Kinghelm®

# SHENZHEN KINGHELM ELECTRONIC CO., LTD.

## SPECIFICATION

| |
|---|
| **PART NO: KH5220-A56**<br>**CUSTOMER PART NO:** |
| **CUSTOMER APPROVED BY:**<br>**APPROVED DATE:** |

RoHS Compliant Parts

Room C809, Block C, Zhantao Technology Building, No. 1079 Minzhi Avenue, Longhua District, Shenzhen

TEL: 0755-83044319 FAX: 0755-83044319

| Prepared by: | Checked by : | Approved by: |
|---|---|---|
| Formed On | | Document Version<br>( V1.0 ) |

Kinghelm®

# Table of contents

Kinghelm®

# Version rejigger track record

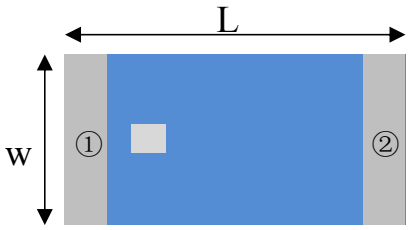
| Version | Rejigger | Prepared | Approve | Date |
|---|---|---|---|---|
| V1.0 | First launch | YAO FUXIN | HE JUNJU | 2019.03.06 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Remark:
1、When changing the electrical specifications, the version needs to be replaced (V1.0 shall be replaced by V2.0, V3.0...);
2、When changing the test mode (including reliability test conditions), or altering the operation conditions, more series need to be included in the current version V1.0 shall be replaced by V1.1, V1.2...) 。

## 1. INTRODUCTION

**kinghelm** Microwave Multi-Layer Ceramic Antenna LA series are designed to be used in WLAN、WiFi、Bluetooth、PHS、 Multiple-band Mobile phone antenna, FM, etc and compact size SMD chip design.

## 2. Dimensions（Unit：mm）



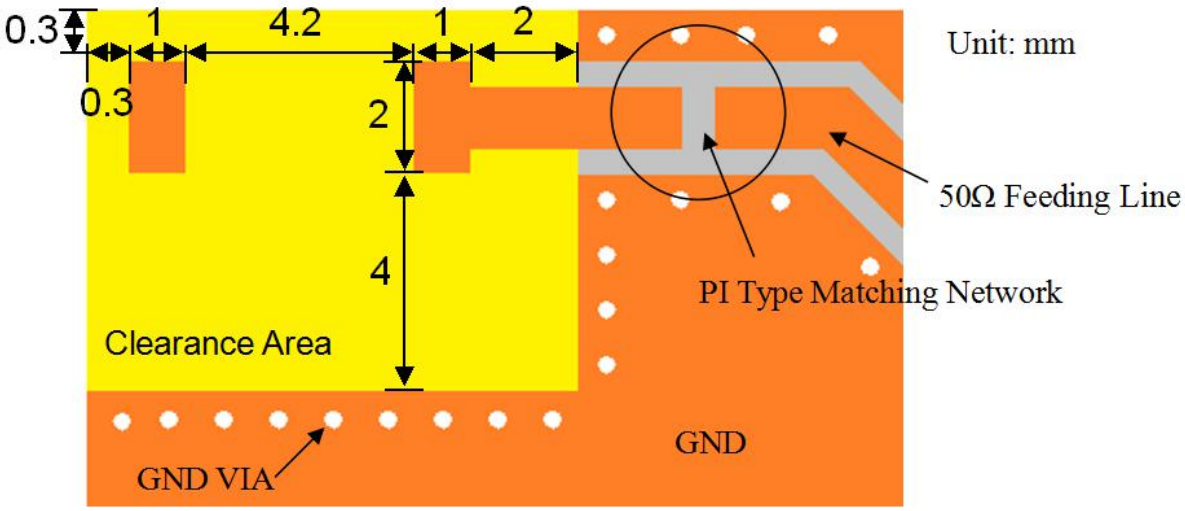

( Top View )

