RADIO REPORT

FCC 47 CFR Part 15C
ISED Canada RSS-247

Digital transmission systems operating within the 2400 – 2483.5 MHz band

Report Reference No	G0M-1702-6292-TFC247ZB-V01
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	Radio Module 300m
Model(s)	CT301
Additional Model(s)	None
Brand Name(s)	Leica
Hardware Version(s)	P2-B
Software Version(s)	0x6CB
FCC-ID	RFD-CT301
IC	3177A-CT301
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	2019-01-31
Report:	
Compiled by	Wilfried Treffke
Tested by (+ signature) (Responsible for Test)	Wilfried Treffke
Approved by (+ signature) (Deputy Head of Lab)	Toralf Jahn
Date of Issue	2019-04-30
Total number of pages	94
General Remarks:	
The test results presented in this report relate only to the object tested. **The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.** This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.	
Additional Comments:	

VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2019-04-30	Initial Release	

ABBREVIATIONS AND ACRONYMS

Acronyms	
Acronym	Description
DSSS	Direct Sequence Spread Spectrum
EUT	Equipment Under Test
FCC	Federal Communications Commission
IEEE 802.15.4	MAC and PHY Layer for Wireless Personal Area Networks
ISED	Innovation, Science and Economic Development Canada
O-QPSK	Offset-Quadrature Phase Shift Keying
QPSK	Quadrature Phase Shift Keying
RBW	Resolution bandwidth
RMS	Root mean square
VBW	Video bandwidth
V_{NOM}	Nominal supply voltage

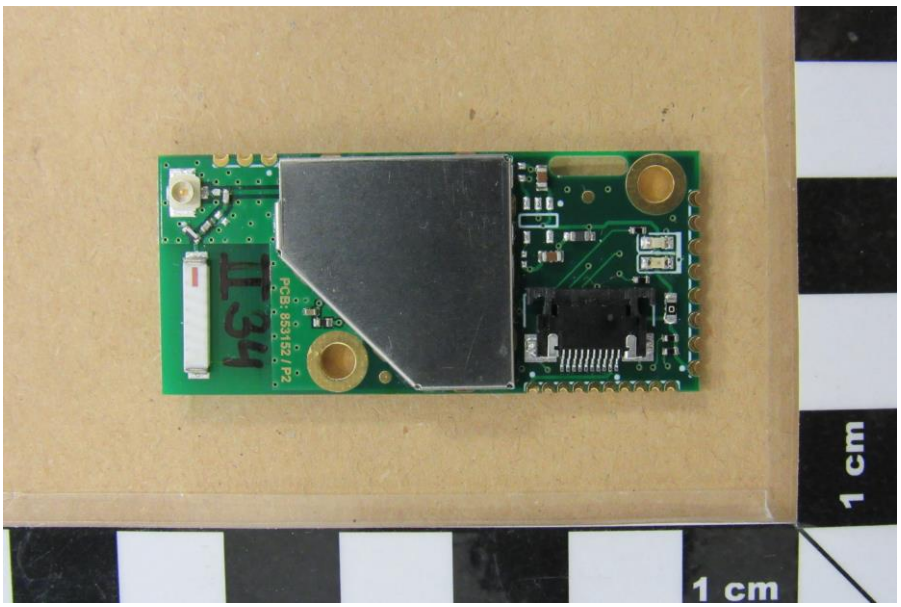
REPORT INDEX

1 Equipment (Test Item) Under Test

Description	Radio Module 300m	
Model	CT301	
Additional Model(s)	None	
Brand Name(s)	Leica	
Serial Number(s)	Conducted: 1218520032 Radiated: 1218520034	
Hardware Version(s)	P2-B	
Software Version(s)	0x6CB	
PMN	CT301	
HVIN	CT301	
FVIN	N/A	
HMN	N/A	
FCC-ID	RFD-CT301	
IC	3177A-CT301	
Equipment type	Radio Module	
Radio type	Transceiver	
Assigned frequency bands	2400 - 2483.5 MHz	
Radio technology	IEEE 802.15.4	
Modulation	O-QPSK	
Number of antenna ports	1	
Antenna	Type	Integrated
	Model	2450AT45A100
	Manufacturer	Johanson
	Gain	0.7 dBi (declared by customer)
Supply Voltage	V_{NOM}	3.15 VDC (5VDC USB powered)
Operating Temperature	T_{NOM}	25 °C
AC/DC-Adaptor	Model	None
	Vendor	None
	Input	None
	Output	None
Manufacturer	Leica Geosystems AG Heinrich Wild Strasse 9435 Heerbrugg SWITZERLAND	

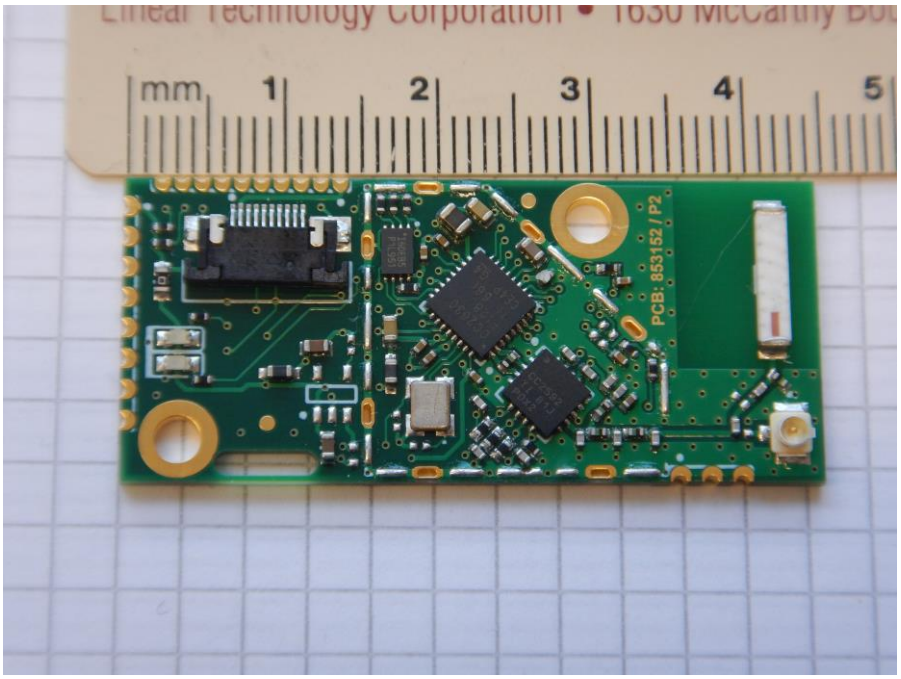
1.1 Photos – Equipment External

EUT Overview


EUT Top


EUT Bottom


1.2 Photos – Equipment Internal

EUT without Shielding


1.3 Photos – Test Setup

Radiated Setup


Conducted Setup


1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	Laptop	Dell	Latitude E6420	S/N HPJ4R1
AE	Power Supply	Dell	FA65NE0-00	S/N RX929
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
Comment:				

1.5 Operational duty cycle

1.5.1 Information

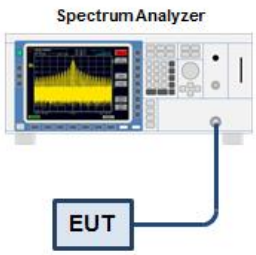
Test Information	
Measurement Method	ANSI C63.10 11.6

1.5.2 Requirements

Requirements	
Duty cycle	Duty cycle correction
≥ 98 %	No correction required
< 98 %	Correction required (10 x Log_{10}(1/DC)

1.5.3 Setup

Test Setup



1.5.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01003	2018-07	2019-07

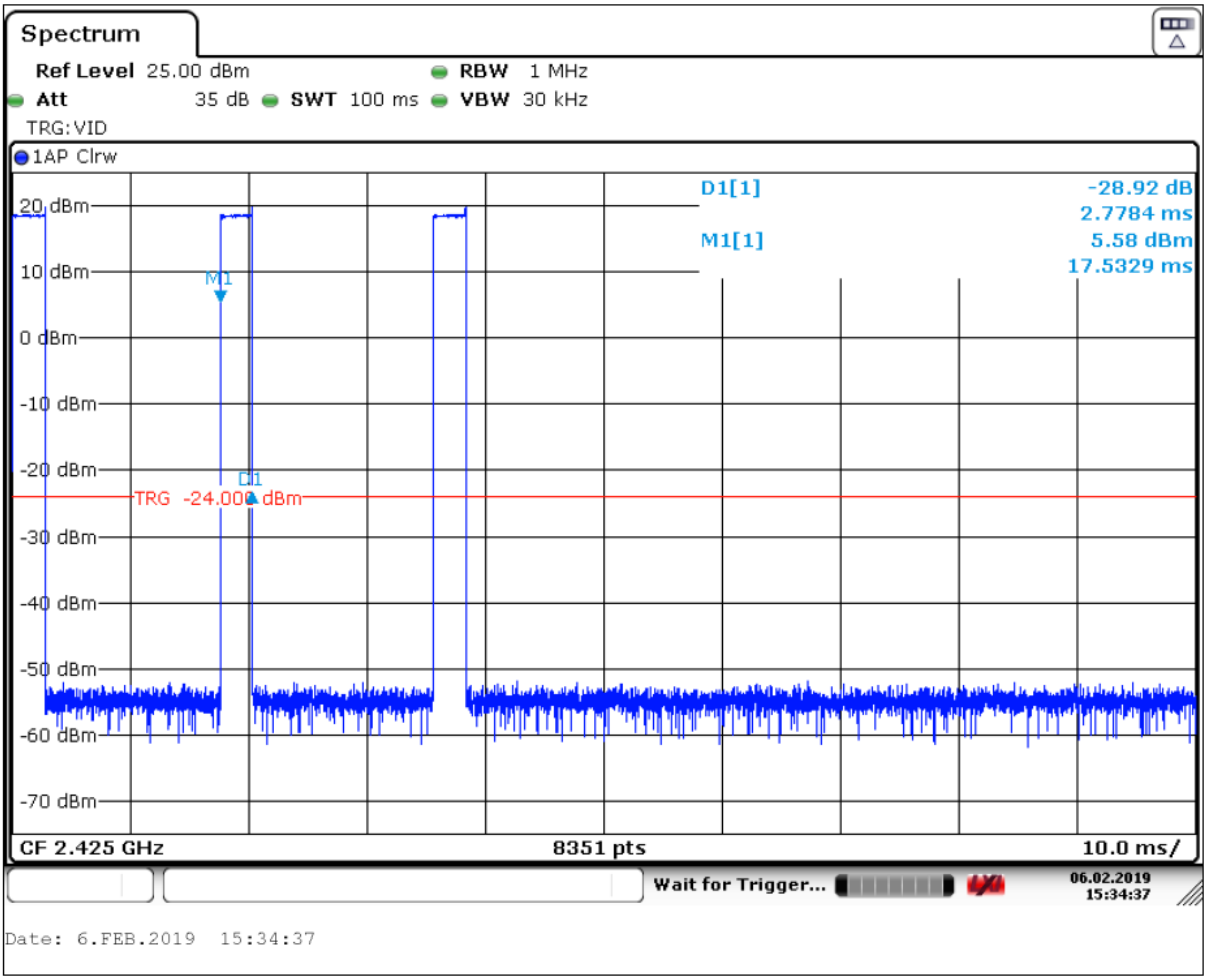
1.5.5 Procedure

Test Procedure

1. EUT set to test mode
2. Span is set to zero span
3. Detector set to peak
4. Sweep time is set 100ms
5. Envelope peak value of emission spectrum is selected.
6. Record one complete pulse train including blank intervals.
7. The maximum burst duration T_{ON} is measured using two markers set to the start and the end of the longest burst
8. The minimum idle duration T_{OFF} is measured using two markers set to the start and the end of the shortest idle period
9. The duty cycle is calculated by DC = T_{ON} / (100ms)
10. The duty cycle correction is calculated by DC = 10 x Log_{10}(T_{ON} / 100)

1.5.6 Results

Duty Cycle Results according to FCC Part 15 Section 15.35(c)		
Mode	Duty Cycle [@ 100ms]	Correction Factor [dB]
IEEE 802.15.4	0.083	-10.8
Comments:	maximum allowed duty cycle correction acc. to ANSI C63.10: -20 dB	



Correction factor: 10*log10(3*2.7784 / 100) = -10.8 dB

1.6 Test Modes

Mode	Description
DSSS O-QPSK	Mode = Transmit Modulation = O-QPSK Spreading = DSSS Data rate = 250 kbps Chip rate = 2000 kbps Duty cycle = 50% Power level: 18 dBm
Receive	Mode = Receive
Comment:	

1.7 Test Frequencies

Designator	Mode	Channel	Frequency [MHz]
F1	Tx / Rx	11	2405
F2	Tx / Rx	18	2440
F3	Tx / Rx	25	2475

1.8 Sample emission level calculation

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

Reading:

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

A.F.:

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

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)(2) ISED RSS-247, Issue 2 (section 5.2)	6 dB Bandwidth	ANSI C63.10-2013	PASS	
FCC § 15.247(b)(1) ISED RSS-247, Issue 2 (section 5.4)	Maximum peak conducted power	ANSI C63.10-2013	PASS	
FCC § 15.247(e) ISED RSS-247, Issue 2 (section 5.2)	Power spectral density	ANSI C63.10-2013	PASS	
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	PASS	
FCC § 15.247(d) ISED RSS-247, Issue 2 (section 5.5)	Conducted spurious emissions	ANSI C63.10-2013	PASS	
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	2019-02-14

3.1.2 Limits

Limits
None (Informational only)

3.1.3 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01003	2018-07	2019-07

3.1.4 Procedure

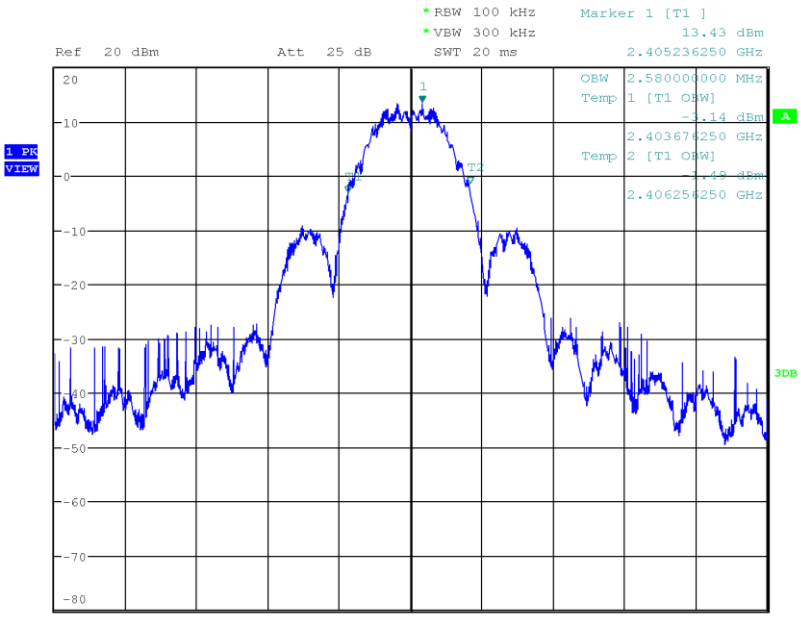
Test Procedure
1. EUT transmitter is activated in test mode under normal conditions 2. The spectrum analyzer is set to peak detection and maximum hold with a span twice the emission spectrum 3. The resolution bandwidth is set to the range of 1 % to 5 % of the occupied bandwidth 4. The occupied bandwidth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

3.1.5 Results

Test Results		
Mode	Frequency [MHz]	Bandwidth [MHz]
O-QPSK	2405	2.580
O-QPSK	2440	2.599
O-QPSK	2475	2.576

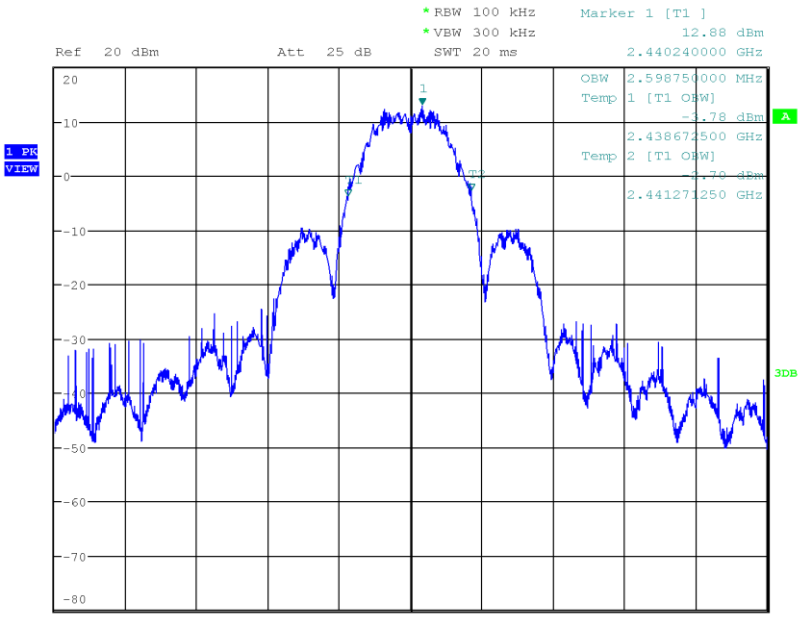
Occupied Bandwidth

Project Number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
Model Description:	Radio Module 301m
Model:	CT301 Radio Module
Test Sample ID:	22571
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.15.4 (DSSS/250 kbps), Channel: 11, 2405 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-02-14
Occupied Bandwidth [MHz]:	2.580



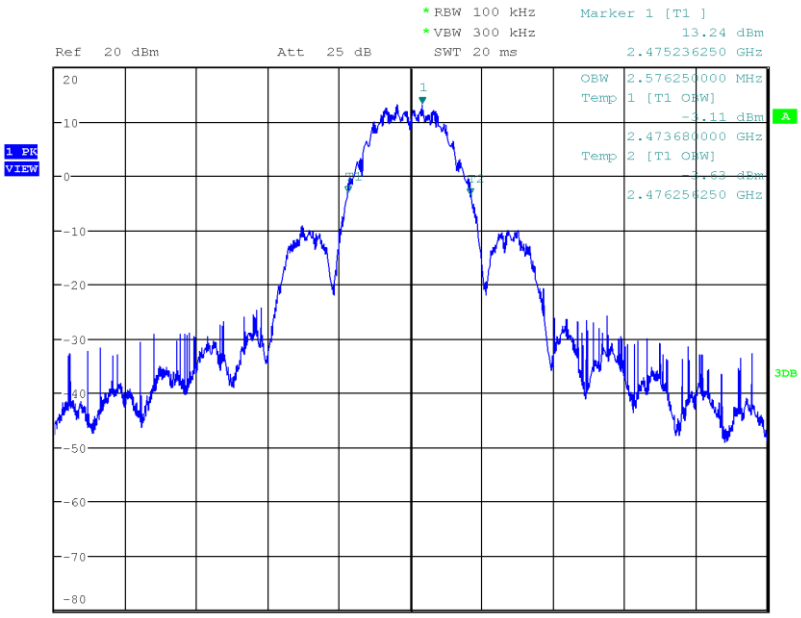
Occupied Bandwidth

Project Number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
Model Description:	Radio Module 301m
Model:	CT301 Radio Module
Test Sample ID:	22571
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.15.4 (DSSS/250 kbps), Channel: 18, 2440 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-02-14
Occupied Bandwidth [MHz]:	2.599



Occupied Bandwidth

Project Number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
Model Description:	Radio Module 301m
Model:	CT301 Radio Module
Test Sample ID:	22571
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	IEEE 802.15.4 (DSSS/250 kbps), Channel: 25, 2475 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-02-14
Occupied Bandwidth [MHz]:	2.576



3.2 Test Conditions and Results - 6 dB bandwidth

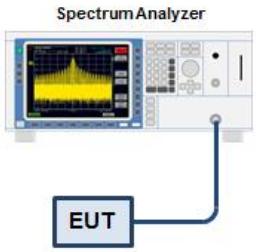
3.2.1 Information

Test Information	
Reference	FCC § 15.247(a)(2); ISED RSS-247, Issue 2 (section 5.2)
Measurement Method	ANSI C63.10 11.8
Operator	Wilfried Treffke
Date	2019-02-14

3.2.2 Limits

Limits
≥ 500kHz

3.2.3 Setup

Test Setup


3.2.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01003	2018-07	2019-07

3.2.5 Procedure

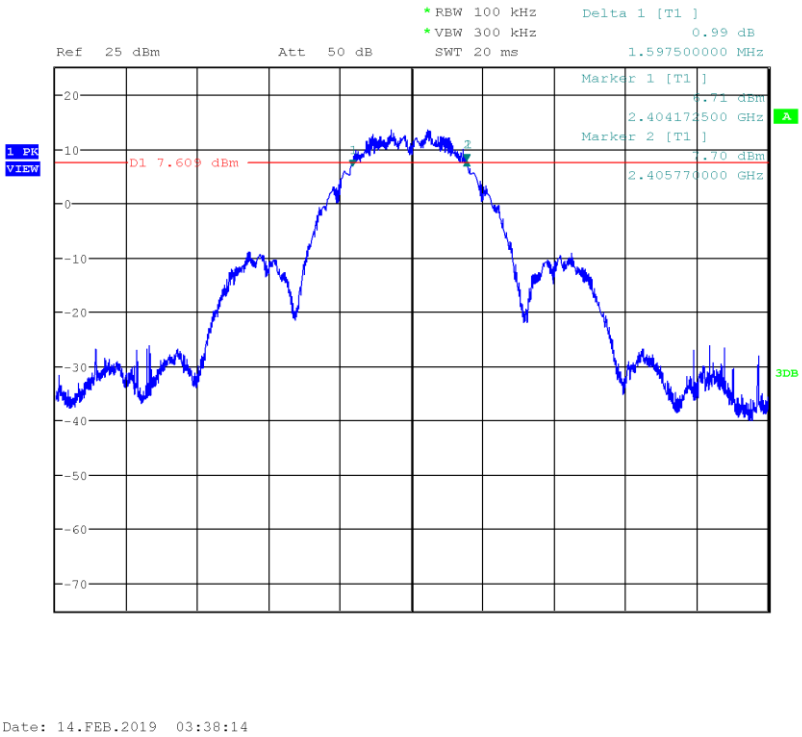
Test Procedure
1. EUT set to test mode 2. Span set to at least twice the emission spectrum 3. Detector set to peak and max hold and RBW is set to 100 kHz 4. Envelope peak value of emission spectrum is selected 5. Marker on envelope of spectrum is set to level of -6 dB to the left of the peak 6. Marker on envelope of spectrum is set to level of -6 dB to the right of the peak 7. 6 dB Bandwidth is determined by marker frequency separation

3.2.6 Results

Test Results				
Mode	Frequency [MHz]	Bandwidth [kHz]	Limit [kHz]	Verdict
O-QPSK	2405	1597.5	500	Pass
O-QPSK	2440	1627.5	500	Pass
O-QPSK	2475	1627.5	500	Pass

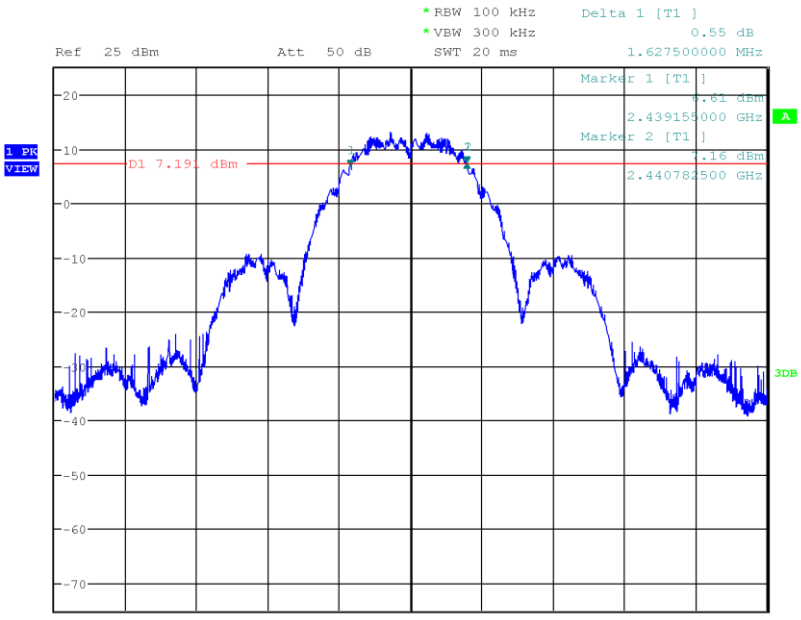
DTS (6 dB) Bandwidth

Project Number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
Model Description:	Radio Module 301m
Model:	CT301 Radio Module
Test Sample ID:	22571
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.15.4 (DSSS/250 kbps), Channel: 11, 2405 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-02-14
Lower Frequency [MHz]:	2404.173
Upper Frequency [MHz]:	2405.770
6 dB Bandwidth [kHz]:	1597.5



