

# **SPECIFICATION**

Main Internal Antenna  
Embedded Dielectric Penta-Band Antenna

Part No. : 2JE03

2J s.r.o.

## **Notes**

**The contents of this data sheet are subject to change without notice. Please confirm the specifications and delivery conditions when placing your order.**

<http://www.2j-antennae.com>

# 1. SPECIFICATIONS

## 1.1. Electrical Specifications

| ITEM                 | GSM850                   | GSM900  | DCS                        | PCS       | UMTS      | Remark    |
|----------------------|--------------------------|---------|----------------------------|-----------|-----------|-----------|
| Frequency [MHz]      | 824~894                  | 880~960 | 1710~1880                  | 1850~1990 | 1920~2170 | Notes :1) |
| Peak Gain [dBi]      | 1.3                      | 2.4     | 6.4                        | 5.9       | 4.8       | Notes :1) |
| Eff.[%] @Min         | 42.4%                    | 57.3%   | 80.7%                      | 84.0%     | 82.1%     | Notes :1) |
| VSWR                 | 3.0 : 1 max              |         |                            |           |           | Notes :1) |
|                      | 3.5:1 Max<br>@725~855MHz |         | 3.0:1 Max<br>@1510~2070MHz |           |           | Notes :2) |
| Polarization         | Linear                   |         |                            |           |           | Notes :1) |
| Azimuth Beam Pattern | Omni-directional         |         |                            |           |           | Notes :1) |
| Impedance            | 50 Ω                     |         |                            |           |           | Notes :1) |

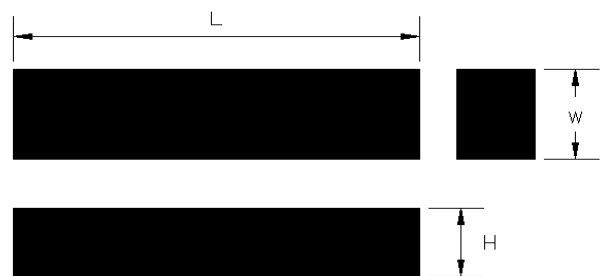
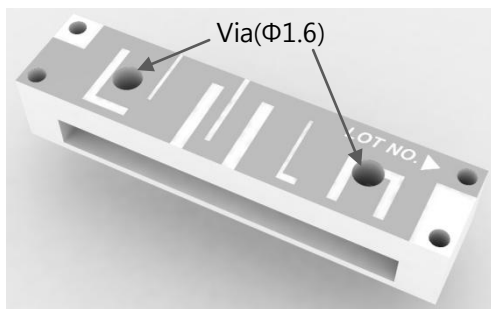
※Notes:1) Measured on the matched EV test board.

Notes:2) Measured on the matched manual.

## 1.2. Mechanical Specifications

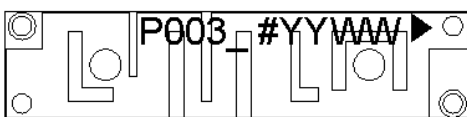
|                        |                  |    |
|------------------------|------------------|----|
| Electrode              | Silver           | -  |
| Dimensions (L x W x H) | 24.0 x 5.5 x 4.4 | mm |
| Operating Temperature  | -35 ~ +85        | °C |

