

Test report No:
72872REM.007

Test report

FCC Rules and Regulations CFR 47, Part 15, Subpart B
(10-1-21 Edition) & ICES-003 Issue 7 (October 2020)

(*) Identification of item tested	Zerovision
(*) Trademark	Verisure
(*) Model and /or type reference	GWL-NOX
Other identification of the product	FCC ID: 2A93W-GWL-NOX IC: Not provided
(*) Features	ISM 915 RF interface communication (Proprietary protocol) HW version: 1.0 SW version: 1.0.1
Manufacturer	Verisure Sarl Chemin Jean-Baptiste Vandelle 3 1290 Versoix Switzerland
Test method requested, standard	FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-21 Edition) & ICES-003 Issue 7 (October 2020)
Summary	IN COMPLIANCE
Approved by (name / position & signature)	José Manuel Gómez EMC Consumer & RF Lab. Manager
Date of issue	2023-06-27
Report template No	FDT08_24 (*) "Data provided by the client"



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Acronyms

Acronym ID	Acronym Description
Code	EMC Test Code
Freq Rng	Frequency Range
MP	Measurement Point
OM	Operation Mode
S/	Sample
V	Verdict

Competences and guarantees

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DEKRA Testing and Certification S.A.U. 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 on the report and, it is based on the knowledge and technical facilities available at DEKRA Testing and Certification S.A.U. at the time of performance of the test.

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

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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 measured conducted disturbance characteristics of EUT from 150 kHz to 30 MHz is $I = \pm 3,9$ dB for quasi-peak measurements, $I = \pm 3,2$ dB for peak measurements ($k = 2$).

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 30 MHz to 1000 MHz is $I = \pm 4,9$ dB for quasi-peak measurements, $I = \pm 4,6$ dB for peak measurements ($k = 2$).

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 1000 MHz to 12.75 GHz is $I = \pm 2,6$ dB for peak and average measurements ($k = 2$).

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 Zerovision Smoke generator.
3. Equipment supports frequency sharing techniques

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.

Usage of samples

Samples undergoing test have been selected by: The client.

Id	Control Number	Description	Model	Serial N°	Date of Reception	Application
S/01	72872C_98.1	NOX	GWL-NOX	3N5ZBMKJ	2023-04-24	Element Under Test
S/01	72872C_99.1	Chemical module	--	--	2023-04-24	Auxiliary Element

Notes referenced to samples during the project.

Test sample description

Ports..... :	Port name and description	Cable					
		Specified max length [m]	Attached during test	Shielded	Coupled to patient ⁽³⁾		
.....	[]	[]	[]	[]		
Supplementary information to the ports..... :							
Rated power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	[]	AC:	[]	[]	[]	[]	[]
[X]	DC: 3V - 4 x AA 1.5V Alkaline (2s2p)						
Rated Power	2.1W						
Clock frequencies..... :	39MHz (TCXO) & 32.768KHz (32.768 KHz Xtal is not in use, but it is mounted on PCBA)						
Other parameters						
Software version	1.0.1						
Hardware version	1.0						
Dimensions in cm (W x H x D)	10,2 x 12,6 x 11.6						
Mounting position	[]	Table top equipment					
	[X]	Wall/Ceiling mounted equipment					
	[]	Floor standing equipment					
	[]	Hand-held equipment					
	[]	Other:					
Modules/parts..... :	Module/parts of test item		Type	Manufacturer			
			
Accessories (not part of the test item)	Description		Type	Manufacturer			
			
Documents as provided by the applicant..... :	Description		File name	Issue date			
			

⁽³⁾ Only for Medical Equipment

Identification of the client

Verisure Innovation
Nordenskiöldsgatan 11A 211 19 Malmö Sweden

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2023-05-02
Date (finish)	2023-05-02

Document history

Report number	Date	Description
72872REM.007	2023-06-27	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. = 30 % Max. = 75 %
Air pressure	Min. = 860mbar Max. = 1060mbar

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

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860mbar Max. = 1060mbar

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. = 30 % Max. = 60 %
Air pressure	Min. = 860mbar Max. = 1060mbar

Remarks and comments

The tests have been performed by the technical personnel: Antonio Ruiz.

