

ISED CABid: ES1909

Lab. Company Number: 4621A

Test Report No:
84605RRF.004

Test Report

USA FCC Part 15.209

CANADA RSS-Gen, RSS-210

(*) Identification of item tested	OMNI MAX +
(*) Trademark	DATAMARS
(*) Model and /or type reference	OMNI MAX +
Other identification of the product	FCC ID: NDX-OMNIMAX2 IC: 4678A-OMNIMAX2
(*) Features	HW version: 1V1 SW version: 2.0.0
(*) Manufacturer	DATAMARS SA via Industria 16, 6814 Lamone, Switzerland
Test method requested, standard	USA FCC Part 15.209 (10-1-24 Edition): Radiated emission limits; general requirements. CANADA RSS-Gen Issue 5 Amendment 2 (February 2021). CANADA RSS-210 Issue 11 (June 2024). ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	José Manuel Gómez Galván EMC Consumer & RF Lab. Manager  Firmado digitalmente por 53680346W JOSE MANUEL GOMEZ (C:A29507456)
Date of issue	2026-03-27
Report template No	FDT08_27 (*) "Data provided by the client"

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Acronyms

Acronym ID	Acronym Description
EUT	Equipment Under Test
Freq Rng	Frequency Range
Unwanted Lvl	Unwanted Emissions Level
Pol	Polarization

Competences and guarantees

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DEKRA Testing and Certification S.A.U. is an FCC-recognized accredited testing laboratory with appropriate scope of accreditation that covers the performed tests in this report.

DEKRA Testing and Certification S.A.U. is an ISED-recognized accredited testing laboratory, CABid: ES1909, Company Number: 4621A, with the appropriate scope of accreditation that covers the performed tests in this report.

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Uncertainty

Uncertainty (factor $k=2$) was calculated according to the DEKRA Testing and Certification S.A.U. internal document PODT000.

The total uncertainty of the measurement system for the radiated emissions of EUT from 9 KHz to 30 MHz is: Measurement uncertainty $\leq \pm 3,04$ dB with factor ($k = 2$).

The total uncertainty of the measurement system for the radiated emissions of EUT for the field strength of emissions within the band $\leq \pm 3.04$ dB

The total uncertainty of the measurement system for the conducted testing of EUT is:
Occupied Channel Bandwidth: Measurement uncertainty $\leq \pm 1,42$ kHz

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").
2. The sample consists of a Portable Bluetooth® Reader for Animal Identification.

DEKRA Testing and Certification S.A.U. declines any responsibility with respect to the information provided by the client and that may affect the validity of results. The laboratory is not responsible for such information and it is not covered by accreditation.

Usage of samples

Samples undergoing test have been selected by: The client.

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/01	84605_5.1	Portable Bluetooth® Reader for Animal Identification	OMNI MAX +	S005	2025-12-10	Element Under Test
S/02	84605_2.1	Portable Bluetooth® Reader for Animal Identification	OMNI MAX +	S011	2025-12-10	Element Under Test

Notes referenced to samples during the project:

Id	Type
S/01	Sample used for radiated tests
S/02	Sample used for conducted tests

Test sample description

Ports..... :	Port name and description		Cable				
			Specified max length [m]	Attached during test	Shielded		
	USB type C			[]	[]		
Enclosure (plastic+LCD)			[]	[]			
Supplementary information to the ports..... :							
Rated power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	[X]	AC: Wall mount adapter 5V 10W	[]	[]	[]	[]	[]
	[X]	DC: 2x Li-ion polymer 3.7V, 1800 mAh, series					
Rated Power	Battery: 6 Vdc (min), 7.4 Vdc (nominal), 8.4 Vdc (max)						
Clock frequencies.....	32 MHz main Main CPU						
Other parameters							
Software version	2.0.0						
Hardware version	1V1						
Dimensions in cm (W x H x D)	27mm x 150mm x 266mm						
Mounting position	[]	Table top equipment					
	[]	Wall/Ceiling mounted equipment					
	[]	Floor standing equipment					
	[X]	Hand-held equipment					
	[]	Other:					
Modules/parts..... :	Module/parts of test item		Type		Manufacturer		
	MCU which contains BT		STM32WB55		STM		
Accessories (not part of the test item)	Description		Type		Manufacturer		
							
