EUROFINS PRODUCT SERVICE GMBH

ACCREDITED
TESTING CERT# 1983.01

TEST-REPORT

FCC 47 CFR PART 15 SUBPART C
IC RSS 210 ISSUE 8

Measurement probe for water analysis

LXG440

FCC ID: YCB-LXG440
IC: 5879A-LXG440

TEST REPORT NUMBER: G0M-1107-1261-P-15

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

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1 General Information

1.1 Notes

The results of this test report relate exclusively to the item tested as specified in chapter "Description of test item" and are not transferable to any other test items.
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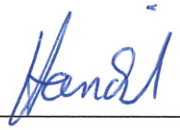
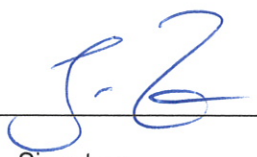
Operator:

Date	Eurofins-Lab.	Name	Signature
28.07.2011		M. Handrik	

Technical responsibility for area of testing:

Date	Eurofins	Name	Signature
28.07.2011		J. Zimmermann	

1.2 Testing laboratory

EUROFINS PRODUCT SERVICE GMBH
Storkower Strasse 38c
D-15526 Reichenwalde b. Berlin
Germany
Telephone :+49 33631 888 00
Telefax :+49 33631 888 660

DAKKS ACCREDITED TESTING LABORATORY
DAKKS-REGISTRATION NUMBER: D-PL-12092-01-01

RECOGNIZED NOTIFIED BODY EMC
REGISTRATION NUMBER: BNetzA-bS EMV-07/61

RECOGNIZED NOTIFIED BODY R&TTE
REGISTRATION NUMBER: BNetzA-bS-02/51-53

FCC FILED TEST LABORATORY
REG.-NO. 96970

A2LA ACCREDITED TESTING LABORATORY
CERTIFICATE NO. 1983.01

BLUETOOTH QUALIFICATION TEST FACILITY (BQTF)
ACCREDITED BY BLUETOOTH QUALIFICATION REVIEW BOARD

INDUSTRY CANADA FILED TEST LABORATORY
REG. NO. IC 3470

Test location, where different:

Name	: ./.
Street	: ./.
Town	: ./.
Country	: ./.
Telephone	: ./.
Fax	: ./.

1.3 Details of approval holder

Name	: HACH LANGE GmbH
Street	: Königsweg 10
Town	: 14163 Berlin
Country	: Germany
Telephone	: +49 30 80986.231
Fax	: +49 30 80986.283
Contact	: Herr Florian Eckelmann
Telephone	: +49 30 80986.231

Manufacturer:
(if applicable)

Name	: HACH LANGE GmbH
Street	: Königsweg 10
Town	: 14163 Berlin
Country	: Germany

1.4 Application details

Date of receipt of application	: 20.07.2011
Date of receipt of test item	: 20.07.2011
Date of test	: 20.07.2011

1.5 Acronyms and abbreviations

EUT	:	Equipment under Test
TX	:	Transmission
RX	:	Reception
RBW	:	Measurement Resolution Bandwidth
Pol	:	Measurement Polarization
e.r.p.	:	Effective radiated power
e.i.r.p.	:	Equivalent isotropic radiated power
T_{nom}	:	Nominal Temperature
T_{min}	:	Minimum Temperature
T_{max}	:	Maximum Temperature
V_{nom}	:	Nominal Supply Voltage
V_{min}	:	Minimum Supply Voltage
V_{max}	:	Maximum Supply Voltage
VDC	:	DC voltage
N/A	:	Not applicable
IC	:	Industry Canada

1.6 Test standards

Technical standard	: ☒ **FCC 47 CFR PART 15 SUBPART C** ☒ **IC RSS 210 ISSUE 8**

1.7 Test item

Description of test item	: Measurement probe for water analysis
Type identification	: LXG440
Serial number	: 1386813 (old DC/DC-Converter Traco) 1386816 (new DC/DC-Converter Peak)
Hardware version	: XMF785-E
Software version	: DD 0.7 / AC 0.11
Equipment type	: End product

Technical data

Radio type	: Transceiver
Radio technology	: 125kHz RFID
Frequency range	: 125 kHz +/- 875Hz
Assigned frequency band	: Non-specific
Tested frequencies	: F_1 125kHz
Antenna type(s)	: integral
Antenna model(s)	: ZDA486 (internal HACH LANGE Part Number)
Number of antennas	: 1
Antenna gain(s)	: Unspecified
Power supply	: 12VDC (power supplied from controller device)
Duty cycle(s)	: Unspecified
Spreading technique	: None
Modulation(s)	: OOK
Device classification	: Mobile Device (Human Body distance > 20 cm)

1.8 Additional information

Two models have been tested. Model with serial number S/N:1386813 uses the old DC/DC-Converter Traco and the model with serial number S/N: 1386816 uses the new DC/DC-Converter Peak.

2 Technical test

2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed. ☒

or

The deviations as specified in 2.5 were ascertained in the course of the tests performed. ☐

2.2 Test environment

Temperature	: 22	...	26°C
Relative humidity content	: 20	...	75%
Air pressure	: 86	...	103kPa

Extreme conditions parameters:

V_{nom}	:	12VDC
V_{min}	:	N/A
V_{max}	:	N/A
T_{nom}	:	25°C

Other parameter: None

2.3 Test equipment utilized

Measurement Equipment List					
No.:	**Measurement device:**	**Type:**	**Manufacturer:**	**Last Cal.**	**Next Cal.**
ETS 0086	Semi-anechoic chamber	AC1	Frankonia	09.12.2010	09.12.2012
ETS 0253	Spectrum Analyzer	FSIQ26	Rohde & Schwarz	04.11.2010	04.11.2012
ETS 0030	Biconical Antenna	HK 116	Rohde & Schwarz	10.02.2011	20.02.2012
ETS 0295	LPD Antenna	HL 223	Rohde & Schwarz	09.02.2011	09.02.2012
ETS 0018	Horn Antenna	BBHA 9120D	Schwarzbeck	26.08.2010	26.08.2011
ETS 0432	Amplifier-Matrix			02.06.2010	02.06.2012
ETS 0496	Spectrum Analyzer	FSP30	Rohde & Schwarz	26.08.2010	26.08.2011
ETS 0288	LISN	ESH2-Z5	Rohde & Schwarz	07.09.2010	07.09.2012

2.4 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

2.5 Test results

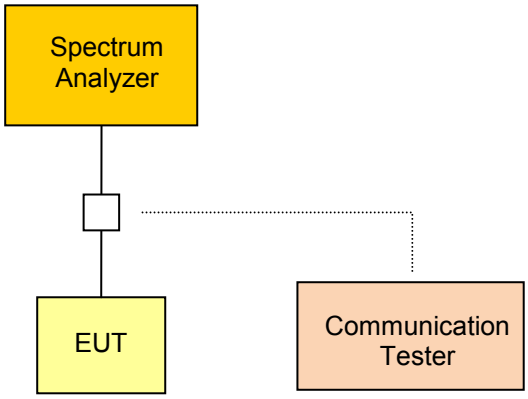
Test case	Clause	Required	Result	Remarks
INFORMATIONAL TRANSMITTER PARAMETERS				
Occupied Bandwidth	IC RSS-Gen. 4.6.1	☒	N/A	
TRANSMITTER PARAMETERS				
Radiated emissions	FCC § 15.209 IC RSS-210 2.5 IC RSS-Gen 4.9 IC RSS-Gen 7.2.5	☒	PASS	
RECEIVER PARAMETERS				
Radiated emissions	IC RSS-Gen 4.10 IC RSS-Gen 6.1	☒	PASS	Receiver mode cannot be isolated from transmitter mode
POWER LINE PARAMETERS				
AC power line conducted emissions	FCC § 15.207 IC RSS-Gen. 7.2.4	☒	PASS	

3 Informational Transmitter parameters

3.1 Occupied Bandwidth

According RSS-Gen Section 4.6.1 the 99% emission bandwidth occupied by the modulated transmitted signal has to be reported as calculated or measured.

3.1.1 Measurement procedure



The EUT is connected to a spectrum analyzer and set to transmission mode (using a communication tester if needed) with maximum power under normal test conditions. The span of the analyzer is set wide enough to capture all significant emissions of the modulation spectrum. The resolutions bandwidth is set as close as possible to 1% of the selected span without being below 1%. The occupied bandwidth is than measured evaluated by an internal measurement procedure of the analyzer.

3.1.2 Results

Transmitter occupied bandwidth			
Measurement Conditions			
Power occupation		99%	
Channel [kHz]	**Lower edge frequency [kHz]**	**Upper edge frequency [kHz]**	**Occupied Bandwidth [kHz]**
Model S/N:1386813			
125	122.760	127.269	4.509
Model S/N:1386816			
125	122.771	127.219	4.449
See attached diagram in Annex			

4 Transmitter parameters

4.1 Radiated Emissions

According FCC rules 47 CFR 15.209 and RSS-Gen 4.9 all emissions has to comply with the following emission limits.

4.1.1 Limits

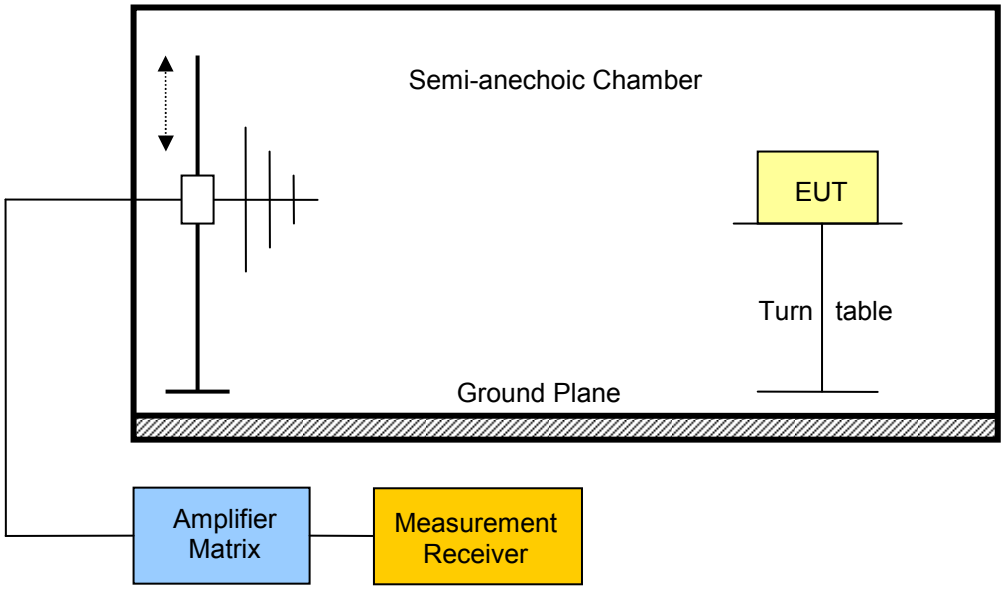
General spurious emission limits				
Frequency range [MHz]	**Detector**	**Limit [µV/m]**	**Limit [dBµV/m]**	**Limit Distance [m]**
0.009 – 0.490	Quasi-Peak	2400/F[kHz]	48.5 – 13.8	300
0.490 – 1.705	Quasi-Peak	2400/F[kHz]	13.8 – 1.4	30
1.705 – 30	Quasi-Peak	30	29.5	30
30 – 88	Quasi-Peak	100	40	3
88 – 216	Quasi-Peak	150	43.5	3
216 – 960	Quasi-Peak	200	46	3
960 – 1000	Quasi-Peak	500	54	3
> 1000	Average	500	54	3

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

When average radiated emission measurements are specified, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test.

4.1.2 Measurement procedure

The spurious emission measurement is performed on 3m a semi-anechoic test site.



The EUT is placed on a non-metallic table. Any emission is received by the measurement antenna and measured via a measurement receiver connected to the antenna. To obtain the maximum emission the EUT is rotated through 360°.

Due to practical reasons the spurious emission level check is first performed with a peak detector and the quasi-peak and average limits.