DTS (6 dB) Bandwidth

Project Number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
Model Description:	Radio Module 301m
Model:	CT301 Radio Module
Test Sample ID:	22571
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.15.4 (DSSS/250 kbps), Channel: 18, 2440 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-02-14
Lower Frequency [MHz]:	2439.155
Upper Frequency [MHz]:	2440.782
6 dB Bandwidth [kHz]:	1627.5



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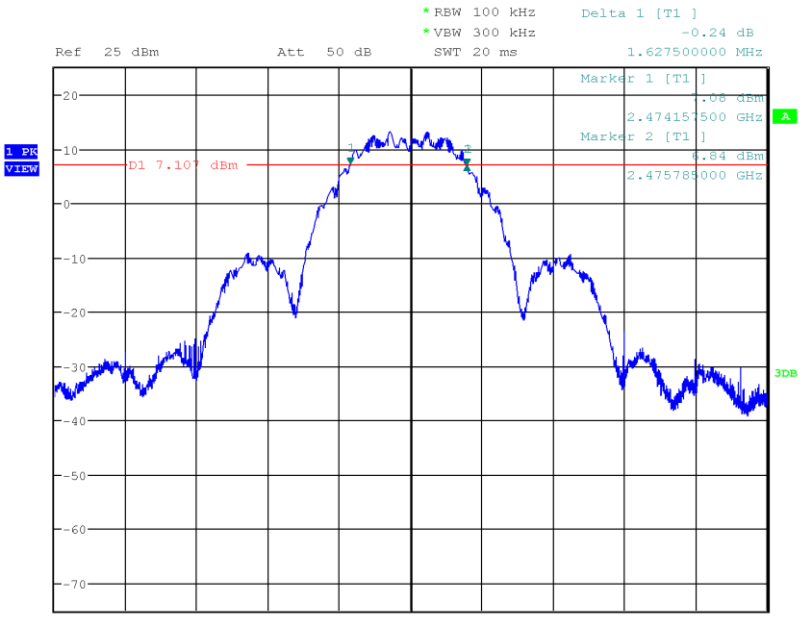
DTS (6 dB) Bandwidth

Project Number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
Model Description:	Radio Module 301m
Model:	CT301 Radio Module
Test Sample ID:	22571
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	IEEE 802.15.4 (DSSS/250 kbps), Channel: 25, 2475 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-02-14
Lower Frequency [MHz]:	2474.157
Upper Frequency [MHz]:	2475.785
6 dB Bandwidth [kHz]:	1627.5



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3.3 Test Conditions and Results - Maximum peak conducted output power

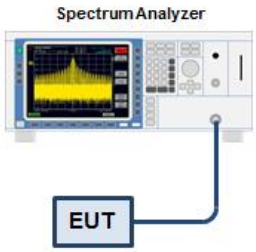
3.3.1 Information

Test Information	
Reference	FCC § 15.247(b)(1); ISED RSS-247, Issue 2 (section 5.4)
Measurement Method	ANSI C63.10 11.9.1
Operator	Wilfried Treffke
Date	2019-02-14

3.3.2 Limits

Limits
1 W (30 dBm)
The conducted output power limit specified above is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in the table, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.3 Setup

Test Setup


3.3.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01003	2018-07	2019-07

3.3.5 Procedure

Test Procedure
1. EUT set to test hopping mode (Communication tester is used if needed) 2. Analyzer resolution bandwidth is set ≥ DTS bandwidth 3. Detector set to peak and max hold 4. Sweep time is set to auto 5. After the trace has stabilized a marker is set to peak of envelope

3.3.6 Results

Test Results				
Channel [MHz]	Power [dBm]	Power [W]	Limit [W]	Verdict
2405	18.060	0.063973	1.0	PASS
2440	17.848	0.060926	1.0	PASS
2475	18.079	0.064254	1.0	PASS

3.4 Test Conditions and Results - Power spectral density

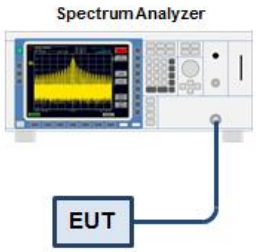
3.4.1 Information

Test Information	
Reference	FCC § 15.247(e); ISED RSS-247, Issue 2 (section 5.2)
Measurement Method	ANSI C63.10 11.10.2, 14.3.2
Operator	Wilfried Treffke
Date	2019-02-14

3.4.2 Limits

Limits
8 dBm / 3 kHz

3.4.3 Setup

Test Setup


3.4.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01003	2018-07	2019-07

3.4.5 Procedure

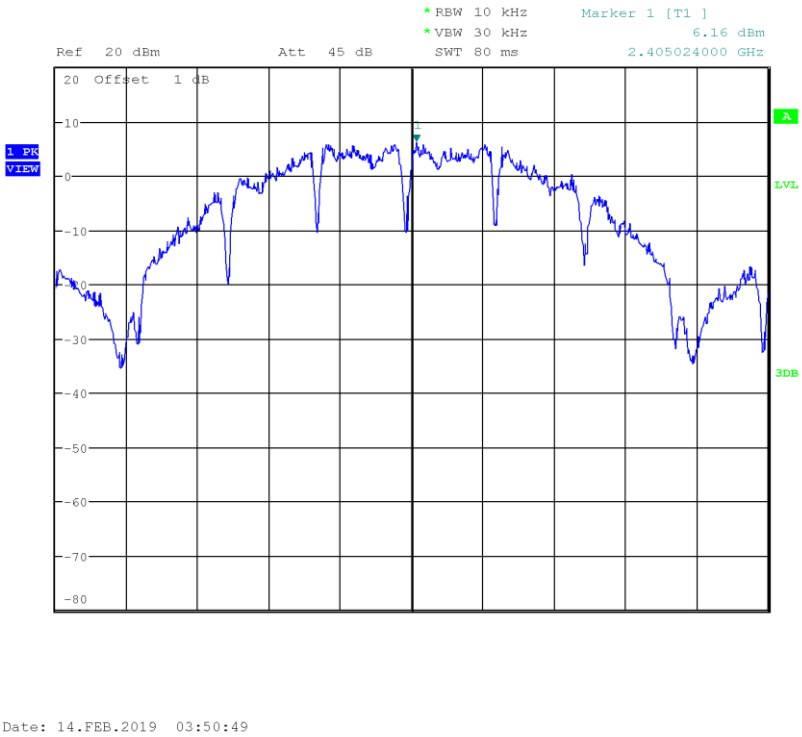
Test Procedure
1. EUT set to test mode 2. The analyzer is set to DTS channel center frequency with a span of 1.5 times the DTS bandwidth 3. The RBW is set to 100 kHz with VBW ≥ RBW and the detector is set to peak with max hold 4. After the trace has stabilized a marker is set to the envelope maximum 5. If the power spectral density is above the limit the RBW is reduced (not lower than 3 kHz) and the measurement is repeated 6. If the EUT has more than one transmit chain the procedure is repeated for each transmit chain

3.4.6 Results

Test Results			
Channel [MHz]	PSD [dBm/RBW]	Limit [dBm/3kHz]	Verdict
2405	6.157	8.0	PASS
2440	5.840	8.0	PASS
2475	6.429	8.0	PASS
RBW = 10 kHz			

Peak Power Spectral Density

Project Number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
Model Description:	Radio Module 301m
Model:	CT301 Radio Module
Test Sample ID:	22571
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.10.2
Operational Mode:	IEEE 802.15.4 (DSSS/250 kbps), Channel: 11, 2405 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-02-14
Peak Frequency [MHz]:	2405.024
Spectral Density [dBm/RBW]:	6.157
Resolution Bandwidth [kHz]:	10 kHz



Peak Power Spectral Density

Project Number:	G0M-1702-6292
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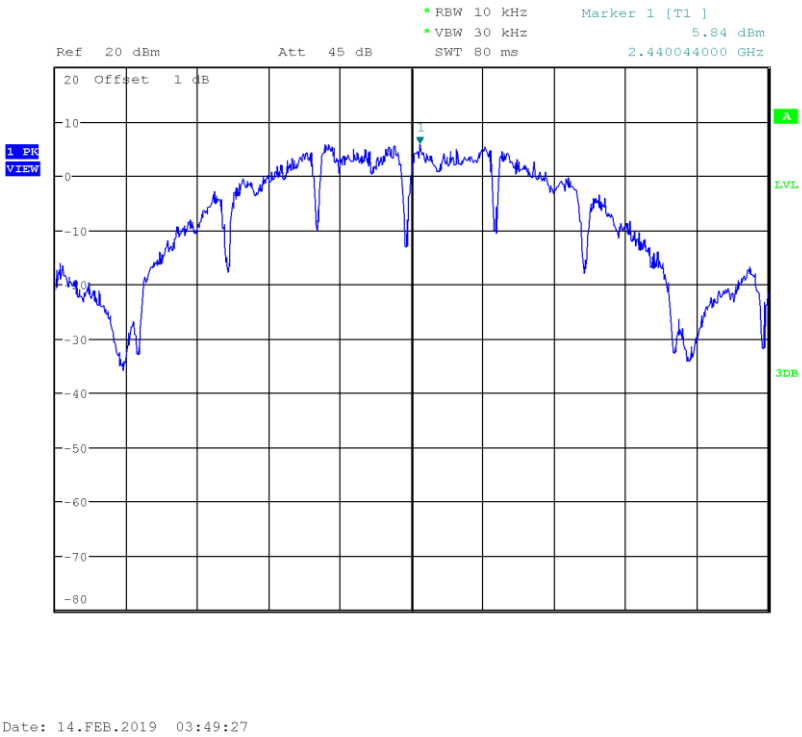
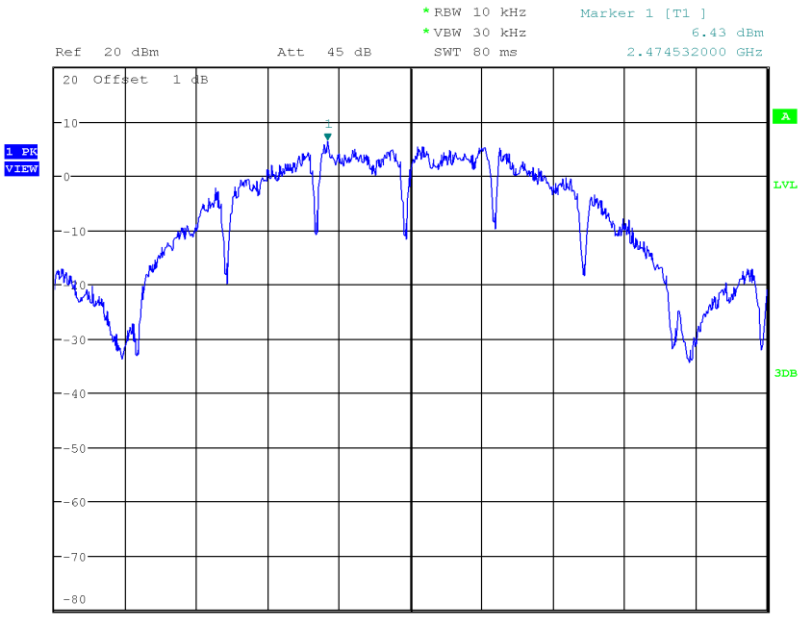
Model Description:	Radio Module 301m
Model:	CT301 Radio Module
Test Sample ID:	22571
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.10.2
Operational Mode:	IEEE 802.15.4 (DSSS/250 kbps), Channel: 18, 2440 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-02-14
Peak Frequency [MHz]:	2440.044
Spectral Density [dBm/RBW]:	5.840
Resolution Bandwidth [kHz]:	10 kHz



Peak Power Spectral Density

Project Number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
Model Description:	Radio Module 301m
Model:	CT301 Radio Module
Test Sample ID:	22571
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.10.2
Operational Mode:	IEEE 802.15.4 (DSSS/250 kbps), Channel: 25, 2475 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-02-14
Peak Frequency [MHz]:	2474.532
Spectral Density [dBm/RBW]:	6.429
Resolution Bandwidth [kHz]:	10 kHz



Date: 14.FEB.2019 03:47:11

3.5 Test Conditions and Results - AC powerline conducted emissions

3.5.1 Information

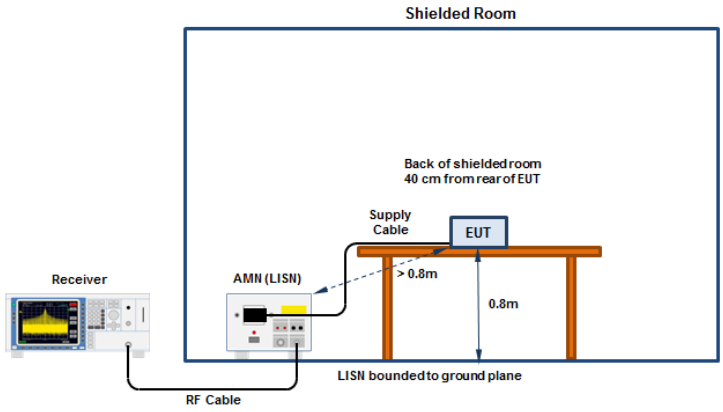
Test Information	
Reference	FCC § 15.207; ISED RSS-247, Issue 2 (section 3.1)
Measurement Method	ANSI C63.10 6.2
Operator	Wilfried Treffke
Date	2019-02-19

3.5.2 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		

3.5.3 Setup

Test Setup



3.5.4 Equipment

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

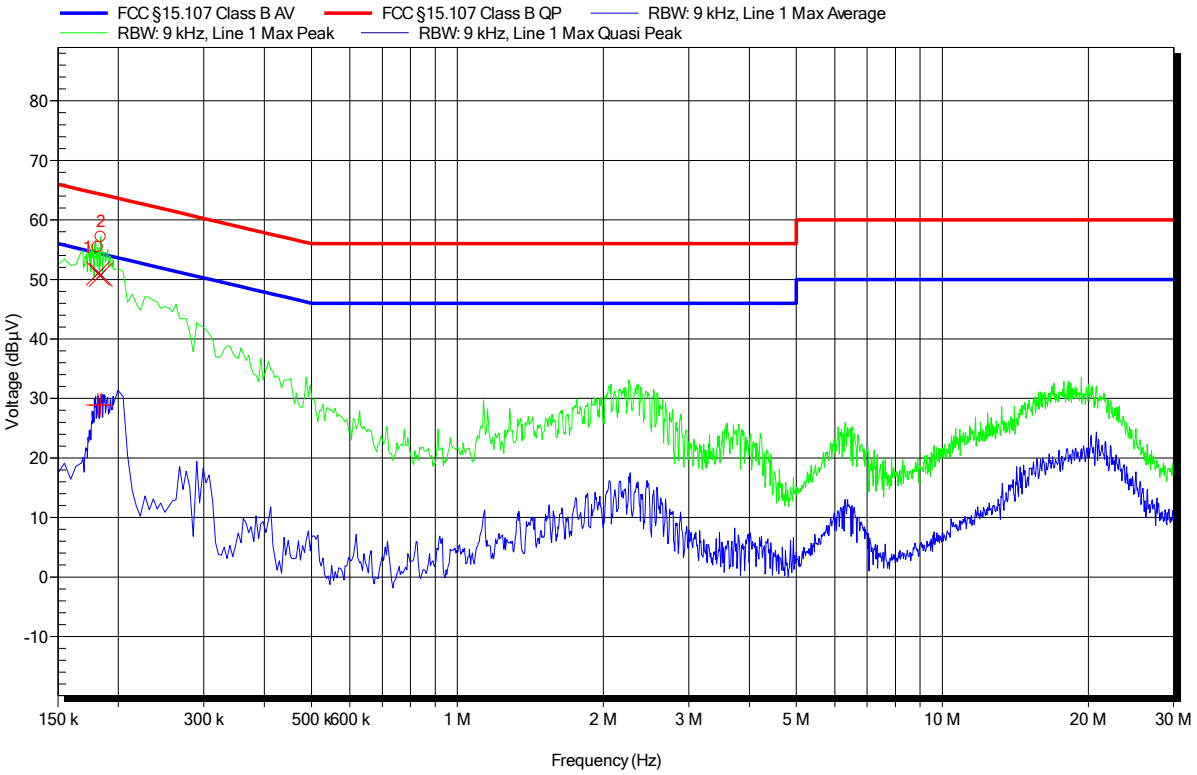
Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Receiver	R&S	ESU 26	EF00241	2017-07	2019-07
LISN	R&S	ESH3-Z5	EF00036	2017-01	2019-07

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

Project number: G0M-1702-6292

Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 22°C, Unom: 120 VAC
LISN:	ESH3-Z5 (L)
Mode:	IEEE 802.15.4, Tx Ch. 18
Test Date:	2019-02-19
Note:	

Index 1



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
1	181.5 kHz	50.99 dBµV	64.42 dBµV	-13.42 dB	Pass
2	183.75 kHz	50.79 dBµV	64.31 dBµV	-13.53 dB	Pass

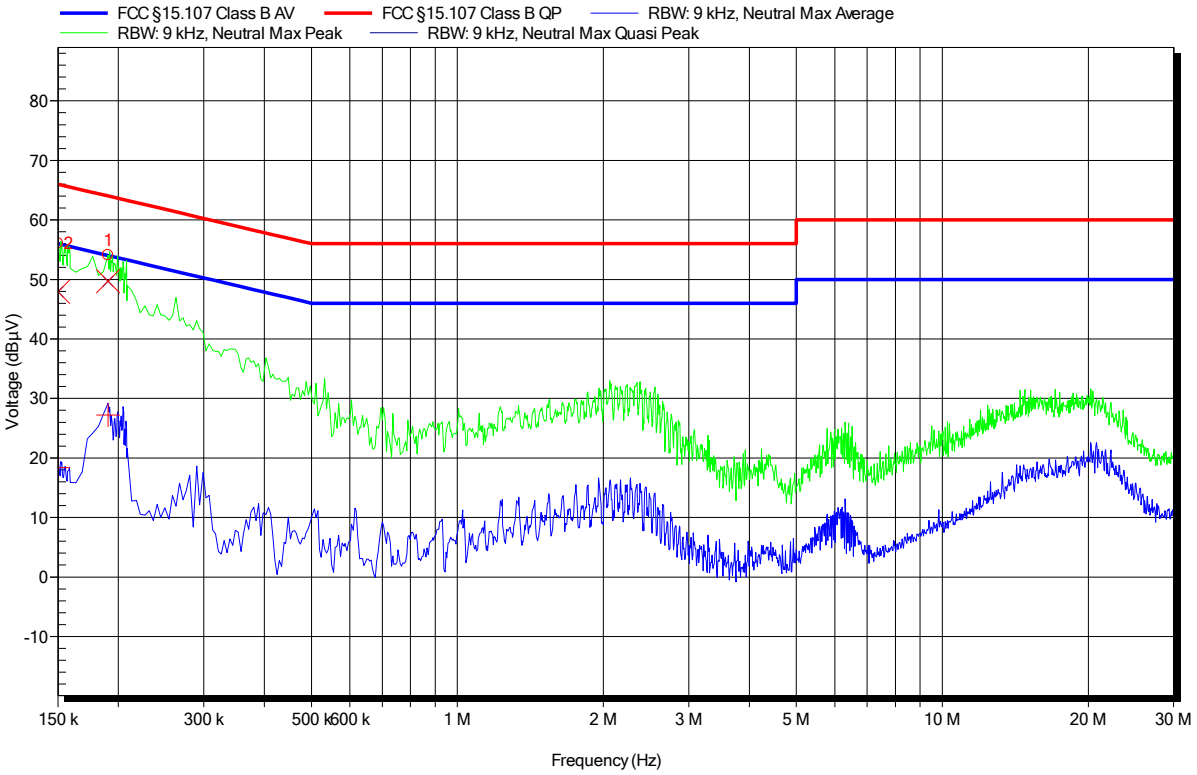
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status
1	181.5 kHz	28.86 dBµV	54.42 dBµV	-25.56 dB	Pass
2	183.75 kHz	28.91 dBµV	54.31 dBµV	-25.41 dB	Pass

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

Project number: G0M-1702-6292

Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 22°C, Unom: 120 VAC
LISN:	ESH3-Z5 (N)
Mode:	IEEE 802.15.4, Tx Ch. 18
Test Date:	2019-02-19
Note:	

Index 2



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
1	190.5 kHz	49.7 dBµV	64.01 dBµV	-14.32 dB	Pass
2	150 kHz	47.94 dBµV	66 dBµV	-18.06 dB	Pass

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status
1	190.5 kHz	27.2 dBµV	54.01 dBµV	-26.81 dB	Pass
2	150 kHz	18.35 dBµV	56 dBµV	-37.65 dB	Pass

3.6 Test Conditions and Results - Band-edge compliance

3.6.1 Information

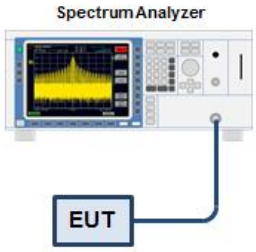
Test Information	
Reference	FCC § 15.247(d); ISED RSS-247, Issue 2 (section 5.5)
Measurement Method	ANSI C63.10 11.13
Operator	Wilfried Treffke
Date	2019-02-14

3.6.2 Limits

Limits	
Power Measurement	Out-of-band attenuation [dB]
Peak	20
RMS	30

3.6.3 Setup

Test Setup



3.6.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01003	2018-07	2019-07

3.6.5 Procedure

Test Procedure

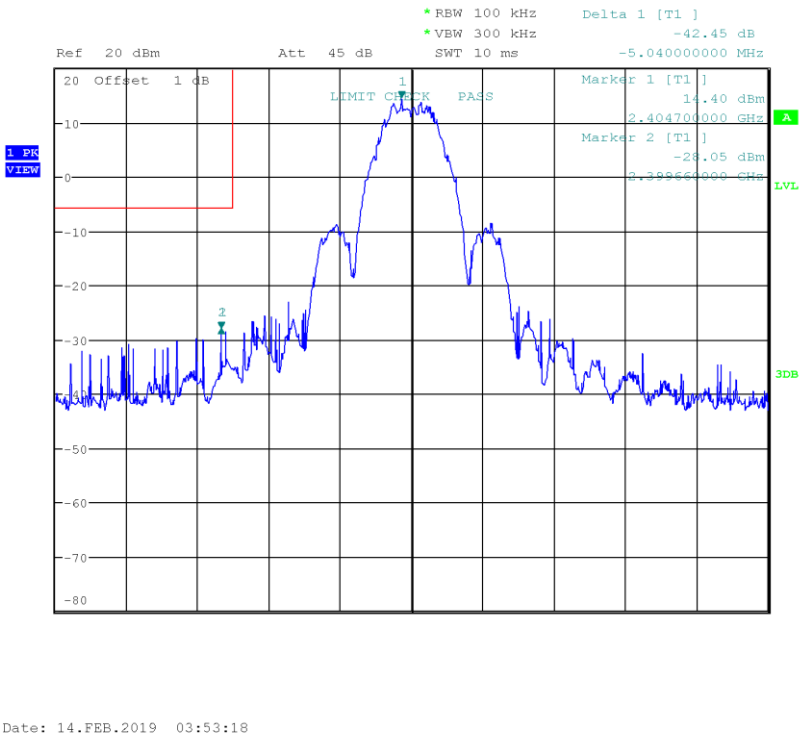
1. EUT set to test mode (Communication tester is used if needed)
2. Span set around lower band edge and detector is set to peak and max hold
3. Resolution bandwidth is set to 100 kHz
4. Markers are set to peak emission levels within frequency band and outside frequency band
5. Band edge attenuation is determined from level difference

3.6.6 Results

Test Results				
Mode	Channel [MHz]	Out-of-band Attenuation [dB]	Limit [dB]	Verdict
O-QPSK	2405	-42.45	-20	PASS
O-QPSK	2475	-48.63	-20	PASS

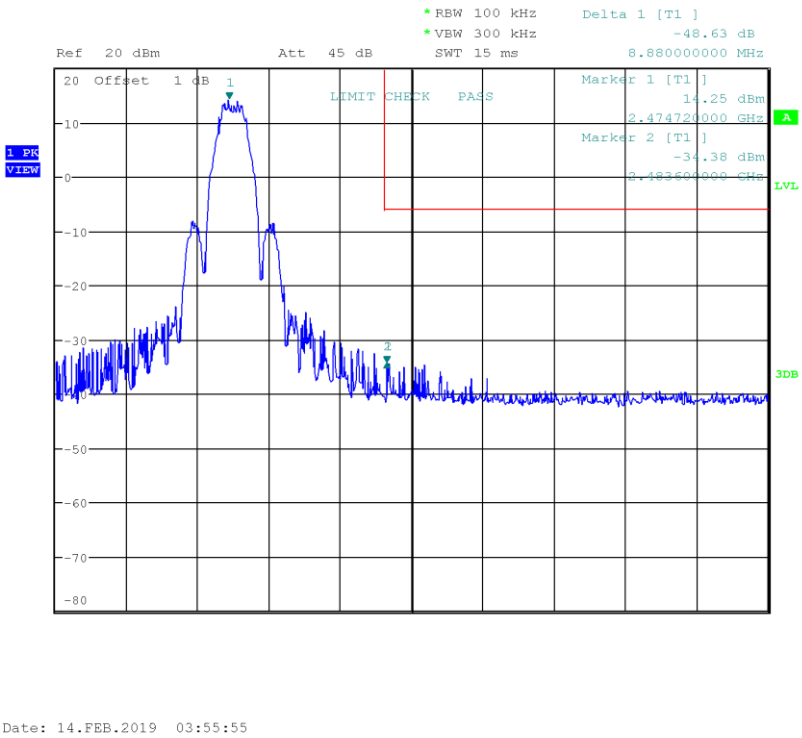
Band-edge Compliance

Project Number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
Model Description:	Radio Module 301m
Model:	CT301 Radio Module
Test Sample ID:	22571
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.11
Operational Mode:	IEEE 802.15.4 (DSSS/250 kbps), Channel: 2405 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-02-14
Band-edge	Lower
In-band Frequency [MHz]:	2404.7
Max. in-band Level [dBm/100 kHz]:	14.401
Out-of-band Frequency [MHz]:	2399.66
Max. out-of-band Level [dBm/100 kHz]:	-28.046
Attenuation [dB]:	-42.45



