

KA037 keyboard project BT antenna debug report

Antenna Engineer: Wu Jiexiang
Report Version: 20250617 V1.1



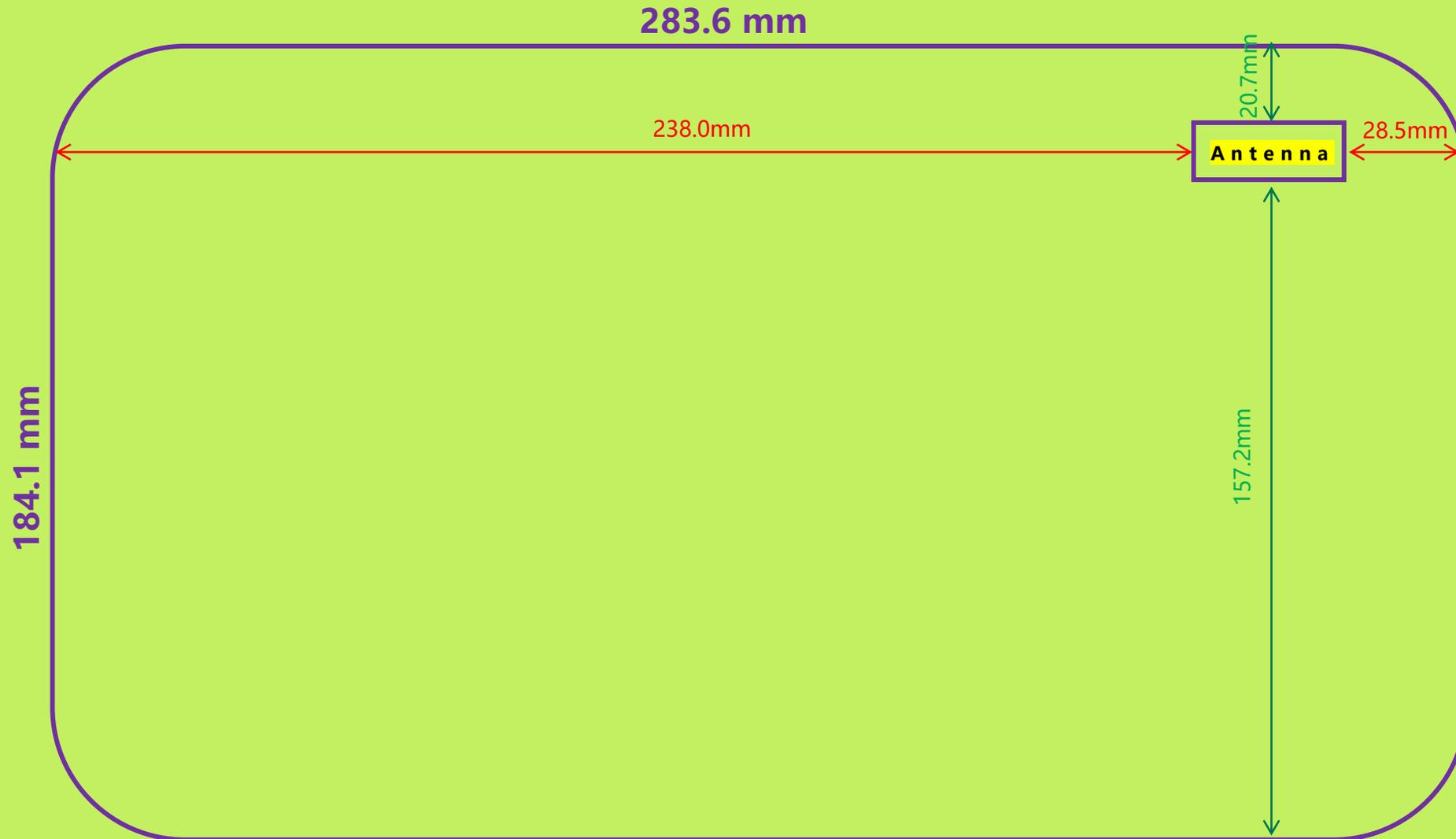
CONTENTS

- 01 Introduction to project development
- 02 Report version summary
- 03 Antenna position diagram
- 04 BT antenna matching circuit
- 05 BT antenna debugging S parameters
- 06 Antenna Passive 3D Radiation Pattern
- 07 summary