If any emission is detected that gets close to the emission limit the detector is changed and the quasi-peak or average detector is used. Which detector is used is determined by the emission frequency. If pulsed transmission is used, averaging over the pulse train is used.

The measurement values are also corrected to obtain the field strength values at the defined measurement distances of the emission limits.

The measurement is performed over the frequency range of 9kHz up to the tenth harmonic.

4.1.3 Results

Fundamental emissions							
Measurement Conditions							
Measurement distance *		3m					
Modulated		☒ Yes ☐ No					
Channel Frequency [MHz]	**Emission Frequency [MHz]**	**Pol.**	**Measured Field Strength [dBµV/m] ** **	**Limit [dBµV/m]**	**Limit distance [m]**	**Det.**	**Margin [dB]**
Model S/N:1386813							
0.125	0.125	-	-33.99	25.67	300	pk	-59.66
Model S/N:1386816							
0.125	0.125	-	-36.04	25.67	300	pk	-61.71
See attached diagrams in Annex							
Verdict						**PASS**	

Transmitter radiated spurious emissions							
Measurement Conditions							
Measurement distance *		3m					
Modulated		☒ Yes ☐ No					
Channel Frequency [MHz]	**Emission Frequency [MHz]**	**Pol.**	**Measured Field Strength [dBµV/m] ** **	**Limit [dBµV/m]**	**Limit distance [m]**	**Det.**	**Margin [dB]**
Model S/N:1386813							
0.125	0.101	-	-45.71	27.52	300	pk	-73.23
0.125	0.326	-	-56.82	17.34	300	pk	-74.16
Model S/N: 1386816							
0.125	0.101	-	-47.27	27.52	300	pk	-74.79
0.125	0.256	-	-46.88	19.44	300	pk	-66.32
0.125	0.274	-	-48.90	18.85	300	pk	-67.75
See attached diagrams in Annex							
Verdict						**PASS**	

*** Note:** Physical distance between EUT and measurement antenna.

**** Note:** The measurement field strength values stated in the result table above are corrected to obtain the field strength values at the specifed limit distances of the emission limits.

Below 30MHz and extrapolation factor of 40dB/decade is used and at 30MHz and above an extrapolation factor of 20dB/decade is used (47 CRF 15.31(f)).

Due to the fact that the peak emission field-strength is below the average/quasi-peak emission limit, the corresponding average/quasi-peak measurement has been omitted and compliance with the limits is shown for the peak emissions.

5 Receiver parameters

5.1 Receiver spurious emissions

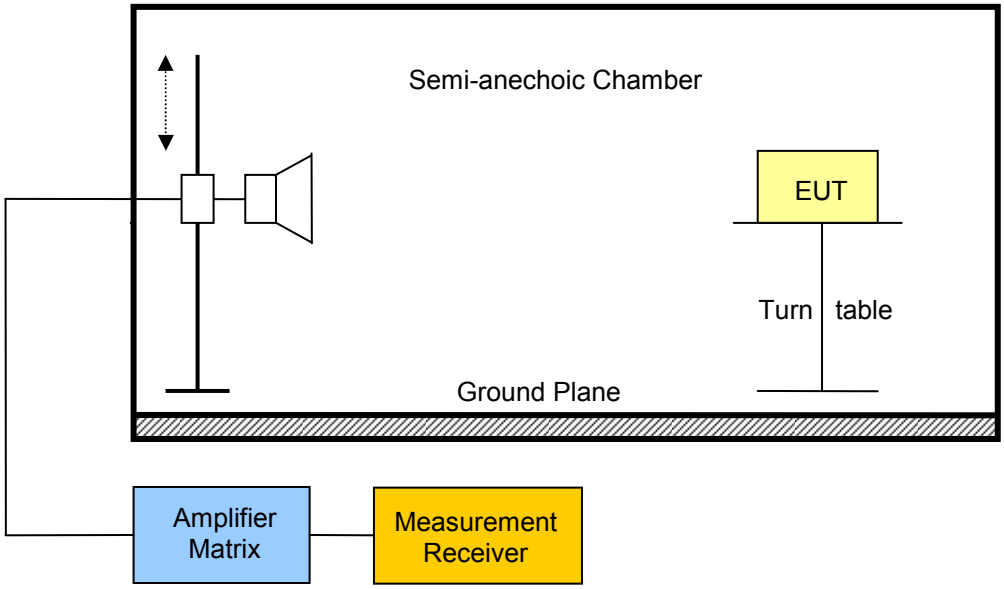
According RSS-Gen Section 4.9 the emissions of unintentional radiators have to comply with limits stated in the rules.

5.1.1 Limits

Receiver spurious emission limits				
Frequency range [MHz]	**Detector**	**Limit [µV/m]**	**Limit [dBµV/m]**	**Limit distance [m]**
30 – 88	Quasi-Peak	100	40	3
88 – 216	Quasi-Peak	150	43.5	3
216 – 960	Quasi-Peak	200	46	3
960 – 1000	Quasi-Peak	500	54	3
> 1000	Average	500	54	3

5.1.2 Measurement procedure

The spurious emission measurement is performed on a 3m open area test site.



The EUT is placed on a non-metallic table. Any emission is received by a loop antenna and measured via a measurement receiver connected to the loop antenna. To obtain the maximum emission the EUT is rotated through 360°.

Due to practical reasons the spurious emission level check is first performed with a peak detector and the quasi-peak and average limits.

If any emission is detected that gets close to the emission limit the detector is changed and the quasi-peak or average detector is used. Which detector is used is determined by the emission frequency. If pulsed transmission is used, averaging over the pulse train is used.

The measurement values are also corrected to obtain the field strength values at the defined measurement distances of the emission limits.

The measurement is performed over the frequency range of 30MHz up to 1GHz.

5.1.3 Results

Receiver spurious Emissions							
Measurement Conditions							
Measurement distance *		3m					
Channel Frequency [MHz]	**Emission Frequency [MHz]**	**Pol.**	**Measured Field Strength [µV/m] ****	**Limit [dBµV/m]**	**Limit distance [m]**	**Det.**	**Margin [dB]**
Model S/N:1386813							
0.125	30	-	0.49	100	3	pk	-99.51
Model S/N: 1386816							
0.125	30	-	0.48	100	3	pk	-99.52
See attached diagrams in Annex							
Verdict						**PASS**	

*** Note:** Physical distance between EUT and measurement antenna.

** **Note:** Receiver mode cannot be isolated from transmitter mode. Therefore the emission level @ 30MHz with the EUT in transmission mode is used to show compliance with the receiver spurious emission limits.

6 Power Line parameters

6.1 AC power line conducted emissions

According FCC rules 47 CFR 15.207 and RSS-Gen Section 7.2.2 for any intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits given below.

6.1.1 Limits

AC power line emission limits		
Frequency [MHz]	**Conducted Limit [dBµV]**	
	Quasi-Peak	**Average**
0.15 – 0.5	66 to 56	56 to 46
0.5 - 5	56	46
5 - 30	60	50

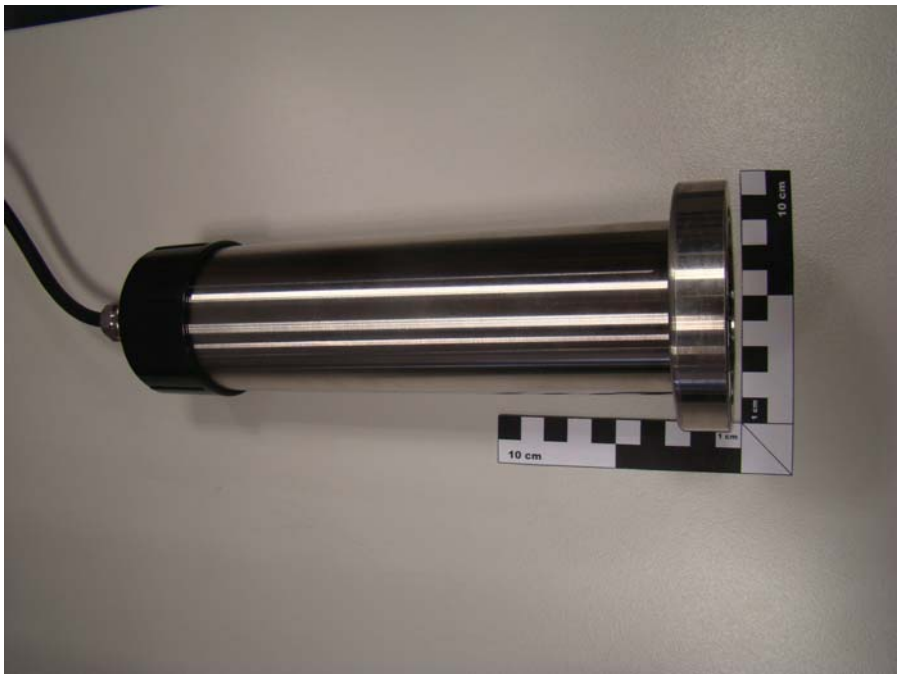
6.1.2 Measurement procedure

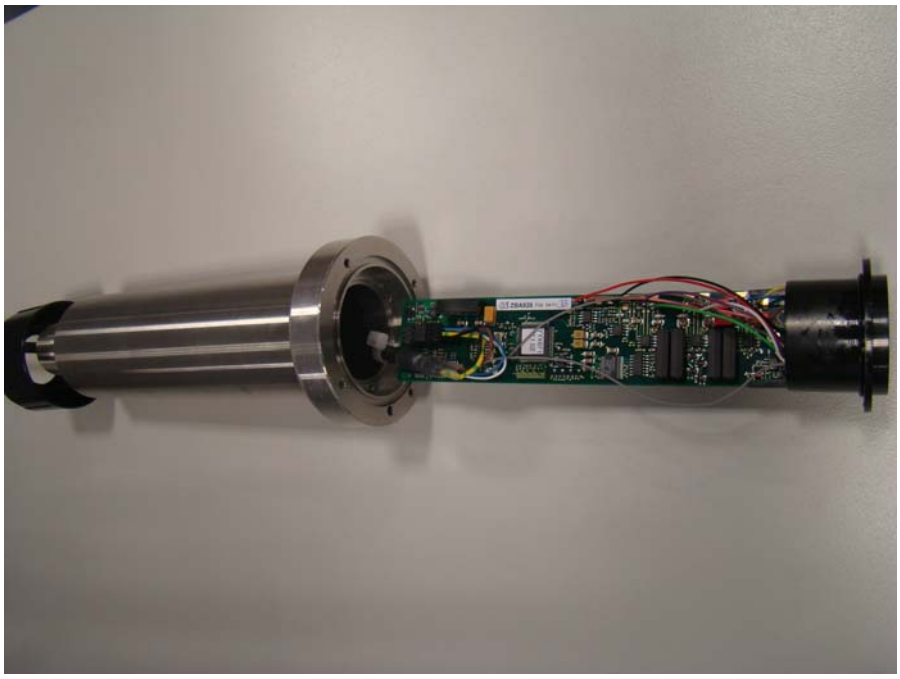
The ac power line emissions are measured using a 50µH / 50Ω line impedance stabilization network (LINS). The radio frequency voltage between each power line and ground at the power terminal is measured.

