Qingdao Yeelink Information Technology Co., Ltd.

MPE ASSESSMENT REPORT

Report Type:
FCC MPE assessment report

Model:
YP-0194

REPORT NUMBER:
2406B2005SHA-003

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TEST REPORT

Report no.: 2406B2005SHA-003

Applicant:	Qingdao Yeelink Information Technology Co., Ltd 10F-B4, Building B, Qingdao International Innovation Park, No.1 Keyuan Weiyi Road, Laoshan District, Qingdao City, Shandong Province, P.R.China
Manufacturer:	Qingdao Yeelink Information Technology Co., Ltd 10F-B4, Building B, Qingdao International Innovation Park, No.1 Keyuan Weiyi Road, Laoshan District, Qingdao City, Shandong Province, P.R.China
FCC ID:	2ABEU-YP-0194

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:
KDB447498 D01 General RF Exposure Guidance v06 FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

PREPARED BY:	**REVIEWED BY:**
	
Project Engineer Damon Ding	Reviewer Eric Li

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Revision History

Report No.	Version	Description	Issued Date
2406B2005SHA-003	Rev. 01	Initial issue of report	August 5, 2024

TEST REPORT

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Yeelight Pro S20 Gateway (BLE Mesh)
Type/Model:	YP-0194
Description of EUT:	EUT is a wireless Yeelight Pro S20 Gateway (BLE Mesh) with BLE module and Wi-Fi. The BLE module has been approved with FCC ID: 2ABEU-EF-R32-RSA2.
Rating:	100-240VAC, 50/60Hz for adapter 5V ⎓ 1A for gateway
Category of EUT:	Class B
EUT type:	☒ Tabletop ☐ Floor standing
Software Version:	/
Hardware Version:	/
Sample received date:	May 11, 2024
Date of test:	May 20, 2024, to May 29, 2024

1.2 Technical Specification

Frequency Band:	2400MHz ~ 2483.5MHz
Support Standards:	Bluetooth LE 5.0
Type of Modulation:	GFSK
Channel Number:	40
Channel Separation:	2MHz
Antenna Information:	0.5 dBi, PCB antenna

Frequency Band:	2400MHz ~ 2483.5MHz
Support Standards:	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n(HT20), IEEE 802.11n(HT40)
Type of Modulation:	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n(HT20): OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n(HT40): OFDM (64-QAM, 16-QAM, QPSK, BPSK)
Operating Frequency:	2412MHz to 2462MHz for IEEE 802.11b/g/n(HT20)/n(HT40)
Channel Number:	11 Channels for 802.11b, 802.11g, 802.11n(HT20) and 802.11n(HT40)
Channel Separation:	5 MHz
Antenna Information:	2 dBi, PCB antenna

1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab Registration code No.: CN0014
	VCCI Registration Lab Registration No.: 3598 (Registration No.: R-14243, G-10845, C-14723, T-12252)
	A2LA Accreditation Lab Certificate Number: 3309.02

Tests were sub-contracted.

Name:	Shenzhen UnionTrust Quality and Technology Co., Ltd.
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The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L969
	FCC Accredited Lab Designation Number: CN1194
	IC Registration Lab CAB identifier.: CN0032
	VCCI Registration Lab Member No: 4142 (Registration No.: C-20097, T-20098, R-20135, G-20130)
	A2LA Accreditation Lab Certificate Number: 4312.01

2 MPE Assessment

Test result: Pass

2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (uT)	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

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0**

2.2 Assessment Results

Power density (S) is calculated according to the formula:

$S = P / (4\pi R^2)$

Where S = power density in mW/cm^2

P = Radiated transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

As we can see from the test report GZHH00517759-001&2406B2005SHA-002:

The calculations in the table below use the highest gain of antenna for client EUT. These calculations represent worst case in terms of the exposure levels.

Mode	Frequency band	Max Power	Antenna Gain	R	S	Limits
	(MHz)	dBm	dBi	(cm)	(mW/cm2)	(mW/cm2)
BLE	2402 -2480	8.81	0.5	20	0.0017	1
WIFI	2412-2462	19.97	2.0	20	0.0313	1

Note: 1 mW/cm2 from 1.310 Table 1

The sum of the MPE ratios for all simultaneously transmitting is 0.0017/1+0.0313/1=0.033＜ 1.0

For the device can support simultaneous transmission, according to 447498 D01 General RF Exposure Guidance v06,

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Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation.
To ensure compliance, operations at closer than this distance is not recommended.

********** END **********