eurofins | Product Service

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-1604-5541-TFC247BL-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 ..... :	Phoenix Contact GmbH & Co.KG
Address ..... :	Flachsmarktstrasse 8 32825 Blomberg Germany
Test specification:	
Standard..... :	47 CFR Part 15C RSS-247, Issue 1, 2015-05
Test scope…….. ..... :	partial Radio compliance test
Equipment under test (EUT):	
Product description	Programming and Maintenance Interface with Bluetooth
Model No.	IFS-BT-PROG-ADAPTER
Additional Model(s)	None
Brand Name(s)	None
Hardware version	02
Firmware / Software version	V1.0
	FCC-ID: YG3-IFSPROG IC: 4720B-IFSPROG
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 ..... : 2016-06-17

Date (s) of performance of tests ..... : 2016-06-17

Compiled by ..... : Burkhard Pudell

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

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

Date of issue ..... : 2016-09-20

Total number of pages ..... : 77

General remarks:

The test results presented in this report relate only to the object tested.
The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

Additional comments:

Version History

Version	Issue Date	Remarks	Revised by
01	2016-09-20	Initial Release	

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

REPORT INDEX

1	**EQUIPMENT (TEST ITEM) DESCRIPTION**	**5**
1.1	Photos – Equipment External	7
1.2	Photos – Equipment internal	10
1.3	Photos – Test setup	11
1.4	Supporting Equipment Used During Testing	12
1.5	Test Modes	13
1.6	Test Equipment Used During Testing	14
1.7	Sample emission level calculation	15
2	**RESULT SUMMARY**	**16**
3	**TEST CONDITIONS AND RESULTS**	**17**
3.1	Test Conditions and Results – Occupied Bandwidth	17
3.3	Test Conditions and Results – AC power line conducted emissions	21
3.5	Test Conditions and Results – Transmitter radiated emissions	24
3.6	Test Conditions and Results – Receiver radiated emissions	26
ANNEX A	Transmitter radiated spurious emissions	28
ANNEX B	Receiver radiated spurious emissions	68

1 Equipment (Test item) Description

Description	Programming and Maintenance Interface with Bluetooth	
Model	IFS-BT-PROG-ADAPTER	
Additional Model(s)	None	
Brand Name(s)	None	
Serial number	None	
Hardware version	02	
Software / Firmware version	V1.0	
PMN	N/A	
HVIN	IFS-BT-PROG-ADAPTER	
FVIN	N/A	
HMN	N/A	
FCC-ID	YG3-IFSPROG	
IC	4720B-IFSPROG	
Equipment type	End product	
Radio type	Transceiver	
Radio technology	Bluetooth 4.0 Low Energy	
Operating frequency range	2402 - 2480 MHz	
Assigned frequency band	2400 - 2483.5 MHz	
Main test frequencies	F_{LOW}	2402 MHz
	F_{MID}	2442 MHz
	F_{HIGH}	2480 MHz
Spreading	Frequency Hopping	
Modulations	GFSK	
Number of channels	40	
Channel spacing	2MHz	
Number of antennas	1	
Radio module	Type	Bluetooth Low energy module
	Model	BCM20732S
	Manufacturer	Broadcom Corporation
	HW Version	see FCC approval
	SW Version	see FCC approval
	FCC-ID	QDS-BRCM1078
	IC	4324A-BRCM1078

Antenna	Type	integrated
	Model	on chip antenna
	Manufacturer	unspecifierd
	Gain	-1.5 dBi (manufacturer declaration)
Manufacturer	Phoenix Contact GmbH & Co.KG Flachsmarktstrasse 8 32825 Blomberg Germany	
Power supply	V_{NOM}	5.0 VDC
	V_{MIN}	N/R
	V_{MAX}	N/R
AC/DC-Adaptor	Model : APS2250H Manufacturer : Ansmann Input : 100-240VAC / 50-60Hz Output : 24VDC / 1.0A	

1.1 Photos – Equipment External

EUT LEFT

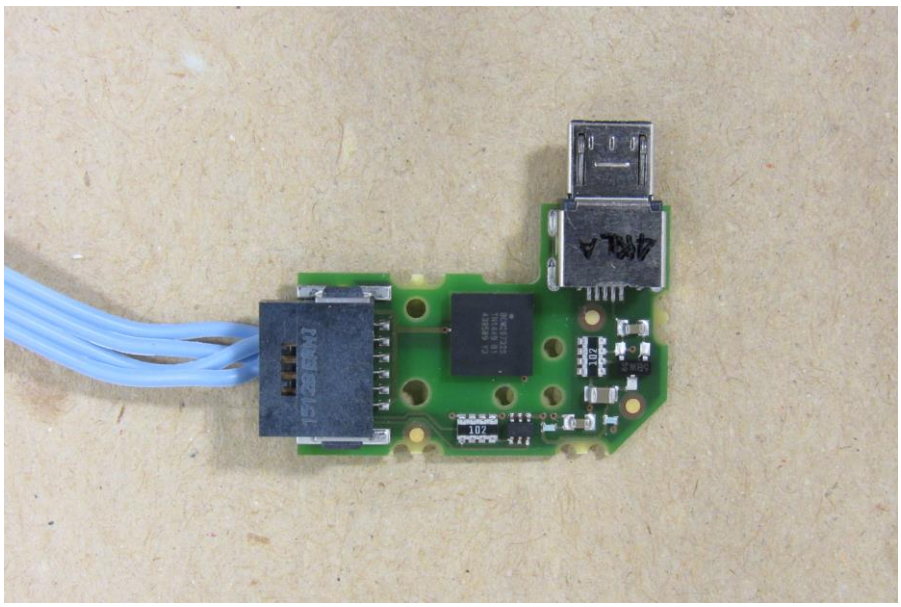
EUT RIGHT

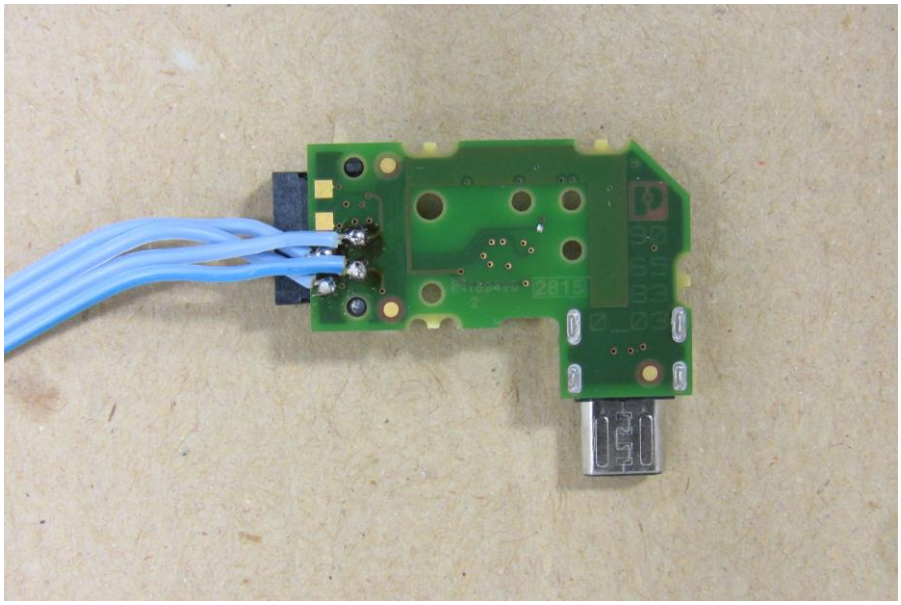
EUT LABEL

EUT USB INTERFACE

EUT CONTRIL INTERFACE

1.2 Photos – Equipment internal

EUT PCB FRONT


EUT PCB BACK


1.3 Photos – Test setup

TEST SETUP: RADIATED EMISSIONS

TEST SETUP: CONDUCTED EMISSIONS

1.4 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
AE	Laptop	DELL	E5530	BT-LE-Testsofware

***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	
Transmit	General conditions:	EUT powered by laboratory power supply.
	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
AC-Powerline	General conditions:	EUT powered by AC/DC-Adaptor
	Radio conditions:	Mode = Transmit Spreading = On

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

Radiated spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Semi-anechoic chamber	Frankonia	AC 1	EF00062	-	-
Spectrum Analyzer	R&S	FSIQ26	EF00242	2016-04	2017-04
Biconical Antenna	R&S	HK 116	EF00012	2016-05	2019-05
LPD Antenna	R&S	HL 223	EF00187	2016-05	2019-05
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/T	See module test report
FCC § 15.247(b)(3) IC RSS-247 § 5.4	Maximum peak conducted power	ANSI C63.10	N/T	See module test report
FCC § 15.247(e) IC RSS-247 § 5.2	Power spectral density	ANSI C63.10	N/T	See module test report
47 CFR 15.207 IC RSS-247 § 3.1	AC power line conducted emissions	ANSI C63.4	PASS	
FCC § 15.247(d) IC RSS-247 § 5.5	Band edge compliance	ANSI C63.10	N/T	See module test report
FCC § 15.247(d) IC RSS-247 § 5.5	Conducted spurious emissions	ANSI C63.10	N/T	See module test report
FCC § 15.247(d) FCC § 15.209 IC RSS-247 § 5.5	Transmitter radiated spurious emissions	ANSI C63.10	PASS	
IC RSS-247 § 3.1	Receiver radiated spurious emissions	ANSI C63.10	PASS	
Remarks:				

3 Test Conditions and Results

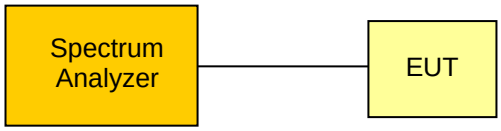
3.1 Test Conditions and Results – Occupied Bandwidth

Occupied Bandwidth acc. to IC RSS-Gen	**Verdict: PASS**
Test according to measurement reference	Reference Method
	ANSI C63.10
Test frequency range	Tested frequencies
	F_{LOW} / F_{MID} / F_{HIGH}

Limits

None (Informational only)

Test setup



Test procedure

1. EUT set to test mode (Communication tester is used if needed)
2. Span set to at least twice the emission spectrum
3. Resolution bandwidth set to 1 % of span
4. Occupied Bandwidth (99 %) measurement with spectrum analyzer built in measurement function

Test results

Channel	Frequency [MHz]	Mode	Occupied Bandwidth [MHz]
F_{LOW}	2402	Transmit	1.114
F_{MID}	2442	Transmit	1.114
F_{HIGH}	2480	Transmit	1.114

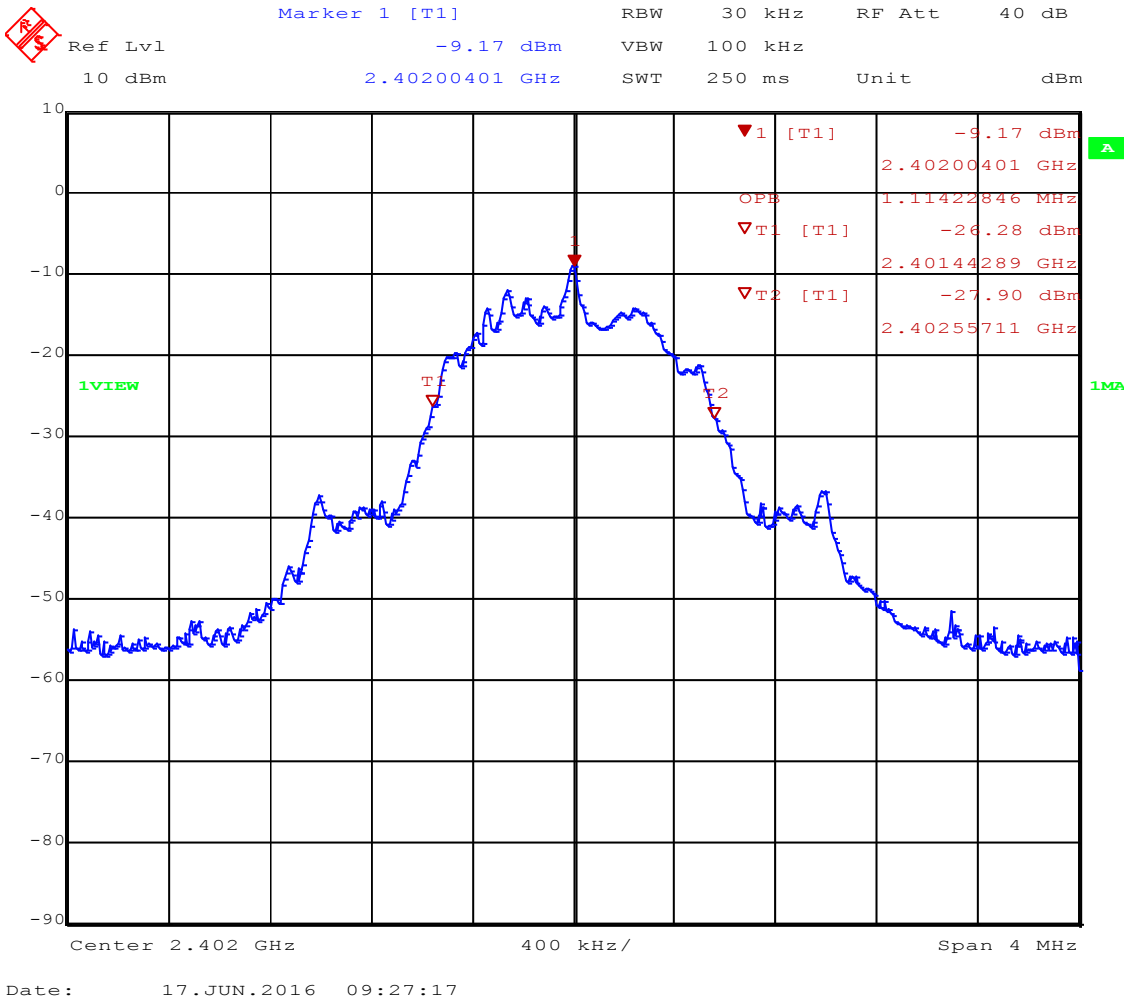
Comments:

Occupied Bandwidth – F_{LOW}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Burkhard Pudell
Test Conditions:	Tnom / Vnom
Mode:	Tx, BT-LE, 2402 MHz
Test Date:	2016-06-17
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW= 1.114 MHz

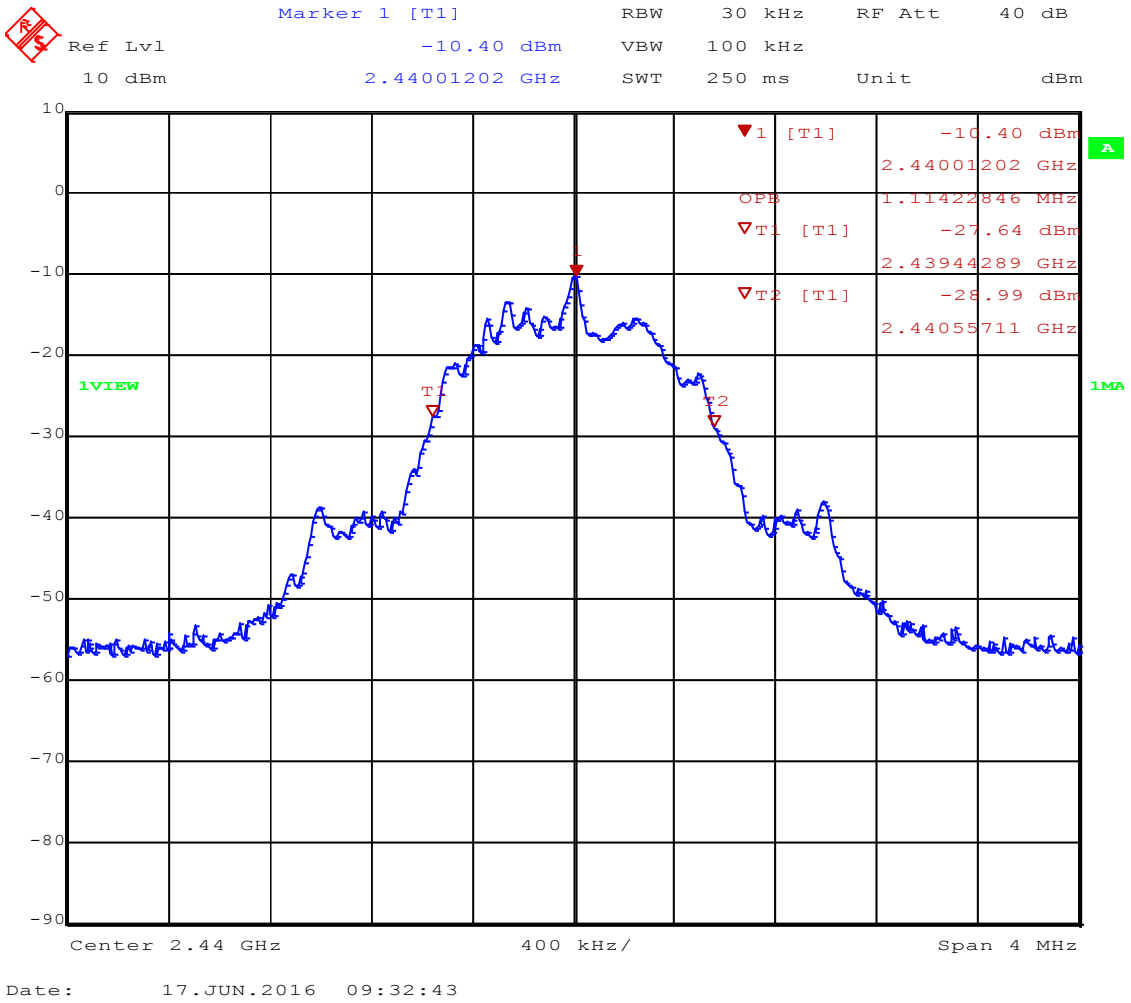


Occupied Bandwidth – F_{MID}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Burkhard Pudell
Test Conditions:	Tnom / Vnom
Mode:	Tx, BT-LE, 2440 MHz
Test Date:	2016-06-17
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW= 1.114 MHz

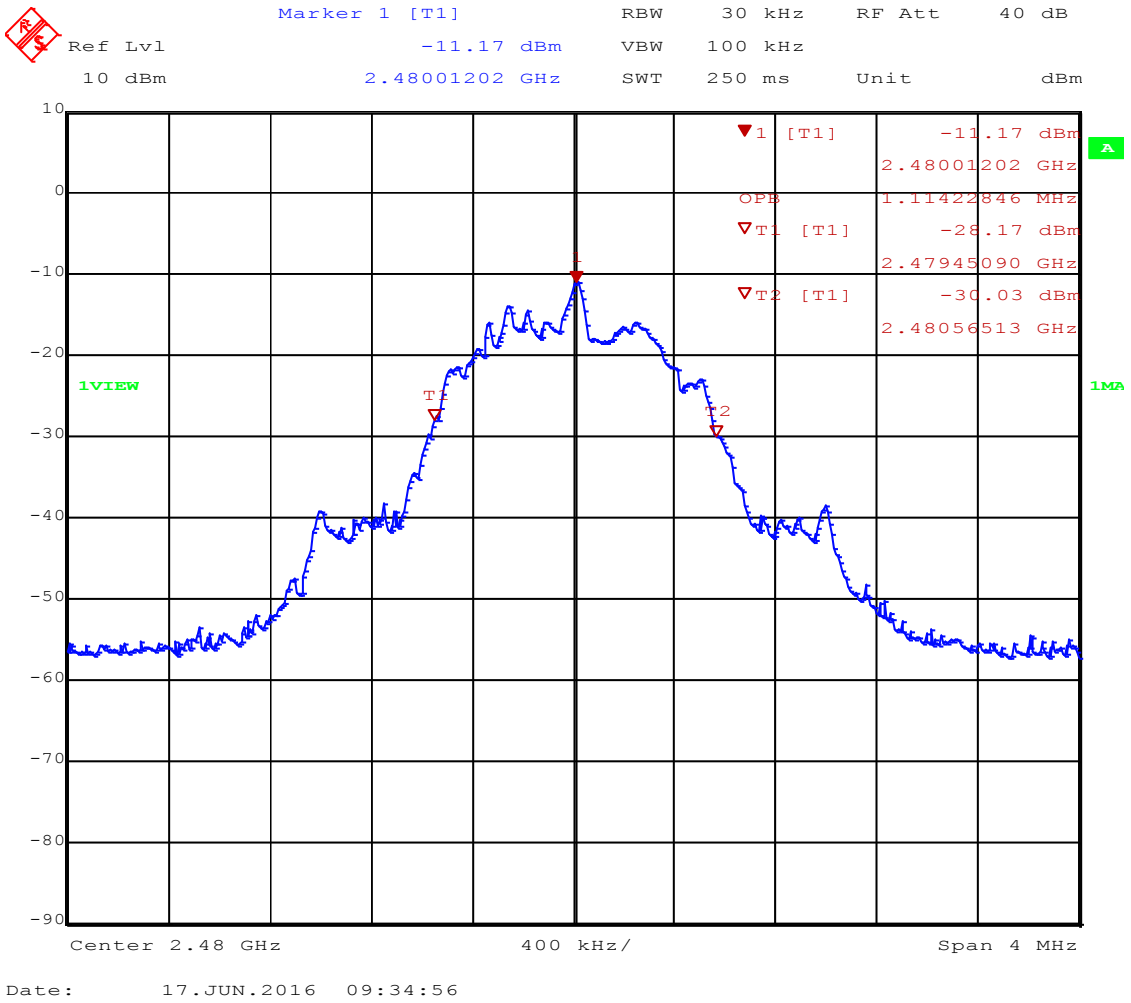


Occupied Bandwidth – F_{HIGH}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Burkhard Pudell
Test Conditions:	Tnom / Vnom
Mode:	Tx, BT-LE, 2480 MHz
Test Date:	2016-06-17
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	OBW= 1.114 MHz



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 power line			
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.				

