

FCC TEST REPORT FCC 47 CFR Part 15C ISED RSS-247 Digital transmission systems operating within the 2400 – 2483.5 MHz band	
Report Reference No.	G0M-1611-6024-TFC247ANT-V01
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	  A2LA Accredited Testing Laboratory, Certificate No.: 1983.01 FCC Filed Test Laboratory, Reg.-No.: 96970 ISED OATS Filing assigned code: 3470A
Applicant's name	Saxonar GmbH
Address	Hauptstr. 54 02906 Waldhufen OT Nieder Seifersdorf GERMANY
Test specification:	
Standard	47 CFR Part 15C RSS-247, Issue 1, 2015-05
Test scope	complete Radio compliance test
Equipment under test (EUT):	
Product description	Cycling Power Sensor
Model No.	P0004-8-D
Additional Model(s)	None
Brand Name(s)	power2max NG
Hardware version	4-8-D
Firmware / Software version	D0
	FCC-ID: ZQ2-P0004-8-D IC: 9766A-P000408D
Test result	Passed

Possible test case verdicts:

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

Testing:

Test Lab Temperature : 20 – 23 °C

Test Lab Humidity : 32 – 38 %

Date of receipt of test item : 2016-11-29

Date (s) of performance of tests : 2016-12-05 – 2016-12-06

Compiled by : Sebastian Suckow

Tested by (+ signature) : Sebastian Suckow 

(Responsible for Test)

Approved by (+ signature) : Christian Weber 

(Head of Lab)

Date of issue : 2017-02-20

Total number of pages : 57

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:

Beside the test model P0004-8-D that utilizes a rechargeable battery and includes the corresponding charging electronic another model called P0004-9-D (Brand name: power2max ECO) with Hardware Version 4-9-D exist. The P0004-9-D model is battery powered and does not include any charging electronic.

Version History

Version	Issue Date	Remarks	Revised by
01	2017-02-20	Initial Release	

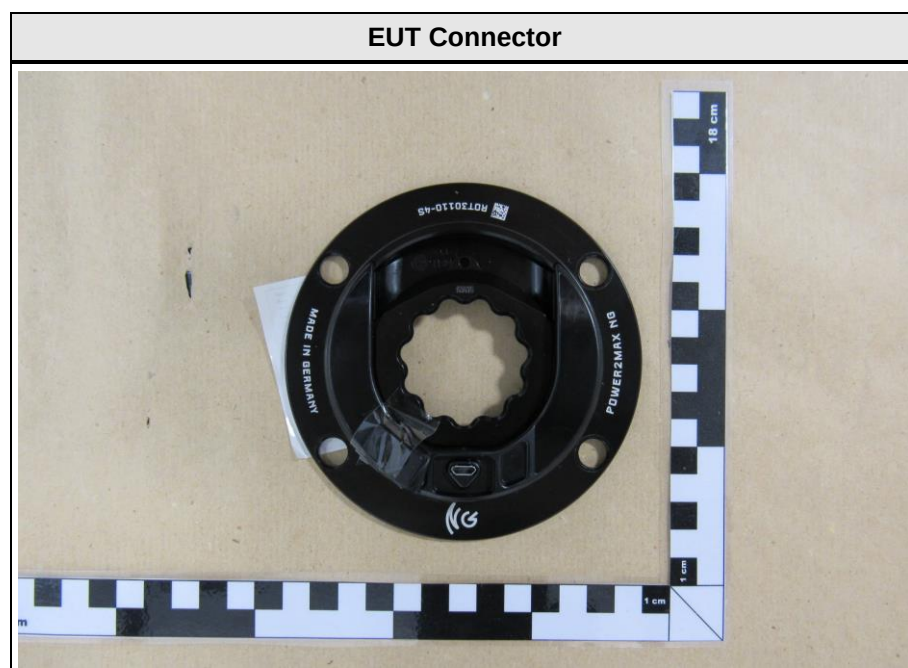
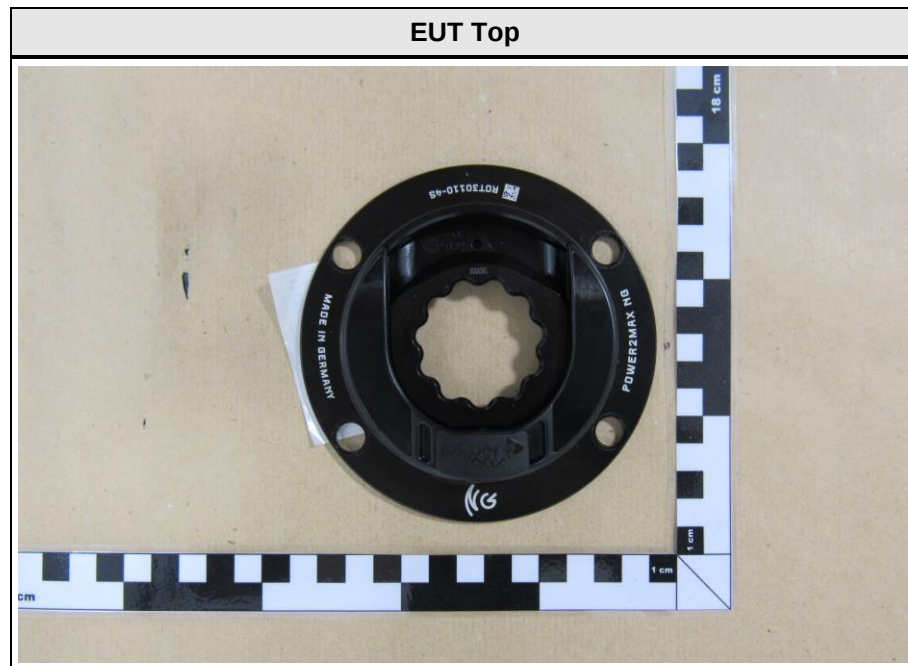
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1 Equipment (Test item) Description

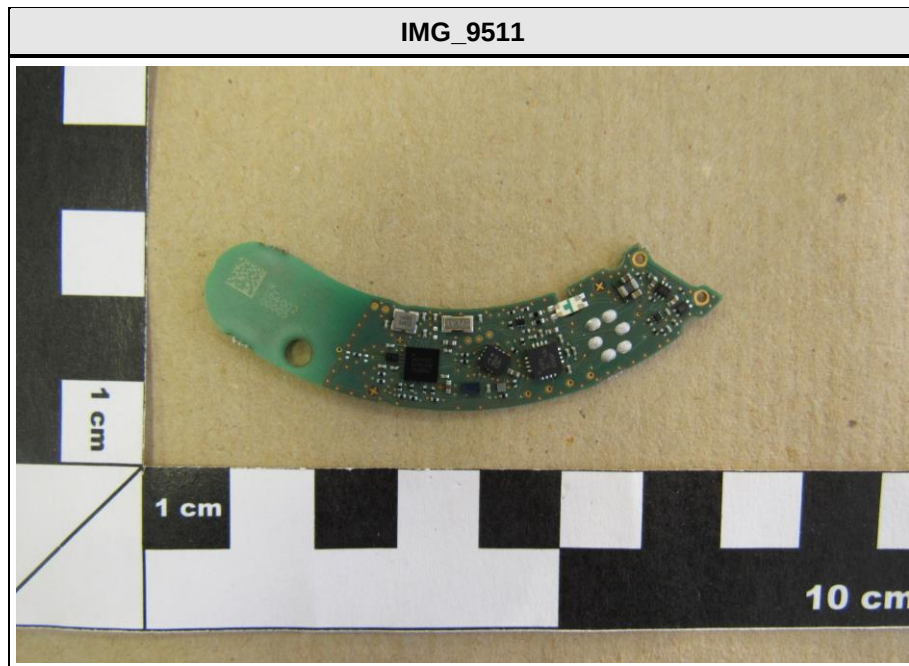
Description	Cycling Power Sensor	
Model	P0004-8-D	
Additional Model(s)	None	
Brand Name(s)	power2max NG	
Serial number	None	
Hardware version	4-8-D	
Software / Firmware version	D0	
PMN	N/A	
HVIN	P0004-8-D	
FVIN	N/A	
HMN	N/A	
FCC ID	ZQ2-P0004-8-D	
IC	9766A-P000408D	
Equipment type	End product	
Radio type	Transceiver	
Radio technology	ANT+	
Operating frequency range	2402 - 2480 MHz	
Assigned frequency band	2400 - 2483.5 MHz	
Main test frequencies	F _{MID}	2457 MHz
Spreading	None	
Modulations	GFSK	
Number of channels	1	
Channel spacing	N/A	
Number of antennas	1	
Antenna	Type	integrated
	Model	printed inverted-F antenna
	Manufacturer	Saxonar GmbH
	Gain	-5 dBi (manufacturer declaration)
Manufacturer	Saxonar GmbH Hauptstr. 54 02906 Waldhufen OT Nieder Seifersdorf GERMANY	
Power supply	V _{NOM}	5.0 VDC
	V _{MIN}	4.3 VDC
	V _{MAX}	6.7 VDC
AC/DC-Adaptor	none	

1.1 Photos – Equipment External

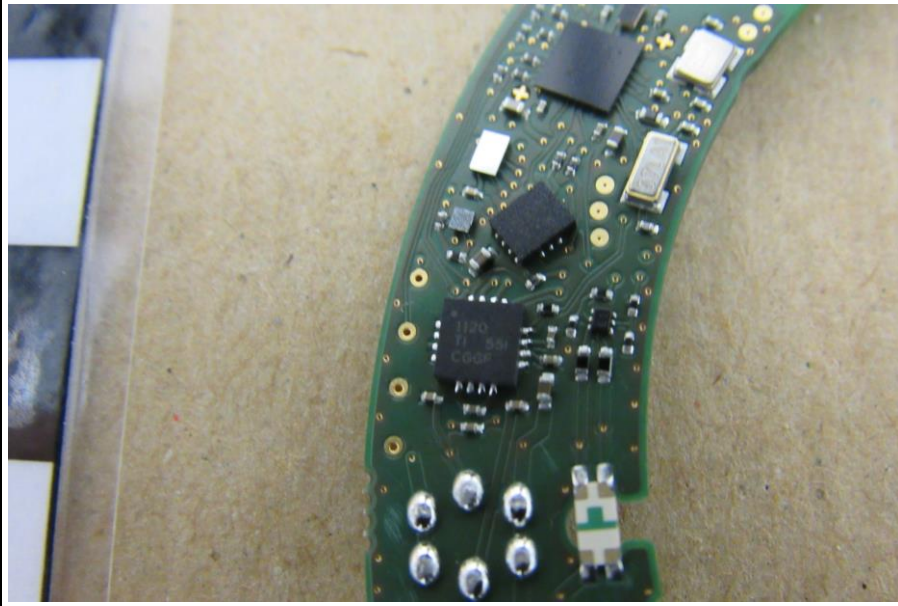




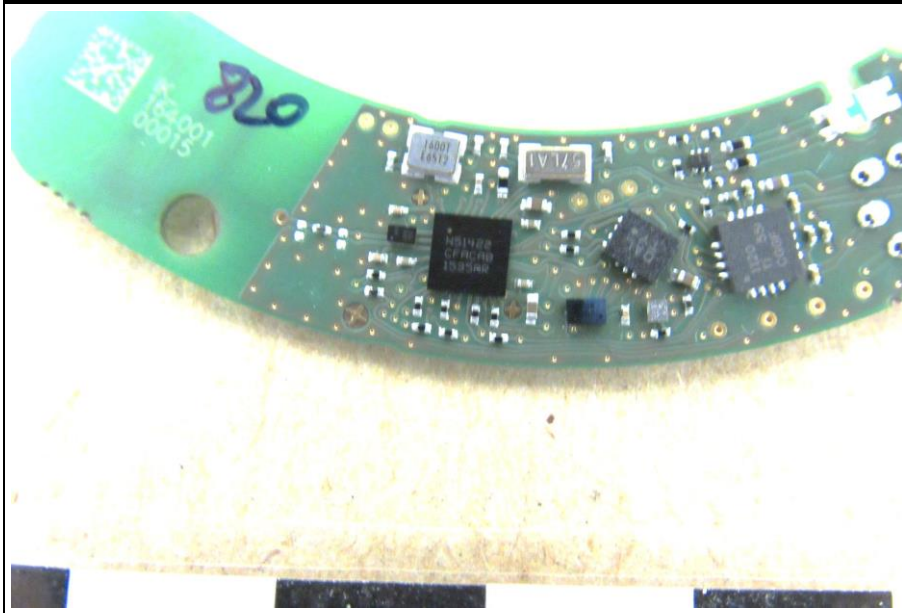
1.2 Photos – Equipment internal



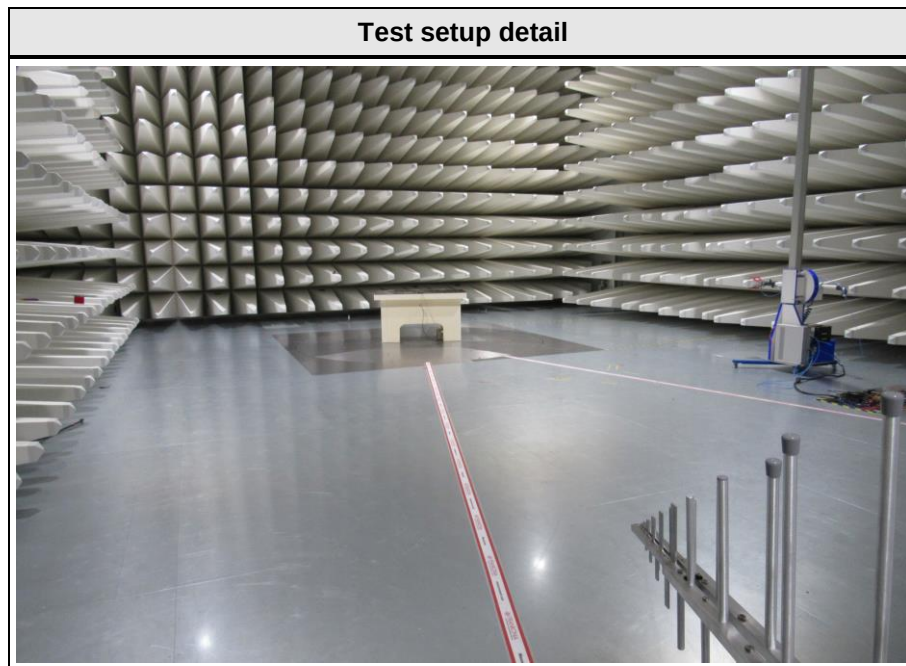
PCB Detail



PCB Detail 2



1.3 Photos – Test setup



1.4 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
None				
*Note: Use the following abbreviations: AE : Auxiliary/Associated Equipment, or SIM : Simulator (Not Subjected to Test) CABL : Connecting cables				

1.5 Test Modes

Mode #	Description	
ANT-BAT	General conditions:	EUT powered by battery
	Radio conditions:	Mode = standalone transmit Type = adaptive Modulation = GFSK Power setting = Max
ANT-PS	General conditions:	EUT powered by laboratory power supply
	Radio conditions:	Mode = standalone transmit Type = adaptive Modulation = GFSK Power setting = Max
Receive-BAT	General conditions:	EUT powered by battery
	Radio conditions:	Mode = standalone receive

1.6 Test Equipment Used During Testing

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

Occupied Bandwidth					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSW43	EF00896	2016-05	2016-12
Climatic cell	Weiss Umwelttechnik GmbH	VT 4004	EF00603	2016-01	2017-01

6dB Bandwidth					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSW43	EF00896	2016-05	2016-12

Maximum peak conducted power					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Power sensor	ETS-Lindgren	7002-006	EF00934	2016-09	2017-09

Power spectral density					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSW43	EF00896	2016-05	2016-12

Band edge compliance					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSW43	EF00896	2016-05	2016-12

Conducted spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSW43	EF00896	2016-05	2016-12

Radiated spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Semi-anechoic chamber	Frankonia	AC 1	EF00062	-	-
Spectrum Analyzer	R&S	FSEK30	EF00168	2016-12	2017-12
Biconical Antenna	R&S	HK 116	EF00203	2016-06	2018-06
LPD Antenna	R&S	HL 223	EF00013	2016-06	2018-06
Horn Antenna	Schwarzbeck	BBHA9120D	EF01153	2016-07	2017-07
Horn Antenna	Amplifier Research	ATH18G40	EF01152	2016-09	2017-09

1.7 Sample emission level calculation

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

Reading:

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

A.F.:

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

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

Net:

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

Limit:

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

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

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:

