

EMC TEST REPORT

FCC 47 CFR Part 15B

Electromagnetic compatibility - Unintentional radiators

Report Reference No. : G0M-1707-6700-EF01-V01

Testing Laboratory : Eurofins Product Service GmbH

Address : Storkower Str. 38c
15526 Reichenwalde
Germany

Accreditation :



A2LA Accredited Testing Laboratory, Certificate No.: 1983.01
FCC Test Firm Designation Number: DE0008
IC Testing Laboratory site: 3470A-2

Applicant's name : Kamstrup A/S

Address : Industrivej 28
8660 Skanderborg
DENMARK

Test specification:

Standard..... : 47 CFR Part 15 Subpart B
ANSI C63.4:2014

Equipment under test (EUT):

Product description Ultrasonic water meter
Model No. FlowIQ 2250
Additional Models FlowIQ 3250 HW: 620220101 rev 00 / RF board 55501605 rev D1
Hardware version 620120101 rev A1 / RF board 55501605 rev D1
Firmware / Software version 50981336 rev E1 / 55141470 rev C1
FCC-ID: OUY-FLOWX250 **IC:** N/A

Test result **Passed**

Possible test case verdicts:

- not applicable to test object: N/A
- test object does meet the requirement.....: P (Pass)
- test object does not meet the requirement.....: F (Fail)

Testing:

Date of receipt of test item: 2017-08-21

Date (s) of performance of tests: 2017-08-23

Compiled by: Toralf Jahn

Tested by (+ signature).....: Matthias Handrik

Approved by (+ signature): Jens Marquardt
Deputy Head of Lab

Date of issue: 2017-08-31

Total number of pages: 68



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:

The following models are additional models to the series. They were neither tested nor assessed nor evaluated.

FlowIQ 2250 HW:620120102 rev A1 / RF board 55501605 rev D1

FlowIQ 2250 HW:620120103 rev A1 / RF board 55501605 rev D1

FlowIQ 3250 HW:620220102 rev 00 / RF board 55501605 rev D1

FlowIQ 3250 HW:620220103 rev 00 / RF board 55501605 rev D1

FlowIQ 3250 HW:620220104 rev 00 / RF board 55501605 rev D1

FlowIQ 3250 HW:620220105 rev 00 / RF board 55501605 rev D1

Version History

Version	Issue Date	Remarks	Revised by
V01	2017-08-31	Initial Release	

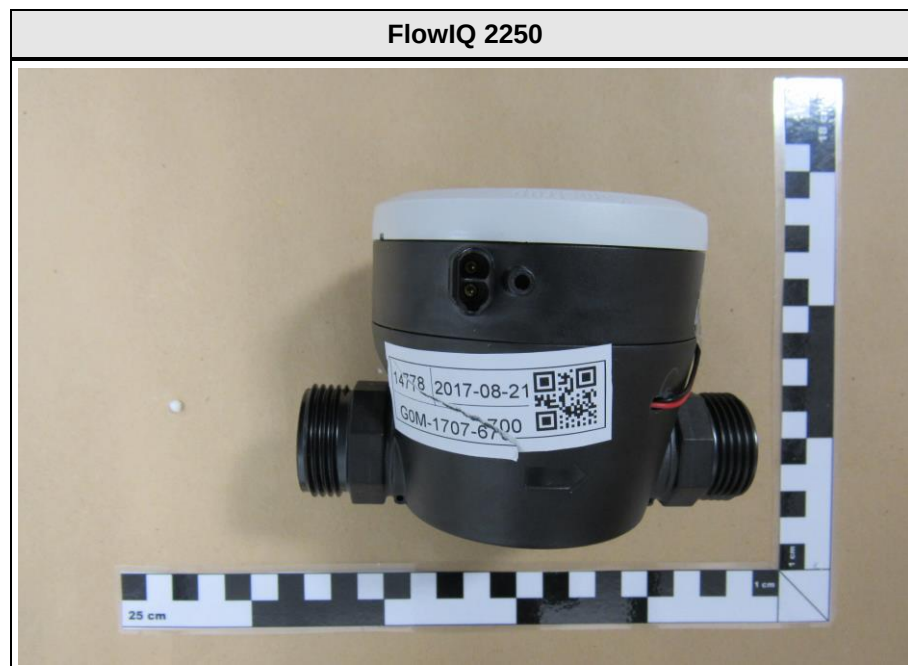
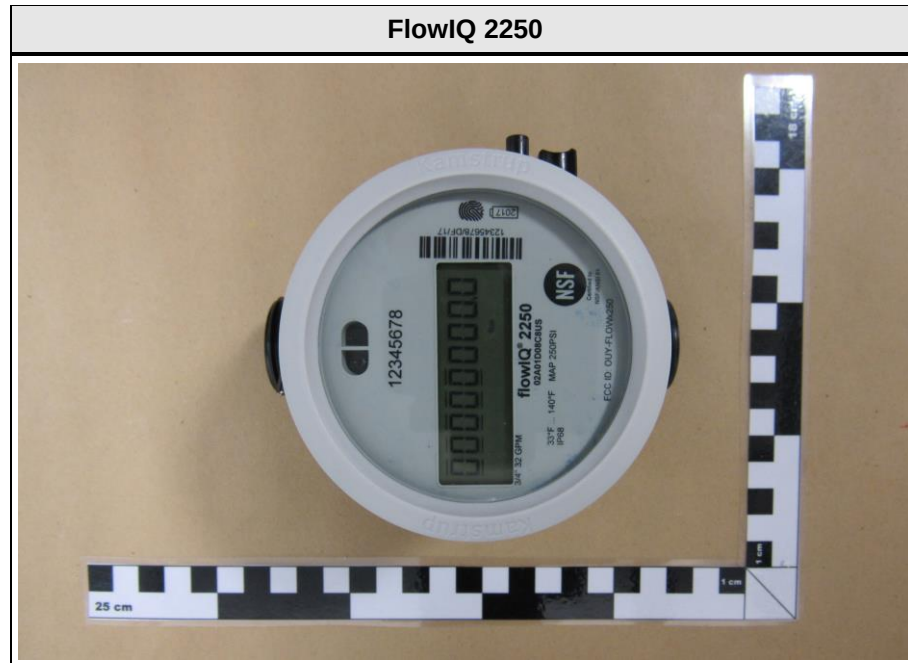
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1 Equipment (Test item) Description

Description	Ultrasonic water meter
Model	FlowIQ 2250
Additional Models	FlowIQ 3250 HW: 620220101 rev 00 / RF board 55501605 rev D1
Serial number	None
Hardware version	620120101 rev A1 / RF board 55501605 rev D1
Software / Firmware version	50981336 rev E1 / 55141470 rev C1
	OUY-FLOWX250
Contains IC	N/A
Power supply	3.6 VDC battery
AC/DC-Adaptor	None
Manufacturer	Kamstrup A/S Industrivej 28 8660 Skanderborg DENMARK
Highest emission frequency	> 1000 MHz (up to 5th Harm)
Device classification	Class B
Equipment type	Tabletop
Number of tested samples	1 of each model

1.1 Photos – Equipment external



Test Report No.: GOM-1707-6700-EF01-V01

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

FlowIQ 2250

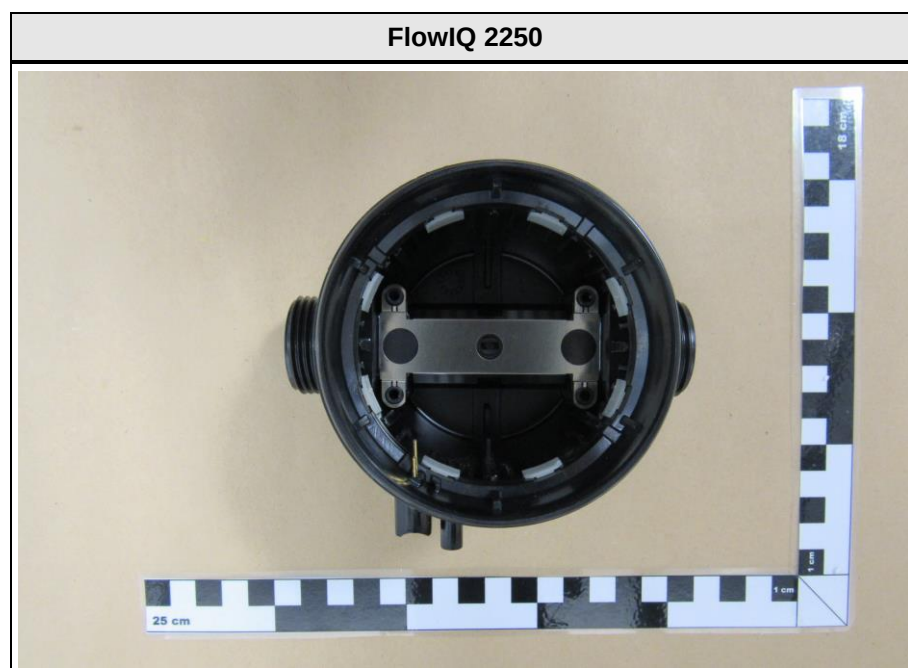
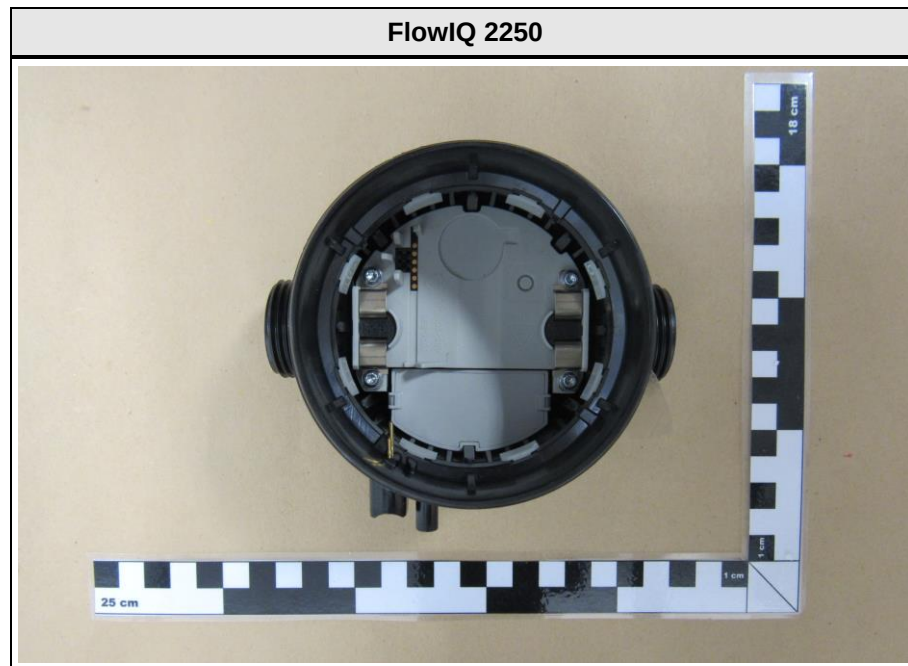


FlowIQ 3250





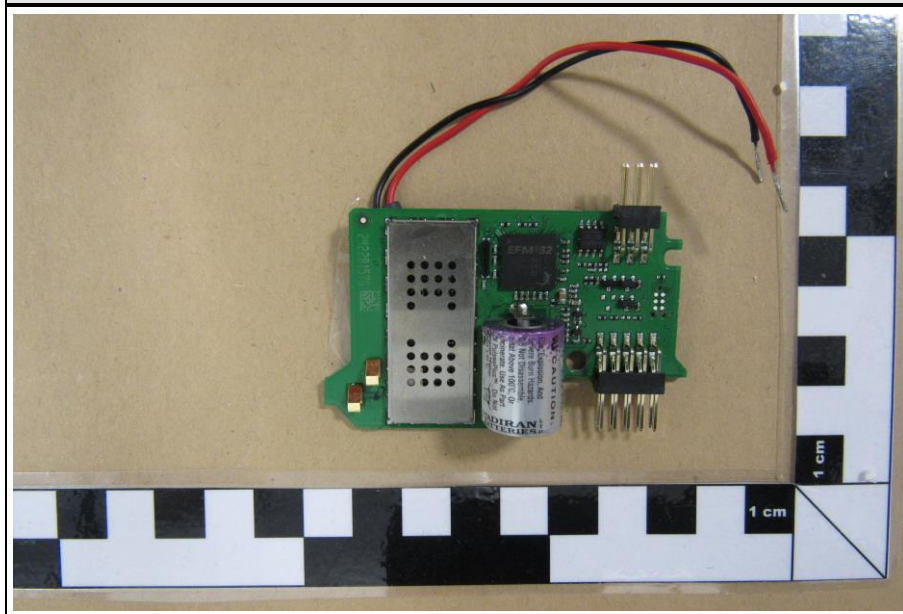
1.2 Photos – Equipment internal



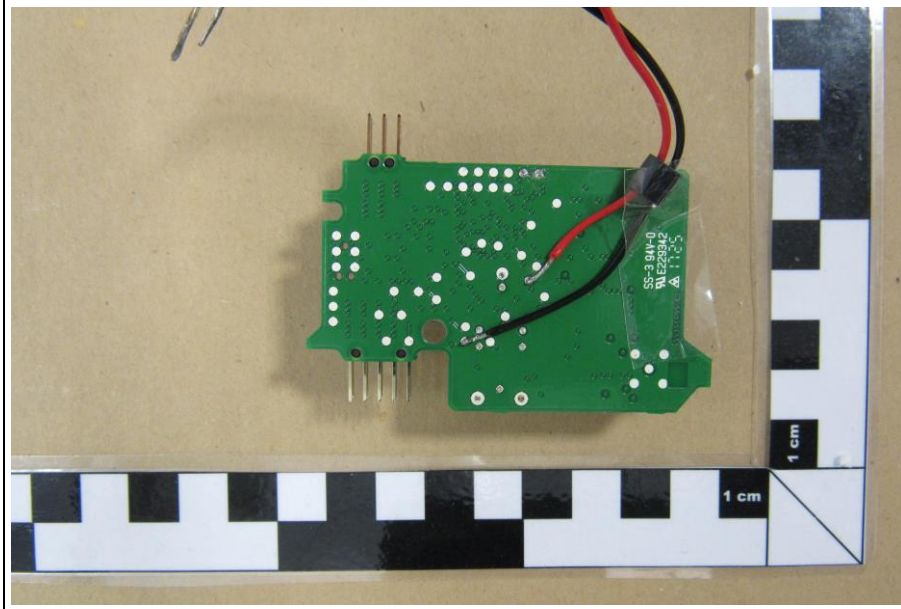
FlowIQ 2250



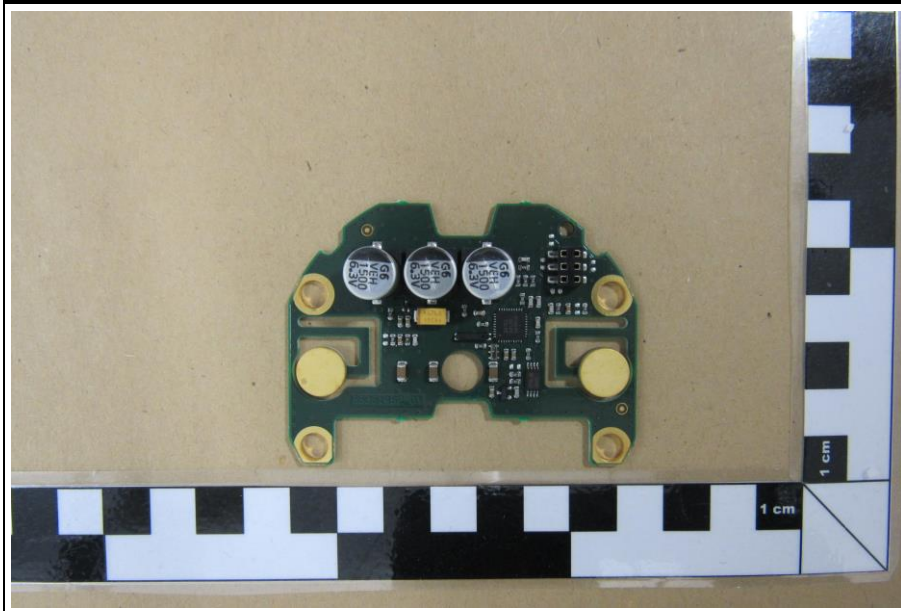
FlowIQ 2250 RF-PCB

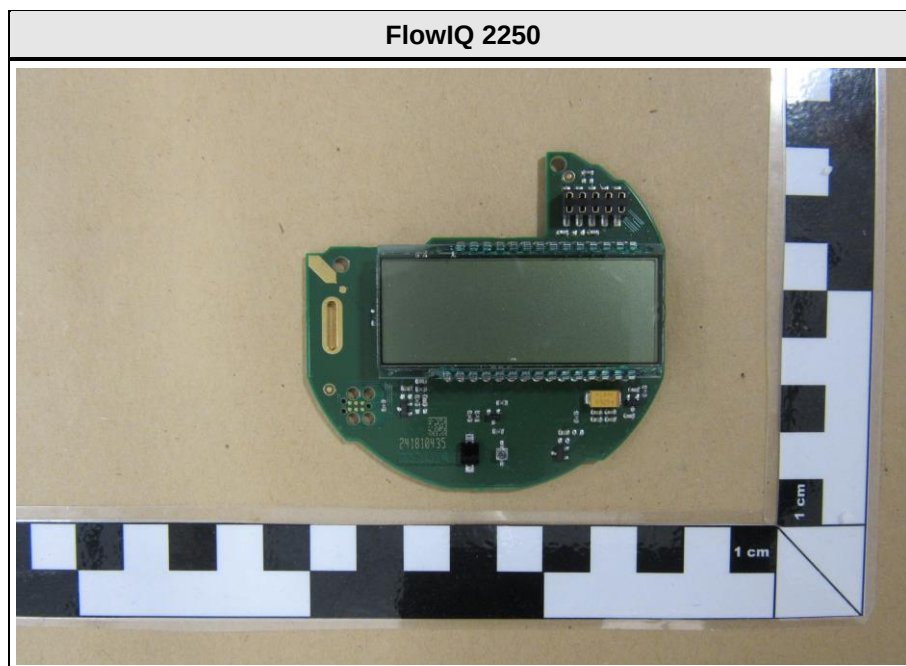
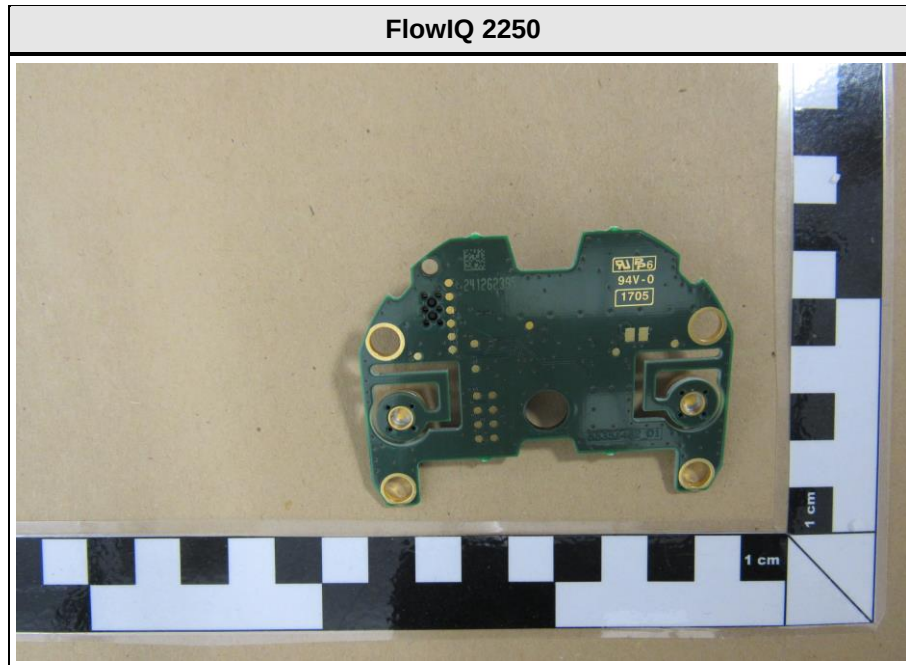


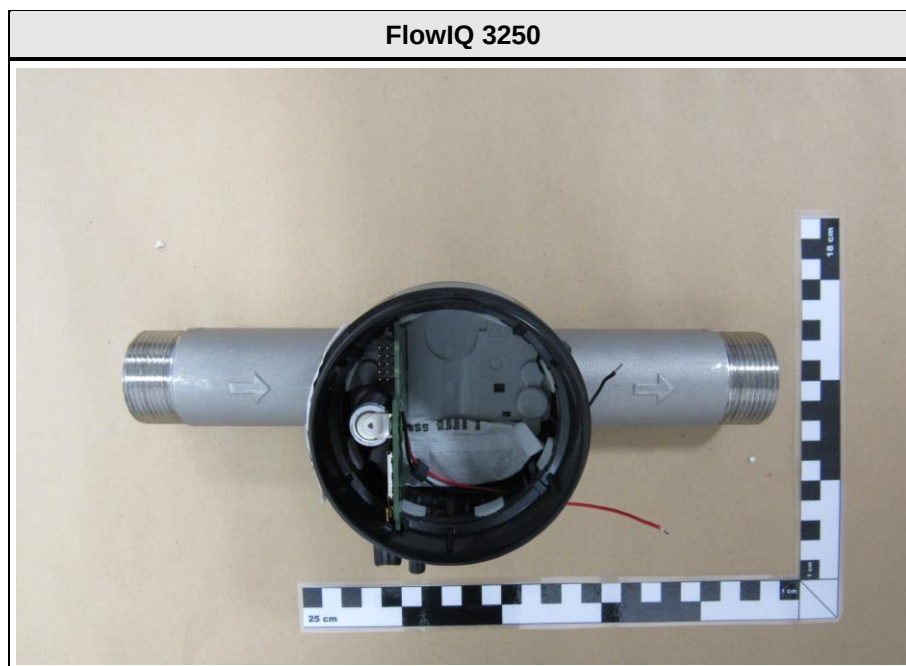
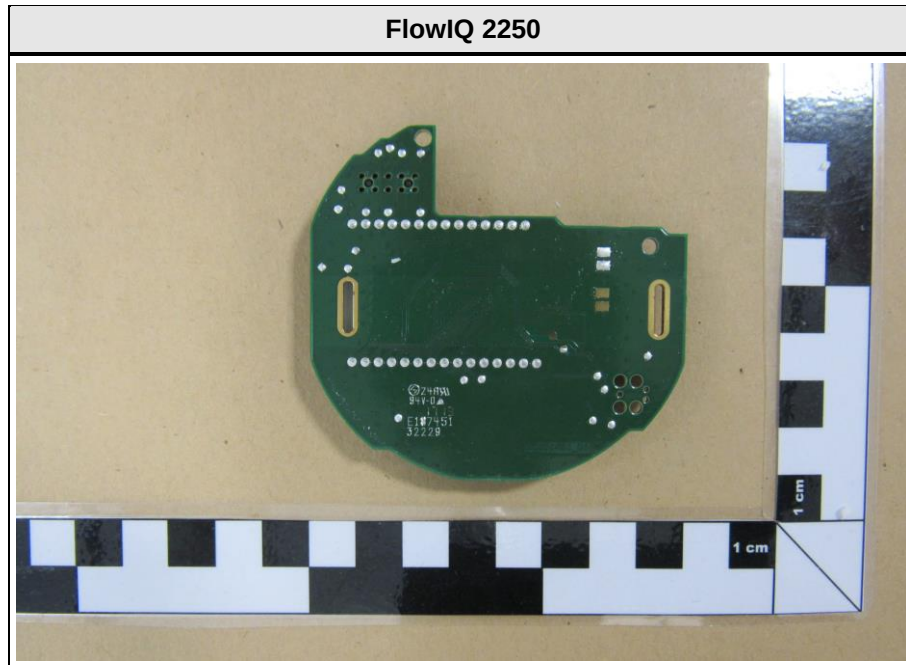
FlowIQ 2250 RF PCB



