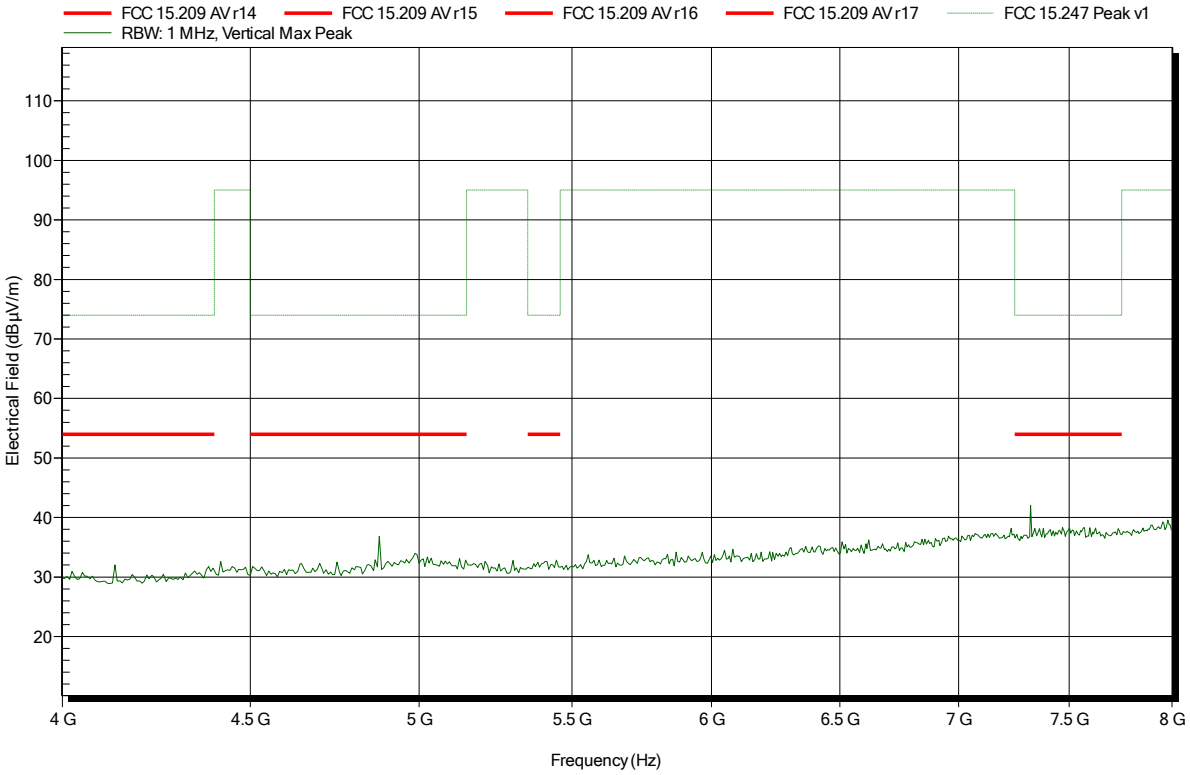
Index 51



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2441 MHz
Test Date:	2019-02-13
Note:	

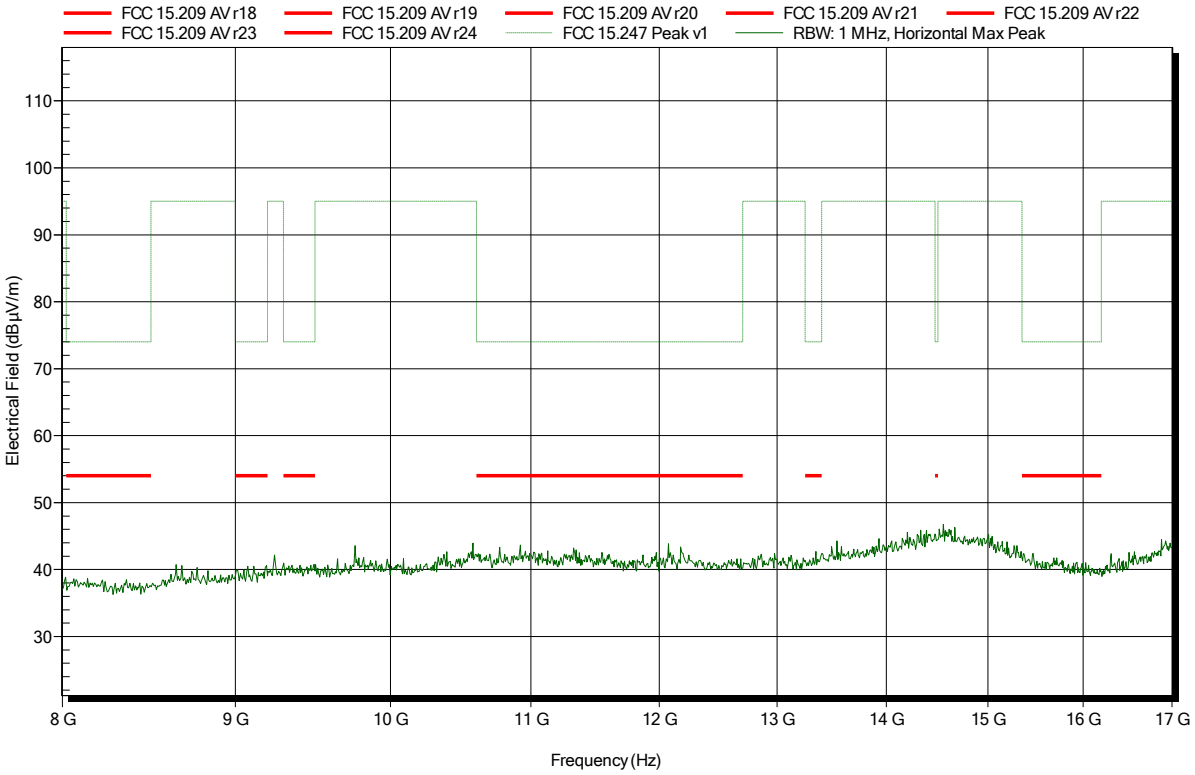
Index 56



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2441 MHz
Test Date:	2019-02-13
Note:	

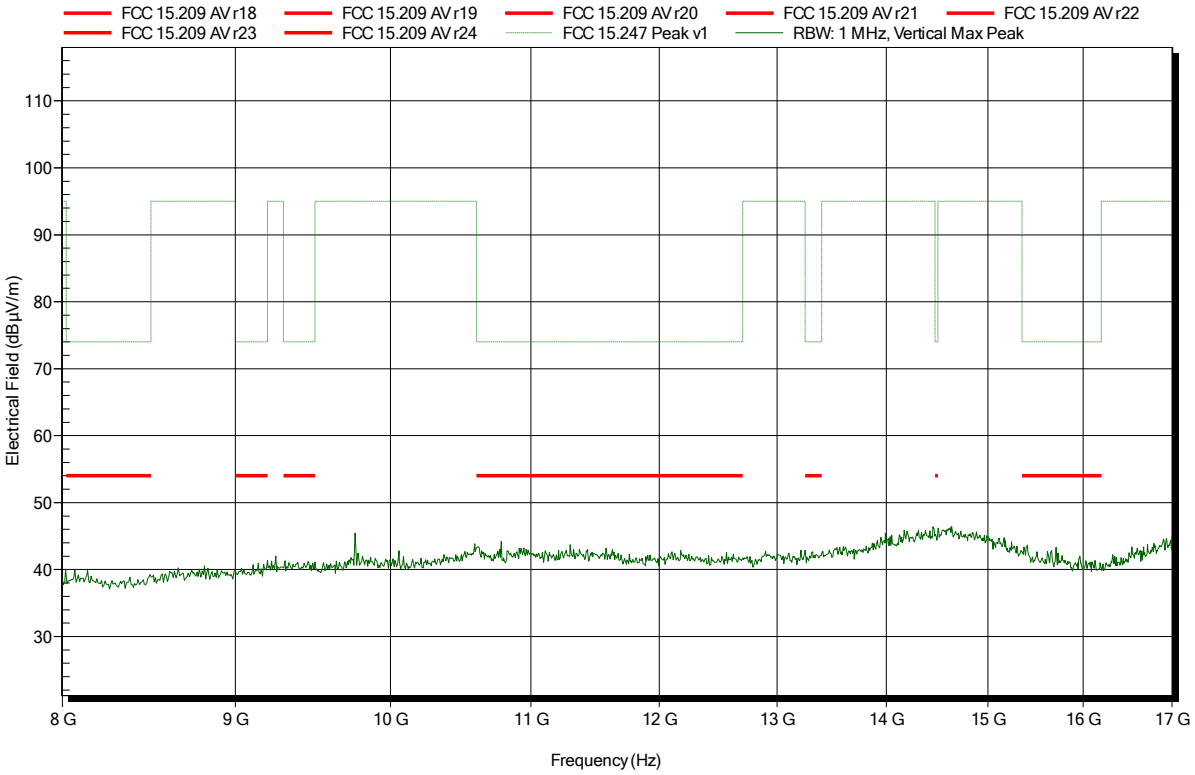
Index 53



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2441 MHz
Test Date:	2019-02-13
Note:	

