ISM Band Planar Chip Antenna
Bluetooth, WLAN IEEE802.11b/g
2.4GHz ISM Band
<Patent Protection>

Approval Sheet

2.4 GHz ISM Band Chip Antenna

920D05E15XXX013

Ver. 1.00

2006/02/14

DESCRIPTIONS

The exciting **920D05E15XXX013** is one of the world's high-performance 2.4GHz small chip antennas. It is for all 2.4GHz applications, including Bluetooth, IEEE802.11b/g, home RF, ZigBee and other popular and emerging standards. This chip antenna comprises a radiating structure of multiple meandered conducting strips, which are developed on a tiny piece of Printed Circuit Board (PCB) and packed with a Liquid Crystal Polymer (LCP) dielectric composite material to achieve size, performance characteristics and cost effectiveness superior to other designs. The incredibly compact surface mountable package measures a merely 5.5mm (L) × 2.0mm (W) × 1.5mm (H) in dimensions and is fully compatible with handmade and reflow attachment processes. Also, no additional impedance-matching circuit is required so that the occupied length for using this antenna on PCB is just 5.5 mm. The antenna's favorable electrical specifications, stability and cost-effectiveness make it the logical choice for a wide variety of applications in the 2.4GHz ISM band.

FEATURES

- Low Profile, Ultra-Thin, Light Weight (0.02g)
- Miniaturized Size **(5.5×2.0×1.5 mm^3)**
- Omni-Directional Antenna Patterns
- Low Loss (Gain = 2 dBi)
- 50Ω Characteristic Impedance
- Impedance-Matching Free
- Wide Bandwidth
- Favorable Linear Polarization
- Fully Manual and Surface Mount Compatible
- Incredibly Compact SMD Package
- Highly Stable with Variations in Temperature and Humidity
- LCP Insert Molding Technology
- Cost-Effective

APPLICATIONS

- Bluetooth
- IEEE802.11b/g
- Wireless PCMCIA Cards
- Telemetry
- Data Collection
- Industrial Process Monitoring
- Compact Wireless Products
- External Antenna Elimination
- ZigBee

SPECIFICATIONS

- **920D05E15XXX013**

KEY FEATURES:

- Low Profile, Ultra-Thin, Light Weight (0.02g)
- Miniaturized Size (5.5×2.0×1.5mm^3)
- Impedance-Matching Free
- SMD Type
- Cost-Effective

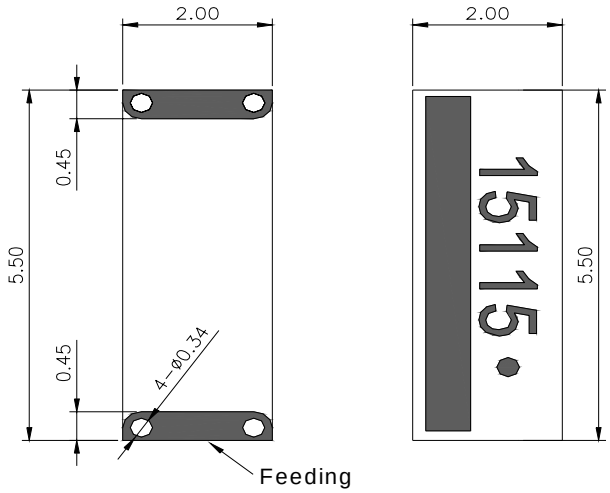
MAIN APPLICATIONS:

- Wireless communications in 2.4GHz ISM Band

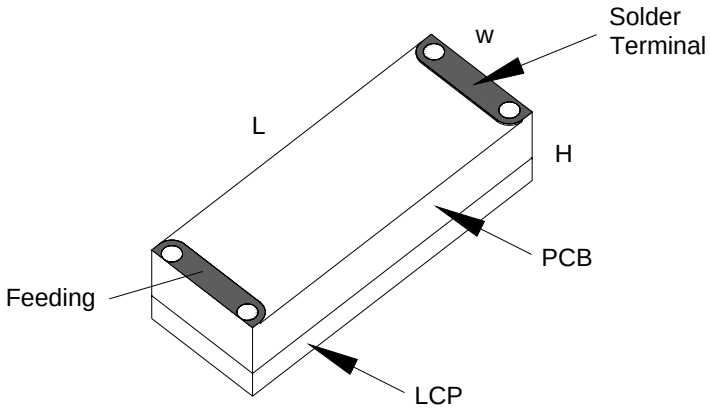
	Single-Band Planar Chip Antenna
Dimension (mm^3)	5.5×2.0×1.5
Central Frequency (GHz)	2.45
Bandwidth (MHz)	>100
Gain (dBi) (Typical)	2
VSWR	2 (max)
Return Loss (dB)	-10 (max)
Polarization	Linear
Pattern	Omni-Directional
Impedance (Ω)	50
Operating Temperature (℃)	-25 ~ +85
Construction	LCP Insert Molding

CHARACTERISTICS

Pad Layout (unit: mm)



Construction



Antenna size: 5.5mm (L) × 2.0mm (W) × 1.5mm (H)

Land Pattern (unit: mm)

For best results, the chip antenna 920D05E15XXX013 should be mounted on one corner of 0.8mm thick FR4 PCB with 5.5×17mm^2 empty area and 50 Ω microstrip-line input.

In order to fulfill different customer design requirement, for another condition, the chip antenna 920D05E15XXX013 also could be mounted on one corner of 0.8mm thick FR4 PCB with 5.5×11mm^2 empty area and 50 Ω microstrip-line input.

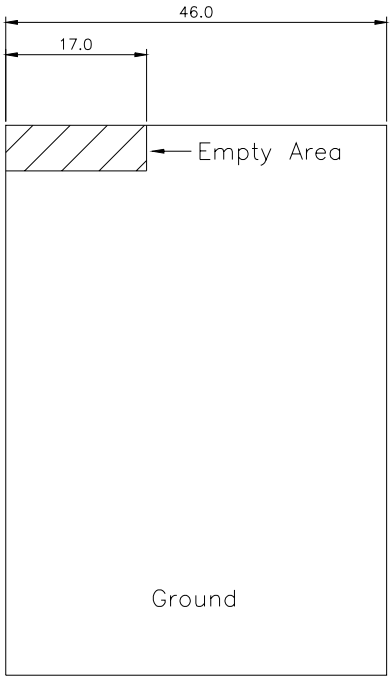
About above the results are mentioned as shown below：

***Summary*：**

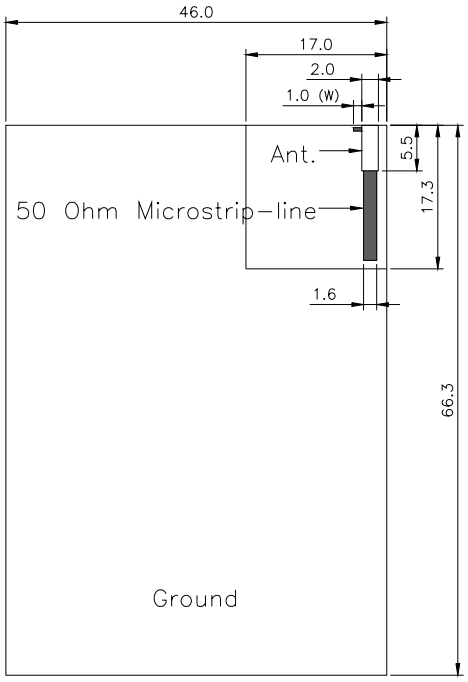
We can utilize different circuit length to tune the return loss of chip antenna for diverse product requirements. It was indicated that the central frequency shifted to high frequency with decrease in line length (see symbol "(W)" in land pattern). Such a results, when the length decreases 1 mm, the central frequency shifts about 100 MHz besides the bandwidth also still achieves previous purpose.