Band-edge Compliance

Project Number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
Model Description:	Radio Module 301m
Model:	CT301 Radio Module
Test Sample ID:	22571
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.11
Operational Mode:	IEEE 802.15.4 (DSSS/250 kbps), Channel: 2475 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-02-14
Band-edge	Upper
In-band Frequency [MHz]:	2474.72
Max. in-band Level [dBm/100 kHz]:	14.251
Out-of-band Frequency [MHz]:	2483.6
Max. out-of-band Level [dBm/100 kHz]:	-34.375
Attenuation [dB]:	-48.63



3.7 Test Conditions and Results - Conducted spurious emissions

3.7.1 Information

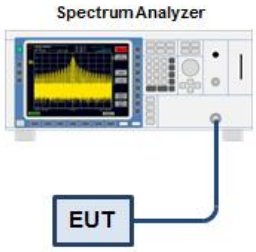
Test Information	
Reference	FCC § 15.247(d); ISED RSS-247, Issue 2 (section 5.5)
Measurement Method	ANSI C63.10 11.11
Operator	Wilfried Treffke
Date	2019-02-14

3.7.2 Limits

Limits	
Power Measurement	Out-of-band attenuation [dB]
Peak	20
RMS	30

3.7.3 Setup

Test Setup



3.7.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01003	2018-07	2019-07

3.7.5 Procedure

Test Procedure

1. EUT set to test mode (Communication tester is used if needed)
2. Span set around lower band edge and detector is set to peak and max hold
3. Resolution bandwidth is set to 100 kHz
4. Markers are set to peak emission levels within frequency band and outside frequency band
5. Band edge attenuation is determined from level difference

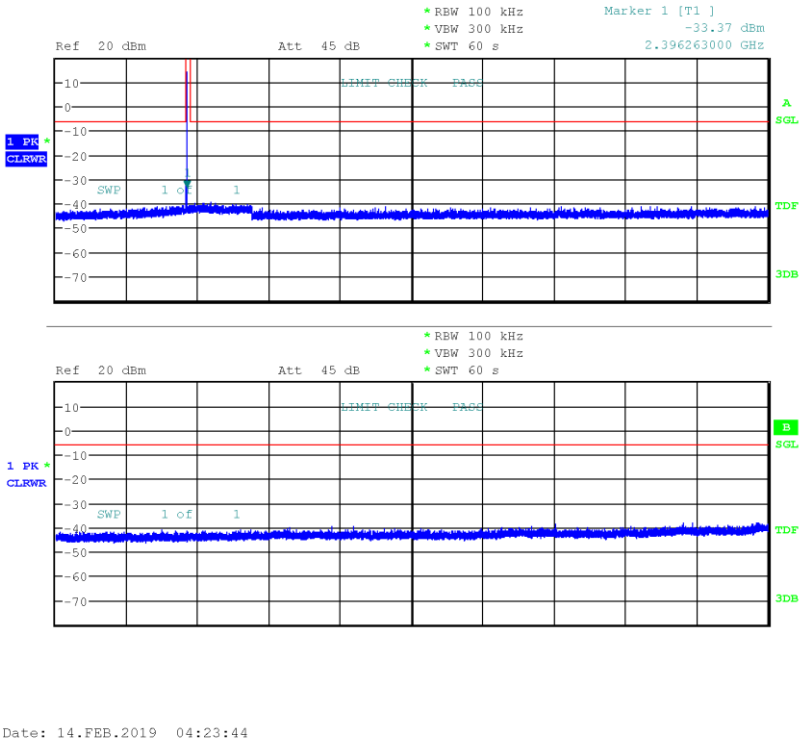
3.7.6 Results

Test Results		
Mode	Channel [MHz]	Verdict
O-QPSK	2405	PASS
O-QPSK	2440	PASS
O-QPSK	2475	PASS

Conducted Spurious Emissions

Project Number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
Model Description:	Radio Module 301m
Model:	CT301 Radio Module
Test Sample ID:	22571
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.11
Operational Mode:	IEEE 802.15.4 (DSSS/250 kbps), Channel: 11, 2405 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-02-14
Max. in-band Frequency [MHz]:	2404.7
Max. in-band Level [dBm/100 kHz]:	13.8
Out-of-band Limit [dBm/100 kHz]:	-6.2

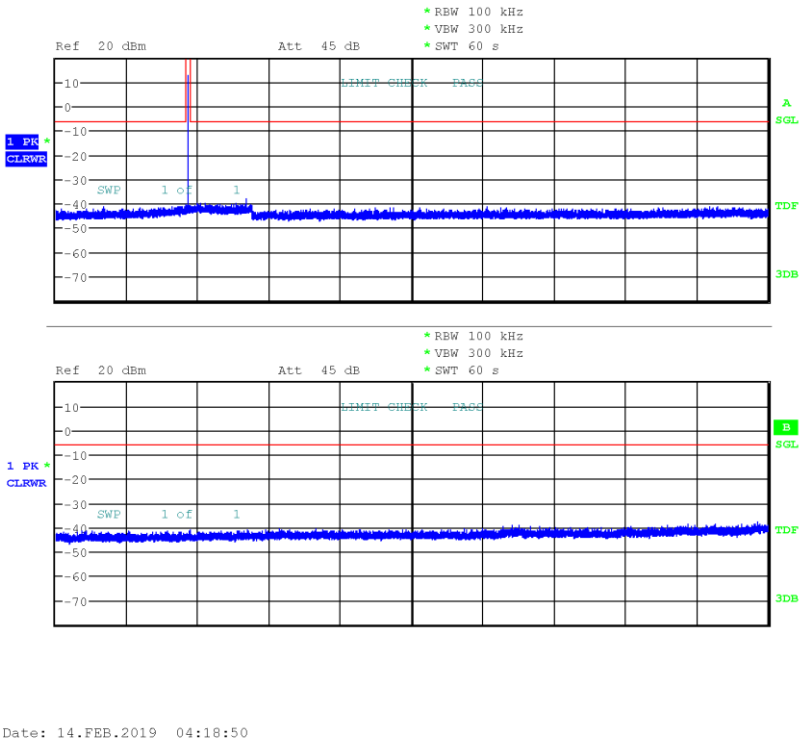
Overview screen A: 10 MHz to 13 GHz Screen B: 13 GHz to 26 GHz



Conducted Spurious Emissions

Project Number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
Model Description:	Radio Module 301m
Model:	CT301 Radio Module
Test Sample ID:	22571
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.11
Operational Mode:	IEEE 802.15.4 (DSSS/250 kbps), Channel: 18, 2440 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-02-14
Max. in-band Frequency [MHz]:	2440.2
Max. in-band Level [dBm/100 kHz]:	13.7
Out-of-band Limit [dBm/100 kHz]:	-6.3

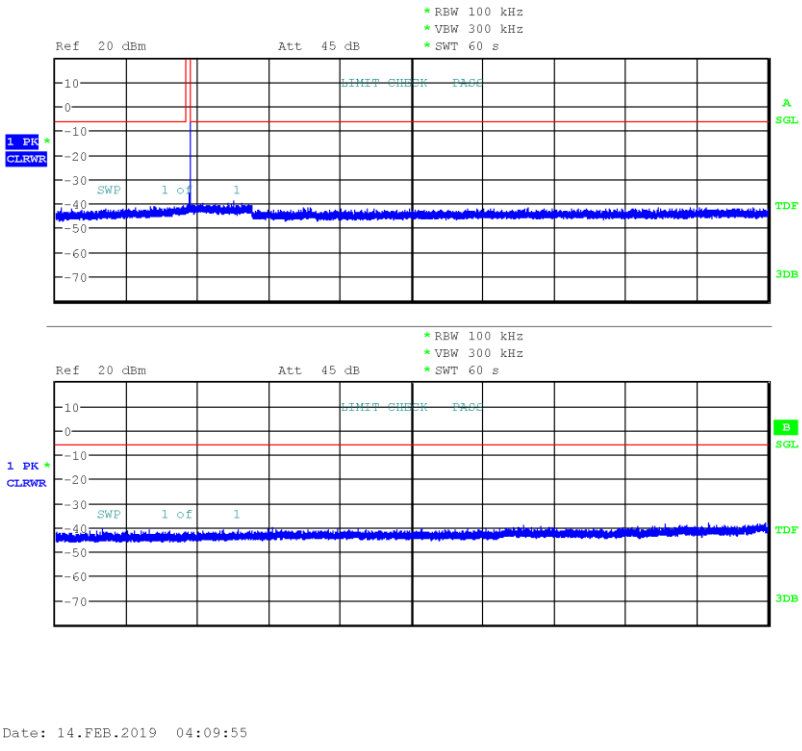
Overview screen A: 10 MHz to 13 GHz Screen B: 13 GHz to 26 GHz



Conducted Spurious Emissions

Project Number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
Model Description:	Radio Module 301m
Model:	CT301 Radio Module
Test Sample ID:	22571
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.11
Operational Mode:	IEEE 802.15.4 (DSSS/250 kbps), Channel: 25, 2475 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-02-14
Max. in-band Frequency [MHz]:	2475.2
Max. in-band Level [dBm/100 kHz]:	13.9
Out-of-band Limit [dBm/100 kHz]:	-6.1

Overview screen A: 10 MHz to 13 GHz Screen B: 13 GHz to 26 GHz



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3.8 Test Conditions and Results - Transmitter radiated emissions

3.8.1 Information

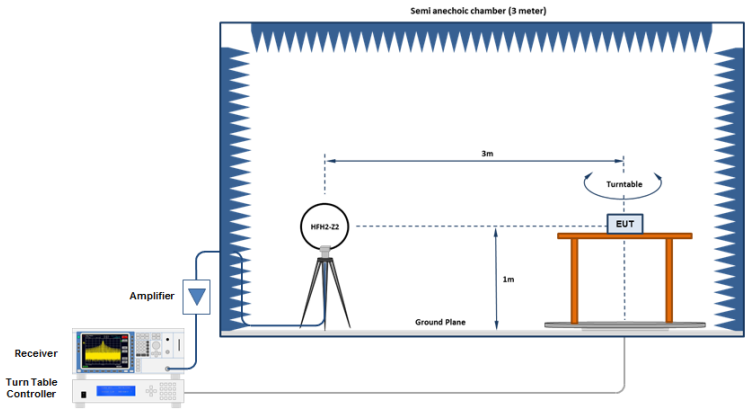
Test Information	
Reference	FCC § 15.247(d); FCC § 15.209; ISED RSS-Gen, Issue 5 (section 6.13)
Measurement Method	ANSI C63.10 6.4, 6.5, 6.6, 11.12; KDB Publication 558074 D01 v05r01
Operator	Wilfried Treffke
Date	2019-02-15

3.8.2 Limits

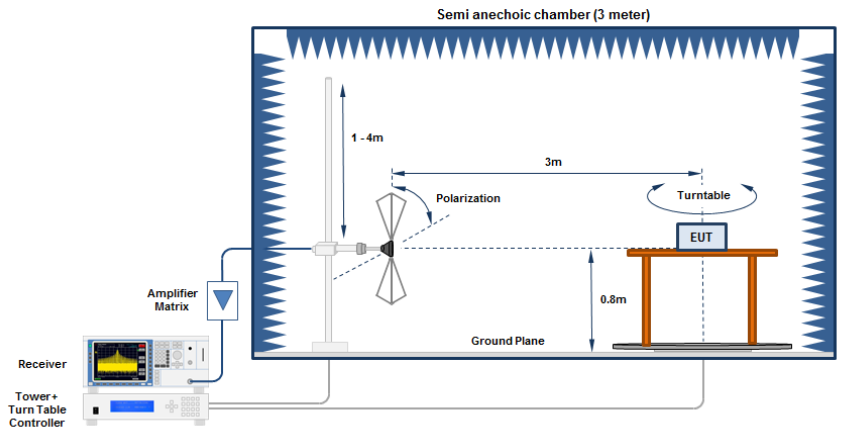
Limits			
Frequency [MHz]	Detector	Field strength [µV/m]	Measurement distance [m]
0.009 - 0.09	Average	2400/F[kHz]	300
0.09 - 0.110	Quasi-Peak	2400/F[kHz]	300
0.110 - 0.490	Average	2400/F[kHz]	300
0.490 - 1.705	Quasi-Peak	24000/F[kHz]	30
1.705 - 30.0	Quasi-Peak	30	30
30 - 88	Quasi-Peak	100	3
88 - 216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

3.8.3 Setup

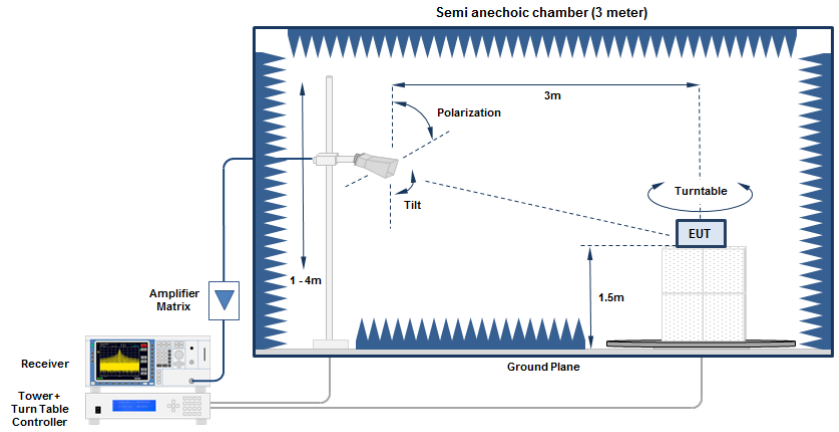
Test Setup < 30 MHz



Test Setup 30 - 1000 MHz



Test Setup > 1 GHz



3.8.4 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	EF00212	2016-04	2019-04

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	EF01153	2018-09	2019-09
Antenna	Amplifier Research	AT4560	EF01152	2018-10	2019-10

3.8.5 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 a peak detector.
6. Then the operational duty cycle of the EUT is subtracted from the Peak reading to derive the RMS average value.

3.8.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2405	2381.1	57.65	pk	hor	74.00	-16.35
2405	2381.1	46.85	RMS	hor	54.00	-07.15
2405	2389.8	54.21	pk	ver	74.00	-19.79
2405	2389.8	43.41	RMS	ver	54.00	-10.59
2405	2765	44.49	pk	hor	74.00	-29.51
2405	4806	52.79	pk	hor	74.00	-21.21
2405	4806	41.99	RMS	hor	54.00	-12.01
2405	4806	53.07	pk	ver	74.00	-20.93
2405	12016	57.75	pk	hor	74.00	-16.25
2405	12016	46.95	RMS	hor	54.00	-07.05
2405	12016	61.83	pk	ver	74.00	-12.17
2405	12016	51.03	RMS	ver	54.00	-02.97
2440	4877	56.10	pk	hor	74.00	-17.90
2440	4877	45.30	RMS	hor	54.00	-08.70
2440	4877	54.29	pk	ver	74.00	-19.71
2440	4877	43.49	RMS	ver	54.00	-10.51
2440	7315	61.36	pk	hor	74.00	-12.64
2440	7315	50.56	RMS	hor	54.00	-03.44
2440	7322	64.54	pk	ver	74.00	-09.46
2440	7322	53.74	RMS	ver	54.00	-00.26
2440	12200	58.32	pk	hor	74.00	-15.68
2440	12200	47.52	RMS	hor	54.00	-06.48
2440	12200	57.84	pk	ver	74.00	-16.16
2440	12200	47.04	RMS	ver	54.00	-06.96
2475	2283	46.97	pk	ver	74.00	-27.03
2475	2284	48.82	pk	hor	74.00	-25.18
2475	2331	48.06	pk	hor	74.00	-25.94
2475	2378	49.31	pk	hor	74.00	-24.69
2475	2483.5	61.08	pk	hor	74.00	-12.92
2475	2483.5	50.28	RMS	hor	54.00	-03.72
2475	2483.5	39.48	RMS	hor	54.00	-14.52
2475	2483.8	55.39	pk	ver	74.00	-18.61
2475	2483.8	44.59	RMS	ver	54.00	-09.41
2475	2498.8	56.83	pk	hor	74.00	-17.17
2475	2498.8	46.03	RMS	hor	54.00	-07.97
2475	4947	57.55	pk	hor	74.00	-16.45
2475	4947	46.75	RMS	hor	54.00	-07.25
2475	4947	51.57	pk	ver	74.00	-22.43
2475	7424	60.20	pk	hor	74.00	-13.80
2475	7424	49.40	RMS	hor	54.00	-04.60
2475	12368	49.21	pk	hor	74.00	-24.79
2475	12368	53.88	pk	ver	74.00	-20.12
2475	12368	43.08	RMS	ver	54.00	-10.92
Comments:	AV value is calculated from peak value by duty cycle correction of -10.8 dB					

3.9 Test Conditions and Results - Receiver radiated emissions

3.9.1 Information

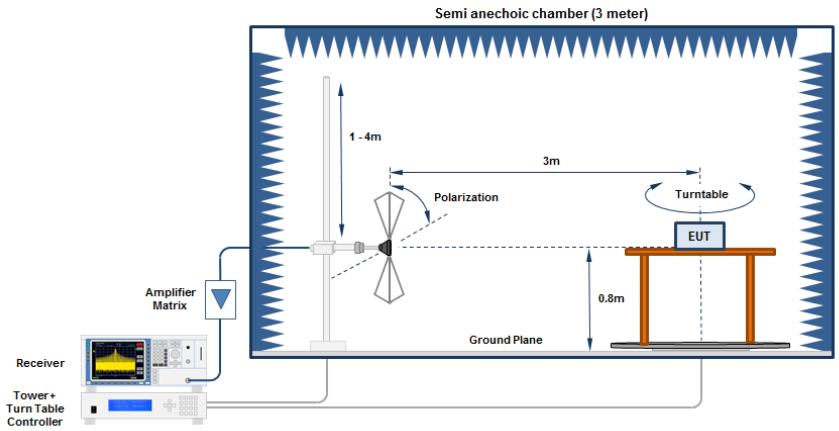
Test Information	
Reference	ISED RSS-247, Issue 2 (section 3.1)
Measurement Method	ANSI C63.10 6.5, 6.6, 11.12
Operator	Wilfried Treffke
Date	2019-02-15

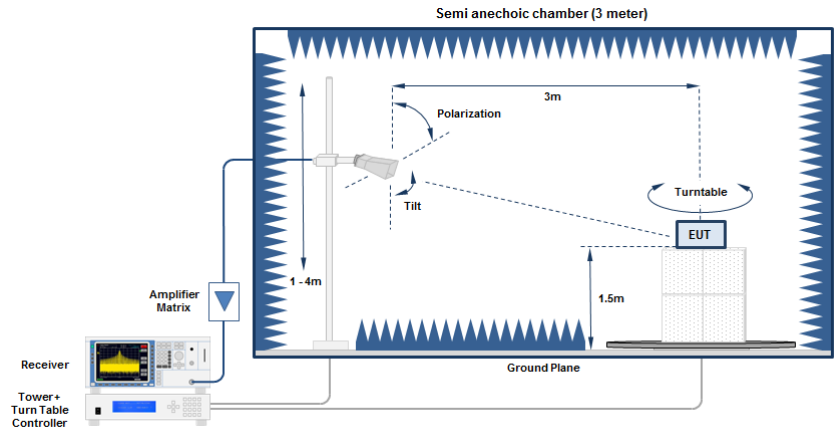
3.9.2 Limits

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

3.9.3 Setup

Test Setup 30 - 1000 MHz



Test Setup > 1 GHz


3.9.4 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	EF00212	2016-04	2019-04

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	EF01153	2018-09	2019-09
Antenna	Amplifier Research	AT4560	EF01152	2018-10	2019-10

3.9.5 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

3.9.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2440	229.44	19.06	pk	ver	46.00	-26.94
2440	239.68	20.86	pk	hor	46.00	-25.14
2440	375.36	22.41	pk	ver	46.00	-23.59
2440	383.04	24.62	pk	hor	46.00	-21.38
2440	3736	39.69	pk	ver	53.98	-14.29
2440	4877	36.62	pk	hor	53.98	-17.36
2440	4877	37.22	pk	ver	53.98	-16.76
2440	11233	44.03	pk	ver	53.98	-09.95

ANNEX A Transmitter spurious emissions

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; IEEE 802.15.4; 2405 MHz
Test Date:	2019-02-18
Note:	

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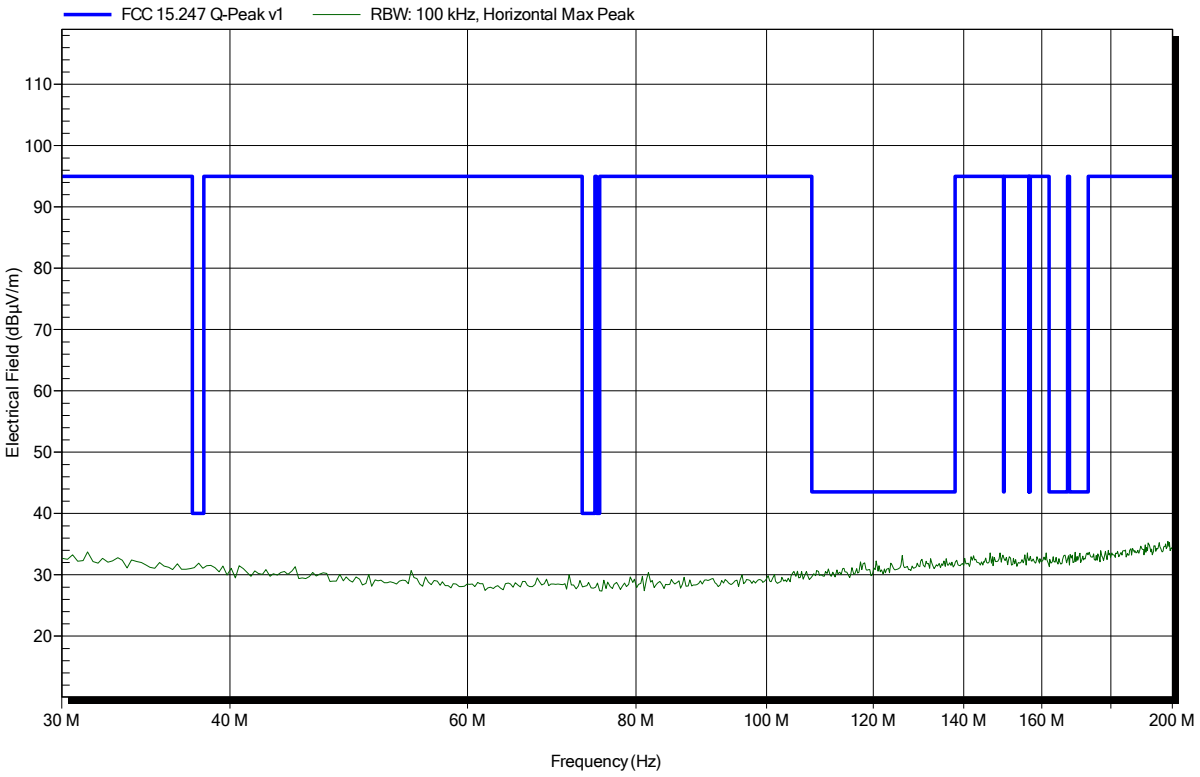

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; IEEE 802.15.4; 2405 MHz
Test Date:	2019-02-18
Note:	