Documents as provided by the applicant	Description		File name		Issue date		
							

Identification of the client

DATAMARS SA
via Industria 16, 6814 Lamone, Switzerland

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U. Severo Ochoa 6. 29590, Campanillas, Málaga, Spain (Location B)
Date (start)	2026-02-26
Date (finish)	2026-03-18

Document history

Report number	Date	Description
84605RRF.004	2026-03-27	First release.

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %

In the semianechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %

Remarks and comments

The tests have been performed by the technical personnel: Carmen Vázquez Perez and Miguel Manuel López.

Used instrumentation:

Control No.	Equipment	Model	Manufacturer	Next Calibration
06064	SEMIANECHOIC ABSORBER LINED CHAMBER	SAC-3	FRANKONIA	N/A
06329	SHIELDED ROOM	--	FRANKONIA	N/A
06126	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2026-04
06132	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2026-04
00242	ACTIVE LOOP ANTENNA 9 KHZ-30 MHZ	11966A	HEWLETT PACKARD	2027-08
08866	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2026-06
07759	DIGITAL MULTIMETER	175	FLUKE	2026-11
04848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	N/A
06793	SHIELDED ROOM	S101	ETS LINDGREN	N/A
06611	TEMPERATURE AND HUMIDITY PROBE	HWg-STE	HW GROUP	2026-04
04773	H FIELD LOOP PROBE 6cm UP TO 790MHZ	7405-901	ETS LINDGREN	N/A
06668	SIGNAL AND SPECTRUM ANALYZER 10Hz-40GHz	FSV40	ROHDE AND SCHWARZ	2027-04
00922	POWER SUPPLY DC 40 V / 40 A	NGPE 40/40	ROHDE AND SCHWARZ	2027-10

Testing verdicts

Fail	F
Not applicable	N/A
Not measured	N/M
Pass	P

Summary

RFID 134.2 kHz

FCC PART 15.209 / RSS-Gen, RSS-210 PARAGRAPH		
Requirement – Test case	Verdict	Remark
FCC 15.209 (a) / RSS-210 8.3 / Transmitter emissions limits	P	--
<u>Supplementary information and remarks:</u> None.		

Appendix A: Test results

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TEST CONDITIONS

(*): Data provided by the client.

POWER SUPPLY (*):

Vnominal: 7.4 Vdc
Vminimum: 6.0 Vdc
Vmaximum: 8.4 Vdc
Type of Power Supply: Battery

ANTENNA (*):

Type of Antenna: Integral antenna (Coil)

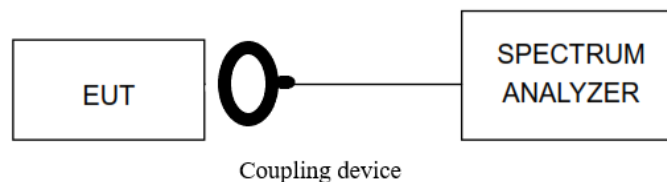
TEST FREQUENCIES (*):

RFID 134.2 kHz ISO 11784/5		
Mode:	ISO 11784/5	
Channel Spacing:	Not Applicable	
Frequency Range:	134.2 kHz	
Transmit Channel:	Channel	Channel Frequency (kHz)
	Single Channel	134.2

During transmitter test the EUT was controlled by a SW tool provided by the client to operate in a continuous transmit mode on the modulation schemes and test channels as required.

CONDUCTED MEASUREMENTS:

The equipment under test was set up in a shielded room and it is connected to the TS8997 using a low loss RF cable. The reading of the spectrum analyser is corrected taking into account the cable loss.



