

TEST REPORT ON ITRON Cyble 5B for AS923-2 MHz Band

Test Report Reference: VDE_ITRON_2301

Version: June 2023

Author: M. El-Fikri

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1 Administrative Data

1.1 Project Information

Project Name: VDE_ITRON_2301
Responsible for Testing and Report: Mohamed El-Fikri
Date of Report: 2023-06-30
Testing Time Frame: 2023-04-03 - 2023-06-30

1.2 Applicant Information

Company Name: ITRON France
Address: 2 rue de Paris / Immeuble les Montalets 92190 Meudon
France
Contact Person: Thomas Buttard
Phone: +33 3 85 29 39 49
Email: thomas.buttard@itron.com

1.3 Test Laboratory Information

The following list shows all Locations and Test Resources involved in the generation of test results:

7layers DE, Ratingen, Germany

| | |
|--------------|---|
| Company Name | 7layers GmbH |
| Address | Borsigstr. 11 40880 Ratingen NRW Germany |
| Contact | Michael Albert |
| Phone | +49 2102 749 201 |
| Email | Michael.Albert@7layers.com |

List of Test Resources

| ID | Name | Responsible | Accreditation Info |
|----|--------------------------------|------------------|--------------------|
| 1 | LCTT LoRa Compliance Test Tool | Mohamed El-Fikri | |

1.4 Signature of the Testing Responsible



(Responsible for Testing and Report)

Mohamed El-Fikri

1.5 Signature of the Accreditation Responsible(s)



(Responsible Accreditation Scope)
Mohamed El-Fikri

2 Test Object Data

2.1 Object Under Test (OUT) Description(s)

The following section lists all Objects Under Test (OUTs) involved during testing.

| | |
|---------------------------|---|
| Object Under Test: | ITRON Cyble 5B |
| Description: | Cyble 5B is a LoraWan based Utility to engage digitalization of water distribution networks |
| Type / Model: | Cyble 5B |

Manufacturer:

| | |
|-----------------|--|
| Company Name: | ITRON France |
| Address: | 2 rue de Paris / Immeuble les Montalets 92190 Meudon France |
| Contact Person: | Thomas Buttard |
| Phone: | +33 3 85 29 39 49 |
| Email: | thomas.buttard@itron.com |
| Address: | 9 rue Ampère 71000 Mâcon - France |

For further details see Annex.

2.2 Sample Description(s)

Sample Name: DE1461002aa01

Object Under Test: Cyble 5B

Description: Cyble 5B LoraWan based Utility for digitalization of water distribution networks

Serial Number: 00067059

Hardware Version: V02.00

Firmware Version: V01.05

Code: aa01

For further details see Annex.

3 Results

3.1 General

Documentation of tested devices: Available at the test laboratory.

Interpretation of the test results: The results of the inspection are described on the following pages, where ‘Conformity’ or ‘Passed’ means that the certification criteria were verified and that the tested device is conform to the applied standard.

In cases where ‘Declaration’ is stated, the required documents are available in the manufacturer’s product documentation.

In cases where ‘not applicable’ is stated, the test case requirements are not relevant to the specific equipment implementation.

- Notes:**
1. This report contains the abbreviated information content pertaining to services rendered. Supporting documentation not included herein is maintained and available at the test laboratory.
 2. All tests are performed under environmental conditions within the requirements of the specifications. Environmental condition records are available at the test laboratory.

3.2 Applicable Test Specification(s)

| | |
|---------------------|--|
| Test Specification: | LoRaWAN 1.0.4 End Device Certification Requirements for All Regions |
| Date / Version: | June, 2022 / v1.6 |
| Description: | LoRaWAN 1.0.4 End Device Certification Requirements for All Regions, v1.6 [TS001 LoRaWAN Link Layer Specifications L2 v1.0.4 (TS1-1.0.4), RP002 LoRaWAN Regional Parameters Specification RP2 1.0.3, TS009 LoRaWAN Certification Protocol Specification 1.0.0 (TS9-1.0.0)] |

3.3 Result Statistics

| Test Specification | Total | Result Verdict | | | Pass |
|---|-------|----------------|------|-------------|----------|
| | | Pass | Fail | Declaration | Ratio |
| LoRaWAN 1.0.4 End Device Certification Requirements for All Regions, v1.6 | 27 | 27 | 0 | 0 | 100.00 % |

Note: Pass, Declaration, Fail and Inconclusive results are regarded for the Pass Ratio calculation. Pass and Declaration are summarized as Pass results. Fail and Inconclusive are summarized as Fail results. All are summarized as Total count (Pass + Declaration + Fail + Inconclusive). The Pass Ratio is calculated by the number of Pass results divided by the number of Total results. All other results like Error or Not Tested are not regarded for the calculation.

