

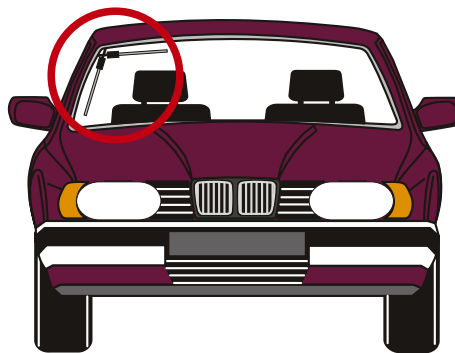


## INVISIBLE & REVOLUTIONARY!

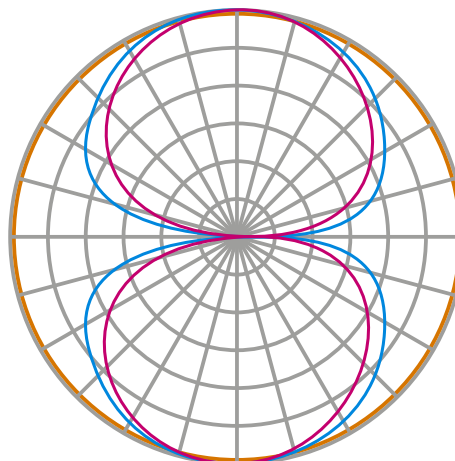
### DIGITAL MICRO SCREEN AM-FM ANTENNA

- The MSA-1 is a new proprietary design that enhances performance with its unique MICRO SCREEN element. AM-FM radio reception is not affected when vehicles or marines travelling in relationship to the radio broadcasting station.
- Easy to install it on the inside of a car or boat with 3M VHB adhesive tape. No mounting holes required. No car or boat wash vandalism problem. 100 % weather proof. Operates on **DIGITAL** and traditional AM-FM radio reception.
- The enhanced performance is close to traditional outside vertical antennas and is extremely omni-directional.
- The MSA-1 can be mounted on non-metallic surfaces and glass, even out of sight on the car or boat body of fiberglass. It fits any land or marine vehicles.

