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 Class A

for the Device

"iO881A"

for the Customer

"IMST GmbH"

Jens Lerner

Yavuz Turan

25th February, 2022

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 (Class A for EU)

Company and Contact Information:
IMST GmbH

Heinz Syrzisko

Carl-Friedrich-Gauss-Str. 2-4

47475 Kamp-Lintfort

Germany

Tested Device: iO881A

Hardware version: C100

Firmware version: V1.1

End-device identifier: 70B3D58FF003A0F1

LoRa Device Class: A

LoRaWAN Specification version: V1.0.4

Certification requirements: LoRaWAN 1.0.4 End Device Certification Requirement V1.4

Frequency band(s) tested: 868MHz

Test Equipment: Test Software Version: 1.3.0

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: February 25th, 2022

The Test Report, No. 6220123 has the following conclusion:

The device has PASSED the tests hereunder.

Responsibility: Approved:

Yavuz Turan   Jens Lerner

Test Engineer   Quality Engineer

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1 Description of the Device Under Test (DUT)

1.1 General

Item	Value
Product name	iO881A
Product Vertical(s)	Buildings, Cities, Home / Customer, Industry
Series (if any)	
Hardware Version	C100
Firmware Version	V1.1
Type of DUT	☐ Module ☐ End Device/Sensor ☒ others
Geographical area of operation	☒ Europe ☐ USA ☐ Australia
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 ☒ V1.0.4
Output Power	14 dBm
Number / Type of Antenna(s)	External antenna
Antenna Gain	

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

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Applied Methods of Measurement

1.4 Protocol Testing according to LoRaWAN® specification V1.0.4 (Class A device for EU868)

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
Min TX Power:	Yes
SF7BW250 (DR6)	Yes
FSK50 (DR7)	Yes
Permanent Class C	No

Remarks: None

Result: The device passed the test without limitations.

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