***a. Condition (1)*：**

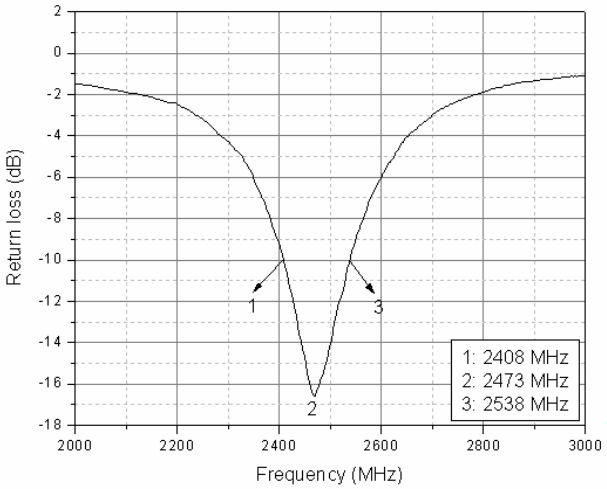
Top view

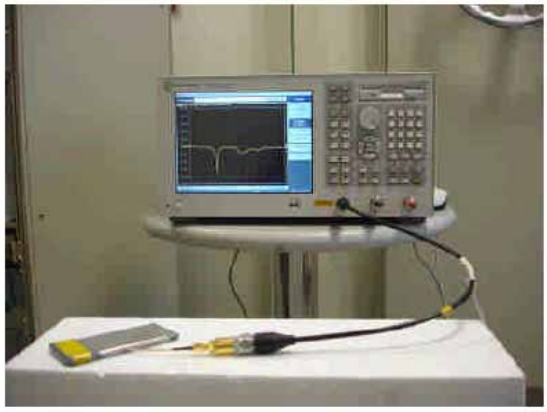


Bottom view

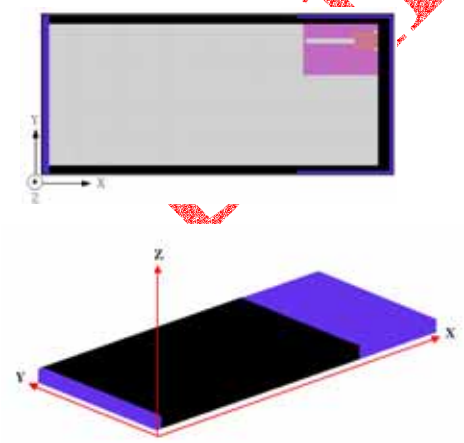


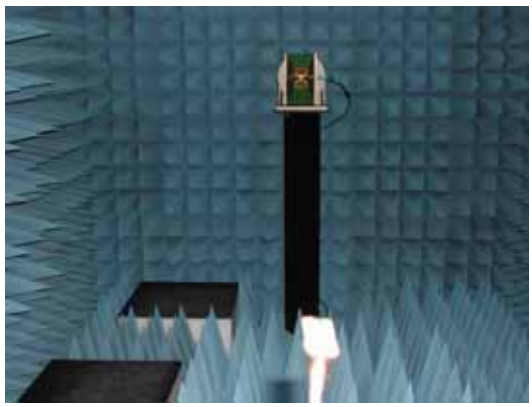
Return Loss and Bandwidth



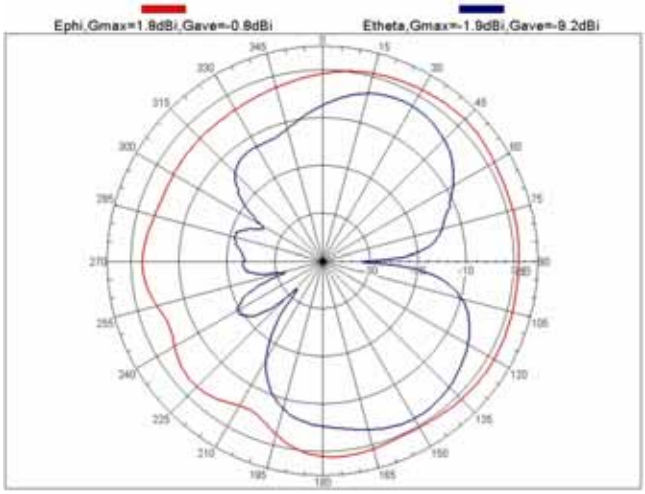


Radiation Pattern (unit: dBi)

