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

"iM880B-L"

for the Customer

"IMST GmbH"

Markus Ridder
Yavuz Turan

December, 21st 2018

Administrative Summary

Location: IMST GmbH, Test Centre, Yavuz Turan, Markus Ridder

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

Company and Contact Information:
IMST GmbH
Heinz Syrzisko
Carl-Friedrich-Gauss-Str. 2-4
D-47475 Kamp-Lintfort
Germany
Tested Device: iM880B-L
Firmware version: 2.0
Hardware version: B
End-device identifier: 0000000000000000
LoRa Device Class: A
LoRaWAN Specification version: V1.0.2
Certification requirements: LoRa End Device Certification India Version 1.1
Frequency band(s) tested: 865 MHz
Test Equipment: Test Software Version: 1.1.15
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 Centre

Date: December, 21th 2018

The Test Report, No. 6181674 has the following conclusion:

The device has PASSED the tests hereunder.

Responsibility: Approved:

Jens Lerner — Test Engineer
Markus Ridder — Quality Engineer

LoRa® Alliance

1 Description of the Device Under Test (DUT)

1.1 General

Item	Value
Product name	iM880B-L
Kind of product	Radio Module
Series (if any)	
Hardware Version	B
Firmware Version	V2.0
Type of DUT	☒ Module / End Device ☐ Gateway / Concentrator
Geographical area of operation	☐ Europe ☐ USA ☒ India
Operating frequency	☒ 865 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 ☐ V1.0.1 ☒ V1.0.2
Output Power	max. 19dBm
Number / Type of Antenna(s)	50 Ohm port/external antenna of SK-iM880A
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 End Device Certification IN V1_1”.

1.3 DUT Setup

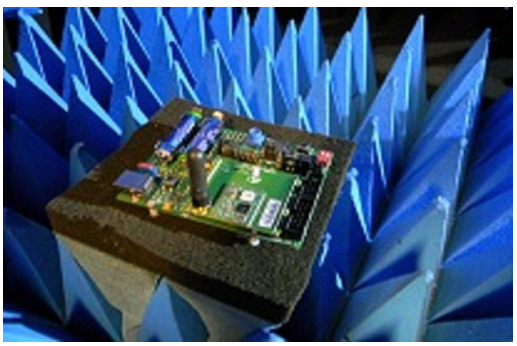

Figure 1 DUT Setup

Applied Methods of Measurement

1.4 Protocol Testing according to LoRaWAN™ specification V1.0.2

Detailed Test Results:

Device Activation (ABP): **PASS**
Test Application Functionality: **PASS**
Over The Air Activation: **PASS**
Channel Plan Usage: **PASS**
Packet Error Rate RX2 Default: **PASS**
Cryptography: **PASS**
Downlink Window Timing: **PASS**
Frame Sequence Number: **PASS**
Device Status Request: **PASS**
New Channel Request: **PASS**
Di Channel request: **PASS**
Confirmed packets: **PASS**
RX Parameter Setup Request: **PASS**
RX Timing Setup Request: **PASS**
Link ADR Request: **PASS**
Maximum Allowed Payload: **PASS**
Rx Oversized Payload: **PASS**
Mac Commands: **PASS**
Uplink Data Rate Rx1Droffset Mapping: **PASS**
Packet Error Rate RX1 Window max Size: **PASS**
Packet Error Rate RX2 Window max Size: **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
Frame Counter Size: 32 bits	Yes
Max. Retransmission for Confirmed Uplinks: 7	Yes

Remarks: None

Result: The device passed the test without limitations.