3.4 Result Summary

| Test Case Name / Description Test (Condition) | Verdict | Date |
|--|---------|------------|
| TP_A_AS923_GROUP2_ED_MAC_104_BV_000: Activation Pre-test | Passed | 2023-04-03 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_001_A: Over the Air Activation | Passed | 2023-04-03 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_002: Cryptography | Passed | 2023-04-03 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_003: Downlink Sequence Number | Passed | 2023-04-03 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_004: Confirmed Frames | Passed | 2023-04-03 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_005: DevStatusReq MAC command | Passed | 2023-04-03 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_006: NewChannelReq MAC command for Dynamic Channel plan devices only | Passed | 2023-04-03 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_007: DIChannelReq for Dynamic Channel plan devices only | Passed | 2023-04-03 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_008: RXParameterSetupReq MAC command | Passed | 2023-04-03 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_009: RXTimingSetupReq MAC command | Passed | 2023-04-03 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_010: TxParamSetupReq MAC Command | Passed | 2023-04-03 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_011: LinkCheckReq MAC Command | Passed | 2023-04-03 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_012_A: LinkADDRReq MAC command (Part 1) | Passed | 2023-04-03 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_012_B: LinkADDRReq MAC command (Part 2) | Passed | 2023-04-11 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_013: DutyCycleReq MAC Command | Passed | 2023-04-03 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_014: DeviceTimeReq MAC Command | Passed | 2023-04-03 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_015_A: RX1 Window Test (Part 1) | Passed | 2023-04-12 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_015_B: RX1 Window Test (Part 2) | Passed | 2023-04-12 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_016: RX2 Receive Window Test | Passed | 2023-04-11 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_017: RX1 and RX2 simultaneous frames | Passed | 2023-06-12 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_018: RX Oversized Payload | Passed | 2023-04-06 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_019_A: Maximum Allowed Payload (Part 1) | Passed | 2023-04-11 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_019_B: Maximum Allowed Payload (Part 2) | Passed | 2023-04-11 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_020: MAC Command(s) in App-Payload and/or Frame Options | Passed | 2023-04-11 |

| Test Case Name / Description Test (Condition) | Verdict | Date |
|--|---|------------|
| TP_A_AS923_GROUP2_ED_MAC_104_BV_021: Multiple MAC commands prioritization | Passed | 2023-04-12 |
| TP_A_AS923_GROUP2_ED_MAC_104_BV_022: FPort 224 Deactivation | Passed | 2023-06-30 |
| TP_A_AS923_GROUP2_ED_MAC_104_RETRANSMISSIO N_BACKOFF: Retransmission back-off tests for power-up or reset of device – for OTAA device only | Passed <i>(Note: As foreseen by the LA Certification rules this TC might be performed by the Product Manufacturer (ITRON). However, BV 7Layers has verified successfully the provided Log Files and results from ITRON to be Pass)</i> | 2023-06-21 |

4 Test Equipment Details

4.1 List of Test Equipment

The information shown below is valid for the testing time frame of this test report.

Test Resource 1: LCTT LoRaWAN Compliance Test Tool

Description: for LoRaWAN Specification and LoRa Compliance Testspec

Test System LCTT LoRaWAN Compliance Test Environment of Test Resource LCTT LoRa Compliance Test Environment

Test System: LCTT LoRaWAN Compliance Test Environment
Description: Location: 7layers Conformance Lab
Manufacturer: LoRa Alliance

| Software Component and Version | Start Date | End Date |
|--|------------|----------|
| LCTT LoRa Compliance Test Tool User Interface v2.5 | | |
| LCTT Technology Package v3.9.0_R1 | 2023-01-26 | |

Single Devices of Test System 7layers LoRa Compliance Test Environment

| Name | Serial Number | Manufacturer |
|---|---------------|--------------|
| 7Layers LoRa Control PC | DSCM004667 | Fujitsu |
| 2 x (Semtech SX1301 LoRa 8-Channel Gateway) for AS923 MHz | IOTSX1301 | Semtech |

| Software Version | Start Date | End Date |
|--|------------|----------|
| Lora Gateway SW (Driver HAL) v5.0.1; Packet forwarder v4.0.1 | 2021-01-01 | |

