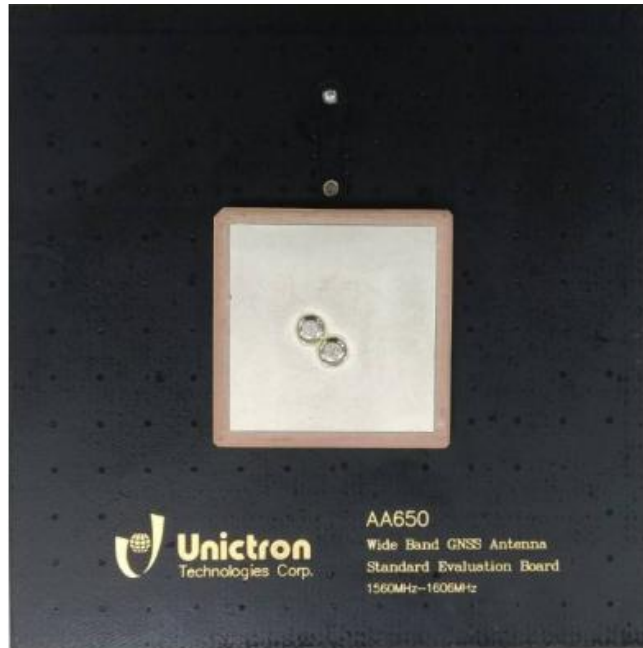


# 25.0 x 25.0 x 4.0 (mm) GPS & GLONASS & BDS Dual Pin Patch Antenna

## Engineering Specification (EVB+AA650)

### 1. Product Number

H 2 B 1 A F 1 A 2 N 0 1 0 0



### 2. Features

- \*Stable and reliable in performances
- \*Low temperature coefficient of frequency
- \*RoHS2.0 compliance

### 3. Applications

- \*Navigation systems or position tracking systems

### 4. Description

Unictron's patch antenna series are ceramic antennas specially designed for all of GPS、GLONASS and BDS applications. This ceramic dual pin patch antenna has excellent stability and sensitivity through the use of high performance ceramic materials and processes.



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Designed by : **George**

Checked by : **Mike**

Approved by : **Herbert**

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## 5. Electrical Specifications ( @ 70 x 70 mm<sup>2</sup> ground plane )

### 5-1. GPS Band

Characteristics		Specification	Unit
Outline Dimensions		25.0 × 25.0 × 4.0	mm
Ground Plane		70 × 70	mm
Working Frequency		1575.42	MHz
VSWR		2 Max. (typical)	
Axial Ratio		2 Max. (typical)	dB
Impedance		50	Ω
Polarization		RHCP	
Gain	@Zenith	4.2 (typical)**	dBic
	@10° Elevation	-2.3 (typical)**	
Temperature Coefficient of Frequency		0±20 Max. (@-40°C ~85°C)	ppm/°C
Electrode Plating Adhesion		>4	kg

\*\*A Typical value is for reference only, not guaranteed.

### 5-2. GLONASS Band

Characteristics		Specification	Unit
Working Frequency		1598~1606	MHz
VSWR		2 Max. (typical)	
Axial Ratio		2 Max. (typical)	dB
Impedance		50	Ω
Polarization		RHCP	
Gain @ 1602 MHz	@Zenith	1.6 (typical)**	dBic
	@10° Elevation	-5.0 (typical)**	

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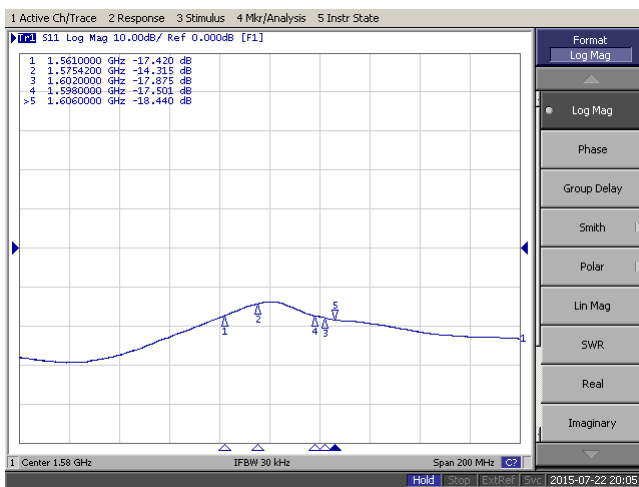
### 5-3. BDS Band

