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.

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	

REPORT INDEX

1 Equipment (Test item) Description

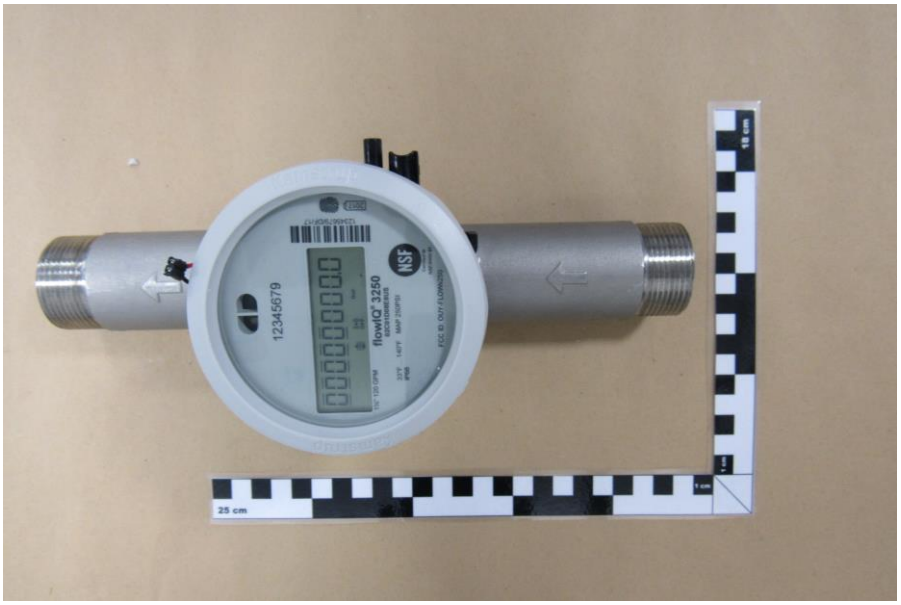
Description	Ultrasonic water meter
Model	FlowIQ 2250
Additional Models	FlowIQ 3250 HW: 620220101 rev 00 / RF board 55501605 rev D1
Serial number	None
Hardware version	620120101 rev A1 / RF board 55501605 rev D1
Software / Firmware version	50981336 rev E1 / 55141470 rev C1
	OUY-FLOWX250
Contains IC	N/A
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

FlowIQ 2250


FlowIQ 2250

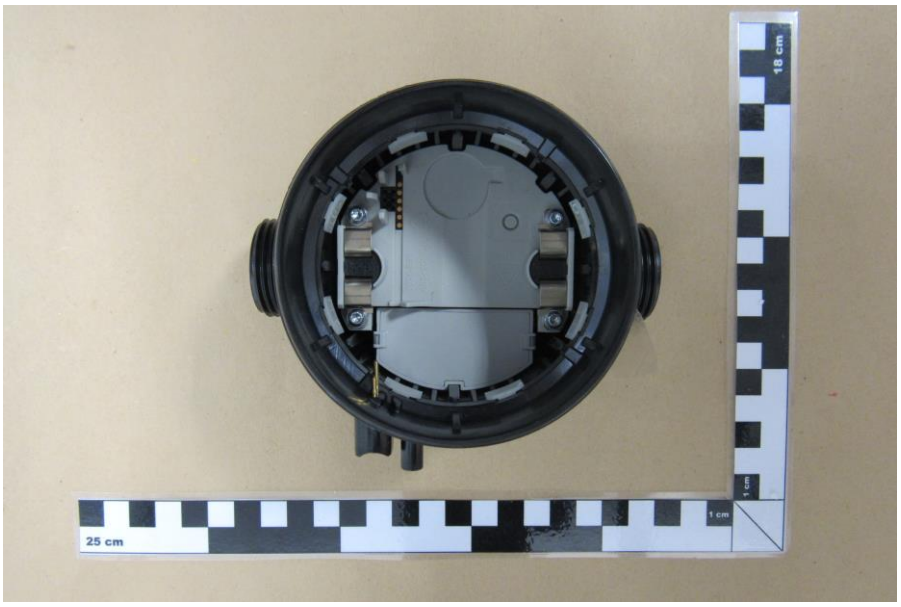

FlowIQ 2250


FlowIQ 3250


FlowIQ 3250

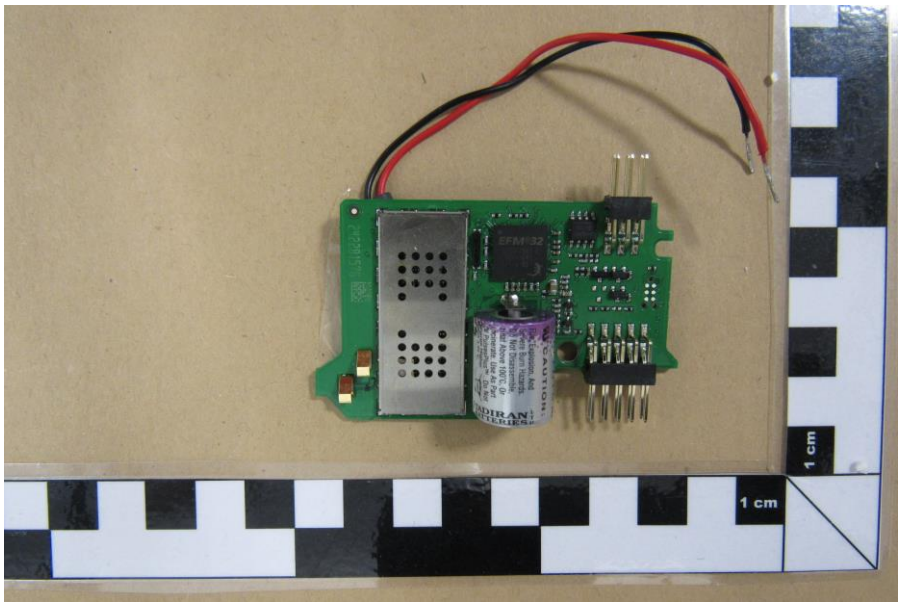

Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

1.2 Photos – Equipment internal

FlowIQ 2250


FlowIQ 2250


FlowIQ 2250


FlowIQ 2250 RF-PCB


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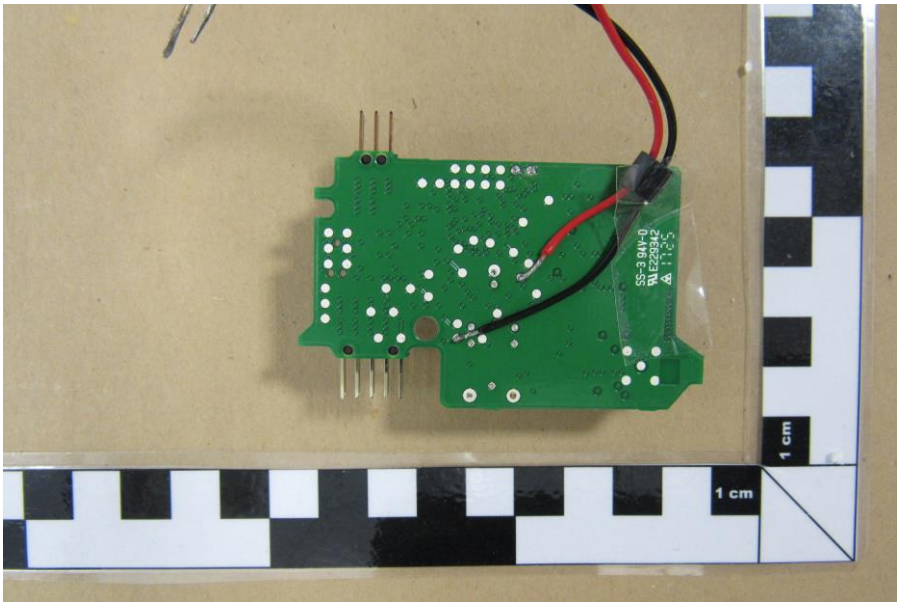

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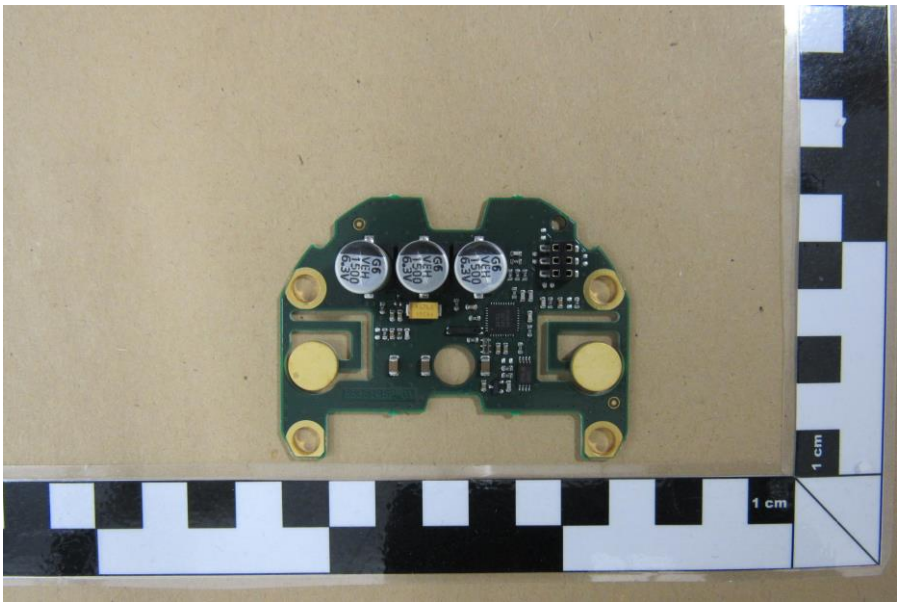

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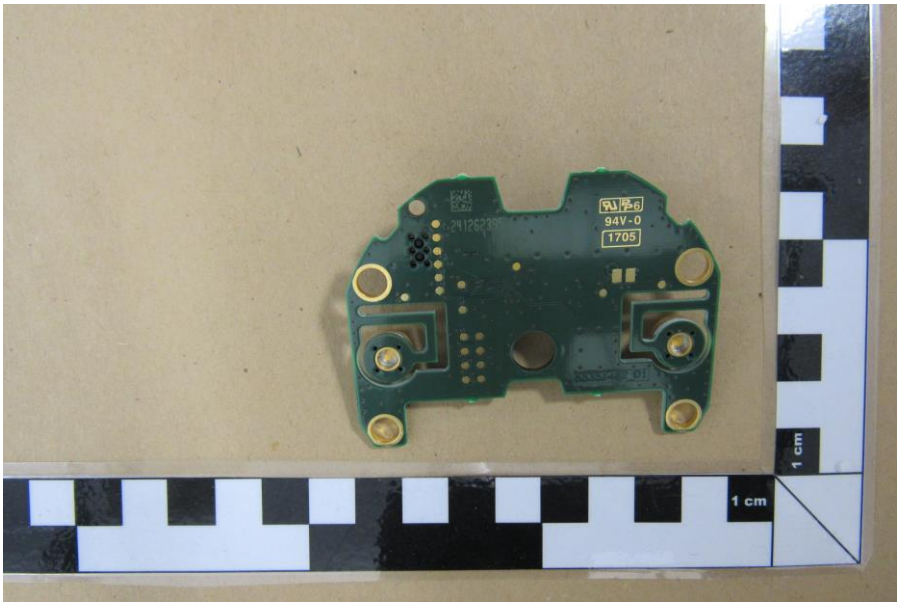

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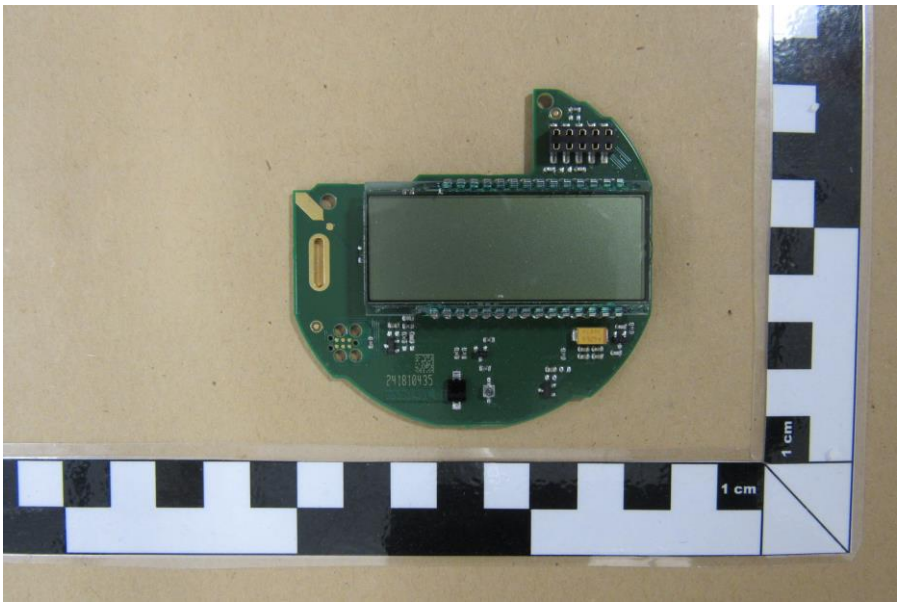

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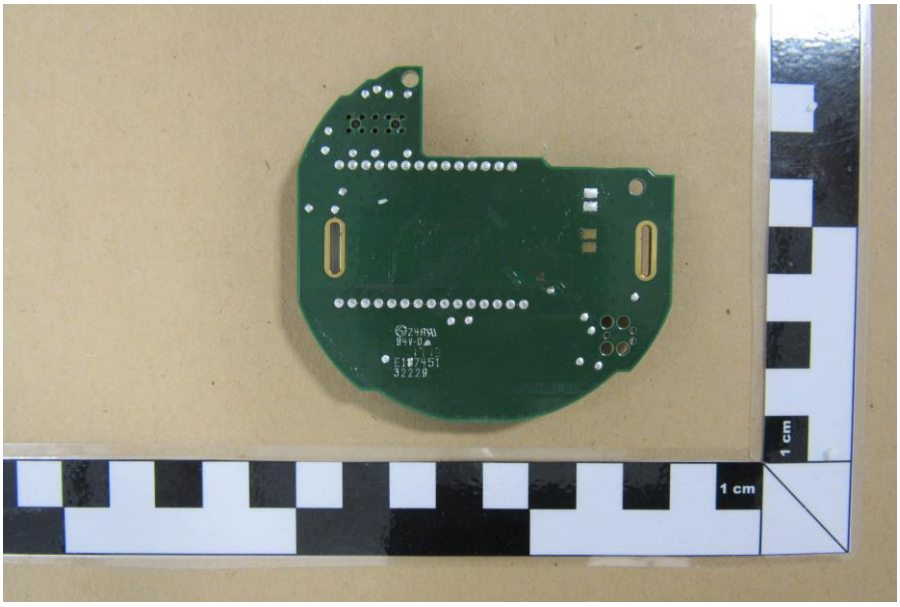
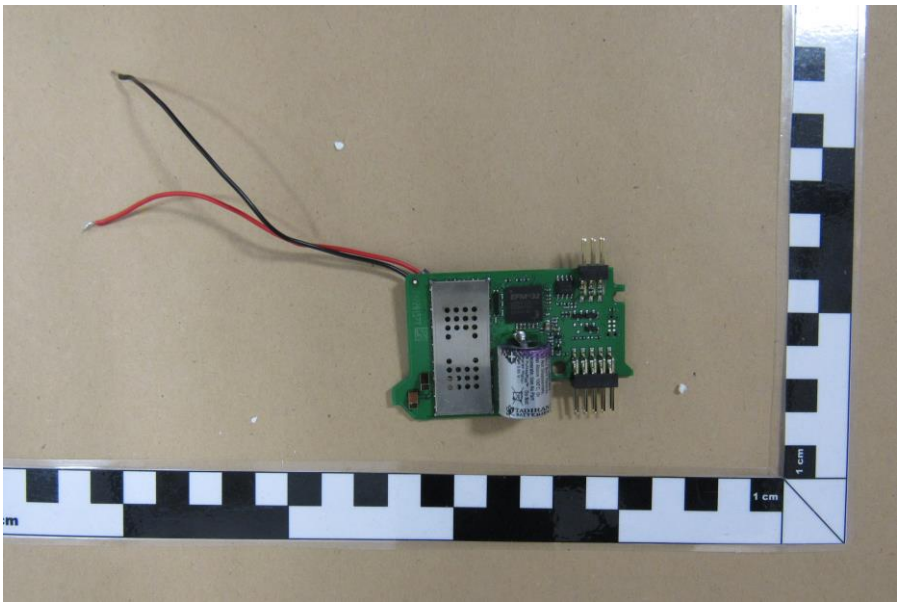
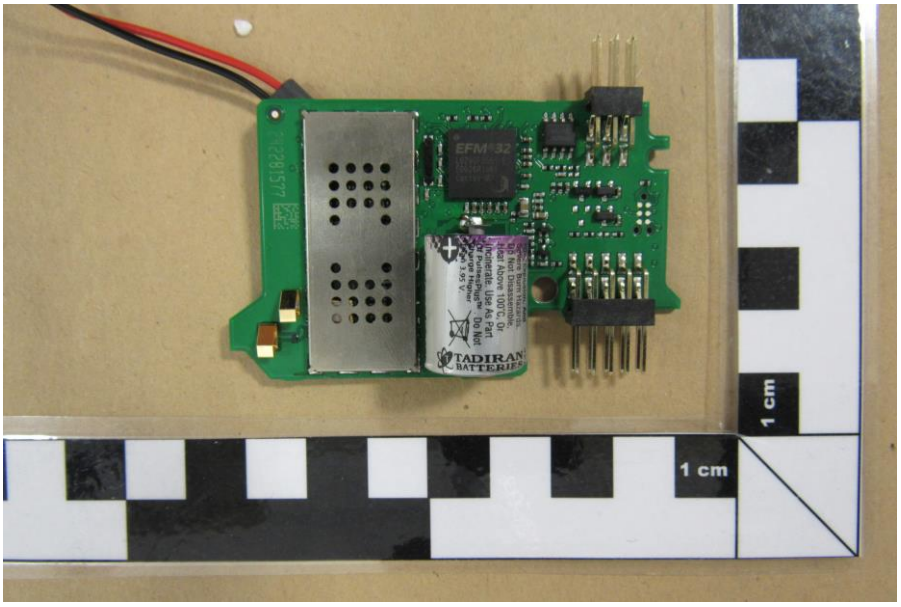


