

# 3.2 x 1.6 x 0.5(mm) WiFi/Bluetooth Ceramic Chip Antenna (YF300K) Engineering Specification

## 1. Product Number

YF 3216 F8 R 2G4502

1 2 3 4 5



(1)Product Type	Chip Antenna
(2)Size Code	3.6x1.2x0.5mm
(3)Type Code	F8
(4)Packing	Paper bag packaging
(5)Frequency	2.45GHz

SHEN ZHEN YINGFENG ANTENNA TECHNOLOGYCO.,LTD

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District, Shenzhen



Prepared by : **harry**

Designed by : **andy**

Checked by : **andy**

Approved by : **oliver**

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### 3. Applications

- \*Bluetooth earphone systems
- \*Hand-held devices when WiFi /Bluetooth functions are needed, e.g., Smart phone.
- \*IEEE802.11 b/g/n
- \*ZigBee
- \*Wireless PCMCIA cards or USB dongle

### 4. Description

Ying feng chip antenna series are specially designed for WiFi/Bluetooth applications. Based on yingfeng proprietary design and processes, this chip antenna has excellent stability and sensitivity to consistently provide high signal reception efficiency.

### 5. Electrical Specifications (40 x 40 mm<sup>2</sup> ground plane)

5-1. Electrical Table

Characteristics		Specifications	Unit
Outline Dimensions		3.2x1.6x0.5	mm
Working Frequency		2400~2500	MHz
VSWR		2 Max.	
Impedance		50	Ω
Polarization		Linear Polarization	
Gain	Peak	5.29 (typical)	dBi
	Efficiency	73 (typical)	%



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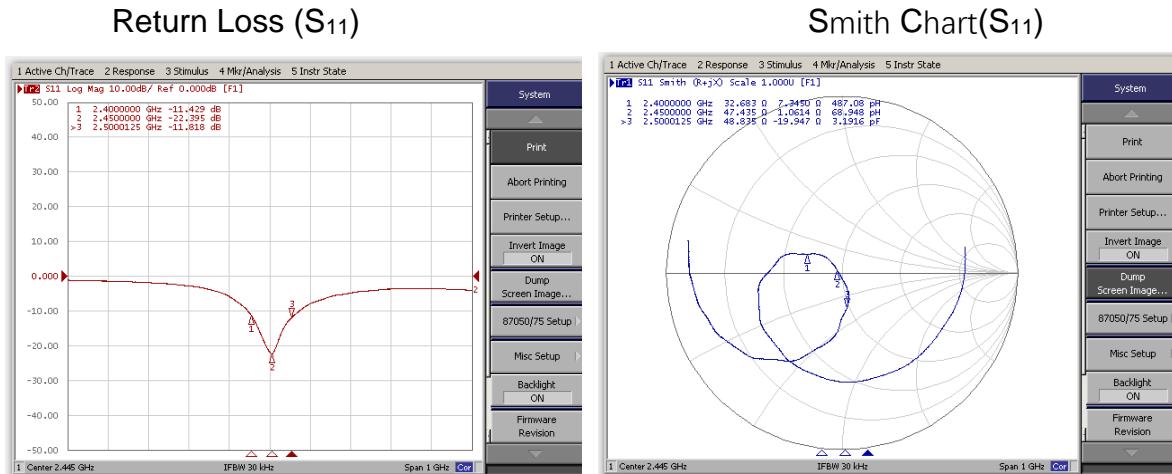
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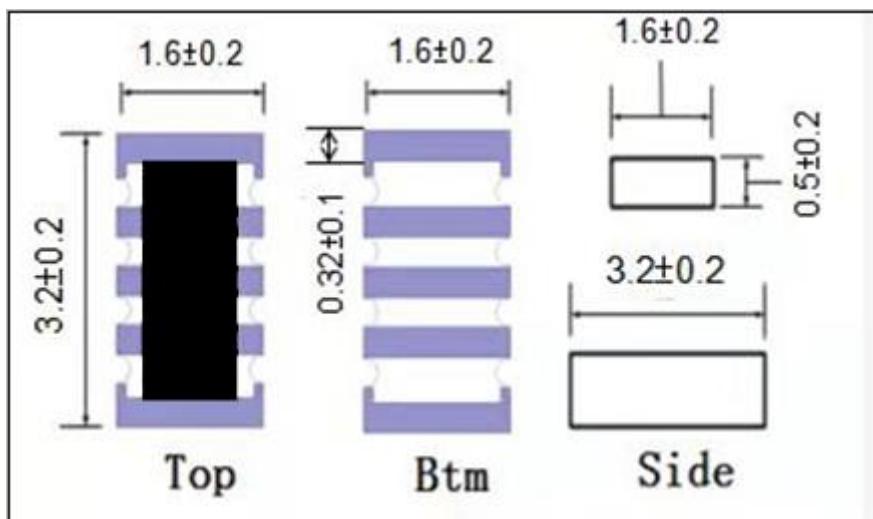
## 5-2. Return Loss & VSWR