FlowIQ 2250



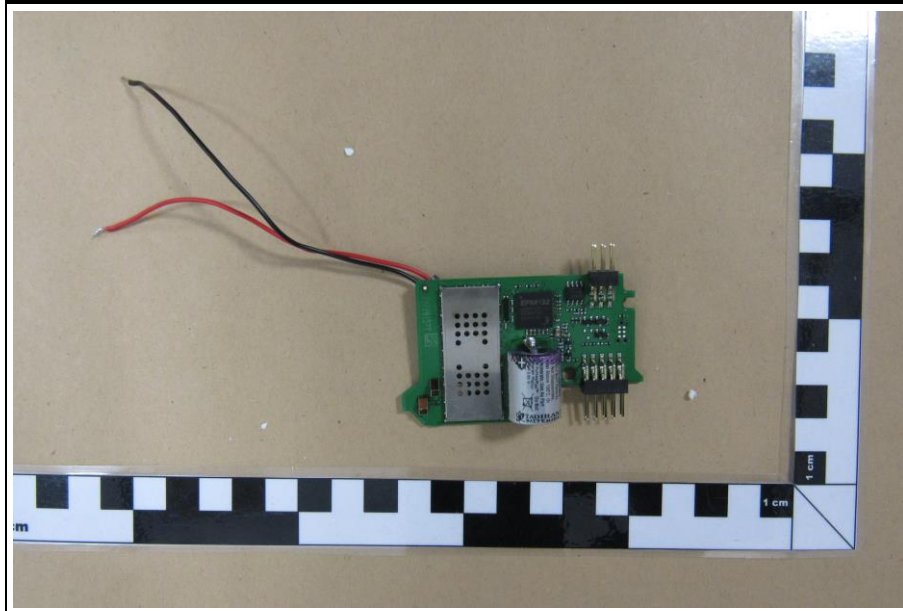




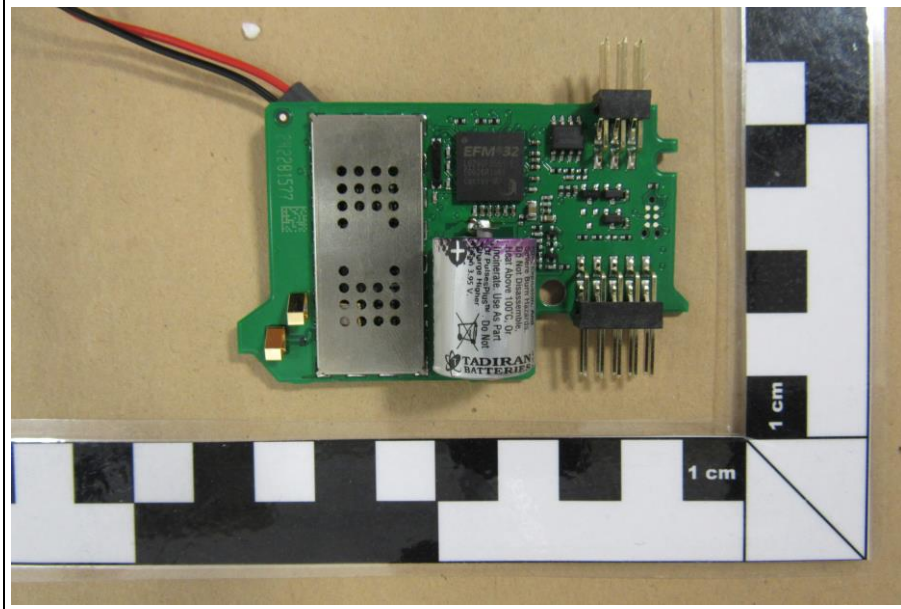
FlowIQ 3250



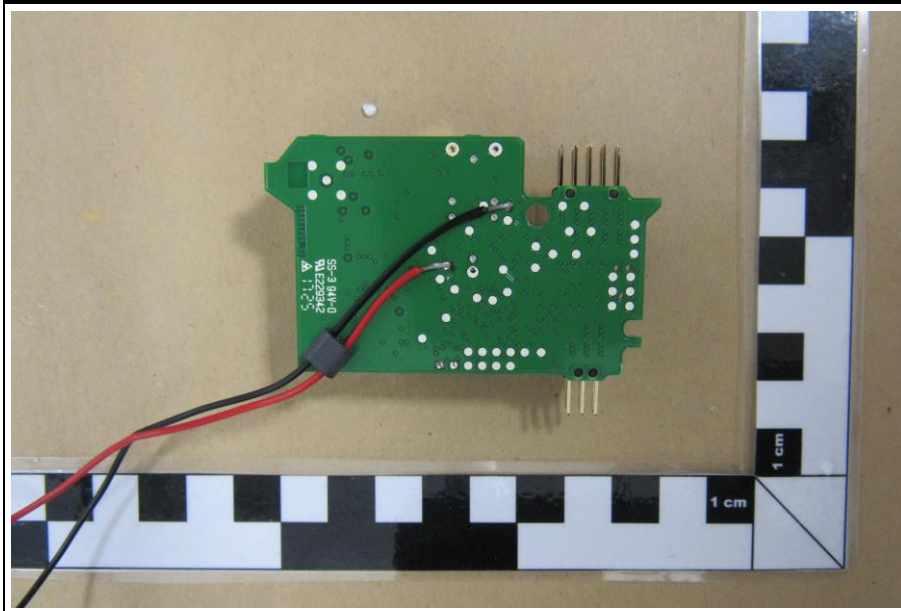
FlowIQ 3250 RF PCB

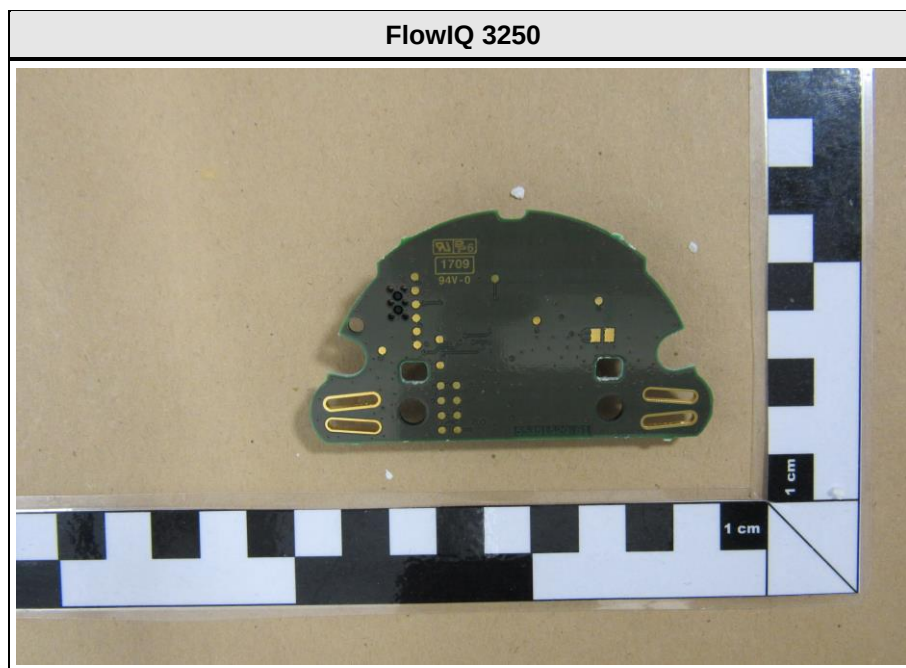
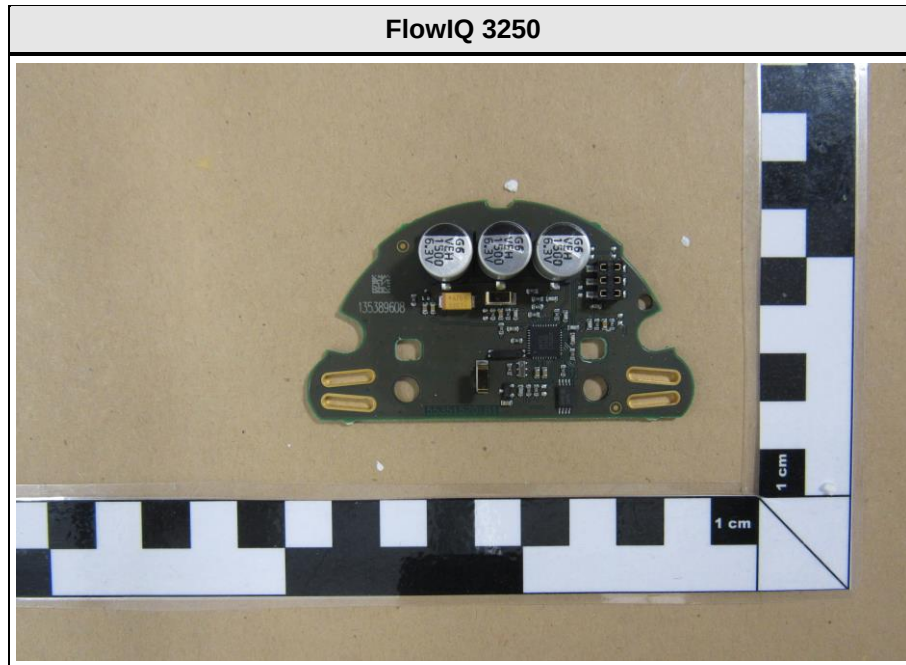


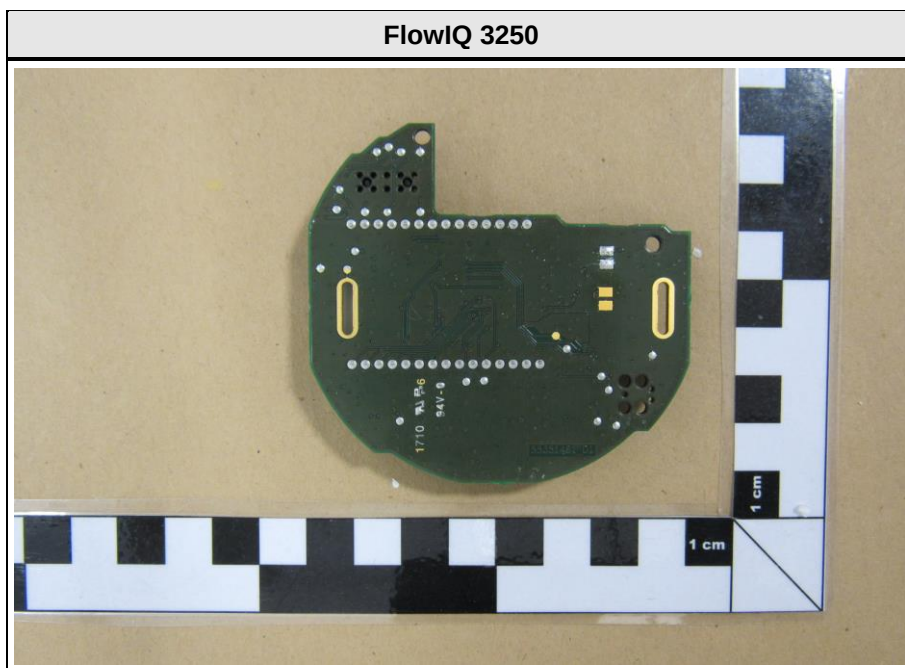
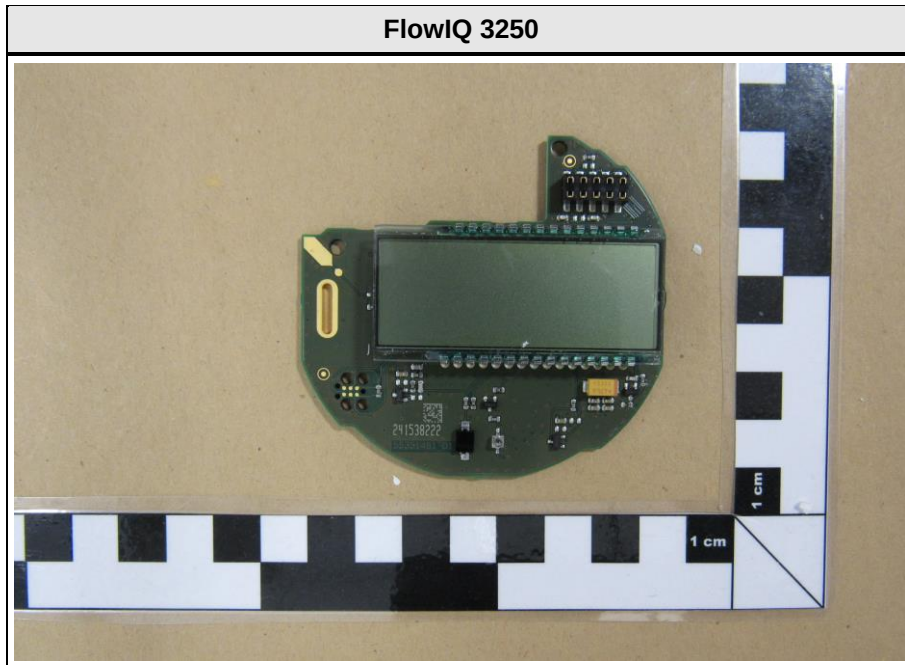
FlowIQ 3250 RF PCB



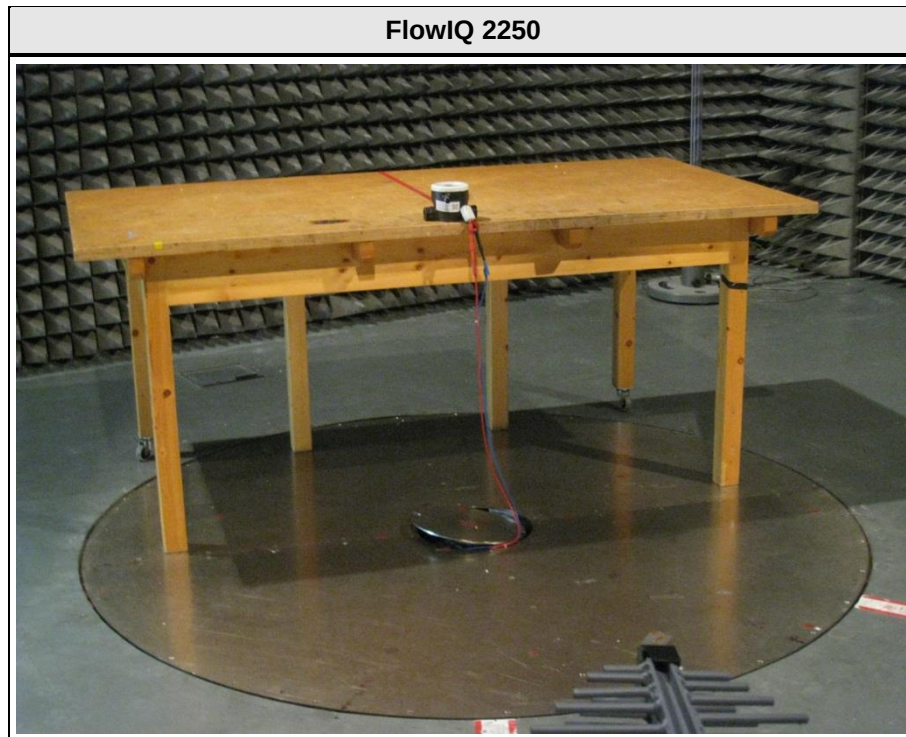
FlowIQ 3250 RF PCB







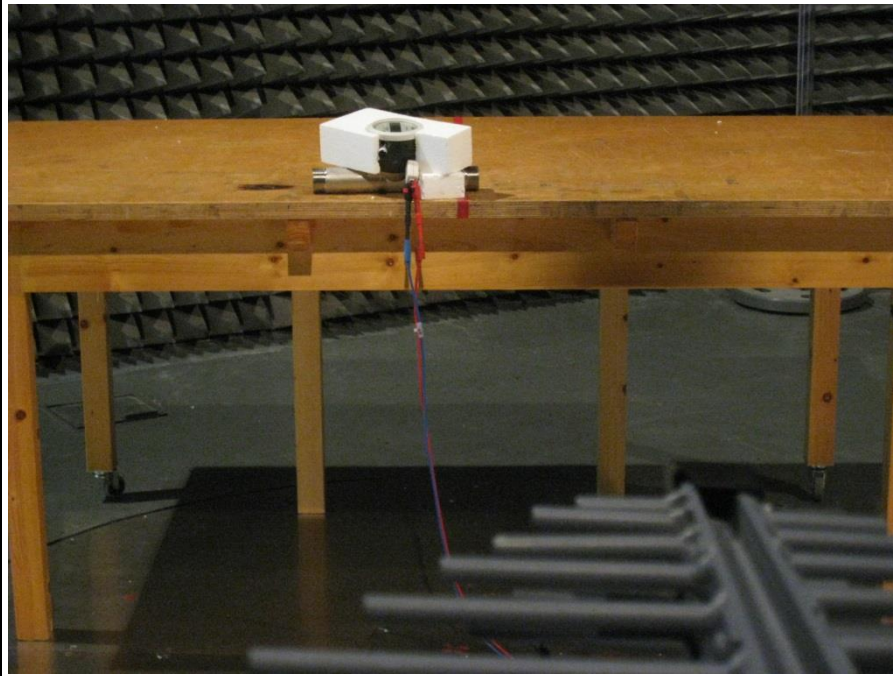
1.3 Photos – Test setup



Test Report No.: GOM-1707-6700-EF01-V01

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FlowIQ 3250



FlowIQ 3250 with Load



1.4 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments (e.g. serial no.)
AE	Laboratory power supply	Statron	2224.2	The EUT battery does not last to perform the tests. Therefore an external power supply was necessary.
CBL	Auxillary cable			To connect EUT and power supply.
*Note: Use the following abbreviations: AE : Auxiliary/Associated Equipment, or SIM : Simulator (Not Subjected to Test) CABL : Connecting cables				

1.5 Input / Output Ports

Port #	Name	Type*	Max. Cable Length	Cable Shielded	Comments (e.g. Cat. of Cable)
None					
*Note: Use the following abbreviations: AC : AC power port DC : DC power port N/E : Non electrical I/O : Signal input or output port TP : Telecommunication port					

1.6 Operating Modes and Configurations

Mode #	Description
1	Transmitting into 50 Ohms Load, 460.11875 MHz
2	Transmitting into 50 Ohms Load, 912.5 MHz

Configuration #	EUT Configuration
1	FlowIQ 2250
2	FlowIQ 3250

1.7 Test Equipment Used During Testing

Measurement Software			
Description	Manufacturer	Name	Version
EMC Test Software	Dare Instruments	Radimation	2016.1.10

Radiated emissions AC1					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Test Receiver	R&S	ESR7	EF00943	2016-10	2017-10
Spectrum Analyzer	R&S	FSIQ26	EF00151	2017-03	2018-03
Antenna	R&S	HK 116	EF00030	2016-04	2019-04
Antenna	R&S	HL 223	EF00187	2016-05	2019-05
Antenna	R&S	BBHA 9120D	EF00018	2016-09	2019-09
Antenna	Amplifier Research	AT4560	EF01152	2016-09	2017-09
RF Cable			-	System Cal.	System Cal
RF Cable			-	System Cal.	System Cal

1.8 Sample emission level calculation

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

Reading:

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

A.F.:

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

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

Net:

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

Limit:

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

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

Margin:

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

Example only:

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

2 Result Summary

FCC 47 CFR Part 15B, Industry Canada ICES-003				
Product Specific Standard	Requirement – Test	Reference Method	Result	Remarks
47 CFR 15.109 ICES-003 Item 6.2	Radiated emissions	ANSI C 63.4	PASS	
47 CFR 15.107 ICES-003 Item 6.1	AC power line conducted emissions	ANSI C63.4	N/A	
Remarks:				

3 Test Conditions and Results

3.1 Test Conditions and Results – Radiated emissions

Radiated emissions acc. FCC 47 CFR 15.109				Verdict: PASS		
Laboratory Parameters:		Required prior to the test		During the test		
Ambient Temperature		15 to 35 °C		23 °C		
Relative Humidity		30 to 60 %		45 %		
Test according referenced standards		Reference Method				
		ANSI C63.4				
Sample is tested with respect to the requirements of the equipment class		Equipment class				
		Class B				
Test frequency range determined from highest emission frequency		Highest emission frequency				
		Fmax [MHz] = 3759.9				
Fully configured sample scanned over the following frequency range		Frequency range				
		30 MHz to 26.5 GHz				
Operating mode		1 and 2				
Configuration		1 and 2				
Limits and results Class B						
Frequency [MHz]	Quasi-Peak [dBµV/m]	Result	Average [dBµV/m]	Result	Peak [dBµV/m]	Result
30 – 88	40	PASS	-		-	-
88 – 216	43.5	PASS	-		-	-
216 – 960	46	PASS	-		-	-
960 – 1000	54	PASS	-		-	-
> 1000	-	-	54	PASS	74	PASS
Comments:						

Test Procedure:

The test site is in accordance with ANSI C63-4:2014 requirements and is listed by FCC.
The measurement procedure is as follows:

Exploratory measurement:

- The EUT was placed on a non-conductive table at a height of 0.8m.
- The EUT and support equipment, if needed, were set up to simulate typical usage.
- Cables, of type and length specified by the manufacturer, were connected to at least one port of each type and were terminated by a device or simulating load of actual usage.
- The antenna was placed at a distance of 3 or 10 m.
- The received signal was monitored at the measurement receiver.
 - Cables not bundled were manipulated within the range of likely arrangements to produce the highest emission amplitude
 - To maximize the suspected emissions the EUT is rotated 360 degrees. If the signal exceeds the previous amplitude, go back to the corresponding azimuth and manipulate the cables again for maximizing the emissions if possible.
 - Move the antenna from 1 to 4m to maximize the suspected highest amplitude signal.
- This procedure has to be performed in both antenna polarizations, horizontal and vertical.
- The arrangement of the equipment with the maximum emission level is shown on the setup picture at item 1.3.

