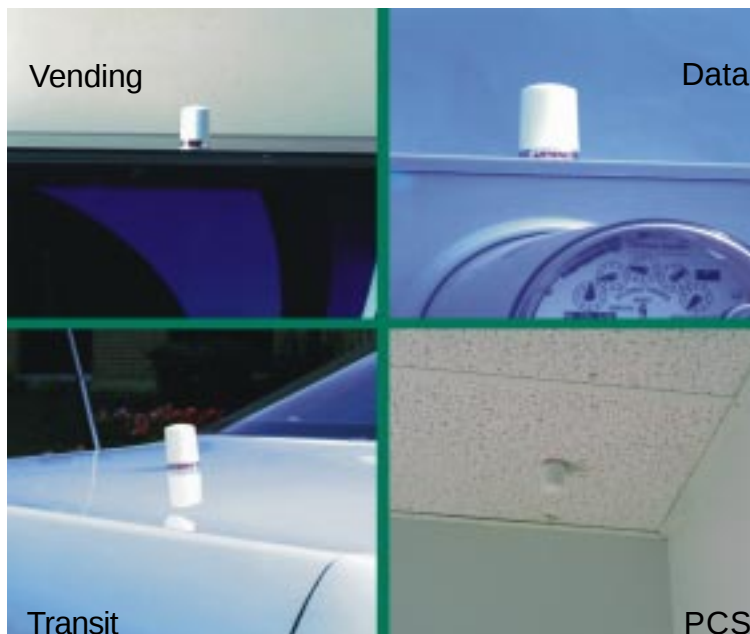


Phantom™ — Unmatched, Whipless Performance.

Our unique **Phantom™** is a tough antenna for exterior or interior applications. The **Phantom's™** revolutionary patent pending design features low visibility, wide bandwidth and low angle radiation pattern that is superior to traditional gain antennas in most applications. It is available with our industry standard NMO mounting socket for use with all **ANTENEX®** Magnetic, Trunk lid, and NMO hole mounts. We also provide a threaded stud mount model adapted from the marine antenna industry for brackets, panels or boat mountings. The **Phantom's™** patent pending technology is beneficial when high performance is desired and extreme ruggedness and low profile is required. **ANTENEX® Phantom™** antennas have been used in NASCAR™ Winston Cup Series events, and have proven effective in maintaining constant communication between driver and pit crew. This is essential in the demanding and dynamically diverse environment of high banking race courses where it has flawlessly withstood the vibration and wind loads of speeds in excess of 180 miles per hour. Note: A change in NASCAR™ rules requires that all **Phantom™** antennas be mounted inside the race car.

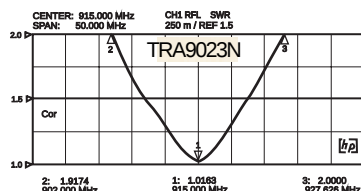
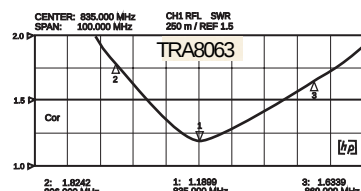


The Antenex® Phantom™ Antennas are ideal for Vending, Data, Mobile Transit, and PCS applications.

Technical Data - Product Features & Information

	<u>UHF</u>	<u>800/900</u>	<u>NGP</u>
● Gain:	3 dB-MEG	3 dB-MEG	3 dB-MEG
● Frequency Range:	430-450 MHz 450-470 MHz 470-490 MHz	806-866 MHz 821-896 MHz 890-960 MHz 902-928 MHz 2400-2500 MHz	902-928 MHz 1850-1970 MHz 2130-2200 MHz 2400-2500 MHz
● VSWR:	<1.5:1 10 MHz <2.0:1 20 MHz	<1.8:1 70 MHz	<2:1 26 MHz
● Maximum Power:	200 watts	200 watts	100 watts
● Bandwidth:	20 MHz	70 MHz	26 MHz
● Impedance:	50 ohms	50 ohms	50 ohms
● Height:	3½"	2½"	3½"

VSWR



Ordering Guide - Clear, Easy & Sensible!

TRA9023 = Phantom™ Antenna Model, White, 902-928 MHz, 3 dB-MEG.

TRA	Antenna Style	Phantom™ Low-Profile Transit Antenna		
Blank	Finish	Blank = White B = Black		
902	Frequency	Frequency component of part number in bold below: 144-148 150-162 156-162 220-230 430-450 450-470 470-490 806-866 821-896 890-960 902-928 1850-1970 2130-2200 2400-2500		
3	Gain	0 = Unity 3 = 3 dB-MEG		
Blank	Mount	Blank = Normal Model N = No Ground Plane Model		
Blank	Mount Option	Blank = 3/4" Screw Base P = Permanent Hole Mount		

U.S. and International patents pending.