6.1.3 Results

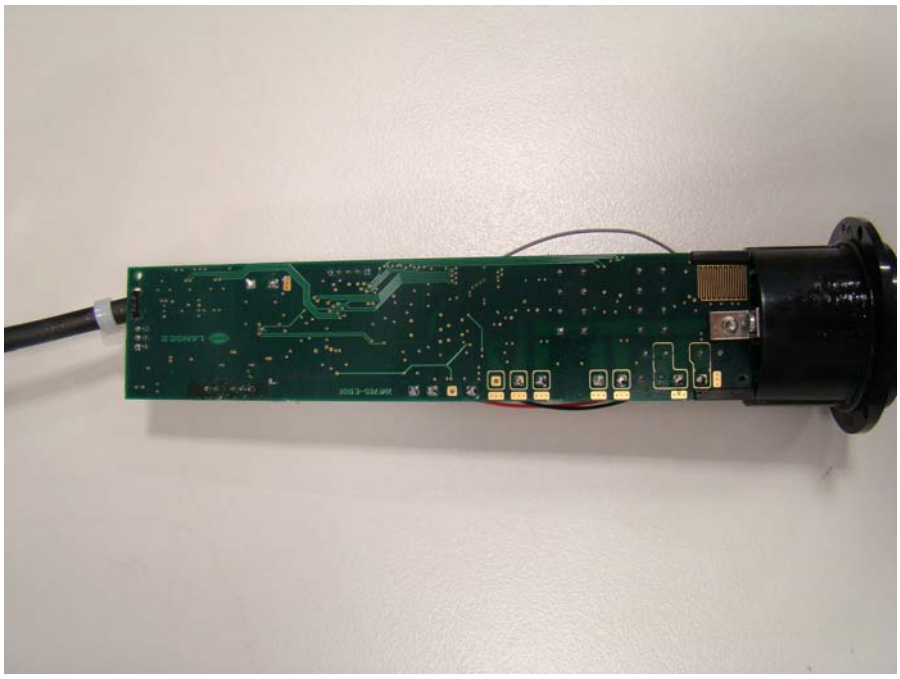
AC power line emissions	
Conducted emission level	
See attached Diagram	
Verdict	**PASS**

