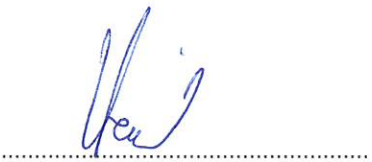
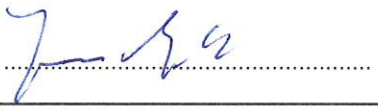
EMC TEST REPORT

FCC 47 CFR Part 15B, ISED ICES-003 Issue 6

Report Reference No	G0M-2009-9331-EF0115B-V01
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	DAkkS - Registration number : D-PL-12092-01-03 (ISED) ISED Testing Laboratory site: 3470A-2 DAkkS - Registration number : D-PL-12092-01-04 (FCC) FCC Filed Test Laboratory, Reg.-No.: 96970
Applicant	Kamstrup A/S
Address	Industrivej 28 8660 Skanderborg DENMARK
Test Specification Standard(s)	47 CFR Part 15 Subpart B ISED ICES-003 Issue 6 ANSI C63.4:2014+A1:2017
Non-Standard Test Method	None
Equipment under Test (EUT):	
Product Description	Ultrasonic water meter
Model(s)	KWM2220
Additional Model(s)	None
Brand Name(s)	Kamstrup
Hardware Version(s)	Unit: 6201-210-04, rev 4.00; RF PCB BOM: 55501900, rev. B1; Flow PCB BOM: 55501813, rev. B3
Software Version(s)	RF: 50981336, rev. N1; Meter: 50981595, rev. D1
FCC-ID	OUY-KWMX220
IC	-/-
Test Result	**PASSED**

Possible test case verdicts:	
required by standard but not tested	N/T
not required by standard	N/R
required by standard but not appl. 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	2020-12-01
Report:	

Compiled by	Matthias Handrik	
Tested by (+ signature) (Responsible for Test)	Matthias Handrik	
Approved by (+ signature) (Deputy Head of Lab)	Jens Marquardt	
Date of Issue	2021-01-21	
Total number of pages	46	

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:		
Additional variants have been declared by the manufacturer. The listed models were not tested, evaluated or assessed in no way.		
Additional Model 1	Product Type Description	Ultrasonic water meter
	Model Name	KWM2220
	Brand Name (optional)	Kamstrup
	Hardware Version	Unit: 6201-210-01, rev. 00 RF PCB BOM: 55501900, rev. B1 Flow PCB BOM: 55501813, rev. B3
	Software Version	RF: 50981336, rev. N1 Meter: 50981595, rev. D1
Additional Model 2	Product Type Description	Ultrasonic water meter
	Model Name	KWM2220
	Brand Name (optional)	Kamstrup
	Hardware Version	Unit: 6201-210-02, rev. 00 RF PCB BOM: 55501900, rev. B1 Flow PCB BOM: 55501813, rev. B3
	Software Version	RF: 50981336, rev. N1 Meter: 50981595, rev. D1
Additional Model 3	Product Type Description	Ultrasonic water meter
	Model Name	KWM2220
	Brand Name (optional)	Kamstrup
	Hardware Version	Unit: 6201-210-03, rev. 00 RF PCB BOM: 55501900, rev. B1 Flow PCB BOM: 55501813, rev. B3
	Software Version	RF: 50981336, rev. N1 Meter: 50981595, rev. D1
Additional Model 4	Product Type Description	Ultrasonic water meter
	Model Name	KWM3220
	Brand Name (optional)	Kamstrup
	Hardware Version	Unit: 6201-204-01, rev. A1 RF PCB BOM: 55501900, rev. B1 Flow PCB BOM: 55501817, rev. B1
	Software Version	RF: 50981336, rev. N1 Meter: 50981595, rev. D1

Additional Model 5	Product Type Description	Ultrasonic water meter
	Model Name	KWM3220
	Brand Name (optional)	Kamstrup
	Hardware Version	Unit: 6202-205-01, rev. 00 RF PCB BOM: 55501900, rev. B1 Flow PCB BOM: 55501817, rev. B1
	Software Version	RF: 50981336, rev. N1 Meter: 50981595, rev. D1
Additional Model 6	Product Type Description	Ultrasonic water meter
	Model Name	KWM3220
	Brand Name (optional)	Kamstrup
	Hardware Version	Unit: 6202-103-02, rev. 00 RF PCB BOM: 55501900, rev. B1 Flow PCB BOM: 55501817, rev. B1
	Software Version	RF: 50981336, rev. N1 Meter: 50981595, rev. D1
Additional Model 7	Product Type Description	Ultrasonic water meter
	Model Name	KWM3220
	Brand Name (optional)	Kamstrup
	Hardware Version	Unit: 6202-103-03, rev. 00 RF PCB BOM: 55501900, rev. B1 Flow PCB BOM: 55501817, rev. B1
	Software Version	RF: 50981336, rev. N1 Meter: 50981595, rev. D1
Additional Model 8	Product Type Description	Ultrasonic water meter
	Model Name	KWM3220
	Brand Name (optional)	Kamstrup
	Hardware Version	Unit: 6202-103-04, rev. 00 RF PCB BOM: 55501900, rev. B1 Flow PCB BOM: 55501817, rev. B1
	Software Version	RF: 50981336, rev. N1 Meter: 50981595, rev. D1
Additional Model 9	Product Type Description	Ultrasonic water meter
	Model Name	KWM3220
	Brand Name (optional)	Kamstrup
	Hardware Version	Unit: 6202-103-05, rev. 00 RF PCB BOM: 55501900, rev. B1 Flow PCB BOM: 55501817, rev. B1
	Software Version	RF: 50981336, rev. N1 Meter: 50981595, rev. D1

Additional Model 10	Product Type Description	Ultrasonic water meter
	Model Name	KWM3220
	Brand Name (optional)	Kamstrup
	Hardware Version	Unit: 6202-103-06, rev. 00 RF PCB BOM: 55501900, rev. B1 Flow PCB BOM: 55501817, rev. B1
	Software Version	RF: 50981336, rev. N1 Meter: 50981595, rev. D1
Additional Model 11	Product Type Description	Ultrasonic water meter
	Model Name	KWM3220
	Brand Name (optional)	Kamstrup
	Hardware Version	Unit: 6202-103-07, rev. 00 RF PCB BOM: 55501900, rev. B1 Flow PCB BOM: 55501817, rev. B1
	Software Version	RF: 50981336, rev. N1 Meter: 50981595, rev. D1
Additional Model 12	Product Type Description	Ultrasonic water meter
	Model Name	KWM3220
	Brand Name (optional)	Kamstrup
	Hardware Version	Unit: 6202-103-08, rev. 00 RF PCB BOM: 55501900, rev. B1 Flow PCB BOM: 55501817, rev. B1
	Software Version	RF: 50981336, rev. N1 Meter: 50981595, rev. D1

ABBREVIATIONS AND ACRONYMS

Acronyms	
Acronym	Description
EUT	Equipment Under Test
FCC	Federal Communications Commission
ISED	Innovation, Science and Economic Development Canada
T_{NOM}	Nominal operating temperature
V_{NOM}	Nominal supply voltage

VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2021-01-21	Initial Release	-

REPORT INDEX

1 Equipment (Test Item) Under Test

Description	Ultrasonic water meter	
Model	KWM2220	
Additional Model(s)	None	
Brand Name(s)	Kamstrup	
Serial Number(s)	KAM21142842	
Hardware Version(s)	Unit: 6201-210-04, rev 4.00; RF PCB BOM: 55501900, rev. B1; Flow PCB BOM: 55501813, rev. B3	
Software Version(s)	RF: 50981336, rev. N1; Meter: 50981595, rev. D1	
FCC-ID	OUY-KWMX220	
IC	-/-	
Class	Class B	
Equipment type	Table top	
Highest internal frequency [MHz]	3759.9	
Radio Module I	Type	PMR module
	Model	Unspecified
	Manufacturer	Unspecified
	FCC-ID	Unspecified
	IC	Unspecified
Radio Module II	Type	SRD module
	Model	Unspecified
	Manufacturer	Unspecified
	FCC-ID	Unspecified
	IC	Unspecified
Supply Voltage	V_{NOM}	3.66V DC non-rechargeable battery
AC/DC-Adaptor	None	
Manufacturer	Kamstrup A/S Industrivej 28 8660 Skanderborg DENMARK	

1.1 Equipment Ports

Name	Type	Attributes		Comment
Antenna	IO	Count: Direction: Service only:	1 IO No	-
IR	IO	Count: Direction: Service only:	1 IO Yes	Optical interface for control EUT

Description:	
AC	AC mains power input/output port
DC	DC power input/output port
BAT	DC power input port connected to external battery
IO	Input/Output port
TP	Telecommunication port
NE	Non-electrical port

1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	Laptop	lenovo	ThinkPad T450	
AE	Optical Readout Head	kamstrup	6699-099	Customer support equipment
AE	Software application	kamstrup	Device Control Tool	Customer support equipment
AE	Pit antenna	kamstrup	6697-902	Customer support equipment
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
MON	Monitoring Equipment			
CBL	Connecting Cable			
Comment:				

1.5 Operational Modes

Mode #	Description
1	PMR transmit on 460.11875MHz Wait for metering water.
2	SRD transmit on 915MHz. Wait for metering water
Comment:	

