



中国认可
国际互认
检测
TESTING
CNAS L0446



Certificate # 2861.01



TEST REPORT

Verified Code: 407694

Report No.:	E20210414049301-2-G1	Application No.:	E20210414049301
Client:	Lumi United Technology Co., Ltd		
Address:	8th Floor, JinQi Wisdom Valley, No.1 Tangling Road, Liuxian Ave, Taoyuan Residential District, Nanshan District, Shenzhen.China		
Sample Description:	Hub E1		
Model:	HE1-G01		
Test Specification:	EN 50665:2017 Generic standard for assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz) EN 62311:2008 Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz to 300 GHz)		
Receipt Date:	2021-04-20		
Test Date:	2021-06-18 to 2021-07-09		
Issue Date:	2021-07-27		
Test Result:	Pass		
Prepared By: Test Engineer <i>Yan sha</i>	Reviewed By: Technical Manager <i>Jiang Tao</i>	Approved By: Manager <i>Johnson</i>	
Other Aspects:			
Note: This report instead the report E20210414049301-2, and from the date of issuance of this report, the report which being replaced become invalid.			
Abbreviations: ok / P = passed; fail / F = failed; n.a. / N = not applicable;			
The test result in this test report refers exclusively to the presented test sample. This report shall not be reproduced except in full, without the written approval of GRGT.			



DIRECTIONS OF TEST

- 1. This station carries out test task according to the national regulation of verifications which can be traced to National Primary Standards and BIPM.**
- 2. The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory.**
- 3. If there is any objection concerning the test, the client should inform the laboratory within 15 days from the date of receiving the test report.**

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1 GENERAL DESCRIPTION OF EUT

1.1 APPLICANT INFORMATION

Name: Lumi United Technology Co., Ltd
Address: 8th Floor, JinQi Wisdom Valley, No.1 Tangling Road, Liuxian Ave,
Taoyuan Residential District, Nanshan District, Shenzhen.China


1.2 MANUFACTURER

Name: Lumi United Technology Co., Ltd
Address: 8th Floor, JinQi Wisdom Valley, No.1 Tangling Road, Liuxian Ave,
Taoyuan Residential District, Nanshan District, Shenzhen.China

1.3 FACTORY

Factory : Lumi United Technology Co., Ltd
Address: 8th Floor, JinQi Wisdom Valley, No.1 Tangling Road, Liuxian Ave,
Taoyuan Residential District, Nanshan District, Shenzhen.China

1.4 BASIC DESCRIPTION OF EUT

Product Name: Hub E1
Product Model: HE1-G01
Adding Model: /
Trade Name: Aqara
Power Supply: Input: 5V  0.5A
Zigbee: 2405~2475MHz
Frequency Band: 2.4G WiFi: 2412~2472MHz
Modulation Type: Zigbee: OQPSK
2.4G WiFi: DSSS, OFDM
Antenna Specification: Zigbee: Internal antenna 1dBi gain (Max.)
2.4G WiFi: Internal antenna 2.5dBi gain (Max.)
Temperature Range: -10°C~40°C
Hardware Version: T0
Software Version: 3.2.4_0028
Sample submitting way: Provided by customer Sampling
Sample No: E20210414049301-0001
Note: /

2 LABORATORY AND ACCREDITATIONS

2.1 LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of Guangzhou GRG Metrology & Test Co., Ltd.

Add.: No.1301 Guanguang Road Xinlan Community, Guanlan Street, Longhua District Shenzhen, 518110, People's Republic of China.
P.C.: 518000
Tel : 0755-61180008
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2.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to GB/T 27025(ISO/IEC 17025:2017)

USA	A2LA(Certificate#:2861.01)
China	CNAS(L0446)

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada	Industry Canada
USA	FCC

Copies of granted accreditation certificates are available for downloading from our web site, <http://www.grgtest.com>

3 TECHNICAL REQUIREMENTS SPECIFICATION IN

3.1 RF EXPOSURE EVALUATION

This European Standard applies to electronic and electrical equipment for which no dedicated Harmonized product – or product family standard, or standard relating to low power equipment, regarding human exposure not. Annex A lists such harmonized standards available at the time of writing This list may change with time. The current list of standards harmonized under each directive should be consulted at the time of use of this standard.

The measurements and calculations to demonstrate equipment compliance shall be made according to EN 62311:2008, Clause 4 and 5. The general considerations as defined in EN 62311:2008, Clause 4 and 5 shall apply to all equipment.

The product is deemed to fulfil the requirements of this standard if the calculated and/or measured values are less than or equal to the limits.

NOTE In the setting of basic restrictions and the derived reference levels, safety factors have been taken into account. In the specification of the assessment method, uncertainty has been constrained. This is the reason for not requiring that the measured values shall be compared to the limit reduced by the measurement uncertainty.

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 ²)
0-1 Hz	—	$3,2 \times 10^4$	4×10^4	—
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:

- f as indicated in the frequency range column.
- For frequencies between 100 kHz and 10 GHz, S_{eq} , E^2 , H^2 , and B^2 are to be averaged over any six-minute period.
- For frequencies exceeding 10 GHz, S_{eq} , E^2 , H^2 , and B^2 are to be averaged over any $68/f^{1.05}$ -minute period (f in GHz).
- No E-field value is provided for frequencies < 1 Hz, which are effectively static electric fields. For most people the annoying perception of surface electric charges will not occur at field strengths less than 25 kV/m. Spark discharges causing stress or annoyance should be avoided.

3.2 EVALUATION RESULTS

Modulation Type: 2.4GHz WIFI

Operating Mode with Modulation		
Packet	EIRP Level (dBm)	EIRP Level (mW)
802.11n HT20	16.93	49.32

For the 2.4GHz band the reference level is E field strength 6.08V/m

The Formula

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

Whereas,

$\Theta \Phi$ = elevation and azimuth angles to point of investigation

r=distance from observation point to the antenna

P=the maximum output power of transmitter.

The maximum e.i.r.p of the transmitter is 16.93dBm= 49.32mW= 0.04932W

r= 20cm.

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