



The Testcenter facility 'LoRa® Test Lab' within IMST GmbH is recognized by the LoRa™ Alliance for testing in accordance to the LoRaWAN™ Specification V1.0.4

Report for Test of Conformance to LoRaWAN™ V1.0.4

for the Device

“Viloc Module”

for the Customer

“Viloc NV”

Jens Lerner

Yavuz Turan

8th November, 2021

Administrative Summary

Location: IMST GmbH, Test Centre, Kamp-Lintfort, Germany

Responsible Test Engineer: Yavuz Turan, Jens Lerner

Subject: Test of Conformance to LoRaWAN™ Specification V1.0.4

Company and Contact Information:

Viloc NV

Tim Gestels

Meet District, Posthofbrug 6/8

2600, Antwerpen

Belgium

Tested Device: Viloc Module

Hardware version: Stabil2

Firmware version: 1.3

End-device identifier: ST2

LoRa Device Class: A

LoRaWAN Specification version: V1.0.4

Certification requirements: LoRa End Device Certification Requirements Version 1.4

Frequency band(s) tested: 868 MHz

Test Equipment: Test Software Version: 1.2

2x IMST LGW (iC880A + Raspberry Pi): Gateway software version 5.0.1

Packet forwarder software version 4.0.1


Test Result: PASS


Quality Engineer: Jens Lerner

Date: November, 8th, 2021

The Test Report, No. 6210867 has the following conclusion:

The device has PASSED the tests hereunder.

Responsibility: 
Yavuz Turan
Test Engineer

Approved: 
Jens Lerner
Quality Engineer

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1 Description of the Device Under Test (DUT)

1.1 General

Item	Value
Product name	Viloc Module
Product Vertical(s)	Cities, Industrial/Hazardous
Product Version	ST2
Series (if any)	N/A
Hardware Version	Stabil2
Firmware Version	1.3
Type of DUT	<input checked="" type="checkbox"/> Module <input type="checkbox"/> End Device/Sensor <input type="checkbox"/> others
Geographical area of operation	<input checked="" type="checkbox"/> Europe <input type="checkbox"/> USA
Operating frequency	<input type="checkbox"/> 433 MHz <input checked="" type="checkbox"/> 868 MHz <input type="checkbox"/> 915 MHz
Adaptive Data Rate (ADR) supported?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Optional data rates supported?	<input type="checkbox"/> DR6 <input type="checkbox"/> DR7
Activation possibilities	<input checked="" type="checkbox"/> Over the air <input type="checkbox"/> by personalization <input type="checkbox"/> both
Test According LoRaWAN™ Spec	<input type="checkbox"/> V1.0.1 <input type="checkbox"/> V1.0.2 <input checked="" type="checkbox"/> V1.0.4
Output Power	22 dBm
Number / Type of Antenna(s)	1 PIFA antenna
Antenna Gain	0 dBm

Table 1 Device Information

1.2 DUT Modes of Operation

During the tests the device operated in the following modes:

- Test mode according to document “LoRa Alliance End Device certification Requirements for All Regions Version 1.4” Chapter 2.

1.3 DUT Setup

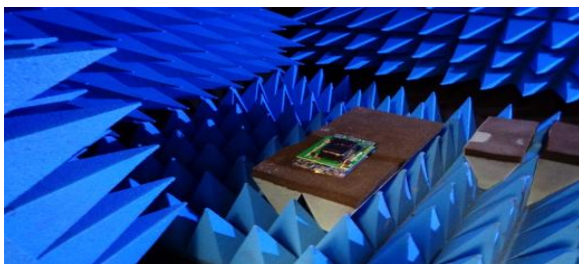


Figure 1 DUT Setup

Applied Methods of Measurement

1.4 Protocol Testing according to LoRaWAN™ specification V1.0.4

Detailed Test Results:

Test Mode Activation (Over the Air Activation): **PASS**

Cryptography: **PASS**

Frame Sequence Number: **PASS**

Confirmed Packets: **PASS**

Device Status Request: **PASS**

New Channel Request: **PASS**

Di Channel Request Mac Command: **PASS**

RX Parameter Setup Request: **PASS**

RX Timing Setup Request: **PASS**

TX Parameter Setup Request: **PASS**

Link Check Request: **PASS**

Link ADR Request: **PASS**

Duty Cycle Request: **PASS**

Device Time Request: **PASS**

Uplink Datarate RX1 DR Offset Mapping: **PASS**

Packet Error Rate Rx1 MaxSize: **PASS**

Packet Error Rate Rx1 MaxSize: **PASS**

RX1 And RX2 Simultaneous Frames: **PASS**

RX Oversized Payload: **PASS**

Maximum Allowed Payload: **PASS**

Mac Commands: **PASS**

Mac Commands Buffer: **PASS**

Device Deactivation: **PASS**

Supported Optional Features:

Adaptive Data Rate (ADR): Yes

Permanent Class C No

Min TX Power: Yes (Tx Power Id = 7)

Remarks: None

Result: The device passed the test without limitations.