Annex A Photos

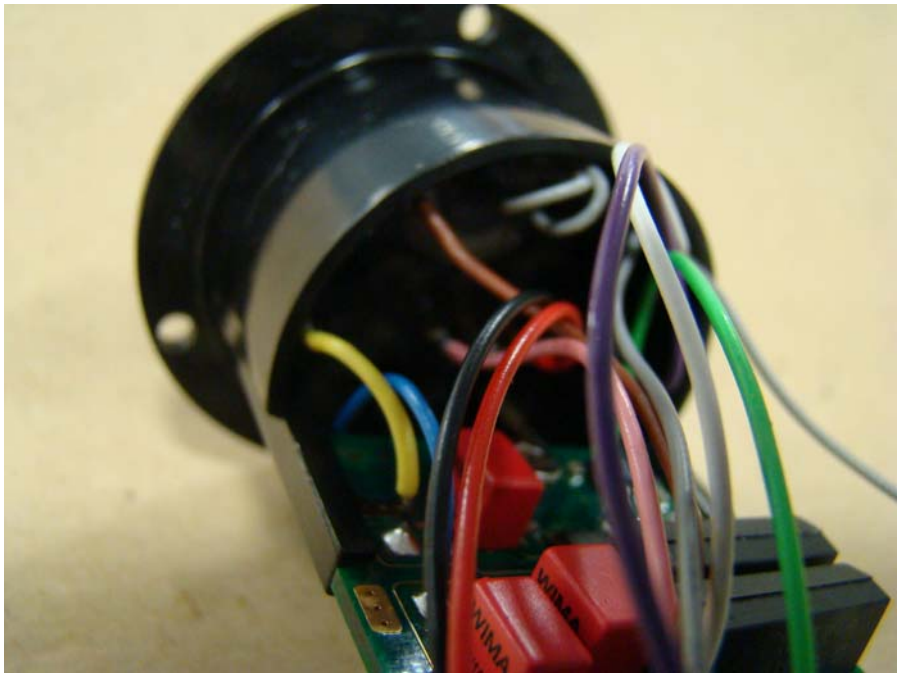
EUT


EUT PCB TOP


EUT PCB BOTTOM

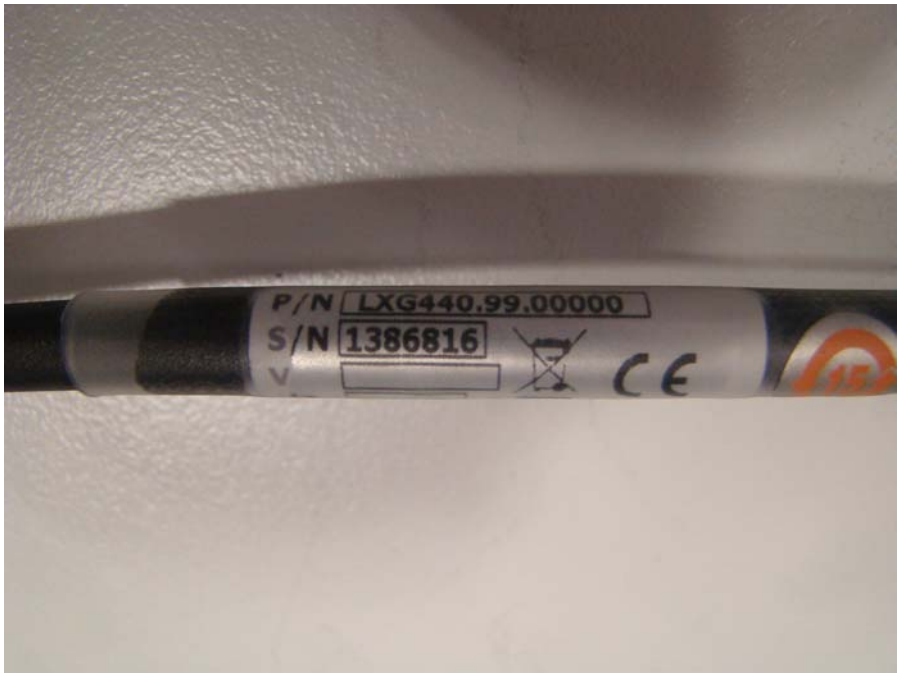


EUT CABELING



EUT ID MODEL S/N:1386813

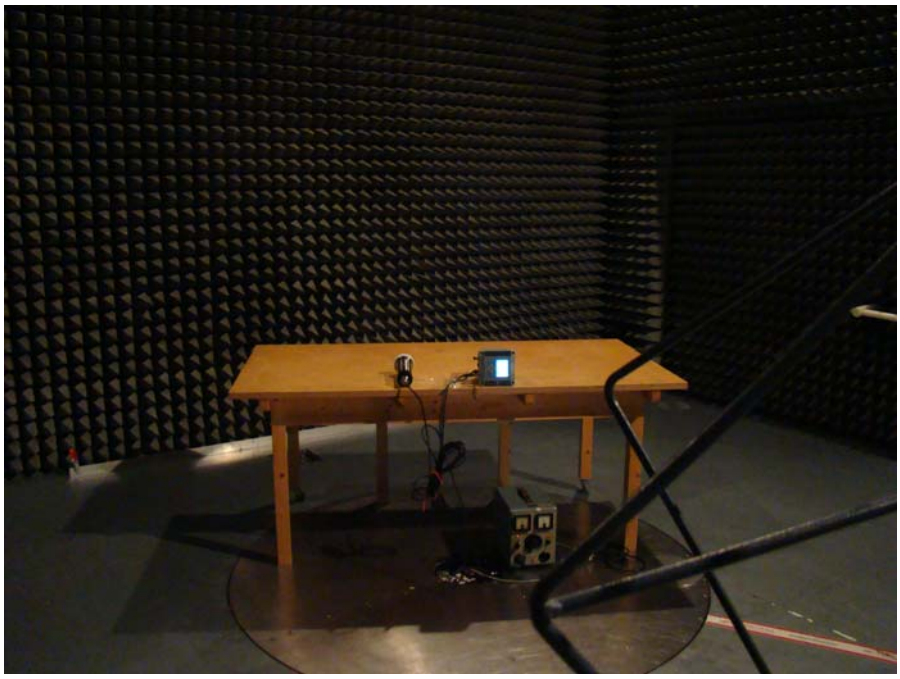
EUT ID MODEL S/N:1386816



DEVICE CONTROLLER


DEVICE CONTROLLER ID


TEST SETUP RADIATED EMISSIONS

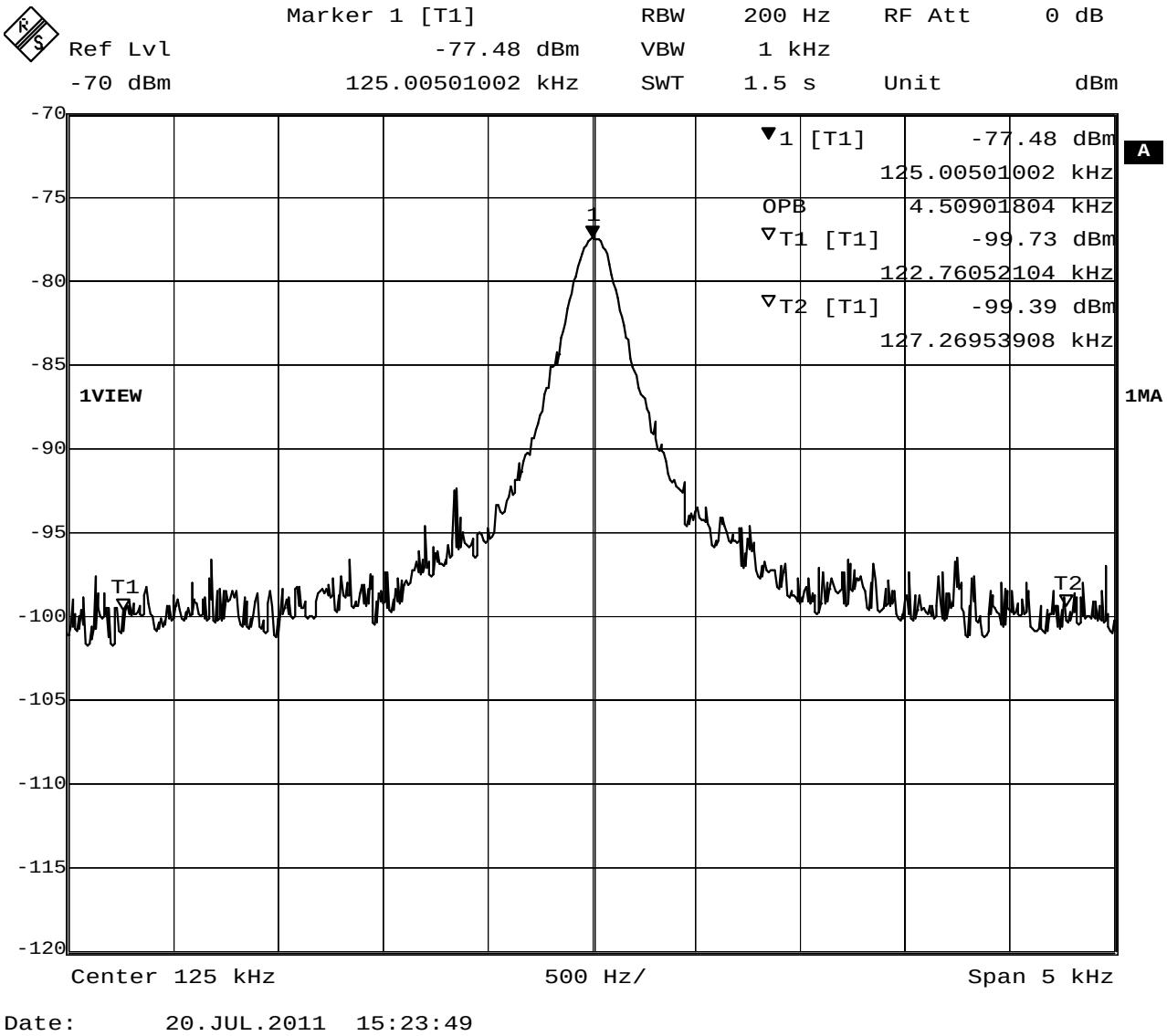


TEST SETUP CONDUCTED EMISSIONS

Annex B Transmitter occupied bandwidth

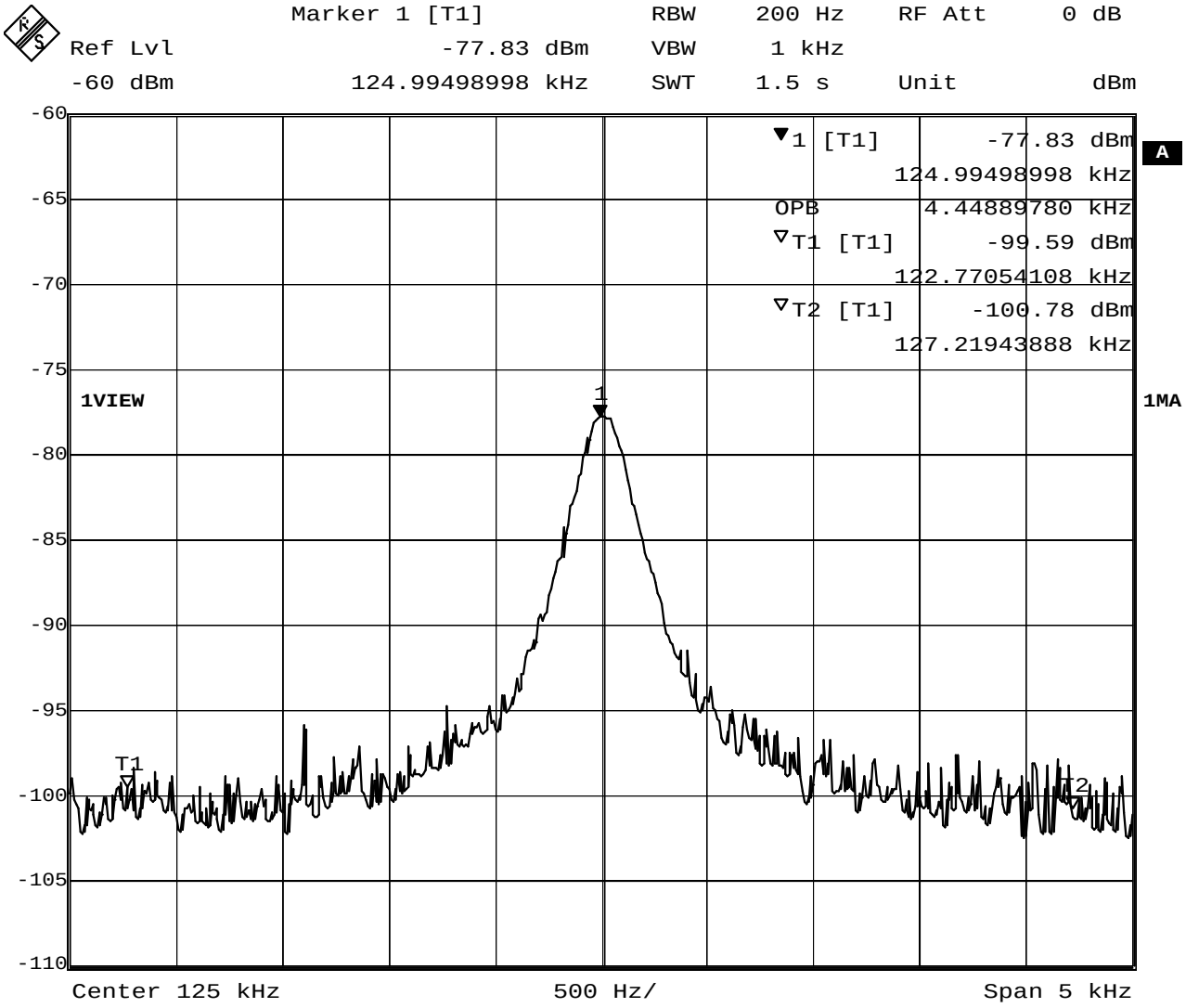
RSS Gen
Occupied Bandwidth

EUT	Measurement probe for water analysis
Model	LXG440 (ser.: ...13)
Approval Holder	HACH LANGE GmbH / G0M-1107-1261
Temperature / Voltage	Tnom: 22°C / Vnom: 12 V DC => controller (SC200)
Test Site / Operator	Eurofins Product Service GmbH / Mr. Handrik
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Frequency 125 kHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used
Comment 3	



RSS Gen
Occupied Bandwidth

EUT	Measurement probe for water analysis
Model	LXG440 (ser.: ...16)
Approval Holder	HACH LANGE GmbH / G0M-1107-1261
Temperature / Voltage	Tnom: 22°C / Vnom: 12 V DC => controller (SC1000)
Test Site / Operator	Eurofins Product Service GmbH / Mr. Handrik
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Frequency 125 kHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used
Comment 3	



Date: 20.JUL.2011 14:42:00

Annex C AC Power line Conducted Emissions

EMI voltage test in the ac-mains according to FCC part 15B

Order number: G0M-1107-1261

Manufacturer:	HACH LANGE GmbH
EUT Name:	Measurement probe for water analysis
Model:	LXG440
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Handrik
Test Conditions:	Tnom: 23°C, Unom: 12 V DC => controller
LISN:	ESH2-Z5 N
Mode:	SC200 controller: LXG404+ANISE probe: LXG440, Ser.: 1386816, (DC-DC Converter PEAK)
Test Date:	20.07.2011
Note:	PASS

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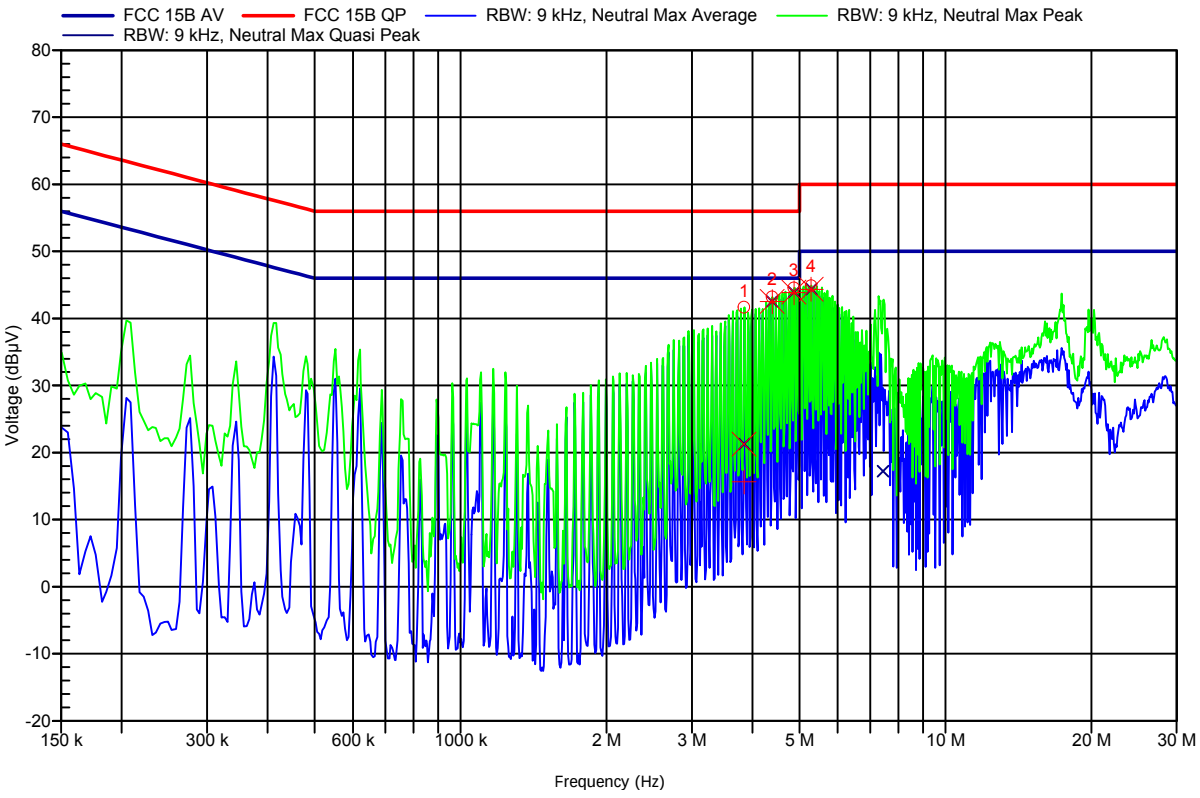

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Status
3,844 MHz	21,27 dBµV	56 dBµV	-34,73 dB	Pass
4,394 MHz	42,55 dBµV	56 dBµV	-13,45 dB	Pass
4,874 MHz	43,93 dBµV	56 dBµV	-12,07 dB	Pass
5,286 MHz	44,38 dBµV	60 dBµV	-15,62 dB	Pass

Frequency	Average	Average Limit	Average Difference	Status
3,844 MHz	15,62 dBµV	46 dBµV	-30,38 dB	Pass
4,394 MHz	42,5 dBµV	46 dBµV	-3,5 dB	Pass
4,874 MHz	43,85 dBµV	46 dBµV	-2,15 dB	Pass
5,286 MHz	44,35 dBµV	50 dBµV	-5,65 dB	Pass

EMI voltage test in the ac-mains according to FCC part 15B

Order number: G0M-1107-1261

Manufacturer:	HACH LANGE GmbH
EUT Name:	Measurement probe for water analysis
Model:	LXG440
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Handrik
Test Conditions:	Tnom: 23°C, Unom: 12 V DC => controller
LISN:	ESH2-Z5 L
Mode:	SC200 controller: LXG404+ANISE probe: LXG440, Ser.: 1386816, (DC-DC Converter PEAK)
Test Date:	20.07.2011
Note:	PASS

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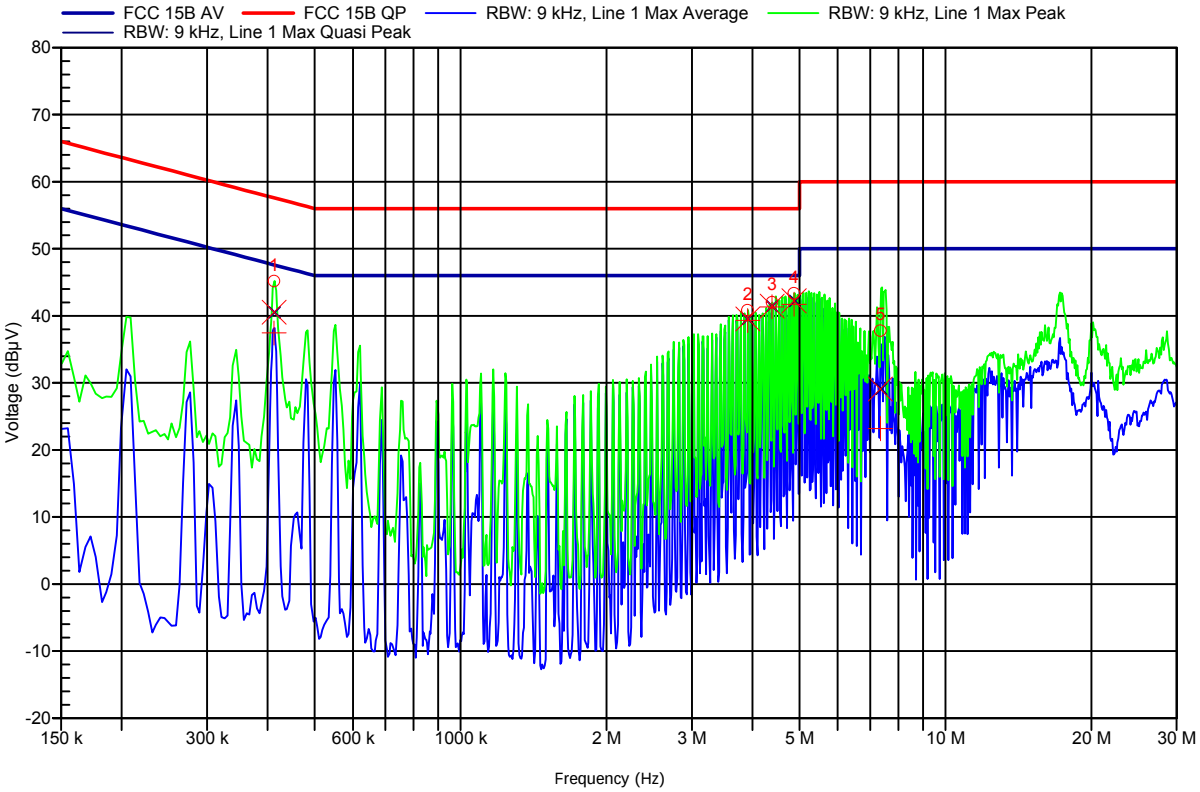

