

# DATA SHEET

WIRELESS COMPONENTS

PCB type antenna  
ANTX100P001BWPEN3  
850/900/1800/1900/2100 MHz



**FEATURES & BENEFITS**

- The smallest PCB antenna in the market
- Miniature design allows users to save required space
- Double-side adhesive tape makes it easy to instal in device
- Ranges of types of connector and cable provide a flexible design options
- Halogen free and RoHS compliant

**APPLICATIONS**

- Tablet / Desktop PC
- Internet TV / STB / Game console / DS
- WiFi network devices (IEEE 802.11b/g/n)
- Bluetooth / ZigBee devices
- Car Infotainment
- Smart meter
- Smart home
- POS terminal
- Wireless Industrial Control

**ORDERING INFORMATION-GLOBAL PART NUMBER, PHYCOMP****CTC & I2NC**

All part numbers are identified by the series, packing type, material, size, antenna type, working frequency and packing quantity.

**YAGEO BRAND ordering code****GLOBAL PART NUMBER (PREFERRED)****ANT X100 P 001 B WPEN 3**

(1) (2) (3) (4) (5) (6) (7)

**(1) FAMILY**

ANT = Antenna products

**(2) CONNECTOR & CABLE LENGTH (MM)**

X = I-PEX

100 = 100mm

**(3) ANTENNA TYPE**

P=PCB

**(4) SERIAL NUMBER**

001 = SERIAL NUMBER 001

**(5) PACKAGE TYPE**

B = Bulk

**(6) WORKING FREQUENCY**

WPEN = 850/900/1800/1900/2100 MHz

**(7) CABLE TYPE**

3 = 1.13mm diameter Mini-Coaxial Cable

## SPECIFICATIONS

Table 1

| DESCRIPTION                     | VALUE                                                                                                             |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Working Frequency               | 850/900/1800/1900/2100MHz                                                                                         |
| VSWR                            | 3.0:1 max                                                                                                         |
| Peak Gain                       | 850MHz /4.2dbi(Typ)<br>900MHz/5.1dbi(Typ)<br>1800MHz /3.9dbi(Typ)<br>1900MHz /5.0dbi(Typ)<br>2100MHz /4.5dbi(Typ) |
| Polarization                    | Linear                                                                                                            |
| Radiation Pattern               | Omni-directional                                                                                                  |
| Impedance                       | 50 $\Omega$ Nominal                                                                                               |
| Operating Temperature           | - 40 °C to 85 °C                                                                                                  |
| Maximum Power                   | 1 W                                                                                                               |
| PCB Dimension                   | 50mm x 20mm x 0.55mm                                                                                              |
| Radio Connector                 | I-PEX (20278-112R-13)                                                                                             |
| Cable Diameter / Length / Color | 1.13mm / 100mm / Black                                                                                            |
| Mounting                        | Adhesive Tape (HF-DS)                                                                                             |

## DIMENSIONS

Table 2 Mechanical Dimension

| DIMENSION | VALUE           |
|-----------|-----------------|
| L (mm)    | 100 $\pm$ 3.00  |
| W (mm)    | 50 $\pm$ 0.30   |
| H (mm)    | 20 $\pm$ 0.30   |
| T (mm)    | 0.55 $\pm$ 0.15 |
| A (mm)    | 2.30 Max        |
| B (mm)    | 1.80 $\pm$ 1.00 |

