



**SGS-CSTC Standards Technical Services Co., Ltd.**  
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Report No.: SZEM160300154402  
Page: 1 of 6

## **SAR Evaluation Report**

**Application No.:** SZEM1603001544CR  
**Applicant:** EXTREME TOYS LTD  
**Manufacturer:** EXTREME TOYS LTD  
**Factory:** EXTREME TOYS LTD  
**Product Name:** MICRO DRONE  
**Model No.(EUT):** EFMD30  
**Add Model No.:** EFMD20, EFMD20+, EFMD30+, EFMD40, EFMD40+, EFMD50, EFMD50+  
**FCC ID:** 2AHQ4EFMD3040057  
**Standards:** 47 CFR Part 1.1307 (2015)  
47 CFR Part 2.1093 (2015)  
KDB447498D01 General RF Exposure Guidance v06  
**Date of Receipt:** 2016-03-21  
**Date of Test:** 2016-04-08 to 2016-05-03  
**Date of Issue:** 2016-05-06

<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		2016-05-06		Original

Authorized for issue by:				
Tested By		 (Peter Geng) /Project Engineer		2016-05-03
				Date
Prepared By		 (Iris Zhou) /Clerk		2016-05-06
				Date
Checked By		 (Eric Fu) /Reviewer		2016-05-06
				Date



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## 4 General Information

### 4.1 Client Information

Applicant:	EXTREME TOYS LTD
Address of Applicant:	12 Deer Park Road, London, SW19 3FB, UK
Manufacturer:	EXTREME TOYS LTD
Address of Manufacturer:	12 Deer Park Road, London, SW19 3FB, UK
Factory:	EXTREME TOYS LTD
Address of Factory:	12 Deer Park Road, London, SW19 3FB, UK

### 4.2 General Description of EUT

Product Name:	MICRO DRONE
Model No.:	EFMD30
Carrier Frequency	2405-2475 MHz
Channel spacing	1MHz
Channel number	71
Modulation Type	FSK
Antenna Type:	Integral antenna
Antenna Gain:	0dBi
Power Supply:	Tx : DC 6V( 4*1.5V “AA ” batteries) ;

Remark:

Model No.: EFMD20, EFMD20+, EFMD30, EFMD30+, EFMD40, EFMD40+, EFMD50, EFMD50+

Only the model EFMD30 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for all above models. Only different on model name...



### 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)**

The 10m Semi-anechoic chambers of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 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:

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

$f(\text{GHz})$  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 -0.02dBm in middle channel(2.445GHz);

The best case gain of the antenna is 0dBi.

$\text{EIRP} = -0.02\text{dBm} + 0\text{dBi} = -0.02\text{dBm}$

-0.02dBm logarithmic terms convert to numeric result is nearly 1.005mW

According to the formula. calculate the EIRP test result:

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

General RF Exposure =  $(1.005\text{mW} / 5 \text{ mm}) \times \sqrt{2.445\text{GHz}} = 0.3143$  ①

SAR requirement:

$S = 3.0$

② ;

① < ②.

So the SAR report is not required.