FlowIQ 3250

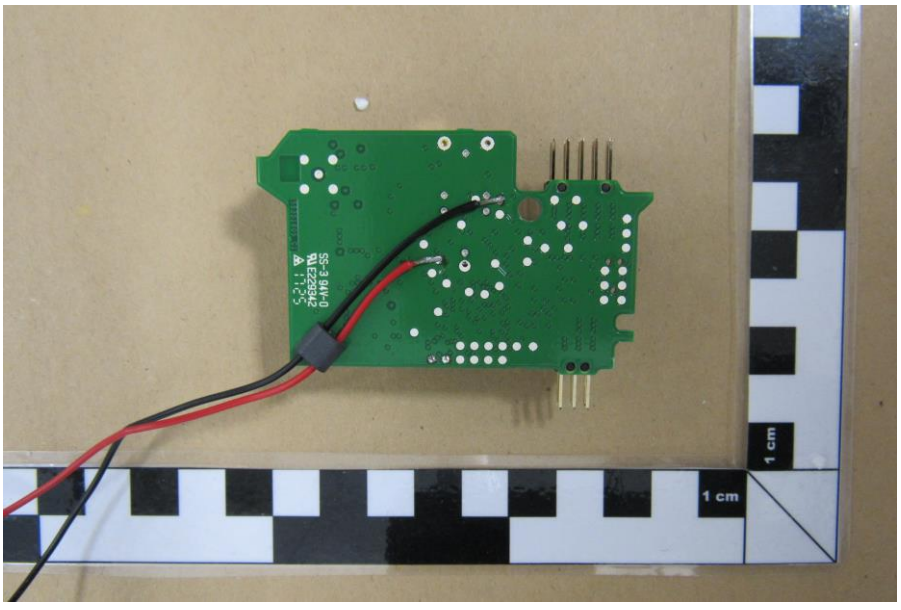

FlowIQ 3250


FlowIQ 3250 RF PCB


FlowIQ 3250 RF PCB



FlowIQ 3250 RF PCB



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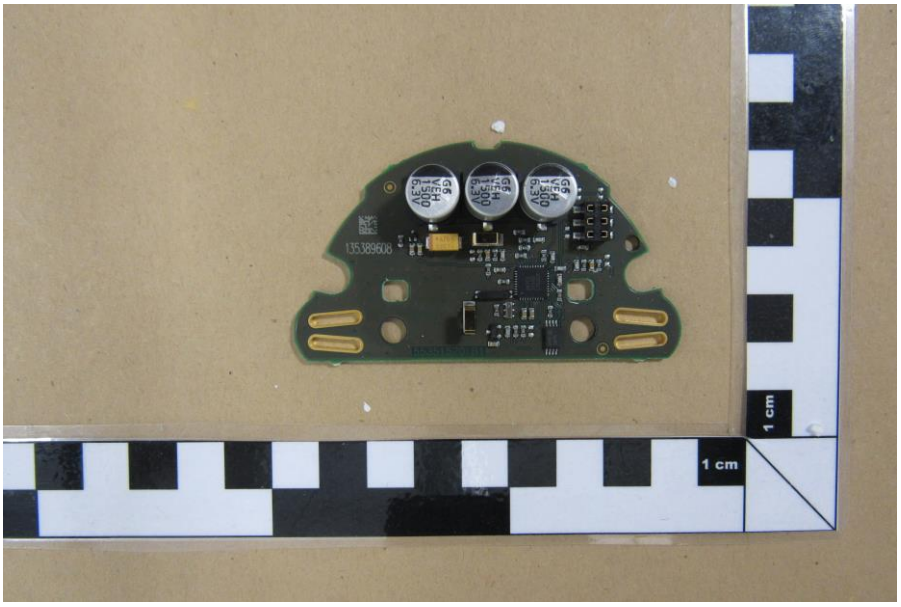

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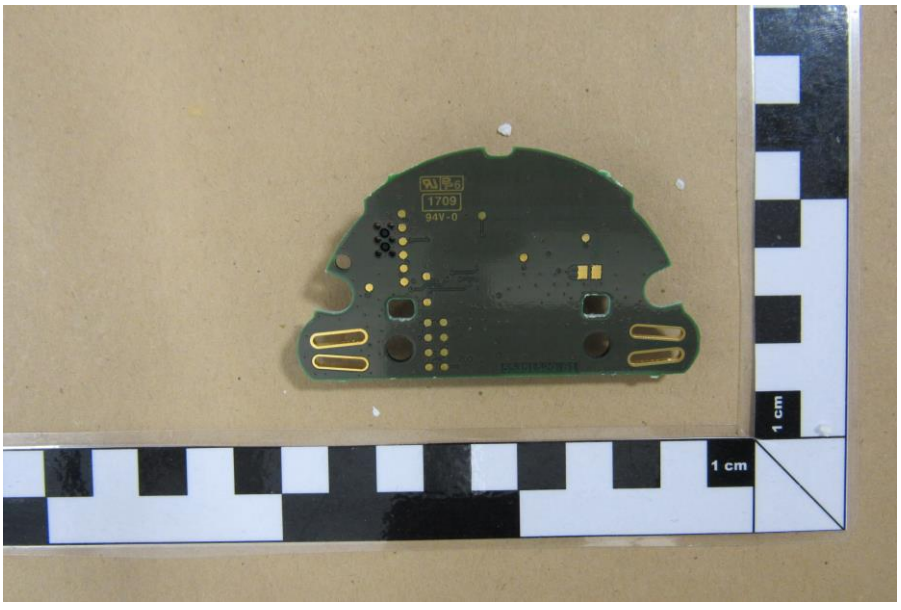

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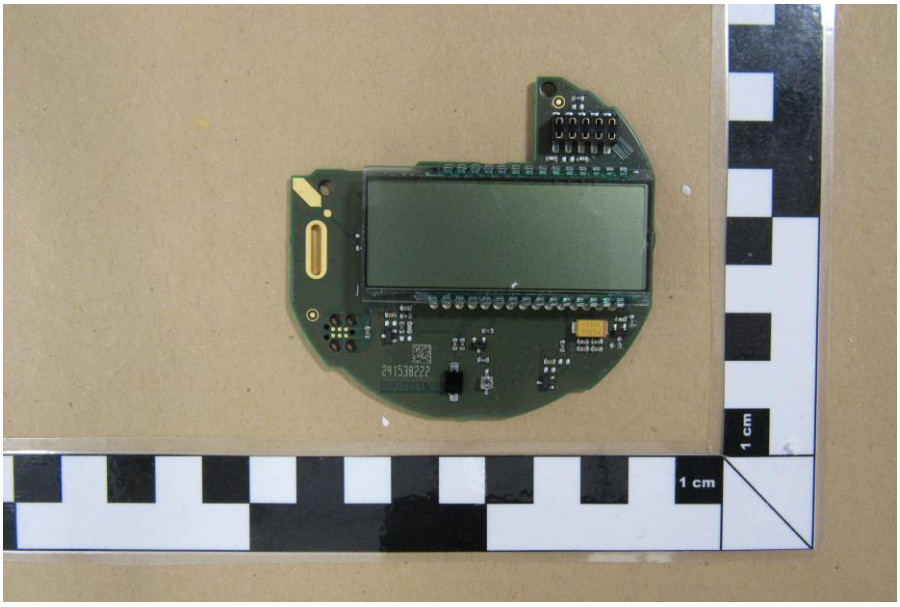

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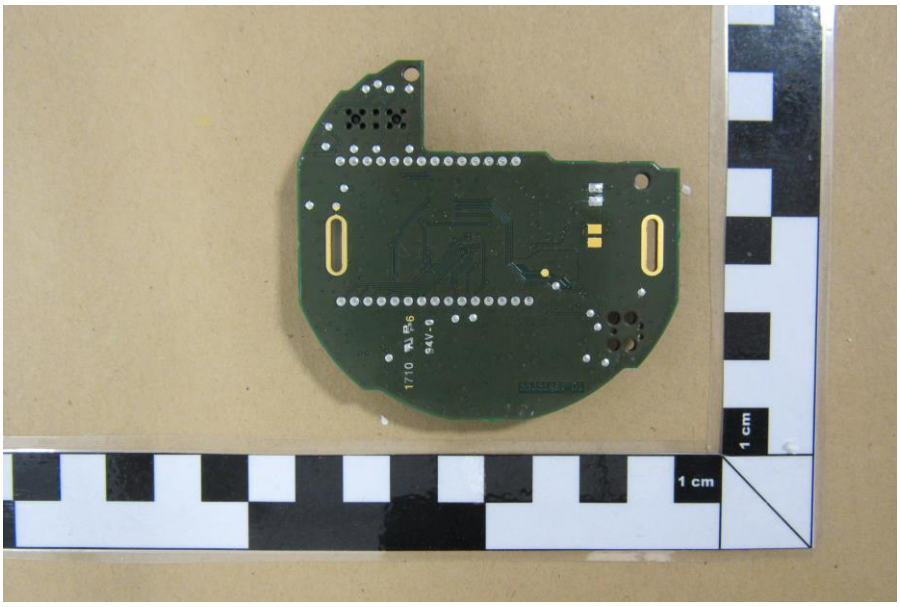
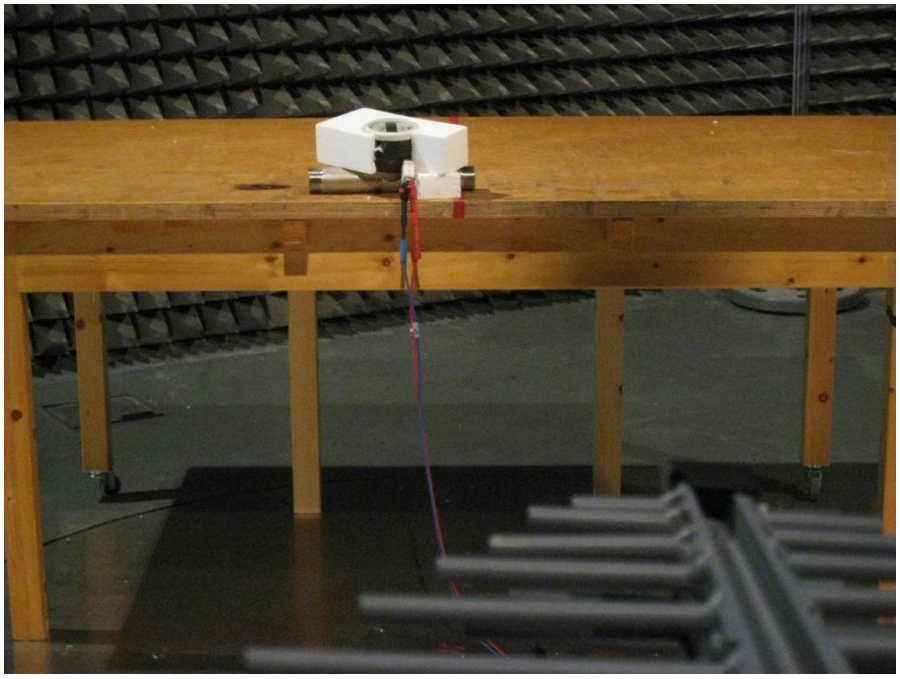


1.3 Photos – Test setup

FlowIQ 2250


FlowIQ 2250 with Load


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 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:

Reading on Analyzer (dBµV) + A.F. (dB) = Net field strength (dBµV/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:

Limit (dBµV/m) = 20*log (µV/m)

Margin:

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

Example only:

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

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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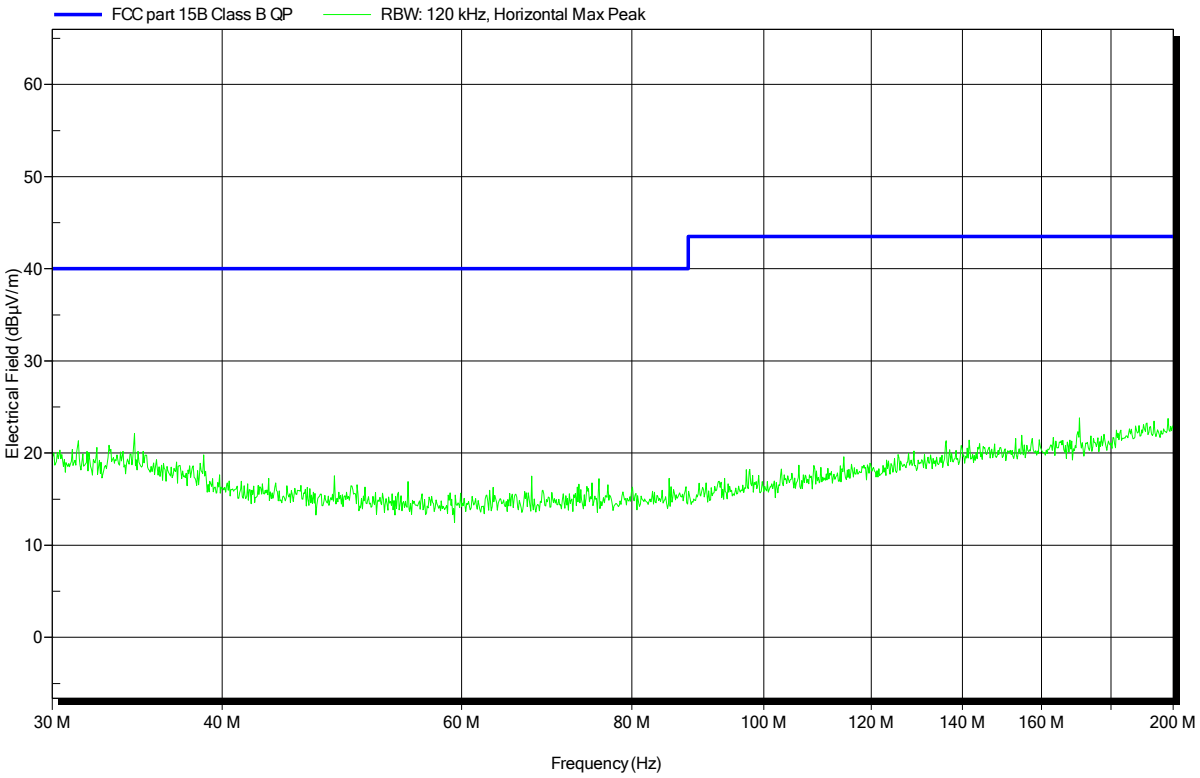

Radiated emissions under normal conditions according to FCC Part 15b

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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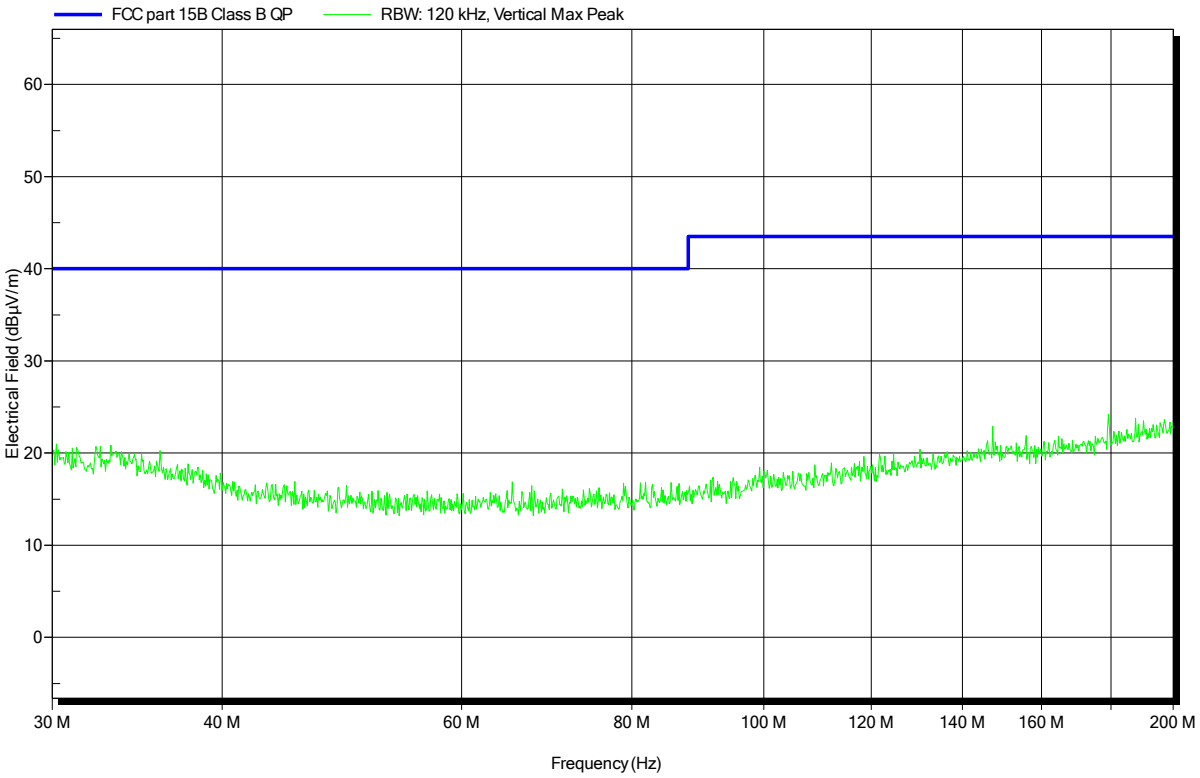

Radiated emissions under normal conditions according to FCC Part 15b

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 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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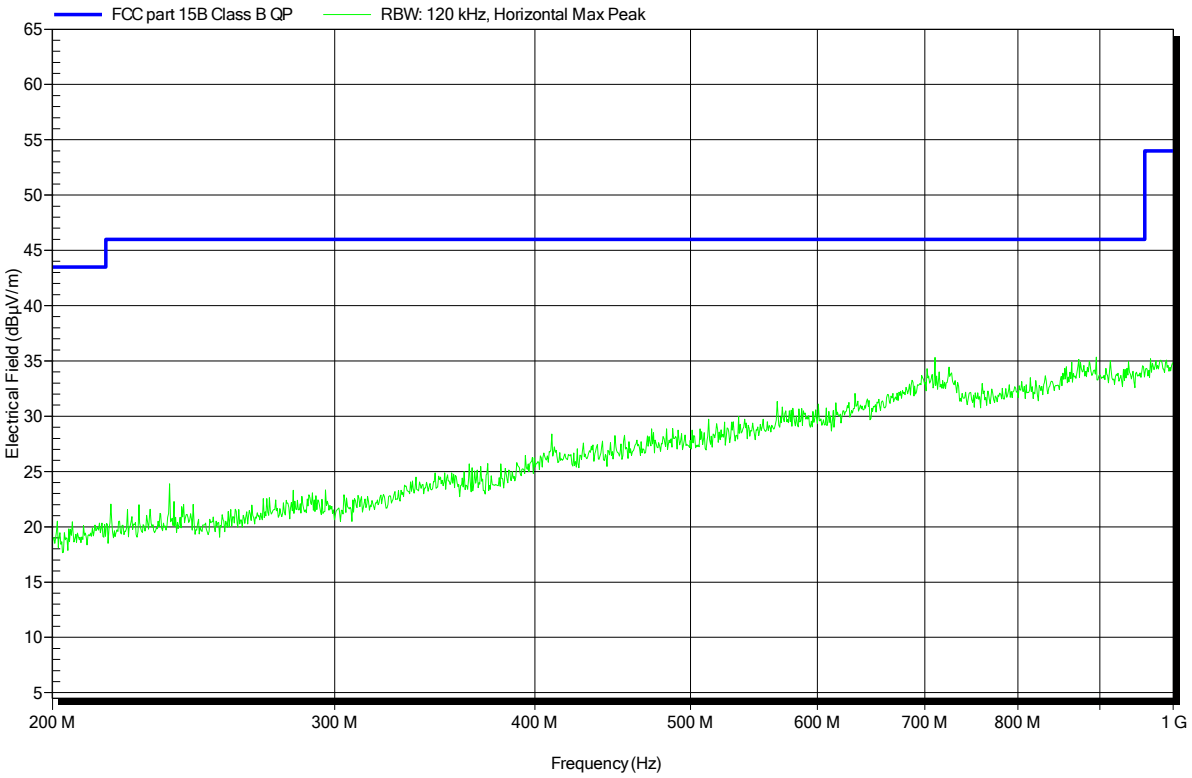

