



Dual-Band J-Pole Antenna

VHF / Antenna (145 / 435 MHz)

Product Overview

The **TT-RF-JPA-001** dual-band VHF/UHF J-pole antenna is a compact, end-fed radiating structure designed for efficient operation at approximately 145 MHz and 435 MHz, enabling the same antenna to be used seamlessly for both VHF and UHF bands without the need for separate radiators. It employs a modified J-pole configuration to achieve inherent impedance matching close to $50\ \Omega$ without requiring a ground plane, making it suitable for both portable and fixed installations. The antenna delivers stable, omnidirectional radiation patterns with low return loss and high efficiency across both bands. Constructed using lightweight, corrosion-resistant aluminium, it offers excellent mechanical strength, durability in outdoor environments, and good electrical conductivity for reliable RF performance.

Applications

- Amateur (HAM) radio (2m / 70cm bands)
- Base station antennas
- Emergency communication systems
- Repeater installations
- Field deployments

Product Identification

Part Number	TT-RF-JPA-001
Description	Dual-Band J-Pole Antenna
Type	End-Fed Half-Wave Antenna

Electrical Specifications

Frequency Range (VHF)	144 – 146 MHz
Frequency Range (UHF)	433 – 438 MHz
Gain (VHF)	2.68 dBi (typical)
Gain (UHF)	4.22 dBi (typical)
Impedance	$50\ \Omega$
VSWR	$< 1.2 : 1$
Return Loss	$> -20\ \text{dB}$
Power Handling	100 W

Mechanical Characteristics

Material	Aluminium
Overall Height	$\approx 1.4\ \text{m}$
Weight	$\approx$
Mounting Type	Mast Mount

Typical Dimensions

Radiating Element (VHF)	140 cm at 145 MHz
Matching Stub	$\lambda/4$ at 145 MHz $\approx 50\ \text{cm}$
UHF Section	$\approx 14.5\ \text{cm}$ at 435 MHz