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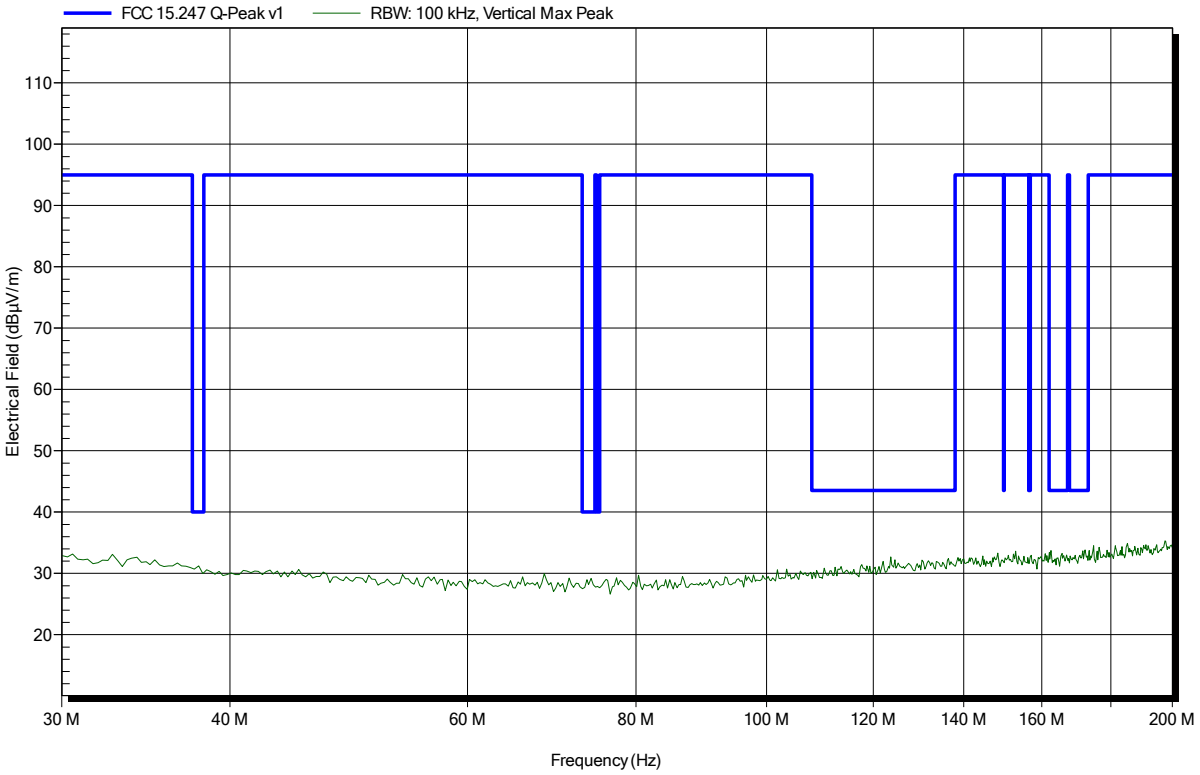

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; IEEE 802.15.4; 2405 MHz
Test Date:	2019-02-18
Note:	

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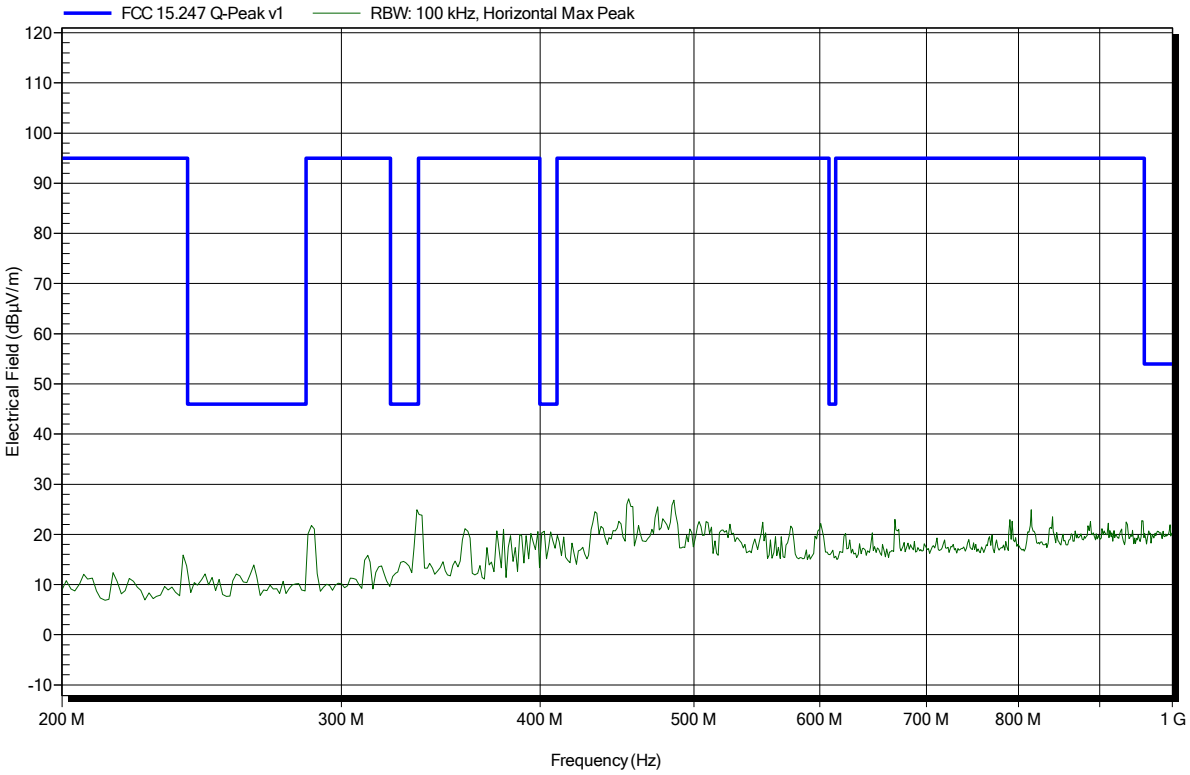

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; IEEE 802.15.4; 2405 MHz
Test Date:	2019-02-18
Note:	

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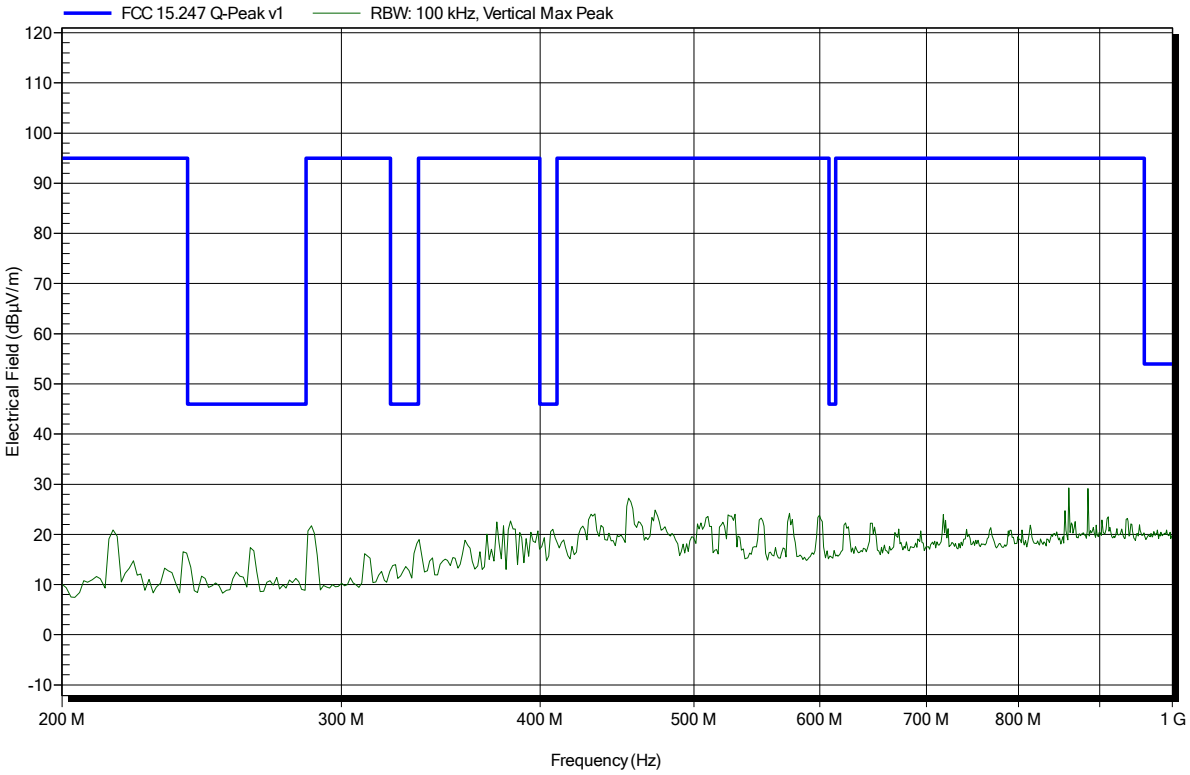

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2405 MHz
Test Date:	2019-02-15
Note:	

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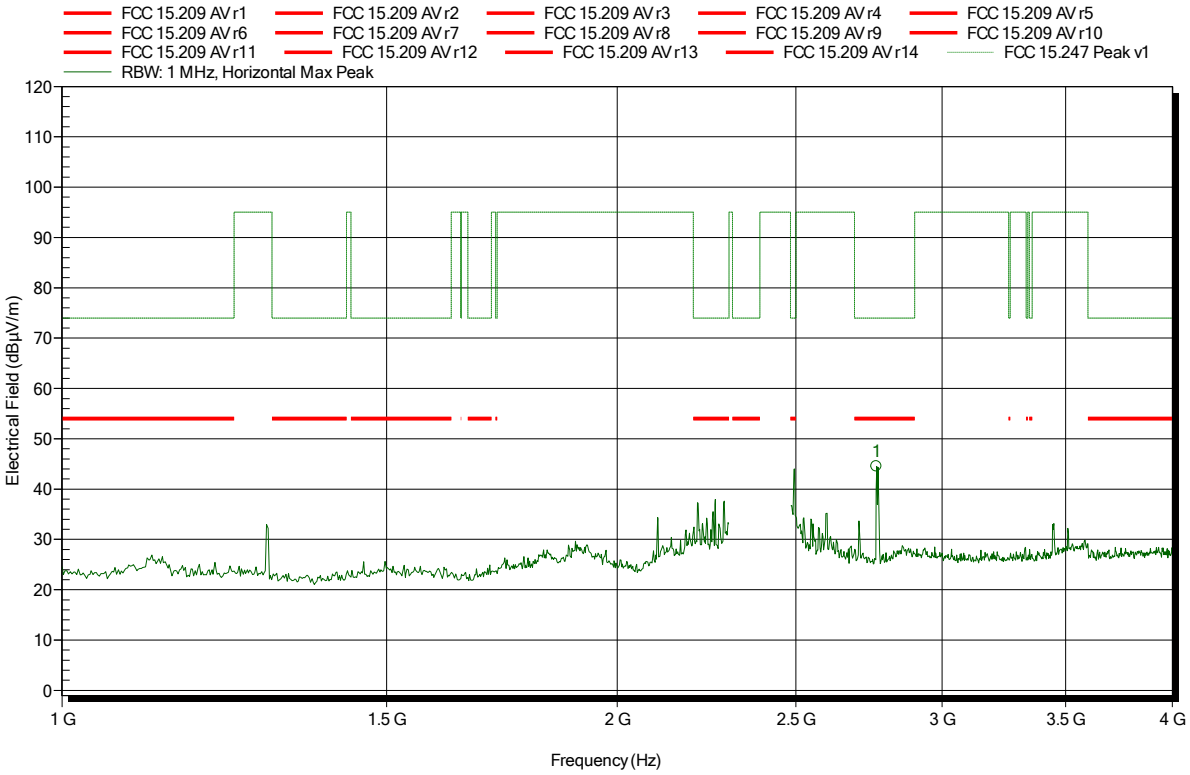

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.765 GHz	44.49 dBµV/m	74 dBµV/m	-29.51 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2405 MHz
Test Date:	2019-02-15
Note:	

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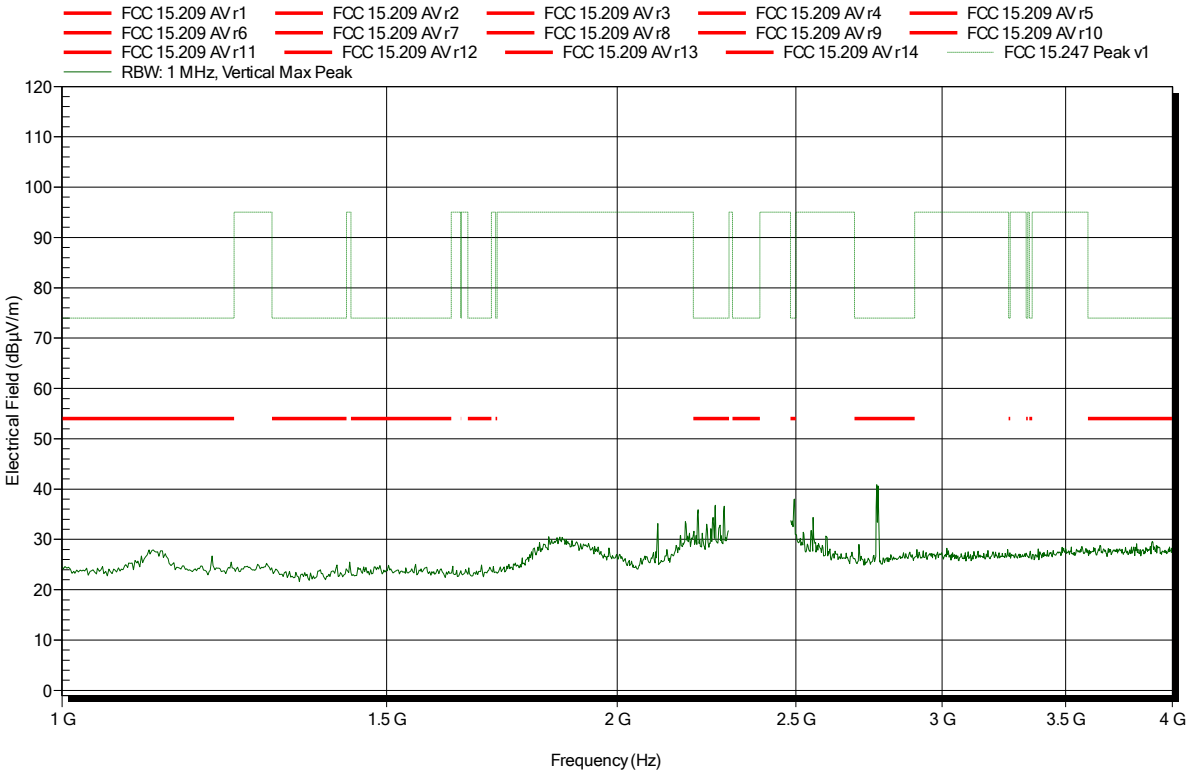

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2405 MHz
Test Date:	2019-02-15
Note:	lower bandedge

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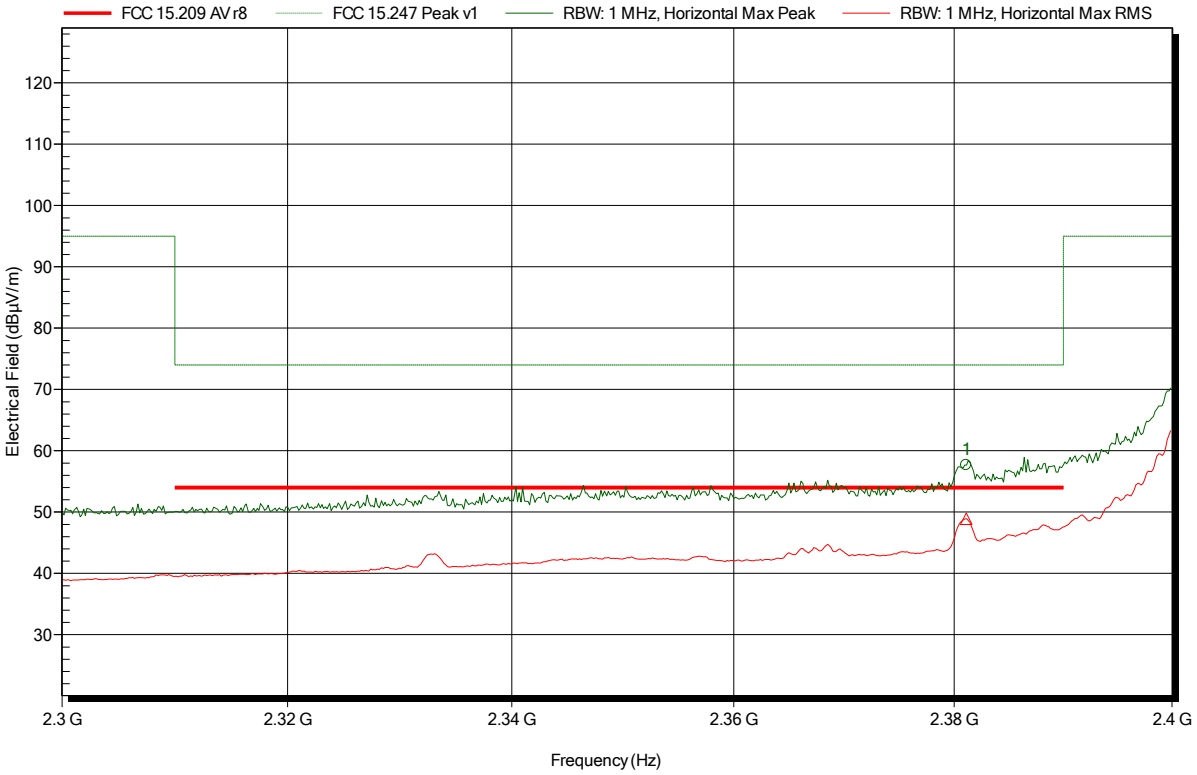

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.3811 GHz	57.65 dBµV/m	74 dBµV/m	-16.35 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.3811 GHz	48.91 dBµV/m	54 dBµV/m	-5.09 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2405 MHz
Test Date:	2019-02-15
Note:	lower bandedge

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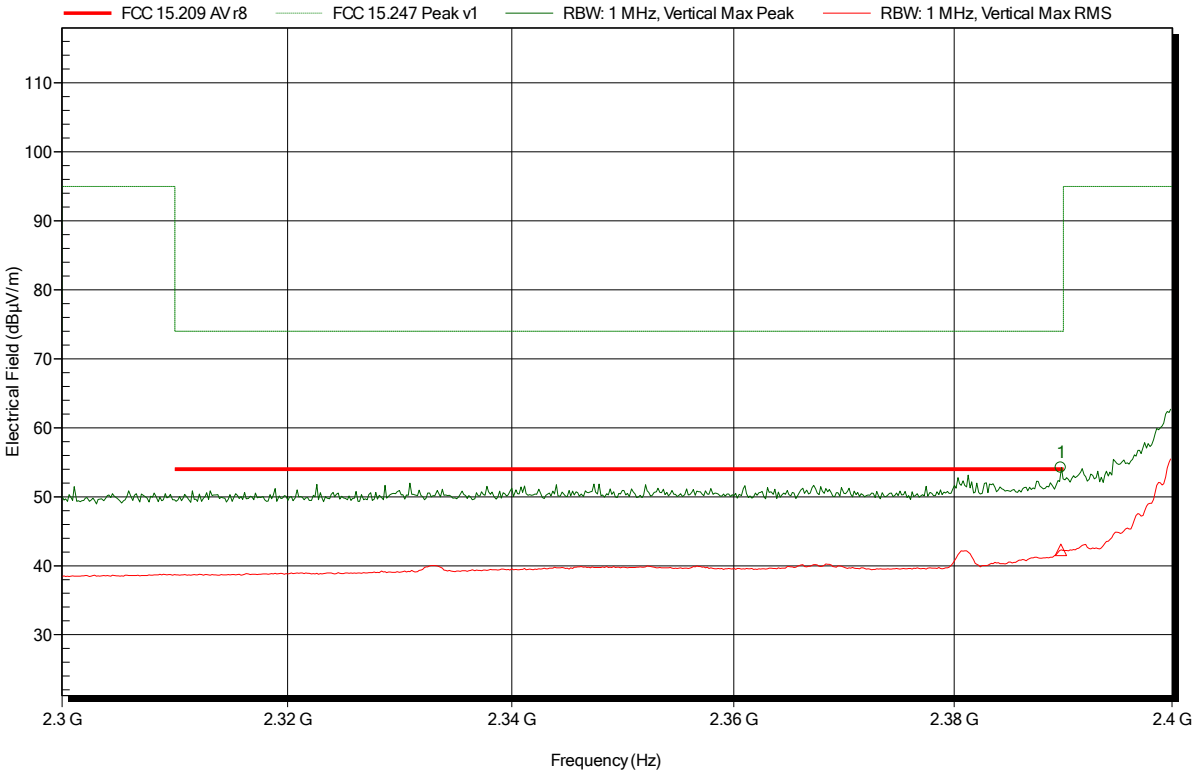

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.3898 GHz	54.21 dBµV/m	74 dBµV/m	-19.79 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.3898 GHz	42.31 dBµV/m	54 dBµV/m	-11.69 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2405 MHz
Test Date:	2019-02-15
Note:	

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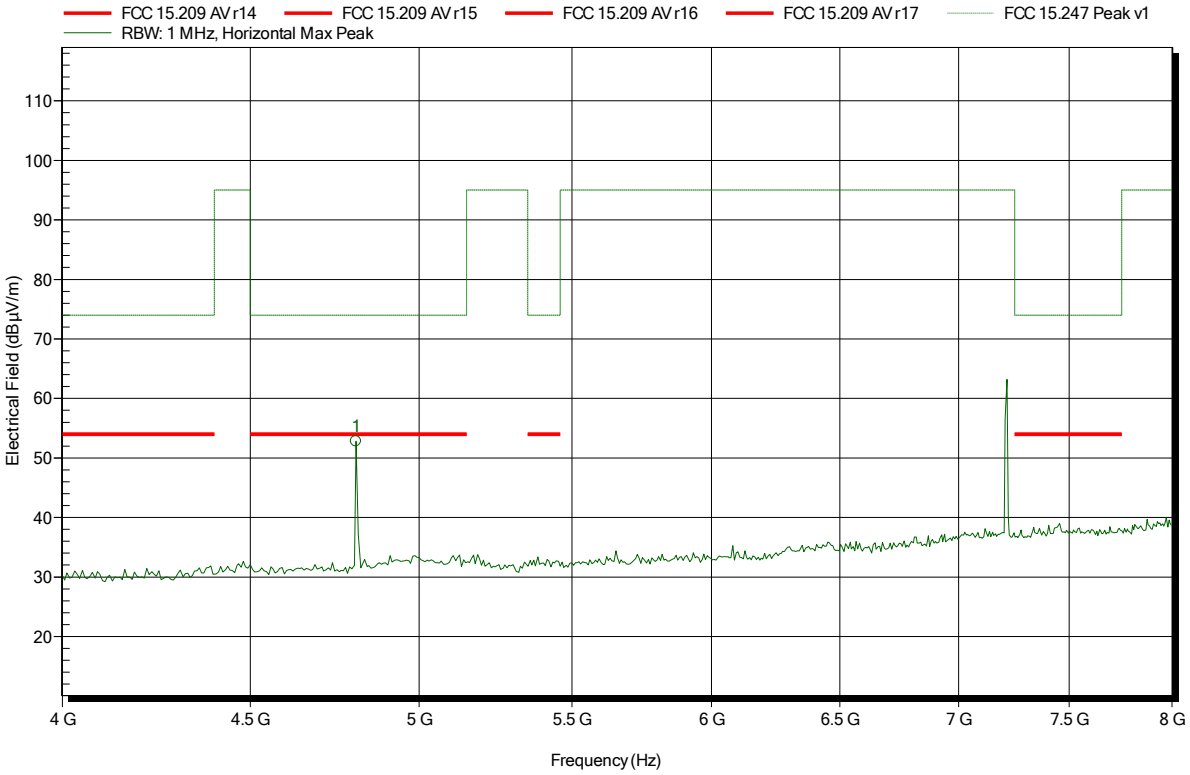

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.806 GHz	52.79 dBµV/m	74 dBµV/m	-21.21 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2405 MHz
Test Date:	2019-02-15
Note:	

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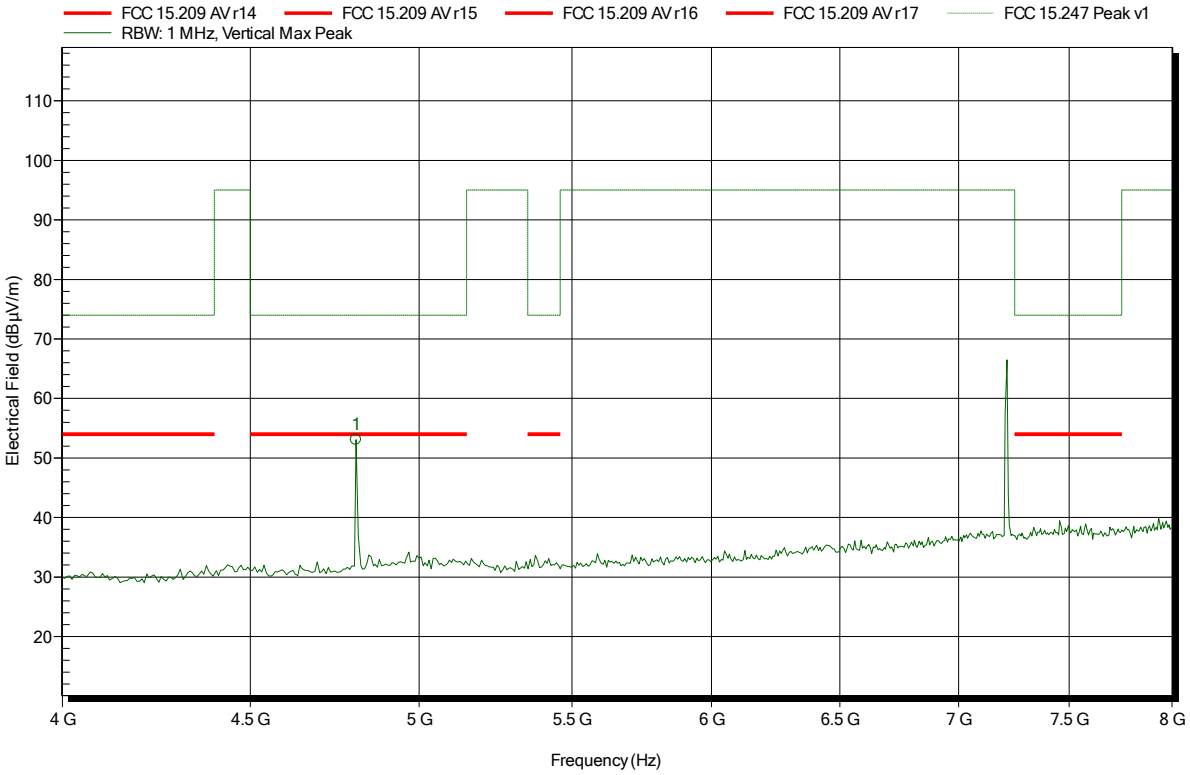

