



EUROFINS PRODUCT SERVICE GMBH



Certificate #1983.01

TEST - REPORT

**FCC RULES PARTS 15.247
IC RADIO STANDARDS RSS-210**

**FCC ID: X6O-AAC00XX
IC: 5895F-AAC00XX**

**Model Name:
Area Monitor / AAC 00xx**

Test report no.:G0M20910-2625-P-15



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

**Phone +49-33631-888 0
Fax +49-33631-888 660**

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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.

Eurofins Product Service GmbH is not responsible for any generalisations and conclusions drawn from this report. Any modification of the test item can lead to invalidity of test results and this test report may therefore be not applicable to the modified test item.

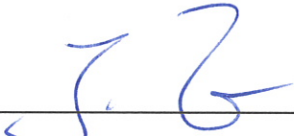
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Operator:

17.02.2010		W. Treffke	
<hr/>			
Date	Eurofins Lab.	Name	Signature

Technical responsibility for area of testing:

17.02.2010		J. Zimmermann	
<hr/>			
Date		Name	Signature

1.2 Testing laboratory

1.2.1 Location

Eurofins Product Service GmbH
Storkower Straße 38c
D-15526 Reichenwalde b. Berlin
Germany
Telephone : +49 33631 888 00
Telefax : +49 33631 888 660

1.2.2 Details of accreditation status

DAR ACCREDITED TESTING LABORATORY
DAR-REGISTRATION NUMBER: DAT-P-268/08

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

1.3 Details of approval holder

Name	: Dräger Safety AG & Co. KGaA
Street	: Revalstrasse 1
Town	: 23560 Lübeck
Country	: Germany
Telephone	: +49 451 882-3329
Fax	: +49 451 882-73329
Contact	: Herr Volker Kuhn
E-Mail	: +49 451 882-3329

1.4 Application details

Date of receipt of application : 17.12.2009
Date of receipt of test item : 17.12.2009
Date of test : 17.12.2009 – 18.12.2009; 17.02.2010

1.5 Test item

Description of test item : Area Monitor
Type identification : AAC 00xx
Hardware version : 8320601-06 / 8320611-03
Software version : 8320670 Version 1.05 DUT
Serial number : without
Photos : See annex A.

Technical data

Frequency band : 902 MHz – 928 MHz
Frequency (ch A) : 917 MHz
Frequency (ch B) : 921.5 MHz
Frequency (ch C) : 926 MHz
Operating Modes : duplex
Type of modulation : GFSK
Data Rate: : 125Kbps
Duty Cycle : 100% in test mode / <1% in normal mode
Power supply : 6 V DC Battery (lead acid) & 120V AC/DC adapter
AC/DC Adapter Type: FW7362/12
Input: 100 – 240V / 50 – 60Hz / 700mA
Output : 15V / 2A
Antenna : internal antenna
Antenna gain : 1 dBi
Host device : none

Classification :

Fixed Device	<input type="checkbox"/>
Mobile Device (Human Body distance > 20cm)	<input type="checkbox"/>
Portable Device (Human Body distance < 20cm)	<input checked="" type="checkbox"/>

<u>Transmitter</u>	<u>Unom</u>	<u>Umin</u>	<u>Umax</u>
Power (ch A)	: Conducted: 14.98 dBm	Conducted: 14.97 dBm	Conducted: 14.97 dBm
Power (ch B)	: Conducted: 14.88 dBm	Conducted: 14.89 dBm	Conducted: 14.88 dBm
Power (ch C)	: Conducted: 14.81 dBm	Conducted: 14.81 dBm	Conducted: 14.81 dBm

Manufacturer:
(if applicable)

Name : lesswire AG
 Street : Im Technologiepark 1
 Town : 15236 Frankfurt (Oder)
 Country : Germany

Additional information: The scheme for frequency generation, spectrum spreading, receiver parameters, synchronization procedure, and other parameters are determined by the mentioned standard above.

1.6 Test standards

Technical standard : FCC Parts: 15.247
IC Standards: RSS 210 Issue 7

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 : 23°C
Relative humidity content : 20 ... 75 %
Air pressure : 86 ... 103 kPa
Details of power supply : 6VDC Battery (lead acid)

Extrem conditions parameters: : test voltage - extreme min.: 5.5 VDC
max: 6.6 VDC

Extreme test voltages were declared by manufacturer.

2.3 Test equipment utilized

No.	Test equipment	Type	Manufacturer
ETS 0012	Biconical Antenna	HK 116	R & S
ETS 0013	LPD Antenna	HL 223	R & S
ETS 0014	Log Periodical Antenna	HL 025	R & S
ETS 0018	Horn antenna	BBHA 9120 D	Schwarzbeck
ETS 0271	Spectrum Analyzer	FSEK 30	R & S
ETS 0288	Artificial mains	ESH2-Z5	R & S
ETS 0311	Anechoic chamber	AC 4	Frankonia
ETS 0474	EMI Test Receiver	ESCS 30	R&S

2.4 General test procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-2003 5.2 using a 50 μ H LISN (if necessary). Both lines were observed. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2003 6.4 using a spectrum analyzer. The resolution bandwidth of the spectrum analyzer was 100 kHz for measurements below 1 GHz and RBW 1 MHz was used above 1 GHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna.

FORMULA OF CONVERSION FACTORS for Field strength: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dB μ V) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB.

Example:

Freq. (MHz)	METER READING + ACF + CABLE LOSS (to the receiver) = FS
33	20 dB μ V + 10.36 dB + 6 dB = 36.36 dB μ V/m @3m

ANSI STANDARD C63.4-2003 6.2.1 MEASUREMENT PROCEDURES: The UUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table). The UUT was placed in the center of the table. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to at least 10th harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings.

Measurements were made by Eurofins Product Service GmbH at the registered open field test site located at Storkower Str. 38c, 15526 Reichenwalde, Germany.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

ANTENNA & GROUND:

This unit uses internal antenna.

2.5 Test results

 1st test

 test after modification

 production test

SECT.	TEST CASE	FCC 47CFR PART	IC RSS-	Required	Test passed	Test failed
3	<i>TRANSMITTER PARAMETERS</i>					
3.1	RF power output conducted	15.247 (b)(3)	210 A8.4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.2	RF power output radiated (EIRP)	15.247 (b)(3)	210 A8.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3	6 dB bandwidth / Occupied bandwidth	15.247 (a)(2)	210 A8.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.4	Peak power spectral density	15.247 (e)	210 A8.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.5	Spurious emission conducted	15.247 (d)	210 A8.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.6	Spurious emission radiated	15.247 (d)	210 A8.5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.7	AC power line conducted emissions	15.207	Gen 7.2.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	<i>RECEIVER PARAMETERS</i>					
4.1	Radiated emissions	-	Gen 7.2.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3 Transmitter parameters

3.1 RF power output, conducted

Reference

FCC	47 CFR part 15.247 (b)
IC	RSS-210 A 8.4

Method of measurement

This measurement applies to equipment with an integral antenna and to equipment with an antenna connector and equipped with an antenna as declared by the applicant.

The power was measured with modulation (declared by the applicant).

Limits

FCC	1 Watt (30dBm)
IC	1 Watt (30dBm)

Test results

Test conditions	Channel A	Channel B	Channel C
	[dBm]	[dBm]	[dBm]
$T_{nom} = 23^{\circ}C$ $V_{nom} = 6 V DC$	14.98	14.88	14.81
$T_{nom} = 23^{\circ}C$ $V_{min} = 5.5 V DC$	14.97	14.89	14.81
$T_{nom} = 23^{\circ}C$ $V_{max} = 6.6 V DC$	14.97	14.88	14.81
Measurement uncertainty	< 3 dB		

Test equipment: ETS 0253, ETS 0271

3.2 RF power output, radiated,

Reference

FCC	CFR part 15.247 (b)(3)
IC	RSS-210 A8.4

Method of measurement

This measurement applies to equipment with an integral antenna and to equipment with an antenna connector and equipped with an antenna as declared by the applicant.

The power was measured with modulation (declared by the applicant).

Limits

FCC	1 Watt (30dBm)
IC	1 Watt (30dBm)

Test Results

Test conditions	Channel A	Channel B	Channel C
	EIRP [dBm]	EIRP [dBm]	EIRP [dBm]
$T_{nom} = 23^{\circ}C$ $V_{nom} = 6 V DC$	--	--	--
Measurement uncertainty	< 3 dB		

Comment: Not required.

Test equipment:

ETS 0012, ETS, 0013, ETS, 0015, ETS 0018, ETS 0253, ETS 0271, ETS 0311

3.3 6 dB bandwidth

Reference

FCC	CFR part 15.247 (a)(2)
IC	RSS-210 A8.2

Method of measurement

Spectrum analyser:

RBW: 100 kHz

Span: > RBW

Limits

FCC	$BW_{6dB} \geq 500 \text{ kHz}$
IC	$BW_{6dB} \geq 500 \text{ kHz}$

Test results

Test conditions	Channel A	Channel B	Channel C
	BW [kHz]	BW [kHz]	BW [kHz]
$T_{nom} = 23^\circ \text{ C}$ $V_{nom} = 6 \text{ V DC}$	689.8	694.5	689.8
Measurement uncertainty	< 10 Hz		

System receiver input bandwidth:

The manufacturer declares that the receiver input bandwidth matches to the bandwidth of the transmitter signal.

Occupied Bandwidth (99%) – RSS Gen

Test conditions	Channel A	Channel B	Channel C
DSSS 1 Mbps	BW [kHz]	BW [kHz]	BW [kHz]
$T_{nom} = 23^\circ \text{ C}$ $V_{nom} = 6 \text{ V DC}$	609.0	615.4	618.6
Measurement uncertainty	< 10 Hz		

See attached diagrams in Annex.

Test equipment: ETS 0271

3.4 Peak power spectral density

Reference

FCC	CFR part 15.247 (e)
IC	RSS-210 A8.2

Method of measurement

The same method of determining the conducted output power shall be used to determine the power spectral density.

Limits

FCC	≤ 8 dBm in any 3kHz band
IC	≤ 8 dBm in any 3kHz band

Test results

Test conditions	Spectral density		
	Channel A [dBm]	Channel B [dBm]	Channel C [dBm]
DSSS 1 Mbps			
T _{nom} = 23° C V _{nom} = 6 V DC	7.22	7.09	7.12
Measurement uncertainty	< 3 dBs		

Test equipment: ETS 0271

3.5 Spurious emission conducted

Reference

FCC	CFR part 15.247 (d)
IC	RSS-210 A8.5

Method of measurement

The EUT is connected to the spectrum analyzer via a low loss cable. If the EUT is not equipped with an antenna connector, a temporary antenna connector has to be installed. The EUT is switched on, the hopping function is disabled.

The analyzer setting was as following:

Frequency range	RES bandwidth		Video bandwidth	
	Pk	Avg	Pk	Avg
f < 1GHz	100 kHz	-	100 kHz	-
f > 1GHz	1 MHz	1 MHz	1 MHz	1MHz

Limits

FCC	20 dB below peak output power
IC	20 dB below peak output power

Test results

Frequency	Result [dBm]	Limit [dBm]	Margin [dB]	Reference level [dBm]
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

3.6 Spurious emission radiated

Reference

FCC	CFR part 15.247(d), 15.205, 15.209, 15.35
IC	RSS-210 A8.5

Method of measurement

Spurious emission was measured with modulation (declared by manufacturer).

According to 47 CFR 15, Part 15.247 (d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required.

In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

Sample Calculation of Limit:

All results are updated by an automatic measuring system in accordance to point 2.3

Calculation of test results:

Such factors like antenna correction, cable loss, external attenuation etc. are already included in the provided measurement results.

The peak and average spurious emission plots was measured with the average limits.

In the Table being listed the critical peak and average value an exhibit the compliance with the above calculated Limits.

If in the column's correction factor states a value then the max. Field strength in the same row is corrected by a value gained from the "Marker-Delta-Method" or the „Duty-Cycle Correction Factor“.

15.35 (c) average value

When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds.

Duty cycle correction = $20 \log(\text{dwell time} / \text{pulse-train time of 100 ms or less})$

The radiated emission measurements were performed from 30 MHz to 26000 MHz.

The analyzer setting was as following:

Frequency range	RES bandwidth		Video bandwidth	
	Pk	Avg	Pk	Avg
f < 1GHz	100 kHz	-	100 kHz	-
f > 1GHz	1 MHz	1 MHz	1 MHz	1MHz

FCC	20 dB below peak output power, emissions which fall in the restricted bands (15.205(a)) must comply the following limits:		
	Frequencies below 1GHz:		
	Frequency of emission [MHz]	Field strength [$\mu\text{V} / \text{m}$]	Field strength [dB $\mu\text{V} / \text{m}$]
	30 – 88	100	40.0
	88 – 216	150	43.5
	216 – 960	200	46.0
	Above 960	500	54.0
	For frequencies above 1 GHz (Avg measurements): 54.0 dB $\mu\text{V} / \text{m}$		
	For frequencies above 1 GHz (Pk measurements):		
	Limit + 20 dB = 54.0 dB $\mu\text{V} / \text{m}$ + 20 dB = 74 dB $\mu\text{V} / \text{m}$		
IC	20 dB below peak output power, emissions which fall in the restricted bands of table 1 (RSS-210 §2.7) must also comply with limits specified in tables 2 and 3		

Test results

Summary table with radiated data of the test plots

Freq.	Used Ch.	Frequency Marker [GHz]	Polarization	Δ corrections dB	Max. Field Strength [dB μ V/m]	Compliance Limit [dB μ V/m]	Detector	BW [MHz]	Margin [dB]
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

Freq. – Frequency Range:

1:	30	–	200 MHz
2:	200	–	1000 MHz
3:	1	–	4 GHz
4:	4	–	8 GHz
5:	8	–	12 GHz
6:	12	–	17 GHz
7:	17	–	26,5 GHz

All emissions measured are more than 20dB below the corresponding limit.

See attached diagrams in Annex.

Test equipment: ETS 0012, ETS 0013, ETS 0015, ETS 0018, ETS 0271, ETS 0253, ETS 0311

3.7 AC power line conducted emissions

Reference

FCC	CFR part 15.207
IC	RSS-Gen 7.2.2

Method of measurement

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits. Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.

Limits

	Frequency of emission	Conducted limit field strength [dB μ V]	
	[MHz]	Quasi Peak	Avg
FCC & IC	0.15 - 0.5	66 to 56	56 - 46
	0.5 - 5	56	46
	5 - 30	60	50

Test results

Frequency	Level	
	Quasi-peak	Average
150 kHz	Lower limit line	Lower limit line

Comment. See attached diagrams in Annex.

Test equipment: ETS 0288, ETS 0474

4 Receiver parameters

4.1 Radiated emissions

Reference

FCC	-
IC	RSS-Gen 7.2.3

Method of measurement

The compliance of the EUT Receiver with the Limits of spurious emissions was performed according to the radiated measurement method.

The spectrum analyzer RBW was set to 100 kHz for measurements below 100 kHz and 1.0 MHz above 1.0 GHz. The measurement results are evaluated according to the procedure described in section 2.5 of this test report.

Limits:

	Spurious frequency	Field strength
	MHz	microvolt/m at 3 meter
FCC & IC	30 - 88	100
	88 - 216	150
	216 - 960	200
	above 960	500

Test Results

	Frequency marker indication [MHz]	Antenna polarizatin	Worst case emission level [$\mu\text{V}/\text{m}$]	Compliance limit [$\mu\text{V}/\text{m}$]	Results
	194,208	33,46	H-	150	-102,90
	180,240	32,85	V	150	-106,10
	1000,000	23,83	H	500	-484,46
	889,379	23,57	V	500	-484,92
	3928,000	44,39	H	500	-334,23
	3874,000	44,47	V	500	-332,70

See attached diagrams in Annex.

