




EMC TEST REPORT FCC 47 CFR Part 15B, ISED ICES-003 Issue 6	
Report Reference No	G0M-2010-9382-EF0215B-V01
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	 <p> 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 </p>
Applicant	Dräger Safety AG & Co. KGaA
Address	Revalstraße 1 23560 Lübeck GERMANY
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	Portable Alarm Amplifier with SRD
Model(s)	AAC OOxx
Additional Model(s)	None
Brand Name(s)	Dräger
Hardware Version(s)	X-zone 5800 in addition to current Version X-zone 5500 (not tested)
Software Version(s)	8320670
FCC-ID	X6O-AAC00XX
IC	5895F-AAC00XX
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	2021-01-29	
Report:		
Compiled by	Stephan Liebich	
Tested by (+ signature) (Responsible for Test)	Stephan Liebich 	
Approved by (+ signature) (Test Lab Technician)	Matthias Handrik 	
Date of Issue	2021-04-28	
Total number of pages	68	
General Remarks:		
<p>The test results presented in this report relate only to the object tested. The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p>		
Additional Comments:		
<p>Additional variants have been declared by the manufacturer. The listed models were not tested, evaluated or assessed in no way.</p>		
Additional Model 1	Product Type Description	Portable Alarm Amplifier with SRD
	Model Name	AAC 00xx
	Brand Name (optional)	Dräger
	Hardware Version	X-zone 5500
	Software Version	8320670

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	2021-04-28	Initial Release	--

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1 Equipment (Test Item) Under Test

Description	Portable Alarm Amplifier with SRD	
Model	AAC OOxx	
Additional Model(s)	None	
Brand Name(s)	Dräger	
Serial Number(s)	ARXX-0001	
Sample-ID	33030	
Hardware Version(s)	X-zone 5800 in addition to current Version X-zone 5500 (not tested)	
Software Version(s)	8320670	
FCC-ID	X6O-AAC00XX	
IC	5895F-AAC00XX	
Class	Class B	
Equipment type	Floor standing	
Highest internal frequency [MHz]	1000	
Radio Module	Type	SHORT RANGE DEVICES (SRD)
	Model	unspecified
	Manufacturer	unspecified
	FCC-ID	X6O-AAC00XX
	IC	5895F-AAC00XX
Supply Voltage	V _{NOM}	12 V DC by dedicated AC/DC-Adaptor 1 15 V DC by dedicated AC/DC-Adaptor 2 12 V DC by 2x VRLA 6 V/12 Ah internal battery
AC/DC-Adaptor 1	Model	Power Supply Ex
	Vendor	Dräger
	Input	115 V AC or 230 V AC
	Output	10.0 V to 13.5 V DC
AC/DC-Adaptor 2	Model	FW7362/15
	Vendor	Dräger
	Input	100 Hz – 240 Hz AC
	Output	15 V DC
Manufacturer	Dräger Safety AG & Co. KGaA Revalstraße 1 23560 Lübeck GERMANY	

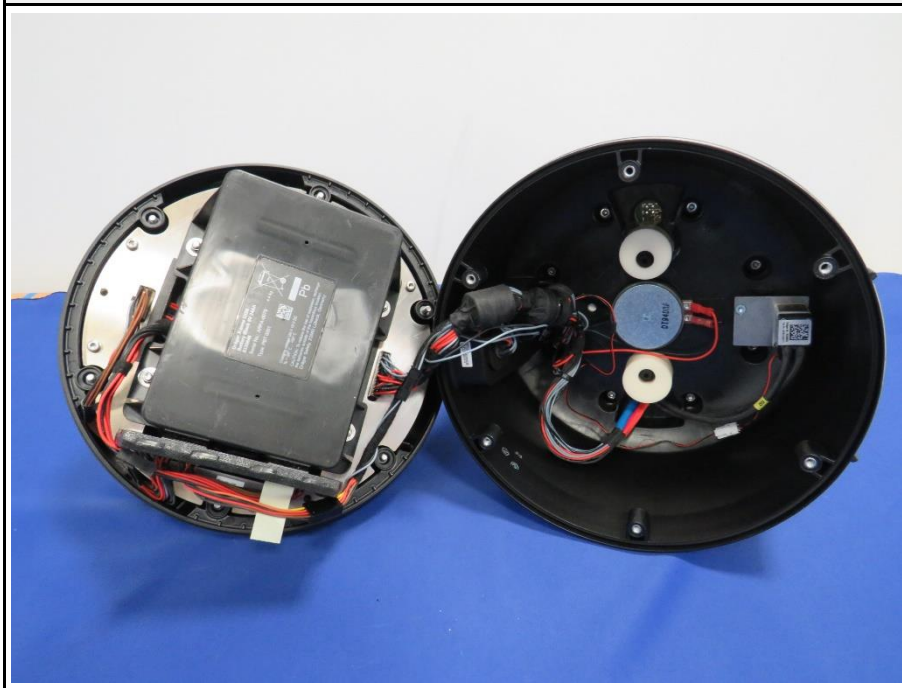
1.1 Equipment Ports

Name	Type	Attributes	Comment
AC Mains 1	AC	Count: 3 Direction: In Service only: No	Input port of the dedicated AC/DC-Adaptor 1
AC Mains 2	AC	Count: 3 Direction: In Service only: No	Input port of the dedicated AC/DC-Adaptor 2
XEXT3	IO	Count: 25 Direction: In Service only: No	Input port for the dedicated AC/DC-Adaptor 1, Switch Output
XEXT2	IO;DC	Count: 25 Direction: IO Service only: No	RS485/2
XEXT1	IO;DC	Count: 25 Direction: IO Service only: No	Input port for the dedicated AC/DC-Adaptor 2, RS485/1
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		