RADIATED MEASUREMENTS:

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at a distance of 3 m (Loop antenna for the range 9 kHz to 30 MHz). The maximum peak value of the fundamental emission was measured as the worst case.

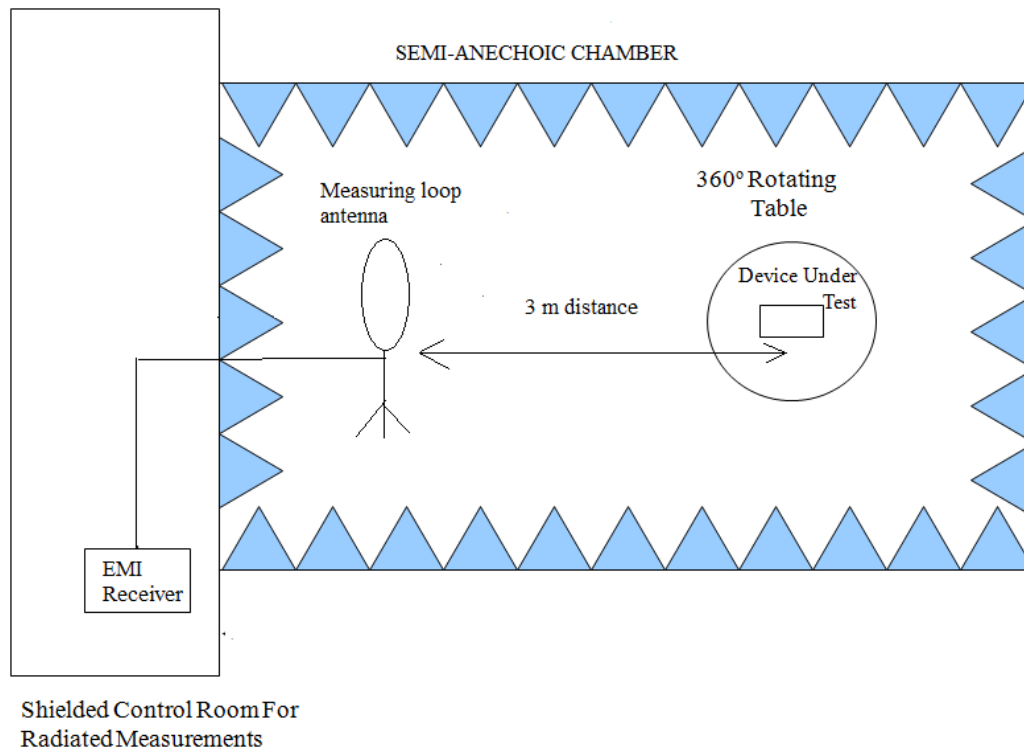
For radiated emissions in the range 9 kHz to 30 MHz performed at a distance closer than the distance specified in the standard, an inverse proportionality factor of 40 dB per decade is used to normalize the measured data for determining compliance.

The equipment under test was set up on a non-conductive platform above the ground plane and its situation and orientation were varied to find the maximum radiated emission. It was also rotated 360°.

In the range between 9 kHz and 30 MHz the measurements were made in the three different orientation planes of the loop antenna to determine the maximum received field.

The field strength is calculated by adding correction factor to the measured level from the spectrum analyser. This correction factor includes antenna factor and cable loss.

Radiated measurements setup $f < 30$ MHz:



SAMPLE CALCULATION

For radiated measurements:

Values measures by the test receiver / analyzer are converted to field strength, in dBuV/m, at the regulatory distance using the following calculation:

$$\text{Unwanted Lvl (dBuV/m)} = \text{Raw Rec (dBuV)} + \text{Preamp (dB)} + \text{Trd Corre. (dB/m)} + \text{SigPath (dB)}$$

Where,

Raw Rec (dBuV): Measured voltage in the receiver / spectrum analyzer in dBuV

Preamp (dB): Path loses due to preamplifier

Trd Corr. (dB/m): Antenna factor in dB/m

SigPath (dB) = Cable loss (dB) – External Gain amplifier (dB) – Distance factor (dB)

Cable loss (dB): Cable loss

External Gain amplifier (dB): Gain from external amplifier (when used)

Distance factor (dB): Distance factor in dB. When measurement distance is different to limit distance

The field strength, calculated by this way is compared with the regulatory limit.

