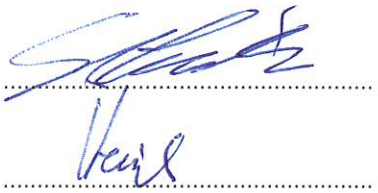
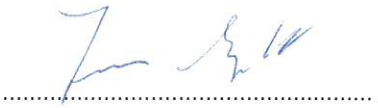
EMC TEST REPORT

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

Report Reference No	G0M-2006-9096-EF0115B-V01
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	DAkkS - Registration number : D-PL-12092-01-03 (ISED) ISED Testing Laboratory site: 3470A-2 DAkkS - Registration number : D-PL-12092-01-04 (FCC) FCC Filed Test Laboratory, Reg.-No.: 96970
Applicant	Humotion GmbH
Address	Heerdestraße 23 48149 Münster 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	DX Datalogger
Model(s)	DX 5.0 BTLE
Additional Model(s)	None
Brand Name(s)	None
Hardware Version(s)	Rev 1 (1850100)
Software Version(s)	2.0.519.13613 / 1.0.1.20
FCC-ID	2AO4RDX5036SP
IC	N/A
Test Result	**PASSED**

Possible test case verdicts:		
required by standard but not tested	N/T	
not required by standard	N/R	
required by standard but not appl. to test object	N/A	
test object does meet the requirement	P(PASS)	
test object does not meet the requirement	F(FAIL)	
Testing:		
Date of receipt of test item	2020-08-19	
Report:		
Compiled by	Stephan Liebich	
Tested by (+ signature) (Responsible for Test)	Stephan Liebich Matthias Handrik	
Approved by (+ signature) (Deputy Head of Lab)	Jens Marquardt	
Date of Issue	2020-12-14	
Total number of pages	40	
General Remarks:		
The test results presented in this report relate only to the object tested. **The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.** This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.		
Additional Comments:		

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	2020-12-14	Initial Release	-

REPORT INDEX

1 Equipment (Test Item) Under Test

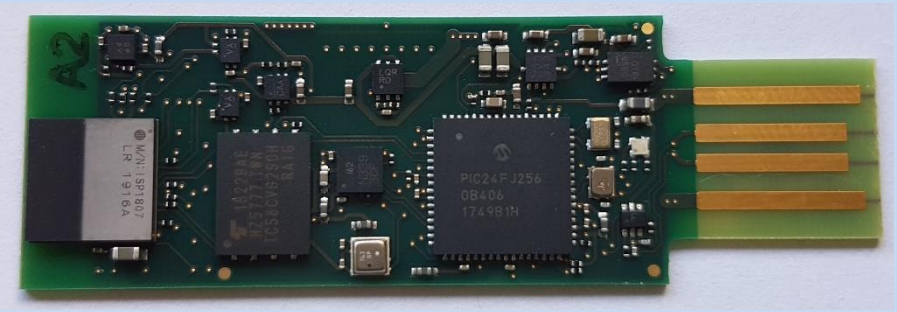
Description	DX Datalogger	
Model	DX 5.0 BTLE	
Additional Model(s)	None	
Brand Name(s)	None	
Serial Number(s)	DUO5	
Sample ID	30801	
Hardware Version(s)	Rev 1 (1850100)	
Software Version(s)	2.0.519.13613 / 1.0.1.20	
FCC-ID	2AO4RDX5036SP	
IC	N/A	
Class	Class B	
Equipment type	Table top	
Highest internal frequency [MHz]	2480	
Radio Module	Type	Bluetooth Low Energy (LE)
	Model	ISP1807
	Manufacturer	Insight SiP
	FCC-ID	2AAQS-ISP1807
	IC	11306A-ISP1807
Supply Voltage	V_{NOM}	3.7 V DC by internal battery 5.0 V DC via USB connection
AC/DC-Adaptor	None	
Manufacturer	dresden elektronik ingenieurtechnik gmbh Enno-Heidebroek-Straße 12 01237 Dresden GERMANY	

1.1 Equipment Ports

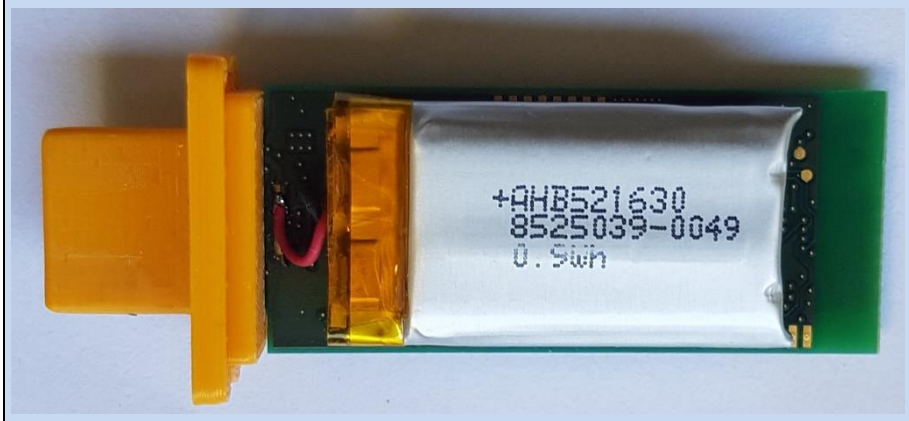
Name	Type	Attributes		Comment
USB	DC;IO	Count: Direction: Service only:	1 IO No	-

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 PCB TOP SIDE


EUT PCB BOTTOM SIDE


EUT PCB BOTTOM SIDE WITH BATTERY


1.3 Equipment Photos - External

EUT TOP SIDE

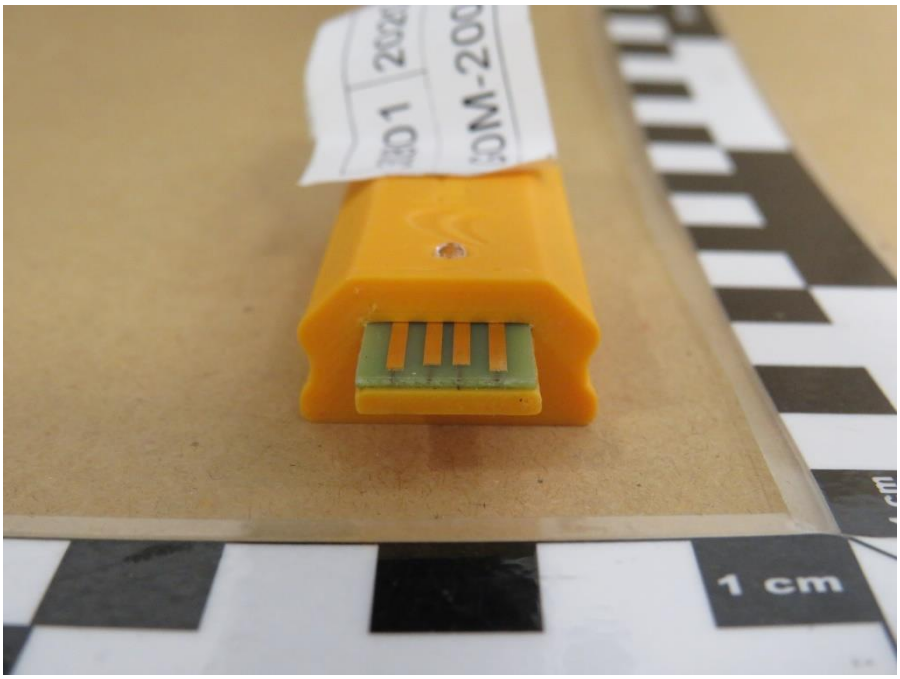
EUT BOTTOM SIDE

EUT LEFT SIDE

EUT CONNECTOR TOP

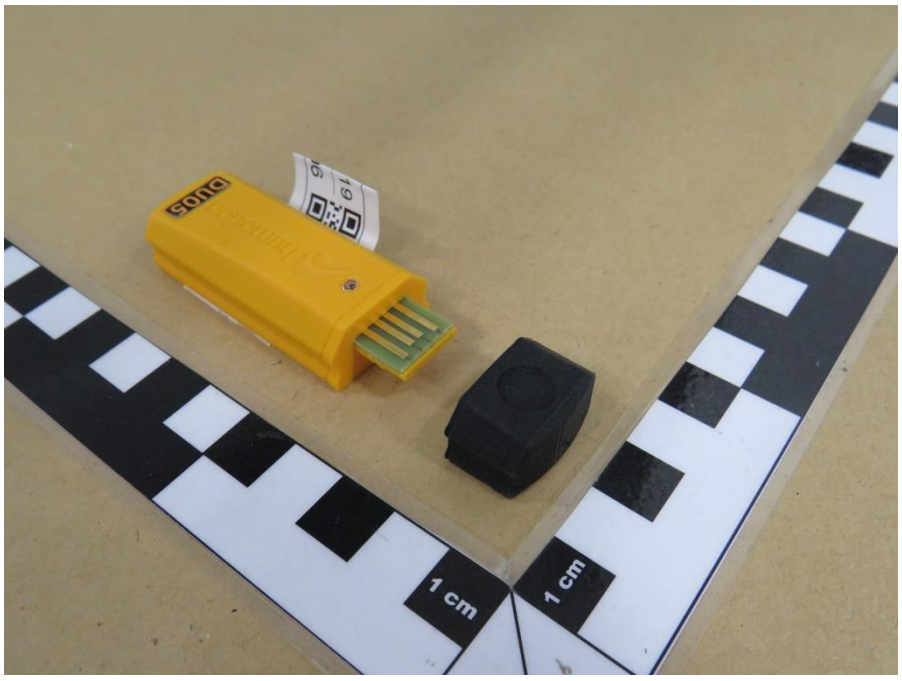
EUT CONNECTOR BOTTOM

EUT CONNECTOR FRONT SIDE



EUT IN PERSPECTIVE I

EUT IN PERSPECTIVE II



1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	Laptop	lenovo	T450	For powering the EUT
AE	AC/DC-adaptor	lenovo	ADLX45NDC3A	Dedicated to Laptop
MON	Smartphone	Samsung	SM-J530F/DS	Companion Device
CBL	USB cable	AWM	28AWGX1P / 24AWGX2C	USB2.0
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
MON	Monitoring Equipment			
CBL	Connecting Cable			
Comment:				

1.5 Operational Modes

Mode #	Description
1	Bluetooth LE (EUT sends/receives data packets to/from companion device via Bluetooth LE connection.
Comment:	

1.6 EUT Configuration

Configuration #	Description
1	EUT is powered by 3.7 V DC internal battery. EUT is connected with Smartphone via Bluetooth LE connection.
2	EUT is powered by 5.0 V DC via USB connection. EUT is connected with Laptop via USB cable. Laptop is powered by dedicated AC/DC-adaptor. EUT is connected with Smartphone via Bluetooth LE 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:

Reading on Analyser (dBµV) + A.F. (dB/m) = Net field strength (dBµV/m)

Net:

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

Limit:

This is the FCC Class B radiated emission limit (in units of dBµV/m). The FCC limits are given in units of µV/m. The following formula is used to convert the units of µV/m to dBµV/m:

Limit (dBµV/m) = 20*log (µV/m)

Margin:

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

Example only:

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

2 Result Summary

FCC 47 CFR Part 15B, ISED ICES-003 Issue 6				
Reference	**Requirement**	**Reference Method**	**Result**	**Remarks**
Emission				
FCC 15.109 ICES-003, 6.2	Radiated emissions	ANSI C63.4:2014 +A1:2017	PASS	-
FCC 15.107 ICES-003, 6.1	AC power line conducted emissions	ANSI C63.4:2014 +A1:2017	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

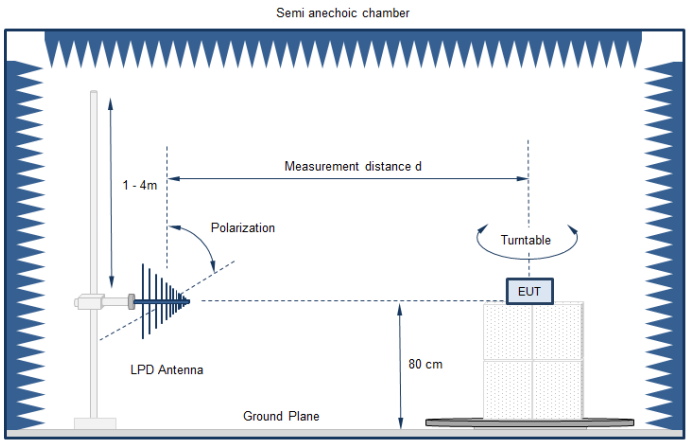
2.1 Test Conditions and Results - Radiated emissions acc. to ANSI C63.4

2.1.1 Information

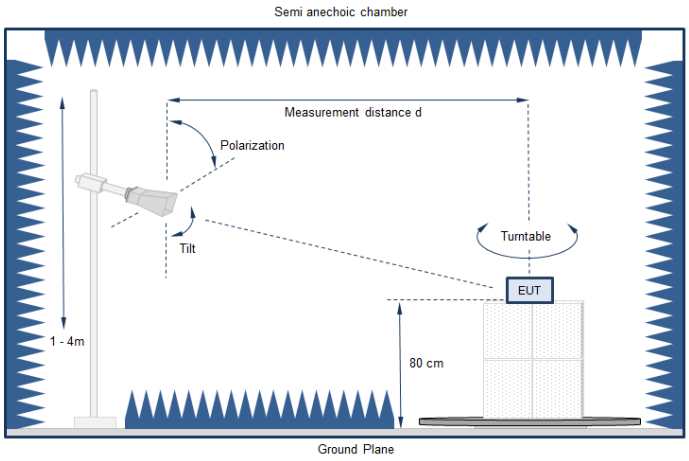
Test Information	
Reference	FCC 15.109, ICES-003, 6.2
Reference method	ANSI C63.4:2014+A1:2017 Section 8
Equipment class	Class B
Equipment type	Table top
Highest internal frequency [MHz]	2480
Measurement range	30 MHz to 13000 MHz
Temperature [°C]	20 – 23
Humidity [%]	47 – 50
Operator	Stephan Liebich
Date	2020-09-07

2.1.2 Setup

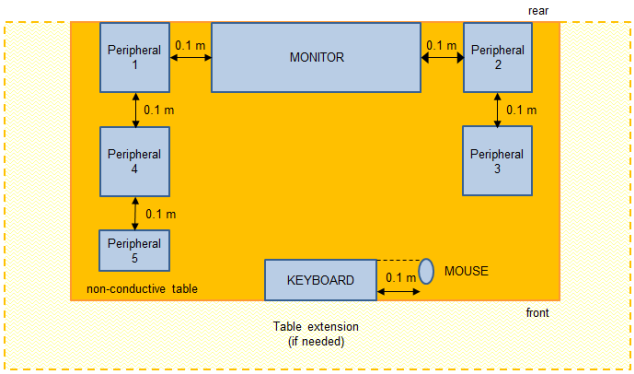
Measurement up to 1 GHz



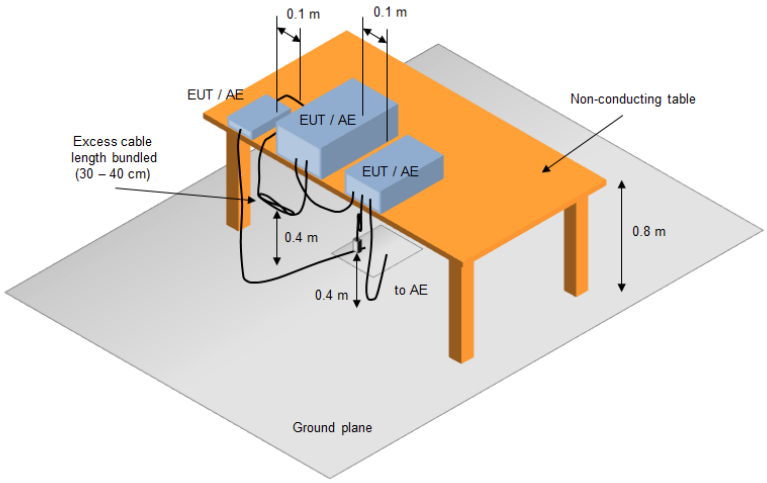
Measurement above 1 GHz



Equipment placement - Table top



Test Setup



2.1.3 Equipment

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

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

2.1.4 Procedure

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

Final measurement
1. The EUT was placed on a 0.8 m non-conductive table at a 3 m distance from the receive antenna. The antenna output was connected to the measurement receiver. 2. A biconical antenna was used for the frequency range 30 – 200 MHz, a logarithmic periodical antenna was used for the frequency range from 200 – 1000 MHz. Above one 1 GHz a Double Ridged Broadband Horn antenna was used. The antenna was placed on an adjustable height antenna mast. 3. The EUT and cable arrangement were based on the exploratory measurement results. 4. Emissions were maximized at each frequency by rotating the EUT and adjusting the receive antenna height and polarization. The maximum values were recorded. 5. The test data of the worst-case conditions were recorded and shown on the next pages.

2.1.5 Limits

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

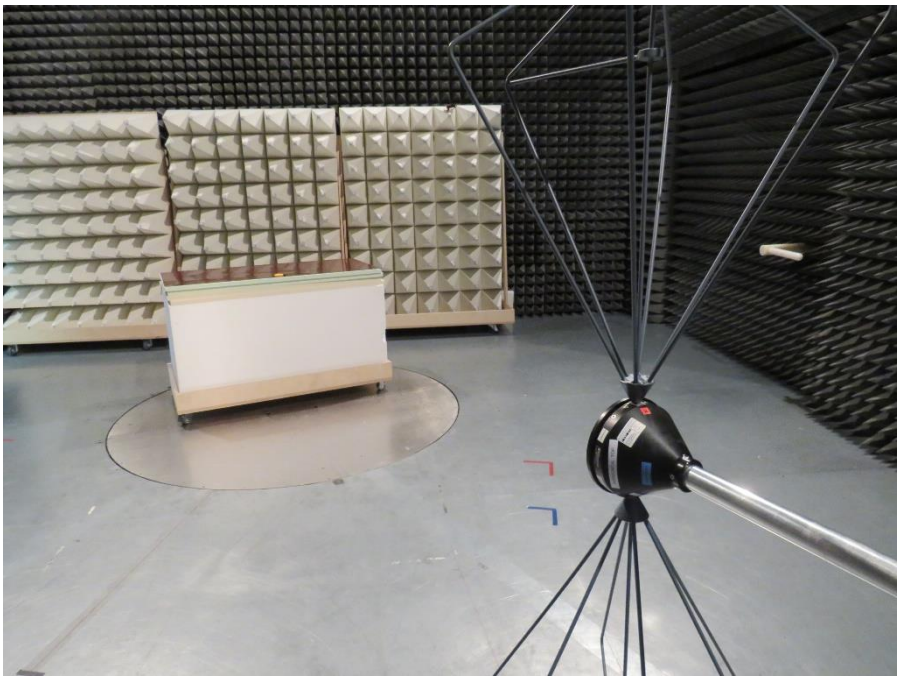
2.1.6 Results

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

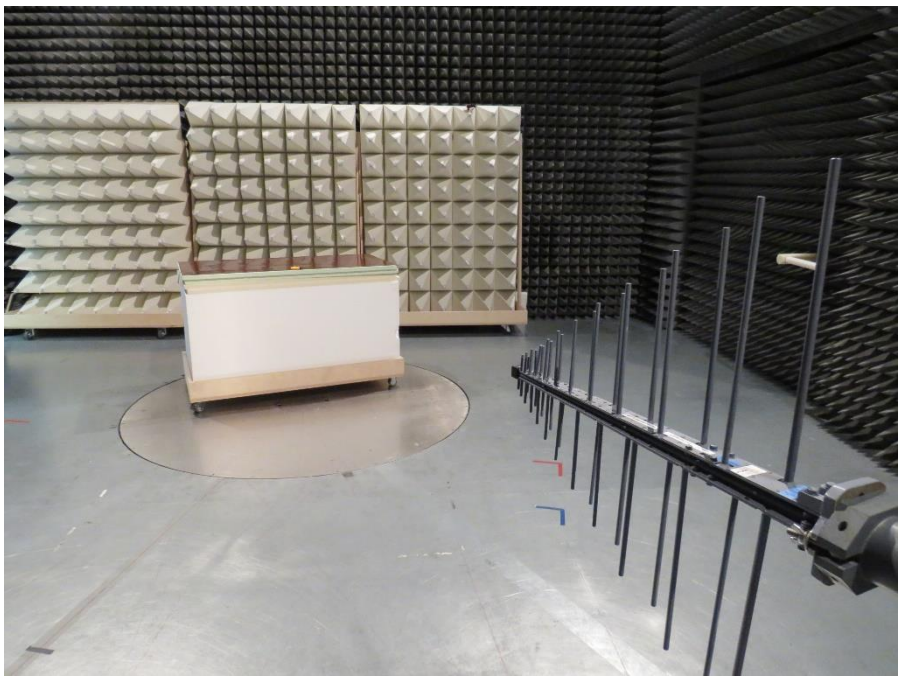
2.1.7 Setup Photos

RADIATED EMISSION - CONFIGURATION 1 - FOCUS

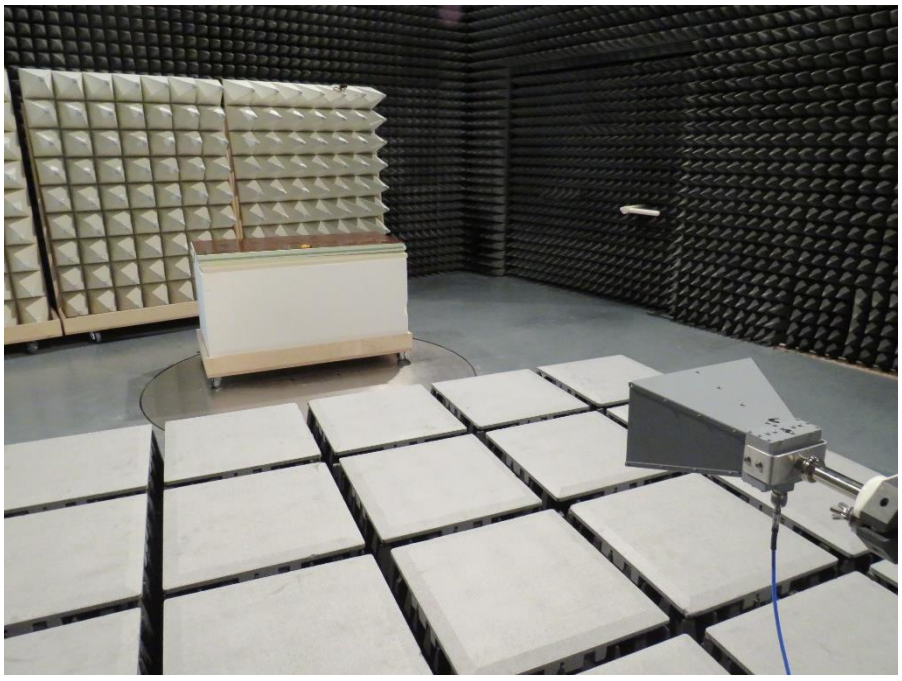
RADIATED EMISSION - CONFIGURATION 1 - 30 MHz to 200 MHz



