

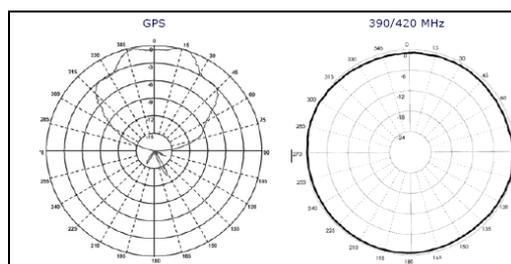
**REF: Tetra Mobile Antenna selection guide 380 - 430MHz**
**Introduction**

Maintaining Terminal performance and ensuring operational life of a communication system go hand in hand. Motorola have a full range of Antenna solutions that meet the needs of a wide range of user groups. The information in this bulletin is intended to supplement the information contained in the Operating Guides and Individual Data Sheets. The Antennas detailed are for the 380 -430MHz Frequency Bands. Refer to the associated General Information Bulletins for the 450MHz, 800MHz and 350MHz Bands.

**Motorola Antenna Solutions.**
**1.0 GPS and Tetra Combined Antenna**

The GPS and Tetra combined Antenna provide ease of installation, excellent Receiver Sensitivity and Transmission coverage, as can be seen from below Polar diagrams. Small aperture mounting Hole ensures trouble free installation. The GPS Antenna includes a 26dB Low Noise Amplifier (LNA) which is supplied via Coaxial feed with DC supply in the range 3.0 – 7.0V. For additional specifications refer to the individual Data Sheets.

<b>GPS</b>	
VSWR	<2.0:1 @ 1575 MHz +/- 4MHz
Impedance	50 Ohms
LNA Gain	26 dB
Polarisation	Right Hand Circular
Operating Voltage	3 - 7V DC (fed via coax)
Current (Typical)	14 mA
Connector	FME Socket on 300mm long, 2.5mm diameter coaxial cable
<b>Tetra Antenna</b>	
RF Connector	FME Plug on 300mm long, 2.5mm diameter coaxial cable
Gain	0 dBd
Whip length	154
Frequency Range	380-430
<b>General</b>	
Dimensions (excluding auxillary whip)	Length-60mm Width-50mm Height-18mm
Colour	black
Mounting Hole	15mm
Mounting depth	14mm (max)


**Fig 1. GPS and Tetra Combined Antenna**

**Fig. 2 Antenna Radiation Patterns**
**Motorola Terminal CLASS Options (order with radio) :**

<b>G893AA</b>	ADD: Antenna Combined Tetra / GPS 380 - 430MHz
<b>G894AA</b>	ADD: Antenna Combined Tetra / GPS 380 - 400MHz
<b>G895AA</b>	ADD: Antenna Combined Tetra / GPS 410 - 430MHz

**Motorola Aftermarket Kit Numbers :**

<b>GMAE4248A</b>	Antenna Combined Tetra and GPS 380 -430Mhz
<b>GMAE4249A</b>	Antenna Combined Tetra and GPS 380 -400MHz
<b>GMAE4250A</b>	Antenna Combined Tetra and GPS 400 - 430MHz



### REF: Tetra Mobile Antenna selection guide 380 - 430MHz

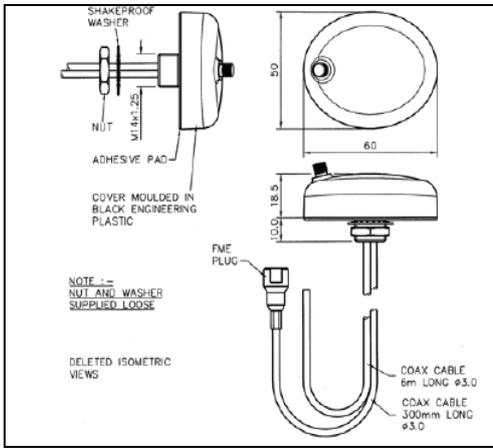


Fig. 3 Antenna Mechanical Drawings

### 2.0 GPS only Antenna

The GPS only Antenna is available in two versions direct Mount and Magnetic Mount. Direct Mount version can be Pole Mounted using suitable Right Angled bracket such as Motorola Part MNT62312B1. Note reducing Washers are required for the MNT62312B1.

