

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-2303-1961-TFC247WF-V06
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	  <small>Deutsche Akkreditierungsstelle D-PL-12092-01-03</small>   <small>Deutsche Akkreditierungsstelle D-PL-12092-01-04</small> 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	Navico Inc.
Address	4500 S. 129th East Avenue, Ste. 200 OK 74134 Tulsa USA
Test Specification	47 CFR Part 15C RSS-247, Issue 3, 2023-08 RSS-Gen, Issue 5, Amendment 2, 2021-02
Non-Standard Test Method	None
Equipment under Test (EUT):	
Product Description	Marine and recreational IoT Gateway and vessel management system
Model(s)	Connect 1
Model(s) number	80-911-0270-00
Brand Name(s)	CZone
Hardware Version(s)	E4
Software Version(s)	emc_tests_op11587 / 1.0
FCC ID	RAYE3801
IC	978B-E3801
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	2023-05-16
Report:	
Compiled by	Stephan Liebich
Tested and tests supervised by (+ signature) (Responsible for Test)	Florian Voigt 
Approved by (+ signature) (Senior Radio Expert)	Radwan Jaafar 
Date of Issue	2025-03-11
Total number of pages	39
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:	
None	

VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2023-11-22	Initial Release	--
02	2024-02-05	Replaced document: G0M-2303-1961-TFC247WF-V01 Replaced by: G0M-2303-1961-TFC247WF-V02 Reason: - Brand name updated - Model name updated - Model number added	G. Offorji
03	2024-05-30	Replaced document: G0M-2303-1961-TFC247WF-V02 Replaced by: G0M-2303-1961-TFC247WF-V03 Reason: - Applicant updated - Address update	St. Liebich
04	2024-12-18	Replaced document: G0M-2303-1961-TFC247WF-V03 Replaced by: G0M-2303-1961-TFC247WF-V04 Reason: - Update master data	St. Liebich
05	2025-01-10	Replaced document: G0M-2303-1961-TFC247WF-V04 Replaced by: G0M-2303-1961-TFC247WF-V05 Reason: - Add power calculation results	A. Ibraimov
06	2025-03-11	Replaced document: G0M-2303-1961-TFC247WF-V05 Replaced by: G0M-2303-1961-TFC247WF-V06 Reason: - Correction of applicant address on page 1	A. Ibraimov

ABBREVIATIONS AND ACRONYMS

Acronyms	
Acronym	Description
BPSK	Binary Phase Shift Keying
DSSS	Direct Sequence Spread Spectrum
EUT	Equipment Under Test
FCC	Federal Communications Commission
HT	High Throughput
IEEE 802.11	MAC and PHY Layer for WiFi
ISED	Innovation, Science and Economic Development Canada
OFDM	Orthogonal Frequency Division Multiplexing
QAM	Quadrature Amplitude Modulation
QPSK	Quadrature Phase Shift Keying
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	Marine and recreational IoT Gateway and vessel management system	
Model(s)	Connect 1	
Model(s) number	80-911-0270-00	
Brand Name(s)	CZone	
Serial Number(s)	EHE22000056	
Test Sample Id(s)	44397	
Hardware Version(s)	E4	
Software Version(s)	emc_tests_op11587 / 1.0	
PMN	Connect 1	
HVIN	E4/A	
FVIN	1.18.0	
HMN	n/a	
FCC ID	RAYE3801	
IC	978B-E3801	
Equipment type	End Product	
Radio type	Transceiver	
Assigned frequency bands	2400.0 MHz - 2483.5 MHz	
Radio technology	IEEE 802.11 b/g/n (HT20 + HT40)	
Modulation	BPSK, QPSK, 16-QAM, 64-QAM	
Number of antenna ports	1	
Radio Module	Type	IEEE 802.11a/b/g/n/ac and Bluetooth 5 module
	Model	AW-CM358SM
	Manufacturer	AzureWave
	HW Version	Not specified
	SW Version	Not specified
	FCC-ID	TLZ-CM358SM
	IC	6100A-CM358SM
Antenna	Type	External antenna
	Model	JC- 2458E1 08
	Manufacturer	JC Antenna
	Gain	Max 2.6 dBi @ 2.4-2.5 GHz Max 4.0 dBi @ 4.9-5.8 GHz
	Supply Voltage	V _{NOM}
Operating Temperature	V _{NOM}	13.8 VDC
AC/DC-Adaptor	T _{NOM}	25 °C
AC/DC-Adaptor	None	
Manufacturer	Fell Technology AS Bragernes Torg 2 3017 Drammen NORWAY	

1.3 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	AC/DC adapter	I.T.E. Power Supply	SA07H1217 120VAC to 12 VDC	Used for AC powerline conducted emissions
SIM	Artificial load	FellTech	HS load	Artificial load used for tests under stress
AE	Lead-acid battery	BPower Quoltec Betta Batteries	BCL24-12 53030 6-CNFJ-14	--
AE	WiFi router	TP Link Asus	Archer AX1500 RT-N12	--
AE	CC1352R devkit	Texas Instruments	LAUNCHXL-CC1352R1	Device providing connection with DUT over WIMEA protocol
AE	Antenna	not specified	GPS-500 JCW402D COTS	--
AE	Laptop	Lenovo	T410	--
SFT	SSH terminal program	None	Putty	--
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
SFT	Software			
Comment:				

1.4 Test Modes

Mode	Description
OFDM (IEEE 802.11g)	Mode = Transmit Modulation = OFDM/BPSK Bandwidth = 20 MHz Power setting = 20 (software setting) Data rate = 6 Mbps
HT20 (IEEE 802.11n)	Mode = Transmit Modulation = OFDM/BPSK Bandwidth = 20 MHz Power setting (1 Simultaneous Tx) = 20 (software setting) Data rate (1 Simultaneous Tx) = 6.5 Mbps MCS (1 Simultaneous Tx) = 0
Receive	Mode = Receive
Comment: The above settings are found as worst case during evaluation of the original modular test reports RF190902E13, issued on 2020-01-13 and ICBECO-WTW-P21060006C, issued on 2023-11-28 by „Bureau Veritas CPS (H.K.) Ltd. Taoyuan Branch Hsin Chu Laboratory“. Conducted peak/average output power was evaluated to determine the worst case settings. Test mode OFDM (IEEE 802.11g) is used only for spurious emission measurements at the band-edge region.	

1.5 Test Frequencies

Designator	Mode	Channel	Frequency [MHz]
F1	Tx / Rx	1	2412
F2	Tx / Rx	6	2437
F3	Tx / Rx	11	2462

Comment: Test channels 1 and 11 are used for spurious emission measurements at the band-edge region. All other frequency ranges are measured on test channel 6.

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 dB μ V. 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:

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

Net:

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

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.

