

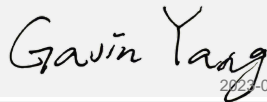



Test report No:

2350246R-A332250010S-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	CMWX1ZZABZ-108
Activation possibilities	<input type="checkbox"/> Over the air <input type="checkbox"/> by personalization <input checked="" type="checkbox"/> both
Hardware Version	MP
Software Version	1.1.01
Firmware version	1.1.01
Manufacturer	Murata Manufacturing Co., Ltd. 10-1, Higashikotari 1-chome, Nagaokakyo-shi, Kyoto 617-8555, Japan
Test Method Request:	Lora Alliance Certification Program
Test Frequency Bands:	EU868
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 EU863-870 ISM Band – v1.6
Supported optional features	<input checked="" type="checkbox"/> Adaptive Data Rate (ADR)
	<input checked="" type="checkbox"/> SF7BW250
	<input checked="" type="checkbox"/> FSK50
Summary	IN COMPLIANCE
ATH Identifier	DEKRA – TWN
Test Engineer	Gavin Yang  2023-09-07
Approved by	Jimmy Chang  Manager 2023-09-07
Date of issue	2023-09-07
Report Revision	01

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Uncertainty

N/A

Usage of samples

Samples undergoing test have been selected by: Murata Manufacturing Co., Ltd.

DUT Control ID	PSR-2043826
Model Name	CMWX1ZZABZ-108
Serial number	NA
Hardware Version	MP
Software Version	1.1.01
Firmware Version	1.1.01
Description	The module, part number CMWX1ZZABZ-108, has been designed to support for operation in 868MHz (EU), 915MHz (USA) and 920MHz (APAC) with a single modem firmware. Modem firmware is pre-flashed, so the module can be utilized as small size modem and require the application to run on an external host.
Date of DUT reception	2023-05-15

Details of Company requesting LoRaWAN Certification

Company name	Murata Electronics Europe
Contact Person	Samir Hennaoui
Address	18-22, avenue Edouard Herriot - Copernic-6, 92356 Le Plessis-Robinson Cedex, France

Testing period

Start Date	2023-05-22
Finish Date	2023-08-17

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

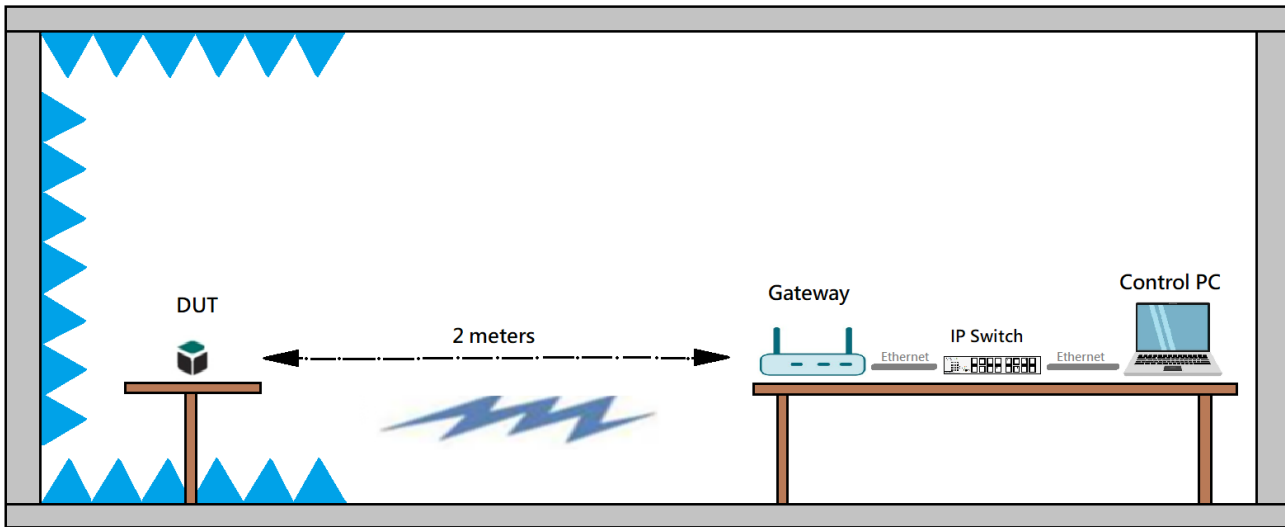
Means of Testing Identification

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
	0741	CoreCell Gateway	-
	0559	LoRaWAN LCTT - UI version: 2.5.0 - Technology Package: LCTT v3.9.0_R1 / LCTT v3.10.0_R2	