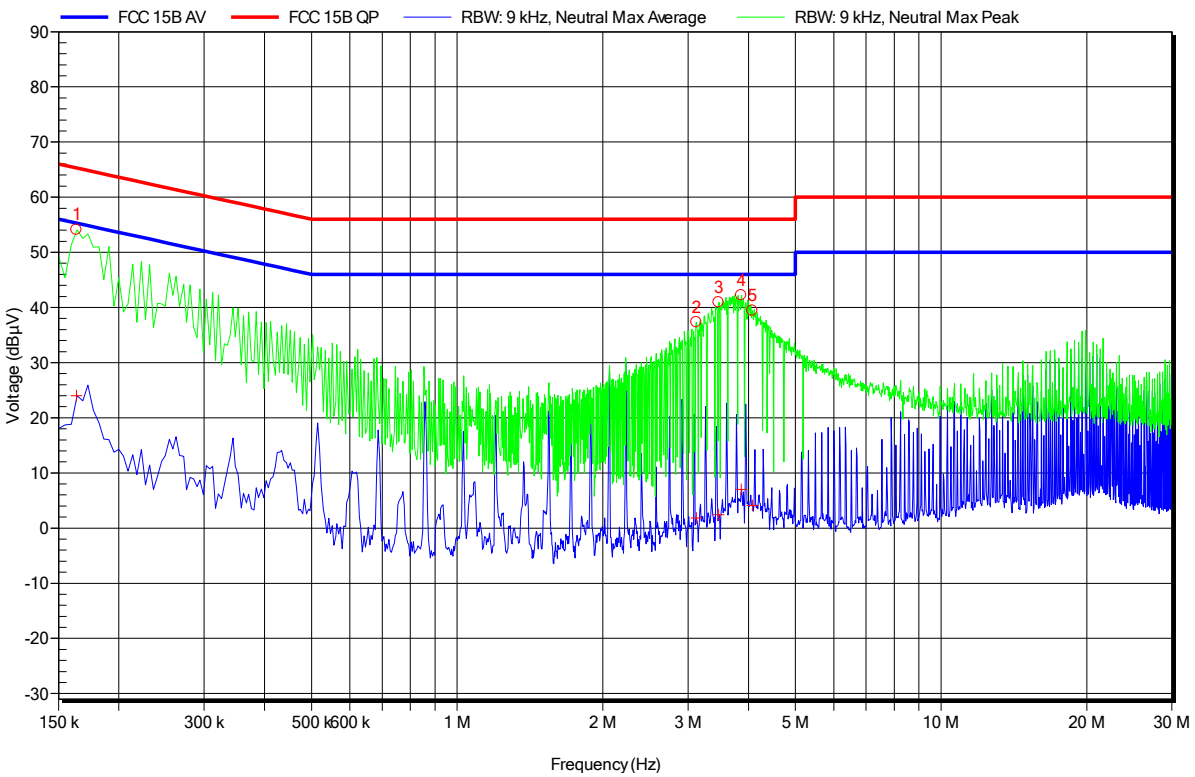
Conducted Emissions

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

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Laurisch
Test Conditions:	Tnom: 24°C, Unom: 3.3 VDC
LISN:	ESH2-Z5 N
Mode:	Normal Mode
Test Date:	2016-06-27
Note:	

Index 1



Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status
1	163.5 kHz	24.01 dBµV	55.28 dBµV	-31.27 dB	Pass
2	3.12 MHz	1.83 dBµV	46 dBµV	-44.17 dB	Pass
3	3.471 MHz	2.4 dBµV	46 dBµV	-43.6 dB	Pass
4	3.863 MHz	7.02 dBµV	46 dBµV	-38.98 dB	Pass
5	4.074 MHz	4.1 dBµV	46 dBµV	-41.9 dB	Pass

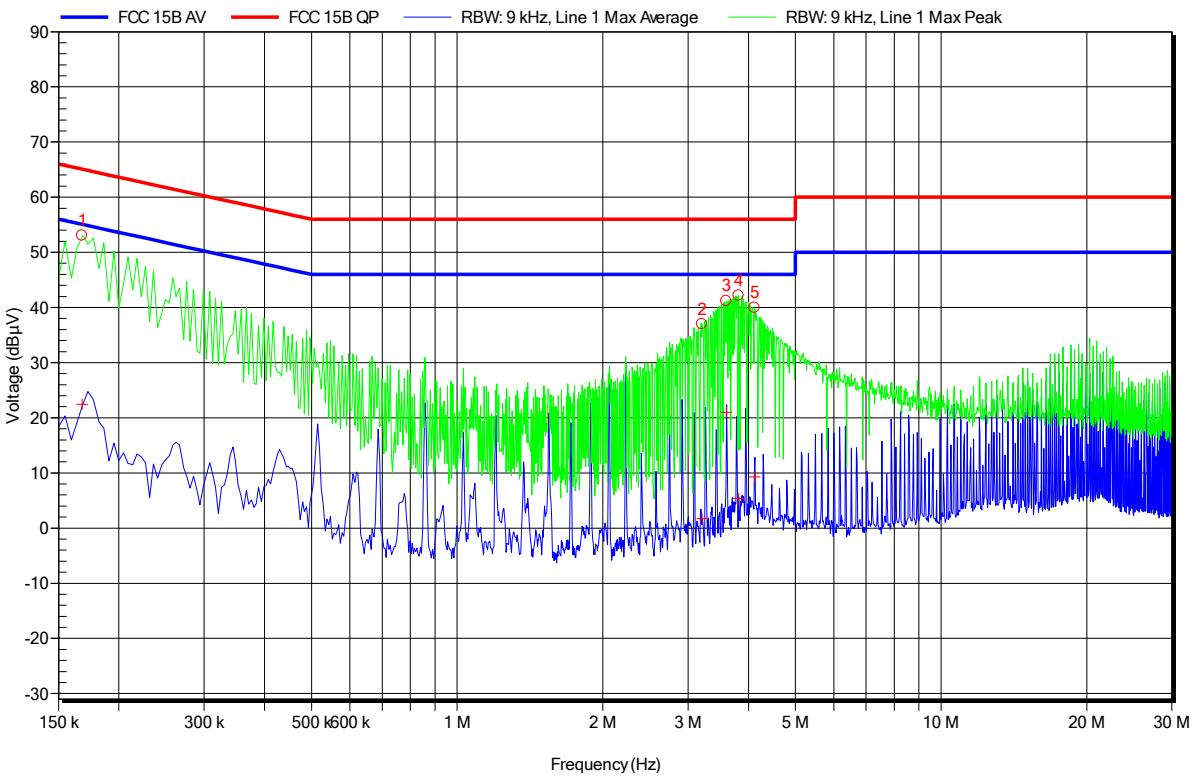
Conducted Emissions

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

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Laurisch
Test Conditions:	Tnom: 24°C, Unom: 3,3 VDC
LISN:	ESH2-Z5 L
Mode:	Normal Mode
Test Date:	2016-06-27
Note:	

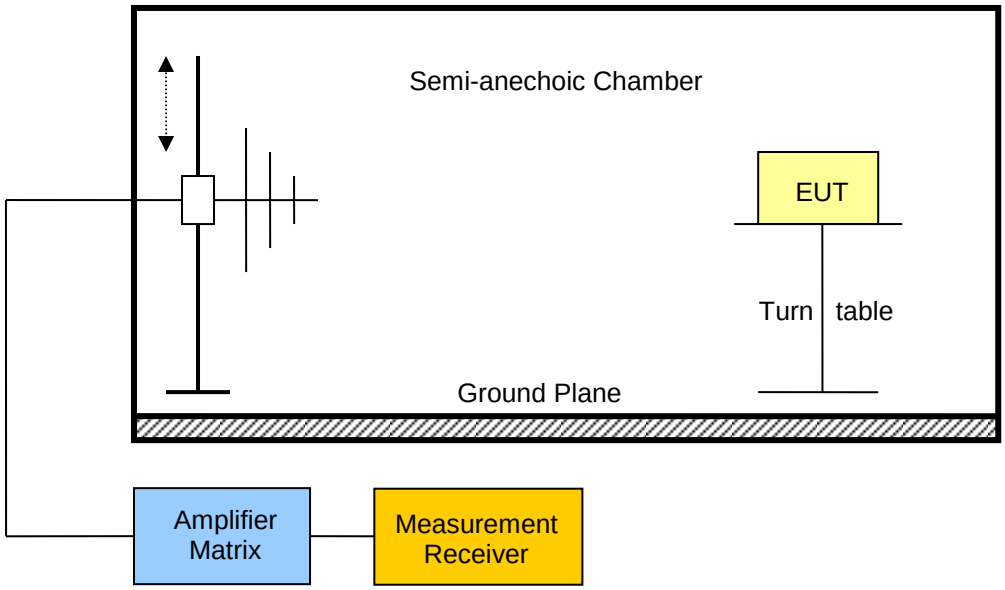
Index 2



Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status
1	168 kHz	22.43 dBµV	55.06 dBµV	-32.62 dB	Pass
2	3.206 MHz	1.74 dBµV	46 dBµV	-44.26 dB	Pass
3	3.597 MHz	20.98 dBµV	46 dBµV	-25.02 dB	Pass
4	3.818 MHz	5.4 dBµV	46 dBµV	-40.6 dB	Pass
5	4.119 MHz	9.31 dBµV	46 dBµV	-36.69 dB	Pass

3.5 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

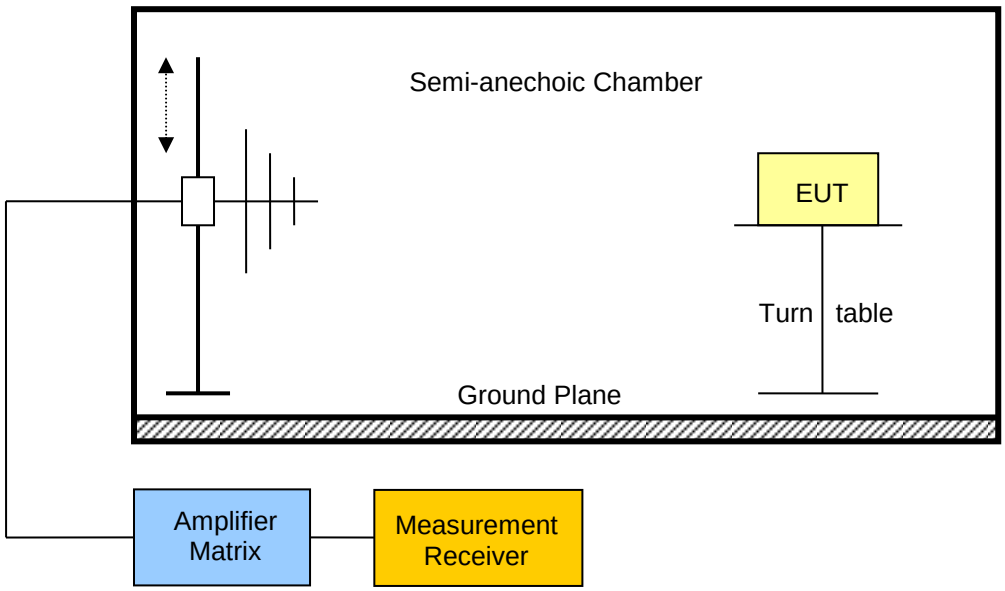
Test results

Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dbµV/m]	Det.	Pol.	Limit [dbµV/m]	Limit dist. [m]*	Margin [dB]
F_{LOW}	2402	Testmode	2390	48.85	pk	ver	74.00	3	-25.15
F_{LOW}	2402	Testmode	2390	35.52	RMS	ver	54.00	3	-18.48
F_{LOW}	2402	Testmode	4800	49.94	pk	ver	74.00	3	-24.06
F_{MID}	2440	Testmode	4880	49.71	pk	ver	74.00	3	-24.29
F_{HIGH}	2480	Testmode	2484	50.02	pk	ver	74.00	3	-23.98
F_{HIGH}	2480	Testmode	2484	38.90	RMS	ver	54.00	3	-15.10
F_{HIGH}	2480	Testmode	2484	46.60	pk	hor	74.00	3	-27.40
F_{HIGH}	2480	Testmode	2484	36.01	RMS	hor	54.00	3	-17.99
F_{HIGH}	2480	Testmode	4960	48.26	pk	ver	74.00	3	-25.74

Comments: * Physical distance between EUT and measurement antenna.

3.6 Test Conditions and Results – Receiver radiated emissions

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



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

Test results

Channel	Frequency [MHz]	Emission [MHz]	Emission Level [dbµV/m]	Polarisation	Det.	Limit [dbµV/m]	Margin [dbµV/m]
F_{MID}	2440	7384	51.44	ver	pk	53.98	-2.54 dB

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

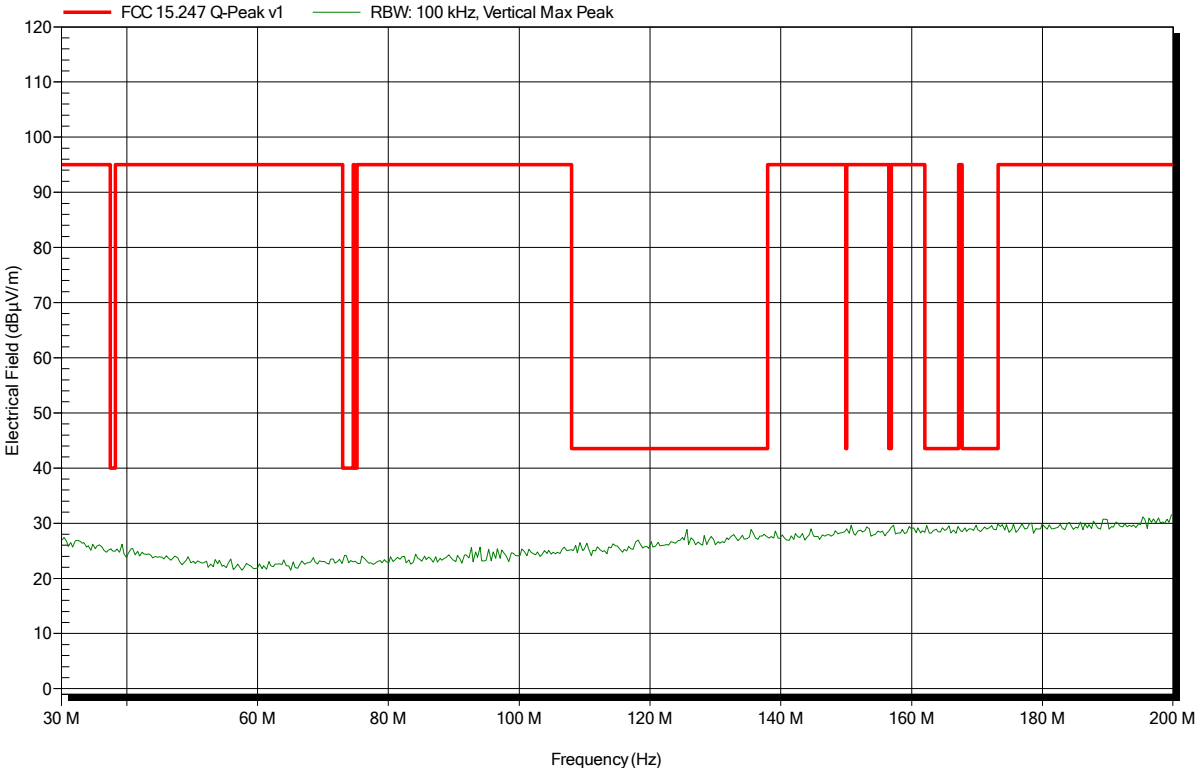
ANNEX A Transmitter radiated spurious emissions

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 0; 2402MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 42

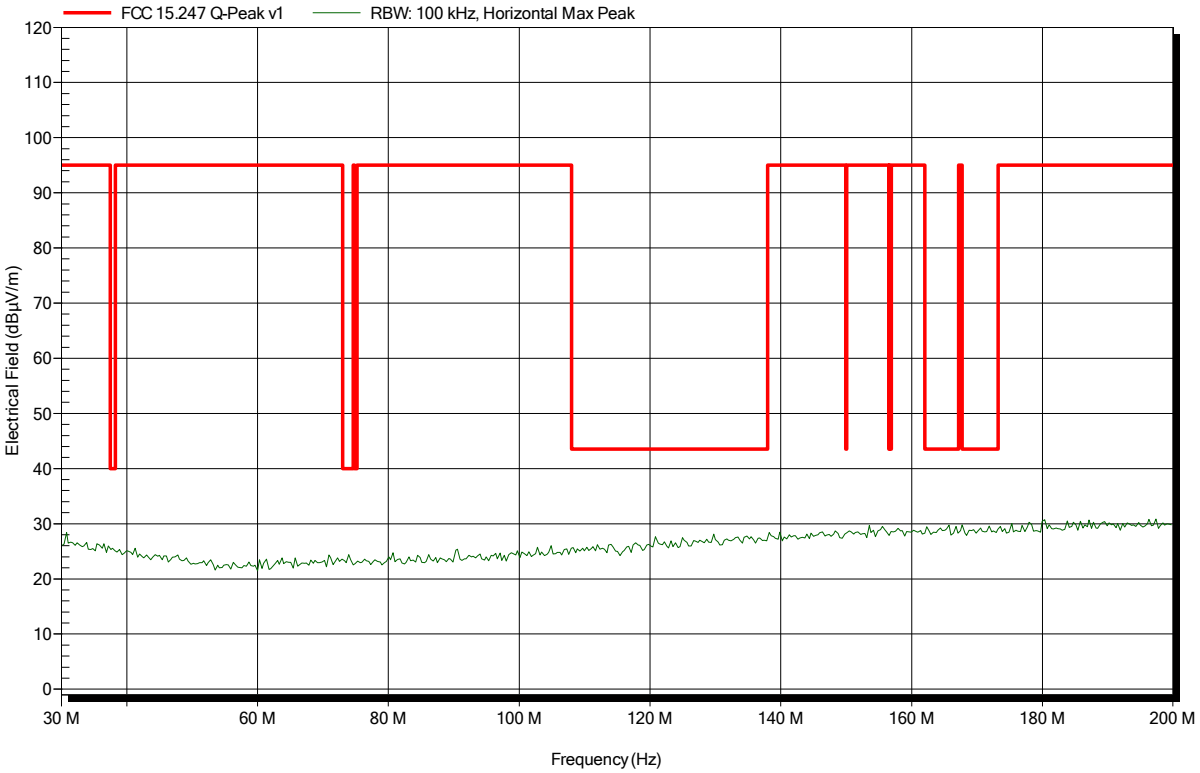


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 0; 2402MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 47

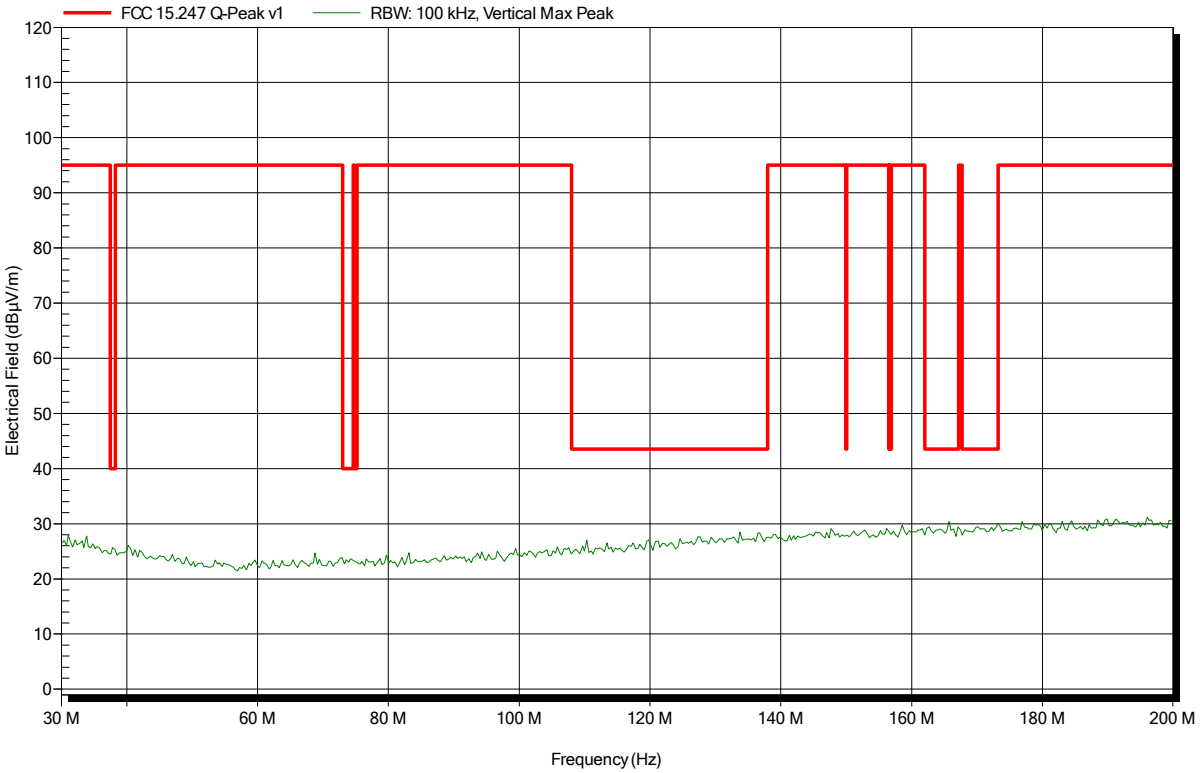


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 19; 2440MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 43

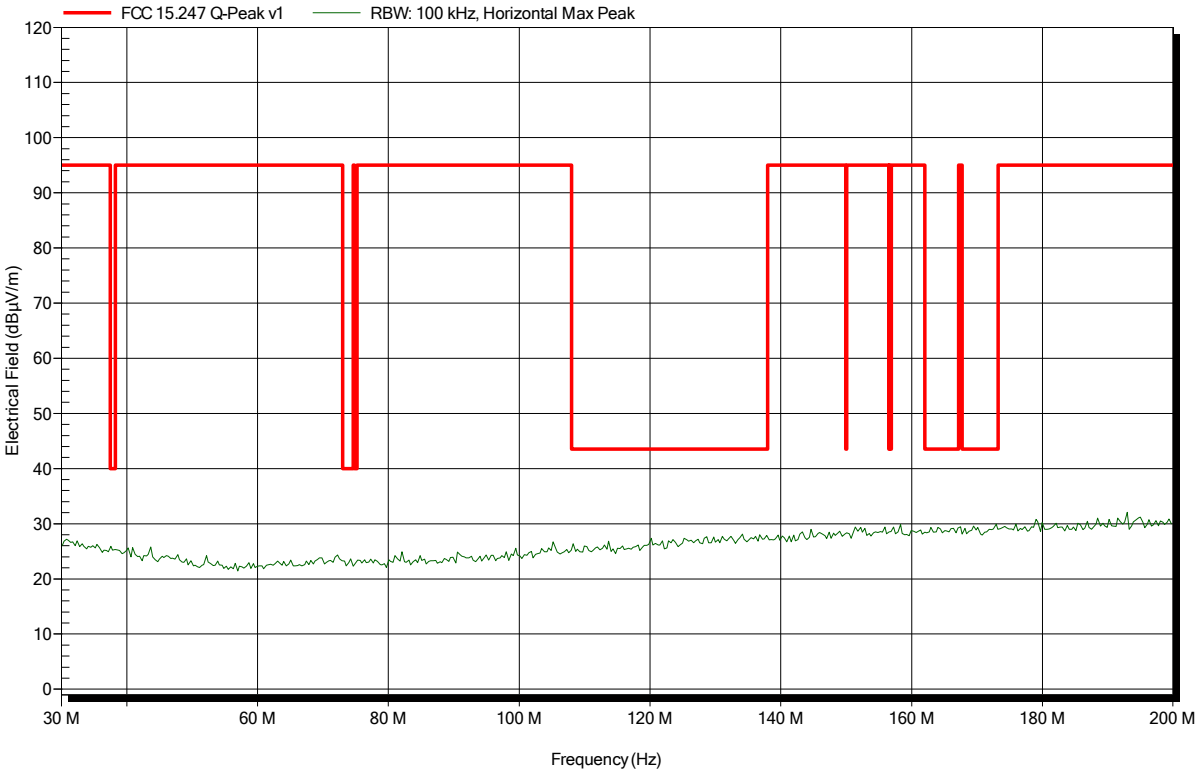


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 19; 2440MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 46

