







EMC TEST REPORT FCC 47 CFR Part 15B, ISED ICES-003 Issue 7	
Report Reference No	G0M-2103-9683-EF0115B-V02
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	    <p> A2LA - Registration number: 1983.01 (ISED) ISED wireless device testing laboratory: CN 3470A DAkKS - Registration number : D-PL-12092-01-04 (FCC) FCC Filed Test Laboratory, Reg.-No.: 96970 </p>
Applicant	Vaisala Oyi
Address	Vanha Nurmijärventie 21 01670 Vantaa FINLAND
Test Specification Standard(s)	47 CFR Part 15 Subpart B ISED ICES-003 Issue 7 ANSI C63.4:2014+A1:2017
Non-Standard Test Method	None
Equipment under Test (EUT):	
Product Description	VaiNet Wireless Access Point
Model(s)	AP10A
Additional Model(s)	None
Brand Name(s)	None
Hardware Version(s)	H
Software Version(s)	4.0.0
FCC-ID	2AO39-AP10A
IC	23830-AP10A
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	2021-05-04	
Report:		
Compiled by	Matthias Handrik	
Tested by (+ signature) (Responsible for Test)	Matthias Handrik	
Approved by (+ signature) (Deputy Head of Lab)	Jens Marquardt	
Date of Issue	2021-10-06	
Total number of pages	49	
General Remarks:		
<p>The test results presented in this report relate only to the object tested.</p> <p>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.</p> <p>This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p>		

Additional Comments:		
Additional Variants (not tested and not evaluated variants)		
Additional Model 1	Product Type Description	VaiNet Wireless Access Point
	Model Name	CA10A
	Brand Name (optional)	-
	Hardware Version	H
	Software Version	4.0.0
	HVIN	CA10A
	PMN	CA10A
	HMN	N/A
	FVIN	4.0.0
<p>Comment: Those named additional variants above have not been tested. Those additional variants of the series have been declared by the manufacturer. The test report explicitly states that those variants were neither tested nor assessed nor evaluated.</p>		

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	2021-08-09	Initial Release	-
02	2021-10-06	Replaced document: G0M-2103-9683-EF0115B-V01 Replaced by: G0M-2103-9683-EF0115B-V02 Reason: Page 3, Table additional Variants corrected.	M. Handrik

REPORT INDEX

1	Equipment (Test Item) Under Test.....	7
1.1	Equipment Ports.....	8
1.2	Equipment Photos - Internal.....	9
1.3	Equipment Photos - External.....	10
1.4	Support Equipment.....	16
1.5	Operational Modes.....	17
1.6	EUT Configuration.....	18
1.7	Sample emission level calculation.....	19
2	Result Summary.....	20
2.1	Test Conditions and Results - Radiated emissions acc. to ANSI C63.4.....	21
2.2	Test Conditions and Results - Conducted emissions acc. to ANSI C63.4.....	40

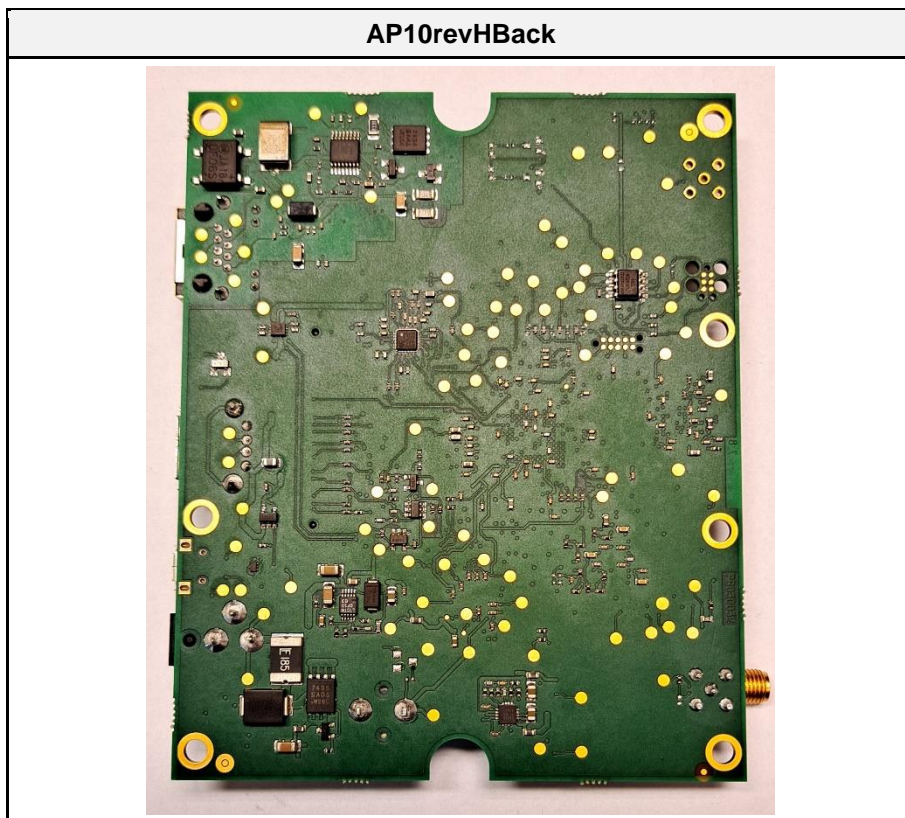
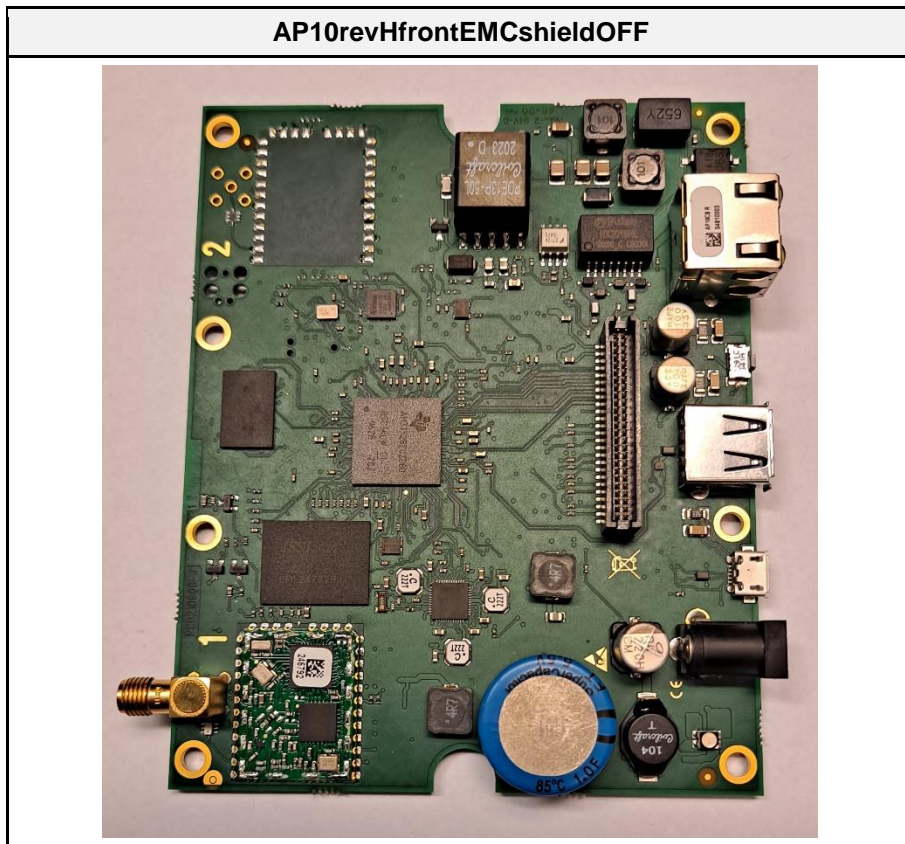
1 Equipment (Test Item) Under Test

Description	VaiNet Wireless Access Point	
Model	AP10A	
Additional Model(s)	None	
Brand Name(s)	None	
Serial Number(s)	T1150350	
Hardware Version(s)	H	
Software Version(s)	4.0.0	
EUT Dimensions [cm]	31 x 13 x 4	
FCC-ID	2AO39-AP10A	
IC	23830-AP10A	
HVIN	AP10A	
PMN	AP10A	
HMN	N/A	
FVIN	4.0.0	
Class	Class B	
Equipment type	Table top	
Highest internal frequency [MHz]	925	
Radio Module	Type	LoRa module
	Model	Unspecified
	Manufacturer	Unspecified
	FCC-ID	Unspecified
	IC	Unspecified
Supply Voltage	V _{NOM}	15 VDC / 48V PoE
AC/DC-Adaptor	Model	FW8000/15
	Vendor	Friwo
	Input	100-240V AC 50/60 Hz
	Output	15V DC
Manufacturer	Vaisala Oyi Vanha Nurmijärventie 21 01670 Vantaa FINLAND	

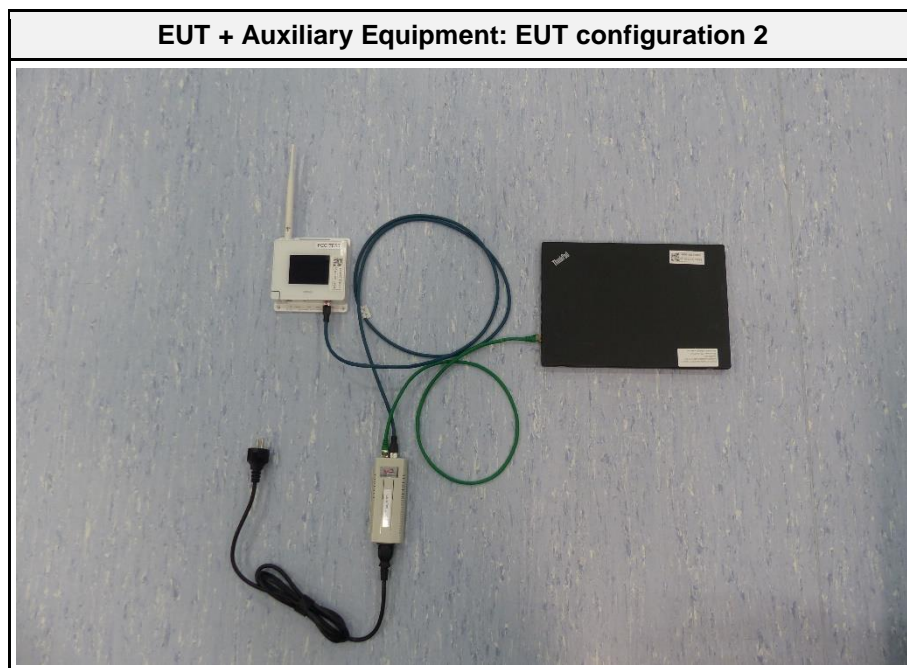
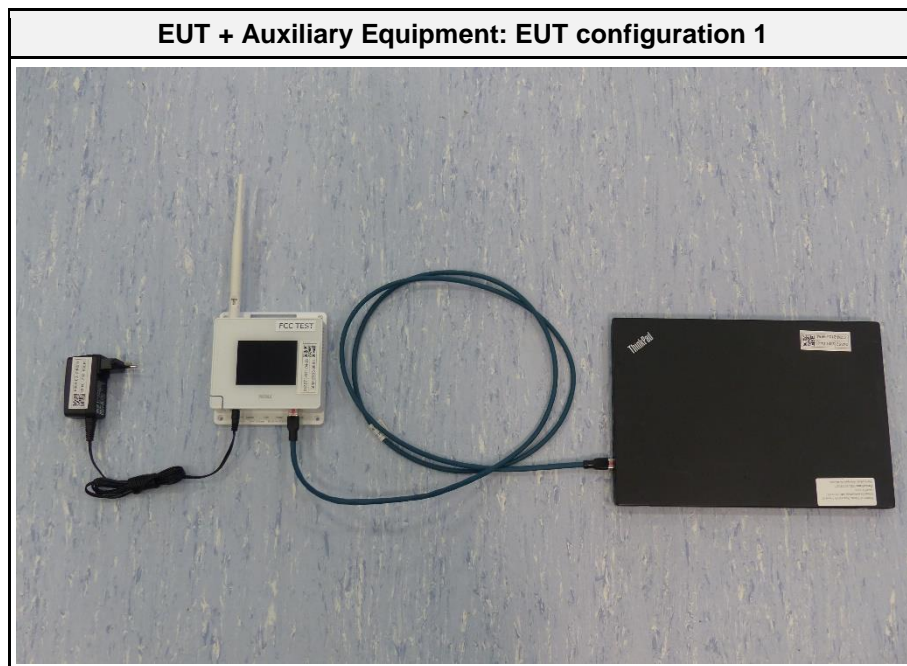
1.1 Equipment Ports