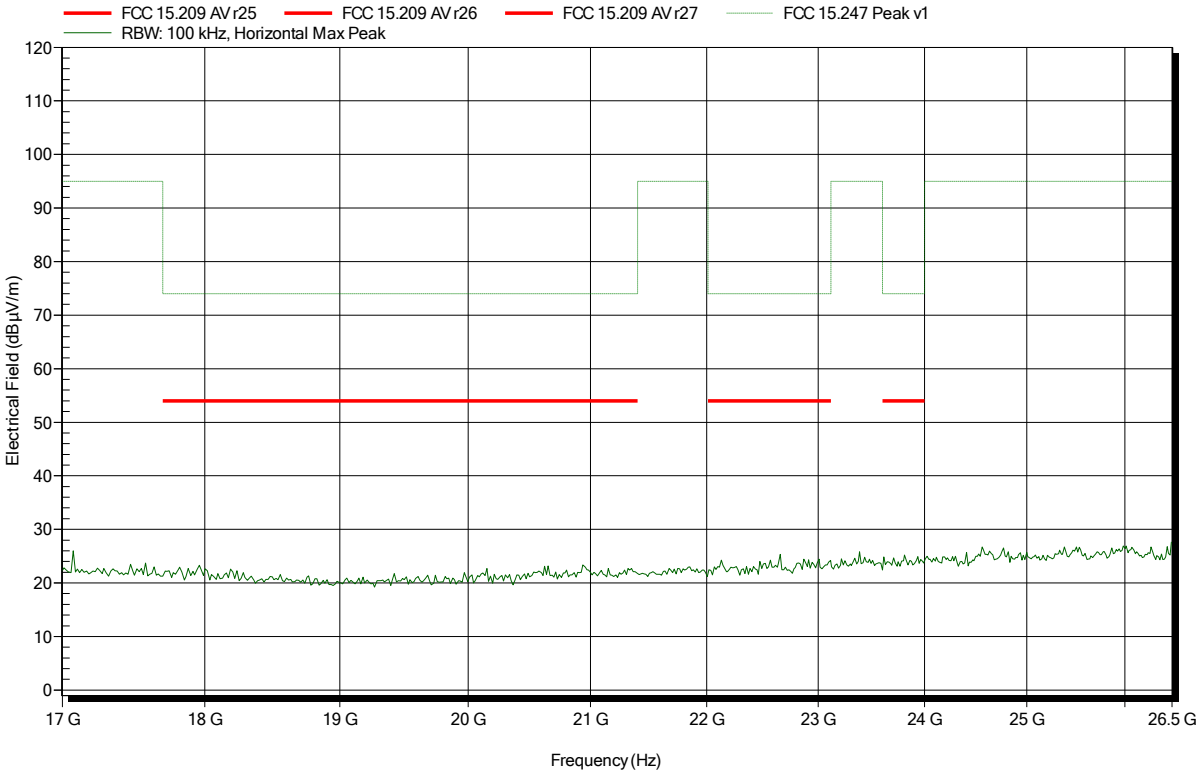
Index 57



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Amplifier Research AT4560, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2441 MHz
Test Date:	2019-02-13
Note:	

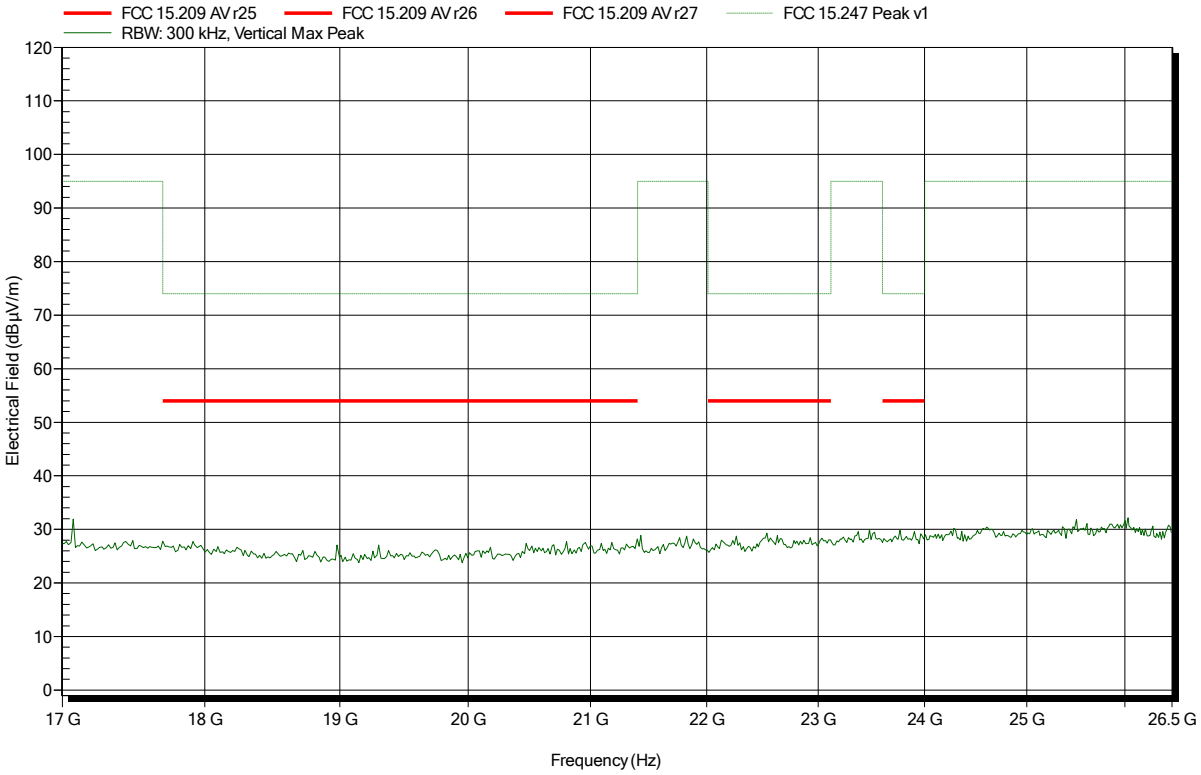
Index 54



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Amplifier Research AT4560, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2441 MHz
Test Date:	2019-02-13
Note:	

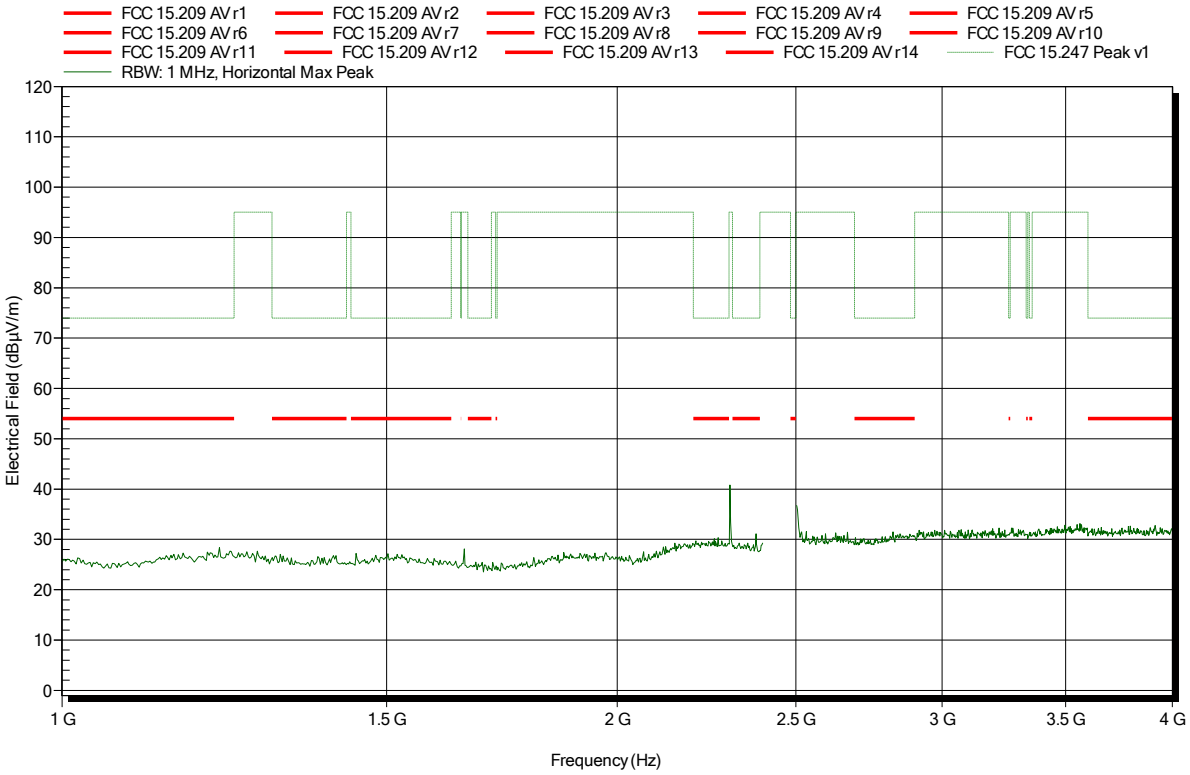
Index 58



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2480 MHz
Test Date:	2019-02-13
Note:	