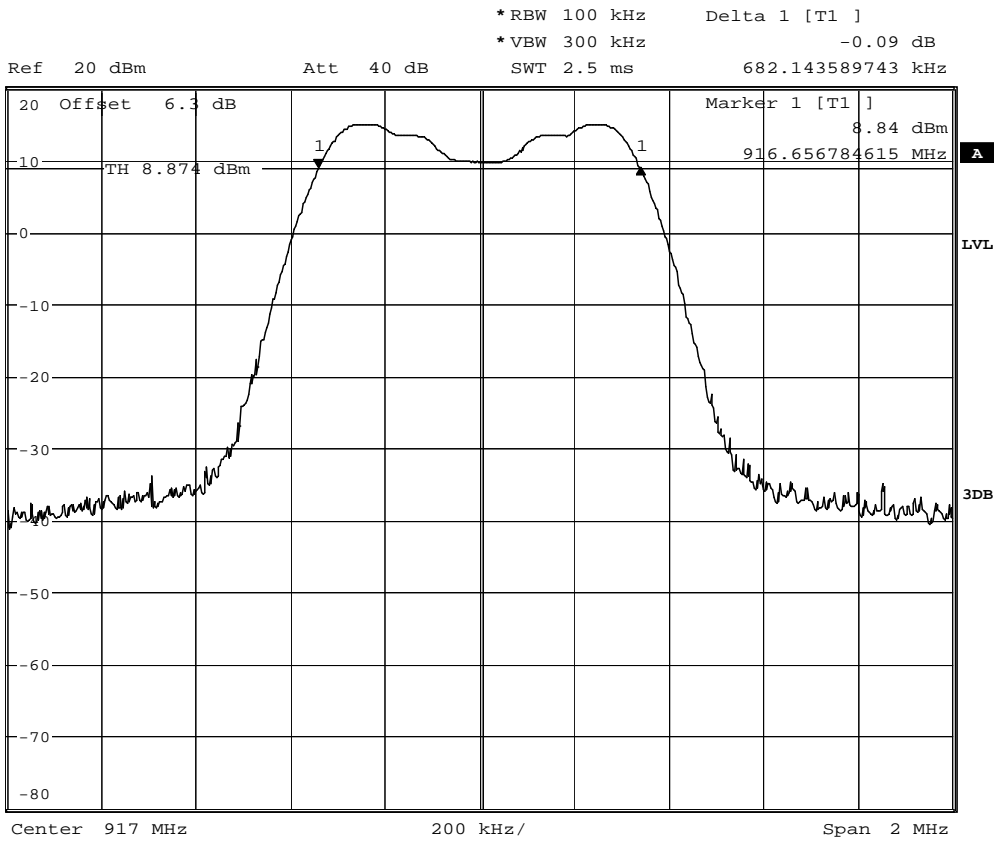
Test equipment: ETS 0014, ETS 0294, ETS 0295, ETS 0310, ETS 0416, ETS 0484

Annex B

6 dB bandwidth / Occupied Bandwidth

FCC part 15.247 (a)2
Minimum 6 dB Bandwidth

EUT	GAS detector with SRD
Model	AAC 00xx (X-zone 5000)
Approval Holder	Dräger Safety
Temperature / Voltage	23°C / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15.247 (a)2
Comment 1	Minimum 6 dB Bandwidth
Comment 2	Channel : 917 MHz
Comment 3	GFSK / 125 kbit/s



6 dB bandwidth: 0.6821 MHz > 500 KHz; verdict: PASS

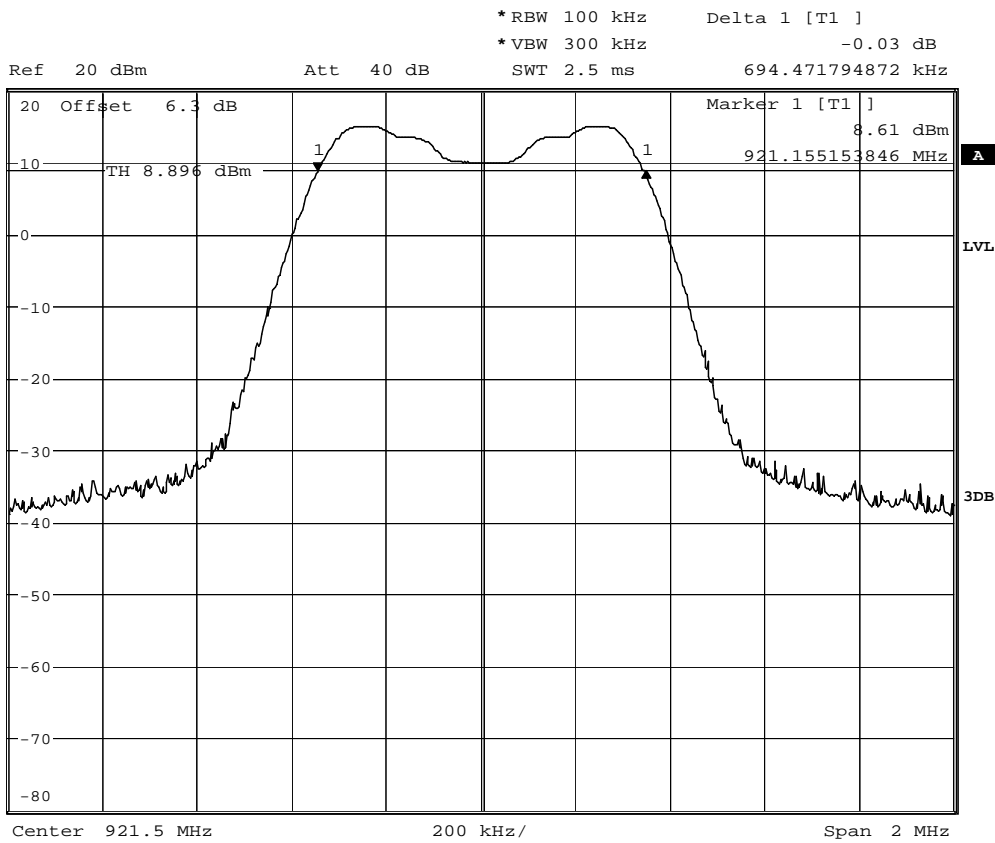
Date: 18.DEC.2009 11:56:37

Measurement diagram

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

FCC part 15.247 (a)2
Minimum 6 dB Bandwidth

EUT	GAS detector with SRD
Model	AAC 00xx (X-zone 5000)
Approval Holder	Dräger Safety
Temperature / Voltage	23°C / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15.247 (a)2
Comment 1	Minimum 6 dB Bandwidth
Comment 2	Channel : 921.5 MHz
Comment 3	GFSK / 125 kbit/s



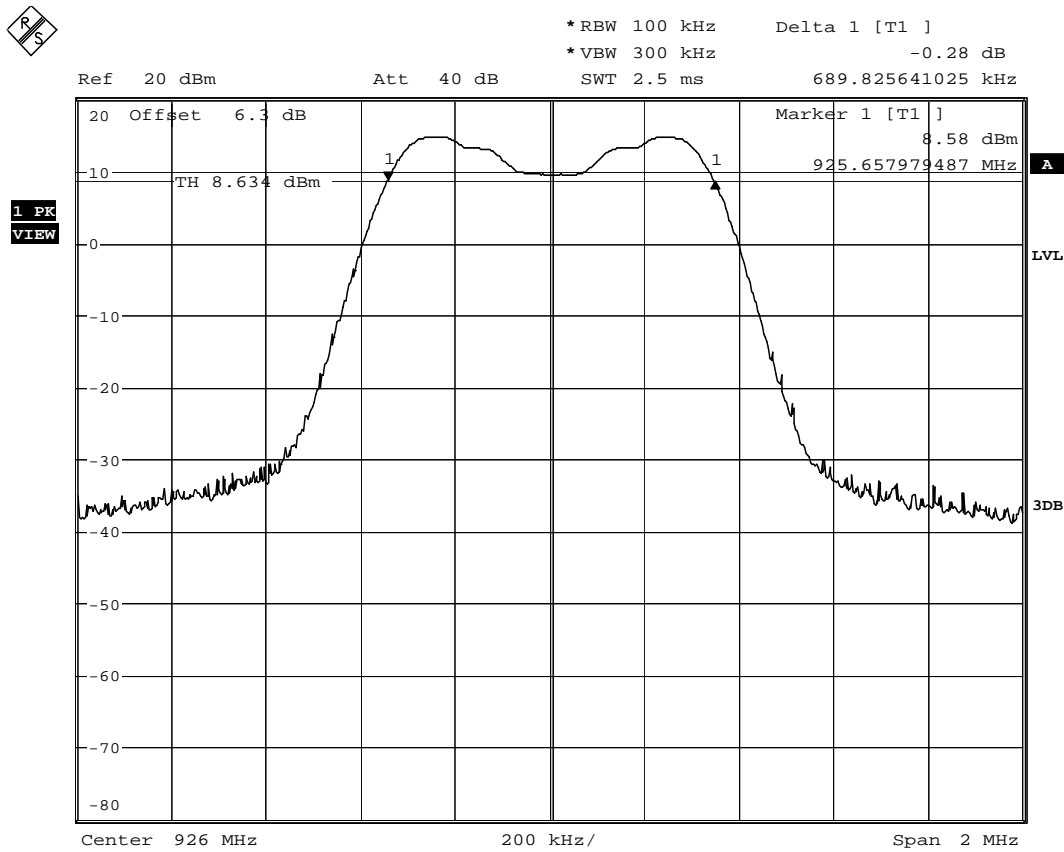
Date: 18.DEC.2009 11:47:55

Measurement diagram

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

FCC part 15.247 (a)2
Minimum 6 dB Bandwidth

EUT	GAS detector with SRD
Model	AAC 00xx (X-zone 5000)
Approval Holder	Dräger Safety
Temperature / Voltage	23°C / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15.247 (a)2
Comment 1	Minimum 6 dB Bandwidth
Comment 2	Channel : 926 MHz
Comment 3	GFSK / 125 kbit/s



6 dB bandwidth: 0.6898 MHz > 500 KHz; verdict: PASS

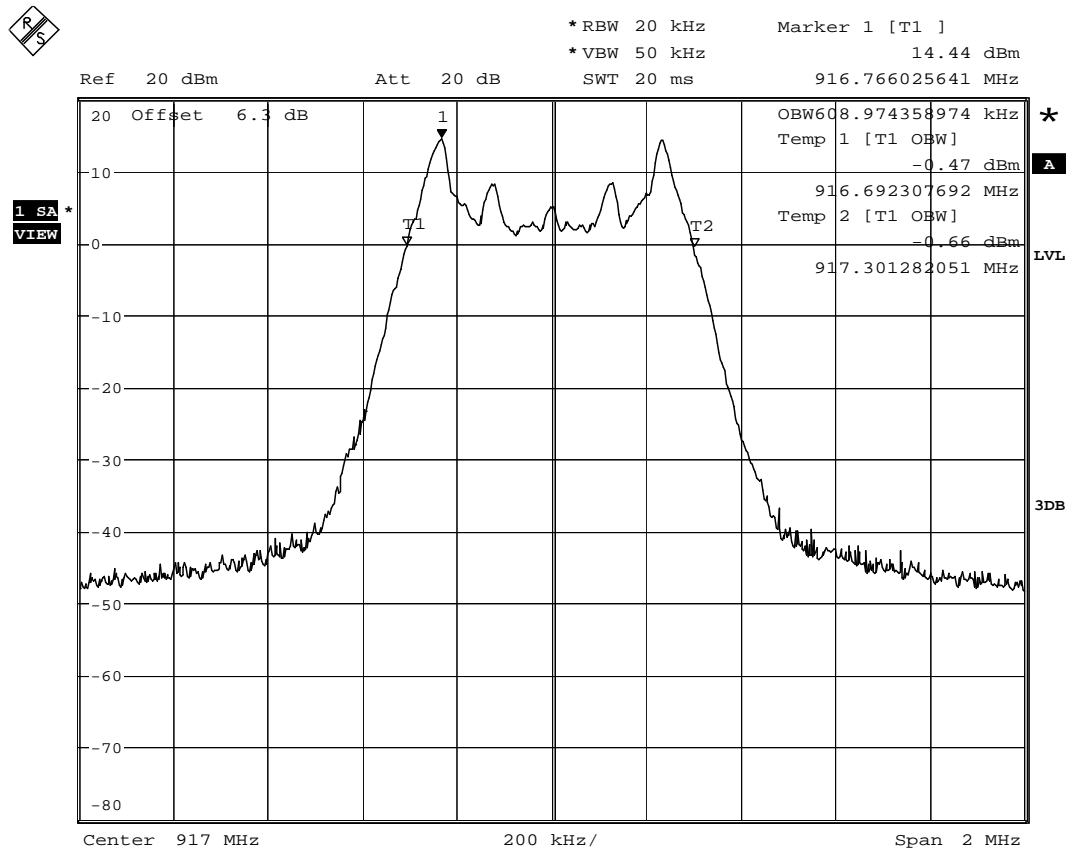
Date: 18.DEC.2009 11:38:09

Measurement diagram

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

**RSS Gen
Occupied Bandwidth**

EUT	GAS detector with SRD
Model	AAC 00xx (X-zone 5000)
Approval Holder	Dräger Safety
Temperature / Voltage	23°C / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 917 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used
Comment 3	GFSK / 125 Kbit/s



Occupied bandwidth: 0.609 MHz

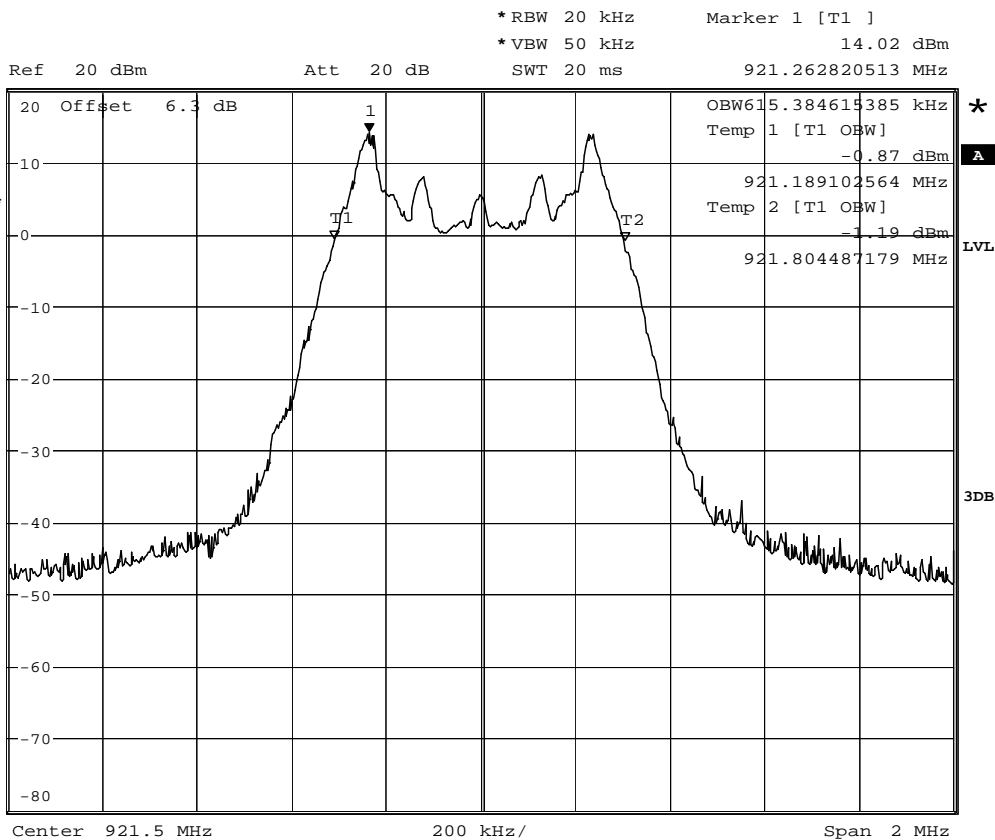
Date: 18.DEC.2009 12:38:16

Measurement diagram

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

**RSS Gen
Occupied Bandwidth**

EUT	GAS detector with SRD
Model	AAC 00xx (X-zone 5000)
Approval Holder	Dräger Safety
Temperature / Voltage	23°C / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 921.5 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used
Comment 3	GFSK / 125 Kbit/s