1.6 EUT Configuration

Configuration #	Description
1	EUT powered during measurement with external laboratory power supply. Antenna port is terminated with 50Ohm.
2	EUT powered during measurement with external laboratory power supply. Antenna port assembled with pit antenna.
Comment:	

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 analyser in dBµV. Any external preamplifiers used are taken into account through internal analyser 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 analyser. 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 Analyser (dBµV) + A.F. (dB/m) = 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/m	= 47.5 dBµV/m	:	47.5 dBµV/m - 57.0 dBµV/m	= -9.5 dB

2 Result Summary

FCC 47 CFR Part 15B, ISED ICES-003 Issue 6				
Reference	**Requirement**	**Reference Method**	**Result**	**Remarks**
Emission				
FCC 15.109 ICES-003, 6.2	Radiated emissions	ANSI C63.4:2014 +A1:2017	PASS	-
FCC 15.107 ICES-003, 6.1	AC power line conducted emissions	ANSI C63.4:2014 +A1:2017	N/R	No relevant port
Comment:				

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

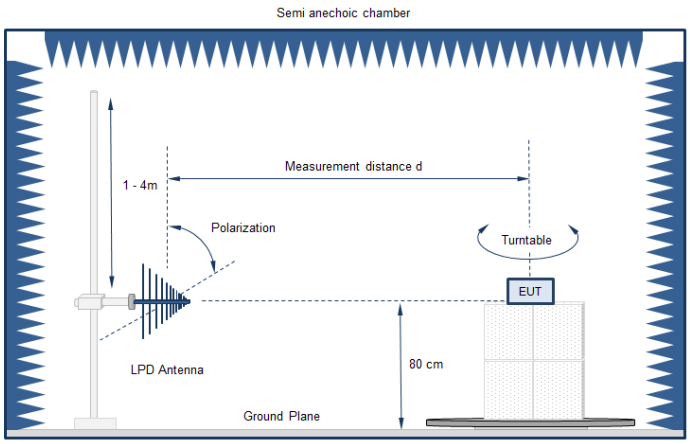
2.1 Test Conditions and Results - Radiated emissions acc. to ANSI C63.4

2.1.1 Information

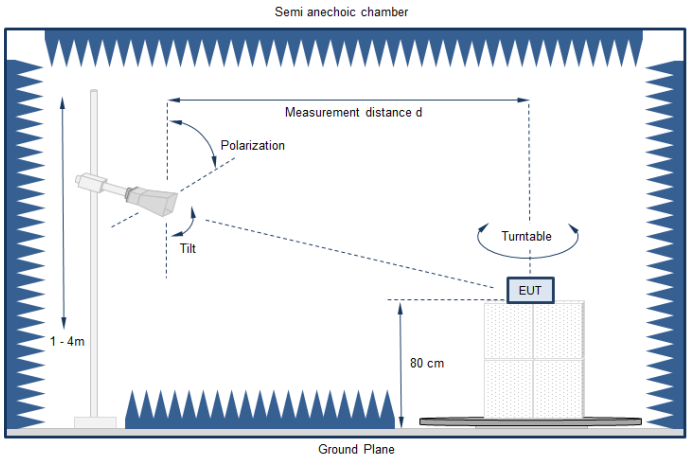
Test Information	
Reference	FCC 15.109, ICES-003, 6.2
Reference method	ANSI C63.4:2014+A1:2017 Section 8
Equipment class	Class B
Equipment type	Table top
Highest internal frequency [MHz]	3759.9
Measurement range	30 MHz to 18799.5 MHz
Temperature [°C]	20 ±3
Humidity [%]	30 ±3
Operator	Matthias Handrik
Date	2020-12-08

2.1.2 Setup

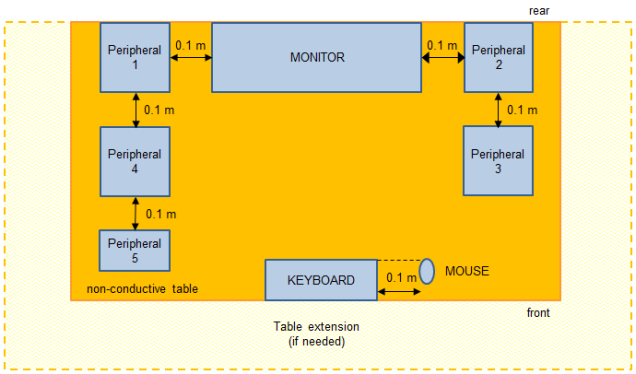
Measurement up to 1 GHz



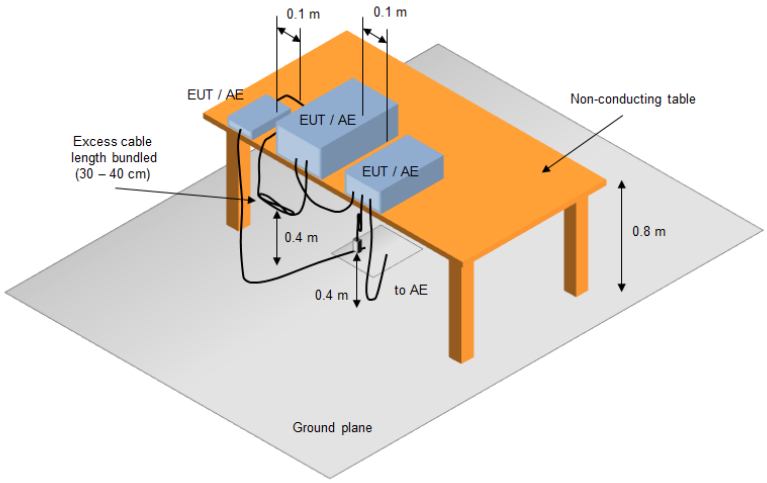
Measurement above 1 GHz



Equipment placement - Table top



Test Setup



2.1.3 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	Radimation	2020.1.8

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic chamber	Frankonia	AC1	EF00062	2018-07	2021-07
EMI Test Receiver	Keysight	N9038A-526/WXP	EF01070	2020-06	2021-06
Biconical Antenna	R&S	HK 116	EF00030	2019-04	2022-04
LPD Antenna	R&S	HL 223	EF00187	2019-05	2022-05
Horn Antenna	Schwarzbeck	BBHA9120D	EF00018	2019-10	2022-10
40GHz High Gain Antenna	Amplifier Research	AT4560	EF00302	2019-05	2021-05
Climatic Sensor	Embedded Data Systems, LLC.	2800100000254 17E	EF01054	2020-03	2021-03

2.1.4 Procedure

Exploratory measurement
1. The EUT was placed on a non-conductive table at a height of 0.8m. 2. The EUT and support equipment, if needed, were set up to simulate typical usage. 3. 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. 4. The antenna was placed at a distance of 3 or 10 m. 5. The received signal was monitored at the measurement receiver. 6. This procedure has to be performed in both antenna polarizations, horizontal and vertical. 7. The arrangement of the equipment with the maximum emission level is shown on the setup picture at item 1.3

Final measurement
1. 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. 2. 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. 3. The EUT and cable arrangement were based on the exploratory measurement results. 4. Emissions were maximized at each frequency by rotating the EUT and adjusting the receive antenna height and polarization. The maximum values were recorded. 5. The test data of the worst-case conditions were recorded and shown on the next pages.

2.1.5 Limits

Class B @ 3 m		
Frequency [MHz]	Detector	Limit [dBµV/m]
30 - 88	Quasi-peak	40
88 - 216	Quasi-peak	43.5
216 - 960	Quasi-peak	46
960 - 1000	Quasi-peak	54
> 1000	Peak Average	74 54