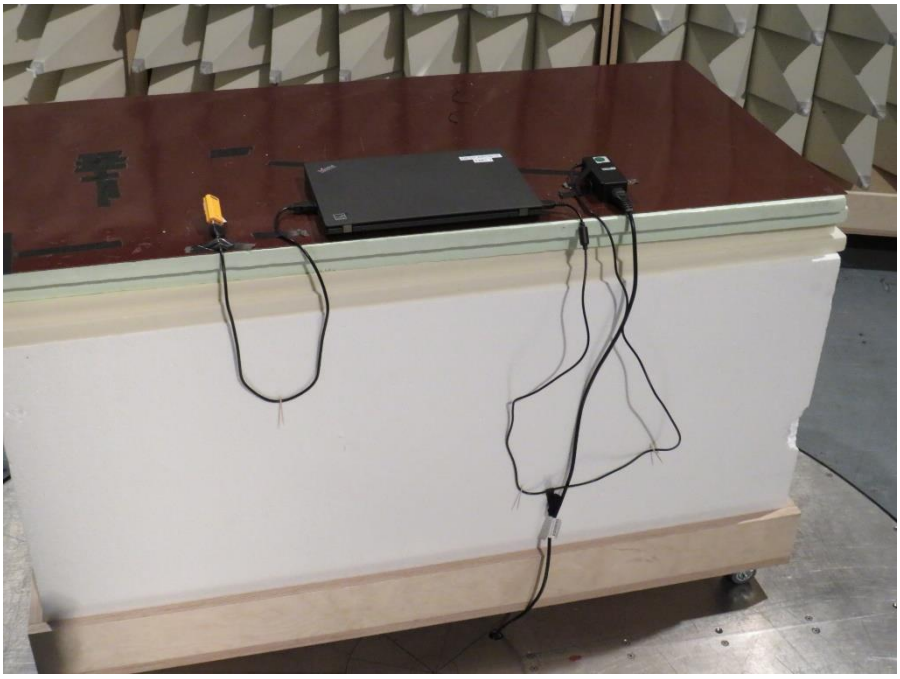
RADIATED EMISSION - CONFIGURATION 1 - 200 MHz to 1 GHz



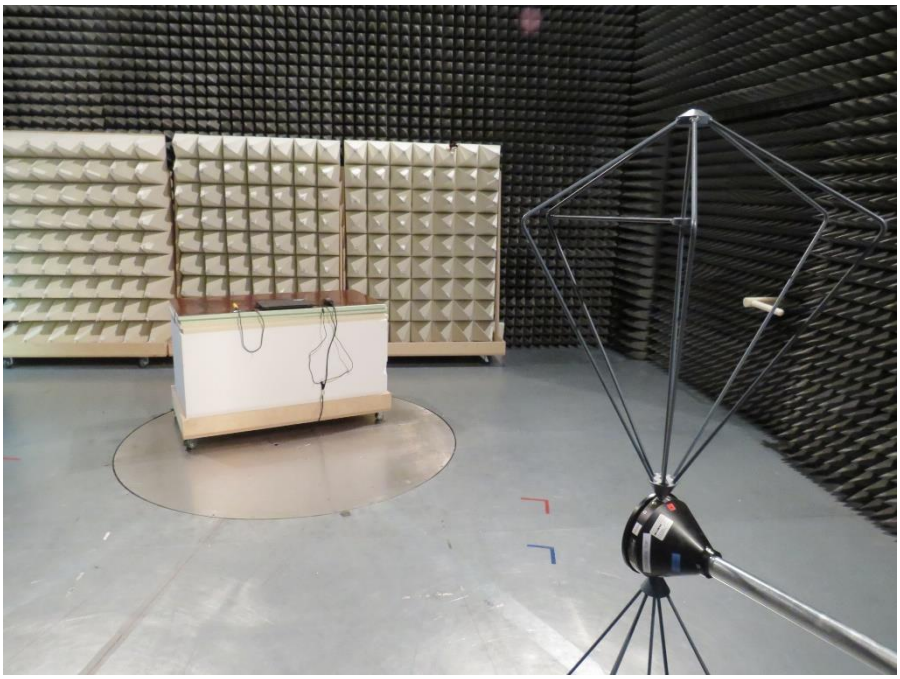
RADIATED EMISSION - CONFIGURATION 1 - 1 GHz to 13 GHz



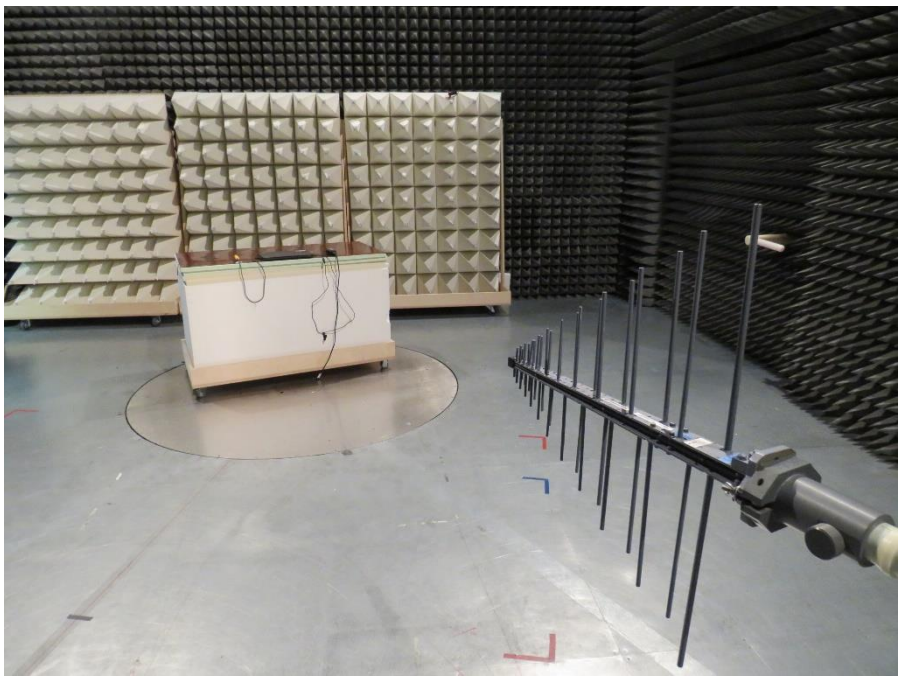
RADIATED EMISSION - CONFIGURATION 2 - FOCUS



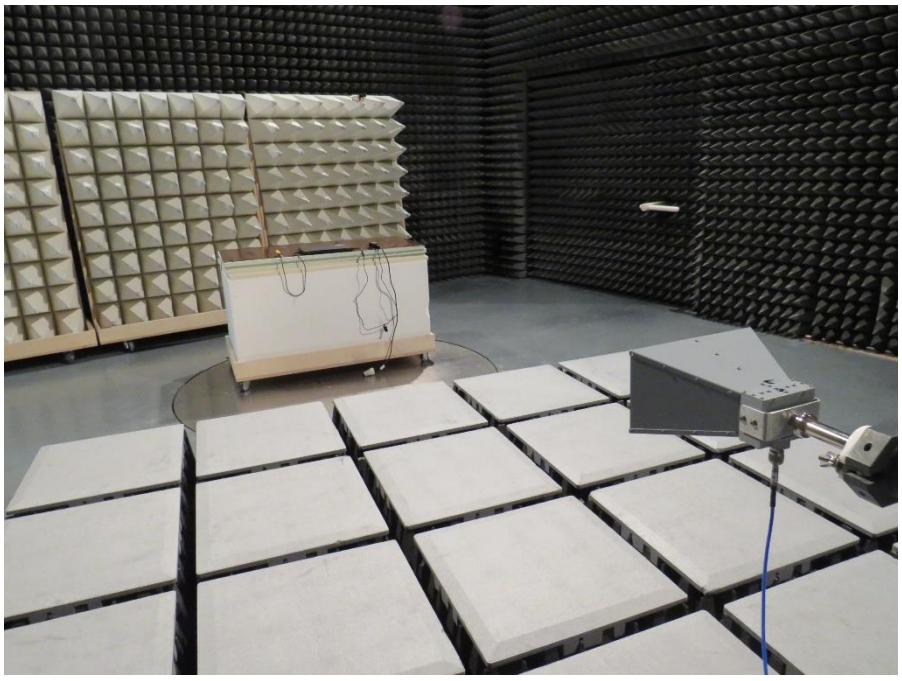
RADIATED EMISSION - CONFIGURATION 2 - 30 MHz to 200 MHz



