MPE TEST REPORT

Report No.: SHATBL2110018W03

Applicant:
Fuwei Global Co., Ltd

Address:
7F., No. 33, Fushun St., Zhongshan Dist., Taipei City 10427 , Taiwan

Product Name	:	2.4G Wi-Fi Home Base
Brand Name	:	arpha
Model Name	:	BS-04
Series Model	:	W02RS11-W; EC-21BS-04
Test Standard	:	FCC CFR 47 part 1, 1.1310
FCC ID	:	2A297BS-04

TEST RESULT INFORMATION

Applicant's Name..... :	Fuwei Global Co., Ltd
Address..... :	7F., No. 33, Fushun St., Zhongshan Dist., Taipei City 10427 , Taiwan
Manufacture's Name..... :	DONGGUAN LINGDU ELECTRONIC TECHNOLOGY CO., LTD
Address..... :	No. 1 Longcheng Street, Xiekeng Village, Qingxi Town, Dongguan, China

Product Description

Product Name..... :	2.4G Wi-Fi Home Base
Brand Name ..... :	arpha
Model Name..... :	BS-04
Series Model..... :	W02RS11-W; EC-21BS-04
Standards..... :	FCC CFR 47 part 1, 1.1310
Test Procedure ..... :	680106 D01 RF Exposure Wireless Charging Apps v03

This device described above has been tested by ATBL, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test..... :	
Date of receipt of test item..... :	19 October. 2021
Date of performance of tests..... :	19 Oct. 2021 ~ 10 Nov. 2021
Date of Issue..... :	10 Nov. 2021
Test Result..... :	**Pass**

Report Prepared by :

(Roean wei)

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(Chopin Xiao)

Authorized Signatory :

(Terry yang)

Maximum Permissible Exposure (MPE) Report

1. Limits and Guidelines on Exposure to Electromagnetic Fields

General population/uncontrolled exposure apply in situations is which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure. The exposure levels can be expressed in terms of power density, electric field strength, or magnetic field strength, as averaged over 30 minutes for the general public and 6 minutes for trained personnel. The exposure criterion is frequency dependent, and a chart covering the range from 3 kHz to 100 GHz can be found in NCRP No.86 (references IEEE C95.1-1999). Below are the limits.

Limits for Occupational/Controlled Exposure			
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm2)
0.3-3.0	614	16.3/f	(100)*
3.0-30	1842/f	16.3/f	(900/f2)*
30-300	61.4	0.163	1.0
300-1500	--	--	f/300
15,00-100,000	--	--	5

Limits for General Population/Uncontrolled Exposure			
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm2)
0.3-1.34	614	1.63	(100)*
1.34-30.0	824/f	2.19/f	(180/f2)*
30-300	27.5	0.073	0.2
300-1500	--	--	f/1500
15,00-100,000	--	--	1

Power density S [mW/cm2] for controlled area at 2400MHz, (TX: 2390MHz-2483.5MHz)

S= 5 mW/cm2

Power density S [mW/cm2] for uncontrolled area at 2400MHz, (TX: 2390MHz-2483.5MHz)

S= 1 mW/cm2

Reference levels are provided for exposure assessment to determine whether the basic restrictions on exposure of humans to electromagnetic fields are exceeded. The basic restrictions on exposure to electromagnetic fields are based directly on established health effects and biological considerations.

2. Prediction of the Exposure to Electromagnetic Fields

Calculations can be made on a site by site basis to ensure the power density is below the limits given above, or guidelines can be done beforehand to ensure the minimum distances from the antenna is maintained through the site planning. The calculations are based on FCC OET 65 Appendix B.

3. Calculation method of the Safe Distance

Below method describes a theoretical approach to calculate possible exposure to electromagnetic radiation around a base station transceiver antenna. Precise statements are basically only possible either with measurements or complex calculations considering the complexity of the environment (e.g. soil conditions, near buildings and other obstacles) which causes reflections, scattering of electromagnetic fields. The maximum output power (given in EIRP) of a base station is usually limited by license conditions of the network operator. A rough estimation of the expected exposure in power flux density on a given point can be made with the following equation. The calculations are based on FCC OET 65 Appendix B.

$$S = \frac{P(W) * G_{numeric}}{4 * r^2(m) * \pi}$$

Whereas:

S= Power Density

P = Maximum output power in W of the site

G numeric = Numeric gain of the antenna relative to isotropic antenna

R = distance between the antenna and the point of exposure in meters

4. Test Result

Power at antenna connector: 27.44 dBm (554.63 mW)

Antenna gain: 2.0 dBi

Predication Distance: 20 cm

Predication Frequency: 2462 MHz

S= (554.63*2.0)/ (4*20*20*3.14) =0.022 (mW/cm^2)

SO,

Power Density at Predication Frequency and Predication Distance: 0.022 (mW/cm^2),

Limit for Occupational/Controlled Exposure at the Predication Frequency: 5 (mW/cm^2)

Limit for General Population/Uncontrolled Exposure at the Predication Frequency: 1(mW/cm^2)

TEST RESULT: PASS