

# ZONITH A5 2.4 GHz PCB Antenna Specification

By KKM

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## 1 KEYWORDS

- ZONITH A5
- 2.4 GHz
- Inverted F Antenna

## 2 INTRODUCTION

The PCB Antenna used on the ZONITH A5 reference design is described in this application note.

This application note describes the Antenna dimensions, the RF performance

and considerations for complying with regulatory limits when using this design.

The Antenna design requires no more than 25.7 x 7.5 mm of space and ensures a VSWR ratio of less than 2 across the 2.4 GHz ISM band when connected to a 50 ohm source.



Figure 1: ZONITH A5

### 3 Testing Conditions

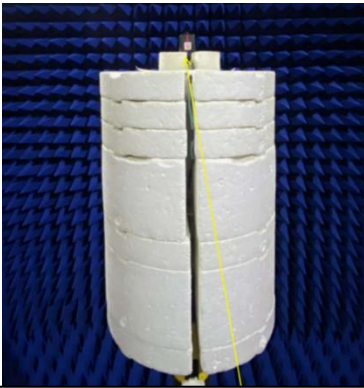


Figure 2:Testing environment

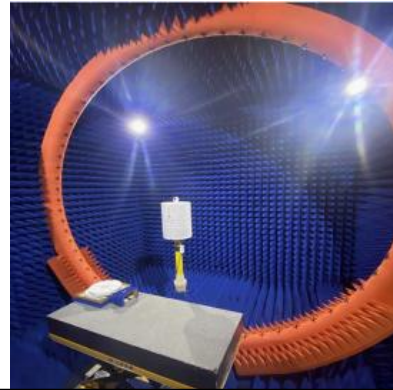
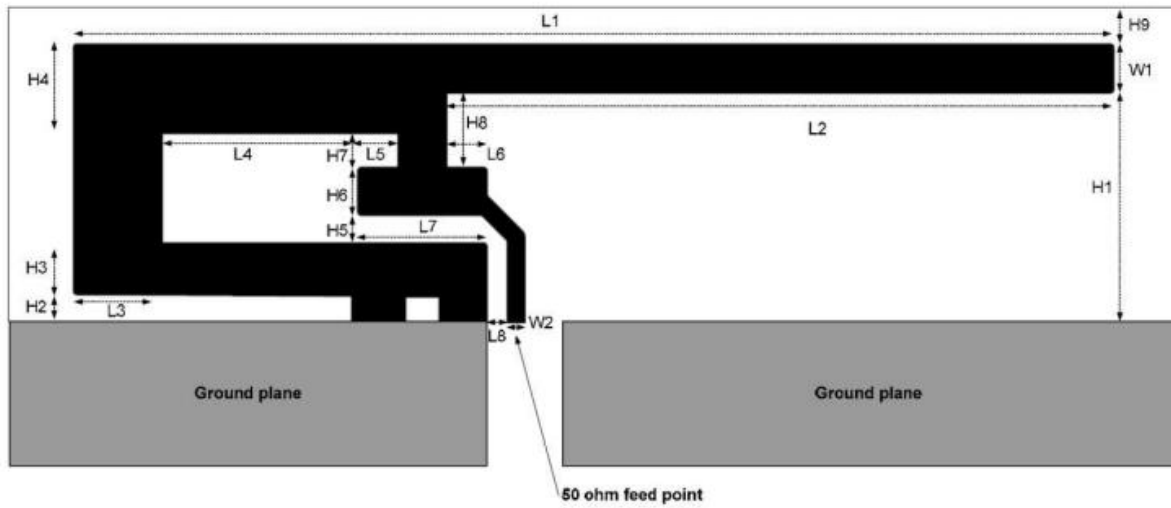


Figure 3:Testing 3D microwave darkroom(6m\*6m\*6m)