5 Annex

5.1 Object Under Test (OUT) Features

Supported Features for Object Under Test: Itron Cyble 5B

| NAME | VALUE |
|--|--------------|
| DUT is a Class A Device (All End Devices) | TRUE |
| DUT is a Class B Device (Beacon Mode) | FALSE |
| DUT is a Class C Device (Continuously Listening) | FALSE |
| DUT works in EU 868MHz ISM Band | FALSE |
| DUT works in EU 443MHz ISM Band | FALSE |
| DUT works in USA 915MHz ISM Band | FALSE |
| DUT works in Asia 923MHz ISM Band | TRUE |
| DUT works in South Korea 920MHz ISM Band | FALSE |
| DUT supports Over-The-Air Activation (OTAA) mechanism | TRUE |
| DUT supports Activation By Personalization (ABP) mechanism | FALSE |
| DUT supports Adaptive Data Rate (ADR) feature | TRUE |
| DUT supports data rate DR6 (SF7BW250) | TRUE |
| DUT supports data rate DR7 (FSK50) | TRUE |
| DUT supports Trigger Join Request command in Test Mode | TRUE |
| DUT supports DChannelReq MAC command | TRUE |
| DUT needs a reset after deactivating Test Mode | FALSE |
| DUT supports LinkADRReq block | TRUE |
| DUT implements LoRaWAN v1.0.2rB certification requirements | FALSE |
| DUT implements LoRaWAN v1.1 certification requirements | FALSE |
| DUT works in India 865-867 MHz ISM Band | FALSE |
| DUT supports the Lorawan-1.0.x-join-synch-issues-remedies-v1.0.0 | TRUE |
| DUT implements Data Rate Decay | TRUE |
| DUT implements LoRaWAN v1.0.4 certification requirements | TRUE |
| DUT supports uplink re-transmissions for Confirmed frames | TRUE |
| DUT works in Rusia 864MHz ISM Band | FALSE |
| DUT works in Australia 915MHz ISM Band | FALSE |
| DUT permanently enabled Class C | FALSE |
| DUT works in Asia 923MHz ISM Band Group 1 | FALSE |
| DUT works in Asia 923MHz ISM Band Group 2 | TRUE |
| DUT works in Asia 923MHz ISM Band Group 3 | FALSE |
| DUT works in Asia 923MHz ISM Band Group 4 | FALSE |
| DUT supports SCHC | FALSE |

5.2 OTA Sample DE1461002aa01 Extra Information Parameters

| NAME | VALUE |
|---|-------------------------------------|
| Object Under Test | Itron Cyble 5B |
| Serial Number | 00067059 |
| Code | aa01 |
| End-device identifier (DevEUI) | '00078137000105F3'O |
| End-device Address assigned during activation (DevAddr) | '00000000'O |
| Maximum number of uplinks re-transmission | 1 |
| Frame counter size | 32 |
| RuleIDx for SCHC messages | NA |
| RuleIDy for SCHC messages | NA |
| RuleIDz for SCHC messages | 101 |
| Maximum number of ACK Request | 8 |
| FPortUp of the DUT for SCHC messages | NA |
| FPortDown of the DUT for SCHC messages | NA |
| Inactivity timer for SCHC messages | NA |
| retransmission timer for SCHC messages | NA |
| Application session key (AppSKey) | NA |
| Network session key (NwkSKey) | NA |
| Application key (AppKey) | '58A26BCEF244B055C4C82BE4FBA187F0'O |
| Application identifier (AppEUI) | '0007813700000001'O |
| End-device Address (DevAddr) | NA |

5.3 Additional Documentation for Samples

The following documents have been attached to Sample definitions as supporting documentation.

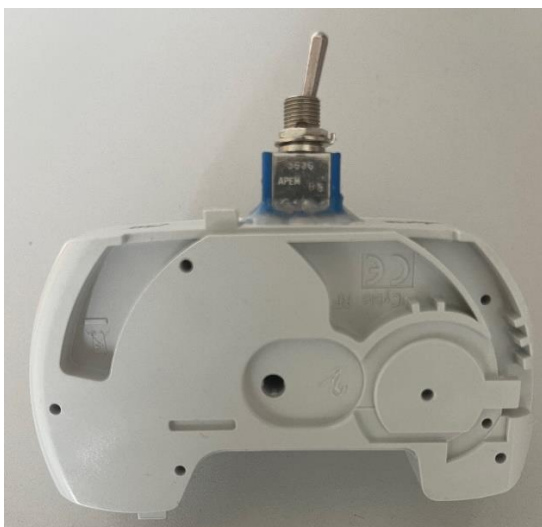
Object Under Test: Itron Cyble 5B

Sample Name: DE1461002aa01

Front view:



Rear view:



End of Test Report

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