



# RF Exposure Evaluation

**FCC ID: 2A7MW-VM-01**

## 1. Client Information

<b>Applicant</b>	:	GELID Solutions Ltd
<b>Address</b>	:	Unit 704B, 7/F, Sunbeam Centre, 27 Shing Yip Street, Kwun Tong, Kowloon, Hong Kong
<b>Manufacturer</b>	:	GELID Solutions Ltd
<b>Address</b>	:	Unit 704B, 7/F, Sunbeam Centre, 27 Shing Yip Street, Kwun Tong, Kowloon, Hong Kong

## 2. General Description of EUT

<b>EUT Name</b>	:	Apex Wireless Vertical Mouse
<b>HVIN/Model(s) No.</b>	:	VM-01, GM-01-A, GM-01-B
<b>Model Different</b>	:	All PCB boards and circuit diagrams are the same, the only difference is that appearance.
<b>Sample ID</b>	:	202206-0313-1-1# 202206-0313-1-2#
<b>Product Description</b>	Operation Frequency:	2.4G: 2402MHz~2480MHz
	Number of Channel:	40 channels
	Antenna Gain:	0dBi PCB Antenna
<b>Power Supply</b>	:	DC 1.5V by AAA battery*2
<b>Software Version</b>	:	----
<b>Hardware Version</b>	:	----
<b>Remark:</b> The antenna gain provided by the applicant, the adapter and verified for the RF conduction test and adapter provided by TOBY test lab.		

**Note:** More test information about the EUT please refer the RF Test Report.

## The RF Exposure Evaluation for FCC:

### SAR Test Exclusion Calculations

**FCC:** According to 447498 D04 Interim General RF Exposure Guidance v01.

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold  $P_{th}$  (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive).  $P_{th}$  is given by Formula (B.2).

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

where

$$x = -\log_{10} \left( \frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and  $f$  is in GHz,  $d$  is the separation distance (cm), and  $ERP_{20 \text{ cm}}$  is per Formula (B.1). The example values shown in Table B.2 are for illustration only.

**Table B.2—Example Power Thresholds (mW)**

Frequency (MHz)	Distance (mm)										
	5	10	15	20	25	30	35	40	45	50	
	300	39	65	88	110	129	148	166	184	201	217
	450	22	44	67	89	112	135	158	180	203	226
	835	9	25	44	66	90	116	145	175	207	240
	1900	3	12	26	44	66	92	122	157	195	236
	2450	3	10	22	38	59	83	111	143	179	219
	3600	2	8	18	32	49	71	96	125	158	195
	5800	1	6	14	25	40	58	80	106	136	169

**Calculation:**

Test separation: 5mm					
2.4G					
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mW)	Limit P <sub>th</sub> (mW)
2.402	-6.501	-6±1	-5	0.316	3
2.440	-6.74	-6±1	-5	0.316	3
2.480	-7.632	-7±1	-6	0.251	3
The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 D04, No SAR is required.					

-----END OF REPORT-----