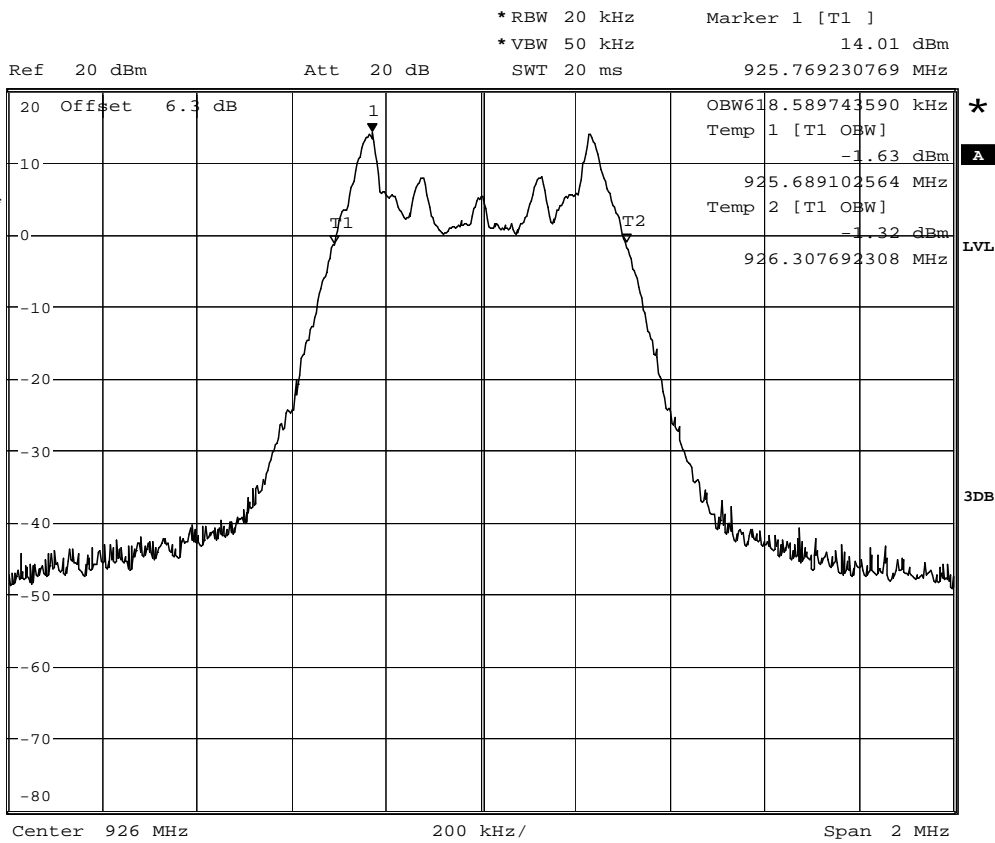
Occupied bandwidth: 0.6154 MHz

Date: 18.DEC.2009 12:44:31

Measurement diagram

**RSS Gen
Occupied Bandwidth**

EUT	GAS detector with SRD
Model	AAC 00xx (X-zone 5000)
Approval Holder	Dräger Safety
Temperature / Voltage	23°C / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 917 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used
Comment 3	GFSK / 125 Kbit/s



Occupied bandwidth: 0.6186 MHz

Date: 18.DEC.2009 12:46:29

Measurement diagram

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

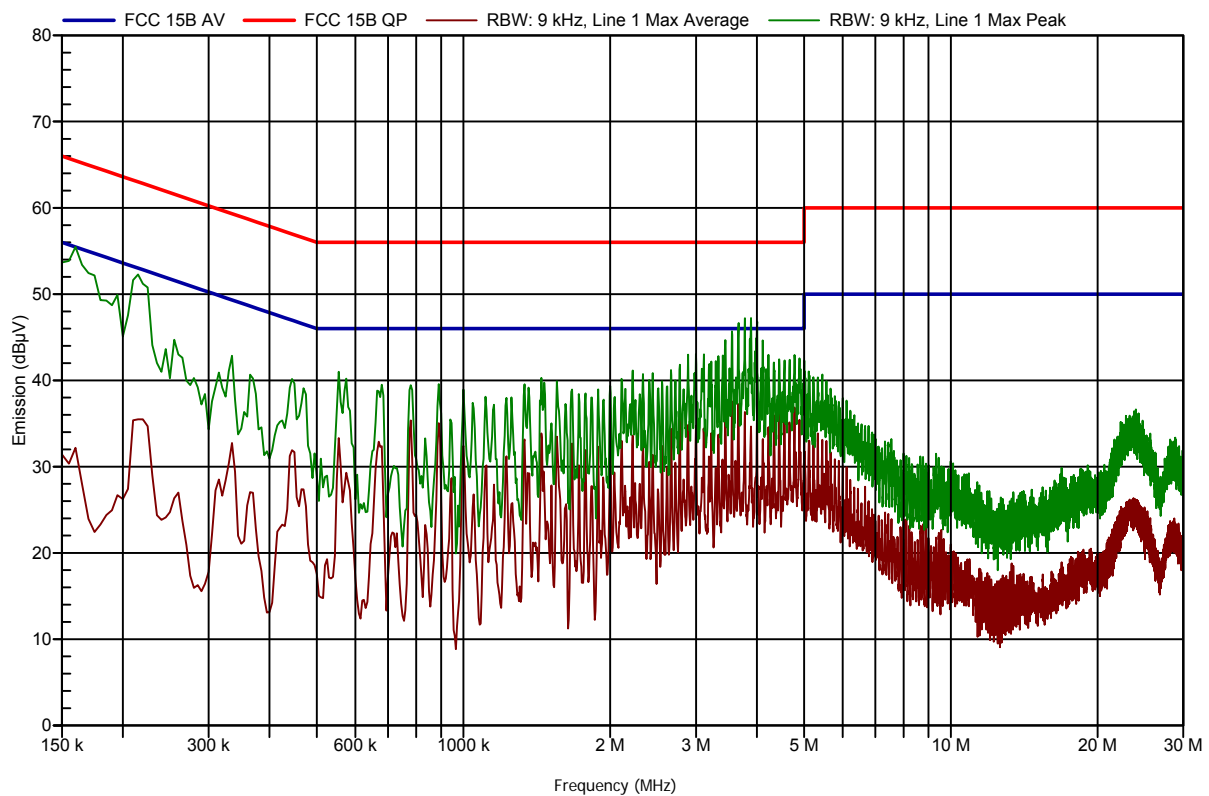
Annex C

AC Power line

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

Ordernumber: G0M20911-2625

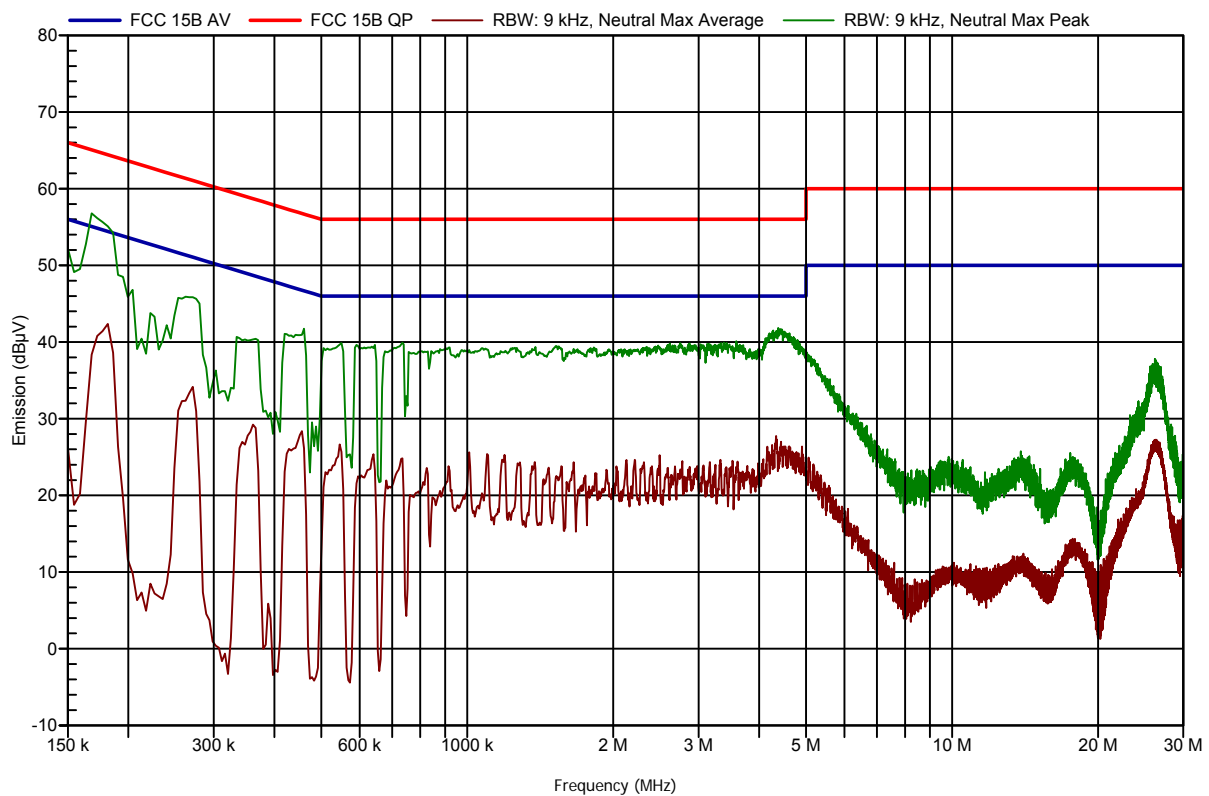
Manufacturer: Dräger Safety AG Co. KGaA
 EUT Name: Gas detector with SRD
 Model: X-Zone sample 15.02.2010
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pflug
 Test Conditions: Tnom: 23°C, Unom: 120 VAC (AC/DC-adaptor)
 LISN: ESH2-Z5 L
 Mode: charging
 Test Date: 17.02.2010



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

Ordernumber: G0M20911-2625

Manufacturer: Dräger Safety AG Co. KGaA
 EUT Name: Gas detector with SRD
 Model: X-Zone sample 15.02.2010
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pflug
 Test Conditions: Tnom: 23°C, Unom: 120 VAC (AC/DC-adaptor)
 LISN: ESH2-Z5 N
 Mode: charging
 Test Date: 17.02.2010



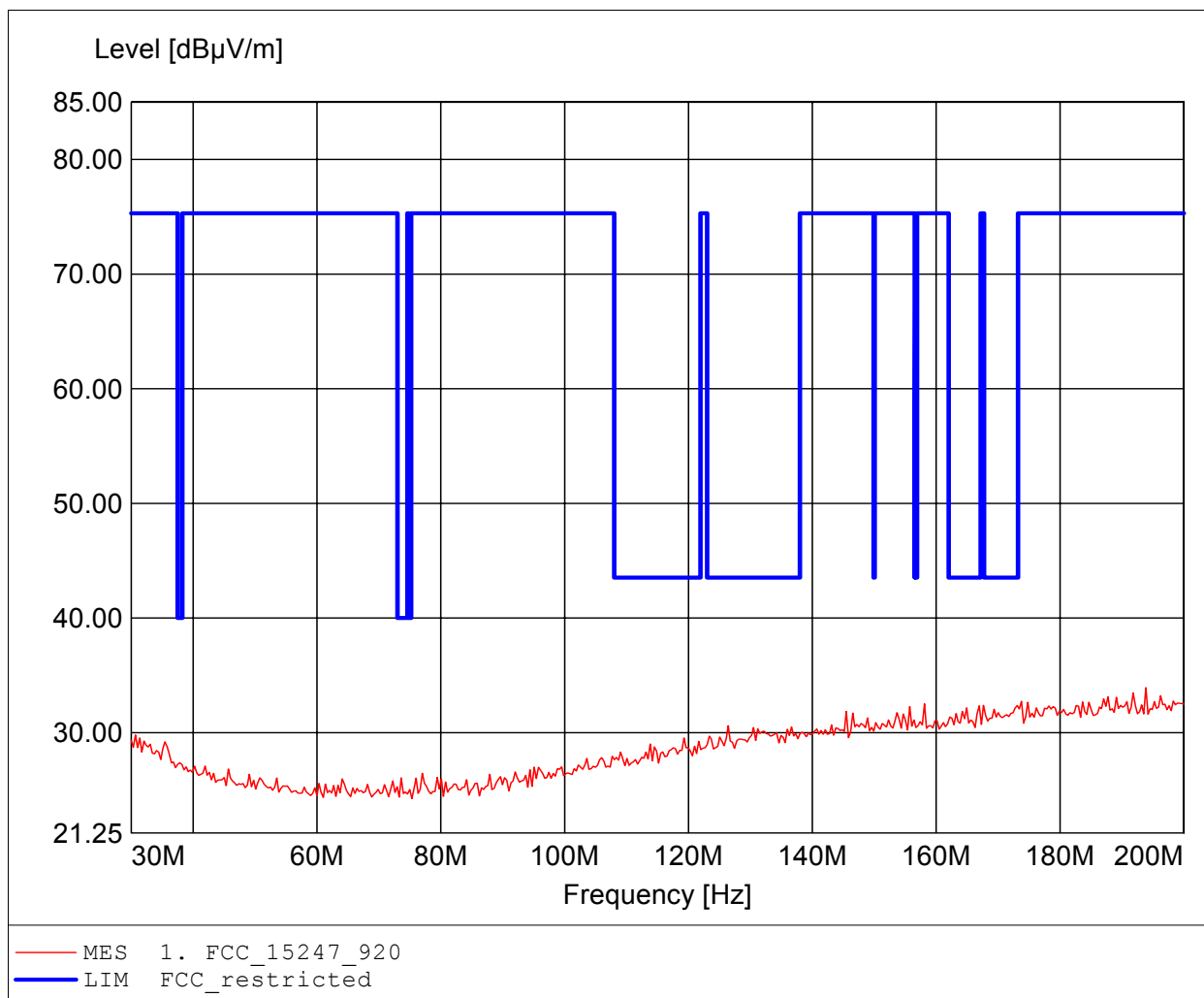
Annex C

Spurious emission radiated

Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

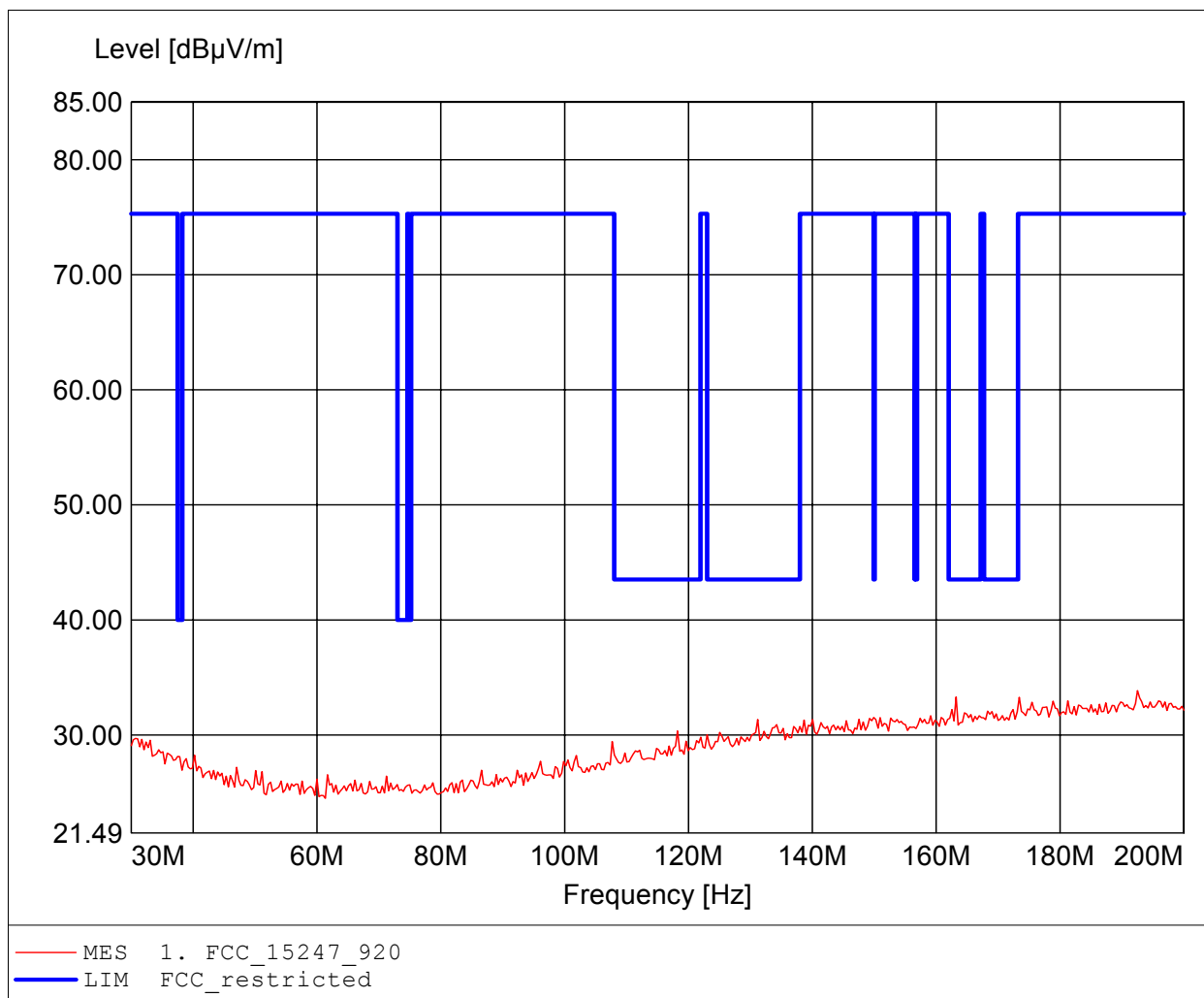
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 917 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HK 116
Comment 2: Freq: 193.868MHz, Emax: 33.92dBµV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

