Product Catalogue

Public Safety & TETRA Antennas

2010

PANORAMA ANTENNAS

60 Years Experience

Panorama Antennas, a family business now in its third generation, is a leading designer and manufacturer of antennas for radio communication. Established in London in 1947, Panorama started life as a company manufacturing consumer products. In 1952, buoyed by huge demand for TVs in the UK, Panorama began manufacturing components for televisions, including antennas. With transistor radios being a trend of the 1960s, Panorama used its expert knowledge in television antennas and began to manufacture communication antennas for radio.

Throughout the 70s and 80s Panorama evolved to become the first specialised communication antenna manufacturer in the UK, developing a range of cellular antennas to coincide with the launch of the mobile phone network in the Britain. In 1990, Panorama filed a patent application for the first ever solid state coupling circuit, revolutionising cellular glass mount antenna technology and created a new benchmark for quality in the production of components. As the cellular telecommunications industry has grown worldwide, so has Panorama. Today, Panorama is a major producer of antennas for telecommunications and electronics companies around the world.

The First Choice for TETRA Antennas

Panorama antennas are the products of choice for the vast majority of UK police forces. We currently provide more than 70% of all antennas used by the British police. We are also the primary antenna supplier for the British Fire and Ambulance Airwave system. Our TETRA antennas are extensively used by police forces across the whole of Europe and the world.

Panorama Antennas is a member of the following professional associations:
Federation of Communication Services
TETRA Association
South African TETRA Association (SATA)
The Australian TETRA Forum
Federation of SMBll Businesses
British Association of Police & Public Security Suppliers
Low Power Radio Association
British Safety Council

Credits
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United Kingdom

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Quality As Standard

Quality Assurance

In 1989, Panorama Antennas became the first antenna manufacturer in Europe to gain ISO 9000 certification. Panorama currently holds the ISO 9001-2000 certificate for quality assurance.

Patents

Panorama Antennas currently holds over 30 different patents and registered designs both in Europe and worldwide.

RoHS Compliance

All of the products that Panorama Antennas manufactures are 100% RoHS compliant. This is in line with European legislation which came into force on the 1st July 2006. Investment in advanced technology enables Panorama to test all materials supplied to us, as soon as they arrive at the factory, ensuring that no noncompliant material is passed on to the customer.

REACH

REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals, EC 1907/2007) is the European Union's chemical regulation that came into force on 1 June 2007 and will be phased in over and 11 year period (until 2018). Panorama Antennas wholeheartedly supports the objective of REACH to enhance public health and safety and the protection of the environment.
Panorama will meet all REACH requirements and is committed to provide our customers with information about substances in our products according to future REACH requirements.

Certification

Panorama Antennas proudly conforms to the following manufacturing and testing standards:
CE mark, WEEE, UL, E-Mark

Associations

Panorama Antennas is currently a member of the following professional associations:
Federation of Communication Services
TETRA Association
Federation of SMBll Businesses
British Association of Police & Public Security Suppliers
Low Power Radio Association
British Safety Council

Training

The training session helps organisations get mobile antenna installations right the first time. Helping companies to reduce the costs they might incur replacing poorly installed units.

Why is training important?

Ineffective antennas can cause system drop out, noise and lost calls. Without test facilities it is difficult for the user to know if a problem is due to poor installation, a network fault, or if the antenna itself is to blame.
The mobile antenna is a vital component which affects the quality of the whole cellular communication system. Since a vehicle travels between cell sites it relies on its mobile antenna works to link up with the closest cell site base station.
Our training explains why efficient electrical design and effective installation are essential to make the most of the available cell site coverage.

Who should attend?

'Introduction to mobile antennas' is essential training for anyone working with, or supplying, mobile communications equipment. This training session aims to increase customer satisfaction by improving the way that mobile antennas are selected and installed.
Individuals who could benefit most by attending include buyers, installers, distributors and retailers of mobile communications equipment.

What does training involve?

After the training session you should be able to:
Understand basic antenna theory.
Know how to select the best antenna for the job.
Define antenna performance.
Understand the correct installation and test processes.

Want training for your team?

If you would like to come to one of our open training sessions or would prefer us to provide a bespoke training session for your team, please do not hesitate to contact us.

Bespoke Design Service

Panorama Antennas is renowned for its ability to design antennas specifically to the customers' needs regardless of the quantity. This could involve modifying an existing product to give it a new frequency, cable length, connector configuration or might require a brand new design.

Custom Design To Your Specification

Panorama Antennas has a long history of designing antennas to specifically meet customers requirements. We closely consult with the customer throughout the design and manufacturing process.

The antenna will be tested so that it works perfectly in the environment that it is designed for.

Tuned To Your Frequency

Panorama can tune most UHF & VHF antennas to a specific band. If you don't see the exact frequency you require in our product catalogue, you just need to ask us if it can be done specifically for you.

Don't Forget The Cable

While many people may not realise it, an antenna is only as good as the RF cable attached to it. Panorama can provide many different types of cable to suit your requirement.

But it doesn't stop there. We can provide you with cable to the exact length you require, fitted with the connector of your choice so you do not have to waste any time fitting our products.

Testing & Facilities

Panorama's testing and measurement facilities represent the cutting edge of antenna design capability. Our communication antenna designs are validated before manufacture using accurate and repeatable tests and measurements. This specialist design and development process builds quality and reliability into all Panorama's products. The key components of our measurement system are:

The Anechoic Chamber

This creates a 1.2m spherical 'quiet zone' in which the performance characteristics of antenna assemblies can be measured at frequencies up to 35GHz, free from physical or electrical conditions that would otherwise interfere with the measurements.

Network Analysers

Network Analysers measure efficiency using a wide range of parameters including antenna impedance, relative field strength and insertion loss. Results can be displayed in various formats including Smith Chart, VSWR and return loss.

Turntable & Positioning Controller

This assesses the directivity of an antenna in both the 'E' and 'H' planes. This special equipment is constructed to rotate through 360 degrees (in 1 degree increments), with minimal RF reflection or interference.

Antenna Measurement Software

This enables computer control of the Network Analyser and Positioning Controller/Turntable. Data obtained from controlled measurements is automatically displayed on a monitor as VSWR and polar radiation patterns which can be printed or shared on Panorama's computer network (PITS).

Vehicle Ground Plane Simulation

This can be used in the centre of the anechoic chamber to simulate, as closely as possible, a typical modern car roof and windscreen (front and rear).

GPS Satellite Recognition

GPS Antennas rely on continuous communication with the GPS satellites. The GPS Satellite Recognition software enables Panorama to identify each satellite that is being picked up by the GPS antenna. This helps our developers to see how our antennas perform in the real environment.

TETRA UHF
PAGE 6
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TETRA 800
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TETRA BOS Migration
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In Building Antennas
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Contact Us

We are happy to answer your queries. Get in touch and we will help you with any questions you may have.

T: +44 (0)20 8877 4444
E: sales@panorama-antennas.com

Find Your Perfect Antenna in 3 Steps

1 Select a base

2 Choose your antenna

3 Connector configuration

1




M8-5	M8A-5	MMR-5F	MBM-5F
Panel Mount with 5m cable	Thick Panel Mount with 5m cable	Magnetic Mount with 5m cable	Boot clip with 5m cable

2





AFB	AQB	A5SG	AUGB	ACUB
2dBi	2dBi	5dBi	5dBi	7dBi

3



BNC	TNC	FME
SC1-BNC-PC10	SC1-TNC-PC10	SC1-FME-JC10

1. Selecting a base
Panel Mount

M8

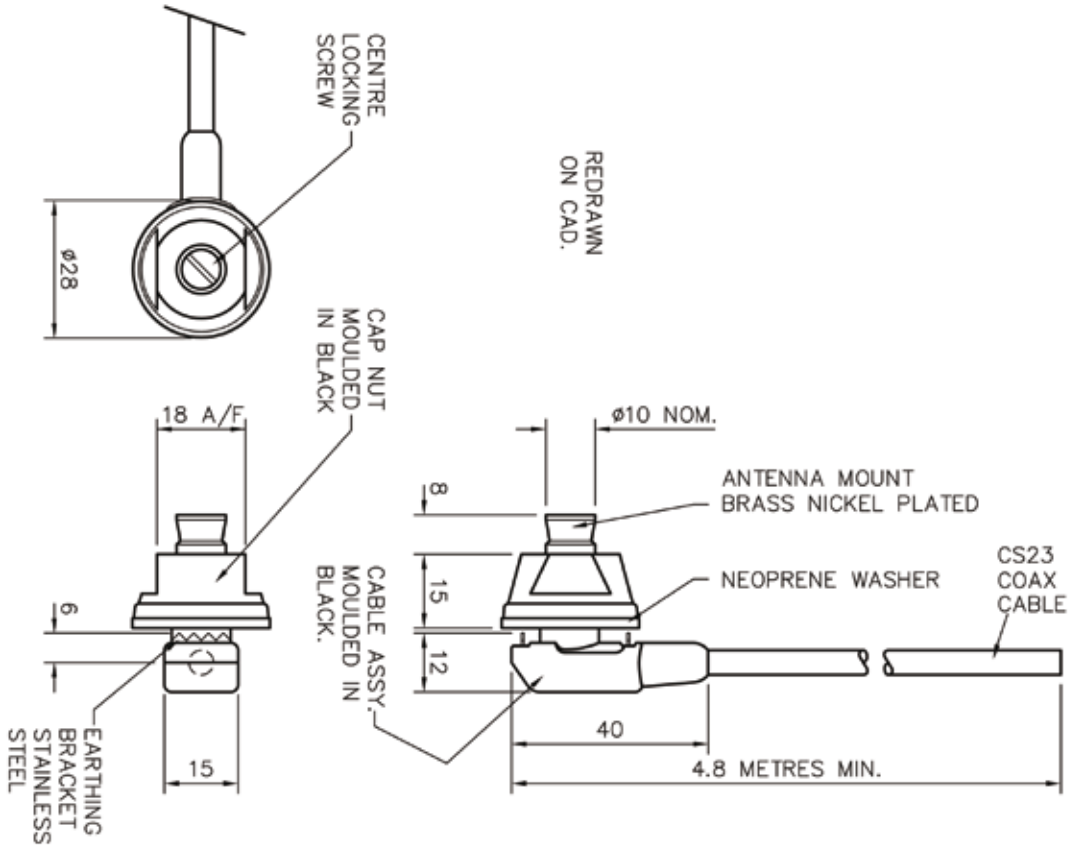
Panel mount
Rugger design
Modular stud fitting
Interchangeable whips

The M8 is the “industry standard” panel mount base.
It incorporates a fully moulded construction with high quality coaxial cable for low loss and long term reliability.

The base is easy to fit and can also be installed from outside the vehicle if under panel access is not available.

With the modular stud fitting, any antenna in the Panorama range can be fitted to the base.

Technical Drawing



Part No.		
		M8
Mechanical Data		
Dimensions (mm)	Base Height	15
	Base Diameter	28
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic & Brass nickel plated
Colour		Black
Cable Data		
Type		CS23
Diameter (mm)		5
Length (m)		4.8
Termination		Bare end*

*Connector Configurations	
BNC (loose)	M8-5BL
TNC (loose)	M8-5TL
FME (fitted)	M8-5F
Bare End	M8

1. Selecting a base
Panel Mount with Long Reach

M8A

Panel mount
Rugger design
Modular stud fitting
Interchangeable whips

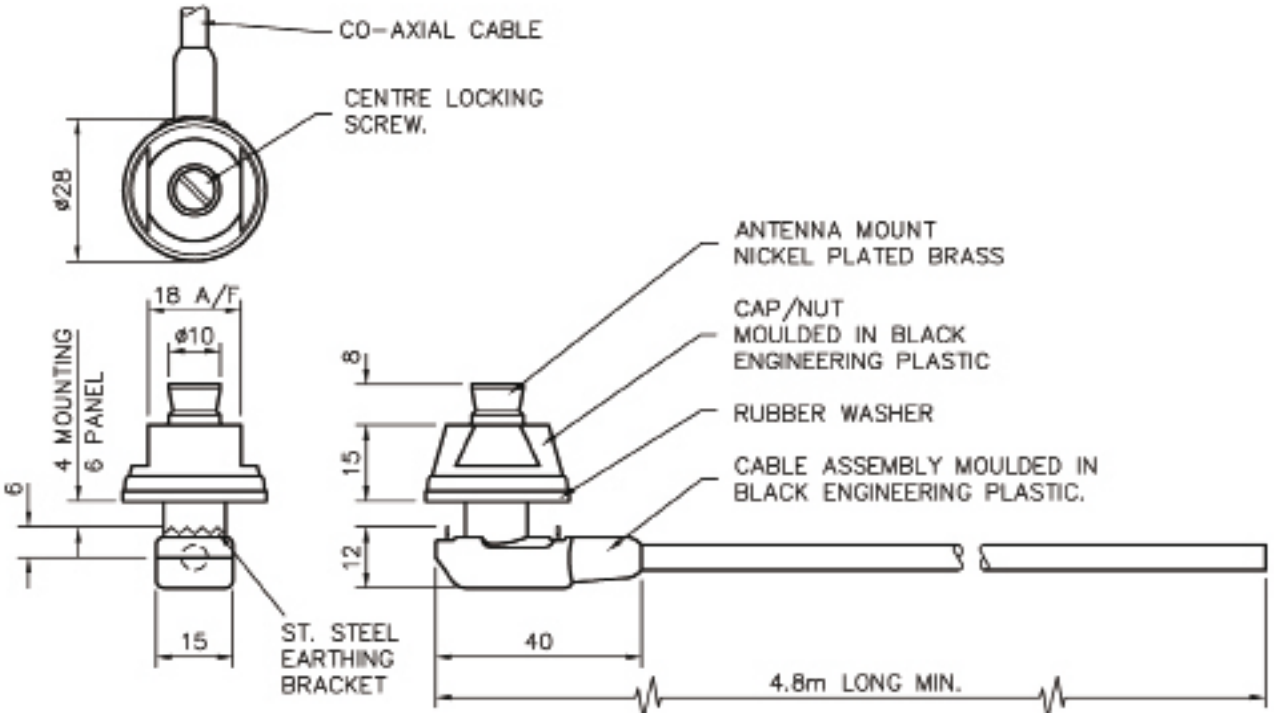
The M8A is the “industry standard” panel mount base with an extra long reach for thicker panels.

It incorporates a fully moulded construction with high quality coaxial cable for low loss and long term reliability.

The base is easy to fit and can also be installed from outside the vehicle if under panel access is not available.

With the modular stud fitting, any antenna in the Panorama range can be fitted to the base.

Technical Drawing



Part No.		
		M8A
Mechanical Data		
Dimensions (mm)	Base Height	15
	Base Diameter	28
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic & Brass nickel plated
Colour		Black
Cable Data		
Type		CS23
Diameter (mm)		5
Length (m)		4.8
Termination		Bare end*

*Connector Configurations	
BNC (loose)	M8A-5BL
TNC (loose)	M8A-5TL
FME (fitted)	M8A-5F
Bare End	M8A

1. Selecting a base
Magnetic Base

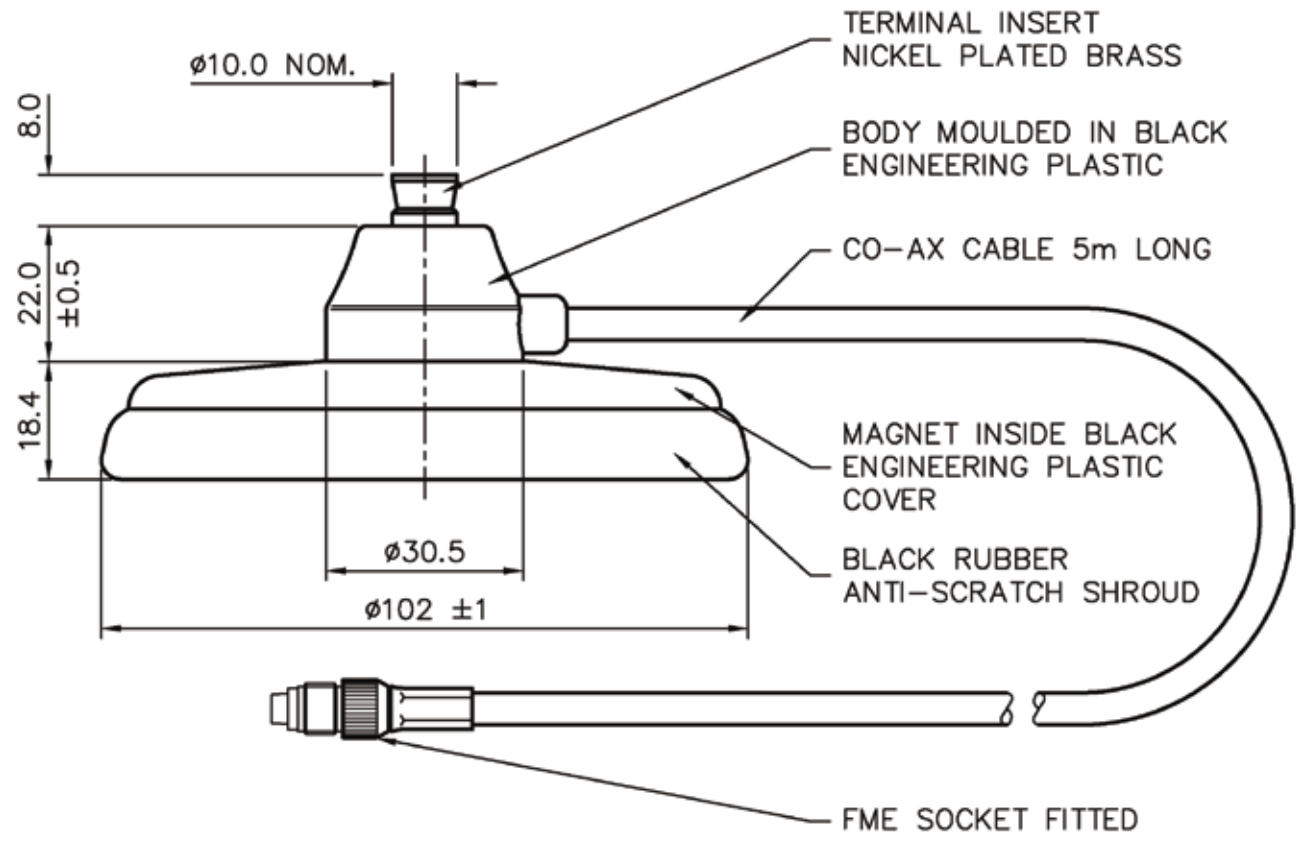
MMR-5F

Strong magnetic retention
Modular stud fitting
Interchangeable whips

The MMR-5F is large magnetic base for professional user. It incorporates a fully moulded construction with high quality coaxial cable for low loss and long term reliability.

The large magnetic base ensures that the whip stays securely fastened to the vehicle with no need for permanent installations and can handle long whips designed for low frequencies.

Technical Drawing



Part No.		
		MMR-5F
Mechanical Data		
Dimensions (mm)	Base Height	40.2
	Base Diameter	102
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic & Brass nickel plated
Colour		Black
Cable Data		
Type		CS23
Diameter (mm)		5
Length (m)		5
Termination		FME Socket
***Connector Configurations**		
BNC (adaptor)		MMR-5F & CA-BP-FP
TNC (adaptor)		MMR-5F & CA-TP-FP
FME (fitted)		MMR-5F
Bare End		Not Available

1. Selecting a base
Boot Clip Base

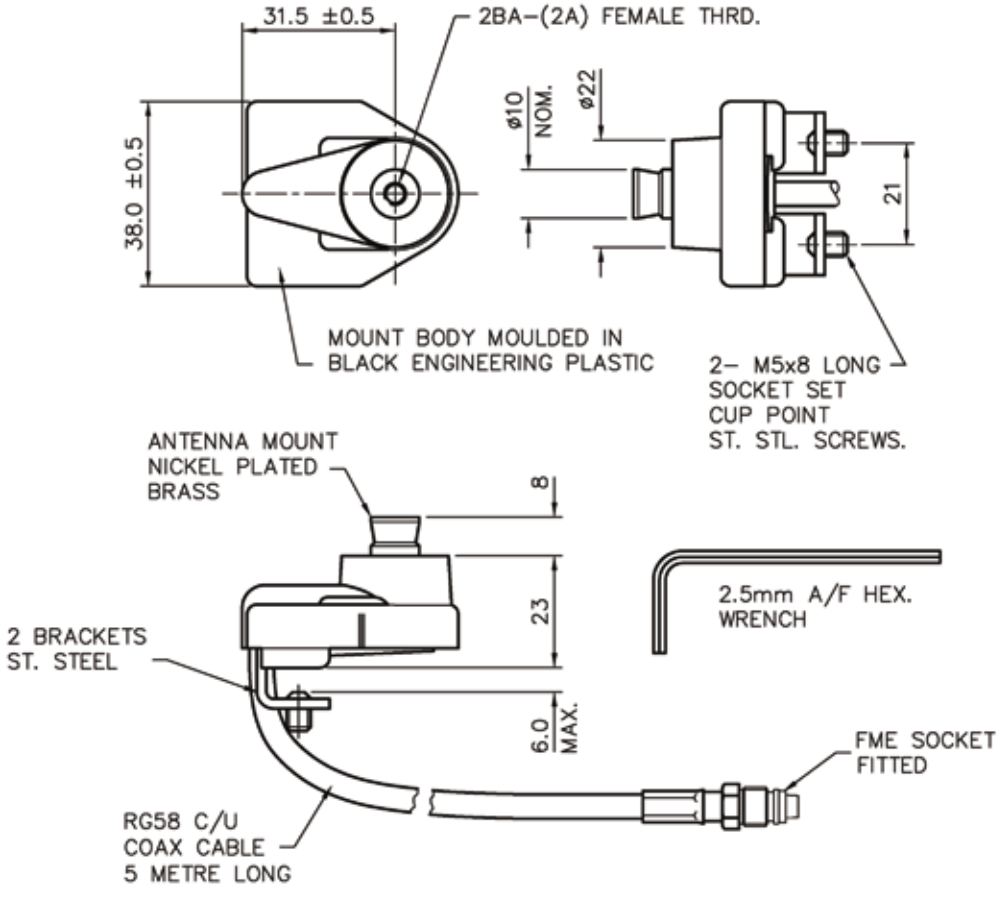
MBM-5F

Removed without a trace
Modular stud fitting
Interchangeable whips

The MBM-5F is a boot clip base designed for fixing around the vehicles panels. It incorporates a fully moulded construction with high quality coaxial cable for low loss and long term reliability.

The base can be used with a wide range of modular whips for a secure mounting that can be removed without a trace.

Technical Drawing



Part No.		
		MBM-5F
Mechanical Data		
Dimensions (mm)	Base Height	23
	Base Length	42.5
	Base Width	38
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic & Brass nickel plated
Colour		Black
Cable Data		
Type		RG58
Diameter (mm)		5
Length (m)		5
Termination		FME Socket
***Connector Configurations**		
BNC (adaptor)		MBM-5F & CA-BP-FP
TNC (adaptor)		MBM-5F & CA-TP-FP
FME (fitted)		MBM-5F
Bare End		Not Available

2. Choose your antenna
TETRA Rigid Whip

- TETRA UHF
- Public Safety
- Omni Directional
- ROHS Compliant
- Vehicle Mount

AQB & AQHB

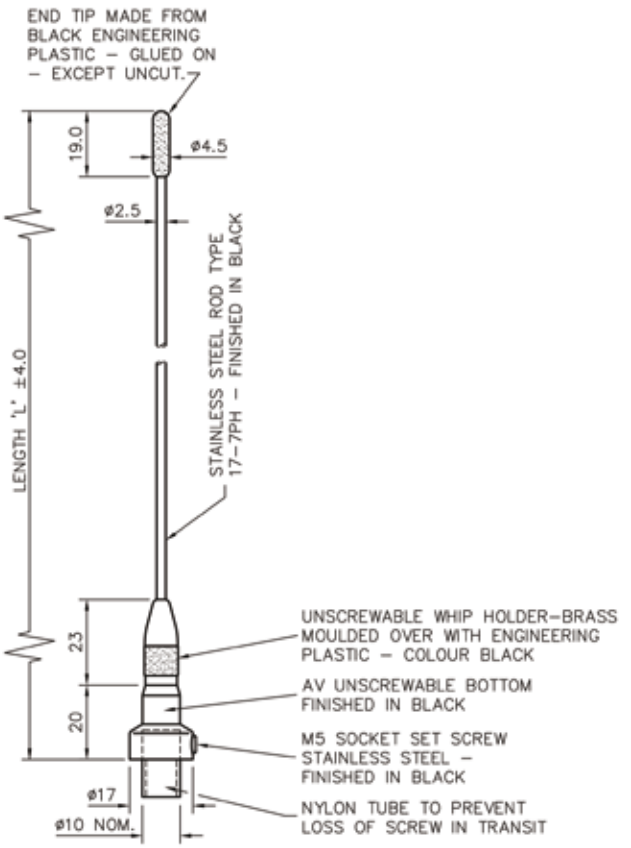
Rigid whip
Removable for carwash
Hinged & non-hinged versions

This antenna features a 17-7 PH stainless steel rod with plated brass components and black nylon moulding. When fitted correctly these antennas will have a typical VSWR of 1.5:1 or less.

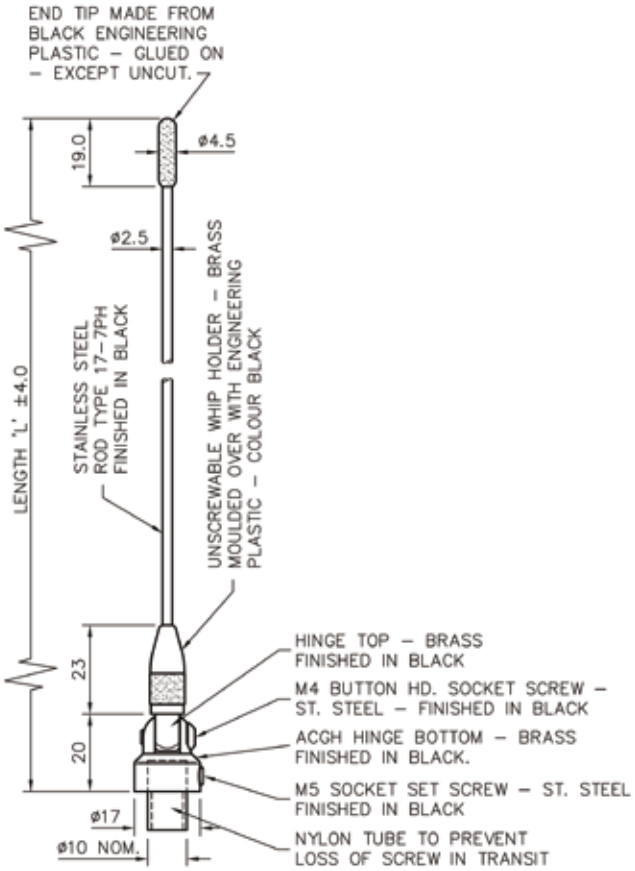
The Panorama mounting system provides a high degree of interchangeability between whips and bases, making them suitable for all applications whether temporary or permanent.

Technical Drawing

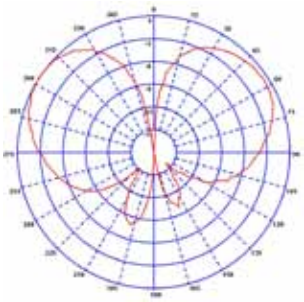
Non-hinged version



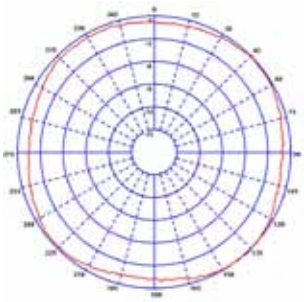
Hinged version



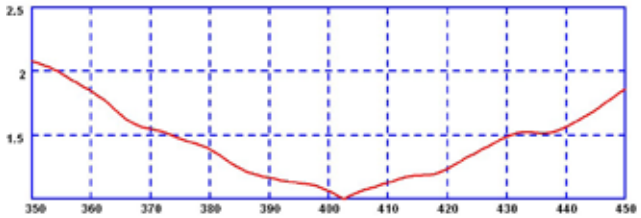
E-Plane (390MHz)



H-Plane (390MHz)



Typical VSWR*



*measured on a 1m × 1m groundplane

Part No.					
Non-hinged version		AQB-R1	AQB-R2	AQB-TET	AQB-S4
Hinged version		*AQHB-R1*	*AQHB-R2*	*AQHB-TET*	*AQHB-S4*
Electrical Data					
Frequency Range (MHz)		300-334	350-370	380-430	450-470
Operational Band		R1	R2	TET	S4
Gain: Isotropic		2dBi	2dBi	2dBi	2dBi
Compared to ¼ wave		0dB	0dB	0dB	0dB
Bandwidth @ 2:1 VSWR		10%	10%	10%	10%
Polarisation		Vertical	Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω	50Ω
Max Input Power (W)		50	50	50	50
Mechanical Data					
Total Height (mm)		236	215	198	172
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Stainless steel & engineering plastic	Stainless steel & engineering plastic	Stainless steel & engineering plastic	Stainless steel & engineering plastic
Colour		Black	Black	Black	Black
Compatible Bases					
M8	Non-hinged version	AQB-R1-M8-5	AQB-R2-M8-5	AQB-TET-M8-5	AQB-S4-M8-5
	Hinged version	*AQHB-R1-M8-5*	*AQHB-R2-M8-5*	*AQHB-TET-M8-5*	*AQHB-S4-M8-5*
M8A	Non-hinged version	AQB-R1-M8A-5	AQB-R2-M8A-5	AQB-TET-M8A-5	AQB-S4-M8A-5
	Hinged version	*AQHB-R1-M8A-5*	*AQHB-R2-M8A-5*	*AQHB-TET-M8A-5*	*AQHB-S4-M8A-5*
MMR-5F	Non-hinged version	AQB-R1-MMR-5F	AQB-R2-MMR-5F	AQB-TET-MMR-5F	AQB-S4-MMR-5F
	Hinged version	*AQHB-R1-MMR-5F*	*AQHB-R2-MMR-5F*	*AQHB-TET-MMR-5F*	*AQHB-S4-MMR-5F*
MBM-5F	Non-hinged version	AQB-R1-MBM-5F	AQB-R2-MBM-5F	AQB-TET-MBM-5F	AQB-S4-MBM-5F
	Hinged version	*AQHB-R1-MBM-5F*	*AQHB-R2-MBM-5F*	*AQHB-TET-MBM-5F*	*AQHB-S4-MBM-5F*

For the complete list of base connectors see page 34

2. Choose your antenna
TETRA Flexible Whip

- TETRA UHF
- Public Safety
- Omni Directional
- ROHS Compliant
- Vehicle Mount

AFQB & AFQHB

Flexible whip

Removable for carwash

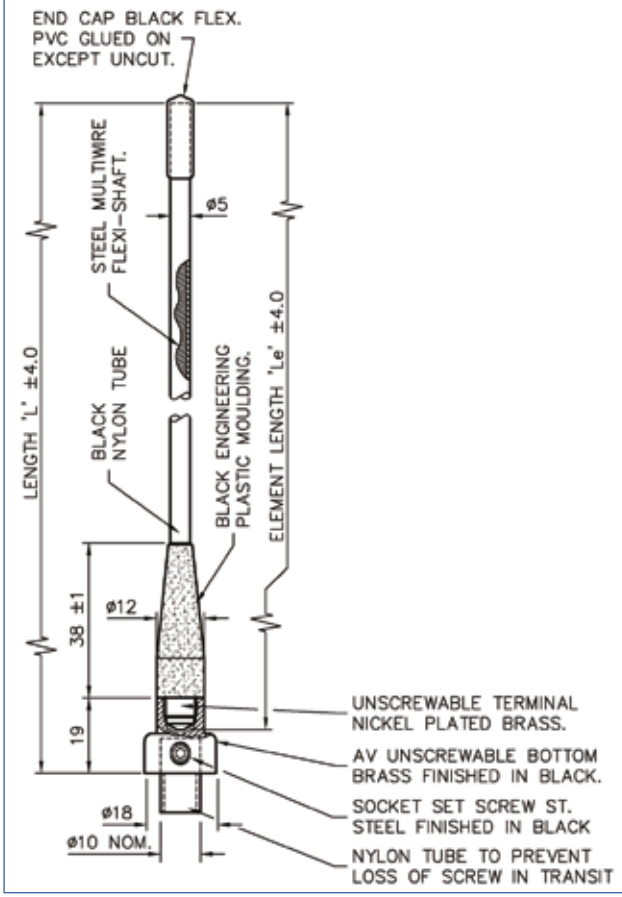
Hinged & non-hinged versions

This antenna features a flexible construction within a black nylon tube. When fitted and tuned correctly these antennas will have a typical VSWR of 1.5:1 or less.

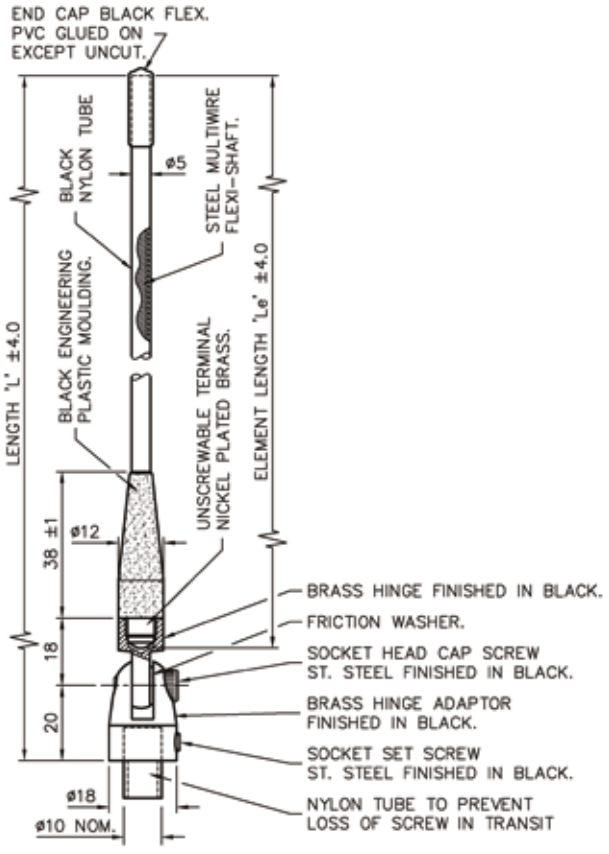
The Panorama mounting system provides a high degree of interchangeability between whips and bases, making them suitable for all applications whether temporary or permanent.