1.2 Equipment Photos - Internal



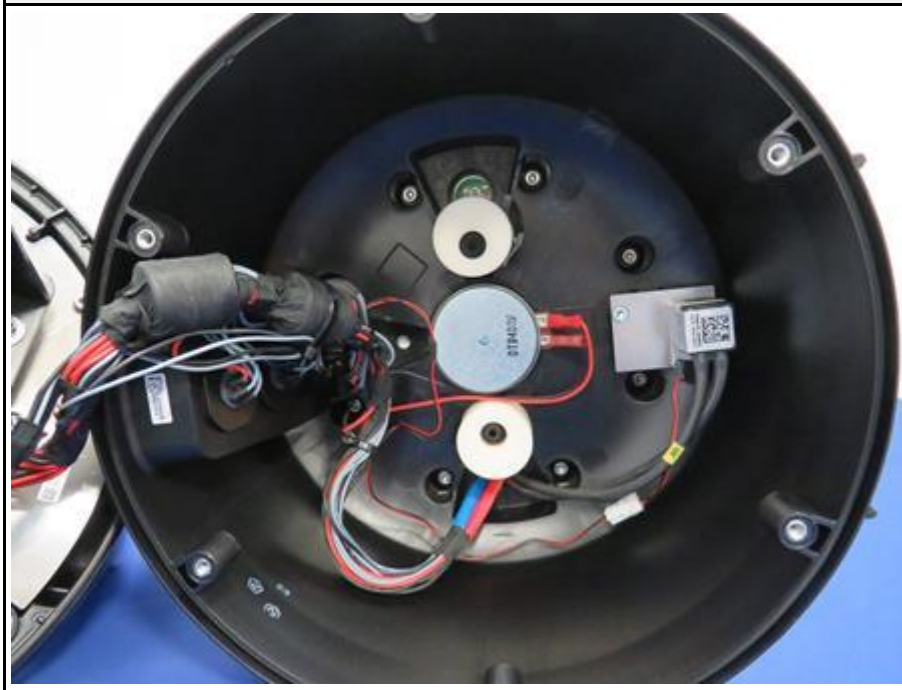
EUT TOP AND BOTTOM CONNECTION



EUT CONNECTIONS TOP SIDE



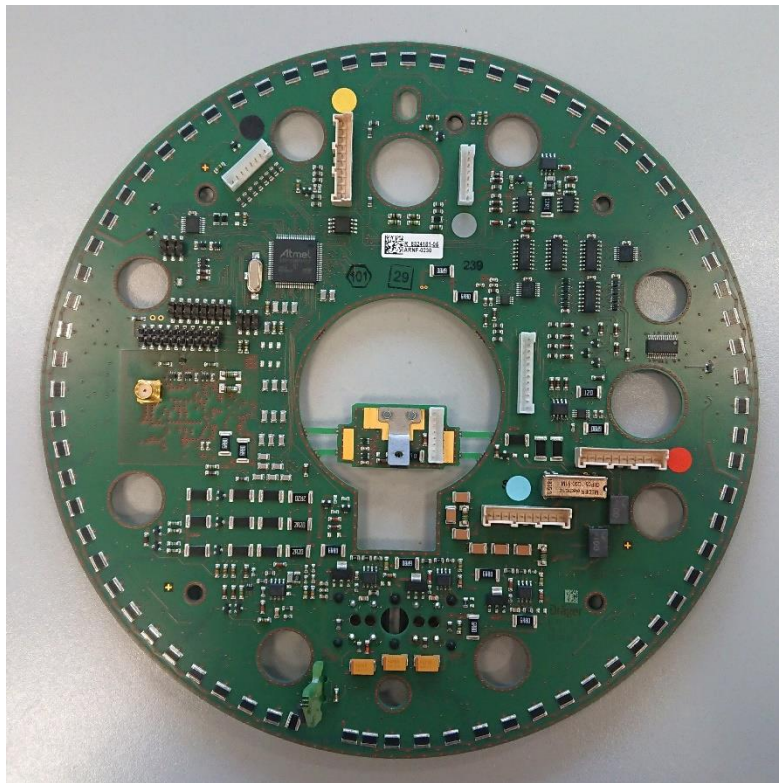
EUT TOP SIDE CASE



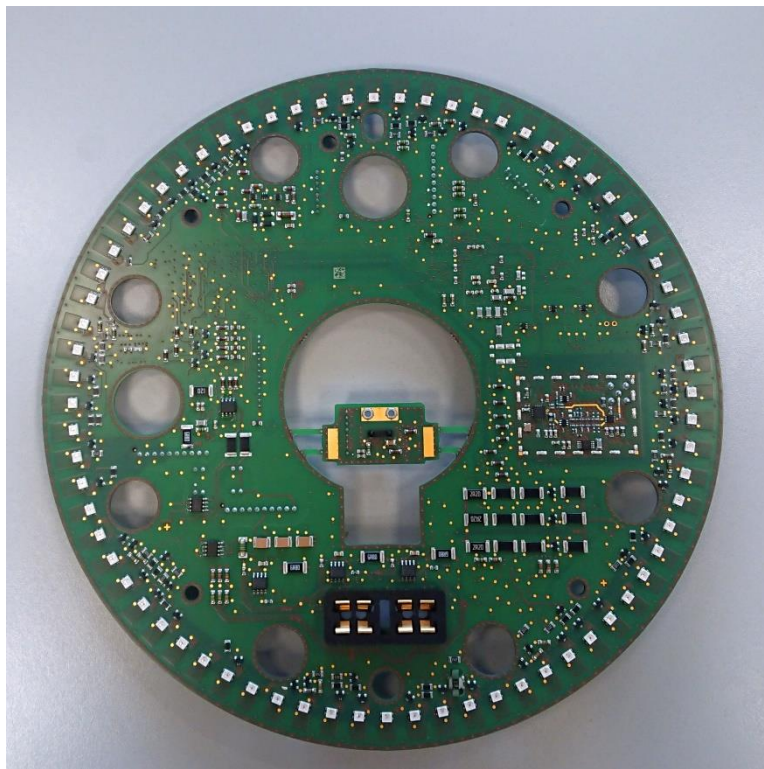
EUT BOTTOM SIDE CASE

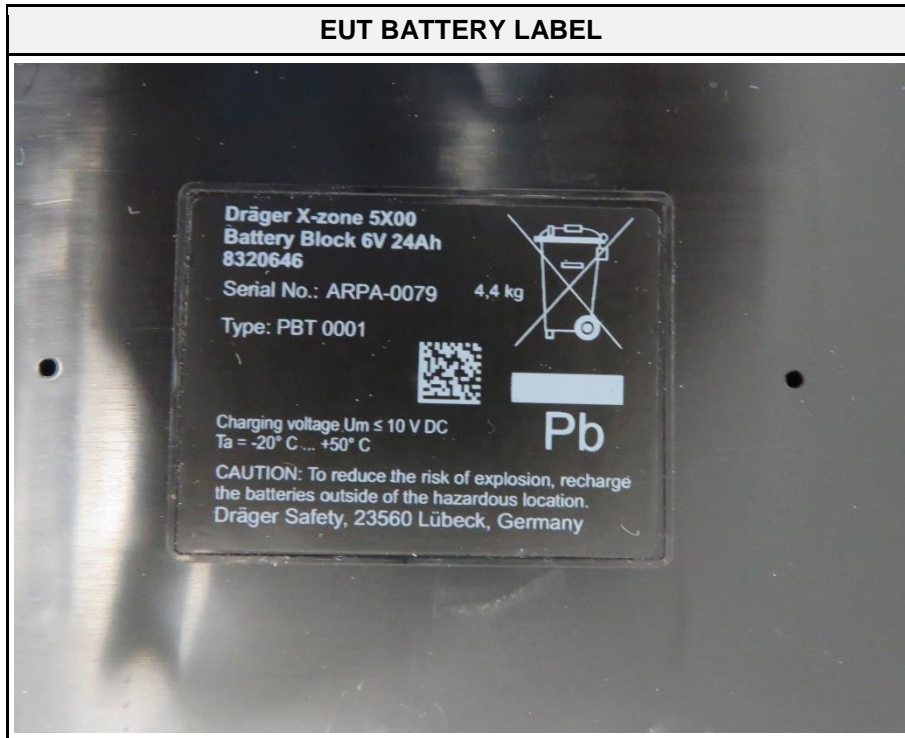


EUT PCB TOP SIDE



EUT PCB BOTTOM SIDE







1.3 Equipment Photos - External





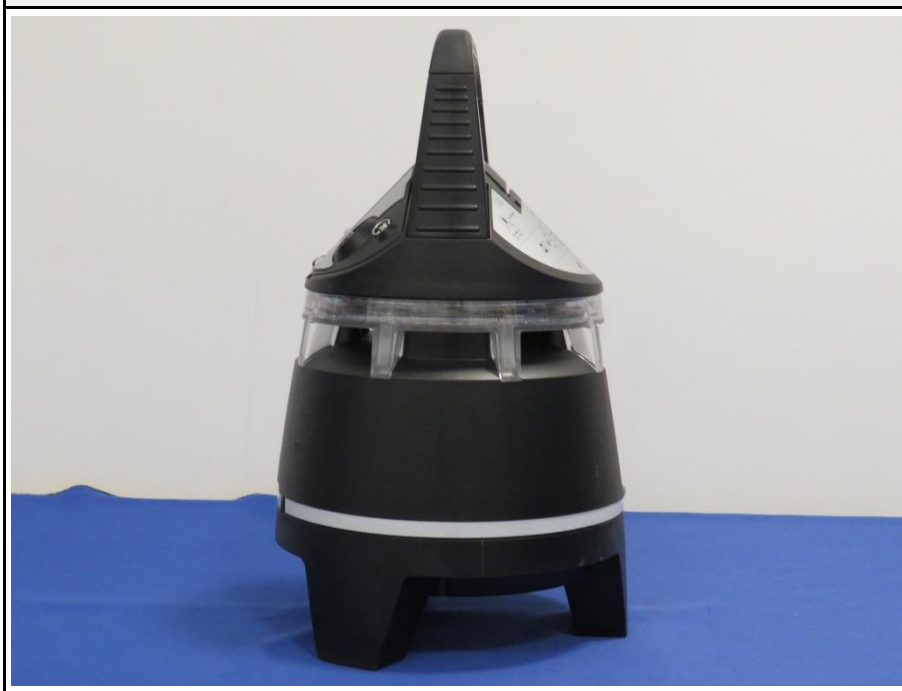
EUT WITH RS485 CABLES IN PERSPECTIVE



EUT FRONT SIDE



EUT RIGHT SIDE



EUT REAR SIDE



EUT LEFT SIDE



EUT TOP SIDE

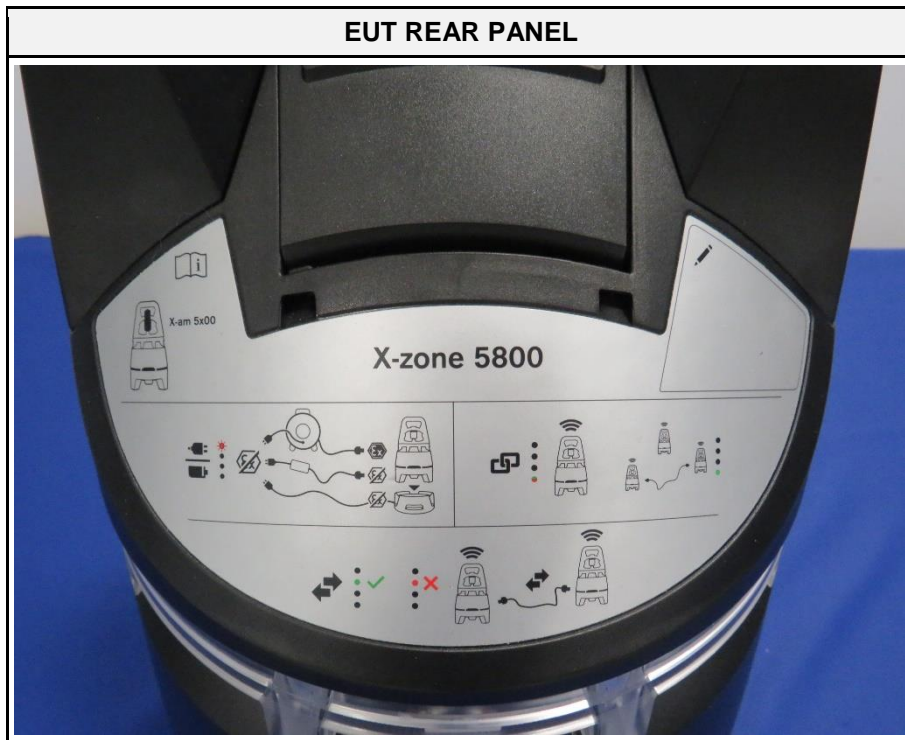


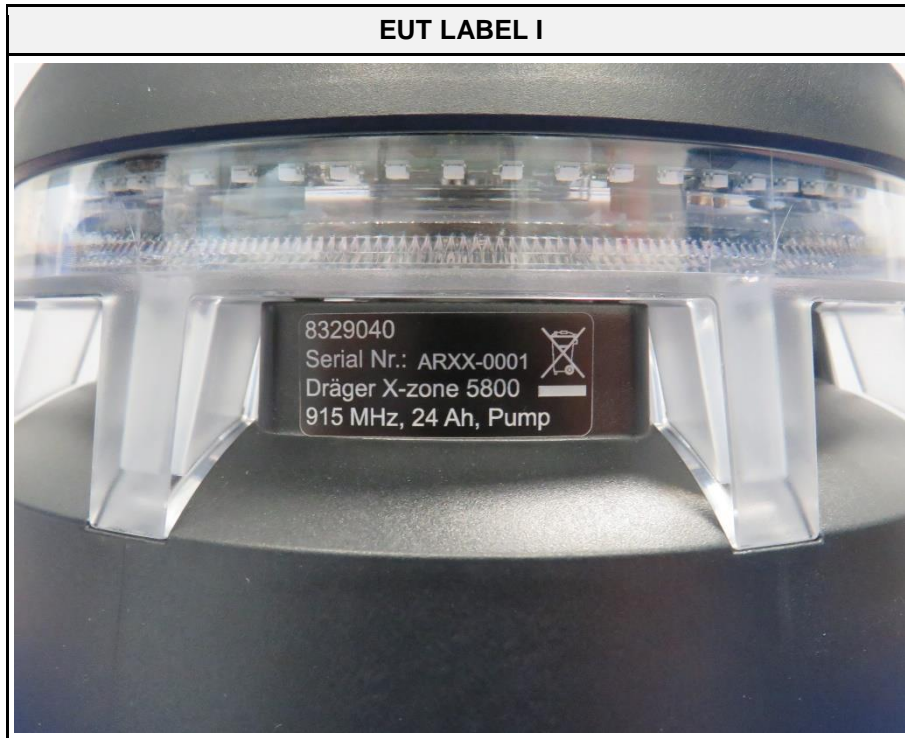
EUT BOTTOM SIDE

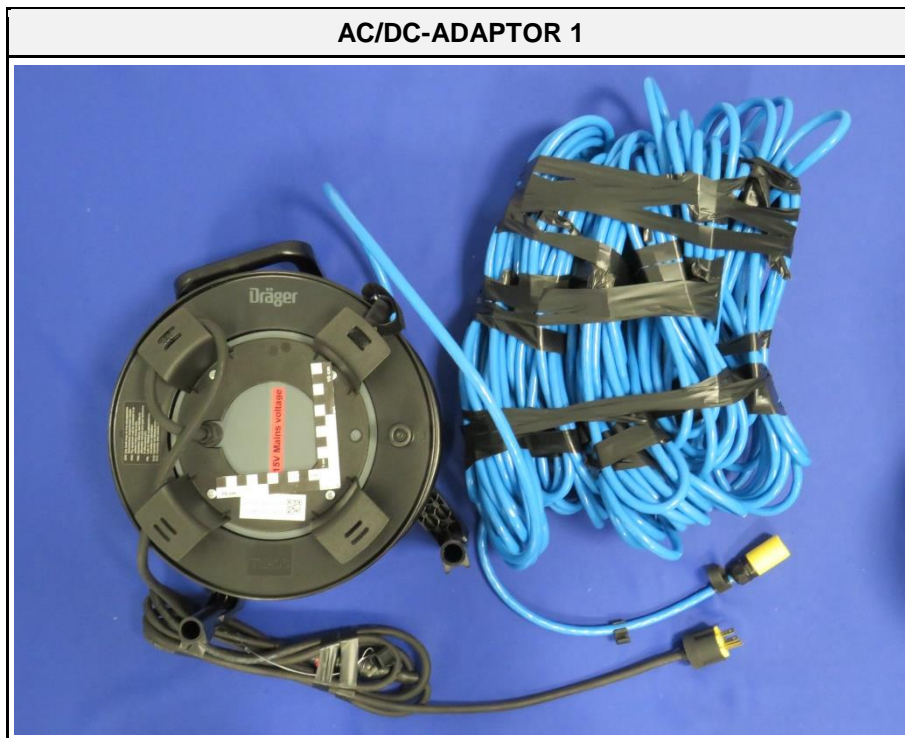


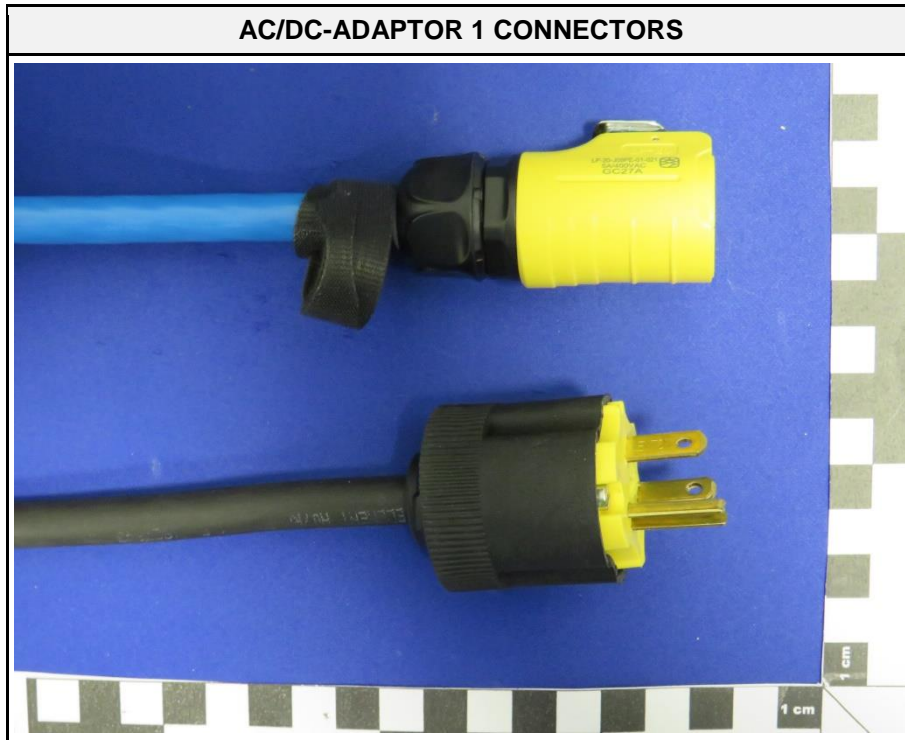
EUT FRONT PANEL



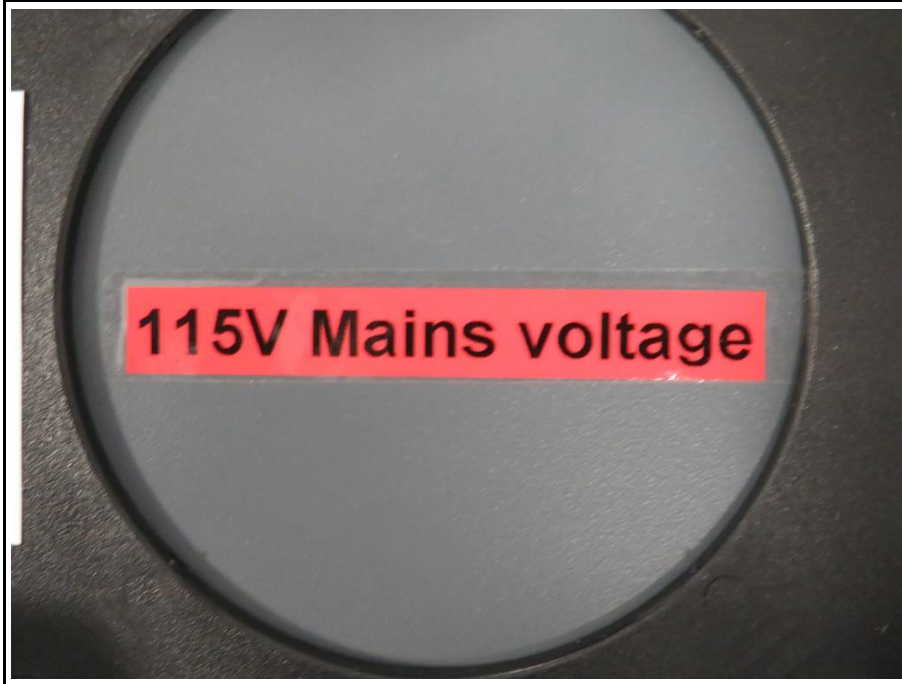






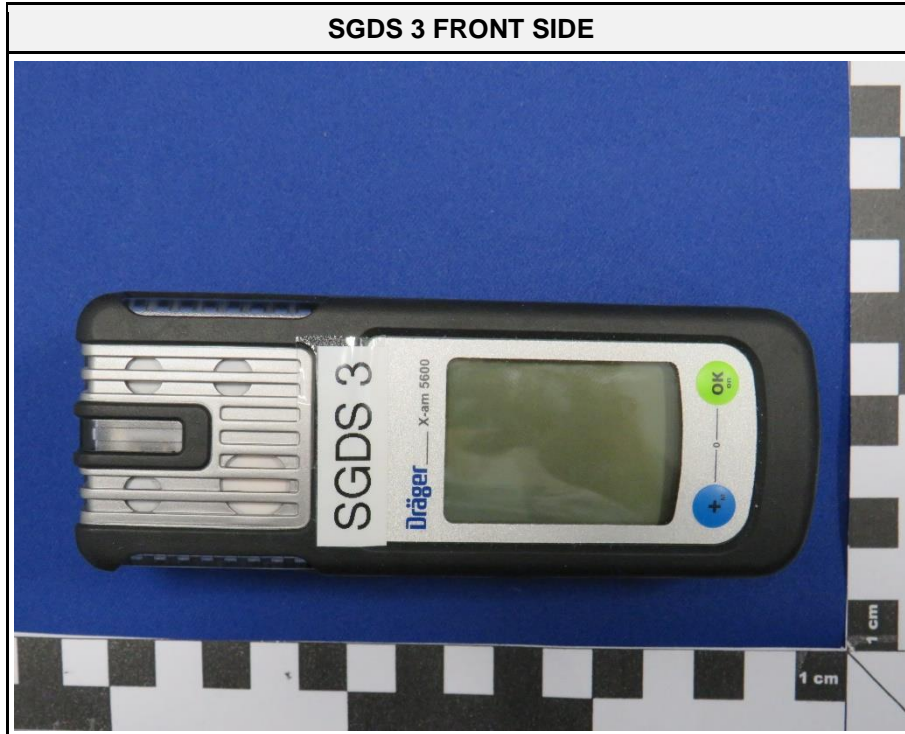
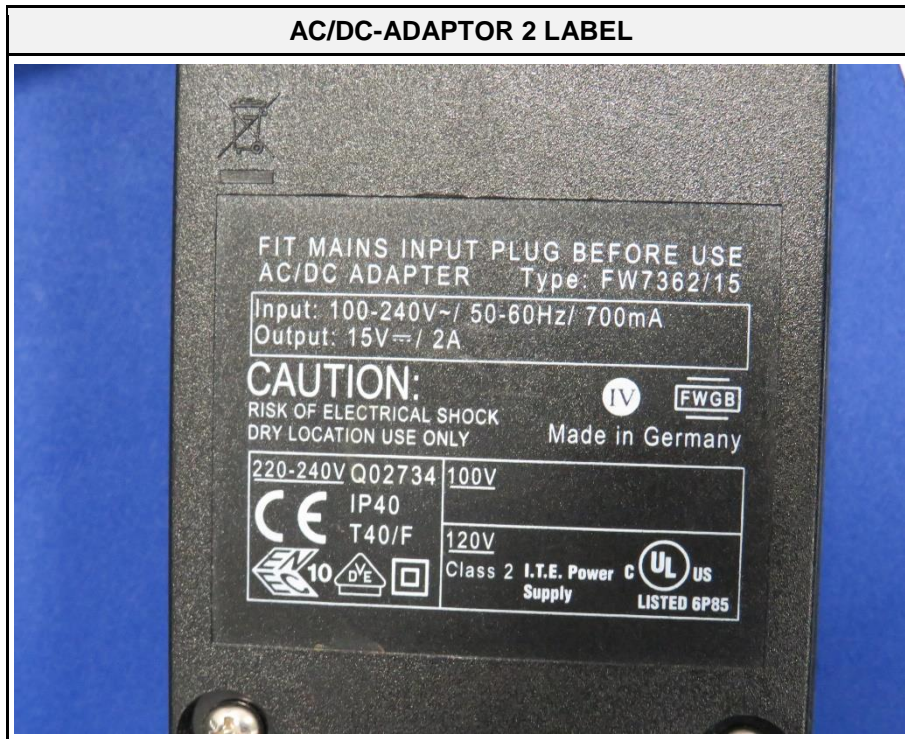


AC/DC-ADAPTOR 1 LABEL II

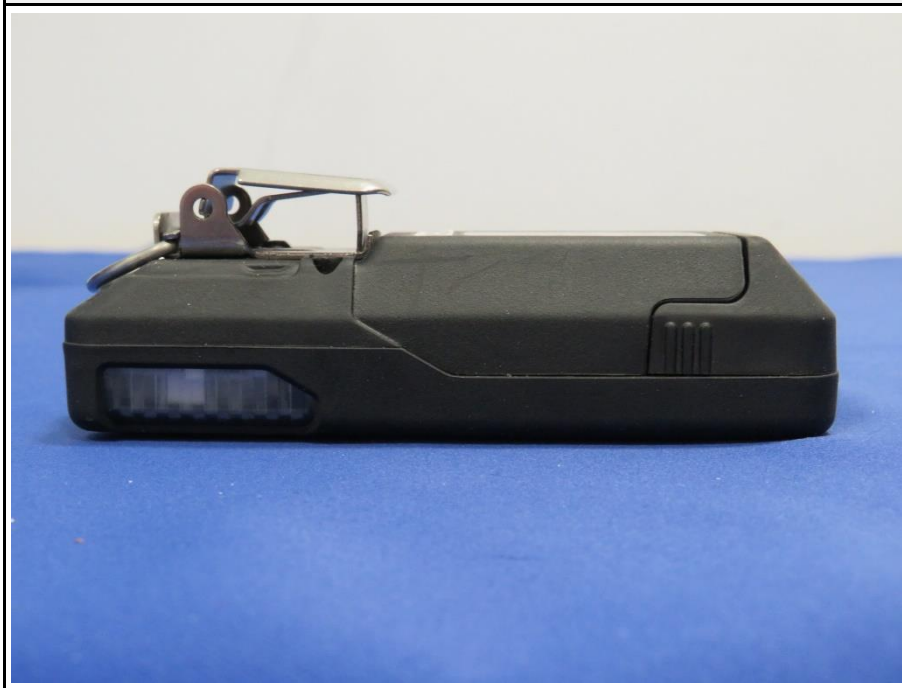


AC/DC-ADAPTOR 2





SGDS 3 RIGHT SIDE



SGDS 3 TOP SIDE



SGDS 3 BOTTOM SIDE



SGDS 3 LABEL



1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	Portable Alarm Amplifier with SRD	Dräger	AAC OOxx	Companion Device
CBL	RS485-A	Dräger	83 21 669	Cable with ferrite 742 712 11 from Würth; double wound
CBL	RS485-B	Dräger	83 21 669	Cable with ferrite 742 712 11 from Würth; double wound
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
MON	Monitoring Equipment			
CBL	Connecting Cable			
Comment:				

1.5 Operational Modes

Mode #	Description
1	Internal battery is charging
2	Active mode (EUT measures its environment and sends/receives data to/from Companion Device via SRD 917 MHz to 926 MHz and RS485 connection.)
Comment: --	

1.6 EUT Configuration

Configuration #	Description
1	EUT is powered via AC/DC-Adaptor 1 by external laboratory power supply unit.
2	EUT is powered via AC/DC-Adaptor 2 by external laboratory power supply unit.
3	EUT is powered by internal battery and additional EUT is connected with Companion Device via RS485 connection.
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:

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

Net:

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

Limit:

This is the FCC Class B radiated emission limit (in units of 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:

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

Margin:

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

Example only:

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	PASS	--
Comment: --				

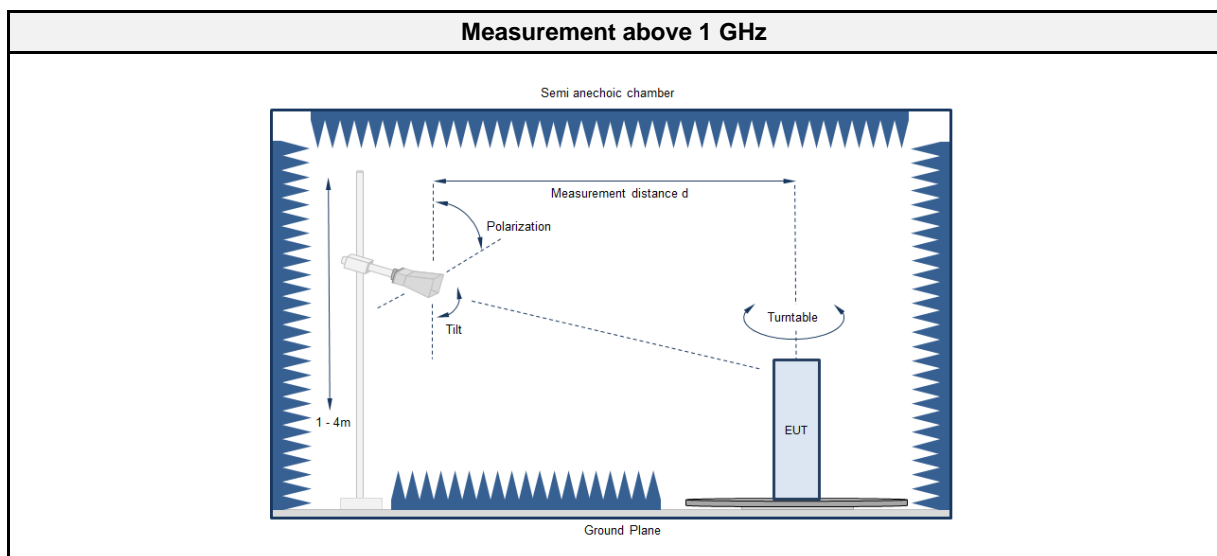
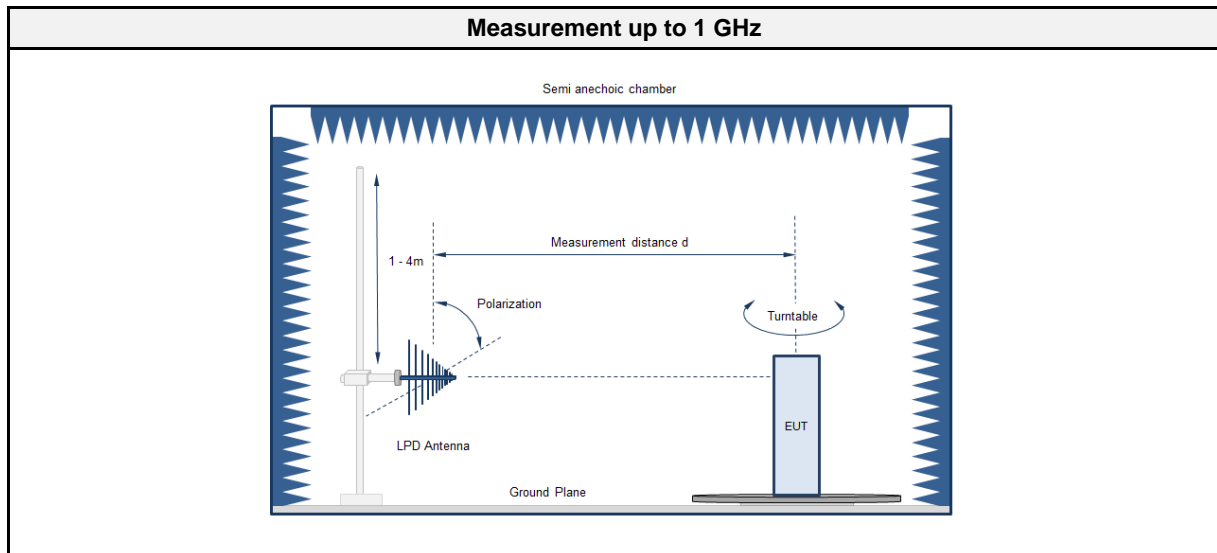
Possible Test Case Verdicts	
PASS	Test object does meet the requirements
FAIL	Test object does not meet the requirements
N/T	Required by standard but not tested
N/R	Not required by standard for the test object

