



GNSS Dual Pin Patch Antenna (GPS+GLONASS+BDS+Galileo)

Model: AA650

25.0 x 25.0 x 4.0 (mm)

Product Number: H2P13APAXB0100

Engineering Specification

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1 Introduction

Unictron's AA650 patch antenna is designed for GNSS application, supporting GPS , GLONASS, Galileo and BDS bands. This ceramic dual pin patch antenna has excellent stability and sensitivity through the use of high performance proprietary ceramic materials and processes. The axial ratio remains below 1.5 across whole bandwidth

Features

- *Excellent Axial ratio (<1.5)
- *Ultra wide bandwidth
- *Support GNSS (GPS + GLONASS+ BDS+ Galileo)
- *Stable and reliable in performances
- *Low temperature coefficient of frequency
- *RoHS compliant

Applications

- *Navigation systems or position tracking systems
- *Telematics
- *Automotive
- *Tracking
- *Mapping

2 Electrical Specifications(@ 70 x 70 mm² ground plane)

2.1 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

2.2 GLONASS Band

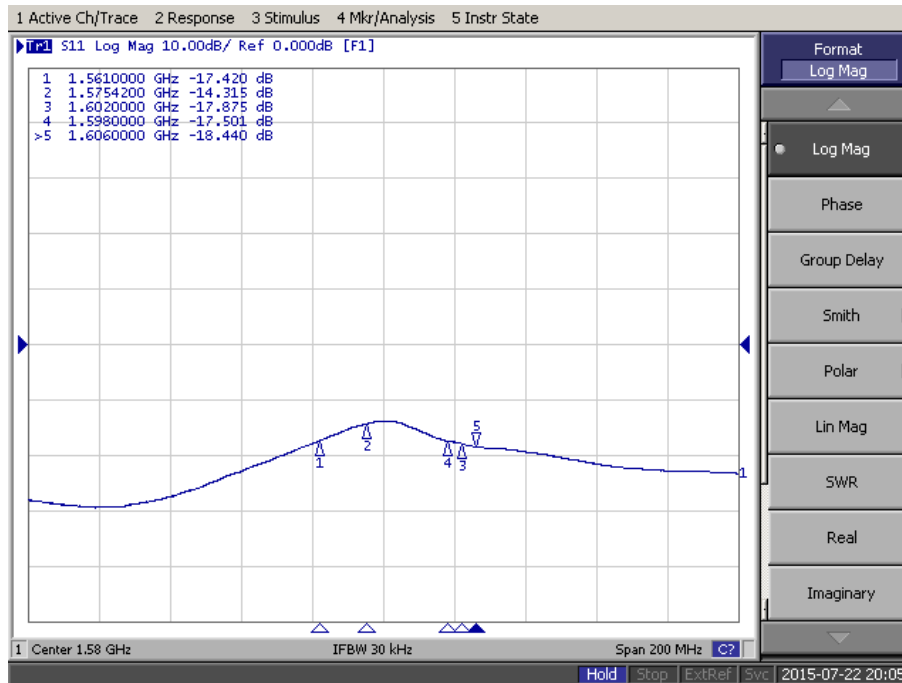
Characteristics		Specification	Unit
Working Frequency		1598~1606	MHz
VSWR		2 Max. (typical)	
Axial Ratio		2 Max. (typical)	dB
Impedance		50	Ω
Polarization		RHCP	
Gain @ 1602 MHz	@Zenith	1.6 (typical)	dBic
	@10°Elevation	-5.0 (typical)	