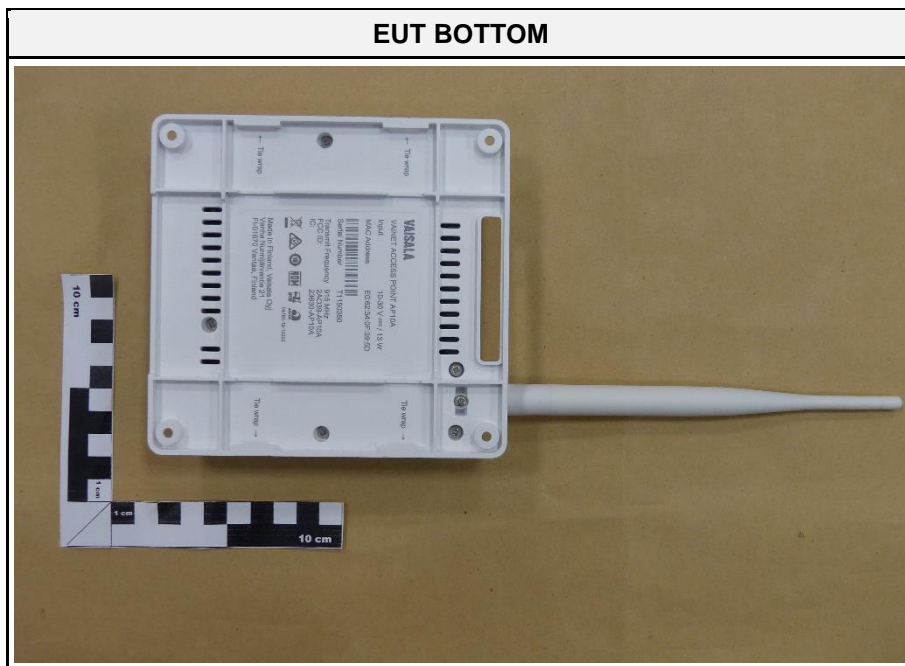
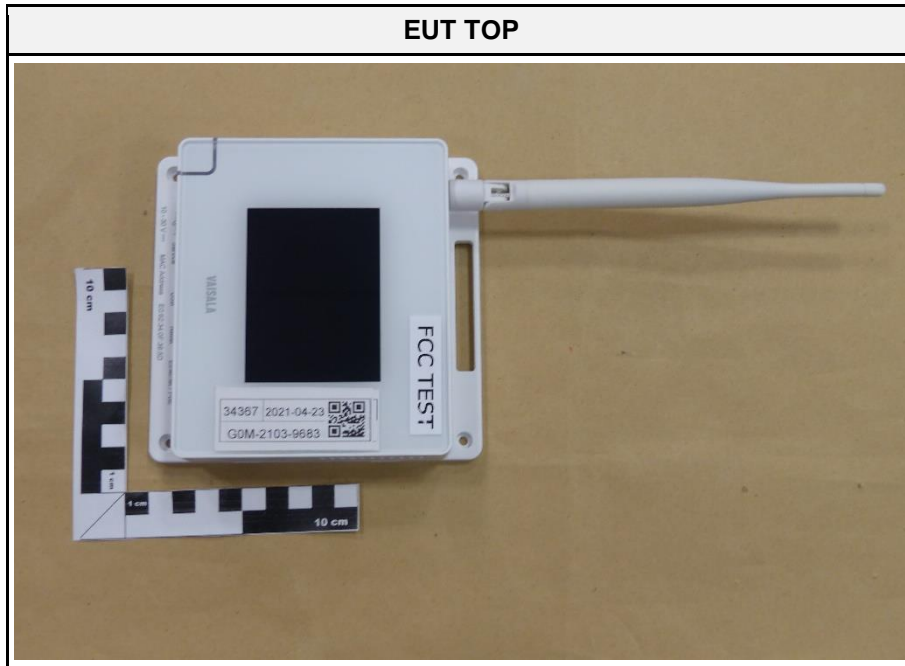
Name	Type	Attributes	Comment
Power	DC	Count: 1 Direction: In Max. cable length [m]: 1.8 Shielded: No Service Remark: No	Used via dedicated AC/DC adaptor with 120V AC / 60Hz.
Service	IO	Count: 1 Direction: IO Max. cable length [m]: 2 Shielded: No Service Remark: Yes	Micro USB, female. Not tested.
USB	IO	Count: 1 Direction: IO Max. cable length [m]: 2 Shielded: No Service Remark: Yes	USB-A, female. Not tested.
Ethernet/PoE	I/O	Count: 1 Direction: IO Max. cable length [m]: 2 Shielded: Yes Service Remark: No	RJ45 CAT 5E; SF-UTP; Art.- No. 1403929; 2m, 4x2xAWG26/7, 15/19
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		

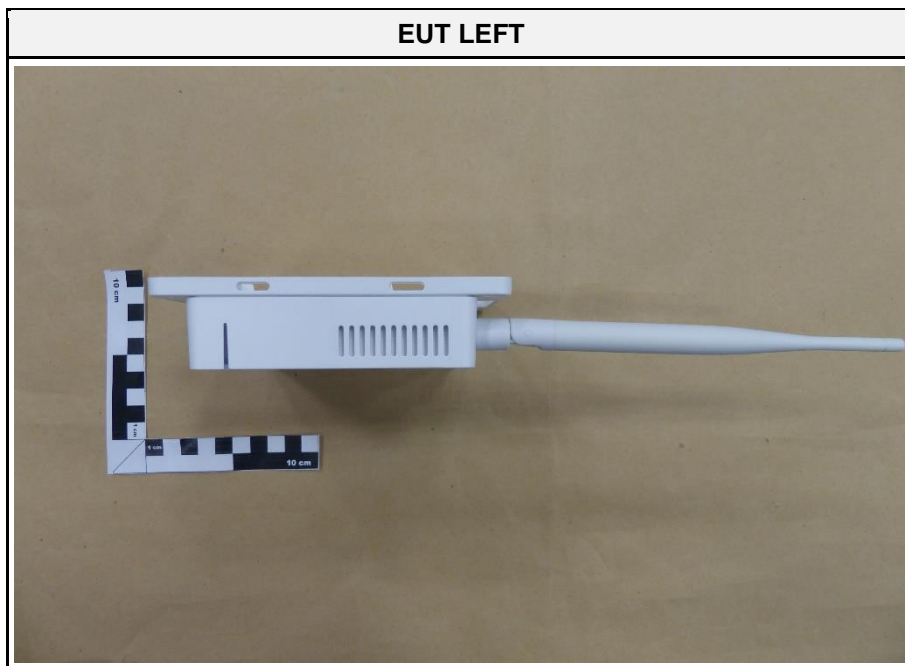
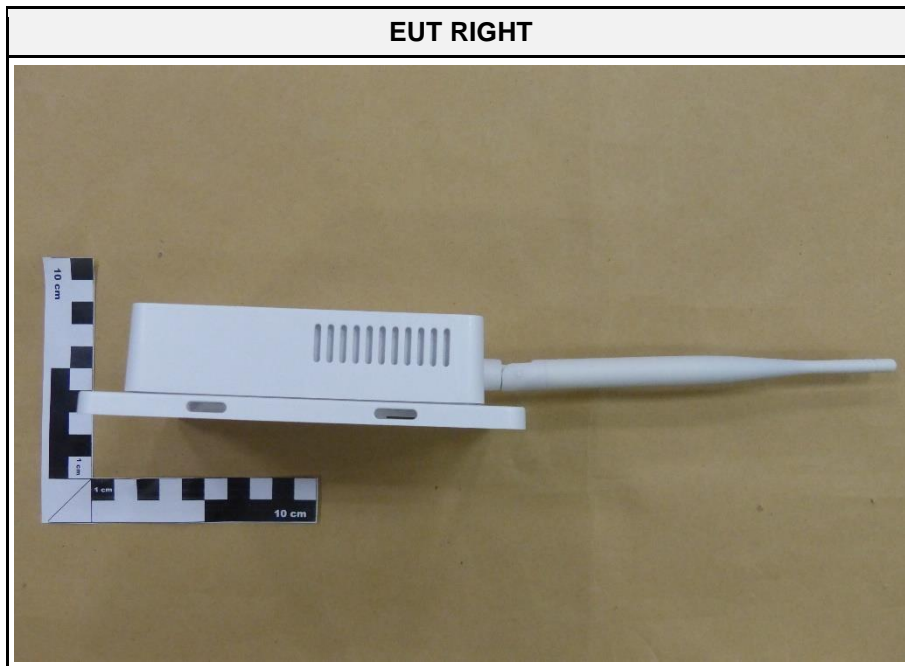
1.2 Equipment Photos - Internal



1.3 Equipment Photos - External







EUT BACK



EUT FRONT





AC/DC adaptor label



1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	Laptop	Lenovo	ThinkPad T460s	Customer Support Equipment
AE	PoE Injector	PowerDsine	PowerDesine 3001GB	-
CBL	2m Ethernet wire	-	CAT 5E; SF-UTP; Art.-No. 1403929; 2m, 4x2xAWG26/7, 15/19	Customer Support Equipment
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
MON	Monitoring Equipment			
CBL	Connecting Cable			
Comment:				

1.5 Operational Modes

Mode #	Description
1	EUT operates in Test mode. Via terminal program on laptop is EUT set in Test mode for continuous transmit in 915 MHz ISM-Band ("test_lora_mid.sh").
Comment:	

1.6 EUT Configuration

Configuration #	Description
1	EUT powered via dedicated AC/DC adaptor. EUT assembled with Ethernet wire. Ethernet wire direct connected to laptop. All other EUT ports was open, no assembled with wire or peripheral devices.
2	EUT powered via PoE. EUT assembled with Ethernet wire, Ethernet wire is connected to PoE injector (DATA Power Out). Laptop is connected via Ethernet wire to PoE injector (DATA IN)
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 7				
Reference	Requirement	Reference Method	Result	Remarks
Emission				
FCC 15.109 ICES-003, 3.2.2	Radiated emissions	ANSI C63.4:2014 +A1:2017	PASS	-
FCC 15.107 ICES-003, 3.2.1	AC power line conducted emissions	ANSI C63.4:2014 +A1:2017	PASS	-
Comment:				

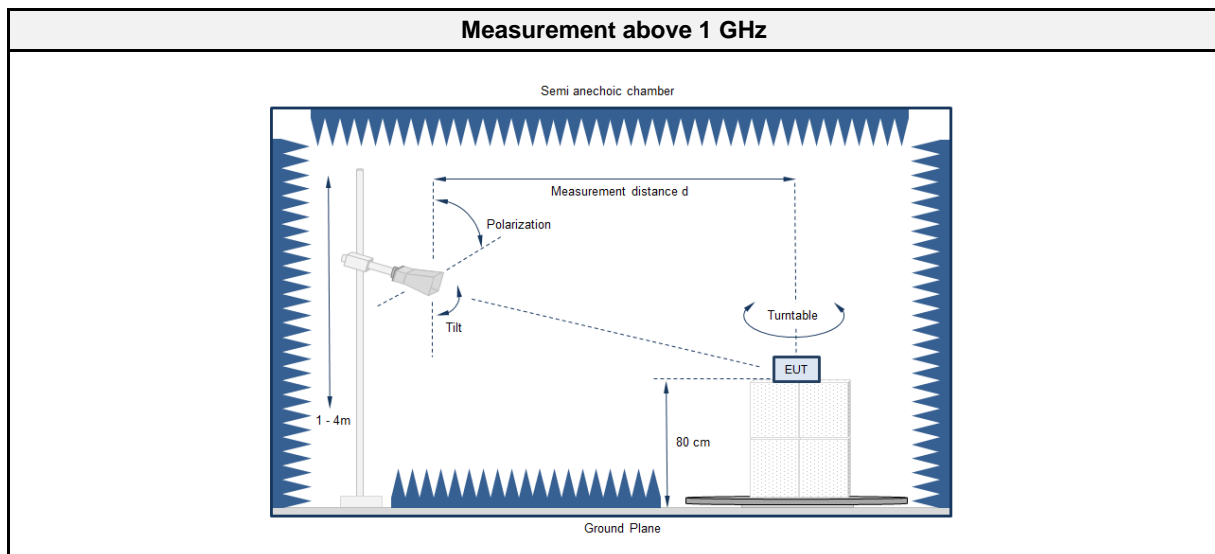
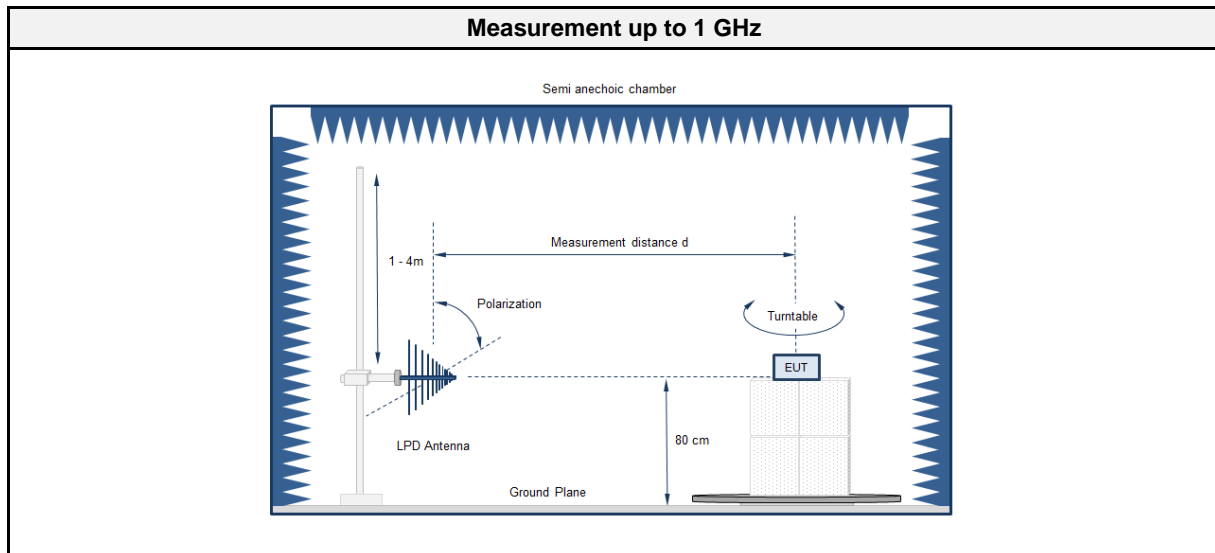
Possible Test Case Verdicts	
PASS	Test object does meet the requirements
FAIL	Test object does not meet the requirements
N/T	Required by standard but not tested
N/R	Not required by standard for the test object

