

FCC TEST REPORT FCC 47 CFR Part 15C Industry Canada RSS-210 Digital transmission systems operating within the 2400 – 2483.5 MHz band	
Report Reference No.	G0M-1302-2617-TFC247C-V01
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	  A2LA Accredited Testing Laboratory, Certificate No.: 1983.01 FCC Filed Test Laboratory, Reg.-No.: 96970 IC OATS Filing assigned code: 3470A
Applicant's name	Agilion GmbH
Address	Blankenauer Str. 74 09113 Chemnitz GERMANY
Test specification:	
Standard	47 CFR Part 15C KDB Publication No. 558074 RSS-210, Issue 8, 2010-12 RSS-Gen, Issue 3, 2010-12 ANSI C63.4:2009
Test scope	partial Radio compliance test based on valid modular approval
Equipment under test (EUT):	
Product description	WIRELESS THR GATEWAY / WRILESS THR ANCHOR
Model No.	6021105 / 6021203
Hardware version	1.0
Firmware / Software version	2.0
	FCC-ID: SCF6021112
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:

Date of receipt of test item : 2013-02-21

Date (s) of performance of tests : 2013-02-21 - 2013-02-22

Compiled by : Christian Weber

Tested by (+ signature)..... : Wilfried Treffke 

(Testing Manager)

Approved by (+ signature) : Toralf Jahn 

(Test Lab Manager)

Date of issue : 2013-04-09

Total number of pages..... : 47

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.

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Additional comments:

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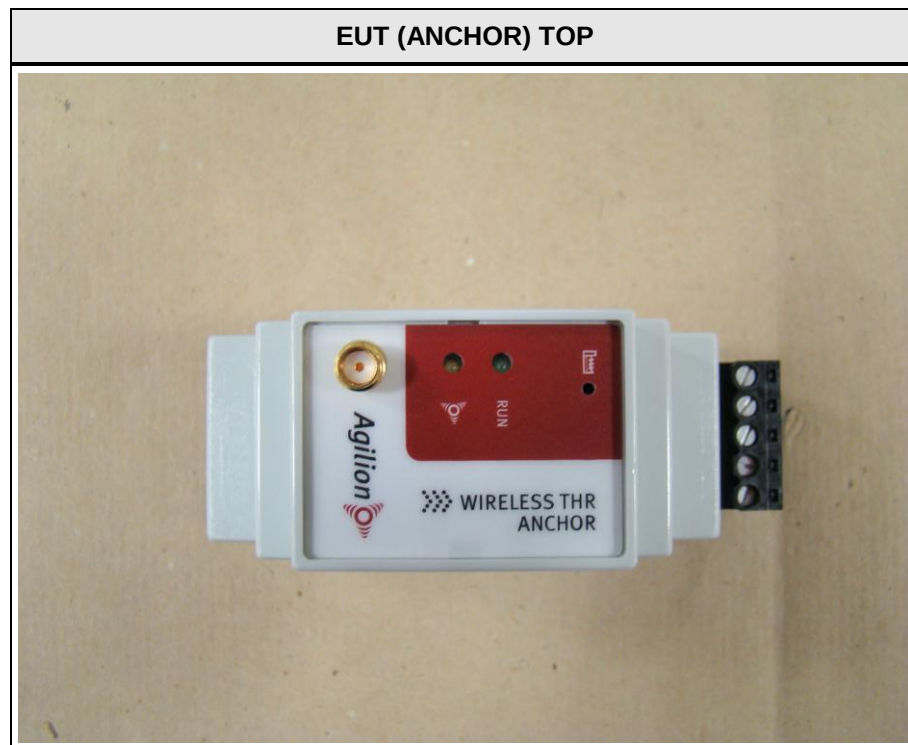
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1 Equipment (Test item) Description

Description	WIRELESS THR GATEWAY / WRILESS THR ANCHOR	
Model	6021105 / 6021203	
Serial number	None	
Hardware version	1.0	
Software / Firmware version	2.0	
FCC-ID	SCF6021112	
Equipment type	End product	
Radio type	Transceiver	
Radio technology	Chirp Spread Spectrum (CSS)	
Operating frequency range	2407 - 2476 MHz	
Assigned frequency band	2400 - 2483.5 MHz	
Main test frequencies	F _{MID}	2441.75 MHz
Spreading	CSS	
Modulations	none	
Number of channels	1	
Number of antennas	2	
Radio module	Type	CHIRP Spread Spectrum
	Model	nanoPAN 5375
	Manufacturer	Nanotron Technologies GmbH
	HW Version	unspecified
	SW Version	unspecified
	FCC-ID	SIFNANOPAN5375V1
Antenna 1	Type	external dedicated whip antenna
	Model	CTA 2450/5/DS/NM/S1
	Manufacturer	unspecified
	Gain	4.5 dBi (manufacturer declaration)
Antenna 2	Type	external dedicated Small omni-directional outdoor antenna for WiFi applications
	Model	Omni-S
	Manufacturer	unspecified
	Gain	6.0 dBi (manufacturer declaration)
Manufacturer	Agilion GmbH Blankenauer Str. 74 09113 Chemnitz GERMANY	

Power supply	V _{NOM}	12.0 VDC
	V _{MIN}	N/A VDC
	V _{MAX}	N/A VDC
AC/DC-Adaptor	Model	N/A
	Vendor	N/A
	Input	N/A
	Output	N/A

1.1 Photos – Equipment External



EUT (ANCHOR) ID



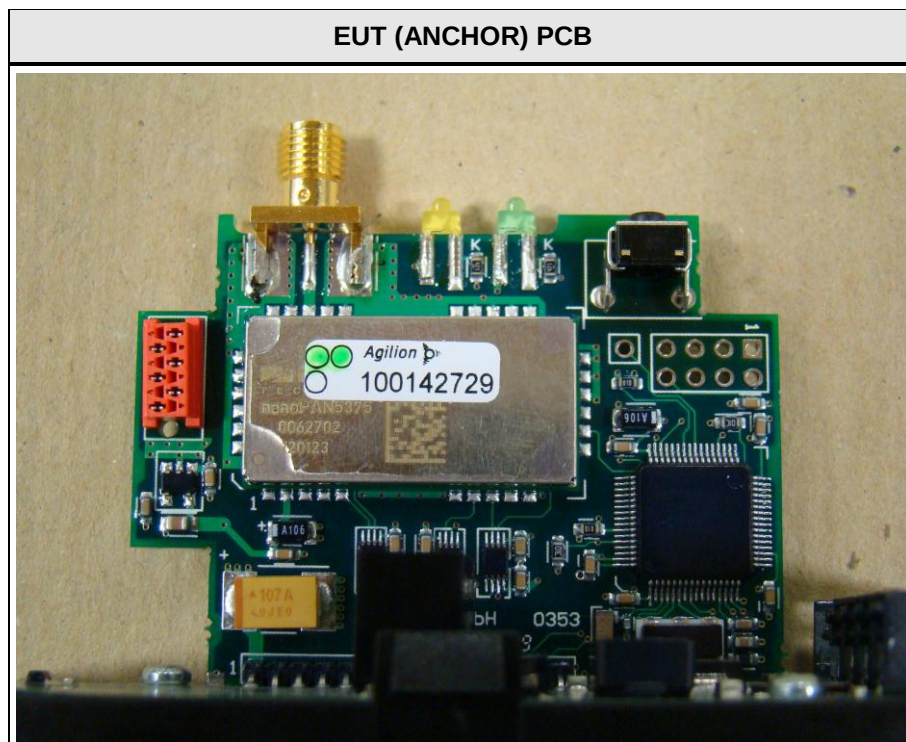
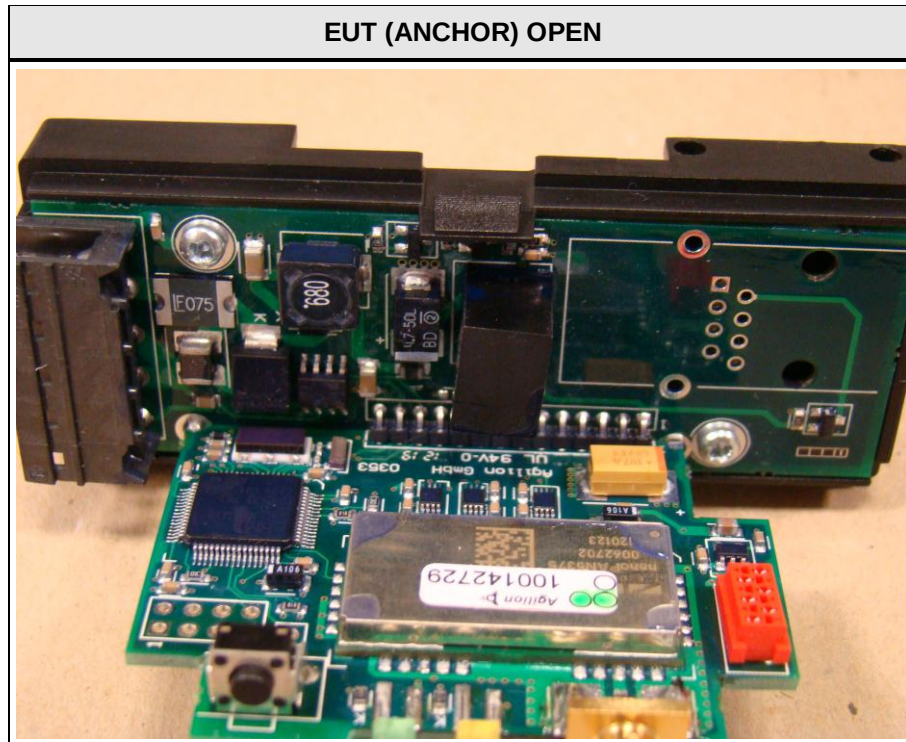
EUT (GATEWAY) TOP



