The Testcenter facility ‘LoRa® Test Lab’ within IMST GmbH is recognized by the LoRa™ Alliance for testing in accordance to the LoRaWAN™ Specification V1.0.2

Report for Test of Conformance to LoRaWAN™ V1.0.2

for the Device

“7x9”

for the Customer

“Sontex SA”

Dietmar Krebs
Yavuz Turan

26th September, 2019
### 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:**  
Sontex SA  
Rue de la Gare 27  
2605 Sonceboz  
Switzerland  
**Tested Device:** 7x9  
**Firmware version:** V2.0.1  
**Hardware version:** V1.0  
**End-device identifier:** a300000000f10df8  
**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:** Test Software Version: 1.1.11  
Semtech IOT SX1301 Starter Kit: Gateway software version 3.1.0  
Packet forwarder software version 2.1.0

**Test Result:** PASS

**Chief Test Engineer:** Dietmar Krebs  
Dept. Test Center

**Date:** September 26th, 2019

The Test Report, No. 6191102 has the following conclusion:

**The device has PASSED the tests hereunder.**

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

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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>7x9</td>
</tr>
<tr>
<td>Kind of product</td>
<td>Heat meter</td>
</tr>
<tr>
<td>Series (if any)</td>
<td>Superstatic / Supercal</td>
</tr>
<tr>
<td>Hardware Version</td>
<td>V1.0</td>
</tr>
<tr>
<td>Firmware Version</td>
<td>V2.0.1</td>
</tr>
<tr>
<td>Type of DUT</td>
<td>Module / End Device</td>
</tr>
<tr>
<td>Geographical area of operation</td>
<td>Europe</td>
</tr>
<tr>
<td>Operating frequency</td>
<td>433 MHz</td>
</tr>
<tr>
<td>Adaptive Data Rate (ADR) supported?</td>
<td>Yes</td>
</tr>
<tr>
<td>Optional data rates supported?</td>
<td>DR6</td>
</tr>
<tr>
<td>Activation possibilities</td>
<td>Over the air</td>
</tr>
<tr>
<td>Test According LoRaWAN™ Spec</td>
<td>V1.0.1 V1.0.2</td>
</tr>
<tr>
<td>Output Power</td>
<td>Max 14dBm</td>
</tr>
<tr>
<td>Number / Type of Antenna(s)</td>
<td>PCB antenna</td>
</tr>
<tr>
<td>Antenna Gain</td>
<td>N/A</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

Figure 1 DUT Setup
Applied Methods of Measurement

1.4 Protocol Testing according to LoRaWAN™ specification V1.0.2

Detailed Test Results:

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.