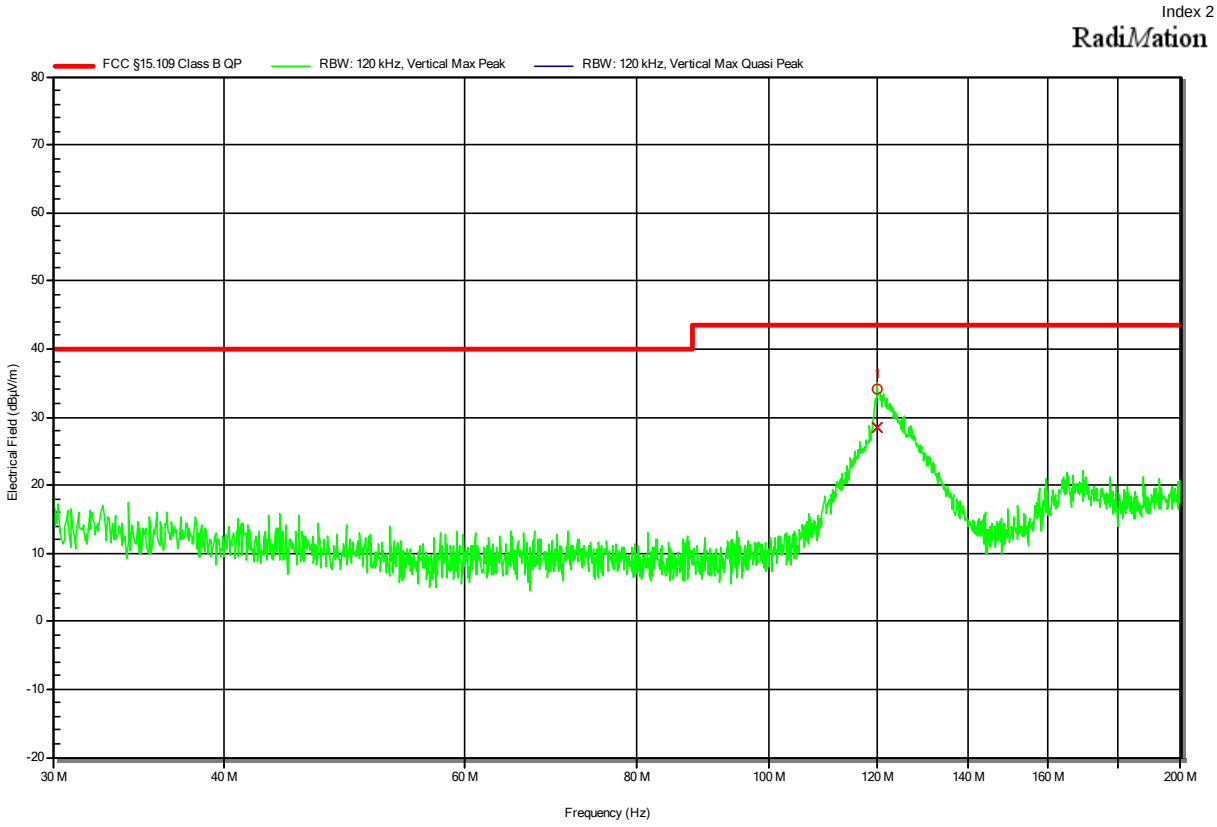
2.1.6 Results

Test Results			
Operational mode	EUT Configuration	Verdict	Remark
1	1	PASS	-
2	2	PASS	-

2.1.8 Records

Radiated emissions
according to FCC part 15B

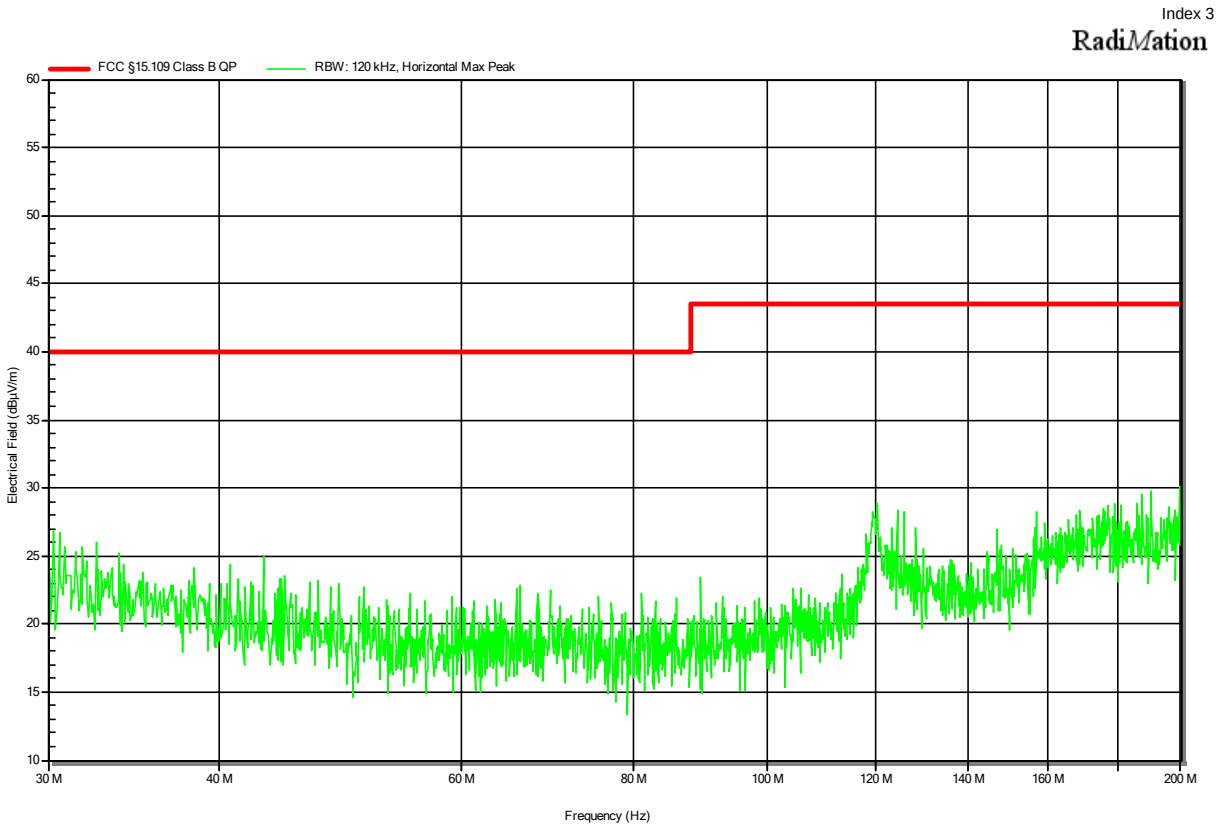
Project Number:	G0M-2009-9331
Applicant:	Kamstrup A/S
Model Description:	Ultrasonic water meter
Model:	KWM2220
Test Sample ID:	32342
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Handrik
Test Date:	2020-12-08
Operating Conditions:	ambient temperature: 21 °Celsius power input: 3.66V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement Distance:	3m
Operational Mode & EUT Configuration:	Operational mode 2 Configuration 2
Note 1:	



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	120.032 MHz	28.57 dBµV/m	43.52 dBµV/m	-14.95 dB	Pass	60 degrees	1 m

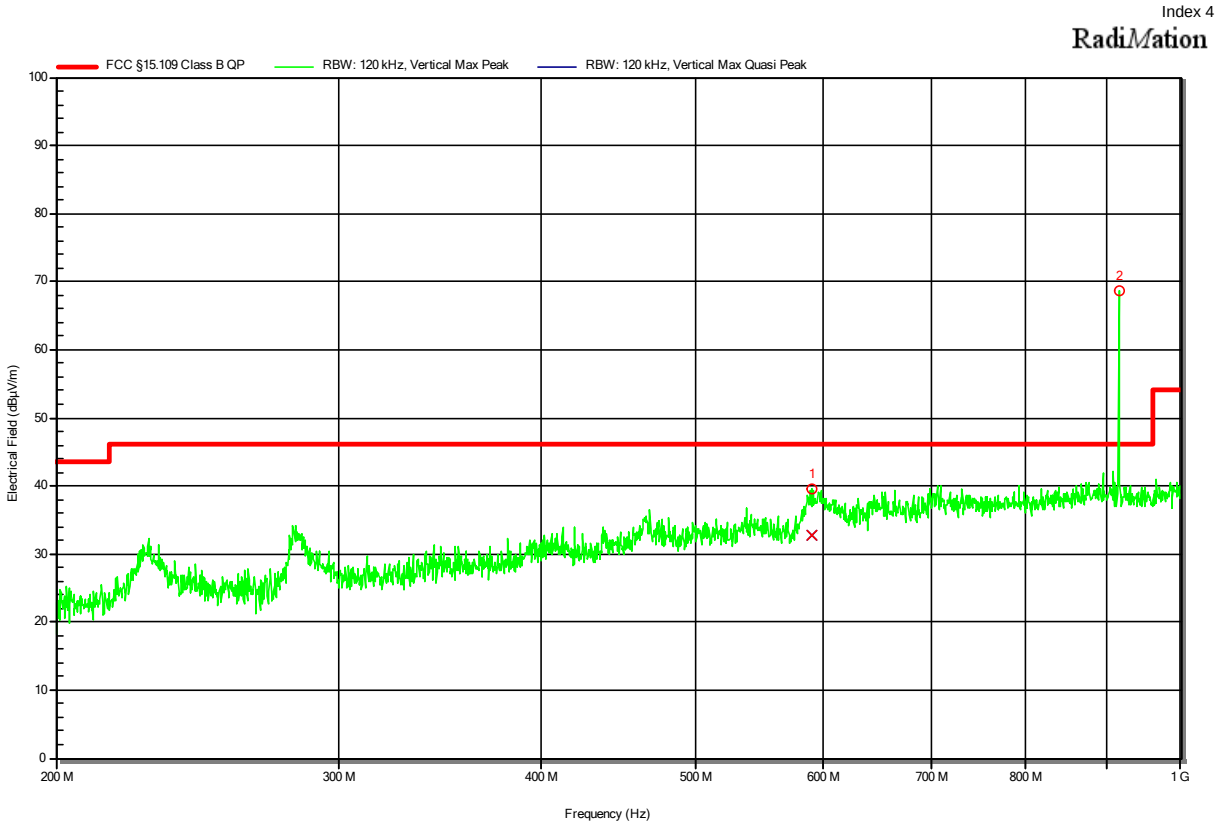
Radiated emissions
according to FCC part 15B