<b>GPS</b>	
VSWR	<2.0:1 @ 1575 MHz +/- 4MHz
Impedance	50 Ohms
LNA Gain	26 dB
Polarisation	Right Hand Circular
Operating Voltage	3 - 7V DC (fed via coax)
Current (Typical)	14 mA
Connector	FME Socket on 300mm long, 2.5mm diameter coaxial cable
<b>General</b>	
Dimensions	Length-60mm Width-50mm Height-18mm
Colour	black
Mounting Hole	15mm
Mounting depth	8mm (max)



FIG. 4 GPS Only Antenna

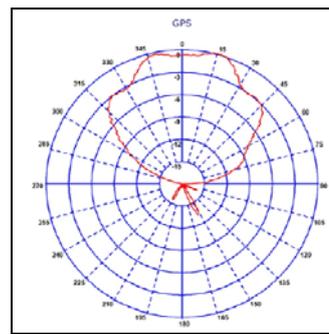


Fig. 5 Antenna Receive Polar Diagram



### REF: Tetra Mobile Antenna selection guide 380 - 430MHz

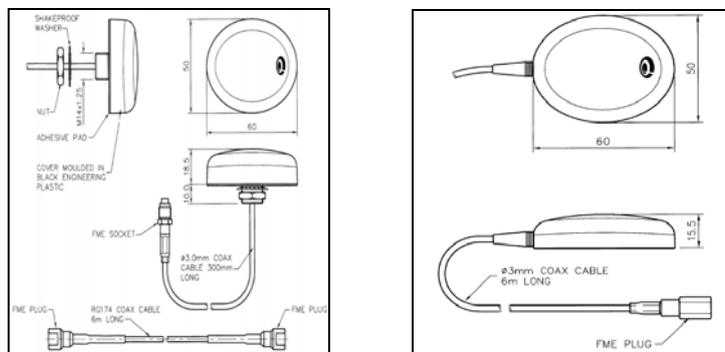


Fig. 6 Mechanical Drawing GPS Panel and Magnetic Mount

#### Motorola Terminal CLASS Options (order with Radio) :

- G896AA                    ADD: Antenna GPS Only Panel/Roof Mount
- G897AA                    ADD: Antenna GPS Only Mag Mount

#### Motorola Aftermarket Kit Numbers :

- GMAG4251A                Antenna GPS Panel / Roof Mount
- GMAG4252A                Antenna GPS Magnetic Mount

### 3.0 Tetra Antennas – Alternative Styles

The following range of Antennas are available to suit the diverse requirements of Users and of course specialist Vehicles. The range covers traditional Glass Mount, Low Profile and also Antennas suited to discreet or Covert operations. These Antennas can be used in conjunction with the Stand Alone GPS Antennas described in Section 2.0 above.

#### 3.1 Glass Mount

Glass Mount provides ease of installation coupled with solid performance. Whips are easily detached for General vehicle maintenance such as cleaning. Glass Mount provides a lower cost solution compared to other Antenna styles.



Gain	0dBd
Polarisation	Vertical
Freq Range	380-400MHz & 410-430MHz
Height	259mm
Mounting	External glassmount
Impedance	50 Ohm
Cable	5m URM76

Fig. 7 Glass Mount Antenna

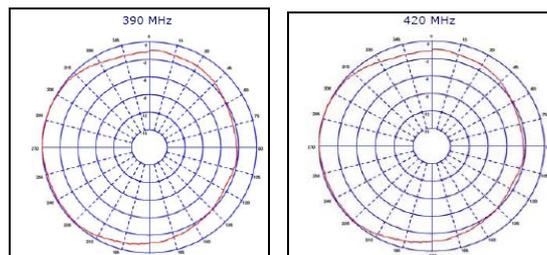
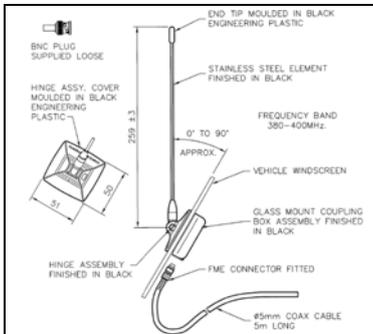


Fig. 8 Glass Mount Polar Diagrams.



