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FCC TEST REPORT

FCC 47 CFR Part 15C
Industry Canada RSS-247

Frequency hopping systems operating within the 2400 – 2483.5 MHz band

Report Reference No. ..... :	G0M-1601-5313-TFC247BT-V02
Testing Laboratory ..... :	Eurofins Product Service GmbH
Address ..... :	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation ..... :	A2LA Accredited Testing Laboratory, Certificate No.: 1983.01 FCC Filed Test Laboratory, Reg.-No.: 96970 IC OATS Filing assigned code: 3470A
Applicant's name ..... :	Leica Geosystems AG
Address ..... :	Heinrich Wild Strasse 9435 Heerbrugg SWITZERLAND
Test specification:	
Standard..... :	47 CFR Part 15C RSS-247, Issue 1, 2015-05
Test scope…….. ..... :	partial Radio compliance test
Equipment under test (EUT):	
Product description	LR-BT Class 1 Bluetooth Device
Model No.	CTR35
Additional Model(s)	None
Brand Name(s)	Leica Geosystems AG
Hardware version	None
Firmware / Software version	5.3.1
	FCC-ID: RFD-CTR35 IC: 3177A-CTR35
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:

Date of receipt of test item ..... : 2016-03-07

Date (s) of performance of tests ..... : 2016-03-22

Compiled by ..... : Matthias Handrik

Tested by (+ signature) ..... : Matthias Handrik
(Responsible for Test)

Approved by (+ signature) ..... : Christian Weber
(Head of Lab)

Date of issue ..... : 2016-04-04

Total number of pages ..... : 75

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.

Additional comments:

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

Version History

Version	Issue Date	Remarks	Revised by
01	2016-03-31	Initial Release	
02	2016-04-04	Signatures corrected	C. Weber

REPORT INDEX

1 Equipment (Test item) Description

Description	LR-BT Class 1 Bluetooth Device	
Model	CTR35	
Additional Model(s)	None	
Brand Name(s)	Leica Geosystems AG	
Serial number	None	
Hardware version	None	
Software / Firmware version	5.3.1	
FCC-ID	RFD-CTR35	
IC	3177A-CTR35	
Contains FCC-ID	PVH0946	
Contains IC	5325A-0946	
Equipment type	End product	
Radio type	Transceiver	
Radio technology	Bluetooth	
Operating frequency range	2402 - 2480 MHz	
Assigned frequency band	2400 - 2483.5 MHz	
Main test frequencies	F_{LOW}	2402 MHz
	F_{MID}	2440 MHz
	F_{HIGH}	2480 MHz
Spreading	FHSS	
Modulations	GFSK, PI/4-DQPSK, 8-PSK	
Number of channels	79 hopping channels at all	
Channel spacing	1 MHz	
Number of antennas	1	
Radio module	Type	Bluetooth Module
	Model	OSB421i
	Manufacturer	Ublox AG
	HW Version	unspecified
	SW Version	5.3.1
	FCC-ID	PVH0946
	IC	5325A-0946
Antenna	Type	integrated
	Model	FR05S1N0102
	Manufacturer	Fractus SA
	Gain	1.7dBi

Manufacturer	Leica Geosystems AG Heinrich Wild Strasse 9435 Heerbrugg SWITZERLAND	
Power supply	V_{NOM}	5.0 VDC via USB
	V_{MIN}	N/R
	V_{MIN}	N/R
AC/DC-Adaptor	Model	N/R
	Vendor	N/R
	Input	N/R
	Output	N/R

1.4 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
SIM	Communication tester	Rohde & Schwarz	CBT	Signaling
AE	Tablet	Panasonic	CS35	-
AE	Power Adaptor	Panasonic	CF-AA6413CJ2	Power Adaptor for CS35

***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	
DH5-Sngl	General conditions:	EUT powered with 5 VDC via USB.
	Radio conditions:	Mode = standalone transmit Spreading = Hopping stopped (single hopping channel) Modulation = GFSK Packet type = DH5 Data rate = 1 Mbps Duty cycle = 77 % Power level = Maximum
2DH5-Sngl	General conditions:	EUT powered with 5 VDC via USB.
	Radio conditions:	Mode = standalone transmit Spreading = Hopping stopped (single hopping channel) Modulation = π/4-DQPSK Packet type = 2DH5 Data rate = 2 Mbps Duty cycle = 77 % Power level = Maximum
3DH5-Sngl	General conditions:	EUT powered with 5 VDC via USB..
	Radio conditions:	Mode = standalone transmit Spreading = Hopping stopped (single hopping channel) Modulation = 8-DPSK Packet type = 3DH5 Data rate = 3 Mbps Duty cycle = 77 % Power level = Maximum
Receive	General conditions:	EUT powered with 5 VDC via USB.
	Radio conditions:	Mode = standalone receive Spreading = Hopping
AC-Powerline	General conditions:	EUT powered by commercial AC/DC-Adapter
	Radio conditions:	Mode = standalone transmit Spreading = Hopping Power level = Maximum

1.6 Test Equipment Used During Testing

Measurement Software			
Description	Manufacturer	Name	Version
EMC Test Software	Dare Instruments	Radimation	2015.2.04

Occupied Bandwidth					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	EF00312	2016-02	2017-02

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	2016-01	2017-01
Biconical Antenna	R&S	HK 116	EF00203	2014-04	2016-04
LPD Antenna	R&S	HL 223	EF00013	2014-04	2016-04
Horn Antenna	R&S	BBHA 1902D	EF00019	2014-03	2016-03

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

1.7 Sample emission level calculation

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

Reading:

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

A.F.:

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

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 15C, IC RSS-247				
Product Specific Standard Section	**Requirement – Test**	**Reference Method**	**Result**	**Remarks**
RSS-Gen 6.6	Occupied Bandwidth	ANSI C63.10	N/R	Informational only
FCC § 15.247(a)(1) IC RSS-247 § 5.1	20 dB Bandwidth	ANSI C63.10	N/T	
FCC § 15.247(a)(1)(iii) IC RSS-247 § 5.1	Number of hopping frequencies	ANSI C63.10	N/T	
FCC § 15.247(a)(1) IC RSS-247 § 5.1	Frequency hopping channel separation	ANSI C63.10	N/T	
FCC § 15.247(a)(1)(iii) IC RSS-247 § 5.1	Time of occupancy (Dwell time)	ANSI C63.10	N/T	
FCC § 15.247(b)(1) IC RSS-247 § 5.4	Maximum peak conducted power	ANSI C63.10	N/T	
47 CFR 15.207 IC RSS-247 § 3.1	AC power line conducted emissions	ANSI C63.4	PASS	
FCC § 15.247(d) IC RSS-247 § 5.5	Band edge compliance	ANSI C63.10	N/T	
FCC § 15.247(d) IC RSS-247 § 5.5	Conducted spurious emissions	ANSI C63.10	N/T	
FCC § 15.247(d) FCC § 15.209 IC RSS-247 § 5.5	Transmitter radiated spurious emissions	ANSI C63.10	PASS	
IC RSS-247 § 3.1	Receiver radiated spurious emissions	ANSI C63.10	PASS	
Remarks:				

3 Test Conditions and Results

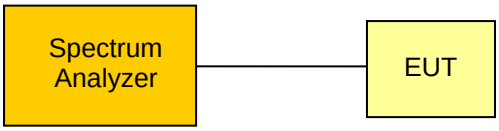
3.1 Test Conditions and Results – Occupied Bandwidth

Occupied Bandwidth acc. to IC RSS-Gen	**Verdict: PASS**
Test according to measurement reference	Reference Method
	ANSI C63.10
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

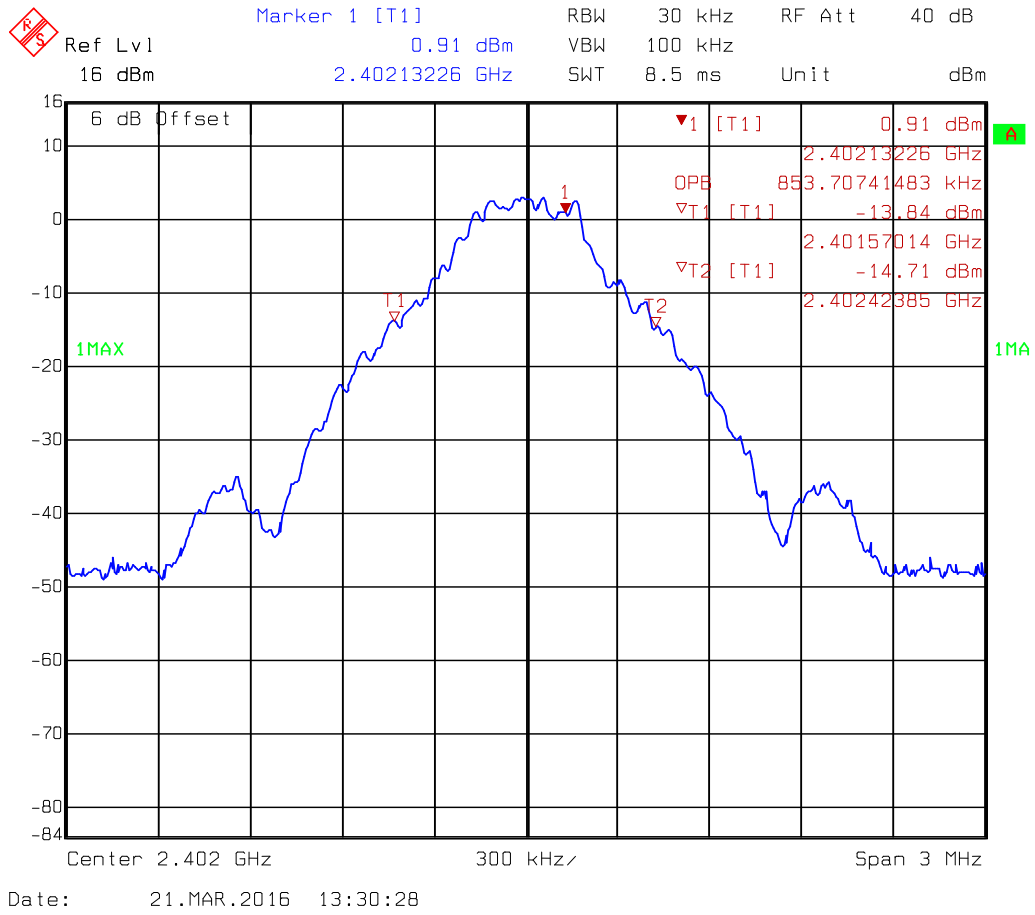
Channel	Frequency [MHz]	Mode	Occupied Bandwidth [MHz]
F_{LOW}	2402	DH5-Sngl	0.854
F_{MID}	2441	DH5-Sngl	0.860
F_{HIGH}	2480	DH5-Sngl	0.854
F_{LOW}	2402	2DH5-Sngl	1.210
F_{MID}	2441	2DH5-Sngl	1.202
F_{HIGH}	2480	2DH5-Sngl	1.218
F_{LOW}	2402	3DH5-Sngl	1.218
F_{MID}	2441	3DH5-Sngl	1.210
F_{HIGH}	2480	3DH5-Sngl	1.210

Comments:

Occupied Bandwidth – DH5-Sngl F_{LOW}

Occupied Channel Bandwidth

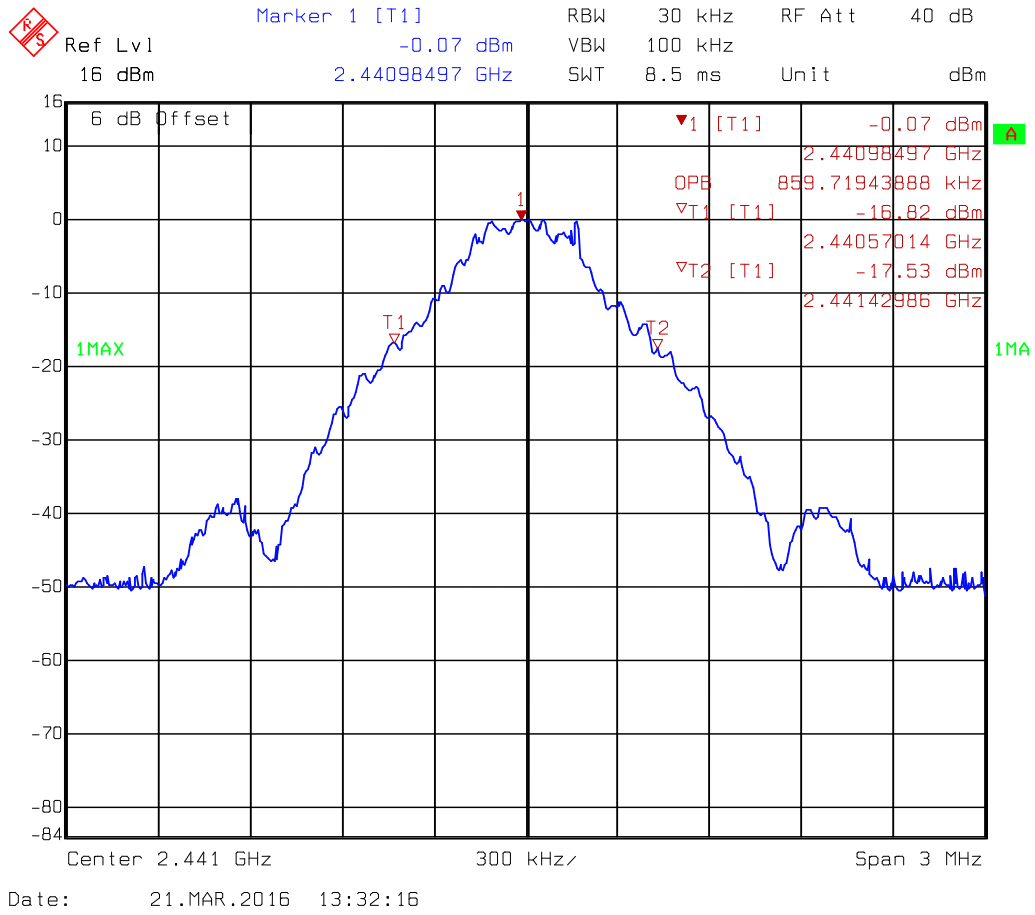
Project Number:	G0M-1601-5313
Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom / Vnom
Mode:	BT; DH5; CH.0; 2402 MHz
Test Date:	2016-03-21
Verdict:	NONE (INFORMATION ONLY)



Occupied Bandwidth – DH5-Sngl F_{MID}

Occupied Channel Bandwidth

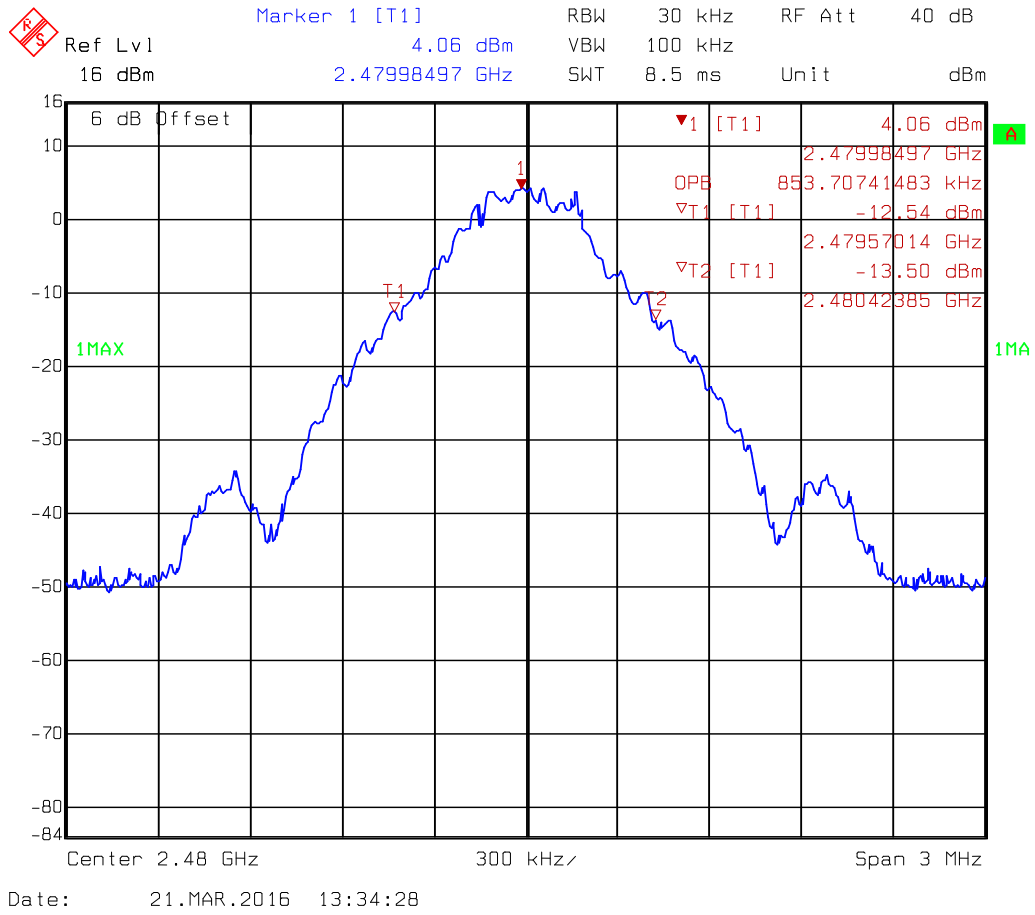
Project Number:	G0M-1601-5313
Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom / Vnom
Mode:	BT; DH5; CH.39; 2441 MHz
Test Date:	2016-03-21
Verdict:	NONE (INFORMATION ONLY)



Occupied Bandwidth – DH5-Sngl F_{HIGH}

Occupied Channel Bandwidth

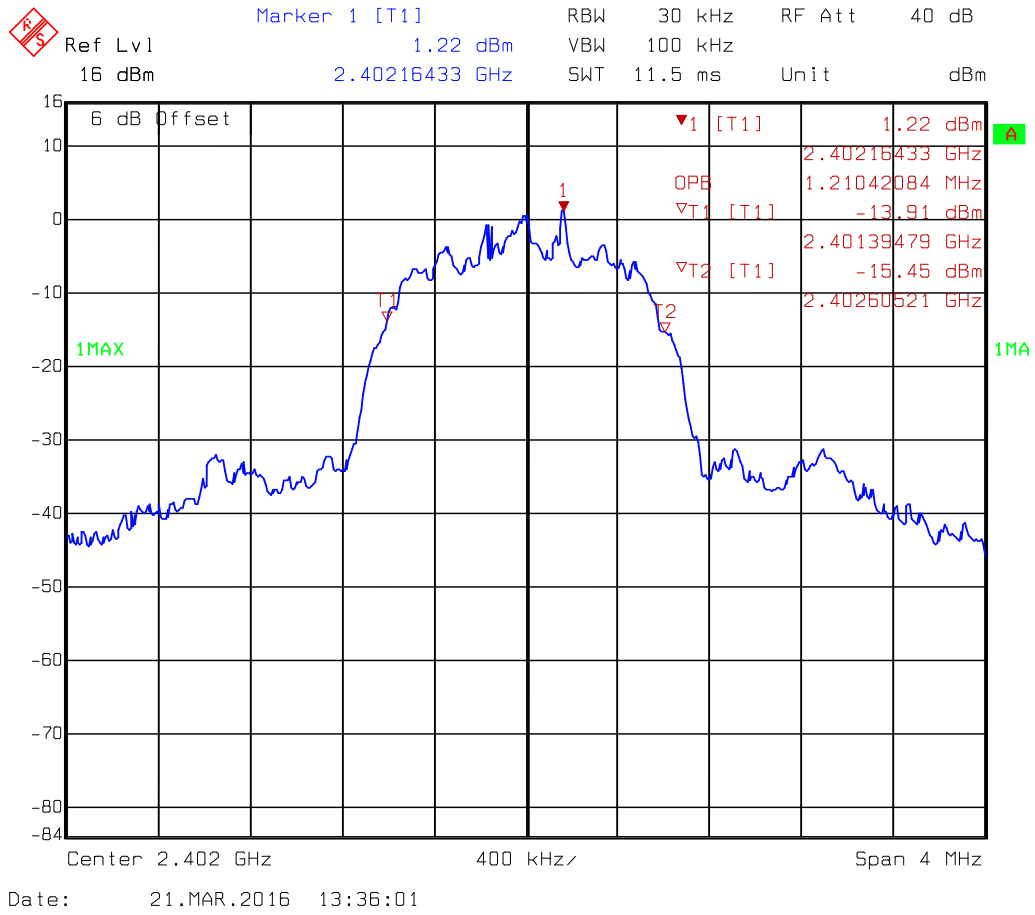
Project Number:	G0M-1601-5313
Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom / Vnom
Mode:	BT; DH5; CH.78; 2480 MHz
Test Date:	2016-03-21
Verdict:	NONE (INFORMATION ONLY)



Occupied Bandwidth – 2-DH5-Sngl F_{LOW}

Occupied Channel Bandwidth

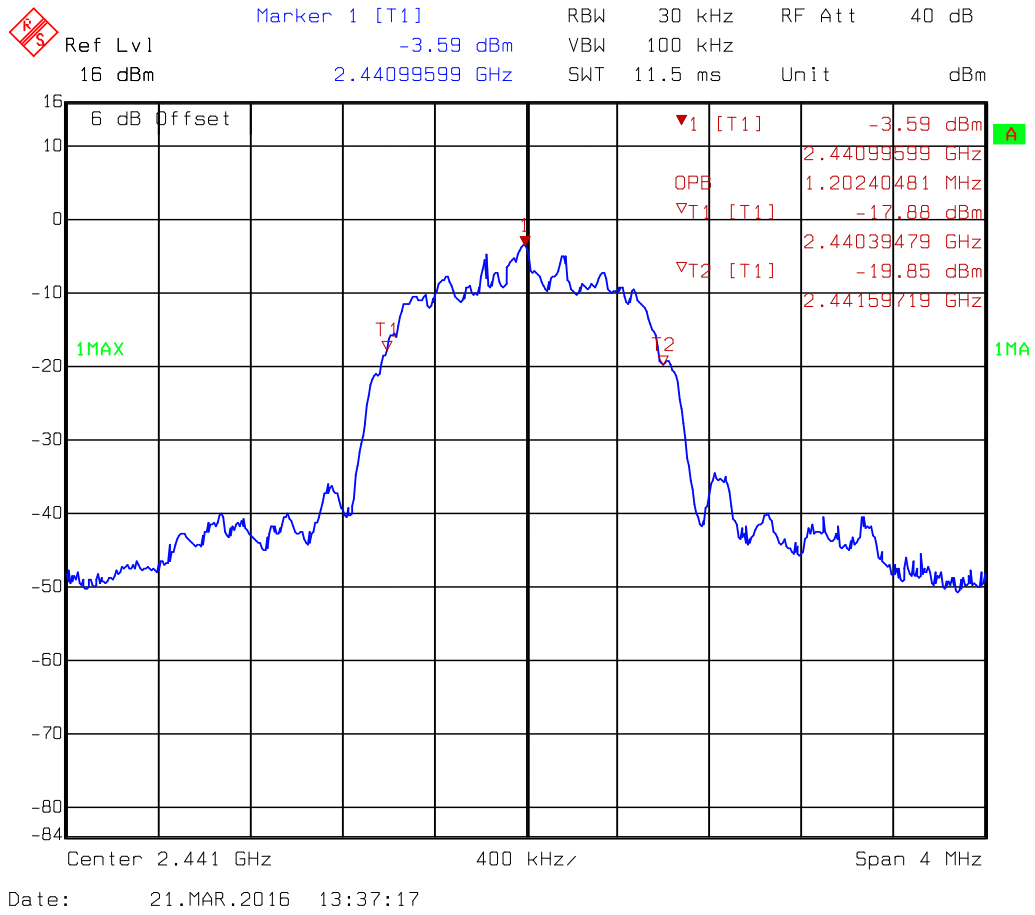
Project Number:	G0M-1601-5313
Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom / Vnom
Mode:	BT; 2DH5; CH.0; 2402 MHz
Test Date:	2016-03-21
Verdict:	NONE (INFORMATION ONLY)



