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FCC TEST REPORT

FCC 47 CFR Part 15C
Industry Canada RSS-247
Digital transmission systems operating within the 2400 – 2483.5 MHz band

Report Reference No. ..... :	G0M-1605-5589-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 Filed Test Laboratory, Reg.-No.: 96970 IC OATS Filing assigned code: 3470A
Applicant's name ..... :	dresden elektronik ingenieurtechnik gmbh
Address ..... :	Enno-Heidebroek-Straße 12 01237 Dresden GERMANY
Test specification:	
Standard..... :	47 CFR Part 15C RSS-247, Issue 1, 2015-05
Test scope…….. ..... :	partial Radio compliance test (C2PC)
Equipment under test (EUT):	
Product description	2.4 GHz IEEE 802.15.4 compliant radio module
Model No.	deRFmega256-23M12
Additional Model(s)	None
Brand Name(s)	None
Hardware version	REV0
Firmware / Software version	REV1
	FCC-ID: XVV-MEGA23M12 IC: none
Test result	**Passed**

Possible test case verdicts:

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

Testing:

Test Lab Temperature ..... :	20 – 23 °C	
Test Lab Humidity ..... :	32 – 38 %	
Date of receipt of test item ..... :	2016-05-19	
Date (s) of performance of tests ..... :	2016-05-19 - 2016-05-20	
Compiled by ..... :	Burkhard Pudell	
Tested by (+ signature) ..... : (Responsible for Test)	Burkhard Pudell	B. Pudell
Approved by (+ signature) ..... : (Head of Lab)	Christian Weber	C. Weber
Date of issue ..... :	2016-06-07	
Total number of pages ..... :	89	

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:

Measurements were performed with the EUT integrated into the Host "2.4GHz IEEE 802.15.4 ZigBee USB Gateway"

Version History

Version	Issue Date	Remarks	Revised by
01	2016-06-07	Initial Release	

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1 Equipment (Test item) Description

Description	2.4 GHz IEEE 802.15.4 compliant radio module	
Model	deRFmega256-23M12	
Additional Model(s)	None	
Brand Name(s)	None	
Serial number	None	
Hardware version	REV0	
Software / Firmware version	REV1	
FCC-ID	XVV-MEGA23M12	
IC	none	
Equipment type	Radio module	
Radio type	Transceiver	
Radio technology	IEEE 802.15.4 (Zigbee)	
Operating frequency range	2405 - 2475 MHz	
Assigned frequency band	2400 - 2483.5 MHz	
Main test frequencies	F_{LOW}	2405 MHz
	F_{MID}	2440 MHz
	F_{HIGH}	2475 MHz
Spreading	DSSS	
Modulations	O-QPSK	
Number of channels	15 (11-25)	
Channel spacing	5MHz	
Number of antennas	1	
Host device Information	Type	USB Dongle
	Description	2.4 GHz IEEE 802.15.4 ZigBee USB Gateway
	Model	ConBee
	Hardware version	0
	Software version	1.1
	Contains FCC-ID	XVV-MEGA23M12
Antenna	Type	integrated
	Model	2450AT43B100
	Manufacturer	Johanson Technologies, Inc.
	Gain	1.3 dBi (manufacturer declaration)
Manufacturer	dresden elektronik ingenieurtechnik gmbh Enno-Heidebroek-Straße 12 01237 Dresden GERMANY	

Power supply	V_{NOM}	5.0 VDC
	V_{MIN}	4.5 VDC
	V_{MAX}	5.5 VDC
AC/DC-Adaptor	Model	N/A
	Vendor	N/A
	Input	N/A
	Output	N/A

1.1 Photos – Equipment External

EUT HOST FRONT

EUT HOST LEFT

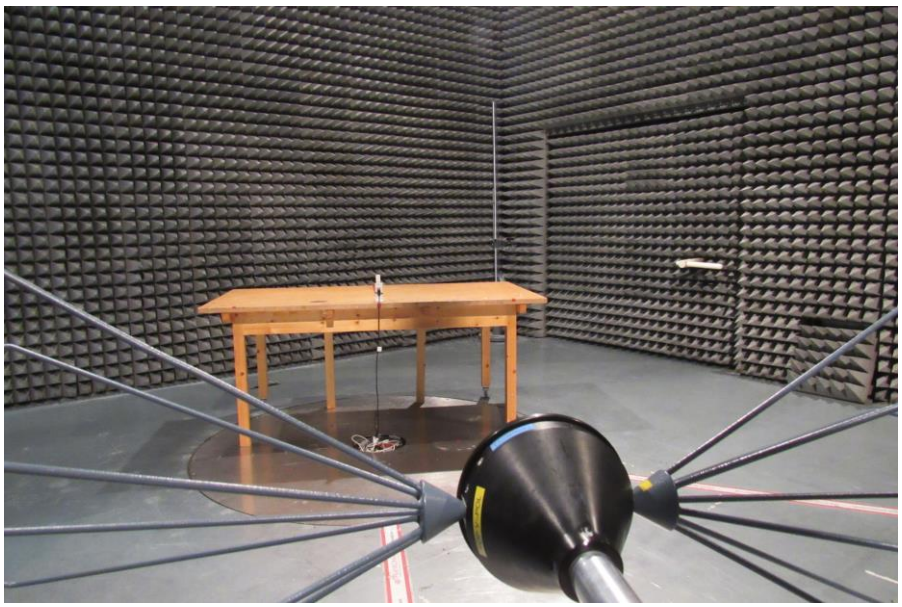
EUT HOST TOP

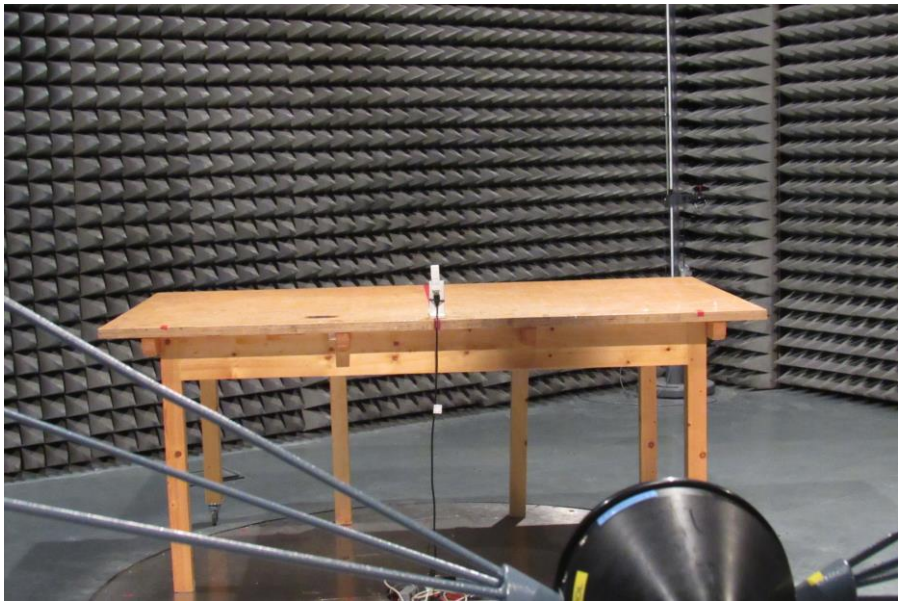
1.2 Photos – Equipment internal

EUT ON HOST PCB FRONT

EUT ON HOST PCB BACK

1.3 Photos – Test setup

TEST SETUP: RADIATED EMISSIONS


TEST SETUP: RADIATED EMISSIONS


TEST SETUP: CONDUCTED EMISSIONS

1.4 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
None				

***Note:** Use the following abbreviations:

AE : Auxiliary/Associated Equipment, or

SIM : Simulator (Not Subjected to Test)

CABL : Connecting cables

1.5 Test Modes

Mode #	Description	
Zigbee	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone transmit Spreading = DSSS Modulation = O-QPSK Data rate = 250 kbps Duty cycle = 99 % Power level = Maximum (11=D_{hex}; 18=E_{hex}; 25=F_{hex})
Receive	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone receive Spreading = DSSS
AC-Powerline	General conditions:	EUT powered by commercial AC/DC-Adapter
	Radio conditions:	Mode = standalone transmit Spreading = DSSS Power level = Maximum

1.6 Test Equipment Used During Testing

Measurement Software			
Description	Manufacturer	Name	Version
EMC Test Software	Dare Instruments	Radimation	2015.2.4

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

Maximum peak conducted power					
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	FSIQ26	EF00151	2016-03	2017-03
Biconical Antenna	R&S	HK 116	EF00012	2016-04	2019-04
LPD Antenna	R&S	HL 223	EF00187	2014-03	2017-03
LPD Antenna	R&S	HL 025	EF00327	2015-10	2018-10

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)(2) IC RSS-247 § 5.2	6dB Bandwidth	ANSI C63.10	N/R	
FCC § 15.247(b)(3) IC RSS-247 § 5.4	Maximum peak conducted power	ANSI C63.10	PASS	
FCC § 15.247(e) IC RSS-247 § 5.2	Power spectral density	ANSI C63.10	N/R	
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/R	
FCC § 15.247(d) IC RSS-247 § 5.5	Conducted spurious emissions	ANSI C63.10	N/R	
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

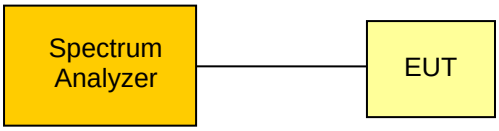
3.1 Test Conditions and Results – Occupied Bandwidth

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}	2405	Zigbee	2.176
F_{MID}	2440	Zigbee	2.188
F_{HIGH}	2475	Zigbee	2.244

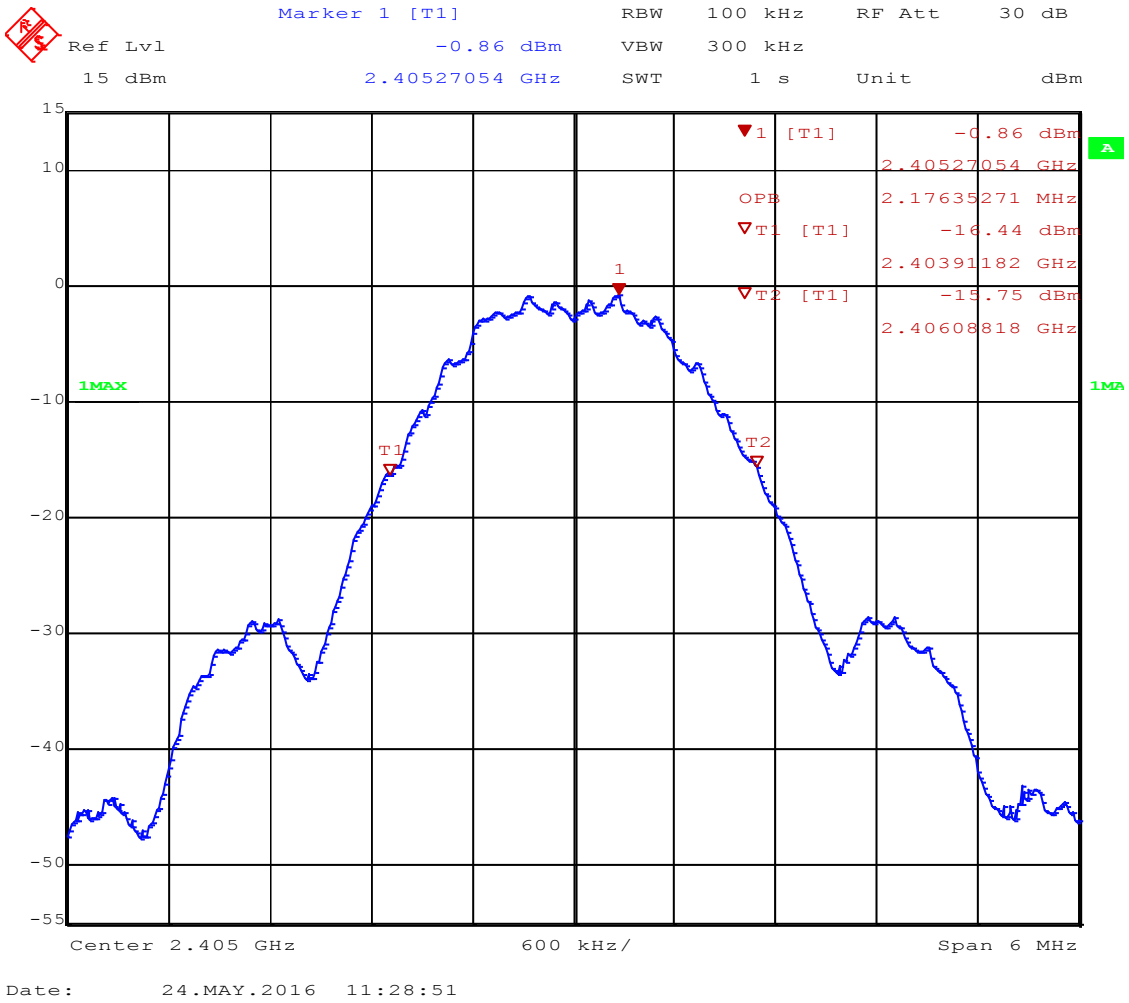
Comments:

Occupied Bandwidth – IEEE 802.15.4 F_{LOW}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Burkhard Pudell
Test Conditions:	Tnom / Vnom
Mode:	Tx, ZigBee; CH: 11; 2405 MHz; PRBS; 250kbps
Test Date:	2016-05-24
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW= 2.176 MHz

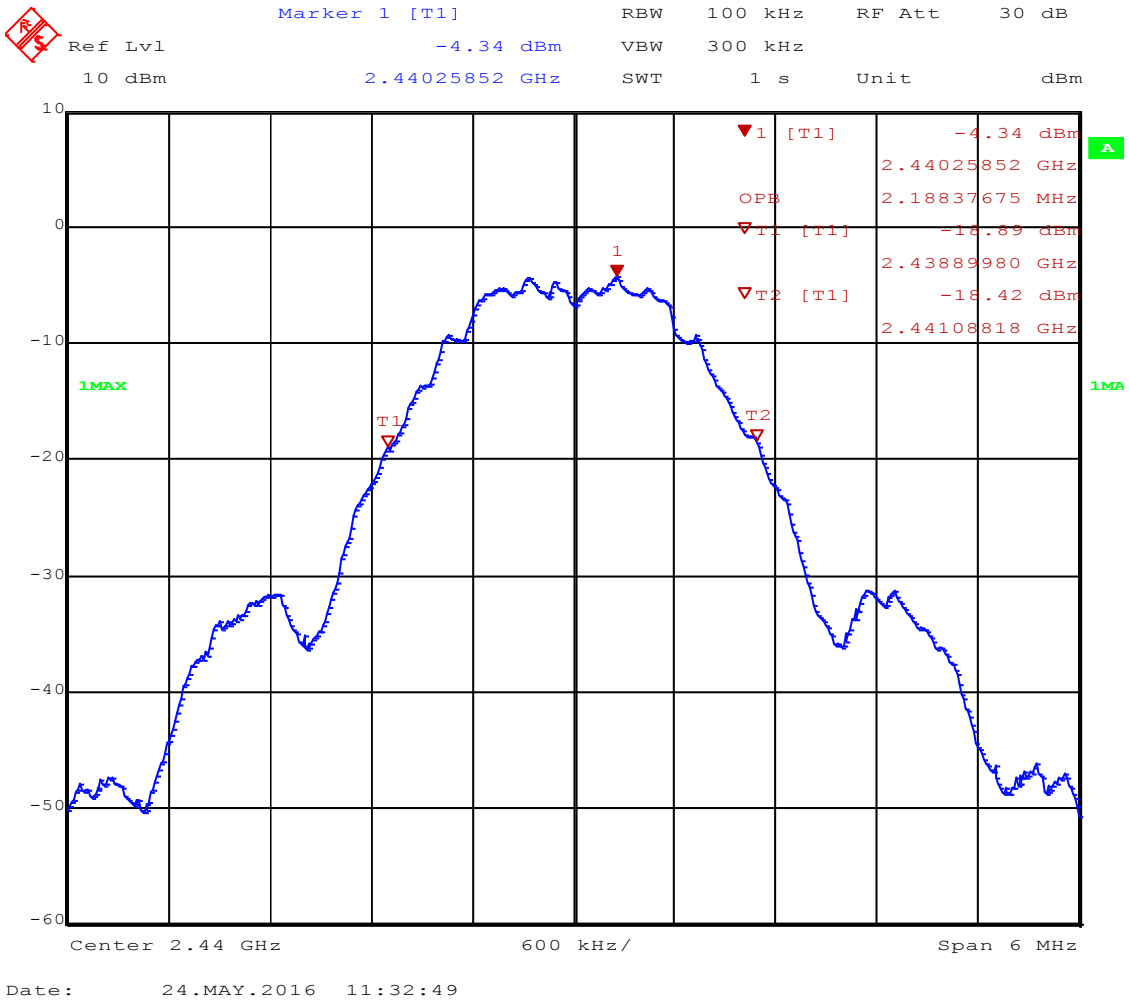


Occupied Bandwidth – IEEE 802.15.4 F_{MID}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Burkhard Pudell
Test Conditions:	Tnom / Vnom
Mode:	Tx, ZigBee; CH: 18; 2440 MHz; PRBS; 250kbps
Test Date:	2016-05-24
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW= 2.188 MHz

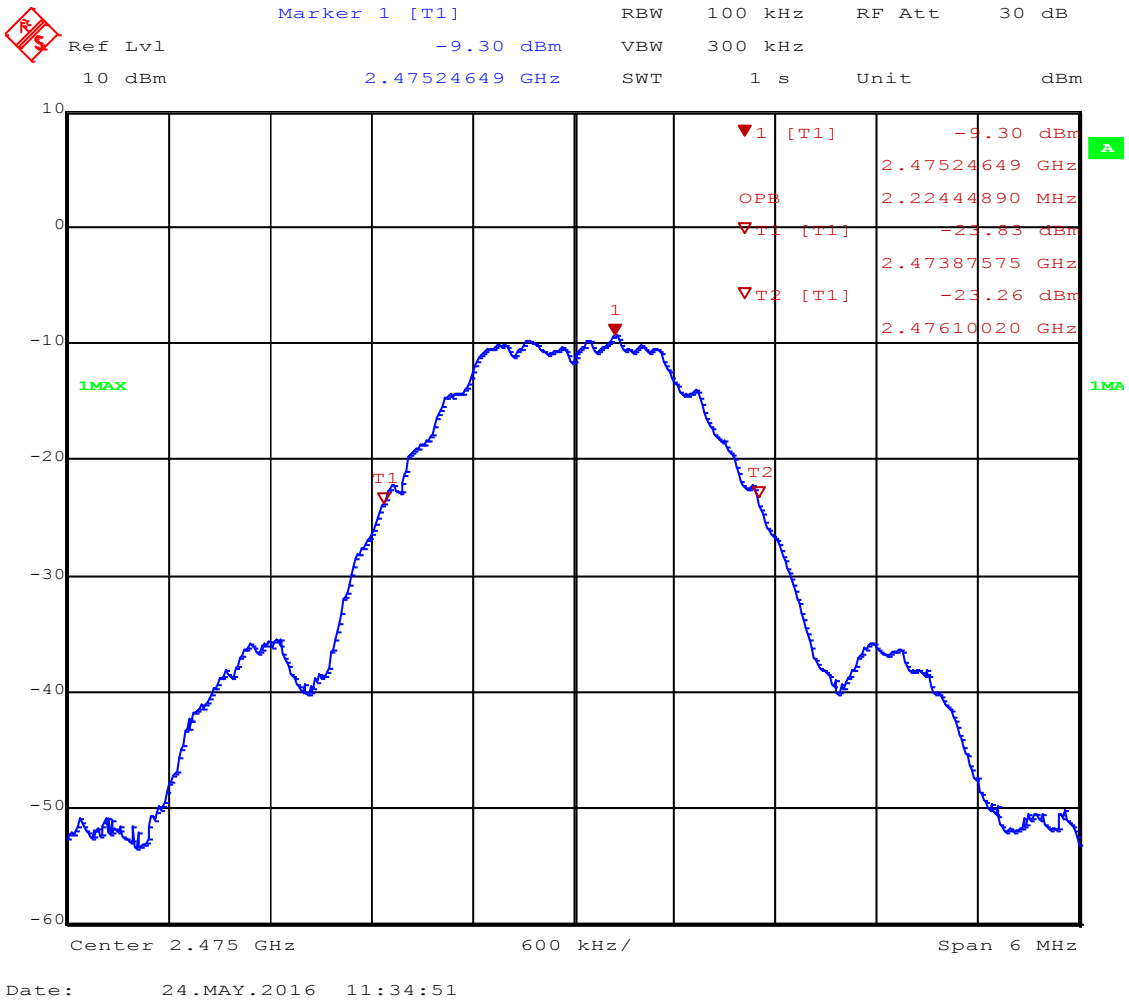


Occupied Bandwidth – IEEE 802.15.4 F_{HIGH}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Burkhard Pudell
Test Conditions:	Tnom / Vnom
Mode:	Tx, ZigBee; CH: 25; 2475 MHz; PRBS; 250kbps
Test Date:	2016-05-24
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW= 2.224 MHz



3.2 Test Conditions and Results – Maximum peak conducted power

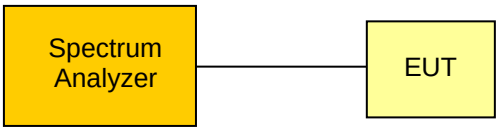
Maximum peak conducted power acc. to FCC 15.247 / IC RSS-247	**Verdict: PASS**
EUT requirement rule parts and clause	Reference
	FCC 15.247(b)(3) / IC RSS-247 5.4
Test according to measurement reference	Reference Method
	ANSI C63.10
Test frequency range	Tested frequencies
	F_{LOW} / F_{MID} / F_{HIGH}
Measurement mode	Peak
Maximum antenna gain	1.3 dBi ⇒ Limit correction = 0 dB

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.

Test setup



Test procedure

1. EUT set to test mode (Communication tester is used if needed)
2. Center frequency set to test channel center frequency
3. Span set to twice the 20 dB bandwidth and detector to peak and max hold
4. Resolution bandwidth is set to 3 MHz
5. Peak conducted power is determined from peak of spectrum envelope

Test results							
Channel	Frequency [MHz]	Voltage [VDC]	Mode	Peak power [dBm]	Peak power [W]	Limit [dBm]	Margin [dB]
F_{LOW}	2405	V_{NOM} = 5.0	Zigbee	11.8	15.136	30	-19.2
F_{LOW}	2405	V_{MIN} = 4.5	Zigbee	11.8	15.136	30	-19.2
F_{LOW}	2405	V_{MAX} =5.5	Zigbee	11.9	15.488	30	-19.1
F_{MID}	2440	V_{NOM} = 5.0	Zigbee	8.7	7.413	30	-21.3
F_{MID}	2440	V_{MIN} = 4.5	Zigbee	8.7	7.413	30	-21.3
F_{MID}	2440	V_{MAX} =5.5	Zigbee	8.7	7.413	30	-21.3
F_{HIGH}	2475	V_{NOM} = 5.0	Zigbee	3.9	2.455	30	-26.1
F_{HIGH}	2475	V_{MIN} = 4.5	Zigbee	3.9	2.455	30	-26.1
F_{HIGH}	2475	V_{MAX} =5.5	Zigbee	3.9	2.455	30	-26.1
Comments:							

3.3 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 15B

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Handrik
Test Conditions:	Tnom: 22°C, Unom: 5.0 V DC
LISN:	ESH2-Z5 N
Mode:	ZigBee; CH: 18; 2440 MHz
Test Date:	2016-05-26
Note:	

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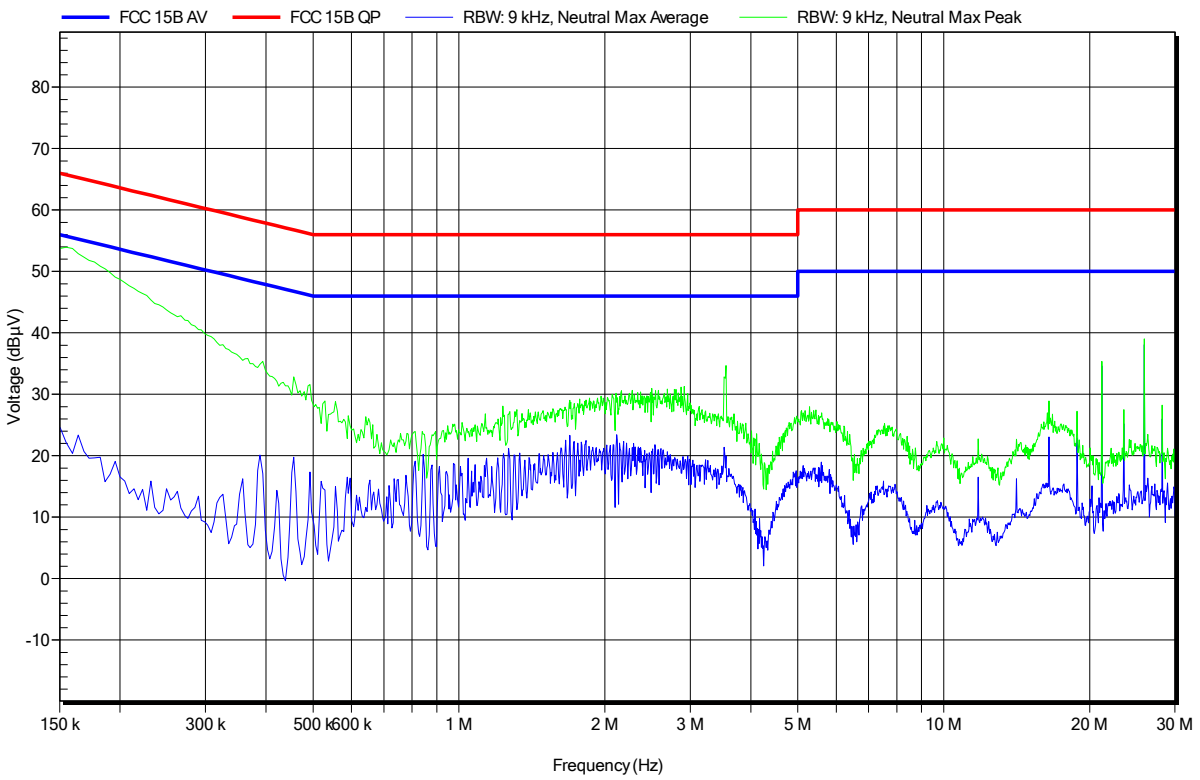

