

<b>FCC TEST REPORT</b> <b>FCC 47 CFR Part 15C</b> <b>Industry Canada RSS-247</b> <b>Digital transmission systems operating within the 2400 – 2483.5 MHz band</b>	
<b>Report Reference No.</b> .....	G0M-1506-4852-TFC247BL-V01
<b>Testing Laboratory</b> .....	Eurofins Product Service GmbH
<b>Address</b> .....	Storkower Str. 38c 15526 Reichenwalde Germany
<b>Accreditation</b> .....	  A2LA Accredited Testing Laboratory, Certificate No.: 1983.01 FCC Filed Test Laboratory, Reg.-No.: 96970 IC OATS Filing assigned code: 3470A
<b>Applicant's name</b> .....	BEACONinside GmbH
<b>Address</b> .....	Czeminskistr. 7 10829 Berlin GERMANY
<b>Test specification:</b>	
<b>Standard</b> .....	47 CFR Part 15C RSS-247, Issue 1, 2015-05 RSS-Gen, Issue 4, 2014-11 ANSI C63.10:2013 ANSI C63.4:2014
<b>Test scope</b> .....	complete Radio compliance test
<b>Equipment under test (EUT):</b>	
Product description	Bluetooth low energy transceiver
Model No.	B0002-A
Additional Model(s)	None
Brand Name(s)	BeaconInside GmbH
Hardware version	2.0
Firmware / Software version	1.0
	FCC-ID: 2ACCT-B0002-A      IC: 11976A-B0002A
<b>Test result</b>	<b>Passed</b>

**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 ..... : 2015-10-02

Date (s) of performance of tests ..... : 2015-10-02 – 2015-10-05

Compiled by ..... : Matthias Handrik

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

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

Date of issue ..... : 2015-10-22

Total number of pages ..... : 84

**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:**

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## Version History

Version	Issue Date	Remarks	Revised by
01	2015-10-22	Initial Release	

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## 1 Equipment (Test item) Description

<b>Description</b>	Bluetooth low energy transceiver	
<b>Model</b>	B0002-A	
<b>Additional Model(s)</b>	None	
<b>Brand Name(s)</b>	BeaconInside GmbH	
<b>Serial number</b>	None	
<b>Hardware version</b>	2.0	
<b>Software / Firmware version</b>	1.0	
<b>FCC-ID</b>	2ACCT-B0002-A	
<b>IC</b>	11976A-B0002A	
<b>Equipment type</b>	End product	
<b>Radio type</b>	Transceiver	
<b>Radio technology</b>	Bluetooth 4.0 Low Energy	
<b>Operating frequency range</b>	2402 - 2480 MHz	
<b>Assigned frequency band</b>	2400 - 2483.5 MHz	
<b>Main test frequencies</b>	F <sub>LOW</sub>	2402 MHz
	F <sub>MID</sub>	2440 MHz
	F <sub>HIGH</sub>	2480 MHz
<b>Spreading</b>	Frequency Hopping	
<b>Modulations</b>	GFSK	
<b>Number of channels</b>	40	
<b>Channel spacing</b>	2MHz	
<b>Number of antennas</b>	1	
<b>Antenna</b>	Type	integrated
	Model	pcb antenna
	Manufacturer	TI reference design
	Gain	3.3 dBi (from declaration)
<b>Manufacturer</b>	BEACONinside GmbH Czeminskistr. 7 10829 Berlin GERMANY	
<b>Power supply</b>	V <sub>NOM</sub>	3.0VDC (Battery only)
	V <sub>MIN</sub>	2.1VDC
	V <sub>MAX</sub>	3.7VDC
<b>AC/DC-Adaptor</b>	none	

#### 1.4 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
AE	Laptop	DELL	Latitude E5530	
AE : Auxiliary/Associated Equipment				

## 1.5 Test Modes

Mode #	Description	
Transmit	General conditions:	EUT powered via laboratory power supply and controlled by laptop.
	Radio conditions:	Mode = standalone transmit Spreading = Hopping stopped (single hopping channel) Modulation = GFSK Data rate = 1 Mbps Bandwidth = 2 MHz Duty cycle = 100 % Power level = Maximum
Receive	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone receive (scan mode) Spreading = On Modulation = GFSK

## 1.6 Test Equipment Used During Testing

Measurement Software			
Description	Manufacturer	Name	Version
EMC Test Software	Dare Instruments	Radimation	2014.1.15

Occupied Bandwidth					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum analyzer	R&S	FSU 26	EF01003	2015-04	2016-04

6dB Bandwidth					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum analyzer	R&S	FSU 26	EF01003	2015-04	2016-04

Maximum peak conducted power					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum analyzer	R&S	FSU 26	EF01003	2015-04	2016-04

Power spectral density					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum analyzer	R&S	FSU 26	EF01003	2015-04	2016-04

Band edge compliance					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum analyzer	R&S	FSU 26	EF01003	2015-04	2016-04

Conducted spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum analyzer	R&S	FSU 26	EF01003	2015-04	2016-04

Radiated spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Semi-anechoic chamber	Frankonia	AC 1	EF00062	-	-
Spectrum Analyzer	R&S	FSIQ26	EF00242	2015-04	2016-04
Biconical Antenna	R&S	HK 116	EF00012	2013-02	2016-02
LPD Antenna	R&S	HL 223	EF00187	2014-03	2017-03
LPD Antenna	R&S	HL 025	EF00327	2013-02	2016-02



## 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:

$$\text{Reading on Analyzer (dB}\mu\text{V)} + \text{A.F. (dB)} = \text{Net field strength (dB}\mu\text{V/m)}$$

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:

$$\text{Limit (dB}\mu\text{V/m)} = 20 \cdot \log (\mu\text{V/m})$$

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:

$$\begin{array}{rclcl} \text{Reading} & + & \text{AF} & = & \text{Net Reading} & : & \text{Net reading - FCC limit} & = & \text{Margin} \\ 21.5 \text{ dB}\mu\text{V} & + & 26 \text{ dB} & = & 47.5 \text{ dB}\mu\text{V/m} & : & 47.5 \text{ dB}\mu\text{V/m} - 57.0 \text{ dB}\mu\text{V/m} & = & -9.5 \text{ dB} \end{array}$$

## 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	PASS	
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	PASS	
47 CFR 15.207 IC RSS-247 § 3.1	AC power line conducted emissions	ANSI C63.4	N/A	No powered direct or indirectly via AC-Mains
FCC § 15.247(d) IC RSS-247 § 5.5	Band edge compliance	ANSI C63.10	PASS	
FCC § 15.247(d) IC RSS-247 § 5.5	Conducted spurious emissions	ANSI C63.10	PASS	
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	
<b>Remarks:</b>				

### 3 Test Conditions and Results

#### 3.1 Test Conditions and Results – Occupied Bandwidth

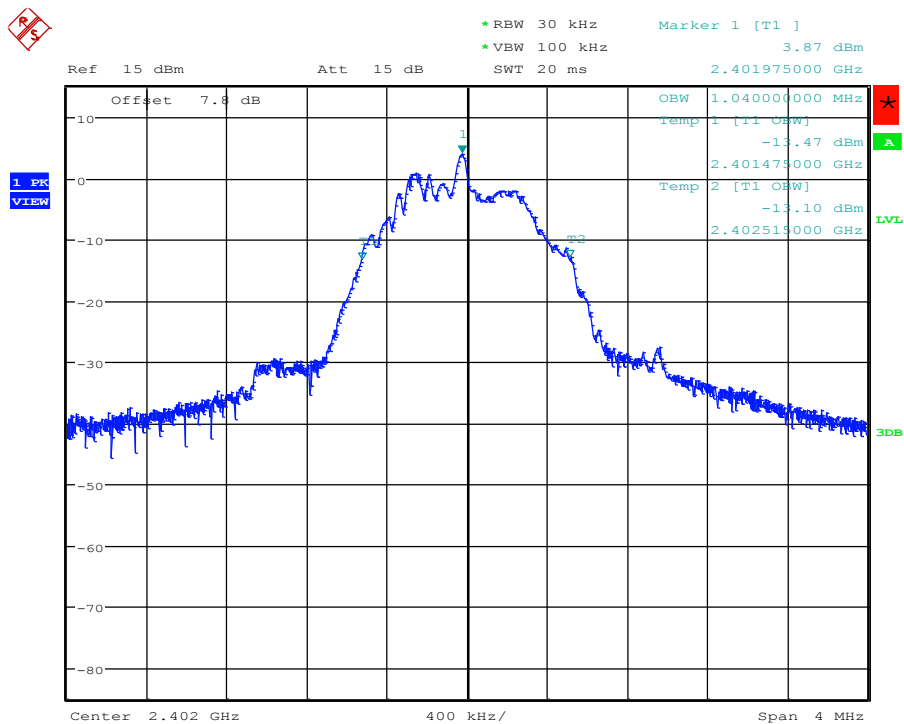
Occupied Bandwidth acc. to IC RSS-Gen			Verdict: PASS
Test according to measurement reference	Reference Method		
	ANSI C63.10		
Test frequency range	Tested frequencies		
	F <sub>LOW</sub> / F <sub>MID</sub> / F <sub>HIGH</sub>		
Limits			
None (Informational only)			
Test setup			
<div><div>Spectrum Analyzer</div><div>EUT</div></div>			
Test procedure			
<div>1. EUT set to test mode (Communication tester is used if needed)</div> <div>2. Span set to at least twice the emission spectrum</div> <div>3. Resolution bandwidth set to 1 % of span</div> <div>4. Occupied Bandwidth (99 %) measurement with spectrum analyzer built in measurement function</div>			
Test results			
Channel	Frequency [MHz]	Mode	Occupied Bandwidth [kHz]
F <sub>LOW</sub>	2402	Transmit	1040
F <sub>MID</sub>	2440	Transmit	1046
F <sub>HIGH</sub>	2480	Transmit	1042
Comments:			

# Occupied Bandwidth – F<sub>Low</sub>

## Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1506-4852

Applicant: BEACONinside GmbH  
EUT Name: Bluetooth low energy transceiver  
Model: B0002-A  
Test Site: Eurofins Product Service GmbH  
Operator: Handrik  
Test Conditions: T<sub>nom</sub> / V<sub>nom</sub>  
Mode: Tx, BT-LE, 2402 MHz  
Test Date: 2015-10-02  
Verdict: NONE (INFORMATION ONLY)  
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used  
Note 2: -

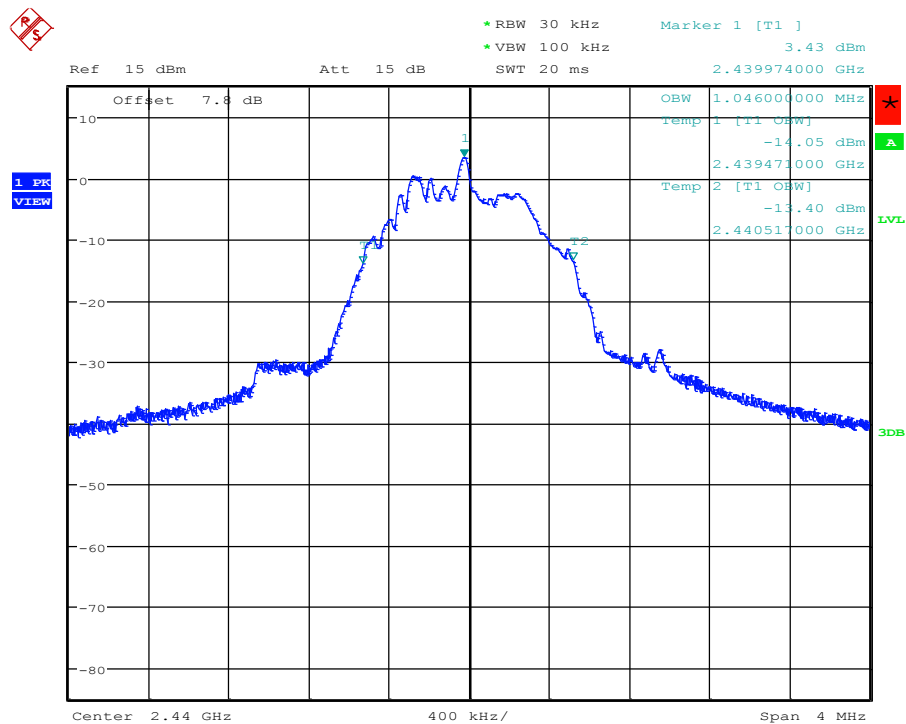


# Occupied Bandwidth – F<sub>MID</sub>

## Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1506-4852

Applicant: BEACONinside GmbH  
EUT Name: Bluetooth low energy transceiver  
Model: B0002-A  
Test Site: Eurofins Product Service GmbH  
Operator: Handrik  
Test Conditions: Tnom / Vnom  
Mode: Tx, BT-LE, 2440 MHz  
Test Date: 2015-10-02  
Verdict: NONE (INFORMATION ONLY)  
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used  
Note 2: -



Occupied bandwidth: 1046 KHz

Date: 2.OCT.2015 14:55:03

Test Report No.: G0M-1506-4852-TFC247BL-V01

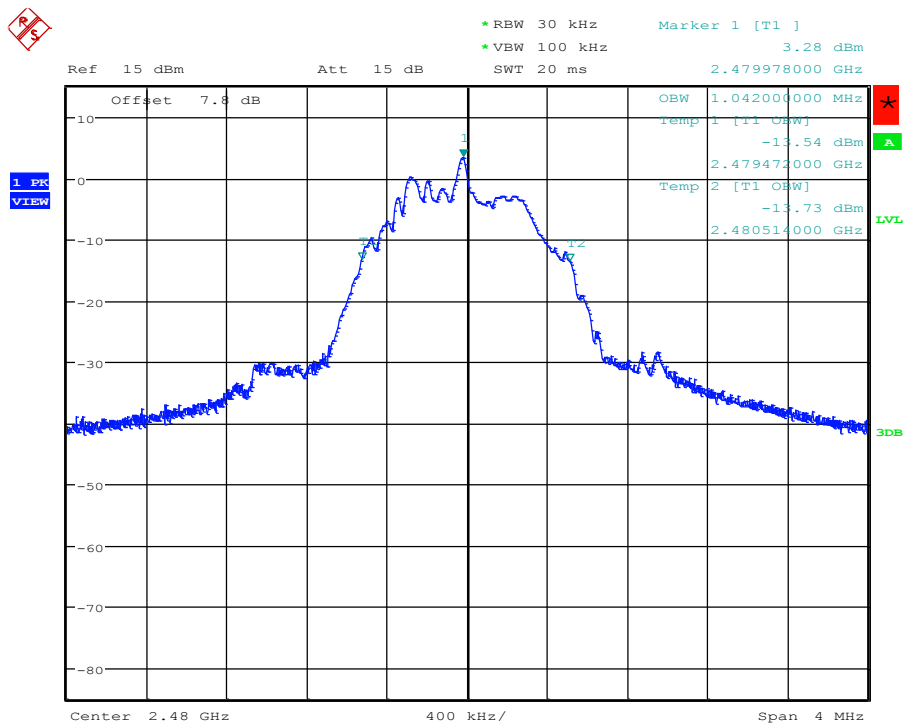
Eurofins Product Service GmbH  
Storkower Str. 38c, D-15526 Reichenwalde, Germany

# Occupied Bandwidth – F<sub>HIGH</sub>

## Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1506-4852

Applicant: BEACONinside GmbH  
EUT Name: Bluetooth low energy transceiver  
Model: B0002-A  
Test Site: Eurofins Product Service GmbH  
Operator: Handrik  
Test Conditions: Tnom / Vnom  
Mode: Tx, BT-LE, 2480 MHz  
Test Date: 2015-10-02  
Verdict: NONE (INFORMATION ONLY)  
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used  
Note 2: -



Occupied bandwidth: 1042 KHz

Date: 2.OCT.2015 14:56:47

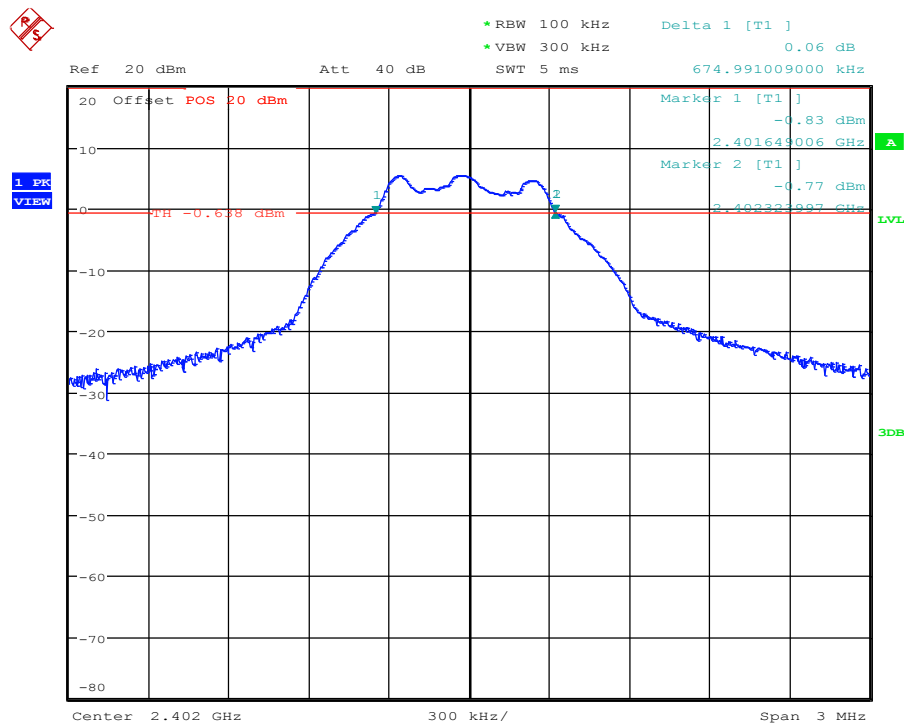
### 3.2 Test Conditions and Results – 6 dB Bandwidth

6dB Bandwidth acc. to FCC 15.247 / IC RSS-247				Verdict: PASS	
EUT requirement rule parts and clause		Reference			
		FCC 15.247(a)(2) / IC RSS-247 5.2			
Test according to measurement reference		Reference Method			
		ANSI C63.10			
Test frequency range		Tested frequencies			
		F <sub>LOW</sub> / F <sub>MID</sub> / F <sub>HIGH</sub>			
Limits					
Limit					
≥ 500kHz					
Test setup					
<div><div>Spectrum Analyzer</div><div>EUT</div></div>					
Test procedure					
<div>1. EUT set to test mode</div> <div>2. Span set to at least twice the emission spectrum</div> <div>3. Detector set to peak and max hold and RBW is set to 100 kHz</div> <div>4. Envelope peak value of emission spectrum is selected</div> <div>5. Marker on envelope of spectrum is set to level of -6 dB to the left of the peak</div> <div>6. Marker on envelope of spectrum is set to level of -6 dB to the right of the peak</div> <div>7. 6 dB Bandwidth is determined by marker frequency separation</div>					
Test results					
Channel	Frequency [MHz]	Mode	6 dB Bandwidth [kHz]	Limit [kHz]	Result
F <sub>LOW</sub>	2402	Transmit	675	500	PASS
F <sub>MID</sub>	2440	Transmit	696	500	PASS
F <sub>HIGH</sub>	2480	Transmit	702	500	PASS
Comments:					

6 dB Bandwidth – F<sub>Low</sub>
**Minimum 6 dB Bandwidth acc. to FCC 15.247**

Project Number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Handrik  
 Test Conditions: T<sub>nom</sub> / V<sub>nom</sub>  
 Mode: Tx, BLE, 2402 MHz  
 Test Date: 2015-10-02  
 Verdict: PASS  
 Note 1: Procedure according to ANSI C63.10  
 Note 2: Minimum 6 dB Bandwidth conducted



6 dB bandwidth: 675 KHz &gt; 500 KHz;      verdict: PASS

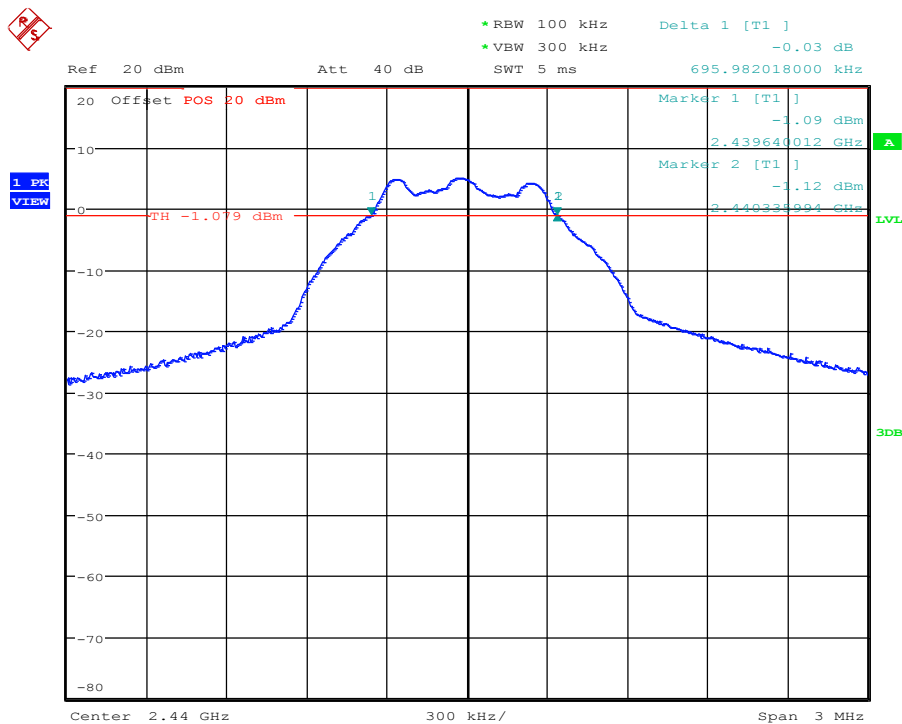
Date: 2.OCT.2015 15:00:09



6 dB Bandwidth – F<sub>MID</sub>
**Minimum 6 dB Bandwidth acc. to FCC 15.247**

Project Number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Handrik  
 Test Conditions: Tnom / Vnom  
 Mode: Tx, BLE, 2440 MHz  
 Test Date: 2015-10-02  
 Verdict: PASS  
 Note 1: Procedure according to ANSI C63.10  
 Note 2: Minimum 6 dB Bandwidth conducted

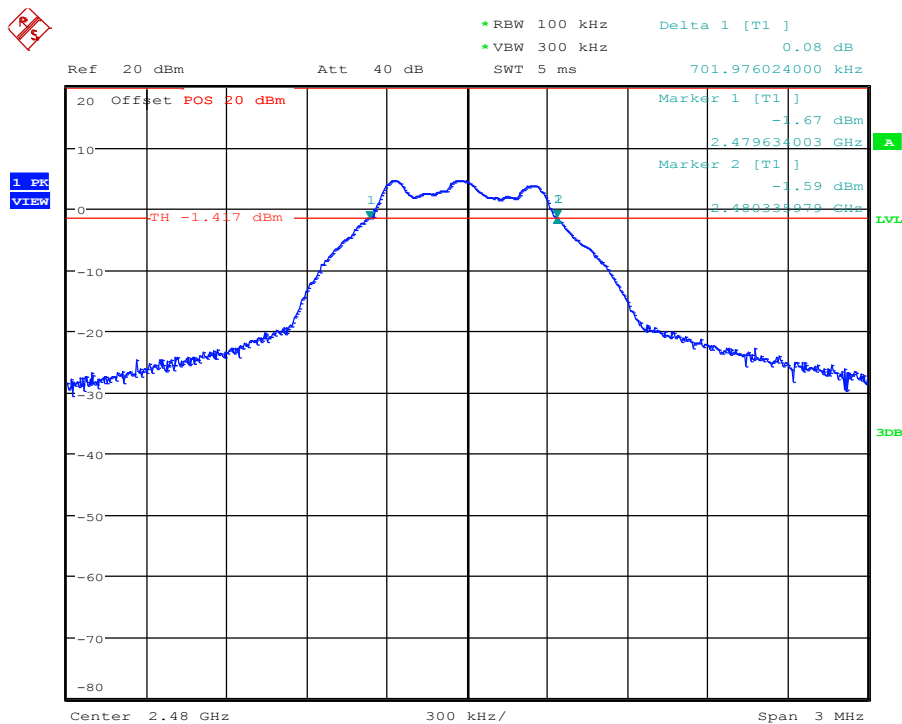


6 dB bandwidth: 696 KHz > 500 KHz; verdict: PASS  
 Date: 2.OCT.2015 15:02:40

6 dB Bandwidth – F<sub>HIGH</sub>
**Minimum 6 dB Bandwidth acc. to FCC 15.247**

Project Number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Handrik  
 Test Conditions: T<sub>nom</sub> / V<sub>nom</sub>  
 Mode: Tx, BLE, 2480 MHz  
 Test Date: 2015-10-02  
 Verdict: PASS  
 Note 1: Procedure according to ANSI C63.10  
 Note 2: Minimum 6 dB Bandwidth conducted



6 dB bandwidth: 702 KHz &gt; 500 KHz; verdict: PASS

Date: 2.OCT.2015 15:04:24

### 3.3 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				
			$F_{\text{LOW}} / F_{\text{MID}} / F_{\text{HIGH}}$				
Measurement mode			Peak				
Maximum antenna gain			3.3 dBi $\Rightarrow$ 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							
<div><div>Spectrum Analyzer</div><div>EUT</div></div>							
Test procedure							
<div>1. EUT set to test mode (Communication tester is used if needed)</div> <div>2. Center frequency set to test channel center frequency</div> <div>3. Span set to twice the 20 dB bandwidth and detector to peak and max hold</div> <div>4. Resolution bandwidth is set to 3 MHz</div> <div>5. Peak conducted power is determined from peak of spectrum envelope</div>							
Test results							
Channel	Frequency [MHz]	Voltage	Mode	Peak power [dBm]	Peak power [W]	Limit [dBm]	Margin [dB]
$F_{\text{LOW}}$	2402	$V_{\text{nom}} = 3.0\text{V}$	Transmit	5.68	0.004	30	-24.32
$F_{\text{MID}}$	2440	$V_{\text{nom}} = 3.0\text{V}$	Transmit	5.23	0.003	30	-24.77
$F_{\text{HIGH}}$	2480	$V_{\text{nom}} = 3.0\text{V}$	Transmit	4.87	0.003	30	-25.13
Comment:							