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

2 Result Summary

FCC 47 CFR Part 15C, ISED RSS-247				
Product Specific Standard Section	Requirement – Test	Reference Method	Result	Remarks
RSS-Gen 6.6	Occupied Bandwidth	ANSI C63.10	N/R	Informational only
FCC § 15.247(a)(2) ISED RSS-247 § 5.2	6dB Bandwidth	ANSI C63.10	PASS	
FCC § 15.247(b)(3) ISED RSS-247 § 5.4	Maximum peak conducted power	ANSI C63.10	PASS	
FCC § 15.247(e) ISED RSS-247 § 5.2	Power spectral density	ANSI C63.10	PASS	
47 CFR 15.207 ISED RSS-247 § 3.1	AC power line conducted emissions	ANSI C63.10	N/R	No radio module operation while USB is connected
FCC § 15.247(d) ISED RSS-247 § 5.5	Band edge compliance	ANSI C63.10	PASS	
FCC § 15.247(d) ISED RSS-247 § 5.5	Conducted spurious emissions	ANSI C63.10	PASS	
FCC § 15.247(d) FCC § 15.209 ISED RSS-247 § 5.5	Transmitter radiated spurious emissions	ANSI C63.10	PASS	
ISED RSS-247 § 3.1	Receiver radiated spurious emissions	ANSI C63.10	PASS	
Remarks:				

3 Test Conditions and Results

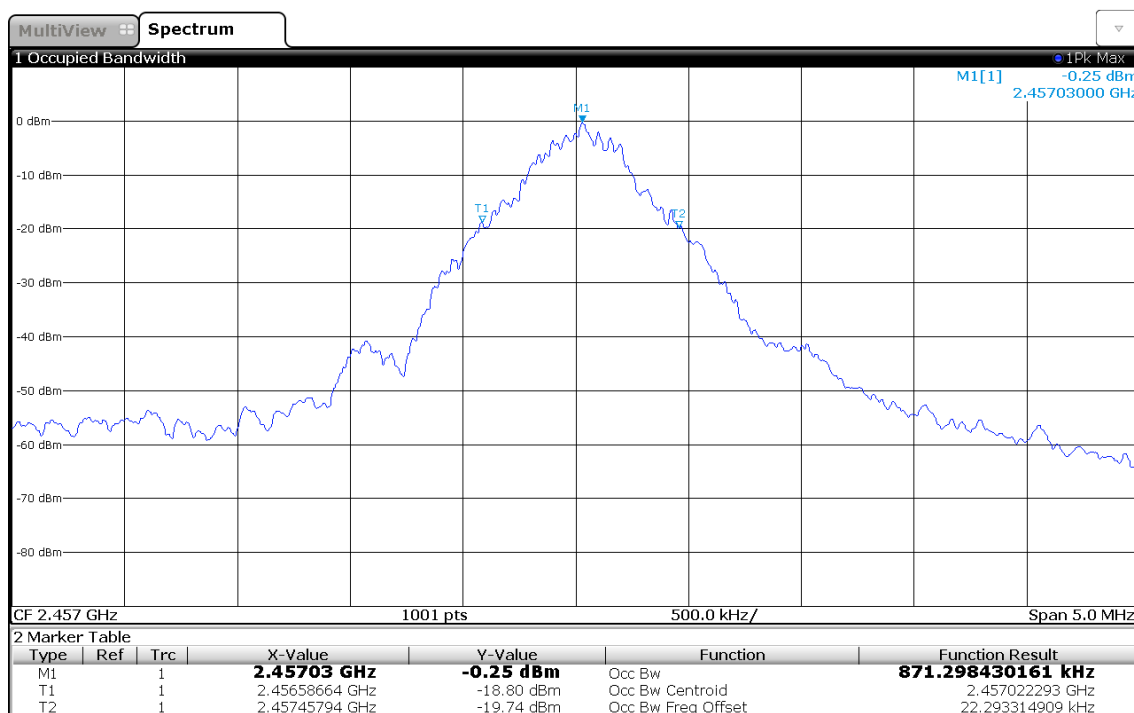
3.1 Test Conditions and Results – Occupied Bandwidth

Occupied Bandwidth acc. to ISED RSS-Gen			Verdict: PASS
Test according to measurement reference	Reference Method		
	ANSI C63.10		
Test frequency range	Tested frequencies		
	F _{LOW} / F _{MID} / F _{HIGH}		
Limits			
None (Informational only)			
Test setup			
Spectrum Analyzer EUT			
Test procedure			
1. EUT set to test mode (Communication tester is used if needed) 2. Span set to at least twice the emission spectrum 3. Resolution bandwidth set to 1 % of span 4. Occupied Bandwidth (99 %) measurement with spectrum analyzer built in measurement function			
Test results			
Channel	Frequency [MHz]	Mode	Occupied Bandwidth [MHz]
F _{MID}	2457	ANT-PS	0.870
Comments:			

Occupied Bandwidth – F_{MID}

Occupied Bandwidth

Project Number: G0M-1611-6024
Applicant: Saxonar GmbH
Model Description: Cycling Power Sensor
Model: P0004-8-D
Test Sample ID: 11596
Reference Standards: FCC 15.247, RSS-247
Reference Method: ANSI C63.10:2013, Section 6.9.3
Operational Mode: GFSK, Channel: 57, 2457 MHz
Operating Conditions: Tnom/Vnom
Operator: S. Suckow
Test Site: Eurofins Product Service GmbH
Test Date: 2017-01-11
Occupied Bandwidth [MHz]: 0.870



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

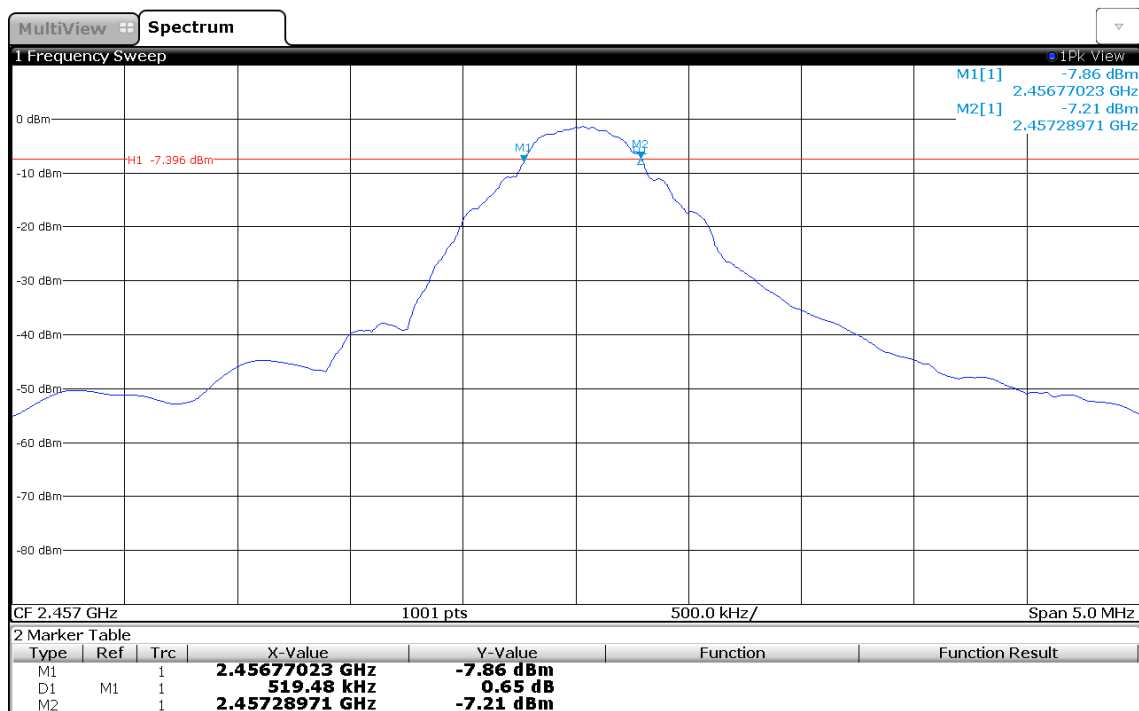
3.2 Test Conditions and Results – 6 dB Bandwidth

6dB Bandwidth acc. to FCC 15.247 / ISED RSS-247				Verdict: PASS	
EUT requirement rule parts and clause	Reference				
	FCC 15.247(a)(2) / ISED RSS-247 5.2				
Test according to measurement reference	Reference Method				
	ANSI C63.10				
Test frequency range	Tested frequencies				
	F _{LOW} / F _{MID} / F _{HIGH}				
Limits					
Limit					
≥ 500kHz					
Test setup					
Spectrum Analyzer EUT					
Test procedure					
1. EUT set to test mode 2. Span set to at least twice the emission spectrum 3. Detector set to peak and max hold and RBW is set to 100 kHz 4. Envelope peak value of emission spectrum is selected 5. Marker on envelope of spectrum is set to level of -6 dB to the left of the peak 6. Marker on envelope of spectrum is set to level of -6 dB to the right of the peak 7. 6 dB Bandwidth is determined by marker frequency separation					
Test results					
Channel	Frequency [MHz]	Mode	6 dB Bandwidth [kHz]	Limit [kHz]	Result
F _{MID}	2457	ANT-PS	519	500	PASS
Comments:					

6 dB Bandwidth – F_{MID}

DTS (6 dB) Bandwidth

Project Number: G0M-1611-6024
 Applicant: Saxonar GmbH
 Model Description: Cycling Power Sensor
 Model: P0004-8-D
 Test Sample ID: 11596
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.8.1 Option 1
 Operational Mode: GFSK, Channel: 57, 2457 MHz
 Operating Conditions: Tnom/Vnom
 Operator: S. Suckow
 Test Site: Eurofins Product Service GmbH
 Test Date: 2017-01-11
 Lower Frequency [MHz]: 2456.770
 Upper Frequency [MHz]: 2457.290
 6 dB Bandwidth [kHz]: 519



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3.3 Test Conditions and Results – Maximum peak conducted power

Maximum peak conducted power acc. to FCC 15.247 / ISED RSS-247						Verdict: PASS	
EUT requirement rule parts and clause			Reference				
			FCC 15.247(b)(3) / ISED RSS-247 5.4				
Test according to measurement reference			Reference Method				
			ANSI C63.10				
Test frequency range			Tested frequencies				
			$F_{\text{LOW}} / F_{\text{MID}} / F_{\text{HIGH}}$				
Measurement mode			Peak				
Maximum antenna gain			0.9 dBi $\Rightarrow$ Limit correction = 0 dB				
Limits							
1 W (30 dBm)							
The conducted output power limit specified above is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in the table, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.							
Test setup							
Spectrum Analyzer EUT							
Test procedure							
1. EUT set to test mode (Communication tester is used if needed) 2. Center frequency set to test channel center frequency 3. Span set to twice the 20 dB bandwidth and detector to peak and max hold 4. Resolution bandwidth is set to 3 MHz 5. Peak conducted power is determined from peak of spectrum envelope							
Test results							
Channel	Frequency [MHz]	Voltage	Mode	Peak power [dbm]	Peak power [W]	Limit [dBm]	Margin [dB]
F_{MID}	2457	$V_{\text{nom}} = 5.0 \text{ V}$	ANT-PS	1.121	0.00129	30	-28.88
Comment:							

3.4 Test Conditions and Results – Power spectral density

Power spectral density acc. to FCC 15.247 / ISED RSS-247					Verdict: PASS	
EUT requirement rule parts and clause		Reference				
		FCC 15.247(e) / ISED RSS-247 5.2				
Test according to measurement reference		Reference Method				
		ANSI C63.10				
Test frequency range		Tested frequencies				
		F _{LOW} / F _{MID} / F _{HIGH}				
Measurement mode		Peak				
Limits						
8 dBm / 3 kHz						
Test setup						
Spectrum Analyzer EUT						
Test procedure						
1. EUT set to test mode (Communication tester is used if needed) 2. Center frequency set to test channel center frequency 3. Span is set large enough to capture maximum emissions in passband, RBW is set to 3kHz 4. Peak power density is determined from peak emission of envelope						
Test results						
Channel	Frequency [MHz]	Test mode	Peak frequency [MHz]	Peak power density [dBm]	Limit [dBm/3kHz]	Margin [dB]
F _{MID}	2457	ANT-PS	2457.009	-0.751	8.0	-08.75
Comments:						

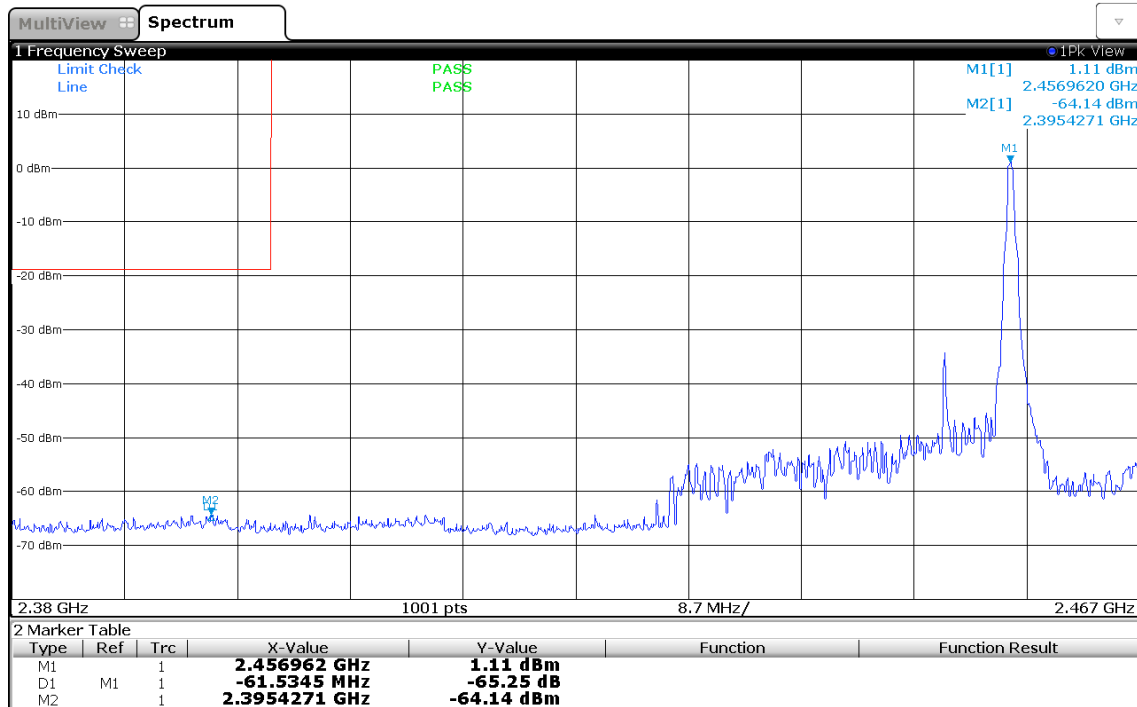
3.5 Test Conditions and Results – Band edge compliance

Band-edge compliance acc. to FCC 15.247 / ISED RSS-247				Verdict: PASS	
EUT requirement rule parts and clause		Reference			
		FCC 15.247(d) / ISED RSS-247 5.5			
Test according to measurement reference		Reference Method			
		ANSI C63.10			
Test frequency range		Tested frequencies			
		F _{MID}			
Measurement mode		Peak			
Limits					
Limit			Condition		
≤ -20 dB / 100 kHz			Power measurement detector = Peak		
≤ -30 dB / 100 kHz			Power measurement detector = RMS		
Test setup					
Spectrum Analyzer EUT					
Test procedure					
1. EUT set to test mode (Communication tester is used if needed) 2. Span set around lower band edge and detector is set to peak and max hold 3. Resolution bandwidth is set to 100 kHz 4. Markers are set to peak emission levels within frequency band and outside frequency band 5. Band edge attenuation is determined from level difference					
Test results					
Channel	Frequency [MHz]	Mode	Level [dBc]	Limit [dBc]	Margin [dB]
F _{MID}	2457	ANT-PS	-64.14	-20	-44.14
F _{MID}	2457	ANT-PS	-64.15	-20	-44.15
Comments:					

Lower Band-edge compliance – F_{MID}

Band-edge Compliance

Project Number: G0M-1611-6024
 Applicant: Saxonar GmbH
 Model Description: Cycling Power Sensor
 Model: P0004-8-D
 Test Sample ID: 11596
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.11
 Operational Mode: GFSK, Channel: 2457 MHz
 Operating Conditions: Tnom/Vnom
 Operator: S. Suckow
 Test Site: Eurofins Product Service GmbH
 Test Date: 2017-01-11
 Band-edge: Lower
 In-band Frequency [MHz]: 2456.962
 Max. in-band Level [dBm/100 kHz]: 1.109
 Out-of-band Frequency [MHz]: 2395.427
 Max. out-of-band Level [dBm/100 kHz]: -64.14
 Attenuation [dB]: -65.25