Field strength limit:

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

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

Example only for radiated field strength:

Reading + AF	= Net Reading	:	Net reading	- Field strength limit	= Margin
+21.5 dB μ V	+ 26 dB/m	:	47.5 dB μ V/m	- 57.0 dB μ V/m	= -9.5

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 3 (section 5.2)	6 dB Bandwidth	ANSI C63.10-2013	N/T	--
FCC § 15.247(b) ISED RSS-247, Issue 3 (section 5.4)	Maximum peak conducted power	ANSI C63.10-2013	PASS	--
FCC § 15.247(e) ISED RSS-247, Issue 3 (section 5.2)	Power spectral density	ANSI C63.10-2013	N/T	--
FCC § 15.207 ISED RSS-247, Issue 3 (section 3.1)	AC power line conducted emissions	ANSI C63.10-2013	N/R	no provisions for connection to the public utility ac power-lines
FCC § 15.247(d) ISED RSS-247, Issue 3 (section 5.5)	Band edge compliance	ANSI C63.10-2013	N/T	--
FCC § 15.247(d) ISED RSS-247, Issue 3 (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 3 (section 3.1)	Receiver radiated spurious emissions	ANSI C63.4-2014	PASS	--
Comment: The Decision Rule is applied on the basis of ETSI TR 102 273 and ETSI TR 100 028. These standards provide guidance on how to calculate and apply measurement uncertainty whilst providing maximum uncertainties allowance. In all cases due consideration will be given to ILAC-G8:09/2019. Where a result is considered conditional in respect of its proximity to the limit line, the customer would be made aware of situation so that they can make an informed decision on how to proceed.				

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

3 Test Conditions and Results

3.1 Test Conditions and Results - Maximum peak conducted output power

3.1.1 Information

Test Information	
Reference	FCC § 15.247(b); ISED RSS-247, Issue 3 (section 5.4)
Measurement Method	Calculation based on module report conducted results referenced in test modes section
Operator	Azamat Ibraimov
Date	2025-01-08

3.1.2 Limits

Limits
1 W conducted / 4 W EIRP
The conducted output power limit specified above is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in the table, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.1.3 Procedure

Test Procedure - Calculation
<ol style="list-style-type: none">1. The highest conducted output power for each radio band is determined from the modular approval report2. The antenna gain for the corresponding transmission frequency is added to the conducted output power3. The calculated radiated power is compared to the transmitter output power limit

3.1.4 Results

Test Results – 802.11b							
Channel [MHz]	Power [dBm]	Power [W]	Limit [W]	Antenna Gain [dBi]	E.I.R.P. [W]	E.I.R.P. Limit [W]	Verdict
2412	18.82	0.076	1.0	2.6	0.138	4.0	PASS
2437	18.81	0.076	1.0	2.6	0.138	4.0	PASS
2462	18.85	0.076	1.0	2.6	0.139	4.0	PASS

Test Results - 802.11g							
Channel [MHz]	Power [dBm]	Power [W]	Limit [W]	Antenna Gain [dBi]	E.I.R.P. [W]	E.I.R.P. Limit [W]	Verdict
2412	27.32	0.539	1.0	2.6	0.981	4.0	PASS
2437	27.43	0.553	1.0	2.6	1.006	4.0	PASS
2462	27.29	0.535	1.0	2.6	0.974	4.0	PASS

Test Results - 802.11n HT20							
Channel [MHz]	Power [dBm]	Power [W]	Limit [W]	Antenna Gain [dBi]	E.I.R.P. [W]	E.I.R.P. Limit [W]	Verdict
2412	26.87	0.486	1.0	2.6	0.885	4.0	PASS
2437	27.40	0.549	1.0	2.6	1.0	4.0	PASS
2462	26.93	0.493	1.0	2.6	0.897	4.0	PASS

Test Results - 802.11n HT40							
Channel [MHz]	Power [dBm]	Power [W]	Limit [W]	Antenna Gain [dBi]	E.I.R.P. [W]	E.I.R.P. Limit [W]	Verdict
2422	22.86	0.193	1.0	2.6	0.351	4.0	PASS
2437	26.74	0.472	1.0	2.6	0.859	4.0	PASS
2452	24.81	0.302	1.0	2.6	0.550	4.0	PASS

3.2 Test Conditions and Results - Transmitter radiated emissions

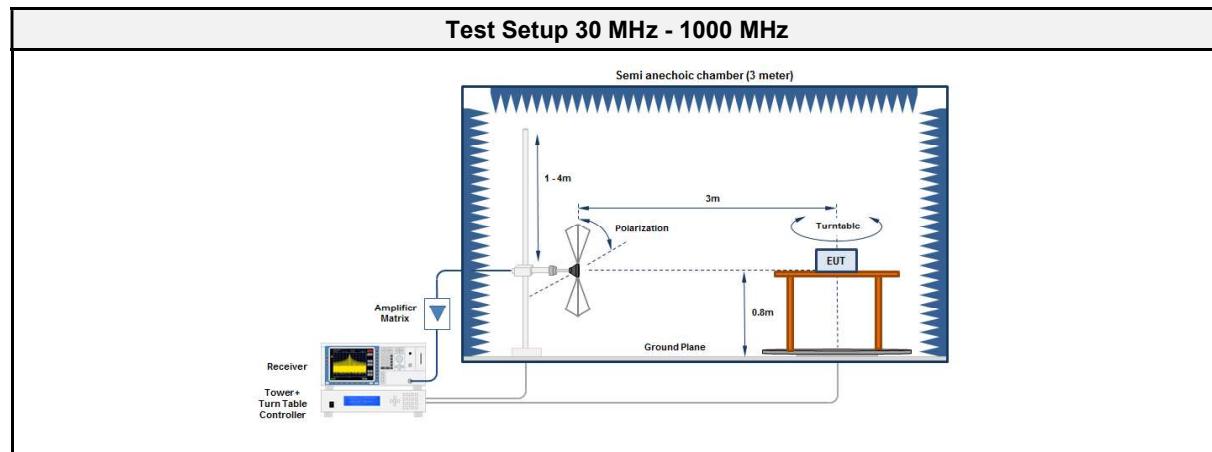
3.2.1 Information

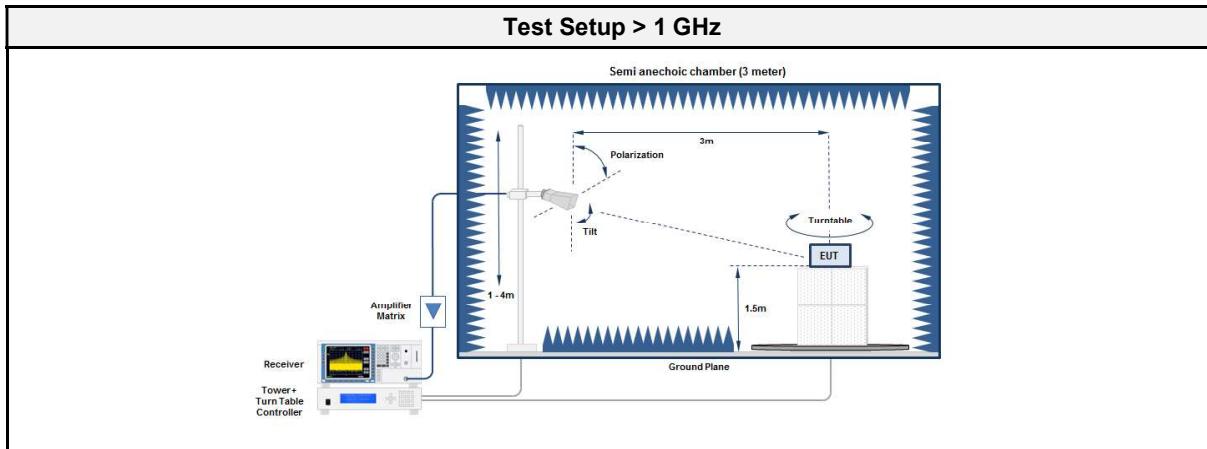
Test Information	
Reference	FCC § 15.247(d); FCC § 15.209; ISED RSS-Gen, Issue 5 A2 (section 6.13)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.10 6.4, 6.5, 6.6, 11.12
Operator	Azamat Ibraimov
Date	2023-08-17 - 2023-08-18