2.3 BDS Band

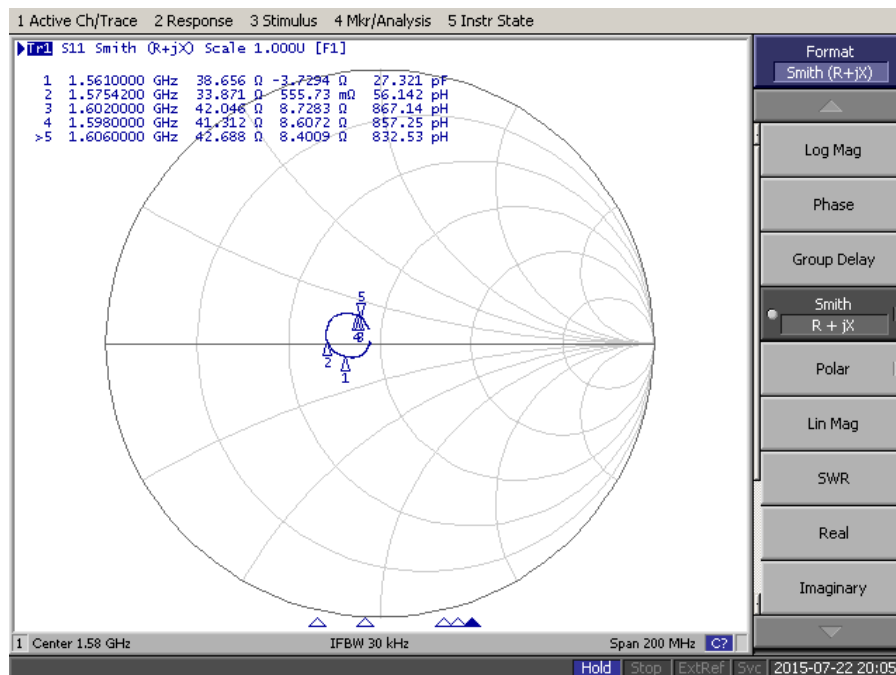
Characteristics		Specification	Unit
Working Frequency		1561	MHz
VSWR		2 Max. (typical)	
Axial Ratio		2 Max. (typical)	dB
Impedance		50	Ω
Polarization		RHCP	
Gain	@Zenith	1.9 (typical)	dBic
	@10° Elevation	-4.4 (typical)	

2.4 Return Loss & Smith Chart

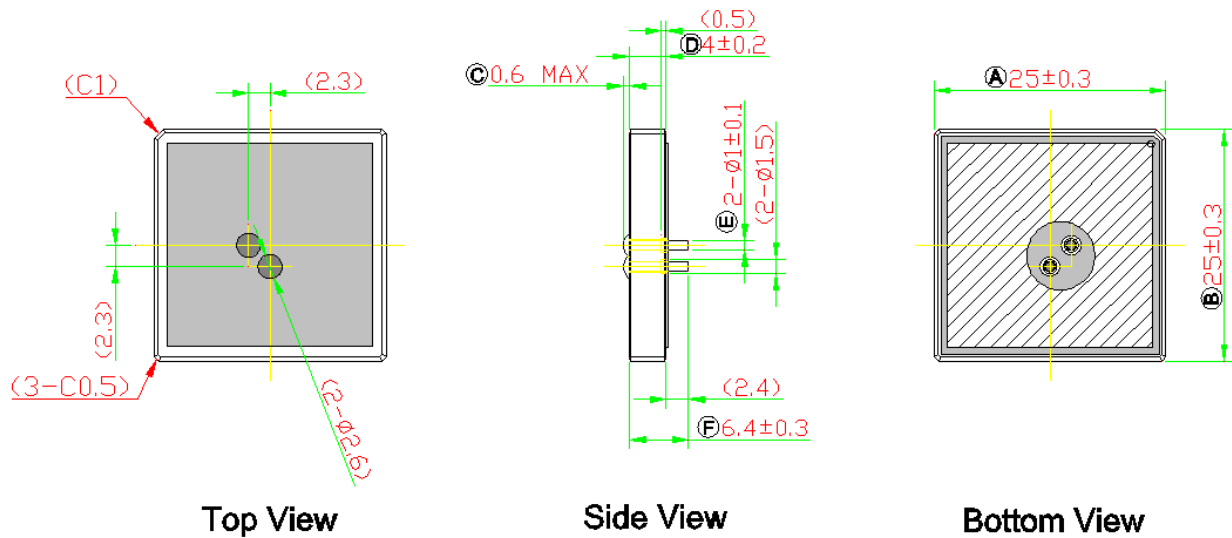
Return Loss



Smith Chart



3 Antenna Dimensions (unit: mm)

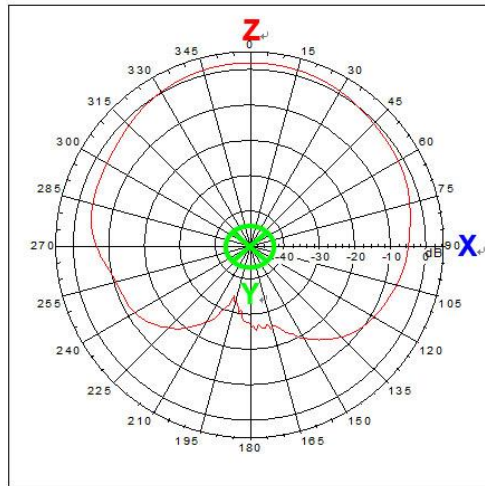


NOTE:

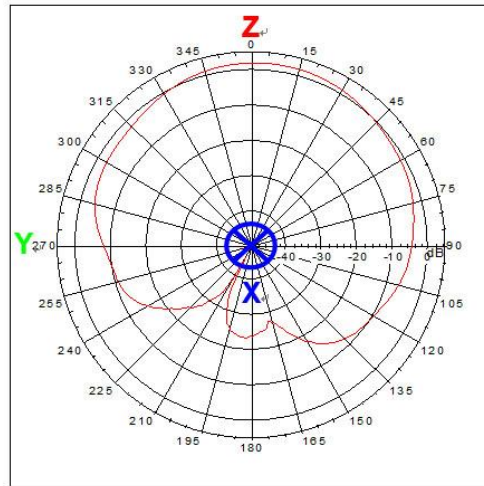
1. All materials are RoHS compliant.
2. "A~F" Critical Dimensions.
3. "()" Reference Dimensions.

4 Radiation Pattern (@ 70 x 70 mm² ground plane)

4.1 Gain Pattern @ 1561 MHz

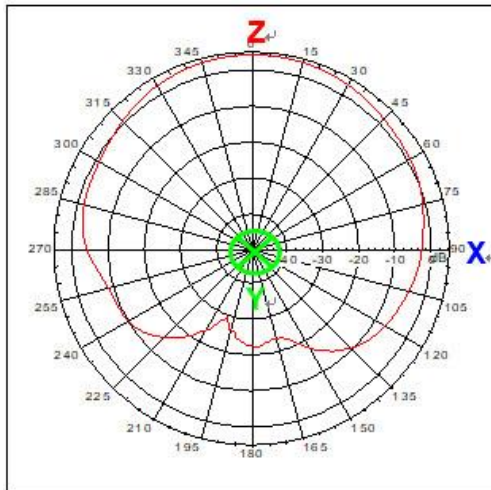


XZ-Plane

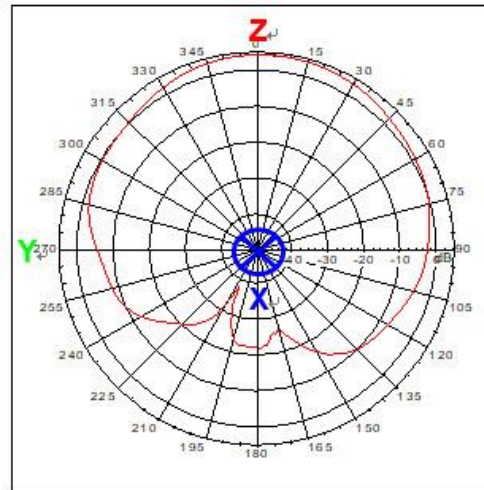


YZ-Plane

4.2 Gain Pattern @ 1575.42 MHz

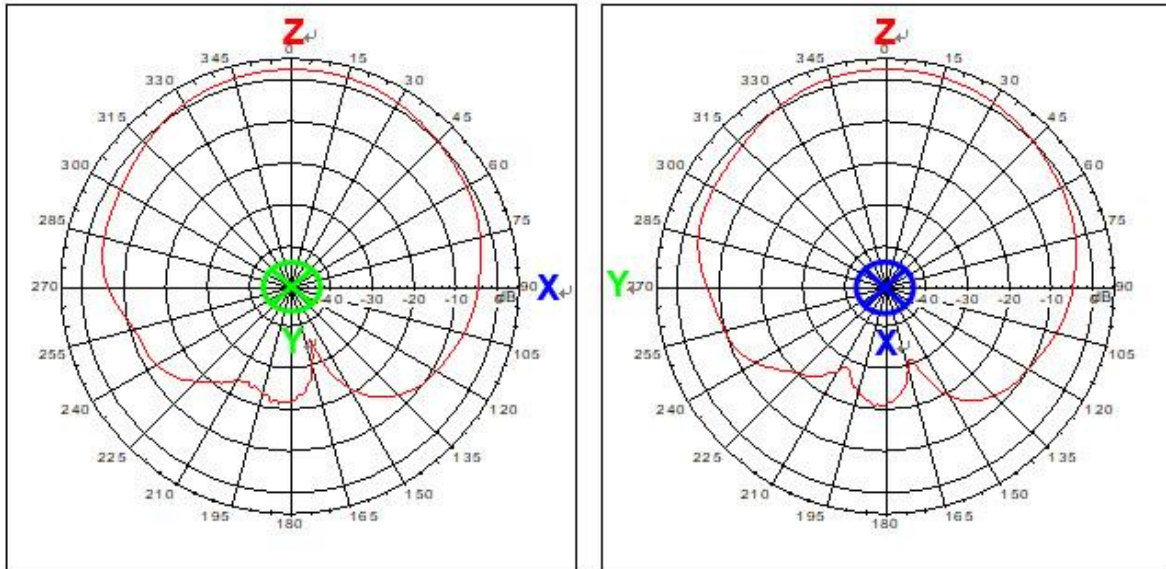