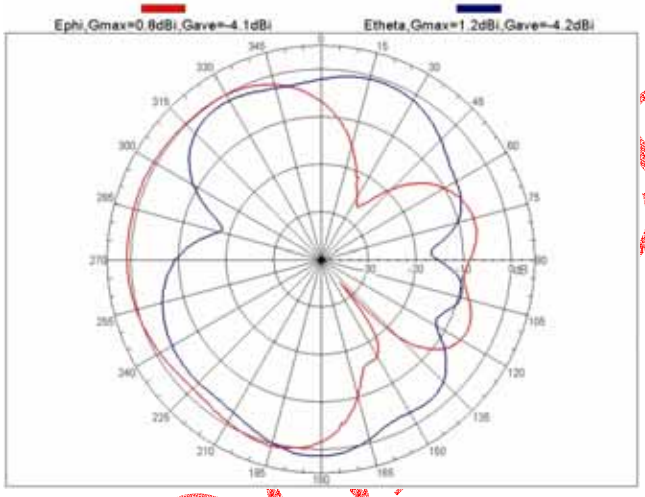


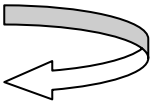


Radiation Pattern (unit: dBi)

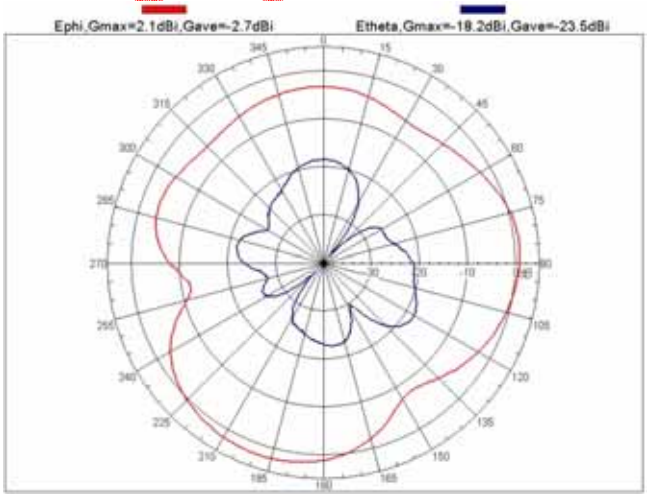


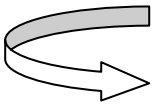
Phi=0° (X-Z plane) for 2.45 GHz

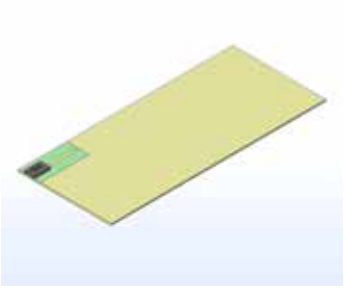




Phi=90° (Y-Z plane) for 2.45 GHz

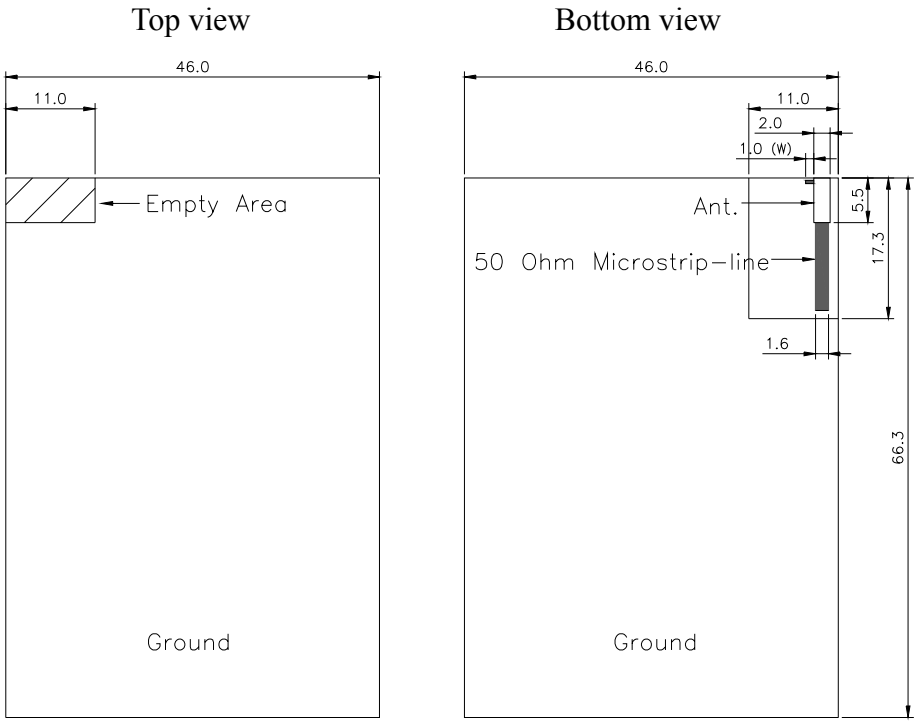




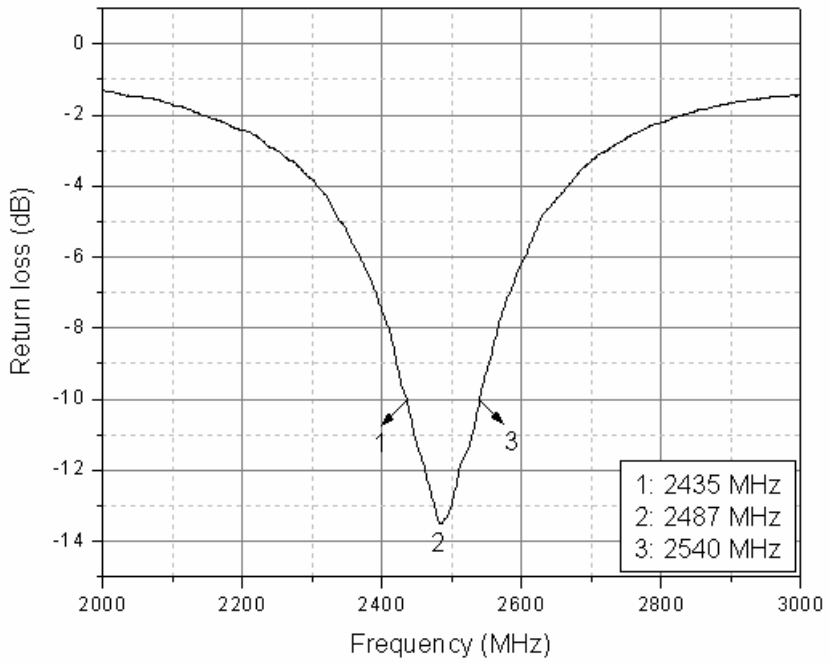