Technical Drawing

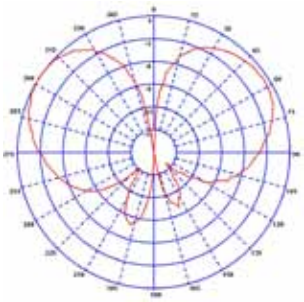
Non-hinged version



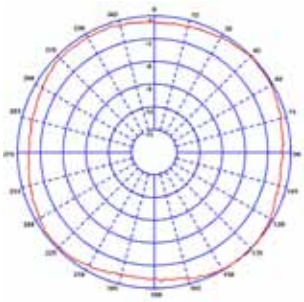
Hinged version



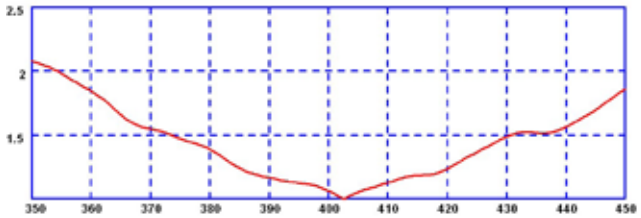
E-Plane (390MHz)



H-Plane (390MHz)



Typical VSWR*



*measured on a 1m × 1m groundplane

Part No.					
Non-hinged version		AFQB-R1	AFQB-R2	AFQB-TET	AFQB-S4
Hinged version		*AFQHB-R1*	*AFQHB-R2*	*AFQHB-TET*	*AFQHB-S4*
Electrical Data					
Frequency Range (MHz)		300-334	350-370	380-430	450-470
Operational Band		R1	R2	TET	S4
Gain: Isotropic		2dBi	2dBi	2dBi	2dBi
Compared to ¼ wave		0dB	0dB	0dB	0dB
Bandwidth @ 2:1 VSWR		10%	10%	10%	10%
Polarisation		Vertical	Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω	50Ω
Max Input Power (W)		50	50	50	50
Mechanical Data					
Total Height (mm)		229	208	191	165
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Stainless steel & engineering plastic	Stainless steel & engineering plastic	Stainless steel & engineering plastic	Stainless steel & engineering plastic
Colour		Black	Black	Black	Black
Compatible Bases					
M8	Non-hinged version	AFQB-R1-M8-5	AFQB-R2-M8-5	AFQB-TET-M8-5	AFQB-S4-M8-5
	Hinged version	*AFQHB-R1-M8-5*	*AFQHB-R2-M8-5*	*AFQHB-TET-M8-5*	*AFQHB-S4-M8-5*
M8A	Non-hinged version	AFQB-R1-M8A-5	AFQB-R2-M8A-5	AFQB-TET-M8A-5	AFQB-S4-M8A-5
	Hinged version	*AFQHB-R1-M8A-5*	*AFQHB-R2-M8A-5*	*AFQHB-TET-M8A-5*	*AFQHB-S4-M8A-5*
MMR-5F	Non-hinged version	AFQB-R1-MMR-5F	AFQB-R2-MMR-5F	AFQB-TET-MMR-5F	AFQB-S4-MMR-5F
	Hinged version	*AFQHB-R1-MMR-5F*	*AFQHB-R2-MMR-5F*	*AFQHB-TET-MMR-5F*	*AFQHB-S4-MMR-5F*
MBM-5F	Non-hinged version	AFQB-R1-MBM-5F	AFQB-R2-MBM-5F	AFQB-TET-MBM-5F	AFQB-S4-MBM-5F
	Hinged version	*AFQHB-R1-MBM-5F*	*AFQHB-R2-MBM-5F*	*AFQHB-TET-MBM-5F*	*AFQHB-S4-MBM-5F*

For the complete list of base connectors see page 34

2. Choose your antenna
High Gain TETRA Whip

- TETRA UHF
- Public Safety
- Omni Directional
- ROHS Compliant
- Vehicle Mount
- High Gain

A5GM & A5GH

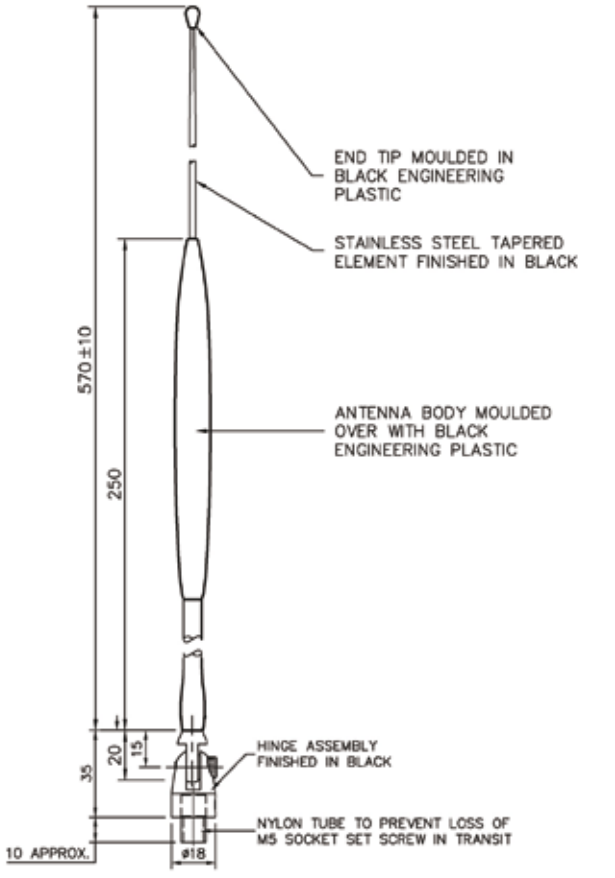
Fully moulded construction for reliability
Tapered whip for low wind resistance
Consistent gain across the TETRA band
For use where TETRA network coverage is marginal

The A5G is a 5dBi gain whip designed as an alternative to the standard ¼ wave whip.

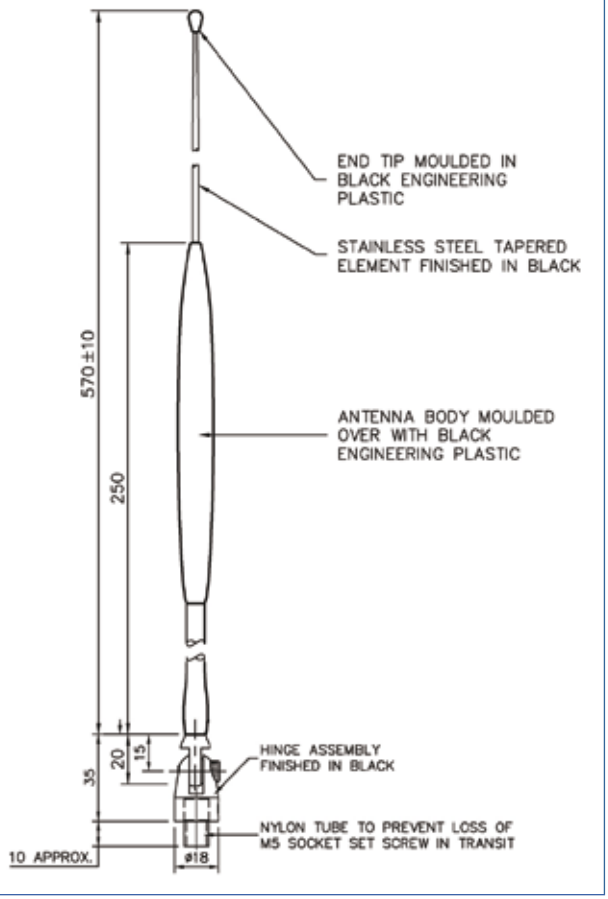
The increased gain can extend the range of a vehicle within the mobile network.

Technical Drawing

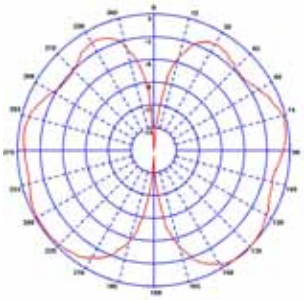
Non-hinged version



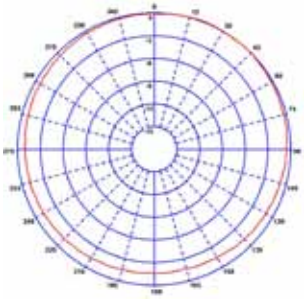
Hinged version



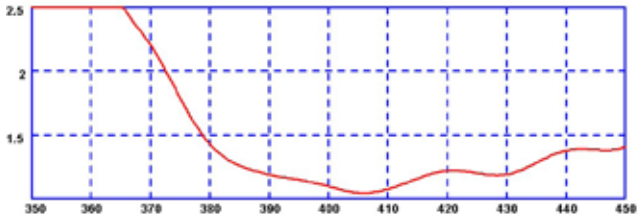
E-Plane (405MHz)



H-Plane (405MHz)



Typical VSWR*



*measured on a 1m × 1m groundplane

Part No.					
Non-hinged version		A5GM-S	A5GM-TET	A5GM-T	A5GM-S4
Hinged version		*A5GH-S*	*A5GH-TET*	*A5GH-T*	*A5GH-S4*
Electrical Data					
Frequency Range (MHz)		350-390	380-430	420-452	450-470
Operational Band		S	TET	T	S4
Gain: Isotropic		5dBi	5dBi	5dBi	5dBi
Compared to ¼ wave		3dB	3dB	3dB	3dB
Bandwidth @ 2:1 VSWR		10%	10%	10%	10%
Polarisation		Vertical	Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω	50Ω
Max Input Power (W)		25	25	25	25
Mechanical Data					
Total Height (mm)		642	590	560	545
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Stainless steel & engineering plastic	Stainless steel & engineering plastic	Stainless steel & engineering plastic	Stainless steel & engineering plastic
Colour		Black	Black	Black	Black
Compatible Bases					
M8	Non-hinged version	A5GM-S-M8-5	A5GM-TET-M8-5	A5GM-T-M8-5	A5GM-S4-M8-5
	Hinged version	*A5GH-S-M8-5*	*A5GH-TET-M8-5*	*A5GH-T-M8-5*	*A5GH-S4-M8-5*
M8A	Non-hinged version	A5GM-S-M8A-5	A5GM-TET-M8A-5	A5GM-T-M8A-5	A5GM-S4-M8A-5
	Hinged version	*A5GH-S-M8A-5*	*A5GH-TET-M8A-5*	*A5GH-T-M8A-5*	*A5GH-S4-M8A-5*
MMR-5F	Non-hinged version	A5GM-S-MMR-5F	A5GM-TET-MMR-5F	A5GM-T-MMR-5F	A5GM-S4-MMR-5F
	Hinged version	*A5GH-S-MMR-5F*	*A5GH-TET-MMR-5F*	*A5GH-T-MMR-5F*	*A5GH-S4-MMR-5F*
MBM-5F	Non-hinged version	A5GM-S-MBM-5F	A5GM-TET-MBM-5F	A5GM-T-MBM-5F	A5GM-S4-MBM-5F
	Hinged version	*A5GH-S-MBM-5F*	*A5GH-TET-MBM-5F*	*A5GH-T-MBM-5F*	*A5GH-S4-MBM-5F*

For the complete list of base connectors see page 34

2. Choose your antenna
High Gain TETRA Whip

- TETRA UHF
- Public Safety
- Omni Directional
- ROHS Compliant
- Vehicle Mount
- High Gain

AUGB & AUGHB

High gain

Hinged or non-hinged versions

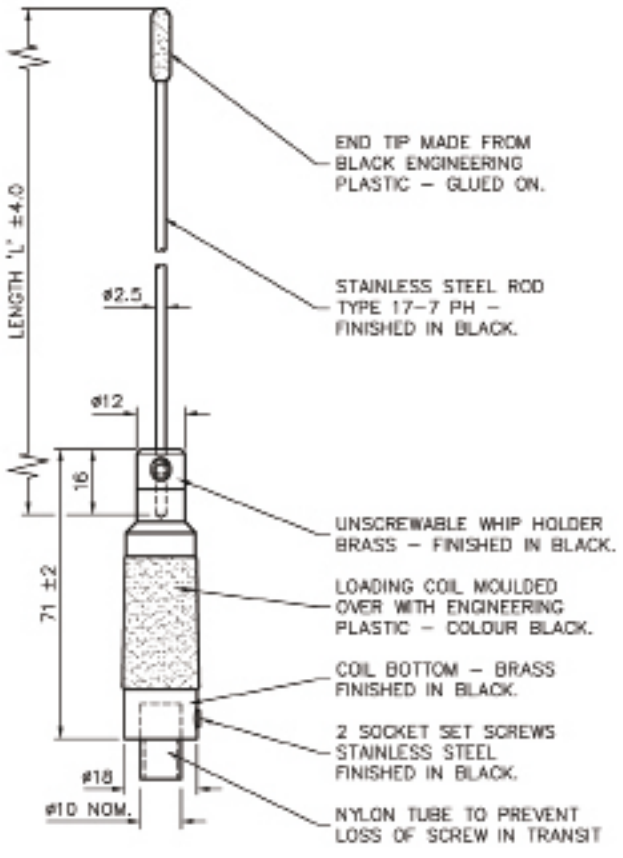
For use where TETRA network coverage is marginal

The roof antenna “AUGHB” has a sleek modern profile which is free from protrusions. The reflector can be removed for example for washing.

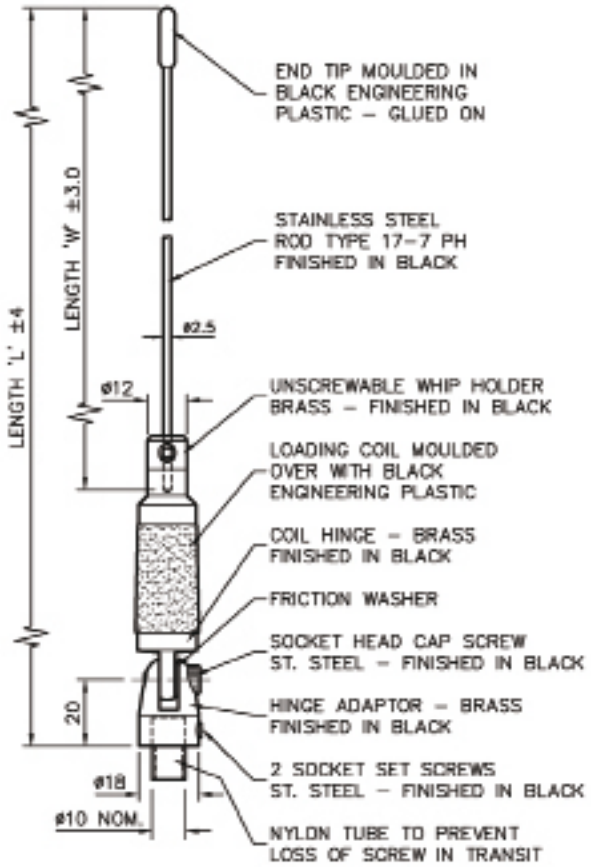
The high gain is ideal for areas where the TETRA coverage is marginal.

Technical Drawing

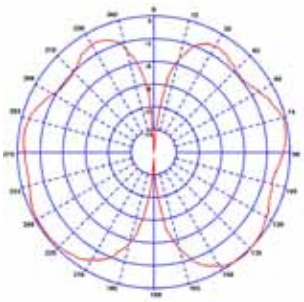
Non-hinged version



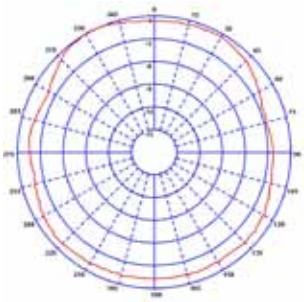
Hinged version



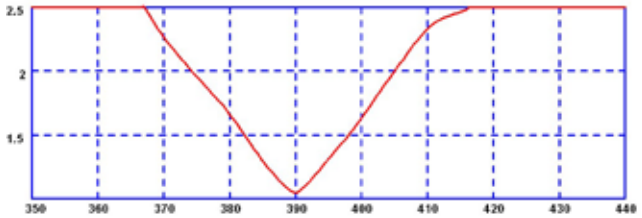
E-Plane (390MHz)



H-Plane (390MHz)



Typical VSWR*



*measured on a 1m × 1m groundplane

Part No.				
Non-hinged version		AUGB-S1	AUGB-S2	AUGB-TET
Hinged version		*AUGHB-S1*	*AUGHB-S2*	*AUGHB-TET*
Electrical Data				
Frequency Range (MHz)		380-400	410-430	380-430
Operational Band		S1	S2	TET
Gain: Isotropic		5dBi	5dBi	5dBi
Compared to ¼ wave		3dB	3dB	3dB
Bandwidth @ 2:1 VSWR		10%	10%	10%
Polarisation		Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω
Max Input Power (W)		50	50	50
Mechanical Data				
Total Height (mm)		493	446	497
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Stainless steel & engineering plastic	Stainless steel & engineering plastic	Stainless steel & engineering plastic
Colour		Black	Black	Black
Compatible Bases				
M8	Non-hinged version	AUGB-S1-M8-5	AUGB-S2-M8-5	AUGB-TET-M8-5
	Hinged version	*AUGHB-S1-M8-5*	*AUGHB-S2-M8-5*	*AUGHB-TET-M8-5*
M8A	Non-hinged version	AUGB-S1-M8A-5	AUGB-S2-M8A-5	AUGB-TET-M8A-5
	Hinged version	*AUGHB-S1-M8A-5*	*AUGHB-S2-M8A-5*	*AUGHB-TET-M8A-5*
MMR-5F	Non-hinged version	AUGB-S1-MMR-5F	AUGB-S2-MMR-5F	AUGB-TET--MMR-5F
	Hinged version	*AUGHB-S1-MMR-5F*	*AUGHB-S2-MMR-5F*	*AUGHB-TET-MMR-5F*
MBM-5F	Non-hinged version	AUGB-S1-MBM-5F	AUGB-S2-MBM-5F	AUGB-TET--MBM-5F
	Hinged version	*AUGHB-S1-MBM-5F*	*AUGHB-S2-MBM-5F*	*AUGHB-TET-MBM-5F*

For the complete list of base connectors see page 34

2. Choose your antenna
High Gain TETRA Whip

- TETRA UHF
- Public Safety
- Omni Directional
- ROHS Compliant
- Vehicle Mount
- High Gain

ACUB & ACUHB

High gain

Hinged or non-hinged versions

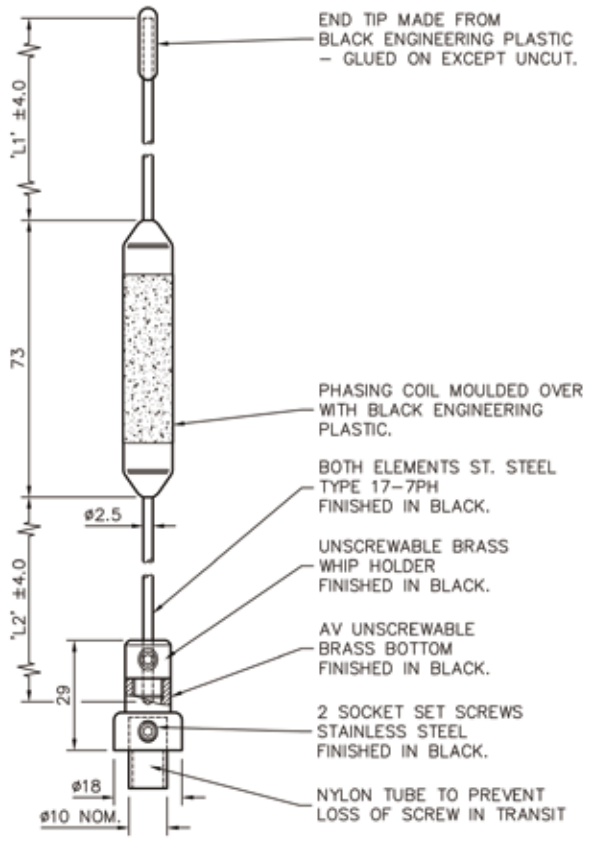
For use where TETRA network coverage is marginal

The roof antenna “ACUHB” has a sleek modern profile which is free from protrusions. The reflector can be removed for example for washing.

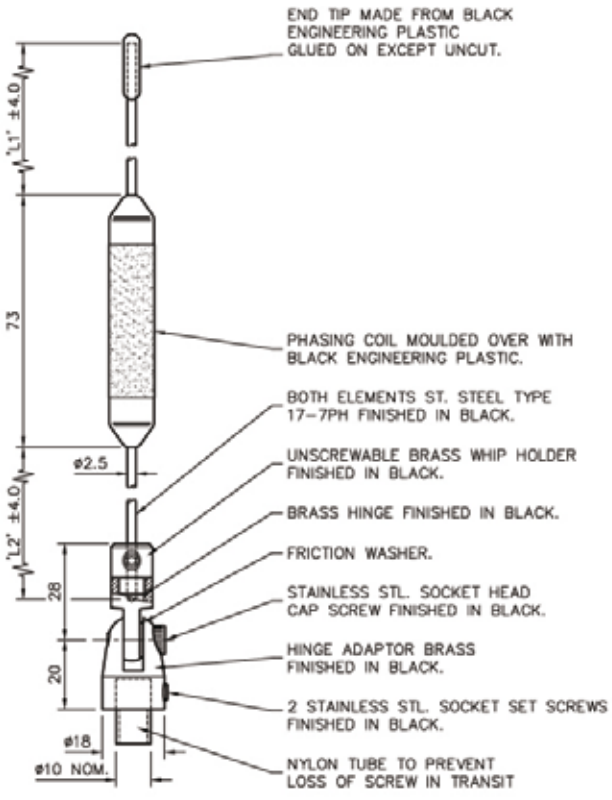
The high gain is ideal for areas where the TETRA coverage is marginal.

Technical Drawing

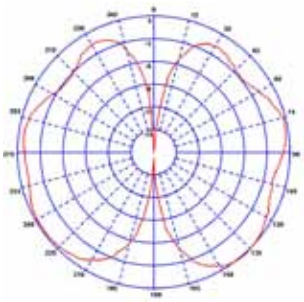
Non-hinged version



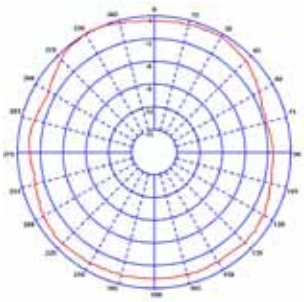
Hinged version



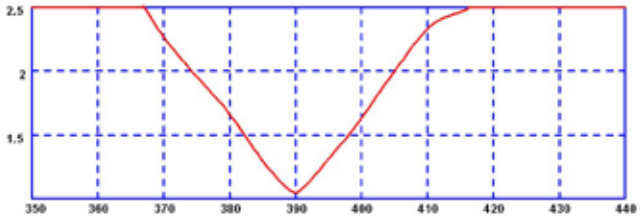
E-Plane (390MHz)



H-Plane (390MHz)



Typical VSWR*



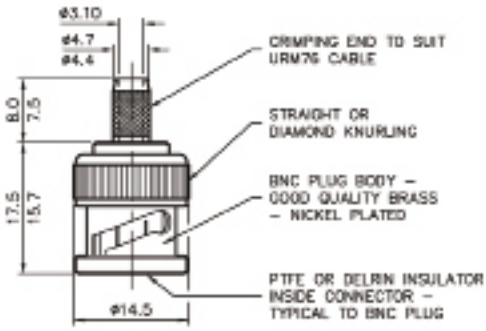
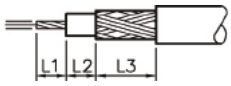
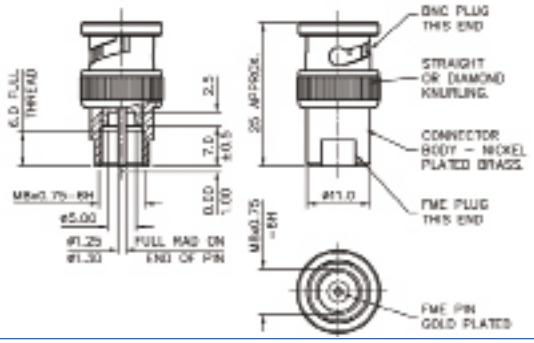
*measured on a 1m × 1m groundplane

Part No.			
Non-hinged version		ACUB-S1	ACUB-S2
Hinged version		*ACUHB-S1*	*ACUHB-S2*
Electrical Data			
Frequency Range (MHz)		380-400	410-430
Operational Band		S1	S2
Gain: Isotropic		7dBi	7dBi
Compared to ¼ wave		5dB	5dB
Bandwidth @ 2:1 VSWR		10%	10%
Polarisation		Vertical	Vertical
Pattern		Omni-directional	Omni-directional
Impedance		50Ω	50Ω
Max Input Power (W)		50	50
Mechanical Data			
Total Height (mm)		806	748
Operating Temp (°C)		-40° / +80°C	-40° / +80°C
Material		Stainless steel & engineering plastic	Stainless steel & engineering plastic
Colour		Black	Black
Compatible Bases			
M8	Non-hinged version	ACUB-S1-M8-5	ACUB-S2-M8-5
	Hinged version	*ACUHB-S1-M8-5*	*ACUHB-S2-M8-5*
M8A	Non-hinged version	ACUB-S1-M8A-5	ACUB-S2-M8A-5
	Hinged version	*ACUHB-S1-M8A-5*	*ACUHB-S2-M8A-5*
MMR-5F	Non-hinged version	ACUB-S1-MMR-5F	ACUB-S2-MMR-5F
	Hinged version	*ACUHB-S1-MMR-5F*	*ACUHB-S2-MMR-5F*
MBM-5F	Non-hinged version	ACUB-S1-MBM-5F	ACUB-S2-MBM-5F
	Hinged version	*ACUHB-S1-MBM-5F*	*ACUHB-S2-MBM-5F*

For the complete list of base connectors see page 34

3. Connector configuration

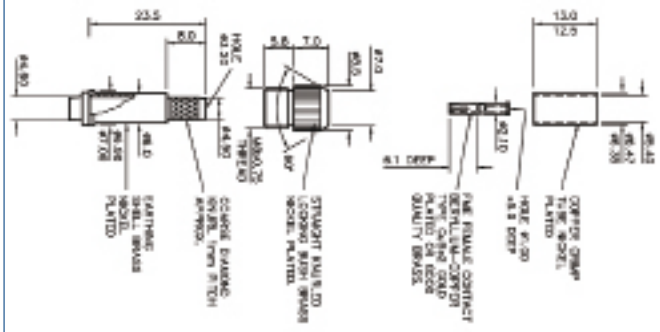
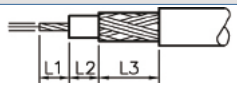
BNC Connector

Technical Drawing
Crimp plug

Cable stripping lengths (URM76 / CS23 cable only)

FME adaptor


Part No.	
	SC1-BNC-PC10
Cable Stripping Data	
Length 1 'L1' (mm)	4
Length 2 'L2' (mm)	4
Length 3 'L3' (mm)	8
Technical Data	
Compatible cable	CS23
Termination	BNC plug

FME Adaptor Part No.	
	CA-BP-FP
Technical Data	
Input	FME plug
Termination	BNC plug

FME Connector

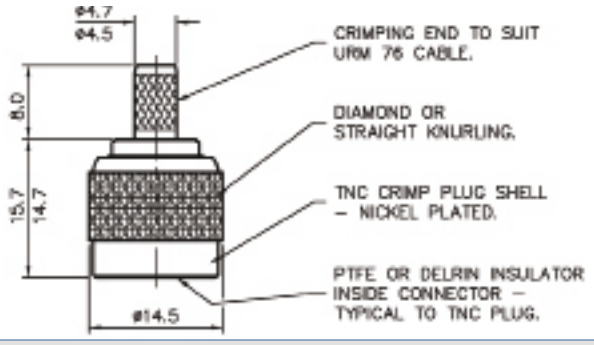
Technical Drawing
Crimp plug

Cable stripping lengths (URM76 / CS23 cable only)


Part No.	
	SC1-FME-JC10
Cable Stripping Data	
Length 1 'L1' (mm)	4
Length 2 'L2' (mm)	4
Length 3 'L3' (mm)	8
Technical Data	
Compatible cable	CS23
Termination	FME socket

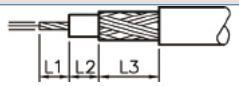
TNC Connector

Technical Drawing

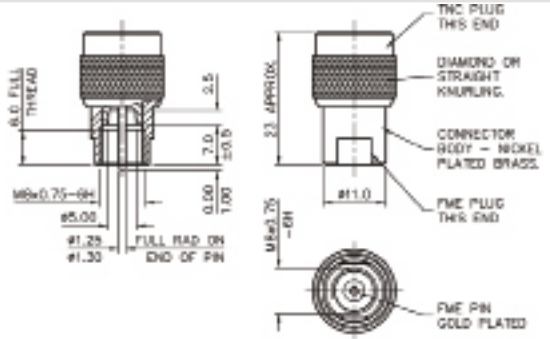
Crimp plug



Cable stripping lengths (URM76 / CS23 cable only)



FME adaptor



Part No.	
	SC1-TNC-PC10
Cable Stripping Data	
Length 1 'L1' (mm)	4
Length 2 'L2' (mm)	4
Length 3 'L3' (mm)	8
Technical Data	
Compatible cable	CS23
Termination	TNC plug

FME Adaptor Part No.	
	CA-TP-FP
Technical Data	
Input	FME plug
Termination	TNC plug

Panel Mount Antenna

- TETRA UHF
- Public Safety
- Omni Directional
- ROHS Compliant
- Vehicle Mount

EBF

Panel mount
Flexible whip
Moulded cable option avaiable

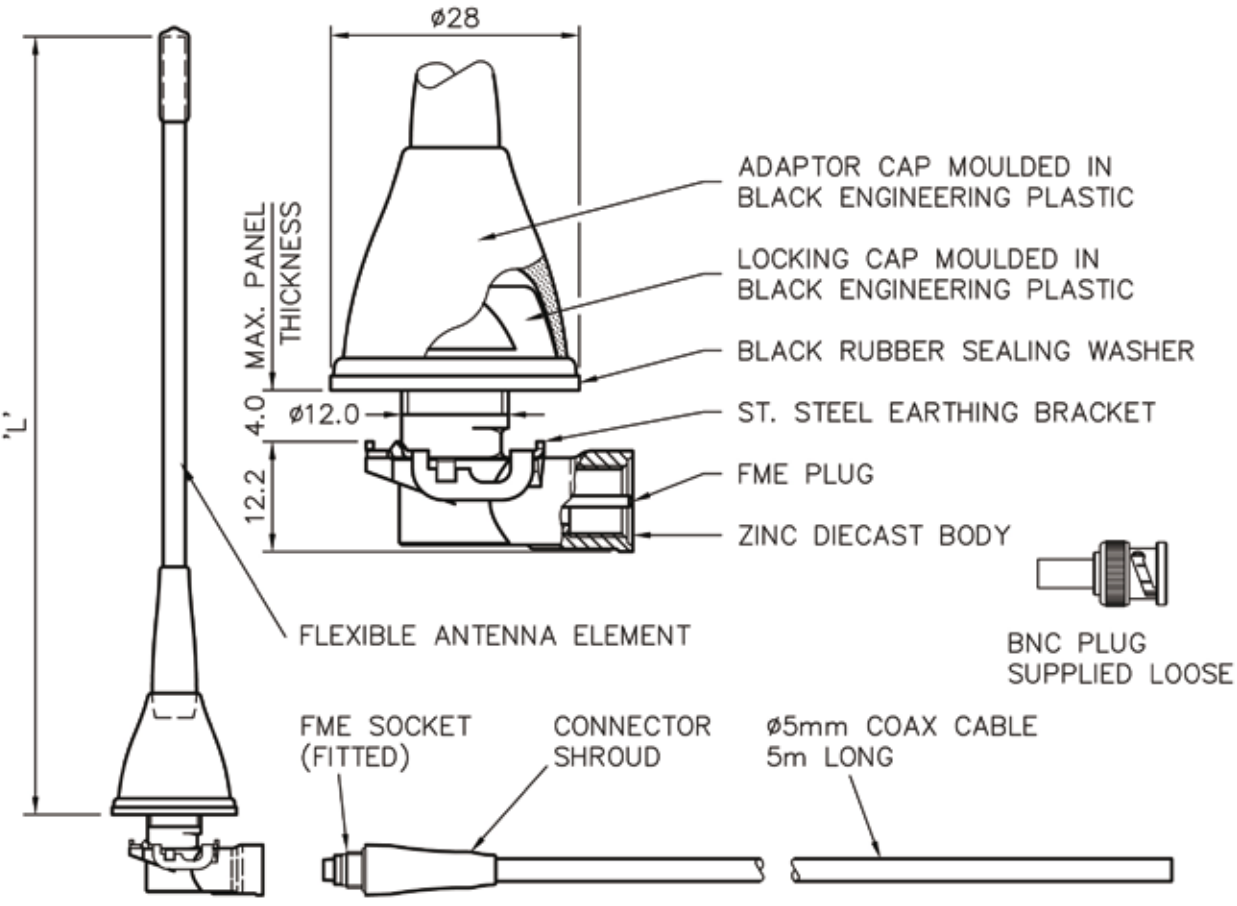
The 'Euro' base panel mount (EBF) has a smooth profile which is free from protrusions. The flexible whip detaches from base cup, ideal for car washing.

Detachable Cable Option

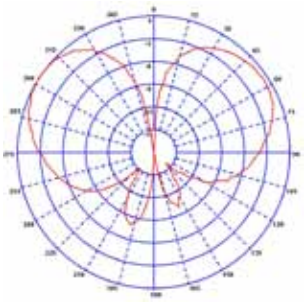
The Euro Base antenna range is available with a moulded cable option, just change the part number beginning from 'EBF' to EBMF'

Moulded Cable Option

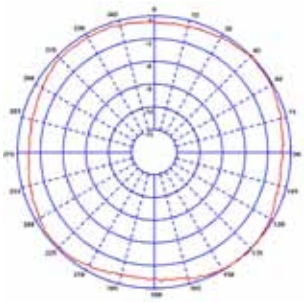
Technical Drawing



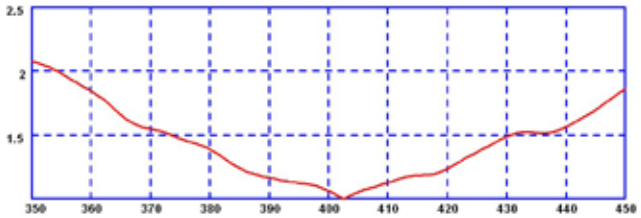
E-Plane (390MHz)



H-Plane (390MHz)



Typical VSWR*



*measured on a 1m × 1m groundplane

Part No.		EBF-R1-5BL	EBF-R2-5BL	EBF-TET-5BL	EBF-S4-5BL
Electrical Data					
Frequency Range (MHz)		300-334	350-370	380-430	450-470
Operational Band		R1	R2	TET	S4
Gain: Isotropic		2dBi	2dBi	2dBi	2dBi
Compared to ¼ wave		0dB	0dB	0dB	0dB
Bandwidth @ 2:1 VSWR		10%	10%	10%	10%
Polarisation		Vertical	Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω	50Ω
Max Input Power (W)		50	50	50	50
Mechanical Data					
Dimensions (mm)	Total Height	228	201	176	152
	Base Diameter	28	28	28	28
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Stainless steel & engineering plastic	Stainless steel & engineering plastic	Stainless steel & engineering plastic	Stainless steel & engineering plastic
Colour		Black	Black	Black	Black
Cable Data					
Type		URM 76	URM 76	URM 76	URM 76
Thickness (mm)		5	5	5	5
Length (m)		5	5	5	5
Termination		Bare end with loose BNC Plug*	Bare end with loose BNC Plug*	Bare end with loose BNC Plug*	Bare end with loose BNC Plug*

*Connector Configurations				
BNC (loose)	EBF-R1-5BL	EBF-R2-M8-5BL	EBF-TET-M8-5BL	EBF-S4-M8-5BL
TNC (loose)	EBF-R1-5TL	EBF-R2-M8-5TL	EBF-TET-M8-5TL	EBF-S4-M8-5TL
FME (fitted)	EBF-R1-5F	EBF-R2-M8-5F	EBF-TET-M8-5F	EBF-S4-M8-5F
Bare End	EBF-R1-5	EBF-R2-M8-5	EBF-TET-M8-5	EBF-S4-M8-5

Glass Mount Antenna

- TETRA UHF
- Public Safety
- Omni Directional
- ROHS Compliant
- Vehicle Mount

GM

Excellent Performance

No-hole installation

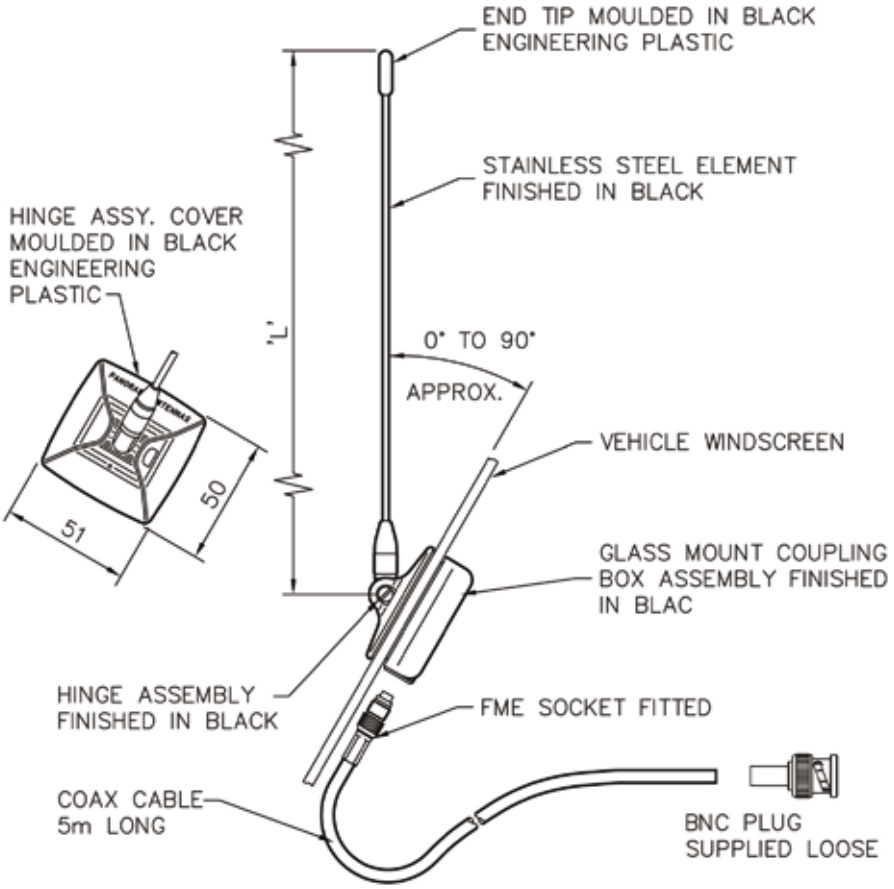
Solid state coupling

The Panorama Glass Mount Antenna requires no holes or special tools and can be quickly & easily installed on a windscreen or rear window.