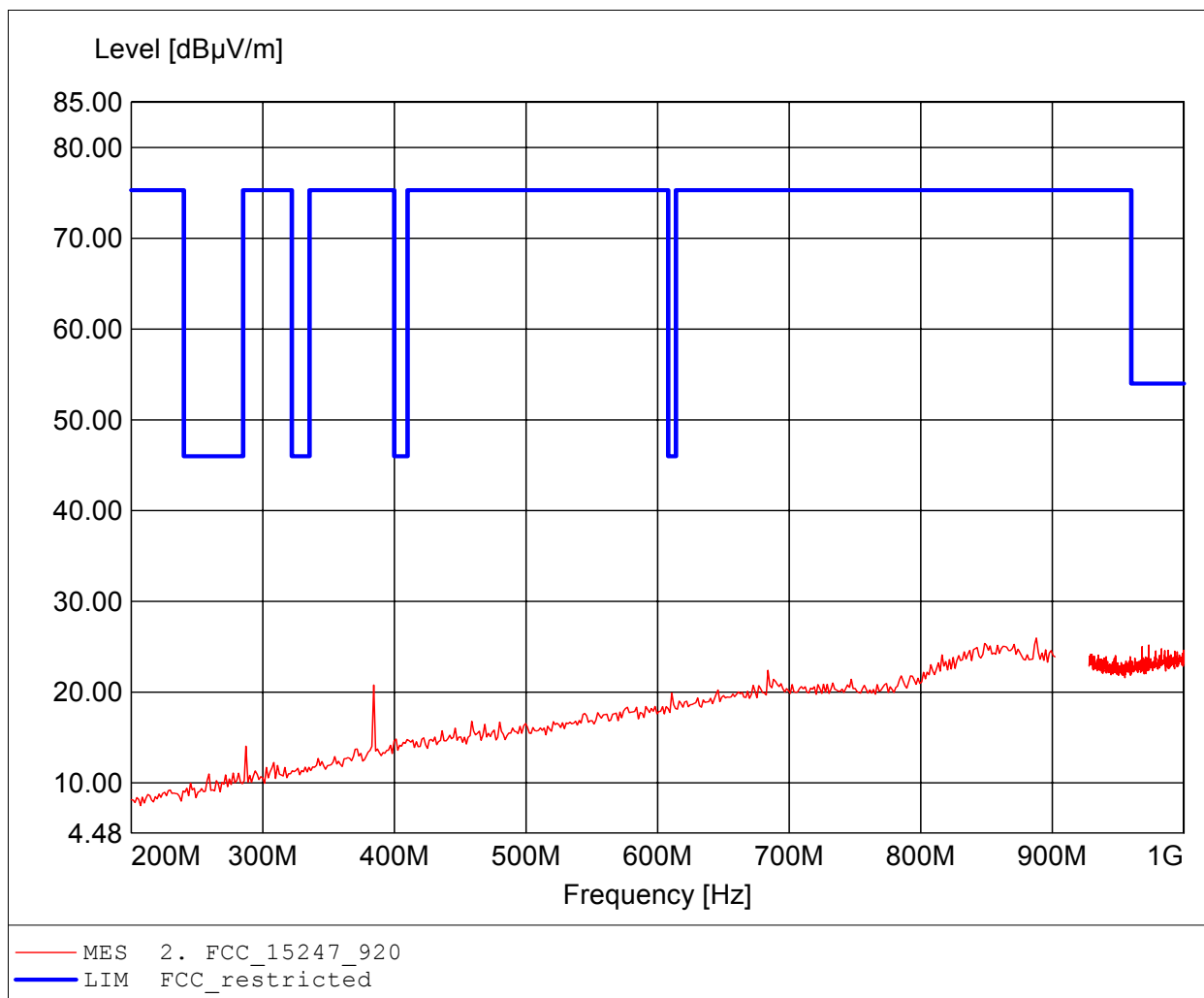
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 917 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HK 116
Comment 2: Freq: 192.505MHz, Emax: 33.86dBµV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

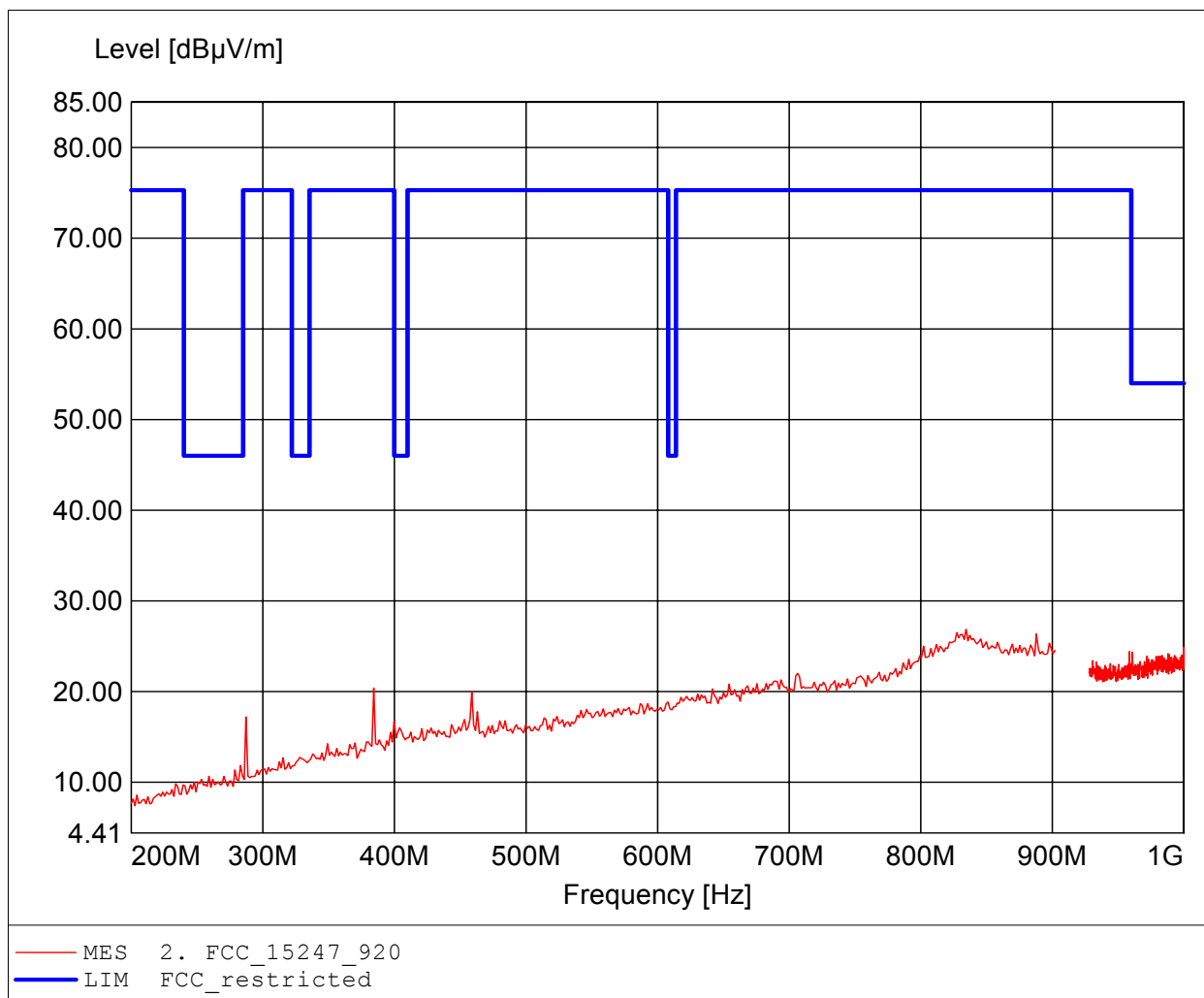
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 917 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL 223, amplif.
Comment 2: Freq: 887.932MHz, Emax: 25.96dBµV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

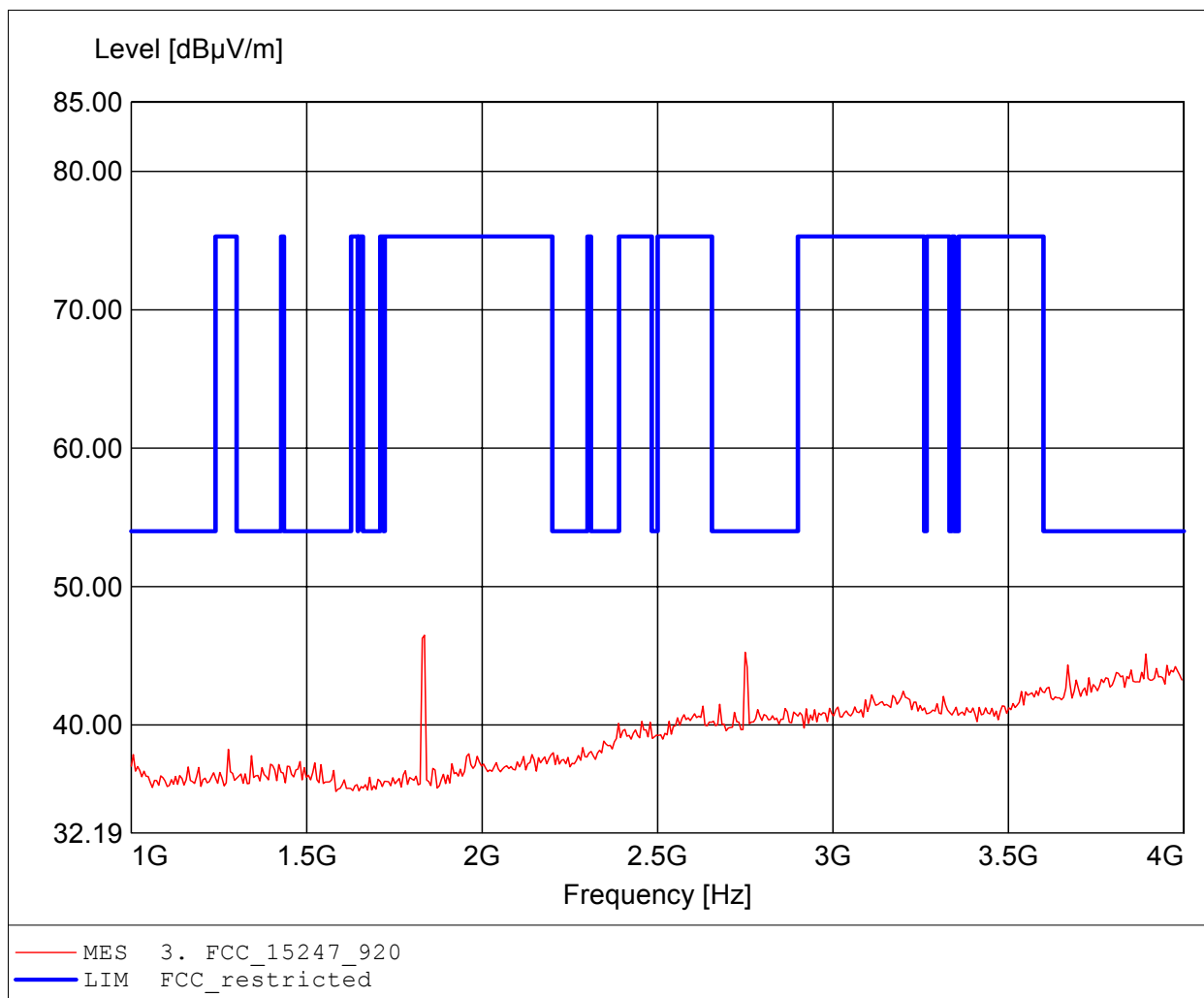
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 917 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL 223, amplif.
Comment 2: Freq: 834.473MHz, Emax: 26.86dBµV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

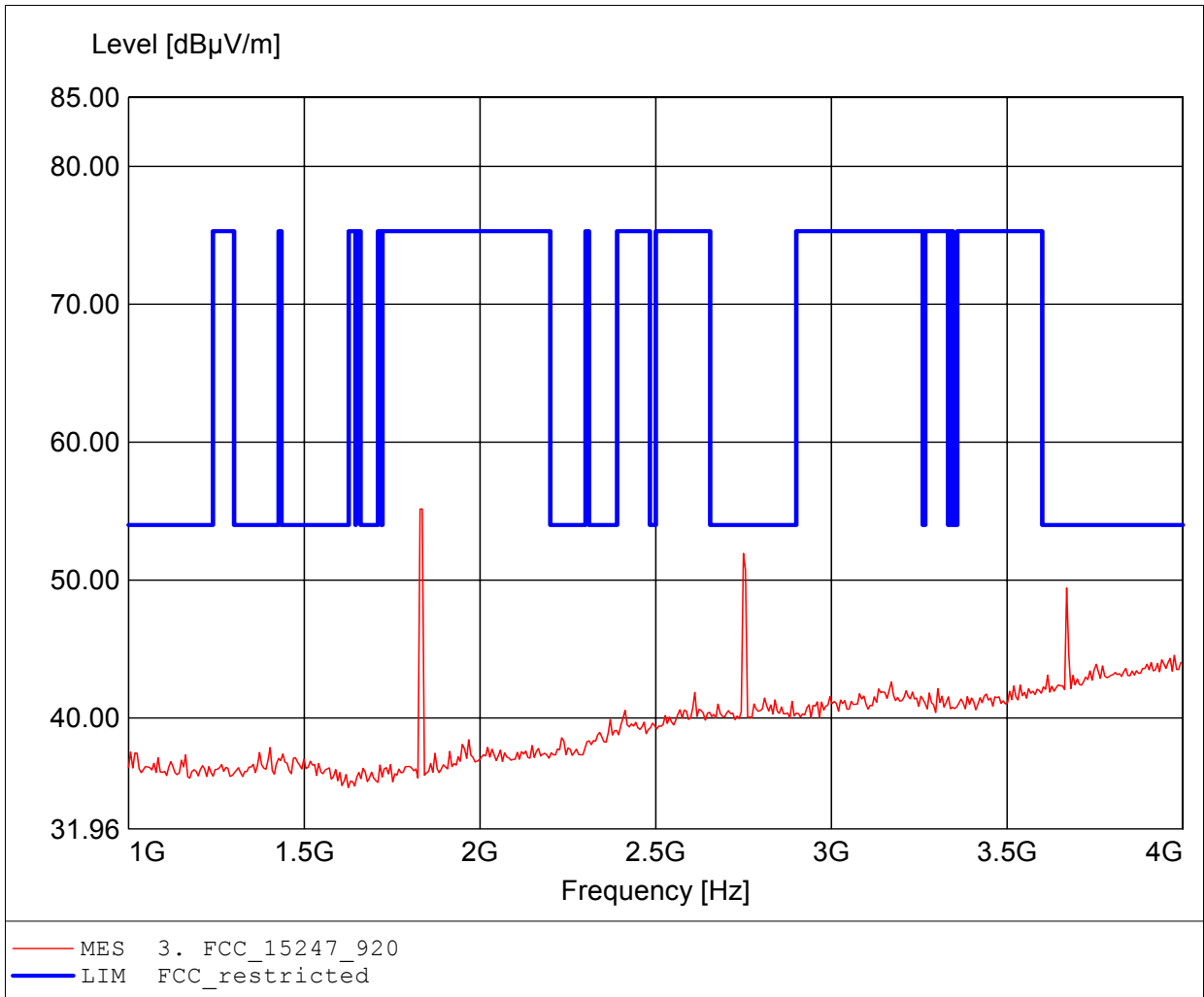
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 917 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 1.836GHz, Emax: 46.47dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