3.2.2 Limits

Limits			
Frequency range [MHz]	Detector	Field strength [μ V/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

3.2.3 Setup





3.2.4 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	2022-11	2025-11
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2023-02	2024-02
Antenna	Schwarzbeck	VULB 9168	EF01824	2022-10	2023-10

Test Equipment > 1 GHz

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF01011	2022-11	2023-11
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2023-02	2024-02
Horn antenna	Schwarzbeck	BBHA 9120D	EF01561	2021-11	2024-11
Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2024-03
Horn antenna	Amplifier Research	ATH18G40	EF01152	2020-11	2023-11

3.2.5 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

3.2.6 Results

Test Results - OFDM						
Channel [MHz]	Emission [MHz]	Level [dB μ V/m]	Det.	Pol.	Limit [dB μ V/m]	Margin [dB]
2412	2389.8	60.75	pk	ver	74.00	-13.25
2412	2389.8	43.88	avg	ver	54.00	-10.12
2462	2483.8	57.84	pk	ver	74.00	-16.16
2462	2483.8	40.64	avg	ver	54.00	-13.36

Test Results - HT20						
Channel [MHz]	Emission [MHz]	Level [dB μ V/m]	Det.	Pol.	Limit [dB μ V/m]	Margin [dB]
2437	249.9717	33.10	pk	ver	46.00	-12.86
2437	407.7422	42.30	pk	hor	46.00	-03.65
2437	407.7422	40.90	qpk	hor	46.00	-05.08
2437	1500	44.69	pk	ver	74.00	-29.31
2437	1500	37.92	avg	ver	54.00	-16.08
2437	2484.3	41.09	pk	ver	74.00	-32.91
2437	2484.3	32.97	avg	ver	54.00	-21.03
2437	7312	45.86	pk	ver	74.00	-28.14
2437	7312	35.63	avg	ver	54.00	-18.37
2437	7501	42.21	pk	ver	74.00	-31.79
2437	7501	35.82	avg	ver	54.00	-18.18

3.3 Test Conditions and Results - Receiver radiated emissions

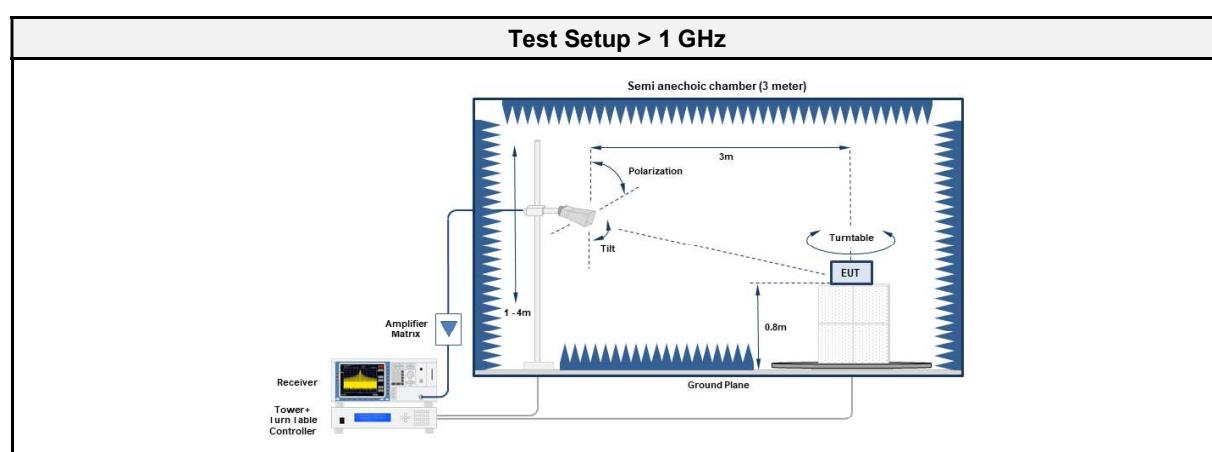
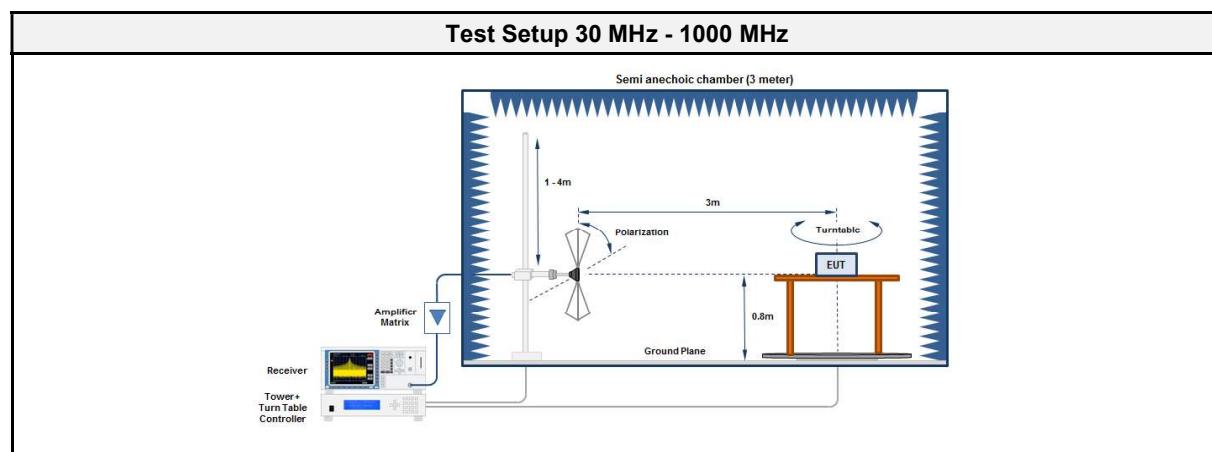
3.3.1 Information

Test Information	
Reference	ISED RSS-247, Issue 3 (section 3.1)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.4-2014 8.1-8.3
Operator	Azamat Ibraimov
Date	2023-08-18

3.3.2 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

3.3.3 Setup



3.3.4 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	2022-11	2025-11
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2023-02	2024-02
Antenna	R&S	HK 116	EF00030	2021-05	2024-05
Antenna	R&S	HL 223	EF00187	2022-06	2025-06

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF01011	2022-11	2023-11
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2023-02	2024-02
Antenna	Schwarzbeck	BBHA 9120D	EF00018	2022-12	2025-12
Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2024-03

3.3.5 Procedure

Test Procedure					
<ol style="list-style-type: none"> 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 					