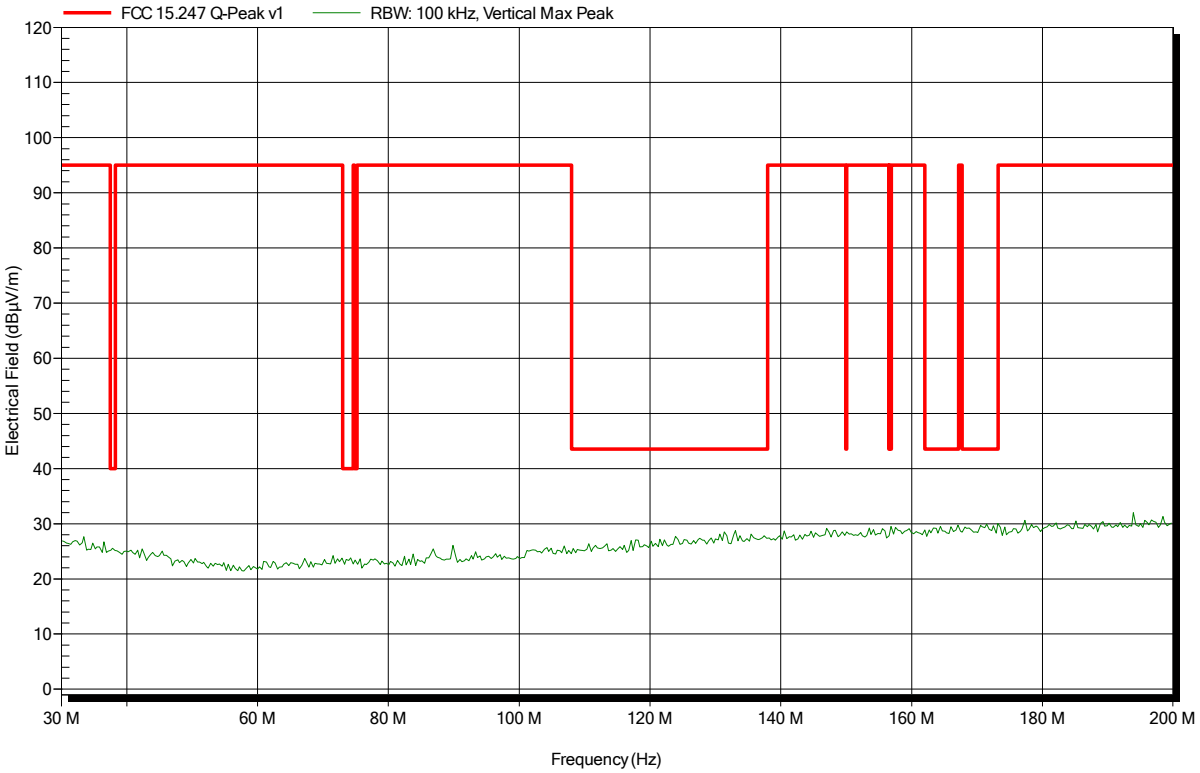


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 39; 2480MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 44

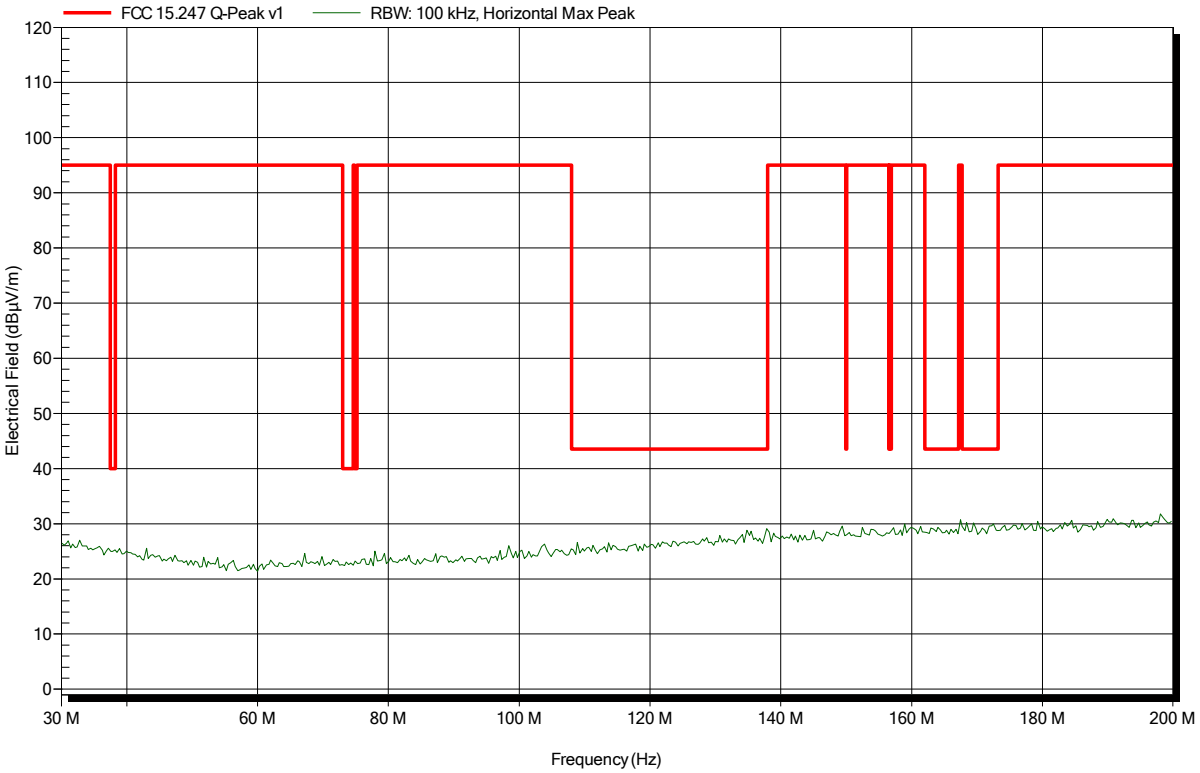


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 39; 2480MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 45

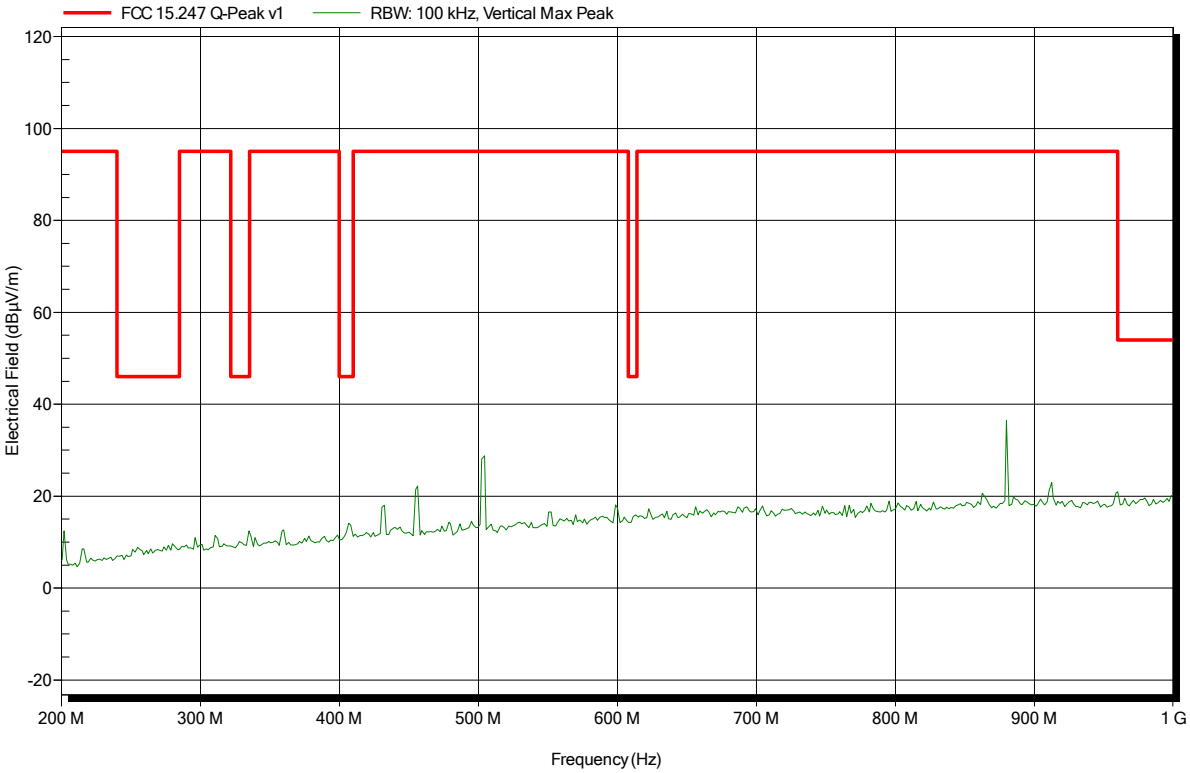


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 0; 2402MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 36

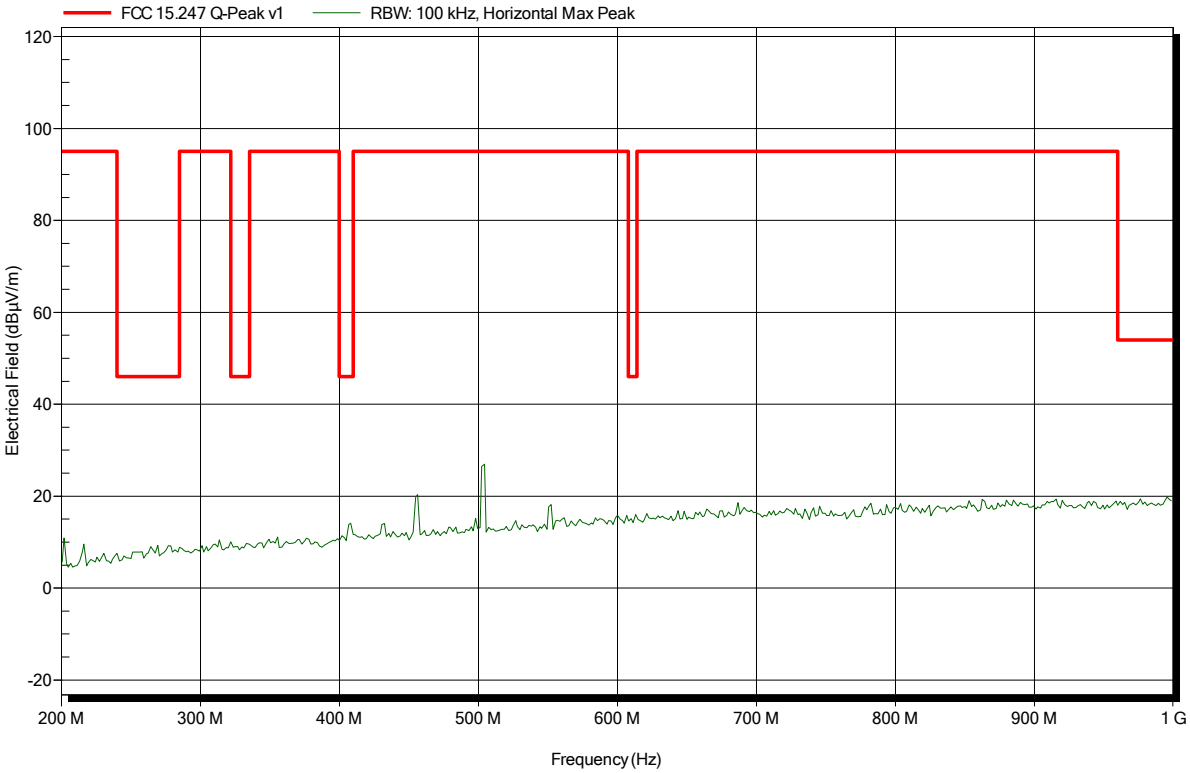


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 0; 2402MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 41

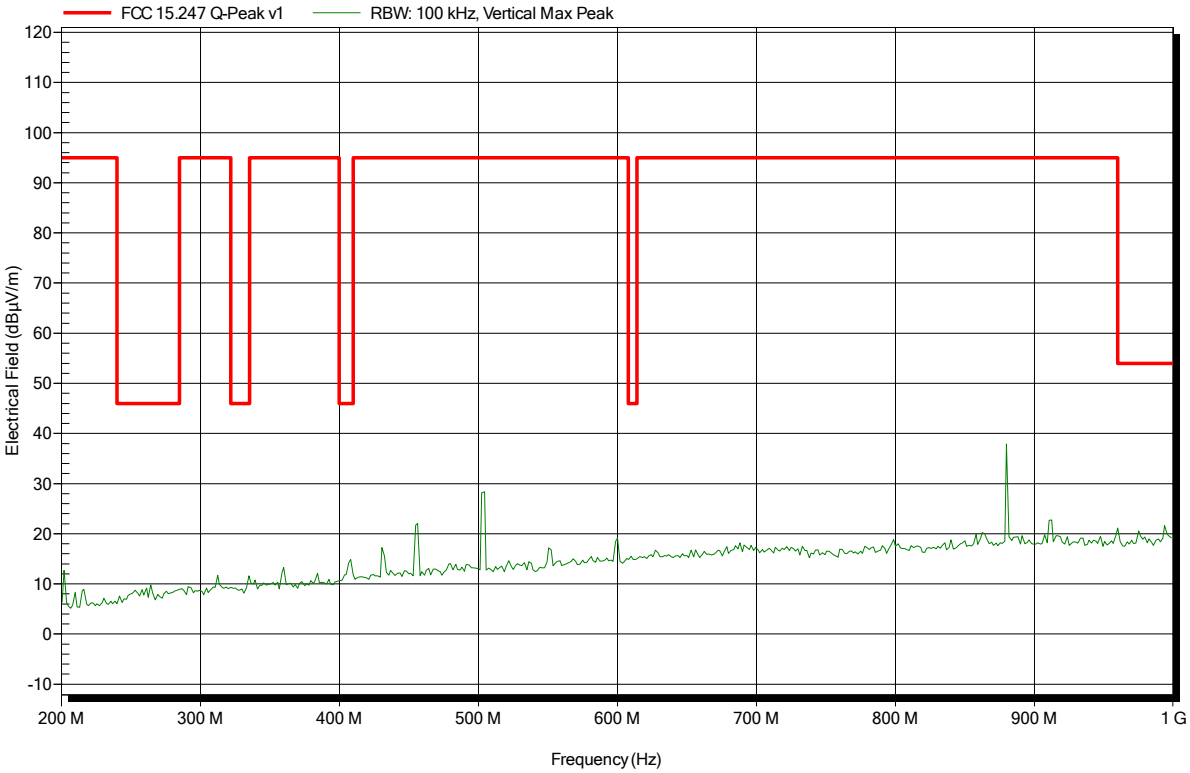


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 19; 2440MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 37

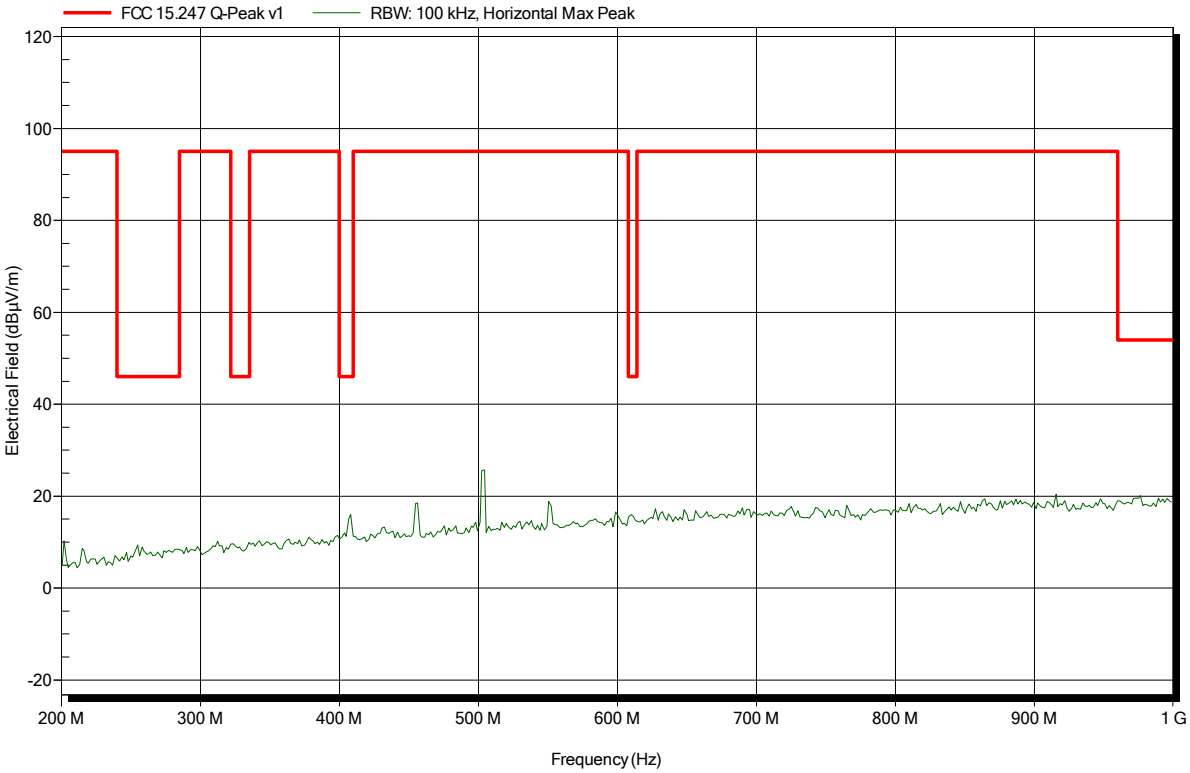


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 19; 2440MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 40

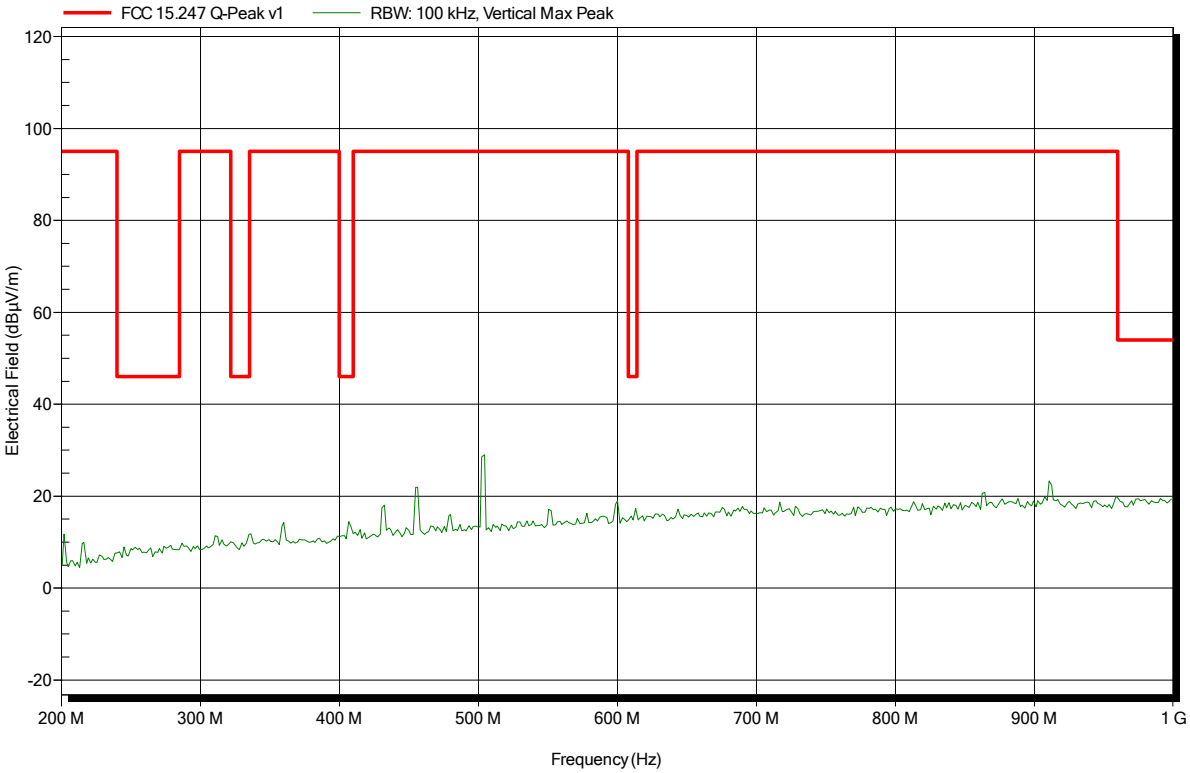


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 39; 2480MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 38

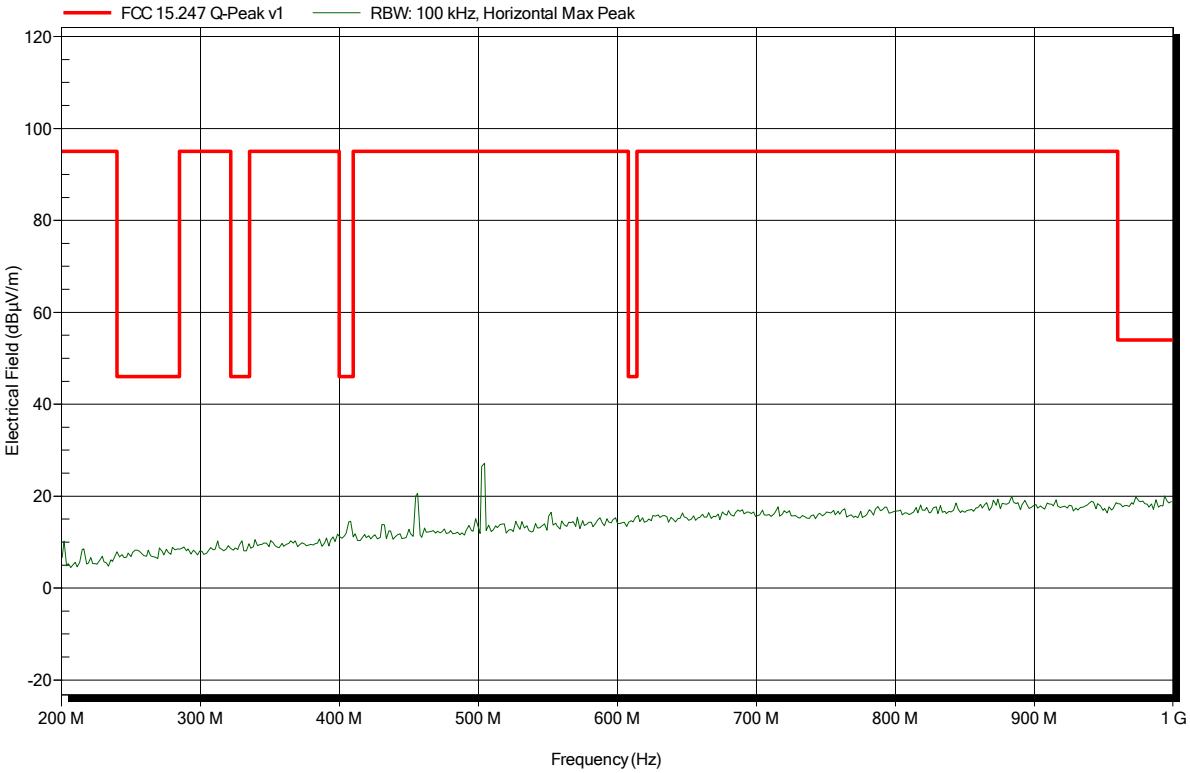


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 39; 2480MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 39

