

# TEST REPORT

**Product Name** : BLE Module  
**Brand Mark** : Shinwa  
**Model No.** : BT-MP62-SH1  
**Extension Model** : BT-MP62-1  
**FCC ID** : ZWYP6222  
**Report Number** : BLA-EMC-202209-A2103  
**Date of Sample Receipt** : 2022/9/7  
**Date of Test** : 2022/9/7 to 2022/9/20  
**Date of Issue** : 2022/9/20  
**Test Standard** : KDB447498D04 General RF Exposure  
Guidance v01  
**Test Result** : Pass

Prepared for:

**Dongguan Hele Electronics Co.,Ltd**  
**No.325 Yuehui Rd. Daojiao Town Dongguan City Guangdong Province**  
**China**

Prepared by:

**BlueAsia of Technical Services(Shenzhen) Co.,Ltd.**  
**Building C, No. 107, Shihuan Road, Shiyuan Sub-District, Baoan District,**  
**Shenzhen, Guangdong Province, China**  
**TEL: +86-755-23059481**

Compiled by: *charlie*

Approved by: *Bluezhong*

Review by: *Sueels*

Date: 2022/9/20



**REPORT REVISE RECORD**

| <b>Version No.</b> | <b>Date</b> | <b>Description</b> |
|--------------------|-------------|--------------------|
| 00                 | 2022/9/20   | Original           |

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## 1 GENERAL INFORMATION

|                        |   |
|------------------------|---|
| <b>Applicant</b>       | Shinwa industries(China)ltd.  |
| <b>Address</b>         | No.26,HuiFeng West 2 Road,Zhongkai High-Tech Park,Huizhou,Guangdong,China   |
| <b>Manufacturer</b>    | Shinwa industries(China)ltd.  |
| <b>Address</b>         | No.26,HuiFeng West 2 Road,Zhongkai High-Tech Park,Huizhou,Guangdong,China   |
| <b>Factory</b>         | Shinwa industries(China)ltd.  |
| <b>Address</b>         | No.26,HuiFeng West 2 Road,Zhongkai High-Tech Park,Huizhou,Guangdong,China   |
| <b>Product Name</b>    | BLE Module  |
| <b>Test Model No.</b>  | BT-MP62-SH1   |
| <b>Extension Model</b> | BT-MP62-1   |
| <b>Remark</b>          | All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are model name for commercial purpose. |

## 2 GENERAL DESCRIPTION OF E.U.T.

|                             |                                    |
|-----------------------------|------------------------------------|
| <b>Hardware Version</b>     | V1.0                               |
| <b>Software Version</b>     | N/A                                |
| <b>Operation Frequency:</b> | 2402MHz-2480MHz                    |
| <b>Data Rata</b>            | 1Mbps; 2Mbps                       |
| <b>Modulation Type:</b>     | GFSK                               |
| <b>Channel Spacing:</b>     | 2MHz                               |
| <b>Number of Channels:</b>  | 40                                 |
| <b>Antenna Type:</b>        | PCB Antenna                        |
| <b>Antenna Gain:</b>        | -0.62dBi(Provided by the customer) |

### 3 LABORATORY LOCATION

All tests were performed at:

BlueAsia of Technical Services(Shenzhen) Co., Ltd.

Building C, No. 107, Shihuan Road, Shiyuan Sub-District, Baoan District, Shenzhen, Guangdong Province, China

Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673

No tests were sub-contracted.

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## 4 RF EXPOSURE COMPLIANCE REQUIREMENT

### 4.1 RF EXPOSURE COMPLIANCE REQUIREMENT

## Standard Requirement

According to 447498 D04 Interim General RF Exposure Guidance v01

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

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B.2})$$

where

$$x = -\log_{10} \left( \frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and  $f$  is in GHz,  $d$  is the separation distance (cm), and  $ERP_{20 \text{ cm}}$  is per Formula (B.1).

Example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

| Frequency (MHz) | Distance (mm) |    |    |     |     |     |     |     |     |     |  |
|-----------------|---------------|----|----|-----|-----|-----|-----|-----|-----|-----|--|
|                 | 5             | 10 | 15 | 20  | 25  | 30  | 35  | 40  | 45  | 50  |  |
| 300             | 39            | 65 | 88 | 110 | 129 | 148 | 166 | 184 | 201 | 217 |  |
| 450             | 22            | 44 | 67 | 89  | 112 | 135 | 158 | 180 | 203 | 226 |  |
| 835             | 9             | 25 | 44 | 66  | 90  | 116 | 145 | 175 | 207 | 240 |  |
| 1900            | 3             | 12 | 26 | 44  | 66  | 92  | 122 | 157 | 195 | 236 |  |
| 2450            | 3             | 10 | 22 | 38  | 59  | 83  | 111 | 143 | 179 | 219 |  |
| 3600            | 2             | 8  | 18 | 32  | 49  | 71  | 96  | 125 | 158 | 195 |  |
| 5800            | 1             | 6  | 14 | 25  | 40  | 58  | 80  | 106 | 136 | 169 |  |

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

$$EIRP = p_t \times g_t = (E \cdot d)^2 / 30$$

where:

$p_t$  = transmitter output power in watts,

$g_t$  = numeric gain of the transmitting antenna (unitless),

$E$  = electric field strength in V/m, ---  $10 \left( (dBuV/m) / 20 \right) / 106$

$d$  = measurement distance in meters (m) --- 3m

$$S_{opt} = (E \cdot d)^2 / 30 \times g_t$$

$$\text{Ant gain} = -0.62 \text{ dBi}$$

$$\text{Max Output power} = -2.351 \text{ dBm @ } 2402 \text{ MHz}$$

$$\text{ERP} = -2.351 \text{ dBm} + (-0.62 \text{ dBi}) - 2.15 = -5.121 \text{ dBm}$$

So

Output power is worse case

$$10^{-0.2351} = 0.582 \text{ mW} < 2.715 \text{ mW} \quad (\text{evaluate at } 5 \text{ mm distance})$$

Comply with SAR exemption limit.

---END OF REPORT---

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