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Test report No:
72872REM.003

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	Shock sensor MC2.1
(*) Trademark	Verisure
(*) Model and /or type reference	GWL-MC2-SHOCK
Other identification of the product	FCC ID: 2A93W-GWL-MC2-SHOCK IC: Not provided data
(*) Features	HW version: 1.0 SW version: 4.8 Features supported: ISM 915 RF interface communication (Propietary protocol)
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 (10-1-2021 Edition) & ICES-003 Issue 7 (October 2020)
Summary	IN COMPLIANCE
Approved by (name / position & signature)	José Manuel Gómez EMC Consumer & RF Lab. Manager Firmado digitalmente por Jose Manuel Gómez Galván
Date of issue	2023-03-17
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

DEKRA Testing and Certification S.A.U. is a testing laboratory accredited by the National Accreditation Body (ENAC -Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 51/LE 147.

DEKRA Testing and Certification S.A.U. is an FCC-recognized accredited testing laboratory with the appropriate scope of accreditation that covers the performed tests in this report, FCC designation number ES0004.

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.

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

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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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.
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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 = ± 3,9 dB for quasi-peak measurements, I = ± 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 = ± 4,9 dB for quasi-peak measurements, I = ± 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 = ± 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 Shock sensor MC2.1, a shock and intrusion detector.
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 Nº	Date of Reception	Application
S/01	72872C_005	Shock sensor MC2.1	GWL-MC2-SHOCK	3N4S KN4J	2022-12-09	Element Under Test

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)
	N/A	.....	[ ]	[ ]	[ ]
Supplementary information to the ports…… :	N/A				

Rated power supply .....:	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	[ ]	AC:	[ ]	[ ]	[ ]	[ ]	[ ]
	[ ]	AC:	[ ]	[ ]	[ ]	[ ]	[ ]
	[X]	DC: 2x1.5 VDC (Battery powered device with two AAA batteries)					
	[ ]	DC:					

Rated Power .....:	Maximum 100 mAh	
Clock frequencies.....:	39 MHz (TCXO)	
Other parameters .....:	Not provided data	
Software version .....:	4.8	
Hardware version .....:	1.0	
Dimensions in cm (W x H x D) ....:	8.94 x 2.44 x 1.62 cm	
Mounting position .....:	[ ]	Table top equipment
	[X]	Wall/Ceiling mounted equipment
	[ ]	Floor standing equipment
	[ ]	Hand-held equipment
	[ ]	Other: N/A

Modules/parts.....:	Module/parts of test item	Type	Manufacturer
	Main shock sensor	Sensor	Verisure
	Magnet	Magnet	Verisure

Accessories (not part of the test item) .....:	Description	Type	Manufacturer
	N/A	.....	.....
Documents as provided by the applicant.....:	Description	File name	Issue date
	N/A	.....	.....

(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)	2023-01-03
Date (finish)	2023-01-04

Document history

Report number	Date	Description
72872REM.003	2023-03-17	First release

Environmental conditions

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

Temperature	Min. = 15 ºC Max. = 35 ºC
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 ºC Max. = 35 ºC
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 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860mbar Max. = 1060mbar

Remarks and comments

The tests have been performed by the technical personnel: Carlos Haro López.

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)
Supplementary information and remarks: 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. Shock and intrusion detector. SRD OFF. Power supply 3Vdc (2x1,5Vdc 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

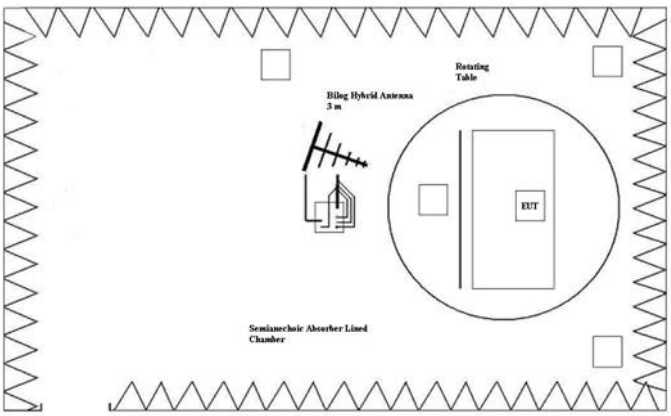
Limits of interference Class B

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)

