



## Shenzhen Huaxia Testing Technology Co., Ltd

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

Telephone: +86-755-26648640

Fax: +86-755-26648637

Website: [www.cqa-cert.com](http://www.cqa-cert.com)

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# RF Exposure Evaluation Report

**Report No. :** CQAS20190700610E-02

**Applicant:** DongGuan Mae Tay Electronic Co.,Ltd

**Address of Applicant:** Beihuanlu Industrial Area, Changping Town Dongguan, Guangdong, China

**Manufacturer:** DongGuan Mae Tay Electronic Co.,Ltd

**Address of Manufacturer:** Beihuanlu Industrial Area, Changping Town Dongguan, Guangdong, China

**Equipment Under Test (EUT):**

**Product:** Wireless Verticle Ergonomic Mouse

**Model No.:** NS-PWME20

**Brand Name:** N/A

**FCC ID:** 2AAIL-MM008

**IC :** 11188A-MM008

**Standards:** 47 CFR Part 2.1093  
KDB447498D01 General RF Exposure Guidance v06  
RSS-102 Issue 5 March 2015

**Date of Test:** 2019-07-18 to 2019-07-22

**Date of Issue:** 2019-07-22

**Test Result :** **PASS\***

**Tested By:**

*Tom Chen*

(Tom Chen)

**Reviewed By:**

*Aaron Ma*

(Aaron Ma)

**Approved By:**

*Jack Ai*

( Jack Ai)



\* In the configuration tested, the EUT complied with the standards specified above.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

## 1 Version

### Revision History Of Report

Report No.	Version	Description	Issue Date
CQAS20190700610E-02	Rev.01	Initial report	2019-07-22

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### 3 General Information

#### 3.1 Client Information

Applicant:	DongGuan Mae Tay Electronic Co.,Ltd
Address of Applicant:	Beihuanlu Industrial Area, Changping Town Dongguan, Guangdong, China
Manufacturer:	DongGuan Mae Tay Electronic Co.,Ltd
Address of Manufacturer:	Beihuanlu Industrial Area, Changping Town Dongguan, Guangdong, China

#### 3.2 General Description of EUT

Name:	Wireless Verticle Ergonomic Mouse
Model No.:	NS-PWME20
Trade Mark :	N/A
Hardware Version:	Ver.02
Software Version:	Ver.02
Frequency Range:	2408MHz ~ 2474MHz
Modulation Type:	FSK
Number of Channels:	34 (declared by the client)
Sample Type:	Portable product
Antenna Type:	PCB antenna
Antenna Gain:	-1.0dBi
Power Supply:	DC3.0V (AAA battery x 2)

## 4 SAR Evaluation

### 4.1 FCC RF Exposure Compliance Requirement

#### 4.1.1 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.

#### 4.1.2 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:

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

- f(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

### 4.1.3 EUT RF Exposure

SAR Test Exclusion Thresholds Level

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	<i>SAR Test Exclusion Threshold (mW)</i>
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

The worst case (refer to report CQASZ20190700610E-01) is below:

Antenna polarization: Horizontal				
Frequency (MHz)	Level (dB $\mu$ V/m)	Cal. (dBm)	Value	Max. tunp-up power (dBm)
2474	93.12	-2.11	Peak	0

For 2474MHz SAR Test Exclusion Thresholds is 10mW (10dBm)

So the SAR test is not required.

## 4.2 IC RF Exposure Compliance Requirement

### 4.2.1 Standard Requirement

According to RSS-102 Issue 5 March 2015

#### 2.5.1 Exemption Limits for Routine Evaluation – SAR Evaluation

SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table 1.

### 4.2.2 Limits

**Table 1: SAR evaluation – Exemption limits for routine evaluation based on frequency and separation distance<sup>4,5</sup>**

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

Remakr: If the operating frequency of the device is between two frequencies located in Table 1, linear interpolation shall be applied for the applicable separation distance. For test separation distance less than 5 mm, the exemption limits for a separation distance of 5 mm can be applied to determine if a routine evaluation is required.

### 4.2.3 EUT RF Exposure

#### Measurement Data

The worst case (refer to report CQASZ20190700610E-01) is below:

Antenna polarization: Horizontal				
Frequency (MHz)	Level (dB $\mu$ V/m)	Cal. (dBm)	Value	Max. tunp-up power (dBm)
2474	93.12	-2.11	Peak	0

For 2474MHz SAR Test Exclusion Thresholds is 4mW (6dBm)

So the SAR test is not required.