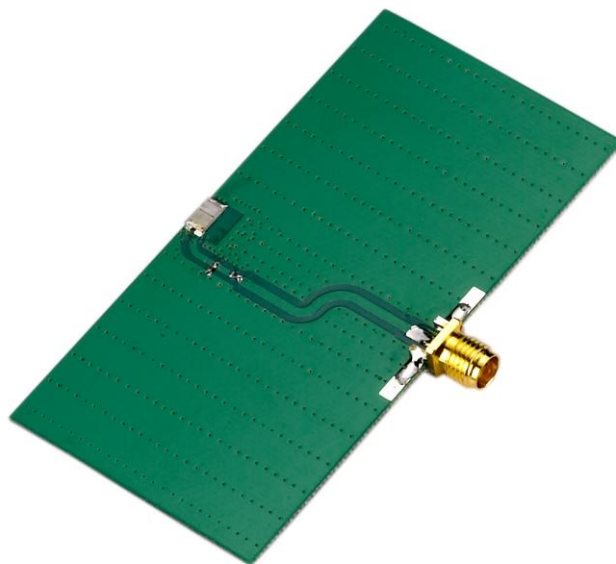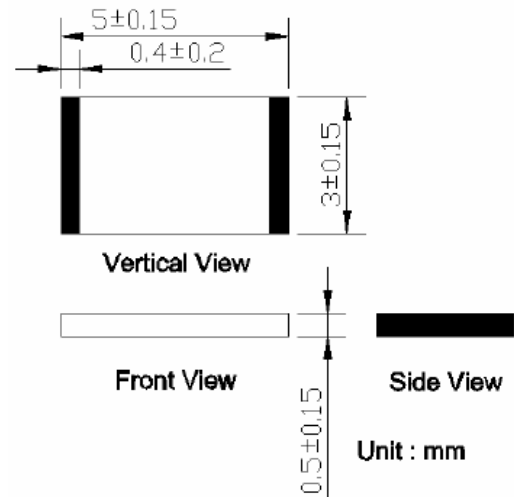# APPLICATION NOTE

FOR

GLA.01 ANTENNA INTEGRATION

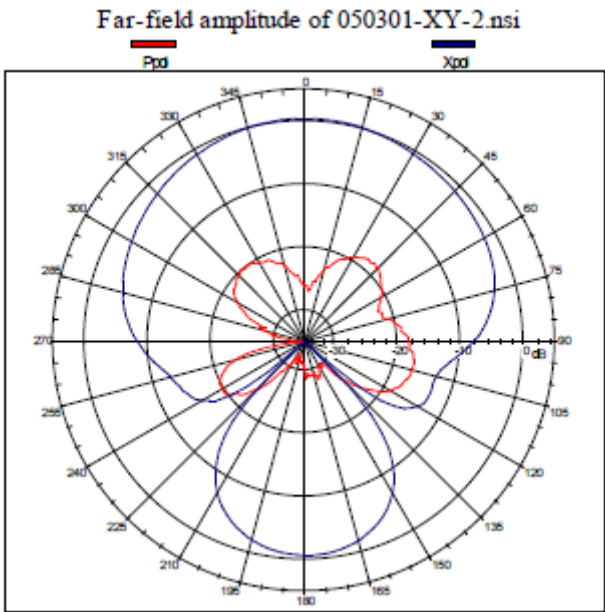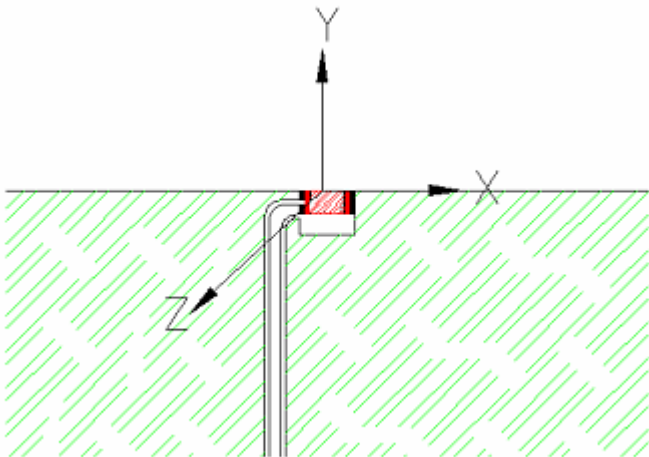# 1. BASICS