## OUTLINES

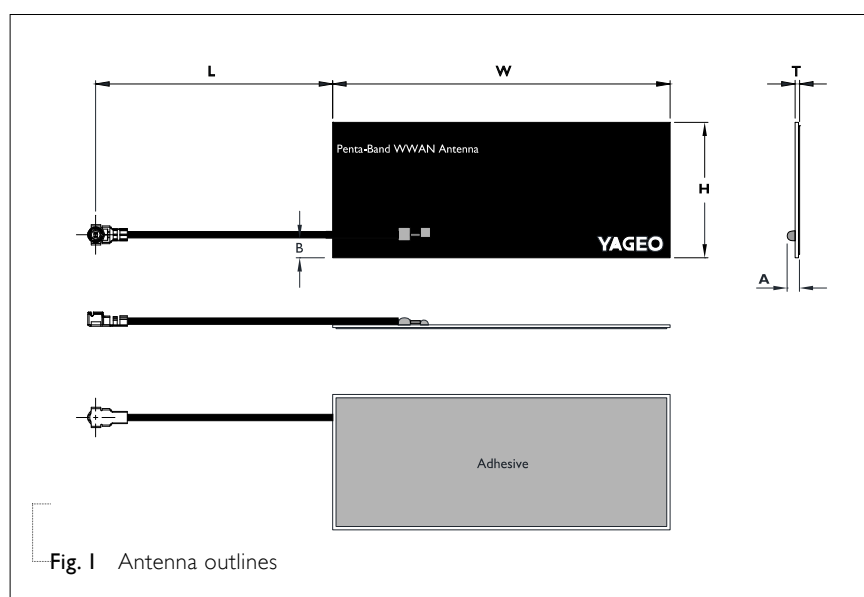
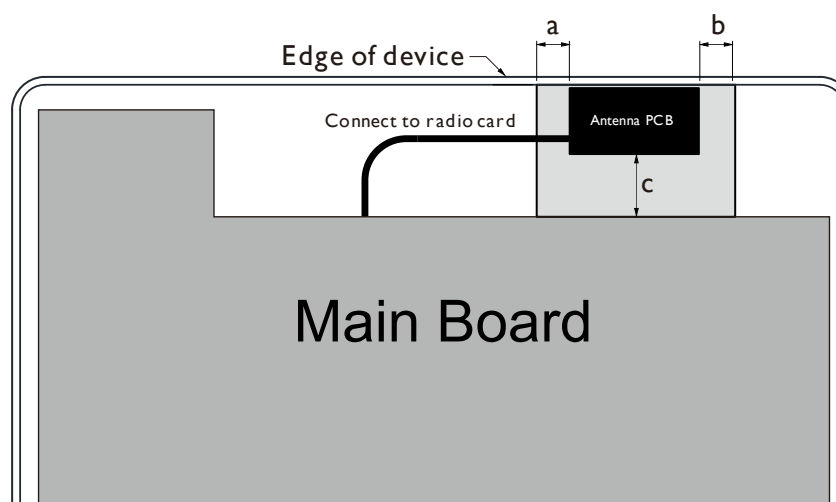
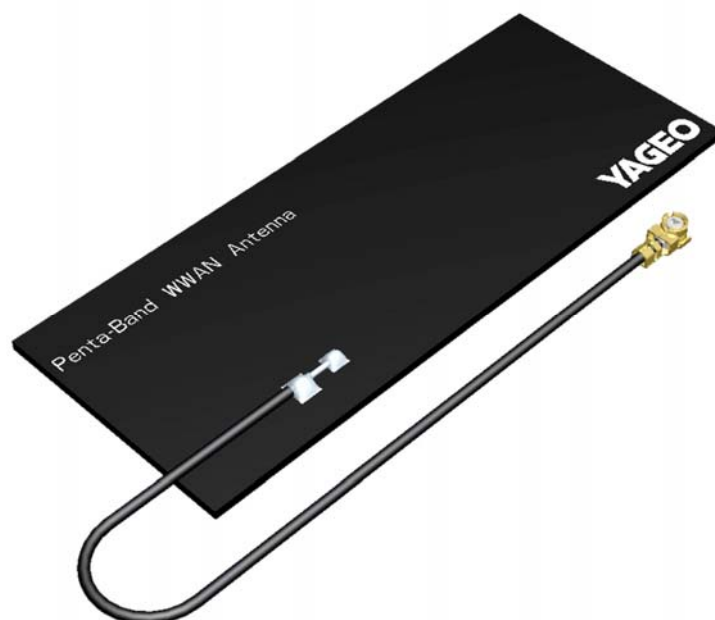


Fig. 1 Antenna outlines

## APPLICATION INSTRUCTION



Antenna element should be placed at the edge of device, has minimum keep-out zone of  
 A: 5 mm Min  
 B: 5 mm Min  
 C: 10 mm Min  
 from metallic object.