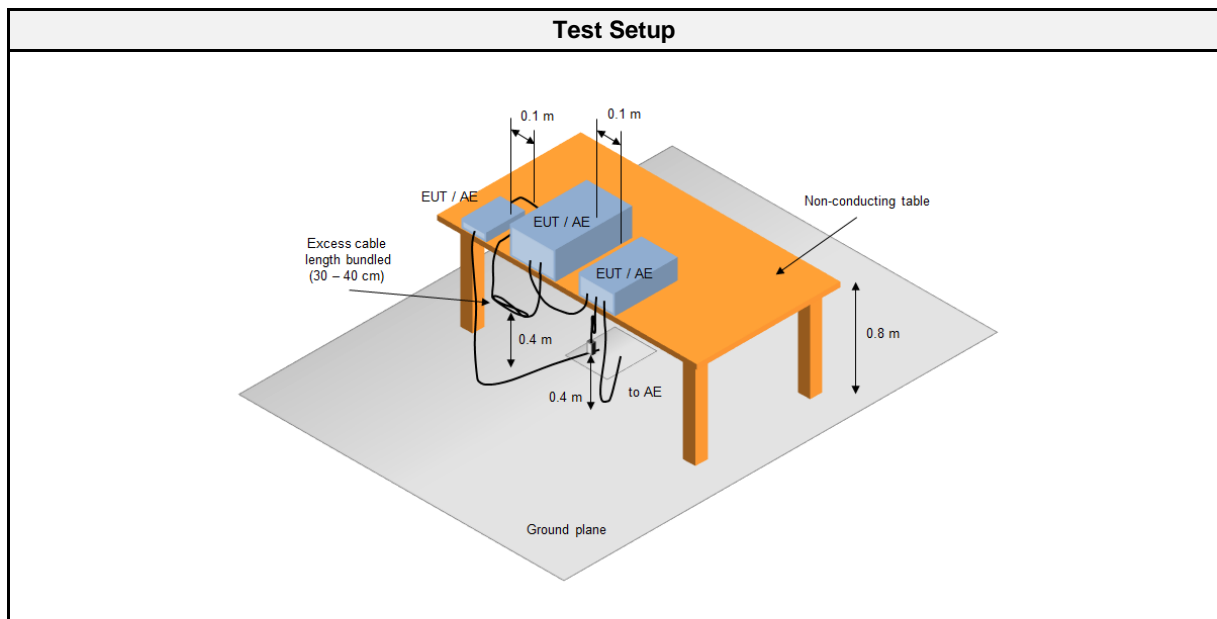
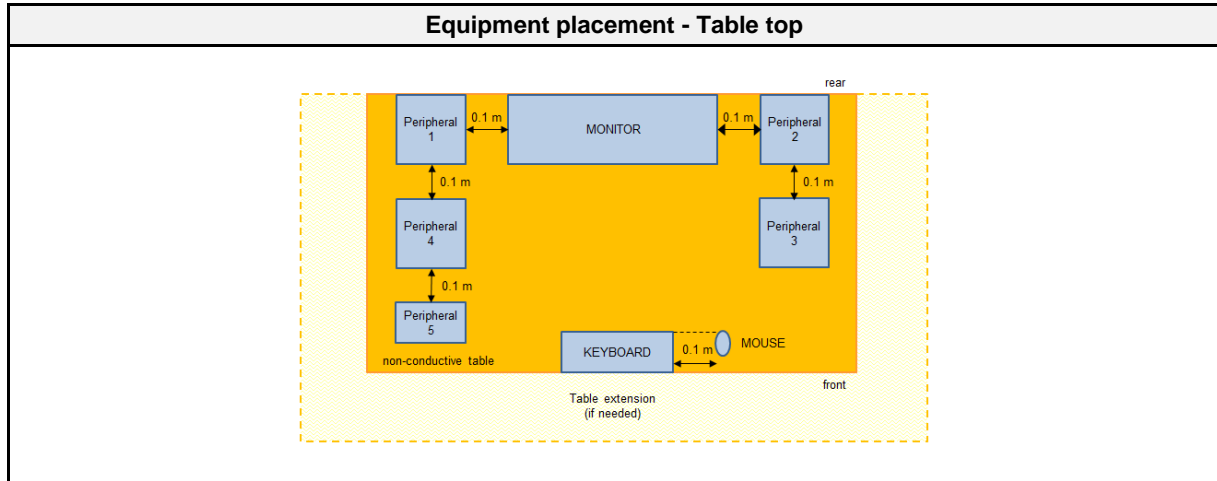
2.1 Test Conditions and Results - Radiated emissions acc. to ANSI C63.4

2.1.1 Information

Test Information	
Reference	FCC 15.109, ICES-003, 3.2.2
Reference method	ANSI C63.4:2014+A1:2017 Section 8
Equipment class	Class B
Equipment type	Table top
Highest internal frequency [MHz]	925
Measurement range	30 MHz to 5000 MHz
Temperature [°C]	22 ±3
Humidity [%]	37 ±3
Operator	Matthias Handrik
Date	2021-05-17 – 2021-05-18

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	2021-02	2024-02
EMI Test Receiver	Keysight	N9038A-526/WXP	EF01070	2020-06	2021-06
Biconical Antenna	R&S	HK 116	EF00030	2021-05	2024-05
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	2021-03	2022-03

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 2.1.2

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.

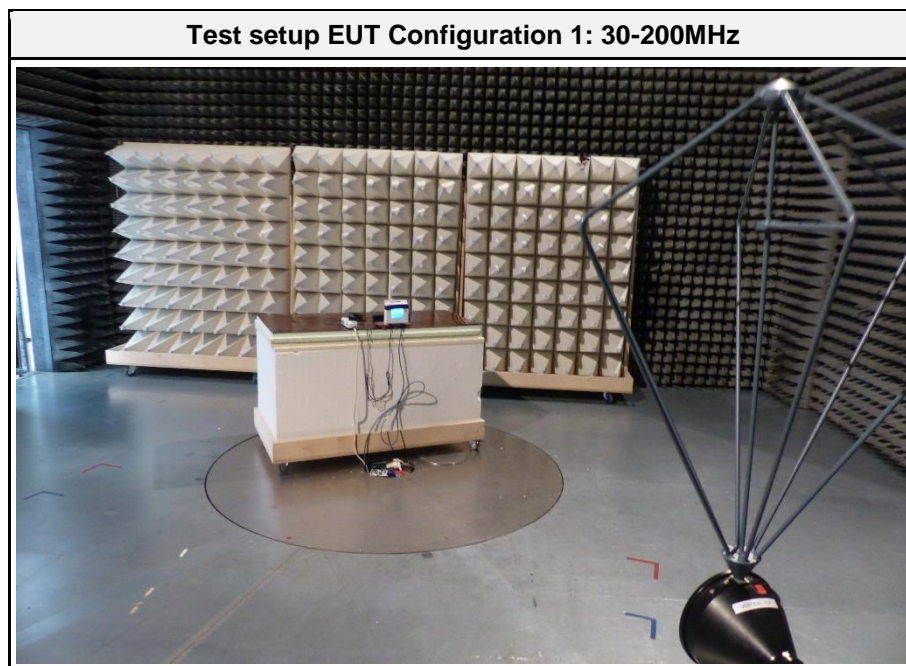
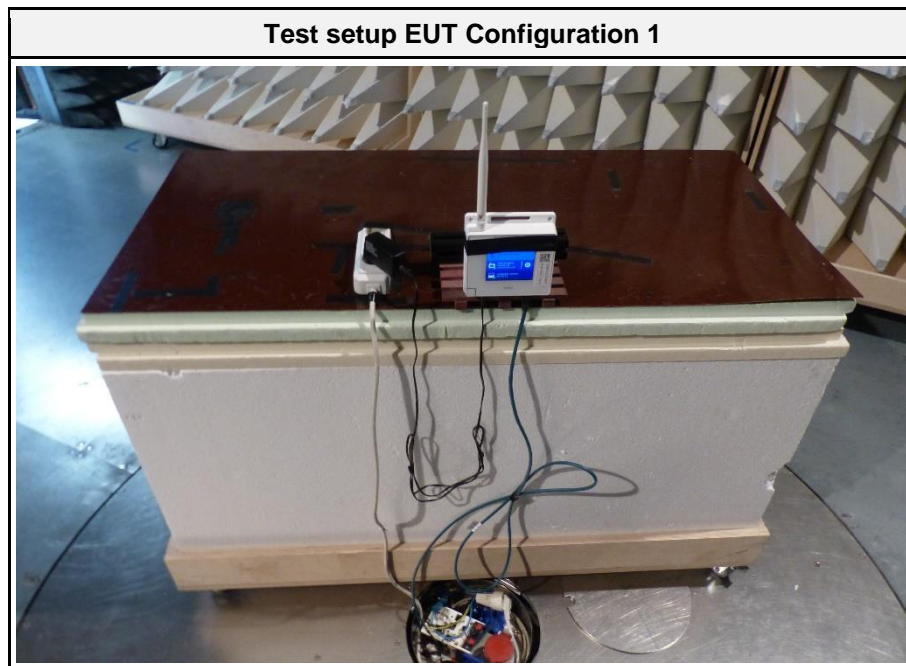
2.1.5 Limits

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

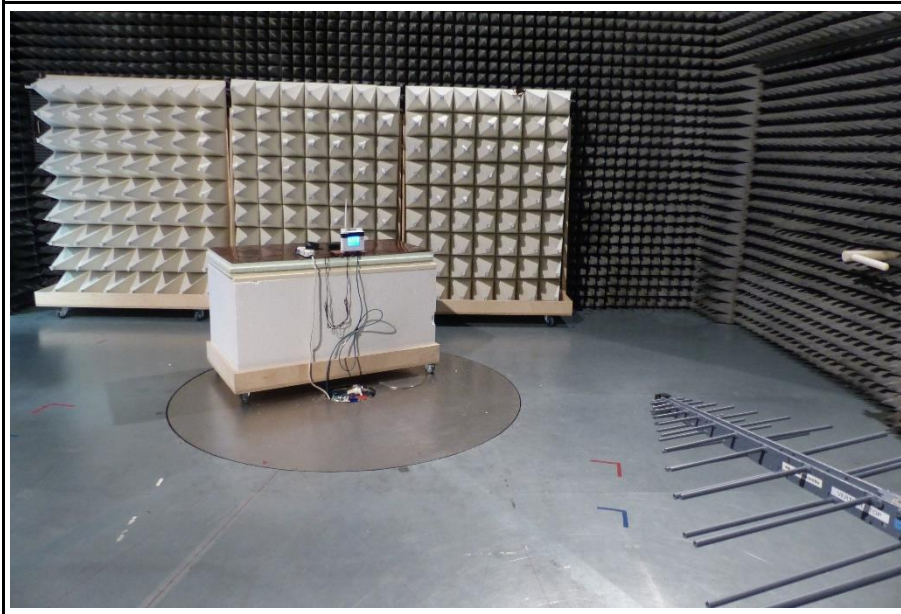
2.1.6 Results

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

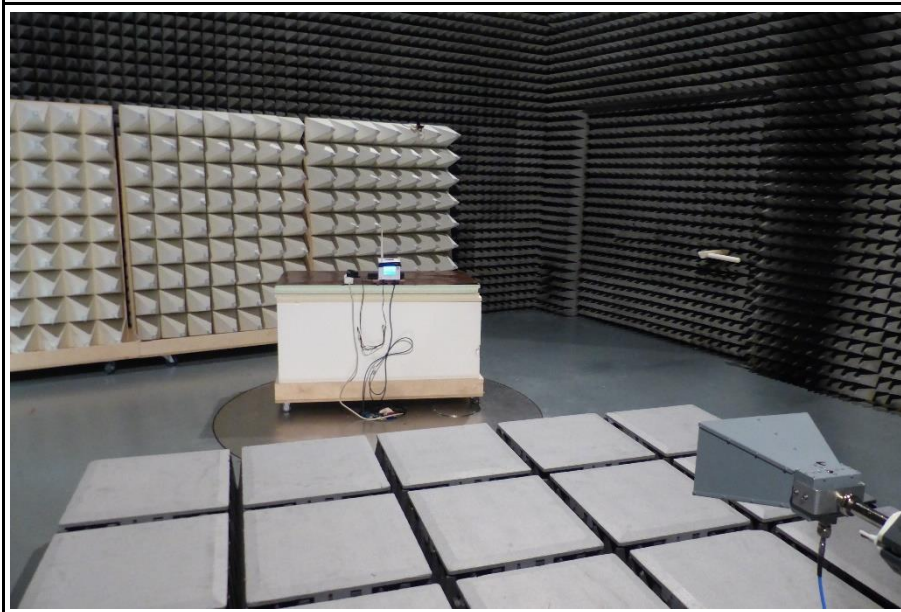
2.1.7 Setup Photos



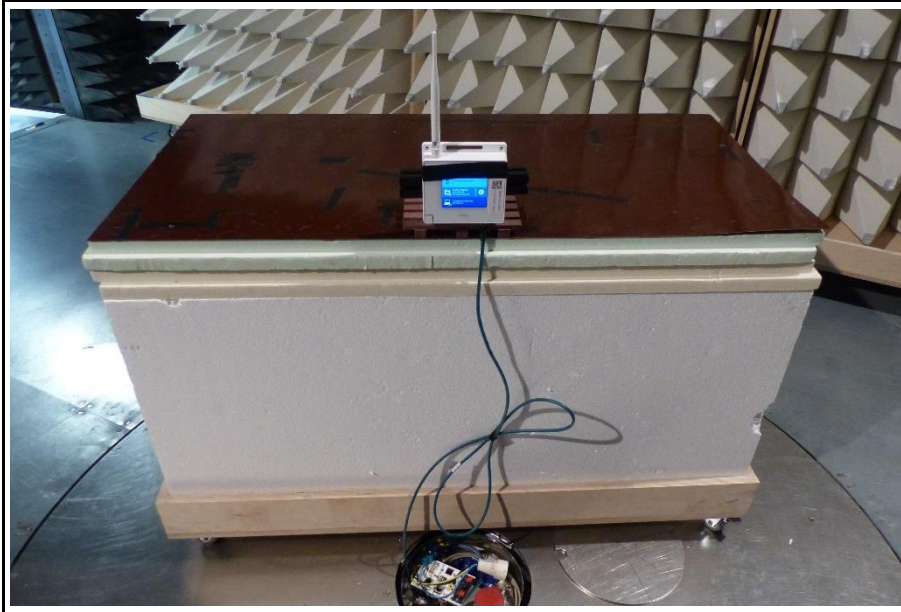
Test setup EUT Configuration 1: 200-1000MHz