Characteristics

- Slim and Small (5.0*3.0*0.5mm)
- Wider Frequency
- High efficiency (80%)
- Omni-Directional
- Fully conform to (SMT) Process
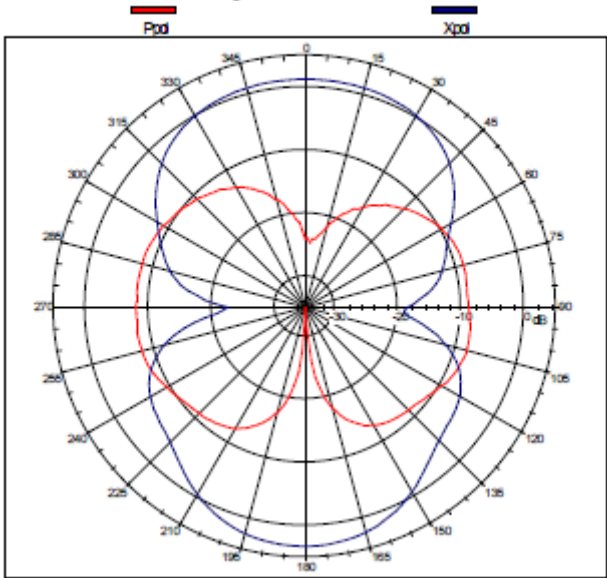- RoHS Appliance

2. APPLICATIONS

- Solution for small device that requires a very high receiving frequency such as
- PND
- Smart Phone, mobile phone
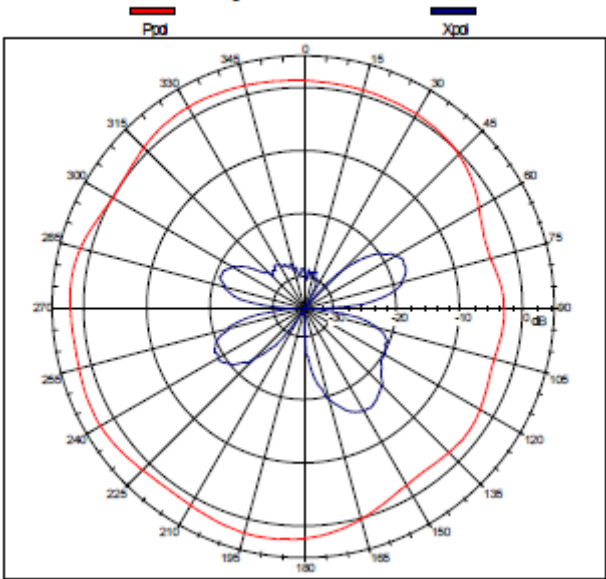- Tracking Device

