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

"iM881A-XL"

for the Customer

"IMST GmbH"

Jens Lerner

Yavuz Turan

23rd June, 2020

Administrative Summary

Location: IMST GmbH, Test Centre, Kamp-Lintfort, Germany
Responsible Test Engineer: Yavuz Turan, Jens Lerner

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

Company and Contact Information:
IMST GmbH
Heinz Syrzisko
Carl-Friedrich-Gauss-Str. 2-4
47475 Kamp-Lintfort
Germany
Tested Device: iM881A-XL
Firmware version: V2.0
Hardware version: A
End-device identifier: 70B3D58FF003A5E4
LoRa Device Class: A
LoRaWAN Specification version: V1.0.2
Certification requirements: LoRa End Device Certification EU Version 1.6
Frequency band(s) tested: 868 MHz
Test Equipment: Test Software Version: 1.1.16
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: June 23rd, 2020

The Test Report, No. 6200608 has the following conclusion:

The device has PASSED the tests hereunder.

Responsibility: Approved:

Yavuz Turan   Jens Lerner

Test Engineer   Quality Engineer

1 Description of the Device Under Test (DUT)

1.1 General

| Item	Value
Product name	iM881A-XL
Product Vertical(s)	
Series (if any)	
Hardware Version	A
Firmware Version	V2.0
Type of DUT	☒ Module ☐ End Device/Sensor ☐ others
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	14 dBm
Number / Type of Antenna(s)	
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 EU863-870 MHz Version 1.6" Chapter 2.

1.3 DUT Setup
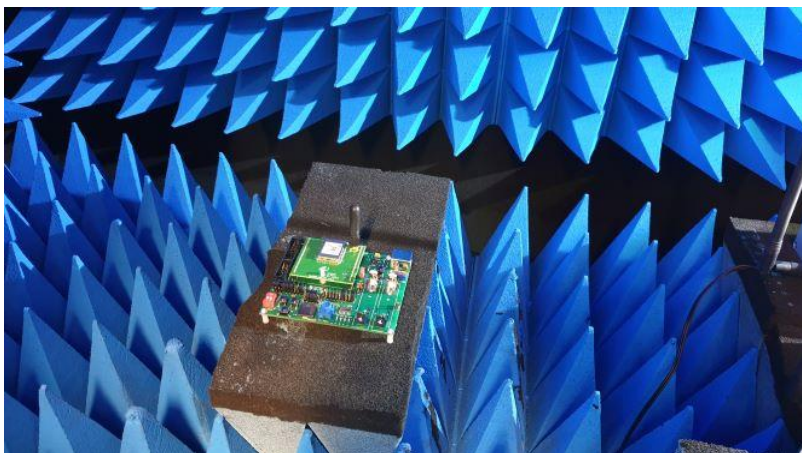
Figure 1 DUT Setup

Applied Methods of Measurement

1.4 Protocol Testing according to LoRaWAN™ specification V1.0.2

<u>Detailed Test Results:</u>

Device Activation (Activation by Personalization): **PASS**
Test Mode Activation (Over the Air Activation): **PASS**
Test Application Functionality: **PASS**
Channel Plan Usage: **PASS**
Cryptography: **PASS**
Packet Error Rate RX2 SF12: **PASS**
Downlink Window Timing: **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**
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**
Device Deactivation: **PASS**

<u>Supported Optional Features:</u>

Adaptive Data Rate (ADR):　　　　Yes
DR6 (SF7BW250):　　　　　　　　Yes
DR7 (FSK50):　　　　　　　　　　Yes
Link ADR Request Block:　　　　　Yes
Di Channel Request:　　　　　　　Yes
Range 6dB :　　　　　　　　　　　Yes
Join Synch DevNonce:　　　　　　No

<u>Remarks:</u> None.

Result: The device passed the test without limitations.

LoRa® Alliance