TEST CASES DETAILS

Occupied Channel Bandwidth 99%

Specification

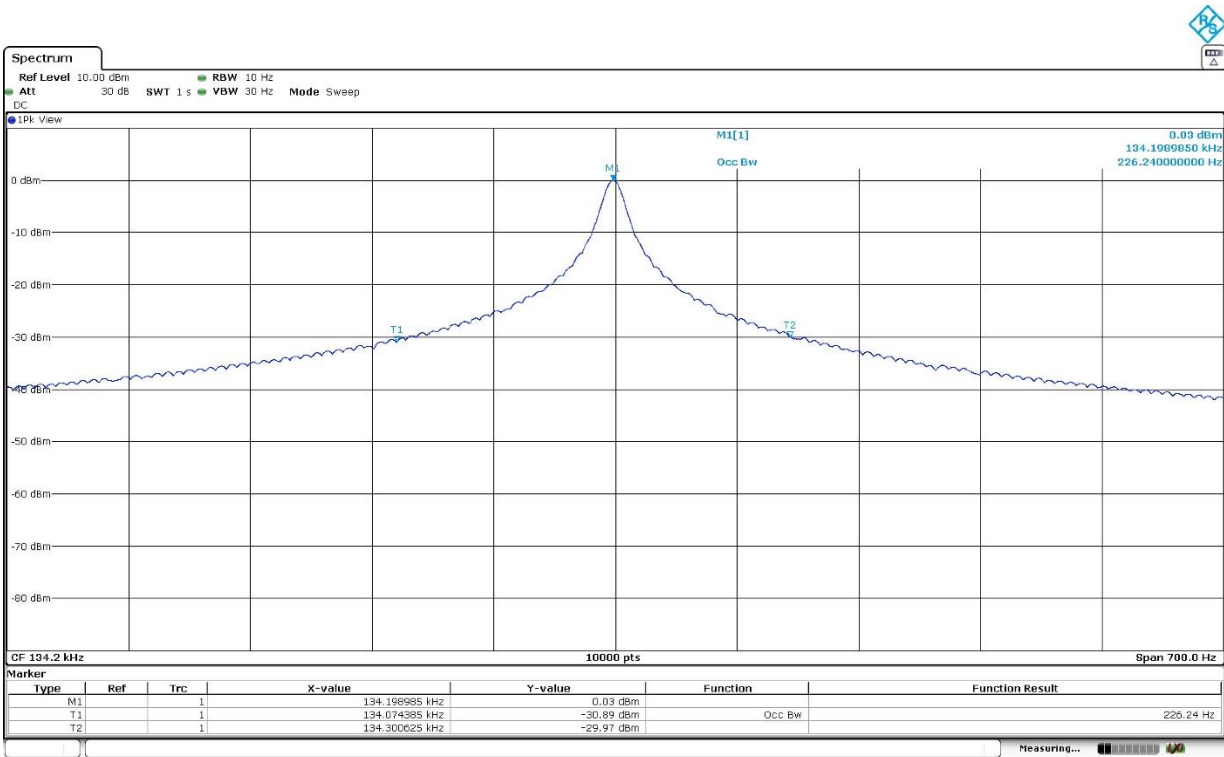
RSS-Gen 6.7 / FCC 2.1049 - Occupied Channel Bandwidth 99%

The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained.