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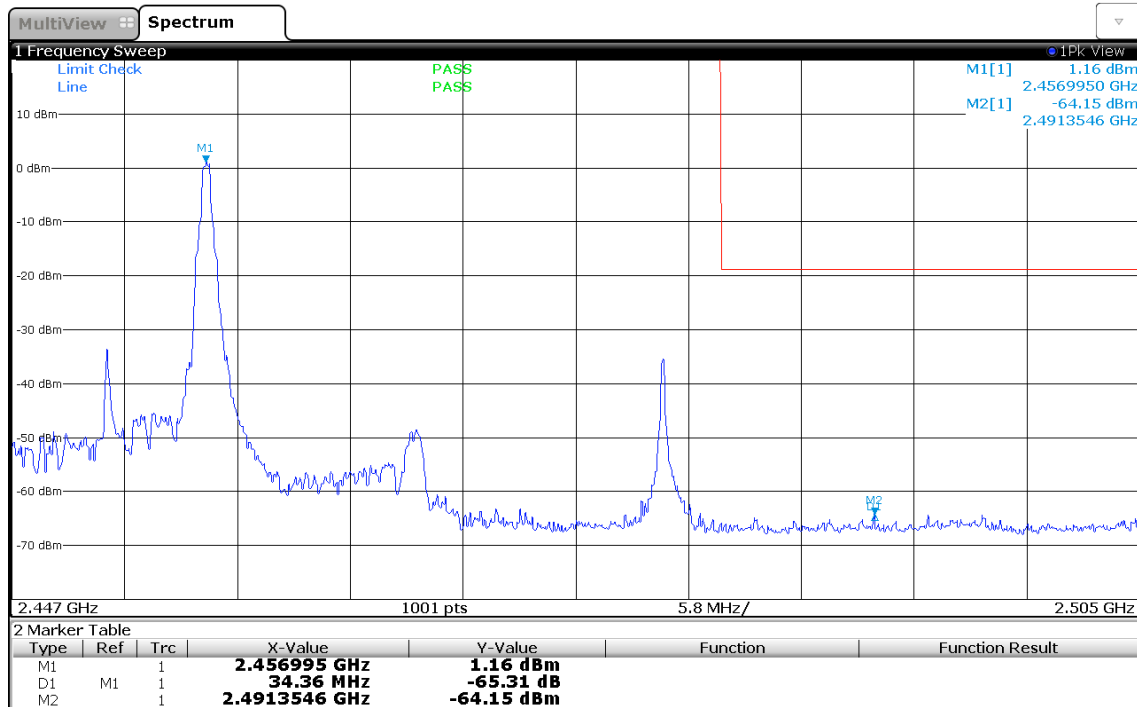
Test Report No.: G0M-1611-6024-TFC247ANT-V01

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

Upper Band-edge compliance – F_{MID}

Band-edge Compliance

Project Number: G0M-1611-6024
 Applicant: Saxonar GmbH
 Model Description: Cycling Power Sensor
 Model: P0004-8-D
 Test Sample ID: 11596
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.11
 Operational Mode: GFSK, Channel: 2457 MHz
 Operating Conditions: Tnom/Vnom
 Operator: S. Suckow
 Test Site: Eurofins Product Service GmbH
 Test Date: 2017-01-11
 Band-edge: Upper
 In-band Frequency [MHz]: 2456.995
 Max. in-band Level [dBm/100 kHz]: 1.158
 Out-of-band Frequency [MHz]: 2491.355
 Max. out-of-band Level [dBm/100 kHz]: -64.151
 Attenuation [dB]: -65.31



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

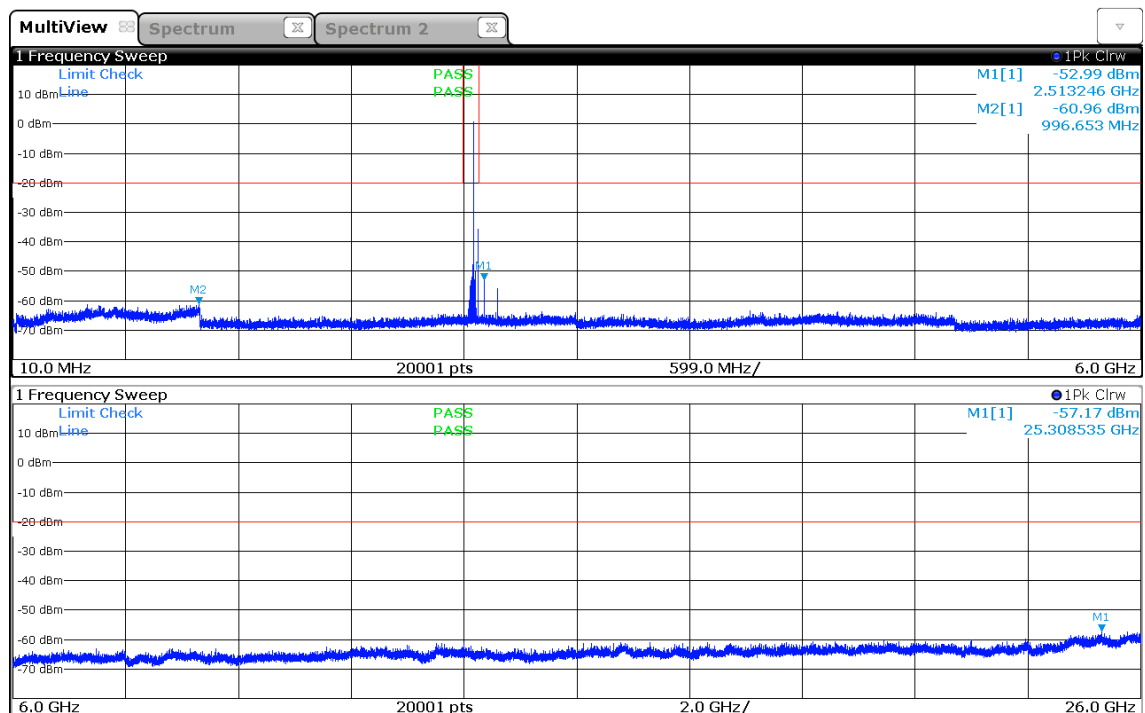
3.6 Test Conditions and Results – Conducted spurious emissions

Conducted spurious emissions acc. to FCC 15.247 / ISED RSS-247						Verdict: PASS		
EUT requirement rule parts and clause			Reference					
			FCC 15.247(d) / ISED RSS-247 5.5					
Test according to measurement reference			Reference Method					
			ANSI C63.10					
Test frequency range			Tested frequencies					
			10 MHz – 10 th Harmonic					
Measurement mode			Peak					
Limits								
Limit			Condition					
≤ -20 dB / 100 kHz			Peak power measurement detector = Peak					
≤ -30 dB /100 kHz			Peak power measurement detector = RMS					
Test setup								
Spectrum Analyzer EUT								
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 is set to 100 kHz and detector to peak and max hold 4. Markers are set to peak emission levels within frequency band 5. Emission level is determined by second marker on emission peak 6. Attenuation is determined from level difference								
Test results								
Channel	Frequency [MHz]	Mode	Emission [MHz]	Emission Level [dbm]	Peak power [dBm]	Limit [dBm]	Margin [dB]	
F _{MID}	2457	no significant spurious emissions						
Comments:								

Conducted spurious emissions – F_{MID}

Conducted Spurious Emissions

Project Number: G0M-1611-6024
 Applicant: Saxonar GmbH
 Model Description: Cycling Power Sensor
 Model: P0004-8-D
 Test Sample ID: 11596
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.11
 Operational Mode: GFSK, Channel: 57, 2457 MHz
 Operating Conditions: T_{nom}/V_{nom}
 Operator: S. Suckow
 Test Site: Eurofins Product Service GmbH
 Test Date: 2017-01-11
 Max. in-band Frequency [MHz]: 2457.1
 Max. in-band Level [dBm/100 kHz]: -0.2
 Out-of-band Limit [dBm/100 kHz]: -20.2



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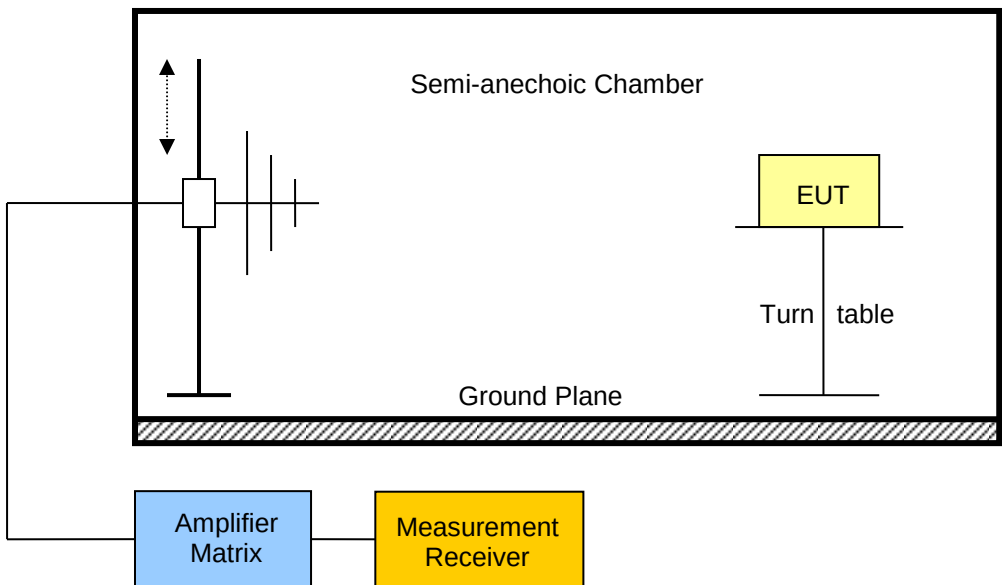
Test Report No.: G0M-1611-6024-TFC247ANT-V01

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 Storkower Str. 38c, D-15526 Reichenwalde, Germany

3.7 Test Conditions and Results – Transmitter radiated emissions

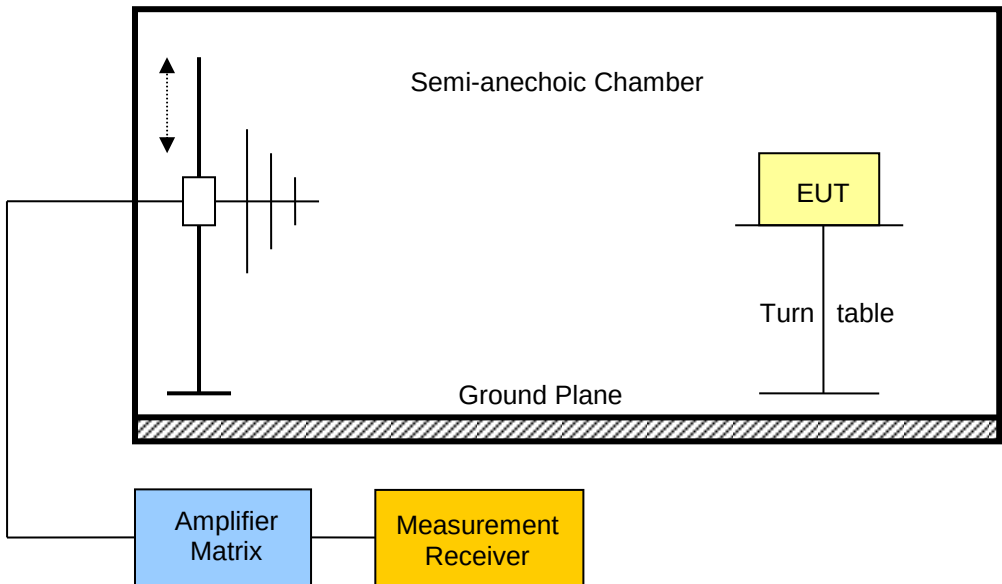
Transmitter radiated emissions acc. to FCC 47 CFR 15.247 / ISED RSS-247				Verdict: PASS
Test according referenced standards	Reference Method			
	FCC 15.247(d) / ISED RSS-247 5.5			
Test according to measurement reference	Reference Method			
	ANSI C63.10			
Test frequency range	Tested frequencies			
	30 MHz – 10 th Harmonic			
Limits				
Frequency range [MHz]	Detector	Limit [µV/m]	Limit [dBµV/m]	Limit Distance [m]
30 – 88	Quasi-Peak	100	40	3
88 – 216	Quasi-Peak	150	43.5	3
216 – 960	Quasi-Peak	200	46	3
960 – 1000	Quasi-Peak	500	54	3
> 1000	Average	500	54	3

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)). When average radiated emission measurements are specified, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test.

Test setup	
	

Test procedure									
1. EUT set to test mode (Communication tester is used if needed) 2. Span it set according to measurement range 3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1 MHz with peak/average detector is used above 1 GHz 4. Markers are set to peak emission levels within restricted bands									
Test results									
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [db μ V/m]	Det.	Pol.	Limit [db μ V/m]	Limit dist. [m]*	Margin [dB]
F _{MID}	2457	ANT-BAT	2500	47.30	pk	hor	74.00	3	-26.70
F _{MID}	2457	ANT-BAT	2500	45.20	pk	ver	74.00	3	-28.80
F _{MID}	2457	ANT-BAT	2569	42.48	pk	hor	95.00	3	-52.52
F _{MID}	2457	ANT-BAT	2569	44.26	pk	ver	95.00	3	-50.74
F _{MID}	2457	ANT-BAT	4912	39.99	pk	ver	74.00	3	-34.01
Comments: * Physical distance between EUT and measurement antenna.									

3.8 Test Conditions and Results – Receiver radiated emissions

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

Test procedure							
1. EUT set to receive mode (Communication tester is used if needed) 2. Span it set according to measurement range 3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1 MHz with peak/average detector is used above 1 GHz 4. Markers are set to peak emission levels							
Test results							
Channel	Frequency [MHz]	Emission [MHz]	Emission Level [dBμV/m]	Pol.	Det.	Limit [dBμV/m]	Margin [dBμV/m]
F _{MID}	2457	17019	52.00	ver	pk	53.98	-1.98 dB
Comments: * Emission level corresponds to ambient noise floor							

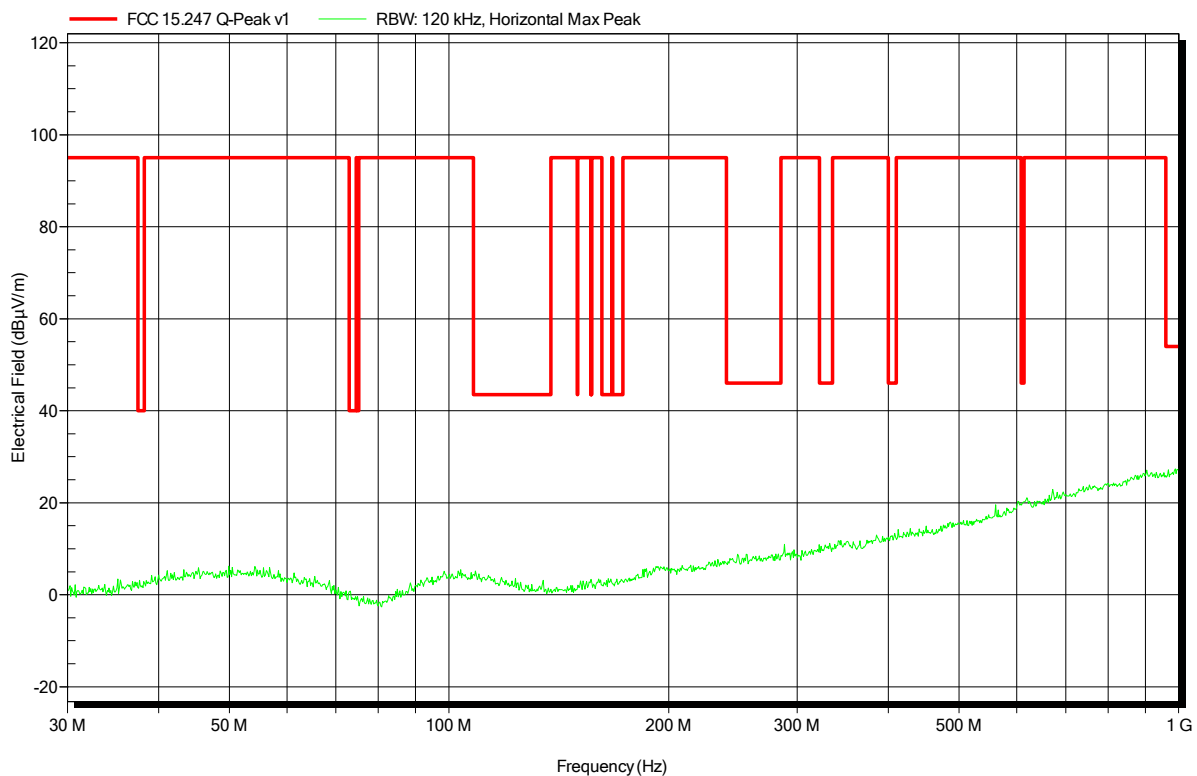
ANNEX A Transmitter radiated spurious emissions