Final measurement:

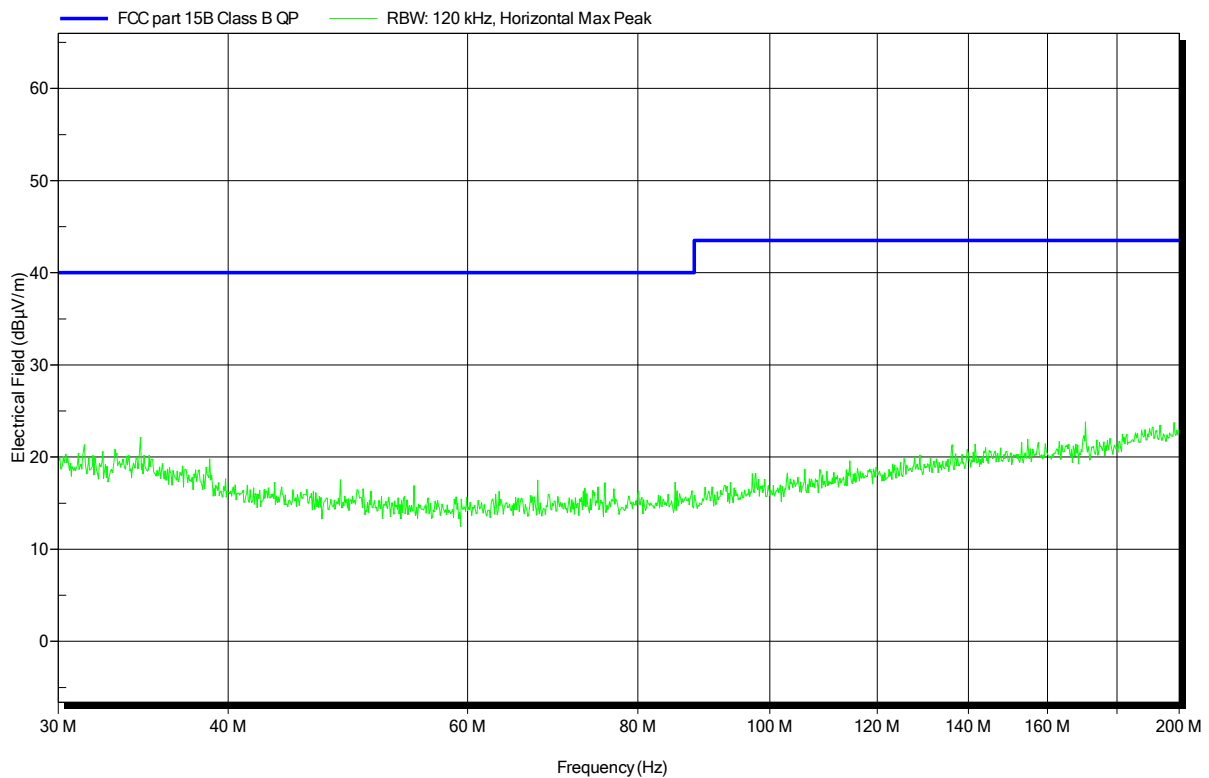
- The EUT was placed on a 0.8 m non-conductive table at a 3 m distance from the receive antenna. The antenna output was connected to the measurement receiver
- A biconical antenna was used for the frequency range 30 – 200 MHz, a logarithmic periodical antenna was used for the frequency range from 200 – 1000 MHz. Above one 1 GHz a Double Ridged Broadband Horn antenna was used. The antenna was placed on an adjustable height antenna mast
- The EUT and cable arrangement were based on the exploratory measurement results
- Emissions were maximized at each frequency by rotating the EUT and adjusting the receive antenna height and polarization. The maximum values were recorded.
- The test data of the worst-case conditions were recorded and shown on the next pages.

Radiated emissions under normal conditions according to FCC Part 15b

Project number: G0M-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 2250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Unom: 3.6 VDC
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3m
 Mode: 50 Ohms Load, Tx 460.11875 MHz
 Test Date: 2017-08-23
 Note:

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Test Report No.: G0M-1707-6700-EF01-V01

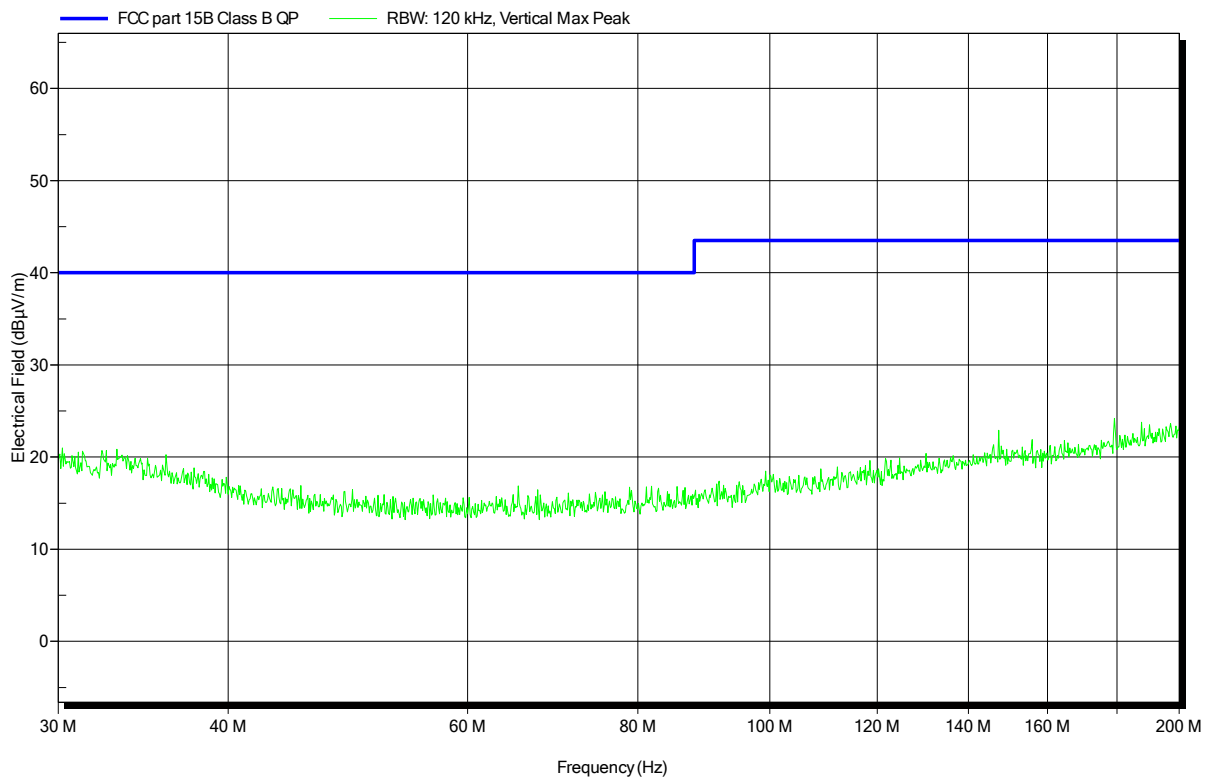
Eurofins Product Service GmbH
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Radiated emissions under normal conditions according to FCC Part 15b

Project number: G0M-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 2250
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Test Conditions:	Tnom: 23°C, Unom: 3.6 VDC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3m
Mode:	50 Ohms Load, Tx 460.11875 MHz
Test Date:	2017-08-23
Note:	

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Test Report No.: G0M-1707-6700-EF01-V01

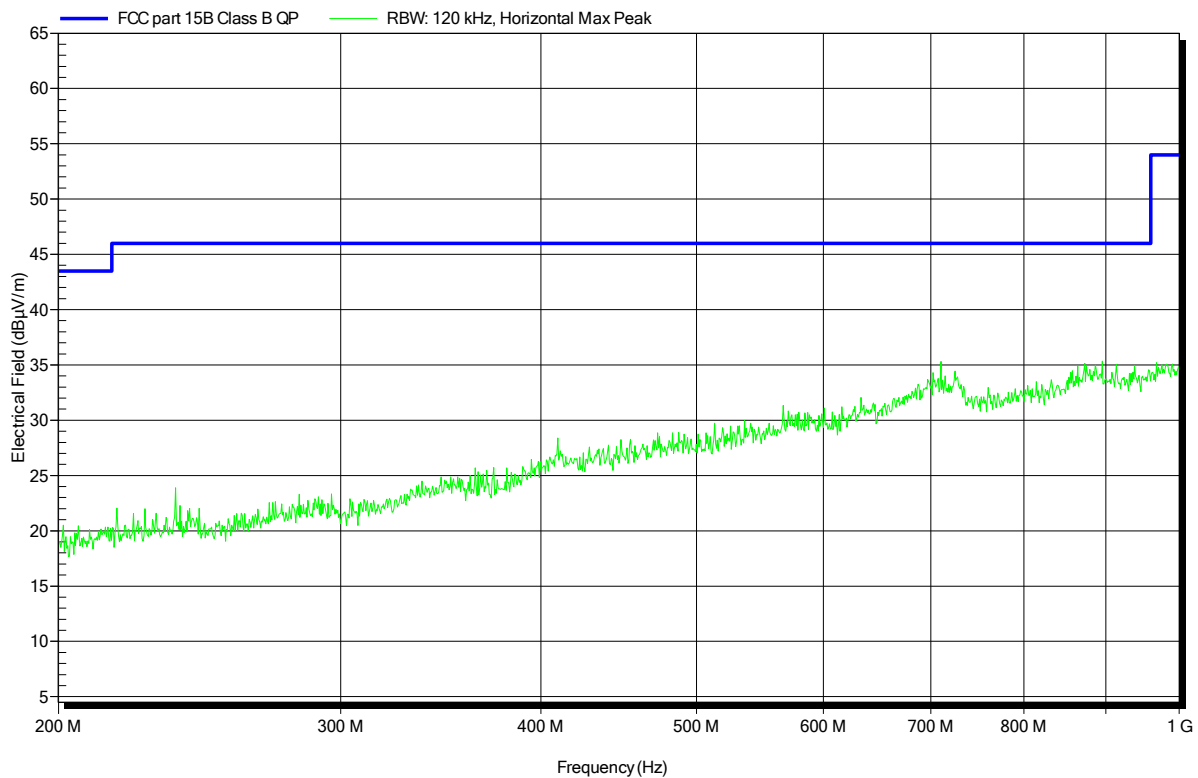
Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated emissions under normal conditions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 2250
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Test Conditions:	Tnom: 23°C, Unom: 3.6 VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3m
Mode:	50 Ohms Load, Notch Filter, Tx 460.11875 MHz
Test Date:	2017-08-23
Note:	

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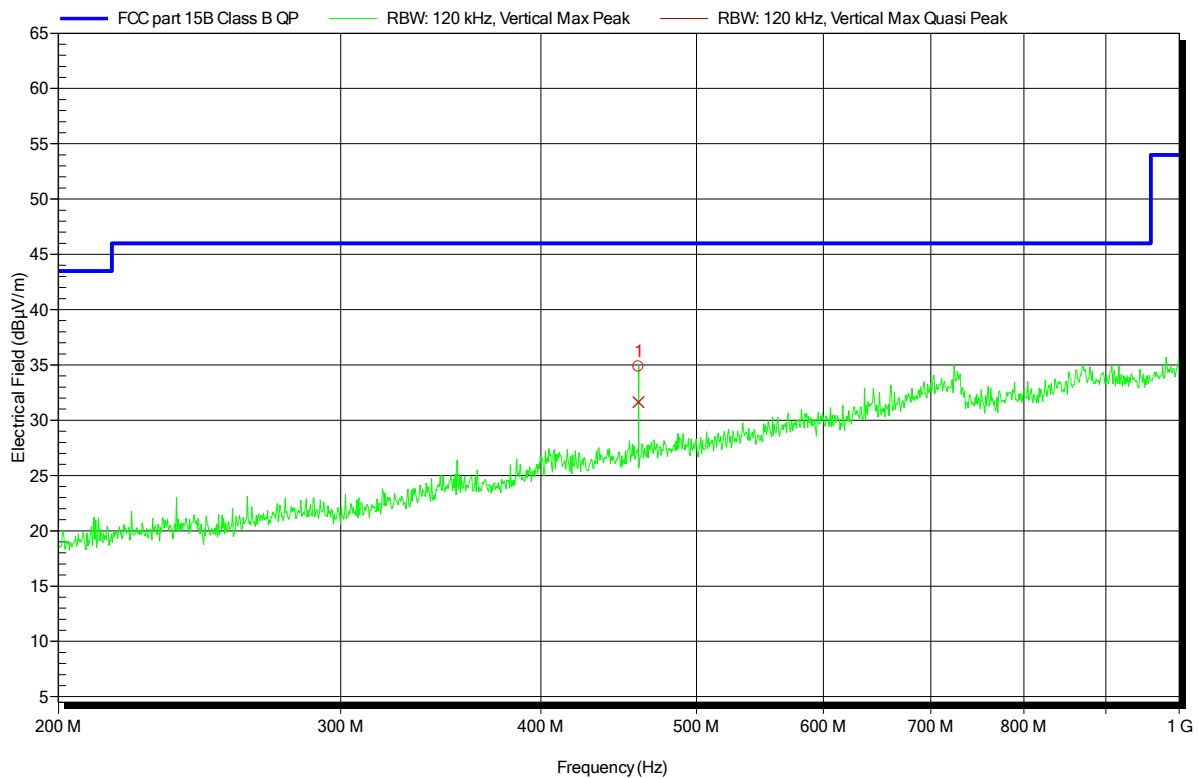


Radiated emissions under normal conditions according to FCC Part 15b

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 Model: FlowIQ 2250
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 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Unom: 3.6 VDC
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3m
 Mode: 50 Ohms Load, Notch Filter, Tx 460.11875 MHz
 Test Date: 2017-08-23
 Note:

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Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	460.094 MHz	31.64 dBµV/m	46 dBµV/m	-14.36 dB	Pass	0 Degree	1 m

Test Report No.: GOM-1707-6700-EF01-V01

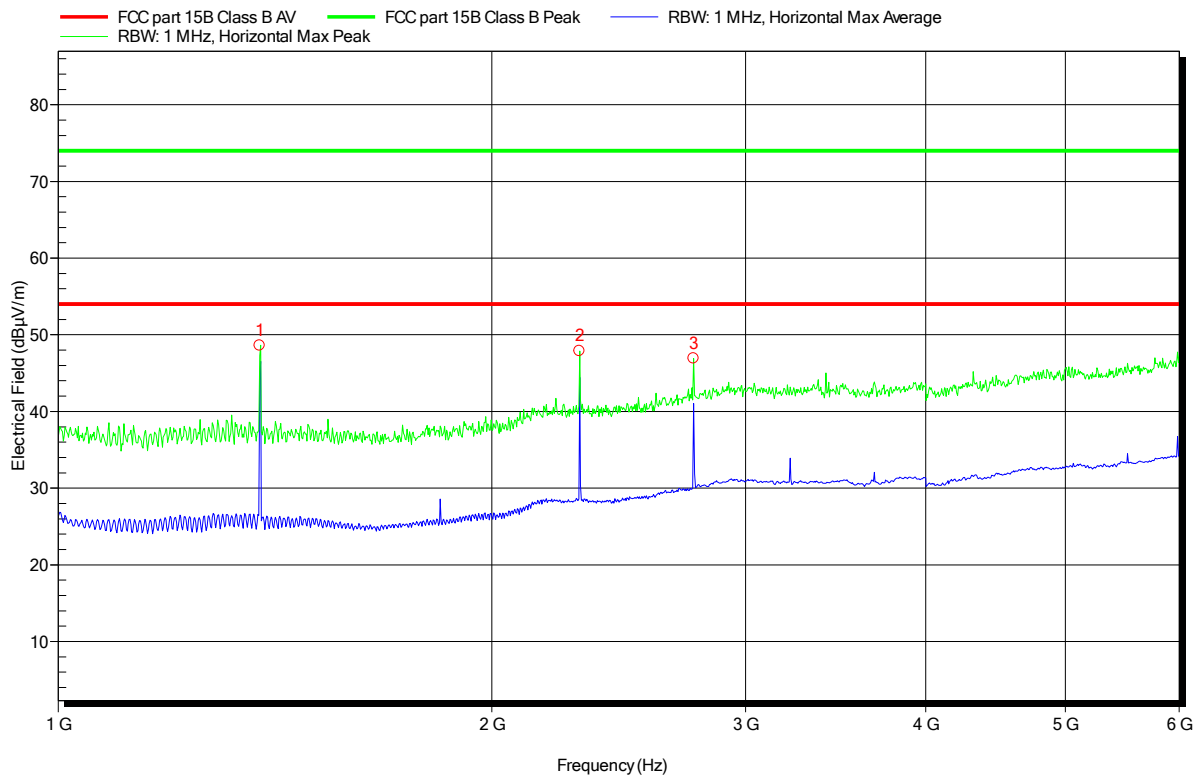
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated emissions under normal conditions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 2250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Unom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3m
 Mode: 50 Ohms Load, Tx 460.11875 MHz
 Test Date: 2017-08-23
 Note:

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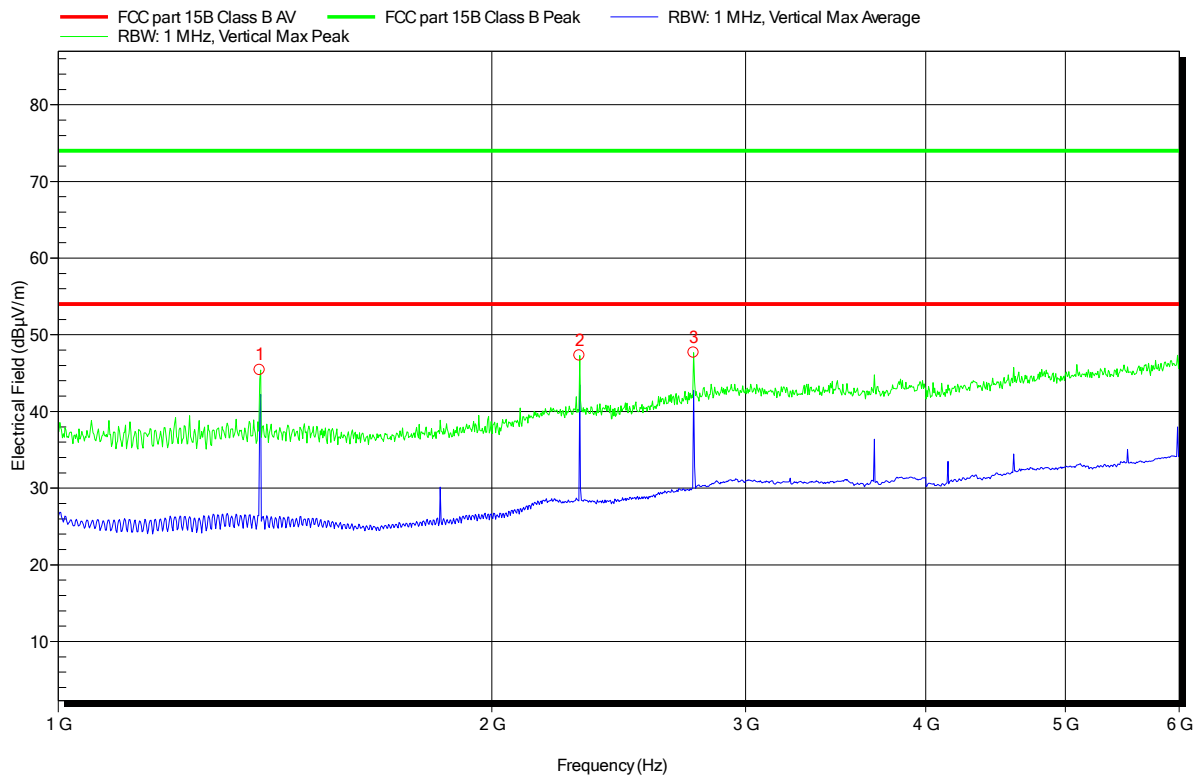
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.381 GHz	46.51 dBµV/m	54 dBµV/m	-7.49 dB	Pass	0 Degree	1 m
2	2.301 GHz	44.46 dBµV/m	54 dBµV/m	-9.54 dB	Pass	0 Degree	1 m
3	2.761 GHz	41.03 dBµV/m	54 dBµV/m	-12.97 dB	Pass	0 Degree	1 m

Radiated emissions under normal conditions according to FCC Part 15b

Project number: GOM-1707-6700

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 EUT Name: Ultrasonic water meter
 Model: FlowIQ 2250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Unom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3m
 Mode: 50 Ohms Load, Tx 460.11875 MHz
 Test Date: 2017-08-23
 Note:

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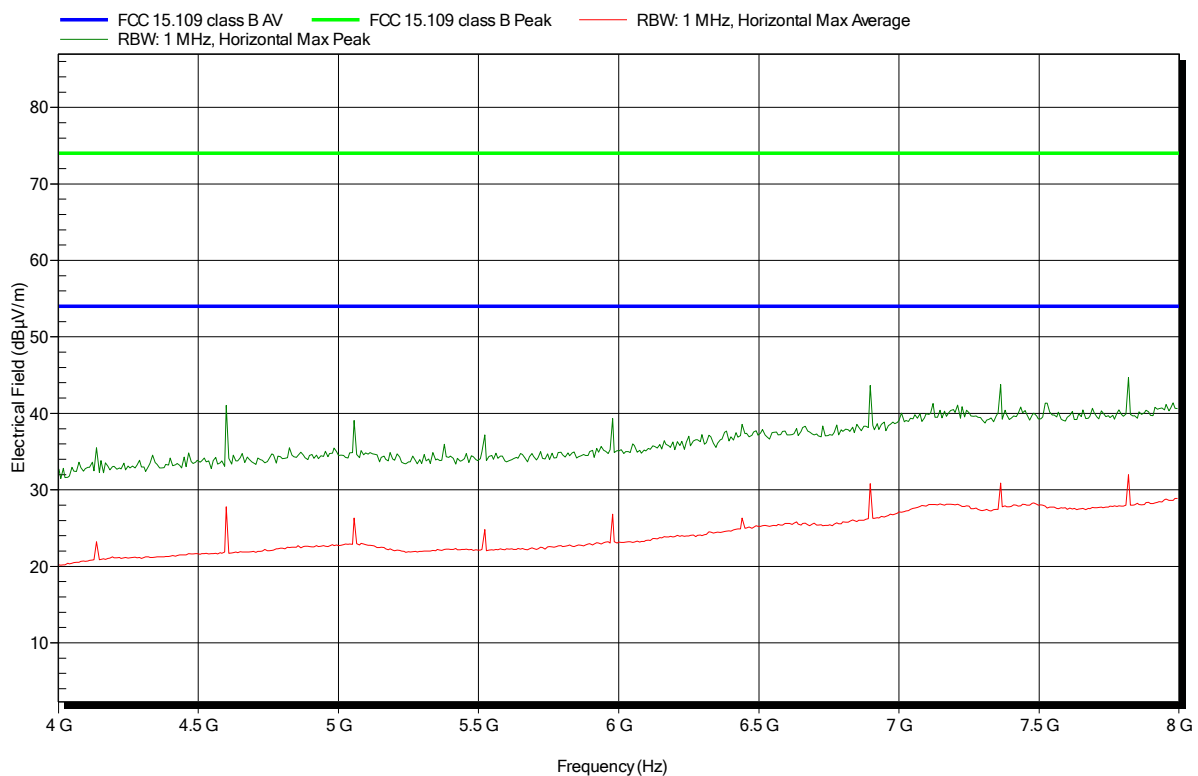
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.381 GHz	42.23 dBμV/m	54 dBμV/m	-11.77 dB	Pass	0 Degree	1 m
2	2.301 GHz	43.5 dBμV/m	54 dBμV/m	-10.5 dB	Pass	0 Degree	1 m
3	2.761 GHz	42.77 dBμV/m	54 dBμV/m	-11.23 dB	Pass	0 Degree	1 m

Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 2250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Vnom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 50 Ohms Load, Tx 460.11875 MHz
 Test Date: 2017-08-25
 Note:

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Test Report No.: GOM-1707-6700-EF01-V01

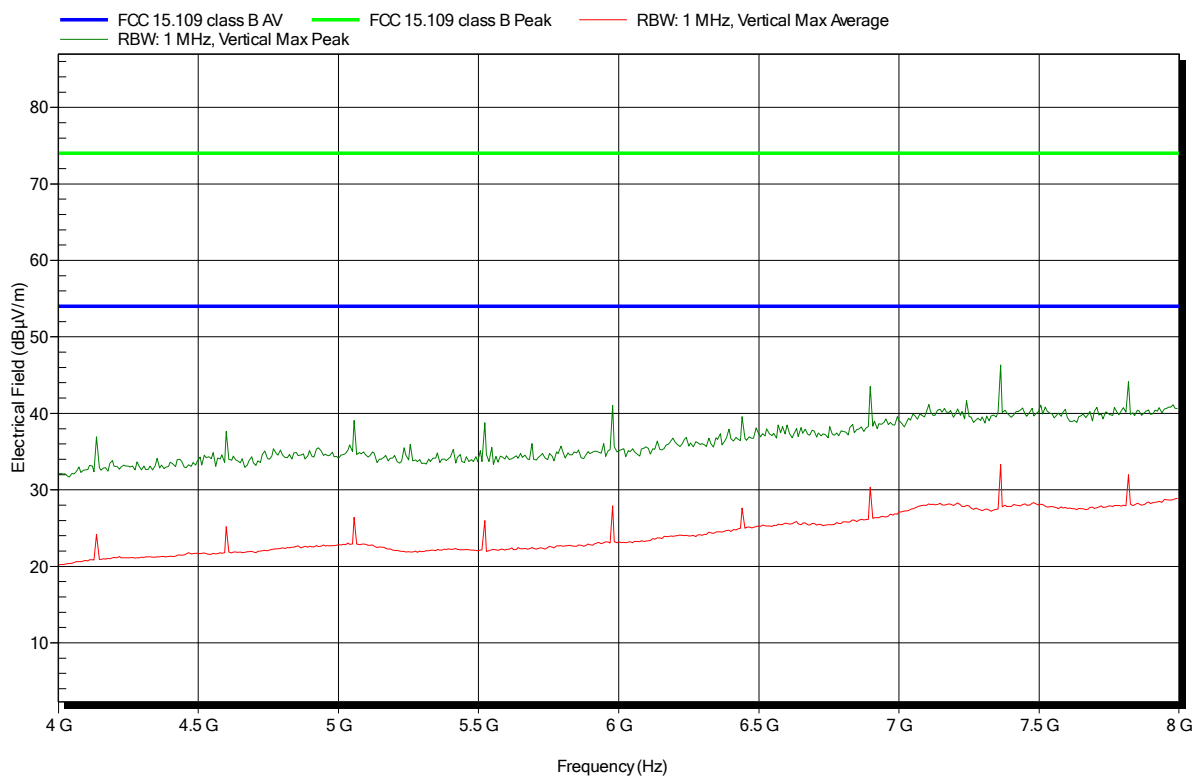
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 Antenna: Schwarzbeck BBHA 9120D, Vertical
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 Test Date: 2017-08-25
 Note:

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Test Report No.: GOM-1707-6700-EF01-V01

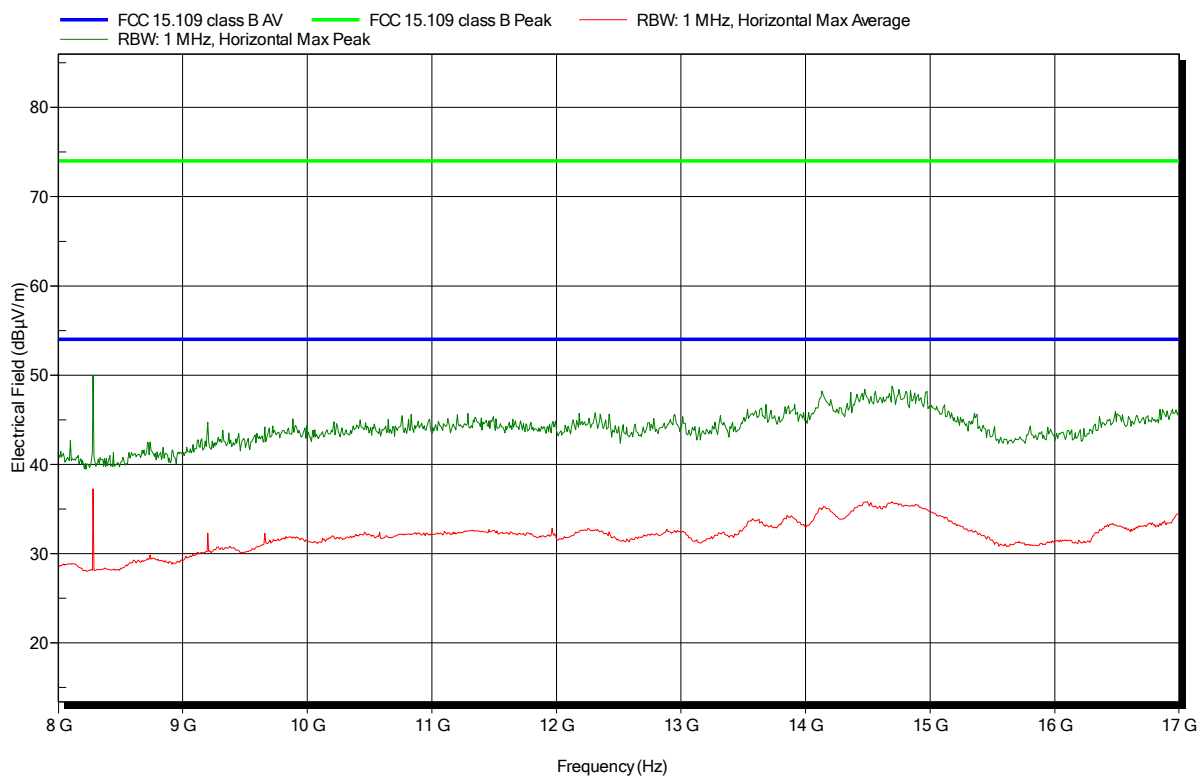
Eurofins Product Service GmbH
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Spurious emissions according to FCC Part 15b

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 Test Date: 2017-08-25
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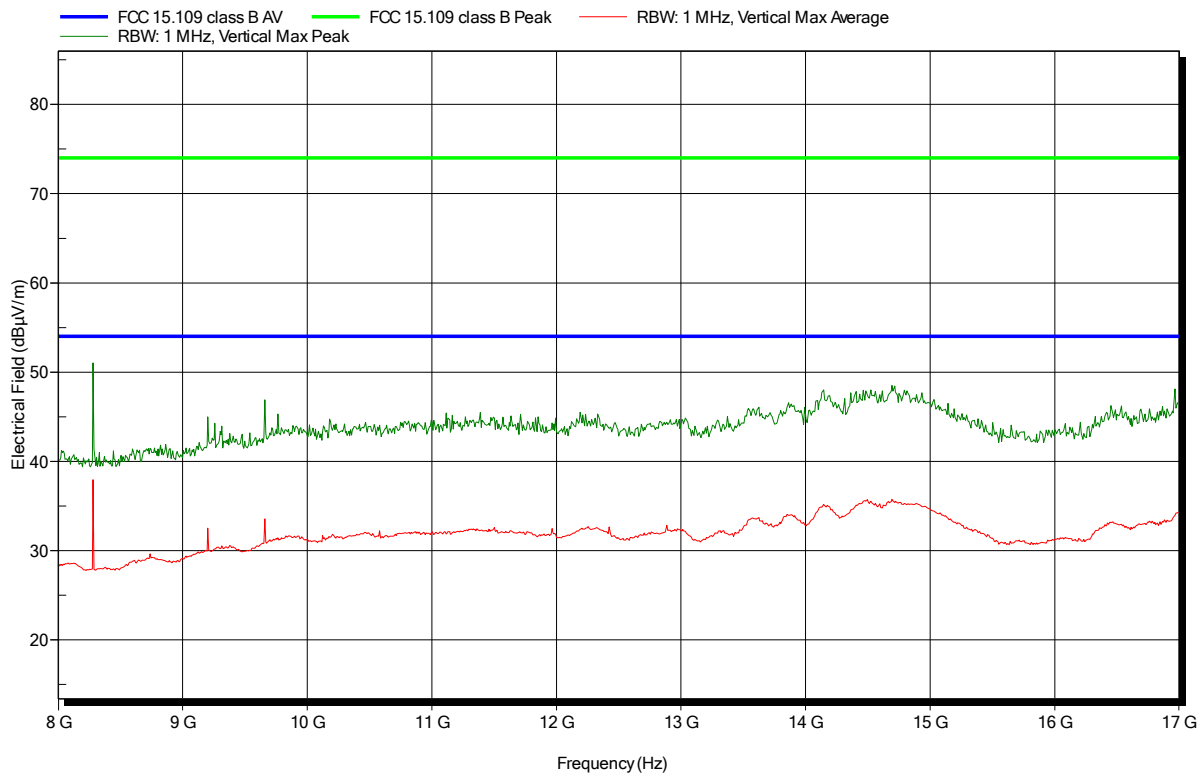


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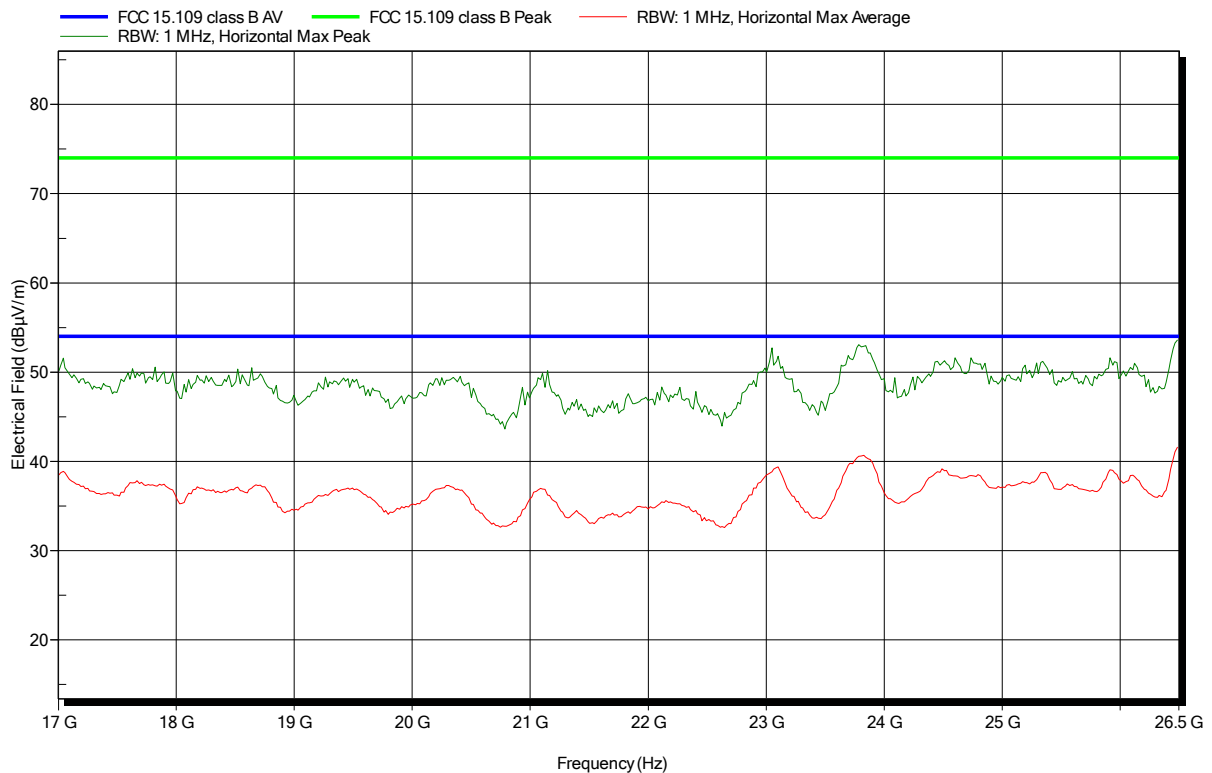


Spurious emissions according to FCC Part 15b

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Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 2250
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Test Conditions:	Tnom: 23°C, Vnom: 3.6 VDC
Antenna:	ATH18G40, Horizontal
Measurement distance:	3 m converted to 3m
Mode:	TX; 50 Ohms Load, Tx 469.9875 MHz
Test Date:	2017-08-25
Note:	

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Test Report No.: GOM-1707-6700-EF01-V01

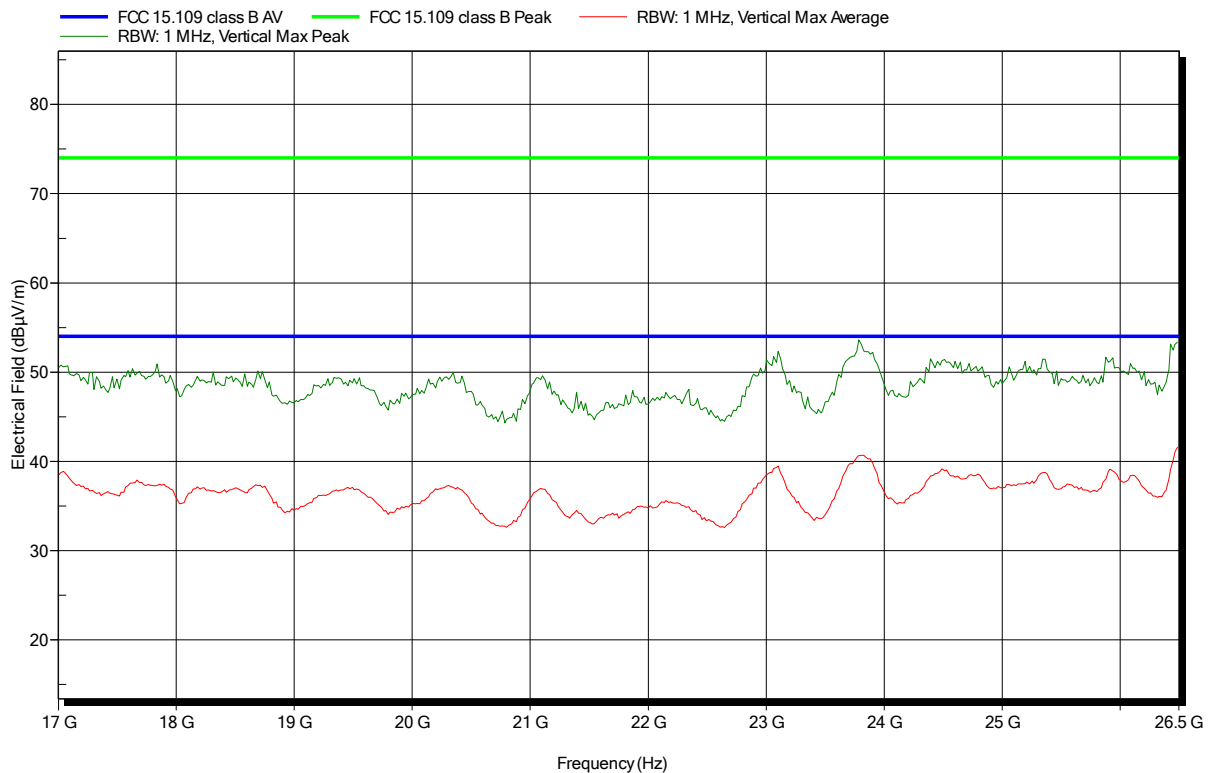
Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 2250
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Test Conditions:	Tnom: 23°C, Vnom: 3.6 VDC
Antenna:	ATH18G40, Vertical
Measurement distance:	3 m converted to 3m
Mode:	TX; 50 Ohms Load, Tx 469.9875 MHz
Test Date:	2017-08-25
Note:	

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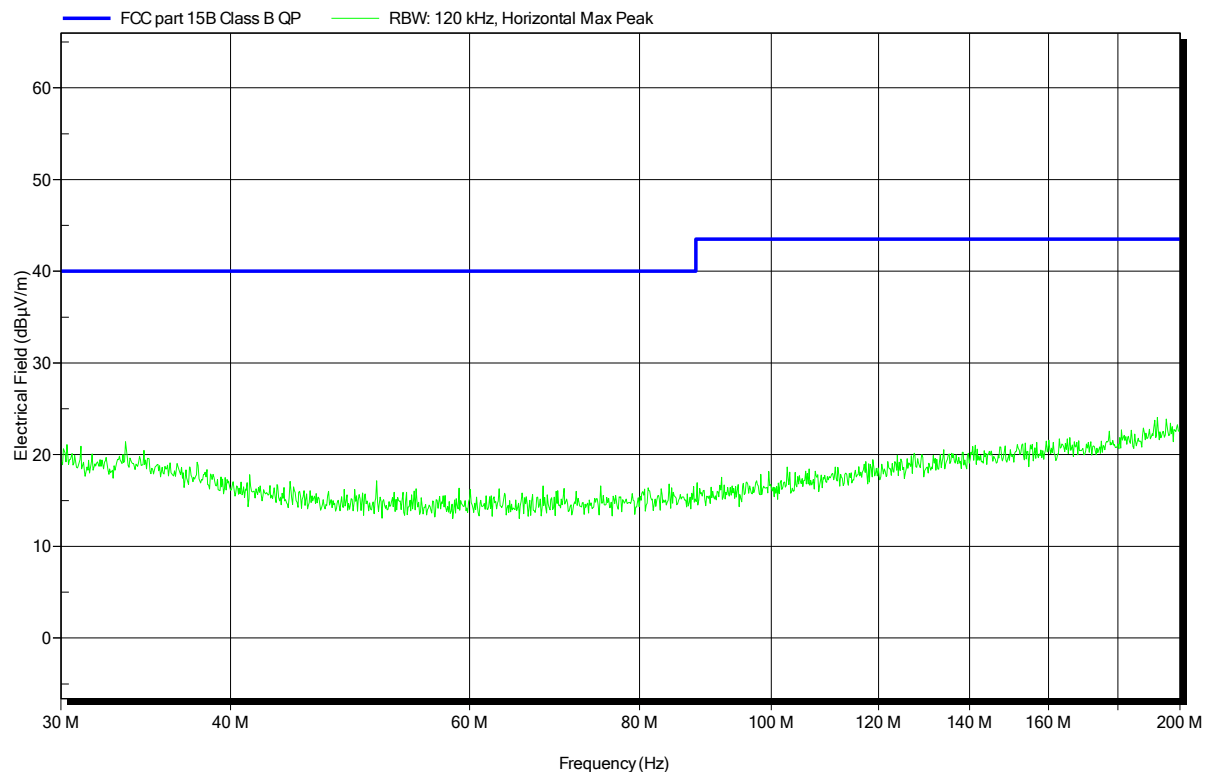


Radiated emissions under normal conditions according to FCC Part 15b

Project number: G0M-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 2250
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Test Conditions:	Tnom: 23°C°C, Unom: 3.6 VDC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	50 Ohms Load, Tx 912.5 MHz
Test Date:	2017-08-23
Note:	

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Test Report No.: G0M-1707-6700-EF01-V01

