

FCC / ISED TEST REPORT	
Transmitter Co-Location	
Report Reference No	G0M-2002-8805-TFCCOLOC-V01
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	    DAKKS - Registration number : D-PL-12092-01-03 (ISED) ISED Testing Laboratory site: 3470A-2 DAKKS - Registration number : D-PL-12092-01-04 (FCC) FCC Filed Test Laboratory, Reg.-No.: 96970
Applicant	Laird Connectivity Inc
Address	50 South Main Street 44308 Akron, OH United States of America
Test Specification	47 CFR Part 24E RSS-133, Issue 6:2013-01 47 CFR Part 15C RSS-247, Issue 2, 2017-02
Non-Standard Test Method	None
Equipment under Test (EUT):	
Product Description	915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants
Model(s)	RG191+LTE Series
Additional Model(s)	None
Brand Name(s)	Laird Connectivity
Hardware Version(s)	v750.03.224
Software Version(s)	v93.9.5.1
FCC-ID	SQG-RG191NALTE
IC	3147A-RG191NALTE
Test Result	PASSED

Possible test case verdicts:		
Required by standard but not tested	N/T	
Not required by standard	N/R	
Not applicable to EUT	N/A	
Test object does meet the requirement	P(PASS)	
Test object does not meet the requirement	F(FAIL)	
Testing:		
Test Lab Temperature	20 °C - 30 °C	
Test Lab Humidity	25 % - 55 %	
Date of receipt of test item	2020-06-18 (sample ID 29796) 2020-08-12 (sample ID 30742)	
Report:		
Compiled by	Toralf Jahn	
Tested by (+ signature) (Responsible for Test)	Toralf Jahn	
Approved by (+ signature) (Head of Lab)	Christian Weber	
Date of Issue	2020-09-03	
Total number of pages	65	
General Remarks:		
The test results presented in this report relate only to the object tested. The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.		
Additional Comments:		

VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2020-09-03	Initial Release	

ABBREVIATIONS AND ACRONYMS

Acronyms	
Acronym	Description
EUT	Equipment Under Test
FCC	Federal Communications Commission
ISED	Innovation, Science and Economic Development Canada
RBW	Resolution bandwidth
RMS	Root mean square
VBW	Video bandwidth
V _{NOM}	Nominal supply voltage

REPORT INDEX

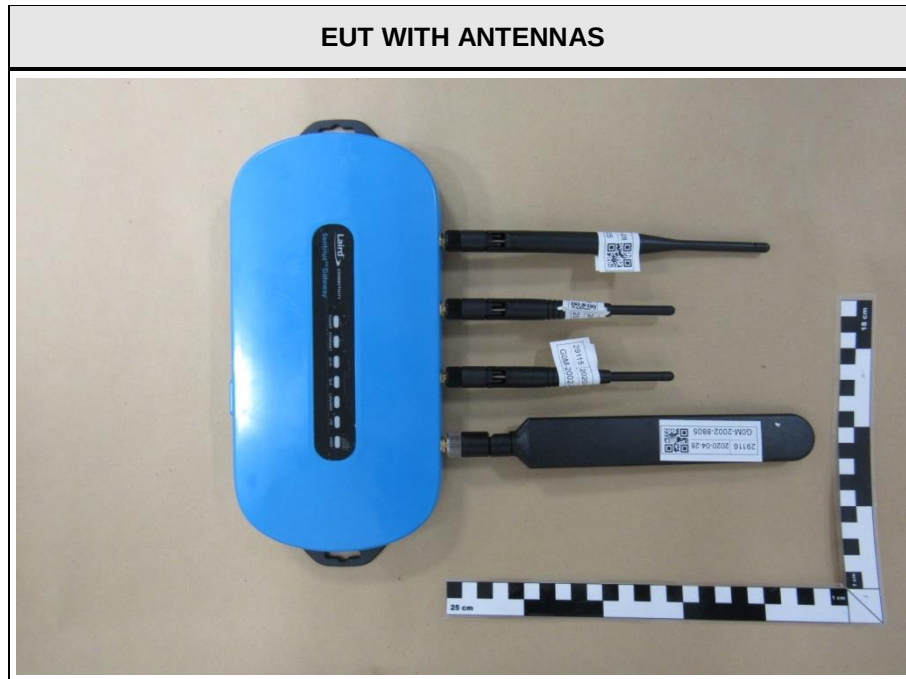
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1 Equipment (Test Item) Under Test

Description	915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants	
Model	RG191+LTE Series	
Additional Model(s)	None	
Brand Name(s)	Laird Connectivity	
Serial Number(s)	Sample ID 29796 and 30742	
Hardware Version(s)	v750.03.224	
Software Version(s)	v93.9.5.1	
PMN	RG191+LTE Series	
HVIN	RG191+LTE	
FVIN	v93.9.5.1	
HMN	N/A	
FCC-ID	SQG-RG191NALTE	
IC	3147A-RG191NALTE	
Equipment type	End Product	
Radio type	Transceiver	
Assigned frequency bands	LORA: 902 – 928 MHz IEEE 802.11 b/g/n: 2400 - 2483.5 MHz IEEE 802.11 a/n: 5150 – 5250, 5250 – 5350, 5470 – 5725, 5725 - 5850 MHz LTE FDD2 = UL = 1850 - 1910 MHz, DL = 1930 - 1990 MHz LTE FDD4 = UL = 1710 - 1755 MHz, DL = 2110 - 2155 MHz LTE FDD5 = UL = 824 - 849 MHz, DL = 869 - 894 MHz LTE FDD12 = UL = 699 - 716 MHz, DL = 729 - 746 MHz LTE FDD13 = UL = 777 - 787 MHz, DL = 746 - 756 MHz	
Radio technologies	LORA, IEEE 802.11 b/g/n, IEEE 802.11 a/n, LTE	
Operating modes	LORA + IEEE 802.11 b/g/n; LORA + IEEE 802.11 a/n LORA + LTE	
Number of modules	3	
Radio Module 1	Type	LORA
	Model	RG191-M2
	Manufacturer	Laird
	HW Version	Unspecified
	SW Version	Unspecified
	FCC-ID	SQG-1001
	IC	3147A-1001
Radio Module 2	Type	Wi-Fi
	Model	WB50NBT
	Manufacturer	Laird
	HW Version	1.0
	SW Version	3.5.4.20
	FCC-ID	SQG-WB50NBT
	IC	3147A-WB50NBT
Radio Module 3	Type	UMTS, LTE
	Model	EG91-NA
	Manufacturer	Quectel Wireless Solutions Co., Ltd
	HW Version	R1.0
	SW Version	EG91NAFBR05A07M4G SVN 7
	FCC-ID	XMR201807EG91NA
	IC	10224A-2018EG91NA

Antenna 1	Type	External (LORA)
	Model	001-0002
	Manufacturer	Laird
	Gain	2 dBi
Antenna 2 and 3	Type	External (Wi-Fi)
	Model	MAF94051
	Manufacturer	Laird
	Gain	2.1 dBi @ 2.45 GHz 2.4 dBi @ 4.9 GHz 2.6 dBi @ 5.25 GHz 3.6 dBi @ 5.875 GHz
Antenna 4	Type	External (LTE)
	Model	DBA697C1
	Manufacturer	Laird
	Gain	2.2 dBi
Supply Voltage	V _{NOM}	12 VDC
AC/DC-Adaptor	Model	GST25U12-P1J
	Vendor	Meanwell
	Input	115 VAC
	Output	12 VDC
Manufacturer	Laird Connectivity Inc 50 South Main Street 44308 Akron, OH United States of America	

1.1 Photos – Equipment External



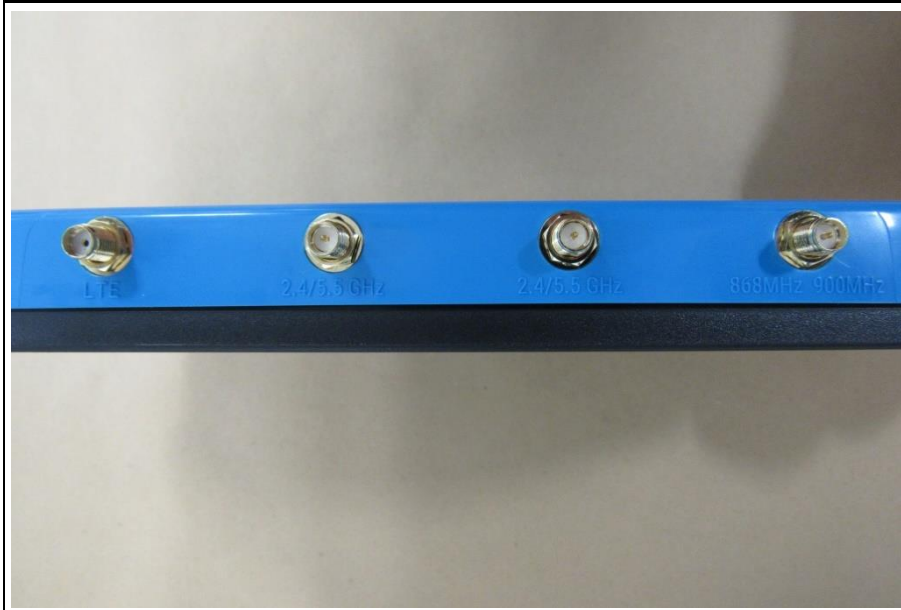
EUT BOTTOM



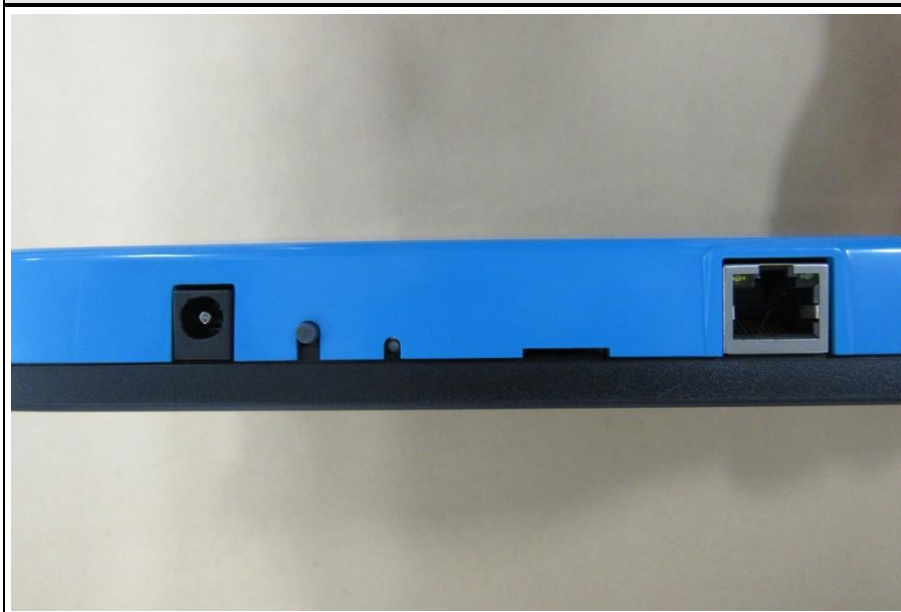
EUT LABEL



EUT ANTENNA CONNECTORS



EUT DC AND ETHERNET CONNECTOR



LTE ANTENNA



LoRa ANTENNA



WiFi ANTENNAS

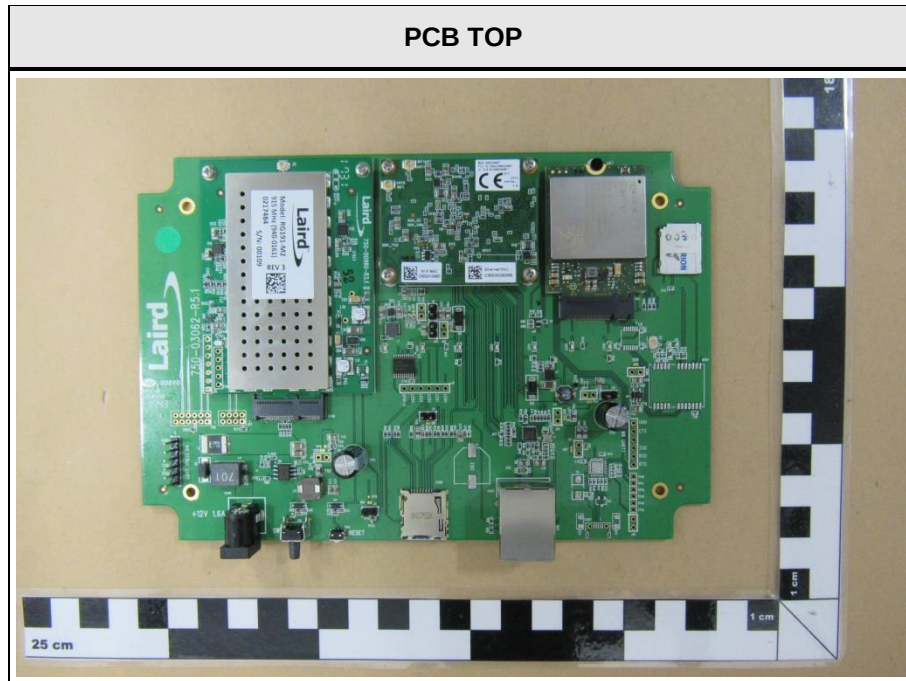


AC/DC-ADAPTOR

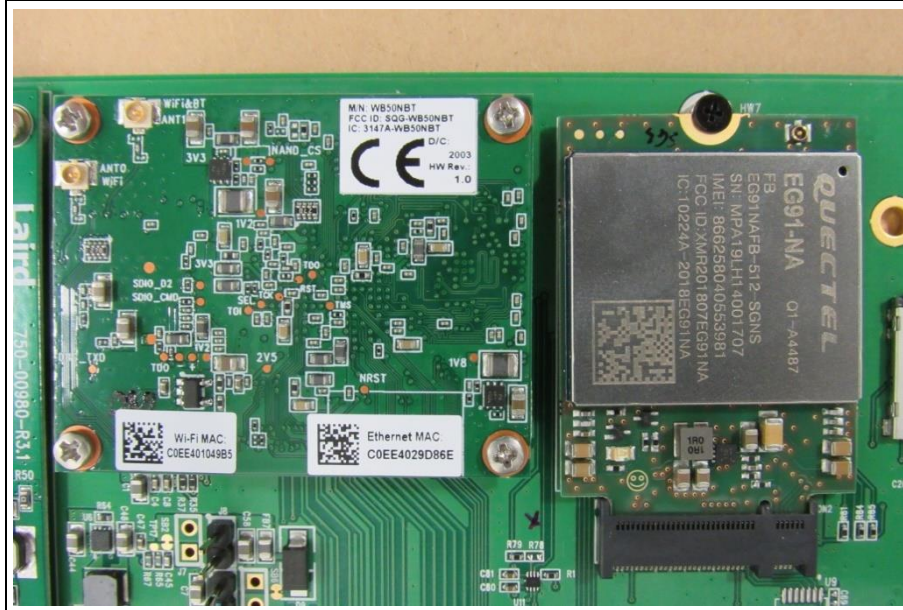




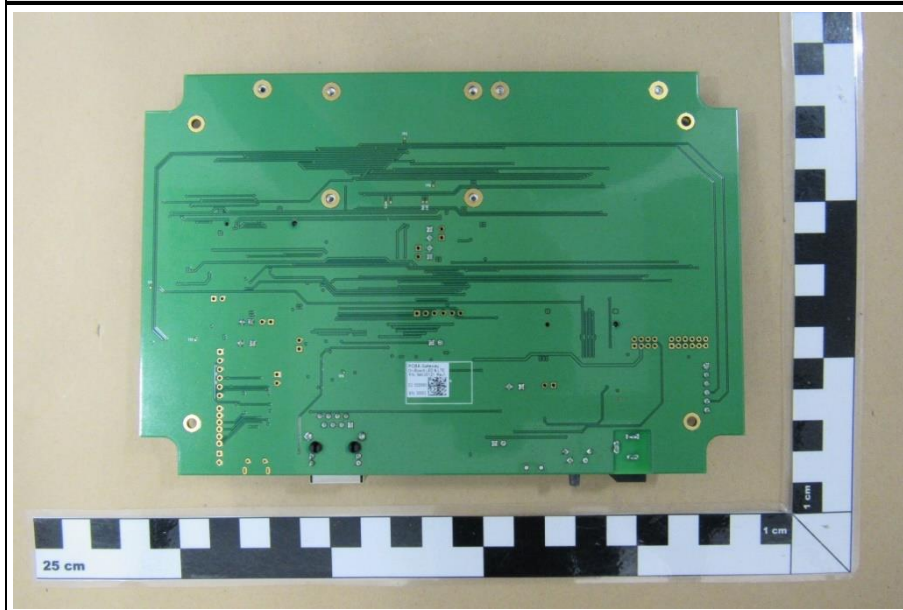
1.2 Photos – Equipment Internal

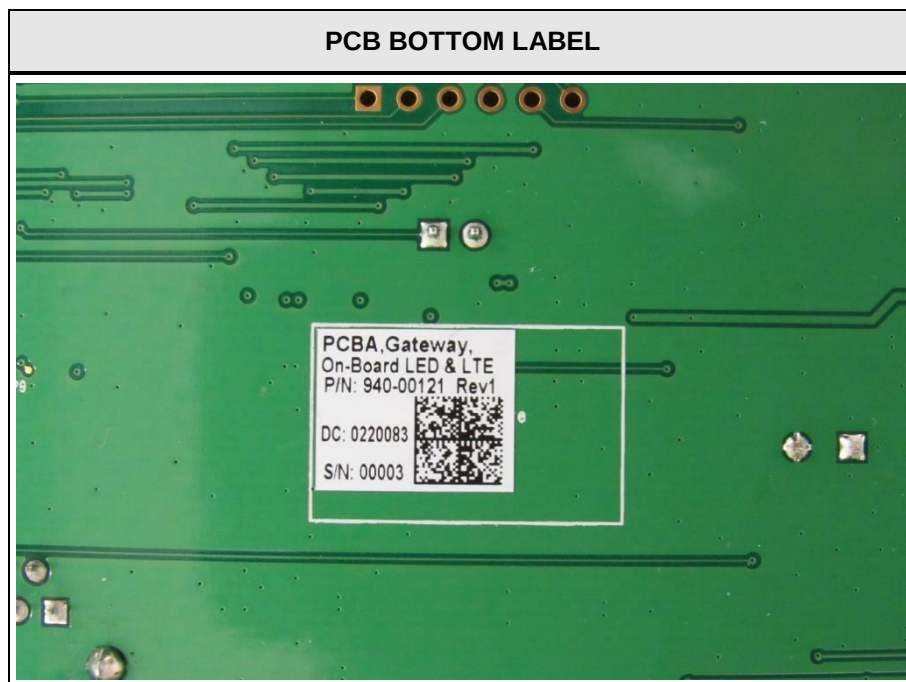


LTE AND WiFi

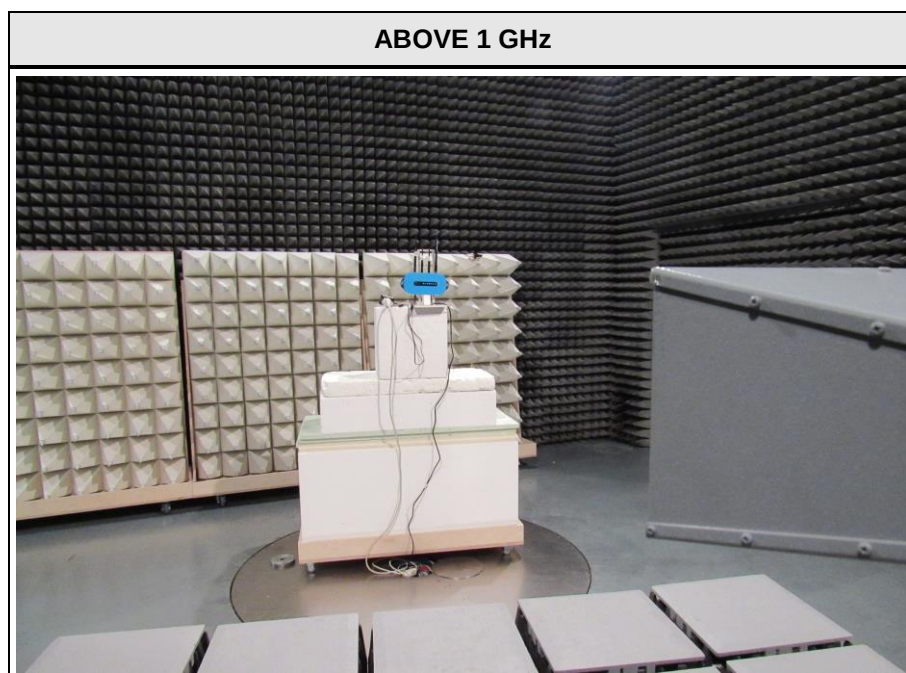
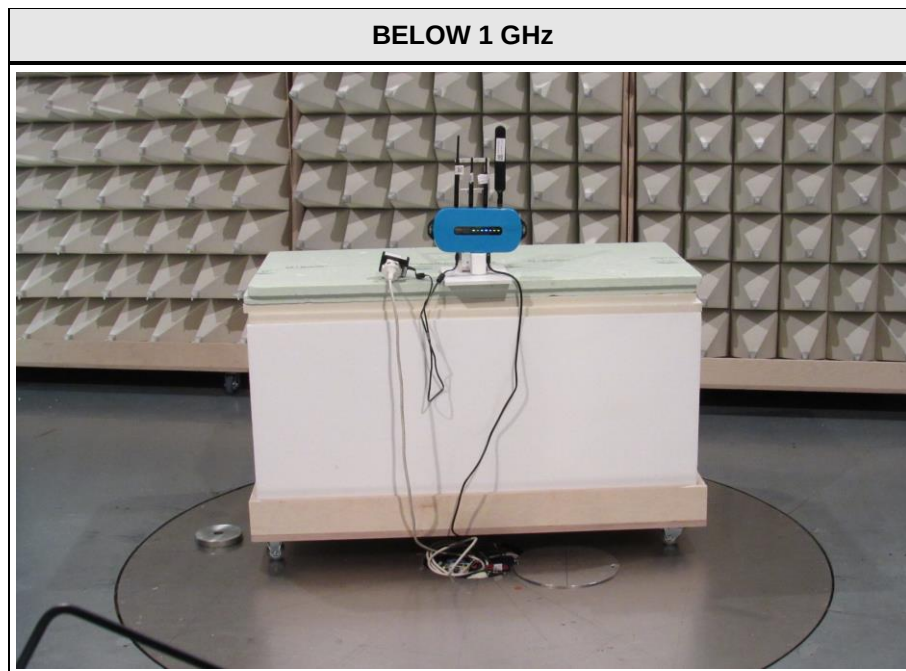