Radiated emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant:	Saxonar GmbH
EUT Name:	Cycling Power Sensor
Model:	P0004-8-D
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 20°C, Unom: 5 VDC
Antenna:	Schwarzbeck VULB 9162, Horizontal
Measurement distance:	3 m
Mode:	ANT 2457 MHz
Test Date:	2017-01-19
Note:	

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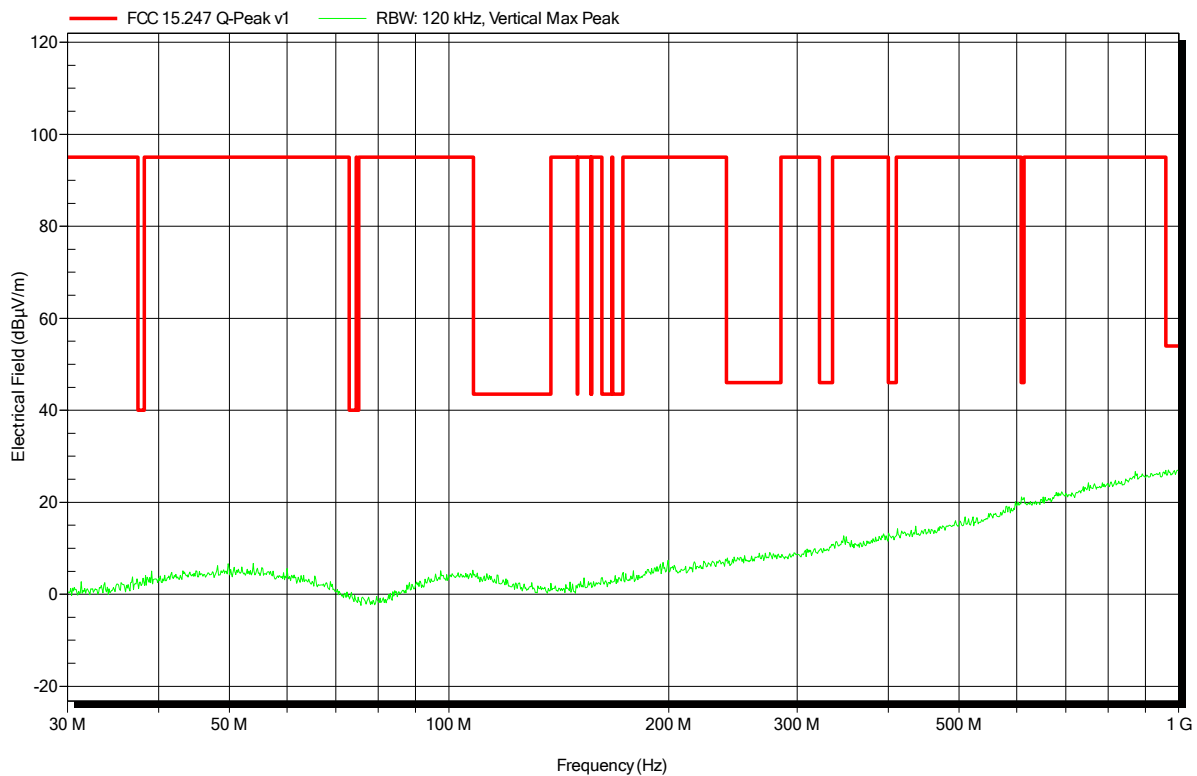


Radiated emissions according to FCC 15.247

Project number: GOM-1611-6024

Applicant:	Saxonar GmbH
EUT Name:	Cycling Power Sensor
Model:	P0004-8-D
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 20°C, Unom: 5 VDC
Antenna:	Schwarzbeck VULB 9162, Vertical
Measurement distance:	3 m
Mode:	ANT 2457 MHz
Test Date:	2017-01-19
Note:	

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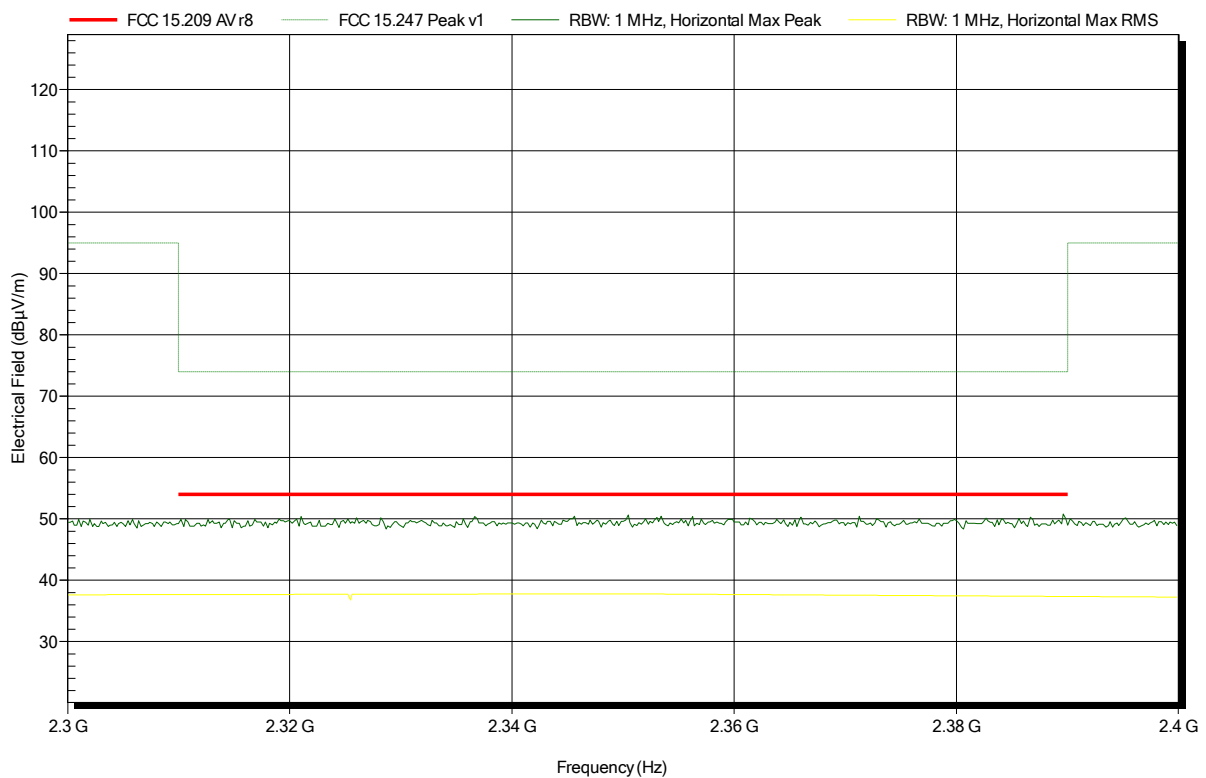


Spurious emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant:	Saxonar GmbH
EUT Name:	Cycling Power Sensor
Model:	P0004-8-D
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 20°C, Vnom: 5 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; ANT 2457 MHz
Test Date:	2017-01-12
Note:	lower bandedge

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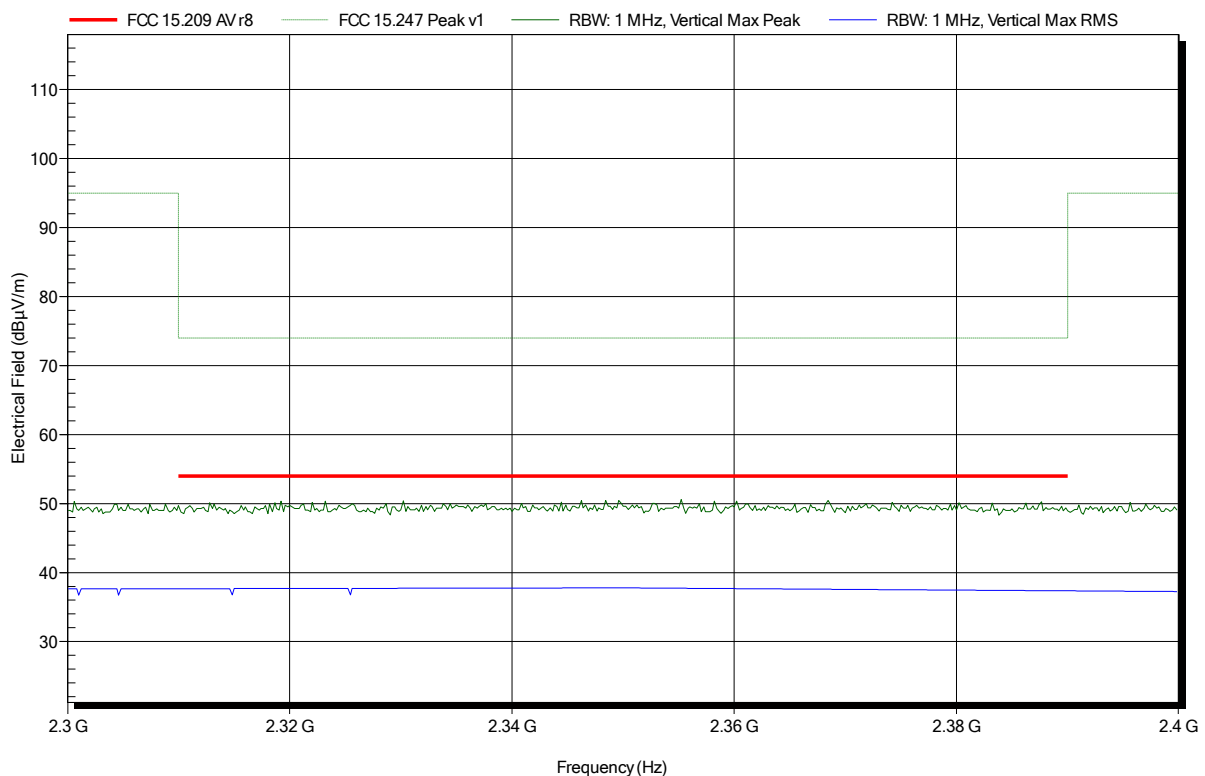


Spurious emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant: Saxonar GmbH
 EUT Name: Cycling Power Sensor
 Model: P0004-8-D
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Suckow
 Test Conditions: Tnom: 20°C, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; ANT 2457 MHz
 Test Date: 2017-01-12
 Note: lower bandedge

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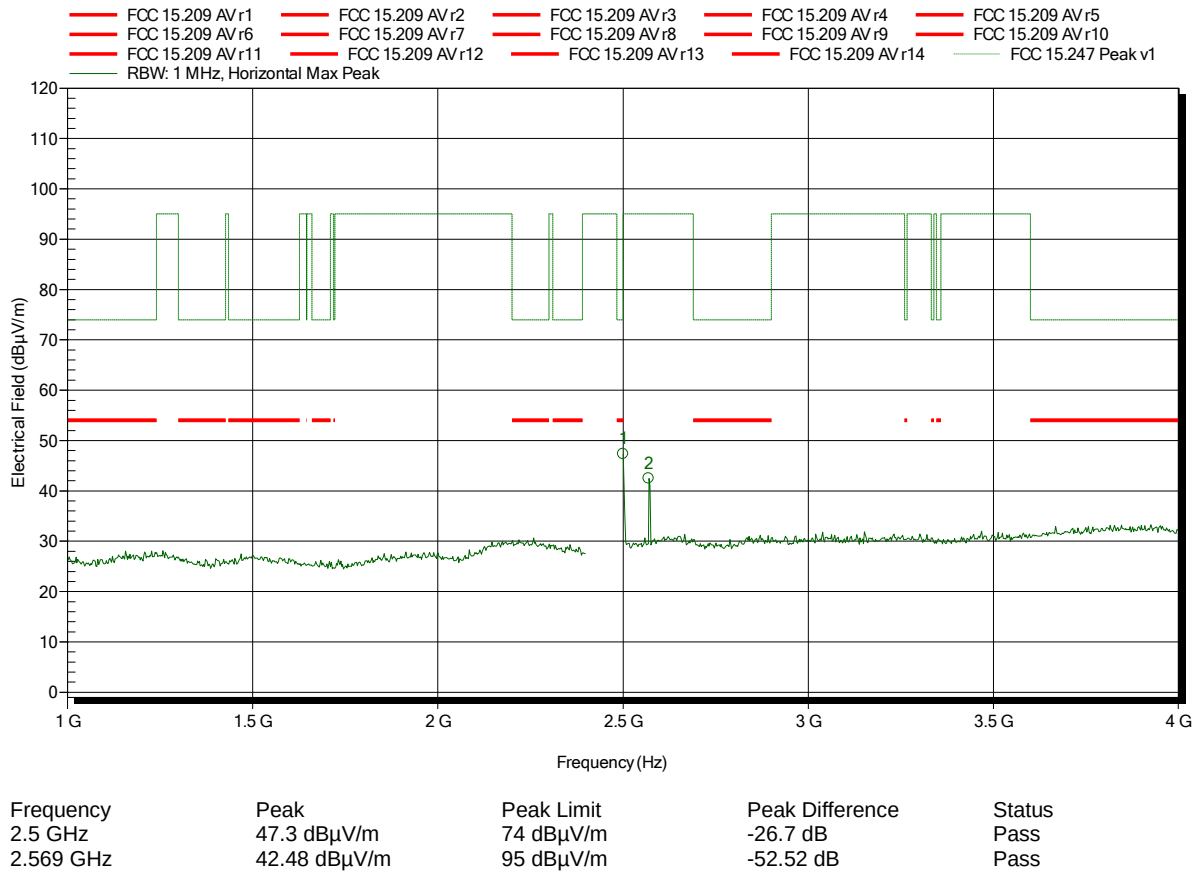


Spurious emissions according to FCC 15.247

Project number: GOM-1611-6024

Applicant: Saxonar GmbH
 EUT Name: Cycling Power Sensor
 Model: P0004-8-D
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Suckow
 Test Conditions: Tnom: 20°C, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; ANT 2457 MHz
 Test Date: 2017-01-12
 Note:

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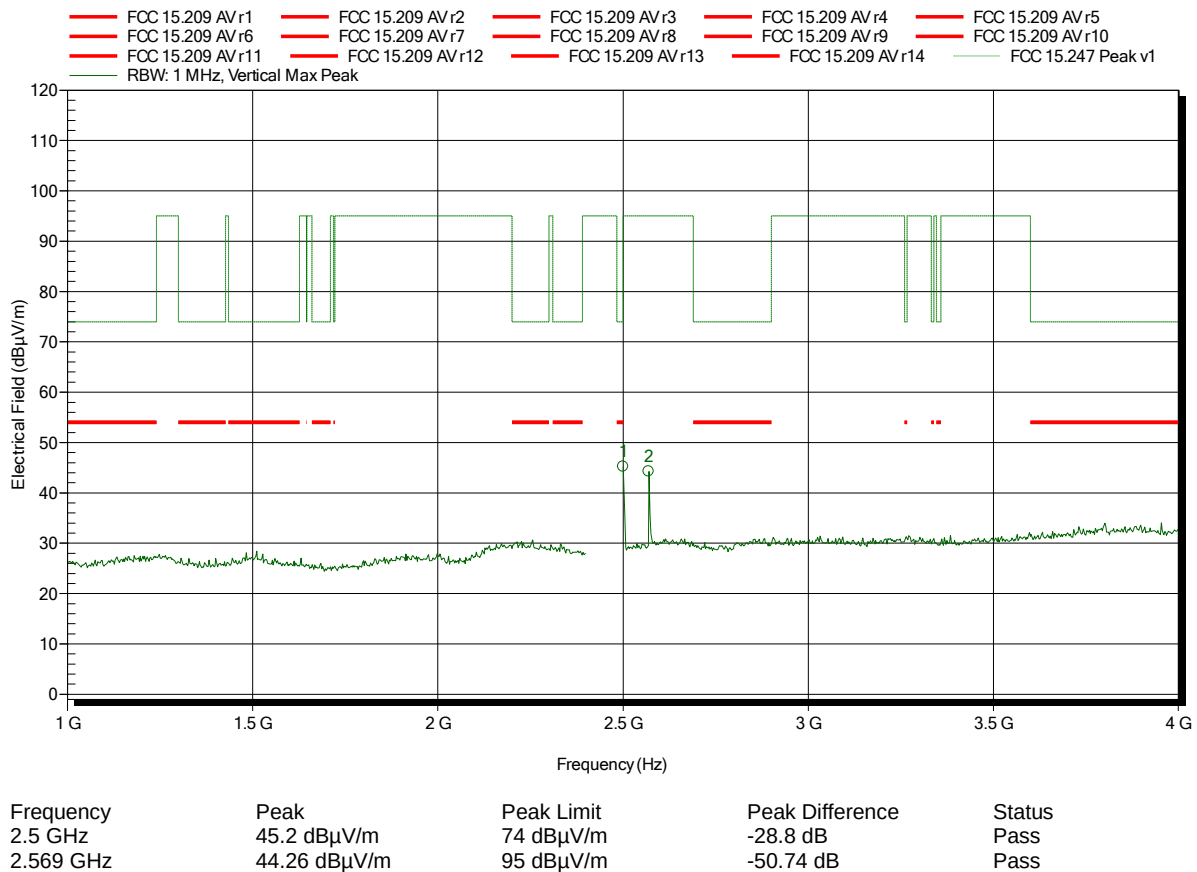