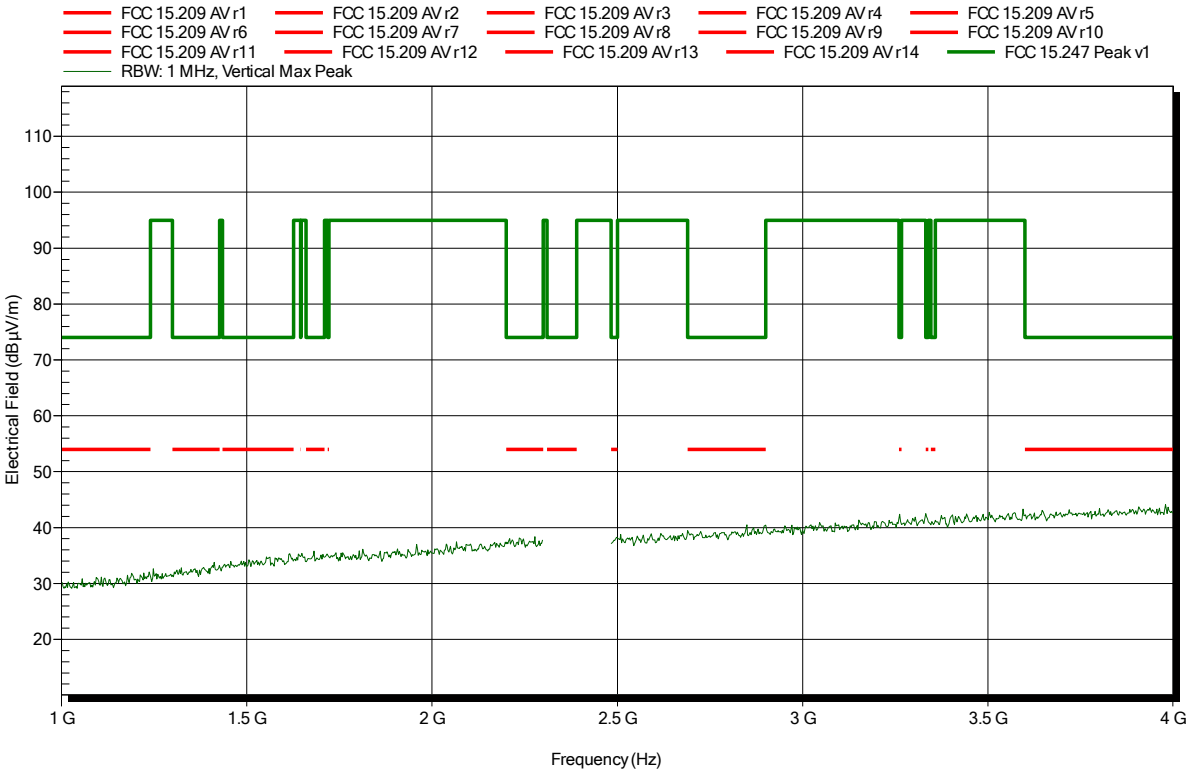


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 0; 2402MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 1

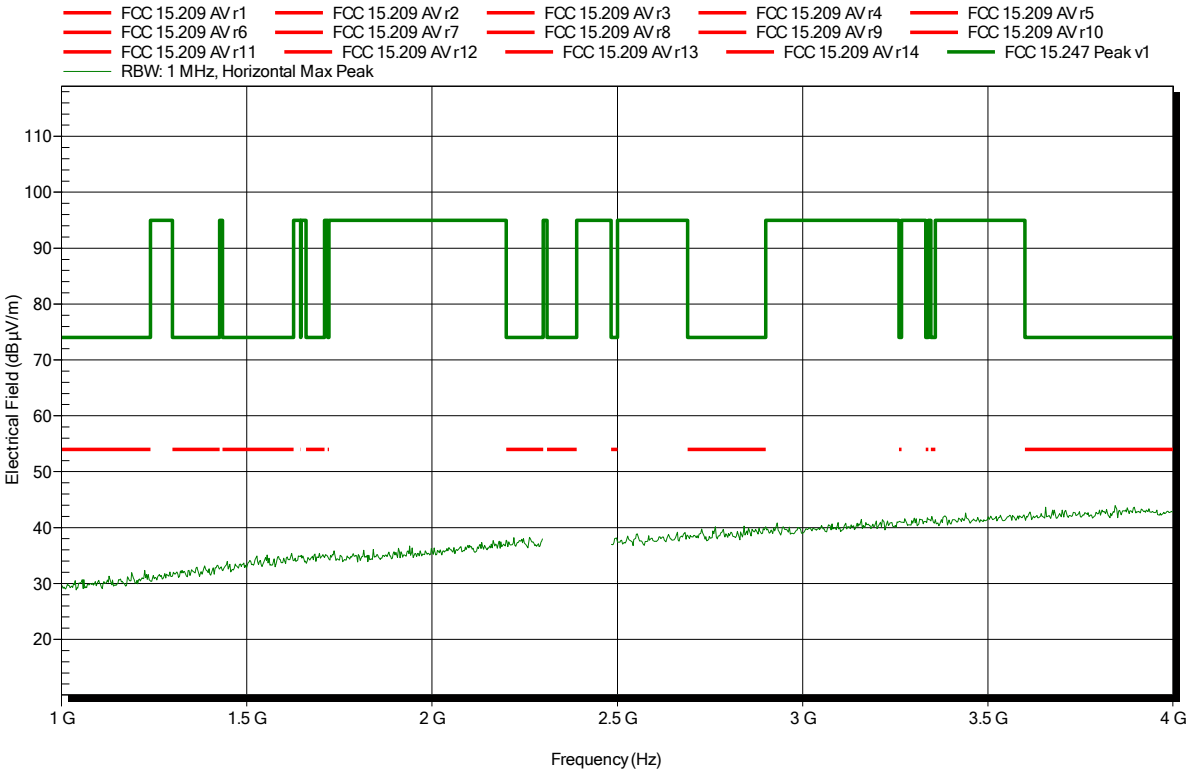


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 0; 2402MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 11

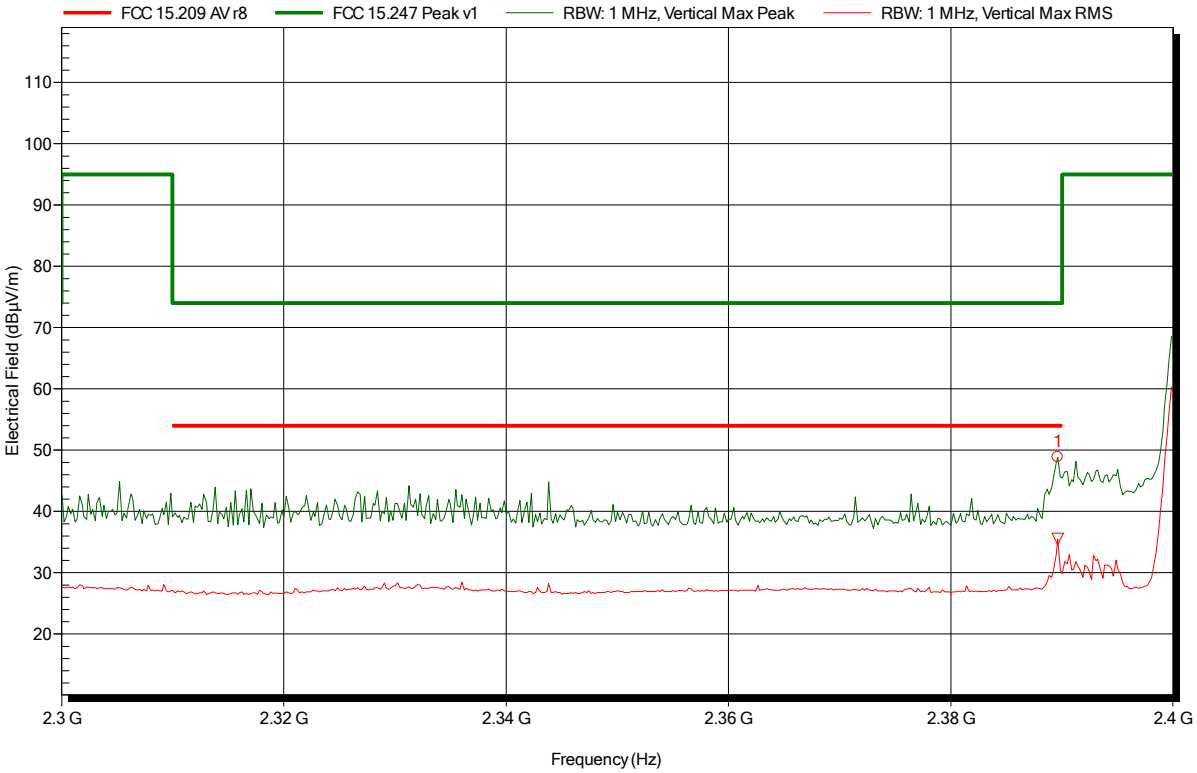


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 0; 2402MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical; lower bandedge

Index 23



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.39 GHz	48.85 dBµV/m	74 dBµV/m	-25.15 dB	Pass

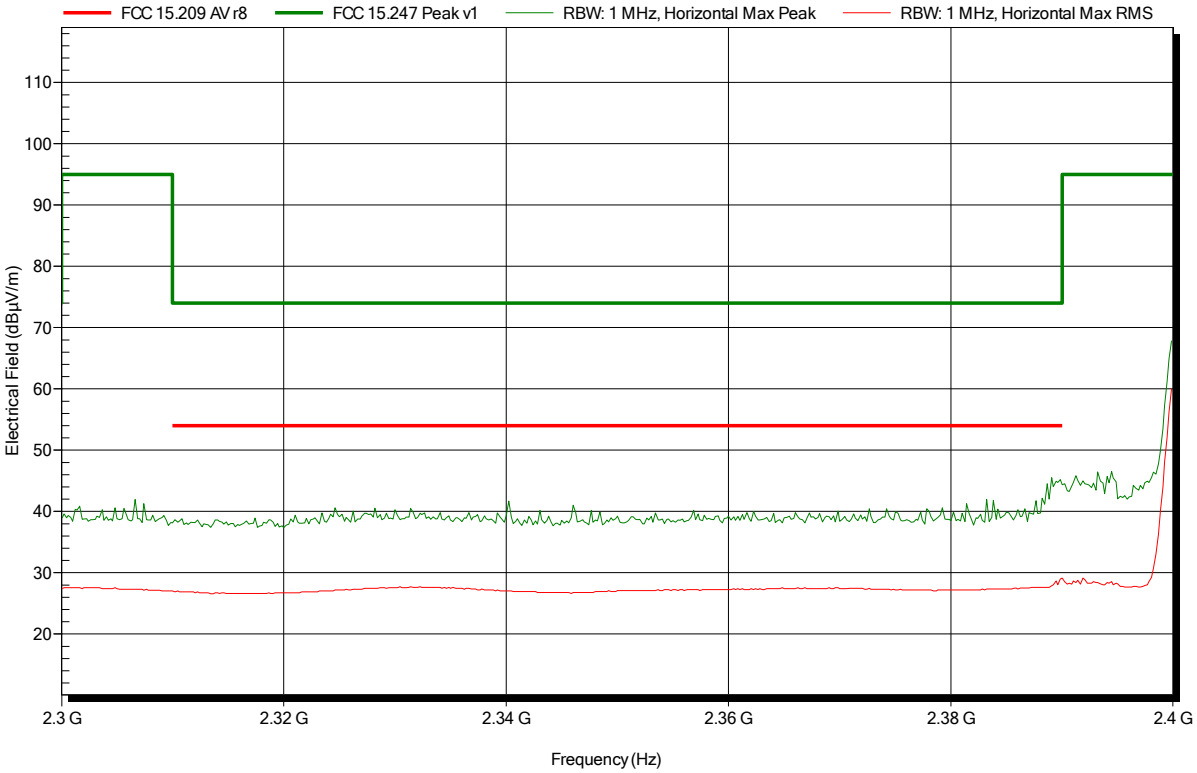
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.39 GHz	35.52 dBµV/m	54 dBµV/m	-18.48 dB	Pass

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 0; 2402MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical; lower bandedge

Index 22

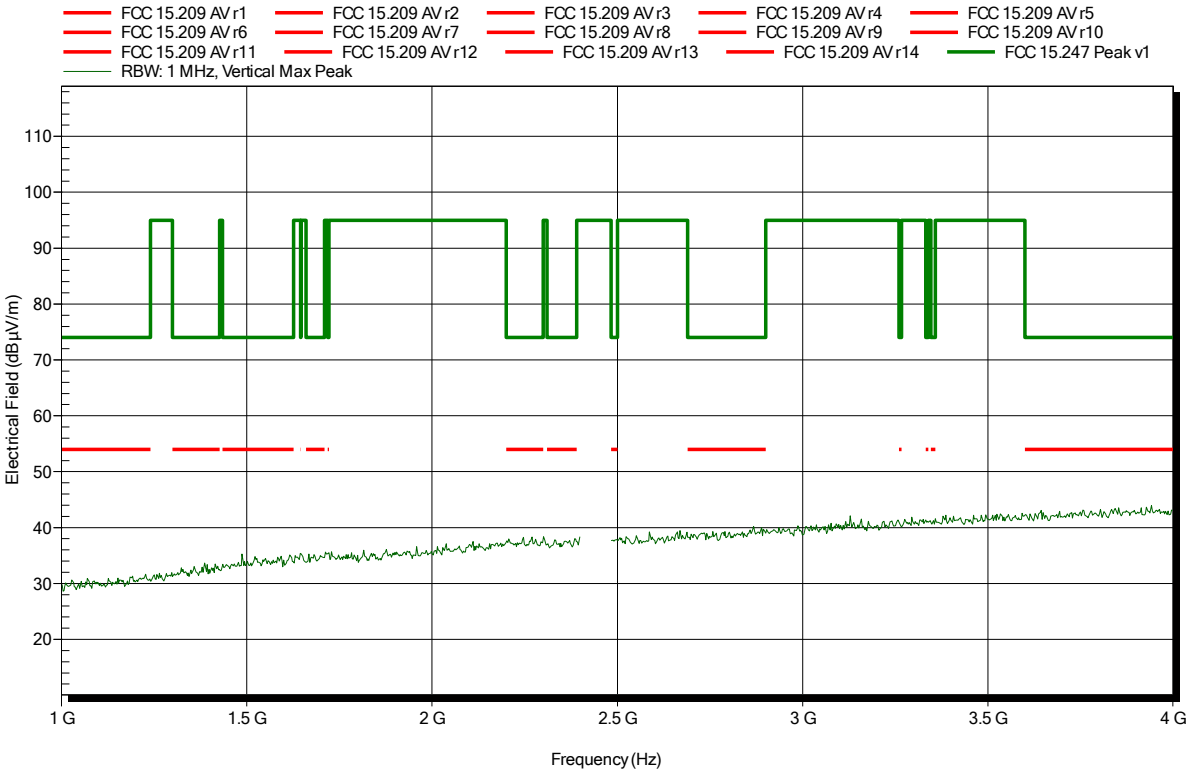


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 19; 2440MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 20

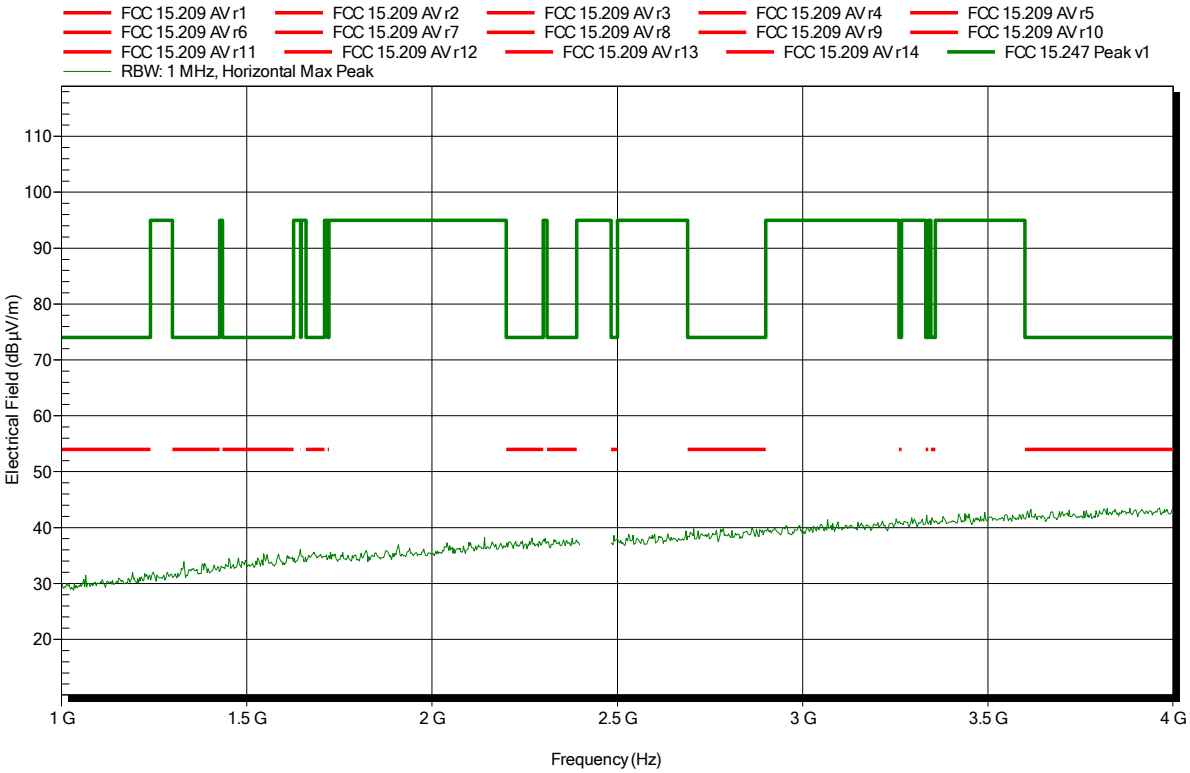


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 19; 2440MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 21

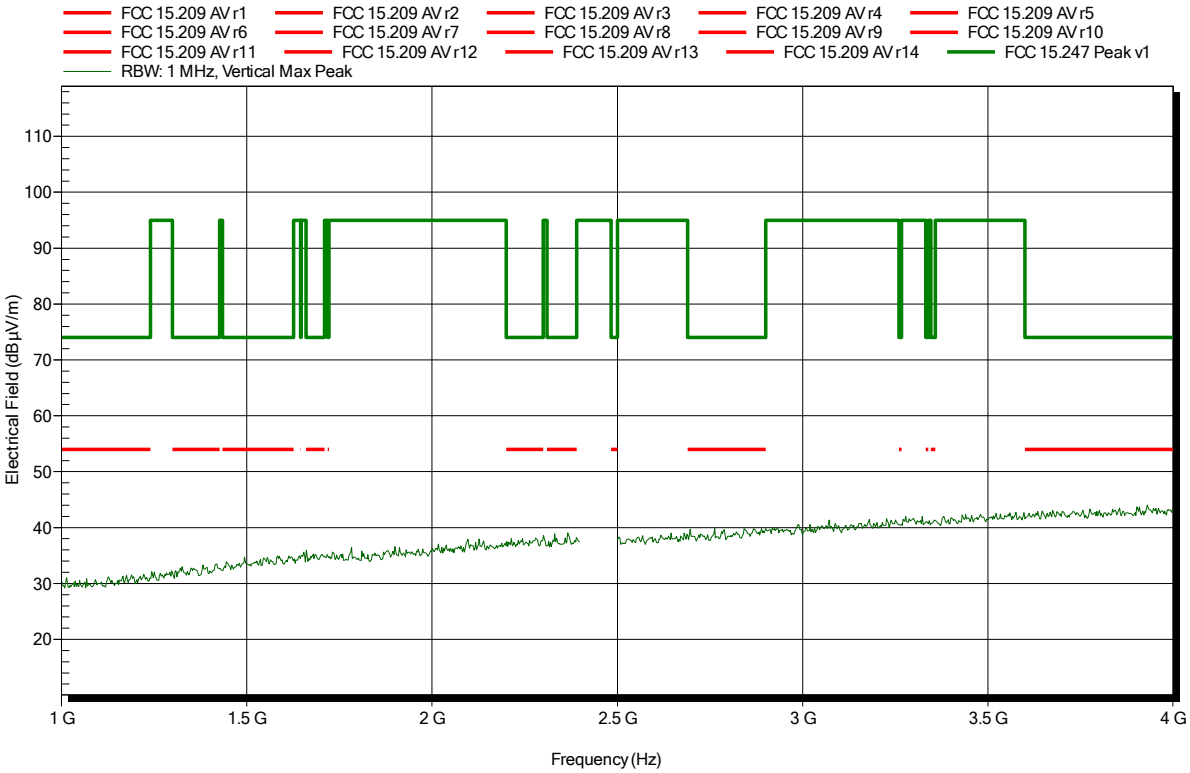


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 39; 2480MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 27

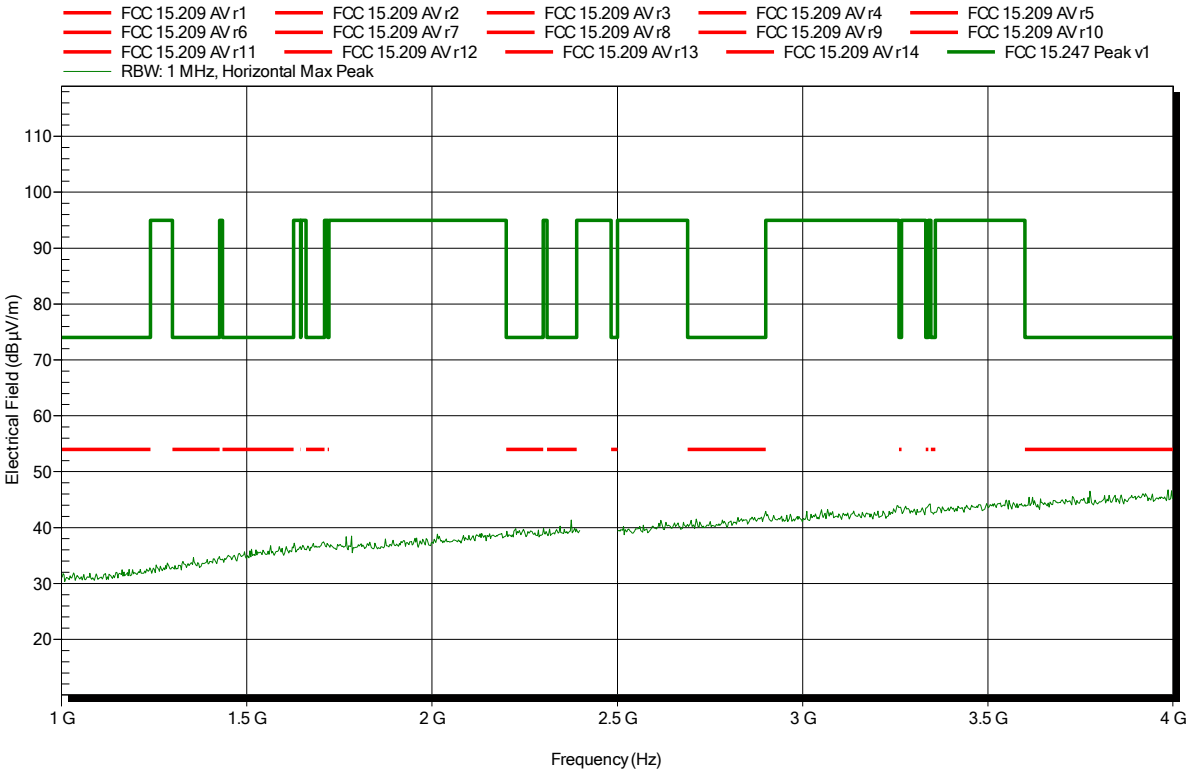


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 39; 2480MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 26