Conducted Emissions

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

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Handrik
Test Conditions:	Tnom: 22°C, Unom: 5.0 V DC
LISN:	ESH2-Z5 L
Mode:	ZigBee; CH: 18; 2440 MHz
Test Date:	2016-05-26
Note:	

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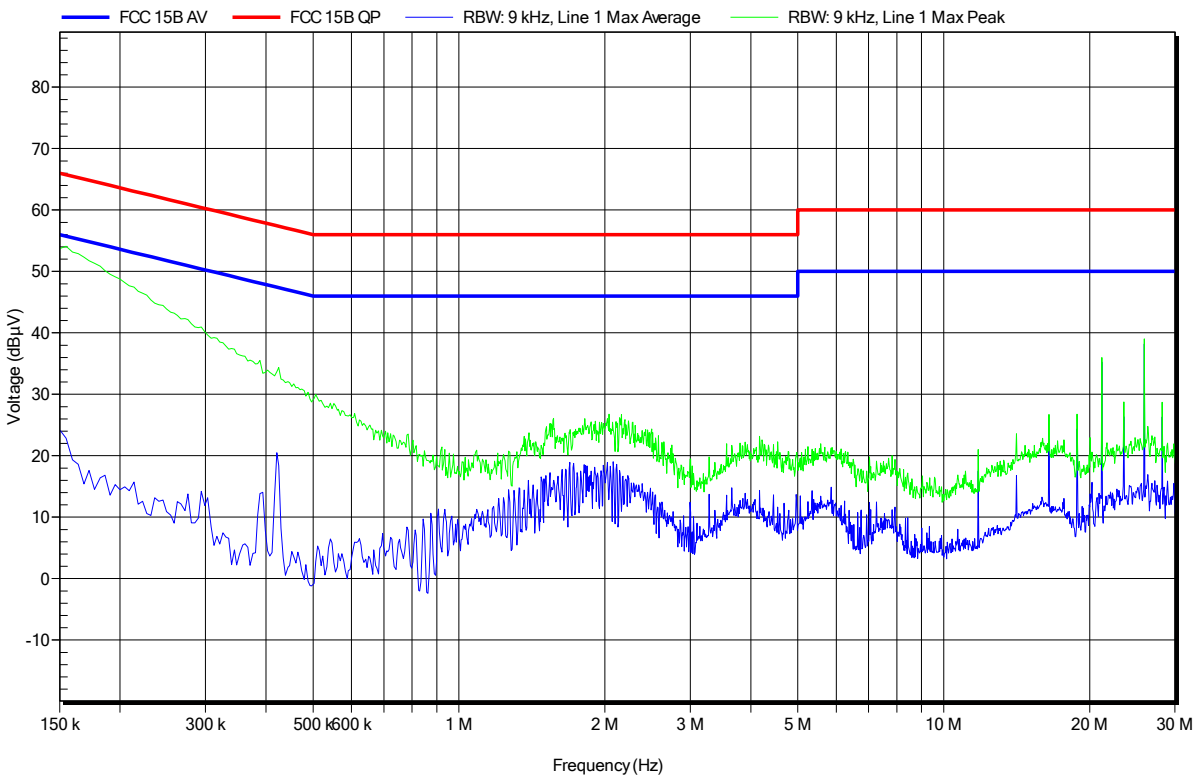
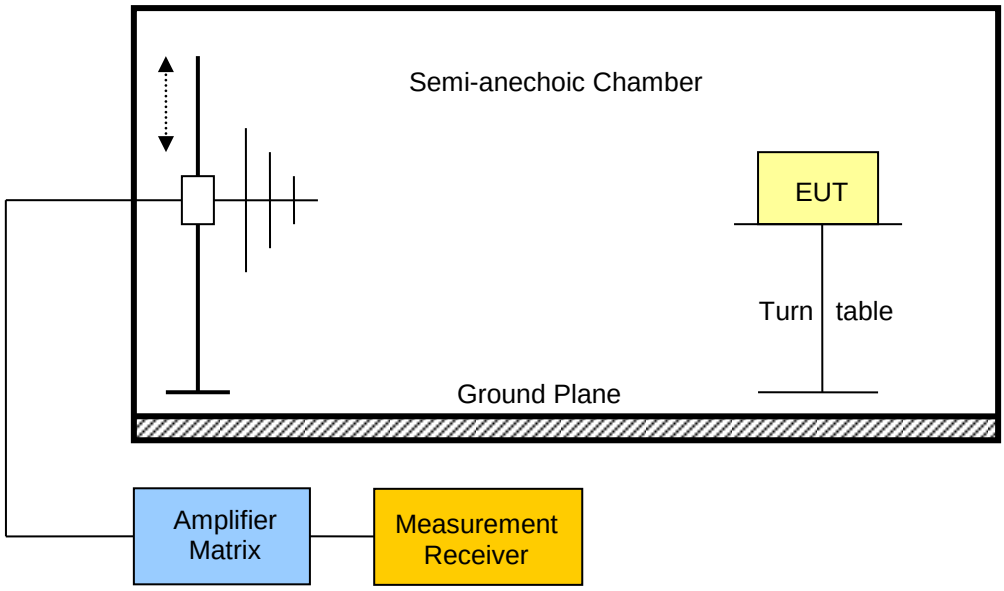


3.4 Test Conditions and Results – Transmitter radiated emissions

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

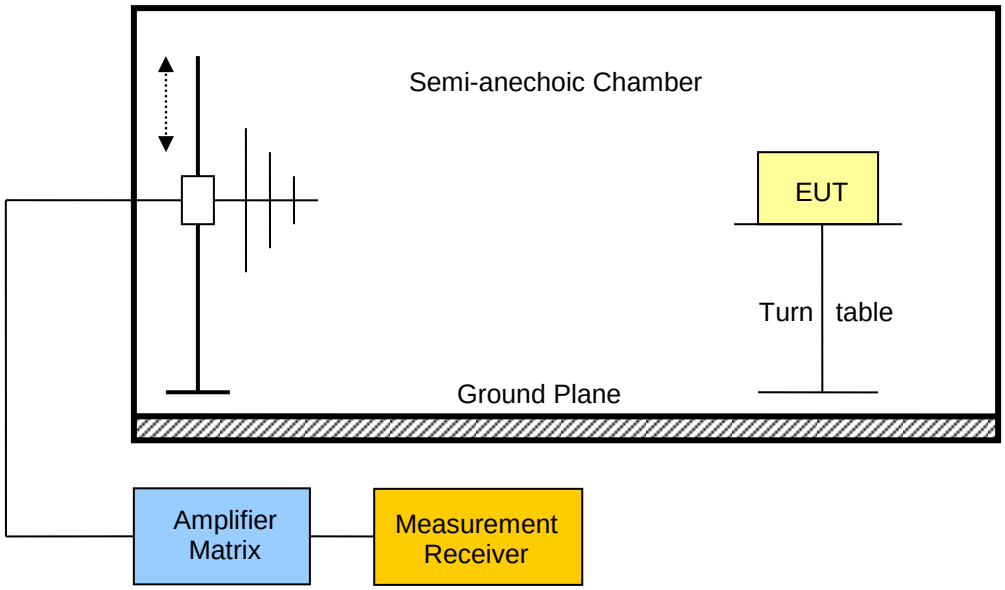
Test results – Internal Antenna

Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dbµV/m]	Det.	Pol.	Limit [dbµV/m]	Limit dist. [m]*	Margin [dB]
F_{LOW}	2405	ZIGBEE	No significant spurious emissions						
F_{MID}	2440	ZIGBEE	7321	54.52	pk	ver	74.00	3	-19.48
F_{MID}	2440	ZIGBEE	7321	48.08	RMS	ver	54.00	3	-05.92
F_{MID}	2440	ZIGBEE	7321	55.41	pk	hor	74.00	3	-18.59
F_{MID}	2440	ZIGBEE	7321	49.23	RMS	hor	54.00	3	-04.77
F_{HIGH}	2475	ZIGBEE	No significant spurious emissions						

Comments: * Physical distance between EUT and measurement antenna.

3.5 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]	Emission Level [µV/m]	Det.	Limit [µV/m]	Margin [µV/m]
F_{MID}	2440	7464	51.55	378	Peak	500	-122

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

ANNEX A Transmitter radiated spurious emissions

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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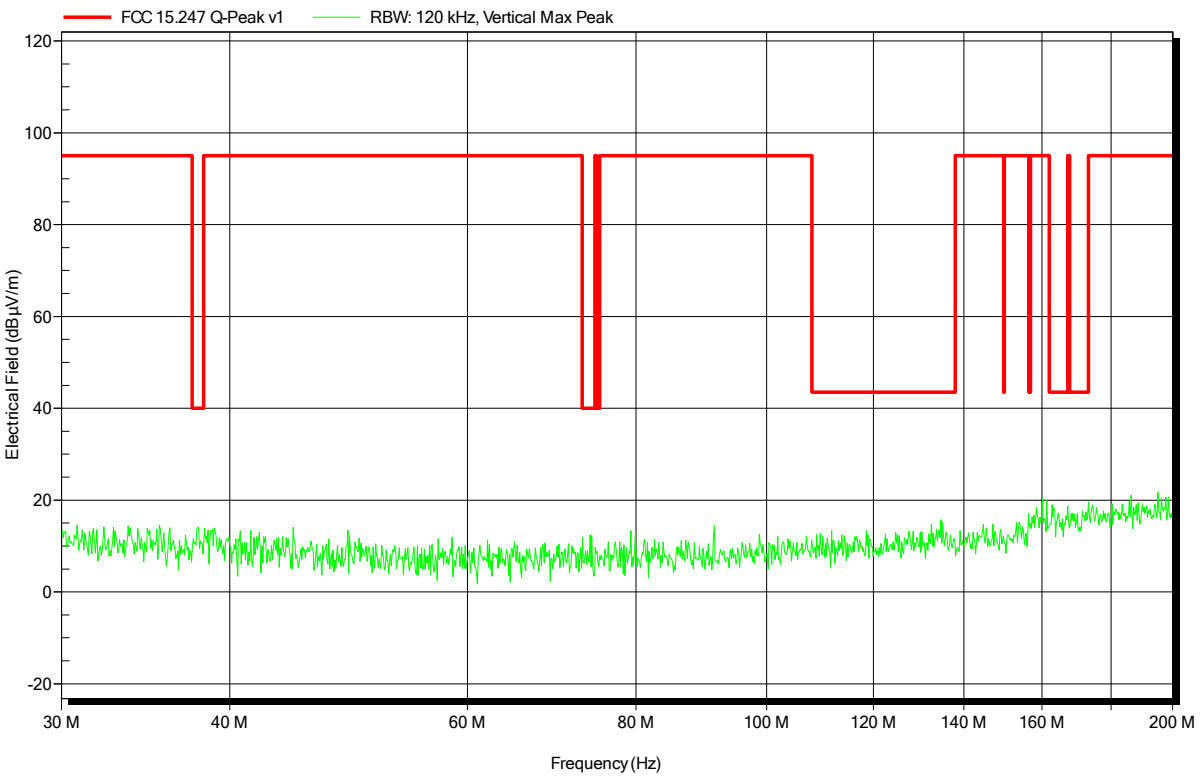

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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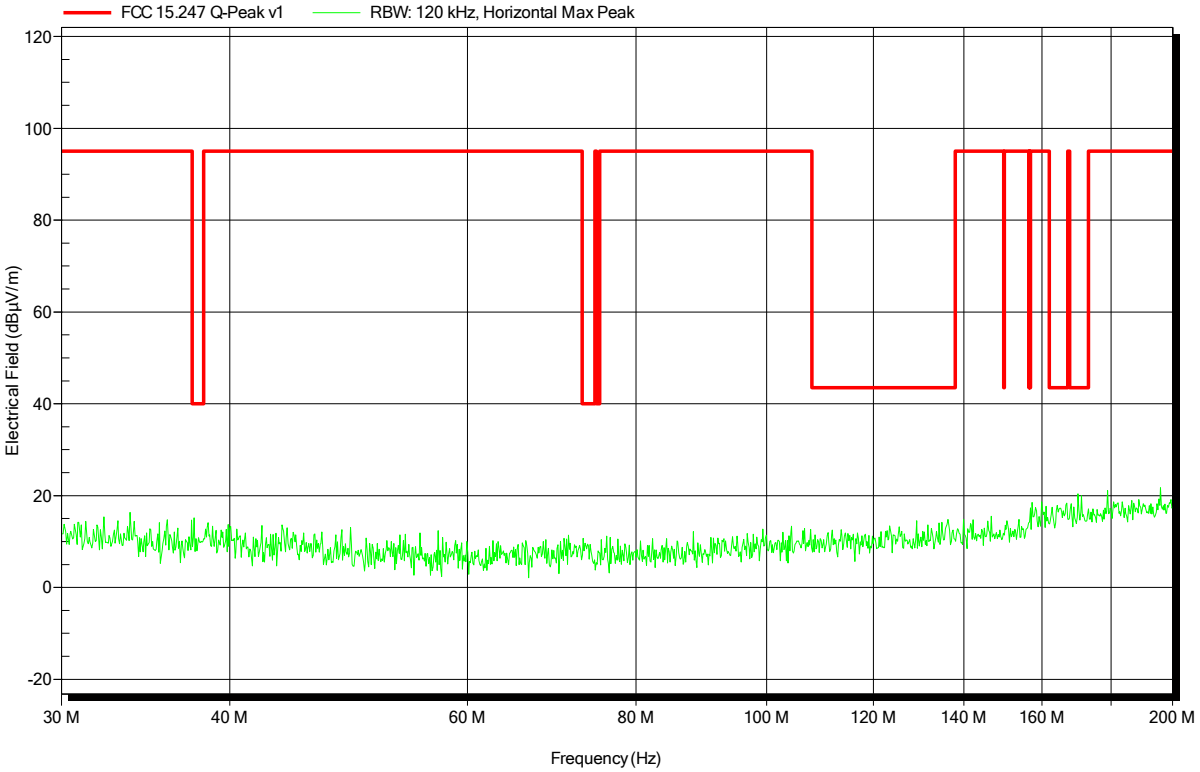

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 18; 2440 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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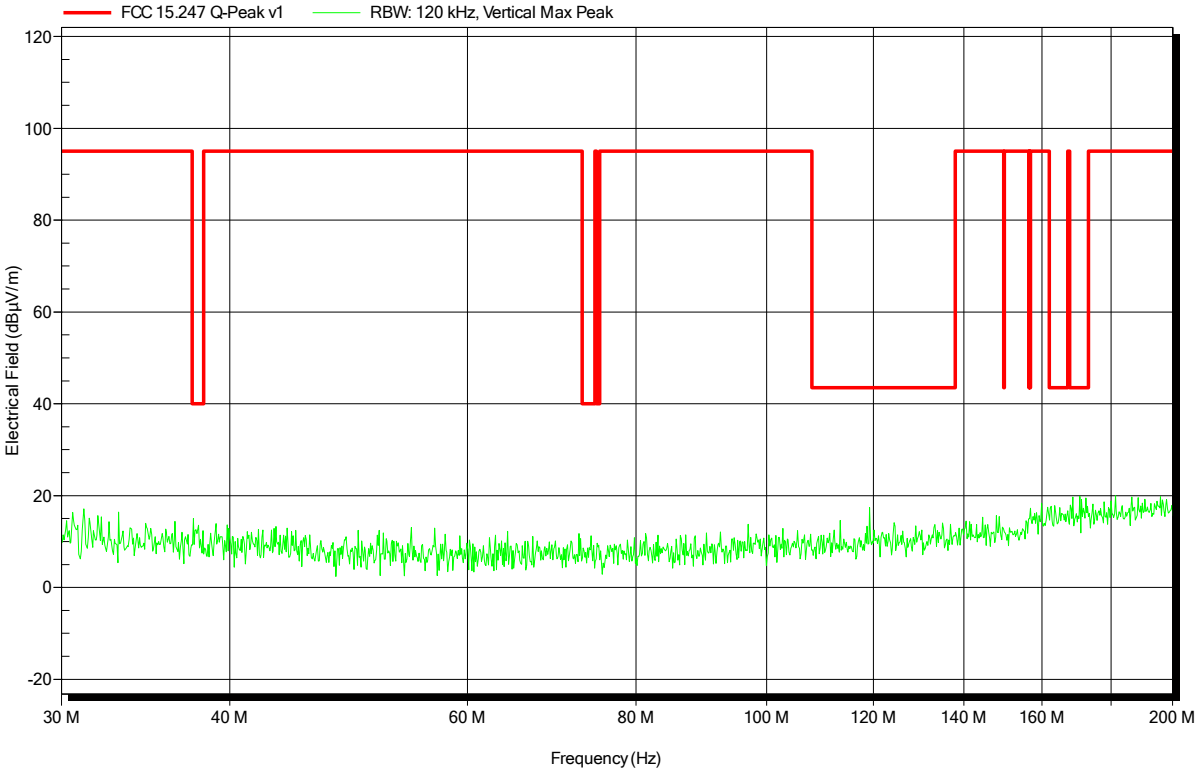

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 18; 2440 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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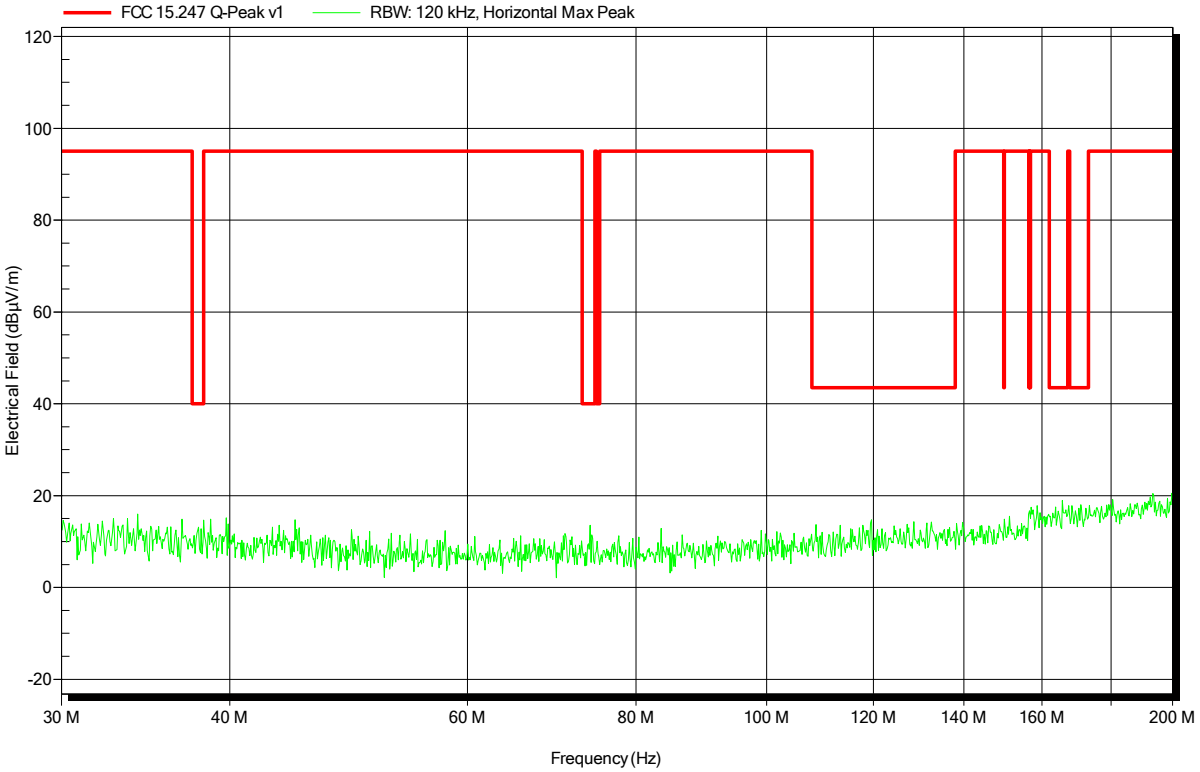

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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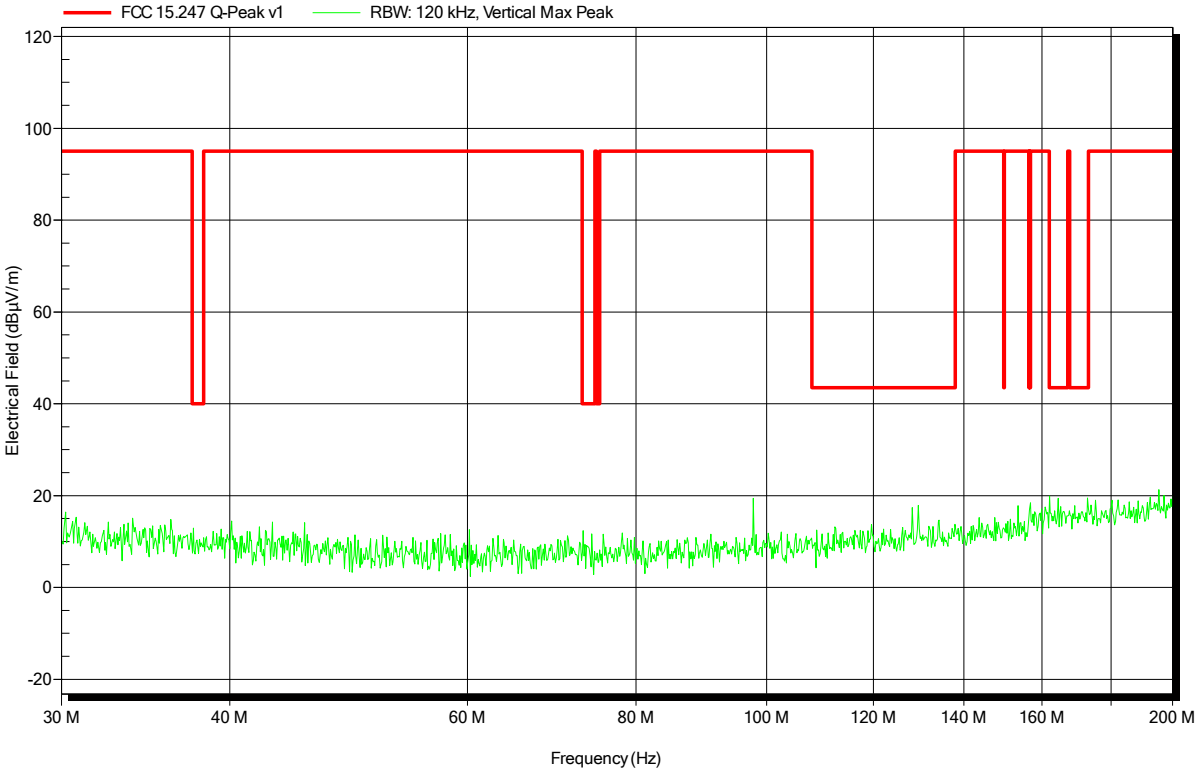

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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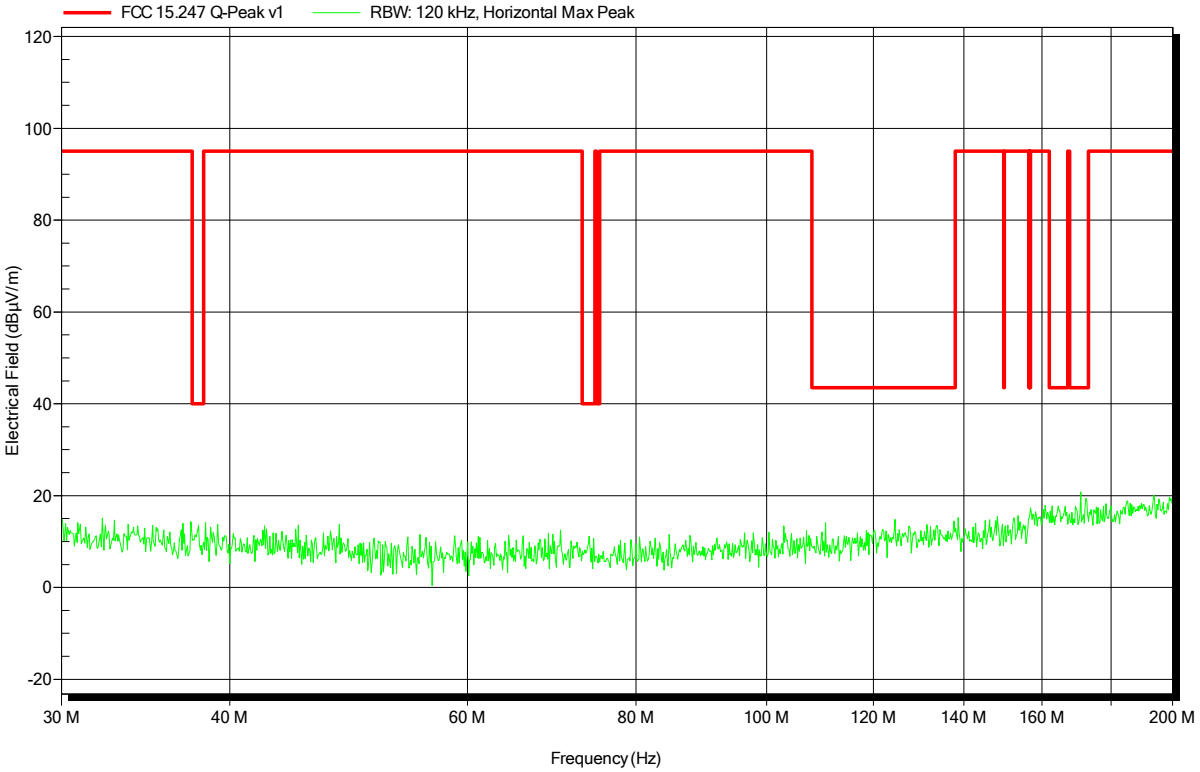