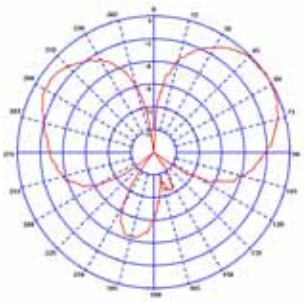
The antenna couples capacitively through the glass and its high positioning gives it an almost omni-directional radiating pattern, with performance similar to a conventionally mounted roof-top antenna.

The antenna can be easily removed for the car wash. To remove the antenna assembly, both the coupling box and the mounting foot can be removed and the glass cleaned to leave it in its original state.

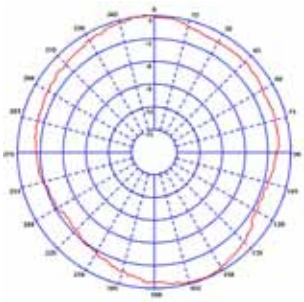
Technical Drawing



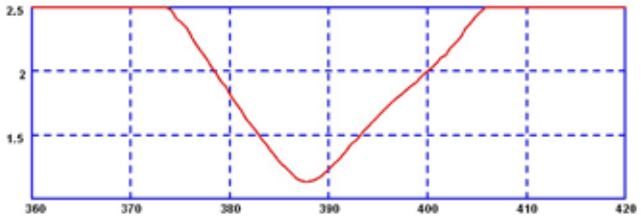
E-Plane (390MHz)



H-Plane (390MHz)



Typical VSWR



Part No.		GM-R1-5BL	GM-R2-5BL	GM390-5BL	GM420-5BL	GM-S4-5BL
Electrical Data						
Frequency Range (MHz)		300-334	350-370	380-400	410-430	450-470
Operational Band		R1	R2	S1	S2	S4
Gain: Isotropic		2dBi	2dBi	2dBi	2dBi	2dBi
Compared to ¼ wave		0dB	0dB	0dB	0dB	0dB
Bandwidth @ 2:1 VSWR		10%	10%	10%	10%	10%
Polarisation		Vertical	Vertical	Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω	50Ω	50Ω
Max Input Power (W)		20	20	20	20	20
Mechanical Data						
Whip Length (mm)		327	267	259	259	208
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Stainless steel & engineering plastic	Stainless steel & engineering plastic	Stainless steel & engineering plastic	Stainless steel & engineering plastic	Stainless steel & engineering plastic
Colour		Black	Black	Black	Black	Black
Mounting Data						
Fixing		External glass mount	External glass mount	External glass mount	External glass mount	External glass mount
Mounting Foot Dimensions (mm)	Length	50.4	50.4	50.4	50.4	50.4
	Width	51.4	51.4	51.4	51.4	51.4
Material		Engineering Plastic	Engineering Plastic	Engineering Plastic	Engineering Plastic	Engineering Plastic
Colour		Black	Black	Black	Black	Black
Cable Data						
Type		URM 76	URM 76	URM 76	URM 76	URM 76
Thickness (mm)		5	5	5	5	5
Length (m)		5	5	5	5	5
Termination		Bare end with loose BNC Plug*	Bare end with loose BNC Plug*	Bare end with loose BNC Plug*	Bare end with loose BNC Plug*	Bare end with loose BNC Plug*

*Connector Configurations					
BNC (loose)	GM-R1-5BL	GM-R2-5BL	GM390-5BL	GM420-5BL	GM-S4-5BL
TNC (loose)	GM-R1-5TL	GM-R2-5TL	GM390-5TL	GM420-5TL	GM-S4-5TL
FME (fitted)	GM-R1-5F	GM-R2-5F	GM390-5F	GM420-5F	GM-S4-5F
Bare End	GM-R1-5	GM-R2-5	GM390-5	GM420-5	GM-S4-5

Low Profile Antenna

- TETRA UHF
- Public Safety
- Omni Directional
- ROHS Compliant
- Vehicle Mount

LP

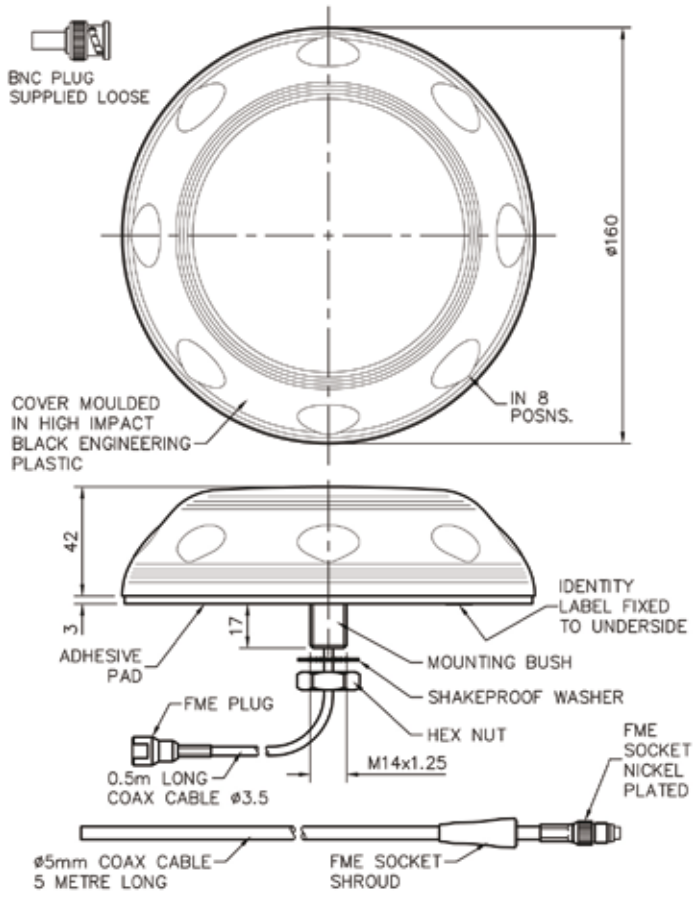
Rugged design
Heavy duty application
Ground plane independent

The Panorama low profile antenna range has been designed to perform under extreme pressure. The outer housing is designed to withstand high impacts while maintaining its functionality.

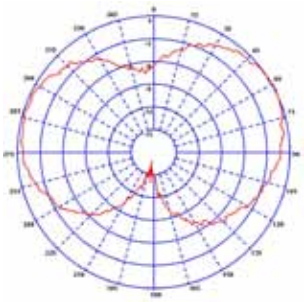
The antenna does not require a metalic ground plane, and maintains the same great performance when mounted on any surface.

An excellent solution for demanding applications in transportation.

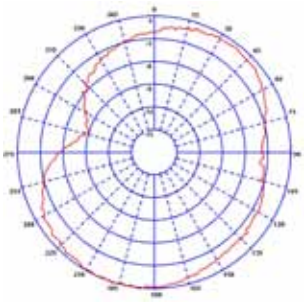
Technical Drawing



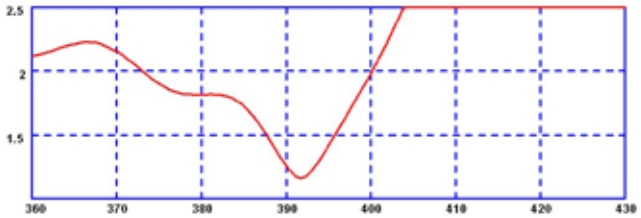
E-Plane (390MHz)



H-Plane (390MHz)



Typical VSWR*



*measured on a 1m × 1m groundplane

Part No.		LP-R1-5BL	LP-R2-5BL	LP390-5BL	LP420-5BL	LP-S4-5BL
Electrical Data						
Frequency Range (MHz)		300-334	350-370	380-400	410-430	450-470
Operational Band		R1	R2	S1	S2	S4
Gain: Isotropic		0dBi	0dBi	0dBi	0dBi	0dBi
Compared to ¼ wave		-2dB	-2dB	-2dB	-2dB	-2dB
Bandwidth @ 2:1 VSWR		5%	5%	5%	5%	5%
Polarisation		Vertical	Vertical	Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω	50Ω	50Ω
Max Input Power (W)		20	20	20	20	20
Mechanical Data						
Dimensions (mm)	Height	42	42	42	42	42
	Diameter	160	160	160	160	160
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Engineering plastic	Engineering plastic	Engineering plastic	Engineering plastic	Engineering plastic
Colour		Black	Black	Black	Black	Black
Mounting Data						
Fixing		Panel mount	Panel mount	Panel mount	Panel mount	Panel mount
Mounting hole size (mm)		15	15	15	15	15
Cable Data						
Type		C35	C35	C35	C35	C35
Thickness (mm)		5	5	5	5	5
Length (m)		5	5	5	5	5
Termination		Bare end with loose BNC Plug*	Bare end with loose BNC Plug*	Bare end with loose BNC Plug*	Bare end with loose BNC Plug*	Bare end with loose BNC Plug*

*Connector Configurations					
BNC (loose)	LP-R1-5BL	LP-R2-5BL	LP390-5BL	LP420-5BL	LP-S4-5BL
TNC (loose)	LP-R1-5TL	LP-R2-5TL	LP390-5TL	LP420-5TL	LP-S4-5TL
FME (fitted)	LP-R1-5F	LP-R2-5F	LP390-5F	LP420-5F	LP-S4-5F
Bare End	LP-R1-5	LP-R2-5	LP390-5	LP420-5	LP-S4-5

Motorcycle Antenna

- TETRA UHF
- Public Safety
- Omni Directional
- ROHS Compliant
- Vehicle Mount
- Motorbike

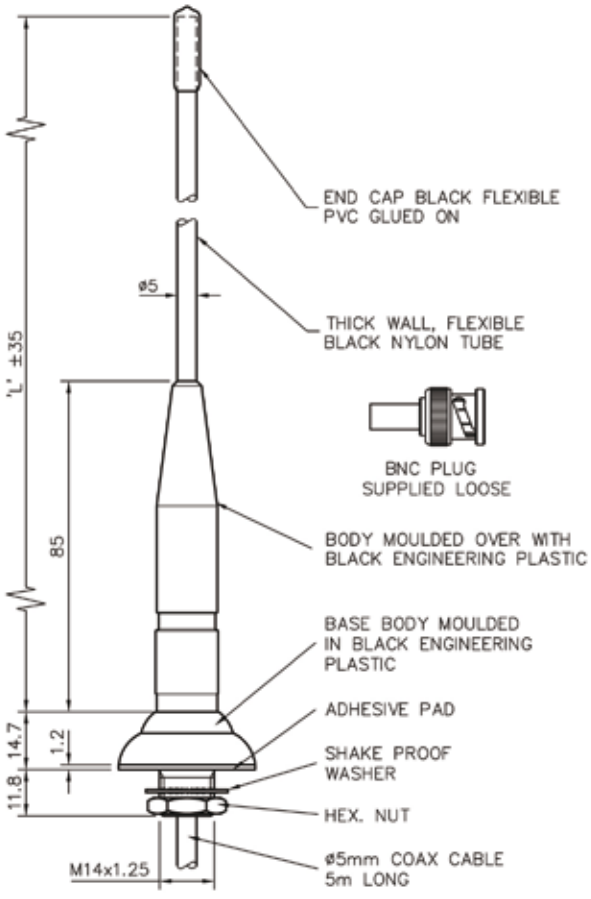
HM

Rugged application
Flexible whip
Moulded coaxial cable

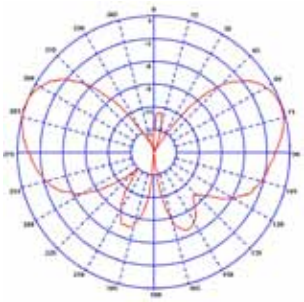
The HM range of antennas are need a ground plane independent and can therefore be mounted on any surface. The antenna is ideal for motorcycles but can also be used on other vehicles or fixed sites.

The HM antenna range has a rugged design with a flexible nylon whip. The base is moulded in engineering plastic and mounting is with a M14 stud.

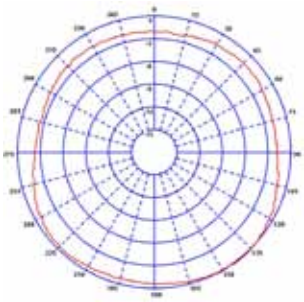
Technical Drawing



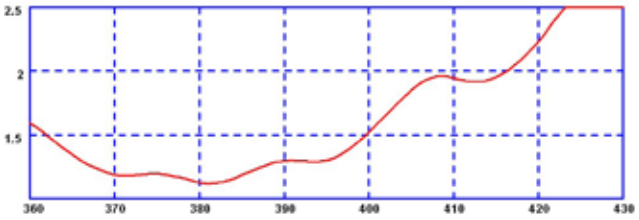
E-Plane (390MHz)



H-Plane (390MHz)



Typical VSWR



Part No.						
		HM-R1-5BL	HM-R2-5BL	HM-S1-5BL	HM-S2-5BL	HM-S4-5BL
Electrical Data						
Frequency Range (MHz)		300-334	350-370	380-400	410-430	450-470
Operational Band		R1	R2	S1	S2	S4
Gain: Isotropic		4dBi	4dBi	4dBi	4dBi	4dBi
Compared to ¼ wave		2dB	2dB	2dB	2dB	2dB
Bandwidth @ 2:1 VSWR		5%	5%	5%	5%	5%
Polarisation		Vertical	Vertical	Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω	50Ω	50Ω
Max Input Power (W)		20	20	20	20	20
Mechanical Data						
Dimensions (mm)	Height	490	460	420	355	335
	Diameter	160	160	160	160	160
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Engineering plastic	Engineering plastic	Engineering plastic	Engineering plastic	Engineering plastic
Colour		Black	Black	Black	Black	Black
Mounting Data						
Fixing		Panel mount	Panel mount	Panel mount	Panel mount	Panel mount
Mounting hole size (mm)		15	15	15	15	15
Cable Data						
Type		C35	C35	C35	C35	C35
Thickness (mm)		5	5	5	5	5
Length (m)		5	5	5	5	5
Termination		Bare end with loose BNC Plug*	Bare end with loose BNC Plug*	Bare end with loose BNC Plug*	Bare end with loose BNC Plug*	Bare end with loose BNC Plug*

*Connector Configurations					
BNC (loose)	HM-R1-5BL	HM-R2-5BL	HM-S1-5BL	HM-S2-5BL	HM-S4-5BL
TNC (loose)	HM-R1-5TL	HM-R2-5TL	HM-S1-5TL	HM-S2-5TL	HM-S4-5TL
FME (fitted)	HM-R1-5F	HM-R2-5F	HM-S1-5F	HM-S2-5F	HM-S4-5F
Bare End	HM-R1-5	HM-R2-5	HM-S1-5	HM-S2-5	HM-S4-5

Magnetic Antenna

- TETRA UHF
- Public Safety
- Omni Directional
- ROHS Compliant
- Vehicle Mount

MD

Temporary fit

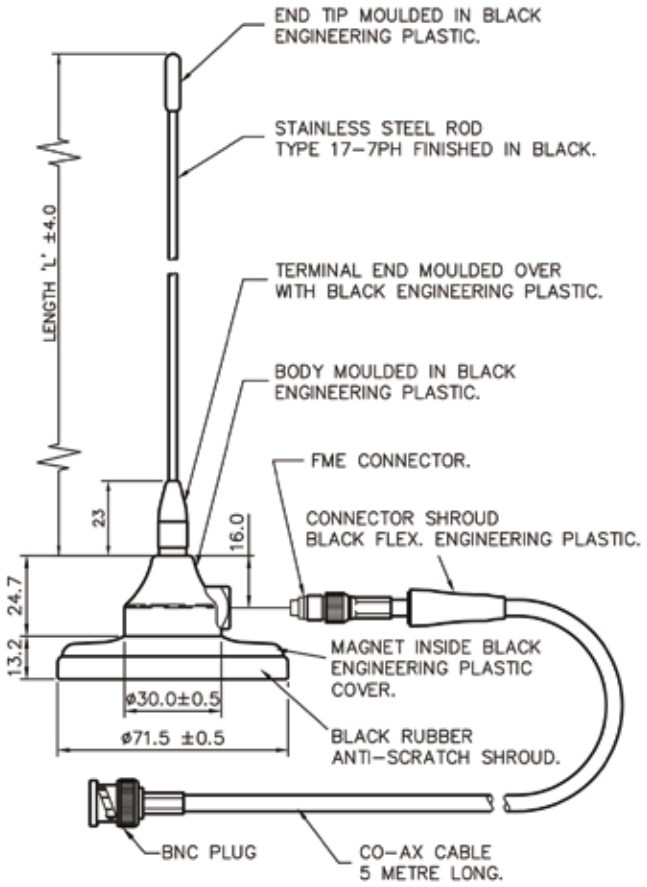
Easy removal

Strong magnetic retention

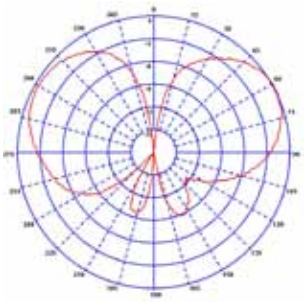
The MD range of antennas is a popular choice for public safety vehicles that require a temporarily fixed antenna. It is also ideal for leased vehicles, The tough magnetic base will grip the antenna to the roof or boot but leave no evidence that it was ever there, once repositioned or removed.

Available in all standard TETRA bands and also to customer specific frequencies.

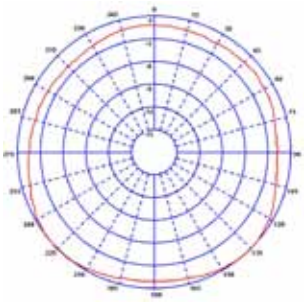
Technical Drawing



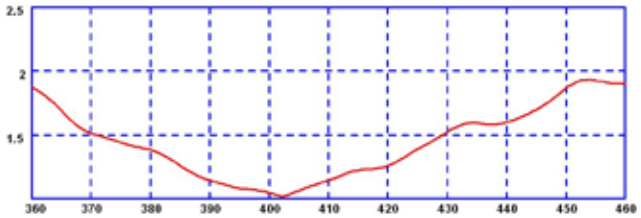
E-Plane (390MHz)



H-Plane (390MHz)



Typical VSWR*



*measured on a 1m × 1m groundplane

Part No.					
		MD-R1-5B	MD-R2-5B	MD-TET-5B	MD-S4-5B
Electrical Data					
Frequency Range (MHz)		300-334	350-370	380-430	450-470
Operational Band		R1	R2	TET	S4
Gain: Isotropic		2dBi	2dBi	2dBi	2dBi
Compared to ¼ wave		0dB	0dB	0dB	0dB
Bandwidth @ 2:1 VSWR		10%	10%	10%	10%
Polarisation		Vertical	Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω	50Ω
Max Input Power (W)		50	50	50	50
Mechanical Data					
Dimensions (mm)	Whip Length	201	179	163	137
	Base Height	37.9	37.9	37.9	37.9
	Base Diameter	71.5	71.5	71.5	71.5
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Engineering plastic	Engineering plastic	Engineering plastic	Engineering plastic
Colour		Black	Black	Black	Black
Mounting Data					
Fixing		Magnetic mount	Magnetic mount	Magnetic mount	Magnetic mount
Cable Data					
Type		URM76	URM76	URM76	URM76
Thickness (mm)		5	5	5	5
Length (m)		5	5	5	5
Termination		BNC Plug*	BNC Plug*	BNC Plug*	BNC Plug*

*Connector Configurations				
BNC (fitted)	MD-R1-5B	MD-R2-5B	MD-TET-5B	MD-S4-5B
TNC (fitted)	MD-R1-5T	MD-R2-5T	MD-TET-5T	MD-S4-5T
FME (fitted)	MD-R1-5F	MD-R2-5F	MD-TET-5F	MD-S4-5F
Bare End	MD-R1-5	MD-R2-5	MD-TET-5	MD-S4-5

Internal Glass Mount Antenna

- TETRA UHF
- Public Safety
- Covert
- Omni Directional
- ROHS Compliant
- Vehicle Mount

EF

Covert application

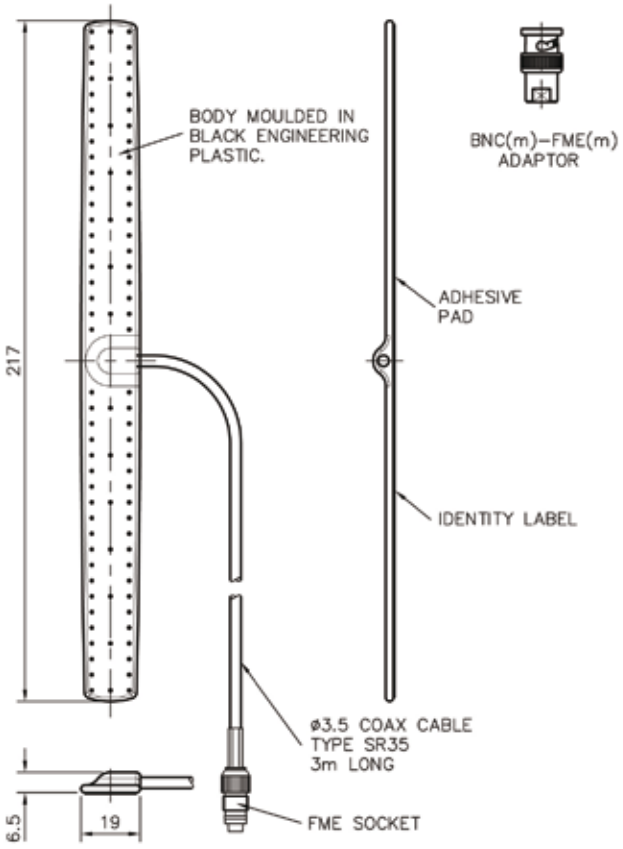
No-hole installation

Can be removed without a trace

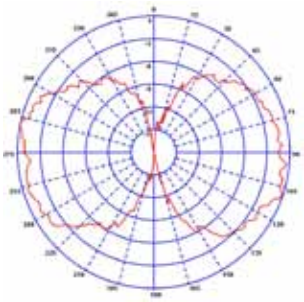
The TETRA UHF EF 'easy fit' antennas expand your voice and data coverage without spoiling your view. Connected to a car kit, the UHF easy fit antennas provide radical signal improvements in cities, suburbs and on the motorway.

With their secure but easy to fit adhesive pad mountings, the EF antenna provide a huge range of possibilities for the installer. Whether mounted by the door pillar or behind the rear view mirror the only thing the user will notice is the superb quality of their voice calls and data connection.

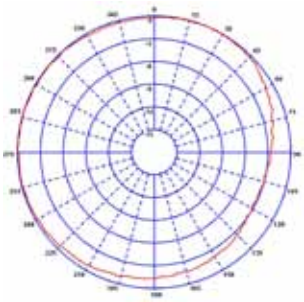
Technical Drawing



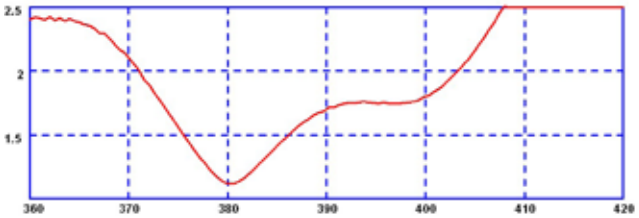
E-Plane (390MHz)



H-Plane (390MHz)



Typical VSWR



Part No.		EF-R1-3BL	EF-R2-3BL	EF-S1-3BL	EF-S2-3BL	EF-S3-3BL	EF-S4-3BL
Electrical Data							
Frequency Range (MHz)		300-334	350-370	380-400	410-430	380-420	450-470
Operational Band		R1	R2	S1	S2	S3	S4
Gain: Isotropic		2dBi	2dBi	2dBi	2dBi	2dBi	2dBi
Compared to ¼ wave		0dB	0dB	0dB	0dB	0dB	0dB
Bandwidth @ 1.5:1 VSWR		10%	10%	10%	10%	10%	10%
Polarisation		Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional	Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω	50Ω	50Ω	50Ω
Max Input Power (W)		20	20	20	20	20	20
Mechanical Data							
Dimensions (mm)	Length	217	217	217	217	217	217
	Width	19	19	19	19	19	19
	Thickness	2.5	2.5	2.5	2.5	2.5	2.5
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Engineering plastic	Engineering plastic	Engineering plastic	Engineering plastic	Engineering plastic	Engineering plastic
Colour		Black	Black	Black	Black	Black	Black
Mounting Data							
Fixing		Internal glass mount	Internal glass mount	Internal glass mount	Internal glass mount	Internal glass mount	Internal glass mount
Material		Acrylic adhesive pad	Acrylic adhesive pad	Acrylic adhesive pad	Acrylic adhesive pad	Acrylic adhesive pad	Acrylic adhesive pad
Colour		Black	Black	Black	Black	Black	Black
Cable Data							
Type		SR35	SR35	SR35	SR35	SR35	SR35
Thickness (mm)		3.5	3.5	3.5	3.5	3.5	3.5
Length (m)		3	3	3	3	3	3
Termination		FME socket with BNC adaptor*	FME socket with BNC adaptor*	FME socket with BNC adaptor*	FME socket with BNC adaptor*	FME socket with BNC adaptor*	FME socket with BNC adaptor*

*Connector Configurations						
BNC (adaptor)	EF-R1-3BL	EF-R2-3BL	EF-S1-3BL	EF-S2-3BL	EF-S3-3BL	EF-S4-3BL
TNC (adaptor)	EF-R1-3TL	EF-R2-3TL	EF-S1-3TL	EF-S2-3TL	EF-S3-3TL	EF-S4-3TL
FME (fitted)	EF-R1-3F	EF-R2-3F	EF-S1-3F	EF-S2-3F	EF-S3-3F	EF-S4-3F
Bare End	EF-R1-3	EF-R2-3	EF-S1-3	EF-S2-3	EF-S3-3	EF-S4-3

Covert Glass Mount Antenna

- TETRA UHF
- Public Safety
- Covert
- Omni Directional
- ROHS Compliant
- Vehicle Mount

GM-CV

Excellent Performance

Designed to look like a GSM glass mount

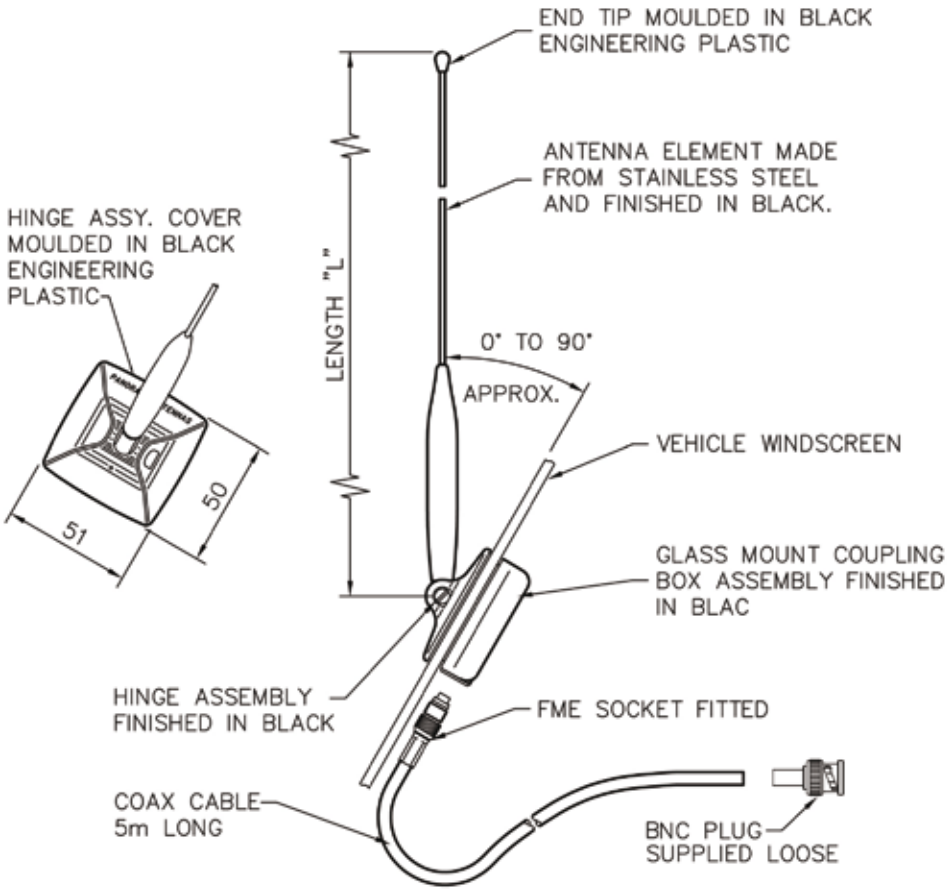
Solid state coupling

The Panorama Glass Mount Antenna requires no holes or special tools and can be installed easily and quickly on a windscreen or rear window.

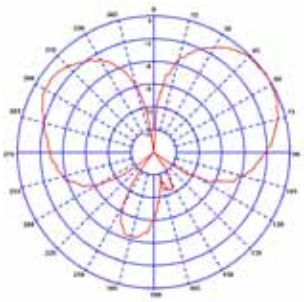
The antenna couples capacitively through the glass and its high positioning gives it an almost omni-directional radiating pattern, with performance similar to a conventionally mounted roof-top antenna.

The antenna is designed to look like a GSM glass mount and is ideal for when a discrete installation is required.