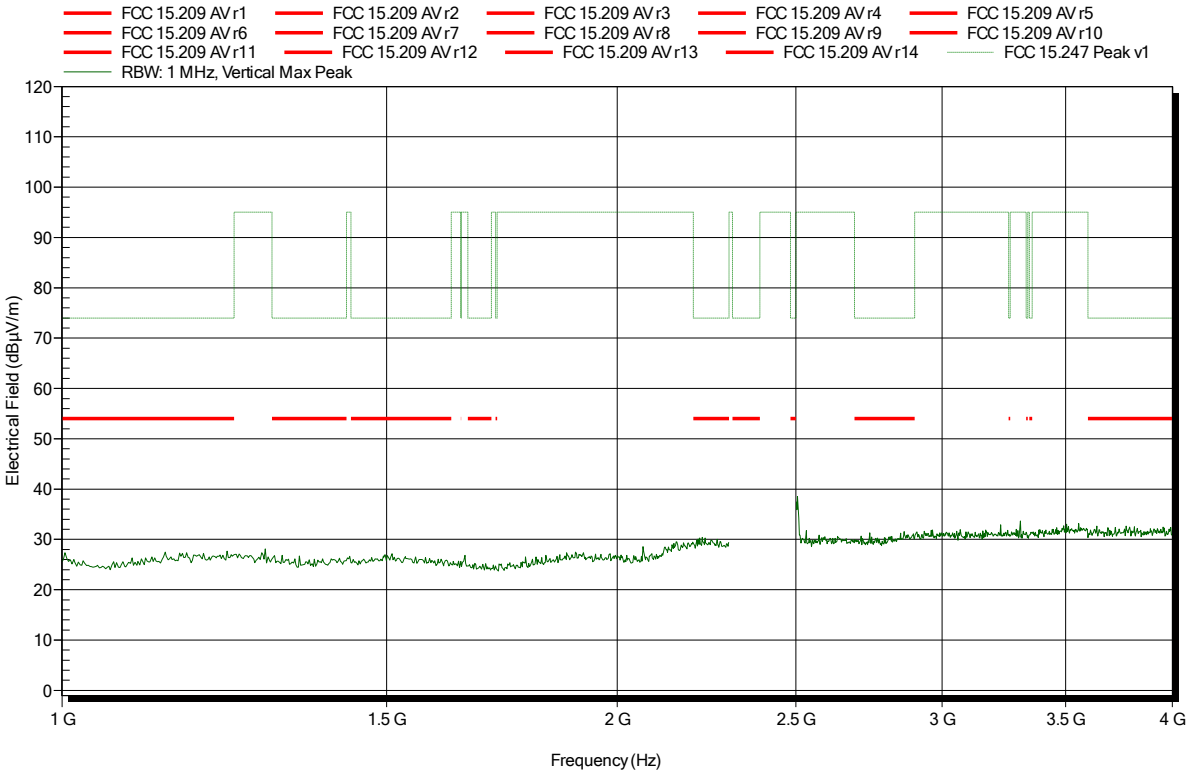
Index 59



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2480 MHz
Test Date:	2019-02-13
Note:	

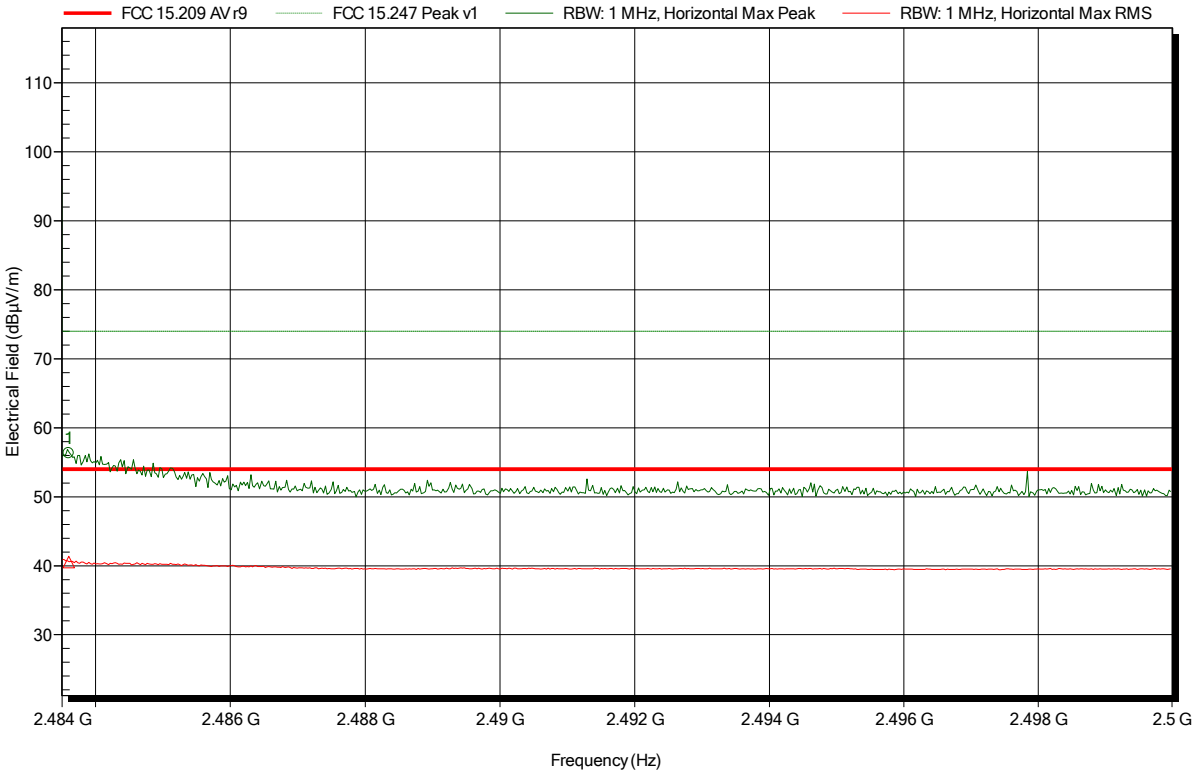
Index 64



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2480 MHz
Test Date:	2019-02-13
Note:	upper bandedge

Index 60



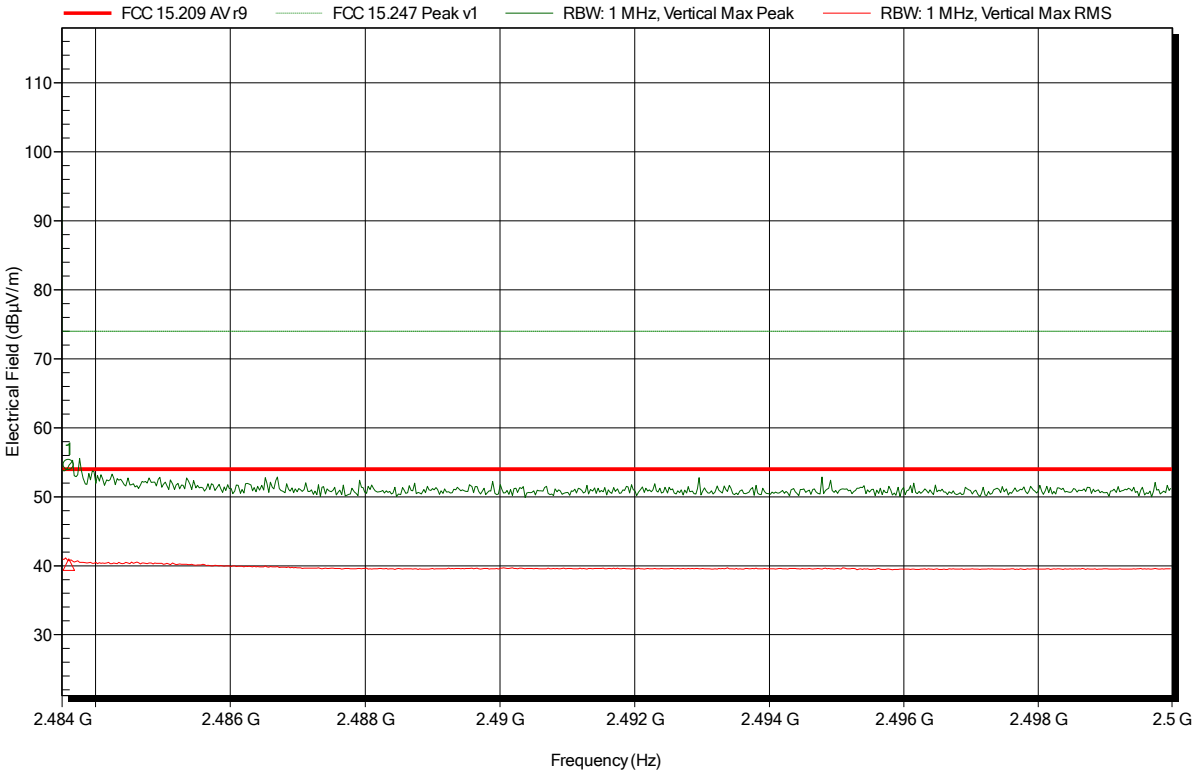
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4836 GHz	56.32 dBµV/m	74 dBµV/m	-17.68 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.4836 GHz	40.53 dBµV/m	54 dBµV/m	-13.47 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2480 MHz
Test Date:	2019-02-13
Note:	upper bandedge