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_EU868_ED_MAC_BV_000	Device activation	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_001_A	Over The Air activation	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_002	Test application functionality	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_003	AES encryption and message integrity	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_004	Downlink error rate	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_005	Downlink window timing	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_006	Frame sequence number	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_007	DevStatusReq MAC command	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_008	MAC Commands	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_009	NewChannelReq MAC command	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_010	DIChannelReq MAC command	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_011	Confirmed packets	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_012	RXParamSetupReq MAC command	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_013	RXTimingSetupReq MAC command	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_014_A	LinkADRReq MAC command (Part 1)	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_014_B	LinkADRReq MAC command (Part 2)	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_015_A	RX1 Receive window test (Part 1)	Pass	2023-08-17	
TP_A_EU868_ED_MAC_BV_015_B	RX1 Receive window test (Part 2)	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_016	RX2 Receive window test	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_017	RX1 and RX2 simultaneous frames	Pass	2023-08-10	Waived & tested by LCTT v3.9.0_R1
TP_A_EU868_ED_MAC_BV_018	TXParamSetupReq MAC command	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_019	LinkCheckReq MAC command	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_020	RX Oversized payload	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_021	Maximum Allowed payload	Pass	2023-08-09	

Activation Mode: ABP

Test Case ID	Description	Verdict	Date	Additional Notes.
TP_A_EU868_ED_MAC_BV_000	Device activation	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_001_B	Activation by Personalization	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_002	Test application functionality	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_003	AES encryption and message integrity	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_004	Downlink error rate	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_005	Downlink window timing	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_006	Frame sequence number	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_007	DevStatusReq MAC command	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_008	MAC Commands	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_009	NewChannelReq MAC command	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_010	DIChannelReq MAC command	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_011	Confirmed packets	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_012	RXParamSetupReq MAC command	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_013	RXTimingSetupReq MAC command	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_014_A	LinkADDRReq MAC command (Part 1)	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_014_B	LinkADDRReq MAC command (Part 2)	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_015_A	RX1 Receive window test (Part 1)	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_015_B	RX1 Receive window test (Part 2)	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_016	RX2 Receive window test	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_017	RX1 and RX2 simultaneous frames	Pass	2023-08-10	Waived & tested by LCTT v3.9.0_R1
TP_A_EU868_ED_MAC_BV_018	TXParamSetupReq MAC command	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_019	LinkCheckReq MAC command	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_020	RX Oversized payload	Pass	2023-08-09	
TP_A_EU868_ED_MAC_BV_021	Maximum Allowed payload	Pass	2023-08-09	

Appendix B – ICS

Item	Name	Value
1	DUT works in EU 868MHz 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 supports Adaptive Data Rate (ADR) feature	TRUE
6	DUT supports LinkADRReq block	TRUE
7	DUT supports uplink re-transmissions for Confirmed frames	TRUE
8	DUT supports DiChannelReq MAC command	TRUE
9	DUT supports the Lorawan-1.0.x-join-synch-issues-remedies-v1.0.0	FALSE
10	DUT supports Over-The-Air Activation (OTAA) mechanism	TRUE
11	DUT needs a reset after deactivating Test Mode	FLASE
12	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	192.168.31.228
	Gateway model	CoreCell
	Number of supported channels in Gateway	8 Channels
	Default TX Power	14 dBm
	Gateway Socket Port	1780
	Gateway supports LR-FHSS	FALSE
	Size of the reception window	100
	Number of GWs	1
TM	General Timer	90 min
	Network Server IP Address	192.168.31.16
	Verbosity level for Logs	TRUE

Appendix D - Photo of Sample Under Testing