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Operator:	Mr. Jahn
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Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3m
Mode:	50 Ohms Load, Notch Filter, Tx 460.11875 MHz
Test Date:	2017-08-23
Note:	

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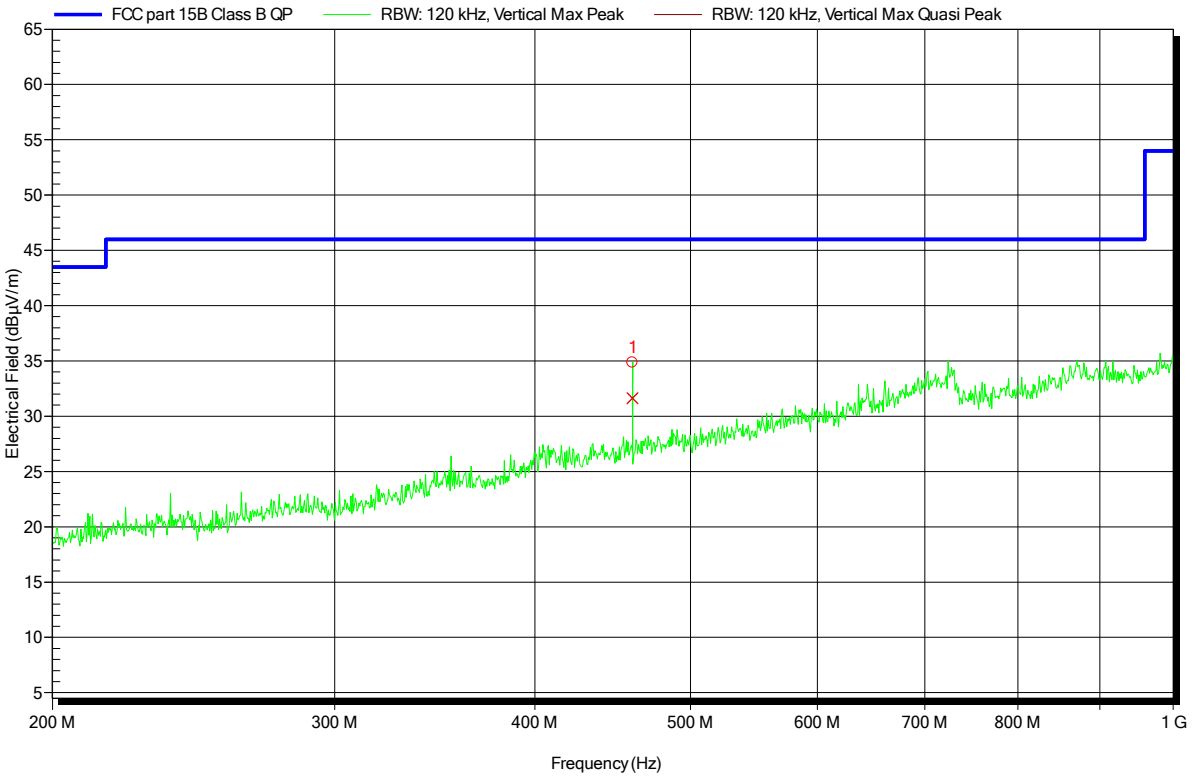

Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	460.094 MHz	31.64 dBµV/m	46 dBµV/m	-14.36 dB	Pass	0 Degree	1 m

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:	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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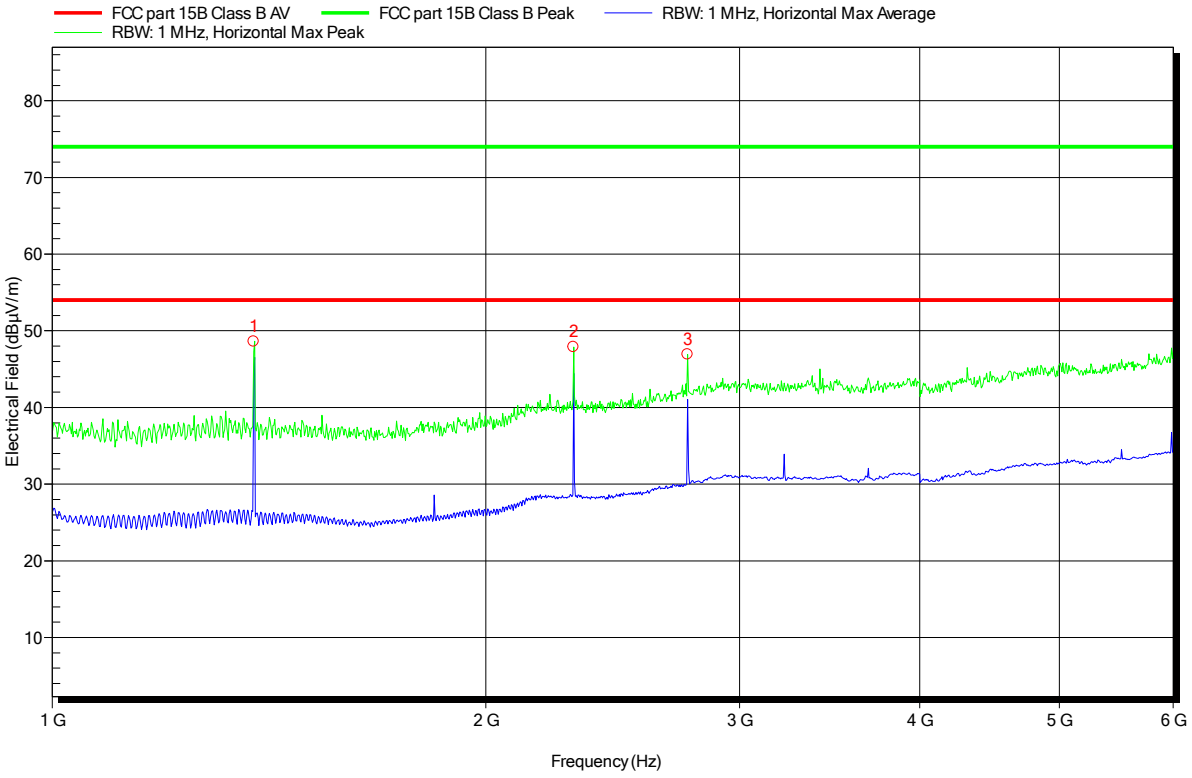

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.381 GHz	46.51 dBµV/m	54 dBµV/m	-7.49 dB	Pass	0 Degree	1 m
2	2.301 GHz	44.46 dBµV/m	54 dBµV/m	-9.54 dB	Pass	0 Degree	1 m
3	2.761 GHz	41.03 dBµV/m	54 dBµV/m	-12.97 dB	Pass	0 Degree	1 m

Radiated emissions under normal conditions according to FCC Part 15b

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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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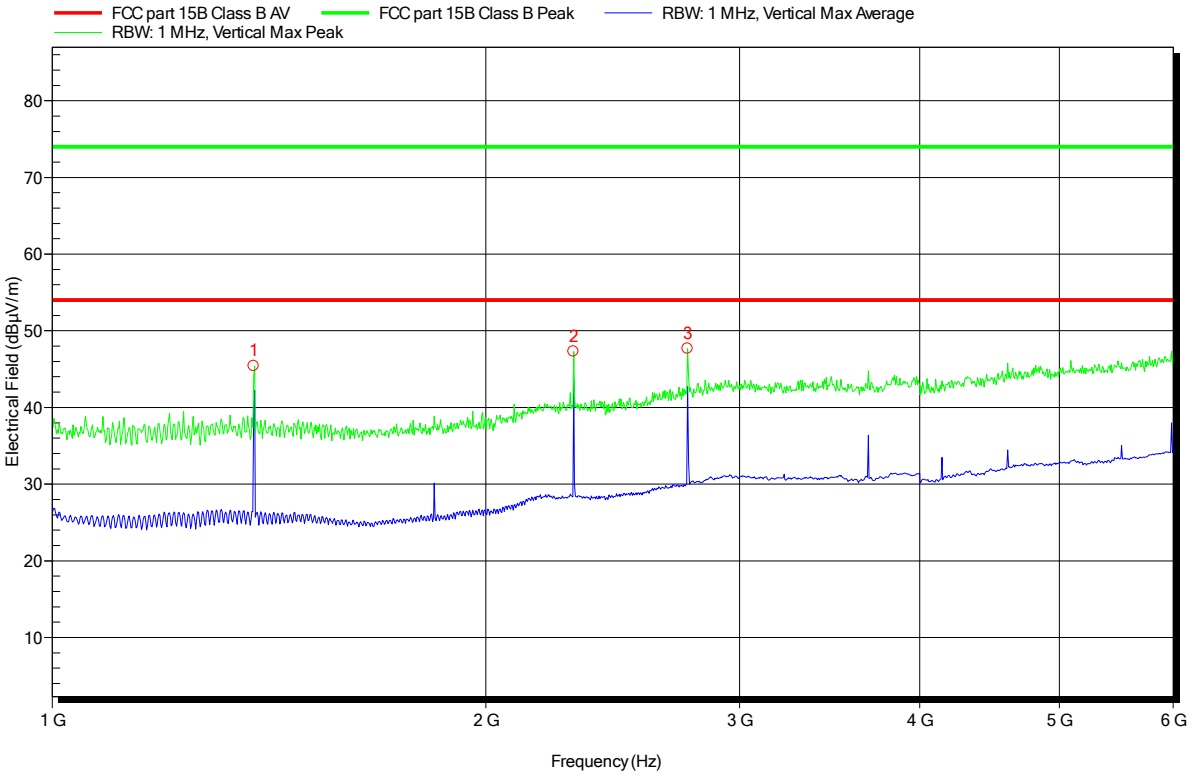

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.381 GHz	42.23 dBµV/m	54 dBµV/m	-11.77 dB	Pass	0 Degree	1 m
2	2.301 GHz	43.5 dBµV/m	54 dBµV/m	-10.5 dB	Pass	0 Degree	1 m
3	2.761 GHz	42.77 dBµV/m	54 dBµV/m	-11.23 dB	Pass	0 Degree	1 m

Spurious emissions according to FCC Part 15b

Project number: 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, 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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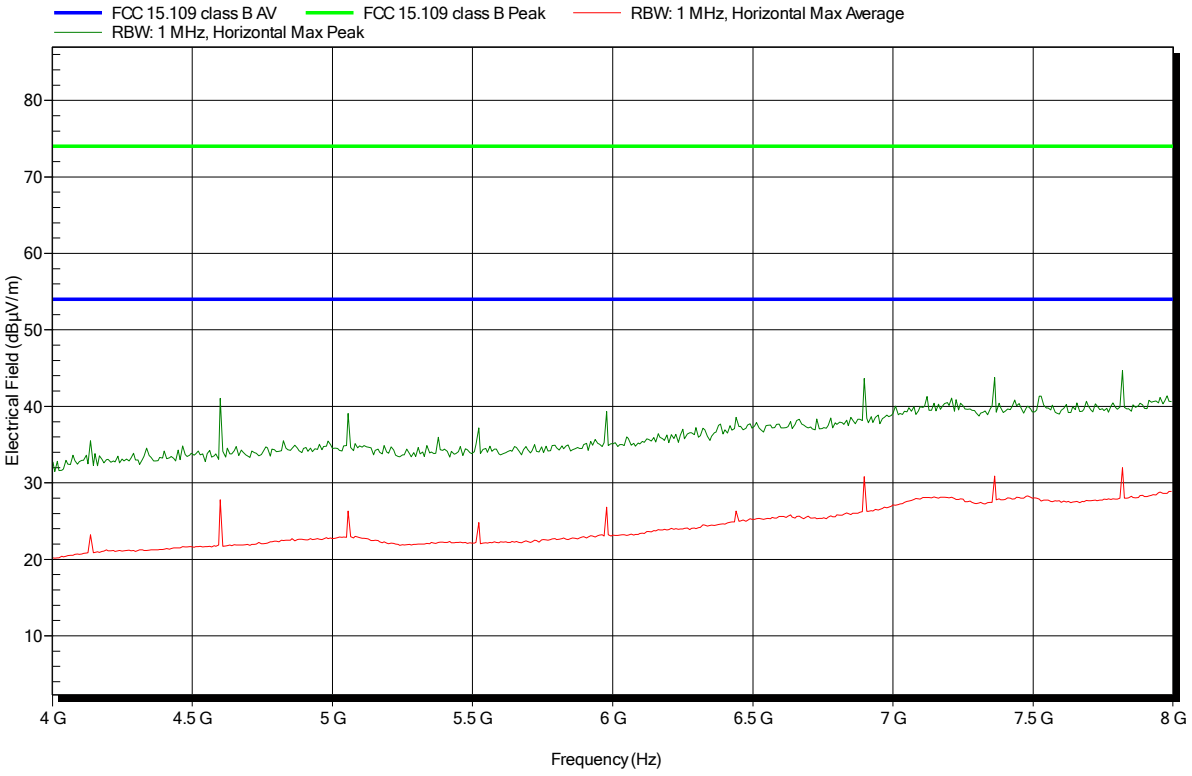

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Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; 50 Ohms Load, Tx 460.11875 MHz
Test Date:	2017-08-25
Note:	

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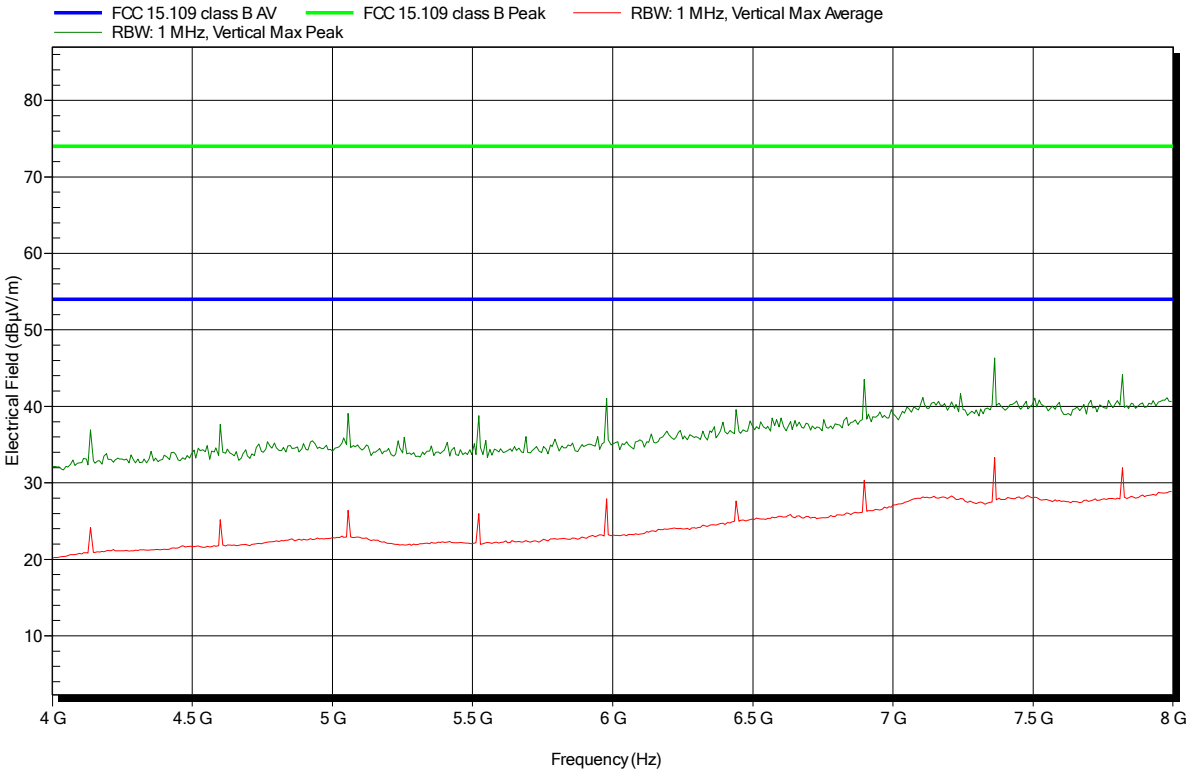

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Note:	

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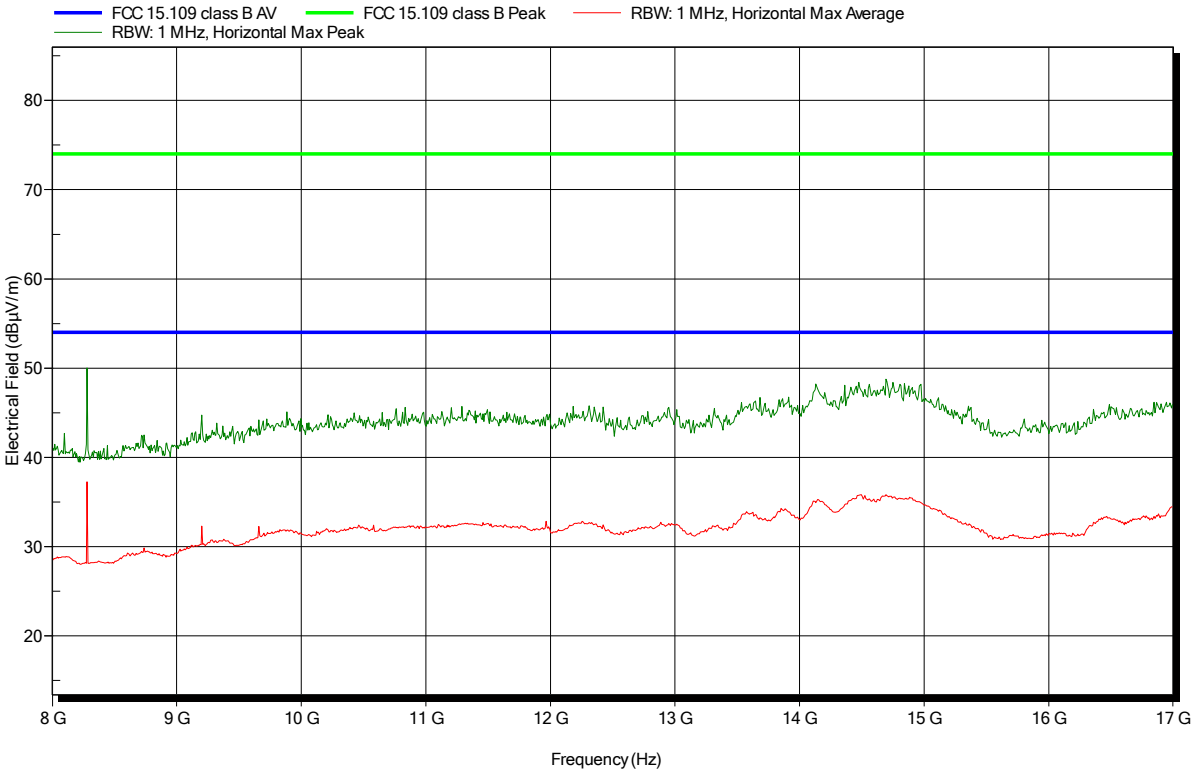