Spurious emissions according to FCC 15.247

Project number: GOM-1611-6024

Applicant: Saxonar GmbH
 EUT Name: Cycling Power Sensor
 Model: P0004-8-D
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Suckow
 Test Conditions: Tnom: 20°C, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; ANT 2457 MHz
 Test Date: 2017-01-12
 Note:

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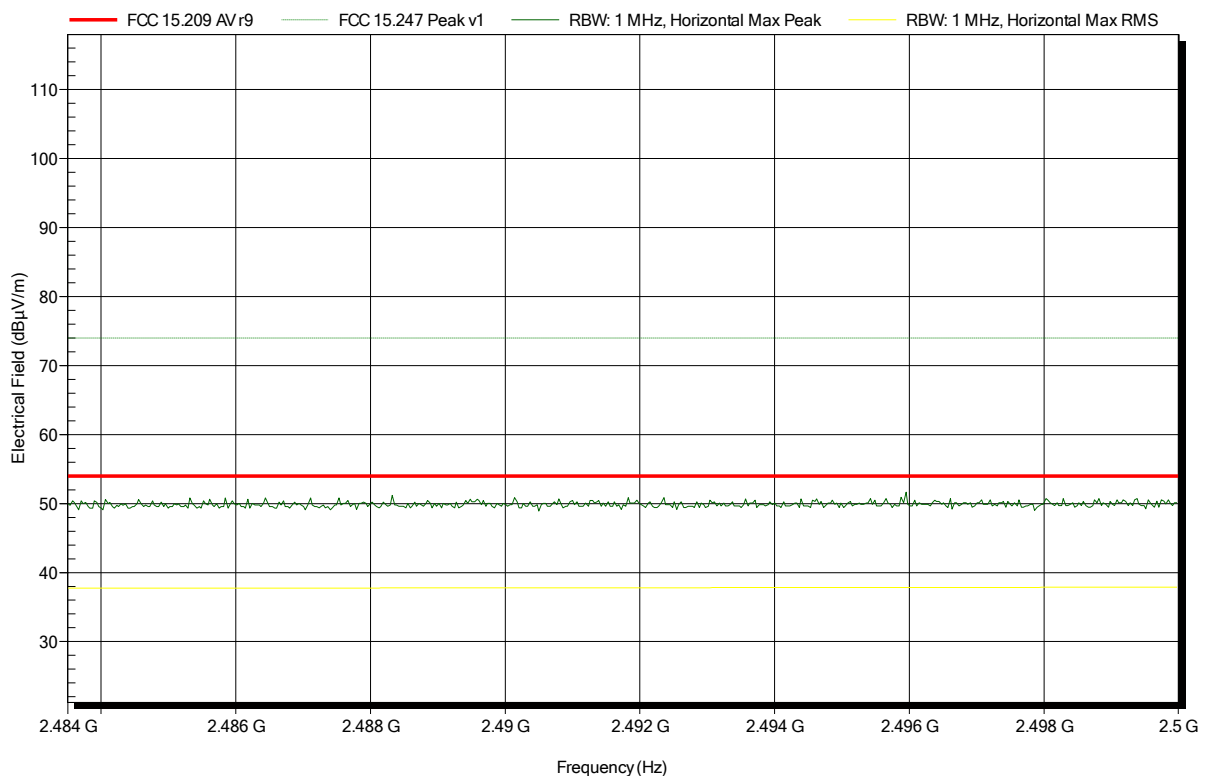


Spurious emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant:	Saxonar GmbH
EUT Name:	Cycling Power Sensor
Model:	P0004-8-D
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 20°C, Vnom: 5 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; ANT 2457 MHz
Test Date:	2017-01-12
Note:	upper bandedge

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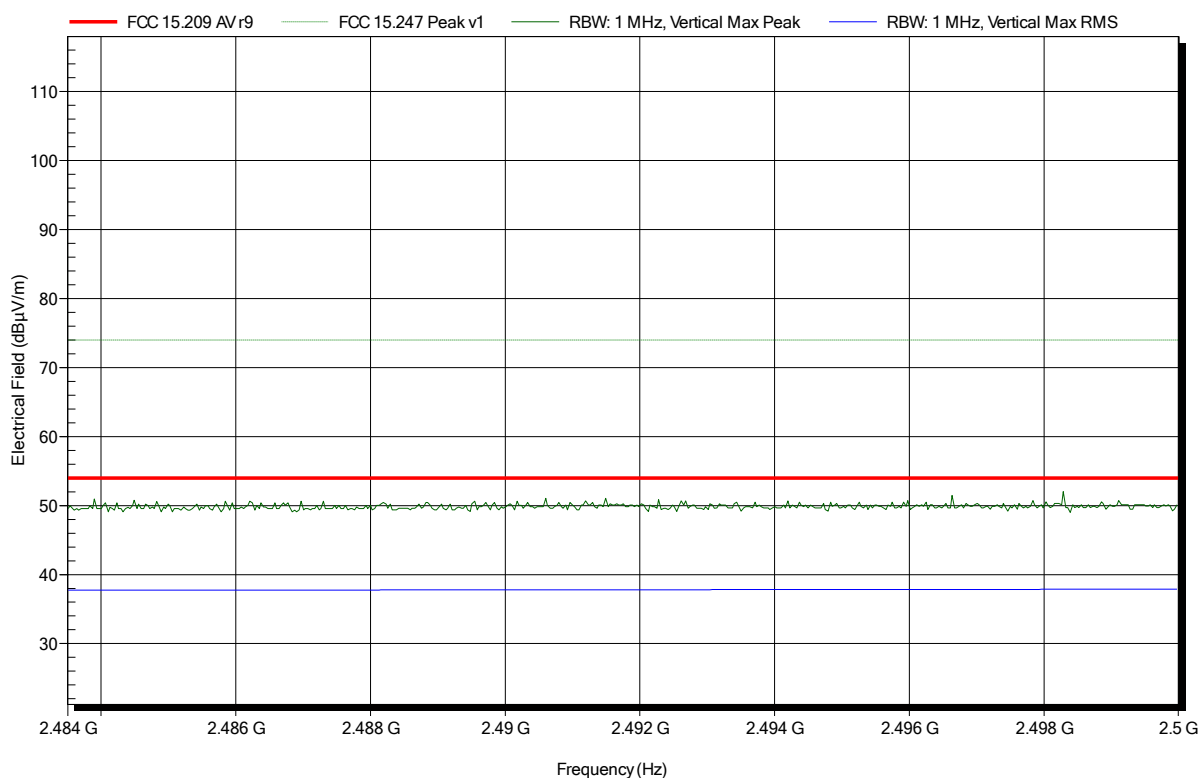


Spurious emissions according to FCC 15.247

Project number: GOM-1611-6024

Applicant:	Saxonar GmbH
EUT Name:	Cycling Power Sensor
Model:	P0004-8-D
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 20°C, Vnom: 5 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; ANT 2457 MHz
Test Date:	2017-01-12
Note:	upper bandedge

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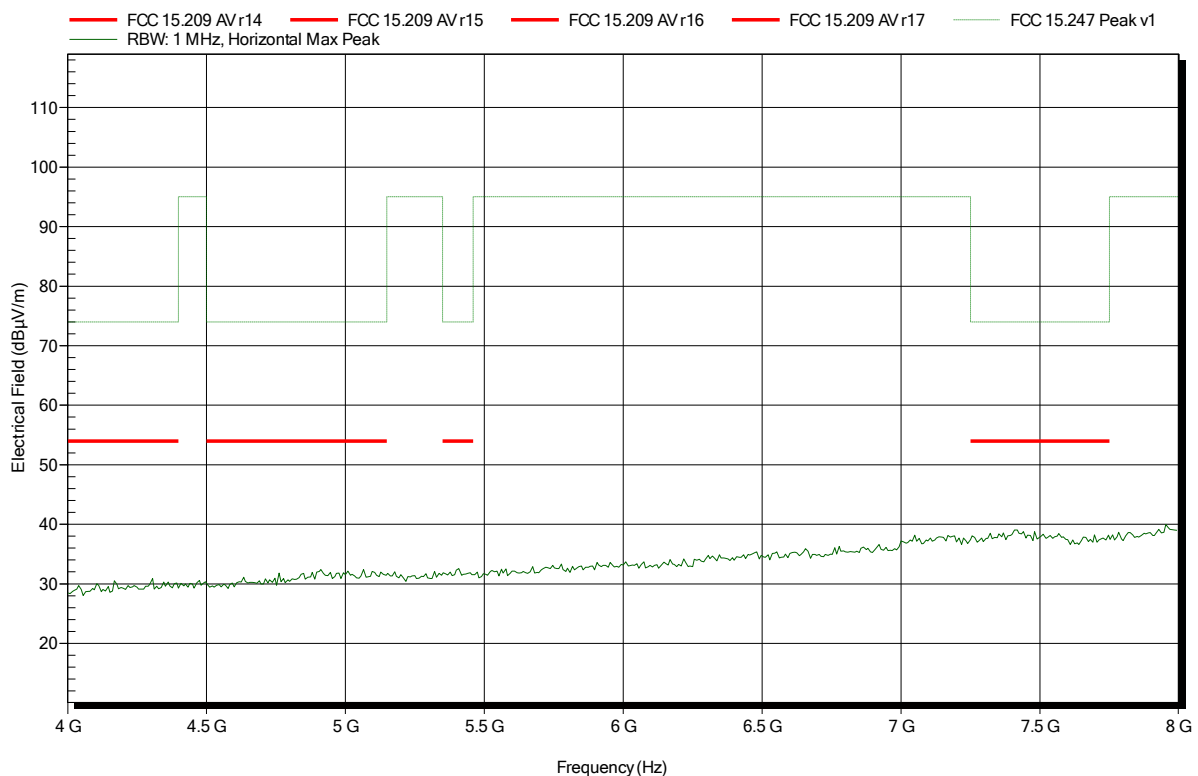


Spurious emissions according to FCC 15.247

Project number: GOM-1611-6024

Applicant: Saxonar GmbH
 EUT Name: Cycling Power Sensor
 Model: P0004-8-D
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Suckow
 Test Conditions: Tnom: 20°C, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; ANT 2457 MHz
 Test Date: 2017-01-12
 Note:

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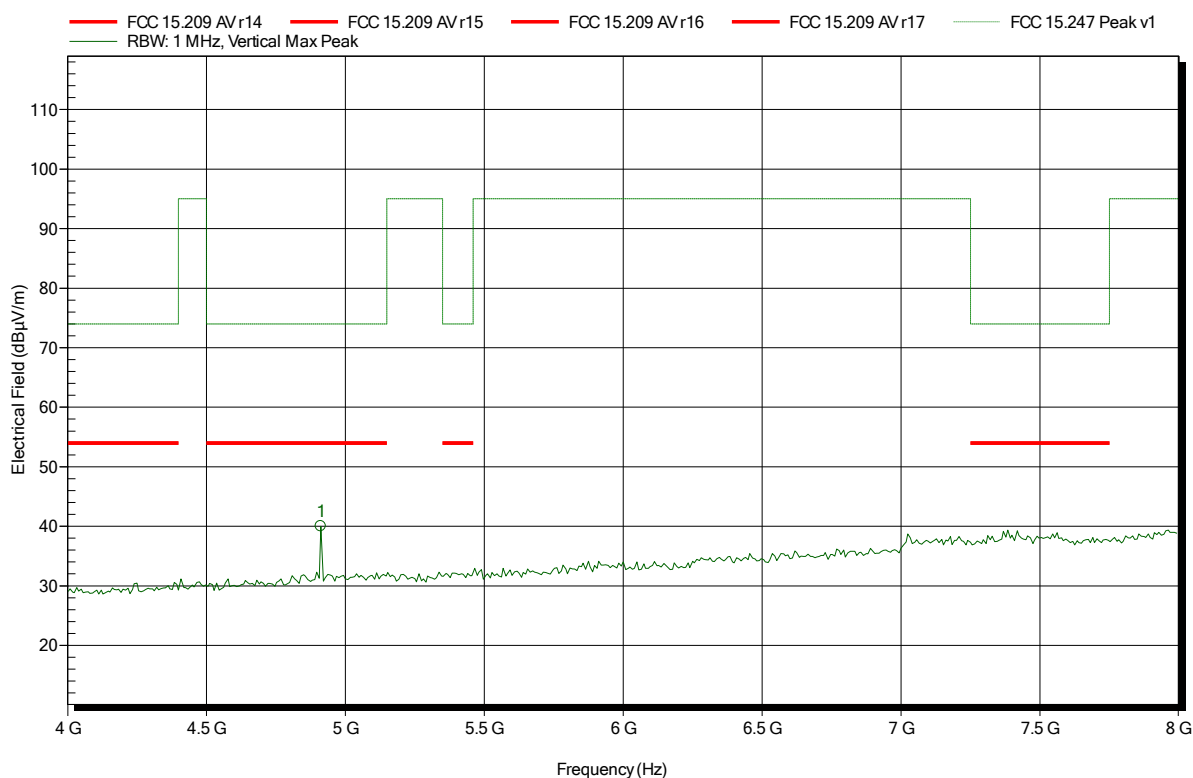


Spurious emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant: Saxonar GmbH
 EUT Name: Cycling Power Sensor
 Model: P0004-8-D
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Suckow
 Test Conditions: Tnom: 20°C, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; ANT 2457 MHz
 Test Date: 2017-01-12
 Note:

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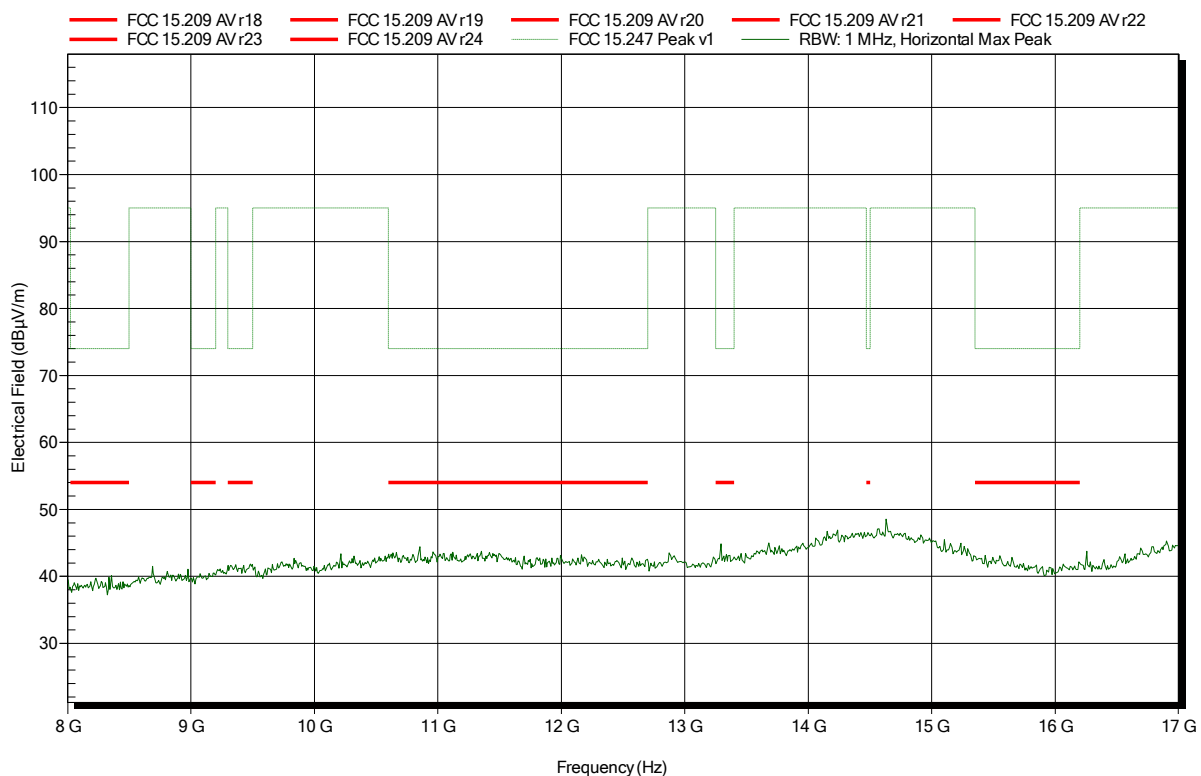
Frequency	Peak	Peak Limit	Peak Difference	Status
4.912 GHz	39.99 dBµV/m	74 dBµV/m	-34.01 dB	Pass