#### H or V INSTALLATION



**E-PLANE** — Traditional vertical whip  
**MSA-1** — MSA-1  
**H-PLANE** — MSA-1

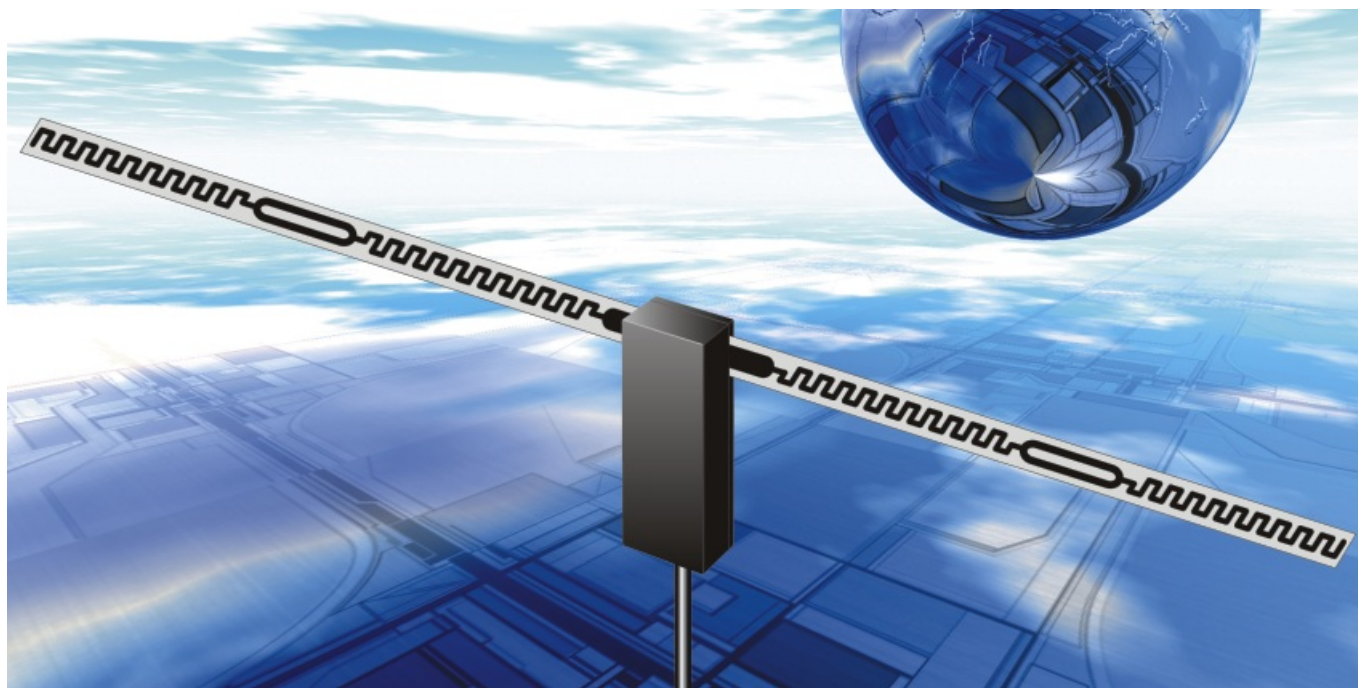


Radiation pattern comparing chart

#### MSA-1

PAT. US 454862  
 TW 49034

SPECIFICATIONS	MSA-1
Radio Band	AM band & 76-90 or 88-108 MHz
Gain	Unity
Element Length	610mm (24 in)
Output Plug	Standard car radio type
Cable	Low loss 5Y-3P 1.9M (6.3ft)
Weight	0.1KGS
Dimensions	61 cm x 1 cm
Option	special plug available



