RADIO REPORT

FCC 47 CFR Part 15C
ISED Canada RSS-247

Digital transmission systems operating within the 2400.0 MHz - 2483.5 MHz band

Report Reference No	G0M-2112-1198-TFC247BL-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 DAkkS - Registration number : D-PL-12092-01-04 (FCC) FCC Filed Test Laboratory, Reg.-No.: 96970
Applicant	AiSight GmbH
Address	Gertraudenstraße 10-12 10178 Berlin GERMANY
Test Specification	47 CFR Part 15C RSS-247, Issue 2, 2017-02 RSS-Gen, Issue 5, Amendment 2, 2021-02
Non-Standard Test Method	None
Equipment under Test (EUT):	
Product Description	Industrial vibration, geomagnetic and temperature sensor node for condition monitoring
Model(s)	Aion
Additional Model(s)	None
Brand Name(s)	None
Hardware Version(s)	V4R8
Software Version(s)	v0.7.0-margherita
FCC ID	2A34W-V4R8
IC	28248-V4R8
Test Result	**PASSED**

Possible test case verdicts:		
Required by standard but not tested	N/T	
Not required by standard	N/R	
Not applicable to EUT	N/A	
Test object does meet the requirement	P(PASS)	
Test object does not meet the requirement	F(FAIL)	
Testing:		
Test Lab Temperature	20 °C - 30 °C	
Test Lab Humidity	25 % - 55 %	
Date of receipt of test item	2022-03-16	
Report:		
Compiled by	Odai Qawasmeh	
Tested by (+ signature)	Odai Qawasmeh	O. Qawasmeh
Supervised by (+ signature) (Responsible for Test)	Wilfried Treffke	W. Treff
Approved by (+ signature) (Deputy Head of Lab)	Toralf Jahn	T. J
Date of Issue	2022-04-05	
Total number of pages	42	
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:		

VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2022-04-05	Initial Release	

ABBREVIATIONS AND ACRONYMS

Acronyms	
Acronym	Description
EUT	Equipment Under Test
FCC	Federal Communications Commission
ISED	Innovation, Science and Economic Development Canada
RBW	Resolution bandwidth
RMS	Root mean square
VBW	Video bandwidth
V_{NOM}	Nominal supply voltage

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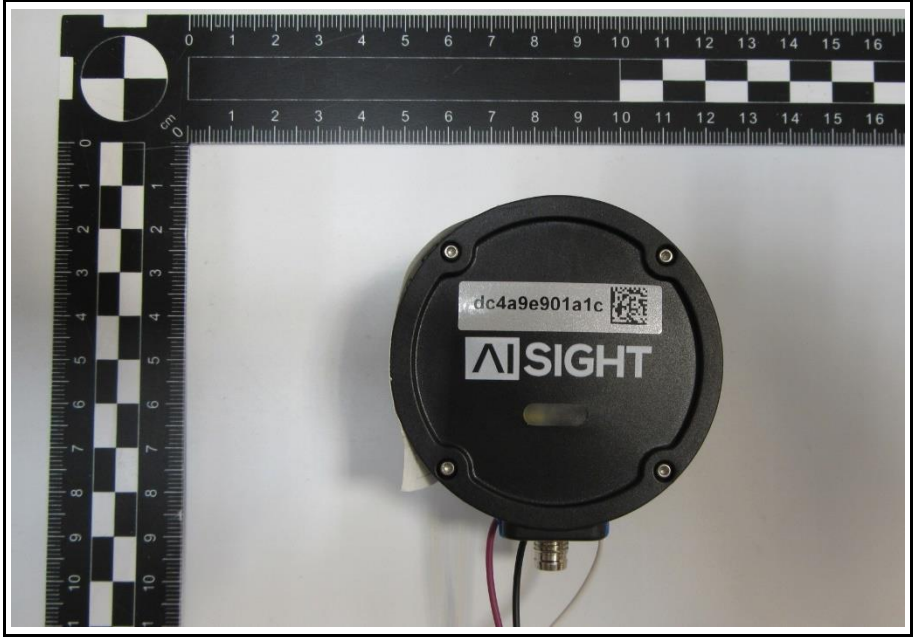
1 Equipment (Test Item) Under Test

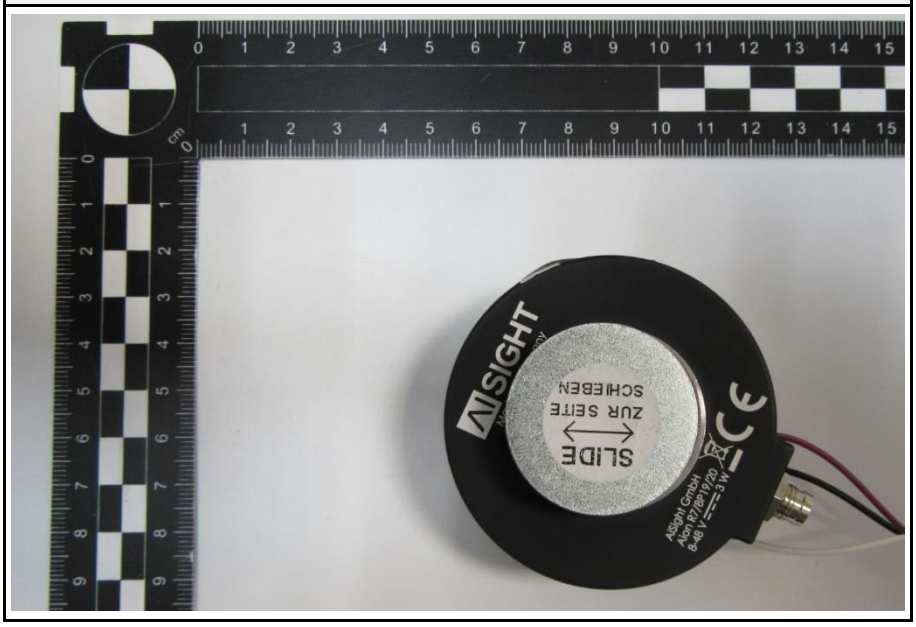
Description	Industrial vibration, geomagnetic and temperature sensor node for condition monitoring	
Model	Aion	
Additional Model(s)	None	
Brand Name(s)	None	
Serial Number(s)	dc4a9e901a1c	
Hardware Version(s)	V4R8	
Software Version(s)	v0.7.0-margherita	
PMN	V4R8	
HVIN	V4R8	
FVIN	N/A	
HMN	N/A	
FCC ID	2A34W-V4R8	
IC	28248-V4R8	
Equipment type	End Product	
Radio type	Transceiver	
Assigned frequency bands	2400.0 MHz - 2483.5 MHz	
Radio technology	Bluetooth LE 4.2	
Bluetooth Specification	LE 1M PHY	Yes
	LE 2M PHY	No
	LE Coded PHY S=8 (125 kbit)	No
	LE Coded PHY S=2 (500 kbit)	No
	Stable Modulation Index - Transmitter	No
	Stable Modulation Index - Receiver	No
Modulation	GFSK	
Number of antenna ports	1	
Radio Module	Type	Bluetooth and WLAN module
	Model	WROVER-E
	Manufacturer	Espressif
	HW Version	V1.2
	SW Version	V4.3
	FCC ID	2AC7Z-ESP32WROVERE
	IC	21098-ESPWROVERE
Antenna	Type	Integrated
	Model	PCB Antenna
	Manufacturer	Espressif
	Gain	3.4 dBi
Supply Voltage	V_{NOM}	24 VDC
Operating Temperature	T_{NOM}	25 °C
AC/DC-Adaptor	Model	TRE25R240
	Vendor	CINCON
	Input	90 – 264 VAC
	Output	24V / 1.05A
Manufacturer	AiSight GmbH Gertraudenstraße 10-12 10178 Berlin GERMANY	