## 6 Outline Dimensions of Antenna & Evaluation Board (unit: mm)

### 6-1. Antenna Dimensions

Configuration and Dimensions:



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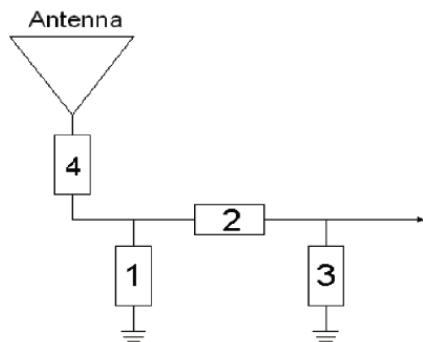
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## 6-2-2. Matching Circuit:

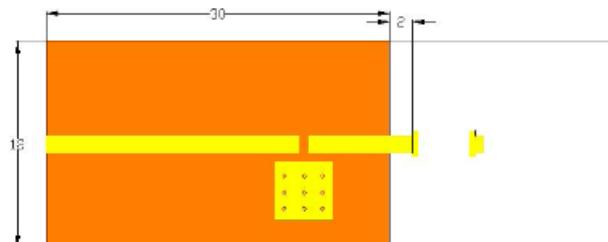
With the following recommended values of matching and tuning components, the center frequencies will be about 2450 MHz at our standard 40x40 mm<sup>2</sup> evaluation board. However, these are reference values, may need to be changed when the circuit boards or part vendors are different.



System Matching Circuit Component		
Location	Description	Vendor
1	N/A*	-
2	3.3nH, (0402)	DARFON
3	1.5pF, (0402)	MURATA
4	0Ω, (0402)	-

## Evaluation Board Reference

### PCB Dimension & Antenna Layout Reference



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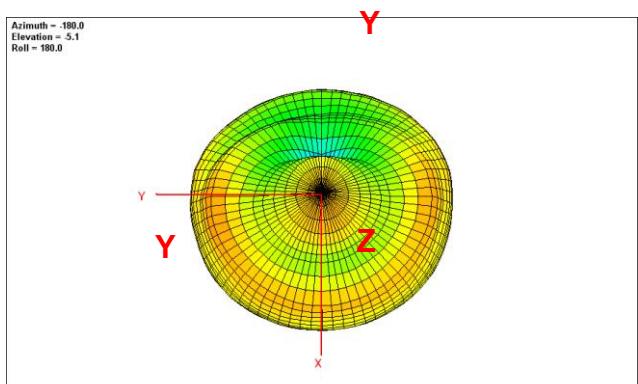
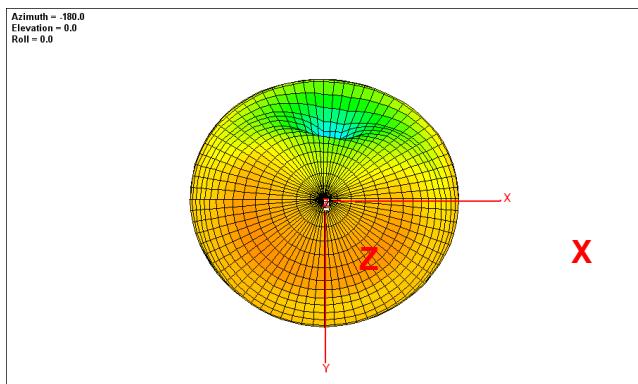
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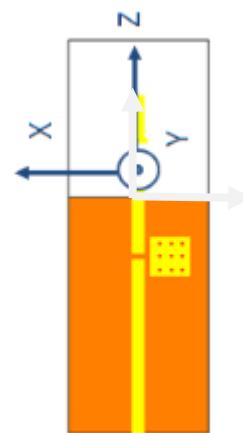
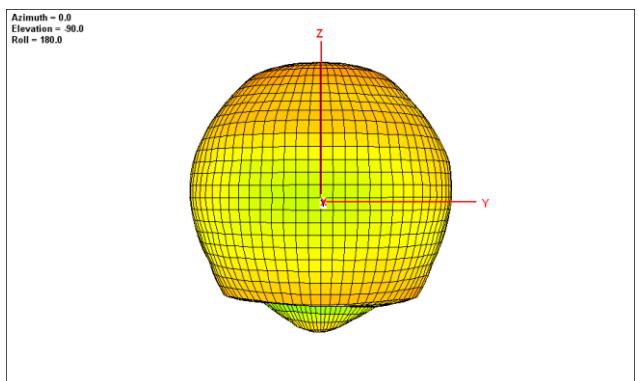
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## 7.Radiation Pattern (40x 40 mm<sup>2</sup> ground plane)