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Status
412,8 kHz	40,53 dBµV	57,59 dBµV	-17,06 dB	Pass
3,912 MHz	39,52 dBµV	56 dBµV	-16,48 dB	Pass
4,393 MHz	41,44 dBµV	56 dBµV	-14,56 dB	Pass
4,875 MHz	42,23 dBµV	56 dBµV	-13,77 dB	Pass
7,348 MHz	29,1 dBµV	60 dBµV	-30,9 dB	Pass

Frequency	Average	Average Limit	Average Difference	Status
412,8 kHz	37,44 dBµV	47,59 dBµV	-10,15 dB	Pass
3,912 MHz	39,32 dBµV	46 dBµV	-6,68 dB	Pass
4,393 MHz	41,35 dBµV	46 dBµV	-4,65 dB	Pass
4,875 MHz	41,71 dBµV	46 dBµV	-4,29 dB	Pass
7,348 MHz	23,19 dBµV	50 dBµV	-26,81 dB	Pass

EMI voltage test in the ac-mains according to FCC part 15B

Order number: G0M-1107-1261

Manufacturer:	HACH LANGE GmbH
EUT Name:	Measurement probe for water analysis
Model:	LXG440
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Handrik
Test Conditions:	Tnom: 23°C, Unom: 12 V DC => controller
LISN:	ESH2-Z5 N
Mode:	SC200 controller: LXG404+ANISE probe: LXG440, Ser.: 1386813, (DC-DC Converter TRACO)
Test Date:	20.07.2011
Note:	PASS

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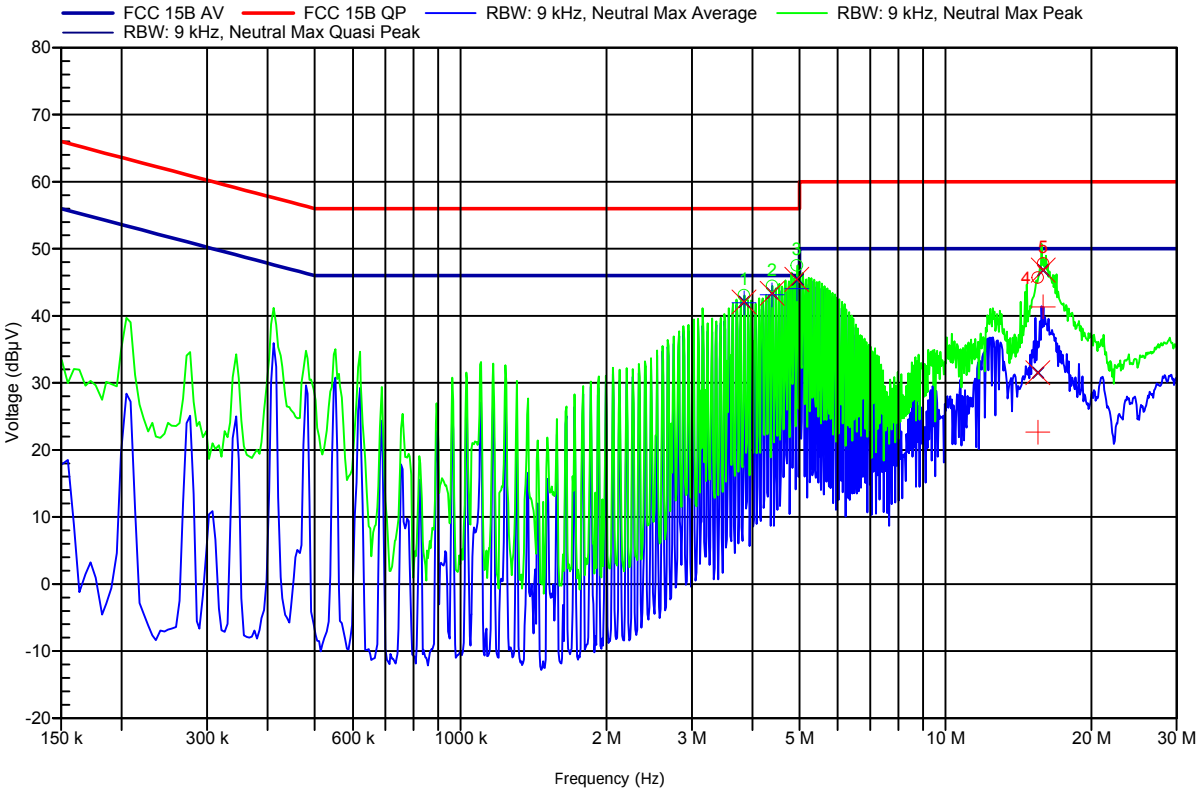

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Status
3,843 MHz	42,09 dBµV	56 dBµV	-13,91 dB	Pass
4,392 MHz	43,37 dBµV	56 dBµV	-12,63 dB	Pass
4,942 MHz	45,43 dBµV	56 dBµV	-10,57 dB	Pass
15,514 MHz	31,52 dBµV	60 dBµV	-28,48 dB	Pass
15,915 MHz	46,82 dBµV	60 dBµV	-13,18 dB	Pass

Frequency	Average	Average Limit	Average Difference	Status
3,843 MHz	41,93 dBµV	46 dBµV	-4,07 dB	Pass
4,392 MHz	43,13 dBµV	46 dBµV	-2,87 dB	Pass
4,942 MHz	44,04 dBµV	46 dBµV	-1,96 dB	Pass
15,514 MHz	22,64 dBµV	50 dBµV	-27,36 dB	Pass
15,915 MHz	41,35 dBµV	50 dBµV	-8,65 dB	Pass

EMI voltage test in the ac-mains according to FCC part 15B

Order number: G0M-1107-1261

Manufacturer:	HACH LANGE GmbH
EUT Name:	Measurement probe for water analysis
Model:	LXG440
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Handrik
Test Conditions:	Tnom: 23°C, Unom: 12 V DC => controller
LISN:	ESH2-Z5 L
Mode:	SC200 controller: LXG404+ANISE probe: LXG440, Ser.: 1386813, (DC-DC Converter TRACO)
Test Date:	20.07.2011
Note:	PASS

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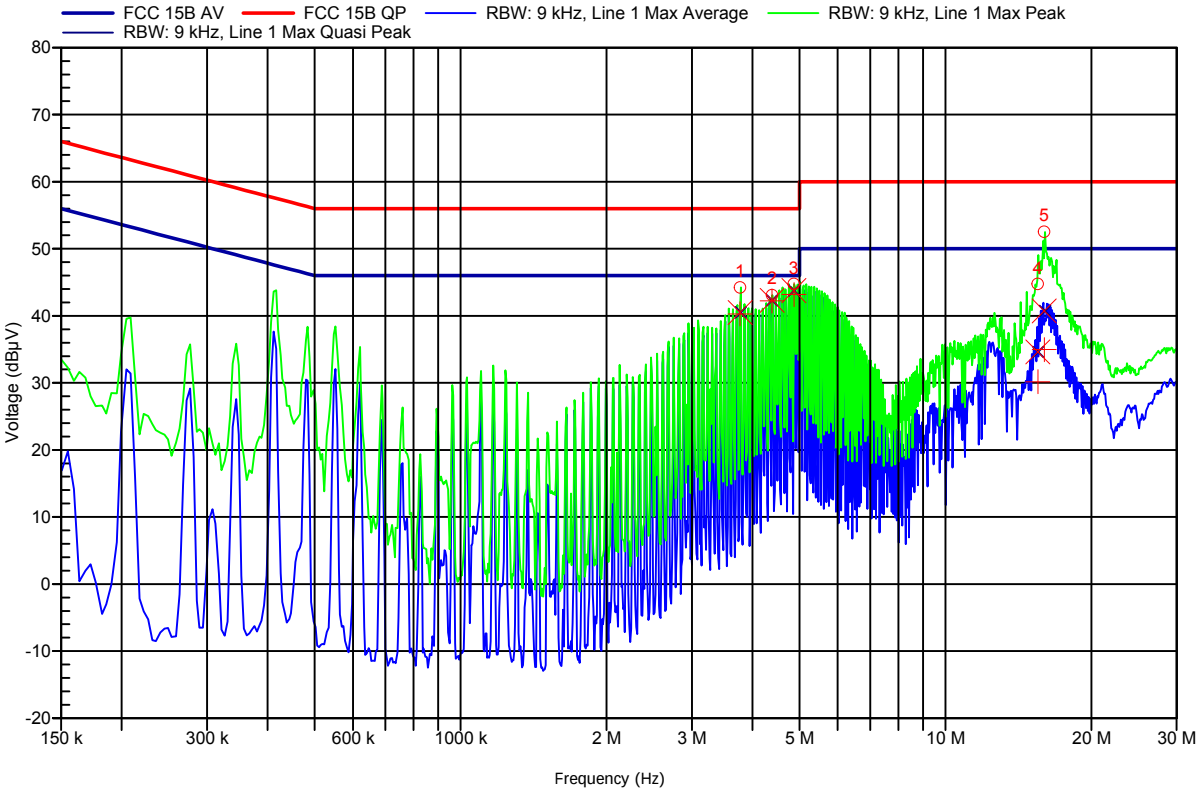


Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Status
3,772 MHz	40,51 dBµV	56 dBµV	-15,49 dB	Pass
4,393 MHz	42,3 dBµV	56 dBµV	-13,7 dB	Pass
4,873 MHz	43,75 dBµV	56 dBµV	-12,25 dB	Pass
15,513 MHz	34,61 dBµV	60 dBµV	-25,39 dB	Pass
15,994 MHz	40,72 dBµV	60 dBµV	-19,28 dB	Pass

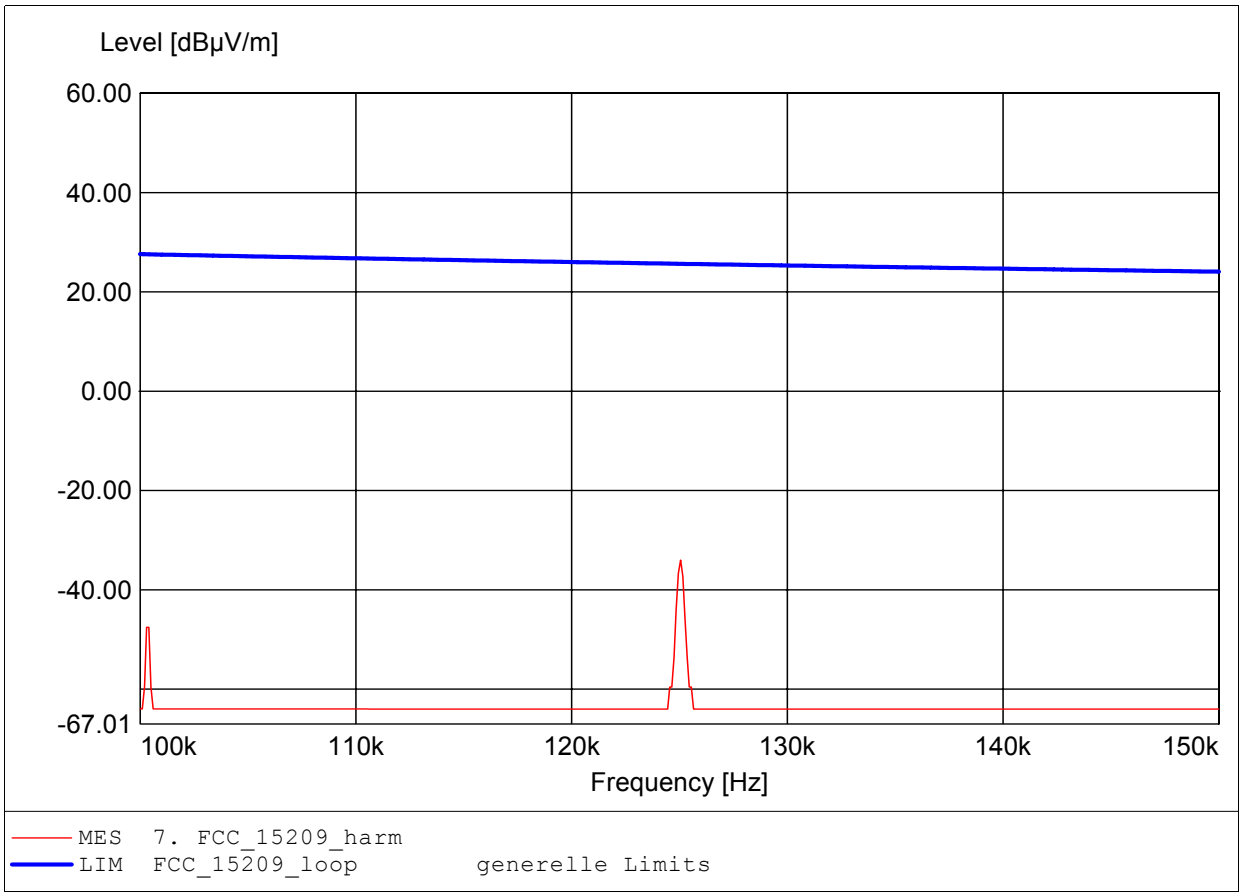
Frequency	Average	Average Limit	Average Difference	Status
3,772 MHz	40,3 dBµV	46 dBµV	-5,7 dB	Pass
4,393 MHz	42,22 dBµV	46 dBµV	-3,78 dB	Pass
4,873 MHz	43,18 dBµV	46 dBµV	-2,82 dB	Pass
15,513 MHz	30,17 dBµV	50 dBµV	-19,83 dB	Pass
15,994 MHz	34,97 dBµV	50 dBµV	-15,03 dB	Pass