3. RADIATION PATTERNS
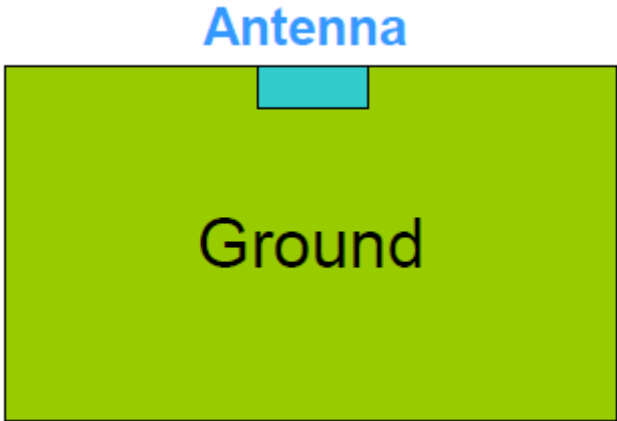

Far-field amplitude of 050301-XY-2.nsi

XY Plane

Far-field amplitude of 050301-XZ-2.nsi

XZ Plane

Far-field amplitude of 050301-YZ-2.nsi
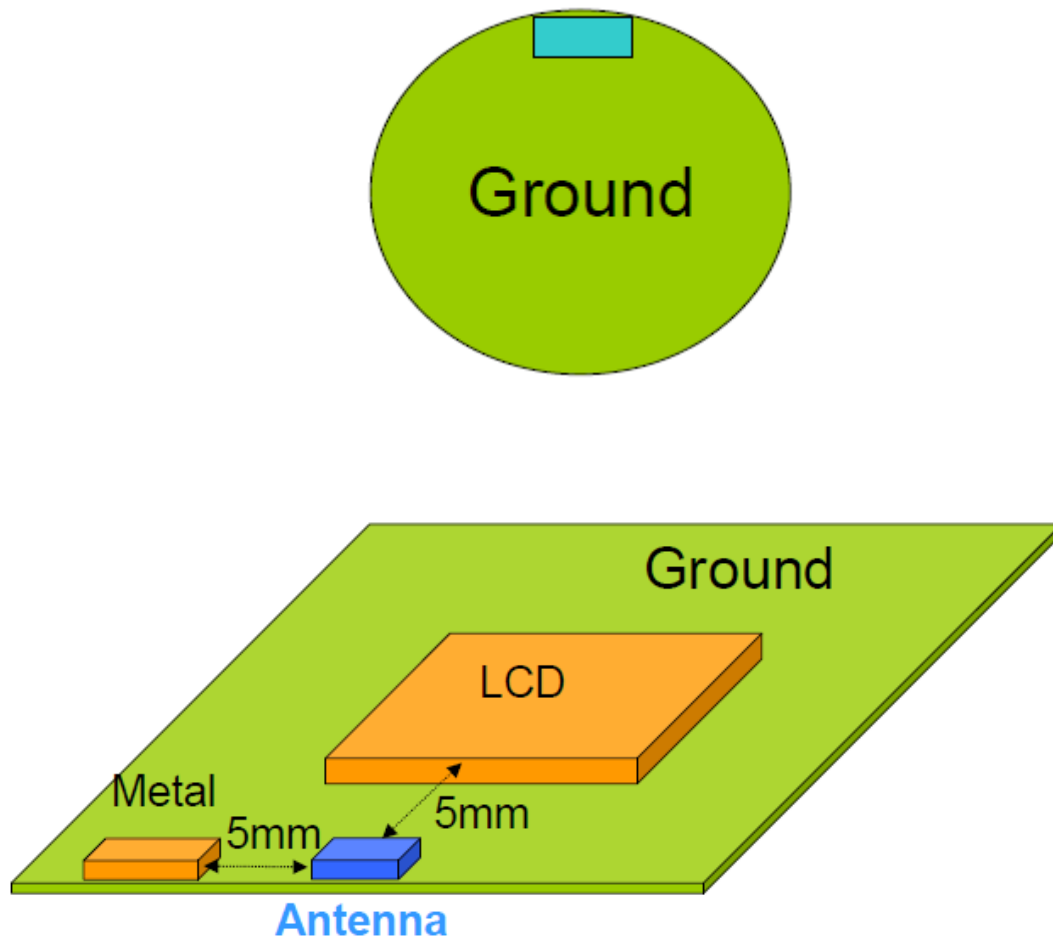
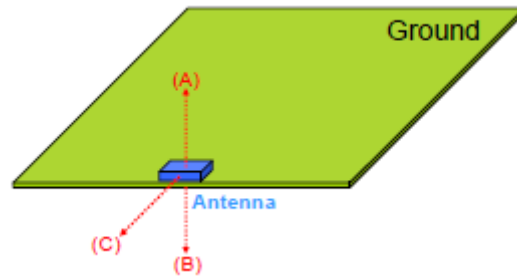**YZ Plane**

4. ANTENNA POSITION

4.1 PND

4.2 Smart Phone

4.3 Multi-Function Watch

- Antenna should be put just right at the edge of PCB, It will be much better to put antenna at the centre of PCB
- Keep ground area around antenna as symmetrical as possible
- It needs at least 5 mm clearance between LCD panel/shielding and antenna
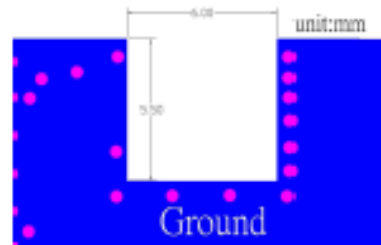- It is better to have at least 50mm x 10mm PCB size