1.1 Photos – Equipment External

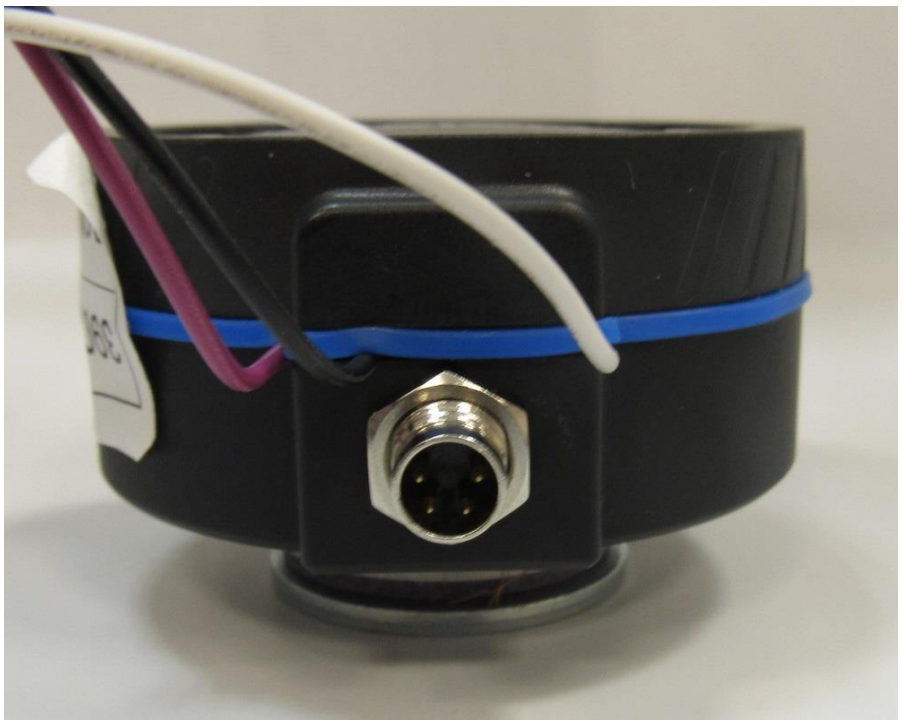
EUT Top View



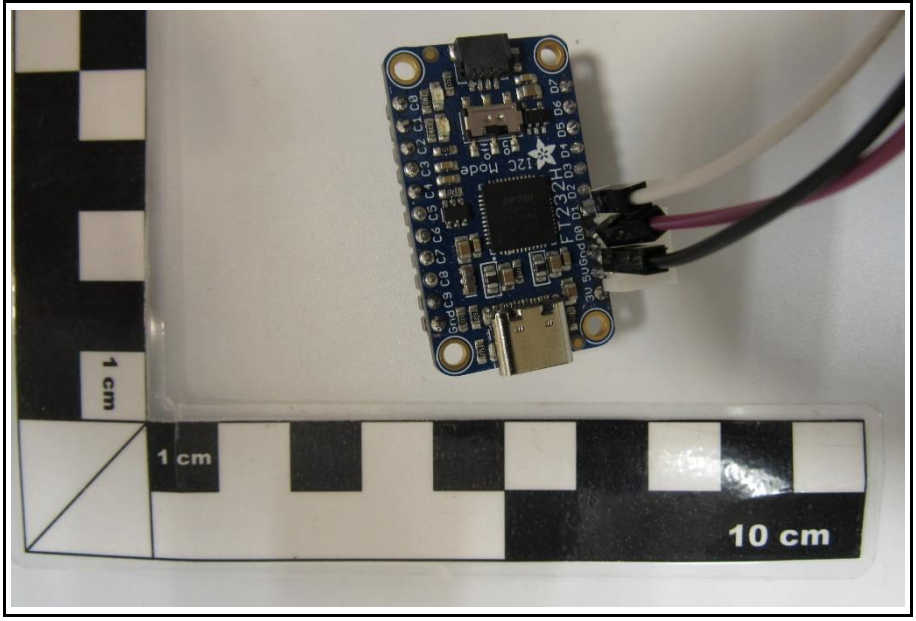
EUT Bottom View



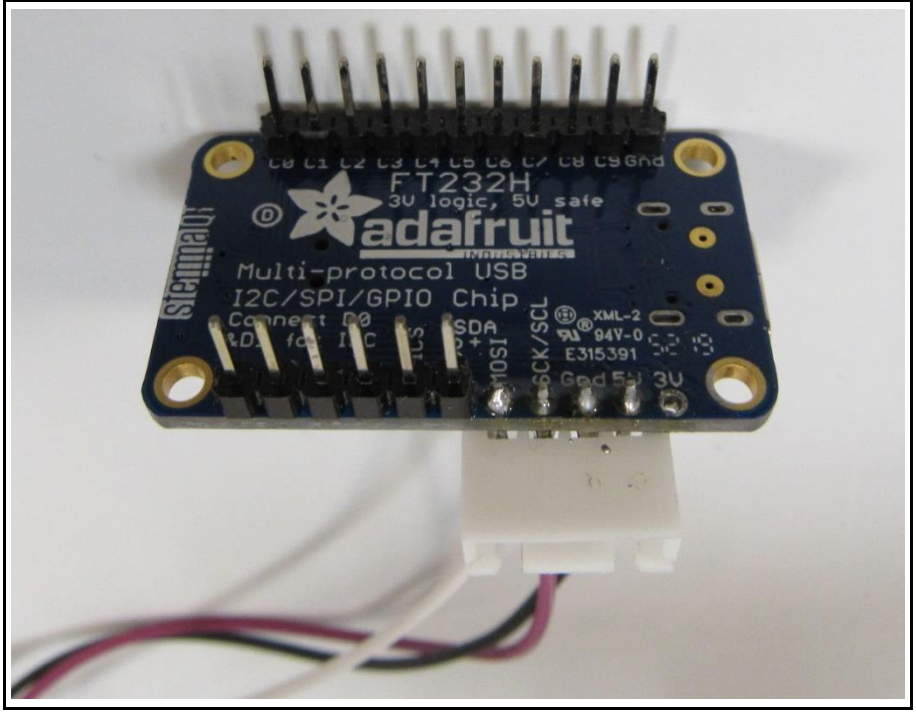
EUT Side View

EUT Port


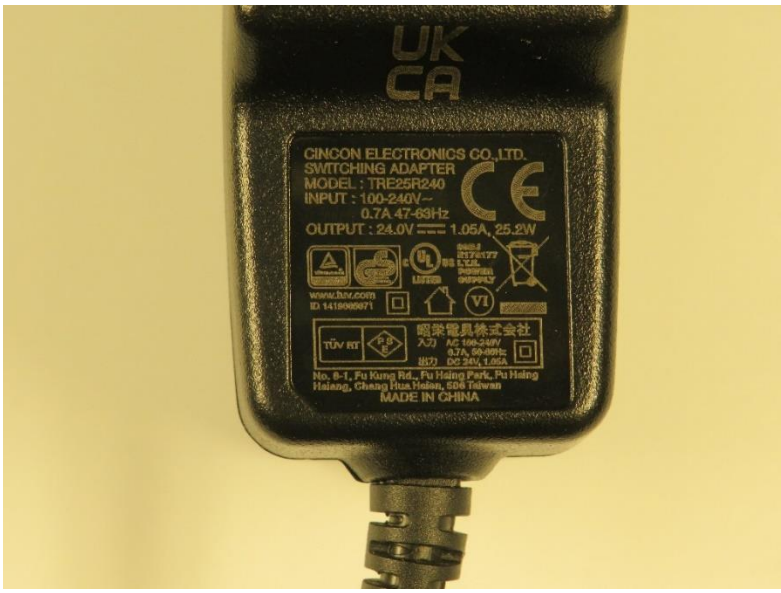
Evaluation Board Top View



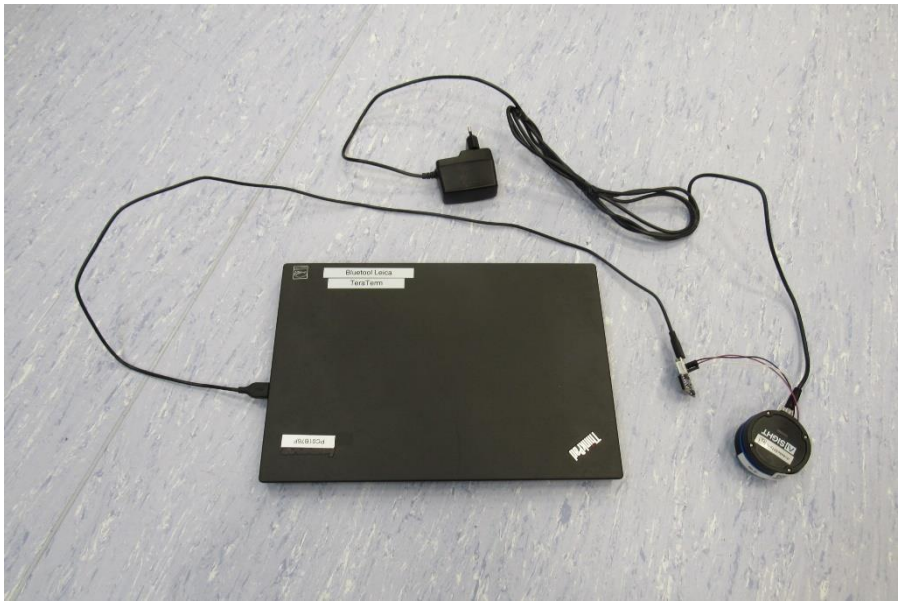
Evaluation Board Bottom View



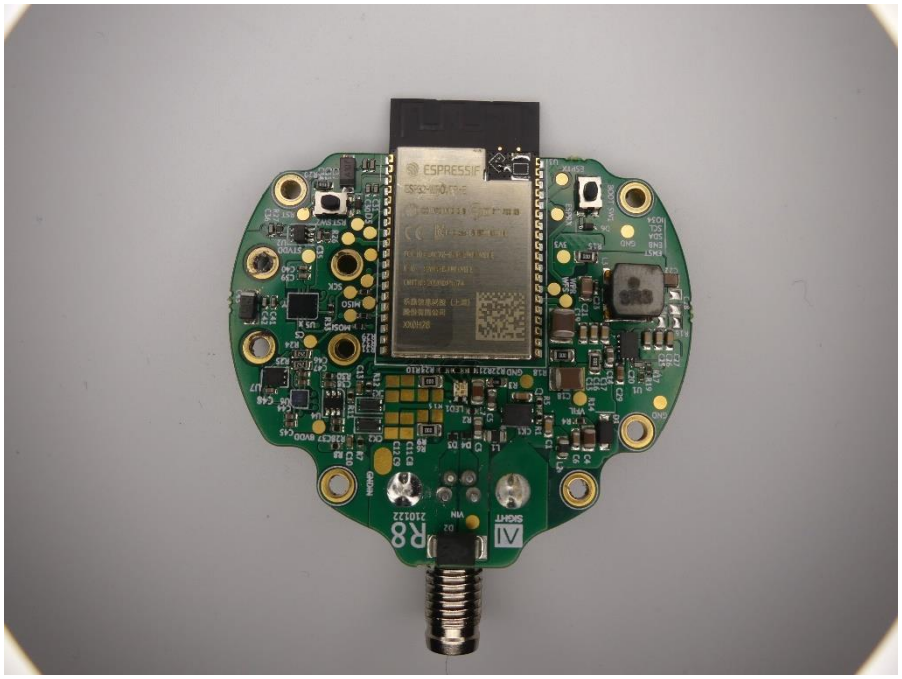
AC/DC Adaptor

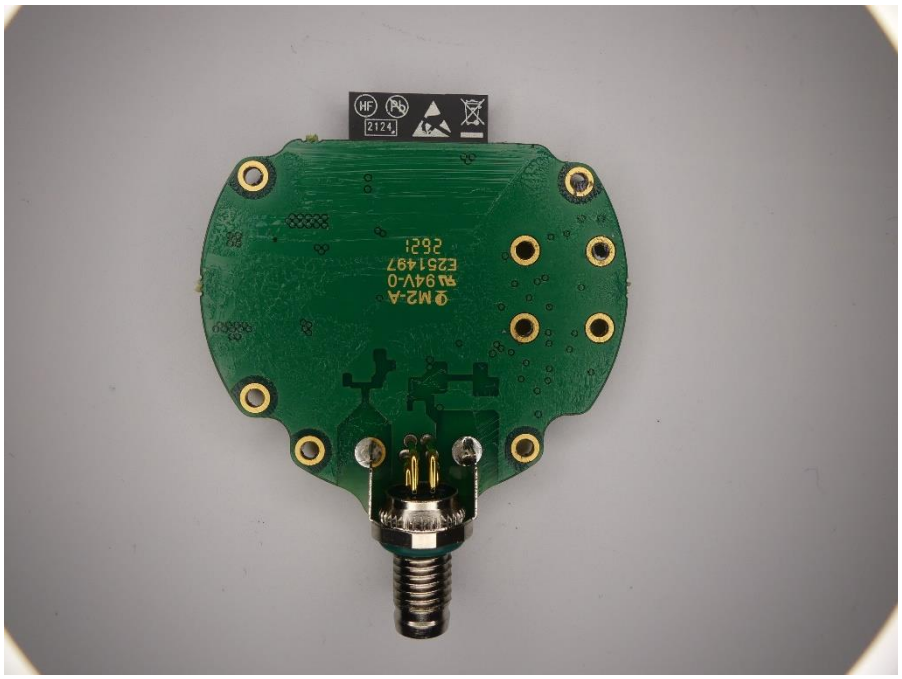


EUT with auxiliary equipment



1.2 Photos – Equipment Internal

PCB with radio module (Top View)


PCB with radio module (Bottom View)


1.3 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	AC / DC Adaptor	CINCON	TRE25R240	Sample ID: 39094
AE	Notebook	-	-	For configuring test modes
AE	Evaluation Board	-	-	Used as USB - UART adapter
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
SFT	Software			
Comment:				

1.4 Test Modes

Mode	Description
GFSK	Mode = Transmit Modulation = GFSK Spreading = None Data rate = 1 Mbps Channel = 19 (2440 MHz) Packet Length = 37 Bytes Packet Type = PRBS9 Duty cycle = 64%
Receive	Mode = Receive
Comment: Worst case was found in module test report number RSHD200116001-00A issued by Bay Area Compliance Laboratories Corp. on 04/12/2020.	

1.5 Test Frequencies

Designator	Mode	Channel	Frequency [MHz]
F1	Tx / Rx	19	2440

1.6 Sample emission level calculation

The following is a description of terms and a sample calculation, as appears in the radiated emissions data table. The numbers used in the calculation are for example only. There is no direct correlation to the specific data taken for the product described in this document:

Reading:

This is the reading obtained on the spectrum analyzer in dBµV. Any external preamplifiers used are taken into account through internal analyzer settings.

A.F.:

This is the antenna factor for the receiving antenna. It is a conversion factor, which converts electric fields strengths to voltages, which can be measured directly on the spectrum analyzer. It is treated as a loss in dB. Cable losses have been included with the A.F. to simplify the calculations. The antenna factor is used in calculations as follows:

Reading on Analyzer (dBµV) + A.F. (dB/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 15C, ISED RSS-247				
Product Standard Reference	**Requirement**	**Reference Method**	**Result**	**Remarks**
ISED RSS-Gen, Issue 5 A2 (section 6.7)	Occupied Bandwidth	ANSI C63.10-2013	N/R	Informational only
FCC § 15.247(a)(2) ISED RSS-247, Issue 2 (section 5.2)	6 dB Bandwidth	ANSI C63.10-2013	N/T	
FCC § 15.247(b) ISED RSS-247, Issue 2 (section 5.4)	Maximum peak conducted power	ANSI C63.10-2013	N/T	
FCC § 15.247(e) ISED RSS-247, Issue 2 (section 5.2)	Power spectral density	ANSI C63.10-2013	N/T	
FCC § 15.207 ISED RSS-247, Issue 2 (section 3.1)	AC power line conducted emissions	ANSI C63.10-2013	PASS	
FCC § 15.247(d) ISED RSS-247, Issue 2 (section 5.5)	Band edge compliance	ANSI C63.10-2013	N/T	
FCC § 15.247(d) ISED RSS-247, Issue 2 (section 5.5)	Conducted spurious emissions	ANSI C63.10-2013	N/T	
FCC § 15.247(d) FCC § 15.209 ISED RSS-Gen, Issue 5 A2 (section 6.13)	Transmitter radiated spurious emissions	ANSI C63.10-2013	PASS	
ISED RSS-247, Issue 2 (section 3.1)	Receiver radiated spurious emissions	ANSI C63.4-2014	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 - AC powerline conducted emissions

2.1.1 Information

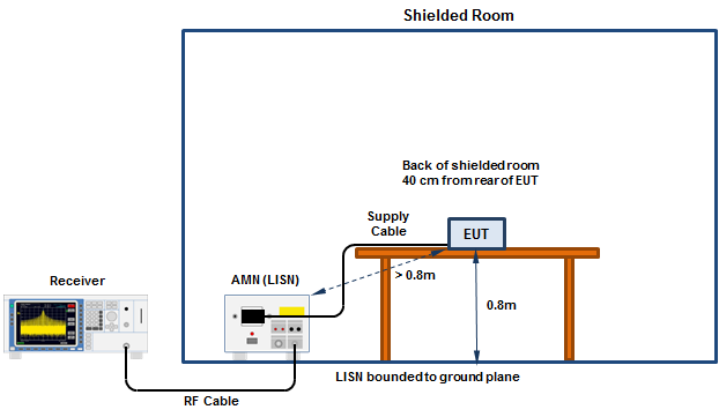
Test Information	
Reference	FCC § 15.207; ISED RSS-247, Issue 2 (section 3.1)
Measurement Method	ANSI C63.10 6.2
Measurement Uncertainty	± 3.82 dB
Operator	Odai Qawasmeh
Date	2022-03-17