Annex D Fundamental emissions

Carrier power (Field Strength)

FCC RULES PART 15, SUBPART C

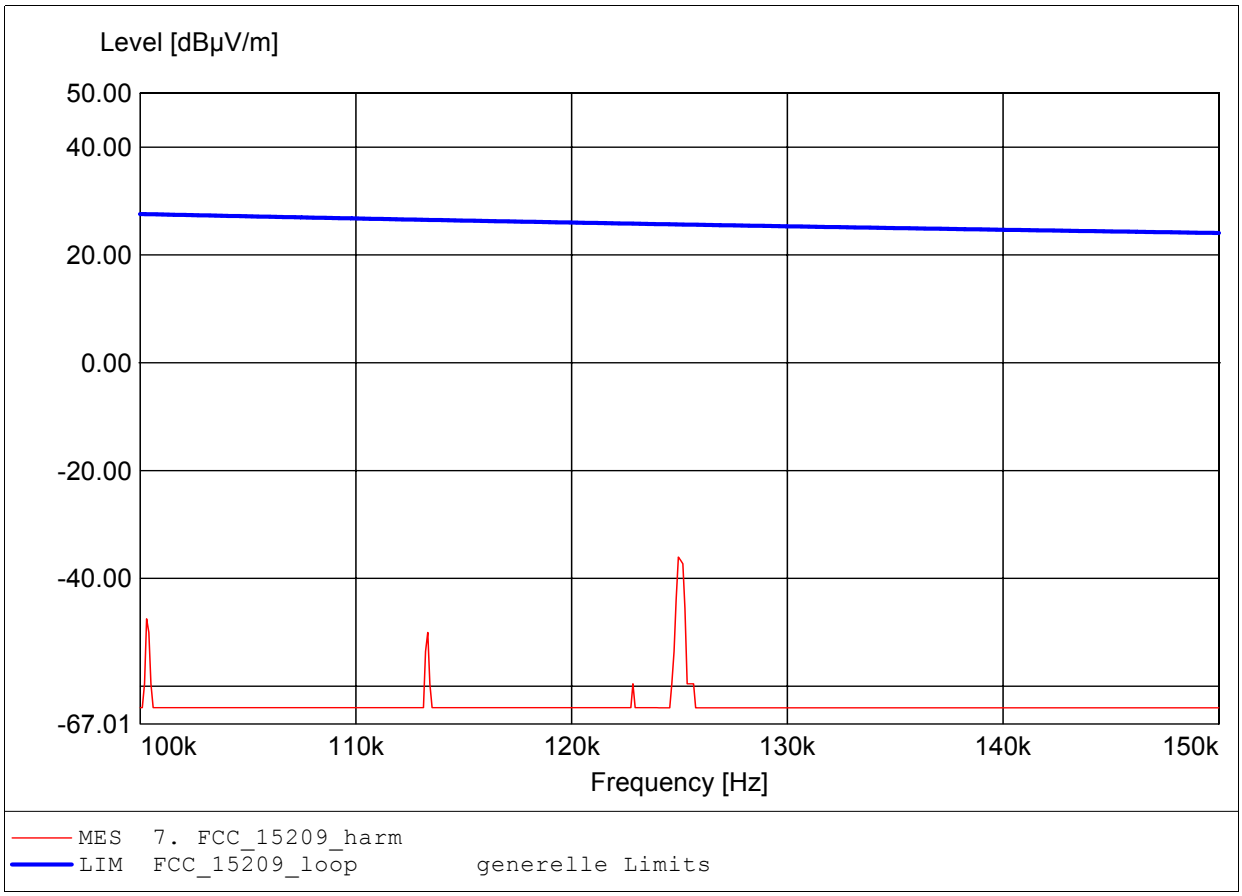
```
Approval Holder:     HACH LANGE GmbH / G0M-1107-1261
EUT:                 Measurement probe for water analysis
Model:               LXG440 (ser.: ...13)
Operator:            Eurofins Product Service GmbH   /   Mr. Handrik
Test Conditions:     Tnom: 22°C / Vnom: 12 V DC => controller (SC200)
Test Specification: according to §15.209, peak detector
Comment 1:           Dist.: 10m, Ant.: HFH2-Z2
Comment 2:           Freq: 125.050kHz, Emax: -33.99dBµV/m, RBW: 10kHz
```



Carrier power (Field Strength)

FCC RULES PART 15, SUBPART C

```
Approval Holder:     HACH LANGE GmbH / G0M-1107-1261
EUT:                 Measurement probe for water analysis
Model:               LXG440 (ser.: ...16)
Operator:            Eurofins Product Service GmbH   /   Mr. Handrik
Test Conditions:     Tnom: 22°C / Vnom: 12 V DC => controller (SC1000)
Test Specification: according to §15.209, peak detector
Comment 1:           Dist.: 10m, Ant.: HFH2-Z2
Comment 2:           Freq: 124.950kHz, Emax: -36.04dBµV/m, RBW: 10kHz
```

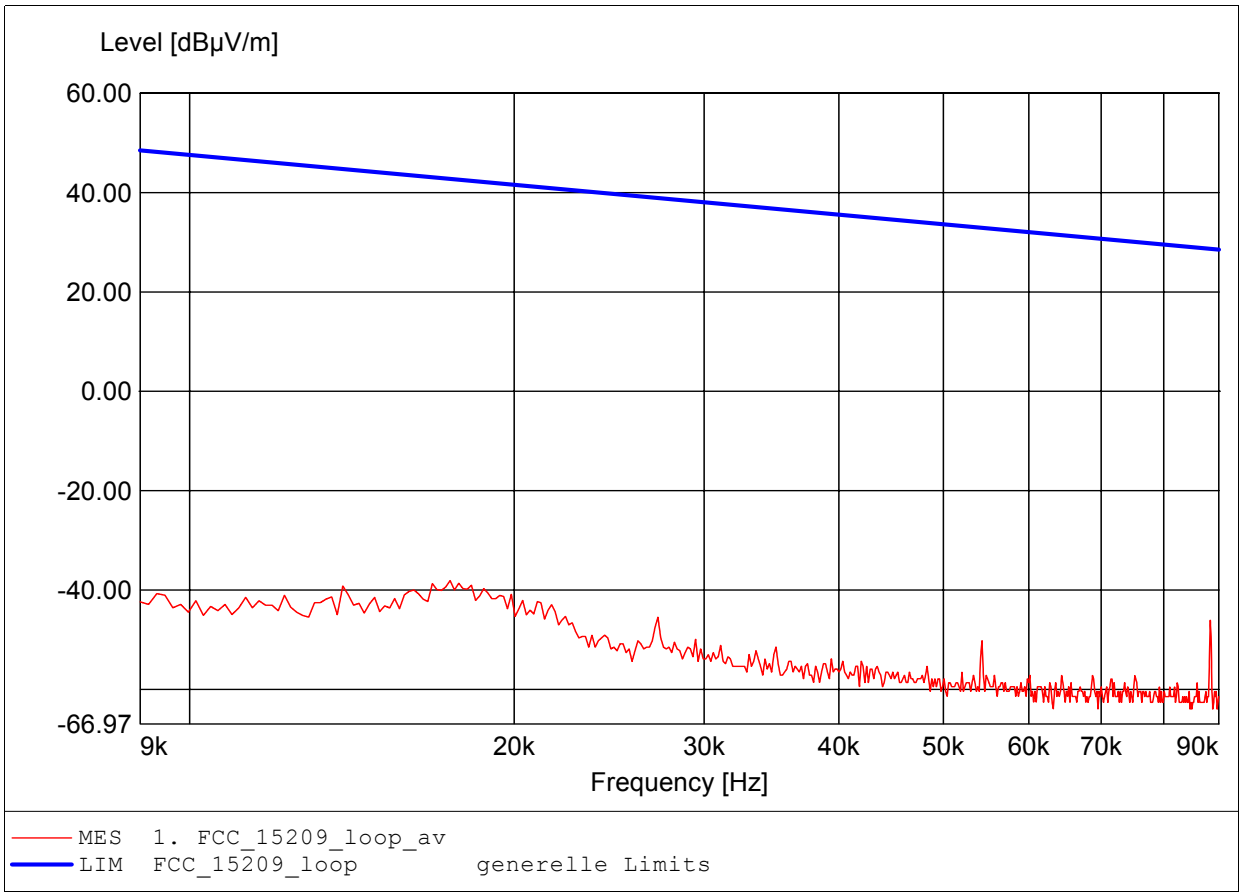


Annex E Transmitter radiated emissions

Spurious emissions Field Strength Tx

FCC RULES PART 15, SUBPART C

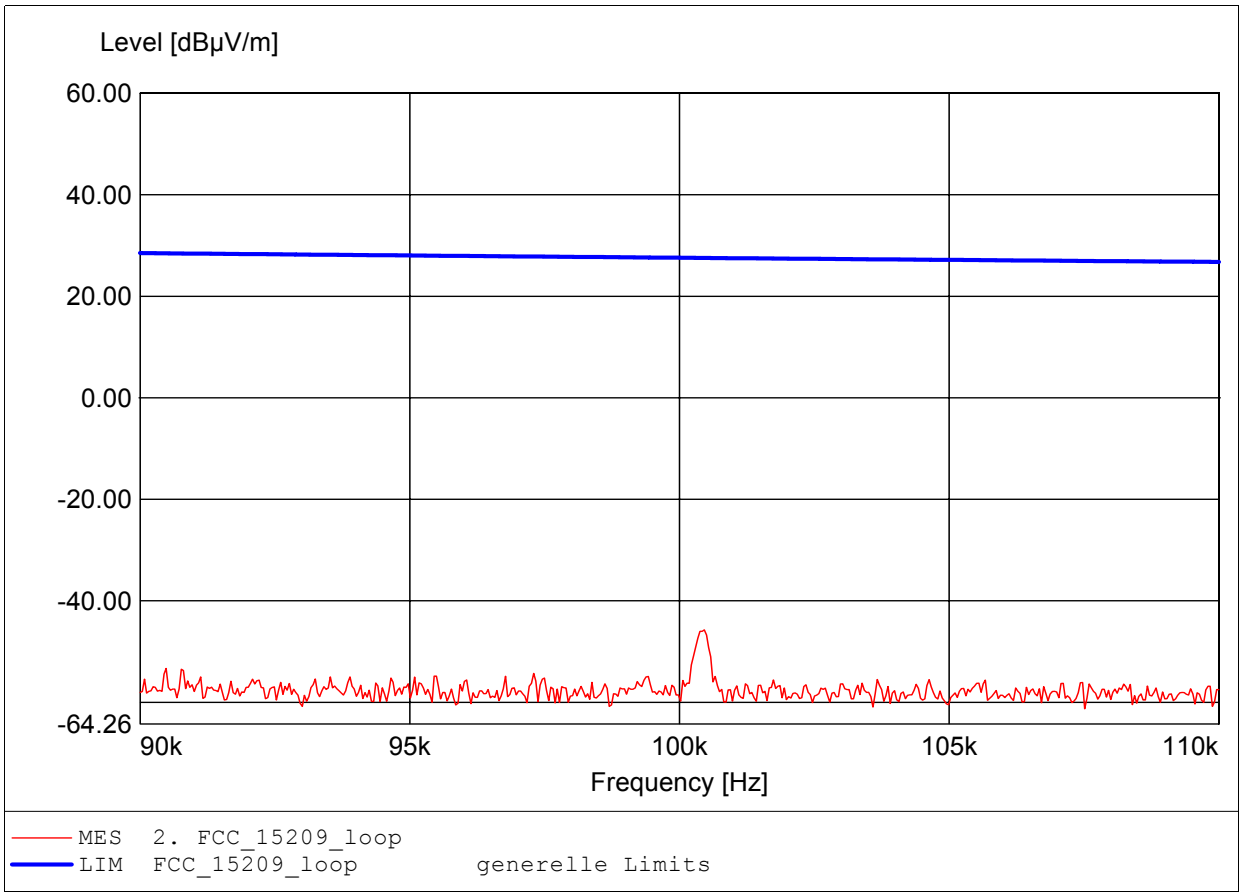
```
Approval Holder:     HACH LANGE GmbH / G0M-1107-1261
EUT:                 Measurement probe for water analysis
Model:               LXG440 (ser.: ...13)
Operator:            Eurofins Product Service GmbH   /   Mr. Handrik
Test Conditions:     Tnom: 22°C / Vnom: 12 V DC => controller (SC200)
Test Specification: according to §15.209, average detector
Comment 1:           Dist.: 300m, Ant.: HFH2-Z2
Comment 2:           Freq: 17.441kHz, Emax: -38.10dBµV/m, RBW: 200Hz
```



