

LoRa accredited Test Lab



Test report No:
 NIE: 62563RLR.001

Test report

LoRa Alliance End Device Certification Requirements

| | |
|---|---|
| (*) Identification of item tested | Prodigi |
| (*) Trademark | Mesura Metering – Cavagna Group |
| (*) Model and /or type reference tested | Gas Meter |
| Other identification of the product | Final HW version: 1.0 Final FW Version: 1.0 |
| (*) Features | Gas Meter with LoRa module |
| Manufacturer | Mesura Metering a subsidiary of Cavagna Group Via Statale, 11/13, Ponte San Marco di Calcinato (Brescia) 25011 Italy |
| Test method requested, standard | Lora Alliance Certification Program |
| Standard.....: | LoRaWAN V1.0.2 |
| Test Specification | LoRa Alliance End-Device Certification Requirements for EU 868MHz ISM Band Devices Version 1.5 |
| LoRa_Certification_Questionnaire | LoRaCertificationQuestionnaireV2.0 |
| Test procedure(s).....: | PELR000_00 LoRa Alliance Testing Procedure |
| Supported Optional Features | |
| Adaptive Data Rate (ADR) | Yes |
| SF7BW250.....: | Yes |
| FSK50 | Yes |
| Summary | IN COMPLIANCE |
| Approved by (name / position & signature) | Noemí Pérez Dans IoT Lab Manager |
| Date of issue | 2020-04-15 |
| Report template No | FLR001_03 (* "Data provided by the client") |

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Competences and guarantees

DEKRA Testing and Certification S.A.U is a LoRa Alliance accredited Test Lab competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Testing and Certification S.A.U has a calibration and maintenance program for its measurement equipment.

DEKRA Testing and Certification S.A.U guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Testing and Certification S.A.U at the time of performance of the test.

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The results presented in this Test Report apply only to the particular item under test established in this document.

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Uncertainty

N/A

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").
2. The ICS provided by the customer via the LoRa Certification Questionnaire V2.0 and used for testing are indicated in Annex B.

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples undergoing test have been selected by: Mesura Metering a subsidiary of Cavagna Group

Sample M/01 is composed of the following elements:

| | | |
|-------------------------|------------------------------|----------------------|
| Control N° 62931/009 | Model and/or type reference: | Prodigi |
| | Serial number: | N/A |
| | HW version: | 1.0 |
| | SW version: | N/A |
| | Features supported: | ADR, SF7BW250, FSK50 |
| | Description of test sample | Gas Meter |
| | Date of reception | 2019-12-13 |

Sample M/02 is composed of the following elements:

| | | |
|-------------------------|------------------------------|----------------------|
| Control N° 62931/010 | Model and/or type reference: | Prodigi |
| | Serial number: | N/A |
| | HW version: | 1.0 |
| | SW version: | N/A |
| | Features supported: | ADR, SF7BW250, FSK50 |
| | Description of test sample | Gas Meter |
| | Date of reception | 2019-12-13 |

Test sample description

Gas Meter with LoRa module

Identification of the client

Mesura Metering a subsidiary of Cavagna Group
Via Statale, 11/13, Ponte San Marco di Calcinato (Brescia)
25011
Italy

Testing period and place

| | |
|---------------|--|
| Test Location | DEKRA Testing and Certification S.A.U. |
| Date (start) | 2019-12-16 |
| Date (finish) | 2019-12-17 |

Document history

| Report number | Date | Description |
|---------------|------------|---|
| 62563RLR.001 | 2020-04-15 | First release (test report without logs to be uploaded to the public area of LoRa Alliance website) |
| 62563RLR.002 | 2020-04-15 | Identical test report as '62563RLR.001' with the addition of the test logs |

Environmental conditions

The following limits were not exceeded during the test:

| | |
|----------------------|--------------------------|
| Relative temperature | Min= 15 °C Max= 35 °C |
| Relative humidity | Min= 25 % Max= 75 % |

Remarks and comments

Testing was performed by: Jose Francisco González Castellary
 As samples M/01 and M/02 only differ on the activation mode, only the picture of sample M/01 is shown on Appendix C.