**Fig. 2** Application Instruction

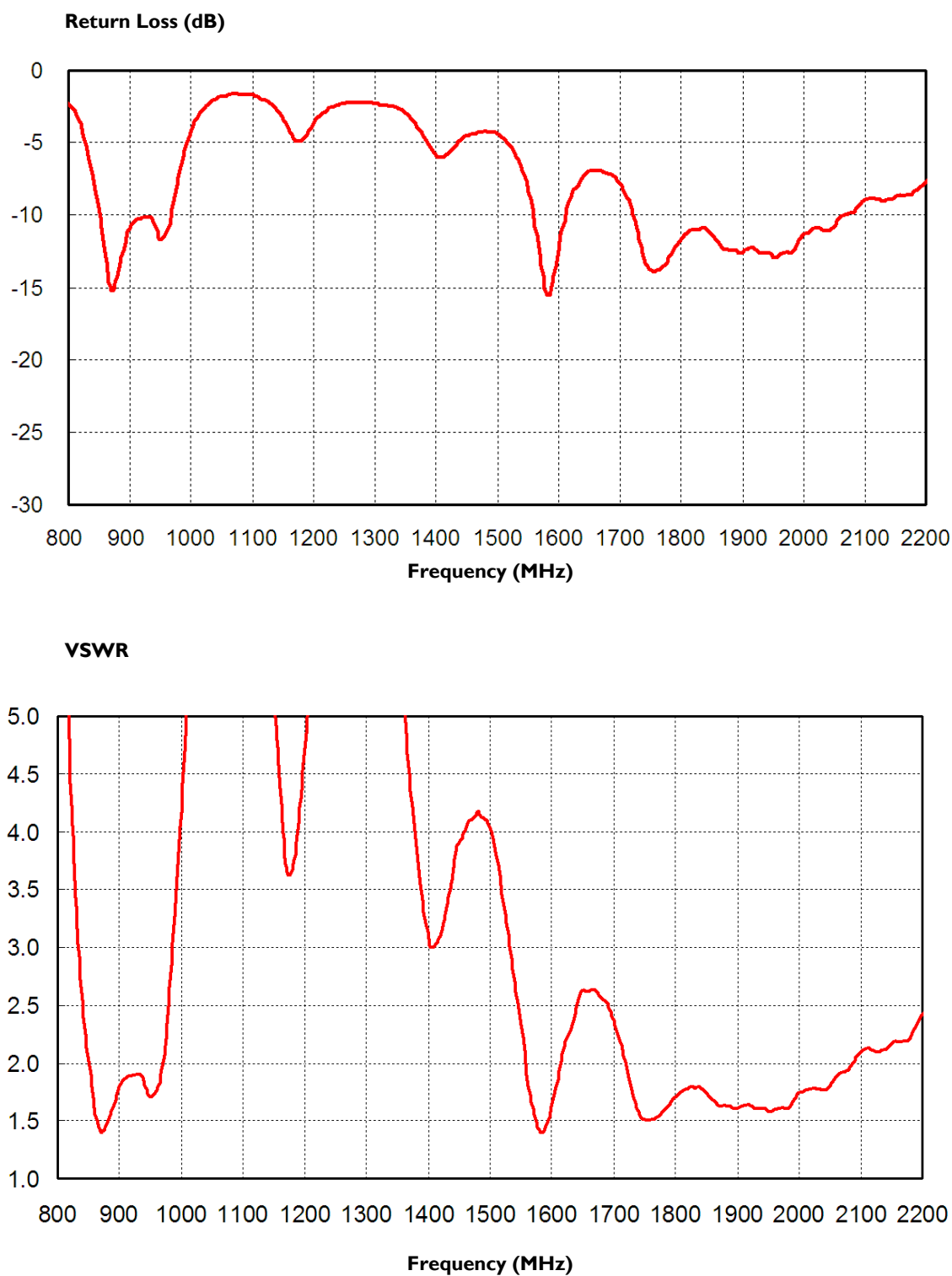
RETURN LOSS & VSWR

Fig. 3 Return loss & VSWR Measurement

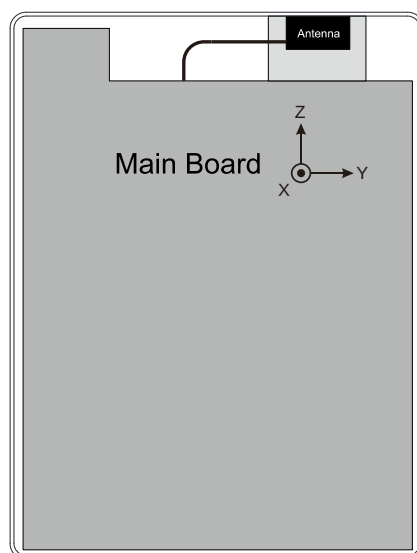
**ANTENNA GAIN & EFFICIENCY**

Table 3

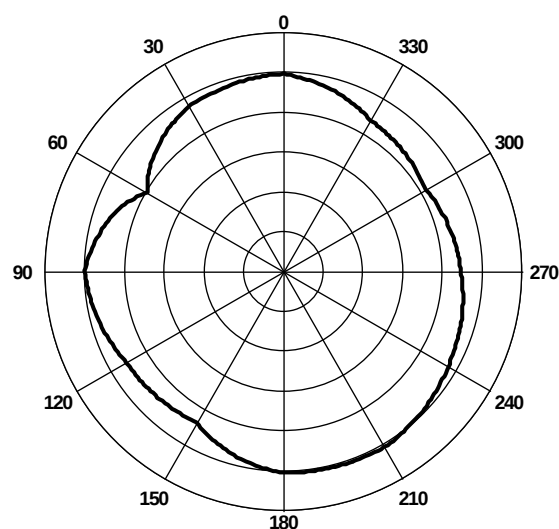
| FREQUENCY (MHz) | AVERAGE GAIN (dBi) | EFFICIENCY (%) | PEAK GAIN (dBi) |
|-----------------|--------------------|----------------|-----------------|
| 850             | -2.2               | 60             | 4.2             |
