

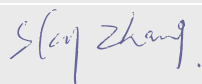


- The RvA is a signatory to the EA MLA.
- The RvA is a signatory to the ILAC MRA.
- The RvA is a signatory to the IAF MLA.

Test report No:
2291293.0533-EMC

TEST REPORT

FCC Rules & Regulations 47 CFR Chapter I - Part 15 & ICES-003

(*) Identification of item tested	Manure cleaning robots
(*) Trademark	JOZ B.V.
(*) Model and /or type reference	Barn-E 155, JT200 EVO, MOOV2.0, Nano
(*) Features	24 Vdc (Battery powered) Zigbee, RFID
(*) Derived model(s)	N/A
(*) Applicant's name / address	JOZ B.V. Industrieweg 5, 1617 KK Westwoud, Netherlands
Test method requested, standard	FCC Rules and Regulations 47 CFR, Chapter 1, Part 15 Subpart B (10-1-23 Edition) ICES-003 Issue 7 (15-10-20)
Verdict Summary	IN COMPLIANCE (refer to chapter 3 for details)
Tested by (name / position & signature)	Martijn van Steenberg Technical Professional EMC 
Supervised by (name / position & signature)	
Approved by (name / position & signature)	Sky Zhang Technical Professional EMC 
Date of issue	2025-03-11
Report template No	TRF_EMC_FCC_ISED R2.0 (*) "Data provided by the applicant"

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COMPETENCES AND GUARANTEES

The DEKRA Certification B.V. EMC&Wireless laboratory has been designated by the “Radio communications Agency of the Netherlands” as a Conformity Assessment Body for all products addressed by Parts 15 and Part 18 of the FCC rules per designation AT-EZ/EU-USA/MRA002 since December 1, 2005.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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GENERAL CONDITIONS

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

UNCERTAINTY

For all measurements where guidance for the calculation of the instrumentation uncertainty of a measurement is specified in EN 55016-4-2 (CISPR 16-4-2) or a product standard, the measurement instrumentation uncertainty has been calculated and applied in accordance with these standards. For all other measurements where no guidance is available, the measurement instrumentation uncertainty has been calculated and applied in accordance with ISO/IEC Guide 98-3 document.

Uncertainties have been calculated according to the DEKRA internal document AMS#1167. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%. Refer to the Annex 1 for further information.

CONFORMITY ASSESSMENT

For all EMI (emission) tests (when included in this report), as measurement uncertainties (U_{LAB}) are less than the values U_{CISPR} given in CISPR 16-4-2 (EN 55016-4-2) (Table-1), compliance with the limits is determined by comparing measurement results directly with corresponding limits without taking into consideration of measurement uncertainties.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%
Atmospheric pressure	86 kPa – 106 kPa

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

DEFINITION OF SYMBOLS USED IN THIS TEST REPORT

☒	Indicates that the listed condition, standard or equipment is applicable for this report/test/EUT.		
☐	Indicates that the listed condition, standard or equipment is not applicable for this report/test/EUT.		
Decimal separator used in this report	☐	Comma (,)	☒ Point (.)

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	: Equipment Under Test	Rx	: Receiver
QP	: Quasi-Peak	N/A	: Not Applicable
CAV	: CISPR Average	N/M	: Not Measured
AV	: Average	S#	: Sample number
PK	: Peak	OM#	: Operating mode number
CDN	: Coupling Decoupling Network	Conf#	: Configuration number
SAC	: Semi-Anechoic Chamber	V _m	: Measured voltage
OATS	: Open Area Test Site	CF	: Correction factor
BW	: Bandwidth	V _{RX}	: Voltage measured by the receiver
U _N	: Nominal voltage	FS	: Field Strength
T _X	: Transmitter		

DATA PROVIDED BY THE APPLICANT

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" and "Features").

DEKRA Certification B.V. declines any responsibility with respect to the information provided by the applicant and that may affect the validity of results.

DOCUMENT HISTORY

Report nr.	Date	Description
2291293.0533-EMC	2025-03-11	First release.

CONCLUSION, REMARKS AND COMMENTS

The equipment under test (EUTs) described in this test report meet the stated EMC requirements of the regulation/standard(s) given in this report.

The tests described in this report do not result in the right to use of any approval marks as conferred by DEKRA, as far as the tests were based on certain specifications, these are mentioned in the report.

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Description of the item	Manure cleaning robots
Model / Type number	Barn-E 155, JT200 EVO, MOOV2.0, Nano
Trademark.....	JOZ B.V.
Manufacturer	JOZ B.V.
Address	Industrieweg 5, 1617 KK Westwoud, Netherlands

Rated power supply	Voltage and Frequency		Power connection type				
			L1	L2	L3	N	PE
	☐	AC:	☐	☐	☐	☐	☐
	☐	DC:					
	☒	Battery: 24 Vdc					
Rated current	0.8 kW (Barn-E 155), 0.25 kW (JT200 EVO), 0.53 kW (MOOV2.0), 0.8 kW (Nano)						
Clock frequencies	24 MHz						
Other parameters.....	Zigbee, RFID						
Software version	3.4.197 (Barn-E 155), 2.2.82 (JT200 EVO), 2.1.66 (MOOV 2.0), 3.5.1239 (Nano)						
Hardware version.....	V8.3						
Dimensions in cm (W x H x D)	219 x 155 x 68 (Barn-E 155), 146 x 120 x 66 (JT200 EVO), 128 x 114 x 100 (MOOV 2.0), 110 x 70x 65 (Nano)						
Mounting position.....	☐	Table top equipment					
	☐	Wall/Ceiling mounted equipment					
	☒	Floor standing equipment					
	☐	Hand-held equipment					
	☐	Other:					

RF interface 1:

Technology	Zigbee
Frequency band / range(s).....	2405-2480 MHz
Type of Modulation(s)	QPSK
Number of channel.....	16
Channel spacing	5 MHz
Antenna type	Dipole
Antenna gain	1.6 dBi

RF interface 2:

Technology	RFID
Frequency band / range(s).....	134.6 kHz
Type of Modulation(s)	Unmodulated sinus wave
Number of channel.....	1
Type of antenna	Loop Antenna
Antenna gain	1.5 dBi

Intended use of the Equipment Under Test (EUT)

Manure cleaner in barns.