### 3.4 Test Conditions and Results – Power spectral density

Power spectral density acc. to FCC 15.247 / IC RSS-247					Verdict: PASS	
EUT requirement rule parts and clause		Reference				
		FCC 15.247(e) / IC RSS-247 5.2				
Test according to measurement reference		Reference Method				
		ANSI C63.10				
Test frequency range		Tested frequencies				
		F <sub>LOW</sub> / F <sub>MID</sub> / F <sub>HIGH</sub>				
Measurement mode		Peak				
Limits						
8 dBm / 3 kHz						
Test setup						
<div><div>Spectrum Analyzer</div><div>EUT</div></div>						
Test procedure						
<div>1. EUT set to test mode (Communication tester is used if needed)</div> <div>2. Center frequency set to test channel center frequency</div> <div>3. Span is set large enough to capture maximum emissions in passband, RBW is set to 3kHz</div> <div>4. Peak power density is determined from peak emission of envelope</div>						
Test results						
Channel	Frequency [MHz]	Test mode	Peak frequency [MHz]	Peak power density [dBm]	Limit [dBm/3kHz]	Margin [dB]
F <sub>LOW</sub>	2402	Transmit	2401.966	5.28	8.0	-02.72
F <sub>MID</sub>	2440	Transmit	2439.971	4.83	8.0	-03.17
F <sub>HIGH</sub>	2480	Transmit	2479.971	4.49	8.0	-03.51
Comments:						

### 3.5 Test Conditions and Results – Band edge compliance

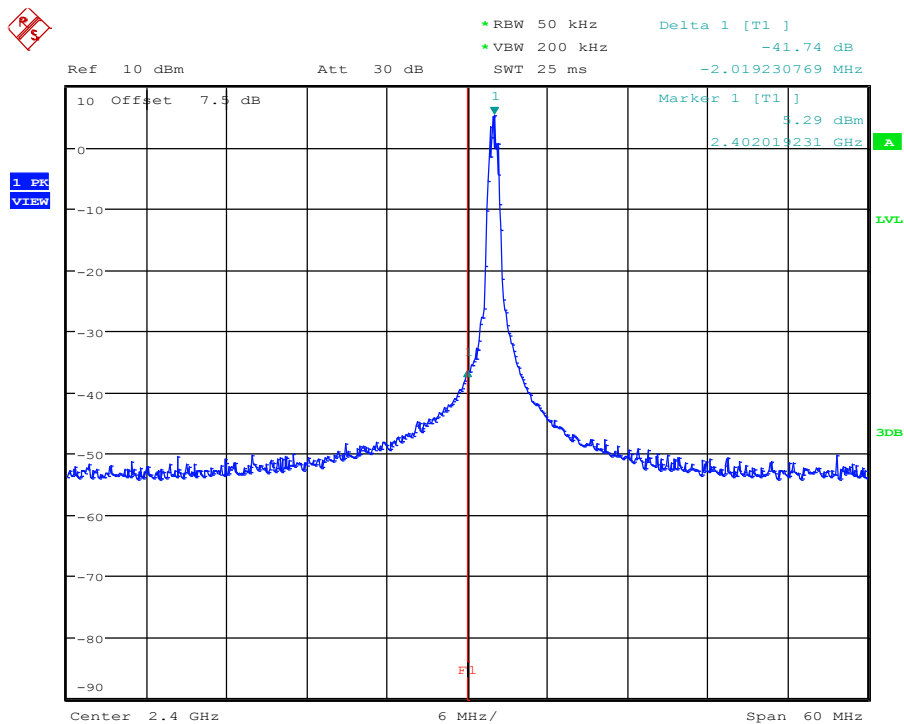
Band-edge compliance acc. to FCC 15.247 / IC RSS-247				Verdict: PASS	
EUT requirement rule parts and clause		Reference			
		FCC 15.247(d) / IC RSS-247 5.5			
Test according to measurement reference		Reference Method			
		ANSI C63.10			
Test frequency range		Tested frequencies			
		F <sub>LOW</sub> / F <sub>HIGH</sub>			
Measurement mode		Peak			
Limits					
Limit			Condition		
≤ -20 dB / 100 kHz			Peak power measurement detector = Peak		
≤ -30 dB / 100 kHz			Peak power measurement detector = RMS		
Test setup					
<div><div>Spectrum Analyzer</div><div>EUT</div></div>					
Test procedure					
<div>1. EUT set to test mode (Communication tester is used if needed)</div> <div>2. Span set around lower band edge and detector is set to peak and max hold</div> <div>3. Resolution bandwidth is set to 100 kHz</div> <div>4. Markers are set to peak emission levels within frequency band and outside frequency band</div> <div>5. Band edge attenuation is determined from level difference</div>					
Test results					
Channel	Frequency [MHz]	Mode	Level [dBc]	Limit [dBc]	Margin [dB]
F <sub>LOW</sub>	2402	Transmit	-41.74	-20	-21.74
F <sub>HIGH</sub>	2480	Transmit	-47.58	-20	-27.58
Comments:					

## Band-edge compliance

### Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Handrik  
 Test Conditions: Tnom / Vnom  
 Mode: Tx, BLE, 2402 MHz, modulated  
 Test Date: 2015-10-02  
 Verdict: PASS  
 Note 1: Reference Method according to ANSI C63.10  
 Note 2: lower Band-edge, conducted measurement



Limit: Marker Delta value >20 dB; Result: PASS

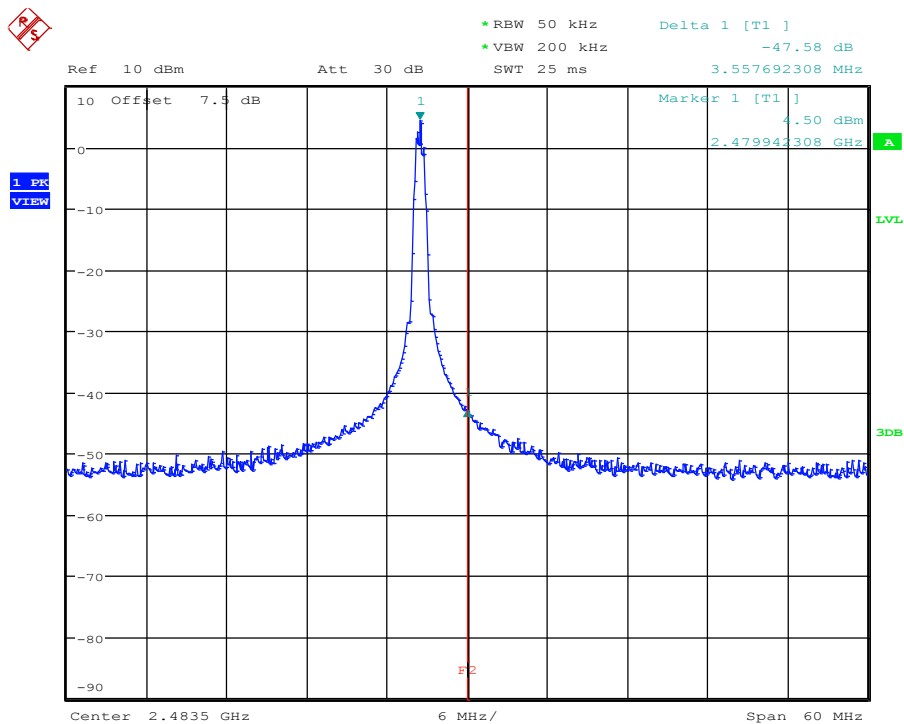
Date: 2.OCT.2015 15:26:09

# Band-edge compliance

## Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1506-4852

Applicant: BEACONinside GmbH  
EUT Name: Bluetooth low energy transceiver  
Model: B0002-A  
Test Site: Eurofins Product Service GmbH  
Operator: Handrik  
Test Conditions: Tnom / Vnom  
Mode: Tx, BLE, 2480 MHz, modulated  
Test Date: 2015-10-02  
Verdict: PASS  
Note 1: Reference Method according to ANSI C63.10  
Note 2: lower Band-edge, conducted measurement



Limit: Marker Delta value >20 dB; Result: PASS

Date: 2.OCT.2015 15:27:29

### 3.6 Test Conditions and Results – Conducted spurious emissions

Conducted spurious emissions acc. to FCC 15.247 / IC RSS-247						Verdict: PASS	
EUT requirement rule parts and clause			Reference				
			FCC 15.247(d) / IC RSS-247 5.5				
Test according to measurement reference			Reference Method				
			ANSI C63.10				
Test frequency range			Tested frequencies				
			10 MHz – 10 <sup>th</sup> Harmonic				
Measurement mode			Peak				
Limits							
Limit				Condition			
≤ -20 dB / 100 kHz				Peak power measurement detector = Peak			
≤ -30 dB /100 kHz				Peak power measurement detector = RMS			
Test setup							
<div><div>Spectrum Analyzer</div><div>EUT</div></div>							
Test procedure							
<div>1. EUT set to test mode (Communication tester is used if needed)</div> <div>2. Span it set according to measurement range</div> <div>3. Resolution bandwidth is set to 100 kHz and detector to peak and max hold</div> <div>4. Markers are set to peak emission levels within frequency band</div> <div>5. Emission level is determined by second marker on emission peak</div> <div>6. Attenuation is determined from level difference</div>							
Test results							
Channel	Frequency [MHz]	Mode	Emission [MHz]	Emission Level [dBm]	Peak power [dBm]	Limit [dBm]	Margin [dB]
F <sub>LOW</sub>	2402	BLE	9588.141	-47.70	5.3	-14.7	-33.00
F <sub>MID</sub>	2442	BLE	9740.385	-40.64	4.8	-15.2	-25.44
F <sub>HIGH</sub>	2480	BLE	9923.077	-46.42	4.5	-15.5	-30.92
Comments:							

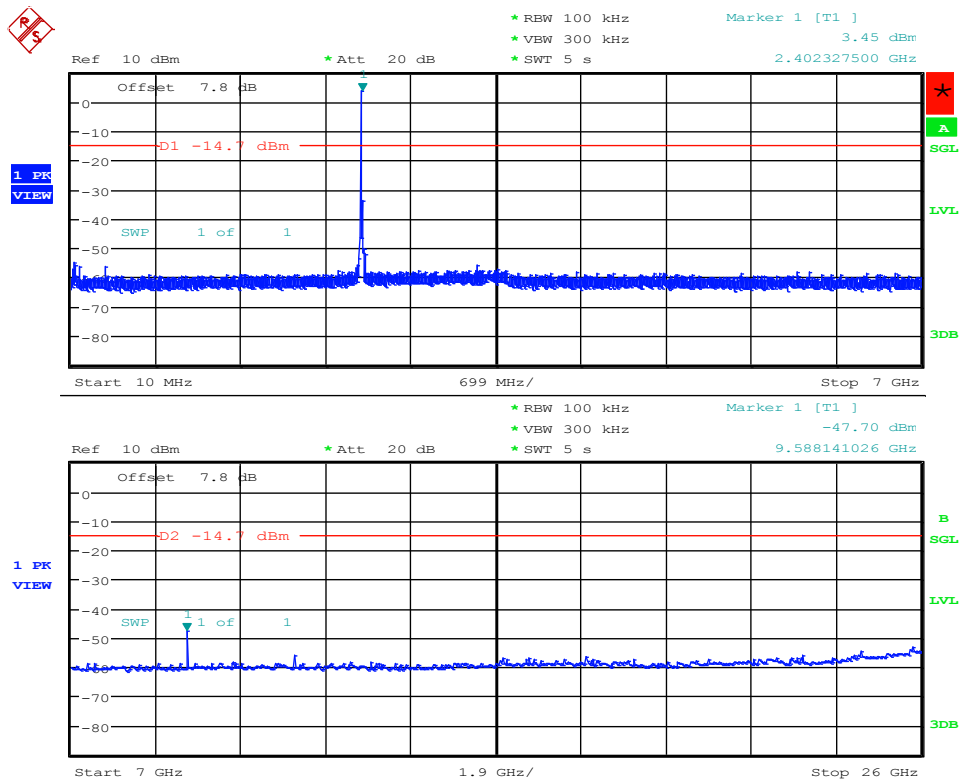


Conducted spurious emissions – F<sub>Low</sub>

## Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Handrik  
 Test Conditions: T<sub>nom</sub> / V<sub>nom</sub>  
 Mode: Tx, BLE, 2402 MHz, modulated  
 Test Date: 2015-10-02  
 Verdict: PASS  
 Note 1: Spurious in non-restricted frequency bands (ANSI C63.10)  
 Note 2: conducted measurement



Date: 2.OCT.2015 15:33:03

Test Report No.: G0M-1506-4852-TFC247BL-V01

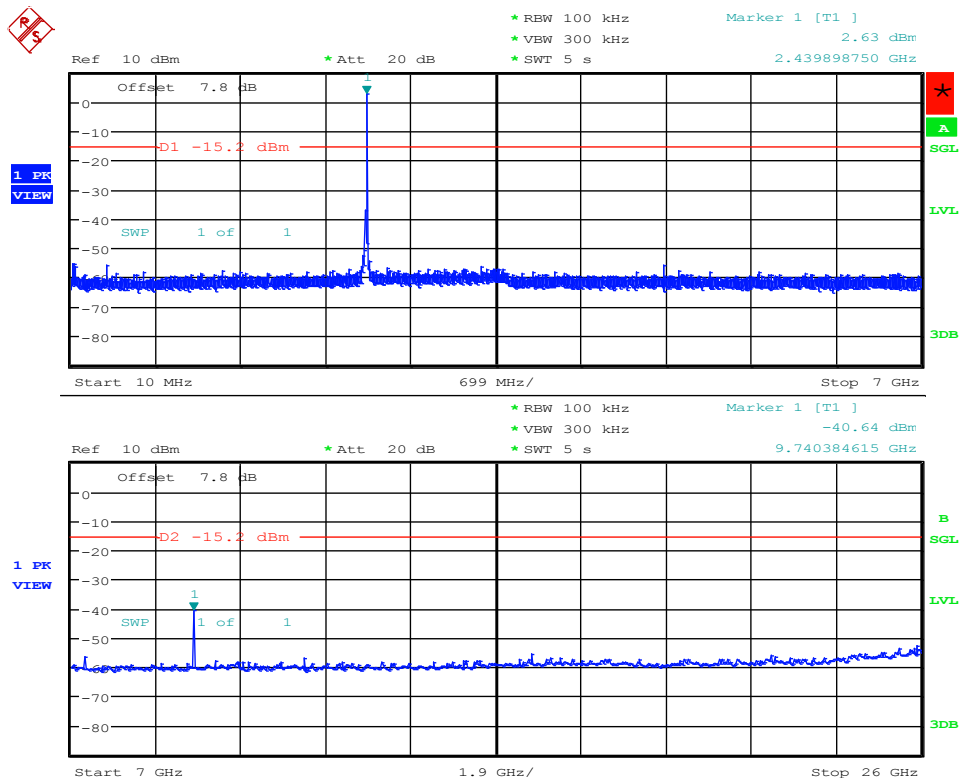
Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted spurious emissions – F<sub>MID</sub>

## Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Handrik  
 Test Conditions: Tnom / Vnom  
 Mode: Tx, BLE, 2440 MHz, modulated  
 Test Date: 2015-10-02  
 Verdict: PASS  
 Note 1: Spurious in non-restricted frequency bands (ANSI C63.10)  
 Note 2: conducted measurement



Date: 2.OCT.2015 15:34:36

Test Report No.: G0M-1506-4852-TFC247BL-V01

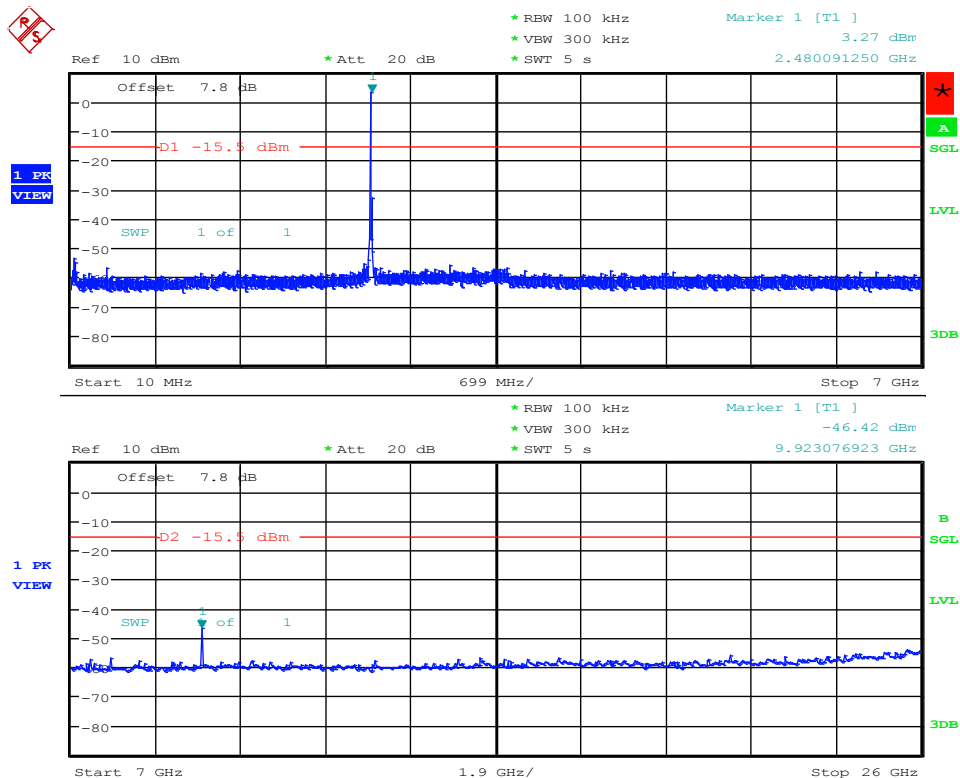
Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted spurious emissions – F<sub>HIGH</sub>

## Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Handrik  
 Test Conditions: T<sub>nom</sub> / V<sub>nom</sub>  
 Mode: Tx, BLE, 2480 MHz, modulated  
 Test Date: 2015-10-02  
 Verdict: PASS  
 Note 1: Spurious in non-restricted frequency bands (ANSI C63.10)  
 Note 2: conducted measurement

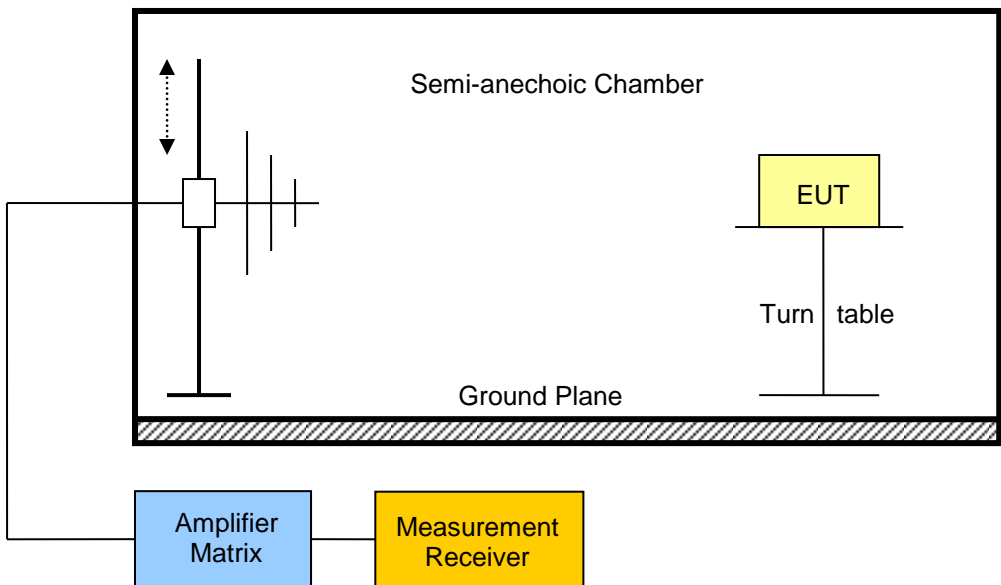


Date: 2.OCT.2015 15:36:08

Test Report No.: G0M-1506-4852-TFC247BL-V01

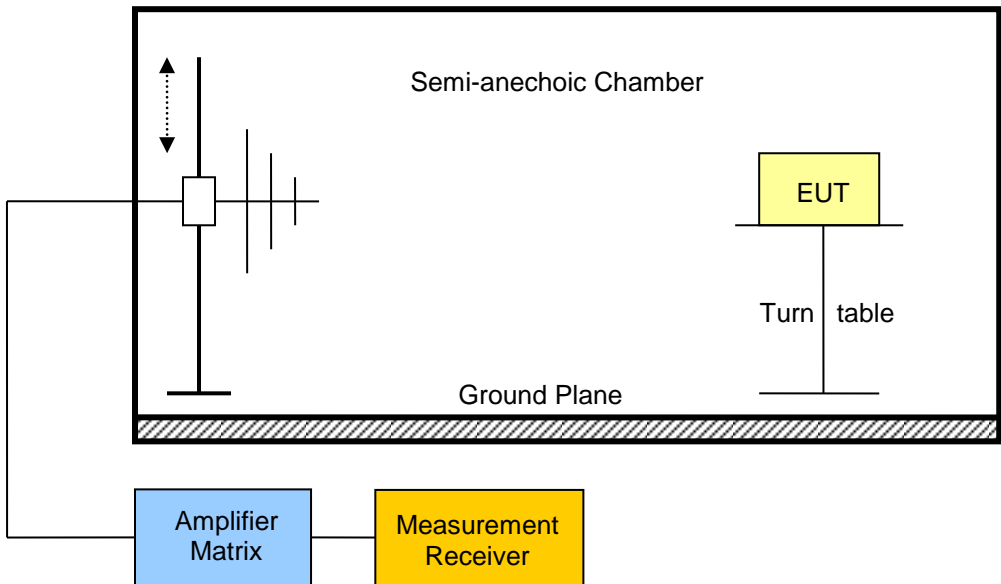
Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

### 3.7 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 – 10 <sup>th</sup> 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
<p>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.</p>				
Test setup				
				

Test procedure									
<ol style="list-style-type: none"> <li>1. EUT set to test mode (Communication tester is used if needed)</li> <li>2. Span it set according to measurement range</li> <li>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</li> <li>4. Markers are set to peak emission levels within restricted bands</li> </ol>									
Test results									
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Limit dist. [m]*	Margin [dB]
F <sub>LOW</sub>	2402	BT-LE	2324	53.84	pk	hor	74.00	3	-20.16
F <sub>LOW</sub>	2402	BT-LE	2324	28.46	RMS	hor	54.00	3	-25.54
F <sub>LOW</sub>	2402	BT-LE	2379	54.12	pk	ver	74.00	3	-19.88
F <sub>LOW</sub>	2402	BT-LE	2379	28.72	RMS	ver	54.00	3	-25.28
F <sub>LOW</sub>	2402	BT-LE	2390	60.85	pk	ver	74.00	3	-13.15
F <sub>LOW</sub>	2402	BT-LE	2390	31.80	RMS	ver	54.00	3	-22.20
F <sub>LOW</sub>	2402	BT-LE	2390	64.72	pk	hor	74.00	3	-09.28
F <sub>LOW</sub>	2402	BT-LE	2390	34.90	RMS	hor	54.00	3	-19.10
F <sub>MID</sub>	2440	BT-LE	2390	53.05	pk	hor	74.00	3	-20.95
F <sub>MID</sub>	2440	BT-LE	7319	54.86	pk	ver	74.00	3	-19.14
F <sub>MID</sub>	2440	BT-LE	7319	47.85	RMS	ver	54.00	3	-06.15
F <sub>MID</sub>	2440	BT-LE	7321	58.16	pk	hor	74.00	3	-15.84
F <sub>MID</sub>	2440	BT-LE	7321	51.17	RMS	hor	54.00	3	-02.83
F <sub>HIGH</sub>	2480	BT-LE	2484	72.25	pk	ver	74.00	3	-01.75
F <sub>HIGH</sub>	2480	BT-LE	2484	45.37	RMS	ver	54.00	3	-08.63
F <sub>HIGH</sub>	2480	BT-LE	2484	73.57	pk	hor	74.00	3	-00.43
F <sub>HIGH</sub>	2480	BT-LE	2484	46.53	RMS	hor	54.00	3	-07.47
F <sub>HIGH</sub>	2480	BT-LE	2497	54.28	pk	ver	74.00	3	-19.72
F <sub>HIGH</sub>	2480	BT-LE	2497	29.14	RMS	ver	54.00	3	-24.86
F <sub>HIGH</sub>	2480	BT-LE	2500	55.09	pk	hor	74.00	3	-18.91
F <sub>HIGH</sub>	2480	BT-LE	2500	30.46	RMS	hor	54.00	3	-23.54
F <sub>HIGH</sub>	2480	BT-LE	7439	59.48	pk	hor	74.00	3	-14.52
F <sub>HIGH</sub>	2480	BT-LE	7439	50.62	RMS	hor	54.00	3	-03.38
Comments: * Physical distance between EUT and measurement antenna.									