Theta=90° (X-Y plane) for 2.45 GHz

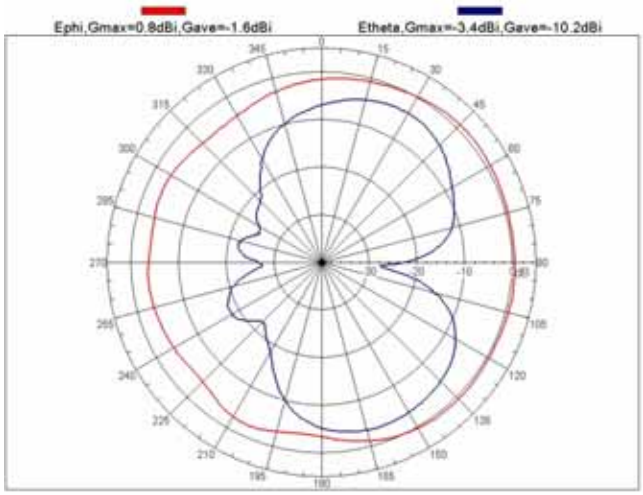
b. Condition (2) ：



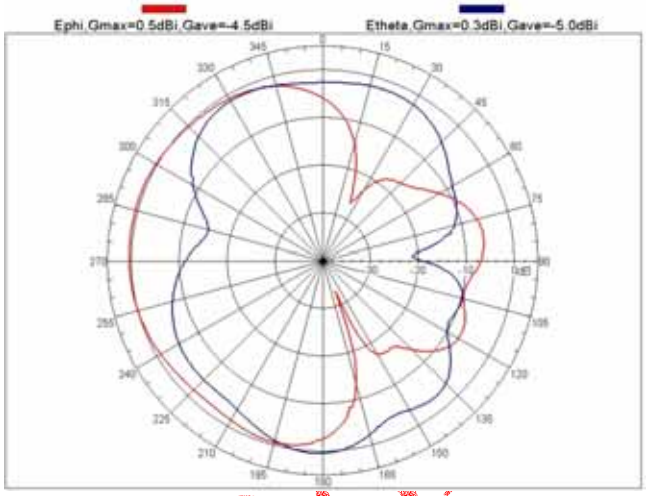
Return Loss and Bandwidth

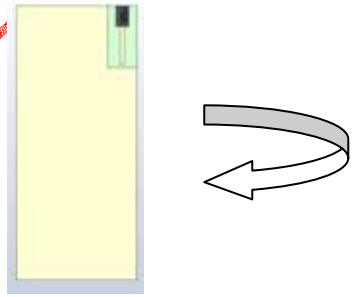


Radiation Pattern (unit: dBi)

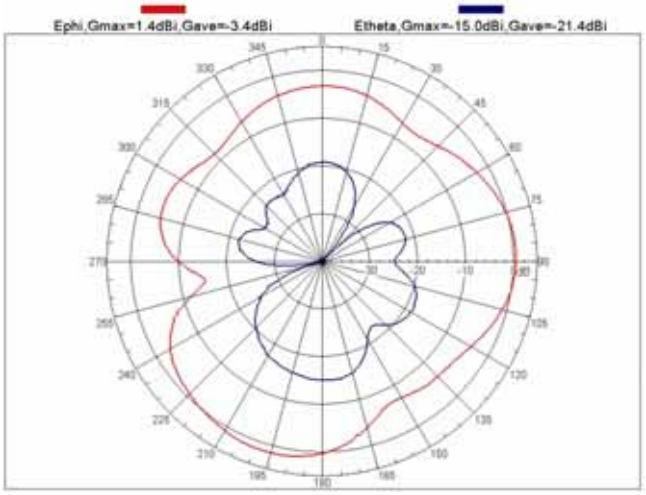


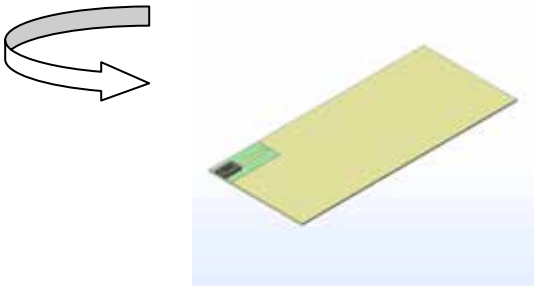
Phi=0° (X-Z plane) for 2.45 GHz





Phi=90° (Y-Z plane) for 2.45 GHz





Theta=90° (X-Y Plane) for 2.45 GHz

HOW TO ORDER

920 D05 E 15 XXX 0 1 3

1 2 3 4 5

1. SERIES NO.

920=Chip Antenna

2. TYPE:

D05=2×5.5mm^2 (Gain=2 dBi)

3. ENVIRONMENT PROTECTION MATERIAL:

E=RoHS

4. THICKNESS:

15=1.5mm

5. CENTRE FREQUENCY:

115=2.4 GHz

HONG KONG & CHINA contact :

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(HK) FAX : 852-23488030 (Shenzhen) FAX : 86-755-83568389
E-MAIL:sales@sinopex-ent.com