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: *Yavuz Turan*   Approved: *Dietmar Krebs*

                 Yavuz Turan   Dietmar Krebs

                 Test Engineer   Quality Engineer

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1 Description of the Device Under Test (DUT)

1.1 General

Item	Value
Product name	7x9
Kind of product	Heat meter
Series (if any)	Superstatic / Supercal
Hardware Version	V1.0
Firmware Version	V2.0.1
Type of DUT	☒ Module / End Device ☐ Gateway / Concentrator
Geographical area of operation	☒ Europe ☐ USA
Operating frequency	☐ 433 MHz ☒ 868 MHz ☐ 915 MHz
Adaptive Data Rate (ADR) supported?	☒ Yes ☐ No
Optional data rates supported?	☒ DR6 ☒ DR7
Activation possibilities	☒ Over the air ☐ by personalization ☐ both
Test According LoRaWAN™ Spec	☐ V1.0.1 ☒ V1.0.2
Output Power	Max 14dBm
Number / Type of Antenna(s)	PCB antenna
Antenna Gain	N/A

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.
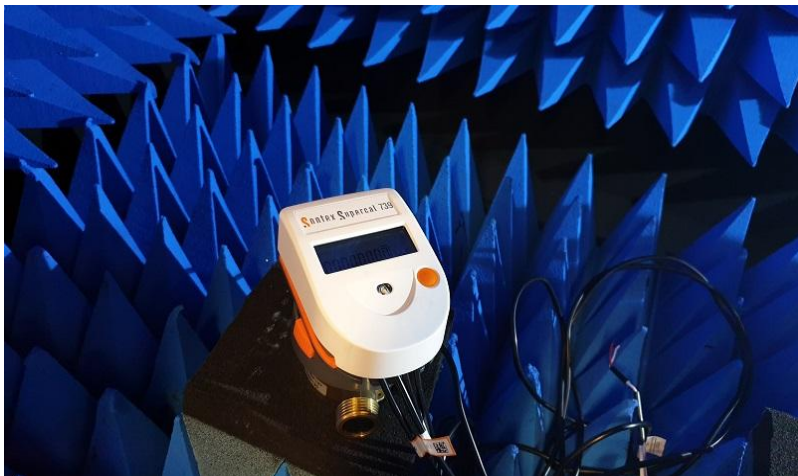
1.3 DUT Setup

Figure 1 DUT Setup

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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.