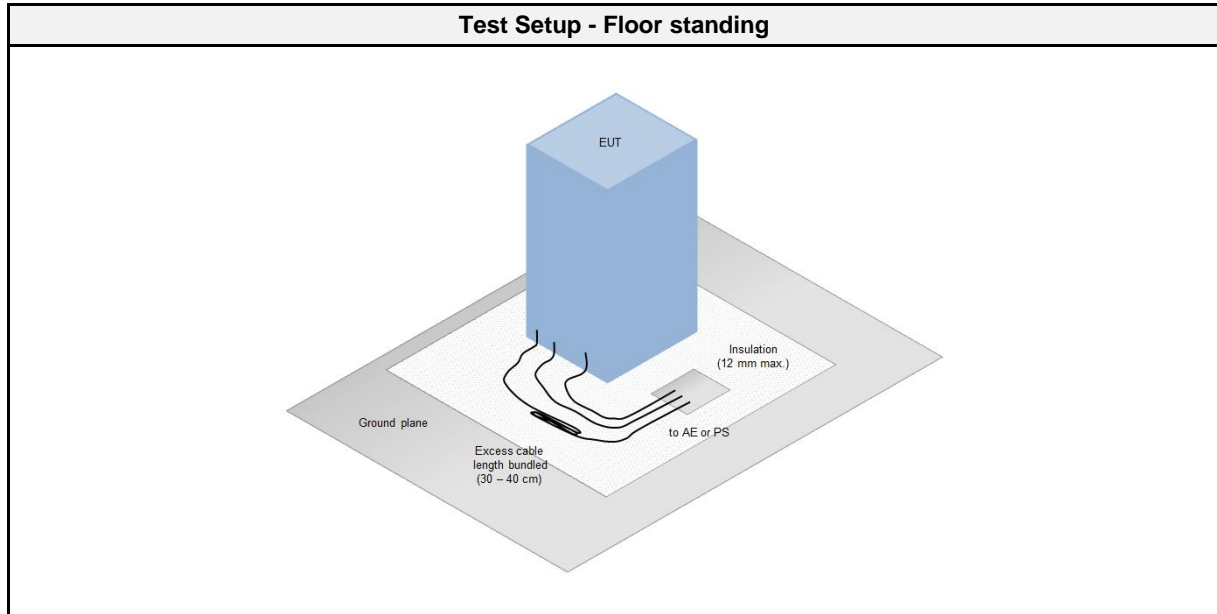
2.1 Test Conditions and Results - Radiated emissions acc. to ANSI C63.4

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	Floor standing
Highest internal frequency [MHz]	1000
Measurement range	30 MHz to 6000 MHz
Temperature [°C]	19 – 24
Humidity [%]	17 – 33
Operator	Stephan Liebich
Date	2021-03-09 and 2021-03-10

2.1.2 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
Climatic Sensor	Embedded Data Systems, LLC.	2800100000254 17E	EF01054	2020-03	2021-03

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic chamber	Frankonia	AC6	EF00910	2020-02	2023-02
EMI Test Receiver	R&S	ESU26	EF00887	2020-07	2021-07
Horn Antenna	ETS-Lindgren	3117	EF00976	2019-03	2022-03
Climatic Sensor	Embedded Data Systems, LLC.	9A00100000254 77E	EF01124	2020-03	2021-03

2.1.4 Procedure

Exploratory measurement	
1.	<p>a) Where a floor-standing EUT is typically installed with its base in direct electrical contact with, or connected to, a grounded metal floor or grid, the EUT shall be connected to, or placed directly on, the test site (or turntable) reference ground plane in a manner representative of this contact or connection.</p> <p>b) Where floor-standing equipment is not typically installed with its base in direct electrical contact with, or connected to, a metal floor or grid, the EUT shall not be placed in direct electrical contact with the test site (or turntable) reference ground plane. If necessary to prevent direct metallic contact of the EUT and the reference ground plane, insulating material (up to 12 mm thick) shall be placed under the EUT.</p>
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 0.5 mm non-conductive insulating material 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.

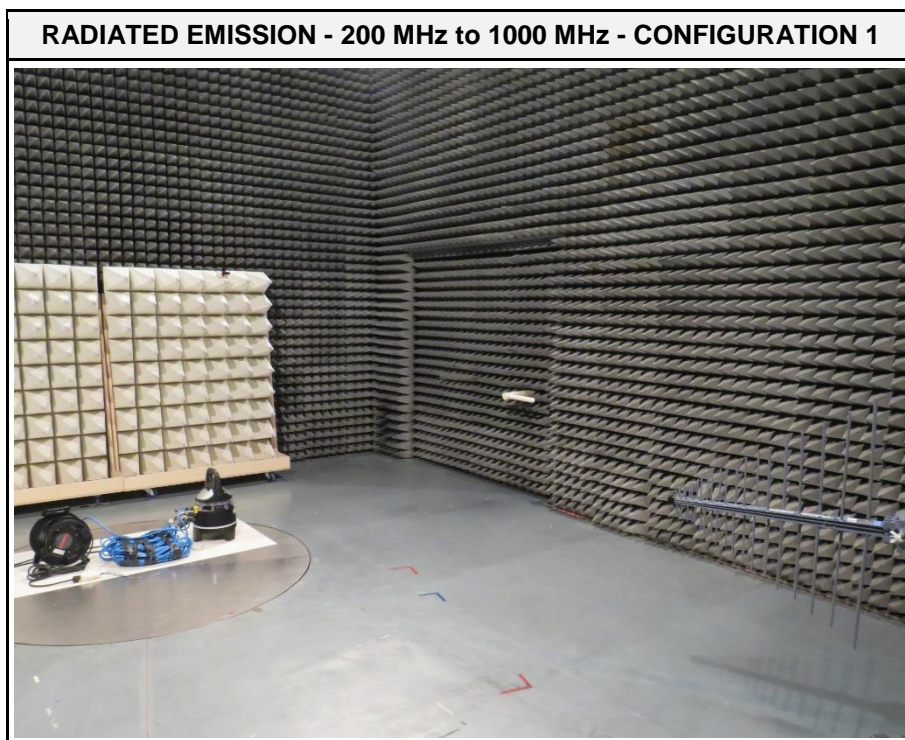
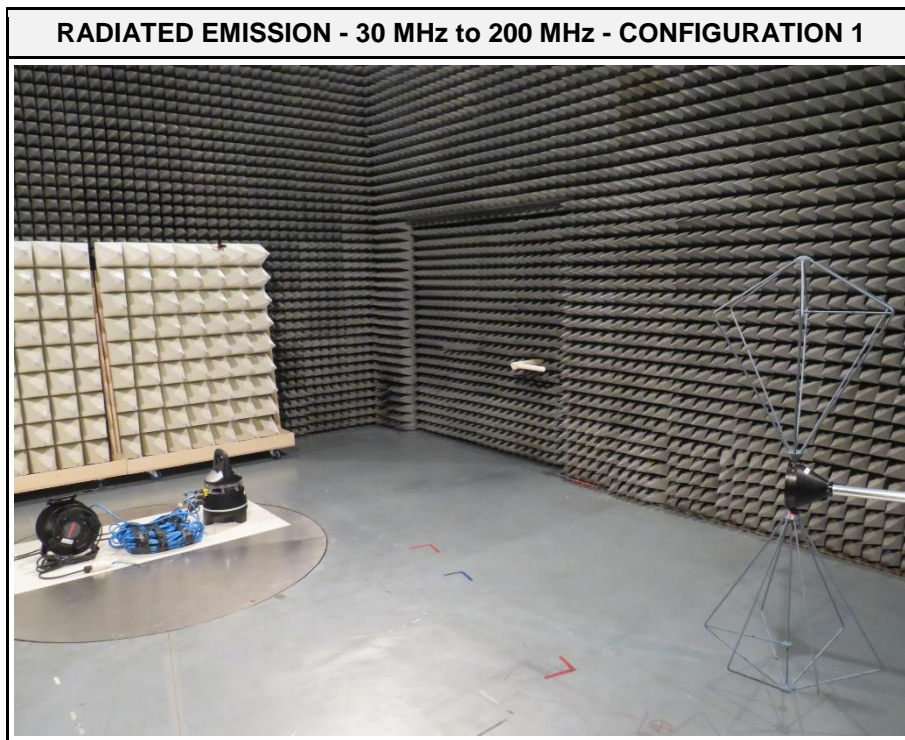
2.1.5 Limits

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	74
	Average	54

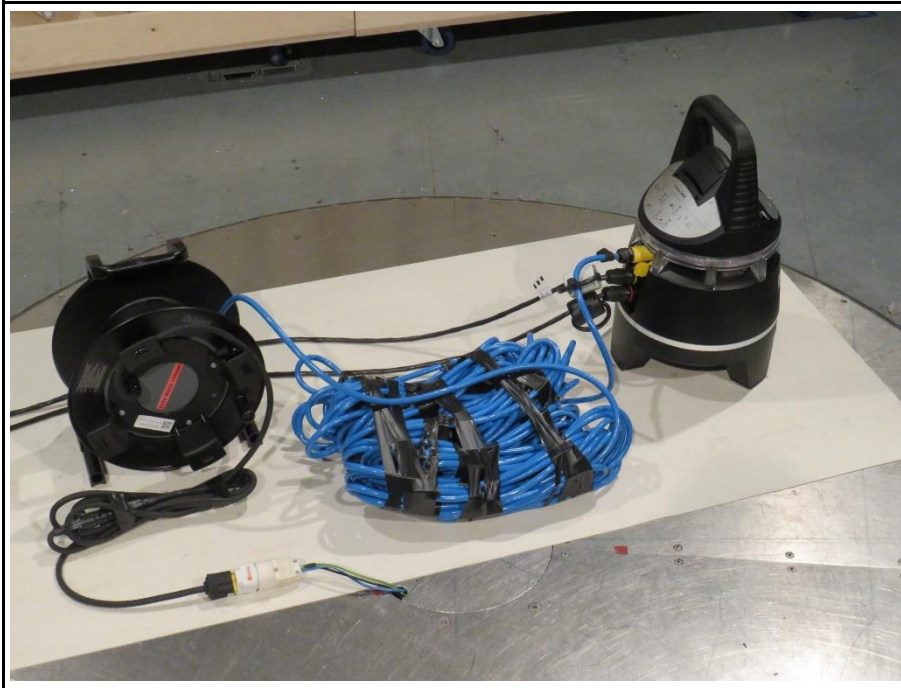
2.1.6 Results

Test Results			
Operational mode	EUT Configuration	Verdict	Remark
1	2	PASS	--
2	1	PASS	--
2	3	PASS	--

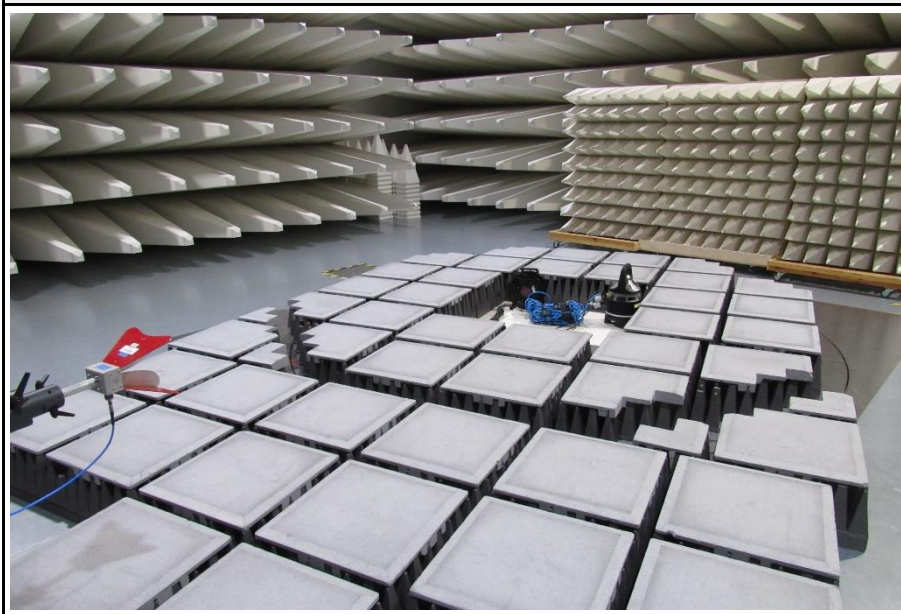
2.1.7 Setup Photos



RADIATED EMISSION - FOCUS I - CONFIGURATION 1



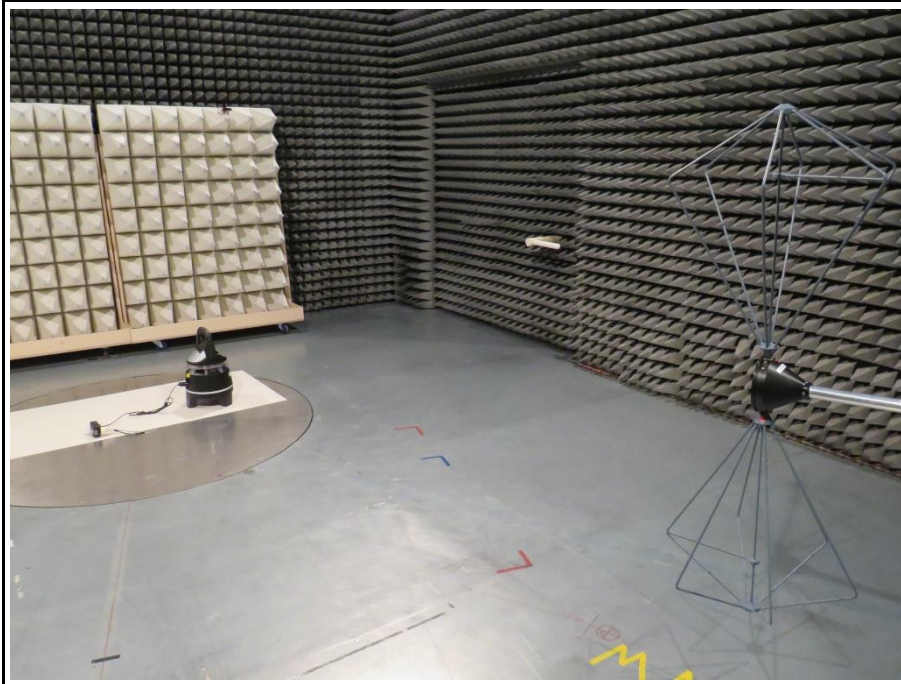
RADIATED EMISSION -1000 MHz to 6000 MHz - CONFIGURATION 1



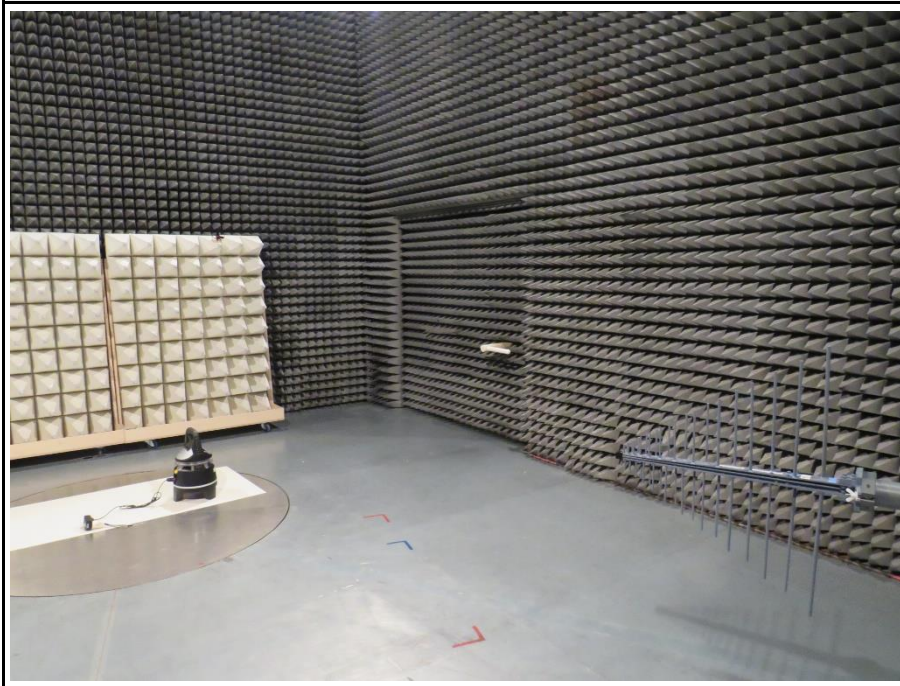
RADIATED EMISSION - FOCUS II - CONFIGURATION 1



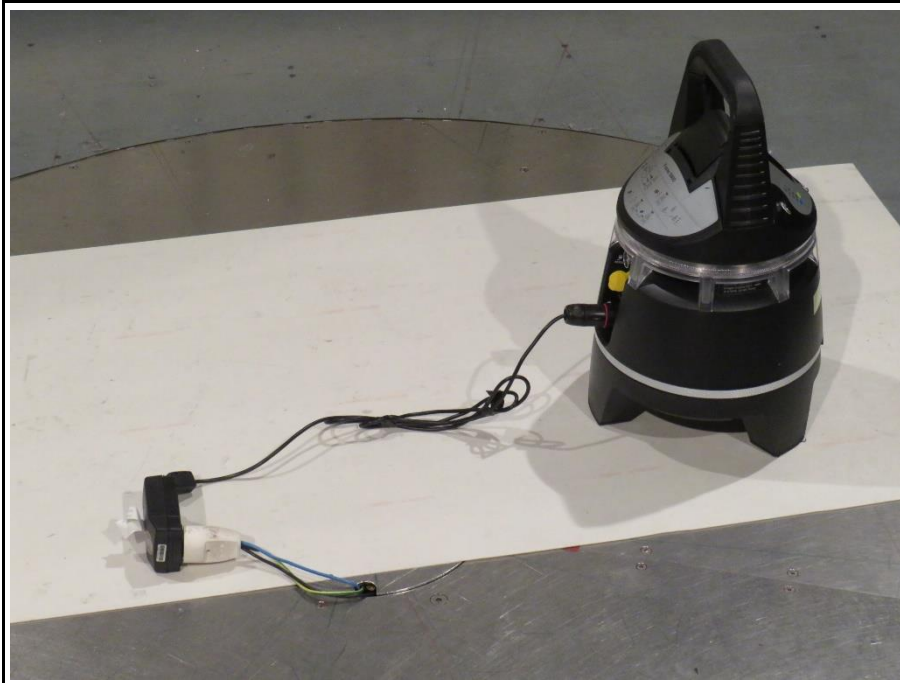
RADIATED EMISSION - 30 MHz to 200 MHz - CONFIGURATION 2