MSA-2

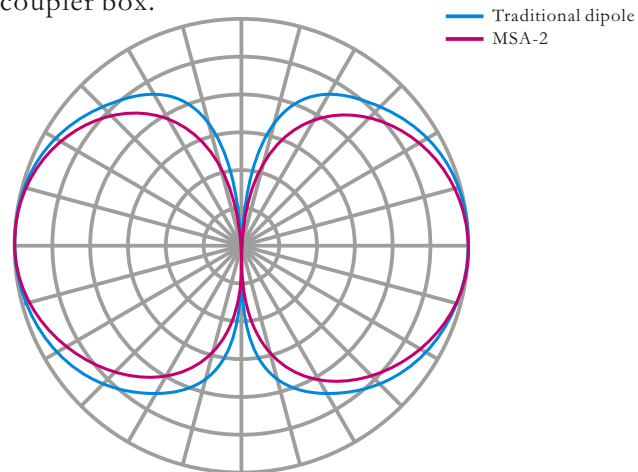
PAT. US 454862  
TW 49034

## INVISIBLE & REVOLUTIONARY!

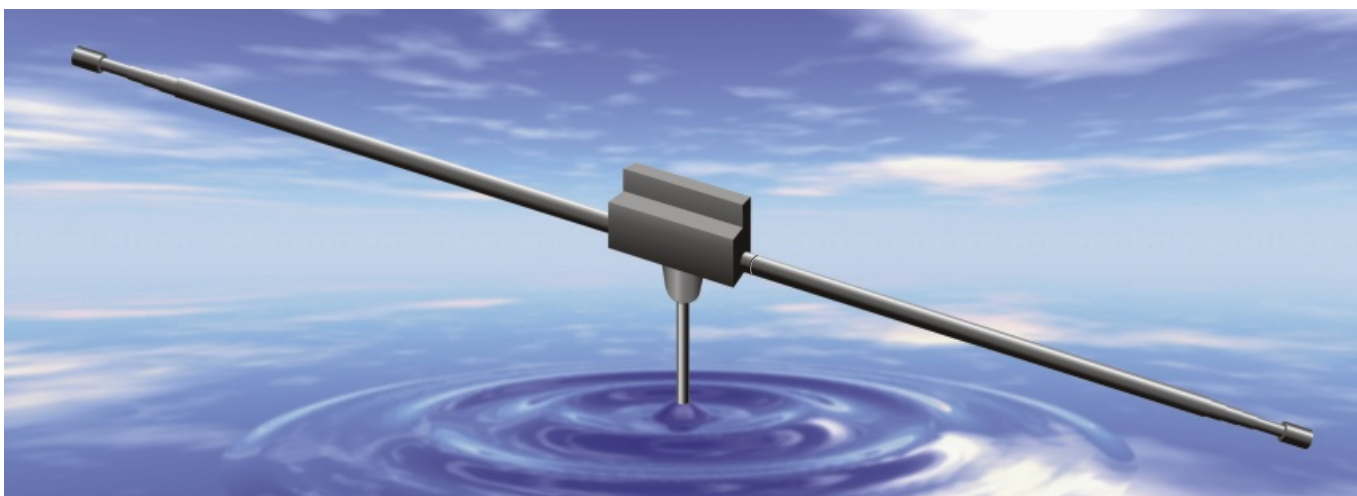
### DIGITAL MICRO SCREEN TV ANTENNA

- The MSA-2 is a new proprietary design that enhances performance with its unique MICRO SCREEN element. TV reception is not affected when vehicles or marines are travelling in relationship to the TV broadcasting station. Compatible for NTSC, PAL and SECAM world wide TV system.
- Easy to install on the inside of a car or boat with 3M VHB adhesive tape. No mounting holes required. No car or boat vandalism problem. 100 % weather proof. Operates on **DIGITAL** and traditional TV reception.
- The enhanced performance is close to traditional antennas and is extremely omni-directional.
- The MSA-2 can be mounted on non-metallic surfaces and glass, even out of sight on the car or boat body of fiberglass. It fits any land or marine vehicles.
- The angle off the antenna elements can be adjusted from the coupler box.

SPECIFICATIONS	MSA-2
TV CHANNEL	VHF-UHF full channels
Gain	>2.5 dBi
Element Length	610mm (24 in) x 2
Output Plug	75 ohms 'F' male type
Cable	2.5C-2V 75 ohms 15FT
Weight	0.1KGS
Dimensions	123 cm x 1 cm
Option	special plug available



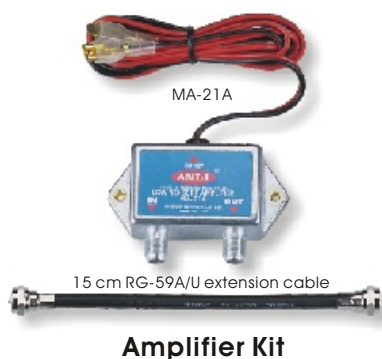
H-PLANE  
Radiation pattern comparing chart



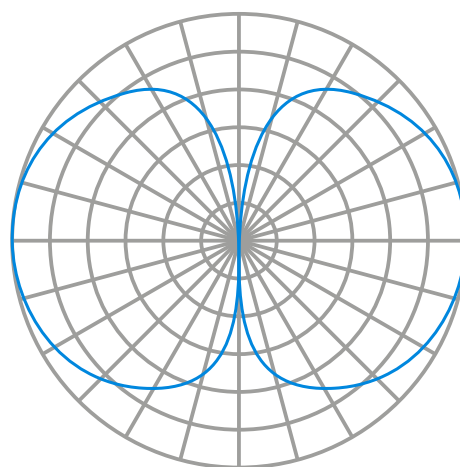
MA-21

## RETRACTABLE DIPOLE TV ANTENNA

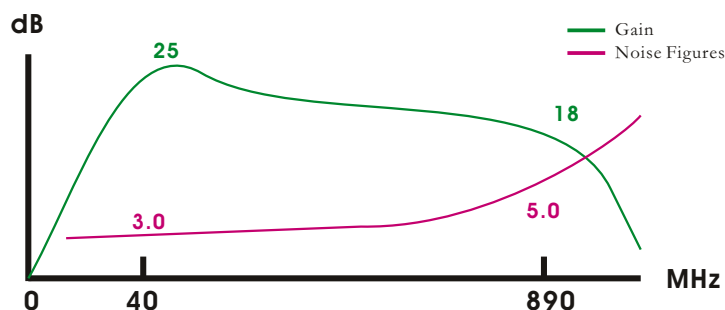
- The MA-21 is a dipole design that enhances performance with its retractable telescope elements and MA-21A low loss amplifier. Compatible for NTSC, PAL and SECAM world wide TV system.
- Easy to install it inside of the car or boat. No mounting holes required. No car or boat vandalism problem. and 100 % weather proof. Operates on **DIGITAL** and traditional TV reception.
- The MA-21 can be mounted on non-metallic surfaces and glass, even out of sight on the car or boat body of fiberglass. 3M VHB adhesive tape allows for the antenna to be mounted virtually anywhere on land or marine vehicles.