| | Band | | Antenna Type | Antenna form | Match the changes |
|---------------------------------------|---|----------------|--------------------------------|----------------------------|-------------------|
| Antenna name | KA037 BT | 2.4GHz~2.48GHz | PCB Antenna | PIFA | Yes |
| Prototype status | EVT prototype | | Environmental Treatment | 1 environmental treatments | |
| Antenna manufacturers | Shenzhen Qianhai New SilkRoad Technology Co.,Ltd. | | | | |
| Antenna brand | Shenzhen Qianhai New SilkRoad Technology Co.,Ltd. | | | | |
| Antenna manufacturer's address | 4th Floor, Building 3, Xili Nangang First Industrial Zone, Nanshan District, Shenzhen | | | | |

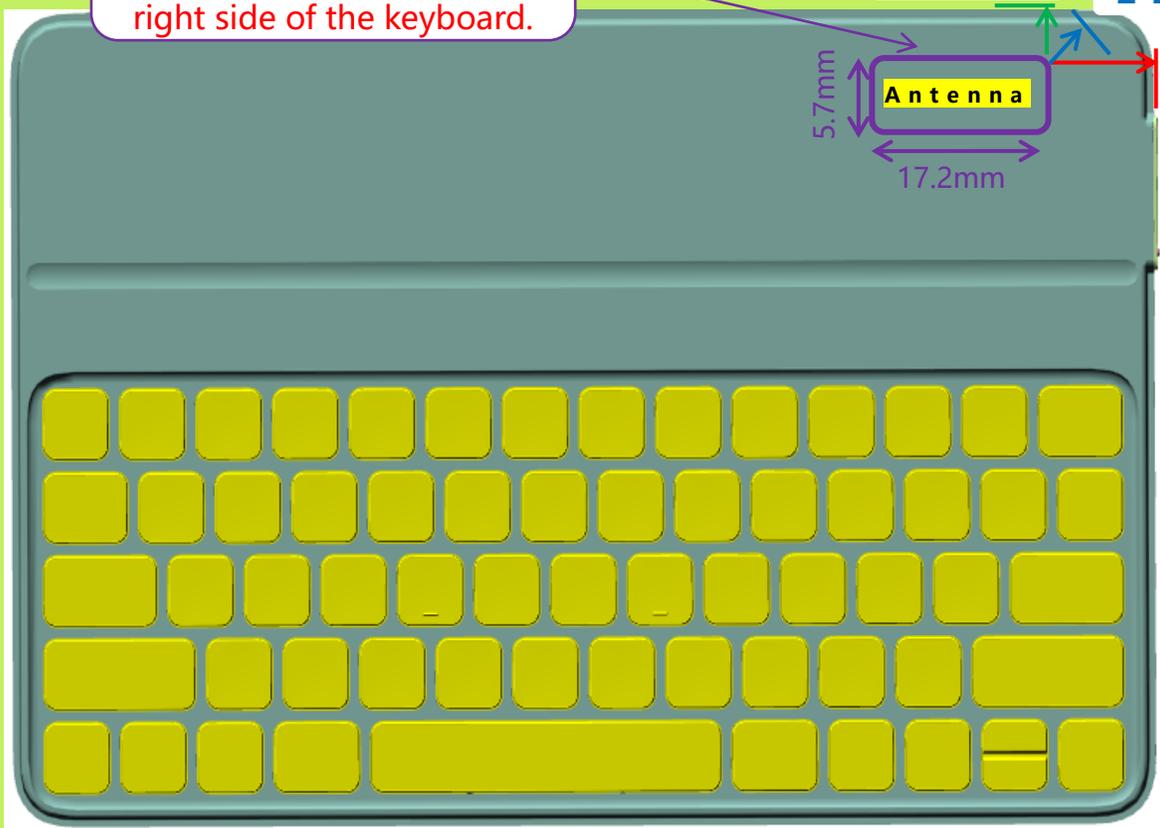
| version | date | Content Overview |
|---------|----------|--|
| V1.0 | 20250515 | Analog antenna debugging with Redmi shells |
| V1.1 | 20250609 | EVT pilot production prototype |
| | | |
| | | |
| | | |
| | | |