Index 68



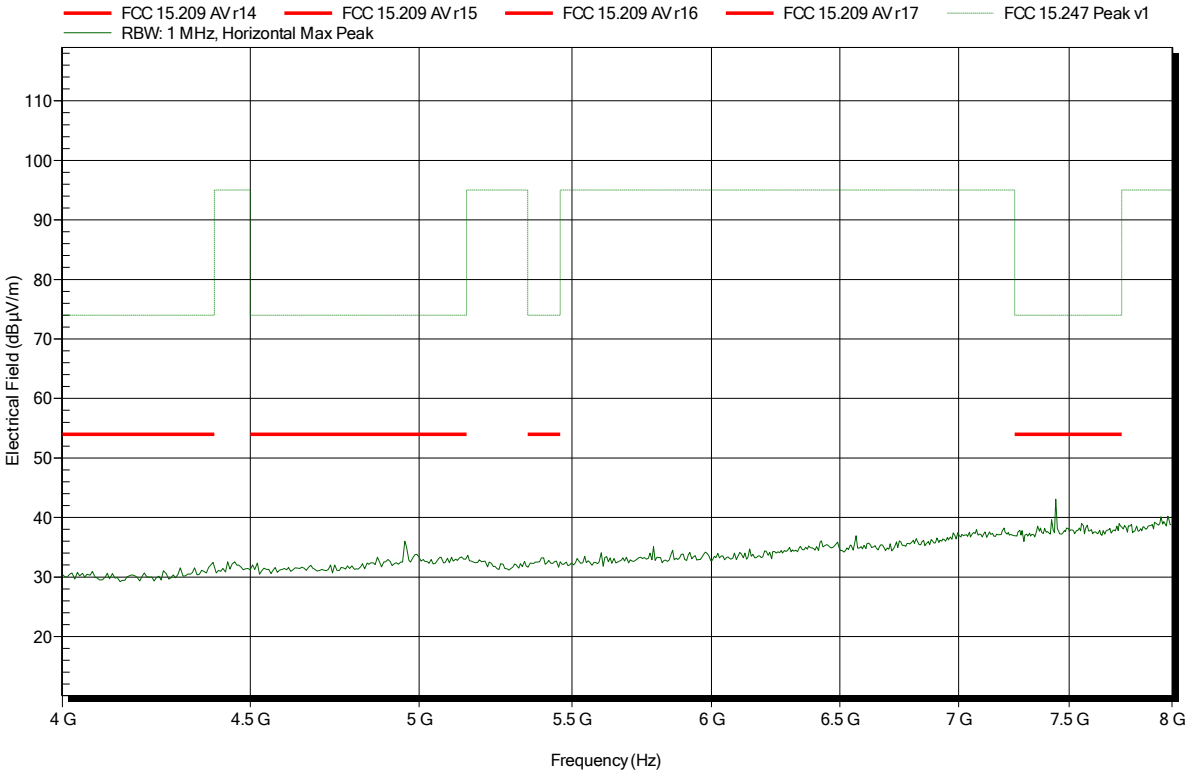
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4836 GHz	54.59 dBµV/m	74 dBµV/m	-19.41 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.4836 GHz	40.17 dBµV/m	54 dBµV/m	-13.83 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2480 MHz
Test Date:	2019-02-13
Note:	

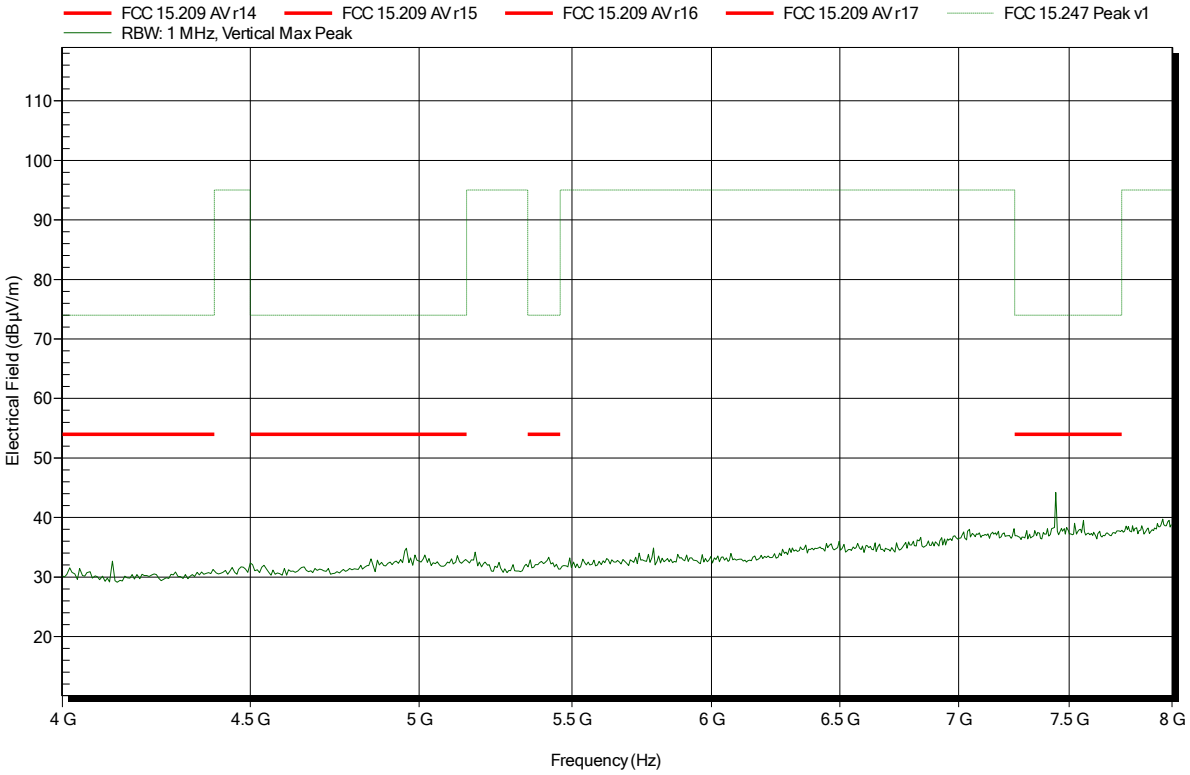
Index 61



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2480 MHz
Test Date:	2019-02-13
Note:	

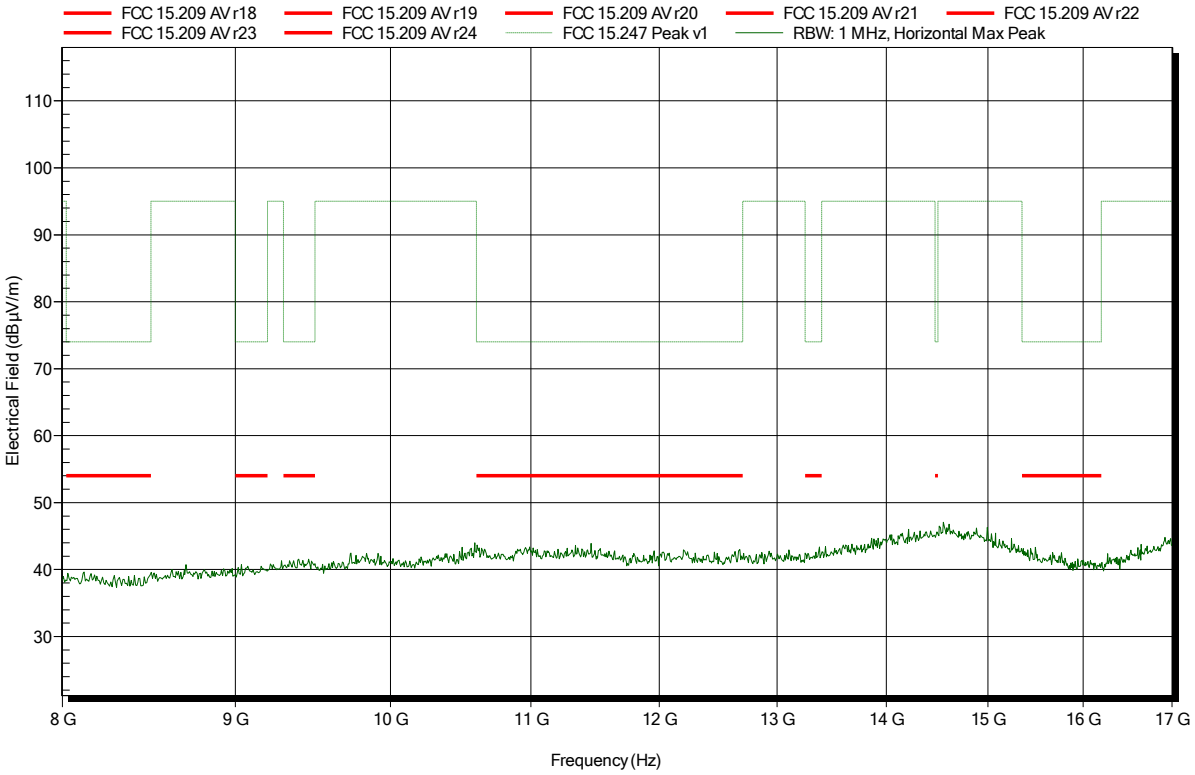
Index 65



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2480 MHz
Test Date:	2019-02-13
Note:	