Occupied Bandwidth – 2-DH5-Sngl F_{MID}

Occupied Channel Bandwidth

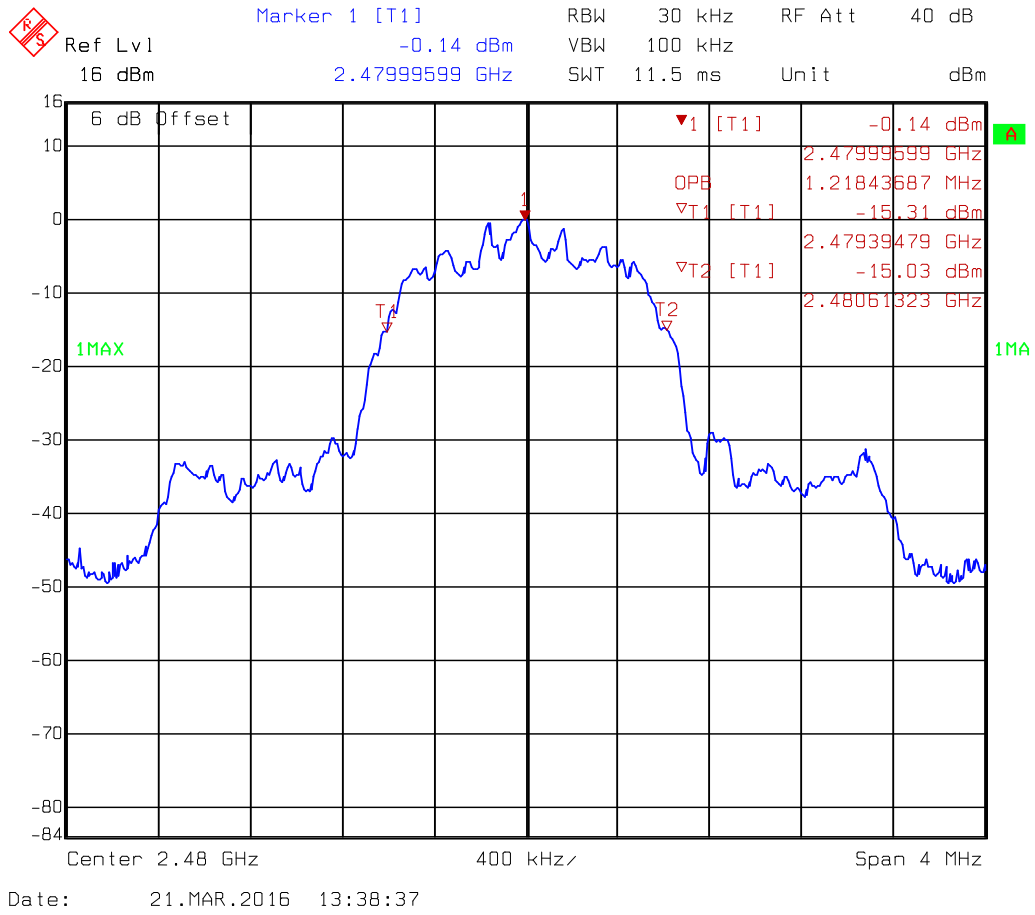
Project Number:	G0M-1601-5313
Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom / Vnom
Mode:	BT; 2DH5; CH.39; 2441 MHz
Test Date:	2016-03-21
Verdict:	NONE (INFORMATION ONLY)



Occupied Bandwidth – 2-DH5-Sngl F_{HIGH}

Occupied Channel Bandwidth

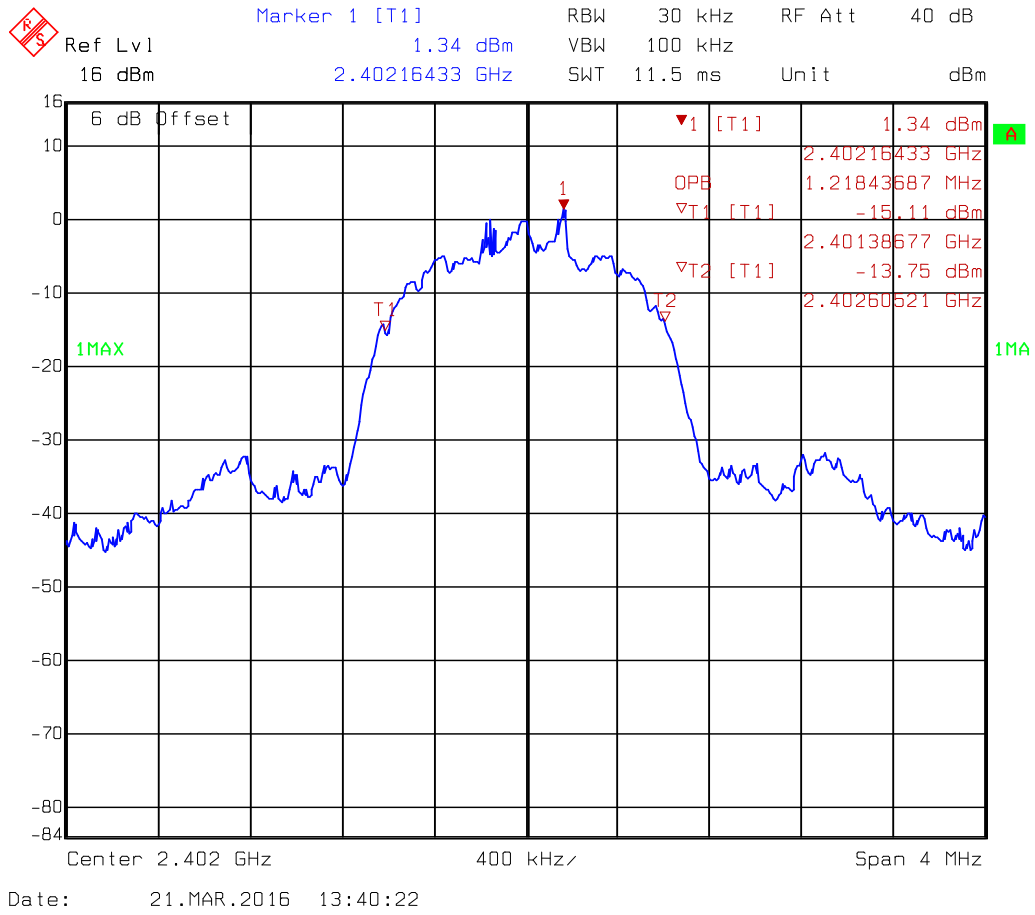
Project Number:	G0M-1601-5313
Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom / Vnom
Mode:	BT; 2DH5; CH.78; 2480 MHz
Test Date:	2016-03-21
Verdict:	NONE (INFORMATION ONLY)



Occupied Bandwidth – 3-DH5-Sngl F_{LOW}

Occupied Channel Bandwidth

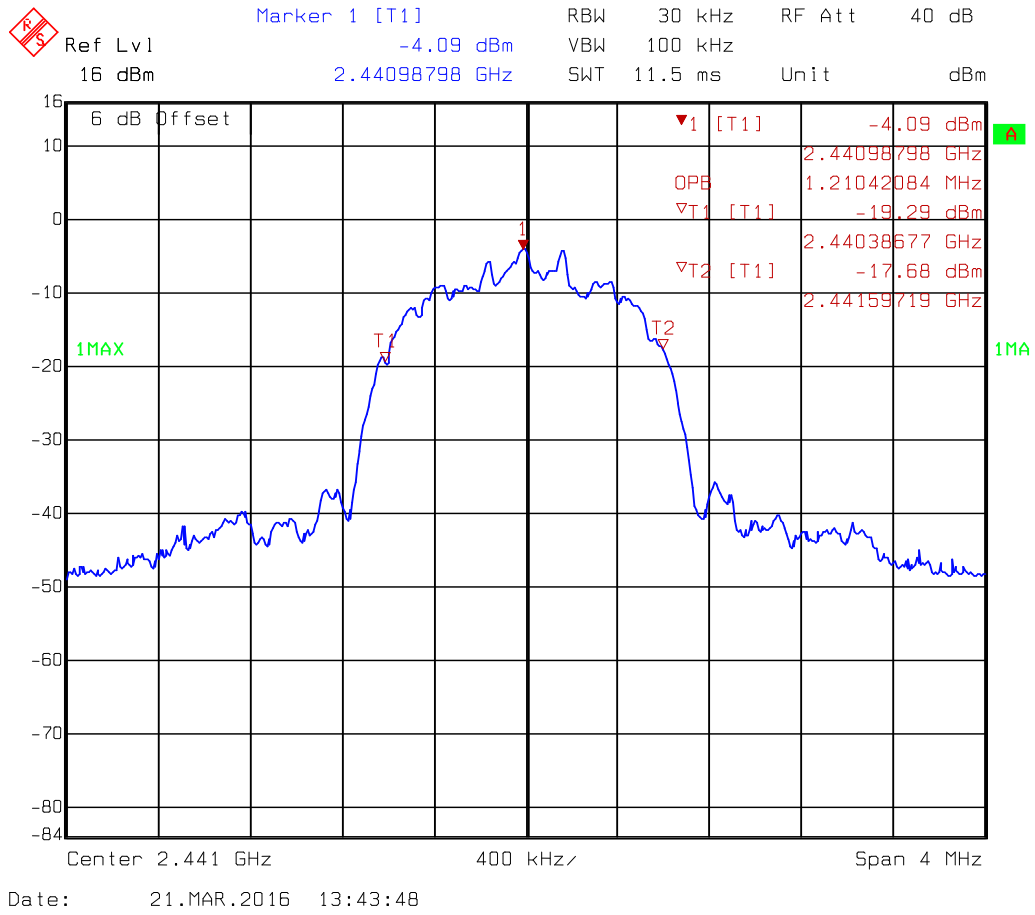
Project Number:	G0M-1601-5313
Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom / Vnom
Mode:	BT; 3DH5; CH.0; 2402 MHz
Test Date:	2016-03-21
Verdict:	NONE (INFORMATION ONLY)



Occupied Bandwidth – 3-DH5-Sngl F_{MID}

Occupied Channel Bandwidth

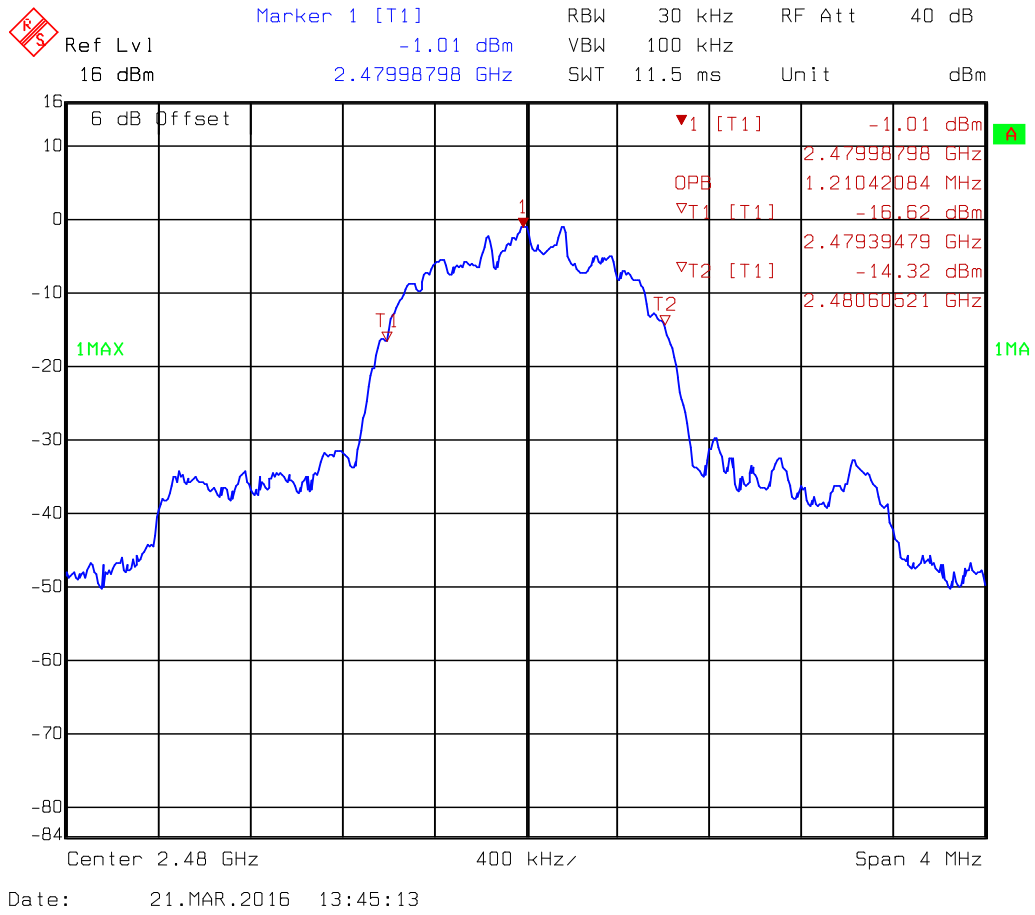
Project Number:	G0M-1601-5313
Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom / Vnom
Mode:	BT; 3DH5; CH.39; 2441 MHz
Test Date:	2016-03-21
Verdict:	NONE (INFORMATION ONLY)



Occupied Bandwidth – 3-DH5-Sngl F_{HIGH}

Occupied Channel Bandwidth

Project Number:	G0M-1601-5313
Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom / Vnom
Mode:	BT; 3DH5; CH.78; 2480 MHz
Test Date:	2016-03-21
Verdict:	NONE (INFORMATION ONLY)



3.2 Test Conditions and Results – AC power line conducted emissions

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

Conducted Emissions

EMI voltage test in the ac-mains according to FCC 47 CFR 15.107 / ICES-003

Project number:	G0M-1601-5313
Applicant:	Leica Geosystems
EUT Name:	LR-BT Class1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Meili
Test Conditions:	Tnom: 22°C, Unom: 5VDC USB
LISN:	Schwarzbeck NSLK 8128 (N)
Mode:	Connected, measuring, charging
Test Date:	2016-03-21
Note:	

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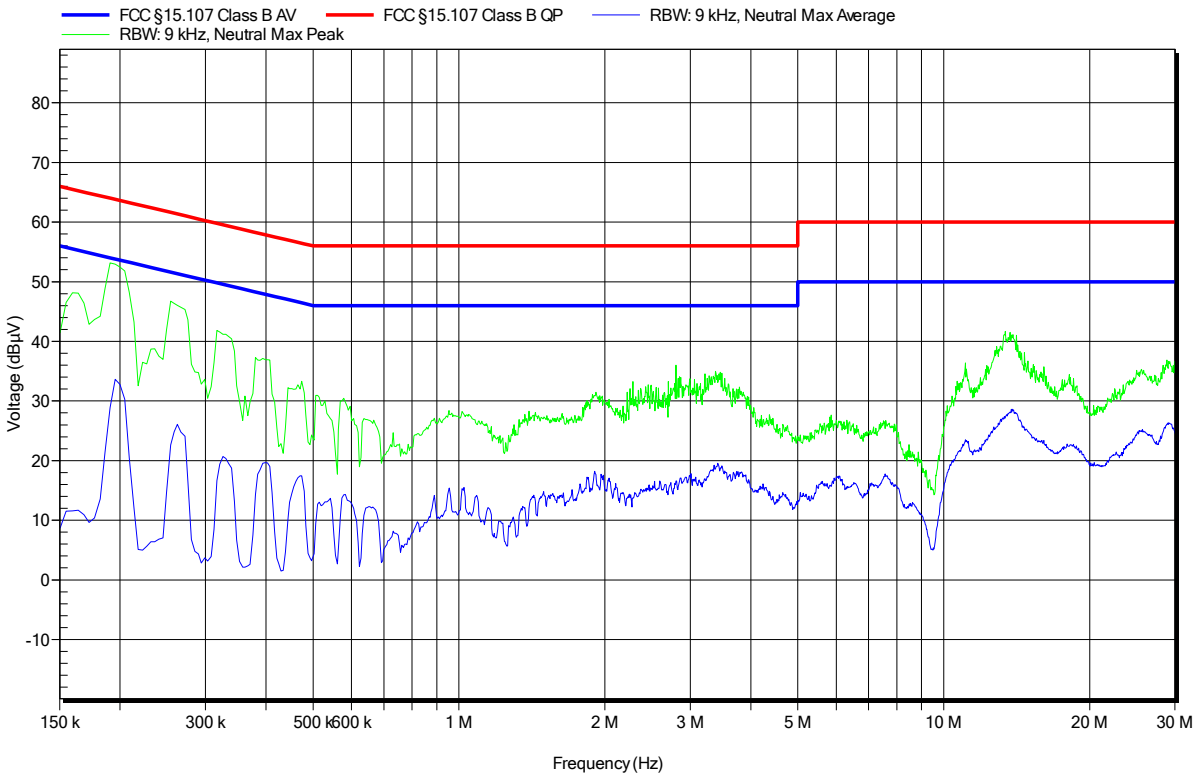

Conducted Emissions

EMI voltage test in the ac-mains according to FCC 47 CFR 15.107 / ICES-003

Project number:	G0M-1601-5313
Applicant:	Leica Geosystems
EUT Name:	LR-BT Class1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Meili
Test Conditions:	Tnom: 22°C, Unom: 5VDC USB
LISN:	Schwarzbeck NSLK 8128 (L)
Mode:	Connected, measuring, charging
Test Date:	2016-03-21
Note:	

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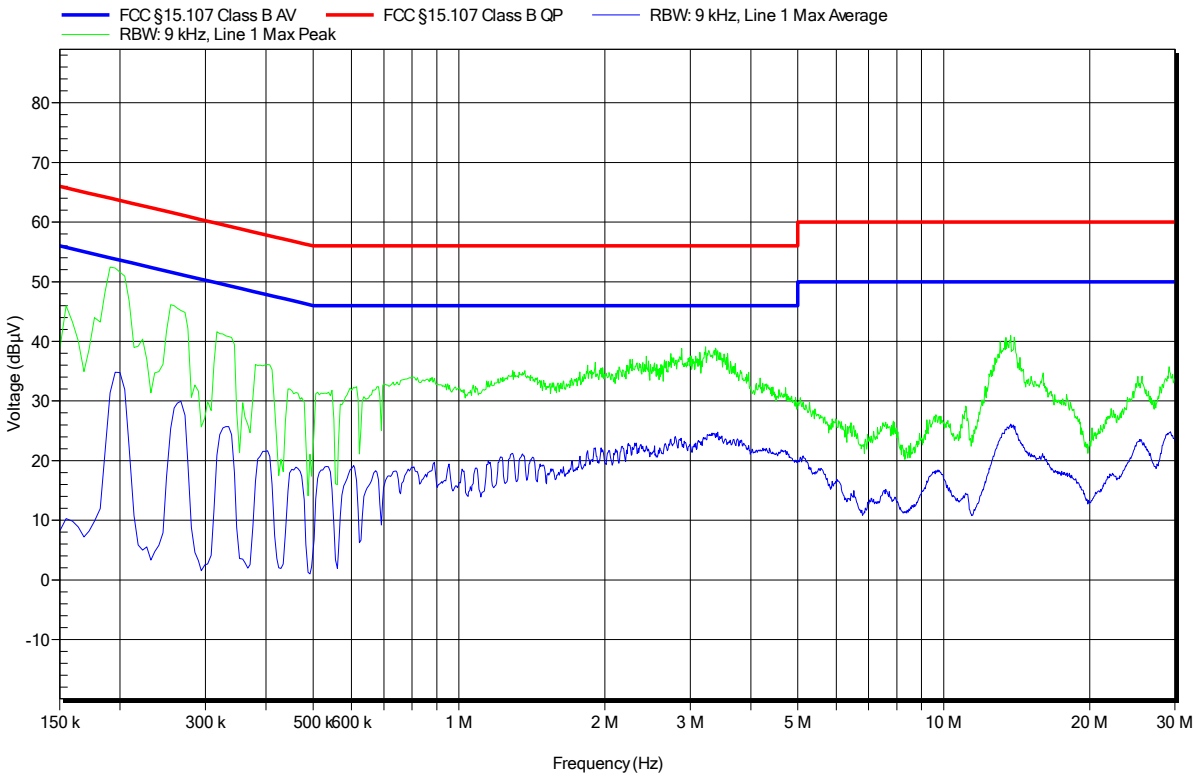
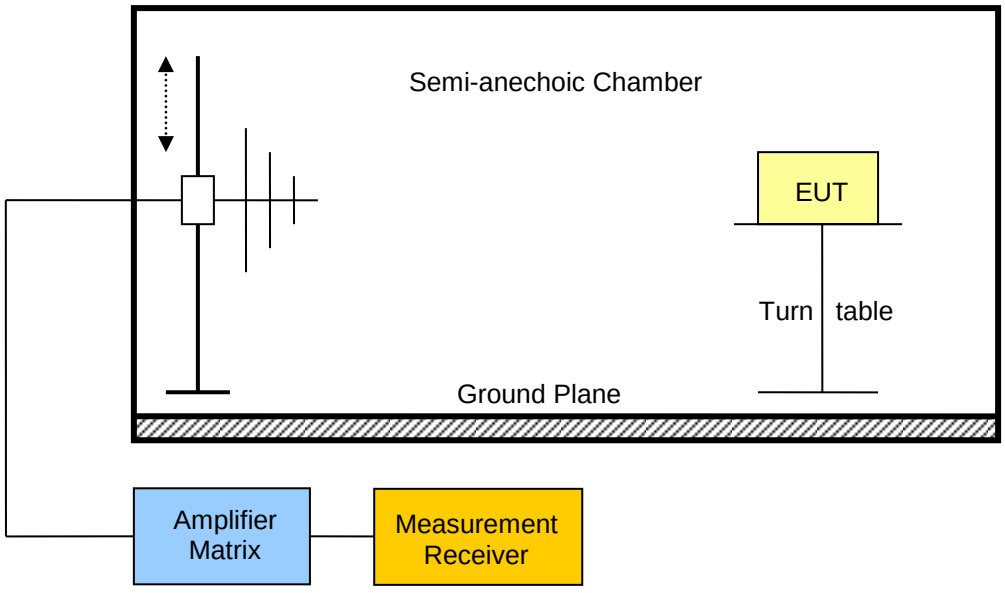


3.3 Test Conditions and Results – Transmitter radiated emissions

Transmitter radiated emissions acc. to FCC 47 CFR 15.247 / IC RSS-247				**Verdict: PASS**
Test according referenced standards		Reference Method		
		FCC 15.247(d) / IC RSS-247 5.5		
Test according to measurement reference		Reference Method		
		ANSI C63.10		
Test frequency range		Tested frequencies		
		30 MHz – 10th Harmonic		
Limits				
Frequency range [MHz]	Detector	Limit [µV/m]	Limit [dBµV/m]	Limit Distance [m]
30 – 88	Quasi-Peak	100	40	3
88 – 216	Quasi-Peak	150	43.5	3
216 – 960	Quasi-Peak	200	46	3
960 – 1000	Quasi-Peak	500	54	3
> 1000	Average	500	54	3
Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)). When average radiated emission measurements are specified, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test.				
Test setup				



Test procedure
1. EUT set to test mode (Communication tester is used if needed) 2. Span it set according to measurement range 3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1 MHz with peak/average detector is used above 1 GHz 4. Markers are set to peak emission levels within restricted bands

Test results – Internal Antenna

Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dbµV/m]	Det.	Pol.	Limit [dbµV/m]	Limit dist. [m]*	Margin [dB]
F_{LOW}	2402	DH5-Sngl	2369	56.24	pk	hor	74.00	3	-17.76
F_{LOW}	2402	DH5-Sngl	2369	56.24	pk	hor	74.00	3	-17.76
F_{LOW}	2402	DH5-Sngl	2369	36.83	RMS	hor	54.00	3	-17.17
F_{LOW}	2402	DH5-Sngl	2377	55.31	pk	hor	74.00	3	-18.69
F_{LOW}	2402	DH5-Sngl	2377	36.89	RMS	hor	54.00	3	-17.11
F_{LOW}	2402	DH5-Sngl	2385	54.27	pk	hor	74.00	3	-19.73
F_{LOW}	2402	DH5-Sngl	2385	36.96	RMS	hor	54.00	3	-17.04
F_{LOW}	2402	DH5-Sngl	4800	46.67	pk	ver	74.00	3	-27.33
F_{LOW}	2402	DH5-Sngl	4804	56.33	pk	hor	74.00	3	-17.67
F_{LOW}	2402	DH5-Sngl	4804	53.88	avg	hor	54.00	3	-00.12
F_{LOW}	2402	DH5-Sngl	9608	54.62	pk	hor	95.00	3	-40.38
F_{LOW}	2402	DH5-Sngl	9608	53.43	pk	ver	95.00	3	-41.57
F_{LOW}	2402	DH5-Sngl	12000	48.45	pk	hor	74.00	3	-25.55
F_{LOW}	2402	DH5-Sngl	12000	49.44	pk	ver	74.00	3	-24.56
F_{LOW}	2402	DH5-Sngl	14412	51.87	pk	hor	95.00	3	-43.13
F_{LOW}	2402	DH5-Sngl	14412	48.89	pk	ver	95.00	3	-46.11
F_{LOW}	2402	DH5-Sngl	16812	51.38	pk	hor	95.00	3	-43.62
F_{LOW}	2402	DH5-Sngl	16812	53.48	pk	ver	95.00	3	-41.52
F_{LOW}	2402	DH5-Sngl	21604	40.40	pk	hor	95.00	3	-54.60
F_{MID}	2440	DH5-Sngl	2313.2	50.49	pk	hor	74.00	3	-23.51
F_{MID}	2440	DH5-Sngl	2313.2	41.65	pk	ver	74.00	3	-32.35
F_{MID}	2440	DH5-Sngl	2366.4	52.80	pk	hor	74.00	3	-21.20
F_{MID}	2440	DH5-Sngl	2366.4	48.58	pk	ver	74.00	3	-25.42
F_{MID}	2440	DH5-Sngl	2388.8	42.68	pk	ver	74.00	3	-31.32
F_{MID}	2440	DH5-Sngl	4880	56.06	pk	hor	74.00	3	-17.94
F_{MID}	2440	DH5-Sngl	4880	53.88	avg	hor	54.00	3	-00.12
F_{MID}	2440	DH5-Sngl	4880	46.15	pk	ver	74.00	3	-27.85
F_{MID}	2440	DH5-Sngl	9752	53.96	pk	hor	95.00	3	-41.04
F_{MID}	2440	DH5-Sngl	9752	50.20	pk	ver	95.00	3	-44.80