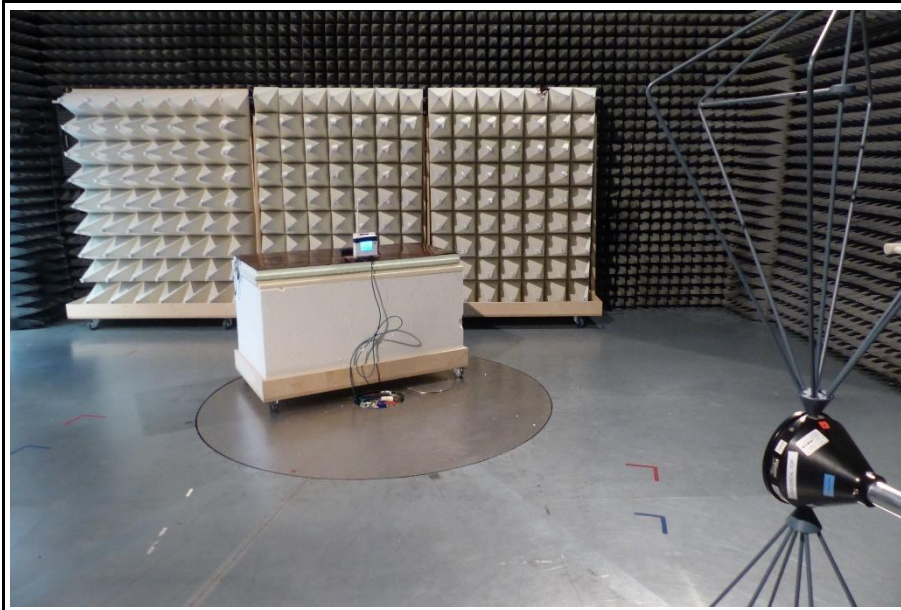
Test setup EUT Configuration 1: 1-5GHz



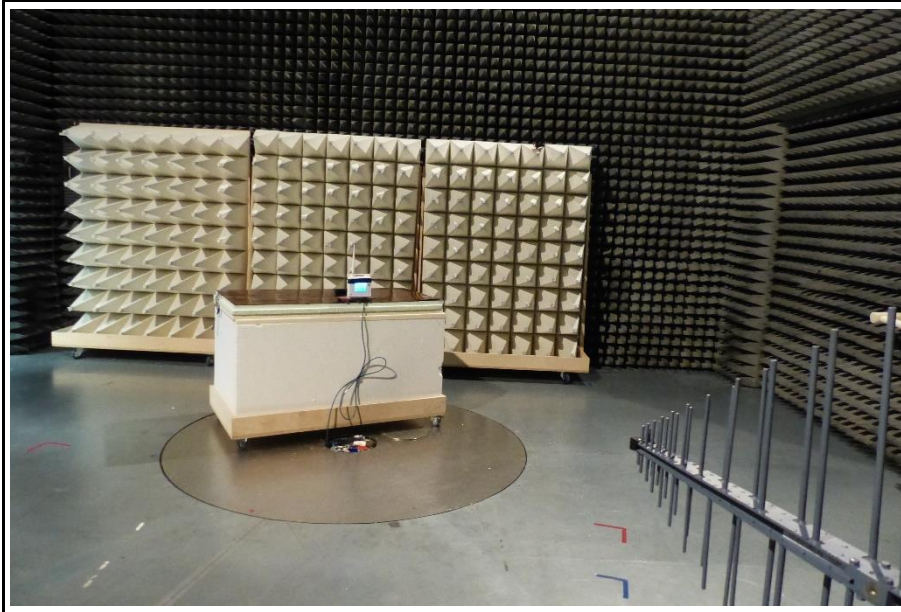
Test setup EUT Configuration 2



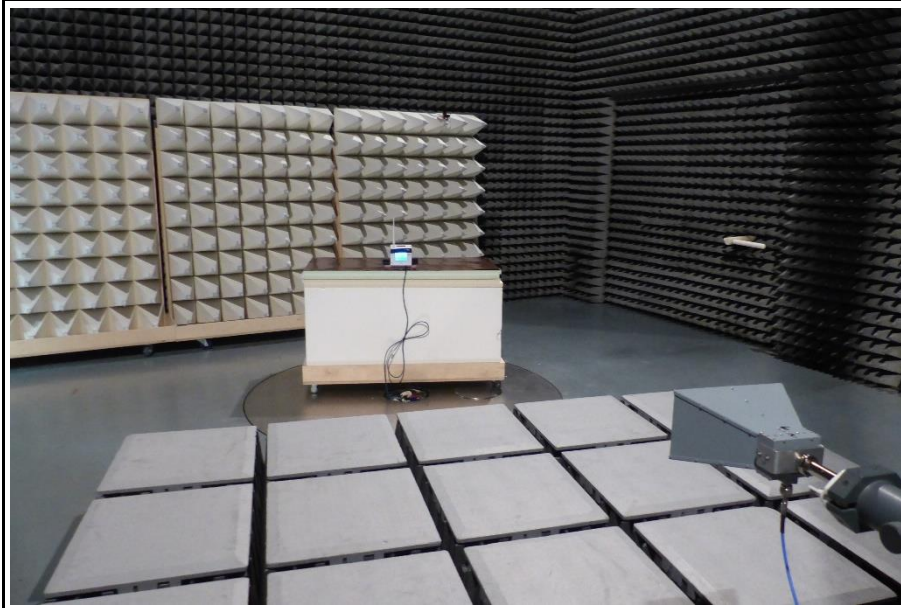
Test setup EUT Configuration 2: 30-200MHz



Test setup EUT Configuration 2: 200-1000MHz



Test setup EUT Configuration 2: 1-5GHz

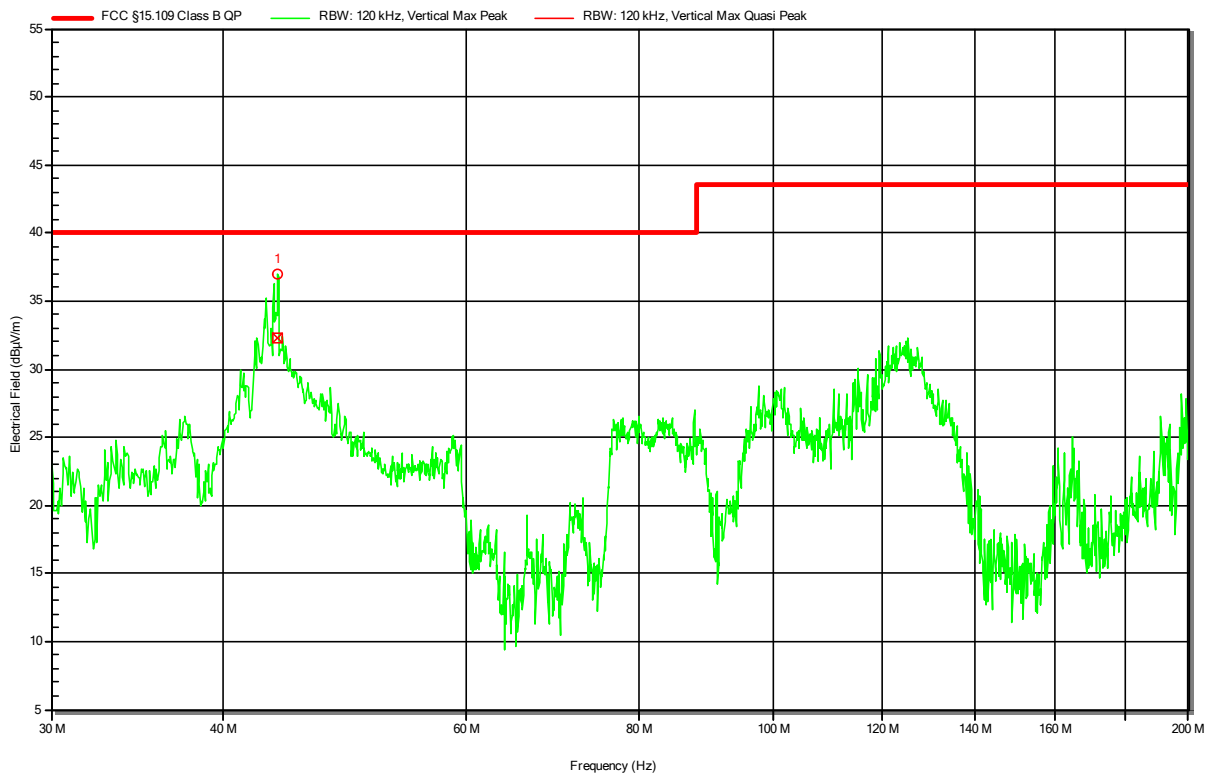


2.1.8 Records

Radiated emissions according to FCC part 15B

Project Number: G0M-2103-9683
 Applicant: Vaisala Oyi
 Model Description: VaiNet Wireless Access Point
 Model: AP10A
 Test Sample ID: 34367
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Date: 2021-05-17
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 120V AC / 60Hz
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Operational mode 1
 EUT configuration 1
 Note 1:

Index 1
RadiMation



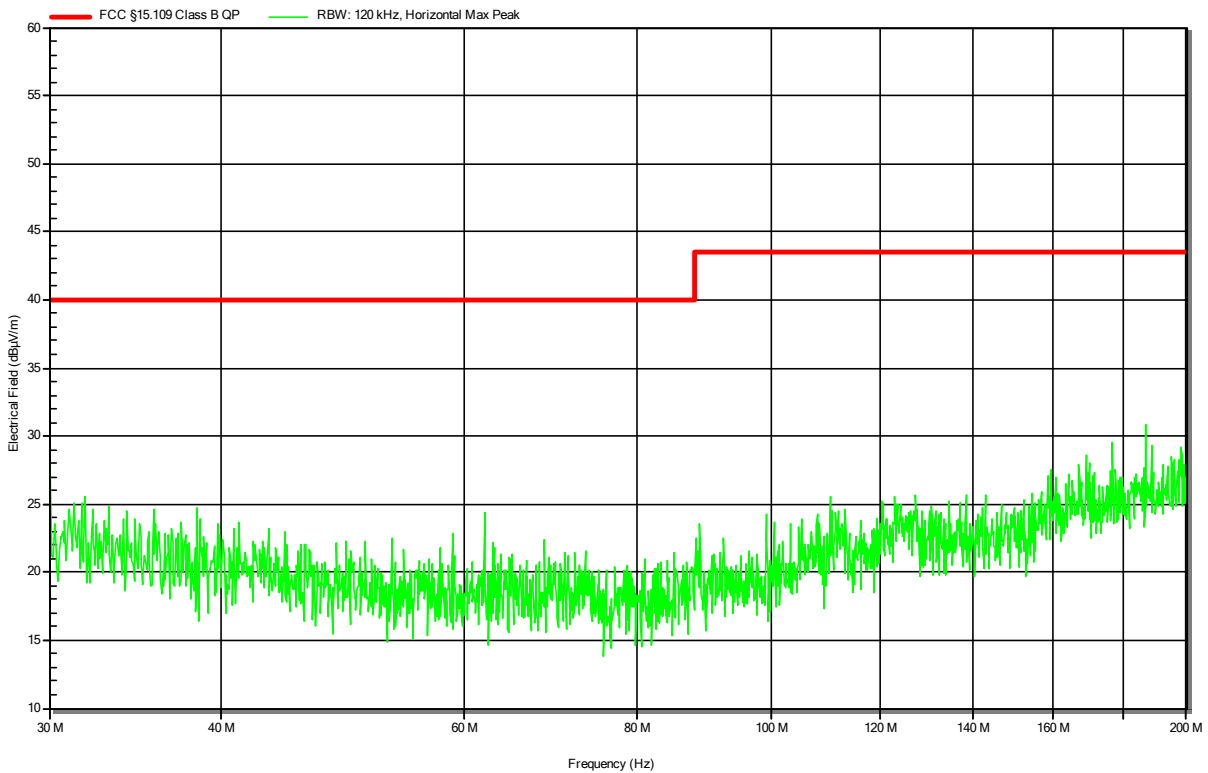
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	43.799 MHz	32.24 dBµV/m	40 dBµV/m	-7.76 dB	Pass	0 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number: G0M-2103-9683
 Applicant: Vaisala Oyi
 Model Description: VaiNet Wireless Access Point
 Model: AP10A
 Test Sample ID: 34367
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Date: 2021-05-17
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 120V AC / 60Hz
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Operational mode 1
 EUT configuration 1
 Note 1:

Index 2

RadiMation

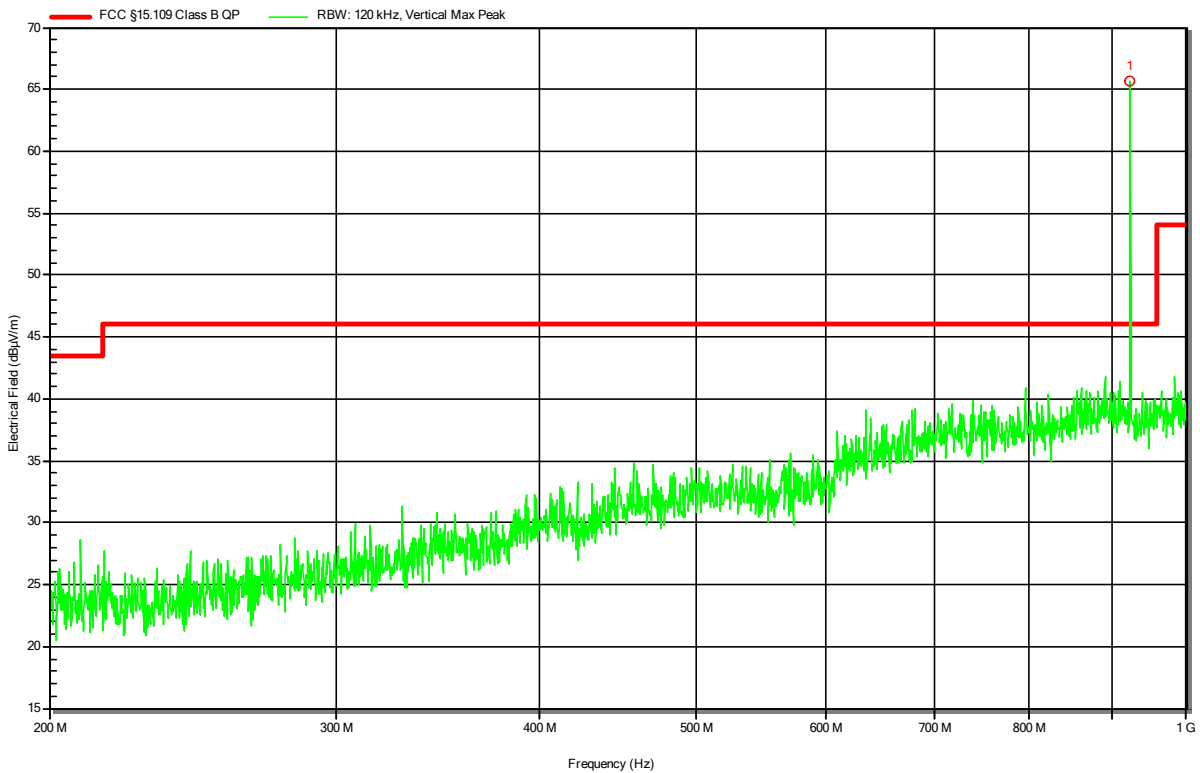


Radiated emissions according to FCC part 15B

Project Number: G0M-2103-9683
 Applicant: Vaisala Oyi
 Model Description: VaiNet Wireless Access Point
 Model: AP10A
 Test Sample ID: 34367
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Engel
 Test Date: 2021-05-17
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 120V AC / 60Hz
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Operational mode 1
 EUT configuration 1
 Note 1:

Index 4

RadiMation



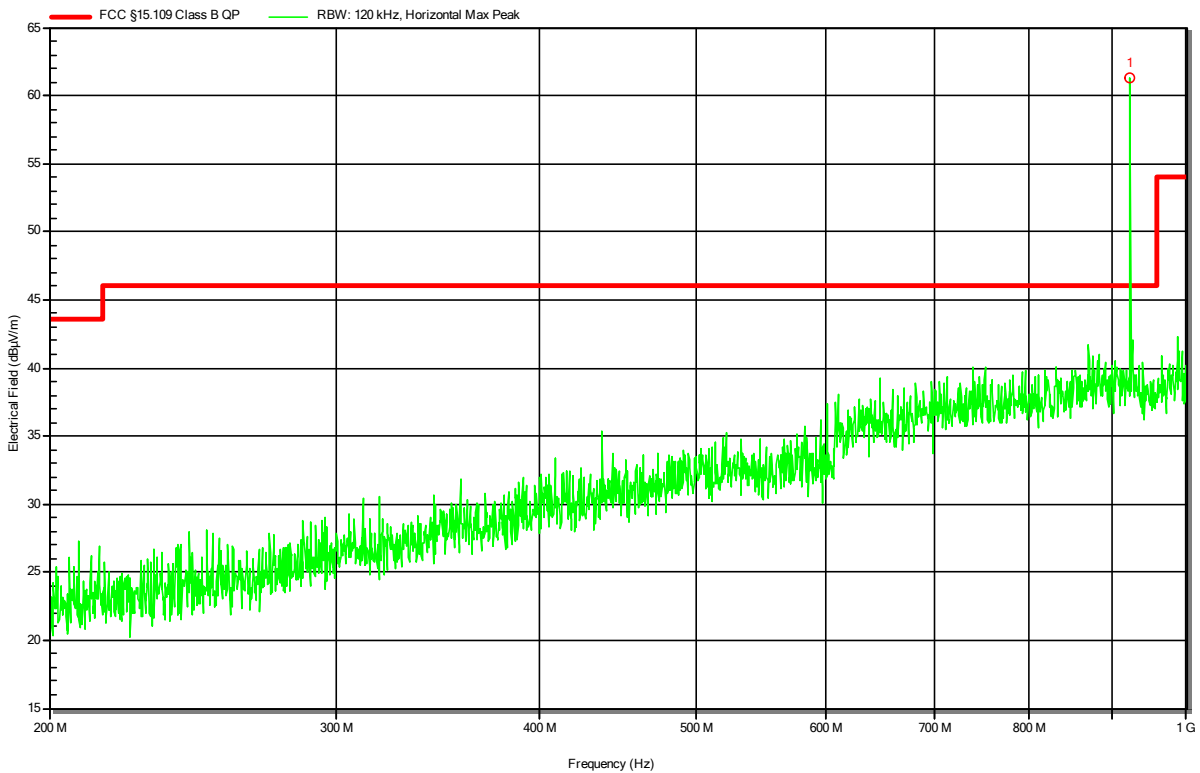
Peak Number	Frequency	Angle	Height
1	923.266 MHz	LoRa carrier	

Radiated emissions according to FCC part 15B

Project Number: G0M-2103-9683
 Applicant: Vaisala Oyi
 Model Description: VaiNet Wireless Access Point
 Model: AP10A
 Test Sample ID: 34367
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Date: 2021-05-17
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 120V AC / 60Hz
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Operational mode 1
 EUT configuration 1
 Note 1:

Index 5

RadiMation



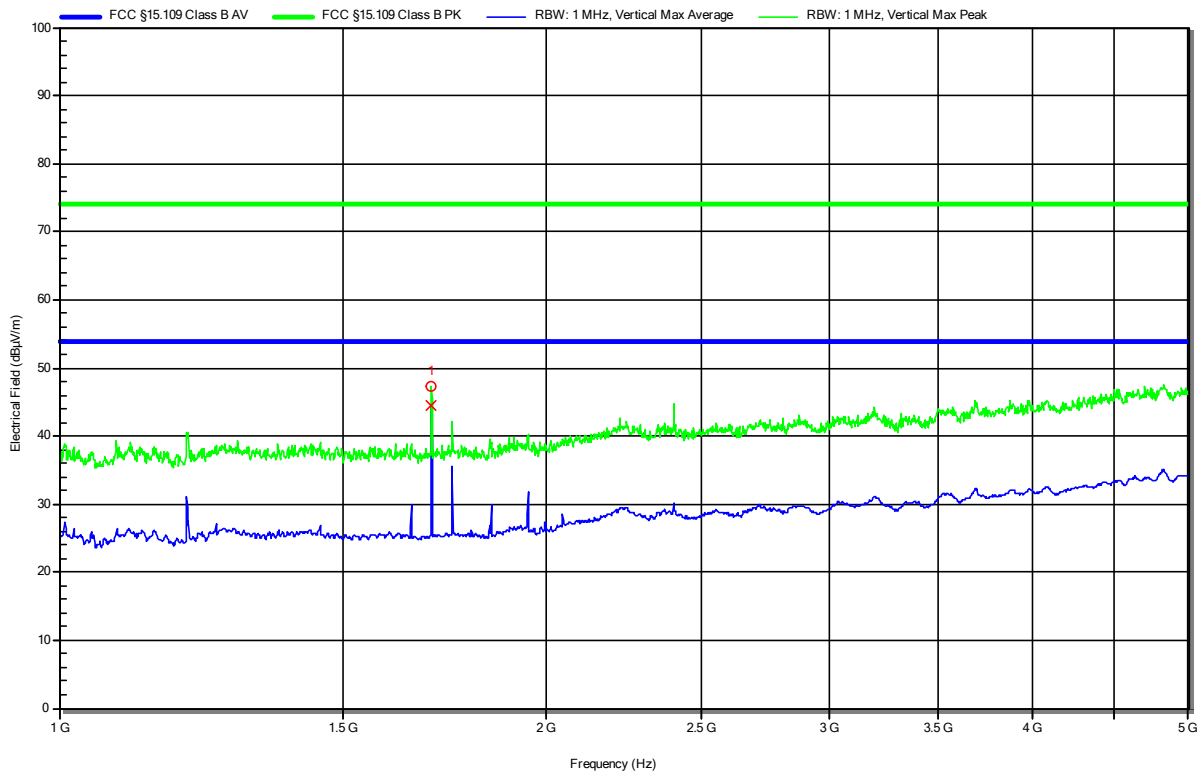
Peak Number	Frequency	Angle	Height
1	923.266 MHz	LoRa carrier	

Radiated emissions according to FCC part 15B

Project Number: G0M-2103-9683
 Applicant: Vaisala Oyi
 Model Description: VaiNet Wireless Access Point
 Model: AP10A
 Test Sample ID: 34367
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Date: 2021-05-18
 Operating Conditions: ambient temperature: 20 °Celsius
 power input: 120V AC / 60Hz
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Operational mode 1
 EUT configuration 1
 Note 1:

Index 13

RadiMation



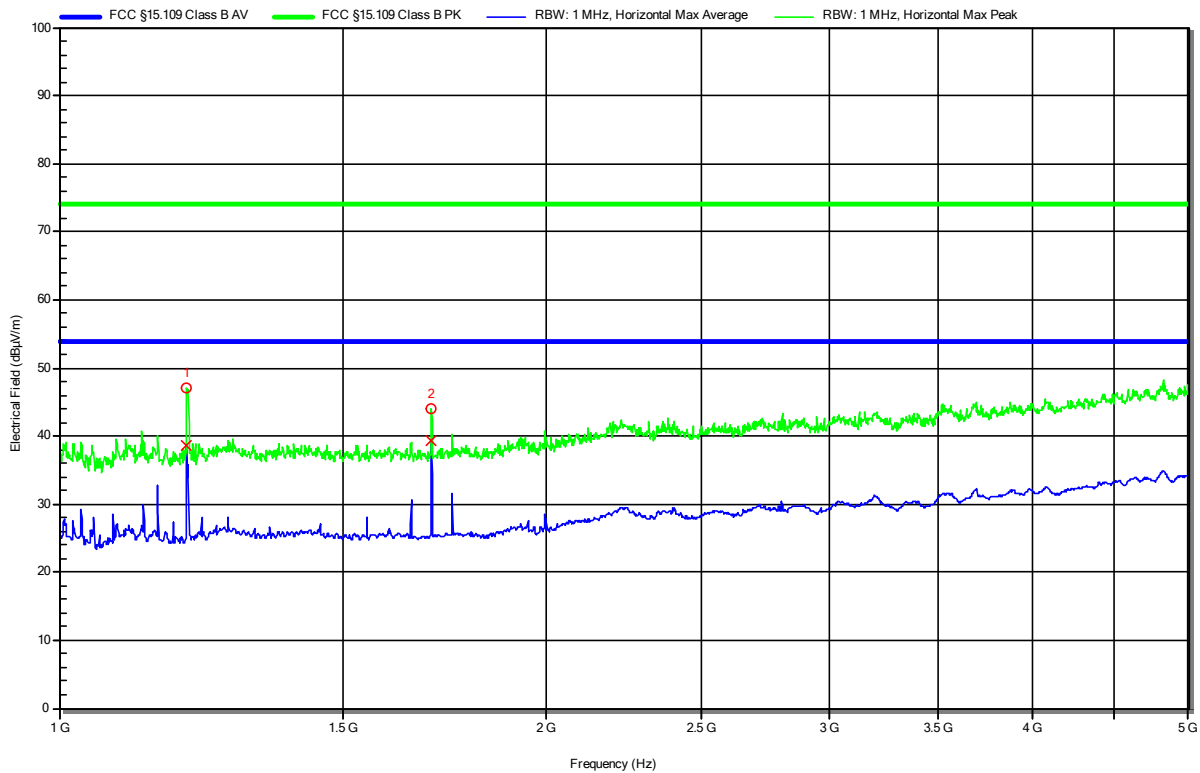
Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	1.7 GHz	47.34 dBµV/m	73.98 dBµV/m	-26.64 dB	Pass	18 degrees	1.8 m
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.7 GHz	44.43 dBµV/m	53.98 dBµV/m	-9.55 dB	Pass	18 degrees	1.8 m

Radiated emissions according to FCC part 15B

Project Number: G0M-2103-9683
 Applicant: Vaisala Oyi
 Model Description: VaiNet Wireless Access Point
 Model: AP10A
 Test Sample ID: 34367
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Date: 2021-05-18
 Operating Conditions: ambient temperature: 20 °Celsius
 power input: 120V AC / 60Hz
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Operational mode 1
 EUT configuration 1
 Note 1:

Index 14

RadiMation



Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	1.2 GHz	47.14 dBµV/m	73.98 dBµV/m	-26.84 dB	Pass	17degrees	1.14 m
2	1.7 GHz	43.93 dBµV/m	73.98 dBµV/m	-30.05 dB	Pass	17degrees	1.14 m

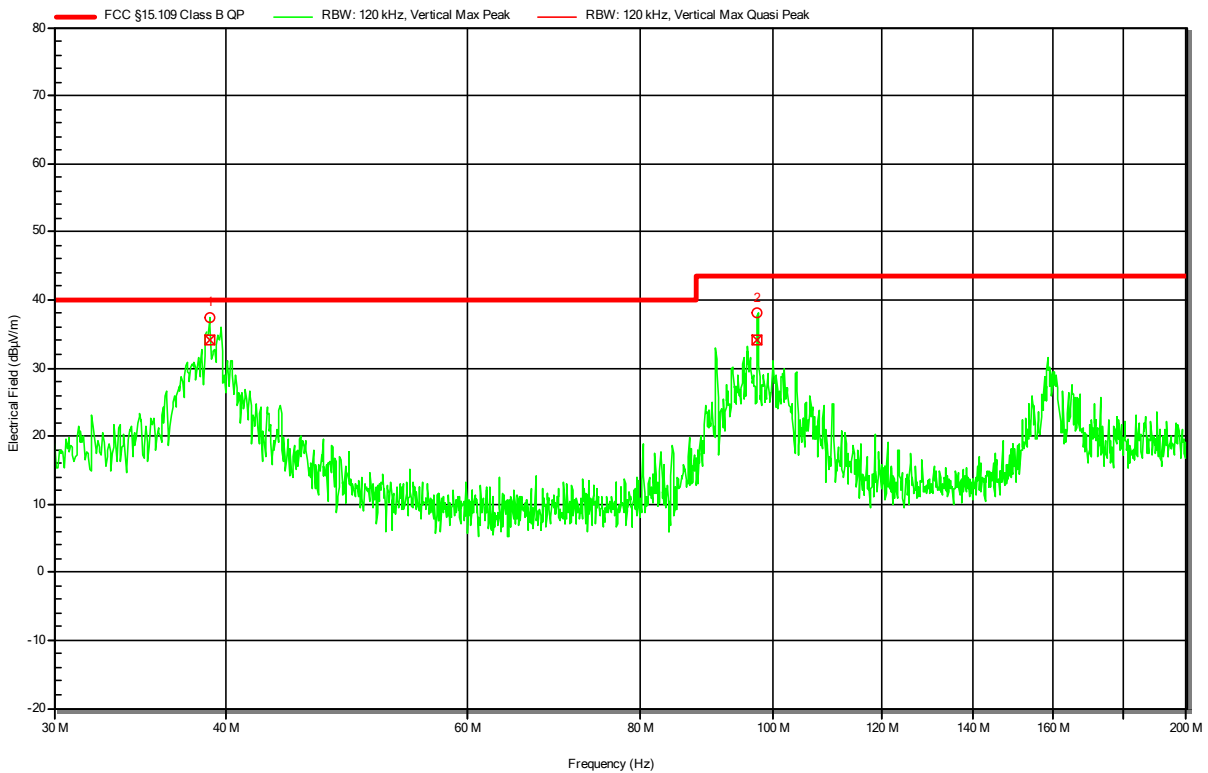
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.2 GHz	38.66 dBµV/m	53.98 dBµV/m	-15.32 dB	Pass	17degrees	1.14 m
2	1.7 GHz	39.34 dBµV/m	53.98 dBµV/m	-14.64 dB	Pass	17degrees	1.14 m

Radiated emissions according to FCC part 15B

Project Number: G0M-2103-9683
 Applicant: Vaisala Oyi
 Model Description: VaiNet Wireless Access Point
 Model: AP10A
 Test Sample ID: 34367
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Date: 2021-05-17
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 48 PoE
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Operational mode 1
 EUT configuration 2
 Note 1:

Index 8

RadiMation



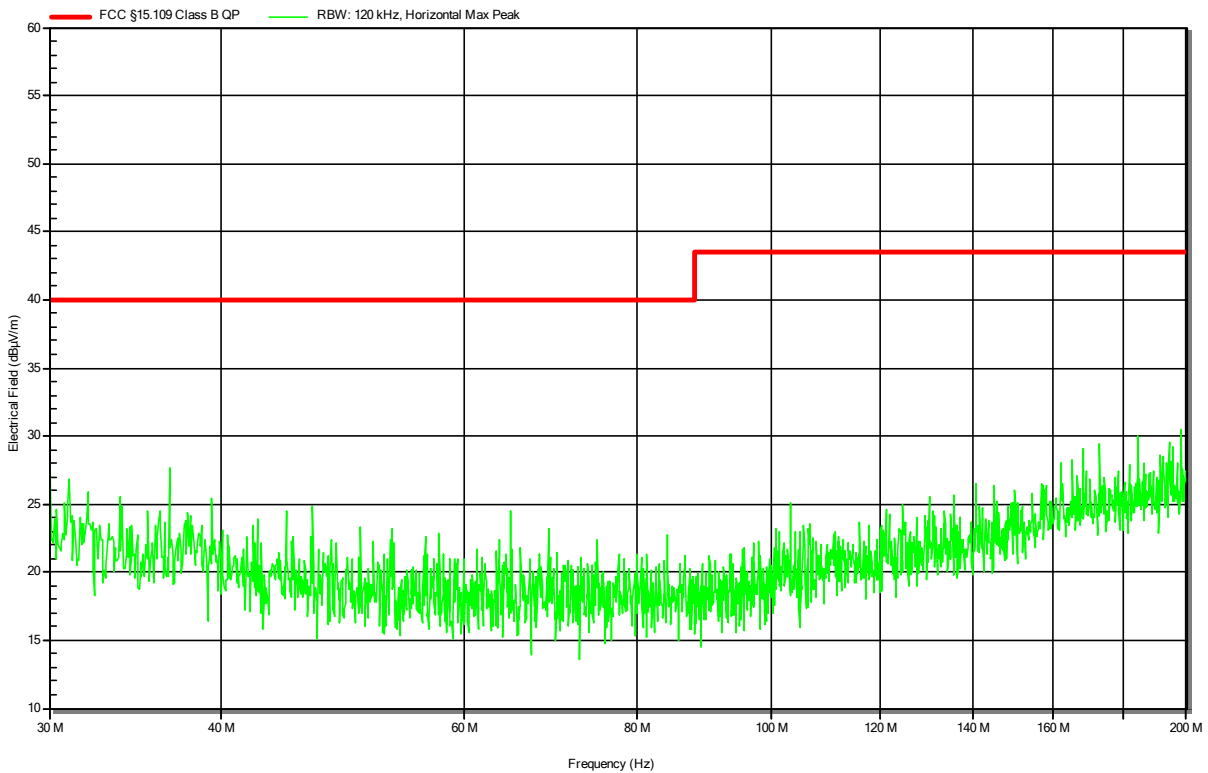
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	38.959 MHz	34.16 dBµV/m	40 dBµV/m	-5.84 dB	Pass	160 degrees	1 m
2	97.502 MHz	34.1 dBµV/m	43.52 dBµV/m	-9.42 dB	Pass	160 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number: G0M-2103-9683
 Applicant: Vaisala Oyi
 Model Description: VaiNet Wireless Access Point
 Model: AP10A
 Test Sample ID: 34367
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Date: 2021-05-17
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 48 PoE
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Operational mode 1
 EUT configuration 2
 Note 1:

Index 9

RadiMation

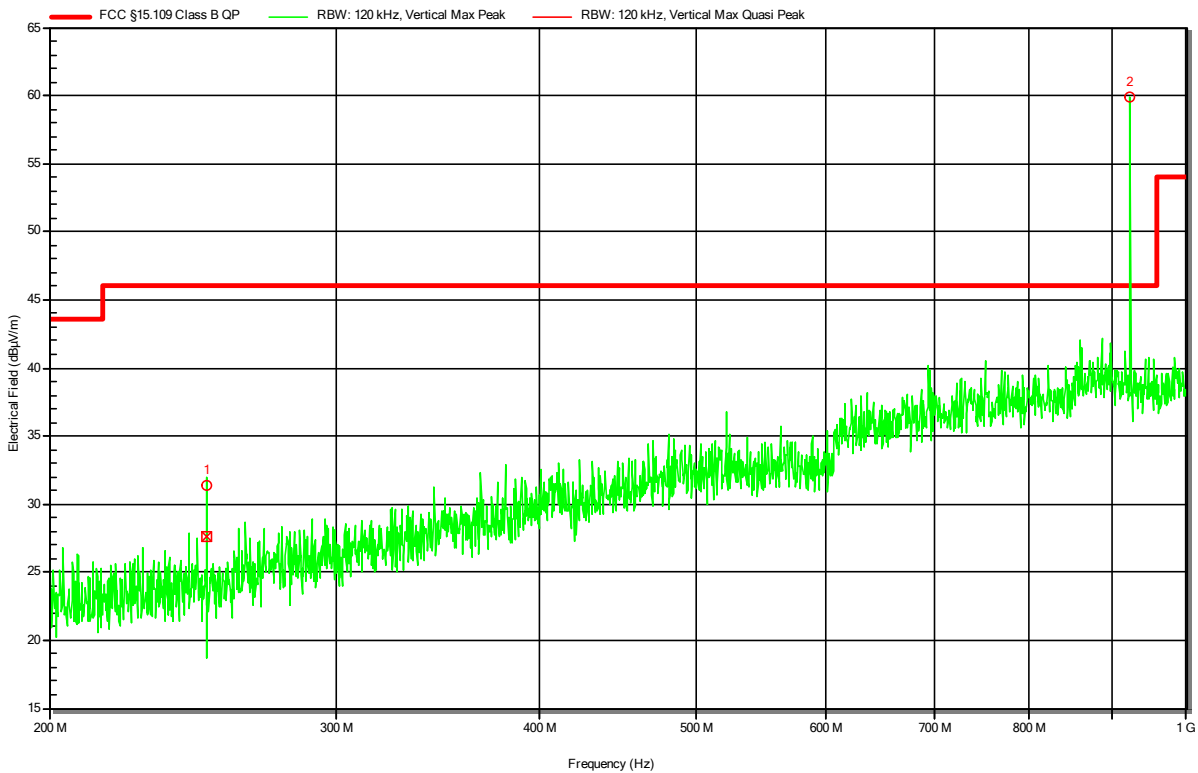


Radiated emissions according to FCC part 15B

Project Number: G0M-2103-9683
 Applicant: Vaisala Oyi
 Model Description: VaiNet Wireless Access Point
 Model: AP10A
 Test Sample ID: 34367
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Date: 2021-05-17
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 48 PoE
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Operational mode 1
 EUT configuration 2
 Note 1:

Index 6

Radiation



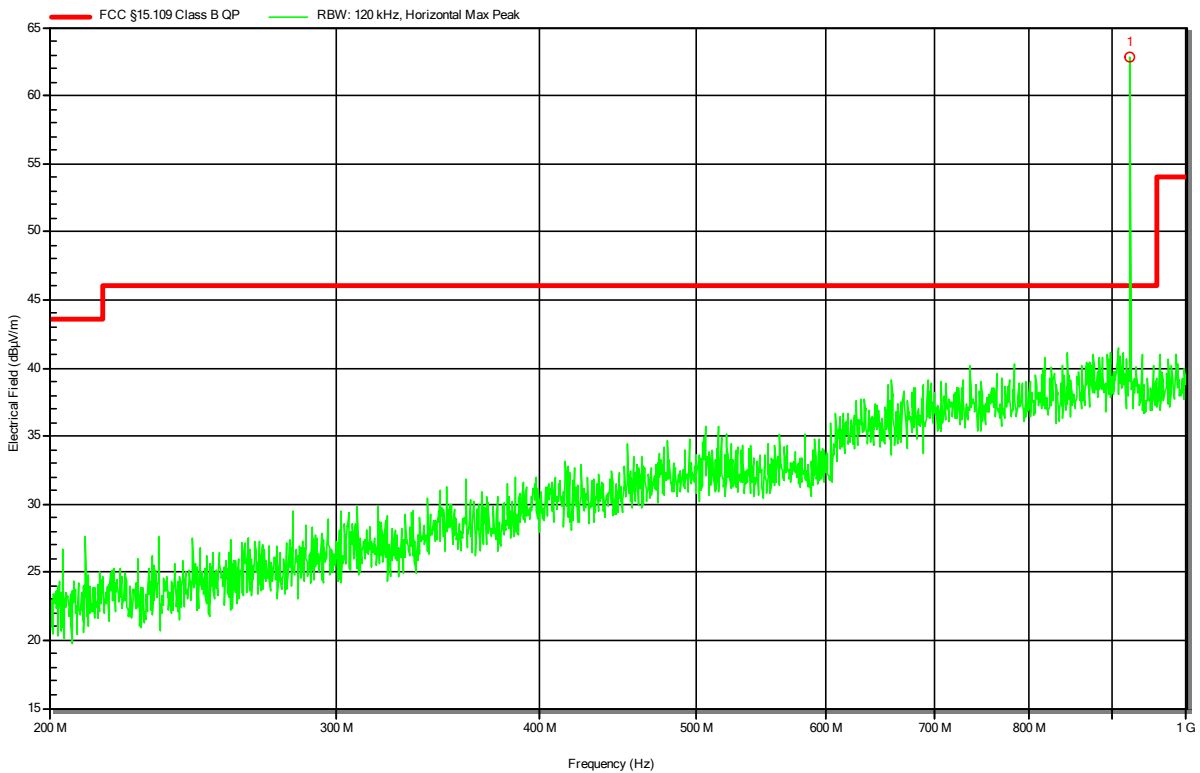
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	250.009 MHz	27.58 dBµV/m	46.02 dBµV/m	-18.44 dB	Pass	-100 degrees	1 m
2	923.326 MHz	LoRa carrier				0 degrees	1 m

Radiated emissions according to FCC part 15B

Project Number: G0M-2103-9683
 Applicant: Vaisala Oyi
 Model Description: VaiNet Wireless Access Point
 Model: AP10A
 Test Sample ID: 34367
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Date: 2021-05-17
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 48 PoE
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Operational mode 1
 EUT configuration 2
 Note 1:

Index 7

Radiation



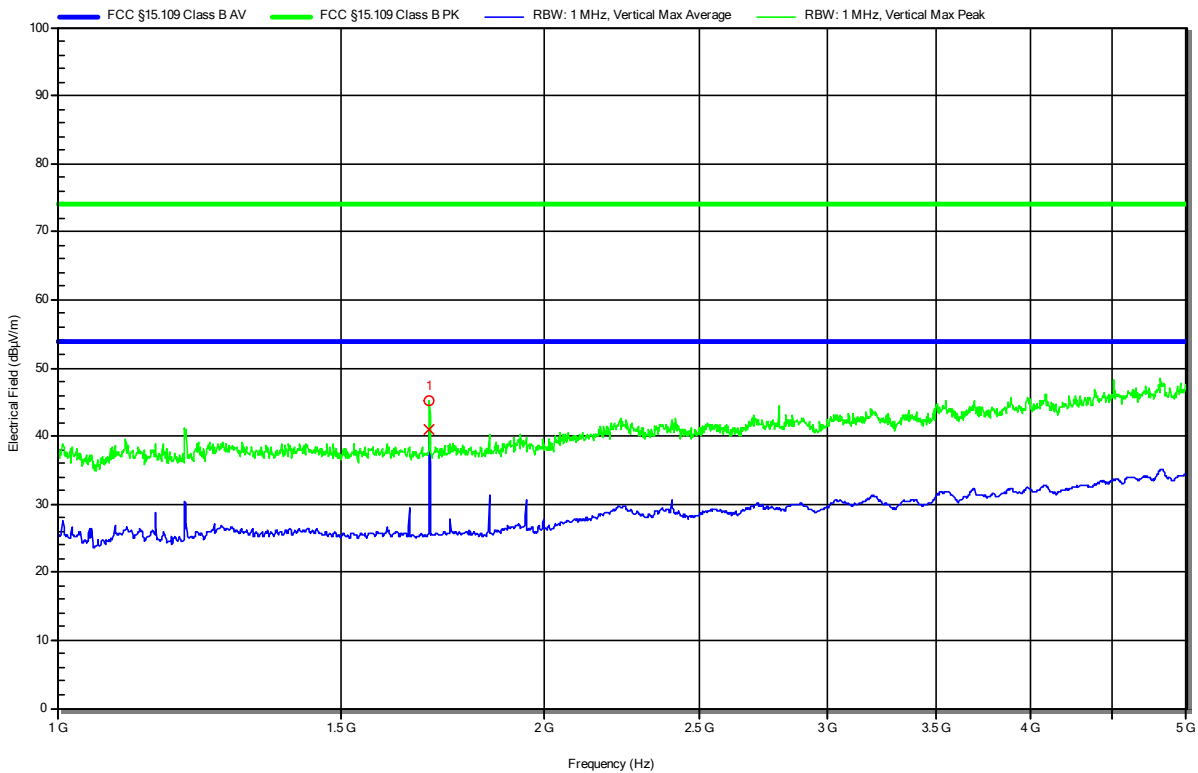
Peak Number	Frequency	Angle	Height
1	923.266 MHz	LoRa carrier	

Radiated emissions according to FCC part 15B

Project Number: G0M-2103-9683
 Applicant: Vaisala Oyi
 Model Description: VaiNet Wireless Access Point
 Model: AP10A
 Test Sample ID: 34367
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Date: 2021-05-18
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 48 PoE
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Operational mode 1
 EUT configuration 2
 Note 1:

Index 11

RadiMation



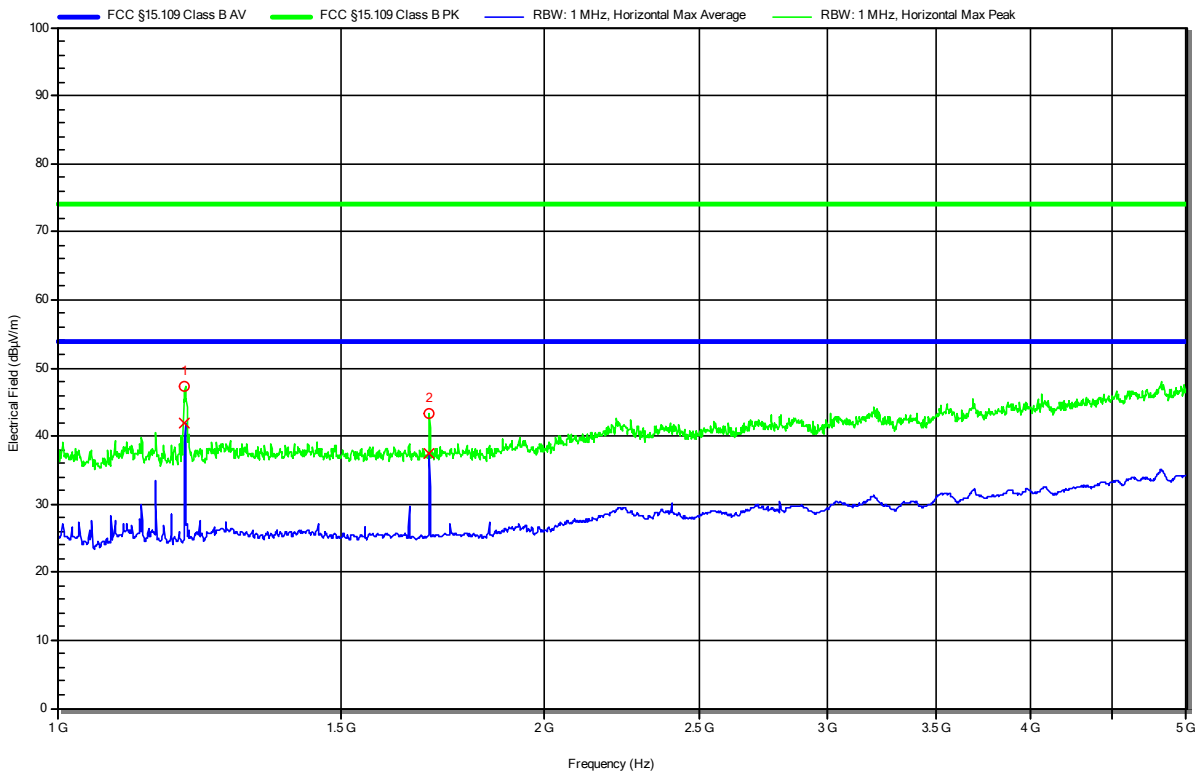
Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	1.7 GHz	45.23 dBµV/m	73.98 dBµV/m	-28.75 dB	Pass	32 degrees	1.43 m
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.7 GHz	41.08 dBµV/m	53.98 dBµV/m	-12.9 dB	Pass	32 degrees	1.43 m

