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Report No.: SZEM160600474903

Page: 1 of 6

## **SAR Evaluation Report**

<b>Application No.:</b>	SZEM1606004749CR
<b>Applicant:</b>	Shenzhen Brilliant Technology Co., Ltd.
<b>Manufacturer:</b>	Shenzhen Brilliant Technology Co., Ltd.
<b>Factory:</b>	Shenzhen Brilliant Technology Co., Ltd.
<b>Product Name:</b>	Intelligent Cleaner
<b>Model No.(EUT):</b>	BRD500
<b>Add Model No.:</b>	Please see the section 4
<b>Trade Mark:</b>	EHMONE, JIAMEIJIE, BRILLIANT
<b>FCC ID:</b>	2A1Z2BRD2016
<b>Standards:</b>	47 CFR Part 1.1307 (2015) 47 CFR Part 2.1093 (2015) KDB447498D01 General RF Exposure Guidance v06
<b>Date of Receipt:</b>	2016-06-22
<b>Date of Test:</b>	2016-06-27 to 2016-07-06
<b>Date of Issue:</b>	2016-07-08

<b>Test Result :</b>	<b>PASS*</b>
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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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## 2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2016-07-08		Original

Authorized for issue by:			
Tested By	 (Bill Chen) /Project Engineer	2016-07-06	
Prepared By	 (Iris Zhou) /Clerk	2016-07-08	
Checked By	 (Eric Fu) /Reviewer	2016-07-08	



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## 4 General Information

### 4.1 Client Information

Applicant:	Shenzhen Brilliant Technology Co., Ltd.
Address of Applicant:	3nd Floor, #3 Building, No.21 Xinwei Road, jiangshi community, Guangming district, Shenzhen, China
Manufacturer:	Shenzhen Brilliant Technology Co., Ltd.
Address of Manufacturer:	3nd Floor, #3 Building, No.21 Xinwei Road, jiangshi community, Guangming district, Shenzhen, China
Factory:	Shenzhen Brilliant Technology Co., Ltd.
Address of Factory:	3nd Floor, #3 Building, No.21 Xinwei Road, jiangshi community, Guangming district, Shenzhen, China

### 4.2 General Description of EUT

Product Name:	Intelligent Cleaner
Model No.:	BRD500
Trade Mark:	EHMONE, JIAMEIJIE, BRILLIANT
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	Bluetooth 4.0 Signal mode
Modulation Type:	GFSK
Number of Channel:	40
Antenna Type:	PIFA
Antenna Gain:	0.7dBi
Power Supply	Model:MYX-2400600 Input:100-240V 50/60Hz 0.5A Output:24V 600mA

Remark:

Model No.:

Model BRD series included the following models:

BRD500, BRD510, BRD520, BRD530, BRD540, BRD550, BRD560, BRD570, BRD580, BRD590, BRD501, BRD502, BRD503, BRD504, BRD505, BRD600, BRD610, BRD620, BRD630, BRD640, BRD650, BRD660, BRD670, BRD680, BRD690, BRD601, BRD602, BRD603, BRD604, BRD605; BRD511

Model EMN series included the following models:

EMN500, EMN530, EMN550, EMN600, EMN630, EMN650;

Model DS series included the following models:

DS500, DS600

Only the model BRD500 was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, with only different on model No..



### **4.3 Test Location**

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch E&E Lab  
No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China  
518057  
Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594  
No tests were sub-contracted.

### **4.4 Test Facility**

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

- CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 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.

- A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- VCCI**

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.: G-823, R-4188, T-1153 and C-2383 respectively.

- FCC – Registration No.: 556682**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen 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 No.: 556682.

- Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

### **4.5 Deviation from Standards**

None.

### **4.6 Abnormalities from Standard Conditions**

None.

### **4.7 Other Information Requested by the Customer**

None.

## 5 SAR Evaluation

### 5.1 RF Exposure Compliance Requirement

#### 5.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

##### 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.

#### 5.1.2 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:

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

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

Power and distance are rounded to the nearest mW and mm before calculation<sup>17</sup>

The result is rounded to one decimal place for comparison

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 is applied to determine SAR test exclusion

#### 5.1.3 EUT RF Exposure

The Max Conducted Peak Output Power is -2.04dBm in highest channel(2.402GHz);

The best case gain of the antenna is 0.7dBi.

$EIRP = -2.04\text{dBm} + 0.7\text{dBi} = -1.34\text{dBm}$

-1.34dBm logarithmic terms convert to numeric result is nearly 0.734mW

According to the formula. calculate the EIRP test result:

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

General RF Exposure =  $(0.734\text{mW} / 5 \text{ mm}) \times \sqrt{2.402\text{GHz}} = 0.228$  ①

SAR requirement:

$S = 3.0$  ② ;

① < ②.

So the SAR report is not required.