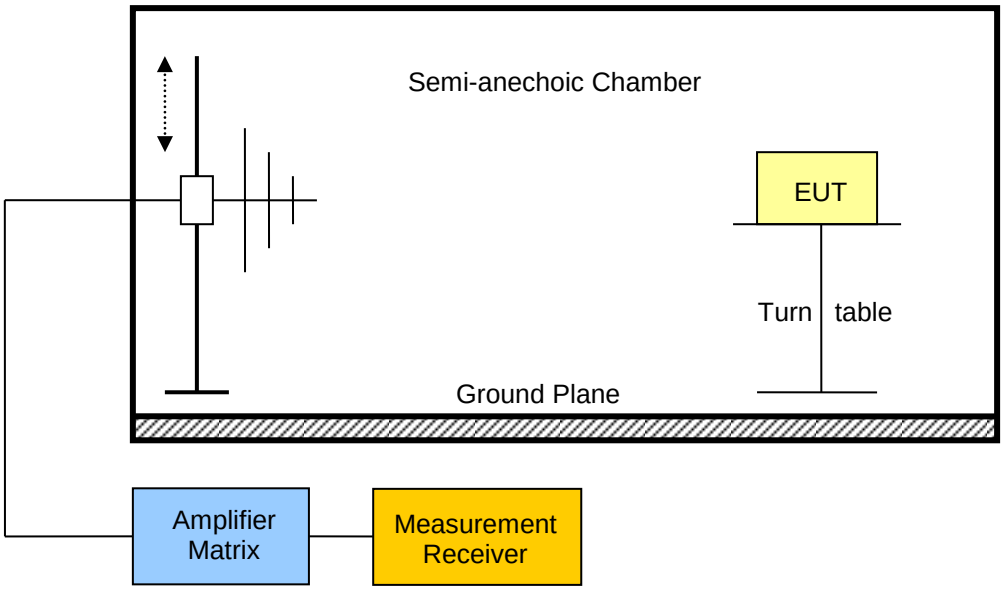
F_{MID}	2440	DH5-Sngl	12192	45.26	pk	ver	74.00	3	-28.74
F_{MID}	2440	DH5-Sngl	14628	49.32	pk	ver	95.00	3	-45.68
F_{MID}	2440	DH5-Sngl	14640	48.92	pk	hor	95.00	3	-46.08
F_{MID}	2440	DH5-Sngl	17076	49.21	pk	hor	95.00	3	-45.79
F_{MID}	2440	DH5-Sngl	17076	53.52	pk	ver	95.00	3	-41.48
F_{HIGH}	2480	DH5-Sngl	2366	51.26	pk	hor	74.00	3	-22.74
F_{HIGH}	2480	DH5-Sngl	2503	52.76	pk	hor	95.00	3	-42.24
F_{HIGH}	2480	DH5-Sngl	4960	54.81	pk	hor	74.00	3	-19.19
F_{HIGH}	2480	DH5-Sngl	4960	52.71	avg	hor	54.00	3	-01.29
F_{HIGH}	2480	DH5-Sngl	4960	44.97	pk	ver	74.00	3	-29.03
F_{HIGH}	2480	DH5-Sngl	9912	46.93	pk	hor	95.00	3	-48.07
F_{HIGH}	2480	DH5-Sngl	14868	52.57	pk	ver	95.00	3	-42.43
F_{HIGH}	2480	DH5-Sngl	14880	50.73	pk	hor	95.00	3	-44.27
F_{HIGH}	2480	DH5-Sngl	16524	47.34	pk	ver	95.00	3	-47.66
F_{HIGH}	2480	DH5-Sngl	17352	48.17	pk	hor	95.00	3	-46.83
F_{HIGH}	2480	DH5-Sngl	17352	50.65	pk	ver	95.00	3	-44.35
F_{HIGH}	2480	DH5-Sngl	19836	41.50	pk	hor	74.00	3	-32.50
F_{HIGH}	2480	DH5-Sngl	22318	39.17	pk	hor	74.00	3	-34.83

Comments: * Physical distance between EUT and measurement antenna.

Test mode selection is based on pre-compliance measurement of output power of all operational modes. The operational modes with the highest output power were selected for compliance tests.

3.4 Test Conditions and Results – Receiver radiated emissions

Receiver radiated emissions acc. to IC RSS-247				**Verdict: PASS**
Test according referenced standards	Reference Method			
	IC RSS-247 3.1			
Test according to measurement reference	Reference Method			
	ANSI C63.10			
Test frequency range	Tested frequencies			
	30 MHz – 5th Harmonic			
EUT test mode	Receive			
Limits				
Frequency range [MHz]	Detector	Limit [µV/m]	Limit [dBµV/m]	Limit Distance [m]
30 – 88	Quasi-Peak	100	40	3
88 – 216	Quasi-Peak	150	43.5	3
216 – 960	Quasi-Peak	200	46	3
960 – 1000	Quasi-Peak	500	54	3
> 1000	Average	500	54	3
Test setup				



Test procedure
1. EUT set to receive mode (Communication tester is used if needed) 2. Span it set according to measurement range 3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1 MHz with peak/average detector is used above 1 GHz 4. Markers are set to peak emission levels

Test results

Channel	Frequency [MHz]	Emission [MHz]	Emission Level [dbµV/m]	Polarisation	Det.	Limit [dbµV/m]	Margin [dbµV/m]
2402 - 2480	Scan Mode	852.8	36.52	ver	pk	46.00	-9.48 dB

Comments:
* Physical distance between EUT and measurement antenna.
** Emission level corresponds to ambient noise floor

ANNEX A Transmitter radiated spurious emissions

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.0; 2402 MHz
Test Date:	2016-03-14
Note:	

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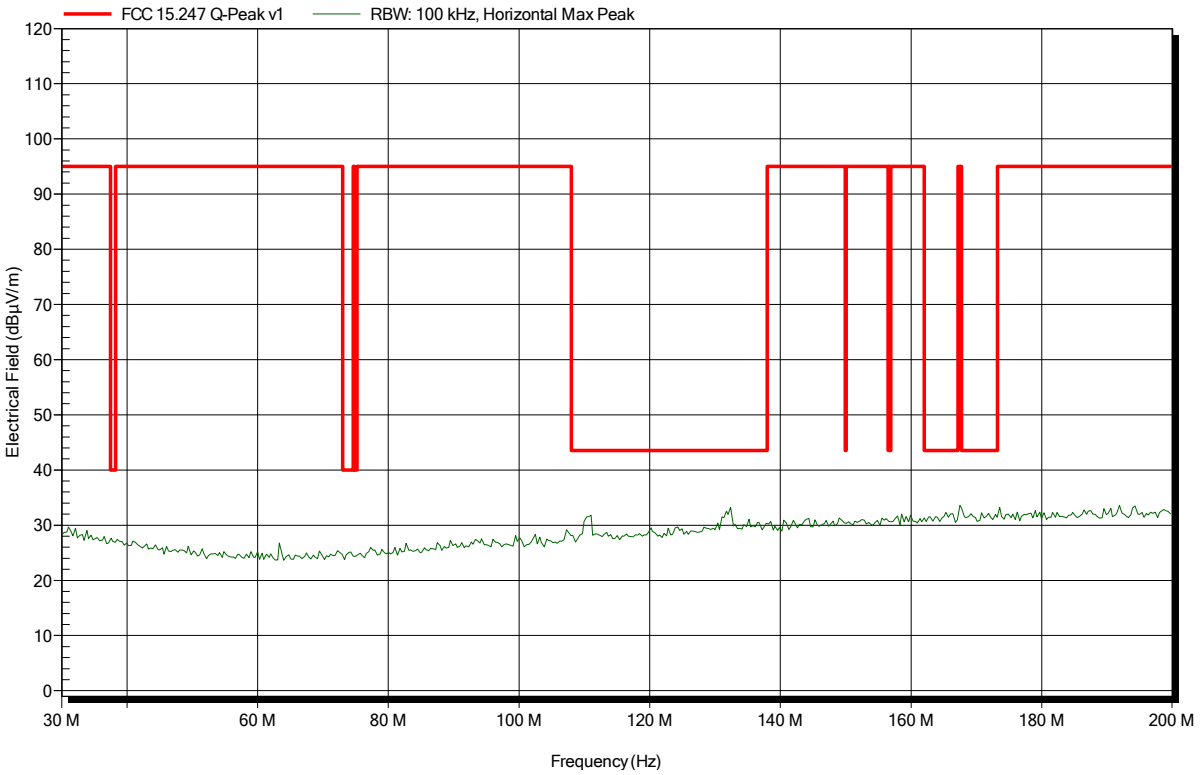

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.0; 2402 MHz
Test Date:	2016-03-14
Note:	

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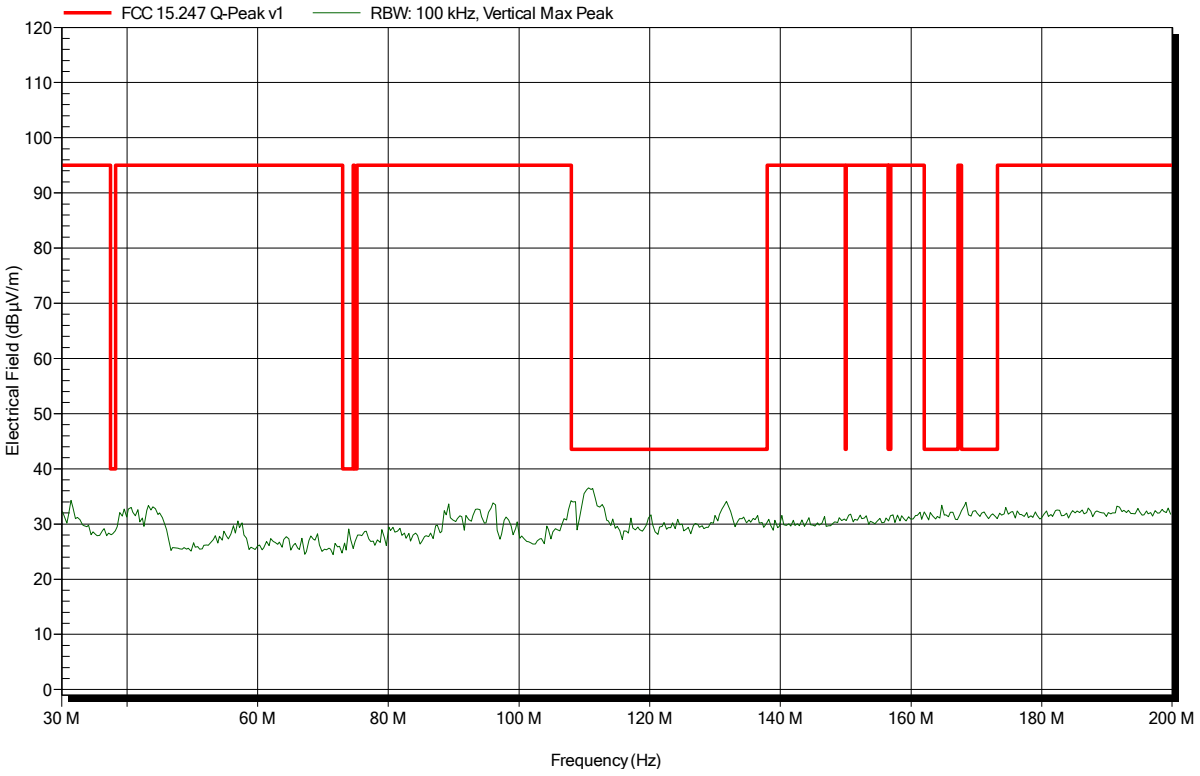

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.0; 2402 MHz
Test Date:	2016-03-14
Note:	

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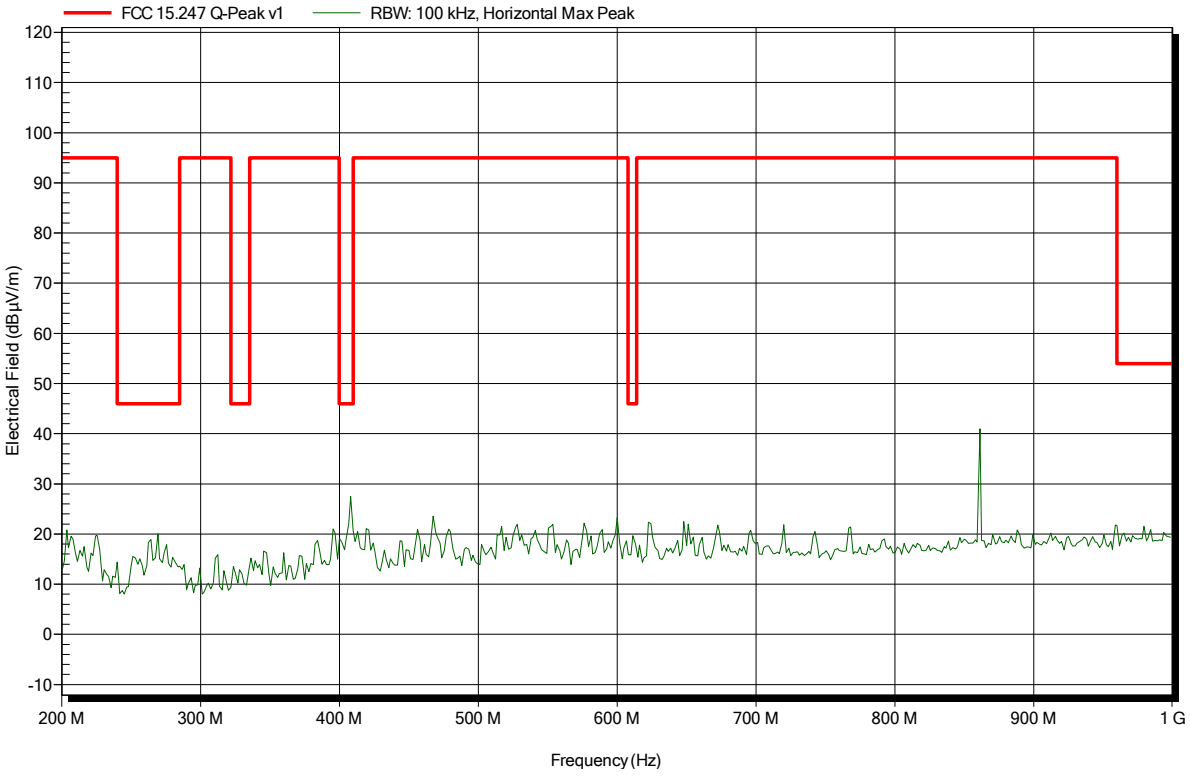

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.0; 2402 MHz
Test Date:	2016-03-14
Note:	

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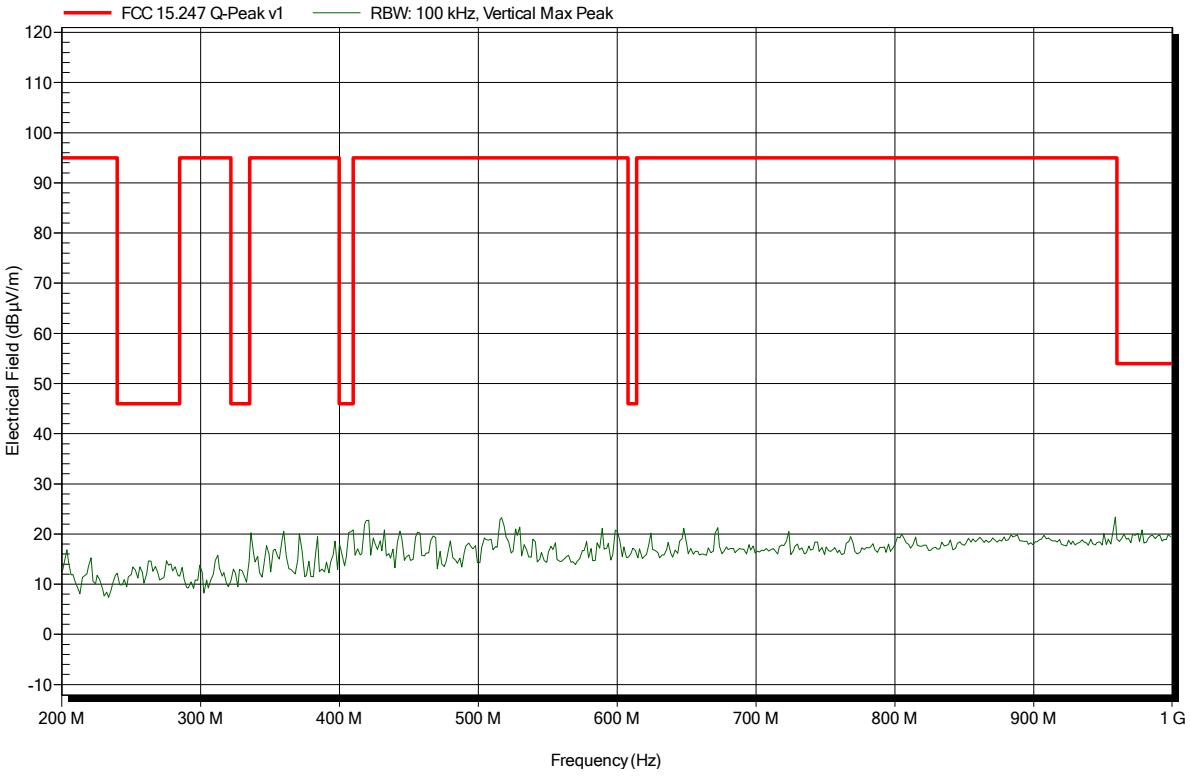

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.0; 2402 MHz
Test Date:	2016-03-14
Note:	

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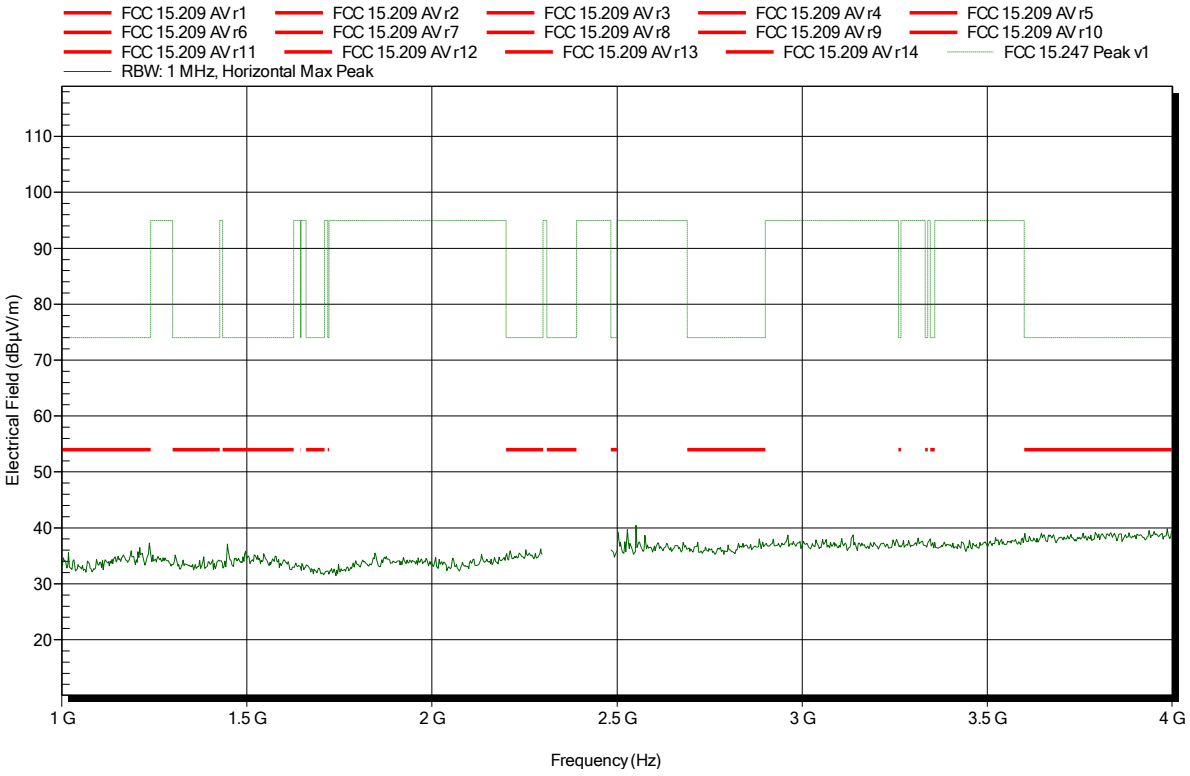

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.0; 2402 MHz
Test Date:	2016-03-14
Note:	

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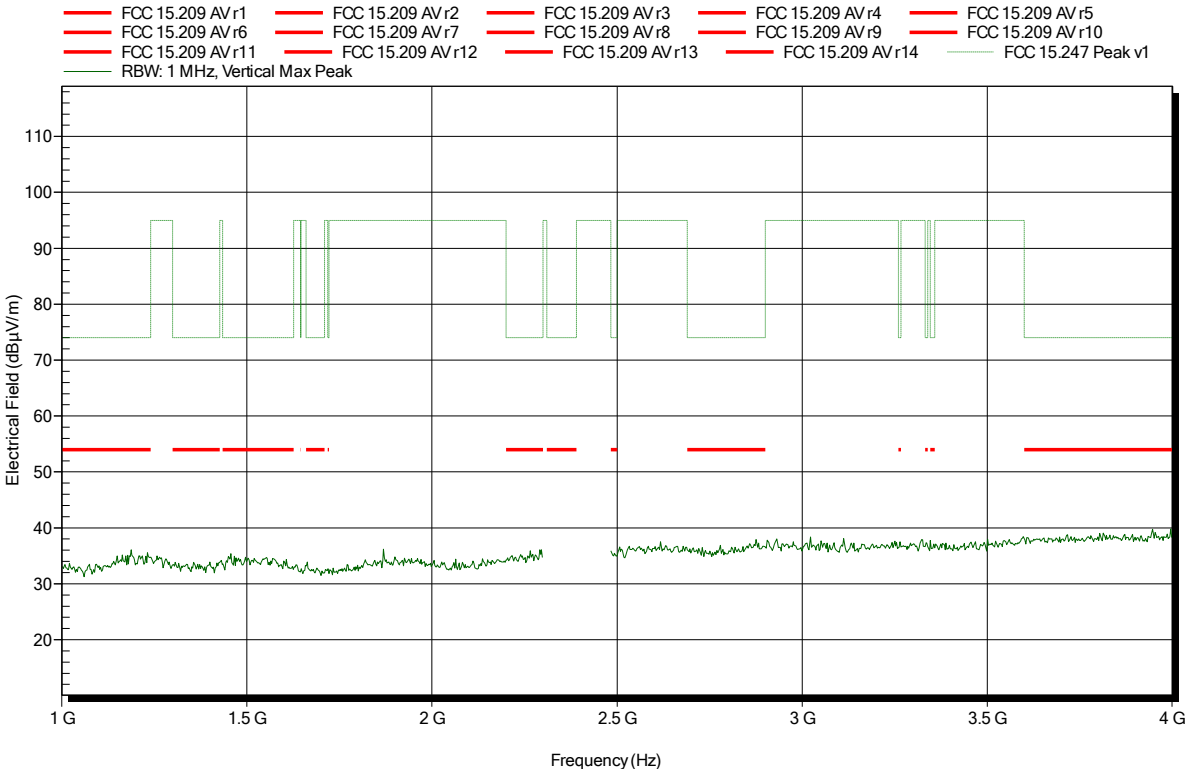

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.0; 2402 MHz
Test Date:	2016-03-14
Note:	lower bandedge