### 3.8 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 – 5 <sup>th</sup> 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							
<ol style="list-style-type: none"> <li>1. EUT set to receive mode (Communication tester is used if needed)</li> <li>2. Span it set according to measurement range</li> <li>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</li> <li>4. Markers are set to peak emission levels</li> </ol>							
Test results							
Channel	Frequency [MHz]	Emission [MHz]	Emission Level [dBμV/m]	Pol.	Det.	Limit [dBμV/m]	Margin [dBμV/m]
F <sub>MID</sub>	2440	7832	51.55	hor	pk	53.98	-2.43 dB
F <sub>MID</sub>	2440	7928	52.04	ver	pk	53.98	-1.94 dB
Comments:							

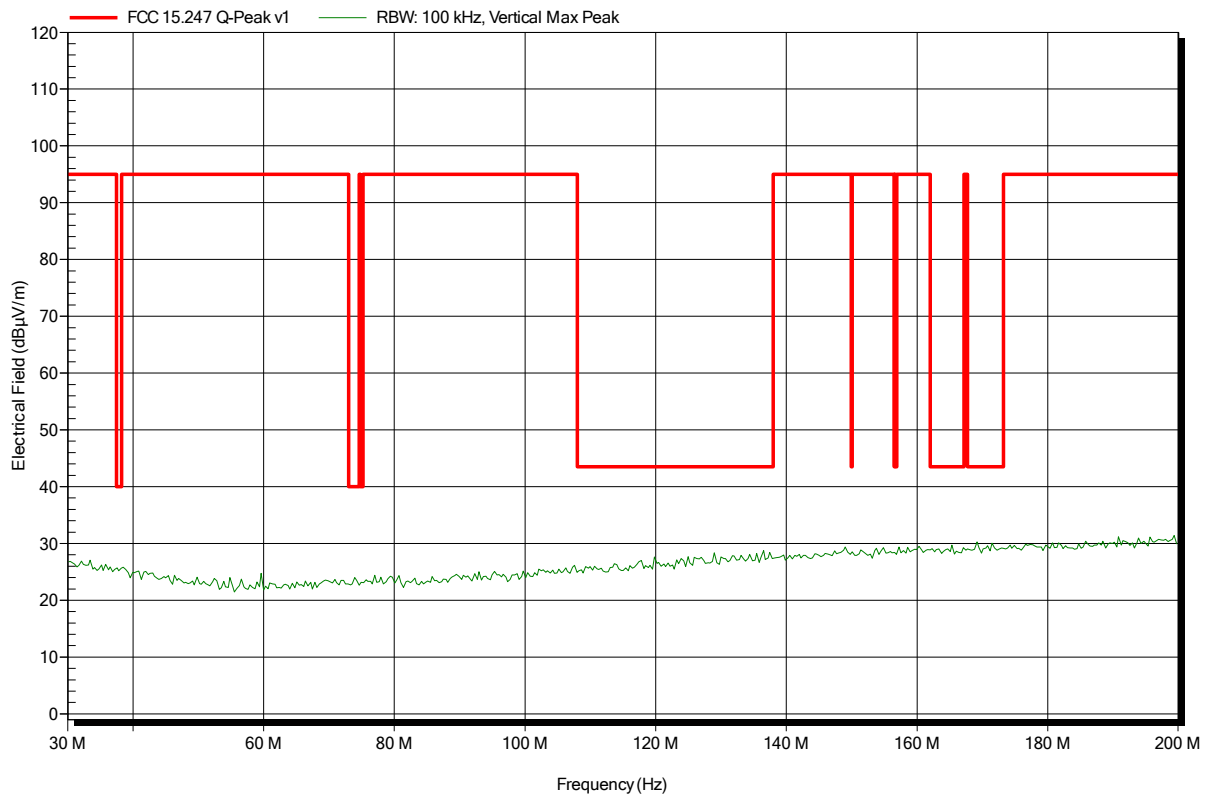
## ANNEX A Transmitter radiated spurious emissions

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

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HK 116, Vertical  
 Measurement distance: 3 m  
 Mode: TX; BT-LE; CH: 0; 2402 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-01  
 Note: EUT vertical

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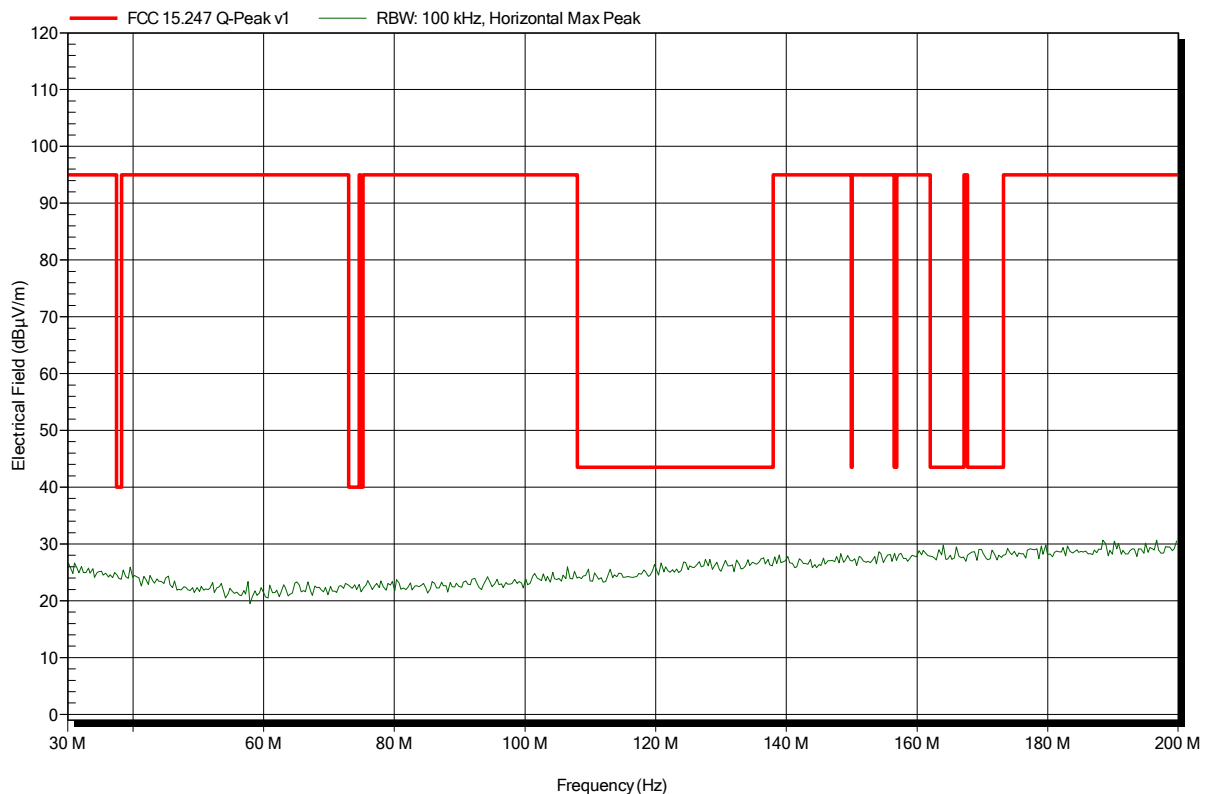


**Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247**

Project number: G0M-1506-4852

Applicant:	BEACONinside GmbH
EUT Name:	Bluetooth low energy transceiver
Model:	B0002-A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 0; 2402 MHz; TX_Testmode; GFSK
Test Date:	2015-10-02
Note:	EUT vertical

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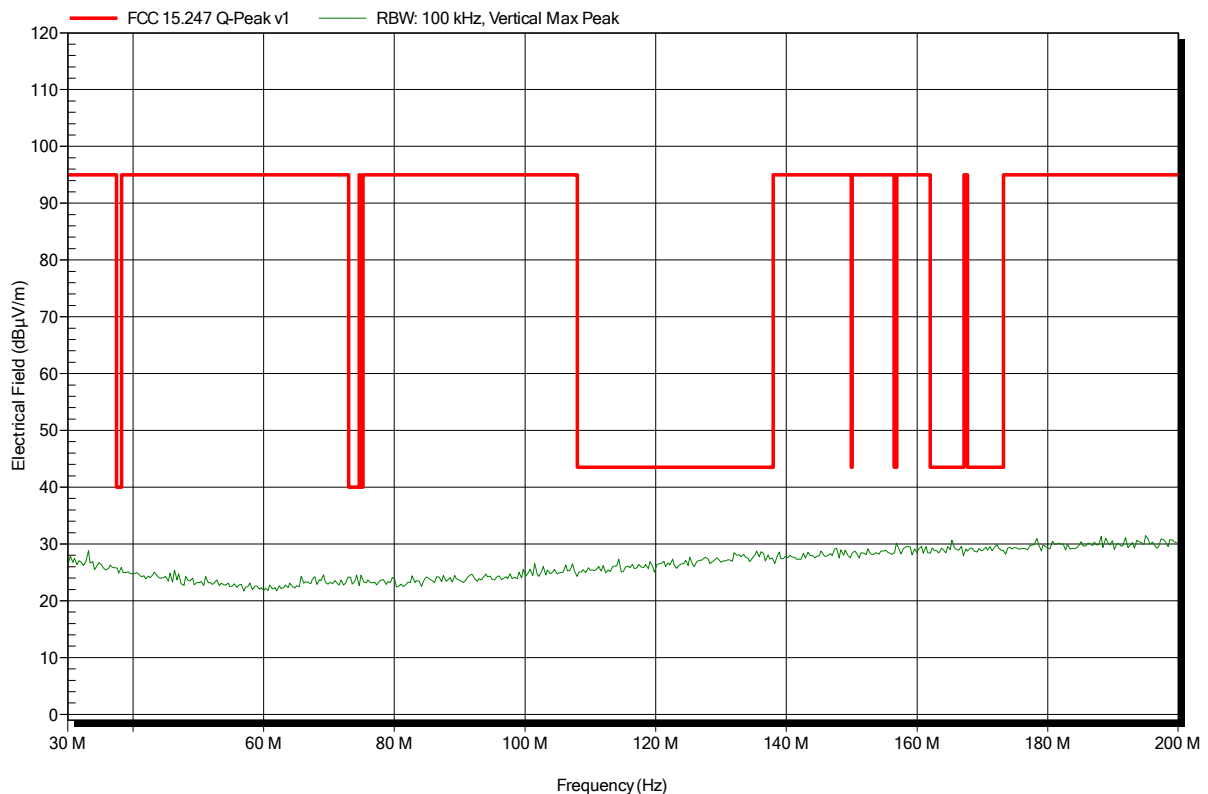


**Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247**

Project number: G0M-1506-4852

Applicant:	BEACONinside GmbH
EUT Name:	Bluetooth low energy transceiver
Model:	B0002-A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 19; 2440 MHz; TX_Testmode; GFSK
Test Date:	2015-10-02
Note:	EUT vertical

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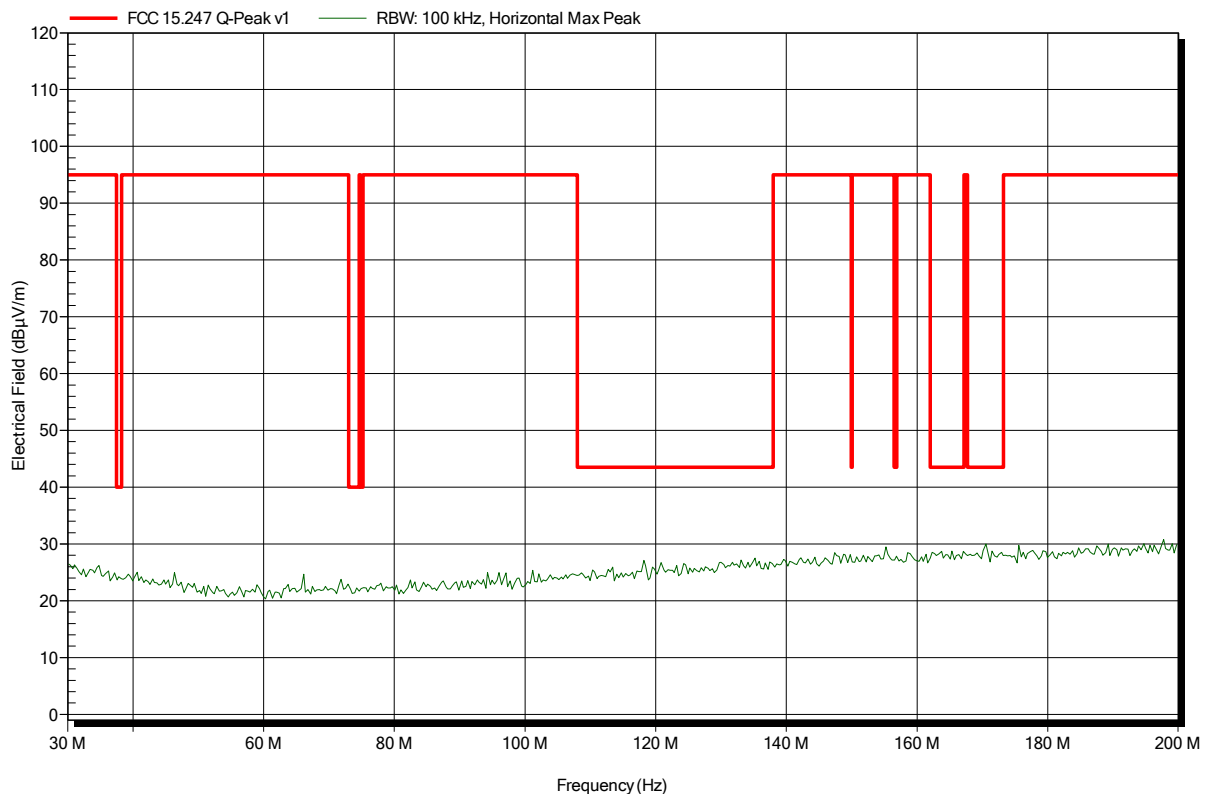


**Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247**

Project number: G0M-1506-4852

Applicant:	BEACONinside GmbH
EUT Name:	Bluetooth low energy transceiver
Model:	B0002-A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 19; 2440 MHz; TX_Testmode; GFSK
Test Date:	2015-10-02
Note:	EUT vertical

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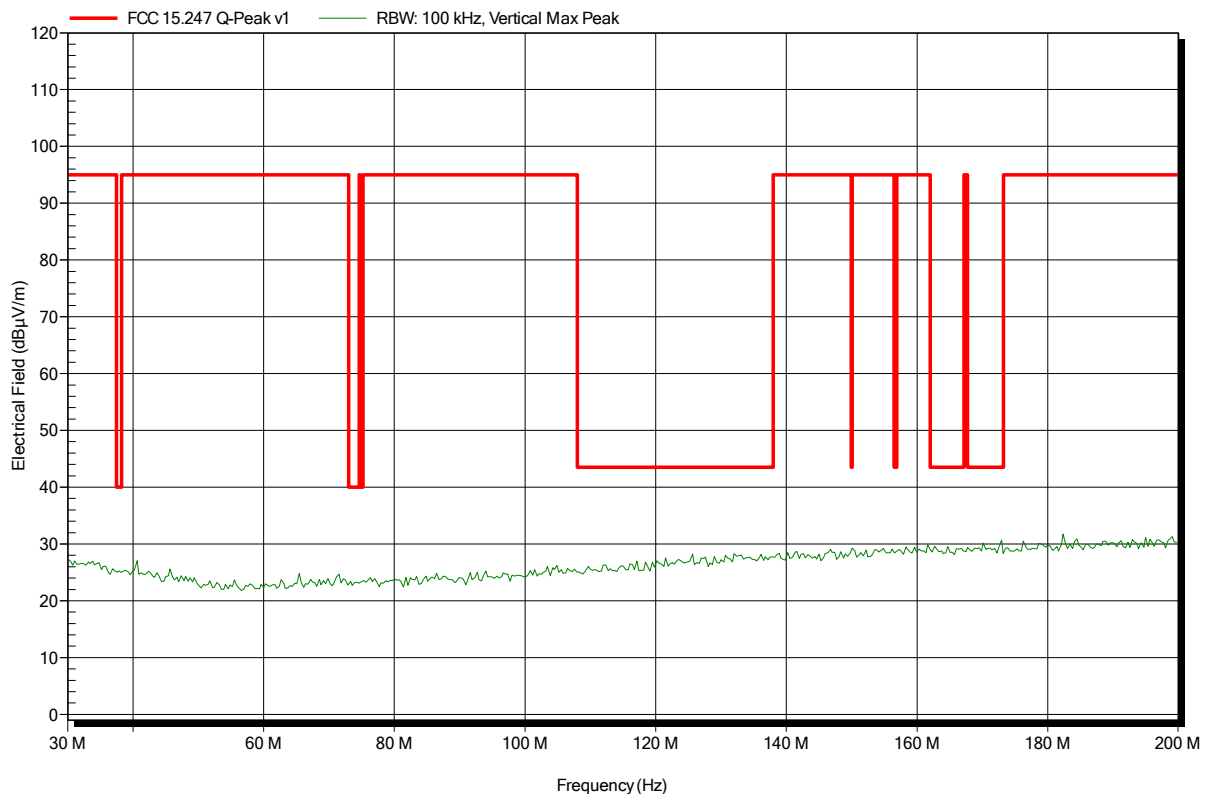


**Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247**

Project number: G0M-1506-4852

Applicant:	BEACONinside GmbH
EUT Name:	Bluetooth low energy transceiver
Model:	B0002-A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 39; 2480 MHz; TX_Testmode; GFSK
Test Date:	2015-10-02
Note:	EUT vertical

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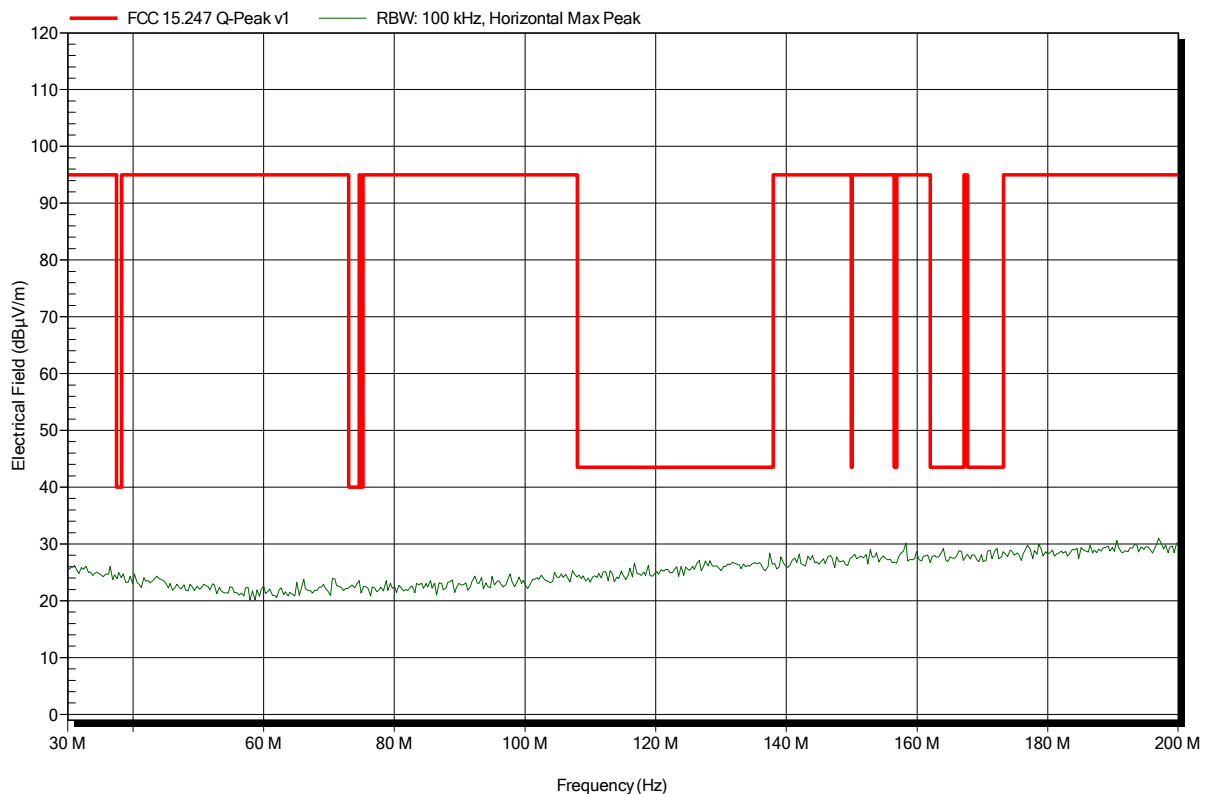


**Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247**

Project number: G0M-1506-4852

Applicant:	BEACONinside GmbH
EUT Name:	Bluetooth low energy transceiver
Model:	B0002-A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 39; 2480 MHz; TX_Testmode; GFSK
Test Date:	2015-10-02
Note:	EUT vertical

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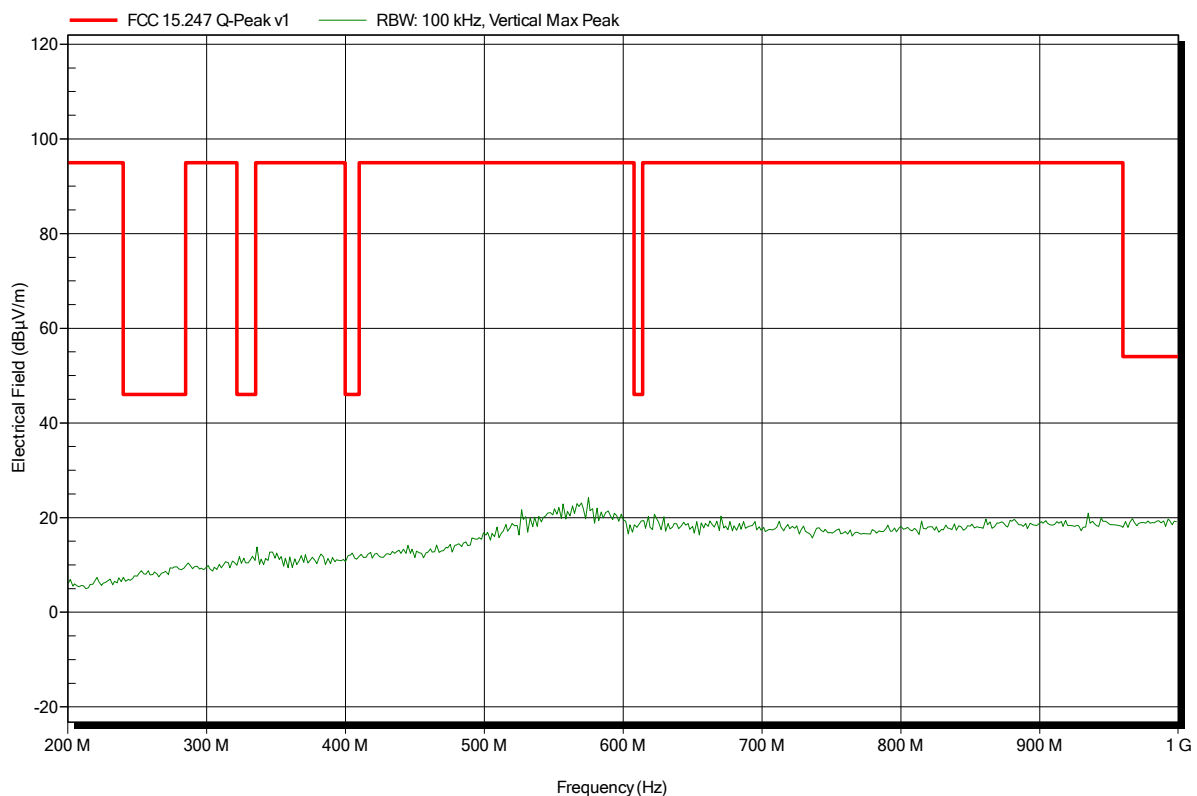


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant:	BEACONinside GmbH
EUT Name:	Bluetooth low energy transceiver
Model:	B0002-A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 0; 2402 MHz; TX_Testmode; GFSK
Test Date:	2015-10-02
Note:	EUT vertical

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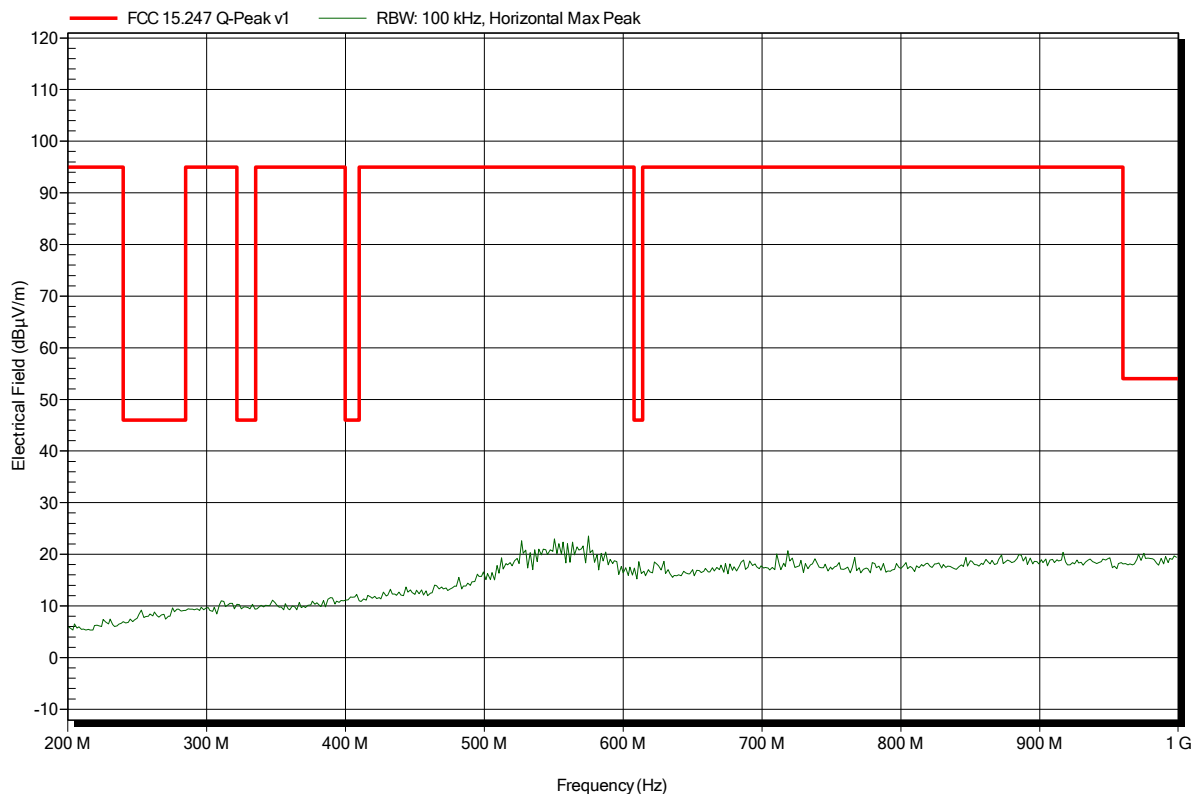


**Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247**

Project number: G0M-1506-4852

Applicant:	BEACONinside GmbH
EUT Name:	Bluetooth low energy transceiver
Model:	B0002-A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 0; 2402 MHz; TX_Testmode; GFSK
Test Date:	2015-10-02
Note:	EUT vertical