| Number | Terminal Name |
|---|---|
| ① | INPUT |
| ② | NC |

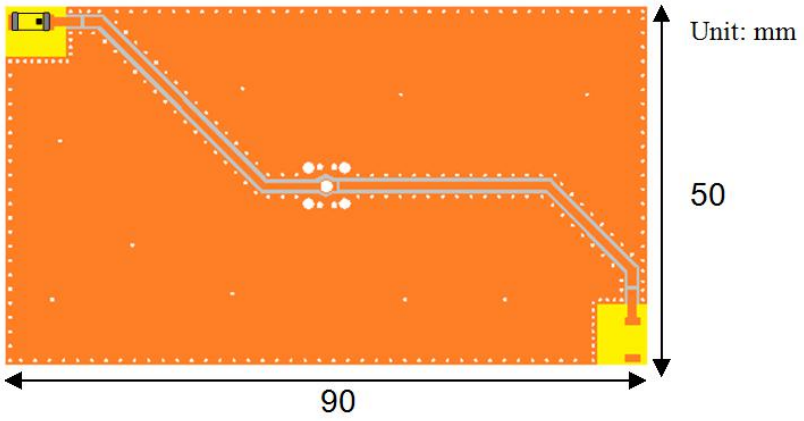

( Bottom View )

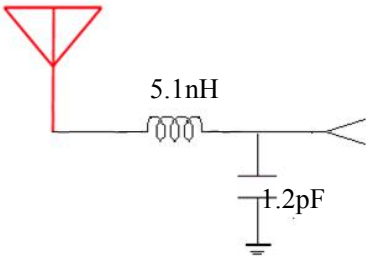

( Side View )

| Symbols | L | W | T | A |
|---|---|---|---|---|
| Dimensions | 5.2+/-0.2 | 2.0+/-0.2 | 0.6+/-0.1 | 0.5+/-0.1 |