2.1.2 Limits

Limits		
Frequency [MHz]	Quasi-Peak [dBµV]	Average [dBµV]
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5	56	46
5 - 30	60	50
* Limit decreases linearly with the logarithm of the frequency		

2.1.3 Setup

Test Setup



2.1.4 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
EMI Test Receiver	R&S	ESR7	EF00943	2021-08	2022-08
Pulse Limiter	R&S	ESH3-Z2	EF01222	2021-07	2022-07
LISN	Schwarzbeck	NSLK 8127 RC	EF01592	2021-07	2022-07

2.1.5 Setup Photos

Setup for measurement 150kHz – 30MHz

Setup for measurement 150kHz – 30MHz

Conducted emissions at the mains power port according to 47 CFR Part 15.207

Project Number:	G0M-2112-1198
Applicant:	AiSight GmbH
Model Description:	Industrial vibration, geomagnetic and temperature sensor node for condition monitoring
Model:	Aion
Test Sample ID:	39092
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Test Date:	2022-03-17
Operating Conditions:	ambient temperature: 21 °Celsius power input: 24 VDC (120 V AC-DC Adaptor)
LISN:	Schwarzbeck NSLK 8127 RC L
Operational Mode:	BLE; 1 Mbps; 2440 MHz
EUT Configuration:	
Applied to Port:	AC/DC Adapter to EUT (120V/60Hz to 24VDC)
Note 1:	

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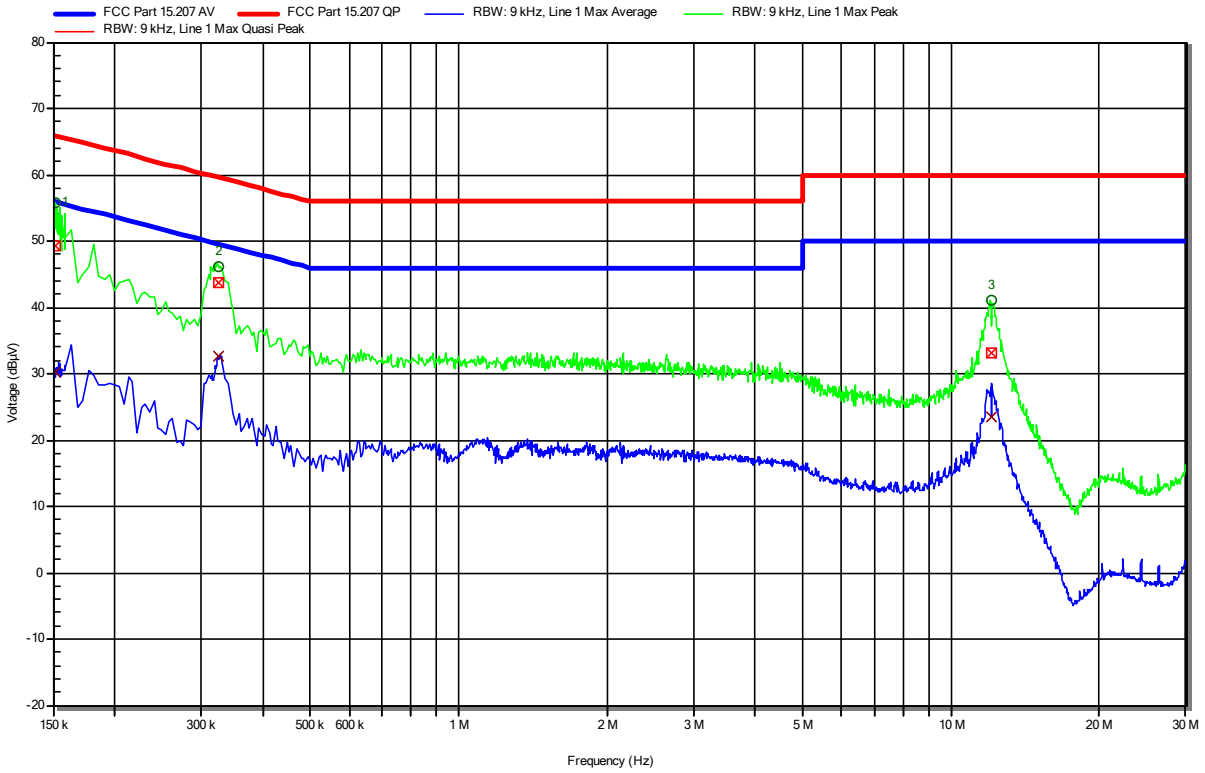
RadiMation



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	151.8 kHz	49.27 dBµV	65.9 dBµV	-16.63 dB	Pass	Line 1
2	325.5 kHz	43.8 dBµV	59.57 dBµV	-15.77 dB	Pass	Line 1
3	12.066 MHz	33.05 dBµV	60 dBµV	-26.95 dB	Pass	Line 1

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	151.8 kHz	30.29 dBµV	55.9 dBµV	-25.61 dB	Pass	Line 1
2	325.5 kHz	32.58 dBµV	49.57 dBµV	-16.99 dB	Pass	Line 1
3	12.066 MHz	23.53 dBµV	50 dBµV	-26.47 dB	Pass	Line 1

Conducted emissions at the mains power port according to 47 CFR Part 15.207

Project Number:	G0M-2112-1198
Applicant:	AiSight GmbH
Model Description:	Industrial vibration, geomagnetic and temperature sensor node for condition monitoring
Model:	Aion
Test Sample ID:	39092
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Test Date:	2022-03-17
Operating Conditions:	ambient temperature: 21 °Celsius power input: 24 VDC (120 V AC-DC Adaptor)
LISN:	Schwarzbeck NSLK 8127 RC N
Operational Mode:	BLE; 1 Mbps; 2440 MHz
EUT Configuration:	
Applied to Port:	AC/DC Adapter to EUT (120V/60Hz to 24VDC)
Note 1:	

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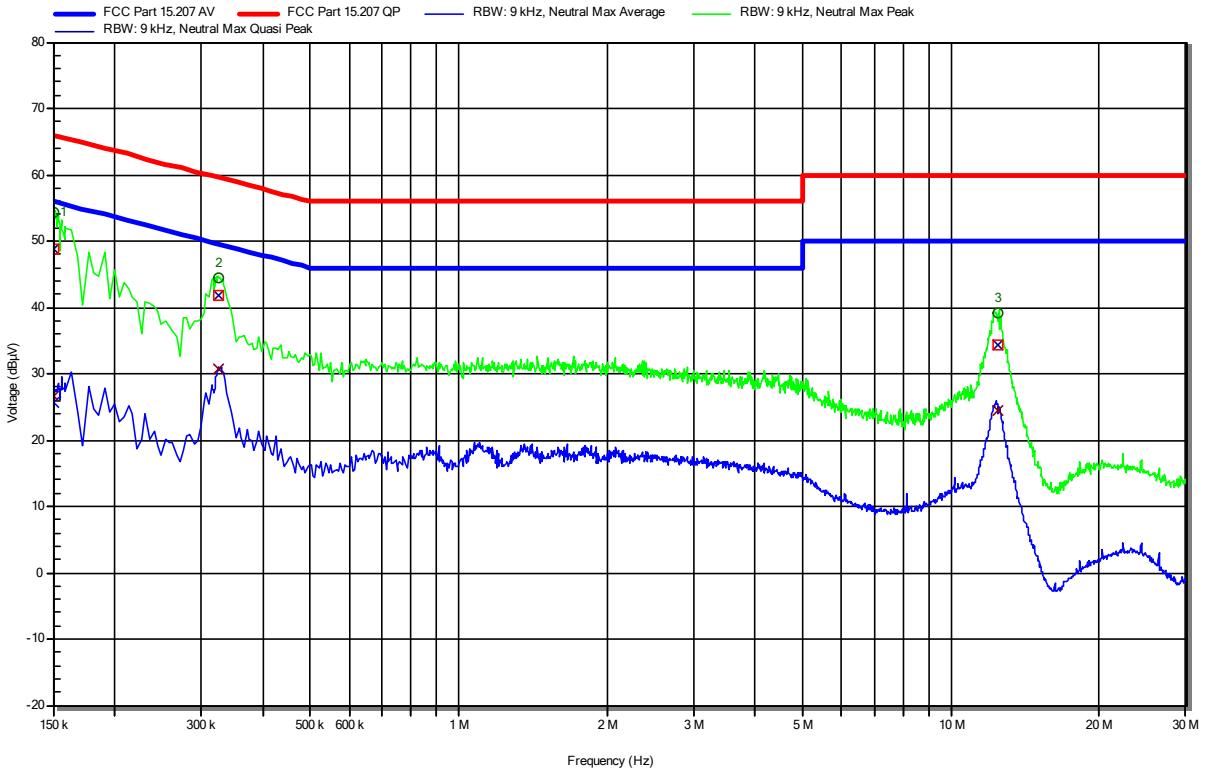
RadiMation



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	150.45 kHz	48.82 dBµV	65.98 dBµV	-17.16 dB	Pass	Neutral
2	325.95 kHz	41.78 dBµV	59.55 dBµV	-17.77 dB	Pass	Neutral
3	12.494 MHz	34.39 dBµV	60 dBµV	-25.61 dB	Pass	Neutral

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	150.45 kHz	26.62 dBµV	55.98 dBµV	-29.36 dB	Pass	Neutral
2	325.95 kHz	30.68 dBµV	49.55 dBµV	-18.87 dB	Pass	Neutral
3	12.494 MHz	24.41 dBµV	50 dBµV	-25.59 dB	Pass	Neutral

Conducted emissions at the mains power port according to RSS-247

Project Number:	G0M-2112-1198
Applicant:	AiSight GmbH
Model Description:	Industrial vibration, geomagnetic and temperature sensor node for condition monitoring
Model:	Aion
Test Sample ID:	39092
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Test Date:	2022-03-17
Operating Conditions:	ambient temperature: 21 °Celsius power input: 24 VDC (120 V AC-DC Adaptor)
LISN:	Schwarzbeck NSLK 8127 RC L
Operational Mode:	BLE; 2440 MHz
EUT Configuration:	
Applied to Port:	AC/DC Adapter to EUT (120V/60Hz to 24VDC)
Note 1:	

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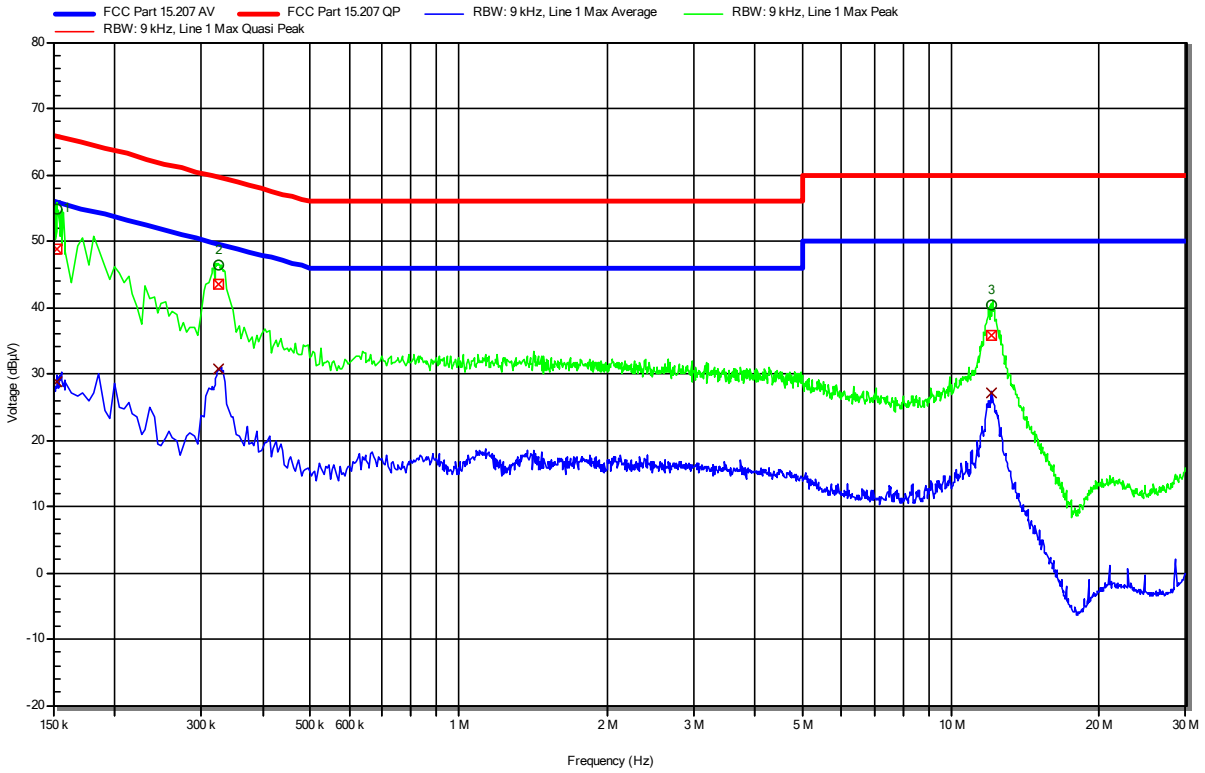
RadiMation