RADIATED EMISSION - CONFIGURATION 2 - 200 MHz to 1 GHz



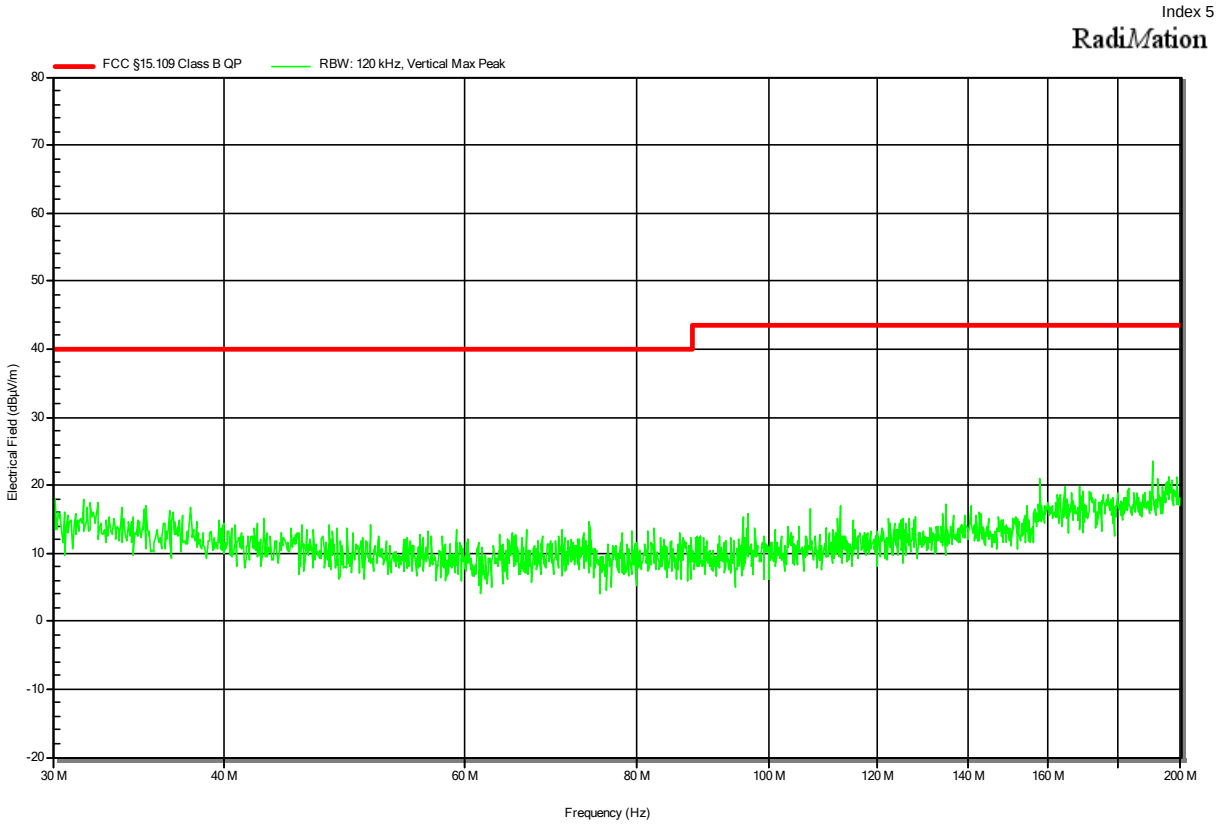
RADIATED EMISSION - CONFIGURATION 2 – 1 GHz to 13 GHz



2.1.8 Records

Radiated emissions according to FCC part 15B

Project Number:	G0M-2006-9096
Applicant:	Humotion GmbH
Model Description:	DX Datalogger
Model:	DX 5.0 BTLE
Test Sample ID:	30801
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Liebich
Test Date:	2020-09-07
Operating Conditions:	ambient temperature: 22 °Celsius power input: 3.7 V DC by internal battery
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement Distance:	3m
Mode:	1



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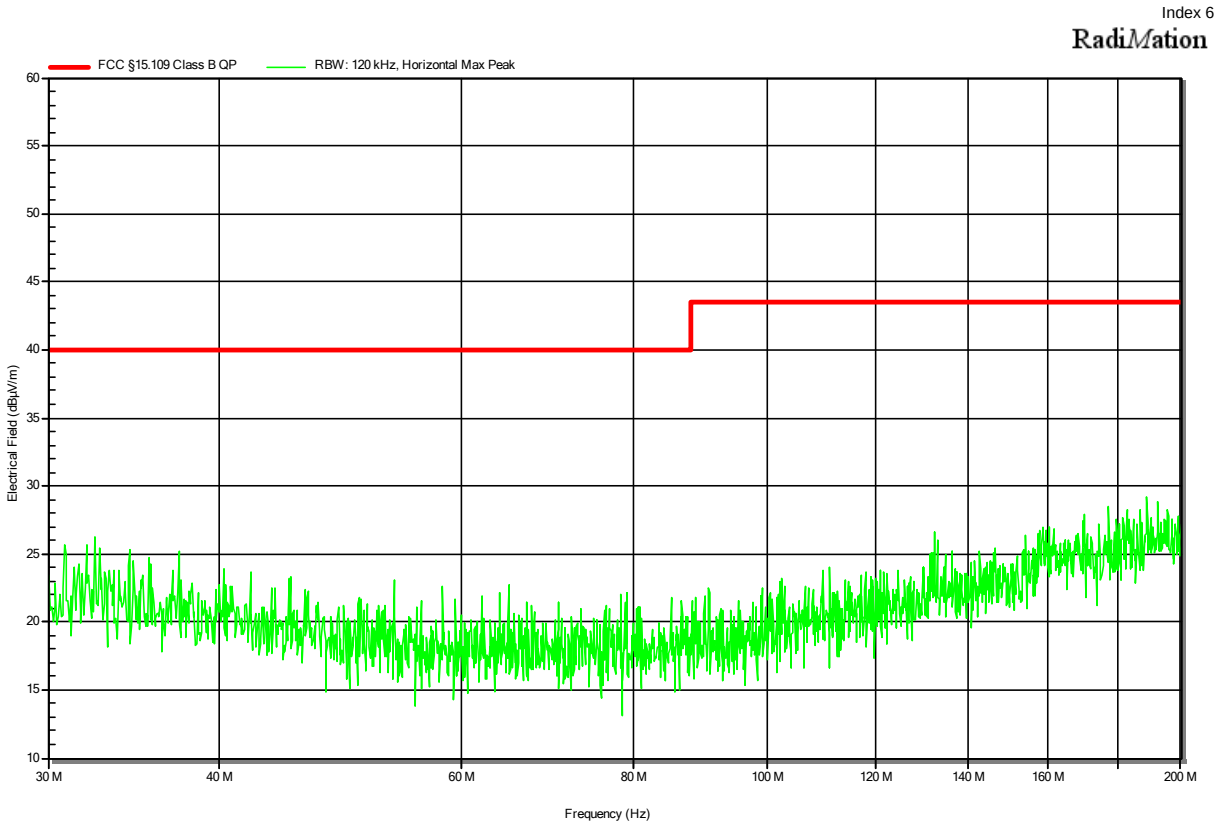
Model:	DX 5.0 BTLE
Test Sample ID:	30801
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Liebich
Test Date:	2020-09-07
Operating Conditions:	ambient temperature: 22 °Celsius power input: 3.7 V DC by internal battery
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement Distance:	3m
Mode:	1



Radiated emissions according to FCC part 15B

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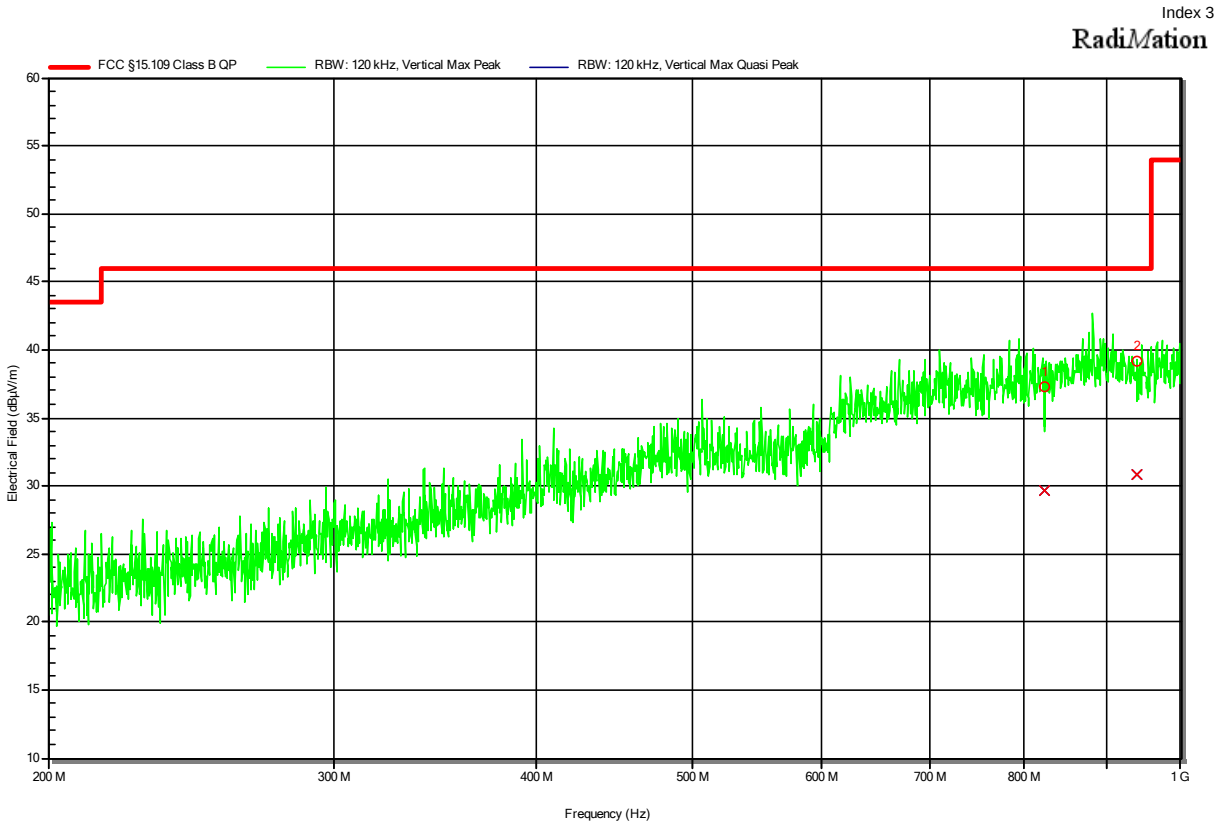
Model Description:	DX Datalogger
Model:	DX 5.0 BTLE
Test Sample ID:	30801
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Liebich
Test Date:	2020-09-07
Operating Conditions:	ambient temperature: 22 °Celsius power input: 3.7 V DC by internal battery
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement Distance:	3m
Mode:	1



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	824.167 MHz	29.66 dBµV/m	46.02 dBµV/m	-16.36 dB	Pass	0 degrees	1 m
2	940.324 MHz	30.89 dBµV/m	46.02 dBµV/m	-15.13 dB	Pass	0 degrees	1 m