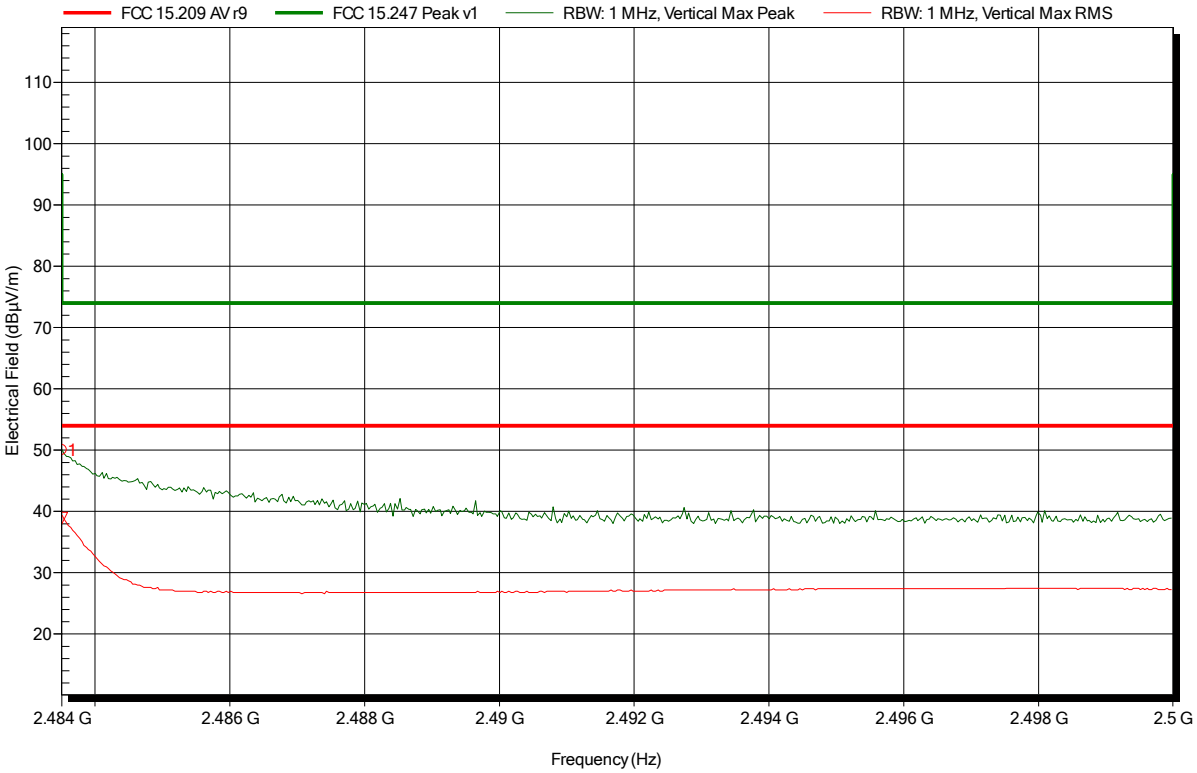


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 39; 2480MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical; higher bandedge

Index 24



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.484 GHz	50.02 dBµV/m	74 dBµV/m	-23.98 dB	Pass

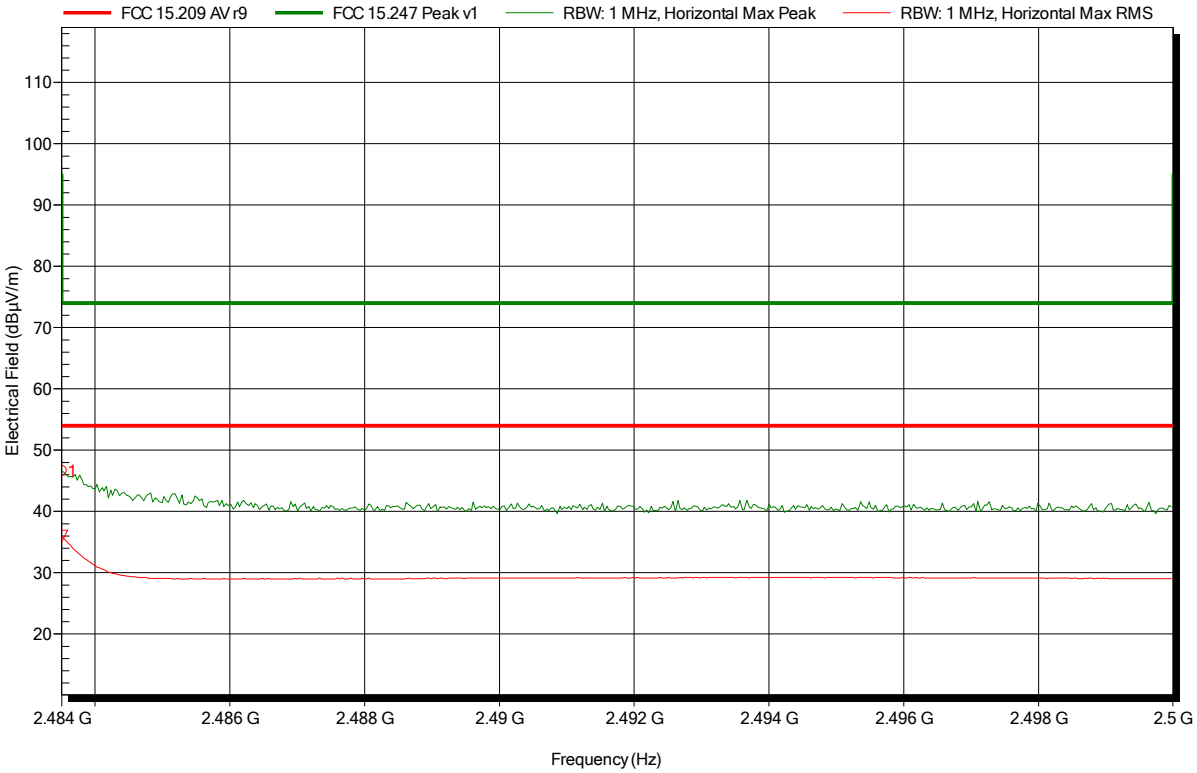
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.484 GHz	38.9 dBµV/m	54 dBµV/m	-15.1 dB	Pass

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	TX; BT-LE; CH: 39; 2480MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical; higher bandedge

Index 25



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.484 GHz	46.6 dBµV/m	74 dBµV/m	-27.4 dB	Pass

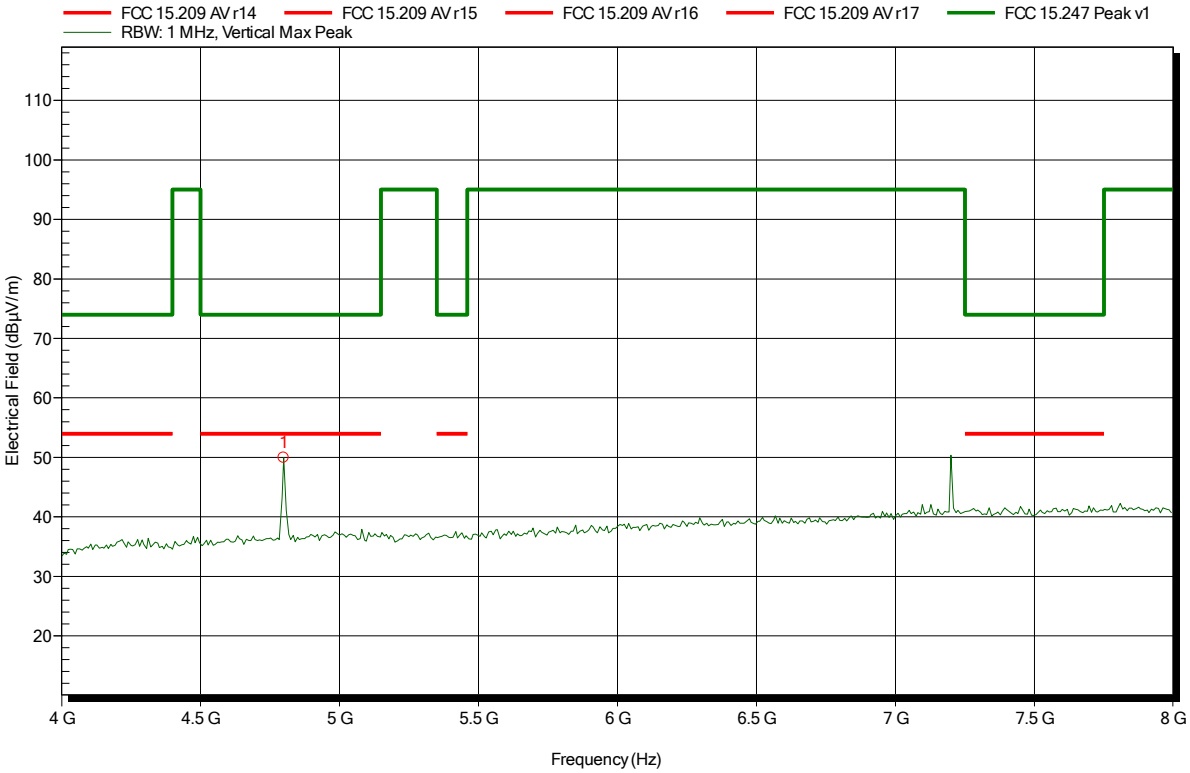
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.484 GHz	36.01 dBµV/m	54 dBµV/m	-17.99 dB	Pass

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 0; 2402MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 3



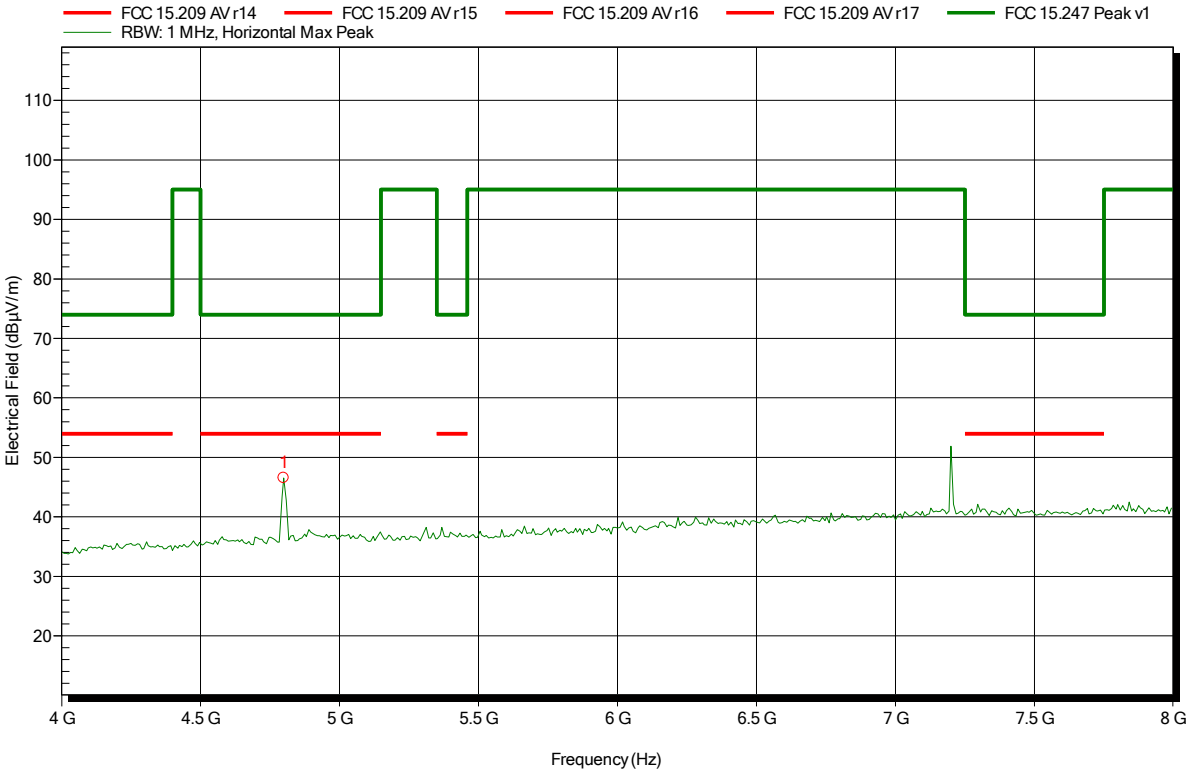
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.8 GHz	49.94 dBµV/m	74 dBµV/m	-24.06 dB	Pass

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 0; 2402MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 10



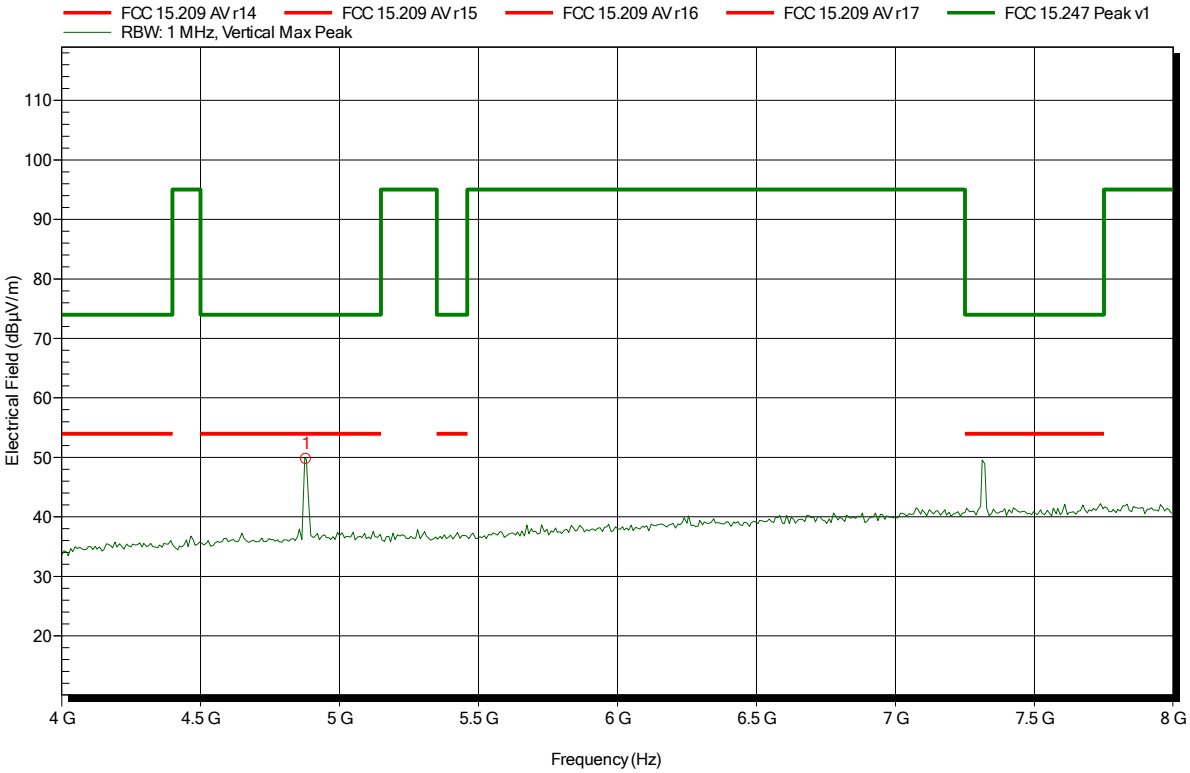
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.8 GHz	46.54 dBµV/m	74 dBµV/m	-27.46 dB	Pass

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 19; 2440MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 12



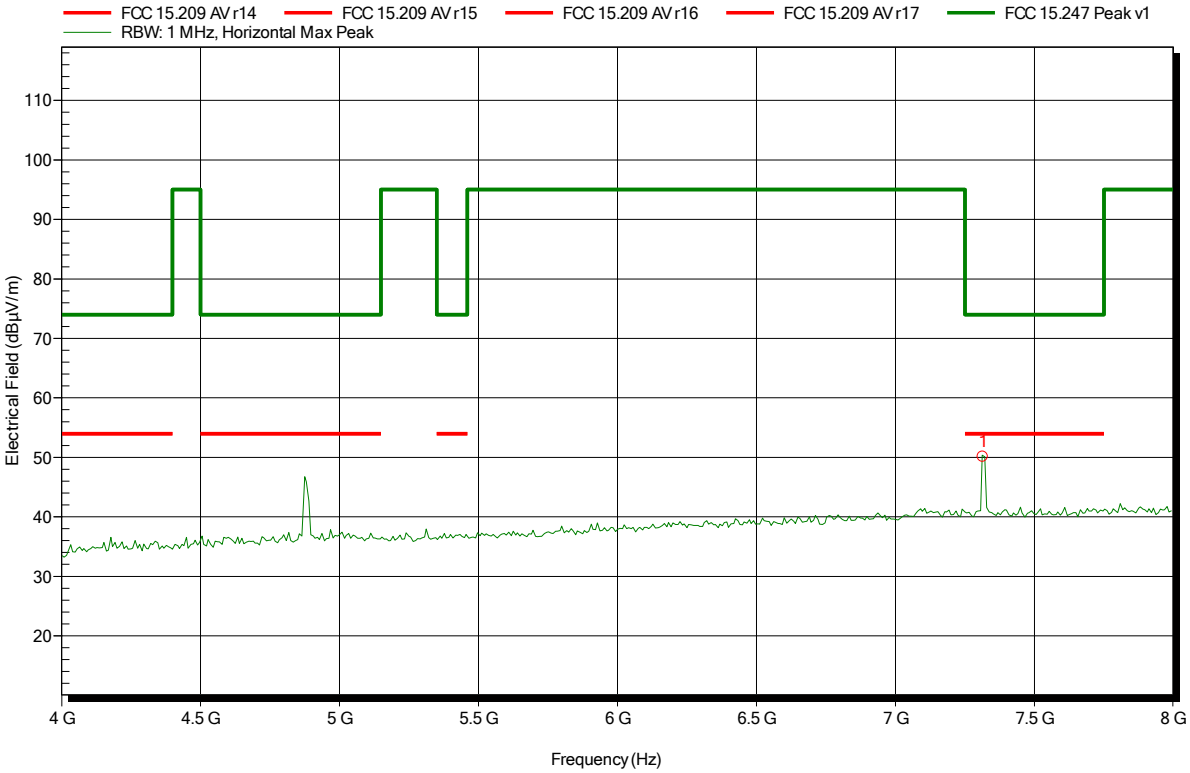
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.88 GHz	49.71 dBµV/m	74 dBµV/m	-24.29 dB	Pass

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 19; 2440MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 17



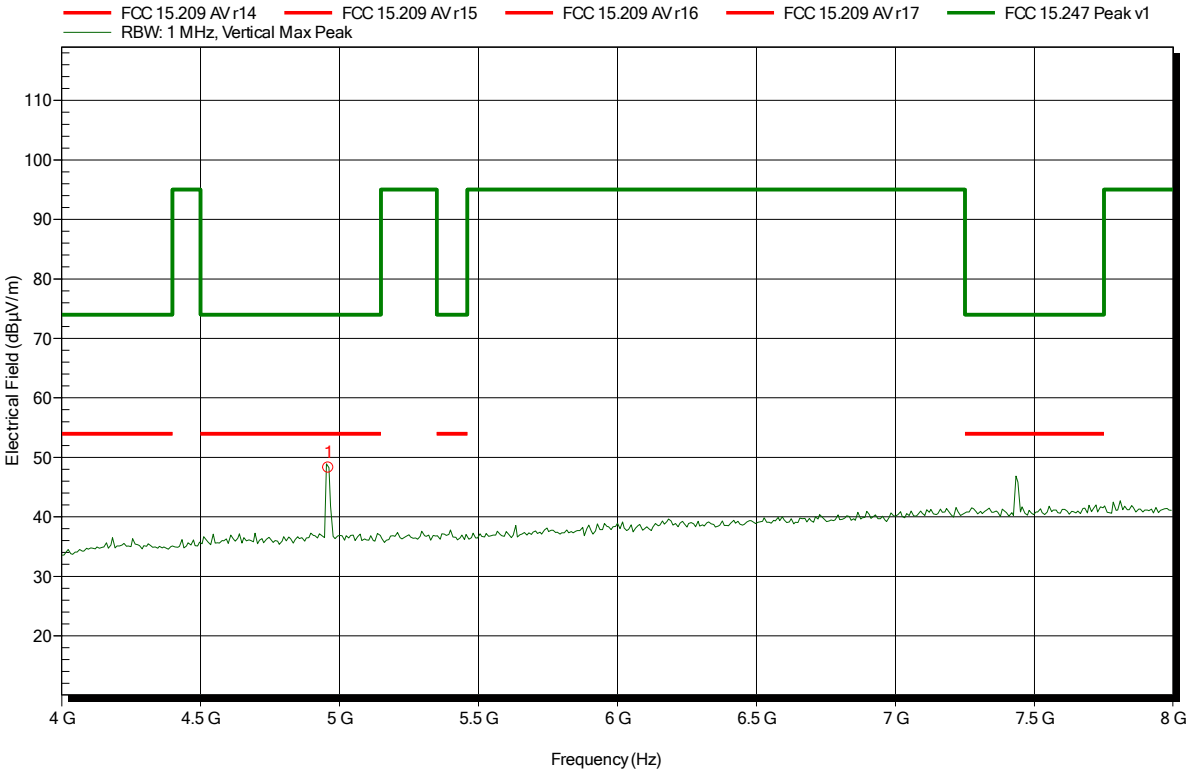
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.315 GHz	50.07 dBµV/m	74 dBµV/m	-23.93 dB	Pass

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 39; 2480MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 28



