Report for Test of Conformance to LoRaWAN® V1.0.4 Class A (US915)

for the Device

"Stealth Reader Meter Interface Unit (WATER)"

for the Customer

"Zenner USA"

Jens Lerner

Yavuz Turan

23rd 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 (Class A for US915)

Company and Contact Information:
Zenner USA
Ralph Stillinger
15280 Addison Rd, Suite 240
Addison Texas 75001
USA
Tested Device: Stealth Reader Meter Interface Unit (WATER)
Product Version: WM3
Hardware Version: WM3: Revision E
Firmware Version: 3.4.52
End-device identifier: 04b648a0000493f5
LoRaWAN® Device Class: A
LoRaWAN Specification version: V1.0.4
Certification requirements: LoRaWAN 1.0.4 End Device Certification Requirements for All Regions Version 1.6
Frequency band(s) tested: 915 MHz
Test Equipment: LCTT v3.11.0_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: October 23rd, 2023

The Test Report, No. 6230097 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	Stealth Reader Meter Interface Unit (WATER)
Product Vertical(s)	Utilities
Series (if any)	Series 3
Hardware Version	WM3: Revision E
Firmware Version	3.4.52
LoRaWAN® Device Class	A
Type of DUT	☐ Module ☒ End Device/Sensor ☐ others
Geographical area of operation	☐ Europe ☒ USA ☐ Australia
Operating frequency	☐ 433 MHz ☐ 868 MHz ☒ 915 MHz
Adaptive Data Rate (ADR) supported?	☒ Yes ☐ No
Optional data rates supported?	☐ DR6 ☐ DR7
Activation possibilities	☒ Over the air ☐ by personalization ☐ both
Test According LoRaWAN® Spec	☐ V1.0.1 ☐ V1.0.2 ☒ V1.0.4
Output Power	4uA-500mA
Number / Type of Antenna(s)	Fixed internal helical
Antenna Gain	N/A

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.
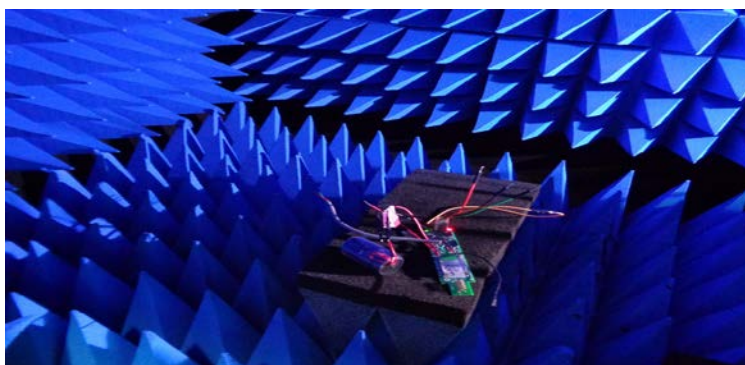
1.3 DUT Setup

Figure 1 DUT Setup

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Applied Methods of Measurement

1.4 Protocol Testing according to LoRaWAN® specification V1.0.4 (Class A device for US915)

Detailed Test Results:

Test Mode Activation: **PASS**
Over the Air Activation: **PASS**
Cryptography: **PASS**
Downlink Sequence Number: **PASS**
Confirmed Frames: **PASS**
Device Status Request: **PASS**
New Channel Request Reject**: PASS**
Di Channel Request Reject: **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**
Device Deactivation: **PASS**
Retransmission Back-Off for OTAA device only: **PASS**

Supported Optional Features:

Adaptive Data Rate (ADR):   Yes
Permanent Class C   No

Remarks: None

Result: The device passed the test without limitations.

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