• Antenna has no orientation; it will show just the same performance when turned from left to right or top to bottom
• NO metal components are allowed in the (A), (B) and (C) direction as illustrated above
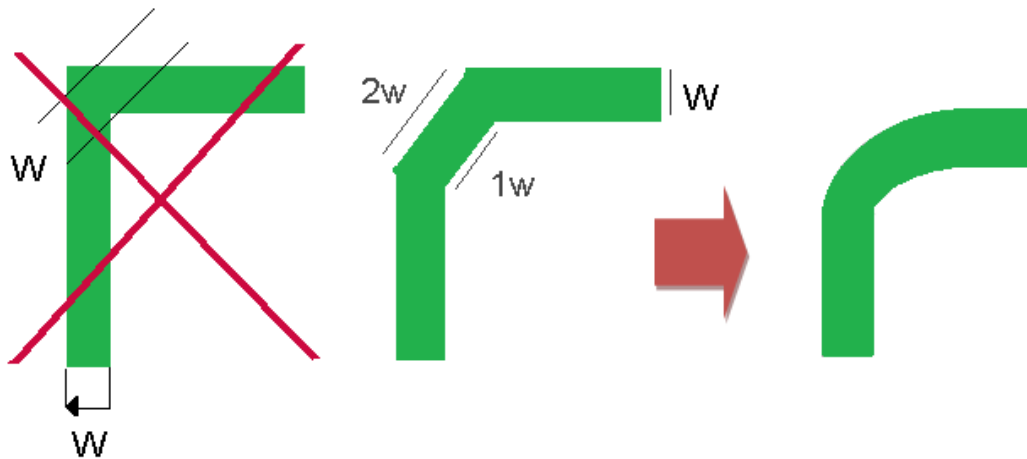
5. LAYOUT GUIDE
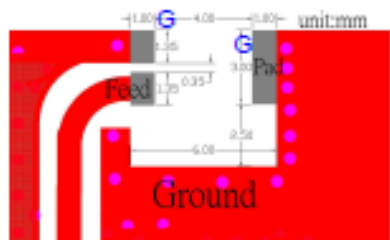
Top Layer

Bottom Layer

- Both top and bottom layers need a clearance area
- It needs at least 2.5mm clearance under antenna
- Via should be as close to the clearance area as possible, It performs better, has a   grounding effect
- Both Position G need to connect to ground directly
-   Put a π matching circuit after feeding line and as close as possible. Component 1 and 3 need to connect to ground directly.
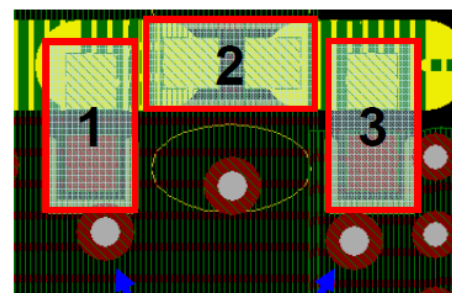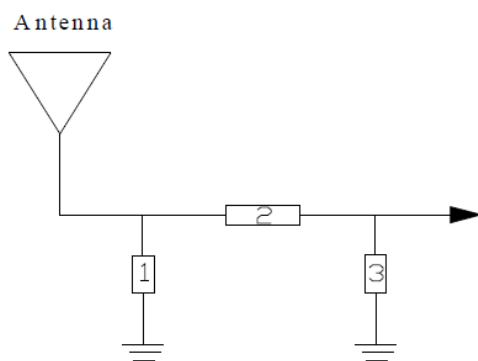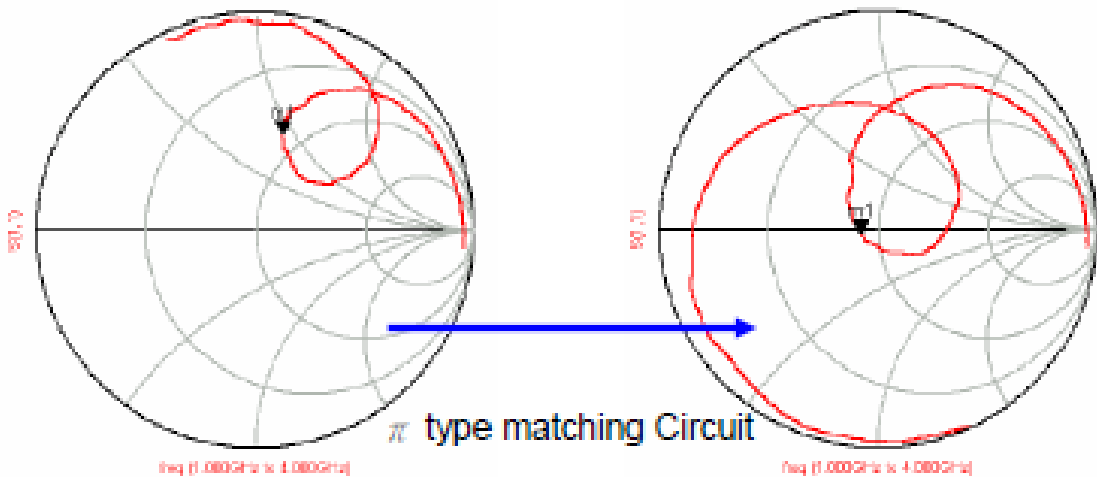