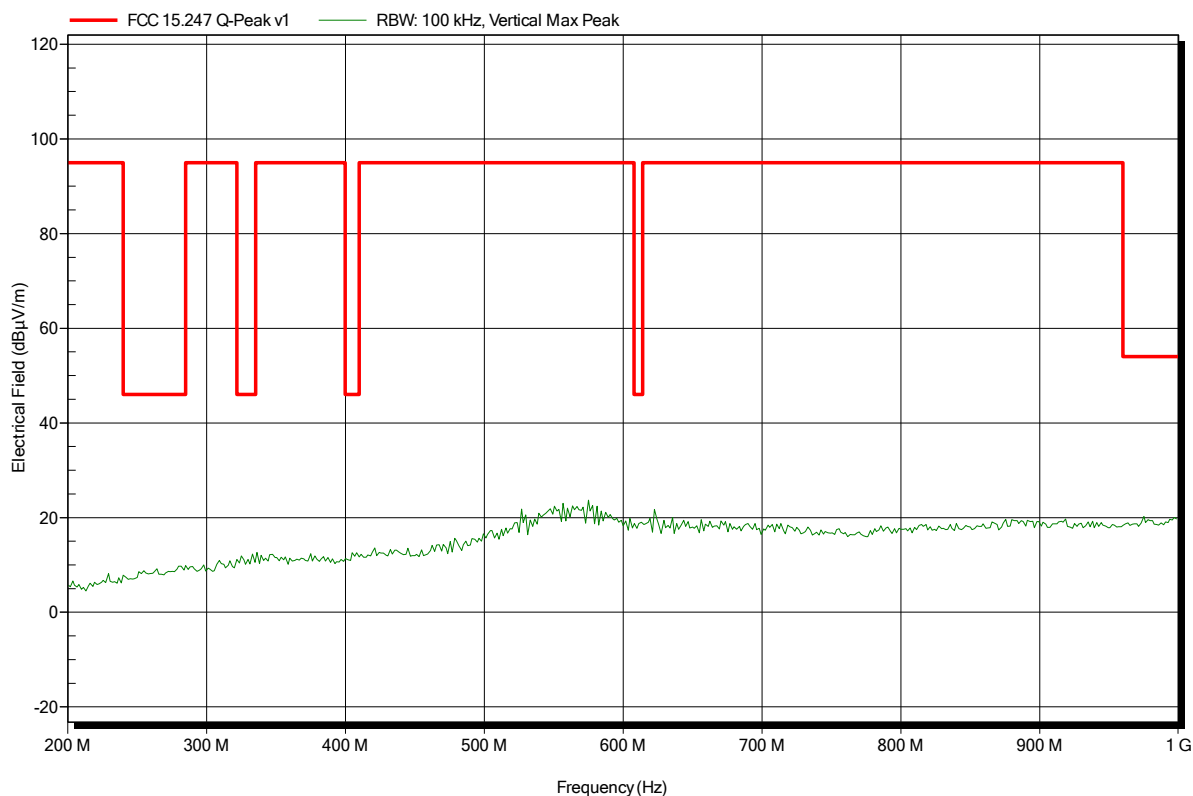
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Project number: G0M-1506-4852

Applicant:	BEACONinside GmbH
EUT Name:	Bluetooth low energy transceiver
Model:	B0002-A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 19; 2440 MHz; TX_Testmode; GFSK
Test Date:	2015-10-02
Note:	EUT vertical

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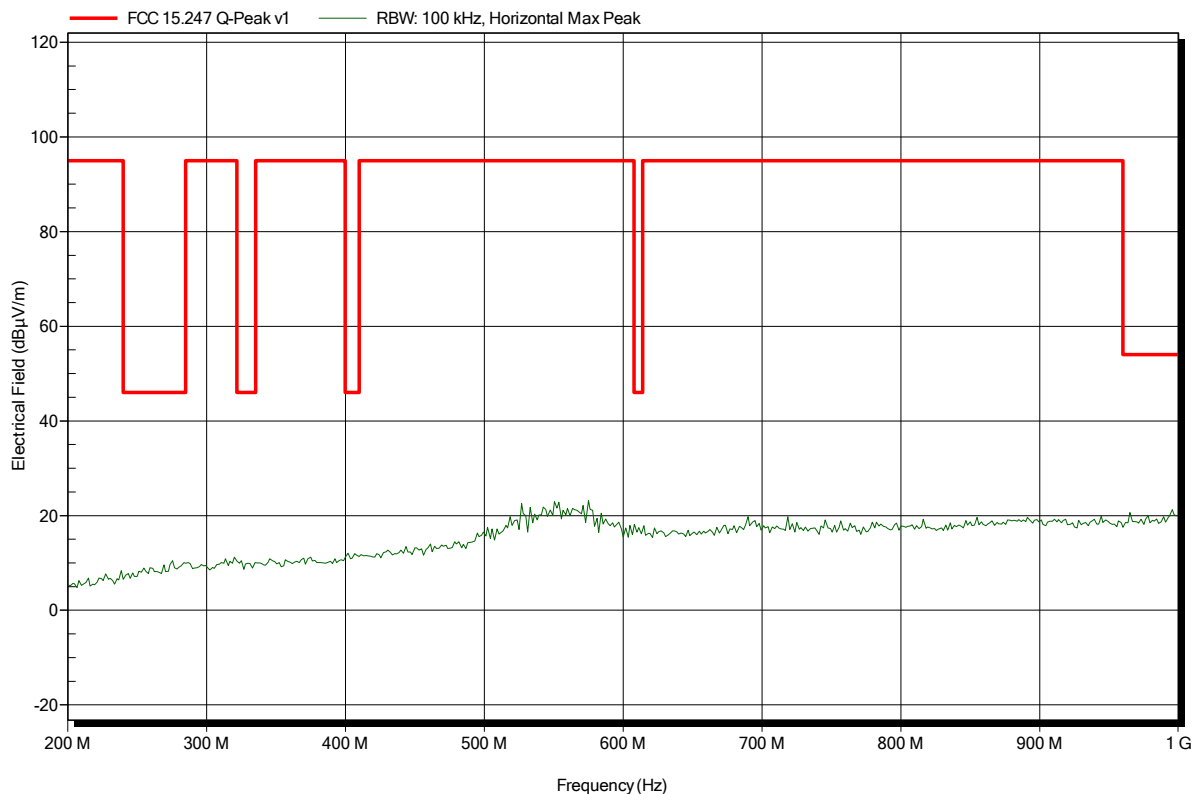


**Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247**

Project number: G0M-1506-4852

Applicant:	BEACONinside GmbH
EUT Name:	Bluetooth low energy transceiver
Model:	B0002-A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 19; 2440 MHz; TX_Testmode; GFSK
Test Date:	2015-10-02
Note:	EUT vertical

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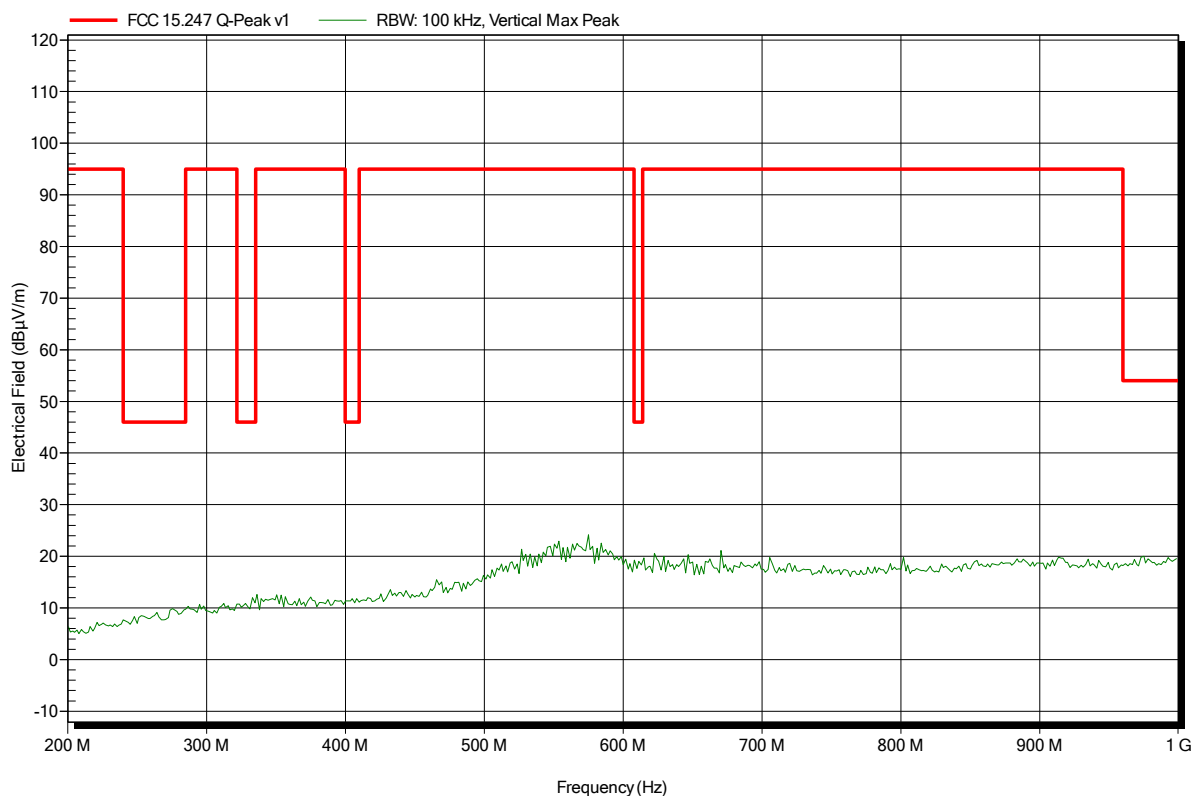


**Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247**

Project number: G0M-1506-4852

Applicant:	BEACONinside GmbH
EUT Name:	Bluetooth low energy transceiver
Model:	B0002-A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 39; 2480 MHz; TX_Testmode; GFSK
Test Date:	2015-10-02
Note:	EUT vertical

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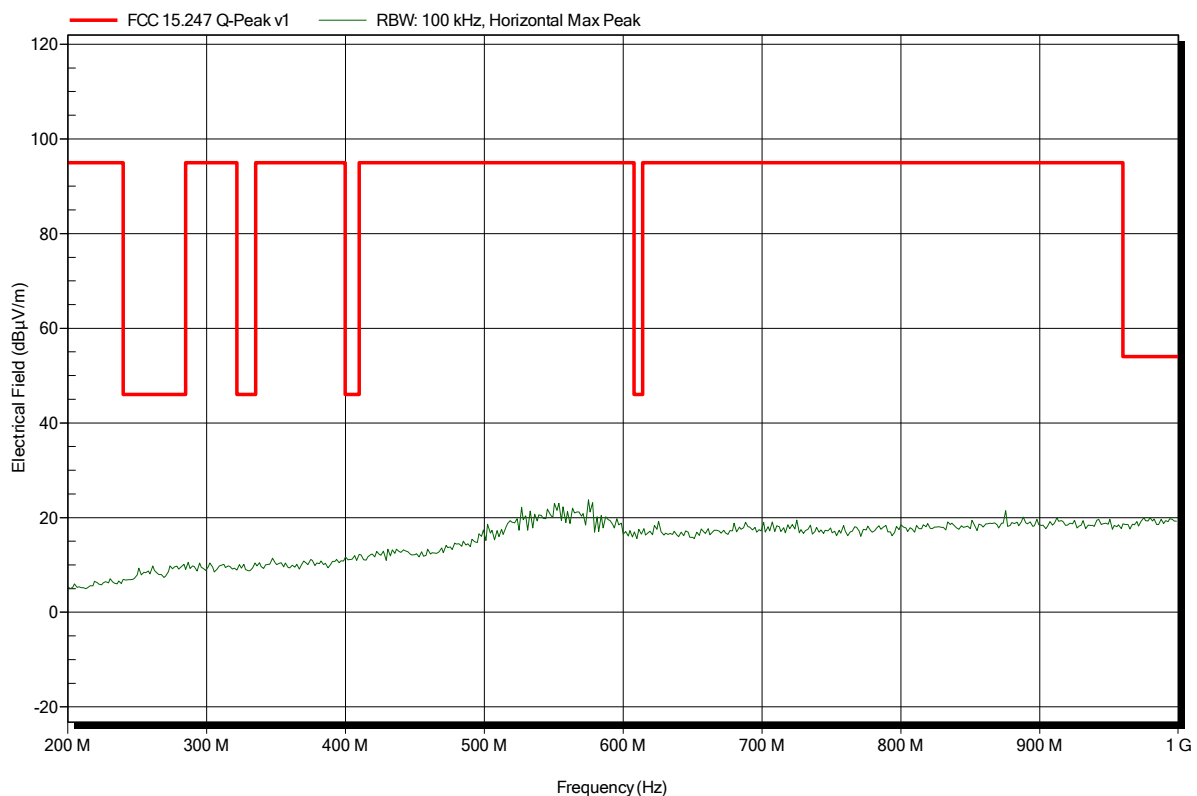


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 223, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; BT-LE; CH: 39; 2480 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-02  
 Note: EUT vertical

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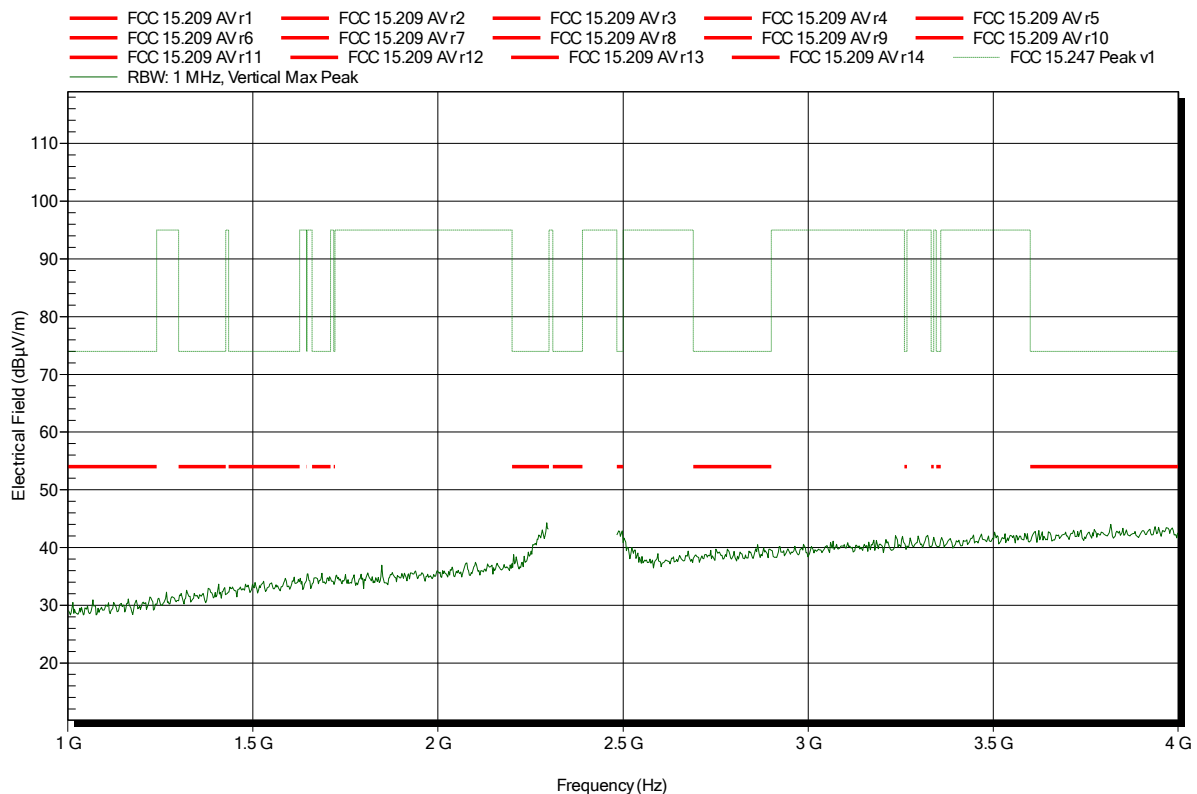


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Vertical  
 Measurement distance: 3 m  
 Mode: TX; BT-LE; CH: 0; 2402 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-05  
 Note: EUT vertical

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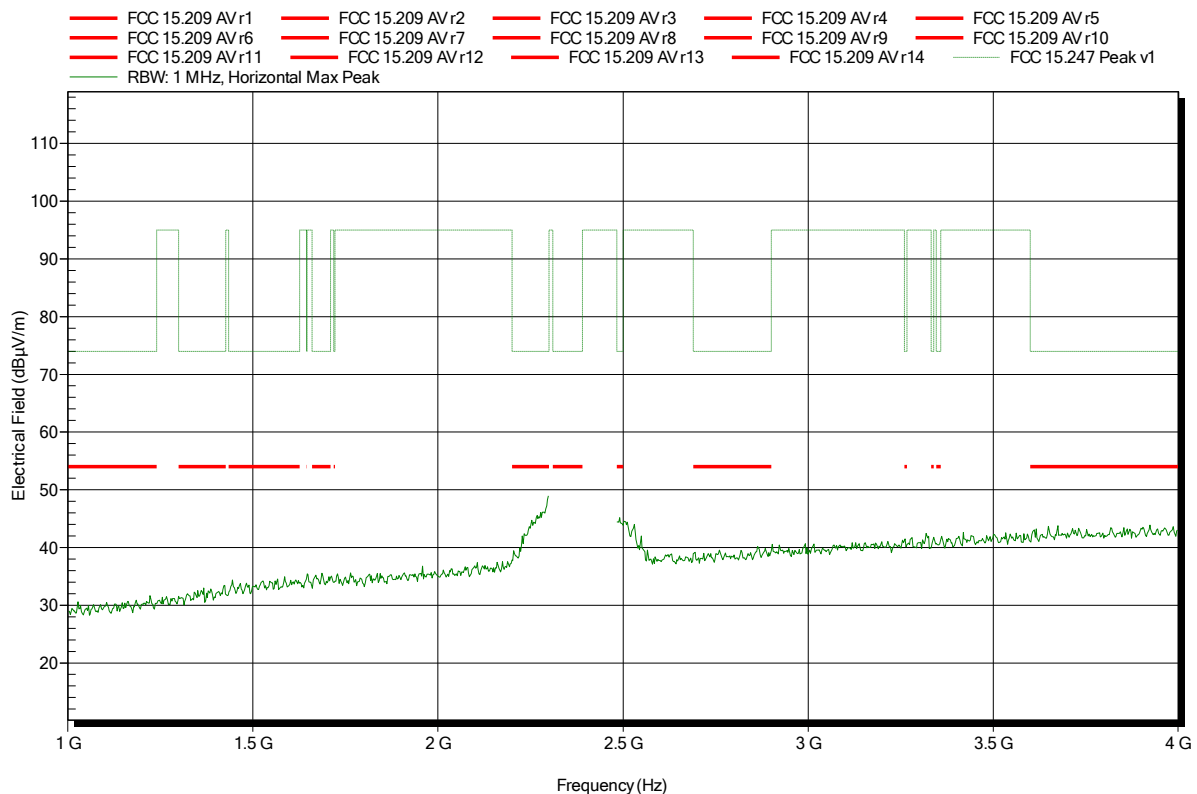


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; BT-LE; CH: 0; 2402 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-05  
 Note: EUT vertical

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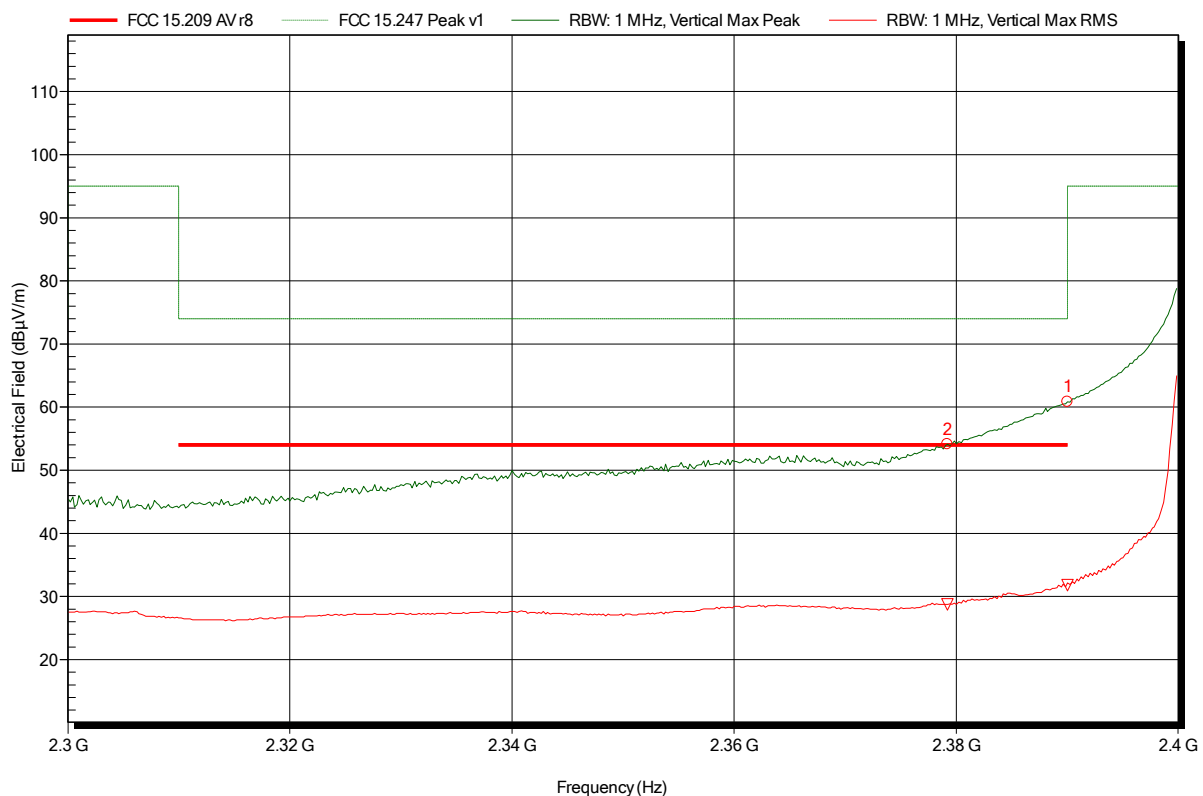


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Vertical  
 Measurement distance: 3 m  
 Mode: TX; BT-LE; CH: 0; 2402 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-05  
 Note: EUT vertical; lower bandedge

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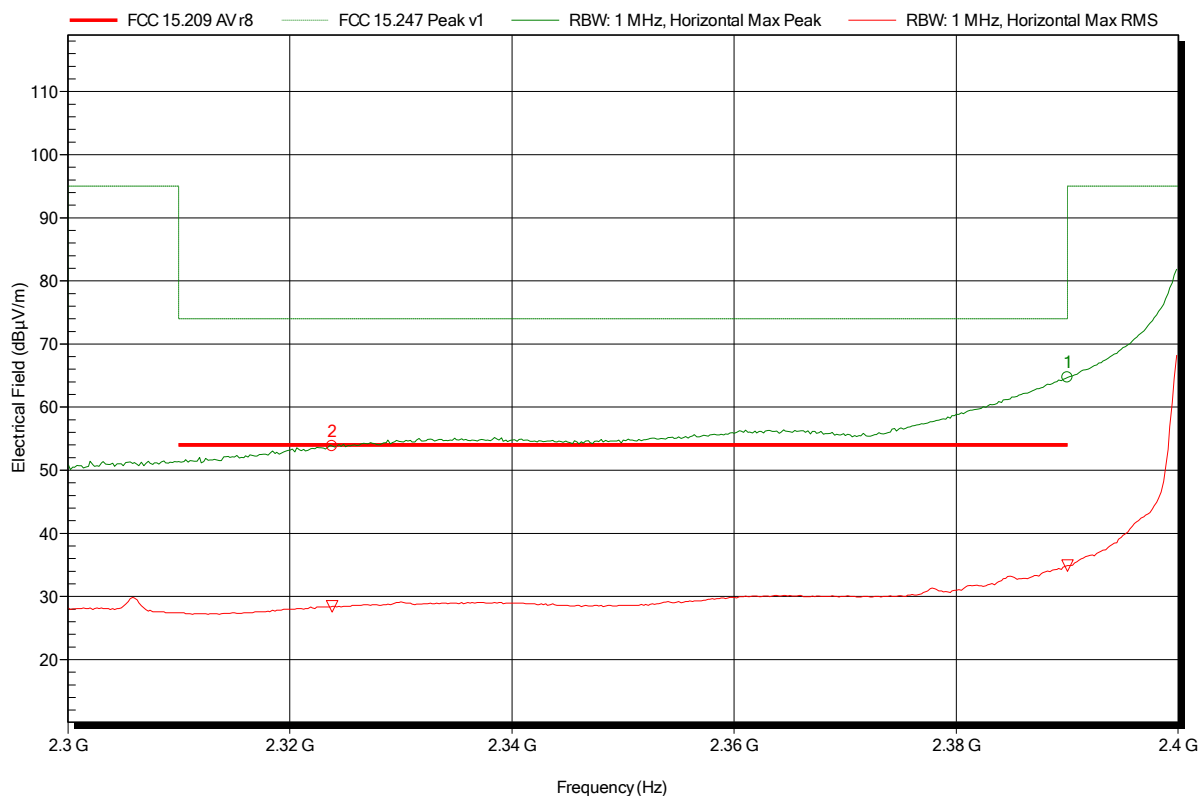
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.379 GHz	54.12 dBµV/m	74 dBµV/m	-19.88 dB	Pass
2.39 GHz	60.85 dBµV/m	74 dBµV/m	-13.15 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.379 GHz	28.72 dBµV/m	54 dBµV/m	-25.28 dB	Pass
2.39 GHz	31.8 dBµV/m	54 dBµV/m	-22.2 dB	Pass

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

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; BT-LE; CH: 0; 2402 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-05  
 Note: EUT vertical; lower bandedge