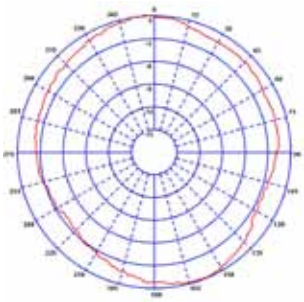
Technical Drawing



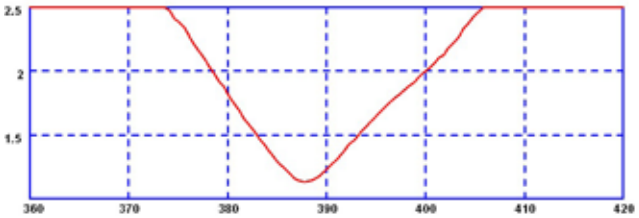
E-Plane (390MHz)



H-Plane (390MHz)



Typical VSWR



Part No.		GM-R1-CV-5BL	GM-R2-CV-5BL	GM-S1-CV-5BL	GM-S2-CV-5BL	GM-S3-CV-5BL	GM-S4-CV-5BL
Electrical Data							
Frequency Range (MHz)		300-334	350-370	380-400	410-430	380-420	450-470
Operational Band		R1	R2	S1	S2	S3	S4
Gain: Isotropic		2dBi	2dBi	2dBi	2dBi	2dBi	2dBi
Compared to ¼ wave		0dB	0dB	0dB	0dB	0dB	0dB
Bandwidth @ 2:1 VSWR		10%	10%	10%	10%	10%	10%
Polarisation		Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional	Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω	50Ω	50Ω	50Ω
Max Input Power (W)		20	20	20	20	20	20
Mechanical Data							
Whip Length (mm)		327	267	259	259	259	208
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Stainless steel & engineering plastic	Stainless steel & engineering plastic	Stainless steel & engineering plastic	Stainless steel & engineering plastic	Stainless steel & engineering plastic	Stainless steel & engineering plastic
Colour		Black	Black	Black	Black	Black	Black
Mounting Data							
Fixing		External glass mount	External glass mount	External glass mount	External glass mount	External glass mount	External glass mount
Mounting Foot Dimensions (mm)	Length	50.4	50.4	50.4	50.4	50.4	50.4
	Width	51.4	51.4	51.4	51.4	51.4	51.4
Material		Engineering Plastic	Engineering Plastic	Engineering Plastic	Engineering Plastic	Engineering Plastic	Engineering Plastic
Colour		Black	Black	Black	Black	Black	Black
Cable Data							
Type		URM 76	URM 76	URM 76	URM 76	URM 76	URM 76
Thickness (mm)		5	5	5	5	5	5
Length (m)		5	5	5	5	5	5
Termination		Bare end with loose BNC Plug*	Bare end with loose BNC Plug*	Bare end with loose BNC Plug*	Bare end with loose BNC Plug*	Bare end with loose BNC Plug*	Bare end with loose BNC Plug*

*Connector Configurations						
BNC (loose)	GM-R1-CV-5BL	GM-R2-CV-5BL	GM-S1-CV-5BL	GM-S2-CV-5BL	GM-S3-CV-5BL	GM-S4-CV-5BL
TNC (loose)	GM-R1-CV-5TL	GM-R2-CV-5TL	GM-S1-CV-5TL	GM-S2-CV-5TL	GM-S3-CV-5TL	GM-S4-CV-5TL
FME (fitted)	GM-R1-CV-5F	GM-R2-CV-5F	GM-S1-CV-5F	GM-S2-CV-5F	GM-S3-CV-5F	GM-S4-CV-5F
Bare End	GM-R1-CV-5	GM-R2-CV-5	GM-S1-CV-5	GM-S2-CV-5	GM-S3-CV-5	GM-S4-CV-5

Bumper Mount Antenna

- TETRA UHF
- Public Safety
- Covert
- Omni Directional
- ROHS Compliant
- Vehicle Mount

BMP1

Covert application

Robust

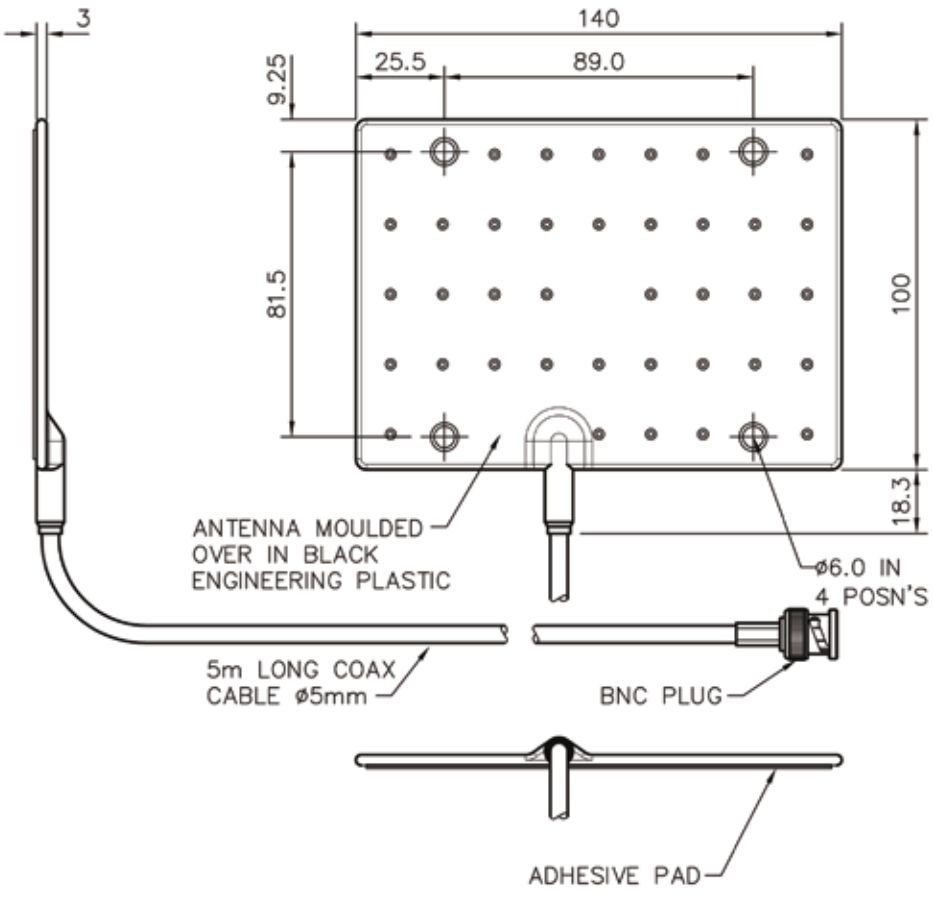
Flexible construction

The Panorama Bumper Mount Antenna is designed for covert operations and other applications which require a vehicle antenna that is effectively invisible.

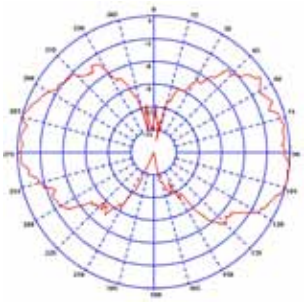
Mounted in the vehicle's bumper, installation requires no drilling and is invisible from the outside of the car.

Antenna positioning

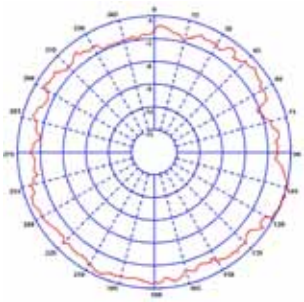
Technical Drawing



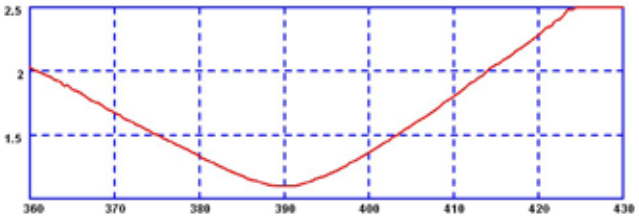
E-Plane (390MHz)



H-Plane (390MHz)



Typical VSWR



Part No.				
		BMP1-S1-5B	BMP1-S2-5B	BMP1-U-5B
Electrical Data				
Frequency Range (MHz)		380-400	410-430	430-472
Operational Band		S1	S2	U
Gain: Isotropic		2dBi	2dBi	2dBi
Compared to ¼ wave		0dB	0dB	0dB
Bandwidth @ 1.5:1 VSWR		10%	10%	10%
Polarisation		Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω
Max Input Power (W)		25	25	25
Mechanical Data				
Dimensions (mm)	Length	140	140	140
	Width	100	100	100
	Thickness	4 (including adhesive pad)	4 (including adhesive pad)	4 (including adhesive pad)
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Engineering plastic	Engineering plastic	Engineering plastic
Colour		Black	Black	Black
Mounting Data				
Fixing		Adhesive pad & 4 × fixing moles	Adhesive pad & 4 × fixing moles	Adhesive pad & 4 × fixing moles
Cable Data				
Type		URM 76	URM 76	URM 76
Thickness (mm)		5	5	5
Length (m)		5	5	5
Termination		BNC Plug*	BNC Plug*	BNC Plug*

*Connector Configurations			
BNC (fitted)	BMP1-S1-5B	BMP1-S2-5B	BMP1-U-5B
TNC (fitted)	BMP1-S1-5T	BMP1-S2-5T	BMP1-U-5T
FME (fitted)	BMP1-S1-5F	BMP1-S2-5F	BMP1-U-5F
Bare End	BMP1-S1-5	BMP1-S2-5	BMP1-U-5

Dual Bumper Mount Antenna with Power Divider

- TETRA UHF
- Public Safety
- Covert
- Omni Directional
- ROHS Compliant
- Vehicle Mount

BMP2-DPD

Covert application

Optimise antenna performance

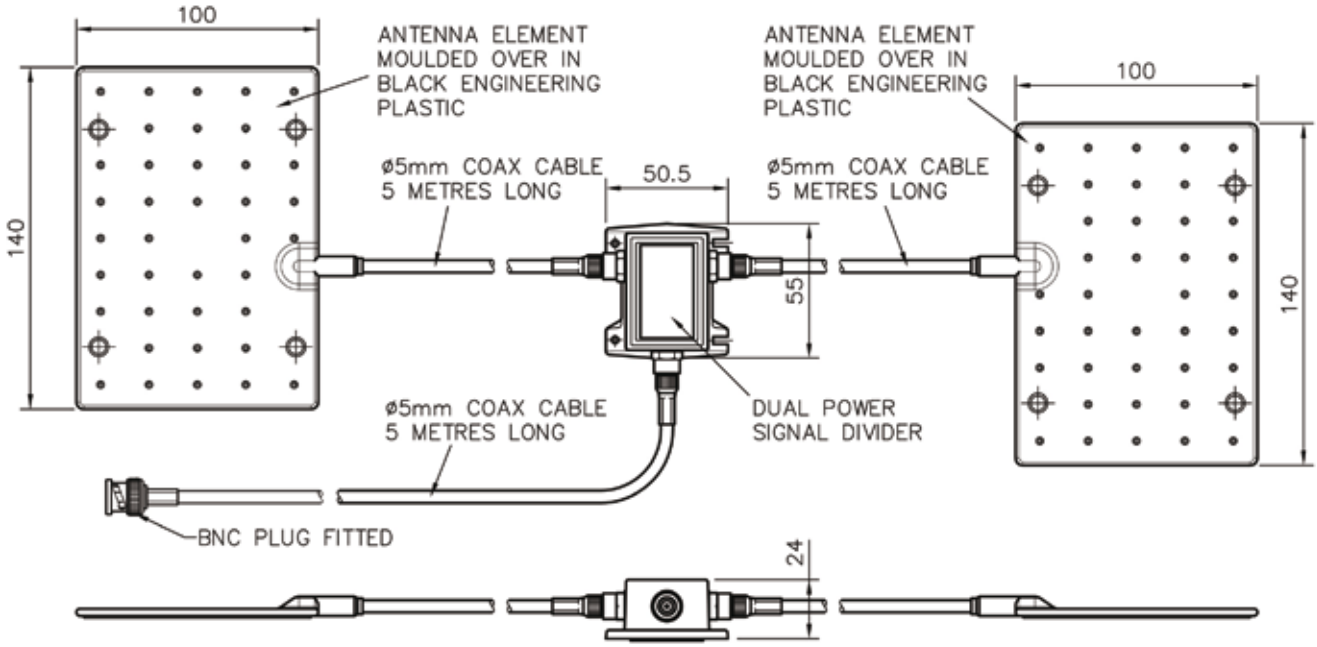
Connect two bumper antennas to a radio

The Panorama power divider is designed for use with the Panorama Bumper Antennas.

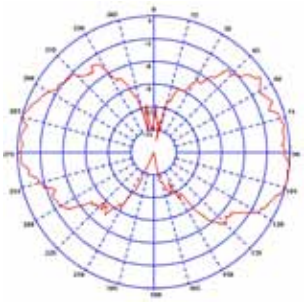
For optimum performance two bumper antennas can be used, one at the front of the vehicle and one at the rear, to help create an omni-directional pattern around the vehicle and enable better network coverage.

Antenna positioning

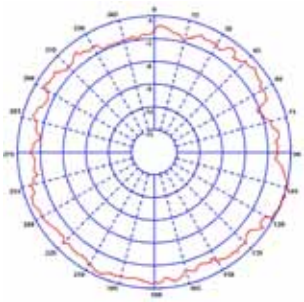
Technical Drawing



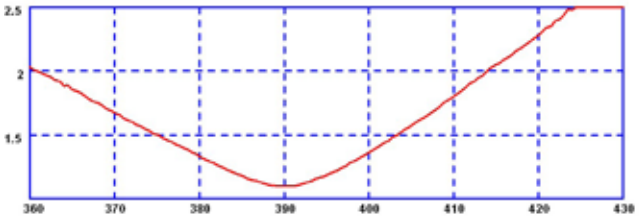
E-Plane (390MHz)



H-Plane (390MHz)



Typical VSWR



Part No.				
		BMP2-DPD-S1-5B	BMP2-DPD-S2-5B	BMP2-DPD-U-5B
Electrical Data				
Frequency Range (MHz)		380-400	410-430	430-472
Operational Band		S1	S2	U
Gain: Isotropic		2dBi	2dBi	2dBi
Compared to ¼ wave		0dB	0dB	0dB
Bandwidth @ 1.5:1 VSWR		10%	10%	10%
Polarisation		Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω
Max Input Power (W)		25	25	25
Mechanical Data				
Dimensions (mm)	Length	140	140	140
	Width	100	100	100
	Thickness	4 (including adhesive pad)	4 (including adhesive pad)	4 (including adhesive pad)
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Engineering plastic	Engineering plastic	Engineering plastic
Colour		Black	Black	Black
Mounting Data				
Fixing		Adhesive pad & 4 × fixing moles	Adhesive pad & 4 × fixing moles	Adhesive pad & 4 × fixing moles
Cable Data				
Type		URM 76	URM 76	URM 76
Thickness (mm)		5	5	5
Length (m)	To radio port	5	5	5
	To antenna	5	5	5
Termination		BNC Plug	BNC Plug	BNC Plug

*Connector Configurations			
BNC (fitted)	BMP2-DPD-S1-5B	BMP2-DPD-S2-5B	BMP2-DPD-U-5B
TNC (fitted)	BMP2-DPD-S1-5T	BMP2-DPD-S2-5T	BMP2-DPD-U-5T
FME (fitted)	BMP2-DPD-S1-5F	BMP2-DPD-S2-5F	BMP2-DPD-U-5F
Bare End	BMP2-DPD-S1-5	BMP2-DPD-S2-5	BMP2-DPD-U-5

Power Divider

- TETRA UHF
- Public Safety
- Covert
- ROHS Compliant
- Vehicle Mount

DPD-550

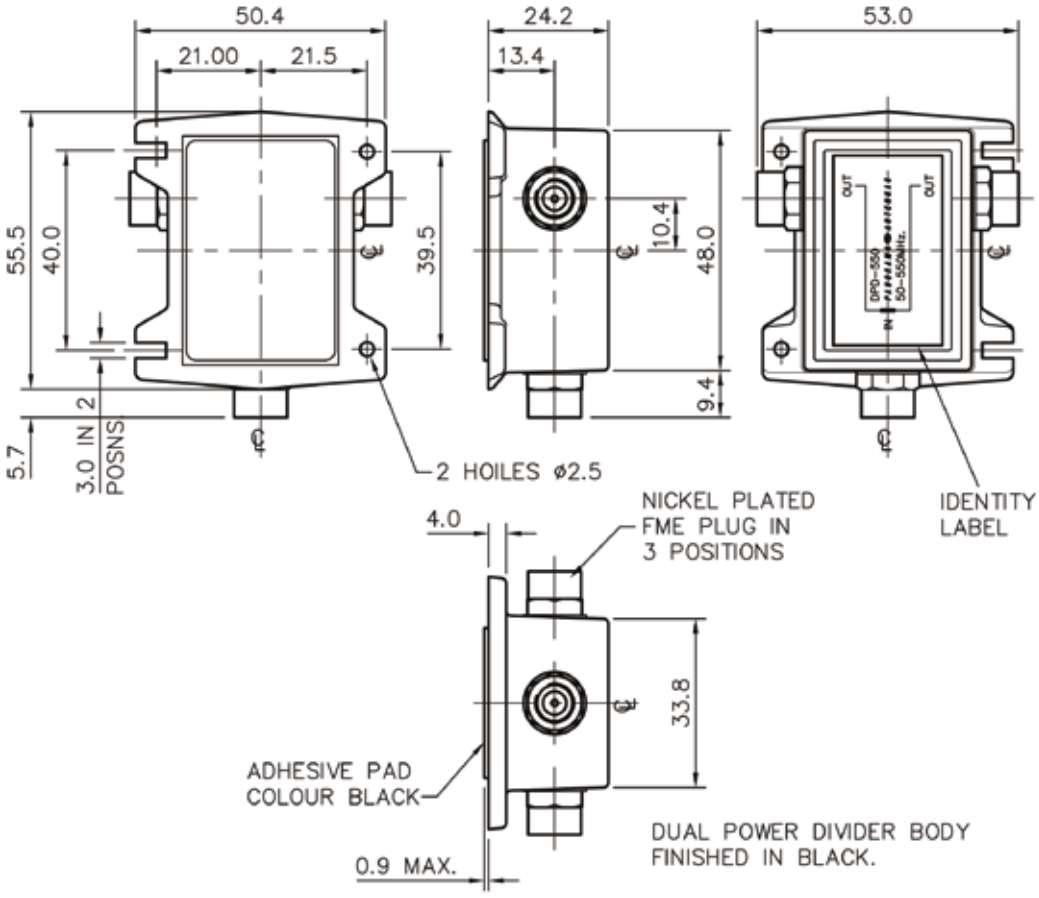
Optimise antenna performance
Connect two bumper antennas to a radio

The Panorama power divider is designed for use with the Panorama Bumper Antennas.

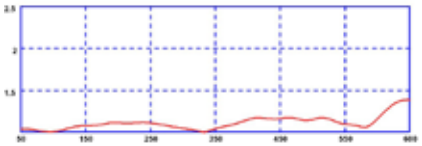
For optimum performance two bumper antennas can be used, one at the front of the vehicle and one at the rear, to help create an omni-directional pattern around the vehicle and enable better network coverage.

Using a power divider ensures that a correctly matched antenna system is presented to the radio.

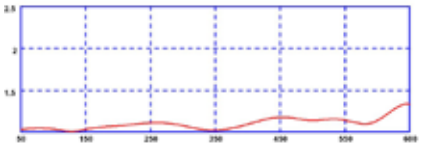
Technical Drawing



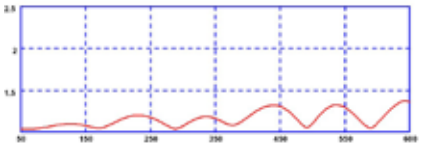
Port 1



Port 2



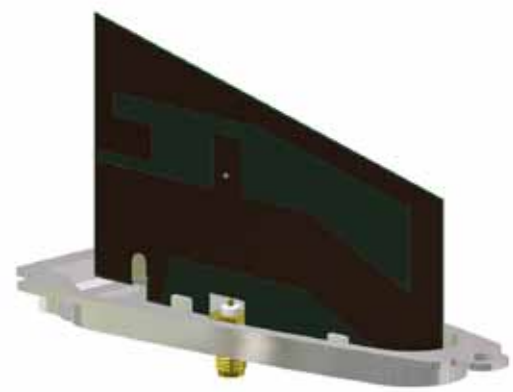
Port 3



Part No.		
		DPD-550
Electrical Data		
Frequency Range (MHz)		55-550
Insertion loss		< 0.5dB
Isolation between output ports		> 25dB
Impedance		50Ω
Max Input Power (W)		3W
Mechanical Data		
Dimensions (mm)	Length	55
	Width	53
	Height	24
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Termination		FME plug (on all ports)

Disguised Shark Fin Antenna

- TETRA UHF
- Public Safety
- Covert
- Omni Directional
- ROHS Compliant
- Vehicle Mount



SHK

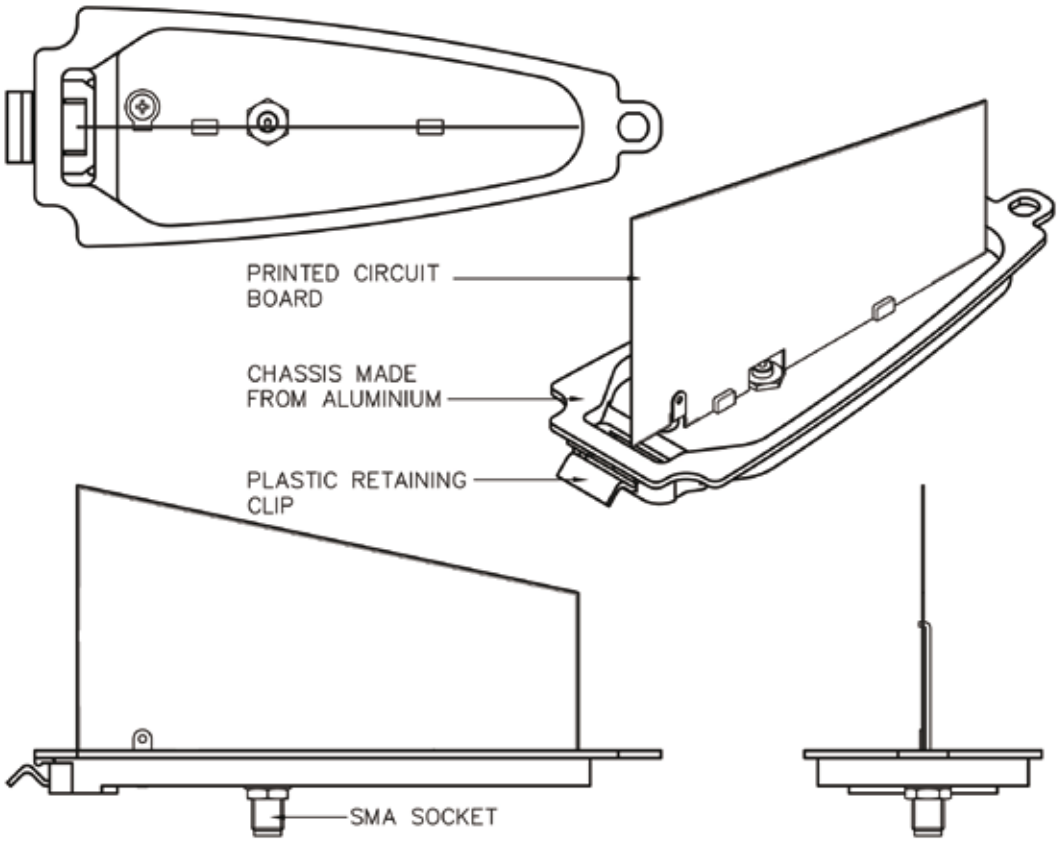
Covert application

Designed to fit inside BMW 5 series antenna housing

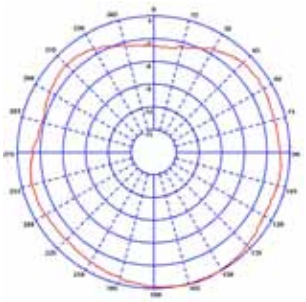
The Covert Shark Fin Antenna is designed specifically for the BMW 5 series, used by police worldwide. The 380-400MHz TETRA antenna is intended to be a direct replacement for the existing 'Shark Fin' AM/FM application and fits into the existing housing, creating a completely under-cover panel mount solution.

Unlike other covert solutions this antenna is not compromised by its positioning enabling it to have a 360° omnidirectional pattern. This ensures constant communications with the vehicle. The 'SHK' has the option of a high gain GPS antenna for applications requiring location based systems.

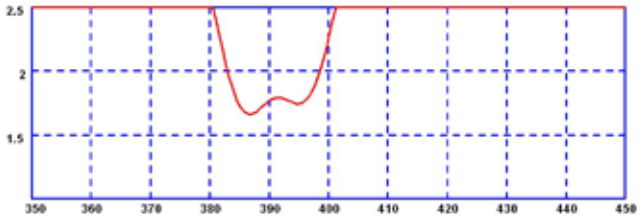
Technical Drawing



H-Plane (390MHz)



Typical VSWR

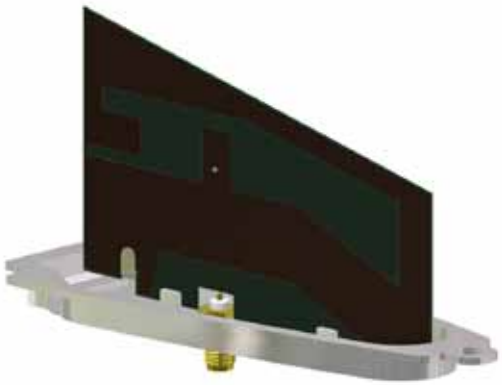


*measured on a 1m × 1m groundplane

Part No.			
		SHK-S1-SJ	SHK-S2-SJ
Electrical Data			
Frequency Range (MHz)		380-400	410-430
Operational Band		S1	S2
Gain: Isotropic		1dBi	1dBi
Compared to ¼ wave		-1dB	-1dB
Bandwidth @ 1.5:1 VSWR		10%	10%
Polarisation		Vertical	Vertical
Pattern		Omni-directional	Omni-directional
Impedance		50Ω	50Ω
Max Input Power (W)		25	25
Mechanical Data			
Dimensions (mm) To fit inside BMW 5 series housing	Length	130	130
	Width	47.5	47.5
	Height	61.5	61.5
Operating Temp (°C)		-40° / +80°C	-40° / +80°C
Material		Printed circuit board	Printed circuit board
Colour		Black	Black
Mounting Data			
Fixing		To fit inside BMW 5 series housing	To fit inside BMW 5 series housing
Connector			
Termination		SMA Socket	SMA Socket

Disguised Shark Fin Antenna with GPS

- TETRA UHF
- Public Safety
- Covert
- GPS
- Omni Directional
- ROHS Compliant
- Vehicle Mount



SHKG

Covert application

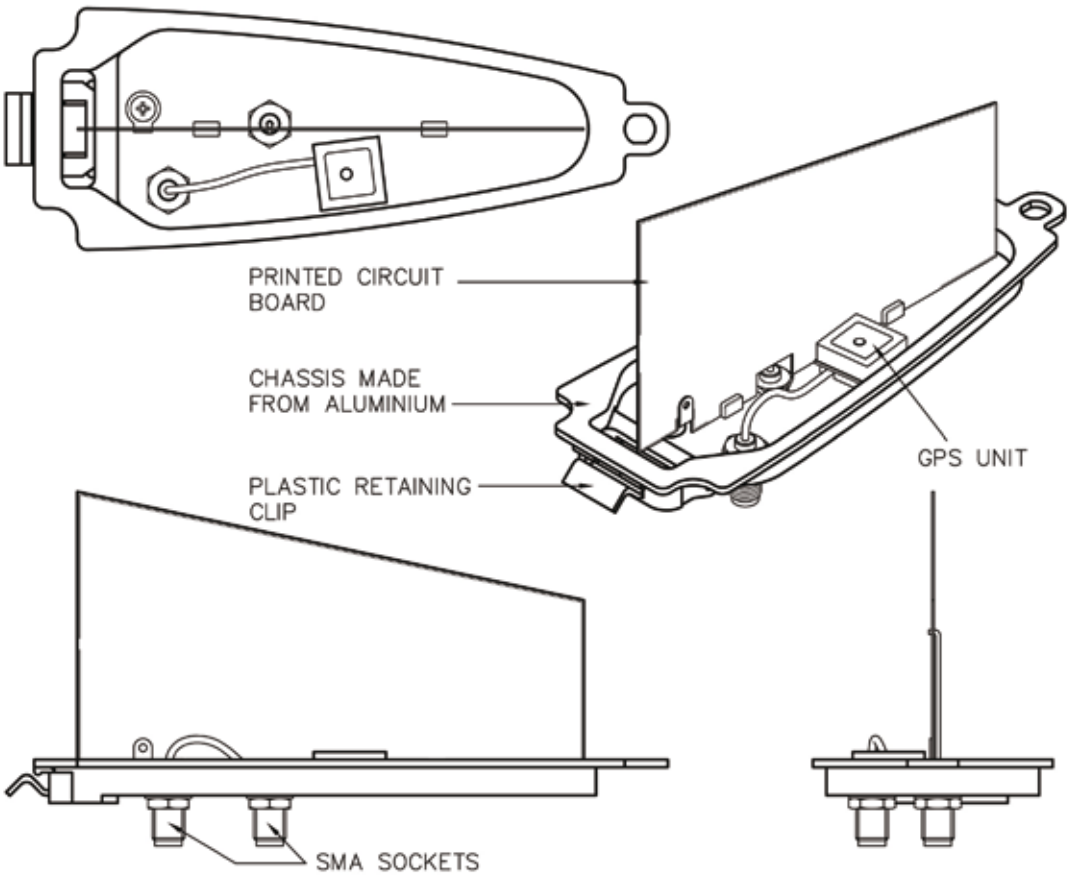
Designed to fit inside BMW 5 series antenna housing

Integrated GPS antenna

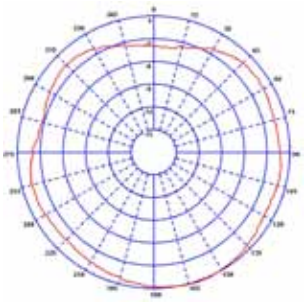
The Covert Shark Fin Antenna is designed specifically for the BMW 5 series, used by the police worldwide. The 380-400MHz TETRA antenna is intended to be a direct replacement for the existing 'Shark Fin' AM/FM application and fits into the existing housing, creating a completely under-cover panel mount solution.

Unlike other covert solutions this antenna is not compromised by its positioning enabling it to have a 360° omnidirectional pattern. This ensures constant communications with the vehicle. The 'SHKG' includes a high gain GPS antenna for applications requiring location based systems.

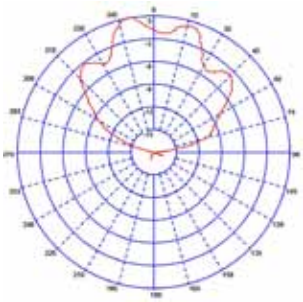
Technical Drawing



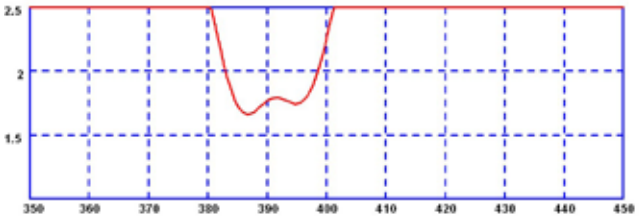
H-Plane (390MHz)



GPS



Typical VSWR



*measured on a 1m × 1m groundplane

Part No.			
		SHKG-S1-SJ	SHKG-S2-SJ
Electrical Data			
Frequency Range (MHz)		380-400	410-430
Operational Band		S1	S2
Gain: Isotropic		1dBi	1dBi
Compared to ¼ wave		-1dB	-1dB
Bandwidth @ 1.5:1 VSWR		10%	10%
Polarisation		Vertical	Vertical
Pattern		Omni-directional	Omni-directional
Impedance		50Ω	50Ω
Max Input Power (W)		20	20
GPS Data			
Frequency Range (MHz)		1575	1575
VSWR		<1.5:1 ± 4MHz	<1.5:1 ± 4MHz
Gain: LNA		26dB	26dB
Polarisation		Right Hand Circular	Right Hand Circular
Operating Voltage		3 - 7V DC (fed via coax)	3 - 7V DC (fed via coax)
Current		Typical 14mA	Typical 14mA
Mechanical Data			
Dimensions (mm) To fit inside BMW 5 series housing	Length	130	130
	Width	47.5	47.5
	Height	61.5	61.5
Operating Temp (°C)		-40° / +80°C	-40° / +80°C
Material		Printed circuit board	Printed circuit board
Colour		Black	Black
Mounting Data			
Fixing		To fit inside BMW 5 series housing	To fit inside BMW 5 series housing
Connector			
Termination	TETRA	SMA Socket	SMA Socket
	GPS	SMA Socket	SMA Socket

Covert Vehicle Dipole Antenna

- TETRA UHF
- Public Safety
- Covert
- Omni Directional
- ROHS Compliant
- Vehicle Mount

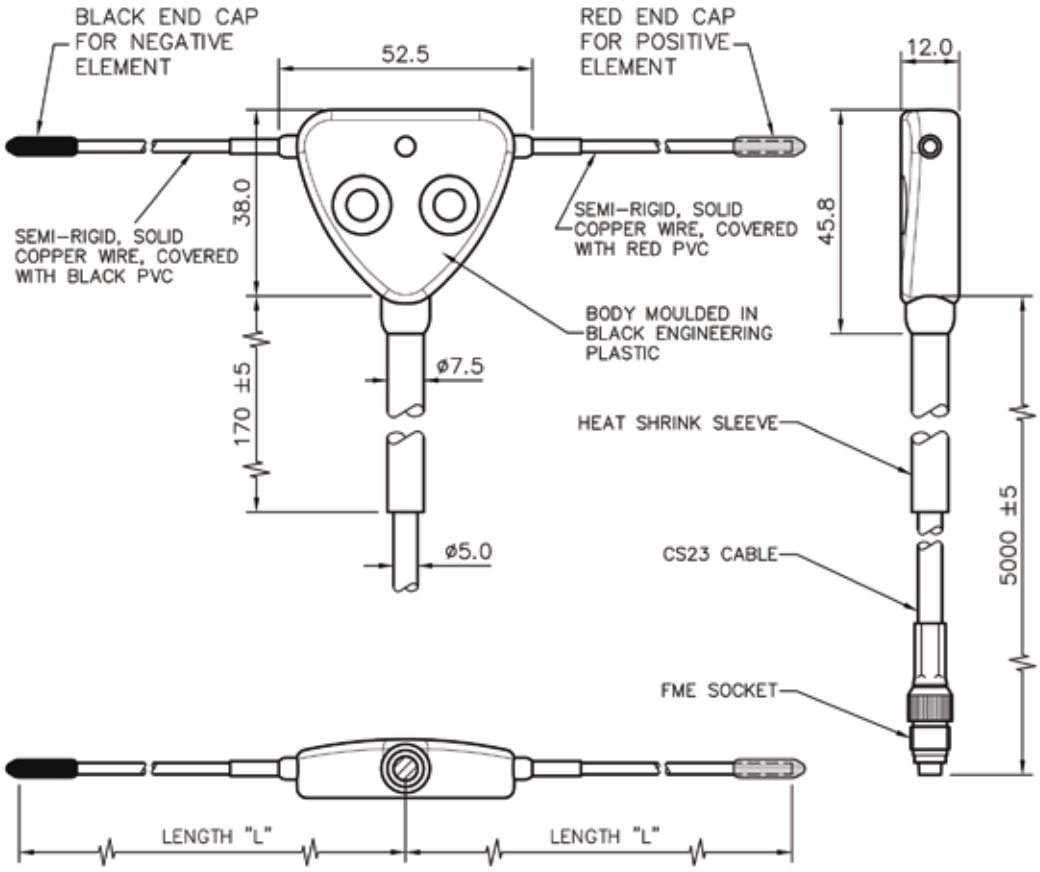
VCD

Dipole construction
Covert bumper mounting
Flexible wire elements

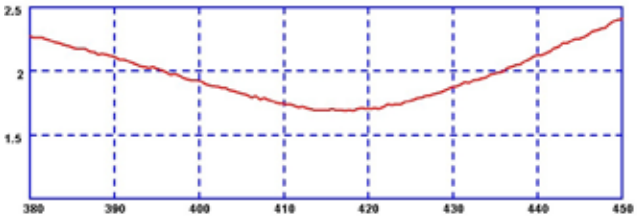
The covert vehicle dipole antenna is specifically designed for covert installations. Where the presence of an antenna must be undetectable.

This specialist antenna can be tuned to either S1 band or S2 band when fitted simply by cutting down the radiating elements, ensuring that a good VSWR match can be achieved.