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.806 GHz	53.07 dBµV/m	74 dBµV/m	-20.93 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2405 MHz
Test Date:	2019-02-15
Note:	

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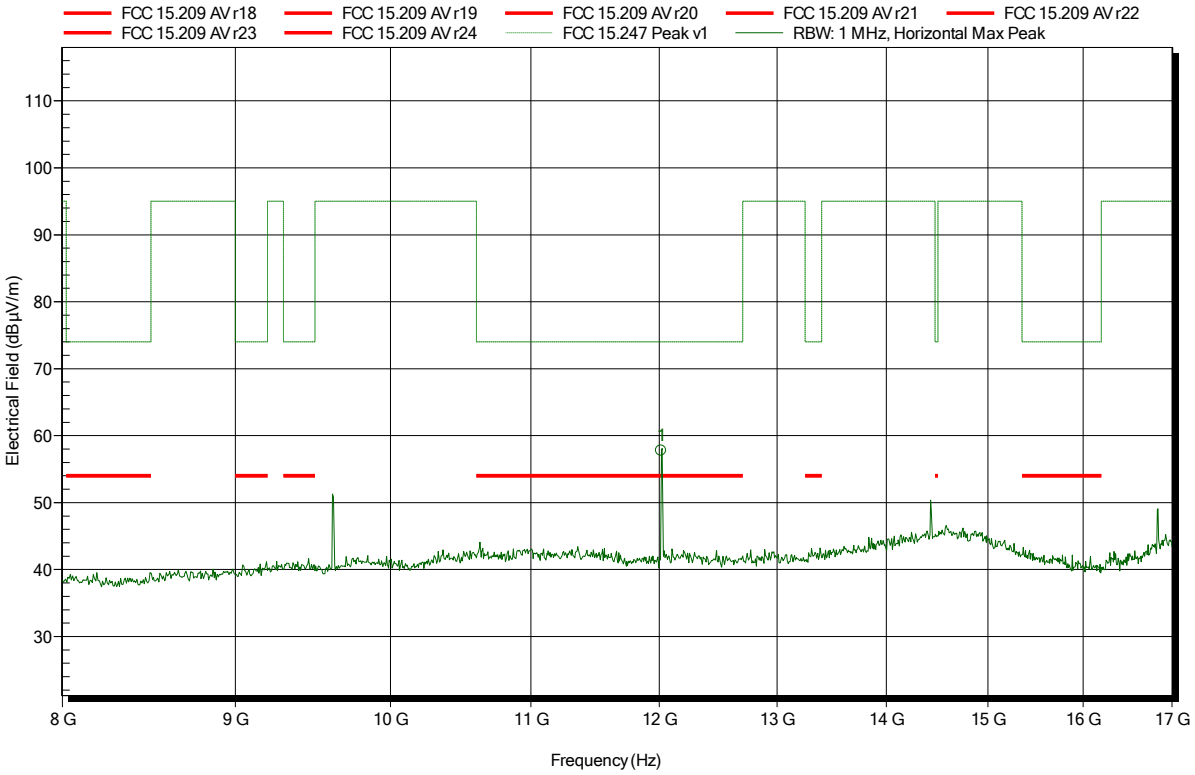

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
12.016 GHz	57.75 dBµV/m	74 dBµV/m	-16.25 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2405 MHz
Test Date:	2019-02-15
Note:	

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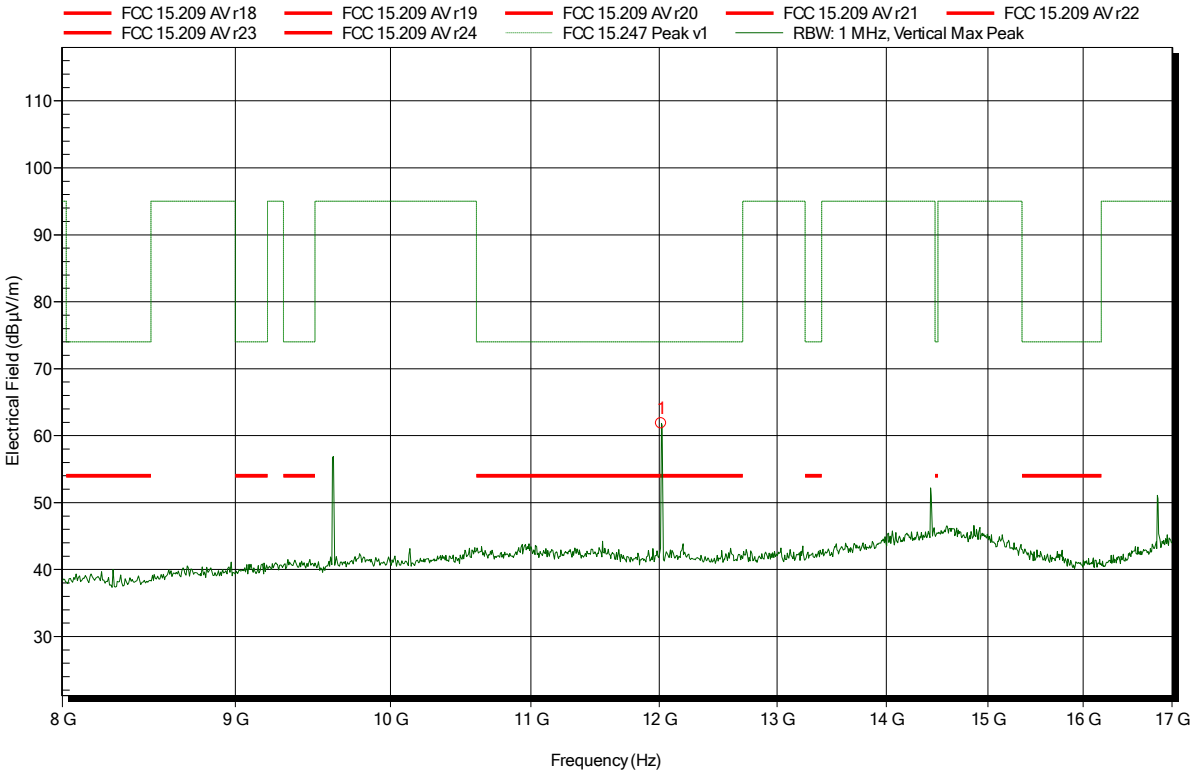

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
12.016 GHz	61.83 dBµV/m	74 dBµV/m	-12.17 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Amplifier Research AT4560, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2405 MHz
Test Date:	2019-02-15
Note:	

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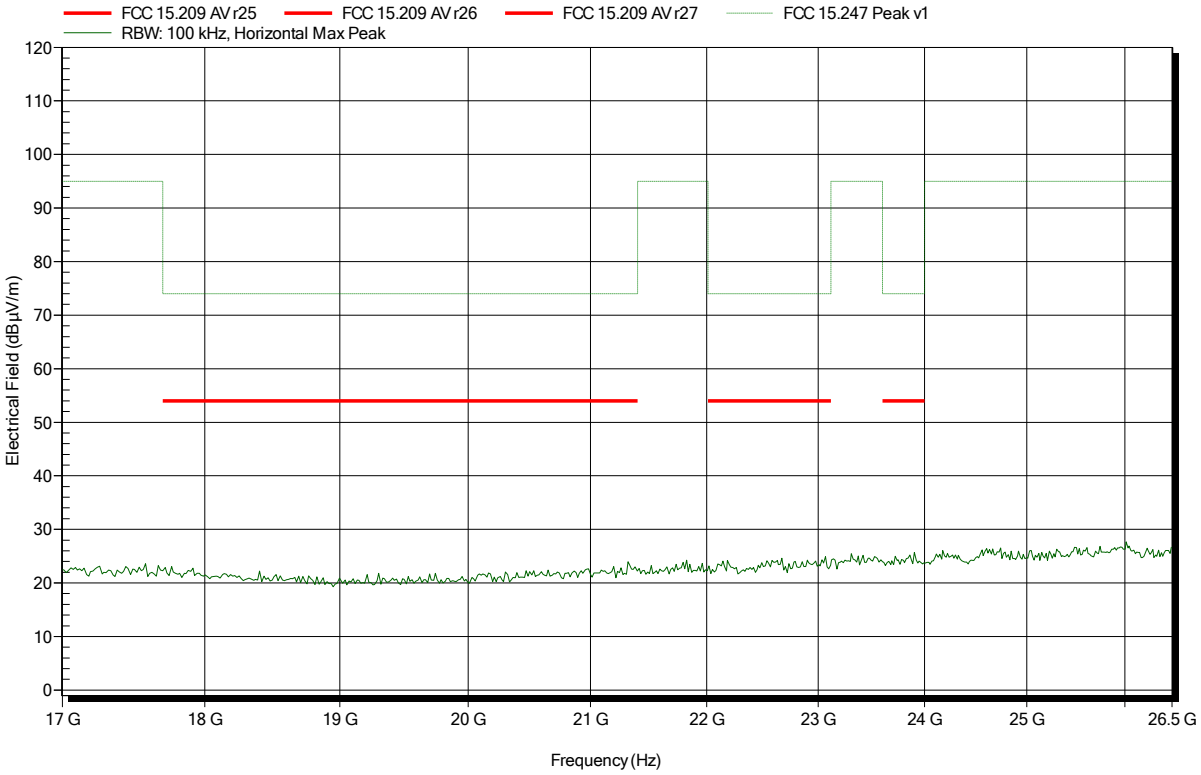

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Amplifier Research AT4560, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2405 MHz
Test Date:	2019-02-15
Note:	

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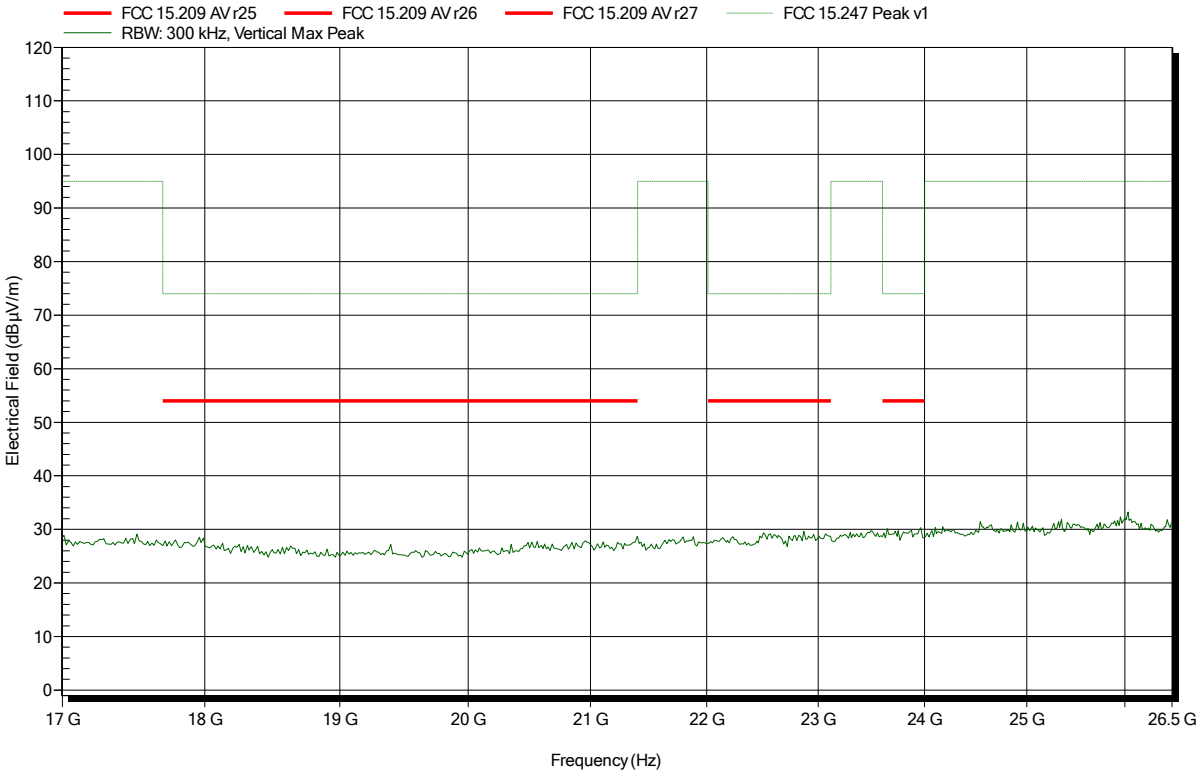

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-15
Note:	

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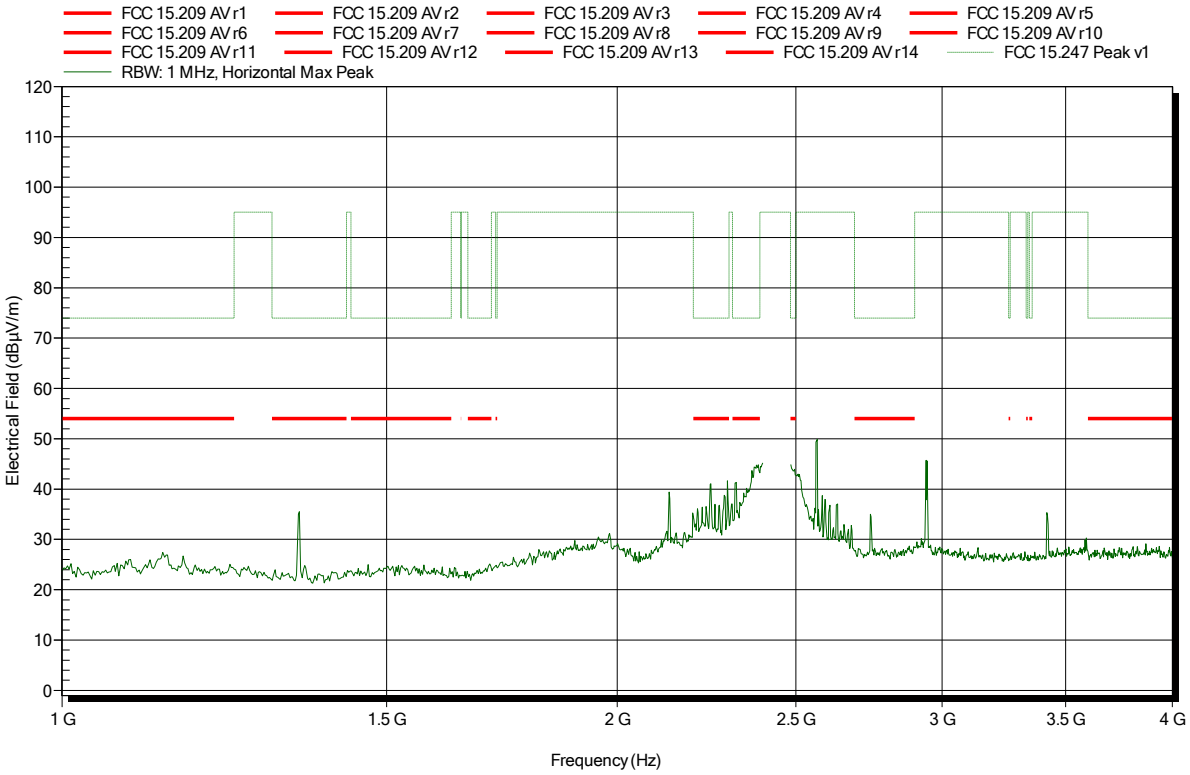

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-15
Note:	

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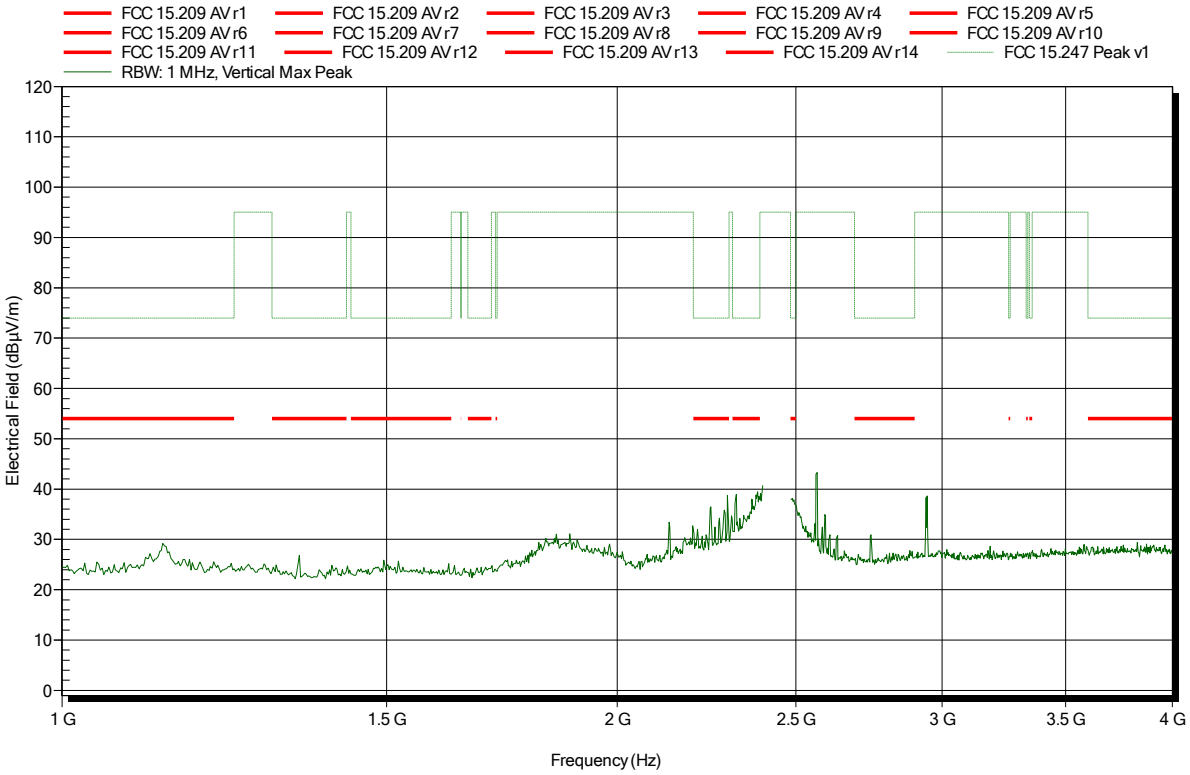

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-15
Note:	

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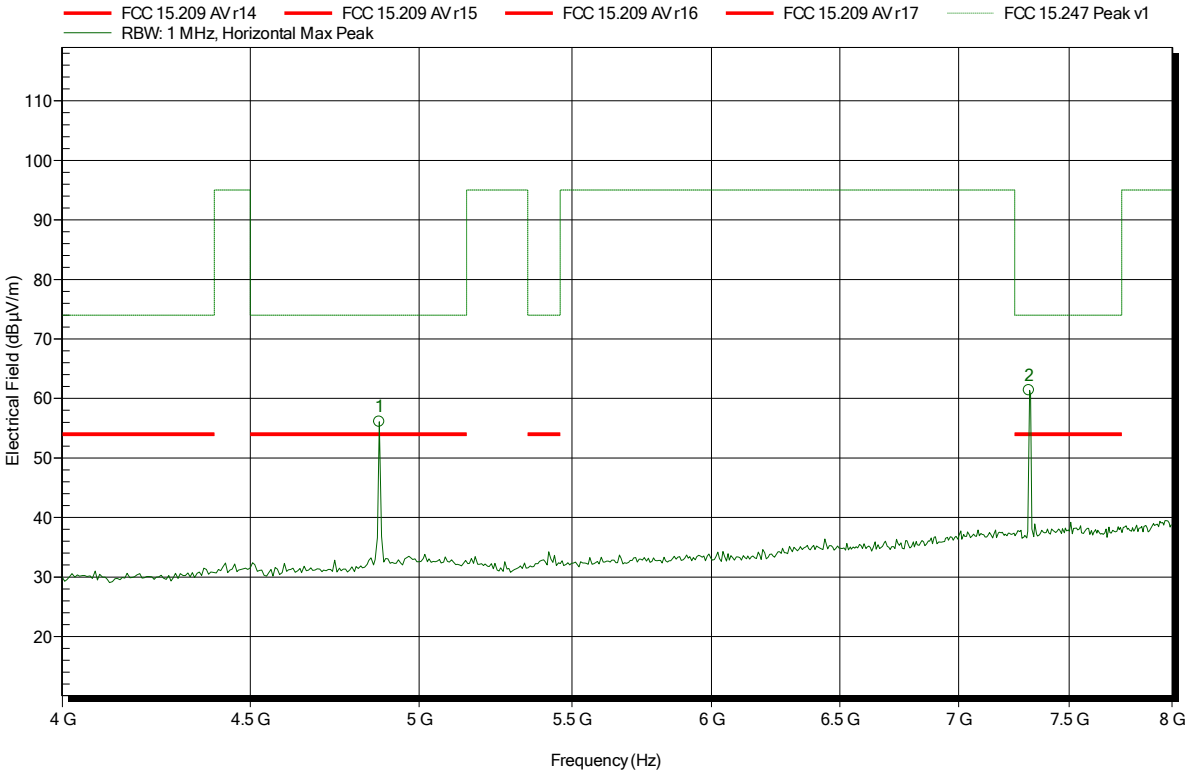

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.877 GHz	56.1 dBµV/m	74 dBµV/m	-17.9 dB	Pass
7.315 GHz	61.36 dBµV/m	74 dBµV/m	-12.64 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-15
Note:	

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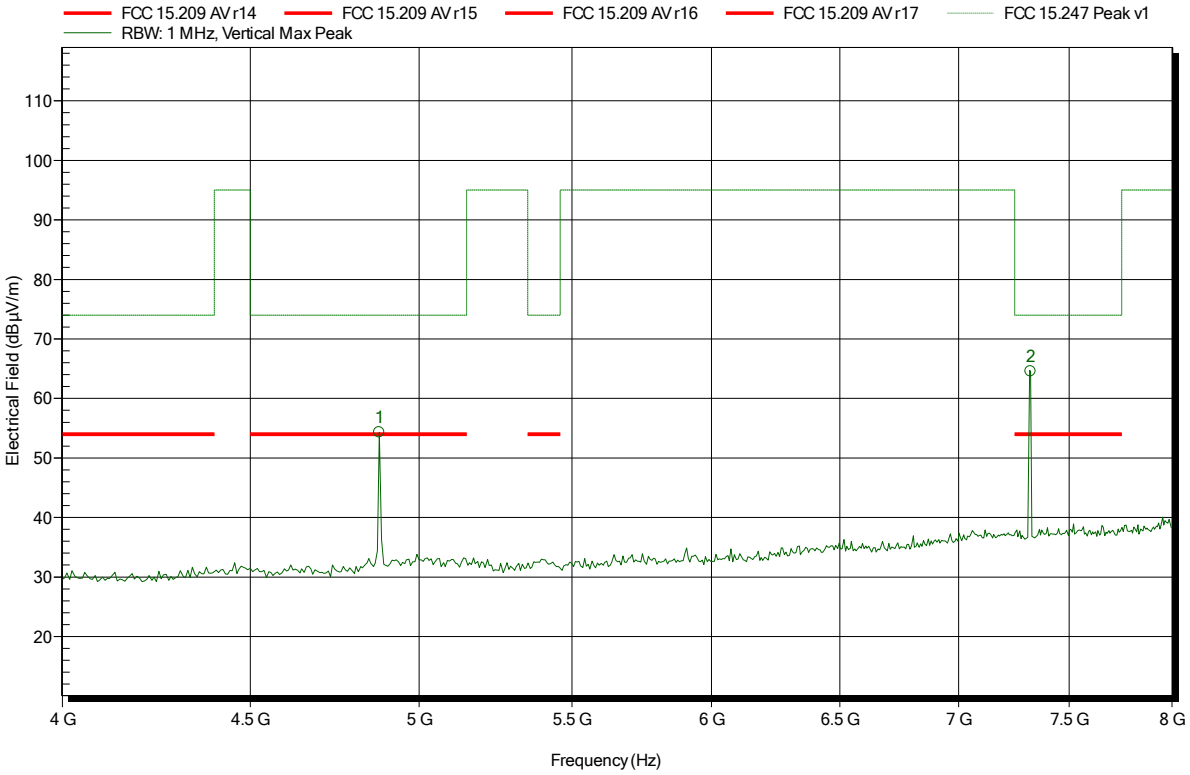