No	Module/parts of test item	Type	Manufacturer
1	Water pump (Nano and JT200 EVO)	8075-192-319	Pentair
2	Encoder JT200 EVO	ENI58IL-R12JA5-1024UD1-RBY:01	PEPPERL+FUCHS
3	ECU(All robots)	V8.3	JOZ
4	Drive Motor (JT200 EVO) Model: V5Y07A	M016-808LF3A	BEGE
5	Drive Motor(Barn-E 155, MOOV2.0,Nano)	80BLF3A 160-220 12	BEGE
6	Steering motor (JT200 Evo)	10080100-00	IMS.Baseline
7	Actuator(Moov 2.0)	BC24-11Ap08-050-0-0 Special	Axipro
8	Actuator (Barn-E)	361201000000BA-611H303000X0000	LINAK

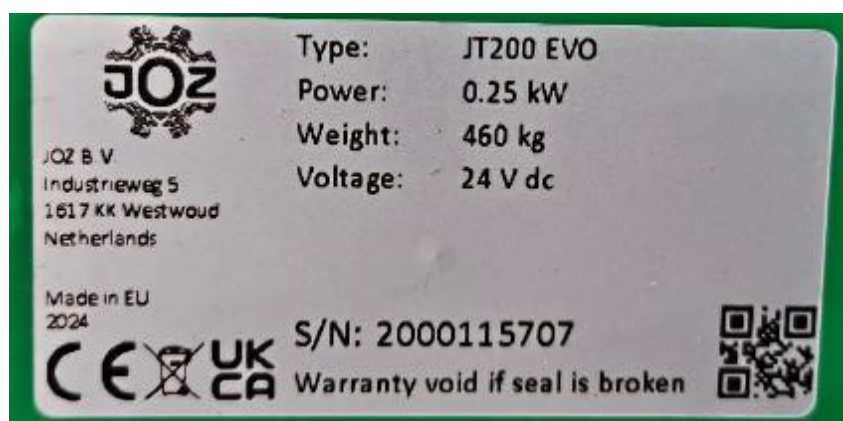
No	Documents as provided by the applicant - Description	File name	Issue date
1	Application form for testing EN 300 330 V2.1.1.	06 EN 300 330 Application form v3.0	2024-10-09
2	Application form for testing EN 300 328 V2.2.2.	05 EN 300 328 Application form v3.0	2024-10-09
3	General information form	01 General information form v1.0	2024-10-14

1.2 Classification according to FCC Part 15B and ICES-003

The device under test (DUT) is classified as:

☒	Class A	A digital device that is marketed for use in a commercial, industrial or business environment, exclusive of a device which is marketed for use by the general public or is intended to be used in the home.
☐	Class B	A digital device that is marketed for use in a residential environment notwithstanding use in commercial, business and industrial environments. Examples of such devices include, but are not limited to, personal computers, calculators, and similar electronic devices that are marketed for use by the general public.

Copy of marking plate:



2 DESCRIPTION OF TEST SETUP

2.1 Sample(s) used for tests

During the tests the following sample(s) has(have) been used.

Sample	Logistics number	Model number	Serial number	Remark(s) / Changes
01	105998 / 1-5	Barn-E 155	300011355	---
02	105998 / 1-7	JT200 EVO	2000115707	---
03	105998 / 1-6	MOOV2.0	100015155	---
04	105998 / 1-9	Nano	500010041	---
<u>Supplementary information:</u> ---				

2.2 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

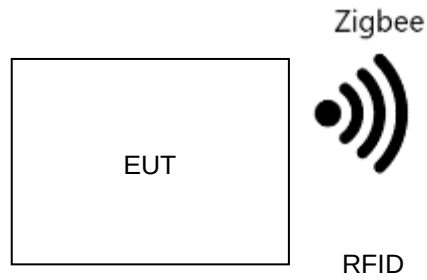
Operating mode	Operating mode description	Sup. Info / Remark
01	EUT on. Zigbee and RFID are active.	---
02	Standby	---
<u>Supplementary information:</u> 999		

2.3 Port(s) of the EUT

Port name and description	Connected to / Termination	Cable			Sup. Info / Remark
		Specified length [m]	Attached during test	Shielded	
Charging contacts	DC charger	---	No	No	---
USB port	Unterminated	---	No	No	1
<u>Supplementary information:</u>					
1. Used only for service by approved technician.					

2.4 Test Configuration / Block diagram used for tests

The following test setup / configuration / block diagram has been used during the tests



3.1.2 Radiated emissions

The field strength level of radiated emissions from digital device has been determined according to the section 15.109 of 47CFR Part 15B and clause 3.2.2. of ICES-003.

Measurements have been performed in a Semi Anechoic Chamber (SAC) at 3 meter measurement distance using the test setup described chapter 2.5 .The field strength (FS) is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor (AF), cable loss (L_{CABLE}) and pre-amplifiers gain (PA_{GAIN}). Final measurements are made with the Azimuth, Polarisation, Height, and EUT Cables positioned for maximum radiation.

$$CF (dB) = AF(dB/m) + L_{CABLE} (dB) - PA_{GAIN} (dB)$$

$$FS (dB\mu V/m) = V_{RX} (dB\mu V) + CF (dB)$$

Sample Calculation:

$$CF (dB) : 11.8 (dB/m) + 2.3 (dB) - 20.8 (dB) = - 6.7 dB$$

$$FS (dB\mu V/m) : 39.8 (dB\mu V) - 6.7 (dB) = 33.1 dB\mu V/m.$$

Important Note: This is a sample calculation only for the purpose of demonstration, and does not reflect data in this report.

The measurements have been conducted in accordance with the methodology as described in ANSI C63.4, as required by sections 15.31 and 15.33 of 47CFR Part 15B and clause 2.3 and 3.2.2 of ICES-003.

