RF EXPOSURE
Test Report

Report No.:	MTi240326015-01E2
Date of issue:	2024-07-11
Applicant:	Zhonghui Chuangzhi (Fuyang) Technology Co., Ltd
Product:	Robot Wireless Recharger
Model(s):	HY01
FCC ID:	2BFQW-HY01

Shenzhen Microtest Co., Ltd.

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Applicant:	Zhonghui Chuangzhi (Fuyang) Technology Co., Ltd
Address:	Building A12, Drone Industrial Park, Intersection of Lixin Road and Ruixiang Road, Yingquan District, Fuyang City, Anhui Province
Manufacturer:	Zhonghui Chuangzhi (Fuyang) Technology Co., Ltd
Address:	Building A12, Drone Industrial Park, Intersection of Lixin Road and Ruixiang Road, Yingquan District, Fuyang City, Anhui Province
Product description	
Product name:	Robot Wireless Recharger
Trademark:	ZONECHARGE
Model name:	HY01
Serial Model:	N/A
Standards:	N/A
Test method:	KDB 447498 D01 v06
Date of Test	
Date of test:	2024-04-12 to 2024-07-11
Test result:	Pass

Test Engineer : Letter. Lan.

(Letter Lan)

Reviewed By: : David. Lee

(David Lee)

Approved By: : Leon chen

(Leon Chen)

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RF EXPOSURE EVALUATION

According to FCC 1.1310: 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 §1.1307(b)

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 Exposure				
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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

MPE Calculation Method

Friis transmission formula: $Pd= (Pout*G)\ (4*pi*R^2)$

Where

Pd= Power density in mW/cm^2

Pout=output power to antenna in mW

G= Numeric gain of the antenna relative to isotropic antenna

Pi=3.1415926

R= distance between observation point and center of the radiator in cm(20cm)

Pd the limit of MPE, $1mW/cm^2$. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

2.4G SRD:

Operation Frequency: 2402 - 2462 MHz,

conducted power comes from the following calculations:

9.5 Equations to calculate EIRP

Calculate the EIRP from the radiated field strength in the far field using Equation (22):

$$EIRP = E_{Meas} + 20\log(d_{Meas}) - 104.7 \quad (22)$$

where

EIRP is the equivalent isotropically radiated power, in dBm
E_{Meas} is the field strength of the emission at the measurement distance, in dBμV/m
d_{Meas} is the measurement distance, in m

NOTE—Because this equation yields the identical result whether the field strength is extrapolated using the default 20 dB/decade of distance extrapolation factor, or the field strength is not extrapolated for distance, this equation can generally be applied directly (with no further correction) to determine EIRP. In some cases, a different distance correction factor may be required; see 9.1.

antenna gain: 6.05dBi

R=20cm

mW=10^(dBm/10)

antenna gain Numeric=10^(dBi/10)= 10^(6.05/10)=4.03

2.4G SRD:

Channel Freq. (MHz)	modulation	EIRP(dBm)		Max		Antenna		Evaluation result	Power density Limits
				tune-up power		Gain		(mW/cm²)	(mW/cm²)
				(dBm)	(mW)	(dBi)	Numeric		
2402	2.4G	-10.12	(-10)±1	-9	0.126	6.05	4.03	0.0001	1
2434		-8.28	(-8)±1	-7	0.200	6.05	4.03	0.0002	1
2462		-10.35	(-10)±1	-9	0.126	6.05	4.03	0.0001	1

Conclusion:

WPT and 2.4G SRD can work simultaneously

2.4G SRD+WPT+2.4G WIFI+BT=0.0002+0.7975+0.1734+0.0044=0.9755

For the max result: 0.9755≤ 1.0 for 1g SAR test exclusion threshold, No SAR is required.

----END OF REPORT----