XZ-Plane



YZ-Plane

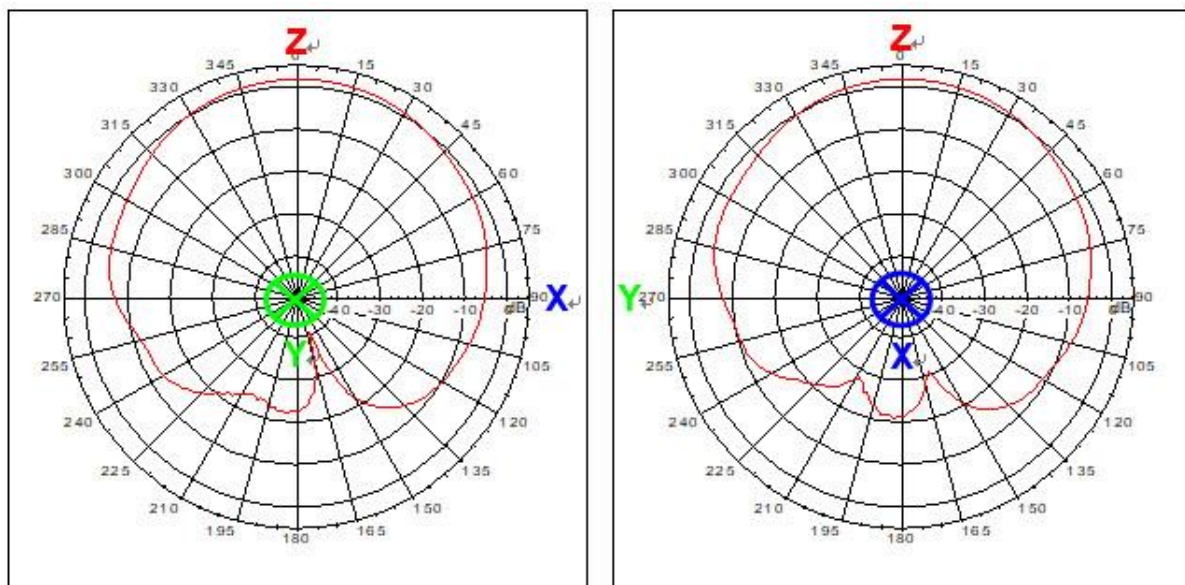
4.3 Gain Pattern @ 1598 MHz



XZ-Plane

YZ-Plane

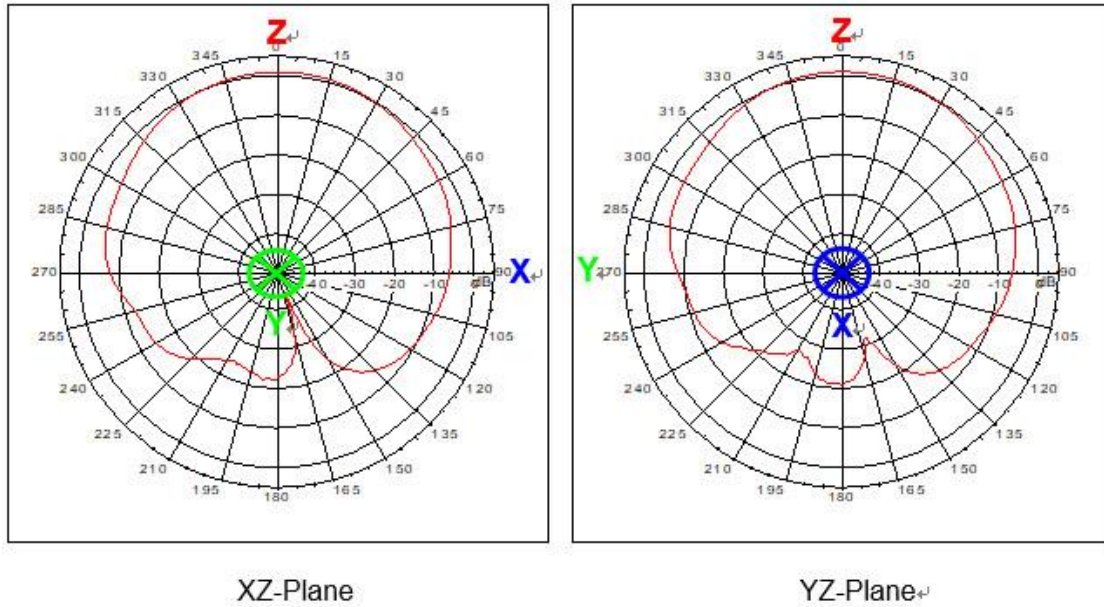