WHITE MODELS

Model	Frequency Range	Radome Height	Gain
UHF 3 dB-MEG MODELS			
TRA4303	430-450 MHz	3.30"	3 dB-MEG*
TRA4503	450-470 MHz	3.30"	3 dB-MEG*
TRA4703	470-490 MHz	3.30"	3 dB-MEG*

800/900 MHz 3 dB-MEG MODELS

TRA8063	806-866 MHz	2.30"	3 dB-MEG*
TRA8213	821-896 MHz	2.30"	3 dB-MEG*
TRA8903	890-960 MHz	2.30"	3 dB-MEG*
TRA9023	902-928 MHz	2.30"	3 dB-MEG*
TRA18503	1850-1970 MHz	2.30"	3 dB-MEG*
TRA21303	2130-2200 MHz	2.30"	3 dB-MEG*
TRA24003	2400-2500 MHz	2.30"	3 dB-MEG*

900 MHz NO GROUND PLANE 3 dB-MEG MODELS

TRA9023N	902-928 MHz	3.30"	3 dB-MEG*
TRA18503N	1850-1970 MHz	3.30"	3 dB-MEG*
TRA21303N	2130-2200 MHz	3.30"	3 dB-MEG*
TRA24003N	2400-2500 MHz	3.30"	3 dB-MEG*

UHF PERMANENT 3 dB-MEG MODELS

TRA4303P	430-450 MHz	3.30"	3 dB-MEG*
TRA4503P	450-470 MHz	3.30"	3 dB-MEG*
TRA4703P	470-490 MHz	3.30"	3 dB-MEG*

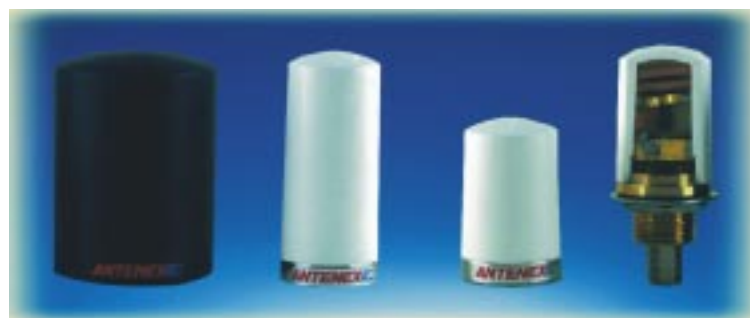
800/900 MHz PERMANENT 3 dB-MEG MODELS

TRA8063P	806-866 MHz	2.30"	3 dB-MEG*
TRA8213P	821-896 MHz	2.30"	3 dB-MEG*
TRA8903P	890-960 MHz	2.30"	3 dB-MEG*
TRA9023P	902-928 MHz	2.30"	3 dB-MEG*
TRA18503P	1850-1970 MHz	2.30"	3 dB-MEG*
TRA21303P	2130-2200 MHz	2.30"	3 dB-MEG*
TRA24003P	2400-2500 MHz	2.30"	3 dB-MEG*

900 MHz PERMANENT NO GROUND PLANE 3 dB-MEG MODELS

TRA9023NP	902-928 MHz	3.30"	3 dB-MEG*
TRA18503NP	1850-1970 MHz	3.30"	3 dB-MEG*
TRA21303NP	2130-2200 MHz	3.30"	3 dB-MEG*
TRA24003NP	2400-2500 MHz	3.30"	3 dB-MEG*

Note: * Gain on a Phantom™ antenna is measured in db-MEG. For more information on dB-MEG, visit our website at <http://www.antenex.com>.



TRAB1440, TRA4503, TRA8063, TRA8063P

BLACK MODELS

Model	Frequency Range	Radome Height	Gain
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VHF UNITY BLACK MODELS

TRAB1440	144-150 MHz	3.30"	Unity
TRAB1500	150-156 MHz	3.30"	Unity
TRAB1560	156-162 MHz	3.30"	Unity

220 MHz UNITY BLACK MODELS

TRAB2200	220-230 MHz	3.30"	Unity
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UHF 3 dB-MEG BLACK MODELS

TRAB4303	430-450 MHz	3.30"	3 dB-MEG*
TRAB4503	450-470 MHz	3.30"	3 dB-MEG*
TRAB4703	470-490 MHz	3.30"	3 dB-MEG*

800/900 MHz 3 dB-MEG BLACK MODELS

TRAB8063	806-866 MHz	2.30"	3 dB-MEG*
TRAB8213	821-896 MHz	2.30"	3 dB-MEG*
TRAB8903	890-960 MHz	2.30"	3 dB-MEG*
TRAB9023	902-928 MHz	2.30"	3 dB-MEG*
TRAB18503	1850-1970 MHz	2.30"	3 dB-MEG*
TRAB21303	2130-2200 MHz	2.30"	3 dB-MEG*
TRAB24003	2400-2500 MHz	2.30"	3 dB-MEG*