Spurious emissions according to FCC 15.247

Project number: GOM-1611-6024

Applicant: Saxonar GmbH
 EUT Name: Cycling Power Sensor
 Model: P0004-8-D
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Suckow
 Test Conditions: Tnom: 20°C, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; ANT 2457 MHz
 Test Date: 2017-01-12
 Note:

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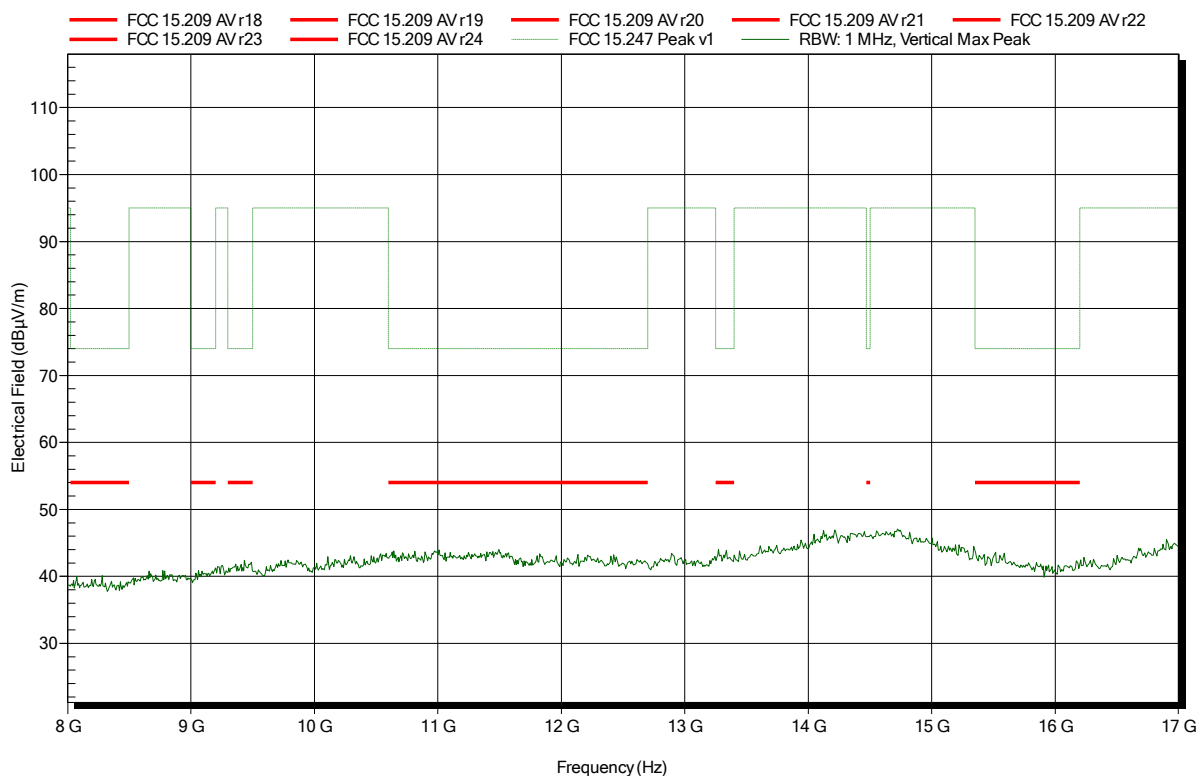


Spurious emissions according to FCC 15.247

Project number: GOM-1611-6024

Applicant: Saxonar GmbH
 EUT Name: Cycling Power Sensor
 Model: P0004-8-D
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Suckow
 Test Conditions: Tnom: 20°C, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; ANT 2457 MHz
 Test Date: 2017-01-12
 Note:

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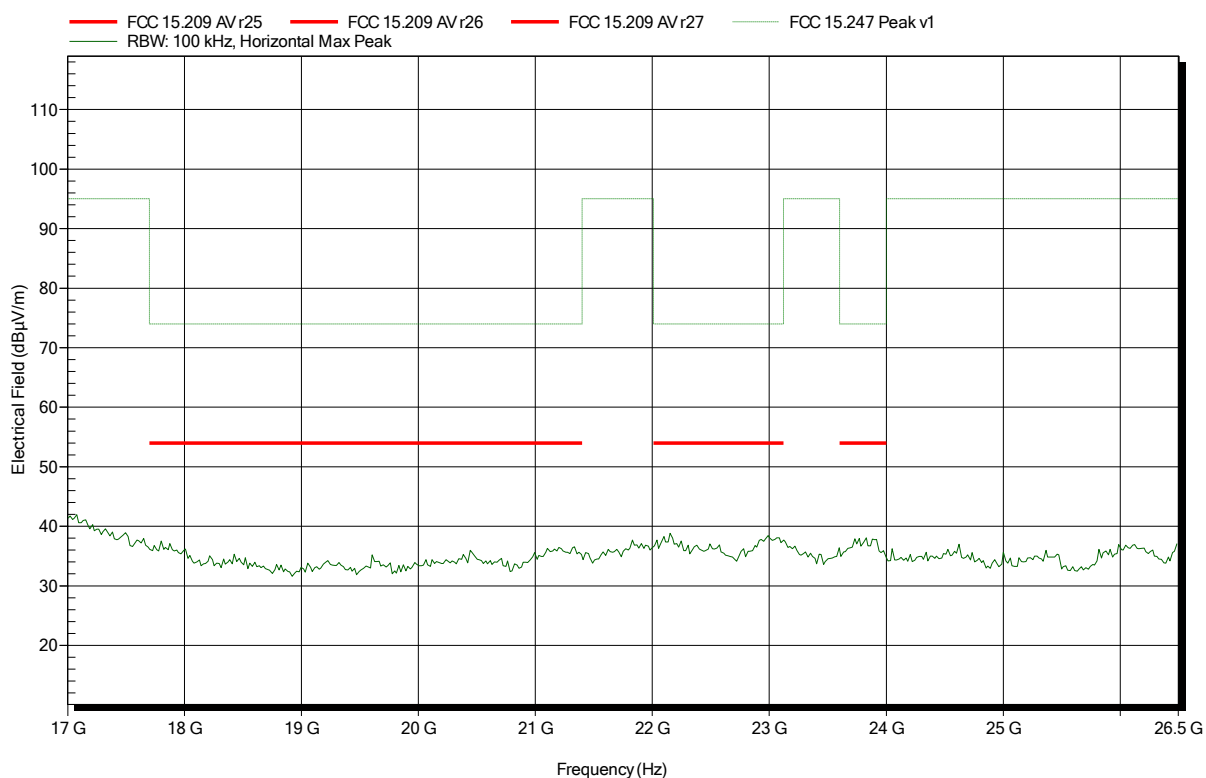


Spurious emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant: Saxonar GmbH
 EUT Name: Cycling Power Sensor
 Model: P0004-8-D
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Suckow
 Test Conditions: Tnom: 20°C, Vnom: 5 VDC
 Antenna: Amplifier Research AT 4560, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; ANT 2457 MHz
 Test Date: 2017-01-12
 Note:

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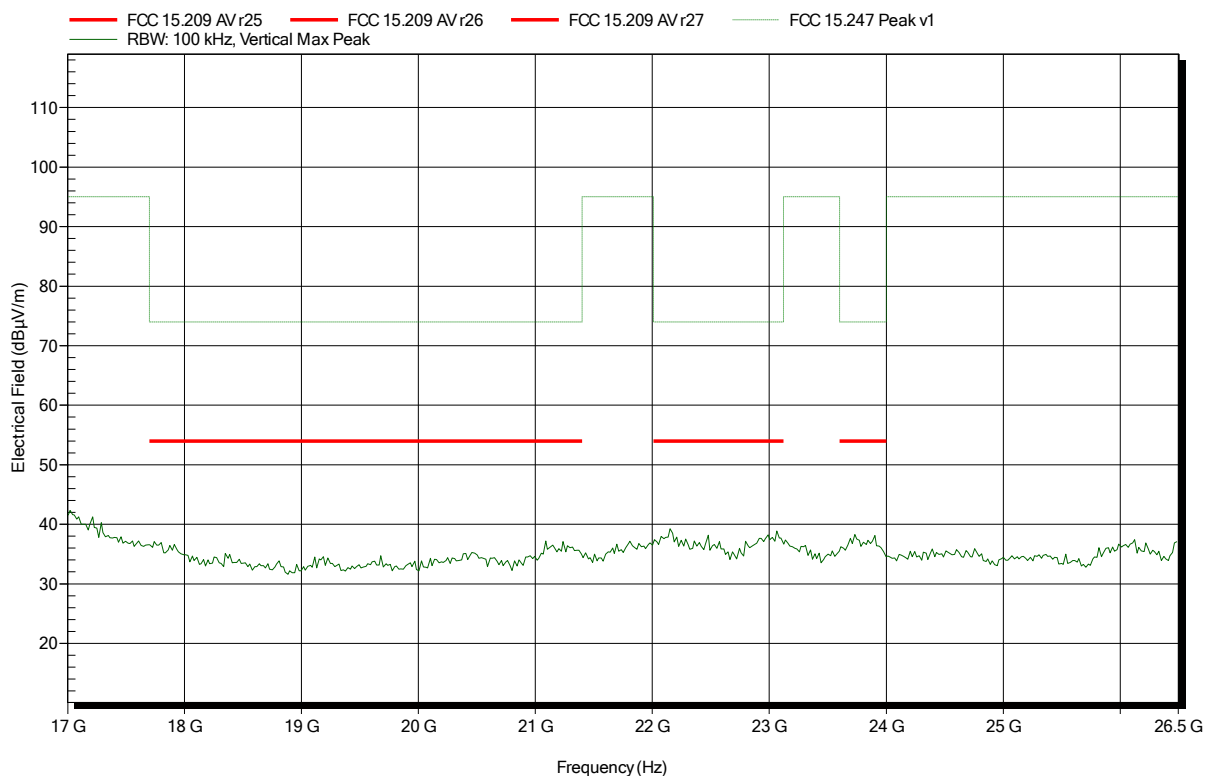


Spurious emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant:	Saxonar GmbH
EUT Name:	Cycling Power Sensor
Model:	P0004-8-D
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 20°C, Vnom: 5 VDC
Antenna:	Amplifier Research AT 4560, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; ANT 2457 MHz
Test Date:	2017-01-12
Note:	

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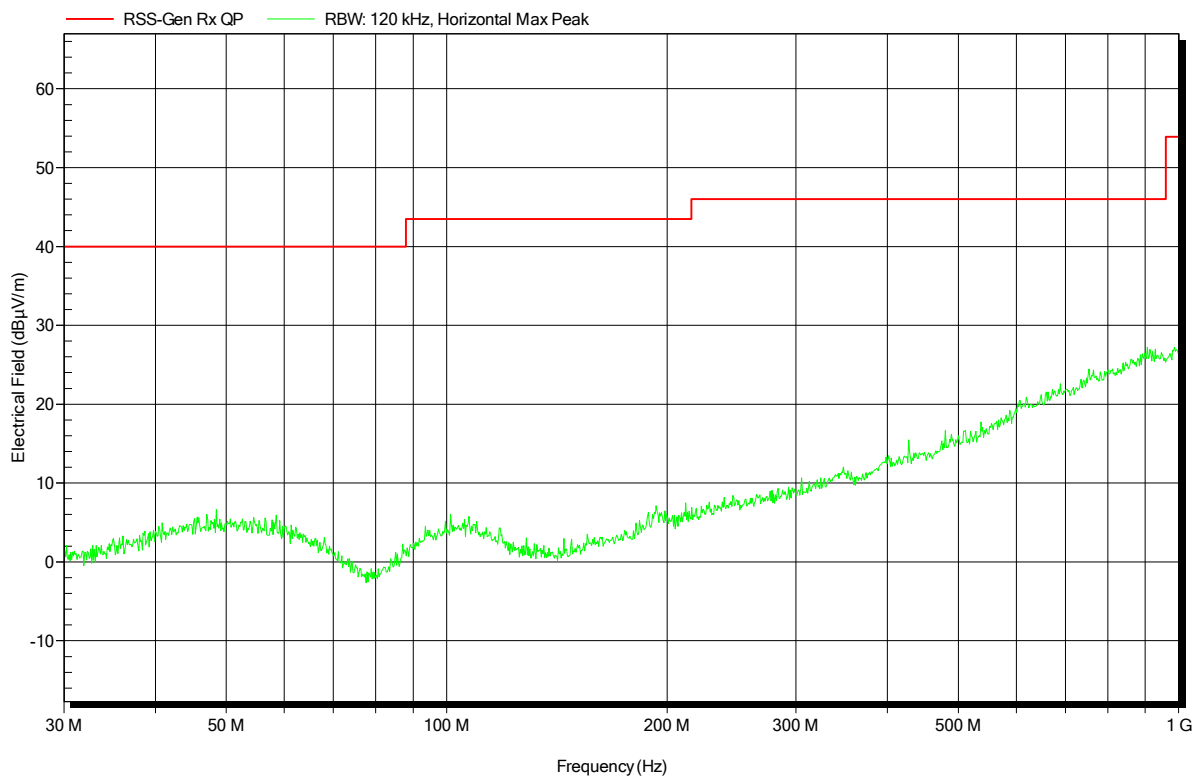
ANNEX B Receiver radiated spurious emissions

Radiated emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant:	Saxonar GmbH
EUT Name:	Cycling Power Sensor
Model:	P0004-8-D
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 20°C, Unom: 5 VDC
Antenna:	Schwarzbeck VULB 9162, Horizontal
Measurement distance:	3 m
Mode:	ANT 2457 MHz
Test Date:	2017-01-19
Note:	

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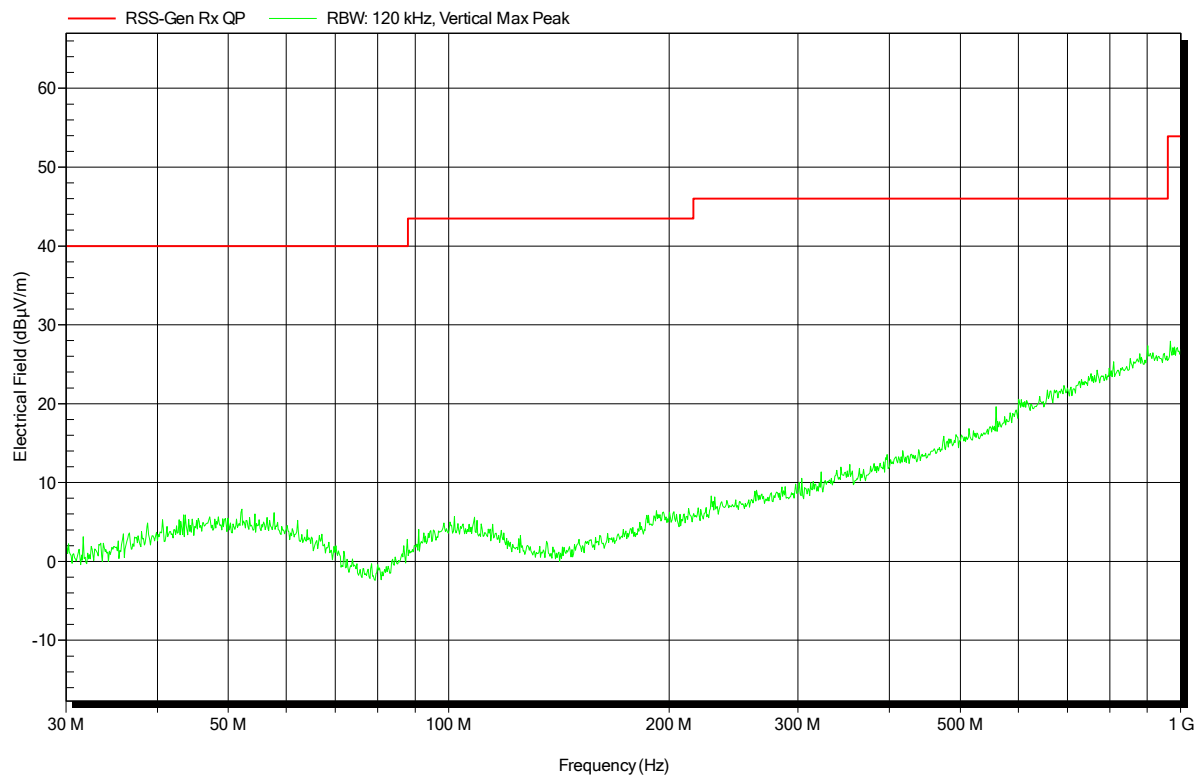