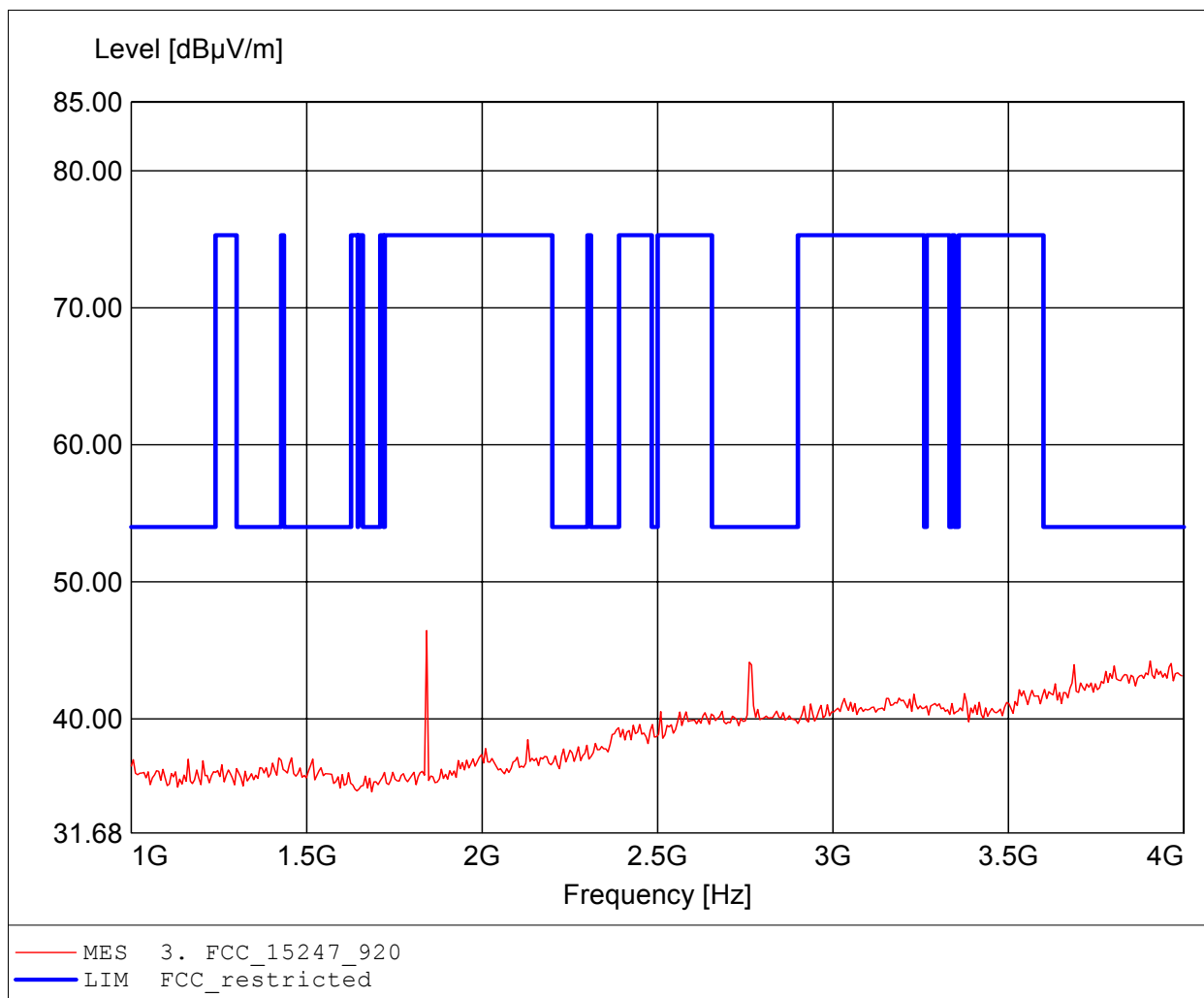
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 917 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 1.836GHz, Emax: 55.16dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

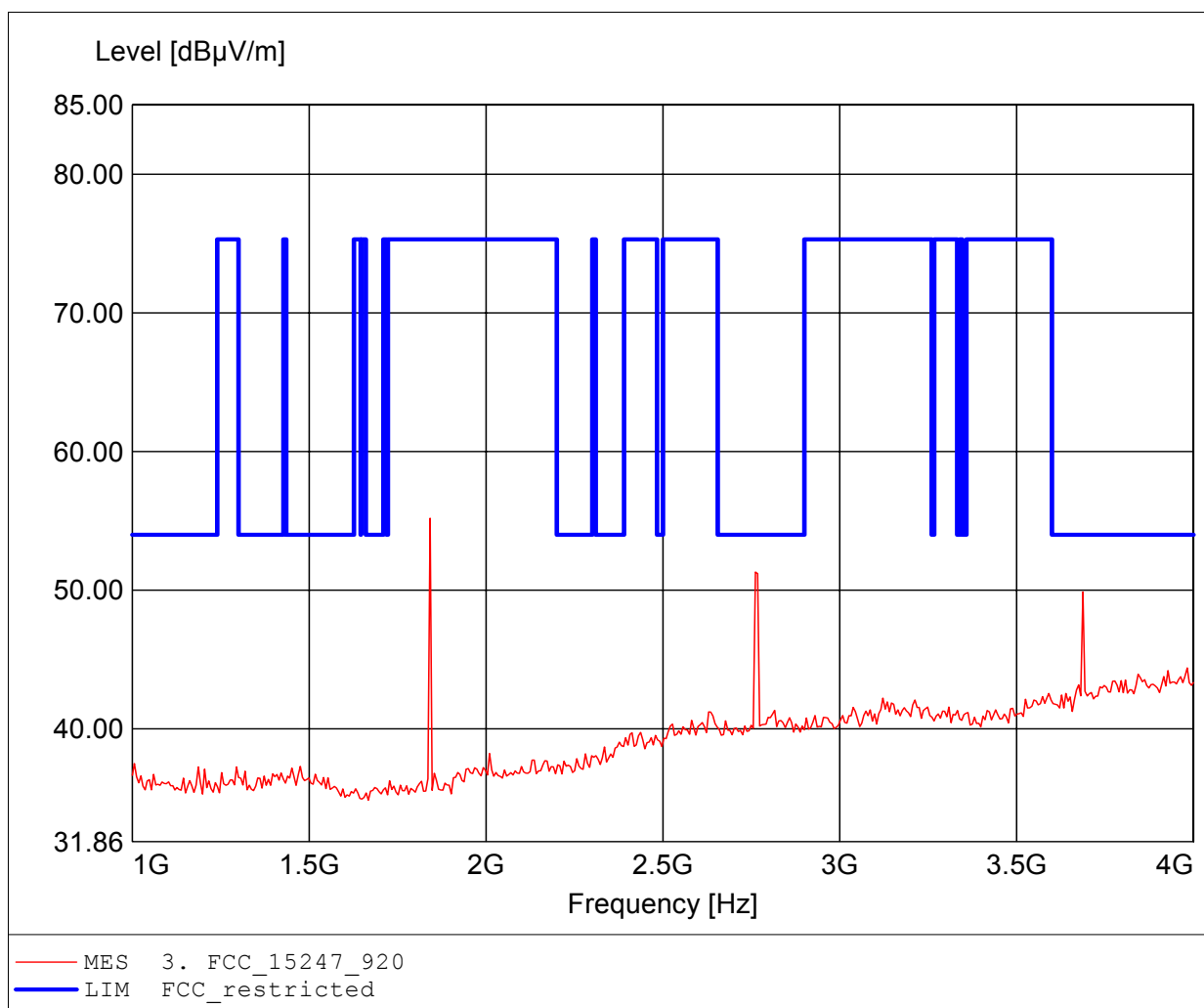
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 921.5 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 1.842GHz, Emax: 46.45dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

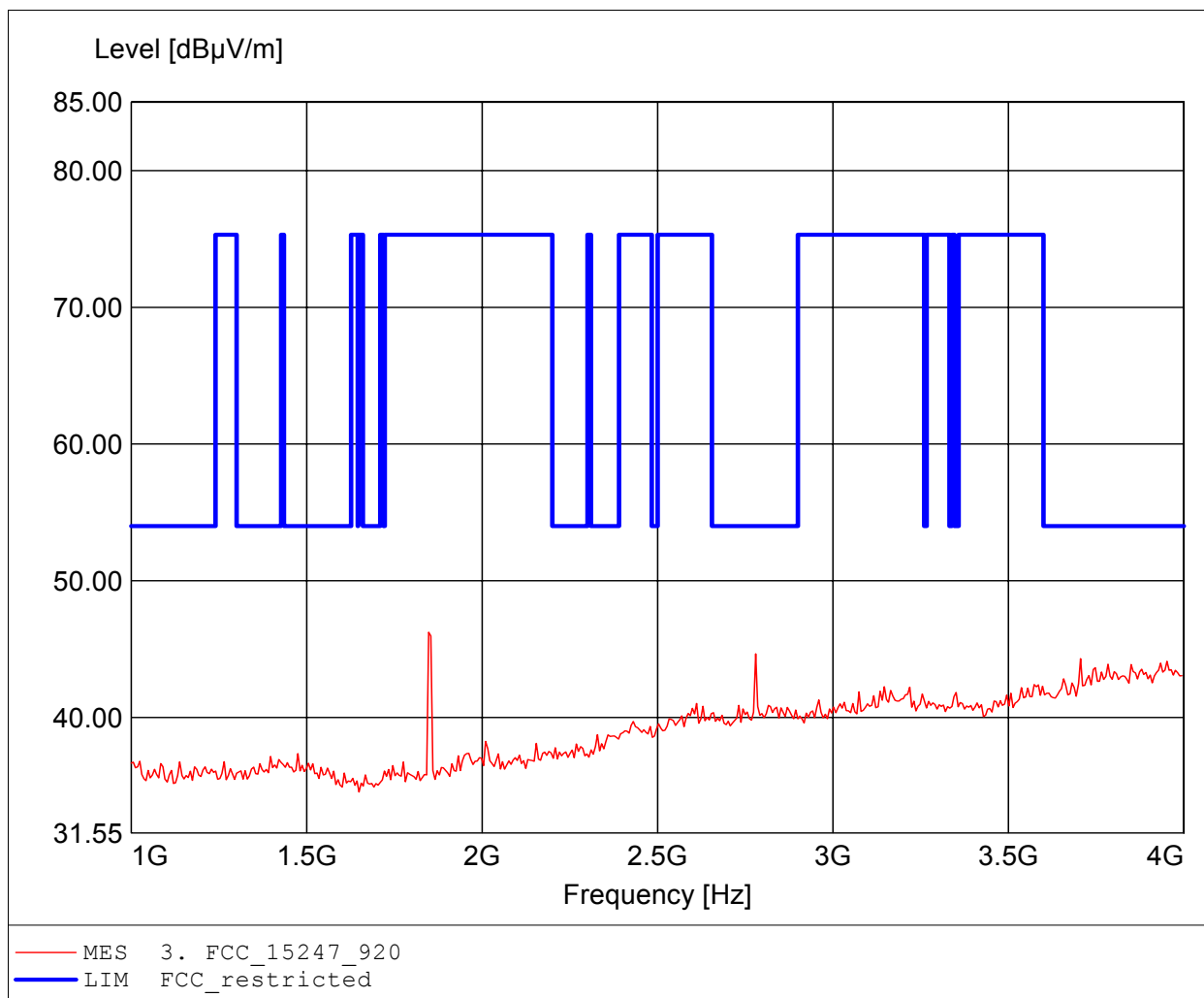
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 921.5 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 1.842GHz, Emax: 55.19dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

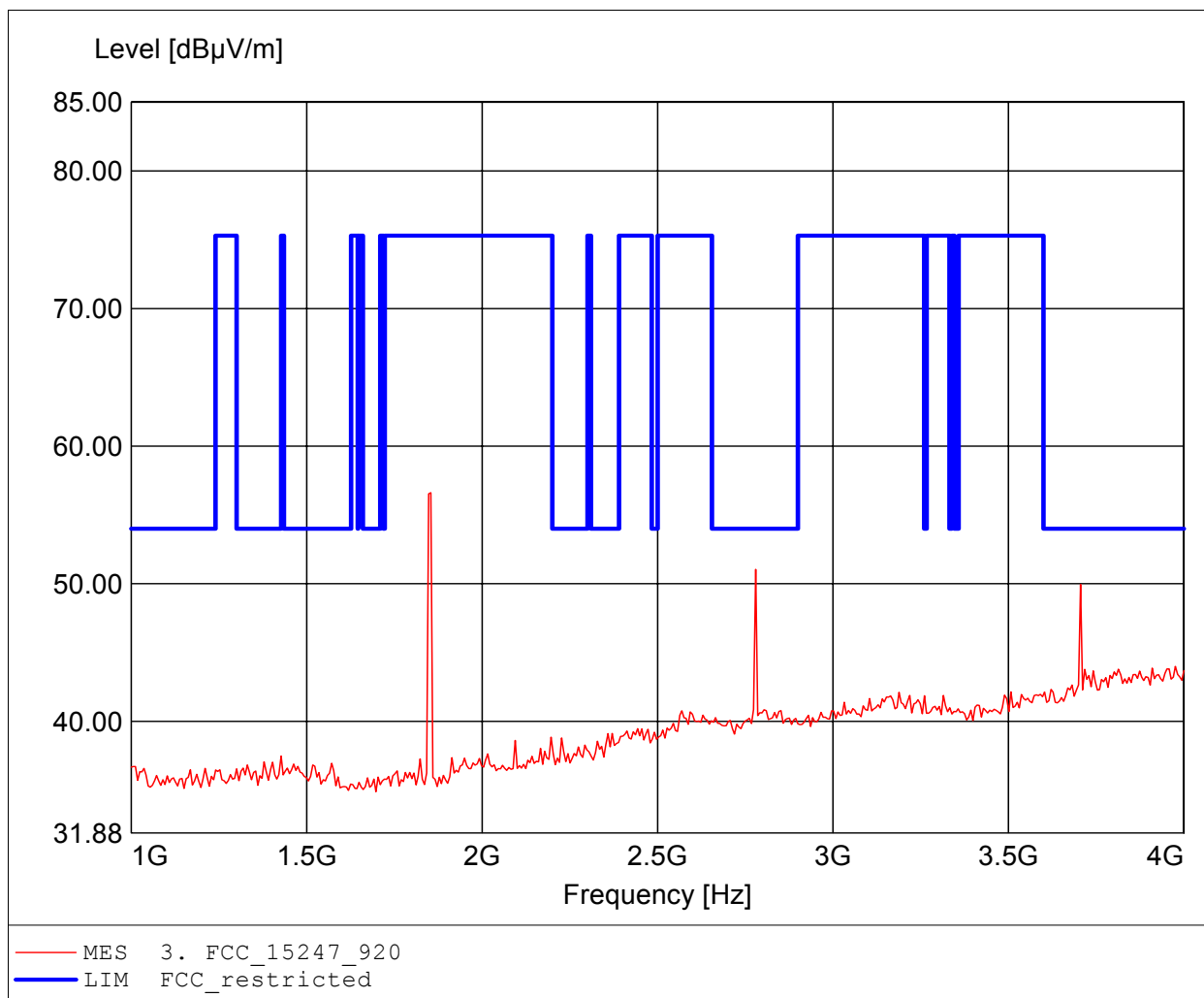
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 926 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 1.848GHz, Emax: 46.23dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

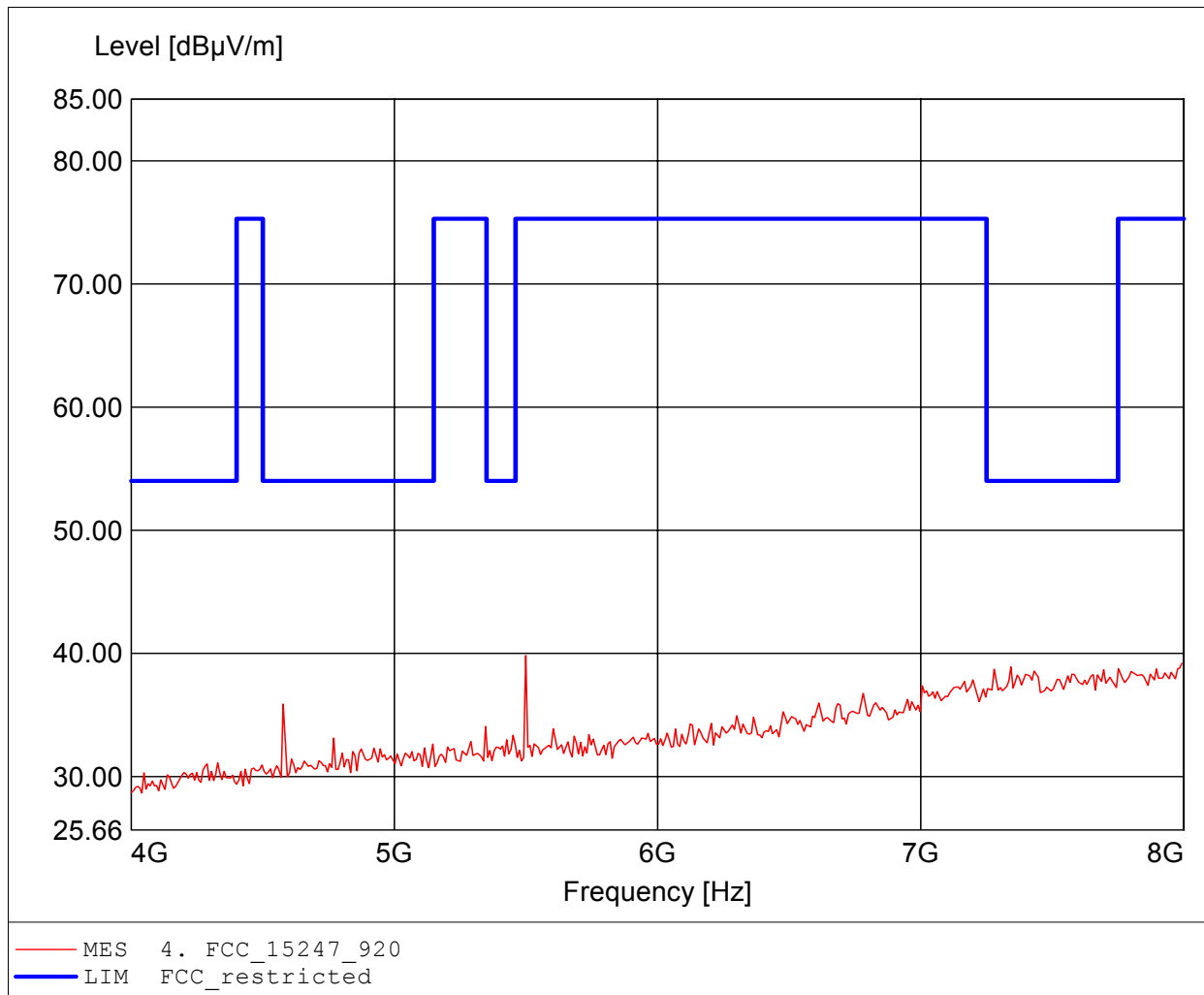
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 926 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 1.854GHz, Emax: 56.61dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