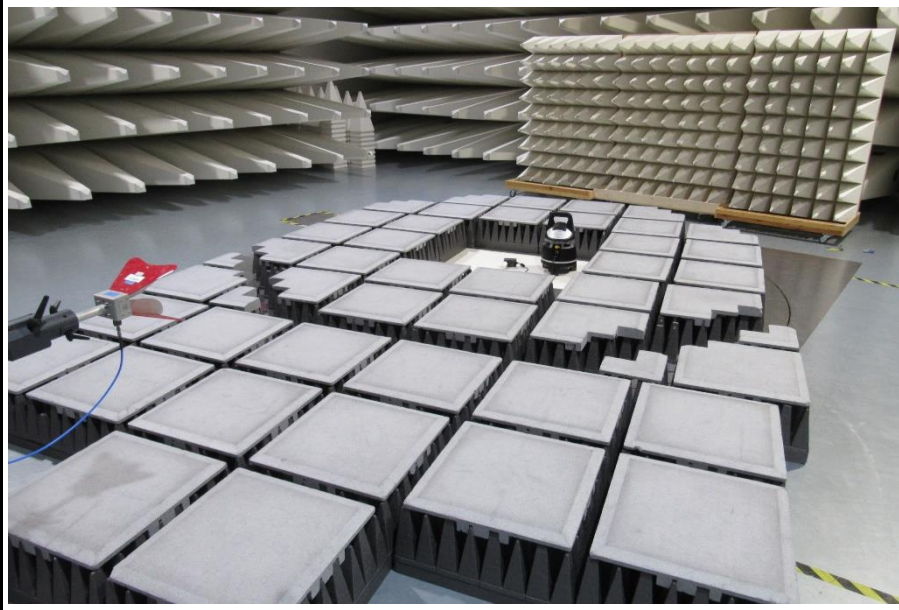
RADIATED EMISSION - 200 MHz to 1000 MHz - CONFIGURATION 2



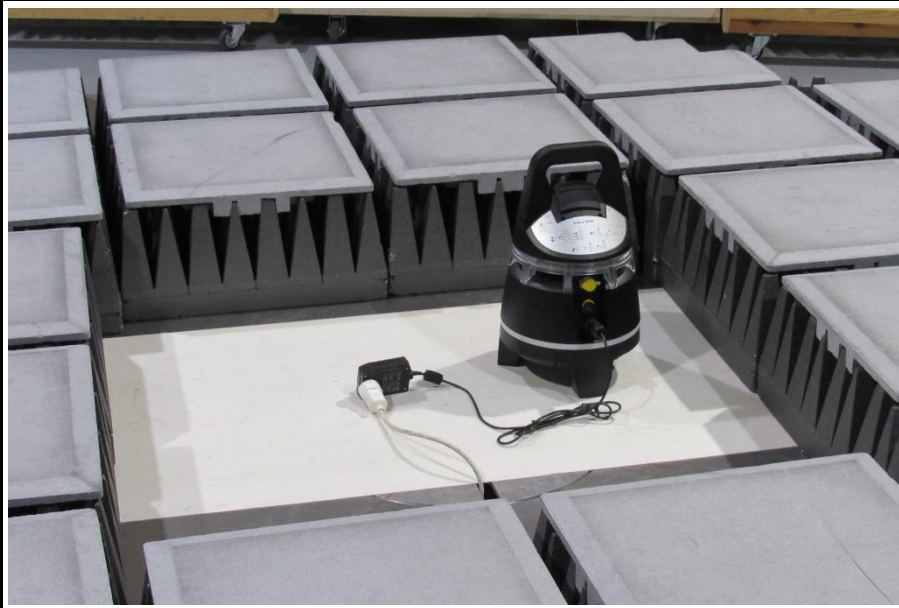
RADIATED EMISSION - FOCUS I - CONFIGURATION 2



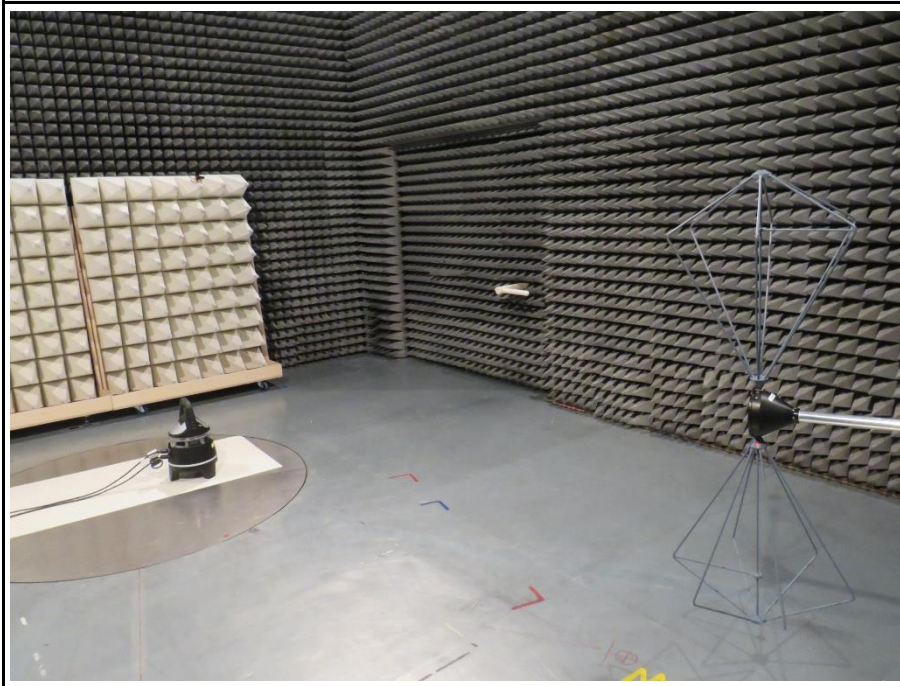
RADIATED EMISSION -1000 MHz to 6000 MHz - CONFIGURATION 2



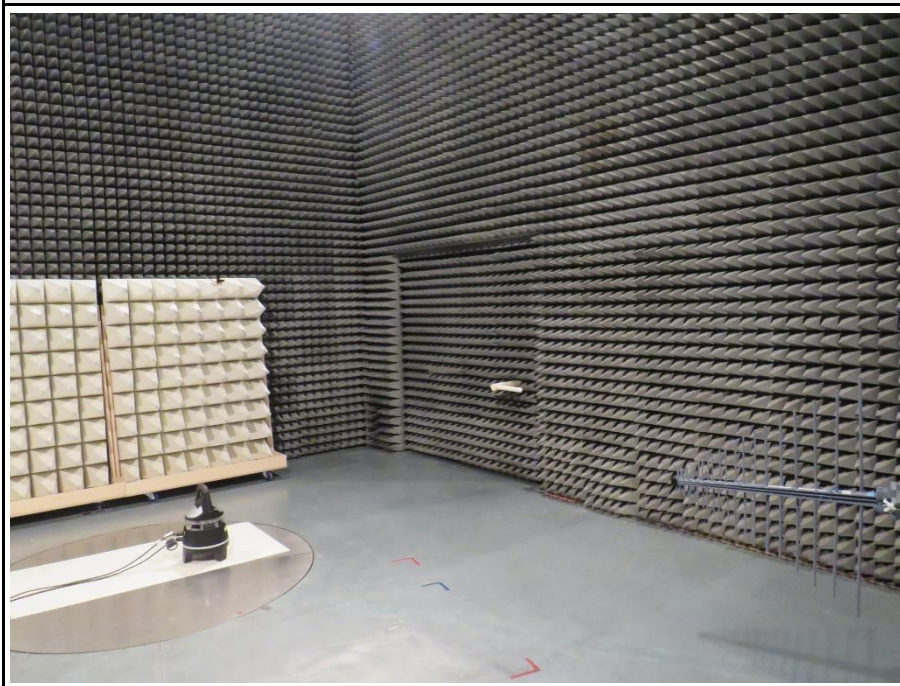
RADIATED EMISSION - FOCUS II - CONFIGURATION 2



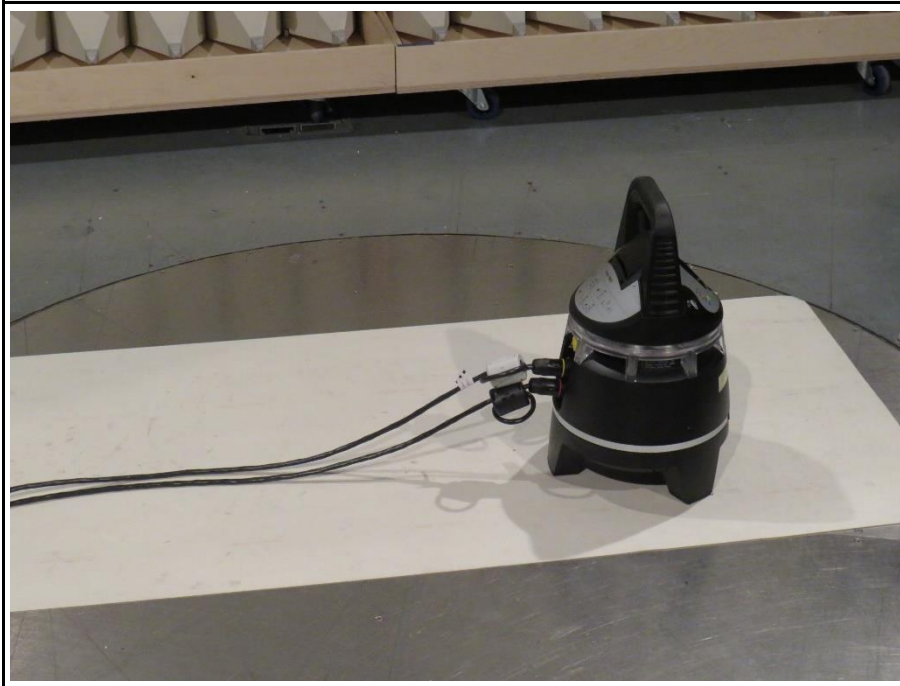
RADIATED EMISSION - 30 MHz to 200 MHz - CONFIGURATION 3



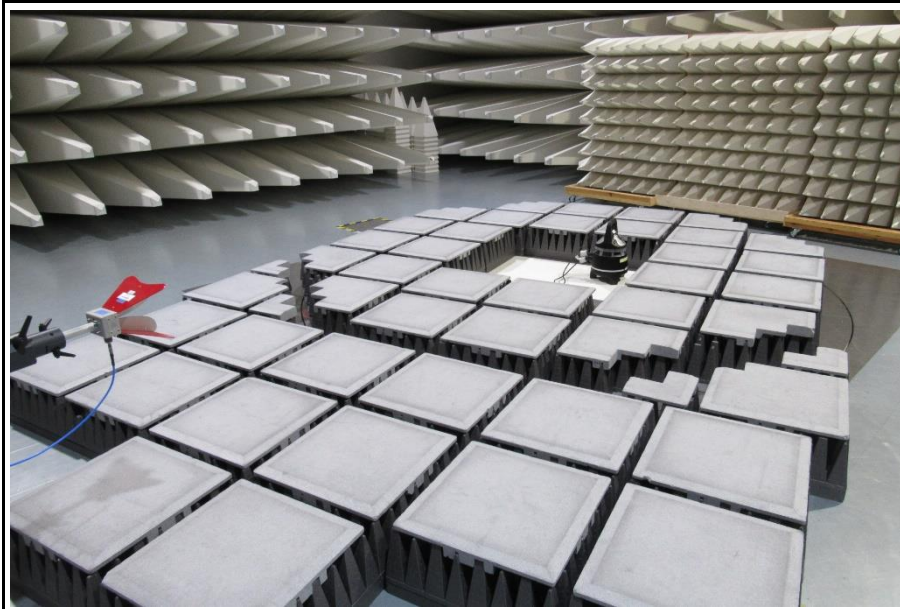
RADIATED EMISSION - 200 MHz to 1000 MHz - CONFIGURATION 3



RADIATED EMISSION - FOCUS I - CONFIGURATION 3



RADIATED EMISSION -1000 MHz to 6000 MHz - CONFIGURATION 3



RADIATED EMISSION - FOCUS II - CONFIGURATION 3



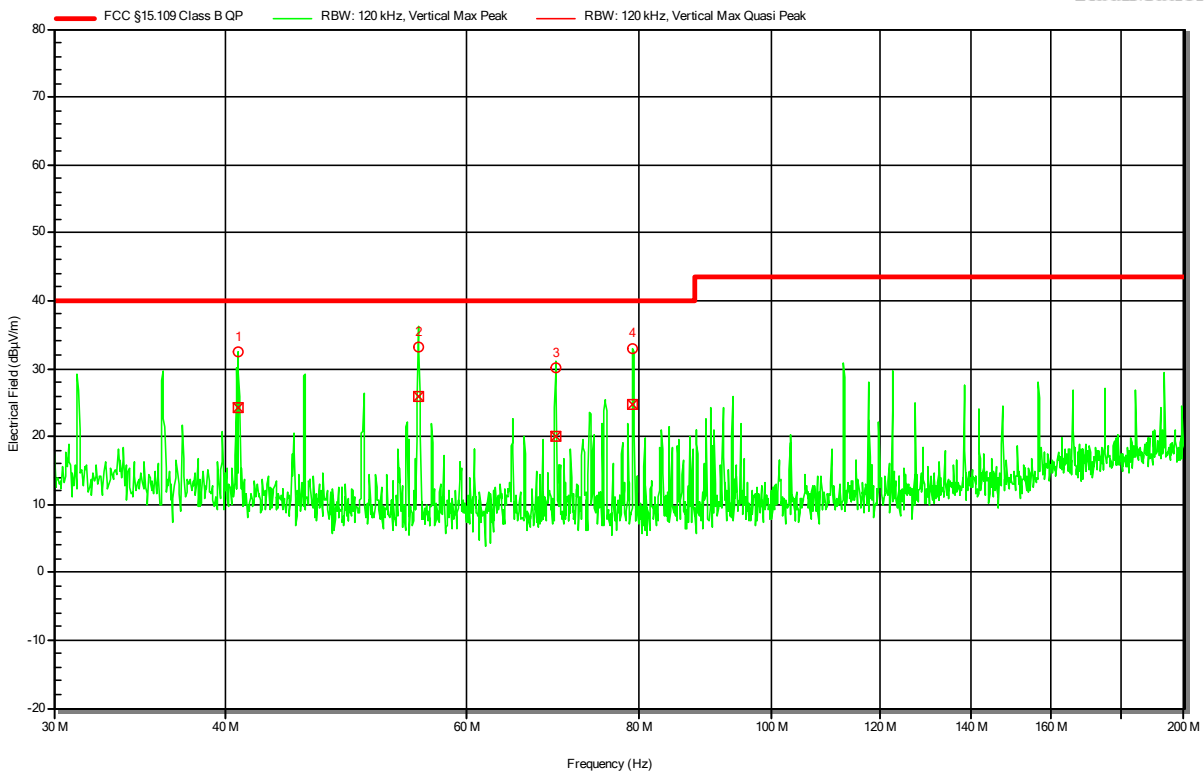
2.1.8 Records

Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-09
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 115 V / 60 Hz via dedicated AC/DC-Adaptor 1
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 2 Configuration 1
 Note 1:

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RadiMation



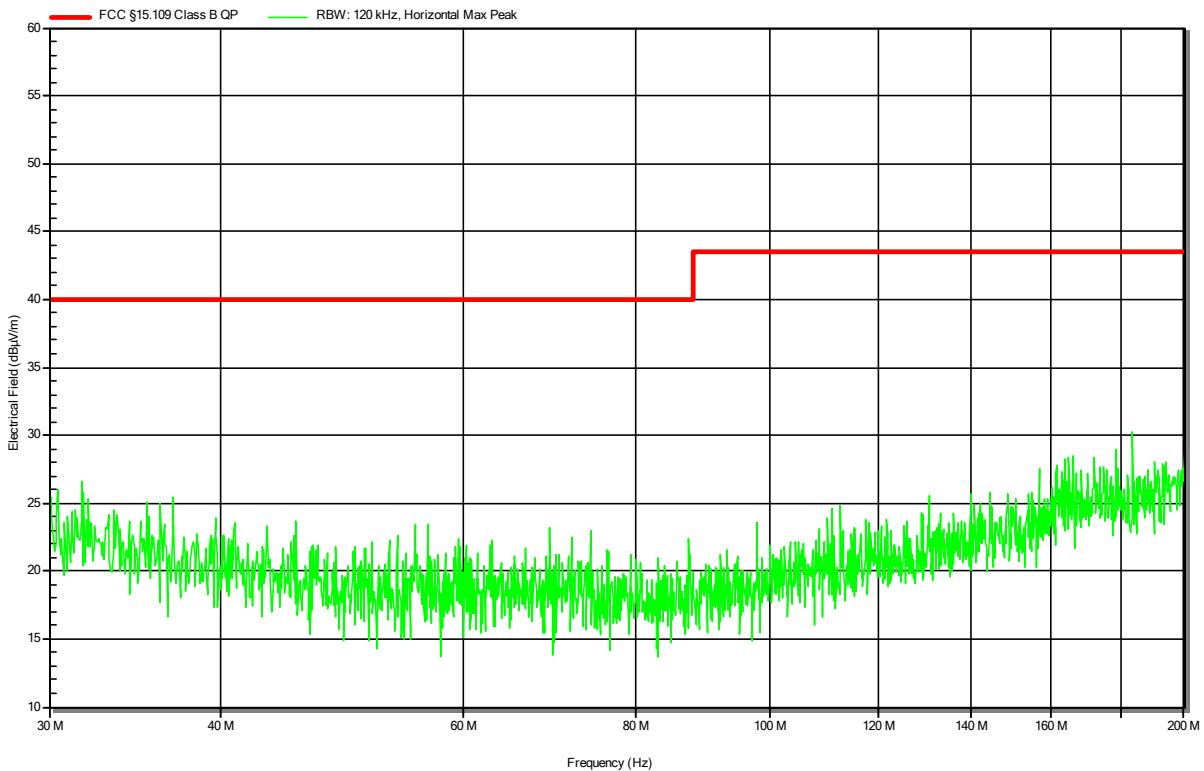
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	40.857 MHz	24.35 dBµV/m	40 dBµV/m	-15.65 dB	Pass	-90 degrees	1 m
2	55.323 MHz	25.86 dBµV/m	40 dBµV/m	-14.14 dB	Pass	-90 degrees	1 m
3	69.711 MHz	20.09 dBµV/m	40 dBµV/m	-19.91 dB	Pass	-90 degrees	1 m
4	79.277 MHz	24.7 dBµV/m	40 dBµV/m	-15.3 dB	Pass	-90 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-09
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 115 V / 60 Hz via dedicated AC/DC-Adaptor 1
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 2 Configuration 1
 Note 1:

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RadiMation

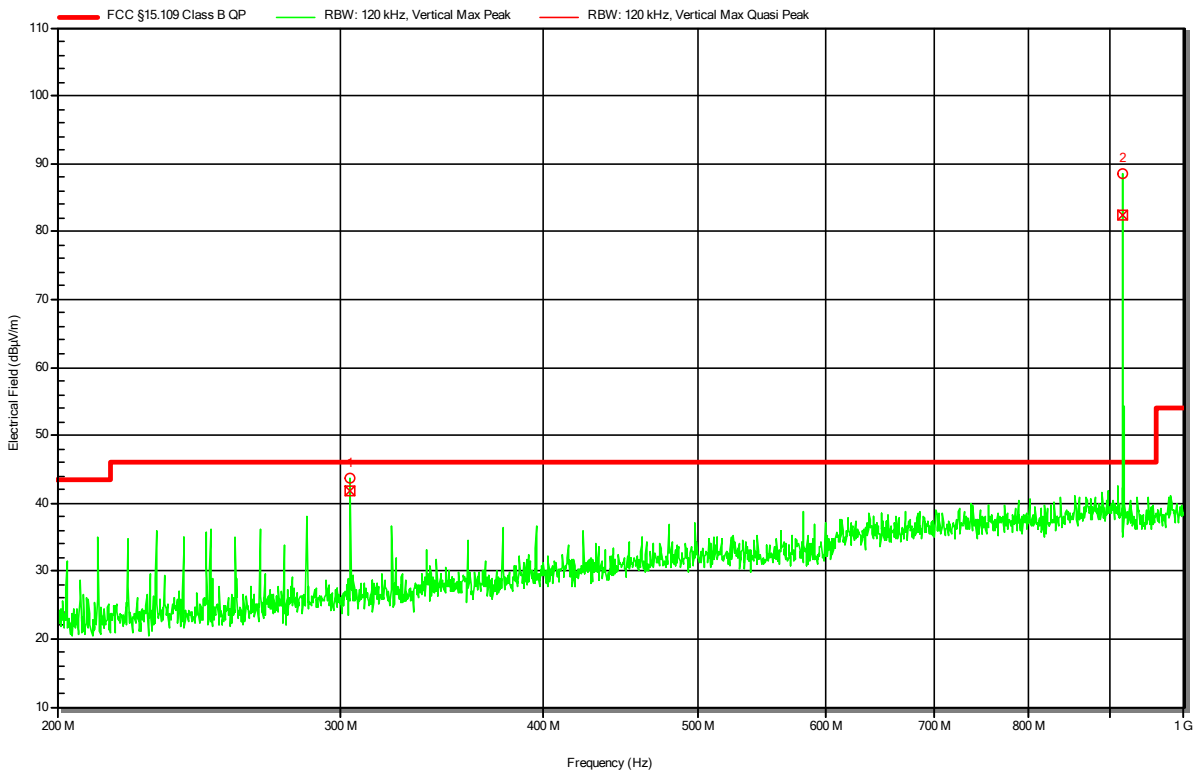


Radiated emissions according to FCC part 15B

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 Test Date: 2021-03-09
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 115 V / 60 Hz via dedicated AC/DC-Adaptor 1
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 2 Configuration 1
 Note 1:

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RadiMation



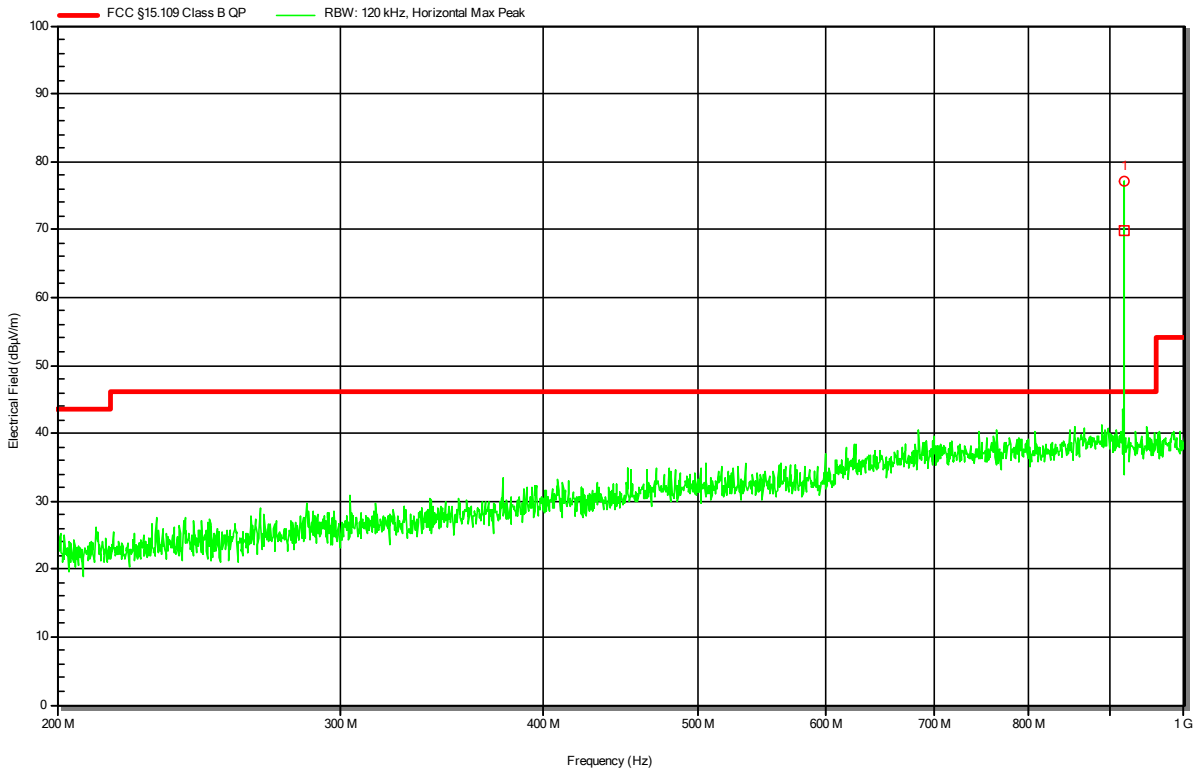
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	304.077 MHz	41.86 dBµV/m	46.02 dBµV/m	-4.16 dB	Pass	50 degrees	1 m
2	916.752 MHz	SRD-Carrier					

Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
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 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-09
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 115 V / 60 Hz via dedicated AC/DC-Adaptor 1
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 2 Configuration 1
 Note 1:

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RadiMation



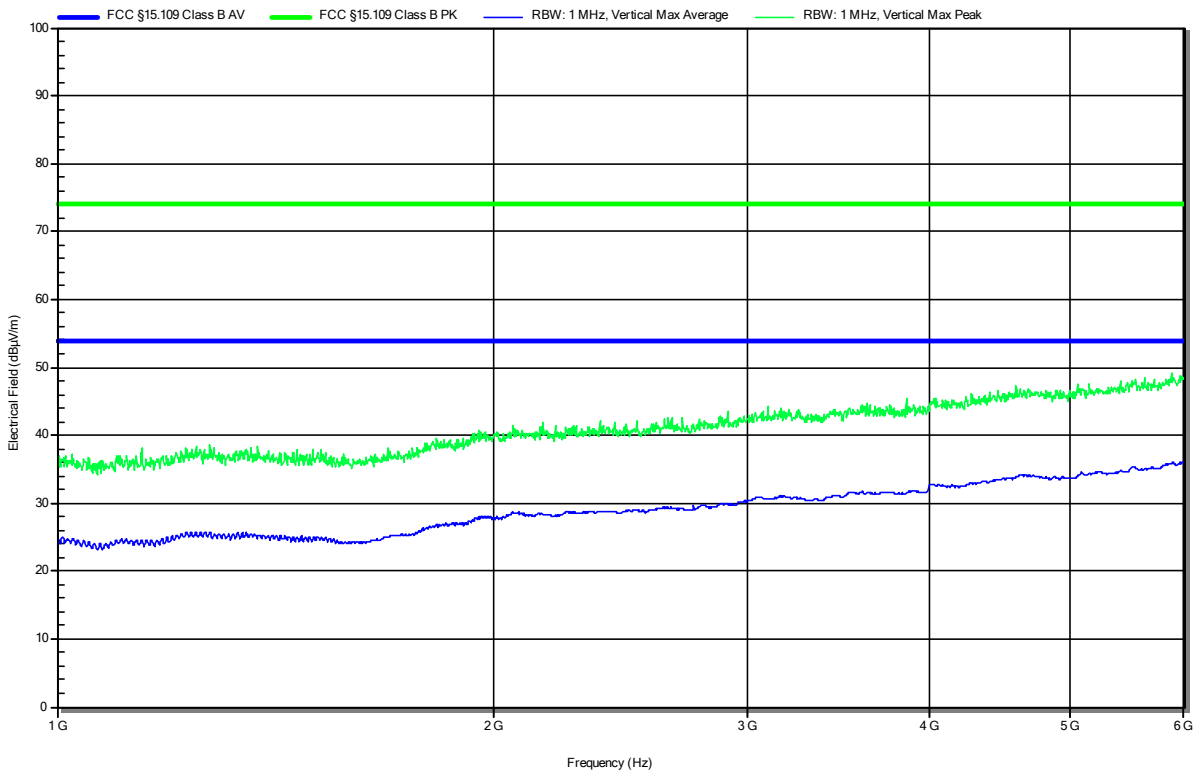
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	917.388 MHz	SRD-Carrier					

Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-10
 Operating Conditions: ambient temperature: 21 °Celsius
 power input: 115 V / 60 Hz via dedicated AC/DC-Adaptor 1
 Antenna: ETS-Lindgren 3117, Vertical
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 2 Configuration 1
 Note 1:

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RadiMation

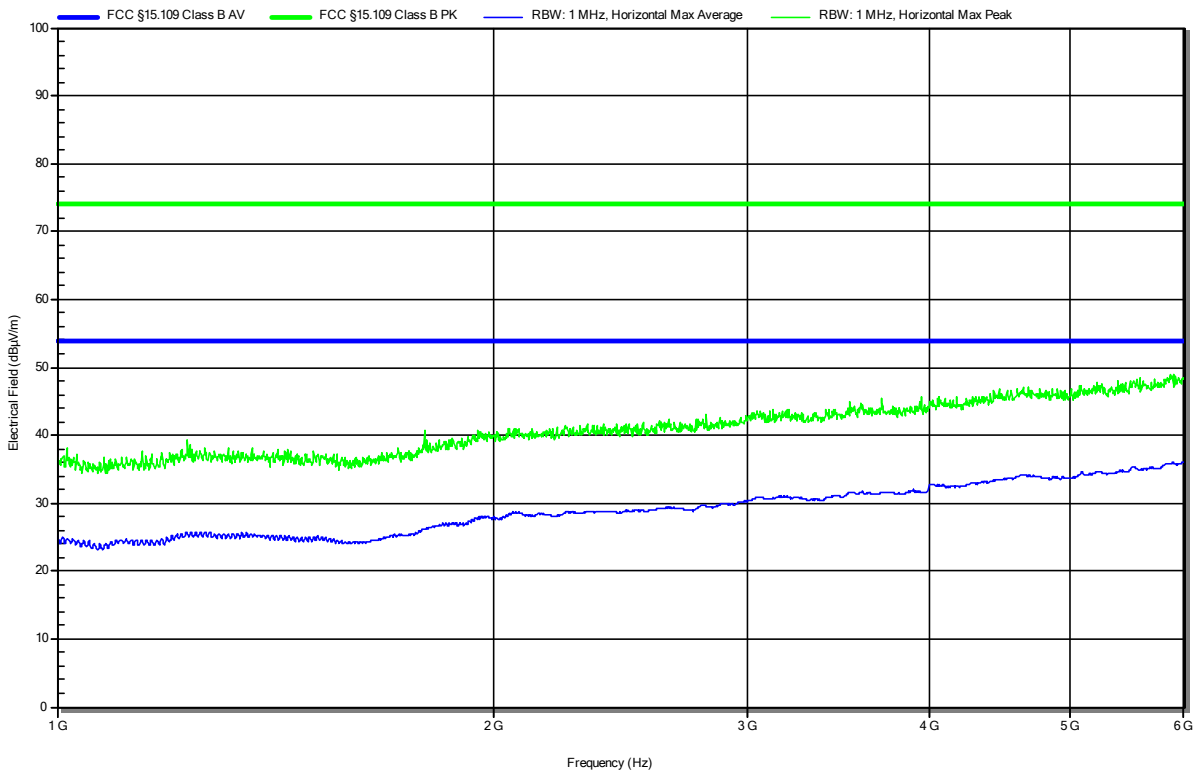


Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-10
 Operating Conditions: ambient temperature: 21 °Celsius
 power input: 115 V / 60 Hz via dedicated AC/DC-Adaptor 1
 Antenna: ETS-Lindgren 3117, Horizontal
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 2 Configuration 1
 Note 1:

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RadiMation

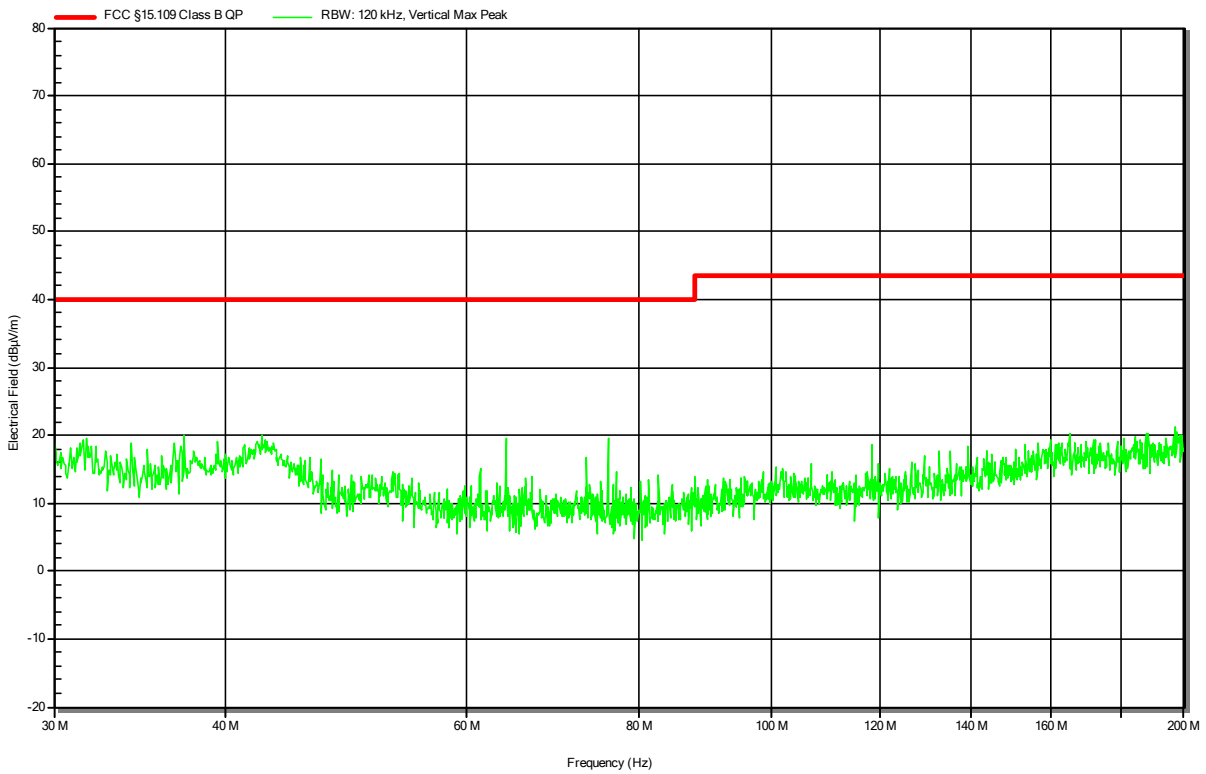


Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-09
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 115 V / 60 Hz via dedicated AC/DC-Adaptor 2
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 1 Configuration 2
 Note 1:

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RadiMation

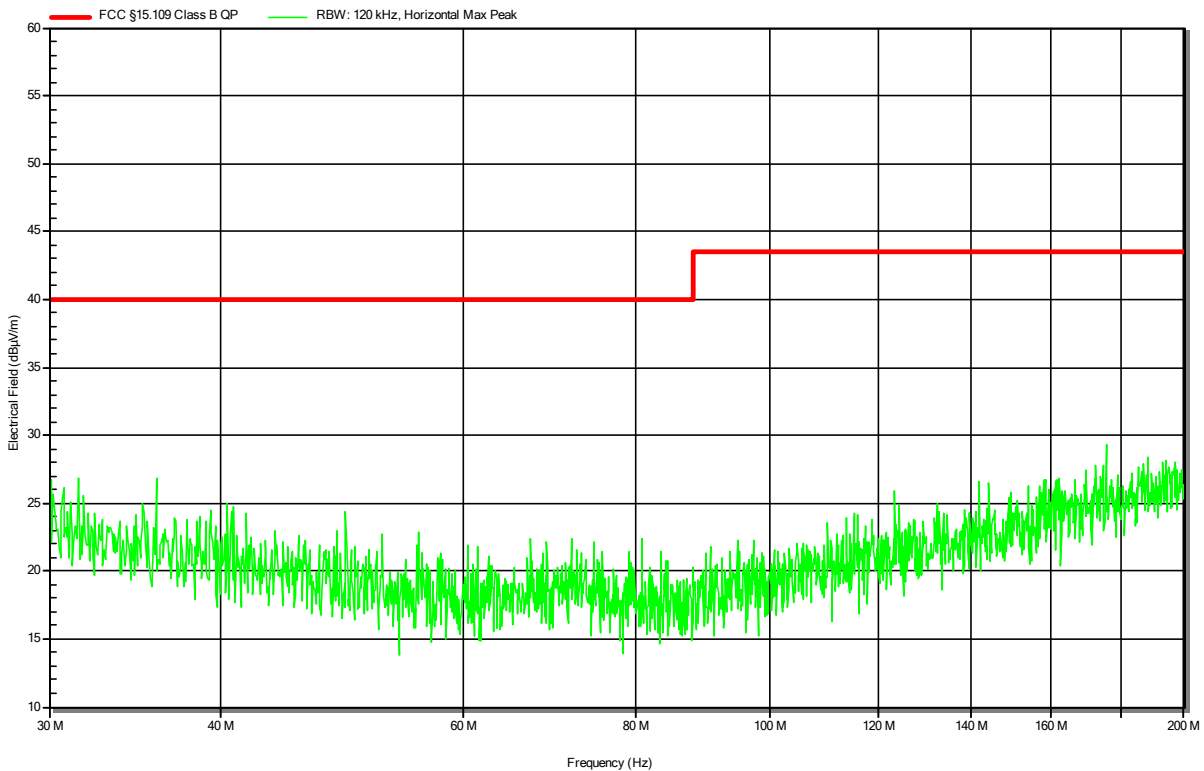


Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-09
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 115 V / 60 Hz via dedicated AC/DC-Adaptor 2
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 1 Configuration 2
 Note 1:

Index 7

RadiMation

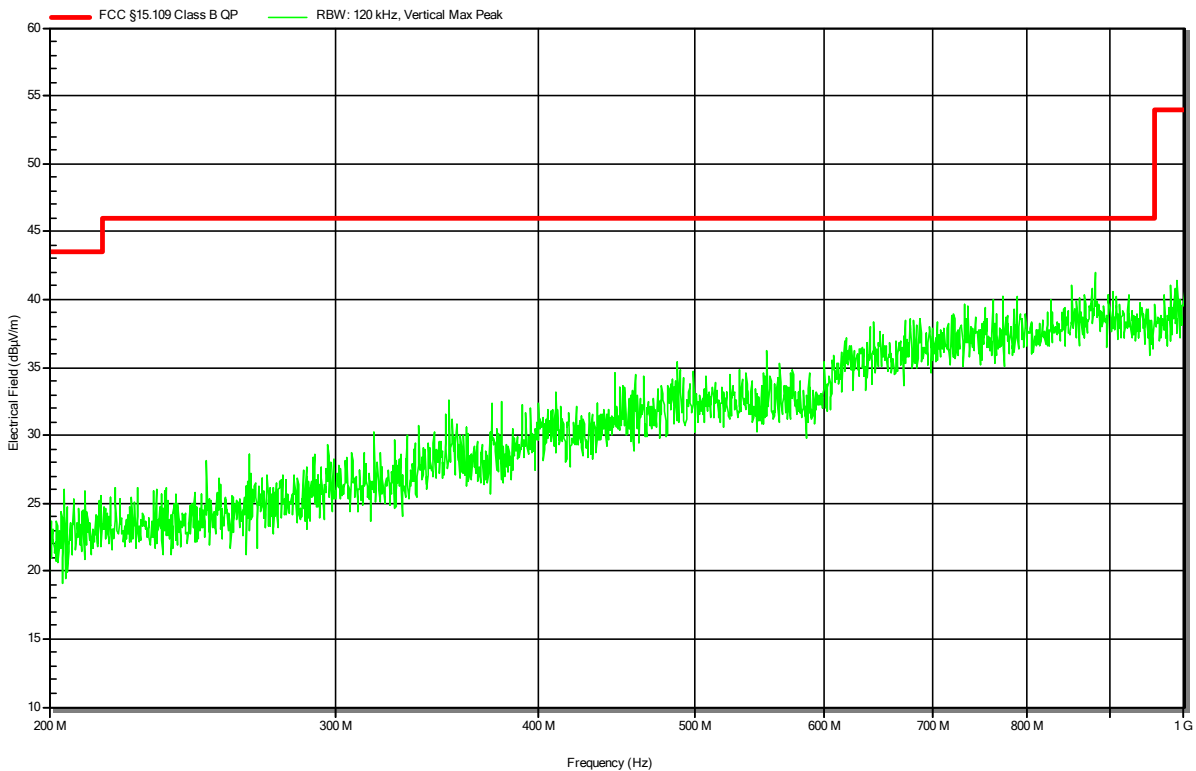


Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-09
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 115 V / 60 Hz via dedicated AC/DC-Adaptor 2
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 1 Configuration 2
 Note 1:

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RadiMation

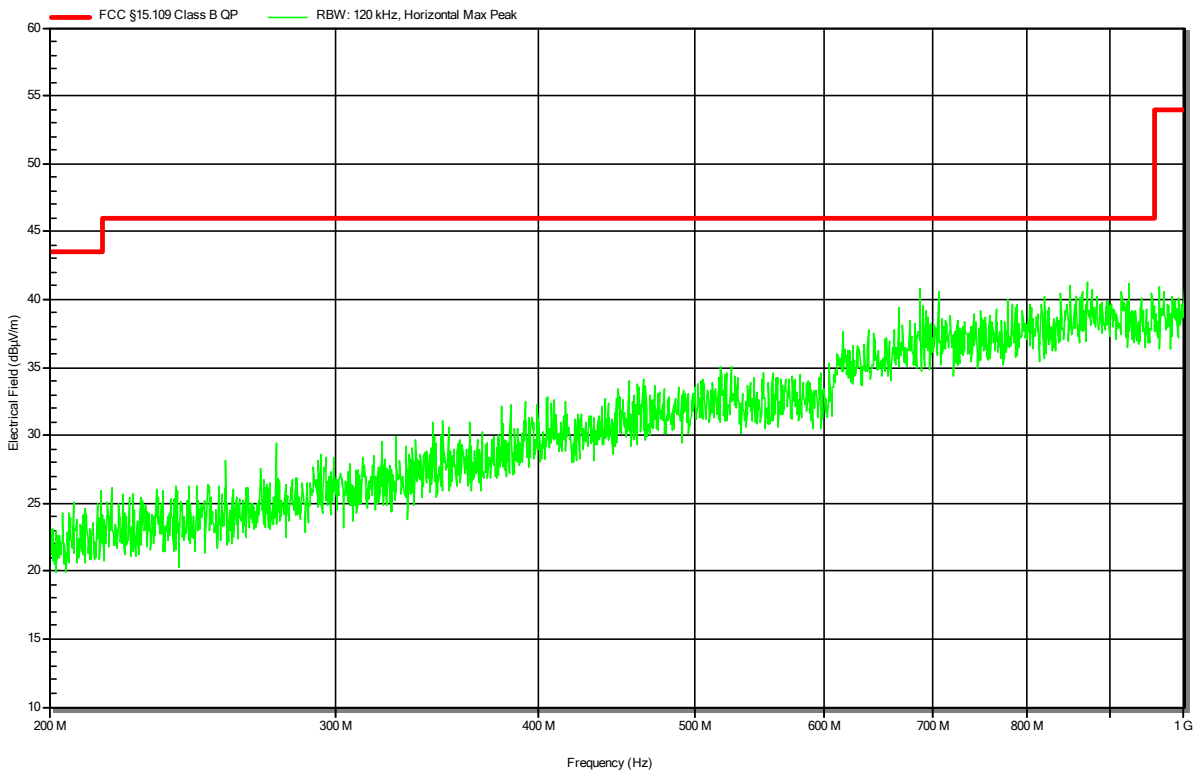


Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-09
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 115 V / 60 Hz via dedicated AC/DC-Adaptor 2
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 1
 Configuration 2
 Note 1:

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RadiMation

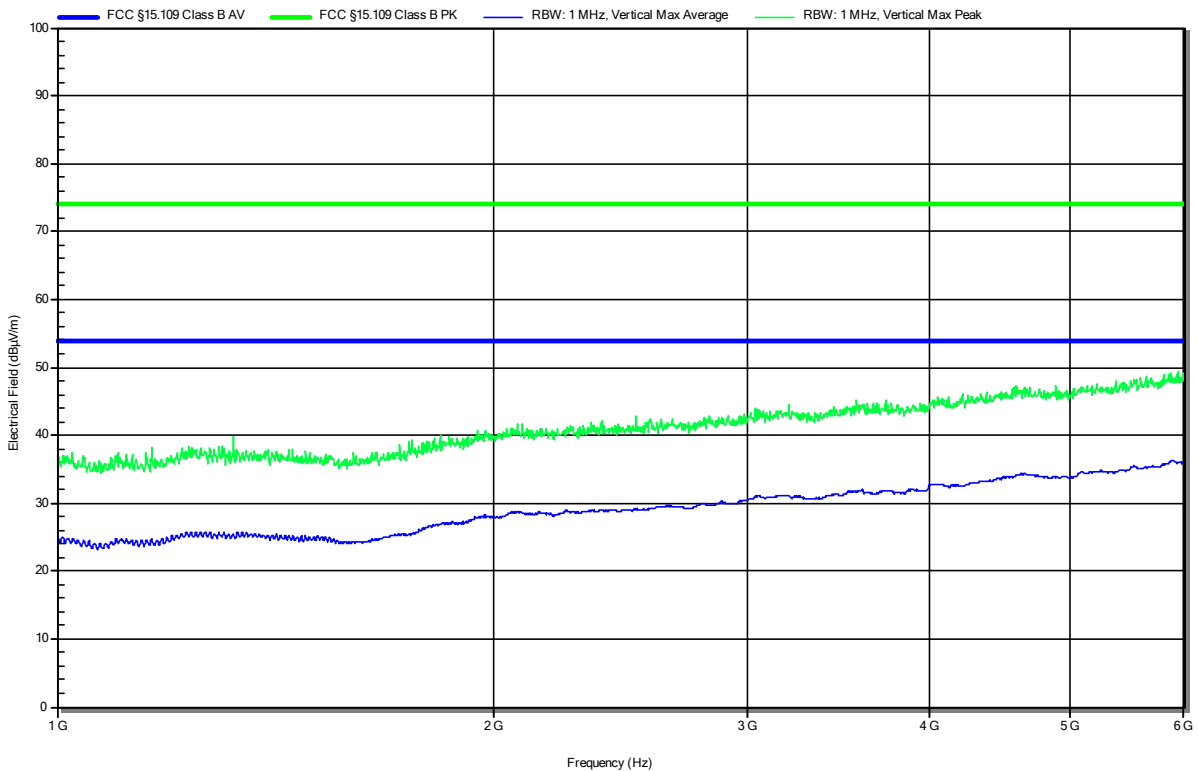


Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-10
 Operating Conditions: ambient temperature: 20 °Celsius
 power input: 115 V / 60 Hz via dedicated AC/DC-Adaptor 2
 Antenna: ETS-Lindgren 3117, Vertical
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 1 Configuration 2
 Note 1:

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RadiMation

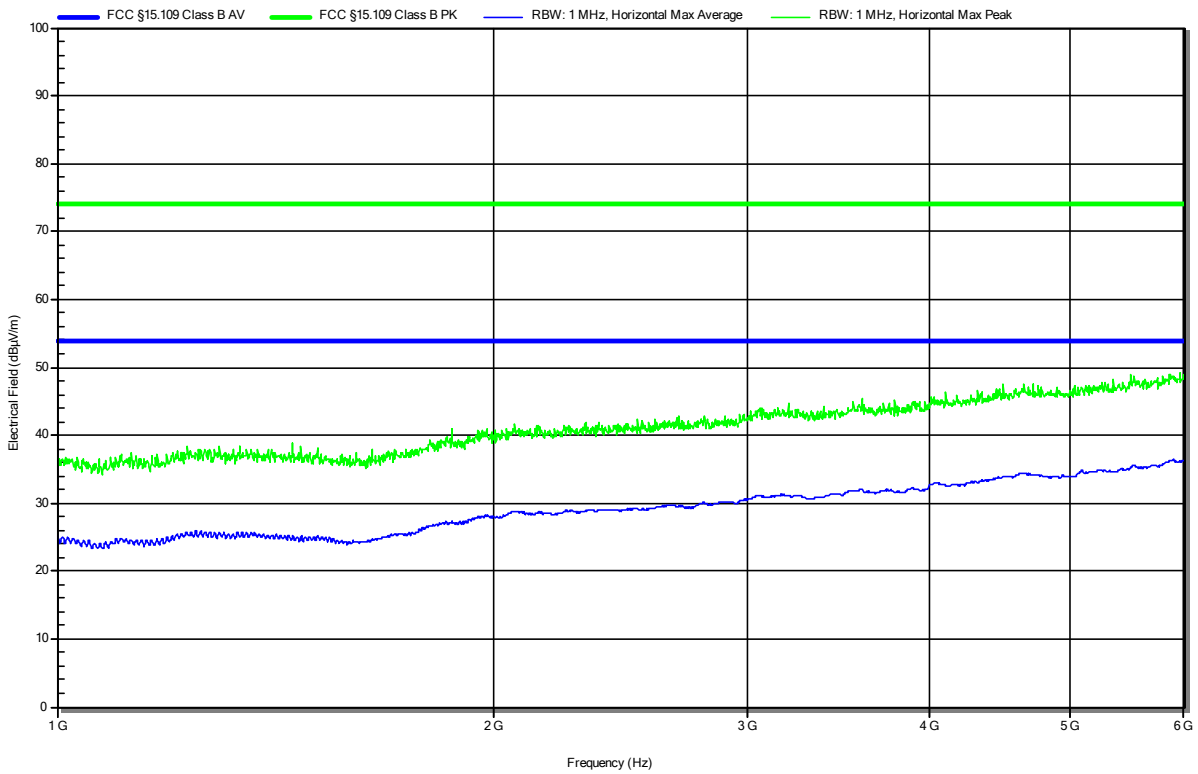


Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-10
 Operating Conditions: ambient temperature: 20 °Celsius
 power input: 115 V / 60 Hz via dedicated AC/DC-Adaptor 2
 Antenna: ETS-Lindgren 3117, Horizontal
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 1 Configuration 2
 Note 1:

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RadiMation

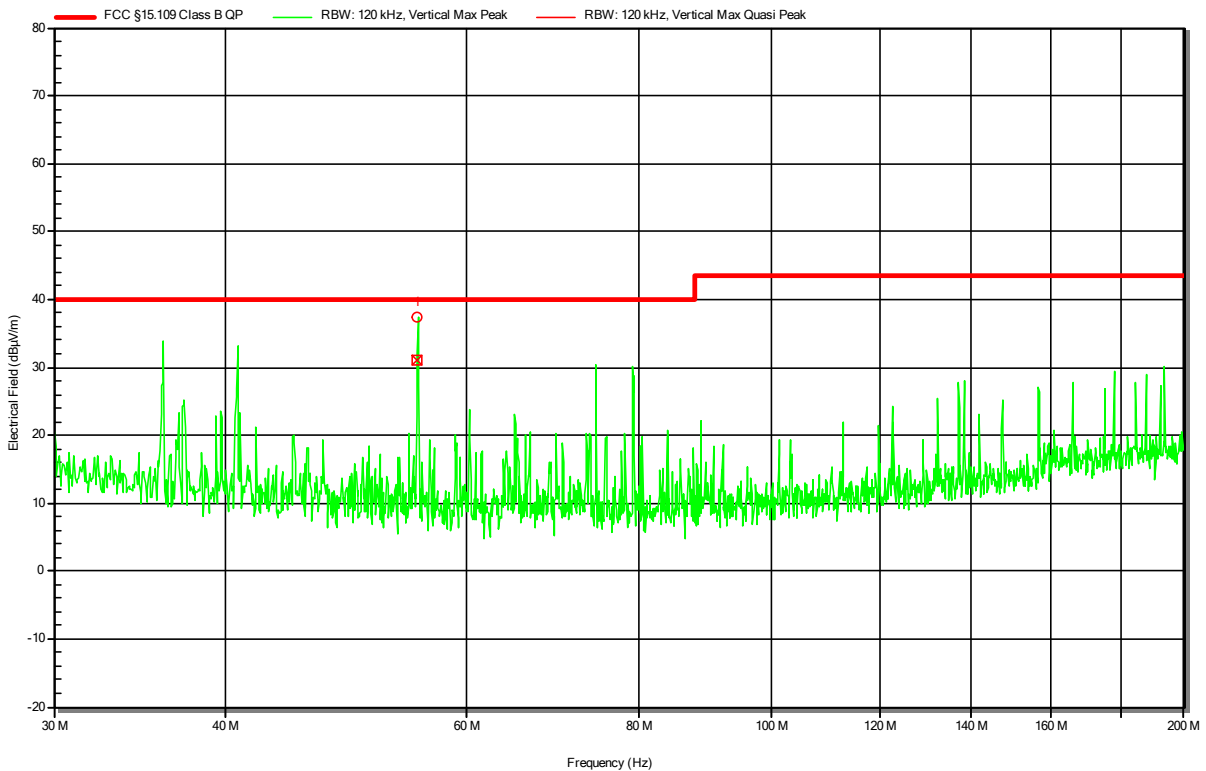


Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-09
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 12 V DC by 2x VRLA 6 V/12 Ah internal battery
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 2 Configuration 3
 Note 1:

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Radiation



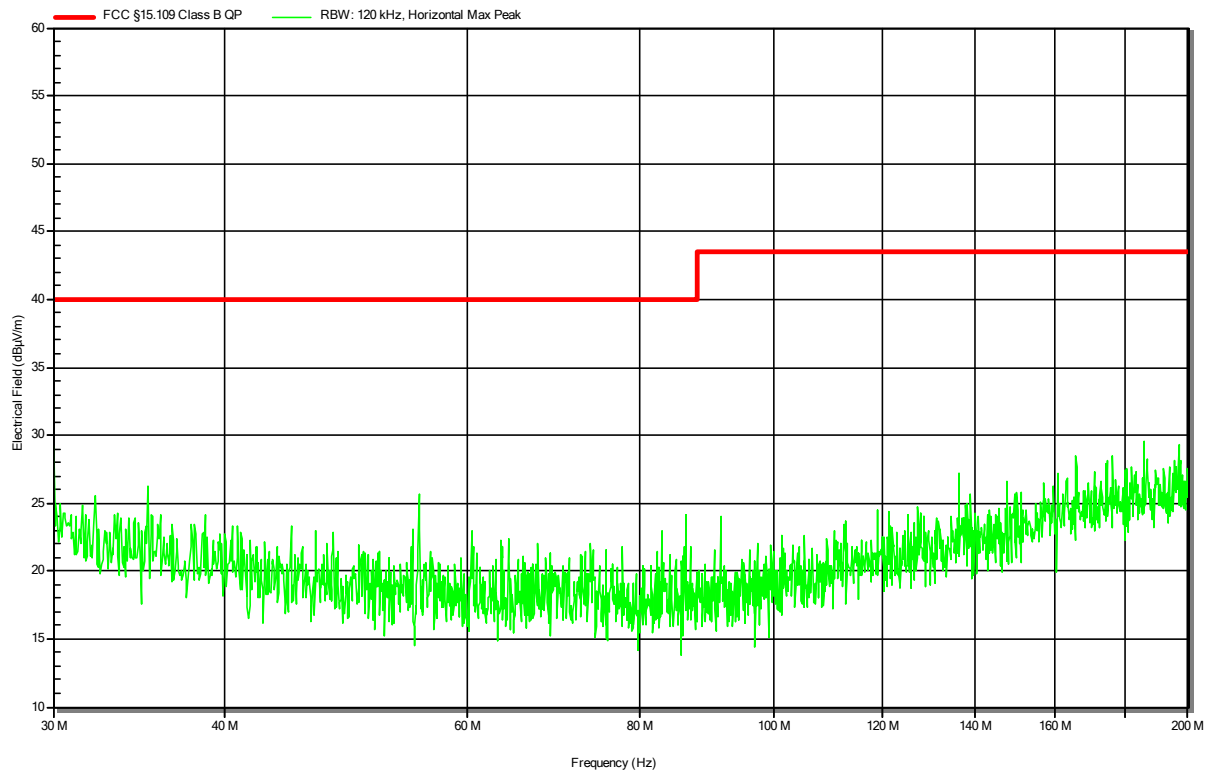
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	55.257 MHz	31.11 dBµV/m	40 dBµV/m	-8.89 dB	Pass	-90 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-09
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 12 V DC by 2x VRLA 6 V/12 Ah internal battery
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 2 Configuration 3
 Note 1:

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RadiMation

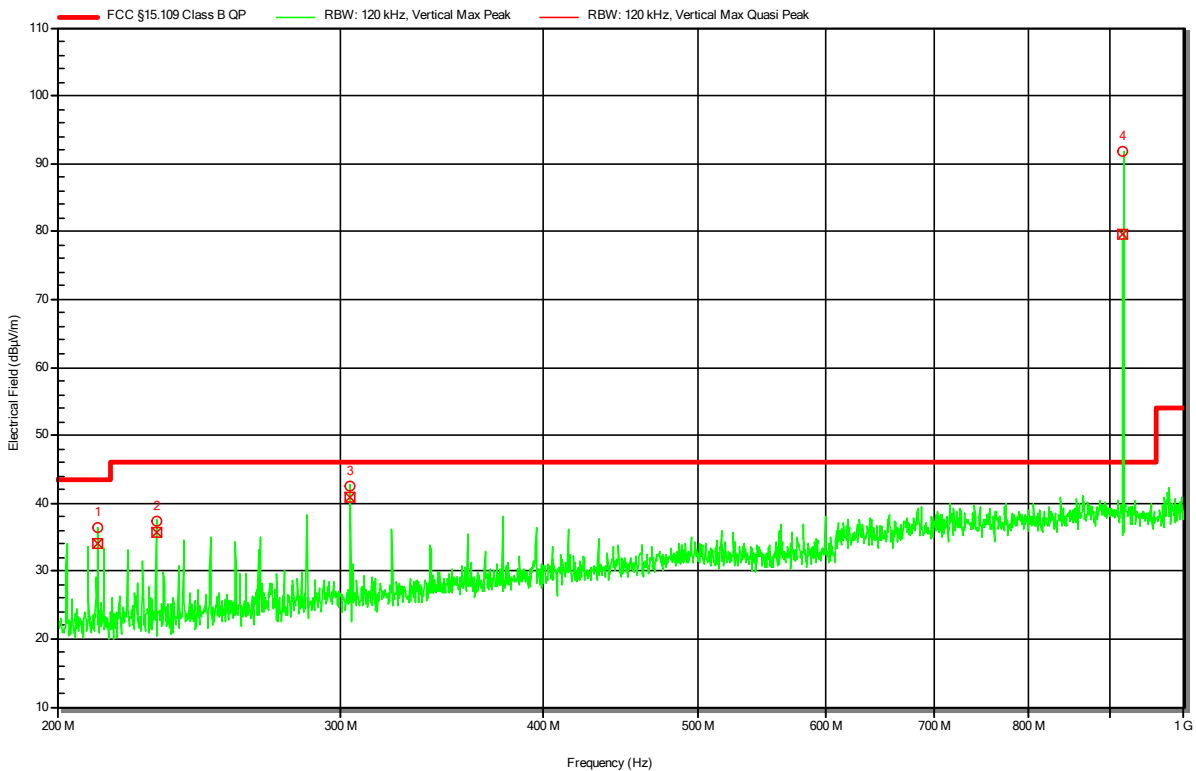


Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-09
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 12 V DC by 2x VRLA 6 V/12 Ah internal battery
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 2 Configuration 3
 Note 1: 15°

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RadiMation



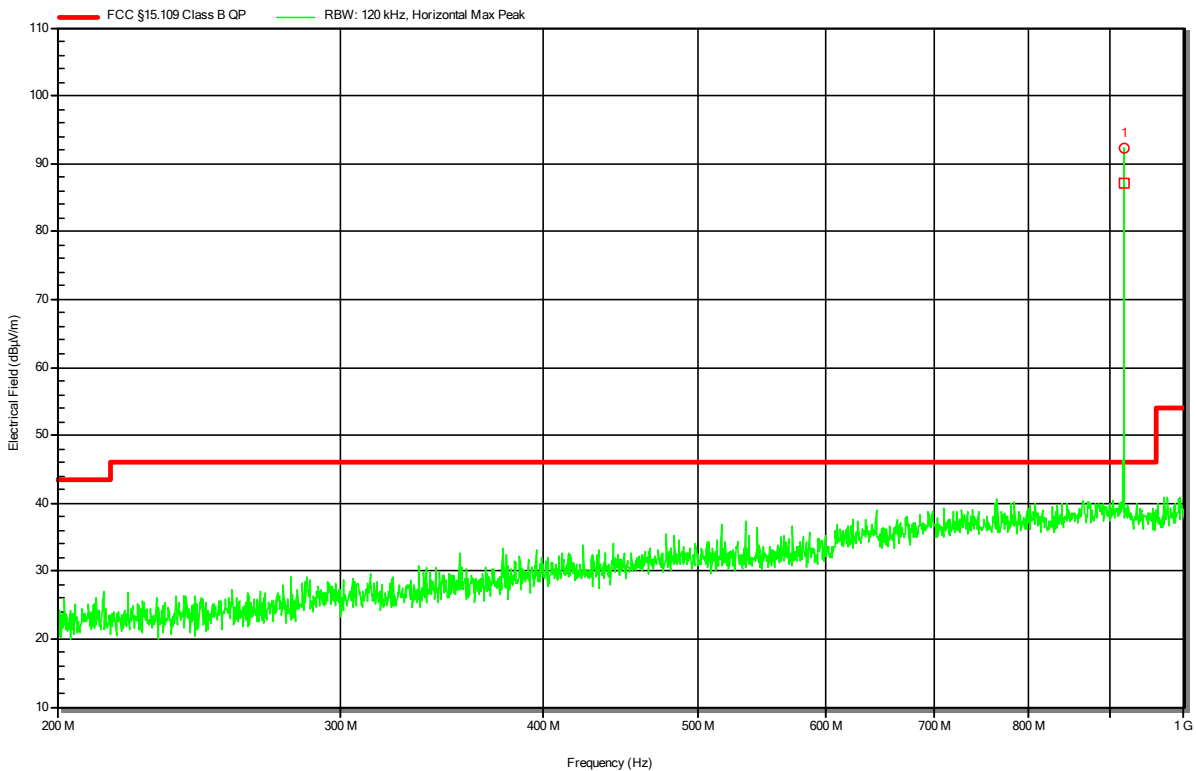
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	211.936 MHz	33.94 dBµV/m	43.52 dBµV/m	-9.58 dB	Pass	0 degrees	1 m
2	230.363 MHz	35.8 dBµV/m	46.02 dBµV/m	-10.22 dB	Pass	0 degrees	1 m
3	304.077 MHz	40.75 dBµV/m	46.02 dBµV/m	-5.27 dB	Pass	0 degrees	1 m
4	917.01 MHz	SRD-Carrier					

Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-09
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 12 V DC by 2x VRLA 6 V/12 Ah internal battery
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 2 Configuration 3
 Note 1:

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RadiMation



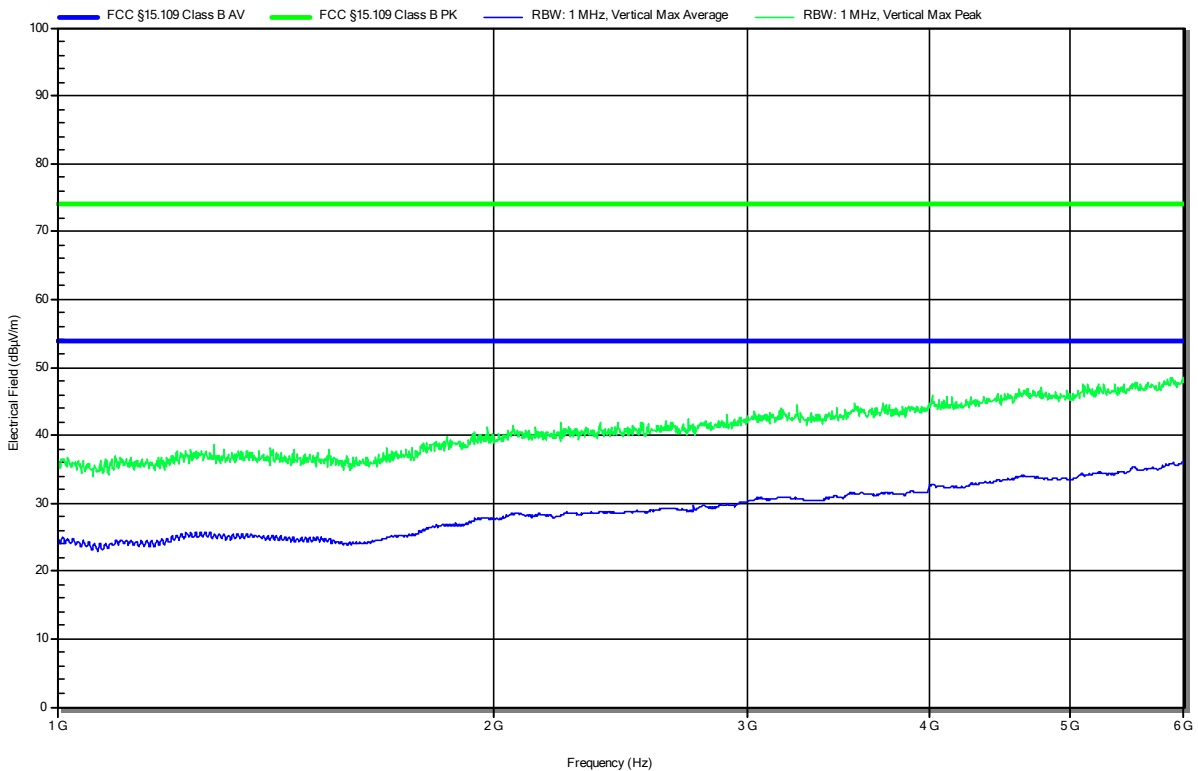
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	917.202 MHz	SRD-Carrier					

Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-10
 Operating Conditions: ambient temperature: 21 °Celsius
 power input: 12 V DC by 2x VRLA 6 V/12 Ah internal battery
 Antenna: ETS-Lindgren 3117, Vertical
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 2 Configuration 3
 Note 1:

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RadiMation

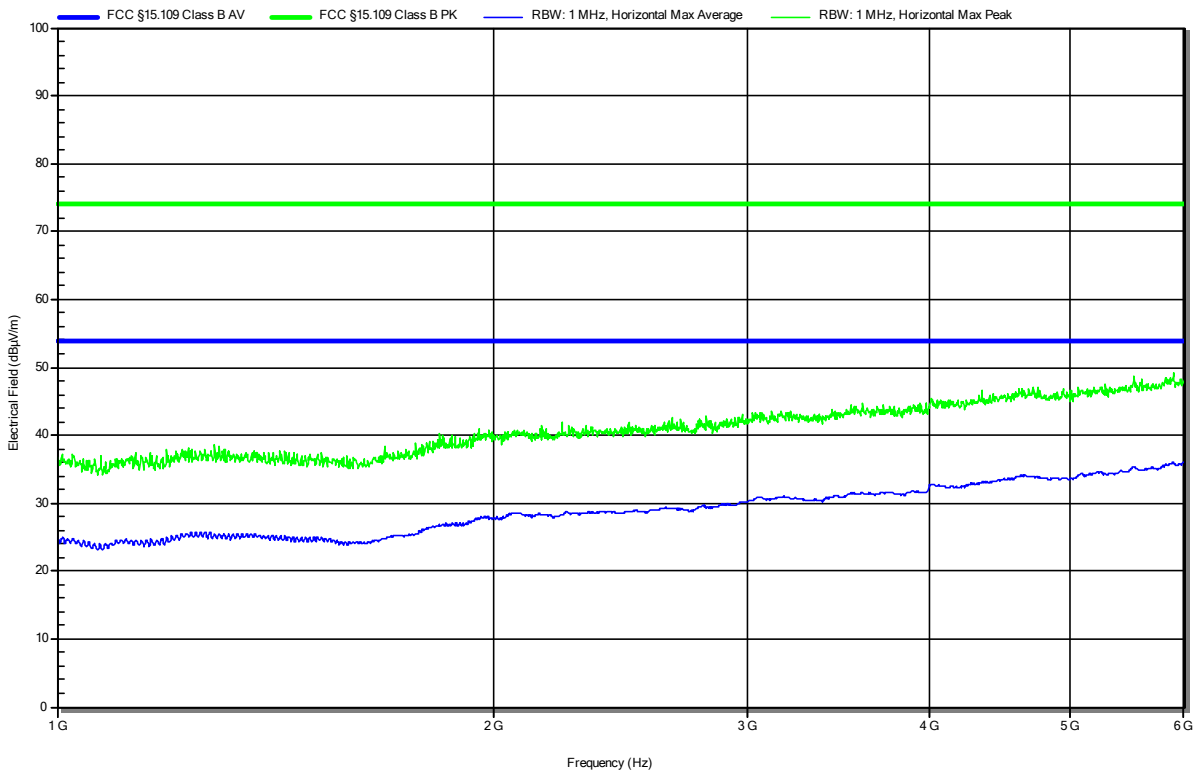


Radiated emissions according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-10
 Operating Conditions: ambient temperature: 21 °Celsius
 power input: 12 V DC by 2x VRLA 6 V/12 Ah internal battery
 Antenna: ETS-Lindgren 3117, Horizontal
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Mode 2 Configuration 3
 Note 1:

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Radiation

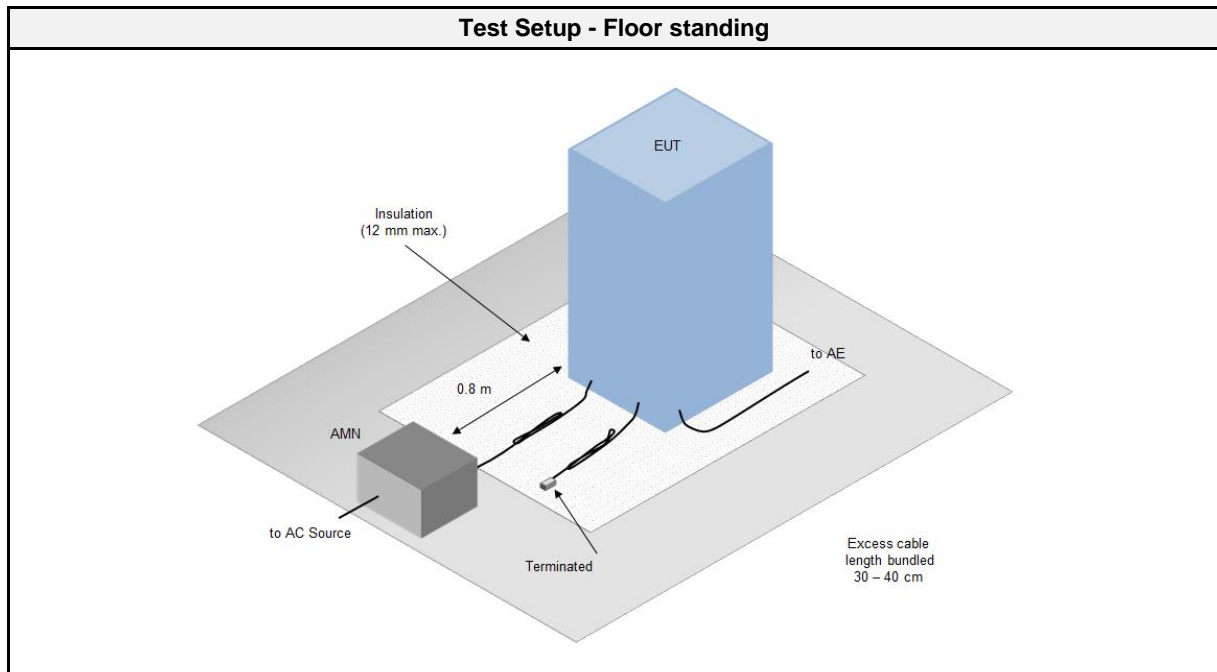


2.2 Test Conditions and Results - Conducted emissions acc. to ANSI C63.4

2.2.1 Information

Test Information	
Reference	FCC 15.107, ICES-003, 6.1
Reference method	ANSI C63.4:2014+A1:2017 Section 12
Measurement range	150 kHz to 30 MHz
Equipment class	Class B
Equipment type	Floor standing
Temperature [°C]	21 – 24
Humidity [%]	17 – 20
Operator	Stephan Liebich
Date	2021-03-09

2.2.2 Setup



2.2.3 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
AMN	Schwarzbeck	NSLK 8127	EF01592	2020-07	2021-07
Pulse Limiter	R&S	ESH3-Z2	EF01063	2020-07	2021-07
EMI Test Receiver	R&S	ESR 7	EF00943	2020-07	2021-07
Climatic Sensor	Embedded Data Systems, LLC.	2800100000254 17E	EF01054	2020-03	2021-03

2.2.4 Procedure

Exploratory measurement	
1.	a) Where a floor-standing EUT is typically installed with its base in direct electrical contact with, or connected to, a grounded metal floor or grid, the EUT shall be connected to, or placed directly on, the test site (or turntable) reference ground plane in a manner representative of this contact or connection. b) Where floor-standing equipment is not typically installed with its base in direct electrical contact with, or connected to, a metal floor or grid, the EUT shall not be placed in direct electrical contact with the test site (or turntable) reference ground plane. If necessary to prevent direct metallic contact of the EUT and the reference ground plane, insulating material (up to 12 mm thick) shall be placed under the EUT.
2.	The power cord that is normally supplied or recommended by the manufacturer was connected to the LISN.
3.	The distance between the outer edge of the EUT and the LISN shall be set to 0.8 m. A longer power cord shall be bundled to this length (bundling shall not exceed 40 cm in length).
4.	The LISN measurement port was connected to a measurement receiver
5.	I/O cables were bundled not longer than 0.4 m
6.	Measurement was performed in the frequency range 0.15 – 30MHz on each current-carrying conductor
7.	To maximize the emissions the cable positions were manipulated
8.	The worst configuration of EUT and cables is shown on a test setup picture at item 1.3

Final measurement	
1.	The EUT was placed on a 0.5 mm non-conductive insulating material.
2.	The power cord that is normally supplied or recommended by the manufacturer was connected to the LISN.
3.	The distance between the outer edge of the EUT and the LISN shall be set to 0.8 m. A longer power cord shall be bundled to this length (bundling shall not exceed 40 cm in length).
4.	The LISN measurement port was connected to a measurement receiver
5.	The EUT and cable arrangement were based on the exploratory measurement results
6.	The test data of the worst-case conditions were recorded and shown on the next pages