Radiated emissions according to FCC part 15B

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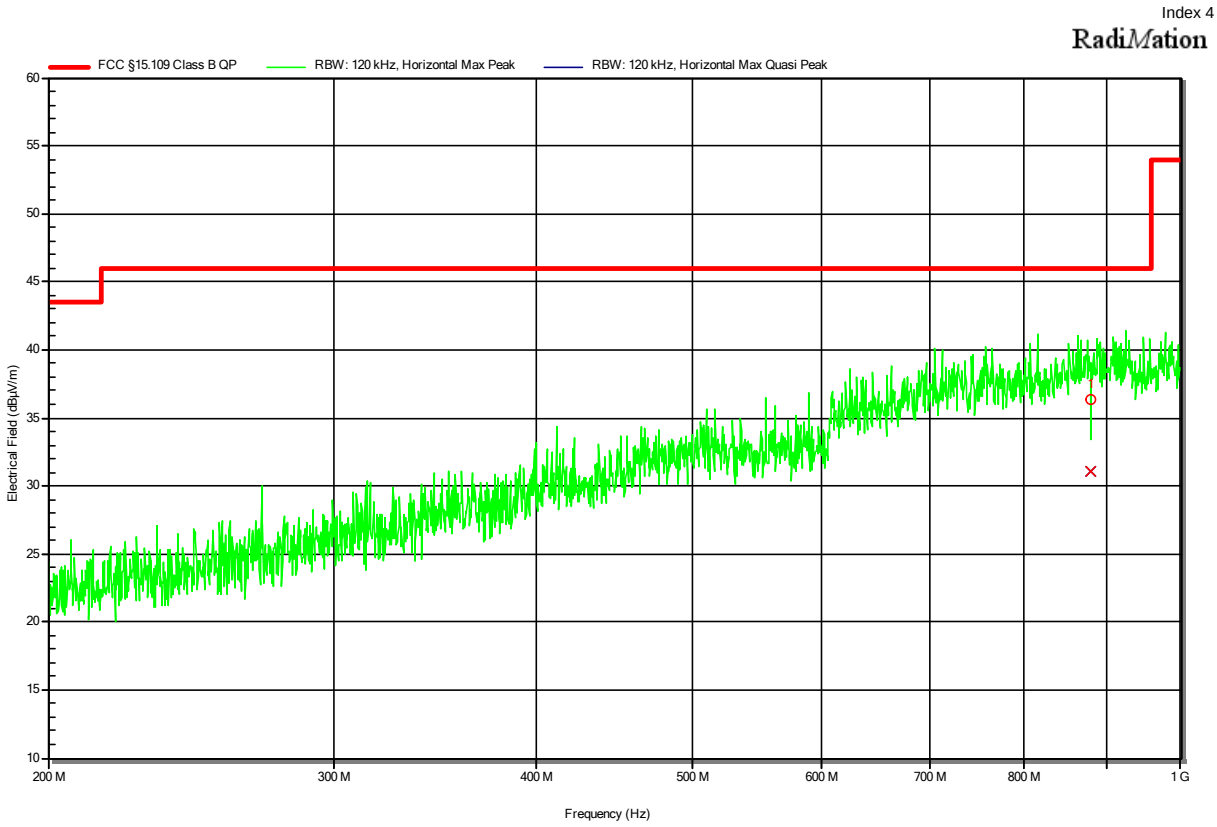
Model:	DX 5.0 BTLE
Test Sample ID:	30801
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Liebich
Test Date:	2020-09-07
Operating Conditions:	ambient temperature: 22 °Celsius power input: 3.7 V DC by internal battery
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement Distance:	3m
Mode:	1



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	879.772 MHz	31.11 dBµV/m	46.02 dBµV/m	-14.91 dB	Pass	0 degrees	1 m

Radiated emissions according to FCC part 15B

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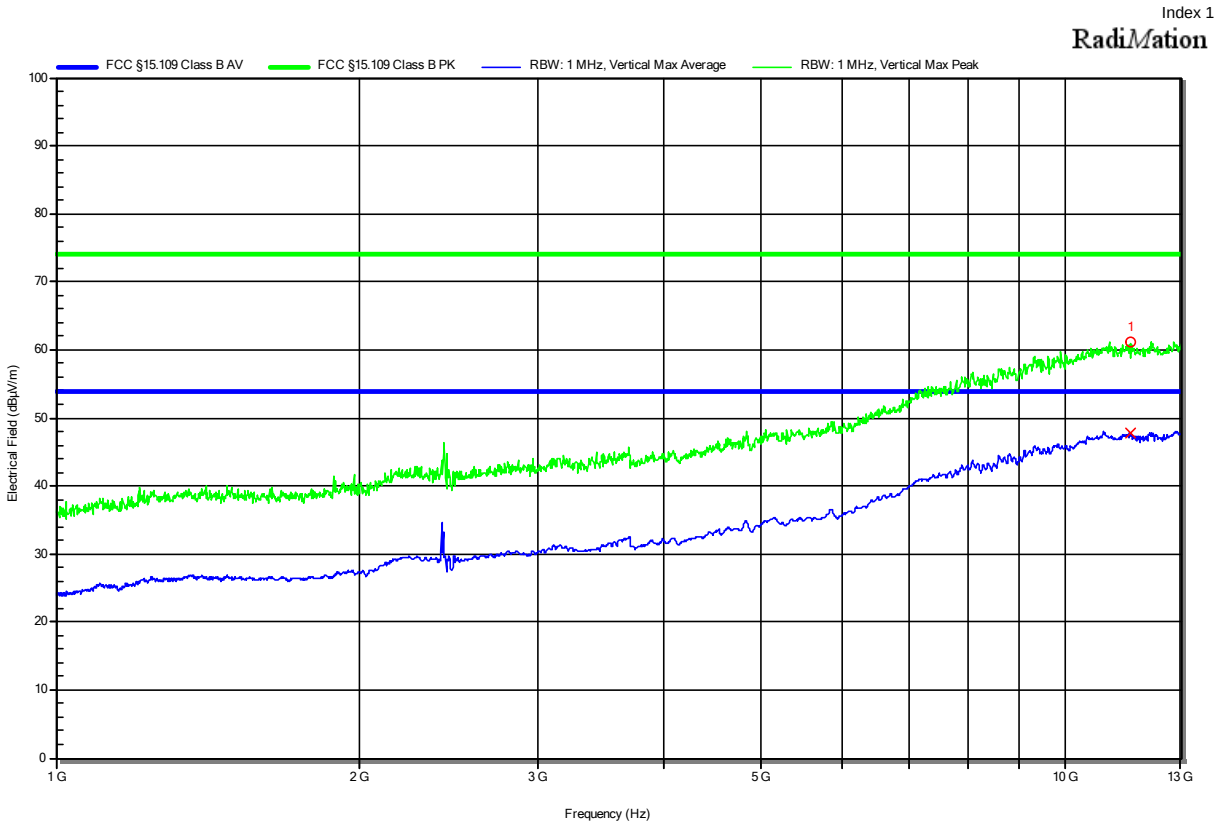
Model:	DX 5.0 BTLE
Test Sample ID:	30801
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Liebich
Test Date:	2020-09-07
Operating Conditions:	ambient temperature: 22 °Celsius power input: 3.7 V DC by internal battery
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement Distance:	3m
Mode:	1



Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	11.579 GHz	61.26 dBµV/m	73.98 dBµV/m	-12.72 dB	Pass	90 degrees	1.72 m

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	11.579 GHz	47.7 dBµV/m	53.98 dBµV/m	-6.28 dB	Pass	90 degrees	1.72 m

Radiated emissions according to FCC part 15B

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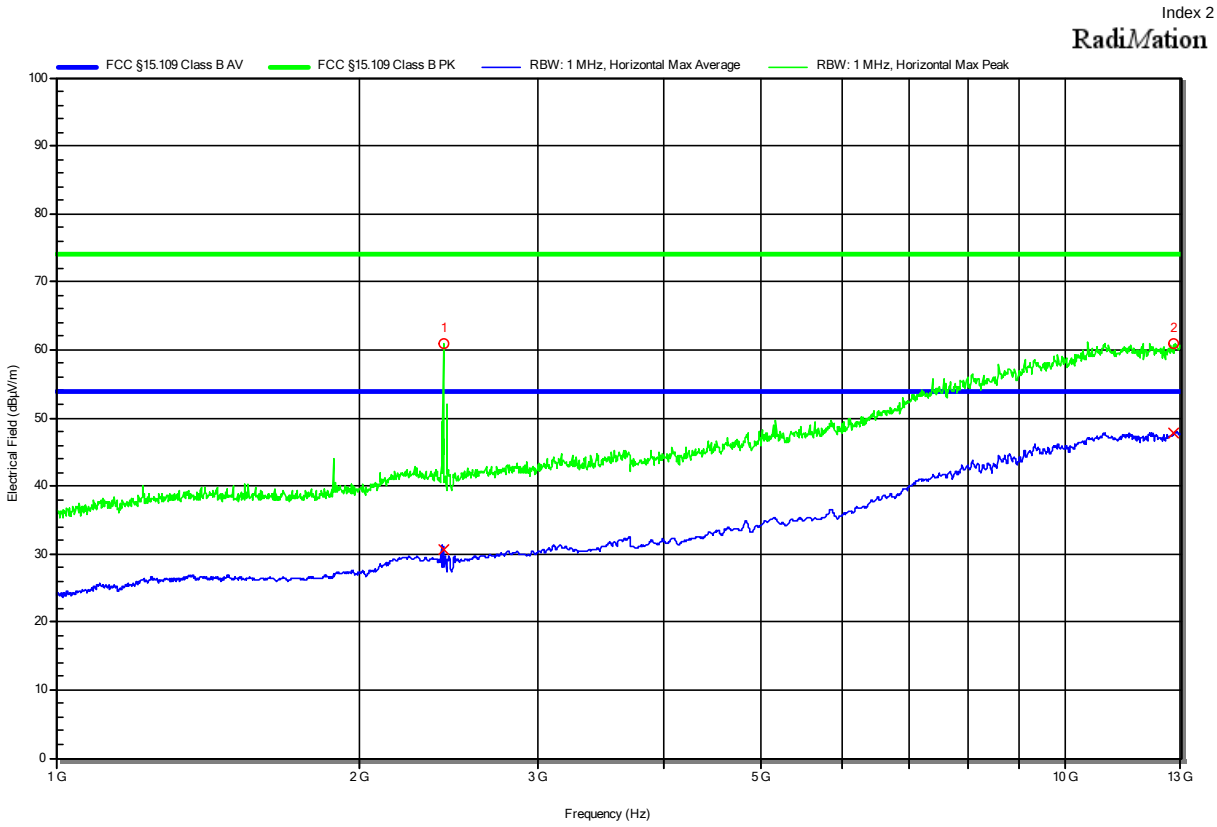
Test Sample ID:	30801
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Liebich
Test Date:	2020-09-07
Operating Conditions:	ambient temperature: 22 °Celsius power input: 3.7 V DC by internal battery
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement Distance:	3m
Mode:	1



Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	2.418 GHz	BLE-Carrier					
2	12.81 GHz	60.98 dBµV/m	73.98 dBµV/m	-13 dB	Pass	24 degrees	1 m

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	2.418 GHz	BLE-Carrier					
2	12.81 GHz	47.71 dBµV/m	53.98 dBµV/m	-6.27 dB	Pass	24 degrees	1 m