The frequency band in which the DUT is operating is 2480 MHz. Thus, according to the table below, the frequency range of interest was 30 MHz – 12.4 GHz.

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1,705	30
1,705 to 108	1000
108 to 500	2000
500 to 1000	5000
Above 1000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower.

4 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

For the DUT the following measurement clauses are applicable:

47CFR Chapter I - Part 15 Subpart B & ICES-003 unintentional radiators	
☐	Section 15.107 (a) Conducted emissions – Class B / Section 3.2.1 Conducted emission ICES-003 – Class B
☒	Section 15.107 (b) Conducted emissions – Class A / Section 3.2.1 Conducted emission ICES-003 – Class A
☐	Section 15.109 (a) Radiated emissions – Class B / Section 3.2.2 Radiated emission ICES-003 – Class B
☒	Section 15.109 (b) Radiated emissions – Class A / Section 3.2.2 Radiated emission ICES-003 – Class A

4.1 Standards

Standard	Year	Description
FCC Part 15 Subpart B	10-1-23 Edition	FCC Rules and Regulations 47 CFR Chapter I Part 15 Subpart B - Radio Frequency Devices.
ICES-003 Issue 7	October 15, 2020	Information Technology Equipment (Including Digital Apparatus) — Limits and Methods of Measurement
ANSI C63.4	2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

4.2 Deviation(s) from the Standard(s) / Test Specification(s)

The following deviation(s) was / were made from the published requirements of the listed standards:

- No deviation.

4.3 Overview of results

EMISSION TESTS			
Requirement – Test case	Basic standard(s)	Verdict	Remark
Conducted disturbance voltage – MAINS port	ANSI C63.4	N/A	See 1
Radiated emissions (30 - 1000 MHz)	ANSI C63.4	PASS	---
Radiated emissions (above 1 GHz)	ANSI C63.4	PASS	---
<u>Supplementary information:</u> 1. The EUT does not have any Mains ports.			

5 EMISSION TEST RESULTS

5.1	Radiated emissions (30 - 1000 MHz)	VERDICT: PASS
-----	---	----------------------

Standard	FCC Rules & Regulations 47 CFR Chapter I - Part 15 Subpart B Clause 15.109 / ICES-003 Clause 3.2.2
Basic standard	ANSI C63.4
Supplementary information / Remark:	

Limits : FCC Rules & Regulations 47 CFR Chapter I - Part 15 Subpart B / Class A

Frequency [MHz]	Limit: QP [dB(μV/m) ¹⁾]			IF BW [kHz]	Detector
	@3 m.	@5 m.	@10 m.		
30 - 88	49.5	45.1	39.0	120	QP
88 - 216	54.0	49.5	43.5	120	QP
216 - 960	56.9	52.4	46.4	120	QP
960 - 1000	60.0	55.5	49.5	120	QP
¹⁾ At the transition frequency, the lower limit applies.					

Limits : ICES-003 / Class A

Frequency [MHz]	Limit: QP [dB(μV/m) ¹⁾]			IF BW [kHz]	Detector
	@3 m.	@5 m.	@10 m.		
30 - 88	50.0	46.0	40.0	120	QP
88 - 216	54.0	49.5	43.5	120	QP
216 - 230	56.9	52.4	46.4	120	QP
216 - 960	57.0	53.0	47.0	120	QP
960 - 1000	60.0	55.5	49.5	120	QP
¹⁾ At the transition frequency, the lower limit applies.					

Performed measurements

The following configuration(s) and parameter(s) was/were used for testing:

Port under test	Enclosure (with cabling)		
Test method	X	Semi Anechoic Chamber	
		Open Area Test Site (OATS)	
		In-Situ (at user/manufacture premises)	
		GTEM cell	
		Other:	
Test set-up		Equipment on a table of 80 cm height	
	X	Equipment on the floor (insulated from the reference ground plane)	
		Other:	

S#	OM#	Conf#	[V]/[Hz] (mains)	Detector	Frequency range	Antenna polar. / axis	Measurement distance	P/F	Sup. Info / Remark
01	01	---	Battery	QP	30 - 1000 MHz	H/V	3 m.	P	---
02	01	---	Battery	QP	30 - 1000 MHz	H/V	3 m.	P	---
03	01	---	Battery	QP	30 - 1000 MHz	H/V	3 m.	P	---
04	01	---	Battery	QP	30 - 1000 MHz	H/V	3 m.	P	---
Supplementary information / Remark: The RF disturbance level was investigated at different operating modes respectively. The worst case results were reported.									

Test equipment used				
Equipment	Manufacturer	Model	Dekra ID	Cal. Due
Anechoic Chamber	Comtest	SAC-5m	129683	2025-08
Antenna	Rohde-Schwarz	HL562E	132293	2025-48
Coaxial cable	Huber&Suhner	SUCOFLEX 126EA	134187	2025-39
EMI Test Receiver	Rohde-Schwarz	ESU26	126351	2025-39
Test-Control Software	Rohde-Schwarz	EMC32 V10.60.20	500000	---