Dimensions of the whole machine



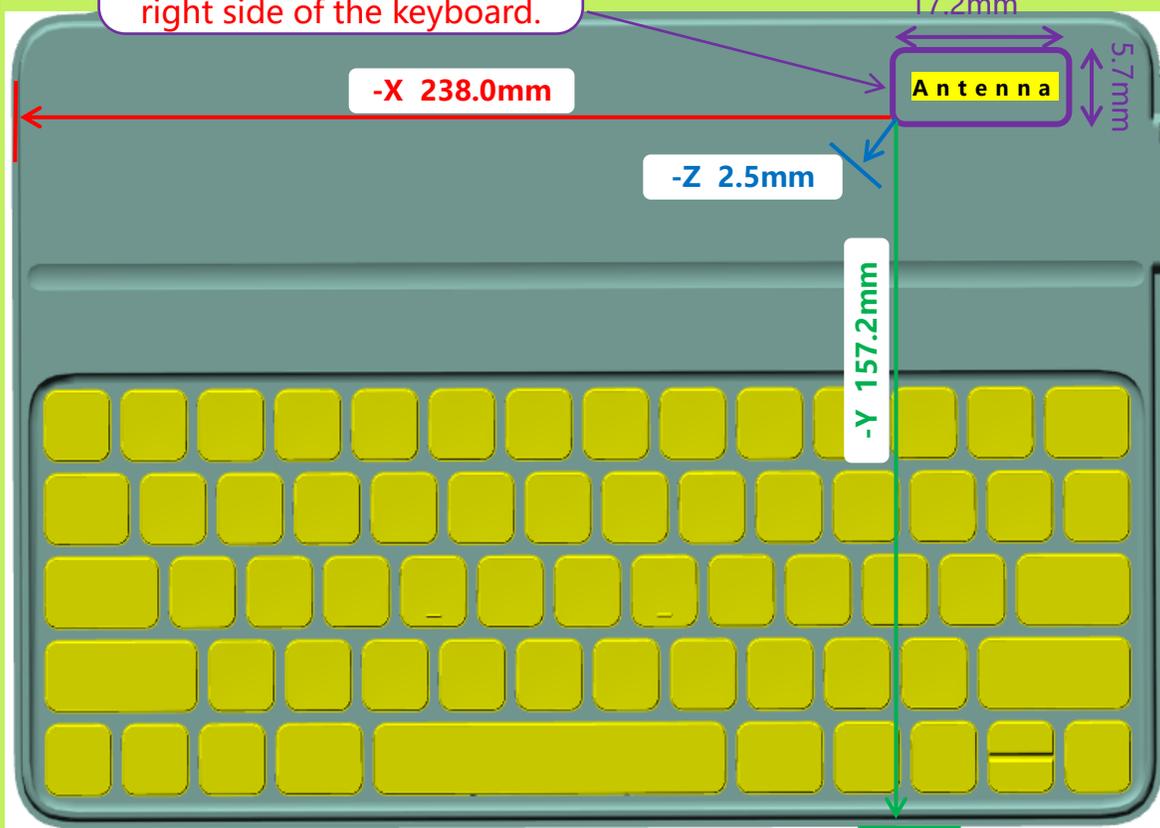
Antenna position diagram

Bluetooth is an on-board PCB antenna that is placed in a purple box area on the right side of the keyboard.