| 900             | -1.7               | 68             | 5.1             |
| 1800            | -2.6               | 55             | 3.9             |
| 1900            | -1.2               | 76             | 5.0             |
| 2100            | -2.1               | 62             | 4.5             |

**ANTENNA RADIATION PATTERNS**

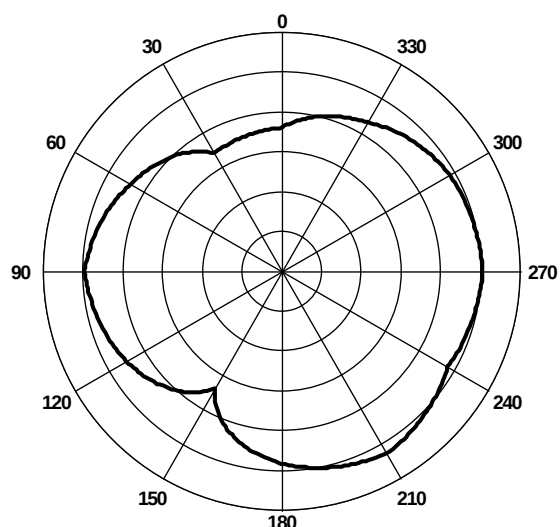
Scale: 5 dBi / div    Max : 5 dBi    Min : -25 dBi