### APPLICATION



**H-PLANE**  
Radiation pattern chart



**Gain and Noise Figure**

SPECIFICATIONS	MA-21+MA-21A
Frequency range	40-890 MHz
Gain	18-25 dB
Noise Figures	3-5 dB
Output Plug	75 ohms 'F' male type
Cable	2.5C-2V 75 ohms 15FT
Power Source	DC12V or DC24V
Weight	0.22 KGS
Dimensions	142 cm x 3 cm
Option	special plug available



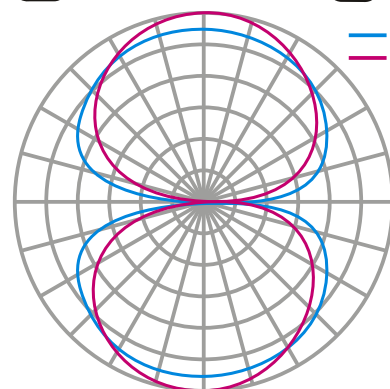
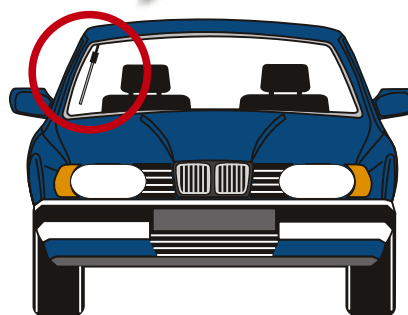
# INVISIBLE & REVOLUTIONARY!

## DIGITAL MICRO SCREEN

### VHF-UHF ANTENNA

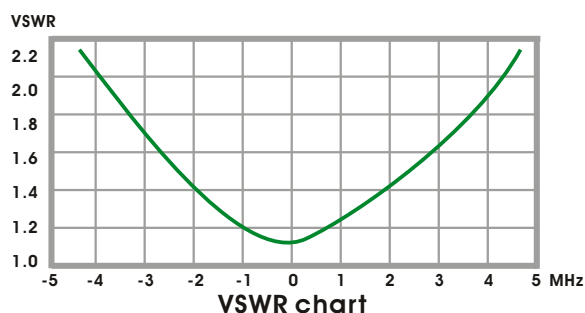
- The MSA-3 is a new proprietary design that enhances performance with its unique MICRO SCREEN element. Easy to install it on the inside of a car or boat with 3M VHB adhesive tape. No mounting holes required. No car or boat vandalism problem. 100 %weather proof. Operates on VHF or UHF bands. Standard 50 ohms output impedance.
- The enhanced performance is close to traditional outside vertical antennas and is extremely omni-directional.
- The MSA-3 can be mounted on non-metallic surfaces and glass, even out of sight on the car or boat body of fiber-glass. It fits any land or marine vehicles.

#### APPLICATION



— Traditional vertical antenna  
— MSA-3

**E-PLANE**  
Radiation pattern comparing chart



**MSA-3**

PAT. US 454862  
TW 49034

SPECIFICATIONS	MSA-3
Frequency Range	150-174 or 405-475 MHz
Gain	3/5 dBi
Max. Power Load	60W max.
VSWR	Less than 1.5:1
Output Connector	UHF male (PL-259)
Cable Length	15 ft RG-58 A/U
Weight	0.15 KGS
Dimensions	50 cm x 1 cm

## HIGH PERFORMANCE VHF-UHF ANTENNA

- There are some wireless communication needs for a narrow band antenna. The AW-6 is designed for this application. It operates on VHF or UHF single band. The working frequency rang was selected by cutting the whip. The whip cutting table is included. Output connector built in standard UHF male(PL-259).
- The SQ-7 is constructed of a metal housing with heavy duty UHF male output connector. This antenna provides high stability and reliability for RF radio communication on vehicles. The white antenna body come with a high gloss 'powder coating', 100 % weather and water proof. The working frequency covers on VHF or UHF single band. The operation frequency range can be selected by cutting whip. The whip cutting table is included with antenna package.
- Sometimes a broadband antenna is required for multi-band wireless communications. The AT-2 provides a wide frequency range on VHF and UHF dual band. It operates on VHF from 139MHz to 150MHz and UHF from 360MHz to 460MHz. The good vehicle grounding can get low VSWR. The model AT-2UHF has a built in UHF male connector, AT-2NMO has a built in NMO connector.
- The AT-3/AT-3C operates on VHF/UHF dual band. The quarter wave whip is constructed with a shock-proof spring on the antenna body, easy for installation and maintenance. The vehicle ground plane is required. The AT-3C has a built in phase coil on the whip.