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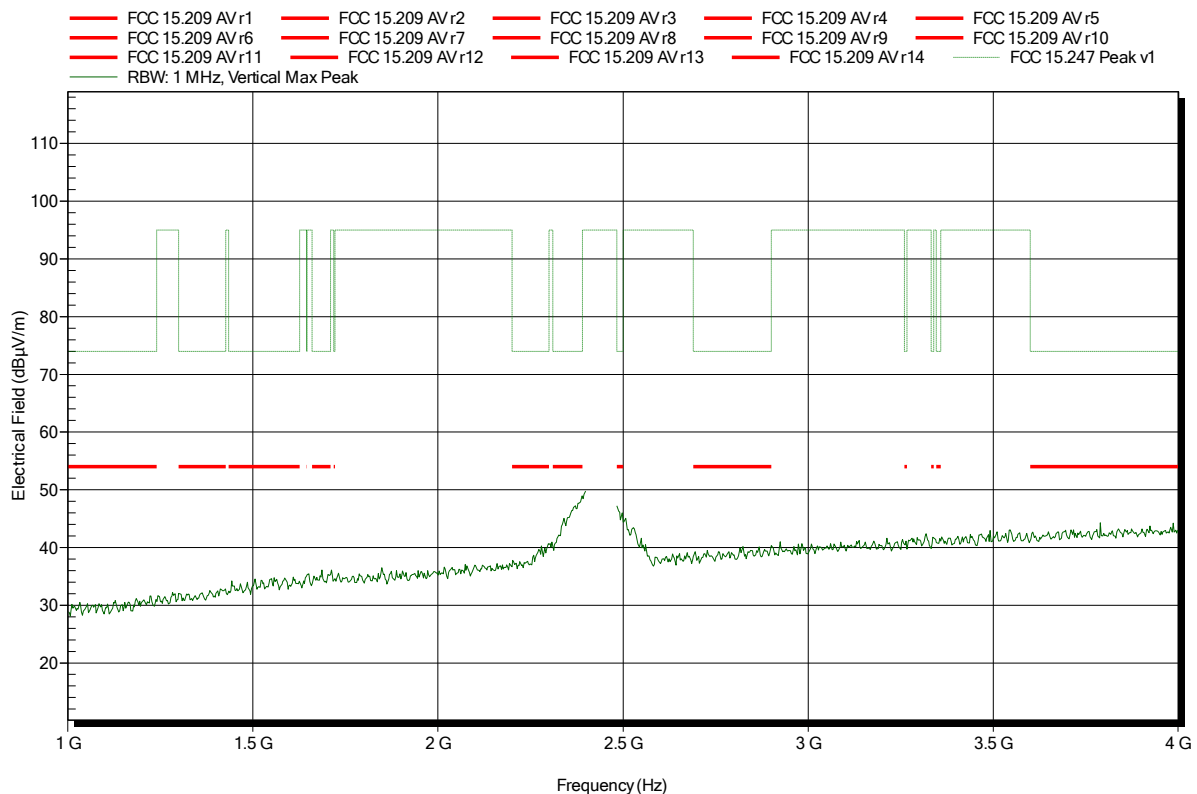
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.324 GHz	53.84 dBµV/m	74 dBµV/m	-20.16 dB	Pass
2.39 GHz	64.72 dBµV/m	74 dBµV/m	-9.28 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.324 GHz	28.46 dBµV/m	54 dBµV/m	-25.54 dB	Pass
2.39 GHz	34.9 dBµV/m	54 dBµV/m	-19.1 dB	Pass

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

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Vertical  
 Measurement distance: 3 m  
 Mode: TX; BT-LE; CH: 19; 2440 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-05  
 Note: EUT vertical

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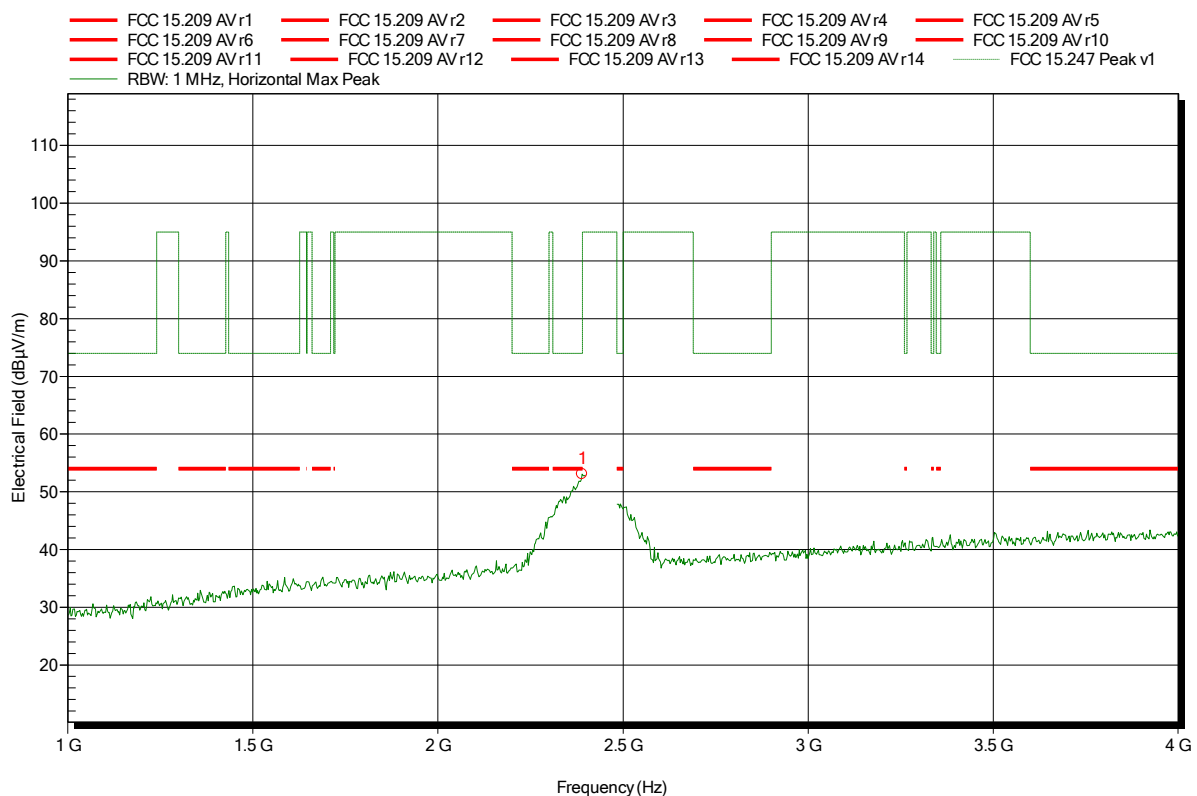


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; BT-LE; CH: 19; 2440 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-05  
 Note: EUT vertical

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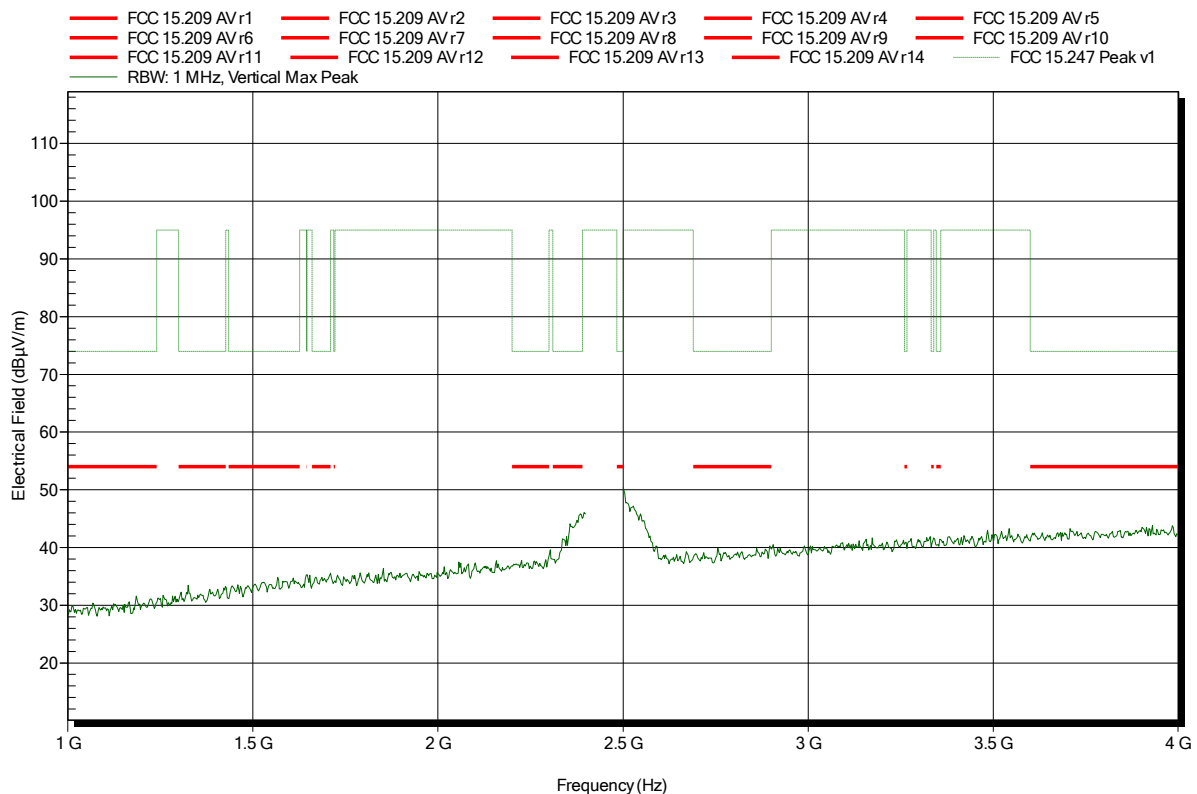
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.39 GHz	53.05 dBµV/m	74 dBµV/m	-20.95 dB	Pass

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

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Vertical  
 Measurement distance: 3 m  
 Mode: TX; BT-LE; CH: 39; 2480 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-02  
 Note: EUT vertical

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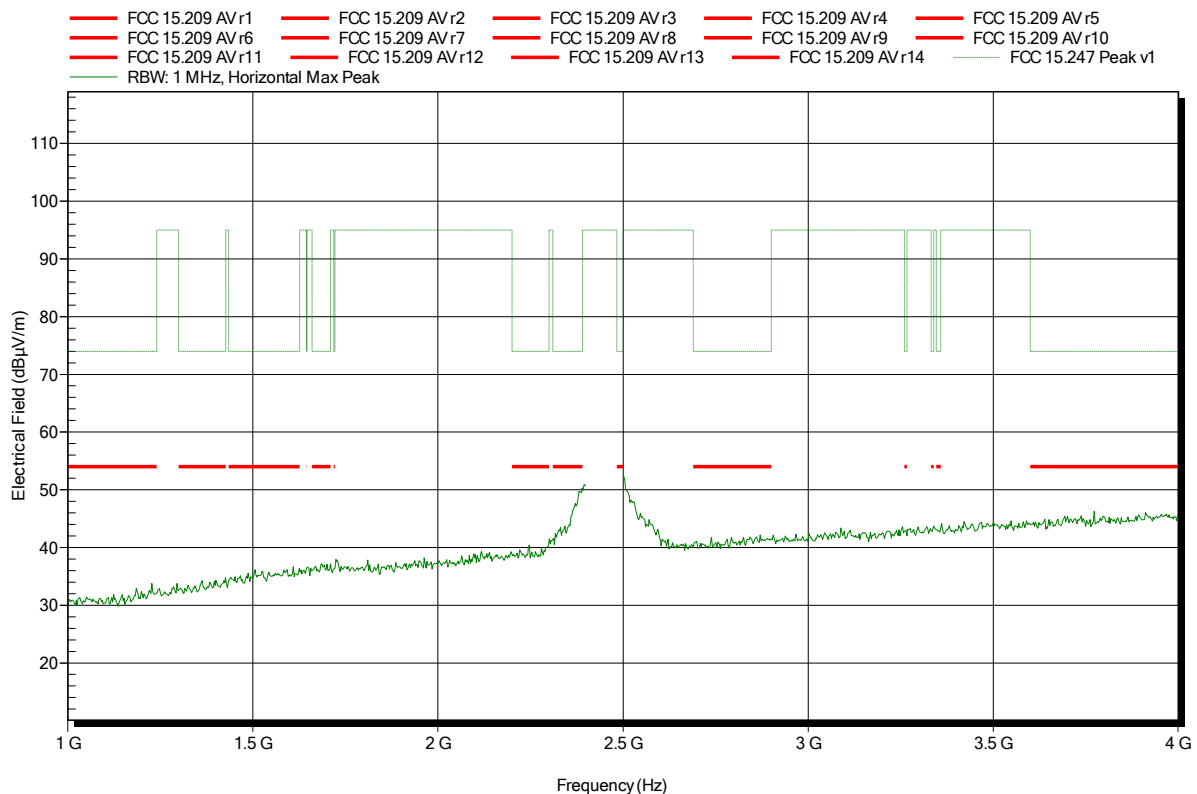


**Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247**

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; BT-LE; CH: 39; 2480 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-02  
 Note: EUT vertical

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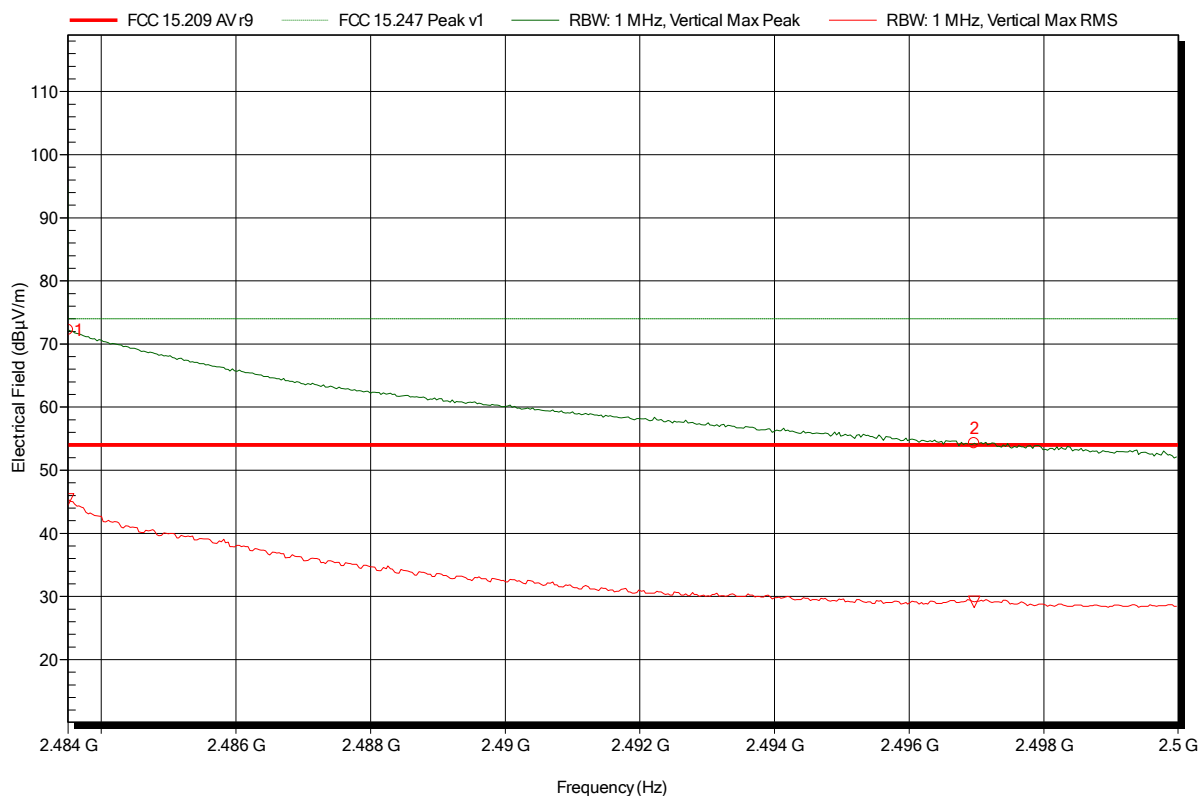


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Vertical  
 Measurement distance: 3 m  
 Mode: TX; BT-LE; CH: 39; 2480 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-05  
 Note: EUT vertical; higher bandedge

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.484 GHz	72.25 dBµV/m	74 dBµV/m	-1.75 dB	Pass
2.497 GHz	54.28 dBµV/m	74 dBµV/m	-19.72 dB	Pass

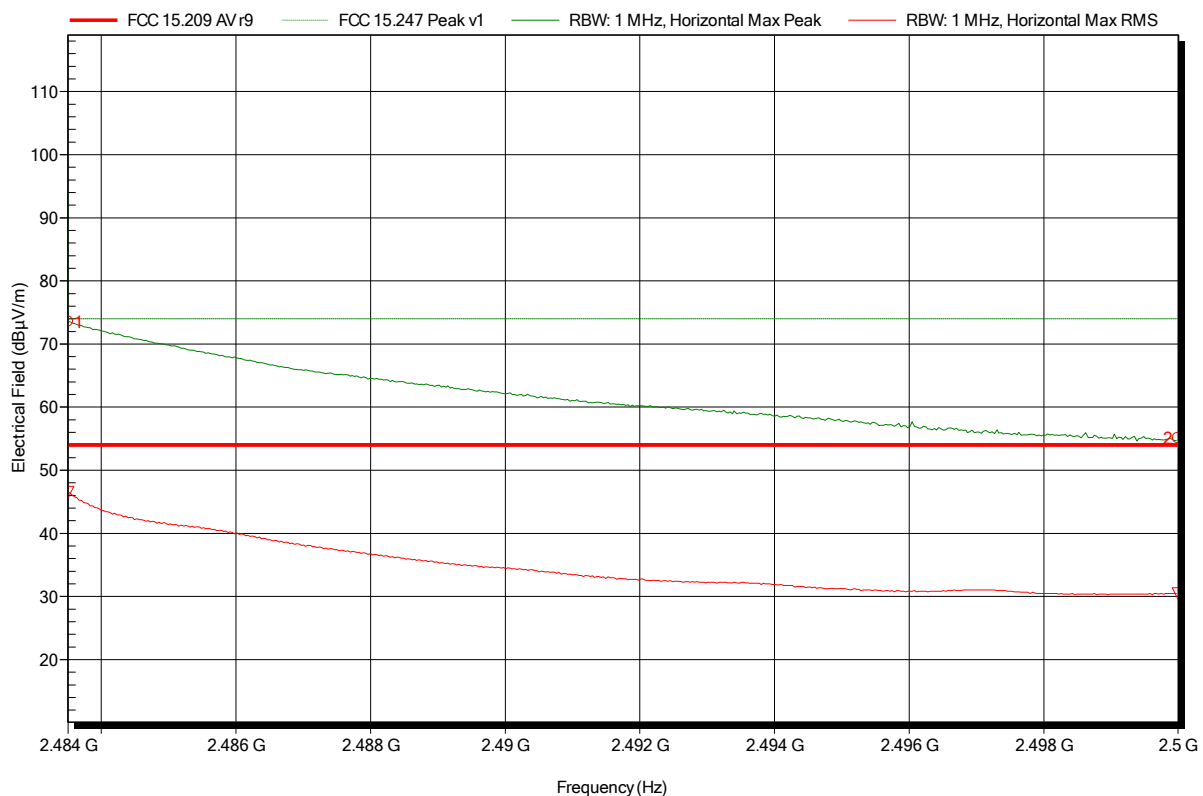
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.484 GHz	45.37 dBµV/m	54 dBµV/m	-8.63 dB	Pass
2.497 GHz	29.14 dBµV/m	54 dBµV/m	-24.86 dB	Pass

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

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; BT-LE; CH: 39; 2480 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-05  
 Note: EUT vertical; higher bandedge

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.484 GHz	73.57 dBµV/m	74 dBµV/m	-0.43 dB	Pass
2.5 GHz	55.09 dBµV/m	74 dBµV/m	-18.91 dB	Pass

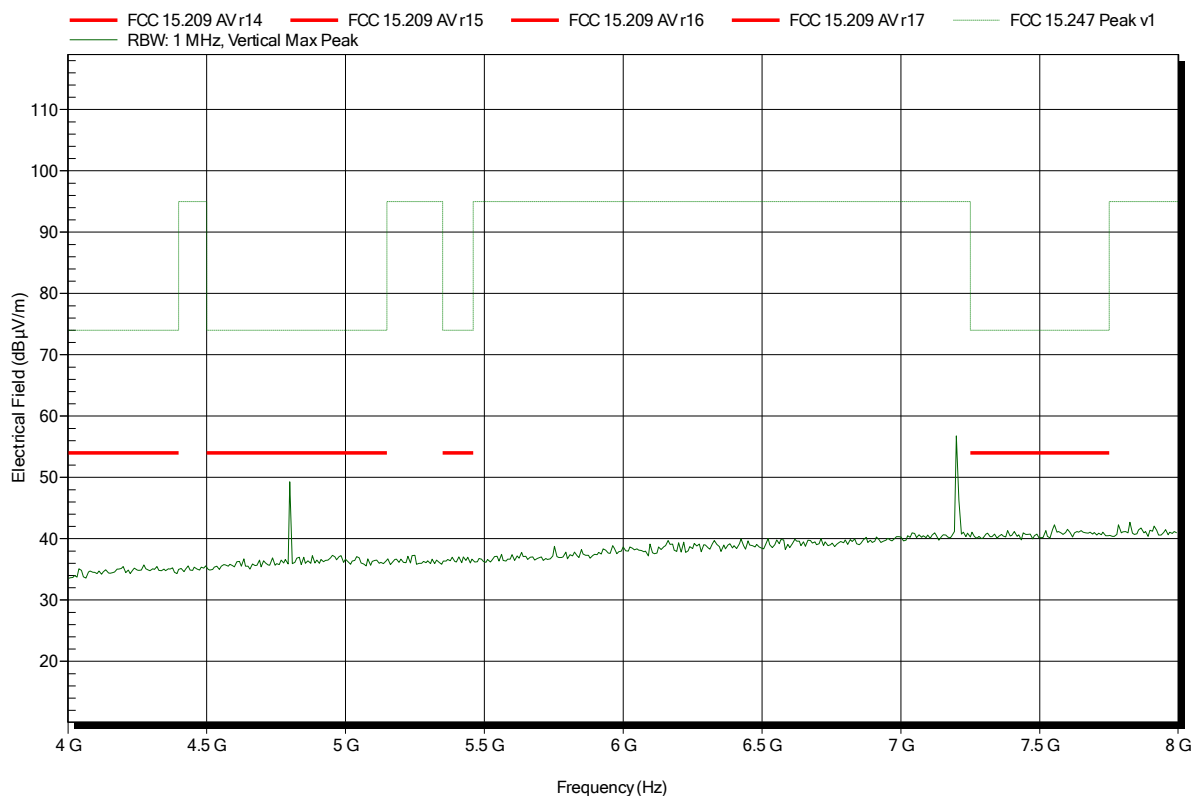
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.484 GHz	46.53 dBµV/m	54 dBµV/m	-7.47 dB	Pass
2.5 GHz	30.46 dBµV/m	54 dBµV/m	-23.54 dB	Pass

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

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 0; 2402 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-05  
 Note: EUT vertical

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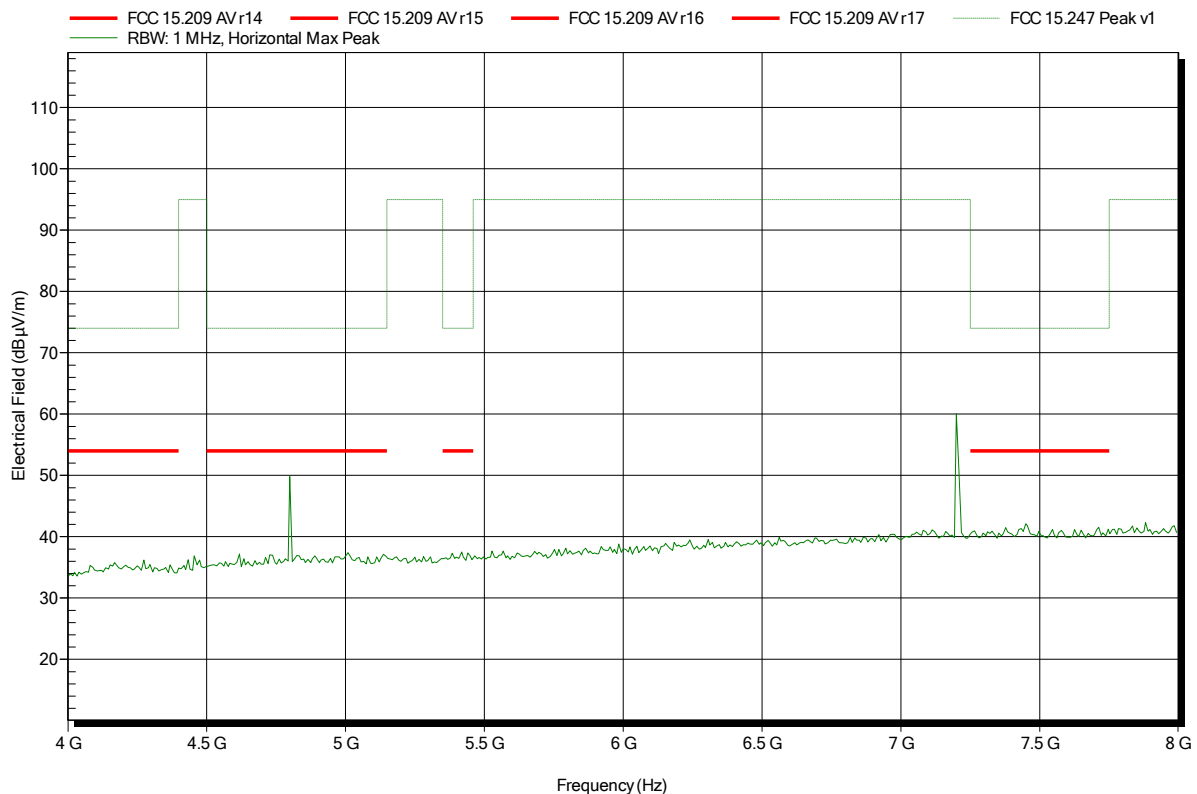


**Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247**

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 0; 2402 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-05  
 Note: EUT vertical

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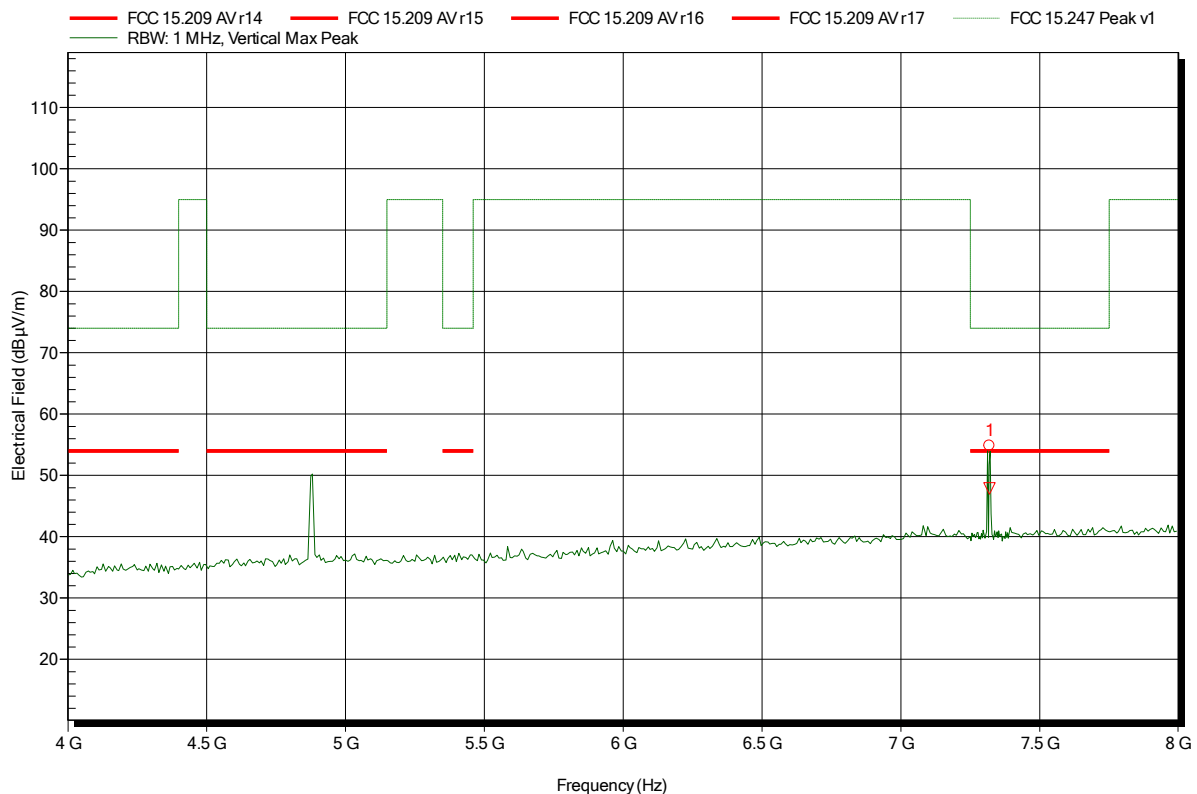


