Shenzhen Most Technology Service Co., Ltd.
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Hi-tech Industry Park, Nanshan,Shenzhen,Guangdong,China

RF Exposure Evaluation Report

Report Reference No..... :	**MTEB24040009 -H**
FCC ID..... :	**2ALZG-309**
Compiled by (position+printed name+signature).. :	File administrators Alisa Luo
Supervised by (position+printed name+signature).. :	Test Engineer Sunny Deng
Approved by (position+printed name+signature).. :	Manager Yvette Zhou
Date of issue.....:	Apr.08,2024
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.....:	**Qingdao Magene Intelligence Technology Co., Ltd.**
Address..... :	Room 302, Building 3, No.328A Chengkang Road, Xiazhuang Subdistrict, Chengyang, Qingdao, Shandong, China.
Test specification/ Standard.....**:**	**47 CFR Part 1.1307;47 CFR Part 1.1310** **KDB447498D01 General RF Exposure Guidance v06**
TRF Originator.....:	Shenzhen Most Technology Service Co., Ltd.

Test item description.....:	Smart GPS Bike Computer
Trade Mark.....:	Magene
Model/Type reference..... :	P0101293
Listed Models ..... :	NA
Modulation Type..... :	b: DSSS g/n: OFDM GFSK
Operation Frequency..... :	802.11b/802.11g/802.11n(H20): 2412MHz~2462MHz 802.11n(H40): 2422MHz~2452MHz From 2402MHz to 2480MHz 2457MHz
Hardware Version.....	1.0
Software Version.....	1.0
Rating.....:	DC 3.8V from Battery DC 5V from Power supply
Result.....:	**PASS**

T E S T R E P O R T

Equipment under Test	:	Smart GPS Bike Computer
Model /Type	:	P0101293
Listed Models	:	NA
Remark		NA
Applicant	:	Qingdao Magene Intelligence Technology Co., Ltd.
Address	:	Room 302, Building 3, No.328A Chengkang Road, Xiazhuang Subdistrict, Chengyang, Qingdao, Shandong, China.
Manufacturer	:	Qingdao Magene Intelligence Technology Co., Ltd.
Address	:	Room 302, Building 3, No.328A Chengkang Road, Xiazhuang Subdistrict, Chengyang, Qingdao, Shandong, China.

Test Result:	**PASS**

1. Revision History

Revision	Issue Date	Revisions	Revised By
00	2024.04.08	Initial Issue	Alisa Luo

2. SAR Evaluation

2.1 RF Exposure Compliance Requirement

2.1.1 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.

2.1.2 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: Pd = (Pout*G)/(4* Pi * R 2) Where
Pd = power density in mW/cm2
Pout = output power to antenna in mW
G = gain of antenna in linear scale
Pi = 3.1416

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

2.1.3 EUT RF Exposure

BLE

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2402 MHz)	2.754	2.754±1	3.754
Middle(2440MHz)	2.869	2.869±1	3.869
Highest(2480MHz)	2.231	2.231±1	3.231

BLE

Worst case: GFSK						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Limit	Result
Middle(2440MHz)	3.869	2.44	-1.5	0.00034	1.0	Pass

Note: 1) Refer to report MTEB24040009-R1 for EUT test Max Conducted average Output Power value.
Note: 2) Pd = (Pout*G)/(4* Pi * R^2)=(2.44*0.7)/(4*3.1416*20^2)=0.00034
Note: 3)EUT's Bluetooth module is more than 20cm away from the human body.

WIFI 2.4G

802.11b			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2412MHz)	15.58	15.58±1	16.58
Middle(2437MHz)	14.65	14.65±1	15.65
Highest(2462MHz)	14.81	14.81±1	15.81

802.11g			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2412MHz)	14.80	14.80±1	15.8
Middle(2437MHz)	14.16	14.16±1	15.16
Highest(2462MHz)	14.15	14.15±1	15.15

802.11n(H20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2412MHz)	13.80	13.80±1	14.8
Middle(2437MHz)	13.32	13.32±1	14.32
Highest(2462MHz)	13.43	13.43±1	14.43

802.11n(H40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2422MHz)	13.70	13.70±1	14.7
Middle(2437MHz)	13.26	13.26±1	14.26
Highest(2452MHz)	13.26	13.26±1	14.26

WIFI 2.4G

Worst case: 802.11b						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Limit	Result
Middle(2412MHz)	16.58	45.50	-1.5	0.0063	1.0	Pass

Note: 1) Refer to report MTEB24040009-R for EUT test Max Conducted average Output Power value.
Note: 2) Pd = (Pout*G)/(4* Pi * R^2)=(45.50*0.7)/(4*3.1416*20^2)=0.0063
Note: 3)EUT's Bluetooth module is more than 20cm away from the human body.

ANT+

GFSK				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
CH1(2457MHz)	-6.58	-6.58±1	-5.58	0.28

Worst case: GFSK						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Limit	Result
Middle(2441MHz)	-5.58	0.28	-1.5	0.000038	1.0	Pass

Note: 1) Refer to report MTEB24040009-R2 for EUT test Max Conducted average Output Power value.
Note: 2) Pd = (Pout*G)/(4* Pi * R^2)=(0.28*0.7)/(4*3.1416*20^2)=0.000038
Note: 3)EUT's Bluetooth module is more than 20cm away from the human body.

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