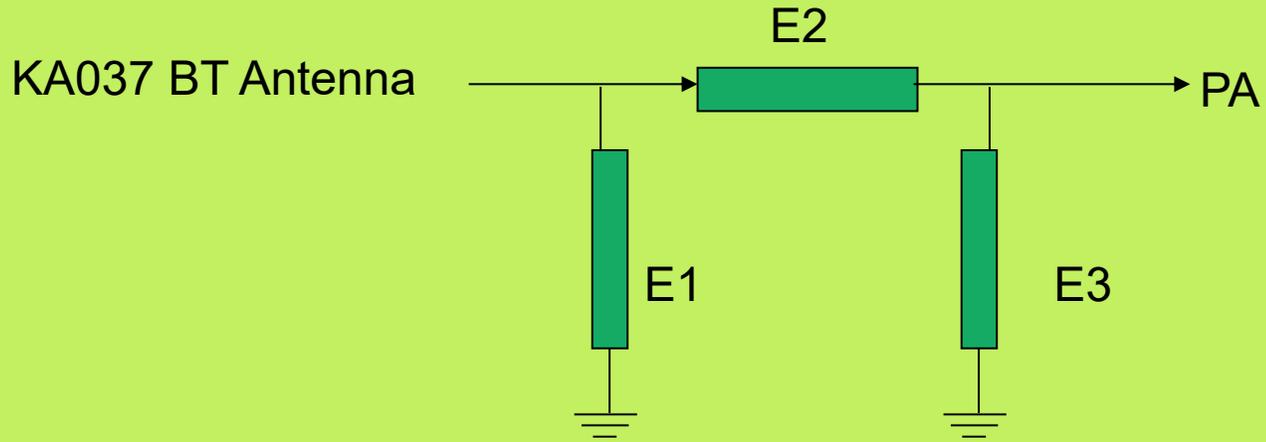


Top Face

Bluetooth is an on-board PCB antenna that is placed in a purple box area on the right side of the keyboard.



