



1 Cover Page

# RF Exposure REPORT

**Application No.:** SHEM2001000010CR  
**FCC ID:** 2AVLFBT645  
**Applicant:** MONOLITH ELECTRIC (CHANGZHOU) CO., LTD.  
**Address of Applicant:** No. 1-2 of Building 5, No. 8 Huashan Road, Xinbei District, Changzhou, Jiangsu, P R China  
**Manufacturer:** MONOLITH ELECTRIC (CHANGZHOU) CO., LTD.  
**Address of Manufacturer:** No. 1-2 of Building 5, No. 8 Huashan Road, Xinbei District, Changzhou, Jiangsu, P R China  
**Factory:** MONOLITH ELECTRIC (CHANGZHOU) CO., LTD.  
**Address of Factory:** 4th Floor, South Building Of The Science And Education Hall, Changzhou Science And Education City Changzhou, Jiangsu, China

**Equipment Under Test (EUT):**  
**EUT Name:** Bluetooth module  
**Model No.:** BT645  
**Standard(s) :** FCC Rules 47 CFR §2.1093  
 KDB447498 D01 General RF Exposure Guidance v06

**Date of Receipt:** 2020-01-02  
**Date of Test:** 2020-01-20 to 2020-02-25  
**Date of Issue:** 2020-03-16

<b>Test Result:</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

Parlam Zhan

Parlam Zhan  
E&E Section 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.

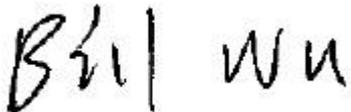
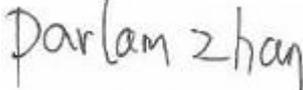


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**Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)**



Revision Record			
Version	Description	Date	Remark
00	Original	2020-03-16	/

Authorized for issue by:			
			
		<hr/>	
		Bill Wu / Project Engineer	
			
		<hr/>	
		Parlam Zhan /Reviewer	



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### 3 General Information

#### 3.1 General Description of E.U.T.

Power supply:	DC 2.2V~3.6V
Test voltage:	DC 3.3V

#### 3.2 Details of E.U.T.

Antenna Gain	2dBi
Antenna Type	PCB Antenna
Channel Spacing	2MHz
Modulation Type	GFSK
Number of Channels	40
Operation Frequency	2402MHz to 2480MHz



### 3.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shanghai Branch  
588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China.

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

### 3.4 Test Facility

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

• **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **NVLAP (LAB CODE: 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

• **FCC (Designation Number: CN5033)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory. Test Firm Registration Number: 479755.

• **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. ISED#: 8617A.

• **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

## 4 Test Standards and Limits

### 4.1 FCC Radiofrequency radiation exposure limits

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

$[(\text{max power of channel})/(\text{min test separation distance})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$  for 1-g SAR and  $\leq 7.5$  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
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds

The test exclusions are applicable only when the minimum test separation distance is  $\leq$  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 according to 4.1 f) is applied to determine SAR test exclusion.

For 2.4G band device, the limit of worse case is

$$P_{\max} \leq 3.0 \cdot D_{\min} / \sqrt{f} = 3.0 \cdot 5 / \sqrt{2.480} = 9.525 \text{ mW}$$

## 5 Measurement and Calculation

### 5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM200100001001.

**Test Data:**

Test Mode	Test Frequency (MHz)	Output Power (dBm)	Reading Power (mW)
BLE	2402	-0.67	0.86
	2440	0.13	1.03
	2480	1.18	<b>1.31</b>

### 5.2 RF Exposure Calculation

The Max Conducted Peak Output Power is 1.31mW. The best case gain of the antenna is 2dBi. 2dBi logarithmic terms convert to numeric result is nearly 1.585

According to the formula. calculate the EIRP test result:

$$EIRP = P \times G = 1.31 \text{ mW} \times 1.585 = 2.08\text{mW} < 9.525\text{mW}$$

So the SAR report is not required.

**--End of the Report--**