Spurious emissions Field Strength Tx

FCC RULES PART 15, SUBPART C

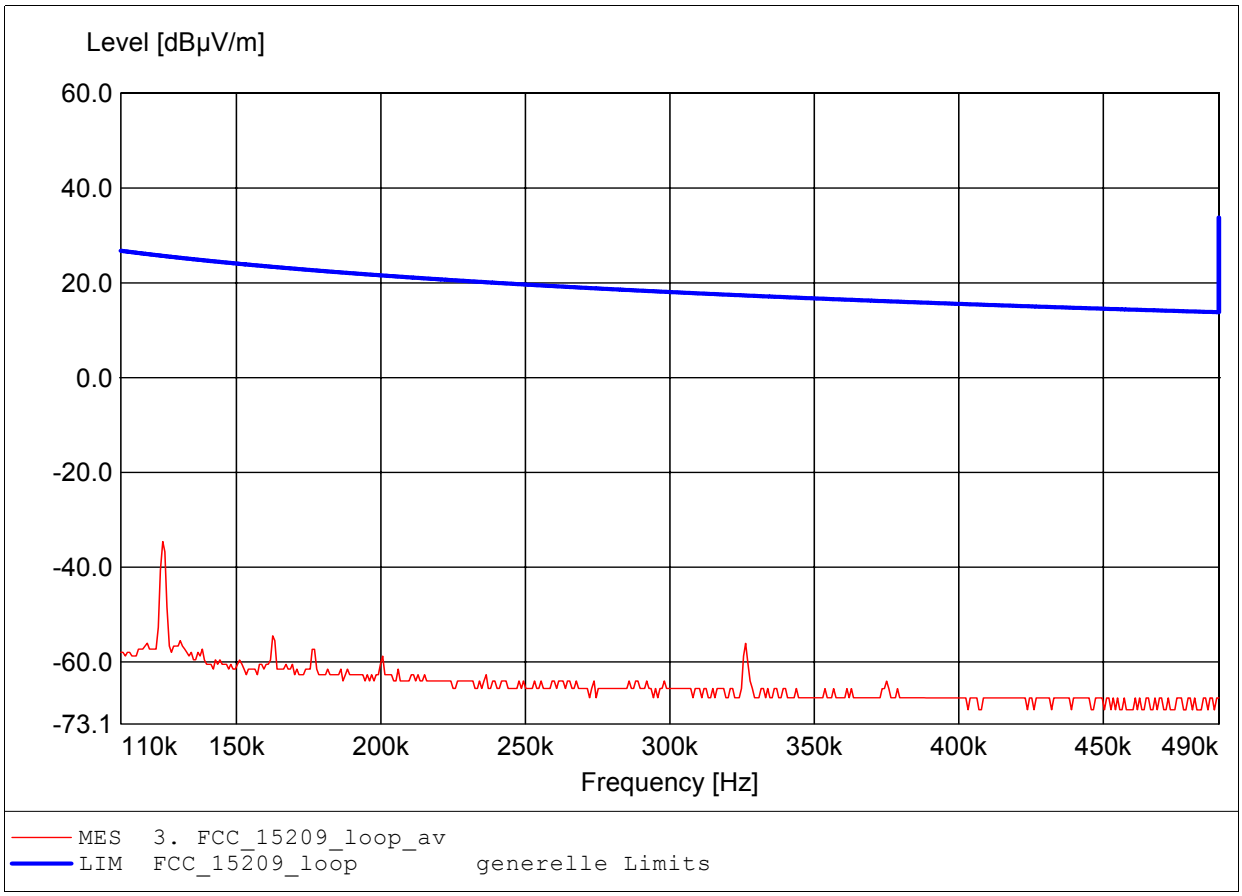
```
Approval Holder:     HACH LANGE GmbH / G0M-1107-1261
EUT:                 Measurement probe for water analysis
Model:               LXG440 (ser.: ...13)
Operator:            Eurofins Product Service GmbH   /   Mr. Handrik
Test Conditions:     Tnom: 22°C / Vnom: 12 V DC => controller (SC200)
Test Specification: according to §15.209, peak detector
Comment 1:           Dist.: 300m, Ant.: HFH2-Z2
Comment 2:           Freq: 100.461kHz, Emax: -45.71dBµV/m, RBW: 200Hz
```



Spurious emissions Field Strength Tx

FCC RULES PART 15, SUBPART C

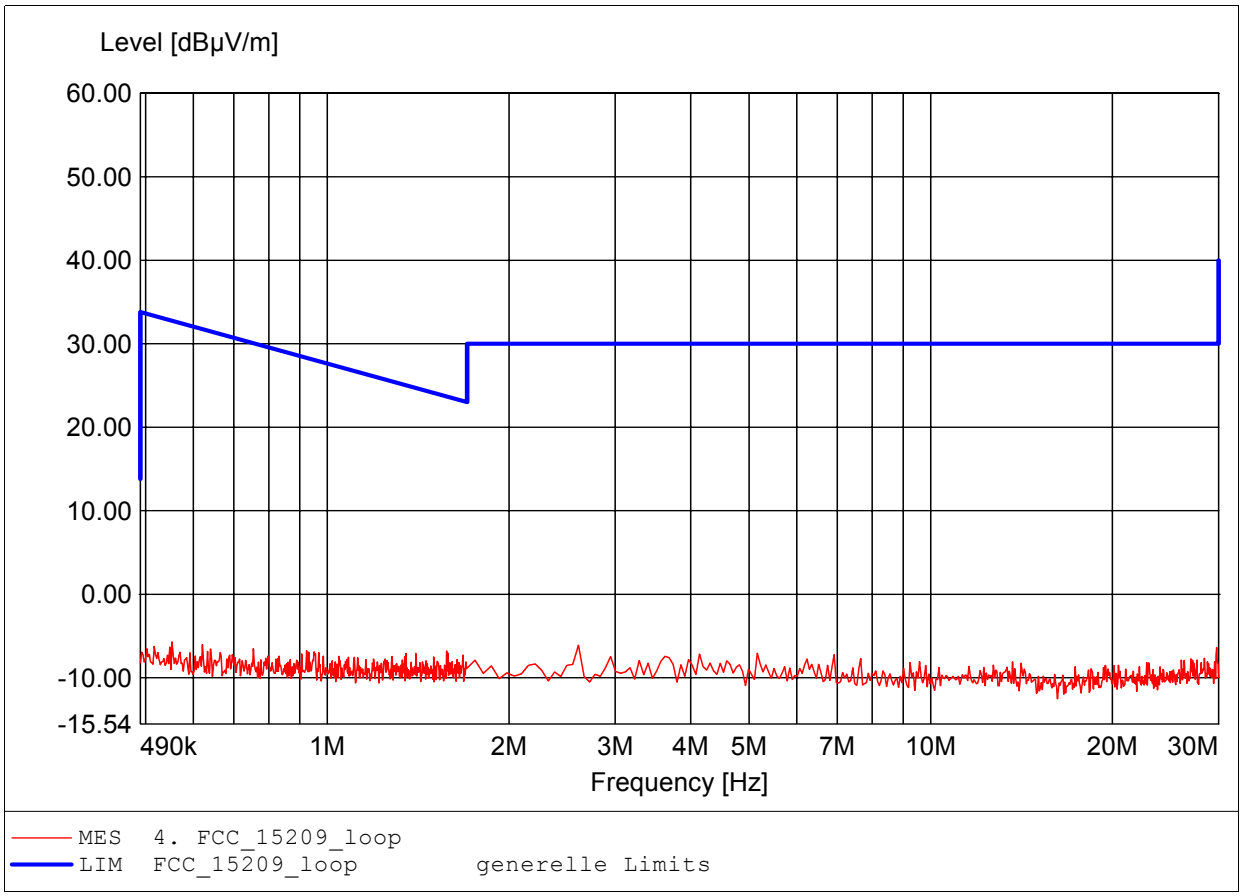
```
Approval Holder:     HACH LANGE GmbH / G0M-1107-1261
EUT:                 Measurement probe for water analysis
Model:               LXG440 (ser.: ...13)
Operator:            Eurofins Product Service GmbH   /   Mr. Handrik
Test Conditions:     Tnom: 22°C / Vnom: 12 V DC => controller (SC200)
Test Specification: according to §15.209, average detector
Comment 1:           Dist.: 300m, Ant.: HFH2-Z2
Comment 2:           Freq: 124.469kHz, Emax: -34.61dBµV/m, RBW: 200Hz
```