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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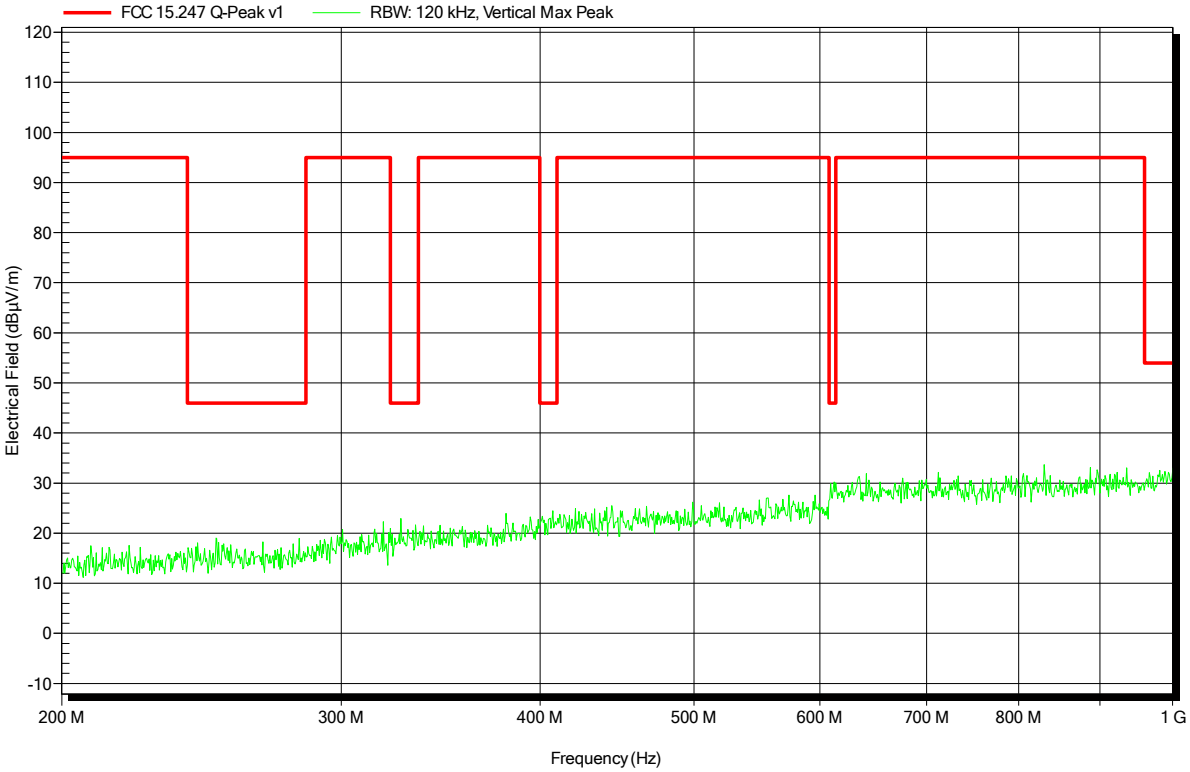

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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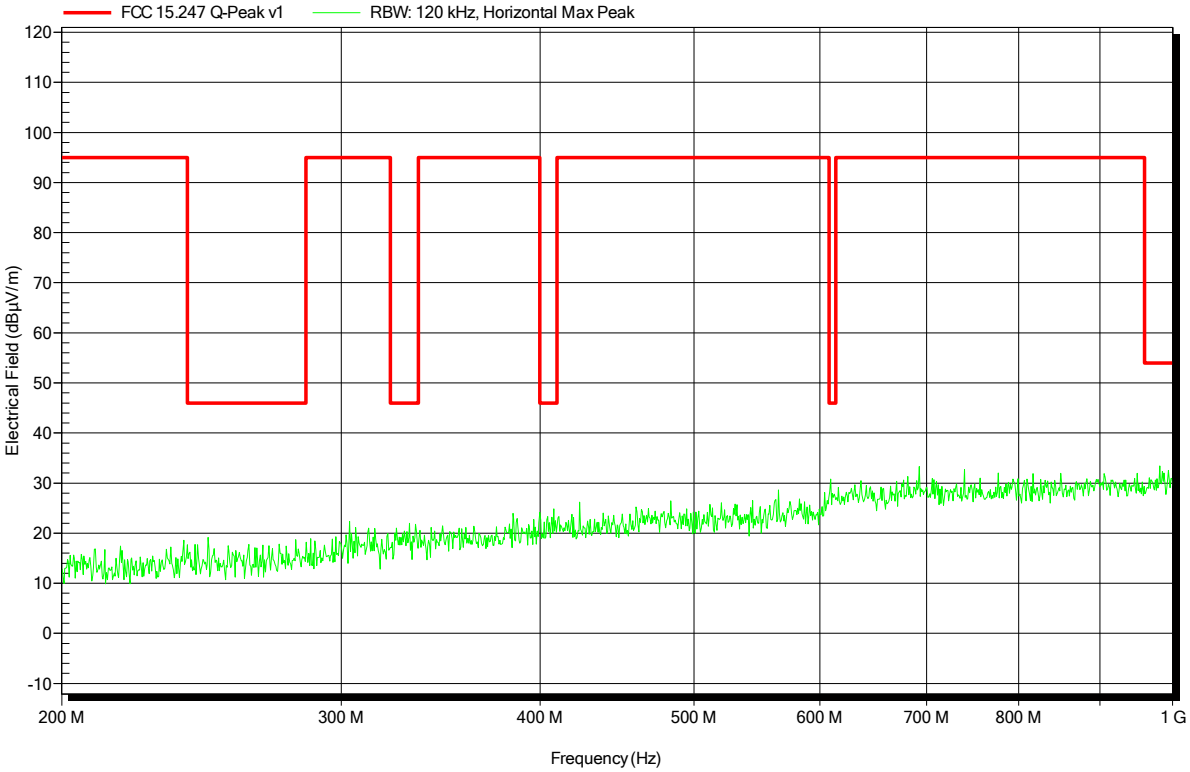

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 18; 2440 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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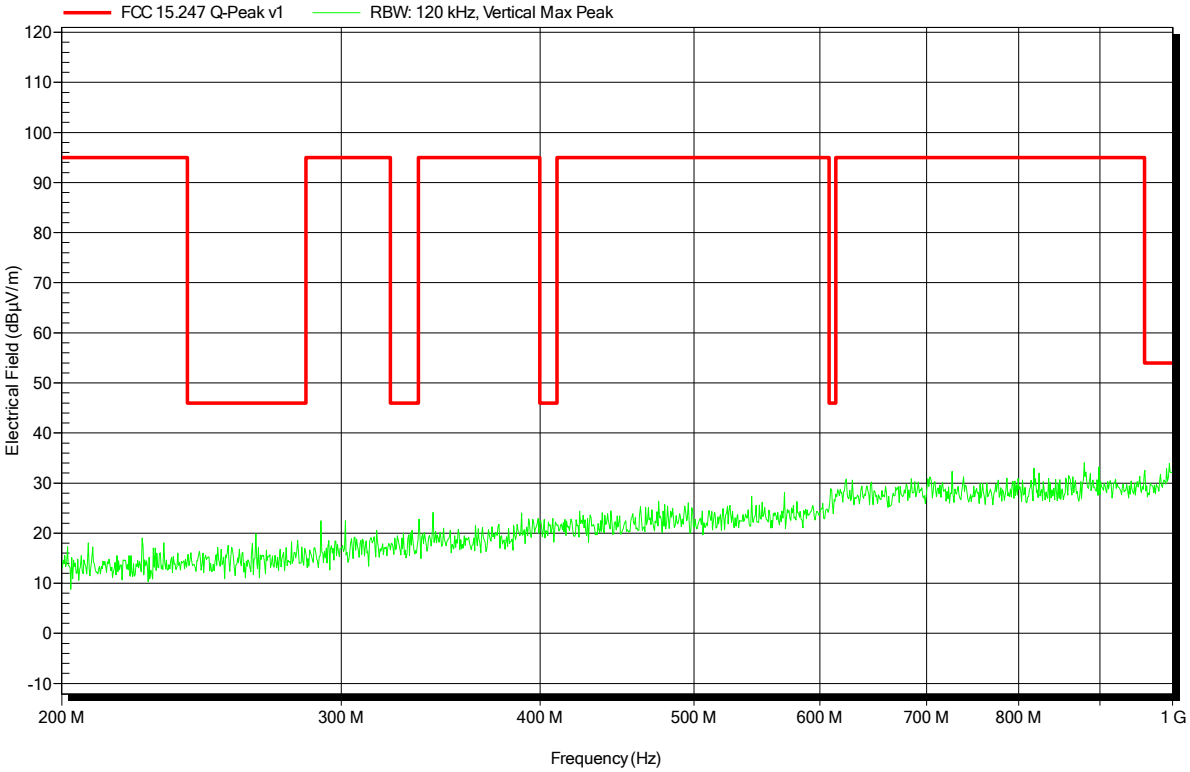

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 18; 2440 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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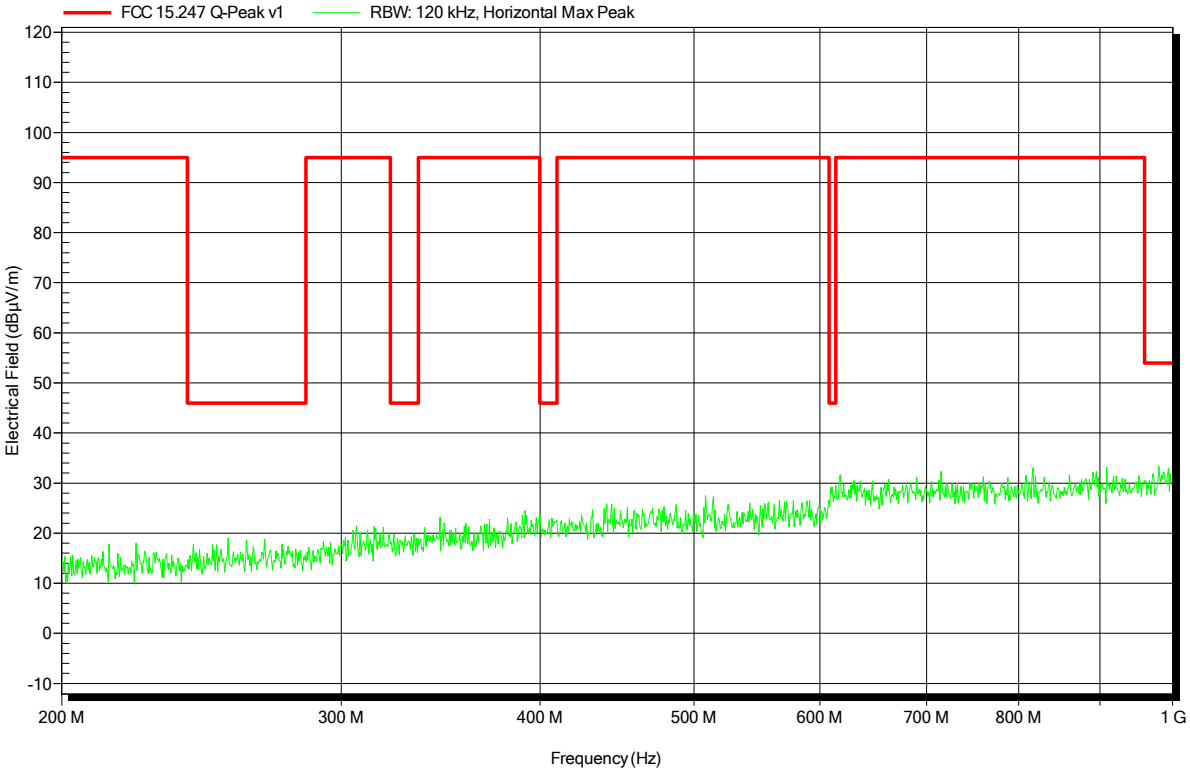

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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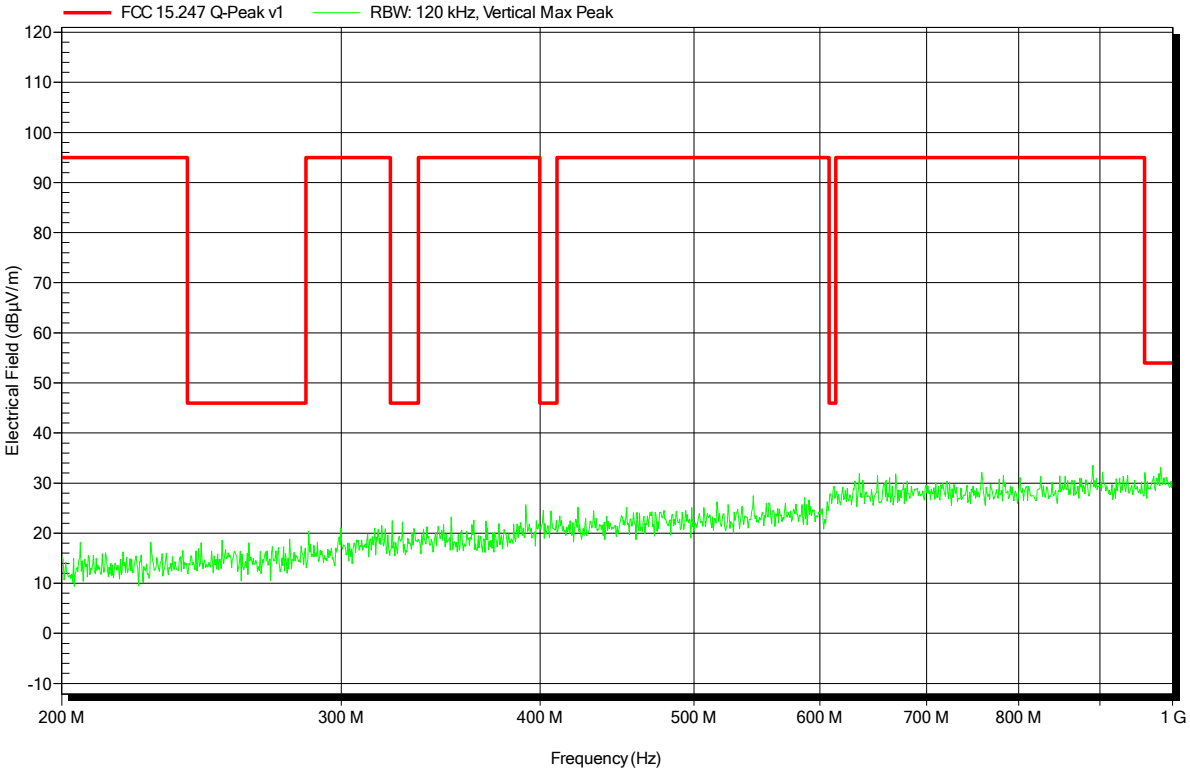

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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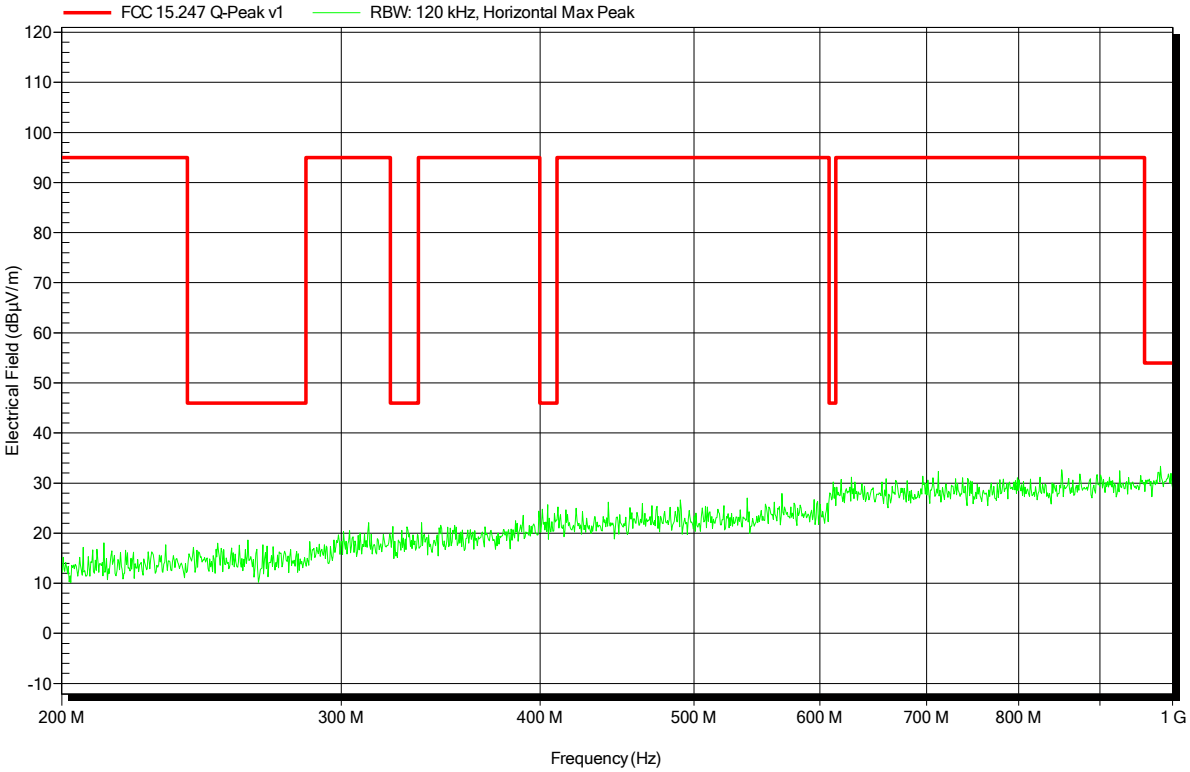

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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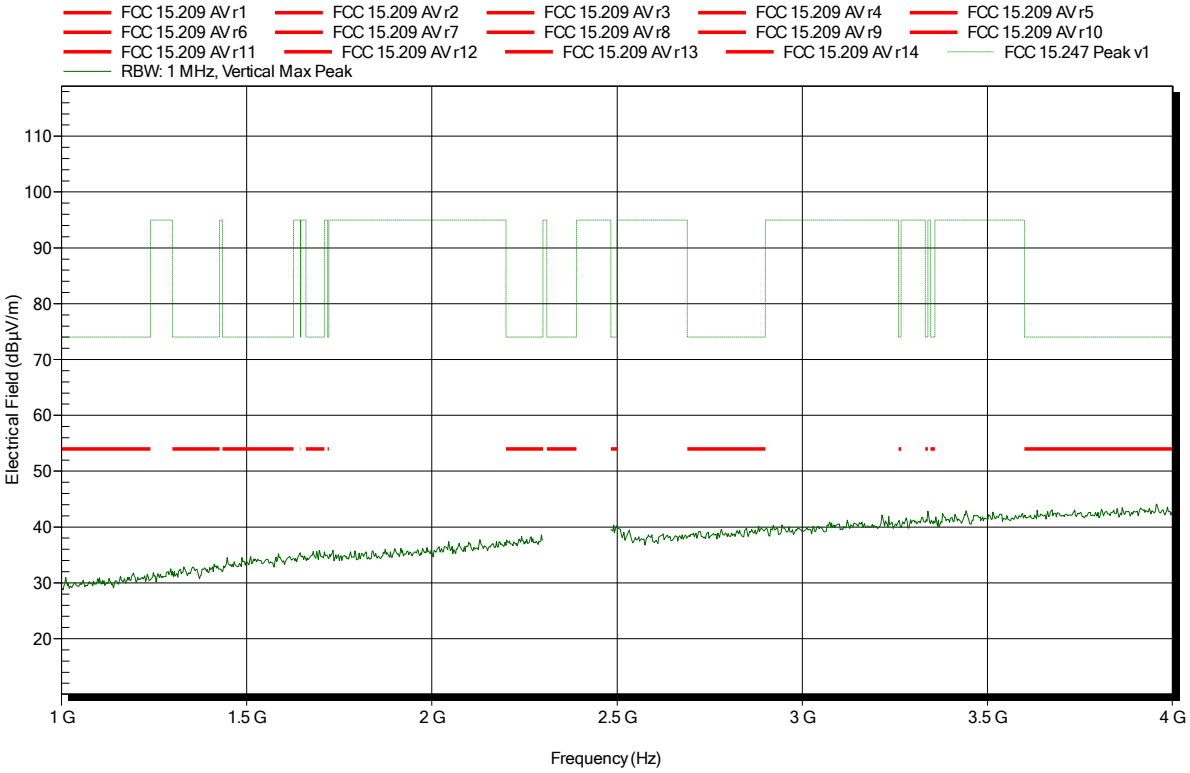

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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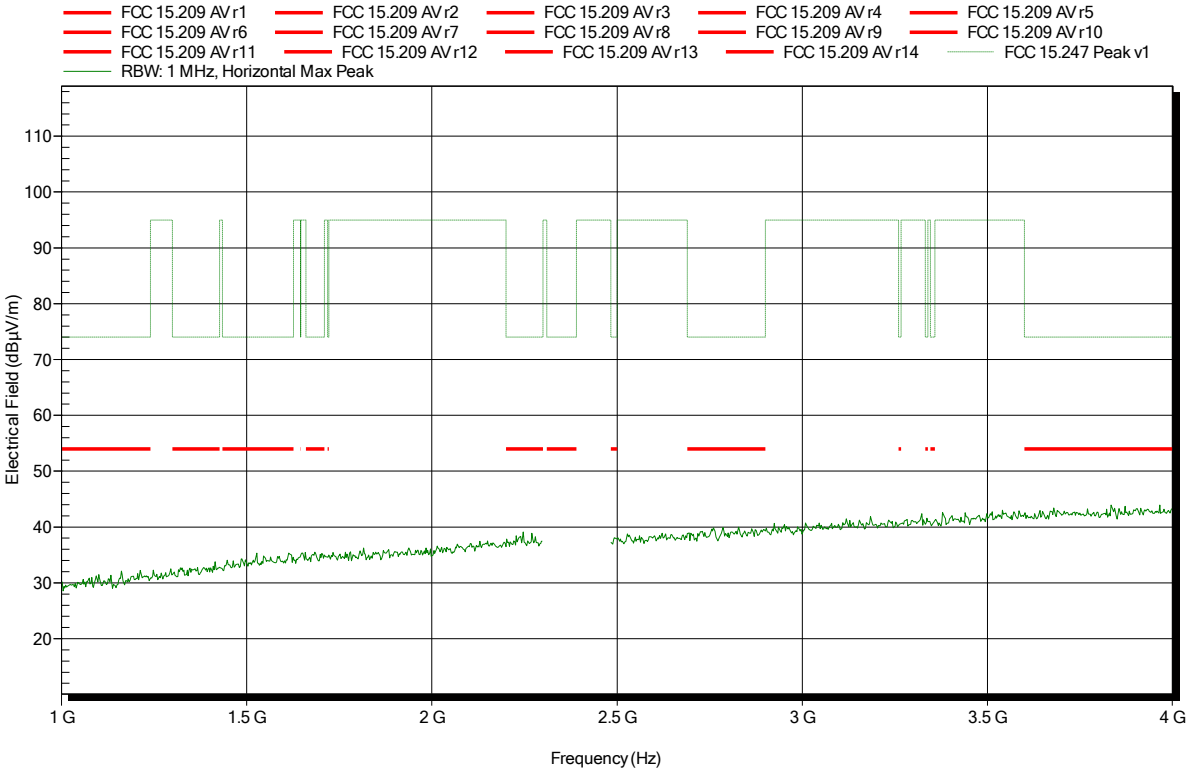

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical; lower bandedge

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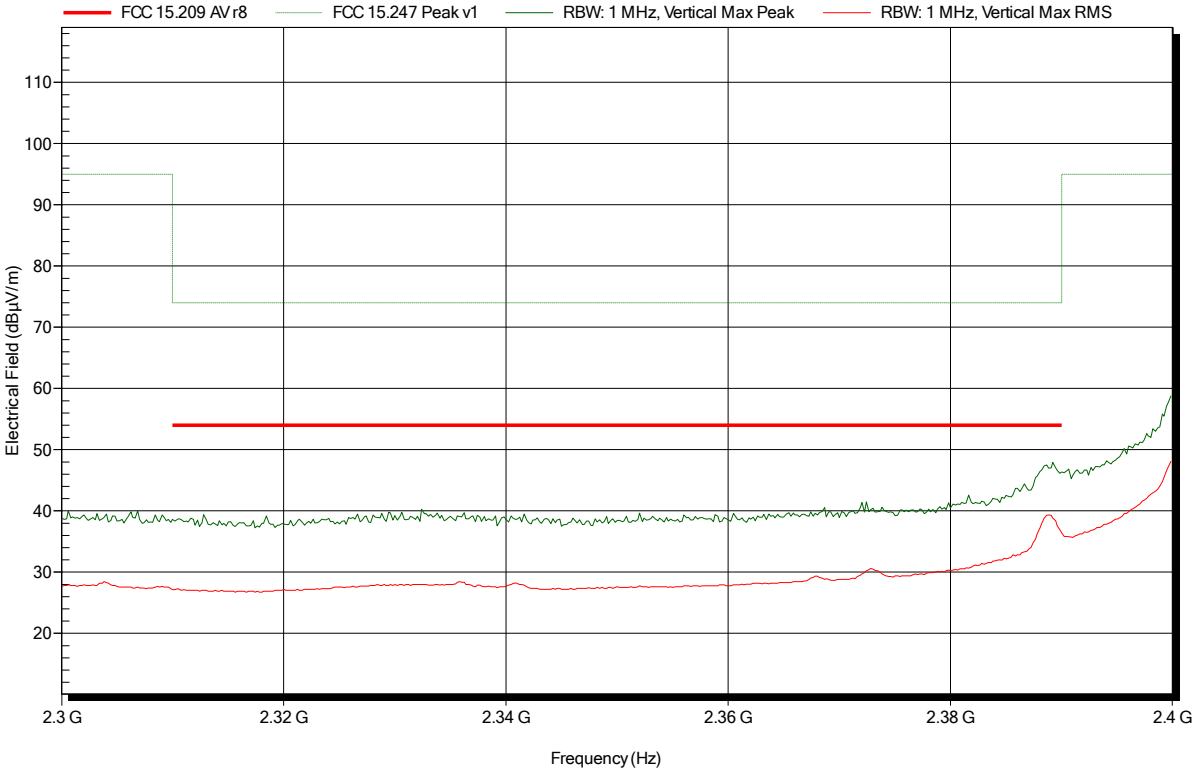