Spurious emissions according to FCC Part 15b

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 460.11875 MHz
Test Date:	2017-08-25
Note:	

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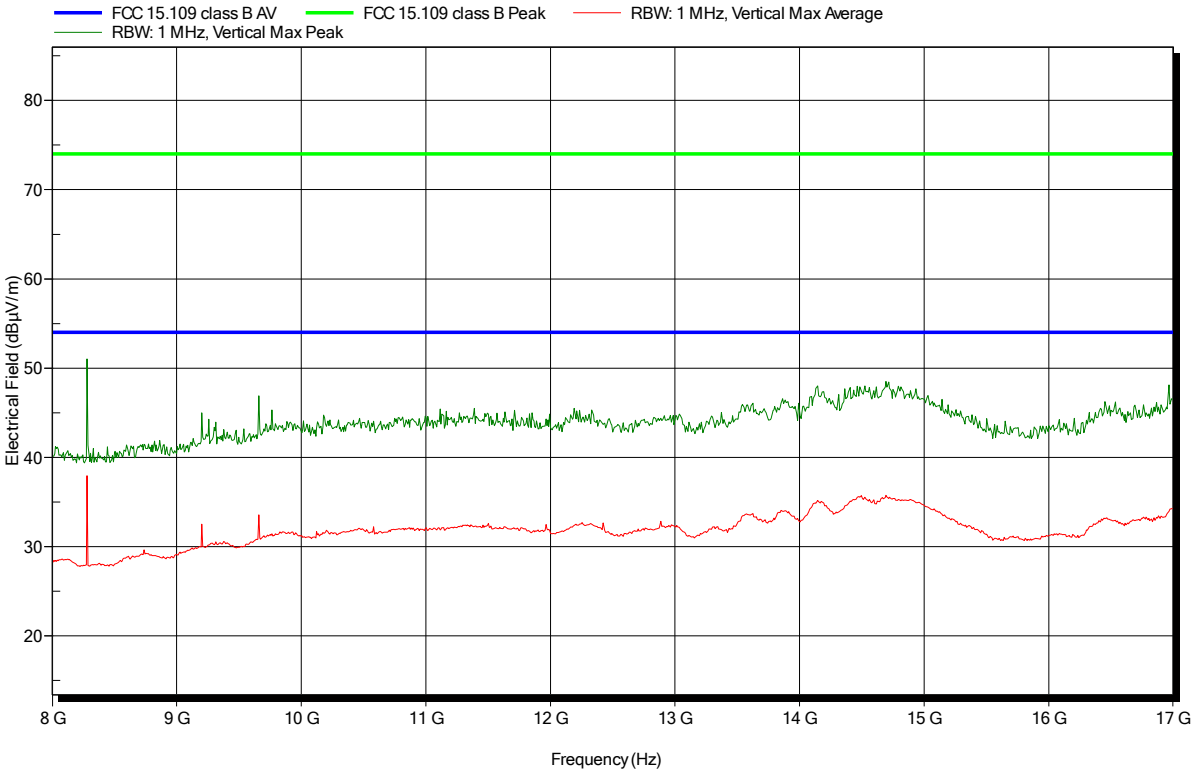

Spurious emissions according to FCC Part 15b

Project number: G0M-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 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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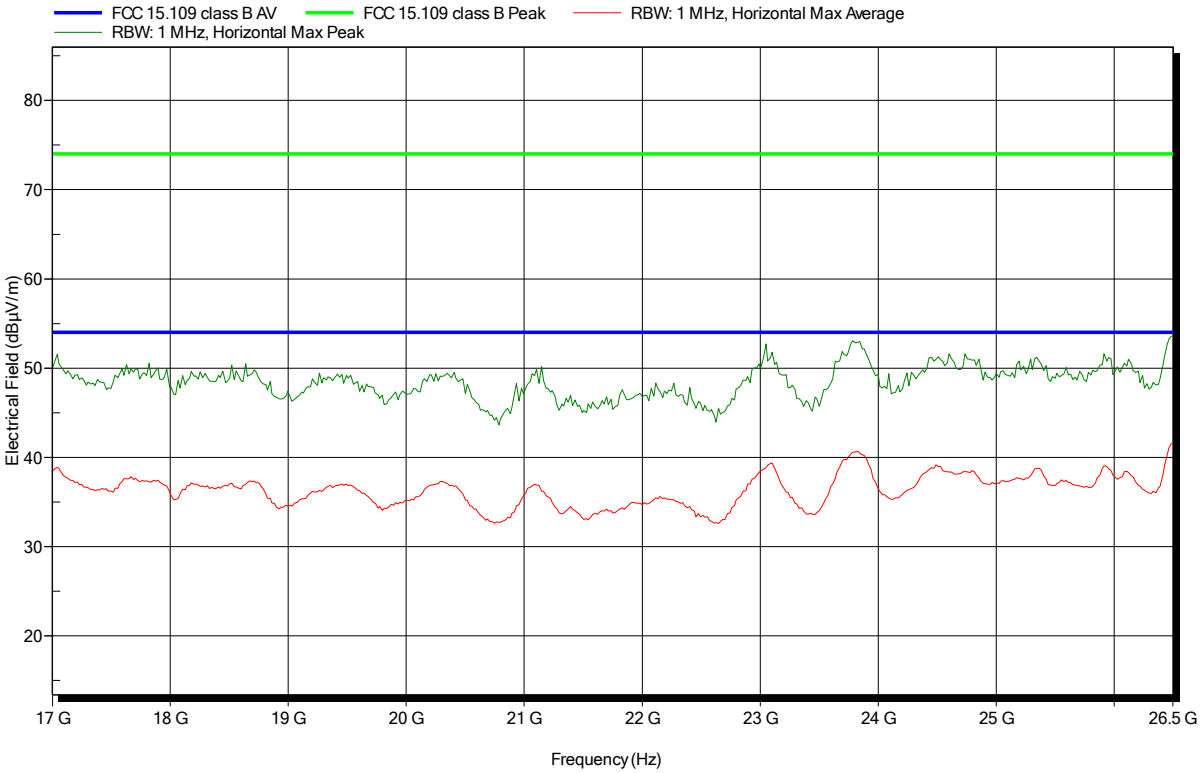

Spurious emissions according to FCC Part 15b

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:	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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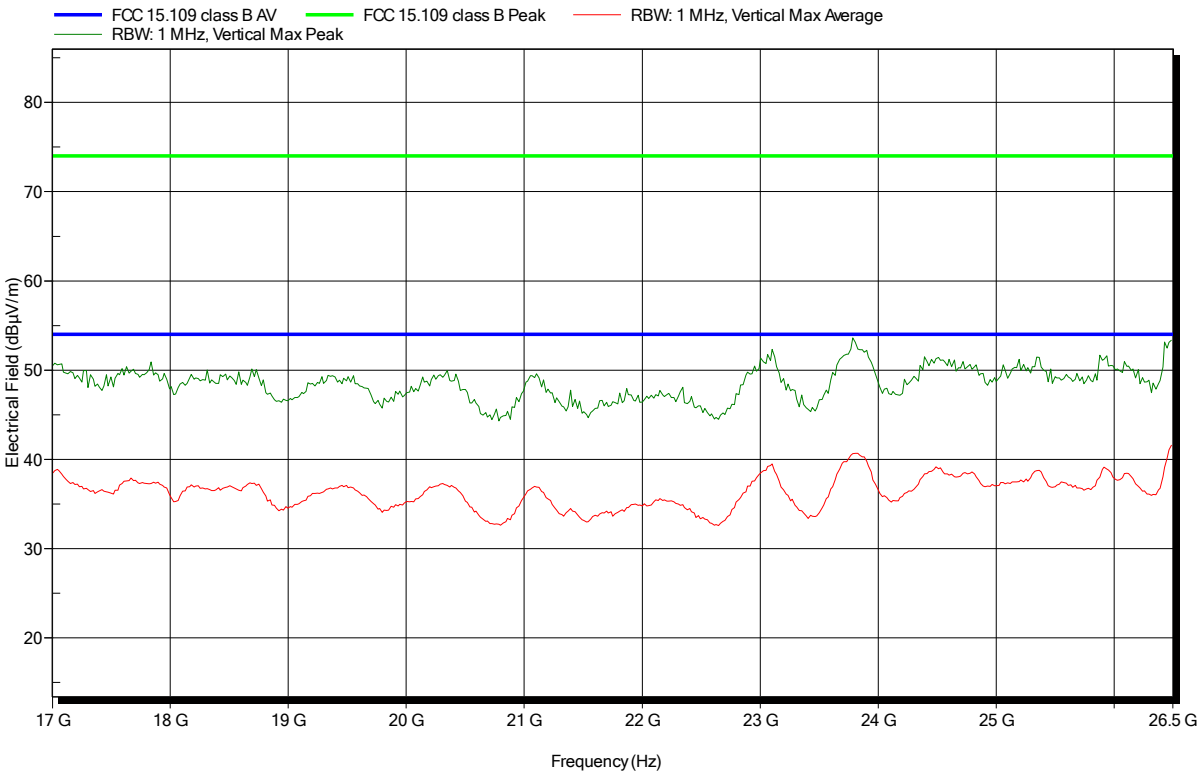

Radiated emissions under normal conditions according to FCC Part 15b

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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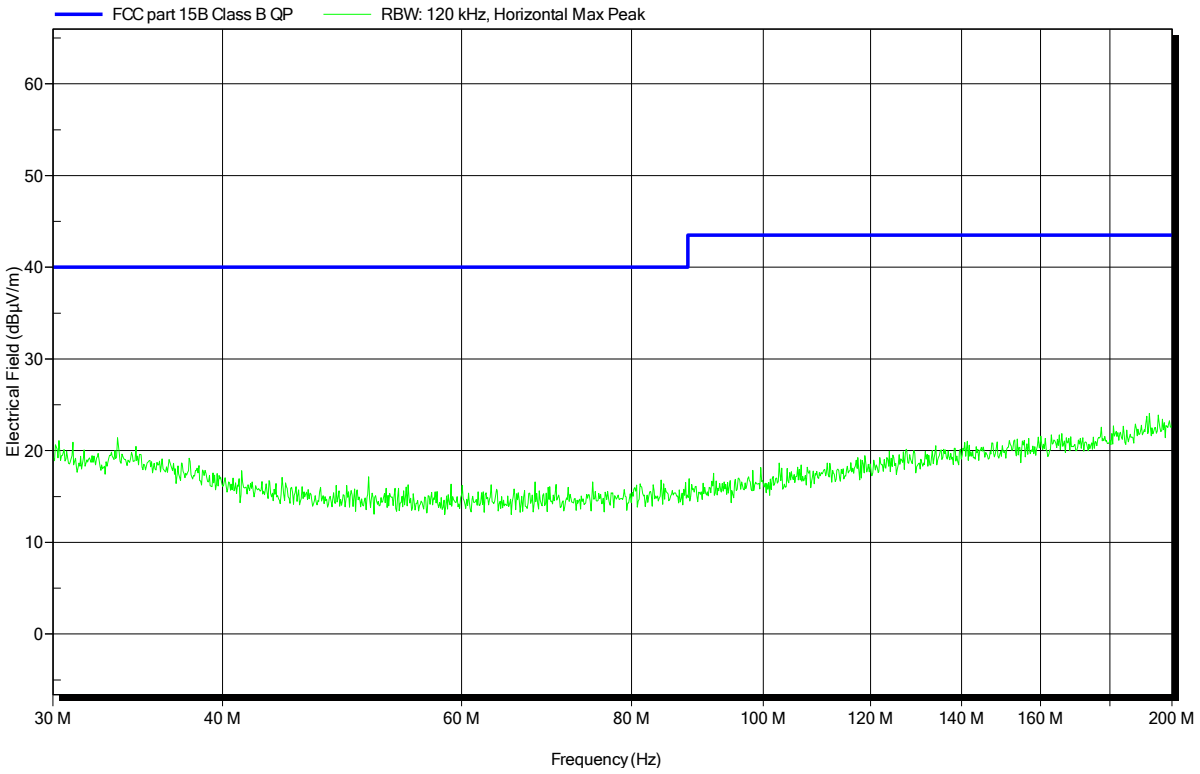

Radiated emissions under normal conditions according to FCC Part 15b

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, Vertical
Measurement distance:	3 m
Mode:	50 Ohms Load, Tx 912.5 MHz
Test Date:	2017-08-23
Note:	

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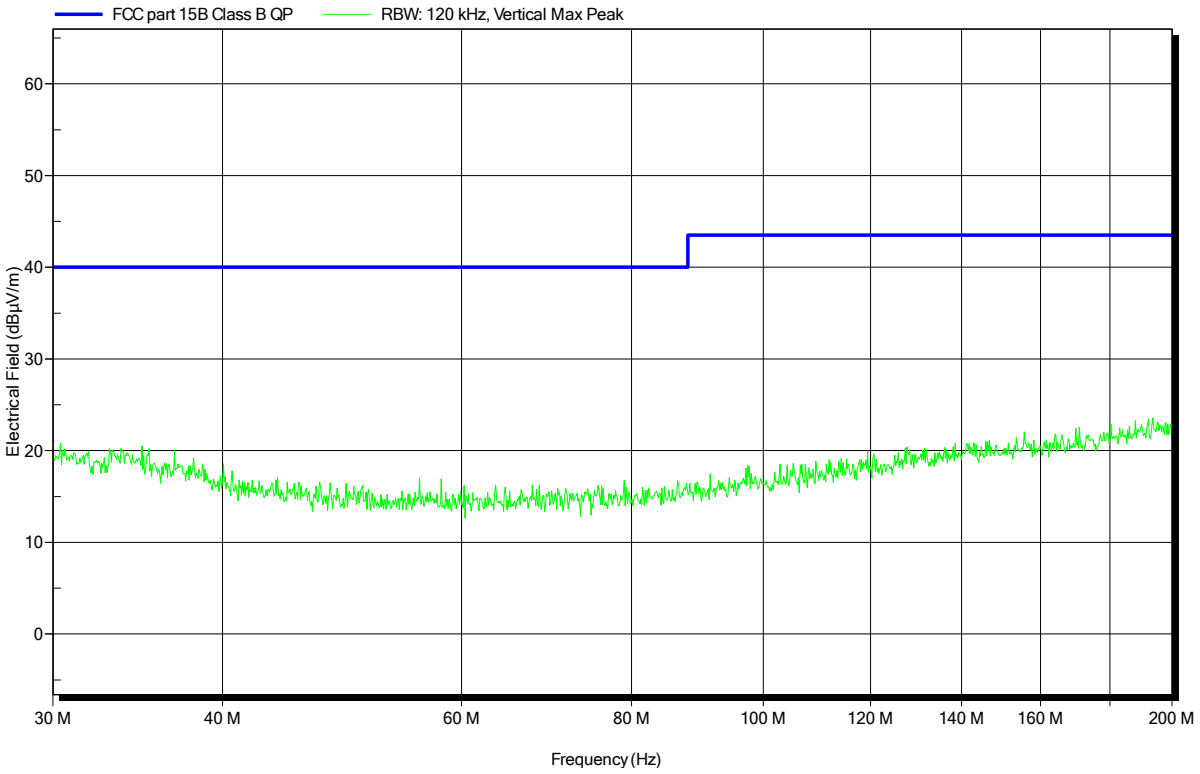

Radiated emissions under normal conditions according to FCC Part 15b

Project number: 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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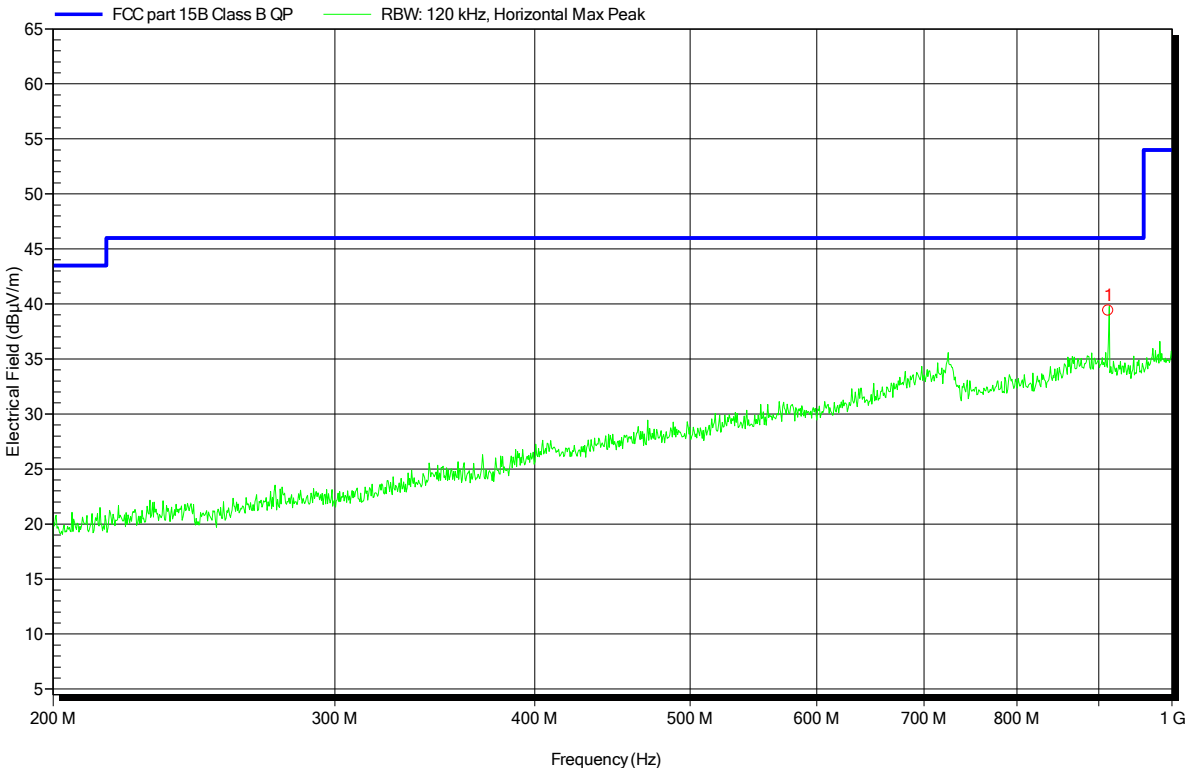

Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	912.32 MHz	39.4 dBµV/m	46.0 dBµV/m	-6.6 dB	Pass	0 Degree	1 m