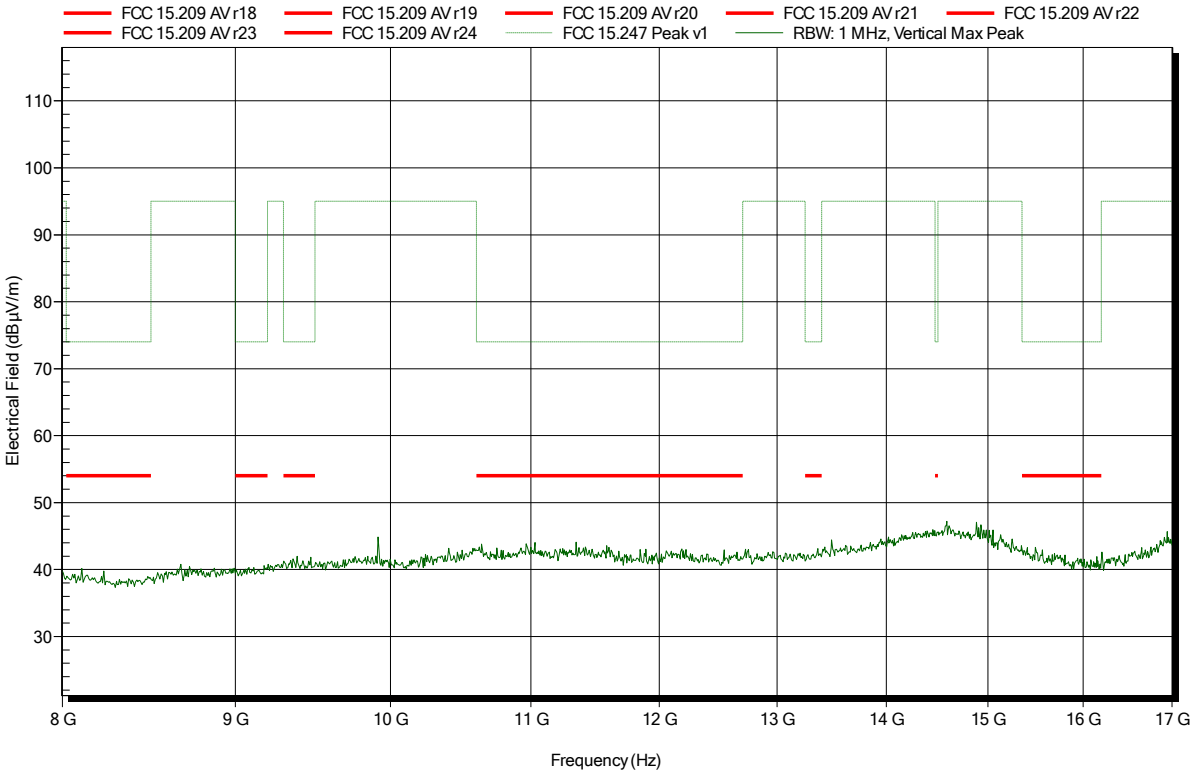
Index 62



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2480 MHz
Test Date:	2019-02-13
Note:	

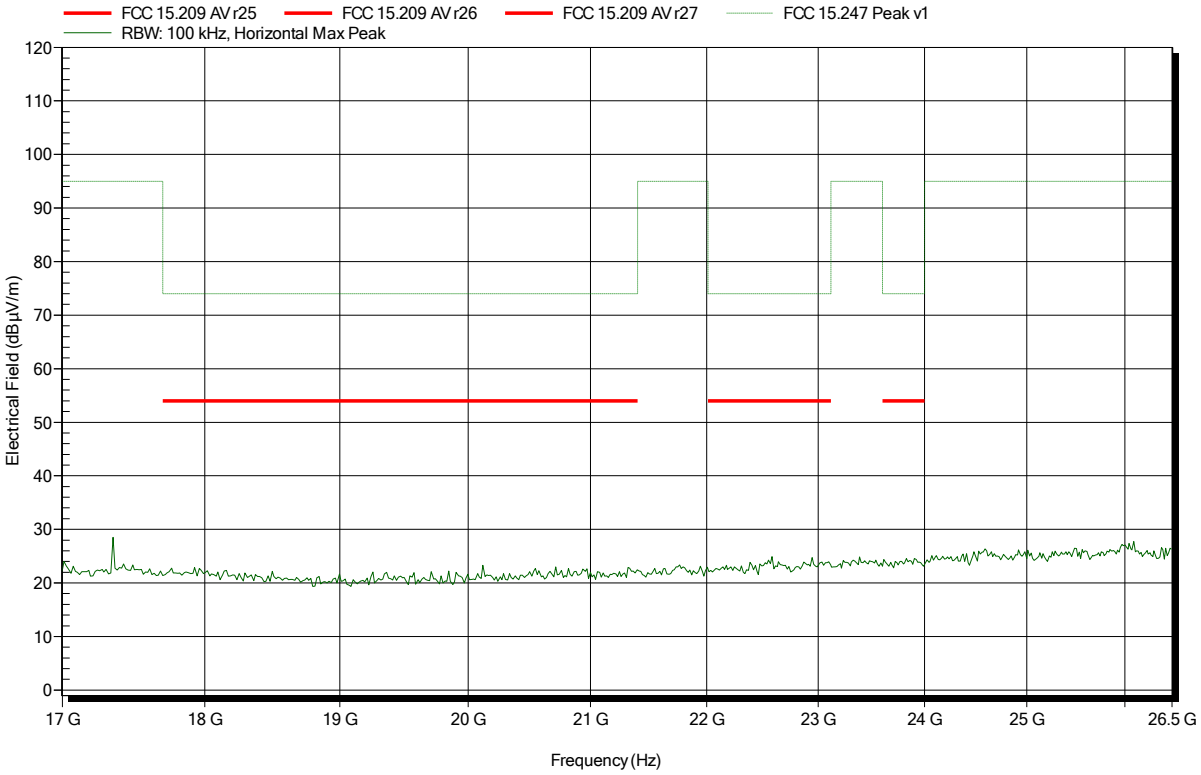
Index 66



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Amplifier Research AT4560, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2480 MHz
Test Date:	2019-02-13
Note:	

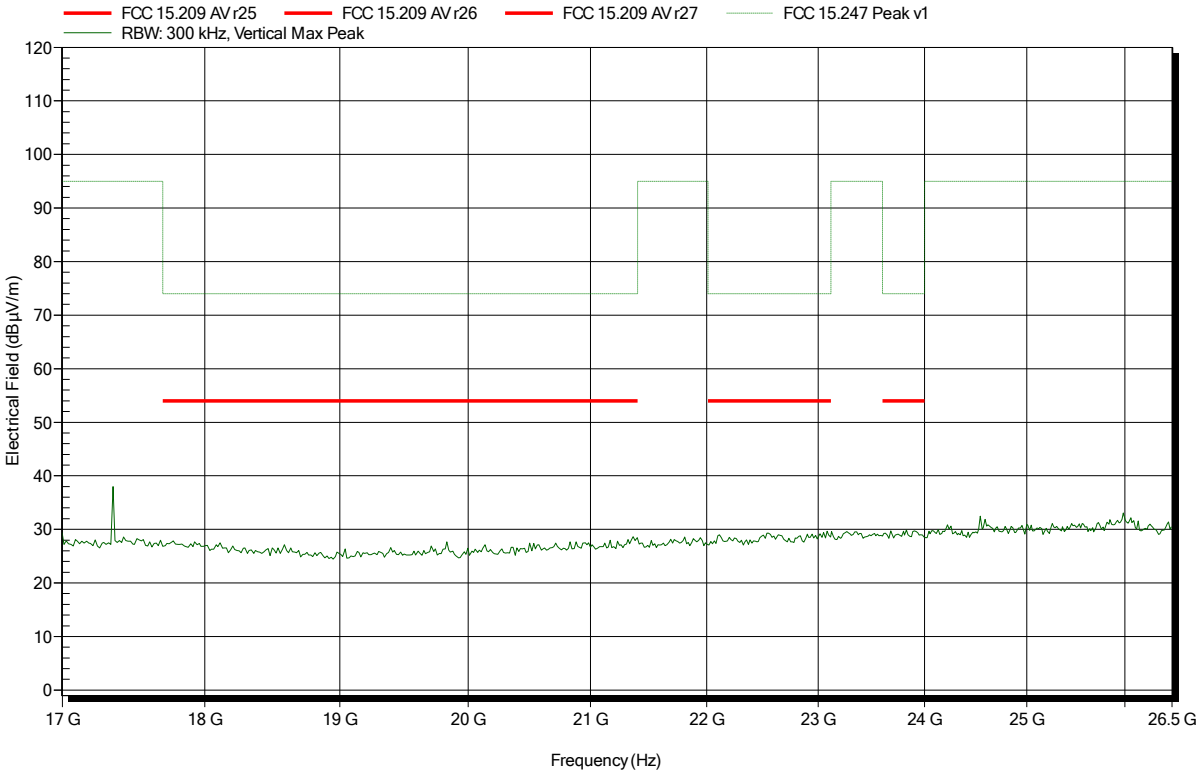
Index 63



Spurious emissions according to FCC 15.247

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24.5°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Amplifier Research AT4560, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT long range; DH5; 2480 MHz
Test Date:	2019-02-13
Note:	