Radiated emissions according to FCC part 15B

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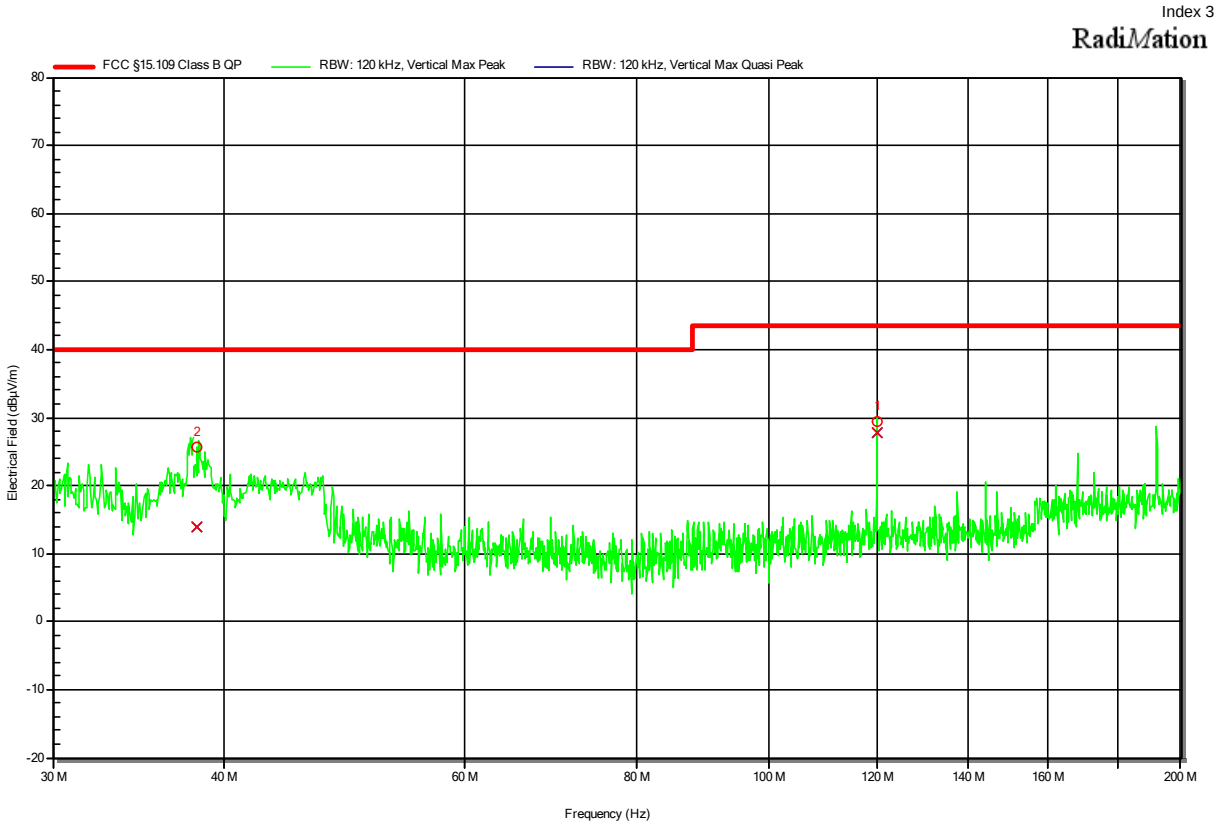
Model Description:	DX Datalogger
Model:	DX 5.0 BTLE
Test Sample ID:	30801
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Liebich
Test Date:	2020-09-07
Operating Conditions:	ambient temperature: 21 °Celsius power input: 5.0 V DC via USB connection (connected to Laptop powered by 110 V / 60 Hz)
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement Distance:	3m
Mode:	1



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	119.996 MHz	27.8 dBµV/m	43.52 dBµV/m	-15.73 dB	Pass	180 degrees	1 m
2	38.227 MHz	13.82 dBµV/m	40 dBµV/m	-26.18 dB	Pass	180 degrees	1 m

Radiated emissions according to FCC part 15B

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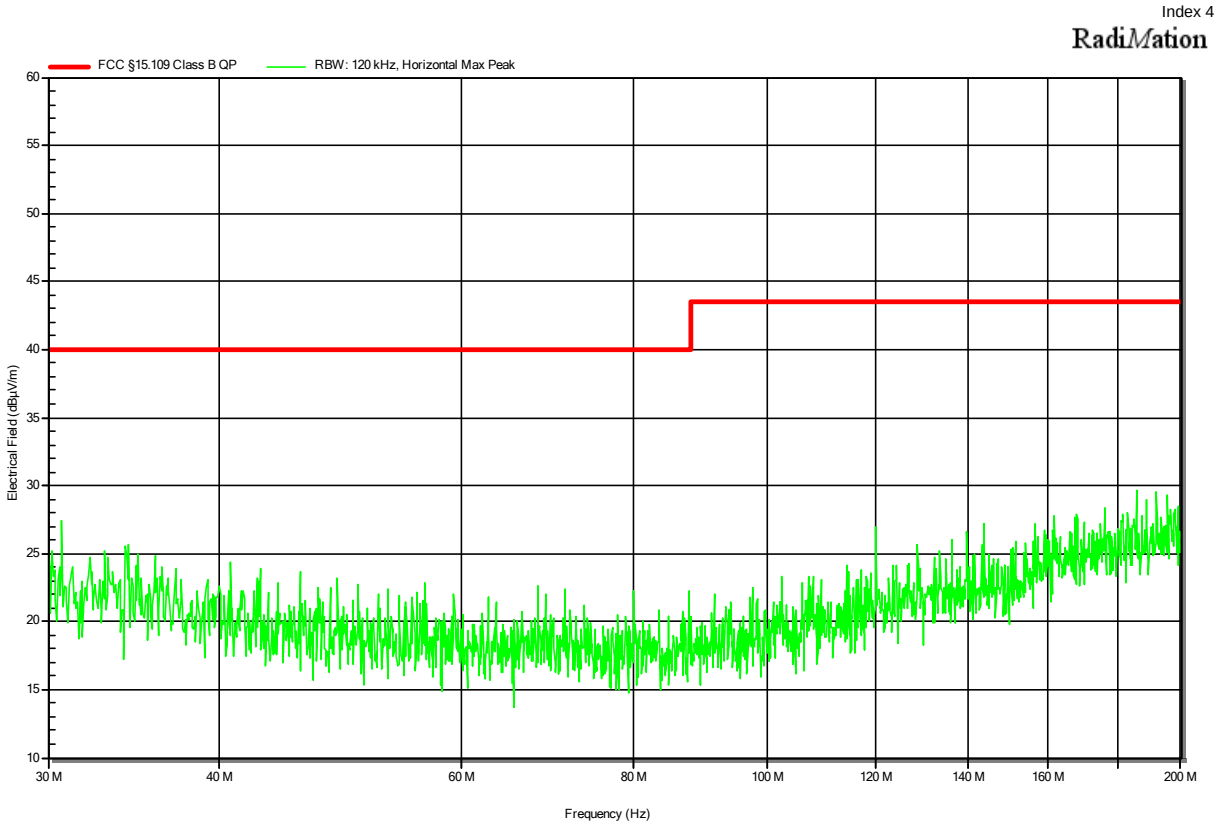
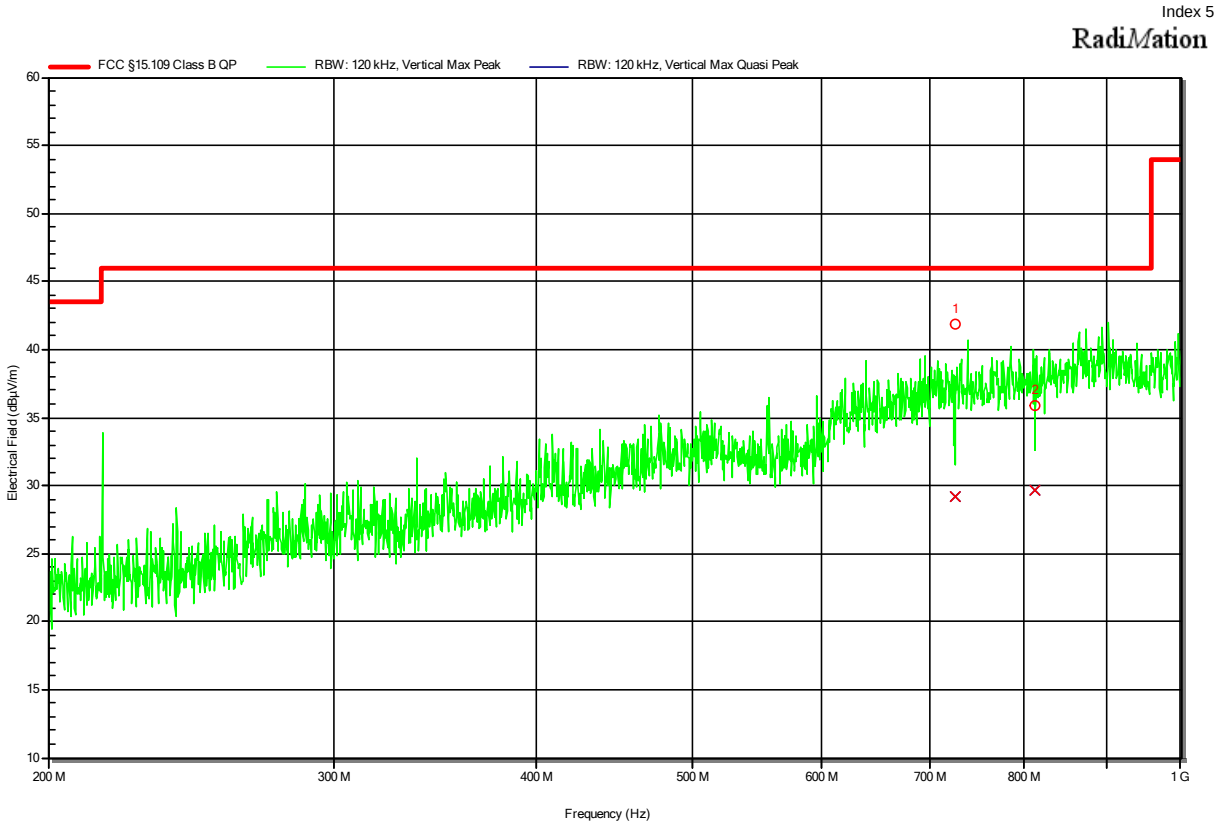
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Liebich
Test Date:	2020-09-07
Operating Conditions:	ambient temperature: 21 °Celsius power input: 5.0 V DC via USB connection (connected to Laptop powered by 110 V / 60 Hz)
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement Distance:	3m
Mode:	1



Radiated emissions according to FCC part 15B

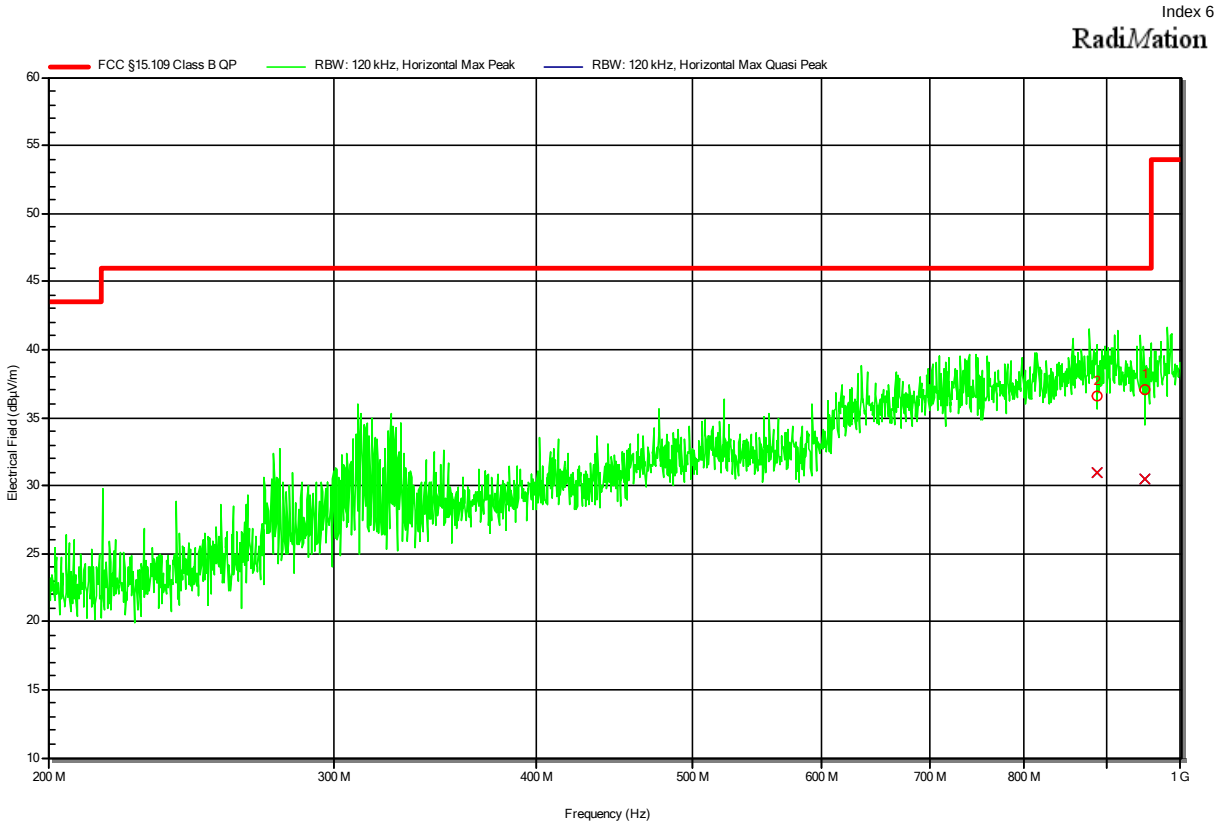
Project Number:	G0M-2006-9096
Applicant:	Humotion GmbH
Model Description:	DX Datalogger
Model:	DX 5.0 BTLE
Test Sample ID:	30801
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Liebich
Test Date:	2020-09-07
Operating Conditions:	ambient temperature: 21 °Celsius power input: 5.0 V DC via USB connection (connected to Laptop powered by 110 V / 60 Hz)
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement Distance:	3m
Mode:	1



