Report for Test of Conformance to LoRaWAN™ V1.0.2

for the Device

“Sonica© WM15-L “

for the Customer

“SAGEMCOM E&T SAS”

Dietmar Krebs
Yavuz Turan

12th February, 2020
Administrative Summary

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

Responsible Test Engineer: Yavuz Turan, Dietmar Krebs

Subject: Test of Conformance to LoRaWAN™ Specification V1.0.2

Company and Contact Information:
SAGEMCOM E&T SAS
Vincent Desortiaux
250 Route de l’Empereur
92848 Rueil Malmaison Cedex
FRANCE

Tested Device: Siconia© WM15-L
Firmware version: 00.27
Hardware version: 01.00
End-device identifier: A21B29FFFEFDDDC2
LoRa Device Class: A
LoRaWAN Specification version: V1.0.2
Certification requirements: LoRa End Device Certification EU Version 1.5
Frequency band(s) tested: 868 MHz
Test Equipment: IMST LGW (iC880A + Raspberry Pi): Gateway software version 5.0.1
Packet forwarder software version 4.0.1

Test Result: PASS

Chief Test Engineer: Dietmar Krebs
Dept. Test Center

Date: February 12th, 2020

The Test Report, No. 6191537 has the following conclusion:

The device has PASSED the tests hereunder.

Responsibility: Approved:
Yavuz Turan Dietmar Krebs
Test Engineer Quality Engineer

Copyright Notice & Disclaimer: No part of this test report may be reproduced without written permission of IMST GmbH. The test results herein only refer to the tested sample. IMST GmbH cannot be made responsible for any generalizations or conclusions drawn from the test results presented herein concerning further samples of the tested device. Modification of the tested sample(s) is prohibited and leads to invalidity of this report.
1 Description of the Device Under Test (DUT)

1.1 General

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>Siconia© WM15-L</td>
</tr>
<tr>
<td>Kind of product</td>
<td>Water meter</td>
</tr>
<tr>
<td>Series (if any)</td>
<td></td>
</tr>
<tr>
<td>Hardware Version</td>
<td>01.00</td>
</tr>
<tr>
<td>Firmware Version</td>
<td>00.27</td>
</tr>
<tr>
<td>Type of DUT</td>
<td>☑ Module / End Device ☑ Gateway / Concentrator</td>
</tr>
<tr>
<td>Geographical area of operation</td>
<td>☑ Europe ☑ USA</td>
</tr>
<tr>
<td>Operating frequency</td>
<td>☑ 433 MHz ☑ 868 MHz ☑ 915 MHz</td>
</tr>
<tr>
<td>Adaptive Data Rate (ADR) supported?</td>
<td>☑ Yes ☑ No</td>
</tr>
<tr>
<td>Optional data rates supported?</td>
<td>☑ DR6 ☑ DR7</td>
</tr>
<tr>
<td>Activation possibilities</td>
<td>☑ Over the air ☑ by personalization ☑ both</td>
</tr>
<tr>
<td>Test According LoRaWAN™ Spec</td>
<td>☑ V1.0.1 ☑ V1.0.2</td>
</tr>
<tr>
<td>Output Power</td>
<td>16 dBm</td>
</tr>
<tr>
<td>Number / Type of Antenna(s)</td>
<td>internal</td>
</tr>
<tr>
<td>Antenna Gain</td>
<td>-3dB</td>
</tr>
</tbody>
</table>

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 End Device Certification EU V1_5” Chapter 3.

1.3 DUT Setup

![DUT Setup](image-url)
Applied Methods of Measurement

1.4 Protocol Testing according to LoRaWAN™ specification V1.0.2

Detailed Test Results:

Device Activation (Activation by Personalization): **PASS**
Test Mode Activation (Over the Air Activation): **PASS**
Test Application Functionality: **PASS**
Packet Error Rate RX2 SF12: **PASS**
Cryptography: **PASS**
Downlink Window Timing: **PASS**
Frame Sequence Number: **PASS**
Device Status Request: **PASS**
Mac Commands: **PASS**
New Channel Request: **PASS**
Di Channel Request Mac Command: **PASS**
Confirmed Packets: **PASS**
RX Parameter Setup Request: **PASS**
RX Timing Setup Request: **PASS**
Link ADR Request: **PASS**
Packet Error Rate RX1 Window: **PASS**
Packet Error Rate RX2 Window: **PASS**

Supported Optional Features:

Adaptive Data Rate (ADR): Yes
DR6 (SF7BW250): Yes
DR7 (FSK50): Yes
Link ADR Request Block: Yes
Di Channel Request: Yes
Range 6dB: Yes

Remarks: None.

Result: The device passed the test without limitations.