Radiated emissions according to FCC part 15B

Project Number: G0M-2103-9683
 Applicant: Vaisala Oyi
 Model Description: VaiNet Wireless Access Point
 Model: AP10A
 Test Sample ID: 34367
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Date: 2021-05-18
 Operating Conditions: ambient temperature: 20 °Celsius
 power input: 48 PoE
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement Distance: 3m
 Operational Mode & EUT Configuration: Operational mode 1
 EUT configuration 2
 Note 1:

Index 12

RadiMation



Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	1.2 GHz	47.32 dBµV/m	73.98 dBµV/m	-26.66 dB	Pass	0 degrees	1 m
2	1.7 GHz	43.22 dBµV/m	73.98 dBµV/m	-30.76 dB	Pass	0 degrees	1 m

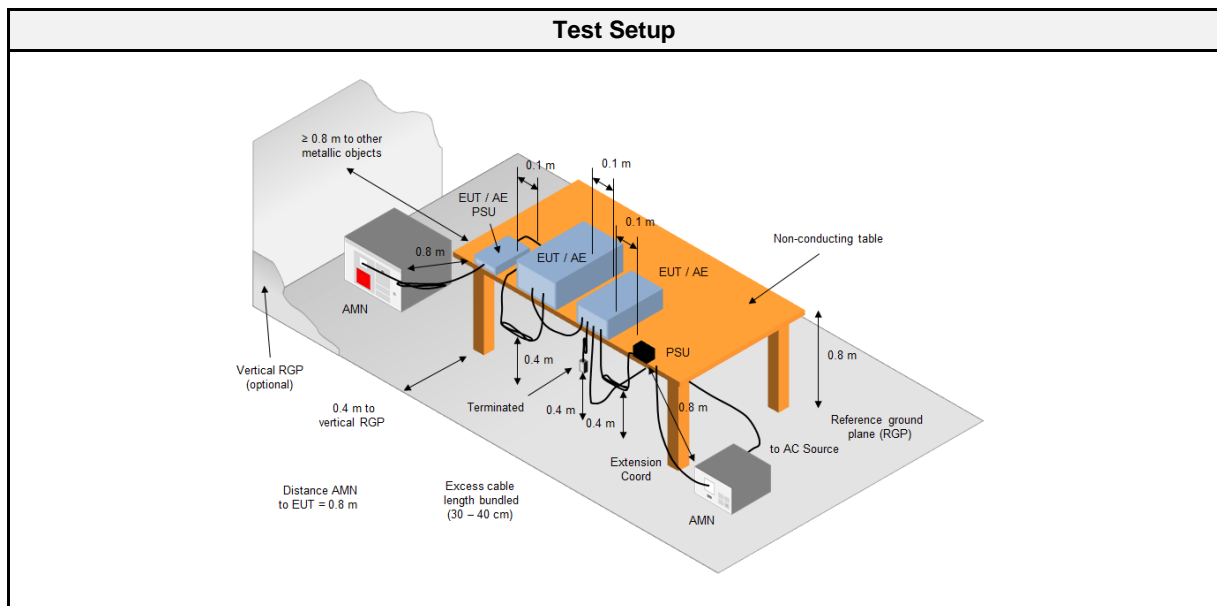
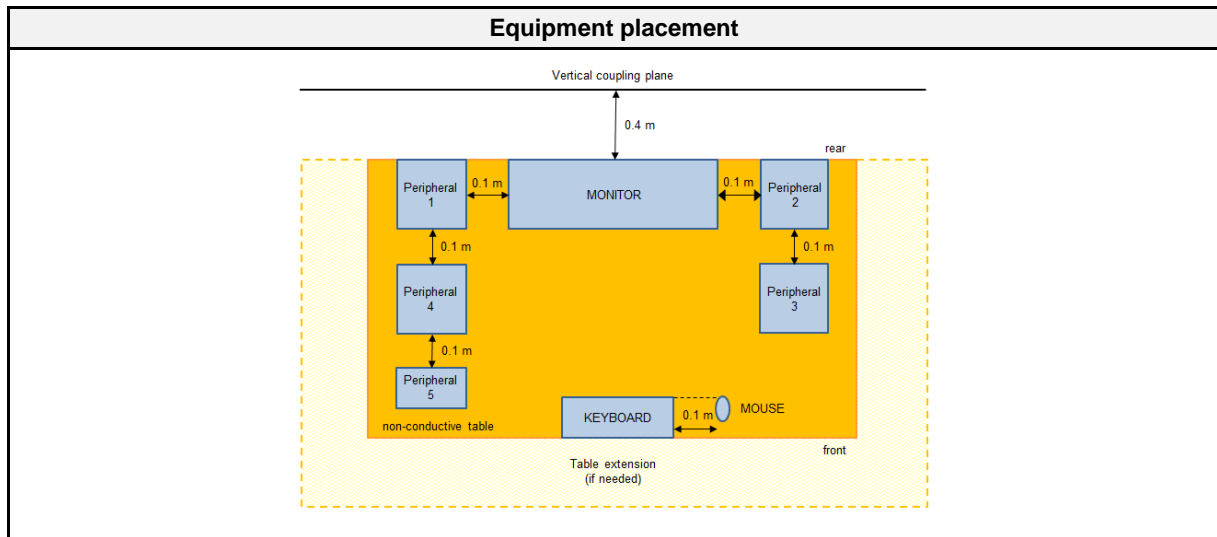
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.2 GHz	41.96 dBµV/m	53.98 dBµV/m	-12.02 dB	Pass	0 degrees	1 m
2	1.7 GHz	37.36 dBµV/m	53.98 dBµV/m	-16.62 dB	Pass	0 degrees	1 m

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, 3.2.1
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]	21 ±3
Humidity [%]	37 ±3
Operator	Matthias Handrik
Date	2021-05-19

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	2021-03	2022-03

2.2.4 Procedure

Exploratory measurement
<ol style="list-style-type: none"> 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) The power cord that is normally supplied or recommended by the manufacturer was connected to the LISN. 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). The LISN measurement port was connected to a measurement receiver I/O cables were bundled not longer than 0.4 m Measurement was performed in the frequency range 0.15 – 30MHz on each current-carrying conductor To maximize the emissions the cable positions were manipulated The worst configuration of EUT and cables is shown on a test setup picture at item 2.2.2

Final measurement
<ol style="list-style-type: none"> 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) The power cord that is normally supplied or recommended by the manufacturer was connected to the LISN. 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). The LISN measurement port was connected to a measurement receiver The EUT and cable arrangement were based on the exploratory measurement results The test data of the worst-case conditions were recorded and shown on the next pages

2.2.5 Limits

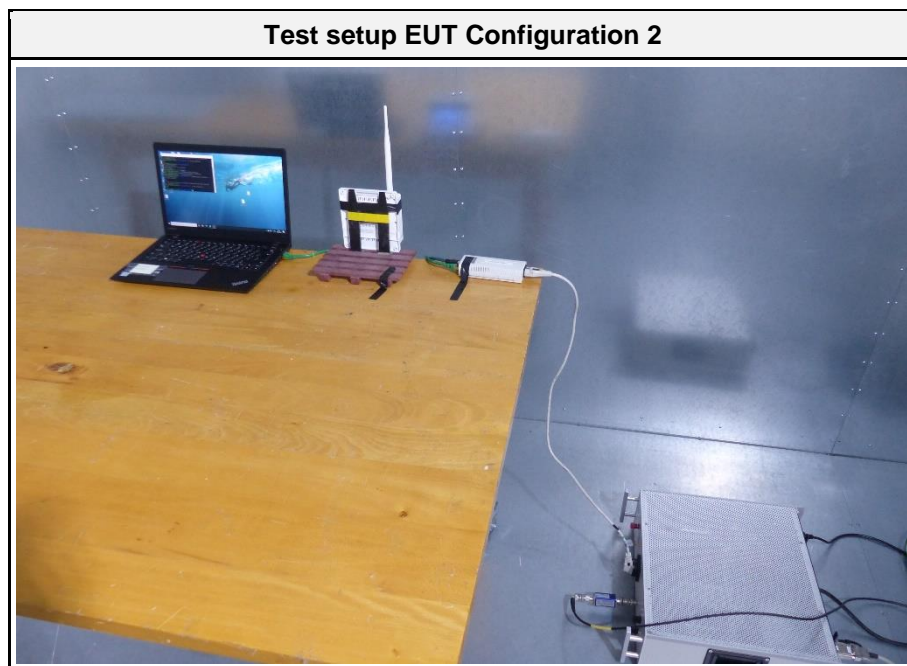
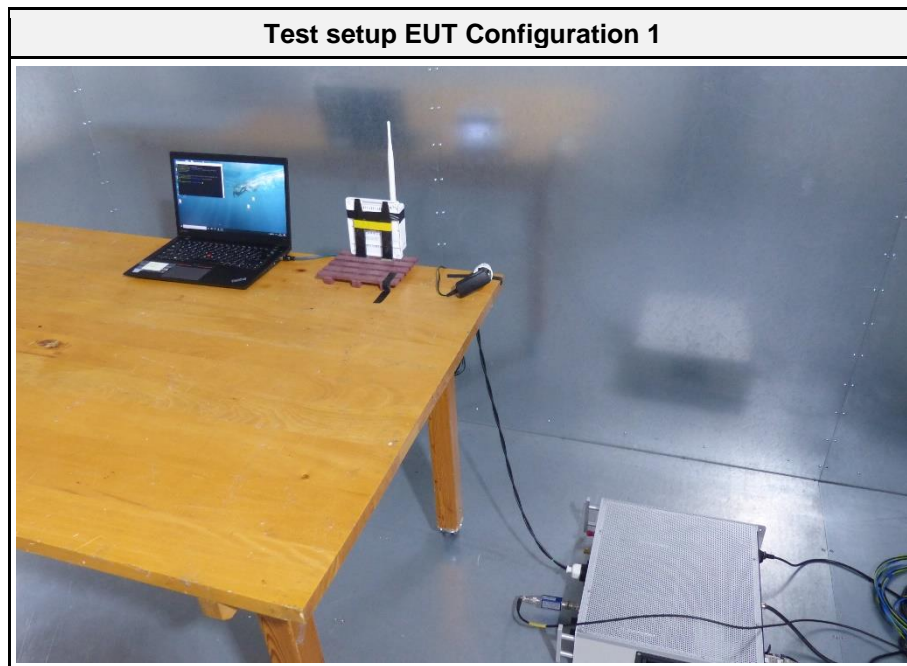
Class B		
Frequency [MHz]	Quasi-peak Limit [dB μ V]	Average Limit [dB μ V]
0.15 - 0.5	66 - 56 *	56 - 46 *
0.5 - 5	56	46
5 - 30	60	50

* Decreases with the logarithm of the frequency

2.2.6 Results

AC power line conducted emissions					
Port	Coupling	Operational mode	EUT Configuration	Verdict	Remark
Power	AMN	1	1	PASS	1
Power	AMN	1	2	PASS	1
1 Laptop powered via internal battery, without dedicated AC/DC adaptor.					

2.2.7 Setup Photos



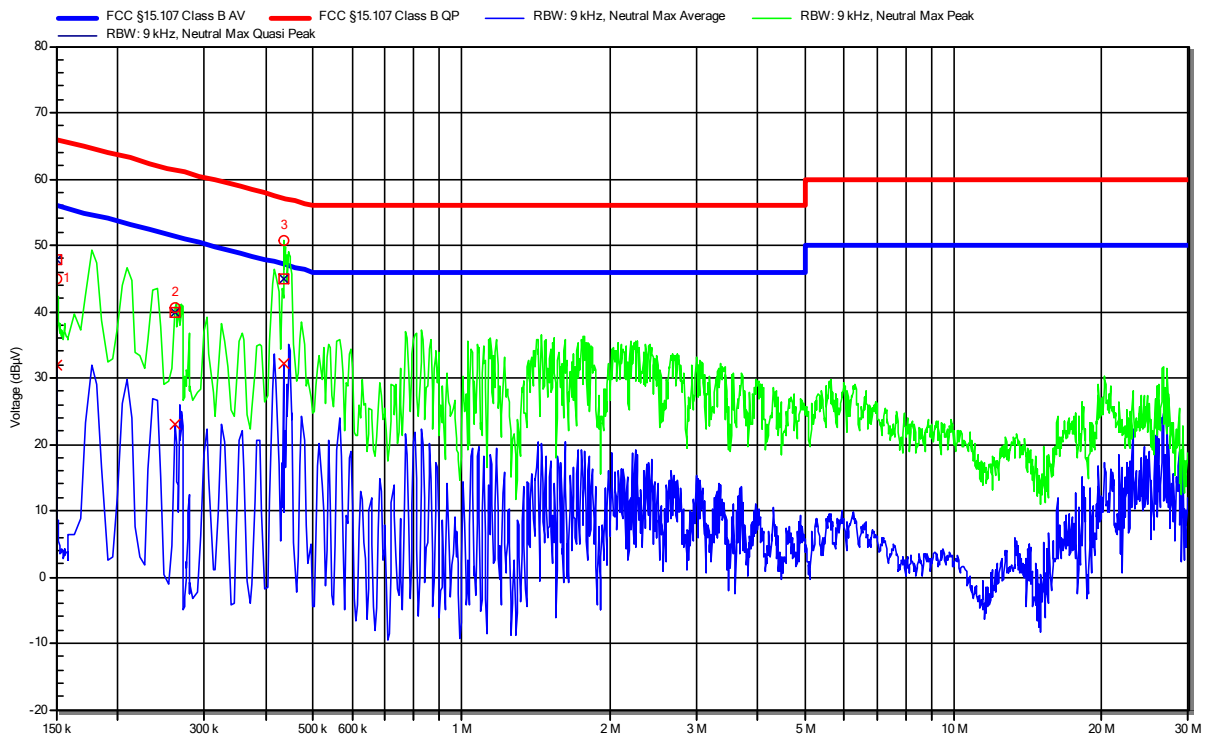
2.2.8 Records

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

Project Number: G0M-2103-9683
 Applicant: Vaisala Oyi
 Model Description: VaiNet Wireless Access Point
 Model: AP10A
 Test Sample ID: 34367
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Date: 2021-05-19
 Operating Conditions: ambient temperature: 21 °Celsius
 power input: 120V AC / 60Hz
 LISN: Schwarzbeck NSLK 8127 RC, N
 Operational Mode & EUT Configuration: Operational mode 1
 EUT configuration 1
 Applied to Port: AC-Mains
 Note 1:

Index 15

RadiMation



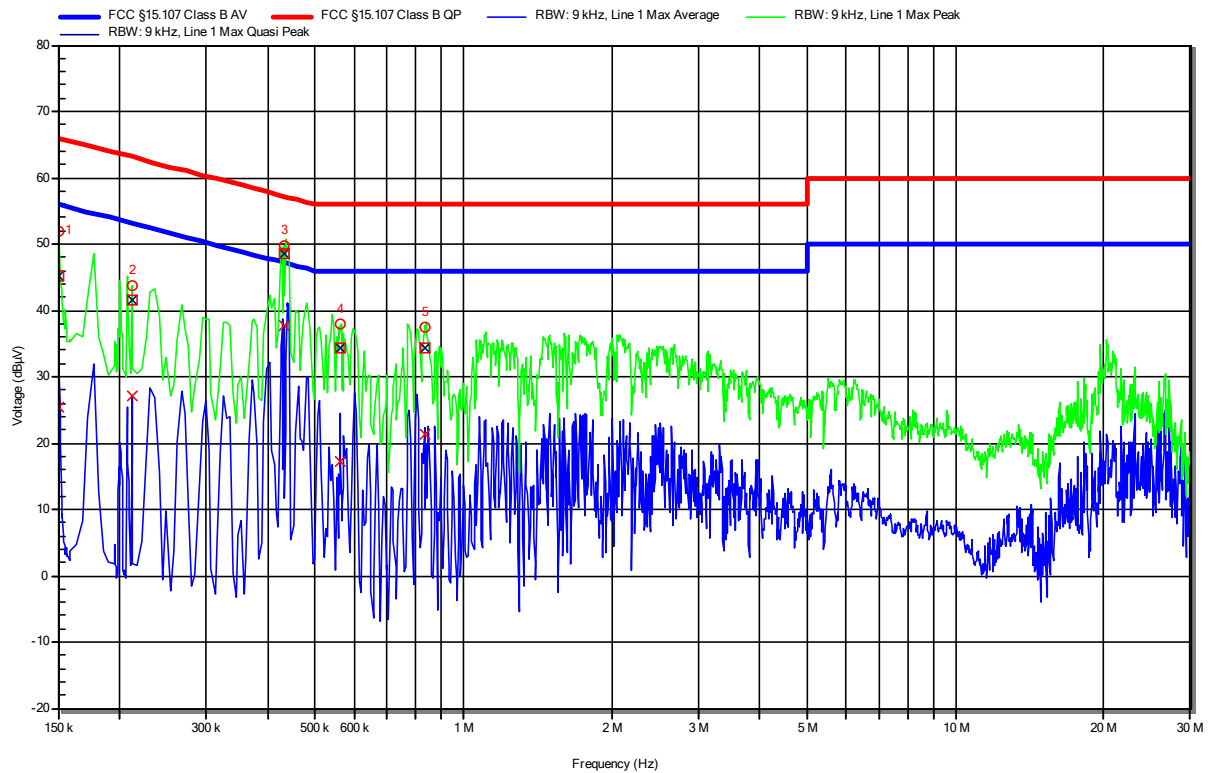
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	150 kHz	47.79 dBµV	66 dBµV	-18.21 dB	Pass	Neutral
2	262.5 kHz	39.81 dBµV	61.35 dBµV	-21.54 dB	Pass	Neutral
3	434.4 kHz	45.04 dBµV	57.17 dBµV	-12.12 dB	Pass	Neutral
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	150 kHz	32.03 dBµV	56 dBµV	-23.97 dB	Pass	Neutral
2	262.5 kHz	22.96 dBµV	51.35 dBµV	-28.39 dB	Pass	Neutral
3	434.4 kHz	32.06 dBµV	47.17 dBµV	-15.1 dB	Pass	Neutral

Test Report No.: G0M-2103-9683-EF0115B-V02

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-2103-9683
 Applicant: Vaisala Oyi
 Model Description: VaiNet Wireless Access Point
 Model: AP10A
 Test Sample ID: 34367
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Date: 2021-05-19
 Operating Conditions: ambient temperature: 21 °Celsius
 power input: 120V AC / 60Hz
 LISN: Schwarzbeck NSLK 8127 RC, L1
 Operational Mode & EUT Configuration: Operational mode 1
 EUT configuration 1
 Applied to Port: AC-Mains
 Note 1:

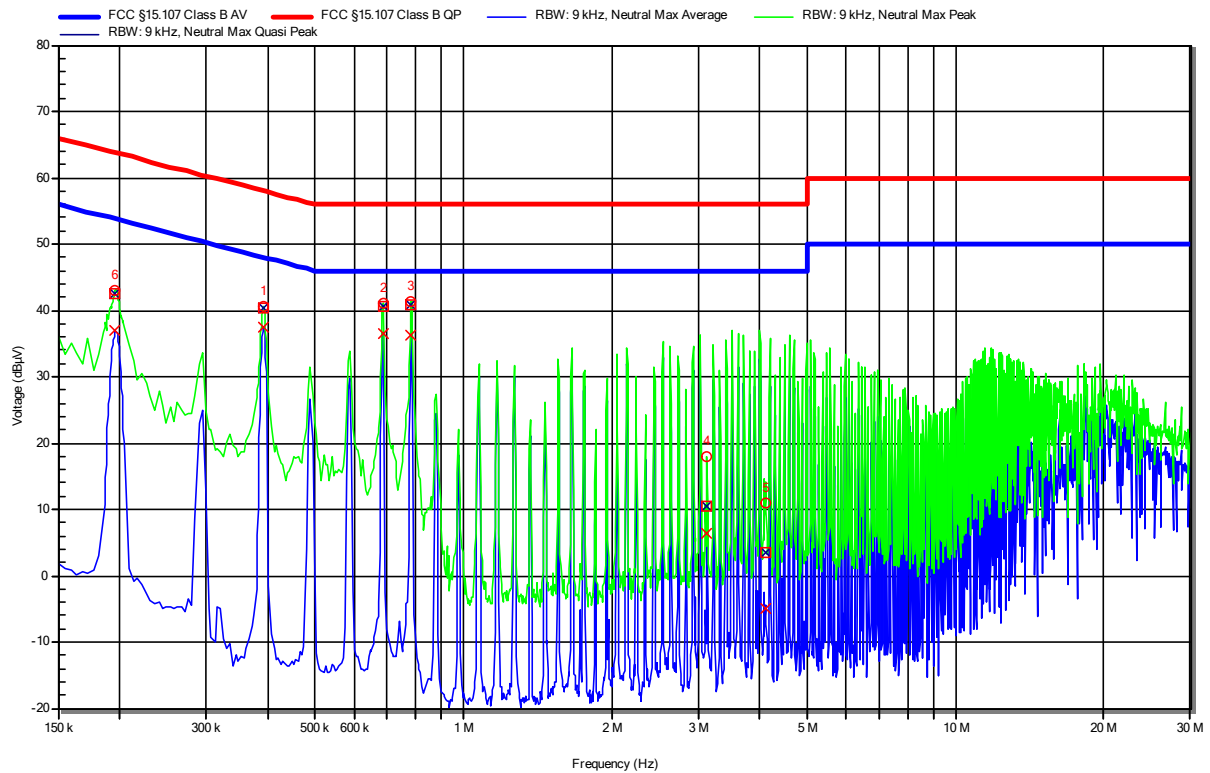


Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	150 kHz	45.29 dB μ V	66 dB μ V	-20.71 dB	Pass	Line 1
2	212.55 kHz	41.68 dB μ V	63.11 dB μ V	-21.43 dB	Pass	Line 1
3	431.7 kHz	48.59 dB μ V	57.22 dB μ V	-8.63 dB	Pass	Line 1
4	564 kHz	34.37 dB μ V	56 dB μ V	-21.63 dB	Pass	Line 1
5	837.6 kHz	34.42 dB μ V	56 dB μ V	-21.58 dB	Pass	Line 1

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	150 kHz	25.35 dB μ V	56 dB μ V	-30.65 dB	Pass	Line 1
2	212.55 kHz	27.08 dB μ V	53.11 dB μ V	-26.03 dB	Pass	Line 1
3	431.7 kHz	37.71 dB μ V	47.22 dB μ V	-9.51 dB	Pass	Line 1
4	564 kHz	17.25 dB μ V	46 dB μ V	-28.75 dB	Pass	Line 1
5	837.6 kHz	21.33 dB μ V	46 dB μ V	-24.67 dB	Pass	Line 1

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

Project Number: G0M-2103-9683
 Applicant: Vaisala Oyi
 Model Description: VaiNet Wireless Access Point
 Model: AP10A
 Test Sample ID: 34367
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Date: 2021-05-19
 Operating Conditions: ambient temperature: 21 °Celsius
 power input: 120V AC / 60Hz
 LISN: Schwarzbeck NSLK 8127 RC, N
 Operational Mode & EUT Configuration: Operational mode 1
 EUT configuration 2
 Applied to Port: AC Mains
 Note 1:



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	392.1 kHz	40.29 dB μ V	58.02 dB μ V	-17.73 dB	Pass	Neutral
2	685.95 kHz	40.68 dB μ V	56 dB μ V	-15.32 dB	Pass	Neutral
3	784.05 kHz	40.79 dB μ V	56 dB μ V	-15.21 dB	Pass	Neutral
4	3.129 MHz	10.38 dB μ V	56 dB μ V	-45.62 dB	Pass	Neutral
5	4.106 MHz	3.45 dB μ V	56 dB μ V	-52.55 dB	Pass	Neutral
6	196.35 kHz	42.41 dB μ V	63.76 dB μ V	-21.35 dB	Pass	Neutral

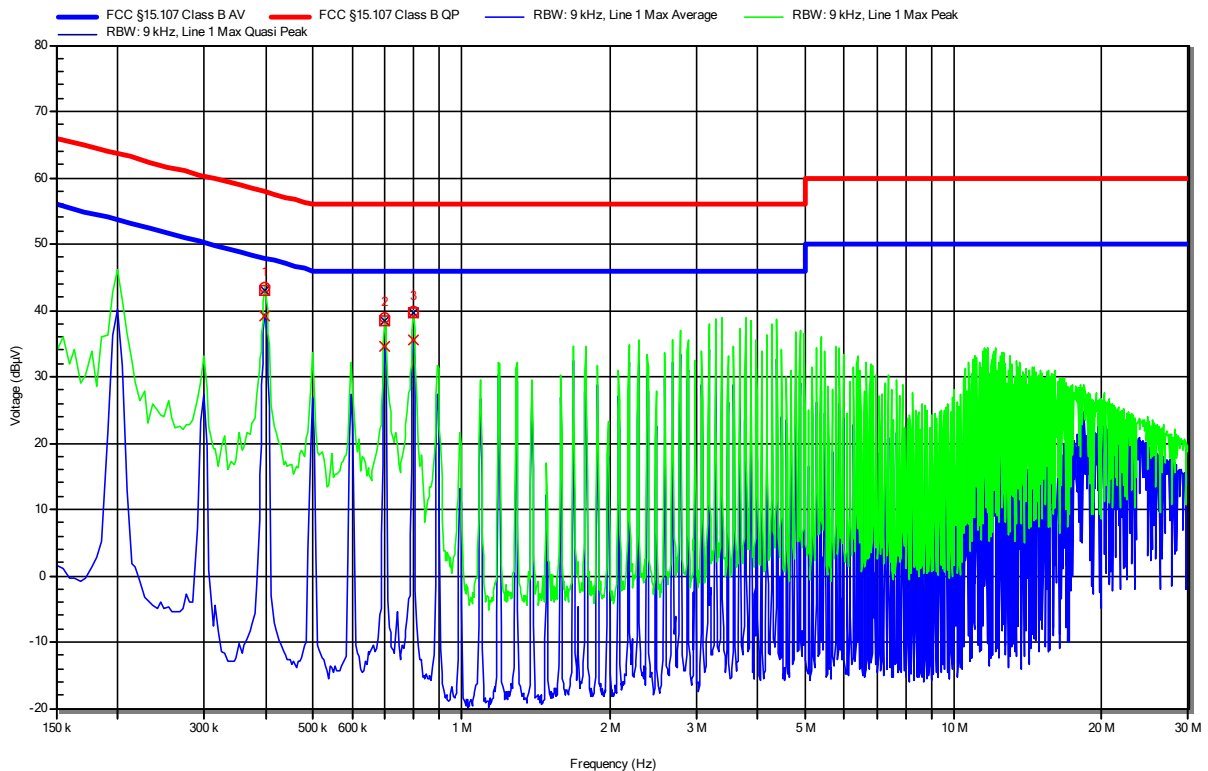
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	392.1 kHz	37.38 dB μ V	48.02 dB μ V	-10.64 dB	Pass	Neutral
2	685.95 kHz	36.52 dB μ V	46 dB μ V	-9.48 dB	Pass	Neutral
3	784.05 kHz	36.18 dB μ V	46 dB μ V	-9.82 dB	Pass	Neutral
4	3.129 MHz	6.35 dB μ V	46 dB μ V	-39.65 dB	Pass	Neutral
5	4.106 MHz	-4.84 dB μ V	46 dB μ V	-50.84 dB	Pass	Neutral
6	196.35 kHz	36.9 dB μ V	53.76 dB μ V	-16.87 dB	Pass	Neutral

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

Project Number: G0M-2103-9683
 Applicant: Vaisala Oyi
 Model Description: VaiNet Wireless Access Point
 Model: AP10A
 Test Sample ID: 34367
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Date: 2021-05-19
 Operating Conditions: ambient temperature: 21 °Celsius
 power input: 120V AC / 60Hz
 LISN: Schwarzbeck NSLK 8127 RC, L1
 Operational Mode & EUT Configuration: Operational mode 1
 EUT configuration 2
 Applied to Port: AC Mains
 Note 1:

Index 19

RadiMation



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	398.85 kHz	43.06 dBµV	57.88 dBµV	-14.82 dB	Pass	Line 1
2	698.55 kHz	38.36 dBµV	56 dBµV	-17.64 dB	Pass	Line 1
3	798.45 kHz	39.54 dBµV	56 dBµV	-16.46 dB	Pass	Line 1

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	398.85 kHz	39.22 dBµV	47.88 dBµV	-8.65 dB	Pass	Line 1
2	698.55 kHz	34.62 dBµV	46 dBµV	-11.38 dB	Pass	Line 1
3	798.45 kHz	35.55 dBµV	46 dBµV	-10.45 dB	Pass	Line 1

Test Report No.: G0M-2103-9683-EF0115B-V02

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