Characteristics		Specification	Unit
Working Frequency		1561	MHz
VSWR		2 Max. (typical)	
Axial Ratio		2 Max. (typical)	dB
Impedance		50	$\Omega$
Polarization		RHCP	
Gain	@Zenith	1.9 (typical)**	dBic
	@10° Elevation	-4.4 (typical)**	

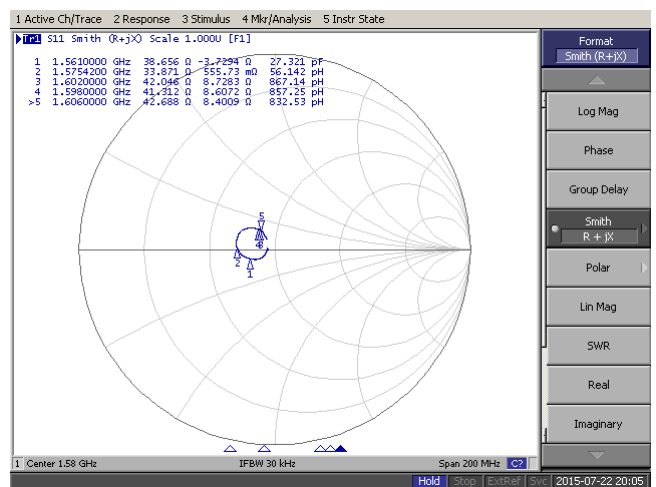
\*\*A Typical value is for reference only, not guaranteed.

### 5-4. Return Loss & Smith Chart

Return Loss



Smith Chart



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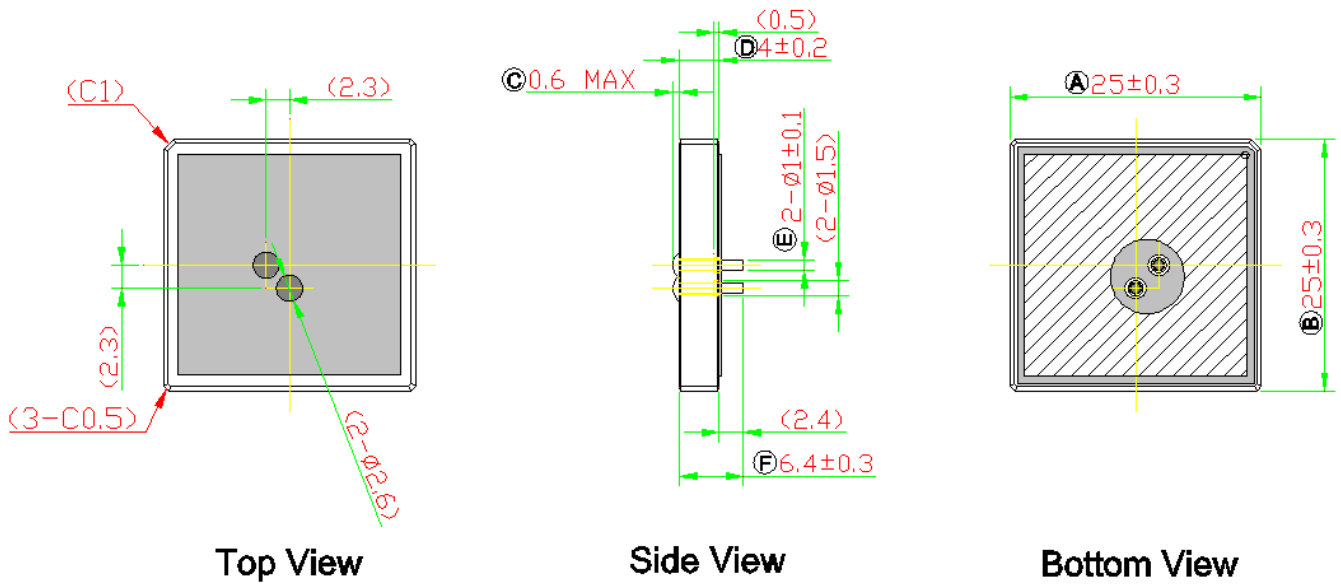
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## 6. Antenna Dimensions (unit: mm)



