



The Testcenter facility 'LoRa<sup>®</sup> Test Lab' within IMST GmbH is recognized by the LoRa<sup>®</sup> Alliance for testing in accordance to the LoRaWAN<sup>®</sup> Specification V1.0.4

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# Report for Test of Conformance to LoRaWAN<sup>®</sup> V1.0.4 EU868

for the Device

**“BREEZE”**

for the Customer

**“TEKTELIC Communications Inc.”**

Jens Lerner

Yavuz Turan

24<sup>th</sup> October, 2023

## Administrative Summary

Location: IMST GmbH, Test Centre, Kamp-Lintfort, Germany

Responsible Test Engineer: Yavuz Turan, Jens Lerner

Subject: Test of Conformance to LoRaWAN® Specification V1.0.4 (EU868)

Company and Contact Information:

TEKTELIC Communications Inc.

David Tholl

7657 10th street NE

T2E 8X2, Calgary

Canada

Tested Device: BREEZE

Hardware version: T0007938

Firmware version: Application FW v2.2.6 and LoRaMAC FW v4.7.0

End-device identifier: 2215J0429

LoRa Device Class: Temporary Class C

LoRaWAN Specification version: V1.0.4

Certification requirements:

LW1.0.4 End Device Certification V1.6

Frequency band(s) tested: 868MHz

Test Equipment:LCTT v3.11.0\_R1

2x 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: October 24<sup>th</sup>, 2023

The Test Report, No. 6230601 has the following conclusion:

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

Responsibility:  Approved:   
Yavuz Turan Jens Lerner  
Test Engineer Quality Engineer

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# 1 Description of the Device Under Test (DUT)

## 1.1 General

Item	Value
Product name	BREEZE
Product Vertical(s)	Buildings, Cities, Environment, Home/Consumer, Industry
Series (if any)	STM
Hardware Version	T0007938
Software Version	N/A
Firmware Version	Application FW v2.2.6 and LoRaMAC FW V4.7.0
Type of DUT	<input checked="" type="checkbox"/> Module <input type="checkbox"/> End Device/Sensor <input type="checkbox"/> others
Geographical area of operation	<input checked="" type="checkbox"/> Europe <input type="checkbox"/> USA <input type="checkbox"/> Australia
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 checked="" type="checkbox"/> Over the air <input type="checkbox"/> by personalization <input type="checkbox"/> both
Test According LoRaWAN® Spec	<input type="checkbox"/> V1.0.1 <input type="checkbox"/> V1.0.2 <input checked="" type="checkbox"/> V1.0.4
Output Power	0 to 14 dBm
Number / Type of Antenna(s)	1 / ceramic SMD antenna
Antenna Gain	2.2 dBi

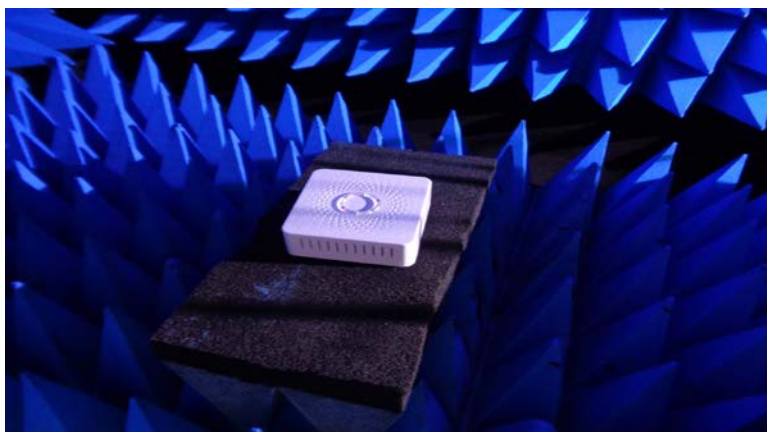
**Table 1 Device Information**

## 1.2 DUT Modes of Operation

During the tests the device operated in the following modes:

- Test mode according to document “LoRa Alliance End Device Certification Requirements for All Regions Version 1.6” Chapter 2.

## 1.3 DUT Setup



**Figure 1 DUT Setup**

Applied Methods of Measurement

## 1.4 Protocol Testing according to LoRaWAN® specification V1.0.4 (EU868)

### Detailed Test Results Class A:

Activation Pre-test: **PASS**  
Over the Air Activation: **PASS**  
Cryptography: **PASS**  
Downlink Sequence Number: **PASS**  
Confirmed Frames: **PASS**  
Device Status Request: **PASS**  
New Channel Request: **PASS**  
Di Channel Request Mac Command: **PASS**  
RX Parameter Setup Request: **PASS**  
RX Timing Setup Request: **PASS**  
TX Parameter Setup Request: **PASS**  
Link Check Request: **PASS**  
Link ADR Request: **PASS**  
Duty Cycle Request: **PASS**  
Device Time Request: **PASS**  
RX1 Window Test: **PASS**  
RX2 Window Test: **PASS**  
RX1 and RX2 Simultaneous Frames: **PASS**  
RX Oversized Payload: **PASS**  
Maximum Allowed Payload: **PASS**  
MAC Commands: **PASS**  
Multiple MAC Commands Prioritization: **PASS**  
FPort 224 Deactivation: **PASS**

### Supported Optional Features:

Adaptive Data Rate (ADR):	Yes
SF7BW250 (DR6)	Yes
FSK50 (DR7)	Yes

### Additional Tests By The Manufacturer:

Retransmission Back-Off for OTA devices only: **PASS**

Remarks: None

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