## 3. Evaluation Board and Matching Circuits

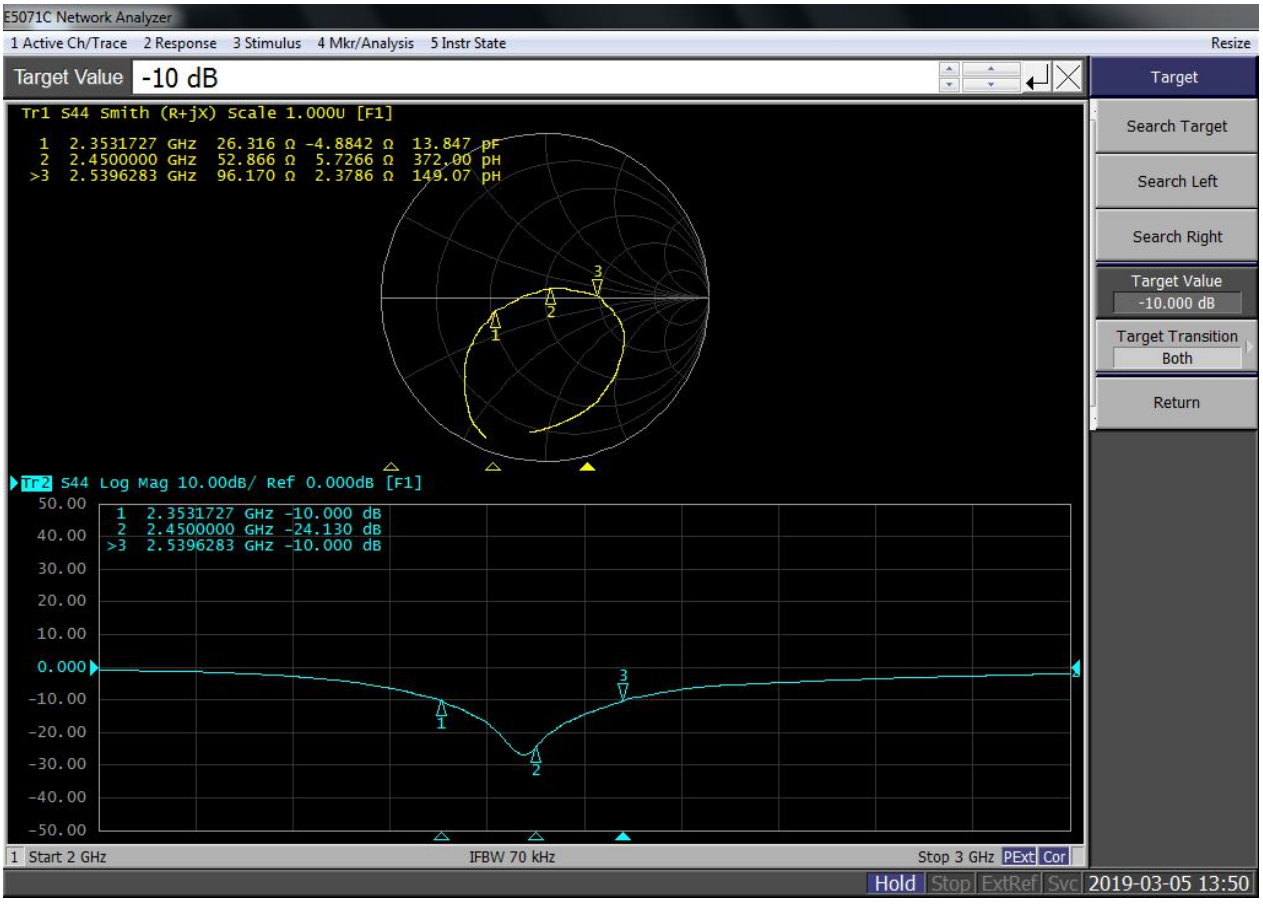


## 4. Electrical Characteristics

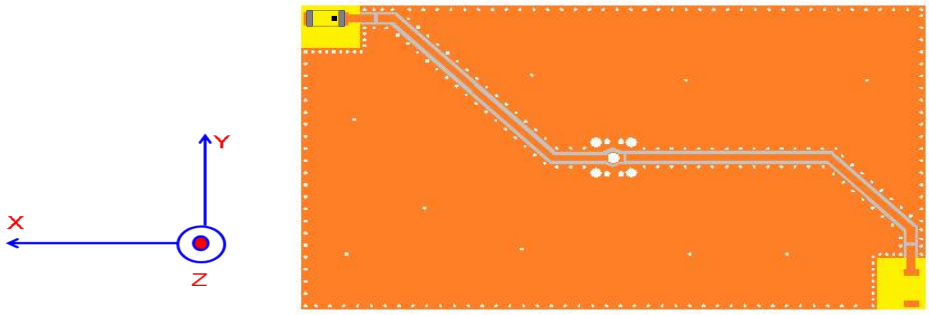
| No. | Item | Specifications |
|---|---|---|
| 4.1 | After Matching | 2450 MHz |
| 4.2 | Band Width | 100MHz typ. |
| 4.3 | Peak Gain | 4.91 dBi |
| 4.4 | V.S.W.R | ≤2.0 |
| 4.5 | Polarization | Linear |
| 4.6 | Azimuth Beam width | Omni-directional |
| 4.7 | Impedance | 50 Ω |