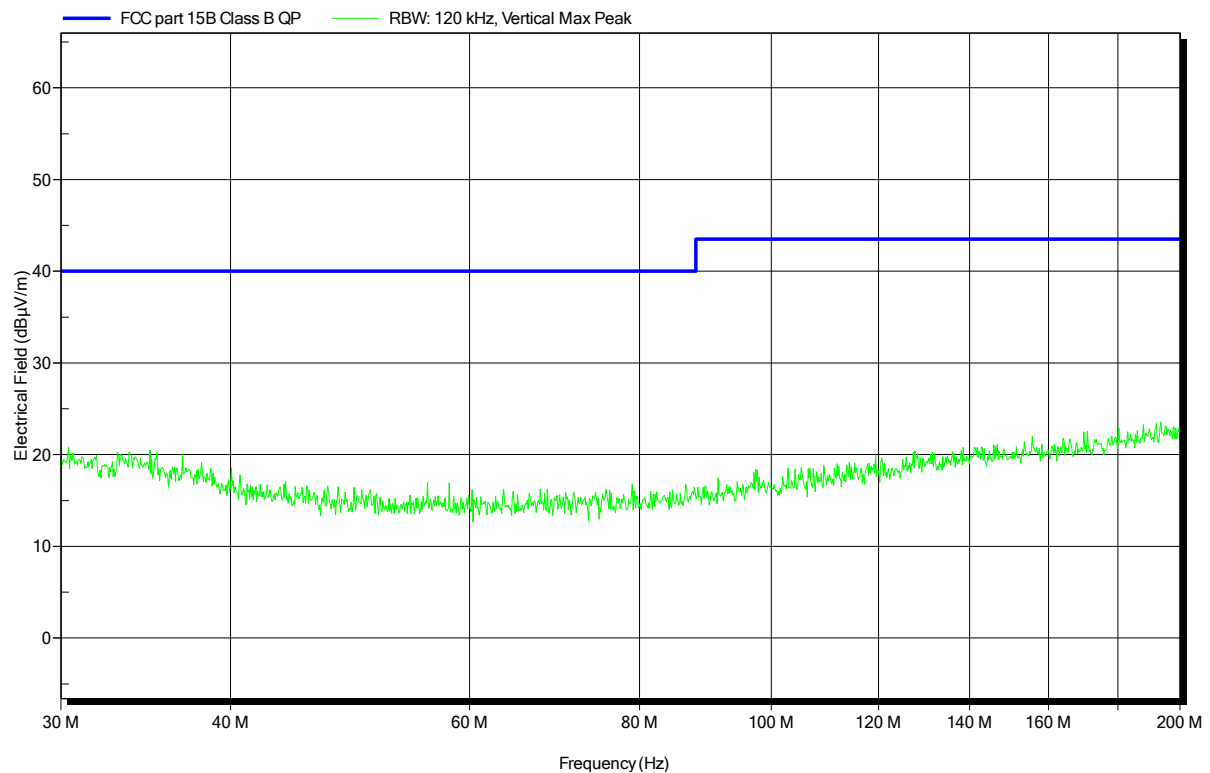
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated emissions under normal conditions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 2250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C°C, Unom: 3.6 VDC
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3 m
 Mode: 50 Ohms Load, Tx 912.5 MHz
 Test Date: 2017-08-23
 Note:

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Test Report No.: GOM-1707-6700-EF01-V01

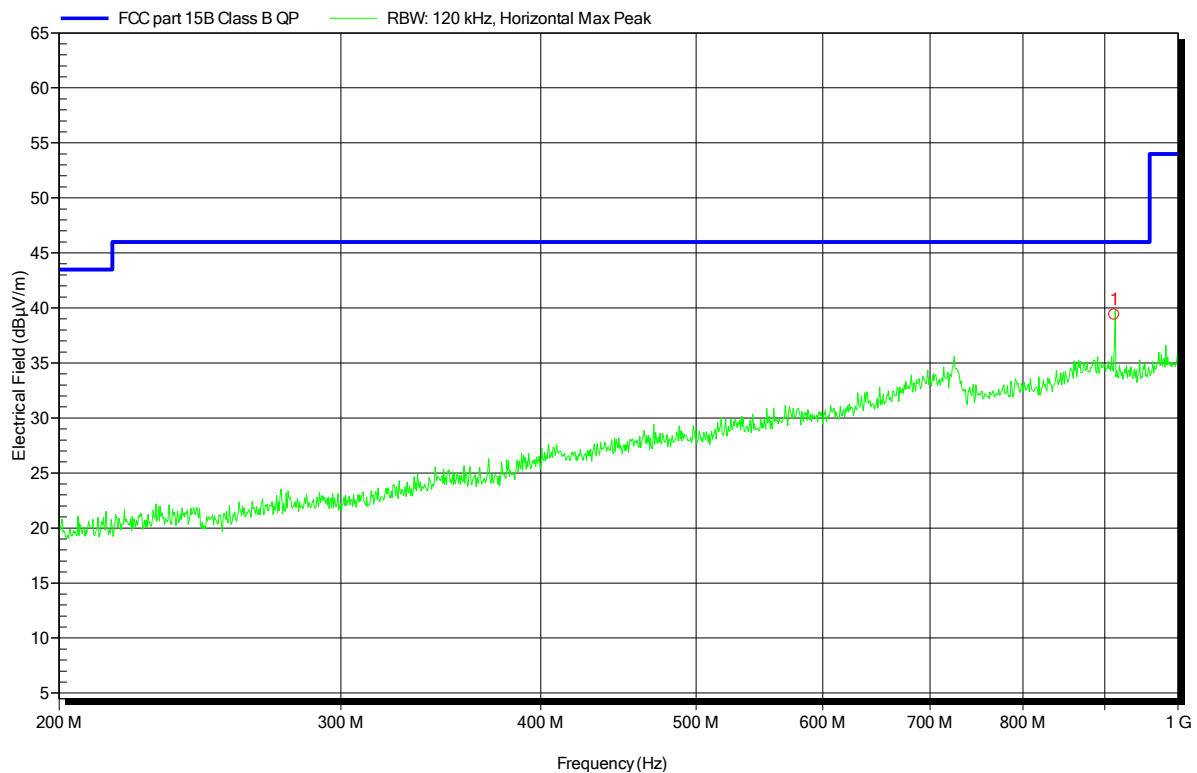
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated emissions under normal conditions according to FCC Part 15b

Project number: G0M-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 2250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C°C, Unom: 3.6 VDC
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: 50 Ohms Load, Notch Filter, Tx 912.5 MHz
 Test Date: 2017-08-23
 Note:

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Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	912.32 MHz	39.4 dBµV/m	46.0 dBµV/m	-6.6 dB	Pass	0 Degree	1 m

Test Report No.: G0M-1707-6700-EF01-V01

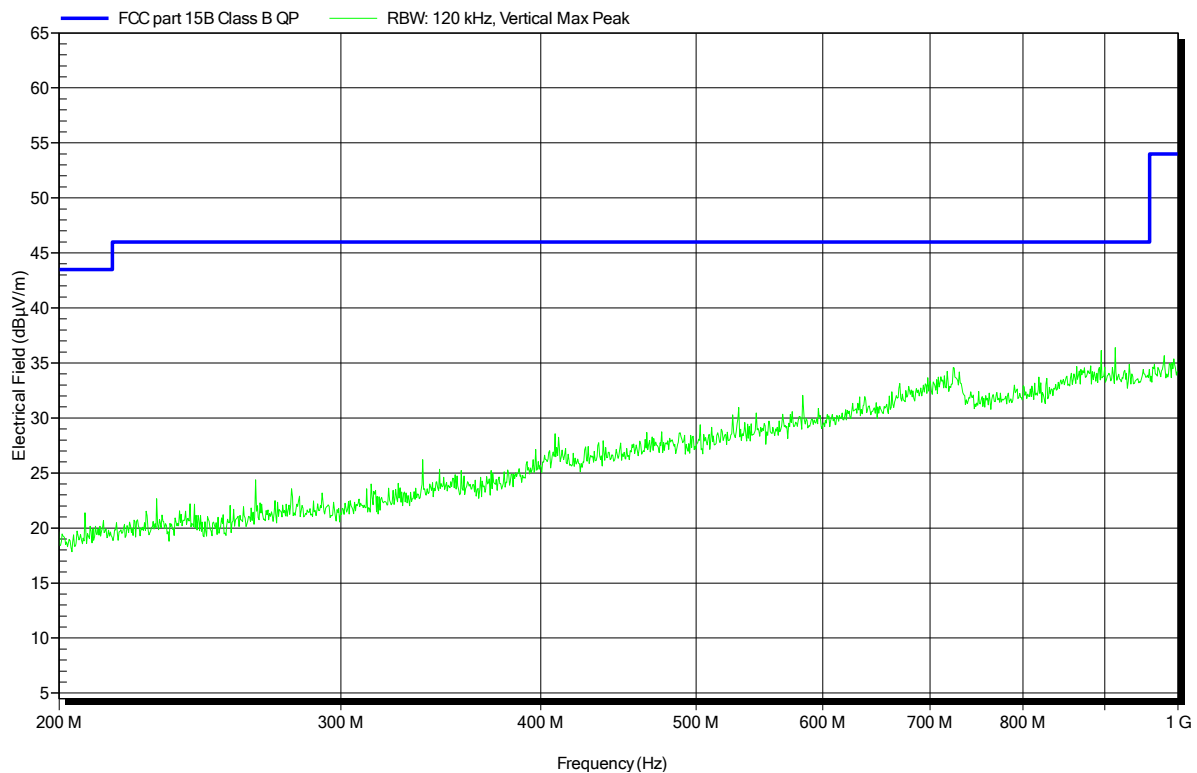
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated emissions under normal conditions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 2250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C°C, Unom: 3.6 VDC
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3 m
 Mode: 50 Ohms Load, Notch Filter, Tx 912.5 MHz
 Test Date: 2017-08-23
 Note:

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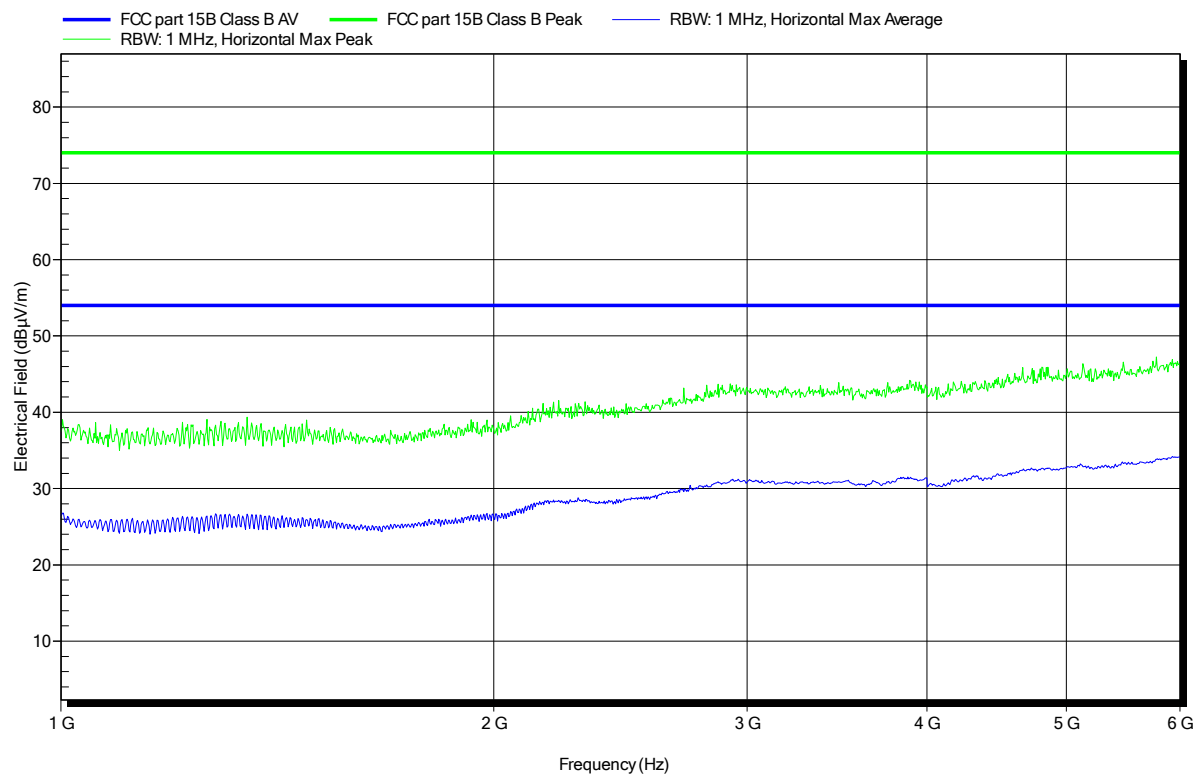


Radiated emissions under normal conditions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 2250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C°C, Unom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: 50 Ohms Load, Tx 912.5 MHz
 Test Date: 2017-08-23
 Note:

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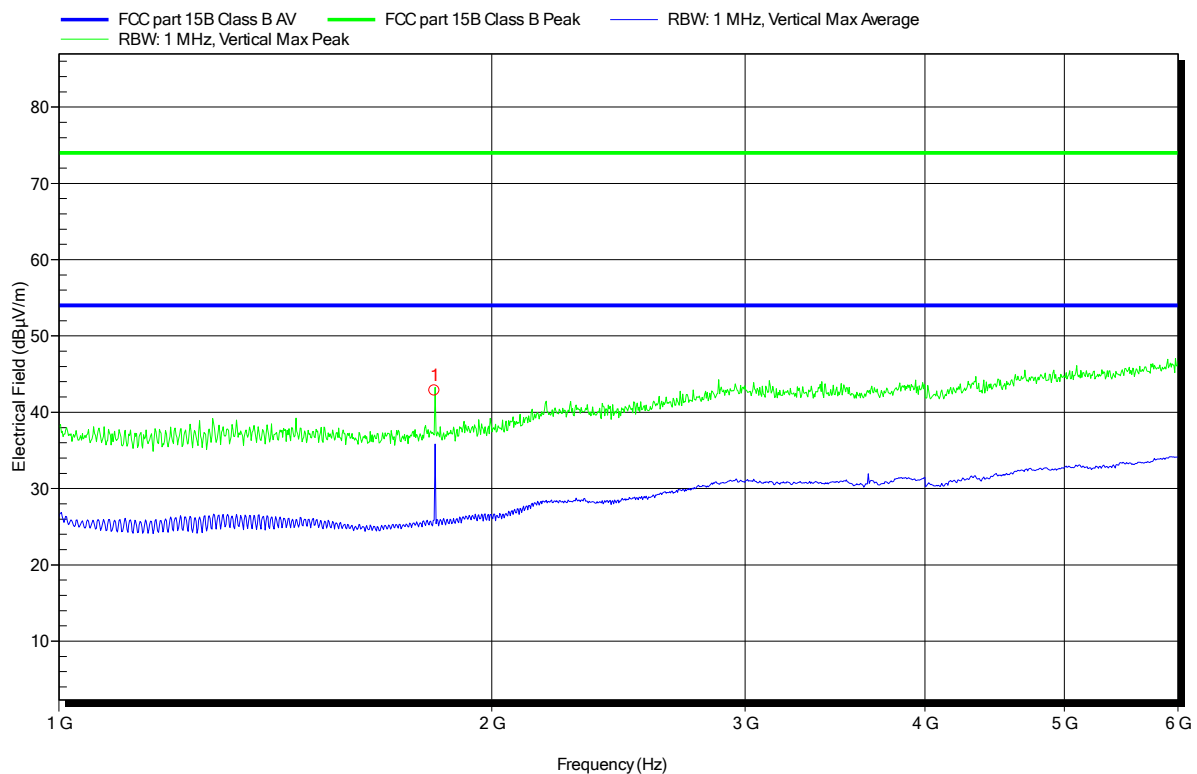


Radiated emissions under normal conditions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 2250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C°C, Unom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: 50 Ohms Load, Tx 912.5 MHz
 Test Date: 2017-08-23
 Note:

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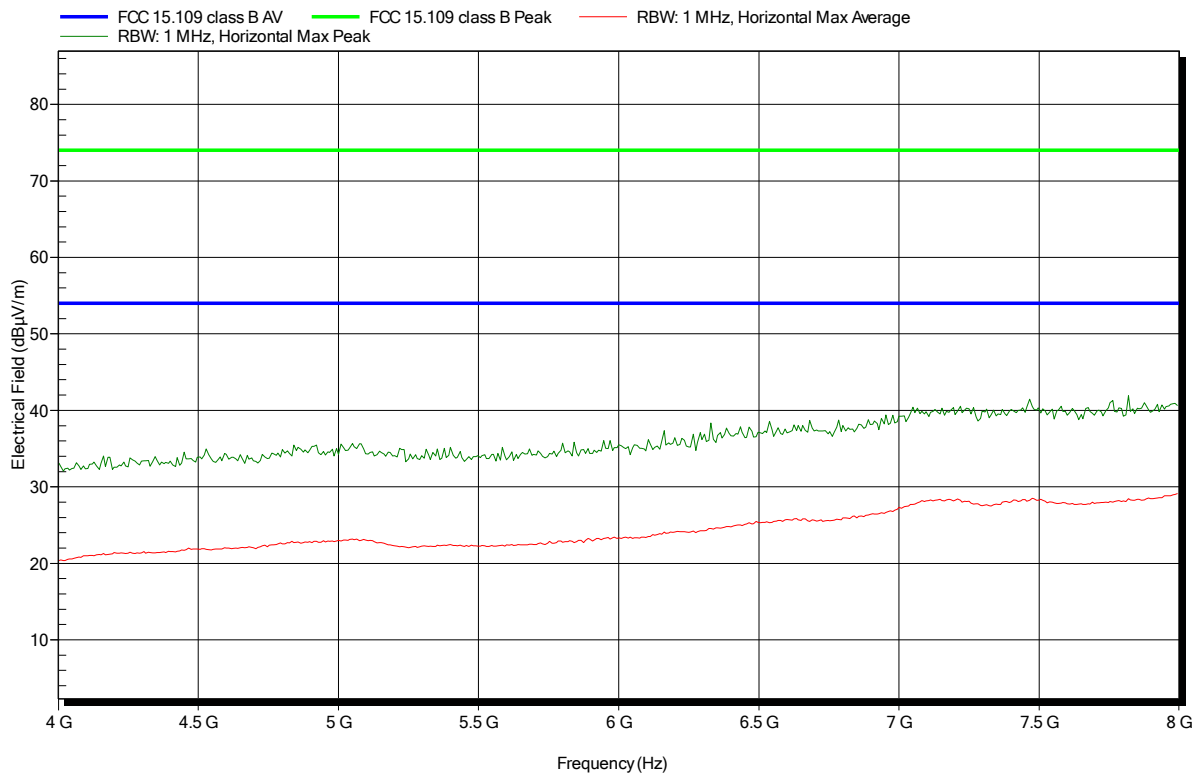
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.825 GHz	35.83 dBµV/m	54 dBµV/m	-18.17 dB	Pass	0 Degree	1 m

Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 2250
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Test Conditions:	Tnom: 23°C, Vnom: 3.6 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; 50 Ohms Load, Tx 912.5 MHz
Test Date:	2017-08-25
Note:	

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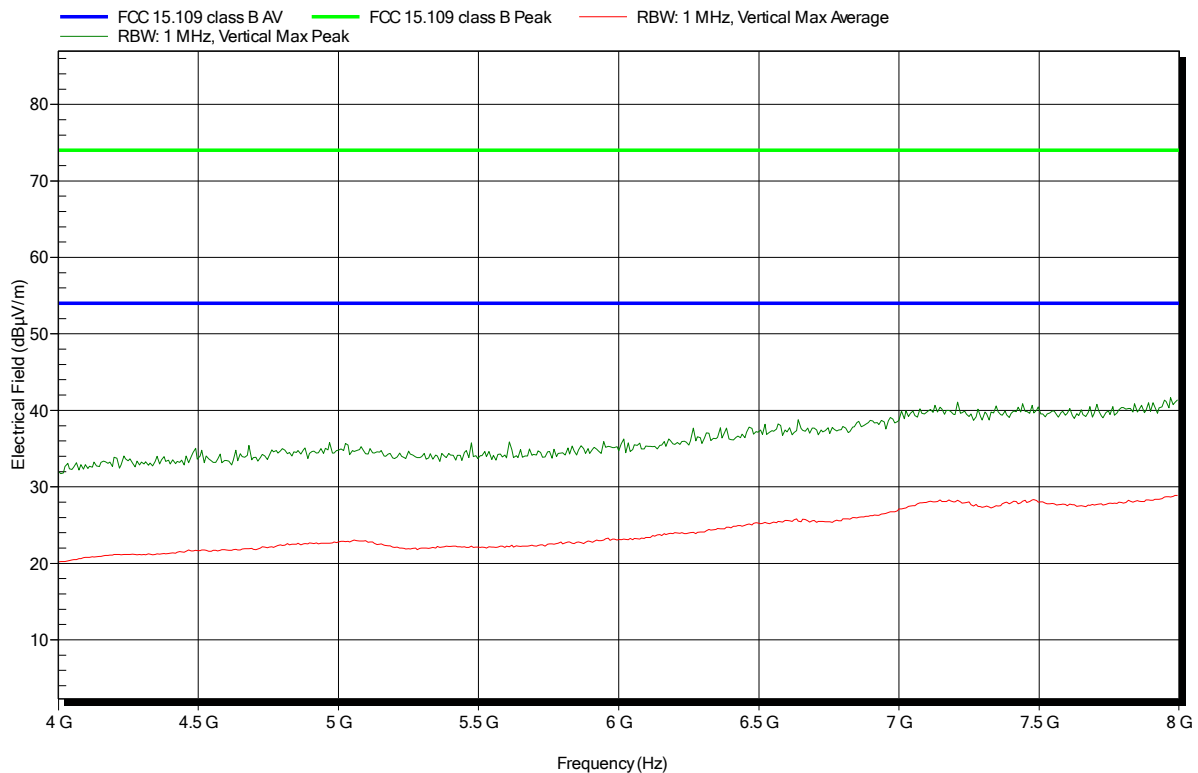


Spurious emissions according to FCC Part 15b

Project number: G0M-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 2250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Vnom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 50 Ohms Load, Tx 912.5 MHz
 Test Date: 2017-08-25
 Note:

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Test Report No.: G0M-1707-6700-EF01-V01

