



<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-1510-5172-TFC247WF-131-V01
<b>Testing Laboratory</b> .....	Eurofins Product Service GmbH
Address .....	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation .....	<div style="display: flex; justify-content: center; align-items: center;">   </div> <p style="text-align: center; margin-top: 5px;">                     A2LA Accredited Testing Laboratory, Certificate No.: 1983.01                      FCC Filed Test Laboratory, Reg.-No.: 96970                      IC OATS Filing assigned code: 3470A                 </p>
<b>Applicant's name</b> .....	u-blox Berlin GmbH
Address .....	Rudower Chaussee 9 12489 Berlin GERMANY
<b>Test specification:</b>	
Standard.....	47 CFR Part 15C RSS-247, Issue 1, 2015-05 RSS-Gen, Issue 4, 2014-11 ANSI C63.10:2013 ANSI C63.4:2014
Test scope.....	partial radio compliance test according to customer request
<b>Equipment under test (EUT):</b>	
Product description	WLAN/Bluetooth multi-radio host-based module
Model No.	ELLA-W1
Additional Model(s)	None
Brand Name(s)	None
Hardware version	G8, mounted on eval board version 1.01
Firmware / Software version	MFG firmware
	FCC-ID: none <span style="float: right;">IC: none</span>
<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 ..... : 2015-11-02

Date (s) of performance of tests ..... : 2015-11-02 - 2015-11-16

Compiled by ..... : Toralf Jahn

Tested by (+ signature) ..... : Toralf Jahn   
 (Responsible for Test) .....

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

Date of issue ..... : 2015-12-23

Total number of pages ..... : 86

**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:**

This test report is for the versions ELLA-W131-A and ELLA-W131.

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## Version History

Version	Issue Date	Remarks	Revised by
01	2015-12-23	Initial Release	

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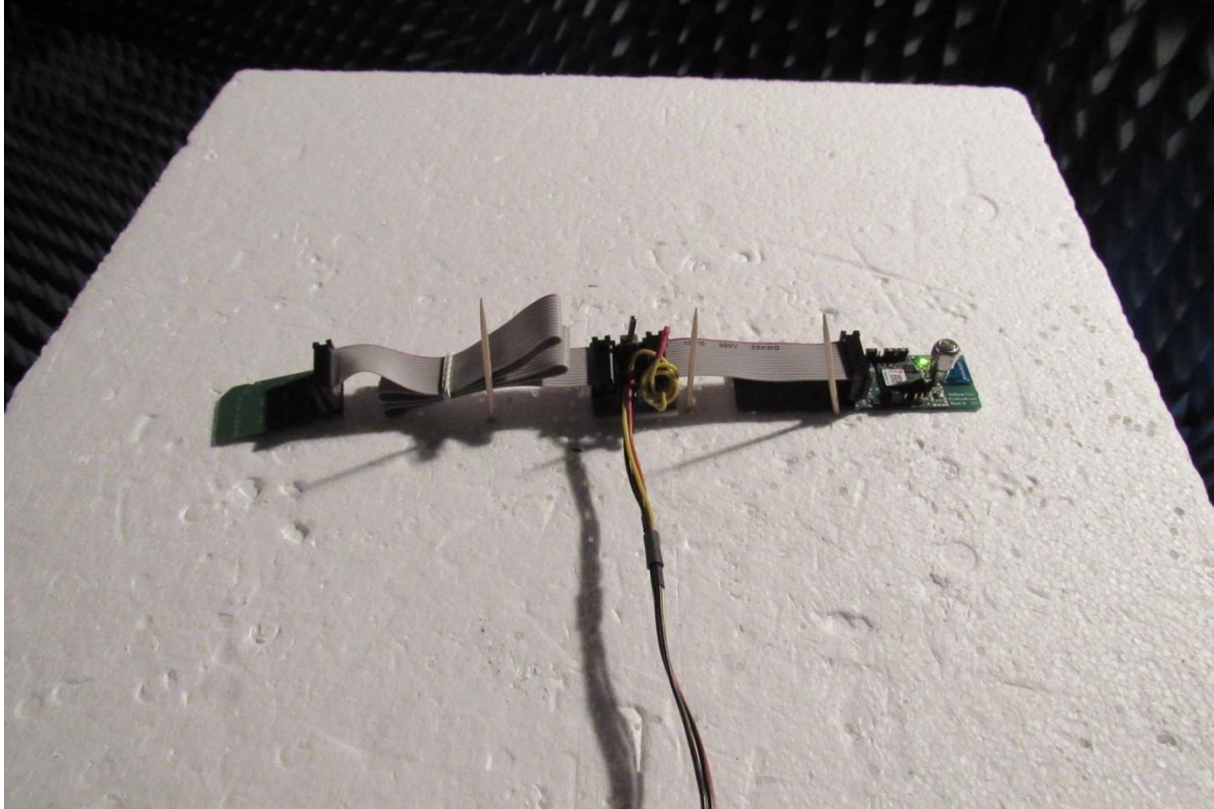
## REPORT INDEX

<b>1</b>	<b>EQUIPMENT (TEST ITEM) DESCRIPTION</b>	<b>5</b>
1.1	Photos – Test setup	6
1.2	Supporting Equipment Used During Testing	7
1.3	Test Modes	8
1.4	Test Equipment Used During Testing	9
1.5	Sample emission level calculation	10
<b>2</b>	<b>RESULT SUMMARY</b>	<b>11</b>
<b>3</b>	<b>TEST CONDITIONS AND RESULTS</b>	<b>12</b>
3.1	Test Conditions and Results – Conducted spurious emissions	12
3.2	Test Conditions and Results – Transmitter radiated emissions	24
ANNEX A	Transmitter radiated spurious emissions	27

## 1 Equipment (Test item) Description

<b>Description</b>	WLAN/Bluetooth multi-radio host-based module			
<b>Model</b>	ELLA-W1			
<b>Additional Model(s)</b>	None			
<b>Brand Name(s)</b>	None			
<b>Serial number</b>	None			
<b>Hardware version</b>	G8, mounted on eval board version 1.01			
<b>Software / Firmware version</b>	MFG firmware			
<b>FCC-ID</b>	none			
<b>IC</b>	none			
<b>Equipment type</b>	Radio module			
<b>Radio type</b>	Transceiver			
<b>Radio technology</b>	IEEE 802.11 b/g/n			
<b>Operating frequency range</b>	2412 - 2462 MHz			
<b>Assigned frequency band</b>	2400 - 2483.5 MHz			
<b>Main test frequencies</b>	F <sub>LOW20</sub>	2412 MHz	F <sub>LOW40</sub>	2422 MHz
	F <sub>MID20</sub>	2437 MHz	F <sub>MID40</sub>	2437 MHz
	F <sub>HIGH20</sub>	2462 MHz	F <sub>HIGH40</sub>	2452 MHz
<b>Spreading</b>	CCK, DSSS, OFDM			
<b>Modulations</b>	BPSK, QPSK, 16-QAM, 64-QAM			
<b>Number of channels</b>	11			
<b>Channel spacing</b>	5 MHz			
<b>Number of antennas</b>	none			
<b>Antenna</b>	Type	N/A		
	Model	N/A		
	Manufacturer	N/A		
	Gain	N/A		
<b>Manufacturer</b>	u-blox Berlin GmbH Rudower Chaussee 9 12489 Berlin GERMANY			
<b>Power supply</b>	V <sub>NOM</sub>	3.3 VDC		
	V <sub>MIN</sub>	3.0 VDC		
	V <sub>MAX</sub>	3.6 VDC		
<b>AC/DC-Adaptor</b>	Model	N/A		
	Vendor	N/A		
	Input	N/A		
	Output	N/A		

1.1 Photos – Test setup



## 1.2 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
AE	Development board	lesswire AG	WiBear11n-SF1-EK	Mounting of EUT
CABL	Flat ribbon cable	unspecific	unspecific	SDIO connection to control PC
AE	Interface card	DeLock	91481	SDIO interface on PC
AE	power supply	Statron	2224.7	
<p><b>*Note:</b> Use the following abbreviations:</p> <p style="padding-left: 40px;">AE : Auxiliary/Associated Equipment, or</p> <p style="padding-left: 40px;">SIM : Simulator (Not Subjected to Test)</p> <p style="padding-left: 40px;">CABL : Connecting cables</p>				

**1.3 Test Modes**

Mode #	Description	
DSSS	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone transmit Spreading = DSSS Modulation = BPSK Data rate = 1 Mbps Bandwidth = 20 MHz Duty cycle = 100 % Power level = 18 dBm (Test mode setting)
OFDM	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone transmit Spreading = OFDM Modulation = BPSK Data rate = 6 Mbps Bandwidth = 20 MHz Duty cycle = 100 % Power level = 15 dBm (Test mode setting)
HT20	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone transmit Spreading = OFDM Modulation = BPSK Data rate = MCS0 Bandwidth = 20 MHz Duty cycle = 100 % Power level = 15 dBm (Test mode setting)
HT40	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone transmit Spreading = OFDM Modulation = BPSK Data rate = MCS0 Bandwidth = 40 MHz Duty cycle = 100 % Power level = 15 dBm (Test mode setting)



**1.4 Test Equipment Used During Testing**

<b>Measurement Software</b>			
Description	Manufacturer	Name	Version
EMC Test Software	Dare Instruments	Radimation	2014.1.15

<b>Conducted spurious emissions</b>					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum analyzer	R&S	FSW43	EF00896	2015-03	2016-03

<b>Radiated spurious emissions</b>					
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	2015-10	2018-10

## 1.5 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 dB $\mu$ V. 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 dB $\mu$ V/m). The FCC limits are given in units of  $\mu$ V/m. The following formula is used to convert the units of  $\mu$ V/m to dB $\mu$ V/m:

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

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:

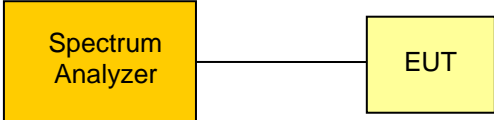
$$\begin{array}{rclcl} \text{Reading} & + & \text{AF} & = & \text{Net Reading} & : & \text{Net reading - FCC limit} & = & \text{Margin} \\ 21.5 \text{ dB}\mu\text{V} & + & 26 \text{ dB} & = & 47.5 \text{ dB}\mu\text{V/m} & : & 47.5 \text{ dB}\mu\text{V/m} - 57.0 \text{ dB}\mu\text{V/m} & = & -9.5 \text{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

## 2 Result Summary

FCC 47 CFR Part 15C, IC RSS-210				
Product Specific Standard Section	Requirement – Test	Reference Method	Result	Remarks
RSS-Gen 6.6	Occupied Bandwidth	ANSI C63.10	N/T	Informational only
FCC § 15.247(a)(2) IC RSS-247 § 5.2	6dB Bandwidth	ANSI C63.10	N/T	Customer specific test plan
FCC § 15.247(b)(3) IC RSS-247 § 5.4	Maximum peak conducted power	ANSI C63.10	N/T	Customer specific test plan
FCC § 15.247(e) IC RSS-247 § 5.2	Power spectral density	ANSI C63.10	N/T	Customer specific test plan
47 CFR 15.207 IC RSS-247 § 3.1	AC power line conducted emissions	ANSI C63.4	N/T	Customer specific test plan
FCC § 15.247(d) IC RSS-247 § 5.5	Band edge compliance	ANSI C63.10	N/T	Customer specific test plan
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	Customer specific test plan. Measurements only between 1 and 12.5 GHz. Antenna ports terminated with 50 Ohms.
IC RSS-247 § 3.1	Receiver radiated spurious emissions	ANSI C63.10	N/T	customer specific test plan
<b>Remarks:</b>				

### 3 Test Conditions and Results

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

<b>Conducted spurious emissions acc. to FCC 15.247 / IC RSS-247</b>		<b>Verdict: PASS</b>
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	
<b>Limits</b>		
Limit	Condition	
≤ -20 dB / 100 kHz	Peak power measurement detector = Peak	
≤ -30 dB / 100 kHz	Peak power measurement detector = RMS	
<b>Test setup</b>		
 <pre> graph LR     SA[Spectrum Analyzer] --- EUT[EUT]             </pre>		
<b>Test procedure</b>		
<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 is set to 100 kHz and detector to peak and max hold</li> <li>4. Markers are set to peak emission levels within frequency band</li> <li>5. Emission level is determined by second marker on emission peak</li> <li>6. Attenuation is determined from level difference</li> </ol>		

<b>Test overview</b>				
Channel	Frequency [MHz]	Mode	Model	Result
F <sub>LOW</sub>	2412	DSSS	ELLA-W131-A	Pass
F <sub>LOW</sub>	2412	OFDM	ELLA-W131-A	Pass
F <sub>LOW</sub>	2412	HT20	ELLA-W131-A	Pass
F <sub>LOW</sub>	2422	HT40	ELLA-W131-A	Pass
F <sub>HIGH</sub>	2462	DSSS	ELLA-W131-A	Pass
F <sub>HIGH</sub>	2462	OFDM	ELLA-W131-A	Pass
F <sub>LOW</sub>	2412	DSSS	ELLA-W131	Pass
F <sub>LOW</sub>	2412	OFDM	ELLA-W131	Pass
F <sub>HIGH</sub>	2462	DSSS	ELLA-W131	Pass
F <sub>HIGH</sub>	2462	OFDM	ELLA-W131	Pass

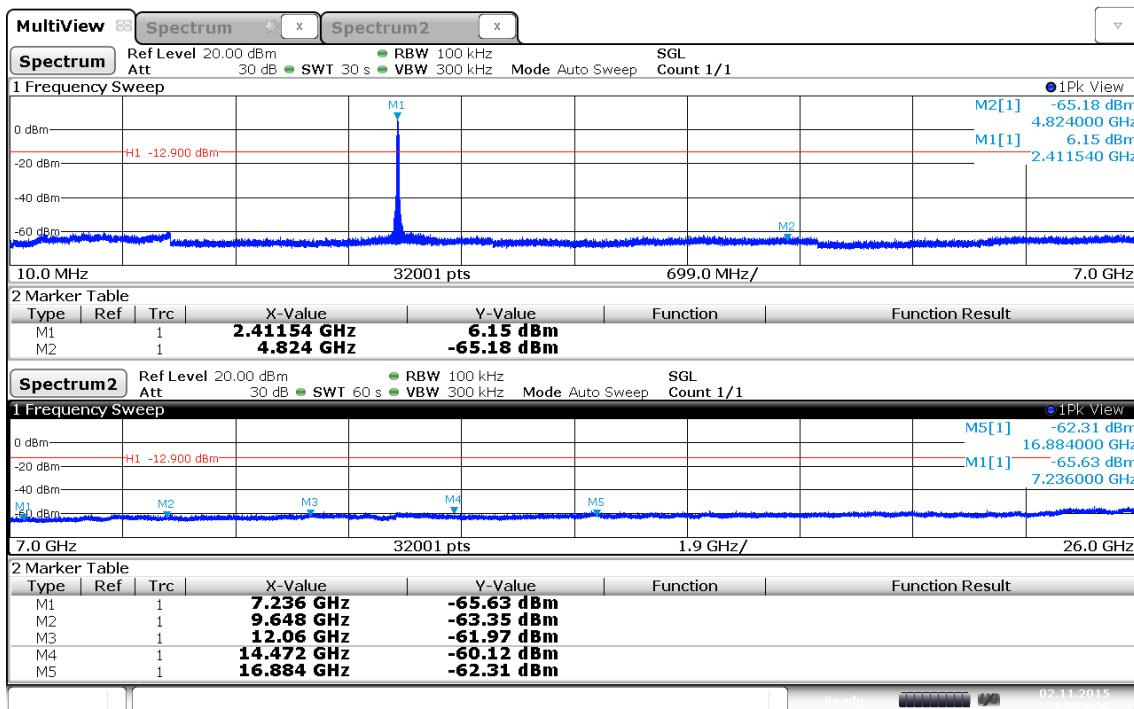
Comments: The Low Channel was measured for ELLA-W131-A with DSSS, OFDM, HT20 and HT40. OFDM was determined as the worst case out of OFDM, HT20 and HT40. Subsequent measurements were only performed with DSSS and OFDM.

**ELLA-W131-A Conducted spurious emissions – DSSS F<sub>LOW</sub>**

**Spurious Emissions acc. to FCC 15.247**

Project Number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Christian Weber  
 Test Conditions: Tnom / Vnom  
 Mode: Tx, IEEE 802.11b, 2412 MHz, 1 Mbps, Power 18 dBm  
 Test Date: 2015-11-02  
 Verdict: PASS  
 Note 1: Spurious in non-restricted frequency bands (ANSI C63.10)  
 Note 2: conducted measurement

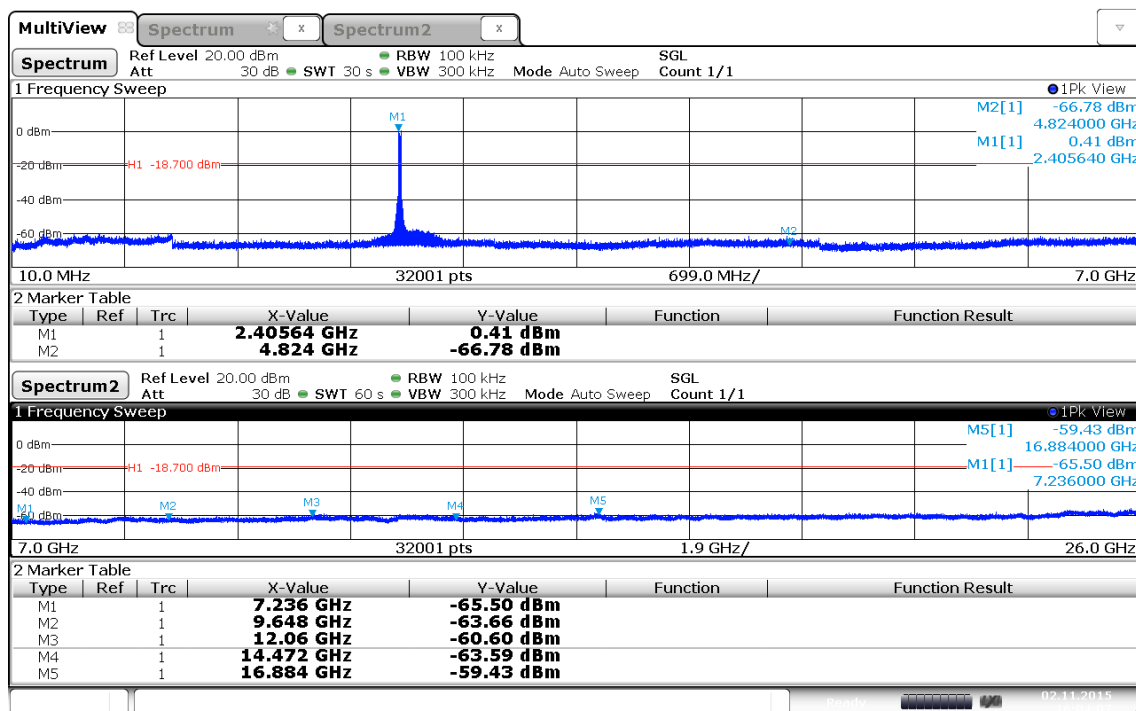


Date: 2.NOV.2015 15:54:57

**ELLA-W131-A Conducted spurious emissions – OFDM F<sub>LOW</sub>**
**Spurious Emissions acc. to FCC 15.247**

Project Number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Christian Weber  
 Test Conditions: Tnom / Vnom  
 Mode: Tx, IEEE 802.11g, 2412 MHz, 6 Mbps, Power 15 dBm  
 Test Date: 2015-11-02  
 Verdict: PASS  
 Note 1: Spurious in non-restricted frequency bands (ANSI C63.10)  
 Note 2: conducted measurement



Date: 2.NOV.2015 16:04:07

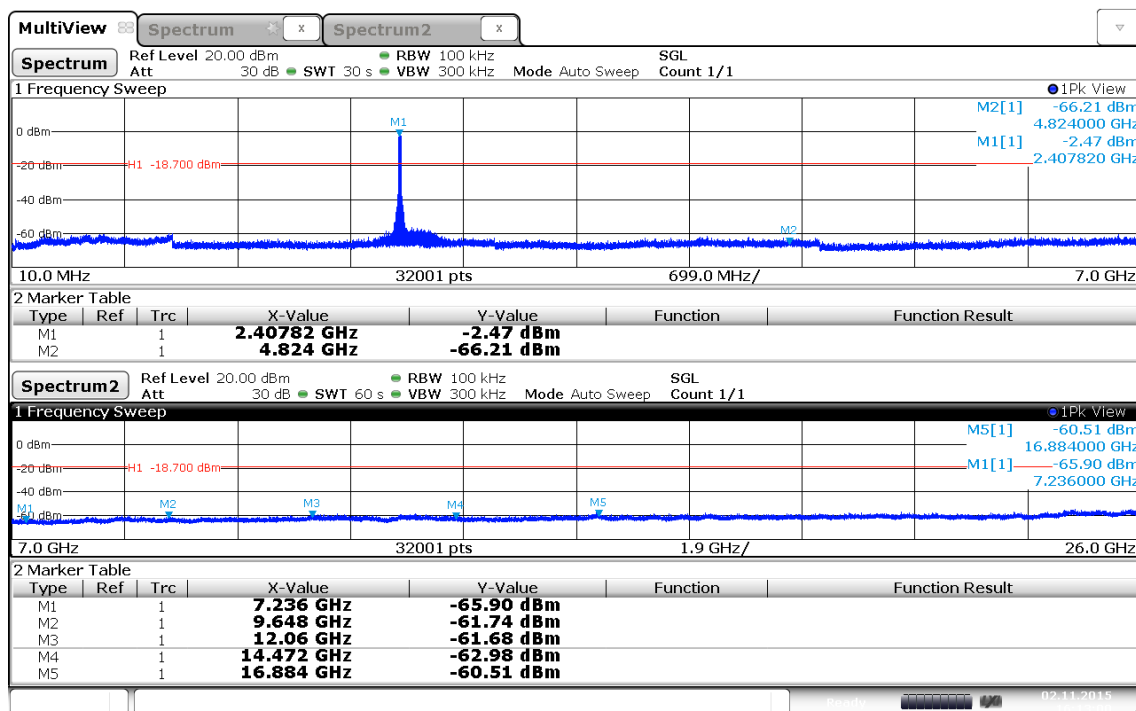
Test Report No.: G0M-1510-5172-TFC247WF-131-V01

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

**ELLA-W131-A Conducted spurious emissions – HT20 F<sub>Low</sub>**
**Spurious Emissions acc. to FCC 15.247**

Project Number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Christian Weber  
 Test Conditions: Tnom / Vnom  
 Mode: Tx, IEEE 802.11n HT20, 2412 MHz, MCS0, Power 15 dBm  
 Test Date: 2015-11-02  
 Verdict: PASS  
 Note 1: Spurious in non-restricted frequency bands (ANSI C63.10)  
 Note 2: conducted measurement



Date: 2.NOV.2015 16:13:00

Test Report No.: G0M-1510-5172-TFC247WF-131-V01

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

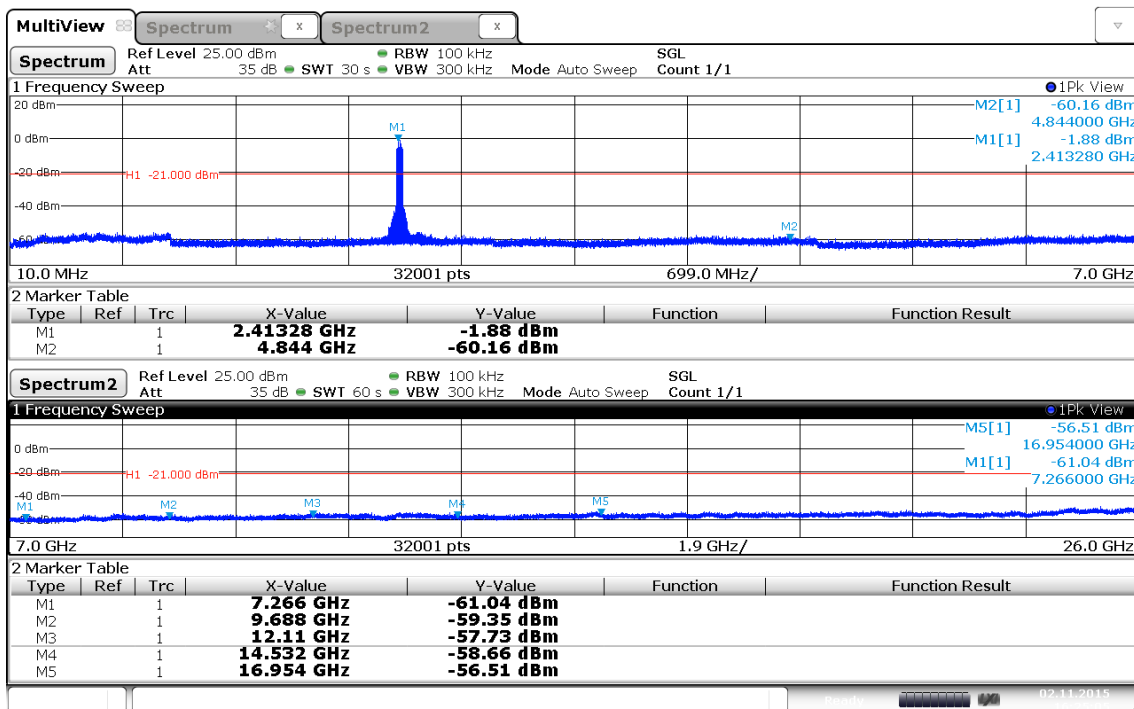


**ELLA-W131-A Conducted spurious emissions – HT40 F<sub>Low</sub>**

**Spurious Emissions acc. to FCC 15.247**

Project Number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Christian Weber  
 Test Conditions: Tnom / Vnom  
 Mode: Tx, IEEE 802.11n HT40, 2422 MHz, MCS0, Power 15 dBm  
 Test Date: 2015-11-02  
 Verdict: PASS  
 Note 1: Spurious in non-restricted frequency bands (ANSI C63.10)  
 Note 2: conducted measurement



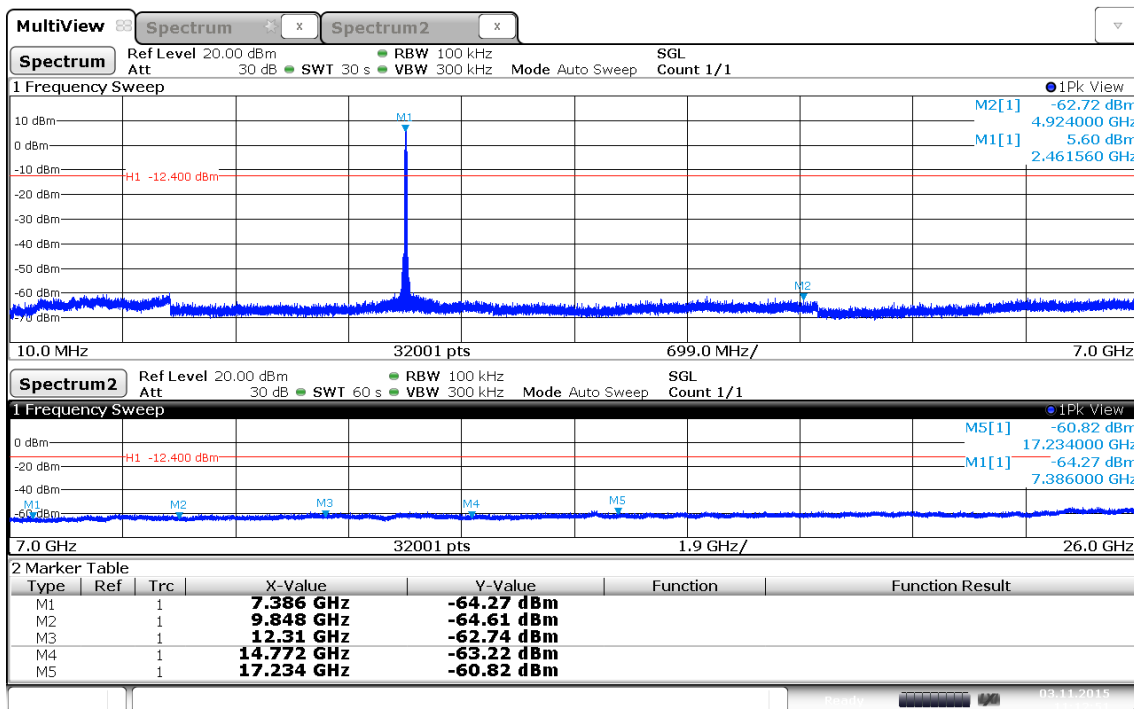
Date: 2.NOV.2015 16:25:05

**ELLA-W131-A Conducted spurious emissions – DSSS F<sub>HIGH</sub>**

**Spurious Emissions acc. to FCC 15.247**

Project Number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Christian Weber  
 Test Conditions: Tnom / Vnom  
 Mode: Tx, IEEE 802.11 b, 2462 MHz, 1 Mbps, Power 18 dBm  
 Test Date: 2015-11-03  
 Verdict: PASS  
 Note 1: Spurious in non-restricted frequency bands (ANSI C63.10)  
 Note 2: conducted measurement