Project Number:	G0M-2009-9331
Applicant:	Kamstrup A/S
Model Description:	Ultrasonic water meter
Model:	KWM2220
Test Sample ID:	32342
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Handrik
Test Date:	2020-12-08
Operating Conditions:	ambient temperature: 21 °Celsius power input: 3.66V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement Distance:	3m
Operational Mode & EUT Configuration:	Operational mode 2 Configuration 2
Note 1:	



Radiated emissions
according to FCC part 15B

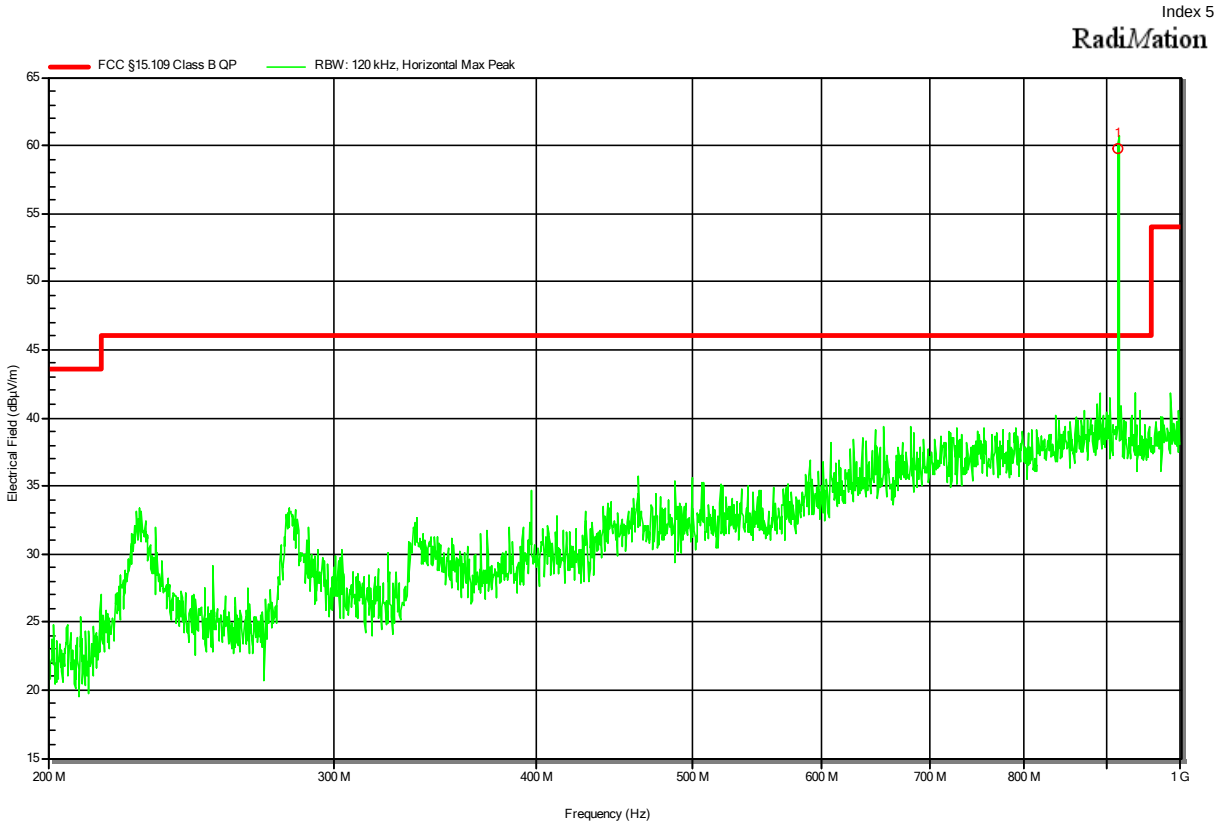
Project Number:	G0M-2009-9331
Applicant:	Kamstrup A/S
Model Description:	Ultrasonic water meter
Model:	KWM2220
Test Sample ID:	32342
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Handrik
Test Date:	2020-12-08
Operating Conditions:	ambient temperature: 21 °Celsius power input: 3.66V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement Distance:	3m
Operational Mode & EUT Configuration:	Operational mode 2 Configuration 2
Note 1:	



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	590.417 MHz	32.7 dBµV/m	46.02 dBµV/m	-13.32 dB	Pass	-60 degrees	1 m
2	915.221 MHz	SRD carrier					

Radiated emissions
according to FCC part 15B

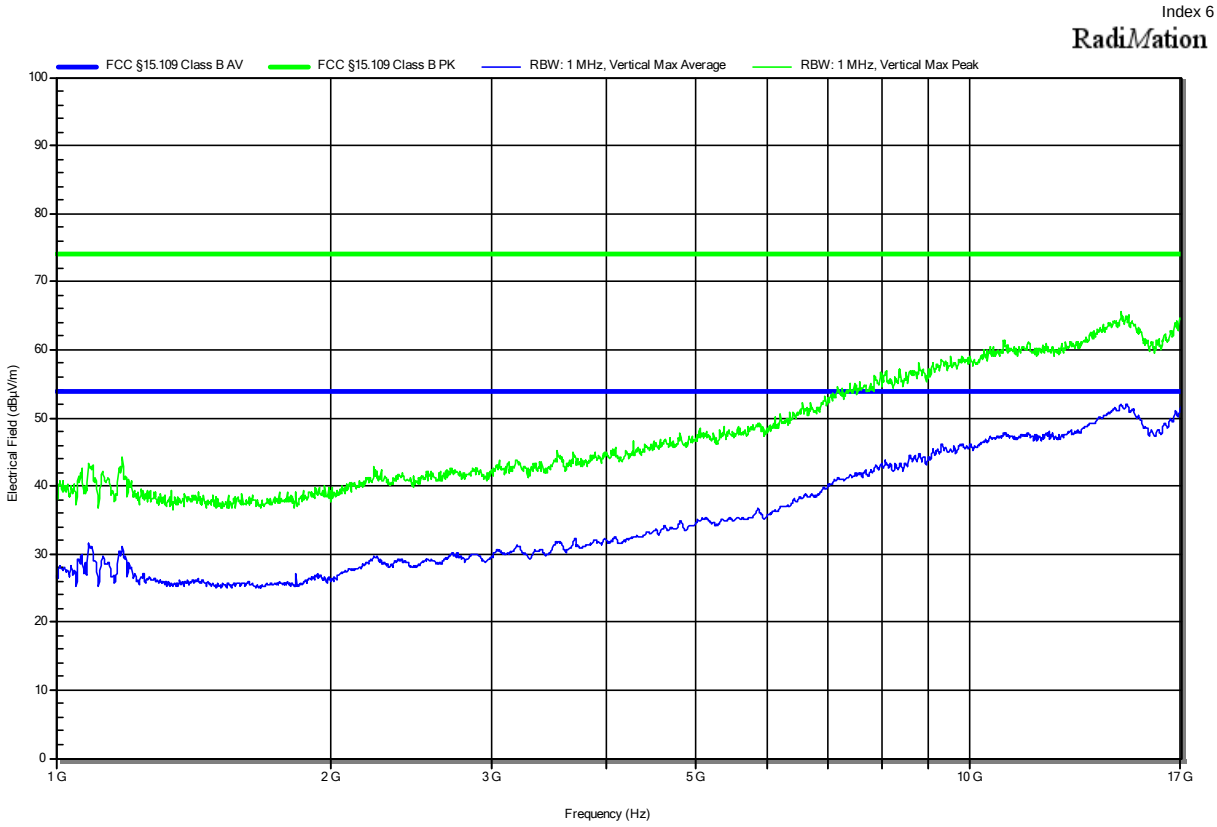
Project Number:	G0M-2009-9331
Applicant:	Kamstrup A/S
Model Description:	Ultrasonic water meter
Model:	KWM2220
Test Sample ID:	32342
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Handrik
Test Date:	2020-12-08
Operating Conditions:	ambient temperature: 21 °Celsius power input: 3.66V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement Distance:	3m
Operational Mode & EUT Configuration:	Operational mode 2 Configuration 2
Note 1:	



