

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 (Proprietary 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 |
| 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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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 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 N° | 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 °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: 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) |
| <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. 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

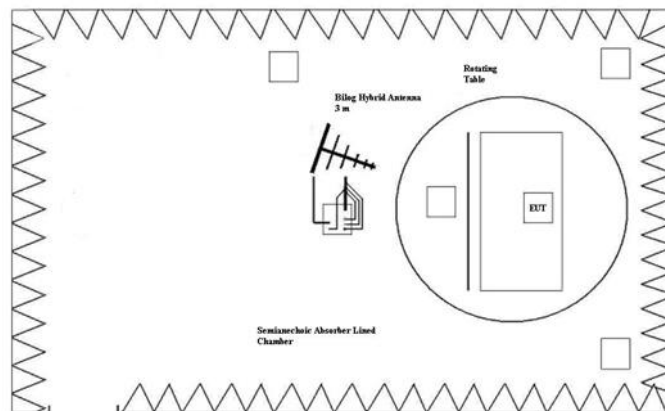
Limits of interference Class B

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)

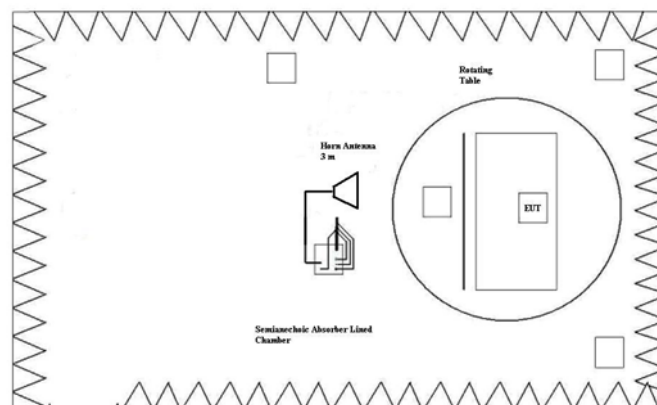
| Frequency range (MHz) | FCC Part 15B | | ICES-003 Issue 7 | | FCC Part 15B & ICES-003 Issue 7 | |
|-----------------------|---------------------|------------------------------|---------------------|------------------------------|---------------------------------|------------------------------|
| | QP Limit for 3 m | | QP Limit for 3 m | | PK Limit for 3 m | AVG Limit for 3 m |
| | ($\mu\text{V/m}$) | ($\text{dB}\mu\text{V/m}$) | ($\mu\text{V/m}$) | ($\text{dB}\mu\text{V/m}$) | ($\text{dB}\mu\text{V/m}$) | ($\text{dB}\mu\text{V/m}$) |
| 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

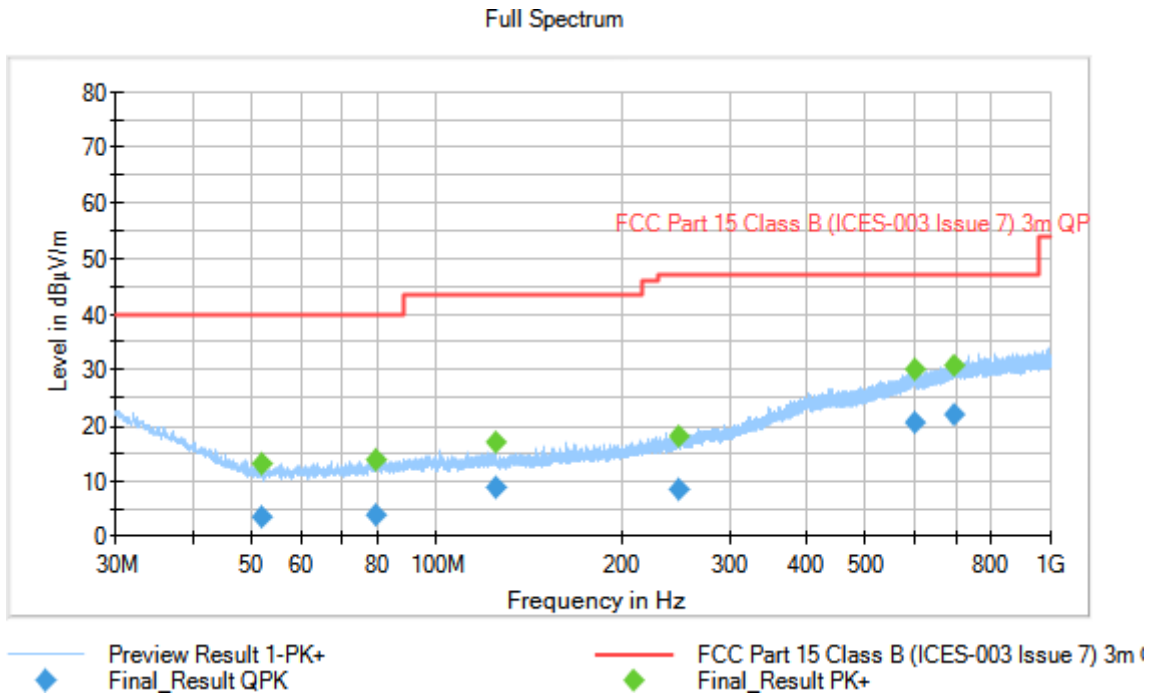
EMC Test Code = RE0101LR Frequency Range MHz = [30, 1000]