## 1.3. Appearance and Dimensions



Unit : mm  
Tolerance : ±0.15

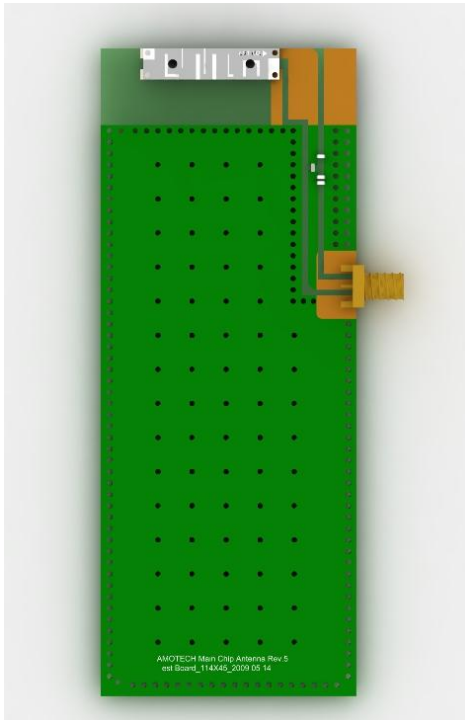
## 1.4 Marking



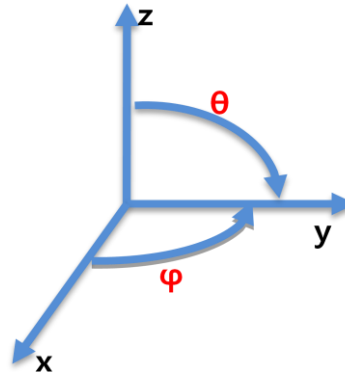
- P003** : Model No.
- YY** : Year ( ex: 2010 → 10 )
- WW** : Week ( ex: 1<sup>st</sup> week→01, 7<sup>th</sup> week→07 )
- ▶** : Feeding point