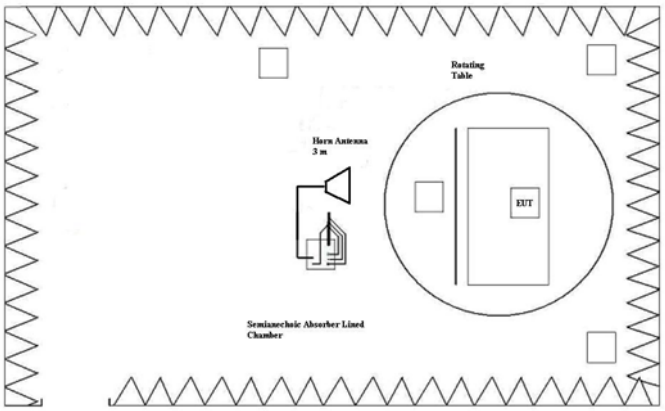
Frequency range (MHz)	FCC Part 15B		ICES-003 Issue 7		FCC Part 15B & ICES-003 Issue 7	
	QP Limit for 3 m		QP Limit for 3 m		PK Limit for 3 m	AVG Limit for 3 m
	(µV/m)	(dBµV/m)	(µV/m)	(dBµV/m)	(dBµV/m)	(dBµV/m)
30 to 88	100	40	100	40	---	---
88 to 216	150	43.5	150	43.5	---	---
216 to 230	200	46	200	46	---	---
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

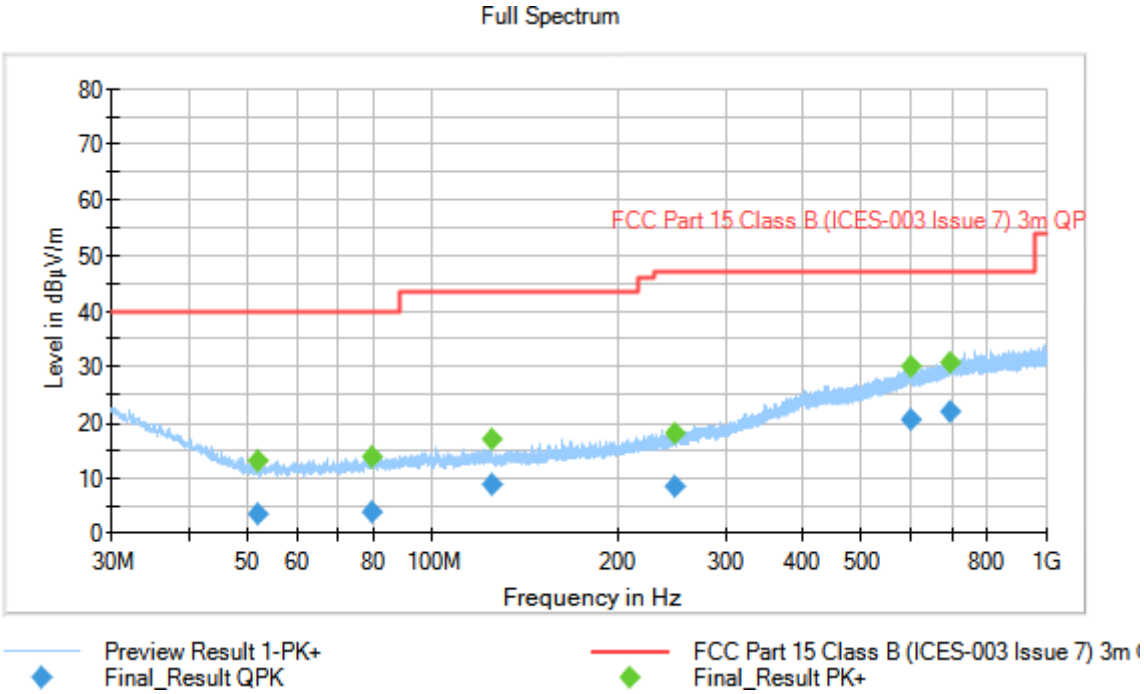
Attachments

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

Sample ID: S/01
Operation Mode: OM/01. EUT ON. Shock and intrusion detector. SRD OFF.

