



## TRA9023N / TRA9023NP

### Phantom No Ground Plane Required Antennas 902-928 MHz

The patented TRA9023N and TRA9023NP Phantom® are ground plane independent, rugged, low-profile antennas for outdoor or indoor applications. Measuring only 2.3" tall, the Phantom 902-928 MHz antennas are designed and performance engineered with vertical polarization components.

These antennas provide frequency agility, low visibility, and a low angle radiation pattern that delivers superior performance in challenging environments. The ground plane independent nature of the antennas means that it does not require a reflective or metallic surface for mounting and can be mounted on plastic or fiberglass surfaces.

The industry standard NMO mounting socket of the TRA9023N mates with our magnetic, trunk lid, and hole mounts. Also available is the threaded permanent stud mount model (TRA9023NP) that is vandal resistant for mounting on brackets, panels, ceilings, or any other kind of housing.

The patented Phantom® antenna technology is beneficial when high performance is desired and extreme ruggedness as well as a low profile is required.

#### FEATURES

- Mechanically robust for both indoor and outdoor applications
- NMO mount and vandal resistant permanent mount option
- IP67 rated for dust intrusion and temporary water immersion
- RoHS tested and compliant components

#### MARKETS - APPLICATIONS

- Cellular
- GSM and PCS
- Wi-Fi
- 802.11
- Bluetooth wireless applications

## ELECTRICAL SPECIFICATIONS

Model Name	TRA9023N/TRA9023NP
Operating Frequency (MHz)	902-928
VSWR	<2.0:1
Gain Max (dBi)	0.5
Nominal Impedance (Ohms)	50
Max Power - Ambient 25°C (W)	100
Polarization	Vertical
Radiation Pattern	Omnidirectional
Vertical Plane 3 dB Beamwidth	360°
Horizontal Plane 3 dB Beamwidth	78°

## MECHANICAL SPECIFICATIONS

Dimensions - H x D - mm (inches)	58.42 x 36.6 (2.3 x 1.44)
Weight - g (lbs.)	TRA9023N: 184 (0.405) TRA9023NP: 240 (0.529)
Color	Black/Black Chrome or White/Chrome

## ENVIRONMENTAL SPECIFICATIONS

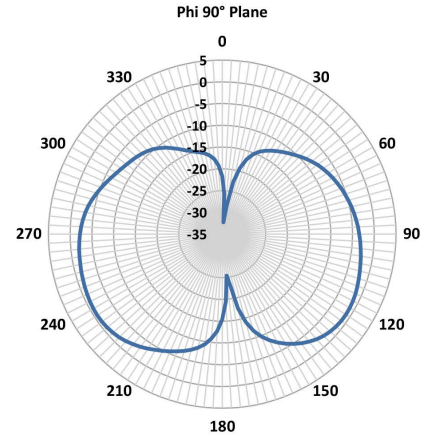
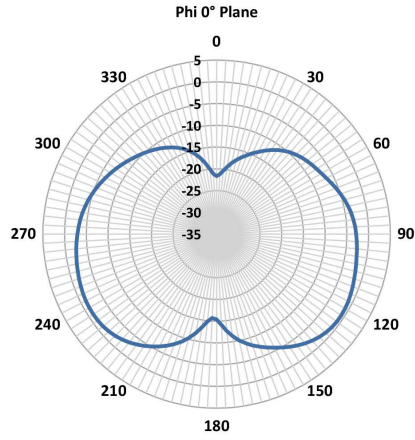
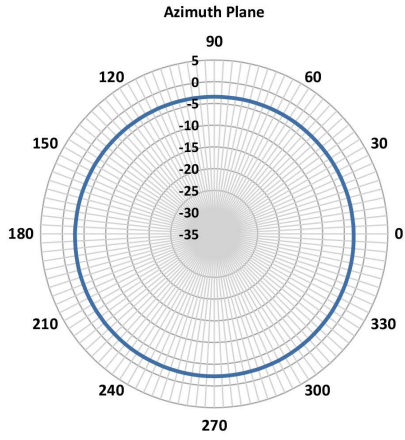
Operating Environment (Indoor or Outdoor)	Indoor or outdoor
Operating Temperature - °C (°F)	-40 to +85°C (-40 to +185°F)
Storage Temperature - °C (°F)	-45 to +85°C (-49 to +185°F)
Wind Rating - km/hr (mph)	282 (175)
Ingress Protection Rating	IP67
Material Substance Compliance	RoHS