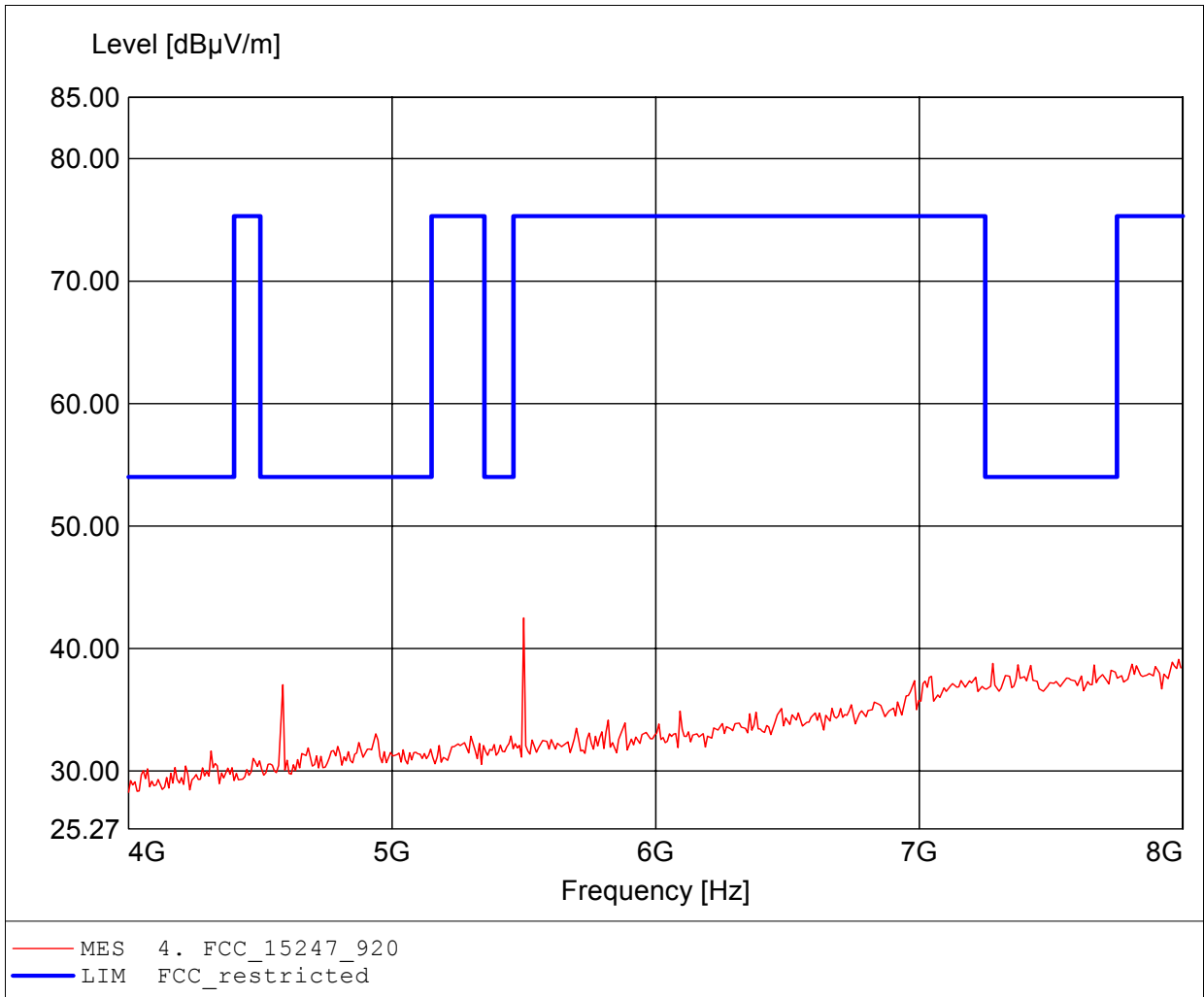
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 917 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 5.499GHz, Emax: 39.83dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

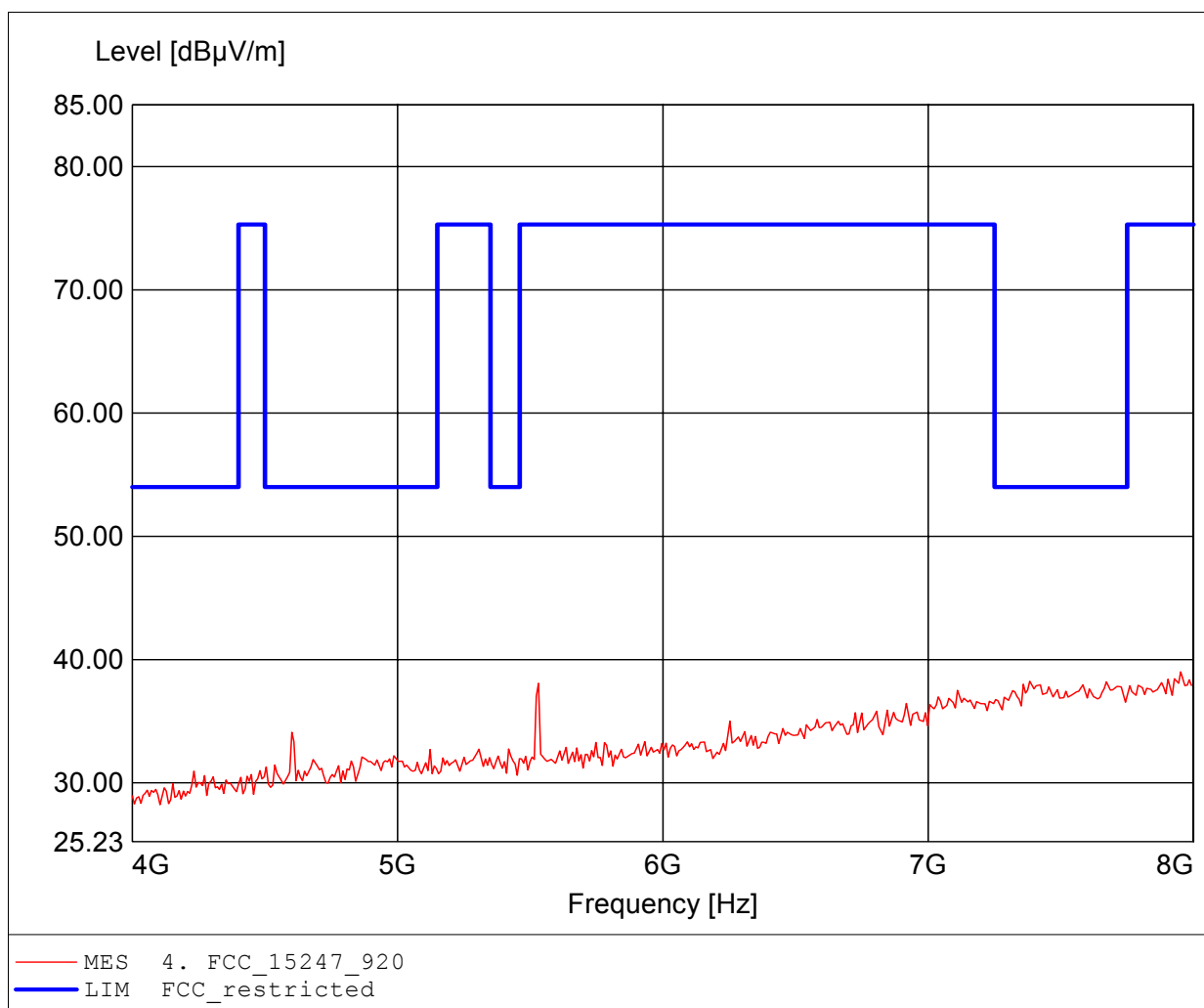
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 917 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 5.499GHz, Emax: 42.50dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

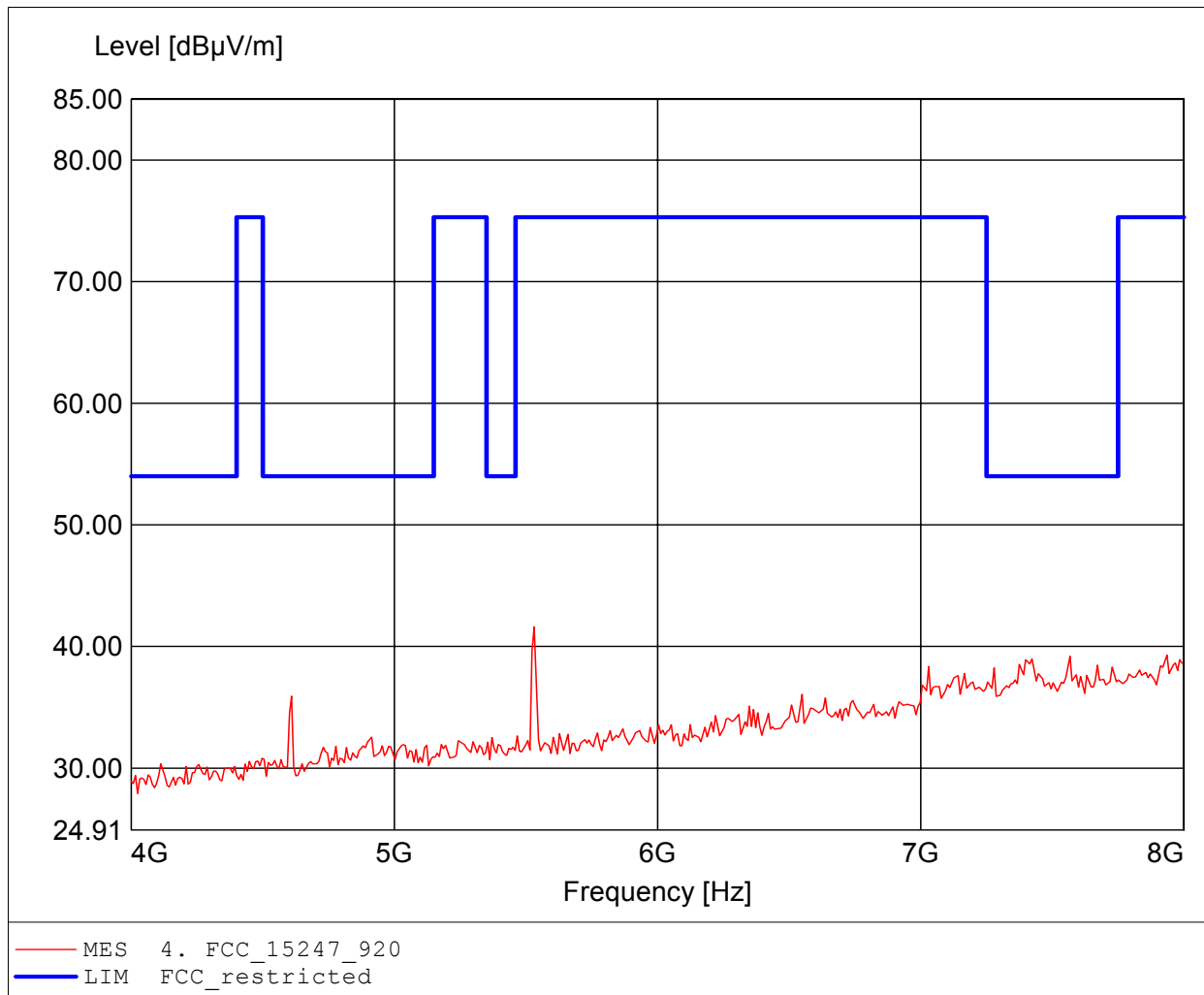
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 921.5 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 7.952GHz, Emax: 39.01dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

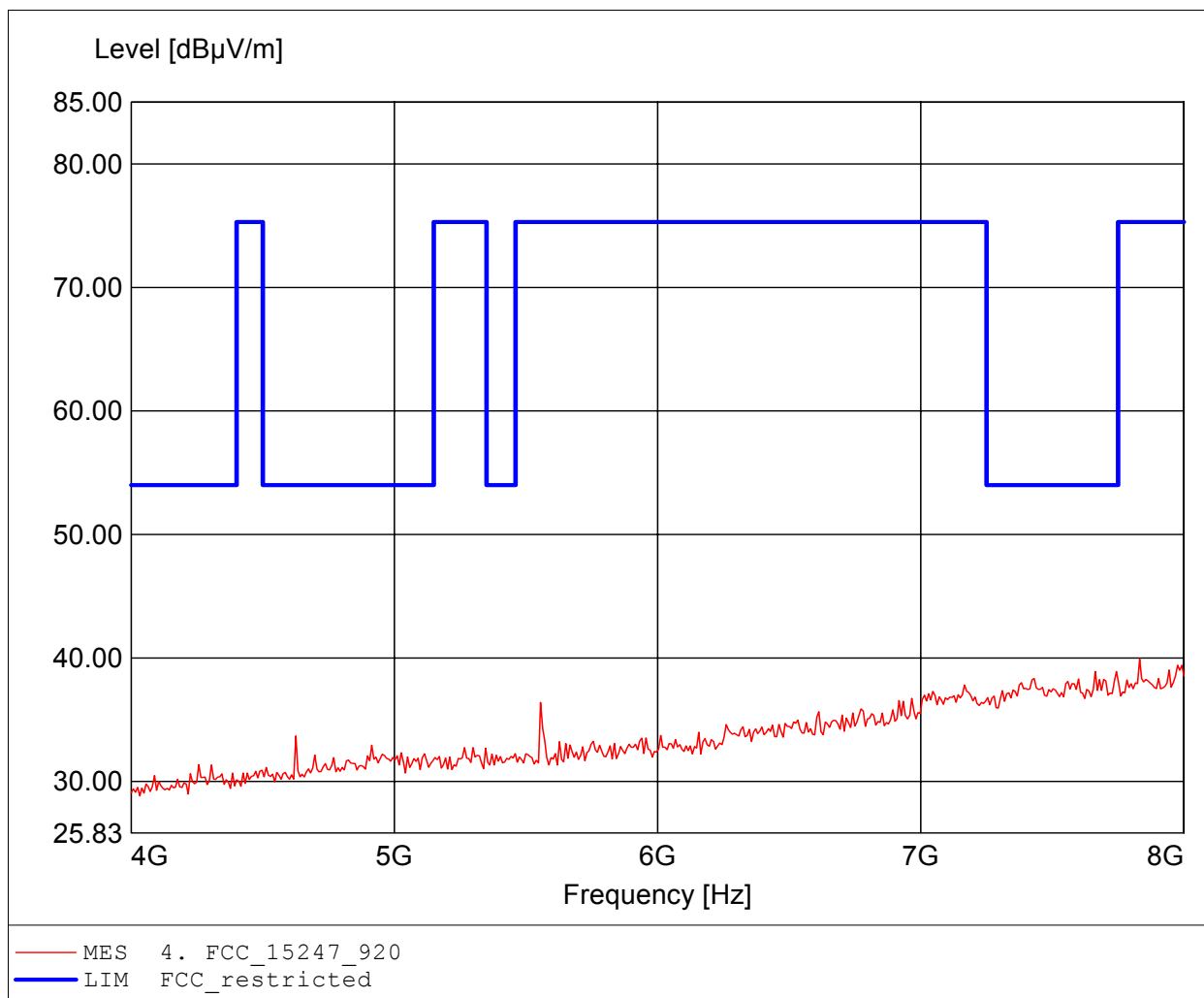
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 921.5 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 5.531GHz, Emax: 41.60dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