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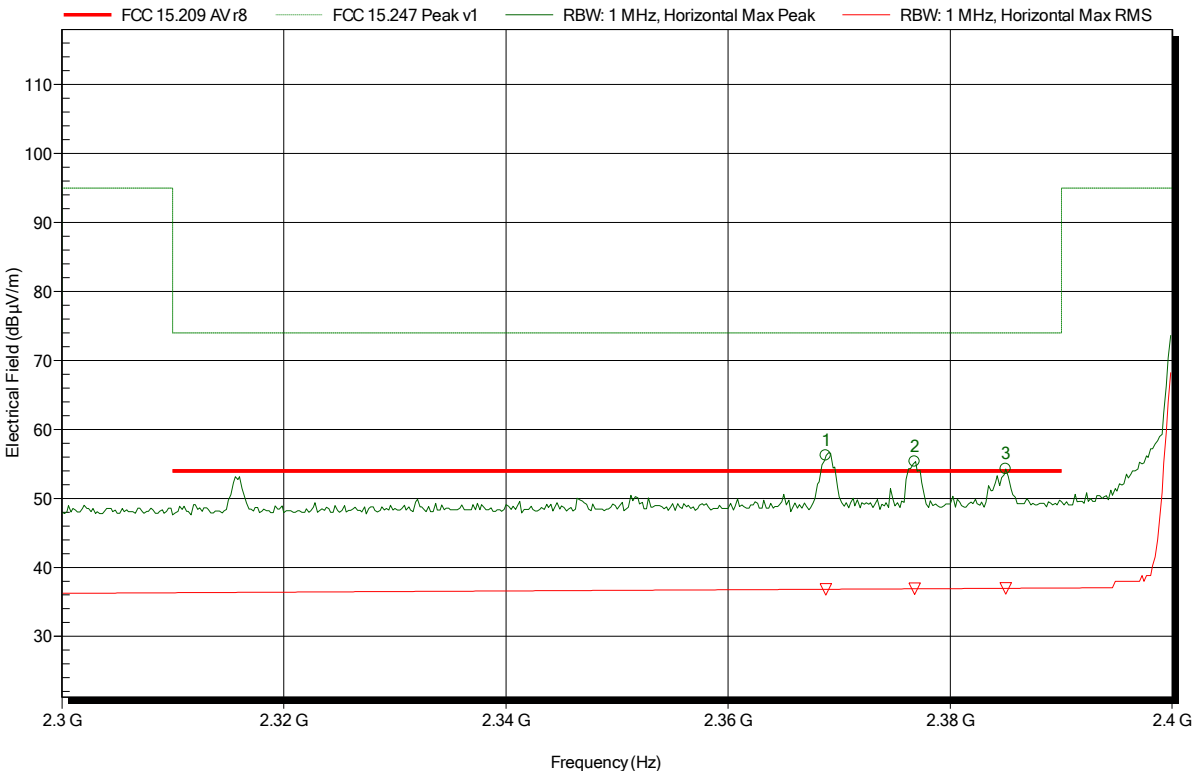

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.369 GHz	56.24 dBµV/m	74 dBµV/m	-17.76 dB	Pass
2.377 GHz	55.31 dBµV/m	74 dBµV/m	-18.69 dB	Pass
2.385 GHz	54.27 dBµV/m	74 dBµV/m	-19.73 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.369 GHz	36.83 dBµV/m	54 dBµV/m	-17.17 dB	Pass
2.377 GHz	36.89 dBµV/m	54 dBµV/m	-17.11 dB	Pass
2.385 GHz	36.96 dBµV/m	54 dBµV/m	-17.04 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.0; 2402 MHz
Test Date:	2016-03-14
Note:	lower bandedge

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Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.0; 2402 MHz
Test Date:	2016-03-14
Note:	

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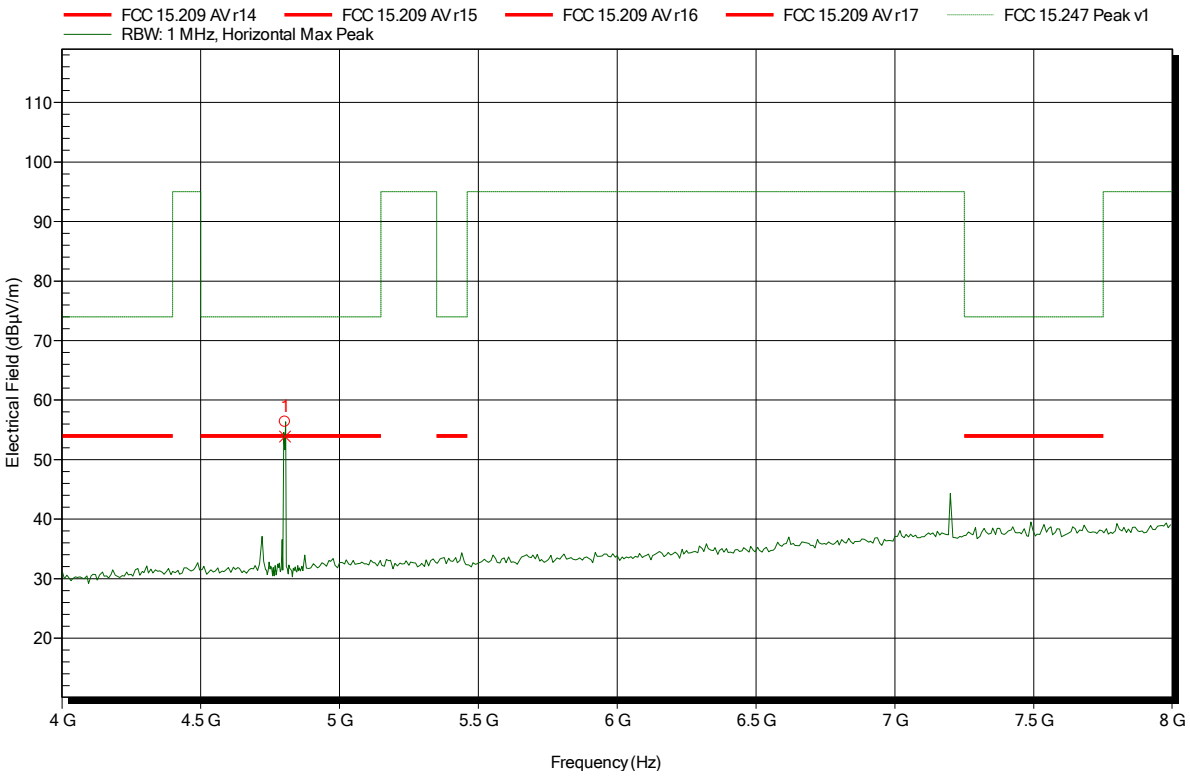

Frequency	Peak	Peak Limit	Peak Difference	Status
4.804 GHz	56.33 dBµV/m	74 dBµV/m	-17.67 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
4.804 GHz	53.88 dBµV/m	54 dBµV/m	-0.12 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.0; 2402 MHz
Test Date:	2016-03-14
Note:	

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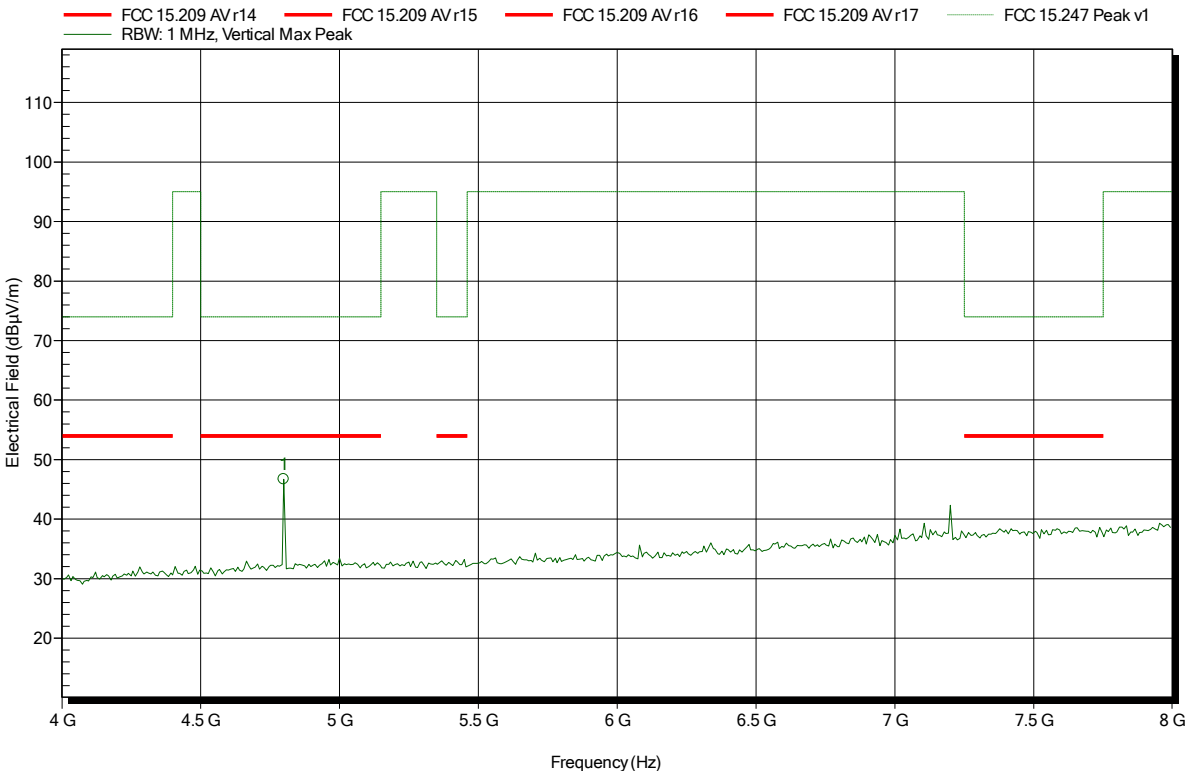

Frequency	Peak	Peak Limit	Peak Difference	Status
4.8 GHz	46.67 dBµV/m	74 dBµV/m	-27.33 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.0; 2402 MHz
Test Date:	2016-03-14
Note:	

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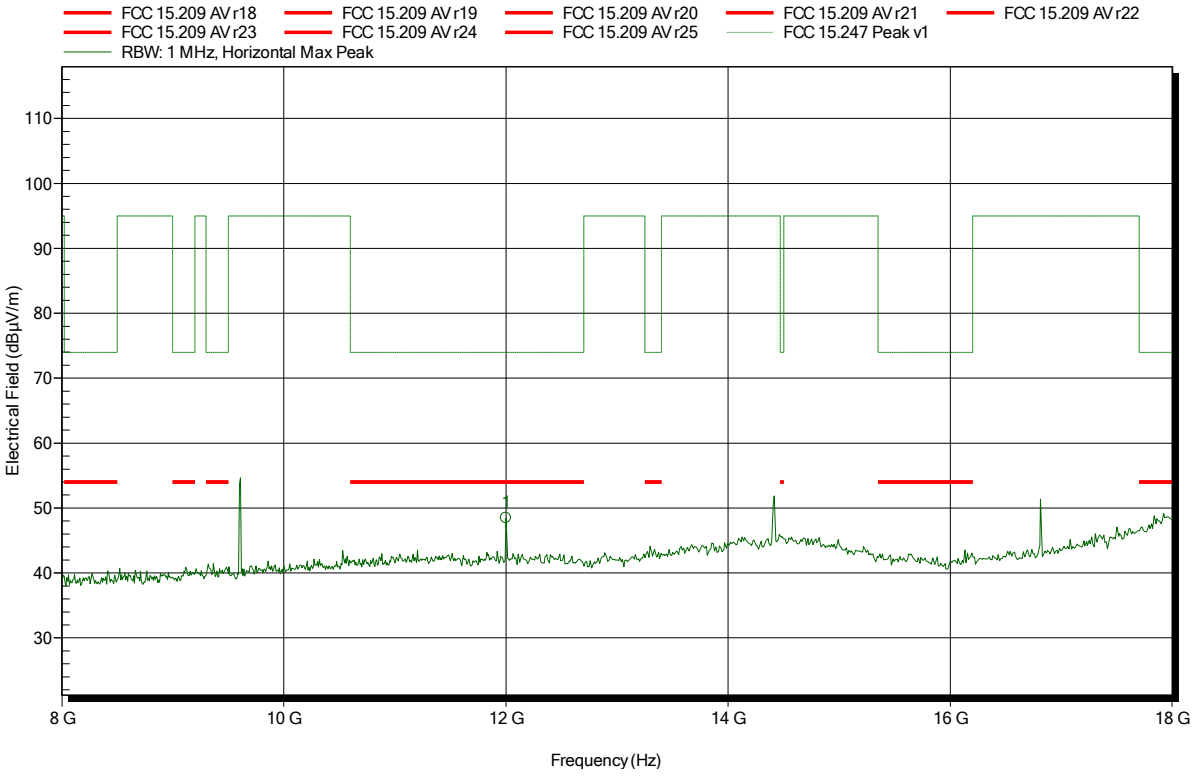

Frequency	Peak	Peak Limit	Peak Difference	Status
12 GHz	48.45 dBµV/m	74 dBµV/m	-25.55 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.0; 2402 MHz
Test Date:	2016-03-14
Note:	

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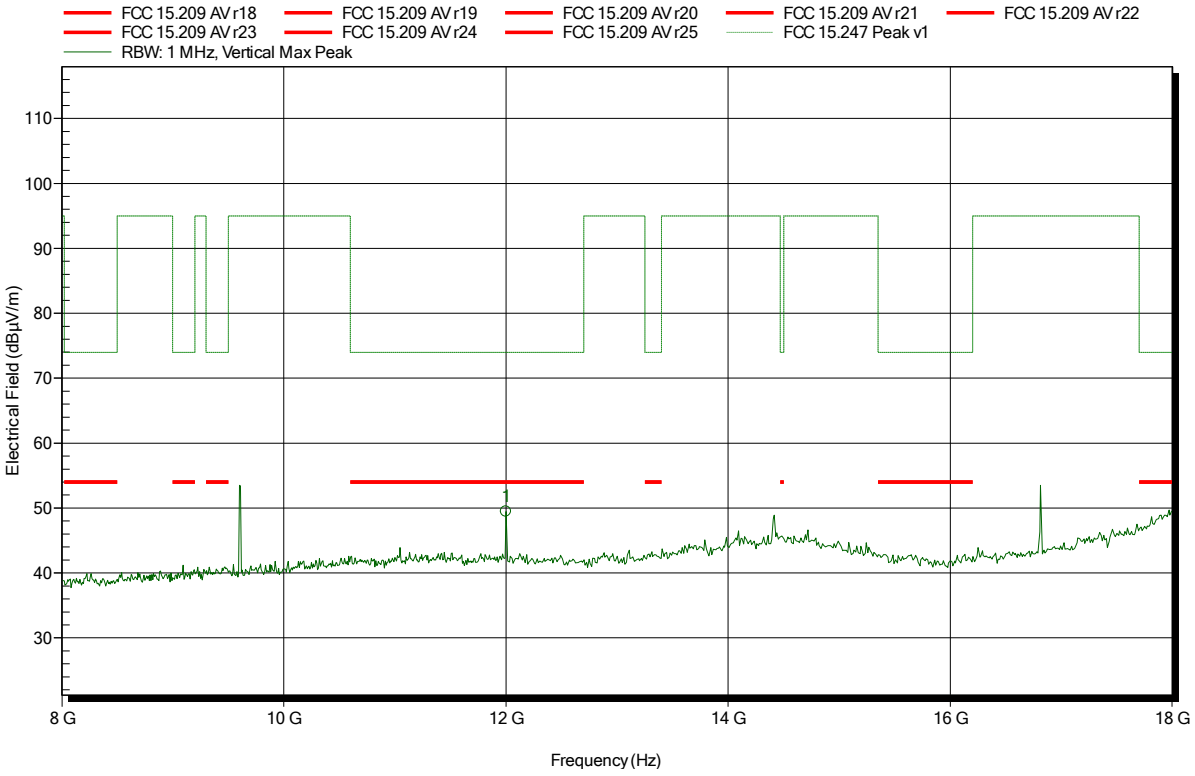

Frequency	Peak	Peak Limit	Peak Difference	Status
12 GHz	49.44 dBµV/m	74 dBµV/m	-24.56 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Configurable Antenna, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.0; 2402 MHz
Test Date:	2016-03-14
Note:	

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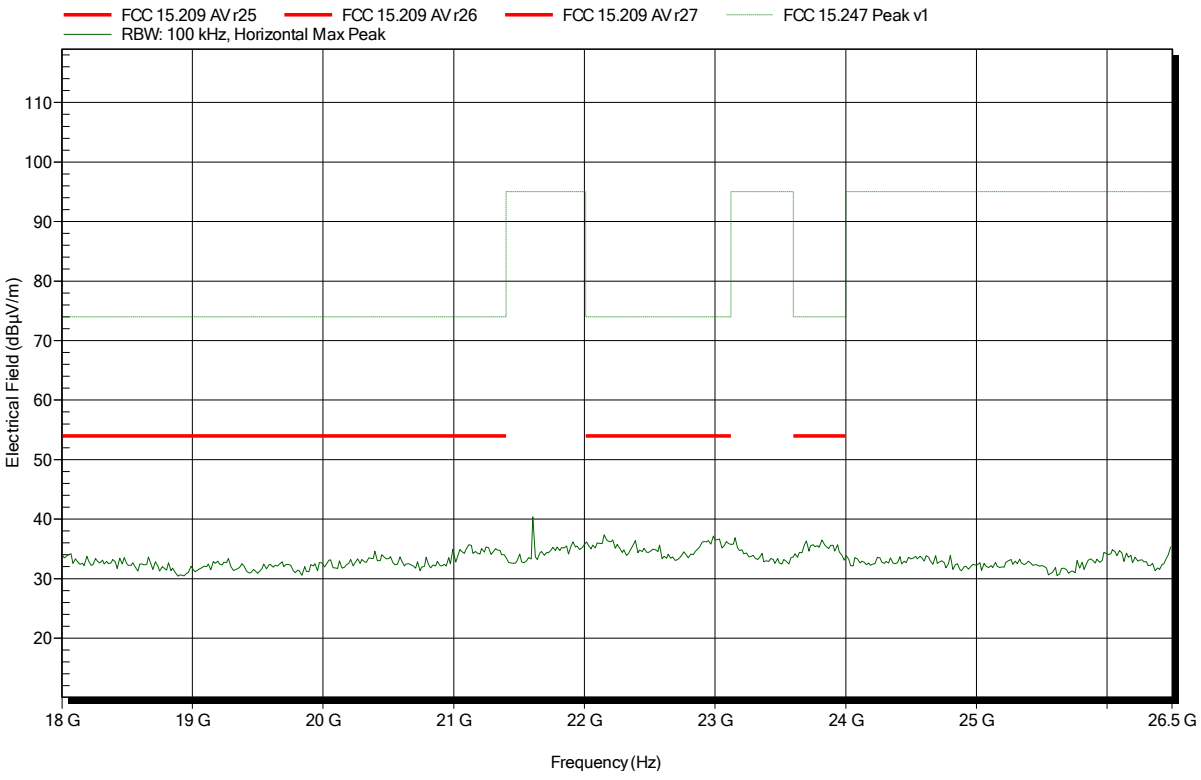

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Configurable Antenna, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.0; 2402 MHz
Test Date:	2016-03-14
Note:	

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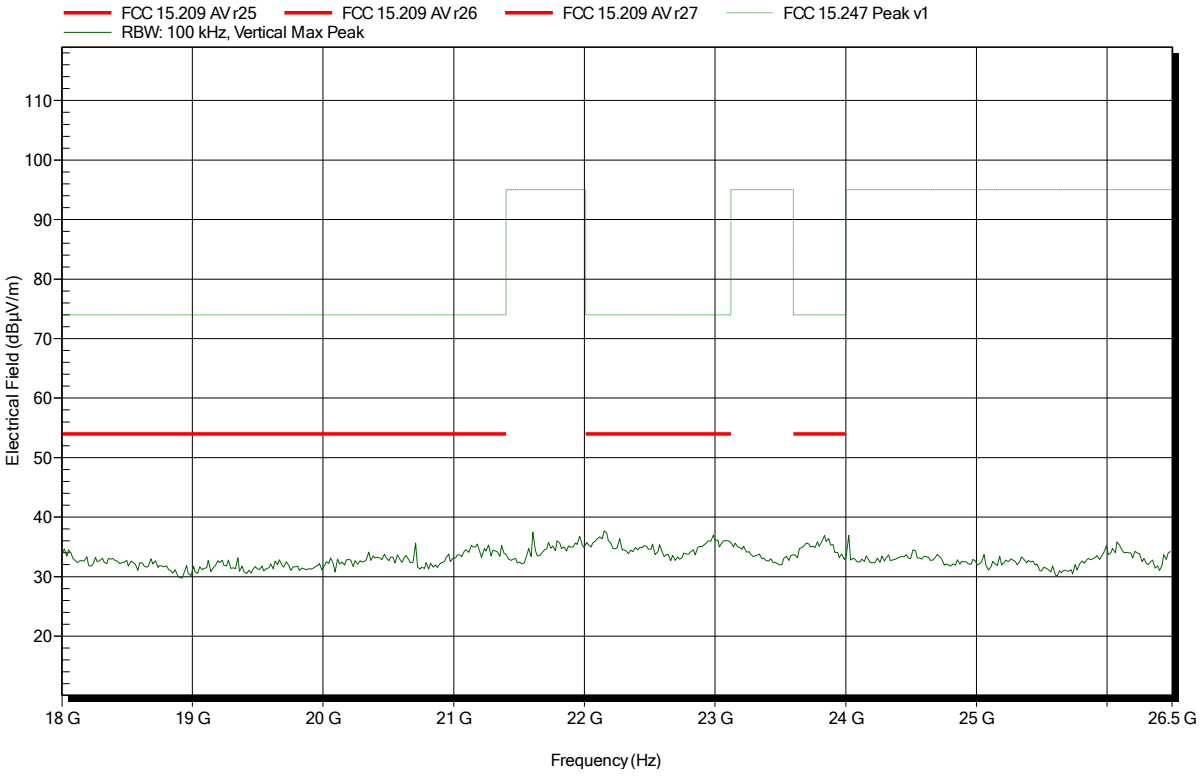

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.38; 2440 MHz
Test Date:	2016-03-14
Note:	

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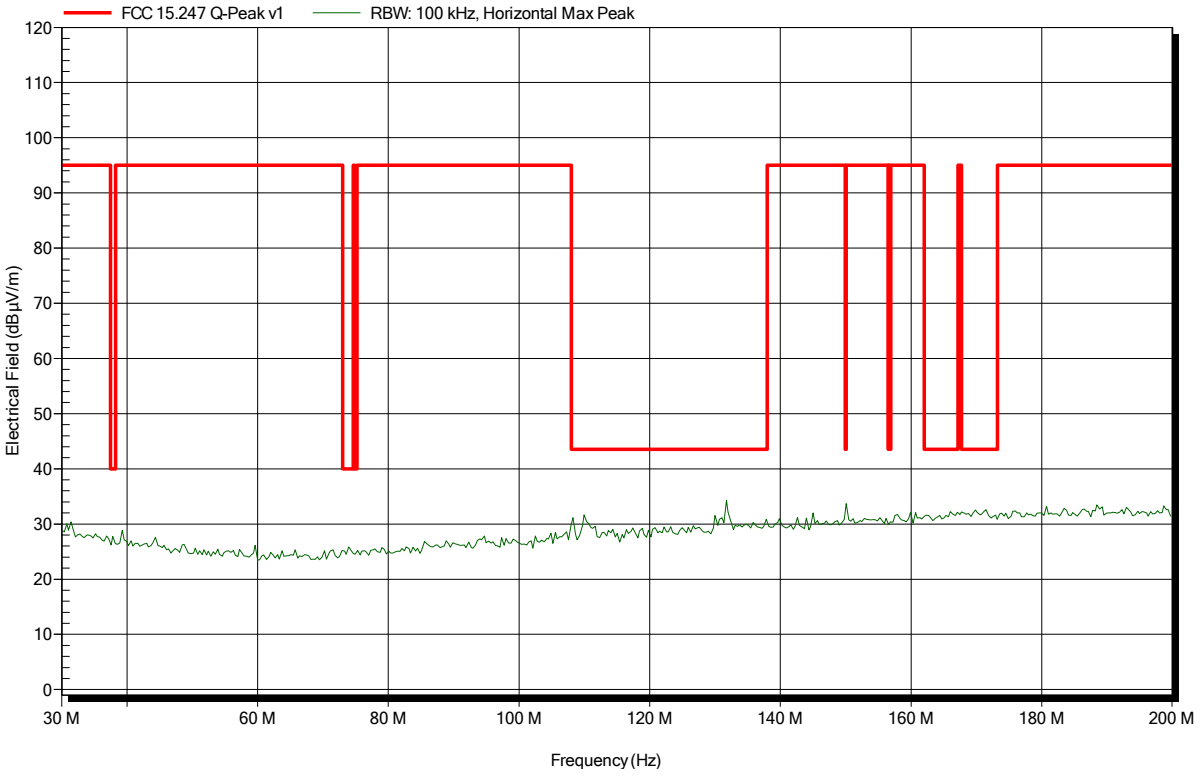

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.38; 2440 MHz
Test Date:	2016-03-14
Note:	