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	725.193 MHz	29.23 dBµV/m	46.02 dBµV/m	-16.79 dB	Pass	180 degrees	1 m
2	813.353 MHz	29.61 dBµV/m	46.02 dBµV/m	-16.41 dB	Pass	180 degrees	1 m

Radiated emissions according to FCC part 15B

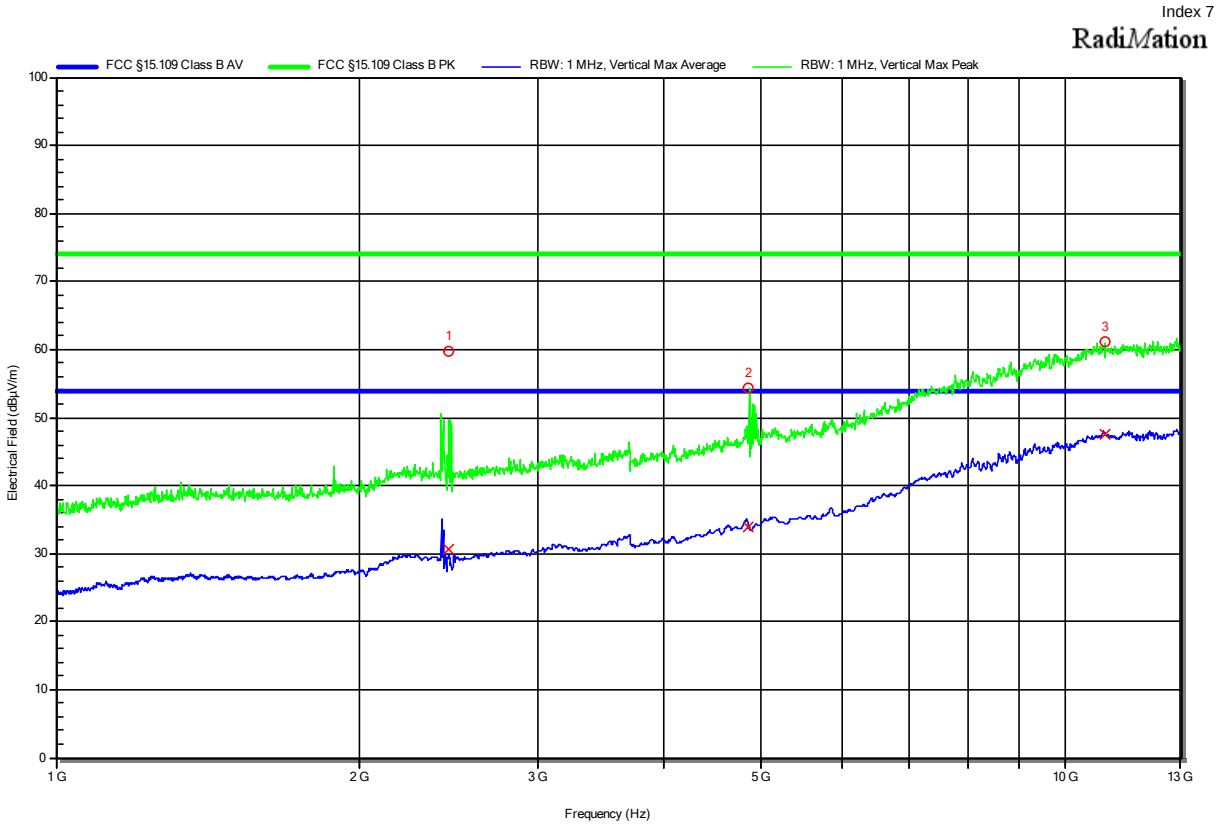
Project Number:	G0M-2006-9096
Applicant:	Humotion GmbH
Model Description:	DX Datalogger
Model:	DX 5.0 BTLE
Test Sample ID:	30801
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Liebich
Test Date:	2020-09-07
Operating Conditions:	ambient temperature: 21 °Celsius power input: 5.0 V DC via USB connection (connected to Laptop powered by 110 V / 60 Hz)
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement Distance:	3m
Mode:	1



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	951.234 MHz	30.46 dBµV/m	46.02 dBµV/m	-15.56 dB	Pass	0 degrees	1 m
2	888.358 MHz	30.9 dBµV/m	46.02 dBµV/m	-15.12 dB	Pass	0 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number:	G0M-2006-9096
Applicant:	Humotion GmbH
Model Description:	DX Datalogger
Model:	DX 5.0 BTLE
Test Sample ID:	30801
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Liebich
Test Date:	2020-09-07
Operating Conditions:	ambient temperature: 21 °Celsius power input: 5.0 V DC via USB connection (connected to Laptop powered by 110 V / 60 Hz)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement Distance:	3m
Mode:	1

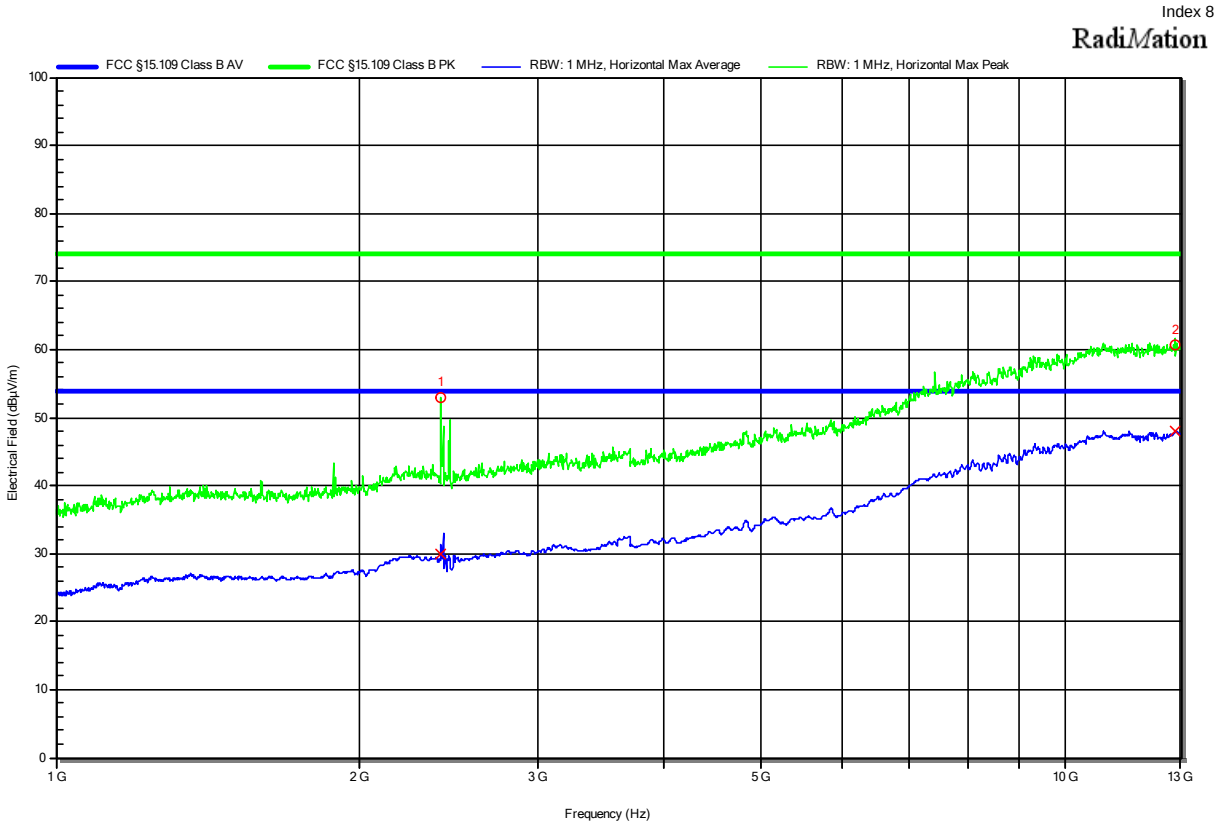


Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	2.448 GHz			BLE-Carrier			
2	4.856 GHz	54.33 dBµV/m	73.98 dBµV/m	-19.65 dB	Pass	100 degrees	1.45 m
3	10.958 GHz	61.12 dBµV/m	73.98 dBµV/m	-12.86 dB	Pass	100 degrees	1.45 m

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	2.448 GHz			BLE-Carrier			
2	4.856 GHz	33.82 dBµV/m	53.98 dBµV/m	-20.16 dB	Pass	100 degrees	1.45 m
3	10.958 GHz	47.54 dBµV/m	53.98 dBµV/m	-6.44 dB	Pass	100 degrees	1.45 m

Radiated emissions according to FCC part 15B

Project Number:	G0M-2006-9096
Applicant:	Humotion GmbH
Model Description:	DX Datalogger
Model:	DX 5.0 BTLE
Test Sample ID:	30801
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Liebich
Test Date:	2020-09-07
Operating Conditions:	ambient temperature: 21 °Celsius power input: 5.0 V DC via USB connection (connected to Laptop powered by 110 V / 60 Hz)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement Distance:	3m
Mode:	1



Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	2.406 GHz				BLE-Carrier		
2	12.848 GHz	60.63 dBµV/m	73.98 dBµV/m	-13.35 dB	Pass	0 degrees	1 m

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	2.406 GHz				BLE-Carrier		
2	12.848 GHz	47.96 dBµV/m	53.98 dBµV/m	-6.02 dB	Pass	0 degrees	1 m