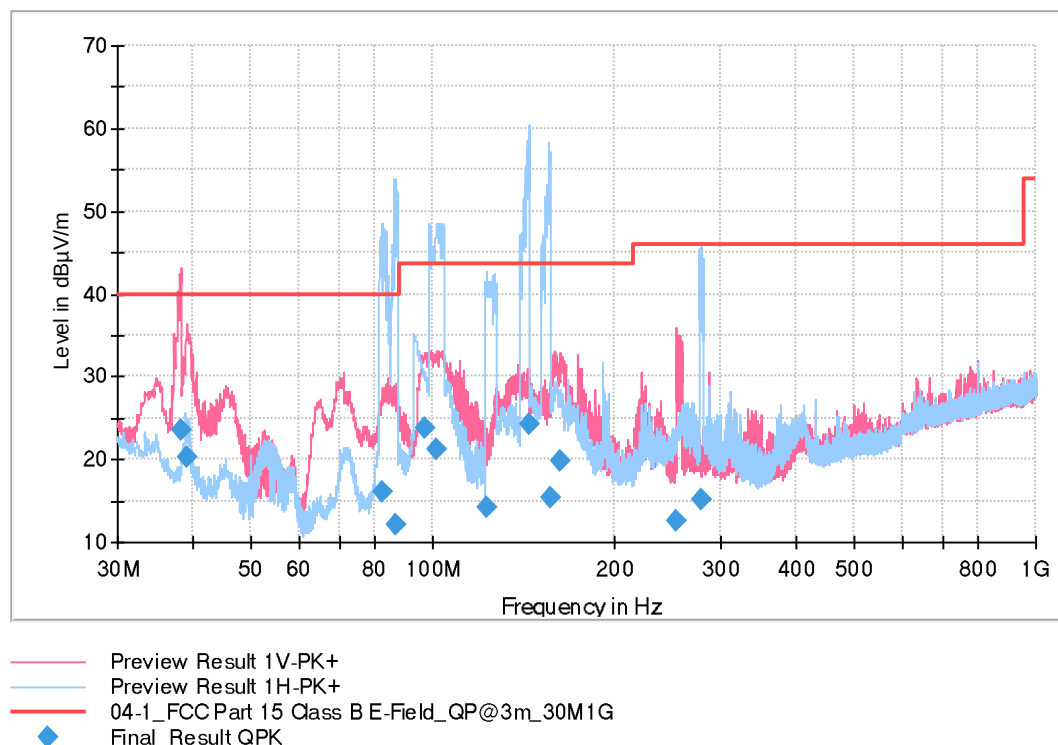
Measurement data:

Common Information

EUT/Sample # / OM# : Manure cleaning robots / 01 / 01

Voltage/Frequency : Battery powered

Port/Terminal under test : Enclosure



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth	Corr. (dB/m)
38.370000	23.63	40.00	16.37	3000.0	120.000	100.0	V	111.0	15.6
39.090000	20.35	40.00	19.65	3000.0	120.000	396.0	V	163.0	15.1
82.500000	16.02	40.00	23.98	3000.0	120.000	384.0	H	131.0	11.3
87.150000	12.16	40.00	27.84	3000.0	120.000	151.0	H	51.0	11.6
97.020000	23.84	43.52	19.68	3000.0	120.000	127.0	V	263.0	11.8
101.370000	21.29	43.52	22.23	3000.0	120.000	199.0	H	300.0	12.1
123.000000	14.16	43.52	29.36	3000.0	120.000	400.0	H	55.0	12.2
144.780000	24.28	43.52	19.24	3000.0	120.000	174.0	H	256.0	10.4
156.240000	15.28	43.52	28.24	3000.0	120.000	170.0	H	301.0	9.9
162.330000	19.75	43.52	23.77	3000.0	120.000	104.0	V	218.0	9.9
254.030000	12.58	46.02	33.44	3000.0	120.000	287.0	V	120.0	11.9
278.720000	15.12	46.02	30.90	3000.0	120.000	152.0	H	-31.0	12.5

The Limits above of QP is for Class B equipment. So the EUT also complies with the limits of Class A.

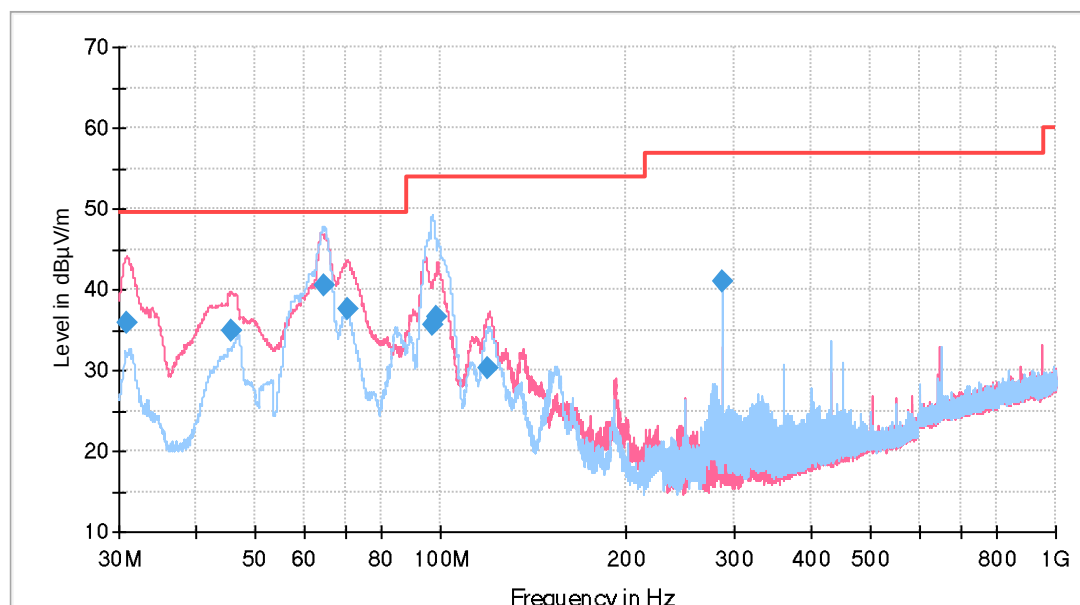
Supplementary information:

- The "Azimuth/Pol/Height" indicates the turn-table azimuth, the antenna polarisation and the antenna height where the maximum emissions level was measured.
- The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.