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 19; 2440 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-06  
 Note: EUT vertical

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Frequency 7.319 GHz	Peak 54.86 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -19.14 dB	Peak Status Pass
Frequency 7.319 GHz	RMS 47.85 dBµV/m	RMS Limit 54 dBµV/m	RMS Difference -6.15 dB	RMS Status Pass

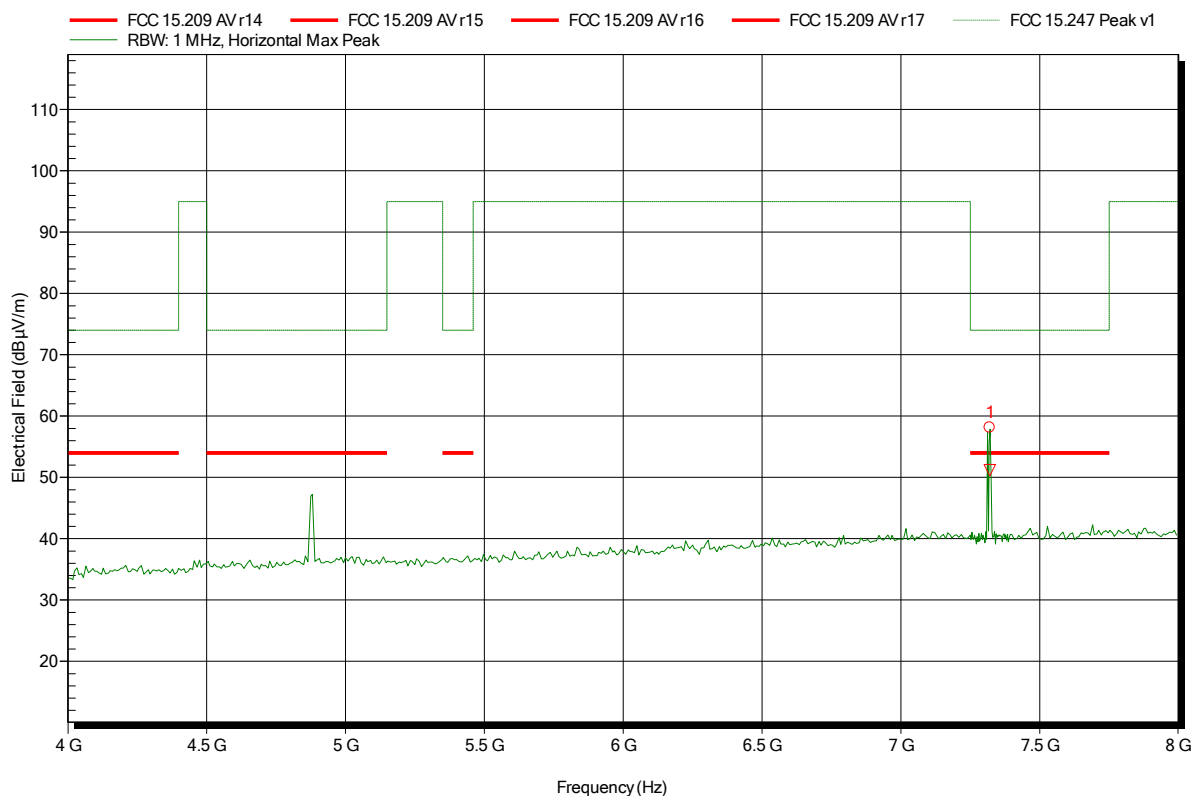


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 19; 2440 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-06  
 Note: EUT vertical

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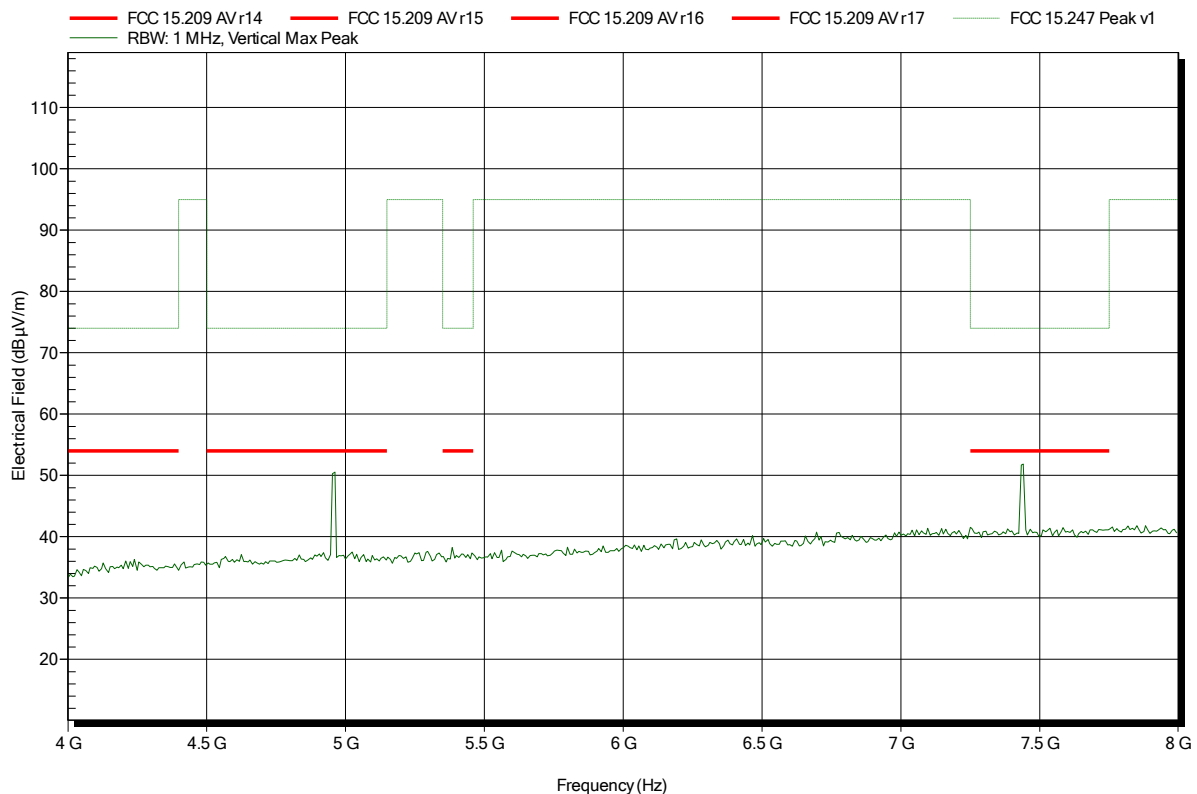
Frequency 7.321 GHz	Peak 58.16 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -15.84 dB	Peak Status Pass
Frequency 7.321 GHz	RMS 51.17 dBµV/m	RMS Limit 54 dBµV/m	RMS Difference -2.83 dB	RMS Status Pass

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

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 39; 2480 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-02  
 Note: EUT vertical

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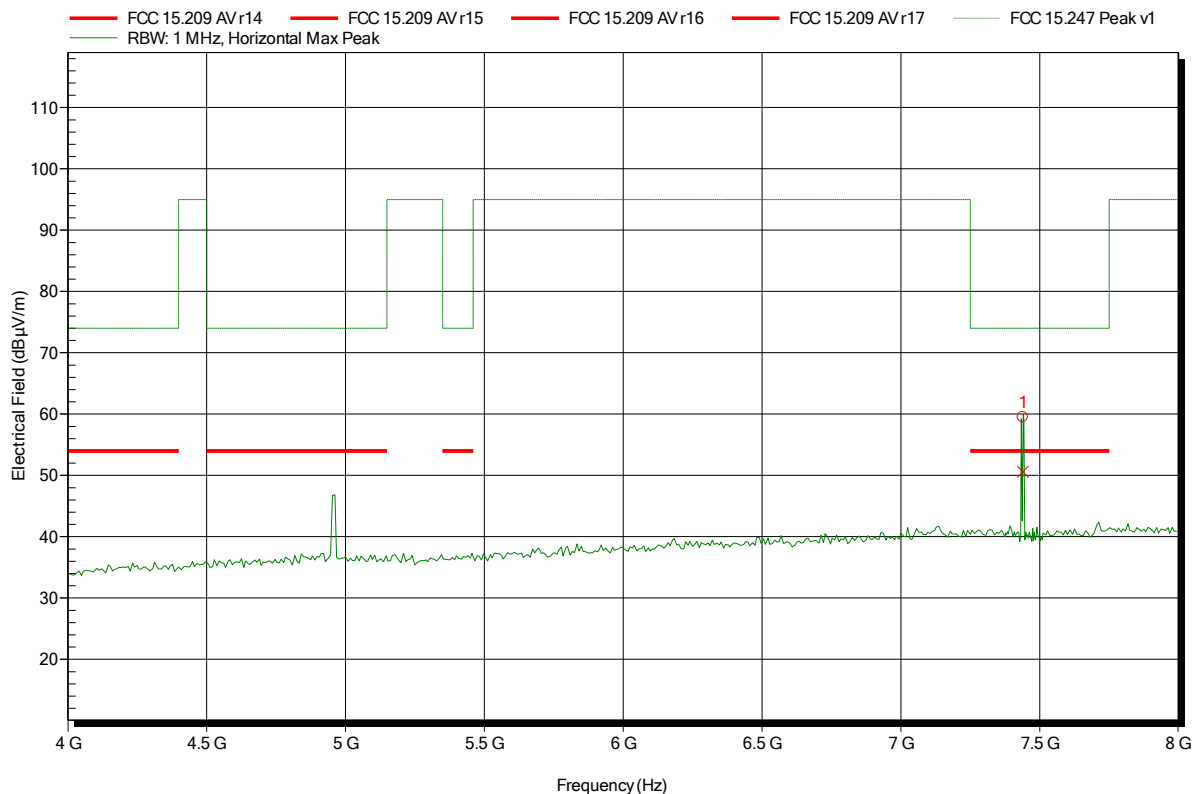


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 39; 2480 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-02  
 Note: EUT vertical

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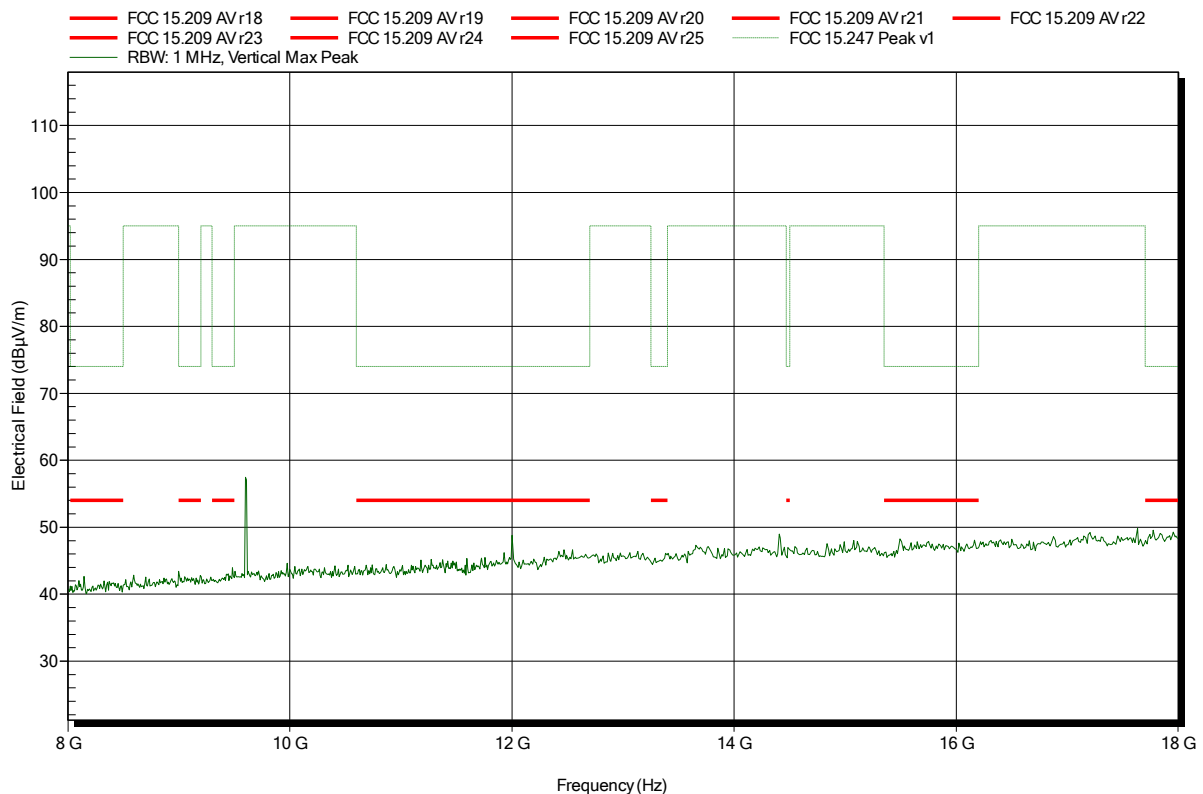
Frequency 7.439 GHz	Peak 59.48 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -14.52 dB	Peak Status Pass
Frequency 7.439 GHz	RMS 50.62 dBµV/m	RMS Limit 54 dBµV/m	RMS Difference -3.38 dB	RMS Status Pass

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

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 0; 2402 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-05  
 Note: EUT vertical

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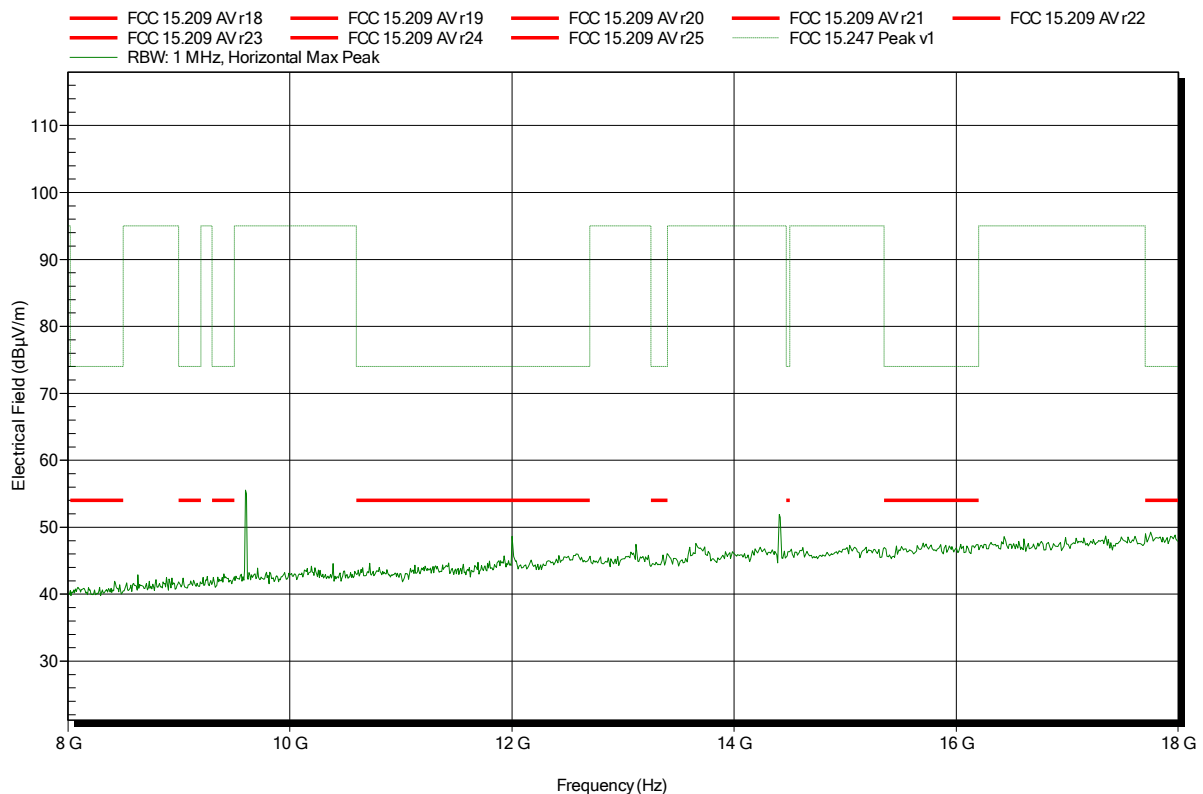


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 0; 2402 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-05  
 Note: EUT vertical

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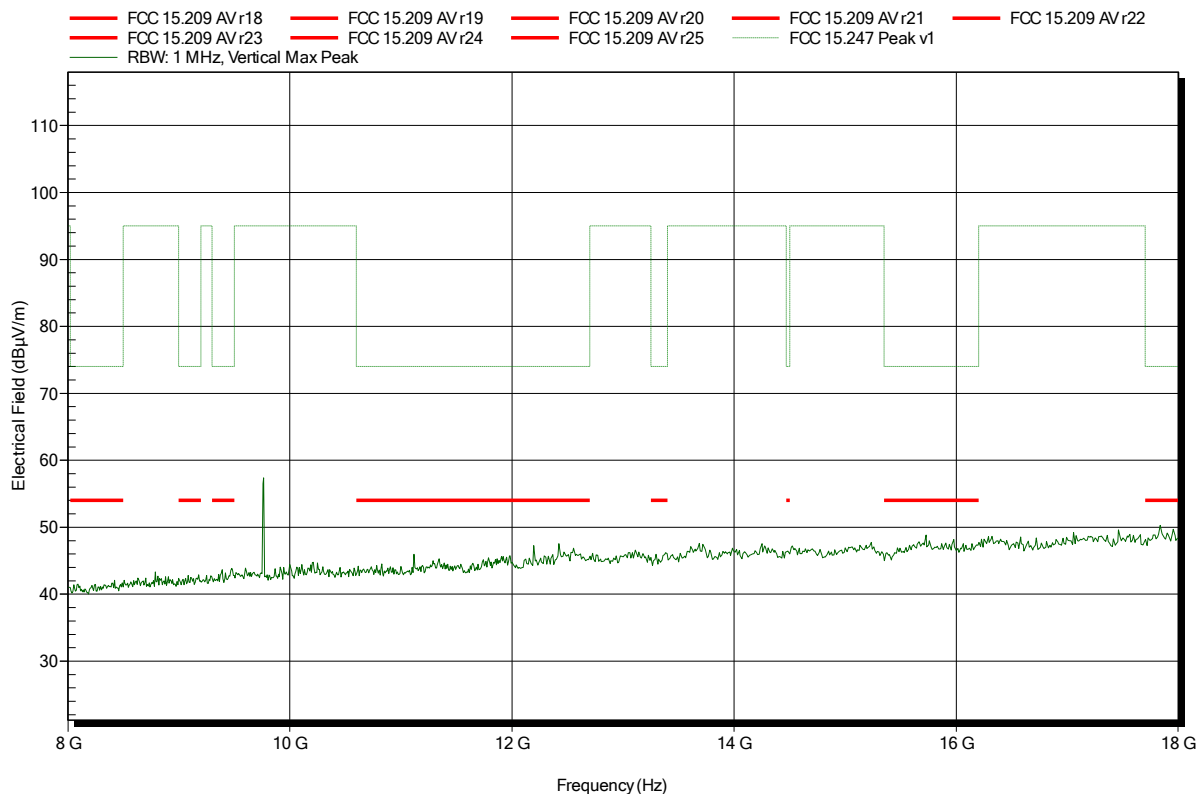


**Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247**

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 19; 2440 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-06  
 Note: EUT vertical

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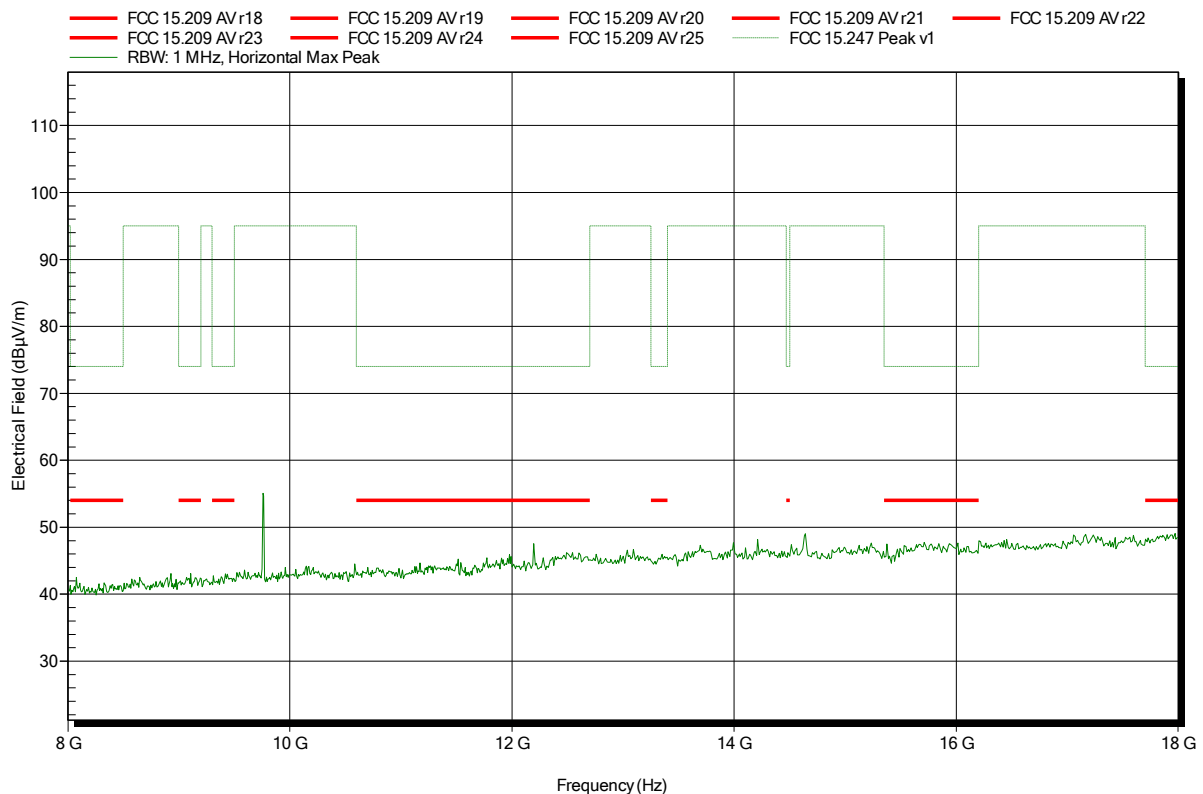


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 19; 2440 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-06  
 Note: EUT vertical

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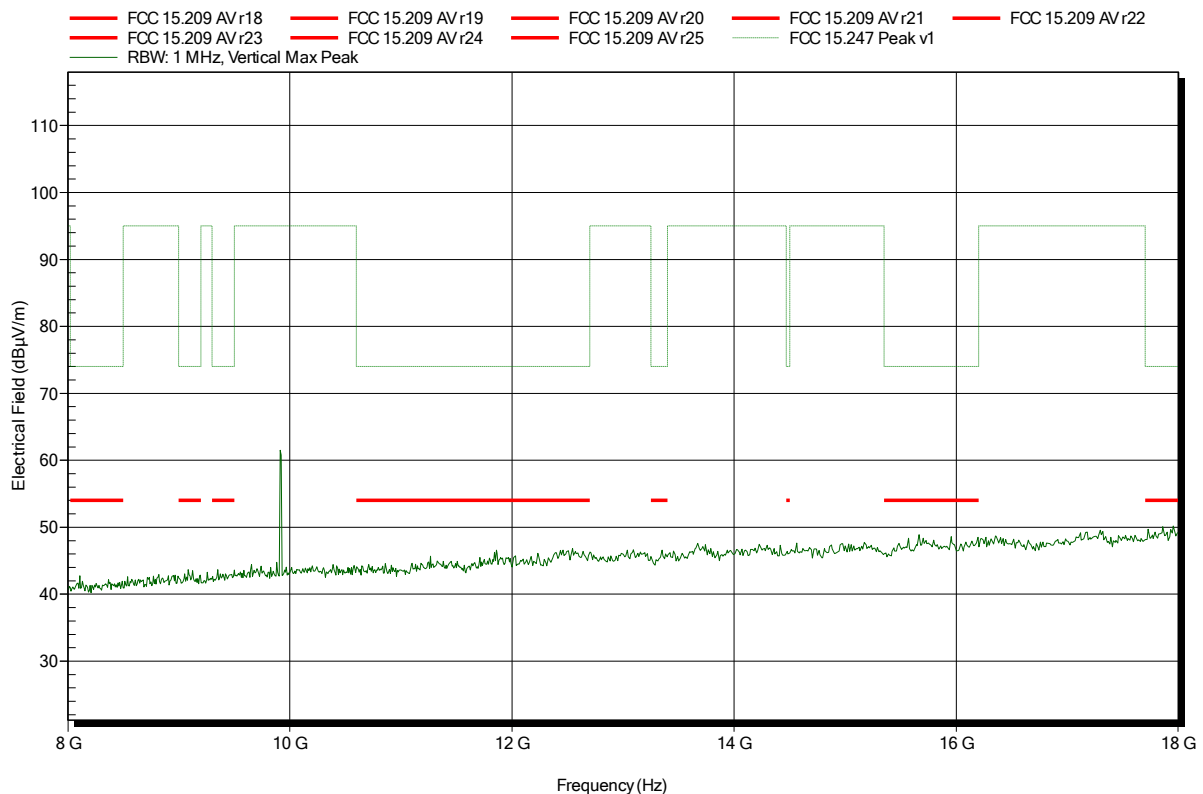


**Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247**

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 39; 2480 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-02  
 Note: EUT vertical

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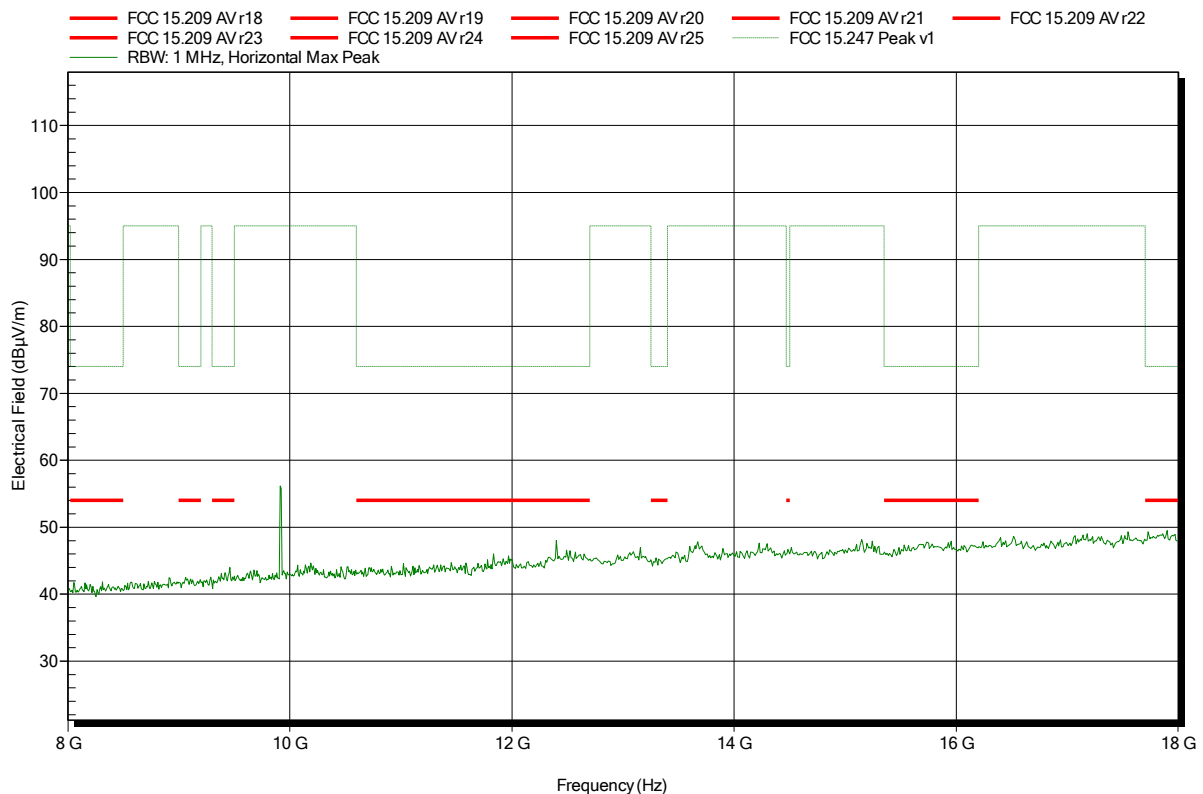


**Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247**

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 39; 2480 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-02  
 Note: EUT vertical

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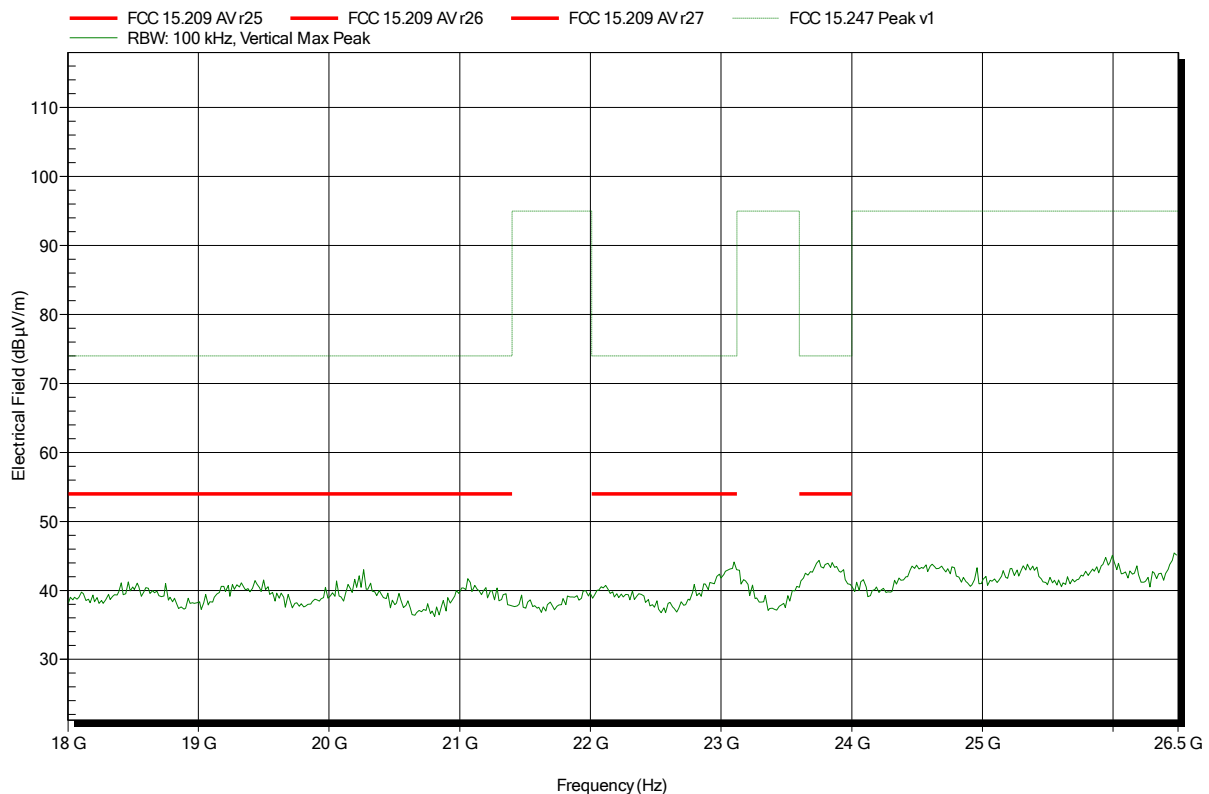


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 0; 2402 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-05  
 Note: EUT vertical

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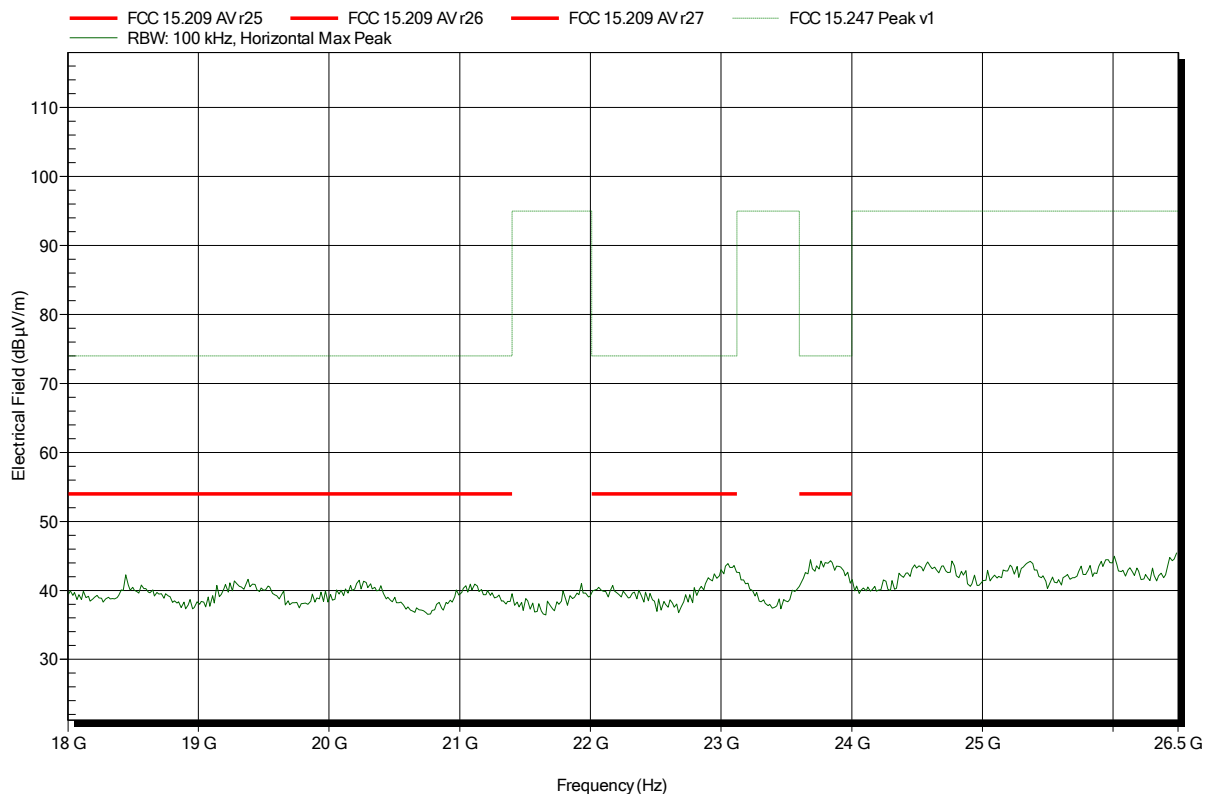


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 0; 2402 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-05  
 Note: EUT vertical

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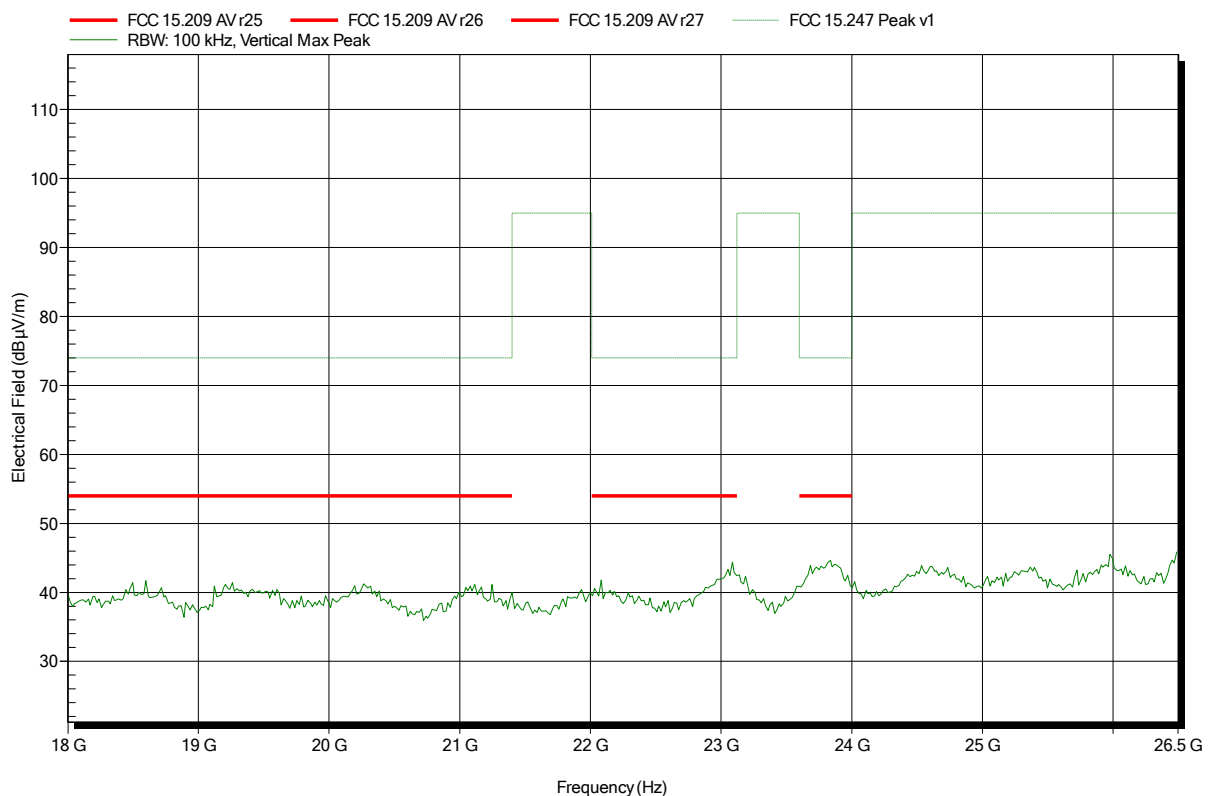


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 19; 2440 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-06  
 Note: EUT vertical

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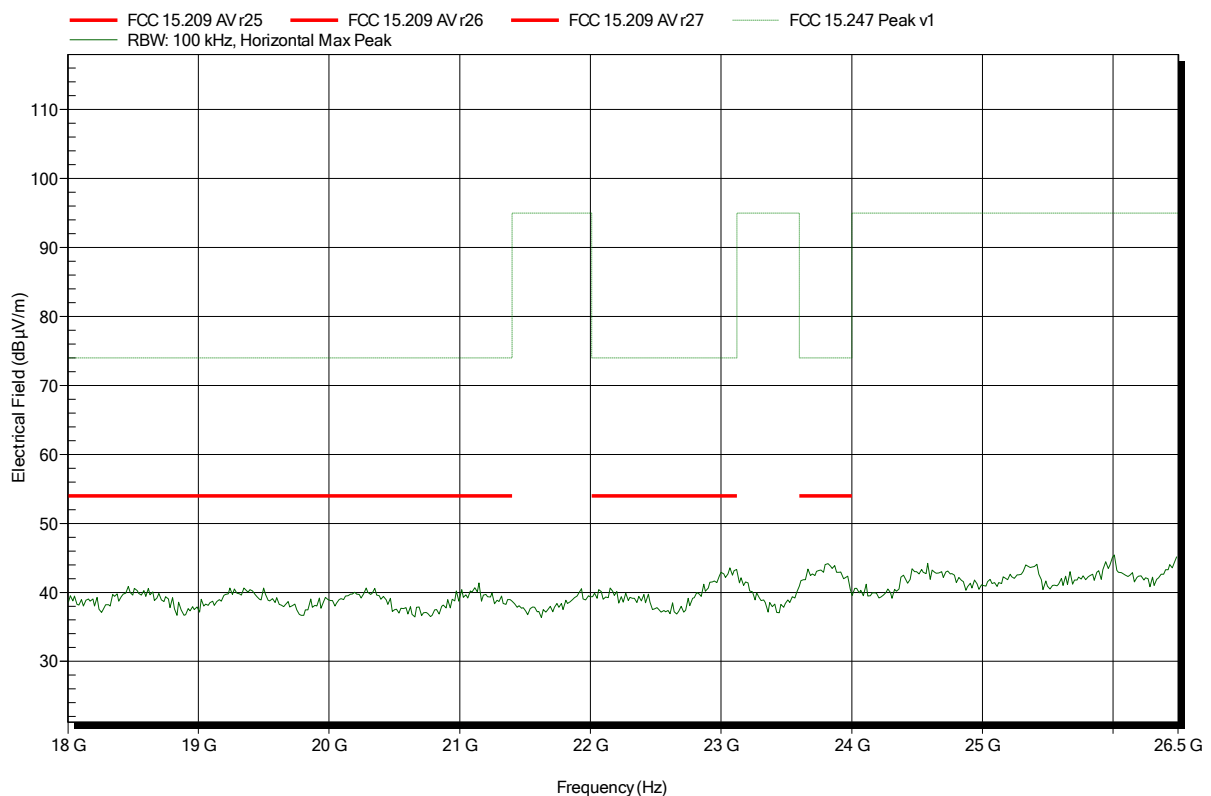


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 19; 2440 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-06  
 Note: EUT vertical

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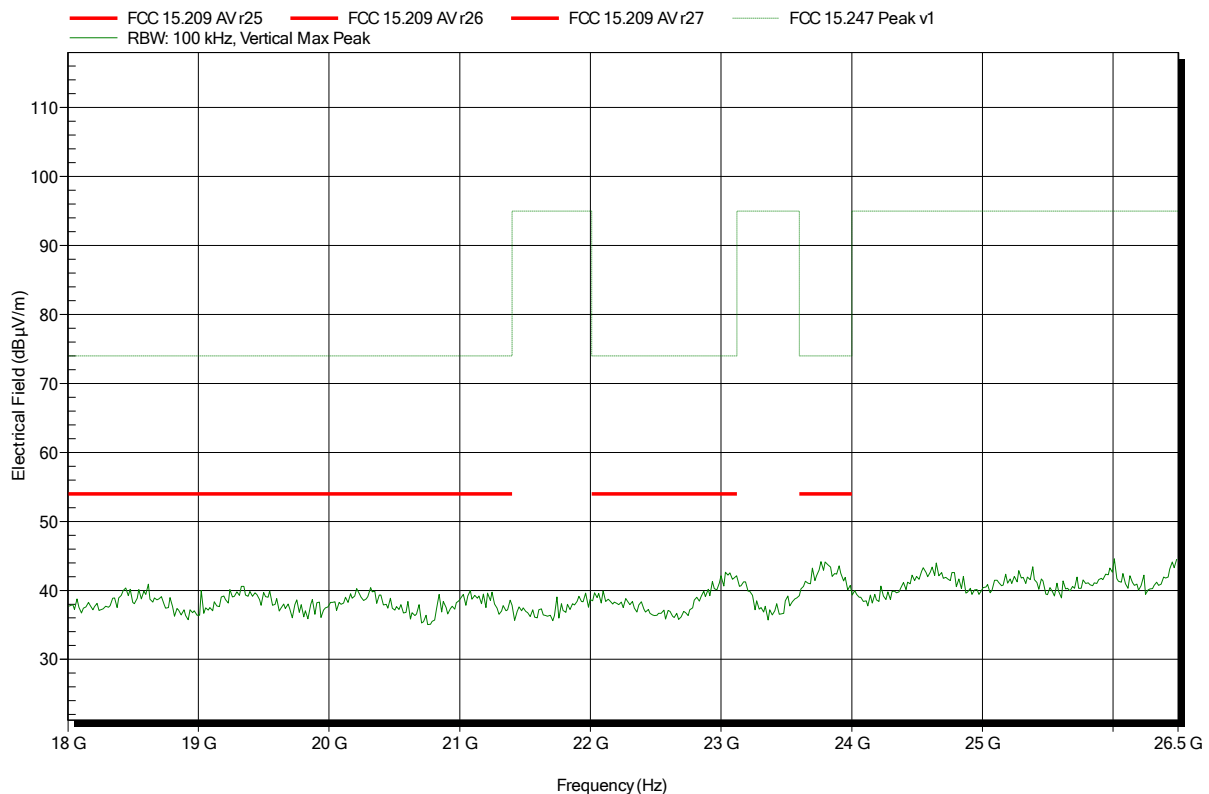


## Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; BT-LE; CH: 39; 2480 MHz; TX\_Testmode; GFSK  
 Test Date: 2015-10-02  
 Note: EUT vertical

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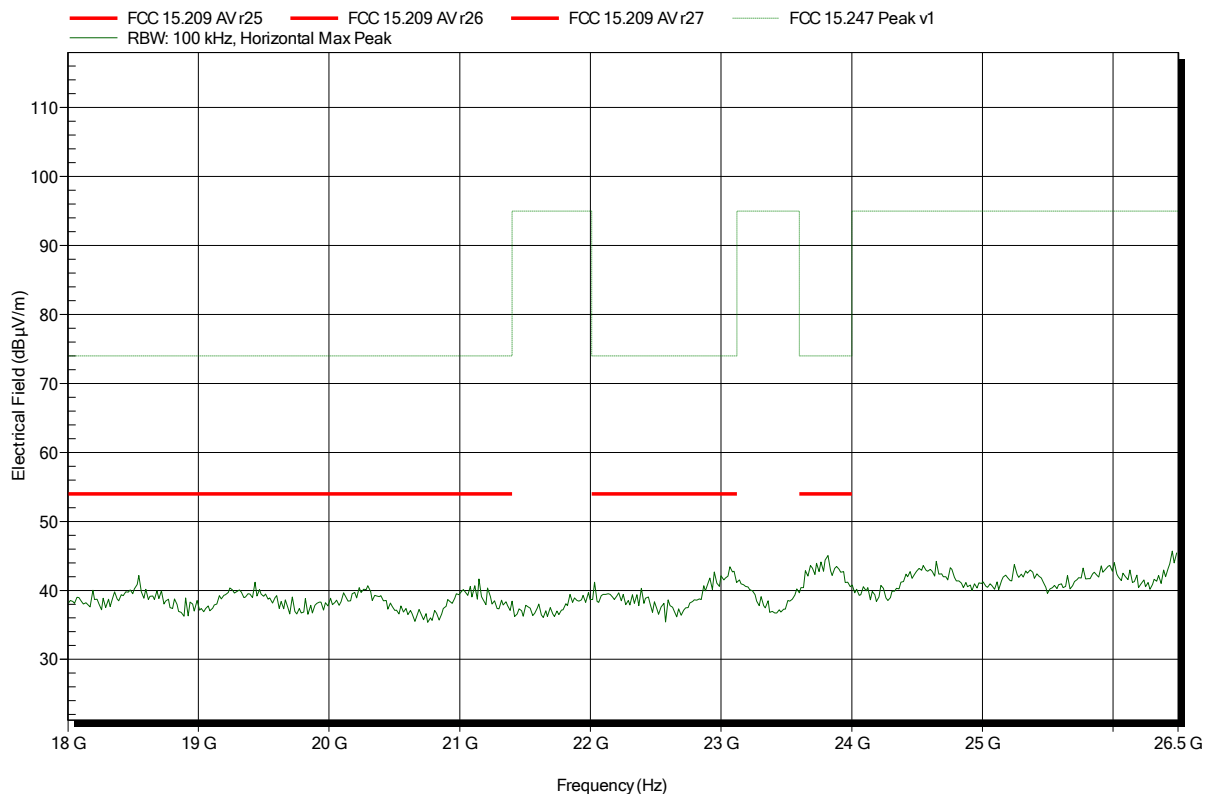


**Spurious emissions according to FCC part 15 Subpart C § 15.247, IC RSS-247**

Project number: G0M-1506-4852

Applicant:	BEACONinside GmbH
EUT Name:	Bluetooth low energy transceiver
Model:	B0002-A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 39; 2480 MHz; TX_Testmode; GFSK
Test Date:	2015-10-02
Note:	EUT vertical

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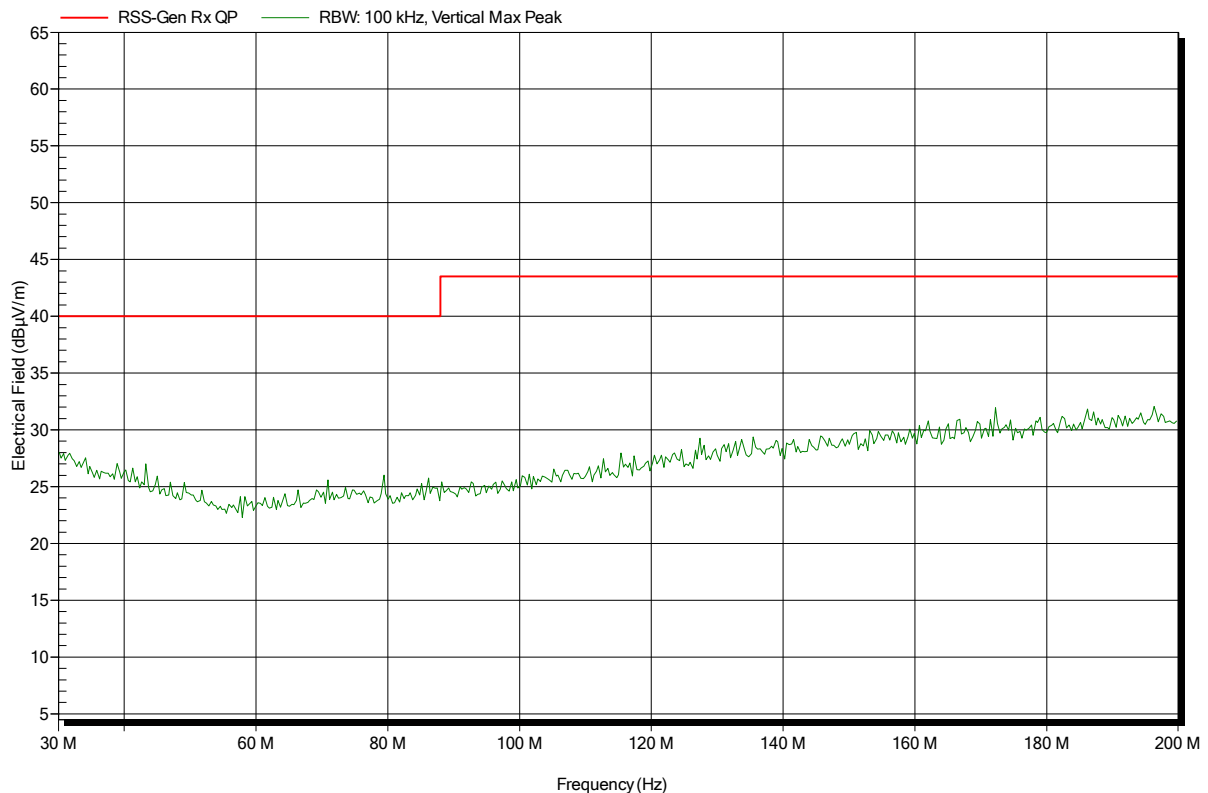
## ANNEX B Receiver radiated spurious emissions

### Spurious emissions according to IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HK 116, Vertical  
 Measurement distance: 3 m  
 Mode: RX; BT-LE; CH: 19; 2440 MHz; RX\_Testmode  
 Test Date: 2015-10-01  
 Note: EUT vertical

