



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

“New STAR Remote Reading And Prepaid
Water Meter”

for the Customer

“LUNA ELEKTRİK ELEKTRONİK SAN.
VE TİC. AS.”

Jens Lerner
Yavuz Turan

6th January, 2021

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:

LUNA ELEKTRİK ELEKTRONİK SAN. VE TİC. AS.

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Tested Device: New STAR Remote Reading And Prepaid Water Meter

Hardware version: LSSWM200-200-00

Firmware version: 3.7

End-device identifier: 90038297

LoRa Device Class: A

LoRaWAN Specification version: V1.0.2

Certification requirements: LoRa End Device Certification EU Version 1.6

Frequency band(s) tested: 868 MHz

Test Equipment: Test Software Version: 1.1.16

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: January 6th, 2021

The Test Report, No. 6210006 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	New STAR Remote Reading And Prepaid Water Meter
Product Vertical(s)	Utilities
Series (if any)	
Hardware Version	LSSWM200-200-00
Firmware Version	3.7
Type of DUT	<input type="checkbox"/> Module <input checked="" type="checkbox"/> End Device/Sensor <input type="checkbox"/> others
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	14 dBm
Number / Type of Antenna(s)	One Helical Antenna
Antenna Gain	+1.5dBi

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 EU863-870 MHz 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 V1.0.2

Detailed Test Results:

Device Activation (Activation by Personalization): **PASS**
 Test Mode Activation (Over the Air Activation): **PASS**
 Test Application Functionality: **PASS**
 New Channel Request: **PASS**
 Channel Plan Usage: **PASS**
 Cryptography: **PASS**
 Packet Error Rate RX2 SF12: **PASS**
 Downlink Window Timing: **PASS**
 Frame Sequence Number: **PASS**
 Confirmed Packets: **PASS**
 Device Status 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**
 Uplink Datarate RX1 DR Offset Mapping: **PASS**
 Packet Error Rate Rx1 MaxSize: **PASS**
 Packet Error Rate Rx1 MaxSize: **PASS**
 RX1 And RX2 Simultaneous Frames: **PASS**
 RX Oversized Payload: **PASS**
 Maximum Allowed Payload: **PASS**
 Mac Commands: **PASS**
 Device Deactivation: **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
Join Synch DevNonce:	No
Confirmed Re-transmissions	Yes (Max retries 7)

Remarks: None

Result: The device passed the test without limitations.