PCB BOTTOM





1.3 Photos – Test Setup



1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
SIM	Communication Tester	R&S	CMW500	Base Station Simulator
CBL	Ethernet Cable	Copartner	CAT 5.E	
AE	Ethernet Switch	Netgear	GS108	Termination of Ethernet Cable
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
SFT	Software			
Comment:				

1.5 Test Modes

Mode	Description
LORA	Mode = Transmit Modulation = LORA Duty cycle = 100 % Radio type = SX1257 Digital gain trim = 0 Power amplifier gain trim = 3 Radio Tx mixer gain trim = 13 LoRa Spreading Factor = 12 LoRa bandwidth = 500 kHz
WLAN 2.4 GHz (IEEE 802.11g)	Mode = Transmit Modulation = BPSK Spreading = OFDM Bandwidth = 20 MHz Duty cycle = 98.11% Power setting = FCC table Data rate = 6 Mbps Chain 0 + 1
WLAN 5 GHz (IEEE 802.11n)	Mode = Transmit Modulation = BPSK Spreading = OFDM Bandwidth = 40 MHz Duty cycle = 98.15% Power setting = FCC table Data rate = MCS0 Chain 0 + 1
LTE FDD 2	Channel = 1900 MHz Mode = RMC TPC = All 1 Modulation = QPSK Bandwidth = 10 MHz Number of resource blocks = 1 Resource block offset = 25 Duty cycle = 100 %
Comment: The above settings were found as worst case in FCC module test reports FR631002AN Rev. 02 of 2016-05-03 from International Certification Corp., FR631002AC Rev. 02 of 2016-05-03 from International Certification Corp., # 317134 A of 2017-06-23 from Laird Technologies, Inc. and R1805A0250-R1, R1805A0250-R2, R1805A0250-R3 issued by TA Technology (Shanghai) Co., Ltd. on 2018-07-12.	
Tested Co-Location modes: LORA + IEEE 802.11 g; LORA + IEEE 802.11 n; LORA + LTE FDD 2	

1.6 Test Frequencies

Designator	Mode	Radio technology	Frequency [MHz]
F1	Tx	LORA	923.3
F2	Tx	WLAN 2.4 GHz	2437
F3	Tx	WLAN 5 GHz	5590
F4	Tx	LTE FDD 2	1900

1.7 Sample emission level calculation

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

Reading:

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

A.F.:

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

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

Net:

This is the net field strength measurement (as shown above).

Limit:

This is the FCC Class B radiated emission limit (in units of dBμV/m). The FCC limits are given in units of μV/m. The following formula is used to convert the units of μV/m to dBμV/m:

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

Margin:

This is the margin of compliance below the FCC limit. The units are given in dB. A negative margin indicates the emission was below the limit. A positive margin indicates that the emission exceeds the limit.

Example only:

Reading + AF	= Net Reading	:	Net reading - FCC limit	= Margin
+21.5 dBμV + 26 dB/m	= 47.5 dBμV/m	:	47.5 dBμV/m - 57.0 dBμV/m	= -9.5 dB

2 Result Summary

FCC 47 CFR Part 15C, 24E, ISED RSS-133, 247				
Product Standard Reference	Requirement	Reference Method	Result	Remarks
FCC § 24.232(c) ISED RSS-132 § 4.4 Issue 3 ISED RSS-133 § 6.4 Issue 6	Equivalent isotropic radiated power	ANSI/TIA-603-D-2016 KDB 971168 ANSI C63.26-2015 5.2	N/T	
47 CFR 15.207 ISED RSS-247 § 3.1 Issue 2	AC power line conducted emissions	ANSI C63.4-2014	N/T	
FCC § 15.247(d) FCC § 15.209 FCC § 24.238(a) ISED RSS-133 § 6.5 Issue 6 ISED RSS-247 § 5.5 Issue 2	Transmitter radiated spurious emissions Radiated out-of-band emissions	ANSI C63.10-2013 ANSI/TIA-603-D-2016 KDB 971168 ANSI C63.26-2015 5.5	PASS	
ISED RSS-132 § 4.6 Issue 3 ISED RSS-133 § 6.6 Issue 6 ISED RSS-Gen §7.1 Issue 4 ISED RSS-247 § 3.1 Issue 2	Receiver radiated spurious emissions	ISED RSS-Gen 7.1 Issue 4 ANSI C63.4-2016 ANSI C63.10-2013	N/T	
Comment:				

Possible Test Case Verdicts	
PASS	Test object does meet the requirements
FAIL	Test object does not meet the requirements
N/T	Required by standard but not tested
N/R	Not required by standard for the test object

3 Test Conditions and Results

3.1 Test Conditions and Results - Transmitter radiated emissions

3.1.1 Information

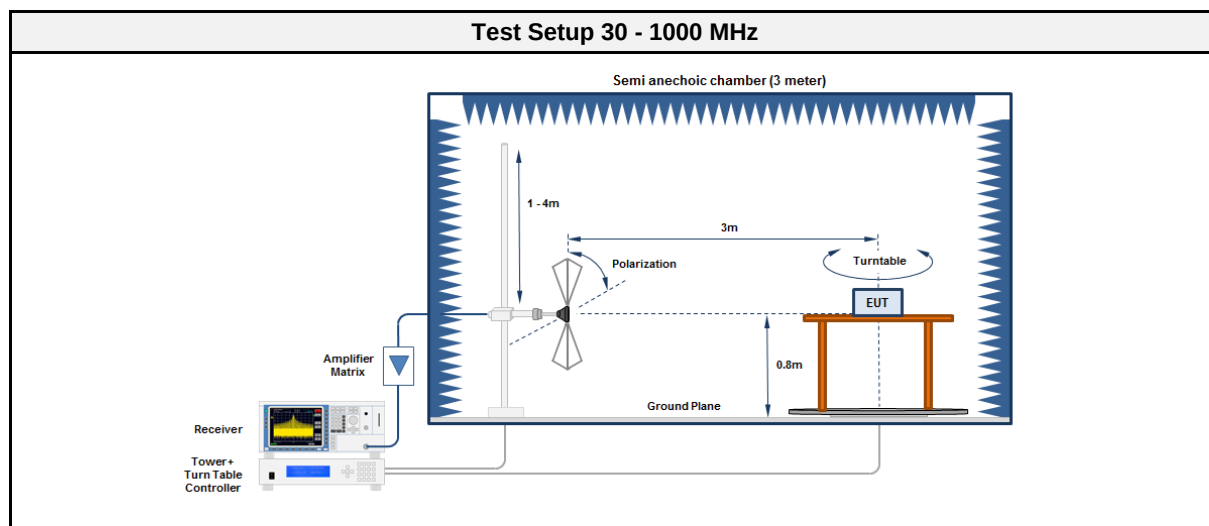
Test Information	
Reference	FCC § 15.247(d); FCC § 15.209; ISED RSS-Gen, Issue 5 (section 6.13) FCC § 24.238(a), ISED RSS-133 § 6.5
Measurement Method	ANSI C63.10 6.4, 6.5, 6.6, 11.12 ANSI C63.26-2015 5.5
Measurement Uncertainty	± 5.7 dB
Operator	Toralf Jahn
Date	2020-06-24 (sample ID 29796) + 2020-08-27 (sample ID 30742)

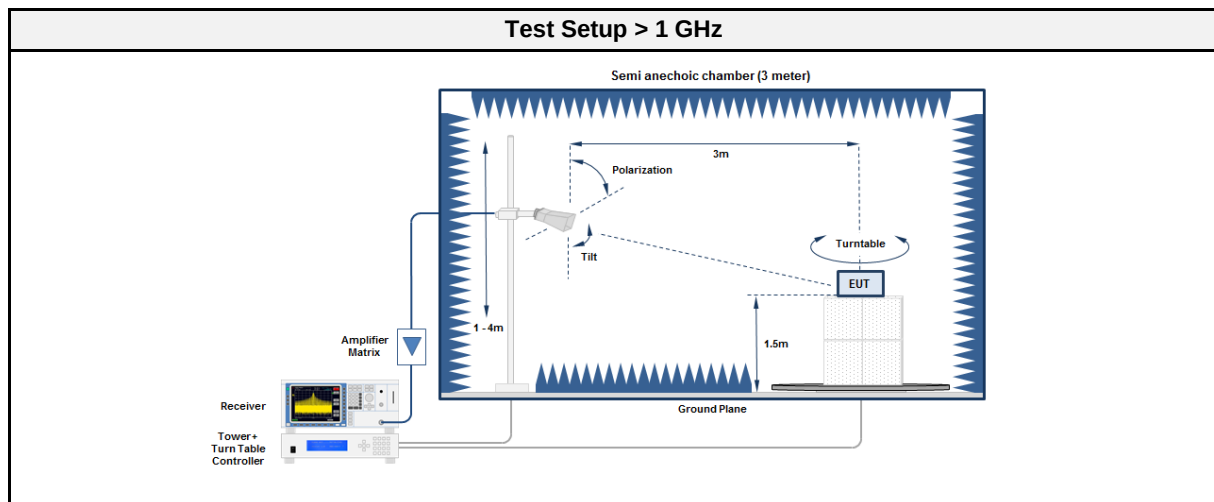
3.1.2 Limits

Limits FCC Part 24 E	
Carrier frequency range [MHz]	Limit
1850 - 1910	Attenuation below transmitter power $\geq 43 + 10 \cdot \log_{10}(P)$ [dB] = -13 dBm

Limits FCC Part 15 C			
Frequency [MHz]	Detector	Field strength [$\mu\text{V/m}$]	Measurement distance [m]
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

3.1.3 Setup





3.1.4 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	RadiMation	2016.1.10
EMC Software	DARE Instruments	RadiMation	2020.1.8

Test Equipment 30 - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2018-07	2021-07
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2020-06	2021-06
Antenna	R&S	HK 116	EF00030	2019-04	2022-04
Antenna	R&S	HL 223	EF00187	2019-05	2022-05

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2018-07	2021-07
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2020-06	2021-06
Antenna	Schwarzbeck	BBHA 9120D	EF00018	2019-10	2022-10

3.1.5 Procedure

Test Procedure 30 - 1000 MHz	
1.	EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground
2.	EUT set to test mode
3.	The receiver is set to peak detection with max hold
4.	The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m
5.	All significant emissions are measured again using the corresponding final detector

Test Procedure > 1 GHz	
1.	EUT is placed on a non conducting support at the center of a turn table 1.5 m above the ground
2.	EUT set to test mode
3.	The receiver is set to peak detection with max hold
4.	The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m
5.	All significant emissions are measured again using the corresponding final detector

3.1.6 Results

Test Results - LORA + IEEE 802.11 g					
Emission [MHz]	Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Margin [dB]
4615	44.81	pk	ver	74.00	-29.19
4615	34.46	avg	ver	54.00	-19.54
4616	47.97	pk	hor	74.00	-26.03
4616	39.05	avg	hor	54.00	-14.95
7386	46.92	pk	hor	74.00	-27.08
7386	35.55	avg	hor	54.00	-18.45
7386	47.30	pk	ver	74.00	-26.70
7386	36.59	avg	ver	54.00	-17.41
8310	57.02	pk	hor	74.00	-16.98
8310	47.00	avg	hor	54.00	-07.00
8311	61.85	pk	ver	74.00	-12.15
8311	48.60	avg	ver	54.00	-05.40
12200	47.49	pk	hor	74.00	-26.51

Test Results - LORA + IEEE 802.11 n					
Emission [MHz]	Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Margin [dB]
1462.9	47.44	pk	hor	74.00	-26.56
1462.9	45.00	avg	hor	54.00	-09.00
1463	48.02	pk	ver	74.00	-25.98
1463	45.93	avg	ver	54.00	-08.07
2769.9	53.80	pk	hor	74.00	-20.20
2769.9	49.91	avg	hor	54.00	-04.09
2770.1	48.97	pk	ver	74.00	-25.03
2770.1	44.00	avg	ver	54.00	-10.00
4616	48.73	pk	hor	74.00	-25.27
4616	41.79	avg	hor	54.00	-12.21
7388	46.26	pk	hor	74.00	-27.74
7388	33.07	avg	hor	54.00	-20.93
8309	61.79	pk	hor	74.00	-12.21
8309	47.00	avg	hor	54.00	-07.00
8310	62.39	pk	ver	74.00	-11.61
8310	50.19	avg	ver	54.00	-03.81

Test Results - LORA + LTE FDD 2					
Emission [MHz]	Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Margin [dB]
Comments: No significant spurious emissions					

ANNEX A Transmitter spurious emissions LORA + IEEE 802.11 g

Spurious emissions according to FCC 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity Inc
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series

Test Site: Eurofins Product Service Germany

Operator: Mr. Jahn

Measurement software: RadiMation, version 2020.1.8

Test Conditions: Tnom: 23 °Celsius°C, Vnom: 12 VDC via AC/DC-Adaptor

Antenna: Rohde & Schwarz HK 116, Horizontal

Measurement distance: 3 m

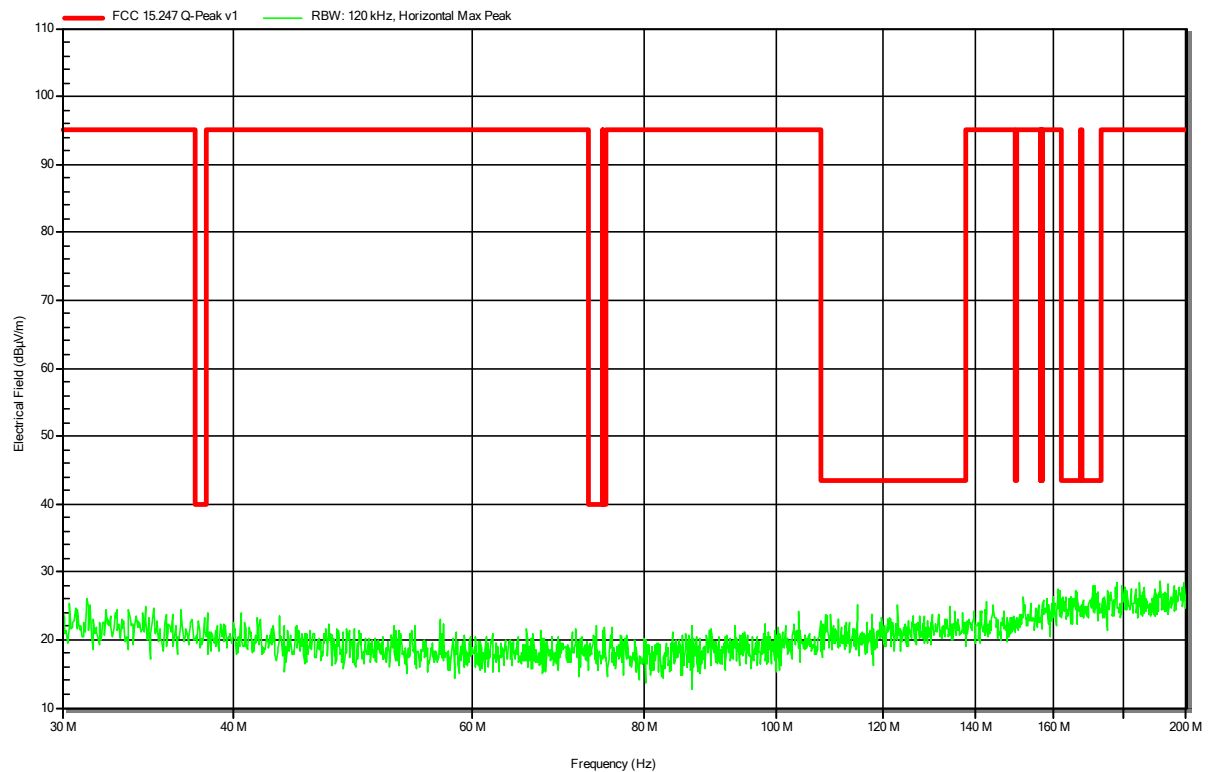
Mode: TX; WLAN 2.4 GHz + LORA, Sample 30742

Test Date: 2020-08-27

Note:

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RadiMation



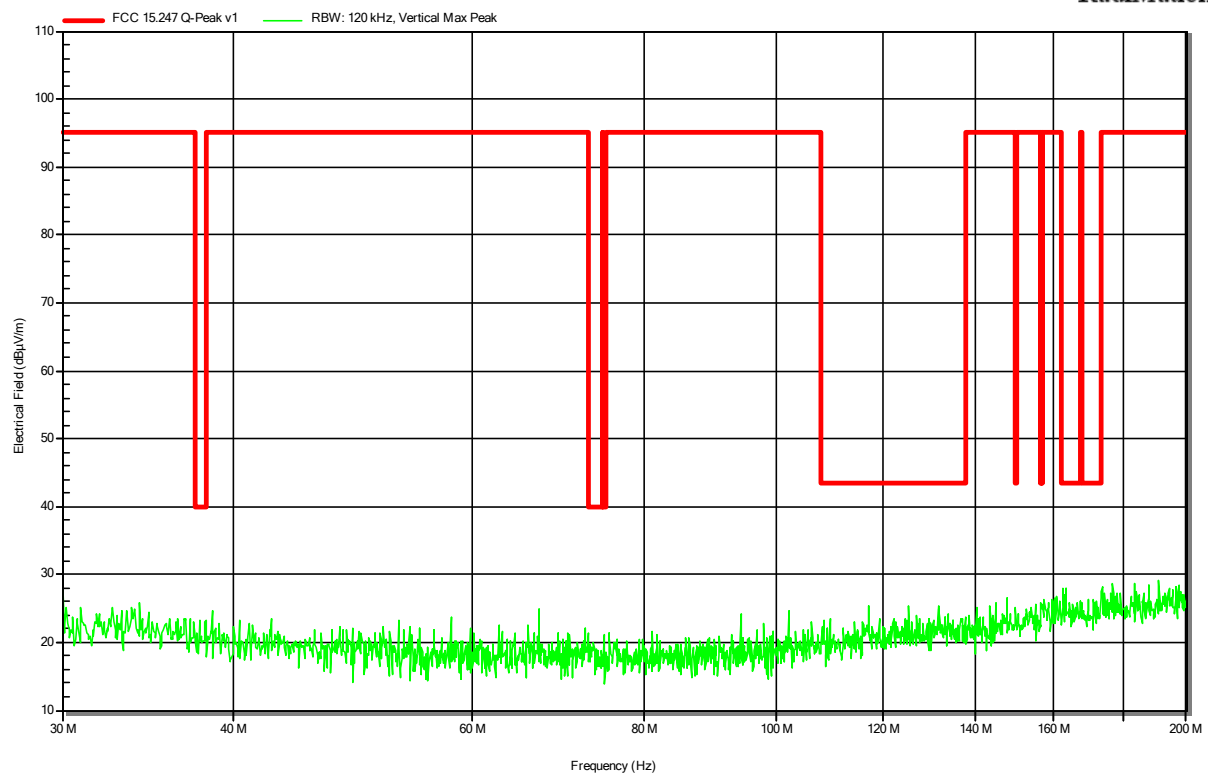
Spurious emissions according to FCC 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity Inc
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants
Model: RG191+LTE Series
Test Site: Eurofins Product Service Germany
Operator: Mr. Jahn
Measurement software: RadiMation, version 2020.1.8
Test Conditions: Tnom: 23 °Celsius°C, Vnom: 12 VDC via AC/DC-Adaptor
Antenna: Rohde & Schwarz HK 116, Vertical
Measurement distance: 3 m
Mode: TX; WLAN 2.4 GHz + LORA, Sample 30742
Test Date: 2020-08-27
Note:

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RadiMation



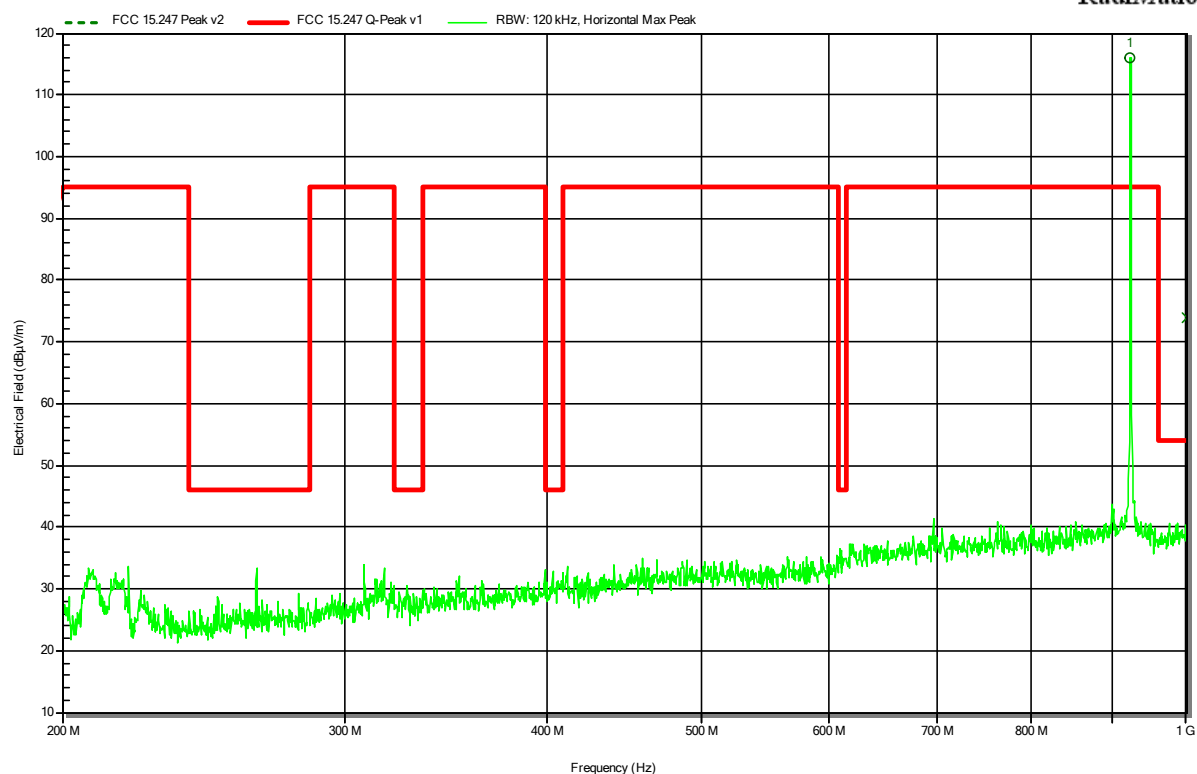
Spurious emissions according to FCC 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity Inc
 EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants
 Model: RG191+LTE Series
 Test Site: Eurofins Product Service Germany
 Operator: Mr. Jahn
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius°C, Vnom: 12 VDC via AC/DC-Adaptor
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4 GHz + LORA, Sample 30742
 Test Date: 2020-08-27
 Note:

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RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Status
923.3023 MHz				LORA carrier

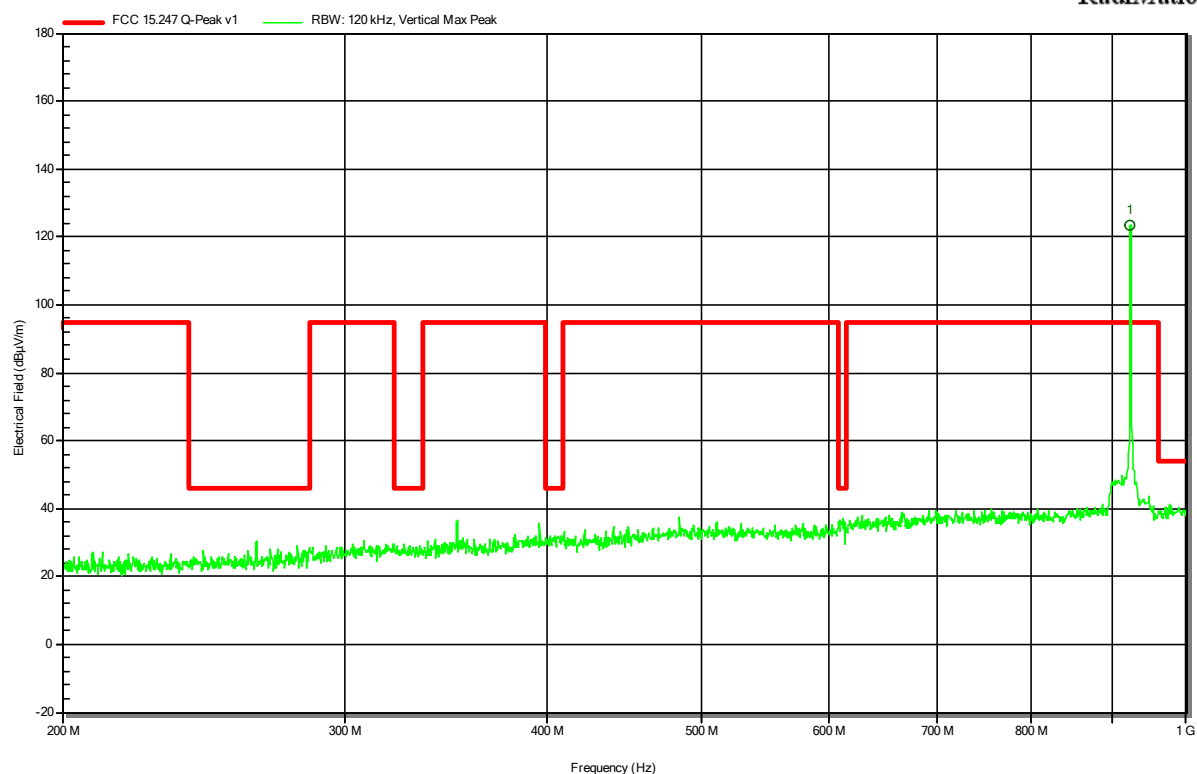
Spurious emissions according to FCC 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity Inc
 EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants
 Model: RG191+LTE Series
 Test Site: Eurofins Product Service Germany
 Operator: Mr. Jahn
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius°C, Vnom: 12 VDC via AC/DC-Adaptor
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3 m
 Mode: TX; WLAN 2.4 GHz + LORA, Sample 30742
 Test Date: 2020-08-27
 Note:

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RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Status
923.3083 MHz				LORA carrier

Spurious emissions according to FCC 47 CFR § 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity

EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series

Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn

Measurement software: RadiMation, version 2015.2.4

Test Conditions: Tnom: 23°C, Vnom: 12 VDC

Antenna: Schwarzbeck BBHA 9120D, Horizontal

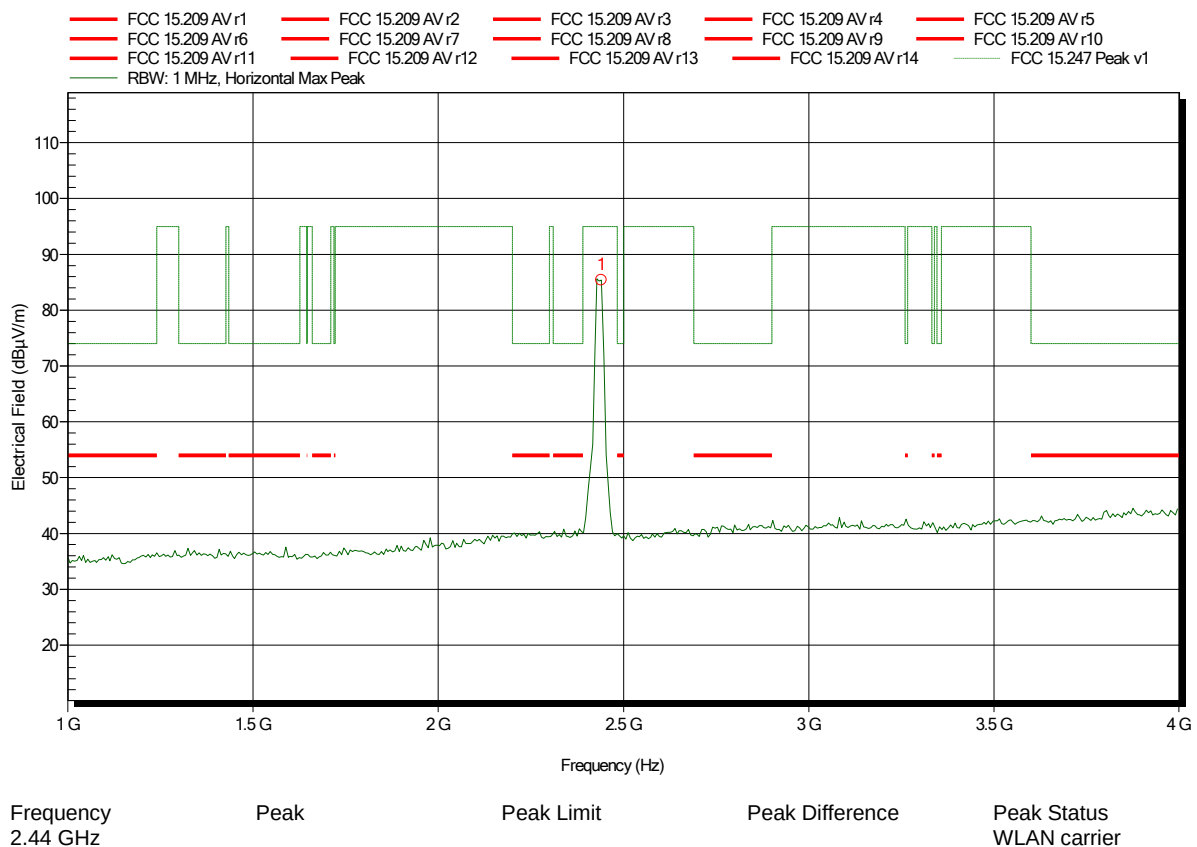
Measurement distance: 3 m

Mode: TX; WLAN 2.4 GHz + LORA, Sample 29896

Test Date: 2020-07-23

Note:

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Spurious emissions according to FCC 47 CFR § 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn

Measurement software: RadiMation, version 2015.2.4

Test Conditions: Tnom: 23°C, Vnom: 12 VDC

Antenna: Schwarzbeck BBHA 9120D, Vertical

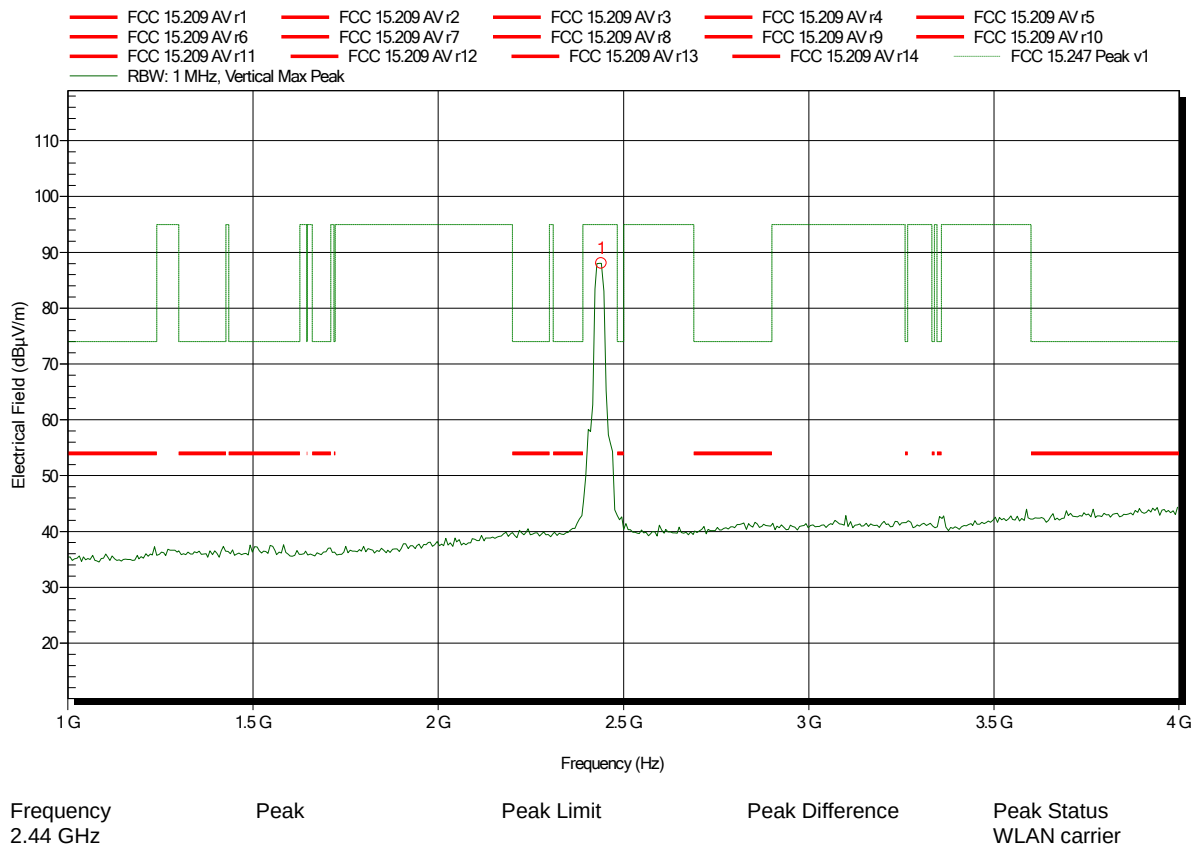
Measurement distance: 3 m

Mode: TX; WLAN 2.4 GHz + LORA, Sample 29896

Test Date: 2020-07-23

Note:

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Spurious emissions according to FCC 47 CFR § 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity

EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series

Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn

Measurement software: RadiMation, version 2015.2.4

Test Conditions: Tnom: 23°C, Vnom: 12 VDC

Antenna: Schwarzbeck BBHA 9120D, Horizontal

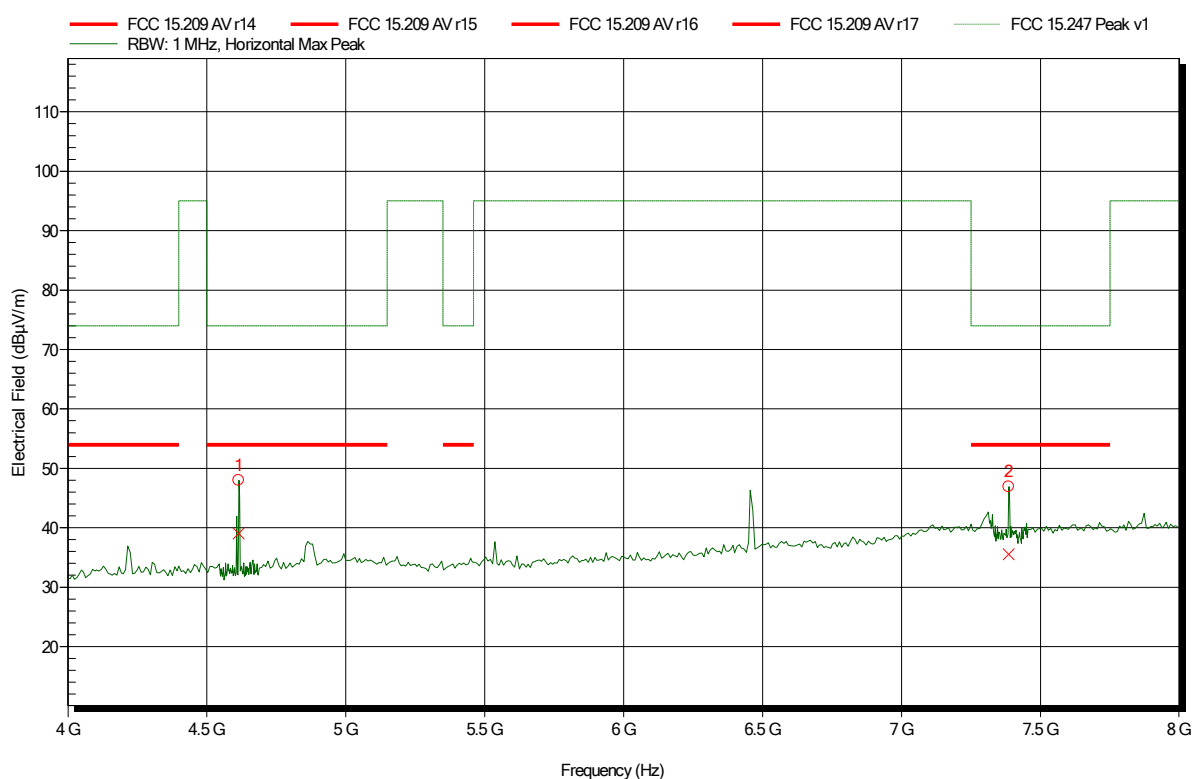
Measurement distance: 1 m converted to 3m

Mode: TX; WLAN 2.4 GHz + LORA, Sample 29896

Test Date: 2020-07-23

Note:

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Frequency	Peak	Peak Limit	Peak Difference	Status
4.616 GHz	47.97 dBµV/m	74 dBµV/m	-26.03 dB	Pass
7.386 GHz	46.92 dBµV/m	74 dBµV/m	-27.08 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
4.616 GHz	39.05 dBµV/m	54 dBµV/m	-14.95 dB	Pass
7.386 GHz	35.55 dBµV/m	54 dBµV/m	-18.45 dB	Pass

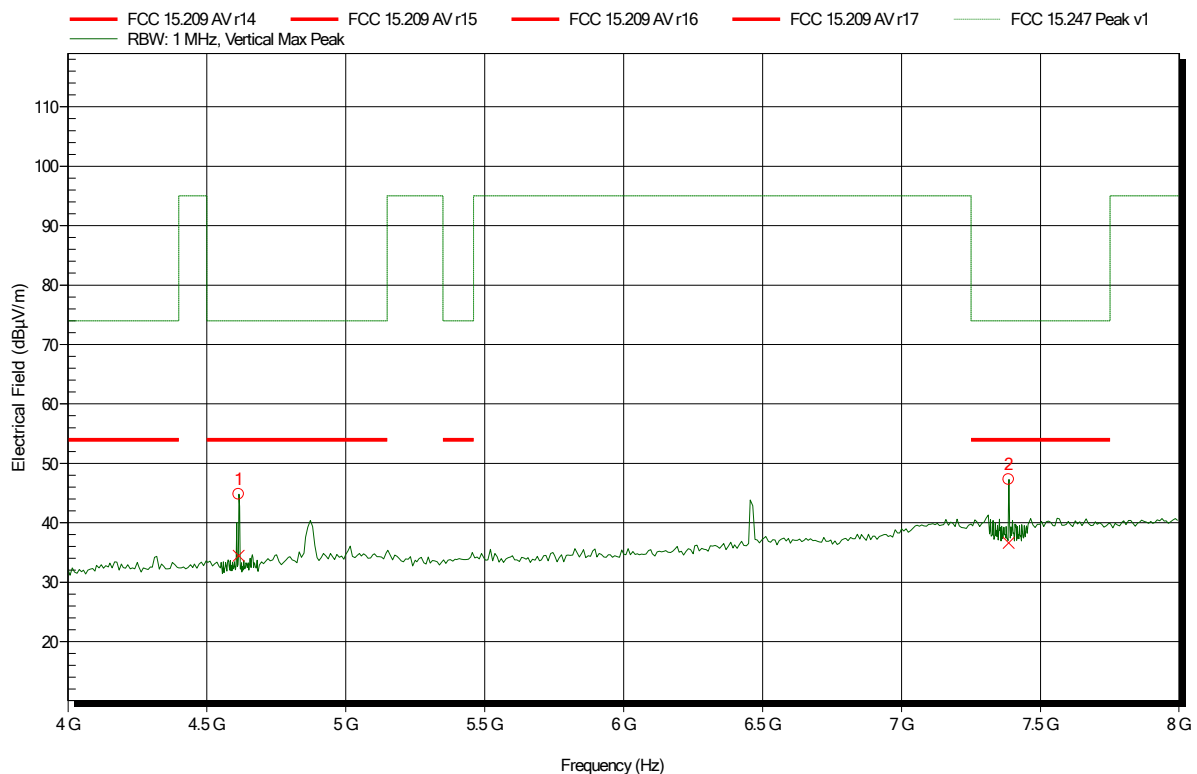
Spurious emissions according to FCC 47 CFR § 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Measurement software: RadiMation, version 2015.2.4
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Schwarzbeck BBHA 9120D, Vertical
Measurement distance: 1 m converted to 3m
Mode: TX; WLAN 2.4 GHz + LORA, Sample 29896
Test Date: 2020-07-23
Note:

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Frequency	Peak	Peak Limit	Peak Difference	Status
4.615 GHz	44.81 dBµV/m	74 dBµV/m	-29.19 dB	Pass
7.386 GHz	47.3 dBµV/m	74 dBµV/m	-26.7 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
4.615 GHz	34.46 dBµV/m	54 dBµV/m	-19.54 dB	Pass
7.386 GHz	36.59 dBµV/m	54 dBµV/m	-17.41 dB	Pass