Technical Drawing



Typical VSWR



Part No.			
		VCD-S1-5F	VCD-S2-5F
Electrical Data			
Frequency Range (MHz)		380-400	410-430
Operational Band		S1	S2
Gain: Isotropic		2dBi	2dBi
Compared to ¼ wave		0dB	0dB
Ground plane		Not required	Not required
Impedance		50Ω	50Ω
Max Input Power (W)		25	25
Mechanical Data			
Dimensions (mm)	Antenna element uncut	330	300
	Length	38	38
	Width	52.5	52.5
	Thickness	12	12
Operating Temp (°C)		-40° / +80°C	-40° / +80°C
Body	Material	Engineering plastic	Engineering plastic
	Colour	Black	Black
Positive antenna element	Material	PVC covered semi-rigid, solid copper wire	PVC covered semi-rigid, solid copper wire
	Colour	Red	Red
	Cap colour	Red	Red
	Uncut length (mm)	138.75	123.75
Negative antenna element	Material	PVC covered semi-rigid, solid copper wire	PVC covered semi-rigid, solid copper wire
	Colour	Black	Black
	Cap colour	Black	Black
	Uncut length (mm)	138.75	123.75
Cable Data			
Type		CS23	CS23
Length (m)		5	5
Thickness (mm)		5	5
Termination		FME socket	FME socket

*Connector Configurations		
BNC (fitted)	VCD-S1-5B	VCD-S2-5B
TNC (fitted)	VCD-S1-5T	VCD-S2-5T
FME (fitted)	VCD-S1-5F	VCD-S2-5F
Bare End	Not Available	Not Available

Body Worn Antenna

TETRA UHF

Public Safety

Covert

RoHS Compliant

BWDT-410-SP

Dipole antenna

Signal optimised to individuals body

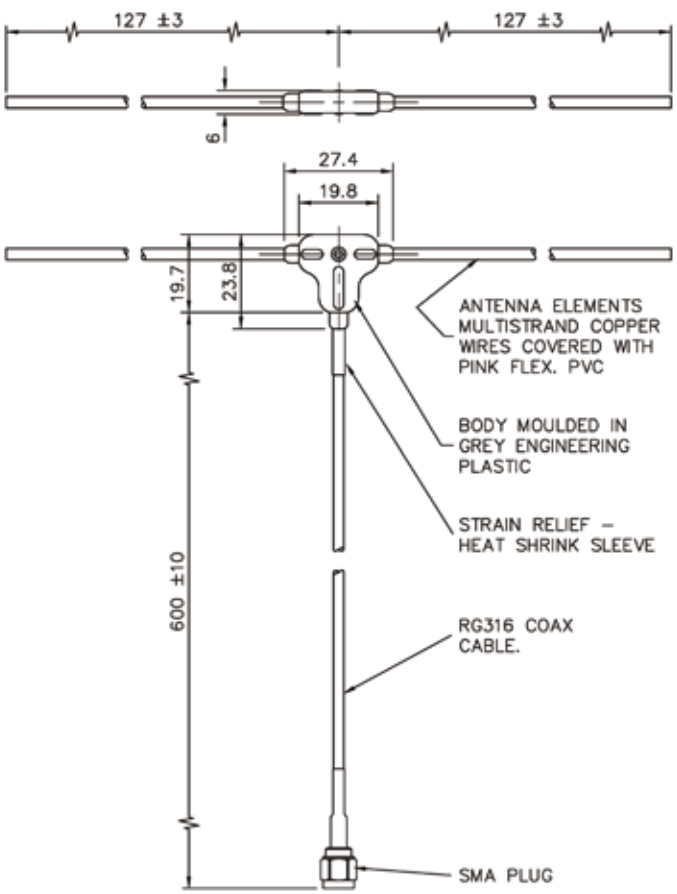
Flexible wire elements

The Body Worn Dipole Antenna is specifically designed for undercover operations.

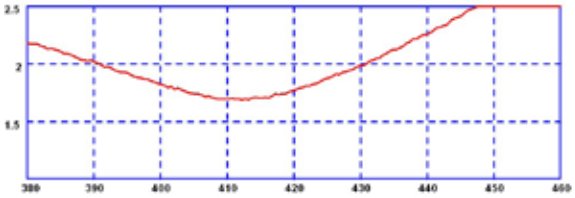
The wires are taped to a person's body so that their appearance is as discreet as possible. The antenna is worn across the shoulders and down the back.

Once in position the antenna is tuned to the required frequency so that there is no possibility of interference in transmitting or receiving.

Technical Drawing



Typical VSWR



*This antenna needs to be tuned whilst on a persons body

Part No.		
		BWDT-410-SP
Electrical Data		
Frequency Range (MHz)		400-420
Gain: Isotropic		2dBi
Compared to ¼ wave		0dB
Polarisation		Vertical
Configuration		Flexible ½ wave dipole
Impedance		50Ω
Max Input Power (W)		10
Mechanical Data		
Dimensions (mm)	Height	23.8
	Weight	27.4
	Thickness	6
Operating Temp (°C)		-40° / +80°C
Material		Grey engineering plastic
Colour		Grey
Antenna Elements		
Antenna element length (mm)		2 × 127
Type		Multistrand copper wires
Colour		Pink
Cable Data		
Type		RG316 coaxial cable
Length (m)		0.6
Termination		SMA Plug

GPS Combination Antenna

- TETRA UHF
- Public Safety
- GPS
- Omni Directional
- ROHS Compliant
- Vehicle Mount

GPSK

Excellent performance

Active GPS element

Single hole fixing

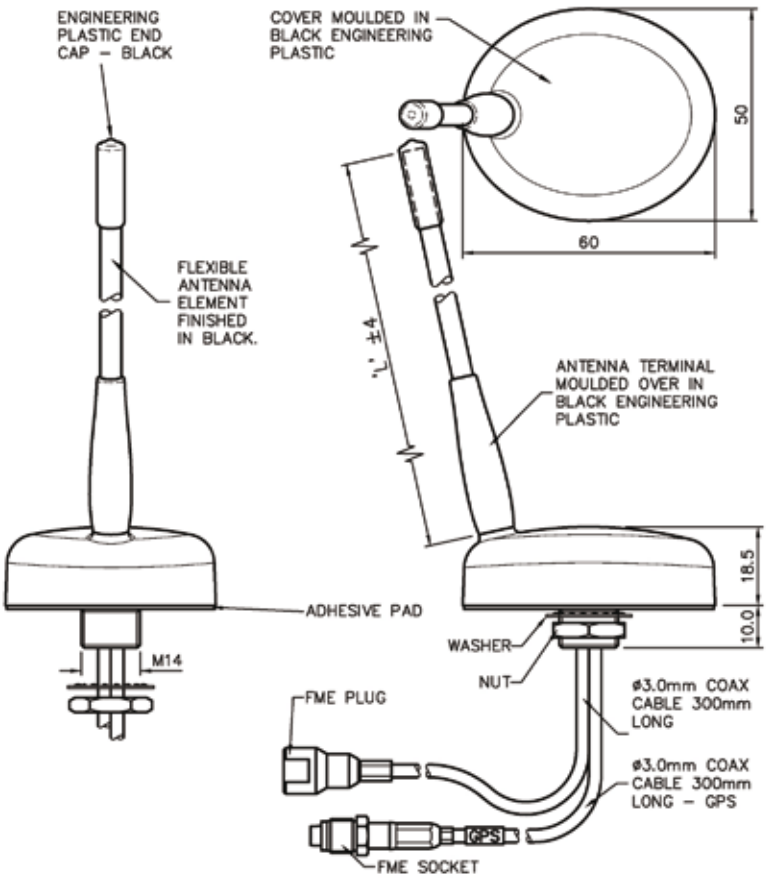
The GPSK antenna range is a dual function, high performance TETRA antenna with an active GPS element.

The GPSK range covers frequencies from 300MHz to 470Mhz, depending on the equipment requirements. With the ability to mount on a roof up to 6mm thick using only a single 15mm hole.

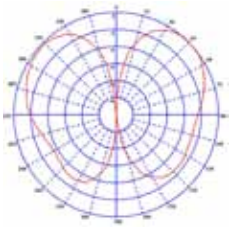
The dual functionality of the Panorama GPSK range makes the antenna a popular choice for police, buses, taxi's and other public service and utility vehicles.

This antenna can be provided as a 'plug & play' kit for all TETRA terminals.

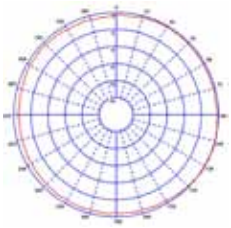
Technical Drawing



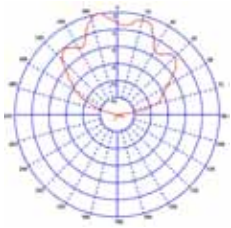
E-Plane (390MHz)



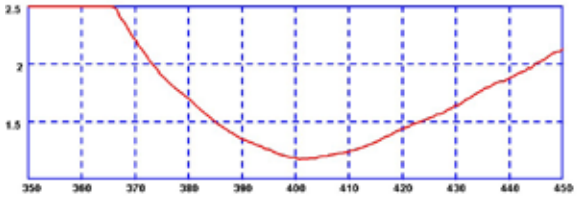
H-Plane (390MHz)



GPS



Typical VSWR*



*measured on a 1m × 1m groundplane

Part No.		GPSK-R1-FF	GPSK-R2-FF	GPSK-TET-FF	GPSK-S4-FF
Electrical Data					
Frequency Range (MHz)		300-334	350-370	380-430	450-470
Operational Band		R1	R2	TET	S4
Gain: Isotropic		2dBi	2dBi	2dBi	2dBi
Compared to ¼ wave		0dB	0dB	0dB	0dB
Polarisation		Vertical	Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω	50Ω
Max Input Power (W)		25	25	25	25
GPS Data					
Frequency Range (MHz)		1575	1575	1575	1575
VSWR		<1.5:1 ± 4MHz	<1.5:1 ± 4MHz	<1.5:1 ± 4MHz	<1.5:1 ± 4MHz
Gain: LNA		26dB	26dB	26dB	26dB
Polarisation		Right Hand Circular	Right Hand Circular	Right Hand Circular	Right Hand Circular
Operating Voltage		3 - 7V DC (fed via coax)	3 - 7V DC (fed via coax)	3 - 7V DC (fed via coax)	3 - 7V DC (fed via coax)
Current		Typical 14mA	Typical 14mA	Typical 14mA	Typical 14mA
Mechanical Data					
Dimensions (mm)	Whip Length	201	179	163	137
	Base Height	18.5	18.5	18.5	18.5
	Base Length	60	60	60	60
	Base Width	50	50	50	50
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Engineering plastic	Engineering plastic	Engineering plastic	Engineering plastic
Colour		Black	Black	Black	Black
Mounting Data					
Fixing		Panel mount	Panel mount	Panel mount	Panel mount
Hole Size (mm)		15	15	15	15
Cable Data					
GPS Cable	Type	RG174	RG174	RG174	RG174
	Thickness (mm)	2.8	2.8	2.8	2.8
	Length (m)	0.3	0.3	0.3	0.3
	Termination	FME socket	FME socket	FME socket	FME socket
Comms Cable	Type	RG174	RG174	RG174	RG174
	Thickness (mm)	2.8	2.8	2.8	2.8
	Length (m)	0.3	0.3	0.3	0.3
	Termination	FME plug	FME plug	FME plug	FME plug

High Gain GPS Combination Antenna

- TETRA UHF
- Public Safety
- GPS
- Omni Directional
- ROHS Compliant
- Vehicle Mount
- High Gain

GPSK-G

Excellent performance
Active GPS element
Single hole fixing

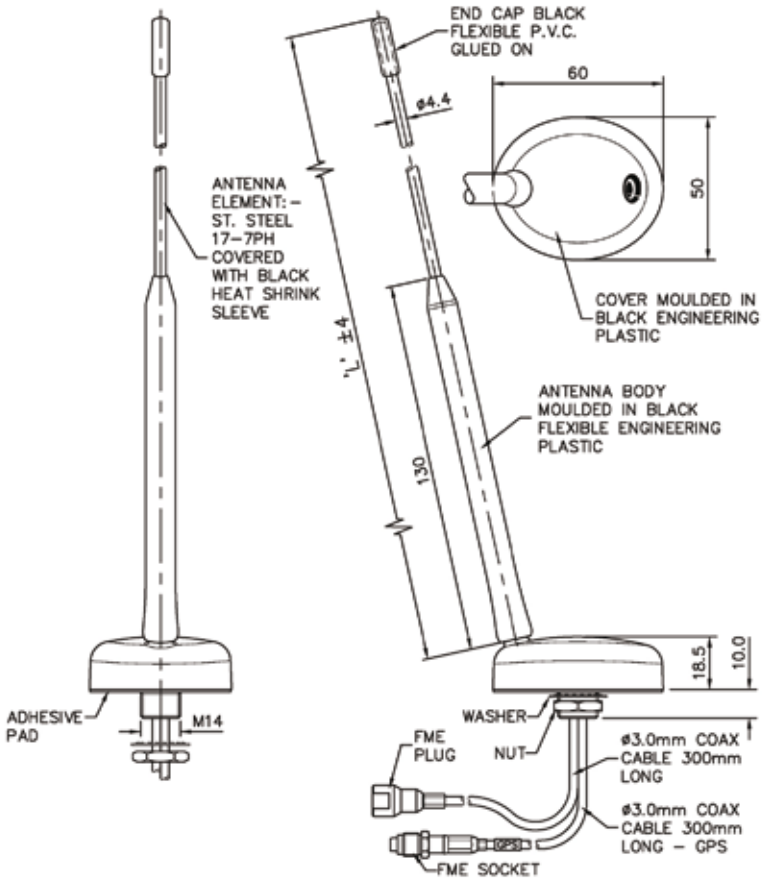
The GPSK antenna range is a dual function, high performance TETRA antenna with an active GPS element.

The GPSK-G range covers frequencies from 380MHz to 470Mhz, depending on the equipment requirements. With the ability to mount on a roof up to 6mm thick using only a single 14mm hole.

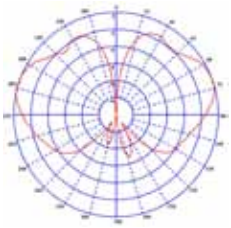
The dual functionality of the Panorama GPSK range makes the antenna a popular choice for police, buses, taxi's and other public service and utility vehicles.

This antenna can be provided as a 'plug & play' kit for all TETRA terminals.

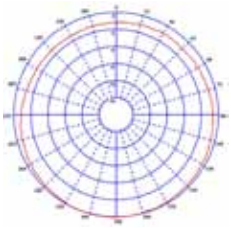
Technical Drawing



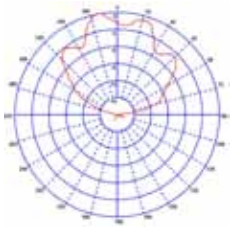
E-Plane (390MHz)



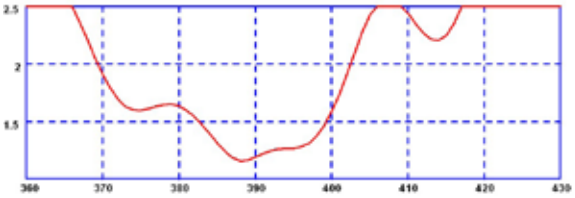
H-Plane (390MHz)



GPS



Typical VSWR



*measured on a 1m × 1m groundplane

Part No.		GPSK-S1G-FF	GPSK-S2G-FF	GPSK-S4G-FF
Electrical Data				
Frequency Range (MHz)		380-400	410-430	450-470
Operational Band		S1	S2	S4
Gain: Isotropic		5dBi	5dBi	5dBi
Compared to ¼ wave		3dB	3dB	3dB
Polarisation		Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω
Max Input Power (W)		25	25	25
GPS Data				
Frequency Range (MHz)		1575	1575	1575
VSWR		<1.5:1 ± 4MHz	<1.5:1 ± 4MHz	<1.5:1 ± 4MHz
Gain: LNA		26dB	26dB	26dB
Polarisation		Right Hand Circular	Right Hand Circular	Right Hand Circular
Operating Voltage		3 - 7V DC (fed via coax)	3 - 7V DC (fed via coax)	3 - 7V DC (fed via coax)
Current		Typical 14mA	Typical 14mA	Typical 14mA
Mechanical Data				
Dimensions (mm)	Whip Length	465	417	370
	Base Height	18.5	18.5	18.5
	Base Length	60	60	60
	Base Width	50	50	50
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Engineering plastic	Engineering plastic	Engineering plastic
Colour		Black	Black	Black
Mounting Data				
Fixing		Panel mount	Panel mount	Panel mount
Hole Size (mm)		15	15	15
Cable Data				
GPS Cable	Type	RG174	RG174	RG174
	Thickness (mm)	2.8	2.8	2.8
	Length (m)	0.3	0.3	0.3
	Termination	FME socket	FME socket	FME socket
Comms Cable	Type	RG174	RG174	RG174
	Thickness (mm)	2.8	2.8	2.8
	Length (m)	0.3	0.3	0.3
	Termination	FME plug	FME plug	FME plug

Magnetic GPS Combination Antenna

- TETRA UHF
- Public Safety
- GPS
- Omni Directional
- ROHS Compliant
- Vehicle Mount

GPSKM

Excellent performance

Active GPS element

Magnetic mount

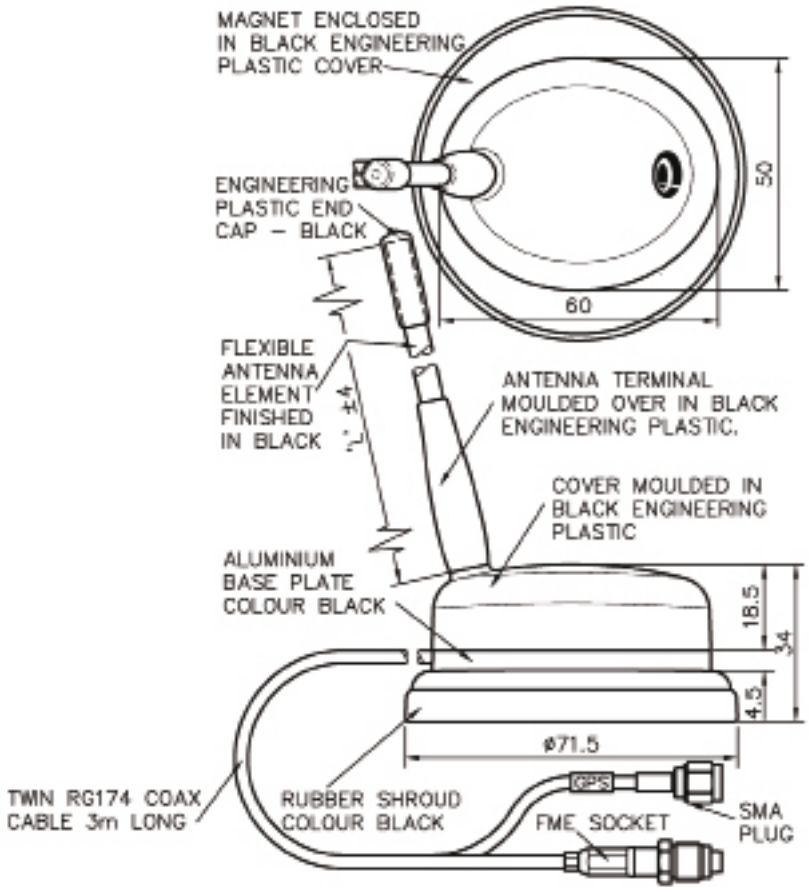
The dual functionality of the Panorama GPSKM range makes these antennas a popular choice for police, buses, taxis and other public service and utility vehicles.

The GPSKM is a dual function, high performance Tetra antenna with an active GPS element. Standard GPS LNA gain is 26dB, version R has a 13dB gain LNA.

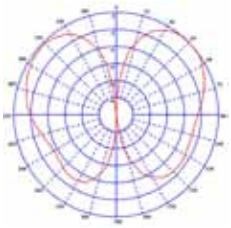
A strong magnet ensures the antenna stays in position and leaves no evidence that it was ever there, when removed.

This antenna can be supplied with connectors to suit all TETRA terminals.

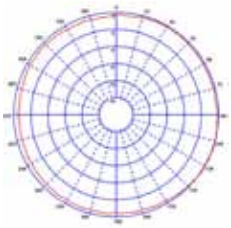
Technical Drawing



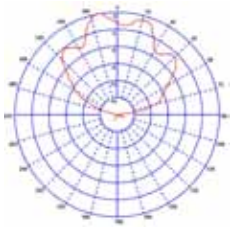
E-Plane (390MHz)



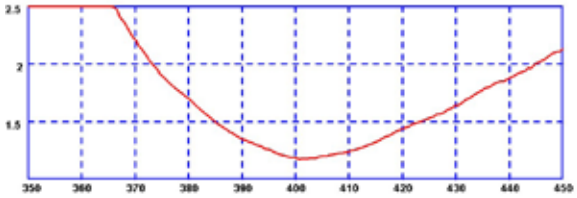
H-Plane (390MHz)



GPS



Typical VSWR*



*measured on a 1m × 1m groundplane

Part No.		GPSKM-3FS-R1	GPSKM-3FS-R2	GPSKM-FS-TET	GPSKM-FS-S4
Electrical Data					
Frequency Range (MHz)		300-334	350-370	380-430	450-470
Operational Band		R1	R2	TET	S4
Gain: Isotropic		2dBi	2dBi	2dBi	2dBi
Compared to ¼ wave		0dB	0dB	0dB	0dB
Polarisation		Vertical	Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω	50Ω
Max Input Power (W)		25	25	25	25
GPS Data					
Frequency Range (MHz)		1575	1575	1575	1575
VSWR		<1.5:1 ± 4MHz	<1.5:1 ± 4MHz	<1.5:1 ± 4MHz	<1.5:1 ± 4MHz
Gain: LNA		26dB	26dB	26dB	26dB
Polarisation		Right Hand Circular	Right Hand Circular	Right Hand Circular	Right Hand Circular
Operating Voltage		3 - 7V DC (fed via coax)	3 - 7V DC (fed via coax)	3 - 7V DC (fed via coax)	3 - 7V DC (fed via coax)
Current		Typical 14mA	Typical 14mA	Typical 14mA	Typical 14mA
Mechanical Data					
Dimensions (mm)	Whip Length	206	179	154	130
	Base Height	34	34	34	34
	Base Diameter	71.5	71.5	71.5	71.5
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Engineering plastic	Engineering plastic	Engineering plastic	Engineering plastic
Colour		Black	Black	Black	Black
Mounting Data					
Fixing		Magnetic mount	Magnetic mount	Magnetic mount	Magnetic mount
Cable Data					
GPS Cable	Type	Twin RG174	Twin RG174	Twin RG174	Twin RG174
	Thickness (mm)	2.8	2.8	2.8	2.8
	Length (m)	3	3	3	3
	Termination	SMA plug†	SMA plug†	SMA plug†	SMA plug†
Comms Cable	Type	Twin RG174	Twin RG174	Twin RG174	Twin RG174
	Thickness (mm)	2.8	2.8	2.8	2.8
	Length (m)	3	3	3	3
	Termination	FME socket†	FME socket†	FME socket†	FME socket†

†Other connectors are available upon request

GPS Combination Antenna with Diplexer for Mobile Car Kits

- TETRA UHF
- Public Safety
- GPS
- Omni Directional
- ROHS Compliant
- Vehicle Mount

GPSK-CK

Excellent performance
Active GPS element
Single hole fixing

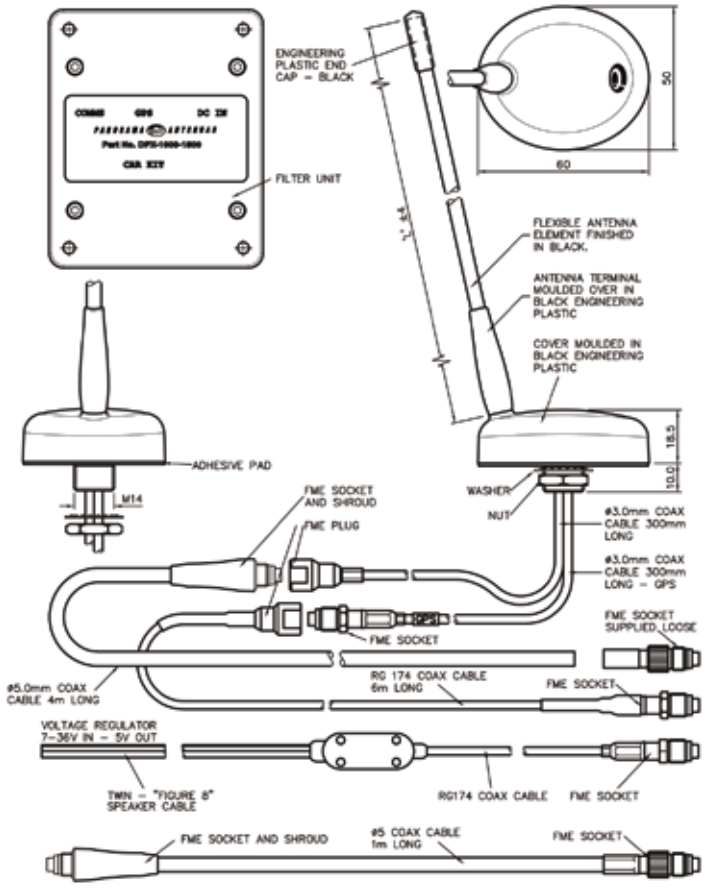
This antenna system is required for hand portable car kit use, where a common antenna connection is supplied.

The GPSK antenna range is a dual function, high performance TETRA antenna with an active GPS element.

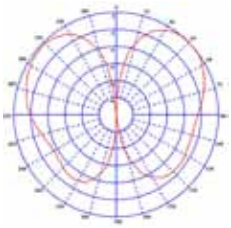
The GPSK range covers frequencies from 300MHz to 470Mhz, depending on the equipment requirements. With the ability to mount on a roof up to 6mm thick using only a single 15mm hole.

The dual functionality of the Panorama GPSK range makes the antenna a popular choice for police, buses, taxi's and other public service and utility vehicles.

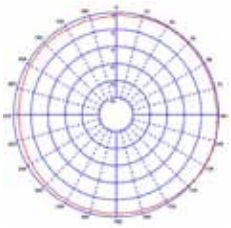
Technical Drawing



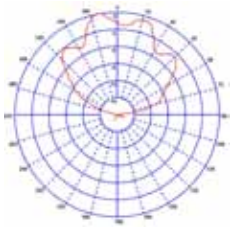
E-Plane (390MHz)



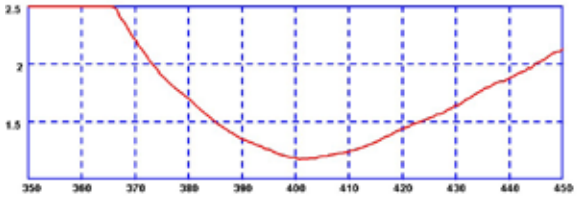
H-Plane (390MHz)



GPS



Typical VSWR*



*measured on a 1m × 1m groundplane

Part No.		GPSK-R1-MOT-CK	GPSK-R2-MOT-CK	GPSK-TET-MOT-CK	GPSK-S4-MOT-CK
Electrical Data					
Frequency Range (MHz)		300-334	350-370	380-430	450-470
Operational Band		R1	R2	TET	S4
Gain: Isotropic		2dBi	2dBi	2dBi	2dBi
Compared to ¼ wave		0dB	0dB	0dB	0dB
Polarisation		Vertical	Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω	50Ω
Max Input Power (W)		50	50	50	50
GPS Data					
Frequency Range (MHz)		1575	1575	1575	1575
VSWR		<1.5:1 ± 4MHz	<1.5:1 ± 4MHz	<1.5:1 ± 4MHz	<1.5:1 ± 4MHz
Gain: LNA		26dB	26dB	26dB	26dB
Polarisation		Right Hand Circular	Right Hand Circular	Right Hand Circular	Right Hand Circular
Operating Voltage		3 - 7V DC (fed via coax)	3 - 7V DC (fed via coax)	3 - 7V DC (fed via coax)	3 - 7V DC (fed via coax)
Current		Typical 14mA	Typical 14mA	Typical 14mA	Typical 14mA
Mechanical Data					
Dimensions (mm)	Whip Length	201	179	163	137
	Base Height	18.5	18.5	18.5	18.5
	Base Length	60	60	60	60
	Base Width	50	50	50	50
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Engineering plastic	Engineering plastic	Engineering plastic	Engineering plastic
Colour		Black	Black	Black	Black
Mounting Data					
Fixing		Panel mount	Panel mount	Panel mount	Panel mount
Hole Size (mm)		15	15	15	15
Cable Data					
GPS Cable	Type	RG174	RG174	RG174	RG174
	Length (m)	6	6	6	6
	Termination	FME Socket	FME Socket	FME Socket	FME Socket
Comms Cable	Type	CS23	CS23	CS23	CS23
	Length (m)	5	5	5	5
	Termination	Bare end with loose FME	Bare end with loose FME	Bare end with loose FME	Bare end with loose FME
Radio Cable	Length (m)	1	1	1	1
	Termination	FME Socket	FME Socket	FME Socket	FME Socket
Voltage Regulator (part No. VR5-F)	Length (m)	1	1	1	1
	More Information	See page 68	See page 68	See page 68	See page 68

Diplexer for TETRA & GPS Car Kits

TETRA UHF

Public Safety

RoHS Compliant

DPX-1000-1500 & VR5-F

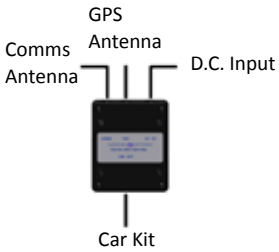
Splits combined GPS & TETRA to separate antennas

Low insertion loss

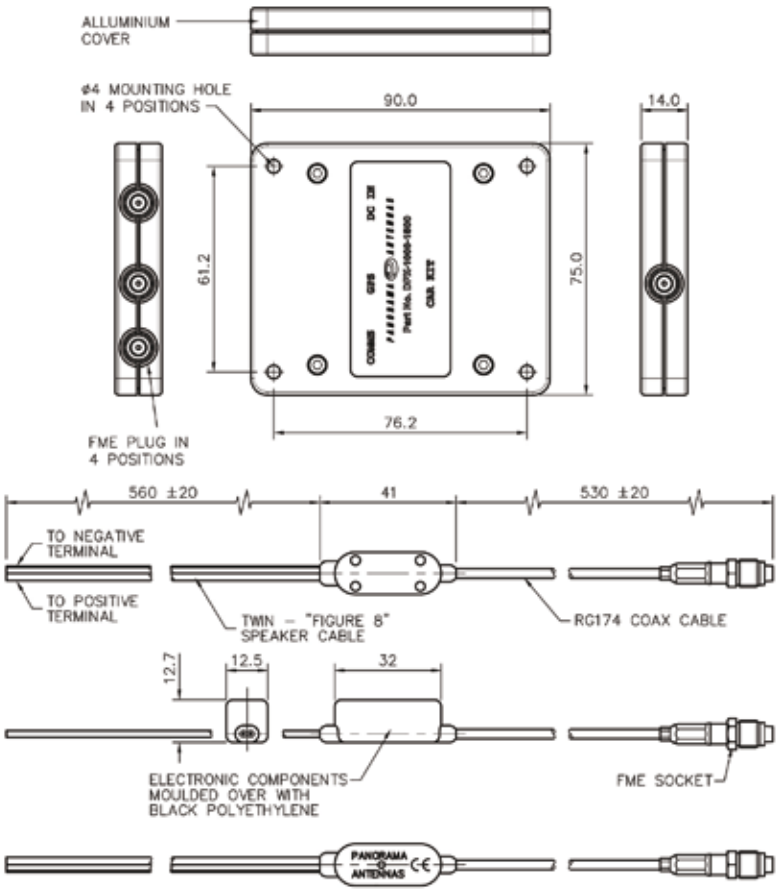
High level of isolation between antenna ports

The DPX-1000-1500 is an efficient diplexer unit that splits a combined GPS & TETRA UHF feed to separate antennas.

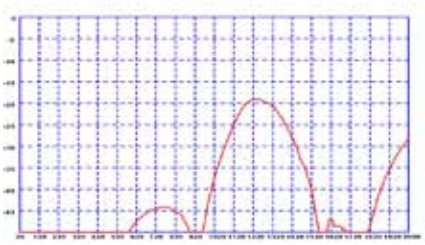
When the user attaches their handset to their car kit it enables them to use an external antenna located in a better position, improving helping their communication and navigation functions.