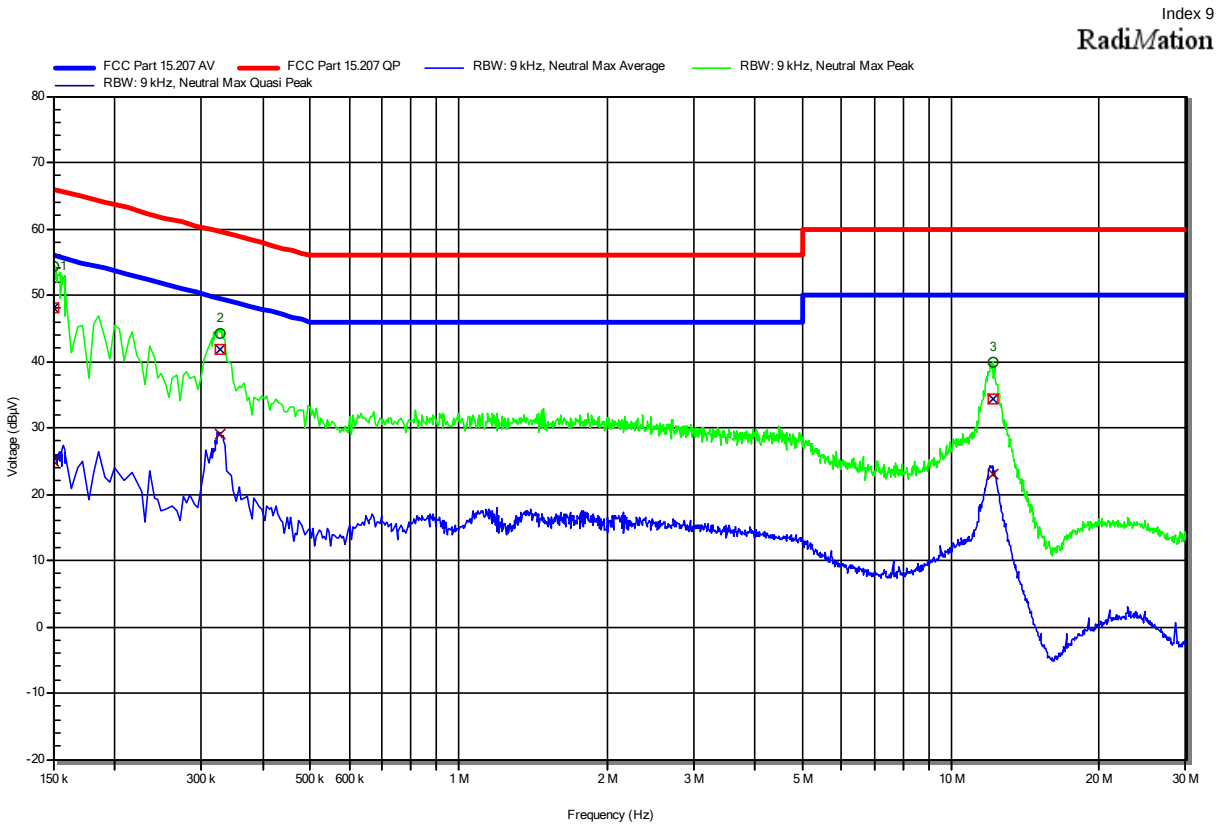


Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	153.15 kHz	48.87 dBµV	65.83 dBµV	-16.95 dB	Pass	Line 1
2	325.95 kHz	43.5 dBµV	59.55 dBµV	-16.06 dB	Pass	Line 1
3	12.044 MHz	35.88 dBµV	60 dBµV	-24.12 dB	Pass	Line 1

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	153.15 kHz	28.8 dBµV	55.83 dBµV	-27.02 dB	Pass	Line 1
2	325.95 kHz	30.67 dBµV	49.55 dBµV	-18.88 dB	Pass	Line 1
3	12.044 MHz	27.02 dBµV	50 dBµV	-22.98 dB	Pass	Line 1

Conducted emissions at the mains power port according to RSS-247

Project Number:	G0M-2112-1198
Applicant:	AiSight GmbH
Model Description:	Industrial vibration, geomagnetic and temperature sensor node for condition monitoring
Model:	Aion
Test Sample ID:	39092
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Test Date:	2022-03-17
Operating Conditions:	ambient temperature: 21 °Celsius power input: 24 VDC (120 V AC-DC Adaptor)
LISN:	Schwarzbeck NSLK 8127 RC N
Operational Mode:	BLE; 2440 MHz
EUT Configuration:	
Applied to Port:	AC/DC Adapter to EUT (120V/60Hz to 24VDC)
Note 1:	



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	150.9 kHz	48.18 dBµV	65.95 dBµV	-17.77 dB	Pass	Neutral
2	326.85 kHz	41.76 dBµV	59.53 dBµV	-17.77 dB	Pass	Neutral
3	12.17 MHz	34.42 dBµV	60 dBµV	-25.58 dB	Pass	Neutral

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	150.9 kHz	25.01 dBµV	55.95 dBµV	-30.94 dB	Pass	Neutral
2	326.85 kHz	29.09 dBµV	49.53 dBµV	-20.44 dB	Pass	Neutral
3	12.17 MHz	23.09 dBµV	50 dBµV	-26.91 dB	Pass	Neutral

2.2 Test Conditions and Results - Transmitter radiated emissions

2.2.1 Information

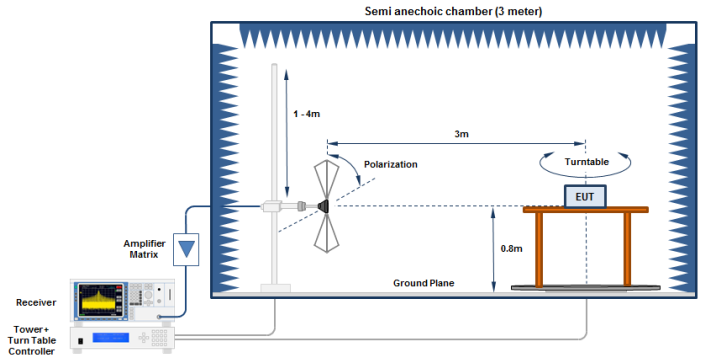
Test Information	
Reference	FCC § 15.247(d); FCC § 15.209; ISED RSS-Gen, Issue 5 A2 (section 6.13)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.10 6.4, 6.5, 6.6, 11.12
Operator	Odai Qawasmeh
Date	2022-03-16
Comment	The EUT was not supplied by AC/DC Adaptor but via Notebook with 5 VDC.

2.2.2 Limits

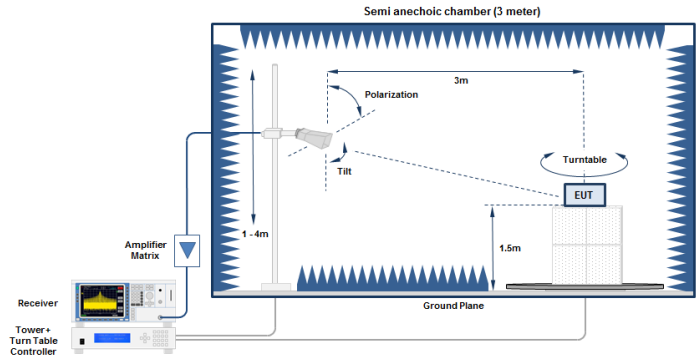
Limits			
Frequency range [MHz]	Detector	Field strength [µV/m]	Measurement distance [m]
0.009 - 0.09	Average	2400/F[kHz]	300
0.09 - 0.110	Quasi-Peak	2400/F[kHz]	300
0.110 - 0.490	Average	2400/F[kHz]	300
0.490 - 1.705	Quasi-Peak	24000/F[kHz]	30
1.705 - 30.0	Quasi-Peak	30	30
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

2.2.3 Setup

Test Setup 30 MHz - 1000 MHz



Test Setup > 1 GHz



2.2.4 Equipment

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

Test Equipment 30 MHz - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2021-02	2024-02
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2021-07	2022-07
Antenna	R&S	HK 116	EF00030	2021-05	2024-05
Antenna	R&S	HL 223	EF00212	2019-05	2022-05

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic chamber	Frankonia	AC 2	EF01616	2021-09	2022-09
Spectrum analyzer	R&S	FSU43	EF01631	2021-07	2022-07
Horn antenna	Schwarzbeck	BBHA 9120B	EF01678	2021-03	2022-03
Horn Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2022-03
Antenna	Amplifier Research	AT4560	EF00302	2021-06	2023-06

2.2.5 Procedure

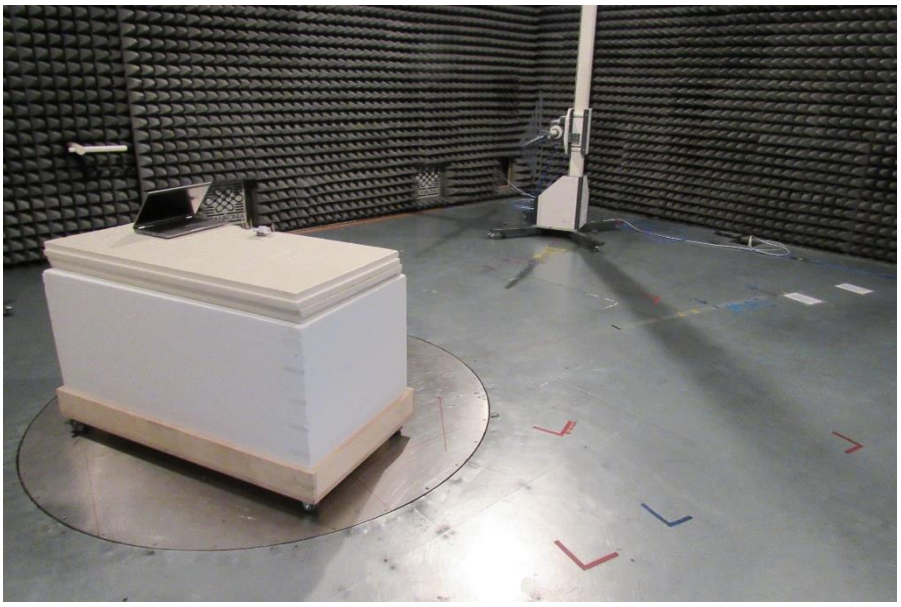
Test Procedure 30 MHz - 1000 MHz
1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground 2. EUT set to test mode 3. The receiver is set to peak detection with max hold 4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m 5. All significant emissions are measured again using the corresponding final detector

Test Procedure > 1 GHz
1. EUT is placed on a non conducting support at the center of a turn table 1.5 m above the ground 2. EUT set to test mode 3. The receiver is set to peak detection with max hold 4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m 5. All significant emissions are measured again using the corresponding final detector

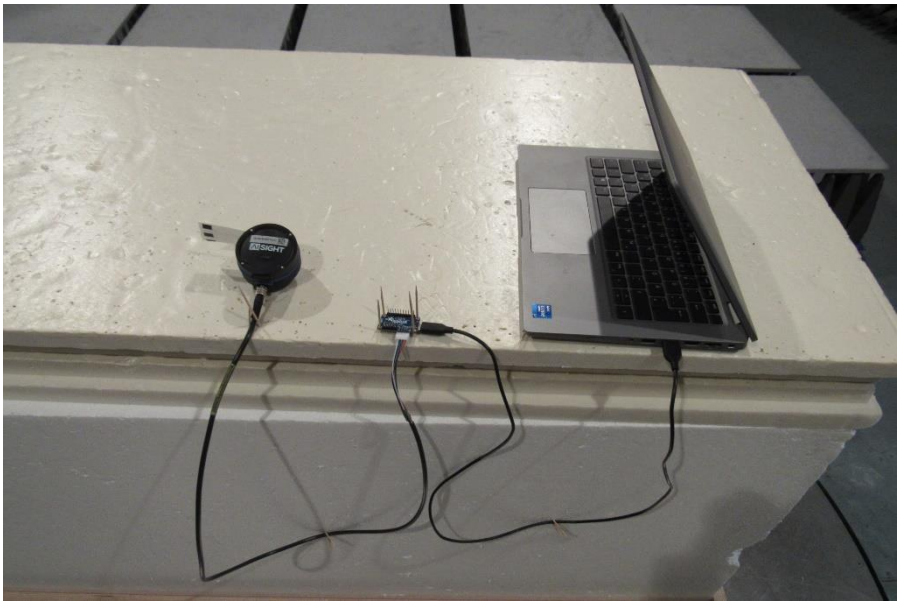
2.2.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2440	119.845	32.70	pk	ver	43.50	-10.79
2440	239.7	34.80	pk	ver	95.00	-60.21
2440	263.66	24.90	pk	ver	46.00	-21.07
2440	7479.7	43.80	pk	ver	74.00	-30.20
2440	7479.7	32.18	avg	ver	54.00	-21.82
2440	17835	44.48	pk	ver	74.00	-29.52
2440	17835	33.10	avg	ver	54.00	-20.90
2440	20409	47.69	pk	ver	74.00	-26.31
2440	20409	35.57	avg	ver	54.00	-18.43