Measurement data:

Common Information

EUT/Sample # / OM# : Manure cleaning robots / 02 / 01
Voltage/Frequency : Battery powered
Port/Terminal under test : Enclosure



— Preview Result 1V-PK+
— Preview Result 1H-PK+
* PK+
— 02-1_FCC Part 15 Class A E-Field_QP@3m_30M1G
◆ Final_Result QPK

Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth h	Corr. (dB/m)
30.840000	35.87	49.54	13.67	3000.0	120.000	100.0	V	102.0	19.8
45.630000	34.87	49.54	14.67	3000.0	120.000	100.0	V	274.0	11.0
64.590000	40.48	49.54	9.06	3000.0	120.000	389.0	H	192.0	8.3
70.500000	37.58	49.54	11.96	3000.0	120.000	143.0	V	154.0	9.7
96.960000	35.61	53.98	18.37	3000.0	120.000	250.0	H	93.0	11.8
98.670000	36.65	53.98	17.33	3000.0	120.000	100.0	V	153.0	11.9
119.700000	30.18	53.98	23.80	3000.0	120.000	138.0	V	30.0	12.4
287.990000	40.95	56.90	15.95	3000.0	120.000	105.0	H	238.0	12.8

Supplementary information:

- The "Azimuth/Pol/Height" indicates the turn-table azimuth, the antenna polarisation and the antenna height where the maximum emissions level was measured.
- The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.

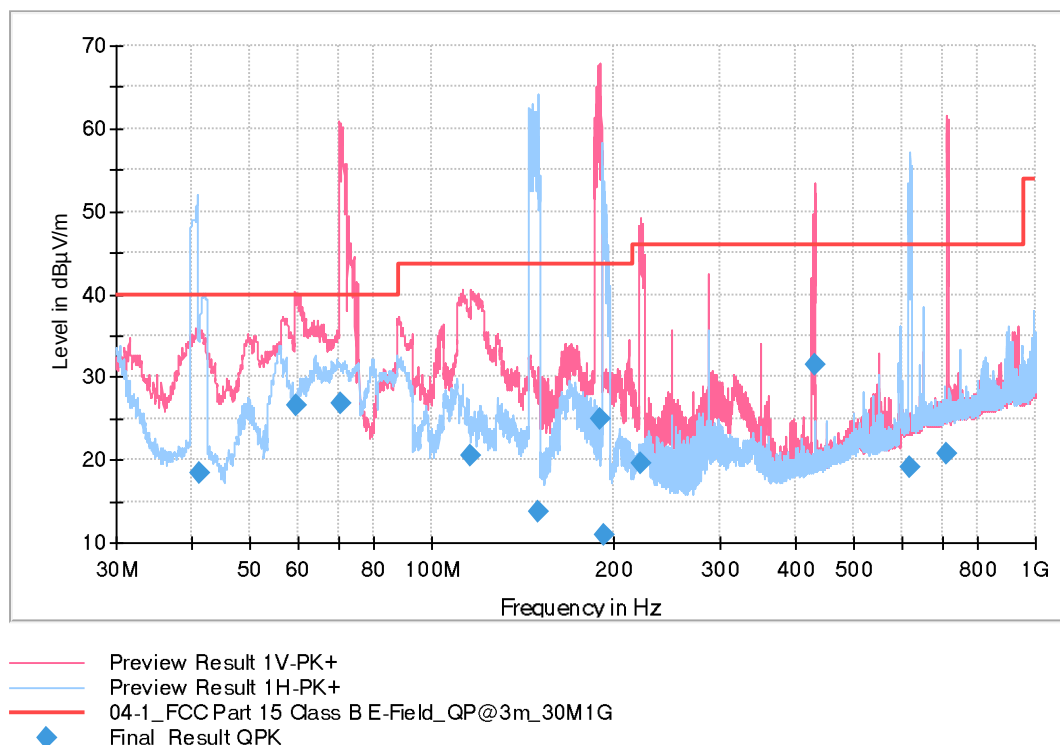
Measurement data:

Common Information

EUT/Sample # / OM# : Manure cleaning robots / 03 / 01

Voltage/Frequency : Battery powered

Port/Terminal under test : Enclosure



Final Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth h	Corr. (dB/m)
41.130000	18.44	40.00	21.56	3000.0	120.000	307.0	H	213.0	13.9
59.430000	26.47	40.00	13.53	3000.0	120.000	292.0	V	84.0	6.7
70.440000	26.87	40.00	13.13	3000.0	120.000	140.0	V	-10.0	9.7
116.220000	20.49	43.52	23.03	3000.0	120.000	185.0	V	185.0	12.6
149.850000	13.76	43.52	29.76	3000.0	120.000	208.0	H	150.0	10.0
190.080000	24.84	43.52	18.68	3000.0	120.000	237.0	V	191.0	9.8
193.170000	11.03	43.52	32.49	3000.0	120.000	391.0	H	8.0	9.8
221.310000	19.51	46.02	26.51	3000.0	120.000	174.0	V	160.0	10.4
430.370000	31.57	46.02	14.45	3000.0	120.000	193.0	V	154.0	16.3
616.640000	19.14	46.02	26.88	3000.0	120.000	201.0	H	172.0	19.4
714.680000	20.83	46.02	25.19	3000.0	120.000	187.0	V	279.0	20.6

The Limits above of QP is for Class B equipment. So the EUT also complies with the limits of Class A.

Supplementary information:

- The "Azimuth/Pol/Height" indicates the turn-table azimuth, the antenna polarisation and the antenna height where the maximum emissions level was measured.
- The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.

