



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

Report for Test of Conformance to LoRaWAN[®] V1.0.4 Class A (EU868)

for the Device

“RCM[®]-H200”

for the Customer

“GWF MessSysteme AG”

Jens Lerner

Yavuz Turan

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 EU868)

Company and Contact Information:

GWF MessSysteme AG

Lukas Kempf

Obergrundstrasse 119

6005 Luzern

Switzerland

Tested Device: RCM®-H200

Hardware version: 20.1141 V11

Firmware version: V1

End-device identifier: 70B3D53878000067

LoRa Device Class: A

LoRaWAN Specification version: V1.0.4

Certification requirements: LoRaWAN 1.0.4 End Device Certification Requirements V1.6

Frequency band(s) tested: 868MHz

Test Equipment: LCTT v3.8.0_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: March 7th, 2023

The Test Report, No. 6220656 has the following conclusion:

The device has PASSED the tests hereunder with one exception.

Responsibility:  Approved: 

Yavuz Turan

Test Engineer

Jens Lerner

Quality Engineer

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1 Description of the Device Under Test (DUT)

1.1 General

Item	Value
Product name	RCM®-H200
Product Vertical(s)	N/A
Series (if any)	N/A
Hardware Version	20.1141 V11
Firmware Version	V1
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 <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	20 dBm
Number / Type of Antenna(s)	L-shape monopol
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 “TS009-LoRaWAN_Certification_Protocol” Chapter 2.

1.3 DUT Setup

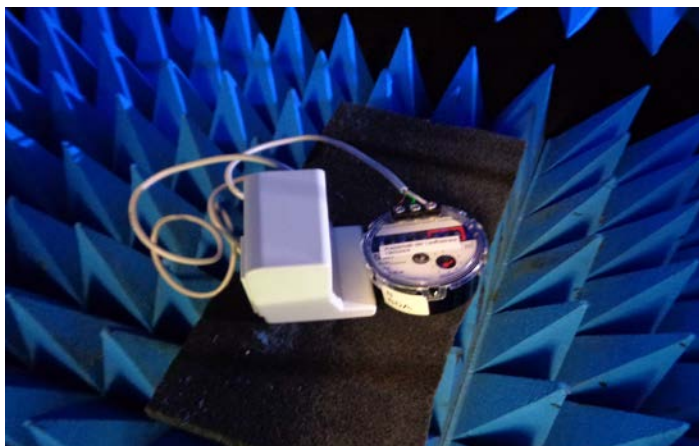


Figure 1 DUT Setup

Applied Methods of Measurement

1.4 Protocol Testing according to LoRaWAN® specification V1.0.4 (Class A device for EU868)

Detailed Test Results:

Test Mode Activation: **PASS**
 Over the Air Activation: **FAIL**
 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**
 Device Deactivation: **PASS**

Supported Optional Features:

Adaptive Data Rate (ADR):	Yes
SF7BW250 (DR6)	Yes
FSK50 (DR7)	Yes
LR-FHSS	No
SCHC	No
Permanent Class C	No

Remarks: Over the Air Activation (TP_A_EU868_ED_MAC_104_BV_001_A), section “Join-Accept with CFList for Dynamic Channel (DC) plan”, fails. The DUT is not compliant with the steps defined in “LW1.0.4_End_Device_Certification_V1.6” in case the Join Accept contains the CFListType field set to 1. Note that according to RP_2-1.0.3 the CFListType SHALL be equal to zero (0) to indicate that the CFList contains a list of frequencies in the EU863-870MHz Band. The customer has submitted a Waiver Request Form to the Alliance for the test case failure mentioned above. “

Result: The Certification Review Board has reviewed the Waiver Request Form and then approved the waiver for certification.