900 MHz NO GROUND PLANE 3 dB-MEG BLACK MODELS

TRAB9023N	902-928 MHz	3.30"	3 dB-MEG*
TRAB18503N	1850-1970 MHz	3.30"	3 dB-MEG*
TRAB21303N	2130-2200 MHz	3.30"	3 dB-MEG*
TRAB24003N	2400-2500 MHz	3.30"	3 dB-MEG*

UHF PERMANENT 3 dB-MEG BLACK MODELS

TRAB4303P	430-450 MHz	3.30"	3 dB-MEG*
TRAB4503P	450-470 MHz	3.30"	3 dB-MEG*
TRAB4703P	470-490 MHz	3.30"	3 dB-MEG*

800/900 MHz 3 dB-MEG BLACK MODELS

TRAB8063P	806-866 MHz	2.30"	3 dB-MEG*
TRAB8213P	821-896 MHz	2.30"	3 dB-MEG*
TRAB8903P	890-960 MHz	2.30"	3 dB-MEG*
TRAB9023P	902-928 MHz	2.30"	3 dB-MEG*
TRAB18503P	1850-1970 MHz	2.30"	3 dB-MEG*
TRAB21303P	2130-2200 MHz	2.30"	3 dB-MEG*
TRAB24003P	2400-2500 MHz	2.30"	3 dB-MEG*

900 MHz NO GROUND PLANE 3 dB-MEG BLACK MODELS

TRAB9023NP	902-928 MHz	3.30"	3 dB-MEG*
TRAB18503NP	1850-1970 MHz	3.30"	3 dB-MEG*
TRAB21303NP	2130-2200 MHz	3.30"	3 dB-MEG*
TRAB24003NP	2400-2500 MHz	3.30"	3 dB-MEG*

Note: * Gain on a Phantom™ antenna is measured in dB-MEG. For more information on dB-MEG, visit our website at <http://www.antenex.com>.

Features & Advantages

WHITE OR BLACK: Our UHF and 800/900 MHz Phantoms are now available in either white or black ABS plastic. ABS plastic is highly shock resistant. Both can be painted to the color of your application by using a nonmetallic paint.

WHIPLESS DESIGN: The revolutionary patent pending whipless design of our Phantom™ antenna allows car washes without removing the antenna. Whipless means they don't look like antennas, attract less attention, less vandalism, and have lower wind resistance. Phantom's™ are also less susceptible to be broken by trees and garages.

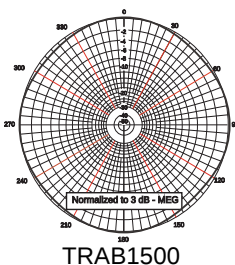
FIELD DIVERSITY: Field diversity means that the antenna is simultaneously sensitive to both the electric and magnetic fields of the signal, like having two antennas. Field diversity makes the antenna resistant to the picket-fence fading that is always found in urban operation.

MEAN-EFFECTIVE-GAIN: The radiation pattern of our Phantom™ antennas are specially tailored to aim the signals in the right direction for mobile operation by utilizing a low radiation angle and a broad beam-width. When used in mobile operation, in urban or suburban areas, our phantom antennas have been proven to outperform any gain antenna.

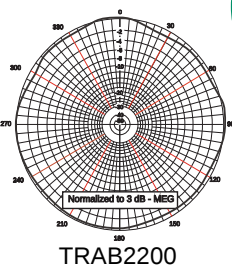
"Your Phantom™ antennas are technically superior to any other antenna's we've tried on our 220 MHz trunking system" -- Karl, ESP Communications

PERMANENT MOUNTING: Permanent mount versions of the UHF and higher frequency models are available for those high risk applications such as metering where antennas must resist vandalism and achieve economical mounting.

Horizontal Field Patterns



TRAB1500



TRAB2200

Special Tuning Available on 220 MHz Phantom™ models for \$10.00



TRAB1500

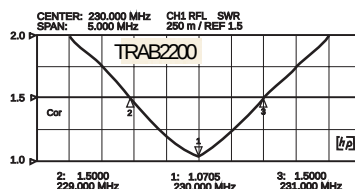
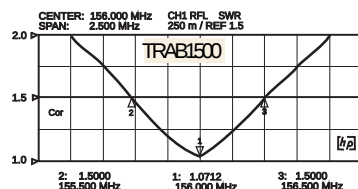


TRAB4503, TRAB8063



TRAB8903P

VSWR



Technical Data - Product Features & Information

- Gain:
- Frequency Range:
- VSWR:
- Maximum Power:
- Bandwidth:
- Impedance:
- Height:

VHF

Unity
144-150 MHz
150-156 MHz
156-162 MHz
<1.5:1 850 kHz
<2.0:1 1.5 MHz
100 watts
1.5 MHz
50 ohms
3½"

220 MHz

Unity
220-230 MHz
<1.5:1 2.2 MHz
<2.0:1 4.0 MHz
100 watts
4 MHz
50 ohms
2½"