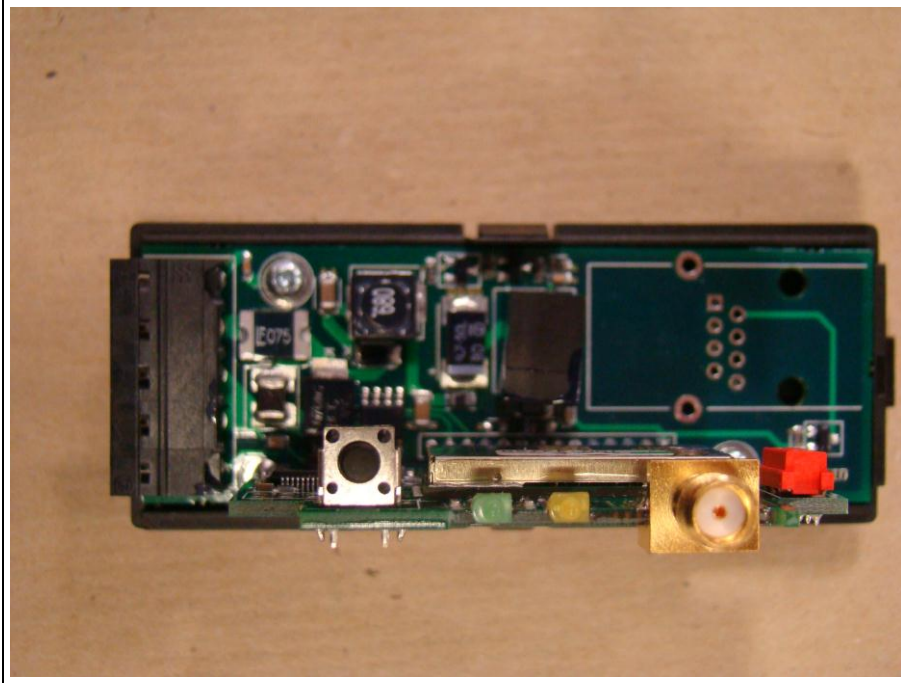
EUT (GATEWAY) SIDE VIEW

EUT (GATEWAY) ID


1.2 Photos – Equipment internal



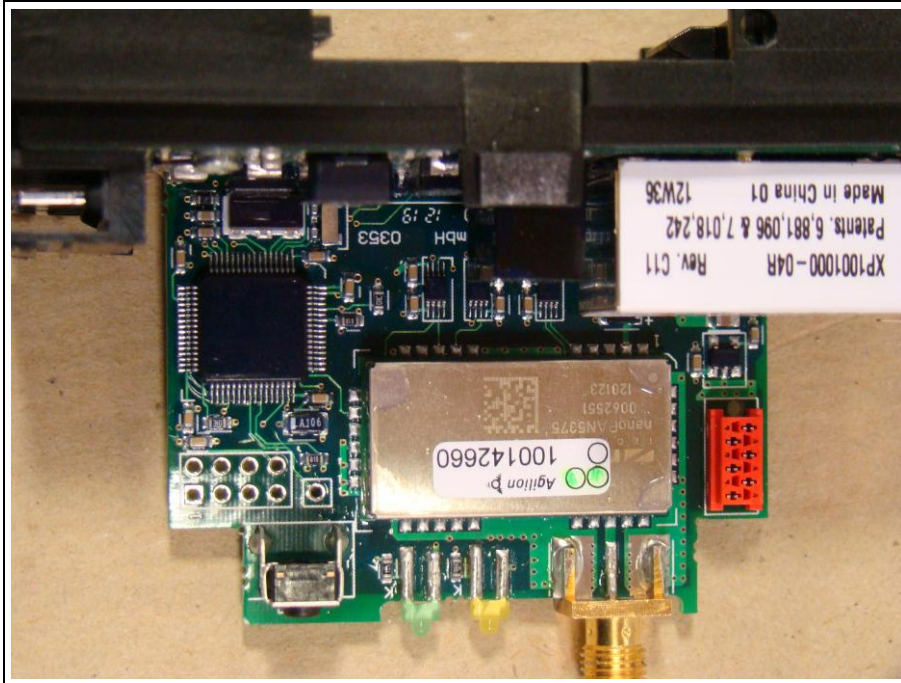
EUT (ANCHOR) PCB



EUT (GATEWAY) OPEN



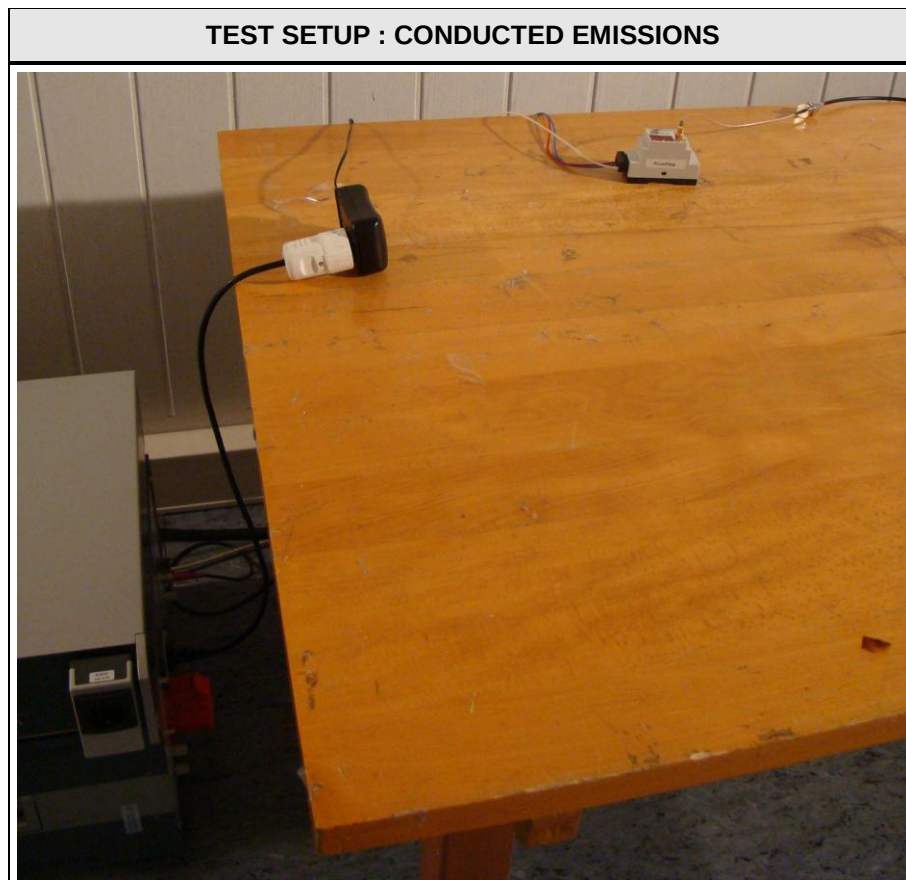
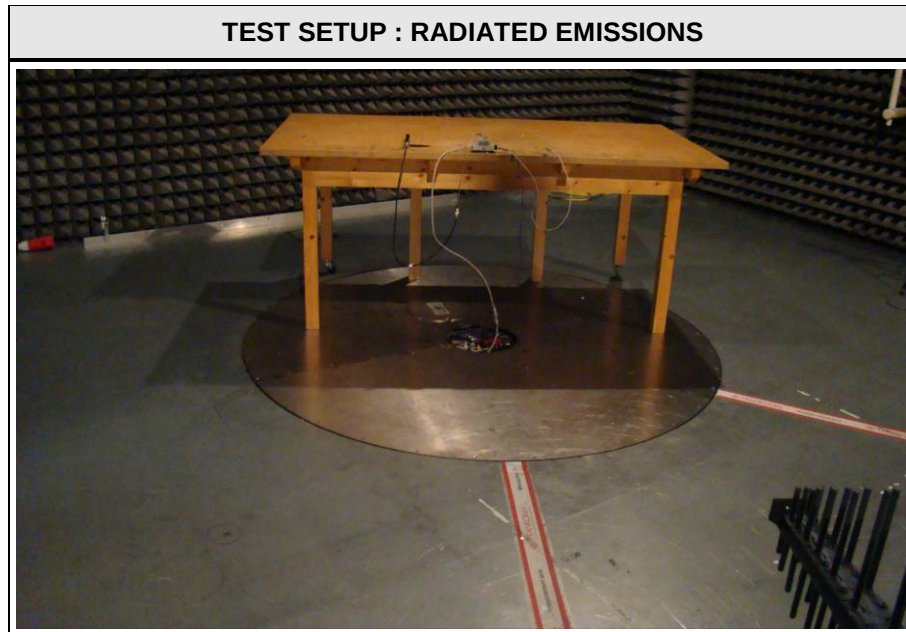
EUT (GATEWAY) PCB



EUT (GATEWAY) PCB



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	
CHIRP	General conditions:	EUT powered by laboratory power supply
	Radio conditions:	Mode = standalone transmit Spreading = CSS Modulation = None Duty cycle = 100 % Power level = Maximum
Receive	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone receive Spreading = CSS
AC-Powerline	General conditions:	EUT powered by laboratory power supply
	Radio conditions:	Mode = standalone transmit Spreading = CSS Power level = Maximum

1.6 Test Equipment Used During Testing

Radiated spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Semi-anechoic chamber	Frankonia	AC 5	EF00395	-	-
Spectrum Analyzer	R&S	FSIQ26	EF00151	2012-12	2013-12
Biconical Antenna	R&S	HK 116	EF00030	2011-02	2014-02
LPD Antenna	R&S	HL 223	EF00187	2011-02	2014-02
LPD Antenna	R&S	HL 025	EF00327	2013-02	2016-02

AC powerline conducted emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
AMN	R&S	ESH3-Z5	EF00036	2012-11	2014-11
EMI Test Receiver	R&S	ESCS 30	EF00295	2012-08	2013-08

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:

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

2 Result Summary

FCC 47 CFR Part 15C, IC RSS-210				
Product Specific Standard Section	Requirement – Test	Reference Method	Result	Remarks
RSS-Gen 4.6.1	Occupied Bandwidth	RSS-Gen 4.6.1	N/R	Informational only
FCC § 15.247(a)(2) IC RSS-210 § A8.2	6dB Bandwidth	KDB Publication No. 558074	N/R	Testing based on valid modular approval
FCC § 15.247(b)(3) IC RSS-210 § A8.4	Maximum peak conducted power	KDB Publication No. 558074	N/R	Testing based on valid modular approval
FCC § 15.247(e) IC RSS-210 § A8.2	Power spectral density	KDB Publication No. 558074	N/R	Testing based on valid modular approval
47 CFR 15.207 RSS-Gen 7.2.4	AC power line conducted emissions	KDB Publication No. 558074 / ANSI C63.4	PASS	
FCC § 15.247(d) IC RSS-210 § A8.5	Band edge compliance	KDB Publication No. 558074	N/R	Testing based on valid modular approval
FCC § 15.247(d) IC RSS-210 § A8.5	Conducted spurious emissions	KDB Publication No. 558074	N/R	Testing based on valid modular approval
FCC § 15.247(d) FCC § 15.209 IC RSS-210 A8.5 IC RSS-Gen 4.9 IC RSS-Gen 7.2.5	Transmitter radiated spurious emissions	KDB Publication No. 558074 / ANSI C 63.4	PASS	
IC RSS-Gen 4.10 IC RSS-Gen 6.1	Receiver radiated spurious emissions	ANSI C 63.4	N/R	
Remarks:				

3 Test Conditions and Results

3.1 Test Conditions and Results – AC power line conducted emissions

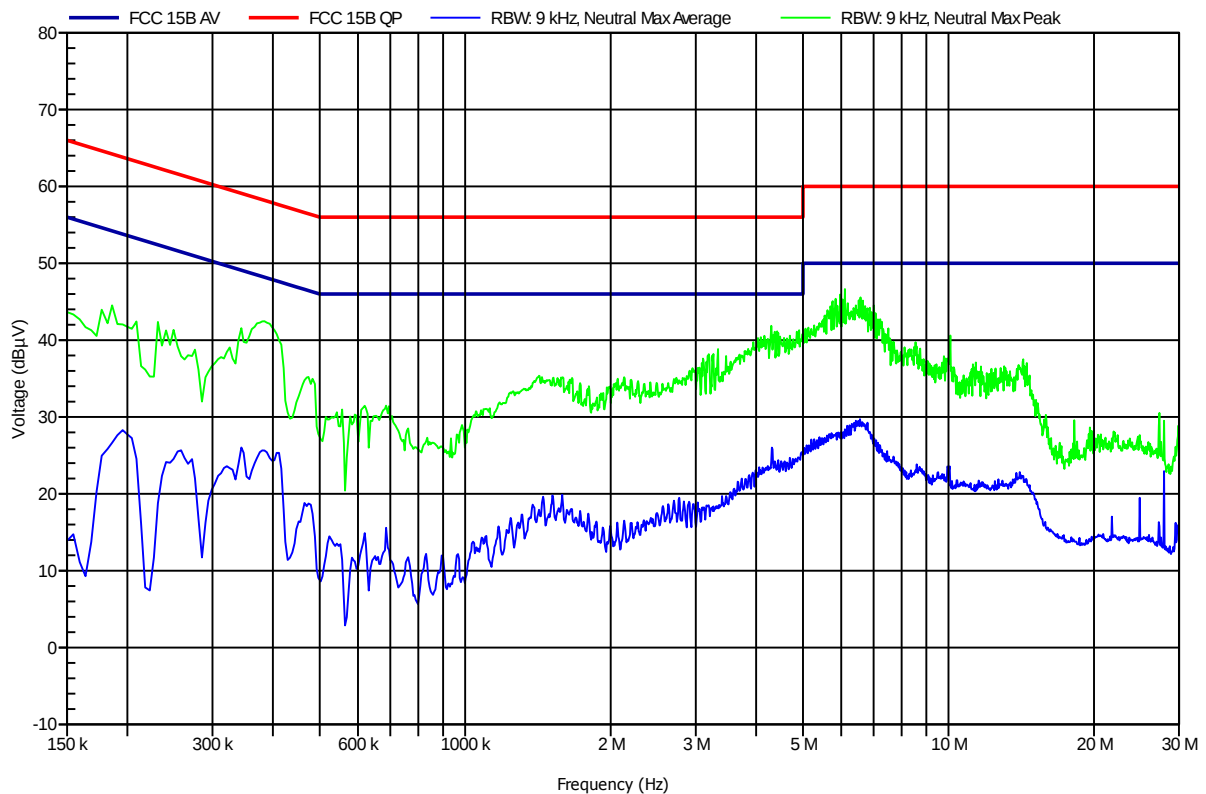
Power line conducted emissions acc. FCC 47 CFR 15.207 / IC RSS-Gen				Verdict: PASS
Test according referenced standards		Reference Method		
		ANSI C63.4		
Fully configured sample scanned over the following frequency range		Frequency range		
		0.15 MHz to 30 MHz		
Points of Application		Application Interface		
AC Mains		LISN		
EUT test mode		AC-Powerline		
Limits and results				
Frequency [MHz]	Quasi-Peak [dBµV]	Result	Average [dBµV]	Result
0.15 to 5	66 to 56*	PASS	56 to 46*	PASS
0.5 to 5	56	PASS	46	PASS
5 to 30	60	PASS	50	PASS
Comments:				
* Limit decreases linearly with the logarithm of the frequency.				

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

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: Wireless Gateway
 Model: 6021203
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Klein
 Test Conditions: Tnom: 23°C, Unom: 120 VAC
 LISN: ESH2-Z5 N
 Mode: Ethernet link to notebook, wireless link to companion device
 Test Date: 2013-02-22
 Note: Gateway as worst case for Gateway and Anchor

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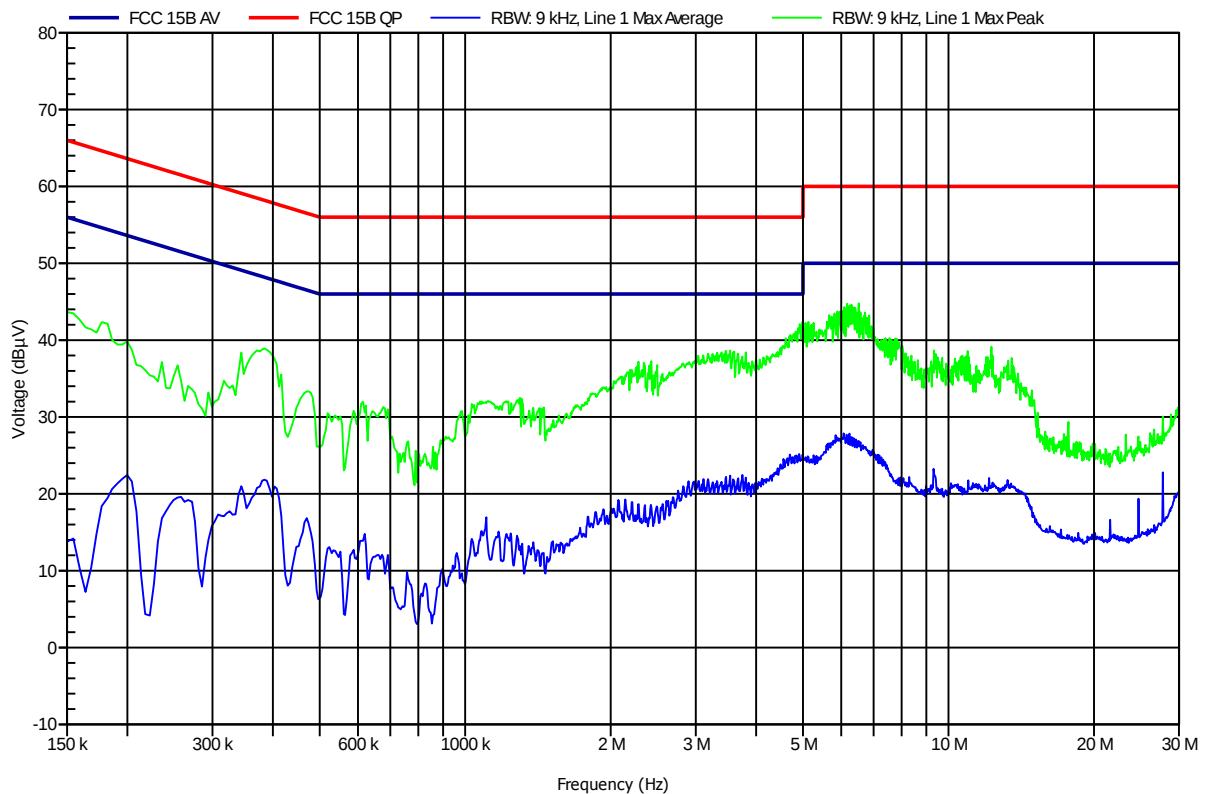