4.4 Gain Pattern @ 1602 MHz



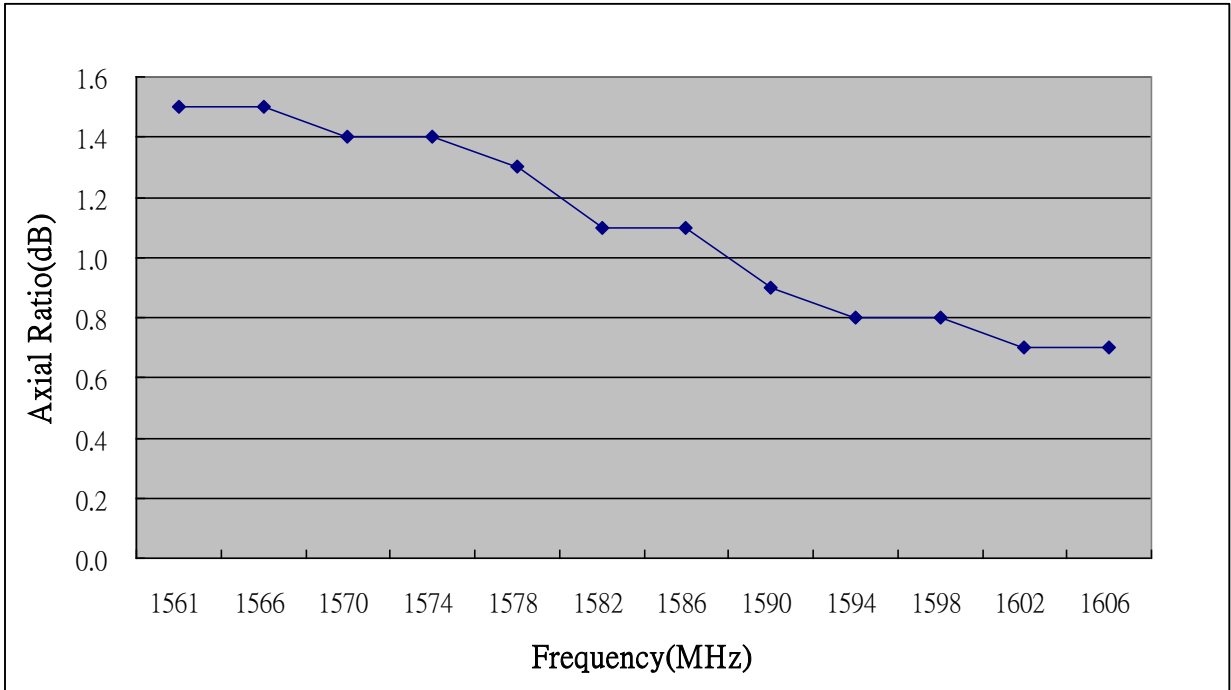
XZ-Plane

YZ-Plane

4.5 Gain Pattern @ 1606 MHz

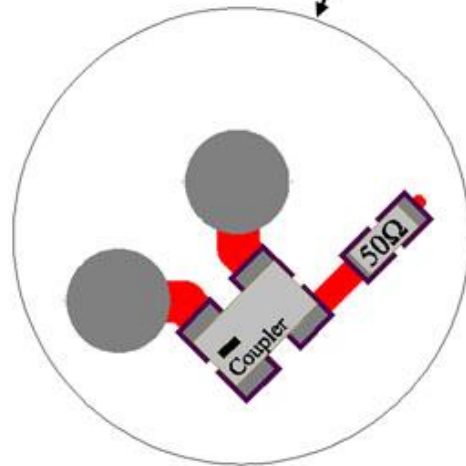
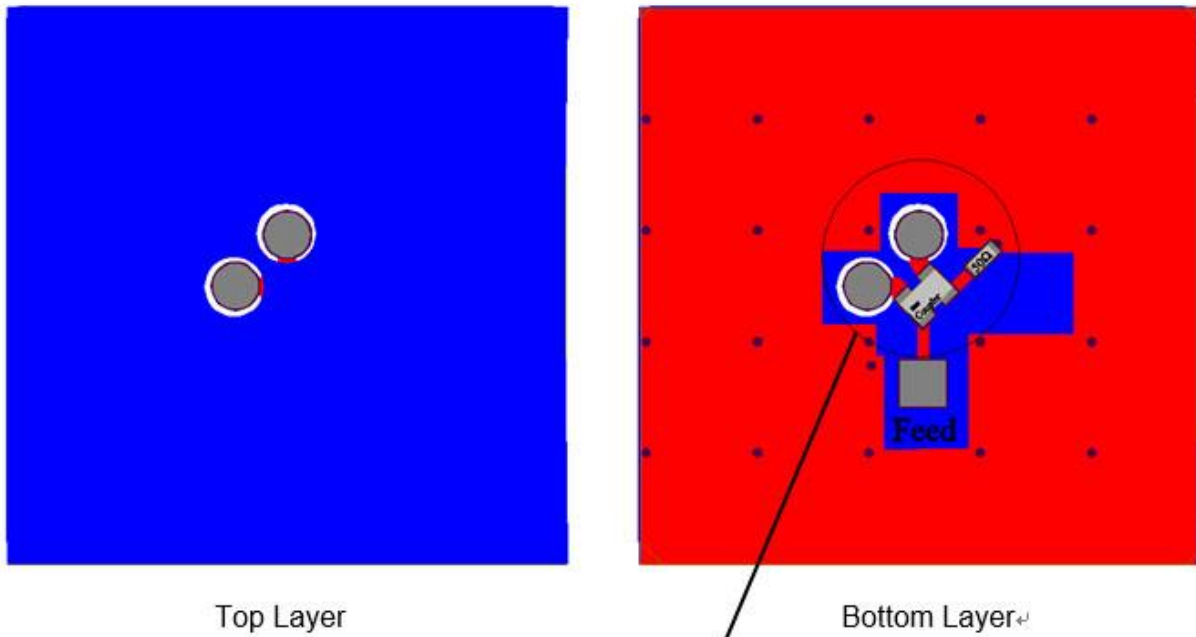