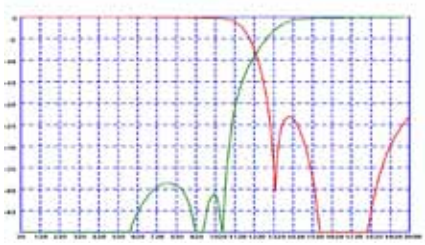
Technical Drawing



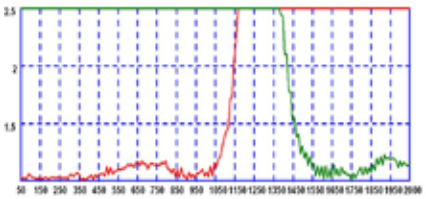
Insertion between high & lowpass ports



Insertion loss of antenna to high & lowpass ports



Typical VSWR of high & lowpass ports



Part No.		
		DPX-1000-1500
Electrical Data		
Frequency range (MHz)	Lowpass	50-1000
	Highpass	1500-2000
Insertion loss	Lowpass	< 0.5dB
	Highpass	< 0.5dB
Impedance		50Ω
Max input power	Up to 500MHz	50W
	500-1000MHz	20W
DC feed voltage		3-7V
Mechanical Data		
Dimensions (mm)	Length	90
	Width	75
	Height	14
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		4 × mounting holes
Approvals		
CE Marking		CE No. 75903224
Voltage Regulator		
Part No.		VR5-F
Input voltage range		7 - 36V DC
Output voltage		5V DC
Max output current		40mA
Input connection	Length (m)	0.56
	Cable type	Twin figure of 8 cable
	Negative line	Grey - Black tracer
	Positive line	Grey
	Fuse	Recommended Max 1A fuse
Output connection	Length (m)	0.53
	Cable type	RG174
	Termination	FME socket

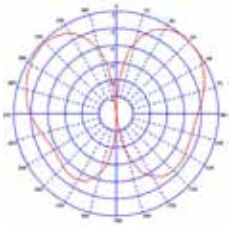
- TETRA UHF
- Public Safety
- GPS
- Omni Directional
- ROHS Compliant
- Vehicle Mount
- GPRS
- UMTS
- WIFI
- WiMax

Heavy Duty Multifunction Antenna

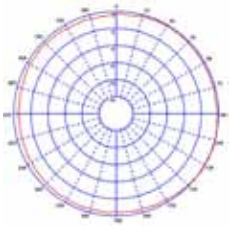
Four elements in one sleek housing
TETRA, GPS, Multiband GSM, 3G UMTS & WLAN in one antenna
Heavy duty design for any UHF or VHF whip

TETRA UHF WHIP - GPSB1-TET

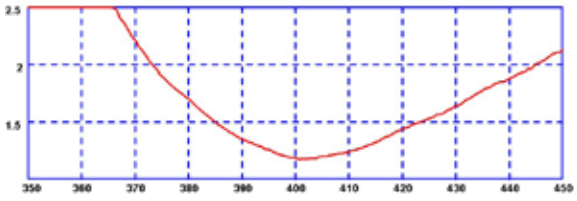
E-Plane (390MHz)



H-Plane (390MHz)

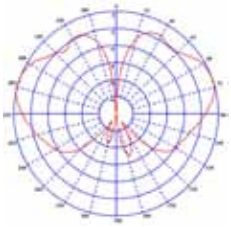


Typical VSWR*

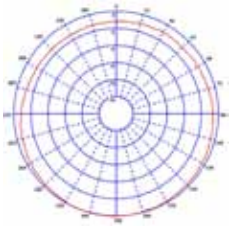


TETRA UHF WHIP - GPSB1-S1G & GPSB1-S2G

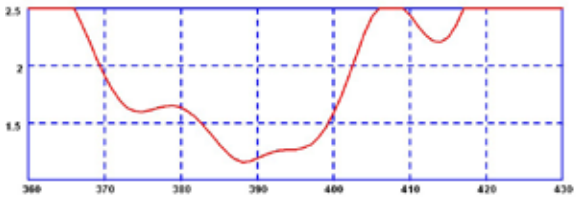
E-Plane (390MHz)



H-Plane (390MHz)

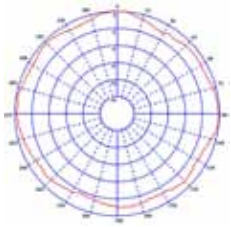


Typical VSWR*

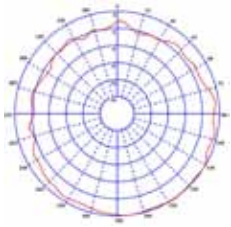


INTERNAL GSM & 3G UMTS ANTENNAS - All GPSB range

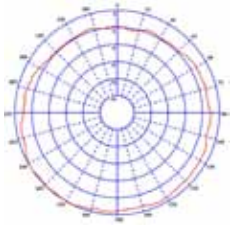
H-Plane (900MHz)



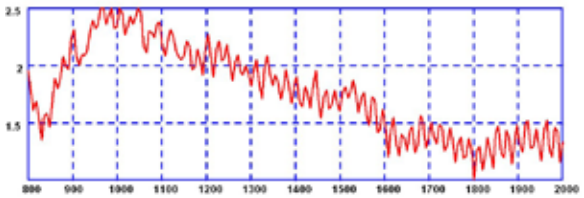
H-Plane (1800MHz)



H-Plane (2000MHz)

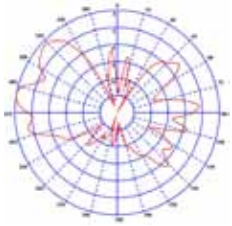


Typical VSWR*

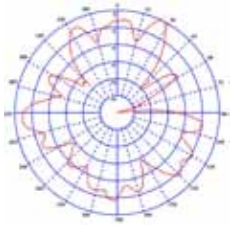


INTERNAL 2.4GHz & 5.4GHz WLAN ANTENNAS - All GPSB range

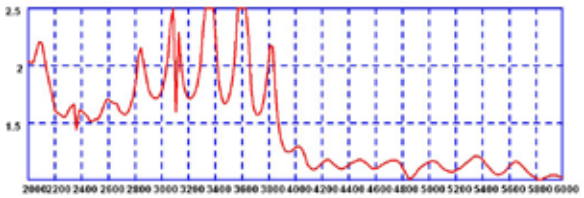
E-Plane (2400MHz)



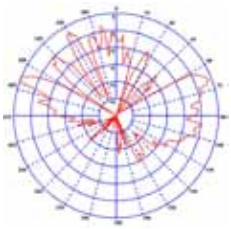
H-Plane (2400MHz)



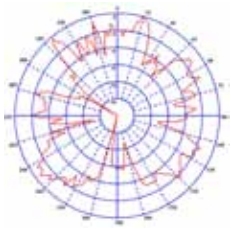
Typical VSWR*



E-Plane (5800MHz)

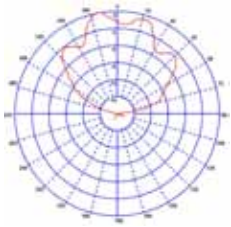


H-Plane (5800MHz)



GPS ANTENNA

GPS



*measured on a 1m × 1m groundplane

Heavy Duty Multifunction Antenna

- TETRA UHF
- Public Safety
- GPS
- Omni Directional
- ROHS Compliant
- Vehicle Mount
- GPRS
- UMTS
- WIFI
- WiMax

GPSB

Four elements in one sleek housing

TETRA, GPS, Multiband GSM, 3G UMTS & WLAN in one antenna

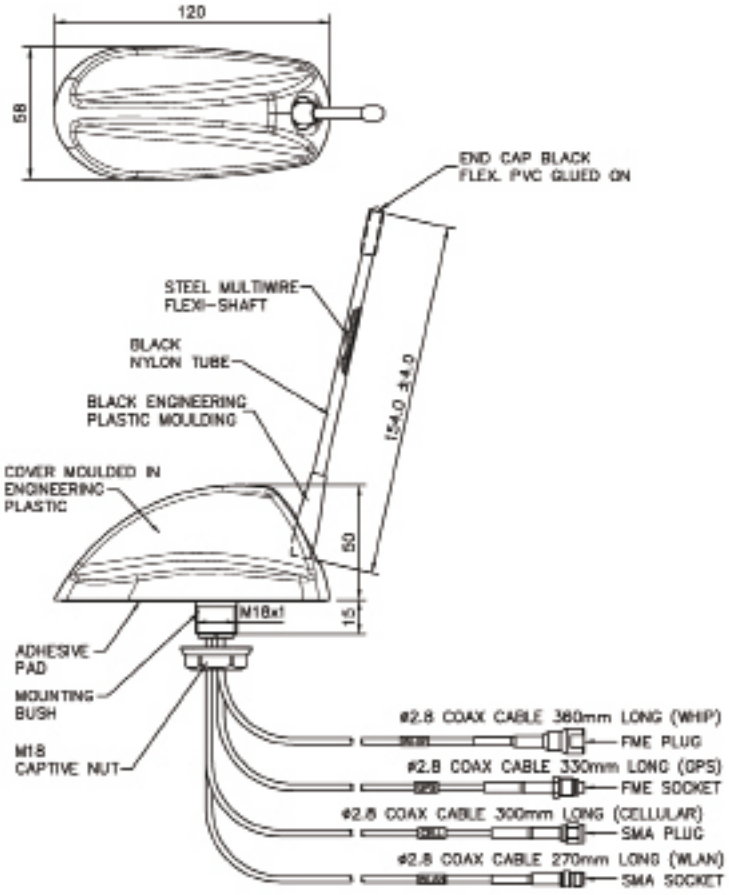
Heavy duty design for any UHF or VHF whip

The heavy duty GPSB antenna series combines four different antennas in a sleek mounting. Only a single hole is required to mount the antenna, making this a far quicker and easier solution than using four different antennas.

The versatility of the antenna makes it ideal for logistics and asset tracking. The external UHF or VHF whip can be used as a simple two-way radio link with a hub, the 3G UMTS antenna or GPRS antenna can be used for data feeds and mobile phone calls, the GPS antenna can be used for navigation and vehicle tracking, whilst the WLAN antennas can download data back at the depot.

Four complicated functions in just one rugged antenna.

Technical Drawing



Part No.		
		GPSB1-TET
Electrical Data		
Frequency Range (MHz)		380-430, 890-960, 1710-1880, 1850-1990, 1900-2170, 2400-2470 & 5400-5800
Operational Band		TET, GSM900, GSM1800, PCS1900, 3G UMTS, 2.4GHz WLAN, 5.4GHz WLAN
Gain: Isotropic		2dBi (on all bands)
Compared to ¼ wave		0dB (on all bands)
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		25
GPS Data		
Frequency Range (MHz)		1575
VSWR		<1.5:1 ± 4MHz
Gain: LNA		26dB
Polarisation		Right Hand Circular
Operating Voltage		3-7V DC (fed via coax)
Current		Typical 14mA
Mechanical Data		
Dimensions (mm)	Total Height	157.5
	Height of Base	50
	Length	120
	Width	58
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Cable Data		
Cable Type	TETRA	RG316
	GPS	RG316
	Cellular	RG316
	WLAN	RG316
Thickness	TETRA	2.8
	GPS	2.8
	Cellular	2.8
	WLAN	2.8
Length (m)	TETRA	0.36
	GPS	0.33
	Cellular	0.30
	WLAN	0.27
Termination	TETRA	FME plug
	GPS	FME socket
	Cellular	SMA plug
	WLAN	SMA socket

Heavy Duty Multifunction Antenna

- TETRA UHF
- Public Safety
- GPS
- Omni Directional
- ROHS Compliant
- Vehicle Mount
- GPRS
- UMTS
- WIFI
- WiMax
- High Gain

GPSB

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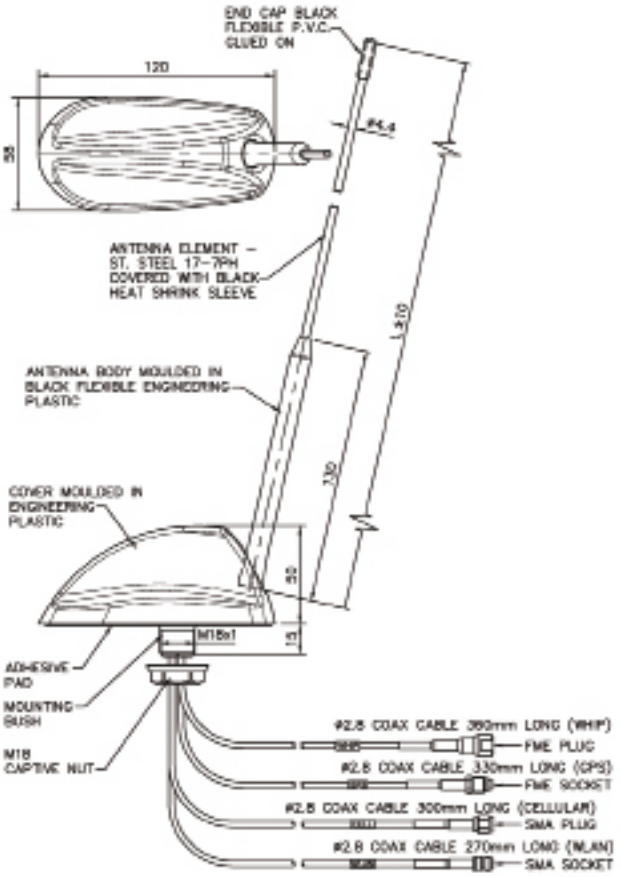
Four complicated functions in just one rugged antenna.

Technical Drawing



Part No.		GPSB1-S1G	GPSB1-S2G
Electrical Data			
Frequency Range (MHz)		380-400, 890-960, 1710-1880, 1850-1990, 1900-2170, 2400-2470 & 5400-5800	410-430, 890-960, 1710-1880, 1850-1990, 1900-2170, 2400-2470 & 5400-5800
Operational Band		S1, GSM900, GSM1800, PCS1900, 3G UMTS, 2.4GHz WLAN, 5.4GHz WLAN	S2, GSM900, GSM1800, PCS1900, 3G UMTS, 2.4GHz WLAN, 5.4GHz WLAN
Gain: Isotropic		5dBi (on S1), 2dBi (on GSM, 3G UMTS & WLAN)	5dBi (on S2), 2dBi (on GSM, 3G UMTS & WLAN)
Compared to ¼ wave		3dB (on S1), 0dB (on GSM, 3G UMTS & WLAN)	3dB (on S2), 0dB (on GSM, 3G UMTS & WLAN)
Polarisation		Vertical	Vertical
Pattern		Omni-directional	Omni-directional
Impedance		50Ω	50Ω
Max Input Power (W)		25	25
GPS Data			
Frequency Range (MHz)		1575	1575
VSWR		<1.5:1 ± 4MHz	<1.5:1 ± 4MHz
Gain: LNA		26dB	26dB
Polarisation		Right Hand Circular	Right Hand Circular
Operating Voltage		3-7V DC (fed via coax)	3-7V DC (fed via coax)
Current		Typical 14mA	Typical 14mA
Mechanical Data			
Dimensions (mm)	Total Height	468	454
	Height of Base	50	50
	Length	120	120
	Width	58	58
Operating Temp (°C)		-40° / +80°C	-40° / +80°C
Material		Engineering plastic	Engineering plastic
Colour		Black	Black
Cable Data			
Cable Type	TETRA	RG316	RG316
	GPS	RG316	RG316
	Cellular	RG316	RG316
	WLAN	RG316	RG316
Thickness	TETRA	2.8	2.8
	GPS	2.8	2.8
	Cellular	2.8	2.8
	WLAN	2.8	2.8
Length (m)	TETRA	0.36	0.36
	GPS	0.33	0.33
	Cellular	0.30	0.30
	WLAN	0.27	0.27
Termination	TETRA	FME plug	FME plug
	GPS	FME socket	FME socket
	Cellular	SMA plug	SMA plug
	WLAN	SMA socket	SMA socket

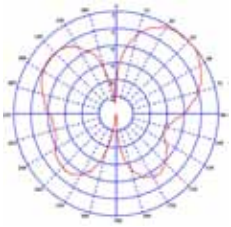
Multifunction Low Profile Antenna

- TETRA UHF
- Public Safety
- GPS
- Omni Directional
- ROHS Compliant
- Vehicle Mount
- GPRS
- UMTS
- WIFI
- WiMax

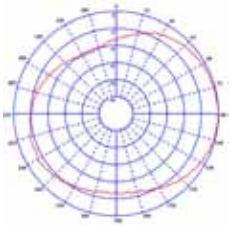
Single housing
Multiple frequencies
Rugged design

TETRA UHF

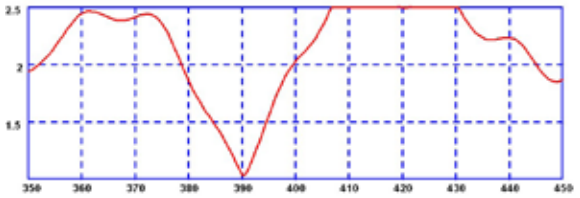
E-Plane (390MHz)



H-Plane (390MHz)

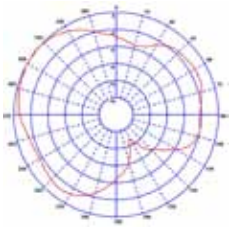


Typical VSWR*

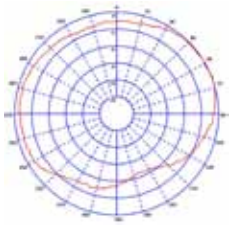


GSM & 3G UMTS ANTENNAS

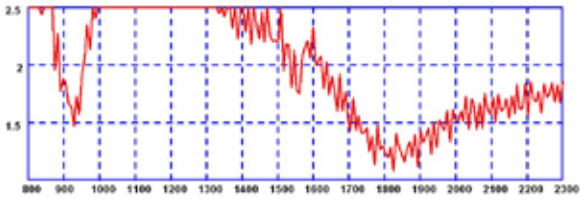
E-Plane (900MHz)



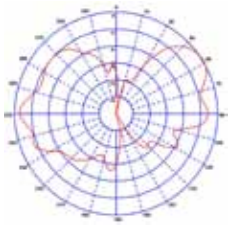
H-Plane (900MHz)



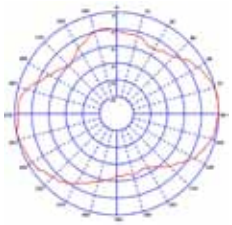
Typical VSWR*



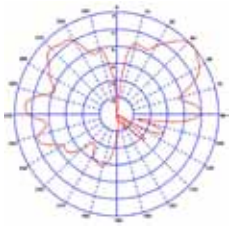
E-Plane (1800MHz)



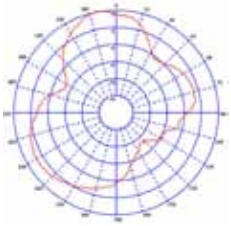
H-Plane (1800MHz)



E-Plane (2000MHz)

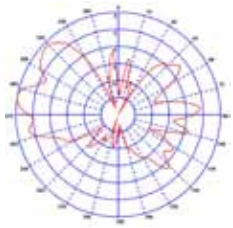


H-Plane (2000MHz)

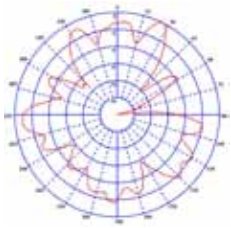


2.4GHz & 5.4GHz WLAN ANTENNAS

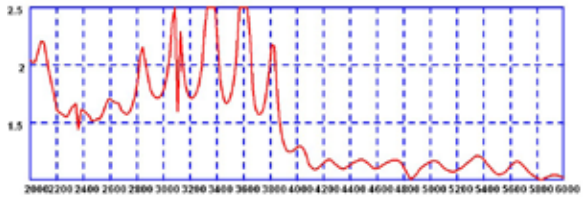
E-Plane (2400MHz)



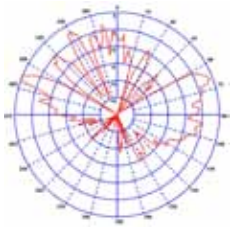
H-Plane (2400MHz)



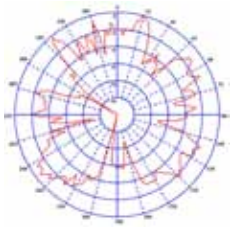
Typical VSWR*



E-Plane (5800MHz)

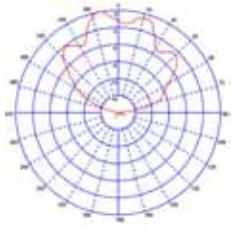


H-Plane (5800MHz)



GPS ANTENNA

GPS



*measured on a 1m × 1m groundplane

Multi Function Low Profile Antenna

- TETRA UHF
- Public Safety
- GPS
- Omni Directional
- ROHS Compliant
- Vehicle Mount
- GPRS
- UMTS
- WIFI
- WiMax

LG-S1-DEP3G-24-58 & LG-S2-DEP3G-24-58

Single housing

Multiple frequencies

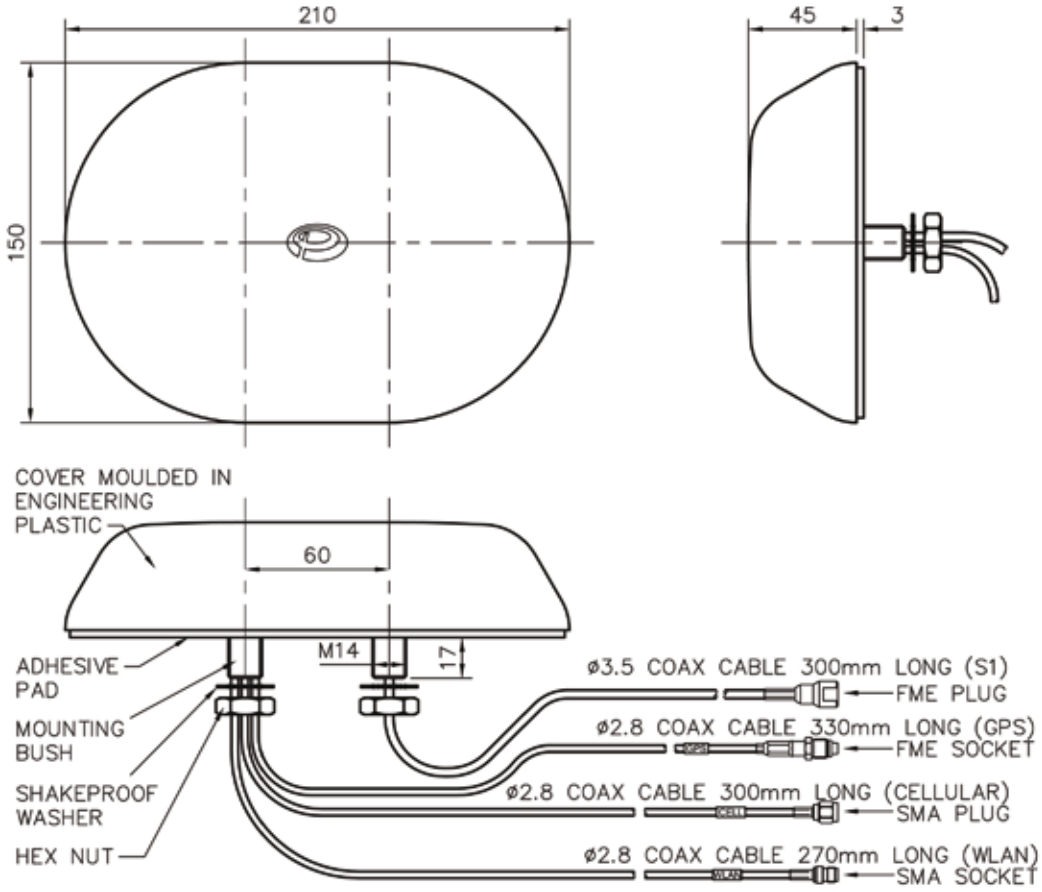
Rugged design

Panorama low profile antennas are designed to withstand high impact while maintaining functionality. They are perfect for Police vehicles that may require communication abilities, even when under attack.

The modular construction of the LG-S1-DEP3G-24-58 & LG-S2-DEP3G-24-58 means that if a frequency is not required it can be taken out and an extra GPS element can be added, depending on the requirements of the customer.

The multiple frequencies available with the LG-S1-DEP3G-24-58 & LG-S2-DEP3G-24-58 are perfect for buses and public services that require many different technologies to be on board.

Technical Drawing



Part No.		LG-S1-DEP3G-24-58	LG-S2-DEP3G-24-58
Electrical Data			
Frequency Range (MHz)		380-400, 890-960, 1710-1880, 1850-1990, 1900-2170, 2400-2500, 5700-5900	410-430, 890-960, 1710-1880, 1850-1990, 1900-2170, 2400-2500, 5700-5900
Operational Band		S1, GSM900, GSM1800, PCS1900, 3G UMTS, 2.4GHz WLAN, 5.8GHz WLAN	S2, GSM900, GSM1800, PCS1900, 3G UMTS, 2.4GHz WLAN, 5.8GHZ WLAN
Gain: Isotropic		0dBi (on all bands)	0dBi (on all bands)
Compared to ¼ wave		-2dB (on all bands)	-2dB (on all bands)
Polarisation		Vertical	Vertical
Pattern		Omni-directional	Omni-directional
Impedance		50Ω	50Ω
Max Input Power (W)		20	20
GPS Data			
Frequency Range (MHz)		1575	1575
VSWR		<1.5:1 ± 4MHz	<1.5:1 ± 4MHz
Gain: LNA		26dB	26dB
Polarisation		Right Hand Circular	Right Hand Circular
Operating Voltage		3-7V DC (fed via coax)	3-7V DC (fed via coax)
Current		Typical 14mA	Typical 14mA
Mechanical Data			
Dimensions (mm)	Height	48	48
	Length	210	210
	Width	150	150
Operating Temp (°C)		-40° / +80°C	-40° / +80°C
Material		Engineering plastic	Engineering plastic
Colour		Black	Black
Cable Data			
Type		Coax cable	Coax cable
Thickness (mm)	TETRA	3.5	3.5
	GPS	2.8	2.8
	Cellular	2.8	2.8
	WLAN	2.8	2.8
Length (m)	TETRA	0.3	0.3
	GPS	0.33	0.33
	Cellular	0.3	0.3
	WLAN	0.27	0.27
Termination	TETRA	FME plug	FME plug
	GPS	FME socket	FME socket
	Cellular	SMA plug	SMA plug
	WLAN	SMA socket	SMA socket

Temporary Clip Antenna

- TETRA UHF
- Public Safety
- Fixed Site
- Omni Directional
- ROHS Compliant

CD

Rugged construction

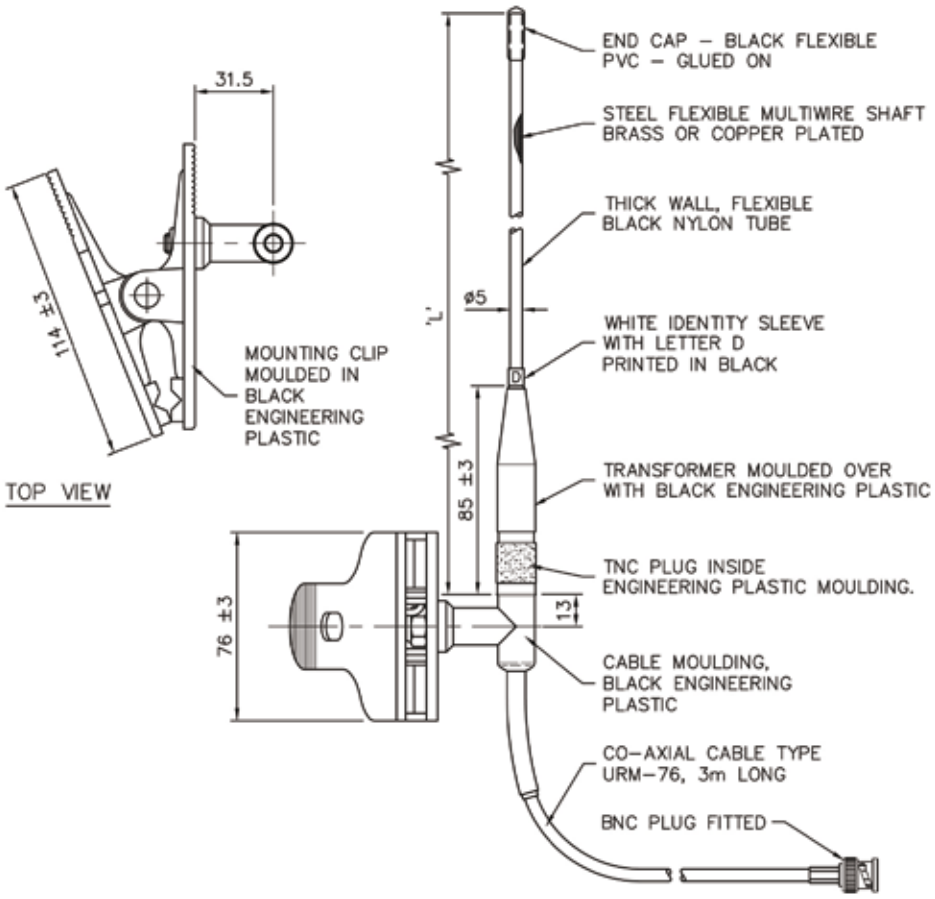
Fast installation

Moulded in coaxial cable

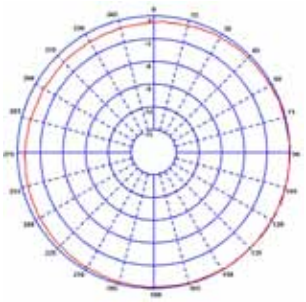
The performance and scope of portable equipment can often be considerably improved by extending the antenna to a more efficient height. Spring clip antennas provide an easy way to do this.

The jaws of the spring clip are moulded in nylon and are fully adjustable for any angle. The antenna features a fully moulded coaxial connection for weather protection and resilience.

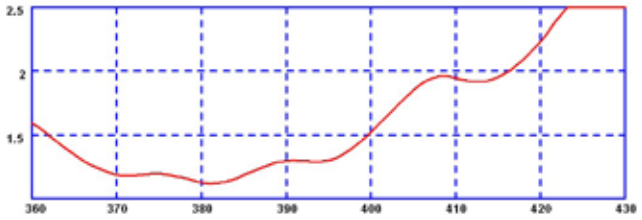
Technical Drawing



H-Plane (390MHz)



Typical VSWR



Part No.		
	CD390-3B	CD420-3B
Electrical Data		
Frequency Range (MHz)	380-400	410-430
Operational Band	S1	S2
Gain: Isotropic	4dBi	4dBi
Compared to ¼ wave	2dB	2dB
VSWR	Tx ≤ 1.5:1, Rx ≤ 2:1	Tx ≤ 1.5:1, Rx ≤ 2:1
Polarisation	Vertical	Vertical
Pattern	Omni-directional	Omni-directional
Impedance	50Ω	50Ω
Max Input Power (W)	25	25
Mechanical Data		
Total length (mm)	400	380
Operating Temp (°C)	-40° / +80°C	-40° / +80°C
Colour	Black	Black
Cable Data		
Type	URM 76	URM 76
Length (m)	3	3
Thickness (mm)	5	5
Termination	BNC plug*	BNC plug*

*Connector Configurations		
BNC (fitted)	CD390-3B	CD420-3B
TNC (fitted)	CD390-3T	CD420-3T
Bare End	CD390	CD420

Wall Mount Antenna

- TETRA UHF
- Public Safety
- Fixed Site
- Omni Directional
- ROHS Compliant

ODP

Improves range

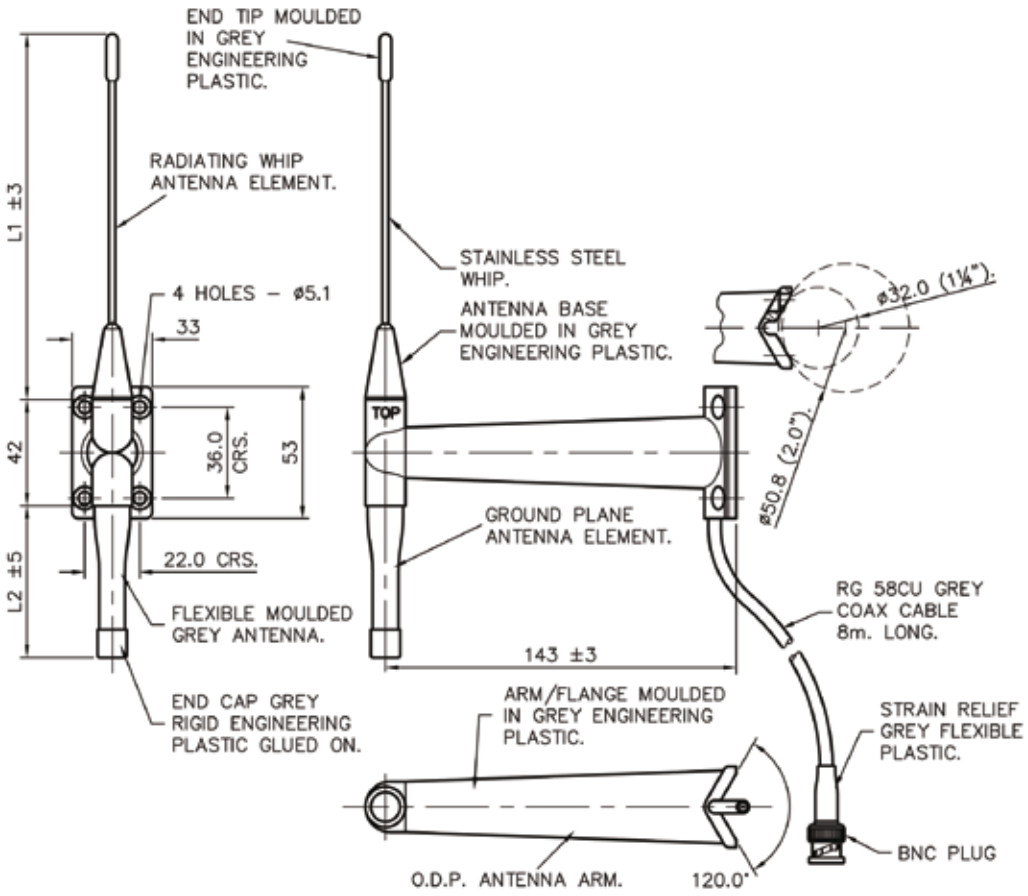
Easy installation

Light weight solution

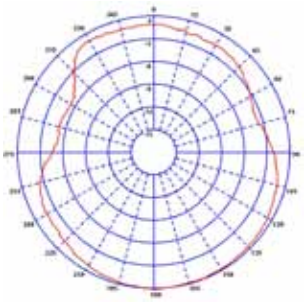
The ODP wall mount antenna range is a simple and cost efficient way of improving the range of a fixed mobile radio.

Ideal for use with a fixed radio terminal, this antenna can be fitted internally or externally.

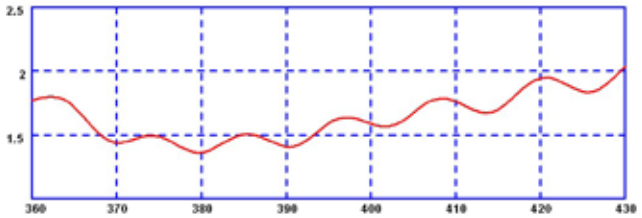
Technical Drawing



H-Plane (390MHz)



Typical VSWR



Part No.		ODP-R1-8B	ODP-R2-8B	ODP-TET-8B	ODP-S4-8B
Electrical Data					
Frequency Range (MHz)		300-334	350-370	380-430	450-470
Operational Band		R1	R2	TET	S4
Gain: Isotropic		2dBi	2dBi	2dBi	2dBi
Compared to ¼ wave		0dB	0dB	0dB	0dB
Bandwidth @ 2:1 VSWR		8%	8%	8%	8%
Polarisation		Vertical	Vertical	Vertical	Vertical
Pattern		Omni directional	Omni directional	Omni directional	Omni directional
Impedance		50Ω	50Ω	50Ω	50Ω
Max Input Power (W)		20	20	20	20
Mechanical Data					
Dimensions (mm)	Total Length	310	284	257	221
	'L1' length	178	157	139	119
	'L2' length	90	85	76	60
Off-Set from wall (mm)		143	143	143	143
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C
Colour		Grey	Grey	Grey	Grey
Mast diameter range (mm)		50.8 / 32.0	50.8 / 32.0	50.8 / 32.0	50.8 / 32.0
Cable Data					
Type		RG 58CU	RG 58CU	RG 58CU	RG 58CU
Length (m)		8	8	8	8
Colour		Grey	Grey	Grey	Grey
Thickness (mm)		5	5	5	5
Termination		BNC plug*	BNC plug*	BNC plug*	BNC plug*

*Connector Configurations				
BNC (fitted)	ODP-R1-8B	ODP-R2-8B	ODP-TET-8B	ODP-S4-8B
TNC (fitted)	ODP-R1-8T	ODP-R2-8T	ODP-TET-8T	ODP-S4-8T
Bare End	ODP-R1-8	ODP-R2-8	ODP-TET-8	ODP-S4-8

High Gain Wall Mount Antenna

- TETRA UHF
- Public Safety
- Fixed Site
- Omni Directional
- ROHS Compliant
- High Gain

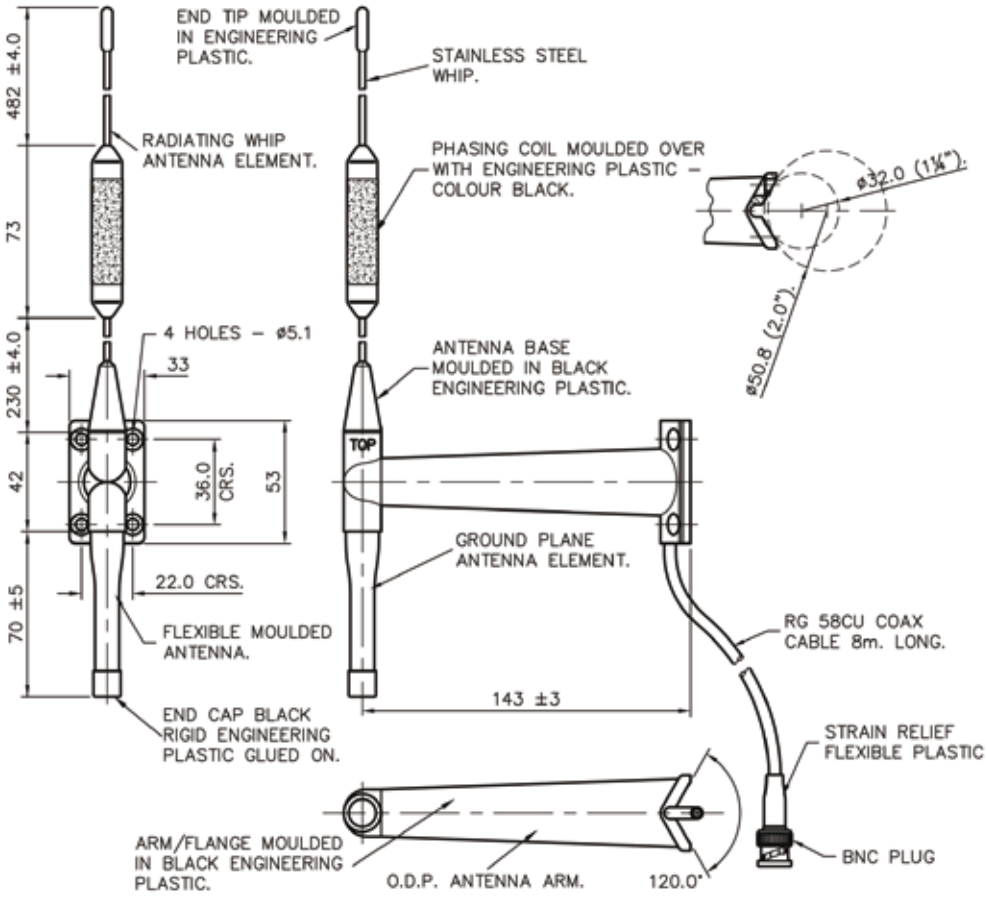
ODP-G

Improves range
Easy installation
Light weight solution

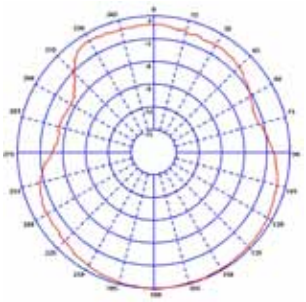
The ODP wall mount antenna range is a simple and cost efficient way of improving the range of a fixed radio terminal.

