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 AU915 (Class A & Temporary Class C)

for the Device

"MTXDOT-WW1"

for the Customer

"Multi-Tech Systems"

Jens Lerner
Yavuz Turan

8th March, 2024

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 (AU915)

Company and Contact Information:
Multi-Tech Systems
Tim Gunn
2205 Woodale Drive
Mounds View, MN 55112
USA
Tested Device: MTXDOT-WW1
Hardware version: A
Firmware version: 4.2.x
End-device identifier: 0080000000000001
LoRa Device Class: A & Temporary Class C
LoRaWAN Specification version: V1.0.4
Certification requirements:
LW1.0.4 End Device Certification V1.6.1
Frequency band(s) tested: 915-928 MHz
Test Equipment: LCTT v3.12.0_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: March 8th, 2024

The Test Report, No. 6240115 has the following conclusion:

The device has PASSED the tests hereunder.

Responsibility: Approved:

Yavuz Turan	Jens Lerner
Test Engineer	Quality Engineer

1 Description of the Device Under Test (DUT)

1.1 General

Item	Value
Product name	MTXDOT-WW1
Product Vertical(s)	Buildings, Cities, Industry
Series (if any)	N/A
Hardware Version	A
Software Version	N/A
Firmware Version	4.2.x
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	21dbm max
Number / Type of Antenna(s)	Single UFL or trace
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 1.6.1” Chapter 2.

1.3 DUT Setup

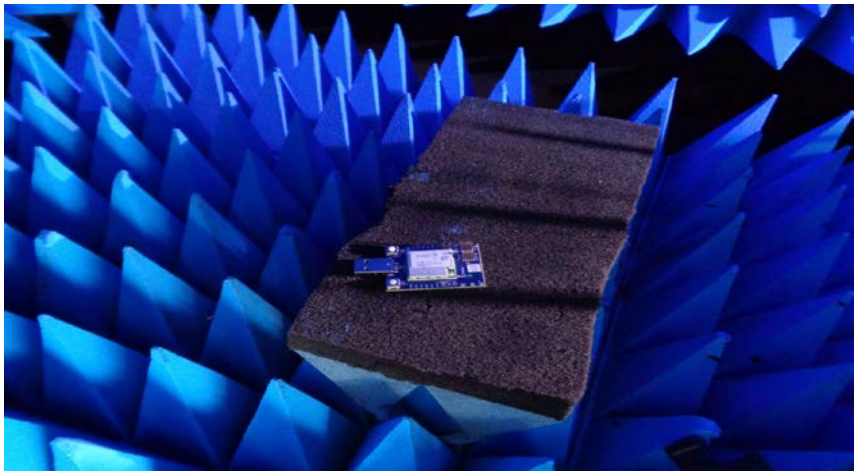

Figure 1 DUT Setup

Applied Methods of Measurement

1.4 Protocol Testing according to LoRaWAN® specification V1.0.4 (AU915)

Detailed Test Results Class A & Temporary Class C:

Test Case ID	Description	Verdict	Date
TP_A_AU915_ED_MAC_104_BV_000	Activation Pre-test	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_001_A	Over the Air Activation	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_001_B	Activation by Personalization	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_002	Cryptography	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_003	Downlink Sequence Number	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_004	Confirmed Frames	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_005	DevStausReq MAC Command	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_006	NewChannelReq MAC Command for Fixed Channel plan devices only	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_007	DlChannelReq for Fixed Channel plan devices only	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_008	RXParameterSetupReq MAC Command	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_009	RXTimingSetupReq MAC Command	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_010	TXParamSetupReq MAC Command	PASS	2024-03-04
TP_A_AU915_ED_MAC_104_BV_011	LinkCheckReq MAC Command	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_012A	LinkADRReq MAC Command (Part 1)	PASS	2024-03-04
TP_A_AU915_ED_MAC_104_BV_012B	LinkADRReq MAC Command (Part 2)	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_013	DutyCycleReq MAC Command	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_014	DeviceTimeReq MAC Command	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_015A	RX1 Receive Window Test (Part 1)	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_015B	RX1 Receive Window Test (Part 2)	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_016	RX2 Receive Window Test	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_017	RX1 and RX2 simultaneous frames	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_018	RX Oversized Payload	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_019A	Maximum Allowed Payload (Part 1)	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_019B	Maximum Allowed Payload (Part 2)	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_020	MAC Command(s) in App-Payload and/or Frame Options	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_021	Multiple MAC Commands prioritization	PASS	2024-02-29
TP_A_AU915_ED_MAC_104_BV_022	FPort 224 Deactivation	PASS	2024-02-29
TP_C_AU915_ED_MAC_104_BV_000	Activation and Usage	PASS	2024-02-29

Supported Optional Features:

Adaptive Data Rate (ADR):	Yes
SF7BW250 (DR6)	No
FSK50 (DR7)	No
Class C	Yes (temporary)

Additional Tests By The Manufacturer:

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

Remarks: None

Result: The device passed the test without limitations.