Peak Number	Frequency	Angle	Height
1	915.161 MHz	SRD carrier	

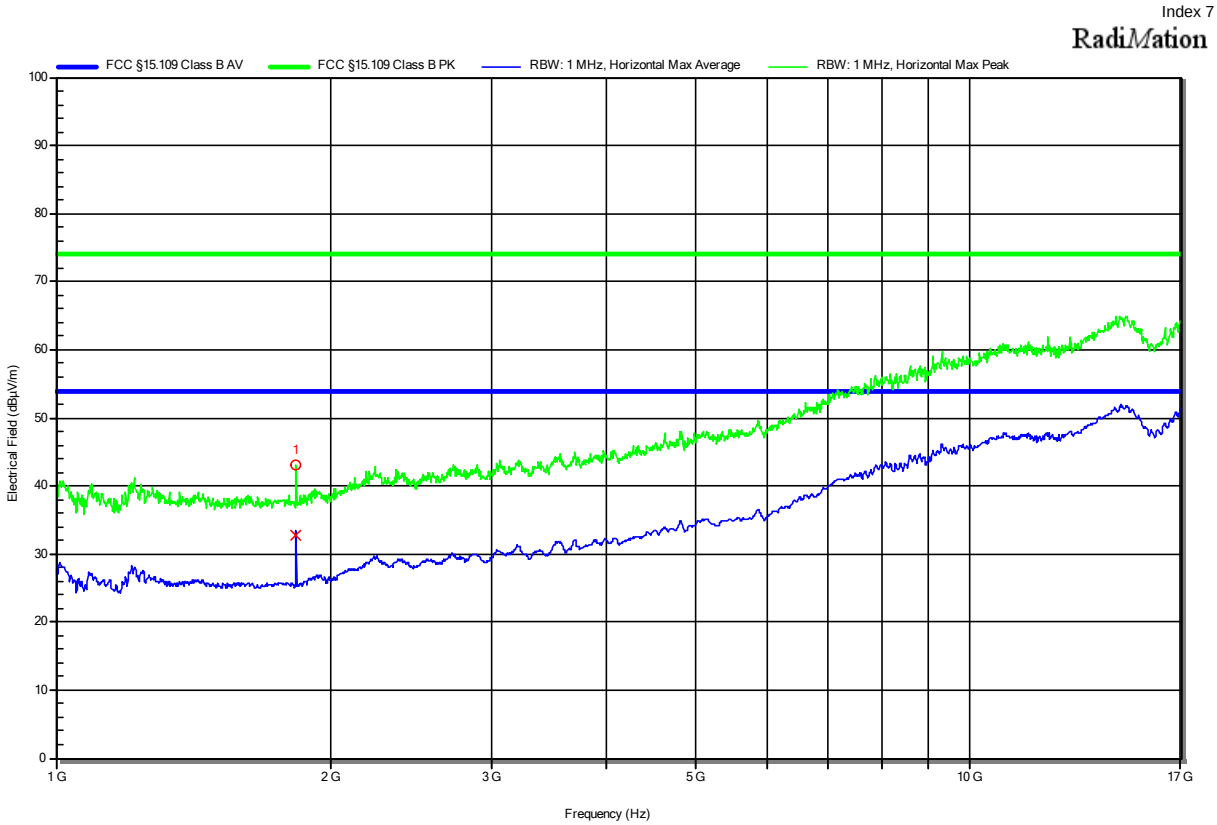
Radiated emissions
according to FCC part 15B

Project Number:	G0M-2009-9331
Applicant:	Kamstrup A/S
Model Description:	Ultrasonic water meter
Model:	KWM2220
Test Sample ID:	32342
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Handrik
Test Date:	2020-12-08
Operating Conditions:	ambient temperature: 21 °Celsius power input: 3.66V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement Distance:	3m
Operational Mode & EUT Configuration:	Operational mode 2 Configuration 2
Note 1:	



Radiated emissions
according to FCC part 15B

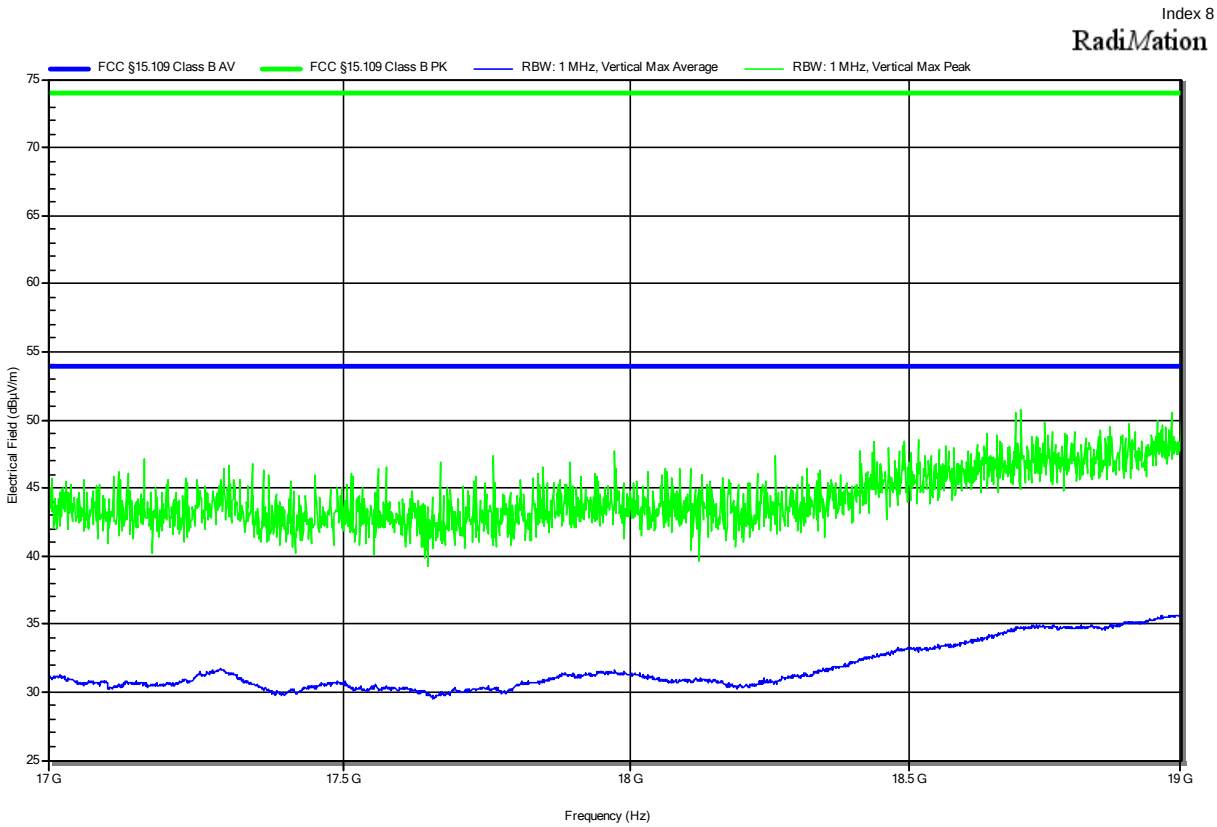
Project Number:	G0M-2009-9331
Applicant:	Kamstrup A/S
Model Description:	Ultrasonic water meter
Model:	KWM2220
Test Sample ID:	32342
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Handrik
Test Date:	2020-12-08
Operating Conditions:	ambient temperature: 21 °Celsius power input: 3.66V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement Distance:	3m
Operational Mode & EUT Configuration:	Operational mode 2 Configuration 2
Note 1:	



Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	1.83 GHz	2nd SRD harmonic					

Radiated emissions
according to FCC part 15B

Project Number:	G0M-2009-9331
Applicant:	Kamstrup A/S
Model Description:	Ultrasonic water meter
Model:	KWM2220
Test Sample ID:	32342
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Handrik
Test Date:	2020-12-08
Operating Conditions:	ambient temperature: 21 °Celsius power input: 3.66V DC
Antenna:	AT4560, Vertical
Measurement Distance:	3m
Operational Mode & EUT Configuration:	Operational mode 2 Configuration 2
Note 1:	



Radiated emissions
according to FCC part 15B

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Applicant:	Kamstrup A/S
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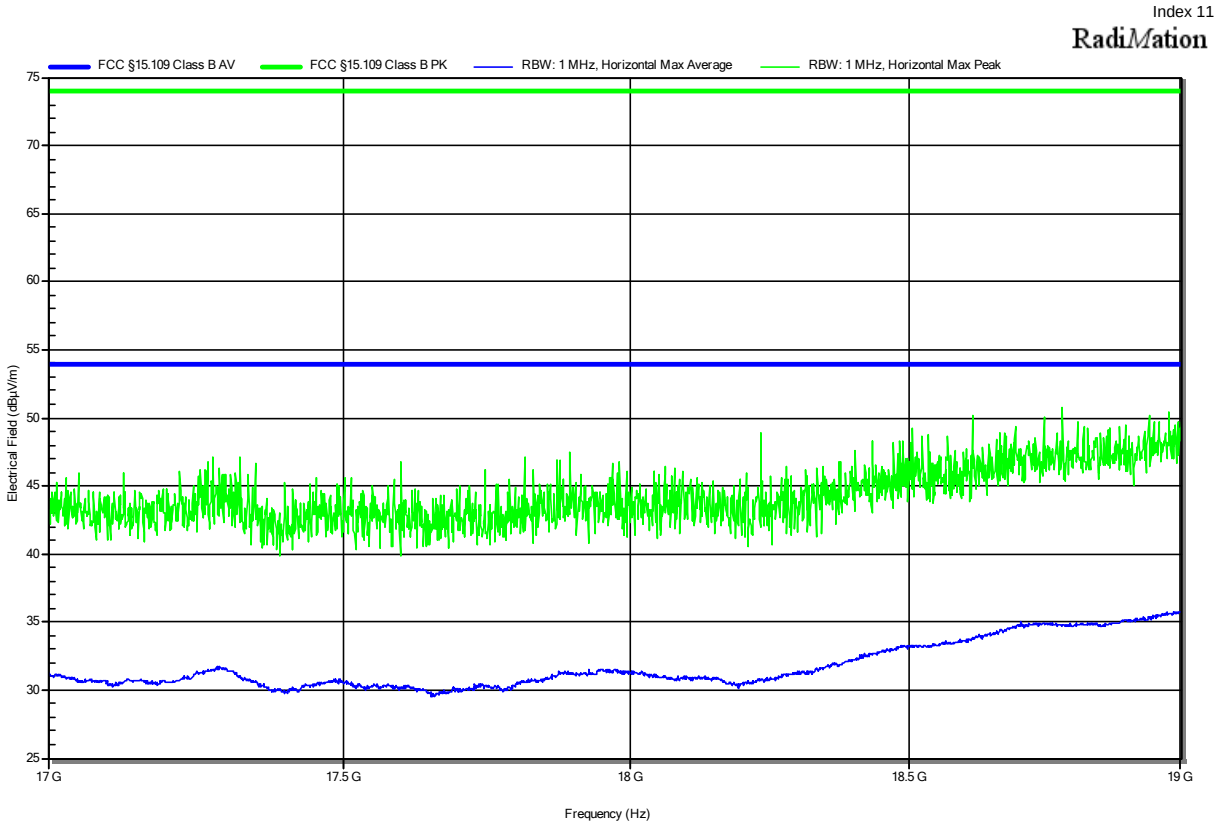
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Handrik
Test Date:	2020-12-08
Operating Conditions:	ambient temperature: 21 °Celsius power input: 3.66V DC
Antenna:	AT4560, Horizontal
Measurement Distance:	3m
Operational Mode & EUT Configuration:	Operational mode 2 Configuration 2
Note 1:	