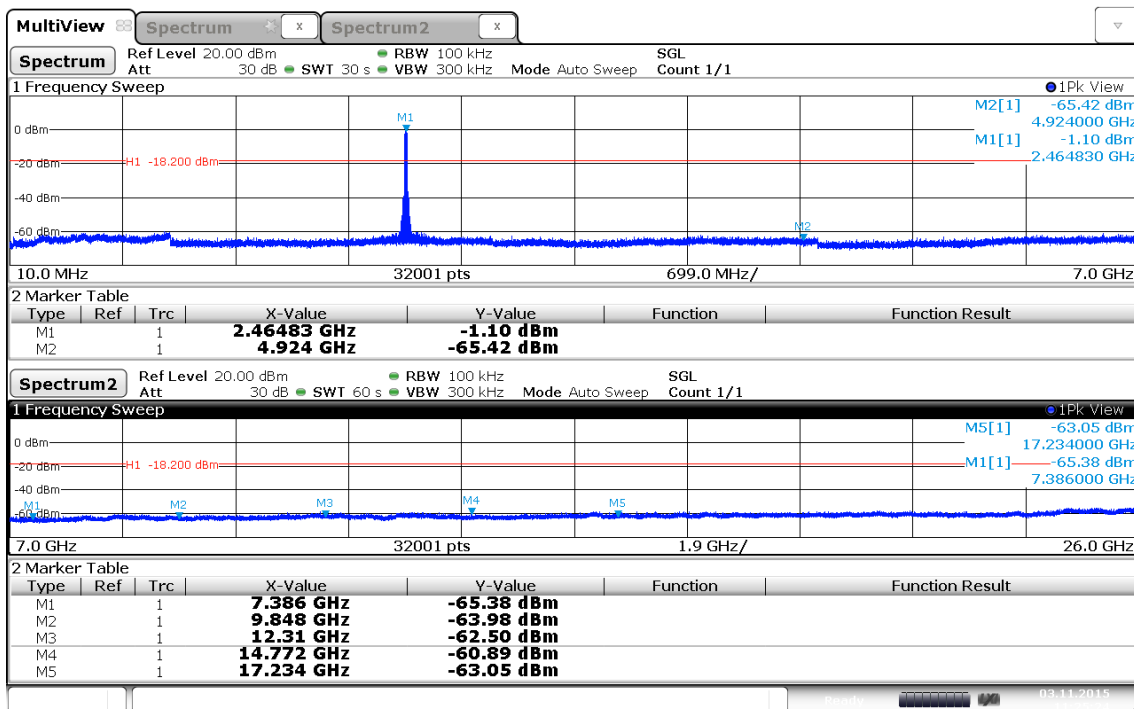
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**ELLA-W131-A Conducted spurious emissions – OFDM F<sub>HIGH</sub>**

**Spurious Emissions acc. to FCC 15.247**

Project Number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Christian Weber  
 Test Conditions: Tnom / Vnom  
 Mode: Tx, IEEE 802.11 g, 2462 MHz, 6 Mbps, Power 15 dBm, Antenna Gain 4.6 dBi  
 Test Date: 2015-11-03  
 Verdict: PASS  
 Note 1: Spurious in non-restricted frequency bands (ANSI C63.10)  
 Note 2: conducted measurement



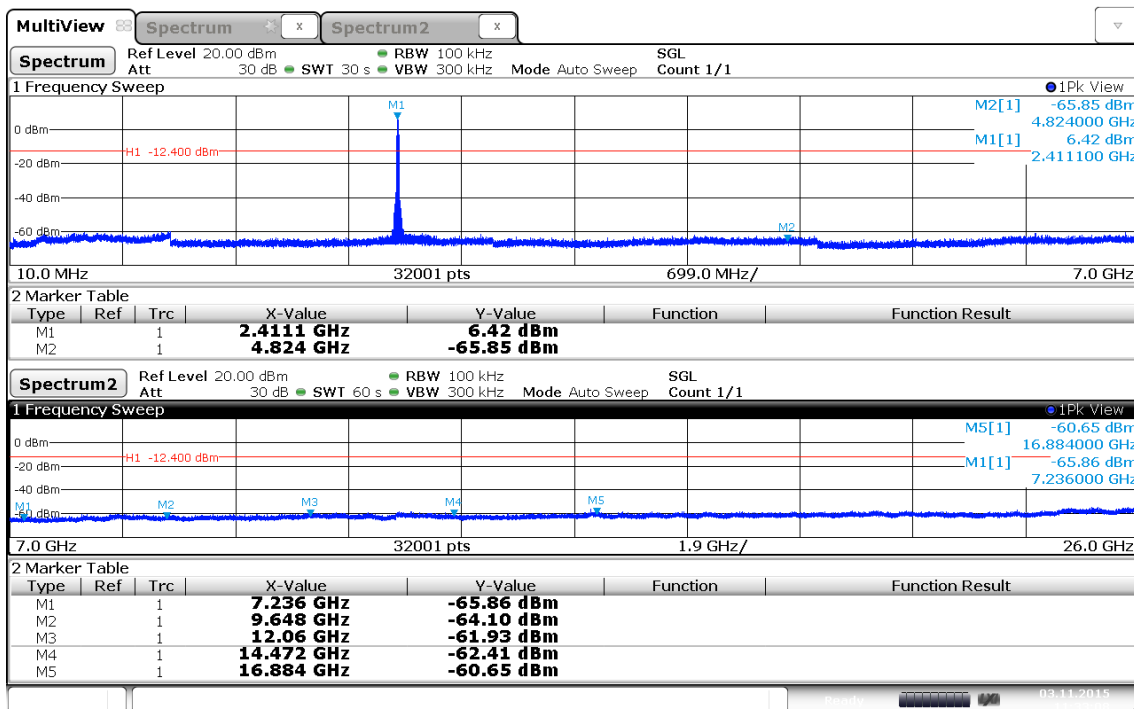
Date: 3.NOV.2015 11:25:24

**ELLA-W131 Conducted spurious emissions – DSSS F<sub>LOW</sub>**

**Spurious Emissions acc. to FCC 15.247**

Project Number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Christian Weber  
 Test Conditions: Tnom / Vnom  
 Mode: Tx, IEEE 802.11 b, 2412 MHz, 1 Mbps, Power 18 dBm  
 Test Date: 2015-11-03  
 Verdict: PASS  
 Note 1: Spurious in non-restricted frequency bands (ANSI C63.10)  
 Note 2: conducted measurement



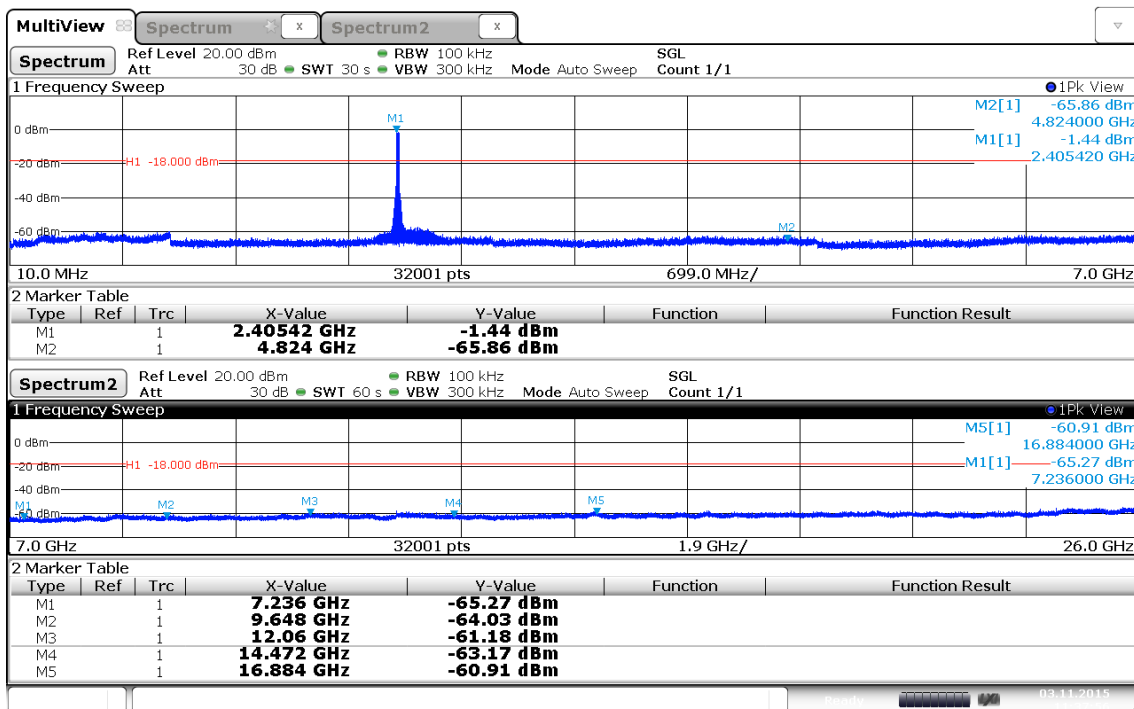
Date: 3.NOV.2015 11:33:09

**ELLA-W131 Conducted spurious emissions – OFDM F<sub>Low</sub>**

**Spurious Emissions acc. to FCC 15.247**

Project Number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Christian Weber  
 Test Conditions: Tnom / Vnom  
 Mode: Tx, IEEE 802.11 g, 2412 MHz, 6 Mbps, Power 15 dBm  
 Test Date: 2015-11-03  
 Verdict: PASS  
 Note 1: Spurious in non-restricted frequency bands (ANSI C63.10)  
 Note 2: conducted measurement



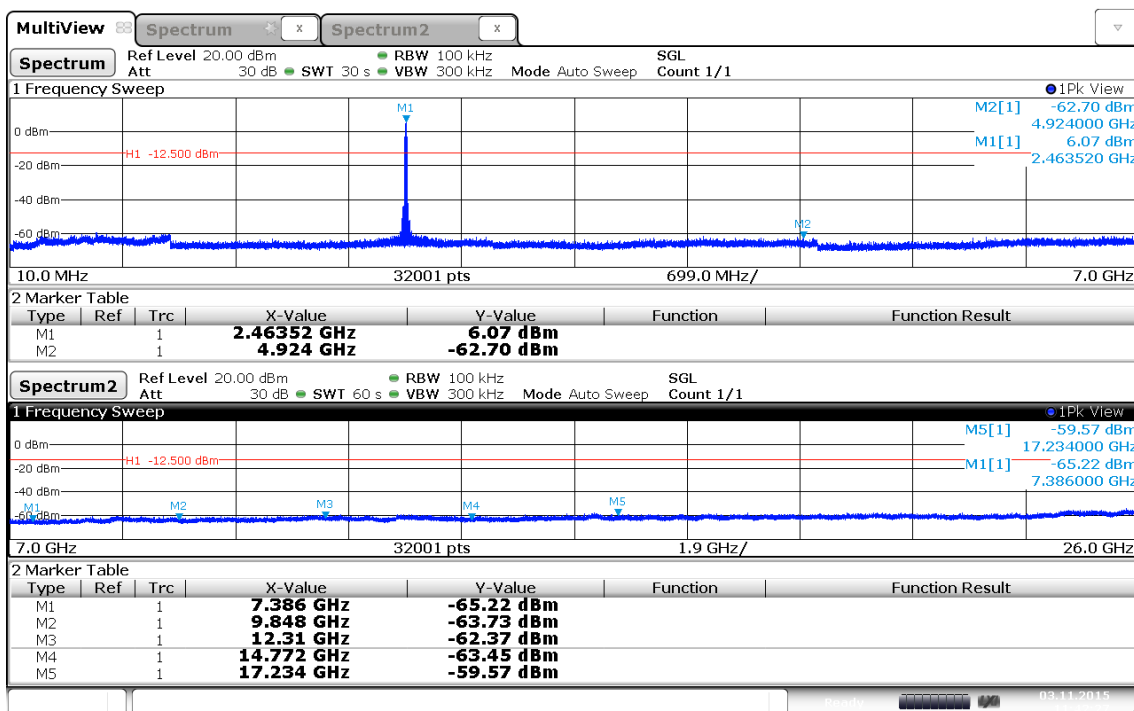
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**ELLA-W131 Conducted spurious emissions – DSSS F<sub>HIGH</sub>**

**Spurious Emissions acc. to FCC 15.247**

Project Number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Christian Weber  
 Test Conditions: Tnom / Vnom  
 Mode: Tx, IEEE 802.11 b, 2462 MHz, 1 Mbps, Power 18 dBm  
 Test Date: 2015-11-03  
 Verdict: PASS  
 Note 1: Spurious in non-restricted frequency bands (ANSI C63.10)  
 Note 2: conducted measurement



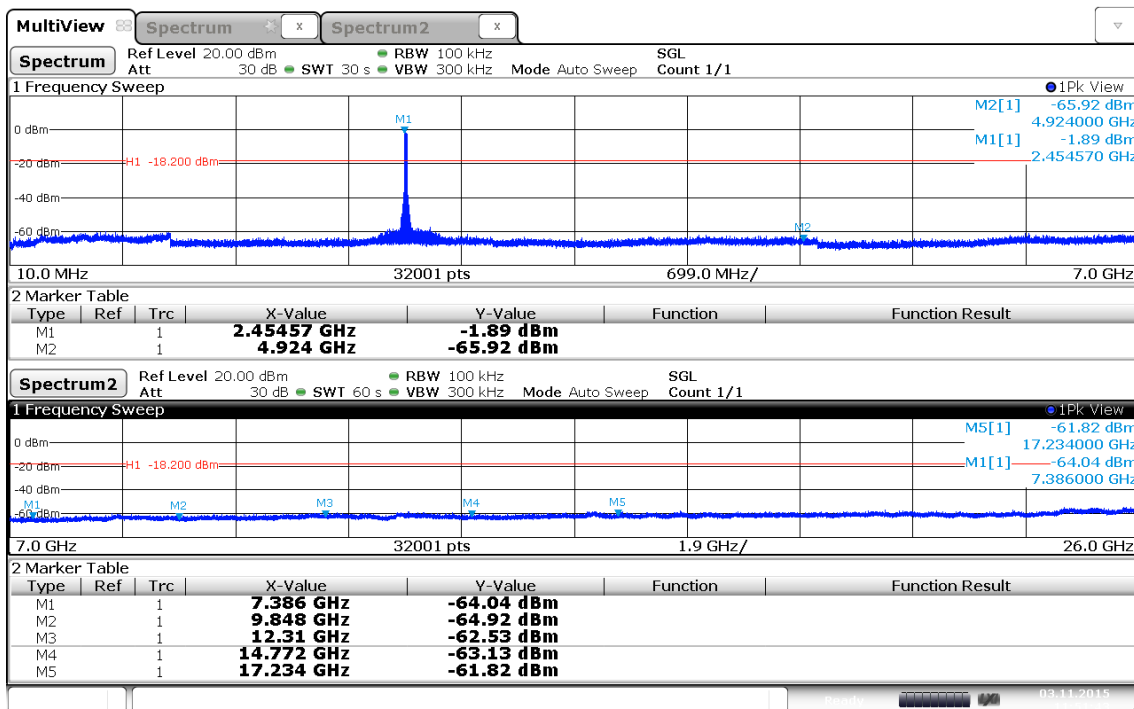
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**ELLA-W131 Conducted spurious emissions – OFDM F<sub>HIGH</sub>**

**Spurious Emissions acc. to FCC 15.247**

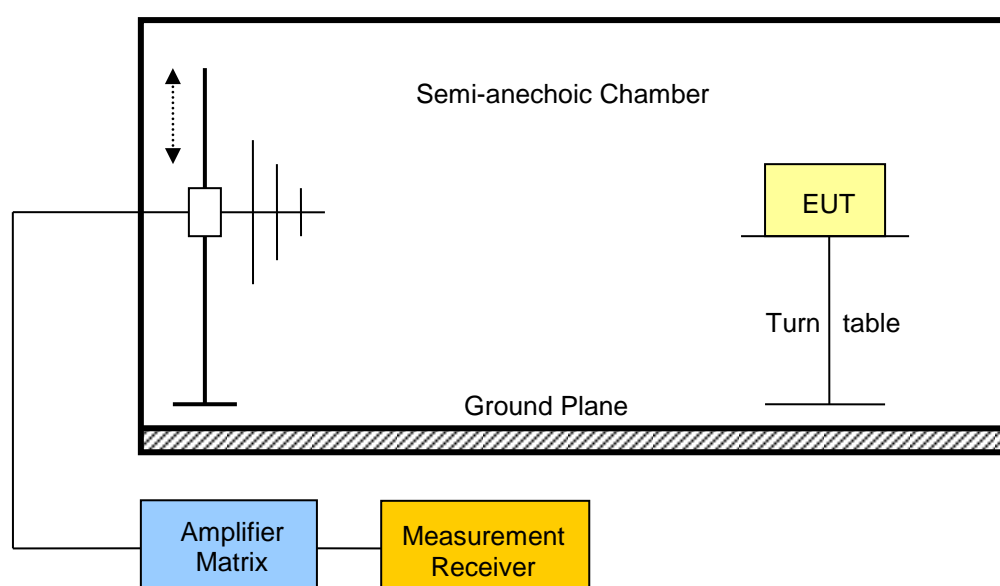
Project Number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Christian Weber  
 Test Conditions: Tnom / Vnom  
 Mode: Tx, IEEE 802.11 g, 2462 MHz, 6 Mbps, Power 15 dBm  
 Test Date: 2015-11-03  
 Verdict: PASS  
 Note 1: Spurious in non-restricted frequency bands (ANSI C63.10)  
 Note 2: conducted measurement



Date: 3.NOV.2015 11:51:43

3.2 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			
		According to customer test plan			
Limits					
Frequency range [MHz]	Detector	Limit [ $\mu\text{V}/\text{m}$ ]	Limit [ $\text{dB}\mu\text{V}/\text{m}$ ]	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					
 <p>The diagram illustrates the test setup within a Semi-anechoic Chamber. A Ground Plane is located at the bottom. An Amplifier Matrix (blue box) is connected to a Measurement Receiver (yellow box) outside the chamber. Inside the chamber, the EUT (Equipment Under Test, yellow box) is placed on a Turn table. A vertical antenna structure is positioned to the left of the EUT, with a dashed double-headed arrow indicating its vertical movement. The chamber walls are shown with a hatched pattern representing absorbers.</p>					



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 ELLA-W131-A									
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dB $\mu$ V/m]	Det.	Pol.	Limit [dB $\mu$ V/m]	Limit dist. [m]*	Margin [dB]
F <sub>LOW</sub>	2412	DSSS	4816	36.09	pk	ver	74.00	3	-37.91
F <sub>LOW</sub>	2412	DSSS	4820	35.35	pk	hor	74.00	3	-38.65
F <sub>LOW</sub>	2412	DSSS	6432	40.17	pk	hor	95.00	3	-54.83
F <sub>LOW</sub>	2412	DSSS	6432	39.49	pk	ver	95.00	3	-55.51
F <sub>LOW</sub>	2412	DSSS	7232	43.60	pk	ver	95.00	3	-51.40
F <sub>LOW</sub>	2412	DSSS	7235	42.62	pk	hor	95.00	3	-52.38
F <sub>LOW</sub>	2412	DSSS	9648	45.40	pk	hor	95.00	3	-49.60
F <sub>LOW</sub>	2412	DSSS	9648	47.57	pk	ver	95.00	3	-47.43
F <sub>LOW</sub>	2412	OFDM	6432	39.38	pk	hor	95.00	3	-55.62
F <sub>LOW</sub>	2412	OFDM	6432	39.74	pk	ver	95.00	3	-55.26
F <sub>LOW</sub>	2412	OFDM	7232	41.87	pk	ver	95.00	3	-53.13
F <sub>LOW</sub>	2412	OFDM	7240	40.87	pk	hor	95.00	3	-54.13
F <sub>LOW</sub>	2412	HT20	6432	39.48	pk	hor	95.00	3	-55.52
F <sub>LOW</sub>	2412	HT20	6432	38.38	pk	ver	95.00	3	-56.62
F <sub>LOW</sub>	2412	HT20	7240	41.69	pk	ver	95.00	3	-53.31
F <sub>LOW</sub>	2422	HT40	6456	38.56	pk	hor	95.00	3	-56.44
F <sub>LOW</sub>	2422	HT40	6456	39.94	pk	ver	95.00	3	-55.06
F <sub>LOW</sub>	2422	HT40	7264	39.90	pk	ver	74.00	3	-34.10
F <sub>HIGH</sub>	2462	DSSS	4920	38.22	pk	hor	74.00	3	-35.78
F <sub>HIGH</sub>	2462	DSSS	4920	38.30	pk	ver	74.00	3	-35.70
F <sub>HIGH</sub>	2462	DSSS	6560	38.74	pk	hor	95.00	3	-56.26
F <sub>HIGH</sub>	2462	DSSS	6560	38.54	pk	ver	95.00	3	-56.46
F <sub>HIGH</sub>	2462	DSSS	7384	41.80	pk	hor	74.00	3	-32.20
F <sub>HIGH</sub>	2452	HT40	6536	39.25	pk	ver	95.00	3	-55.75
F <sub>HIGH</sub>	2452	HT40	6536	38.06	pk	hor	95.00	3	-56.94

Test results ELLA-W131									
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [db $\mu$ V/m]	Det.	Pol.	Limit [db $\mu$ V/m]	Limit dist. [m]*	Margin [dB]
F <sub>LOW</sub>	2412	DSSS	4816	38.14	pk	hor	74.00	3	-35.86
F <sub>LOW</sub>	2412	DSSS	4824	39.02	pk	ver	74.00	3	-34.98
F <sub>LOW</sub>	2412	DSSS	6432	39.70	pk	hor	95.00	3	-55.30
F <sub>LOW</sub>	2412	DSSS	6432	41.50	pk	ver	95.00	3	-53.50
F <sub>LOW</sub>	2412	DSSS	7232	40.41	pk	hor	95.00	3	-54.59
F <sub>LOW</sub>	2412	DSSS	7232	41.32	pk	ver	95.00	3	-53.68
F <sub>LOW</sub>	2412	DSSS	9648	50.24	pk	hor	95.00	3	-44.76
F <sub>LOW</sub>	2412	DSSS	9648	50.44	pk	ver	95.00	3	-44.56
F <sub>LOW</sub>	2412	DSSS	12048	47.76	pk	ver	74.00	3	-26.24
F <sub>LOW</sub>	2412	DSSS	14460	50.81	pk	ver	95.00	3	-44.19
F <sub>LOW</sub>	2422	HT40	6456	38.96	pk	hor	95.00	3	-56.04
F <sub>LOW</sub>	2422	HT40	6456	41.14	pk	ver	95.00	3	-53.86
F <sub>HIGH</sub>	2462	DSSS	4920	37.95	pk	hor	74.00	3	-36.05
F <sub>HIGH</sub>	2462	DSSS	4920	39.76	pk	ver	74.00	3	-34.24
F <sub>HIGH</sub>	2462	DSSS	6560	40.13	pk	ver	95.00	3	-54.87
F <sub>HIGH</sub>	2462	DSSS	7376	41.07	pk	hor	74.00	3	-32.93
F <sub>HIGH</sub>	2462	DSSS	9840	50.99	pk	ver	95.00	3	-44.01
F <sub>HIGH</sub>	2462	DSSS	9848	49.22	pk	hor	95.00	3	-45.78
F <sub>HIGH</sub>	2462	DSSS	14772	51.89	pk	ver	95.00	3	-43.11
F <sub>HIGH</sub>	2452	HT40	6536	38.14	pk	hor	95.00	3	-56.86
F <sub>HIGH</sub>	2452	HT40	6536	40.75	pk	ver	95.00	3	-54.25

Comments:

- \* Physical distance between EUT and measurement antenna.
- Customer specific test plan. Measurements only between 1 and 12.5 GHz. Antenna ports terminated with 50 Ohms.
- The Low Channel was measured for ELLA-W131-A with DSSS, OFDM, HT20 and HT40. HT40 was determined as the worst case out of OFDM, HT20 and HT40. Subsequent measurements were only performed with DSSS and HT40.

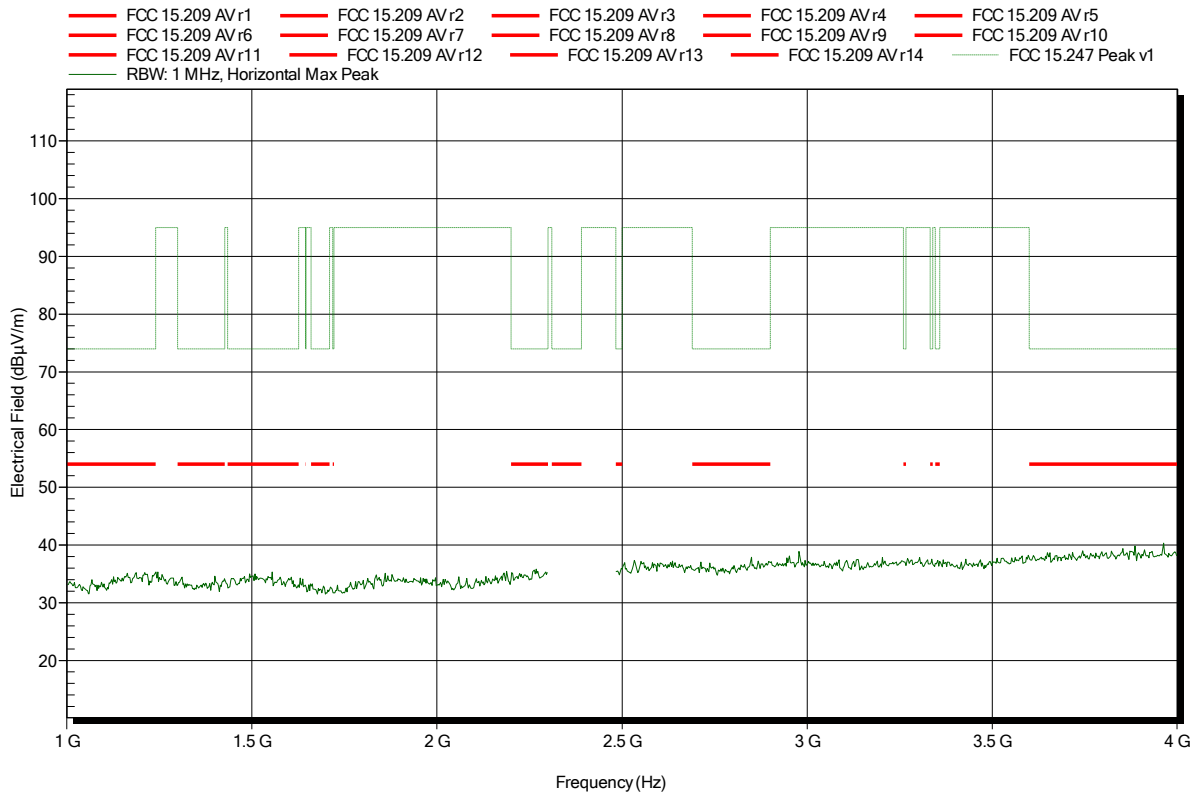
## ANNEX A Transmitter radiated spurious emissions

### Spurious emissions according to FCC part 15 Subpart C § 15.247

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch1, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-06  
 Note:

Index 33

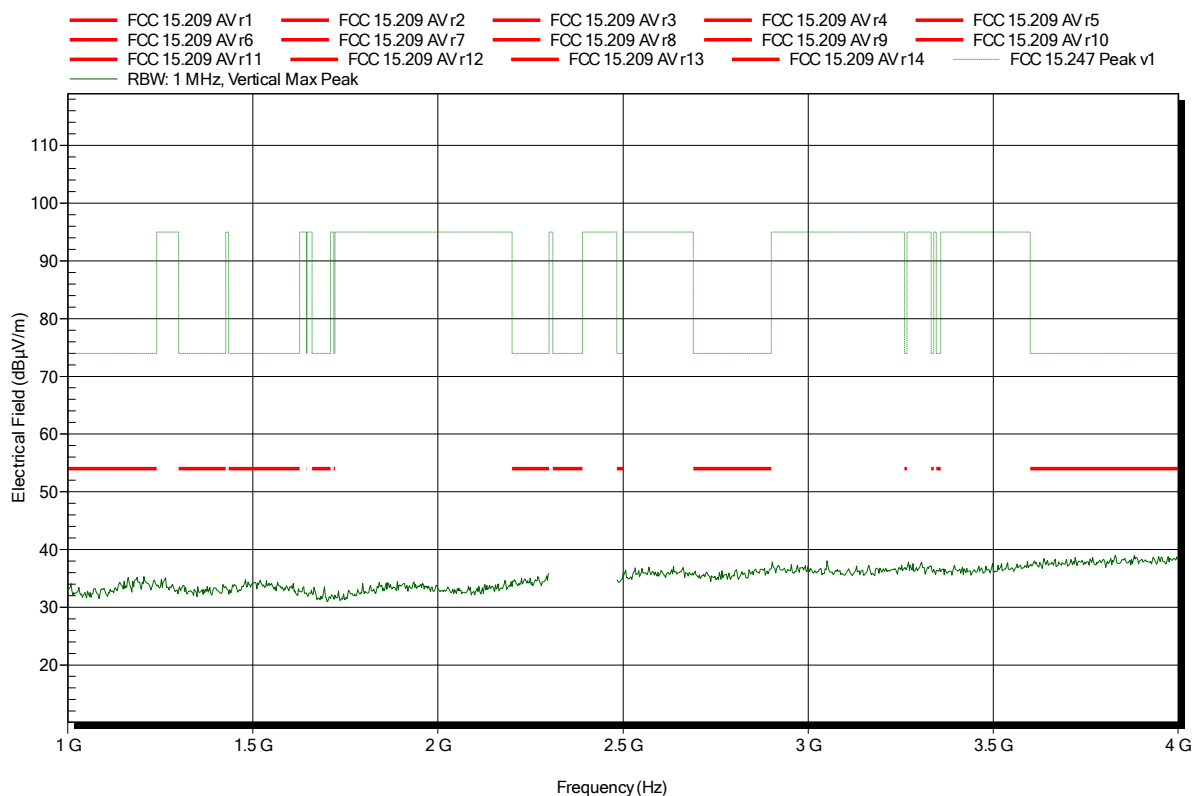


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch1, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-06  
 Note:

Index 35

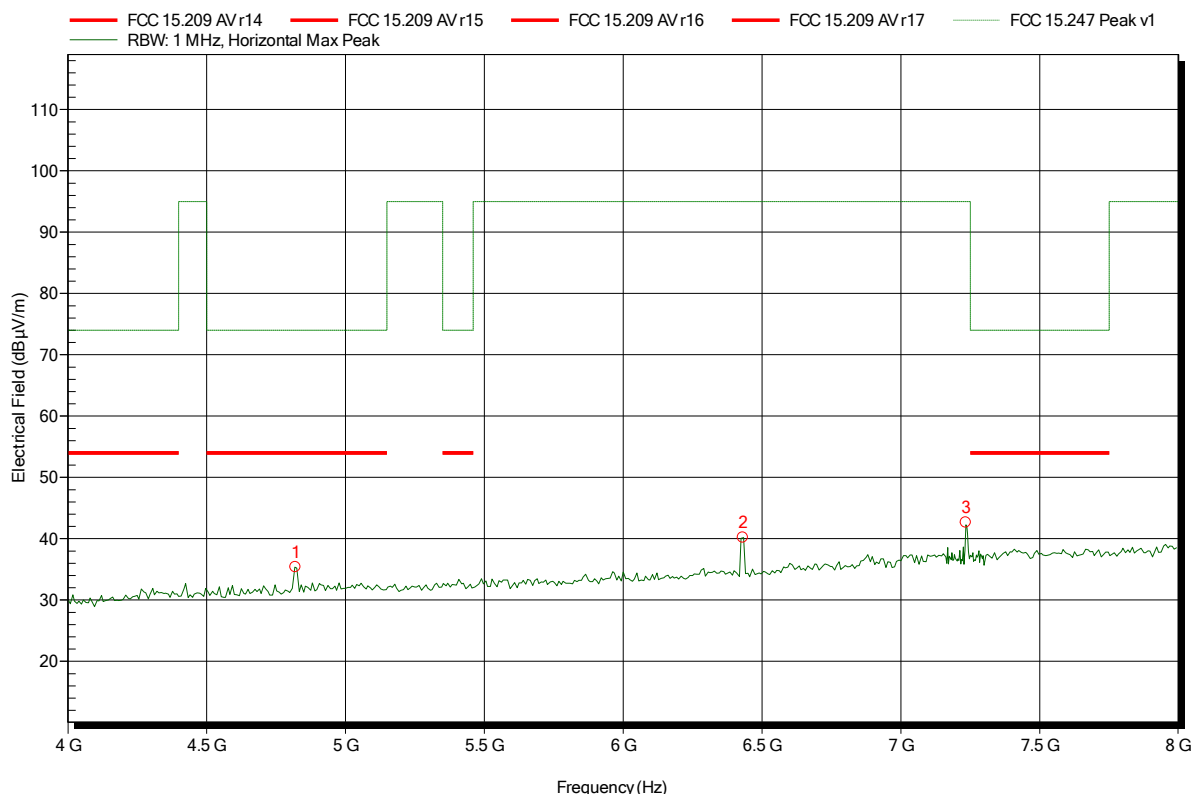


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch1, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-06  
 Note:

Index 36



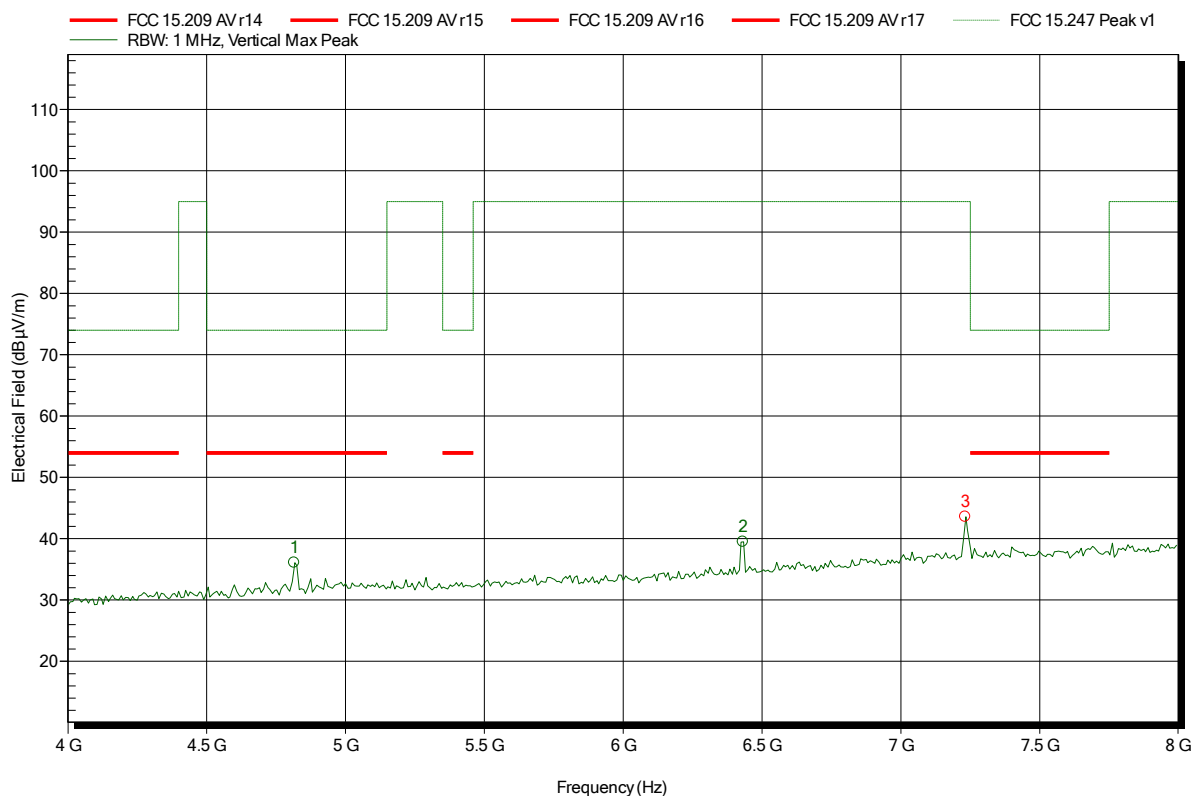
Frequency	Peak	Peak Limit	Peak Difference	Status
4.82 GHz	35.35 dBµV/m	74 dBµV/m	-38.65 dB	Pass
6.432 GHz	40.17 dBµV/m	95 dBµV/m	-54.83 dB	Pass
7.235 GHz	42.62 dBµV/m	95 dBµV/m	-52.38 dB	Pass

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch1, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-06  
 Note:

Index 38



Frequency	Peak	Peak Limit	Peak Difference	Status
4.816 GHz	36.09 dBµV/m	74 dBµV/m	-37.91 dB	Pass
6.432 GHz	39.49 dBµV/m	95 dBµV/m	-55.51 dB	Pass
7.232 GHz	43.6 dBµV/m	95 dBµV/m	-51.4 dB	Pass

Test Report No.: G0M-1510-5172-TFC247WF-131-V01

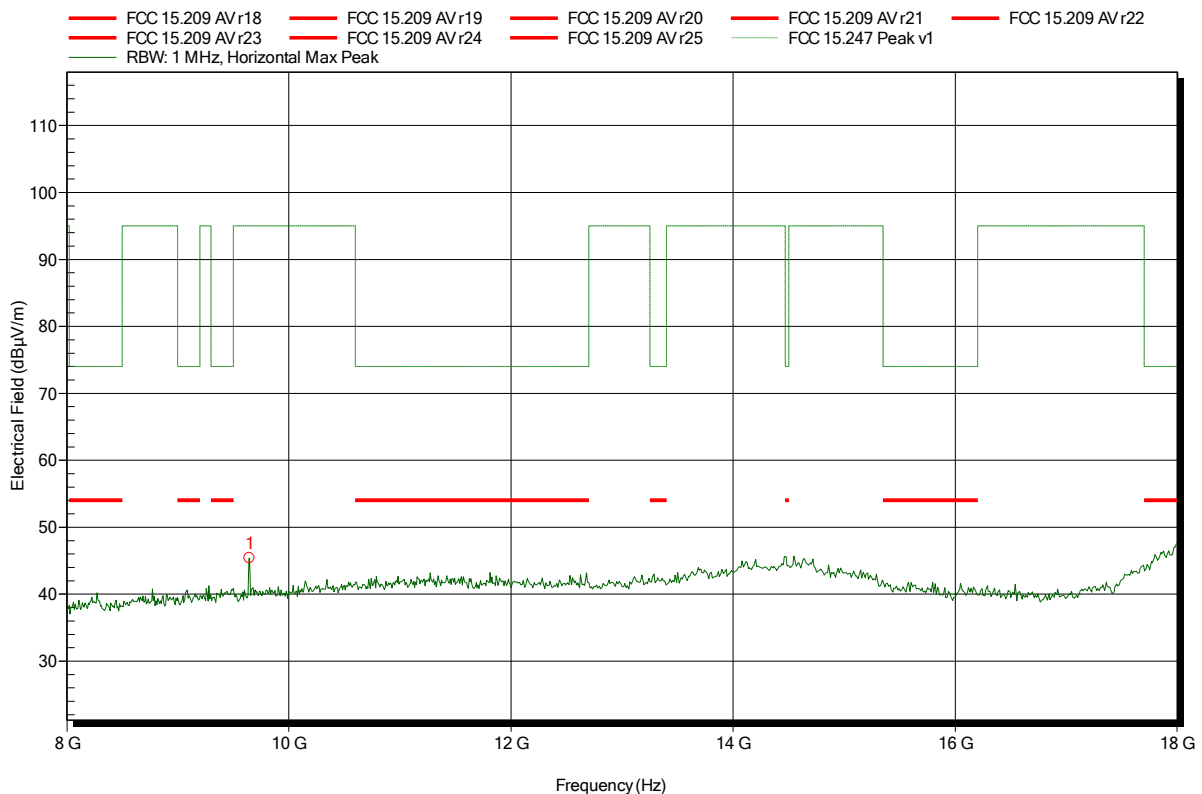
 Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch1, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-06  
 Note:

Index 37



Frequency	Peak	Peak Limit	Peak Difference	Status
9.648 GHz	45.4 dBµV/m	95 dBµV/m	-49.6 dB	Pass

Test Report No.: G0M-1510-5172-TFC247WF-131-V01

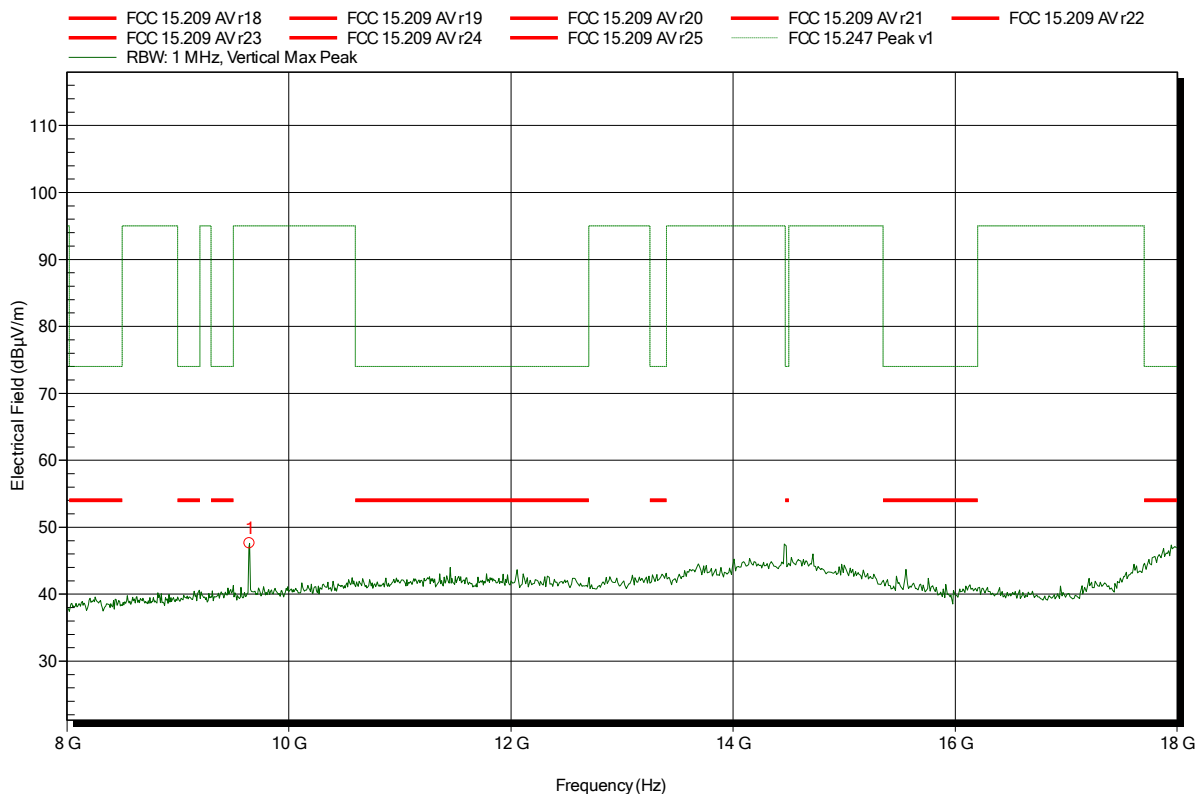
 Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch1, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-06  
 Note:

Index 39



Frequency	Peak	Peak Limit	Peak Difference	Status
9.648 GHz	47.57 dBµV/m	95 dBµV/m	-47.43 dB	Pass

Test Report No.: G0M-1510-5172-TFC247WF-131-V01

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

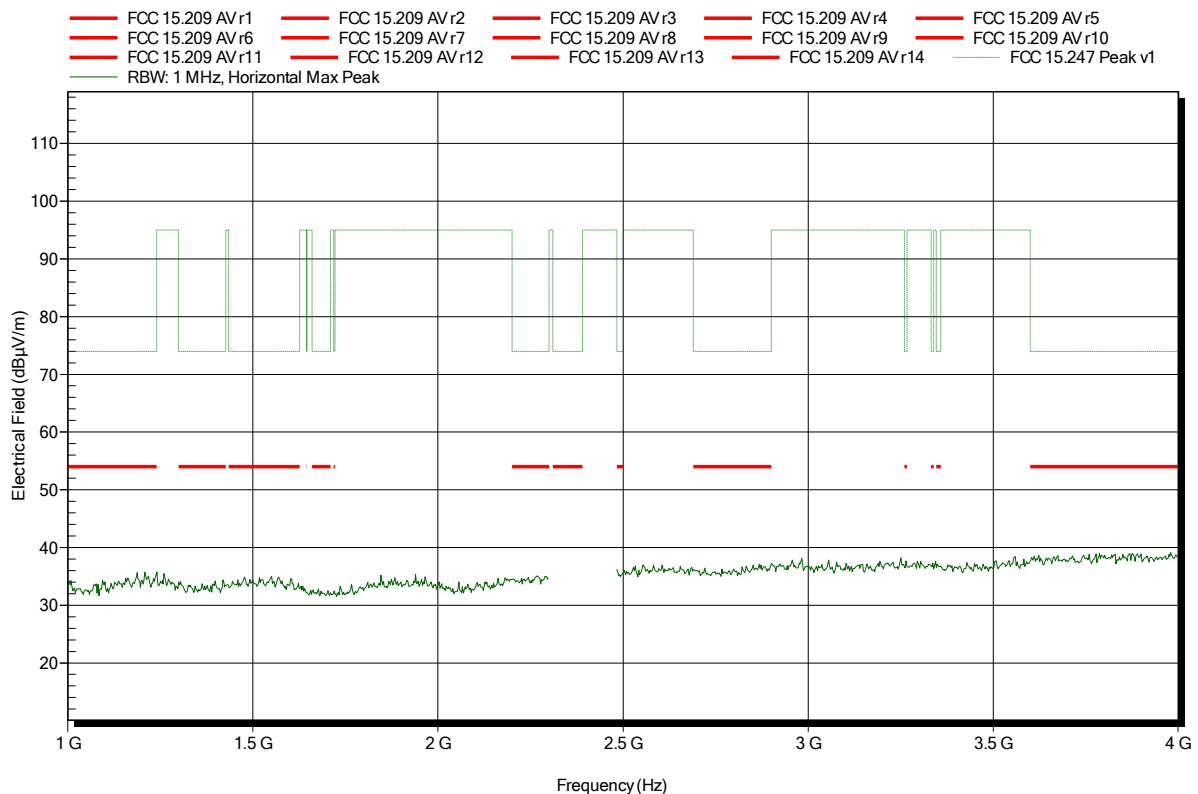


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch1, 802.11g, 6Mbps, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 44

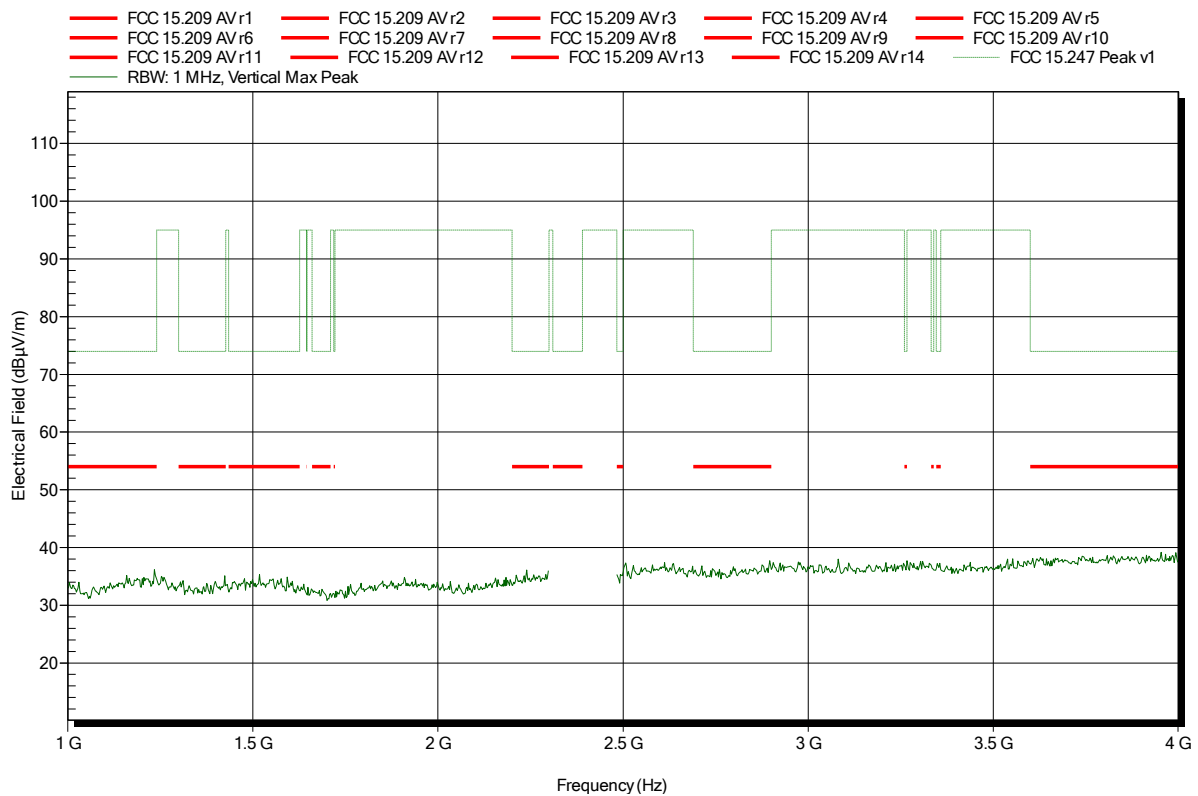


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch1, 802.11g, 6Mbps, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 45

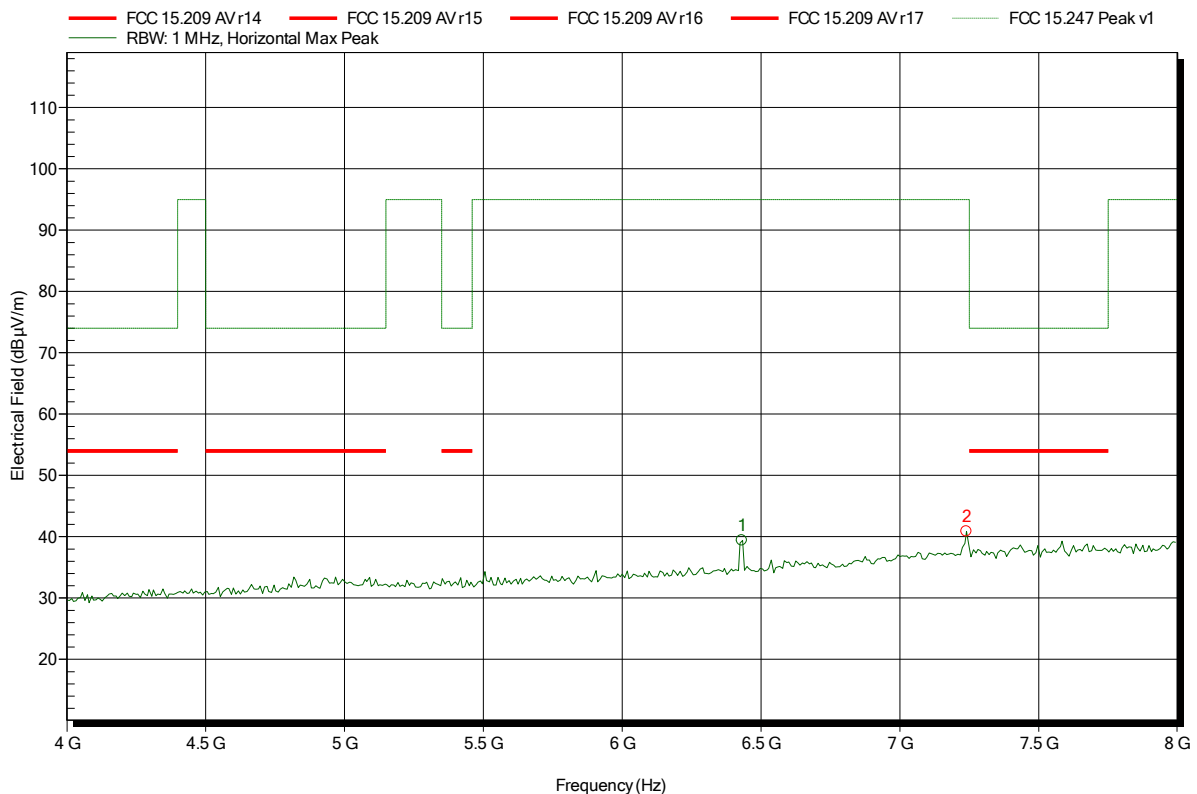


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch1, 802.11g, 6Mbps, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 43



Frequency	Peak	Peak Limit	Peak Difference	Status
6.432 GHz	39.38 dBµV/m	95 dBµV/m	-55.62 dB	Pass
7.24 GHz	40.87 dBµV/m	95 dBµV/m	-54.13 dB	Pass

**Test Report No.: G0M-1510-5172-TFC247WF-131-V01**

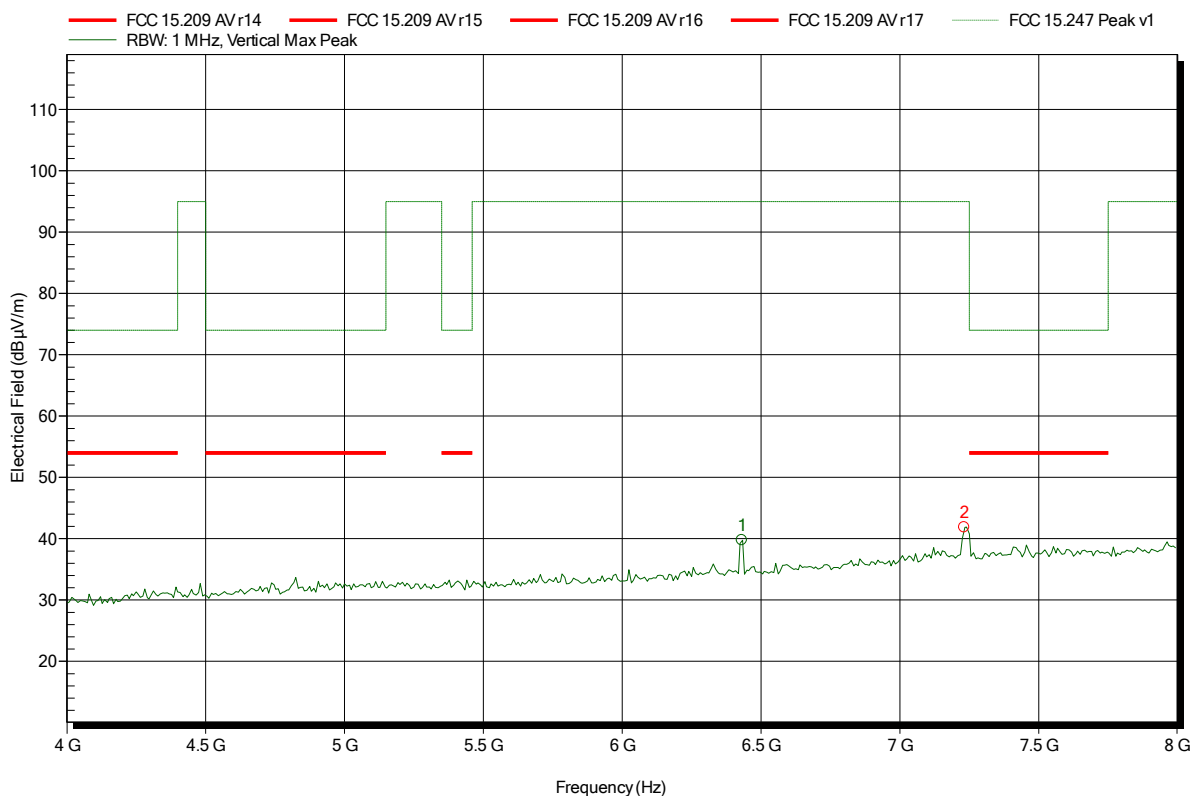
 Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch1, 802.11g, 6Mbps, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 40



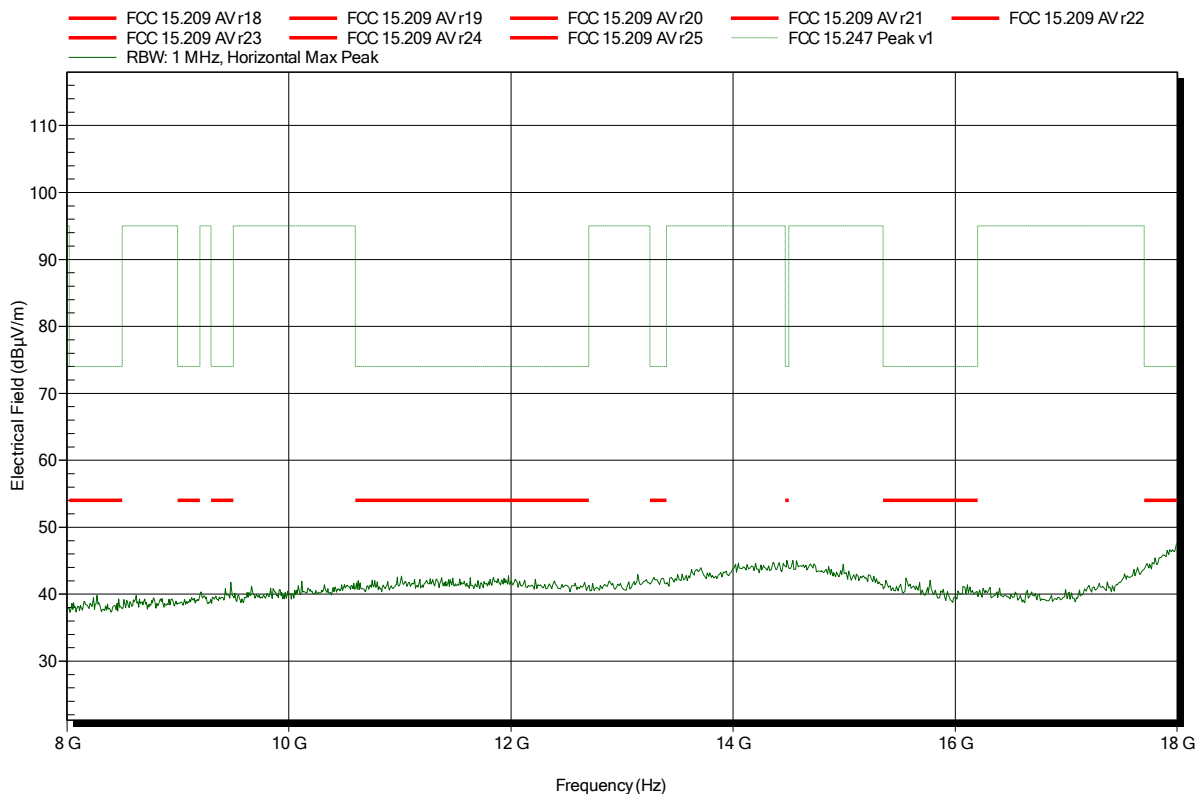
Frequency	Peak	Peak Limit	Peak Difference	Status
6.432 GHz	39.74 dBµV/m	95 dBµV/m	-55.26 dB	Pass
7.232 GHz	41.87 dBµV/m	95 dBµV/m	-53.13 dB	Pass

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch1, 802.11g, 6Mbps, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 42

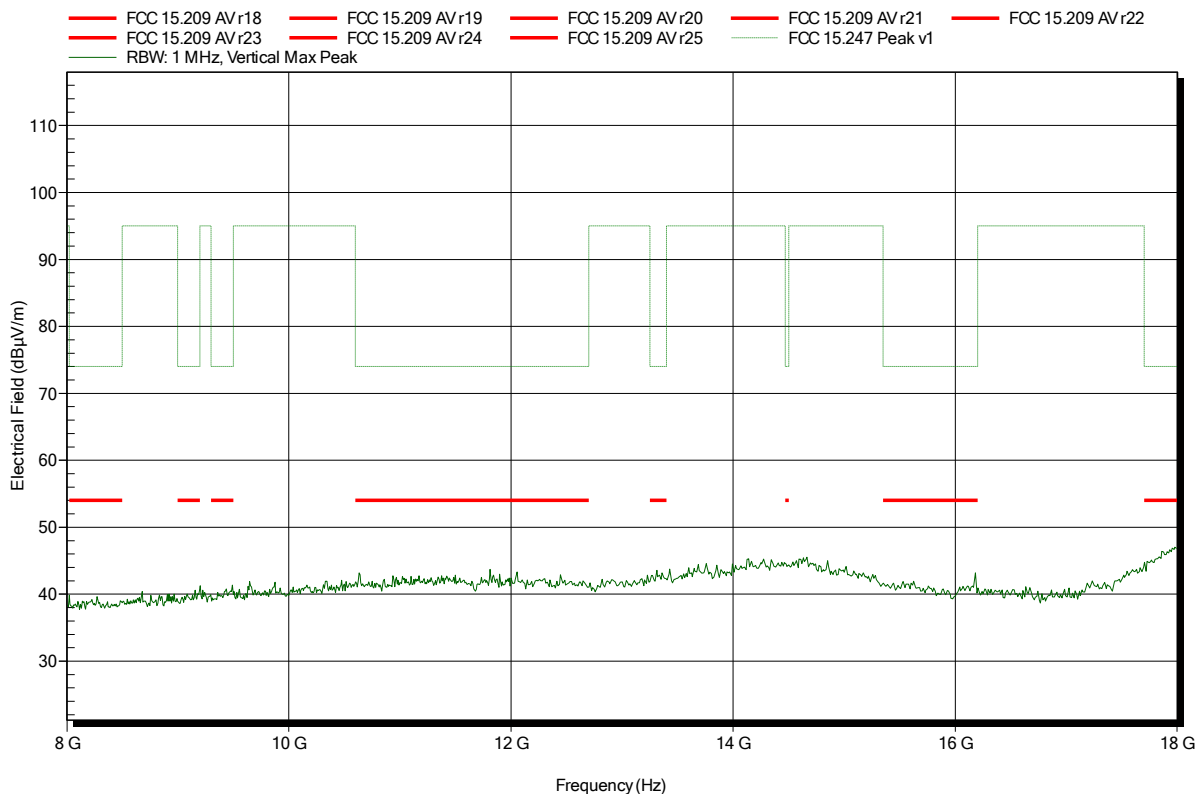


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch1, 802.11g, 6Mbps, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 41