**NOTE:**

1. All materials are RoHS 2.0 compliant.
2. "A~F" Critical Dimensions.
3. "( )" Reference Dimensions.



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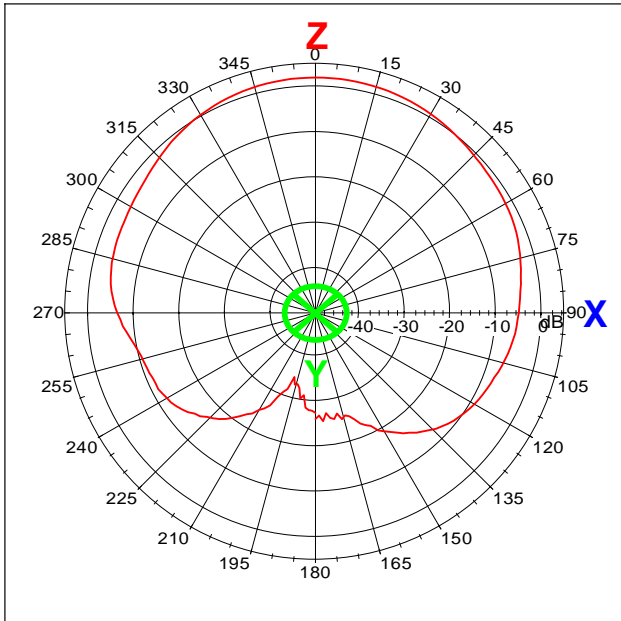
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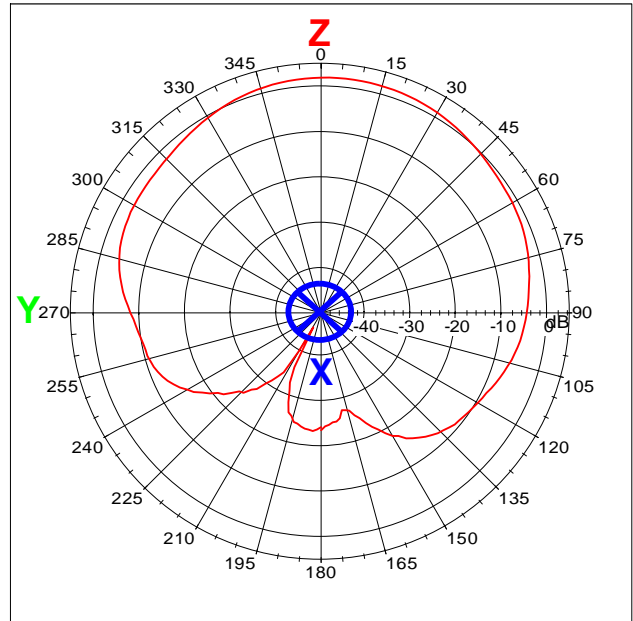
**A**