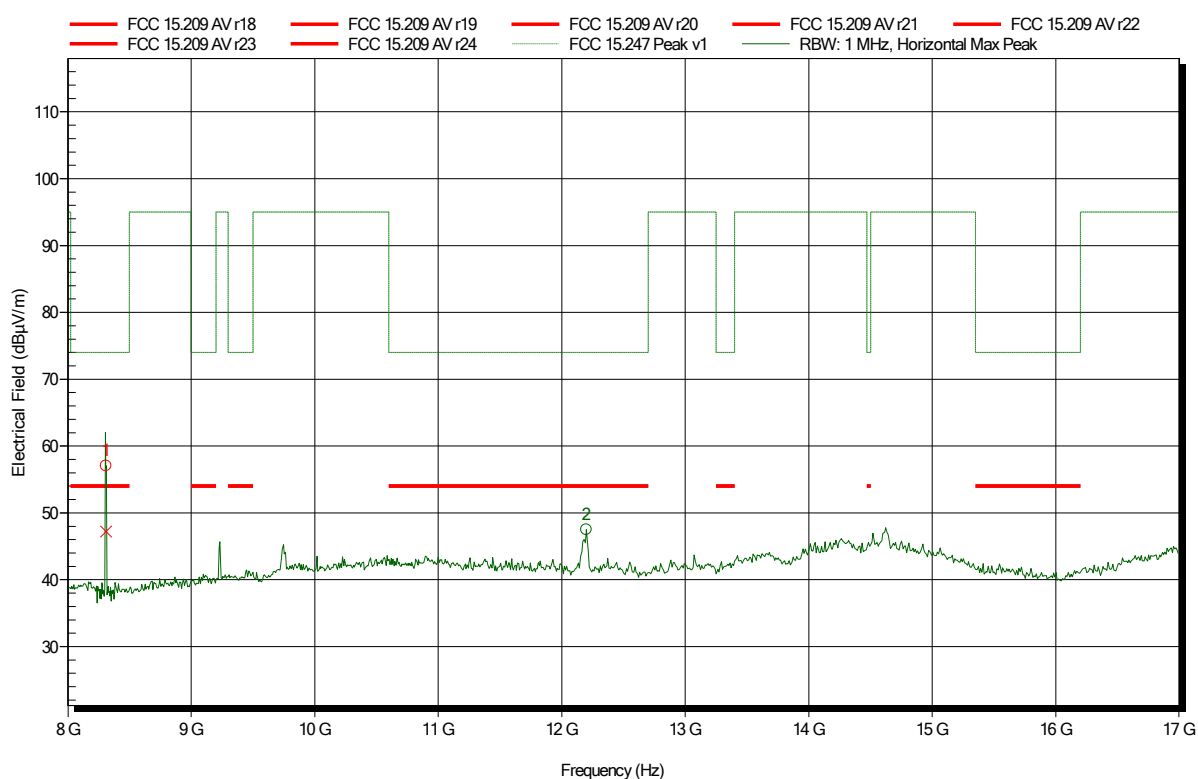
Spurious emissions according to FCC 47 CFR § 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Measurement software: RadiMation, version 2015.2.4
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Schwarzbeck BBHA 9120D, Horizontal
Measurement distance: 1 m converted to 3m
Mode: TX; WLAN 2.4 GHz + LORA, Sample 29896
Test Date: 2020-07-23
Note:

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Frequency	Peak	Peak Limit	Peak Difference	Status
12.2 GHz	47.49 dBµV/m	74 dBµV/m	-26.51 dB	Pass
8.31 GHz	57.02 dBµV/m	74 dBµV/m	-16.98 dB	Pass
Frequency	Average	Average Limit	Average Difference	Average Status
8.31 GHz	47 dBµV/m	54 dBµV/m	-7 dB	Pass

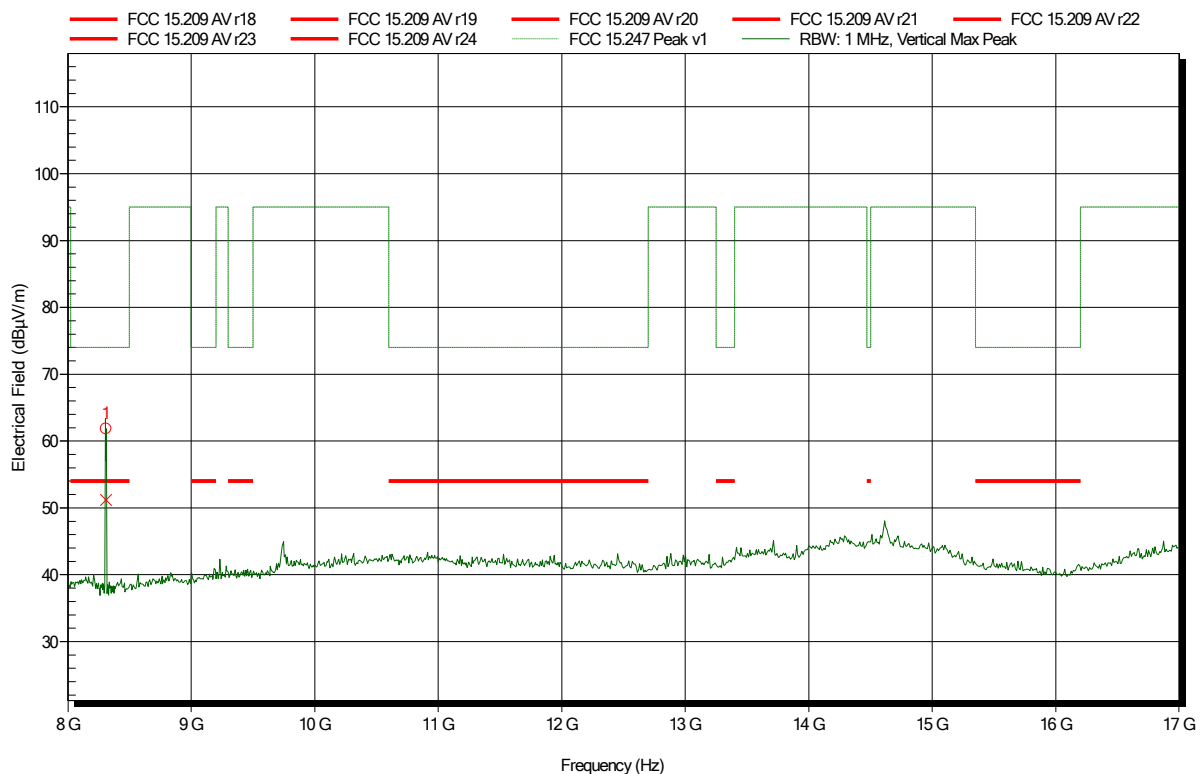
Spurious emissions according to FCC 47 CFR § 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Measurement software: RadiMation, version 2015.2.4
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Schwarzbeck BBHA 9120D, Vertical
Measurement distance: 1 m converted to 3m
Mode: TX; WLAN 2.4 GHz + LORA, Sample 29896
Test Date: 2020-07-23
Note:

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Frequency	Peak	Peak Limit	Peak Difference	Status
8.311 GHz	61.85 dBµV/m	74 dBµV/m	-12.15 dB	Pass
Frequency	Average	Average Limit	Average Difference	Average Status
8.311 GHz	48.6 dBµV/m	54 dBµV/m	-5.4 dB	Pass

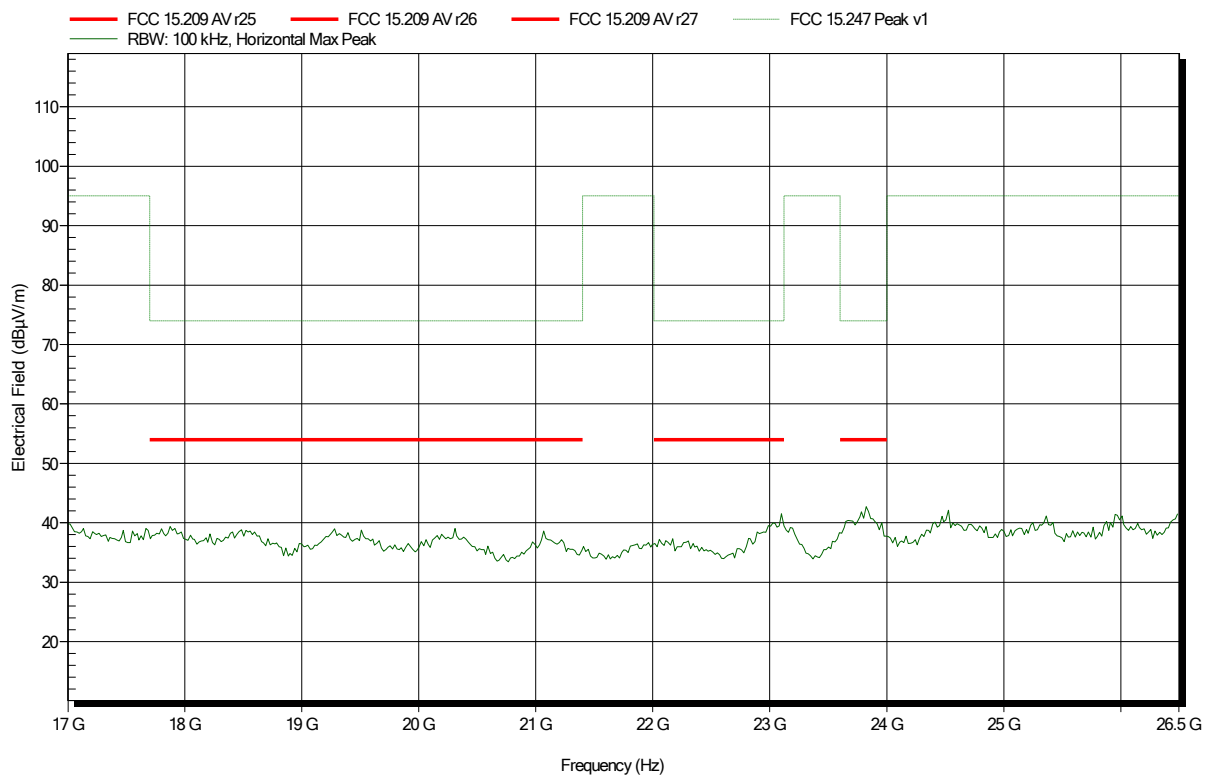
Spurious emissions according to FCC 47 CFR § 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Measurement software: RadiMation, version 2015.2.4
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: ATH18G40, Horizontal
Measurement distance: 1 m converted to 3m
Mode: TX; WLAN 2.4 GHz + LORA, Sample 29896
Test Date: 2020-07-23
Note:

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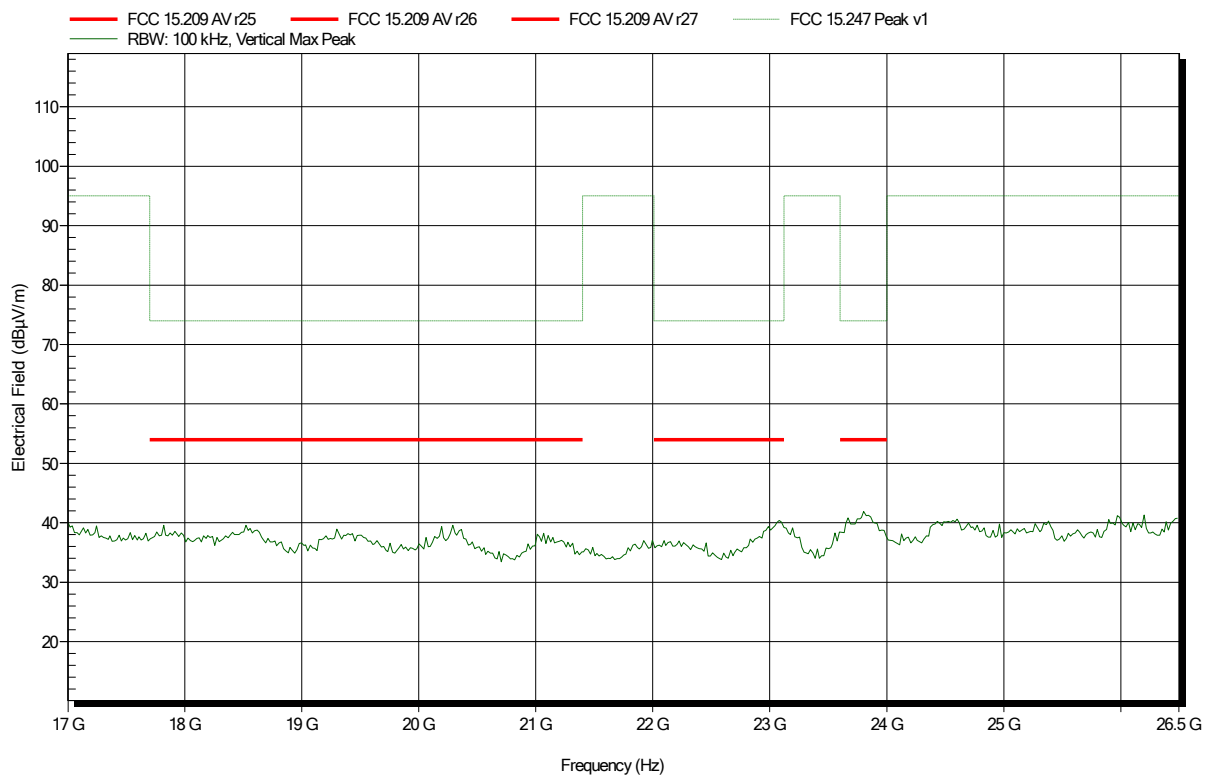
Spurious emissions according to FCC 47 CFR § 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Measurement software: RadiMation, version 2015.2.4
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: ATH18G40, Vertical
Measurement distance: 1 m converted to 3m
Mode: TX; WLAN 2.4 GHz + LORA, Sample 29896
Test Date: 2020-07-23
Note:

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ANNEX B Transmitter spurious emissions LORA + IEEE 802.11 n

Spurious emissions according to FCC 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity Inc
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series

Test Site: Eurofins Product Service Germany

Operator: Mr. Jahn

Measurement software: RadiMation, version 2020.1.8

Test Conditions: Tnom: 23 °Celsius°C, Vnom: 12 VDC via AC/DC-Adaptor

Antenna: Rohde & Schwarz HK 116, Horizontal

Measurement distance: 3 m

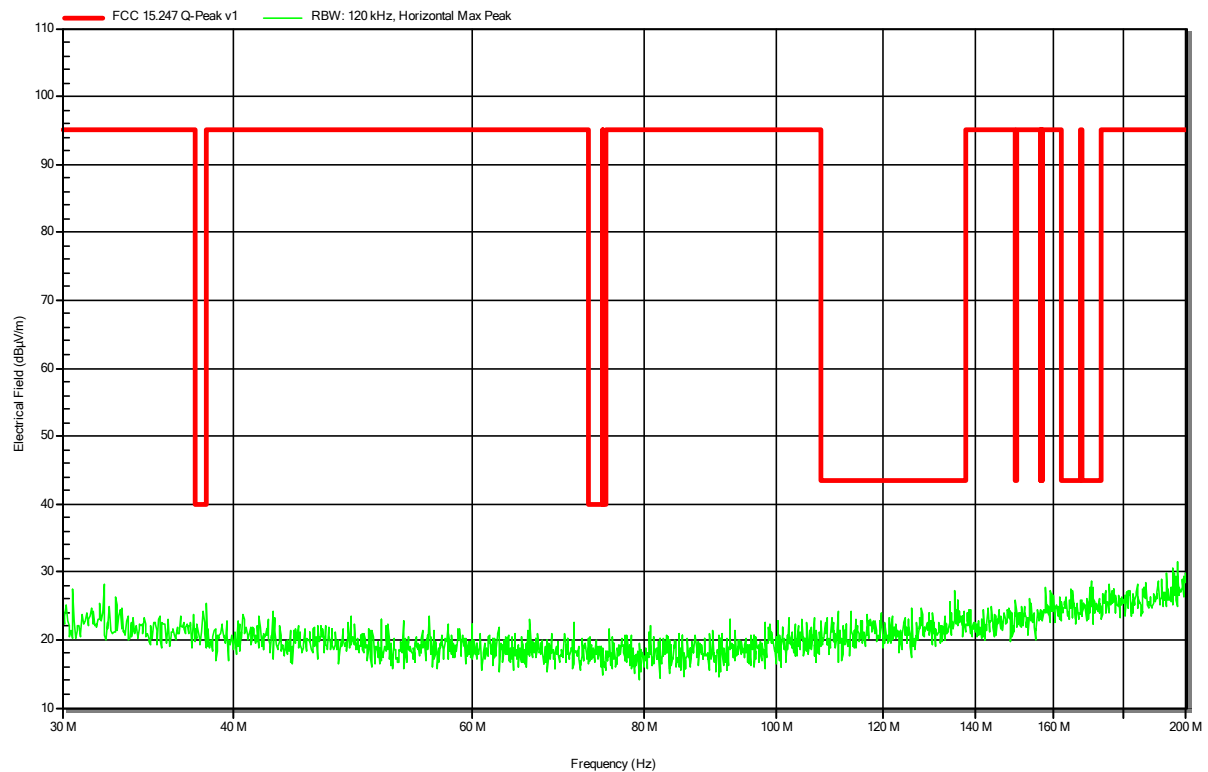
Mode: TX; WLAN 5 GHz + LORA, Sample 30742

Test Date: 2020-08-27

Note:

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RadiMation



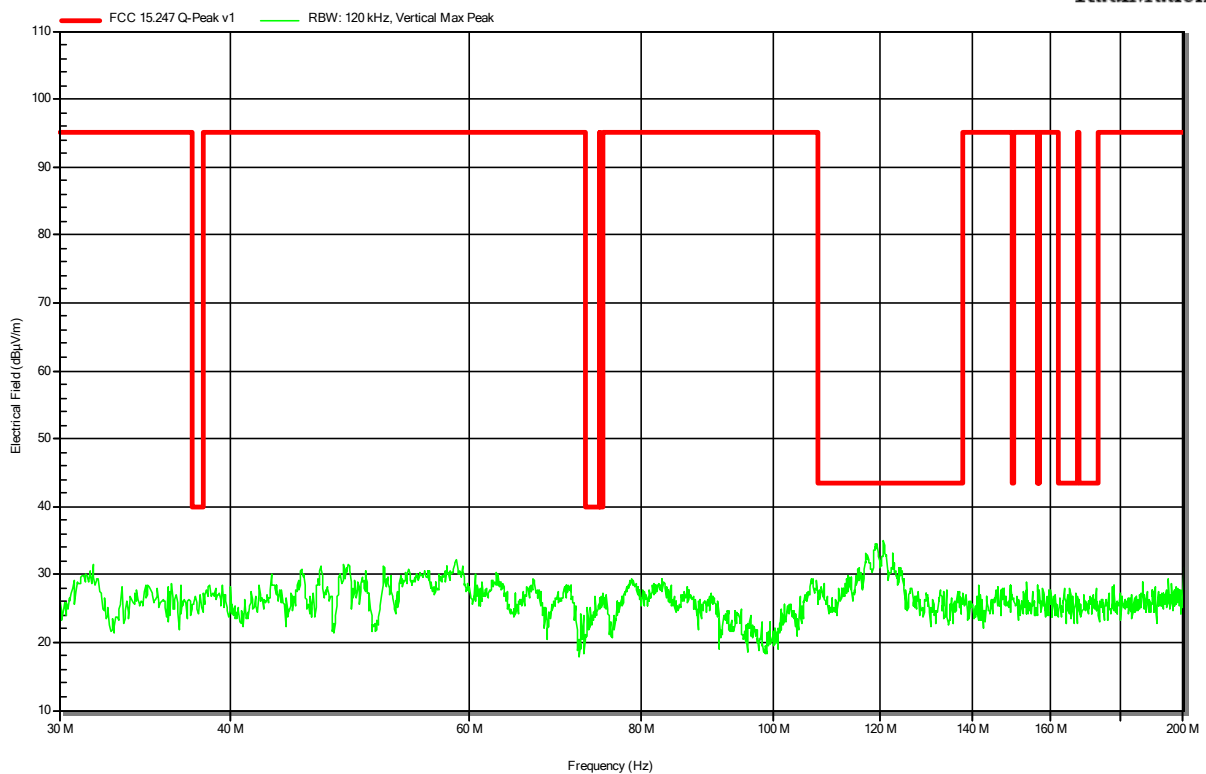
Spurious emissions according to FCC 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity Inc
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants
Model: RG191+LTE Series
Test Site: Eurofins Product Service Germany
Operator: Mr. Jahn
Measurement software: RadiMation, version 2020.1.8
Test Conditions: Tnom: 23 °Celsius°C, Vnom: 12 VDC via AC/DC-Adaptor
Antenna: Rohde & Schwarz HK 116, Vertical
Measurement distance: 3 m
Mode: TX; WLAN 5 GHz + LORA, Sample 30742
Test Date: 2020-08-27
Note:

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RadiMation



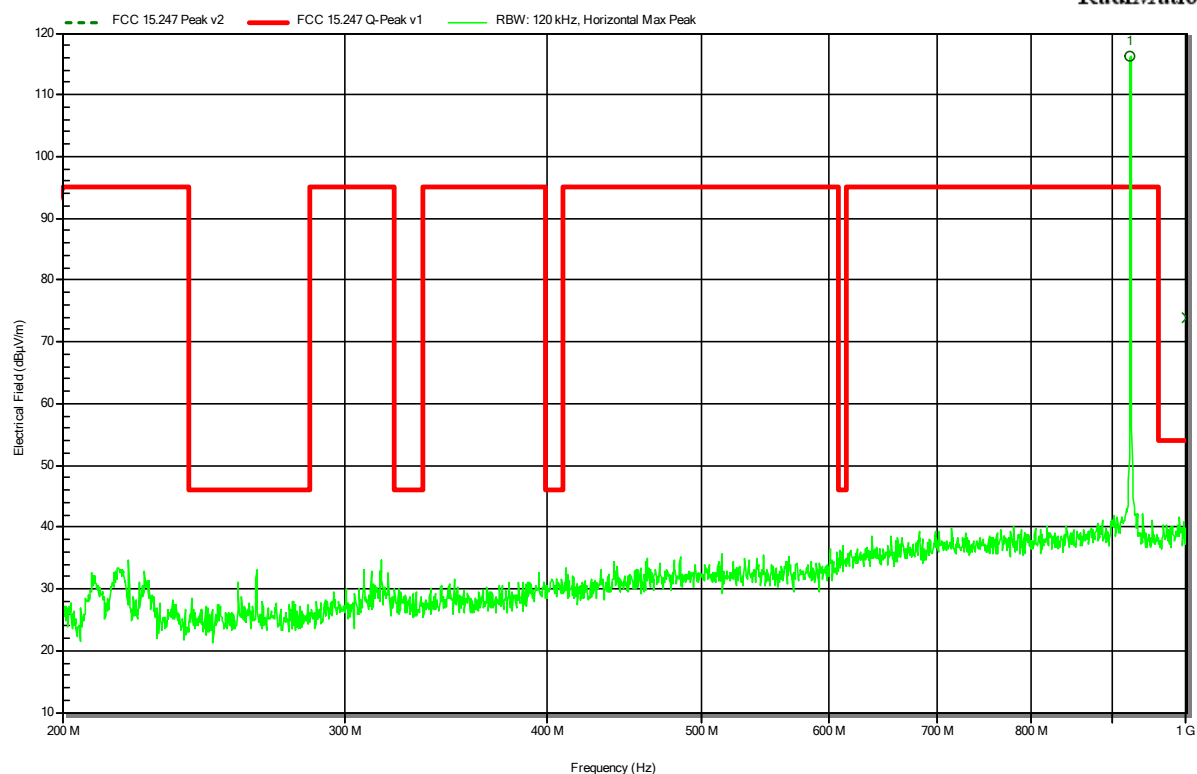
Spurious emissions according to FCC 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity Inc
 EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants
 Model: RG191+LTE Series
 Test Site: Eurofins Product Service Germany
 Operator: Mr. Jahn
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius°C, Vnom: 12 VDC via AC/DC-Adaptor
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: TX; WLAN 5 GHz + LORA, Sample 30742
 Test Date: 2020-08-27
 Note:

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RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Status
923.2842 MHz				LORA carrier

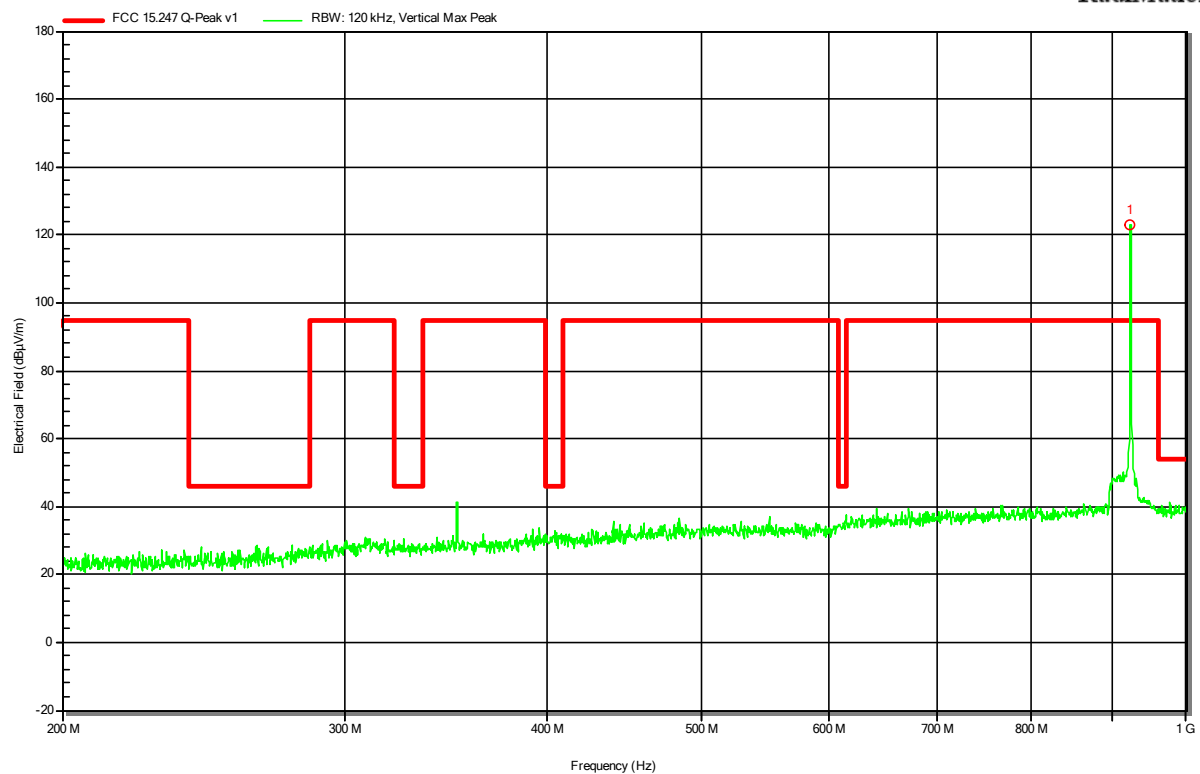
Spurious emissions according to FCC 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity Inc
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants
Model: RG191+LTE Series
Test Site: Eurofins Product Service Germany
Operator: Mr. Jahn
Measurement software: RadiMation, version 2020.1.8
Test Conditions: Tnom: 23 °Celsius°C, Vnom: 12 VDC via AC/DC-Adaptor
Antenna: Rohde & Schwarz HL 223, Vertical
Measurement distance: 3 m
Mode: TX; WLAN 5 GHz + LORA, Sample 30742
Test Date: 2020-08-27
Note:

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RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Status
923.2843 MHz				LORA carrier

Spurious emissions according to FCC 47 CFR § 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity

EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series

Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn

Measurement software: RadiMation, version 2015.2.4

Test Conditions: Tnom: 23°C, Vnom: 12 VDC

Antenna: Schwarzbeck BBHA 9120D, Horizontal

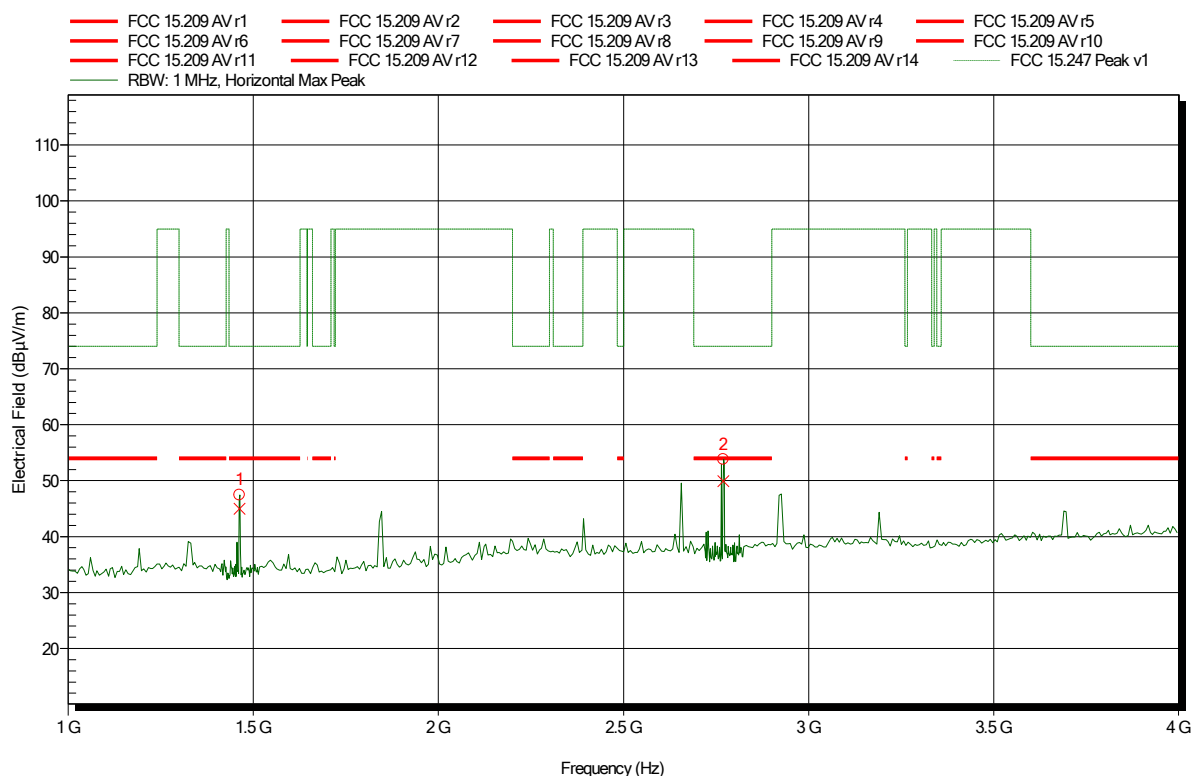
Measurement distance: 3 m

Mode: TX; WLAN 5 GHz + LORA, Sample 29796

Test Date: 2020-07-27

Note:

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.4629 GHz	47.44 dBµV/m	74 dBµV/m	-26.56 dB	Pass
2.7699 GHz	53.8 dBµV/m	74 dBµV/m	-20.2 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
1.4629 GHz	45 dBµV/m	54 dBµV/m	-9 dB	Pass
2.7699 GHz	49.91 dBµV/m	54 dBµV/m	-4.09 dB	Pass

Spurious emissions according to FCC 47 CFR § 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity

EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series

Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn

Measurement software: RadiMation, version 2015.2.4

Test Conditions: Tnom: 23°C, Vnom: 12 VDC

Antenna: Schwarzbeck BBHA 9120D, Vertical

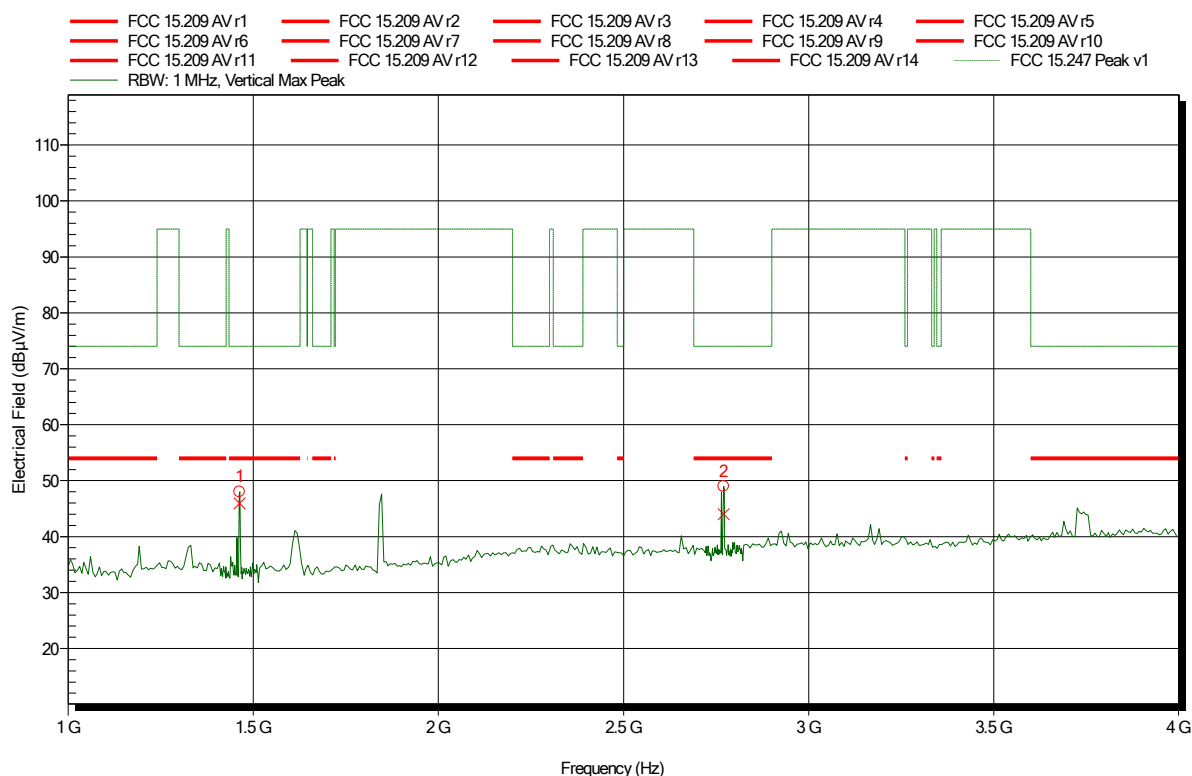
Measurement distance: 3 m

Mode: TX; WLAN 5 GHz + LORA, Sample 29796

Test Date: 2020-07-27

Note:

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.463 GHz	48.02 dBµV/m	74 dBµV/m	-25.98 dB	Pass
2.7701 GHz	48.97 dBµV/m	74 dBµV/m	-25.03 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
1.463 GHz	45.93 dBµV/m	54 dBµV/m	-8.07 dB	Pass
2.7701 GHz	44 dBµV/m	54 dBµV/m	-10 dB	Pass

Spurious emissions according to FCC 47 CFR § 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity

EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series

Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn

Measurement software: RadiMation, version 2015.2.4

Test Conditions: Tnom: 23°C, Vnom: 12 VDC

Antenna: Schwarzbeck BBHA 9120D, Horizontal

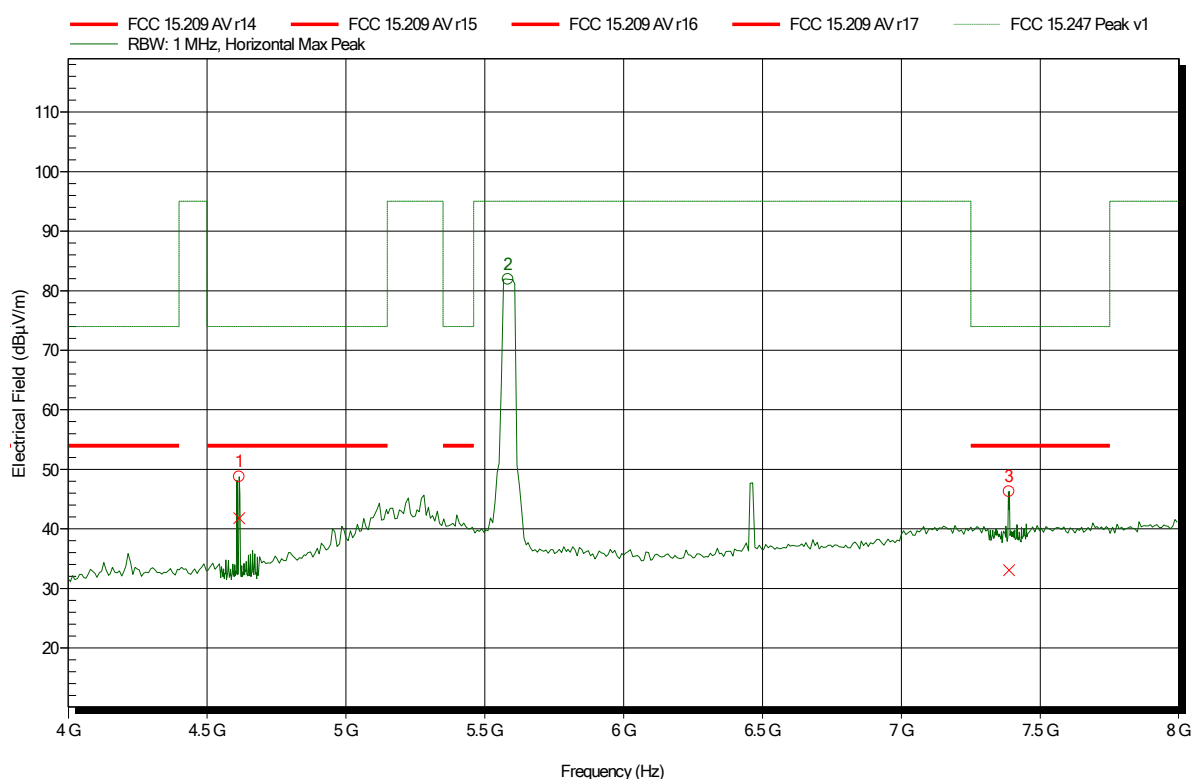
Measurement distance: 1 m converted to 3m

Mode: TX; WLAN 5 GHz + LORA, Sample 29796

Test Date: 2020-07-24

Note:

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Frequency	Peak	Peak Limit	Peak Difference	Status
4.616 GHz	48.73 dBµV/m	74 dBµV/m	-25.27 dB	Pass
5.584 GHz				WLAN carrier
7.388 GHz	46.26 dBµV/m	74 dBµV/m	-27.74 dB	Pass
Frequency	Average	Average Limit	Average Difference	Average Status
4.616 GHz	41.79 dBµV/m	54 dBµV/m	-12.21 dB	Pass
5.584 GHz				WLAN carrier
7.388 GHz	33.07 dBµV/m	54 dBµV/m	-20.93 dB	Pass

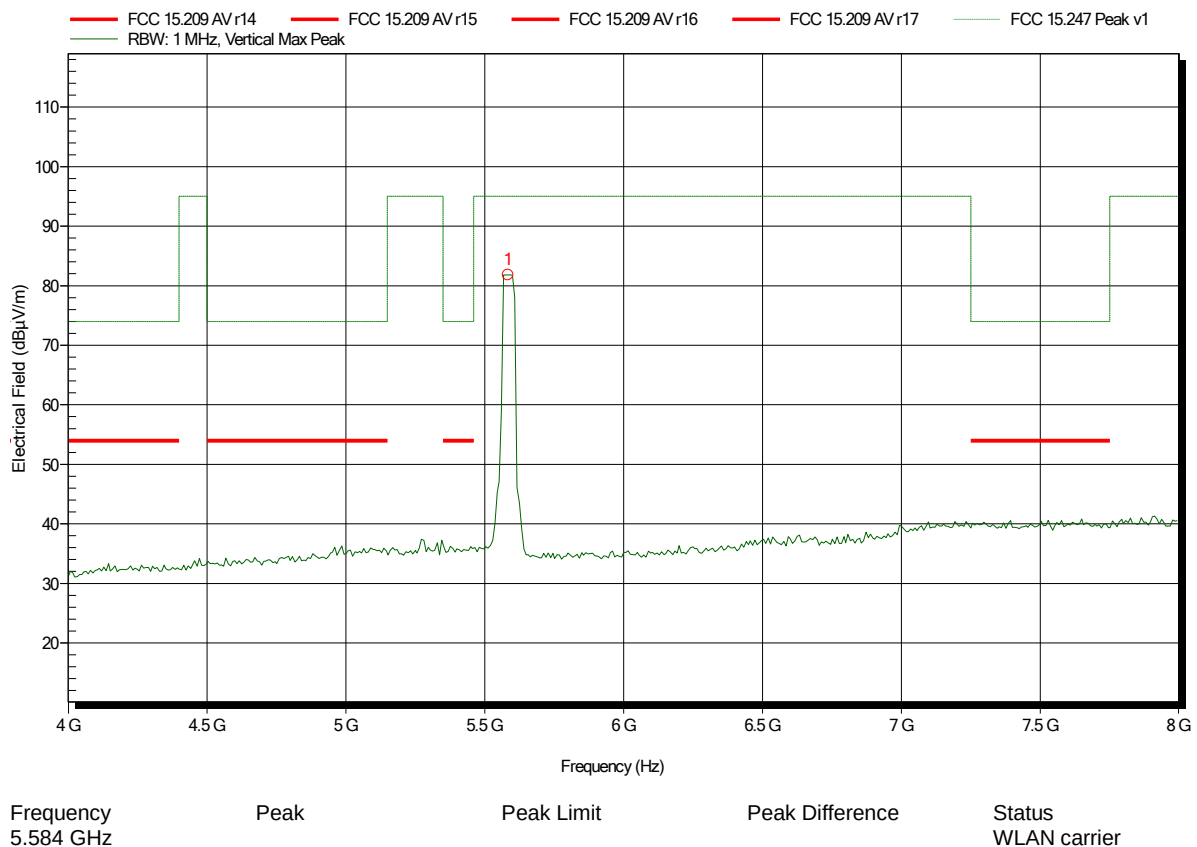
Spurious emissions according to FCC 47 CFR § 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Measurement software: RadiMation, version 2015.2.4
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Schwarzbeck BBHA 9120D, Vertical
Measurement distance: 1 m converted to 3m
Mode: TX; WLAN 5 GHz + LORA, Sample 29796
Test Date: 2020-07-27
Note:

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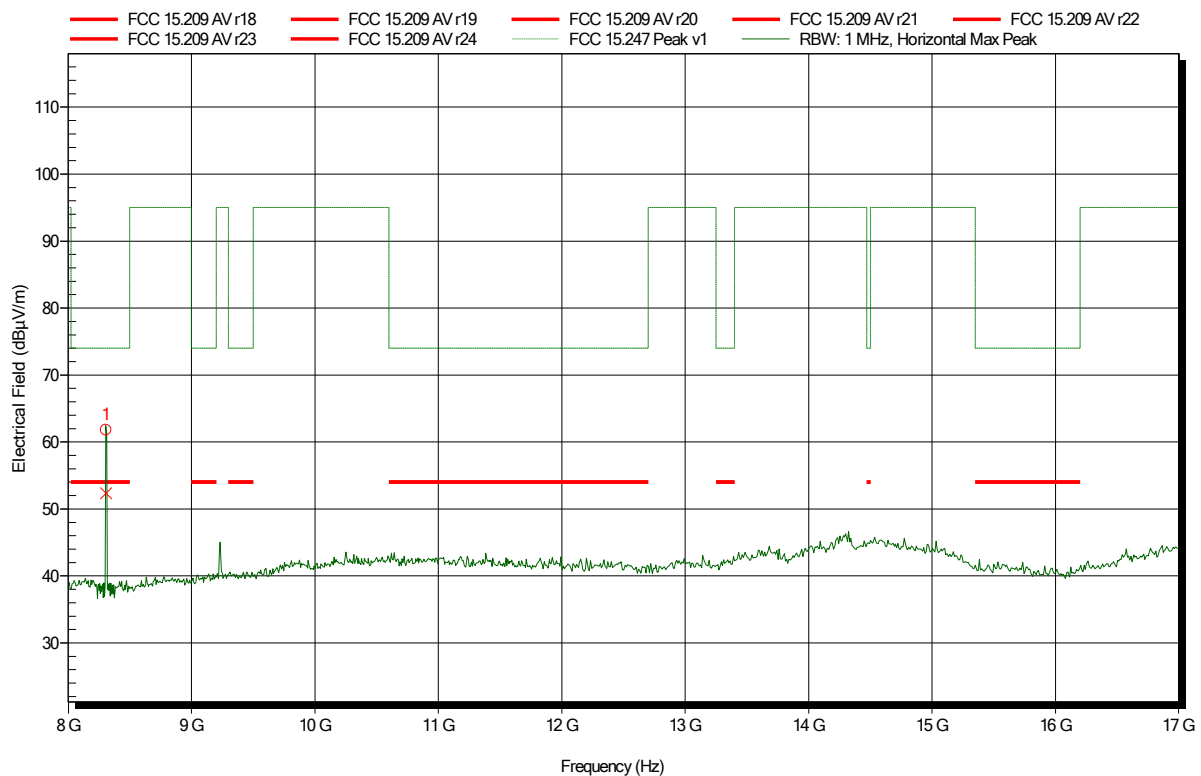
Spurious emissions according to FCC 47 CFR § 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Measurement software: RadiMation, version 2015.2.4
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Schwarzbeck BBHA 9120D, Horizontal
Measurement distance: 1 m converted to 3m
Mode: TX; WLAN 5 GHz + LORA, Sample 29796
Test Date: 2020-07-24
Note:

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Frequency	Peak	Peak Limit	Peak Difference	Status
8.309 GHz	61.79 dBµV/m	74 dBµV/m	-12.21 dB	Pass
Frequency	Average	Average Limit	Average Difference	Average Status
8.309 GHz	47 dBµV/m	54 dBµV/m	-7 dB	Pass

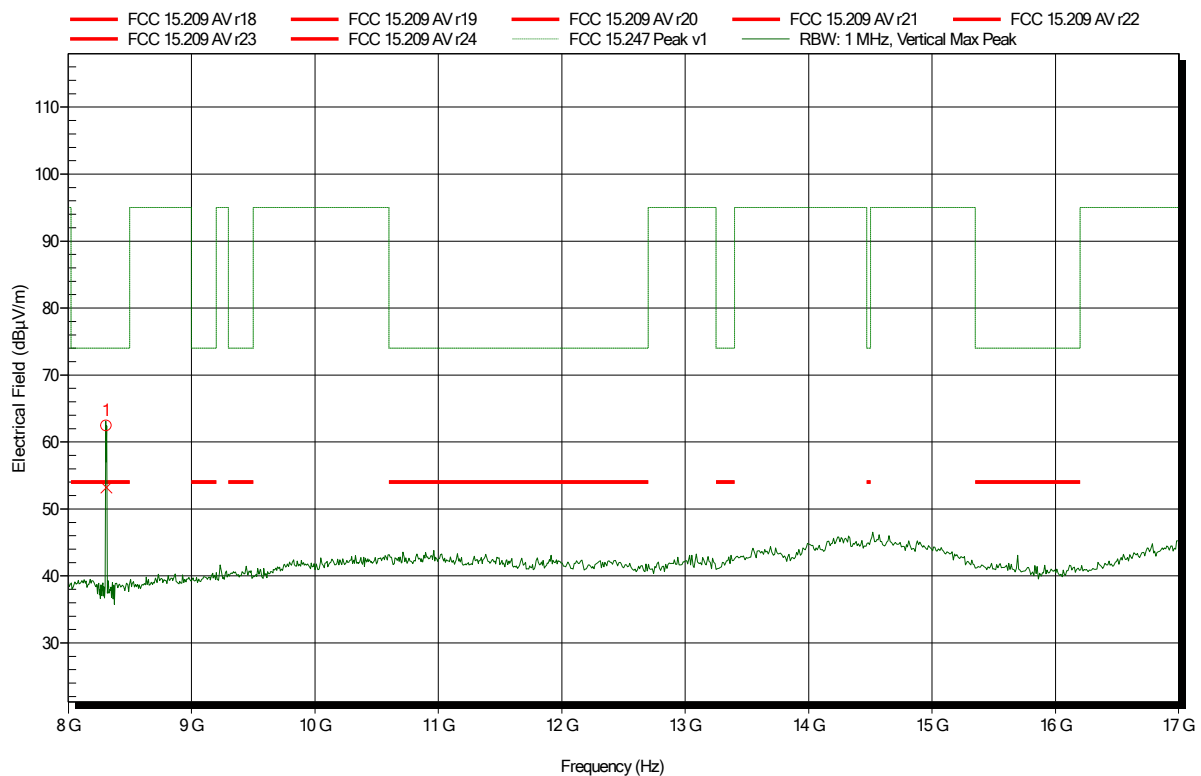
Spurious emissions according to FCC 47 CFR § 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Measurement software: RadiMation, version 2015.2.4
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Schwarzbeck BBHA 9120D, Vertical
Measurement distance: 1 m converted to 3m
Mode: TX; WLAN 5 GHz + LORA, Sample 29796
Test Date: 2020-07-27
Note:

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Frequency	Peak	Peak Limit	Peak Difference	Status
8.31 GHz	62.39 dBµV/m	74 dBµV/m	-11.61 dB	Pass
Frequency	Average	Average Limit	Average Difference	Average Status
8.31 GHz	50.19 dBµV/m	54 dBµV/m	-3.81 dB	Pass

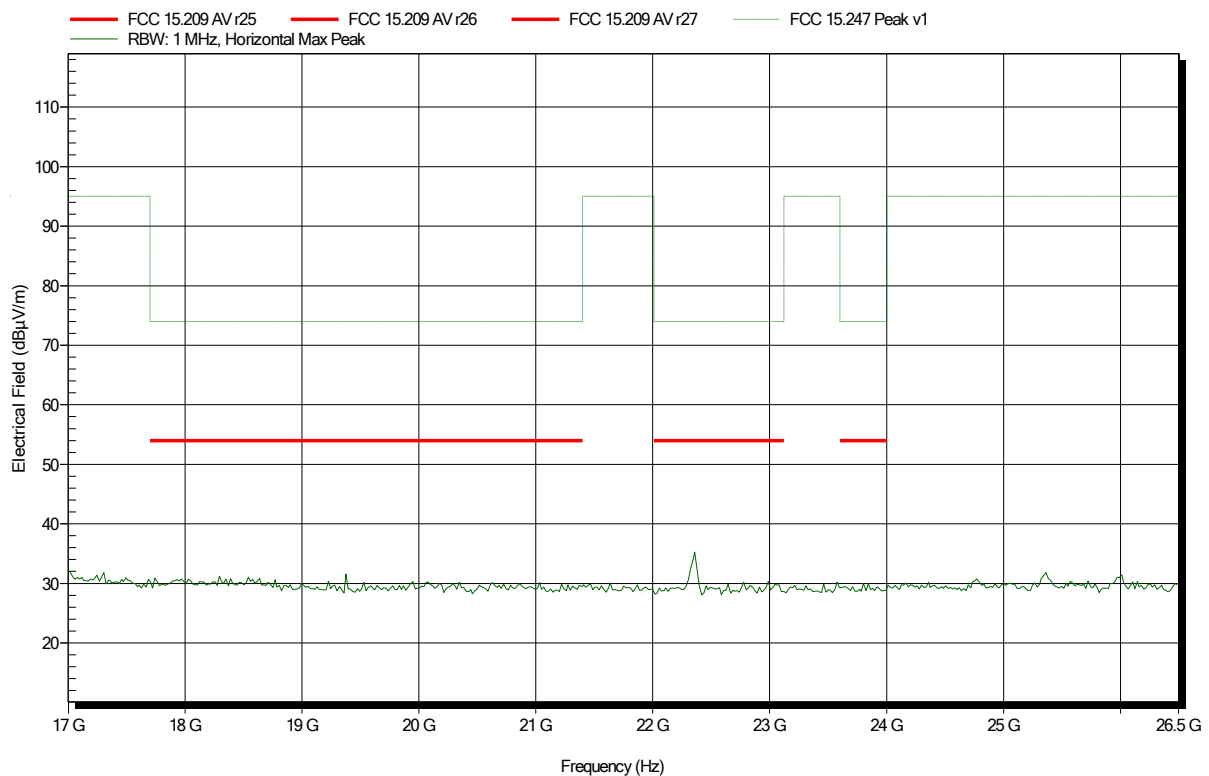
Spurious emissions according to FCC 47 CFR § 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Measurement software: RadiMation, version 2015.2.4
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Amplifier Research AT4560, Horizontal
Measurement distance: 1 m converted to 3m
Mode: TX; WLAN 5 GHz + LORA, Sample 29796
Test Date: 2020-07-27
Note:

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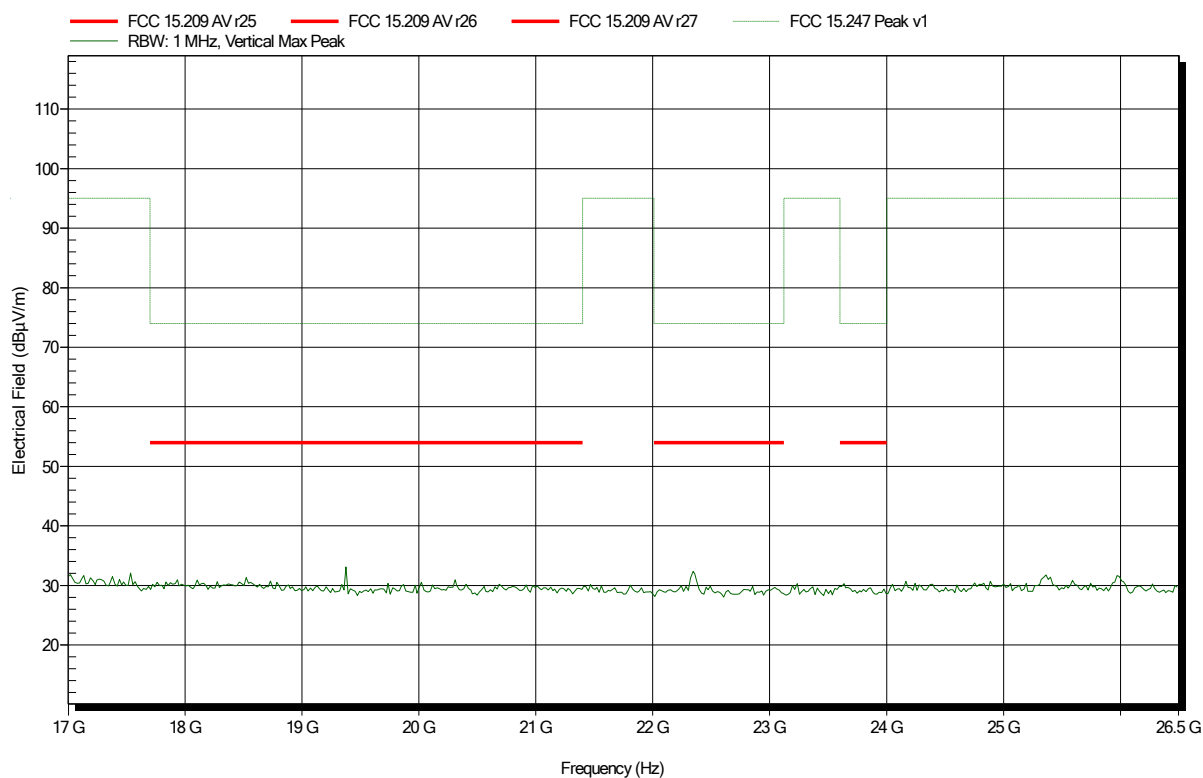
Spurious emissions according to FCC 47 CFR § 15.247

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Measurement software: RadiMation, version 2015.2.4
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Amplifier Research AT4560, Vertical
Measurement distance: 1 m converted to 3m
Mode: TX; WLAN 5 GHz + LORA, Sample 29796
Test Date: 2020-07-27
Note:

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ANNEX C Transmitter spurious emissions LORA + LTE FDD 2

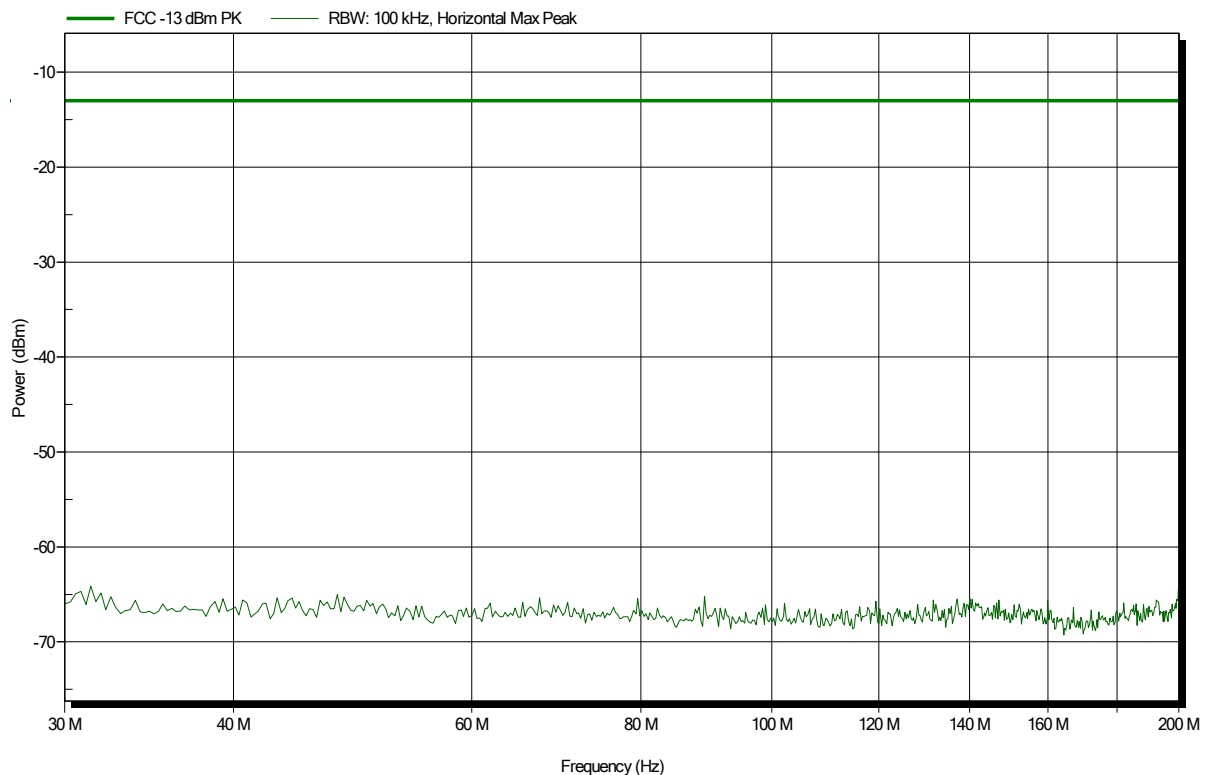
Spurious emissions according to FCC Part 24 E

Project number: G0M-2002-8805

Applicant: Laird Connectivity Inc
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Test Conditions: Tnom: 24°C, Vnom: 12 VDC
Antenna: Rohde & Schwarz HK 116, Horizontal
Measurement distance: 3 m
Mode: TX; LTE FDD 2 + LORA, Sample 30742
Test Date: 2020-08-28
Note:

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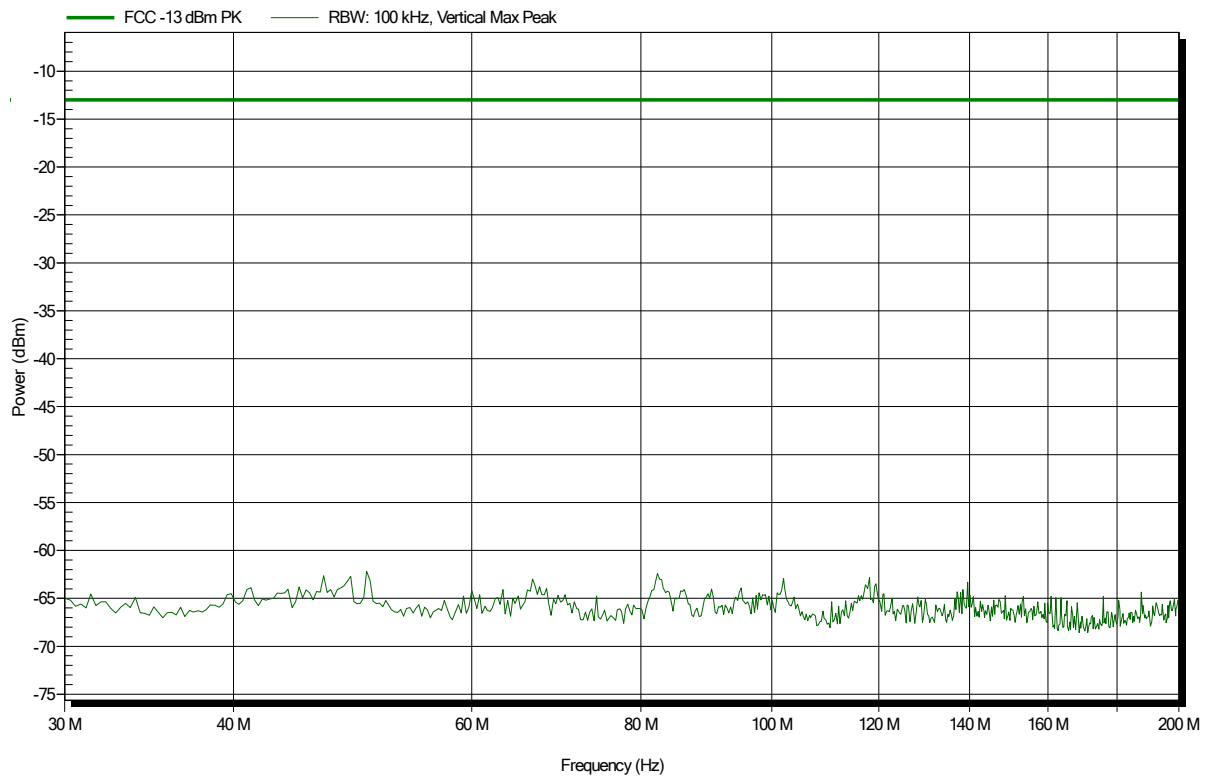


Spurious emissions according to FCC Part 24 E

Project number: G0M-2002-8805

Applicant: Laird Connectivity Inc
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants
Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Test Conditions: Tnom: 24°C, Vnom: 12 VDC
Antenna: Rohde & Schwarz HK 116, Vertical
Measurement distance: 3 m
Mode: TX; LTE FDD 2 + LORA, Sample 30742
Test Date: 2020-08-28
Note:

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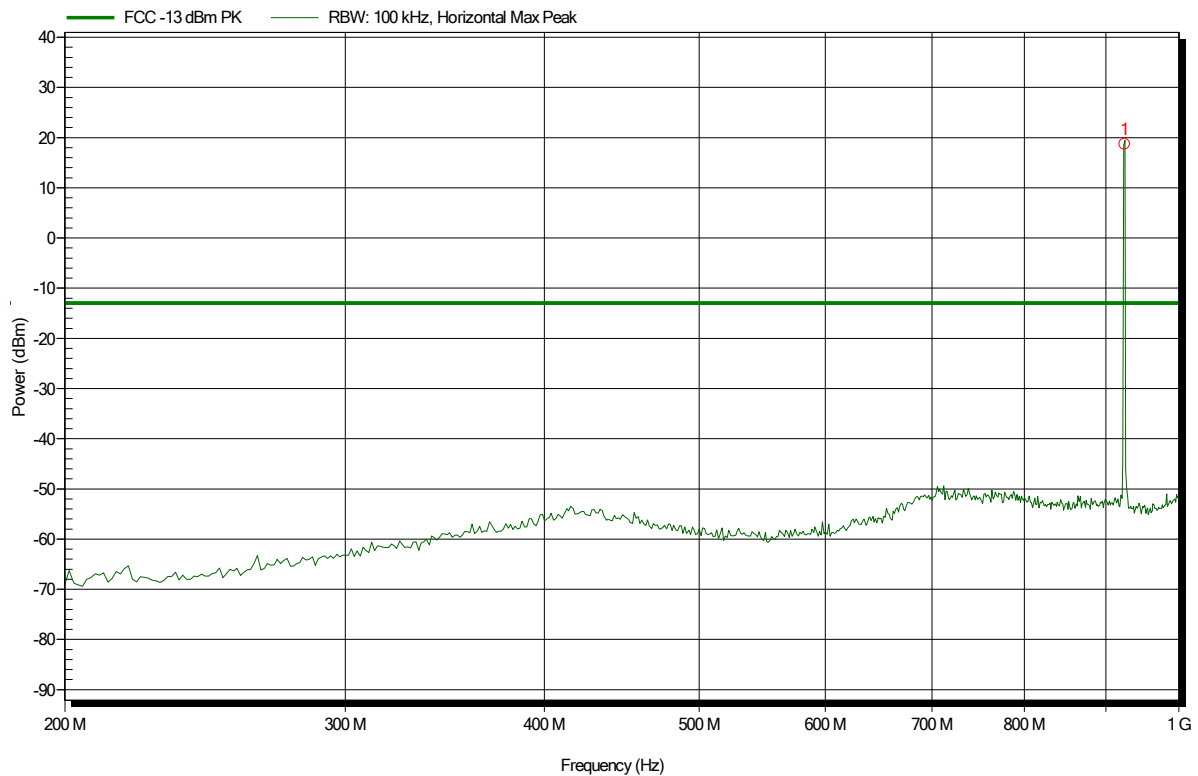
Spurious emissions according to FCC Part 24 E

