



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

“Temperatursensor TSL-A-002”

for the Customer

“Aartesys AG”

Markus Ridder

Yavuz Turan

9. April 2019

Administrative Summary

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

Responsible Test Engineer: Yavuz Turan, Markus Ridder

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

Company and Contact Information:

Aartsys AG

Mr. Patrick Gerber

Silbergasse 32, 2501 Biel

Switzerland

Tested Device: Temperatursensor TSL-A-002

Firmware version: 6.441.115

Hardware version: TSL-A-002 Rev. 1.1

End-device identifier: 2f020003006b77e4

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: Markus Ridder
Dept. Test Center

Date: April 9th, 2019

The Test Report, No. 6190416 has the following conclusion:

The device has PASSED the tests hereunder.

Responsibility: 

Yavuz Turan
Test Engineer

Approved: 

Markus Ridder
Quality Engineer

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1 Description of the Device Under Test (DUT)

1.1 General

Item	Value
Product name	Temperatursensor TSL-A-002
Kind of product	Lora temperatur sensor
Series (if any)	
Hardware Version	TSL-A-002 Rev. 1.1
Firmware Version	6.441.115
Type of DUT	<input checked="" type="checkbox"/> Module / End Device <input type="checkbox"/> Gateway / Concentrator
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 checked="" 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 checked="" type="checkbox"/> V1.0.2
Output Power	+7 - +14 dBm
Number / Type of Antenna(s)	1 / Wire
Antenna Gain	+ 2 dB

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):	No
Link ADR Request Block:	Yes
Di Channel Request:	Yes
Range 6dB	Yes

Remarks: None.

Result: The device passed the test without limitations.