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical; lower bandedge

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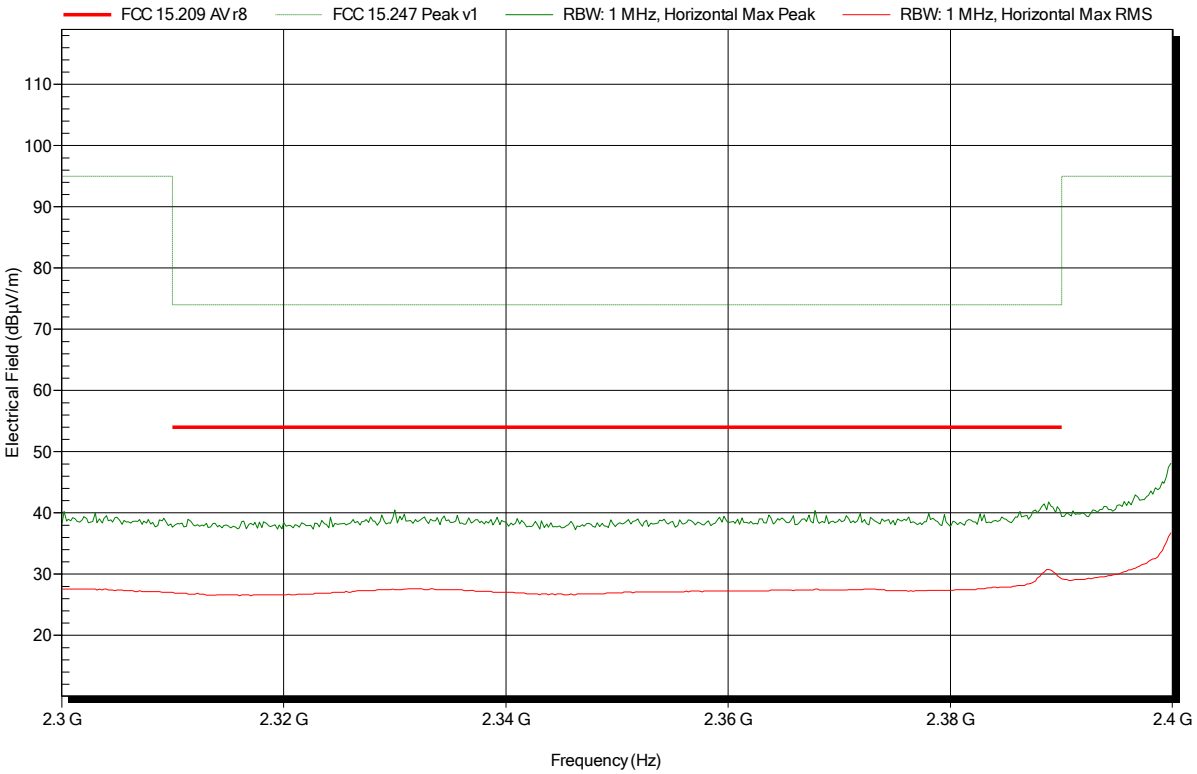

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 2000kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical; lower bandedge

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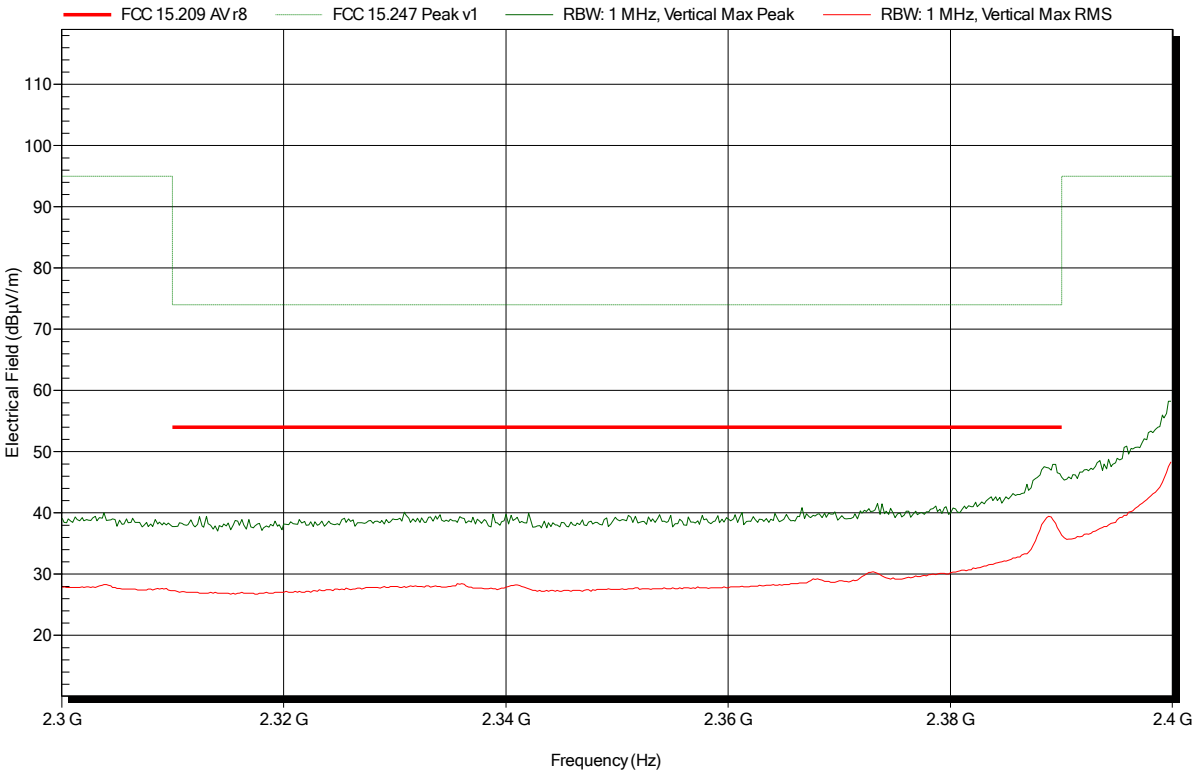

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 2000kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical; lower bandedge

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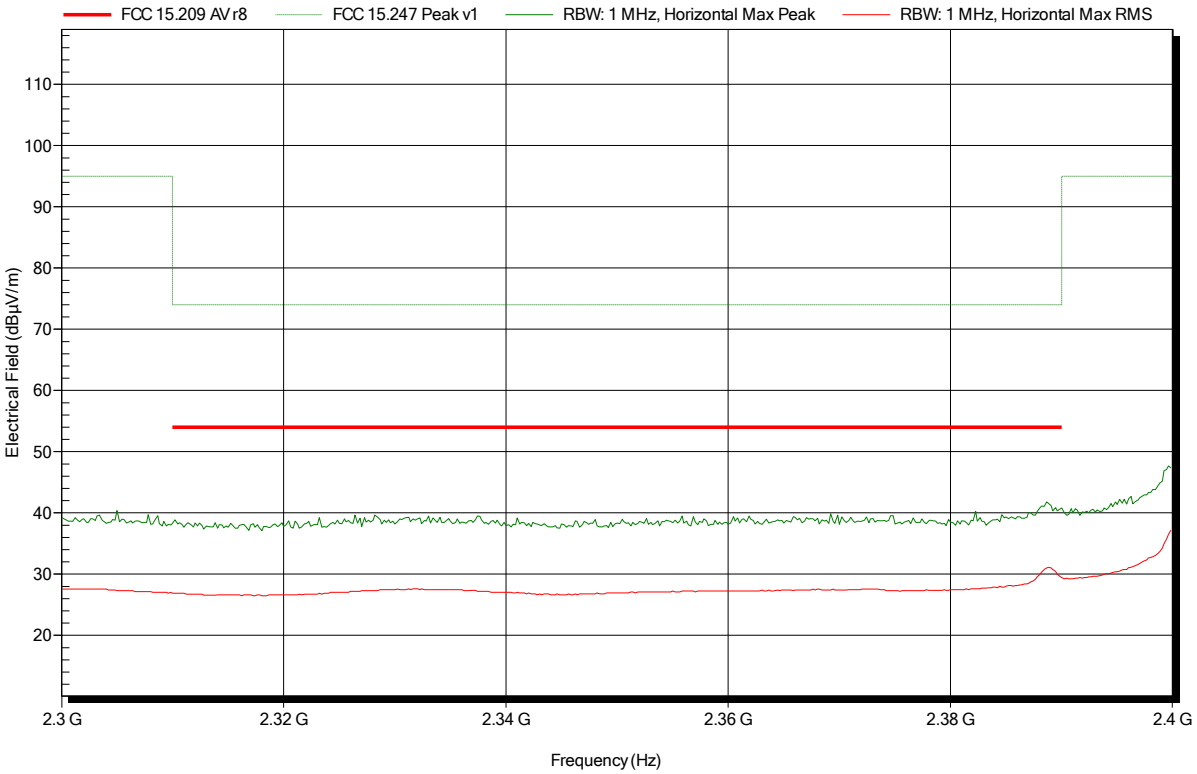

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 18; 2440 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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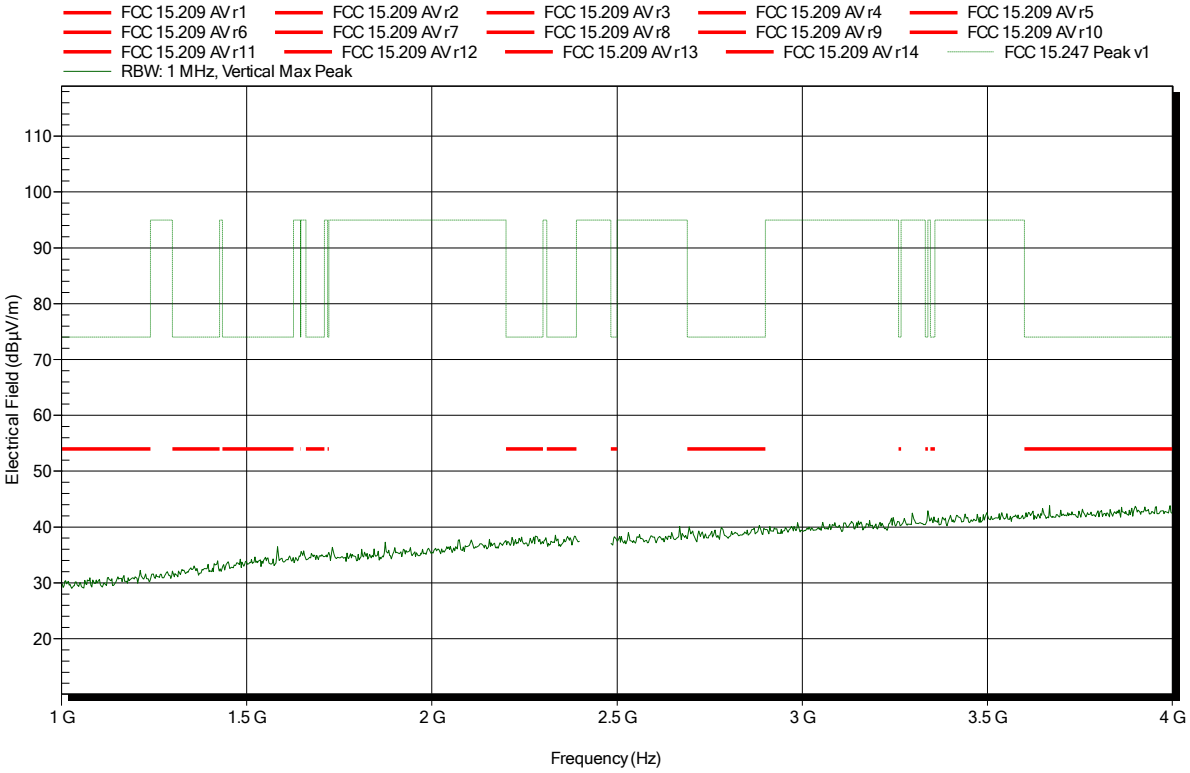

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 18; 2440 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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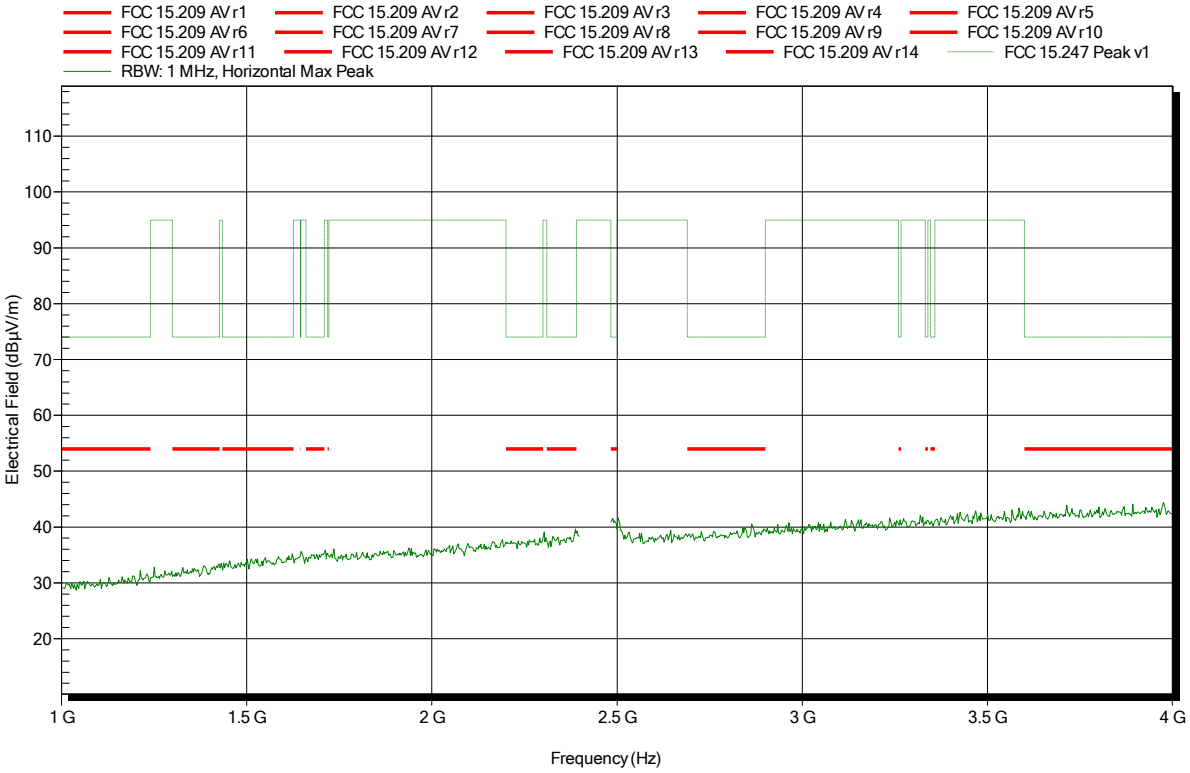

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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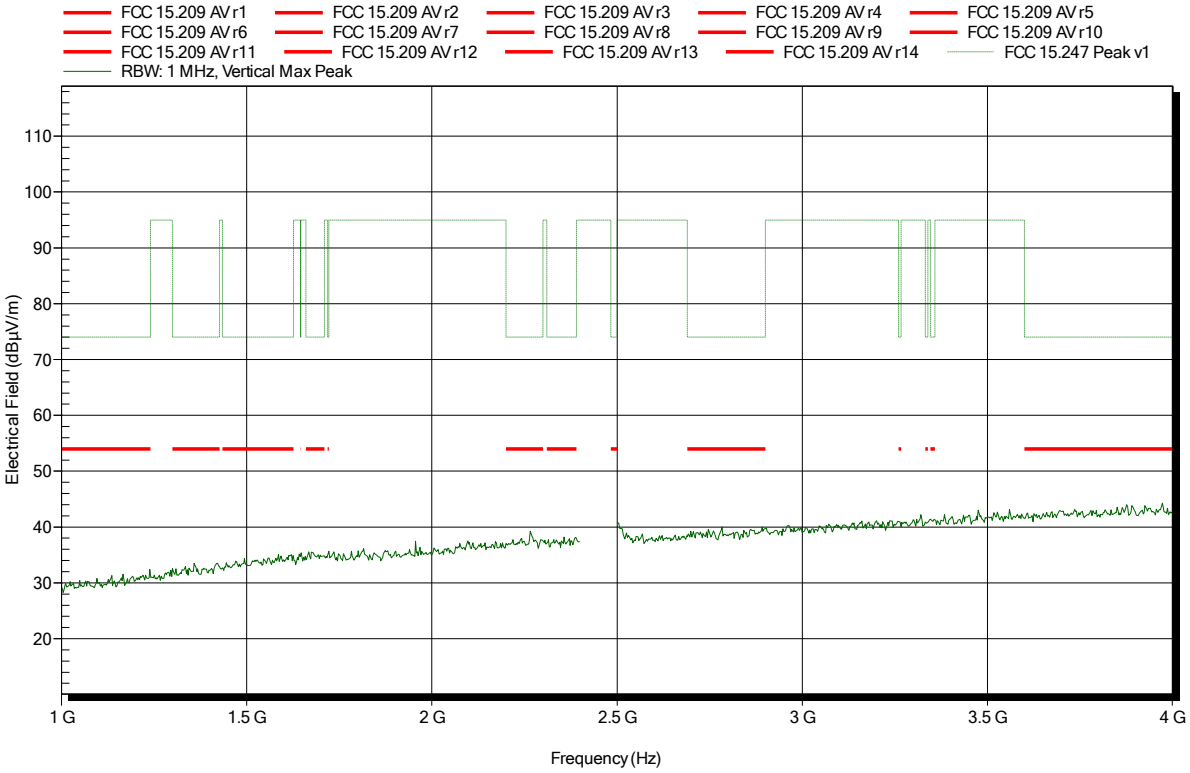

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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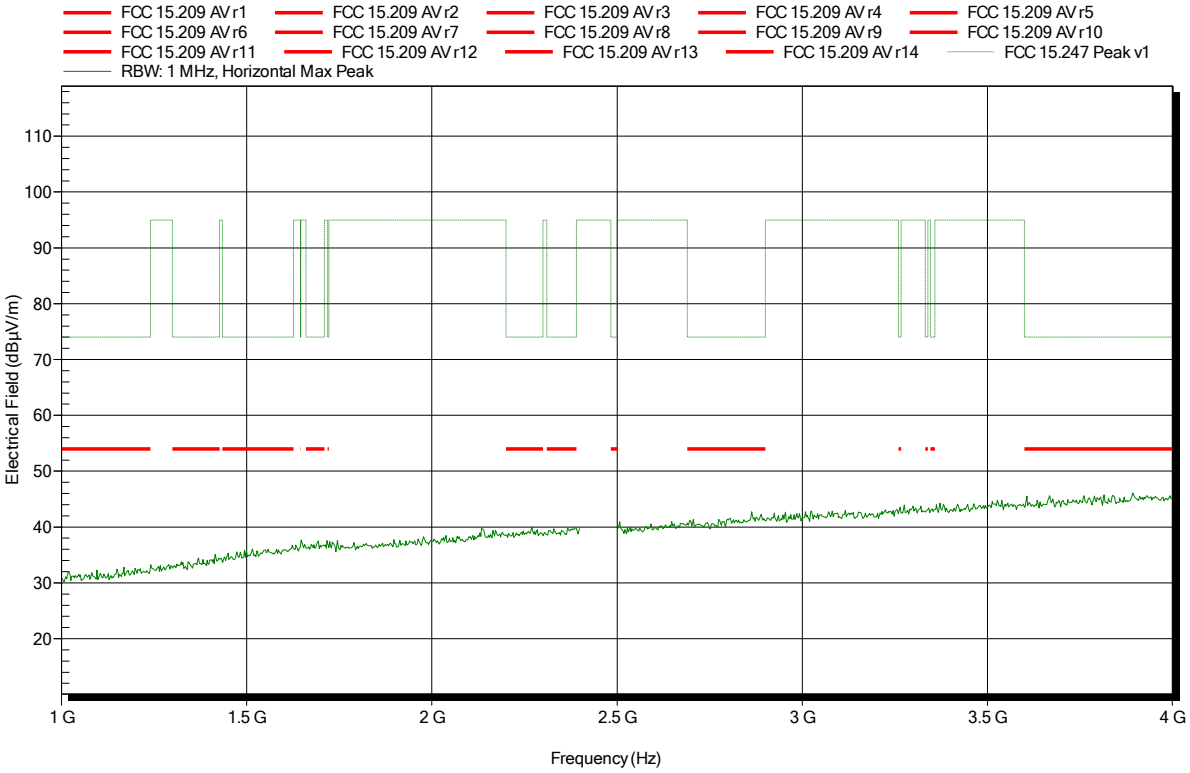

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical; higher bandedge

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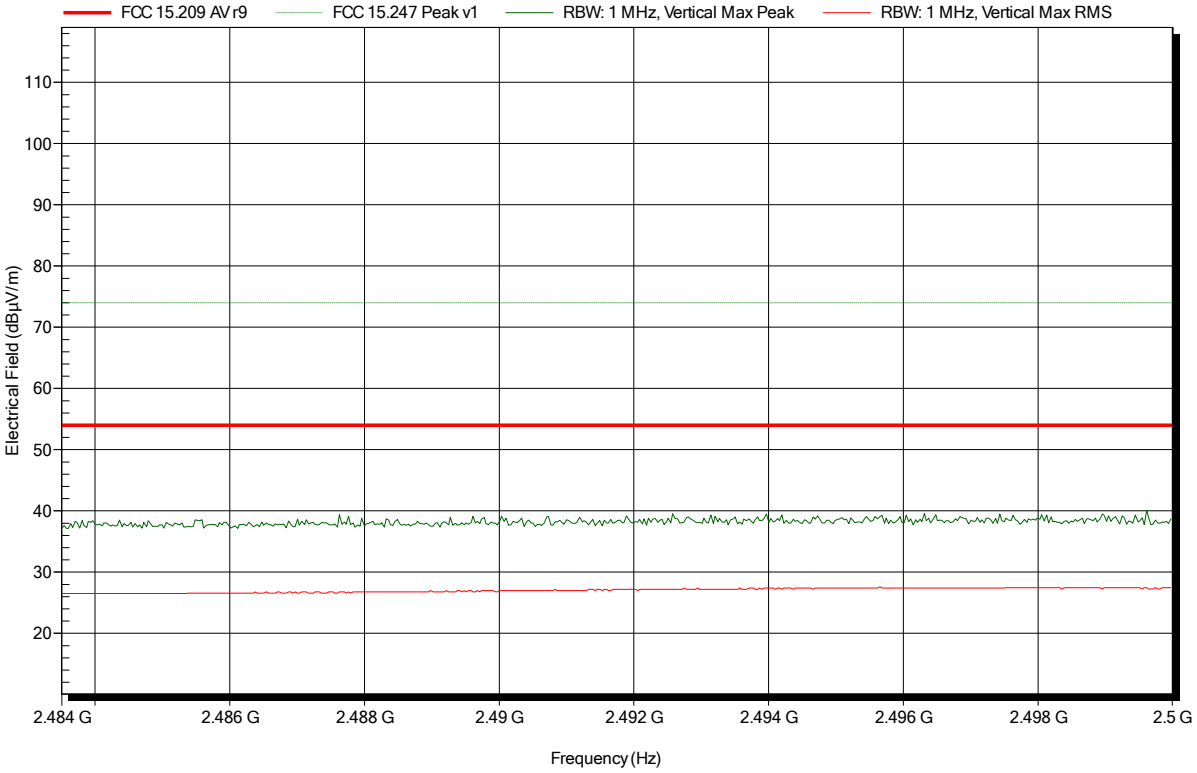

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical; higher bandedge

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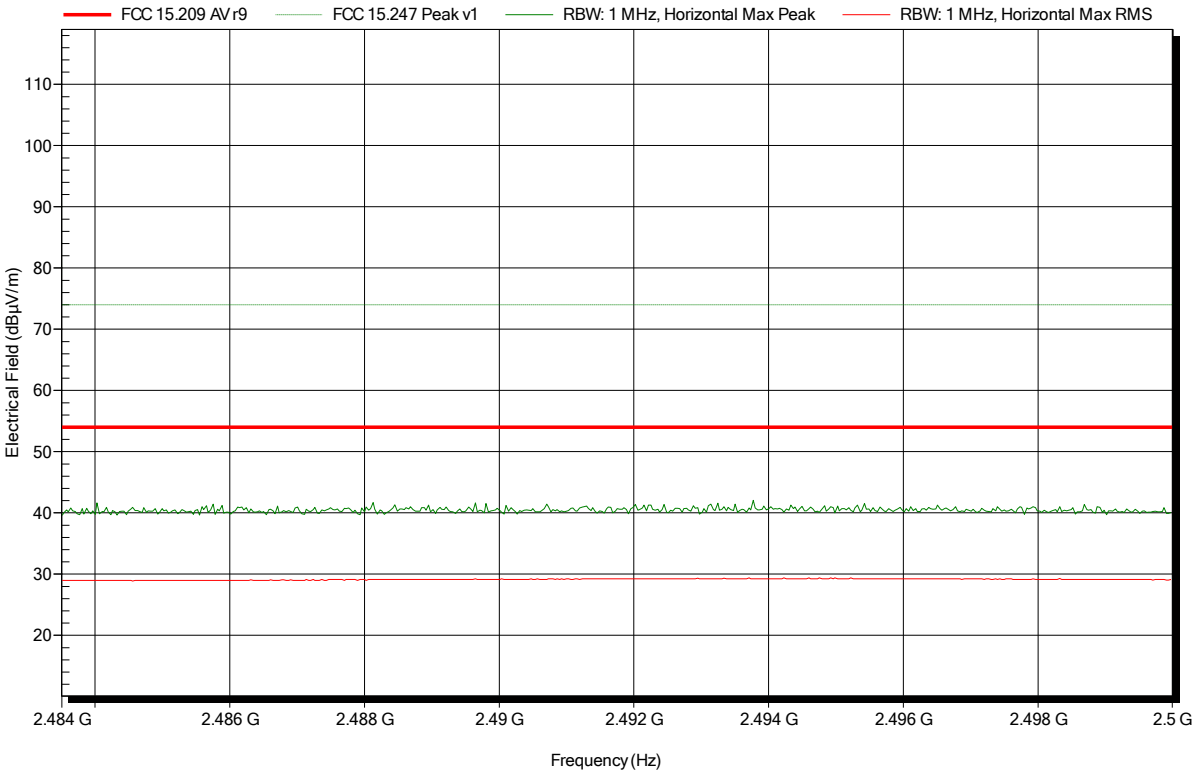