Testing verdicts

Fail	F
Inconclusive	I
Not applicable	N/A
Not measured	N/M
Pass	P
Partial Passed	P*

List of equipment used during the test

Control No.	Equipment	Model	Manufacturer	Next Calibration
6064	SEMIANECHOIC ABSORBER LINED CHAMBER	SAC-3	FRANKONIA	N/A
6329	SHIELDED ROOM	---	FRANKONIA	N/A
6132	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2023-04-05
6126	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2023-04-05
8866	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2023-09-21
5641	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	EST LINDGREN	2024-09-15
4612	HORN ANTENNA 1-18GHz	BBHA 9120 D	SCHWARZBECK MESS-ELEKTRONIK	2024-07-13
9360	PRE-AMPLIFIER G>40dB 1-18 GHz	BLMA 0118-1M	BONN ELEKTRONIK	2023-05-11
4848	MEASUREMENT SOFTWARE EMC/RF	EMC32	ROHDE AND SCHWARZ	N/A

Summary

Test Specification.	Requirement – Test case	Verdict	Remark
FCC 47 CFR Part 15B	RE Radiated emission. Electromagnetic field measure	Pass	
FCC 47 CFR Part 15B	CE Continuous conducted emission	N/A	(1)
<u>Supplementary information and remarks:</u> Note 1. Equipment powered by DC			

Appendix A: Test results

Appendix A content

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Description of the operation modes

The operation modes described in this paragraph constitute a functionality of the sample under test for itself. Every operation mode takes a failure criteria for the immunity test that they were applying to it and a monitoring to guarantee performance of the same ones.

The operation modes used by the samples to which the present report refers, are shown in the following table:

Id	Description
OM/01	EUT ON. Detecting presence, expecting to generate smoke. SRD OFF. Power supply 6Vdc (4x1,5Vdc by internal batteries)

Test standards version applied

The product standards and test standards applied for each test cases are shown in the following table:

Product Test Standard	Test standard	Requirement – Test case
FCC CFR 47, Part 15, Subpart B (10-1-21 Edition) & ICES-003 Issue 7 (October 2020)	ANSI C63.4 (2014)	RE Radiated emission.
	ANSI C63.4 (2014)	CE Continuous conducted emission

Test Cases Details

FCC 47 CFR Part 15B

RE Radiated emission. Electromagnetic field measure

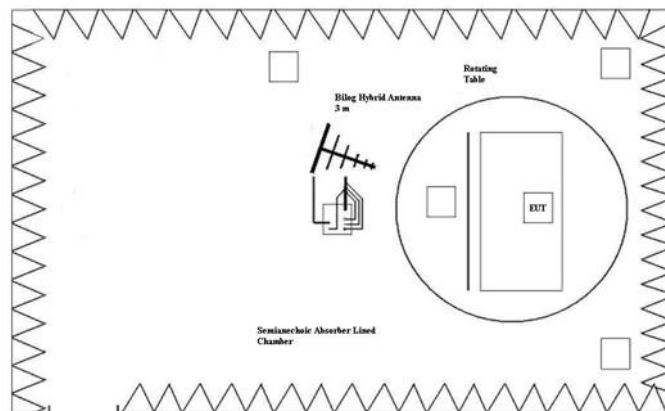
Limits of interference Class B

The applied limit for radiated emissions, 3 m distance, according to the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (10-1-21 Edition), Secs. 15.109 & ICES-003 Issue 7 (October 2020)

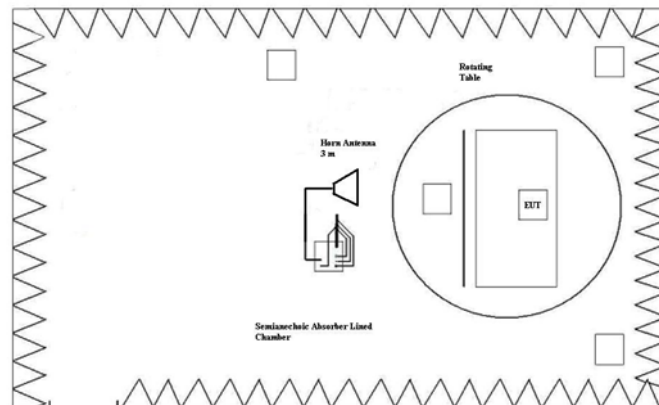
Frequency range (MHz)	FCC Part 15B		ICES-003 Issue 7		FCC Part 15B & ICES-003 Issue 7	
	QP Limit for 3 m		QP Limit for 3 m		PK Limit for 3 m	AVG Limit for 3 m
	($\mu\text{V/m}$)	($\text{dB}\mu\text{V/m}$)	($\mu\text{V/m}$)	($\text{dB}\mu\text{V/m}$)	($\text{dB}\mu\text{V/m}$)	($\text{dB}\mu\text{V/m}$)
30 to 88	100	40	100	40	---	---
88 to 216	150	43.5	150	43.5	---	---
216 to 230	200	46	200	46	---	---
230 to 960	200	46	224	47		
960 to 1000	500	54	500	54	---	---
Above 1000	---	---	---	---	74	54