## 7. Radiation Pattern ( @ 70 x 70 mm<sup>2</sup> ground plane )

### 7-1. Gain Pattern @ 1561 MHz

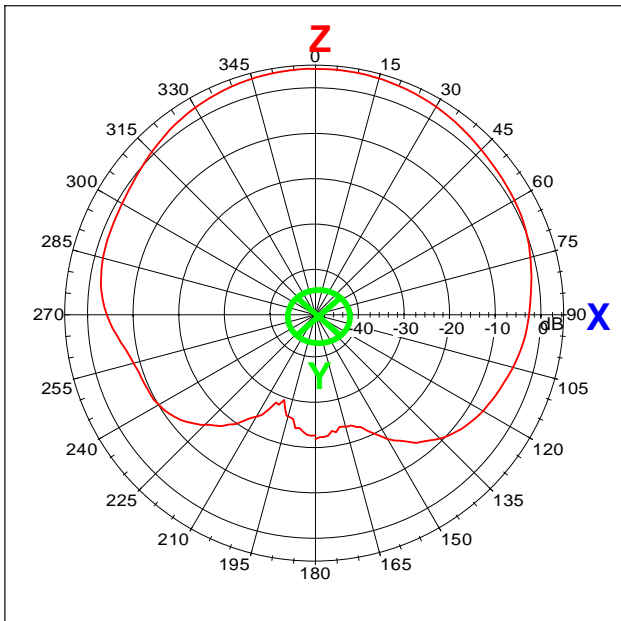


XZ-Plane

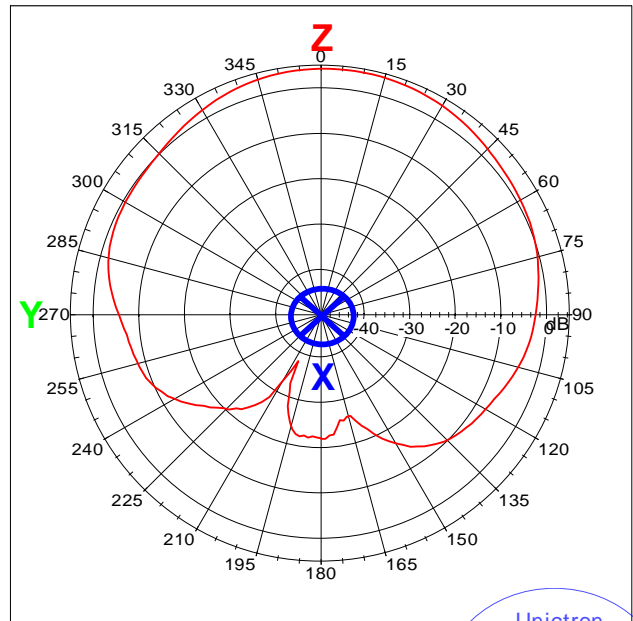


YZ-Plane

### 7-2. Gain Pattern @ 1575.42 MHz



XZ-Plane



YZ-Plane

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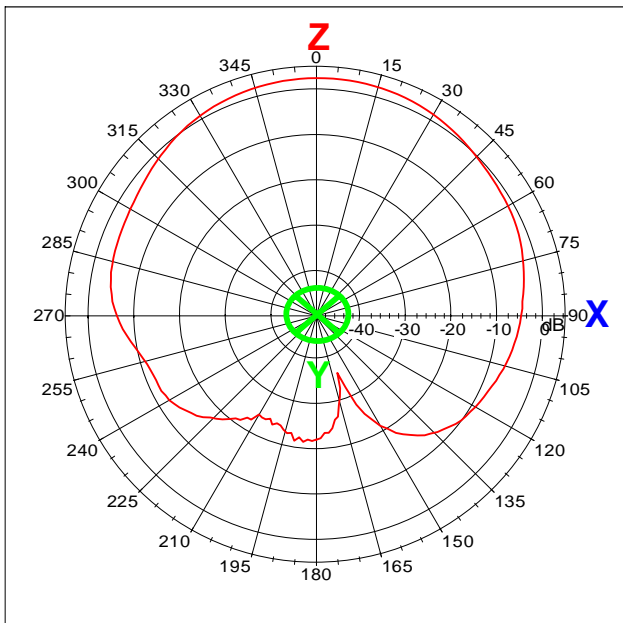
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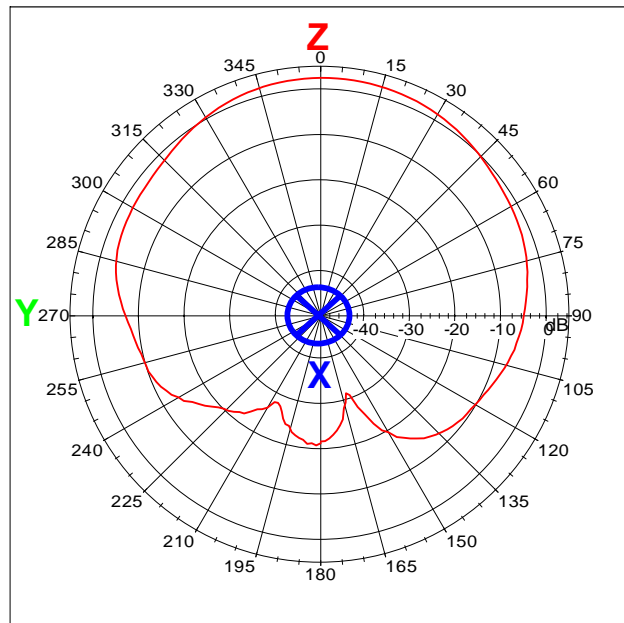
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### 7-3. Gain Pattern @ 1598 MHz