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.877 GHz	54.29 dBµV/m	74 dBµV/m	-19.71 dB	Pass
7.322 GHz	64.54 dBµV/m	74 dBµV/m	-9.46 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-15
Note:	

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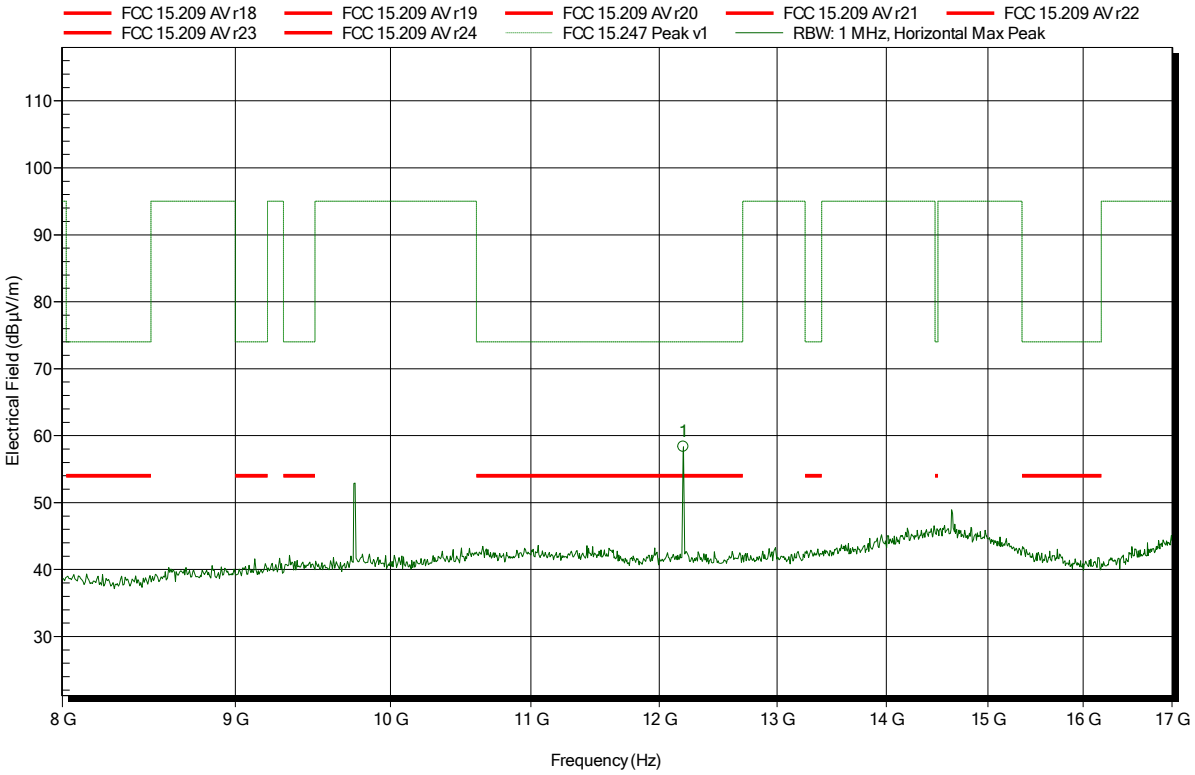

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
12.2 GHz	58.32 dBµV/m	74 dBµV/m	-15.68 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-15
Note:	

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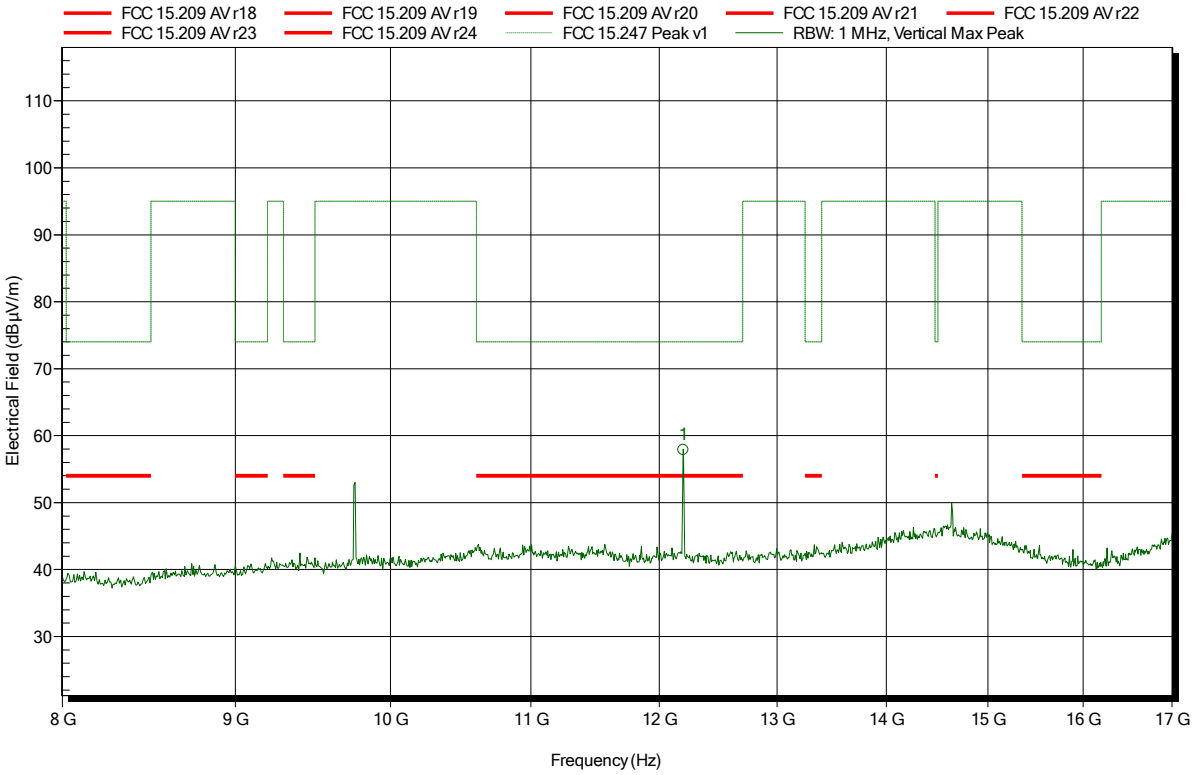

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
12.2 GHz	57.84 dBµV/m	74 dBµV/m	-16.16 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Amplifier Research AT4560, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-15
Note:	

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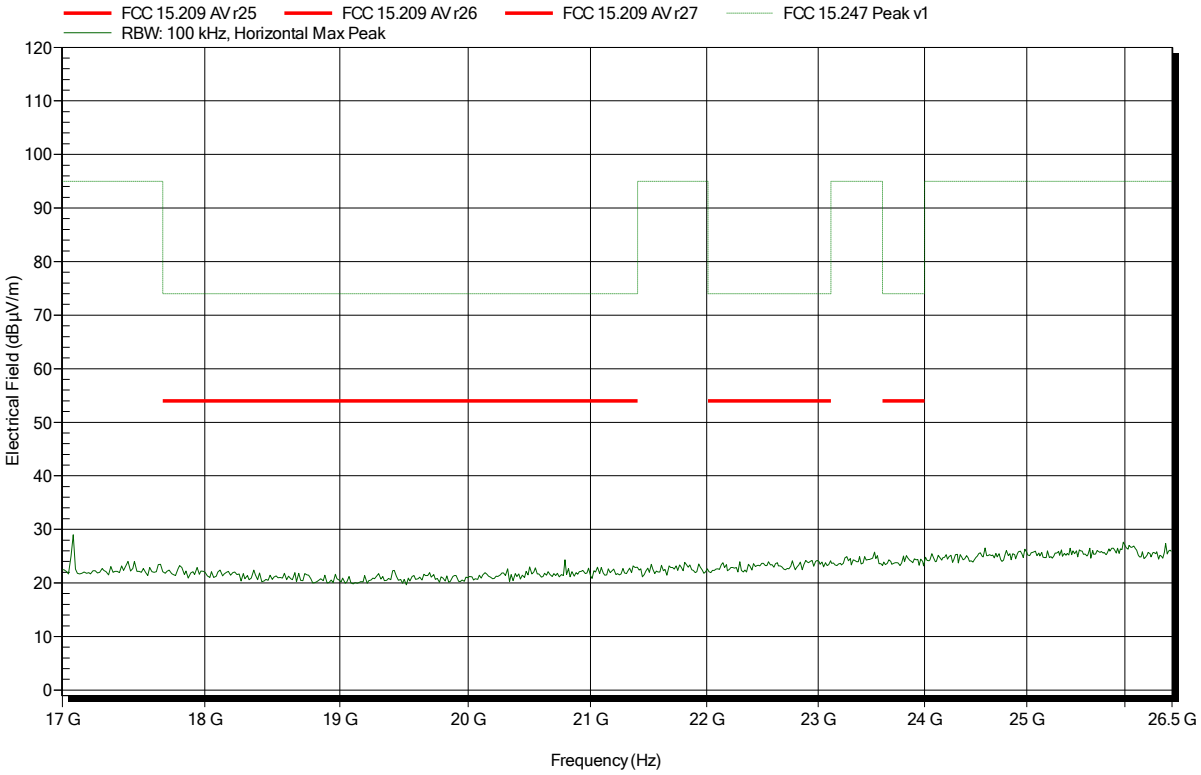

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Amplifier Research AT4560, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-15
Note:	

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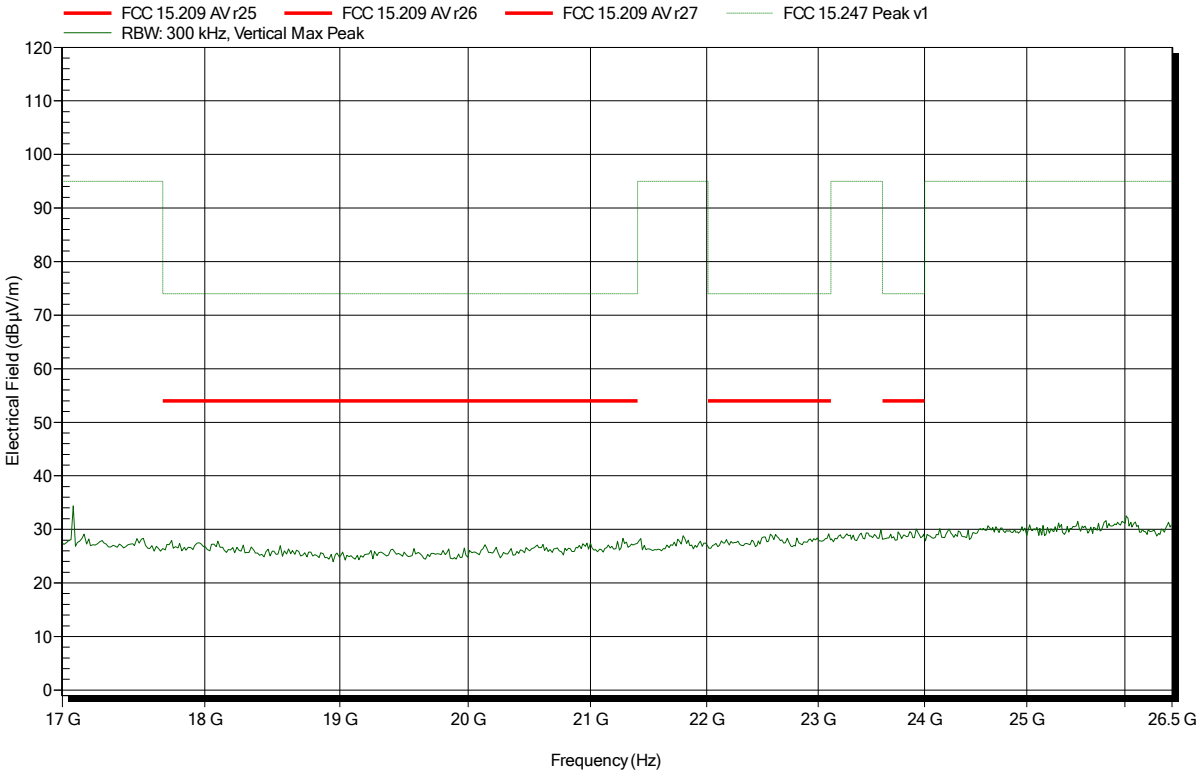

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2475 MHz
Test Date:	2019-02-18
Note:	

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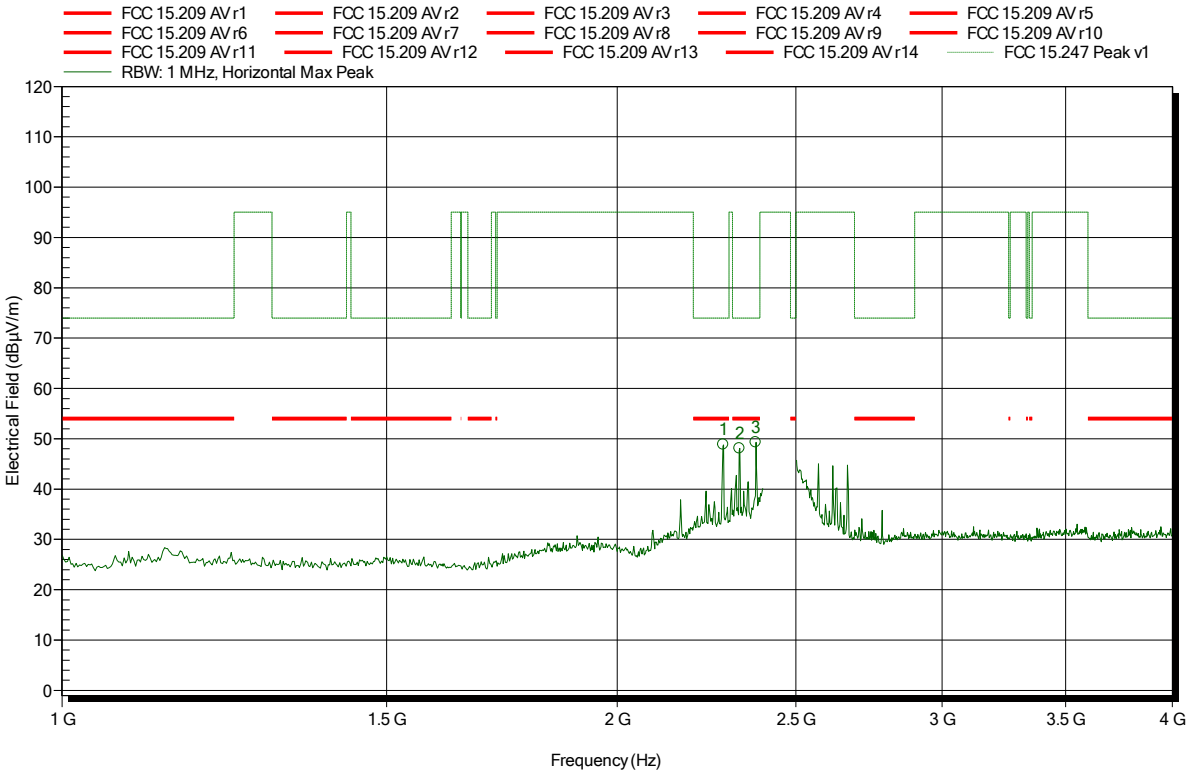

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.284 GHz	48.82 dBµV/m	74 dBµV/m	-25.18 dB	Pass
2.331 GHz	48.06 dBµV/m	74 dBµV/m	-25.94 dB	Pass
2.378 GHz	49.31 dBµV/m	74 dBµV/m	-24.69 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2475 MHz
Test Date:	2019-02-18
Note:	

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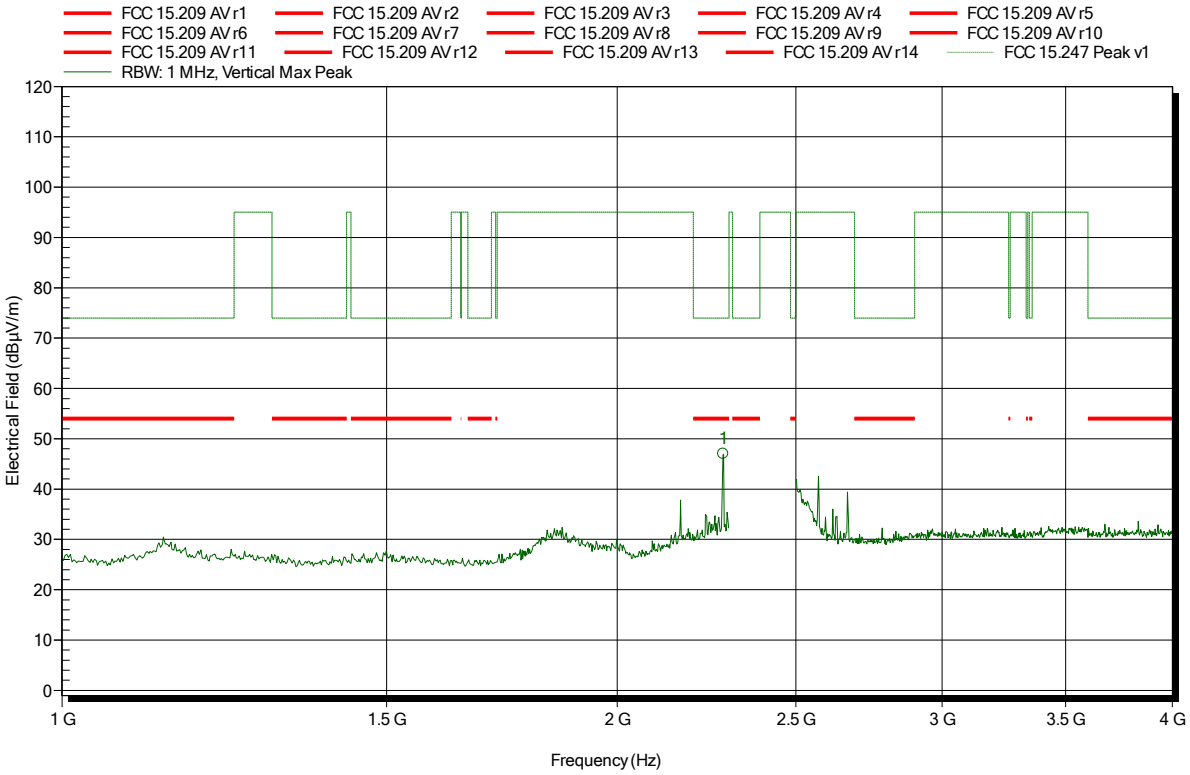

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.283 GHz	46.97 dBµV/m	74 dBµV/m	-27.03 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2475 MHz
Test Date:	2019-02-18
Note:	upper bandedge

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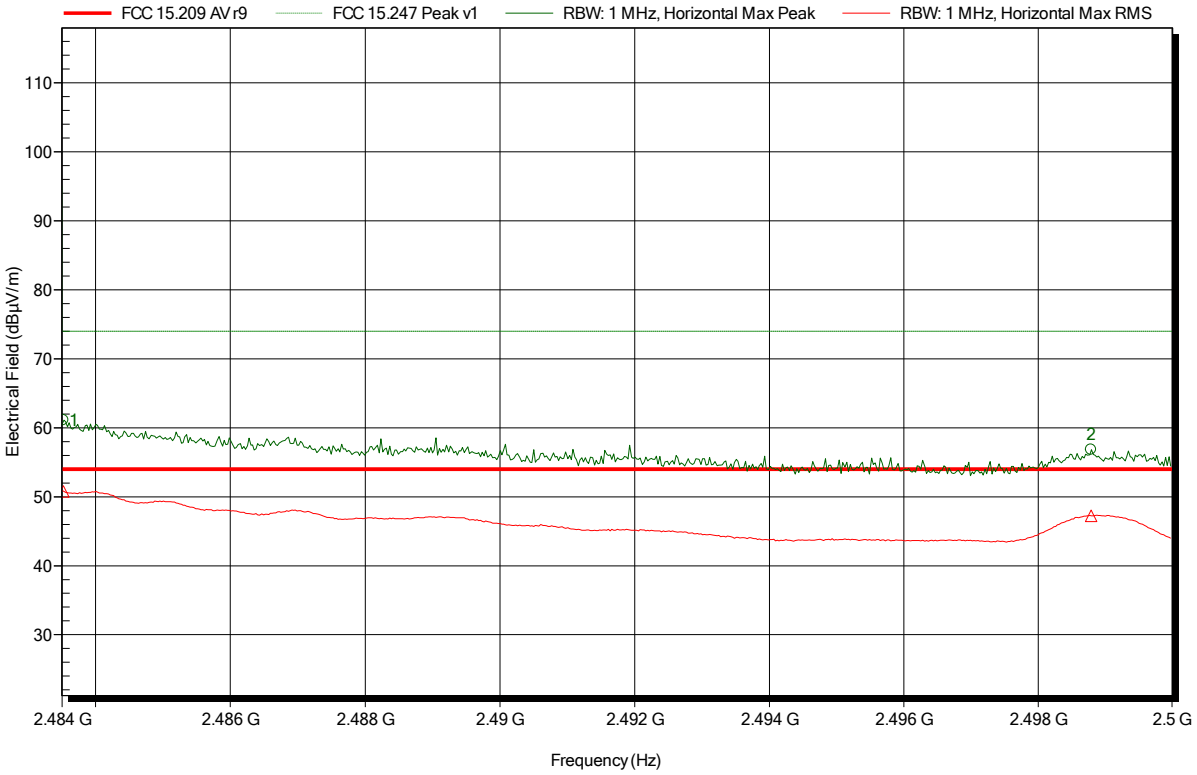

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4835 GHz	61.08 dBµV/m	74 dBµV/m	-12.92 dB	Pass
2.4988 GHz	56.83 dBµV/m	74 dBµV/m	-17.17 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.4835 GHz	50.75 dBµV/m	54 dBµV/m	-3.25 dB	Pass
2.4988 GHz	47.23 dBµV/m	54 dBµV/m	-6.77 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2475 MHz
Test Date:	2019-02-18
Note:	upper bandedge

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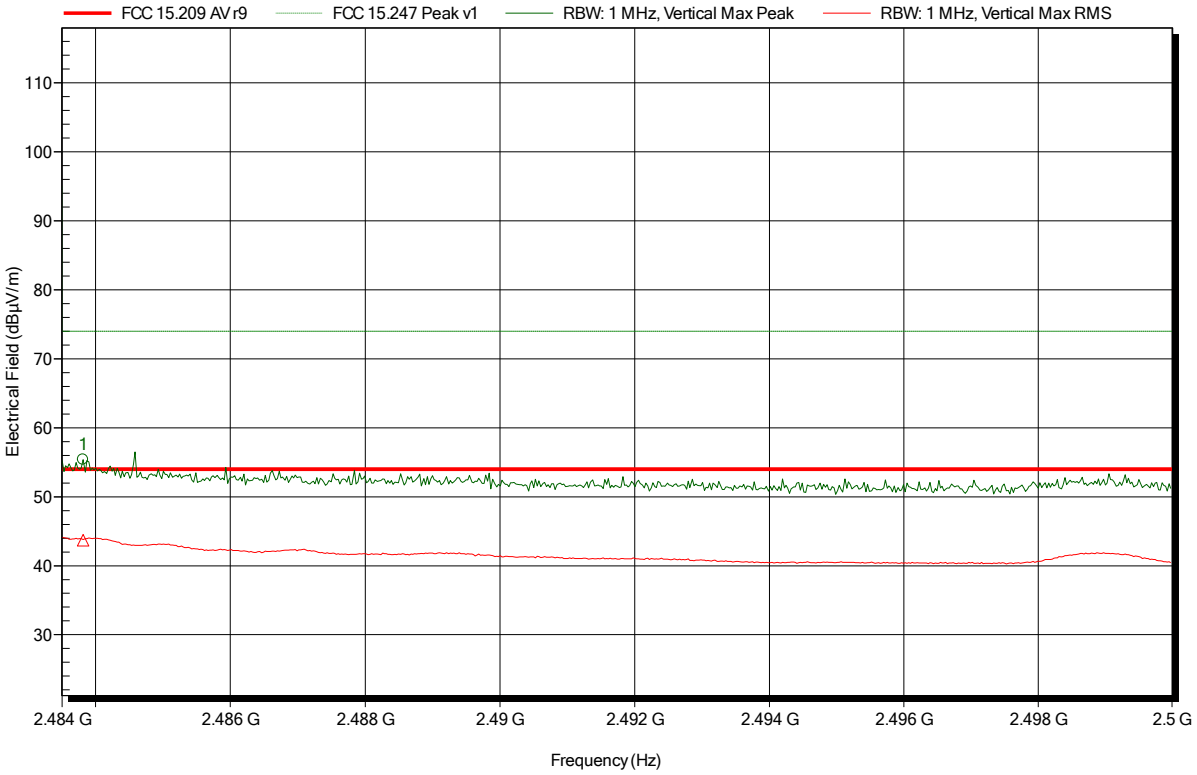