**REF: Tetra Mobile Antenna selection guide 380 - 430MHz**



**Fig. 9 Mechanical Drawing for Glass Mount**

**Motorola Terminal CLASS Options (order with Radio) :**

- G898AA**                      ADD: Antenna Tetra Glass Mount 380 -400MHz
- G899AA**                      ADD: Antenna Tetra Glass Mount 410 -430MHz

**Motorola Aftermarket Kit Numbers :**

- GMAE4253A**                      Antenna Glass Mount 380 -400MHz
- GMAE4254A**                      Antenna Glass Mount 410 -430MHz

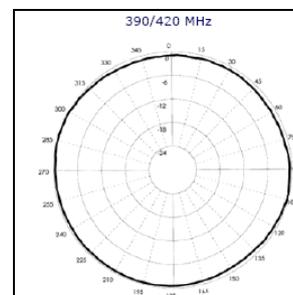
**3.2 Panel Mount Antenna**

Panel Mount Antenna solutions are the preferred choice for robust installation and solid RF performance. A well sited Antenna correctly installed will give reliable and cost effective performance for many years. The choice of flexible Whip gives added protection against harsh environments and will withstand general maintenance such as cleaning.

Frequency Range (MHz)	380-430
Bandwidth @ 2:1 VSWR	10%
Gain: Isotropic	2dBi
Compared with ¼ wave	0dB
Height Mounted (mm)	176
Hole Size (fitted from inside) (mm)	16
Hole Size (fitted from outside) (mm)	12
Panel Thickness (mm)	0-4
Cable Length (m)	5
Detachable Cable	✓
Flexible Whip	✓



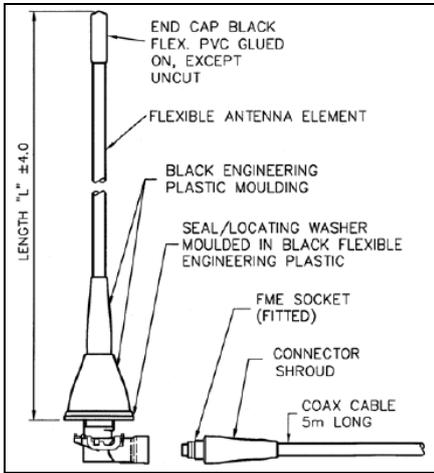
**Fig. 10 Panel Mount Antenna**



**Fig. 11 Panel Mount Antenna Polar Diag.**



### REF: Tetra Mobile Antenna selection guide 380 - 430MHz



**Fig. 12 Mechanical Drawings for Panel Mount.**

**Motorola Terminal CLASS Options (order with Radio) :**

**G900AA**

ADD: Antenna Tetra Panel/Roof Mount 380 - 430MHz

**Motorola Aftermarket Kit Numbers :**

**GMAE4255A**

Antenna Panel Mount 380 -430MHz

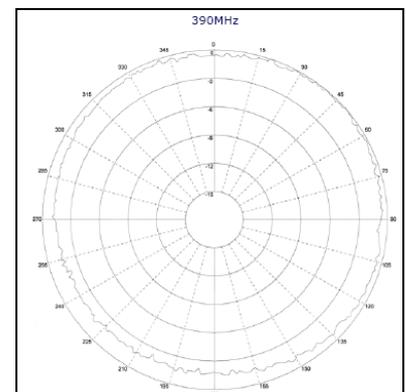
### 3. 3 Magnetic Mount Antenna

Magnetic Mount Antennas are by design suited to temporary installations and provide good RF performance. The adherence strength makes them suitable for a wide range of vehicle styles.