### 7-1. 3D Gain Pattern @ 2450 MHz



X



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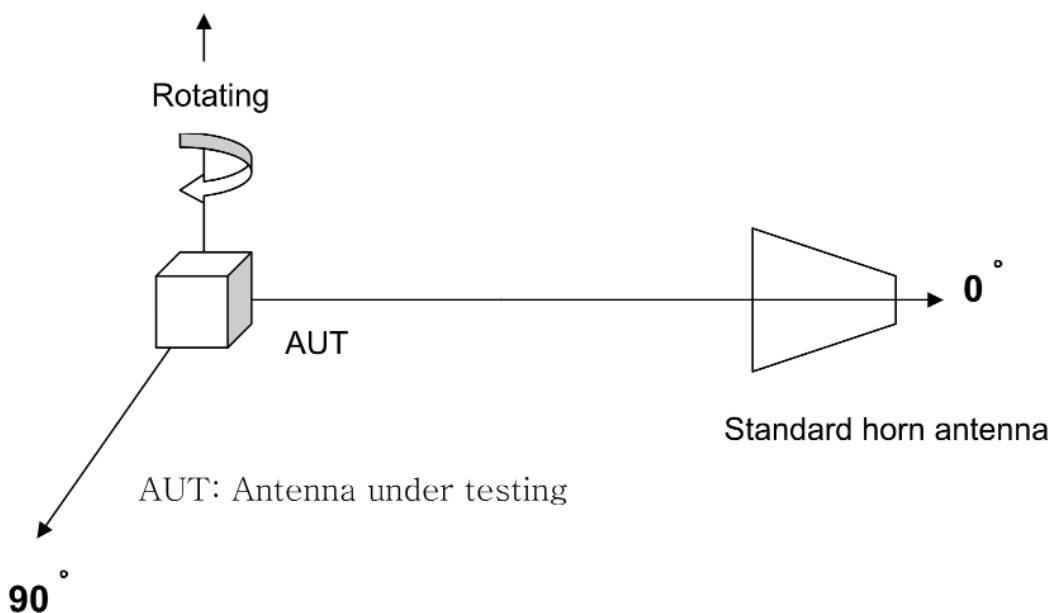
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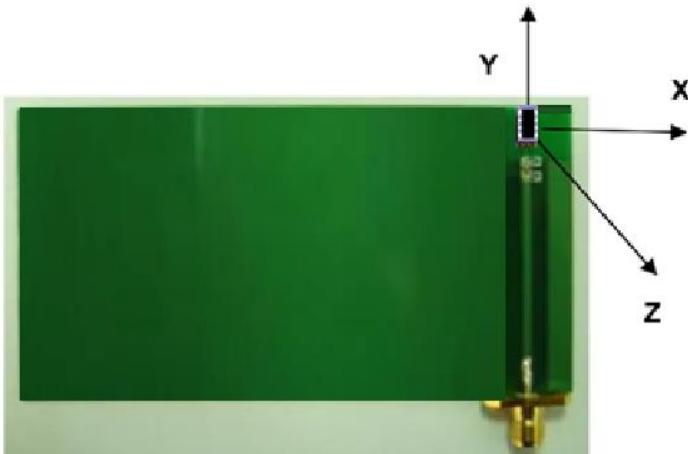
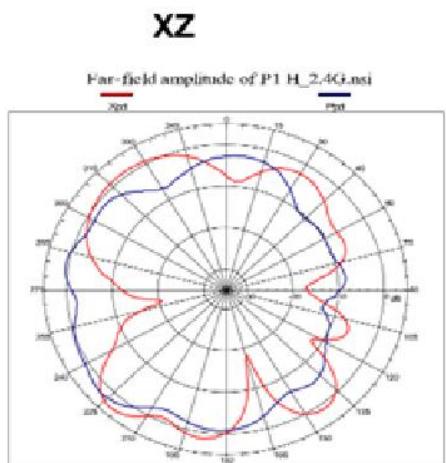
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## 8. Radiation Pattern (On 100x55 mm ground plane)