## 2. MEASUREMENT

### 2.1. SET for Measurement



Board size: 114x45mm

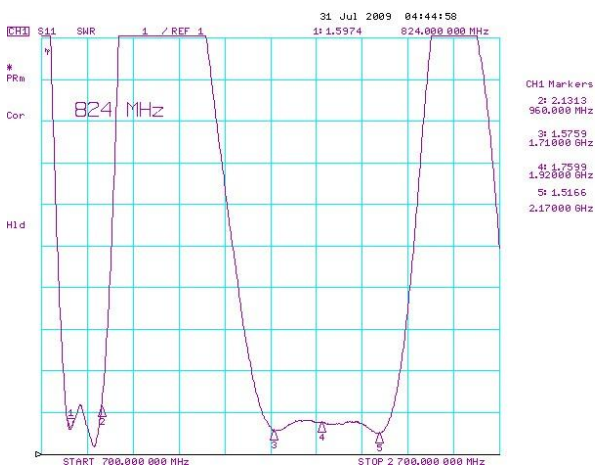


Antenna Radiation coordinate system

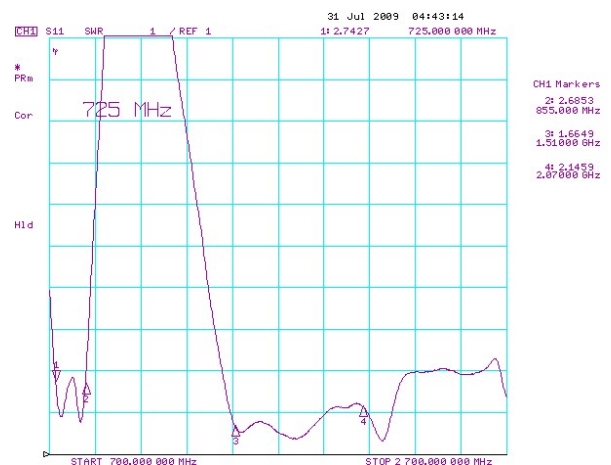
### 2.2. Electrical Characteristic

#### ◆ $S_{11}$ (VSWR)

#### Penta Band (GSM850&900, DCS, PCS, UMTS)



- VSWR @ EV Board -



- VSWR @ Manual Jig -

### 2.3. Radiation Characteristic

- Measurement Setup

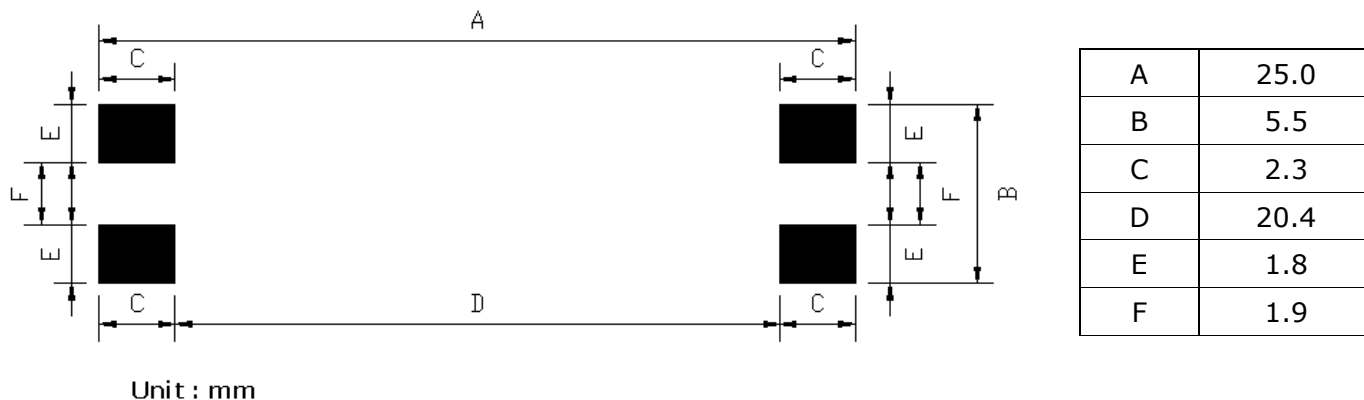
- 6mx3mx3m Anechoic Chamber
- Matching on the standard test board (114 x 45mm)
- Temp. : 25°C / Humidity : 50~55%

- Measurement Result

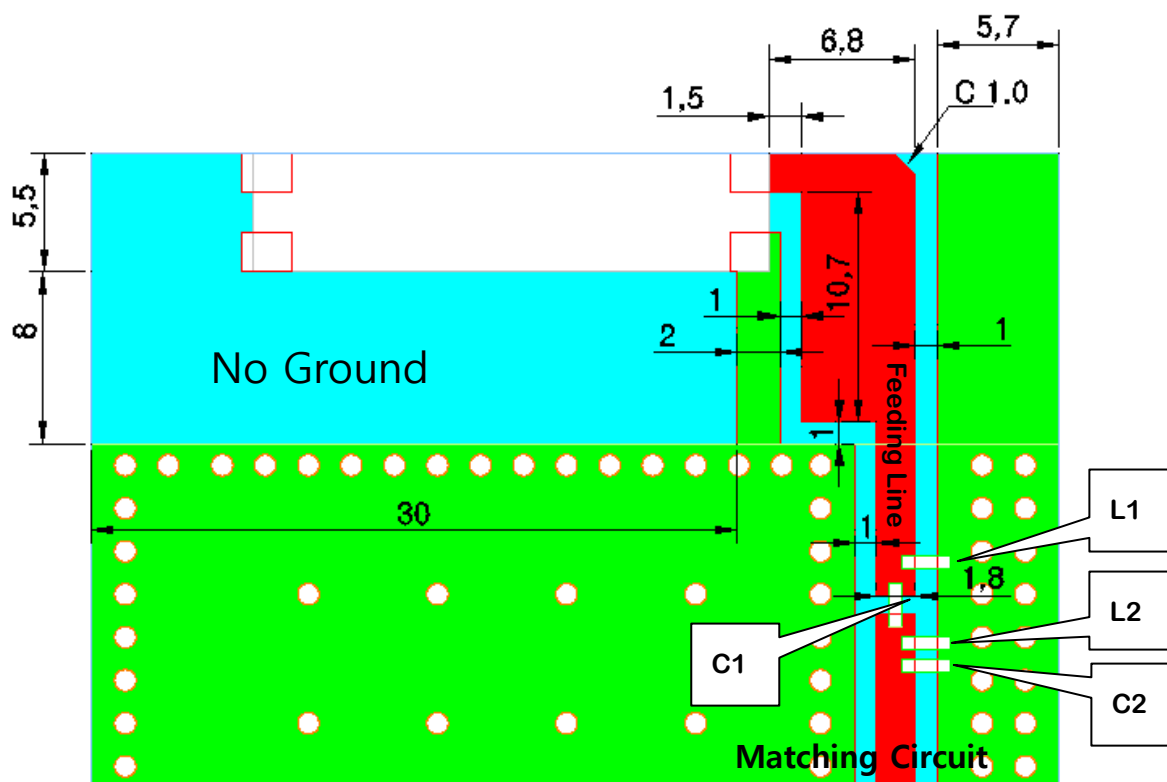
| Band   | Frequency MHz] | Ave. gain (dBi) | Peak. Gain (dBi) | Eff.(%) |
|--------|----------------|-----------------|------------------|---------|
| GSM850 | 824            | -3.7            | -0.3             | 42.4    |
|        | 849            | -3.6            | -0.2             | 43.8    |
|        | 869            | -3.3            | 0.4              | 47.1    |
|        | 894            | -2.5            | 1.3              | 56.1    |
| GSM900 | 880            | -2.4            | 1.5              | 57.3    |
|        | 915            | -1.9            | 2.2              | 64.6    |
|        | 925            | -1.8            | 2.4              | 65.8    |
|        | 960            | -2.3            | 1.8              | 58.2    |
| DCS    | 1710           | -0.4            | 6.4              | 90.9    |
|        | 1785           | -0.9            | 5.8              | 80.7    |
|        | 1805           | -0.6            | 6.1              | 86.2    |
|        | 1880           | -1.1            | 5.4              | 76.8    |
| PCS    | 1850           | -0.8            | 5.6              | 84.0    |
|        | 1910           | -0.5            | 5.9              | 89.8    |
|        | 1930           | -0.5            | 5.8              | 88.6    |
|        | 1990           | -0.6            | 5.5              | 86.7    |
| UMTS   | 1920           | -0.7            | 4.8              | 84.9    |
|        | 1980           | -0.9            | 4.5              | 82.1    |
|        | 2110           | -0.5            | 4.6              | 89.5    |
|        | 2170           | -0.2            | 4.5              | 95.4    |