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, 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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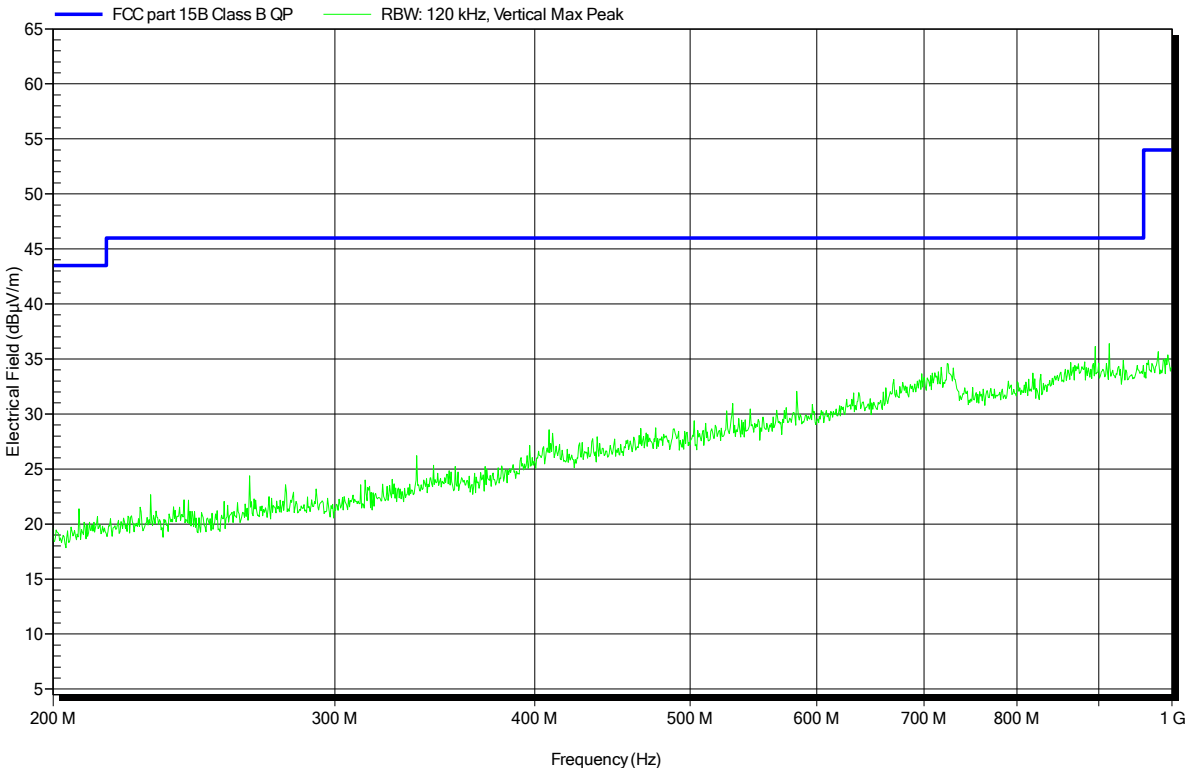

Radiated emissions under normal conditions according to FCC Part 15b

Project number: 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:	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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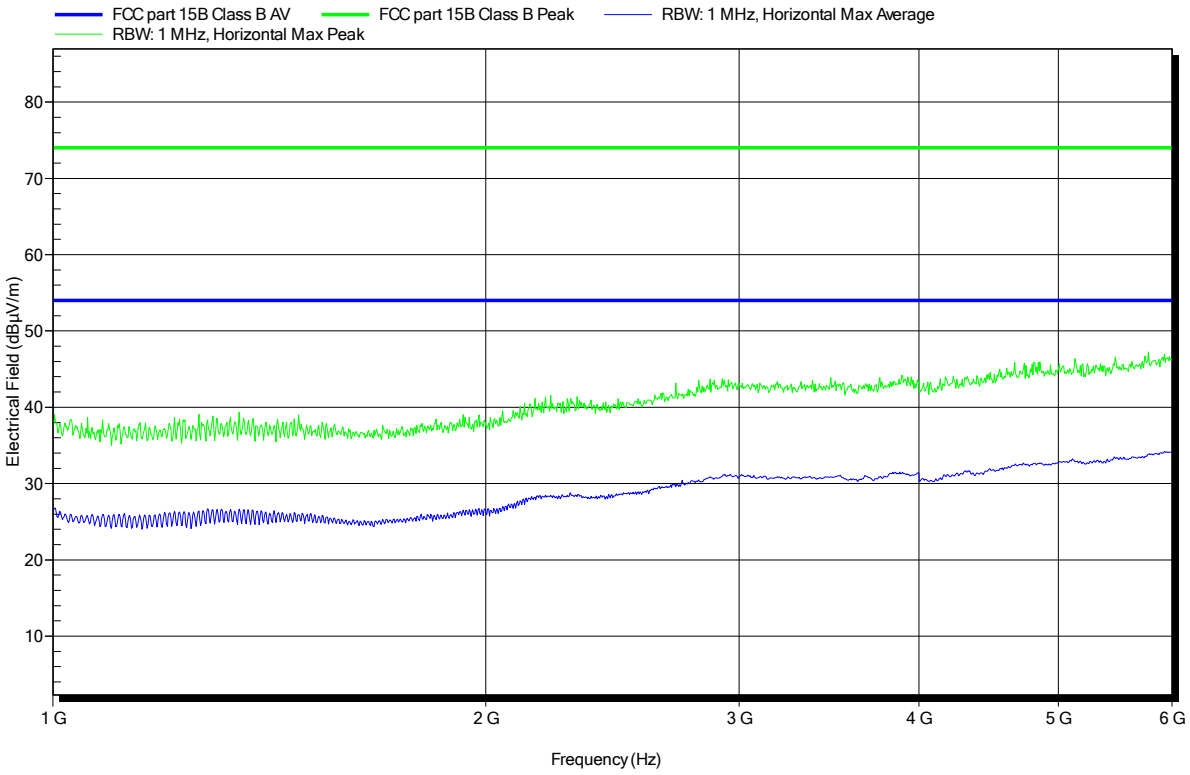

Radiated emissions under normal conditions according to FCC Part 15b

Project number: 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:	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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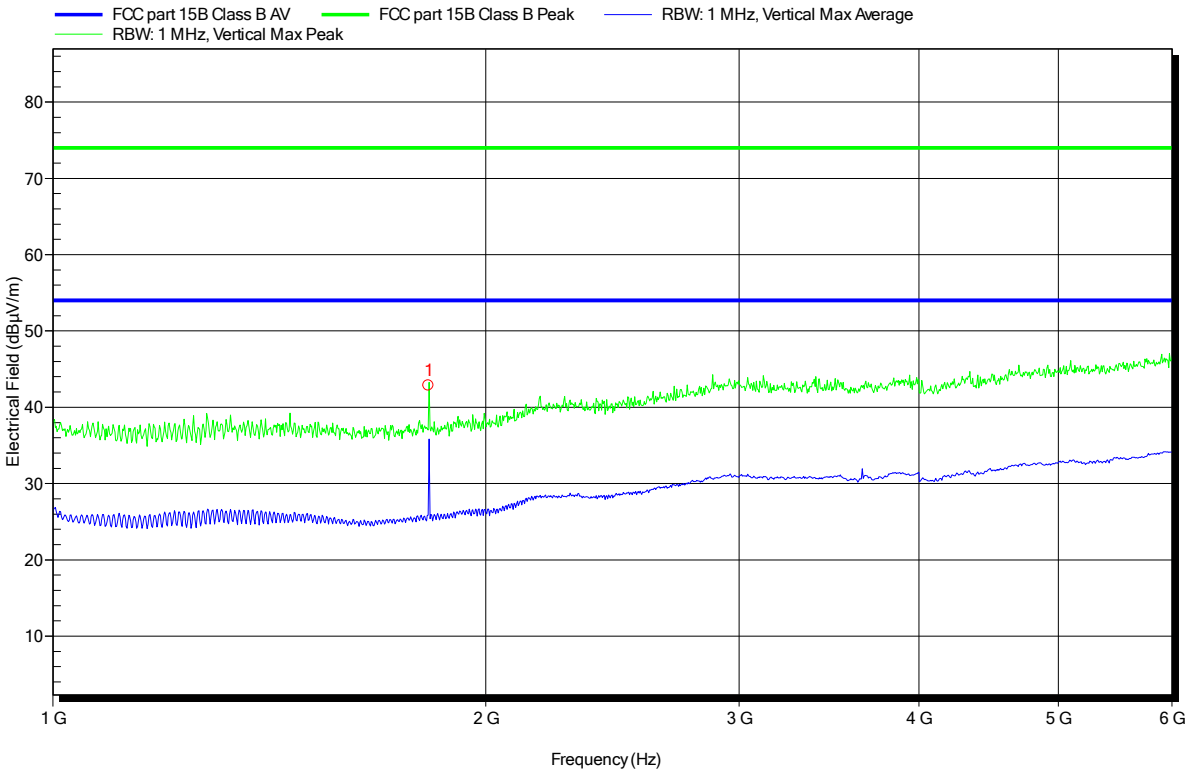

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.825 GHz	35.83 dBµV/m	54 dBµV/m	-18.17 dB	Pass	0 Degree	1 m

Spurious emissions according to FCC Part 15b

Project number: 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, 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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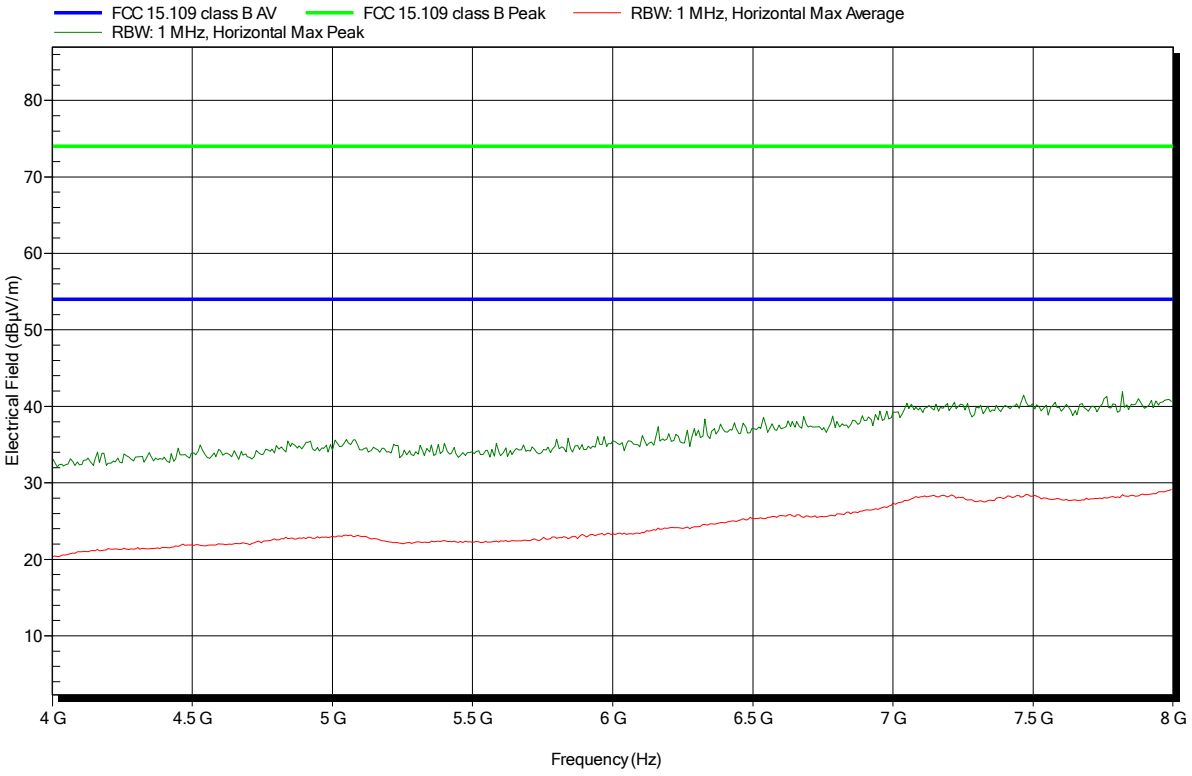

Spurious emissions according to FCC Part 15b

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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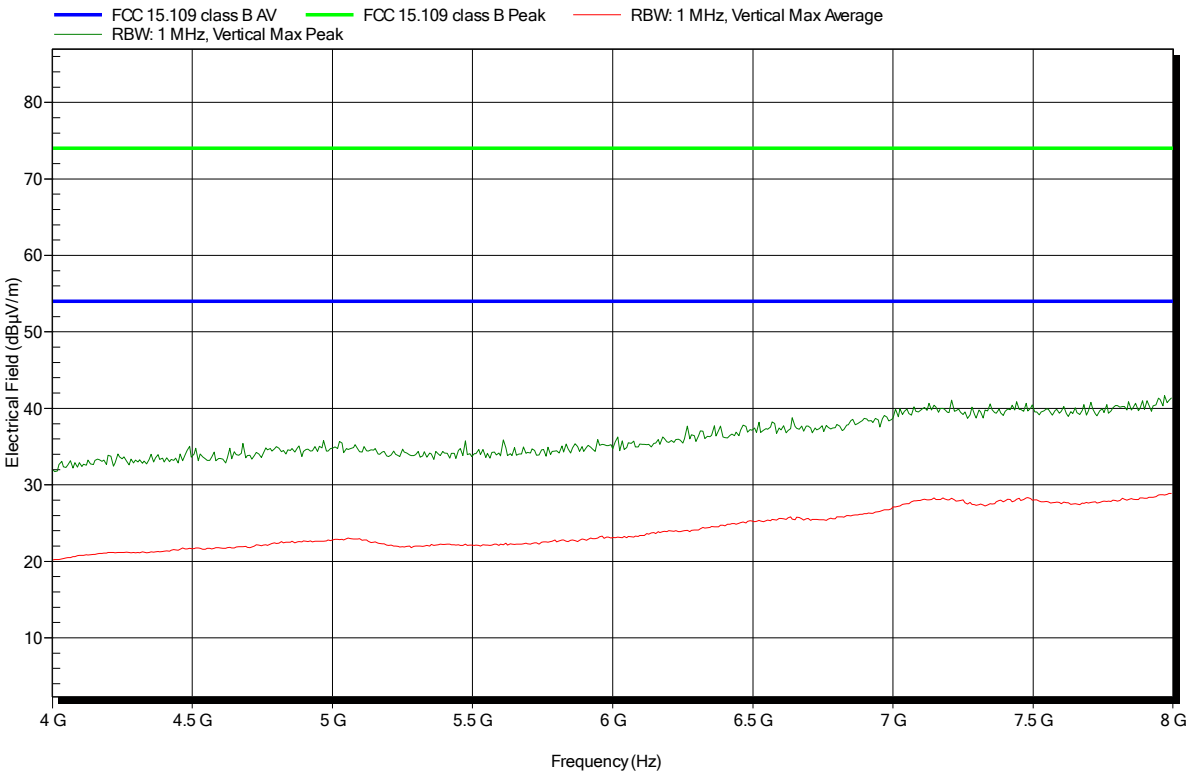

Spurious emissions according to FCC Part 15b

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, 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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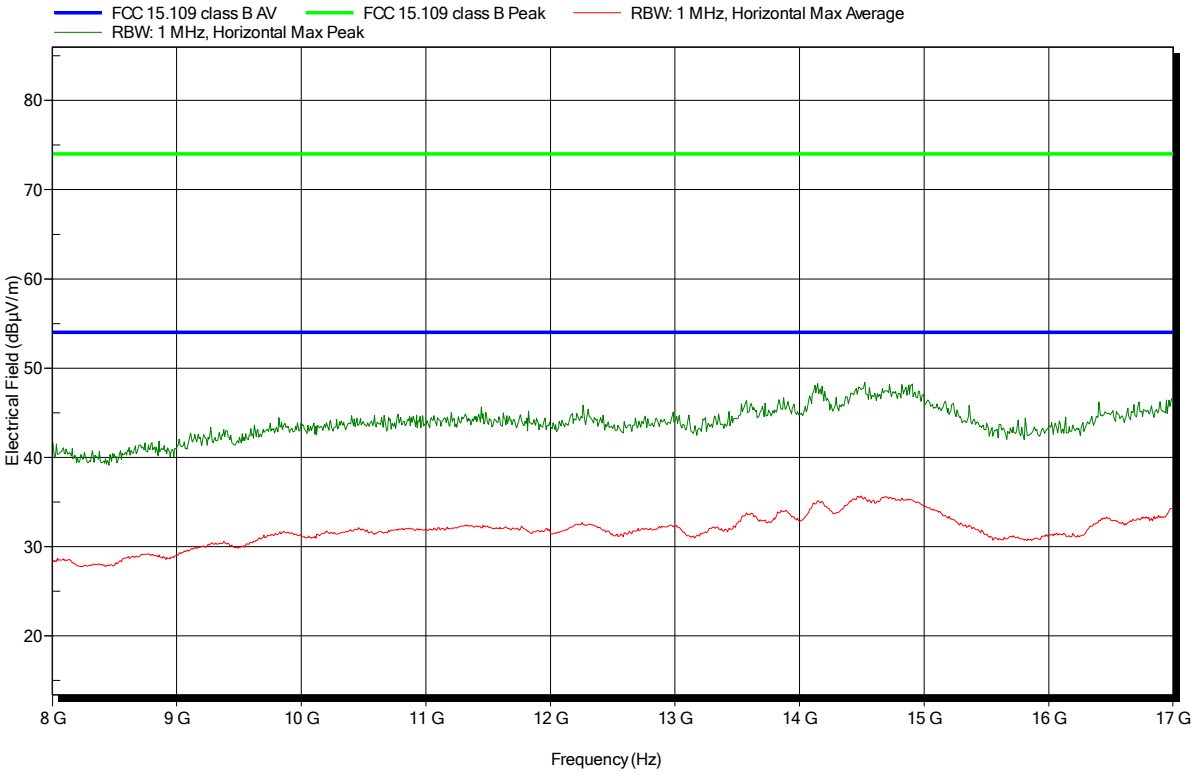