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 2000kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical; higher bandedge

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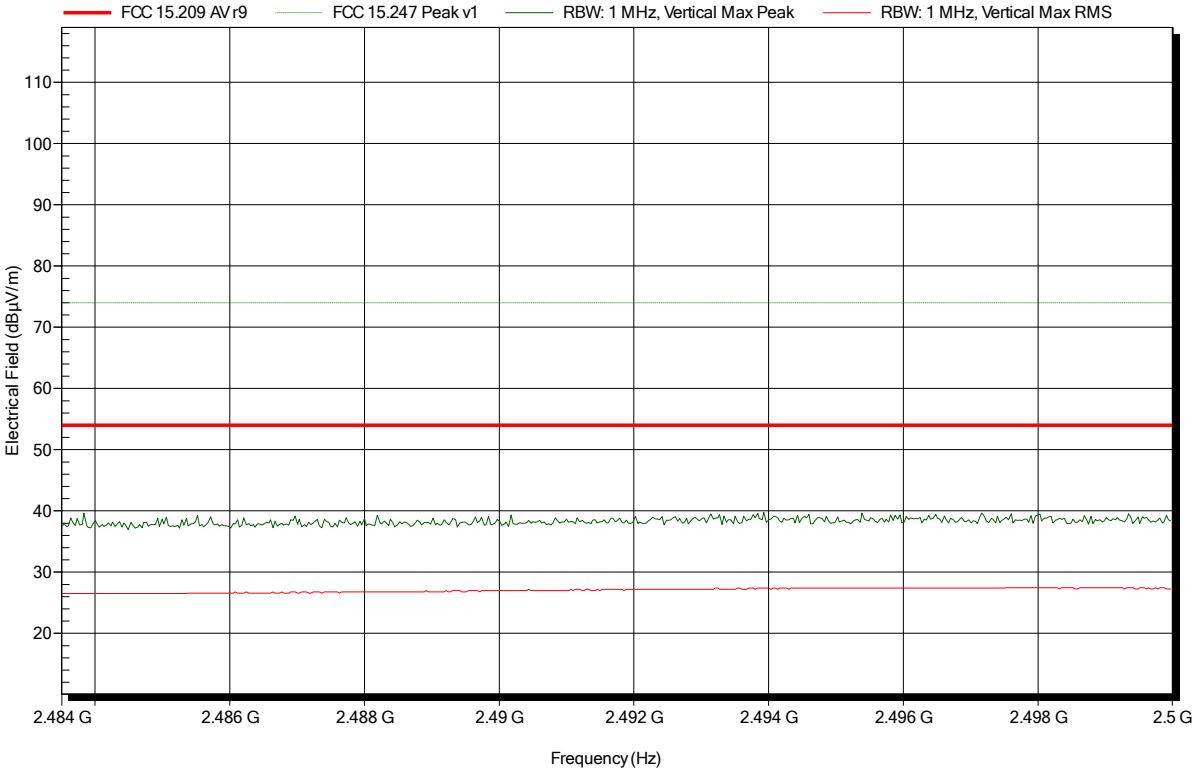

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 2000kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical; higher bandedge

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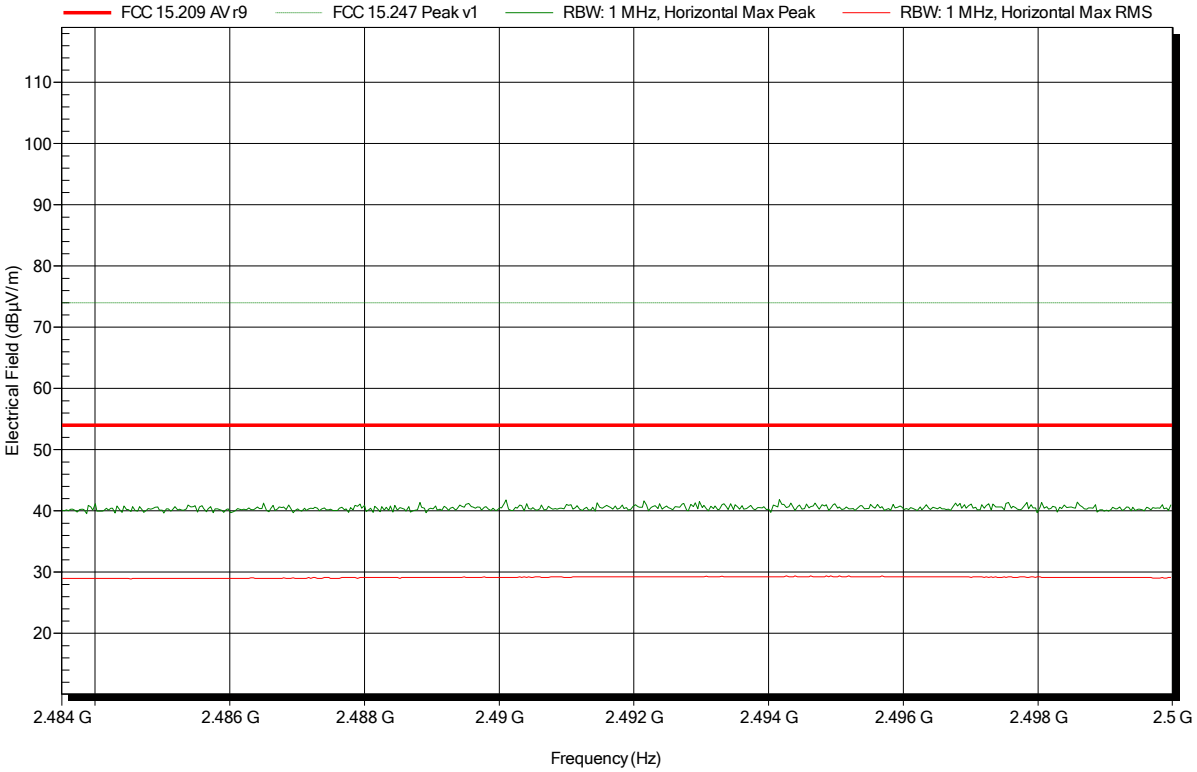

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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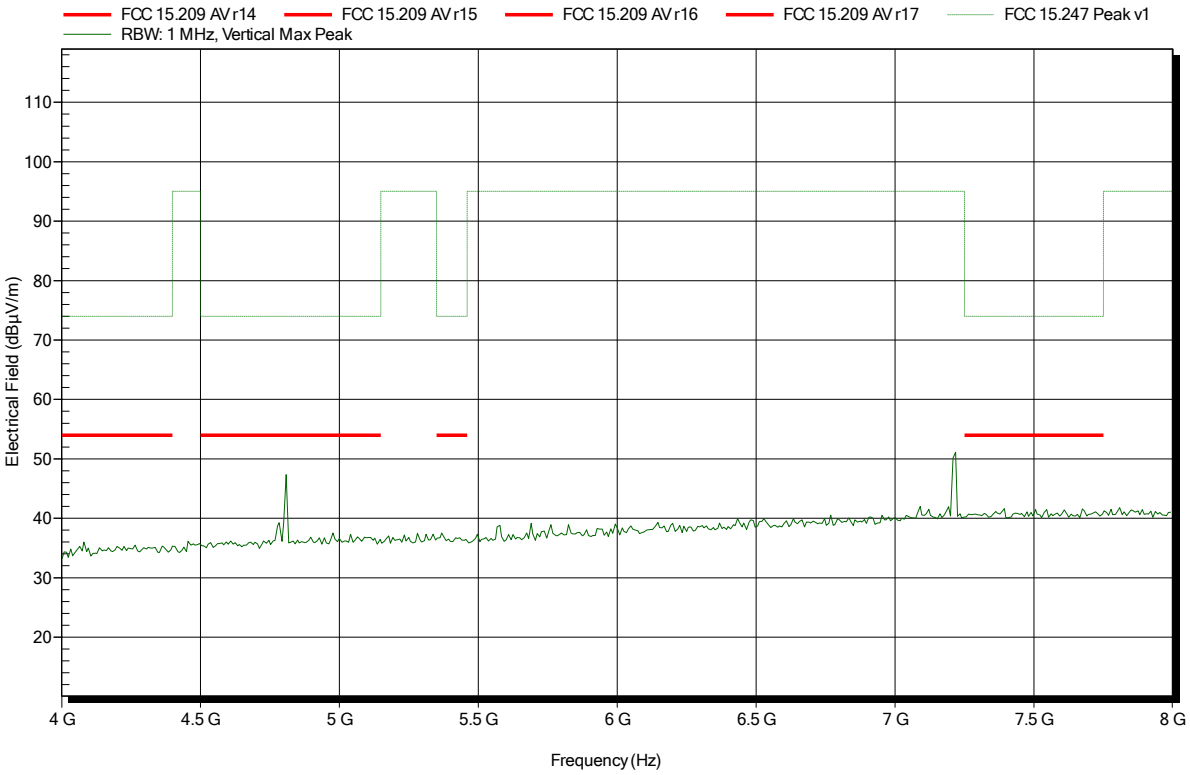

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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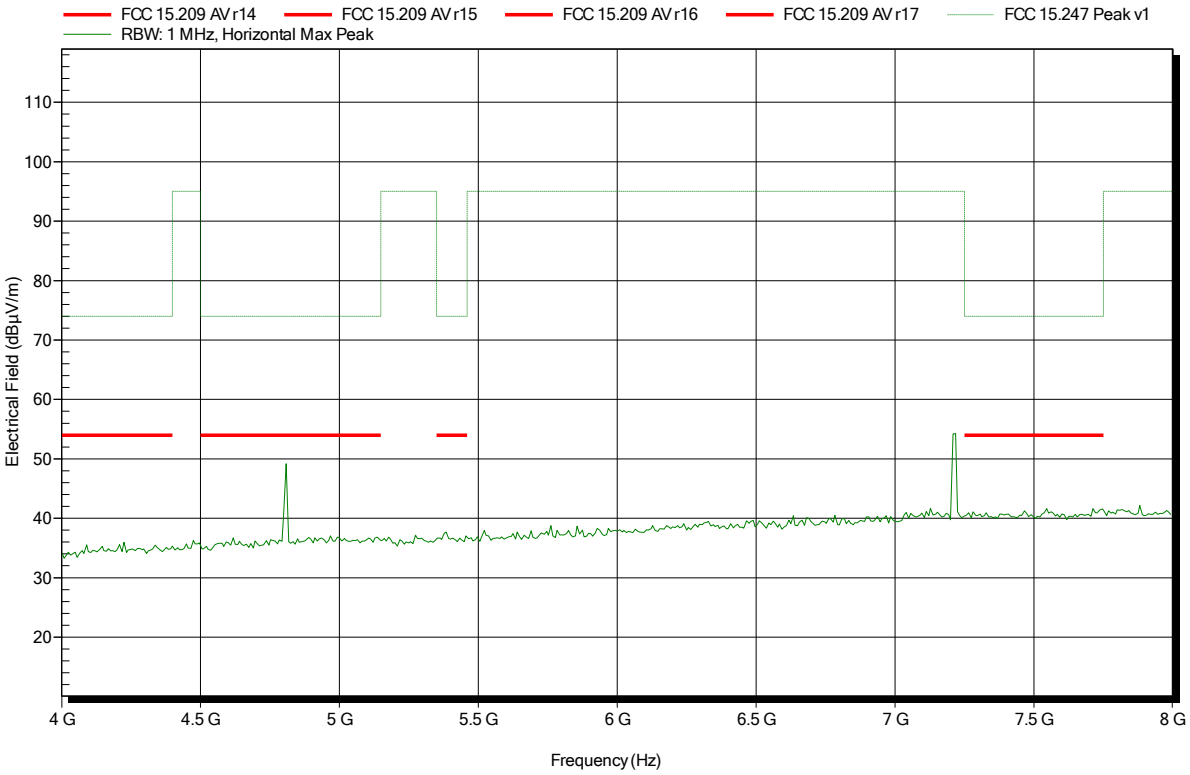

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 2000kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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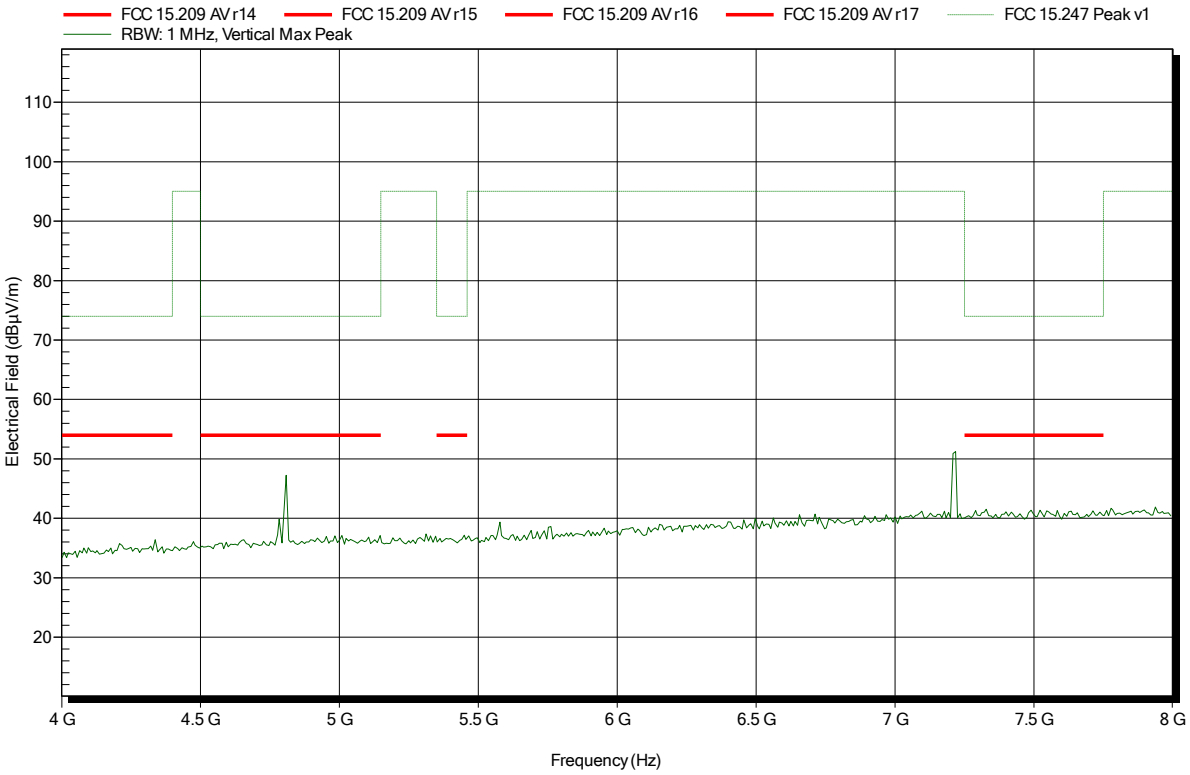

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 2000kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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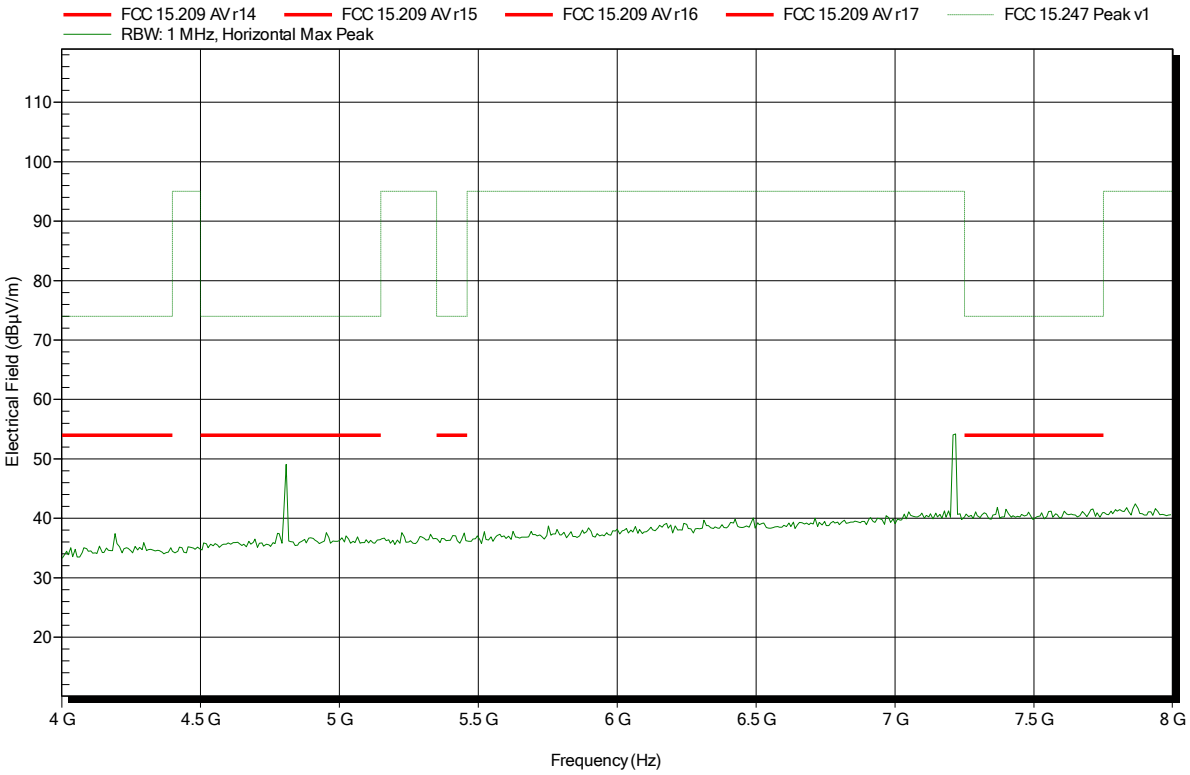

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 18; 2440 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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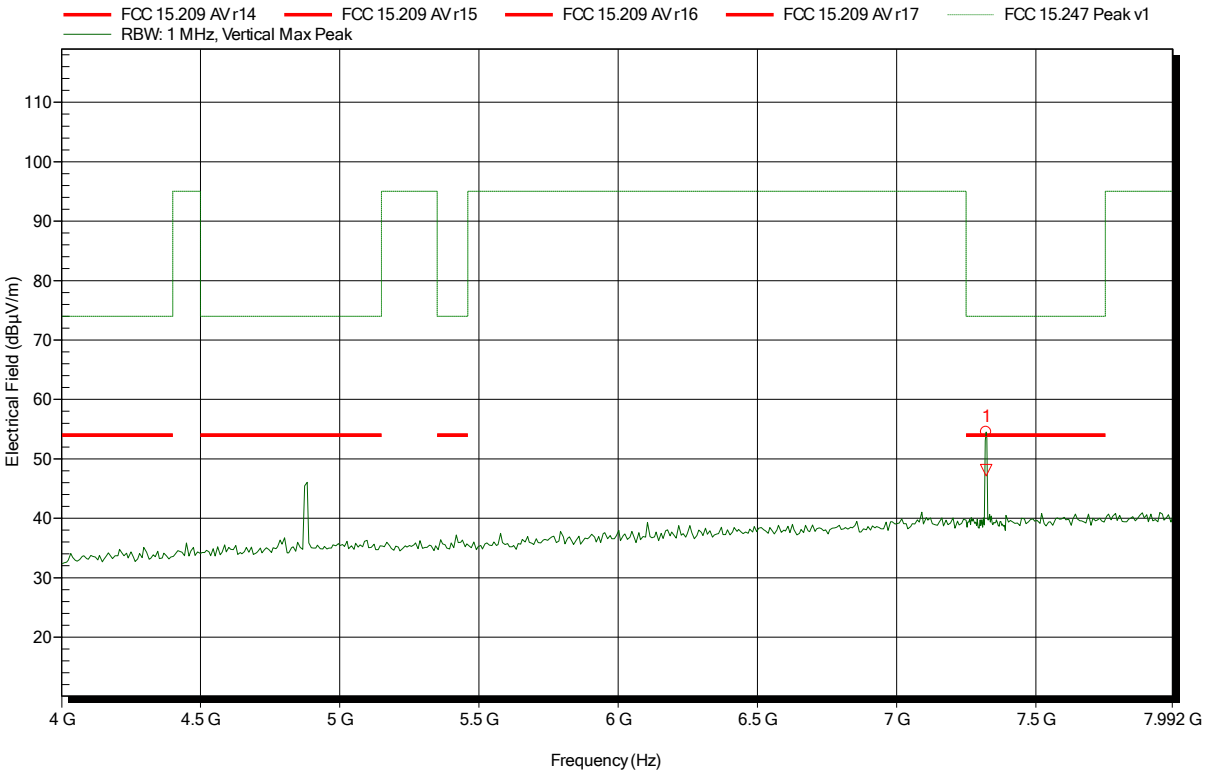

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.321 GHz	54.52 dBµV/m	74 dBµV/m	-19.48 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
7.321 GHz	48.08 dBµV/m	54 dBµV/m	-5.92 dB	Pass

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 18; 2440 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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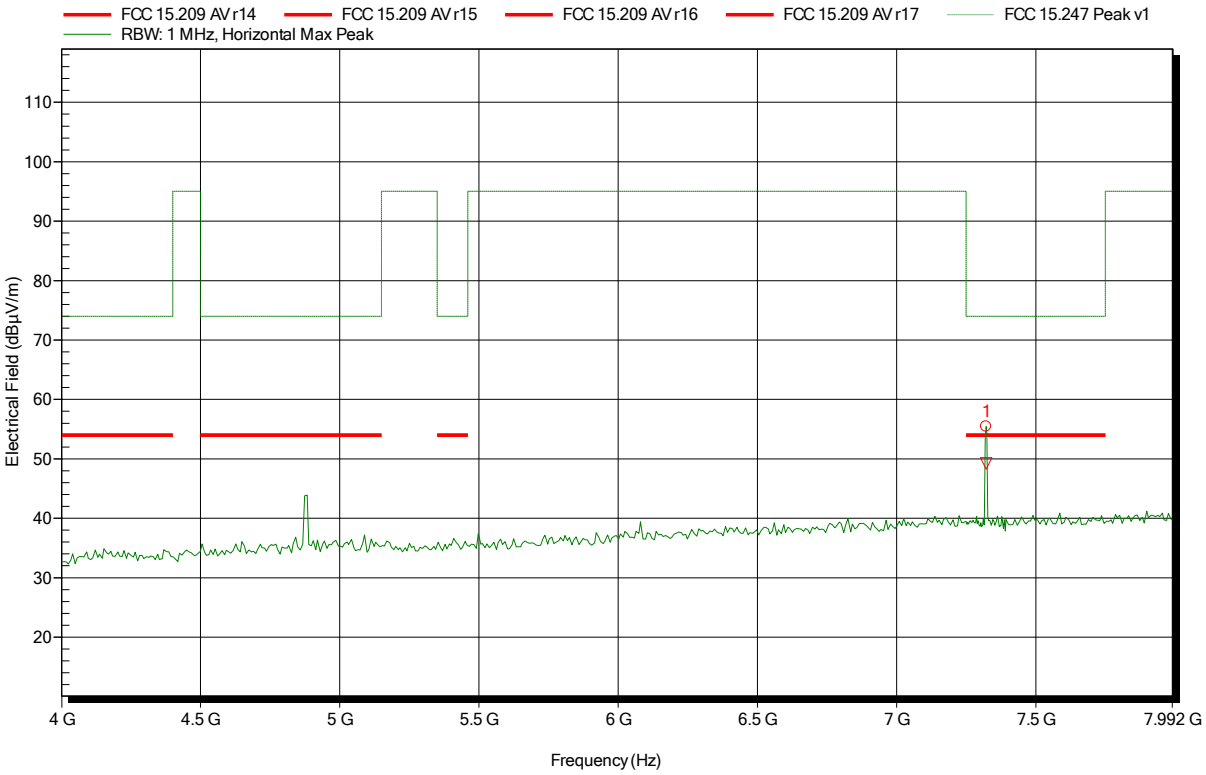

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.321 GHz	55.41 dBµV/m	74 dBµV/m	-18.59 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
7.321 GHz	49.23 dBµV/m	54 dBµV/m	-4.77 dB	Pass

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 18; 2440 MHz; PRBS; 2000kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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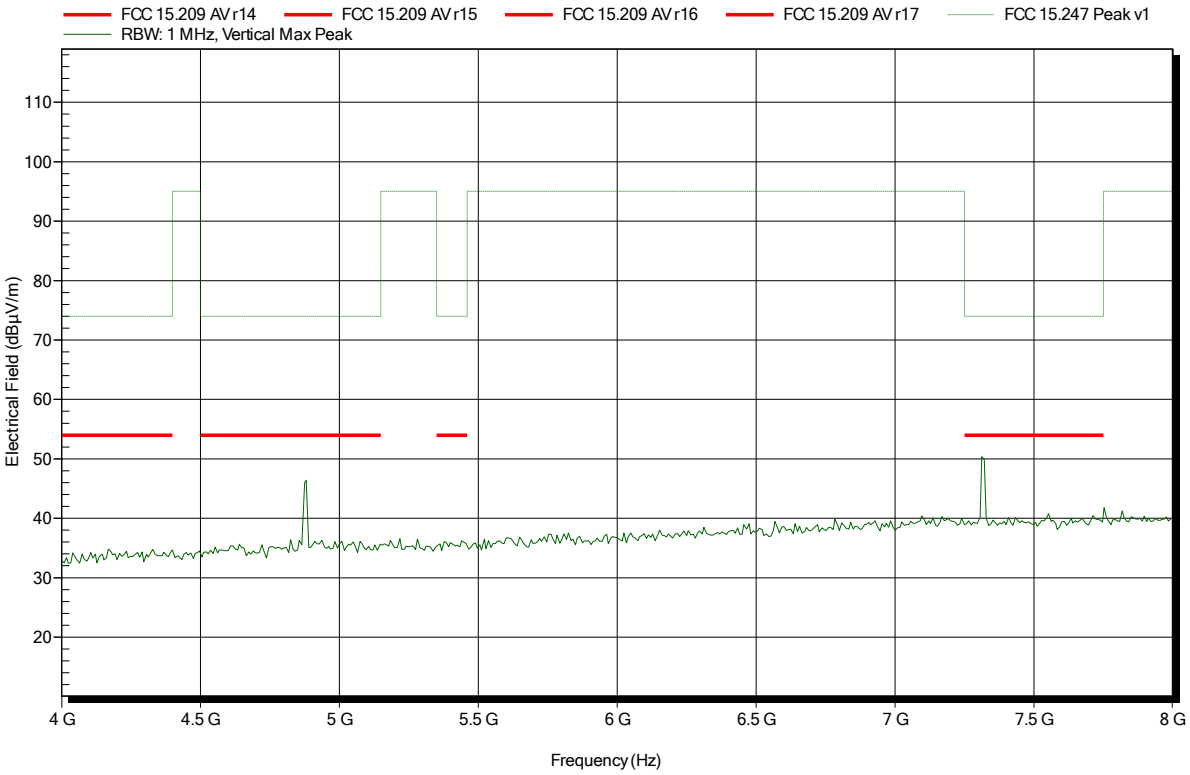