Index 67

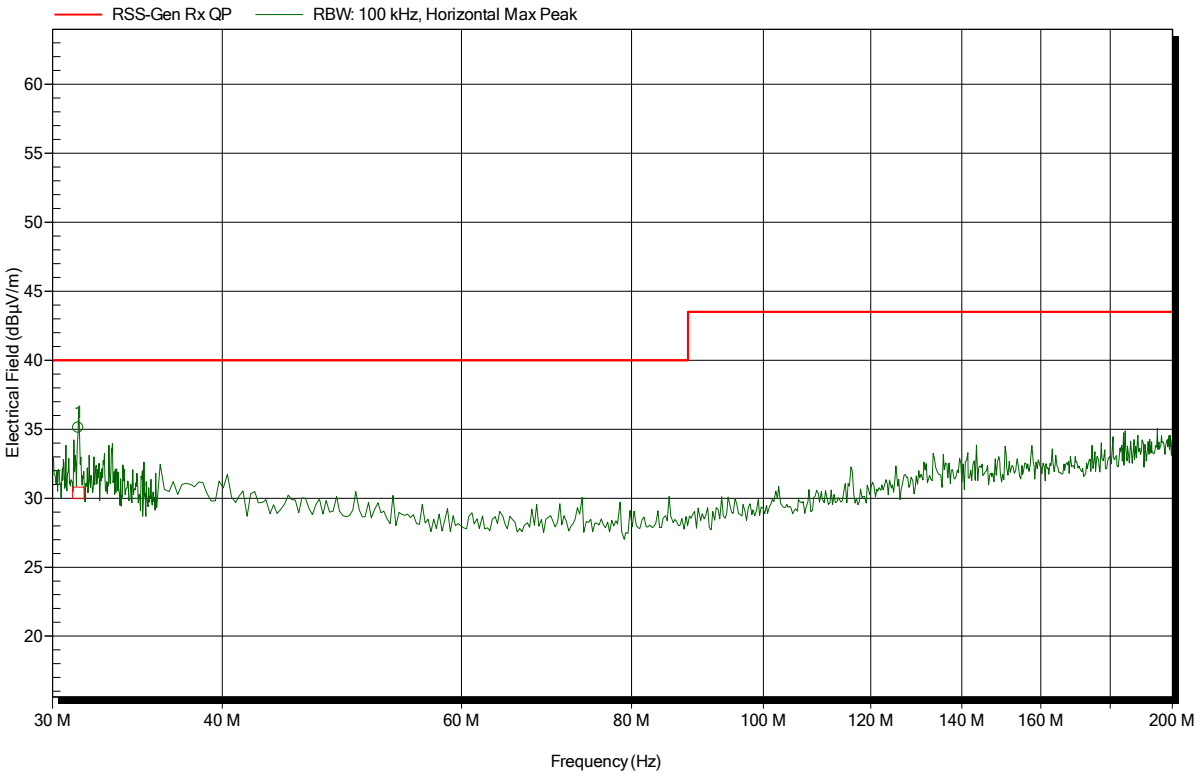


ANNEX B Receiver spurious emissions

Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	RX; BT long range; scan mode
Test Date:	2019-02-13
Note:	

Index 54



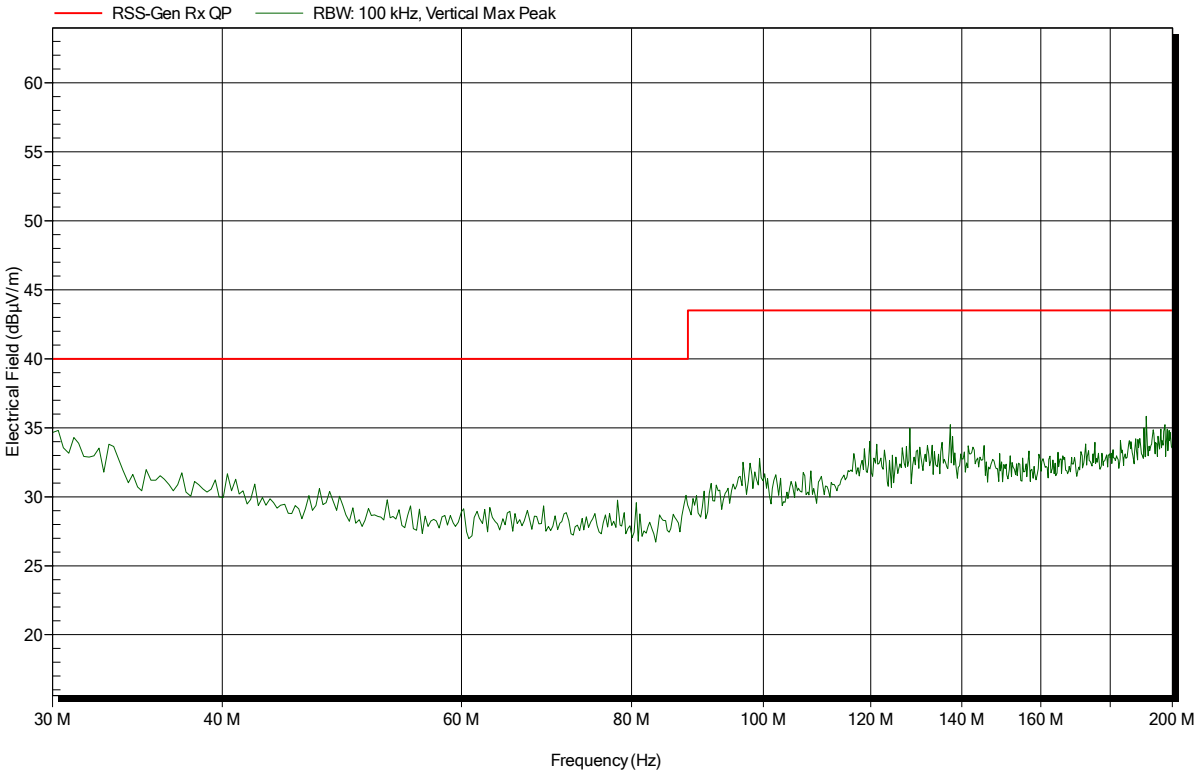
Frequency	Peak	Peak Limit	Peak Difference	Status	Angle	Height
31.344 MHz	35.12 dBµV/m	40 dBµV/m	-4.88 dB	Pass	190 Degree	1.2 m

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
31.344 MHz	30.4 dBµV/m	40 dBµV/m	-9.6 dB	Pass	190 Degree	1.2 m

Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	RX; BT long range; scan mode
Test Date:	2019-02-13
Note:	

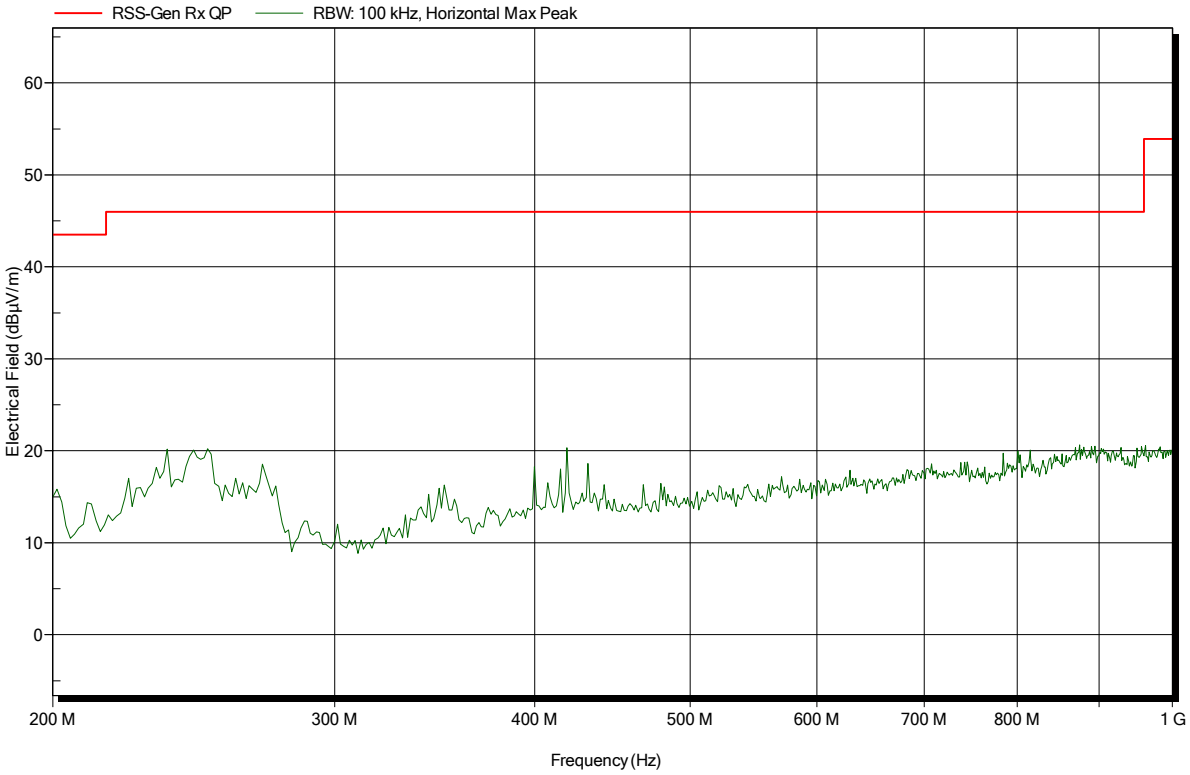
Index 55



Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	RX; BT long range; scan mode
Test Date:	2019-02-13
Note:	