Spurious emissions according to FCC Part 15b

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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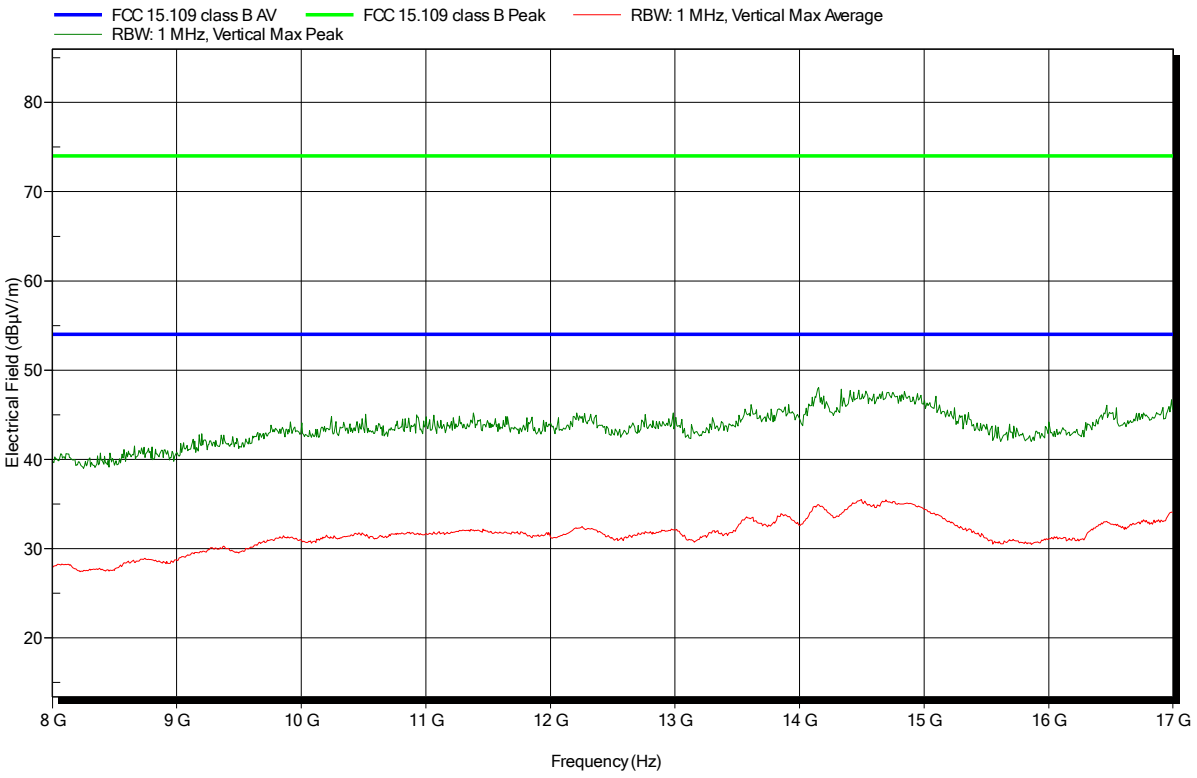

Spurious emissions according to FCC Part 15b

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:	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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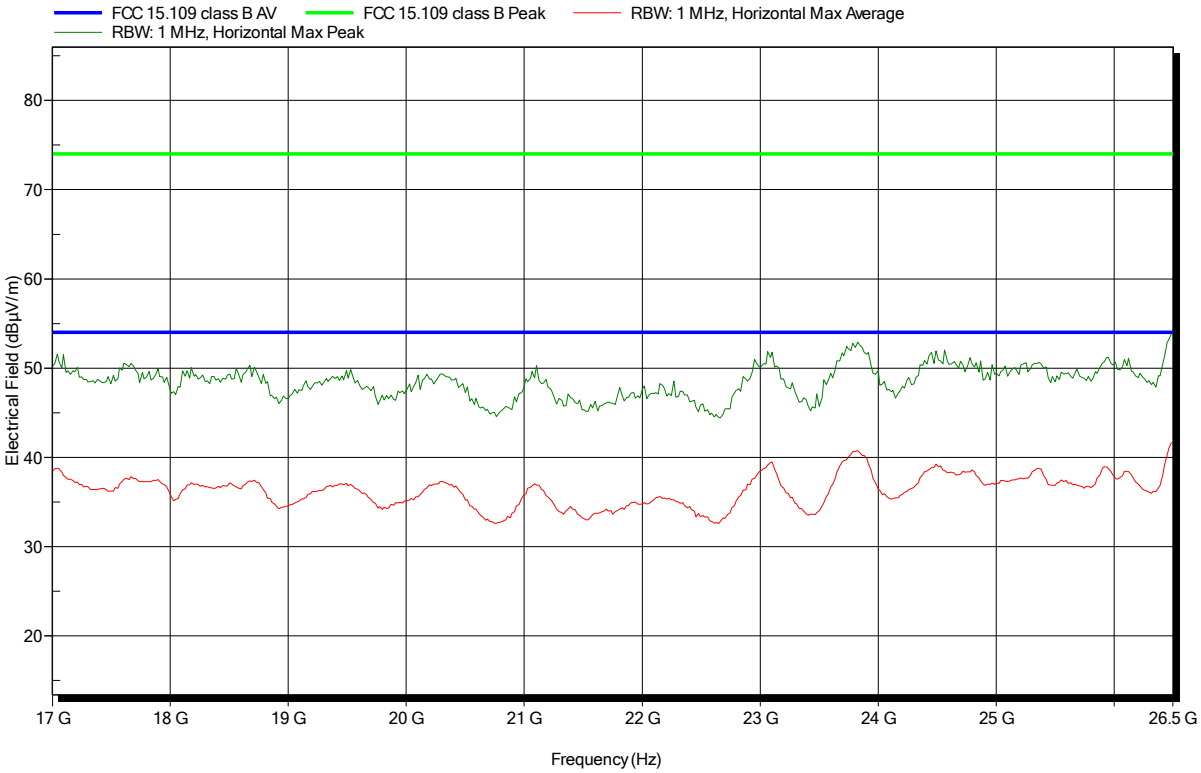

Spurious emissions according to FCC Part 15b

Project number: 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:	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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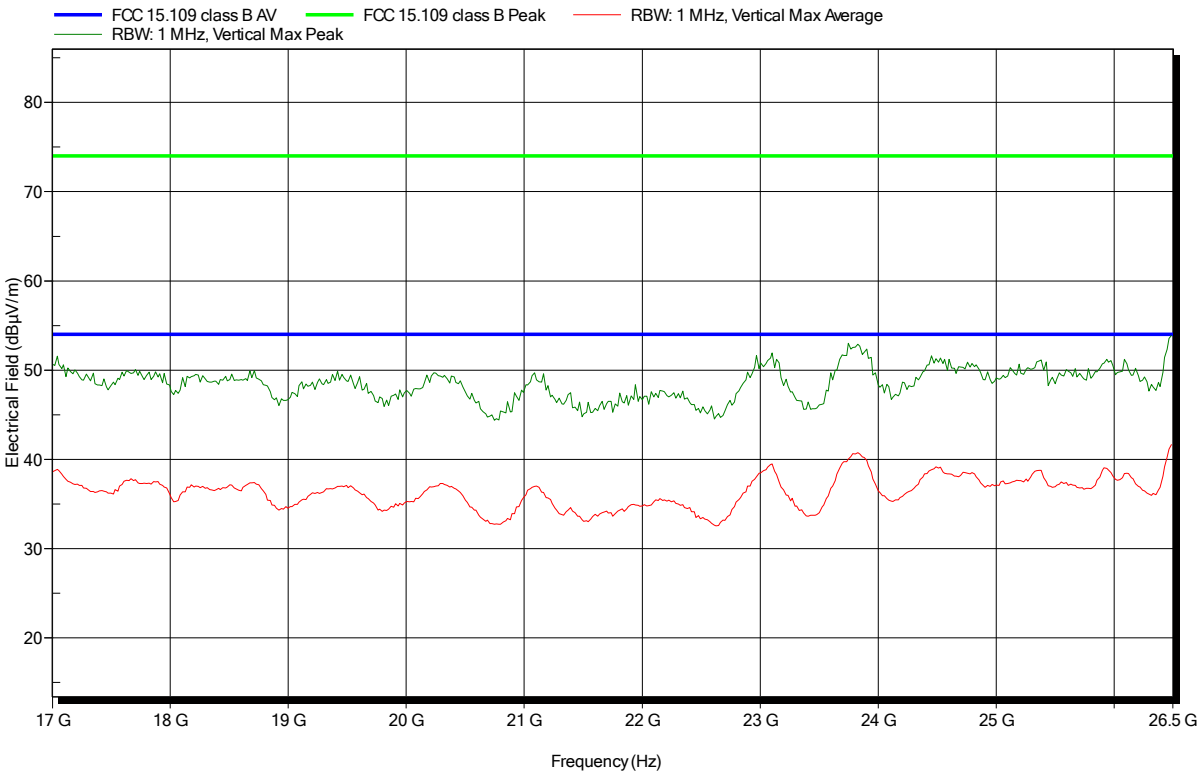

Radiated emissions under normal conditions according to FCC Part 15b

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, Horizontal
Measurement distance:	3m
Mode:	50 Ohms Load, Tx 460.11875 MHz
Test Date:	2017-08-23
Note:	

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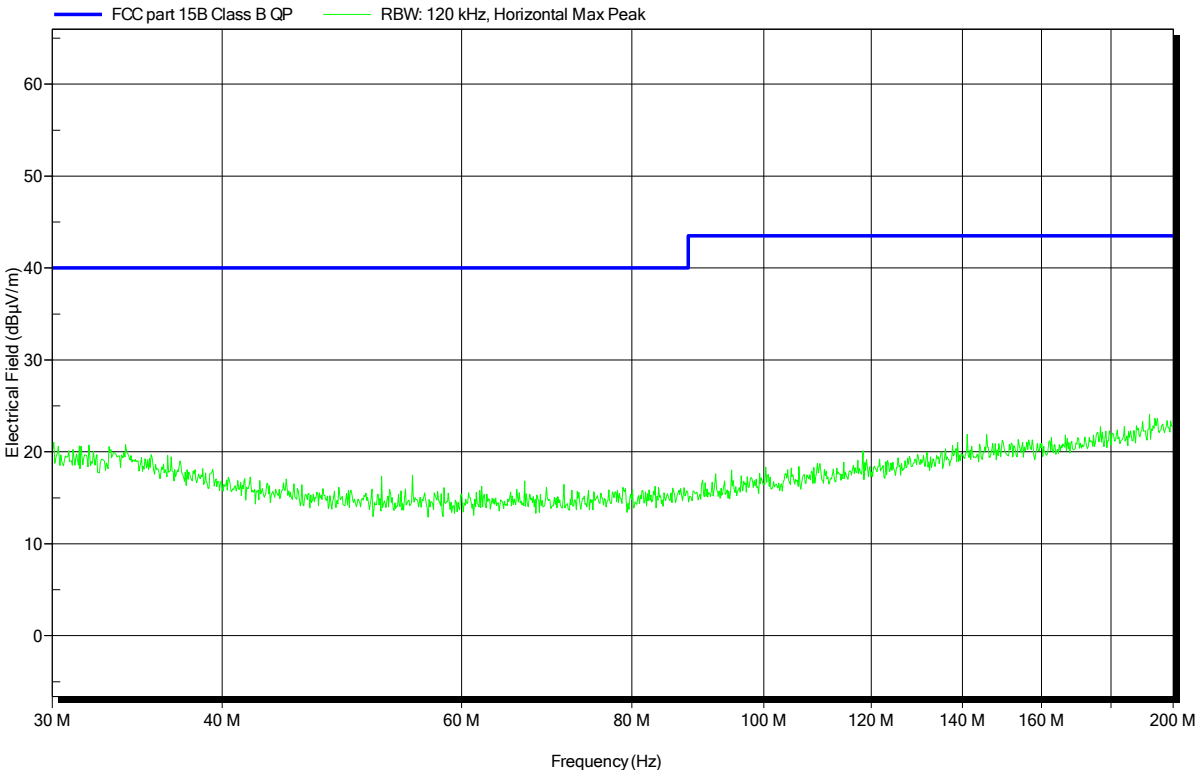

Radiated emissions under normal conditions according to FCC Part 15b

Project number: G0M-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 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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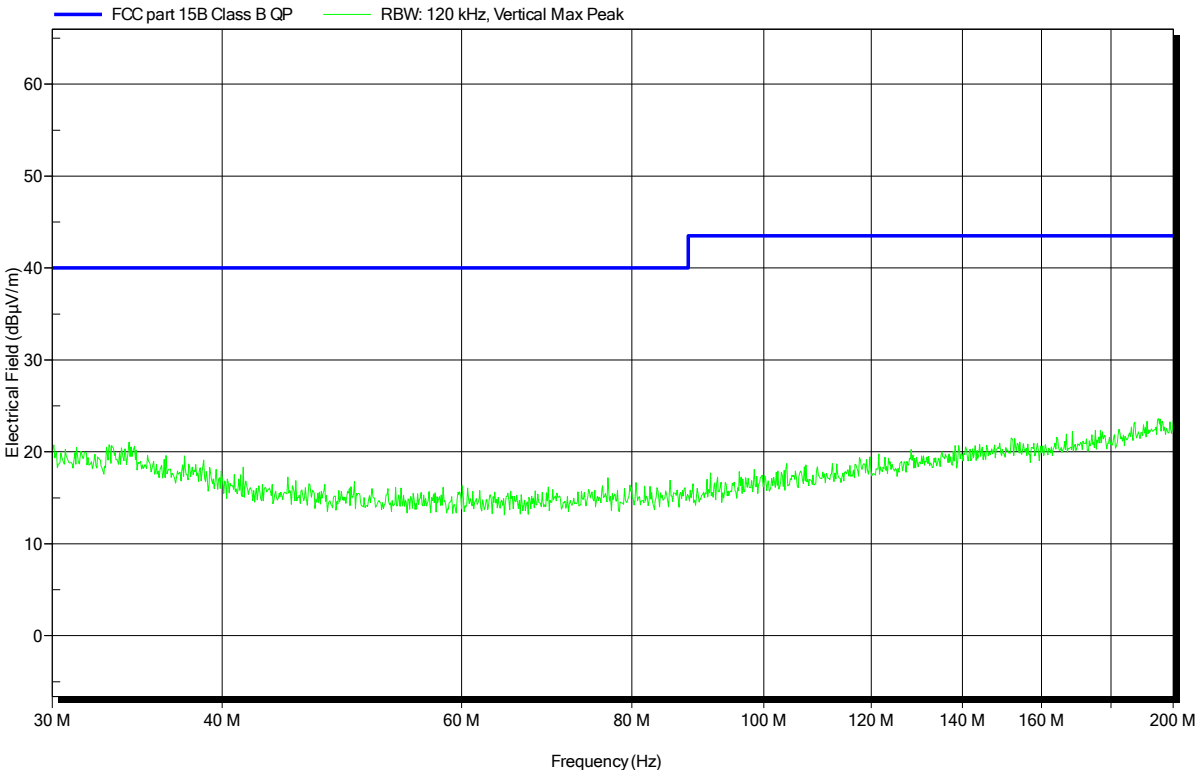

Radiated emissions under normal conditions according to FCC Part 15b

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 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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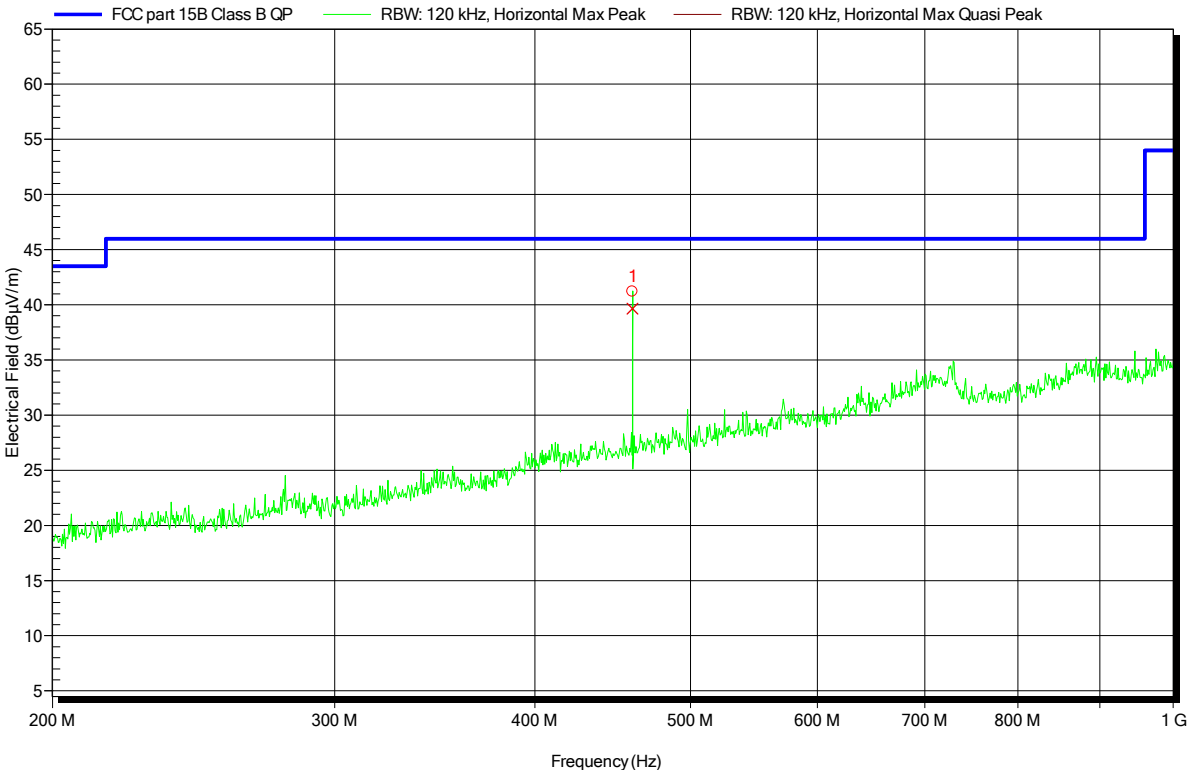

Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	460.118 MHz	39.66 dBµV/m	46 dBµV/m	-6.34 dB	Pass	0 Degree	1 m

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 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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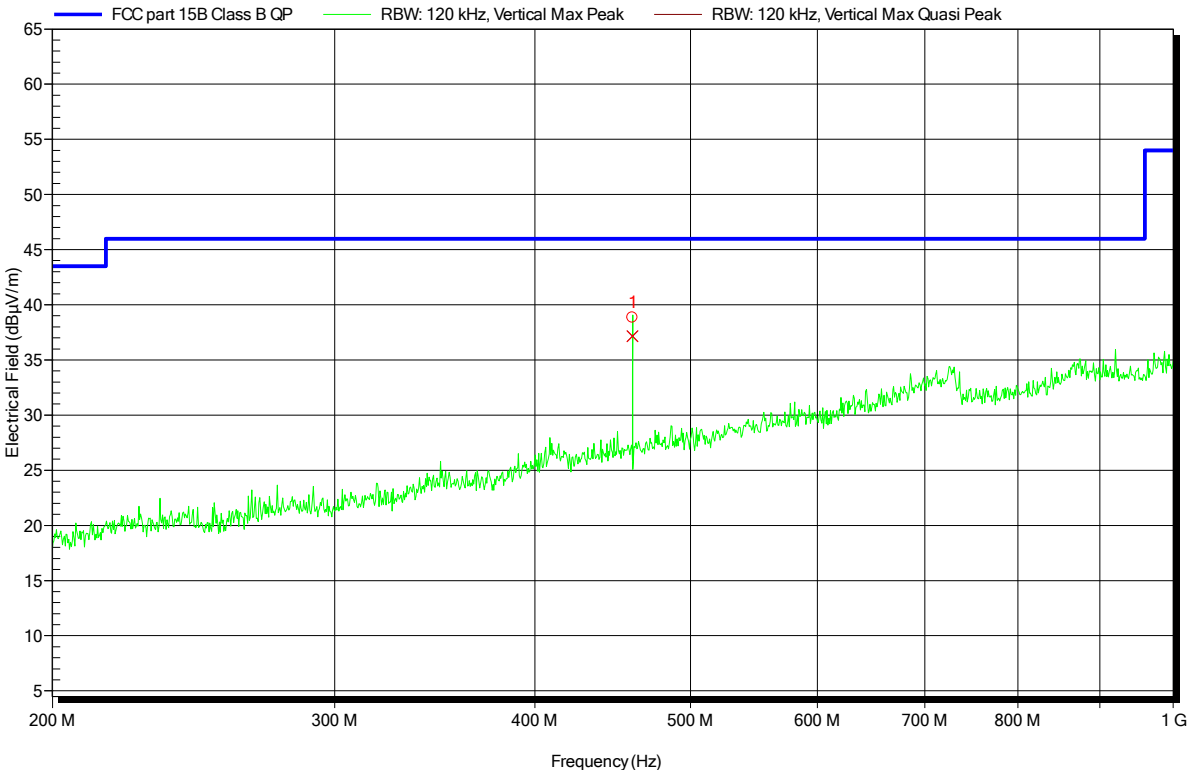

Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	460.118 MHz	37.14 dBµV/m	46 dBµV/m	-8.86 dB	Pass	0 Degree	1 m

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:	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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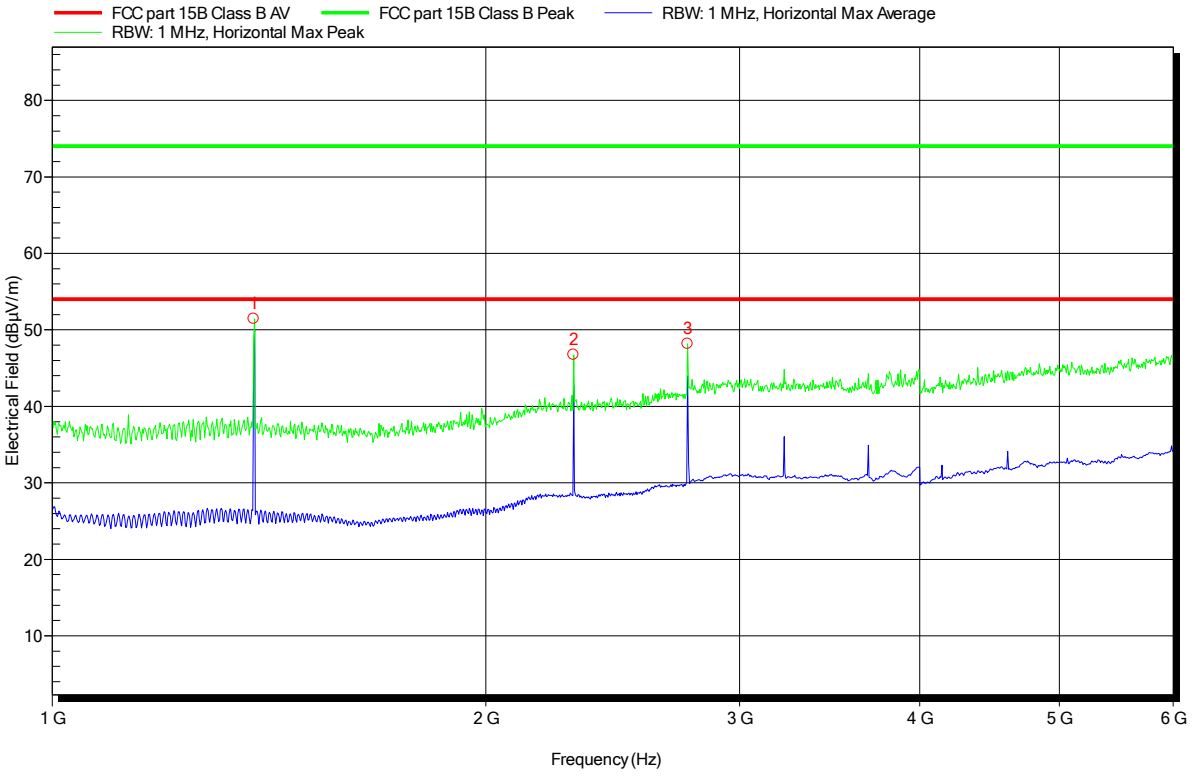

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.381 GHz	50.06 dBµV/m	54 dBµV/m	-3.94 dB	Pass	0 Degree	1 m
2	2.301 GHz	42.83 dBµV/m	54 dBµV/m	-11.17 dB	Pass	0 Degree	1 m
3	2.761 GHz	43.98 dBµV/m	54 dBµV/m	-10.02 dB	Pass	0 Degree	1 m

Radiated emissions under normal conditions according to FCC Part 15b

Project number: G0M-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
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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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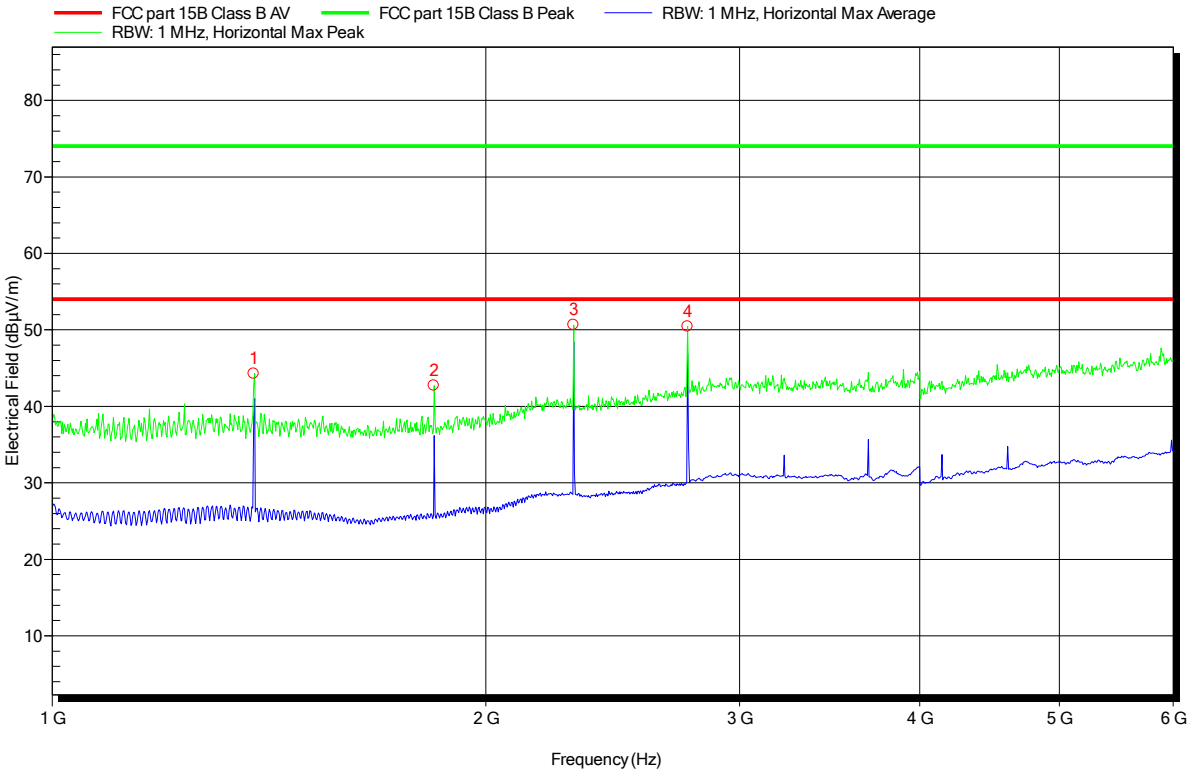

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.381 GHz	41 dBµV/m	54 dBµV/m	-13 dB	Pass	0 Degree	1 m
2	1.841 GHz	36.17 dBµV/m	54 dBµV/m	-17.83 dB	Pass	0 Degree	1 m
3	2.301 GHz	48.43 dBµV/m	54 dBµV/m	-5.57 dB	Pass	0 Degree	1 m
4	2.761 GHz	46.89 dBµV/m	54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

Spurious emissions according to FCC Part 15b

Project number: 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:	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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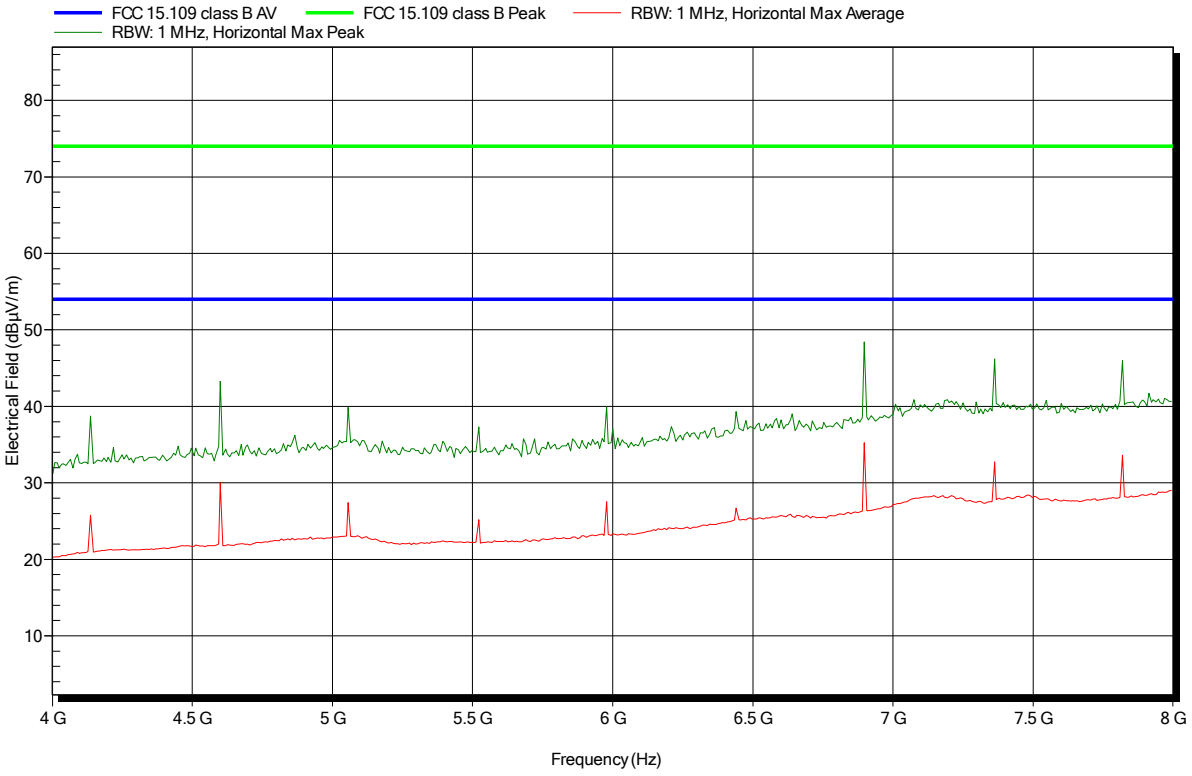

Spurious emissions according to FCC Part 15b

Project number: G0M-1707-6700

Applicant:	Kamstrup A/S
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Test Date:	2017-08-25
Note:	

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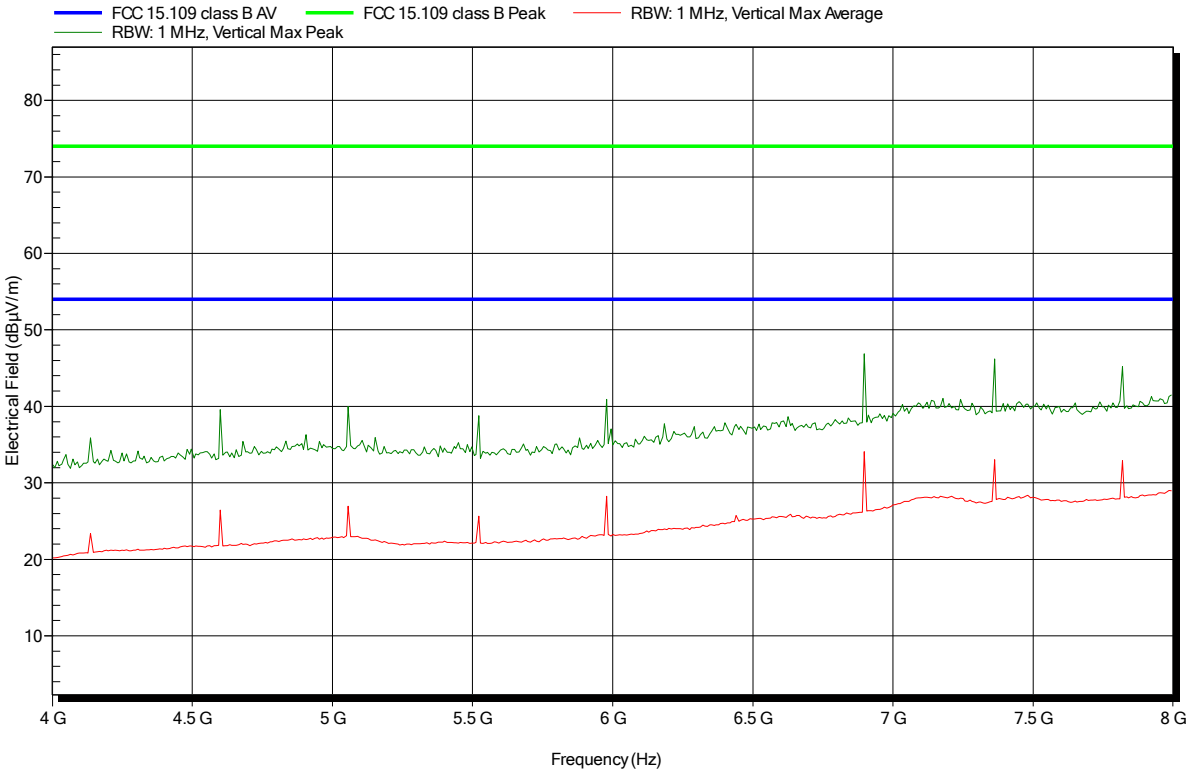

Spurious emissions according to FCC Part 15b

Project number: G0M-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 3250
Test Site:	Eurofins Product Service GmbH
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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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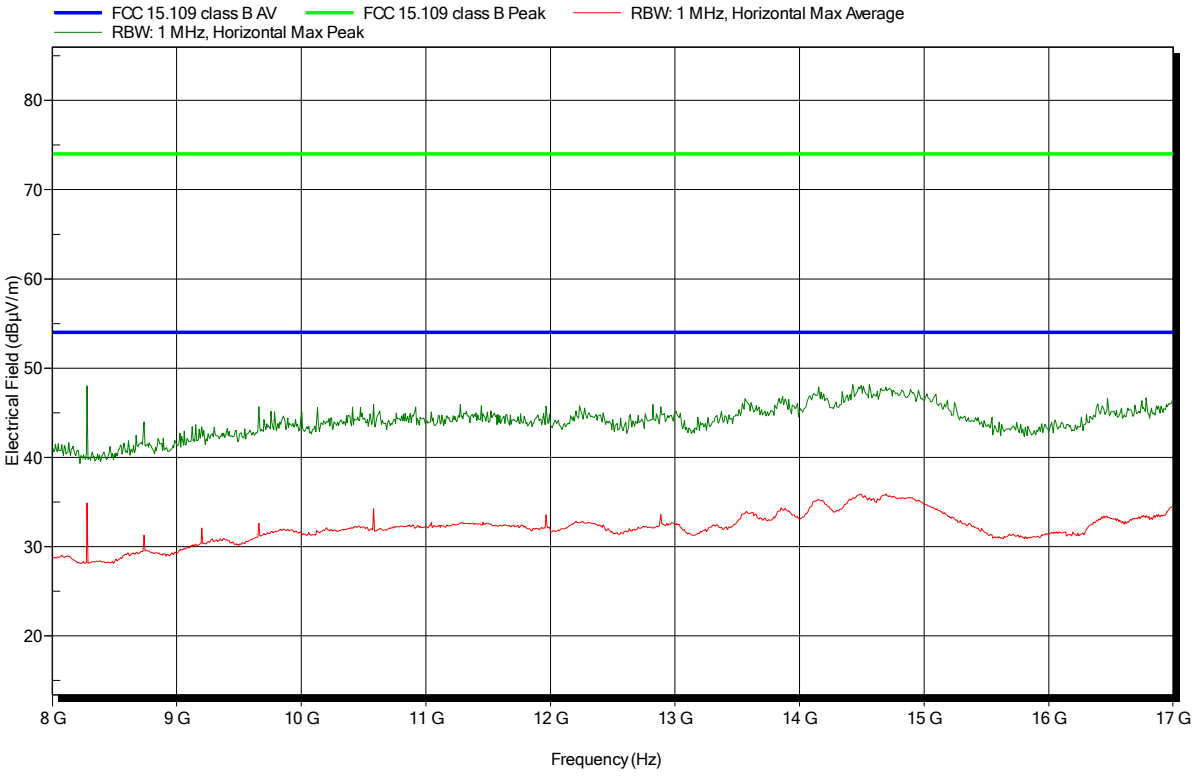

Spurious emissions according to FCC Part 15b

Project number: 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:	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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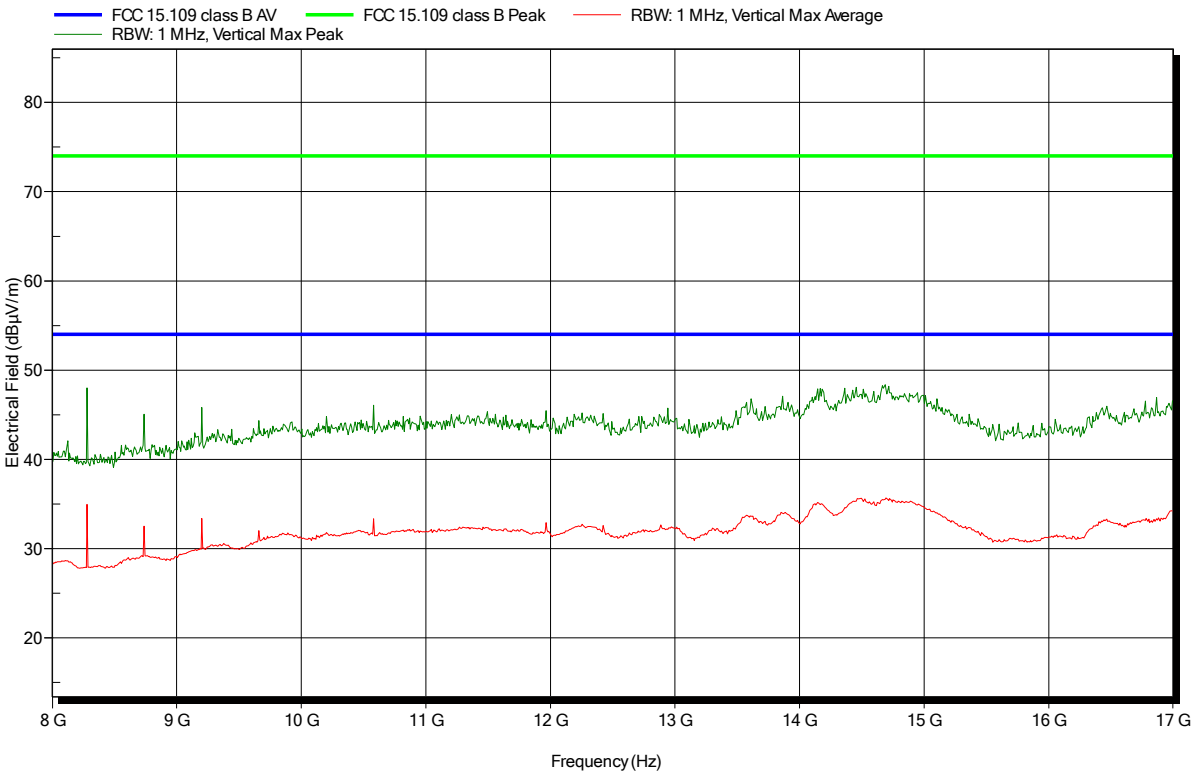