<b>Frequency Range (MHz)</b>	380-400
<b>Pre-tuned Bands</b>	S1
<b>Bandwidth @ 2:1 VSWR</b>	10%
<b>Gain: Isotropic</b>	2dBi
<b>Compared with ¼ Wave</b>	0dB
<b>Height Mounted (mm)</b>	165

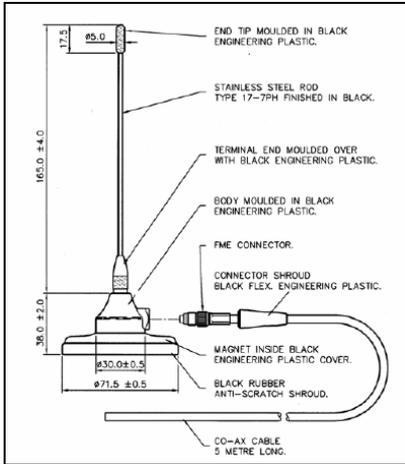
**Fig. 13 Magnetic Mount (Band S1 Shown)**



**Fig. 14 Mag Mount Polar Diag.**



**REF: Tetra Mobile Antenna selection guide 380 - 430MHz**



**Fig. 15 Mechanical Drawing Mag Mount.**

**Motorola Terminal CLASS Options (order with Radio) :**

**G901AA**

ADD: Antenna Tetra Magnetic Mount 380 -400MHz

**G902AA**

ADD: Antenna Tetra Magnetic Mount 410 -430MHz

**Motorola Aftermarket Kit Numbers :**

**GMAE4256A**

Antenna Magnetic Mount 380 -400MHz

**GMAE4257A**

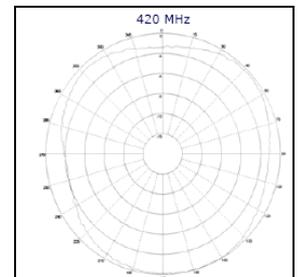
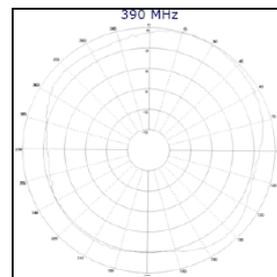
Antenna Magnetic Mount 410 -430MHz

**3.4 Covert Antenna**

Simple Low Cost Covert or discreet Antenna solution based on a Glass Mountable strip (dipole). Provides ease of installation and fair RF Coverage



<b>Gain</b>	0 dBd/ 2 dBi
<b>Polarisation</b>	Vertical
<b>Freq Range</b>	S1: 380-400MHz S2: 410-430
<b>Cable</b>	3m 3.5mm coax, FME fitted
<b>Configuration</b>	Printed 1/2 wave dipole element
<b>Orientation</b>	Vertical, cable entry left or right
<b>Mounting</b>	Internal Glassmount Front
<b>Dimensions</b>	Length: 217mm Width: 19mm Height: 2.5mm (6.5mm at cable entry)

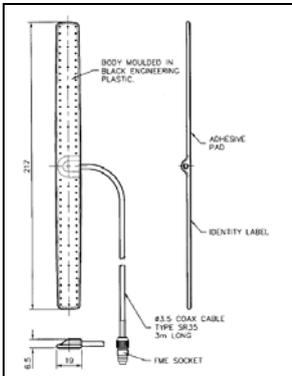


**Fig. 16 Covert Antenna**

**Fig. 17 Covert Antenna Polar Diagram**



### REF: Tetra Mobile Antenna selection guide 380 - 430MHz



**Fig. 18 Mechanical Drawing Covert Antenna**

**Motorola Terminal CLASS Options (order with Radio) :**

- G903AA**                      ADD: Antenna Tetra Covert 380 -400MHz
- G904AA**                      ADD: Antenna Tetra Covert 410 -430MHz

**Motorola Aftermarket Kit Numbers :**

- GMAE4258A**                      Antenna Covert 380 -400MHz
- GMAE4259A**                      Antenna Covert 410 -430MHz

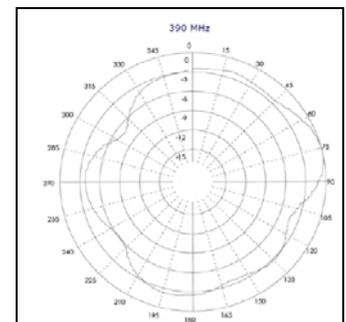
### 3.5 Low Profile Antenna

Low Profile Antenna solutions are ideally suited to a wide number of Vehicles including Trains, Buses and where Antenna Height is required to be kept to a minimum. Robust solution in harsh conditions, RF performance is fair and provides a more directional profile which favor Track or Urban area Bus Route solutions.