### 3. SOLDERING RECOMMENDATIONS

#### 3.1. Soldering Land Pattern



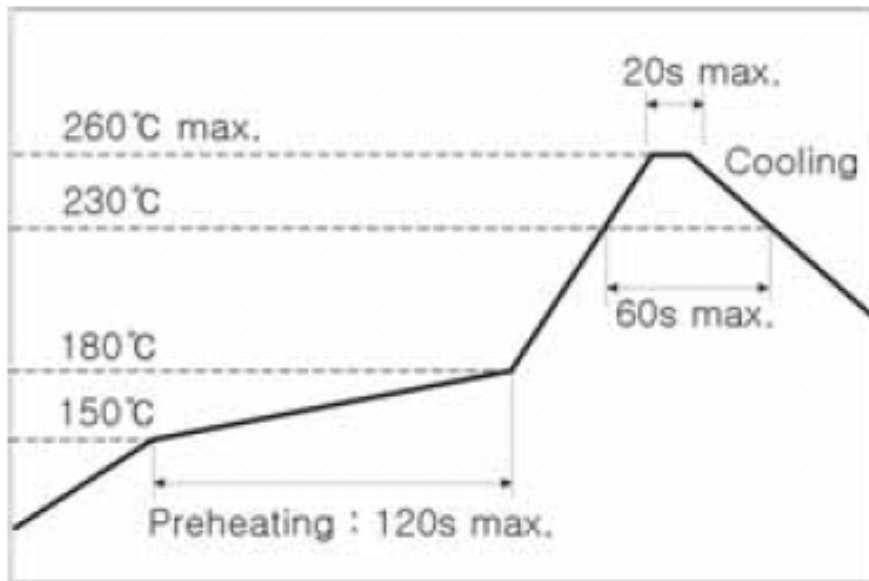
#### 3.2. Free Space Size



|             |       |
|-------------|-------|
| C1 (Series) | 3.6pF |
| C2 (Shunt)  | 1.8pF |
| L1 (Shunt)  | 3.9nH |
| L2 (Shunt)  | 2.7nH |

### 3.2. Soldering Profile

Solder paste : Sn/Ag/Cu:96.5/3.0/0.5



This product is designed for reflow soldering only. Do not use flow (wave) soldering.

- ① Use non-activated flux (Cl content 0.2% max.)
- ② Follow the recommended soldering conditions to avoid damage.
- ③ Reflow-cycle is max. 3 times.

# 4. ATTACHMENT