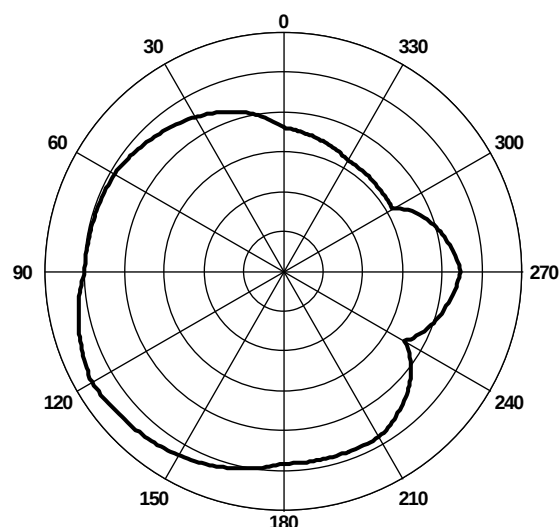
Device Setup &amp; Coordinates



X-Y Plane



X-Z Plane



Y-Z Plane

**Fig. 4** Antenna radiation patterns at 850 MHz

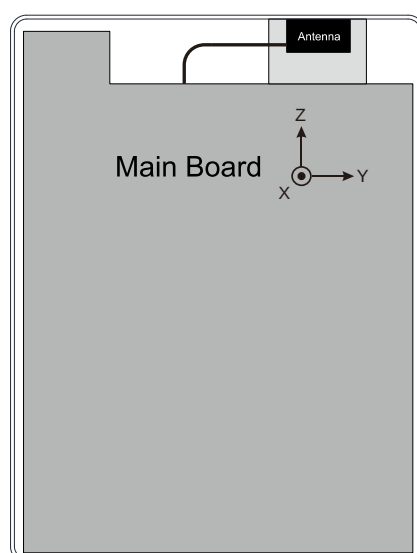
## ANTENNA GAIN & EFFICIENCY

Table 4

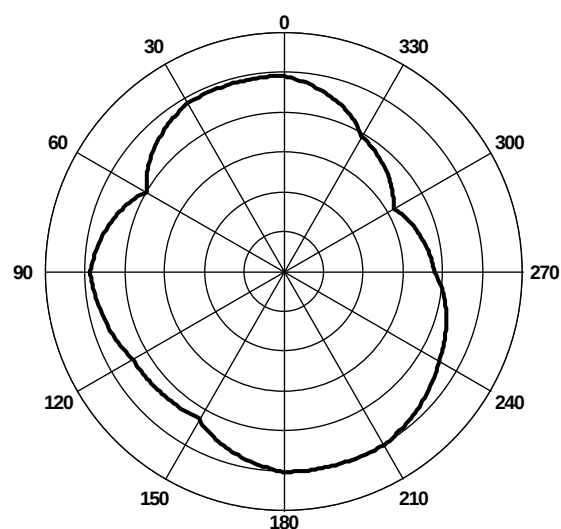
| FREQUENCY (MHz) | AVERAGE GAIN (dBi) | EFFICIENCY (%) | PEAK GAIN (dBi) |
|-----------------|--------------------|----------------|-----------------|
| 850             | -2.2               | 60             | 4.2             |
| 900             | -1.7               | 68             | 5.1             |
| 1800            | -2.6               | 55             | 3.9             |
| 1900            | -1.2               | 76             | 5.0             |
| 2100            | -2.1               | 62             | 4.5             |

## ANTENNA RADIATION PATTERNS

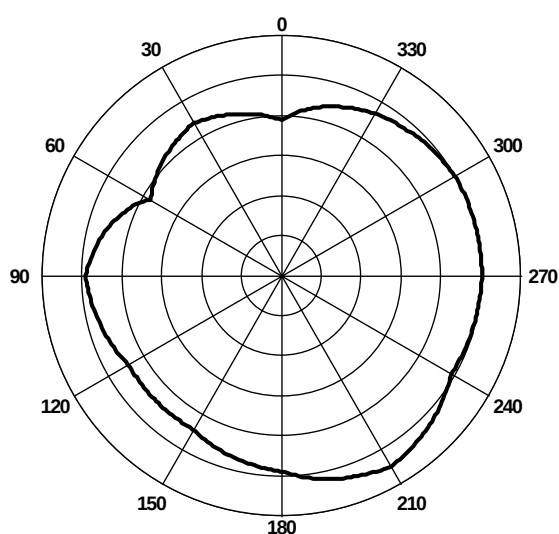
Scale: 5 dBi / div Max : 5 dBi Min : -25 dBi



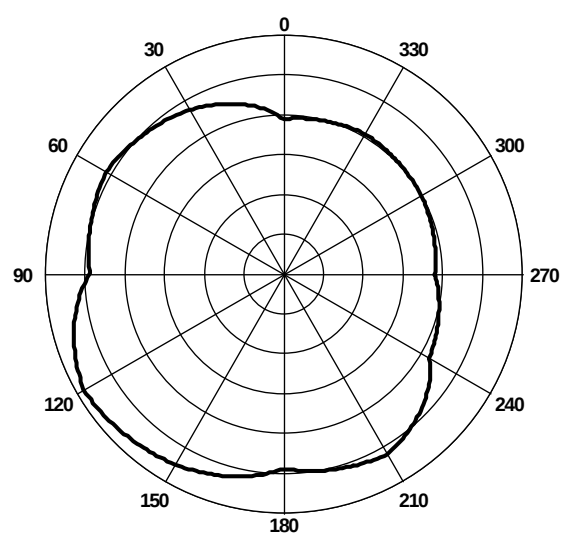
Device Setup &amp; Coordinates



X-Y Plane



X-Z Plane



Y-Z Plane

Fig. 5 Antenna radiation patterns at 900 MHz

# ANTENNA GAIN & EFFICIENCY

Table 4

| FREQUENCY (MHz) | AVERAGE GAIN (dBi) | EFFICIENCY (%) | PEAK GAIN (dBi) |
|-----------------|--------------------|----------------|-----------------|
| 850             | -2.2               | 60             | 4.2             |
| 900             | -1.7               | 68             | 5.1             |
| 1800            | -2.6               | 55             | 3.9             |
| 1900            | -1.2               | 76             | 5.0             |
| 2100            | -2.1               | 62             | 4.5             |