With 6dBi gain, this antenna is ideal for use in poor signal locations.

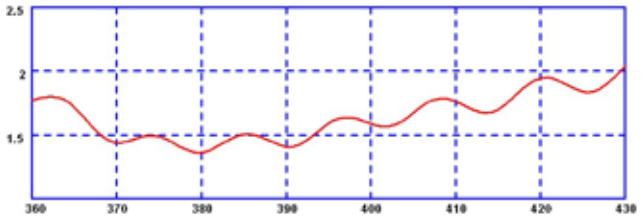
Technical Drawing



H-Plane (390MHz)



Typical VSWR



Part No.			
		ODP-S1G6-8B	ODP-S2G6-8B
Electrical Data			
Frequency Range (MHz)		380-400	410-430
Operational Band		S1	S2
Gain: Isotropic		6dBi	6dBi
Compared to ¼ wave		4dB	4dB
Bandwidth @ 2:1 VSWR		8%	8%
Polarisation		Vertical	Vertical
Pattern		Omni directional	Omni directional
Impedance		50Ω	50Ω
Max Input Power (W)		20	20
Mechanical Data			
Dimensions (mm)	Total Length	897	803
	'L1' length	785	701
	'L2' length	70	60
Off-Set from wall (mm)		143	143
Operating Temp (°C)		-40° / +80°C	-40° / +80°C
Colour		Black	Black
Mast diameter range (mm)		50.8 / 32.0	50.8 / 32.0
Cable Data			
Type		RG 58CU	RG 58CU
Length (m)		8	8
Colour		Black	Black
Thickness (mm)		5	5
Termination		BNC plug*	BNC plug*

*Connector Configurations		
BNC (fitted)	ODP-S1G6-8B	ODP-S2G6-8B
TNC (fitted)	ODP-S1G6-8T	ODP-S2G6-8T
Bare End	ODP-S1G6-8	ODP-S2G6-8

Elevated Antenna

- TETRA UHF
- Public Safety
- Fixed Site
- Omni Directional
- ROHS Compliant

BSU

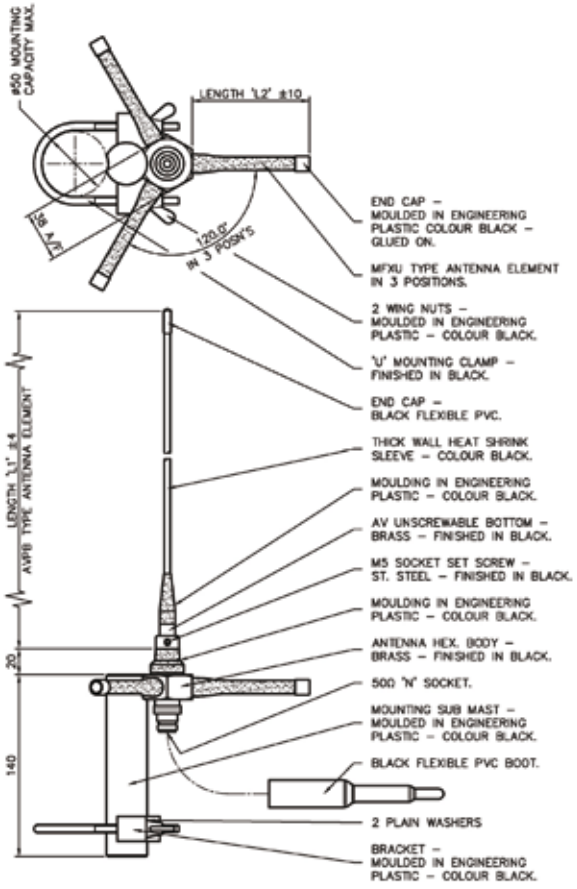
Mast mount
Temporary or permanent fixing
Quick assembly
Rugged construction

Panorama Elevated Antennas can be used for temporary field use or permanent installations. The range uses flexible helical elements to provide an effective but compact groundplane.

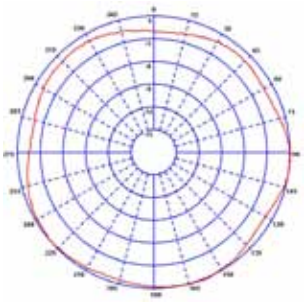
The antenna's centre fitting has a metal hub to mount the radials and a moulded insulator for the radiator. The whip element is plastic coated for weather proofing and durability.

An N socket connector is fitted to enable a wide range of coaxial cable types to be used.

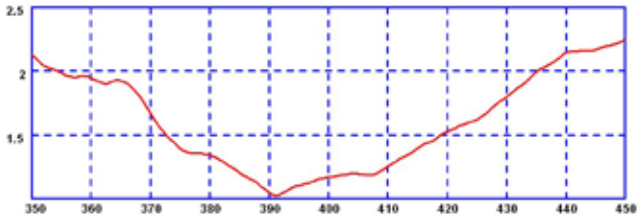
Technical Drawing



H-Plane (390MHz)



Typical VSWR



Part No.		BSU-S1	BSU-S2	BSU-U	BSU-S4
Electrical Data					
Frequency Range (MHz)		380-400	410-430	430-472	450-470
Operational Band		S1	S2	U	S4
Gain: Isotropic		2dBi	2dBi	2dBi	2dBi
Compared to ¼ wave		0dB	0dB	0dB	0dB
VSWR		Tx ≤ 1.5:1, Rx ≤ 2:1	Tx ≤ 1.5:1, Rx ≤ 2:1	Tx ≤ 1.5:1, Rx ≤ 2:1	Tx ≤ 1.5:1, Rx ≤ 2:1
Polarisation		Vertical	Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω	50Ω
Max Input Power (W)		25	25	25	25
Mechanical Data					
Dimensions (mm)	Total Length	358	344	330	327
	'L1' length	198	184	170	167
	'L2' length	68	64	60	58
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C	-40° / +80°C
Colour		Black	Black	Black	Black
Termination Data					
Termination		N socket	N socket	N socket	N socket

Marine Antenna

- TETRA UHF
- Public Safety
- Marine
- Omni Directional
- ROHS Compliant

NA-S

Ratchet or deck mount

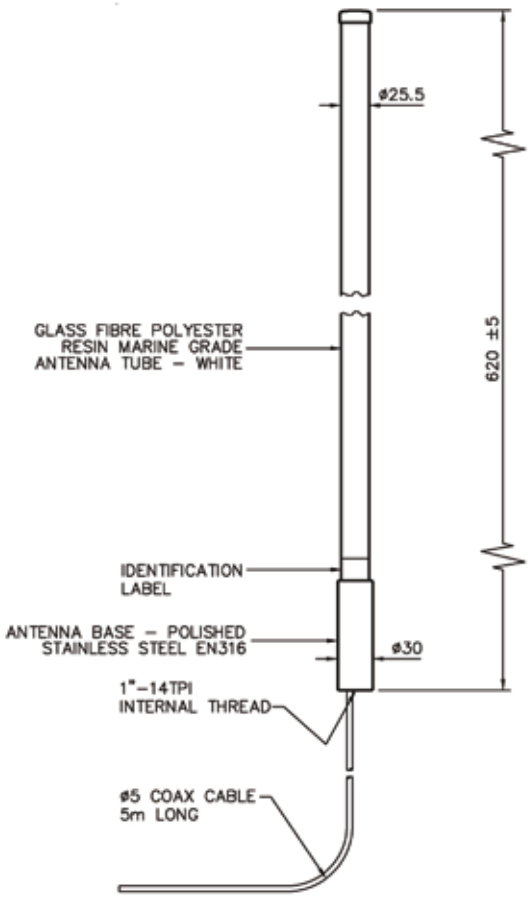
Various frequencies

Panorama has developed a range of marine Tetra antennas to meet the increasing demand for Tetra coverage at sea.

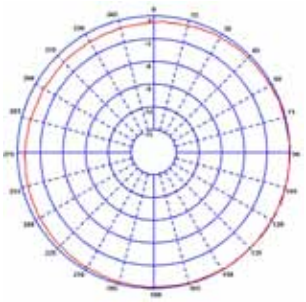
This antenna has the unique capability of being supplied as a GPS/Tetra combination type with a 26dB gain low noise GPS amplifier, offering a simpler and quicker installation for the customer.

This antenna will fit: the standard 1”x14TPI marine mounting systems, Panorama offers a range of these mounts, in and heavy duty stainless or plated brass versions. We can also supply custom extension coaxial cable sets to meet the customer’s specific installation requirements

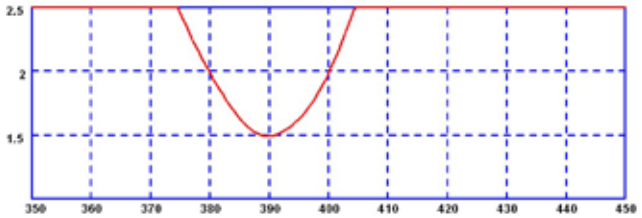
Technical Drawing



H-Plane (390MHz)



Typical VSWR



Part No.		NA-S1	NA-S2	NA-S4
Electrical Data				
Frequency Range (MHz)		380-400	410-430	450-470
Operational Band		S1	S2	S4
Gain: Isotropic		5dBi	5dBi	5dBi
Compared to ¼ wave		3dB	3dB	3dB
Bandwidth @ 2:1 VSWR		5%	5%	5%
Polarisation		Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω
Max Input Power (W)		25	25	25
Mechanical Data				
Dimensions (mm)	Length	620	620	620
	Diameter	30	30	30
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Fibre glass & stainless steel	Fibre glass & stainless steel	Fibre glass & stainless steel
Colour		White	White	White
Cable Data				
Type		Coax cable	Coax cable	Coax cable
Thickness (mm)		5	5	5
Length (m)		5	5	5
Termination		Bare end	Bare end	Bare end

Mounting Accessories	
Ratchet Mount	NDRS-SL
Deck Flange Mount	NDFS

Marine Antenna with GPS

- TETRA UHF
- Public Safety
- Marine
- GPS
- Omni Directional
- ROHS Compliant

NA-S-GPS

Ratchet or deck mount

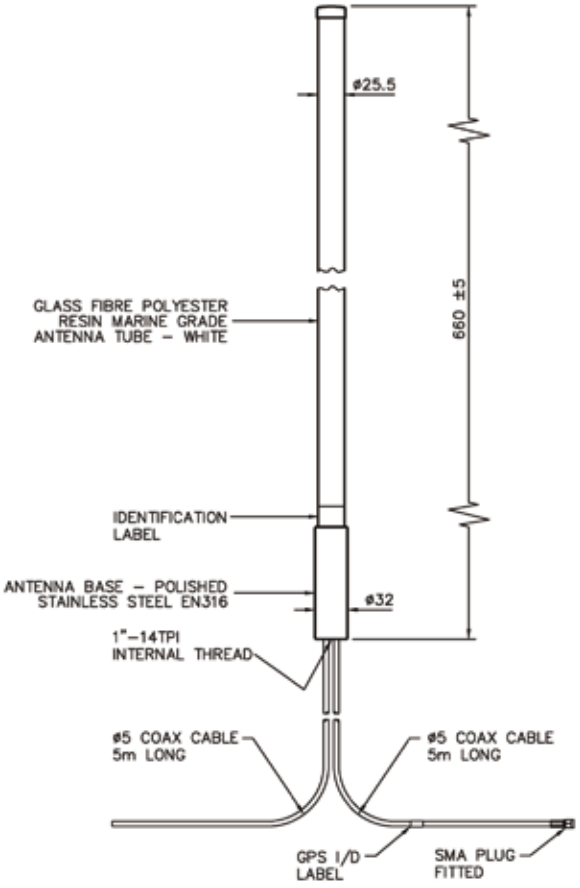
Various frequencies

Panorama has developed a range of marine Tetra antennas to meet the increasing demand for Tetra coverage at sea.

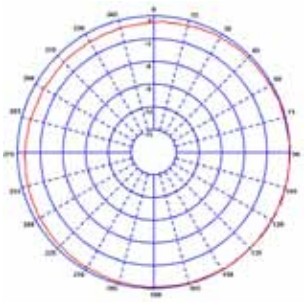
This antenna has the unique capability of being supplied as a GPS/Tetra combination type with a 26dB gain low noise GPS amplifier, offering a simpler and quicker installation for the customer.

This antenna will fit: the standard 1”x14TPI marine mounting systems, Panorama offers a range of these mounts, in both nylon and heavy duty stainless or plated brass versions. We can also supply custom extension coaxial cable sets to meet the customer’s specific installation requirements

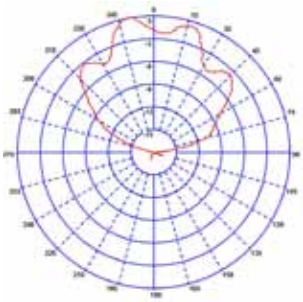
Technical Drawing



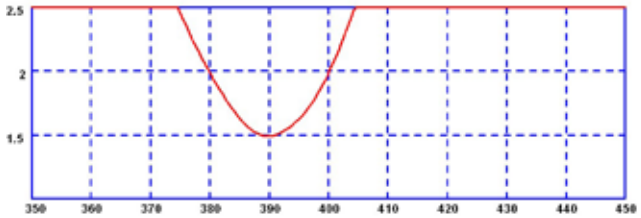
H-Plane (390MHz)



GPS



Typical VSWR



Part No.				
		NA-S1-GPS	NA-S2-GPS	NA-S4-GPS
Electrical Data				
Frequency Range (MHz)		380-400	410-430	450-470
Operational Band		S1	S2	S4
Gain: Isotropic		5dBi	5dBi	5dBi
Compared to ¼ wave		3dB	3dB	3dB
Bandwidth @ 2:1 VSWR		5%	5%	5%
Polarisation		Vertical	Vertical	Vertical
Pattern		Omni-directional	Omni-directional	Omni-directional
Impedance		50Ω	50Ω	50Ω
Max Input Power (W)		25	25	25
Mechanical Data				
Dimensions (mm)	Length	660	660	660
	Diameter	30	30	30
Operating Temp (°C)		-40° / +80°C	-40° / +80°C	-40° / +80°C
Material		Fibre glass & stainless steel	Fibre glass & stainless steel	Fibre glass & stainless steel
Colour		White	White	White
GPS Data				
Frequency Range (MHz)		1575	1575	1575
VSWR		<2.0:1 ± 4MHz	<2.0:1 ± 4MHz	<2.0:1 ± 4MHz
Gain: LNA		26dB	26dB	26dB
Polarisation		Right Hand Circular	Right Hand Circular	Right Hand Circular
Operating Voltage		3 - 5V DC (fed via coax)	3 - 5V DC (fed via coax)	3 - 5V DC (fed via coax)
Current		Typical 14mA	Typical 14mA	Typical 14mA
Cable Data				
Type	TETRA	Coax cable	Coax cable	Coax cable
	GPS	Coax cable	Coax cable	Coax cable
Thickness (mm)	TETRA	5	5	5
	GPS	5	5	5
Length (m)	TETRA	5	5	5
	GPS	5	5	5
Termination	TETRA	Bare end	Bare end	Bare end
	GPS	SMA plug	SMA plug	SMA plug

Mounting Accessories	
Ratchet Mount	NDRS-SL
Deck Flange Mount	NDFS

Train Antenna

- TETRA UHF
- Public Safety
- Train
- Omni Directional
- ROHS Compliant

TRNB

Standard four hole rail fixing

Suitable for overground & underground trains

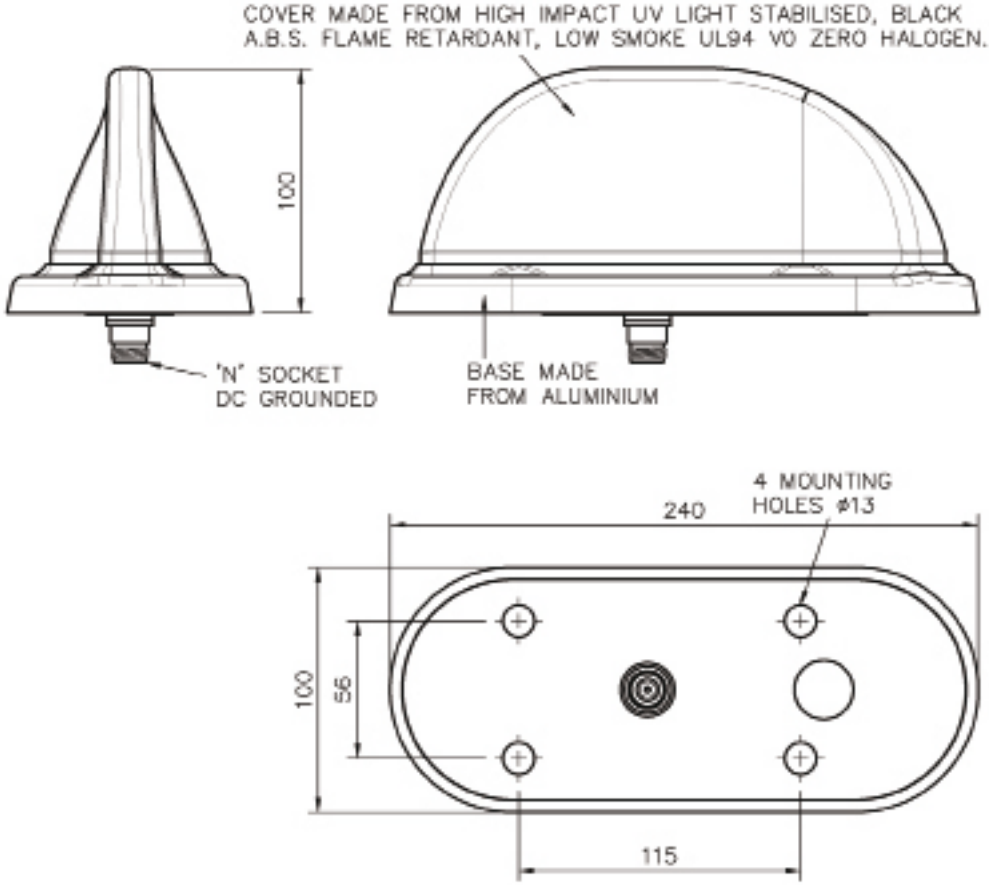
Waterproof N connector

The TRNB antenna series is designed specifically for use on trains, underground or overground. With an omnidirectional peak gain of over 2dBi the TRNB series covers the TETRA UHF trunking bands along with the option of a DC grounded GPS antenna, all in one housing.

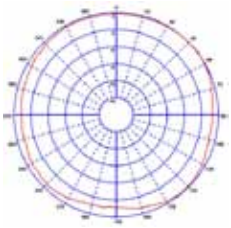
Housed in a UV stabilised, low flame, smoke and toxicity (FST) housing, the TRNB series is fully weatherproof with an IP68 rating ensuring the antennas performance is never compromised even when subjected to industrial carriage wash systems. With less than 100g of flame retardant plastic, the TRNB series can also be used on underground trains.

The TRNB antennas have also been tested to meet various European industry traction standards.

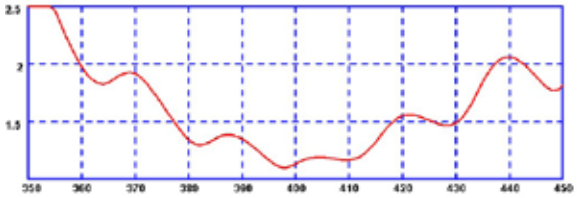
Technical Drawing



H-Plane (390MHz)



Typical VSWR



Part No.		
		TRNB-TET
Electrical Data		
Frequency Range (MHz)		380-430
Operational Band		TET
Gain: Isotropic		2dBi
Compared to ¼ wave		0dB
Polarisation		Vertical
VSWR		2:1
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		25
Mechanical Data		
Dimensions (mm)	Height	100
	Width	100
	Length	240
Environmental Specification		
Operating Temp (°C)		-40° / +80°C
Radome Material		High Impact UV Stabilised, Low Flame, Smoke & Toxicity
Radome Weight (g)		< 100
Mounting Data		
Fixing		4 × 13mm diameter holes
Termination Data		
Termination		N (female)

Train Antenna with GPS

- TETRA UHF
- Public Safety
- Train
- GPS
- Omni Directional
- ROHS Compliant

TRNBG

Standard four hole rail fixing

Suitable for overground & underground trains

Waterproof N connector

The TRNB antenna series is designed specifically for use on trains, underground or overground. With an omnidirectional peak gain of over 2dBi the TRNB series covers the TETRA UHF trunking bands along with the option of a DC grounded GPS antenna, all in one housing.

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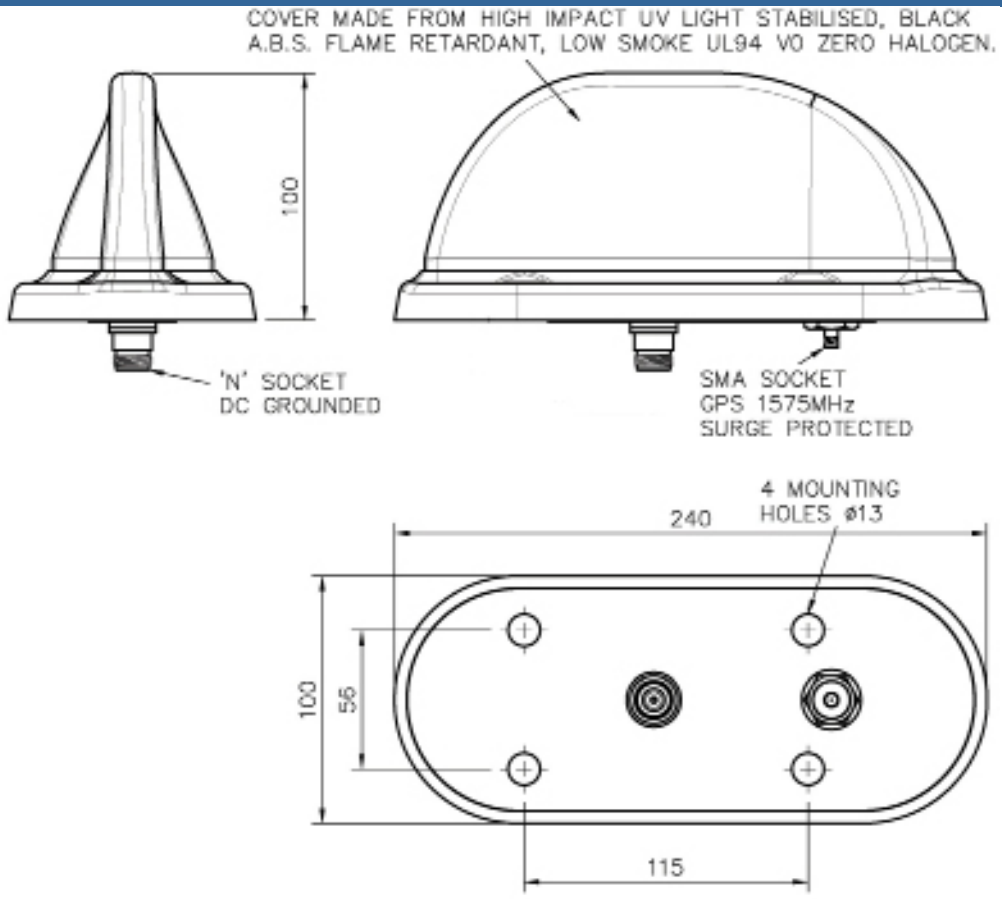
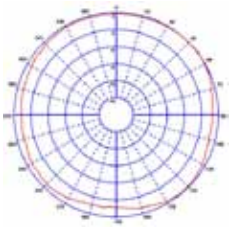
The TRNB antennas have also been tested to meet various European industry traction standards.

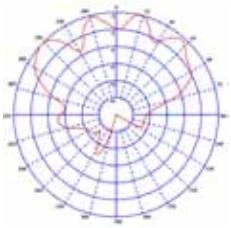
Technical Drawing



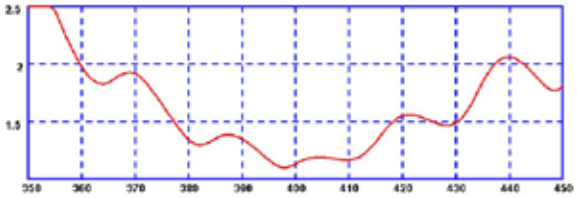
H-Plane (390MHz)



GPS



Typical VSWR



Part No.		
		TRNBG-TET
Electrical Data		
Frequency Range (MHz)		380-430
Operational Band		TET
Gain: Isotropic		2dBi
Compared to ¼ wave		0dB
Polarisation		Vertical
VSWR		2:1
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		25
GPS Data		
Frequency Range (MHz)		1575
Impedance		50Ω
LNA Gain		26dB ± 3
Polarisation		Rigth Hand Circular
Operating Voltage		+2.5V DC to +12V DC
Current (Typical)		11mA to 13mA (max)
Mechanical Data		
Dimensions (mm)	Height	100
	Width	100
	Length	240
Environmental Specification		
Operating Temp (°C)		-40° / +80°C
Radome Material		High Impact UV Stabilised, Low Flame, Smoke & Toxicity
Radome Weight (g)		< 100
Mounting Data		
Fixing		4 × 13mm diameter holes
Termination Data		
Termination	TETRA	N (female)
	GPS	SMA socket (female)

Panel Mount Antenna

GPS

Vehicle Mount

ROHS Compliant

GPSP

Excellent performance

Active GPS element

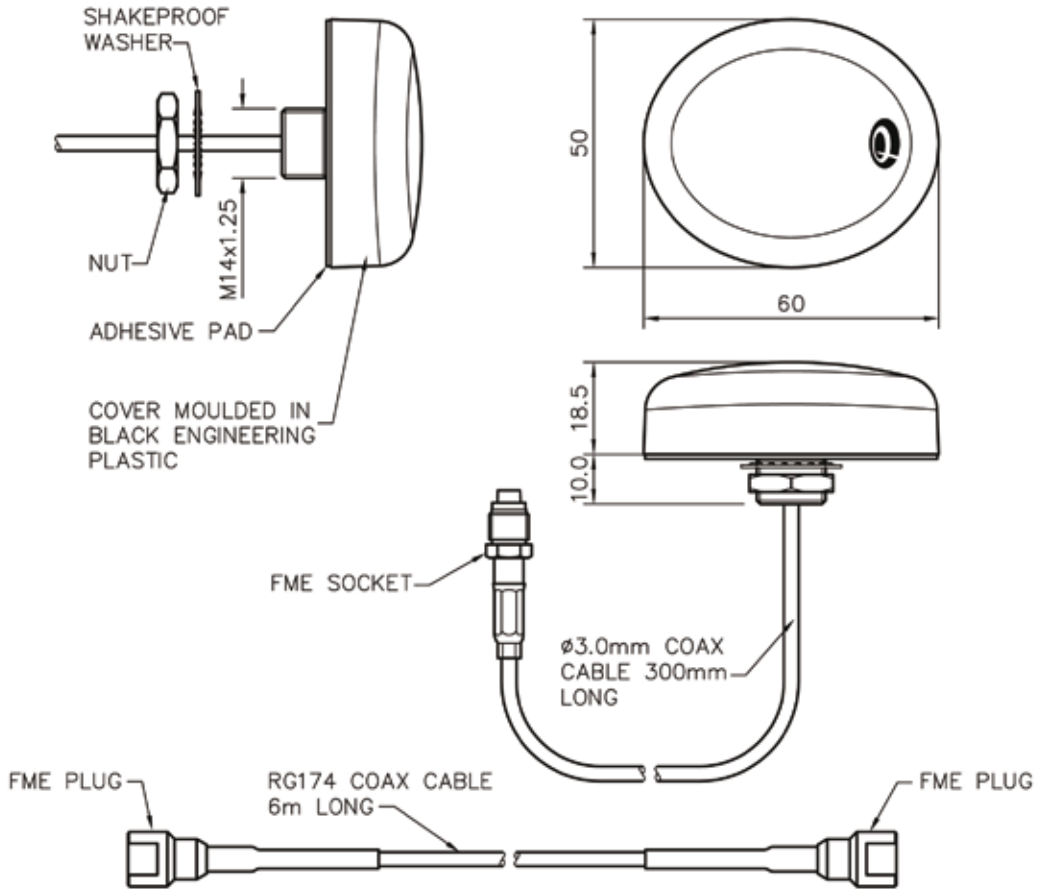
Single hole fixing

Knowing the position of a vehicle is vital for fleet management and logistics planning. With the GPSP panel antenna, you can identify the position of a vehicle whenever you want.

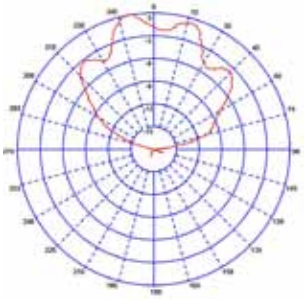
Mounted on the roof of a vehicle, the GPSP antenna's low profile design reduces the risk of damage whilst achieving optimum performance.

The antenna is fitted with a 30cm coaxial cable for ease of installation and extension cables are available to suit all GPS applications.

Technical Drawing



E-Plane (GPS)



Part No.		
		GPSP-6F
Electrical Data		
Frequency Range (MHz)		1575
VSWR		<1.5:1 @ 1575MHz ± 4MHz
LNA Gain		26dB
Polarisation		Right Hand Circular
Operating Voltage		3 - 7V DC (fed via coax)
Current (Typical)		14mA
Impedance		50Ω
Mechanical Data		
Dimensions (mm)	Length	60
	Height	18.5
	Width	50
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		Panel mount
Hole Diameter (mm)		15
Hole Depth (mm)		8
Termination Data		
Type		RG174
Thickness (mm)		3
Length (m)		6
Termination		FME Plug†

†Other connectors are available upon request

Magnetic Mount Antenna

GPS

Vehicle Mount

ROHS Compliant

GPSME

Excellent performance

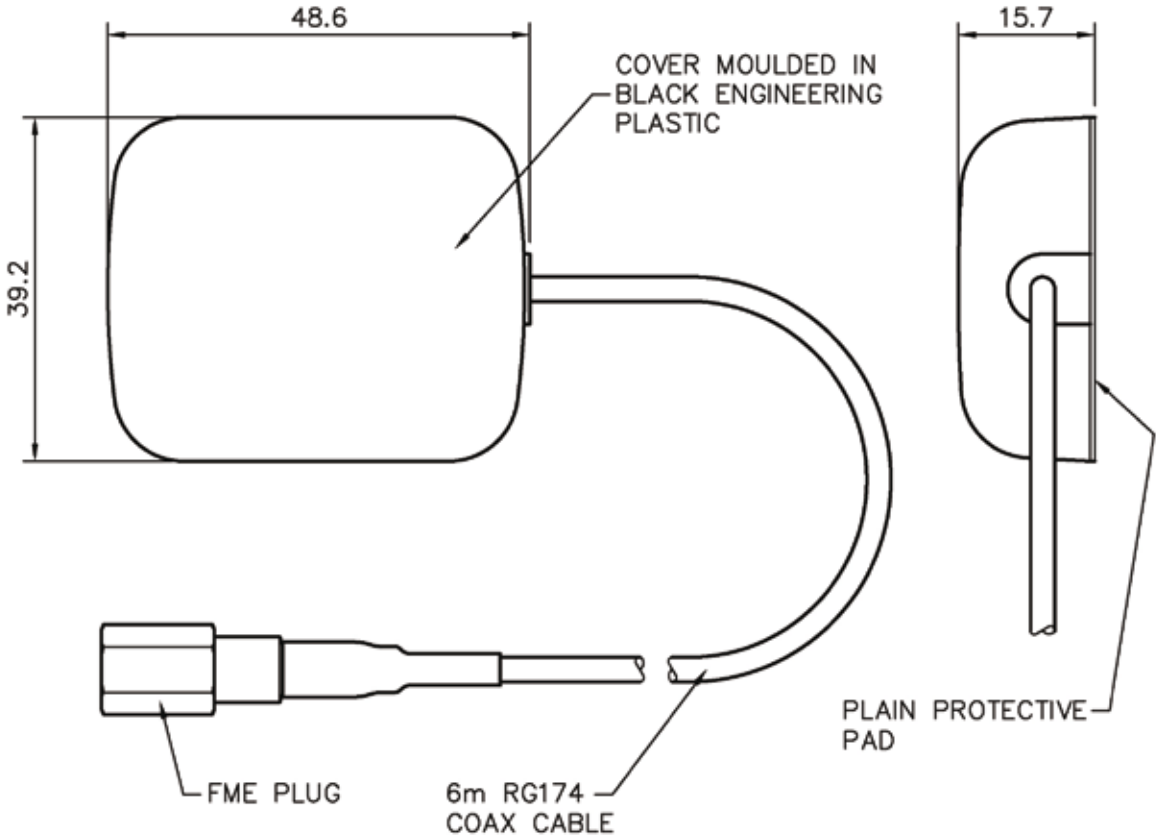
Active GPS element

Magnetic fixing

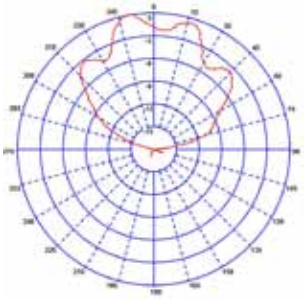
However often you use your GPS system the GPSME can help. If you are an occasional user, then you can enjoy the convenience and flexibility of a magnetic system that can be fitted, removed and re-positioned as many times as you want.

If you are a regular user, then the tough magnet in the GPSME will hold it securely in place, ensuring that you get the best GPS coverage all the time.