a. Type A

a. Type A



(Peak Gain =5.29 dBi, Average Gain -1.1dBi )



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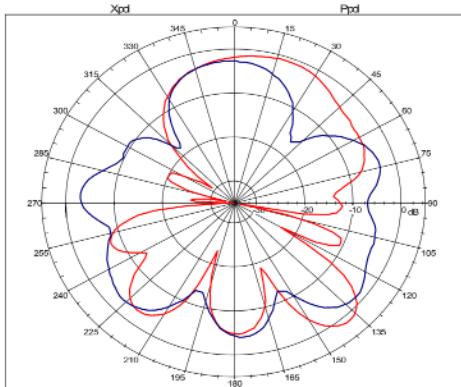
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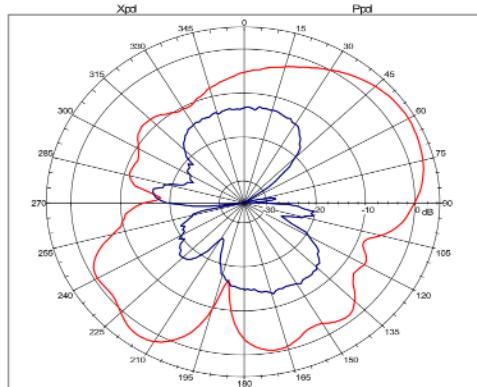
Far-field amplitude of P1\_E\_2.4G02.nsi



(Peak Gain =2.29 dBi, Average Gain -3.97dBi )

**XY**

Far-field amplitude of P1\_E1\_2.4G.nsi



(Peak Gain =3.35 dBi, Average Gain -4.11dBi )

Source signal: Linearly polarized signal  $f_0 = 2450$  MHz

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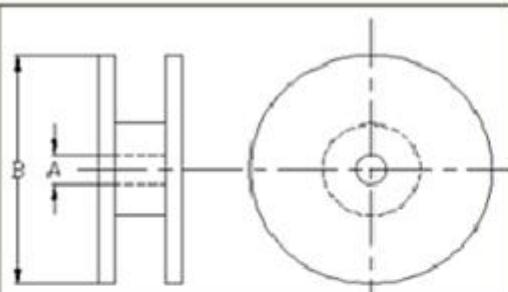
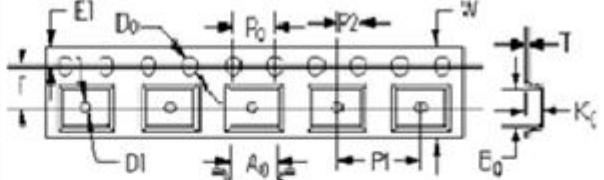
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## Taping Specifications