Radiated emissions
according to FCC part 15B

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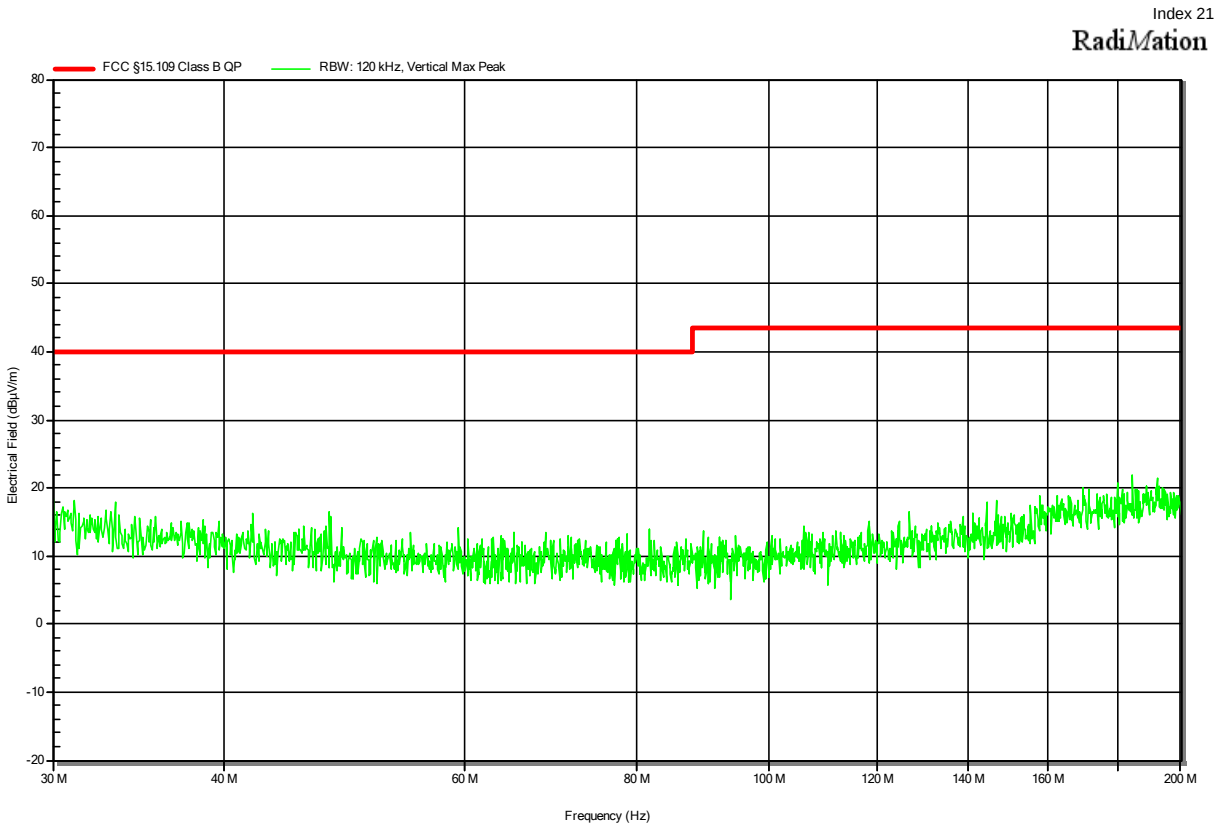
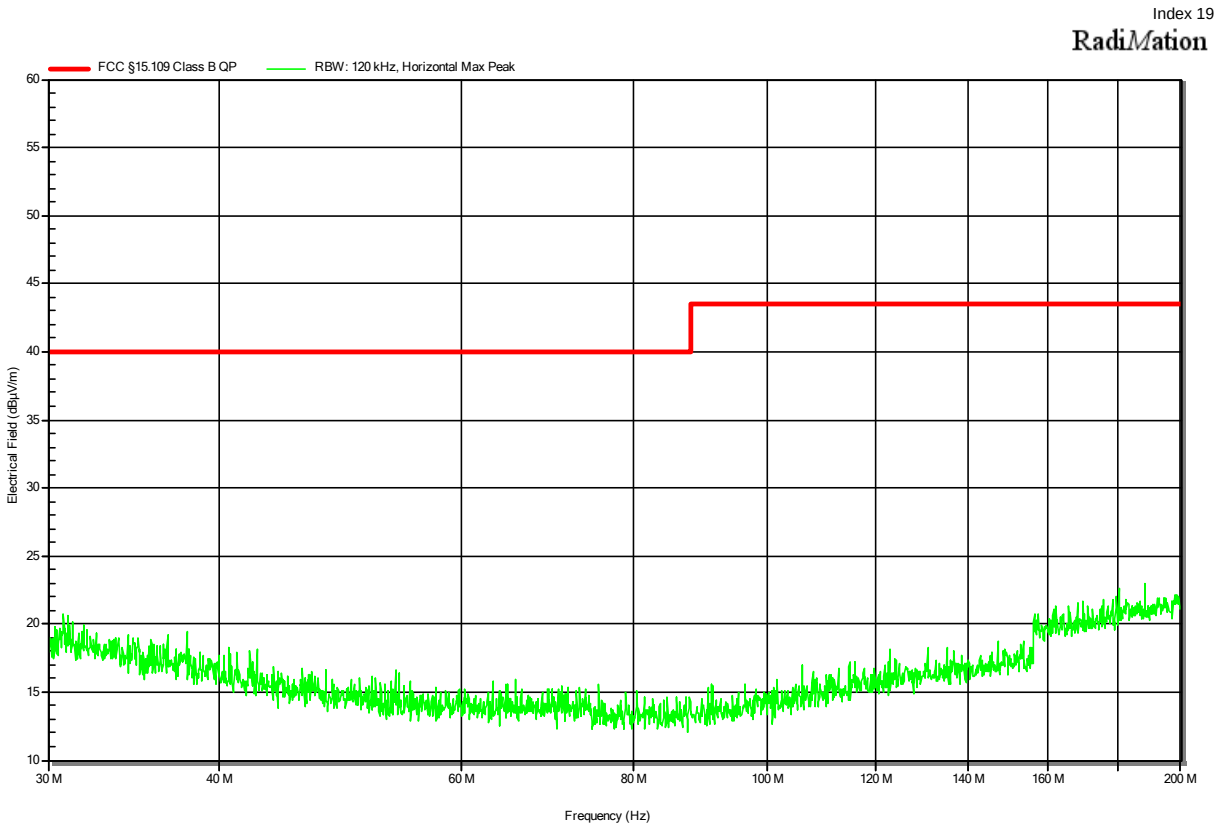
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement Distance:	3m
Operational Mode & EUT Configuration:	Operational mode 1 Configuration 1
Note 1:	