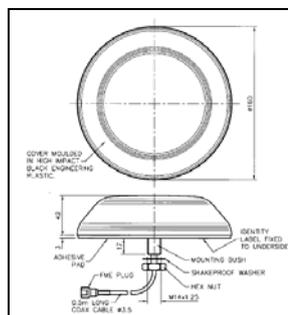


**Fig. 19 Low Profile Antenna**

<b>Gain</b>	0dBi
<b>Polarisation</b>	Vertical
<b>Freq Range</b>	380-400MHz
<b>Cable</b>	0.5m 3.5mm coax with FME Plug
<b>Dimensions</b>	Height: 45mm Width 160mm
<b>Mounting</b>	M14 Centre bolt with adhesive pad
<b>Groundplane</b>	Integrated baseplate groundplane



**Fig. 20 Low Profile Polar Diag.**

**REF: Tetra Mobile Antenna selection guide 380 - 430MHz**

**Fig. 21 Low Profile Mechanical Drawing**
**Motorola Terminal CLASS Options (order with Radio) :**
**G905AA**

ADD: Antenna Tetra Low Profile 380 -400MHz

**G906AA**

ADD: Antenna Tetra Low Profile 410 -430MHz

**Motorola Aftermarket Kit Numbers :**
**GMAE4260A**

Antenna Low Profile 380 - 400MHz

**GMAE4261A**

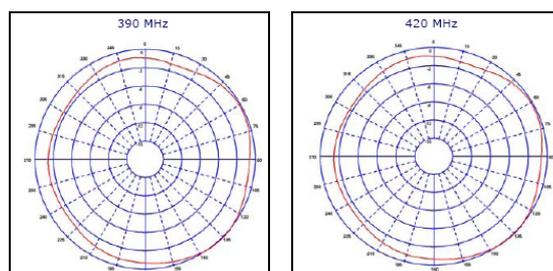
Antenna Low Profile 410 - 430MHz

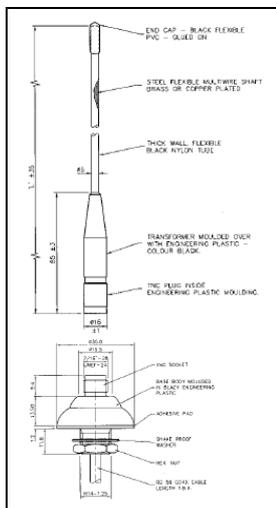
**3.6 Motorcycle Antenna**

Motorcycle Antenna solution provides specific solution including inbuilt Ground plane and capability for Stand Off mount. The Antenna also provides excellent RF Performance. Whip is Flexible and plastic coated for safety.



<b>Gain</b>	4dBd
<b>Polarisation</b>	Vertical
<b>Freq Range</b>	380-400 (S1) & 410-430 (S2)
<b>Base</b>	ML10 with 5m RG58
<b>Dimensions</b>	Height: 420mm (S1) 355mm (S2) Base diameter: 35mm
<b>Mounting</b>	M14 Centre bolt with adhesive pad