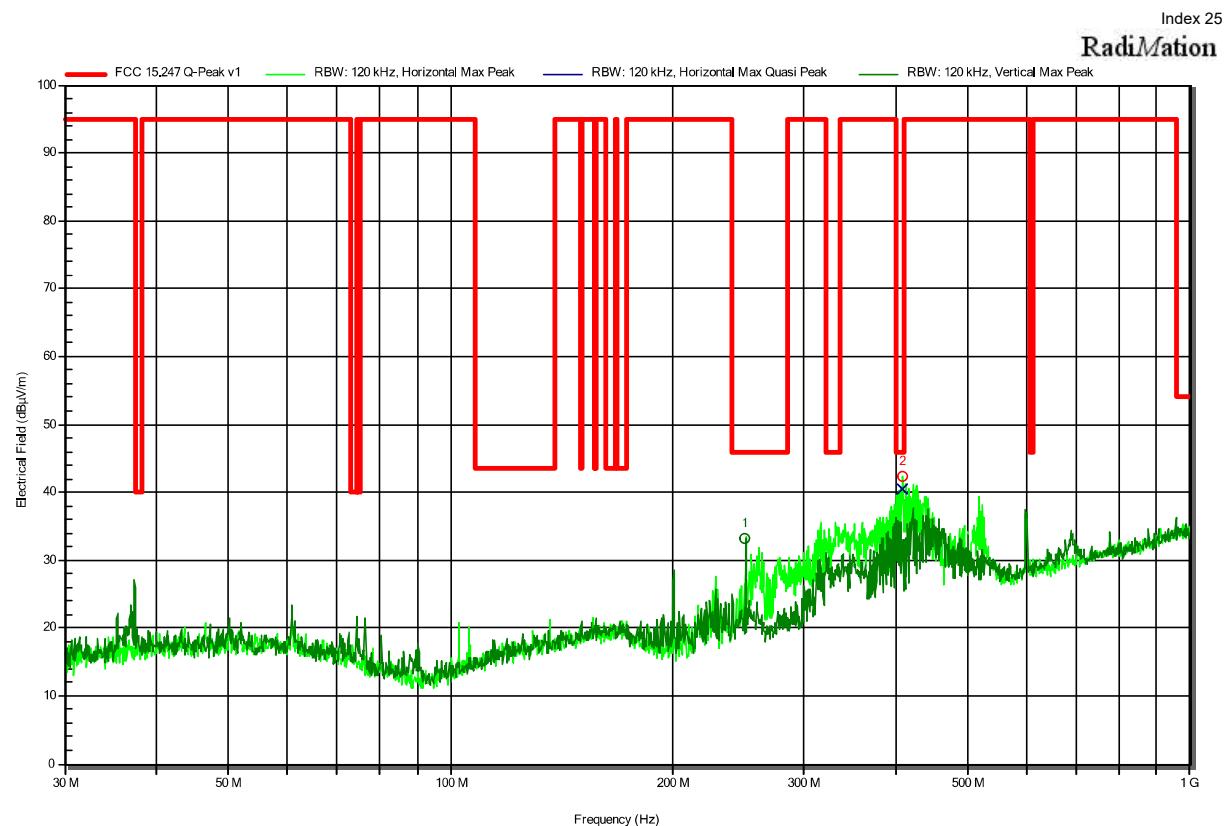
3.3.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Level [dB μ V/m]	Det.	Pol.	Limit [dB μ V/m]	Margin [dB]
2437	199.847	27.10	pk	ver	43.50	-16.37
2437	249.9717	33.70	pk	ver	46.00	-12.34
2437	423.9412	35.80	pk	hor	46.00	-10.19
2437	600.6025	39.30	pk	ver	46.00	-06.74
2437	600.6025	32.20	qpk	ver	46.00	-13.81
2437	3000	43.56	pk	ver	74.00	-30.44
2437	3000	40.80	avg	ver	53.98	-13.18
2437	4500	48.83	pk	ver	74.00	-25.17
2437	4500	45.17	avg	ver	53.98	-08.81
2437	7501	41.90	pk	ver	74.00	-32.10
2437	7501	37.44	avg	ver	53.98	-16.54
2437	9000	38.44	pk	ver	74.00	-35.56
2437	9000	33.12	avg	ver	53.98	-20.86
2437	10501	38.70	pk	ver	74.00	-35.30
2437	10501	35.53	avg	ver	53.98	-18.45

ANNEX A Transmitter spurious emissions

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

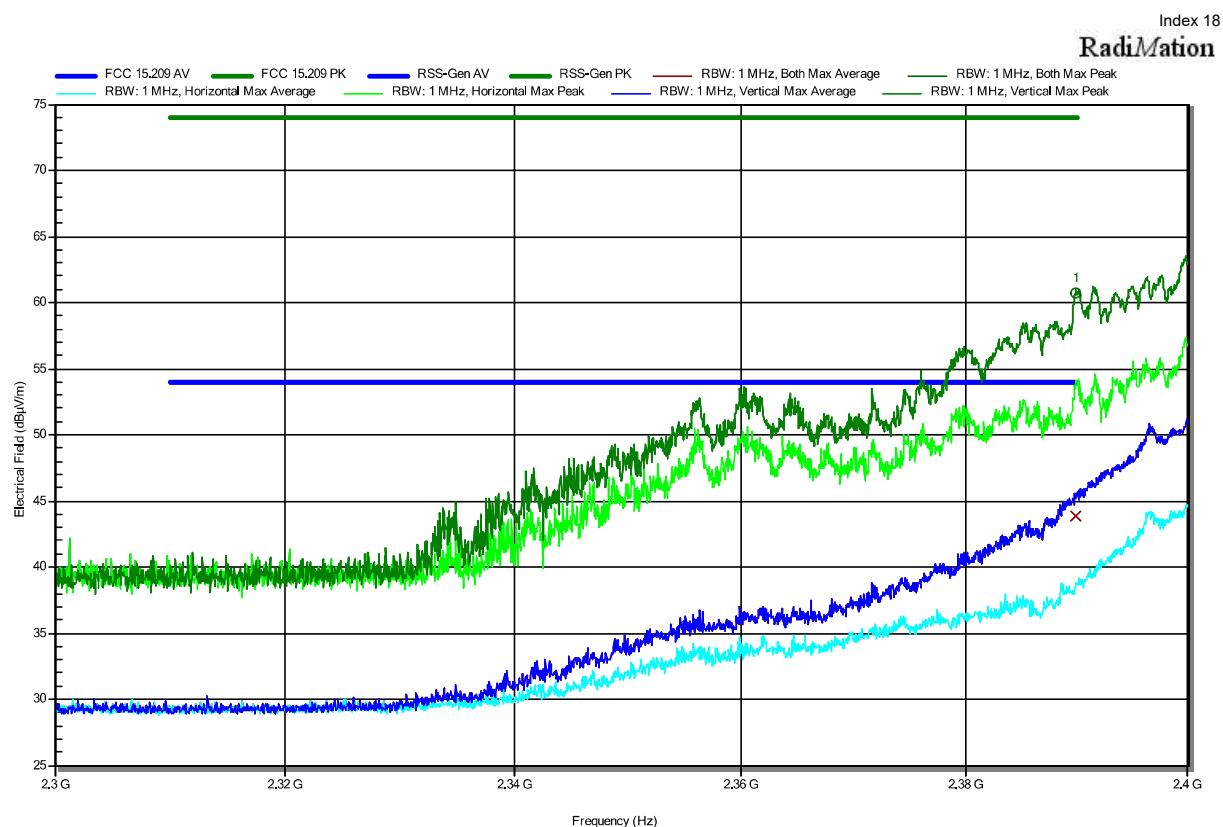
Project Number: G0M-2303-1961
 Applicant: Navico Inc.
 Model Description: Marine and recreational IoT Gateway and vessel management system
 Model: Connect 1
 Test Sample ID: 44396
 Test Site: Eurofins Product Service GmbH
 Operator: A.Ibraimov
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck VULB 9168
 Measurement distance: 3 m
 Mode: Tx; 802.11n, 2437 MHz, HT20, MCS0
 Test Date: 2023-08-18
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
249.9717 MHz	33.1 dB μ V/m	46 dB μ V/m	-12.86 dB	Pass	Vertical
Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
407.7422 MHz	40.9 dB μ V/m	46 dB μ V/m	-5.08 dB	Pass	Horizontal