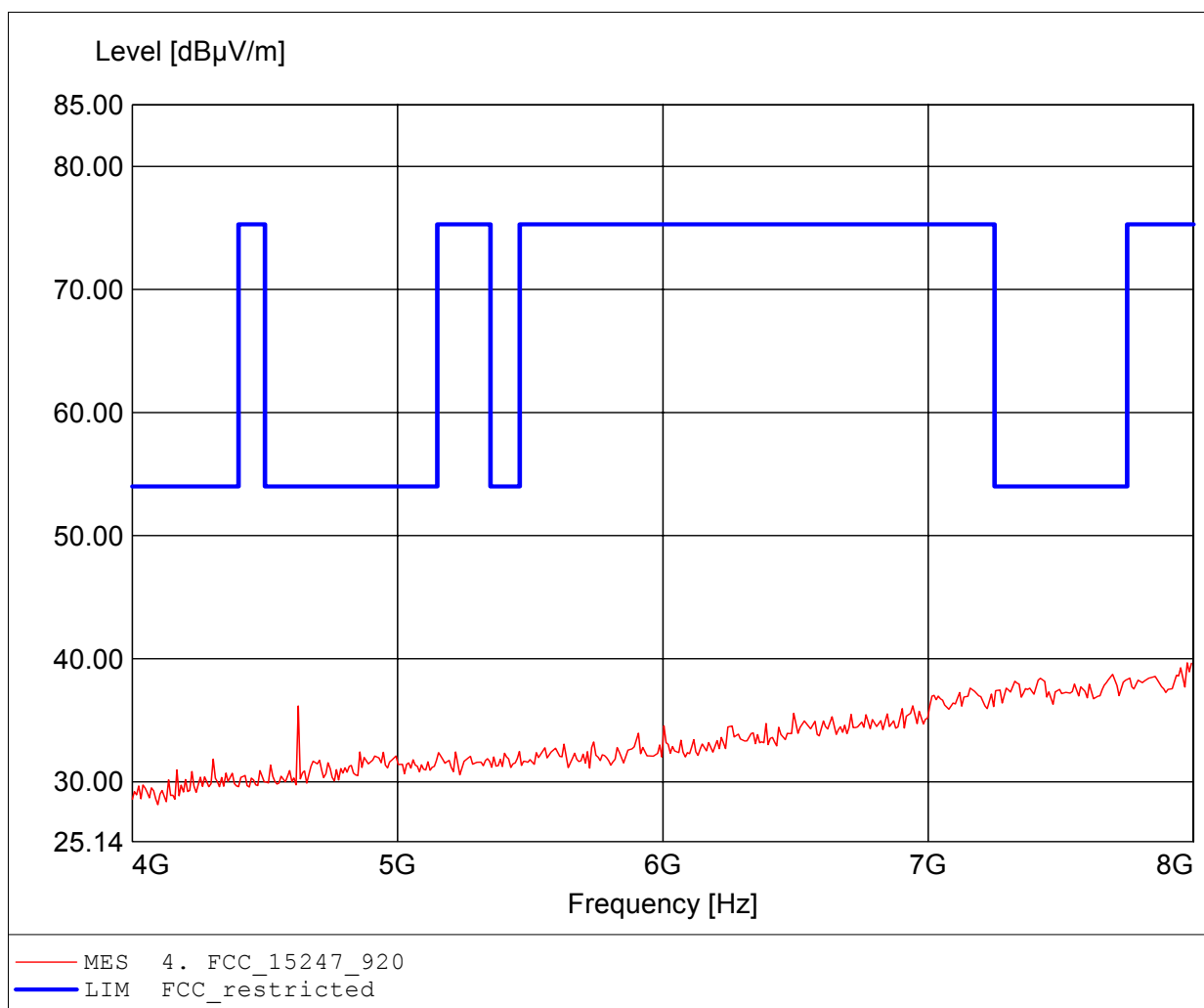
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 926 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 7.832GHz, Emax: 39.91dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

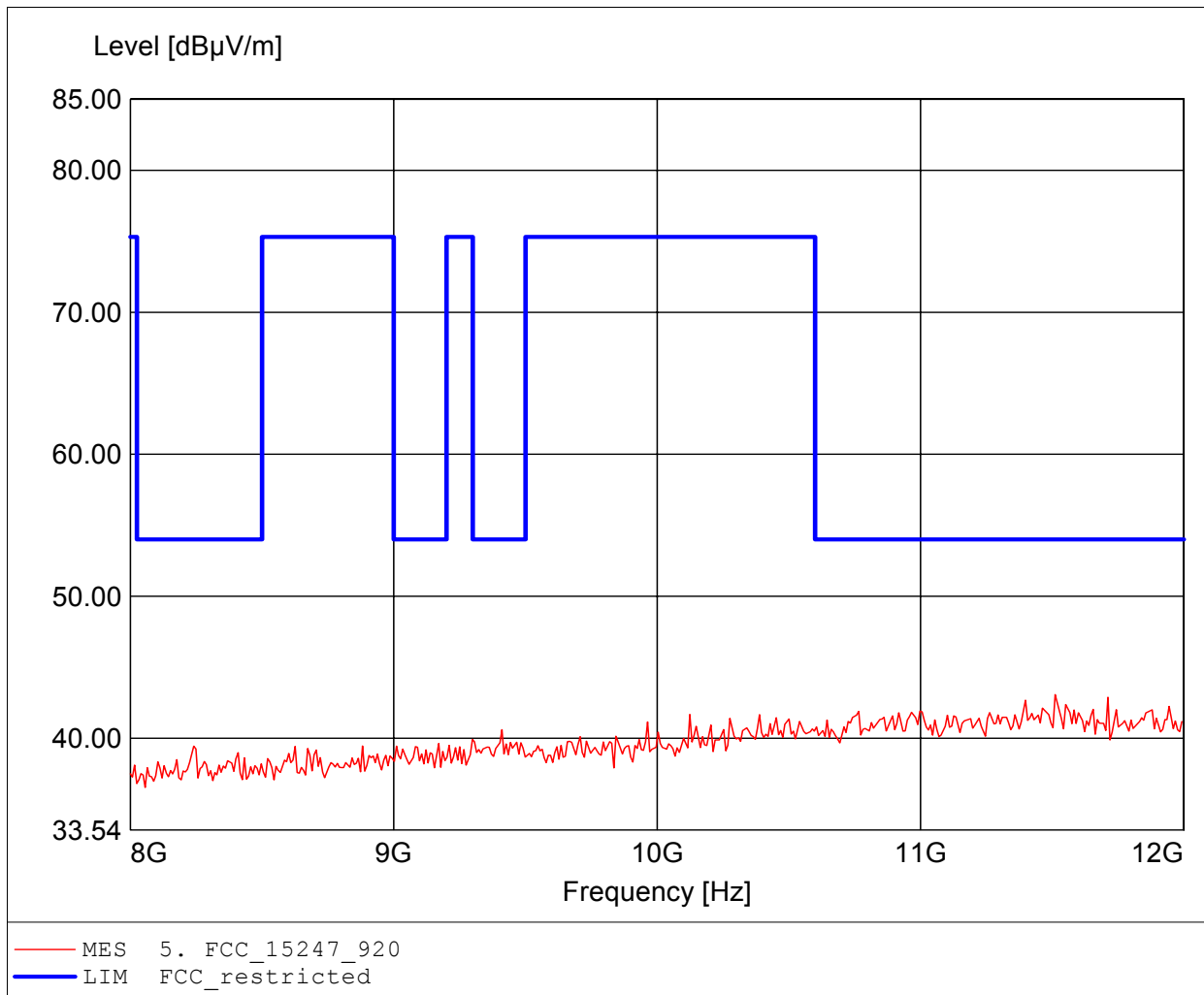
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 926 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 7.976GHz, Emax: 39.67dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

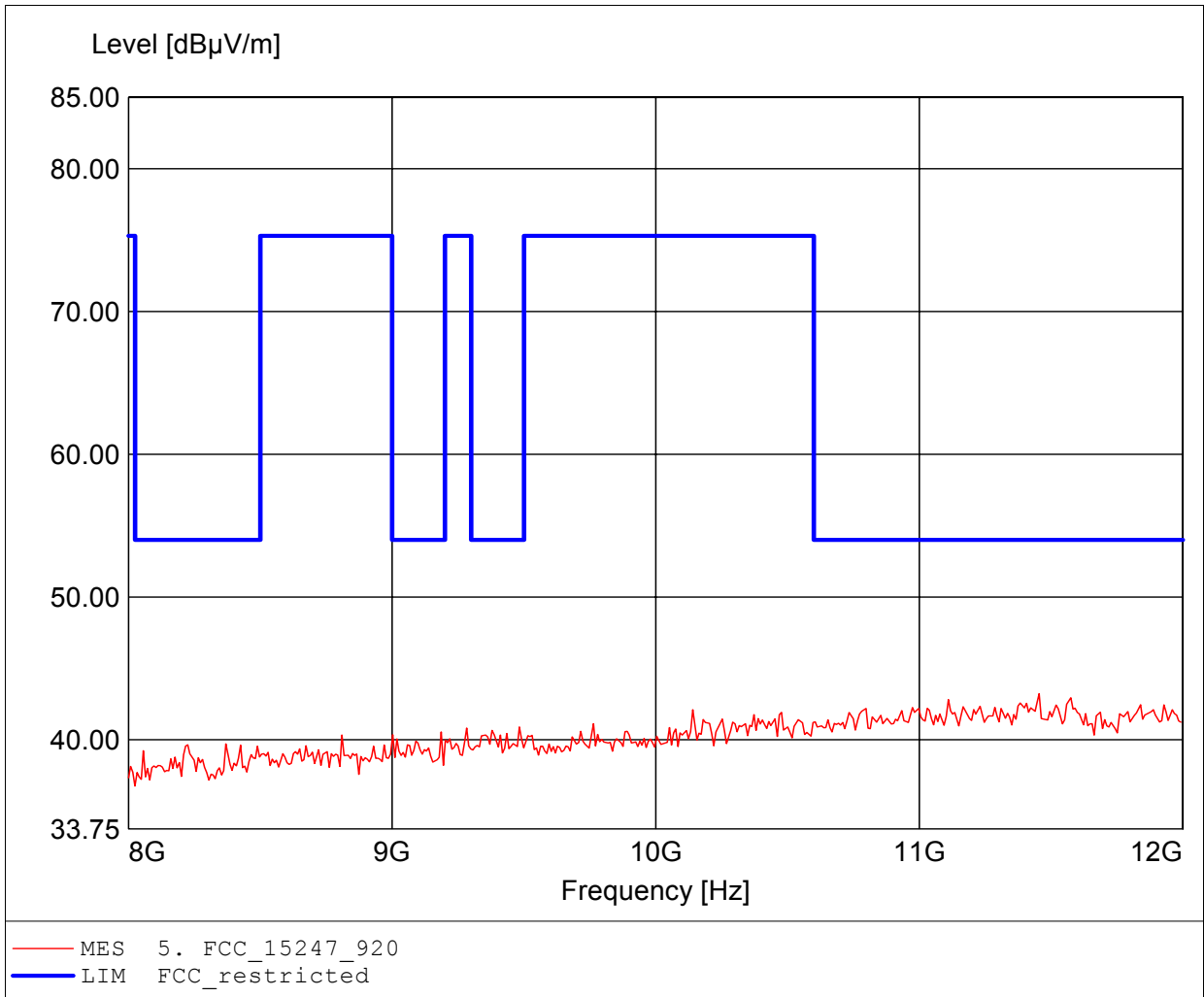
Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 917 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 11.511GHz, Emax: 43.07dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

Approval Holder: Dräger Safety
EUT: Gas detector with SDR
Model: AAC 00xx (X-zone 5000) / GFSK / ch. 917 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 11.455GHz, Emax: 43.23dBµV/m, RBW: 1MHz



