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
“ED1608CO"
for the Customer
1M2M BV

Markus Ridder
Yavuz Turan.

**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:**  
1M2M BV  
Mr. Ruud Schellekens  
3453 MJ De Meern  
NETHERLANDS

**Tested Device:** ED1608CO  
**Firmware version:** V1.07  
**Hardware version:** V4.35  
**End-device identifier:** 0x00001152  
**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 24th, 2016

The Test Report, No. 6160348 has the following conclusion:

**The device has PASSED the tests hereunder.**

**Responsibility:**  
Markus Ridder  
Test Engineer

**Approved:**  
Annette Schramm  
Quality Engineer

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1 Description of the Device Under Test (DUT)

1.1 General

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>ED 1608CO</td>
</tr>
<tr>
<td>Kind of product</td>
<td>Smart Sensor with PIR and CO2</td>
</tr>
<tr>
<td>Series (if any)</td>
<td>-</td>
</tr>
<tr>
<td>Hardware Version</td>
<td>V4.35</td>
</tr>
<tr>
<td>Firmware Version</td>
<td>V1.07</td>
</tr>
<tr>
<td>Type of DUT</td>
<td>Module / End Device</td>
</tr>
<tr>
<td>Geographical area of operation</td>
<td>Europe □ USI □</td>
</tr>
<tr>
<td>Operating frequency</td>
<td>□ 433 MHz □ 868 MHz □ 915 MHz</td>
</tr>
<tr>
<td>Adaptive Data Rate (ADR) supported?</td>
<td>Yes □ No □</td>
</tr>
<tr>
<td>Optional data rates supported?</td>
<td>DR6 □ DR7 □</td>
</tr>
<tr>
<td>Activation possibilities</td>
<td>□ Over the air □ by personalization □ both</td>
</tr>
<tr>
<td>Test According LoRaWAN™ Spec</td>
<td>□ V1.0 □ V1.0.1 □</td>
</tr>
<tr>
<td>Output Power</td>
<td>14dB</td>
</tr>
<tr>
<td>Number / Type of Antenna(s)</td>
<td>1</td>
</tr>
<tr>
<td>Antenna Gain</td>
<td>-</td>
</tr>
</tbody>
</table>

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
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 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**
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

Remarks: None.

Result: The device passed the test without limitations.