## 5. Haracteristic curve

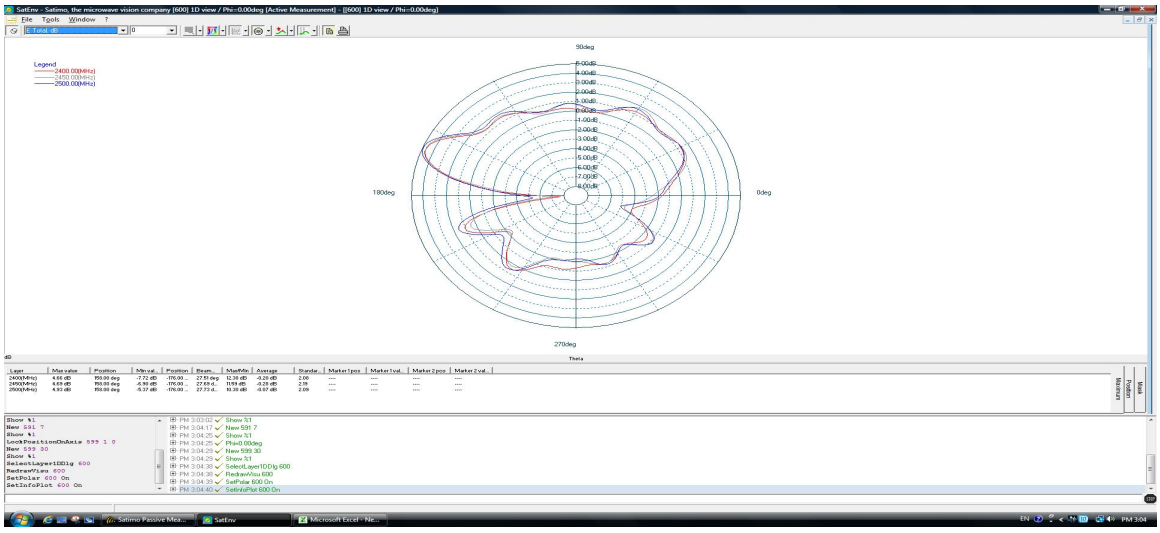


## 6. Radiation Pattern

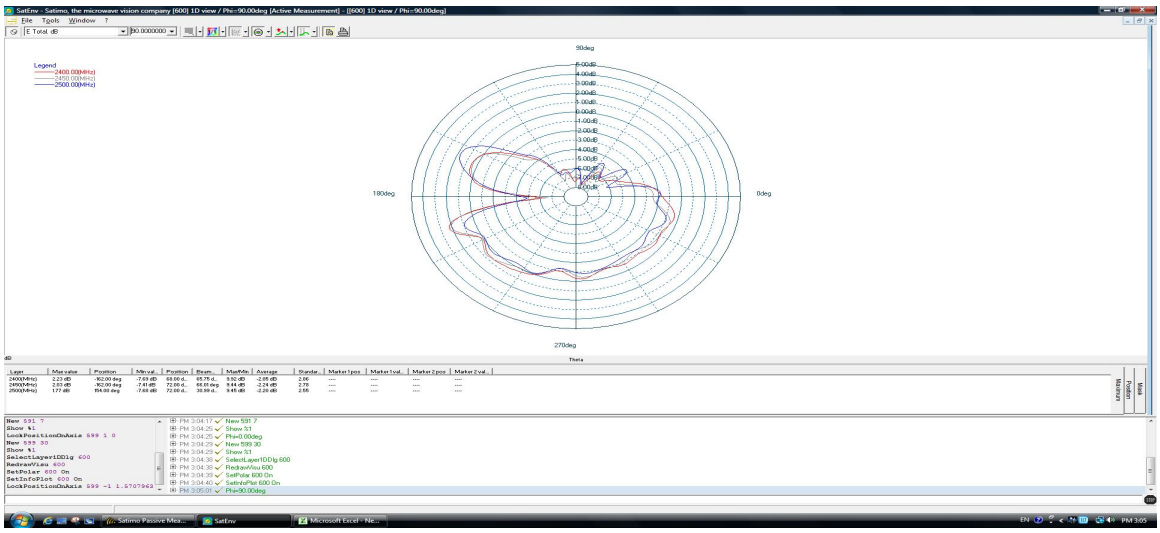
coordinates：



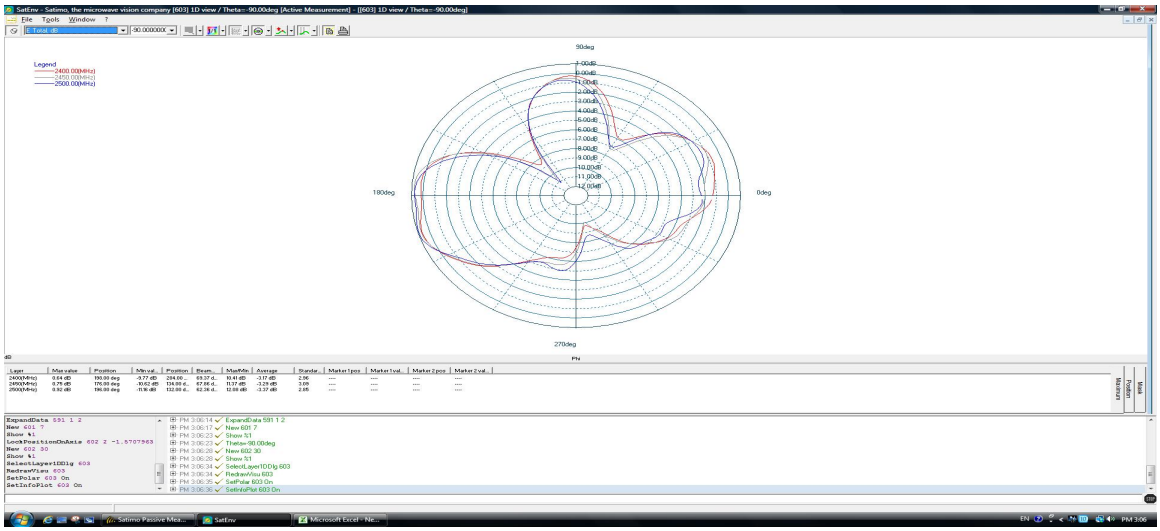

X-Z Plane



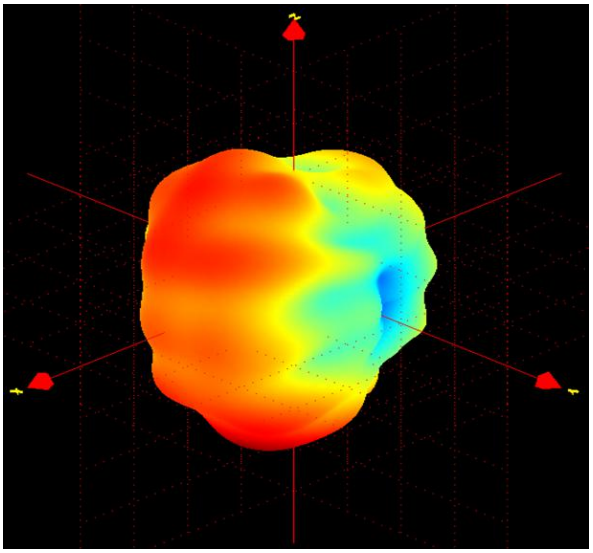
Y-Z Plane



X-Y Plane



## 3D Radiation Pattern



| Frequency (MHz) | 2400 | 2450 | 2500 |
|---|---|---|---|
| Avg. Gain (dBi) | -1.81 | -1.94 | -1.88 |
| Peck Gain (dBi) | 2.51 | 4.91 | 2.54 |
| Efficiency (%) | 71 | 72 | 72 |

## 7 .Post Dependability Tolerance

Post Dependability Tolerance ( Refer to the table )

| No. | Item | Post Dependability Tolerance |
|---|---|---|
| 7.1 | Central Frequency | ±5 MHz |
| 7.2 | Band Width | ±5 MHz |
| 7.3 | Gain | ±0.1 dBi |
| 7.4 | V.S.W.R (in BW) | ±0.1 |

## 8. Dependability Test

Reference condition: Temperature range 25±5℃

Relative Humidity range 55~75%RH

Operating Temperature range -40℃~+85℃

### 8. 1Vibration Resist

The device should satisfy the electrical characteristics specified in paragraph 8.1~8.4 after applied to the vibration of 10 to 55Hz with amplitude of 1.5mm for 2 hours each in X , Y and Z directions.

### 8. 2Drop Shock

The device should satisfy the electrical characteristics specified in paragraph 8.1~8.4 after dropping onto the hard wooden board from the height of 100cm for 3 times each facet of the 3 dimensions of the device.

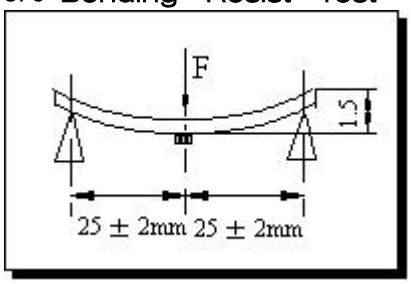
### 8. 3 Solder Heat Proof

The device should be satisfied after preheating at 120 ℃~150 ℃ for 120 seconds and dipping in soldering Sn at 255℃+10℃ for 5±0.5 seconds，or electric iron 300℃-10℃ for 3±0.5 seconds，without damnify.