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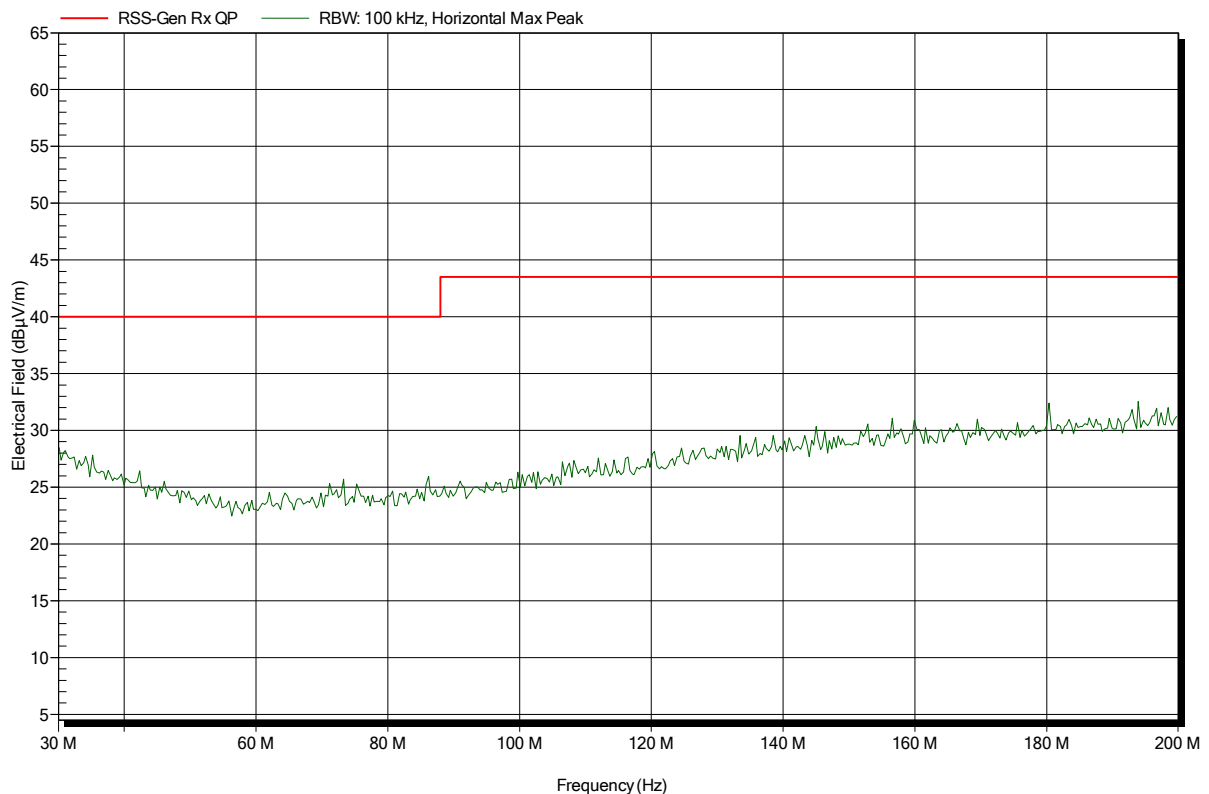


## Spurious emissions according to IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HK 116, Horizontal  
 Measurement distance: 3 m  
 Mode: RX; BT-LE; CH: 19; 2440 MHz; RX\_Testmode  
 Test Date: 2015-10-01  
 Note: EUT vertical

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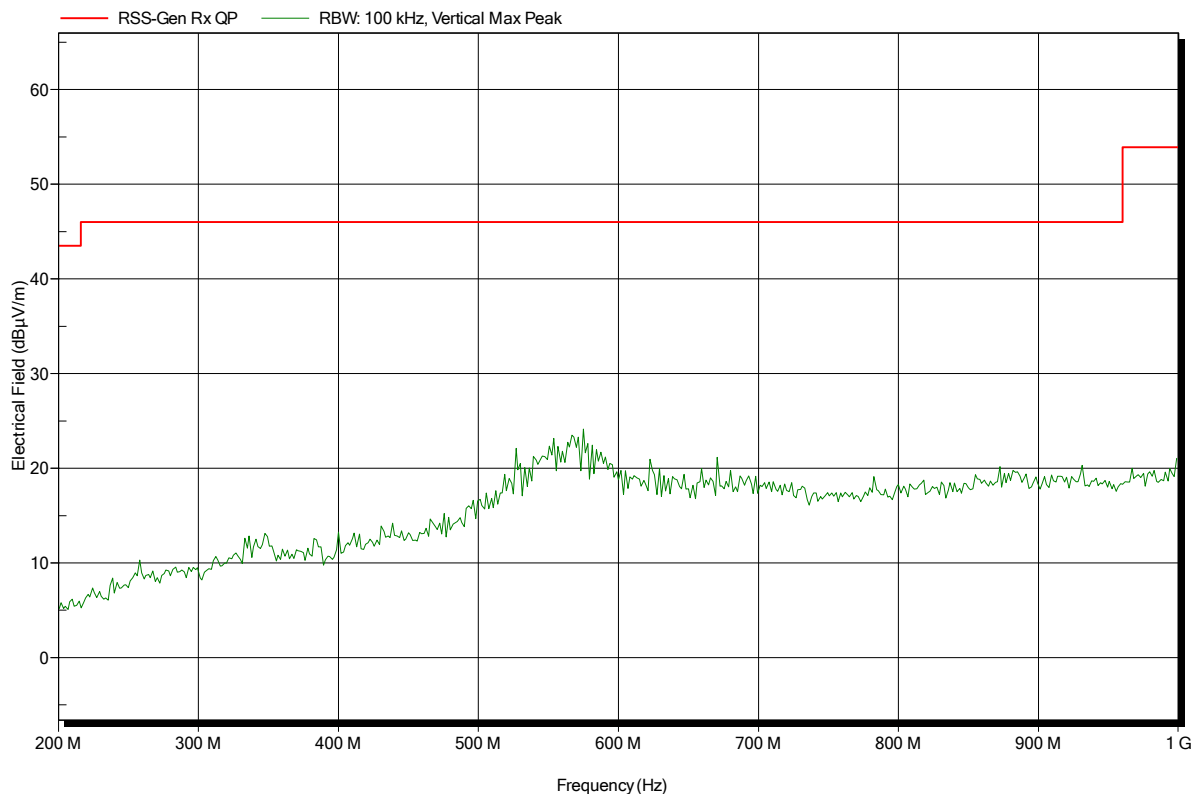


## Spurious emissions according to IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 223, Vertical  
 Measurement distance: 3 m  
 Mode: RX; BT-LE; CH: 19; 2440 MHz; RX\_Testmode  
 Test Date: 2015-10-02  
 Note: EUT vertical

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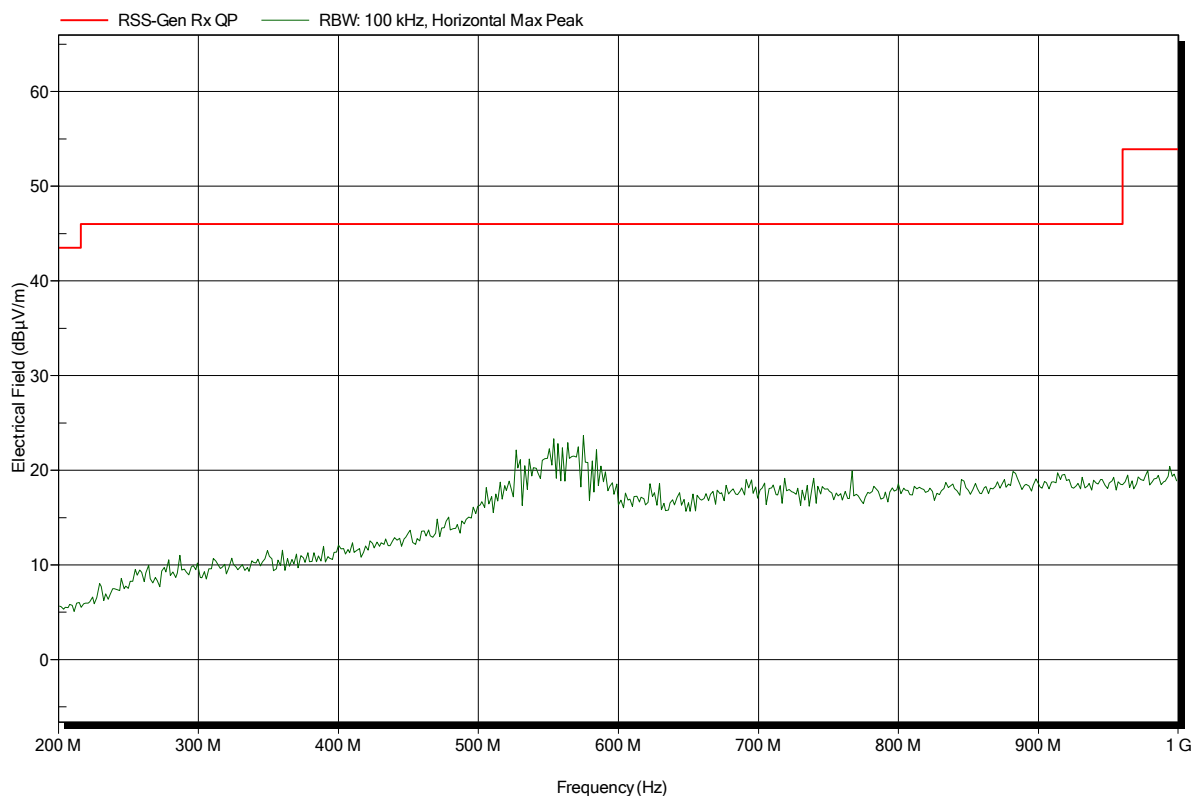


## Spurious emissions according to IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 223, Horizontal  
 Measurement distance: 3 m  
 Mode: RX; BT-LE; CH: 19; 2440 MHz; RX\_Testmode  
 Test Date: 2015-10-02  
 Note: EUT vertical

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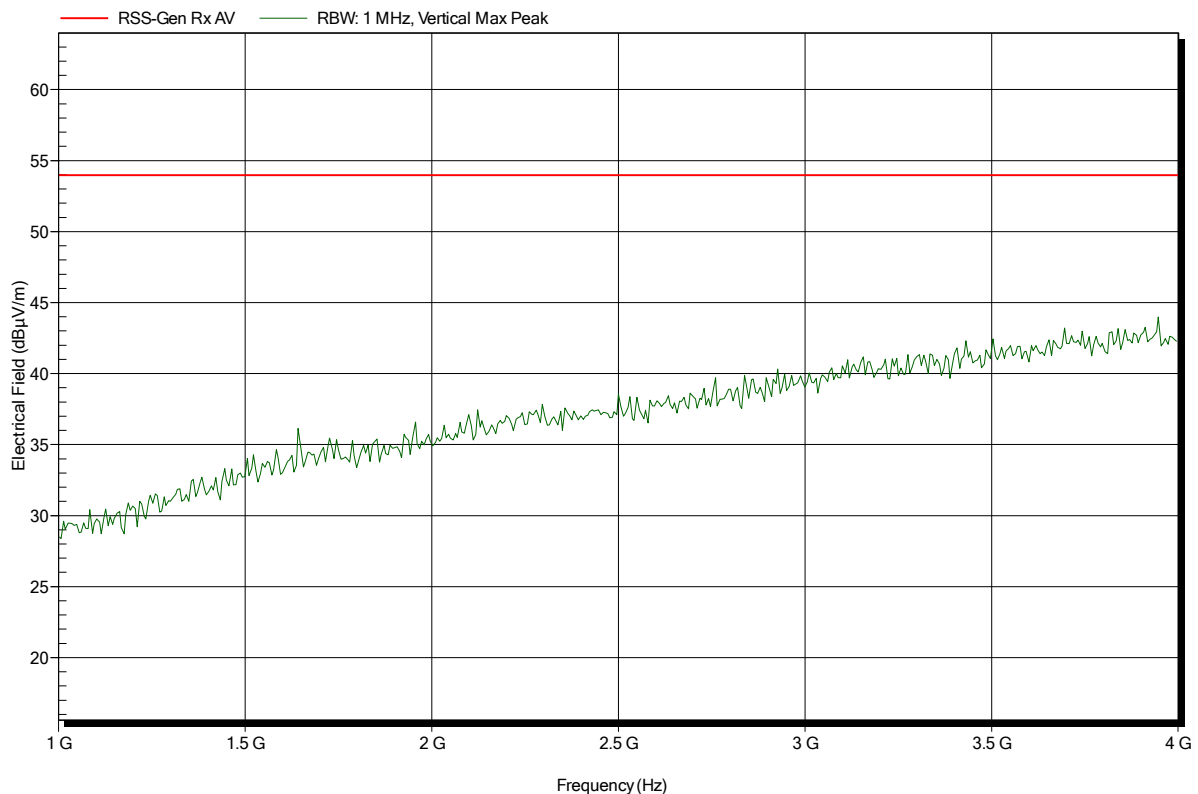


**Spurious emissions according to IC RSS-247**

Project number: G0M-1506-4852

Applicant:	BEACONinside GmbH
EUT Name:	Bluetooth low energy transceiver
Model:	B0002-A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.0 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	RX; BT-LE; CH: 19; 2440 MHz; RX_Testmode
Test Date:	2015-10-01
Note:	EUT vertical

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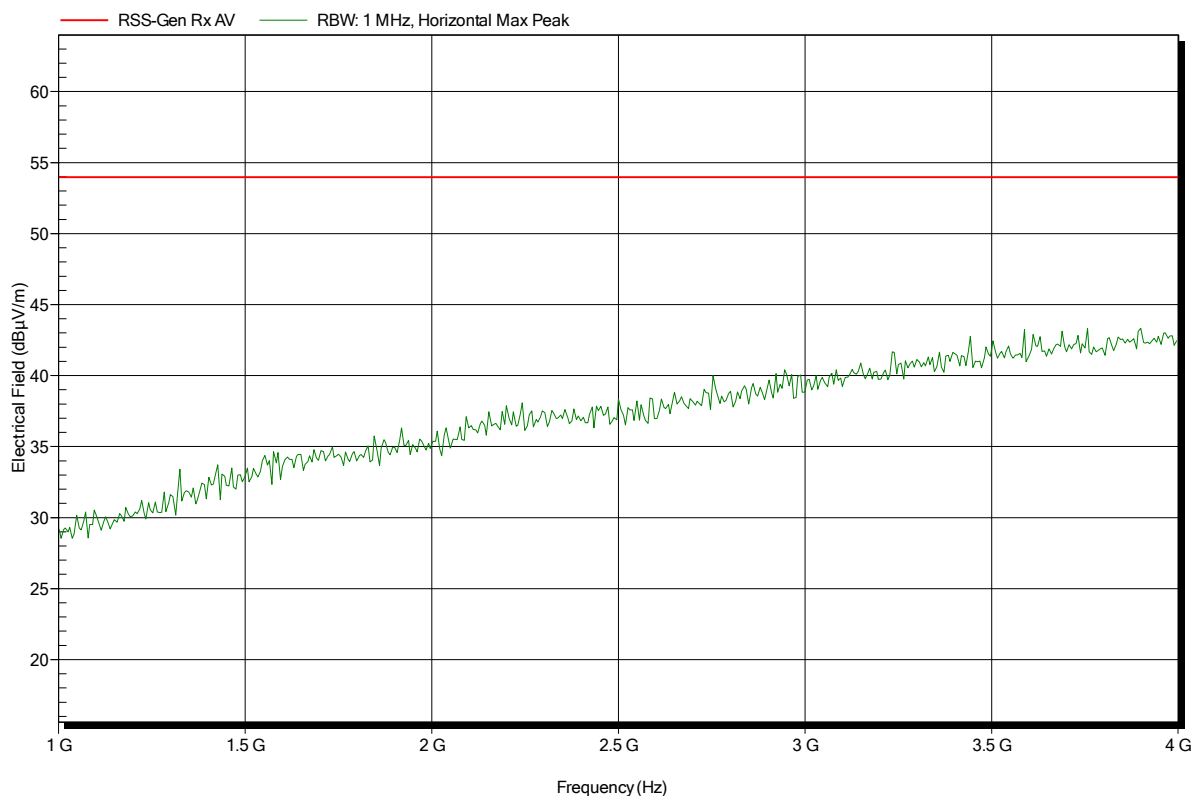


## Spurious emissions according to IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Horizontal  
 Measurement distance: 3 m  
 Mode: RX; BT-LE; CH: 19; 2440 MHz; RX\_Testmode  
 Test Date: 2015-10-01  
 Note: EUT vertical

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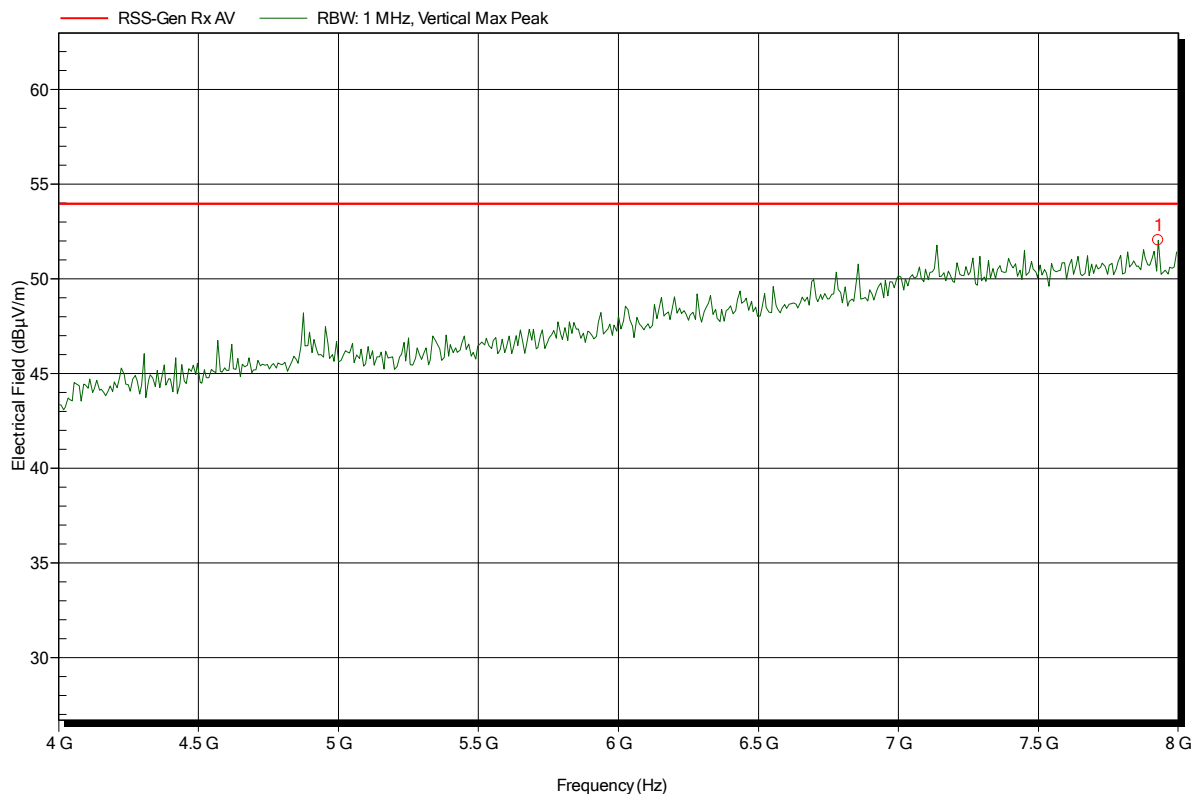


**Spurious emissions according to IC RSS-247**

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Vertical  
 Measurement distance: 3 m  
 Mode: RX; BT-LE; CH: 19; 2440 MHz; RX\_Testmode  
 Test Date: 2015-10-06  
 Note: EUT vertical

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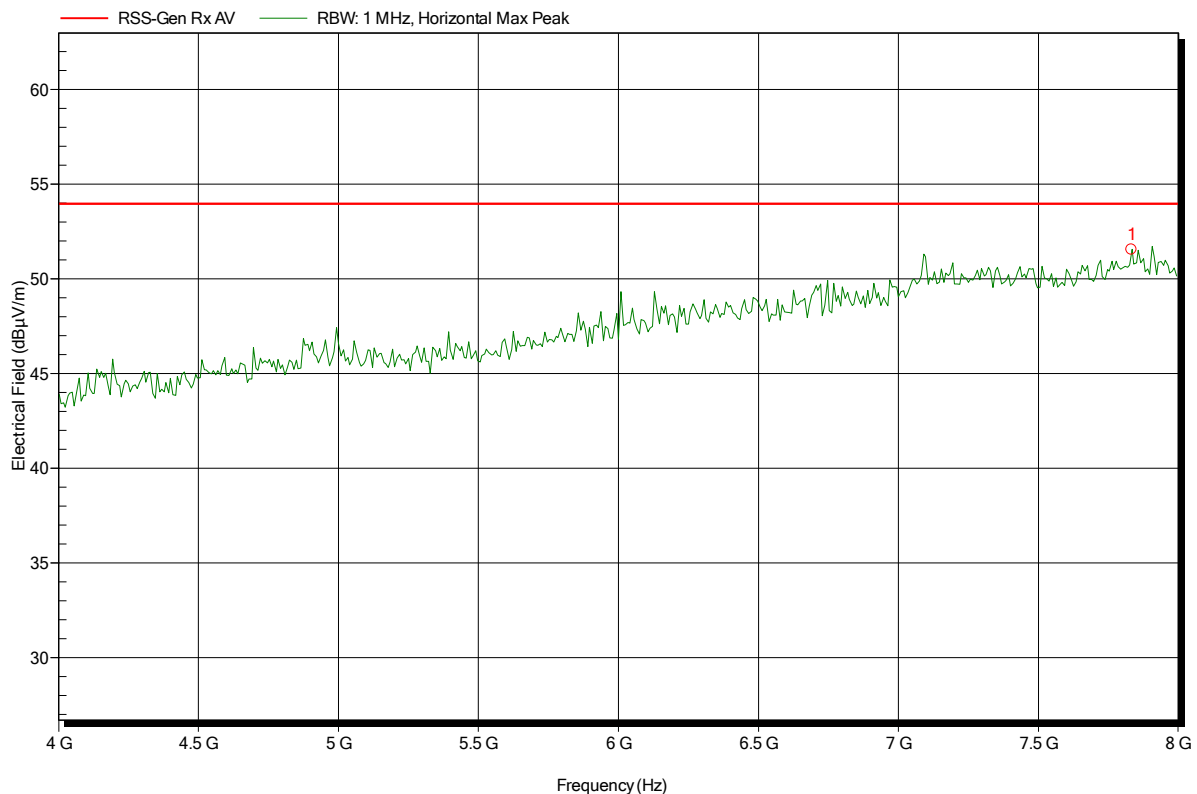
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.928 GHz	52.04 dBµV/m	53.98 dBµV/m	-1.94 dB	Pass

## Spurious emissions according to IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Horizontal  
 Measurement distance: 3 m  
 Mode: RX; BT-LE; CH: 19; 2440 MHz; RX\_Testmode  
 Test Date: 2015-10-06  
 Note: EUT vertical

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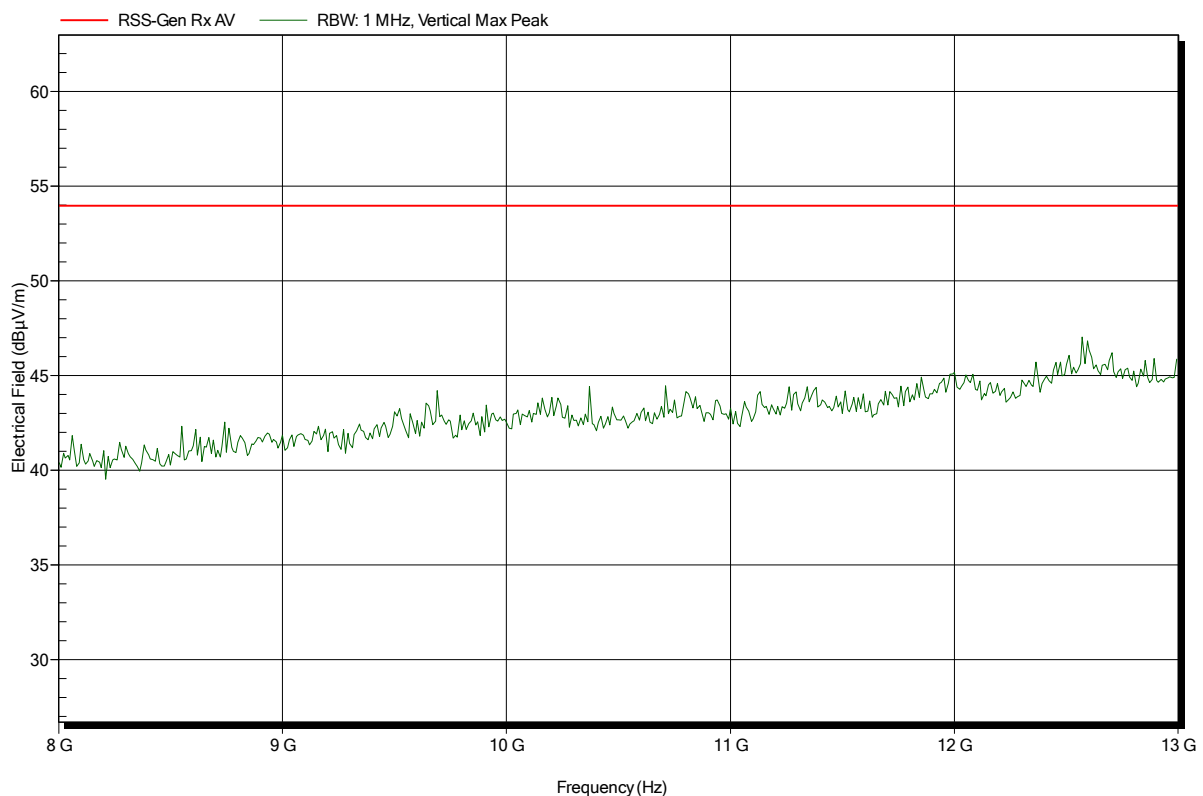
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.832 GHz	51.55 dBµV/m	53.98 dBµV/m	-2.43 dB	Pass

## Spurious emissions according to IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: RX; BT-LE; CH: 19; 2440 MHz; RX\_Testmode  
 Test Date: 2015-10-01  
 Note: EUT vertical

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## Spurious emissions according to IC RSS-247

Project number: G0M-1506-4852

Applicant: BEACONinside GmbH  
 EUT Name: Bluetooth low energy transceiver  
 Model: B0002-A  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Pudell  
 Test Conditions: Tnom: 24°C, Vnom: 3.0 V DC  
 Antenna: Rohde & Schwarz HL 025, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: RX; BT-LE; CH: 19; 2440 MHz; RX\_Testmode  
 Test Date: 2015-10-01  
 Note: EUT vertical

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