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 18; 2440 MHz; PRBS; 2000kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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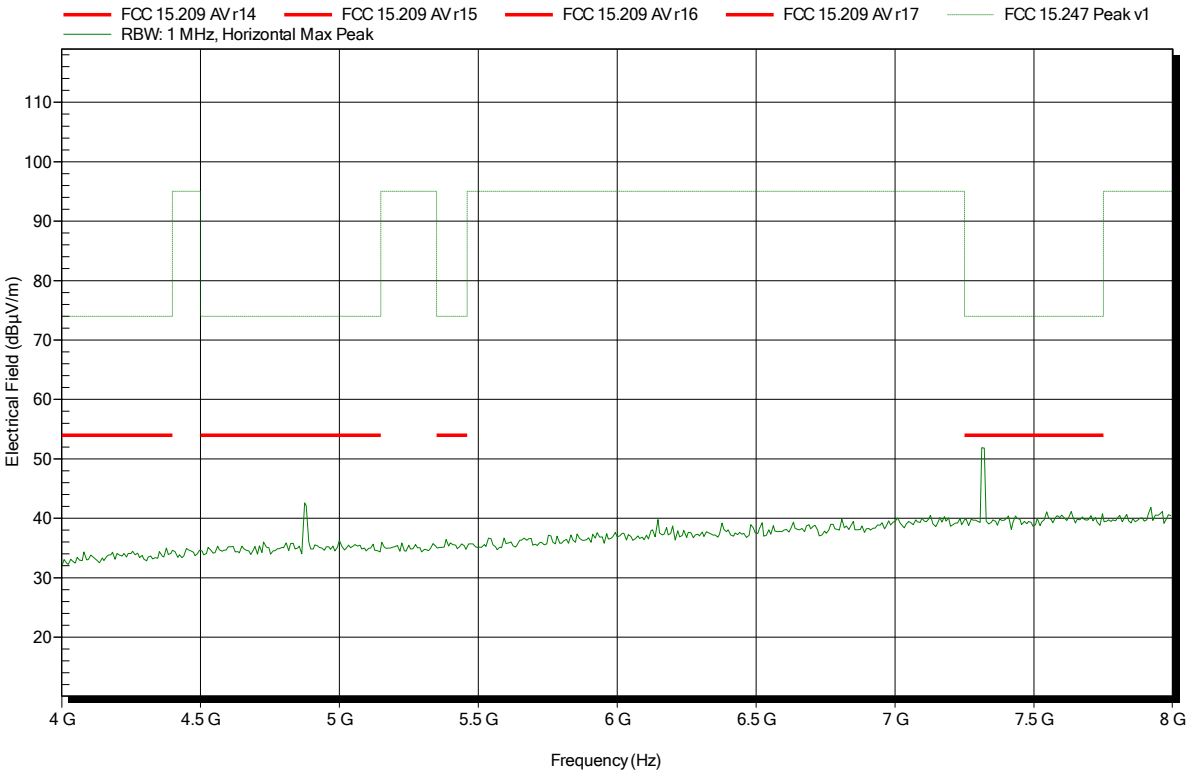

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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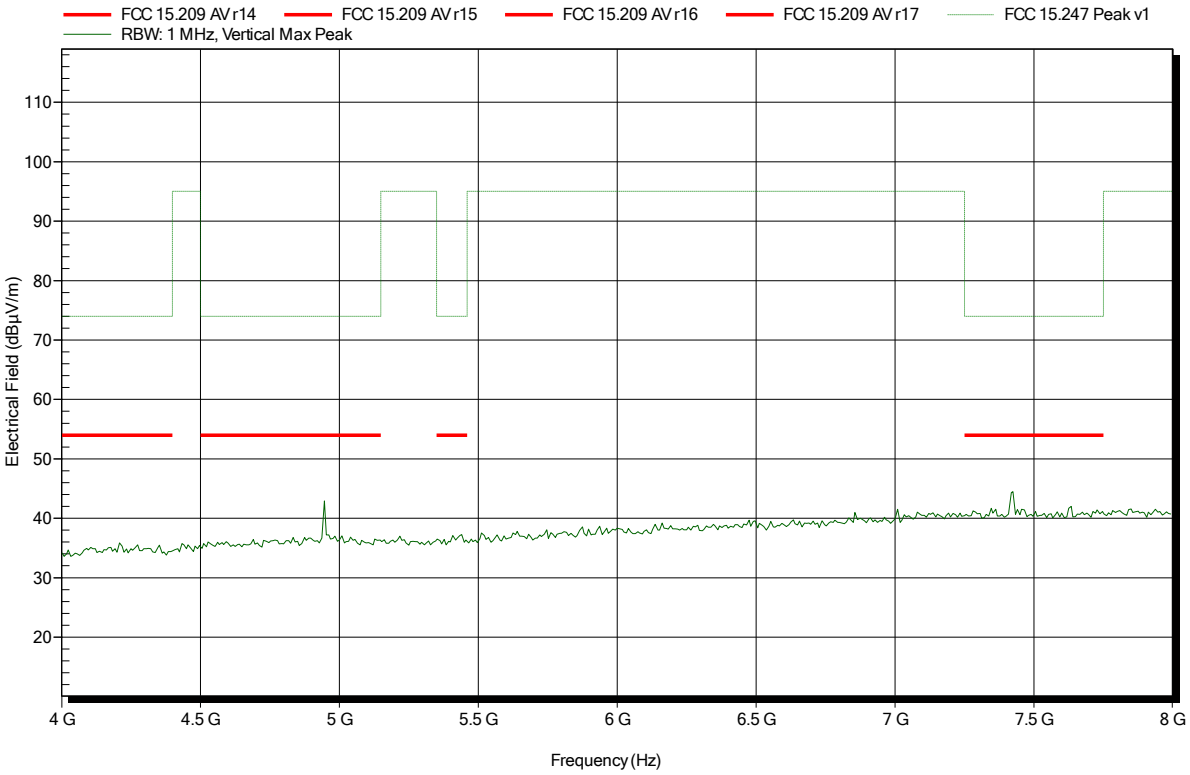

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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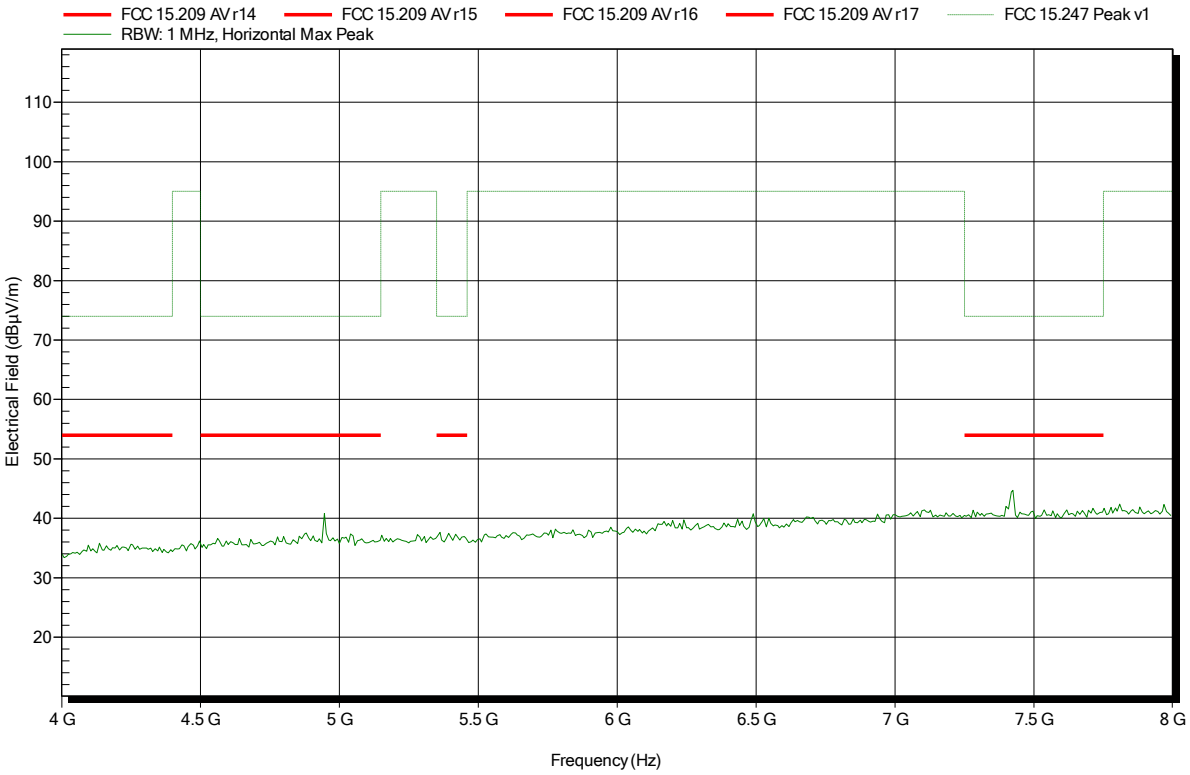

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 2000kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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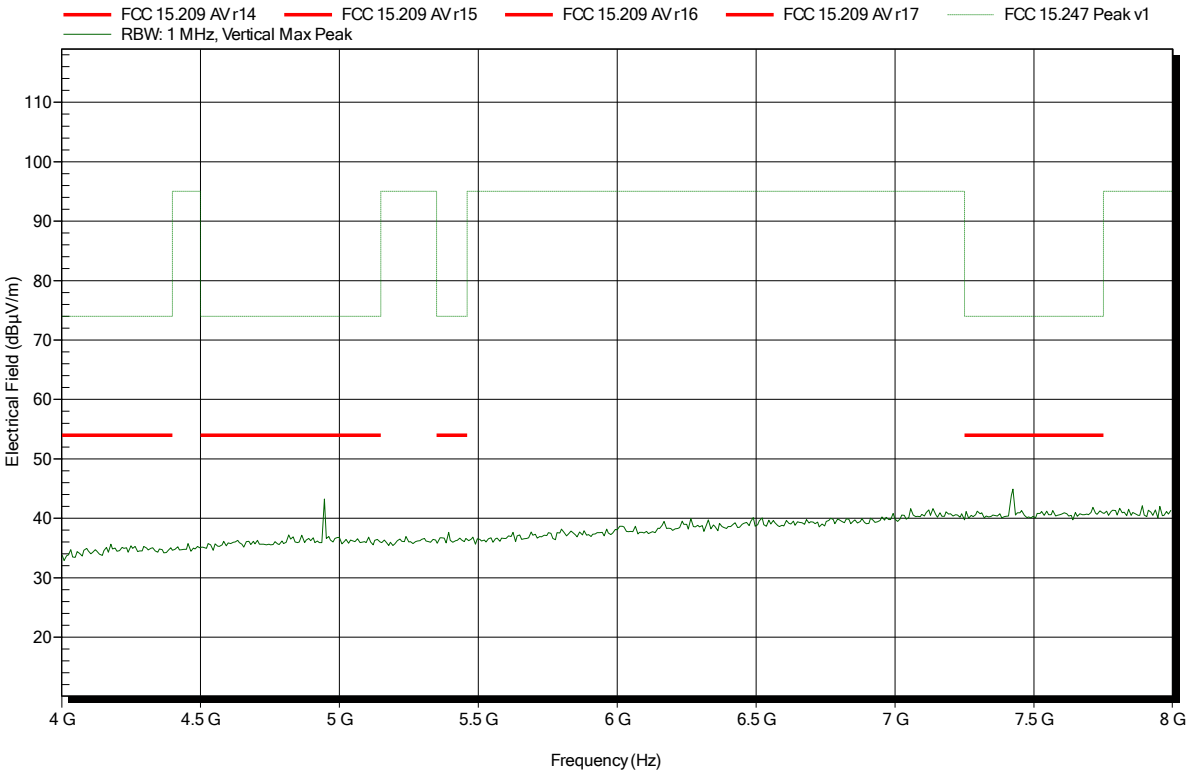

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 2000kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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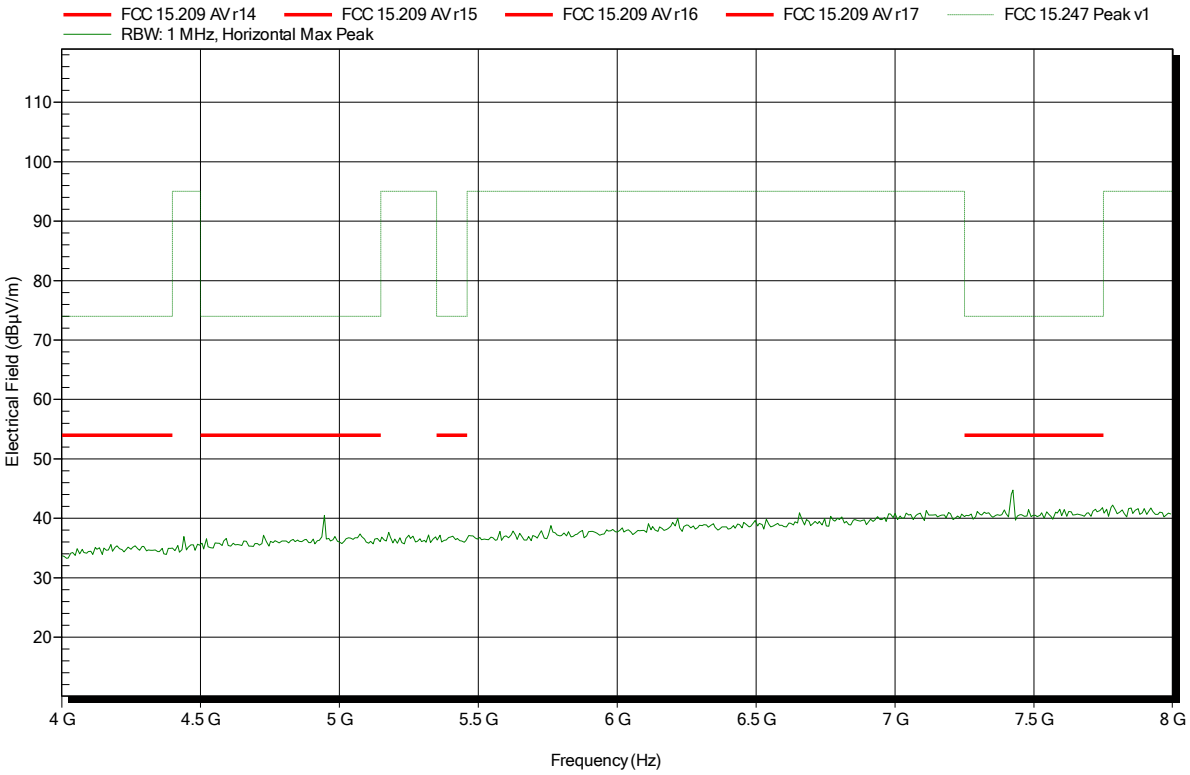

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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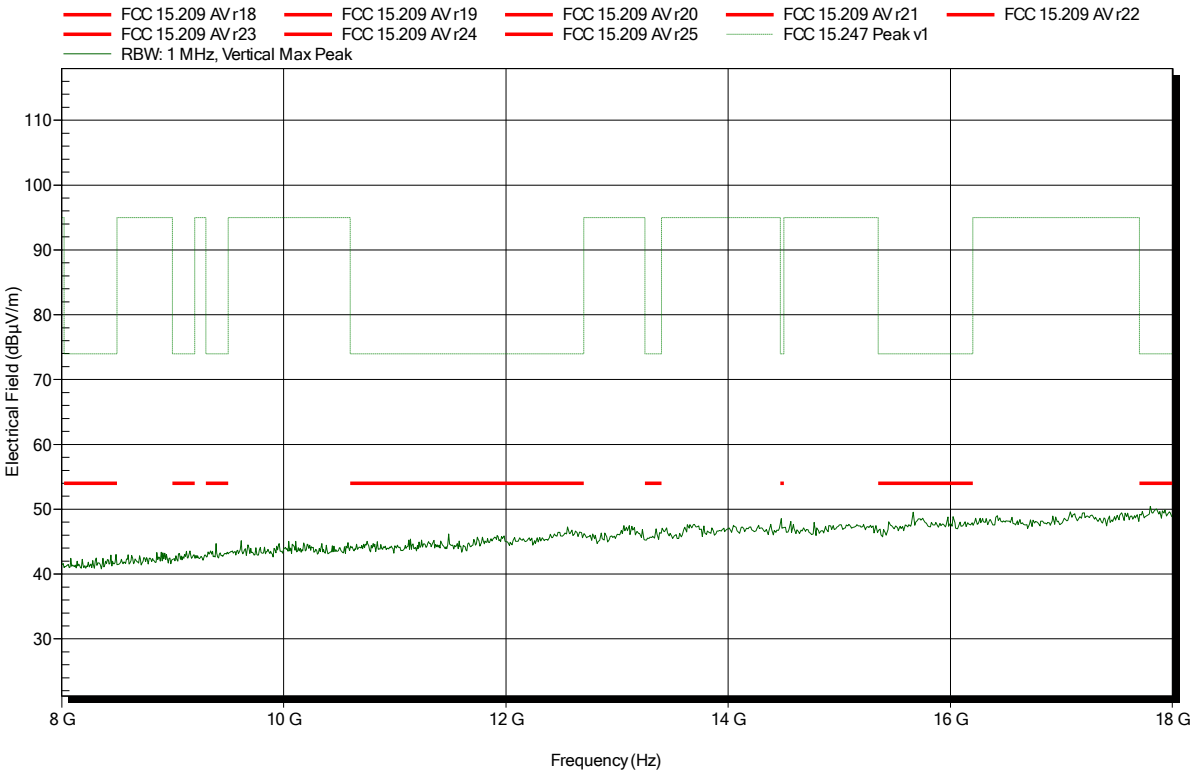

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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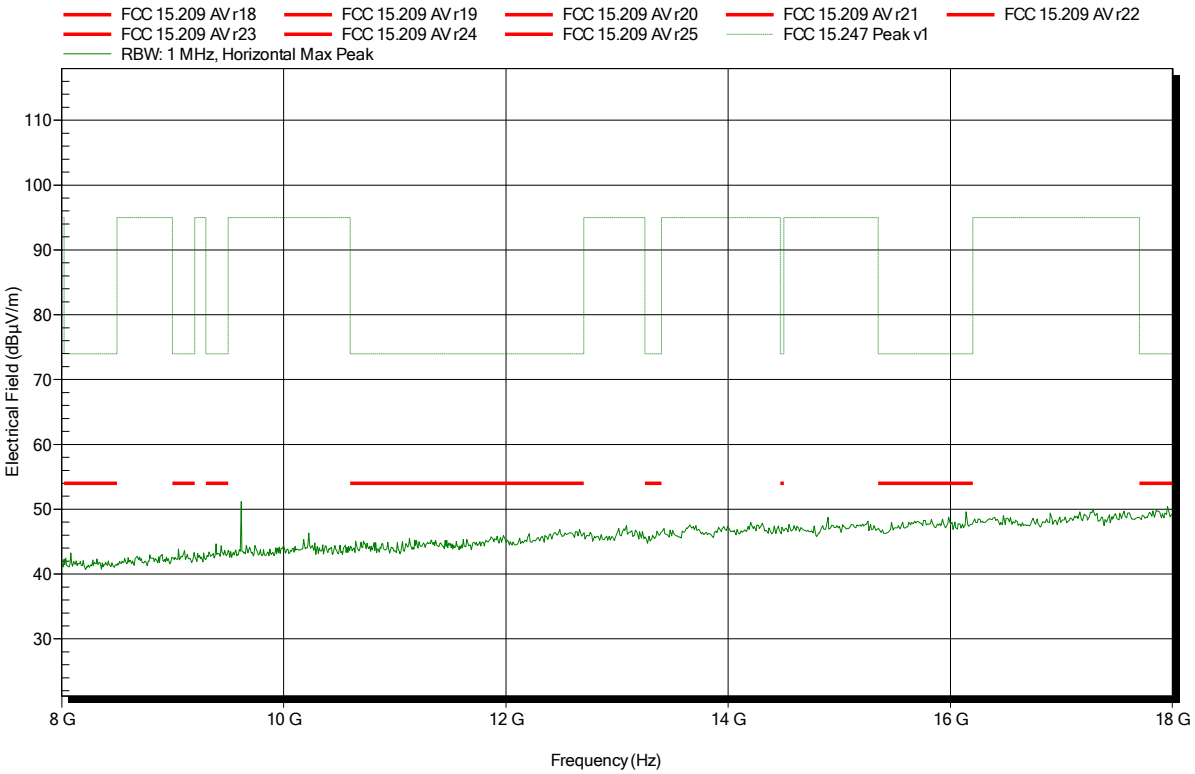

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 18; 2440 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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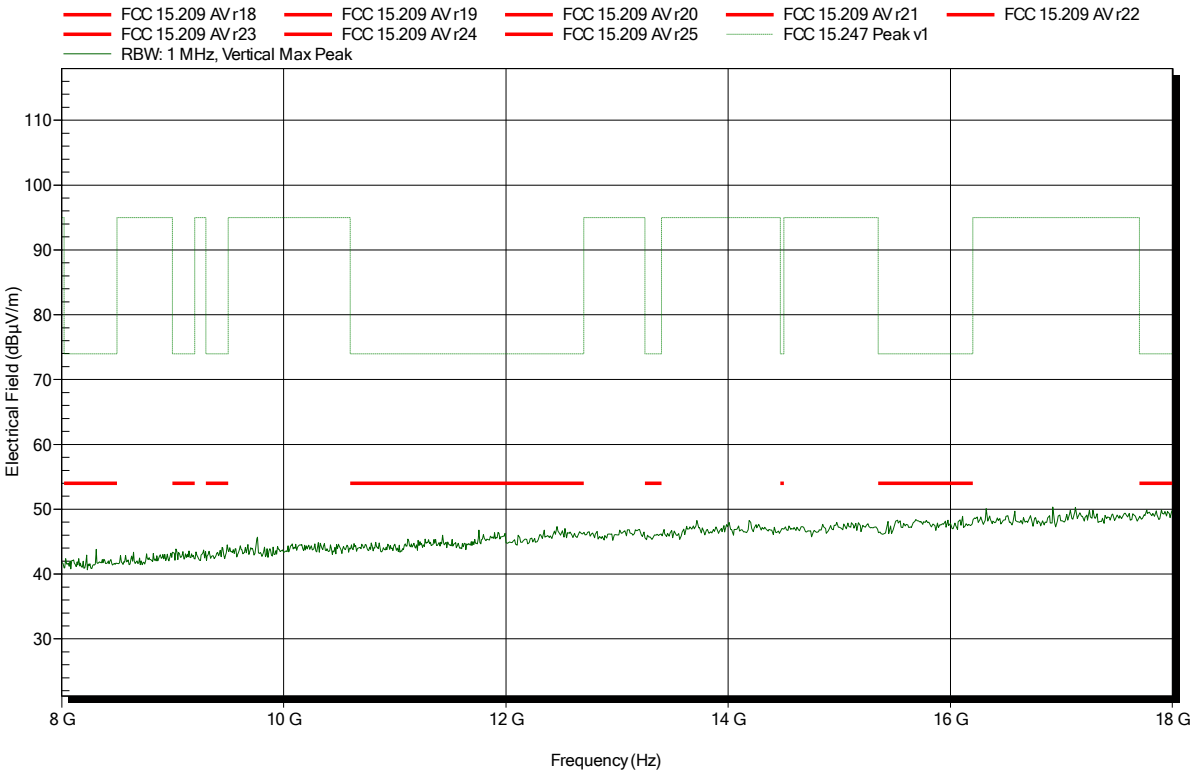

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 18; 2440 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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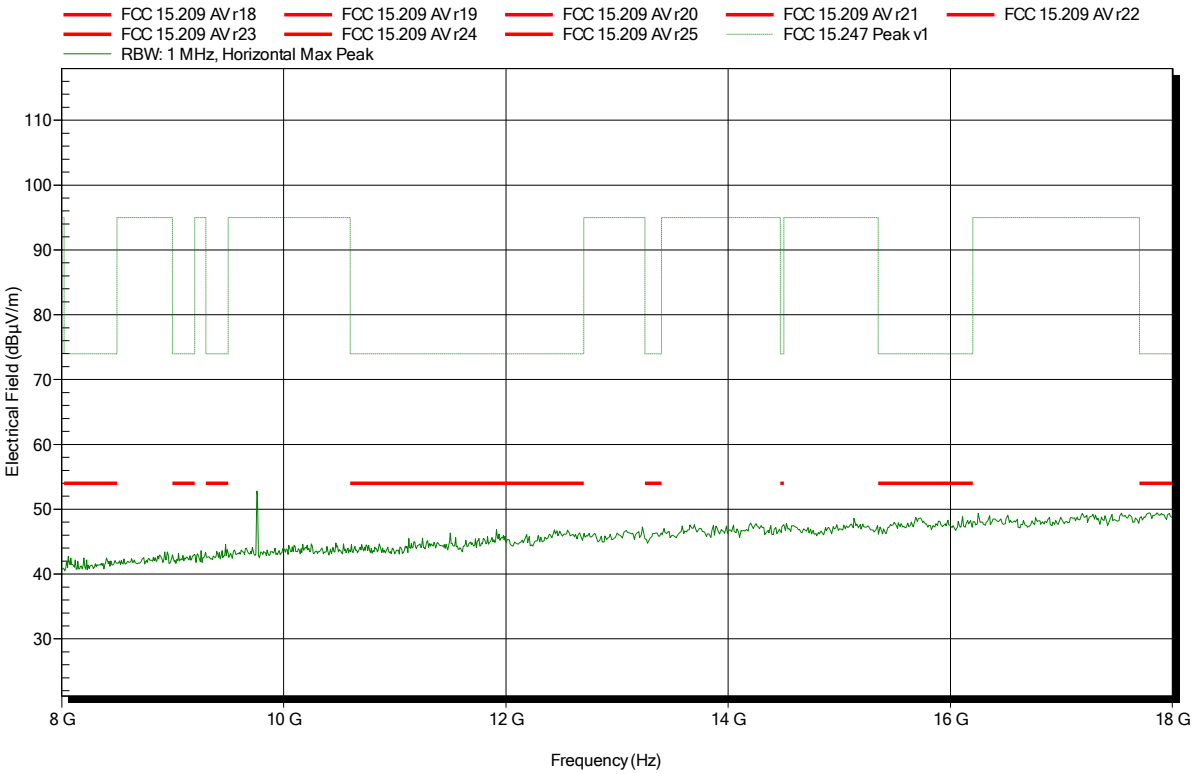