Antenna Geometry

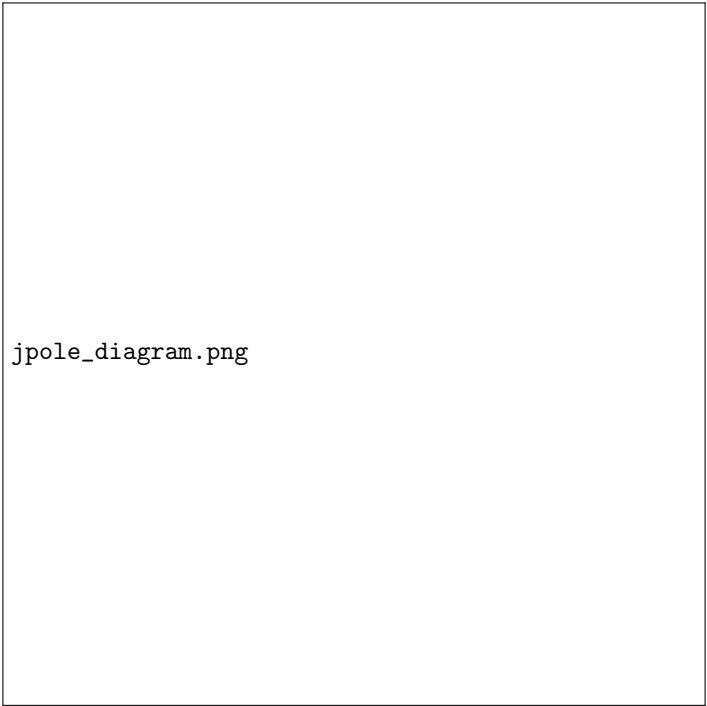


Figure 1: Dual-Band J-Pole Geometry

Performance

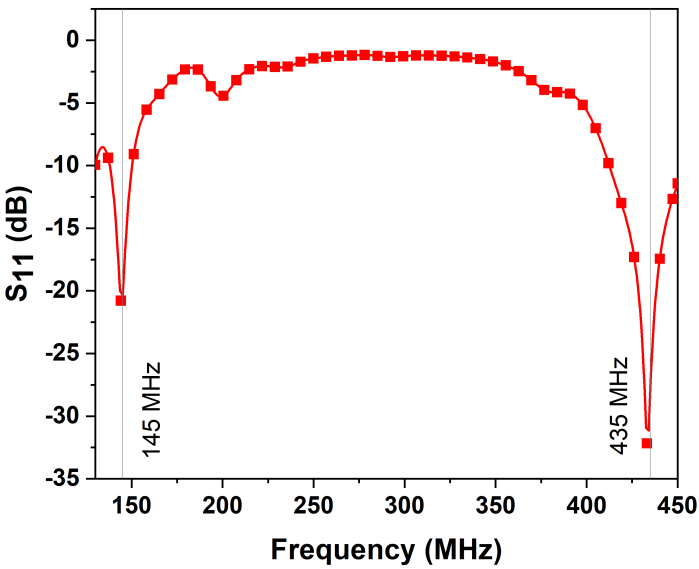


Figure 2: Returnloss (S_{11}) vs Frequency

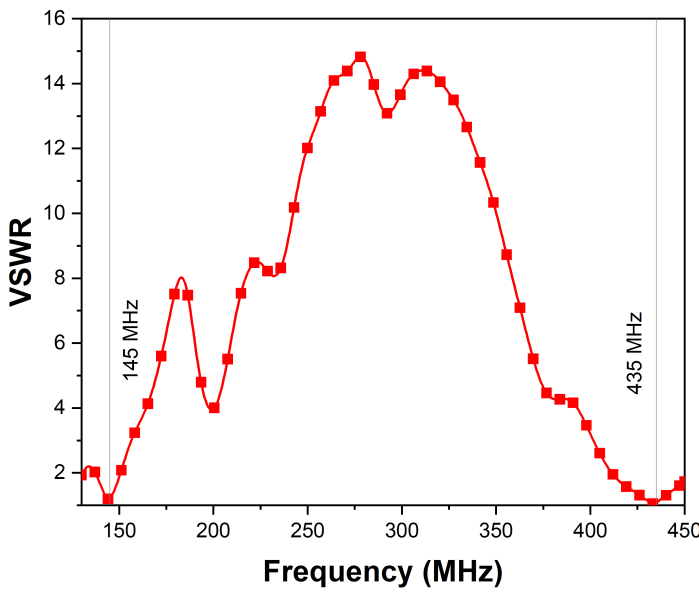


Figure 3: VSWR vs Frequency

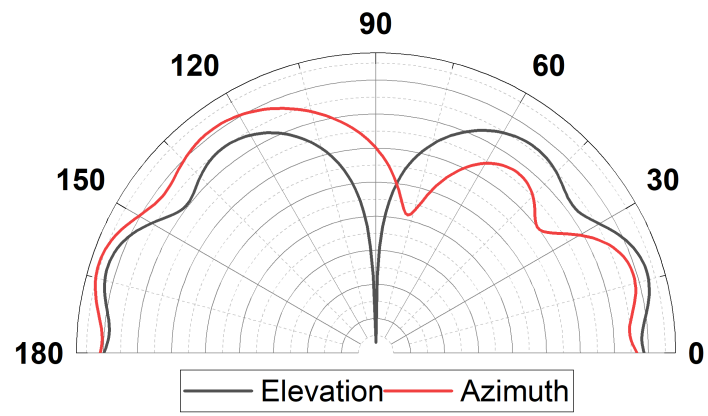


Figure 4: Radiation Pattern

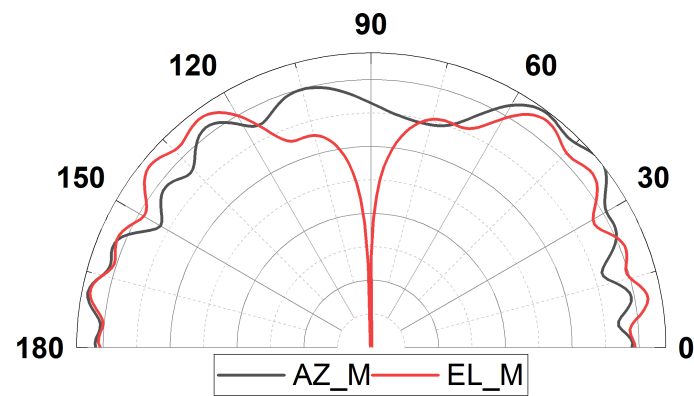


Figure 5: Radiation Pattern

Notes