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

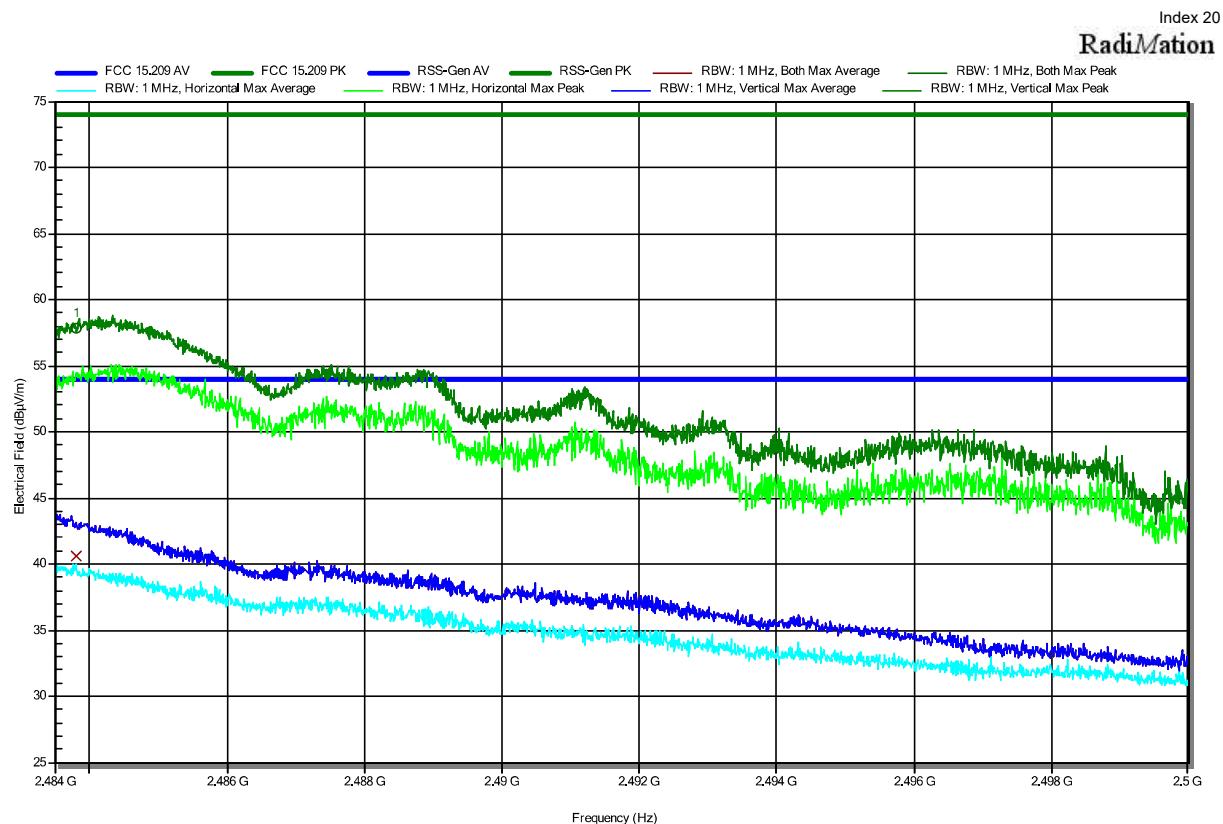
Project Number: G0M-2303-1961
 Applicant: Navico Inc.
 Model Description: Marine and recreational IoT Gateway and vessel management system
 Model: Connect 1
 Test Sample ID: 44396
 Test Site: Eurofins Product Service GmbH
 Operator: A.Ibraimov
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120D
 Measurement distance: 3 m
 Mode: Tx; 802.11g, 2412 MHz, OFDM, 6 Mbit/s
 Test Date: 2023-08-17
 Note:



Frequency 2.3898 GHz	Peak 60.75 dB μ V/m	Peak Limit 74 dB μ V/m	Peak Difference -13.25 dB	Peak Status Pass	Polarization Vertical
Frequency 2.3898 GHz	Average 43.88 dB μ V/m	Average Limit 54 dB μ V/m	Average Difference -10.12 dB	Average Status Pass	Polarization Vertical

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

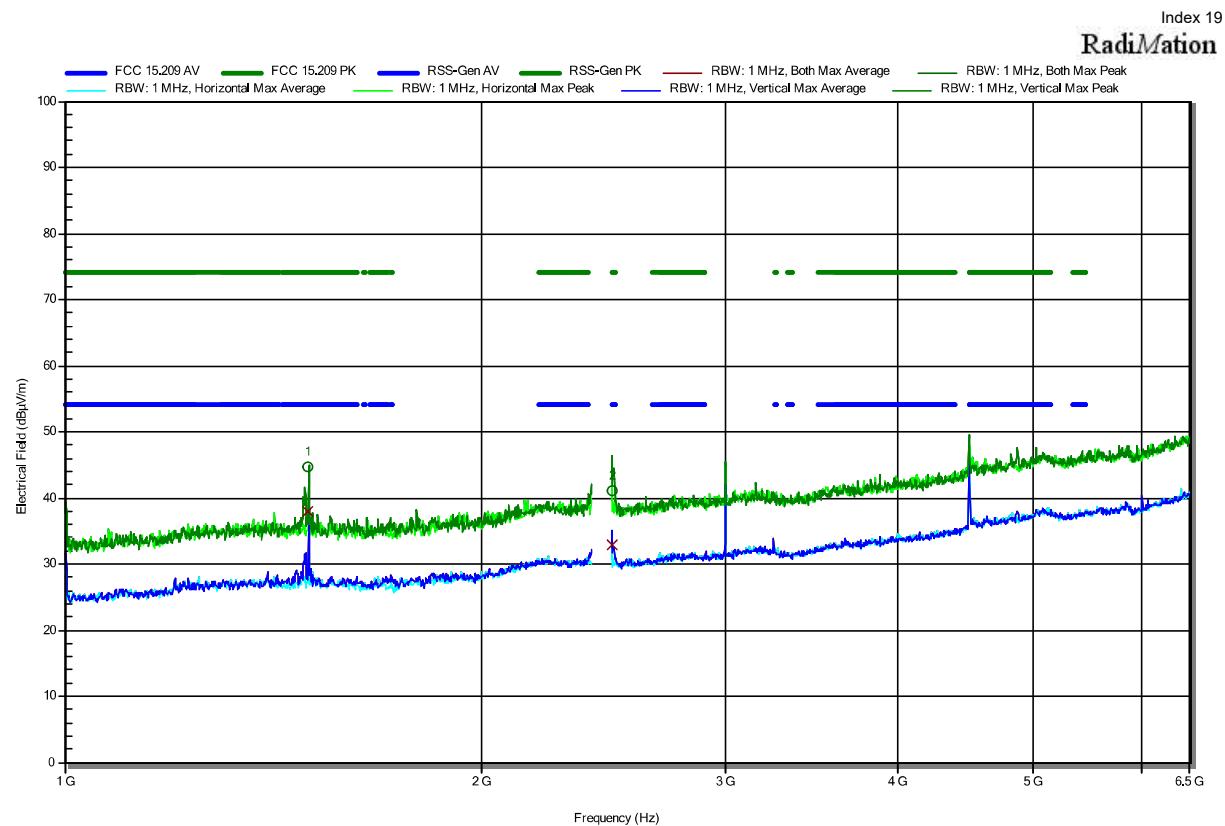
Project Number: G0M-2303-1961
 Applicant: Navico Inc.
 Model Description: Marine and recreational IoT Gateway and vessel management system
 Model: Connect 1
 Test Sample ID: 44396
 Test Site: Eurofins Product Service GmbH
 Operator: A.Ibraimov
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120D
 Measurement distance: 3 m
 Mode: Tx; 802.11g, 2462 MHz, OFDM, 6 Mbit/s
 Test Date: 2023-08-17
 Note:



Frequency 2.4838 GHz	Peak 57.84 dB μ V/m	Peak Limit 74 dB μ V/m	Peak Difference -16.16 dB	Peak Status Pass	Polarization Vertical
Frequency 2.4838 GHz	Average 40.64 dB μ V/m	Average Limit 54 dB μ V/m	Average Difference -13.36 dB	Average Status Pass	Polarization Vertical

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

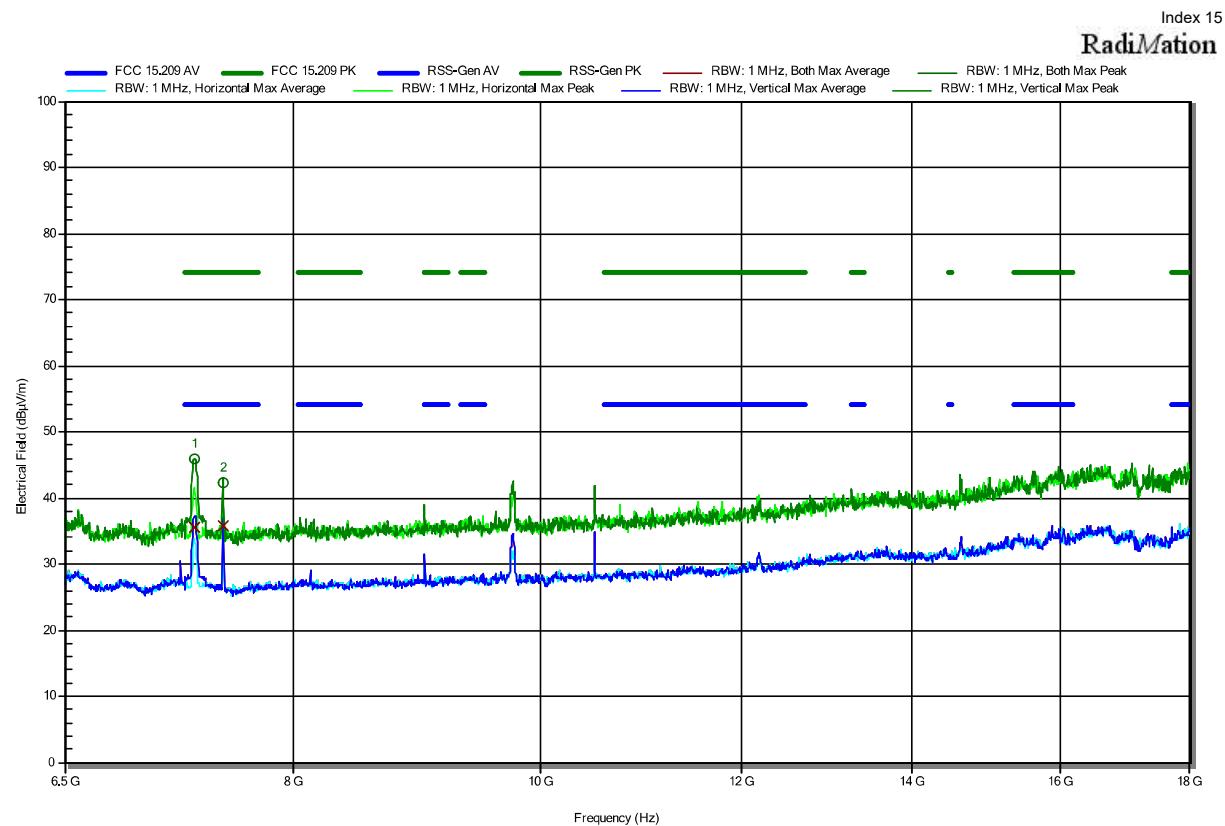
Project Number: G0M-2303-1961
 Applicant: Navico Inc.
 Model Description: Marine and recreational IoT Gateway and vessel management system
 Model: Connect 1
 Test Sample ID: 44396
 Test Site: Eurofins Product Service GmbH
 Operator: A.Ibraimov
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120D
 Measurement distance: 3 m
 Mode: Tx; 802.11n, 2437 MHz, HT20, MCS0
 Test Date: 2023-08-17
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
1.5 GHz	44.69 dB μ V/m	74 dB μ V/m	-29.31 dB	Pass	Vertical
2.4843 GHz	41.09 dB μ V/m	74 dB μ V/m	-32.91 dB	Pass	Vertical
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
1.5 GHz	37.92 dB μ V/m	54 dB μ V/m	-16.08 dB	Pass	Vertical
2.4843 GHz	32.97 dB μ V/m	54 dB μ V/m	-21.03 dB	Pass	Vertical

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

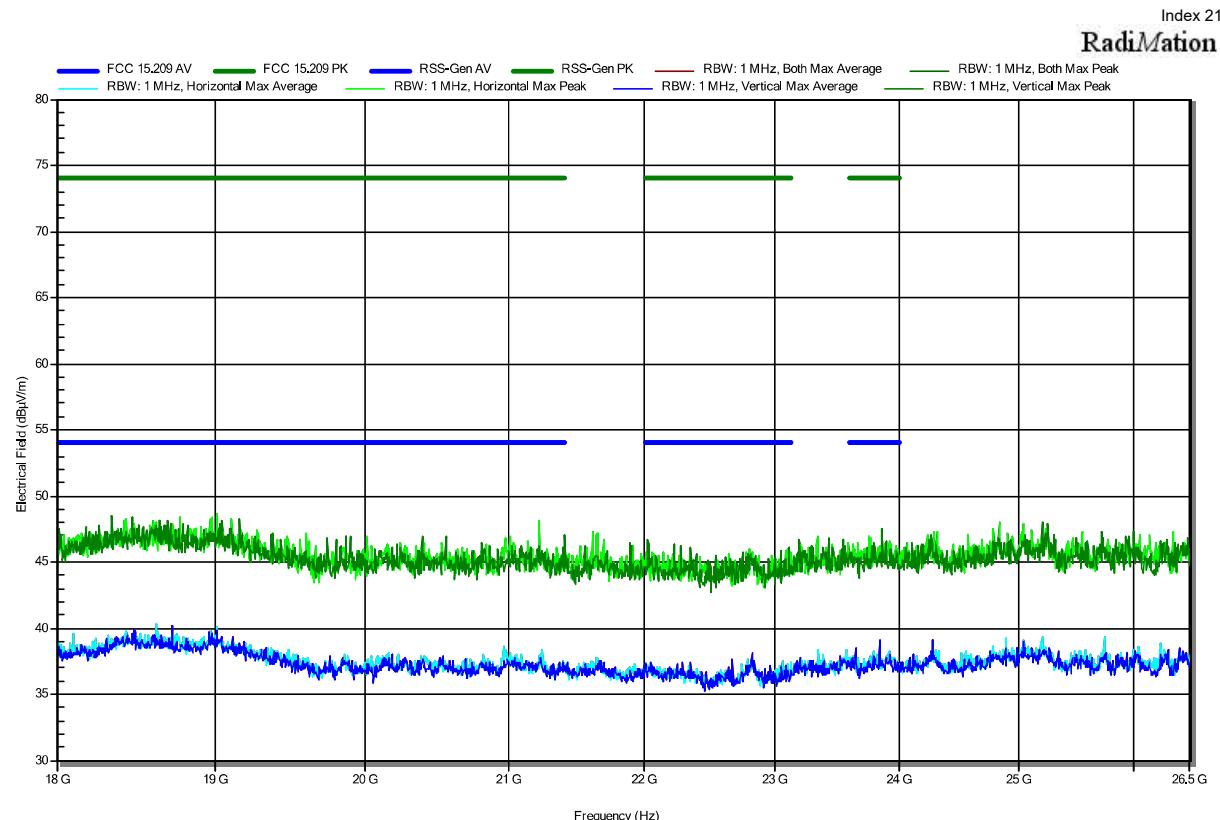
Project Number: G0M-2303-1961
 Applicant: Navico Inc.
 Model Description: Marine and recreational IoT Gateway and vessel management system
 Model: Connect 1
 Test Sample ID: 44396
 Test Site: Eurofins Product Service GmbH
 Operator: A.Ibraimov
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck HWRD 650
 Measurement distance: 3 m
 Mode: Tx; 802.11n, 2437 MHz, HT20, MCS0
 Test Date: 2023-08-17
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
7.312 GHz	45.86 dB μ V/m	74 dB μ V/m	-28.14 dB	Pass	Vertical
7.501 GHz	42.21 dB μ V/m	74 dB μ V/m	-31.79 dB	Pass	Vertical
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
7.312 GHz	35.63 dB μ V/m	54 dB μ V/m	-18.37 dB	Pass	Vertical
7.501 GHz	35.82 dB μ V/m	54 dB μ V/m	-18.18 dB	Pass	Vertical