# ANTENNA RADIATION PATTERNS

Scale: 5 dBi / div    Max : 5 dBi    Min : -25 dBi

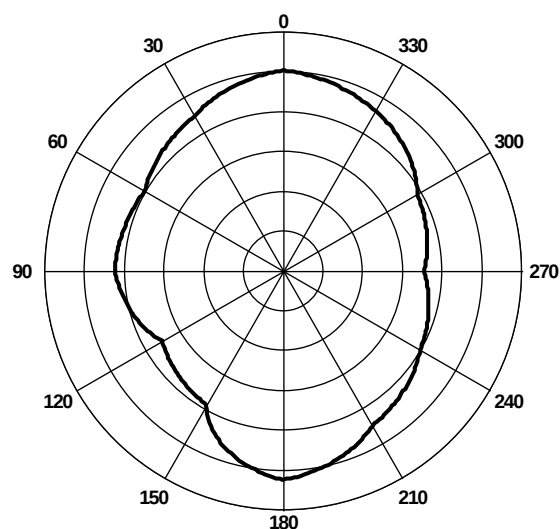
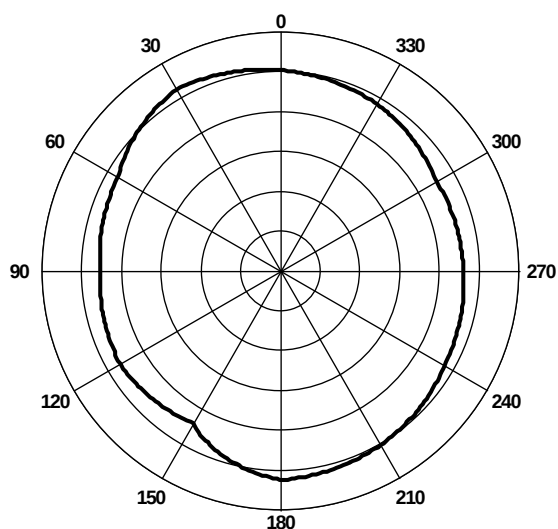
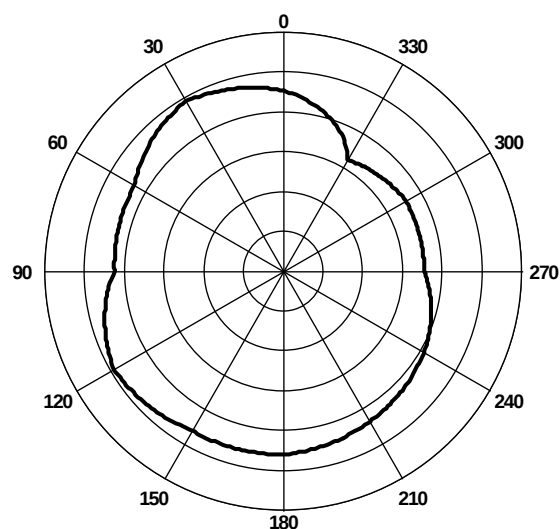
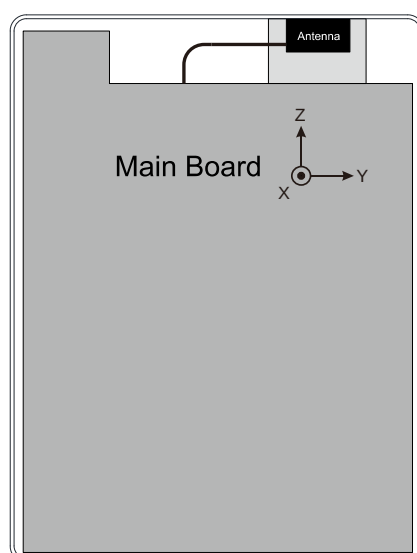


Fig. 5 Antenna radiation patterns at 1800 MHz

**ANTENNA GAIN & EFFICIENCY**

Table 4

| FREQUENCY (MHz) | AVERAGE GAIN (dBi) | EFFICIENCY (%) | PEAK GAIN (dBi) |
|-----------------|--------------------|----------------|-----------------|
| 850             | -2.2               | 60             | 4.2             |
| 900             | -1.7               | 68             | 5.1             |
| 1800            | -2.6               | 55             | 3.9             |
| 1900            | -1.2               | 76             | 5.0             |
| 2100            | -2.1               | 62             | 4.5             |

