

Test report No:

2440501R-A332251010-A

Test Report

LoRa Alliance End Device Certification Requirements

Product Name	LoRaWAN Module
Type of DUT	<input checked="" type="checkbox"/> Module <input type="checkbox"/> End Device/Sensor <input type="checkbox"/> others
Model Name	OM822
Activation possibilities	<input type="checkbox"/> Over the air <input type="checkbox"/> by personalization <input checked="" type="checkbox"/> both
Hardware Version.....	40
Software Version.....	123
Firmware version.....	1.0.2
Manufacturer	Beijing ManThink Technology Co. Ltd. 702-1, 7th Floor, Building 3, Yard 6, Disheng West Road, Beijing Economic and Technological Development Zone, 100176, Beijing, China
Test Method Request:.....	Lora Alliance Certification Program
Test Frequency Bands:	US915
LoRaWAN Spec. Version	<input checked="" type="checkbox"/> V1.0.2 <input type="checkbox"/> V1.0.4
Test Spec.....	LoRa Alliance End-Device Certification Requirements for US and Canada 902-928 ISM Band v1.5.1
Supported optional features	<input checked="" type="checkbox"/> Adaptive Data Rate (ADR) <input type="checkbox"/> SF7BW250 <input type="checkbox"/> FSK50
Summary	IN COMPLIANCE
ATH Identifier	DEKRA – TWN
Test Engineer	Gavin Yang  2024-05-27
Approved by	Jimmy Chang Manager  2024-05-27
Date of issue.....	2024-05-27
Report Revision.....	02

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Uncertainty

N/A

Usage of samples

Samples undergoing test have been selected by: Beijing ManThink Technology Co. Ltd

DUT Control ID	PSR-2073813
Model Name	OM822
Serial number	NA
Hardware Version	40
Software Version	123
Firmware Version	1.0.2
Description	OMx22 is a high-performance wireless communication module independently developed by Mengsi Technology, which is embedded with Semtech SX1262/1268 RF chips and operates in the ISM (Industrial, Scientific, and Medical) frequency band for ultra long distances. OMx22 is a module that supports the MT instruction set and can be flexibly configured to facilitate various applications.
Date of DUT reception	2024-04-18

Details of Company requesting LoRaWAN Certification

Company name	Beijing ManThink Technology Co. Ltd
Contact Person	Zhao MingFei
Address	702-1, 7th Floor, Building 3, Yard 6, Disheng West Road, Beijing Economic and Technological Development Zone, 100176, Beijing, China

Testing period

Start Date	2024-04-19
Finish Date	2024-05-21

The tests have been performed at DEKRA Testing and Certification, Co., Ltd. (Taiwan)

Test Environmental conditions

The testing has been performed within the following limits:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 80 %

Report Revision History

Revision	Modification Date	Description
01	NA	Initial Report
02	2024-05-27	Correct typos and the SW version of DUT.

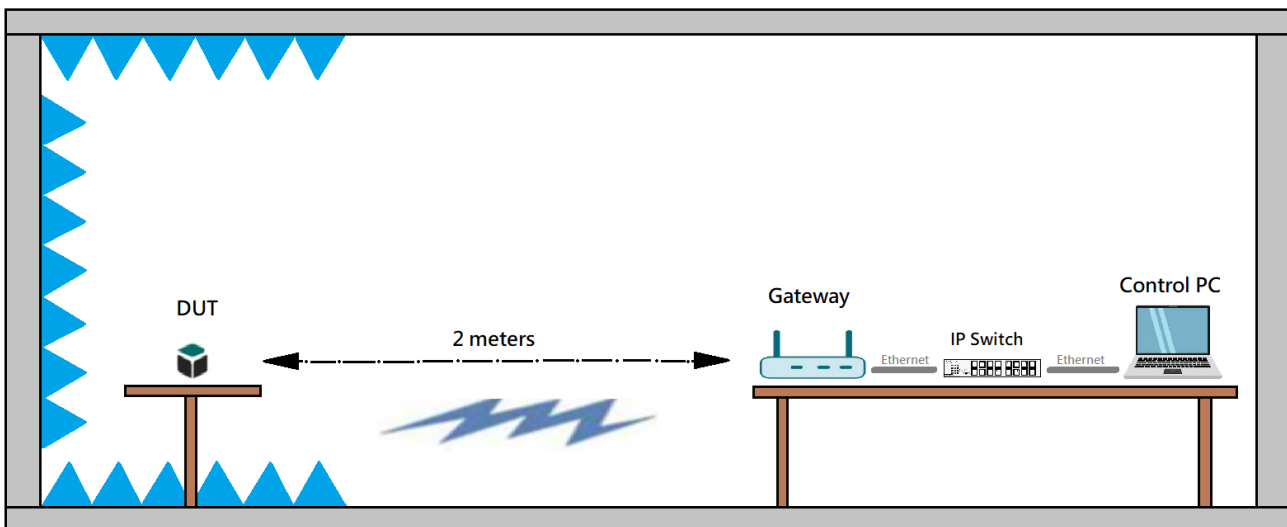
Means of Testing Identification

Following equipment was used to perform the testing:

Test System	LoRaWAN Certification Test System			
Hardware:	Control No.	Equipment	Serial No.	
	0742	Control PC with LCTT installed	GANXCV193086433	
	0734	CoreCell Gateway	-	
	0735	CoreCell Gateway	-	
	0736	CoreCell Gateway	-	
	0737	CoreCell Gateway	-	
	0738	CoreCell Gateway	-	
	0739	CoreCell Gateway	-	
	0740	CoreCell Gateway	-	
	0741	CoreCell Gateway	-	
	0559	LoRaWAN LCTT - UI version: 2.7.0 - Technology Package: LCTT v3.12.0_R1		

Test setup

The configuration used for Test Cases in nominal temperature conditions was the following one:



Appendix A – Test result

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

Test Case ID:	Test case identifier.
Description:	Test case description, as it can be found on the referred standard.
Date:	Date of the beginning of the execution.
Verdict:	Records the verdict assigned to each Test case run to completion. Following verdicts are possible: Pass: If the Test case passed. Fail: If the Test case failed. NA: Not applicable. NM: Not measured.
Additional Note.:	Provides a reference to additional information relevant to the test presented in “Test Setup” section.

Activation Mode: OTAA

Test Case ID	Description	Verdict	Date	Additional Notes.
TP_A_US915_ED_MAC_BV_000	Test mode activation	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_001	Over The Air activation	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_002	Test application functionality	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_003	AES encryption and message integrity	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_004	Downlink error rate	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_005	Downlink window timing	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_006	Frame sequence number	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_007	DevStatusReq MAC command	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_008	MAC Commands	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_009	NewChannelReq MAC command	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_010	Confirmed packets	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_011	RXParamSetupReq MAC command	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_012_A	RX1 Receive window test (Part 1)	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_012_B	RX1 Receive window test (Part 2)	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_013	RX2 Receive window test	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_014	RXTimingSetupReq MAC command	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_015_A	LinkADDRReq MAC command (Part 1)	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_015_B	LinkADDRReq MAC command (Part 2)	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_016	RX Oversized payload	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_017	Maximum allowed payload	Pass	2024-05-21	

Activation Mode: ABP

Test Case ID	Description	Verdict	Date	Additional Notes.
TP_A_US915_ED_MAC_BV_000	Test mode activation	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_002	Test application functionality	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_003	AES encryption and message integrity	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_004	Downlink error rate	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_005	Downlink window timing	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_006	Frame sequence number	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_007	DevStatusReq MAC command	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_008	MAC Commands	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_009	NewChannelReq MAC command	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_010	Confirmed packets	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_011	RXParamSetupReq MAC command	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_012_A	RX1 Receive window test (Part 1)	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_012_B	RX1 Receive window test (Part 2)	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_013	RX2 Receive window test	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_014	RXTimingSetupReq MAC command	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_015_A	LinkADRReq MAC command (Part 1)	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_015_B	LinkADRReq MAC command (Part 2)	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_016	RX Oversized payload	Pass	2024-05-21	
TP_A_US915_ED_MAC_BV_017	Maximum allowed payload	Pass	2024-05-21	

Appendix B – ICS

Item	Name	Value
1	DUT works in USA 915MHz ISM Band	TRUE
2	DUT implements LoRaWAN v1.0.2rB certification requirements	TRUE
3	DUT implements LoRaWAN v1.0.4 certification requirements	FALSE
4	DUT is a Class A Device (All End Devices)	TRUE
5	DUT is a Class B Device (Beacon Mode)	FALSE
6	DUT is a Class C Device (Continuously Listening)	FALSE
7	DUT supports Adaptive Data Rate (ADR) feature	TRUE
8	DUT supports LinkADRReq block	TRUE
9	DUT supports DChannelReq MAC command	FALSE
10	DUT implements Data Rate Decay	FALSE
11	DUT supports Over-The-Air Activation (OTAA) mechanism	TRUE
12	DUT permanently enabled Class C	FALSE
13	DUT needs a reset after deactivating Test Mode	FALSE
14	DUT supports SCHC	FALSE
15	DUT supports FUOTA	FALSE
16	DUT supports Trigger Join Request command in Test Mode	TRUE

Appendix C – General Parameters

Item	Name	Value
GW	Default TX Antenna	0
	List of IP address of the GWs	192.168.31.221; 192.168.31.222; 192.168.31.223; 192.168.31.224; 192.168.31.225; 192.168.31.226; 192.168.31.227; 192.168.31.228
	Gateway model	CoreCell
	Number of supported channels in Gateway	64 Channels
	Default TX Power	14 dBm
	Gateway Socket Port	1780
	Gateway supports LR-FHSS	FALSE
	Size of the reception window	100
	Number of GWs	8
TM	General Timer	90 min
	Network Server IP Address	192.168.31.25
	Verbosity level for Logs	TRUE

Appendix D - Photo of Sample Under Testing