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

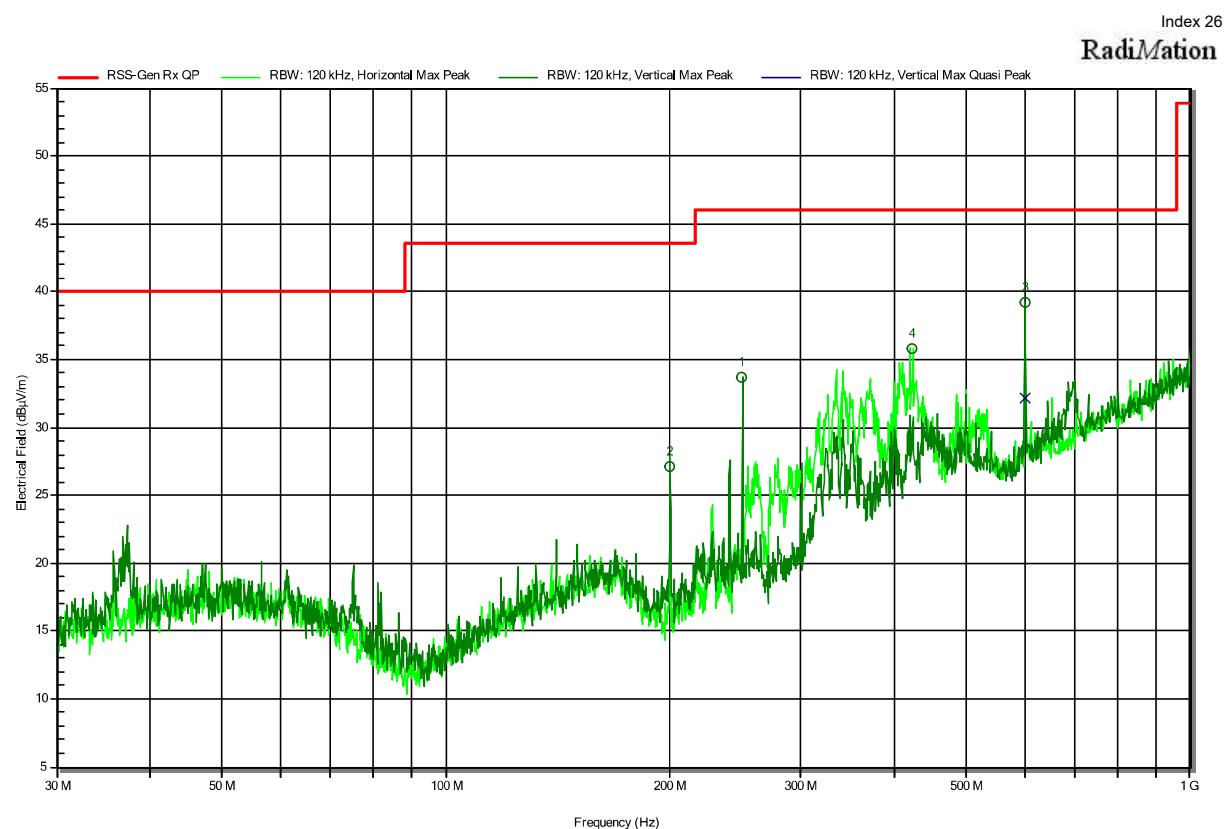
Project Number: G0M-2303-1961
 Applicant: Navico Inc.
 Model Description: Marine and recreational IoT Gateway and vessel management system
 Model: Connect 1
 Test Sample ID: 44396
 Test Site: Eurofins Product Service GmbH
 Operator: A.Ibraimov
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 13.8 VDC
 Antenna: ATH18G40
 Measurement distance: 3 m
 Mode: Tx; 802.11n, 2437 MHz, HT20, MCS0
 Test Date: 2023-08-17
 Note:



ANNEX B Receiver spurious emissions

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

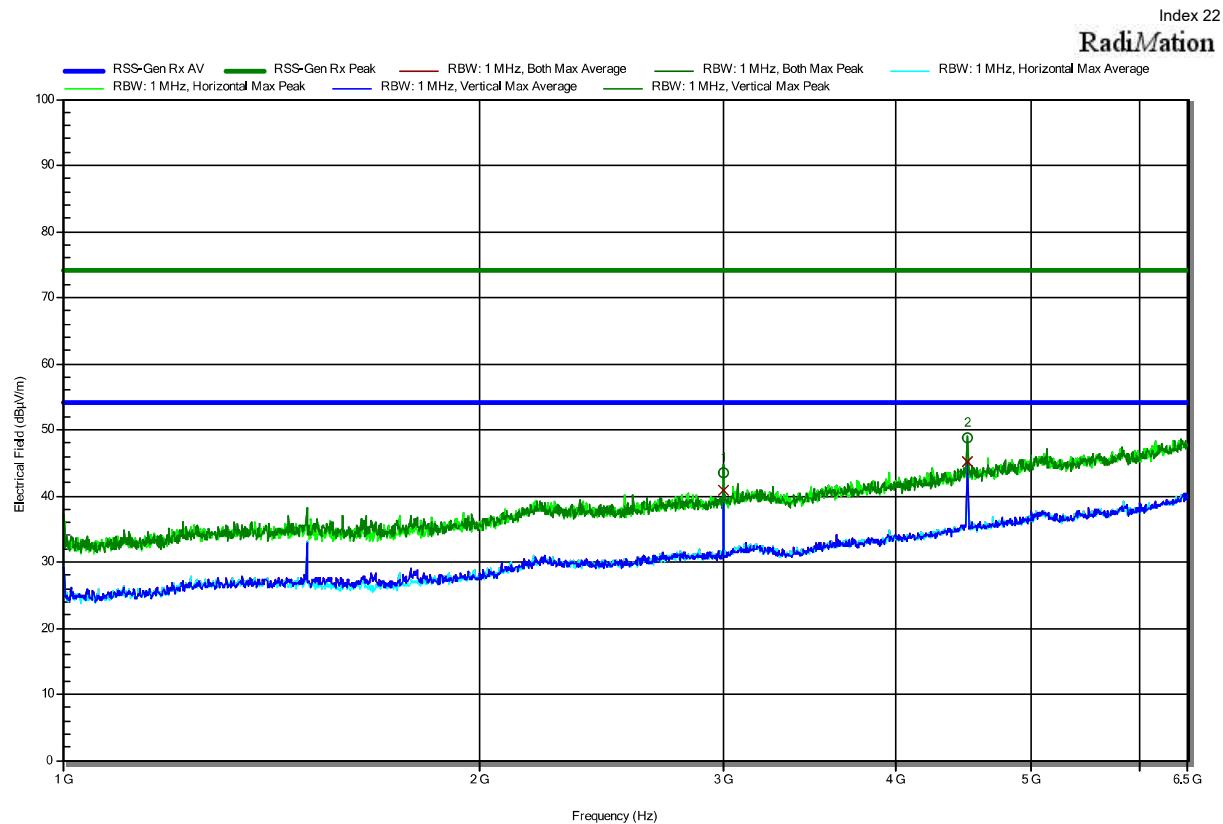
Project Number: G0M-2303-1961
 Applicant: Navico Inc.
 Model Description: Marine and recreational IoT Gateway and vessel management system
 Model: Connect 1
 Test Sample ID: 44396
 Test Site: Eurofins Product Service GmbH
 Operator: A.Ibraimov
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck VULB 9168
 Measurement distance: 3 m
 Mode: Rx; 802.11n, 2437 MHz, Rx
 Test Date: 2023-08-18
 Note:



Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
600.6025 MHz	32.2 dB μ V/m	46 dB μ V/m	-13.81 dB	Pass	Vertical

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

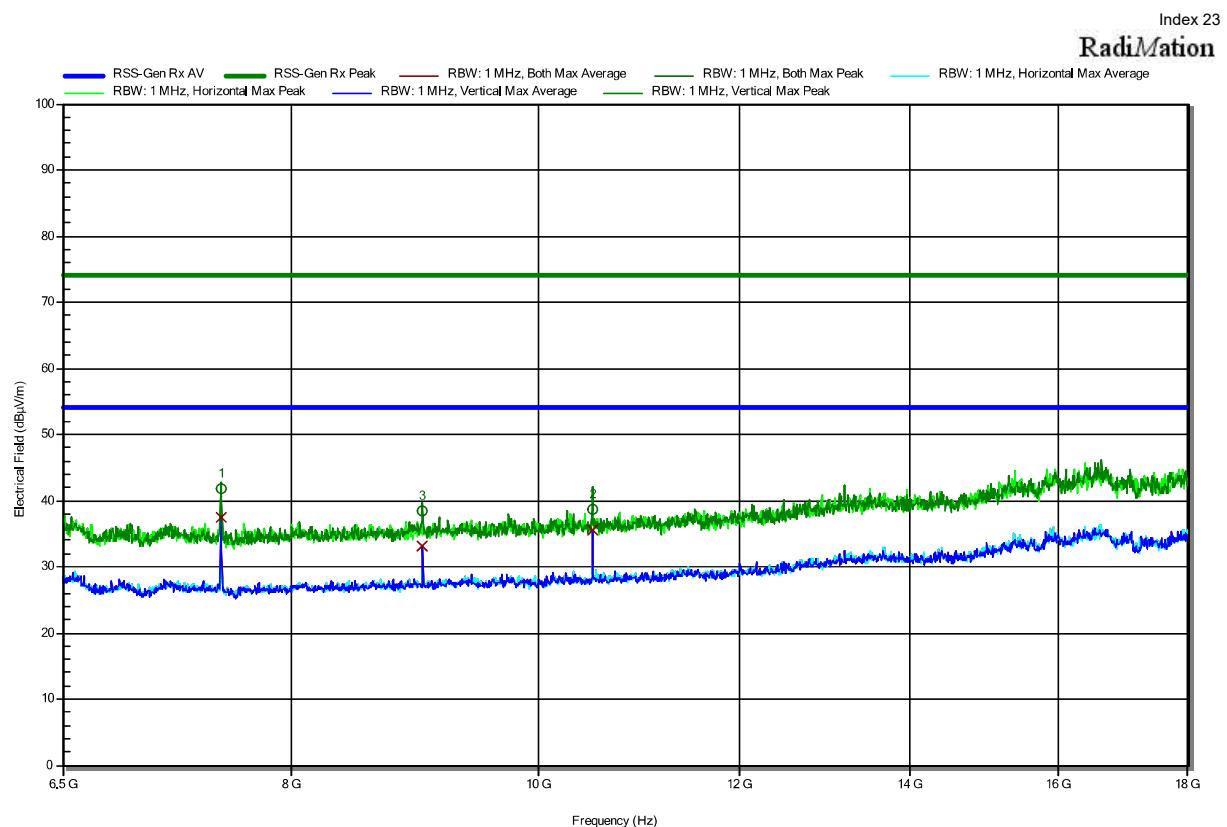
Project Number: G0M-2303-1961
 Applicant: Navico Inc.
 Model Description: Marine and recreational IoT Gateway and vessel management system
 Model: Connect 1
 Test Sample ID: 44396
 Test Site: Eurofins Product Service GmbH
 Operator: A.Ibraimov
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck BBHA 9120D
 Measurement distance: 3 m
 Mode: Rx; 802.11n, 2437 MHz, Rx
 Test Date: 2023-08-18
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
3 GHz	43.56 dB μ V/m	74 dB μ V/m	-30.44 dB	Pass	Vertical
4.5 GHz	48.83 dB μ V/m	74 dB μ V/m	-25.17 dB	Pass	Vertical
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
3 GHz	40.8 dB μ V/m	53.98 dB μ V/m	-13.18 dB	Pass	Vertical
4.5 GHz	45.17 dB μ V/m	53.98 dB μ V/m	-8.81 dB	Pass	Vertical

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

Project Number: G0M-2303-1961
 Applicant: Navico Inc.
 Model Description: Marine and recreational IoT Gateway and vessel management system
 Model: Connect 1
 Test Sample ID: 44396
 Test Site: Eurofins Product Service GmbH
 Operator: A.Ibraimov
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 13.8 VDC
 Antenna: Schwarzbeck HWRD 650
 Measurement distance: 3 m
 Mode: Rx; 802.11n, 2437 MHz, Rx
 Test Date: 2023-08-18



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
7.501 GHz	41.9 dBµV/m	74 dBµV/m	-32.1 dB	Pass	Vertical
9 GHz	38.44 dBµV/m	74 dBµV/m	-35.56 dB	Pass	Vertical
10.501 GHz	38.7 dBµV/m	74 dBµV/m	-35.3 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
7.501 GHz	37.44 dBµV/m	53.98 dBµV/m	-16.54 dB	Pass	Vertical
9 GHz	33.12 dBµV/m	53.98 dBµV/m	-20.86 dB	Pass	Vertical
10.501 GHz	35.53 dBµV/m	53.98 dBµV/m	-18.45 dB	Pass	Vertical

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Test Report No.: G0M-2303-1961-TFC247WF-V06

 Eurofins Product Service GmbH
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