#### Product Testing Conditions

Parameters	Value
Working Temp	-30℃ ~ +60℃

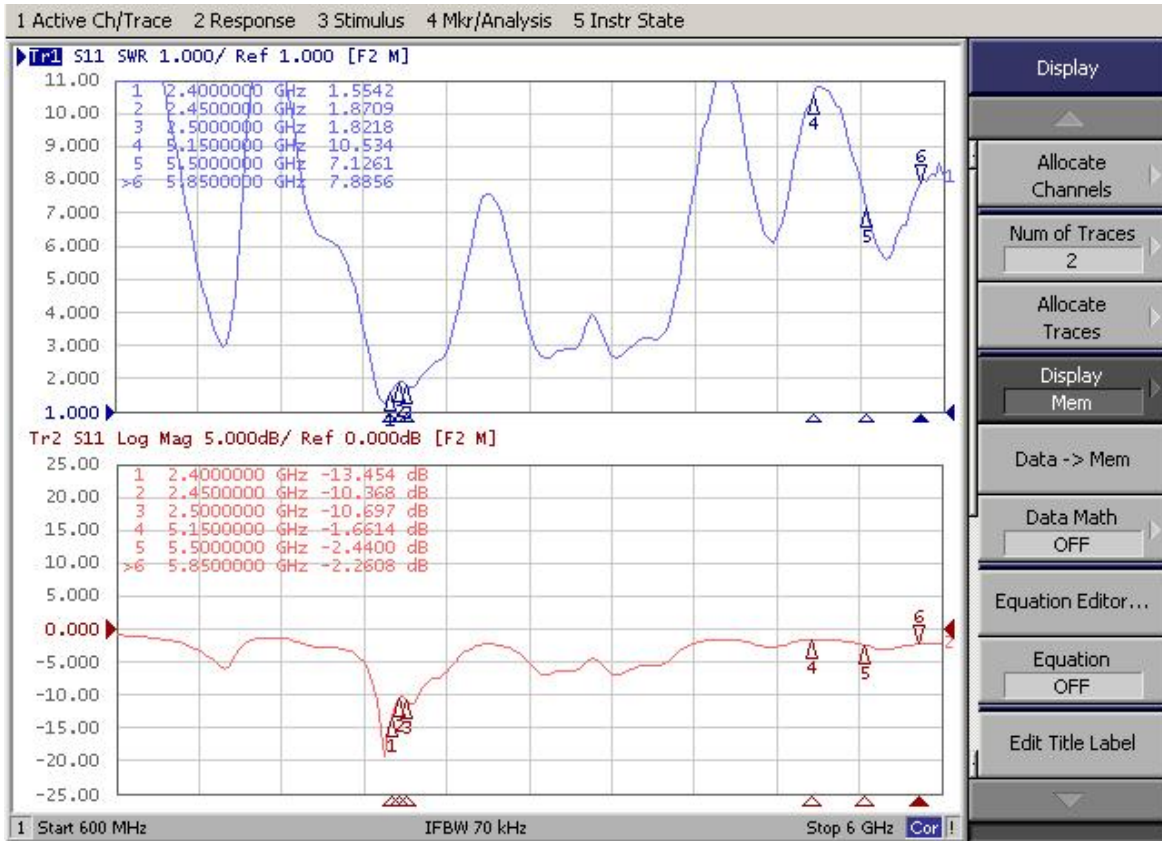
## 4 Layout and Implementation

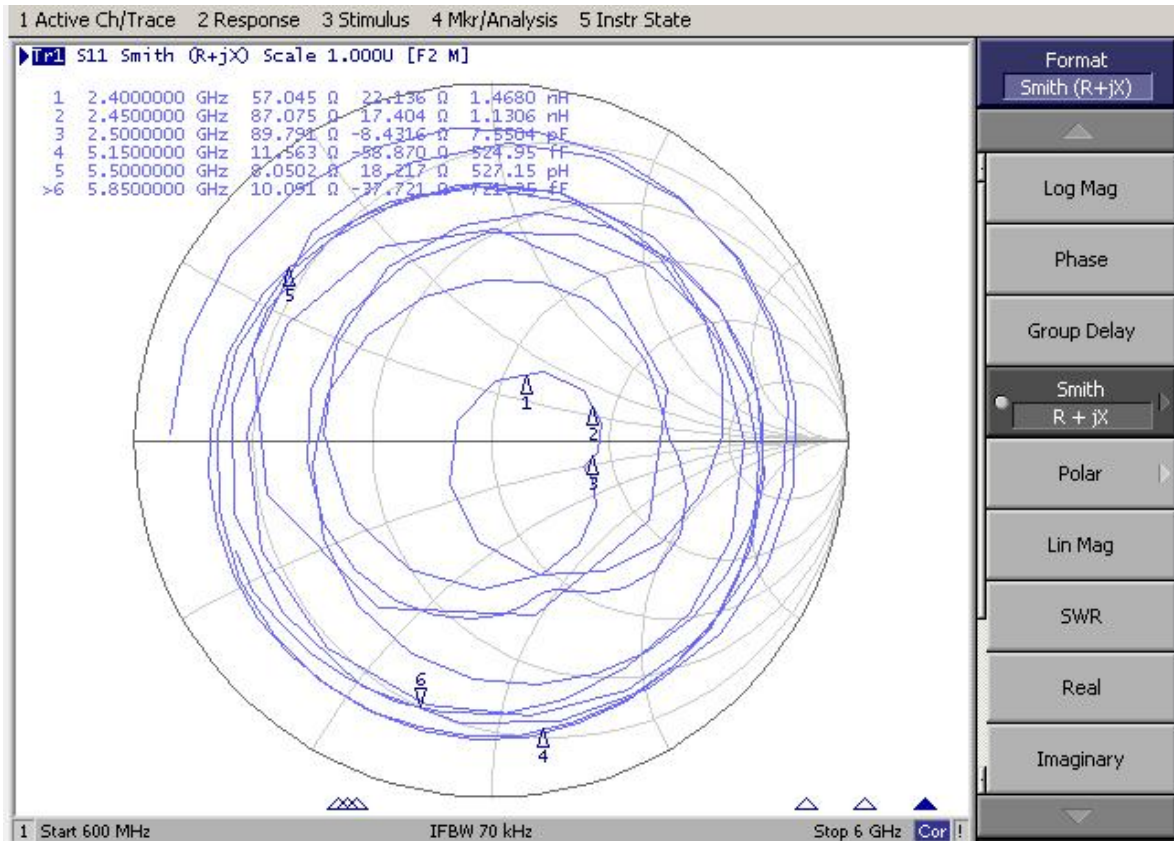


**Figure 4: Antenna Dimensions**

H1	5.70 mm	W2	0.46 mm
H2	0.74 mm	L1	25.58 mm
H3	1.29 mm	L2	16.40 mm
H4	2.21 mm	L3	2.18 mm
H5	0.66 mm	L4	4.80 mm
H6	1.21 mm	L5	1.00 mm
H7	0.80 mm	L6	1.00 mm
H8	1.80 mm	L7	3.20 mm
H9	0.61 mm	L8	0.45 mm
W1	1.21 mm		

## 5 S Parameter\_Return Loss&VSWR - Smith





## 6 Antenna Efficiency and Gain

Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Gain (dBi)	0.31	0.44	0.35	0.39	0.32	0.38	0.60	0.39	0.15	0.25	-0.05
Efficiency (%)	34.88	36.22	36.50	37.77	38.33	37.50	37.46	36.76	35.02	35.19	33.17

## 7 Antenna Pattern



