



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

for the Device

“iM980A-L”

for the Customer

“IMST GmbH”

Jens Lerner

Yavuz Turan

5th July, 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 V1.0.4 (Class A for US)

Company and Contact Information:

IMST GmbH

Heinz Syrzisko

Carl-Friedrich-Gauss-Str. 2-4

47475 Kamp-Lintfort

Germany

Tested Device: iM980A-L

Hardware version: A

Firmware version: V3.0

End-device identifier: 70B3D58FFFFFFFFF

LoRa Device Class: A

LoRaWAN Specification version: V1.0.4

Certification requirements: LoRaWAN 1.0.4 End Device Certification Requirement V1.1

Frequency band(s) tested: 915 MHz

Test Equipment: Test Software Version: 1.2

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

Packet forwarder software version 3.1.0

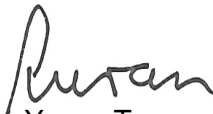
Test Result: PASS


Quality Engineer: Jens Lerner

Date: July 5th, 2021

The Test Report, No. 6210238 has the following conclusion:

The device has PASSED the tests hereunder.

Responsibility: 
Yavuz Turan
Test Engineer

Approved: 
Jens Lerner
Quality Engineer

Copyright Notice & Disclaimer: No part of this test report may be reproduced without written permission of IMST GmbH. The test results herein only refer to the tested sample. IMST GmbH cannot be made responsible for any generalizations or conclusions drawn from the test results presented herein concerning further samples of the tested device. Modification of the tested sample(s) is prohibited and leads to invalidity of this report.

1 Description of the Device Under Test (DUT)

1.1 General

Item	Value
Product name	iM980A-L
Product Vertical(s)	
Series (if any)	
Hardware Version	A
Firmware Version	V3.0
Type of DUT	<input checked="" type="checkbox"/> Module <input 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
Optional data rates supported?	<input type="checkbox"/> DR6 <input 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	max. 17.5dBm
Number / Type of Antenna(s)	
Antenna Gain	

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 1.1” Chapter 2.

1.3 DUT Setup

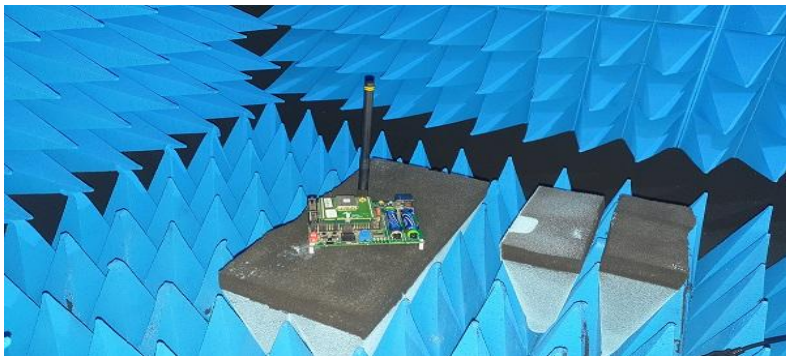


Figure 1 DUT Setup

Applied Methods of Measurement

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

Detailed Test Results:

Device Activation (Activation by Personalization): **PASS**

Test Mode Activation (Over the Air Activation): **PASS**

Cryptography: **PASS**

Frame Sequence Number: **PASS**

Confirmed Packets: **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**

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**

Mac Commands Buffer: **PASS**

Device Deactivation: **PASS**

Supported Optional Features:

Adaptive Data Rate (ADR): Yes

Min TX Power: Yes

Permanent Class C No

Remarks: None

Result: The device passed the test without limitations.