Sample ID: S/01

Operation Mode: OM/01. EUT ON. 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) | Po l | 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 |

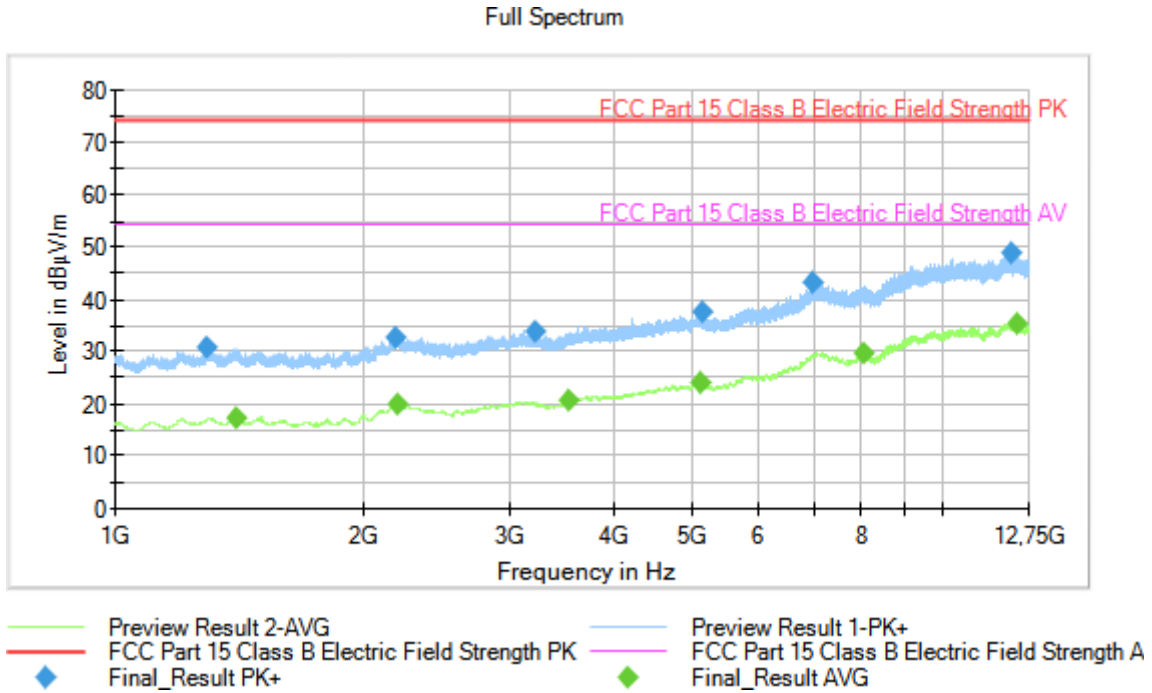
EMC Test Code = RE0101HR Frequency Range MHz = [1000, 12750]

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 |