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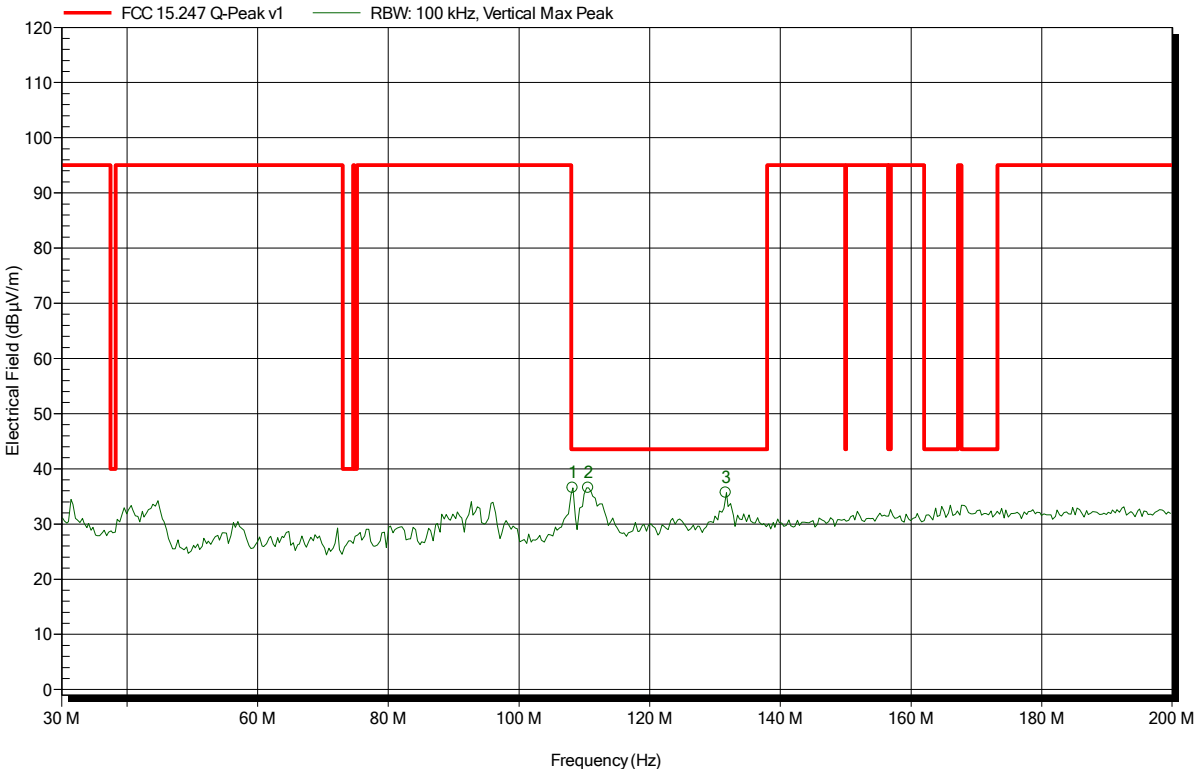

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
108.2 MHz	36.53 dBµV/m	43.52 dBµV/m	-6.99 dB	Pass
110.58 MHz	36.55 dBµV/m	43.52 dBµV/m	-6.97 dB	Pass
131.66 MHz	35.67 dBµV/m	43.52 dBµV/m	-7.85 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.38; 2440 MHz
Test Date:	2016-03-14
Note:	

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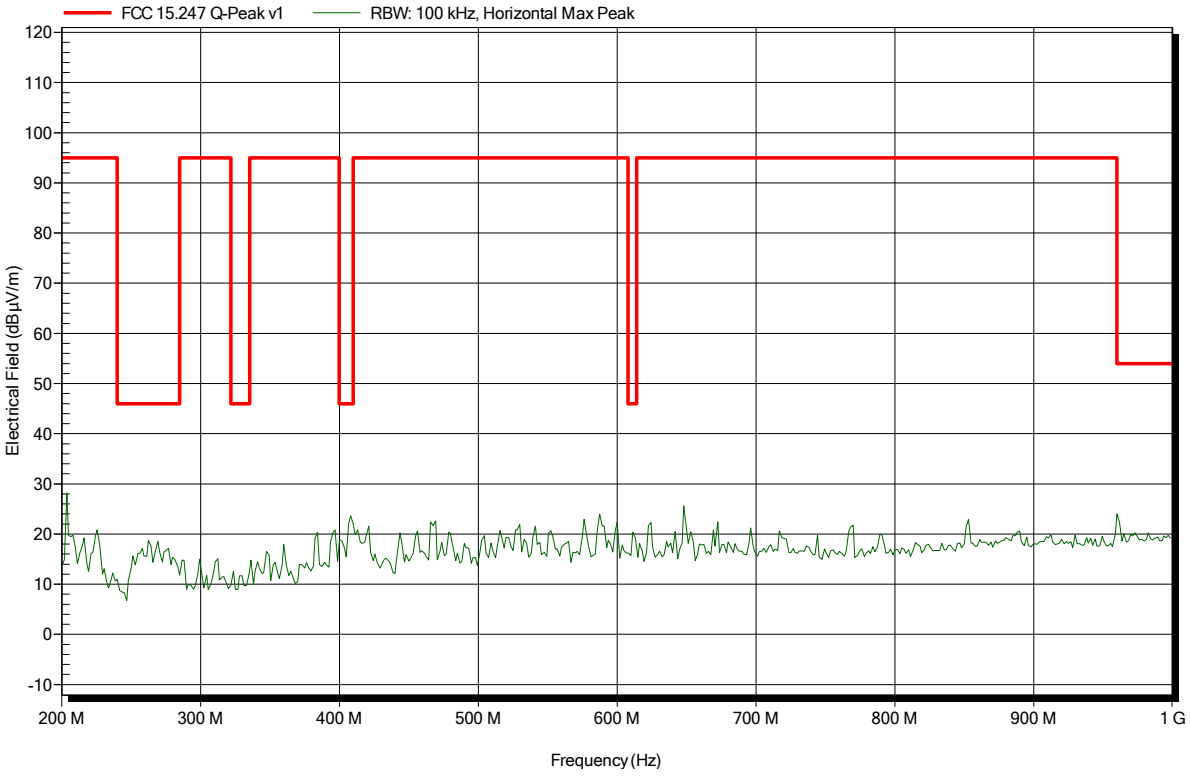

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.38; 2440 MHz
Test Date:	2016-03-14
Note:	

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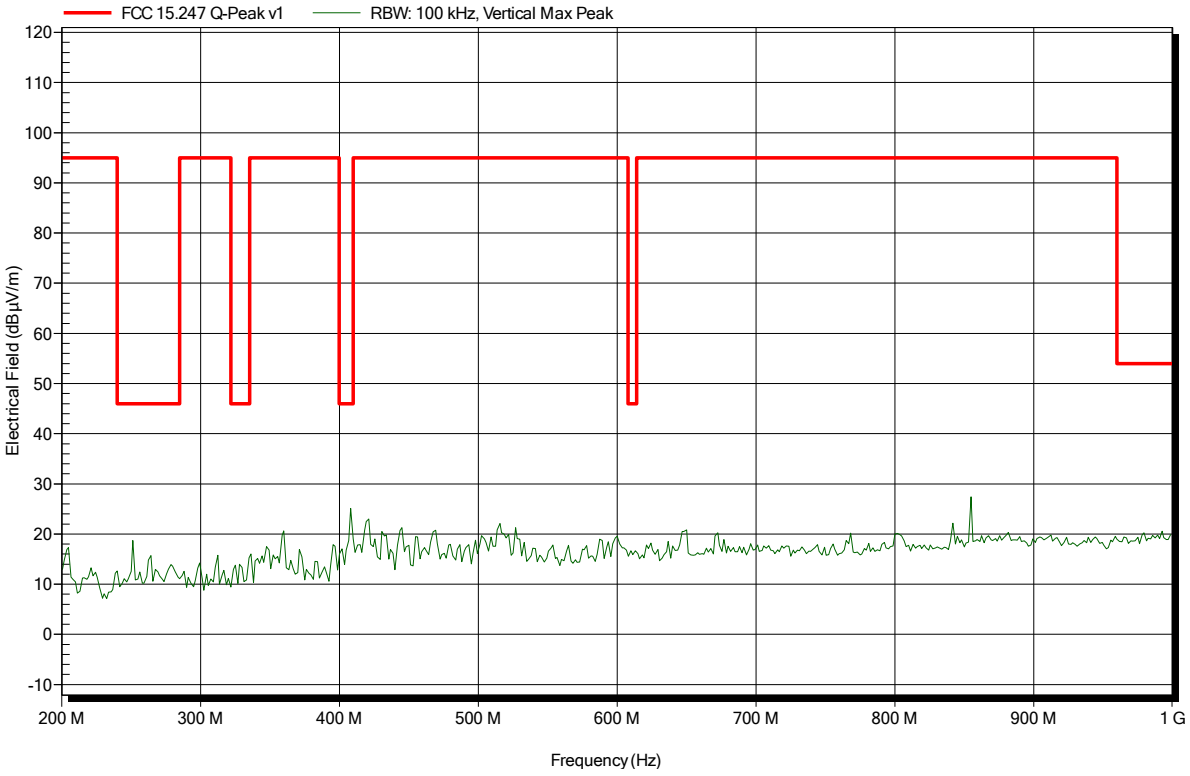

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.38; 2440 MHz
Test Date:	2016-03-14
Note:	

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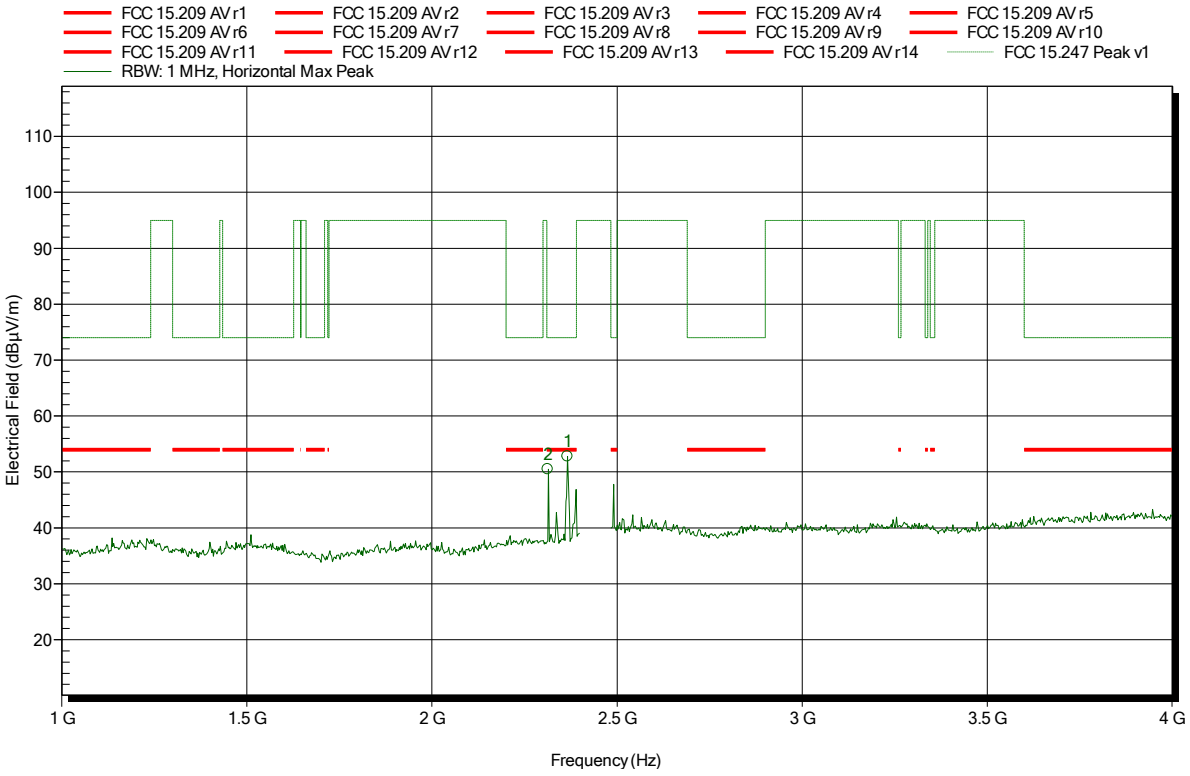

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.3132 GHz	50.49 dBµV/m	74 dBµV/m	-23.51 dB	Pass
2.3664 GHz	52.8 dBµV/m	74 dBµV/m	-21.2 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.38; 2440 MHz
Test Date:	2016-03-14
Note:	

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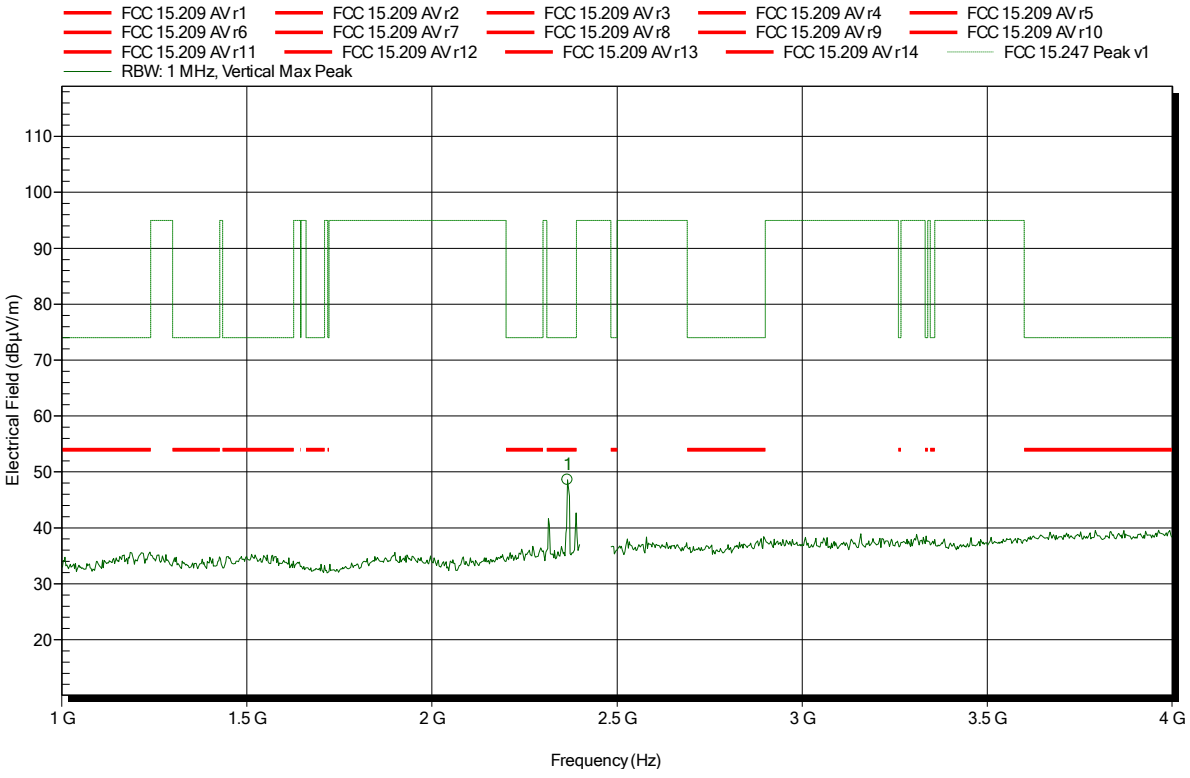

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.3664 GHz	48.58 dBµV/m	74 dBµV/m	-25.42 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.38; 2440 MHz
Test Date:	2016-03-14
Note:	

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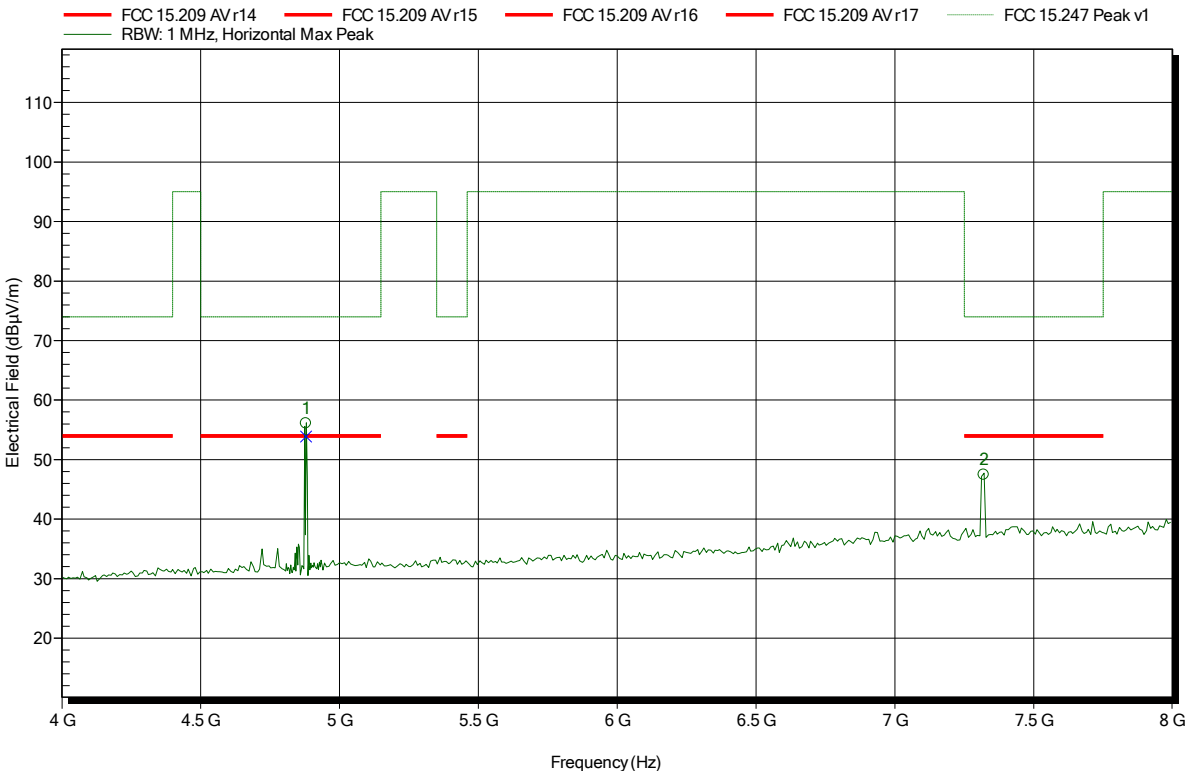

Frequency	Peak	Peak Limit	Peak Difference	Status
4.88 GHz	56.06 dBµV/m	74 dBµV/m	-17.94 dB	Pass
7.32 GHz	47.46 dBµV/m	74 dBµV/m	-26.54 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
4.88 GHz	53.88 dBµV/m	54 dBµV/m	-0.12 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.38; 2440 MHz
Test Date:	2016-03-14
Note:	

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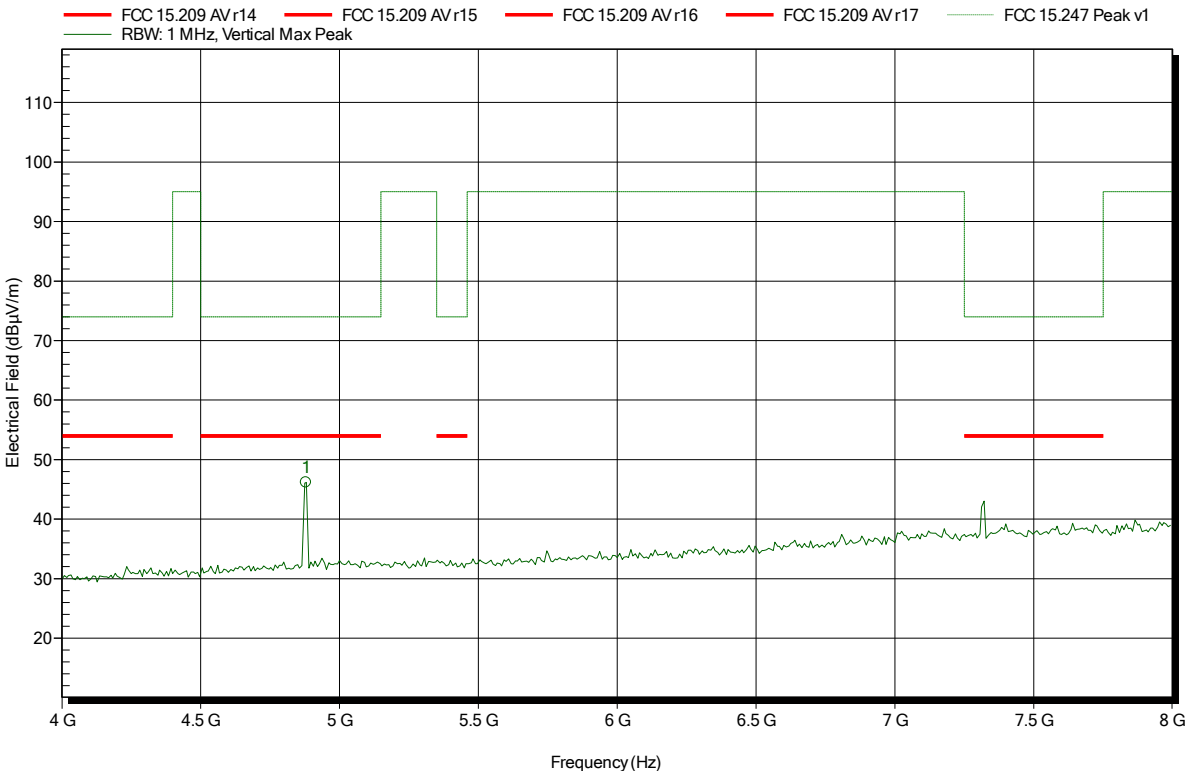

Frequency	Peak	Peak Limit	Peak Difference	Status
4.88 GHz	46.15 dBµV/m	74 dBµV/m	-27.85 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.38; 2440 MHz
Test Date:	2016-03-14
Note:	

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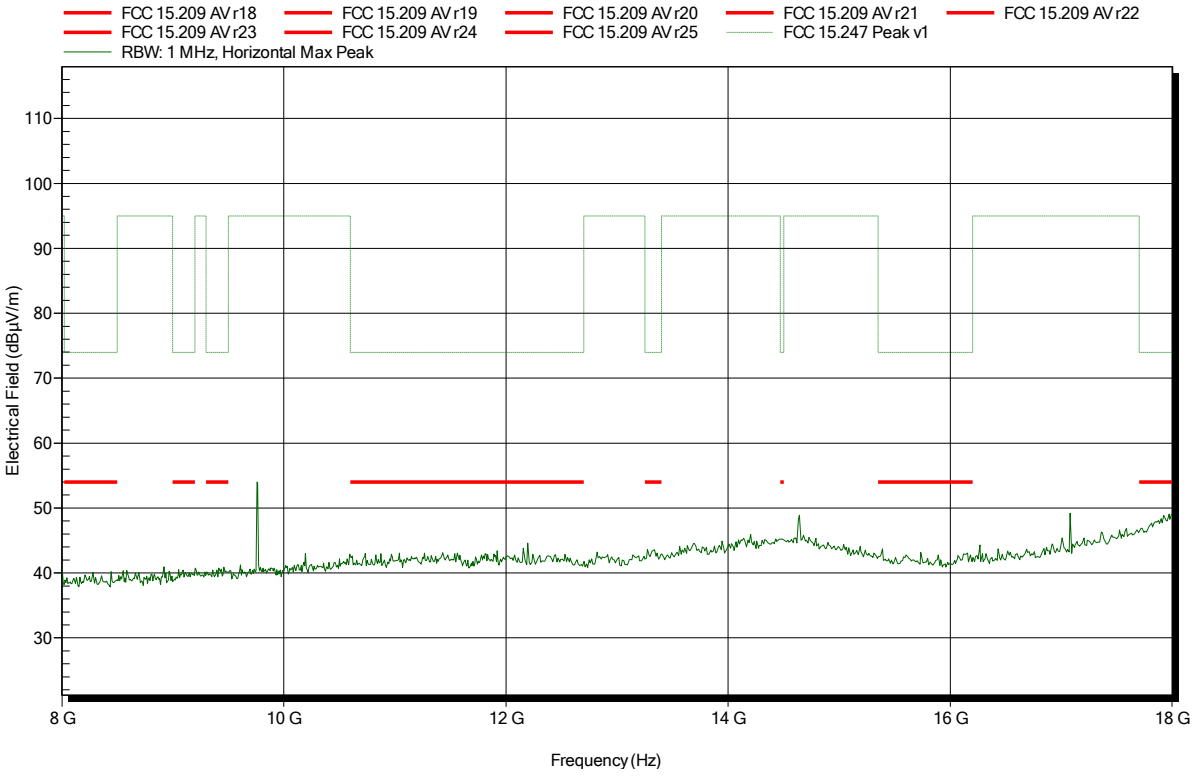