Spurious emissions according to FCC Part 15b

Project number: 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, 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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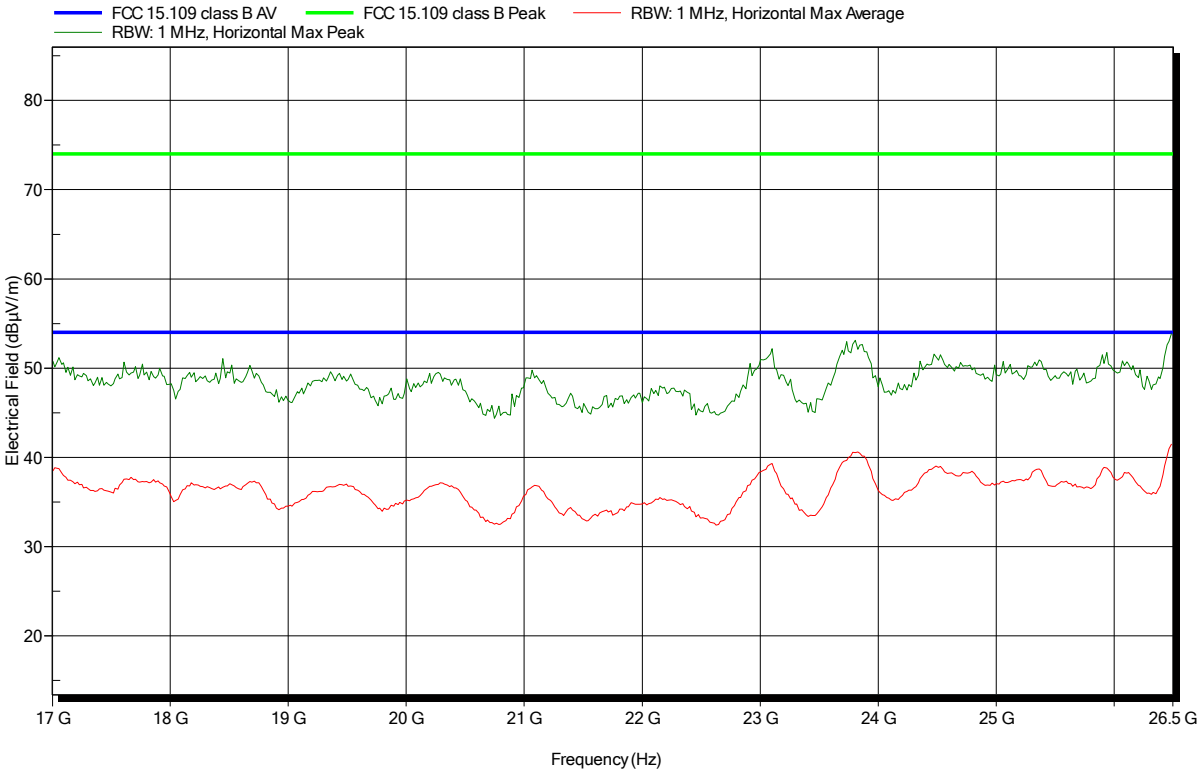

Spurious emissions according to FCC Part 15b

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: 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:	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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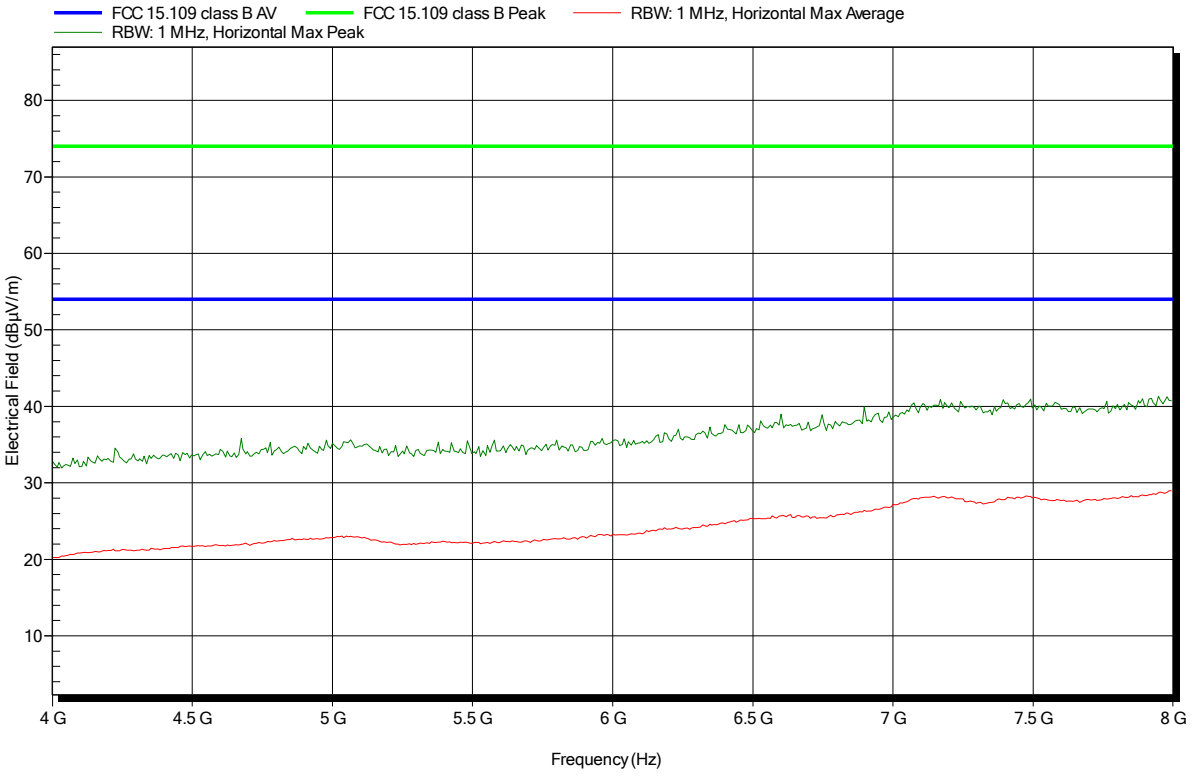

Spurious emissions according to FCC Part 15b

Project number: G0M-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 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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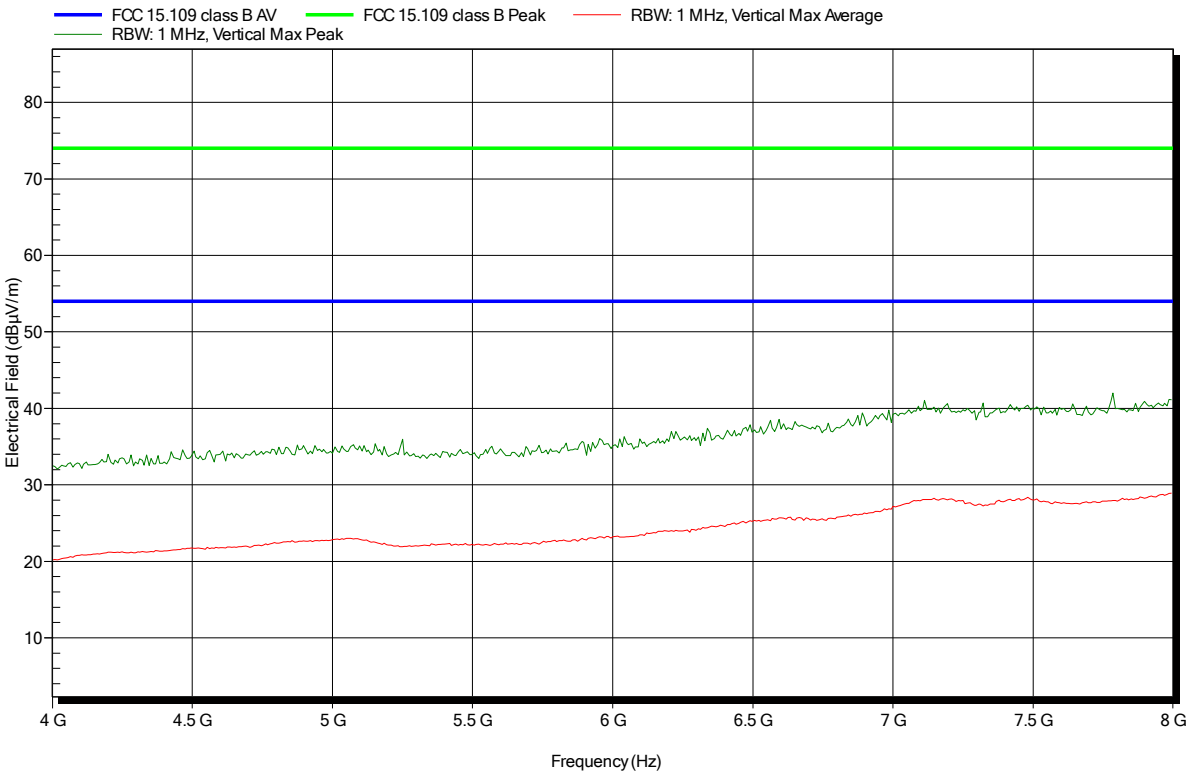

Spurious emissions according to FCC Part 15b

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:	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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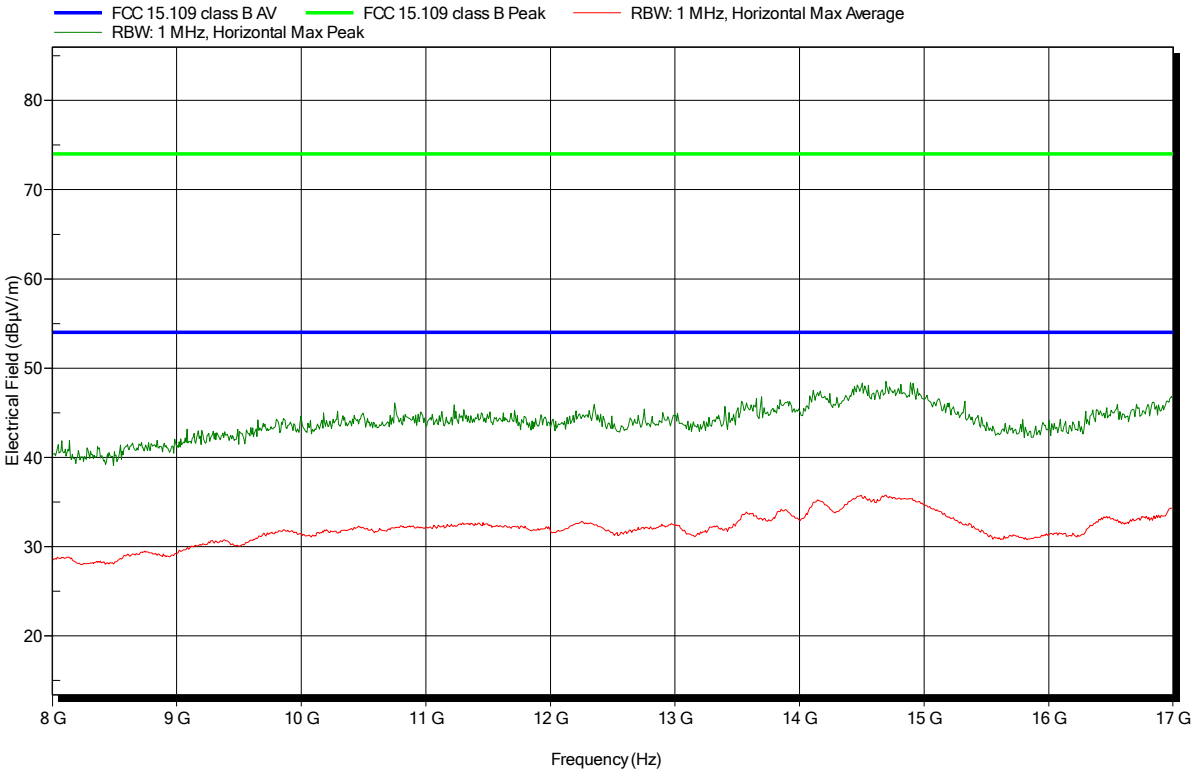

Spurious emissions according to FCC Part 15b

Project number: G0M-1707-6700

Applicant:	Kamstrup A/S
EUT Name:	Ultrasonic water meter
Model:	FlowIQ 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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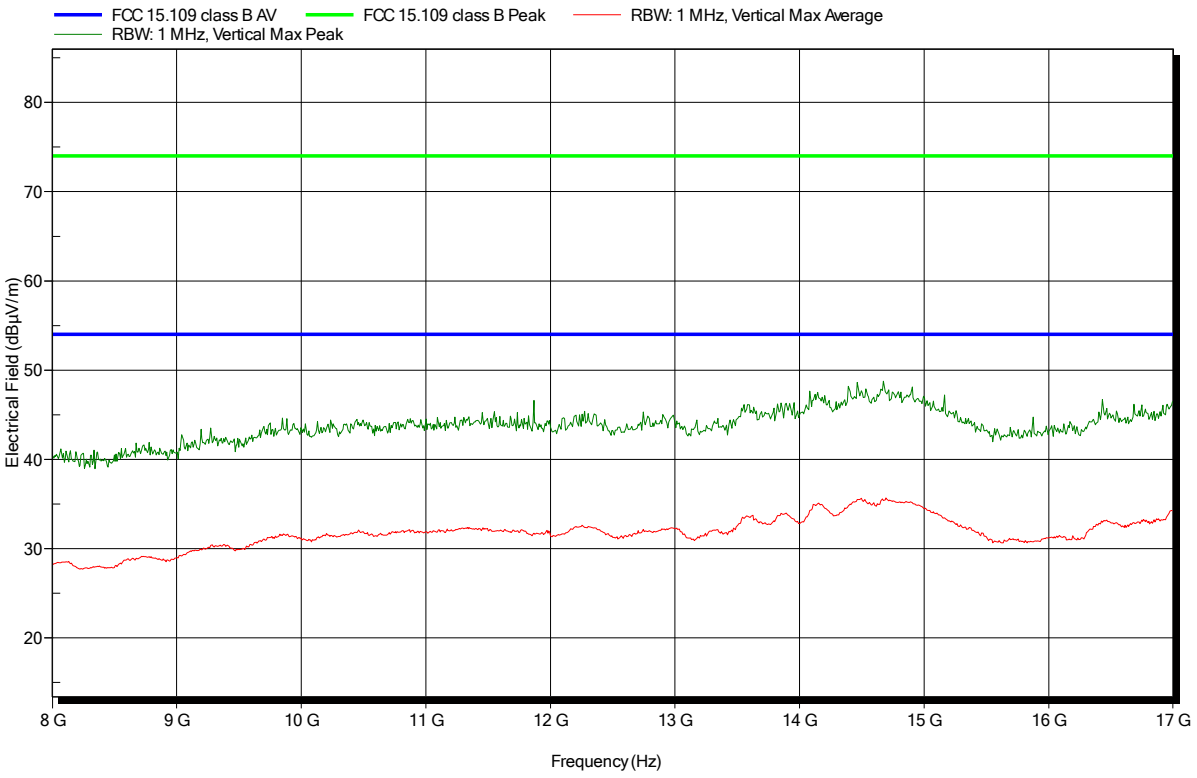

Spurious emissions according to FCC Part 15b

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, 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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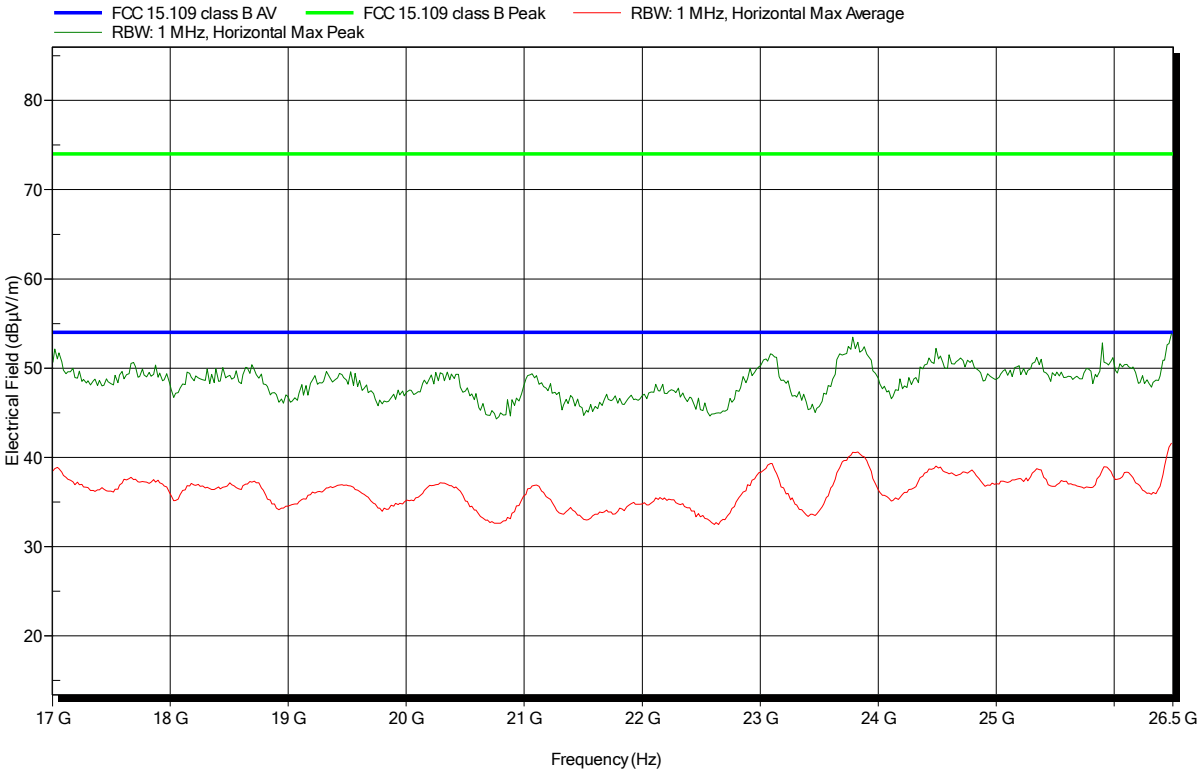

Spurious emissions according to FCC Part 15b

Project number: 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 912.5 MHz
Test Date:	2017-08-25
Note:	

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