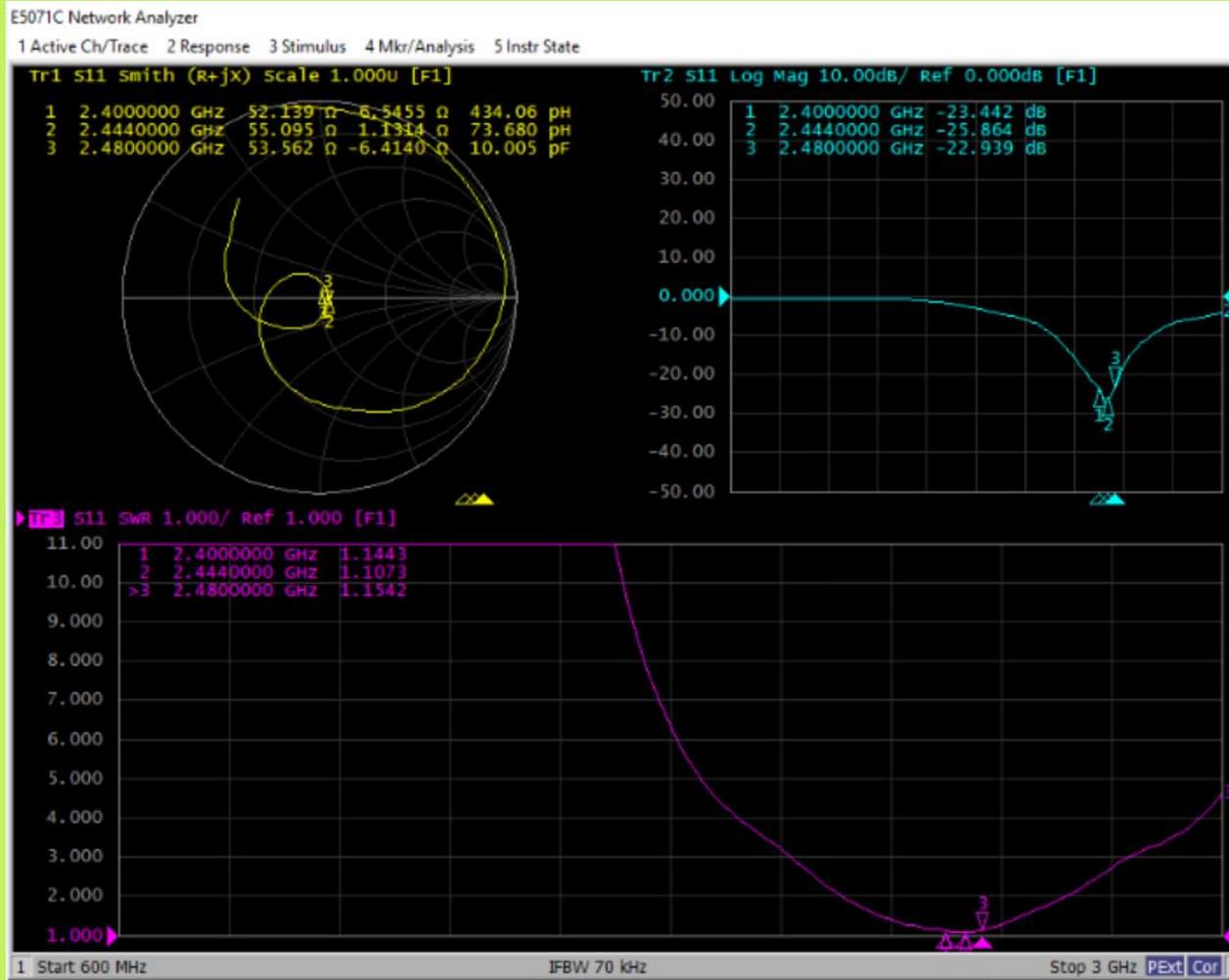
Bottom Face



| Figure number | Matching values |
|---------------|-----------------|
| E1 | 1.2 pF |
| E2 | 2.2 nH |
| E3 | N/A |

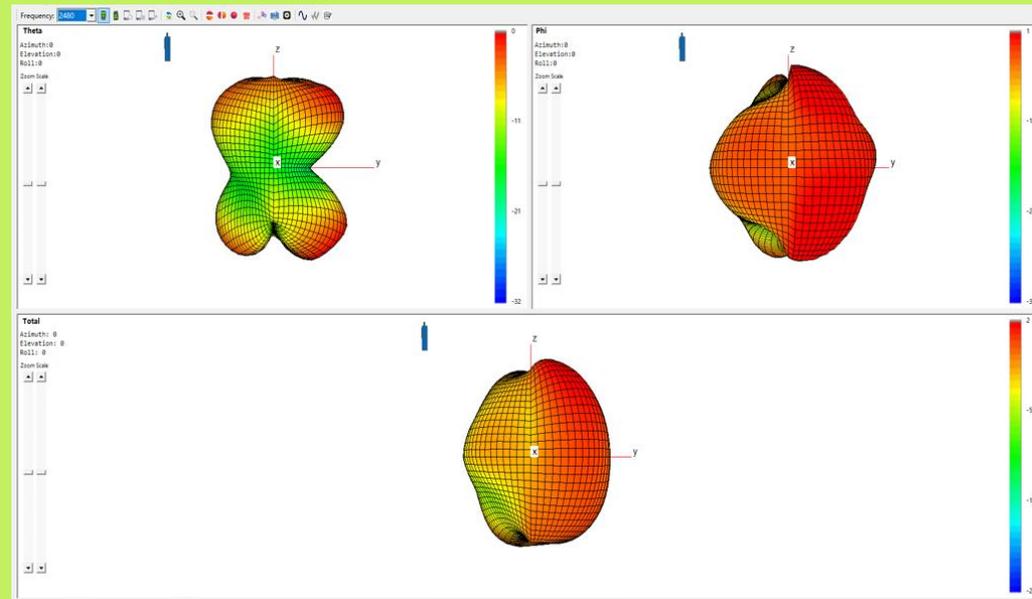
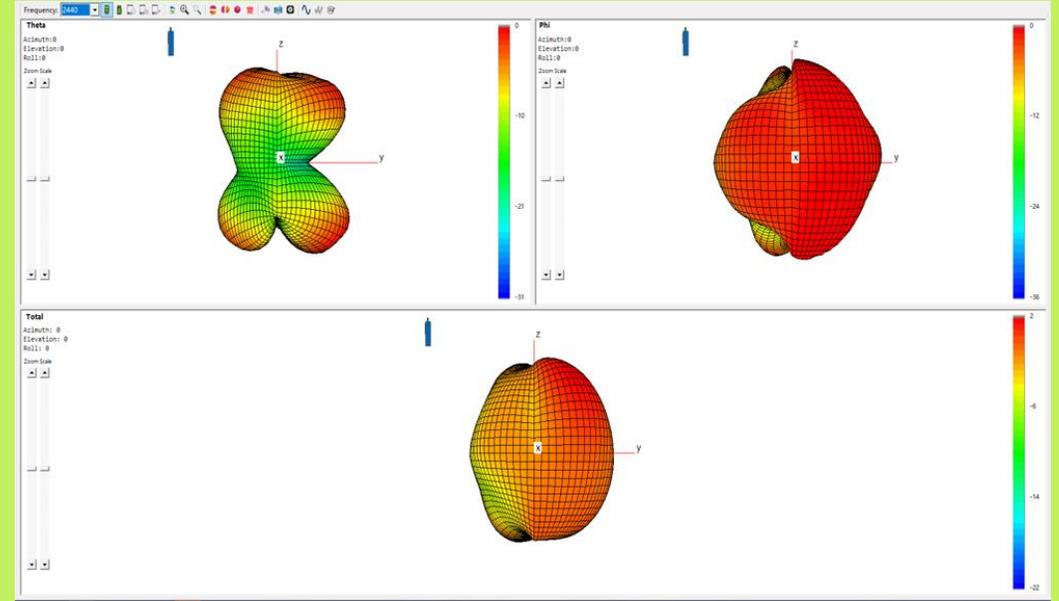
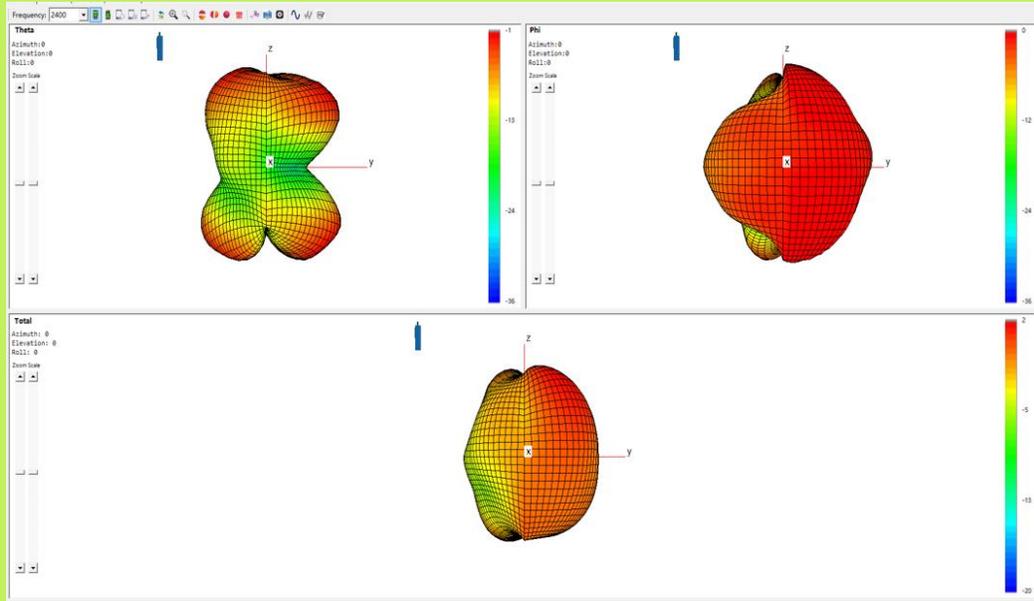


Antenna specifications: 17.2mm*5.7mm



| KA037 EVT Bluetooth antenna | | | |
|-----------------------------|----------------|-----------------|-------------|
| Frequency (MHz) | Efficiency (%) | Efficiency (dB) | Gain |
| 2400 | 50.6% | -2.96 | 1.01 |
| 2410 | 50.1% | -3.00 | 0.97 |
| 2420 | 50.0% | -3.01 | 0.96 |
| 2430 | 50.2% | -3.00 | 0.98 |
| 2440 | 50.4% | -2.98 | 1.00 |
| 2450 | 50.7% | -2.95 | 1.03 |
| 2460 | 51.0% | -2.92 | 1.05 |
| 2470 | 51.3% | -2.90 | 1.07 |
| 2480 | 51.4% | -2.89 | 1.10 |
| Avg | 50.6% | -2.96 | 1.02 |

Antenna Passive 3D Radiation Pattern



The data reported in this antenna is verified by EVT prototype, and the average passive efficiency of the antenna is >40%, which meets the standard.



THINK INNOVATIVE

www.tinno.com

23/F, TINNO Building, No.33, Xiandong Rd. Xili, Nanshan District, Shenzhen, Guangdong Province, PRC