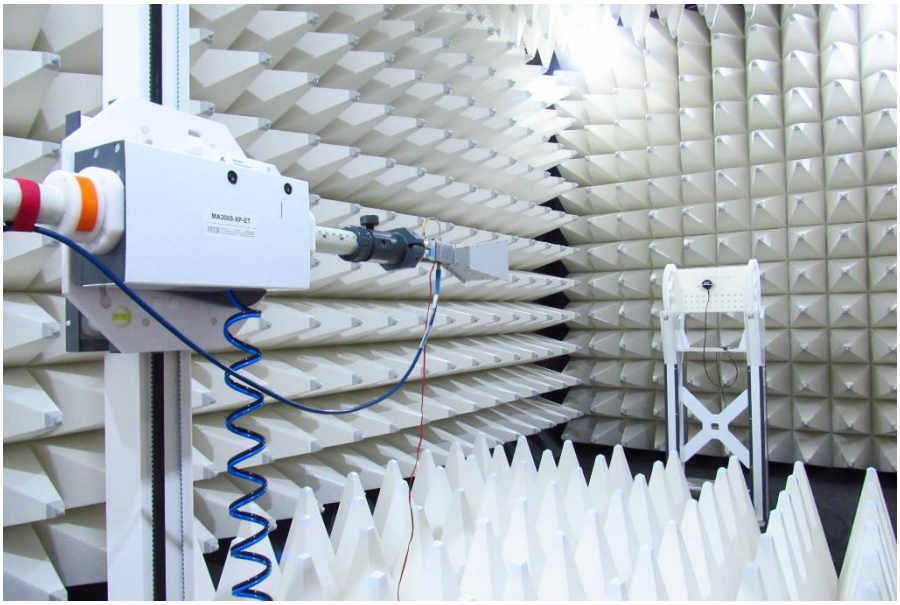
2.2.7 Setup Photos

Setup for measurements below 1 GHz


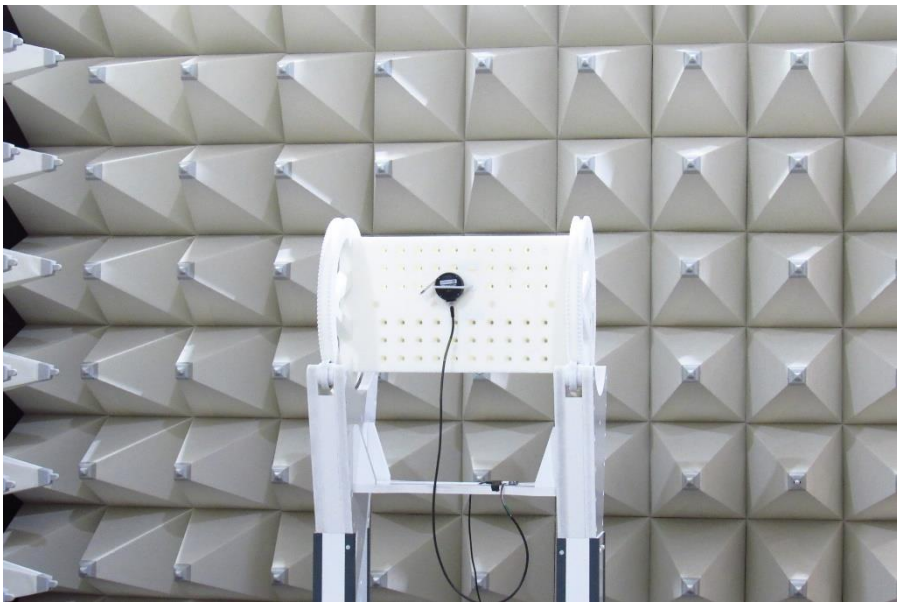
Setup for measurements below 1 GHz

Test Setup


Setup for measurements above 1GHz



Test Setup



2.3 Test Conditions and Results - Receiver radiated emissions

2.3.1 Information

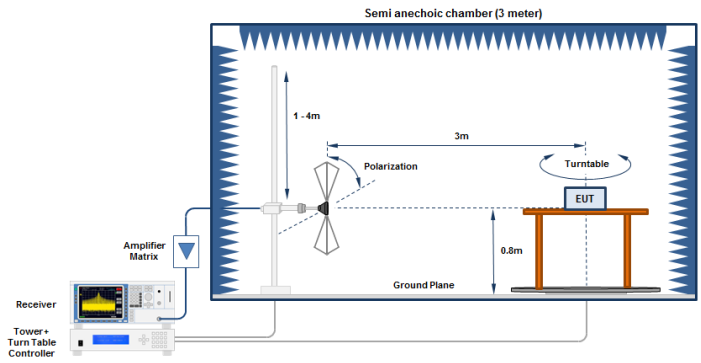
Test Information	
Reference	ISED RSS-247, Issue 2 (section 3.1)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.4-2014 8.1-8.3
Operator	Odai Qawasmeh
Date	2022-03-17
Comment	The EUT was not supplied by AC/DC Adaptor but via Notebook with 5 VDC.

2.3.2 Limits

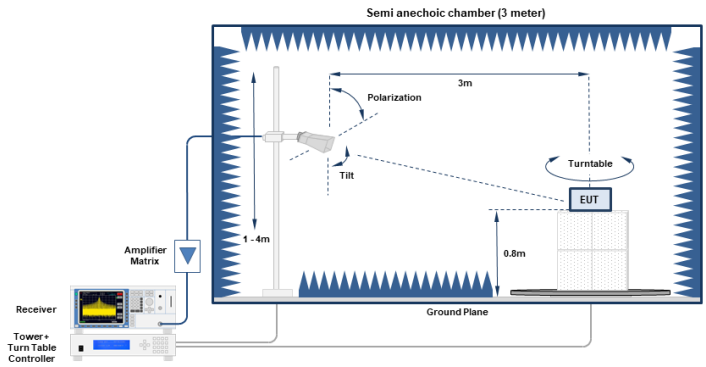
Limits			
Frequency range [MHz]	Detector	Field strength [µV/m]	Measurement distance [m]
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

2.3.3 Setup

Test Setup 30 MHz - 1000 MHz



Test Setup > 1 GHz



2.3.4 Equipment

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

Test Equipment 30 MHz - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2021-02	2024-02
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2021-07	2022-07
Antenna	R&S	HK 116	EF00030	2021-05	2024-05
Antenna	R&S	HL 223	EF00212	2019-05	2022-05

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2021-02	2024-02
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2021-07	2022-07
Horn antenna	Schwarzbeck	BBHA 9120B	EF01678	2021-03	2022-03
Horn Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2022-03

2.3.5 Procedure

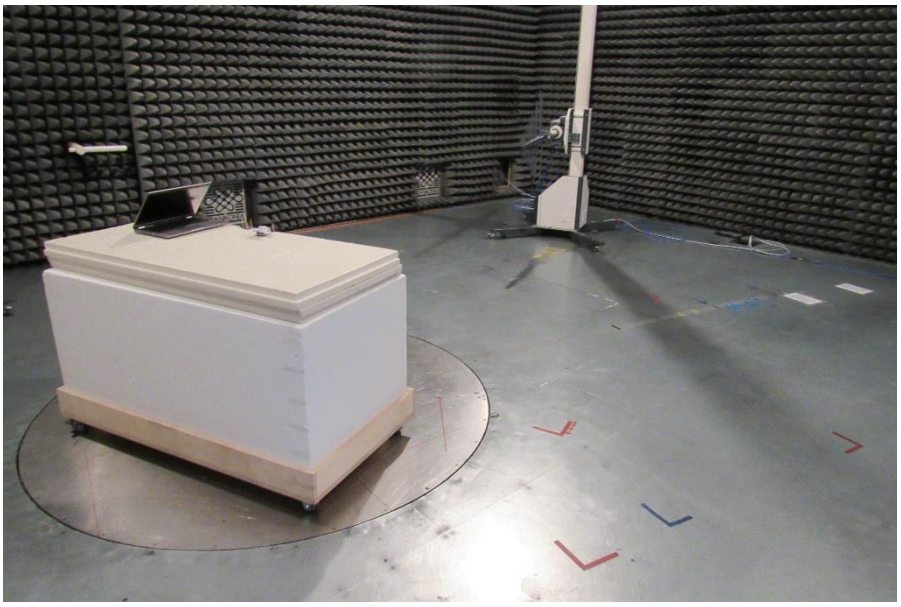
Test Procedure

1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground
2. EUT is set to test mode
3. The receiver is set to peak detection with max hold
4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m
5. All significant emissions are measured again using the corresponding final detector

2.3.6 Results

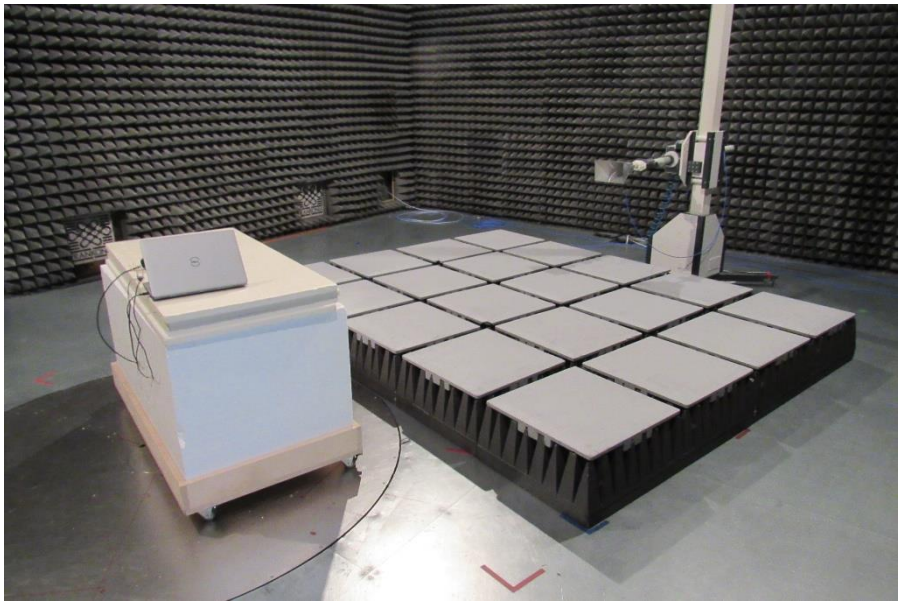
Test Results						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2440	44.9217	20.50	pk	ver	40.00	-19.46
2440	46.524	24.00	pk	ver	40.00	-15.98
2440	95.8792	28.90	pk	ver	43.50	-14.55
2440	119.8492	32.80	pk	ver	43.50	-10.70
2440	143.8278	25.50	pk	ver	43.50	-17.95
2440	152.0005	22.60	pk	ver	43.50	-20.93
2440	239.7	34.10	pk	ver	46.00	-11.89
2440	359.54	31.30	pk	ver	46.00	-14.66
2440	599.22	32.00	pk	ver	46.00	-13.98
2440	719.08	31.10	pk	ver	46.00	-14.89
2440	958.76	34.50	pk	ver	46.00	-11.51
2440	1438	41.79	pk	ver	74.00	-32.21
2440	1438	35.48	avg	ver	53.98	-18.50
2440	3256	45.00	pk	ver	74.00	-29.00
2440	3256	43.19	avg	ver	53.98	-10.79
2440	16416	48.55	pk	ver	74.00	-25.45
2440	16416	37.64	avg	ver	53.98	-16.34

