



FCC RF EXPOSURE REPORT

| | | |
|--------------------------------|---|---|
| Applicant | : | ASA Electronics Shenzhen Limited |
| Address of Applicant | : | Room 503, 5/F., Unit A, Skyworth Building, Gaoxin Avenue.1.S., Nanshan District, Shen Zhen |
| Manufacturer | : | ASA Electronics, LLC. |
| Address of Manufacturer | : | 2602 Marina Drive, Elkhart, IN 46514 USA |
| Equipment under Test | : | Bluetooth Wall Plate |
| Model No. | : | BTWP2, RMBTWP2 |
| FCC ID | : | 2AHU2-BTWP2 |
| Test Standard(s) | : | KDB447498 D01 General RF Exposure Guidance v06 |
| Report No. | : | DDT-RE24042610-2E02 |
| Issue Date | : | 2024/05/09 |
| Issue By | : | Guangdong Dongdian Testing Service Co., Ltd. |
| Address of Laboratory | : | Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808 |

REPORT

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Test Report Declare

| | | |
|--------------------------------|---|---|
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Standard Used: KDB447498 D01 General RF Exposure Guidance v06

We Declare:

The equipment described above is assessed by Guangdong Dongdian Testing Service Co., Ltd and in the configuration assessed the equipment complied with the standards specified above. The assessed results are contained in this report and Guangdong Dongdian Testing Service Co., Ltd is assumed of full responsibility for the accuracy and completeness of these assess.

After evaluation, our opinion is that the equipment In Accordance with above standard.

| | | | |
|-------------------------|---------------------|----------------------|-----------------------|
| Report No.: | DDT-RE24042610-2E02 | | |
| Date of Receipt: | 2023/12/10 | Date of Test: | 2023/12/10-2024/01/17 |

Prepared By:

Approved By:

Bobo Chen

Bobo Chen/Engineer

Damon Hu

Damon Hu/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Guangdong Dongdian Testing Service Co., Ltd.

Revision History

| Rev. | Revisions | Issue Date | Revised By |
|------|---------------|------------|------------|
| --- | Initial issue | 2024/05/09 | |
| | | | |

1. General Information

1.1. Description of equipment

| | |
|----------------------------|--|
| EUT Name | : Bluetooth Wall Plate |
| Model Number | : BTWP2, RMBTWP2 |
| Difference of model number | : Above models are identical in schematic, appearance and structure, only the Model Number is different for all the models, therefore the test performed on the model BTWP2. |
| EUT Function Description | : Please reference user manual of this device |
| Power Supply | : DC12V |
| Radio Specification | : Bluetooth (BR/EDR) |
| Operation Frequency | : Bluetooth (BR/EDR): 2402 MHz-2480 MHz |
| Modulation | : Bluetooth BR/EDR: GFSK, $\pi/4$ -DQPSK, 8DPSK |

Note: EUT is the abbreviation of equipment under test.

| Antenna information | | |
|---------------------|--------------|------------|
| Ant. | Antenna Type | Gain (dBi) |
| 1 | PCB antenna | -0.62 |

Note:
 This EUT supports CDD, and antenna gains are not equal, Directional gain was calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain
 so Directional gain = $G_{ANT} +$ Array Gain, where Array Gain is as follows:
 For power measurements,
 Array Gain = 0 dB ($N_{ANT} \leq 4$), so the Directional gain=-0.62

1.2. Assess laboratory

Guangdong Dongdian Testing Service Co., Ltd.

Add.: Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, R-20155, G-20118

2. RF Exposure Evaluation

2.1. Requirement

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

Limits for General Population/Uncontrolled Exposure

(B) 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/cm ²) | Averaging Time E ² , H ² or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|---|---|
| 0.3-1.34 | 614 | 1.63 | (100)* | 30 |
| 1.34-30 | 824/f | 2.19/f | (180/f)* | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | | | F/1500 | 30 |
| 1500-100,000 | | | 1.0 | 30 |

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

2.2. Calculation method

$$E(\text{V/m}) = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } S(\text{mW/cm}^2) = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (mW)

G = EUT Antenna numeric gain (numeric)=

d = Separation distance between radiator and human body (m)

The formula can be changed to

We can change the formula to:

$$S = \frac{30 \times P \times G}{377 \times d^2} \quad \text{or, } d = \sqrt{\frac{30 \times P \times G}{377 \times S}}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2 m, as well as the gain of the used antenna, the RF power density can be obtained.

2.3. Estimation result

| Mode | Output power (dBm) | Output power (mW) | tune up power (dBm) | Antenna Gain (dBi) | Antenna Gain (linear) | MPE Values (mW/cm ²) | MPE Limit (mW/cm ²) |
|------|--------------------|-------------------|---------------------|--------------------|-----------------------|----------------------------------|---------------------------------|
| BT | 7.42 | 5.52 | 8.00 | -0.62 | 0.87 | 0.00095 | 1 |

Note: The estimation distance is 20 cm

Conclusion: MPE evaluation required since transmitter power is below FCC threshold

END OF REPORT