**Fig. 22 Motorcycle Antenna**

**Fig. 23 Motorcycle Ant. Polar Diag.**

**REF: Tetra Mobile Antenna selection guide 380 - 430MHz**

**Fig. 24 Mechanical Drawings**
**Motorola Terminal CLASS Options (order with Radio) :**
**G909AA**

ADD: Antenna Tetra Motorcycle 380 -400MHz

**G910AA**

ADD: Antenna Tetra Motorcycle 410 -430MHz

**Motorola Aftermarket Kit Numbers :**
**GMAE4266A**

Antenna Motorcycle 380 -400MHz

**GMAE4267A**

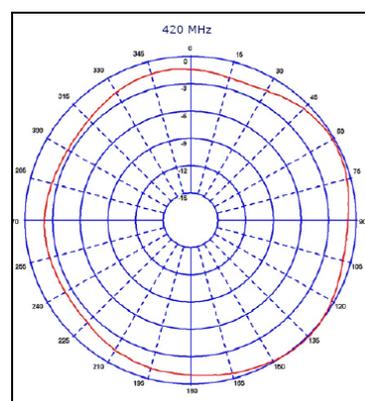
Antenna Motorcycle 410 -430MHz

**3.7 Wall Mount Antenna**

The Wall Mount Antennas are simple low Duty Antennas suited to applications such as Sports Stadia, Shopping Malls, Rail or Bus Stations. The Installation is uncomplicated and the Antenna Kit includes integral Bracket. These Antennas are not intended to replace Fixed style Antennas.

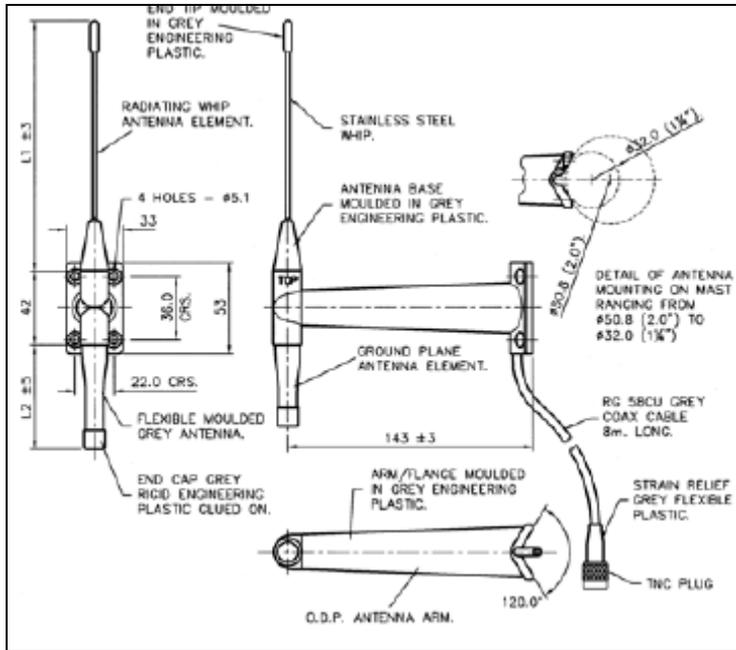


<b>Gain</b>	0dBd
<b>Polarisation</b>	Vertical
<b>Freq Range</b>	410-430MHz
<b>Dimensions</b>	Height: 252mm Width: 32.7mm
<b>Configuration</b>	1/2 wave dipole
<b>Fixing</b>	4 screws to wall or other surface
<b>Cable</b>	8m Grey RG58 with TNC plug


**Fig. 25 Wall Mount Antennas**
**Fig. 26 Wall Mount Polar Diag.**



### REF: Tetra Mobile Antenna selection guide 380 - 430MHz



**Fig. 27 Mechanical Drawing**

#### Motorola Terminal CLASS Options (order with Radio) :

**G907AA** ADD: Antenna Wall Mount 380 -400MHz  
**G908AA** ADD: Antenna Wall Mount 410 -430MHz

#### Motorola Aftermarket Kit Numbers :

**GMAE4262A** Antenna Wall Mount 380 -400MHz  
**GMAE4263A** Antenna Wall Mount 410 -430MHz

Individual Data Sheets are available on each of the above Antennas. These can be downloaded from Motorola On Line at:-

<https://emeaonline.motorola.com/default.asp>

Please also refer to the relevant installation guides supplied with your Tetra Terminal Equipment which contain general Antenna installation tips and important Safety information.

For additional information contact your Motorola Sales representative.