### APPLICATION



AT-2UHF  
AT-2NMO



AT-3C



AT-3



SQ-7

SPECIFICATIONS	AW-6	SQ-7	AT-2UHF AT-2NMO	AT-3	AT-3C
Frequency Range	138-174 MHz		139-150 MHz 360-460 MHz	143-148/430-460MHz	
Gain	3.2 dBi		Unity/3.5 dBi	Unity	
Max. Power Load	100W max.			150W max.	
VSWR	Less than 1.5:1			Less than 1.8:1	
Output Connector	UHF male(PL-259), NMO male available on AT-2NMO				
Wave Length	5/8		1/4+1/2	1/4	
Weight	150 g	210 g	185 g	90 g	95 g
Dimensions	133 cm	95-135 cm	58 cm	52 cm	48 cm



AW-6

## HIGH PERFORMANCE CB , 6M & VHF-UHF ANTENNA

- The X series antenna are designed for CB and 6 meter wave wireless communications. The X-60CM works on 50 MHz band. The X-27CB operates on 27 MHz CB band. The high reliability construction of antenna body provides more stable TX/RX signal when vehicles are travelling in relationship to the mobile or base station. Output connector is built in a standard UHF male (PL-259) type.
- The X-270H/C operates on **amateur radio** 2M and 70CM band. The X-270H is constructed with a close phase coil whip, it's whistle free during the vehicles in travelling. The whip of X-270C has a built in open phase coil. A standard UHF male connector is on the output port.
- Sometimes a removable antenna is required for **amateur radio** communication. The MG-270 was designed for removable application on the vehicles. The antenna body is constructed of a high flux **Nd-Fe-B** alloy magnet with black ABS housing. 9ft of RG-174AU coaxial cable come with a standard BNC male connector.
- The AT-5R and WH-14M operates on VHF/UHF band of amateur and commercial radio. The high flux magnet is constructed of a black ABS housing with a stainless steel whip for WH-14M. 15ft RG-58AU **gas-injection** low loss coaxial cable and PL-259 connector is included.

The AT-5R is designed for top roof installation on vehicles. Standard 3/4" NMO connector is built in. The whip is constructed of stainless steel wire with black chrome plating. 15ft RG-58AU **gas-injection** low loss coaxial cable and PL-259 connector is also included.

X-270C

X-270H

MG-270

AT-5R

WH-14M

X-60CM  
X-27CB

SPECIFICATIONS	X-60CM	X-27CB	X-270H/C MG-270	AT-5R	WH-14M
Frequency Range	47-55 MHz	26-28 MHz	143-148 MHz 430-460 MHz	130-174/405-512MHz	
Gain	Unity	Unity	3/5 dBi Unity	Unity/3.5 dBi	
Max. Power Load	100W max.			150W max.	
VSWR	Less than 1.5:1				
Output Connector	UHF male(PL-259)		UHF male(PL-259) BNC	UHF male(PL-259) plus 15ft RG-58AU low loss cable	
Wave Length	1/4	1/8	1/4+1/2 1/4	1/4	
Weight	170 g	170 g	185/50 g	230 g	400 g
Dimensions	135 cm	135 cm	98/50 cm	46 cm	47 cm

## ELEVATED FEED CB , 6M & VHF-UHF ANTENNA

- The EX series antennas were designed for CB , 6 meter wave and VHF-UHF wireless communication. The EX-6H works on the 50 MHz band. The EX-6CB operates on the 27 MHz CB band. The elevated feed construction of the antenna body provides more stable TX/RX signal when vehicles are travelling in relationship to the mobile or base station. The output connector is built in a standard NMO male type.
- The EX-2HV/270H are EX series design. They operate on **amateur radio** 2M and 70CM band. The EX-2HV has an open phase coil whip with a shock proof spring to insure against breakage when the mast is hit. The whip of EX-270H has an open phase coil with black chrome plated. The output port comes with a standard NMO male connector.
- Sometimes a short antenna is required for commercial radio communication. The EX-2V and QW-70U has a quarter wave whip for such application. The operation frequency range can be selected by cutting whip. The whip cutting table is included with antenna package. The antenna body is constructed of a heavy duty black ABS housing with shock-proof spring.



EX-70U



The shock-proof design to insure against breakage when vehicles pass branches of forest or parking in a low level garage.