Grounding directly

• Impedance of feeding line should be 50 Ω

• If feeding line needs to make a turn, it needs to avoid turning at a 90 degree angle, It should turn at 45 degree angle or turn at arc as below
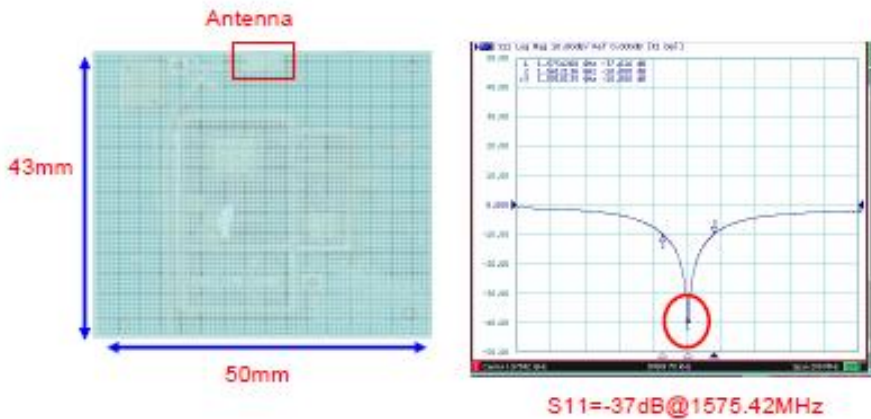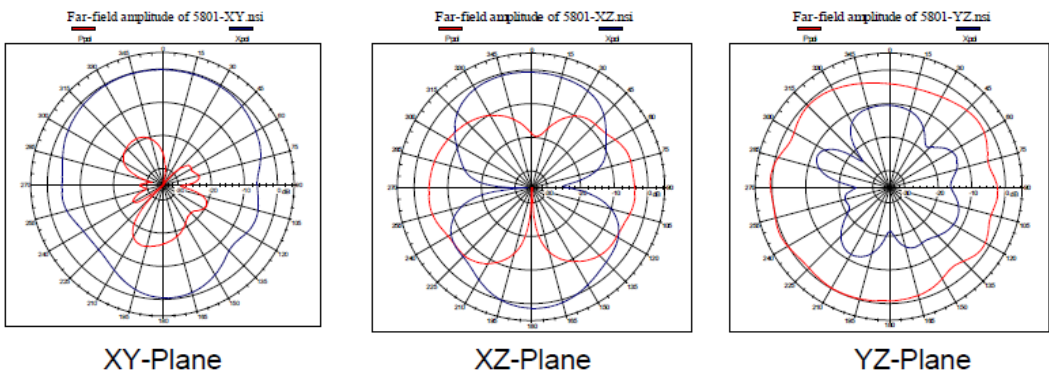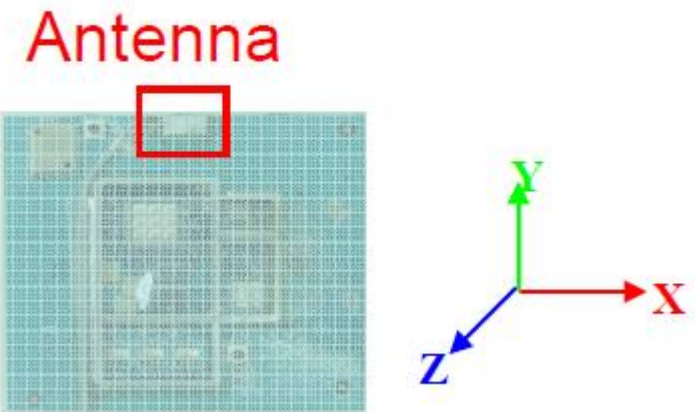
6. MATCHING

π type matching Circuit

7. REAL CASE

7.1 Return Loss

S11=-37dB@1575.42MHz

7.2 Radiation Pattern

Antenna

Far-field amplitude of 5801-XY.nsi	Far-field amplitude of 5801-XZ.nsi	Far-field amplitude of 5801-YZ.nsi
XY-Plane	XZ-Plane	YZ-Plane

Plane	XY	XZ	YZ
Peak Gain	-0.06	0.92	0.59
Average Gain	-3.22	-2.36	-1.83

(Unit:dBi)