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4838 GHz	55.39 dBµV/m	74 dBµV/m	-18.61 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.4838 GHz	43.72 dBµV/m	54 dBµV/m	-10.28 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2475 MHz
Test Date:	2019-02-18
Note:	

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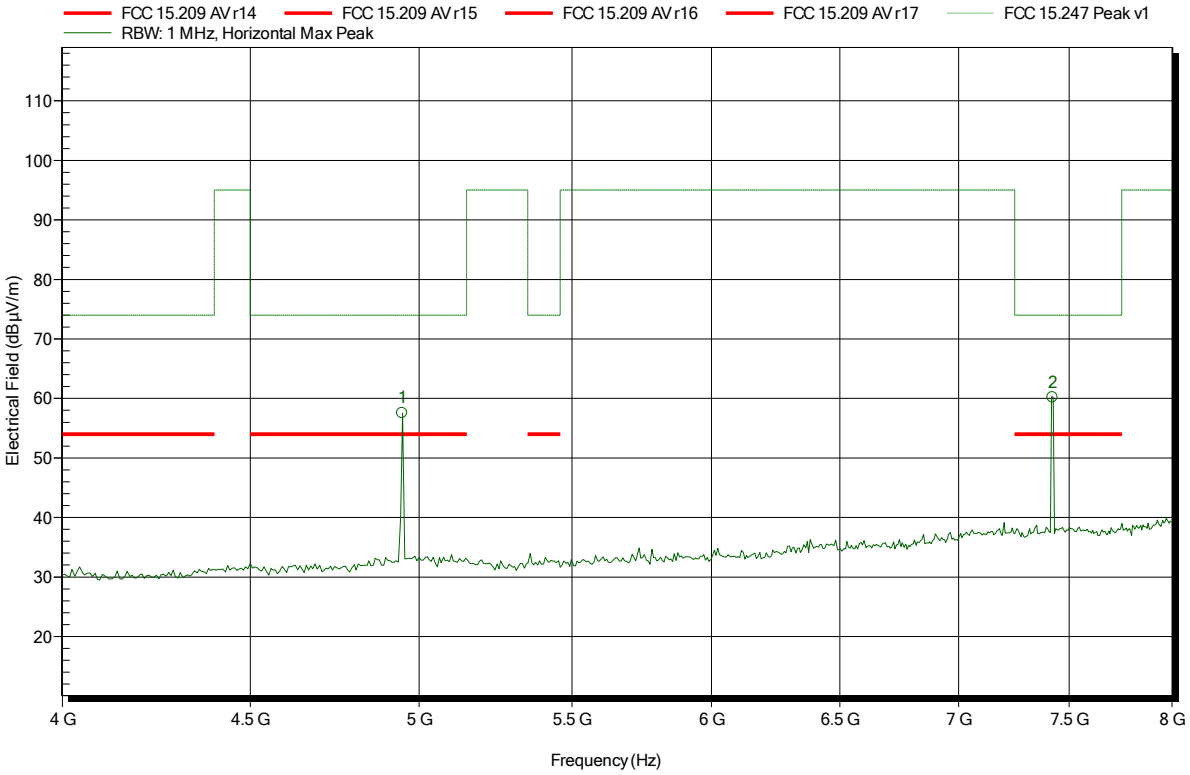

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.947 GHz	57.55 dBµV/m	74 dBµV/m	-16.45 dB	Pass
7.424 GHz	60.2 dBµV/m	74 dBµV/m	-13.8 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2475 MHz
Test Date:	2019-02-18
Note:	

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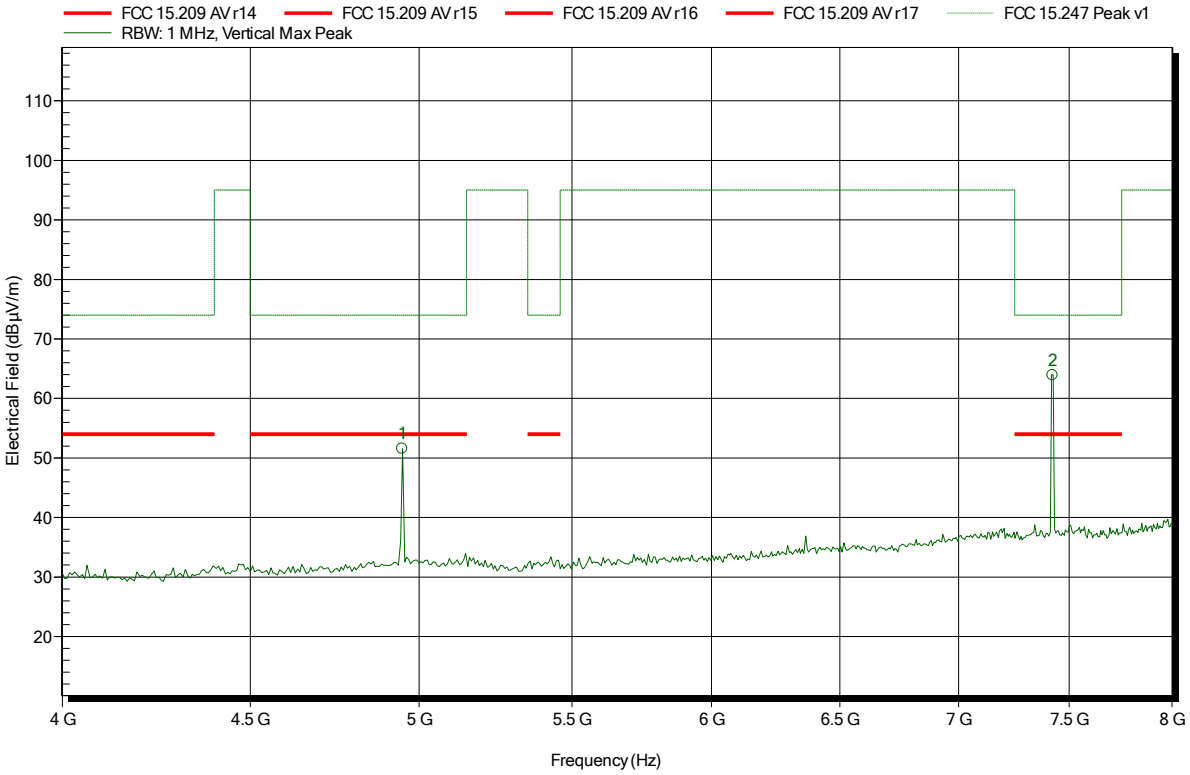

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.947 GHz	51.57 dBµV/m	74 dBµV/m	-22.43 dB	Pass
7.424 GHz	63.9 dBµV/m	74 dBµV/m	-10.1 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2475 MHz
Test Date:	2019-02-18
Note:	

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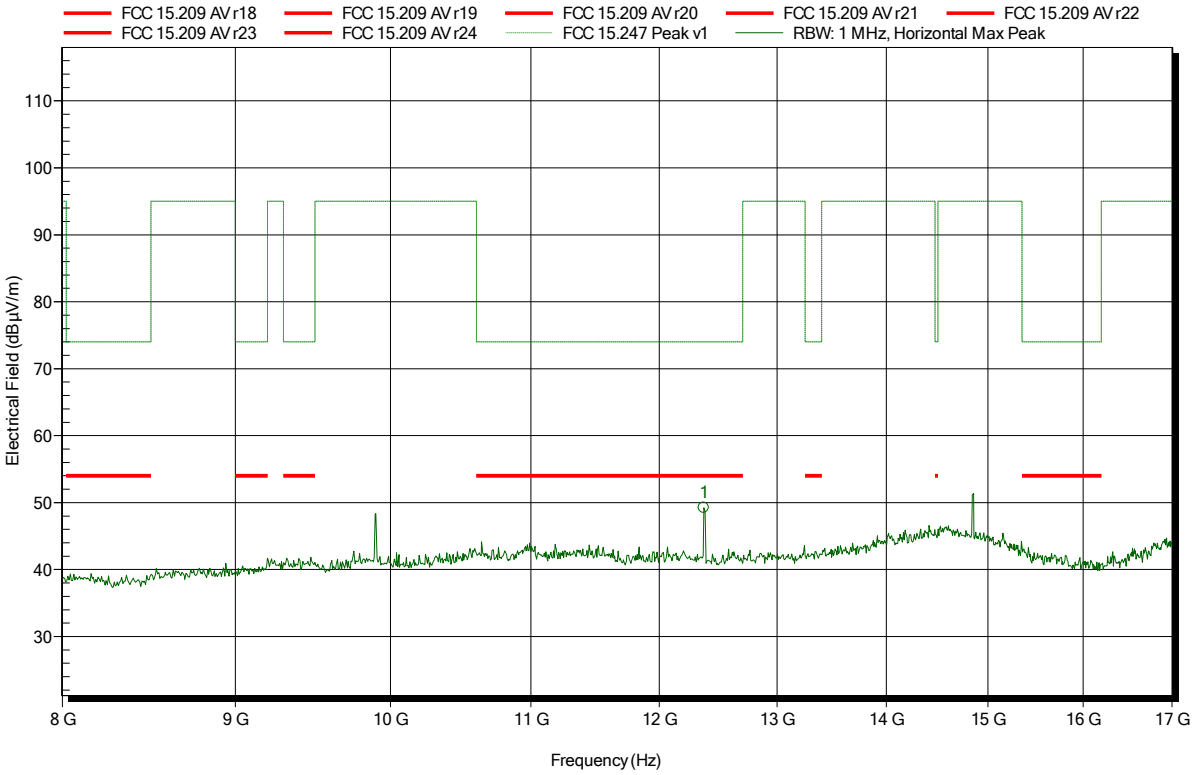

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
12.368 GHz	49.21 dBµV/m	74 dBµV/m	-24.79 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2475 MHz
Test Date:	2019-02-18
Note:	

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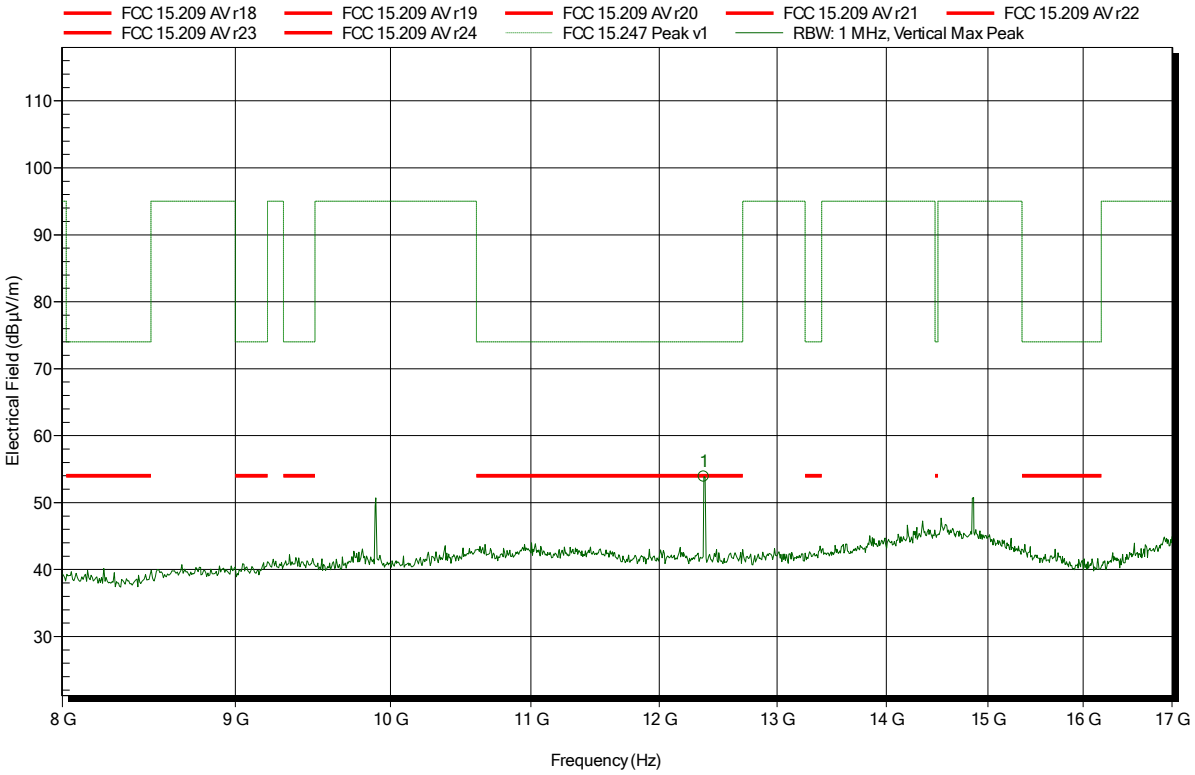

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
12.368 GHz	53.88 dBµV/m	74 dBµV/m	-20.12 dB	Pass

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Amplifier Research AT4560, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2475 MHz
Test Date:	2019-02-18
Note:	

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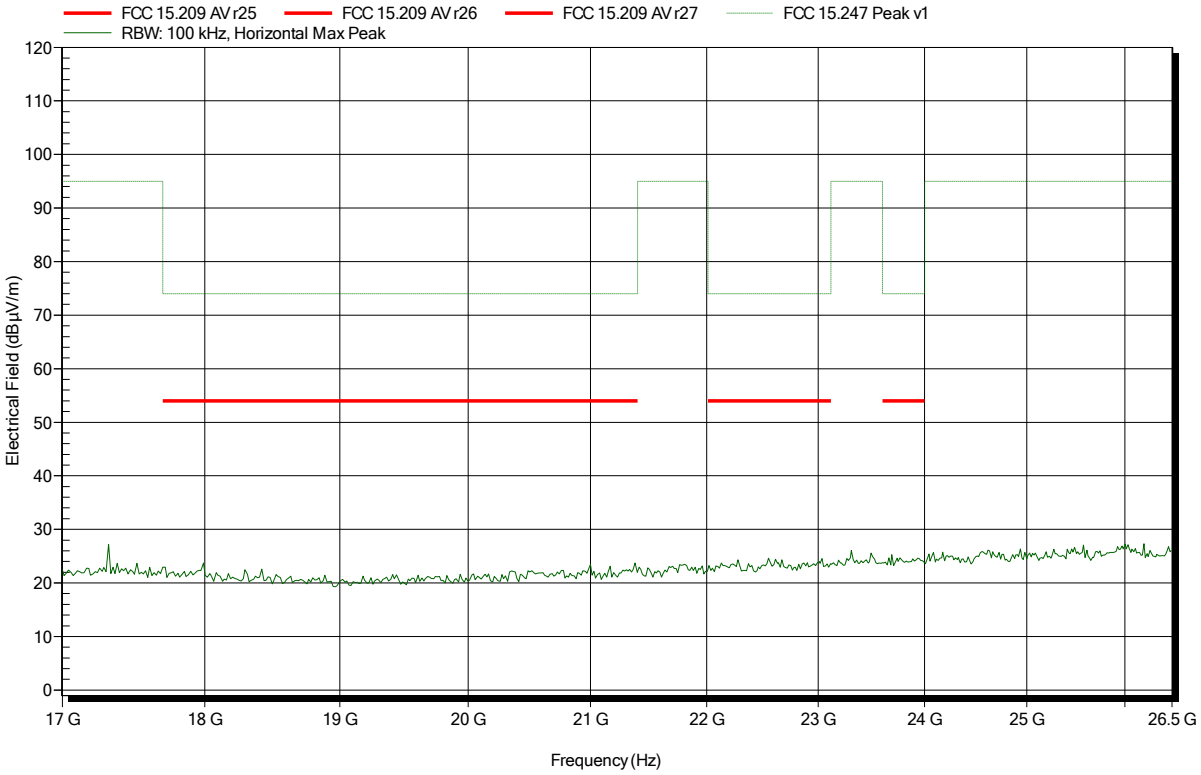

Spurious emissions according to FCC 15.247

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Amplifier Research AT4560, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; IEEE 802.15.4; 2475 MHz
Test Date:	2019-02-18
Note:	

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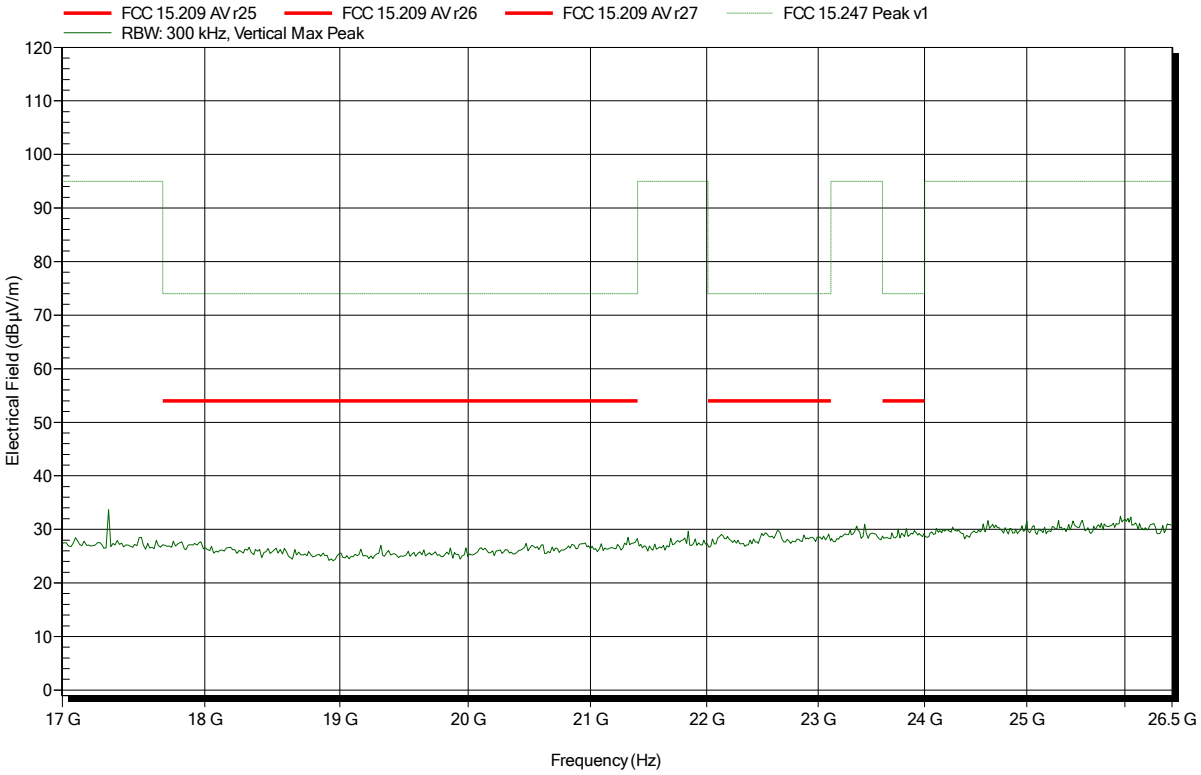

ANNEX B Receiver spurious emissions

Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	RX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-18
Note:	

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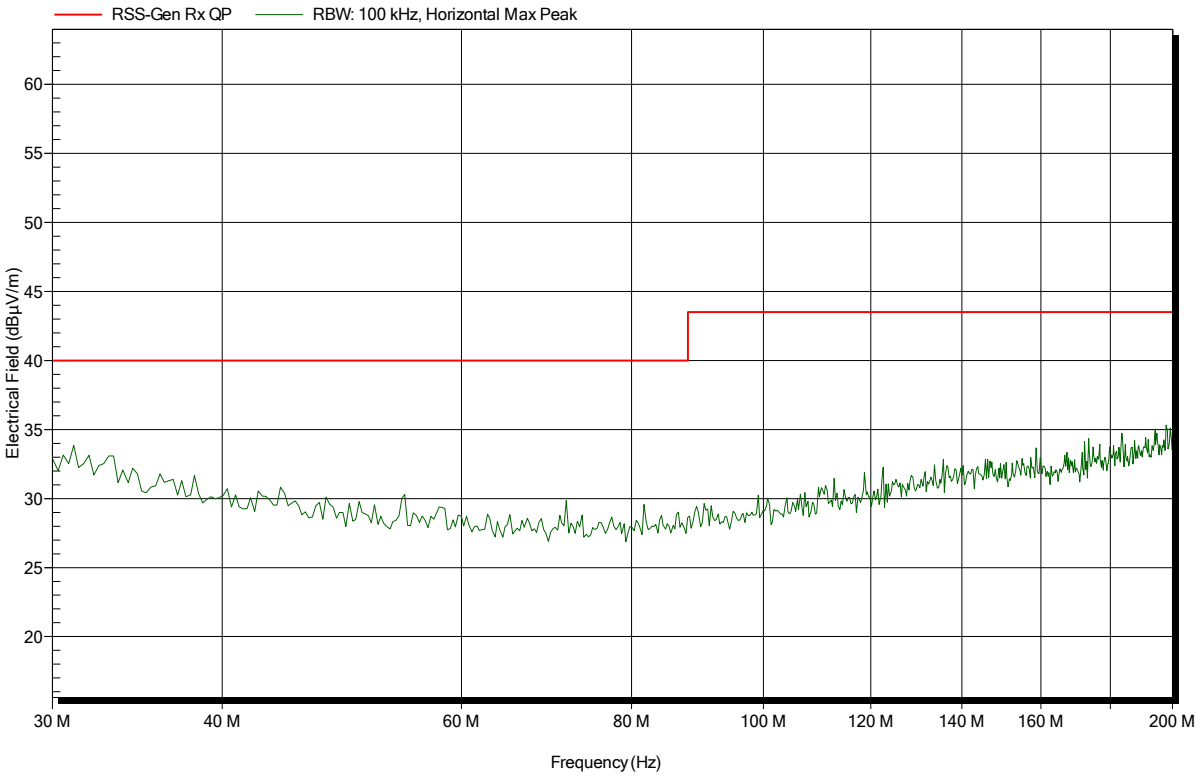

Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	RX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-18
Note:	

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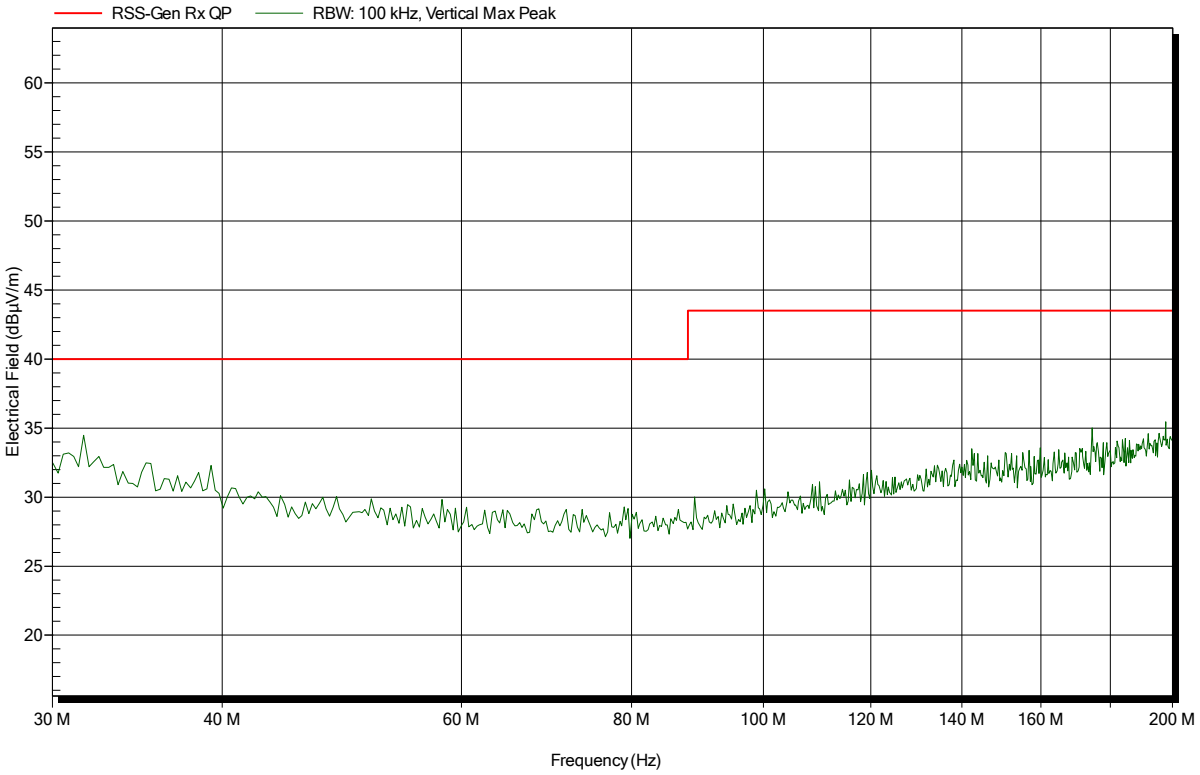

Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	RX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-18
Note:	