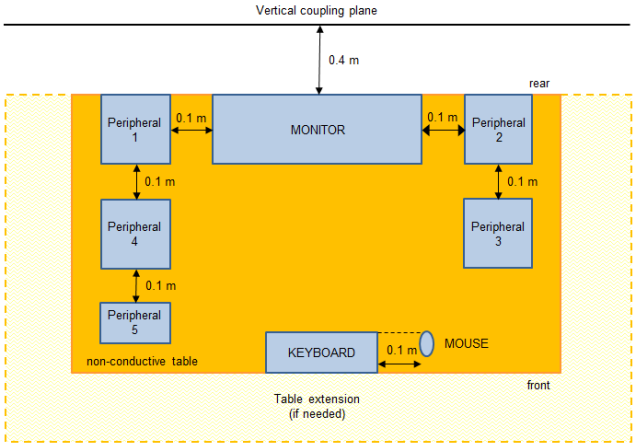
2.2 Test Conditions and Results - Conducted emissions acc. to ANSI C63.4

2.2.1 Information

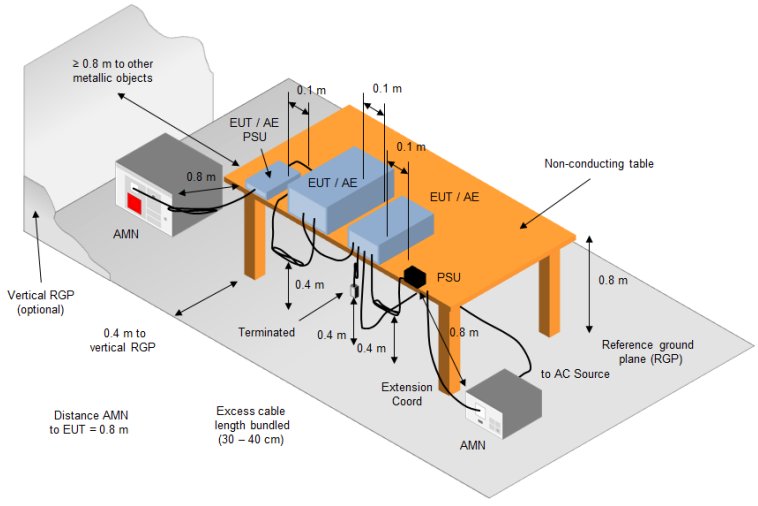
Test Information	
Reference	FCC 15.107, ICES-003, 6.1
Reference method	ANSI C63.4:2014+A1:2017 Section 12
Measurement range	150 kHz to 30 MHz
Equipment class	Class B
Equipment type	Table top
Temperature [°C]	19 – 21
Humidity [%]	50 – 53
Operator	Stephan Liebich
Date	2020-09-07

2.2.2 Setup

Equipment placement



Test 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. The EUT was placed on a non conductive table 0.8 m above the reference ground plane and 0.4 m away from the vertical conducting plane (ANSI C63.4: 2014 item 7.3.1)
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 non conductive table 0.8 m above the reference ground plane and 0.4 m away from the vertical conducting plane (ANSI C63.4: 2014 item 7.3.1)
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	AMN	1	2	PASS	AC Mains is port of AC/DC-adaptor from Laptop

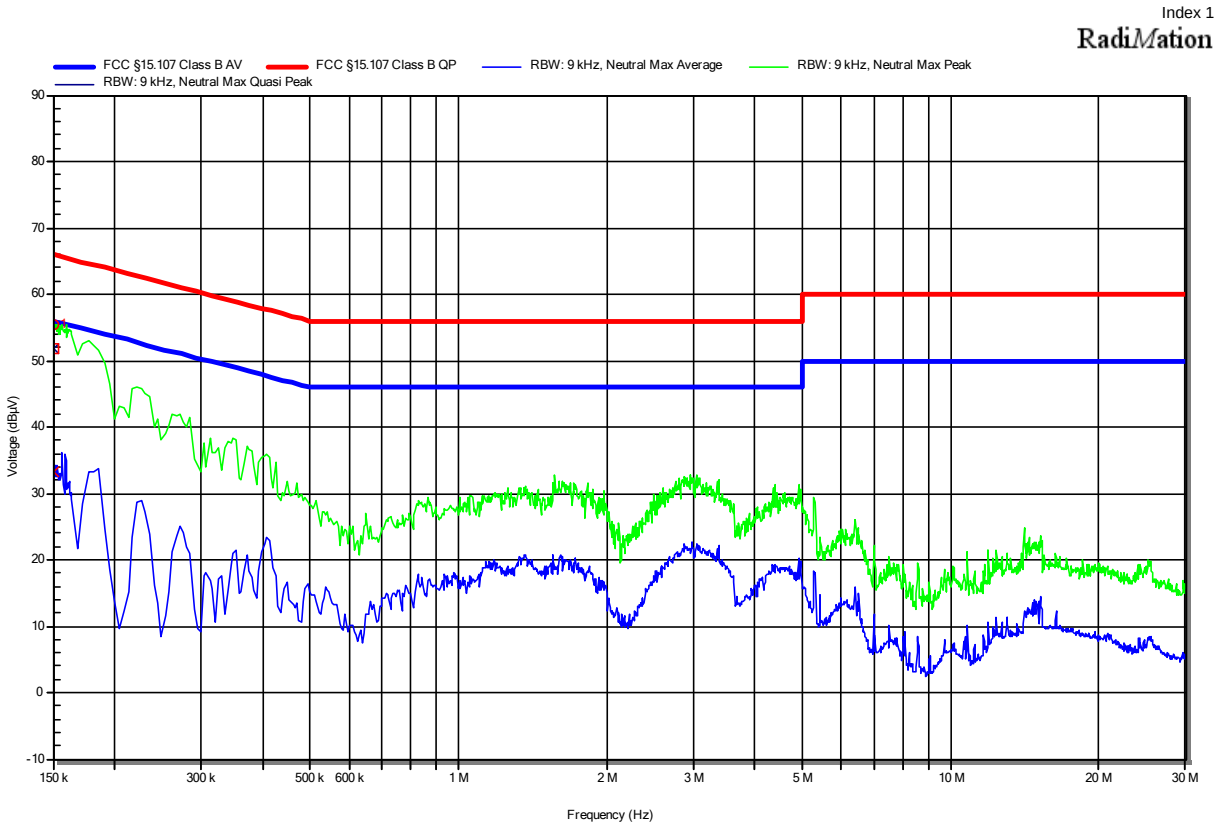
2.2.7 Setup Photos

CONDUCTED EMISSION ON PORT AC Mains

2.2.8 Records

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

Project Number:	G0M-2006-9096
Applicant:	Humotion GmbH
Model Description:	DX Datalogger
Model:	DX 5.0 BTLE
Test Sample ID:	30801
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Liebich
Test Date:	2020-09-07
Operating Conditions:	ambient temperature: 20 °C power input: 5.0 V DC via USB connection (connected to Laptop powered by 110 V / 60 Hz)
LISN:	Schwarzbeck NSLK 8127 RC N
Mode:	1
Applied to Port:	AC Mains

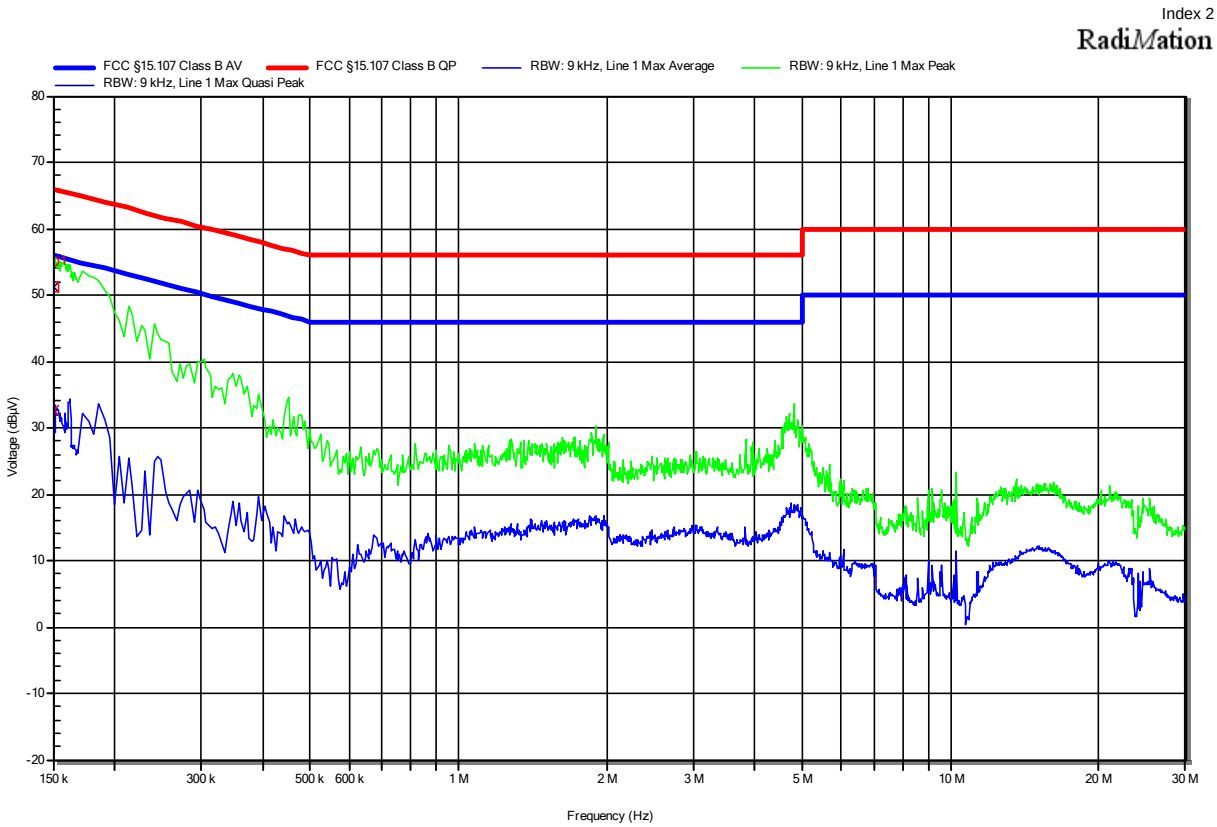


Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	150 kHz	51.72 dBµV	66 dBµV	-14.28 dB	Pass	Neutral

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	150 kHz	33.35 dBµV	56 dBµV	-22.65 dB	Pass	Neutral

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

Project Number:	G0M-2006-9096
Applicant:	Humotion GmbH
Model Description:	DX Datalogger
Model:	DX 5.0 BTLE
Test Sample ID:	30801
Test Site:	Eurofins Product Service Germany
Operator:	Mr. Liebich
Test Date:	2020-09-07
Operating Conditions:	ambient temperature: 20 °C power input: 5.0 V DC via USB connection (connected to Laptop powered by 110 V / 60 Hz)
LISN:	Schwarzbeck NSLK 8127 RC L
Mode:	1
Applied to Port:	AC Mains



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	150 kHz	51.3 dBµV	66 dBµV	-14.7 dB	Pass	Line 1

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	150 kHz	32.63 dBµV	56 dBµV	-23.37 dB	Pass	Line 1