



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

"IOTSU L2 AQ01"

for the Customer

"Small Data Garden Oy"

Jens Lerner

Yavuz Turan

30th March, 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:

Small Data Garden Oy

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Tested Device: IOTSU L2 AQ01

Firmware version: v1.2.0

Hardware version: v7

End-device identifier: 70B3D556800003AB

LoRa Device Class: A

LoRaWAN Specification version: V1.0.2

Certification requirements: LoRa End Device Certification EU Version 1.5

Frequency band(s) tested: 868 MHz

Test Equipment: Test Software Version: 1.1.11

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: March 30th, 2020

The Test Report, No. 6200330 has the following conclusion:

The device has PASSED the tests hereunder.

Responsibility: *Yavuz Turan*
Yavuz Turan
Test Engineer

Approved: *Jens Lerner*
Jens Lerner
Quality Engineer

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1 Description of the Device Under Test (DUT)

1.1 General

Item	Value
Product name	IOTSU L2 AQ01
Kind of product	Indoor air quality measurement device
Series (if any)	L2
Hardware Version	V7
Firmware Version	v1.2.0
Type of DUT	<input checked="" type="checkbox"/> Module / End Device <input type="checkbox"/> Gateway / Concentrator
Geographical area of operation	<input checked="" type="checkbox"/> Europe <input type="checkbox"/> USA
Operating frequency	<input type="checkbox"/> 433 MHz <input checked="" type="checkbox"/> 868 MHz <input type="checkbox"/> 915 MHz
Adaptive Data Rate (ADR) supported?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Optional data rates supported?	<input checked="" type="checkbox"/> DR6 <input checked="" type="checkbox"/> DR7
Activation possibilities	<input type="checkbox"/> Over the air <input type="checkbox"/> by personalization <input checked="" type="checkbox"/> both
Test According LoRaWAN™ Spec	<input type="checkbox"/> V1.0.1 <input checked="" type="checkbox"/> V1.0.2
Output Power	16-2dBm
Number / Type of Antenna(s)	1 / Internal
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 EU V1_5” Chapter 3.

1.3 DUT Setup

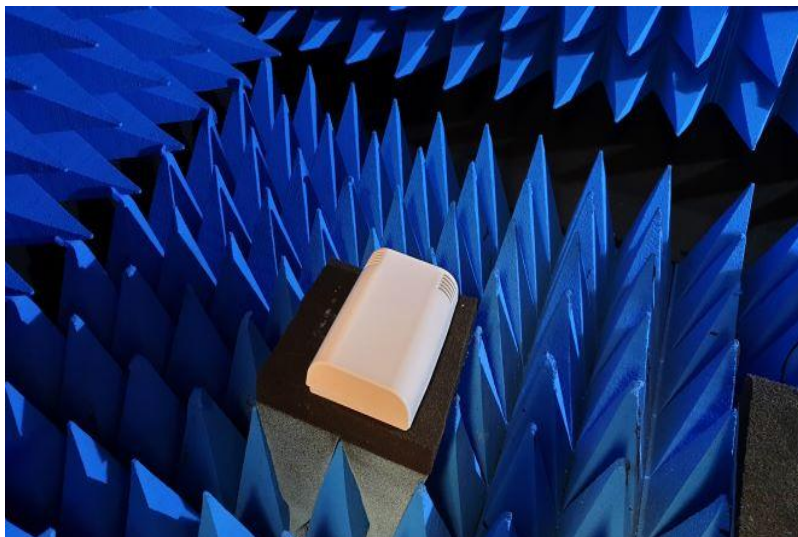


Figure 1 DUT Setup

Applied Methods of Measurement

1.4 Protocol Testing according to LoRaWAN™ specification V1.0.2

Detailed Test Results:

Device Activation (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**

Di Channel Request Mac Command: **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

Link ADR Request Block: Yes

Di Channel Request: Yes

Range 6dB Yes

Remarks: None.

Result: The device passed the test without limitations.