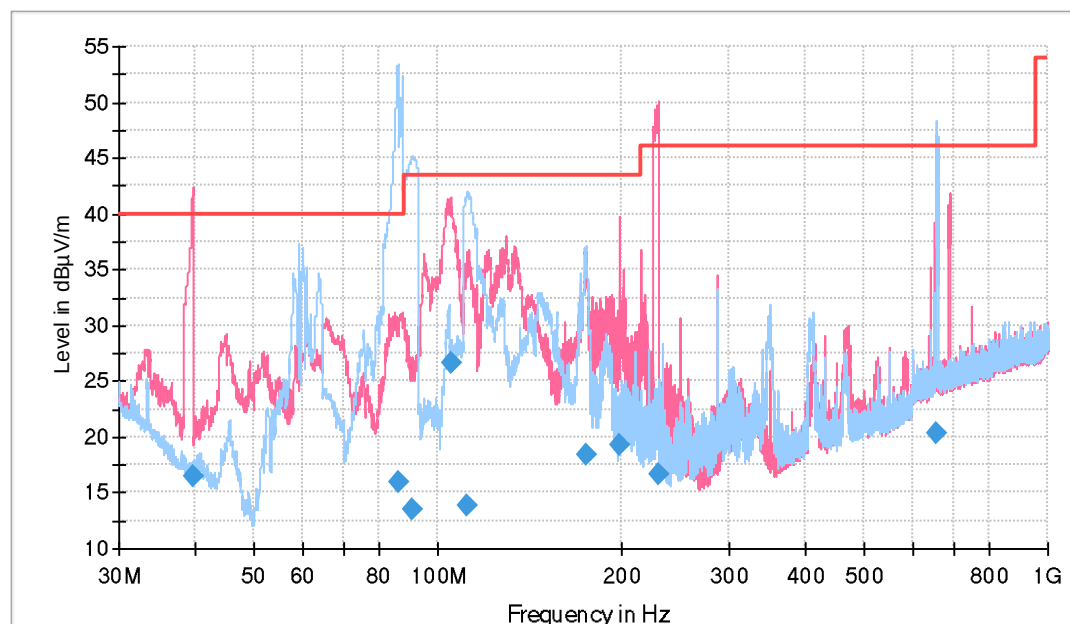
Measurement data:

Common Information

EUT/Sample # / OM# : Manure cleaning robots / 04 / 01

Voltage/Frequency : Battery powered

Port/Terminal under test : Enclosure



— Preview Result 1V-PK+
 — Preview Result 1H-PK+
 — 04-1_FCC Part 15 Class B E-Field_QP@3m_30M1G
 ◆ Final_Result QPK

Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth h	Corr. (dB/m)
39.570000	16.43	40.00	23.57	3000.0	120.000	100.0	V	353.0	14.8
86.070000	15.94	40.00	24.06	3000.0	120.000	354.0	H	218.0	11.5
90.810000	13.45	43.52	30.07	3000.0	120.000	341.0	H	277.0	11.7
105.000000	26.64	43.52	16.88	3000.0	120.000	152.0	V	210.0	12.3
112.020000	13.78	43.52	29.74	3000.0	120.000	102.0	H	139.0	12.7
174.660000	18.43	43.52	25.09	3000.0	120.000	202.0	H	-6.0	10.7
198.090000	19.33	43.52	24.19	3000.0	120.000	136.0	V	237.0	10.1
230.000000	16.68	46.02	29.34	3000.0	120.000	113.0	V	-83.0	11.1
657.290000	20.25	46.02	25.77	3000.0	120.000	216.0	H	348.0	20.5

The Limits above of QP is for Class B equipment. So the EUT also complies with the limits of Class A.

Supplementary information:

- The "Azimuth/Pol/Height" indicates the turn-table azimuth, the antenna polarisation and the antenna height where the maximum emissions level was measured.

- The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.

5.2	Radiated emissions (1 - 18 GHz)	VERDICT: PASS
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Standard	FCC Rules & Regulations 47 CFR Chapter I - Part 15 Subpart B Clause 15.109 / ICES-003 Clause 3.2.2
Basic standard	ANSI C63.4
Supplementary information / Remark: ----	

Limits : FCC Rules & Regulations 47 CFR Chapter I - Part 15 Subpart B / Class A

Frequency [GHz]	Limit ^{1) 2)} : AV [dB(μV/m)]			IF BW [MHz]	Detector
	@3 m.	@5 m.	@10 m.		
1 – 40 GHz	60	55.5	49.5	1	AV

¹⁾ At the transition frequency. the lower limit applies.

²⁾ Above 1 GHz. the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test (section 15.35.b).

Limits : ICES-003 / Class A

Frequency [GHz]	Limit ^{1) 2)} : PK&AV [dB(μV/m)]		IF BW [MHz]	Detector
	AV@3 m.	PK@3 m.		
1 – 40 GHz	60	80	1	AV

¹⁾ At the transition frequency. the lower limit applies.

Performed measurements

The following configuration(s) and parameter(s) was/were used for testing:

Port under test	Enclosure (with cabling)		
Test method	X	Absorber-lined Semi Anechoic Chamber (SAC)	
		Absorber-lined Open Area Test Site (OATS)	
		In-Situ (at user/manufacturer premises)	
		Other:	
Test set-up		Equipment on a table of 80 cm height	
	X	Equipment on the floor (insulated from the reference ground plane)	
		Other:	

S#	OM#	Conf#	[V]/[Hz] (mains)	Detector	Frequency range	Antenna polar. / axis	Measurement distance	P/F	Sup. Info / Remark
01	01	---	Battery	PK/CAV	1 - 18 GHz	H/V	3 m.	P	---
02	01	---	Battery	PK/CAV	1 - 18 GHz	H/V	3 m.	P	---
03	01	---	Battery	PK/CAV	1 - 18 GHz	H/V	3 m.	P	---
04	01	---	Battery	PK/CAV	1 - 18 GHz	H/V	3 m.	P	---

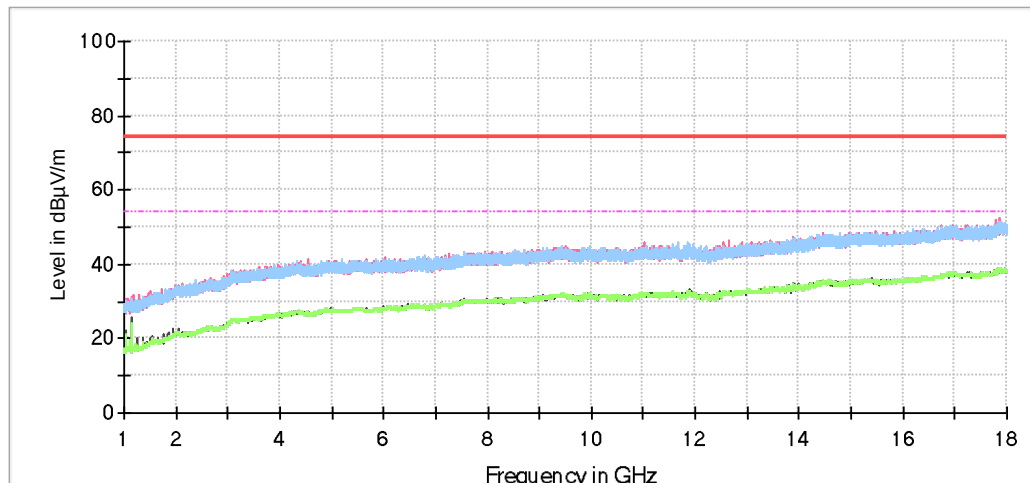
Supplementary information / Remark:

The RF disturbance level was investigated at different operating modes respectively. The worst case results were reported.