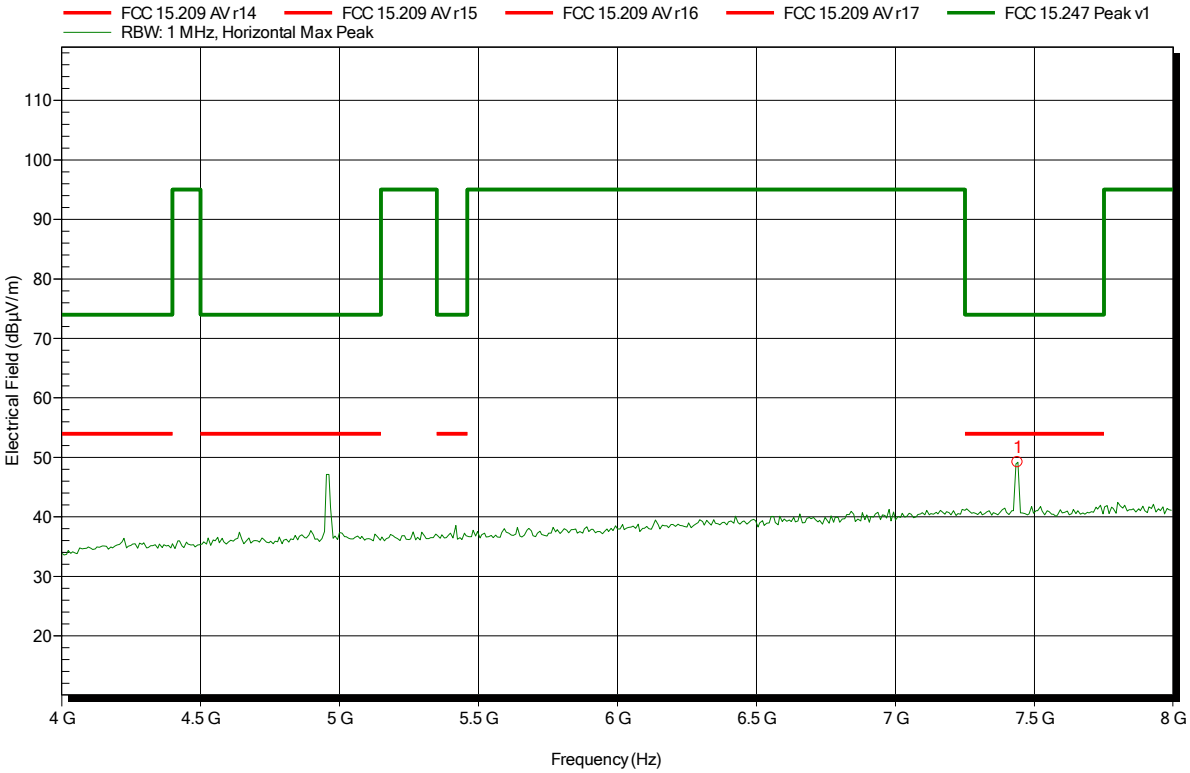
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.96 GHz	48.26 dBµV/m	74 dBµV/m	-25.74 dB	Pass

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 39; 2480MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 35



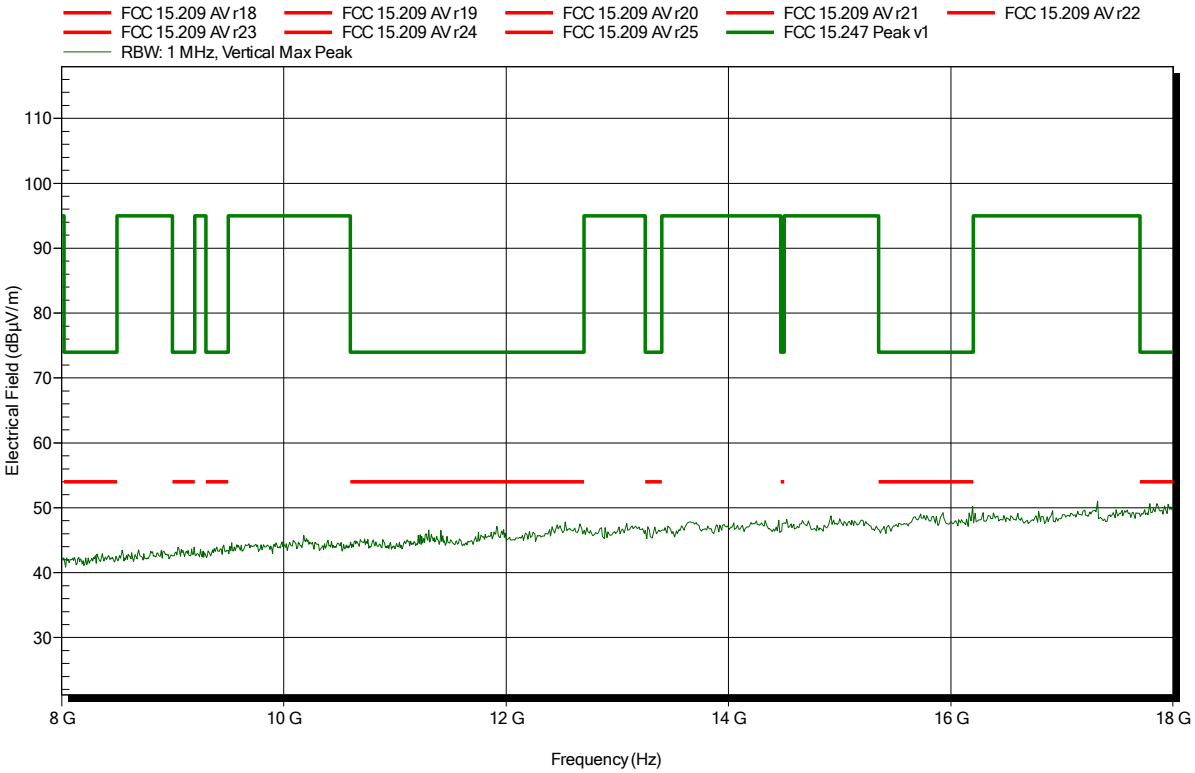
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.44 GHz	49.17 dBµV/m	74 dBµV/m	-24.83 dB	Pass

Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 0; 2402MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 4

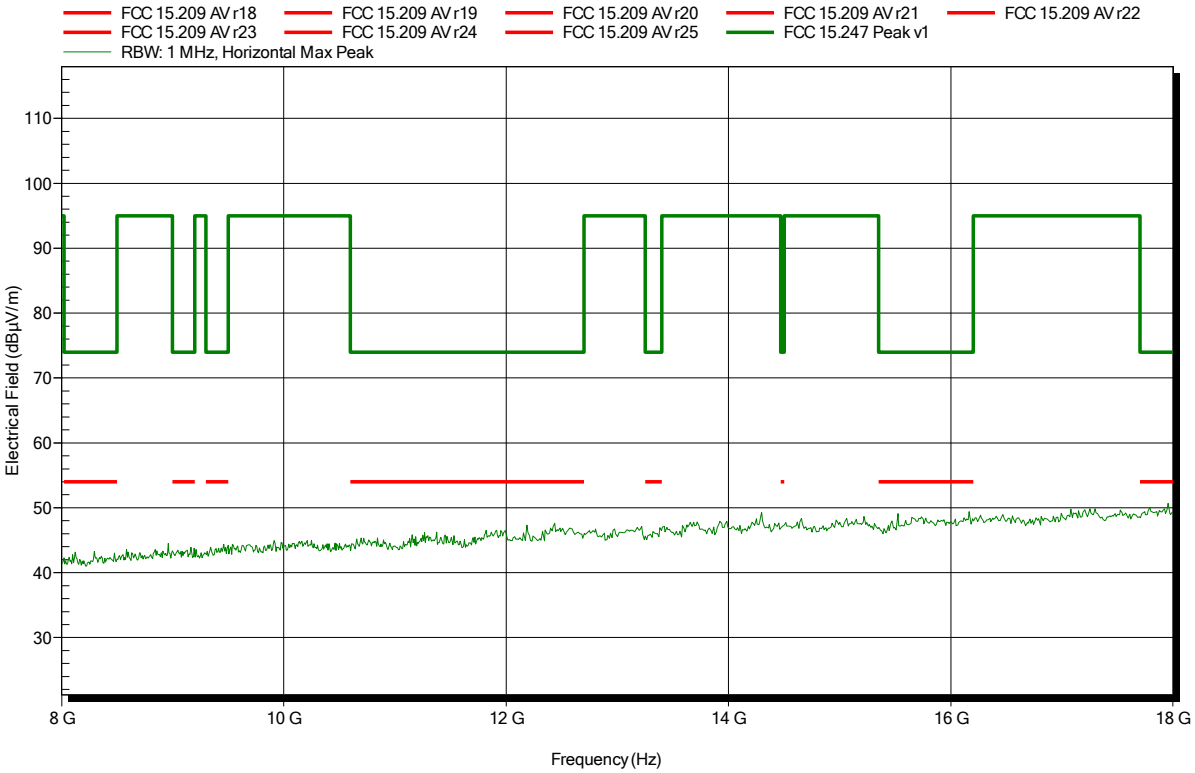


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 0; 2402MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 9

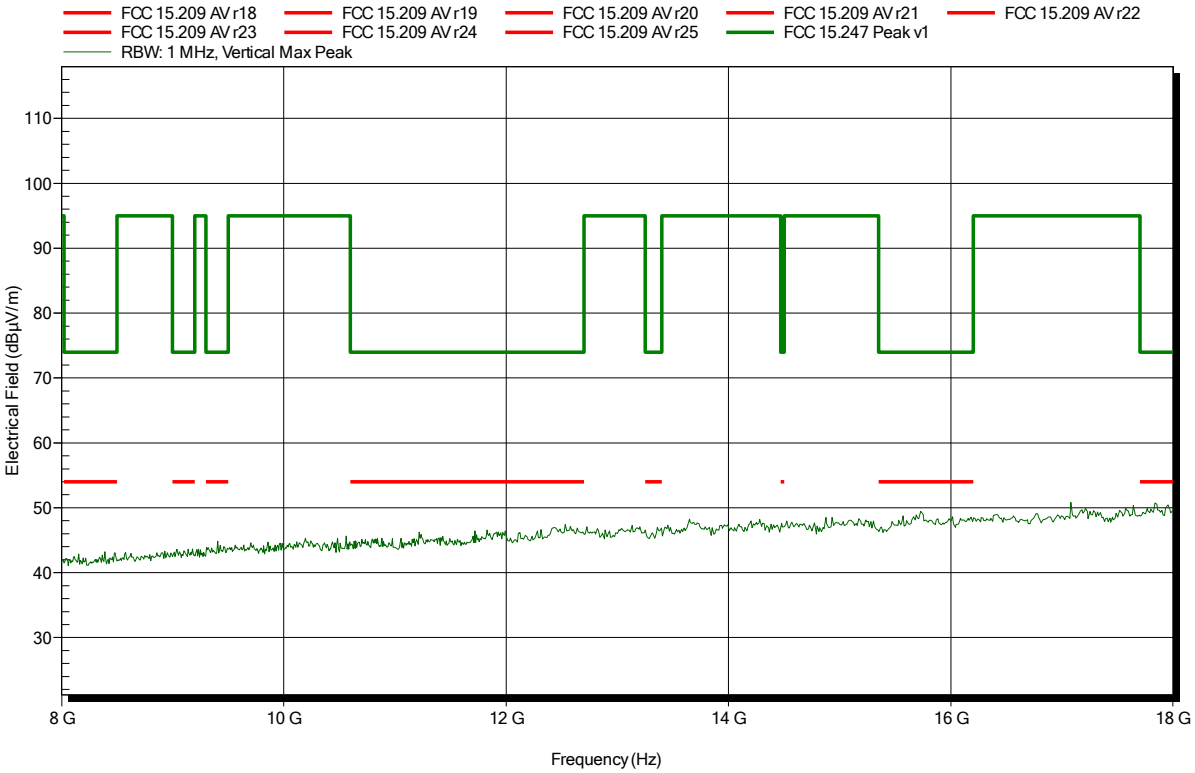


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 19; 2440MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 13

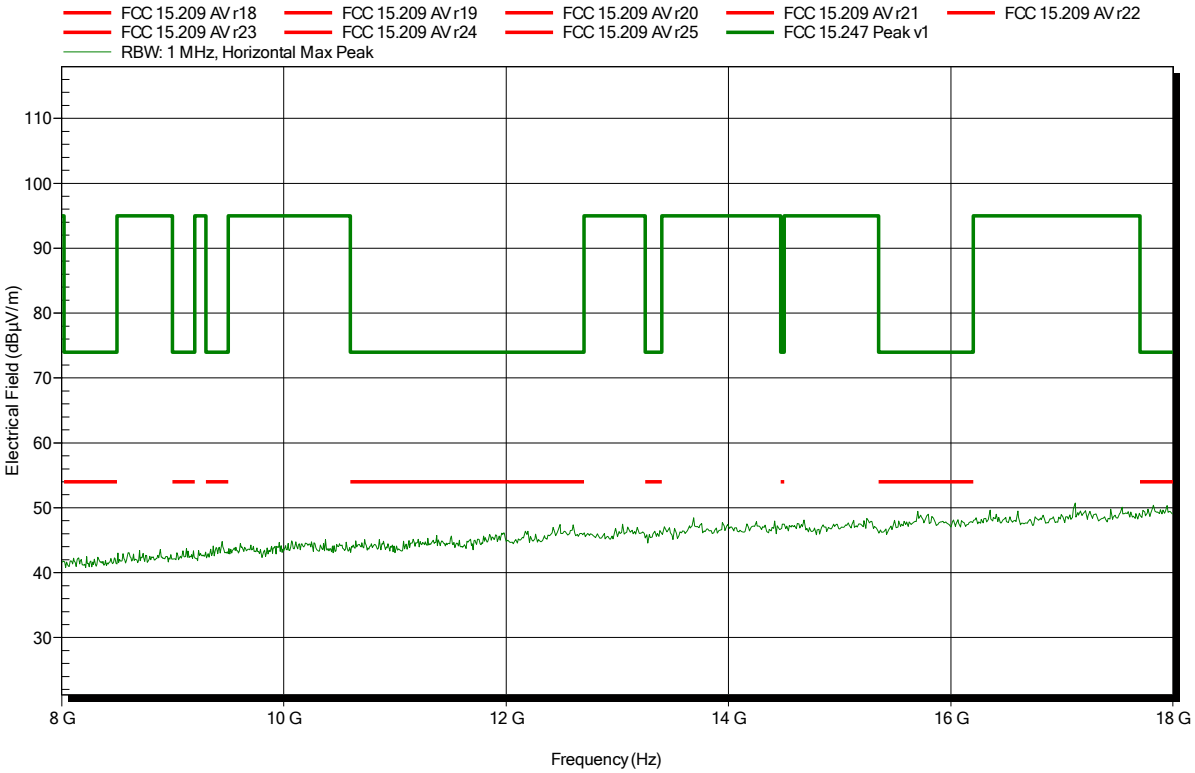


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 19; 2440MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 16

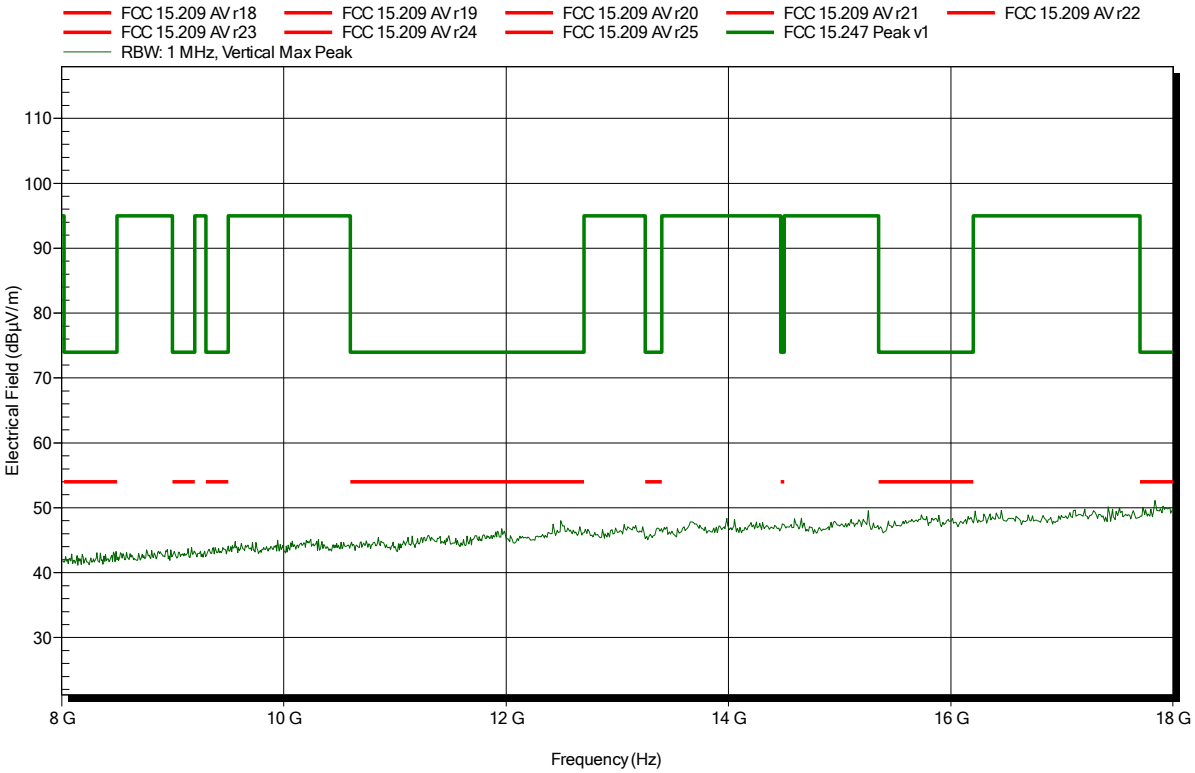


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 39; 2480MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 29

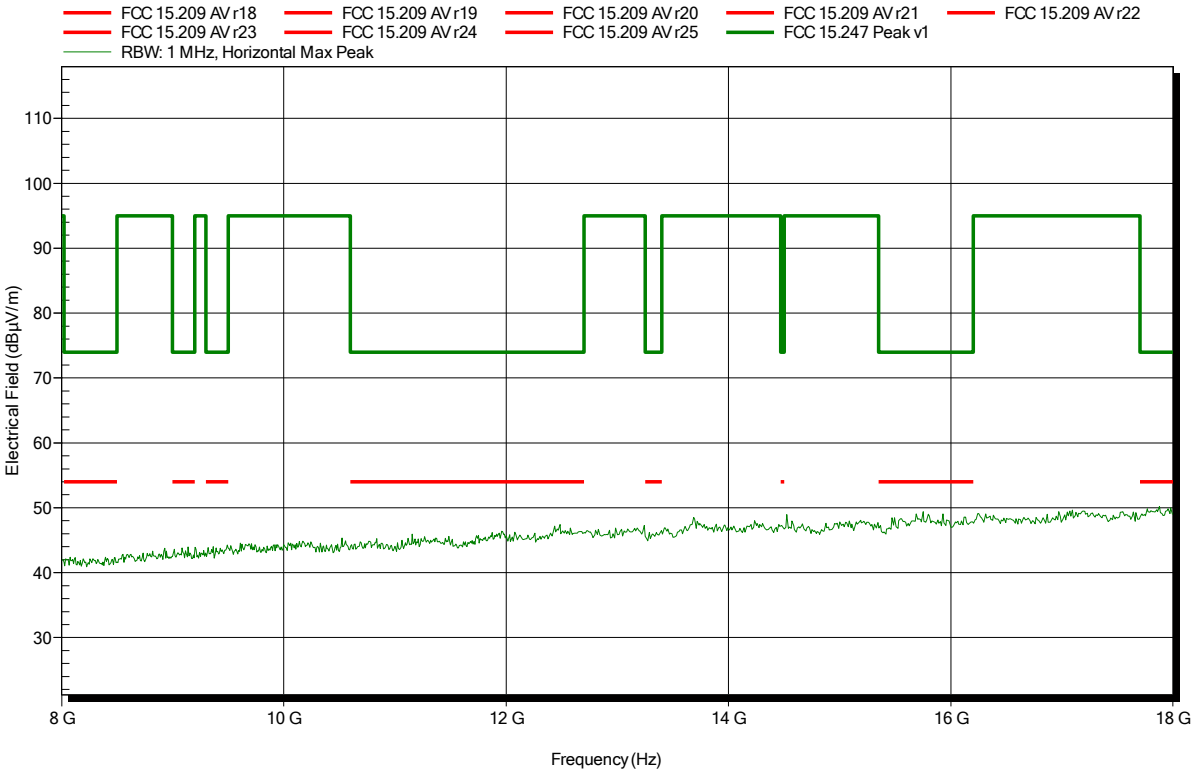


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 39; 2480MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 34

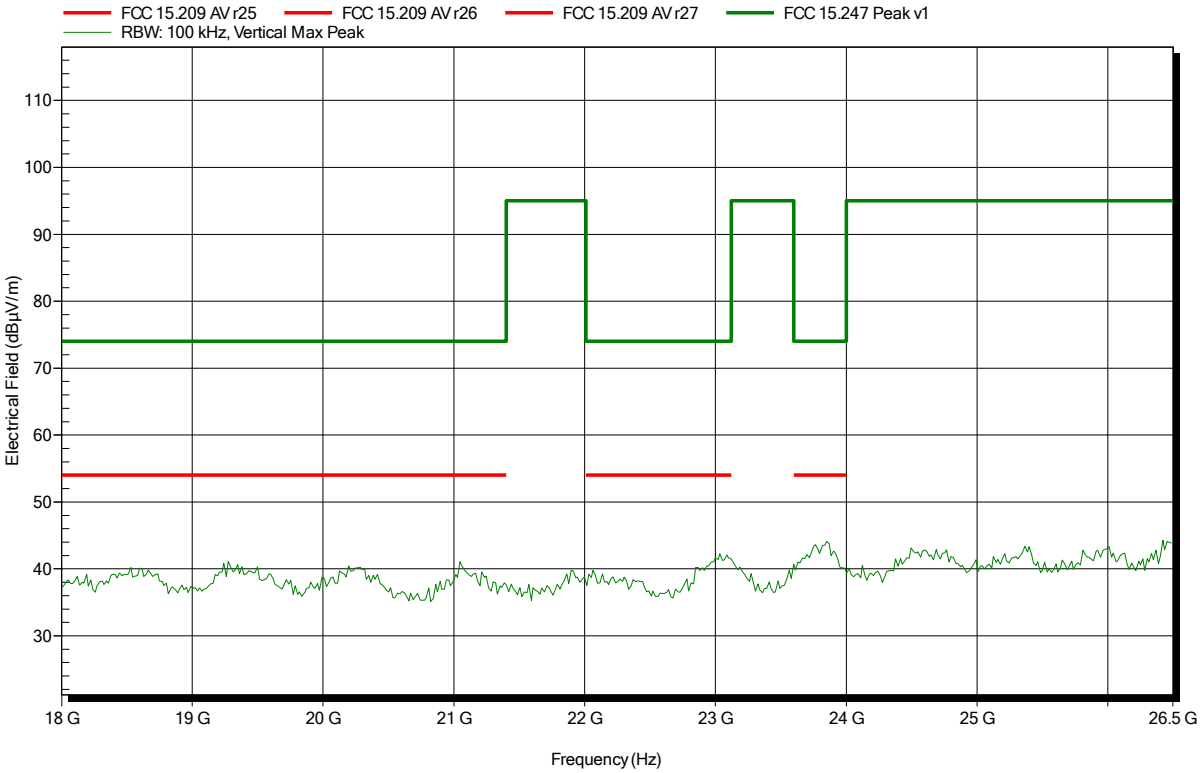


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 0; 2402MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 5