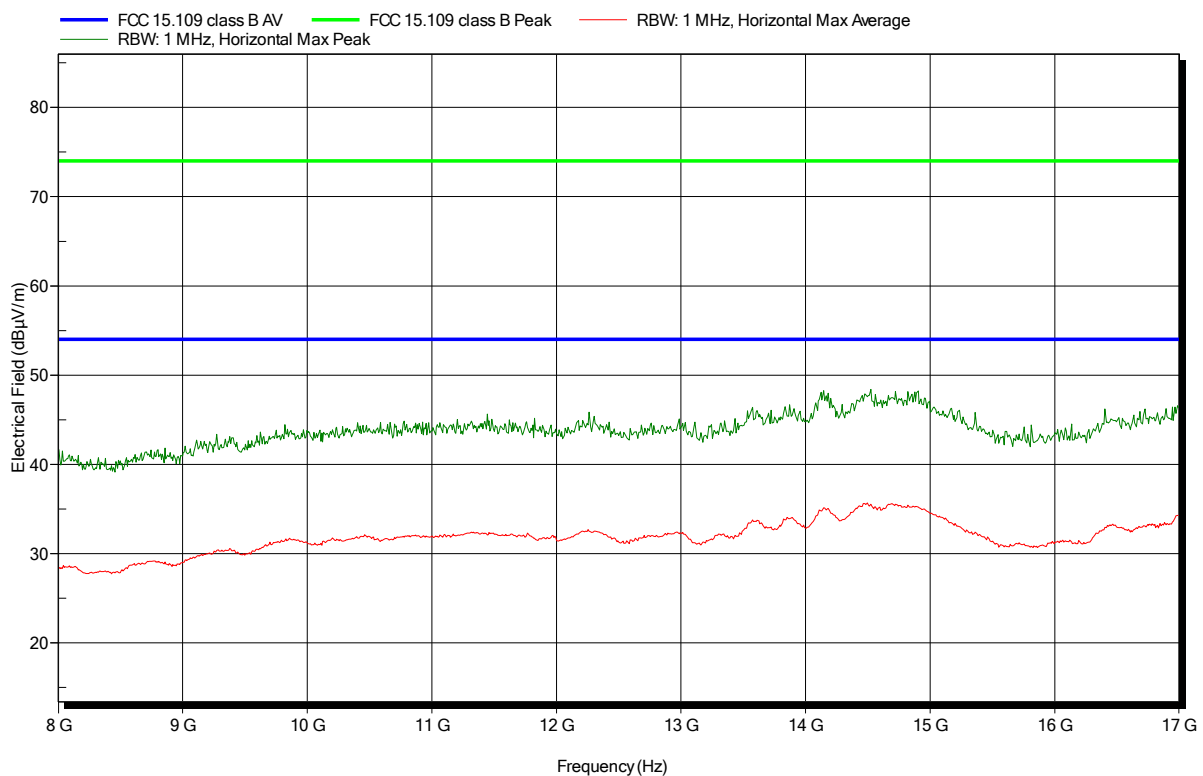
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 2250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Vnom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 50 Ohms Load, Tx 912.5 MHz
 Test Date: 2017-08-25
 Note:

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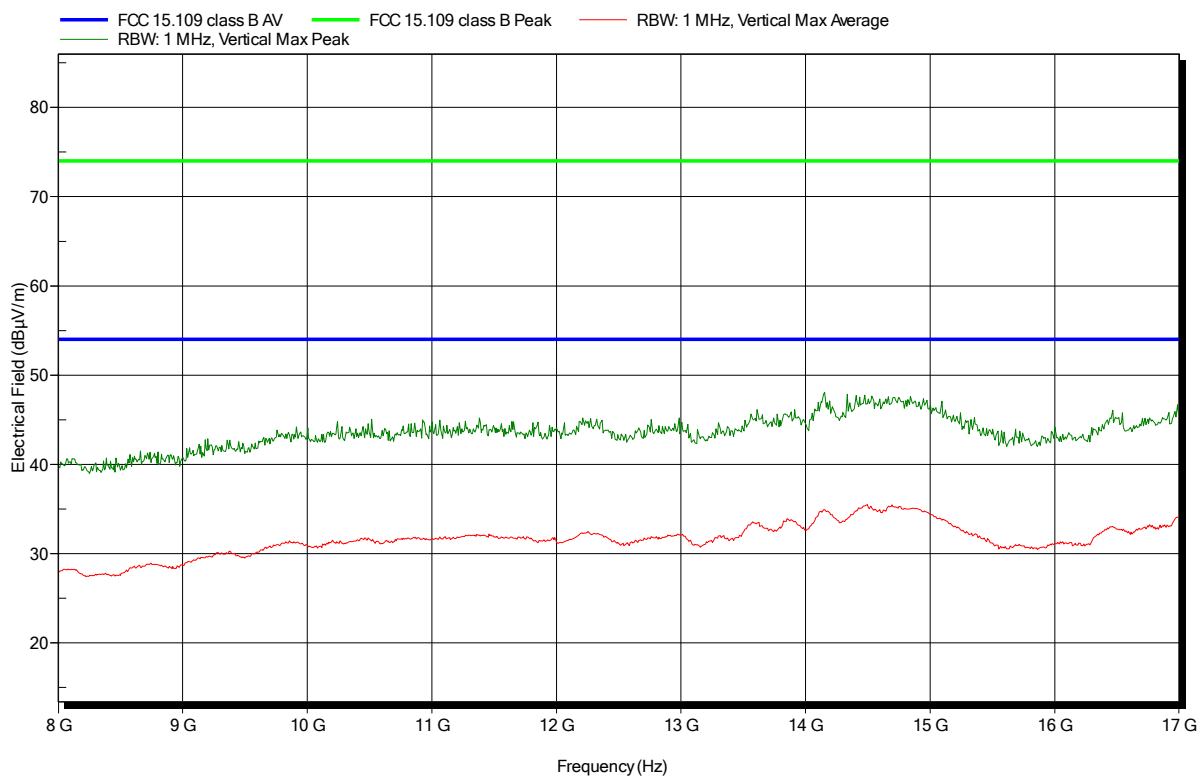


Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 2250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Vnom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 50 Ohms Load, Tx 912.5 MHz
 Test Date: 2017-08-25
 Note:

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Test Report No.: GOM-1707-6700-EF01-V01

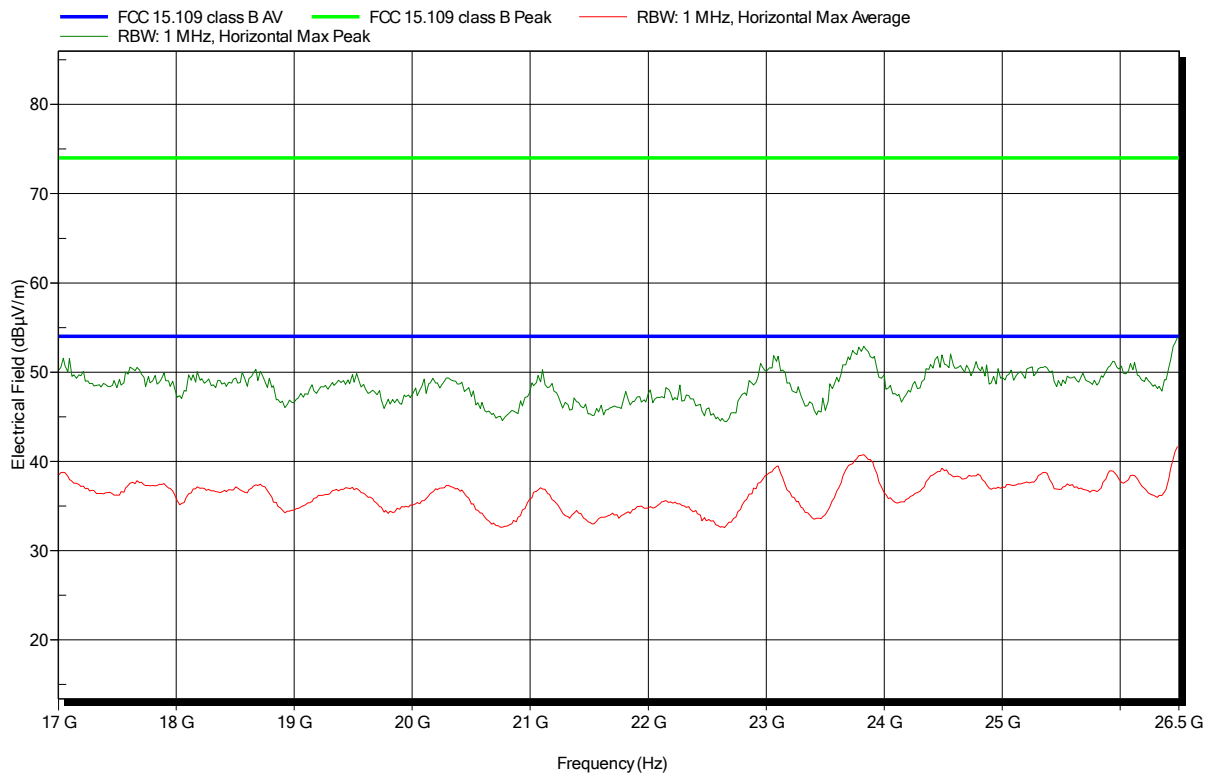
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 2250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Vnom: 3.6 VDC
 Antenna: ATH18G40, Horizontal
 Measurement distance: 3 m converted to 3m
 Mode: TX; 50 Ohms Load, Tx 912.5 MHz
 Test Date: 2017-08-25
 Note:

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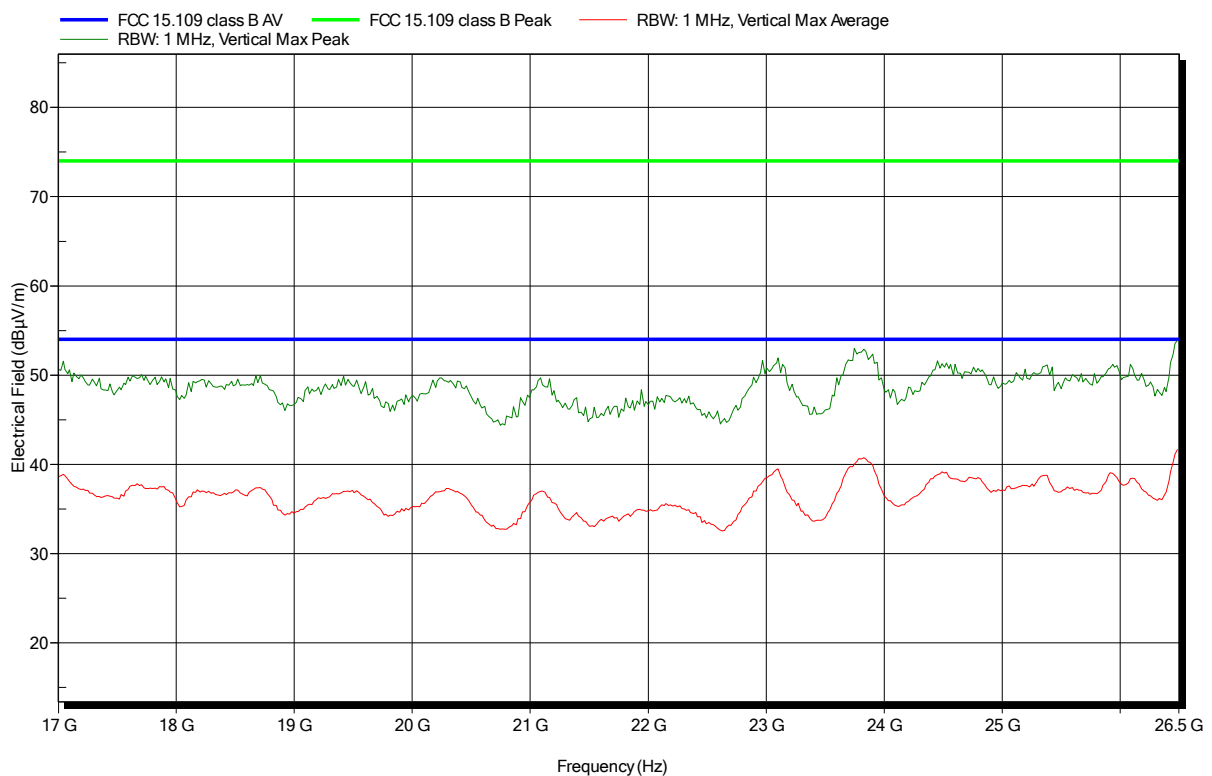


Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 2250
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Test Conditions:	Tnom: 23°C, Vnom: 3.6 VDC
Antenna:	ATH18G40, Vertical
Measurement distance:	3 m converted to 3m
Mode:	TX; 50 Ohms Load, Tx 912.5 MHz
Test Date:	2017-08-25
Note:	

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Test Report No.: GOM-1707-6700-EF01-V01

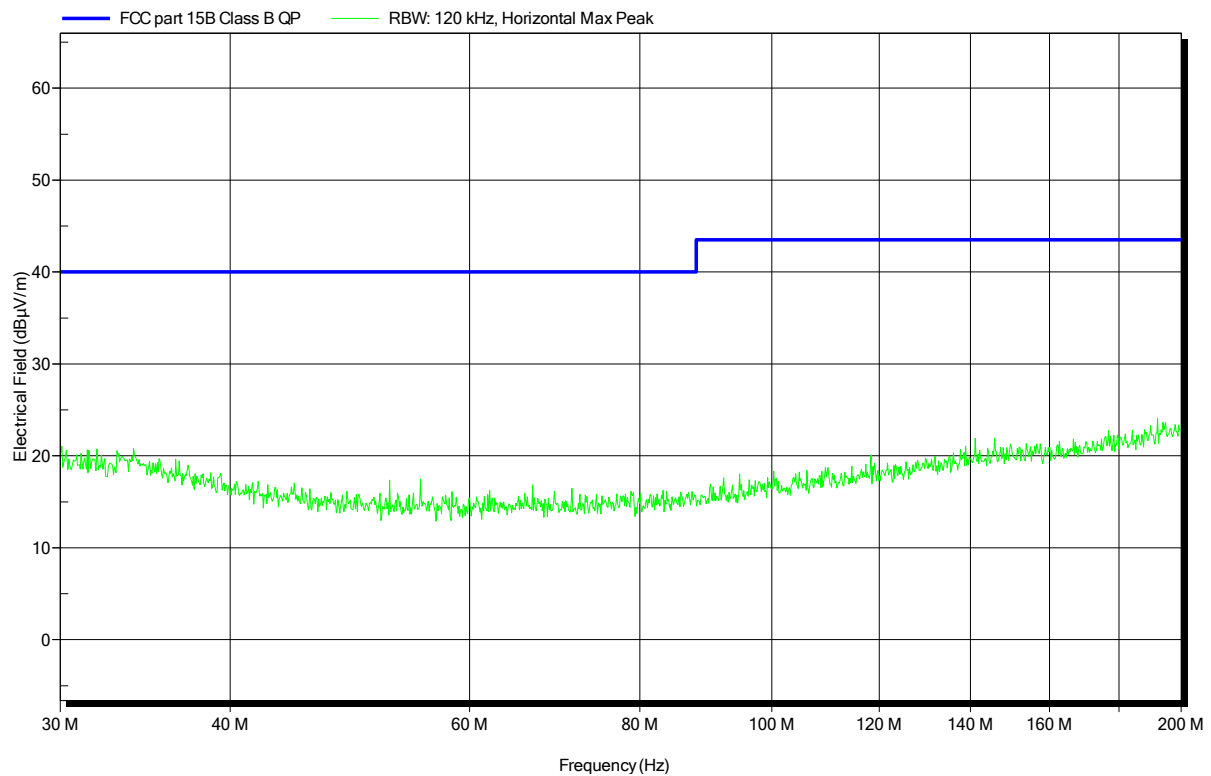
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated emissions under normal conditions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 3250
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Test Conditions:	Tnom: 23°C, Unom: 3.6 VDC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3m
Mode:	50 Ohms Load, Tx 460.11875 MHz
Test Date:	2017-08-23
Note:	

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Test Report No.: GOM-1707-6700-EF01-V01

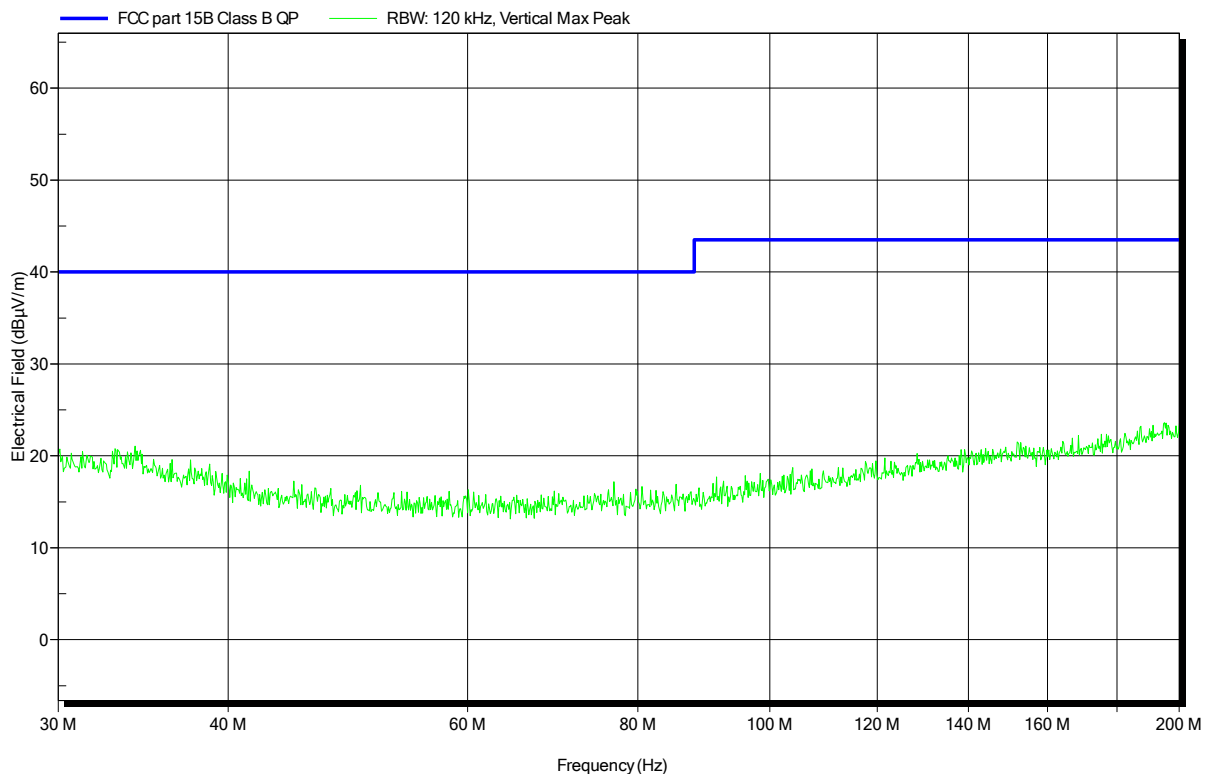
Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated emissions under normal conditions according to FCC Part 15b

Project number: G0M-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 3250
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Test Conditions:	Tnom: 23°C, Unom: 3.6 VDC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3m
Mode:	50 Ohms Load, Tx 460.11875 MHz
Test Date:	2017-08-23
Note:	

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Test Report No.: G0M-1707-6700-EF01-V01

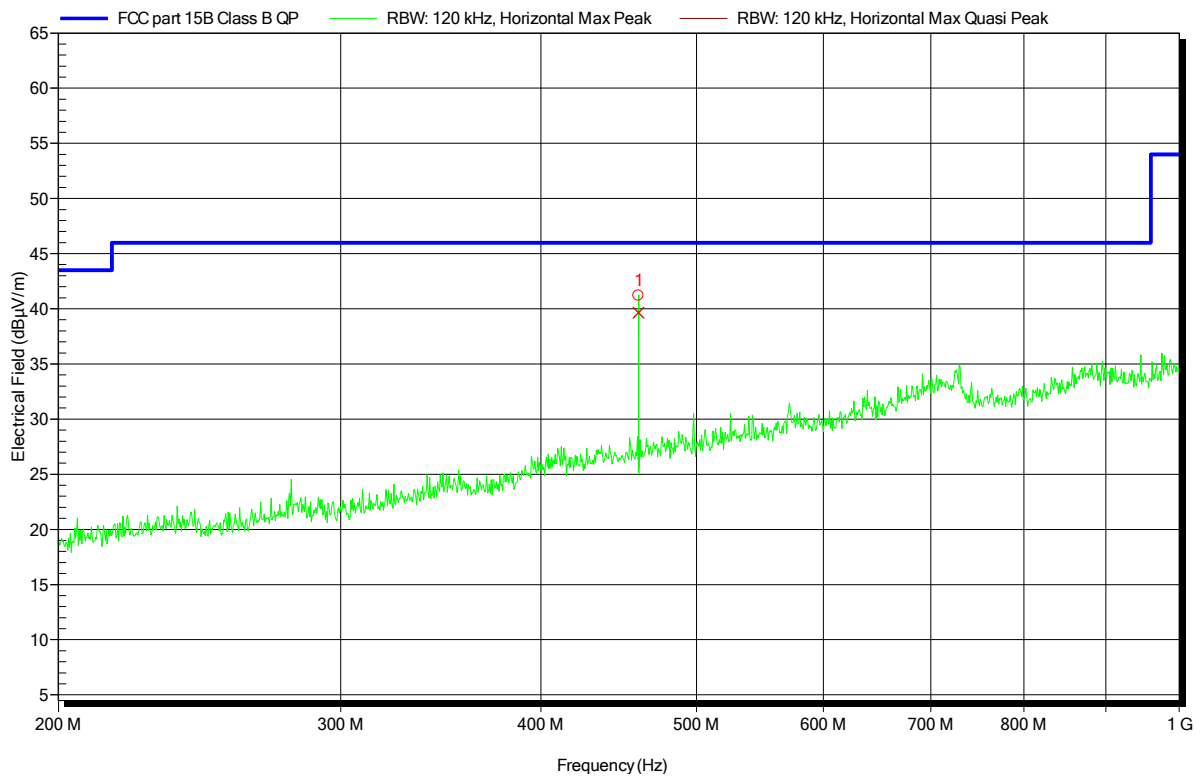
Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated emissions under normal conditions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 3250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Unom: 3.6 VDC
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3m
 Mode: 50 Ohms Load, Notch Filter, Tx 460.11875 MHz
 Test Date: 2017-08-23
 Note:

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Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	460.118 MHz	39.66 dBµV/m	46 dBµV/m	-6.34 dB	Pass	0 Degree	1 m