Reel		Taping Blister Tape	
			
Checking note		Index	Spec (mm)
Internal diameter of reel		A	60.20 ± 0.50
External diameter of reel		B	178 ± 1.00
Quantity/per reel		5000pcs	
Tape material		Plastic (embossed)	
Checking note		Index	Spec (mm)
Sprocket hole		D0	1.50 +0.10/-0.00
Distance sprocket hole to outside		E1	1.75 ± 0.10
Distance sprocket hole to pocket		F	5.50 ± 0.05
Distance sprocket hole to sprocket hole		P0	4.00 ± 0.10
Distance pocket to pocket		P1	4.00 ± 0.10
Distance sprocket hole to pocket		P2	2.00 ± 0.05
Tape width		W	12.00 +0.30/-0.10
Pocket width nominal clearance		A0	2.28 ± 0.13
Pocket length nominal clearance		B0	5.70 ± 0.13
Pocket depth minimum clearance		K0	1.58 ± 0.10
Thickness of tape		T	0.23 ± 0.02



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## Reliability Table

Test Item	Procedure	Requirements Ceramic Type	Remark (Reference)
Electrical Characterization		Fulfill the electrical specification	User Spec.
Thermal Shock	1. Preconditioning: 50 ± 10°C / 1 hr , then keep for 24 ± 1 hrs at room temp. 2. Initial measure: Spec: refer initial spec. 3. Rapid change of temperature test: -30°C to +85°C; 100 cycles; 15 minutes at Lower category temperature; 15 minutes at Upper category temperature.	No Visible Damage. Fulfill the electrical specification.	MIL-STD-202 107
Temperature Cycling	1. Initial measure: Spec: refer initial spec. 2. 100 Cycles (-30°C to +85°C), Soak Mode=1 (2 Cycle/hours). 3. Measurement at 24 ± 2 Hours after test condition.	No Visible Damage. Fulfill the electrical specification.	JESD22 JA104
High Temperature Exposure	1. Initial measure: Spec: refer initial spec. 2. Unpowered: 500hours @ T=+85°C. 3. Measurement at 24 ± 2 hours after test.	No Visible Damage. Fulfill the electrical specification.	MIL-STD-202 108
Low Temperature Storage	1. Initial measure: Spec: refer initial spec. 2. Unpowered: 500hours @ T= -30°C. 3. Measurement at 24 ± 2 hours after test.	No Visible Damage. Fulfill the electrical specification.	MIL-STD-202 108
Solderability (SMD Bottom Side)	Dipping method: a. Temperature: 235 ± 5°C b. Dipping time: 3 ± 0.5s	The solder should cover over 95% of the critical area of bottom side.	IEC 60384-21/22 4.10
Soldering Heat Resistance (RSH)	Preheating temperature: 150 ± 10°C. Preheating time: 1~2 min. Solder temperature: 260 ± 5°C. Dipping time: 5 ± 0.5s	No Visible Damage.	IEC 60384-21/22 4.10
Vibration	5g's for 20 min., 12 cycles each of 3 orientations Note: Use 8"X5" PCB .031" thick 7 secure points on, one long side and 2 secure points at corners of opposite sides. Parts mounted within 2" from any secure point. Test from 10-2000 Hz	No Visible Damage.	MIL-STD-202 Method 204
Mechanical Shock	Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks) Peak value: 1,500g's Duration: 0.5ms Velocity change: 15.4 ft/s Waveform: Half-sine	No Visible Damage.	MIL-STD-202 Method 213
Humidity Bias	1. Humidity: 85% R.H., Temperature: 85 ± 2 °C. 2. Time: 500 ± 24 hours. 3. Measurement at 24 ± 2hrs after test condition.	No Visible Damage. Fulfill the electrical specification.	MIL-STD-202 Method 106



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Board Flex (SMD)	<p>1. Mounting method: IR-Reflow. PCB Size (L:100 x W:40 x T:1.6mm) 2. Apply the load in direction of the arrow until bending reaches 2 mm.</p>	No Visible Damage.	AEC-Q200 005
Adhesion	Force of 1.8Kg for 60 seconds.	<p>No Visible Damage Magnification of 20X or greater may be employed for inspection of the mechanical integrity of the device body terminals and body/terminal junction.</p>	AEC-Q200 006
Physical Dimension	Any applicable method using x10 magnification, micrometers, calipers, gauges, contour projectors, or other measuring equipment, capable of determining the actual specimen dimensions.	In accordance with specification.	JESD22 JB100



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