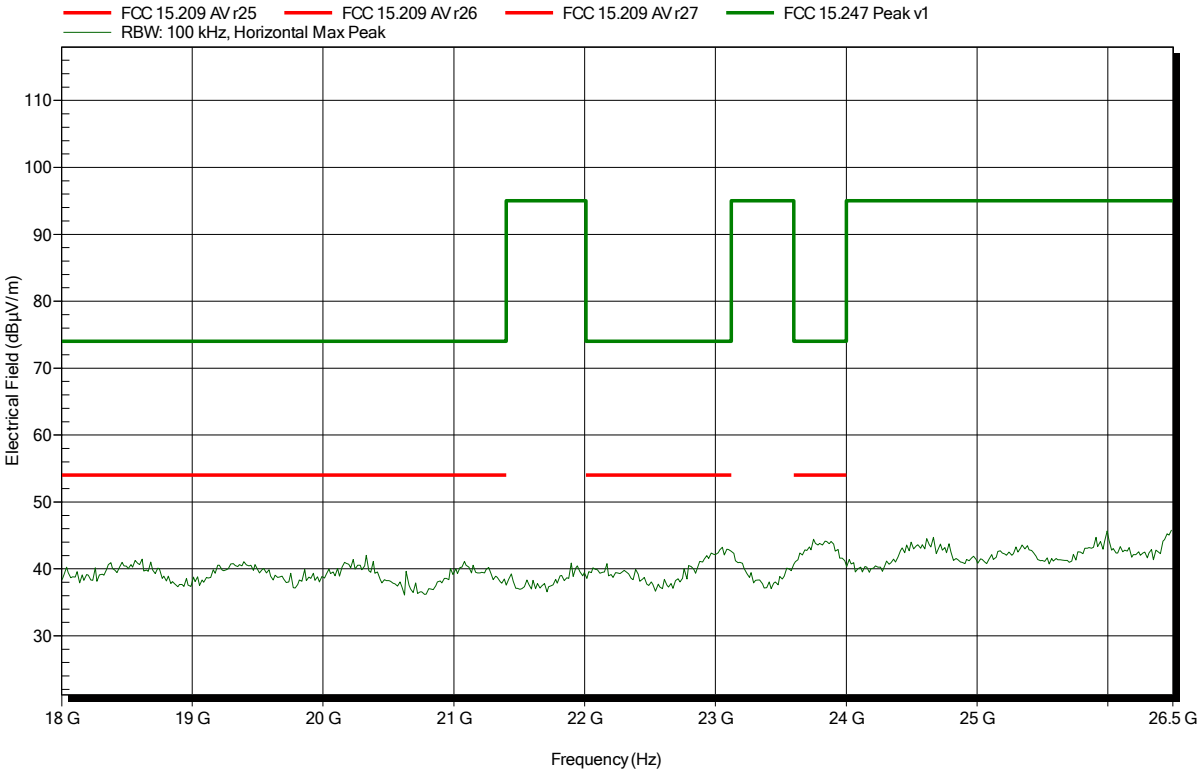


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 0; 2402MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 8

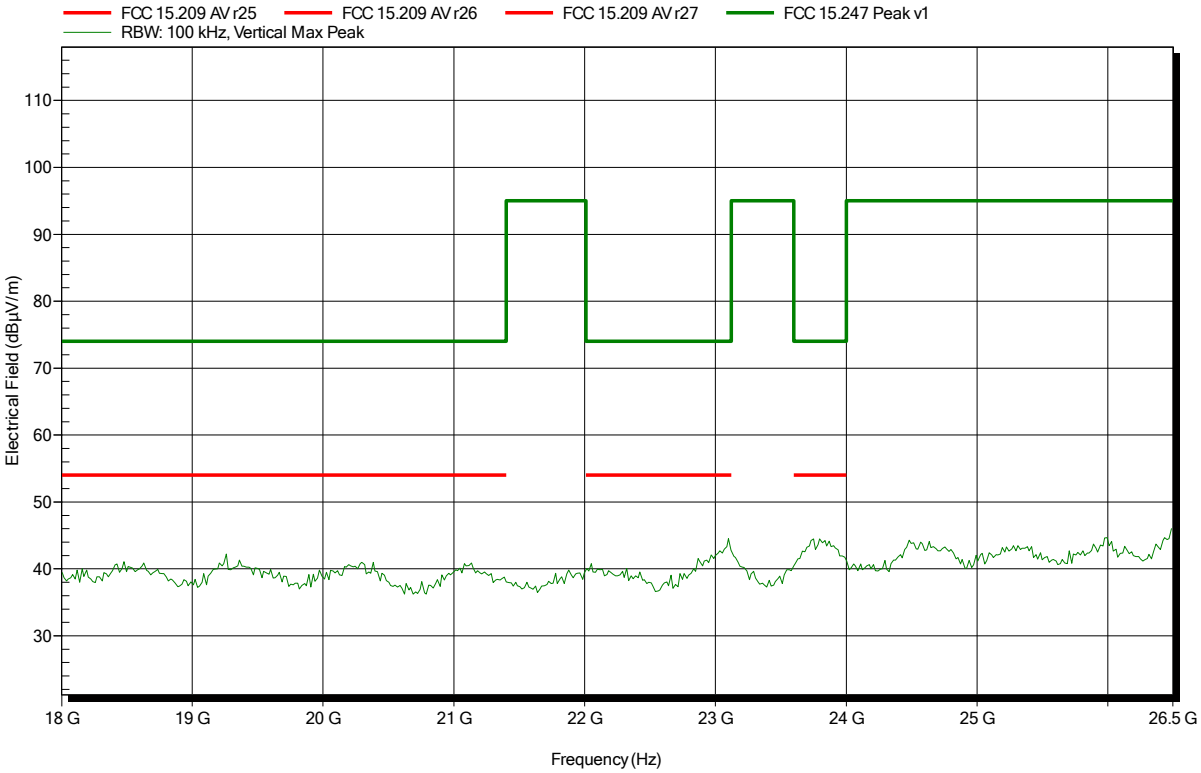


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 19; 2440MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 14

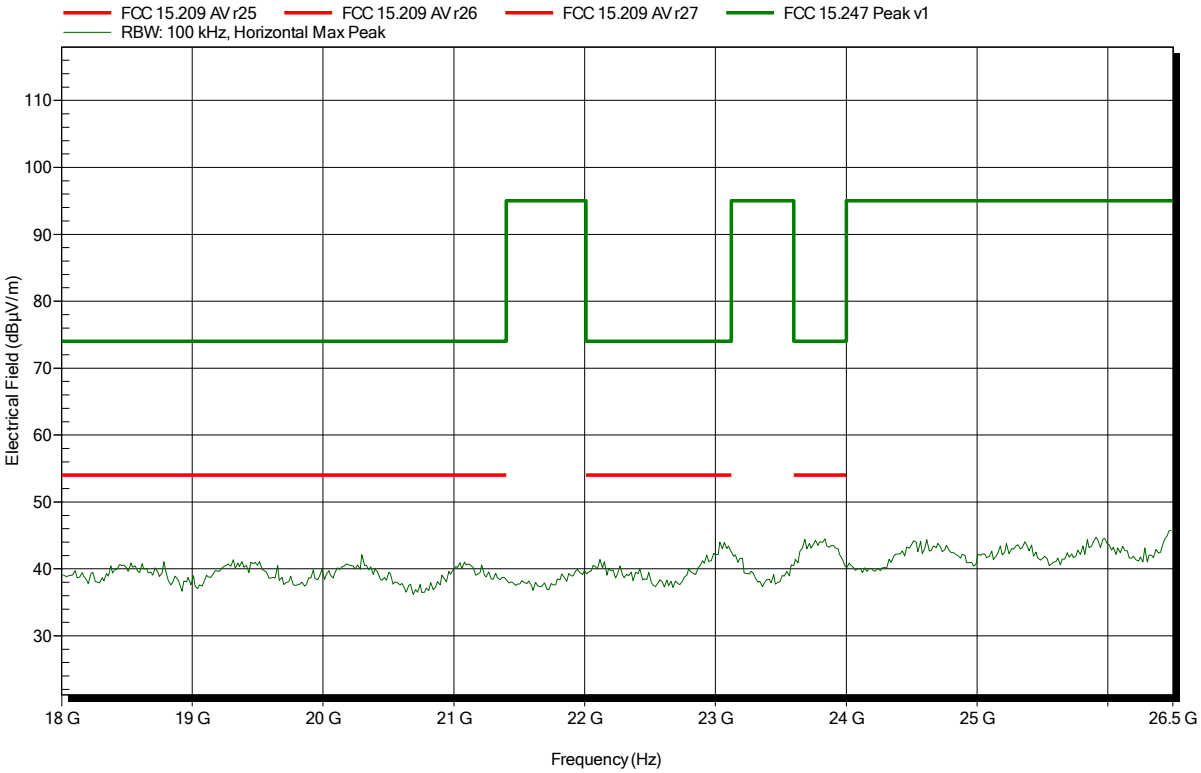


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 19; 2440MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 15

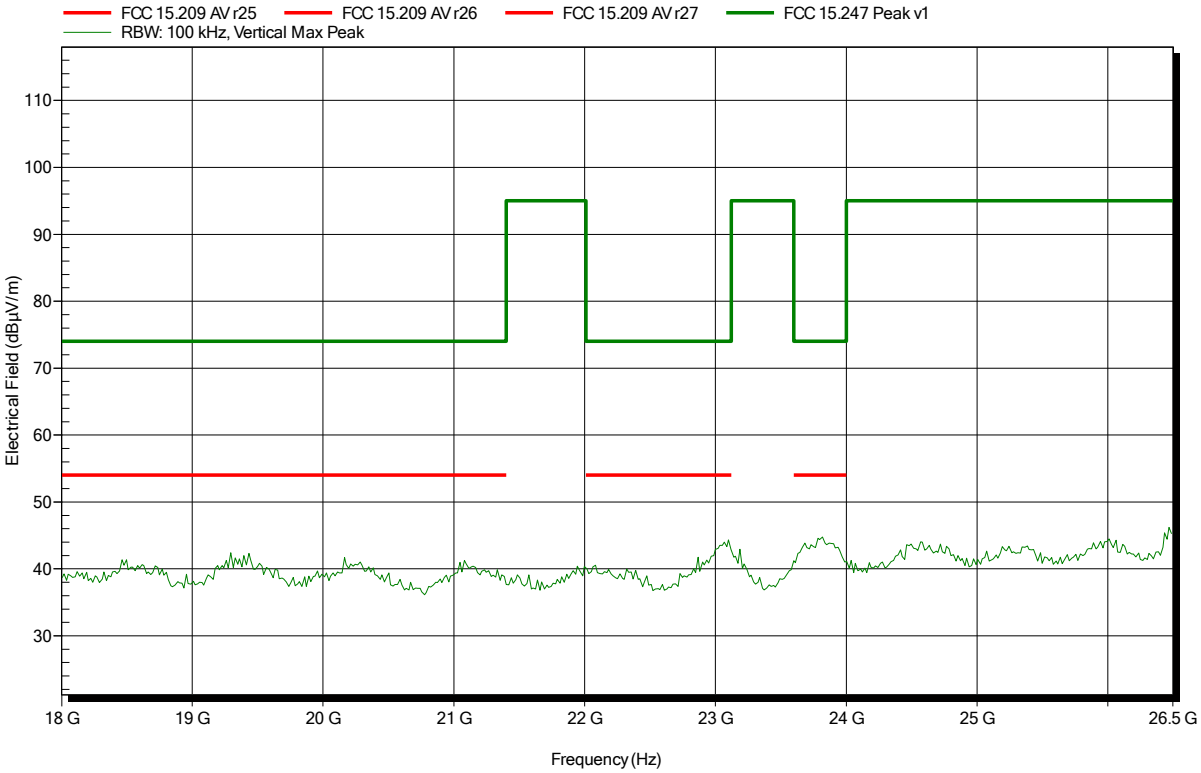


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 39; 2480MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 30

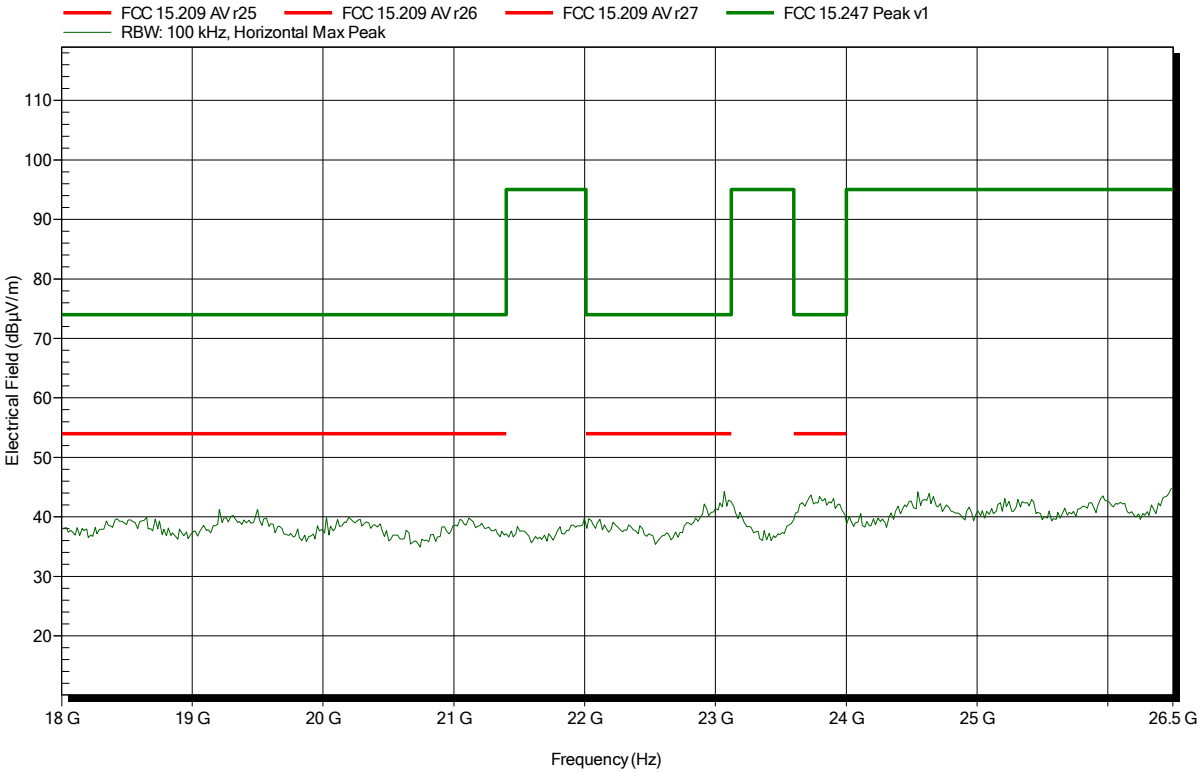


Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT-LE; CH: 39; 2480MHz; TX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 33



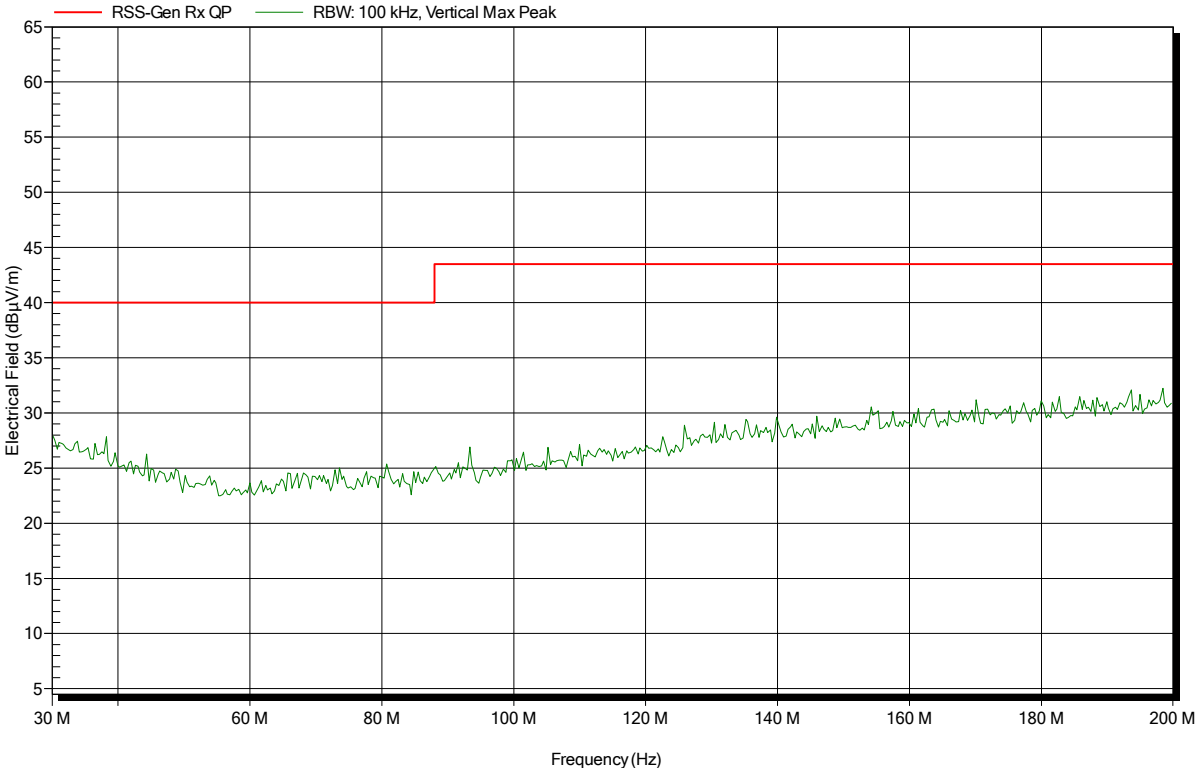
ANNEX B Receiver radiated spurious emissions

Spurious emissions according to IC RSS-247, I1

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	RX; BT-LE; CH: 19; 2440MHz; RX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 5

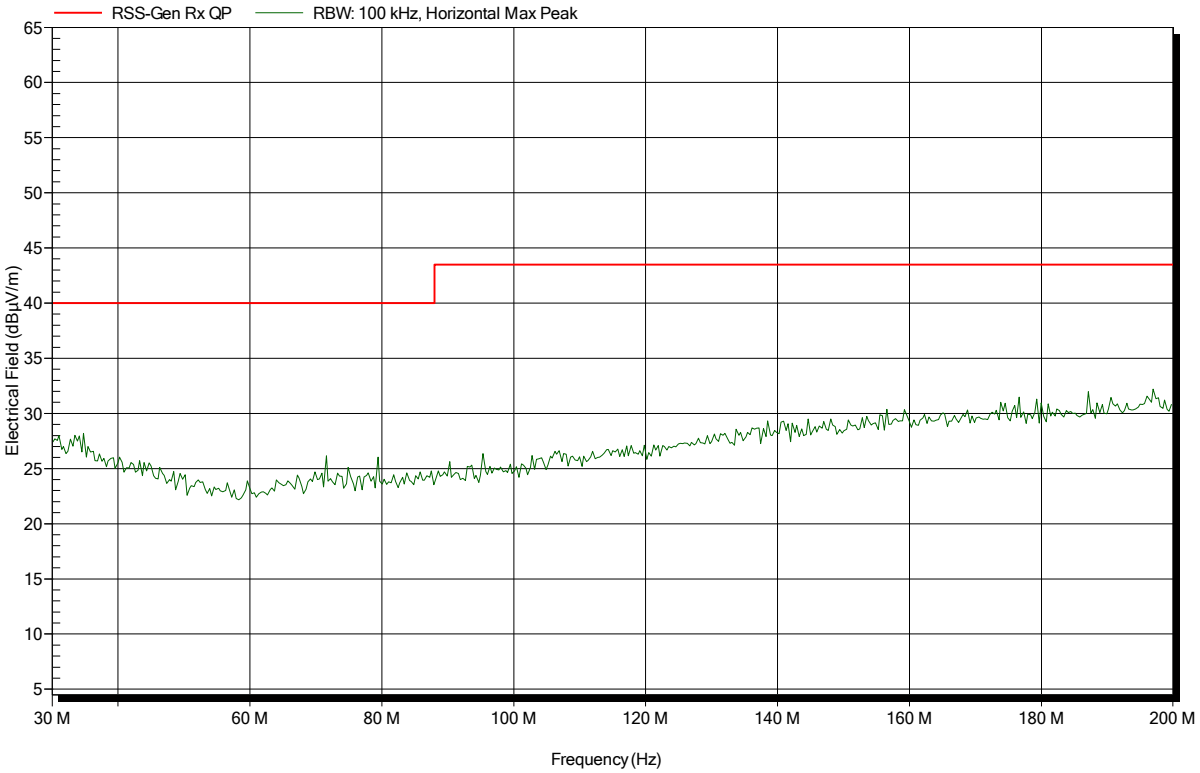


Spurious emissions according to IC RSS-247, I1

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	RX; BT-LE; CH: 19; 2440MHz; RX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 6

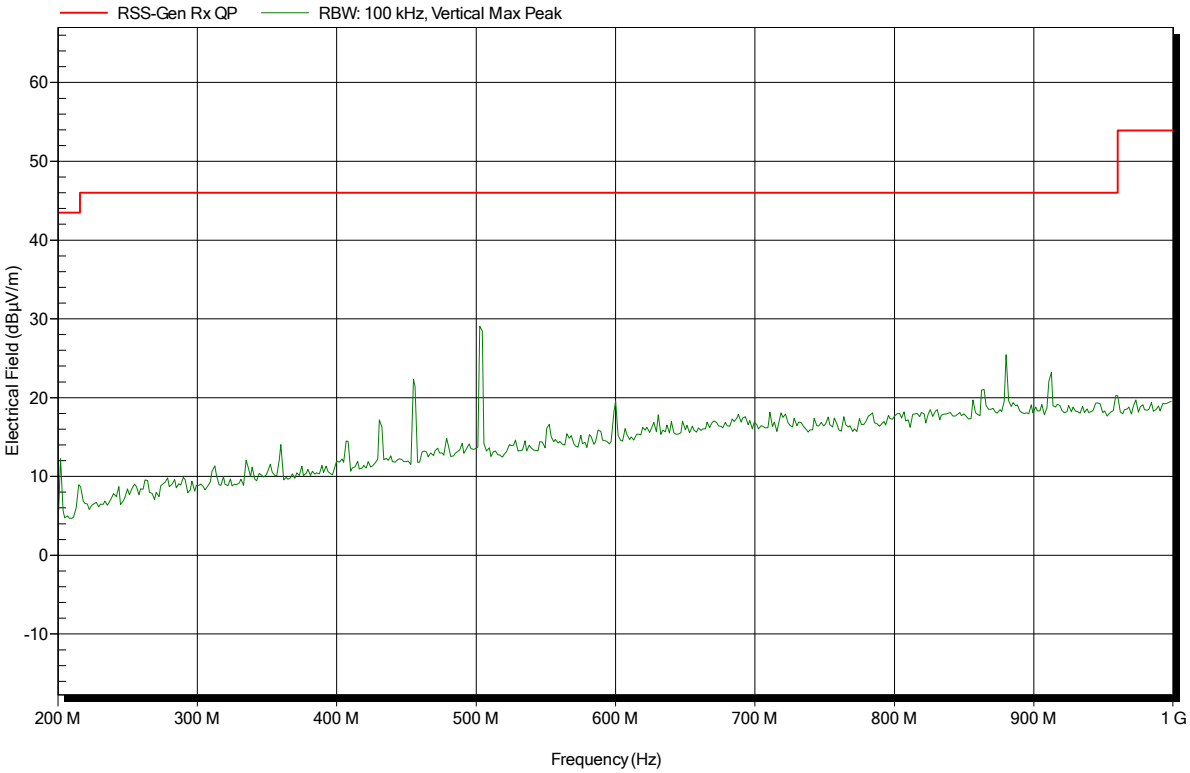


Spurious emissions according to IC RSS-247, I1

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	RX; BT-LE; CH: 19; 2440MHz; RX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 2

