



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

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# Report for Test of Conformance to LoRaWAN® V1.0.2 (US915)

for the Device

“OY1211 CO2 Sensor”

for the Customer

“Talkpool AB”

Jens Lerner

Yavuz Turan

10<sup>th</sup> May, 2022

## 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 (US915)

### Company and Contact Information:

Talkpool AB

Stefan Lindgren

Östergatan 11

434 30 Kungsbacka

Sweden

Tested Device: OY1211 CO2 Sensor

Hardware version: R 1.0

Firmware version: ce63bc

End-device identifier: 70B3D5D72FFC3126

LoRaWAN® Device Class: A

LoRaWAN Specification version: V1.0.2

Certification requirements: End Device Certification Requirements for US and Canada

902-928 MHz ISM Band V1.5.1

Frequency band(s) tested: 915 MHz

Test Equipment: LCTT v3.6.0\_R1

8x IMST LGW (iC980A + Raspberry Pi): Gateway software version 4.1.3

Packet forwarder software version 3.1.0


Test Result: PASS

Quality Engineer: Jens Lerner

Date: May 10<sup>th</sup>, 2022

The Test Report, No. 6220242 has the following conclusion:

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

Responsibility: 

Yavuz Turan  
Test Engineer

Approved: 

Jens Lerner  
Quality Engineer

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# 1 Description of the Device Under Test (DUT)

## 1.1 General

Item	Value
Product name	Talkpool AB
Product Vertical(s)	Buildings, Cities, Environment, Transport / Logistics
Series (if any)	N/A
Product Version	R 1.0
Hardware Version	R 1.0
Firmware Version	ce63bc
LoRaWAN® Device Class	A
Type of DUT	<input type="checkbox"/> Module <input checked="" type="checkbox"/> End Device/Sensor <input type="checkbox"/> others
Geographical area of operation	<input type="checkbox"/> Europe <input checked="" type="checkbox"/> USA <input type="checkbox"/> Australia
Operating frequency	<input type="checkbox"/> 433 MHz <input type="checkbox"/> 868 MHz <input checked="" type="checkbox"/> 915 MHz
Adaptive Data Rate (ADR) supported?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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 <input type="checkbox"/> V1.0.4
Output Power	20 dBm
Number / Type of Antenna(s)	1 Internal Antenna
Antenna Gain	0 dBi

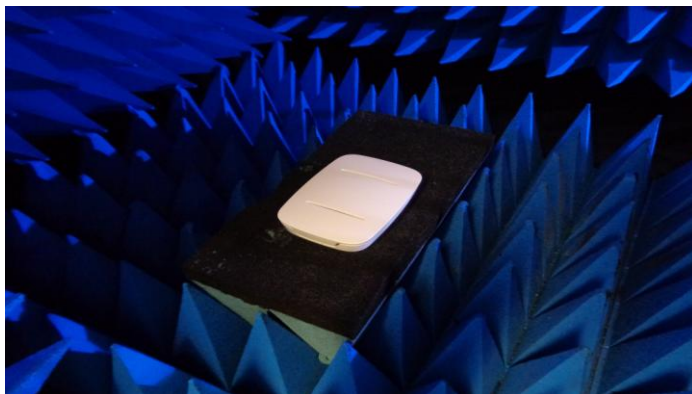
**Table 1 Device Information**

## 1.2 DUT Modes of Operation

During the tests the device operated in the following modes:

- Test mode according to document “End Device Certification Requirements for US and Canada 902-928 MHz ISM Band 1.5.1” Chapter 2.

## 1.3 DUT Setup



**Figure 1 DUT Setup**

Applied Methods of Measurement

## 1.4 Protocol Testing according to LoRaWAN® specification V1.0.2 (US915)

### Detailed Test Results:

Test Mode Activation: **PASS**  
Over the Air Activation: **PASS**  
Activation by Personalization: **PASS**  
Test Application Functionality: **PASS**  
AES Encryption and Message Integrity: **PASS**  
Downlink Error Rate: **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**  
RX1 Receive Window: **PASS**  
RX2 Receive Window: **PASS**  
RX Timing Setup Request: **PASS**  
Link ADR Request: **PASS**  
RX Oversized Payload: **PASS**  
Maximum Allowed Payload: **PASS**

### Supported Optional Features:

Adaptive Data Rate (ADR):	Yes
Block of Link ADR Request:	Yes

Remarks: None

**Result: The device passed the test without limitations.**