

Test Report on

RSMT6L - Soil Moisture and Temperature Sensor

Test Report Reference: MDE_REACOM_2101_LoRa01

Date: 2022-02-03

Test Laboratory:

7layers GmbH
Borsigstraße 11
40880 Ratingen
Germany

Note:

The following test results relate only to the devices specified in this document. This report shall not be reproduced in parts without the written approval of the test laboratory.

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1 Administrative Data

1.1 Project Information

Project Name: MDE_REACOM_2101
Responsible for Testing and Report: Mohamed El-Fikri
Date of Report: 2022-02-03
Testing Time Frame: 2022-02-02 - 2022-02-02

1.2 Applicant Information

Company Name: REACOM GmbH
Address: Theodor-Heuss-Allee 112, 60486 Frankfurt(Main),
Germany
Contact Person: Vereshchak Oleksandr
Phone: +38 067 232 07 57
Email: Oleksandr.vereshchak@reacom.eu

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)
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: RSMT6L

Description: **RSMT6L-Soil Moisture and Temperature Sensor**

Type / Model: **RSMT6L**

Manufacturer:

Company Name: REACOM GmbH

Address: Theodor-Heuss-Allee 112, 60486 Frankfurt(Main), Germany

Contact Person: Vereshchak Oleksandr

Phone: +38 067 232 07 57

Email: Oleksandr.vereshchak@reacom.eu

Address: Theodor-Heuss-Allee 112, 60486 Frankfurt(Main), Germany

For further details see Annex.

2.2 Sample Description(s)

Sample Name: DE1466000aa01

Object Under Test: **RSMT6L**

Description: **RSMT6L – Soil Moisture and Temperature Sensor**

Serial Number: C003DD000000A016

Hardware Version: 1.1

Firmware Version: 1

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:	LW1.0.4 End Device Certification for All Regions
Date / Version:	August 04, 2021 / v1.4
Description:	LoRaWAN 1.0.4 End Device Certification Requirements for All Regions Version 1.4 & TS002 Regional Parameters version 1.0.1

3.3 Result Statistics

Test Specification	Total	Result Verdict			Pass Ratio
		Pass	Fail	Declaration	
LW1.0.4 End Device Certification for All Regions	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 ID	Sample	Date	Verdict	Observations
TP_A_EU868_ED_MAC_BV_000 / "Device Activation (OTAA)"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_001_A / "Over the air activation"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_001_B / "Activation By Personalization"	DE1466000aa01	2022-02-02	N/A	Not Applicable
TP_A_EU868_ED_MAC_BV_002 / "Cryptography"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_003 / "Downlink Sequence Number"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_004 / "Confirmed Frames"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_005 / "DevStatusReq MAC command"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_006 / "NewChannelReq MAC command for Dynamic Channel plan devices only"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_007 / "DlChannelReq for Dynamic Channel plan devices only"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_008 / "RXParameterSetupReq MAC command"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_009 / "RXTimingSetupReq MAC command"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_010 / "TxParamSetupReq MAC Command"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_011 / "LinkCheckReq MAC Command"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_012_A / "LinkADRRReq MAC command (Part 1)"	DE1466000aa01	2022-02-02	PASS	

Test Case ID	Sample	Date	Verdict	Observations
TP_A_EU868_ED_MAC_BV_012_B / "LinkADRReq MAC command (Part 2)"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_013 / "DutyCycleReq MAC Command"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_014 / "DeviceTimeReq MAC Command"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_015_A / "RX1 Receive windows test (Part 1)"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_015_B / "RX1 Receive windows test (Part 2)"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_016 / "RX2 Receive window test"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_017 / "RX1 and RX2 simultaneous frames"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_018 / "RX Oversized Payload"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_019_A / "Maximum Allowed Payload (Part 1)"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_019_B / "Maximum Allowed Payload (Part 2)"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_020 / "MAC Command(s) in App-Payload and/or Frame Options"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_021 / "Multiple MAC commands prioritization"	DE1466000aa01	2022-02-02	PASS	
TP_A_EU868_ED_MAC_BV_022 / "FPort 224 Deactivation"	DE1466000aa01	2022-02-02	PASS	
DEBUG_EU868_104_RETRANSMISSION_BACKOFF / "Retransmission back-off tests for power-up or reset of device"	DE1466000aa01	2022-02-02	PASS	

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 v1.10		
LCTT Technology Package v3.4.0_R2	2022-01-04	

Single Devices of Test System 7layers LoRa Compliance Test Environment

Name	Serial Number	Manufacturer	Software Version	Start Date	End Date
7Layers LoRa Control PC	DSCM004667	Fujitsu			
Semtech SX1301 LoRa 8-Channel Gateway for EU 868MHz	IOTSX1301	Semtech			
			Lora Gateway SW (Driver HAL) v3.2.0; Packet forwarder v2.2.0	2017-01-01	
Kerlink Wirnet iBTS compact LoRa 16-Channel Gateway for EU 868MHz	703BCc030016	Kerlink			
			pkt_forwarder 3.3.1-klk3 +hal_libloragw2-3.5.0-klk5	2017-01-01	

5 Annex

5.1 Object Under Test (OUT) Features

Supported Features for Object Under Test: **RSMT6L**

Name	Mnemonic
LoRaWAN 1.0.4 End-Device Certification v1.4	
Band 868 MHz	Yes
Band US902-928	No
Band EU433	No
Band AU915-928	No
Band CN470-510	No
Band AS923	No
Band KR920-923	No
Class A Device	Yes
Class C Device	No
LoRaWAN v1.0.2rB certification requirements	No
L2 v1.0.4 AND ABOVE LoRaWAN Regional Parameters version	<input checked="" type="radio"/> RP02-1.0.1 <input type="radio"/> RP02-1.0.2 <input type="radio"/> RP02-1.0.3 <input type="radio"/> RP02-1.0.4
data rate SF7BW250 (DR6)	No
data rate FSK (DR7)	No
OTAA	Support of optional over-the-air feature
ABP	No Support of optional activation-by-personalization
ADR	Support of Adaptive Data Rate
JOIN	allow to trigger join request on port 224
DIChannelReq	Yes
Block of LinkADRReq command processing	Yes
Data Rate Decay	Yes
uplink re-transmissions for Confirmed frames	NO
Output Power	Support 2 dBm to 13 dBm

5.2 Sample DE1466000aa01 Extra Information Parameters

Sample Name: DE1466000aa01	
Object Under Test:	RSMT6L
Description:	RSMT6L-Soil Moisture and Temperature Sensor
Serial Number:	C003DD000000A016
Code:	aa01
End Device Identifier (DevEUI)	C003DD000000A016
Join-Server Identifier (AppEUI)	FB14DDE4BA30A304
Application key (AppKey)	93DAC6C2EB084FF2623B6D7B1203C734
Maximum number of uplinks re-transmission	0
Frame counter size	32

5.3 Additional Documentation for Samples

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

Object Under Test: RSMT6L

Sample Name: DE1466000aa01

Front view:



Side view:



End of Test Report