Test Report No.: GOM-1707-6700-EF01-V01

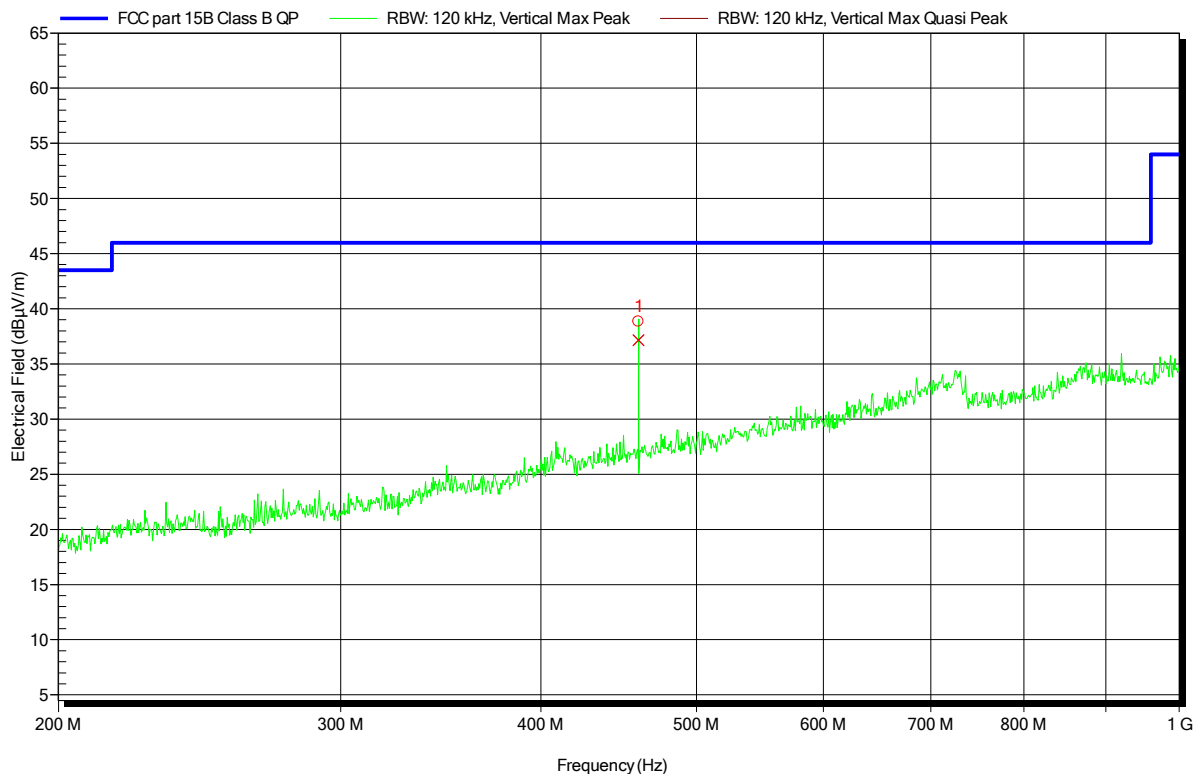
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated emissions under normal conditions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 3250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Unom: 3.6 VDC
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3m
 Mode: 50 Ohms Load, Notch Filter, Tx 460.11875 MHz
 Test Date: 2017-08-23
 Note:

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Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	460.118 MHz	37.14 dBµV/m	46 dBµV/m	-8.86 dB	Pass	0 Degree	1 m

Test Report No.: GOM-1707-6700-EF01-V01

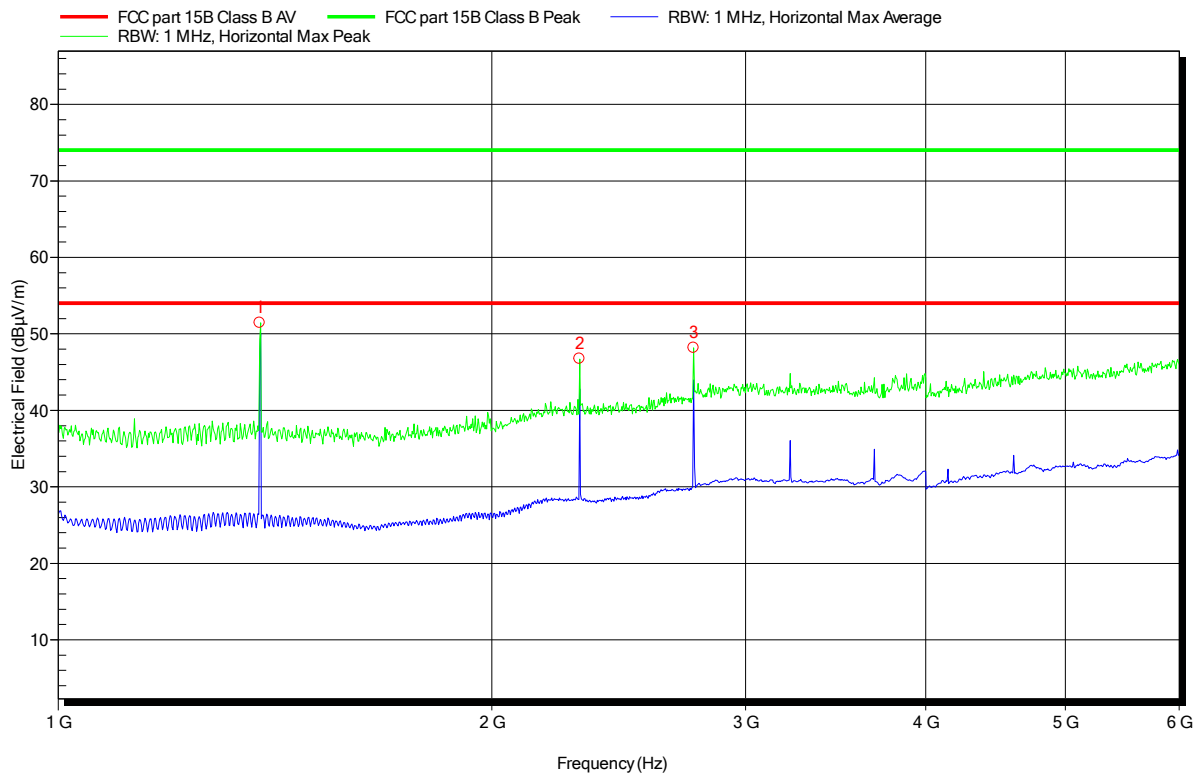
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated emissions under normal conditions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 3250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Unom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3m
 Mode: 50 Ohms Load, Tx 460.11875 MHz
 Test Date: 2017-08-23
 Note:

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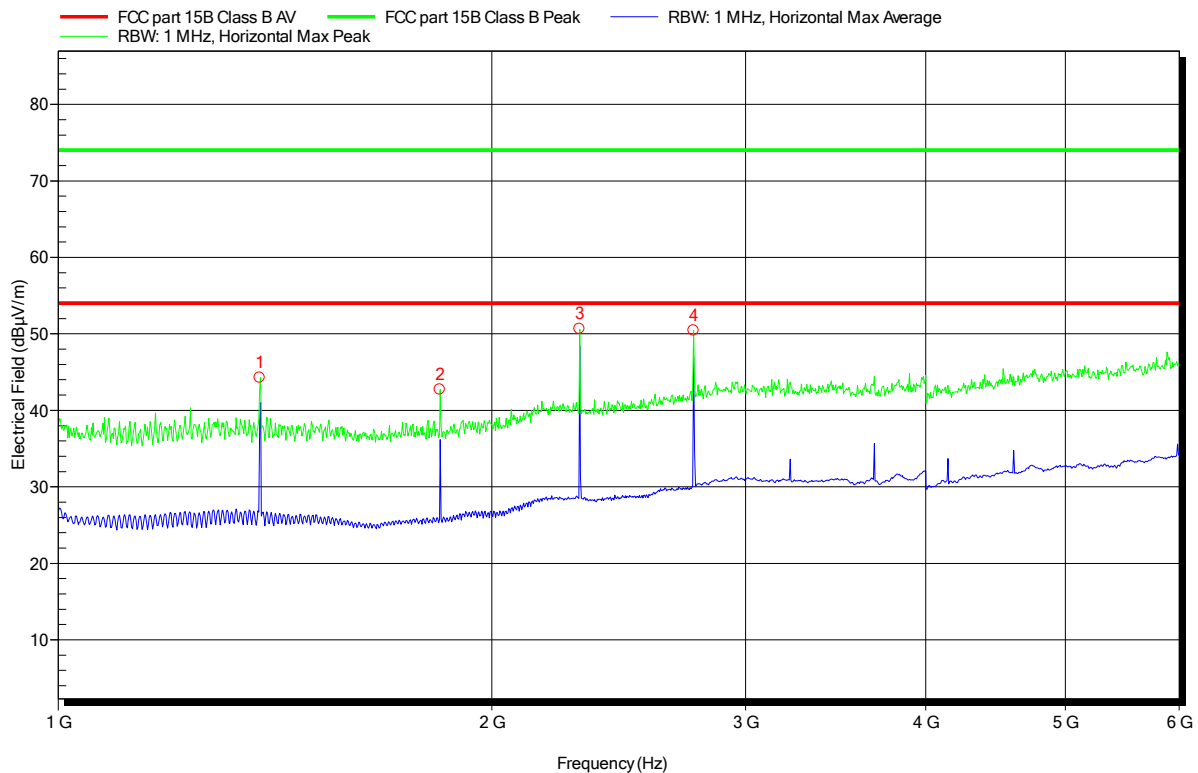
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.381 GHz	50.06 dBμV/m	54 dBμV/m	-3.94 dB	Pass	0 Degree	1 m
2	2.301 GHz	42.83 dBμV/m	54 dBμV/m	-11.17 dB	Pass	0 Degree	1 m
3	2.761 GHz	43.98 dBμV/m	54 dBμV/m	-10.02 dB	Pass	0 Degree	1 m

Radiated emissions under normal conditions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 3250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Unom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3m
 Mode: 50 Ohms Load, Tx 460.11875 MHz
 Test Date: 2017-08-23
 Note:

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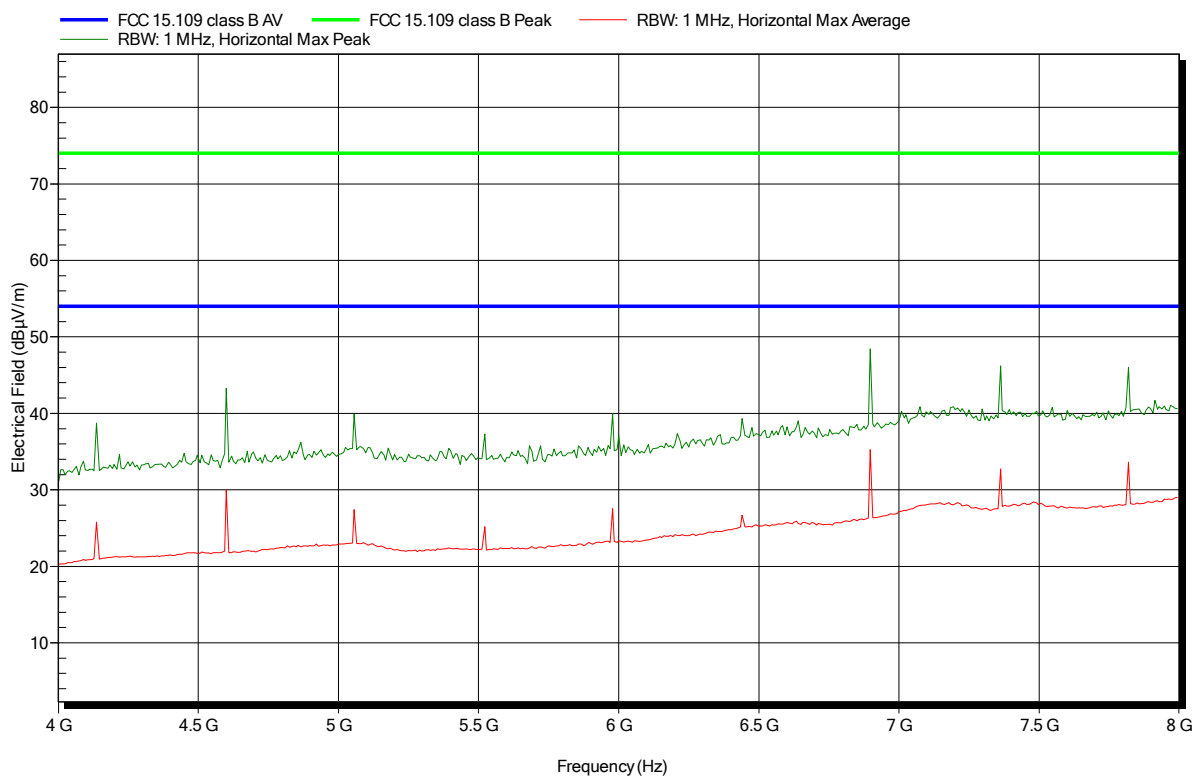
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.381 GHz	41 dBμV/m	54 dBμV/m	-13 dB	Pass	0 Degree	1 m
2	1.841 GHz	36.17 dBμV/m	54 dBμV/m	-17.83 dB	Pass	0 Degree	1 m
3	2.301 GHz	48.43 dBμV/m	54 dBμV/m	-5.57 dB	Pass	0 Degree	1 m
4	2.761 GHz	46.89 dBμV/m	54 dBμV/m	-7.11 dB	Pass	0 Degree	1 m

Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 3250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Vnom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 50 Ohms Load, Tx 460.11875 MHz
 Test Date: 2017-08-25
 Note:

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Test Report No.: GOM-1707-6700-EF01-V01

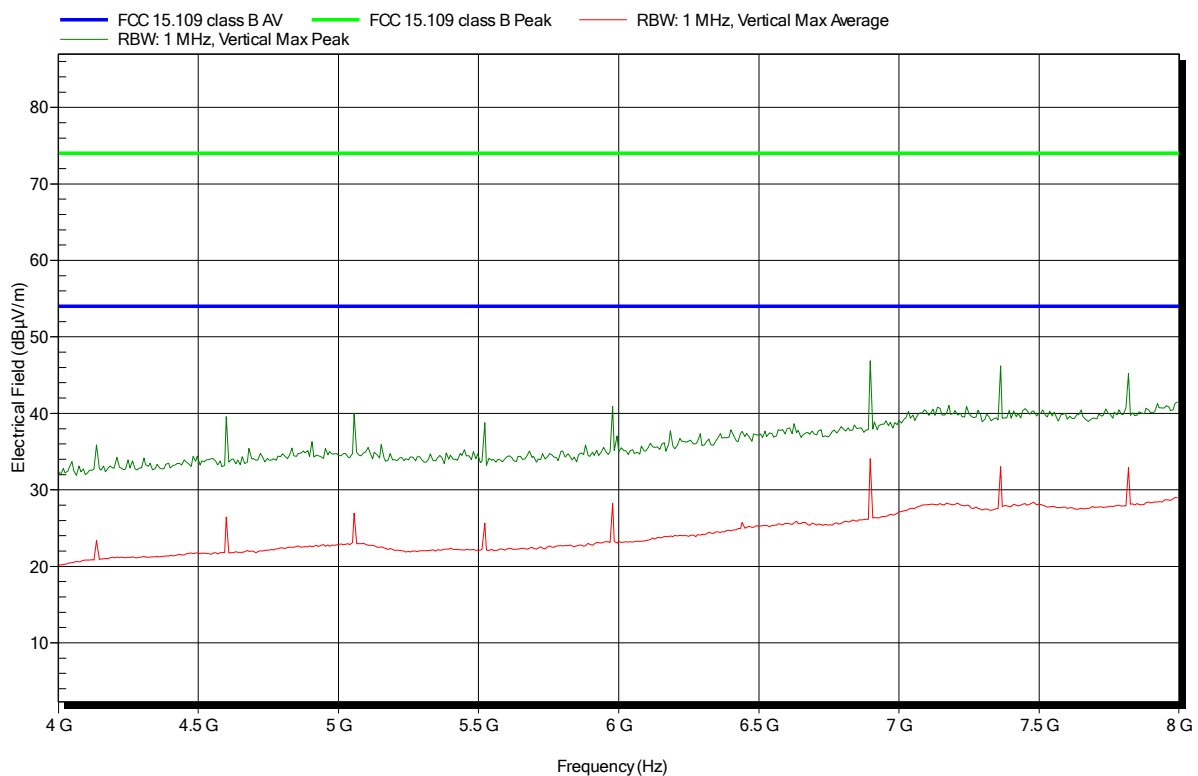
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 3250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Vnom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 50 Ohms Load, Tx 460.11875 MHz
 Test Date: 2017-08-25
 Note:

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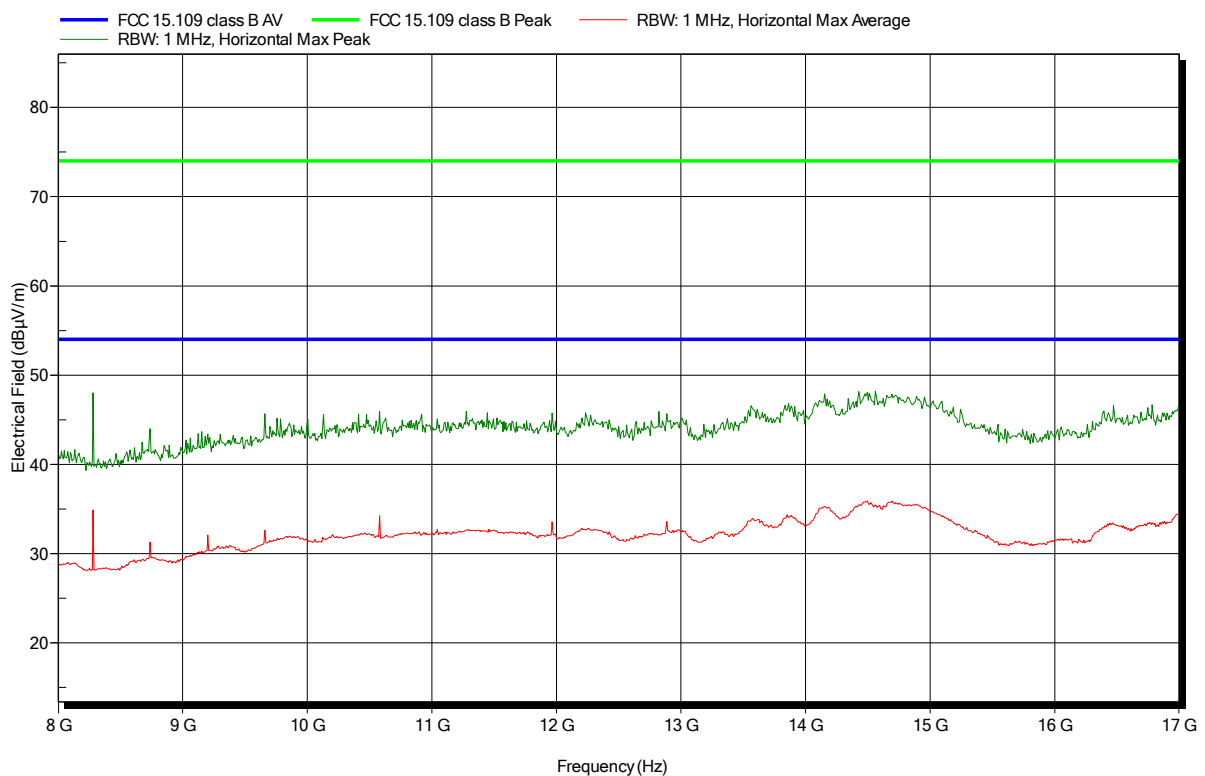


Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 3250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Vnom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 50 Ohms Load, Tx 460.11875 MHz
 Test Date: 2017-08-25
 Note:

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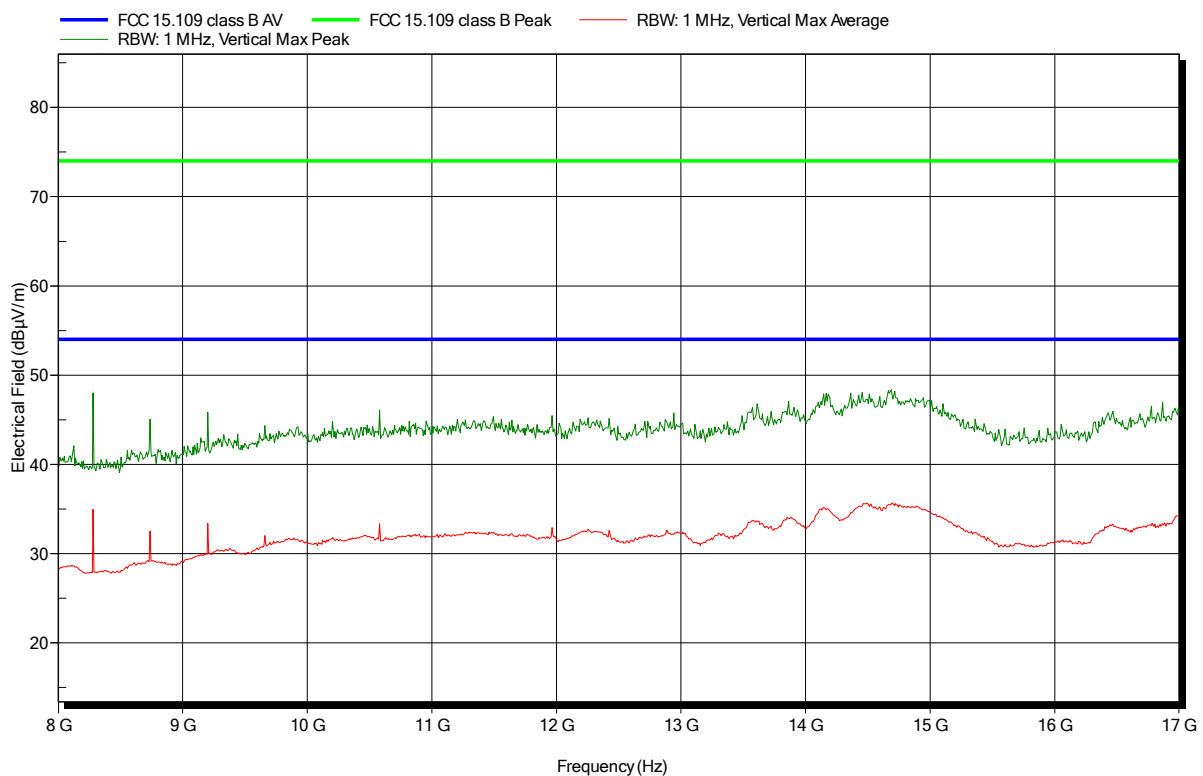


Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 3250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Vnom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 50 Ohms Load, Tx 460.11875 MHz
 Test Date: 2017-08-25
 Note:

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Test Report No.: GOM-1707-6700-EF01-V01

