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Report No.: SZEM140200063503

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SAR Evaluation Report

Application No.:	SZEM1402000635RF
Applicant:	Shenzhen Baojia Battery Technology Co., Ltd
Manufacturer:	Shenzhen Baojia Battery Technology Co., Ltd
Factory:	Shenzhen Baojia Battery Technology Co., Ltd
Product Name:	MIPOW M3
Model No.(EUT):	BTX500
Trade mark:	MIPOW
FCC ID:	SL7BTX500
Standards:	47 CFR Part 1.1307(2013) 47 CFR Part 2.1093 (2013) KDB447498D01 General RF Exposure Guidance v05
Date of Receipt:	2014-02-27
Date of Test:	2014-03-06 to 2014-03-12
Date of Issue:	2014-04-01

Test Result :	PASS*
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* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Jack Zhang
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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3 General Information

3.1 Client Information

Applicant:	Shenzhen Baojia Battery Technology Co., Ltd
Address of Applicant:	Block A, yonghe Road, Tongfuyu Industrial Zone, Heping, Fuyong, Baoan Shenzhen, China
Manufacturer:	Shenzhen Baojia Battery Technology Co., Ltd
Address of Manufacturer:	Block A, yonghe Road, Tongfuyu Industrial Zone, Heping, Fuyong, Baoan Shenzhen, China
Factory:	Shenzhen Baojia Battery Technology Co., Ltd
Address of Factory:	Block A, yonghe Road, Tongfuyu Industrial Zone, Heping, Fuyong, Baoan Shenzhen, China

3.2 General Description of EUT

Product Name:	MIPOW M3	
Model No.:	BTX500	
Trade Mark:	MIPOW	
Operation Frequency:	2402MHz~2480MHz	
EUT Function:	DAVINCI 500	
Hopping Channel Type:	Adaptive Frequency Hopping systems	
Sample Type:	Portable production	
Antenna Type	Integral	
Antenna Gain	2.114dBi	
Power Supply:	AC adapter	Supply by SGS
	USB charge: DC 5V	
	Rechargeable Battery: -BJ303040 +3H153I29	
Test Voltage:	AC 120V 60Hz	
Retractable Audio Cable:	100cm (Unshielded)	
USB Cable:	100cm (Shielded)	
Detachable Audio Cable:	120cm (Unshielded)	

For classic mode	
Bluetooth Version:	V4.0 (with classic mode)
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Number of Channel:	79
Test Power Grade:	0, 55 (manufacturer declare)
Test Software of EUT:	Bluetest3 (manufacturer declare)
For BLE mode	
Bluetooth Version:	V4.0 (with BLE mode)
Modulation Type:	GFSK
Number of Channel:	40
Test Power Grade:	-1 (manufacturer declare)
Test Software of EUT:	Bluetest3 (manufacturer declare)

3.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory,
198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663
Tel: +86 20 82155555 Fax: +86 20 82075059



3.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to

ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

- **FCC (Registration No.: 282399)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

- **Industry Canada (Registration No.: 4620B-1)**

The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

- **VCCI (Registration No.: R-2460, C-2584, G-449 and T-1179)**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460, C-2584, G-449 and T-1179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IEC6006-10 and Rules of procedure IEC6006-10, and the relevant IEC600 CB-Scheme Operational documents.

3.5 Deviation from Standards

None.

3.6 Abnormalities from Standard Conditions

None.

3.7 Other Information Requested by the Customer

None.

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v05

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.

4.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

4.1.3 EUT RF Exposure

For classic mode:

The Max Conducted Peak Output Power is 3.17dBm in highest channel(2.480GHz);

The best case gain of the antenna is 2.114dBi.

$$\text{EIRP} = 3.17\text{dBm} + 2.114\text{dBi} = 5.284\text{dBm}$$

5.284dBm logarithmic terms convert to numeric result is nearly 3.3760mW

According to the formula. calculate the EIRP test result:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}]$$

$$\text{General RF Exposure} = (3.3760\text{mW} / 5 \text{ mm}) \times \sqrt{2.480\text{GHz}} = 1.0633 \text{ ①}$$

SAR requirement:

$$\text{S} = 3.0 \quad \text{②} ;$$

$$\text{①} < \text{②}.$$

So the SAR report is not required.

For BLE mode:

The Max Conducted Peak Output Power is 1.34dBm in middle channel(2.440GHz);

The best case gain of the antenna is 2.114dBi.

$$\text{EIRP} = 1.34\text{dBm} + 2.114\text{dBi} = 3.454\text{dBm}$$

3.454dBm logarithmic terms convert to numeric result is nearly 2.2151mW

According to the formula. calculate the EIRP test result:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}]$$

$$\text{General RF Exposure} = (2.2151\text{mW} / 5 \text{ mm}) \times \sqrt{2.440\text{GHz}} = 0.6920 \text{ ①}$$

SAR requirement:

$$S = 3.0 \text{ ② ;}$$

$$\text{①} < \text{②}.$$

So the SAR report is not required.