5 Axial Ratio



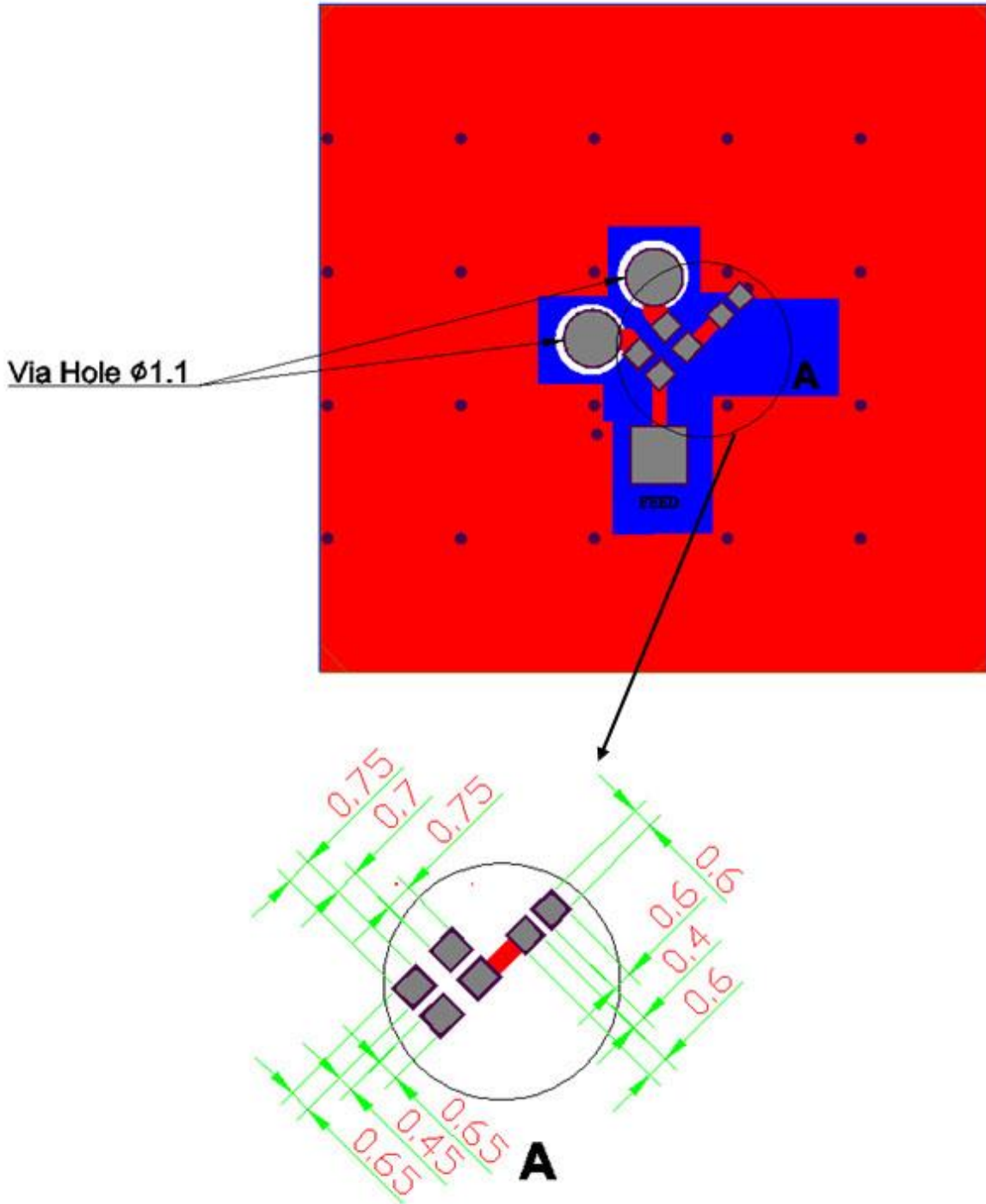
6 Recommendation PCB Layout

6.1 Top Layer & Bottom Layer

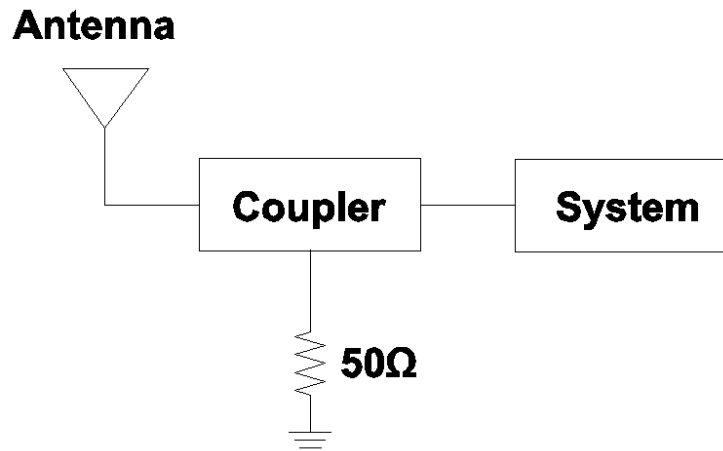


- : Copper Ground & Transmission Line
- : Copper Ground
- : Solder Pad

6.2 Footprint



6.2 Block Diagram



7 Coupler Specification

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