Results

99% Bandwidth (kHz)	0.22624
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Attachments



FCC 15.209 (a) / RSS-210 8.3. Transmitter emission limits

General field strength and Transmitter emission limits

Limits

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table (see §15.205(c) / RSS-Gen):

Frequency Range (MHz)	Field strength (µV/m)	Field strength (dBµV/m)	Magnetic field strength (H-Field) (µA/m)	Measurement distance (m)
0.009-0.490	2400/F(kHz)	67.6-20*log(F)	6.37/F(kHz)	300
0.490-1.705	24000/F(kHz)	87.6-20*log(F)	63.7/F(kHz)	30
1.705 - 30.0	30	29.54	0.08	30
30 - 88	100	40	-	3
88 - 216	150	43.5	-	3
216 - 960	200	46	-	3
960 - 40000	500	54	-	3

Note: For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

Additionally, the level of any transmitter unwanted emission shall not exceed the level of the transmitter's fundamental emission.

Results

All tests were performed in a semi-anechoic chamber at a distance of 3 m and the measurement were corrected to the limit distance (300m), according to ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024. The maximum peak value of the fundamental emission was measured as the worst case.

The spectrum was inspected from 9 kHz 30 MHz for spurious signals search.

Fundamental emission:

E (dBµV/m) extrapolated to 300 m	-18.18
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Verdict

Pass

Frequency range 9 kHz – 30 MHz:

Spurious frequencies detected at less than 20 dB below the limit:

Unwanted Freq (kHz)	Unwanted Lvl (dBµV/m)	Pol	Detector	Sig Path (dB)	Preamp (dB)	Trd Corr. (dB/m)	Raw Rec (dBµV)
669.75	19.47	H	Peak	-29.2	0	9.9	38.8
939.75	13.66	H	Peak	-29.2	0	9.8	33.0
1207.50	7.74	H	Peak	-29.2	0	9.8	27.1
1475.25	6.14	H	Peak	-29.1	0	9.8	25.5

Verdict

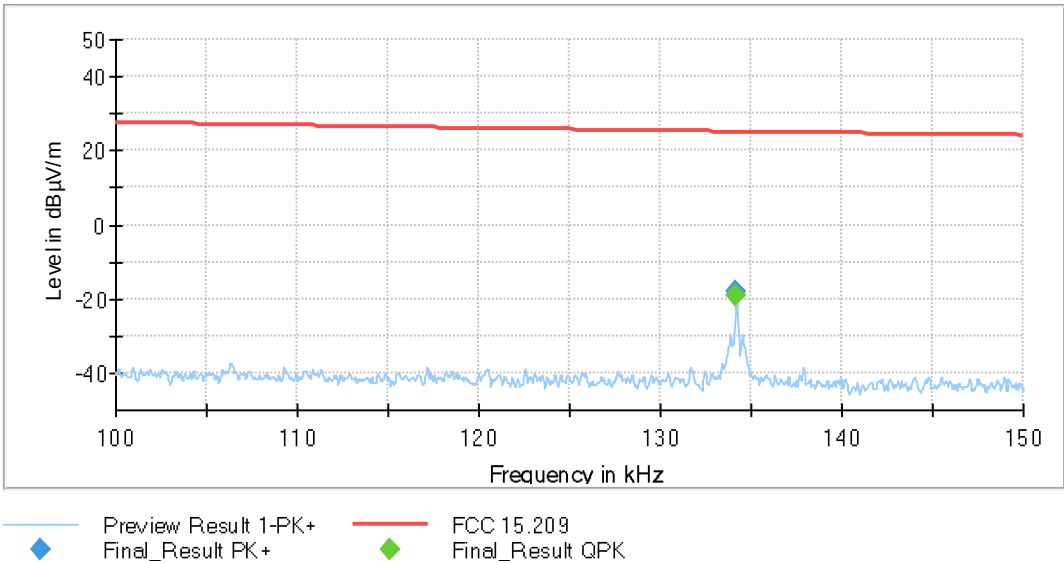
Pass

Attachments

Spectrum Analyzer Parameters:

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
9 kHz - 150 kHz	50 Hz	PK+	200 Hz	0,1 s	0 dB
150 kHz – 30 MHz	2.25 kHz	PK+	9 kHz	0,1 s	0 dB

Fundamental emission



Frequency range 9 kHz – 30 MHz