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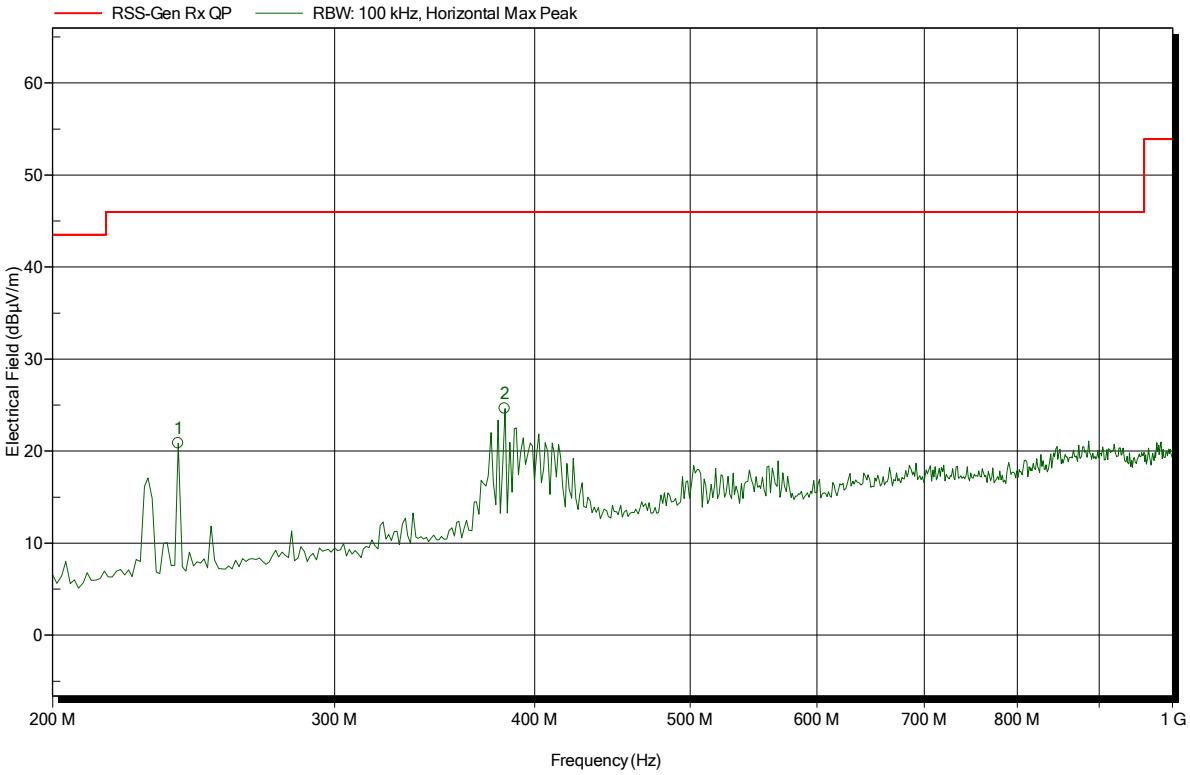

Frequency	Peak	Peak Limit	Peak Difference	Status	Angle	Height
239.68 MHz	20.86 dBµV/m	46 dBµV/m	-25.14 dB	Pass	157 Degree	1.2 m
383.04 MHz	24.62 dBµV/m	46 dBµV/m	-21.38 dB	Pass	157 Degree	1.2 m

Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	RX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-18
Note:	

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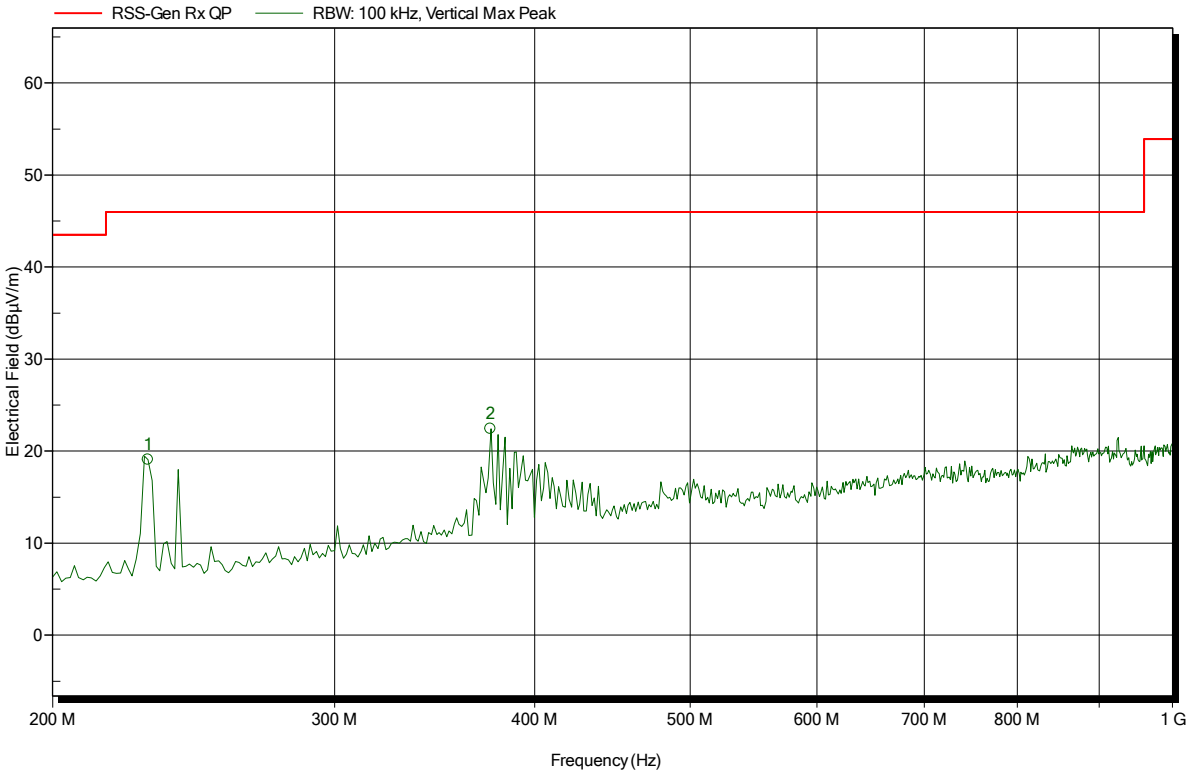

Frequency	Peak	Peak Limit	Peak Difference	Status	Angle	Height
229.44 MHz	19.06 dBµV/m	46 dBµV/m	-26.94 dB	Pass	67 Degree	1.2 m
375.36 MHz	22.41 dBµV/m	46 dBµV/m	-23.59 dB	Pass	67 Degree	1.2 m

Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	RX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-18
Note:	

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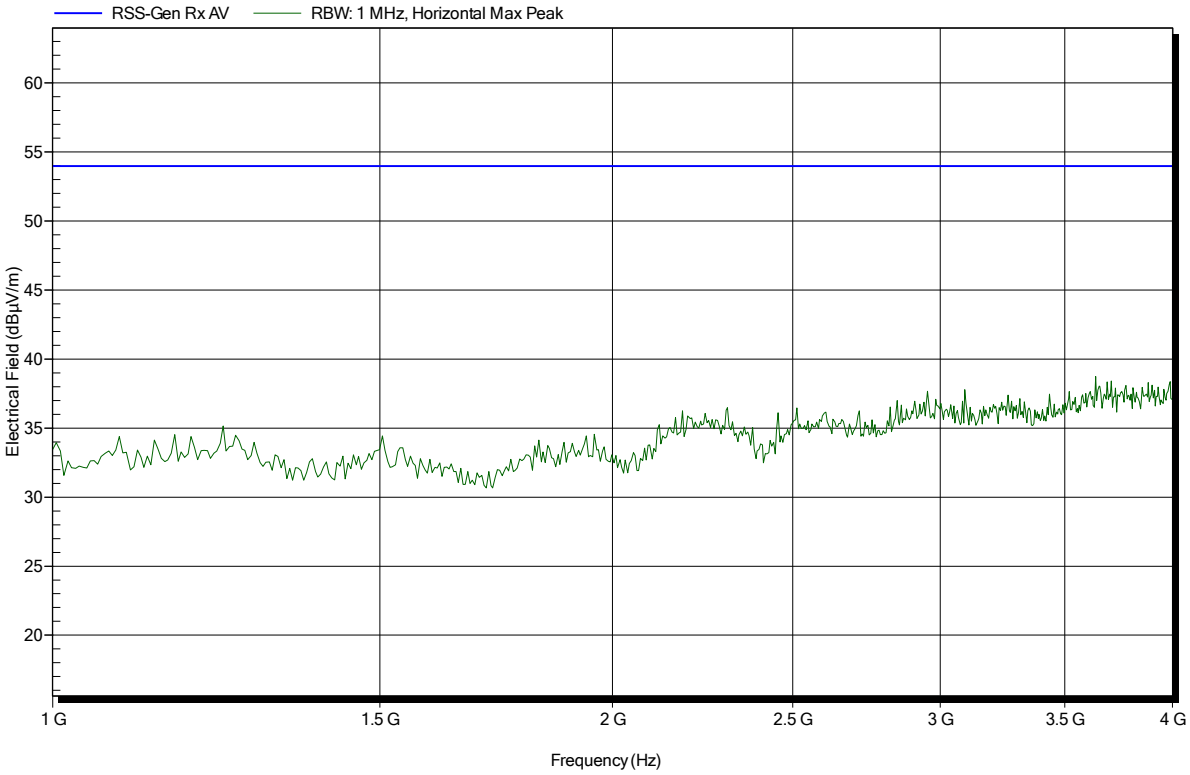

Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	RX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-18
Note:	

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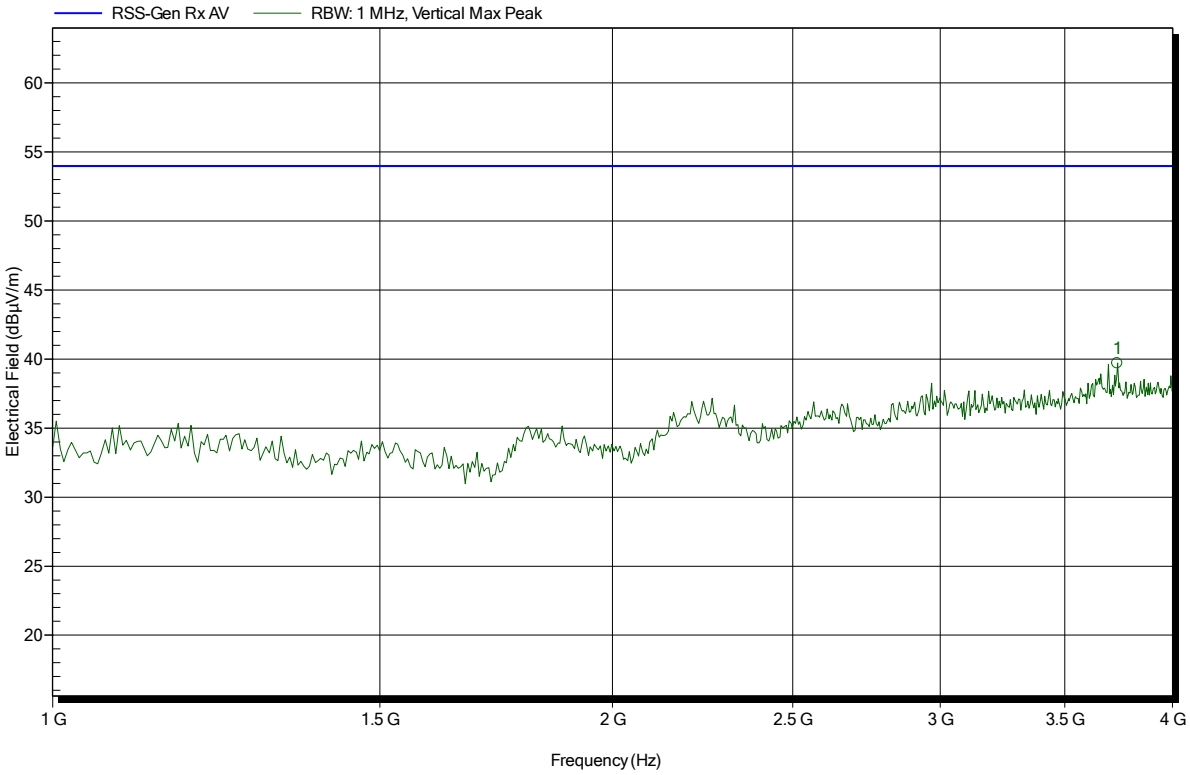

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
3.736 GHz	39.69 dBµV/m	53.98 dBµV/m	-14.29 dB	Pass

Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m
Mode:	RX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-18
Note:	

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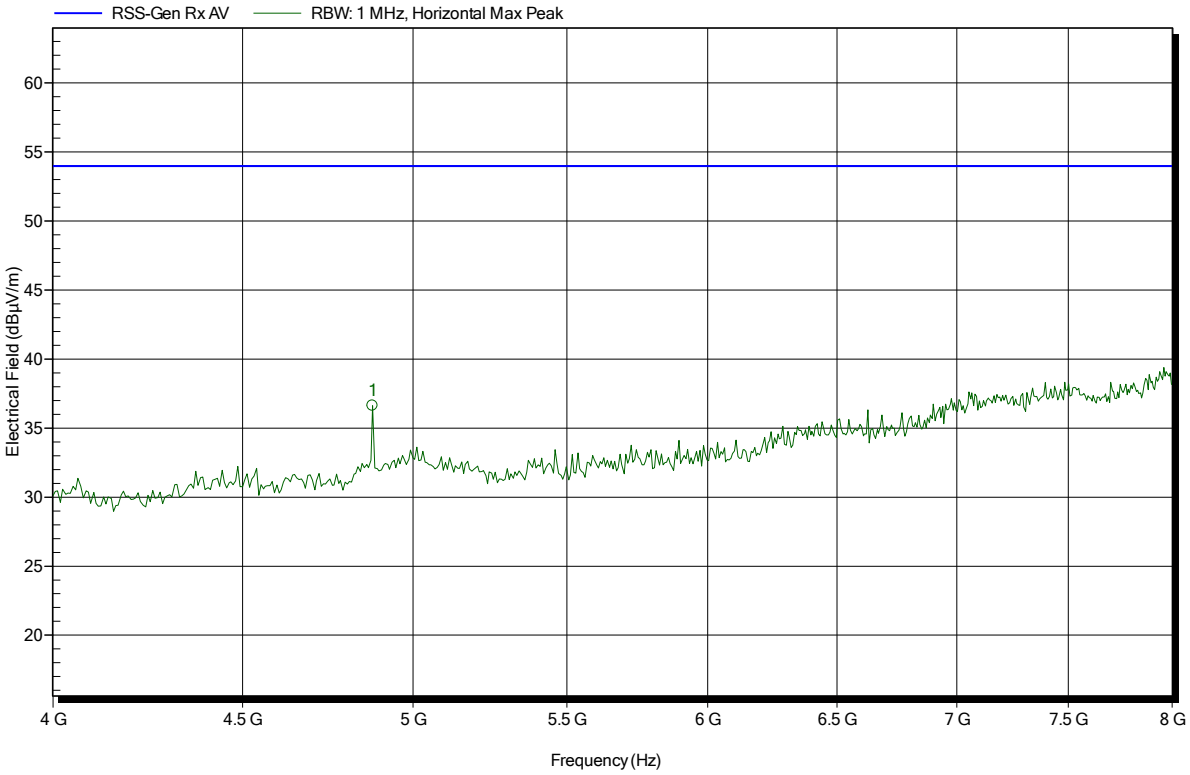

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.877 GHz	36.62 dBµV/m	53.98 dBµV/m	-17.36 dB	Pass

Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m
Mode:	RX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-18
Note:	

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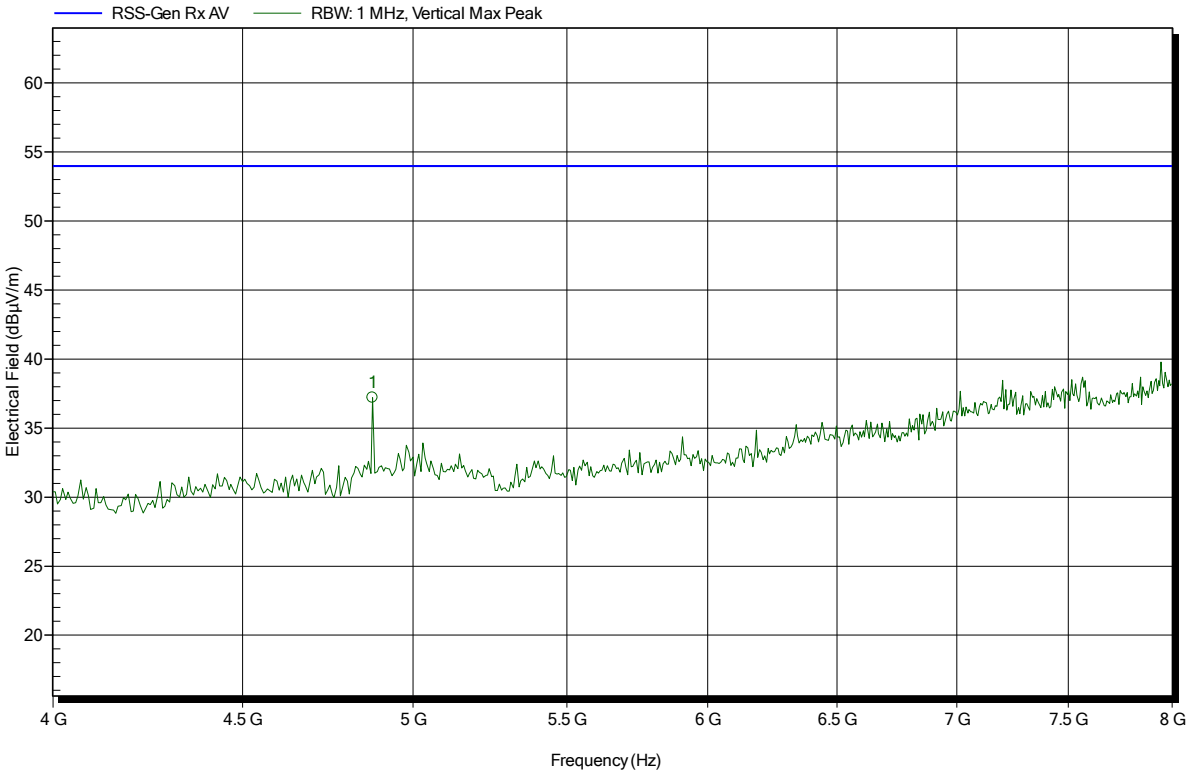

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.877 GHz	37.22 dBµV/m	53.98 dBµV/m	-16.76 dB	Pass

Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	RX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-18
Note:	

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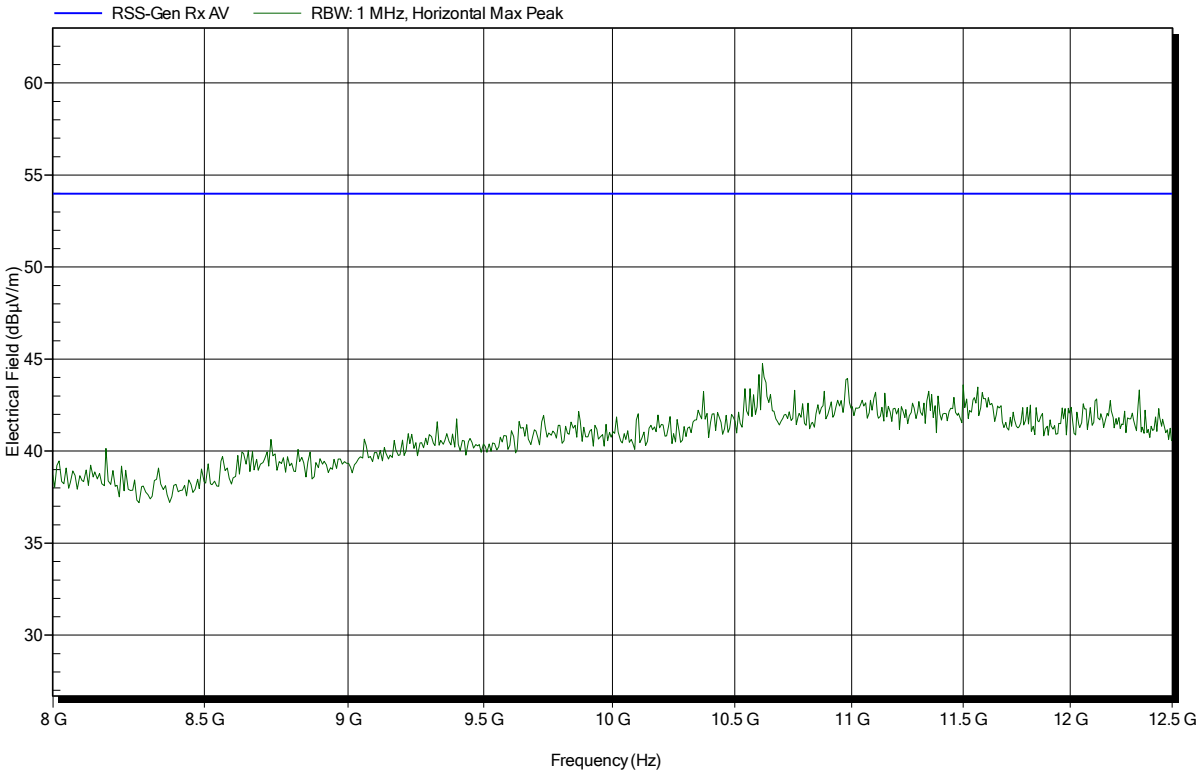

Spurious emissions according to RSS-247 Issue 2

Project number:	G0M-1702-6292
Applicant:	Leica Geosystems AG
EUT Name:	Radio Module 301m
Model:	CT301 Radio Module
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom: 23°C, Vnom: 3.15 VDC (5.0 VDC USB powered)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	RX; IEEE 802.15.4; 2440 MHz
Test Date:	2019-02-18
Note:	

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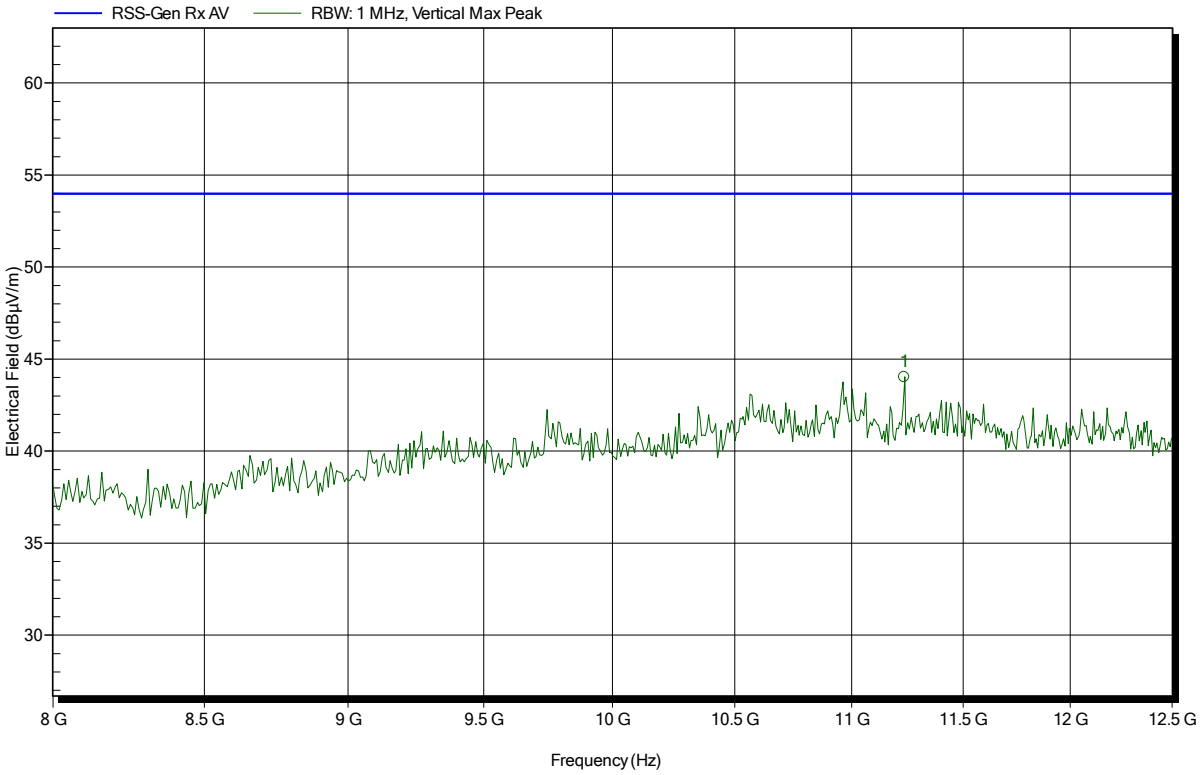

Frequency	Peak	Peak Limit	Peak Difference	Status
11.233 GHz	44.03 dBµV/m	53.98 dBµV/m	-9.95 dB	Pass