Project number: G0M-2002-8805

Applicant: Laird Connectivity Inc
 EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
 Test Site: Eurofins Product Service GmbH
 Operator: Toralf Jahn
 Test Conditions: Tnom: 24°C, Vnom: 12 VDC
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: TX; LTE FDD 2 + LORA, Sample 30742
 Test Date: 2020-08-28
 Note:

Index 1



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
924.359 MHz				LORA carrier

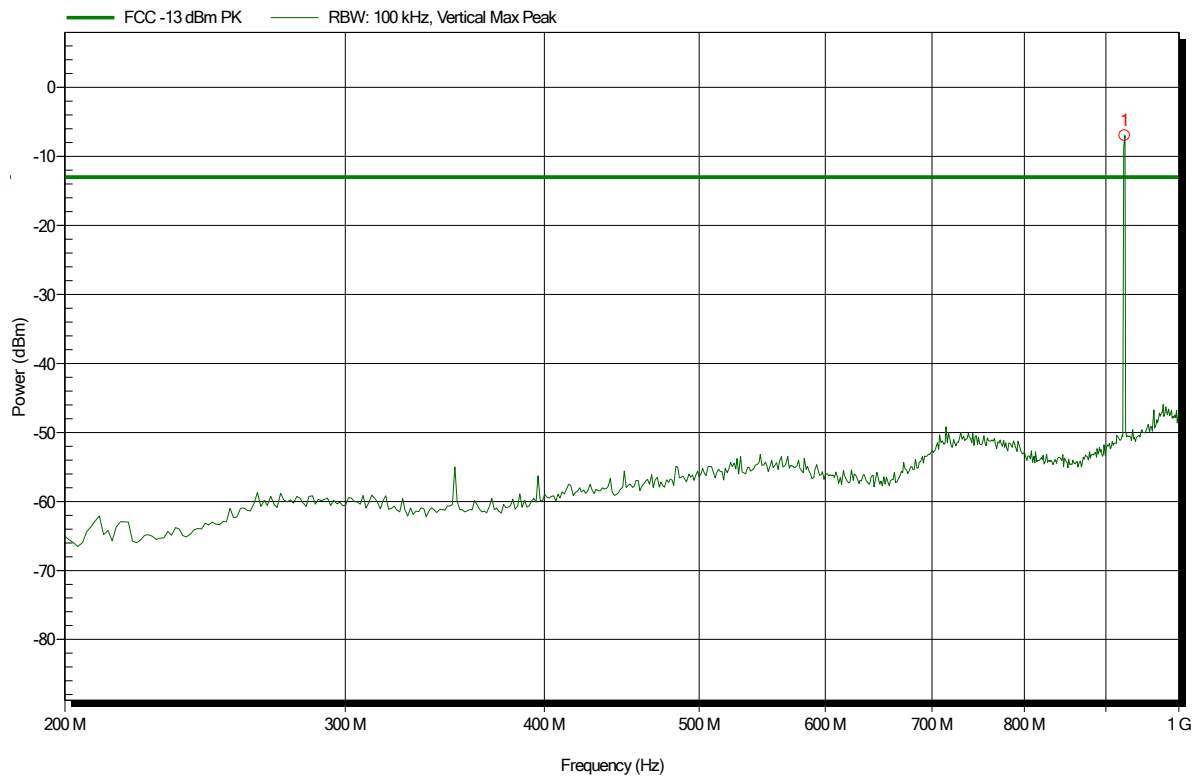
Spurious emissions according to FCC Part 24 E

Project number: G0M-2002-8805

Applicant: Laird Connectivity Inc
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Test Conditions: Tnom: 24°C, Vnom: 12 VDC
Antenna: Rohde & Schwarz HL 223, Vertical
Measurement distance: 3 m
Mode: TX; LTE FDD 2 + LORA, Sample 30742
Test Date: 2020-08-28
Note: Notch filter

Index 2



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
924.359 MHz				LORA carrier

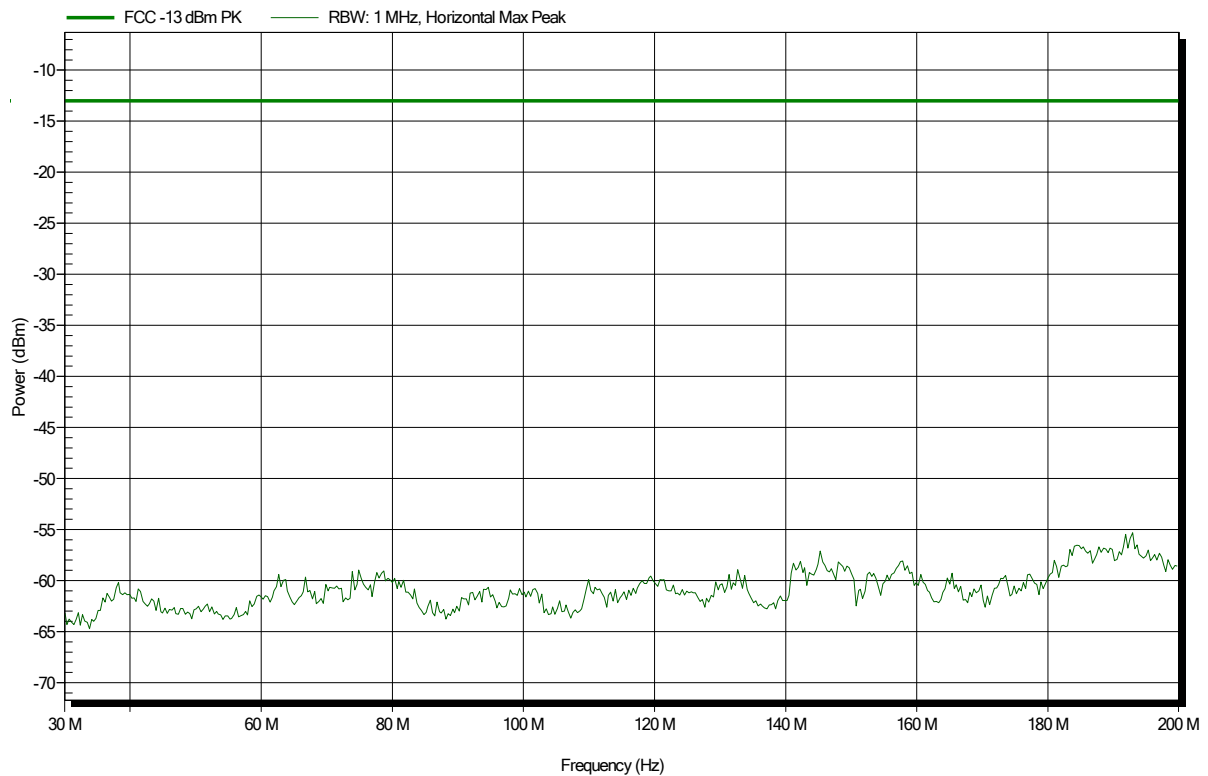
Spurious emissions according to FCC 47 CFR Part 24 Subpart E

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Rohde & Schwarz HK 116, Horizontal
Measurement distance: 3 m
Mode: TX; LTE FDD 2 + LORA, SAMPLE 29796
Test Date: 2020-07-22
Note:

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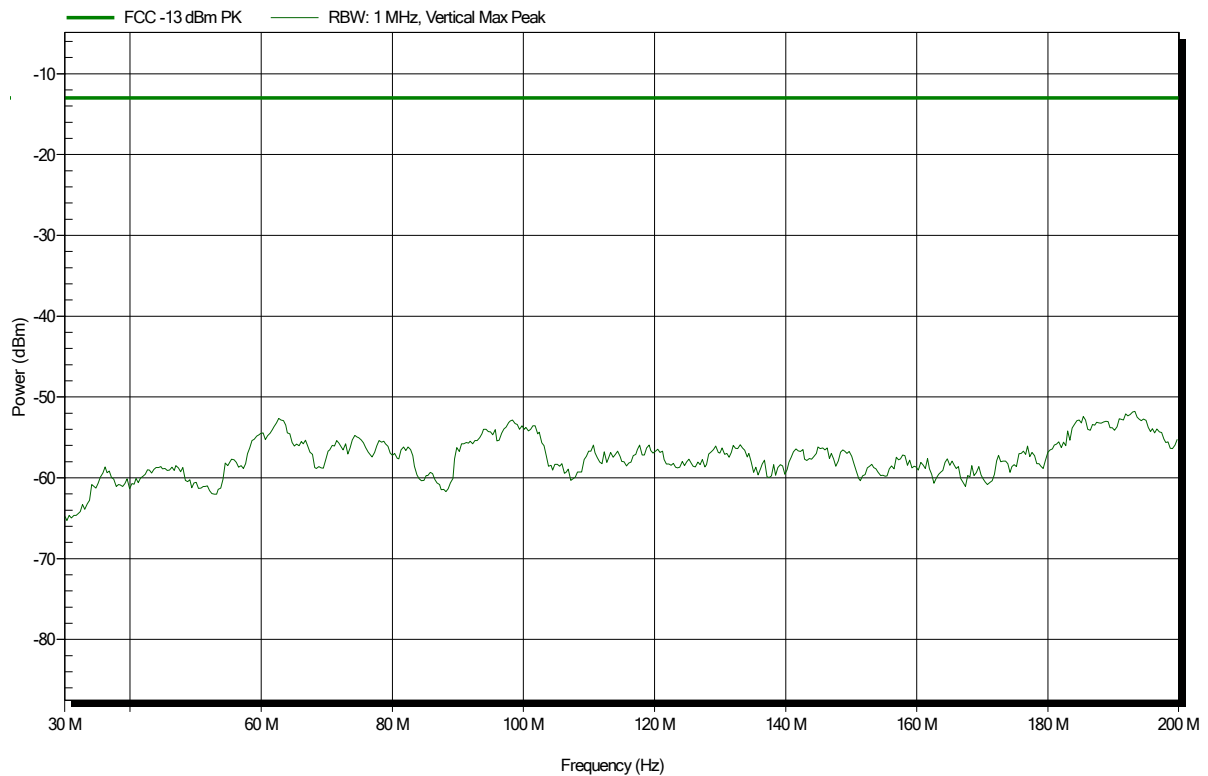
Spurious emissions according to FCC 47 CFR Part 24 Subpart E

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Rohde & Schwarz HK 116, Vertical
Measurement distance: 3 m
Mode: TX; LTE FDD 2 + LORA, SAMPLE 29796
Test Date: 2020-07-22
Note:

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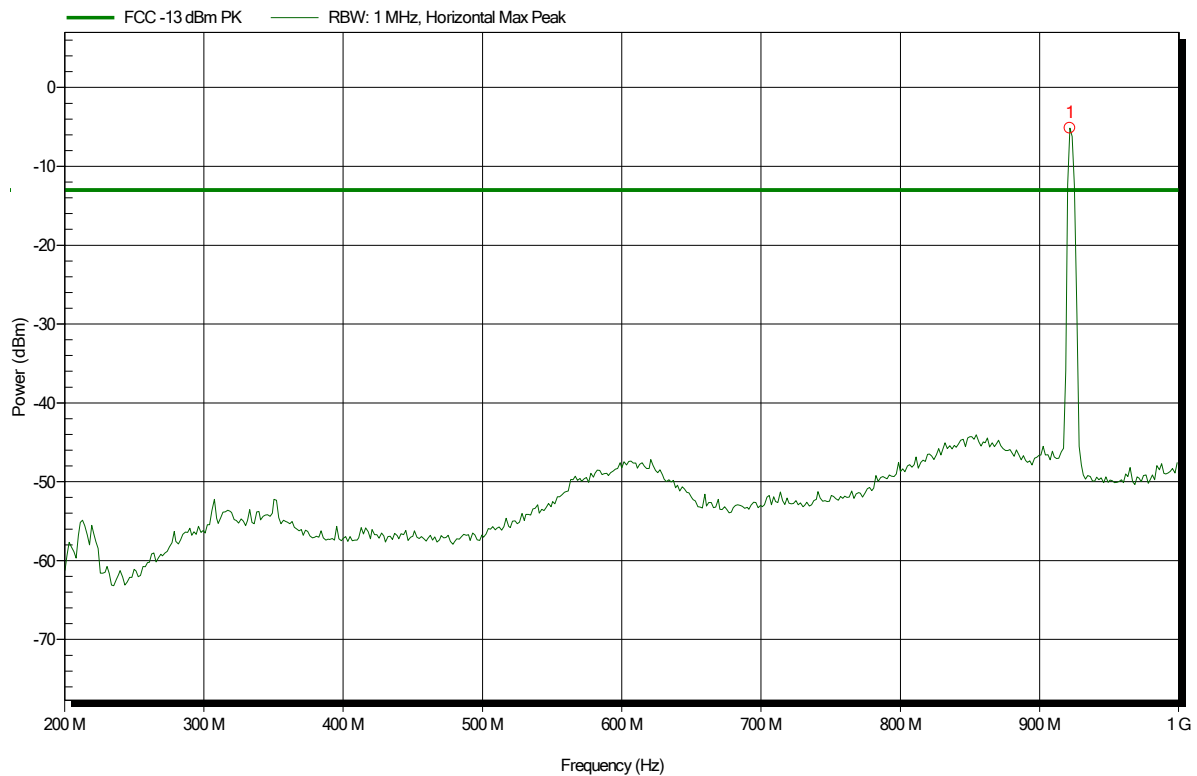
Spurious emissions according to FCC 47 CFR Part 24 Subpart E

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Rohde & Schwarz HL 223, Horizontal
Measurement distance: 3 m
Mode: TX; LTE FDD 2 + LORA, SAMPLE 29796
Test Date: 2020-07-22
Note:

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
921.6 MHz				LORA carrier

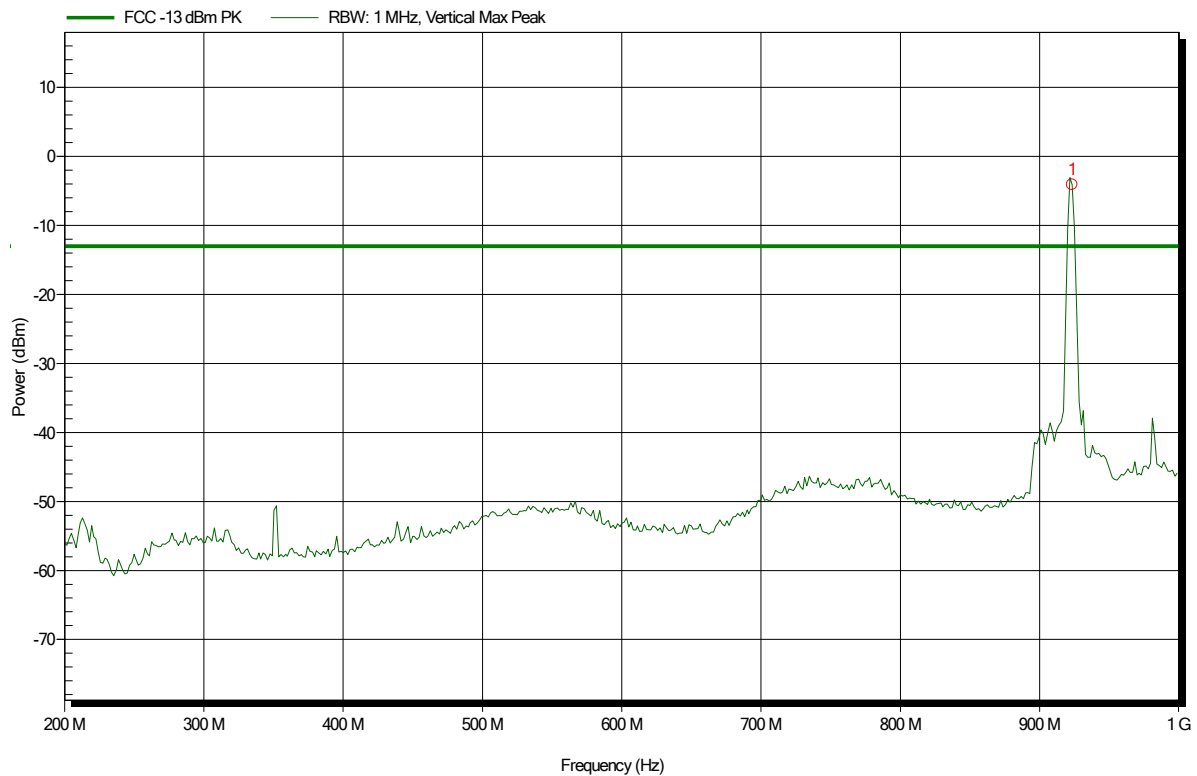
Spurious emissions according to FCC 47 CFR Part 24 Subpart E

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Rohde & Schwarz HL 223, Vertical
Measurement distance: 3 m
Mode: TX; LTE FDD 2 + LORA, SAMPLE 29796
Test Date: 2020-07-22
Note:

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
923.2 MHz				LORA carrier

Spurious emissions according to FCC 47 CFR Part 24 Subpart E

Project number: G0M-2002-8805

Applicant: Laird Connectivity

EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series

Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn

Test Conditions: Tnom: 23°C, Vnom: 12 VDC

Antenna: Schwarzbeck BBHA 9120D, Horizontal

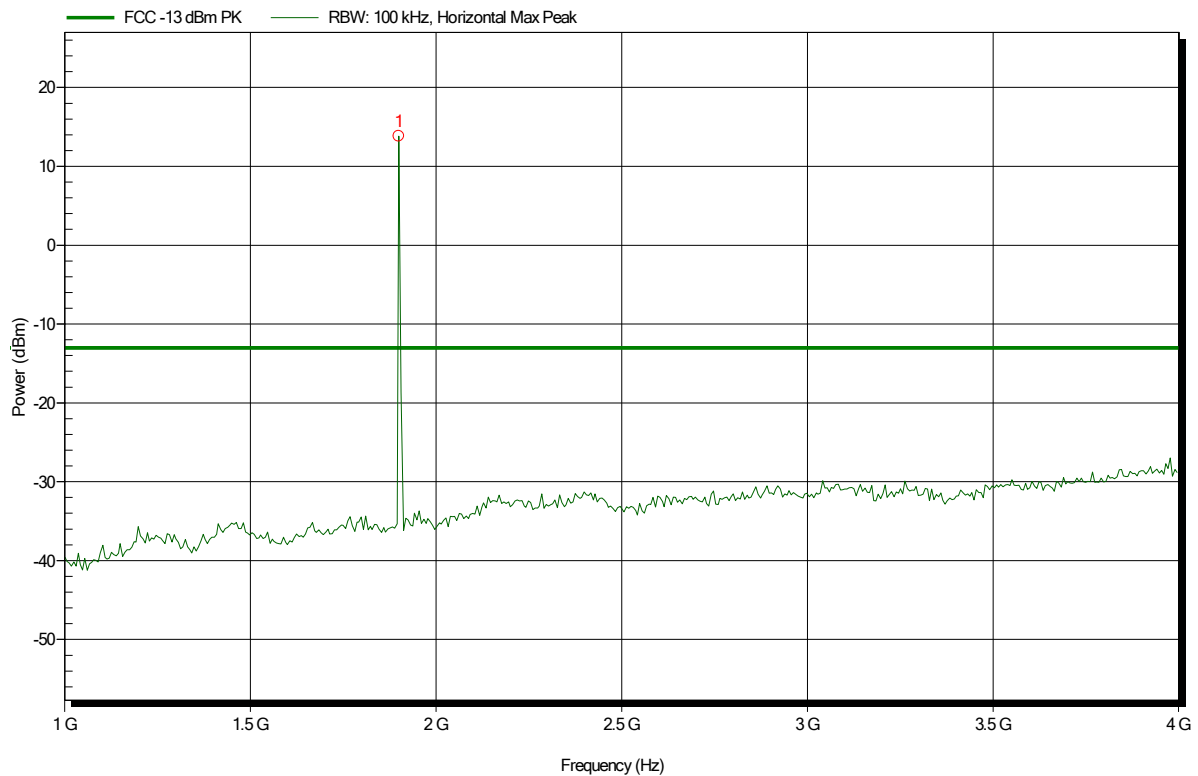
Measurement distance: 3 m

Mode: TX; LTE FDD 2 + LORA, SAMPLE 29796

Test Date: 2020-07-22

Note:

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.9 GHz				LTE carrier

Spurious emissions according to FCC 47 CFR Part 24 Subpart E

Project number: G0M-2002-8805

Applicant: Laird Connectivity

EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series

Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn

Test Conditions: Tnom: 23°C, Vnom: 12 VDC

Antenna: Schwarzbeck BBHA 9120D, Vertical

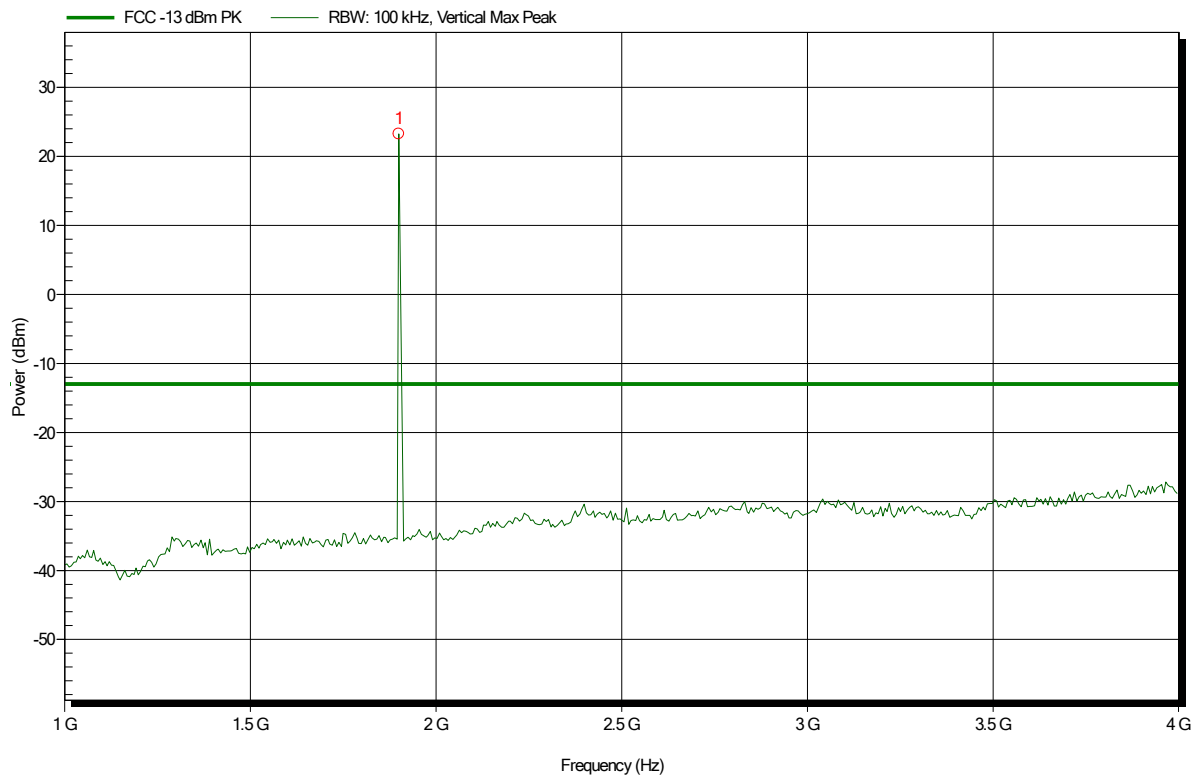
Measurement distance: 3 m

Mode: TX; LTE FDD 2 + LORA, SAMPLE 29796

Test Date: 2020-07-22

Note:

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.9 GHz				LTE carrier

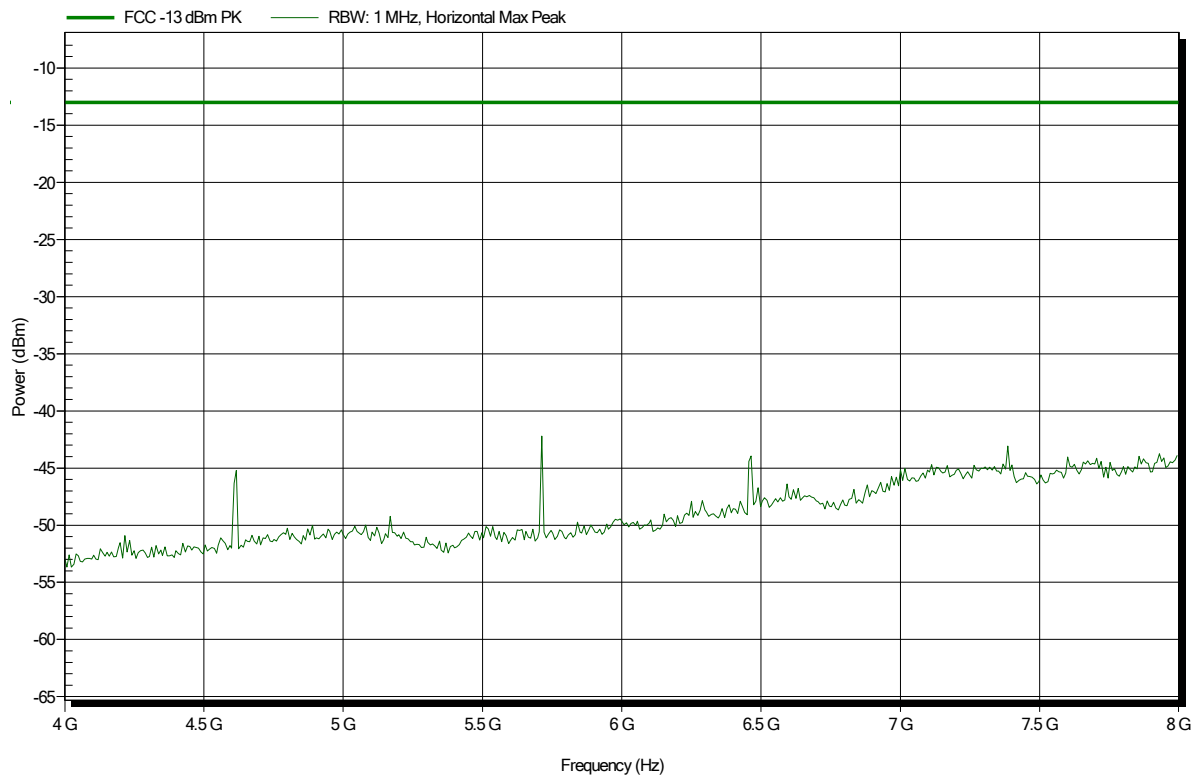
Spurious emissions according to FCC 47 CFR Part 24 Subpart E

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Schwarzbeck BBHA 9120D, Horizontal
Measurement distance: 3 m
Mode: TX; LTE FDD 2 + LORA, SAMPLE 29796
Test Date: 2020-07-22
Note:

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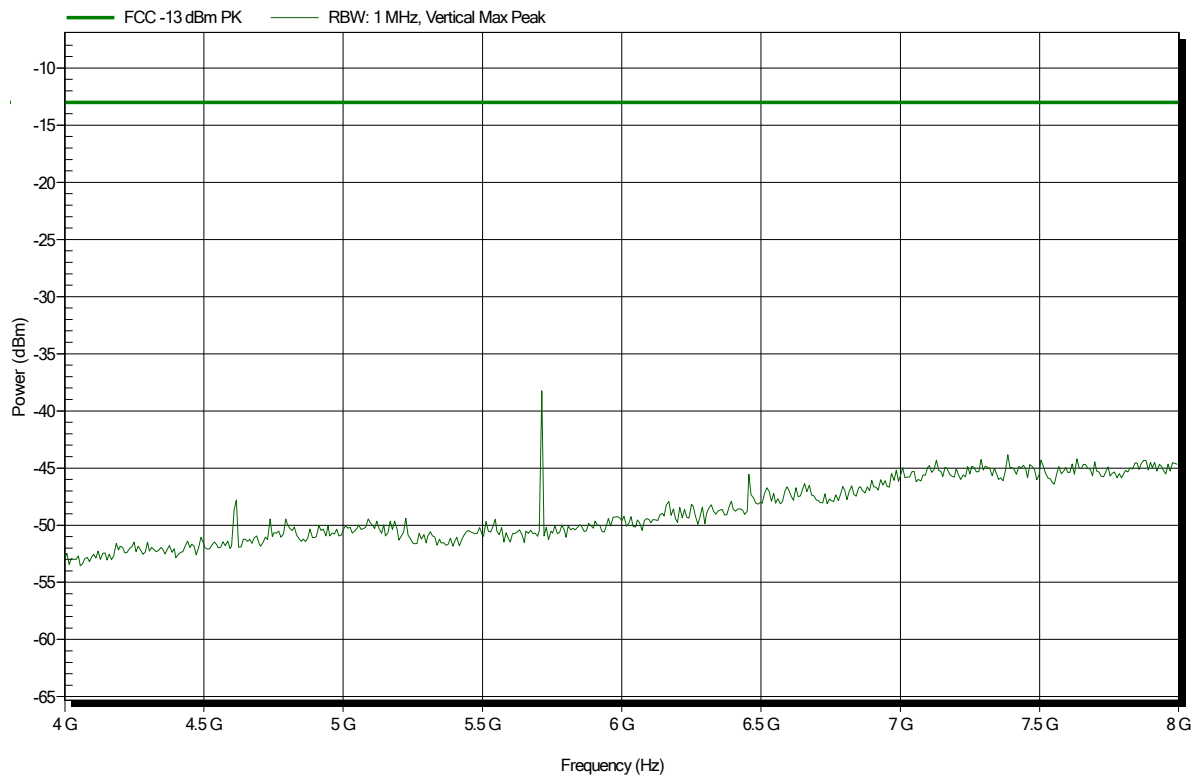
Spurious emissions according to FCC 47 CFR Part 24 Subpart E

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Schwarzbeck BBHA 9120D, Vertical
Measurement distance: 3 m
Mode: TX; LTE FDD 2 + LORA, SAMPLE 29796
Test Date: 2020-07-22
Note:

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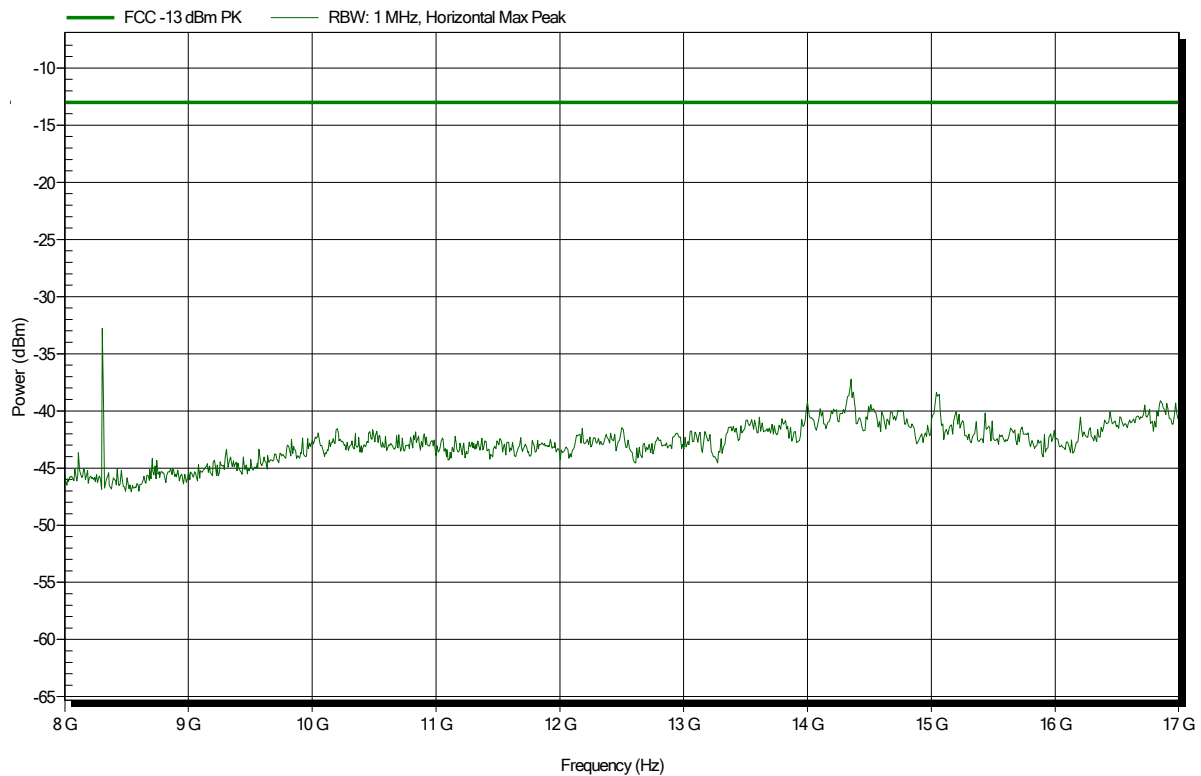
Spurious emissions according to FCC 47 CFR Part 24 Subpart E

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Schwarzbeck BBHA 9120D, Horizontal
Measurement distance: 3 m
Mode: TX; LTE FDD 2 + LORA, SAMPLE 29796
Test Date: 2020-07-22
Note:

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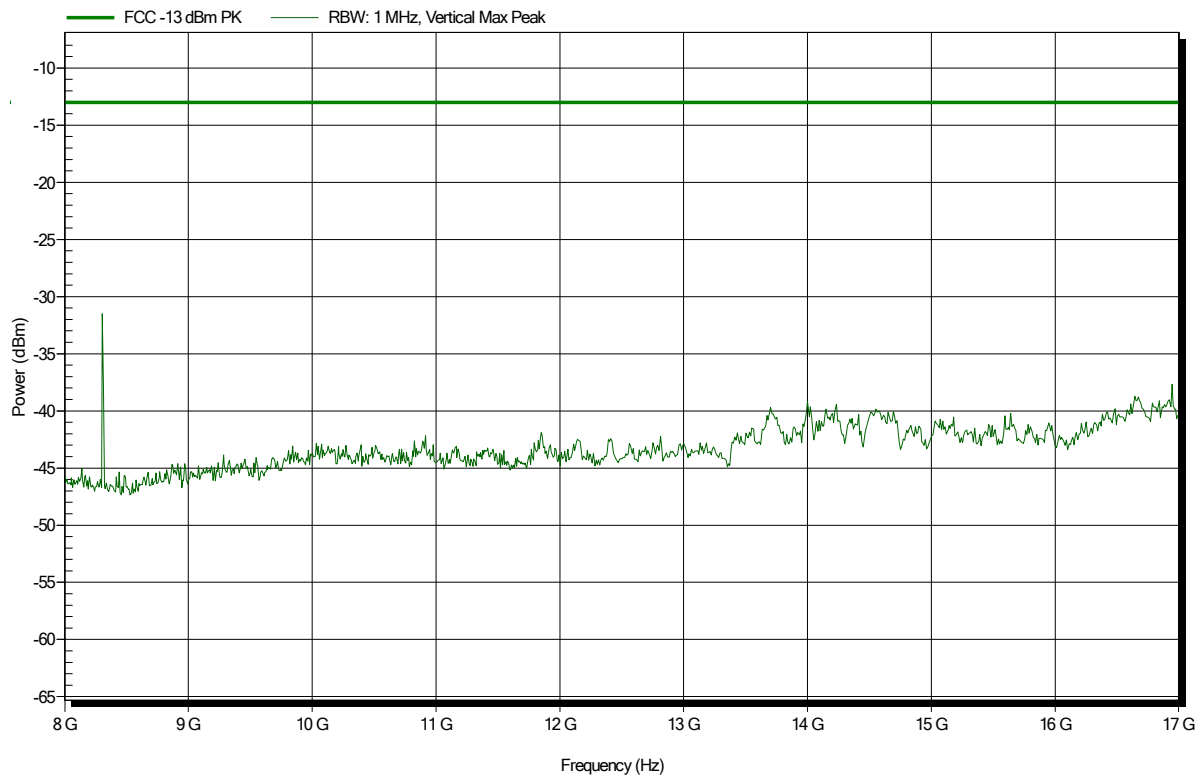
Spurious emissions according to FCC 47 CFR Part 24 Subpart E

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Schwarzbeck BBHA 9120D, Vertical
Measurement distance: 3 m
Mode: TX; LTE FDD 2 + LORA, SAMPLE 29796
Test Date: 2020-07-22
Note:

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Spurious emissions according to FCC 47 CFR Part 24 Subpart E

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series

Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn

Test Conditions: Tnom: 23°C, Vnom: 12 VDC

Antenna: Amplifier Research AT4560, Horizontal

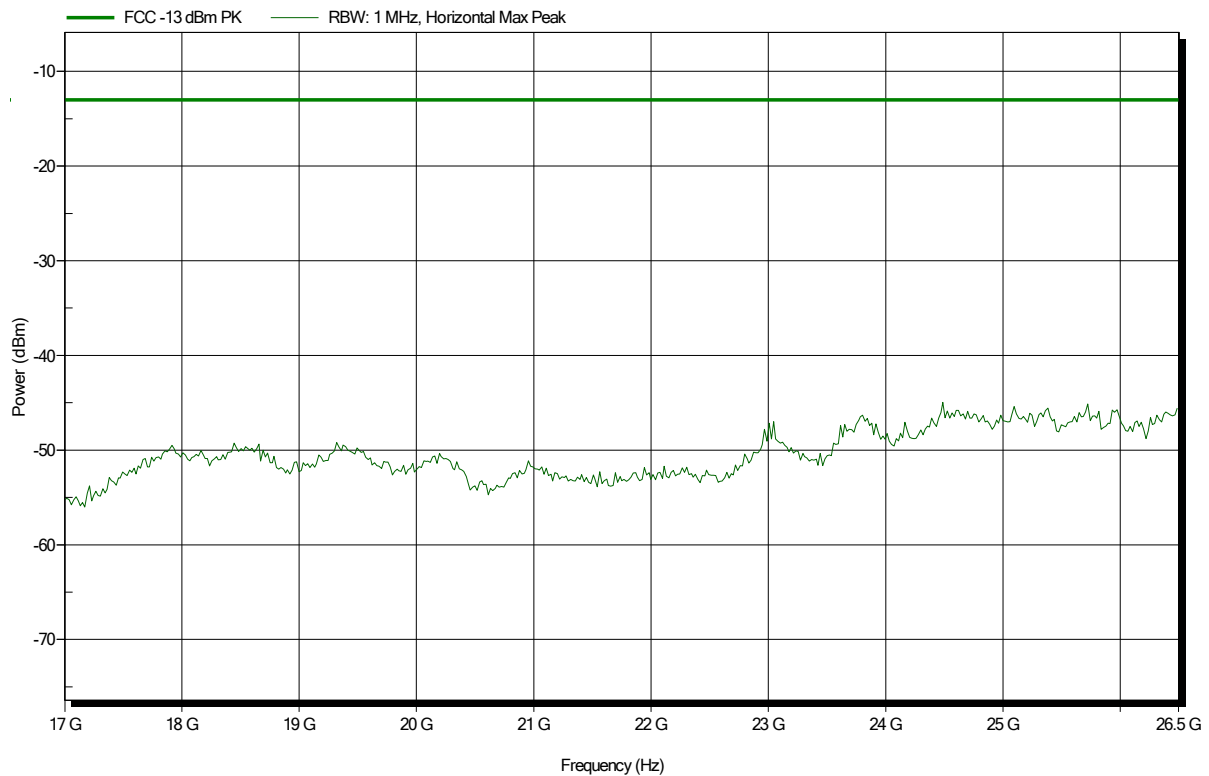
Measurement distance: 3 m

Mode: TX; LTE FDD 2 + LORA, SAMPLE 29796

Test Date: 2020-07-22

Note:

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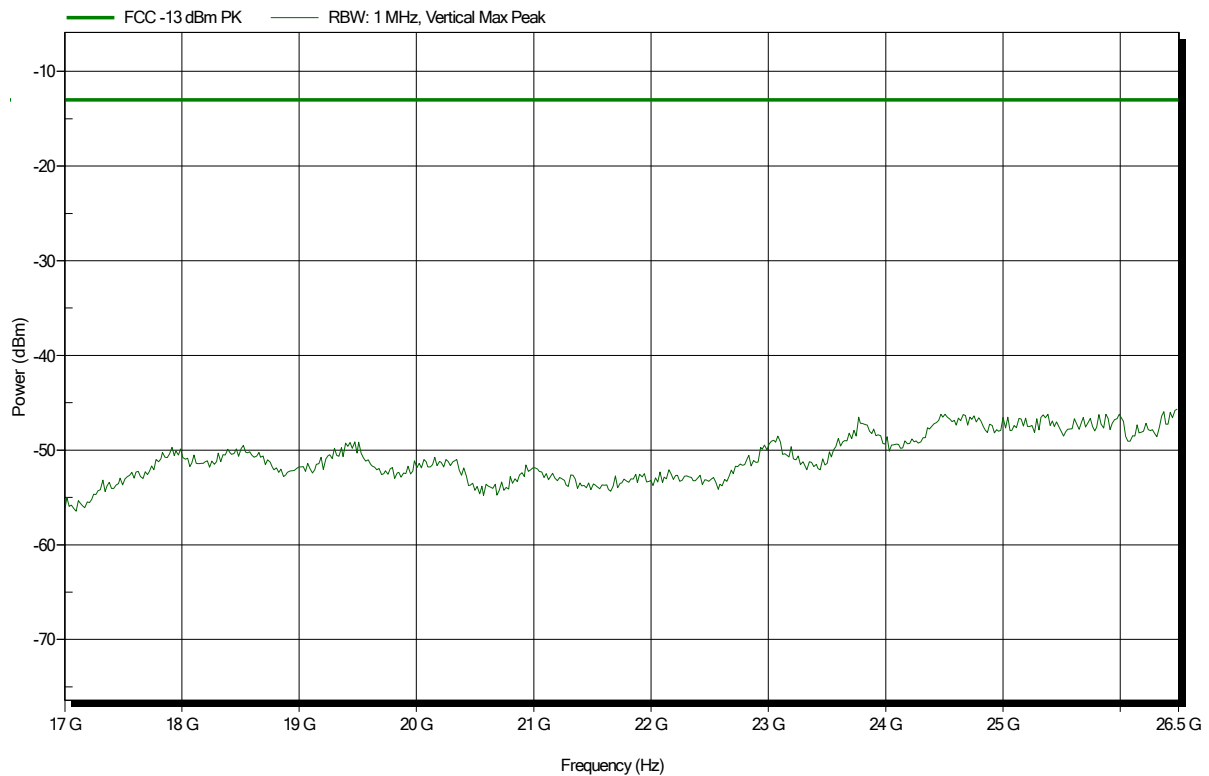
Spurious emissions according to FCC 47 CFR Part 24 Subpart E

Project number: G0M-2002-8805

Applicant: Laird Connectivity
EUT Name: 915MHz LoRaWAN Gateway incl Wi-Fi, Ethernet & LTE - Indoor and IP67 variants

Model: RG191+LTE Series
Test Site: Eurofins Product Service GmbH
Operator: Toralf Jahn
Test Conditions: Tnom: 23°C, Vnom: 12 VDC
Antenna: Amplifier Research AT4560, Vertical
Measurement distance: 3 m
Mode: TX; LTE FDD 2 + LORA, SAMPLE 29796
Test Date: 2020-07-22
Note:

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== = END OF TEST REPORT == =