Measurement data:

Common Information

EUT/Sample # / OM# : Manure cleaning robots / 01 / 01
 Voltage/Frequency : Battery powered
 Port/Terminal under test : Enclosure



- Preview Result 2V-AVG
- Preview Result 1V-PK+
- Preview Result 2H-AVG
- Preview Result 1H-PK+
- * Critical_Freqs AVG
- * Critical_Freqs PK+
- 03-1_FCC Part 15 Class B E-Field_PK@3m_1G40G
- - - 03-2_FCC Part 15 Class B E-Field_AV@3m_1G40G
- ◆ Final_Result PK+

The emissions are below the measurement system noise floor or 20 dB or more below the limit.
 The Limits above of QP is for Class B equipment. So the EUT also complies with the limits of Class A.

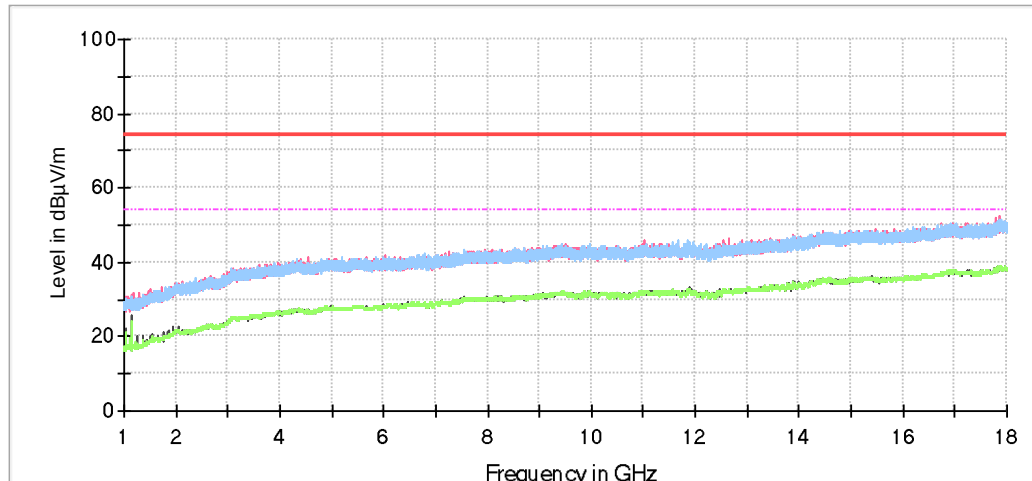
Supplementary information:

- The "Azimuth/Pol/Height" indicates the turn-table azimuth, the antenna polarisation and the antenna height where the maximum emissions level was measured.
- The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.

Measurement data:

Common Information

EUT/Sample # / OM# : Manure cleaning robots / 02 / 01
 Voltage/Frequency : Battery powered
 Port/Terminal under test : Enclosure



- Preview Result 2V-AVG
- Preview Result 1V-PK+
- Preview Result 2H-AVG
- Preview Result 1H-PK+
- * Critical_Freqs AVG
- * Critical_Freqs PK+
- 03-1_FCC Part 15 Class B E-Field_PK@3m_1G40G
- 03-2_FCC Part 15 Class B E-Field_AV@3m_1G40G
- ◆ Final_Result PK+

The emissions are below the measurement system noise floor or 20 dB or more below the limit.
 The Limits above of QP is for Class B equipment. So the EUT also complies with the limits of Class A.

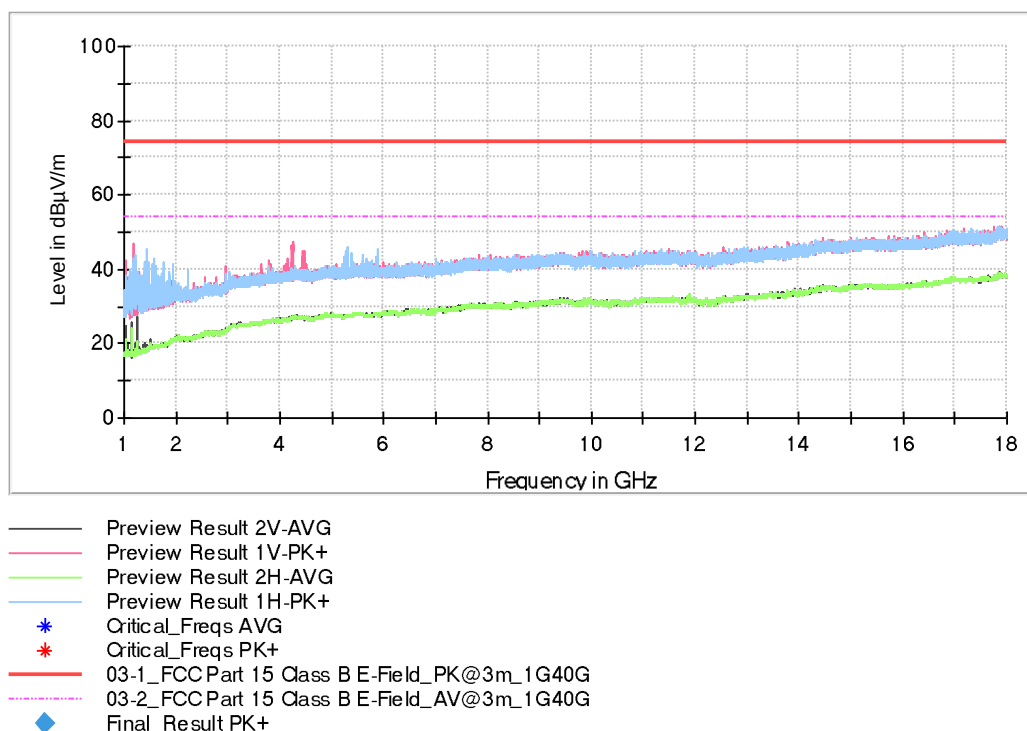
Supplementary information:

- The "Azimuth/Pol/Height" indicates the turn-table azimuth, the antenna polarisation and the antenna height where the maximum emissions level was measured.
- The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.

Measurement data:

Common Information

EUT/Sample # / OM# : Manure cleaning robots / 03 / 01
 Voltage/Frequency : Battery powered
 Port/Terminal under test : Enclosure



The emissions are below the measurement system noise floor or 20 dB or more below the limit.
 The Limits above of QP is for Class B equipment. So the EUT also complies with the limits of Class A.

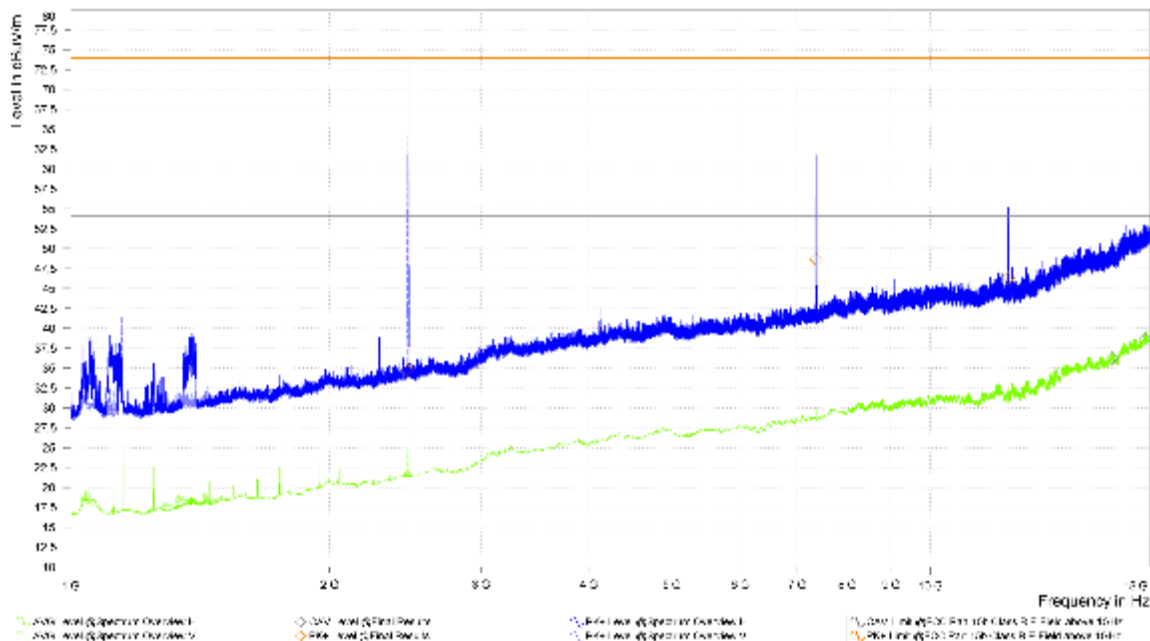
Supplementary information:

- The "Azimuth/Pol/Height" indicates the turn-table azimuth, the antenna polarisation and the antenna height where the maximum emissions level was measured.
- The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.

Measurement data:

Common Information

EUT/Sample # / OM# : Manure cleaning robots / 04 / 01
 Voltage/Frequency : Battery powered
 Port/Terminal under test : Enclosure



Final_Result

Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	CAV Level [dBµV/m]	CAV Limit [dBµV/m]	CAV Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
2.457,500	34,77	74,00	39,23				-22,28	V	-7,4	2,49	1.000,000
7.364,250	48,68	74,00	25,32				-11,72	H	176,9	2,83	1.000,000
12.325,000	46,40	74,00	27,60				-4,19	H	59,8	4,29	1.000,000
16.228,750				36,24	54,00	17,76	0,64	V	-159,1	1,73	1.000,000
17.761,750				38,56	54,00	15,44	2,94	V	87,1	1,43	1.000,000

The Limits above of QP is for Class B equipment. So the EUT also complies with the limits of Class A.

Supplementary information:

- The "Azimuth/Pol/Height" indicates the turn-table azimuth, the antenna polarisation and the antenna height where the maximum emissions level was measured.
- The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.

8 ANNEX 1 - MEASUREMENT UNCERTAINTIES

The table(s) below show(s) the measurement uncertainties of the EMC test set-ups. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Emission tests	Uncertainty	Ucisp
Radiated emissions; 30 MHz – 1000 MHz (Horz.), SAC@3m, With HYBRID antenna	3.81 dB	5.21 dB
Radiated emissions; 30 MHz – 1000 MHz (Vert.), SAC@3m, With HYBRID antenna	5.56 dB	6.21 dB
Radiated emissions; 1 – 6 GHz (Horz.), with DRG Horn antenna SAC@3m	4.61 dB	5.18 dB
Radiated emissions; 1 – 6 GHz (Vert.), with DRG Horn antenna SAC@3m	4.76 dB	5,18 dB
Radiated emissions; 6 – 18 GHz (Horz.), with DRG Horn antenna SAC@3m	5.31 dB	5.48 dB
Radiated emissions; 6 – 18 GHz (Vert.), with DRG Horn antenna SAC@3m	5.48 dB	5.48 dB

End of the Test report