Radiated emissions according to FCC 15.247

Project number: GOM-1611-6024

Applicant: Saxonar GmbH
 EUT Name: Cycling Power Sensor
 Model: P0004-8-D
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Suckow
 Test Conditions: Tnom: 20°C, Unom: 5 VDC
 Antenna: Schwarzbeck VULB 9162, Vertical
 Measurement distance: 3 m
 Mode: ANT 2457 MHz
 Test Date: 2017-01-19
 Note:

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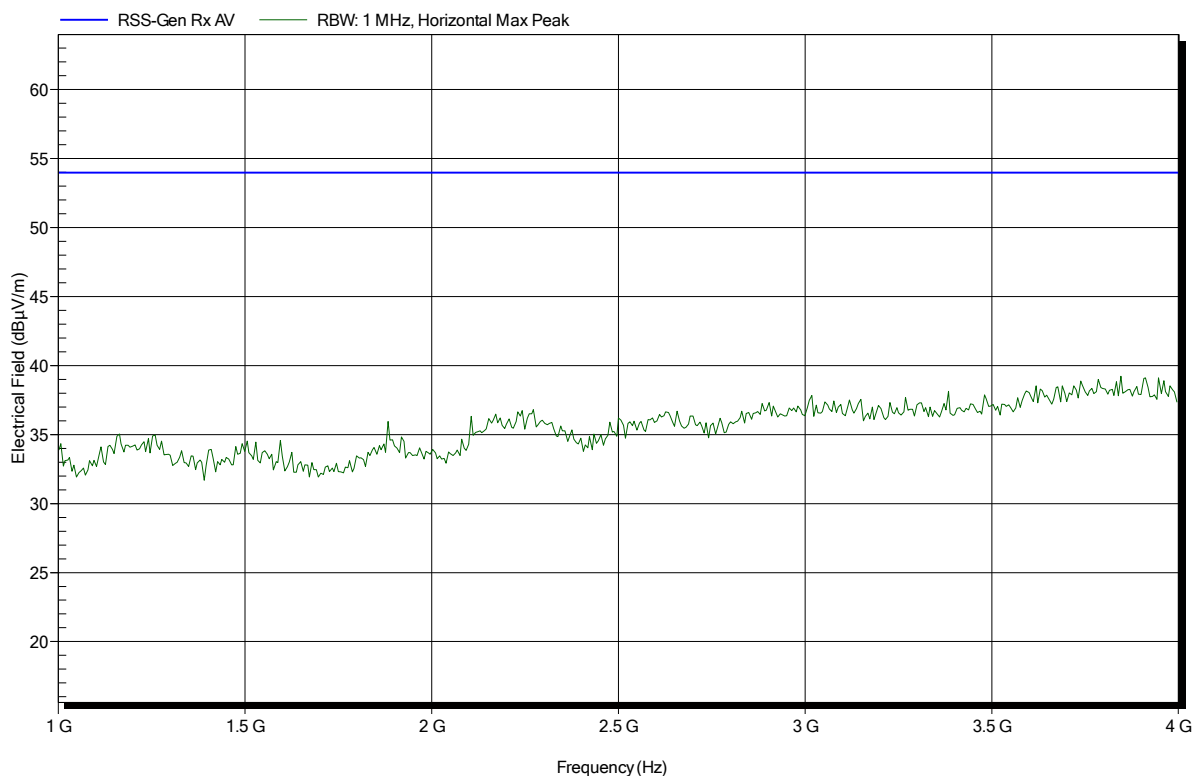


Spurious emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant:	Saxonar GmbH
EUT Name:	Cycling Power Sensor
Model:	P0004-8-D
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 20°C, Vnom: 5 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	RX; ANT 2457 MHz
Test Date:	2017-01-13
Note:	

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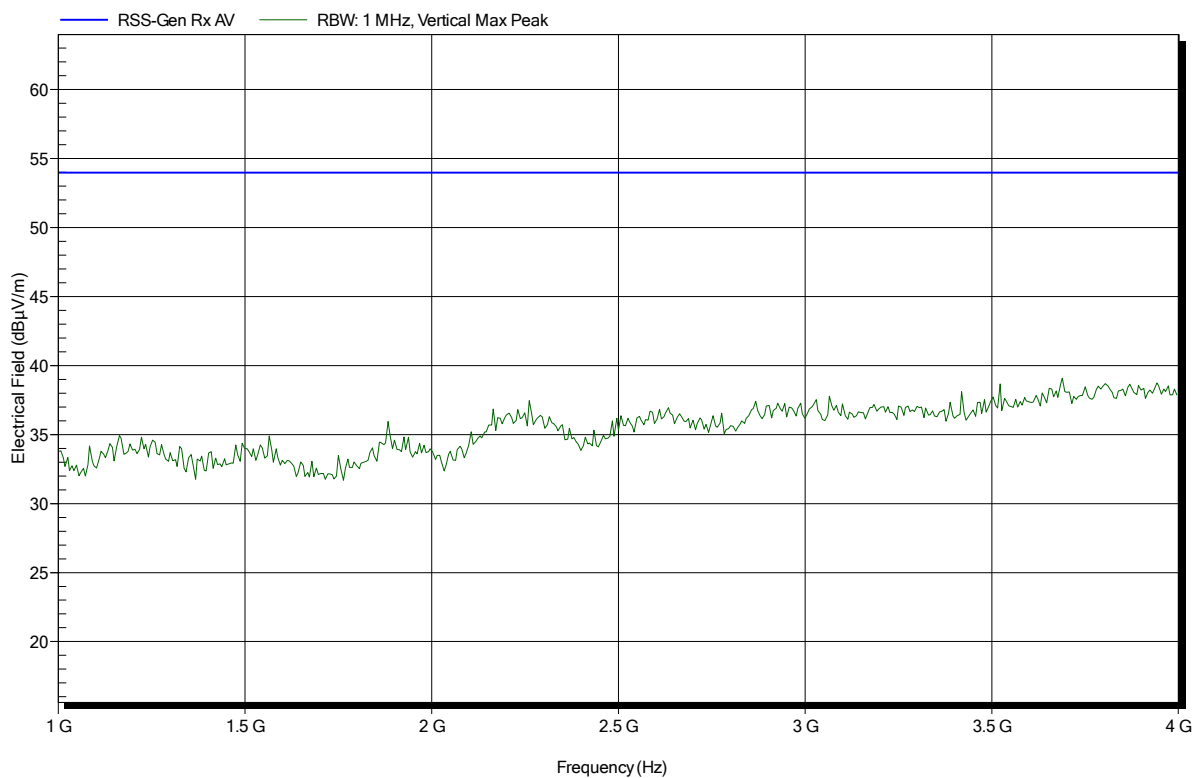


Spurious emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant: Saxonar GmbH
 EUT Name: Cycling Power Sensor
 Model: P0004-8-D
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Suckow
 Test Conditions: Tnom: 20°C, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: RX; ANT 2457 MHz
 Test Date: 2017-01-13
 Note:

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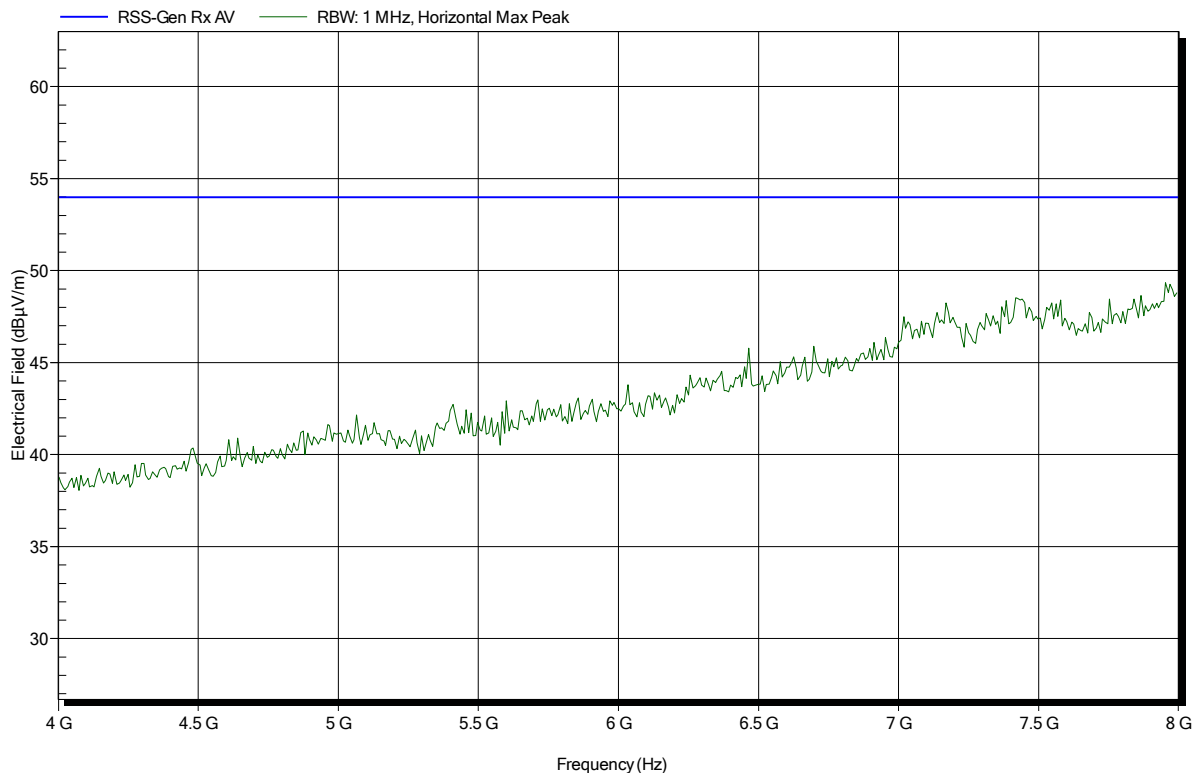


Spurious emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant:	Saxonar GmbH
EUT Name:	Cycling Power Sensor
Model:	P0004-8-D
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 20°C, Vnom: 5 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	RX; ANT 2457 MHz
Test Date:	2017-01-13
Note:	

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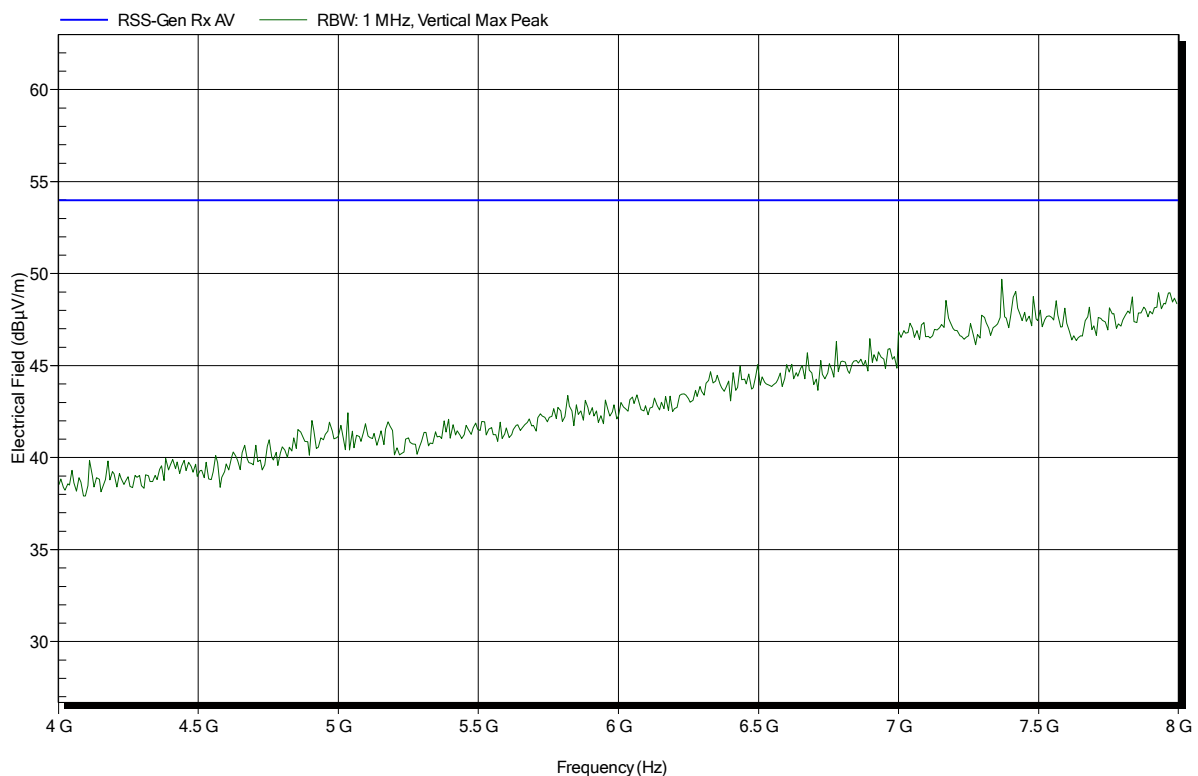


Spurious emissions according to FCC 15.247

Project number: GOM-1611-6024

Applicant:	Saxonar GmbH
EUT Name:	Cycling Power Sensor
Model:	P0004-8-D
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 20°C, Vnom: 5 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	RX; ANT 2457 MHz
Test Date:	2017-01-13
Note:	

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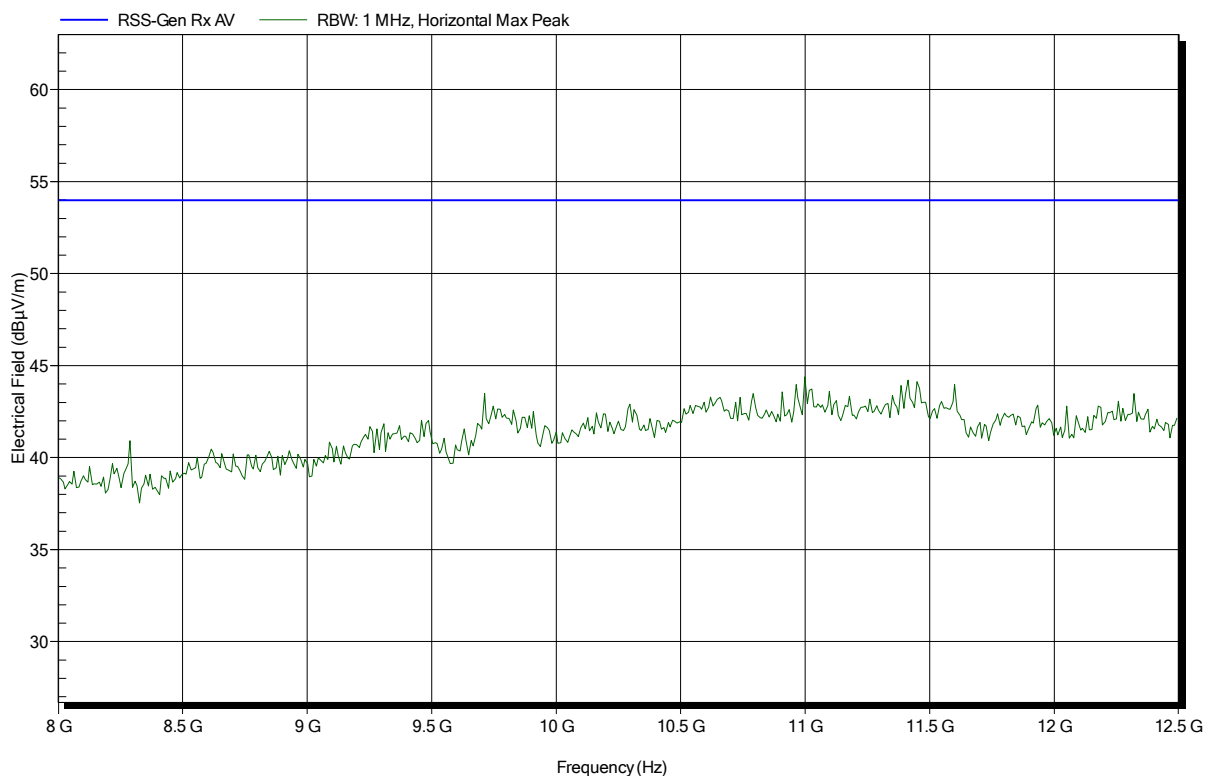