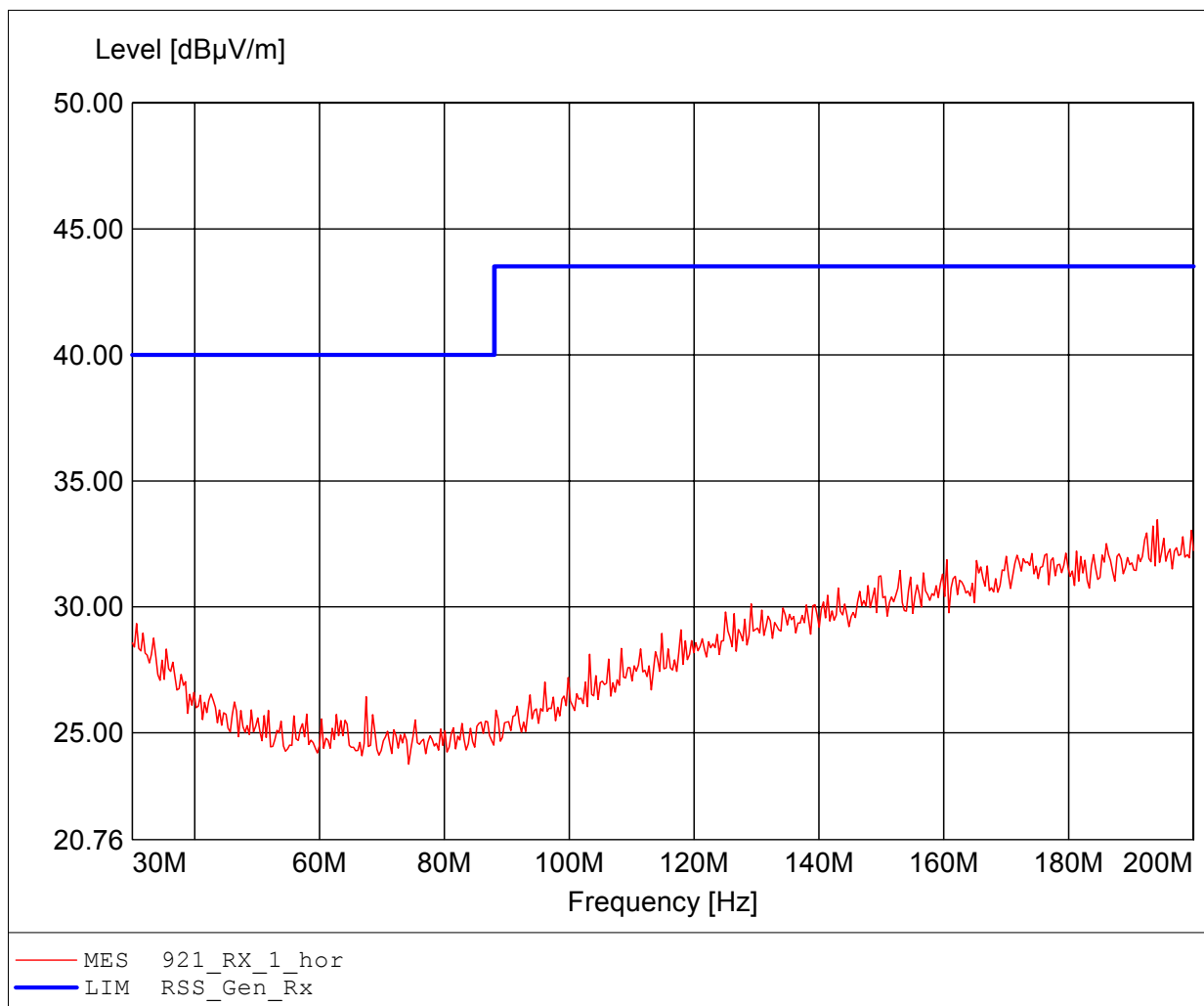
Annex D

Receiver radiated emisissions

Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

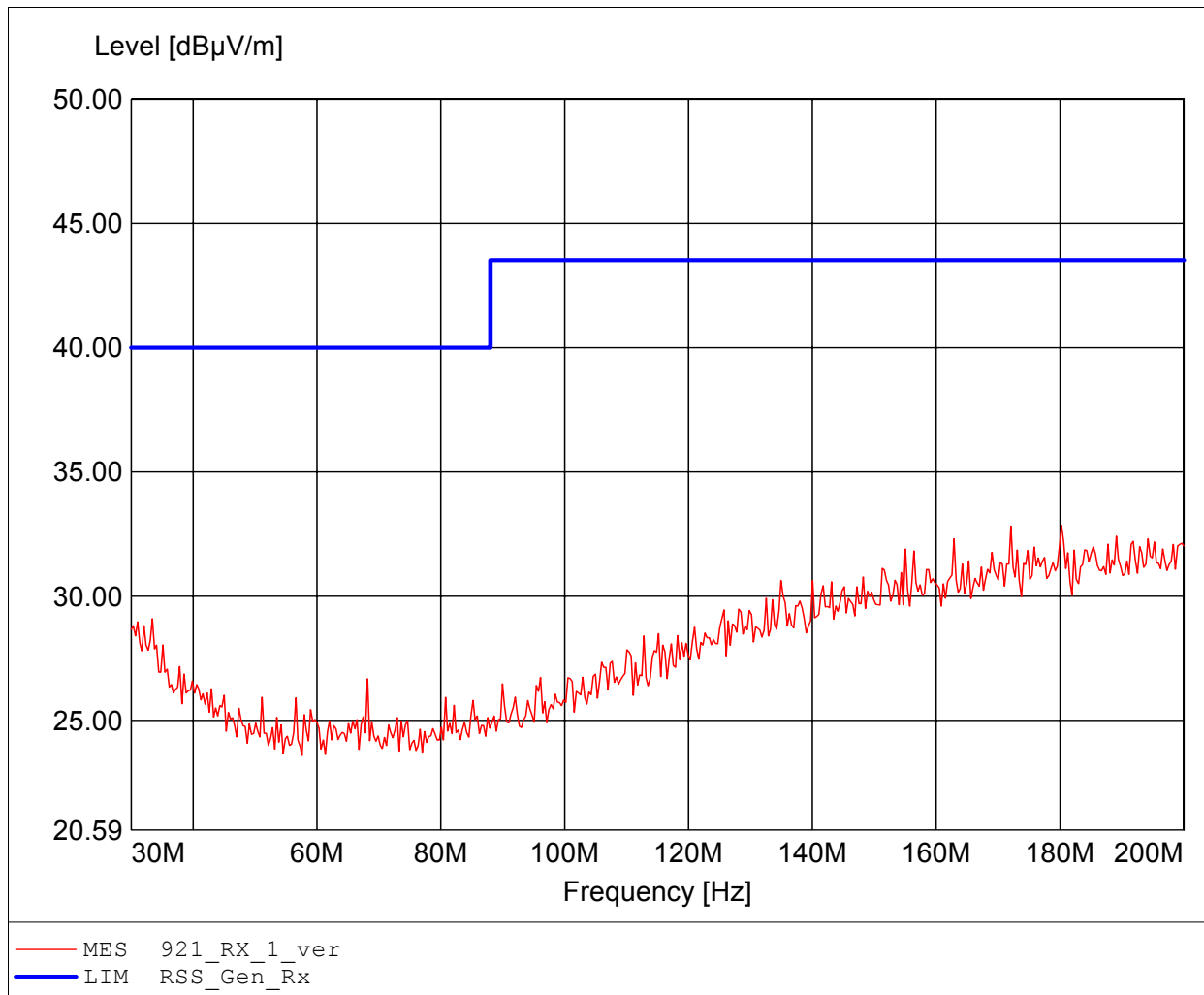
Approval Holder: Dräger Safety
EUT: Gas detector with SRD
Model: AAC 00xx (X-zone 5000) / ch. 921.5 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: Freq. / CH: 921
Comment 1: Dist.: 3m, Ant.: HK 116
Comment 2: Freq:194.208MHz Emax:33.46dBuV/m RBW: 100 kHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

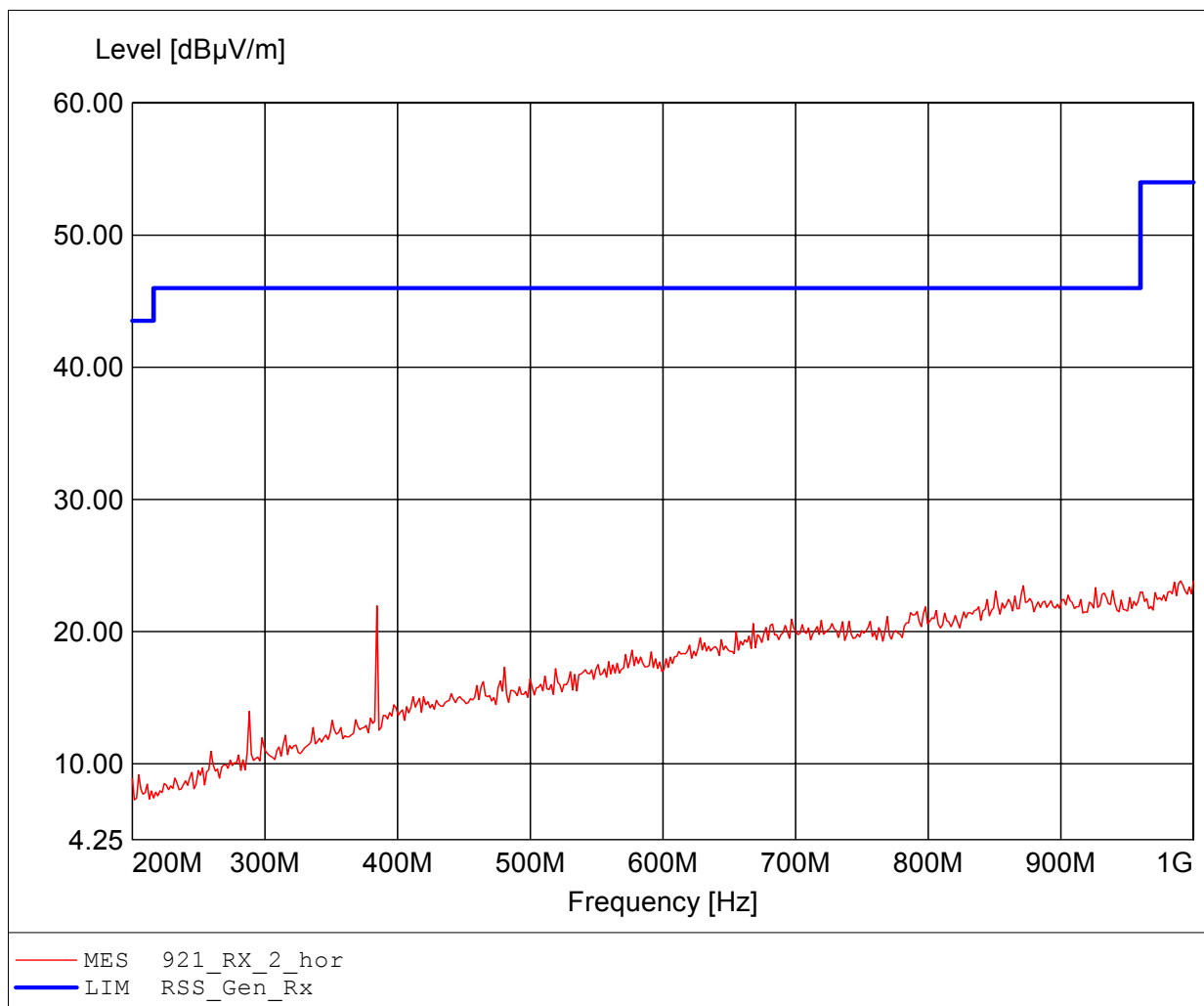
Approval Holder: Dräger Safety
EUT: Gas detector with SRD
Model: AAC 00xx (X-zone 5000) / ch. 921.5 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: Freq. / CH: 921
Comment 1: Dist.: 3m, Ant.: HK 116
Comment 2: Freq:180.240MHz Emax:32.85dBµV/m RBW: 100 kHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

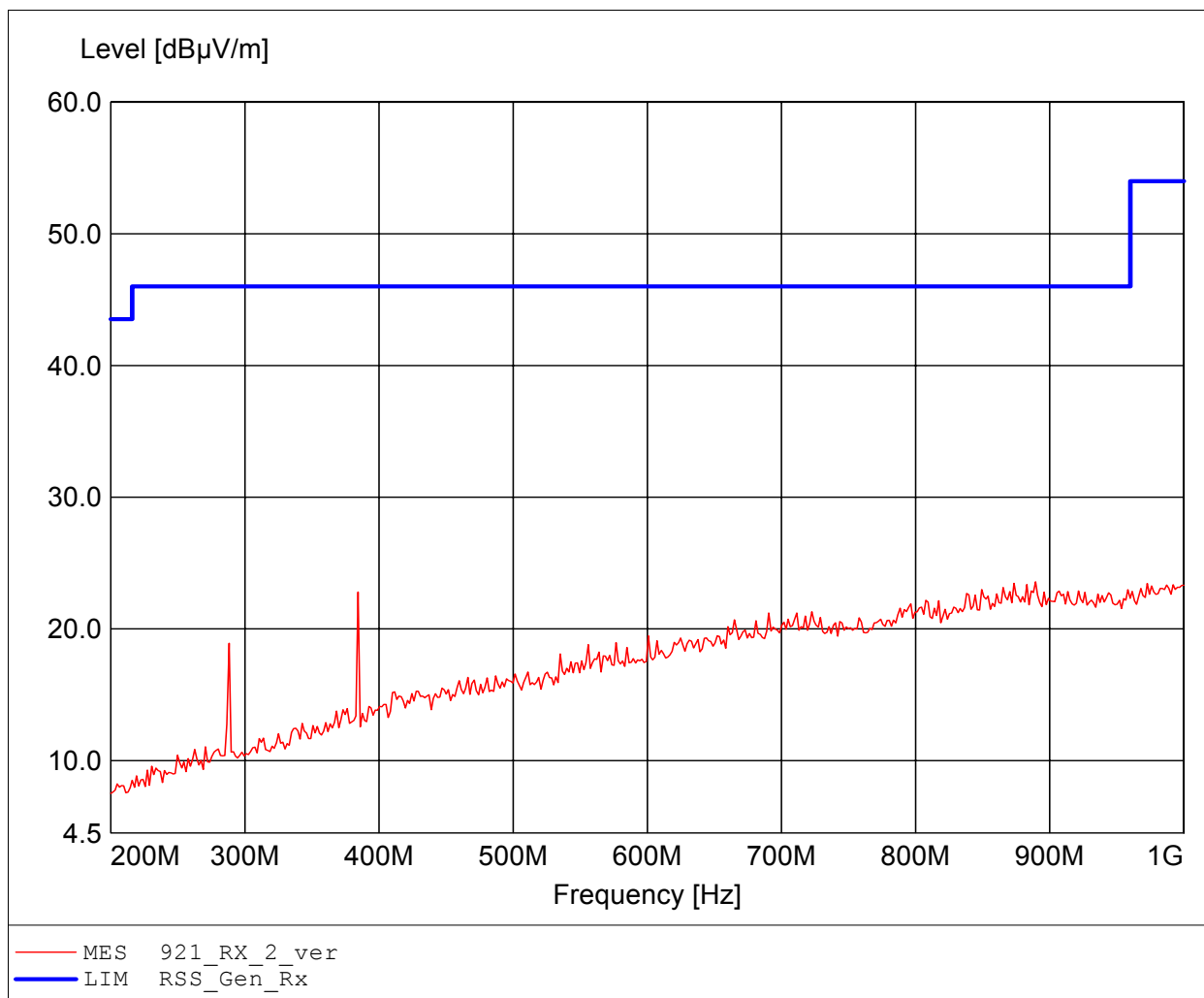
Approval Holder: Dräger Safety
EUT: Gas detector with SRD
Model: AAC 00xx (X-zone 5000) / ch. 921.5 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: Freq. / CH: 921
Comment 1: Dist.: 3m, Ant.: HL 223, ampl.
Comment 2: Freq:1.000GHz Emax:23.83dBuV/m RBW: 100 kHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

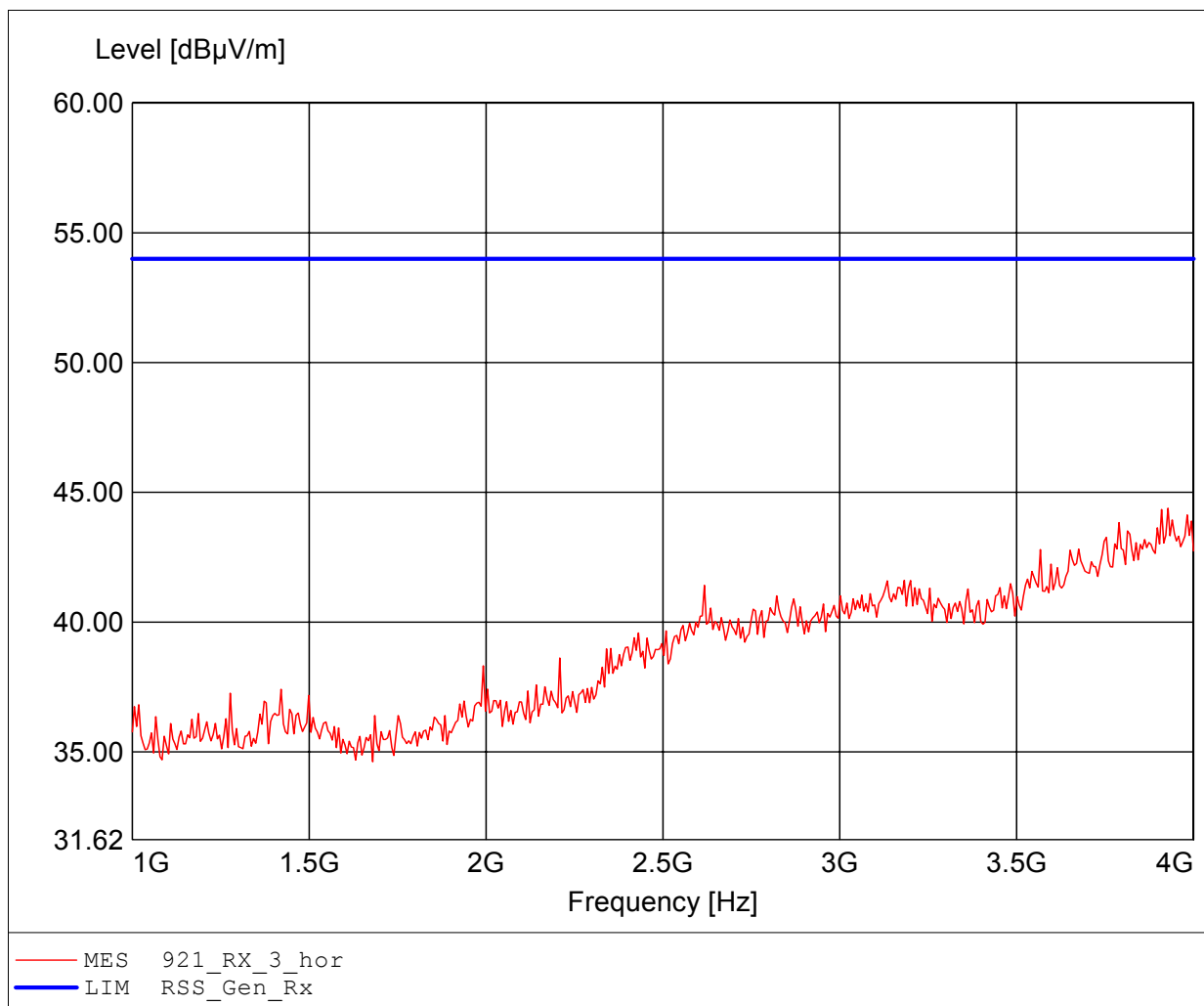
Approval Holder: Dräger Safety
EUT: Gas detector with SRD
Model: AAC 00xx (X-zone 5000) / ch. 921.5 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: Freq. / CH: 921
Comment 1: Dist.: 3m, Ant.: HL 223, ampl.
Comment 2: Freq:889.379MHz Emax:23.57dBµV/m RBW: 100 kHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

Approval Holder: Dräger Safety
EUT: Gas detector with SRD
Model: AAC 00xx (X-zone 5000) / ch. 921.5 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: Freq. / CH: 921
Comment 1: Dist.: 3m, Ant.: HL025, ampl.
Comment 2: Freq:3.928GHz Emax:44.39dBµV/m RBW: 1 MHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

Approval Holder: Dräger Safety
EUT: Gas detector with SRD
Model: AAC 00xx (X-zone 5000) / ch. 921.5 MHz
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom: 24°C / Unom.: 6.0 V DC battery
Test Specification: Freq. / CH: 921
Comment 1: Dist.: 3m, Ant.: HL025, ampl.
Comment 2: Freq:3.874GHz Emax:44.47dBµV/m RBW: 1 MHz