Conducted Emissions
EMI voltage test in the ac-mains according to FCC Part 15B

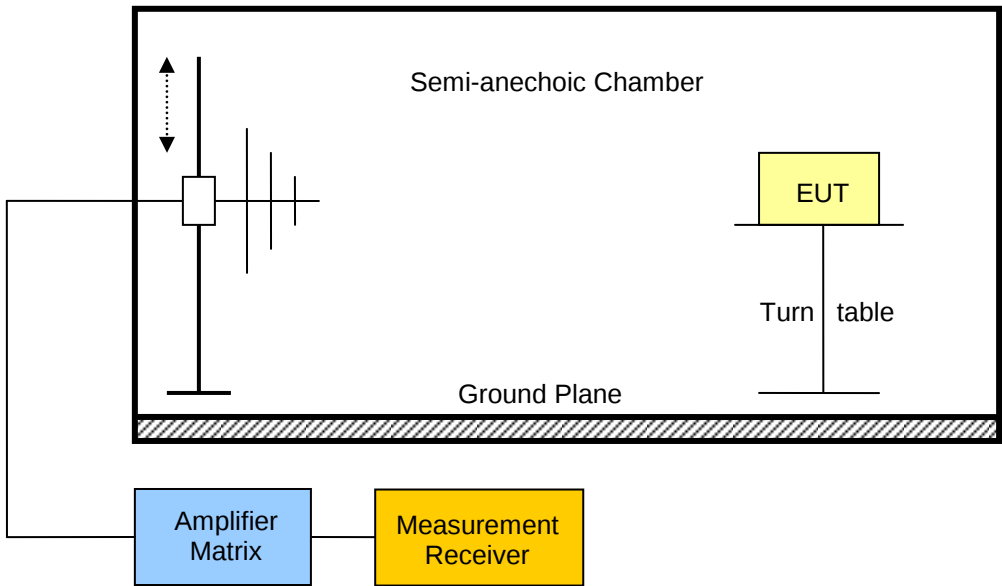
Project number: G0M-1302-2617

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 EUT Name: Wireless Gateway
 Model: 6021203
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Klein
 Test Conditions: Tnom: 23°C, Unom: 120 VAC
 LISN: ESH2-Z5 L
 Mode: Ethernet link to notebook, wireless link to companion device
 Test Date: 2013-02-22
 Note: Gateway as worst case for Gateway and Anchor

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3.2 Test Conditions and Results – Transmitter radiated emissions

Transmitter radiated emissions acc. FCC 47 CFR 15.247 / IC RSS-210				Verdict: PASS	
Test according referenced standards		Reference Method			
		FCC 15.247(d) / IC RSS-210 A8.5			
Test according to measurement reference		Reference Method			
		FCC KDB Publication No. 558074 / ANSI C63.4			
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 – Antenna OMNI-S

Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Limit dist. [m]*	Margin [dB]
F _{MID}	2441.75	CSS	249.6	26.29	pk	hor	46.00	3	-19.71
F _{MID}	2441.75	CSS	256	32.93	pk	hor	46.00	3	-13.07
F _{MID}	2441.75	CSS	256	26.96	pk	ver	46.00	3	-19.04
F _{MID}	2441.75	CSS	1072.6	70.11	pk	ver	74.00	3	-03.89
F _{MID}	2441.75	CSS	1072.6	21.92	avg	ver	54.00	3	-32.08
F _{MID}	2441.75	CSS	1081	68.38	pk	hor	74.00	3	-05.62
F _{MID}	2441.75	CSS	1081	21.93	avg	hor	54.00	3	-32.07
F _{MID}	2441.75	CSS	1371	53.68	pk	hor	74.00	3	-20.32
F _{MID}	2441.75	CSS	1371	22.38	avg	hor	54.00	3	-31.62
F _{MID}	2441.75	CSS	2382	56.42	pk	ver	74.00	3	-17.58
F _{MID}	2441.75	CSS	2382	40.89	avg	ver	54.00	3	-13.11
F _{MID}	2441.75	CSS	2484	60.10	pk	hor	74.00	3	-13.90
F _{MID}	2441.75	CSS	2484	47.01	avg	hor	54.00	3	-06.99
F _{MID}	2441.75	CSS	2484.5	65.11	pk	ver	74.00	3	-08.89
F _{MID}	2441.75	CSS	2484.5	48.99	avg	ver	54.00	3	-05.01
F _{MID}	2441.75	CSS	12323	57.13	pk	hor	74.00	3	-16.87
F _{MID}	2441.75	CSS	12323	46.19	avg	hor	54.00	3	-07.81
F _{MID}	2441.75	CSS	12327	59.41	pk	ver	74.00	3	-14.59
F _{MID}	2441.75	CSS	12327	48.73	avg	ver	54.00	3	-05.27

Test results – Antenna CTA 2450/5/DS/NM/S1									
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dbμV/m]	Det.	Pol.	Limit [dbμV/m]	Limit dist. [m]*	Margin [dB]
F _{MID}	2441.75	CSS	249.6	32.12	pk	hor	46.00	3	-13.88
F _{MID}	2441.75	CSS	256	30.69	pk	hor	46.00	3	-15.31
F _{MID}	2441.75	CSS	256	29.00	pk	ver	46.00	3	-17.00
F _{MID}	2441.75	CSS	1060.6	44.43	pk	ver	74.00	3	-29.57
F _{MID}	2441.75	CSS	1060.6	15.59	avg	ver	54.00	3	-38.41
F _{MID}	2441.75	CSS	1076	69.78	pk	hor	74.00	3	-04.22
F _{MID}	2441.75	CSS	1076	22.12	avg	hor	54.00	3	-31.88
F _{MID}	2441.75	CSS	2389.9	55.36	pk	ver	74.00	3	-18.64
F _{MID}	2441.75	CSS	2389.9	38.73	avg	ver	54.00	3	-15.27
F _{MID}	2441.75	CSS	2484	61.49	pk	hor	74.00	3	-12.51
F _{MID}	2441.75	CSS	2484	48.36	avg	hor	54.00	3	-05.64
F _{MID}	2441.75	CSS	2484.5	67.92	pk	ver	74.00	3	-06.08
F _{MID}	2441.75	CSS	2484.5	52.46	avg	ver	54.00	3	-01.54
F _{MID}	2441.75	CSS	4928	48.49	pk	ver	74.00	3	-25.51
F _{MID}	2441.75	CSS	12320	59.55	pk	ver	74.00	3	-14.45
F _{MID}	2441.75	CSS	12320	49.12	avg	ver	54.00	3	-04.88
F _{MID}	2441.75	CSS	12323	58.69	pk	hor	74.00	3	-15.31
F _{MID}	2441.75	CSS	12323	47.77	avg	hor	54.00	3	-06.23
Comments: * Physical distance between EUT and measurement antenna.									

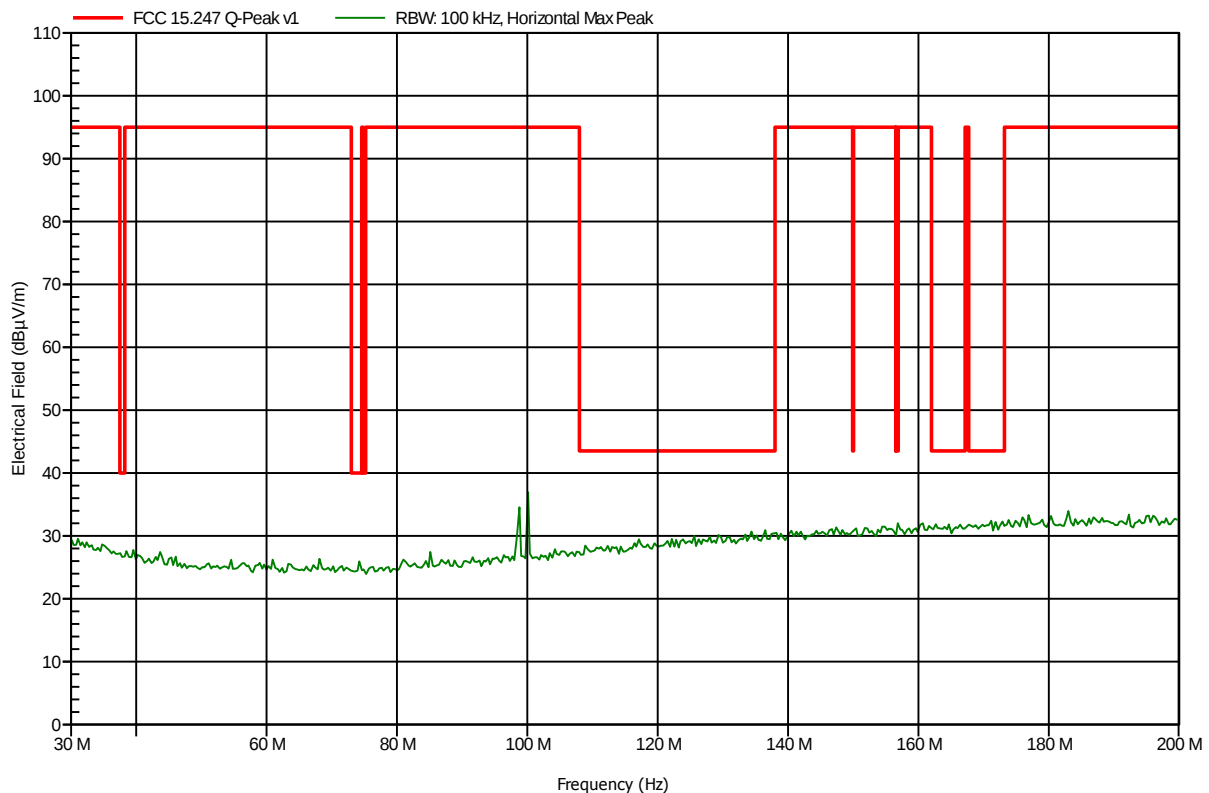
ANNEX A Transmitter radiated spurious emissions

Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer:	Agilion GmbH
EUT Name:	WIRELESS THR GATEWAY
Model:	6021105
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 12 V DC (external)
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; CSS; OMNI-S Ant. 1399.17.0108
Test Date:	2013-02-22
Note:	

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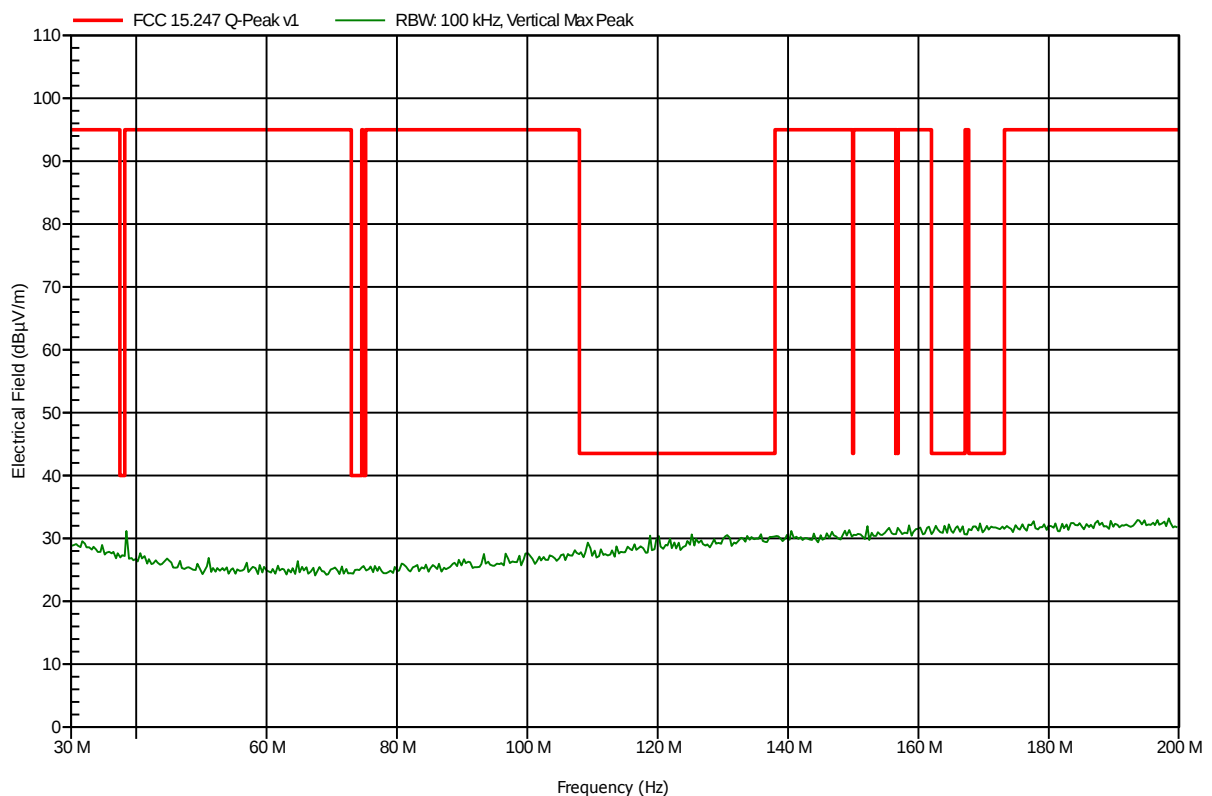


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Model:	6021105
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 12 V DC (external)
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; CSS; OMNI-S Ant. 1399.17.0108
Test Date:	2013-02-22
Note:	

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Test Report No.: G0M-1302-2617-TFC247C-V01

