The Testcenter facility 'LoRa® Test Lab' within IMST GmbH is recognized by the LoRa™ Alliance for testing in accordance to the LoRaWAN™ Specification V1.0.1.

Report for Test of Conformance to LoRaWAN™ V1.0.1

for the Device

"Mote II for LoRa"

for the Customer

IMST GmbH

Markus Ridder

Annette Schramm.

16. Aug. 2016

Administrative Summary

Location: IMST GmbH, Test Centre, Kamp-Lintfort, Germany
Responsible Test Engineer: Markus Ridder

Subject: Test of Conformance to LoRaWAN™ Specification V1.0.1

Company and Contact Information:
IMST GmbH
Mr. Heinz Syrzisko
Carl-Friedrich-Gauss-Strasse 2-4
47475 Kamp-Lintfort
Germany

Tested Device: Mote II for LoRa
Firmware version: V1.0.0
Hardware version: C100
End-device identifier: 0x01C94F17
LoRa Device Class: A
LoRaWAN Specification version: V1.0.1
Certification requirements: LoRa End Device Certification EU Version 1.2
Frequency band(s) tested: 868 MHz
Test Equipment: Test Software Version: 1.1.7
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: August 16th, 2016

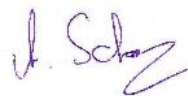The Test Report, No. 61640140 has the following conclusion:

The device has PASSED the tests hereunder.

Responsibility: Approved:

Markus Ridder   Annette Schramm
Test Engineer   Quality Engineer

LoRa® Alliance

Description of the Device Under Test (DUT)

1.1 General

Item	Value
Product name	Mote II for LoRa
Kind of product	Sensornode
Series (if any)	-
Hardware Version	C100
Firmware Version	V1.0.0
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 ☒ V1.0.1
Output Power	14dB
Number / Type of Antenna(s)	one PIFA
Antenna Gain	2dBi

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_1" Chapter 3.
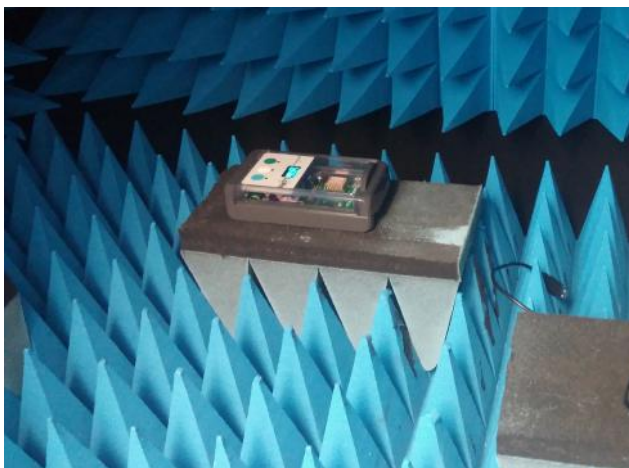
1.3 DUT Setup

Figure 1 DUT Setup

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Applied Methods of Measurement

1.4 Protocol Testing according to LoRaWAN™ specification V1.0.1

Detailed Test Results:

Test Mode Activation (Activation by Personalization): **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**
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

Remarks: None.

Result: The device passed the test without limitations.