Test Report on

Aener'Cube V3

Test Report Reference: MDE_LCIE_1901_LORA_01

Date: 2020-06-08

Test Laboratory:
7layers GmbH
Borsigstraße 11
40880 Ratingen
Germany

Table of Contents

1 Administrative Data

1.1 Project Information

Project Name:	MDE_LCIE_1901
Responsible for Testing and Report:	Abdellah Ahakki
Date of Report:	2020-06-08
Testing Time Frame:	2019-10-31 - 2019-12-03

1.2 Applicant Information

Company Name:	sigrenEa
Address:	1 avenue du champ de Mars 45074 - FRANCE
Contact Person:	Pascal DELROT
Phone:	+33 2 38 69 80 80
Email:	pascal.delrot@sigrenea.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
Laboratory accreditation no.	DAkkS D-PL-12140-01-00

List of Test Resources

ID	Name	Responsible	Accreditation Info
1	7layers LoRa Compliance Test Environment	Constantine Nfor	

1.4 Signature of the Testing Responsible

(Responsible for Testing and Report)
Abdellah Ahakki

1.5 Signature of the Accreditation Responsible(s)

(Responsible Accreditation Scope)
Constantine Nfor

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: Aener'Cube V3

Description:	Filling level sensor for garbage containers
Type / Model:	Aener'Cube V3

Manufacturer:

Company Name:	sigrenEa
Address:	1 avenue du champ de Mars 45074 - FRANCE
Contact Person:	Pascal DELROT
Phone:	+33 2 38 69 80 80
Email:	pascal.delrot@sigrenea.com
Address:	1 avenue du champ de Mars 45074 - FRANCE

For further details see Annex.

2.2 Sample Description(s)

Sample Name: DE1058015ag04

Object Under Test:	Aener'Cube V3
Description:	Filling level sensor for garbage containers
Serial Number:	51130316
Hardware Version:	1
Firmware Version:	2
Code:	ag04

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:	LoRa End Device Certification EU v1.5
Date / Version:	Jun 21, 2017 / v1.5
Description:	LoRa alliance End Device Certification Requirements for EU 863-870 MHz ISM Band devices, v1.5 (LoRaWAN™ core spec. 1.0.2 & LoRaWAN™ Regional Parameters Version 1.0.2rB)

3.3 Result Statistics

Test Specification	Total	Result Verdict			Pass Ratio
		Pass	Fail	Declaration	
LoRa End Device Certification EU v1.5	17	16	1	0	94.11 %

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 Specification: LoRa End Device Certification EU v1.5

Test Case Name / Description Test Condition	Verdict	Date	Sample / Setup
TC_MAC_EU_001 / Test Mode activation	Passed	2019-11-04	DE1058015ag04
TC_MAC_EU_002 / Test application functionality	Passed	2019-10-31	DE1058015ag04
TC_MAC_EU_003 / Over The Air Activation	Passed	2019-10-31	DE1058015ag04
TC_MAC_EU_004 / Packet Error Rate RX2 SF12	Passed	2019-10-31	DE1058015ag04
TC_MAC_EU_005 / Cryptography	Passed	2019-10-31	DE1058015ag04
TC_MAC_EU_006 / Downlink Window Timing	Passed	2019-11-04	DE1058015ag04
TC_MAC_EU_007 / Frame Sequence Number	Passed	2019-10-31	DE1058015ag04
TC_MAC_EU_008 / Device Status Request	Passed	2019-11-04	DE1058015ag04
TC_MAC_EU_009 / MAC Commands	Failed	2019-10-31	DE1058015ag04
TC_MAC_EU_010 / New Channel Request	Passed	2019-10-31	DE1058015ag04
TC_MAC_EU_011 / DlChannelReq MAC command	Passed	2019-10-31	DE1058015ag04
TC_MAC_EU_012 / Confirmed packets	Passed	2019-11-04	DE1058015ag04
TC_MAC_EU_013 / RX Parameter Setup R	Passed	2019-10-31	DE1058015ag04
TC_MAC_EU_014 / RX timing setup request	Passed	2019-11-04	DE1058015ag04
TC_MAC_EU_015 / Link ADR Request	Passed	2019-12-03	DE1058015ag04
TC_MAC_EU_016 / Packet Error Rate Rx1 Window	Passed	2019-10-31	DE1058015ag04
TC_MAC_EU_017 / Packet Error Rate Rx2 Window	Passed	2019-11-04	DE1058015ag04

Note:
TC_MAC_EU_009 / MAC Commands is failed: if MAC commands is simultaneously present in the payload field and the frame options field, the device will not ignore the frame"

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: 7layers LoRa Compliance Test Environment
Description: for LoRaWAN Specification and LoRa Compliance Testspec

Test System 7layers LoRa Compliance Test Environment (#7LDE01) of Test Resource 7layers LoRa Compliance Test Environment

Test System:	**7layers LoRa Compliance Test Environment (#7LDE01)**
Description:	Location: 7layers Conformance Lab
Manufacturer:	7layers GmbH
Serial Number:	#7LDE01

Software Version	Start Date	End Date
Release 2.4 7Layers LoRa Compliance Test Suite v2.4 7Layers LoRa Gateway Server v2.4 LoRa WAN core spec 1.0.2 End device Certification for EU 868MHz v1.5	2019-01-25	

Single Devices of Test System 7layers LoRa Compliance Test Environment (#7LDE01)

Name	Serial Number	Manufacturer	
7Layers LoRa Control PC	DSCK001853	HP	
Semtech SX1301 LoRa Gateway for EU 868MHz	IOTSX1301	Semtech	
	Software Version	*Start Date*	*End Date*
	Lora Gateway SW (Driver HAL) v3.2.0; Packet forwarder v2.2.0	2017-01-01	

5 Annex

5.1 Object Under Test (OUT) Features

Supported Features for Object Under Test: Aener'Cube V3

Name	Mnemonic
LoRa End Device Certification EU v1.5	
Band 868 MHz	Band 868 MHz
data rate SF7BW250 (DR6)	No
data rate FSK (DR7)	No
OTAA	Support of optional over-the-air feature
ADR	Support of Adaptive Data Rate
JOIN	allow to trigger join request on port 224 (Manually switch off/on)
DIChannelReq	Yes
Block of LinkADRReq command processing	No
Output Power	Support 14dBm

5.2 Sample DE1058015ag04 Extra Information Parameters

Sample Name: DE1058017aa01	
Object Under Test:	Aener'Cube V3
Description:	Filling level sensor for garbage containers
Serial Number:	51130316
Code:	ag04

Parameter Name	Value
End Device Identifier (DevEUI)	70 B3 D5 32 60 06 03 30
Application Identifier (AppEUI)	70 B3 D5 32 60 00 01 02
Application key (AppKey)	FB 32 21 8F 74 E7 44 01 EA 58 76 5E 85 5A 3F 73

5.3 Additional Documentation for Samples

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

Sample Name: DE1058015ag04

Object Under Test

End of Test Report