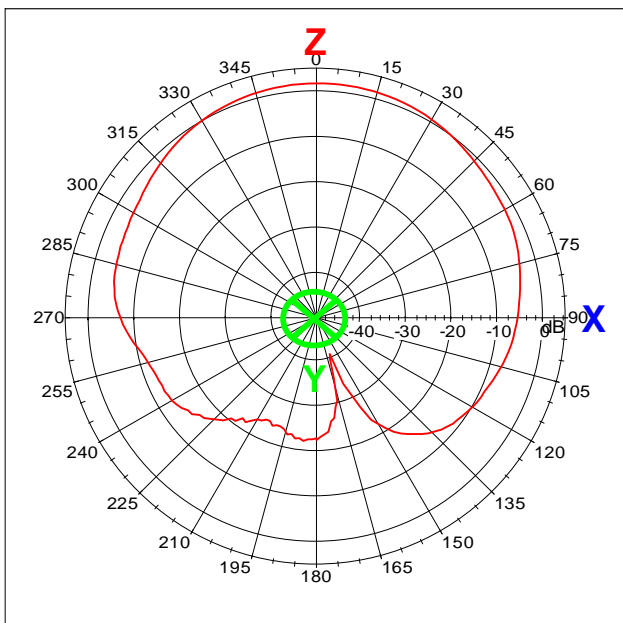


XZ-Plane

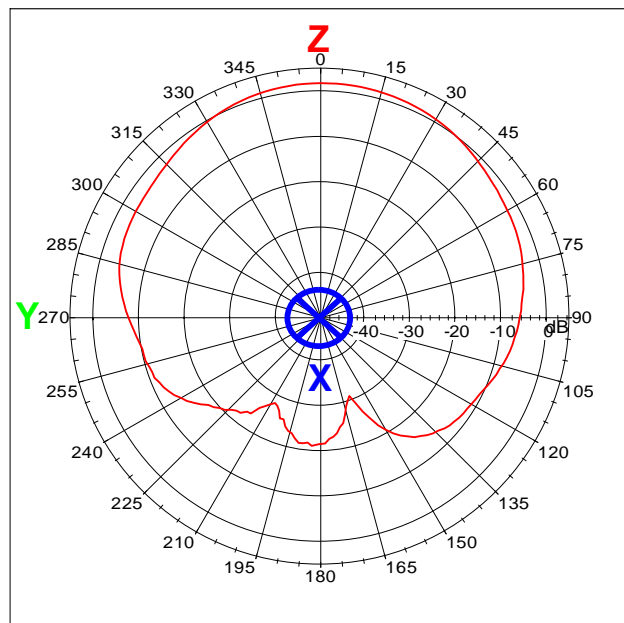


YZ-Plane

### 7-4. Gain Pattern @ 1602 MHz



XZ-Plane



YZ-Plane

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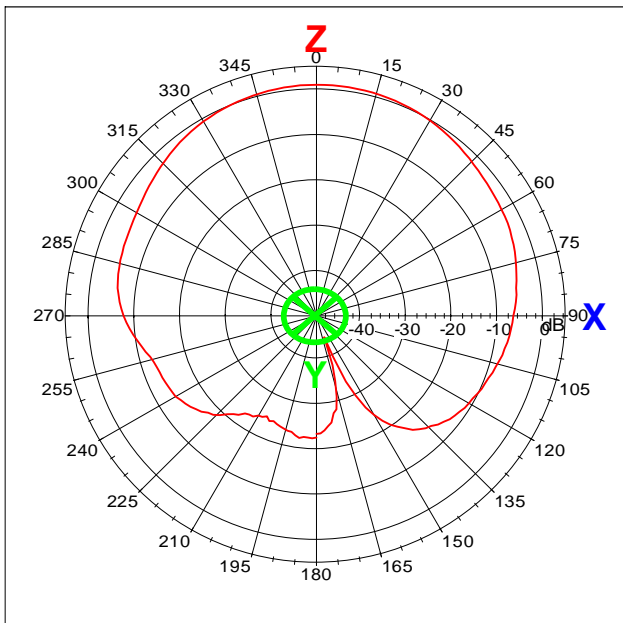
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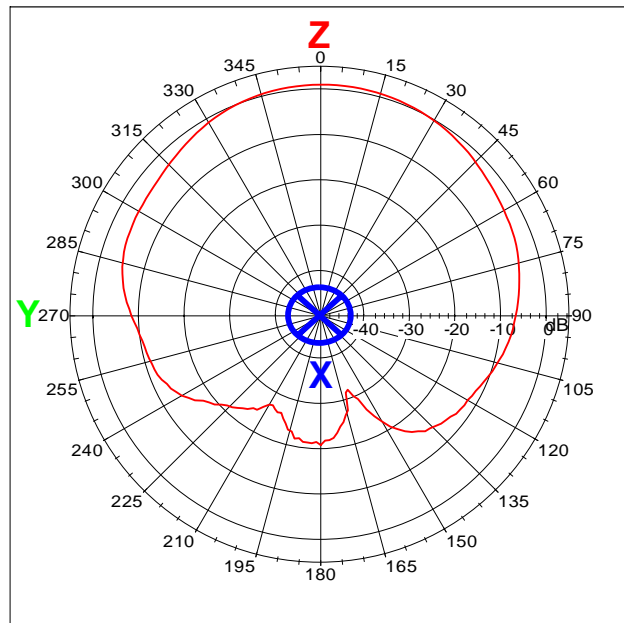
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### 7-5. Gain Pattern @ 1606 MHz