Limits according to FCC Part 15B, are equal or more stringent than those of ICES-003 Issue 7.

Setup for measurements



Setup for measurements < 1GHz.



Setup for measurements > 1GHz.

Results

S/	OM	Code	Freq Rng (MHz)	V
01	OM/01	RE0101LR	[30, 1000]	P
01	OM/01	RE0101HR	[1000, 12750]	P

Verdict

Pass

Attachments

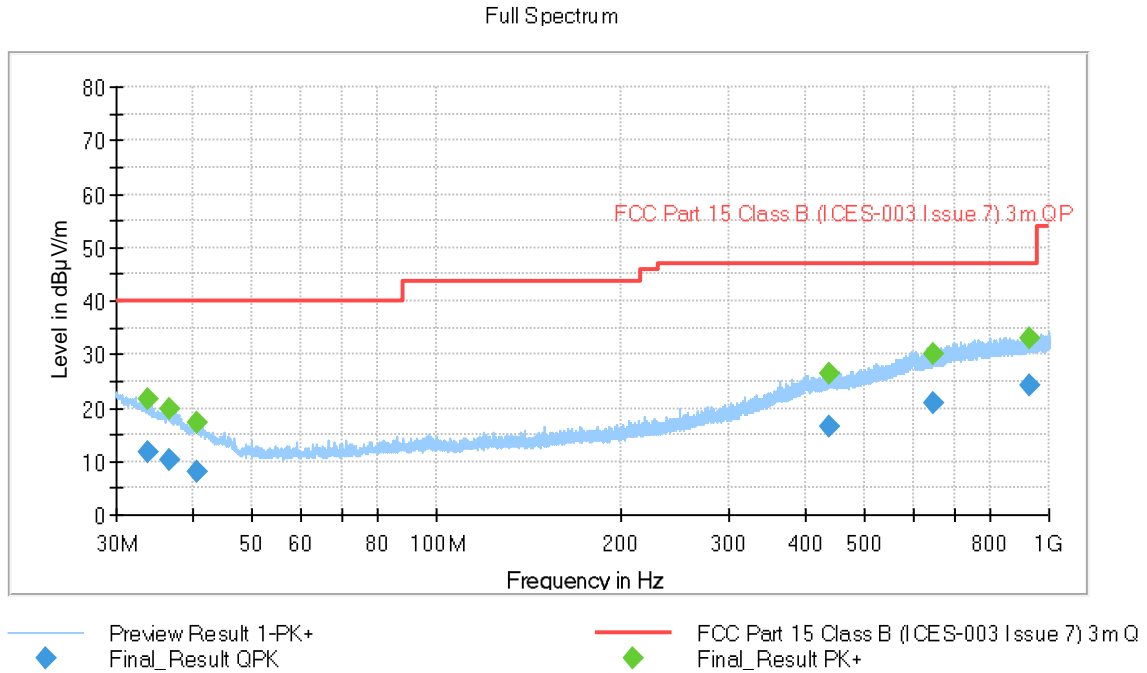
EMC Test Code = RE0101LR Frequency Range MHz = [30, 1000]

Sample ID: S/01

Operation Mode: OM/01. EUT ON. Detecting presence, expecting to generate smoke. SRD OFF.