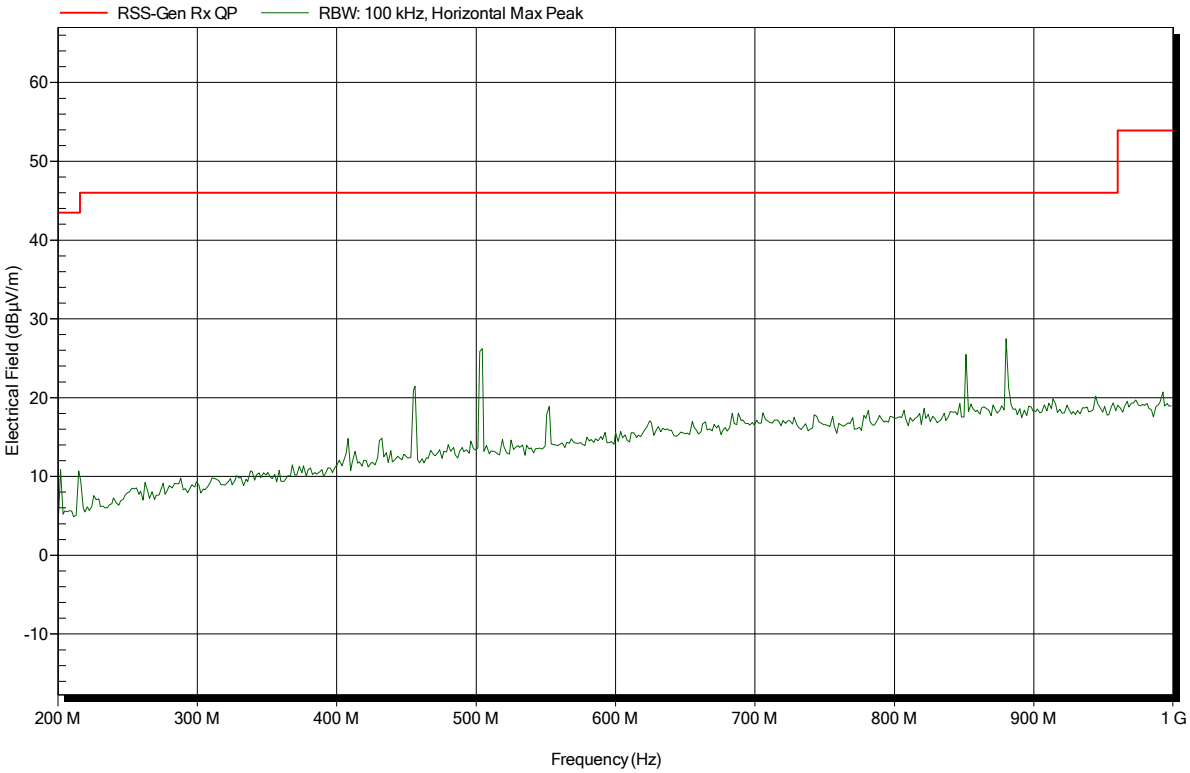


Spurious emissions according to IC RSS-247, I1

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	RX; BT-LE; CH: 19; 2440MHz; RX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 4

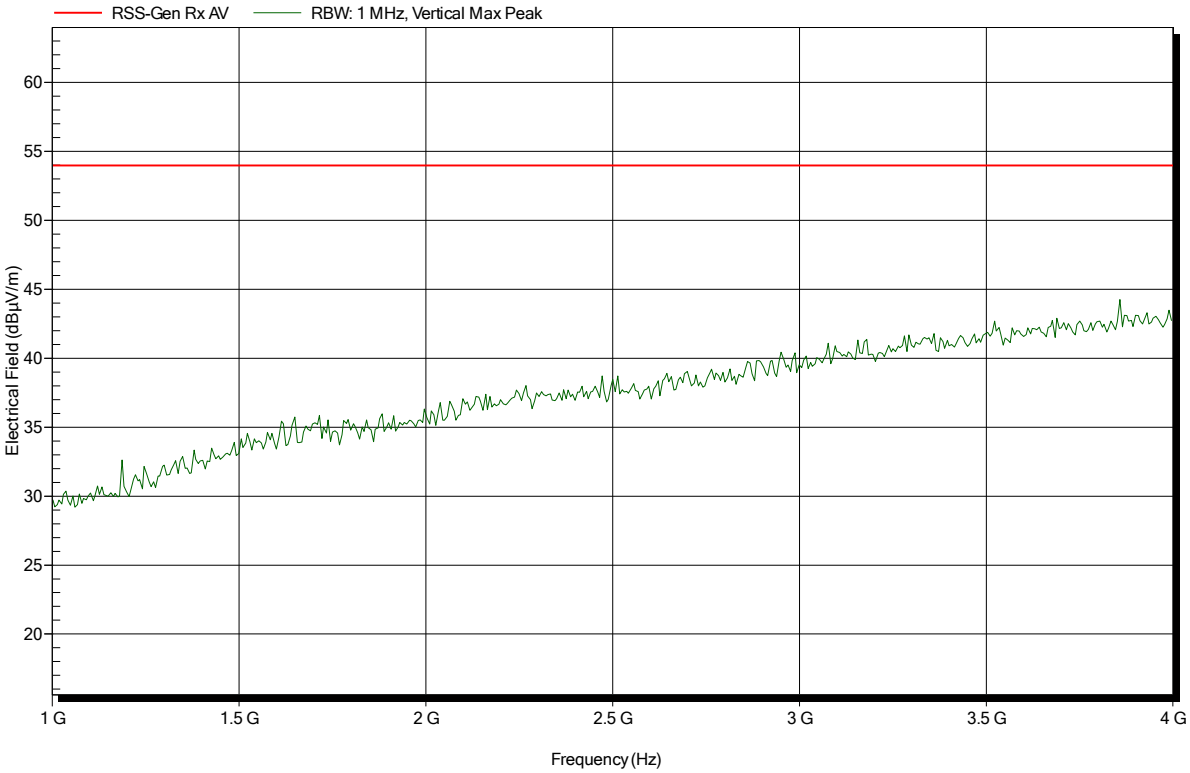


Spurious emissions according to IC RSS-247, I1

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	RX; BT-LE; CH: 19; 2440MHz; RX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 7

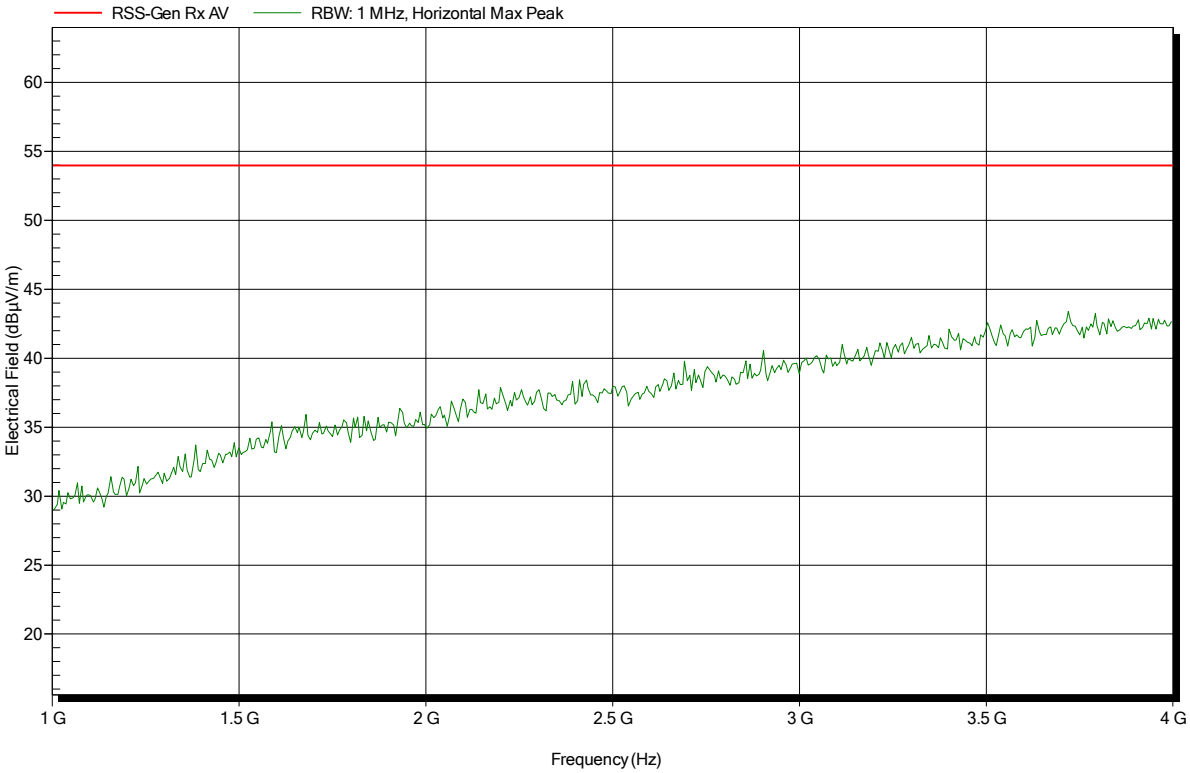


Spurious emissions according to IC RSS-247, I1

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	RX; BT-LE; CH: 19; 2440MHz; RX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 12

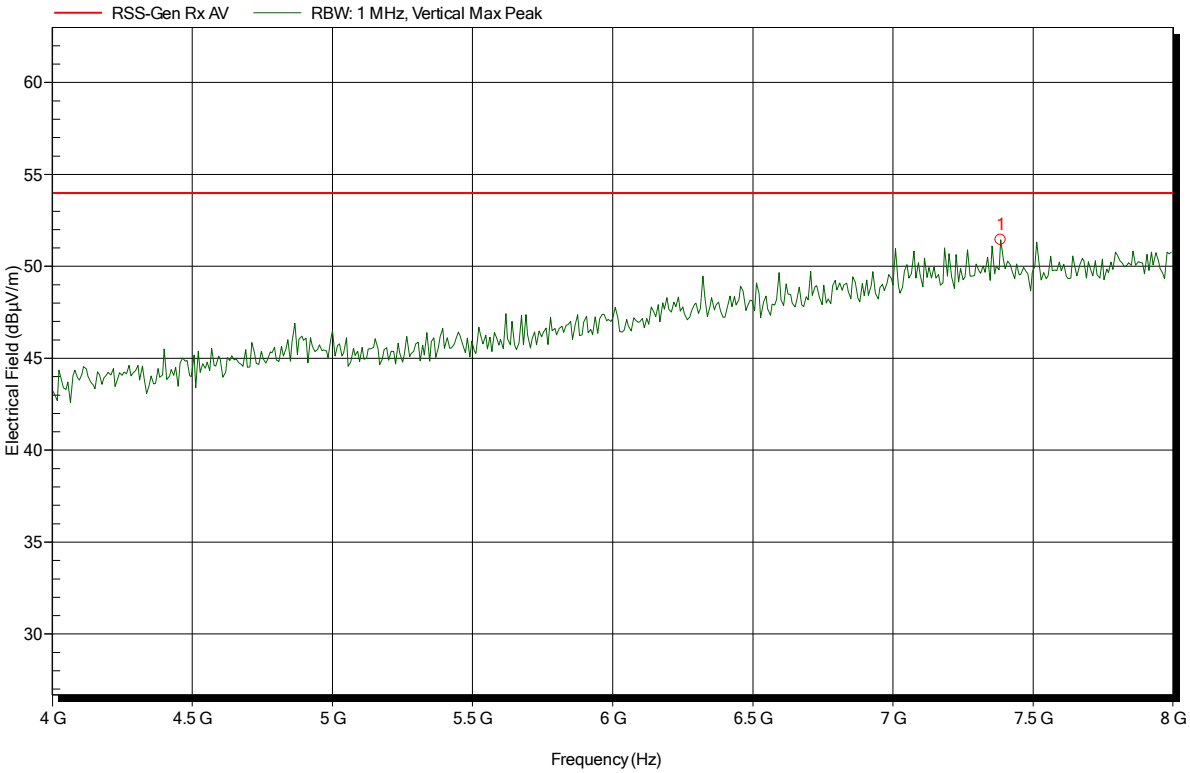


Spurious emissions according to IC RSS-247, I1

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3 m
Mode:	RX; BT-LE; CH: 19; 2440MHz; RX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 8



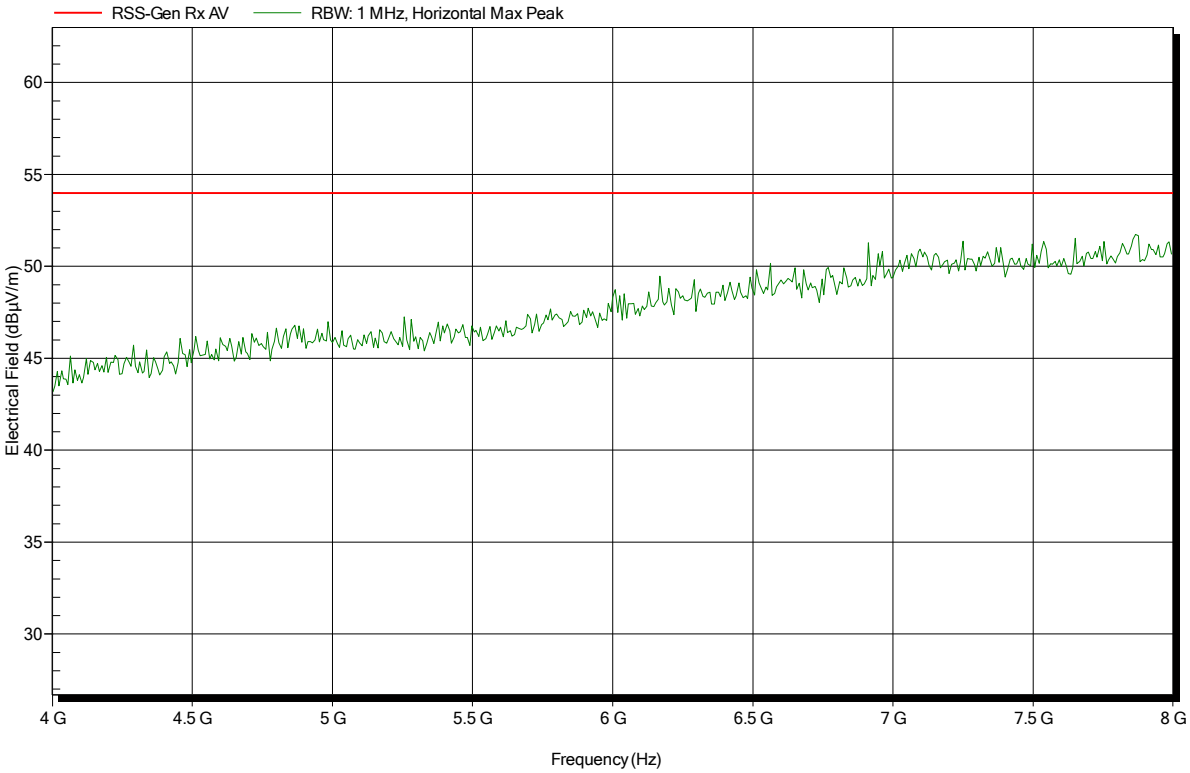
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.384 GHz	51.44 dBµV/m	53.98 dBµV/m	-2.54 dB	Pass

Spurious emissions according to IC RSS-247, I1

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3 m
Mode:	RX; BT-LE; CH: 19; 2440MHz; RX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 11

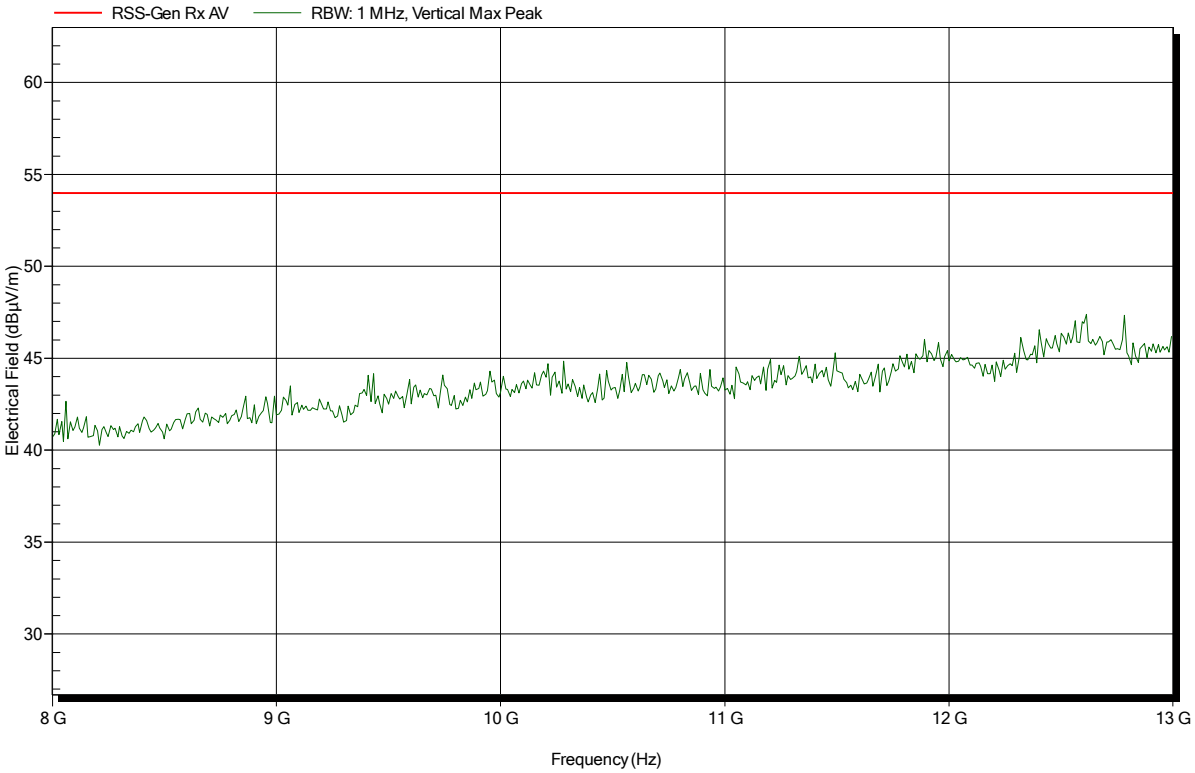


Spurious emissions according to IC RSS-247, I1

Project number: G0M-1604-5541

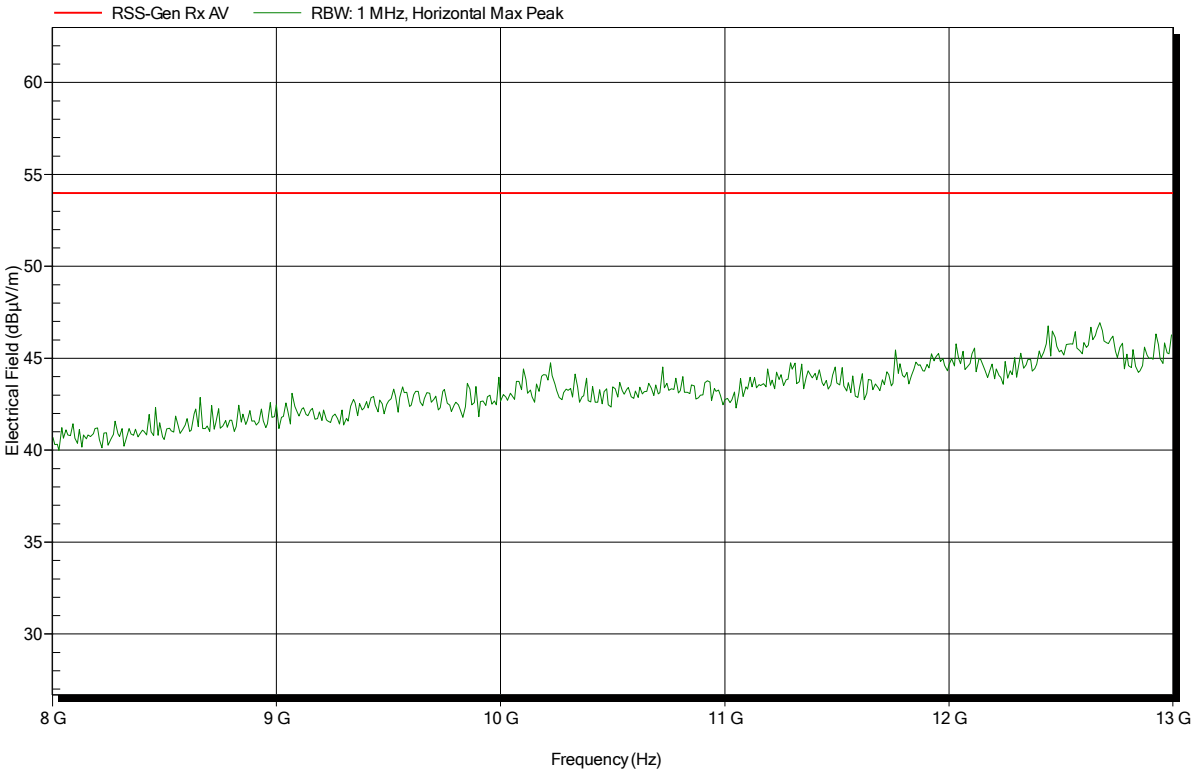
Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	RX; BT-LE; CH: 19; 2440MHz; RX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 9



Spurious emissions according to IC RSS-247, I1

Project number: G0M-1604-5541

Applicant:	PHOENIX TESTLAB GmbH
EUT Name:	USB Bluetooth Low EnergyAdapter
Model:	IFS-BT-PROG-ADAPTER
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pudell
Test Conditions:	Tnom: 24°C, Vnom: 3.3 V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	RX; BT-LE; CH: 19; 2440MHz; RX-Testmode; ANT integral
Test Date:	2016-06-17
Note:	EUT vertical

Index 10