**ANTENNA RADIATION PATTERNS**

Scale: 5 dBi / div    Max : 5 dBi    Min : -25 dBi

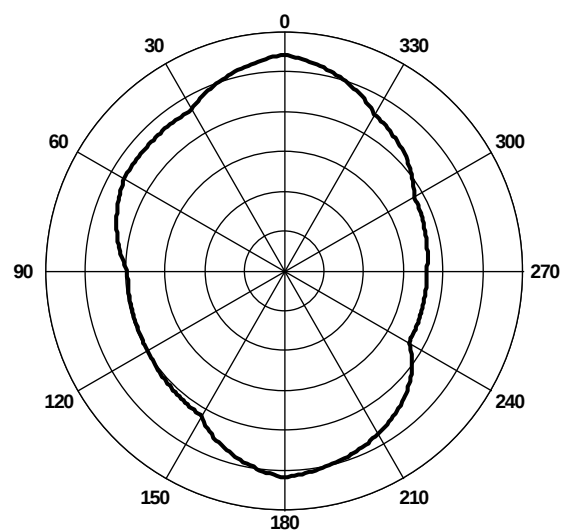
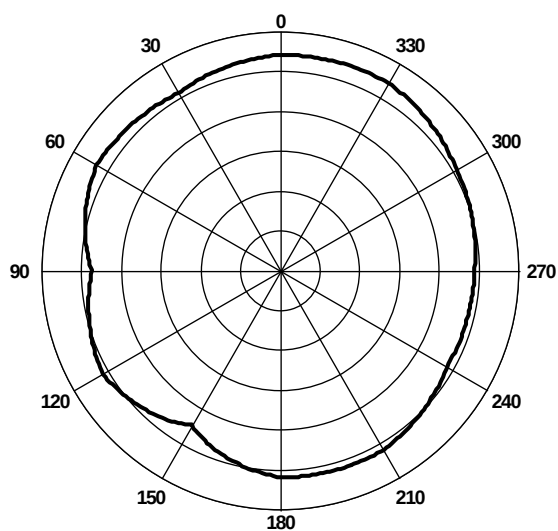
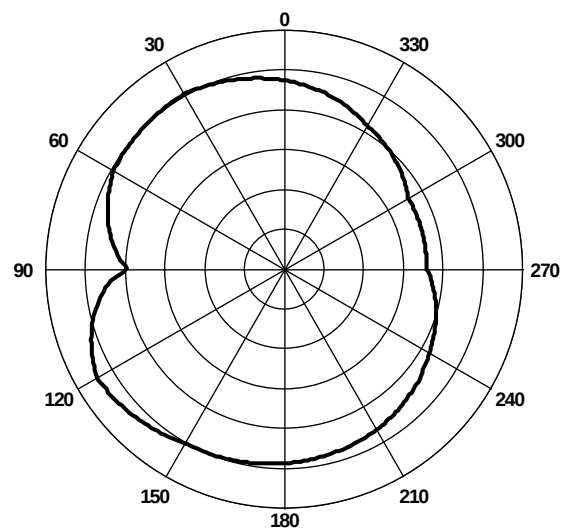
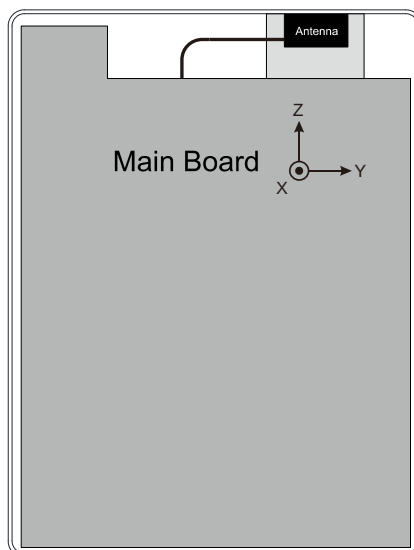


Fig. 5 Antenna radiation patterns at 1900 MHz

**ANTENNA GAIN & EFFICIENCY**

Table 4

| FREQUENCY (MHz) | AVERAGE GAIN (dBi) | EFFICIENCY (%) | PEAK GAIN (dBi) |
|-----------------|--------------------|----------------|-----------------|
| 850             | -2.2               | 60             | 4.2             |
| 900             | -1.7               | 68             | 5.1             |
| 1800            | -2.6               | 55             | 3.9             |
| 1900            | -1.2               | 76             | 5.0             |
| 2100            | -2.1               | 62             | 4.5             |