2.3.7 Setup Photos

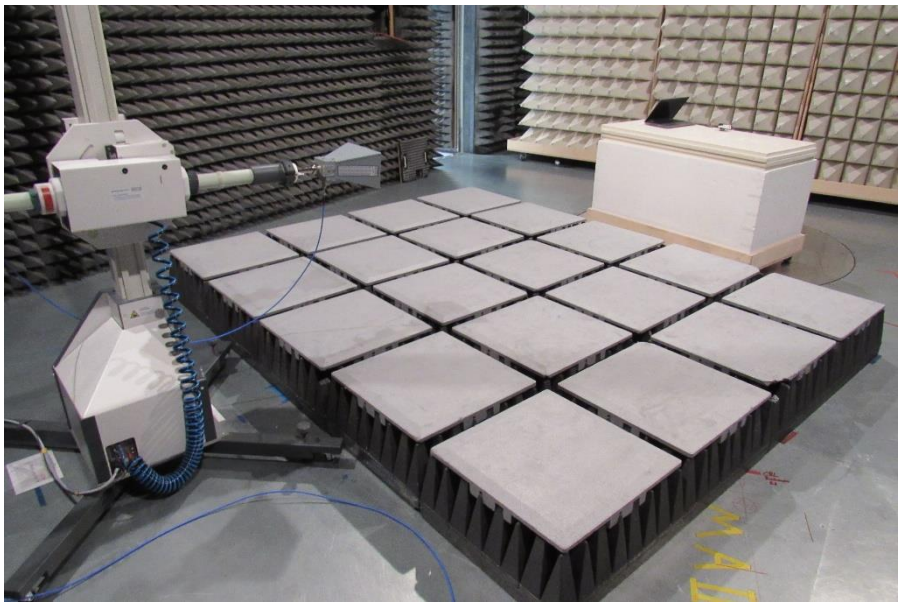
Setup for measurements below 1 GHz


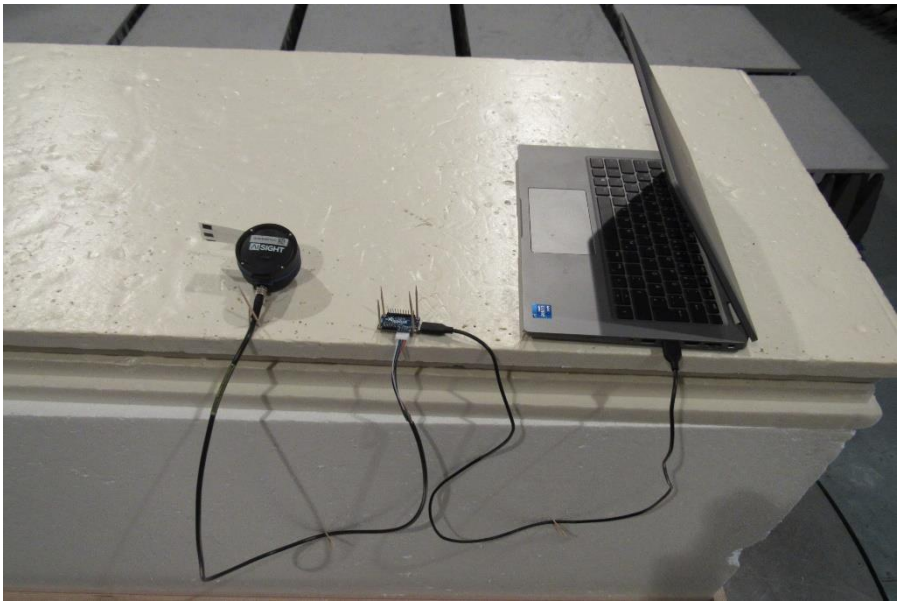
Setup for measurements below 1 GHz

Setup for measurements above 1 GHz



Setup for measurements above 1 GHz

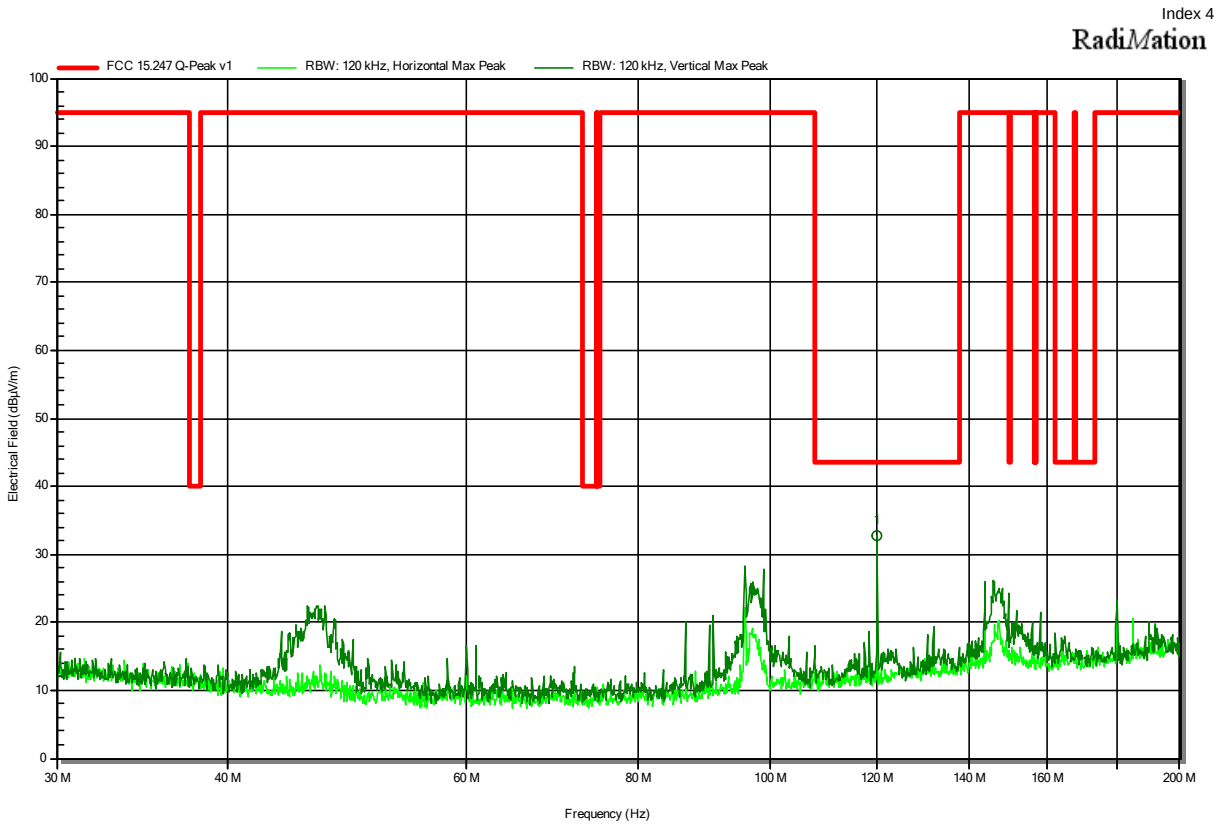


Test Setup


ANNEX A Transmitter spurious emissions

Radiated Spurious Emissions according to RSS-247, 47 CFR Part 15.247

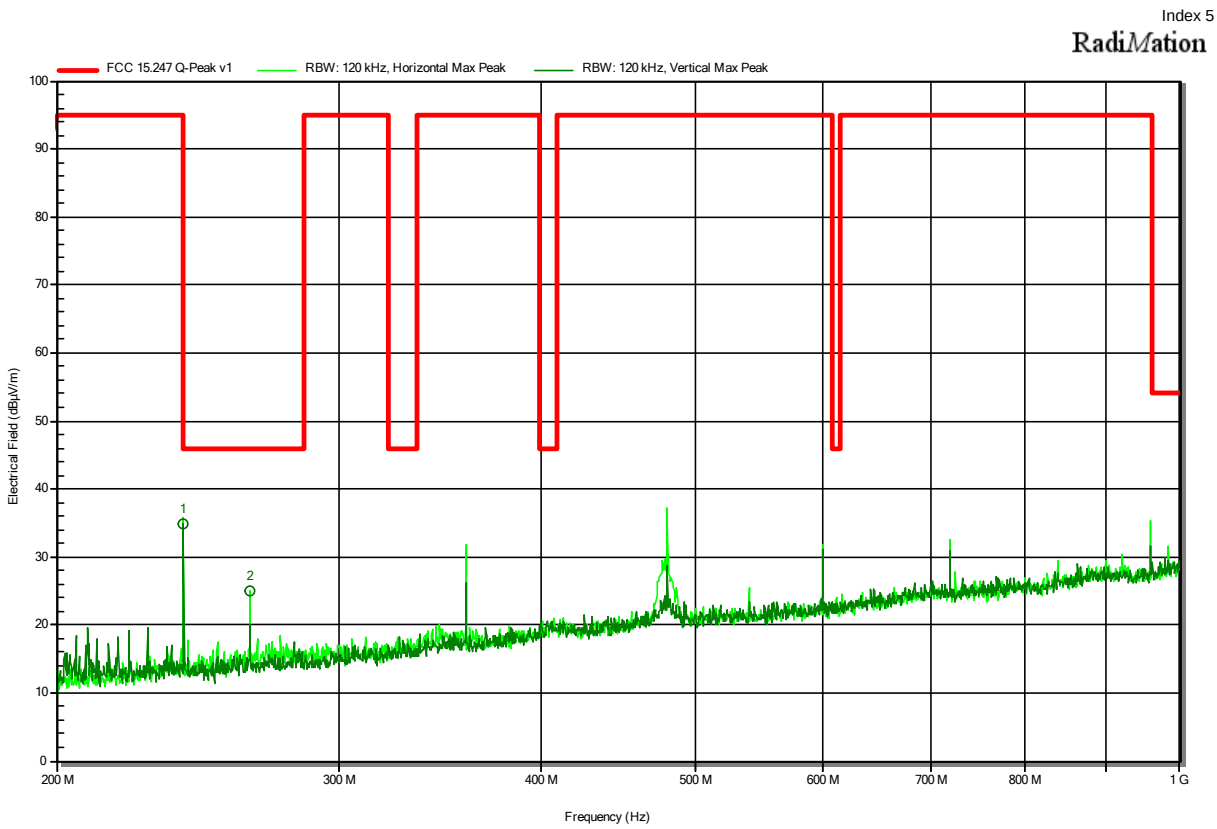
Project Number:	G0M-2112-1198
Applicant:	AiSight GmbH
Model Description:	Industrial vibration, geomagnetic and temperature sensor node for condition monitoring
Model:	Aion
Test Sample ID:	39092
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC (120 V AC-DC Adaptor)
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	Tx; BLE; 1 Mbps; 2440 MHz
Test Date:	2022-03-17
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
119.845 MHz	32.7 dBµV/m	43.5 dBµV/m	-10.79 dB	Pass	Vertical

Radiated Spurious Emissions according to RSS-247, 47 CFR Part 15.247

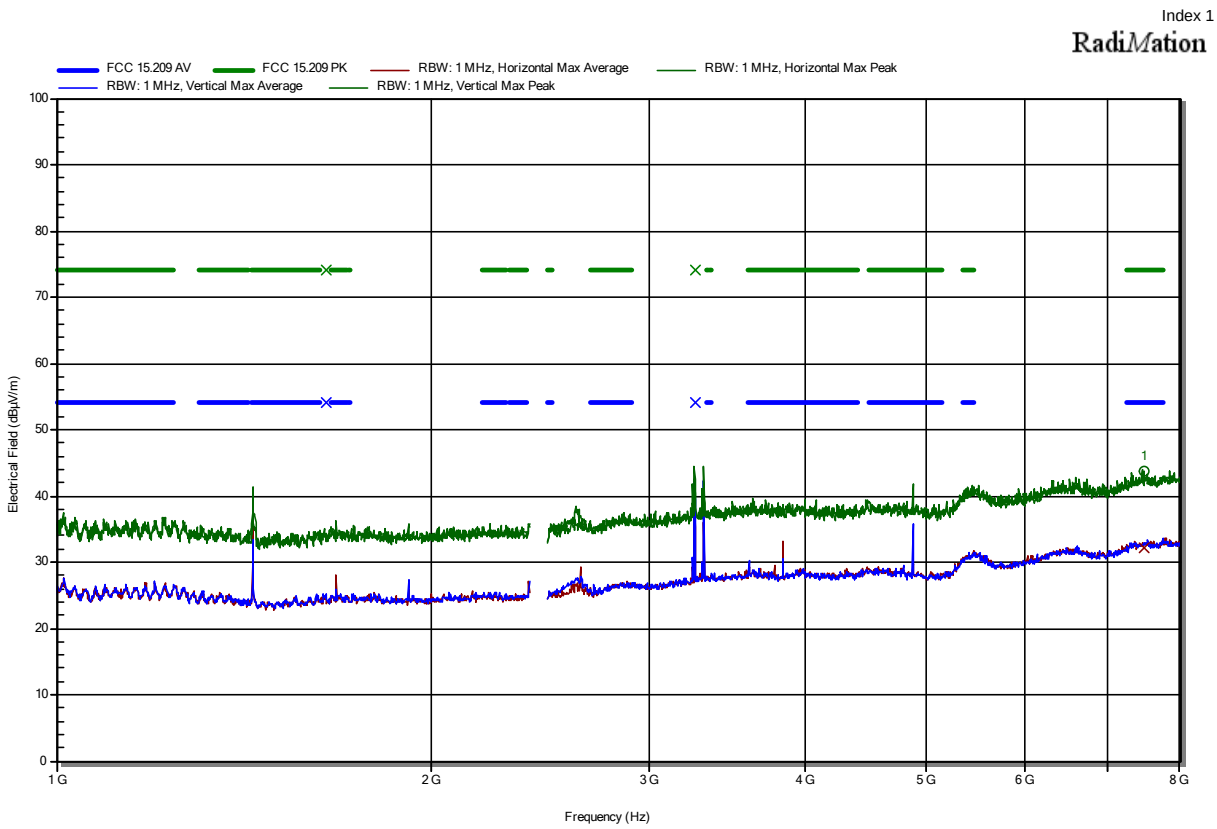
Project Number:	G0M-2112-1198
Applicant:	AiSight GmbH
Model Description:	Industrial vibration, geomagnetic and temperature sensor node for condition monitoring
Model:	Aion
Test Sample ID:	39092
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC (120 V AC-DC Adaptor)
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	Tx; BLE; 1 Mbps; 2440 MHz
Test Date:	2022-03-17
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
239.7 MHz	34.8 dBµV/m	95 dBµV/m	-60.21 dB	Pass	Vertical
263.66 MHz	24.9 dBµV/m	46 dBµV/m	-21.07 dB	Pass	Horizontal