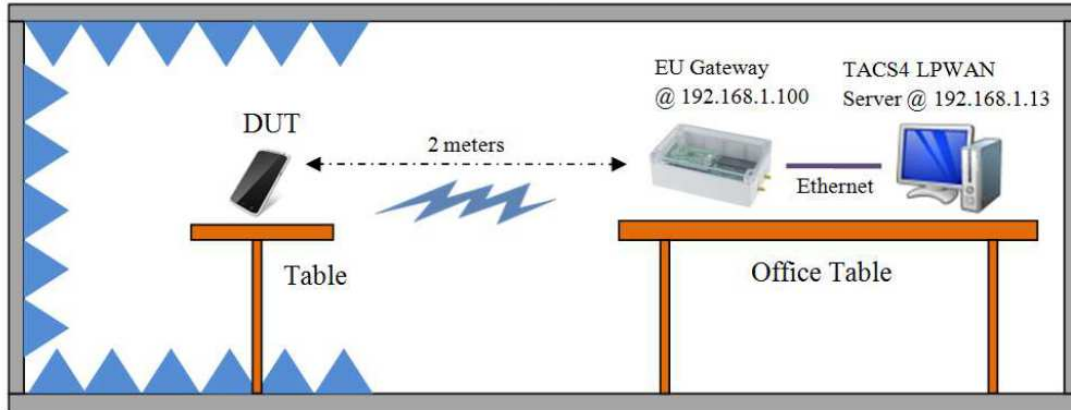
Means of testing identification

| | | | |
|-----------------|---------------------------|--|------------|
| TEST SYSTEM | BANCO LORA EU | | |
| Control Number | 5866 | | |
| Control PC | Control No. | Equipment | Serial No. |
| | 7218 | Control PC with TACS4 version 2.0.0 and Technology Packet Version v5.14.0_R1 | - |
| LoRa Gateway | 7342 | Semtech GW | - |
| RF Shielded box | 5387 | RF Shielded Test Enclosure | 0001114 |
| Test Setup: | See "Test Setup" section. | | |

Test setup

TS1: This Test Setup has been used for EU testing:

SEMTECH EUROPEAN GATEWAY AND TACS4 LPWAN CONFIGURATION:



Testing verdicts

| | |
|------------------|-----|
| Not applicable : | N/A |
| Pass : | P |
| Fail : | F |
| Not measured : | N/M |

Appendix A: Test results

Test campaign report

The abbreviations used in the header row of the test campaign report tables are:

| | |
|----------------|--|
| Test Case ID : | As it can be found on the standard |
| Verdict: | Records the verdict assigned to each Test Case run to completion (<u>Testing verdicts</u>) |
| Date: | Date of the beginning of the execution. |
| Observations: | Provides a reference to additional information relevant to the test presented in “Test Setup” section. |
| Logs: | See 62563RLR.002.pdf |

| Test Case ID | Description | Date | Verdict | Observations |
|----------------------------|--------------------------------------|------------|---------|--------------|
| TC_A_EU868_ED_MAC_BV_000_a | Device Activation (ABP) | 2019-12-16 | P | M/02 |
| TC_A_EU868_ED_MAC_BV_000_b | Device Activation (OTAA) | 2019-12-16 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_001 | Test application functionality | 2019-12-16 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_002 | Over The Air Activation | 2019-12-16 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_003 | Packet Error Rate Part 1 | 2019-12-16 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_004 | AES encryption and message integrity | 2019-12-16 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_005 | Downlink window timing | 2019-12-16 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_006 | Frame sequence number | 2019-12-16 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_007 | DevStatusReq MAC command | 2019-12-16 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_008 | MAC commands | 2019-12-16 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_009 | NewChannelReq MAC command | 2019-12-17 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_010 | DIChannelReq MAC command | 2019-12-16 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_011 | Confirmed packets | 2019-12-16 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_012 | RXParamSetupReq MAC command | 2019-12-16 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_013 | RXTimingSetupReq MAC command | 2019-12-16 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_014_A | LinkADDRReq MAC command | 2019-12-17 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_014_B | LinkADDRReq MAC command | 2019-12-16 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_015 | Packet Error Rate RX1 | 2019-12-16 | P | M/01 |
| TC_A_EU868_ED_MAC_BV_016 | Packet Error Rate RX2 | 2019-12-16 | P | M/01 |

Appendix B: ICS

Implementation Conformance Statement (ICS)

| Name | Title | Groupname | Mandatory | Value |
|----------------|---|-----------|-----------|-------|
| C_ISM_AS923 | DUT works in Asia 923MHz ISM Band | BAND | C | FALSE |
| C_ISM_EU868 | DUT works in EU 868MHz ISM Band | BAND | C | TRUE |
| C_ISM_IN865 | DUT works in India 865-867 MHz ISM Band | BAND | C | FALSE |
| C_ISM_KR920 | DUT works in South Korea 920MHz ISM Band | BAND | C | FALSE |
| C_ISM_US915 | DUT works in USA 915MHz ISM Band | BAND | C | FALSE |
| C_CERT_101 | DUT implements LoRaWAN v1.0.1 certification | CERT | C | FALSE |
| C_CERT_102Rb | DUT implements LoRaWAN v1.0.2rB certification | CERT | C | TRUE |
| C_CERT_103Ra | DUT implements LoRaWAN v1.0.3rA (Class B) | CERT | C | FALSE |
| C_CLASS_A | DUT is a Class A Device (All End Devices) | CLASS | C | TRUE |
| C_CLASS_B | DUT is a Class B Device (Beacon Mode) | CLASS | C | FALSE |
| C_CLASS_C | DUT is a Class C Device (Continuously Listening) | CLASS | C | FALSE |
| C_ED_ADR | DUT supports Adaptive Data Rate (ADR) feature | ED | C | TRUE |
| C_ED_ADR_BLOCK | DUT supports LinkADRReq block | ED | C | TRUE |
| C_ED_CW | DUT supports Continuous Wave command | ED | C | TRUE |
| C_ED_DL_CHAN | DUT supports DChannelReq MAC command | ED | C | TRUE |
| C_ED_OTAA | DUT supports Over-The-Air Activation (OTAA) | ED | C | TRUE |
| C_ED_RESET | DUT needs a reset after deactivating Test Mode | ED | C | TRUE |
| C_ED_TM_TRI | DUT supports Trigger Join Request command in Test | ED | C | TRUE |

Appendix C: Photographs

Front view



Rear view