### 8. 4 Adhesive Strength of Termination

The device have no remarkable damage or removal of the termination after horizontal force of 5N(≦0603)；10N(>0603)with 10±1 seconds.

8.5 Bending Resist Test




Weld the product to the center part of the PCB with the thickness 1.6 ± 0.2mm as the illustration shows, and keep exerting force arrow-ward on it at speed of :1mm/S , and hold for 5 ± 1S at the position of 1.5mm bending distance , so far , any peeling off of the product metal coating should not be detected .

8.6 Moisture Proof

The device should satisfy the electrical characteristics specified in paragraph 8.1~8.4 after exposed to the temperature 60±2℃and the relative humidity 90~95% RH for 96 hours and 1~2 hours recovery time under normal condition.

8.7 High Temperature Endurance

The device should satisfy the electrical characteristics specified in paragraph 8.1~8.4 after exposed to temperature 85±5℃for 96±2 hours and 1~2 hours recovery time under normal temperature.

8.8 Low Temperature Endurance

The device should also satisfy the electrical characteristics specified in paragraph 8.1~8.4 after exposed to the temperature -40℃±5℃ for 96±2 hours and to 2 hours recovery time under normal temperature.

8.9 Temperature Cycle Test

The device should also satisfy the electrical characteristics specified in paragraph 8.1~8.4 after exposed to the low temperature -40℃ and high temperature +85℃ for 30±2 min each by 5 cycles and 1 to 2 hours recovery time under normal temperature.

9 Reflow Soldering Standard Condition