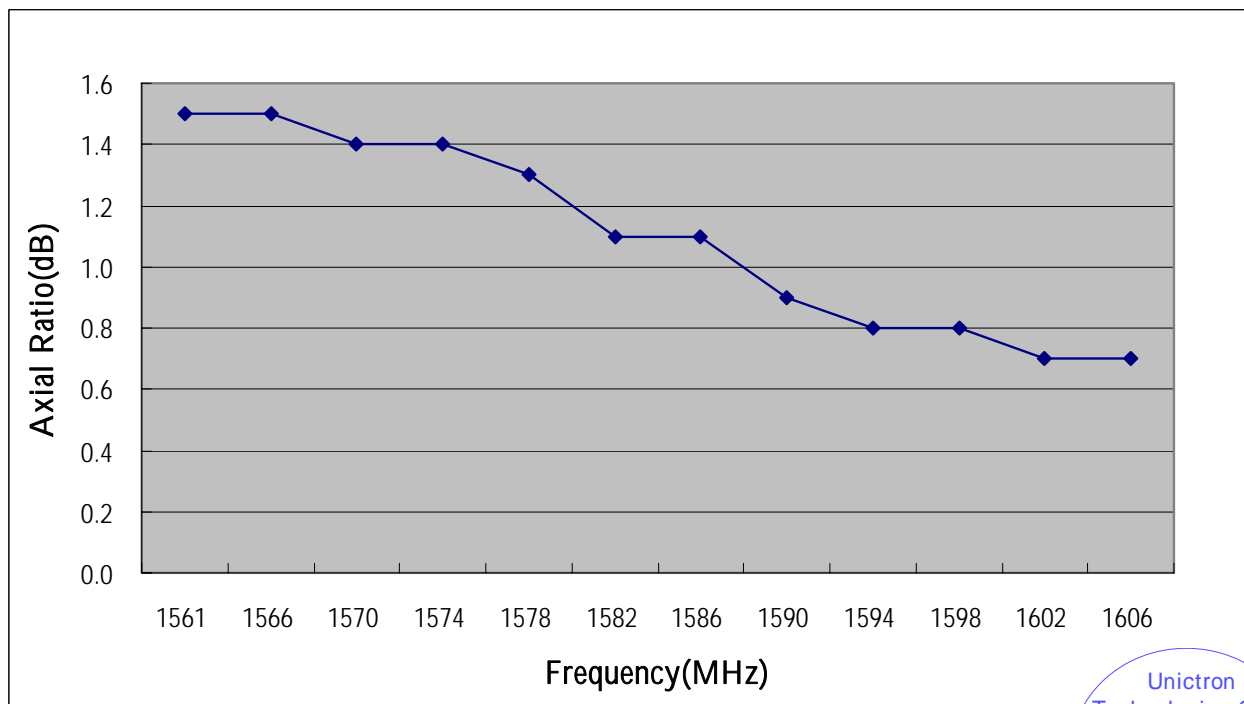


XZ-Plane



YZ-Plane

### 8. Axial Ratio



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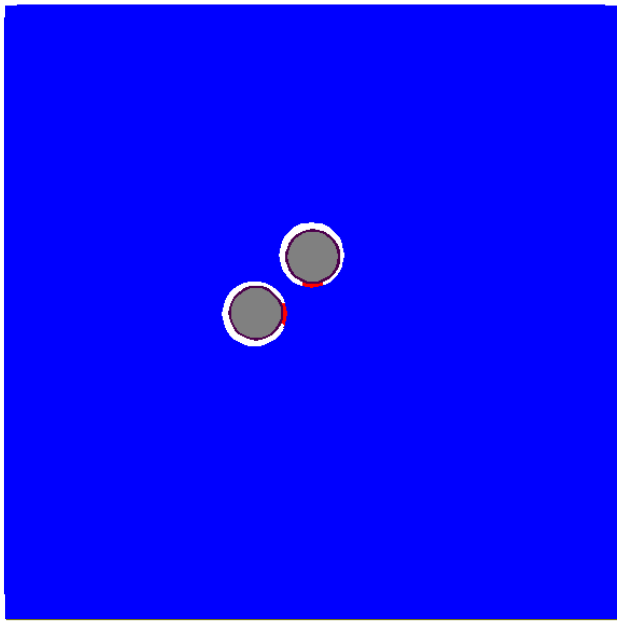
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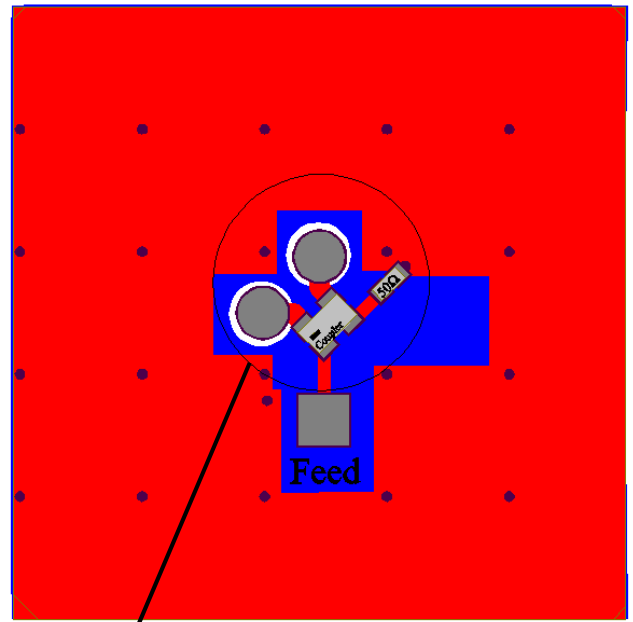