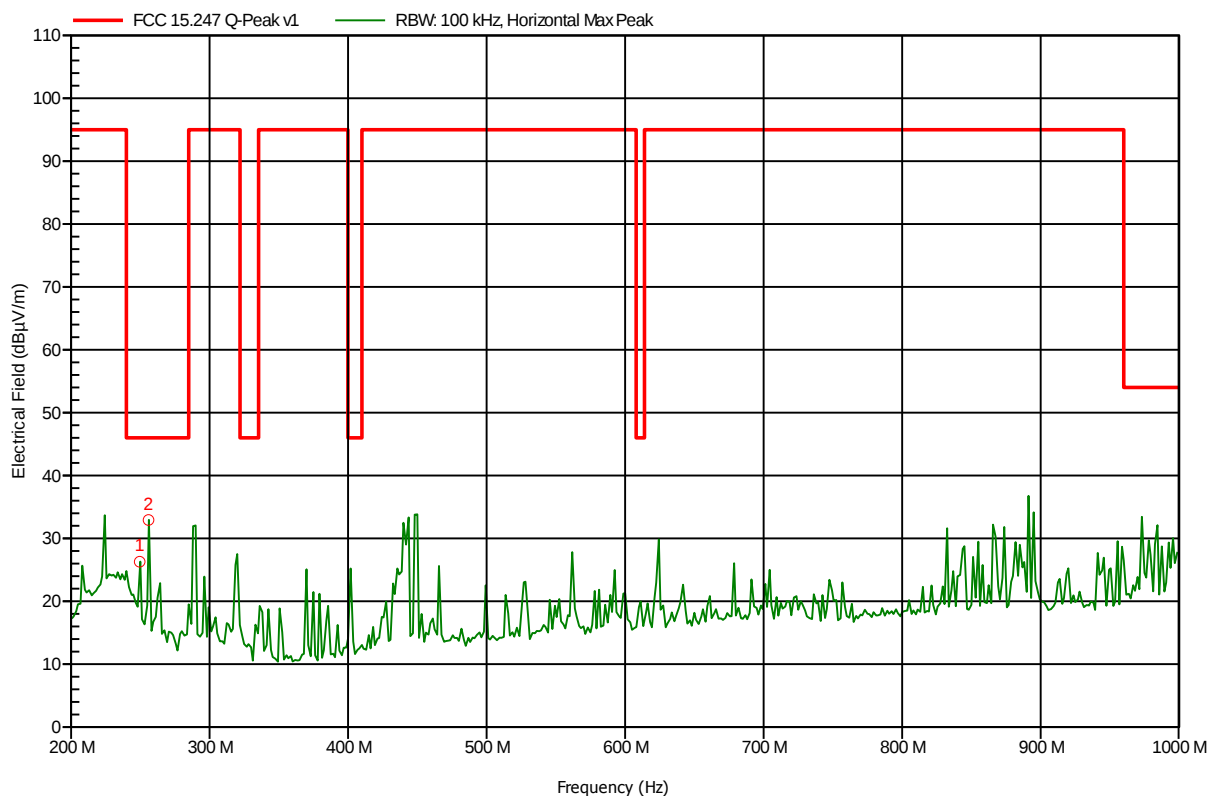
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 25°C, Vnom: 12 V DC (external)
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: TX; CSS; OMNI-S Ant. 1399.17.0108
 Test Date: 2013-02-22
 Note:

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
249.6 MHz	26.29 dBμV/m	46 dBμV/m	-19.71 dB	Pass
256 MHz	32.93 dBμV/m	46 dBμV/m	-13.07 dB	Pass

Test Report No.: G0M-1302-2617-TFC247C-V01

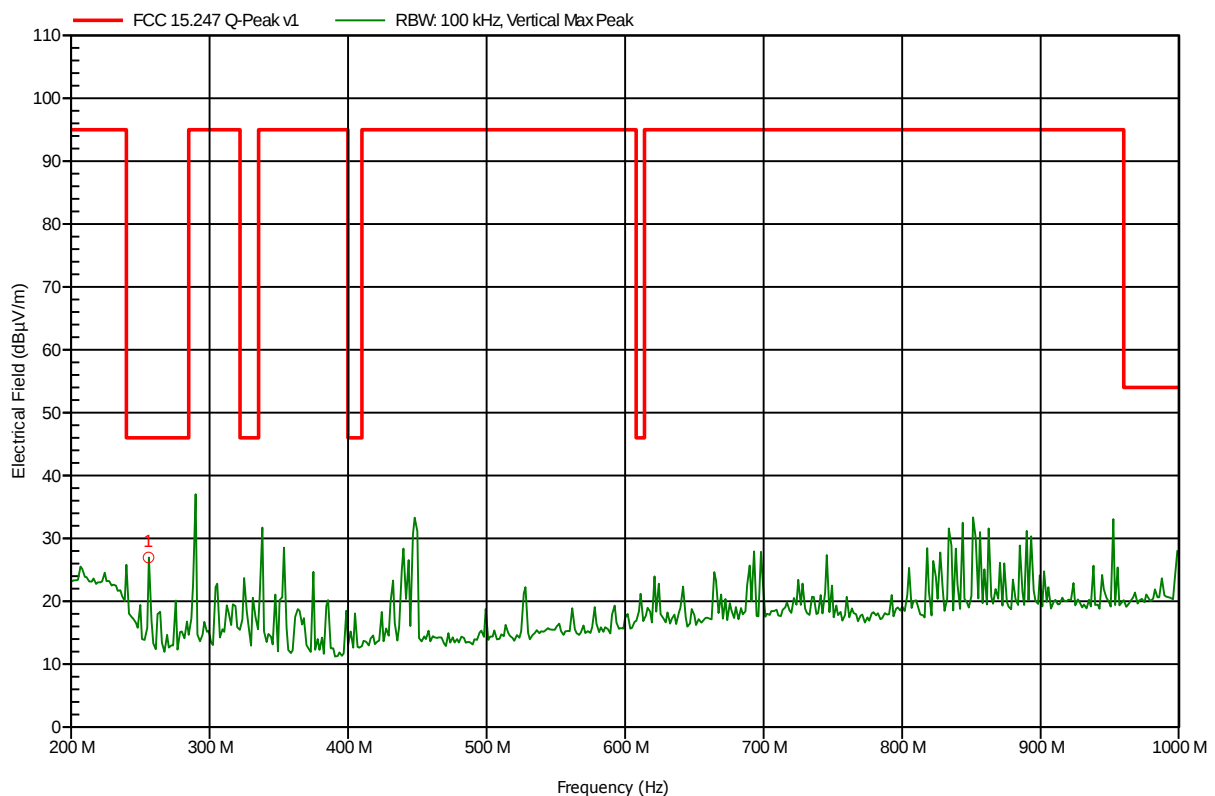
Eurofins Product Service GmbH
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 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3 m
 Mode: TX; CSS; OMNI-S Ant. 1399.17.0108
 Test Date: 2013-02-22
 Note:

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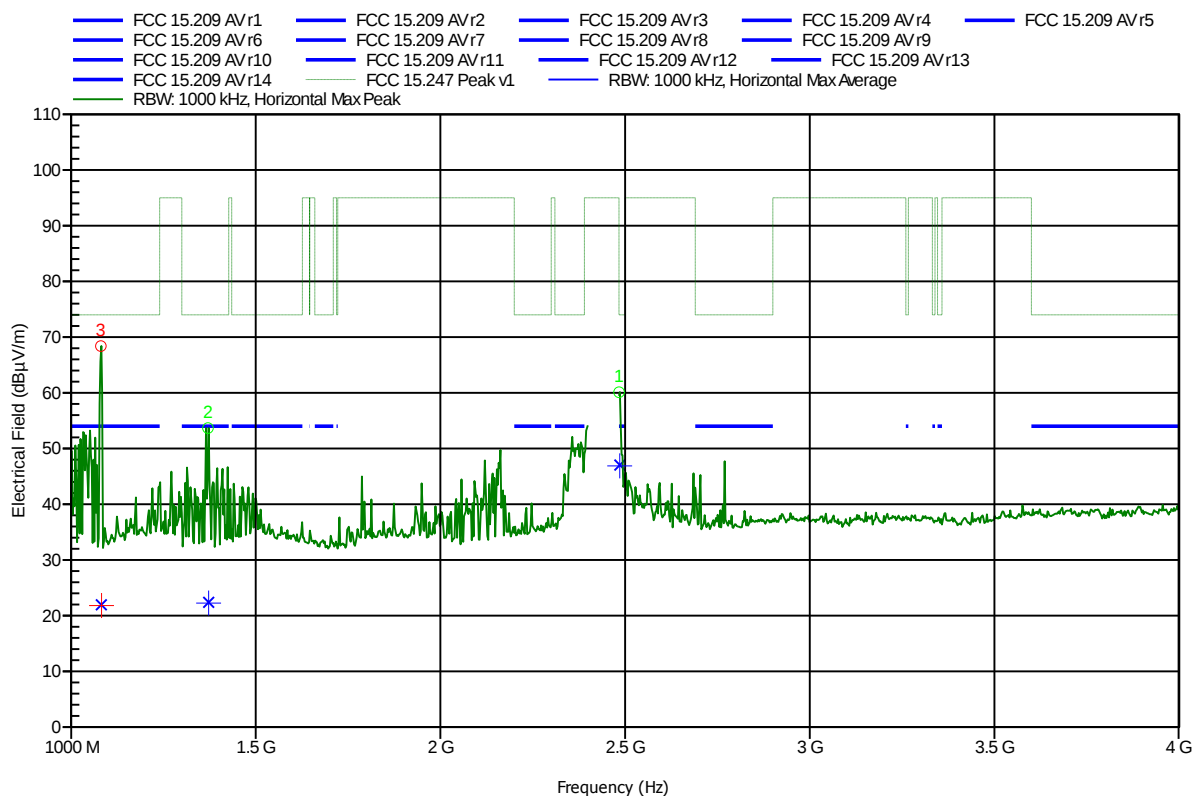
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
256 MHz	26.96 dBµV/m	46 dBµV/m	-19.04 dB	Pass

Spurious emissions according to FCC 15.247

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 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: TX; CSS; OMNI-S Ant. 1399.17.0108
 Test Date: 2013-02-22
 Note:

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.081 GHz	68.38 dBμV/m	74 dBμV/m	-5.62 dB	Pass
1.371 GHz	53.68 dBμV/m	74 dBμV/m	-20.32 dB	Pass
2.484 GHz	60.1 dBμV/m	74 dBμV/m	-13.9 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
1.081 GHz	21.93 dBμV/m	54 dBμV/m	-32.07 dB	Pass
1.371 GHz	22.38 dBμV/m	54 dBμV/m	-31.62 dB	Pass
2.484 GHz	47.01 dBμV/m	54 dBμV/m	-6.99 dB	Pass

Test Report No.: G0M-1302-2617-TFC247C-V01

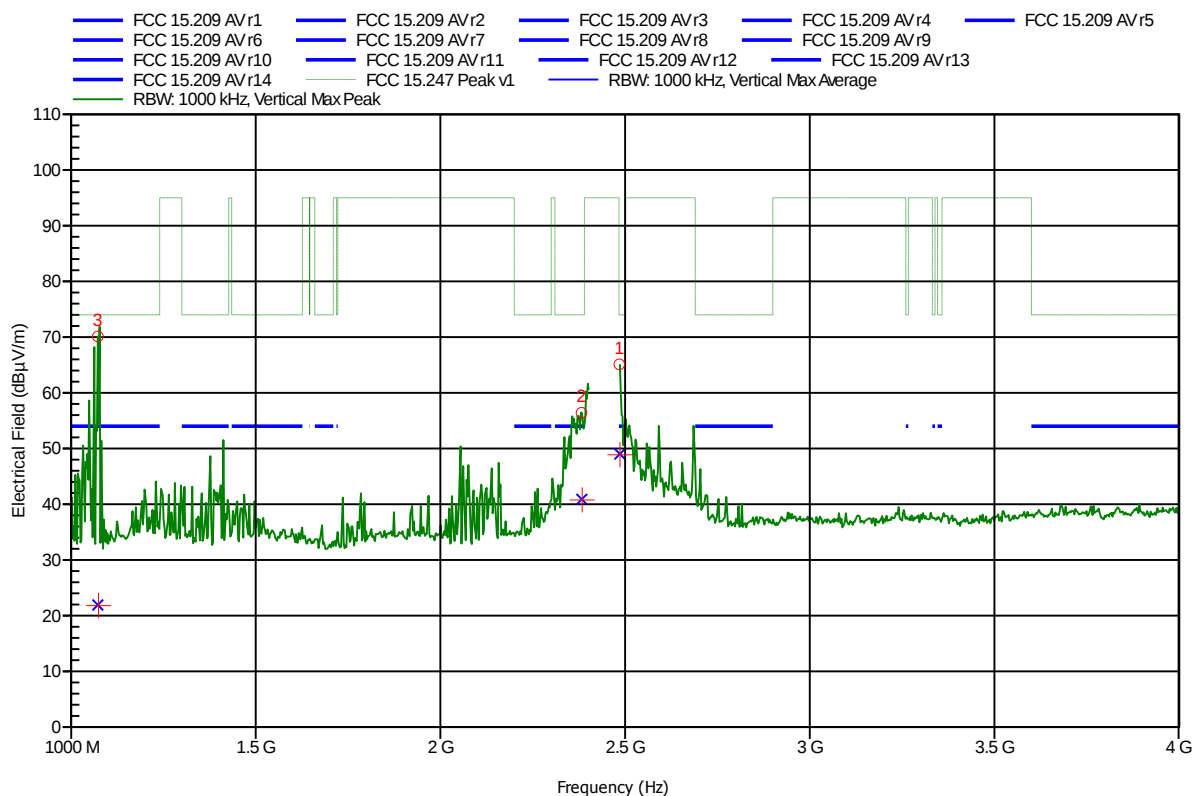
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 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; CSS; OMNI-S Ant. 1399.17.0108
 Test Date: 2013-02-22
 Note:

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.0726 GHz	70.11 dBµV/m	74 dBµV/m	-3.89 dB	Pass
2.382 GHz	56.42 dBµV/m	74 dBµV/m	-17.58 dB	Pass
2.4845 GHz	65.11 dBµV/m	74 dBµV/m	-8.89 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
1.0726 GHz	21.92 dBµV/m	54 dBµV/m	-32.08 dB	Pass
2.382 GHz	40.89 dBµV/m	54 dBµV/m	-13.11 dB	Pass
2.4845 GHz	48.99 dBµV/m	54 dBµV/m	-5.01 dB	Pass

