

BS EN IEC 62311:2020  
ASSESSMENT REPORT

For

**Xiamen Milesight IoT Co., Ltd.**

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**Tested Model: UG65-L00E-868M-EA**  
**Multiple Models: UG65-L00E-868M,**  
**UG65-868M-EA, UG65-868M,**  
**UG65-L04EU-868M-EA, UG65-L04EU-868M**

<b>Report Type:</b> Original Report	<b>Product Type:</b> LoRaWAN Gateway
<b>Report Number:</b> <u>RXM200911053</u>	
<b>Report Date:</b> <u>2020-12-30</u> Nancy Wang	
<b>Reviewed By:</b> <u>RF Engineer</u>	
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FINAL

## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

Product	LoRaWAN Gateway
Tested Model	UG65-L00E-868M-EA
Multiple Models	UG65-L00E-868M, UG65-868M-EA, UG65-868M, UG65-L04EU-868M-EA, UG65-L04EU-868M
Model Differences	Refer to the DoS letter
Voltage Range	DC12.0V from adapter or DC 48V from POE
Sample serial number	RXM200911053-RF-S1(Assigned by BAACL, Shenzhen)
Received date	2020-09-11
Sample/EUT Status	Good condition
Adapter information	Model: OH-1015A1201000U3-VDE Input: AC 100-240V, 50/60Hz, 0.35A Output: DC 12.0V, 1.0 A, 12.0W

### Objective

This test report is in accordance with BS EN IEC 62311:2020, Generic standard to demonstrate the compliance of electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (0 Hz–300 GHz) is to demonstrate the compliance of apparatus with the basic restrictions or reference levels on exposure of the general public related to electric, magnetic, electromagnetic fields as well as induced and contact current.

The objective is to determine the compliance of EUT with BS EN IEC 62311:2020.

### Test Methodology

All measurements contained in this report were conducted with BS EN IEC 62311:2020.

### EUT Exercise Software

No exercise software was used.

## Technical Requirements Specification in BS EN IEC 62311

### General Description of Applied Standards

BS EN IEC 62311 Generic standard to demonstrate the compliance of electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (0 Hz–300 GHz) is to demonstrate the compliance of apparatus with the basic restrictions or reference levels on exposure of the general public related to electric, magnetic, electromagnetic fields as well as induced and contact current.

### RF Exposure Evaluation

#### Limit:

According to BS EN IEC 62311, the criteria listed in the below table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified table 2 of Council Recommendation 1999/519/EC.

Reference levels for electric, magnetic and electromagnetic fields  
(0 Hz to 300 GHz, unperturbed rms values)

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density $S_{eq}$ (W/m <sup>2</sup> )
0-1 Hz	—	$3,2 \times 10^4$	$4 \times 10^4$	—
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	—
8-25 Hz	10 000	$4\ 000/f$	$5\ 000/f$	—
0,025-0,8 kHz	$250/f$	$4/f$	$5/f$	—
0,8-3 kHz	$250/f$	5	6,25	—
3-150 kHz	87	5	6,25	—
0,15-1 MHz	87	$0,73/f$	$0,92/f$	—
1-10 MHz	$87/f^{1/2}$	$0,73/f$	$0,92/f$	—
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375 f^{1/2}$	$0,0037 f^{1/2}$	$0,0046 f^{1/2}$	$f/200$
2-300 GHz	61	0,16	0,20	10

#### Notes:

1.  $f$  as indicated in the frequency range column.

**Test method****Far Field Calculation Formula**

$$E = \frac{\sqrt{30PG(\theta, \phi)}}{r}$$

G = antenna gain relative to an isotropic antenna  
 $\theta, \phi$  = elevation and azimuth angles to point of investigation  
r = distance from observation point to the antenna

**Test Data****Environmental Conditions**

<b>Temperature:</b>	21 °C
<b>Relative Humidity:</b>	50 %
<b>ATM Pressure:</b>	101.0 kPa

The testing was performed by Coco Liu on 2020-12-29.

For worst case:

Mode	Frequency Range (MHz)	Tune-up Conducted Output Power (dBm)	Antenna gain (dBi)	E-Field Strength (V/m)	E-Field Limit (V/m)	Result
Lora	863-870	15	1.5	5.79	40.39	Pass
Wi-Fi	2412-2472	11	1.5	3.65	61	Pass
EGSM900	880-915	26.25*	0.5	18.84	40.79	Pass
DCS1800	1710-1785	26*	1.5	20.54	56.86	Pass
WCDMA900 & LTE Band 8	880-915	24	0.5	14.54	40.79	Pass
WCDMA 2100 & LTE Band 1	1920-1980	24	1.5	16.31	60.25	Pass
LTE Band 3	1710-1785	24	1.5	16.31	56.86	Pass
LTE Band 7	2500-2570	24	1.5	16.31	68.75	Pass
LTE Band 20	832-862	24	1.5	16.31	39.66	Pass

Note: The distance from observation point to the antenna is 0.2 m.

"\*":

For EGSM900: The maximum tune up average power = 3TX Slots tune up power-4.25= (30.5-4.25)dBm=26.25dBm

For DCS1800: The maximum tune up average power = 4TX Slots tune up power-3= (29-3)dBm=26dBm

**Conclusion:**

The RF Exposure is compliance.

## **EXHIBIT A - EUT PHOTOGRAPHS**

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Please refer to the Attachment.

**\*\*\*\*\* END OF REPORT \*\*\*\*\***