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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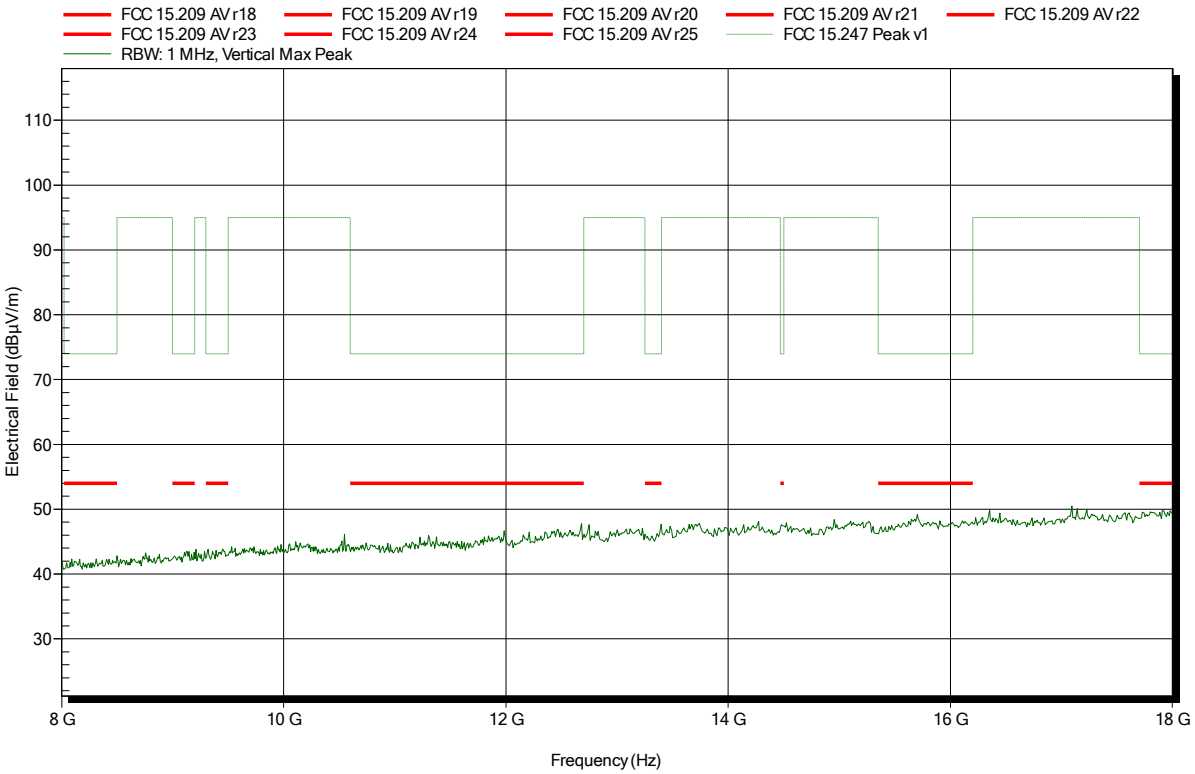

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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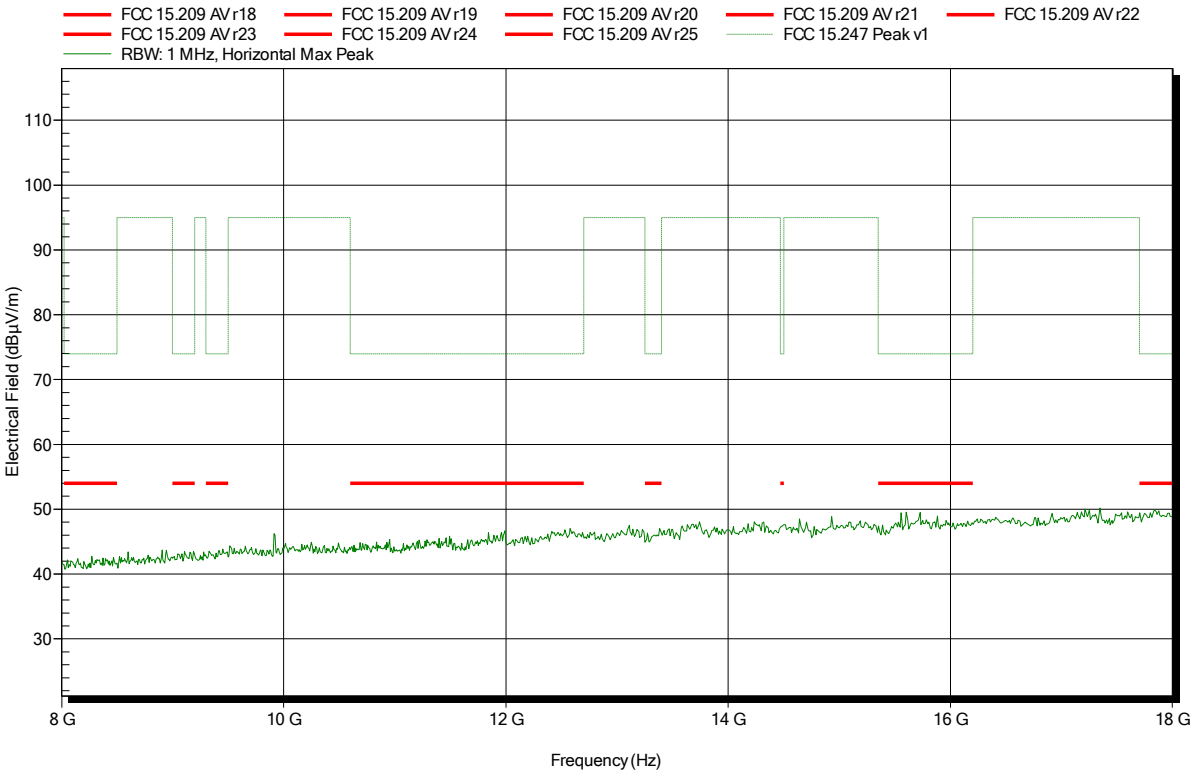

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 11; 2405 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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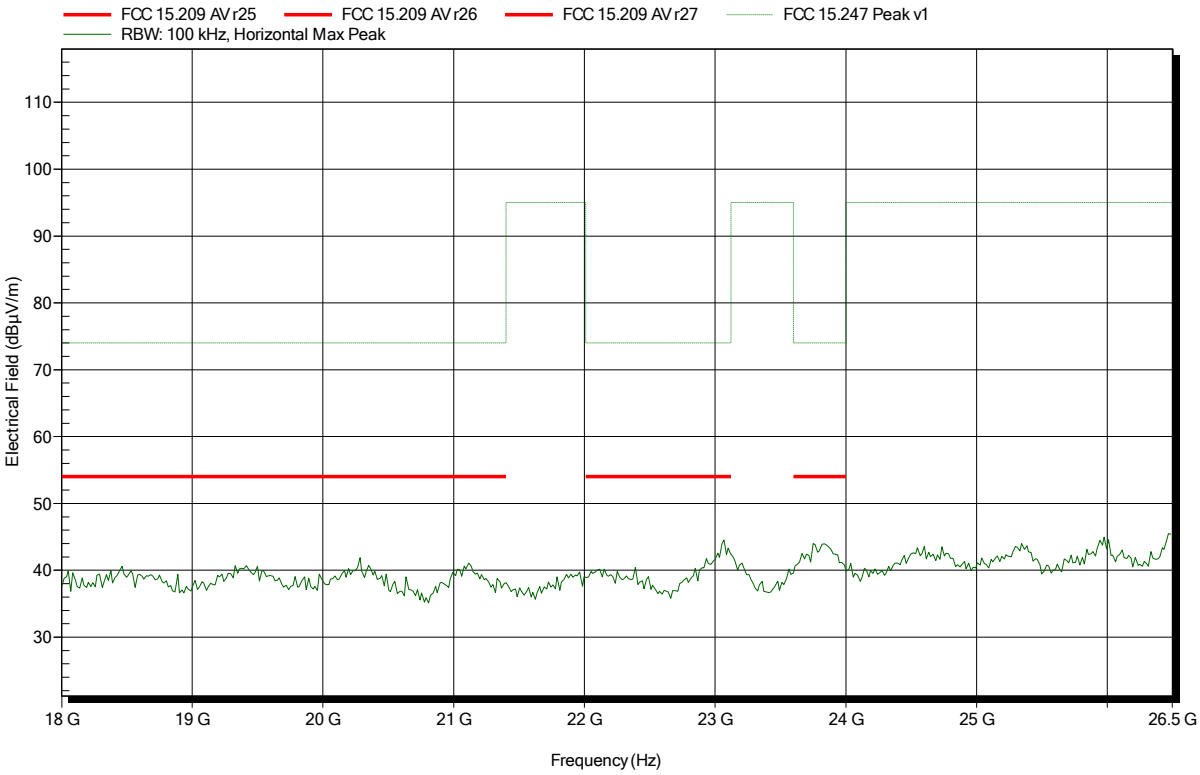

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 18; 2440 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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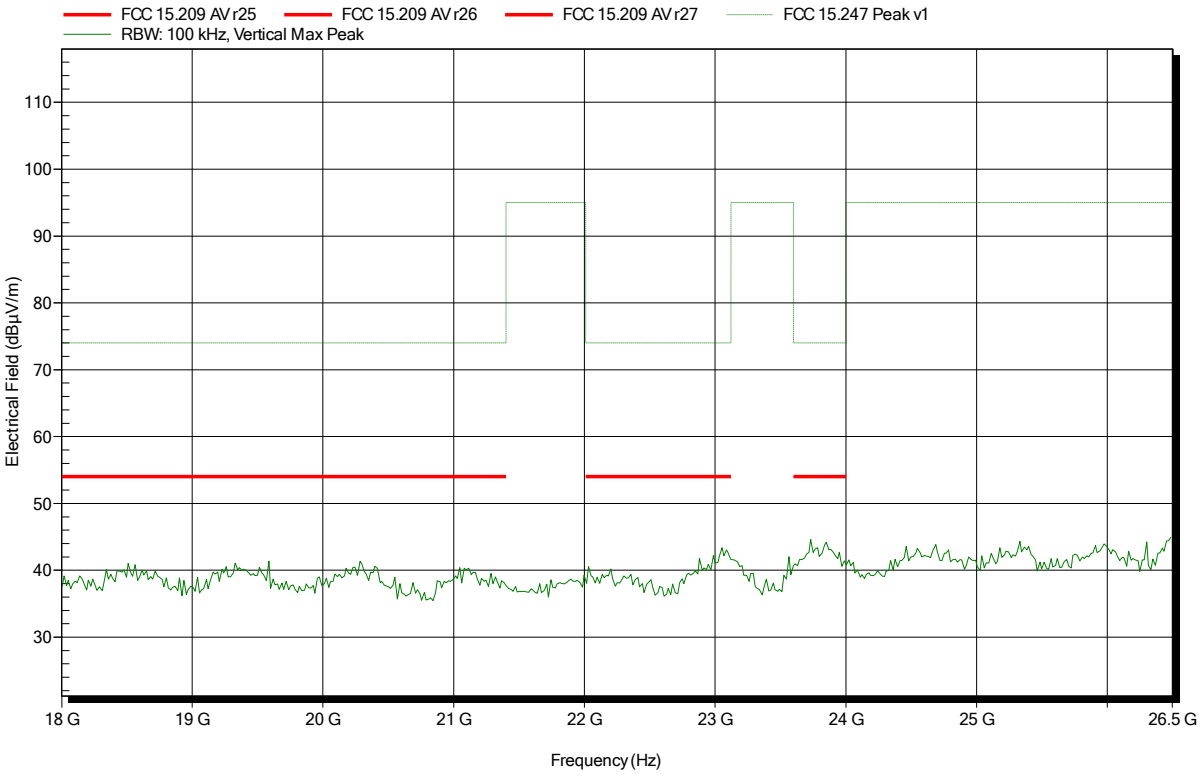

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 18; 2440 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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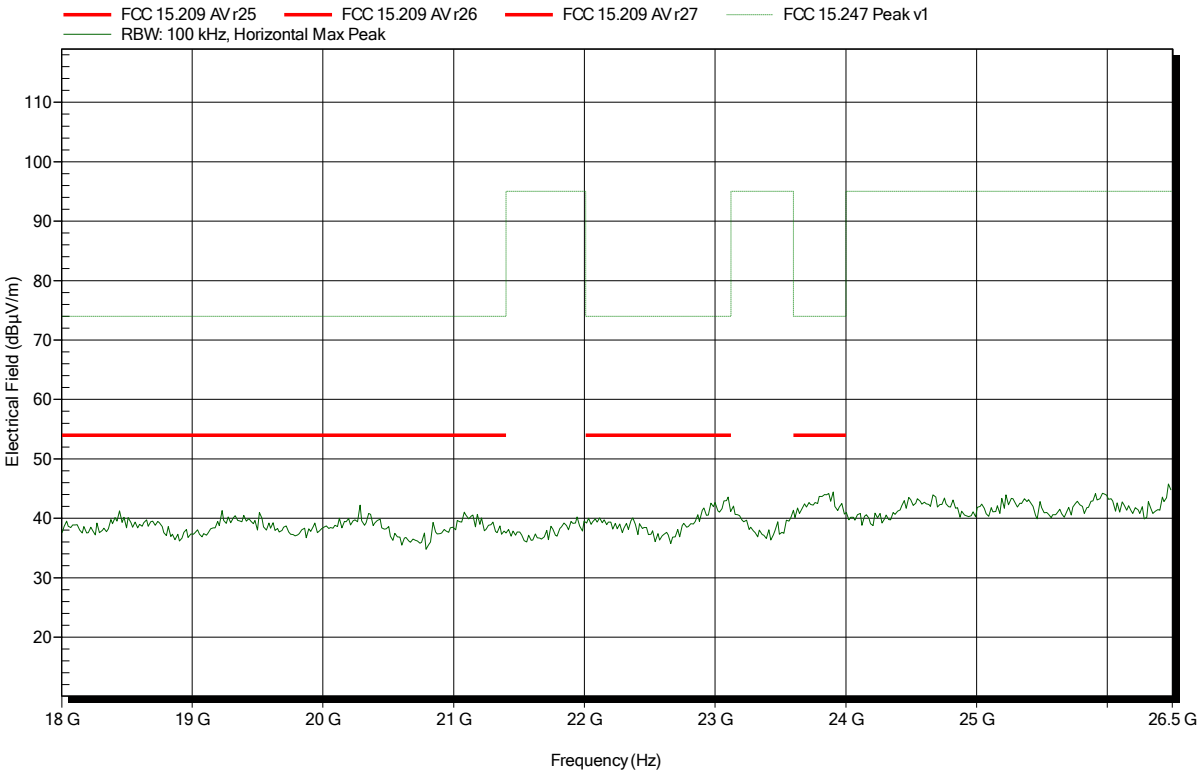

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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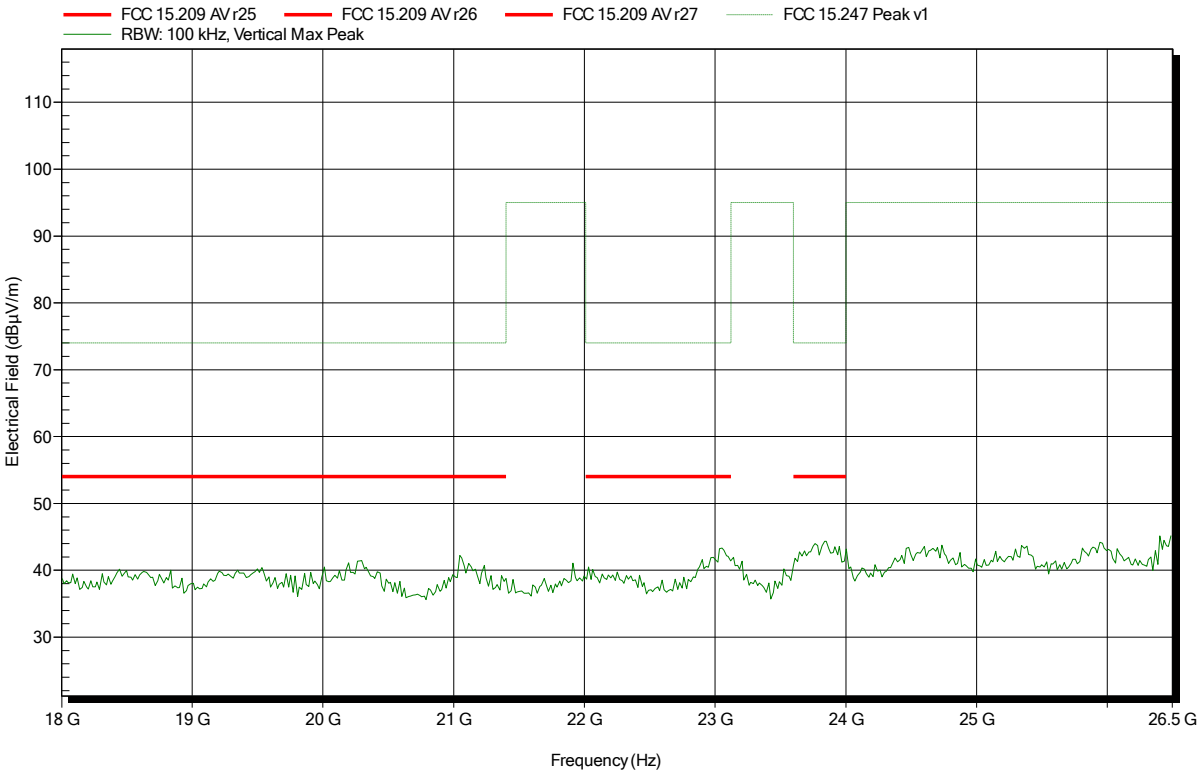

Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; ZigBee; CH: 25; 2475 MHz; PRBS; 250kbps; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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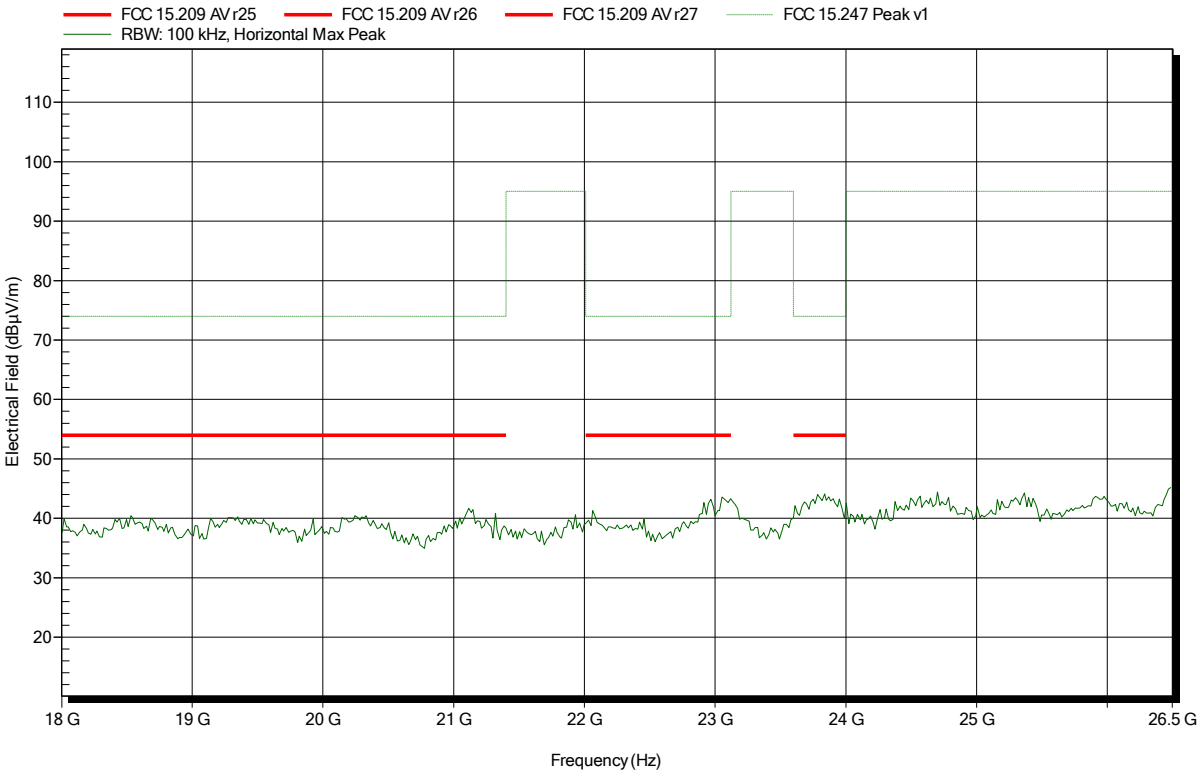

ANNEX B Receiver radiated spurious emissions

Spurious emissions according to IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	RX; ZigBee; CH: 18; 2440 MHz; RX-mode; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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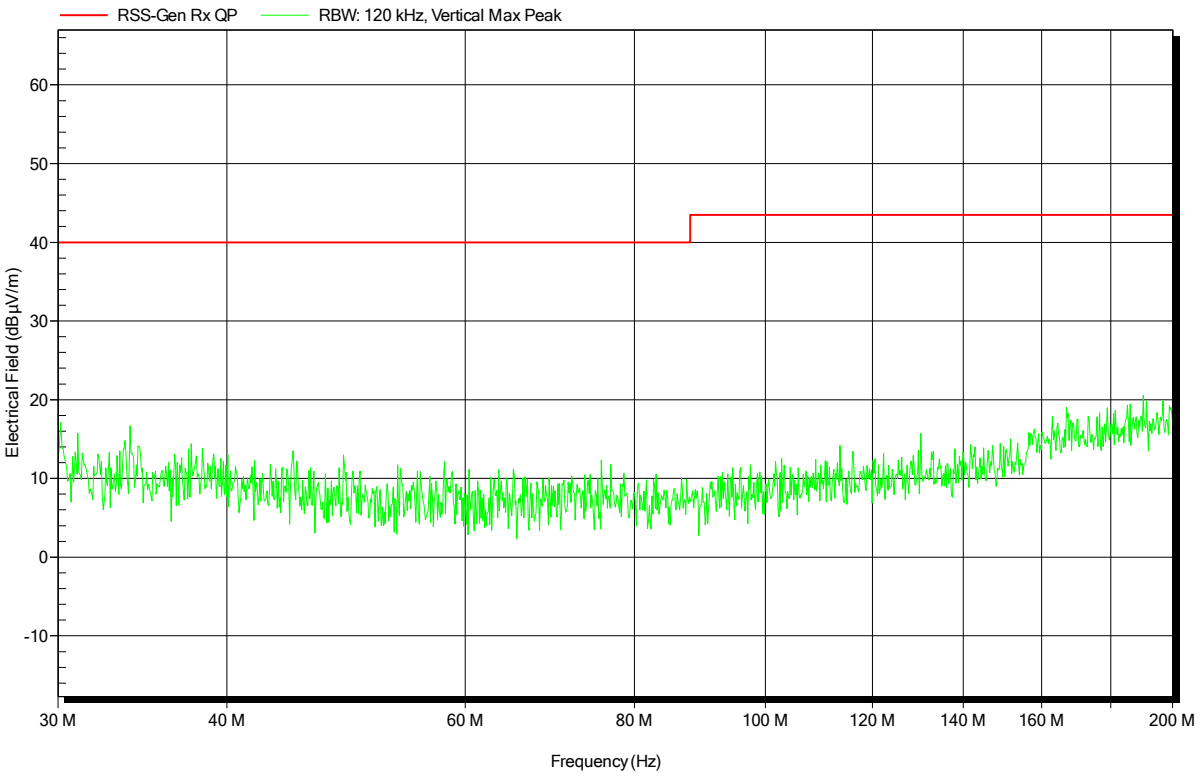

