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

“Ambiance"

for the Customer

“Ewattch”

Markus Ridder
Yavuz Turan

**Administrative Summary**

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

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

**Company and Contact Information:**  
Ewattch  
Mr. Nicolas Babel  
13 RUE MAURICE JEANDON, 88100 Saint des Vosges  
France  
**Tested Device:** Ambiance  
**Firmware version:** 2.1  
**Hardware version:** 1.0  
**End-device identifier:** 70B3D5475010000A  
**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:**  
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:** June 28th, 2017

The Test Report, No. 6171238 has the following conclusion:

The device has PASSED the tests hereunder.

**Responsibility:**  
Yavuz Turan  
Test Engineer  
Markus Ridder  
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>Ambiance</td>
</tr>
<tr>
<td>Kind of product</td>
<td>Sensor</td>
</tr>
<tr>
<td>Series (if any)</td>
<td></td>
</tr>
<tr>
<td>Hardware Version</td>
<td>1.0</td>
</tr>
<tr>
<td>Firmware Version</td>
<td>2.1</td>
</tr>
<tr>
<td>Type of DUT</td>
<td>☒ Module / End Device ☐ Gateway / Concentrator</td>
</tr>
<tr>
<td>Geographical area of operation</td>
<td>☒ Europe ☐ USA</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>14 dBm</td>
</tr>
<tr>
<td>Number / Type of Antenna(s)</td>
<td>1 ceramique antenna</td>
</tr>
<tr>
<td>Antenna Gain</td>
<td>-4 db average -1db peak</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_2” Chapter 3.

1.3 DUT Setup

![DUT Setup](image_url)
Applied Methods of Measurement

1.4 Protocol Testing according to LoRaWAN™ specification V1.0.1

Detailed Test Results:

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
DR6 (SF7BW250): Yes
DR7 (FSK50): Yes

Remarks: None.

Result: The device passed the test without limitations.