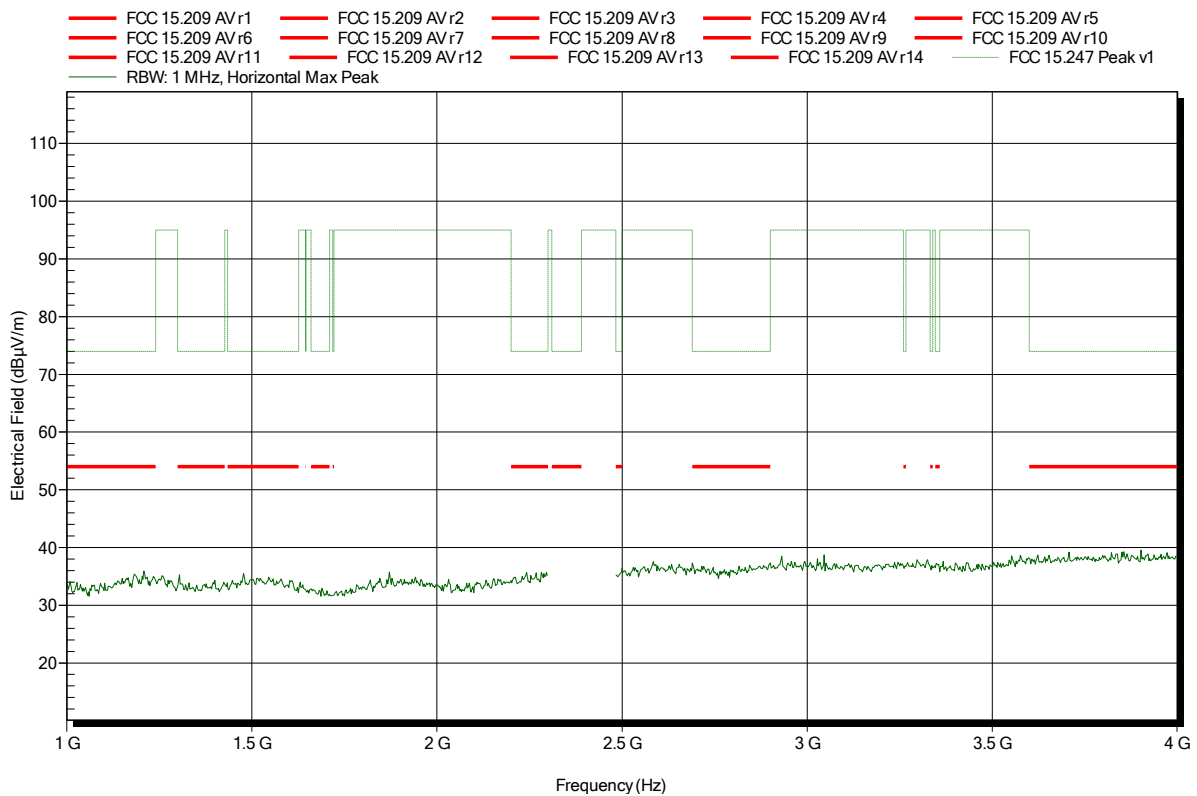


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch1, 802.11n(20), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 47

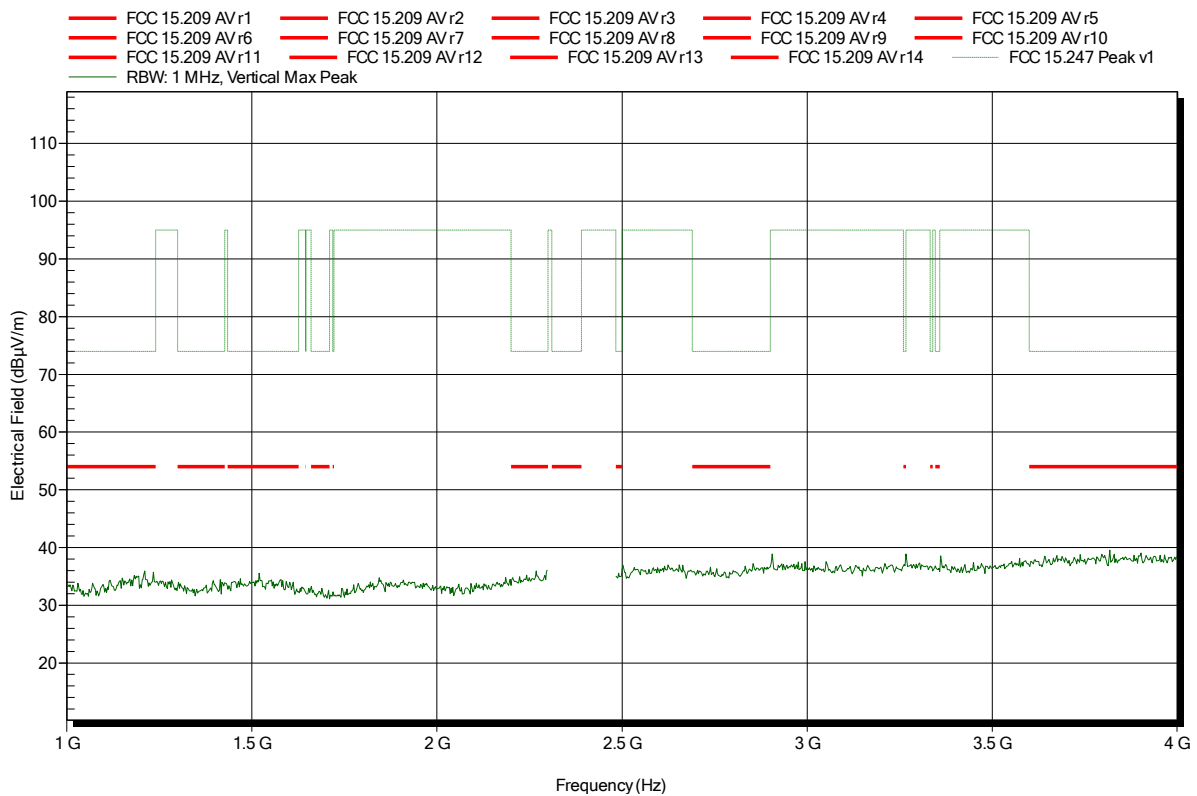


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch1, 802.11n(20), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 46



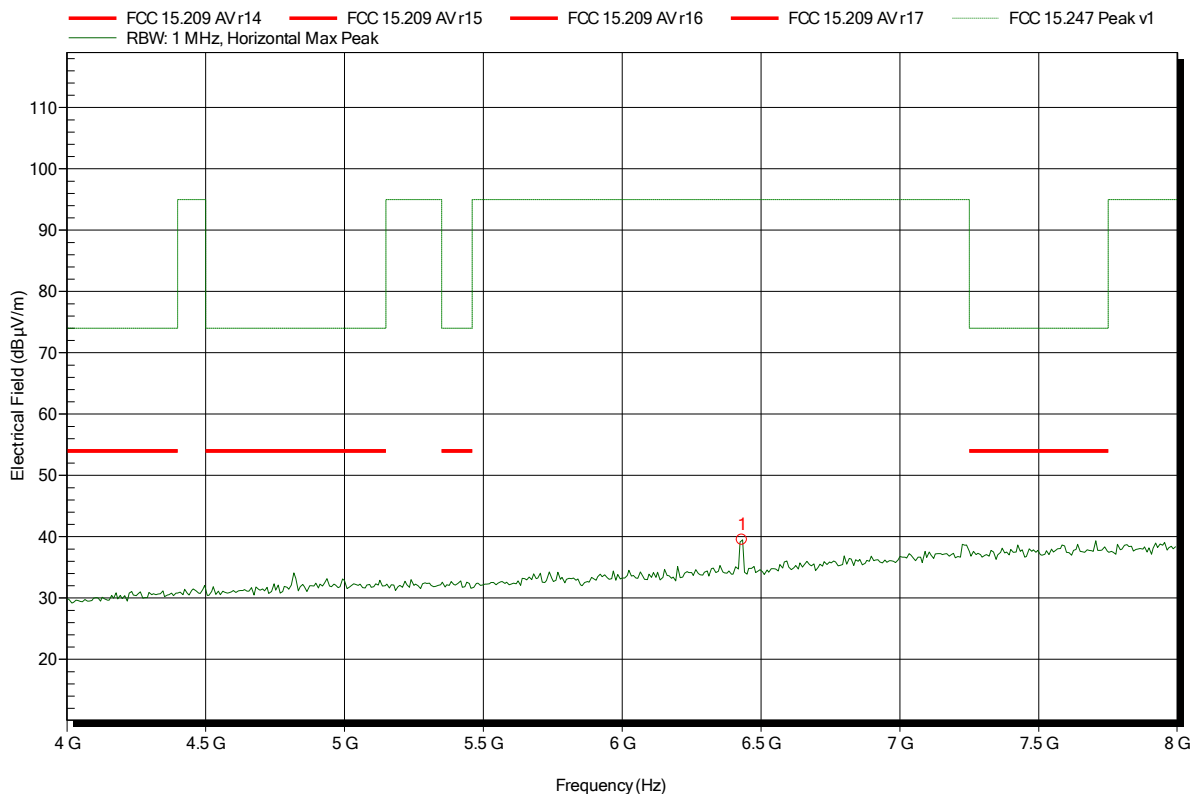


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch1, 802.11n(20), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 48



Frequency	Peak	Peak Limit	Peak Difference	Status
6.432 GHz	39.48 dBµV/m	95 dBµV/m	-55.52 dB	Pass

**Test Report No.: G0M-1510-5172-TFC247WF-131-V01**

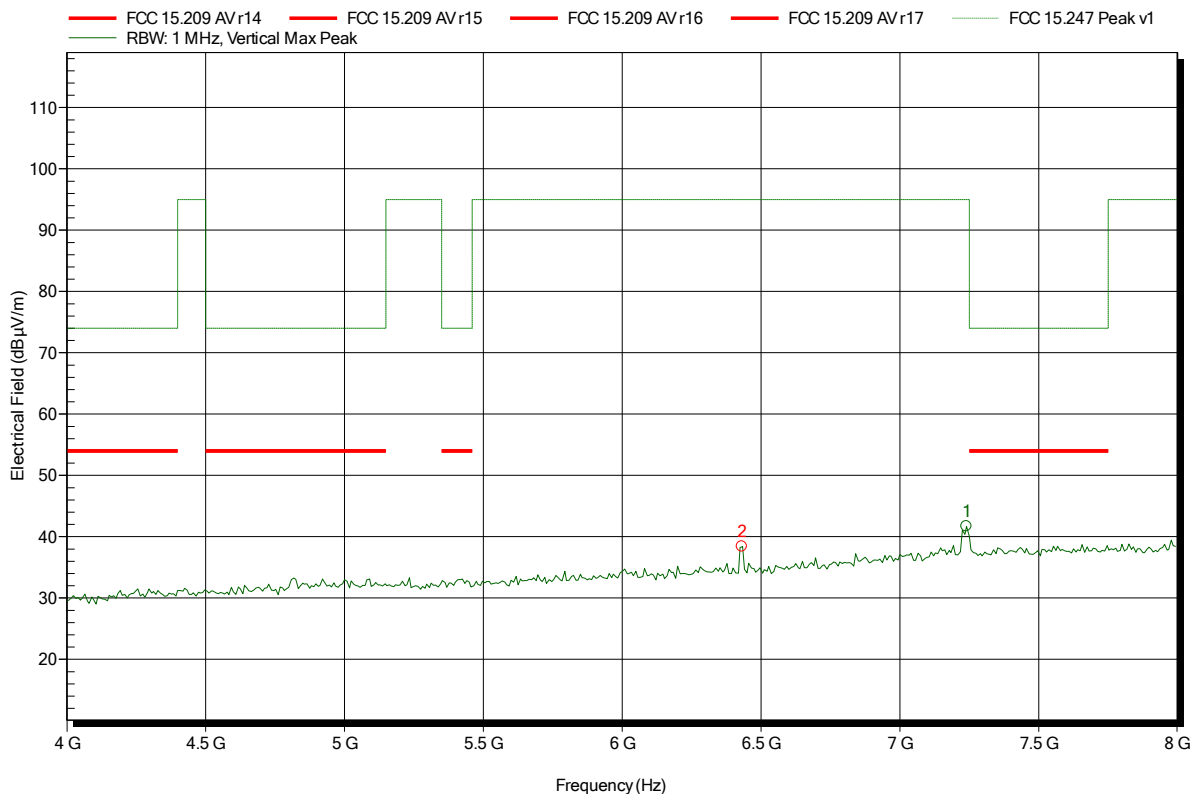
 Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch1, 802.11n(20), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 51



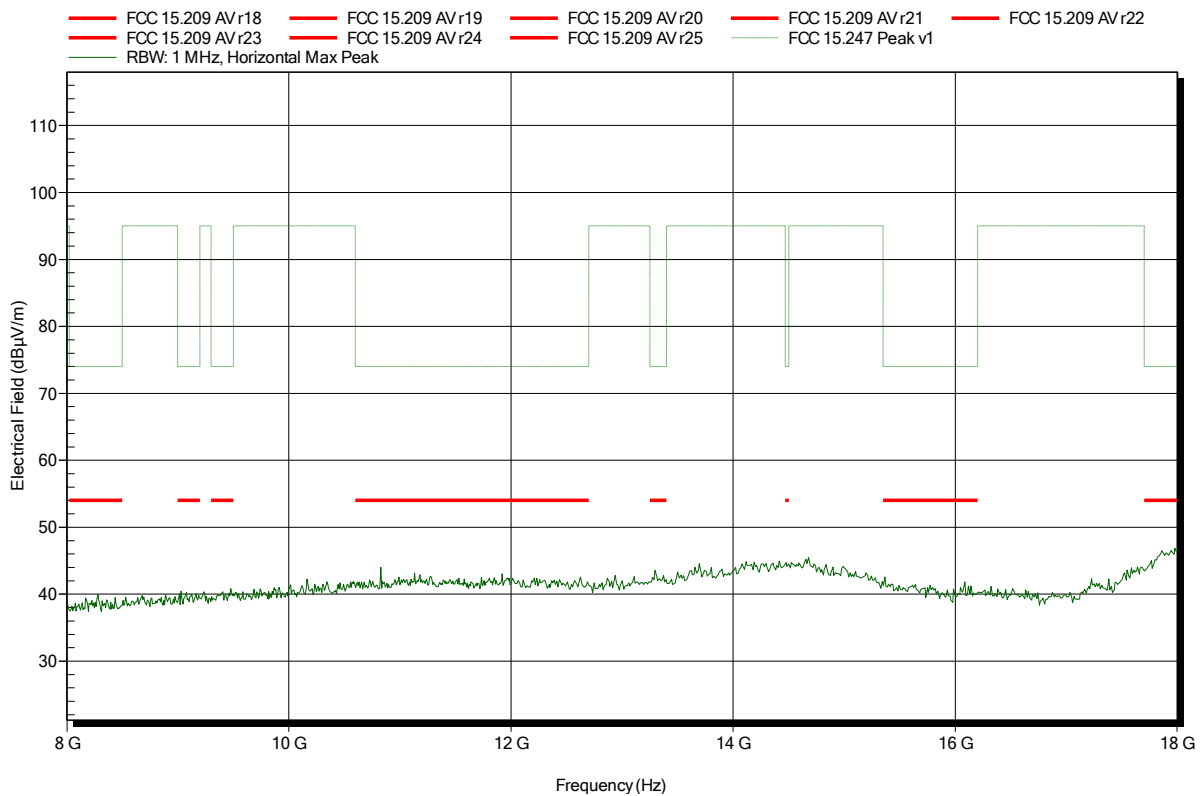
Frequency	Peak	Peak Limit	Peak Difference	Status
6.432 GHz	38.38 dBµV/m	95 dBµV/m	-56.62 dB	Pass
7.24 GHz	41.69 dBµV/m	95 dBµV/m	-53.31 dB	Pass

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch1, 802.11n(20), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 49

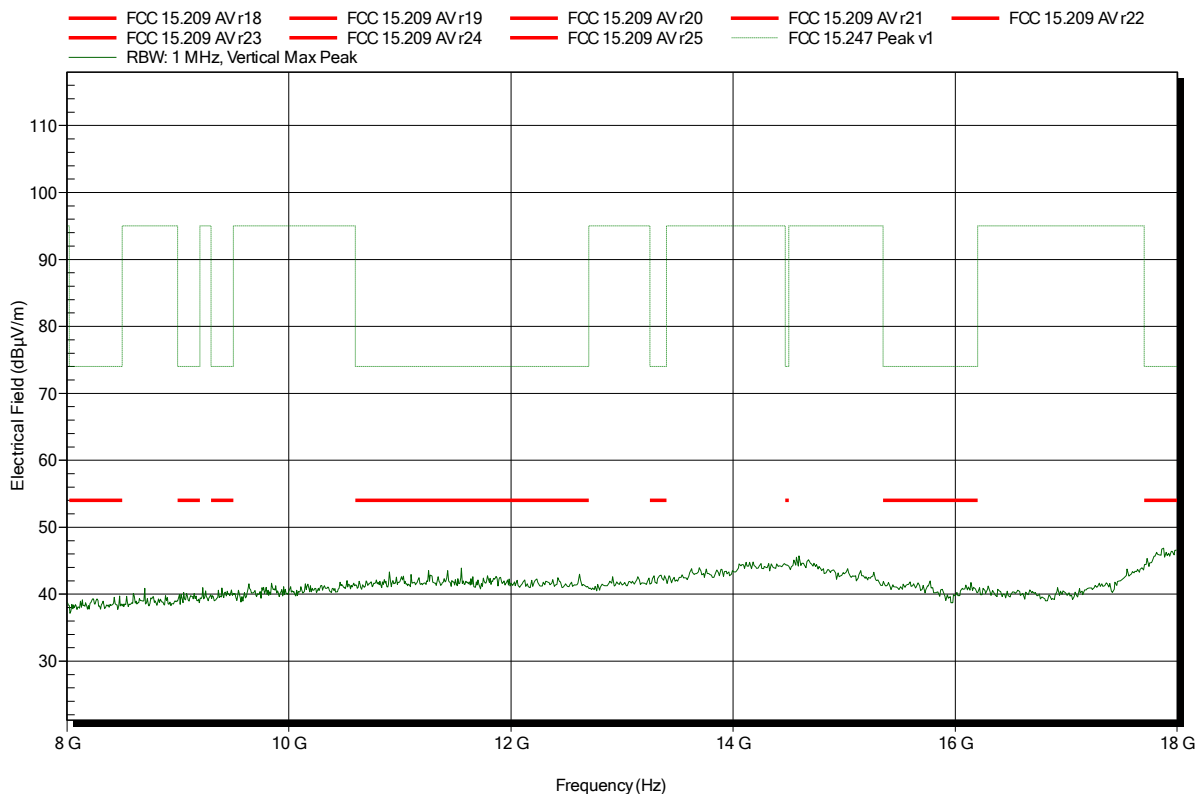


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch1, 802.11n(20), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 50

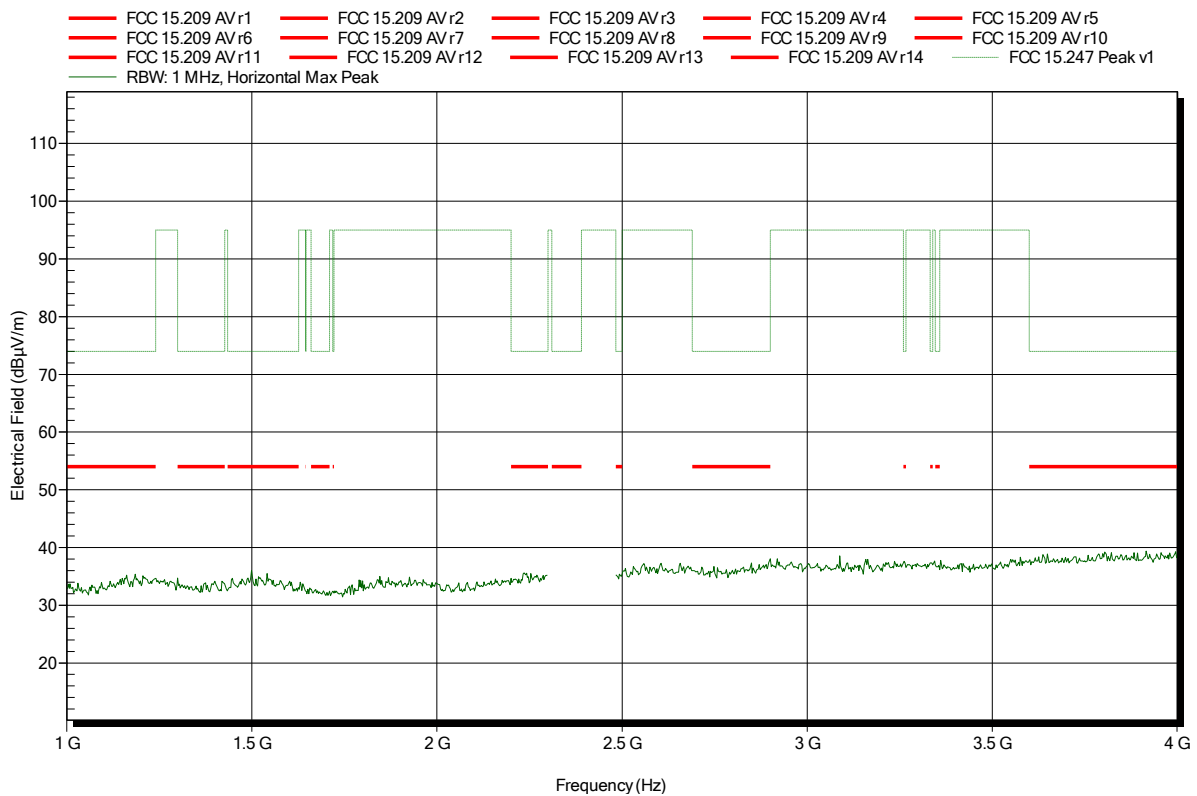


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch3, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 56

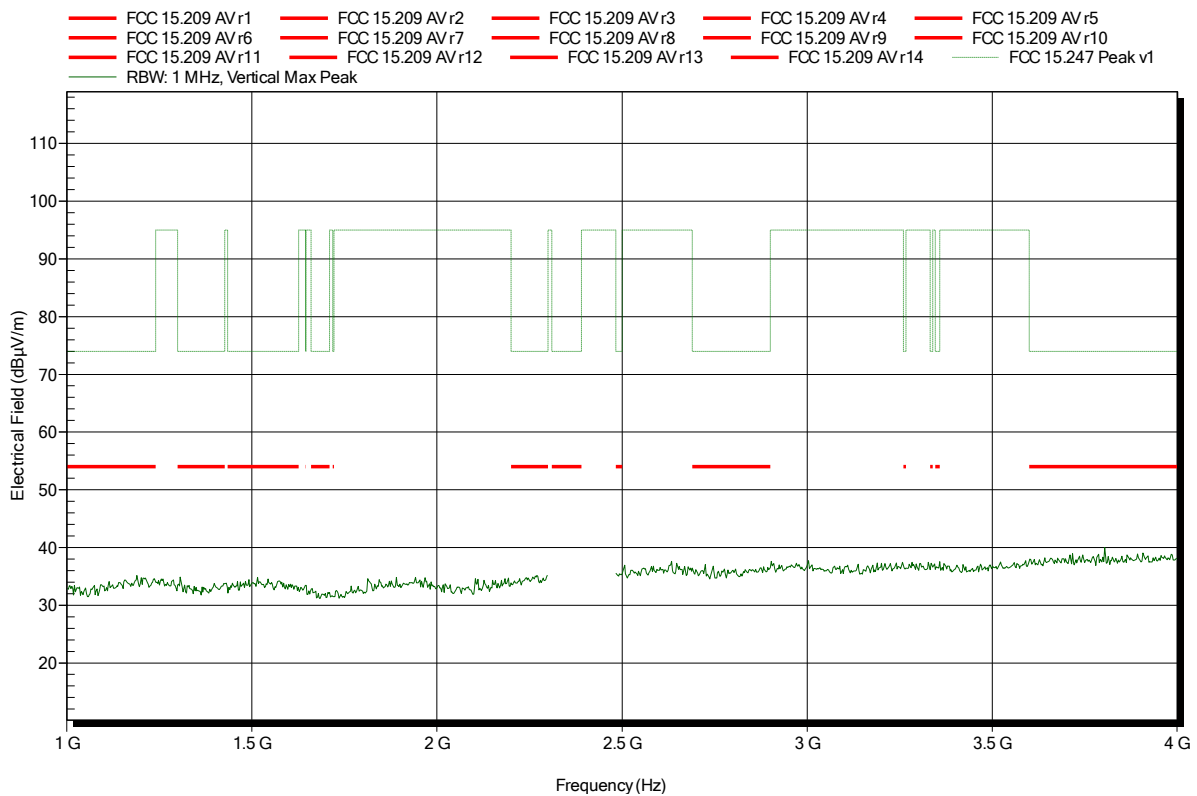


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch3, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 57

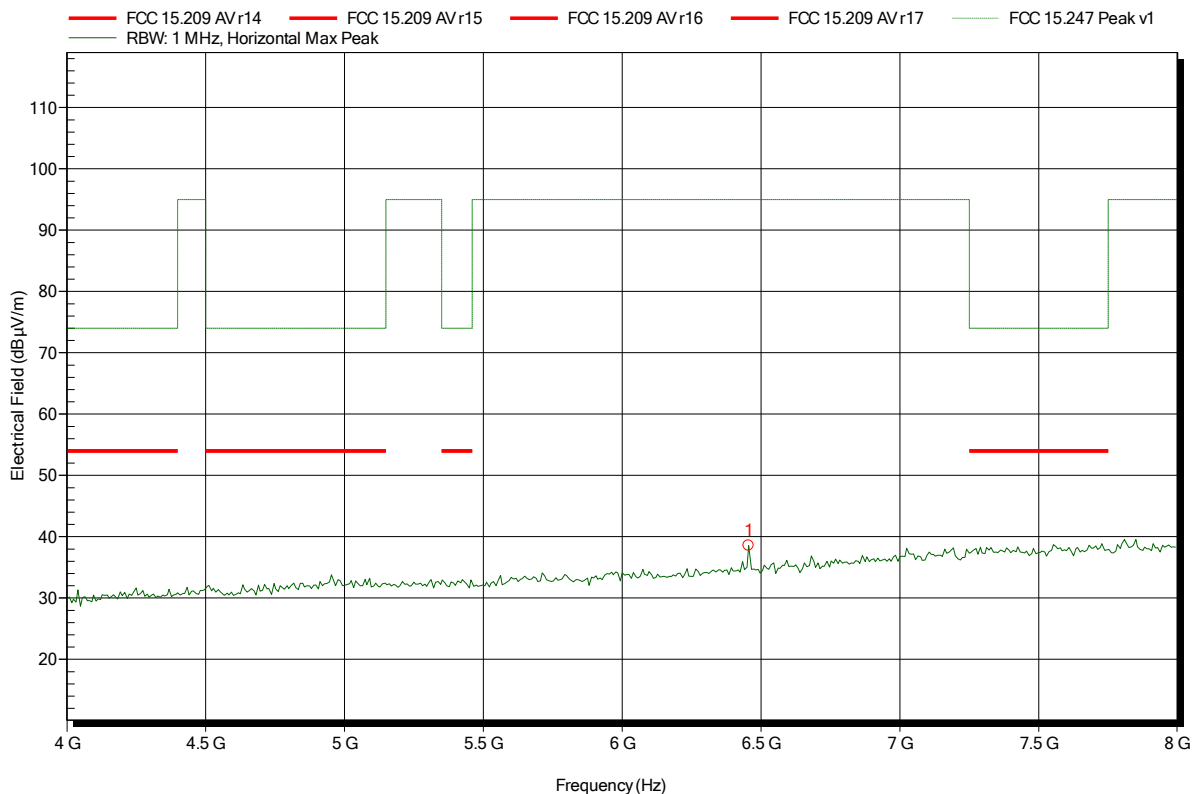


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch3, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 55



