

RF Exposure Evaluation Rep Ort

Report Reference No.....: MTWG2209347-H

FCC ID.....: 2A3YB-YSBG1MAX

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Date of issue.....: **September 26, 2022**

Representative Laboratory Name.: Shenzhen Most Technology Service Co., Ltd.

Address No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park,
Nanshan, Shenzhen, Guangdong, China.

Applicant's name.....: FUJIAN YESOUL HEALTH TECHNOLOGY CO., LTD.

Address RM-B616, BLDG., No.1, STRAIT ECONOMIC AND
TRADE PLAZA, FUZHOU FREE TRADE ZONE. FUZHOU, FUJIAN, 350000, China

Test specification/ Standard: **47 CFR Part 1.1307**
47 CFR Part 2.1093

TRF Originator.....: Shenzhen Most Technology Service Co., Ltd.

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Test item description YESOUL BIKE G1 MAX

Trade Mark: 

Manufacturer: **FUJIAN YESOUL HEALTH TECHNOLOGY CO., LTD.**

Model/Type reference.....: YS-001

Listed Models: N/A

Modulation Type: GFSK, $\pi/4$ DQPSK, 8DPSK, CCK/DSSS/ OFDM

Operation Frequency.....: From 2402MHz to 2480MHz

Hardware Version.....: 201-MH358C1K-04 20220729

Software Version: Sat Aug 20 21:32:53 CST 2022

Rating: Input: 100-240V~50/60Hz 2.0A Max
Output: 24V=3.0A

Result.....: **PASS**

TEST REPORT

Equipment under Test : YESOUL BIKE G1 MAX

Model /Type : YS-001

Listed Models : N/A

Remark 

Applicant : FUJIAN YESOUL HEALTH TECHNOLOGY CO., LTD.

Address : RM-B616, BLDG., NO.1, STRAIT ECONOMIC AND TRADE,PLAZA,
FUZHOU FREE TRADE ZONE,FUZHOU, FUJIAN,350000,China

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Address : RM-B616, BLDG., NO.1, STRAIT ECONOMIC AND TRADE,PLAZA,
FUZHOU FREE TRADE ZONE,FUZHOU, FUJIAN,350000,China

Test Result:	PASS
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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.

1. Revision History

Revision	Issue Date	Revisions	Revised By
00	2022.09.26	Initial Issue	Alisa Luo

2. SAR Evaluation

RF Exposure Compliance Requirement

Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$ Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

EUT RF Exposure

BT classic

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	4.497	4.497 ± 1	5.497
Middle(2441MHz)	5.597	5.597 ± 1	6.597
Highest(2480MHz)	5.261	5.261 ± 1	6.261

π /4DQPSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	3.525	3.525 ± 1	4.525
Middle(2441MHz)	5.130	5.130 ± 1	6.130
Highest(2480MHz)	3.583	3.583 ± 1	4.583

8DPSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	4.829	4.829 ± 1	5.829
Middle(2441MHz)	4.554	4.554 ± 1	5.554
Highest(2480MHz)	4.497	4.497 ± 1	5.497

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Maximum Peak Conducted Output Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Highest(2441 MHz)	6.597	4.56	2.68	0.0016	1.0	Pass

Note: 1) Refer to report **MTWG2209347-R2** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} * G) / (4 * \pi * R^2) = (4.56 * 1.85) / (4 * 3.1416 * 20^2) = 0.0016$

Note: 3) EUT's Bluetooth module is more than 20cm away from the human body.

BLE

GFSK				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	4.470	4.470 ± 1	5.470	3.52
Middle(2440MHz)	5.730	5.730 ± 1	6.730	4.71
Highest(2480MHz)	5.485	5.485 ± 1	6.485	4.45

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Maximum Peak Conducted Output Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Highest(2440MHz)	6.730	4.71	2.68	0.0017	1.0	Pass

Note: 1) Refer to report **MTWG2209347-R1** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} * G) / (4 * \pi * R^2) = (4.71 * 1.85) / (4 * 3.1416 * 20^2) = 0.0017$

Note: 3) EUT's Bluetooth module is more than 20cm away from the human body.

WIFI 2.4G

Antenna 1:

802.11b			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412 MHz)	13.02	13.02 ± 1	14.02
Middle(2437MHz)	12.23	12.23 ± 1	13.23
Highest(2462MHz)	12.59	12.59 ± 1	13.59

802.11g			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412 MHz)	13.10	13.10 ± 1	14.10
Middle(2437MHz)	11.02	11.02 ± 1	12.02
Highest(2462MHz)	12.04	12.04 ± 1	13.04

802.11n(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412 MHz)	12.33	12.33 ± 1	13.33
Middle(2437MHz)	14.36	14.36 ± 1	15.36
Highest(2462MHz)	12.30	12.30 ± 1	13.30

802.11n(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412 MHz)	13.52	13.52 ± 1	14.52
Middle(2437MHz)	12.47	12.47 ± 1	13.47
Highest(2462MHz)	11.96	11.96 ± 1	12.96

WIFI 2.4G

Antenna 2:

802.11b			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412 MHz)	12.15	12.15 ± 1	13.15
Middle(2437MHz)	12.03	12.03 ± 1	13.03
Highest(2462MHz)	11.69	11.69 ± 1	12.69

802.11g			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412 MHz)	12.36	12.36 ± 1	13.36
Middle(2437MHz)	9.98	9.98 ± 1	10.98
Highest(2462MHz)	11.23	11.23 ± 1	12.23

802.11n(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412 MHz)	11.08	11.08 ± 1	12.08
Middle(2437MHz)	13.65	13.65 ± 1	14.65
Highest(2462MHz)	11.26	11.26 ± 1	12.26

802.11n(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412 MHz)	12.58	12.58 ± 1	13.58
Middle(2437MHz)	11.02	11.02 ± 1	12.02
Highest(2462MHz)	10.02	10.02 ± 1	11.02

WIFI 2.4G

Antenna 1+ Antenna 2:

802.11n(HT20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412 MHz)	14.02	14.02 ± 1	15.02
Middle(2437MHz)	14.25	14.25 ± 1	15.25
Highest(2462MHz)	13.23	13.23 ± 1	14.23

802.11n(HT40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412 MHz)	14.31	14.31 ± 1	15.31
Middle(2437MHz)	13.74	13.74 ± 1	14.74
Highest(2462MHz)	13.03	13.03 ± 1	14.03

Worst case: Antenna 1:802.11n(HT20)						
Channel	Maximum Peak Conducted Output Power (dBm)	Maximum Peak Conducted Output Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Highest(2437MHz)	15.36	34.35	2.19	0.011	1.0	Pass

Note: 1) Refer to report **MTWG2209347-R** for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} * G) / (4 * \pi * R^2) = (34.35 * 1.65) / (4 * 3.1416 * 20^2) = 0.011$

Note: 3) EUT's Bluetooth module is more than 20cm away from the human body.

.....THE END OF REPORT.....