Power supply 6Vdc (4x1,5Vdc by internal batteries)

Images:



Tables:

Frequency(MHz)	QuasiPeak(dBµV/m)	MaxPeak(dBµV/m)	Limit(dBµV/m)	Margin(dB)	Height(cm)	PoI	Azimuth(deg)
33.694000	11.80	---	40.00	28.20	258.0	H	-3.0
33.694000	---	21.47	---	---	258.0	H	-3.0
36.496000	---	19.68	---	---	264.0	H	73.0
36.496000	10.28	---	40.00	29.72	264.0	H	73.0
40.635000	---	17.37	---	---	247.0	V	124.0
40.635000	7.89	---	40.00	32.11	247.0	V	124.0
435.911000	---	26.42	---	---	192.0	H	-71.0
435.911000	16.65	---	47.00	30.35	192.0	H	-71.0
647.270000	---	30.22	---	---	136.0	V	-146.0
647.270000	20.94	---	47.00	26.06	136.0	V	-146.0
925.996000	24.12	---	47.00	22.88	153.0	V	-90.0
925.996000	---	33.05	---	---	153.0	V	-90.0

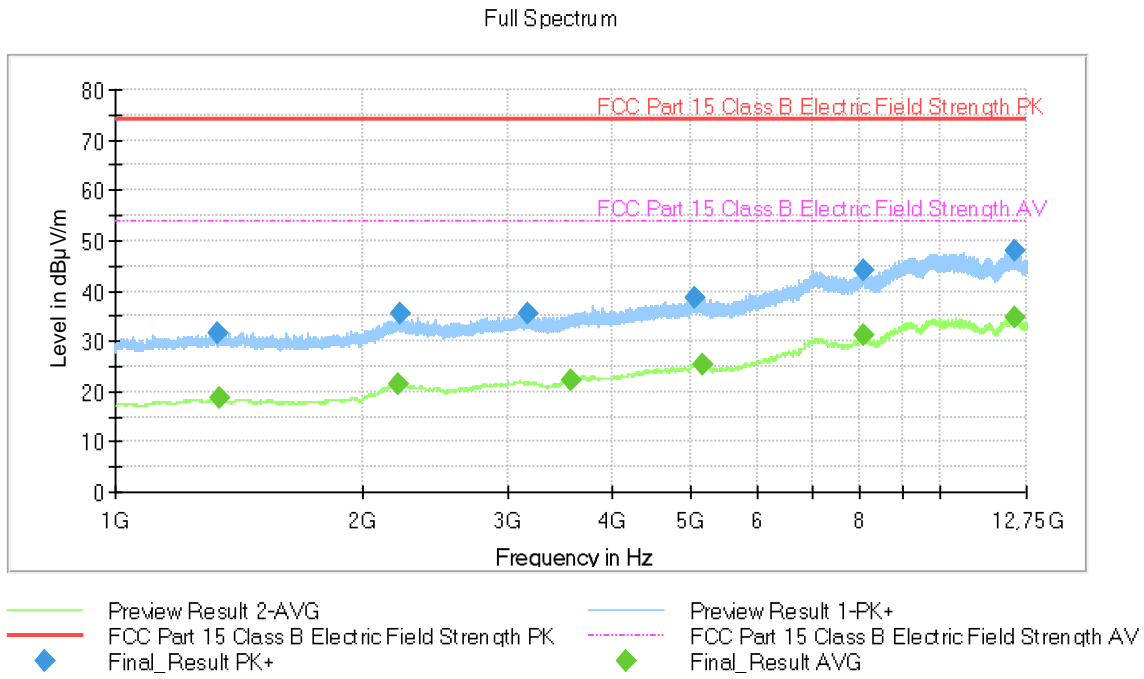
EMC Test Code = RE0101HR Frequency Range MHz = [1000, 12750]

Sample ID: S/01

Operation Mode: OM/01. EUT ON. Detecting presence, expecting to generate smoke. SRD OFF.

Power supply 6Vdc (4x1,5Vdc by internal batteries)

Images:



Tables:

Frequency(MHz)	MaxPeak(dBµV/m)	Average(dBµV/m)	Limit(dBµV/m)	Margin(dB)
1330.500000	31.78	---	73.97	42.19
1335.500000	---	18.63	53.97	35.34
2207.500000	---	21.45	53.97	32.52
2216.750000	35.39	---	73.97	38.58
3157.250000	35.59	---	73.97	38.38
3569.750000	---	22.33	53.97	31.64
5044.000000	38.78	---	73.97	35.19
5151.000000	---	25.51	53.97	28.46
8098.750000	---	31.22	53.97	22.75
8099.500000	44.29	---	73.97	29.68
12314.750000	47.83	---	73.97	26.14
12320.000000	---	34.80	53.97	19.17