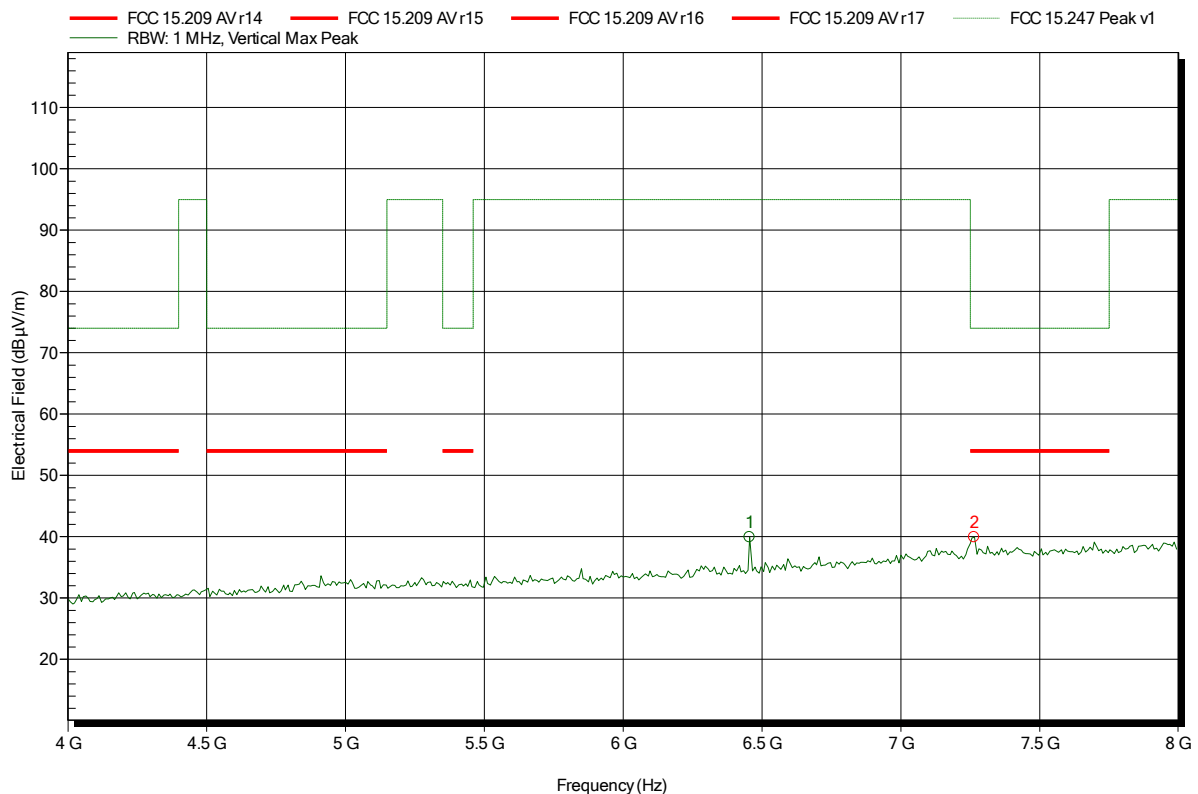
Frequency	Peak	Peak Limit	Peak Difference	Status
6.456 GHz	38.56 dBµV/m	95 dBµV/m	-56.44 dB	Pass

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch3, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 52



Frequency	Peak	Peak Limit	Peak Difference	Status
6.456 GHz	39.94 dBµV/m	95 dBµV/m	-55.06 dB	Pass
7.264 GHz	39.9 dBµV/m	74 dBµV/m	-34.1 dB	Pass

Test Report No.: G0M-1510-5172-TFC247WF-131-V01

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

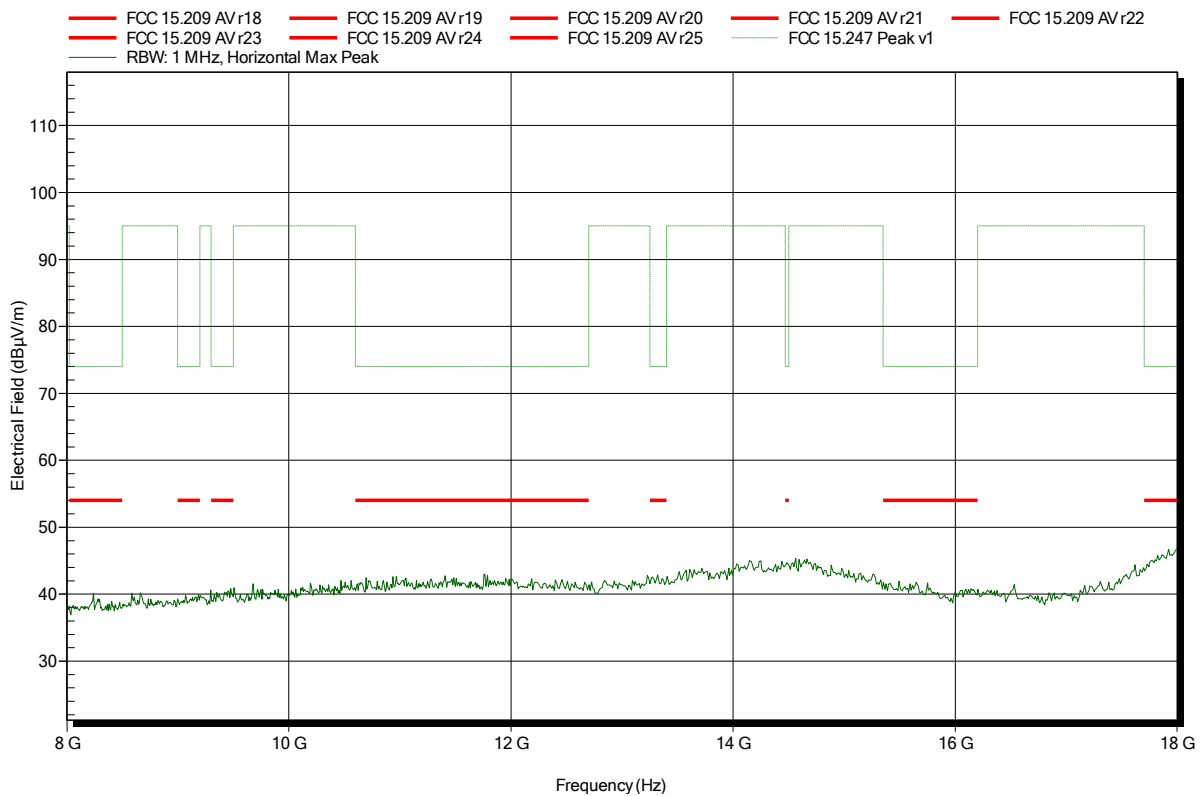


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch3, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 54

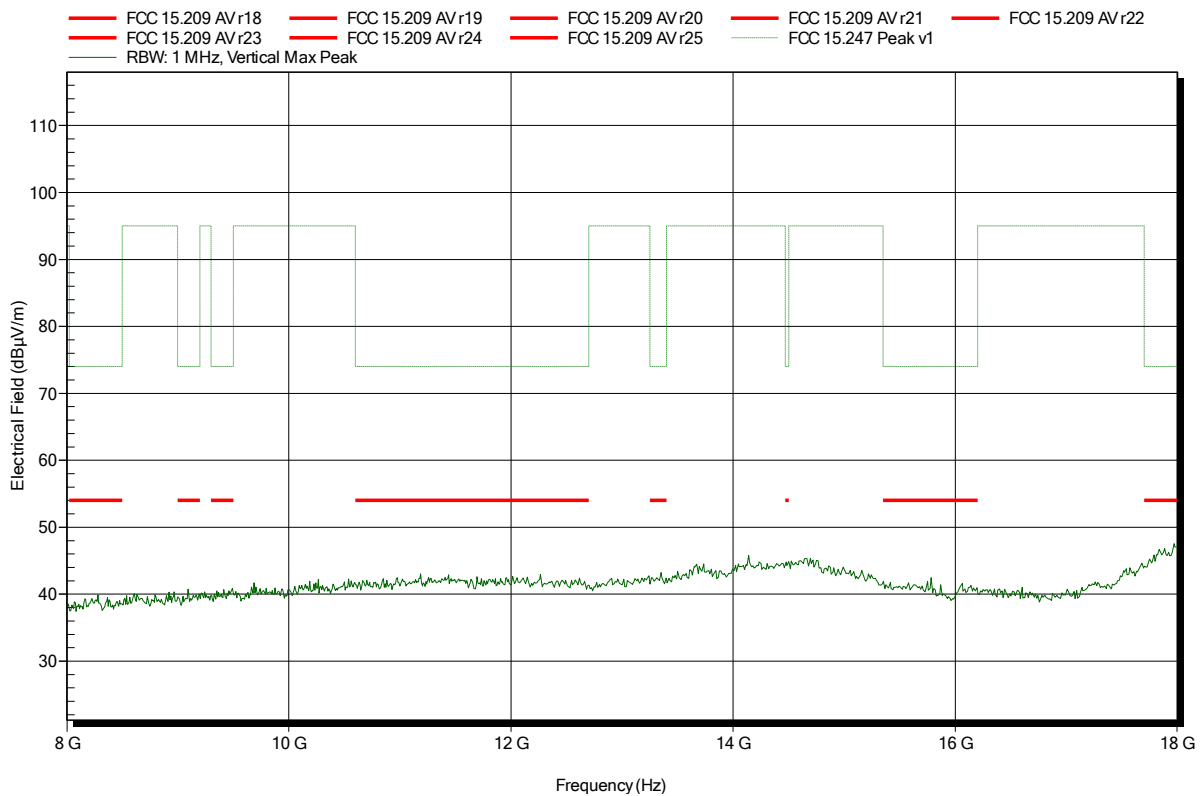


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch3, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 53

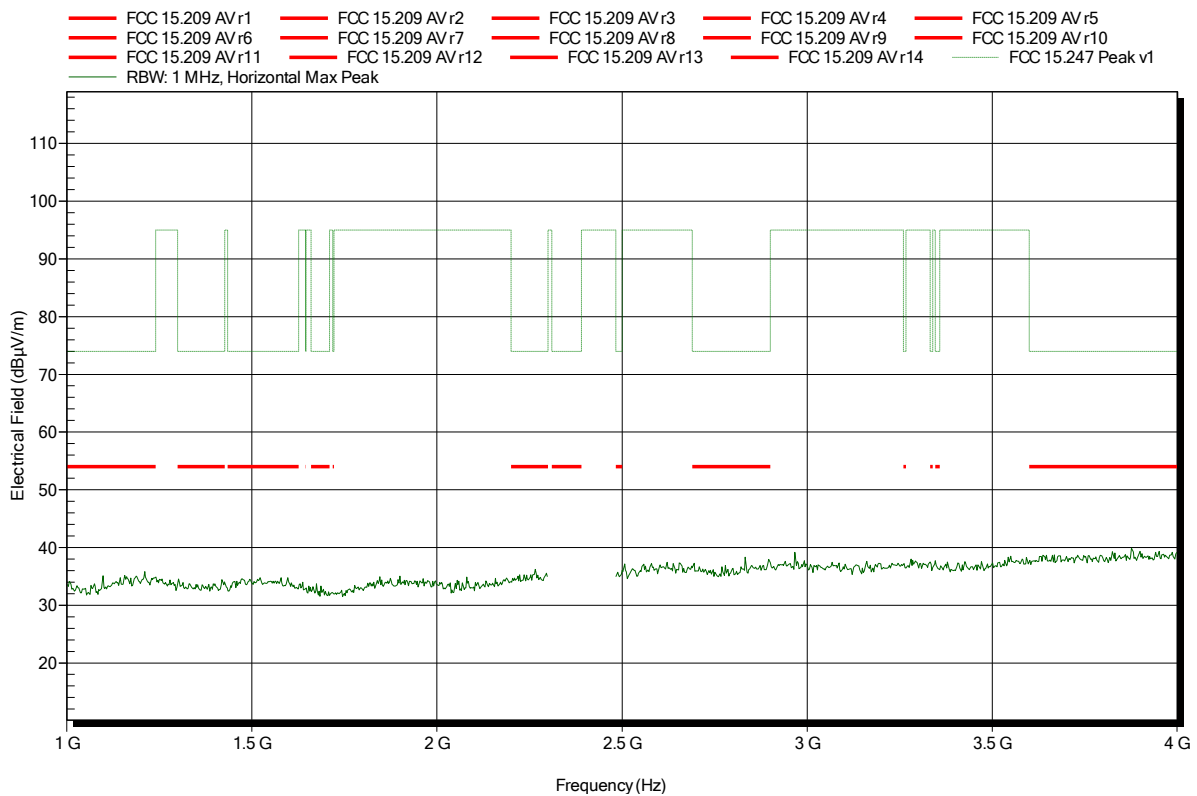


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch11, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-06  
 Note:

Index 59

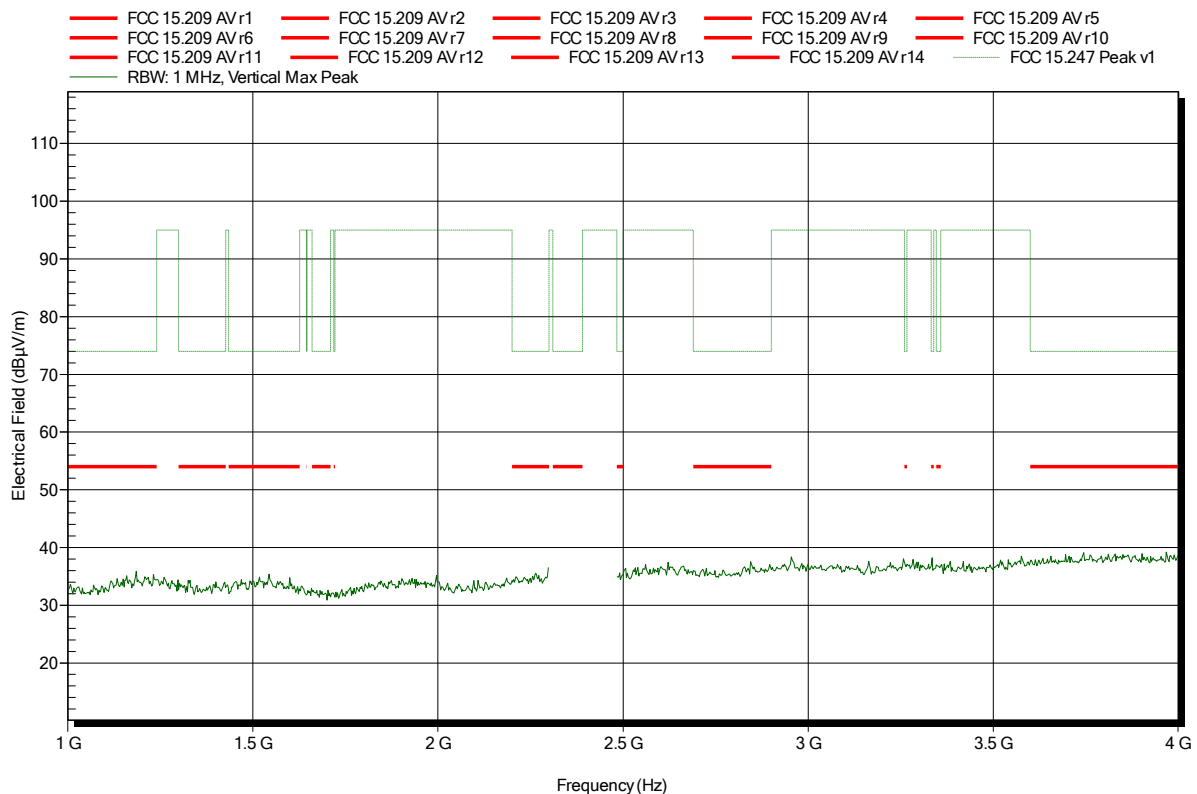


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch11, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-06  
 Note:

Index 58

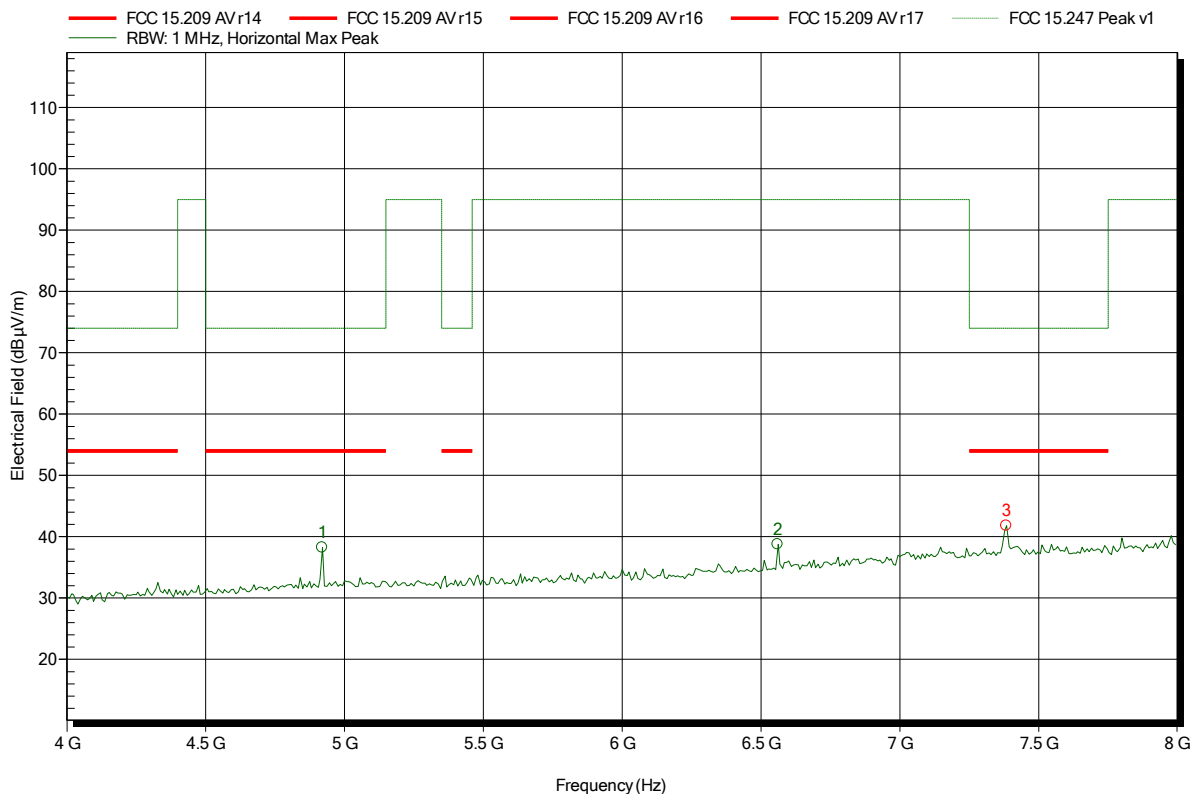


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch11, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-06  
 Note:

Index 60



Frequency	Peak	Peak Limit	Peak Difference	Status
4.92 GHz	38.22 dBµV/m	74 dBµV/m	-35.78 dB	Pass
6.56 GHz	38.74 dBµV/m	95 dBµV/m	-56.26 dB	Pass
7.384 GHz	41.8 dBµV/m	74 dBµV/m	-32.2 dB	Pass

Test Report No.: G0M-1510-5172-TFC247WF-131-V01

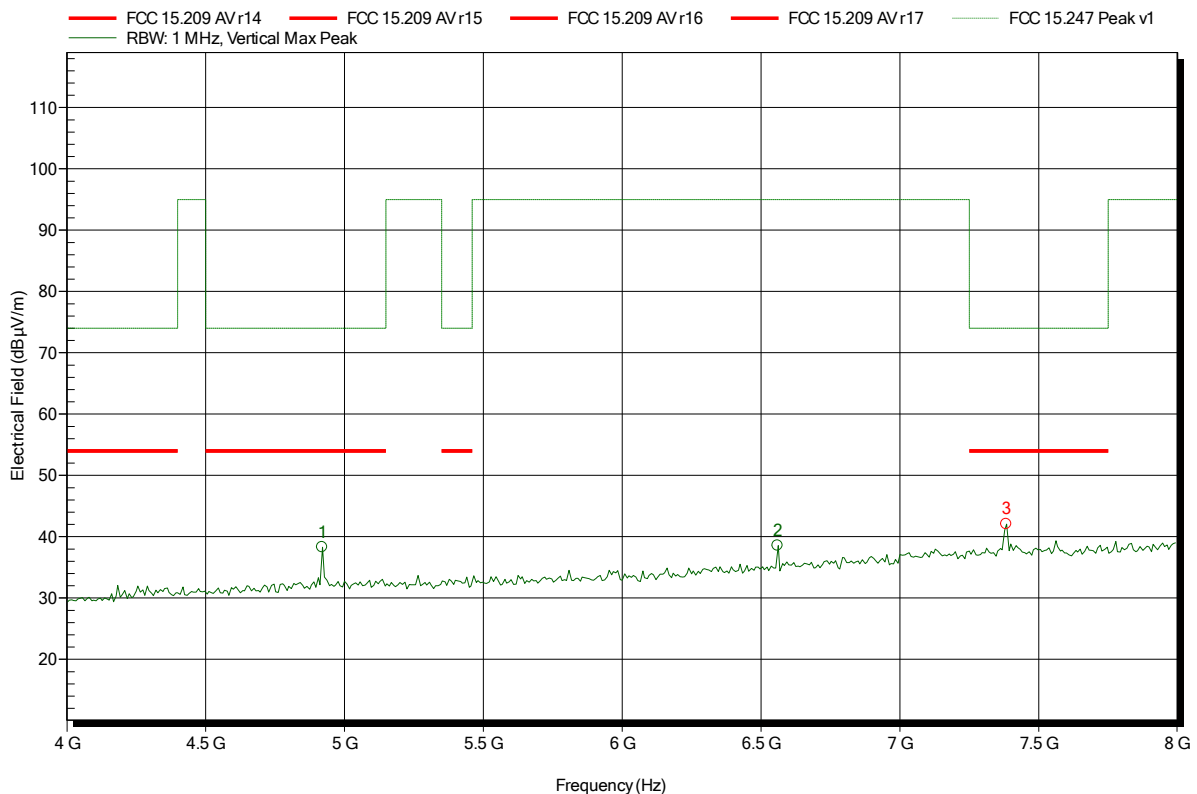
 Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch11, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-06  
 Note:

Index 63



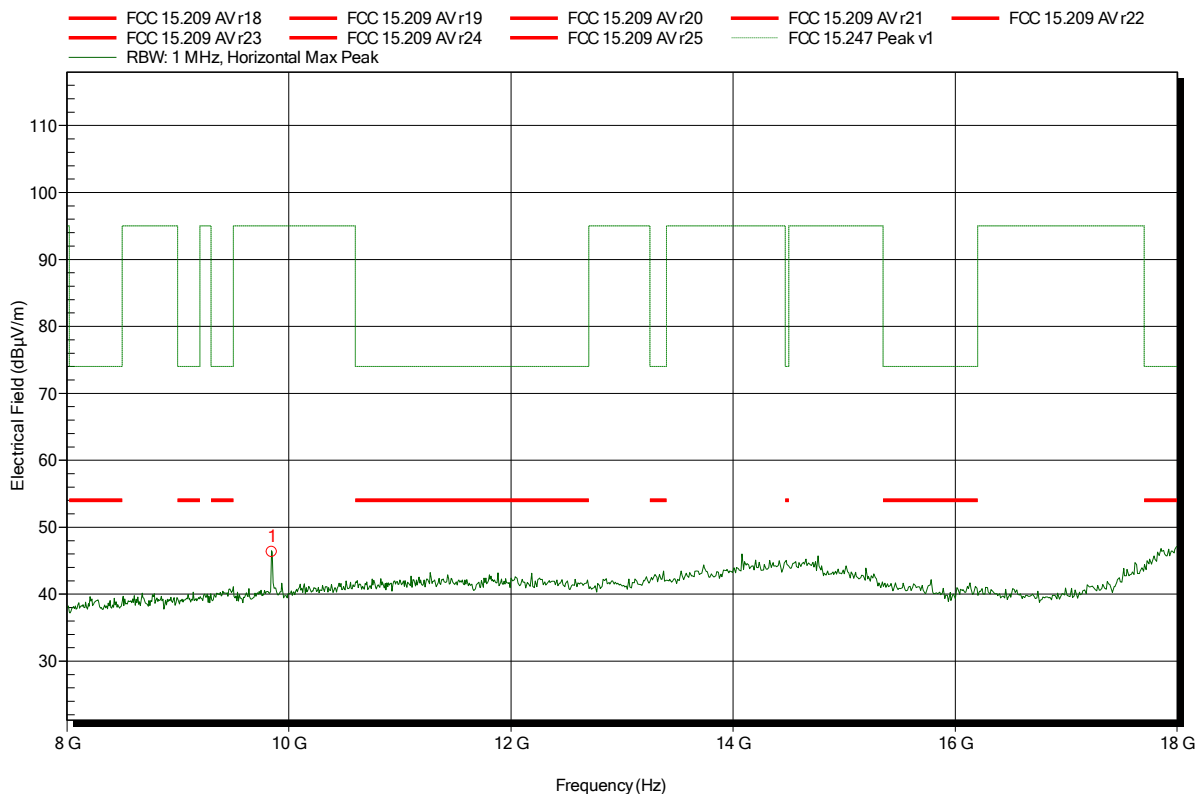
Frequency	Peak	Peak Limit	Peak Difference	Status
4.92 GHz	38.3 dBµV/m	74 dBµV/m	-35.7 dB	Pass
6.56 GHz	38.54 dBµV/m	95 dBµV/m	-56.46 dB	Pass
7.384 GHz	42.06 dBµV/m	74 dBµV/m	-31.94 dB	Pass

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch11, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-06  
 Note:

Index 61



Frequency	Peak	Peak Limit	Peak Difference	Status
9.848 GHz	46.31 dBµV/m	95 dBµV/m	-48.69 dB	Pass

Test Report No.: G0M-1510-5172-TFC247WF-131-V01

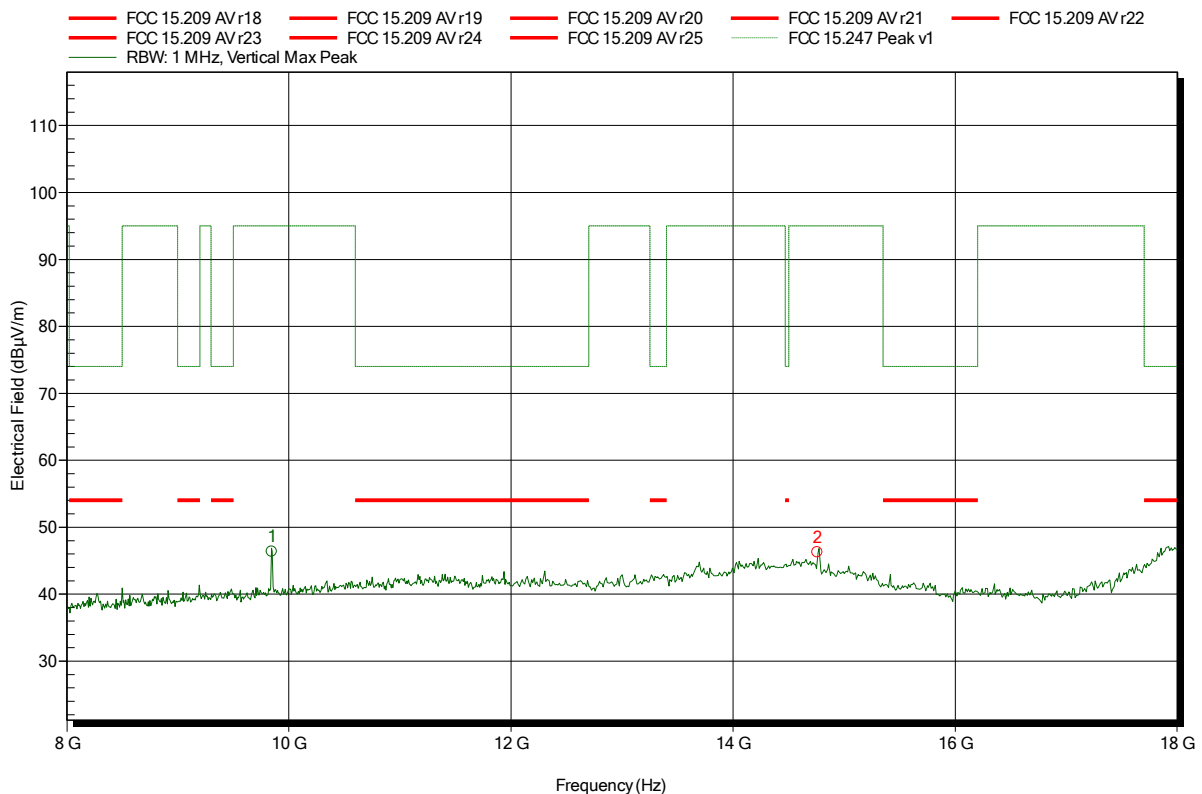
 Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch11, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-06  
 Note:

Index 62



Frequency	Peak	Peak Limit	Peak Difference	Status
9.848 GHz	46.35 dBµV/m	95 dBµV/m	-48.65 dB	Pass
14.76 GHz	46.23 dBµV/m	95 dBµV/m	-48.77 dB	Pass

Test Report No.: G0M-1510-5172-TFC247WF-131-V01

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

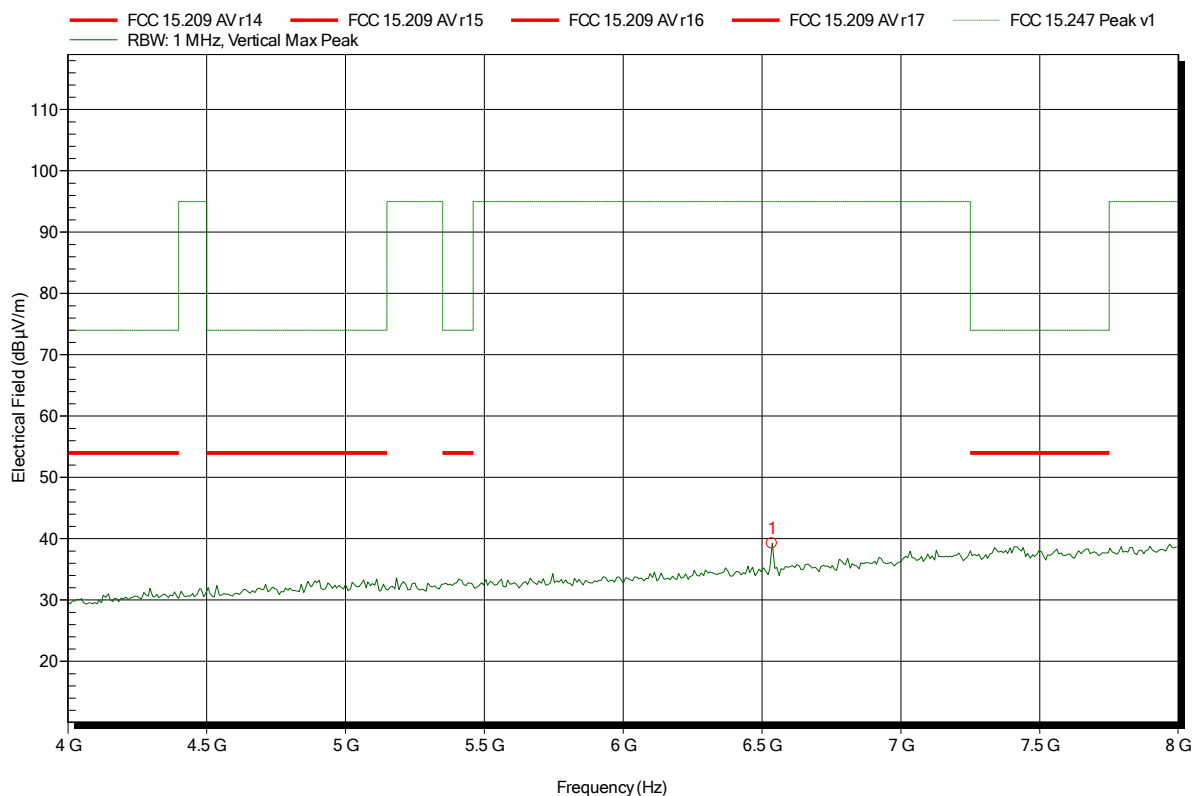


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch9, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 64