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.38; 2440 MHz
Test Date:	2016-03-14
Note:	

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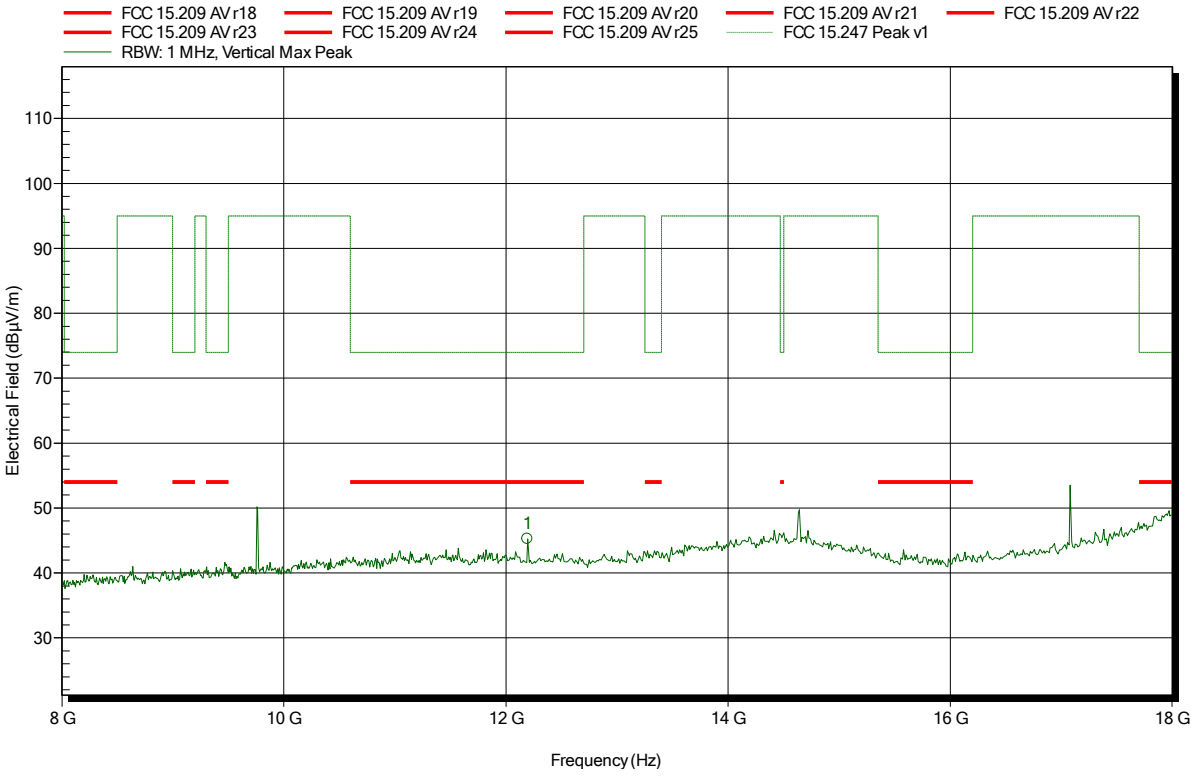

Frequency	Peak	Peak Limit	Peak Difference	Status
12.192 GHz	45.26 dBµV/m	74 dBµV/m	-28.74 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Configurable Antenna, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.38; 2440 MHz
Test Date:	2016-03-14
Note:	

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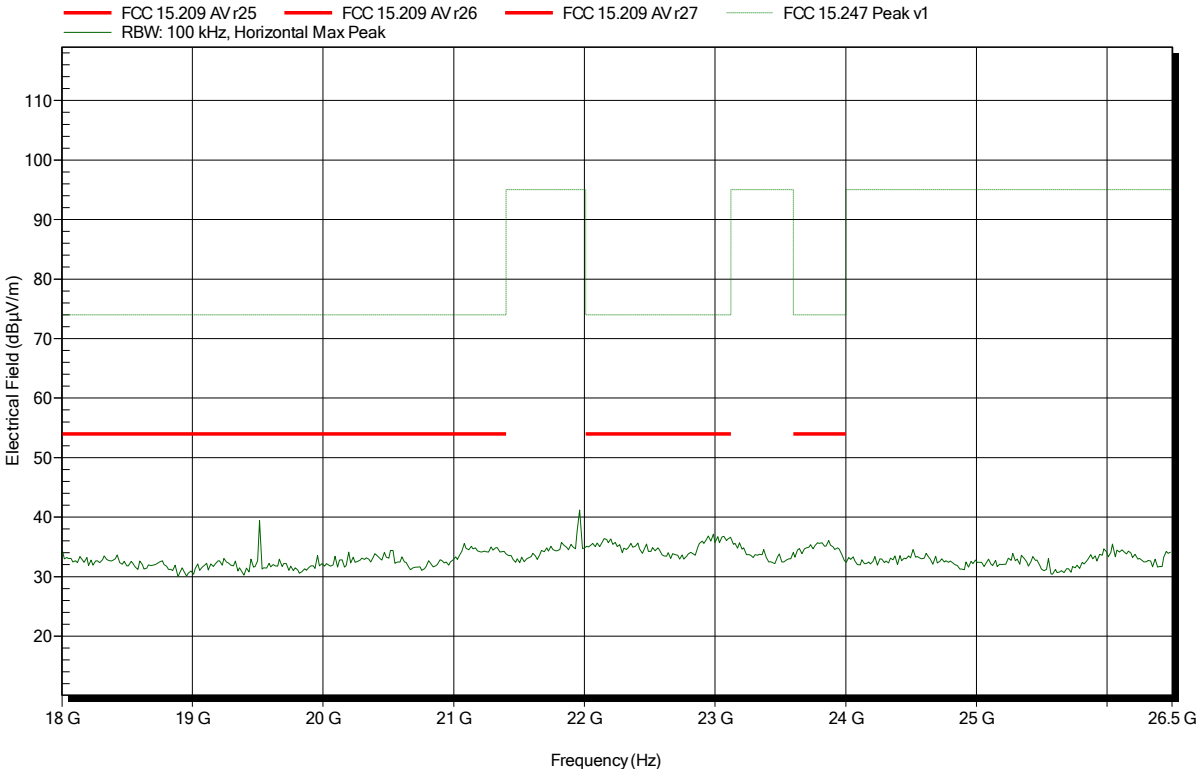

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Configurable Antenna, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.38; 2440 MHz
Test Date:	2016-03-14
Note:	

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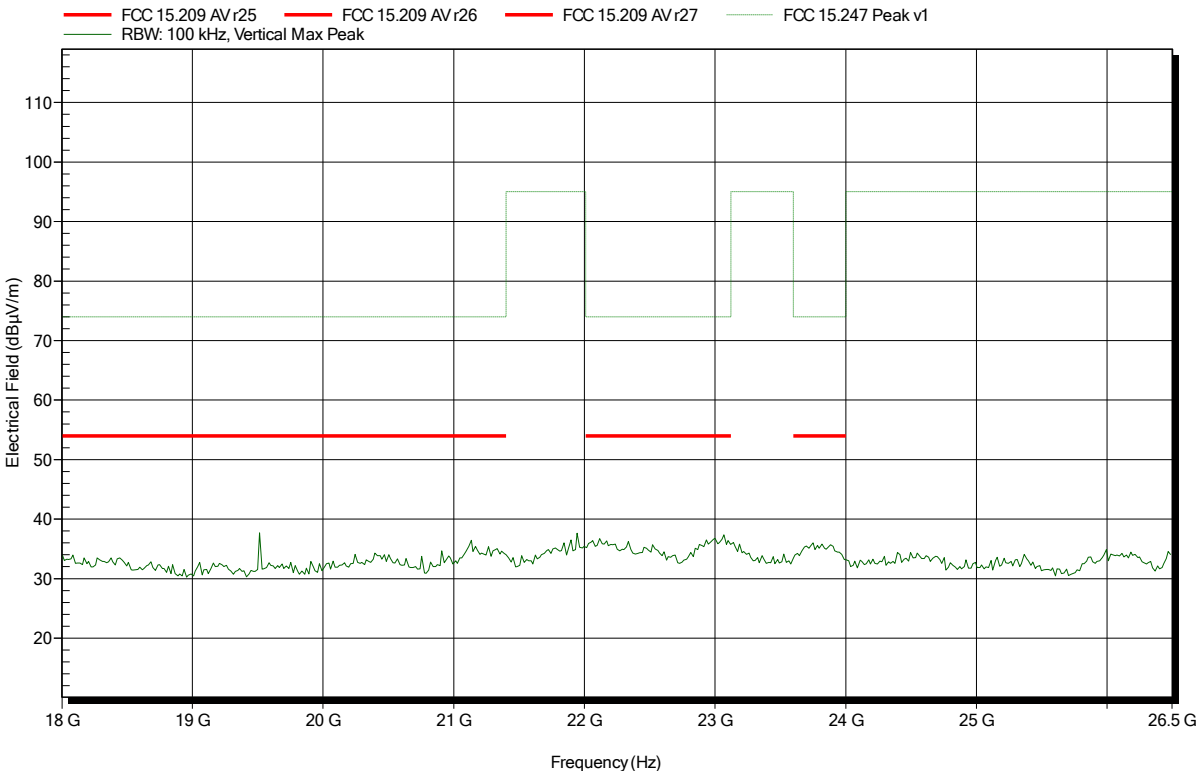

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.78; 2480 MHz
Test Date:	2016-03-14
Note:	

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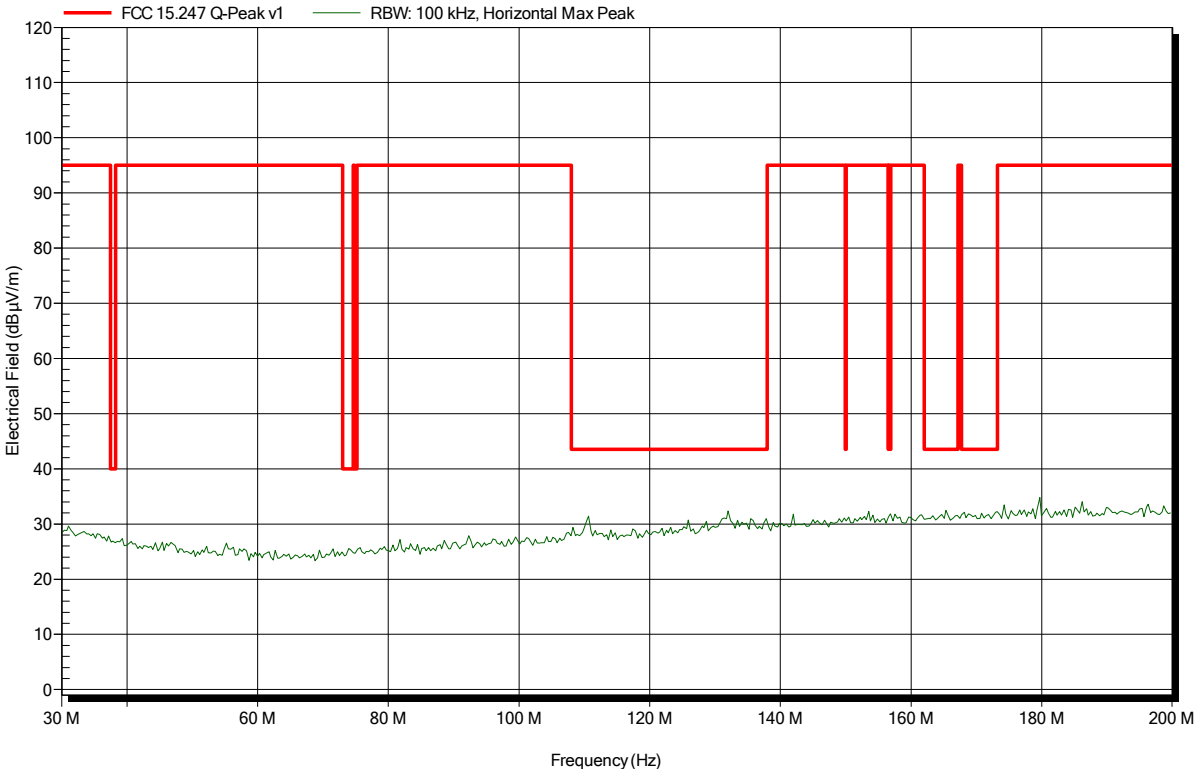

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.78; 2480 MHz
Test Date:	2016-03-14
Note:	

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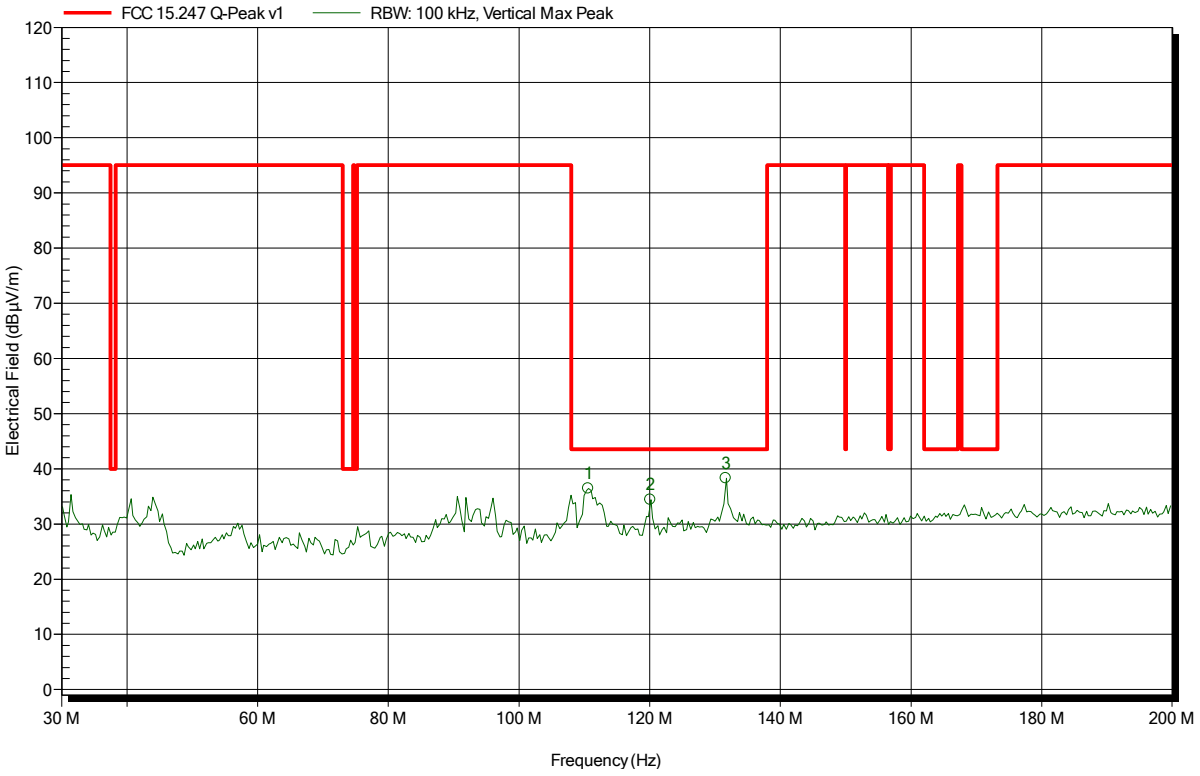

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
110.58 MHz	36.43 dBµV/m	43.52 dBµV/m	-7.09 dB	Pass
120.1 MHz	34.42 dBµV/m	43.52 dBµV/m	-9.1 dB	Pass
131.66 MHz	38.27 dBµV/m	43.52 dBµV/m	-5.25 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.78; 2480 MHz
Test Date:	2016-03-14
Note:	

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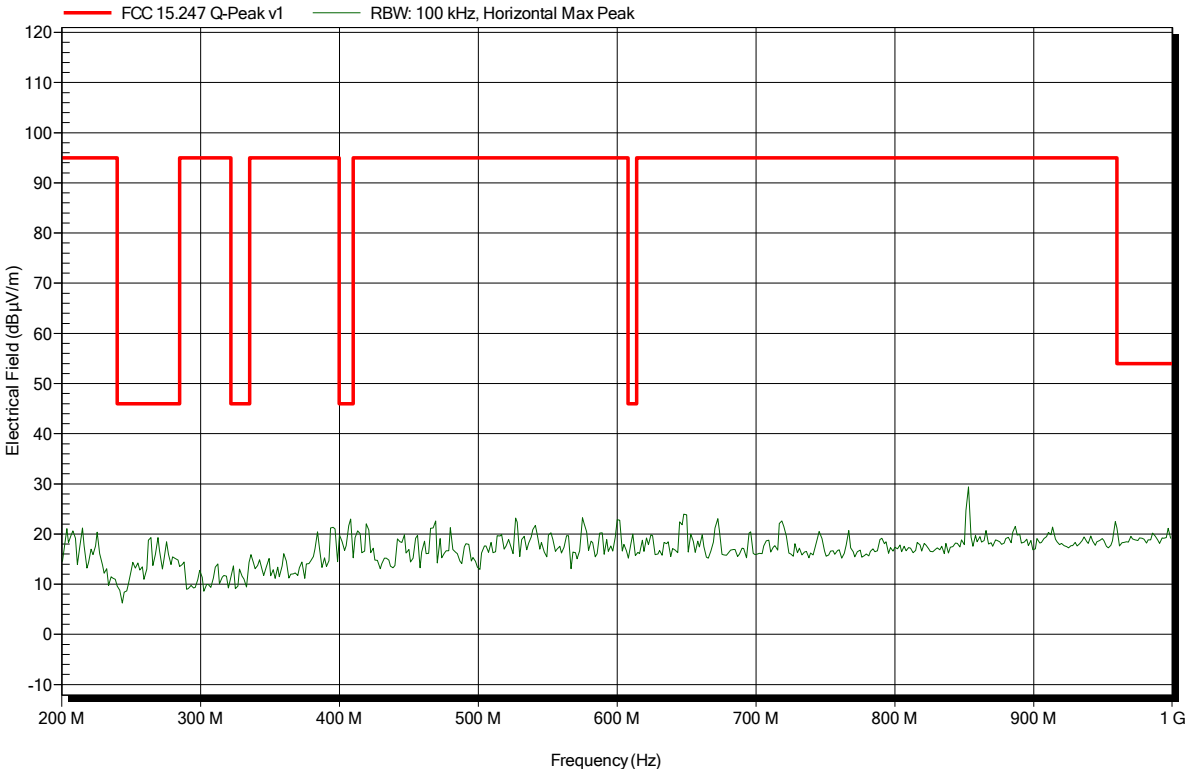

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.78; 2480 MHz
Test Date:	2016-03-14
Note:	

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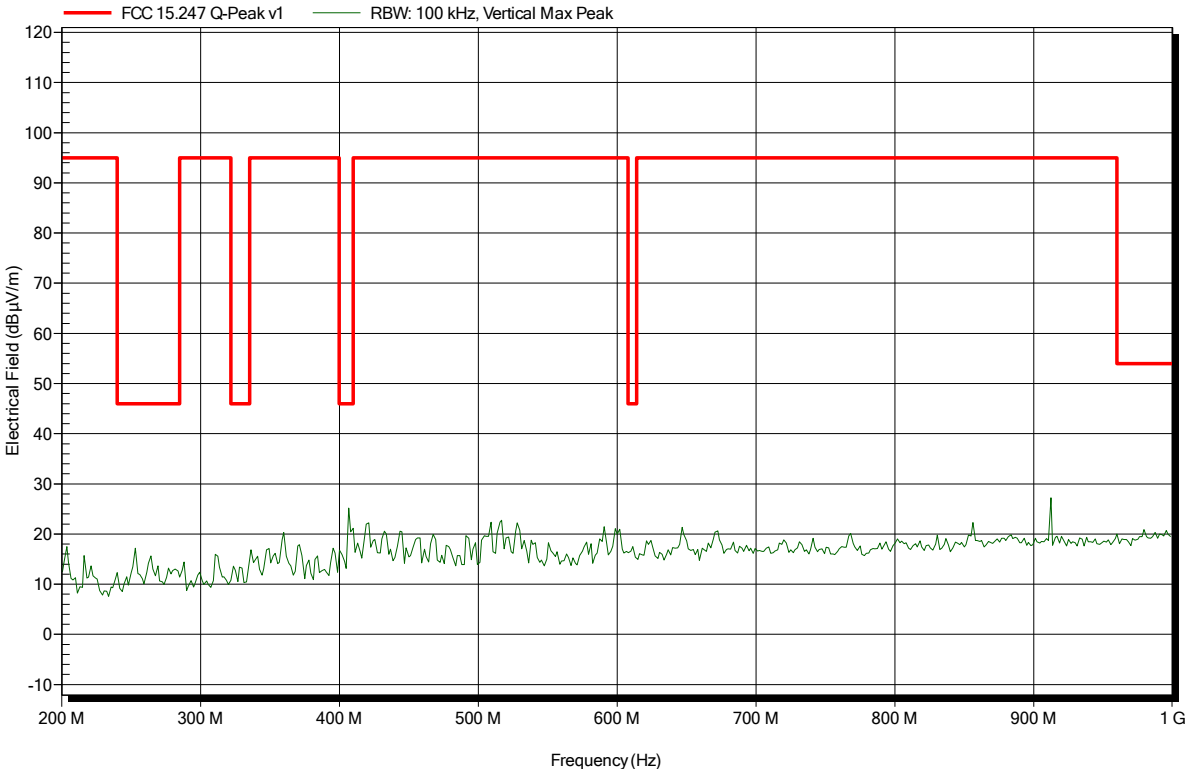

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.78; 2480 MHz
Test Date:	2016-03-14
Note:	

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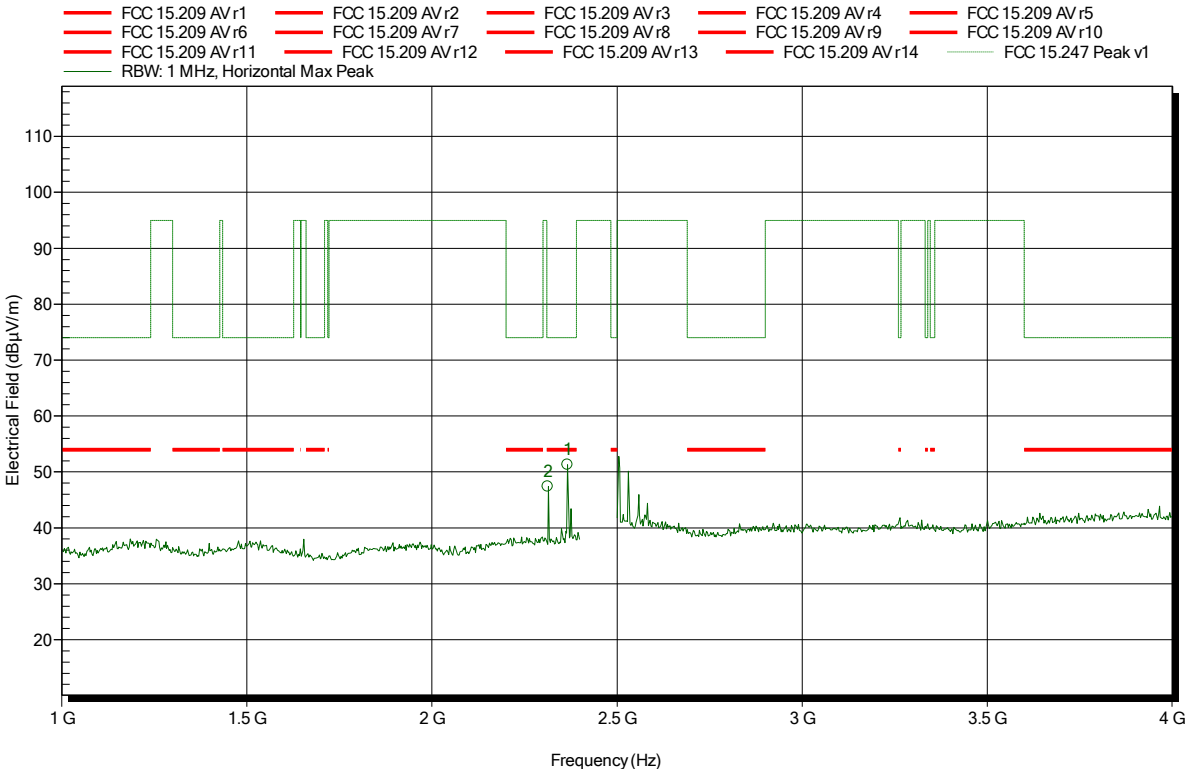

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.313 GHz	47.41 dBµV/m	74 dBµV/m	-26.59 dB	Pass
2.366 GHz	51.26 dBµV/m	74 dBµV/m	-22.74 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; BT Basic; CH.78; 2480 MHz
Test Date:	2016-03-14
Note:	