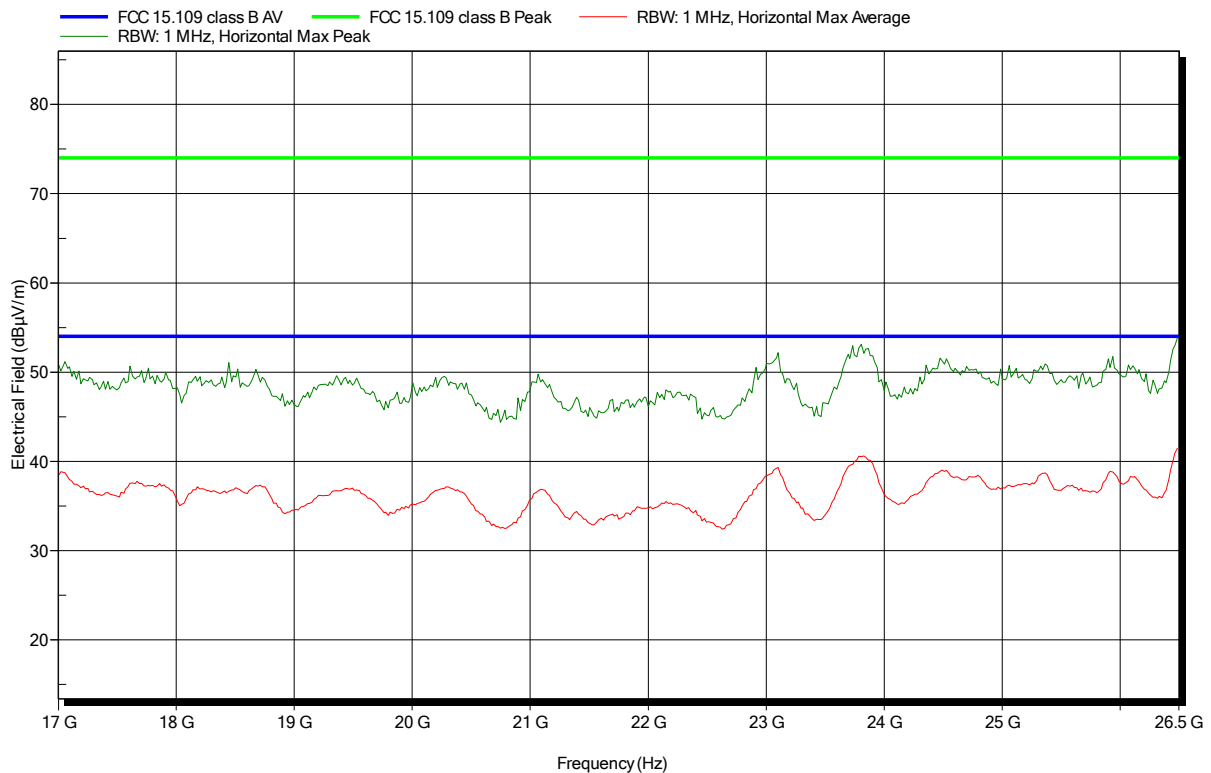
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 3250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Vnom: 3.6 VDC
 Antenna: ATH18G40, Horizontal
 Measurement distance: 3 m converted to 3m
 Mode: TX; 50 Ohms Load, Tx 460.11875 MHz
 Test Date: 2017-08-25
 Note:

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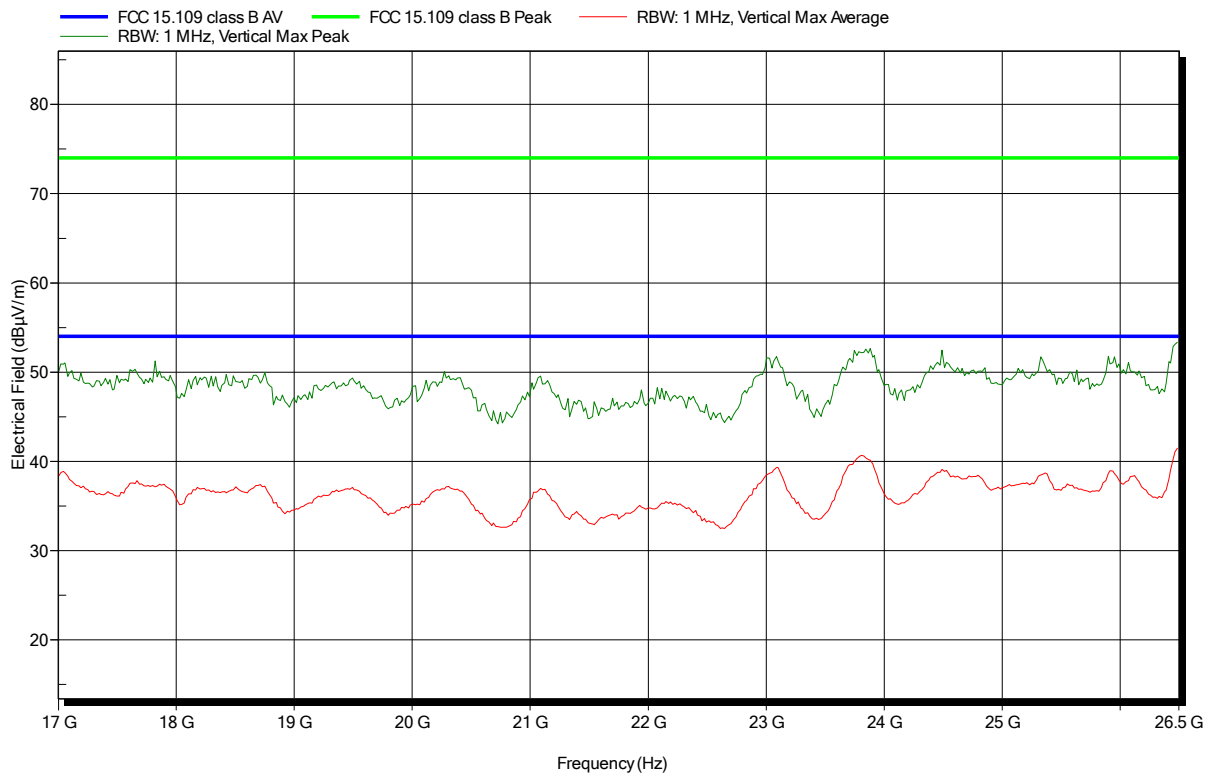


Spurious emissions according to FCC Part 15b

Project number: G0M-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 3250
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Test Conditions:	Tnom: 23°C, Vnom: 3.6 VDC
Antenna:	ATH18G40, Vertical
Measurement distance:	3 m converted to 3m
Mode:	TX; 50 Ohms Load, Tx 460.11875 MHz
Test Date:	2017-08-25
Note:	

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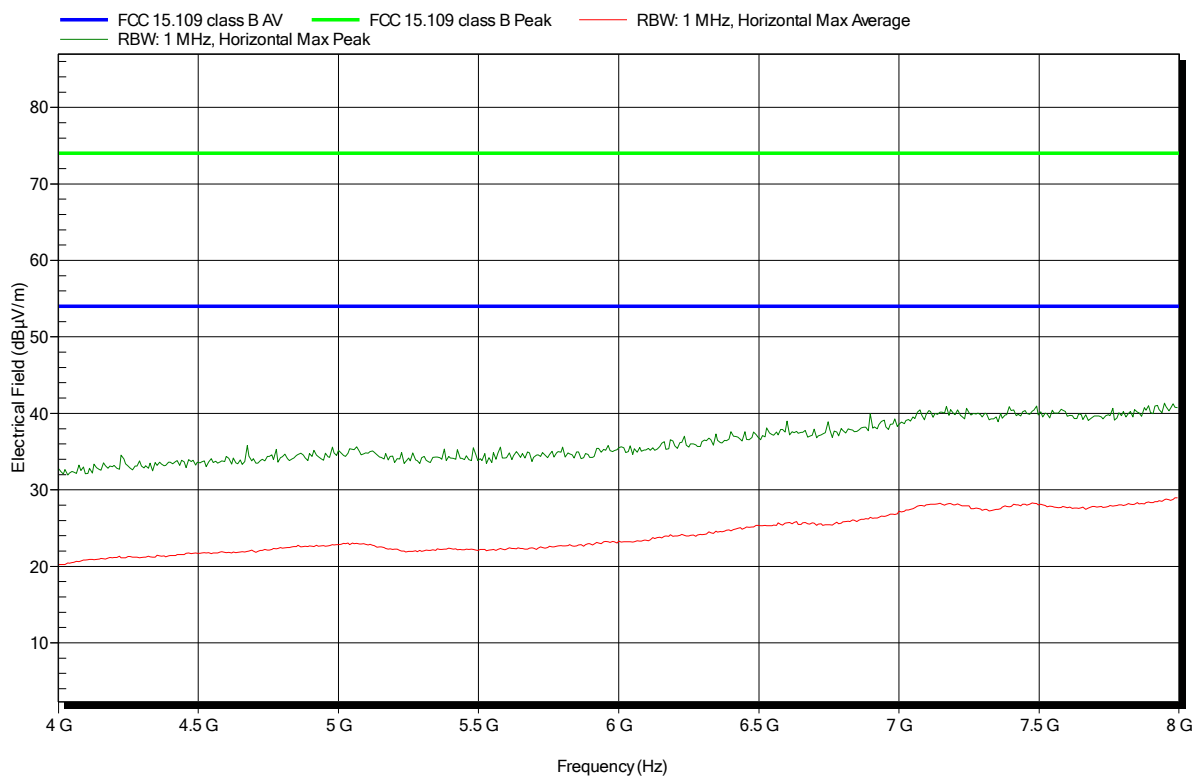


Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 3250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Vnom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 50 Ohms Load, Tx 912.5 MHz
 Test Date: 2017-08-25
 Note:

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Test Report No.: GOM-1707-6700-EF01-V01

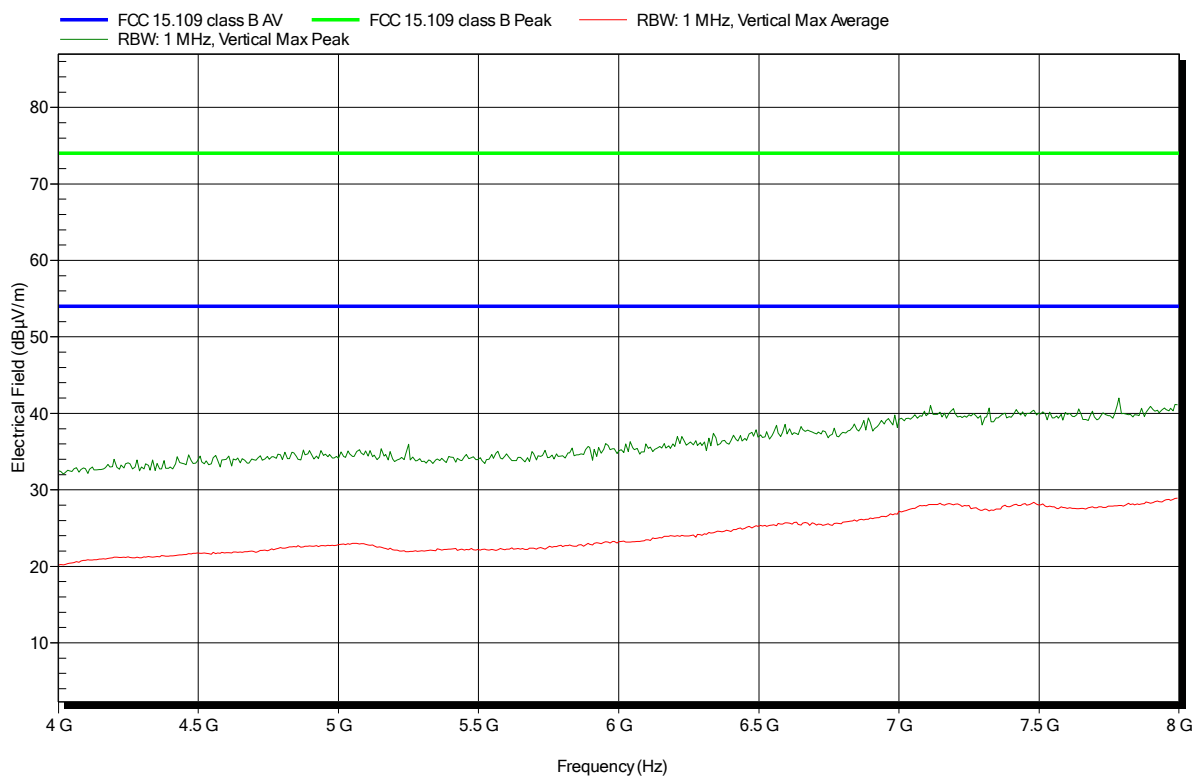
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 3250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Vnom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 50 Ohms Load, Tx 912.5 MHz
 Test Date: 2017-08-25
 Note:

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Test Report No.: GOM-1707-6700-EF01-V01

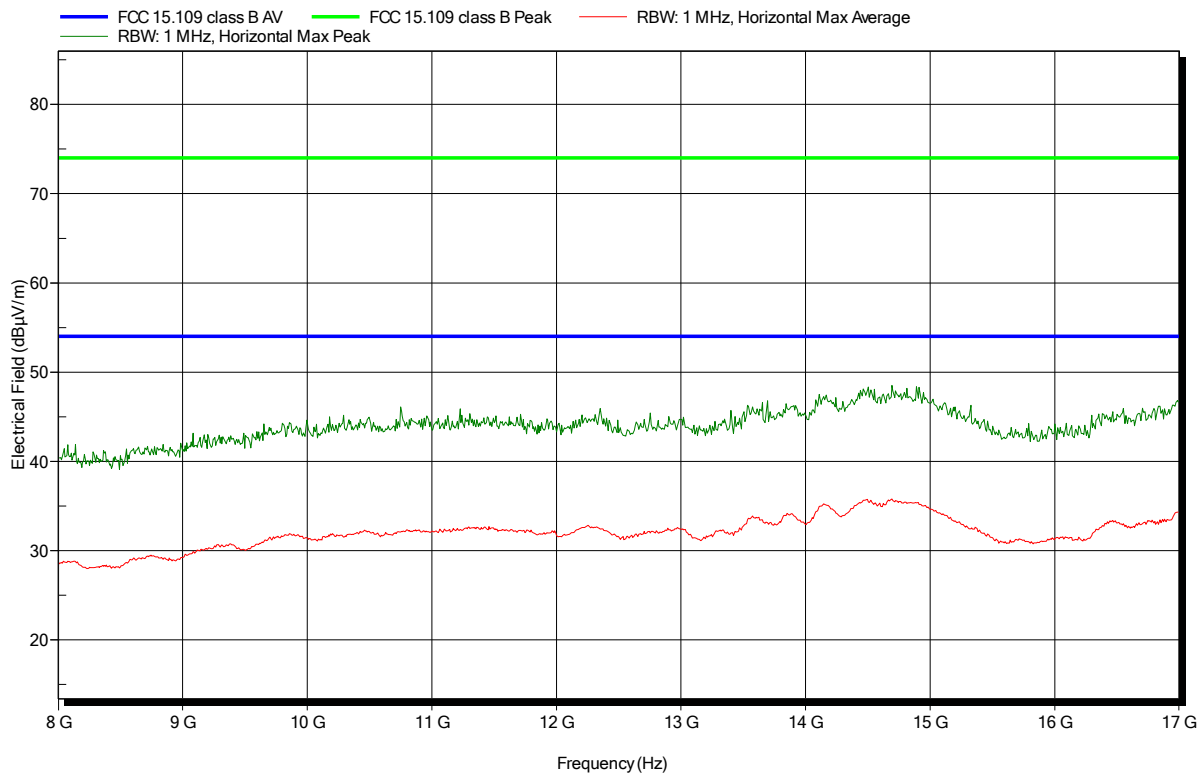
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 3250
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Test Conditions:	Tnom: 23°C, Vnom: 3.6 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; 50 Ohms Load, Tx 912.5 MHz
Test Date:	2017-08-25
Note:	

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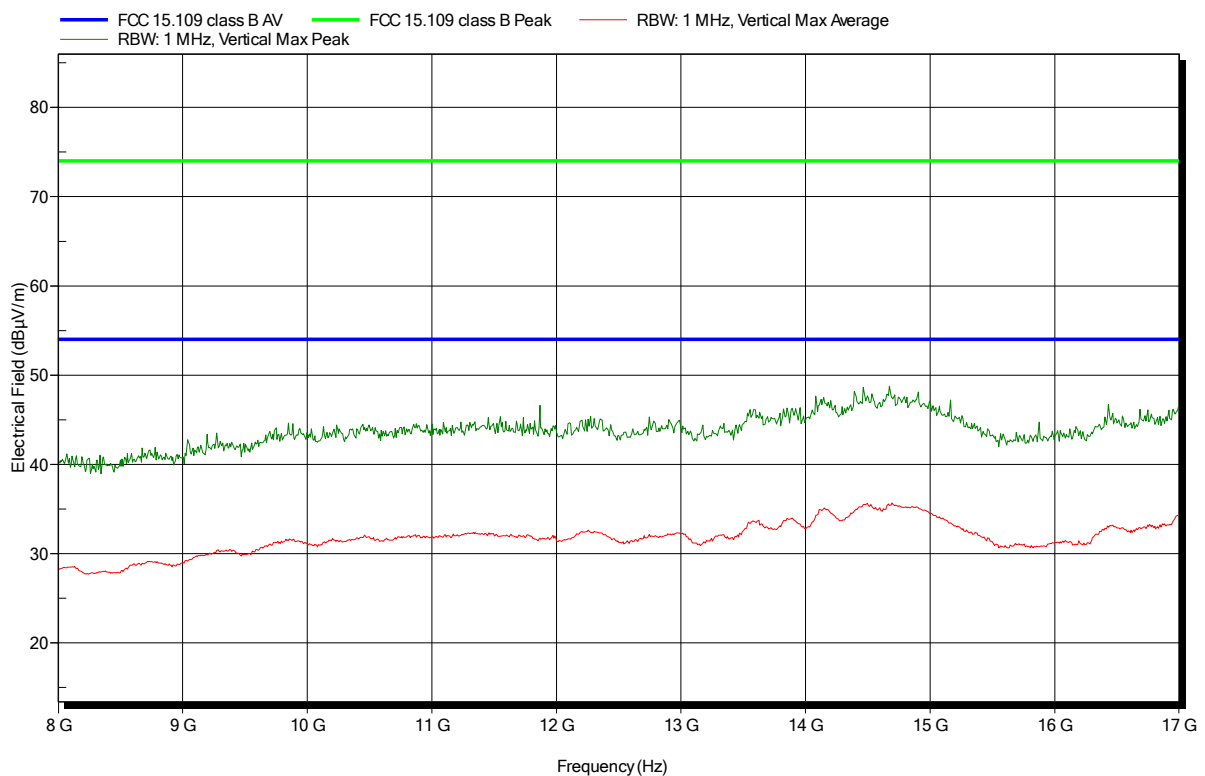


Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 3250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Vnom: 3.6 VDC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 50 Ohms Load, Tx 912.5 MHz
 Test Date: 2017-08-25
 Note:

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Test Report No.: GOM-1707-6700-EF01-V01

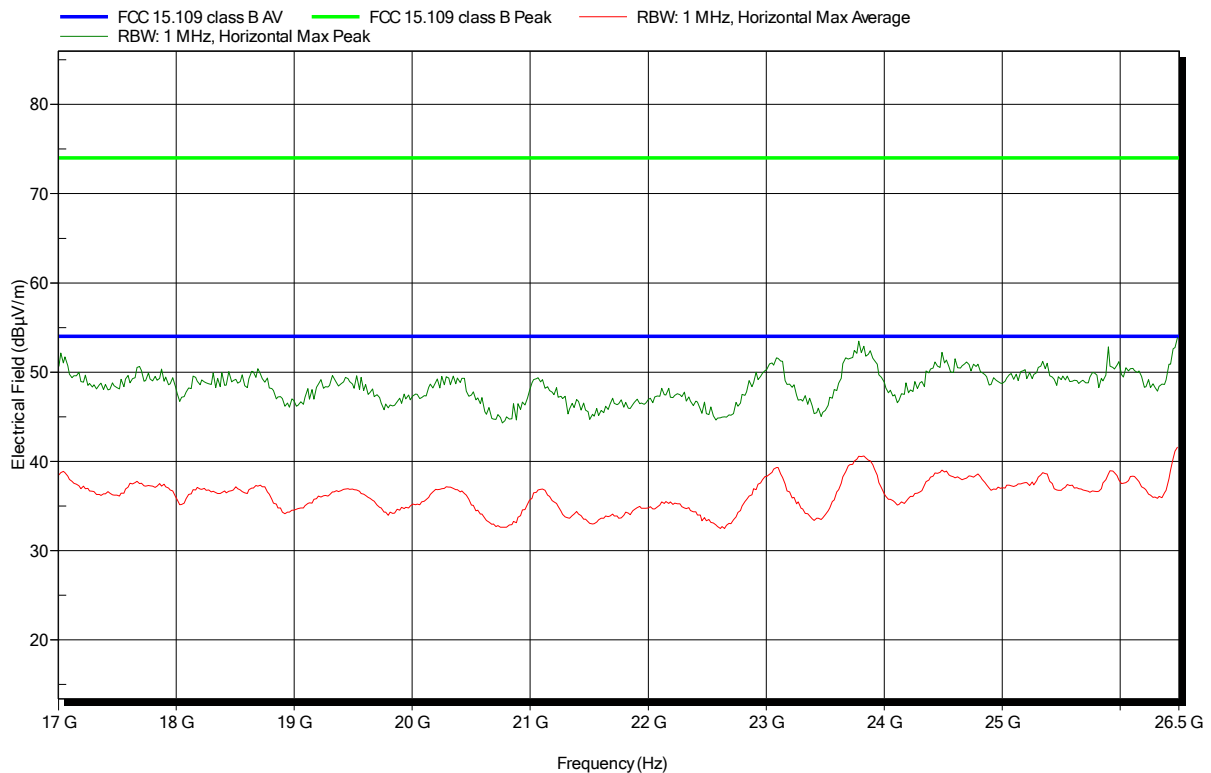
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 3250
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Jahn
Test Conditions:	Tnom: 23°C, Vnom: 3.6 VDC
Antenna:	ATH18G40, Horizontal
Measurement distance:	3 m converted to 3m
Mode:	TX; 50 Ohms Load, Tx 912.5 MHz
Test Date:	2017-08-25
Note:	

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Spurious emissions according to FCC Part 15b

Project number: GOM-1707-6700

Applicant: Kamstrup A/S
 EUT Name: Ultrasonic water meter
 Model: FlowIQ 3250
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Jahn
 Test Conditions: Tnom: 23°C, Vnom: 3.6 VDC
 Antenna: ATH18G40, Vertical
 Measurement distance: 3 m converted to 3m
 Mode: TX; 50 Ohms Load, Tx 912.5 MHz
 Test Date: 2017-08-25
 Note:

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