Test Report No.: G0M-1302-2617-TFC247C-V01

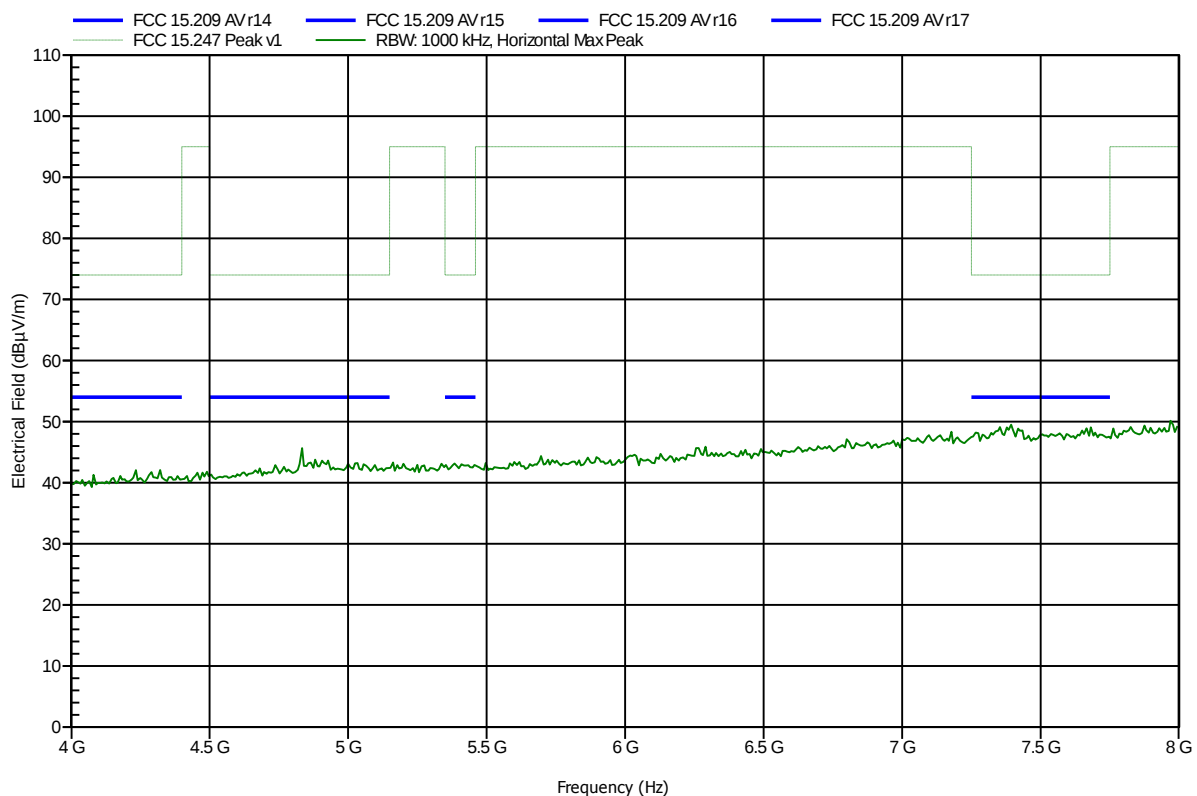
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 25°C, Vnom: 12 V DC (external)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: TX; CSS; OMNI-S Ant. 1399.17.0108
 Test Date: 2013-02-22
 Note:

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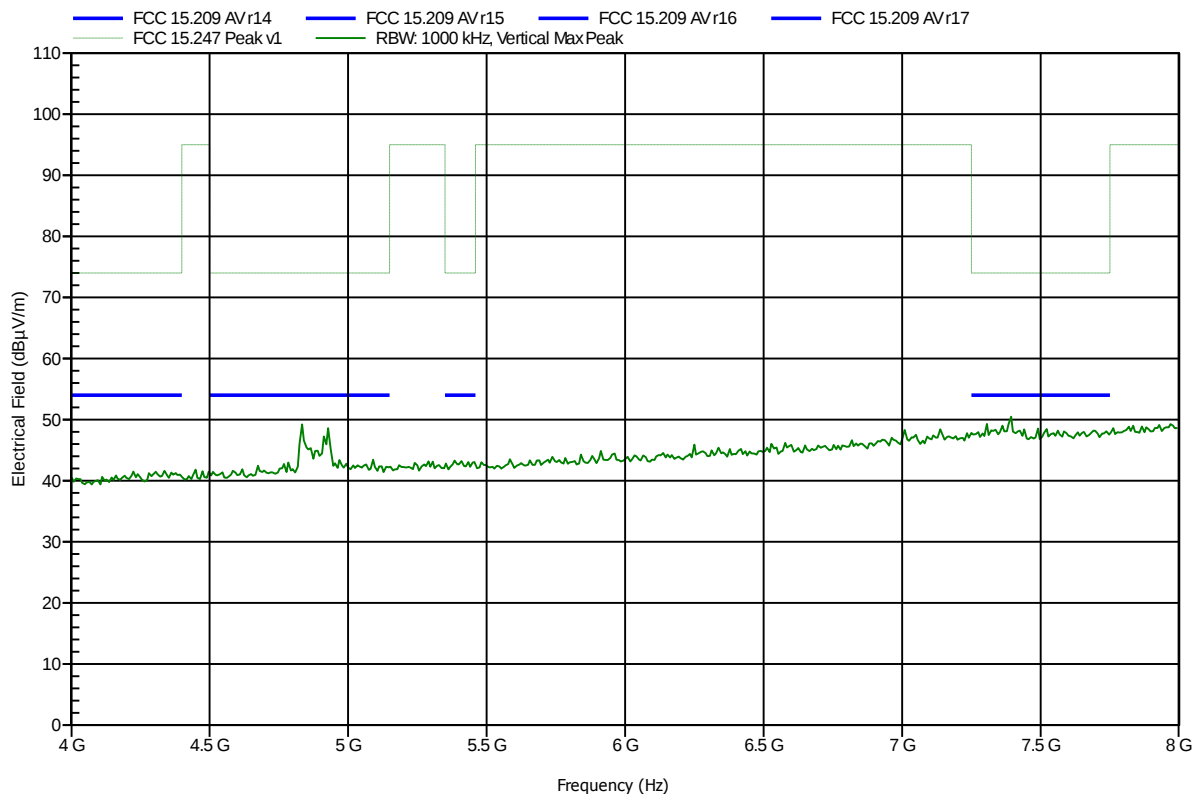


Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 25°C, Vnom: 12 V DC (external)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; CSS; OMNI-S Ant. 1399.17.0108
 Test Date: 2013-02-22
 Note:

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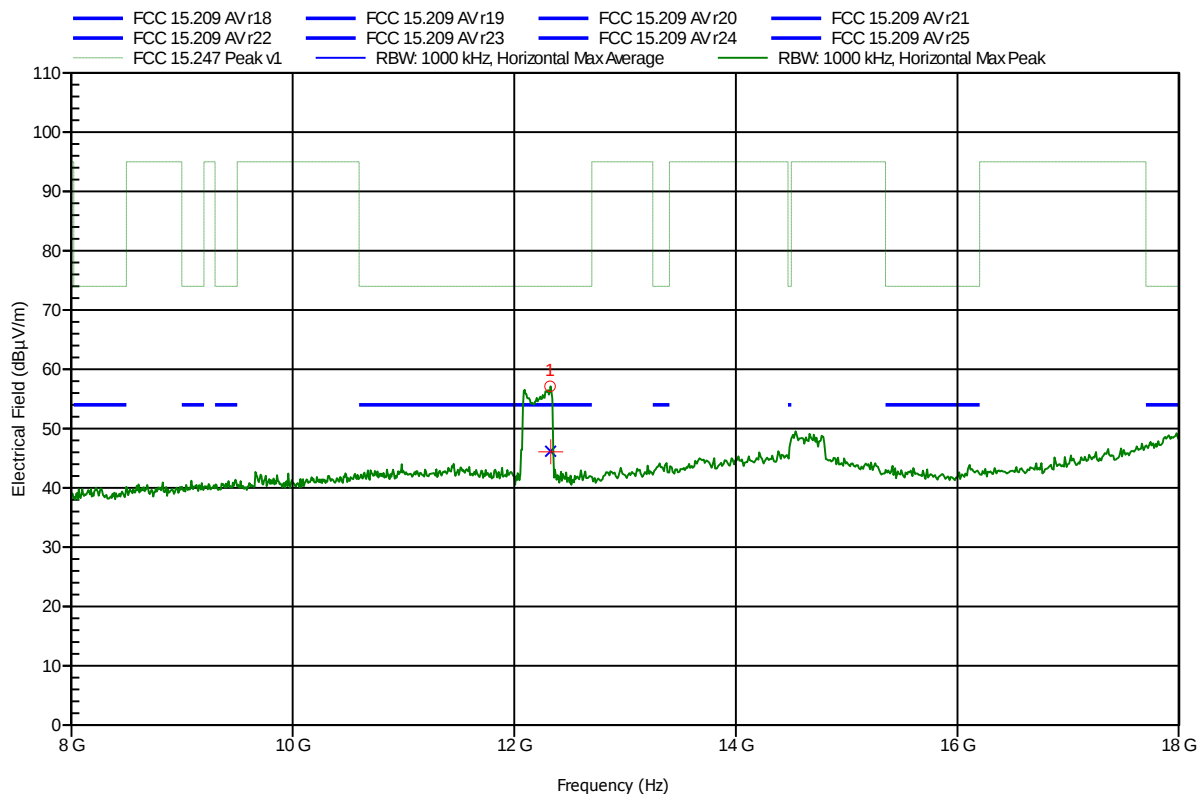


Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 25°C, Vnom: 12 V DC (external)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 100 cm converted to 3m
 Mode: TX; CSS; OMNI-S Ant. 1399.17.0108
 Test Date: 2013-02-22
 Note:

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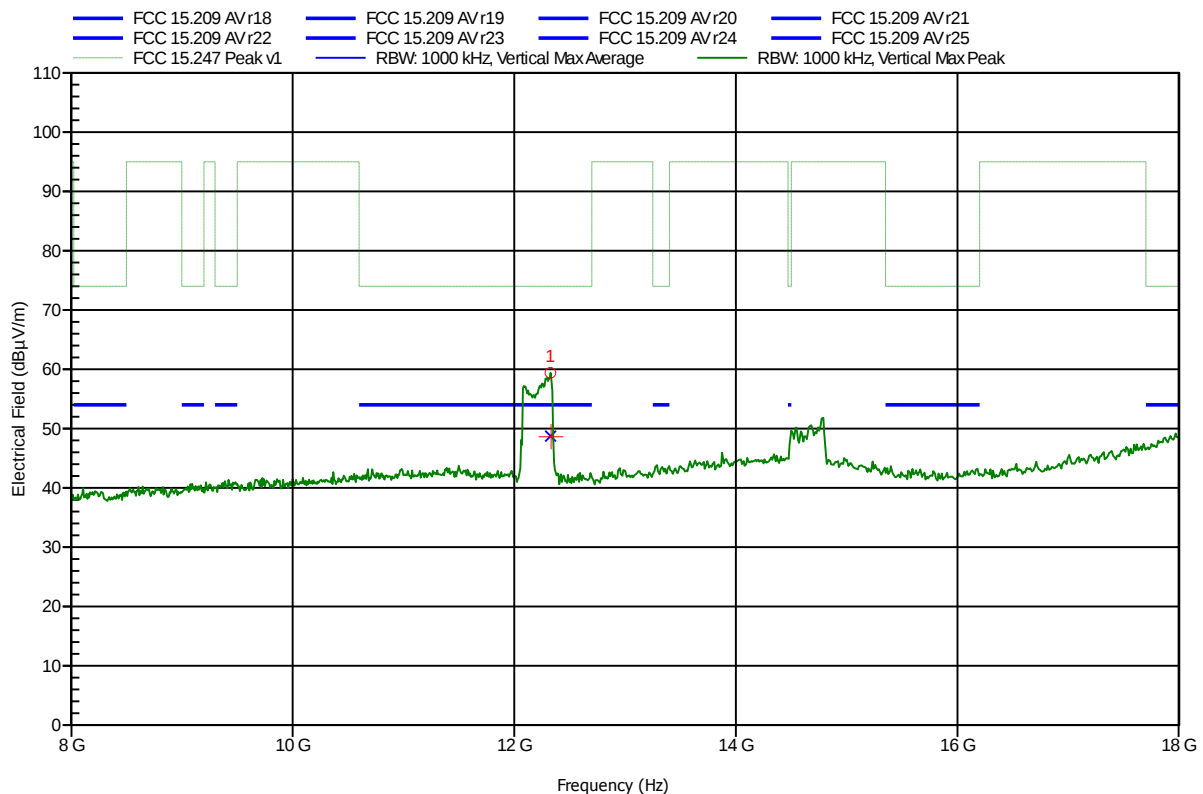
Frequency 12.323 GHz	Peak 57.13 dBμV/m	Peak Limit 74 dBμV/m	Peak Difference -16.87 dB	Peak Status Pass
Frequency 12.323 GHz	Average 46.19 dBμV/m	Average Limit 54 dBμV/m	Average Difference -7.81 dB	Average Status Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 25°C, Vnom: 12 V DC (external)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 100 cm converted to 3m
 Mode: TX; CSS; OMNI-S Ant. 1399.17.0108
 Test Date: 2013-02-22
 Note:

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Frequency 12.327 GHz	Peak 59.41 dBμV/m	Peak Limit 74 dBμV/m	Peak Difference -14.59 dB	Peak Status Pass
Frequency 12.327 GHz	Average 48.73 dBμV/m	Average Limit 54 dBμV/m	Average Difference -5.27 dB	Average Status Pass

Test Report No.: G0M-1302-2617-TFC247C-V01

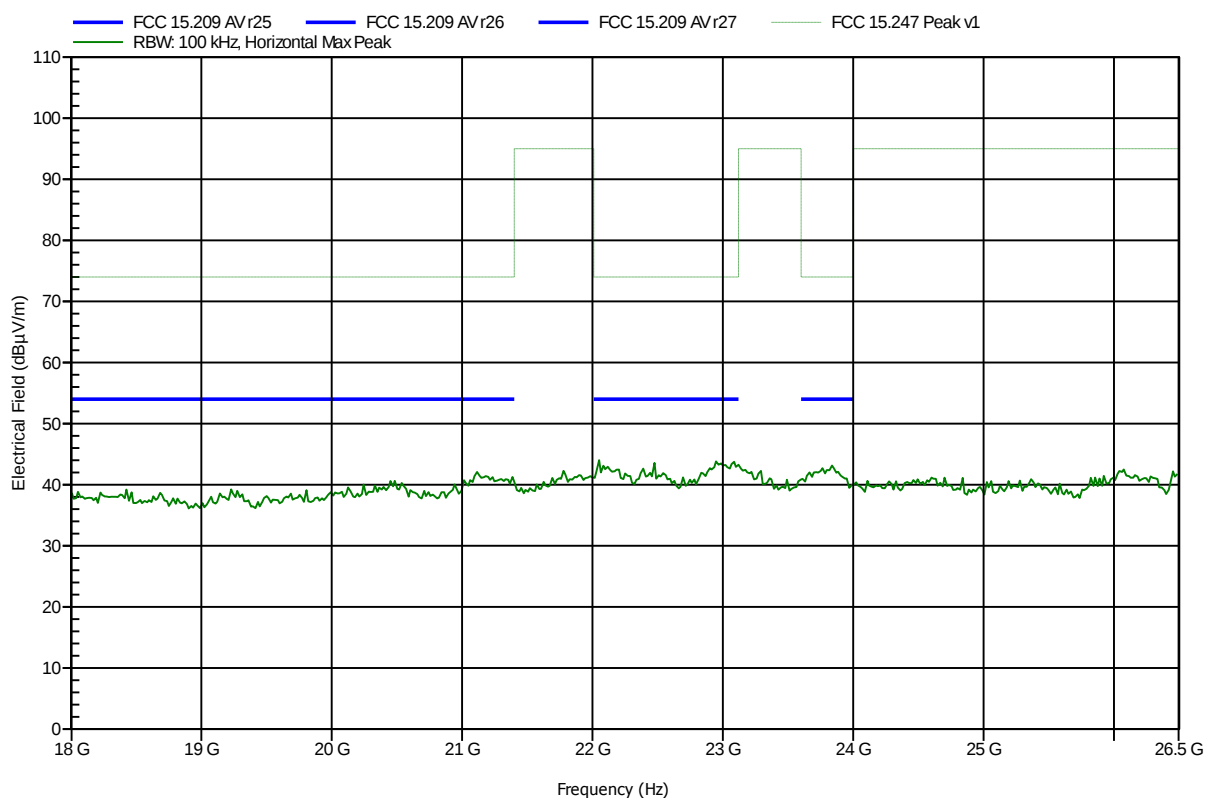
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 25°C, Vnom: 12 V DC (external)
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 100 cm
 Mode: TX; CSS; OMNI-S Ant. 1399.17.0108
 Test Date: 2013-02-22
 Note:

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Test Report No.: G0M-1302-2617-TFC247C-V01

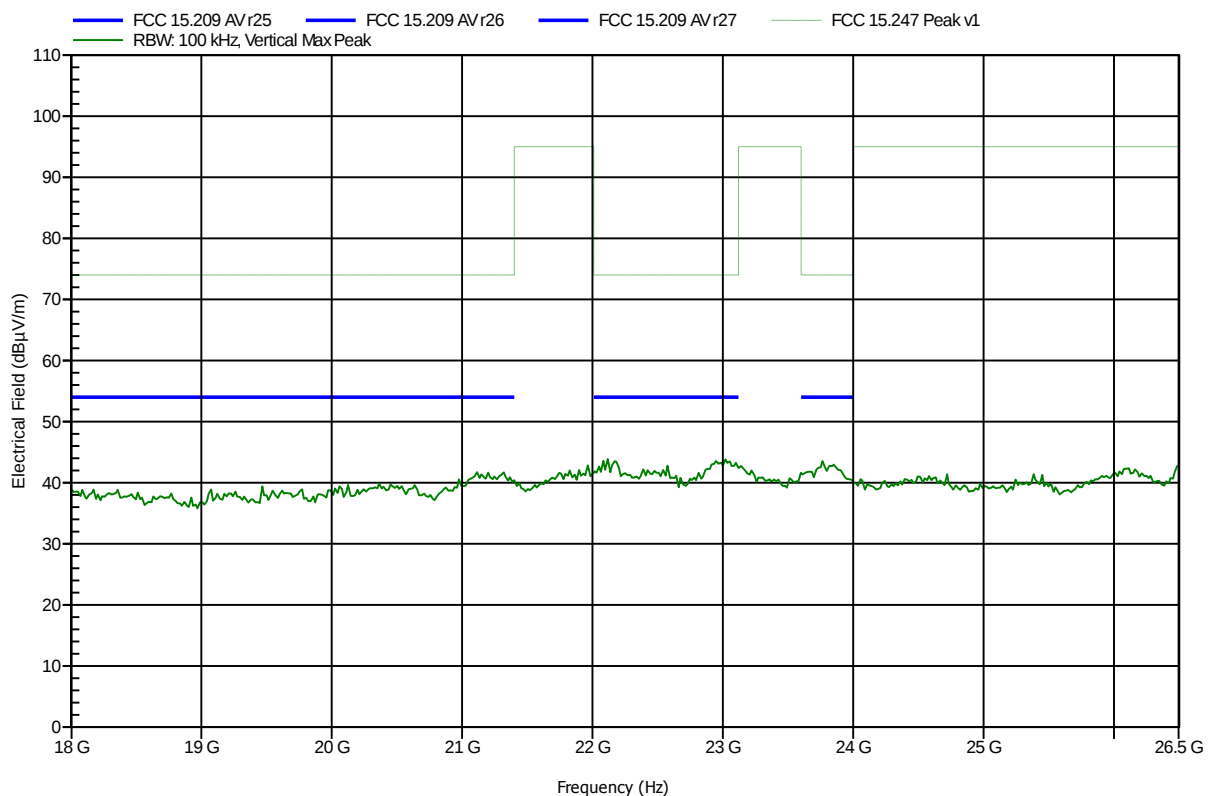
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 25°C, Vnom: 12 V DC (external)
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 100 cm
 Mode: TX; CSS; OMNI-S Ant. 1399.17.0108
 Test Date: 2013-02-22
 Note:

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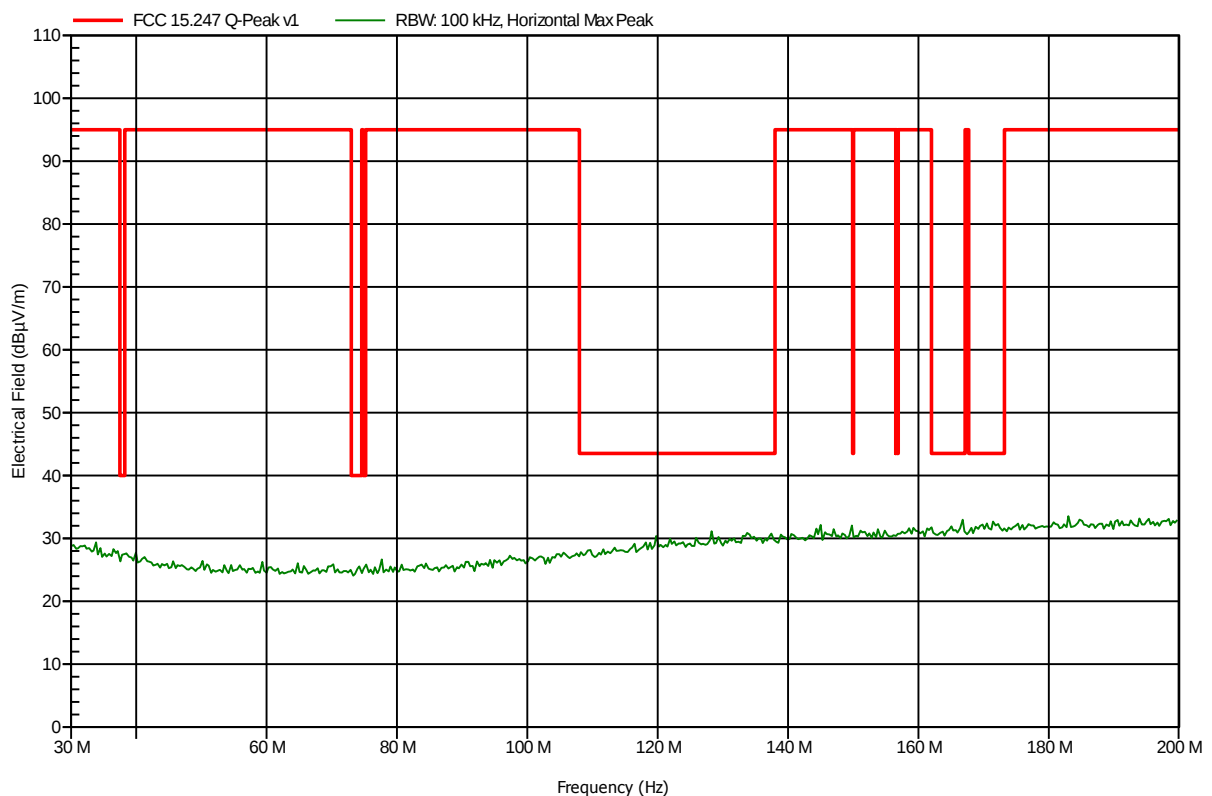


Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer:	Agilion GmbH
EUT Name:	WIRELESS THR GATEWAY
Model:	6021105
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 12 V DC (external)
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; CSS, antenna CTA 2450/5/DS/NM/S1
Test Date:	2013-02-21
Note:	

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Test Report No.: G0M-1302-2617-TFC247C-V01

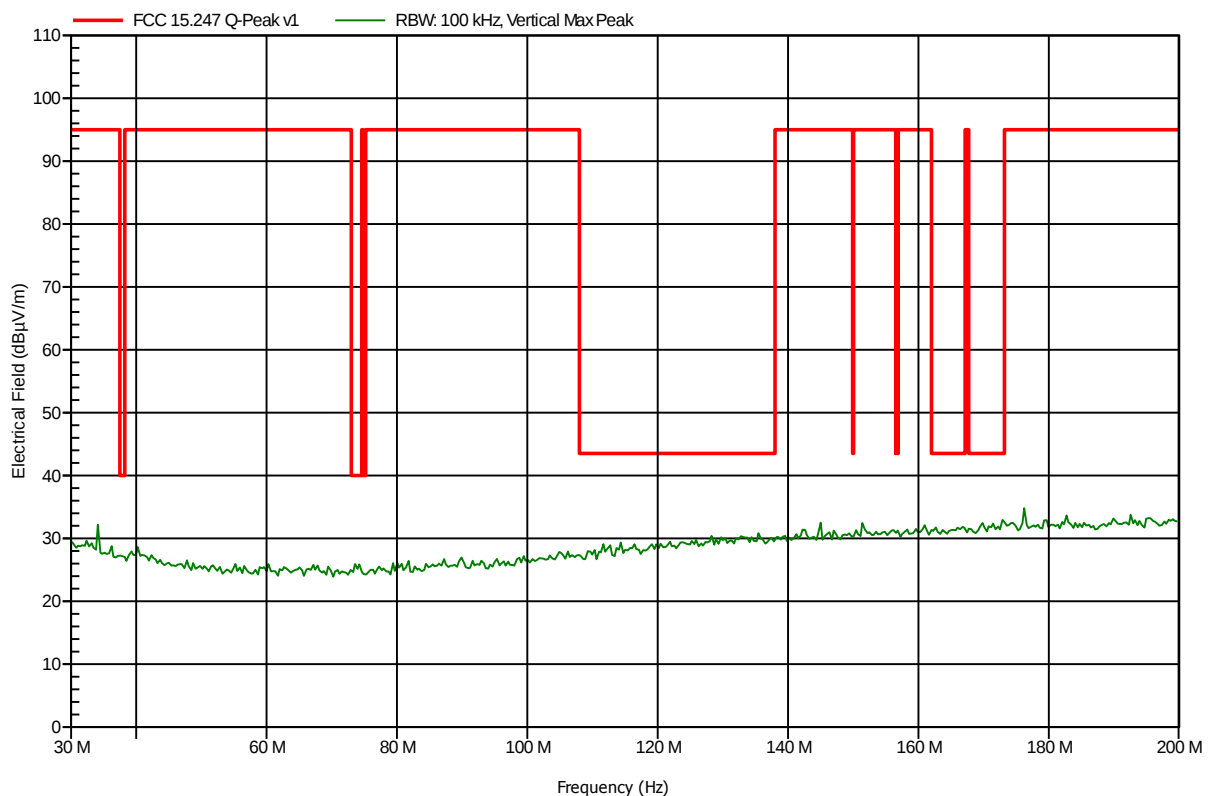
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer:	Agilion GmbH
EUT Name:	WIRELESS THR GATEWAY
Model:	6021105
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 12 V DC (external)
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; CSS, antenna CTA 2450/5/DS/NM/S1
Test Date:	2013-02-21
Note:	

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Test Report No.: G0M-1302-2617-TFC247C-V01

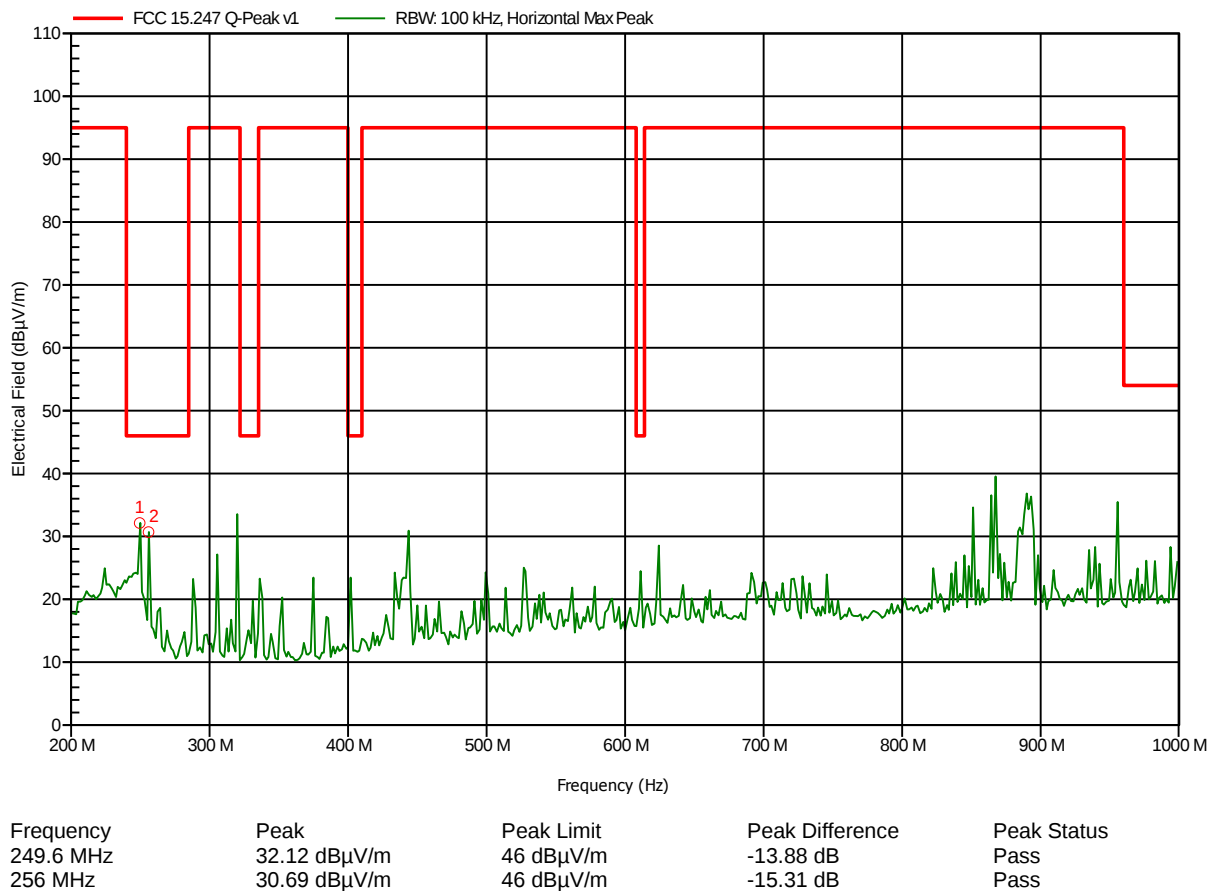
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 12 V DC (external)
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: TX; CSS, antenna CTA 2450/5/DS/NM/S1
 Test Date: 2013-02-21
 Note:

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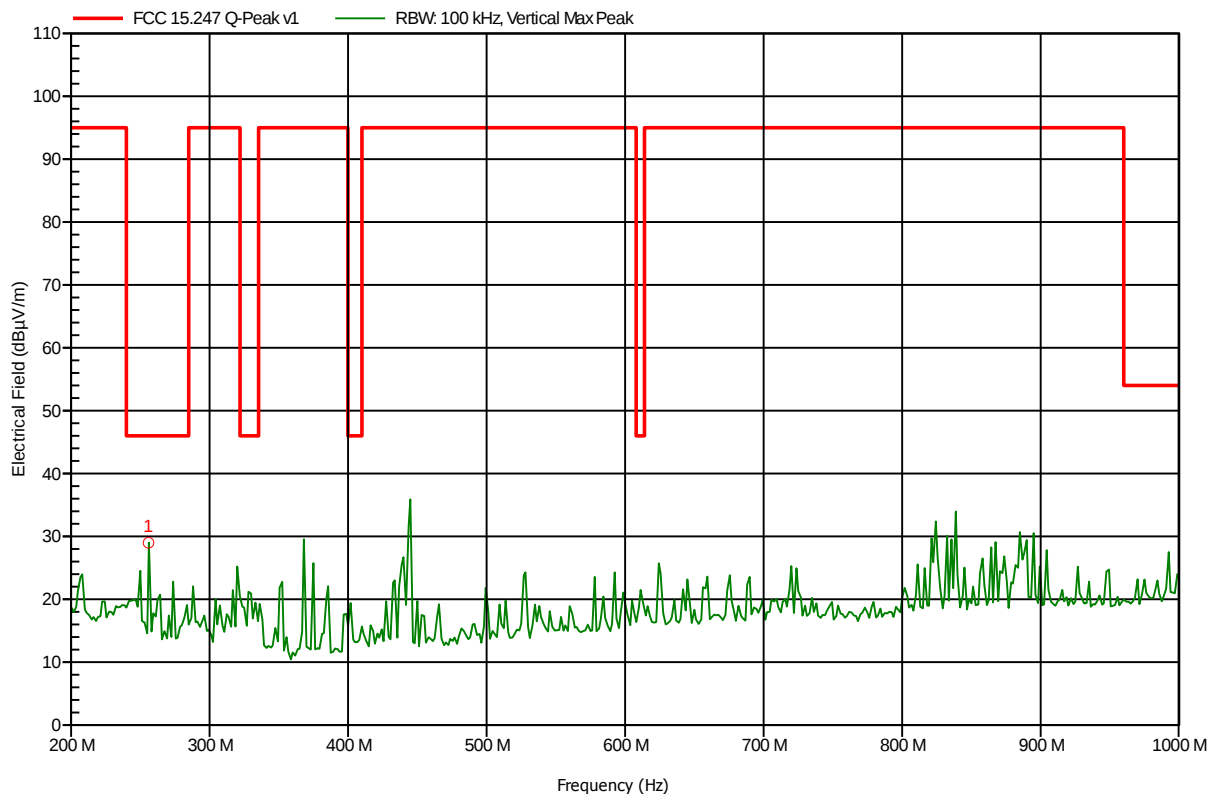


Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 12 V DC (external)
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3 m
 Mode: TX; CSS, antenna CTA 2450/5/DS/NM/S1
 Test Date: 2013-02-21
 Note:

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
256 MHz	29 dBµV/m	46 dBµV/m	-17 dB	Pass

Test Report No.: G0M-1302-2617-TFC247C-V01

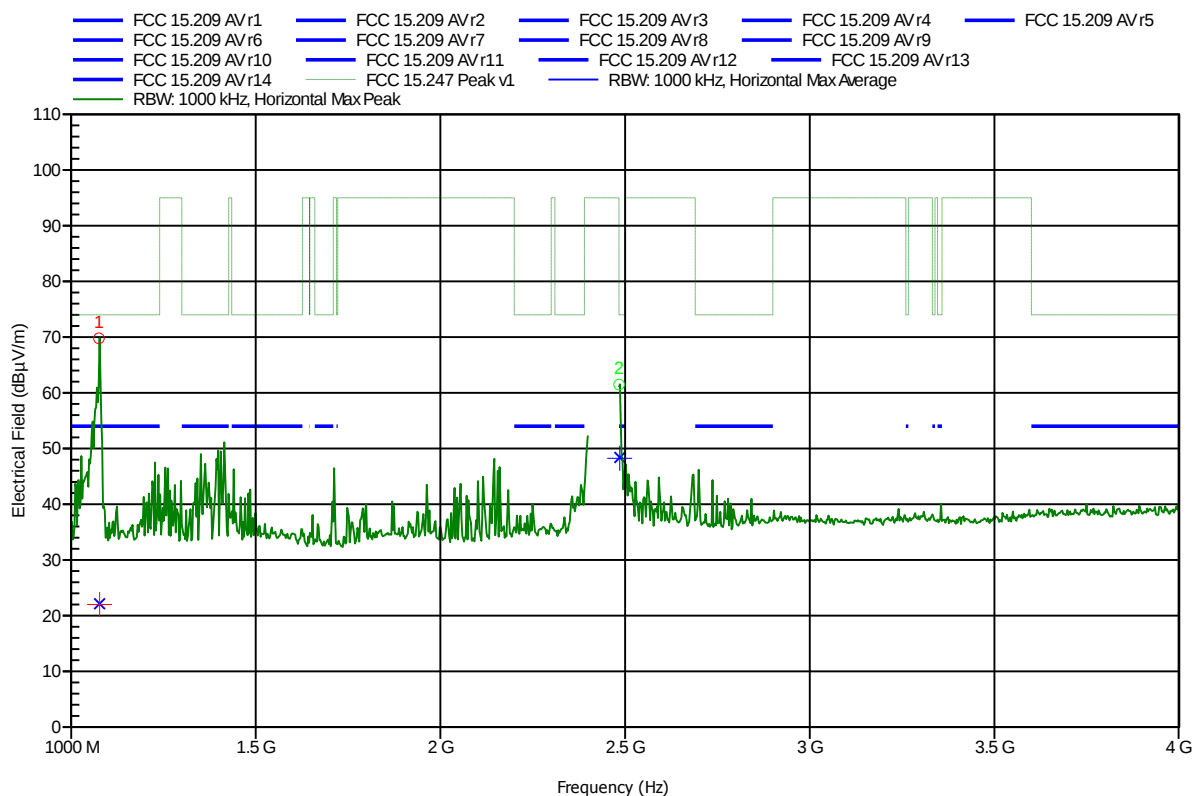
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 12 V DC (external)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: TX; CSS, antenna CTA 2450/5/DS/NM/S1
 Test Date: 2013-02-21
 Note:

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.076 GHz	69.78 dBµV/m	74 dBµV/m	-4.22 dB	Pass
2.484 GHz	61.49 dBµV/m	74 dBµV/m	-12.51 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
1.076 GHz	22.12 dBµV/m	54 dBµV/m	-31.88 dB	Pass
2.484 GHz	48.36 dBµV/m	54 dBµV/m	-5.64 dB	Pass

Test Report No.: G0M-1302-2617-TFC247C-V01

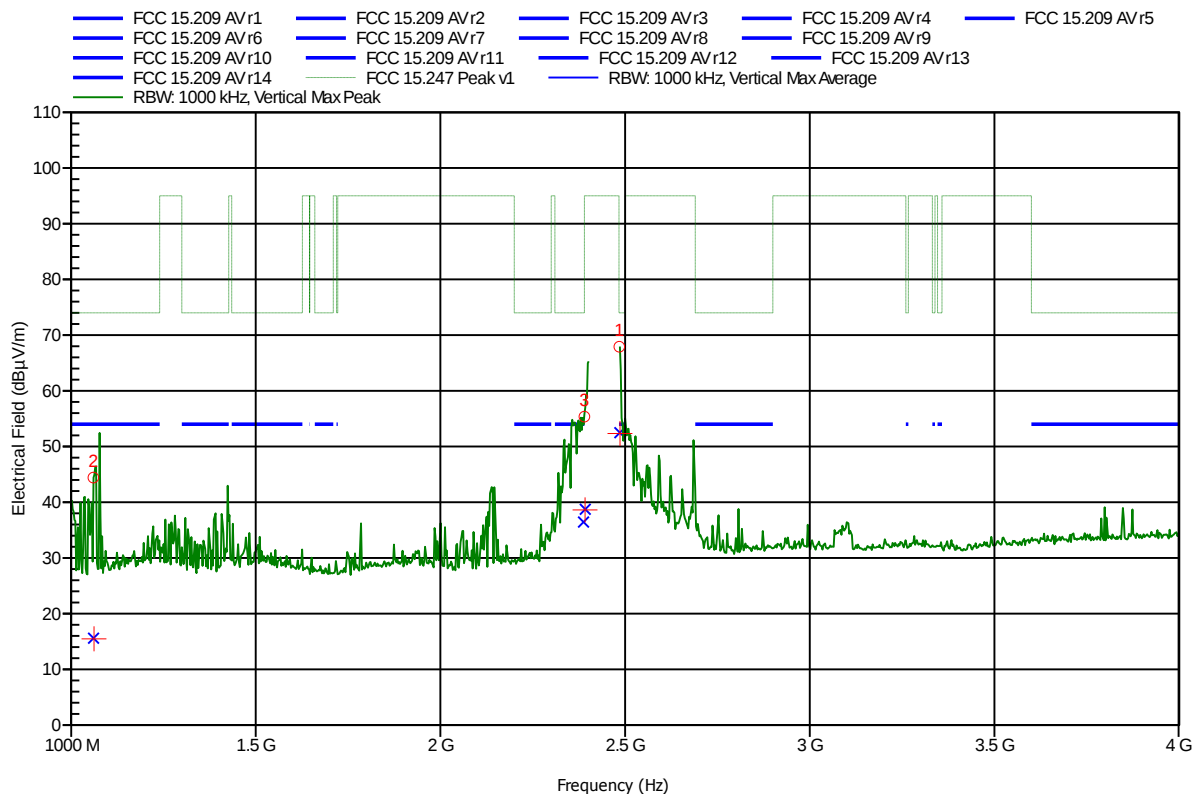
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 12 V DC (external)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; CSS, antenna CTA 2450/5/DS/NM/S1
 Test Date: 2013-02-21
 Note:

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.0606 GHz	44.43 dBμV/m	74 dBμV/m	-29.57 dB	Pass
2.3899 GHz	55.36 dBμV/m	74 dBμV/m	-18.64 dB	Pass
2.4845 GHz	67.92 dBμV/m	74 dBμV/m	-6.08 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
1.0606 GHz	15.59 dBμV/m	54 dBμV/m	-38.41 dB	Pass
2.3899 GHz	38.73 dBμV/m	54 dBμV/m	-15.27 dB	Pass
2.4845 GHz	52.46 dBμV/m	54 dBμV/m	-1.54 dB	Pass

Test Report No.: G0M-1302-2617-TFC247C-V01

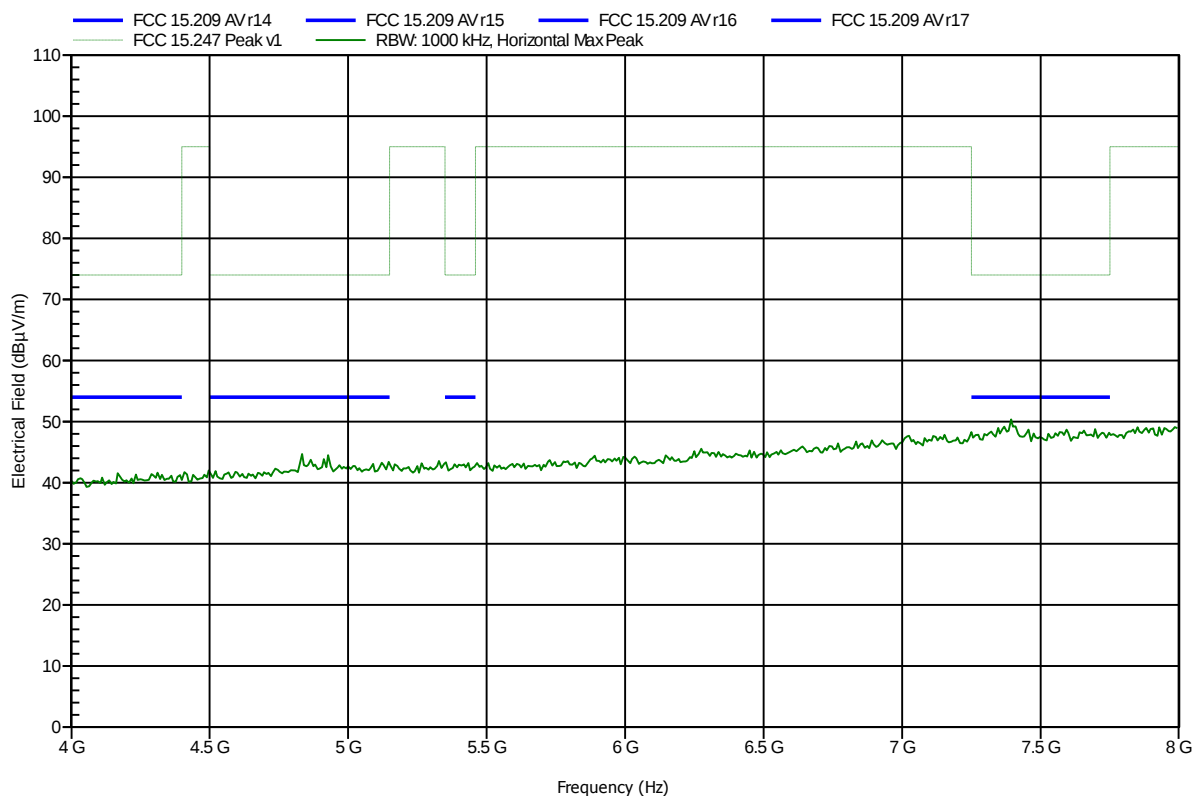
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 12 V DC (external)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: TX; CSS, antenna CTA 2450/5/DS/NM/S1
 Test Date: 2013-02-21
 Note:

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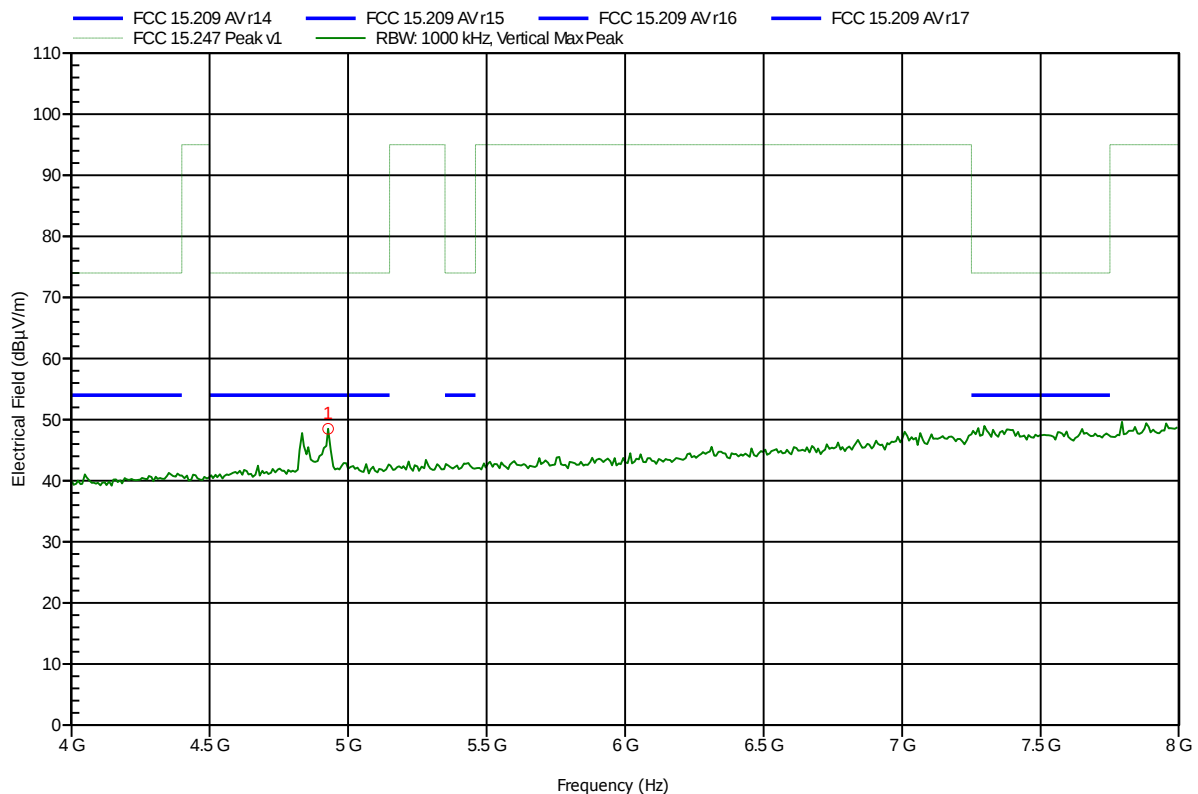


Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 12 V DC (external)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; CSS, antenna CTA 2450/5/DS/NM/S1
 Test Date: 2013-02-21
 Note:

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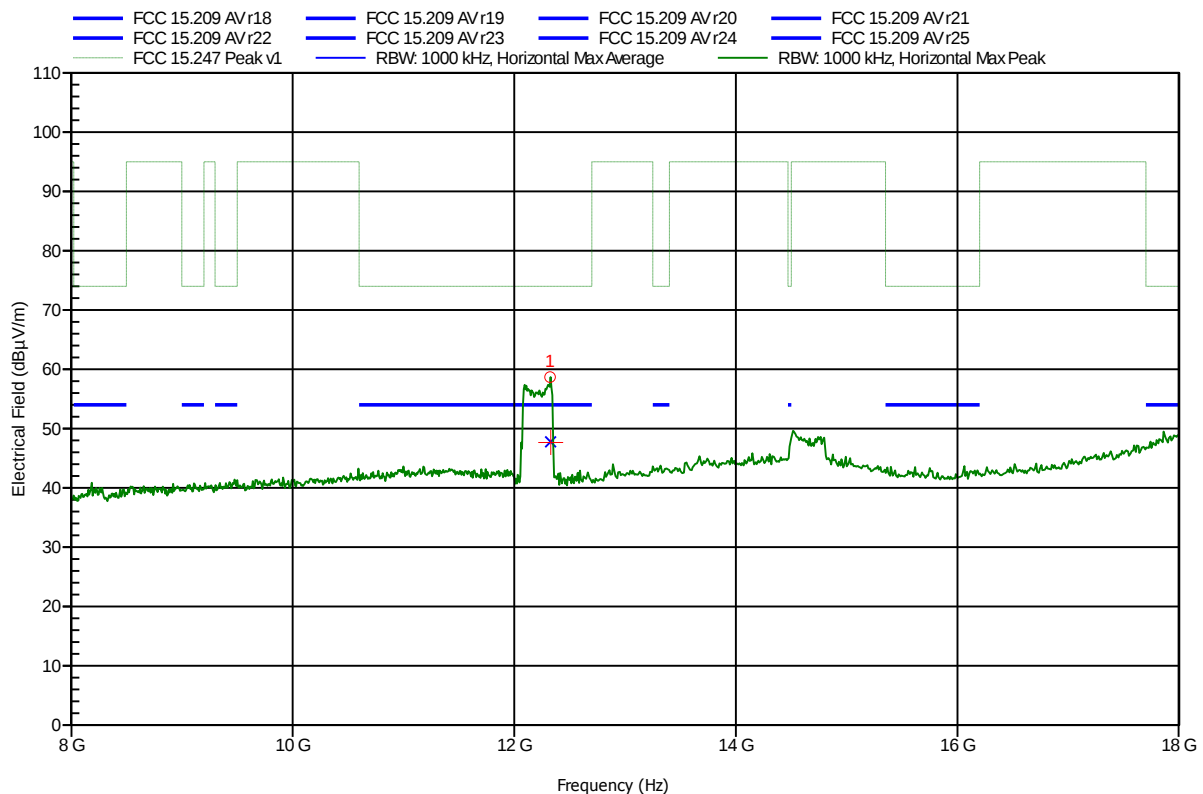
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.928 GHz	48.49 dBμV/m	74 dBμV/m	-25.51 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 12 V DC (external)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 100 cm converted to 3m
 Mode: TX; CSS, antenna CTA 2450/5/DS/NM/S1
 Test Date: 2013-02-21
 Note:

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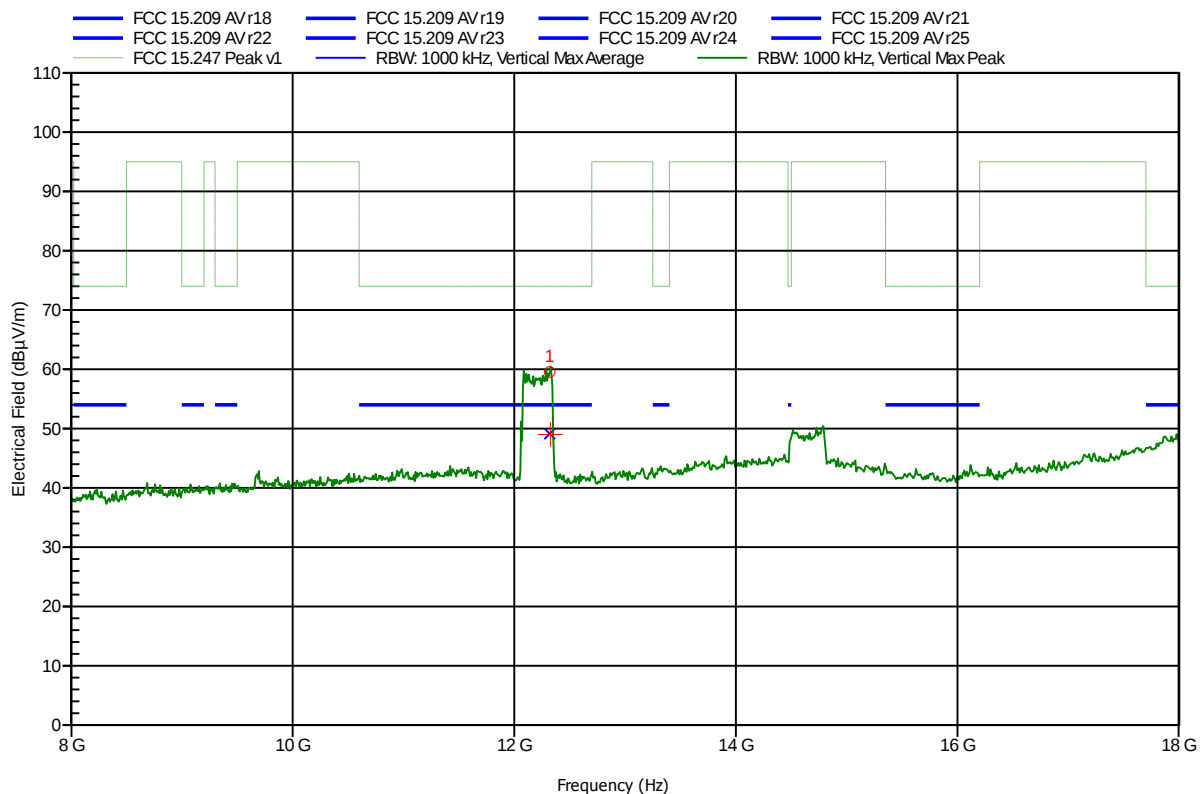
Frequency 12.323 GHz	Peak 58.69 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -15.31 dB	Peak Status Pass
Frequency 12.323 GHz	Average 47.77 dBµV/m	Average Limit 54 dBµV/m	Average Difference -6.23 dB	Average Status Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 12 V DC (external)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 100 cm converted to 3m
 Mode: TX; CSS, antenna CTA 2450/5/DS/NM/S1
 Test Date: 2013-02-21
 Note:

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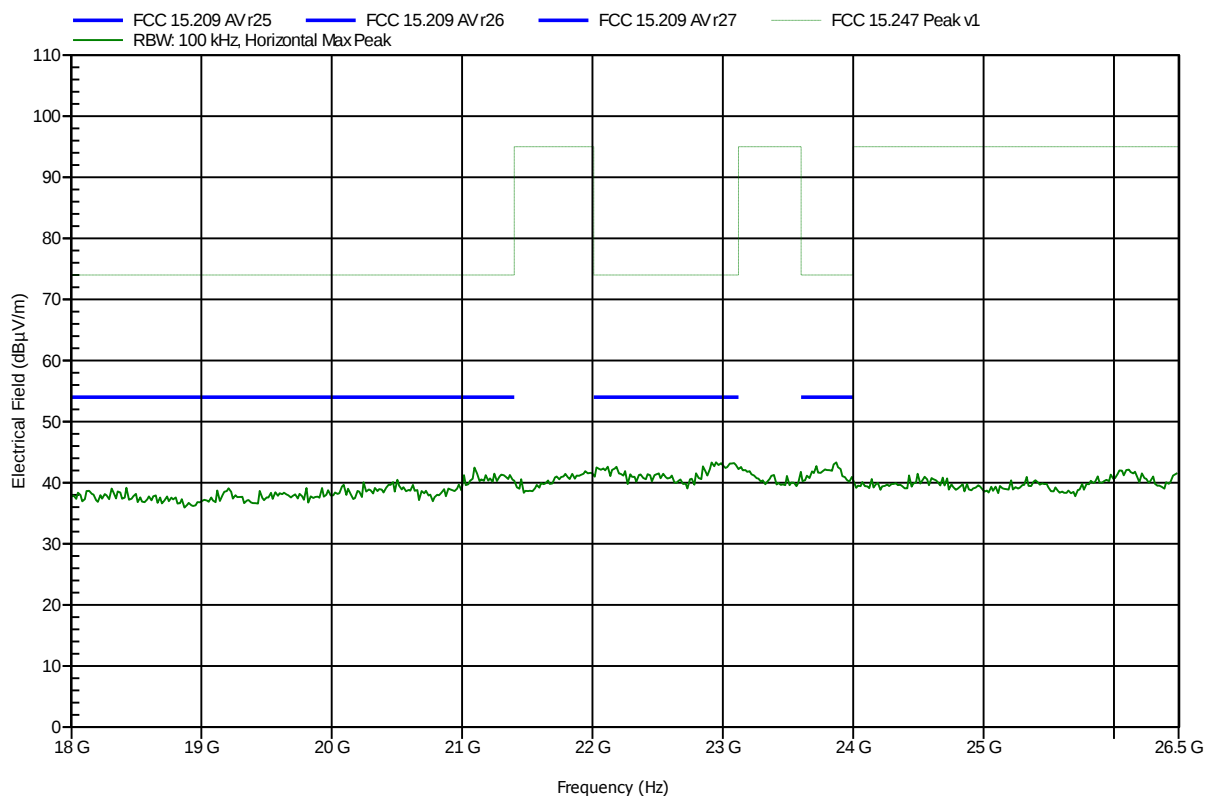
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
12.32 GHz	59.55 dBµV/m	74 dBµV/m	-14.45 dB	Pass
Frequency	Average	Average Limit	Average Difference	Average Status
12.32 GHz	49.12 dBµV/m	54 dBµV/m	-4.88 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 12 V DC (external)
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 100 cm
 Mode: TX; CSS, antenna CTA 2450/5/DS/NM/S1
 Test Date: 2013-02-21
 Note:

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Test Report No.: G0M-1302-2617-TFC247C-V01

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

Spurious emissions according to FCC 15.247

Project number: G0M-1302-2617

Manufacturer: Agilion GmbH
 EUT Name: WIRELESS THR GATEWAY
 Model: 6021105
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 12 V DC (external)
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 100 cm
 Mode: TX; CSS, antenna CTA 2450/5/DS/NM/S1
 Test Date: 2013-02-21
 Note:

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