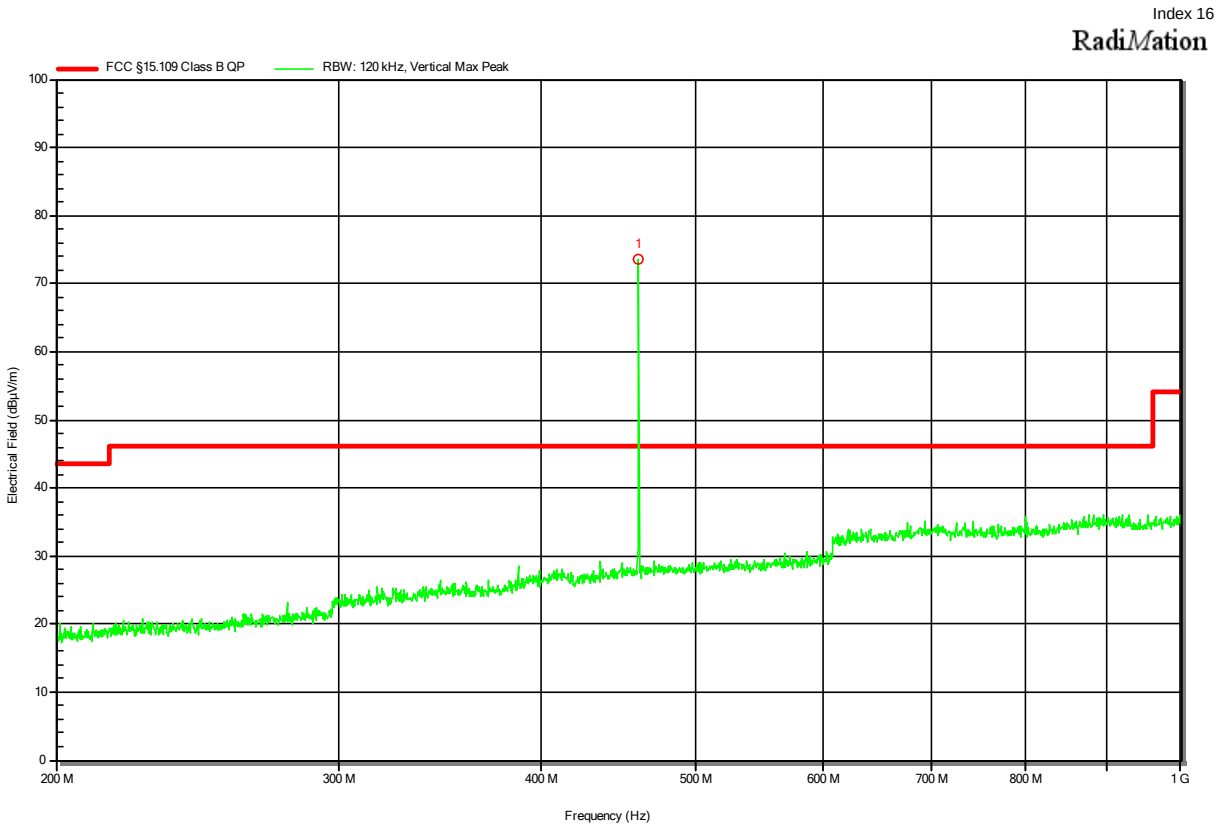
Radiated emissions
according to FCC part 15B

Project Number:	G0M-2009-9331
Applicant:	Kamstrup A/S
Model Description:	Ultrasonic water meter
Model:	KWM2220
Test Sample ID:	32343
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Handrik
Test Date:	2020-12-08
Operating Conditions:	ambient temperature: 21 °Celsius power input: 3.66V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement Distance:	3m
Operational Mode & EUT Configuration:	Operational mode 1 Configuration 1
Note 1:	



Radiated emissions
according to FCC part 15B

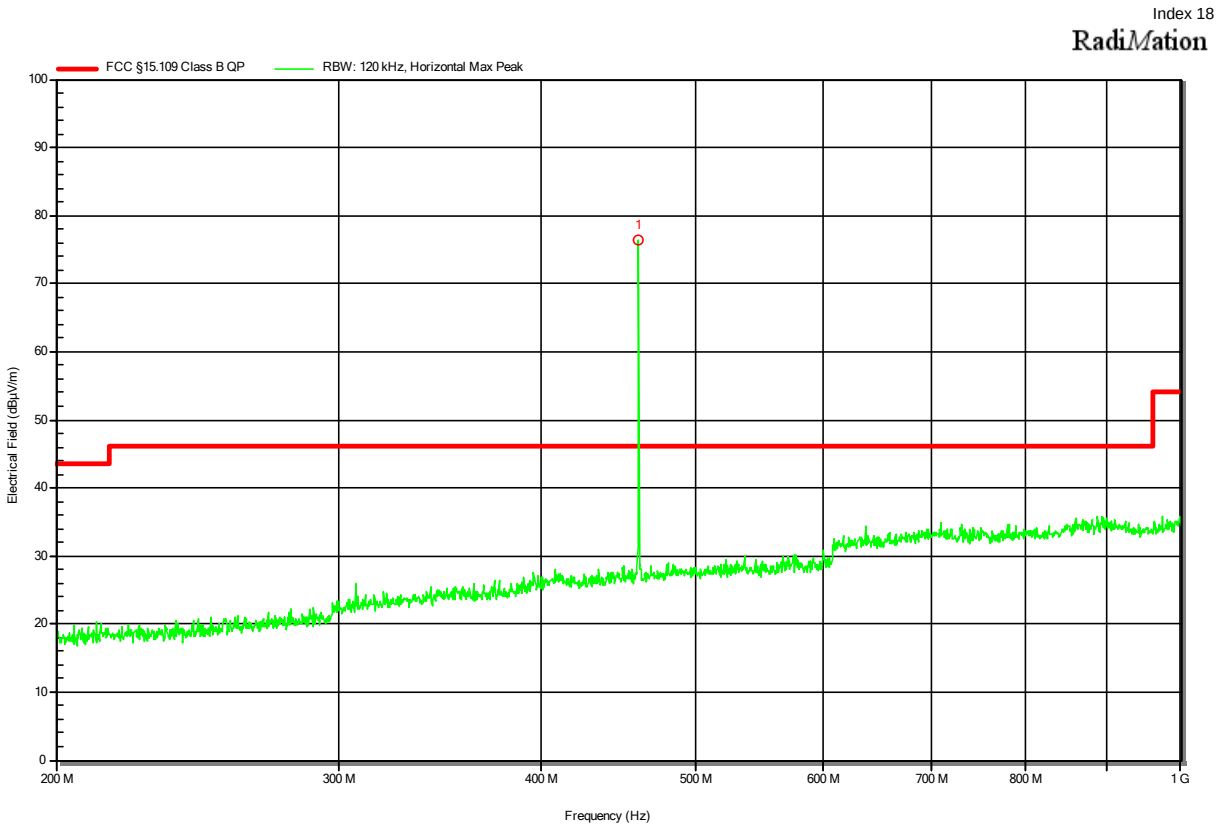
Project Number:	G0M-2009-9331
Applicant:	Kamstrup A/S
Model Description:	Ultrasonic water meter
Model:	KWM2220
Test Sample ID:	32343
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Handrik
Test Date:	2020-12-08
Operating Conditions:	ambient temperature: 21 °Celsius power input: 3.66V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement Distance:	3m
Operational Mode & EUT Configuration:	Operational mode 1 Configuration 1
Note 1:	



Peak Number	Frequency	Angle	Height
1	460.12 MHz	PMR carrier	

Radiated emissions
according to FCC part 15B

Project Number:	G0M-2009-9331
Applicant:	Kamstrup A/S
Model Description:	Ultrasonic water meter
Model:	KWM2220
Test Sample ID:	32343
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Handrik
Test Date:	2020-12-08
Operating Conditions:	ambient temperature: 21 °Celsius power input: 3.66V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement Distance:	3m
Operational Mode & EUT Configuration:	Operational mode 1 Configuration 1
Note 1:	



Peak Number	Frequency	Angle	Height
1	460.12 MHz	PMR carrier	

Radiated emissions
according to FCC part 15B

Project Number:	G0M-2009-9331
Applicant:	Kamstrup A/S
Model Description:	Ultrasonic water meter
Model:	KWM2220
Test Sample ID:	32343
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Handrik
Test Date:	2020-12-08
Operating Conditions:	ambient temperature: 21 °Celsius power input: 3.66V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement Distance:	3m
Operational Mode & EUT Configuration:	Operational mode 1 Configuration 1
Note 1:	

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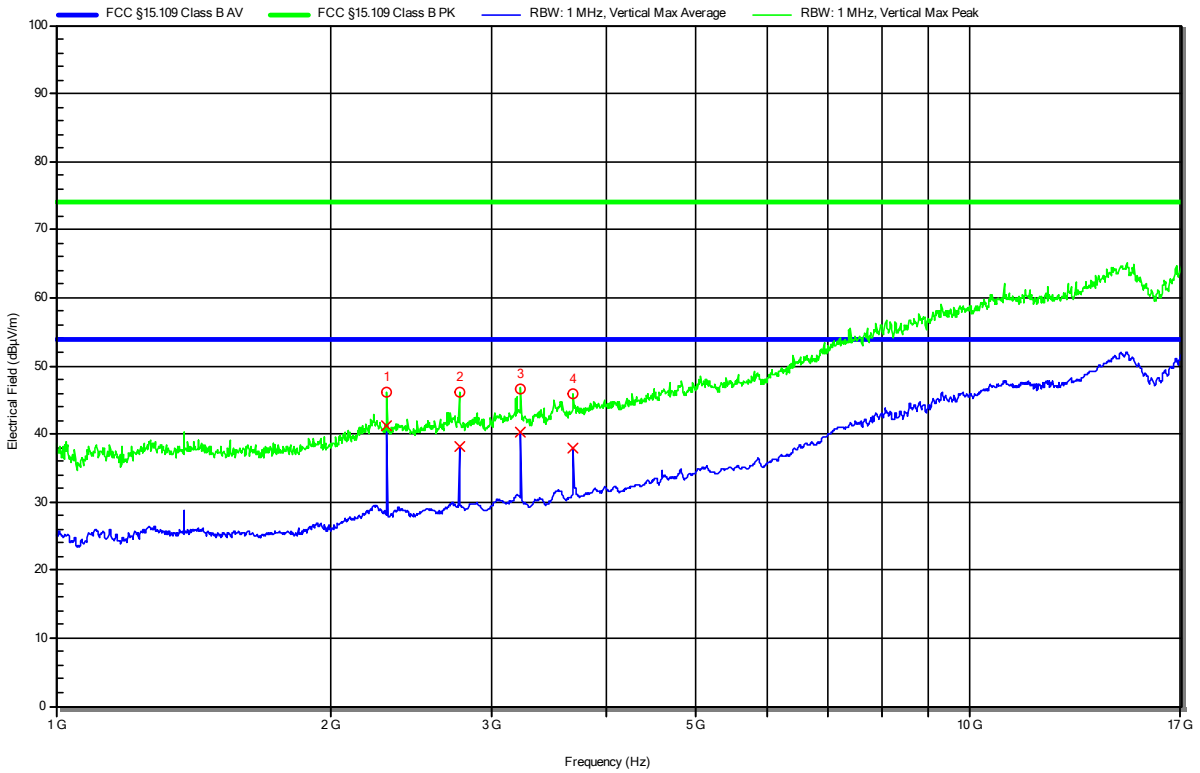
RadiMation



Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	2.301 GHz	5th PMR harmonic					
2	2.761 GHz	6th PMR harmonic					
3	3.221 GHz	7th PMR harmonic					
4	3.681 GHz	8th PMR harmonic					

Radiated emissions
according to FCC part 15B

Project Number:	G0M-2009-9331
Applicant:	Kamstrup A/S
Model Description:	Ultrasonic water meter
Model:	KWM2220
Test Sample ID:	32343
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Handrik
Test Date:	2020-12-08
Operating Conditions:	ambient temperature: 21 °Celsius power input: 3.66V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement Distance:	3m
Operational Mode & EUT Configuration:	Operational mode 1 Configuration 1
Note 1:	

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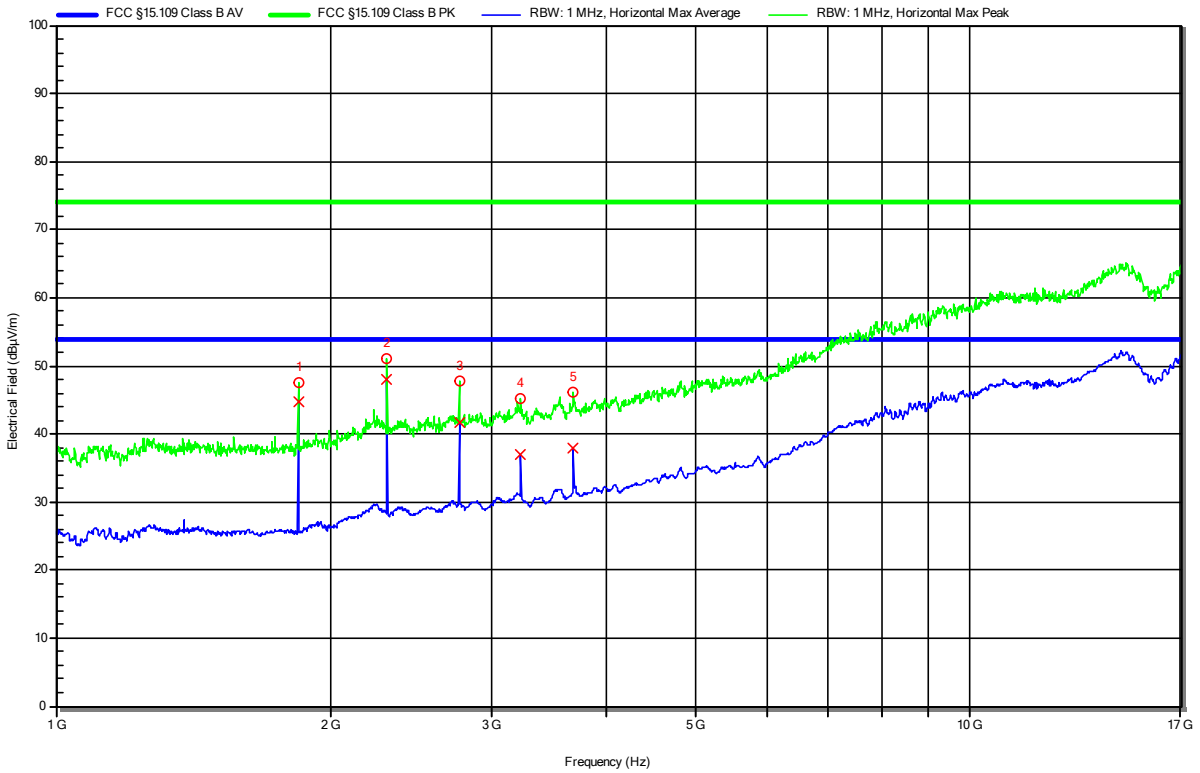
RadiMation



Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	1.841 GHz	4th PMR harmonic					
2	2.301 GHz	5th PMR harmonic					
3	2.761 GHz	6th PMR harmonic					
4	3.221 GHz	7th PMR harmonic					
5	3.681 GHz	8th PMR harmonic					

Radiated emissions
according to FCC part 15B

Project Number:	G0M-2009-9331
Applicant:	Kamstrup A/S
Model Description:	Ultrasonic water meter
Model:	KWM2220
Test Sample ID:	32343
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Handrik
Test Date:	2020-12-08
Operating Conditions:	ambient temperature: 21 °Celsius power input: 3.66V DC
Antenna:	AT4560, Vertical
Measurement Distance:	3m
Operational Mode & EUT Configuration:	Operational mode 1 Configuration 1
Note 1:	

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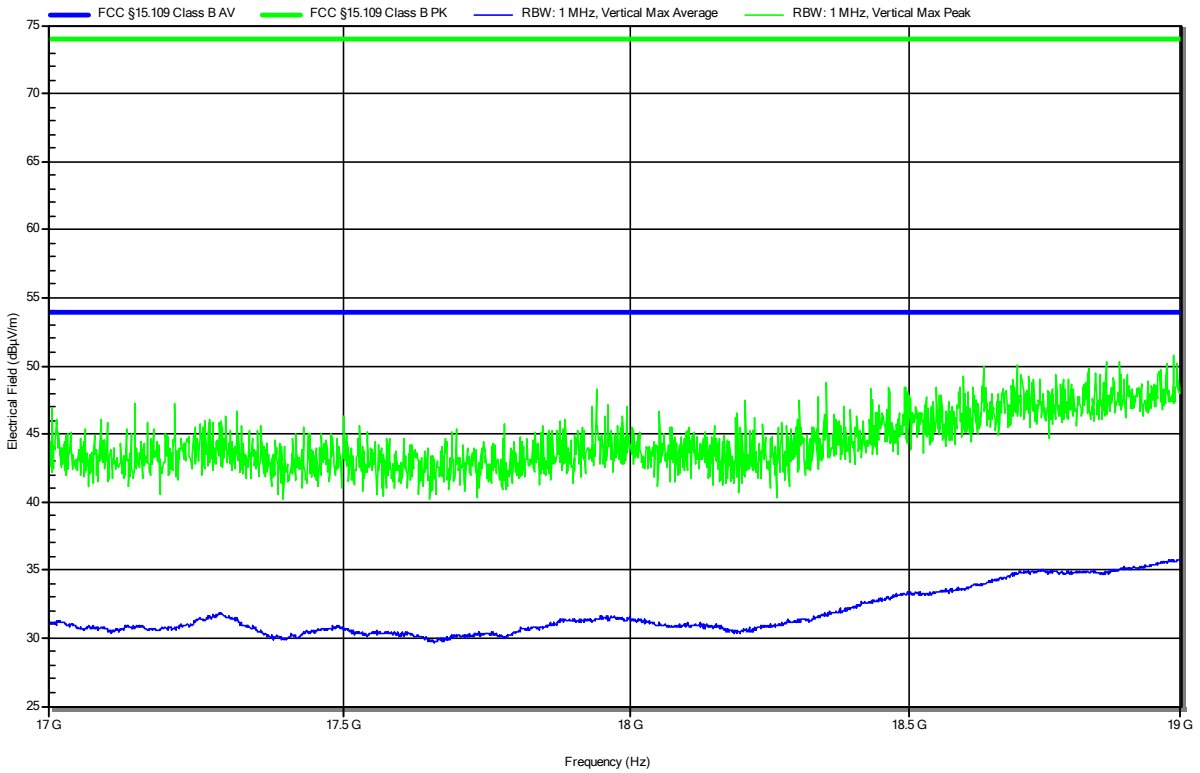
RadiMation



Radiated emissions
according to FCC part 15B

Project Number:	G0M-2009-9331
Applicant:	Kamstrup A/S
Model Description:	Ultrasonic water meter
Model:	KWM2220
Test Sample ID:	32343
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Handrik
Test Date:	2020-12-08
Operating Conditions:	ambient temperature: 21 °Celsius power input: 3.66V DC
Antenna:	AT4560, Horizontal
Measurement Distance:	3m
Operational Mode & EUT Configuration:	Operational mode 1 Configuration 1
Note 1:	

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