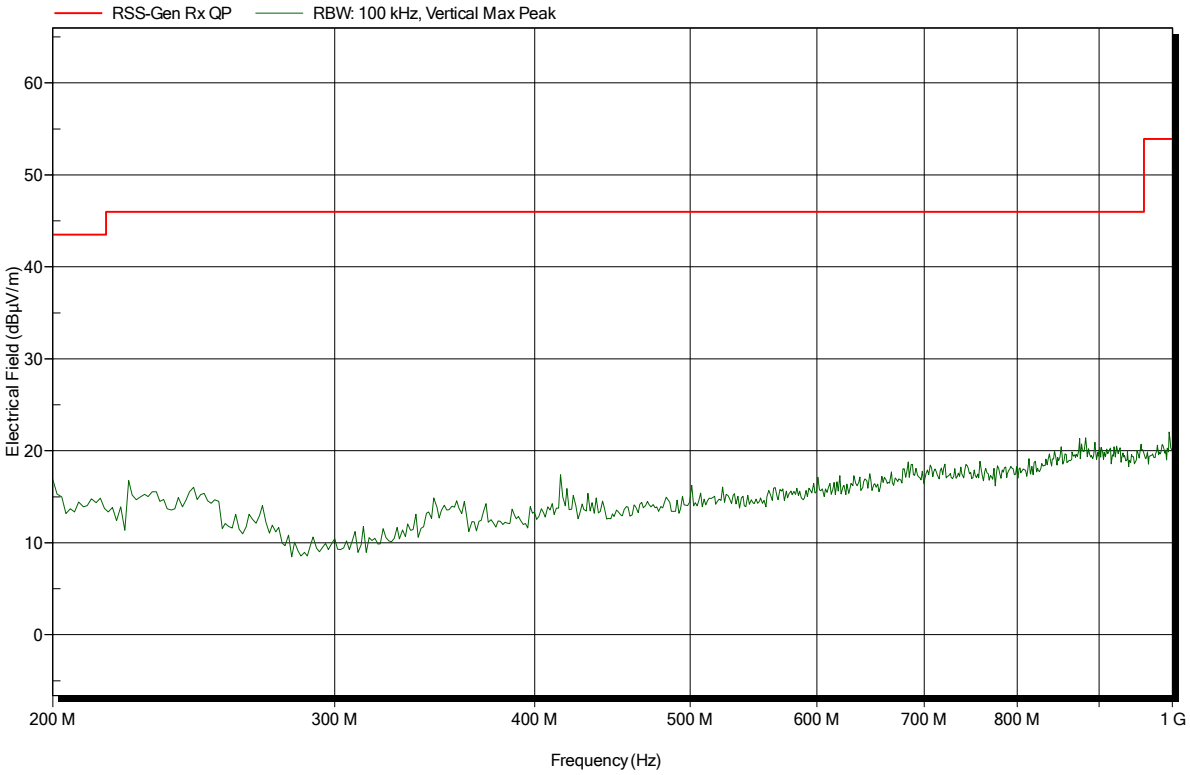
Index 52



Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	RX; BT long range; scan mode
Test Date:	2019-02-13
Note:	

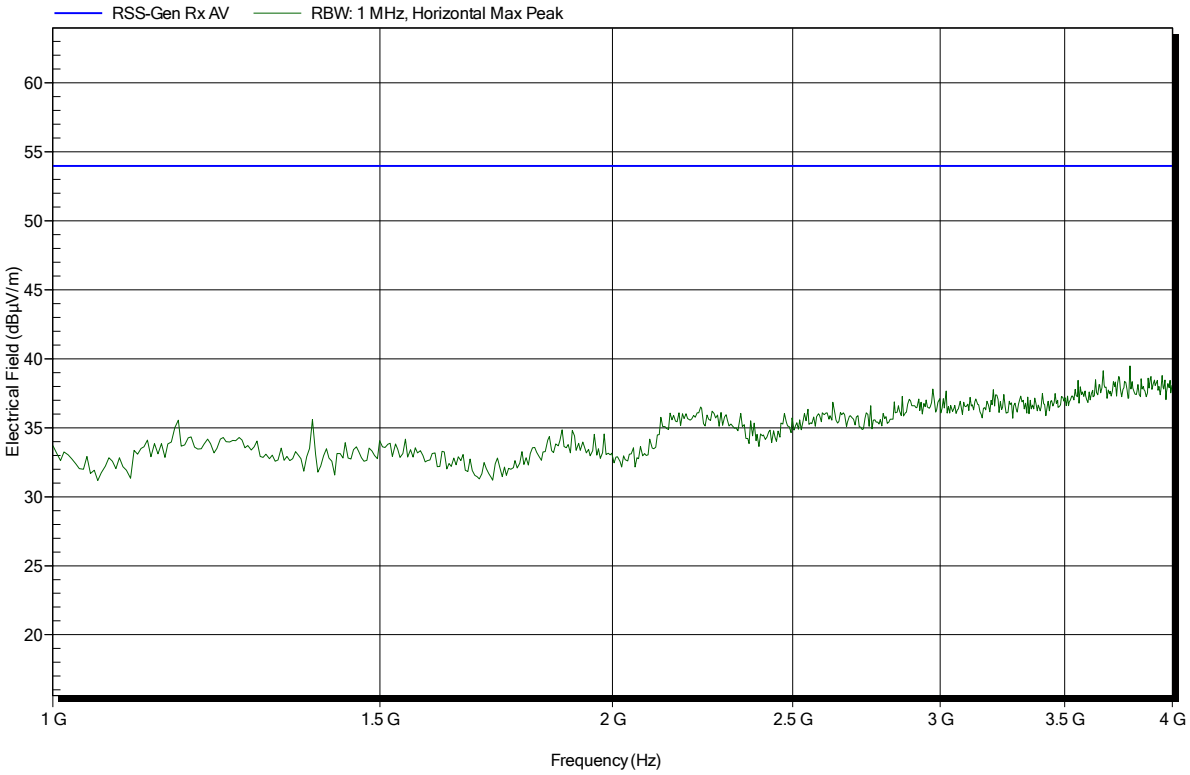
Index 53



Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	RX; BT long range; scan mode
Test Date:	2019-02-13
Note:	

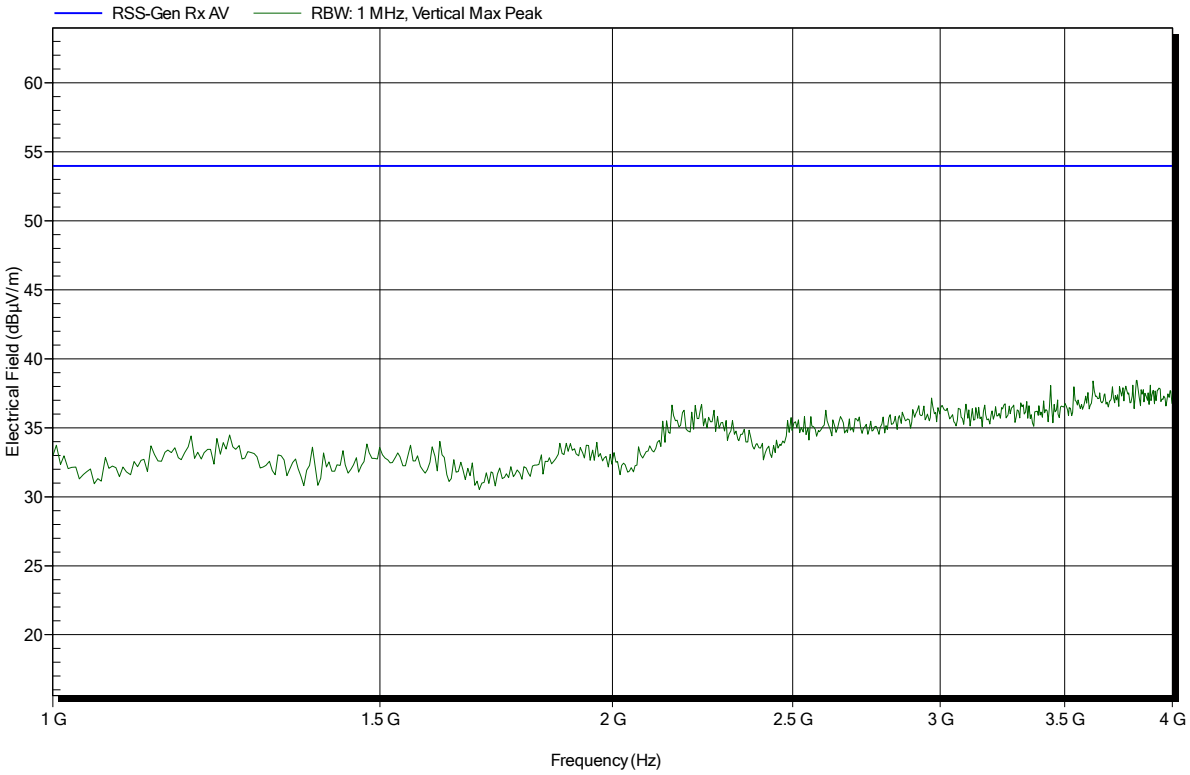
Index 46



Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	RX; BT long range; scan mode
Test Date:	2019-02-13
Note:	