**ANTENNA RADIATION PATTERNS**

Scale: 5 dBi / div    Max : 5 dBi    Min : -25 dBi

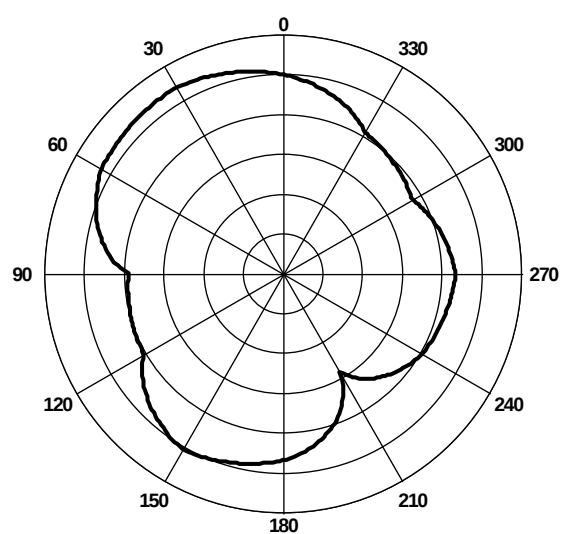
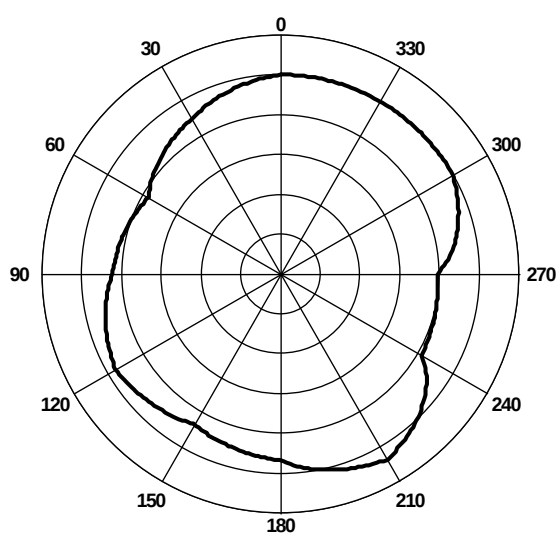
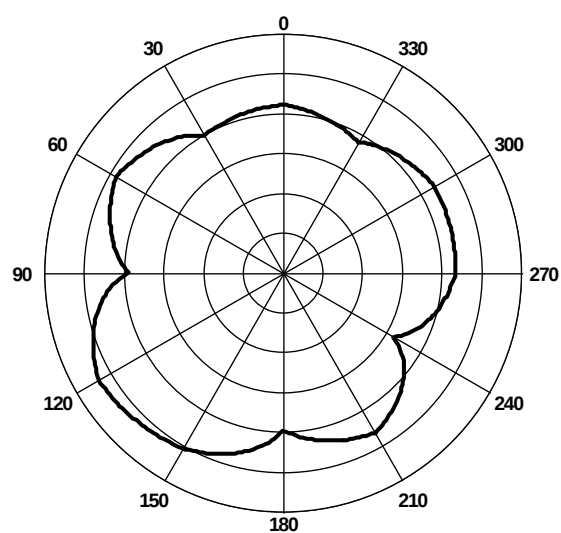
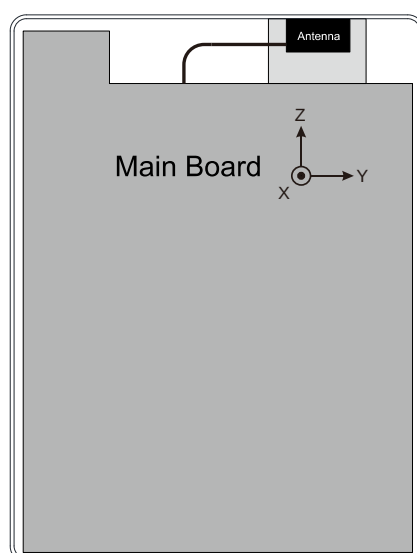


Fig. 5 Antenna radiation patterns at 2100 MHz

# **REVISION HISTORY**

| REVISION  | DATE          | CHANGE NOTIFICATION | DESCRIPTION                                                          |
|-----------|---------------|---------------------|----------------------------------------------------------------------|
| Version 0 | Mar. 01, 2013 | -                   | - New data sheet for PCB type antenna,<br>850/900/1800/1900/2100 MHz |

# Mouser Electronics

Authorized Distributor

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Yageo:

[ANTX100P001BWPEN3](#)