# 9. Recommendation PCB Layout

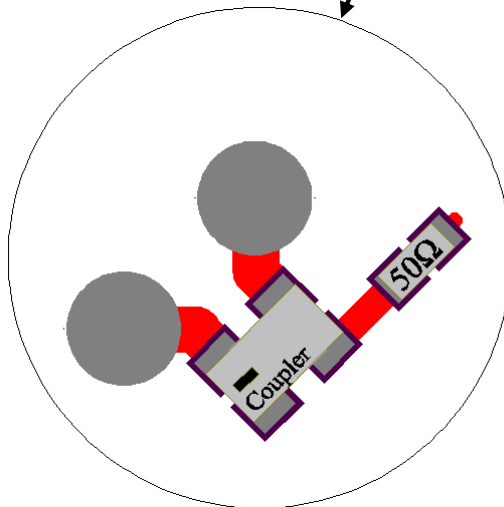
## 9-1. Top Layer & Bottom Layer



Top Layer



Bottom Layer



- : Copper Ground & Transmission Line
- : Copper Ground
- : Solder Pad

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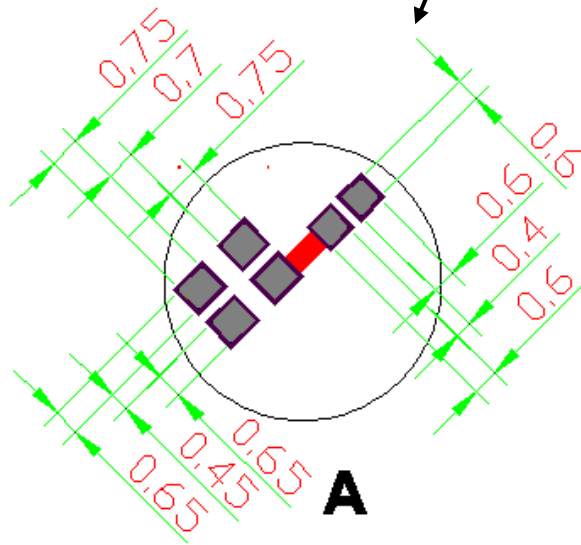
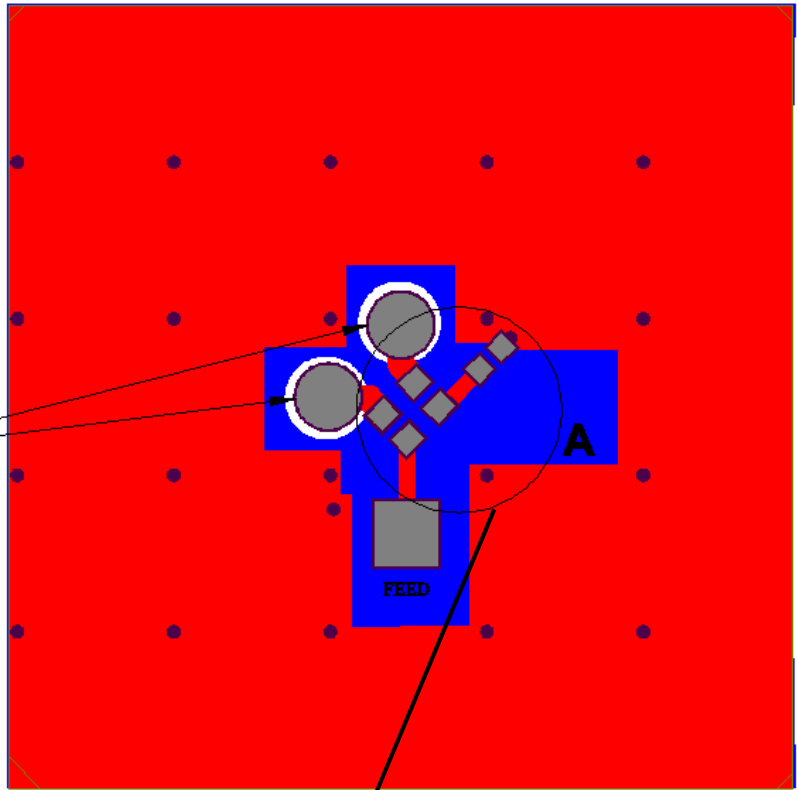
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9-2. Footprint