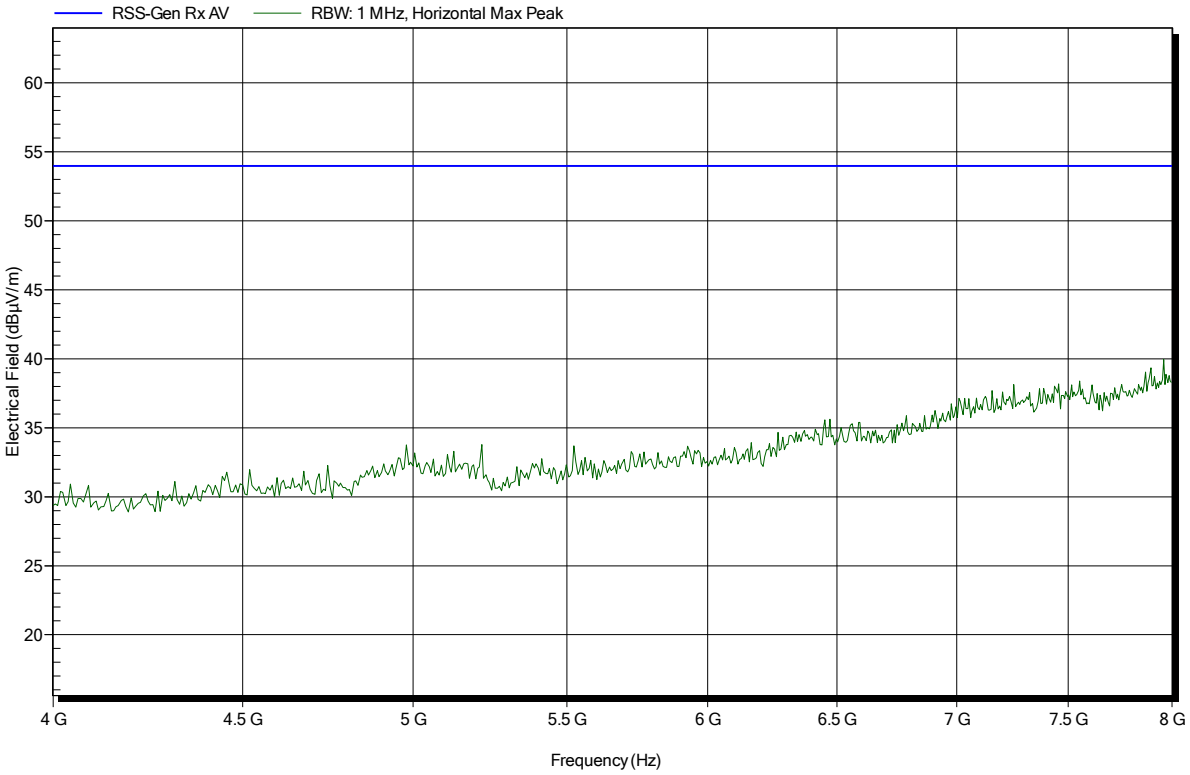
Index 49



Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m
Mode:	RX; BT long range; scan mode
Test Date:	2019-02-13
Note:	

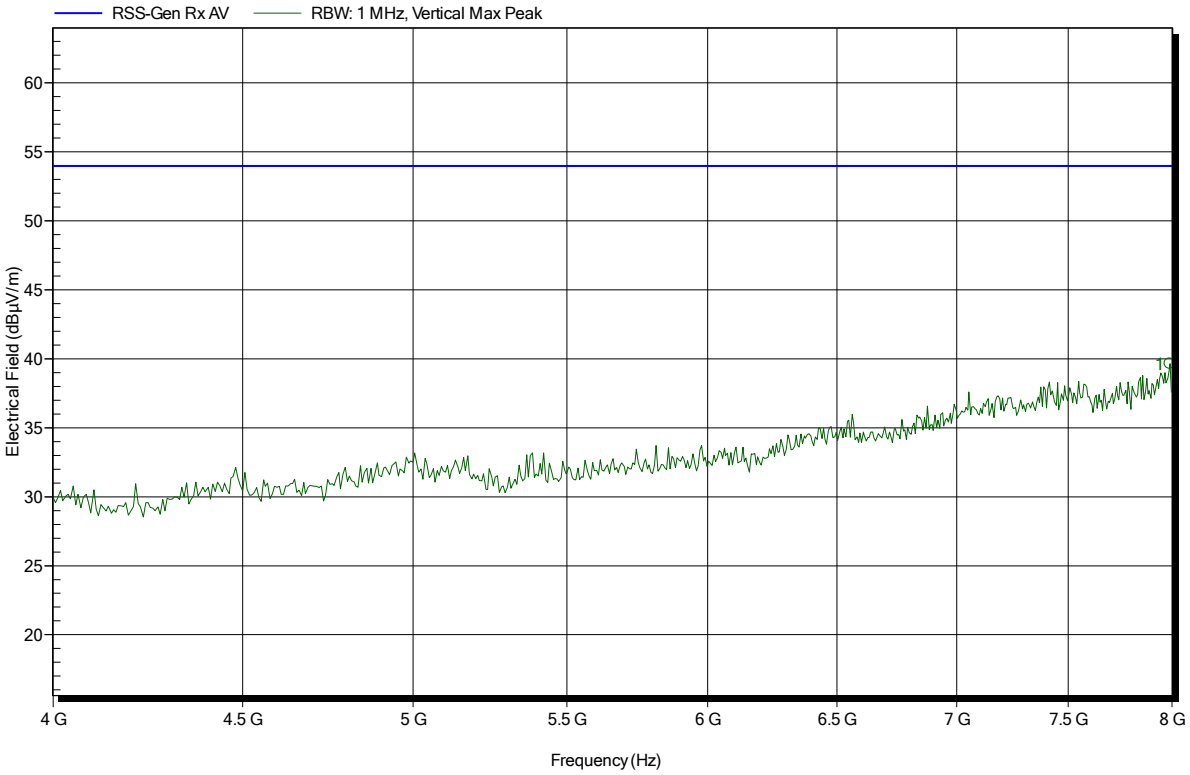
Index 47



Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m
Mode:	RX; BT long range; scan mode
Test Date:	2019-02-13
Note:	

Index 50

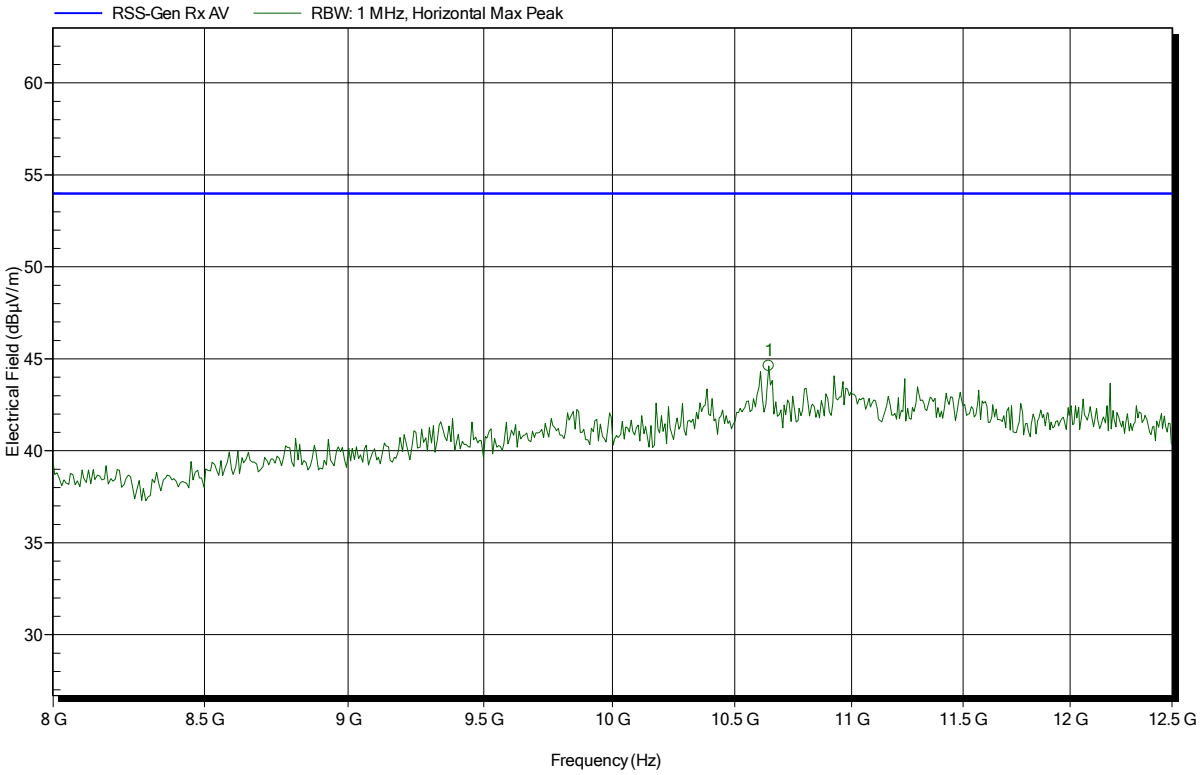


Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.987 GHz	39.65 dBµV/m	53.98 dBµV/m	-14.33 dB	Pass

Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	RX; BT long range; scan mode
Test Date:	2019-02-13
Note:	

Index 48



Frequency	Peak	Peak Limit	Peak Difference	Status
10.642 GHz	44.62 dBµV/m	53.98 dBµV/m	-9.36 dB	Pass

Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1812-7888
Applicant:	Leica Geosystems AG
EUT Name:	Field Controller Win EC7
Model:	CS20 LTE Disto (US, CA)
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 24°C, Vnom: Vnom: 120V AC (intern 11.1 V DC)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	RX; BT long range; scan mode
Test Date:	2019-02-13
Note:	

Index 51