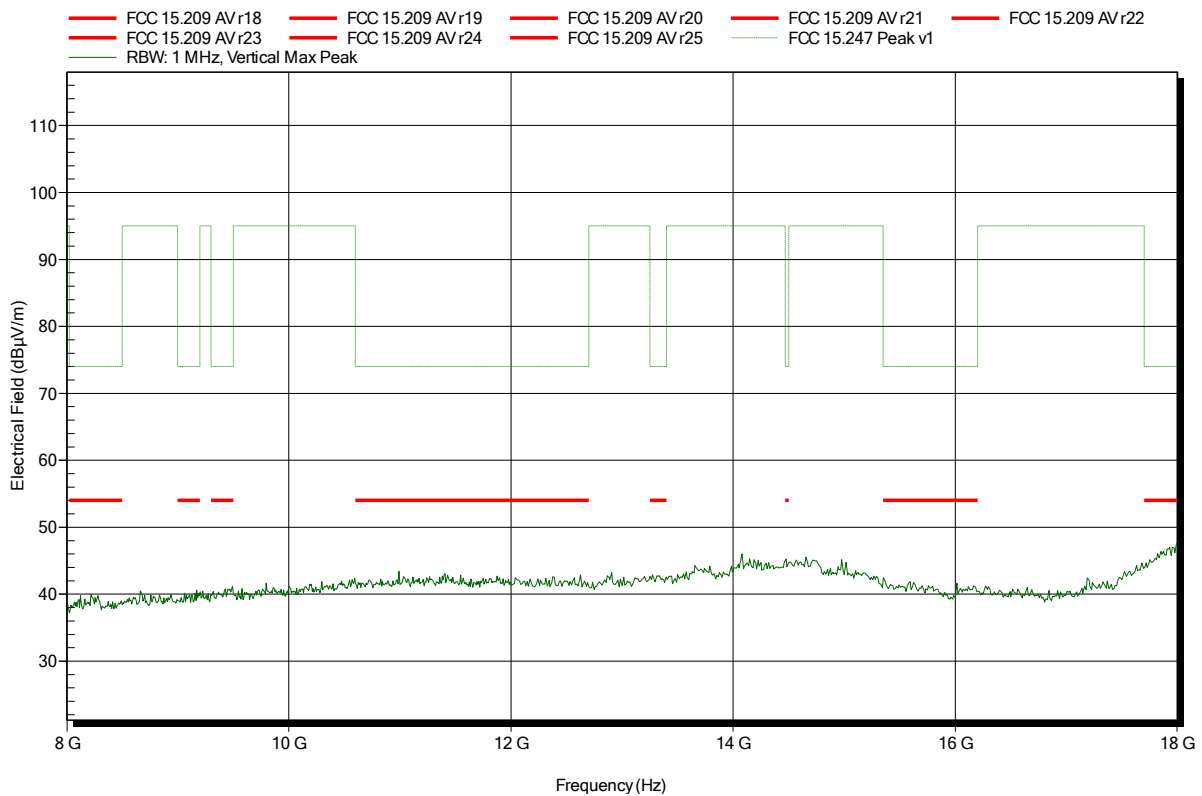
Frequency	Peak	Peak Limit	Peak Difference	Status
6.536 GHz	39.25 dBµV/m	95 dBµV/m	-55.75 dB	Pass

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch9, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 65

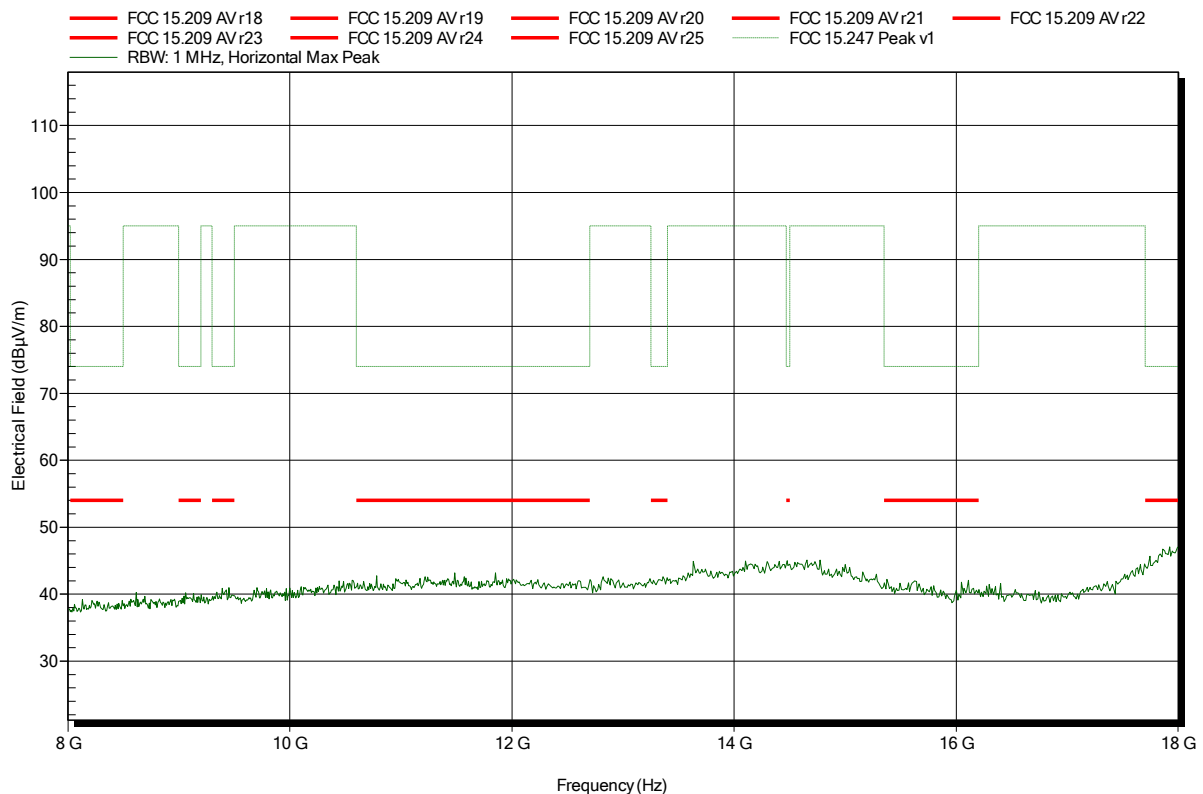


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch9, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 66

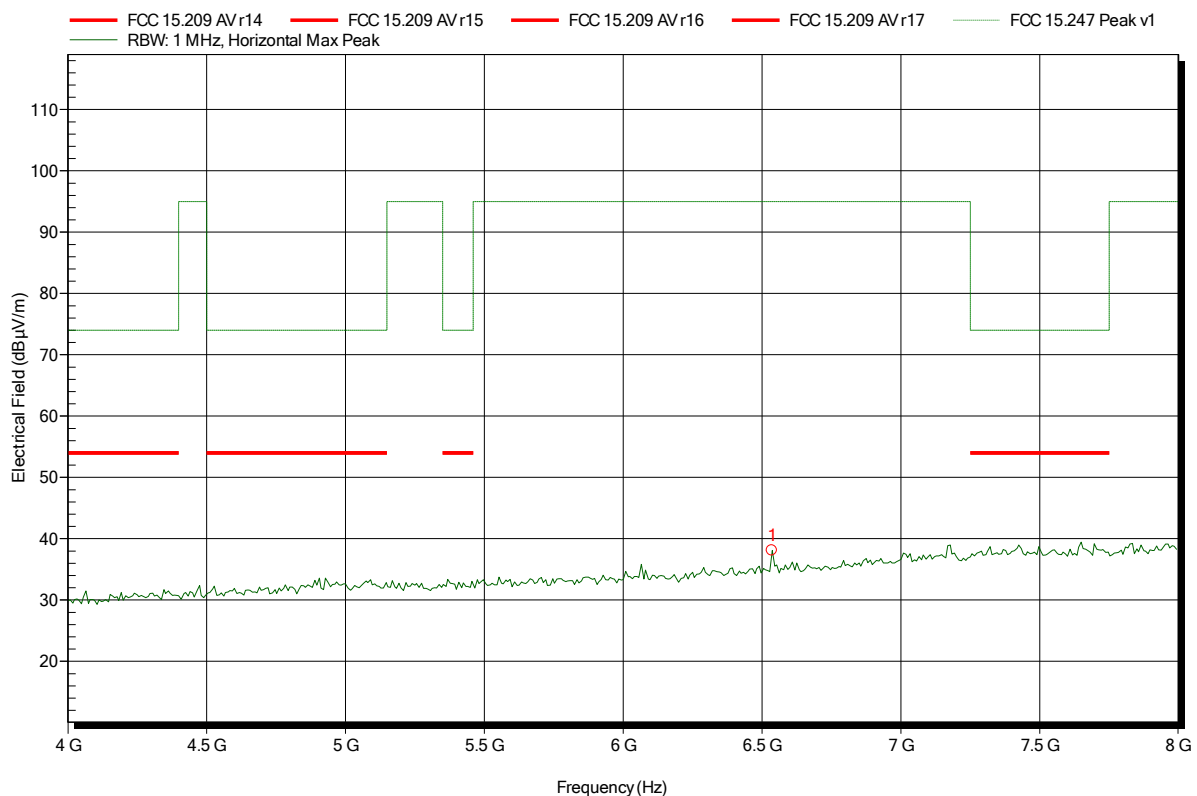


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch9, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 67



Frequency	Peak	Peak Limit	Peak Difference	Status
6.536 GHz	38.06 dBµV/m	95 dBµV/m	-56.94 dB	Pass

**Test Report No.: G0M-1510-5172-TFC247WF-131-V01**

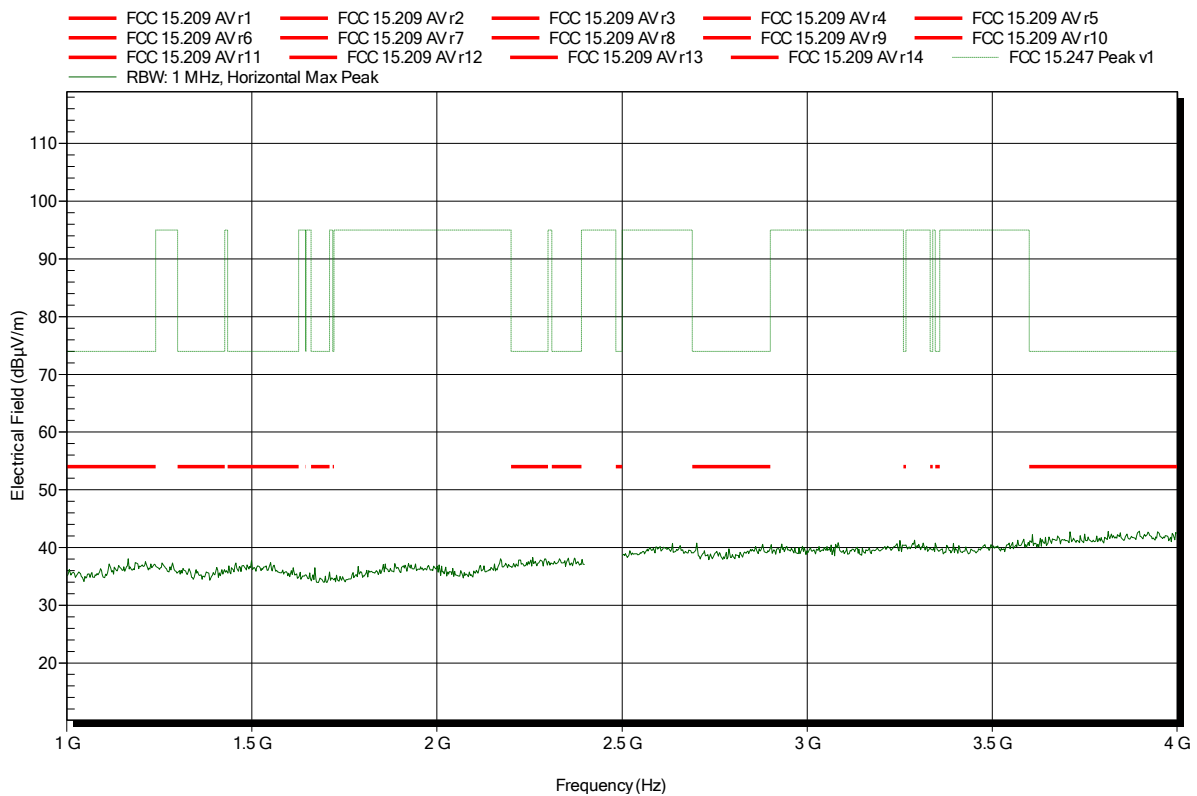
 Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch9, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 68

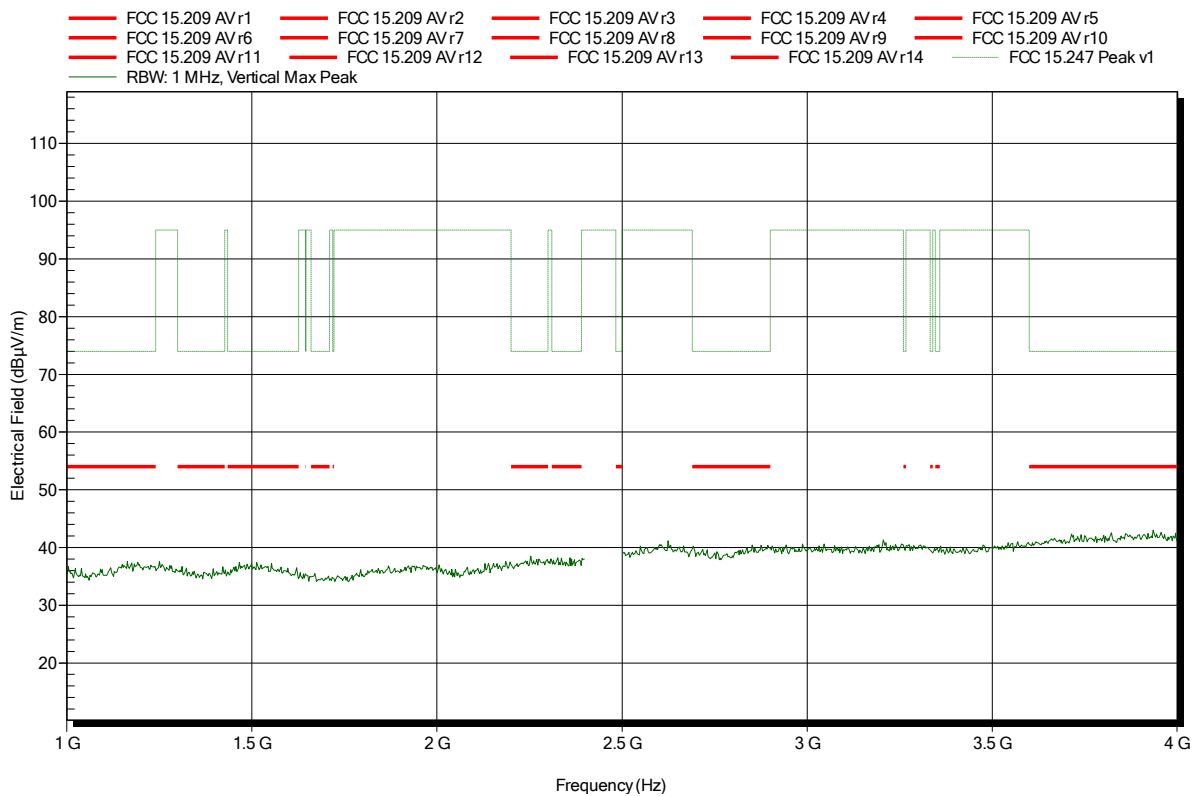


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131-A  
 Model: Test Sample #1  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch9, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-06  
 Note:

Index 69

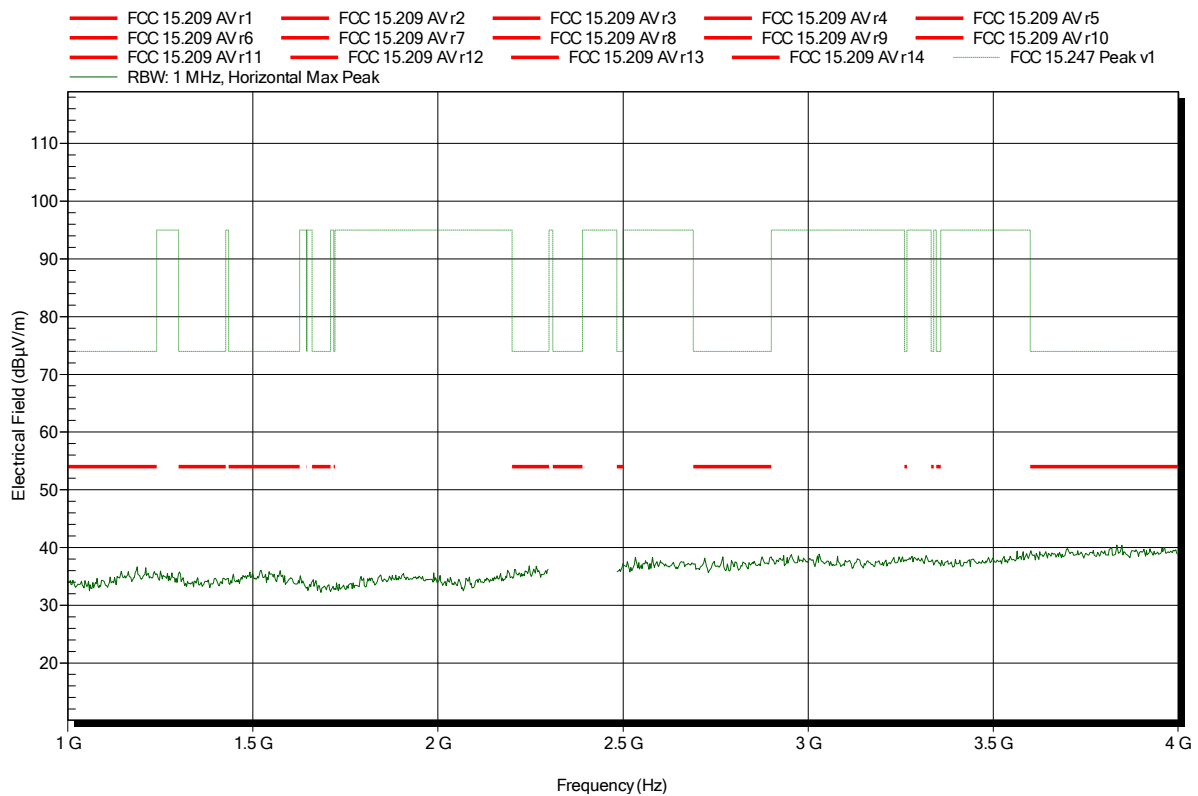


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch1, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-09  
 Note:

Index 41

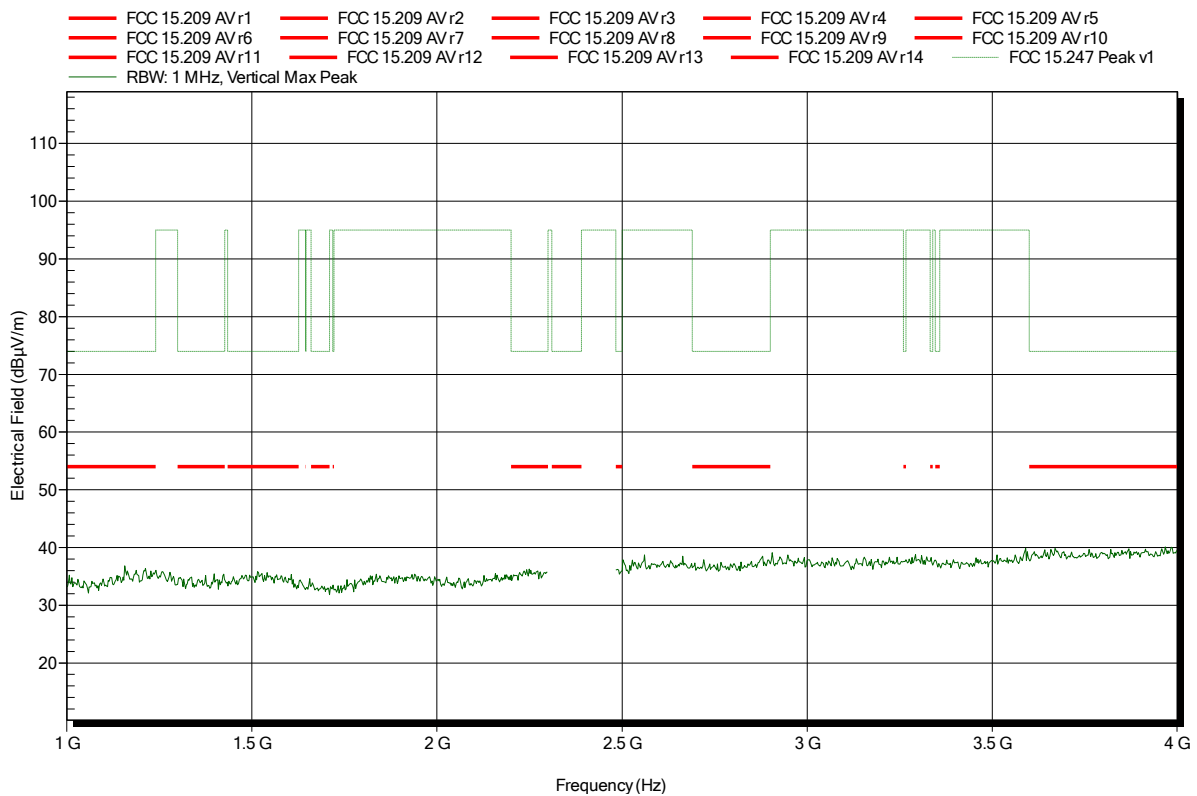


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch1, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-09  
 Note:

Index 40



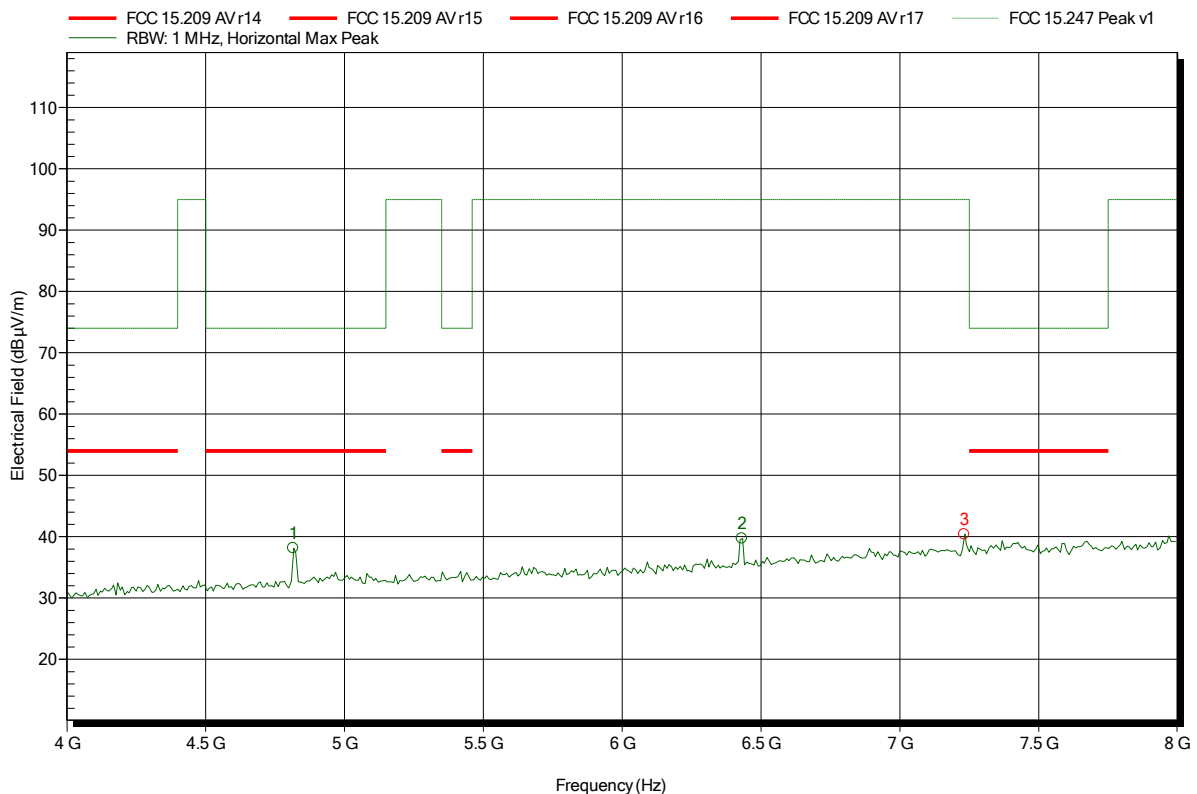


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch1, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-09  
 Note:

Index 42



Frequency	Peak	Peak Limit	Peak Difference	Status
4.816 GHz	38.14 dBµV/m	74 dBµV/m	-35.86 dB	Pass
6.432 GHz	39.7 dBµV/m	95 dBµV/m	-55.3 dB	Pass
7.232 GHz	40.41 dBµV/m	95 dBµV/m	-54.59 dB	Pass

Test Report No.: G0M-1510-5172-TFC247WF-131-V01

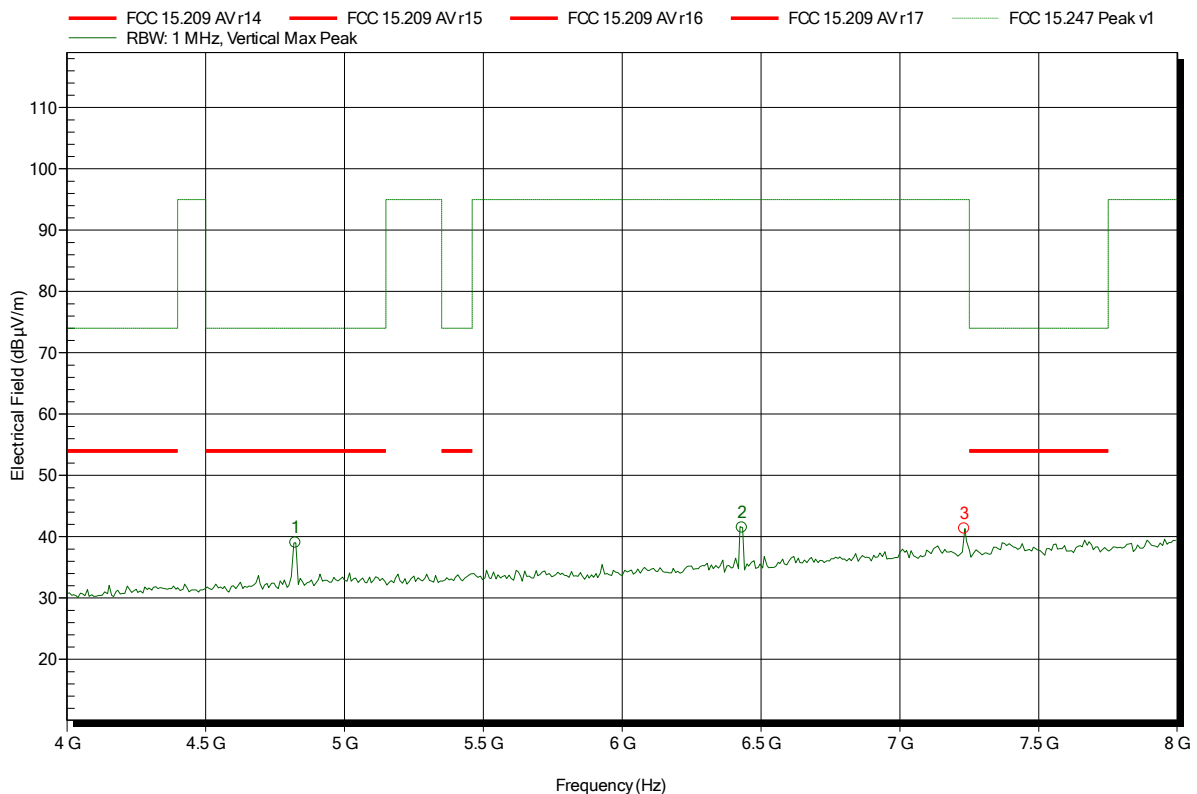
 Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch1, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-09  
 Note:

Index 44



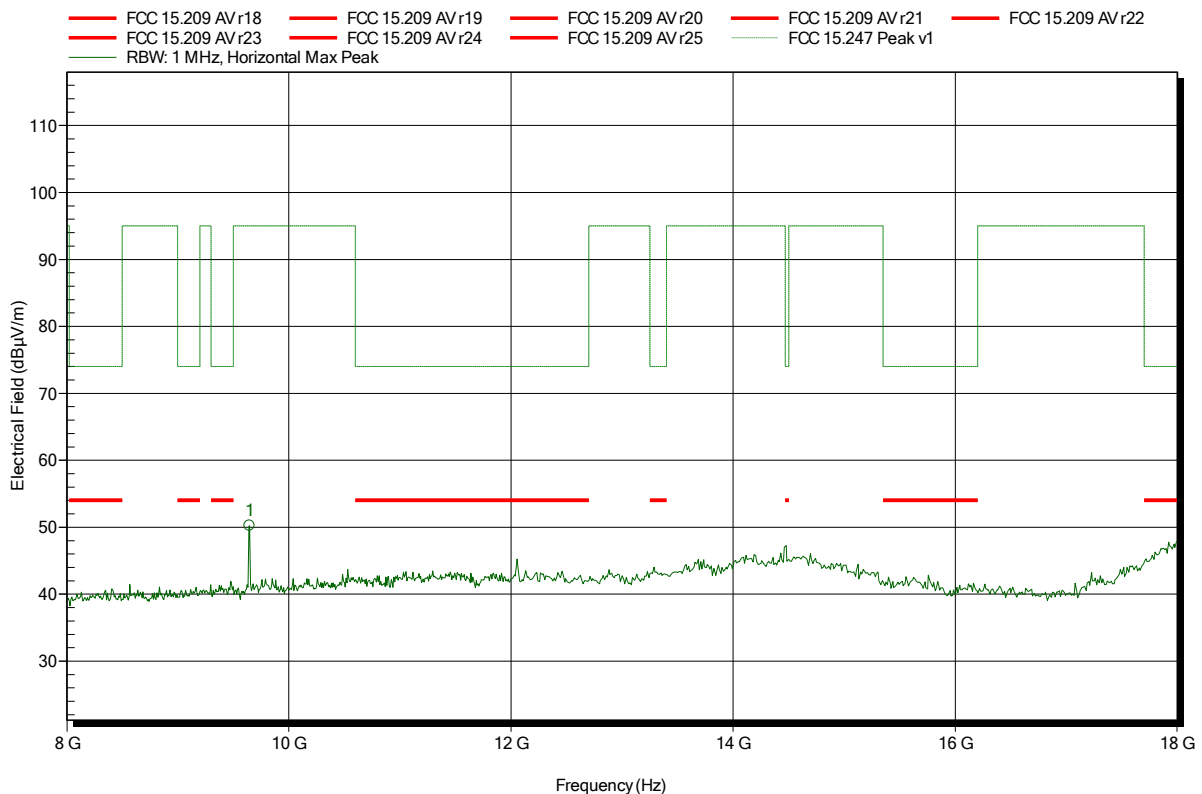
Frequency	Peak	Peak Limit	Peak Difference	Status
4.824 GHz	39.02 dBµV/m	74 dBµV/m	-34.98 dB	Pass
6.432 GHz	41.5 dBµV/m	95 dBµV/m	-53.5 dB	Pass
7.232 GHz	41.32 dBµV/m	95 dBµV/m	-53.68 dB	Pass

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch1, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-09  
 Note:

Index 43



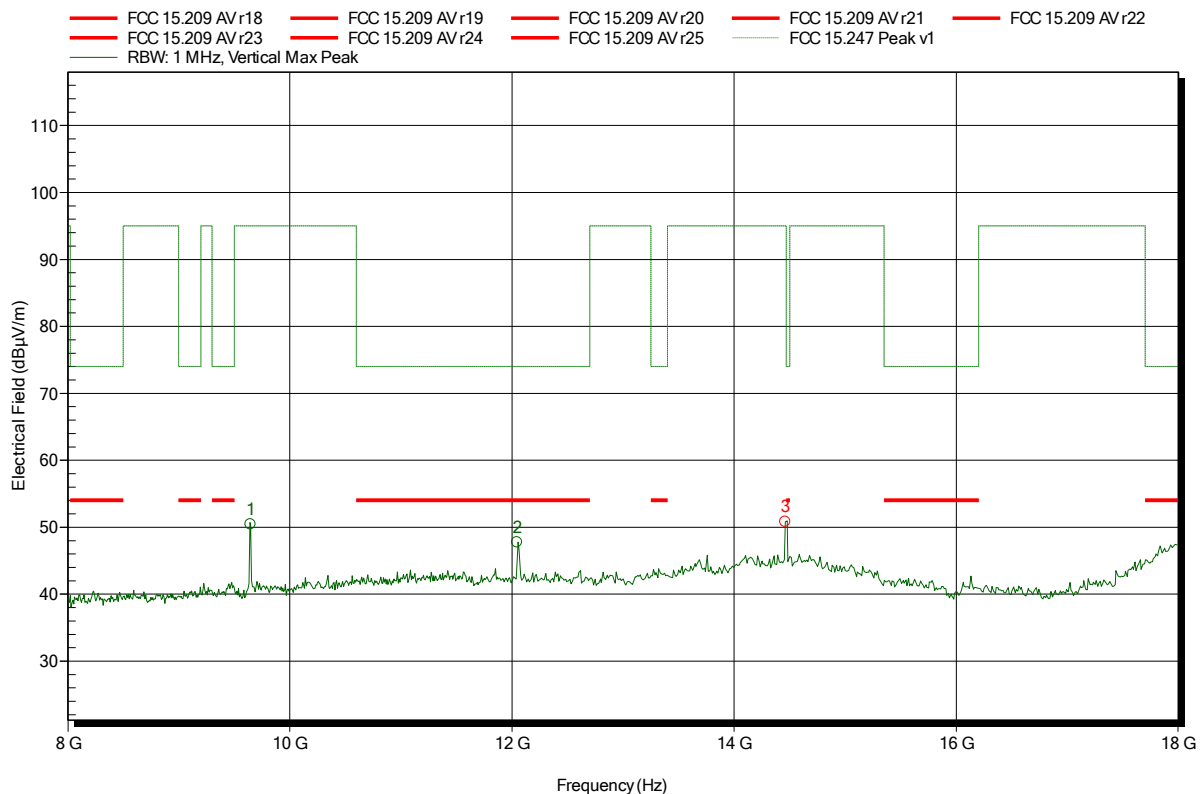
Frequency	Peak	Peak Limit	Peak Difference	Status
9.648 GHz	50.24 dBµV/m	95 dBµV/m	-44.76 dB	Pass

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch1, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-09  
 Note:

Index 45



Frequency	Peak	Peak Limit	Peak Difference	Status
9.648 GHz	50.44 dBµV/m	95 dBµV/m	-44.56 dB	Pass
12.048 GHz	47.76 dBµV/m	74 dBµV/m	-26.24 dB	Pass
14.46 GHz	50.81 dBµV/m	95 dBµV/m	-44.19 dB	Pass

Test Report No.: G0M-1510-5172-TFC247WF-131-V01

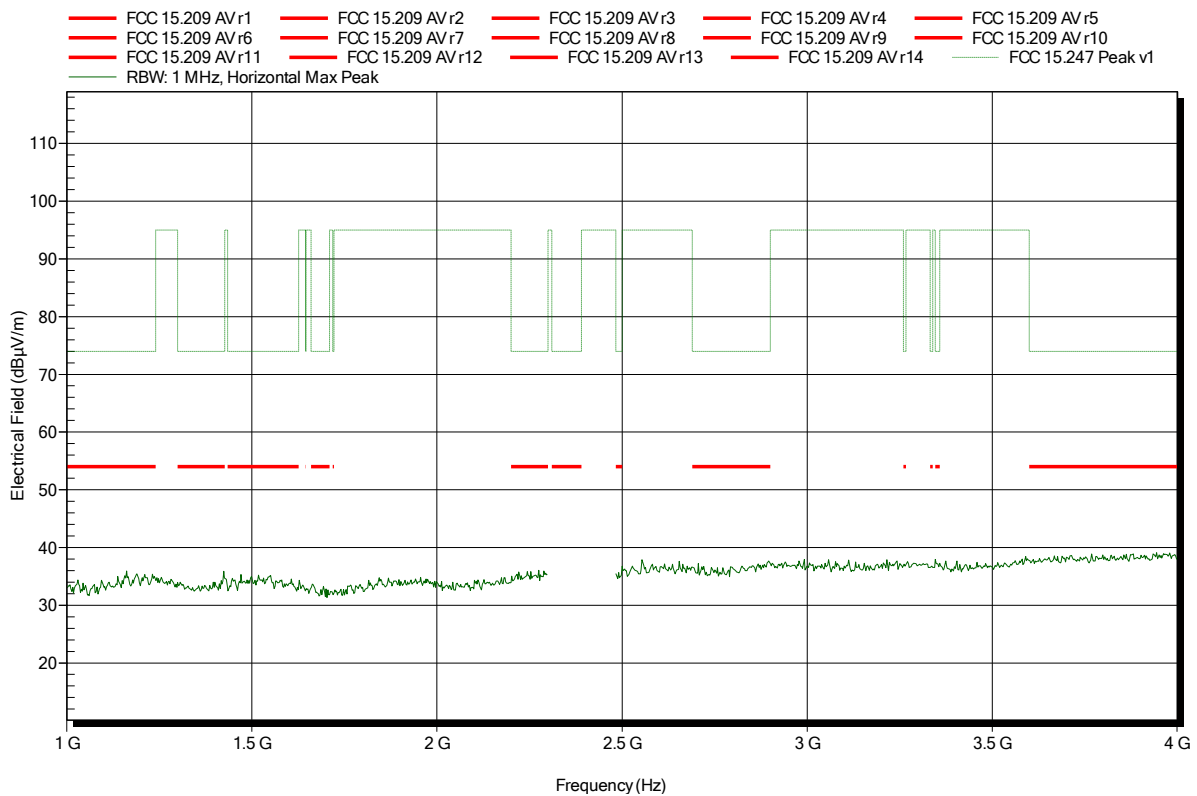
 Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch3, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-09  
 Note:

Index 62

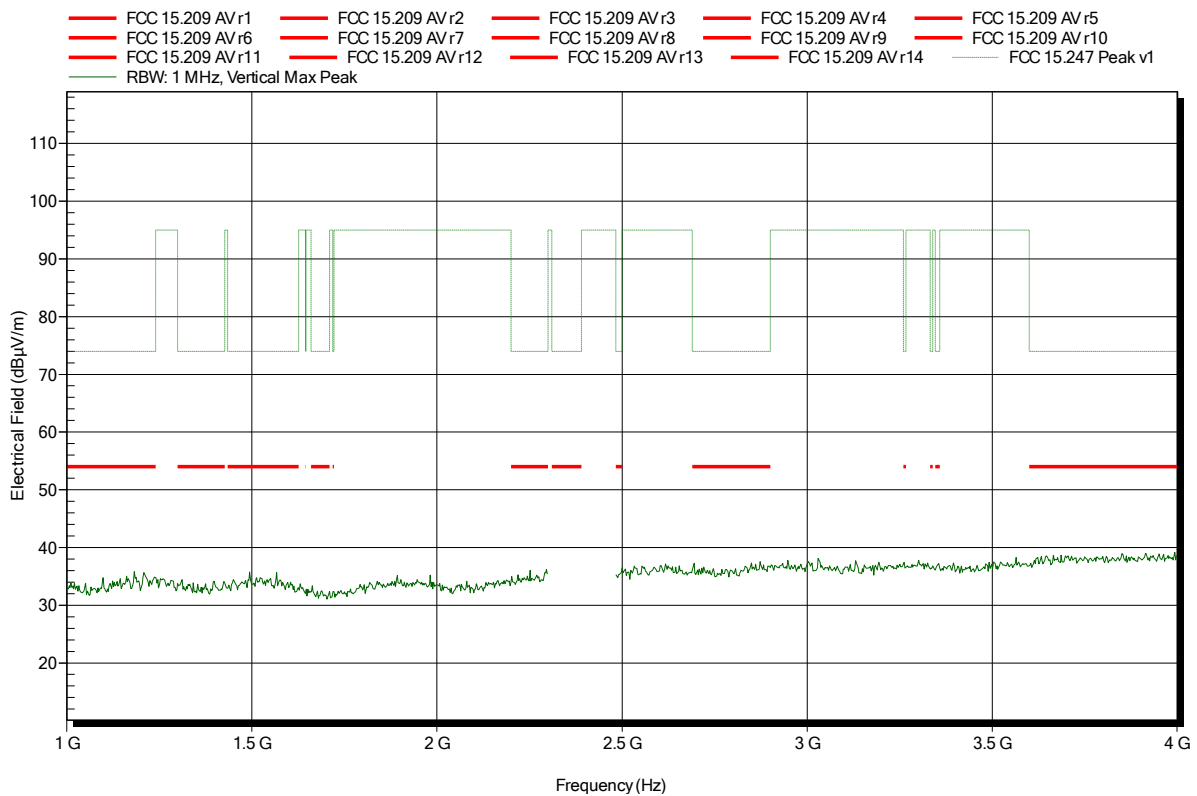


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch3, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-09  
 Note:

Index 63

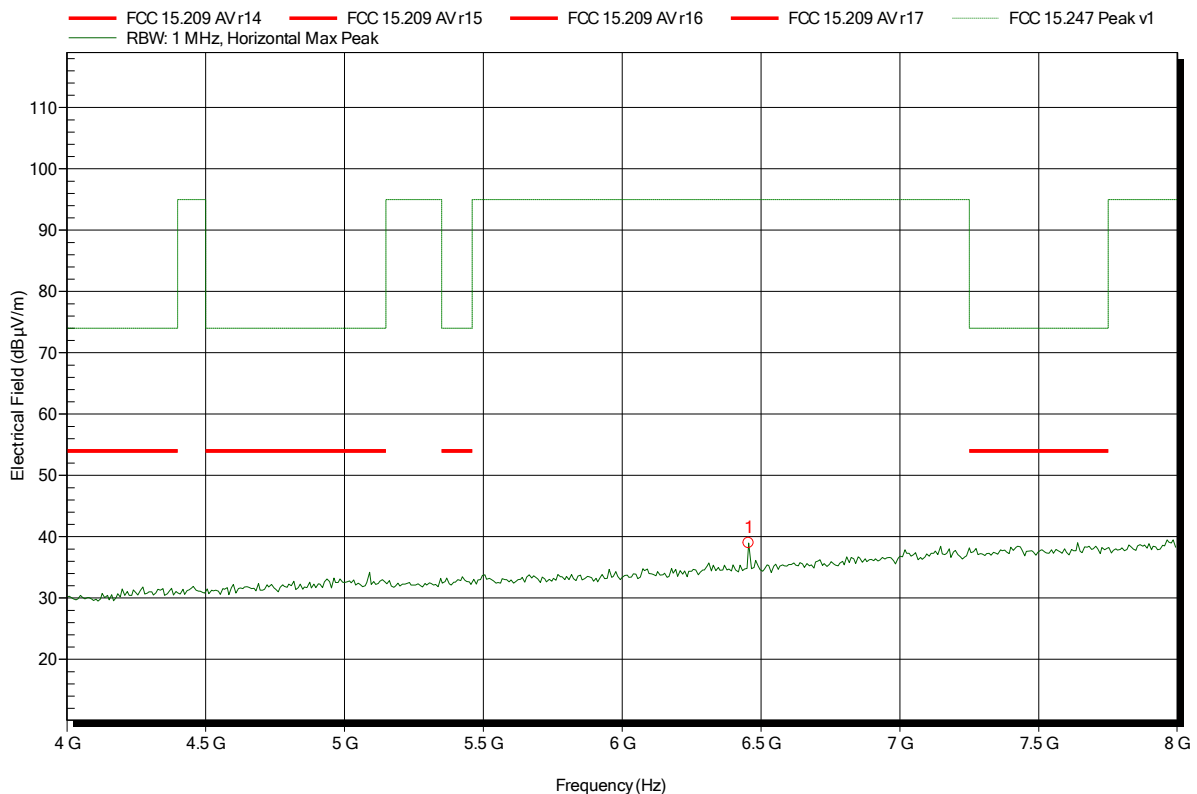


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch3, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-09  
 Note:

Index 61



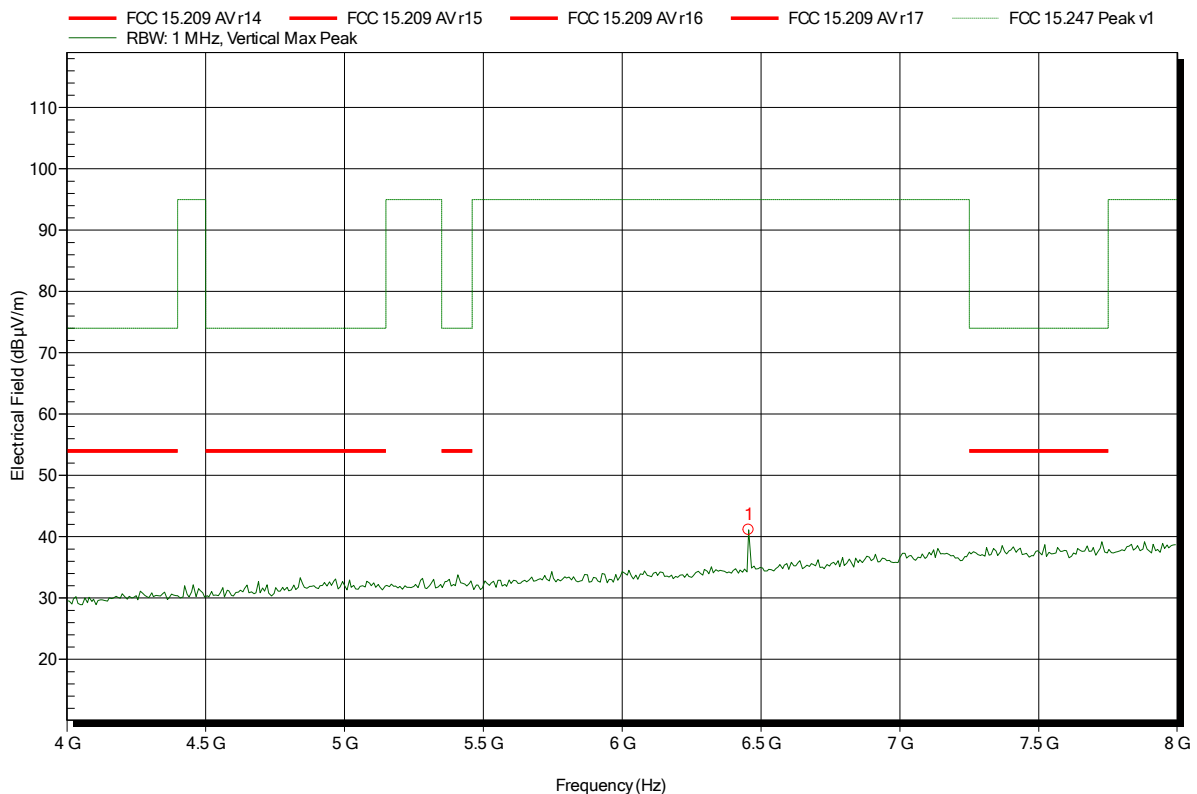
Frequency	Peak	Peak Limit	Peak Difference	Status
6.456 GHz	38.96 dBµV/m	95 dBµV/m	-56.04 dB	Pass

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch3, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-09  
 Note:

Index 58



Frequency	Peak	Peak Limit	Peak Difference	Status
6.456 GHz	41.14 dBµV/m	95 dBµV/m	-53.86 dB	Pass

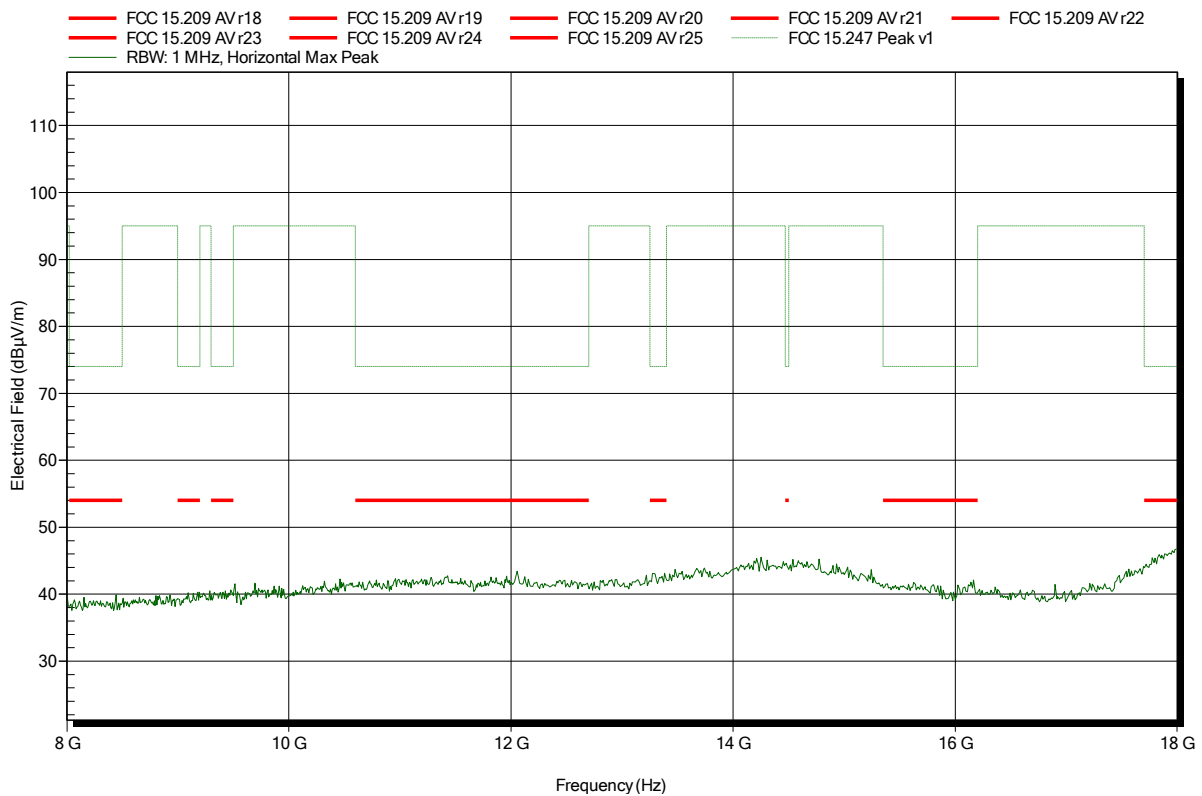


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch3, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-09  
 Note:

Index 60

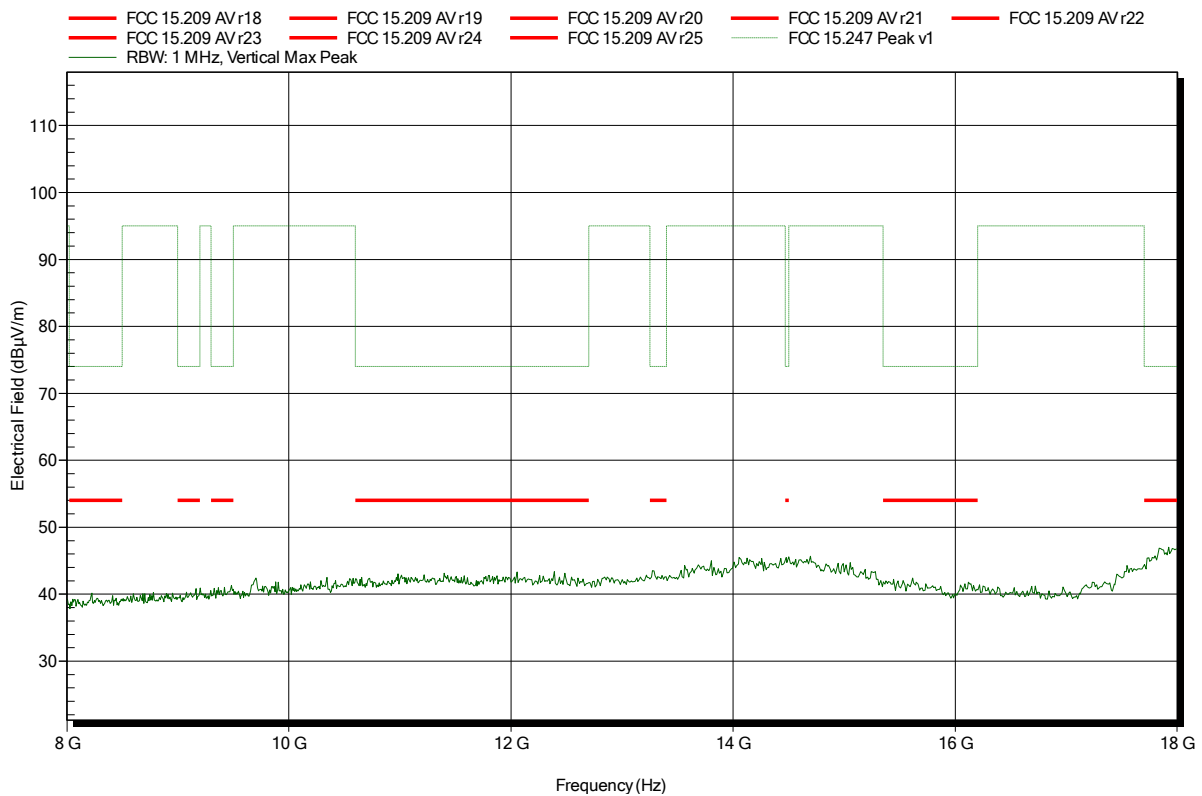


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch3, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-09  
 Note:

Index 59

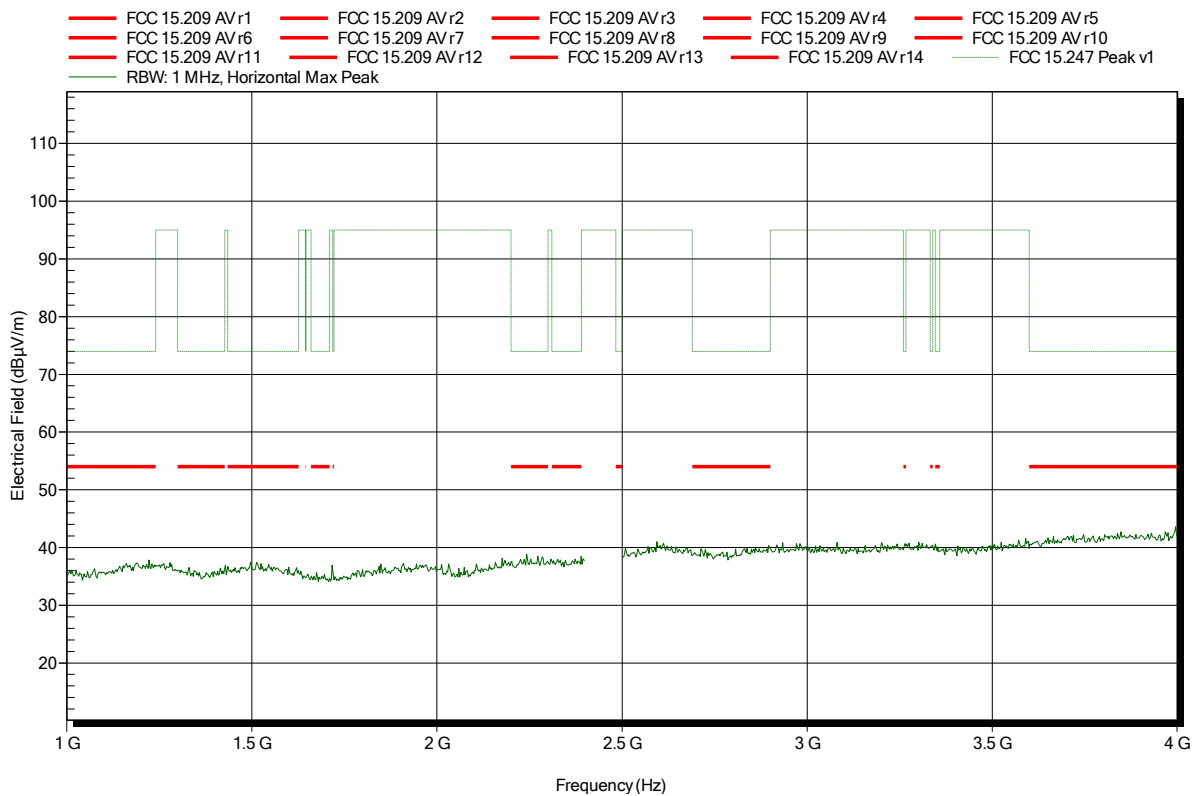


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch11, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-09  
 Note:

Index 65

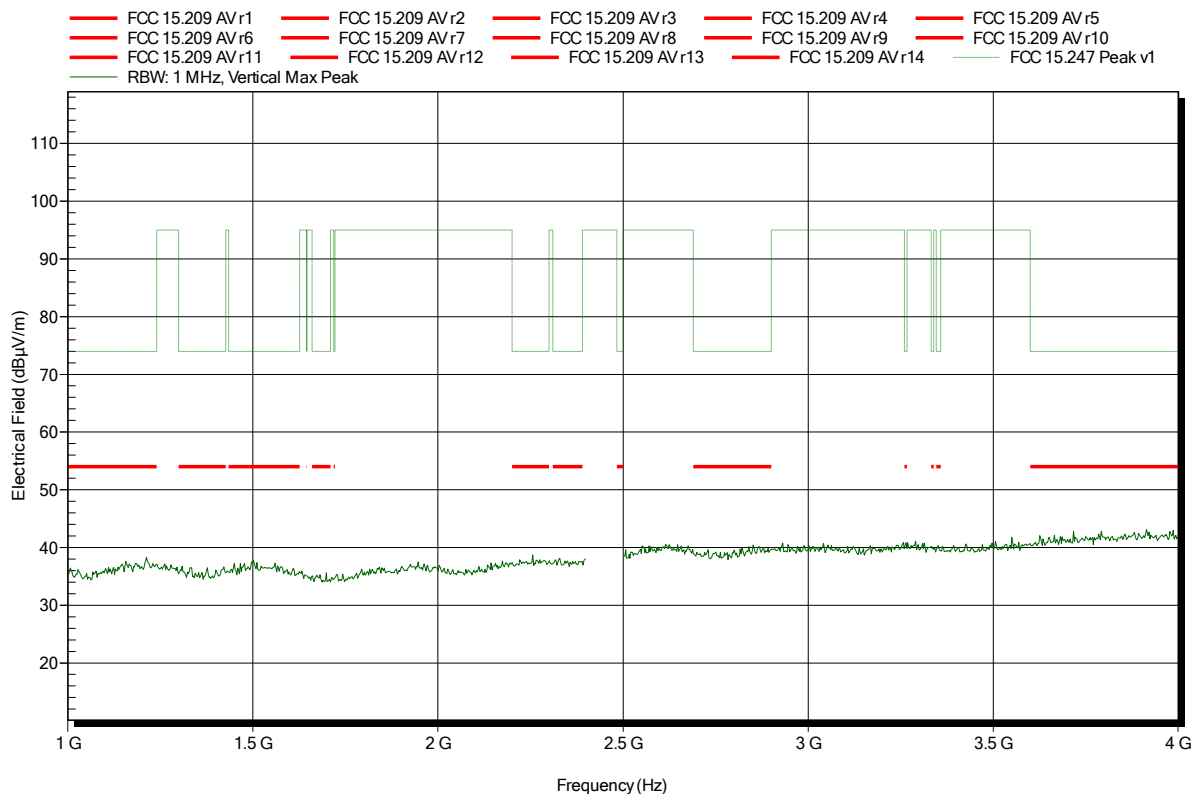


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch11, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-09  
 Note:

Index 66

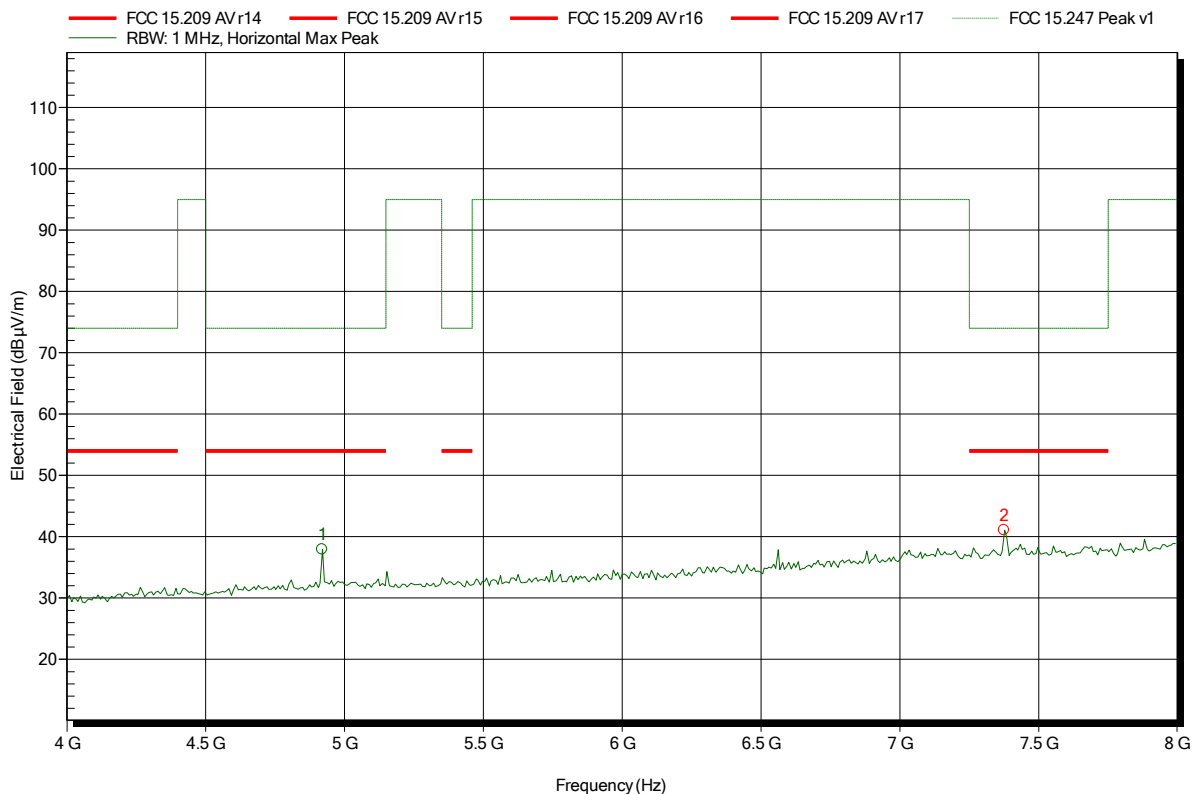


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch11, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-09  
 Note:

Index 69



Frequency	Peak	Peak Limit	Peak Difference	Status
4.92 GHz	37.95 dBµV/m	74 dBµV/m	-36.05 dB	Pass
7.376 GHz	41.07 dBµV/m	74 dBµV/m	-32.93 dB	Pass

**Test Report No.: G0M-1510-5172-TFC247WF-131-V01**

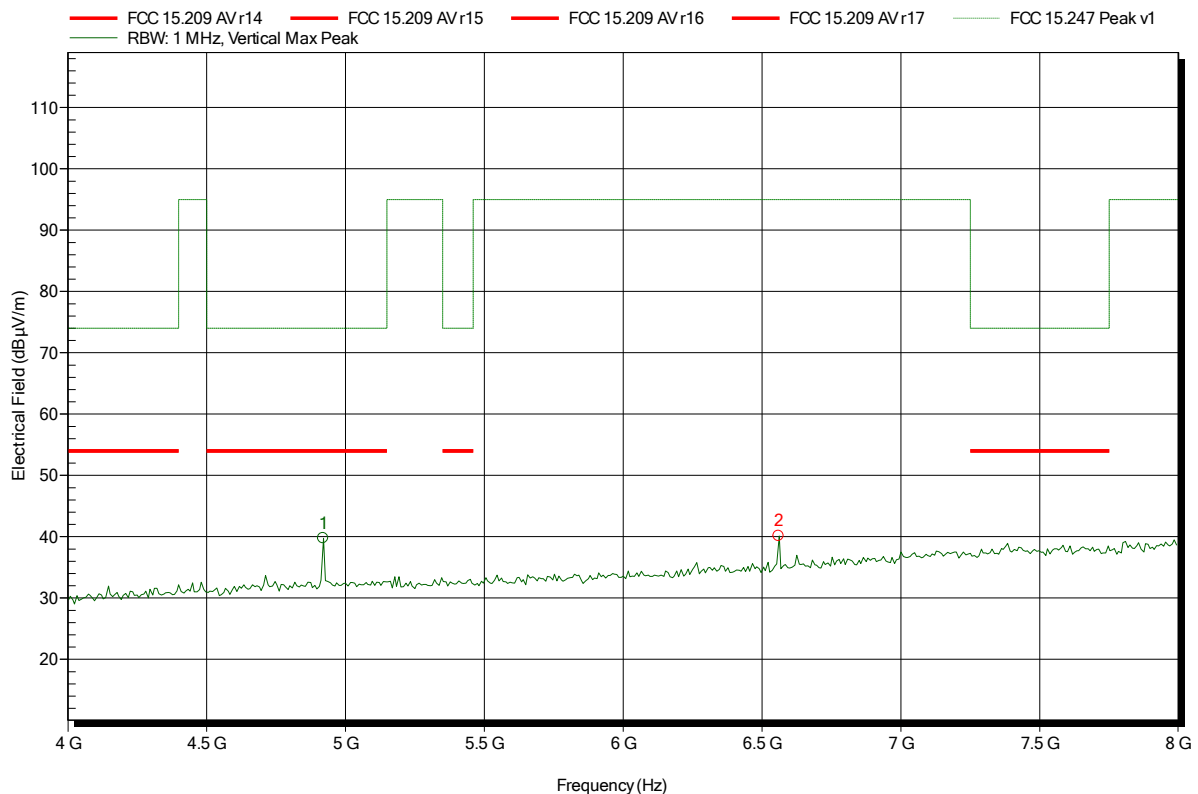
 Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch11, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-09  
 Note:

Index 68



Frequency	Peak	Peak Limit	Peak Difference	Status
4.92 GHz	39.76 dBµV/m	74 dBµV/m	-34.24 dB	Pass
6.56 GHz	40.13 dBµV/m	95 dBµV/m	-54.87 dB	Pass

Test Report No.: G0M-1510-5172-TFC247WF-131-V01

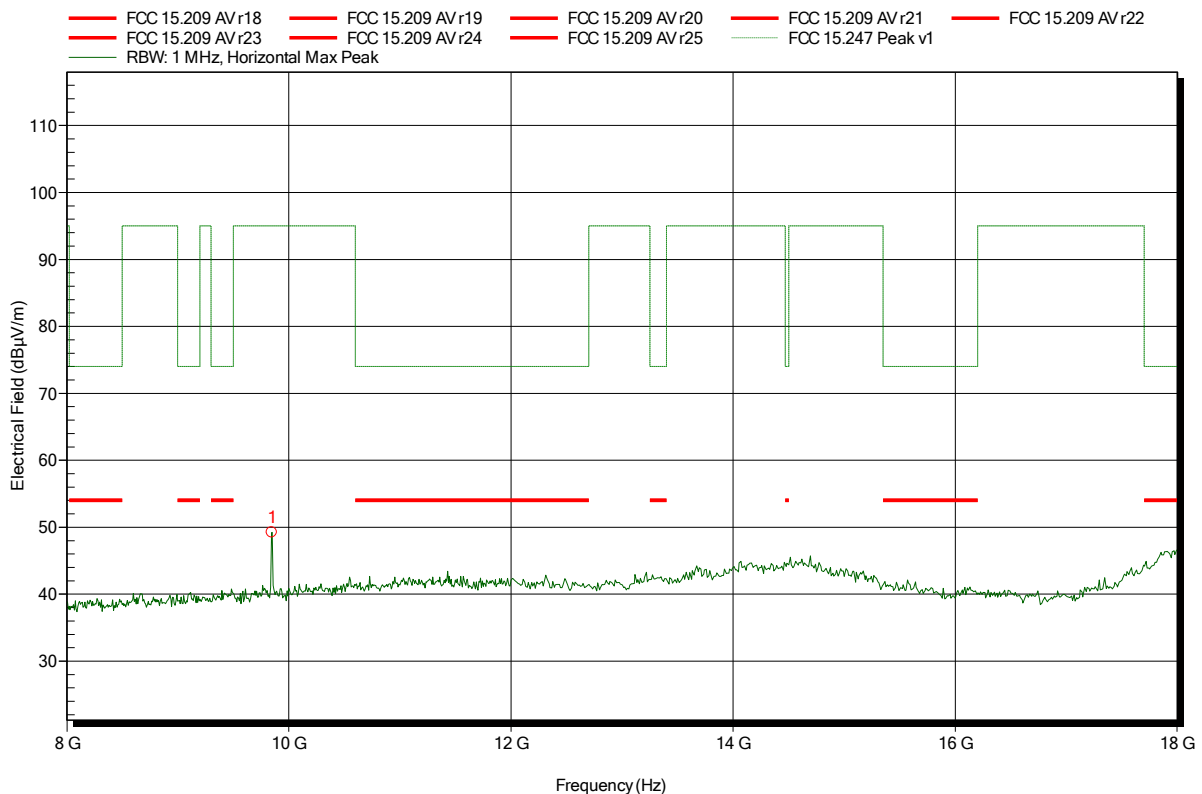
 Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch11, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-09  
 Note:

Index 70



Frequency	Peak	Peak Limit	Peak Difference	Status
9.848 GHz	49.22 dBµV/m	95 dBµV/m	-45.78 dB	Pass

Test Report No.: G0M-1510-5172-TFC247WF-131-V01

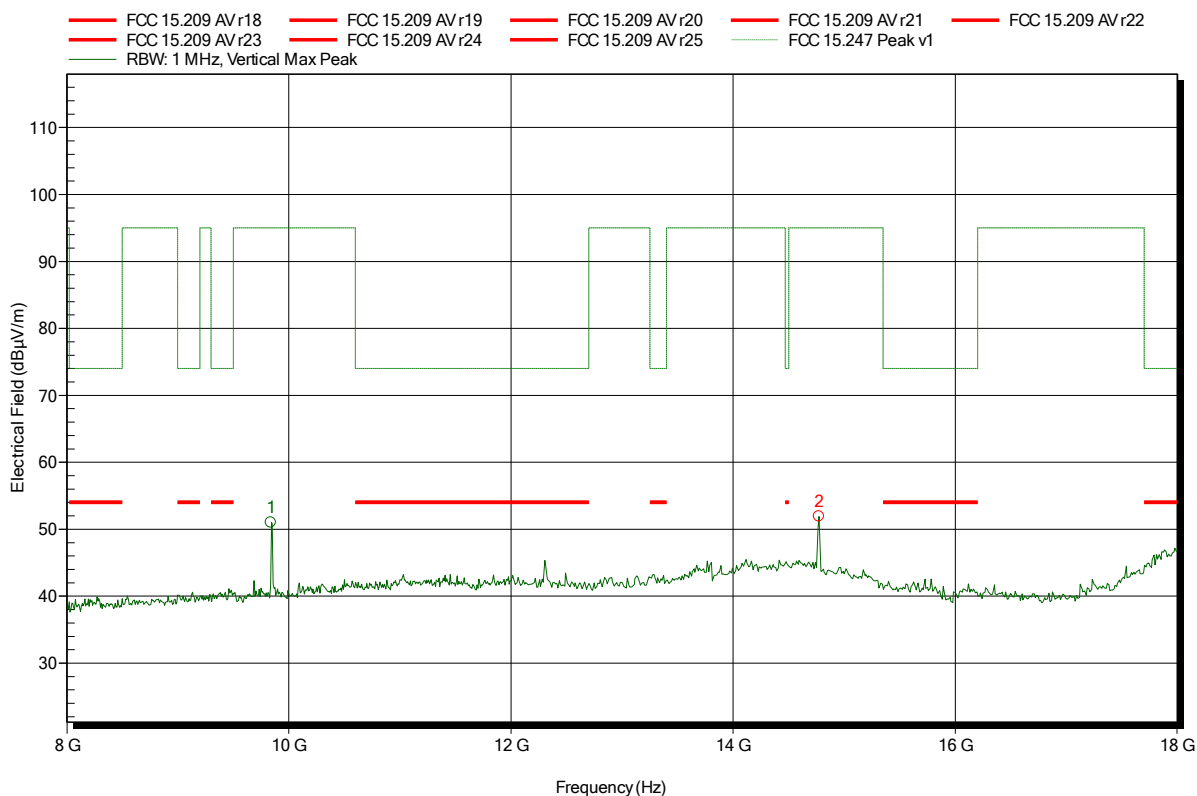
 Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch11, 802.11b, 1Mbps, 18dBm  
 Test Date: 2015-11-09  
 Note:

Index 67



Frequency	Peak	Peak Limit	Peak Difference	Status
9.84 GHz	50.99 dBµV/m	95 dBµV/m	-44.01 dB	Pass
14.772 GHz	51.89 dBµV/m	95 dBµV/m	-43.11 dB	Pass

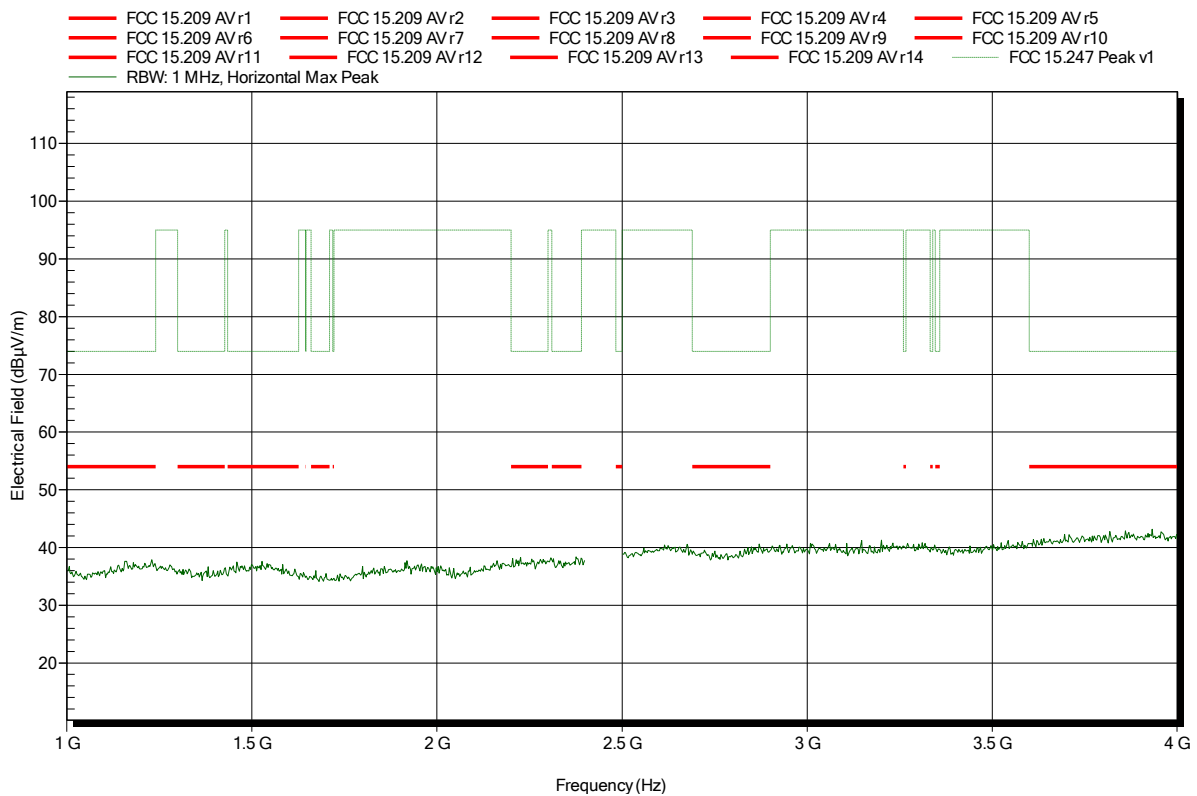


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch9, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-09  
 Note:

Index 75

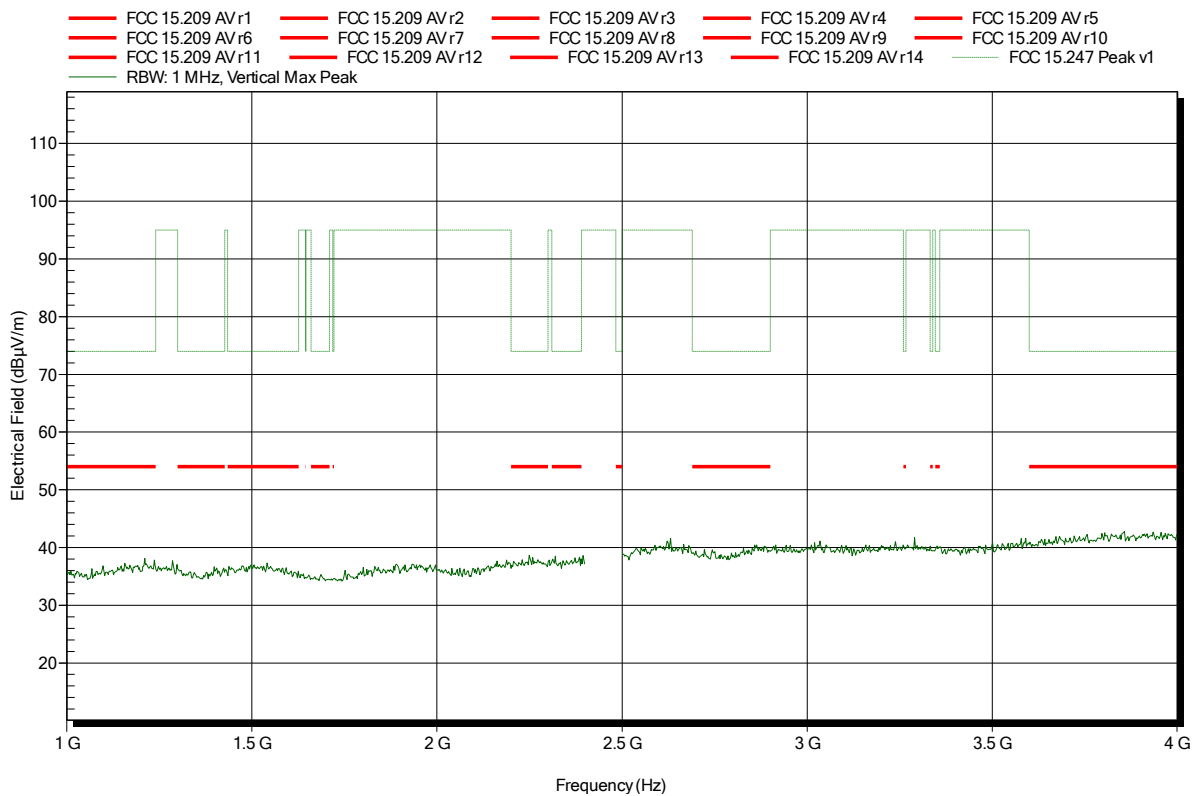


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 3 m  
 Mode: TX; 2.4GHz, Ch9, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-09  
 Note:

Index 74

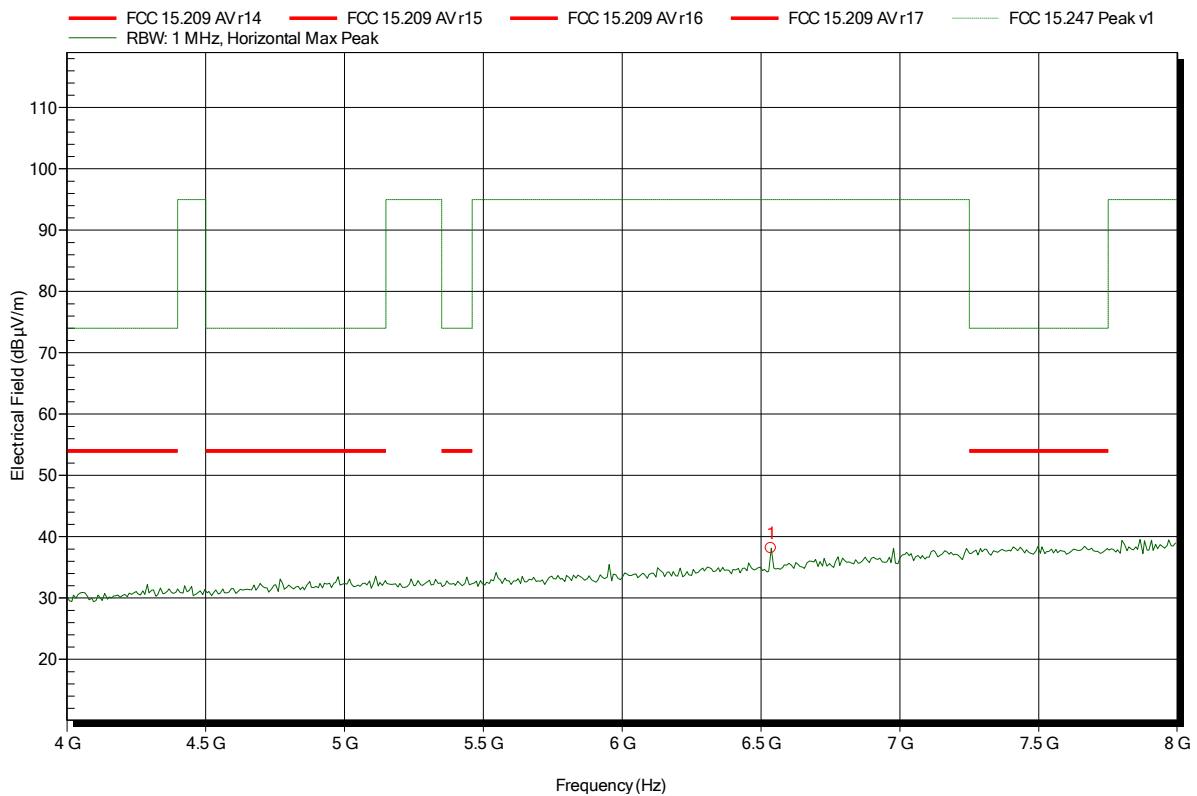


**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch9, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-09  
 Note:

Index 70



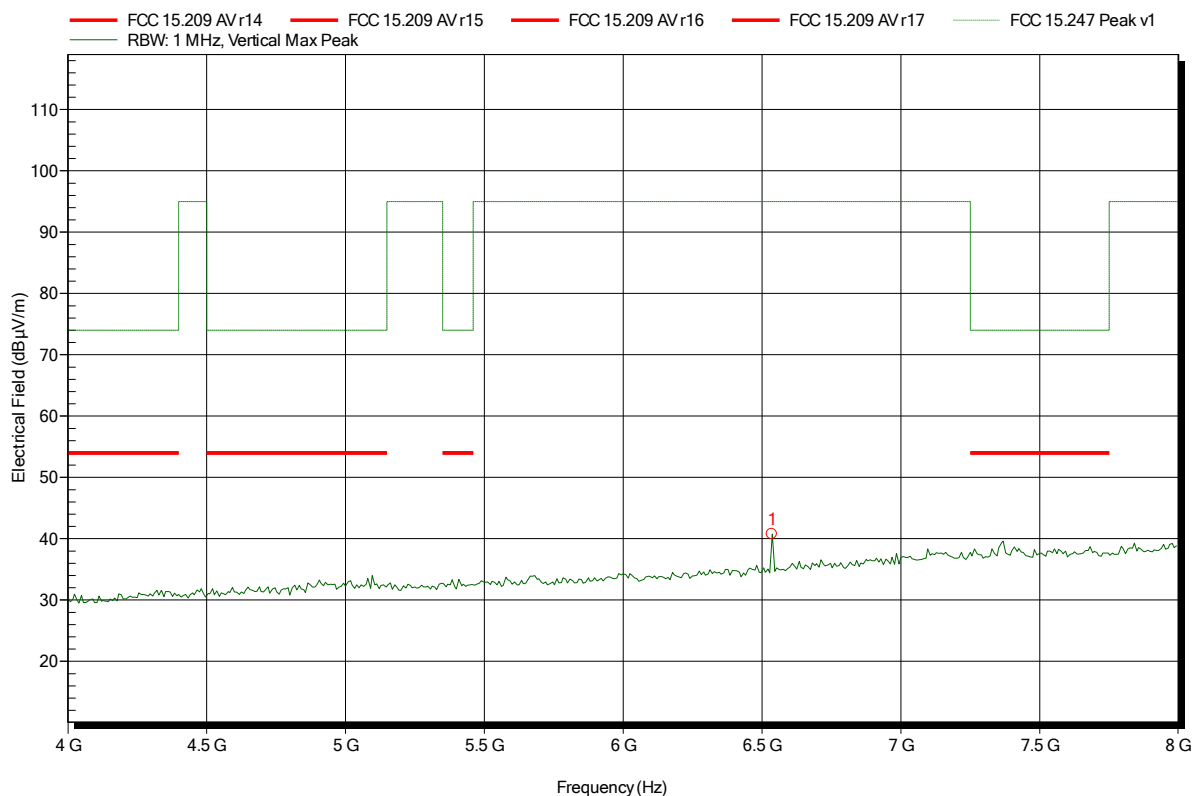
Frequency	Peak	Peak Limit	Peak Difference	Status
6.536 GHz	38.14 dBµV/m	95 dBµV/m	-56.86 dB	Pass

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch9, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-09  
 Note:

Index 73



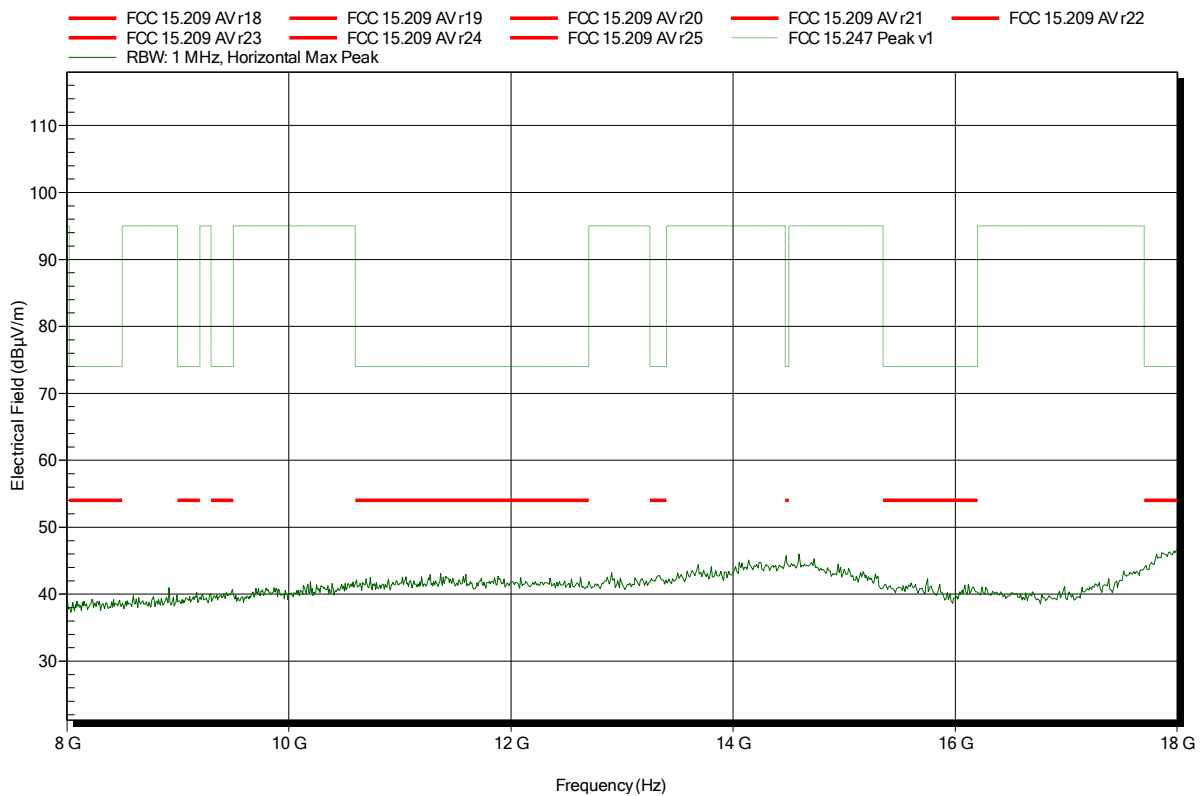
Frequency	Peak	Peak Limit	Peak Difference	Status
6.536 GHz	40.75 dBµV/m	95 dBµV/m	-54.25 dB	Pass

**Spurious emissions according to FCC part 15 Subpart C § 15.247**

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 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Jahn  
 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Horizontal  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch9, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-09  
 Note:

Index 71



**Spurious emissions according to FCC part 15 Subpart C § 15.247**

Project number: G0M-1510-5172

Applicant: u-blox Berlin GmbH  
 EUT Name: ELLA-W131  
 Model: Test Sample #2  
 Test Site: Eurofins Product Service GmbH  
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 Test Conditions: Tnom: 25°C, Vnom: 3.3 V DC  
 Antenna: Schwarzbeck BBHA 9120D, Vertical  
 Measurement distance: 1 m converted to 3m  
 Mode: TX; 2.4GHz, Ch9, 802.11n(40), MCS0, 15dBm  
 Test Date: 2015-11-09  
 Note:

Index 72