Spurious emissions Field Strength Tx

FCC RULES PART 15, SUBPART C

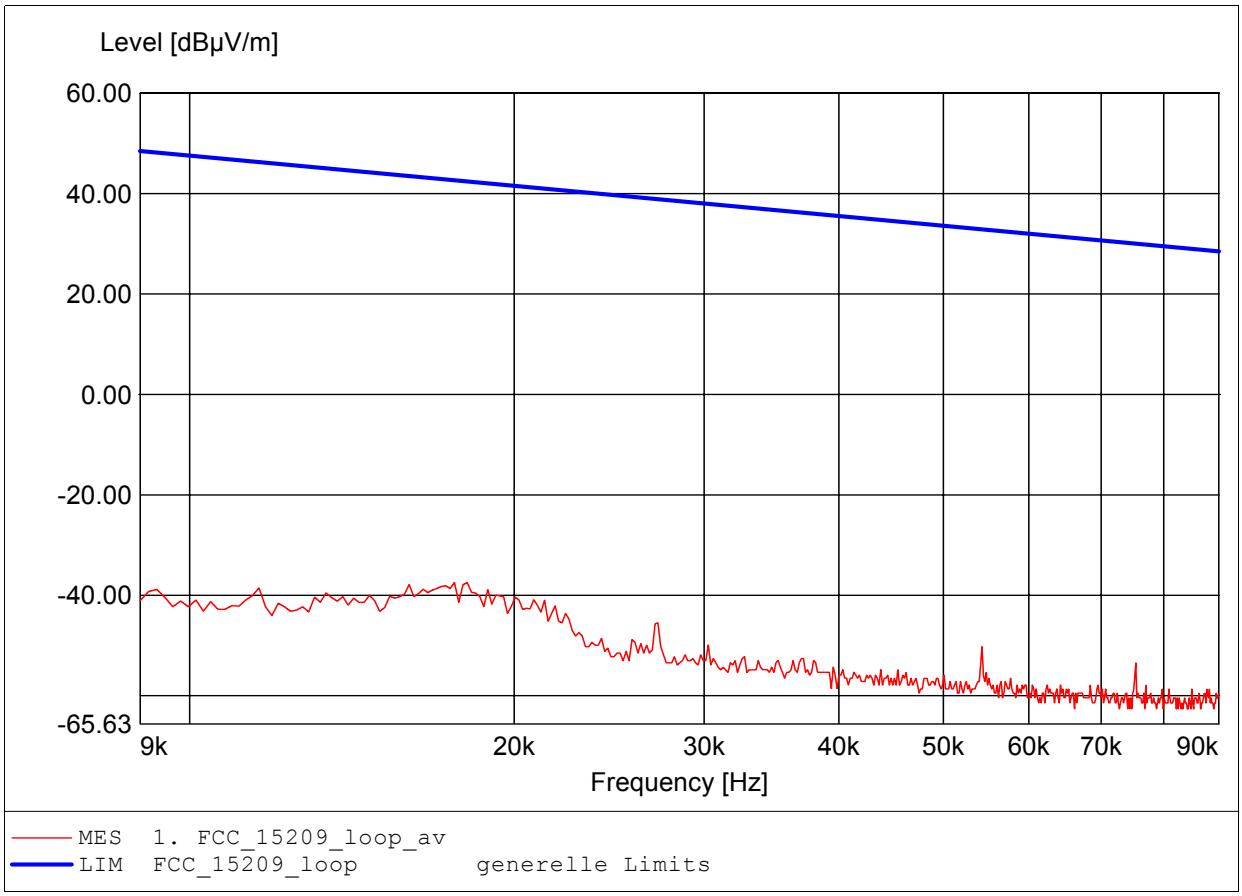
```
Approval Holder:     HACH LANGE GmbH / G0M-1107-1261
EUT:                 Measurement probe for water analysis
Model:               LXG440 (ser.: ...13)
Operator:            Eurofins Product Service GmbH   /   Mr. Handrik
Test Conditions:     Tnom: 22°C / Vnom: 12 V DC => controller (SC200)
Test Specification: according to §15.209, peak detector
Comment 1:           Dist.: 30m, Ant.: HFH2-Z2
Comment 2:           Freq: 553.046kHz, Emax: -5.71dBµV/m, RBW: 10kHz
```



Spurious emissions Field Strength Tx

FCC RULES PART 15, SUBPART C

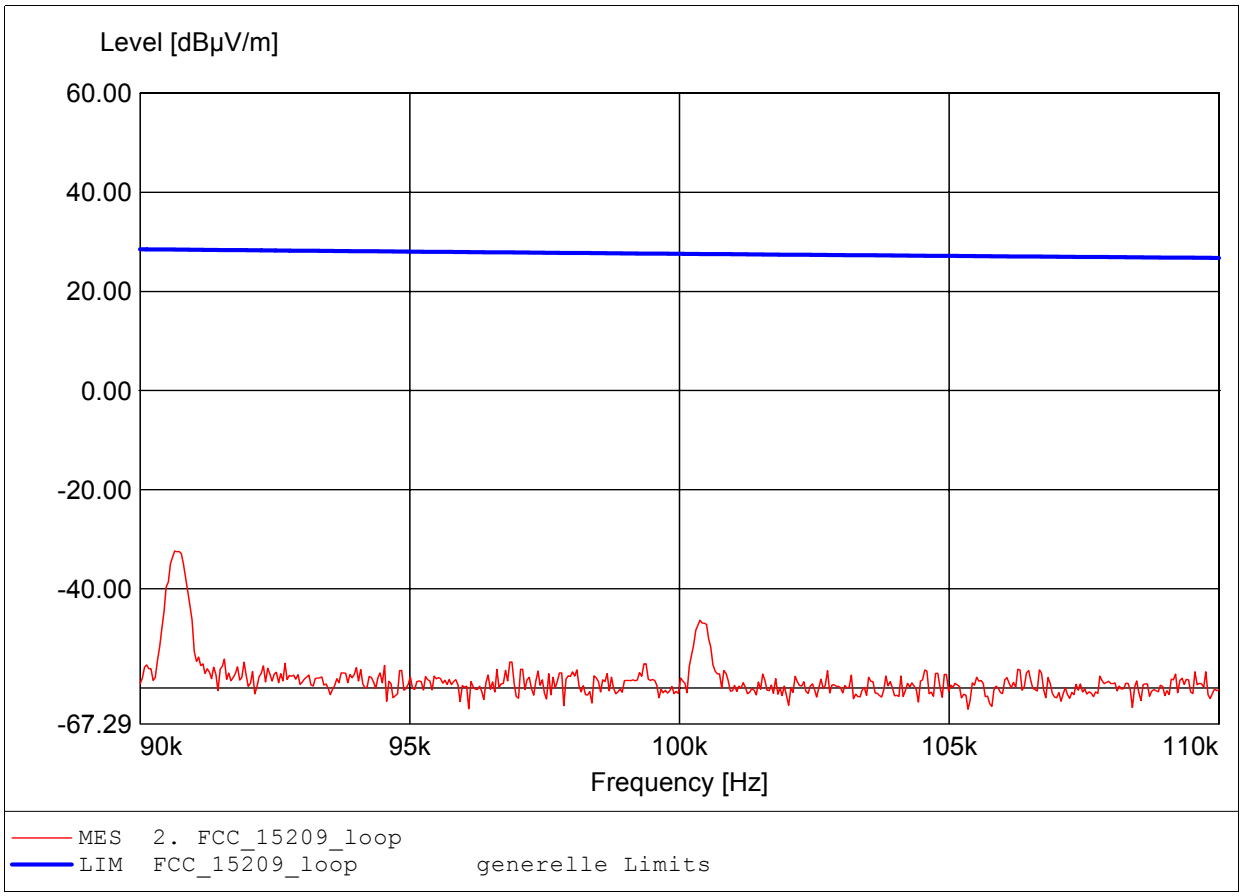
```
Approval Holder:     HACH LANGE GmbH / G0M-1107-1261
EUT:                 Measurement probe for water analysis
Model:               LXG440 (ser.: ...16)
Operator:            Eurofins Product Service GmbH   /   Mr. Handrik
Test Conditions:     Tnom: 22°C / Vnom: 12 V DC => controller (SC1000)
Test Specification: according to §15.209, average detector
Comment 1:           Dist.: 300m, Ant.: HFH2-Z2
Comment 2:           Freq: 17.603kHz, Emax: -37.46dBµV/m, RBW: 200Hz
```



Spurious emissions Field Strength Tx

FCC RULES PART 15, SUBPART C

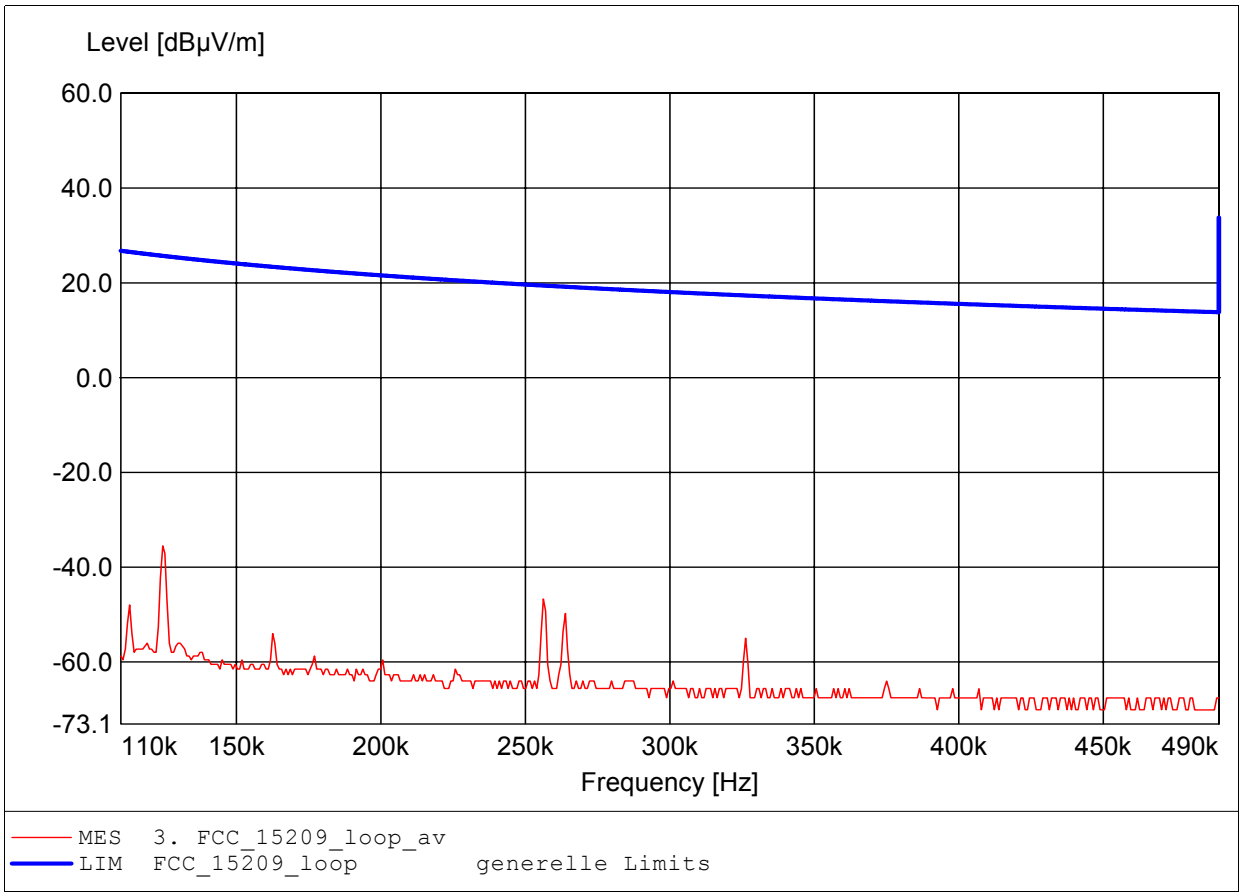
```
Approval Holder:     HACH LANGE GmbH / G0M-1107-1261
EUT:                 Measurement probe for water analysis
Model:               LXG440 (ser.: ...16)
Operator:            Eurofins Product Service GmbH   /   Mr. Handrik
Test Conditions:     Tnom: 22°C / Vnom: 12 V DC => controller (SC1000)
Test Specification: according to §15.209, peak detector
Comment 1:           Dist.: 300m, Ant.: HFH2-Z2
Comment 2:           Freq: 90.641kHz, Emax: -32.37dBµV/m, RBW: 200Hz
```



Spurious emissions Field Strength Tx

FCC RULES PART 15, SUBPART C

```
Approval Holder:     HACH LANGE GmbH / G0M-1107-1261
EUT:                 Measurement probe for water analysis
Model:               LXG440 (ser.: ...16)
Operator:            Eurofins Product Service GmbH   /   Mr. Handrik
Test Conditions:     Tnom: 22°C / Vnom: 12 V DC => controller (SC1000)
Test Specification: according to §15.209, average detector
Comment 1:           Dist.: 300m, Ant.: HFH2-Z2
Comment 2:           Freq: 124.469kHz, Emax: -35.48dBµV/m, RBW: 200Hz
```



Spurious emissions Field Strength Tx

FCC RULES PART 15, SUBPART C

```
Approval Holder:     HACH LANGE GmbH / G0M-1107-1261
EUT:                 Measurement probe for water analysis
Model:               LXG440 (ser.: ...16)
Operator:            Eurofins Product Service GmbH   /   Mr. Handrik
Test Conditions:     Tnom: 22°C / Vnom: 12 V DC => controller (SC1000)
Test Specification: according to §15.209, peak detector
Comment 1:           Dist.: 30m, Ant.: HFH2-Z2
Comment 2:           Freq: 819.780kHz, Emax: -4.15dBµV/m, RBW: 10kHz
```