Power supply 3Vdc (2x1,5Vdc by internal batteries)

Images:



Tables:

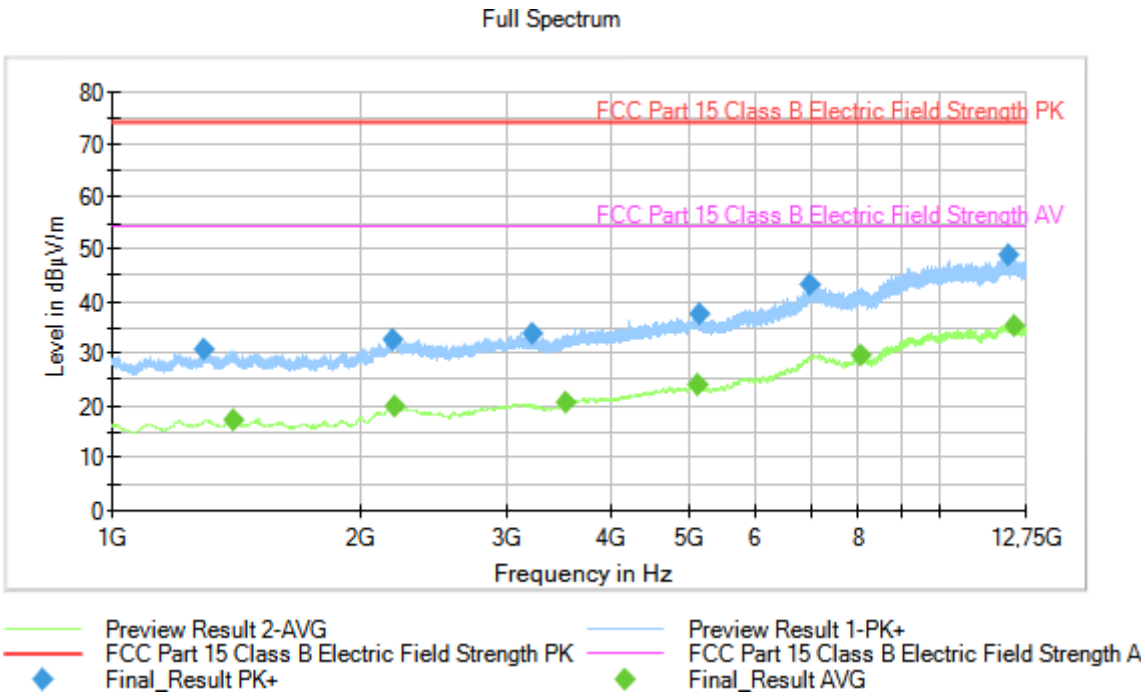
Frequency(MHz)	QuasiPeak(dBµV/m)	MaxPeak(dBµV/m)	Limit(dBµV/m)	Margin(dB)	Height(cm)	Pol	Azimuth(deg)
51.690000	---	13.02	---	---	281.0	H	-94.0
51.690000	3.55	---	40.00	36.45	281.0	H	-94.0
79.708000	4.05	---	40.00	35.95	347.0	H	-180.0
79.708000	---	13.94	---	---	347.0	H	-180.0
125.008000	8.99	---	43.52	34.53	114.0	V	-94.0
125.008000	---	17.02	---	---	114.0	V	-94.0
248.472000	8.38	---	47.00	38.62	229.0	V	161.0
248.472000	---	18.12	---	---	229.0	V	161.0
601.851000	20.60	---	47.00	26.40	141.0	V	9.0
601.851000	---	30.01	---	---	141.0	V	9.0
695.127000	---	30.75	---	---	330.0	V	-84.0
695.127000	21.88	---	47.00	25.12	330.0	V	-84.0

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

Sample ID: S/01
Operation Mode: OM/01. EUT ON. Shock and intrusion detector. SRD OFF.

Power supply 3Vdc (2x1,5Vdc by internal batteries)

Images:



Tables:

Frequency(MHz)	MaxPeak(dBµV/m)	Average(dBµV/m)	Limit(dBµV/m)	Margin(dB)
1288.000000	30.78	---	73.97	43.19
1399.000000	---	17.44	53.97	36.53
2184.250000	32.86	---	73.97	41.11
2196.250000	---	19.79	53.97	34.18
3217.750000	33.78	---	73.97	40.19
3535.000000	---	20.59	53.97	33.38
5097.750000	---	23.92	53.97	30.05
5132.000000	37.55	---	73.97	36.42
6980.000000	43.06	---	73.97	30.91
8059.750000	---	29.72	53.97	24.25
12106.250000	48.85	---	73.97	25.12
12339.500000	---	35.33	53.97	18.64