Via Hole  $\phi 1.1$



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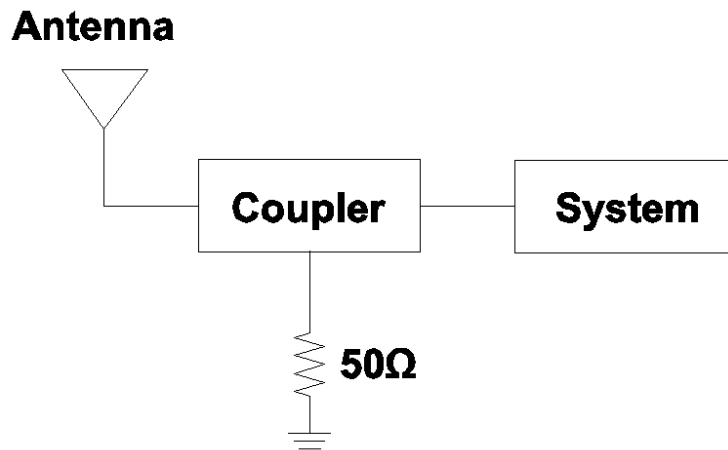
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### 9-3. Block Diagram



### 10. Coupler Specification

Coupling (dB)	Amplitude Balance (dB)	Phase Deviation (degree)	Isolation (dB)
3	1.0 Max.	90.0 ± 3.0	16.0 min.



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			<b>A</b>