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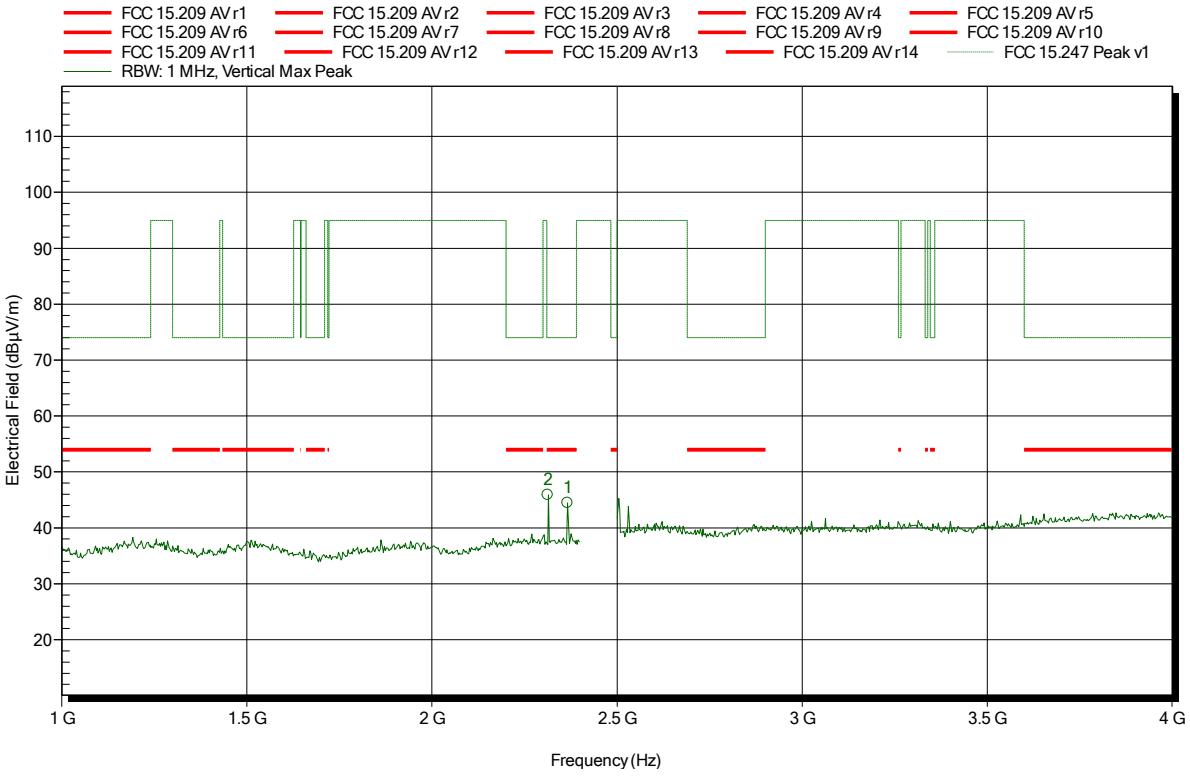

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.313 GHz	45.87 dBµV/m	74 dBµV/m	-28.13 dB	Pass
2.366 GHz	44.46 dBµV/m	74 dBµV/m	-29.54 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.78; 2480 MHz
Test Date:	2016-03-14
Note:	upper bandedge

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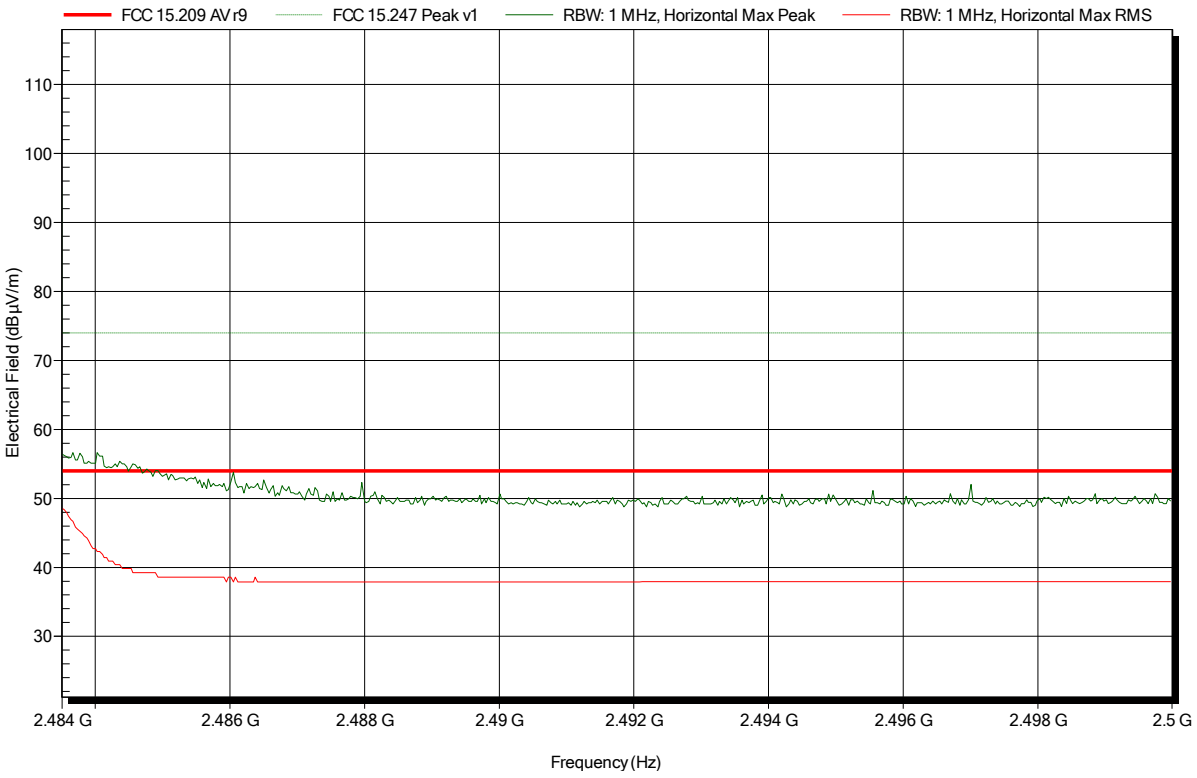

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.78; 2480 MHz
Test Date:	2016-03-14
Note:	upper bandedge

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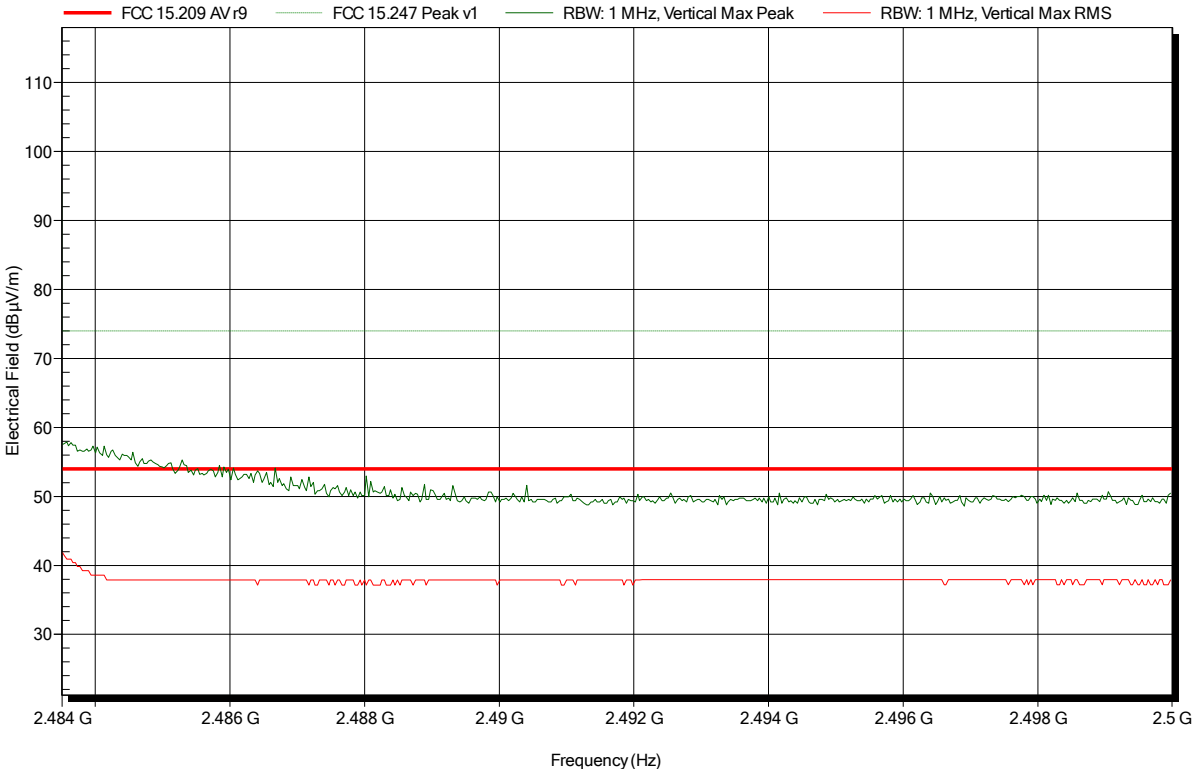

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.78; 2480 MHz
Test Date:	2016-03-14
Note:	

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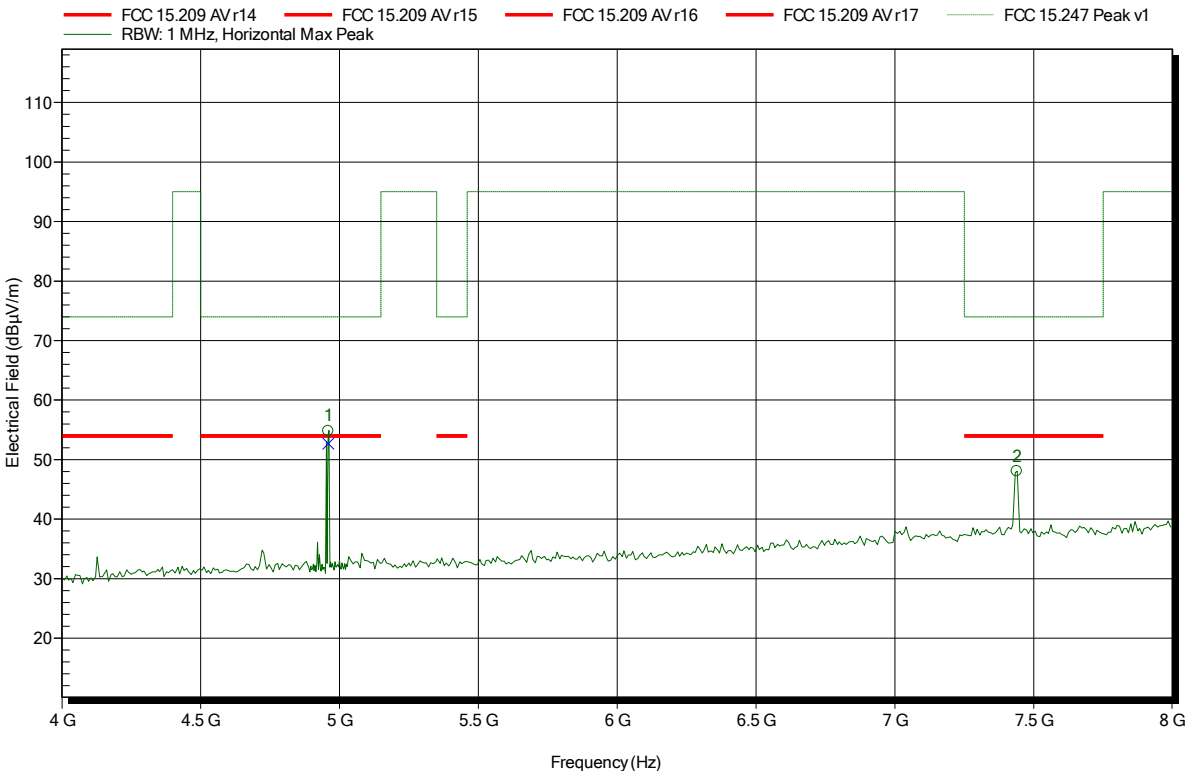

Frequency	Peak	Peak Limit	Peak Difference	Status
4.96 GHz	54.81 dBµV/m	74 dBµV/m	-19.19 dB	Pass
7.44 GHz	48.04 dBµV/m	74 dBµV/m	-25.96 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
4.96 GHz	52.71 dBµV/m	54 dBµV/m	-1.29 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.78; 2480 MHz
Test Date:	2016-03-14
Note:	

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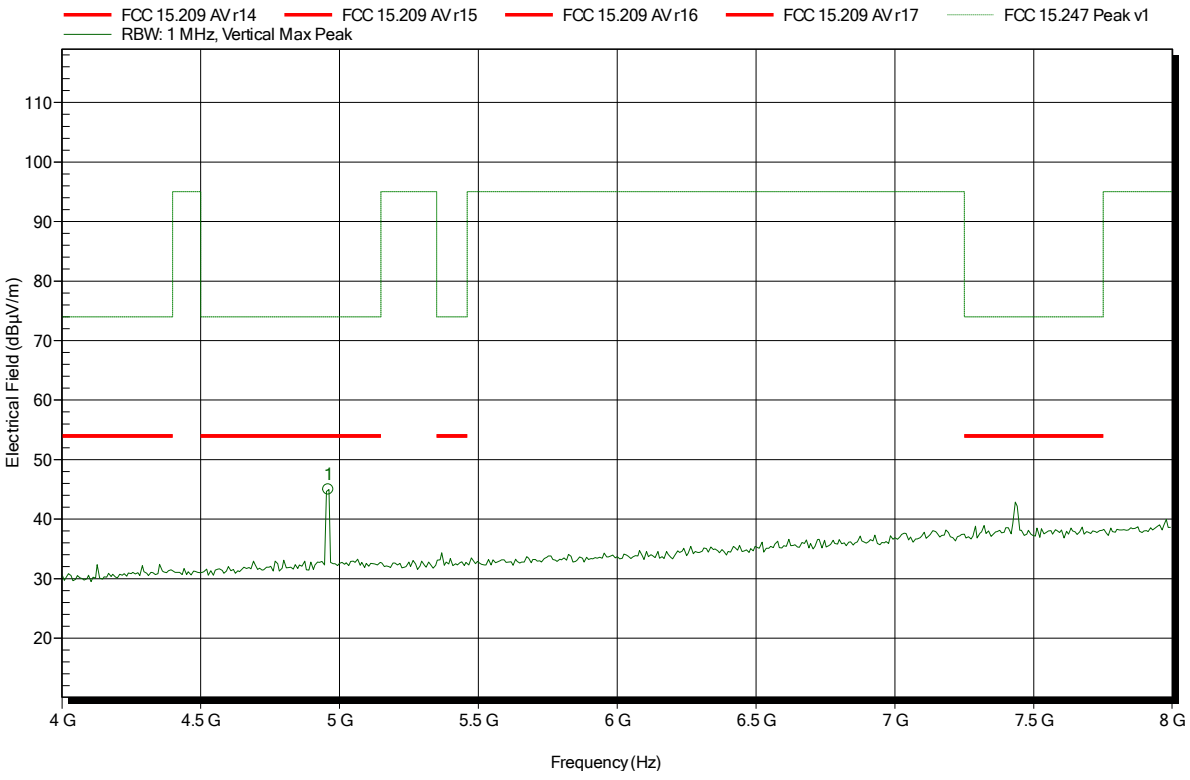

Frequency	Peak	Peak Limit	Peak Difference	Status
4.96 GHz	44.97 dBµV/m	74 dBµV/m	-29.03 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.78; 2480 MHz
Test Date:	2016-03-14
Note:	

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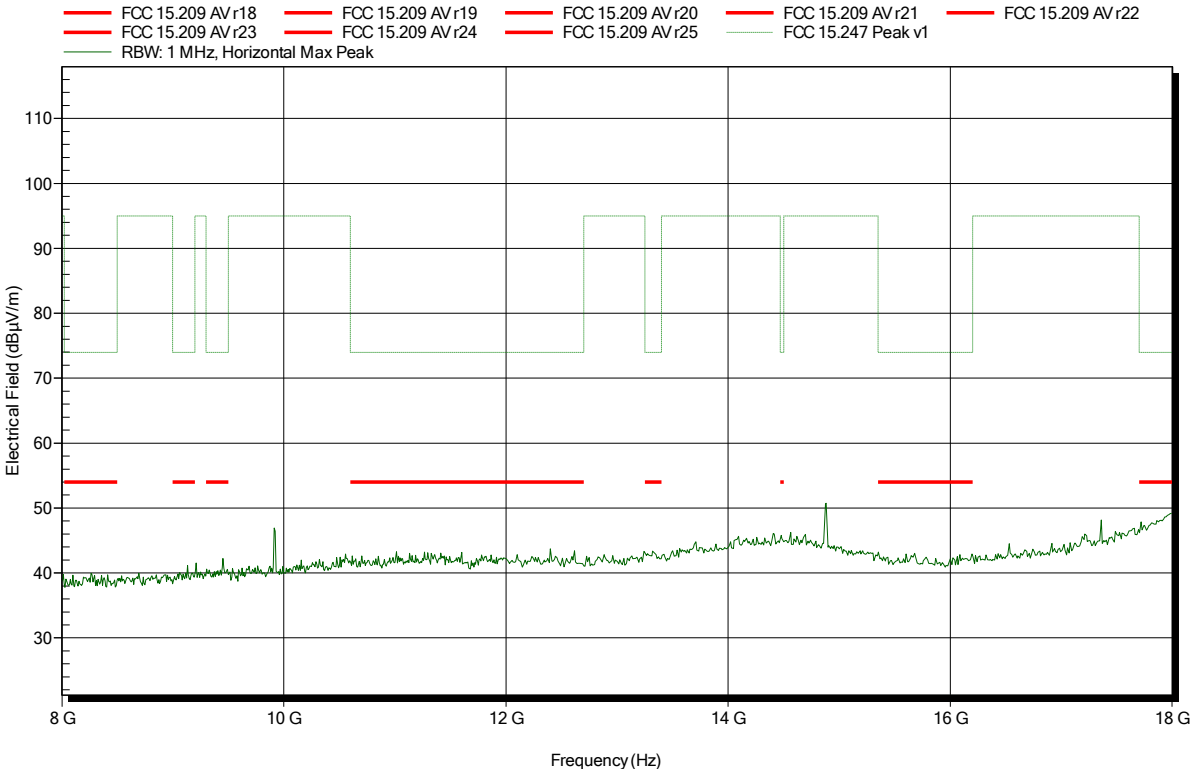

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.78; 2480 MHz
Test Date:	2016-03-14
Note:	

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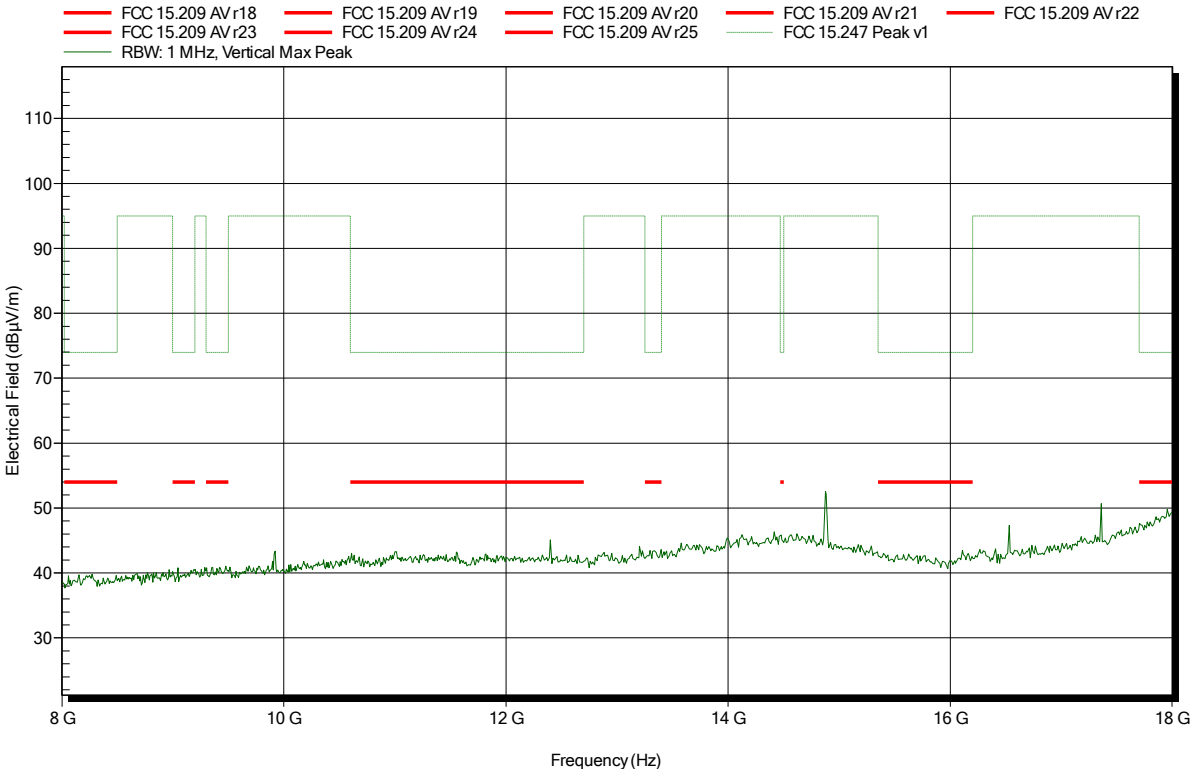

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Configurable Antenna, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.78; 2480 MHz
Test Date:	2016-03-14
Note:	

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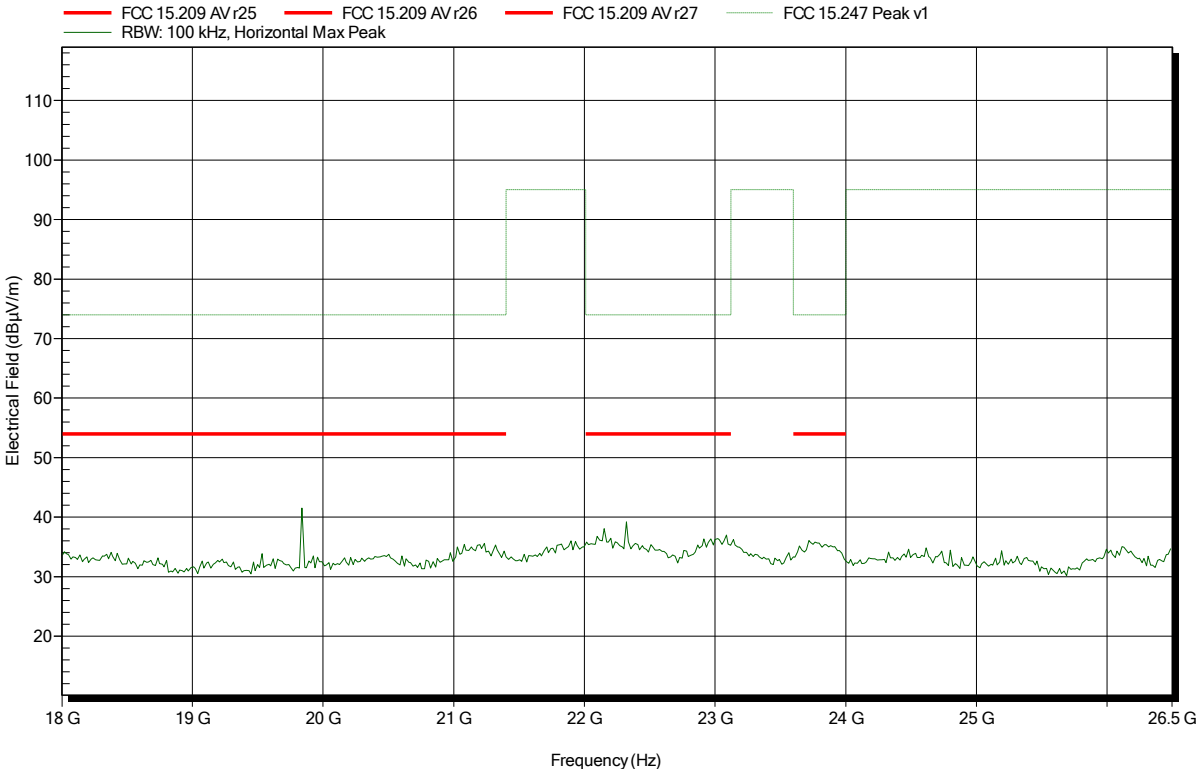

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Configurable Antenna, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT Basic; CH.78; 2480 MHz
Test Date:	2016-03-14
Note:	