Spurious emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant:	Saxonar GmbH
EUT Name:	Cycling Power Sensor
Model:	P0004-8-D
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 20°C, Vnom: 5 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	RX; ANT 2457 MHz
Test Date:	2017-01-13
Note:	

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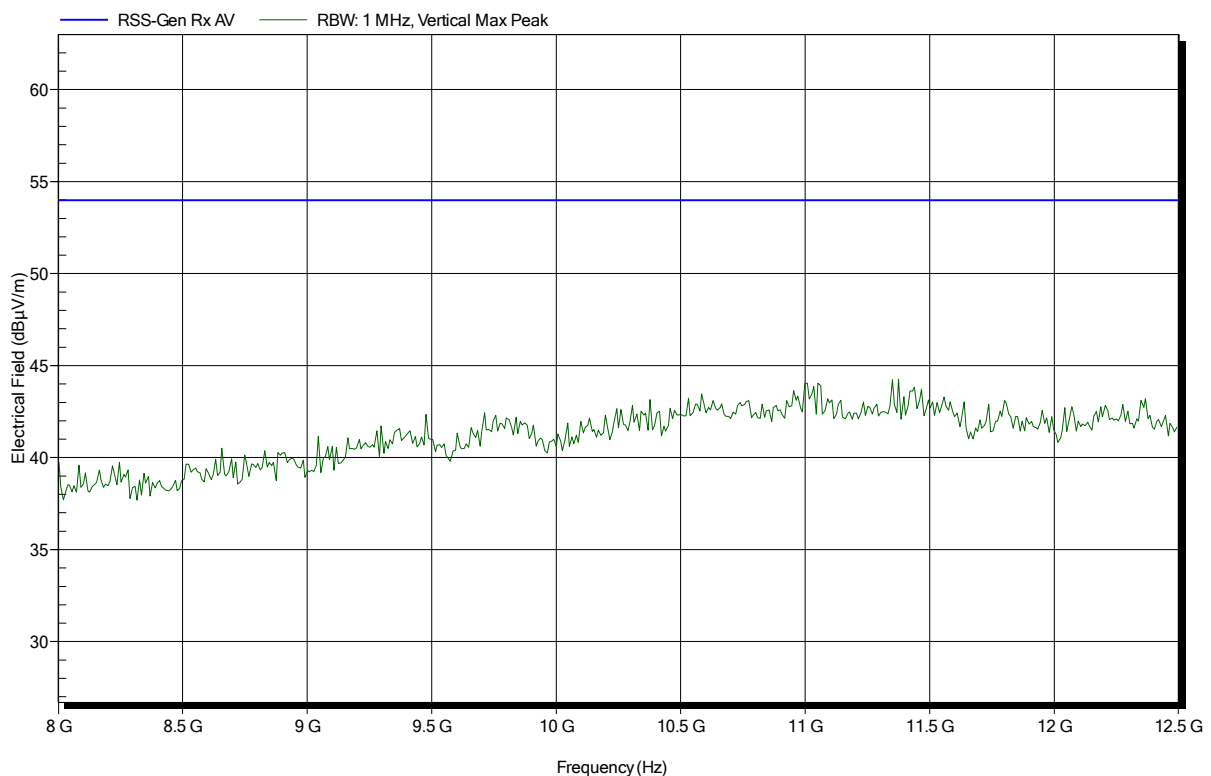


Spurious emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant:	Saxonar GmbH
EUT Name:	Cycling Power Sensor
Model:	P0004-8-D
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 20°C, Vnom: 5 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	RX; ANT 2457 MHz
Test Date:	2017-01-13
Note:	

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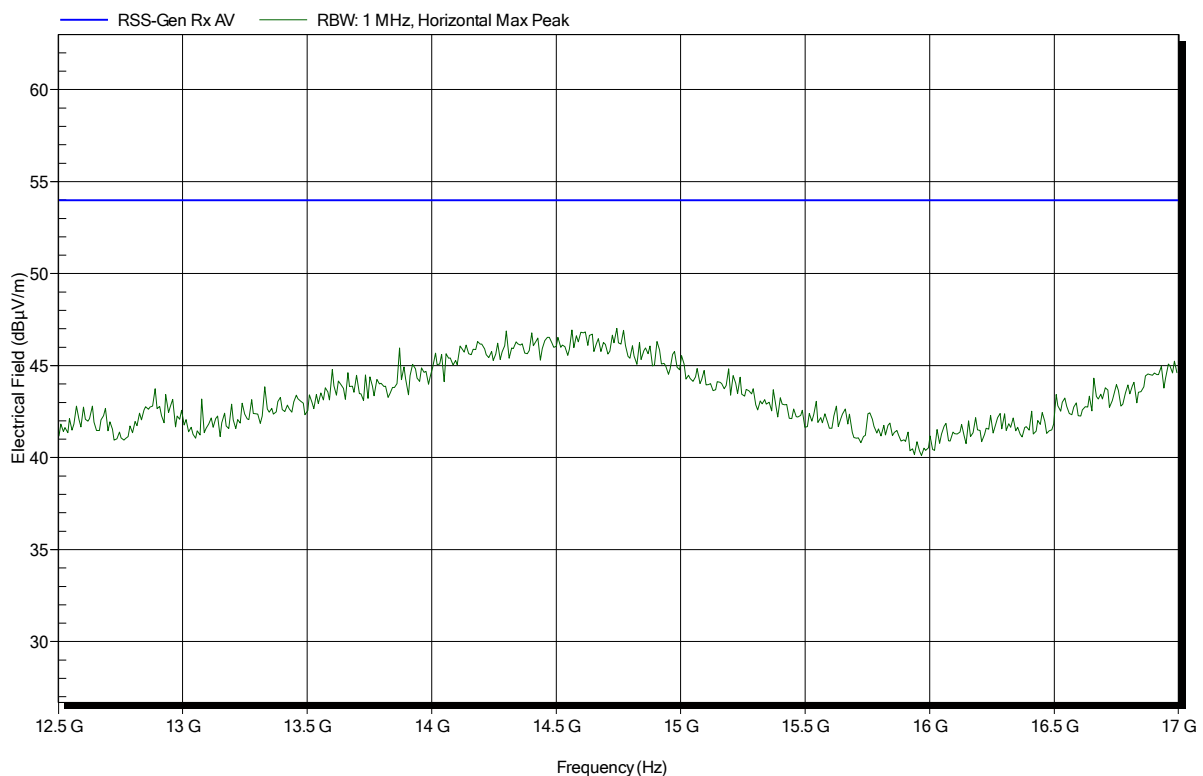


Spurious emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant:	Saxonar GmbH
EUT Name:	Cycling Power Sensor
Model:	P0004-8-D
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 20°C, Vnom: 5 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	RX; ANT 2457 MHz
Test Date:	2017-01-13
Note:	

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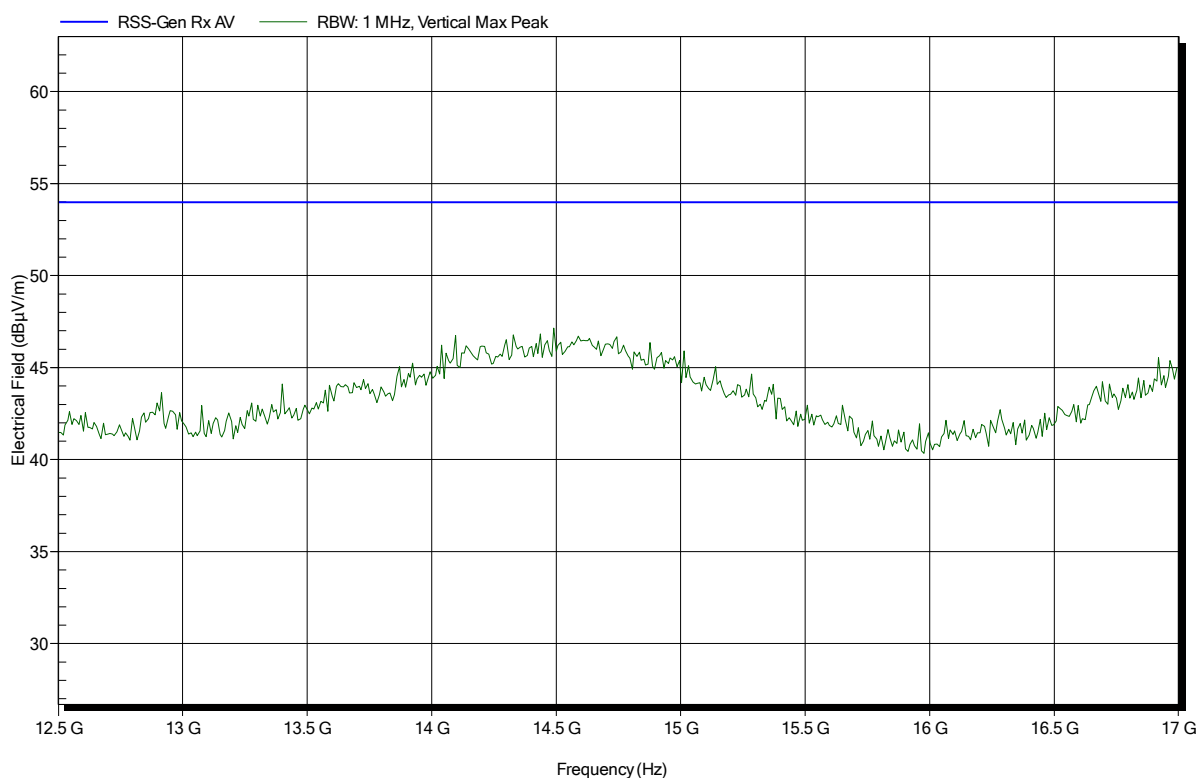


Spurious emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant: Saxonar GmbH
 EUT Name: Cycling Power Sensor
 Model: P0004-8-D
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Suckow
 Test Conditions: Tnom: 20°C, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: RX; ANT 2457 MHz
 Test Date: 2017-01-13
 Note:

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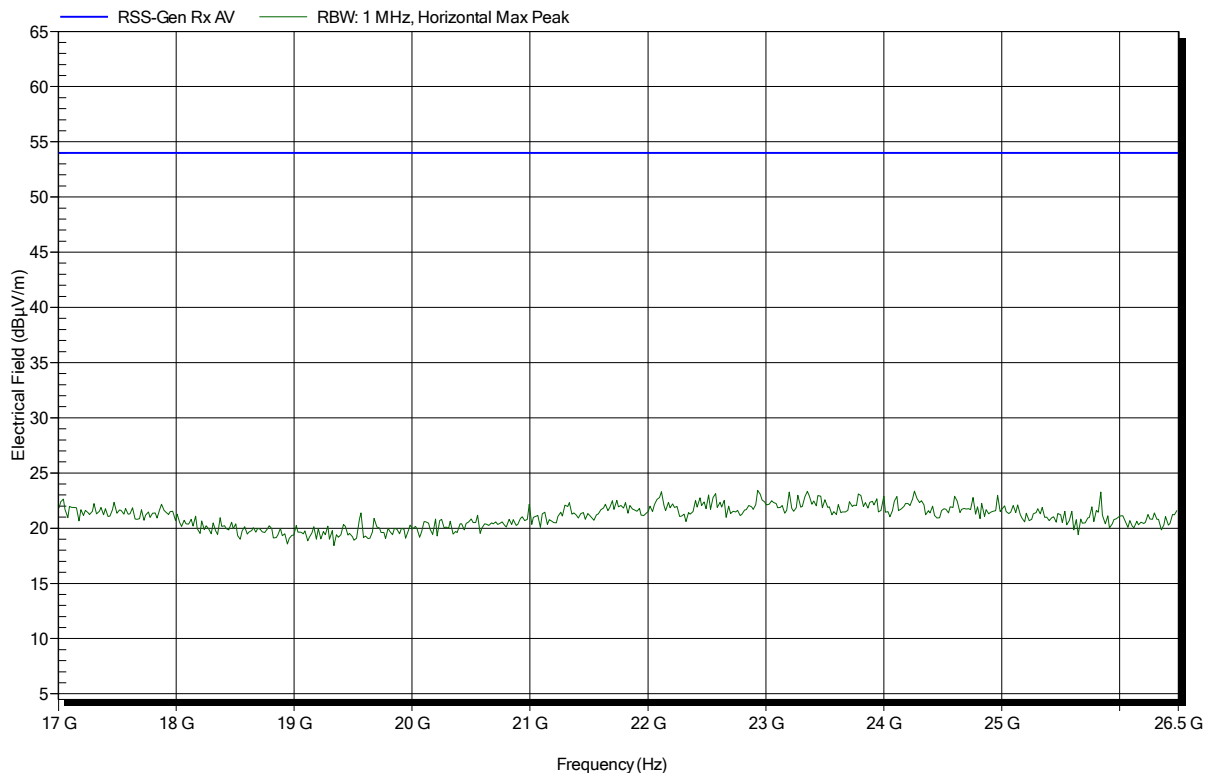


Spurious emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant:	Saxonar GmbH
EUT Name:	Cycling Power Sensor
Model:	P0004-8-D
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 20°C, Vnom: 5 VDC
Antenna:	Amplifier Research AT 4560, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	RX; ANT 2457 MHz
Test Date:	2017-01-13
Note:	

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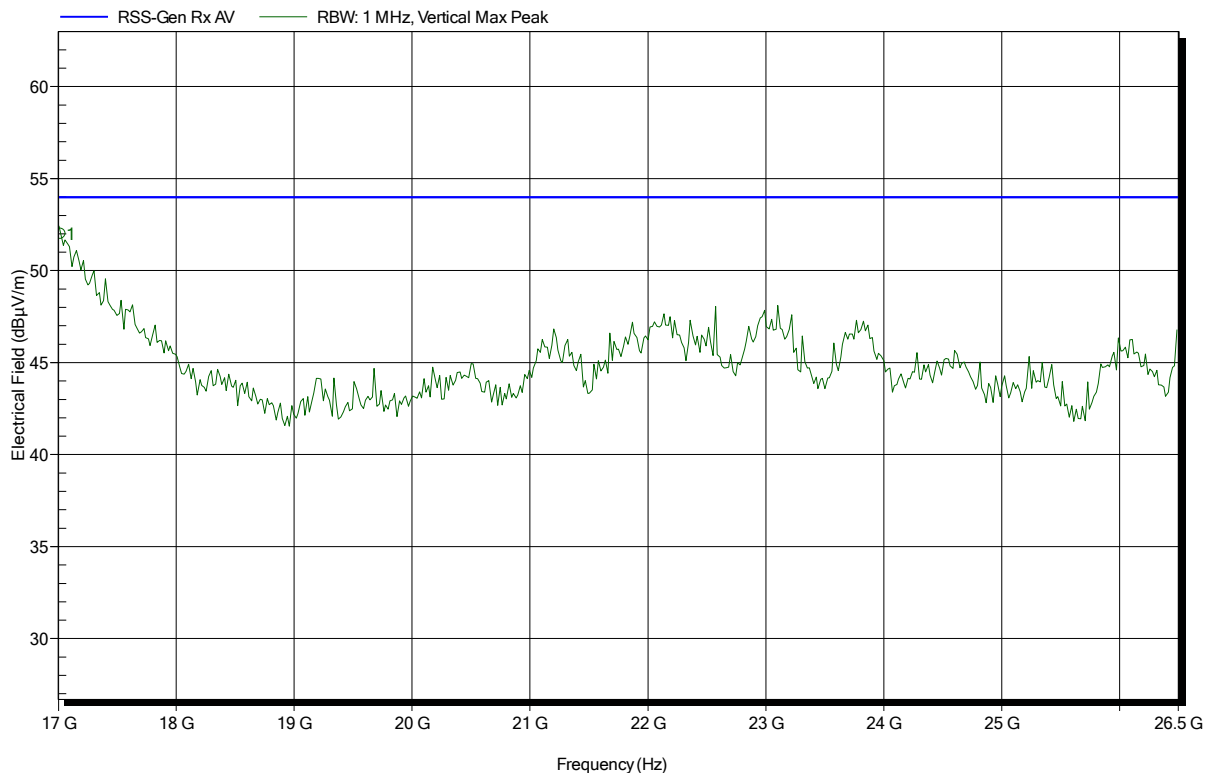


Spurious emissions according to FCC 15.247

Project number: G0M-1611-6024

Applicant: Saxonar GmbH
 EUT Name: Cycling Power Sensor
 Model: P0004-8-D
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Suckow
 Test Conditions: Tnom: 20°C, Vnom: 5 VDC
 Antenna: Amplifier Research AT 4560, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: RX; ANT 2457 MHz
 Test Date: 2017-01-13
 Note:

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Frequency	Peak	Peak Limit	Peak Difference	Status
17.019 GHz	52 dBµV/m	53.98 dBµV/m	-1.98 dB	Pass