Radiated Spurious Emissions according to RSS-247, 47 CFR Part 15.247

Project Number:	G0M-2112-1198
Applicant:	AiSight GmbH
Model Description:	Industrial vibration, geomagnetic and temperature sensor node for condition monitoring
Model:	Aion
Test Sample ID:	39092
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC (120 V AC-DC Adaptor)
Antenna:	Schwarzbeck BBHA 9120B
Measurement distance:	3 m
Mode:	Tx; BLE; 1 Mbps; 2440 MHz
Test Date:	2022-03-16
Note:	

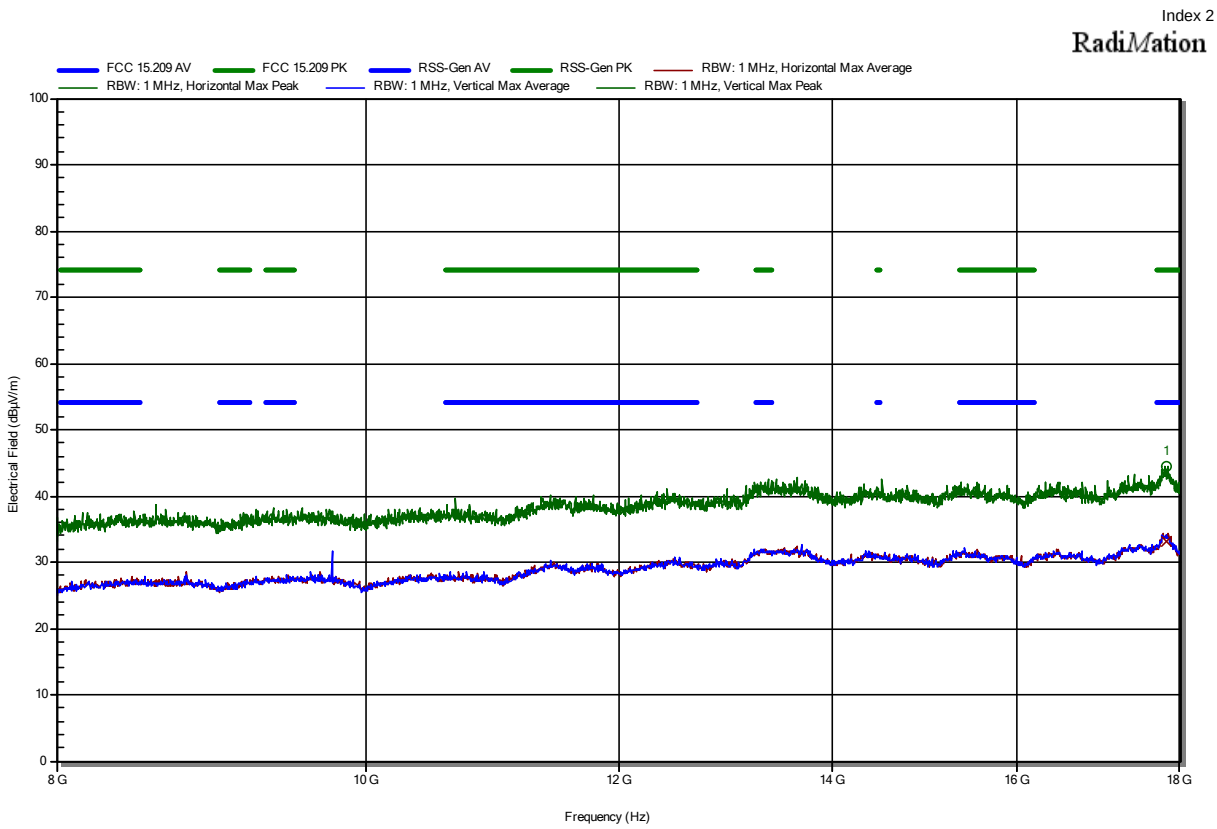


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
7.4797 GHz	43.8 dBµV/m	74 dBµV/m	-30.2 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
7.4797 GHz	32.18 dBµV/m	54 dBµV/m	-21.82 dB	Pass	Vertical

Radiated Spurious Emissions according to RSS-247, 47 CFR Part 15.247

Project Number:	G0M-2112-1198
Applicant:	AiSight GmbH
Model Description:	Industrial vibration, geomagnetic and temperature sensor node for condition monitoring
Model:	Aion
Test Sample ID:	39092
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC (120 V AC-DC Adaptor)
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BLE; 1 Mbps; 2440 MHz
Test Date:	2022-03-16
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
17.835 GHz	44.48 dBµV/m	74 dBµV/m	-29.52 dB	Pass	Horizontal

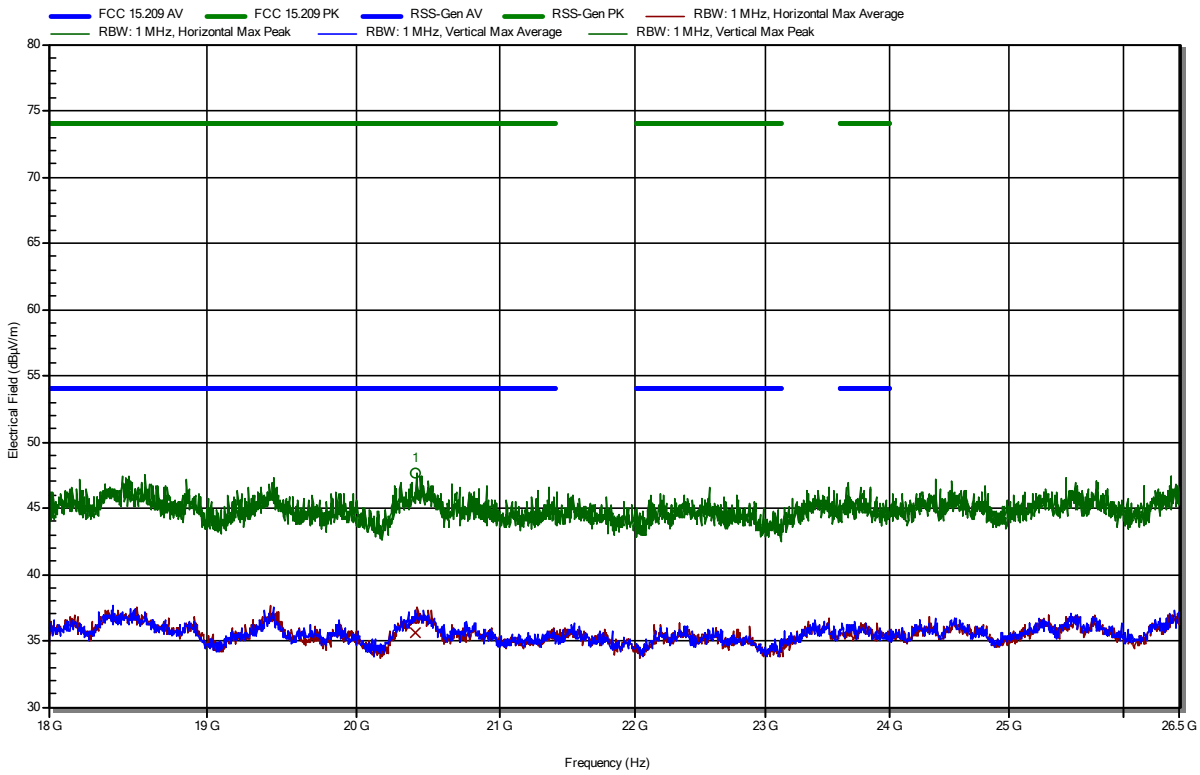
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
17.835 GHz	33.1 dBµV/m	54 dBµV/m	-20.9 dB	Pass	Horizontal

Radiated Spurious Emissions according to RSS-247, 47 CFR Part 15.247

Project Number:	G0M-2112-1198
Applicant:	AiSight GmbH
Model Description:	Industrial vibration, geomagnetic and temperature sensor node for condition monitoring
Model:	Aion
Test Sample ID:	39092
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC (120 V AC-DC Adaptor)
Antenna:	Amplifier Research AT4560
Measurement distance:	3 m
Mode:	Tx; BLE; 1 Mbps; 2440 MHz
Test Date:	2022-03-16
Note:	

Index 3

RadiMation



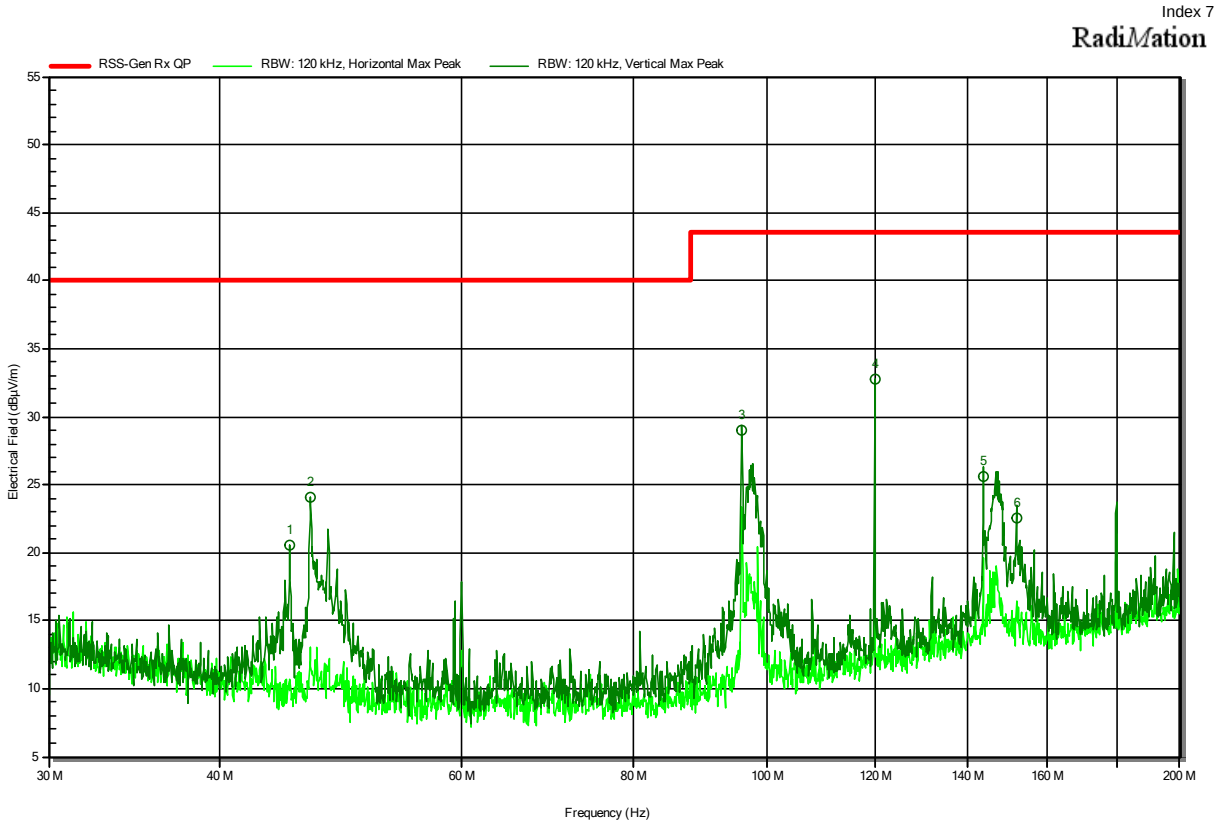
Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
20.409 GHz	47.69 dBµV/m	74 dBµV/m	-26.31 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
20.409 GHz	35.57 dBµV/m	54 dBµV/m	-18.43 dB	Pass	Vertical