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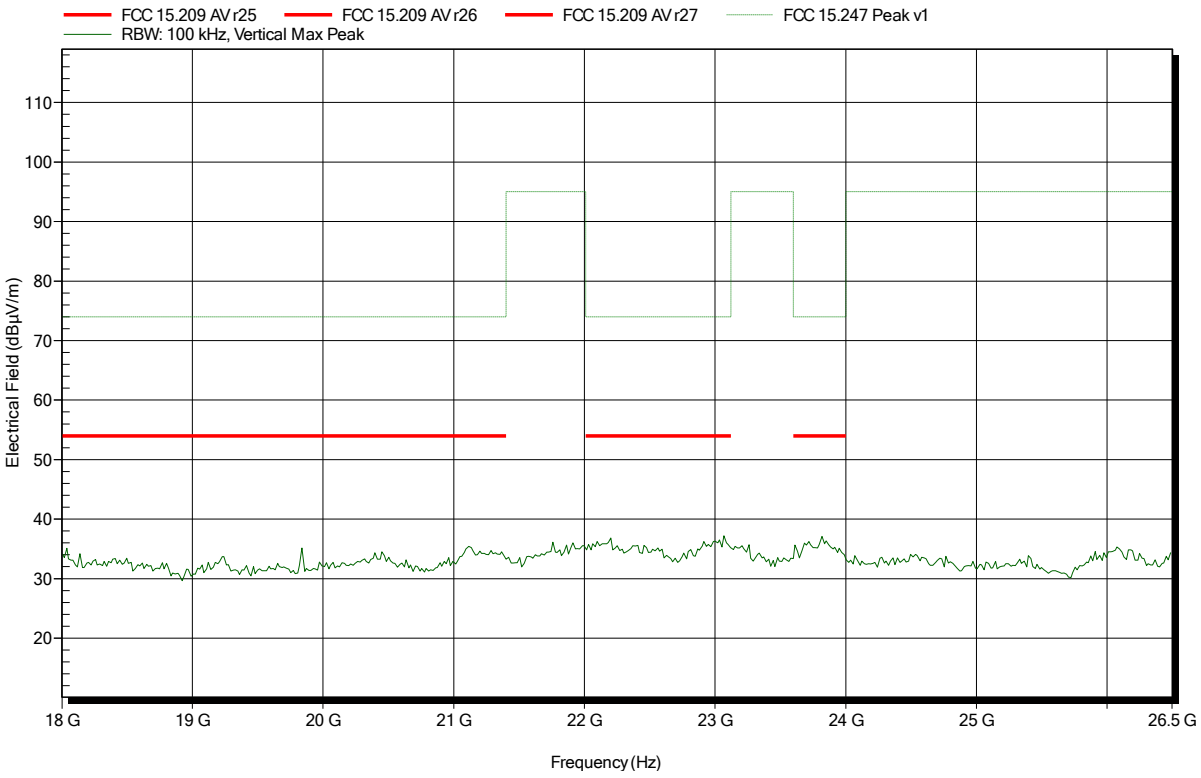

ANNEX B Receiver radiated spurious emissions

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	RX; BT Basic; Scan Mode
Test Date:	2016-03-14
Note:	

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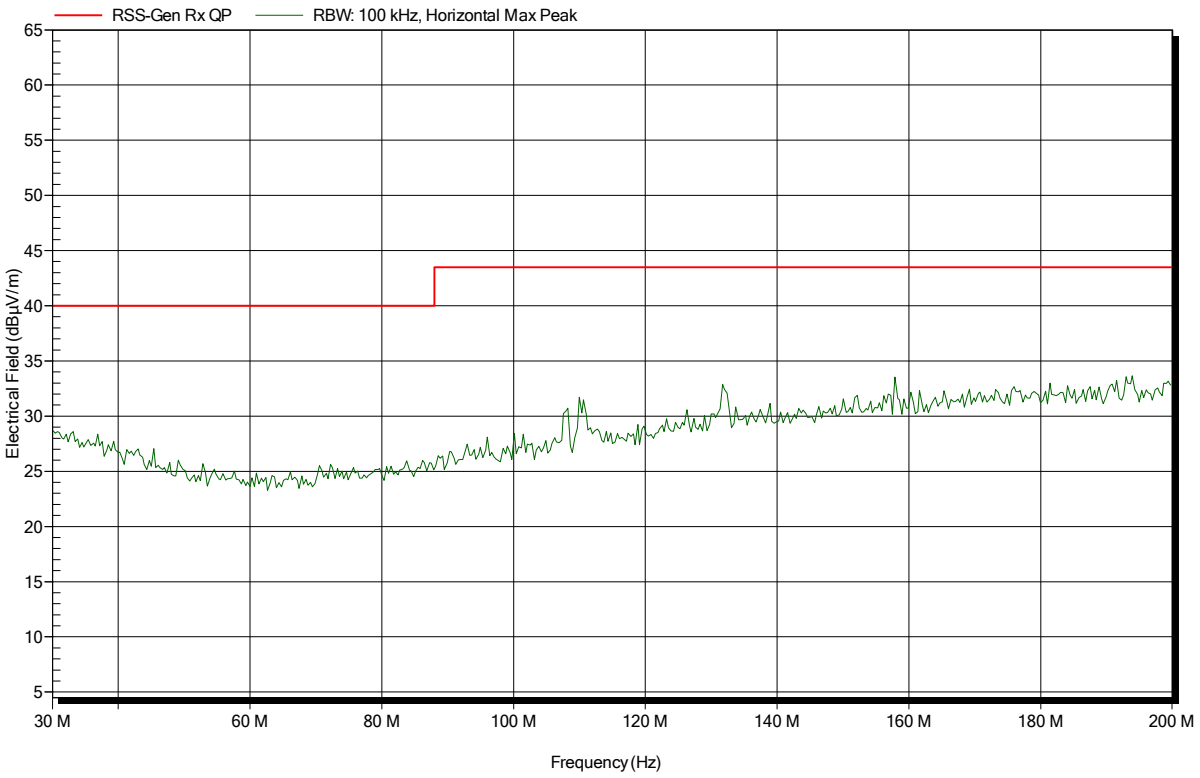

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	RX; BT Basic; Scan Mode
Test Date:	2016-03-14
Note:	

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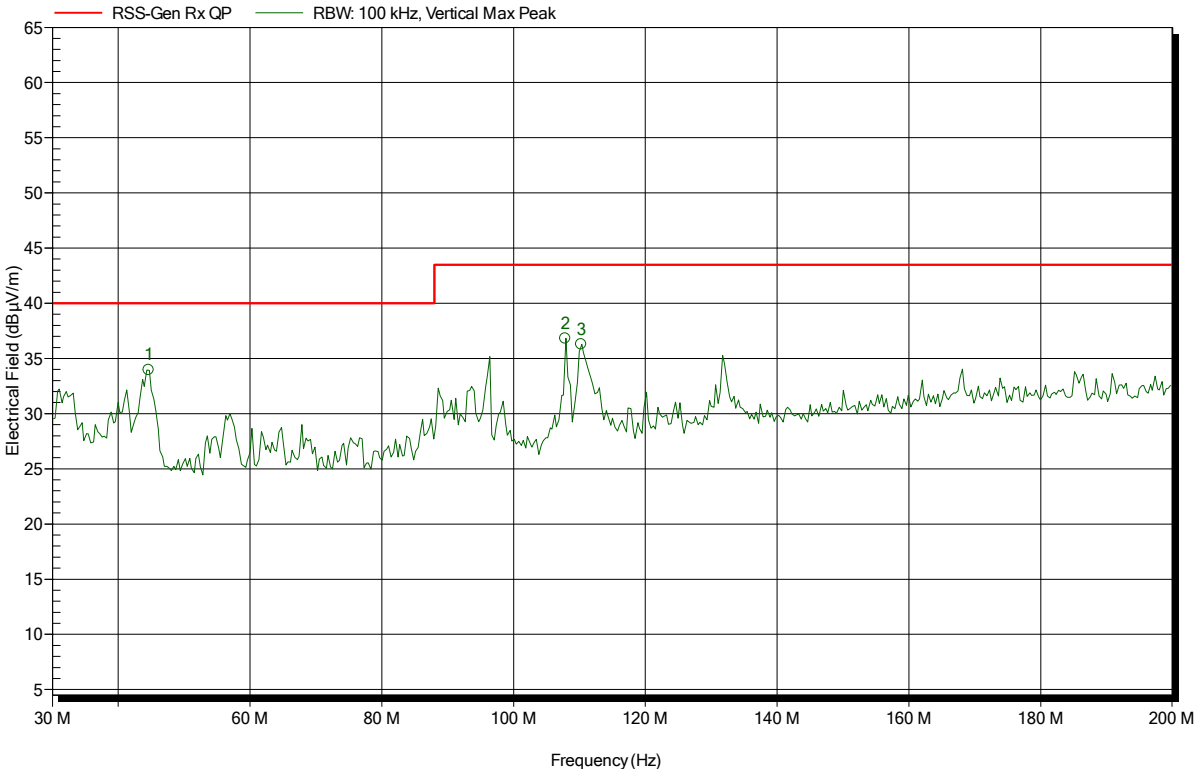

Frequency	Peak	Peak Limit	Peak Difference	Status
107.86 MHz	36.81 dBµV/m	43.5 dBµV/m	-6.69 dB	Pass
110.24 MHz	36.28 dBµV/m	43.5 dBµV/m	-7.22 dB	Pass
44.62 MHz	33.95 dBµV/m	40 dBµV/m	-6.05 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	RX; BT Basic; Scan Mode
Test Date:	2016-03-14
Note:	

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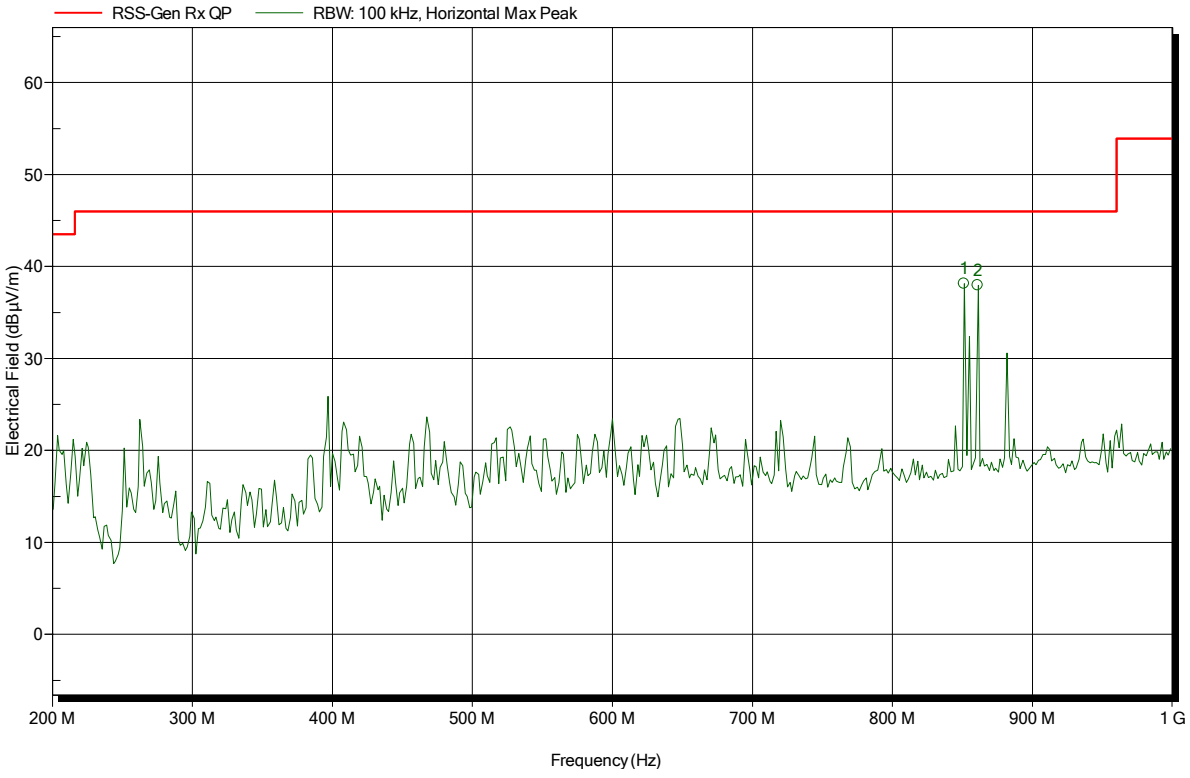

Frequency	Peak	Peak Limit	Peak Difference	Status
851.2 MHz	38.12 dBµV/m	46 dBµV/m	-7.88 dB	Pass
860.8 MHz	37.94 dBµV/m	46 dBµV/m	-8.06 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	RX; BT Basic; Scan Mode
Test Date:	2016-03-14
Note:	

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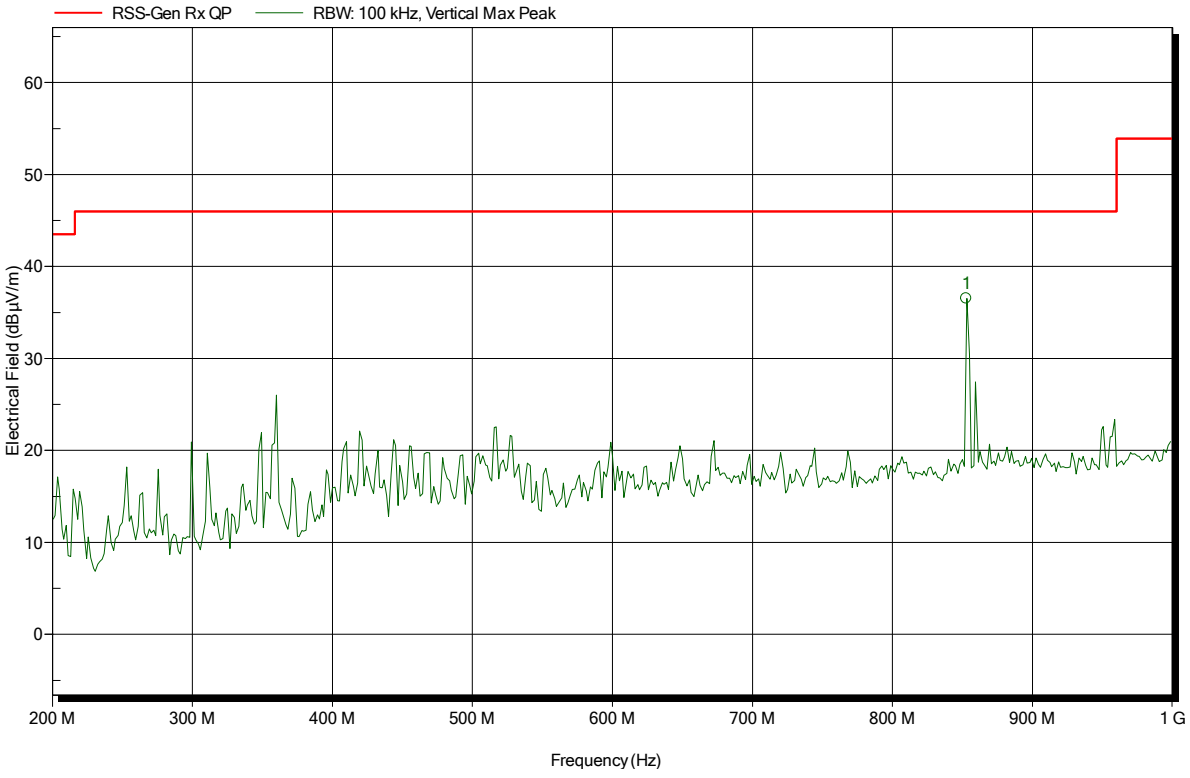

Frequency	Peak	Peak Limit	Peak Difference	Status
852.8 MHz	36.52 dBµV/m	46 dBµV/m	-9.48 dB	Pass

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	RX; BT Basic; Scan Mode
Test Date:	2016-03-14
Note:	

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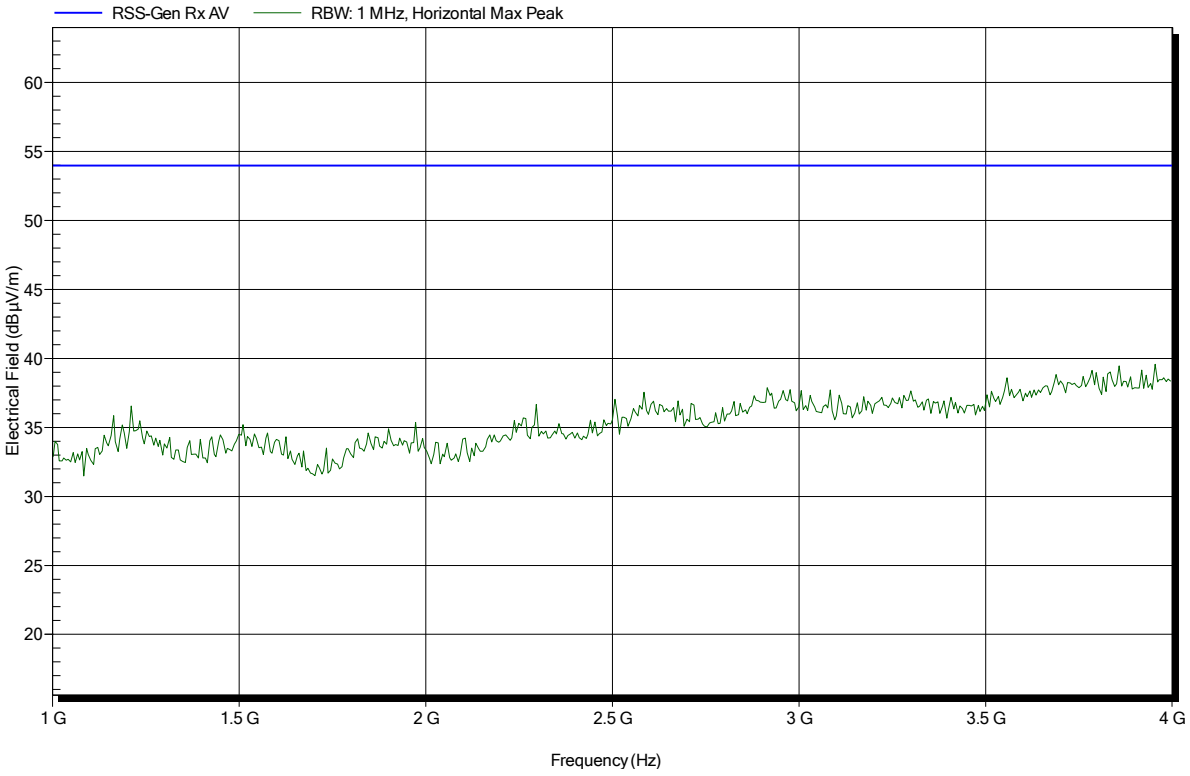

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	RX; BT Basic; Scan Mode
Test Date:	2016-03-14
Note:	

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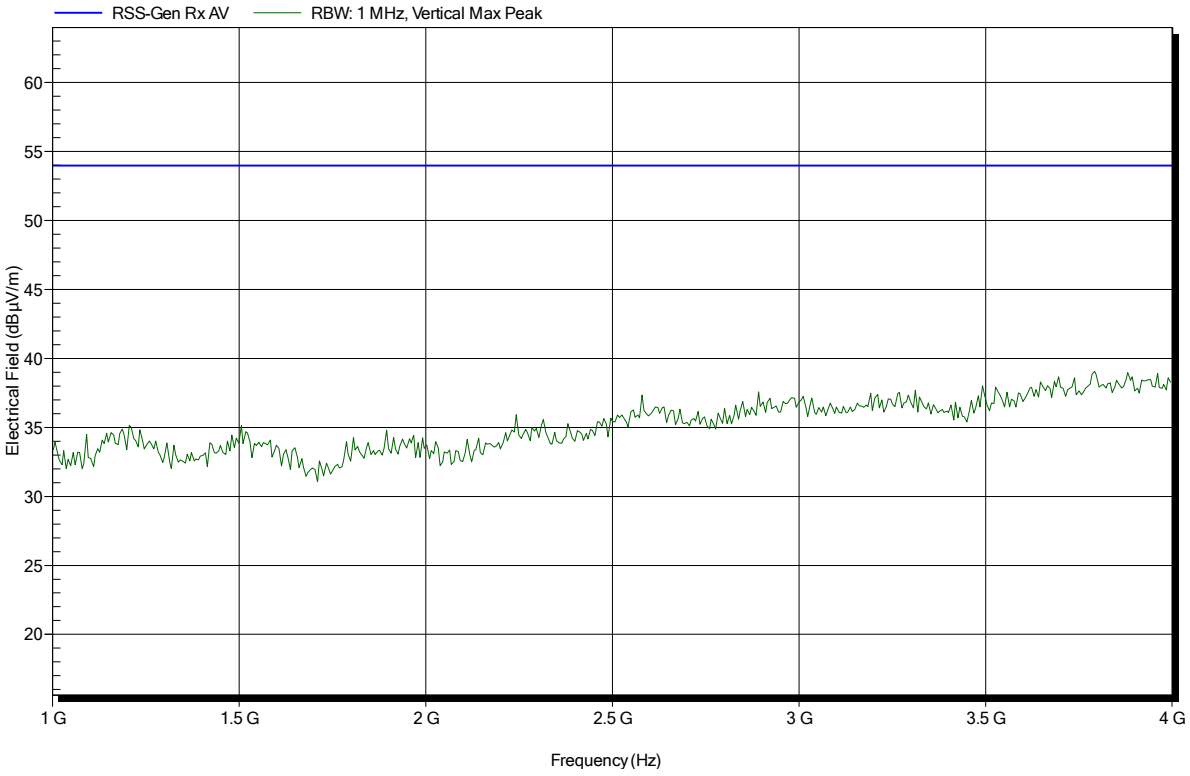

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	RX; BT Basic; Scan Mode
Test Date:	2016-03-14
Note:	

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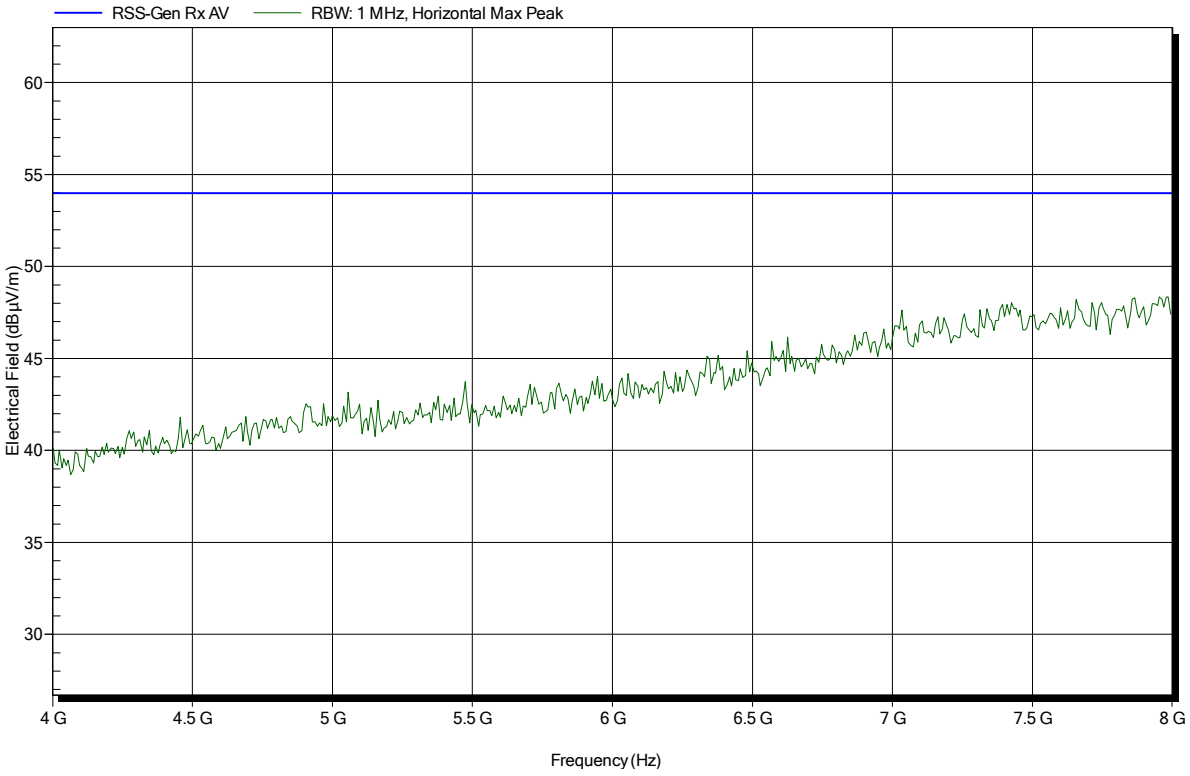

Spurious emissions according to FCC 15.247, RSS-247 Issue 1

Project number: G0M-1601-5313

Applicant:	Leica Geosystems AG
EUT Name:	LR-BT Class 1 Bluetooth Device
Model:	CTR35
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5 VDC via USB
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	RX; BT Basic; Scan Mode
Test Date:	2016-03-14
Note:	

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