## CONFIGURATION

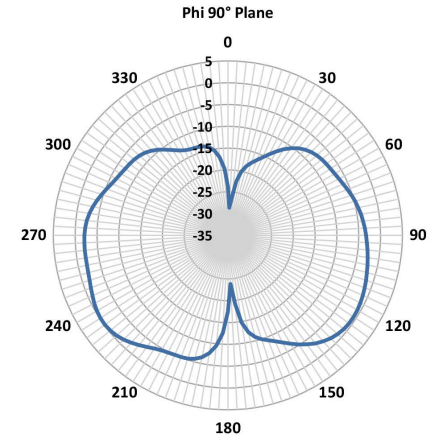
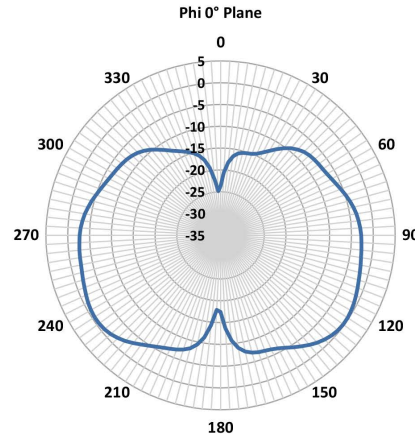
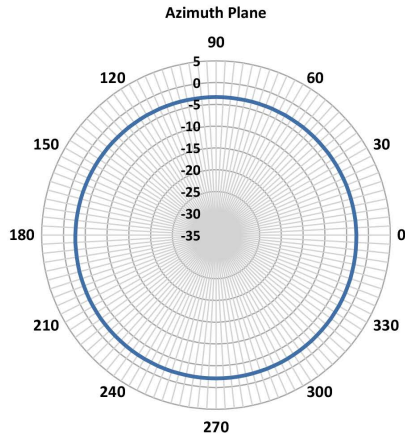
PART NUMBER	MOUNTING	COMMENTS
TRA9023N	NMO Mount	No ground plane required
TRA9023NP	Permanent Stud Mount	No ground plane required

# RADIATION PATTERNS

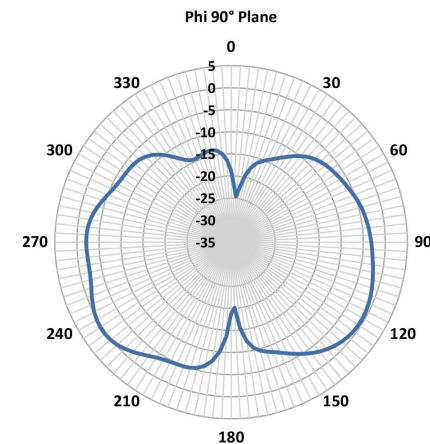
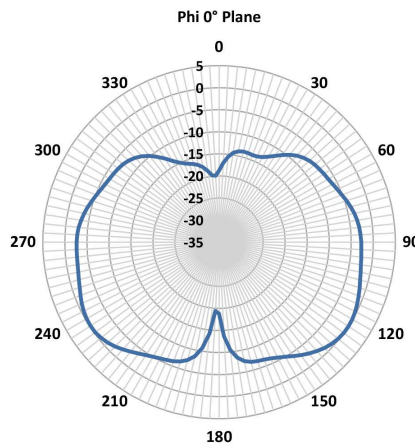
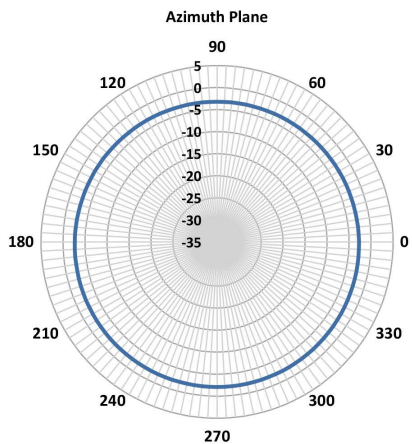
## 902 MHz



## 915 MHz



## 928 MHz



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