Spurious emissions according to IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	RX; ZigBee; CH: 18; 2440 MHz; RX-mode; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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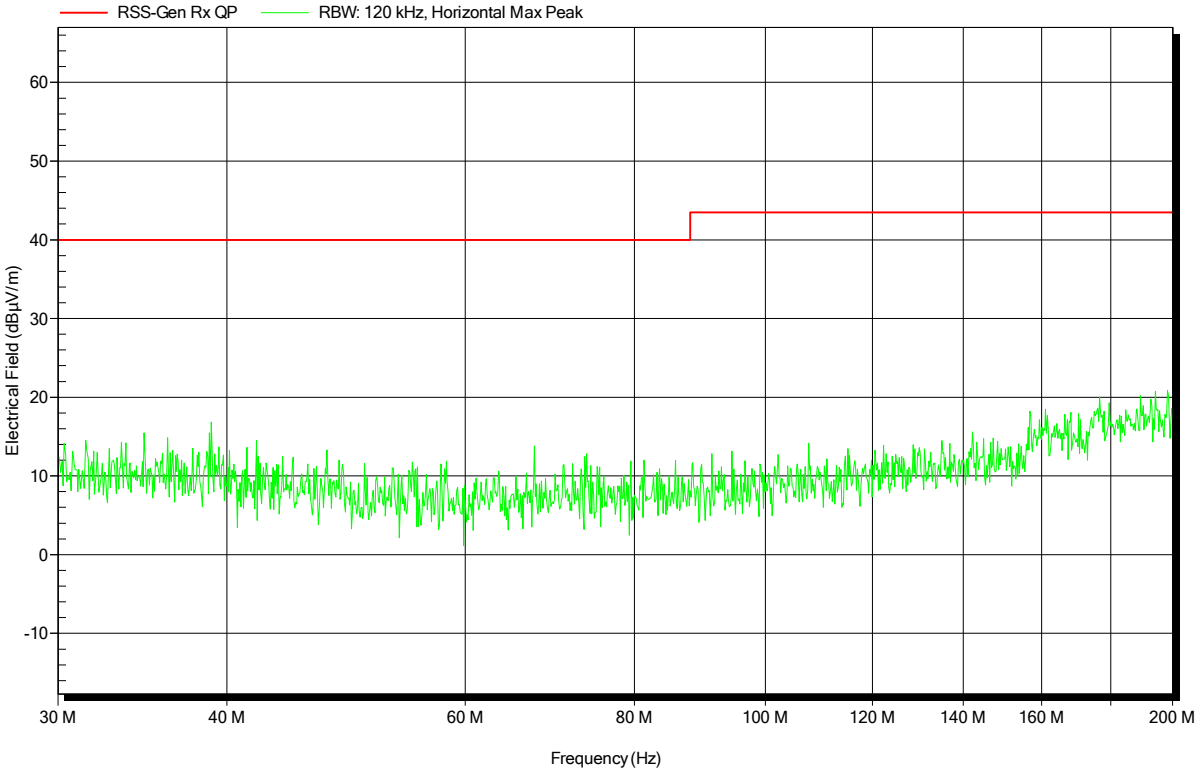

Spurious emissions according to IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	RX; ZigBee; CH: 18; 2440 MHz; RX-mode; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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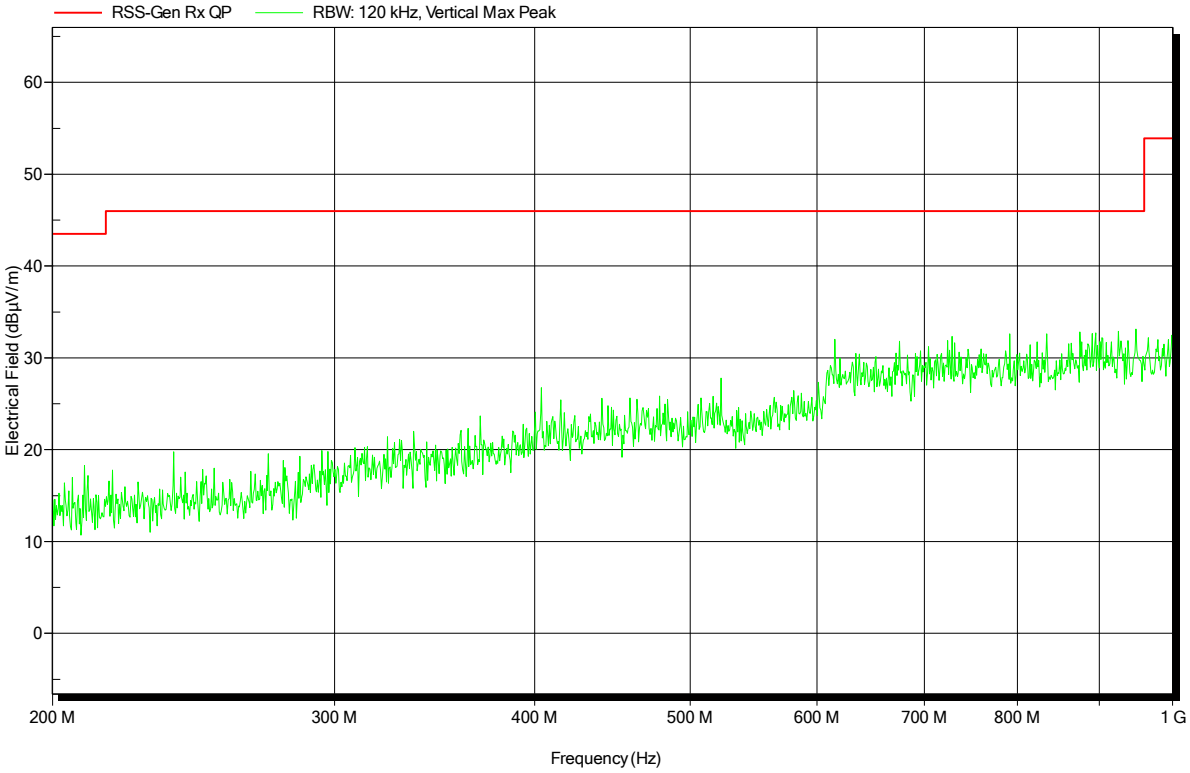

Spurious emissions according to IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	RX; ZigBee; CH: 18; 2440 MHz; RX-mode; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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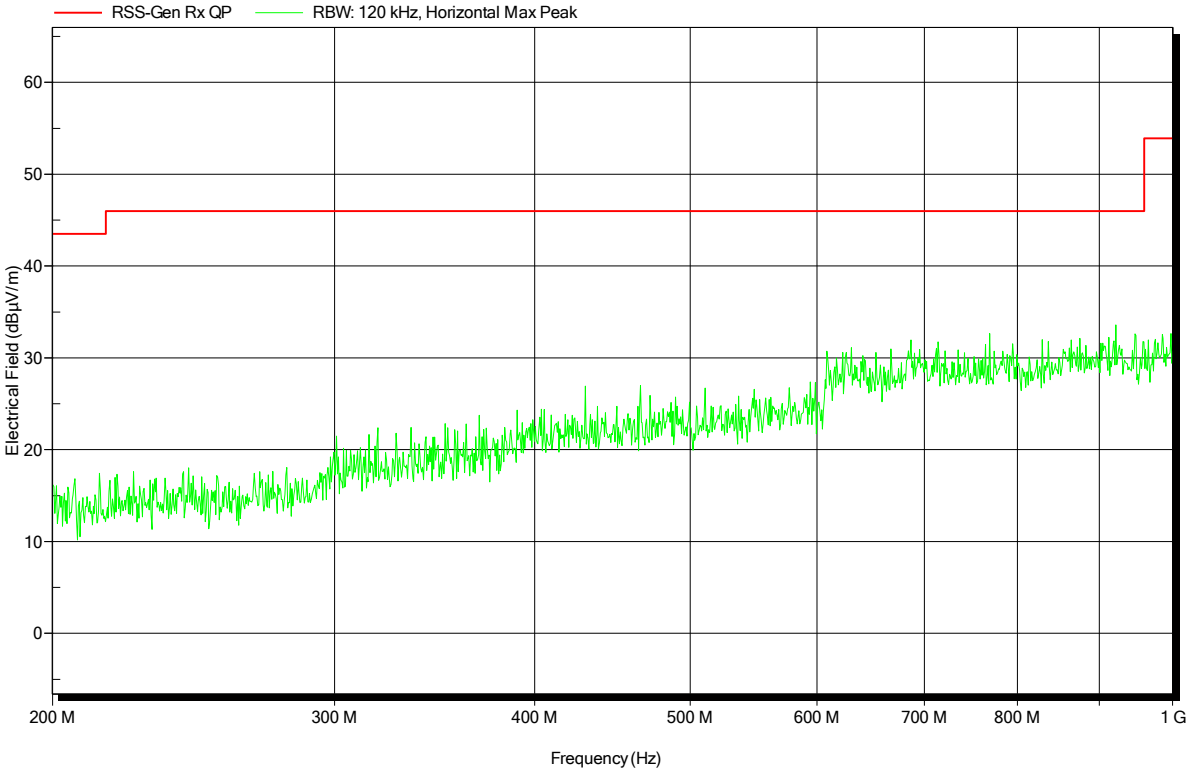

Spurious emissions according to IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	RX; ZigBee; CH: 18; 2440 MHz; RX-mode; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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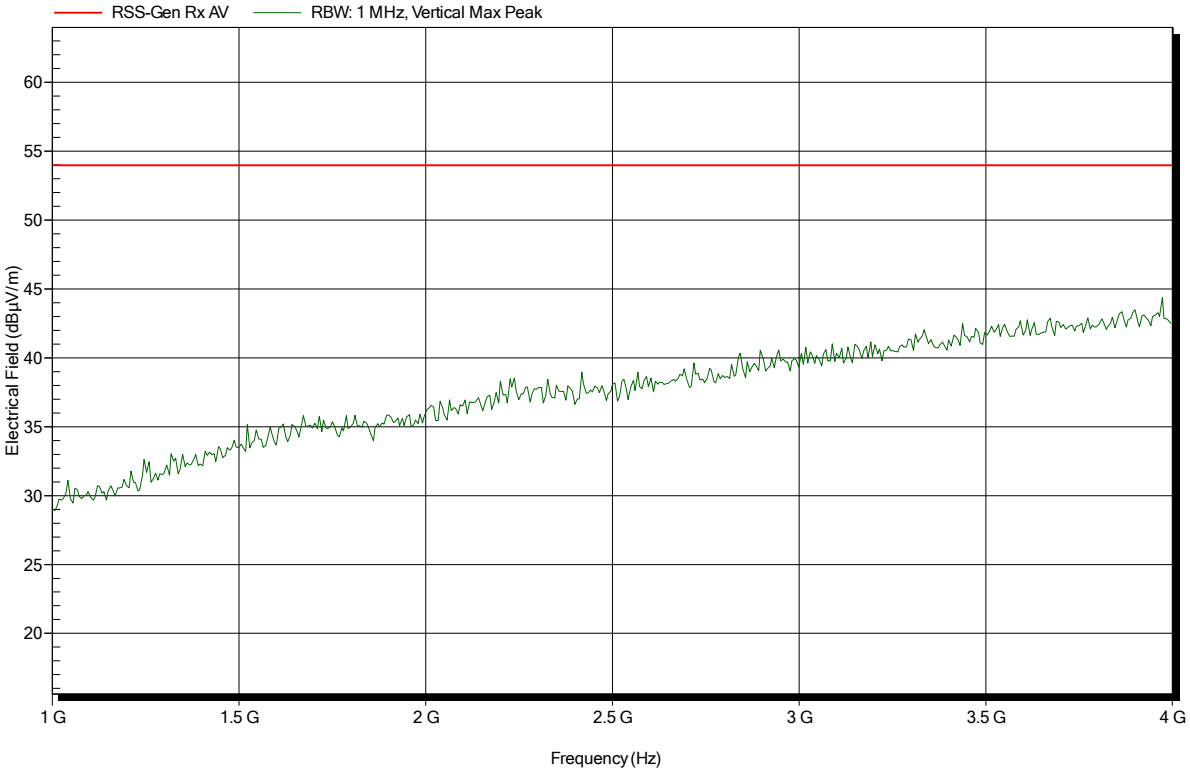

Spurious emissions according to IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	RX; ZigBee; CH: 18; 2440 MHz; RX-mode; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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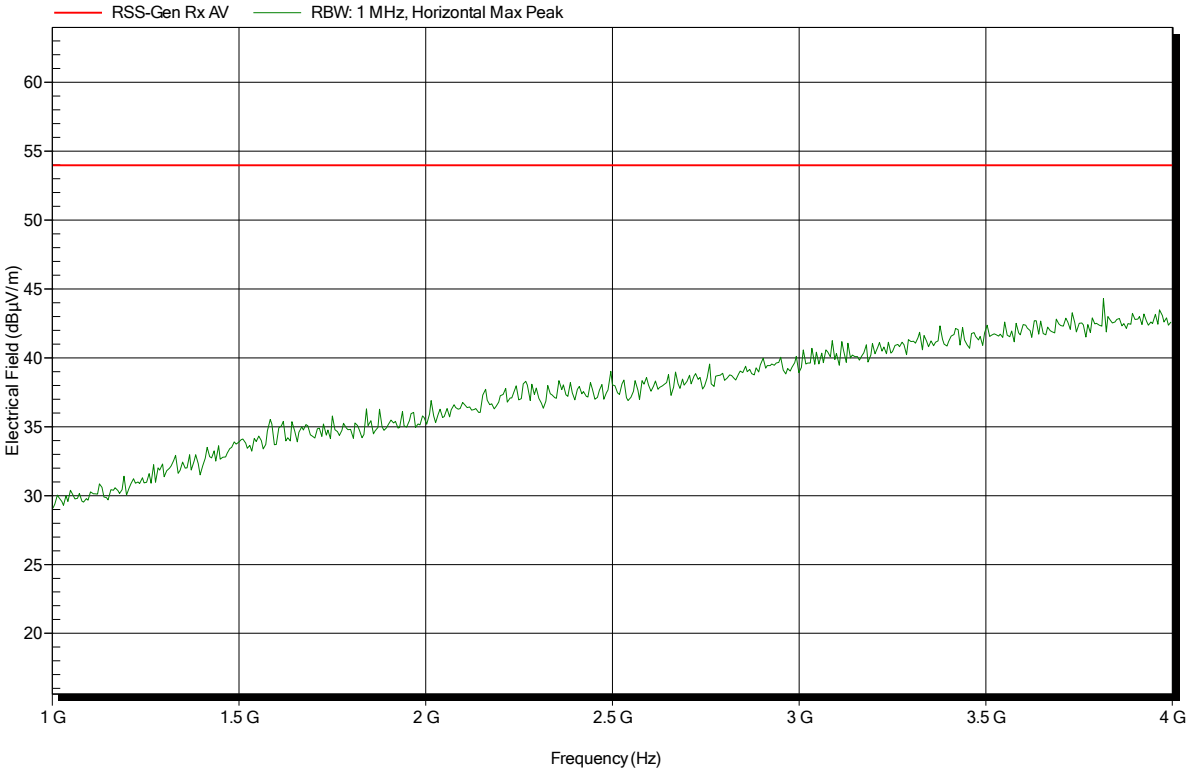

Spurious emissions according to IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	RX; ZigBee; CH: 18; 2440 MHz; RX-mode; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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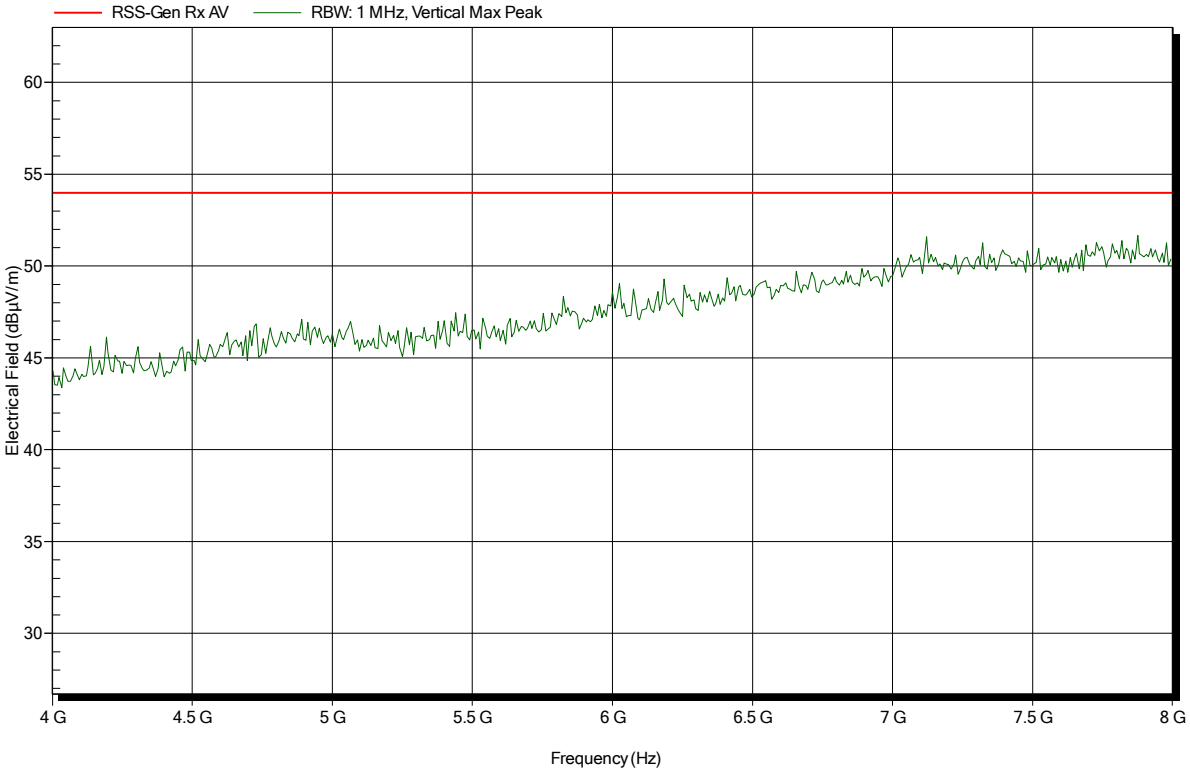

Spurious emissions according to IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	RX; ZigBee; CH: 18; 2440 MHz; RX-mode; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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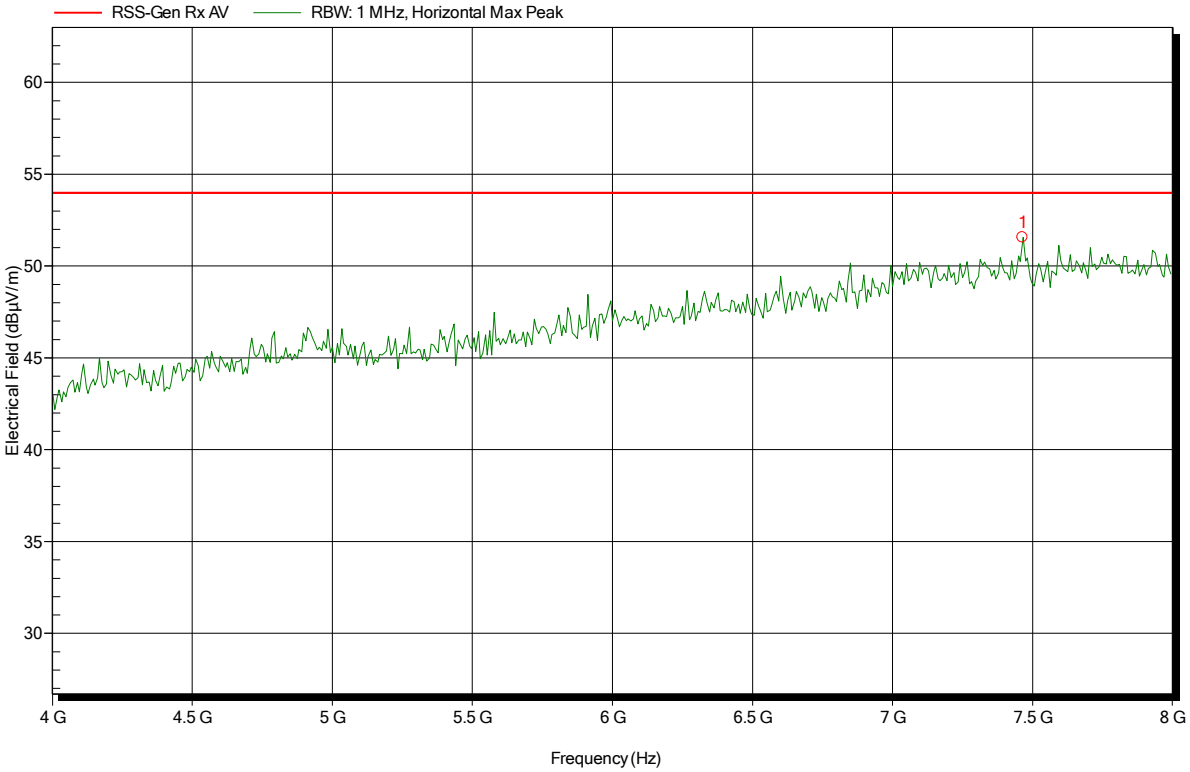

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.464 GHz	51.55 dBµV/m	53.98 dBµV/m	-2.43 dB	Pass

Spurious emissions according to IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	RX; ZigBee; CH: 18; 2440 MHz; RX-mode; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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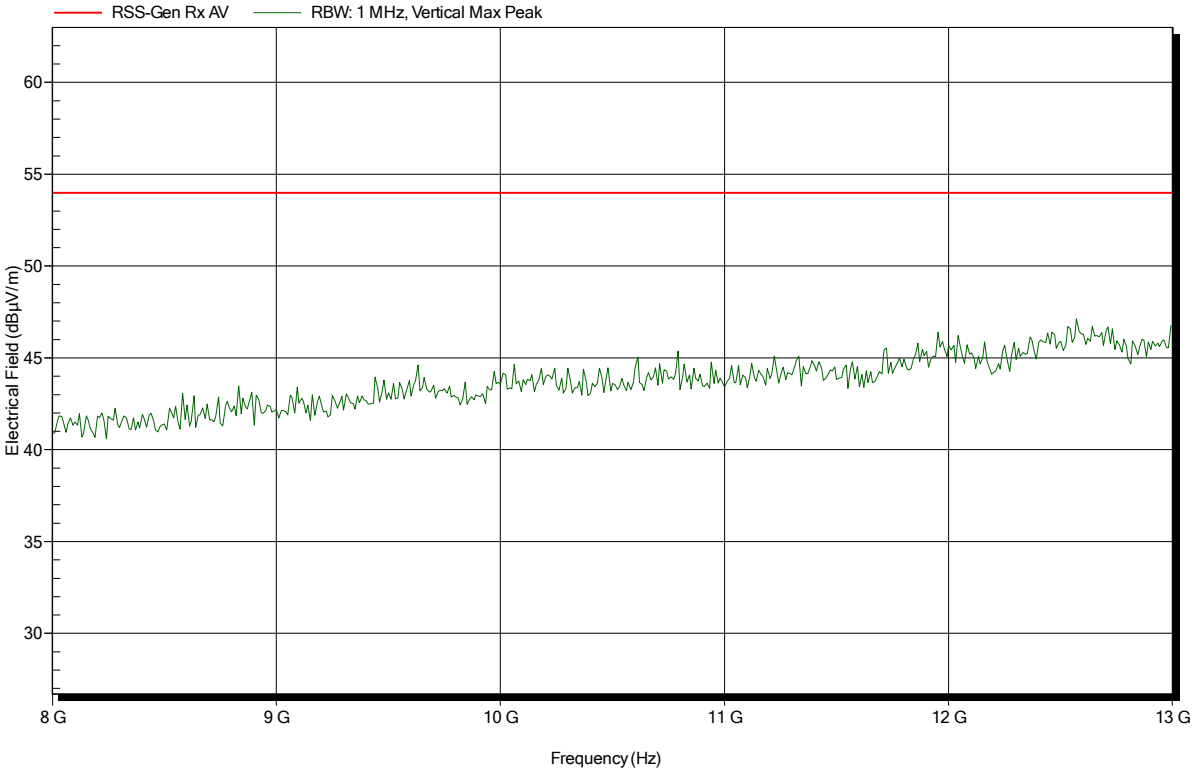
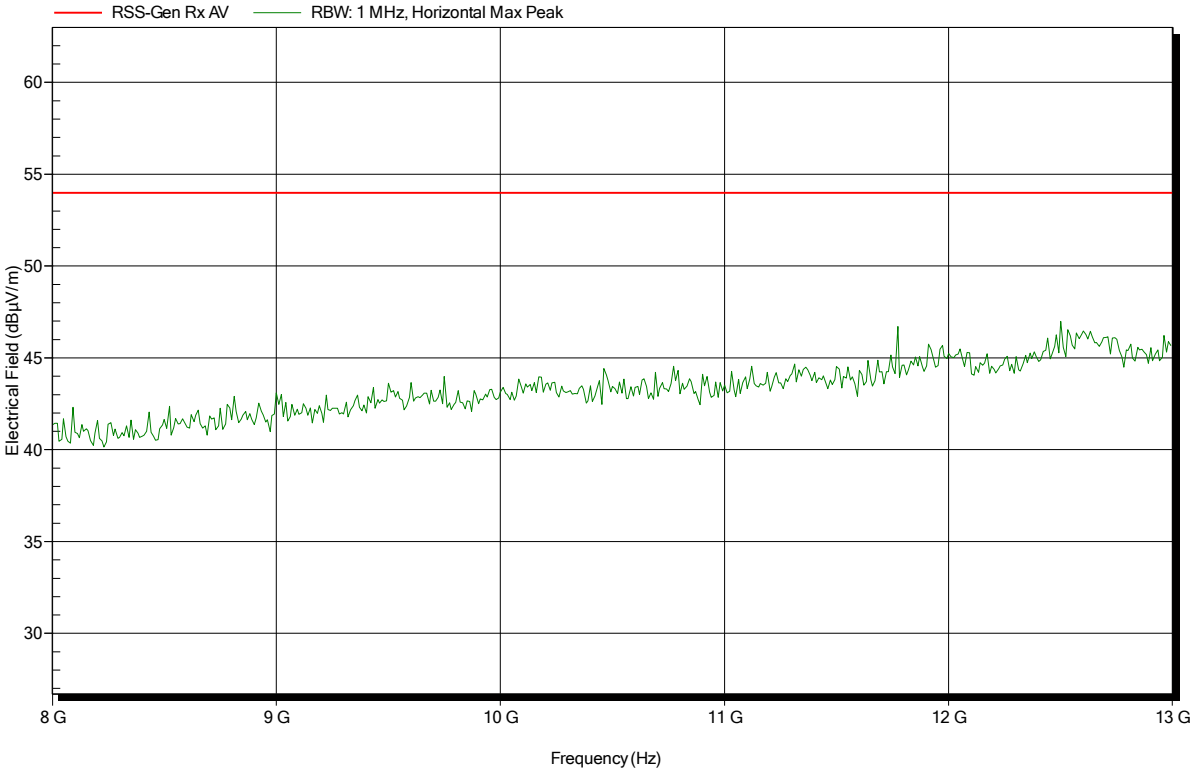


Spurious emissions according to IC RSS-247, I1

Project number: G0M-1605-5589

Applicant:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2,4GHz IEEE 802.15.4 ZigBee USB Gateway
Model:	ConBee
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 22°C, Vnom: 5.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	RX; ZigBee; CH: 18; 2440 MHz; RX-mode; ANT integral
Test Date:	2016-05-13
Note:	EUT vertical

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