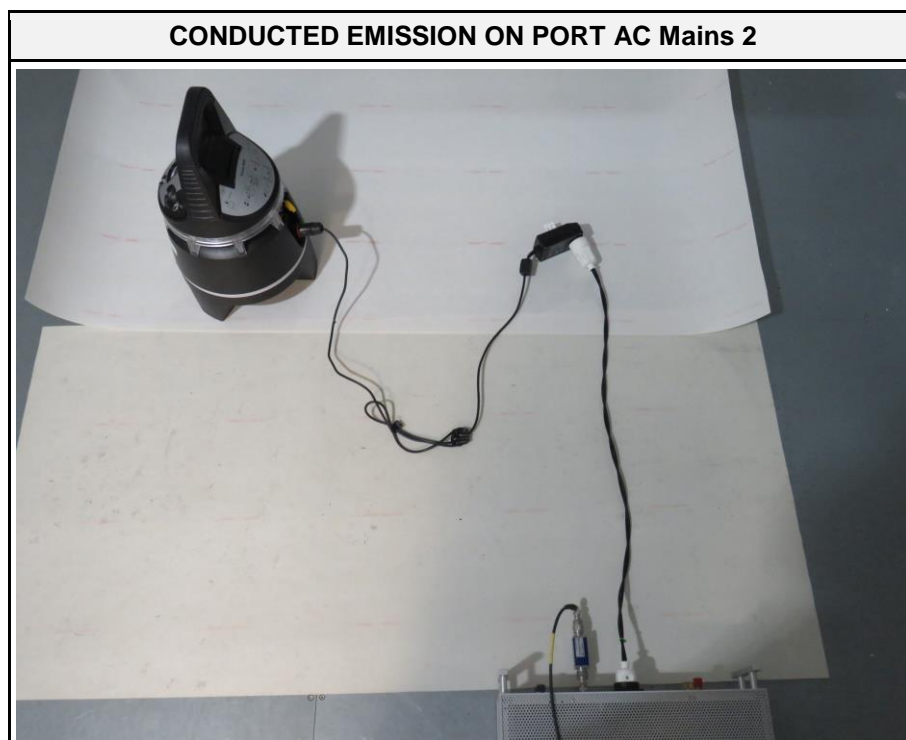
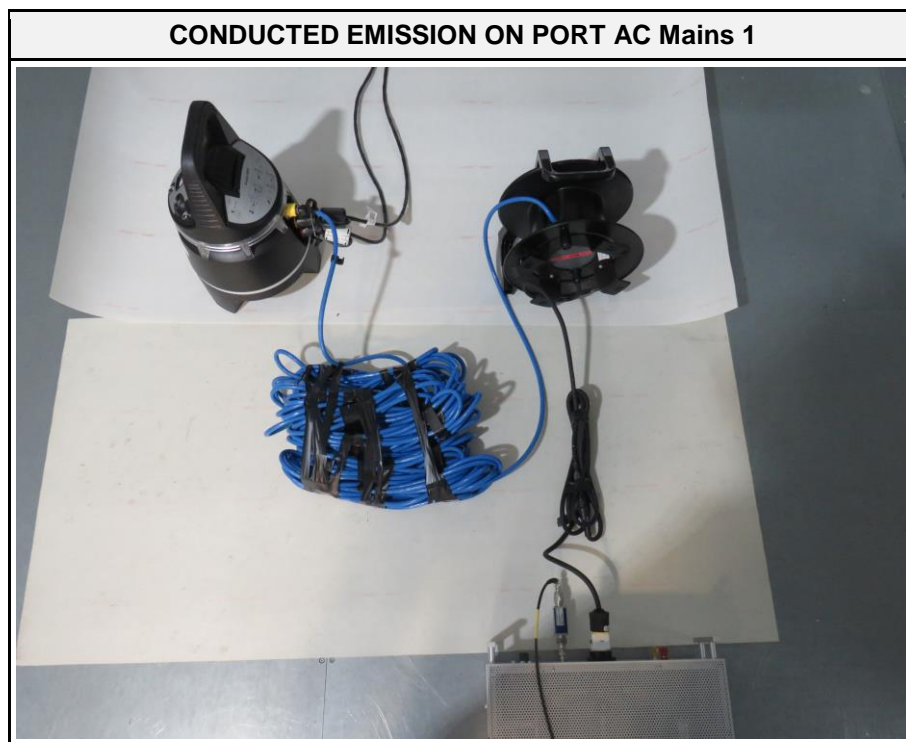
2.2.5 Limits

Class B		
Frequency [MHz]	Quasi-peak Limit [dBµV]	Average Limit [dBµV]
0.15 - 0.5	66 - 56 *	56 - 46 *
0.5 - 5	56	46
5 - 30	60	50
* Decreases with the logarithm of the frequency		

2.2.6 Results

AC power line conducted emissions					
Port	Coupling	Operational mode	EUT Configuration	Verdict	Remark
AC Mains 1	AMN	2	1	PASS	--
AC Mains 2	AMN	1	2	PASS	--

2.2.7 Setup Photos



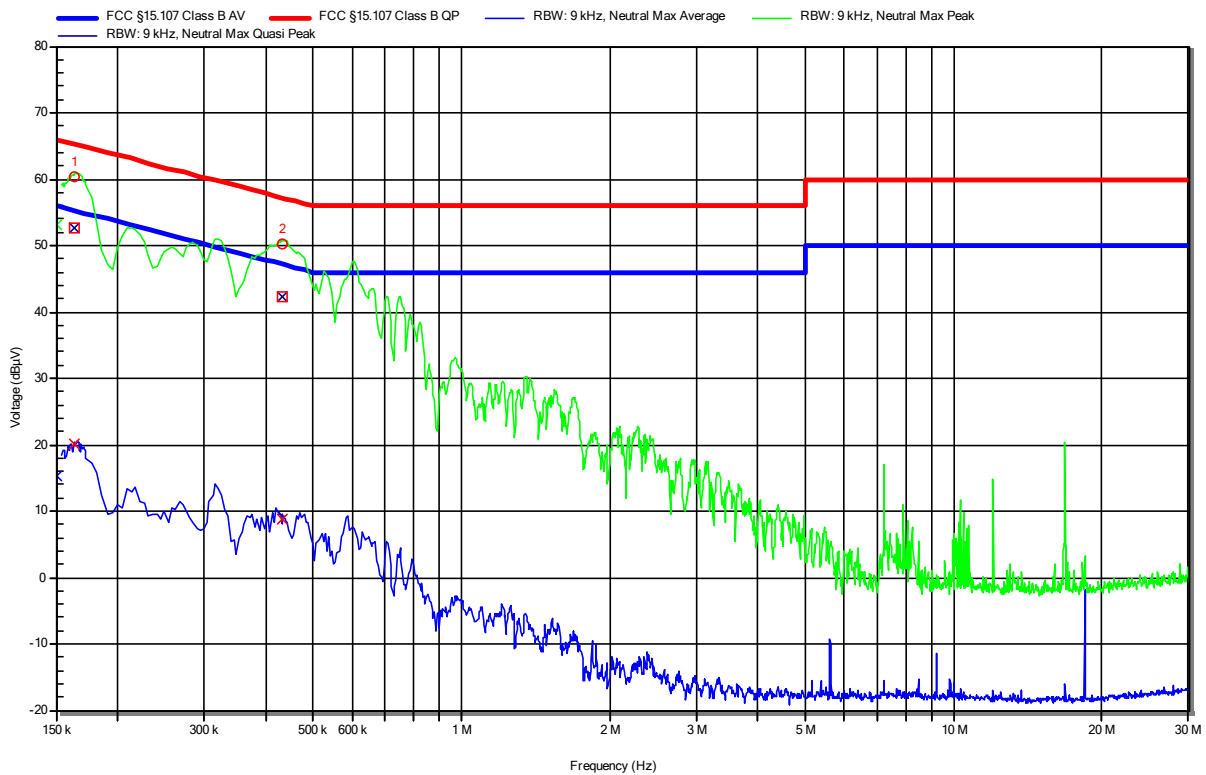
2.2.8 Records

Conducted emissions at the mains power port according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-09
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 115 V / 60 Hz via dedicated AC/DC-Adaptor 1
 LISN: Schwarzbeck NSLK 8127 RC N
 Operational Mode & EUT Configuration: Mode 2
 Configuration 1
 Applied to Port: AC Mains 1
 Note 1: --

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RadiMation



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	163.5 kHz	52.62 dBµV	65.28 dBµV	-12.66 dB	Pass	Neutral
2	433.5 kHz	42.28 dBµV	57.19 dBµV	-14.91 dB	Pass	Neutral
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	163.5 kHz	20.01 dBµV	55.28 dBµV	-35.28 dB	Pass	Neutral
2	433.5 kHz	8.76 dBµV	47.19 dBµV	-38.43 dB	Pass	Neutral

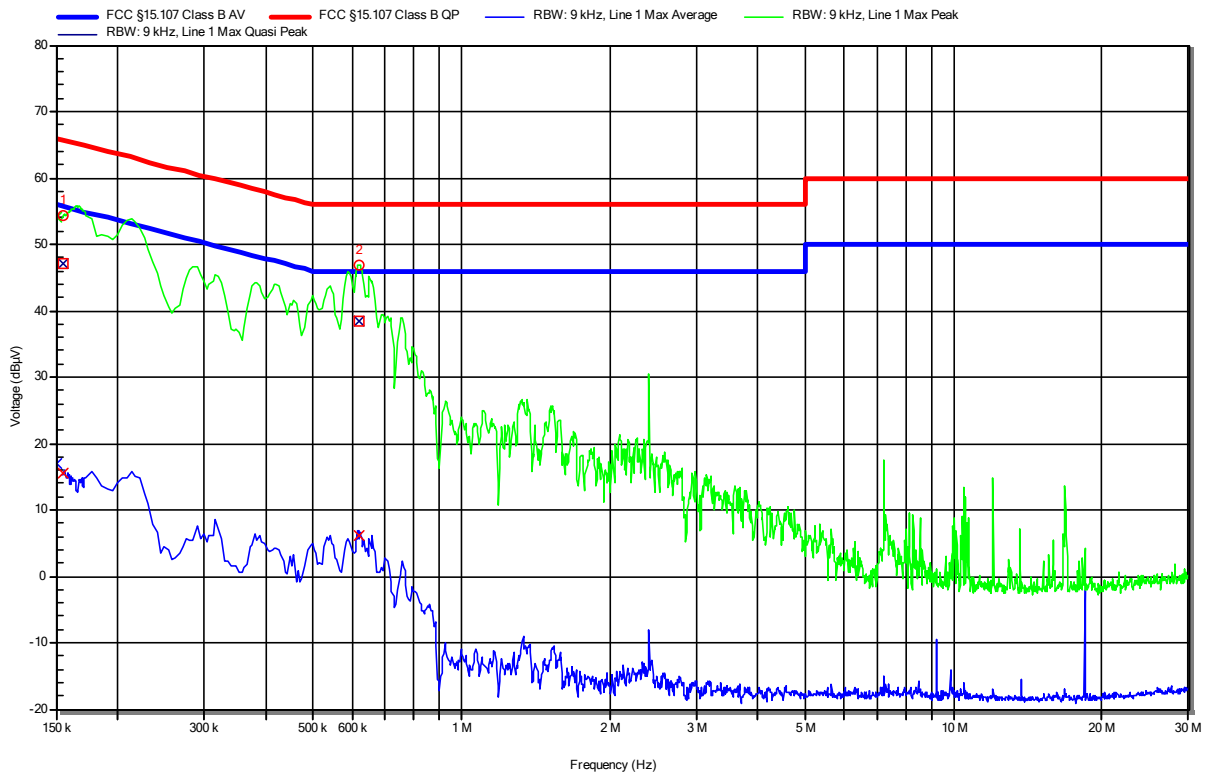
Test Report No.: G0M-2010-9382-EF0215B-V01

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

Conducted emissions at the mains power port according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-09
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 115 V / 60 Hz via dedicated AC/DC-Adaptor 1
 LISN: Schwarzbeck NSLK 8127 RC L
 Operational Mode & EUT Configuration: Mode 2
 Configuration 1
 Applied to Port: AC Mains 1
 Note 1: --

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Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	155.4 kHz	47.18 dBµV	65.71 dBµV	-18.52 dB	Pass	Line 1
2	618.9 kHz	38.52 dBµV	56 dBµV	-17.48 dB	Pass	Line 1

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	155.4 kHz	15.65 dBµV	55.71 dBµV	-40.05 dB	Pass	Line 1
2	618.9 kHz	6.19 dBµV	46 dBµV	-39.81 dB	Pass	Line 1

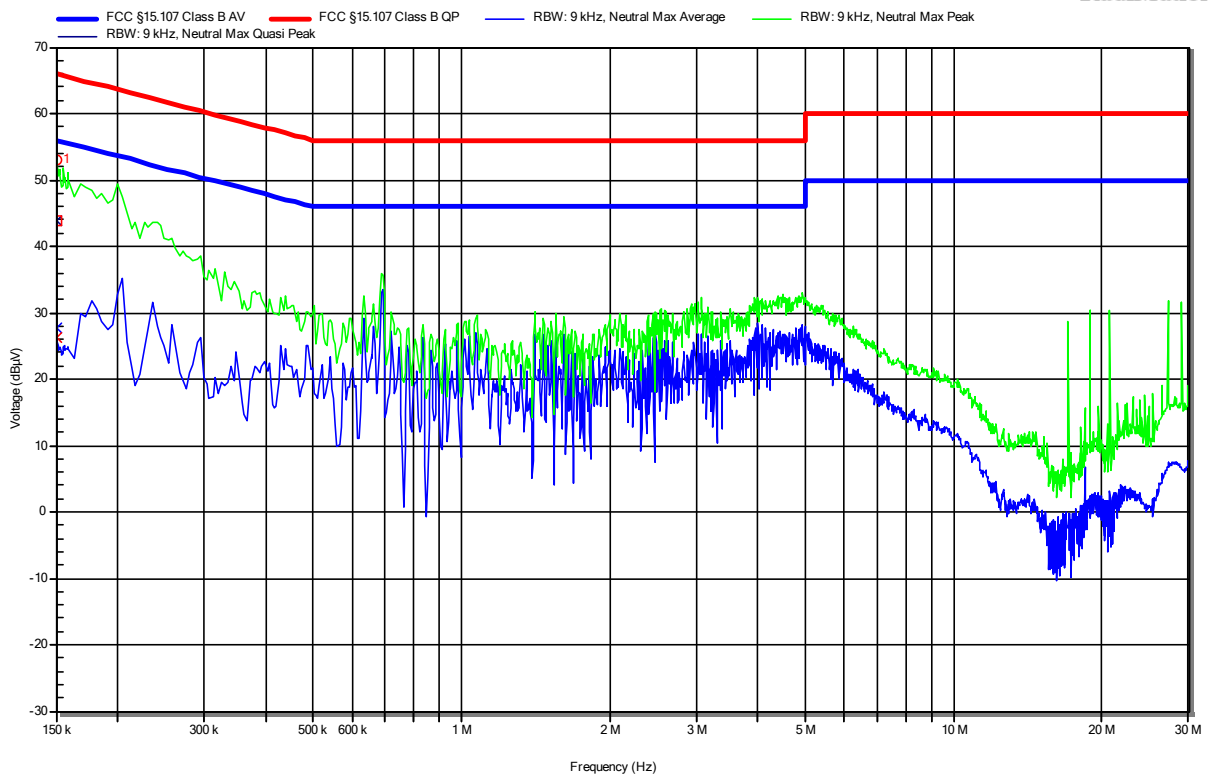
Test Report No.: G0M-2010-9382-EF0215B-V01

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

Conducted emissions at the mains power port according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-09
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 115 V / 60 Hz via dedicated AC/DC-Adaptor 2
 LISN: Schwarzbeck NSLK 8127 RC N
 Operational Mode & EUT Configuration: Mode 1
 Configuration 2
 Applied to Port: AC Mains 2
 Note 1: --

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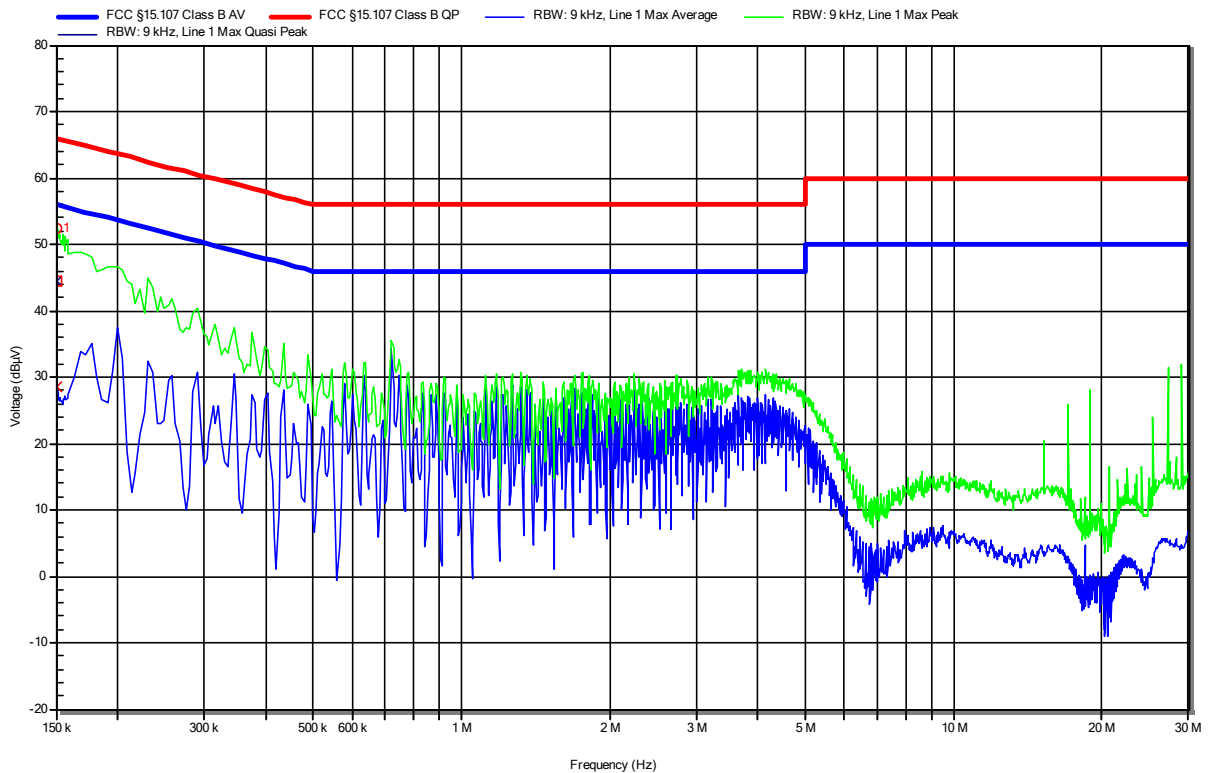


Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	150.45 kHz	43.83 dBµV	65.98 dBµV	-22.14 dB	Pass	Neutral
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	150.45 kHz	26.26 dBµV	55.98 dBµV	-29.71 dB	Pass	Neutral

Conducted emissions at the mains power port according to FCC part 15B

Project Number: G0M-1611-6036
 Applicant: Dräger Safety AG & Co. KGaA
 Model Description: Portable Alarm Amplifier with SRD
 Model: AAC OOxx
 Test Sample ID: 33030
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Liebich
 Test Date: 2021-03-09
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 115 V / 60 Hz via dedicated AC/DC-Adaptor 2
 LISN: Schwarzbeck NSLK 8127 RC L
 Operational Mode & EUT Configuration: Mode 1
 Configuration 2
 Applied to Port: AC Mains 2
 Note 1: --

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Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	150 kHz	44.41 dBµV	66 dBµV	-21.59 dB	Pass	Line 1
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	150 kHz	28.52 dBµV	56 dBµV	-27.48 dB	Pass	Line 1