EX-2HV

EX-270HD

SPECIFICATIONS	EX-2HV	EX-270HD	EX-6H EX-6CB	EX-2V	QW-70U
Frequency Range	143-148 MHz	143-148 MHz 430-460 MHz	47-55 MHz 26-28 MHz	130-174 MHz	405-512 MHz
Gain	3 dBi	3/5 dBi	Unity	Unity	
Max. Power Load	100W max.				
VSWR	Less than 1.5:1				
Output Connector	NMO 3/4"				
Wave Length	0.5	0.5+5/8x2	1/4 1/8	1/4	
Weight	245 g	245 g	265 g	250 g	230 g
Dimensions	100 cm	100 cm	137 cm	118 cm	48 cm



EX-6H/CB EX-2V

## THE OPTIMUM DESIGN AMATEUR RADIO ANTENNA

- The WH series antennas are designed for **amateur radio** communications. The antennas operates on VHF-UHF amateur radio band. High reliability construction of the antenna body provides best stability of TX/RX signal when vehicles are travelling in relationship to the mobile or base station. A standard UHF male (PL-259) type connector is built in.
- The antennas are engineered with a pull-out and fold-down design to insure against breakage. This unique function will not require you to remove the antenna when parking in a low level garage. They feature natural chrome plating and a low profile mounting base for superior reliability and performance.

WHIP PULL-OUT &  
FOLD DOWN DESIGN



WH-718 WH-719 WH-711C WH-713 WH-711 WH-716 WH-717

SPECIFICATIONS	WH-711 WH-711C	WH-713	WH-714	WH-716 WH-717	WH-718	WH-719
Frequency Range	143-148/430-460 MHz					
Gain	3/5dBi		5/7.8dBi	2.15/3dBi	3/5dBi	
Max. Power Load	100W max.					
VSWR	Less than 1.5:1					
Output Connector	UHF male(PL-259)					
Wave Length	0.5+5/8x2		0.5+5/8x3	1/4+3/4	0.5+5/8x2	
Weight	260/240 g	300 g	340 g	245/255 g	290 g	275g
Dimensions	90/98 cm	96 cm	157 cm	57/58 cm	110 cm	88 cm

WH-714





MSA-4

PAT. US 63197  
TW 49034

PG-5/5E

PAT. TW 63197

PG-4R PG-4RE PG-4E PG-4

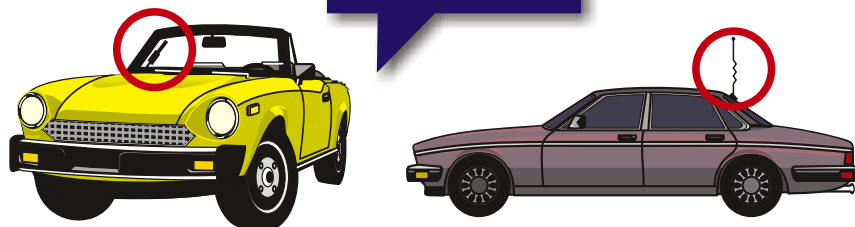
## INVISIBLE & REVOLUTIONARY!

### DIGITAL MICRO SCREEN

### MOBILE PHONE ANTENNA

- The MSA-4 is a new proprietary design that enhances performance with its unique MICRO SCREEN element. Cellular performance and hand off is improved when land or marine vehicles are travelling in relationship to the cell-site.
- Easy to install it inside of a car or boat with 3M VHB adhesive tape. No mounting holes required. No car or boat vandalism problem. 100 % weather proof. This antenna operates on **DIGITAL** and traditional mobile phone communication bands AMPS, GSM, PCN, PCS and other mobile phone systems.
- The enhanced performance is close to traditional outside vertical antennas and is extremely omni-directional.
- The MSA-4 can be mounted on non-metallic surfaces and glass, even out of sight on the car or boat body of fiberglass. It fits any land or marine vehicles.

#### APPLICATION



## GLASS MOUNT ANTENNA

- The glass mount antenna features a patented design that allows the whip and coupling box to efficiently transfer mobile phone signal through the vehicle glass. Operates on AMPS, GSM, PCN, PCS and other mobile phone systems.
- The antenna whip is constructed of a 17-7PH stainless steel wire with 3M VHB adhesive tape for glass mount. 15ft RG-58AU is included.

SPECIFICATIONS	PG-4 PG-4E	PG-4R PG-4RE	PG-5 PG-5E	MSA-4 MSA-4E
Frequency Range	800 MHz 900 MHz	800 MHz 900 MHz	800/1900 MHz 900/1800 MHz	800/1900 MHz 900/1800 MHz
Gain	3 dBi			3/5 dBi
Max. Power Load	25 W max.			
VSWR	Less than 1.5:1			
Output Connector	TNC or FME	—	TNC or FME	
Whip Style	open coil close coil	open coil close coil	open coil	MSA
Antenna Type	with cable	passive repeater	with cable	
Weight	245 g	80 g	235 g	150 g
Dimensions	33/37cm	33/37cm	13cm	61x1cm