ANNEX B Receiver spurious emissions

Radiated Spurious Emissions according to RSS-247

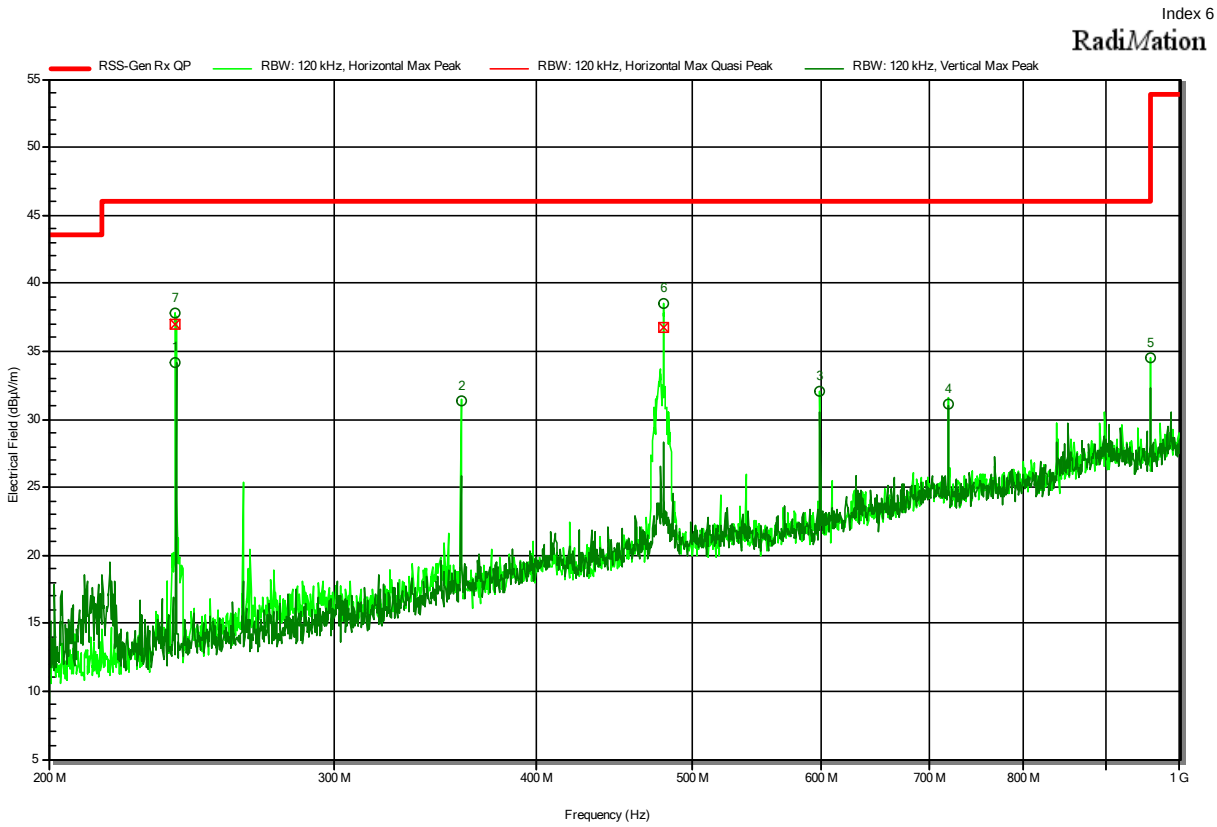
Project Number:	G0M-2112-1198
Applicant:	AiSight GmbH
Model Description:	Industrial vibration, geomagnetic and temperature sensor node for condition monitoring
Model:	Aion
Test Sample ID:	39092
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC (120 V AC-DC Adaptor)
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz
Test Date:	2022-03-17
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
44.9217 MHz	20.5 dBµV/m	40 dBµV/m	-19.46 dB	Pass	Vertical
46.524 MHz	24 dBµV/m	40 dBµV/m	-15.98 dB	Pass	Vertical
95.8792 MHz	28.9 dBµV/m	43.5 dBµV/m	-14.55 dB	Pass	Vertical
119.8492 MHz	32.8 dBµV/m	43.5 dBµV/m	-10.7 dB	Pass	Vertical
143.8278 MHz	25.5 dBµV/m	43.5 dBµV/m	-17.95 dB	Pass	Vertical
152.0005 MHz	22.6 dBµV/m	43.5 dBµV/m	-20.93 dB	Pass	Vertical

Radiated Spurious Emissions according to RSS-247

Project Number:	G0M-2112-1198
Applicant:	AiSight GmbH
Model Description:	Industrial vibration, geomagnetic and temperature sensor node for condition monitoring
Model:	Aion
Test Sample ID:	39092
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC (120 V AC-DC Adaptor)
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz
Test Date:	2022-03-17
Note:	

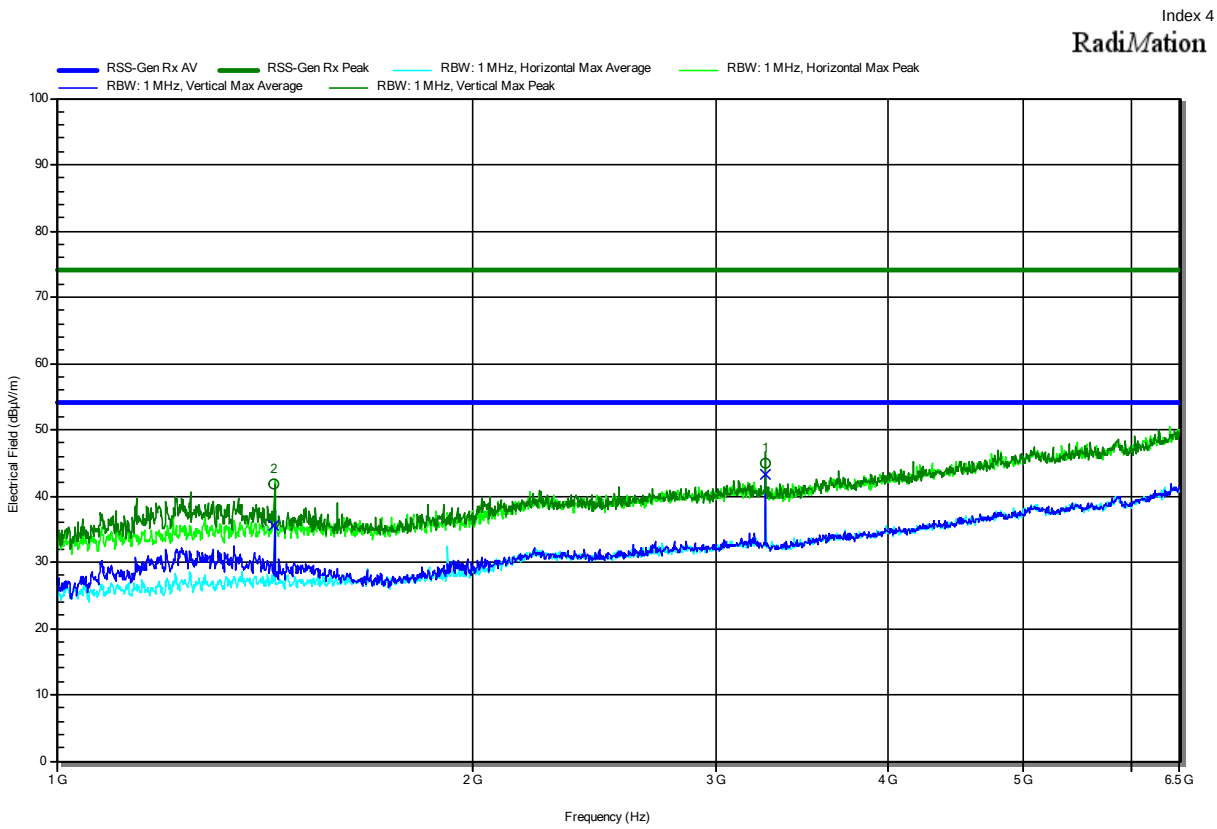


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
239.7 MHz	34.1 dBµV/m	46 dBµV/m	-11.89 dB	Pass	Vertical
359.54 MHz	31.3 dBµV/m	46 dBµV/m	-14.66 dB	Pass	Horizontal
599.22 MHz	32 dBµV/m	46 dBµV/m	-13.98 dB	Pass	Horizontal
719.08 MHz	31.1 dBµV/m	46 dBµV/m	-14.89 dB	Pass	Horizontal
958.76 MHz	34.5 dBµV/m	46 dBµV/m	-11.51 dB	Pass	Horizontal

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
239.7003 MHz	36.9 dBµV/m	46 dBµV/m	-9.07 dB	Pass	Horizontal
479.3874 MHz	36.7 dBµV/m	46 dBµV/m	-9.3 dB	Pass	Horizontal

Radiated Spurious Emissions according to RSS-247

Project Number:	G0M-2112-1198
Applicant:	AiSight GmbH
Model Description:	Industrial vibration, geomagnetic and temperature sensor node for condition monitoring
Model:	Aion
Test Sample ID:	39092
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC (120 V AC-DC Adaptor)
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz
Test Date:	2022-03-17
Note:	

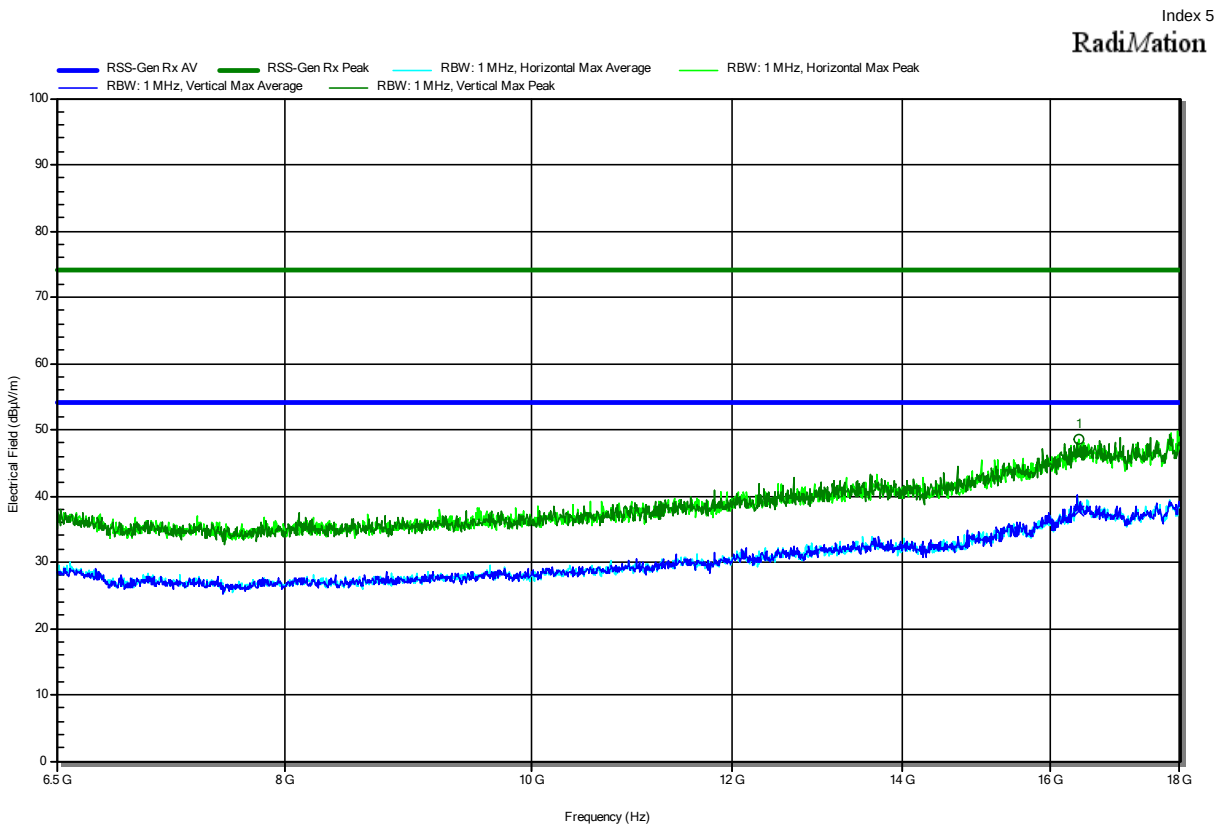


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
1.438 GHz	41.79 dBµV/m	74 dBµV/m	-32.21 dB	Pass	Vertical
3.256 GHz	45 dBµV/m	74 dBµV/m	-29 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
1.438 GHz	35.48 dBµV/m	53.98 dBµV/m	-18.5 dB	Pass	Vertical
3.256 GHz	43.19 dBµV/m	53.98 dBµV/m	-10.79 dB	Pass	Vertical

Radiated Spurious Emissions according to RSS-247

Project Number:	G0M-2112-1198
Applicant:	AiSight GmbH
Model Description:	Industrial vibration, geomagnetic and temperature sensor node for condition monitoring
Model:	Aion
Test Sample ID:	39092
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC (120 V AC-DC Adaptor)
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz
Test Date:	2022-03-17
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
16.416 GHz	48.55 dBµV/m	74 dBµV/m	-25.45 dB	Pass	Horizontal

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
16.416 GHz	37.64 dBµV/m	53.98 dBµV/m	-16.34 dB	Pass	Horizontal

= = = END OF TEST REPORT = = =