Technical Drawing



E-Plane (GPS)



Part No.		
		GPSME-6FP
Electrical Data		
Frequency Range (MHz)		1575
VSWR		<1.5:1 @ 1575MHz ± 4MHz
LNA Gain		26dB
Polarisation		Right Hand Circular
Operating Voltage		3 - 7V DC (fed via coax)
Current (Typical)		14mA
Impedance		50Ω
Mechanical Data		
Dimensions (mm)	Length	48.6
	Height	15.7
	Width	39.2
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		Magnetic mount
Termination Data		
Type		RG174
Thickness (mm)		3
Length (m)		6
Termination		FME Plug†

†Other connectors are available upon request

Panel Mount Antenna

TETRA 800MHz

Public Safety

Omni Directional

ROHS Compliant

Vehicle Mount

EBF-S5

Stylish design

Detachable whip for carwash

Moulded cable option

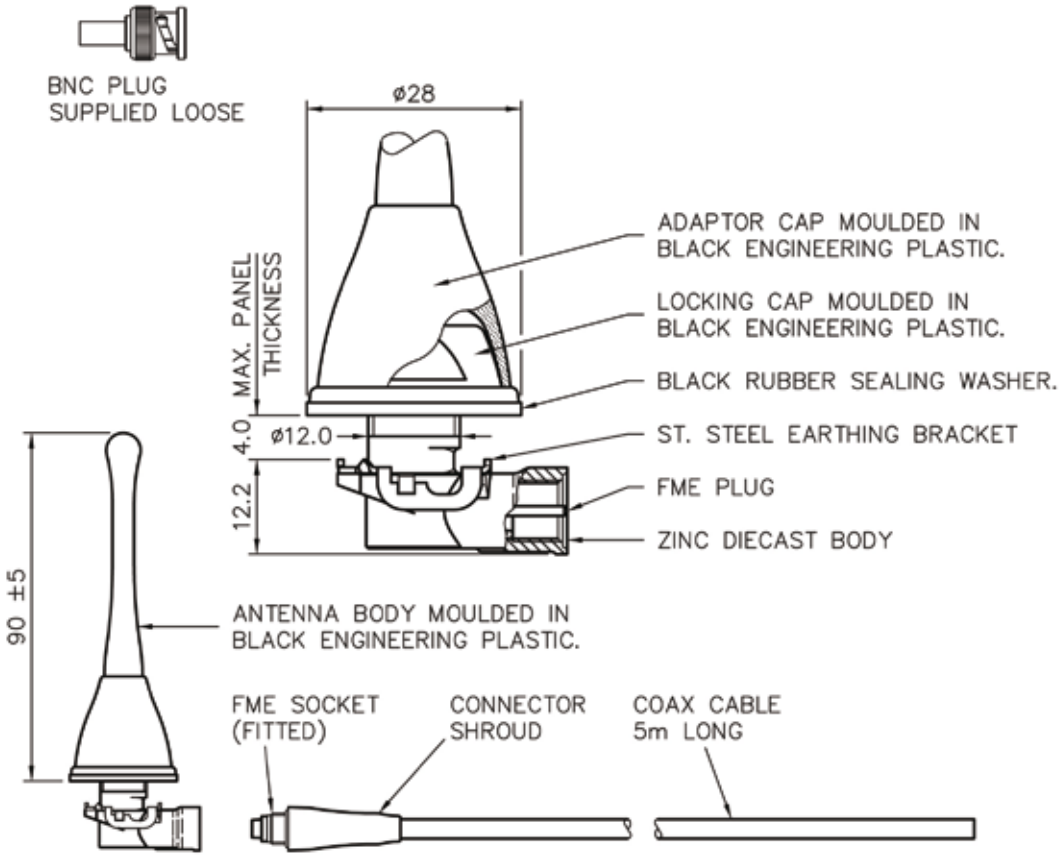
The 'Euro' base panel mount (EBF) has a smooth profile which is free from protrusions. The flexible whip detaches from base cup, ideal for car washing.

The Euro Base antenna range is available with a moulded cable option, just change the part number beginning from 'EBF' to EBMF'

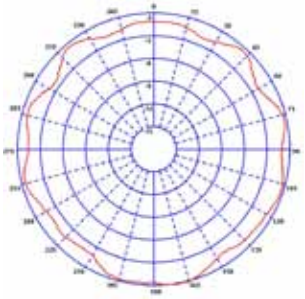
Detachable Cable Option

Moulded Cable Option

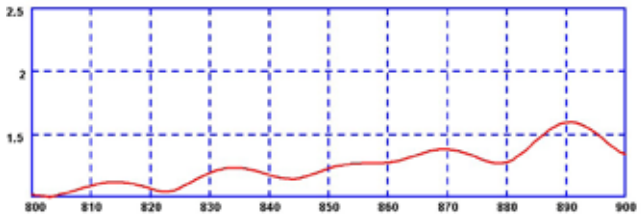
Technical Drawing



H-Plane (840MHz)



Typical VSWR



*measured on a 1m × 1m groundplane

Part No.		
		EBF-S5-5BL
Electrical Data		
Frequency Range (MHz)		806-870
Operational Band		S5
Gain: Isotropic		2dBi
Compared to ¼ wave		0dB
VSWR		Tx ≤ 1.5:1, Rx ≤ 2.0:1
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		50
Mechanical Data		
Dimensions (mm)	Total height	90
	Base diameter	28
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		Panel mount
Hole Size (mm)	Fit from outside	16
	Fit fro inside	12
Cable Data		
Type		CS23
Thickness (mm)		5
Length (m)		5
Termination		Bare end with loose BNC plug*

*Connector Configurations	
BNC (loose)	EBF-S5-5BL
TNC (loose)	EBF-S5-5TL
FME (fitted)	EBF-S5-5F
Bare End	EBF-S5-5

High Gain Panel Mount Antenna

- TETRA 800MHz
- Public Safety
- Omni Directional
- ROHS Compliant
- Vehicle Mount
- High Gain

EBF-S5G

Stylish design

Detachable whip for carwash

Flexible whip

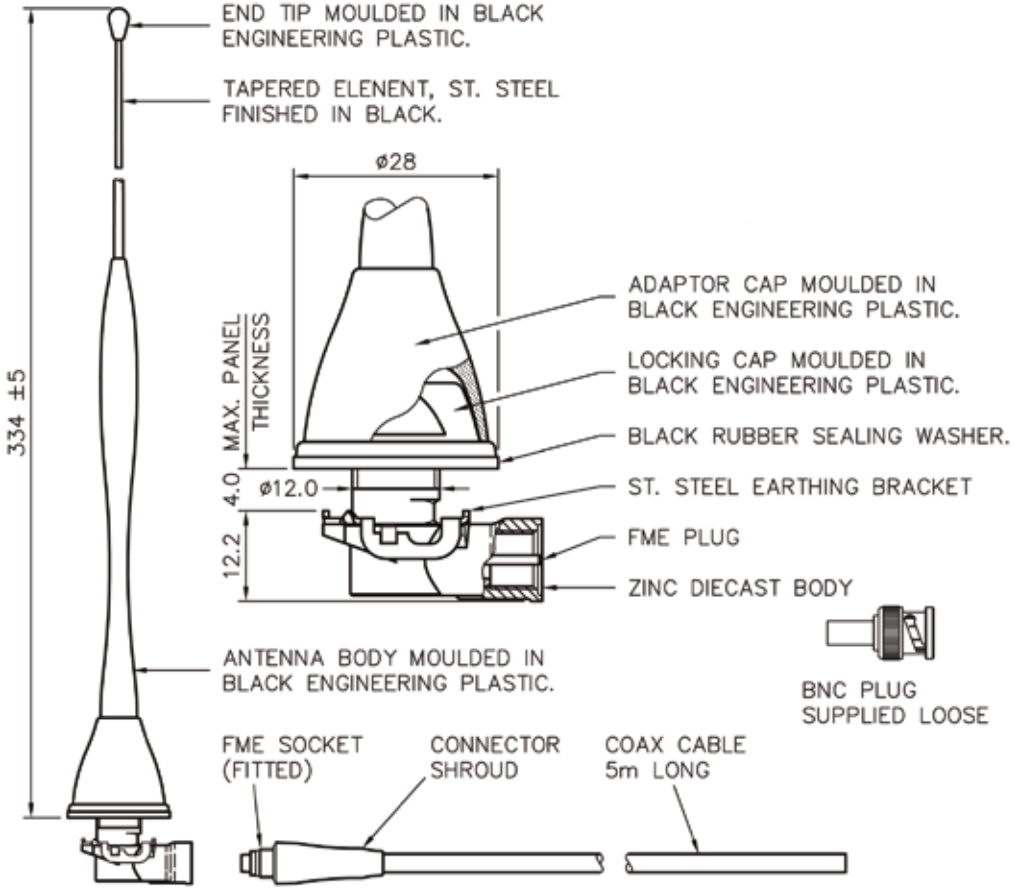
The 'Euro' base panel mount (EBF) has a smooth profile which is free from protrusions. The flexible whip detaches from base cup, ideal for car washing.

The Euro Base antenna range is available with a moulded cable option, just change the part number beginning from 'EBF' to EBMF'

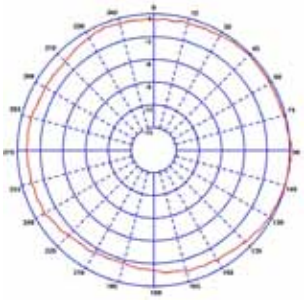
Detachable Cable Option

Moulded Cable Option

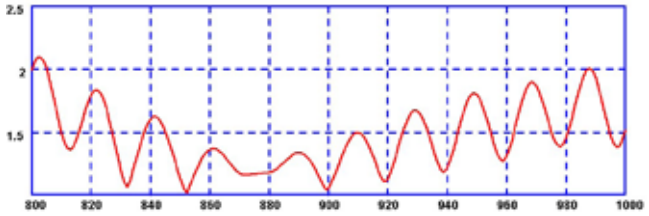
Technical Drawing



H-Plane (840MHz)



Typical VSWR



*measured on a 1m × 1m groundplane

Part No.		
		EBF-S5G-5BL
Electrical Data		
Frequency Range (MHz)		806-870
Operational Band		S5
Gain: Isotropic		5dBi
Compared to ¼ wave		3dB
VSWR		Tx ≤ 1.5:1, Rx ≤ 2.0:1
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		25
Mechanical Data		
Dimensions (mm)	Total height	334
	Base diameter	28
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		Panel mount
Hole Size (mm)	Fit from outside	16
	Fit fro inside	12
Cable Data		
Type		CS23
Thickness (mm)		5
Length (m)		5
Termination		Bare end with loose BNC plug*

*Connector Configurations	
BNC (loose)	EBF-S5G-5BL
TNC (loose)	EBF-S5G-5TL
FME (fitted)	EBF-S5G-5F
Bare End	EBF-S5G-5

Magnetic Mount Antenna

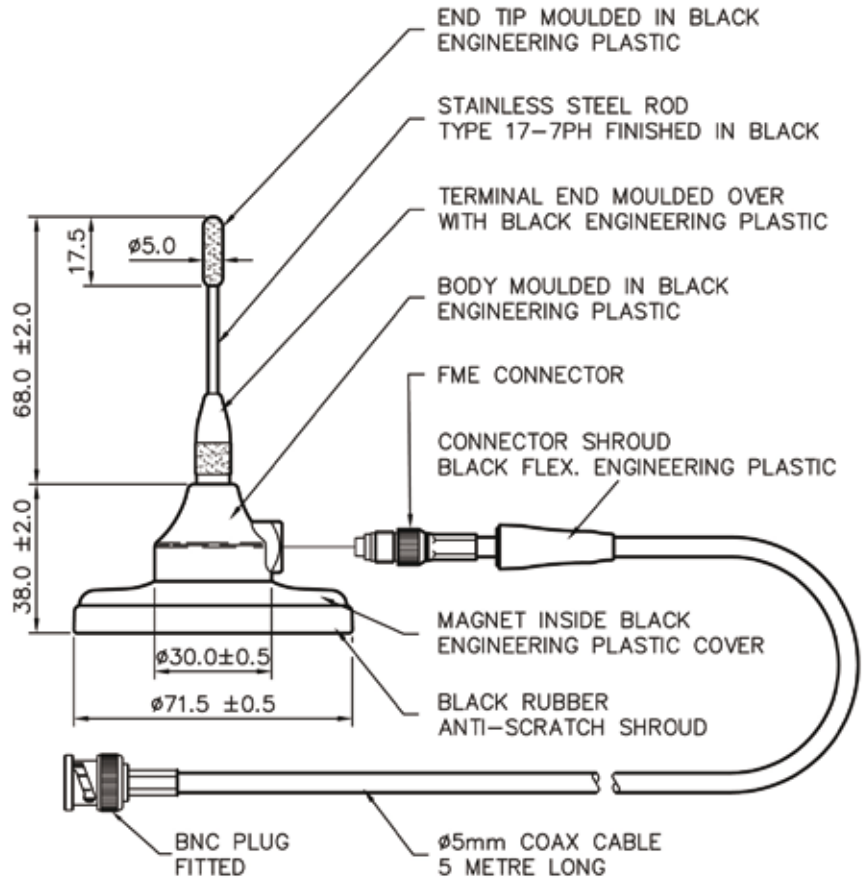
- TETRA 800MHz
- Public Safety
- Omni Directional
- ROHS Compliant
- Vehicle Mount

MD-S5

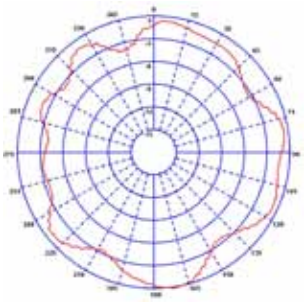
Temporary fit
Strong magnetic retention
Easy removal

The MD range of antennas is a popular choice for public safety vehicles that require a temporarily fixed antenna. It is also ideal for leased vehicles, as the tough magnetic base will grip the antenna to the roof or boot but leave no evidence that it was ever there, once repositioned or removed.

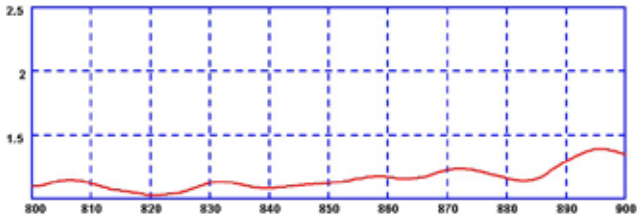
Technical Drawing



H-Plane (840MHz)



Typical VSWR



*measured on a 1m × 1m groundplane

Part No.		
		MD-S5-5B
Electrical Data		
Frequency Range (MHz)		806-870
Operational Band		S5
Gain: Isotropic		2dBi
Compared to ¼ wave		0dB
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		50
Mechanical Data		
Dimensions (mm)	Total Height	106
	Base Height	38
	Base Diameter	71.5
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		Magnetic mount
Cable Data		
Type		CS23
Thickness (mm)		5
Length (m)		5
Termination		BNC plug*

*Connector Configurations	
BNC (fitted)	MD-S5-5B
TNC (fitted)	MD-S5-5T
FME (fitted)	MD-S5-5F

High Gain Magnetic Mount Antenna

- TETRA 800MHz
- Public Safety
- Omni Directional
- ROHS Compliant
- Vehicle Mount
- High Gain

MD-S5G

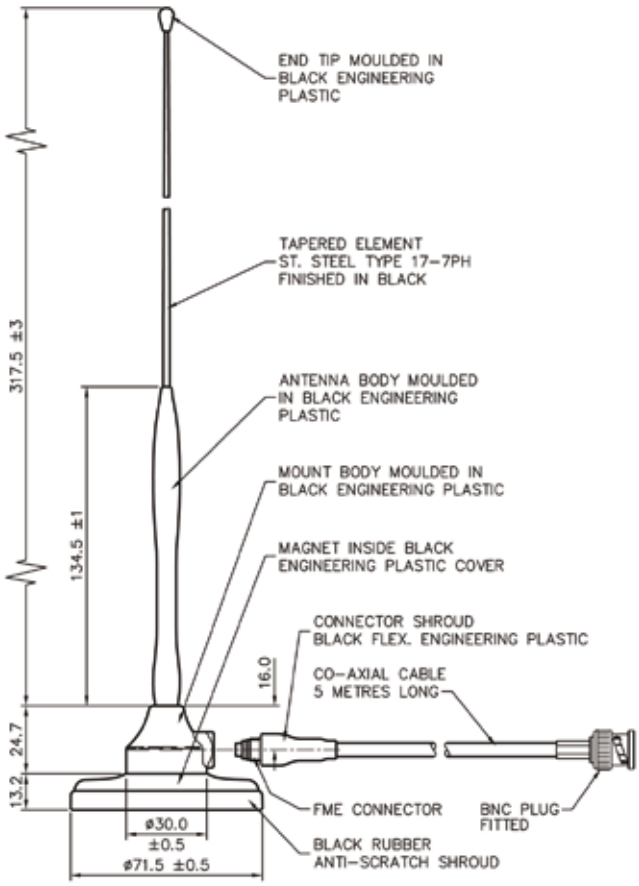
Temporary fit

Strong magnetic retention

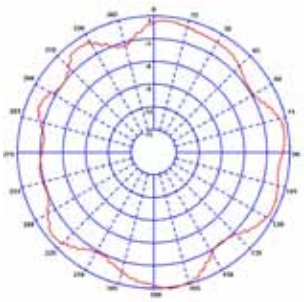
5dBi gain

The MD range of antennas is a popular choice for public safety vehicles that require a temporarily fixed antenna. It is also ideal for leased vehicles, as the tough magnetic base will grip the antenna to the roof or boot but leave no evidence that it was ever there, once repositioned or removed.

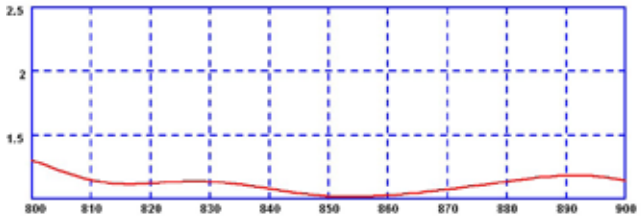
Technical Drawing



H-Plane (840MHz)



Typical VSWR



*measured on a 1m × 1m groundplane

Part No.		
		MD-S5G-5B
Electrical Data		
Frequency Range (MHz)		806-870
Operational Band		S5
Gain: Isotropic		5dBi
Compared to ¼ wave		3dB
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		25
Mechanical Data		
Dimensions (mm)	Total Height	355
	Base Height	38
	Base Diameter	71.5
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		Magnetic mount
Cable Data		
Type		CS23
Thickness (mm)		5
Length (m)		5
Termination		BNC plug*

*Connector Configurations	
BNC (fitted)	MD-S5G-5B
TNC (fitted)	MD-S5G-5T
FME (fitted)	MD-S5G-5F

Glass Mount Antenna

- TETRA 800MHz
- Public Safety
- Omni Directional
- ROHS Compliant
- Vehicle Mount

GM-S5

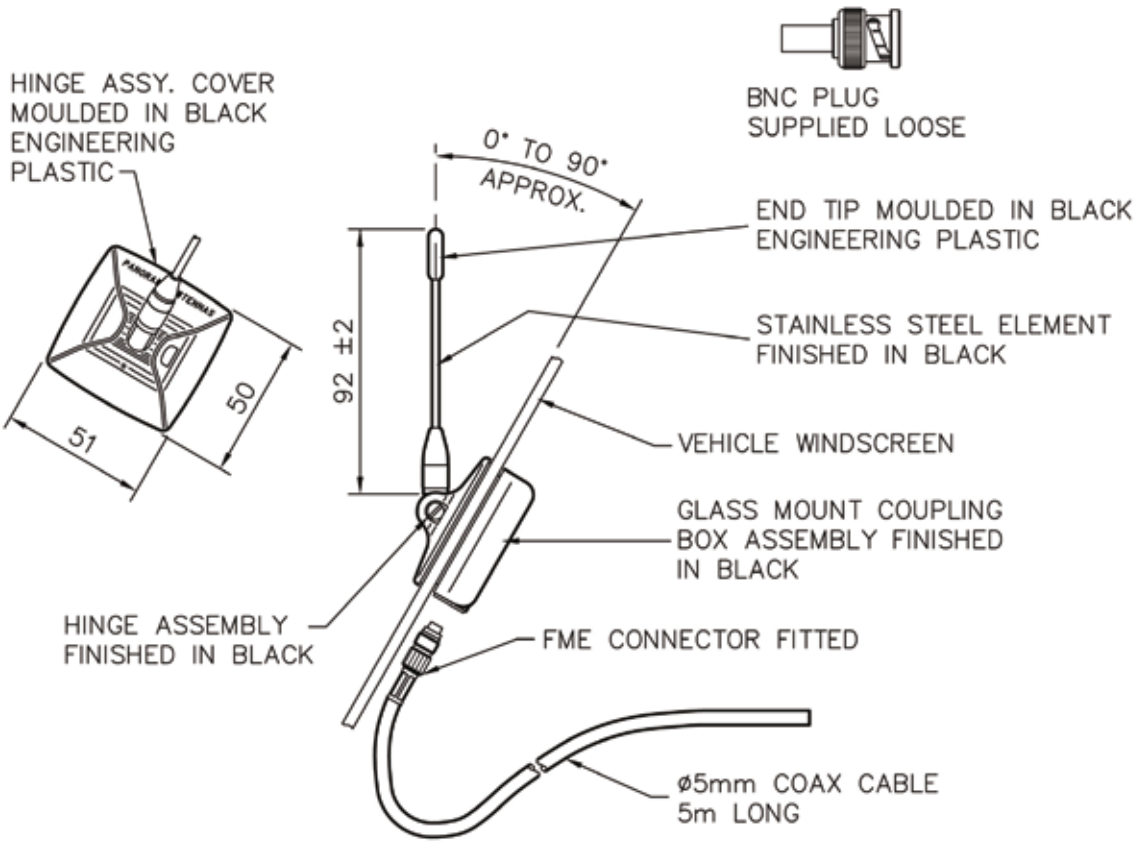
Excellent performance
No-hole installation
Solid state coupling

The Panorama Glass Mount Antenna requires no holes or special tools and can be quickly & easily installed on a windscreen or rear window.

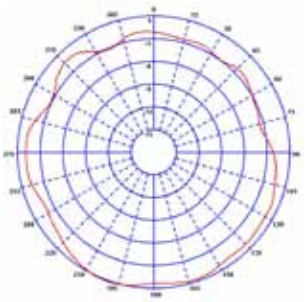
The antenna couples capacitively through the glass and its high positioning gives it an almost omni-directional radiating pattern, with performance similar to a conventionally mounted roof-top antenna.

The antenna can be easily removed for the car wash. To remove the antenna assembly, both the coupling box and the mounting foot can be removed and the glass cleaned to leave it in its original state.

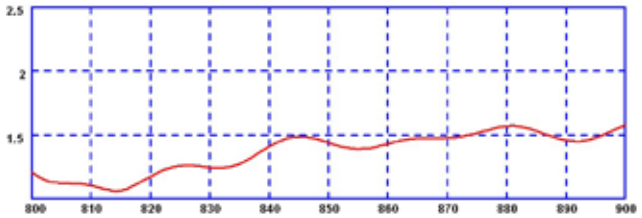
Technical Drawing



H-Plane (840MHz)



Typical VSWR



Part No.		
		GM-S5-5BL
Electrical Data		
Frequency Range (MHz)		806-870
Operational Band		S5
Gain: Isotropic		2dBi
Compared to ¼ wave		0dB
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		20
Mechanical Data		
Dimensions (mm)	Whip Length	92
	Base Width	51
	Base Length	50
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Cable Data		
Type		CS23
Thickness (mm)		5
Length (m)		5
Termination		Bare end with loose BNC plug*

*Connector Configurations	
BNC (loose)	GM-S5-5BL
TNC (loose)	GM-S5-5TL
FME (fitted)	GM-S5-5F
Bare End	GM-S5-5

High Gain Glass Mount Antenna

- TETRA 800MHz
- Public Safety
- Omni Directional
- ROHS Compliant
- Vehicle Mount
- High Gain

GMG-S5

5dBi gain

No-hole installation

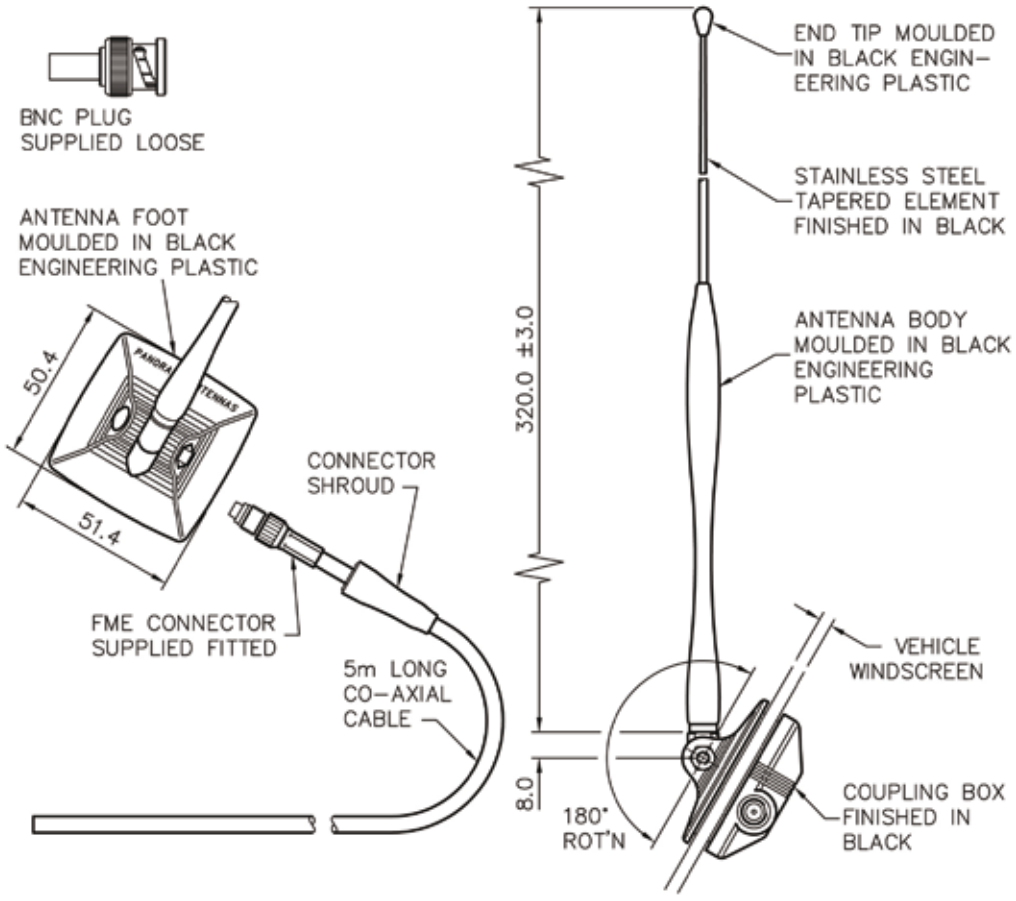
Solid state coupling

The Panorama Glass Mount Antenna requires no holes or special tools and can be quickly & easily installed on a windscreen or rear window.

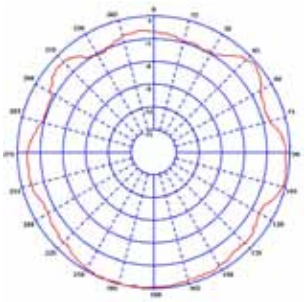
The antenna couples capacitively through the glass and its high positioning gives it an almost omni-directional radiating pattern, with performance similar to a conventionally mounted roof-top antenna.

The antenna can be easily removed for the car wash. To remove the antenna assembly, both the coupling box and the mounting foot can be removed and the glass cleaned to leave it in its original state.

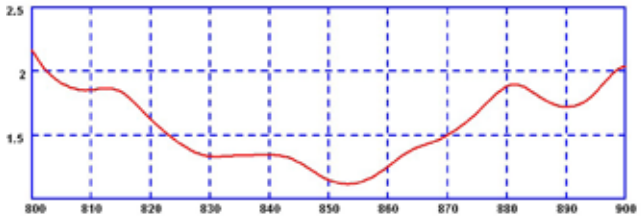
Technical Drawing



H-Plane (840MHz)



Typical VSWR



Part No.		
		GMG-S5-5BL
Electrical Data		
Frequency Range (MHz)		806-870
Operational Band		S5
Gain: Isotropic		5dBi
Compared to ¼ wave		3dB
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		20
Mechanical Data		
Dimensions (mm)	Whip Length	320
	Base Width	51
	Base Length	50
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Cable Data		
Type		CS23
Thickness (mm)		5
Length (m)		5
Termination		Bare end with loose BNC plug*

*Connector Configurations	
BNC (loose)	GMG-S5-5BL
TNC (loose)	GMG-S5-5TL
FME (fitted)	GMG-S5-5F
Bare End	GMG-S5-5

Motor Cycle Antenna

- TETRA 800MHz
- Public Safety
- Omni Directional
- ROHS Compliant
- Motorcycle

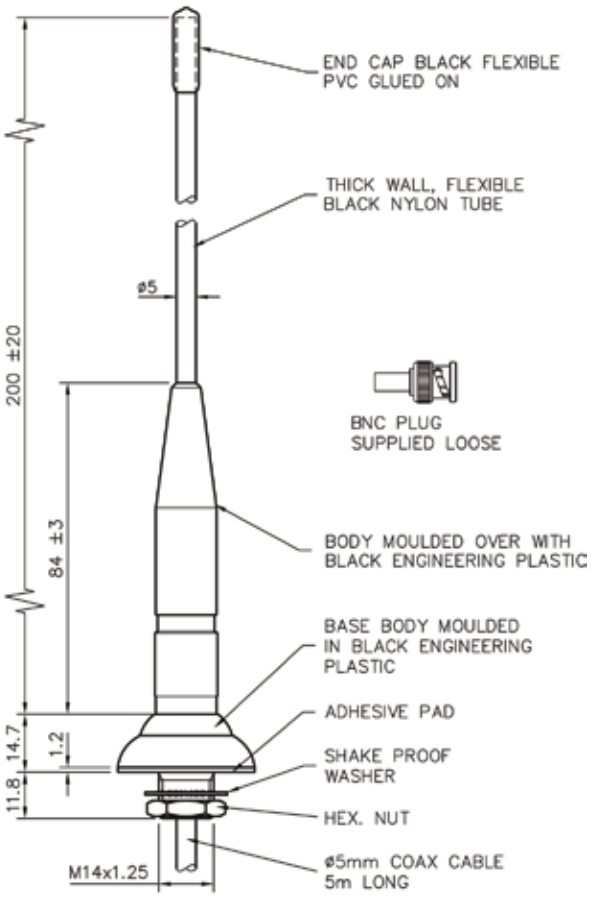
HM-S5

Rugged application
Flexible whip
Ground plane independent

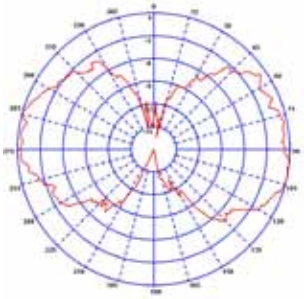
The HM range of antennas are need a ground plane independent and can therefore be mounted on any surface. The antenna is ideal for motorcycles but can also be used on other vehicles or fixed sites.

The HM antenna range has a rugged design with a flexible nylon whip. The base is moulded in engineering plastic and mounting is with a M14 stud.

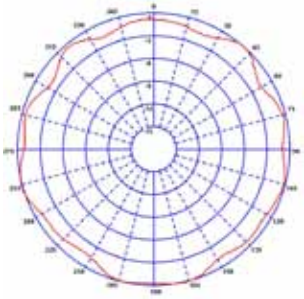
Technical Drawing



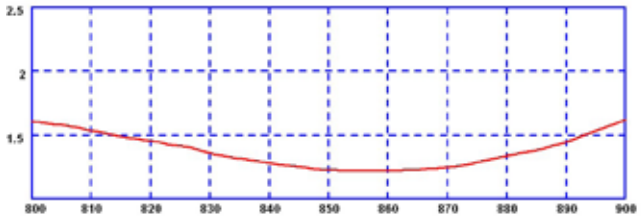
E-Plane (840MHz)



H-Plane (840MHz)



Typical VSWR



Part No.		
		HM-S5-5BL
Electrical Data		
Frequency Range (MHz)		806-870
Operational Band		S5
Gain: Isotropic		5dBi
Compared to ¼ wave		3dB
VSWR		Tx ≤ 1.5:1, Rx ≤ 2:1
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		20
Mechanical Data		
Dimensions (mm)	Whip Length	200
	Base Height	15
	Base Diameter	35
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		Panel mount
Hole Size (mm)		14
Cable Data		
Type		CS23
Thickness (mm)		5
Length (m)		5
Termination		Bare end with loose BNC plug*

*Connector Configurations	
BNC (loose)	HM-S5-5BL
TNC (loose)	HM-S5-5TL
FME (fitted)	HM-S5-5F
Bare End	HM-S5-5

Low Profile Antenna

- TETRA 800MHz
- Public Safety
- Omni Directional
- ROHS Compliant
- Vehicle Mount

LPL-S5

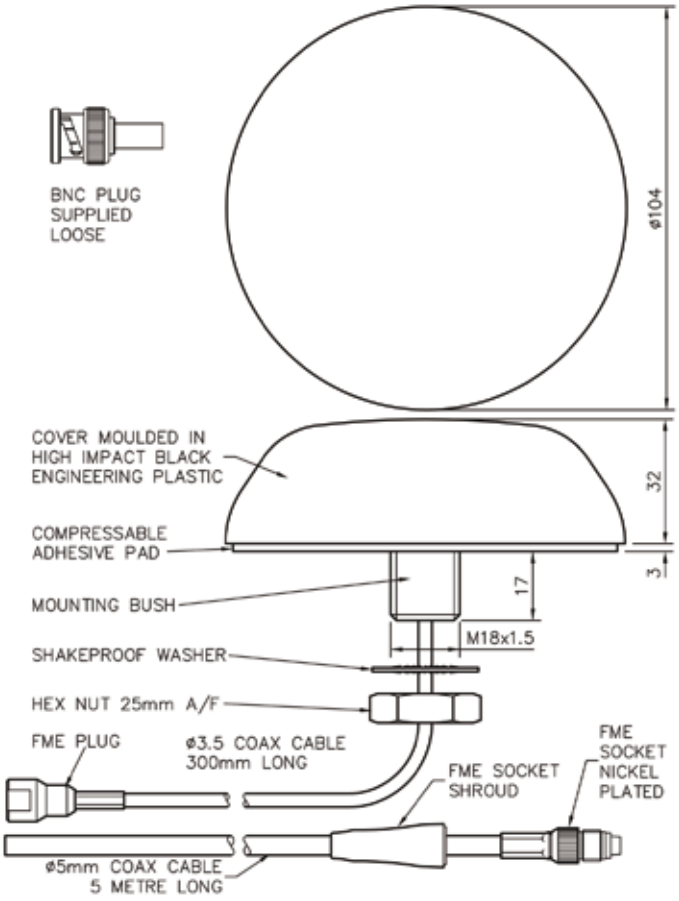
Rugged design
Heavy duty application
Integrated GPS antenna

The Panorama low profile antenna range has been designed to perform under extreme pressure. The outer housing is designed to withstand high impacts while maintaining its functionality. The LGL-S5 has the added bonus of an active 26dB GPS element built into each antenna.

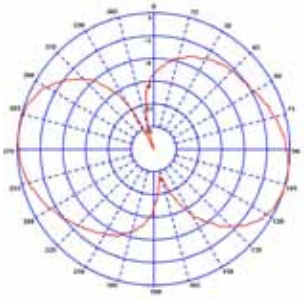
The antennas do not require a metalic ground plane, and maintain the same great performance when mounted on any surface.

The LGL-S5 antenna is also available without GPS, simply by exchanging the 'G' for a 'P' in the part number.

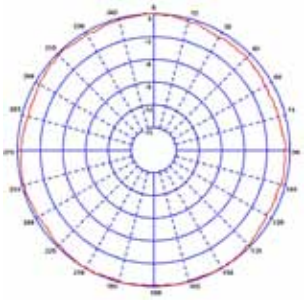
Technical Drawing



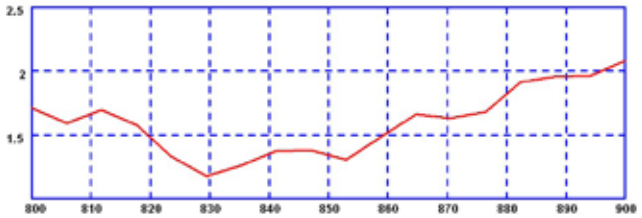
E-Plane (840MHz)



H-Plane (840MHz)



Typical VSWR

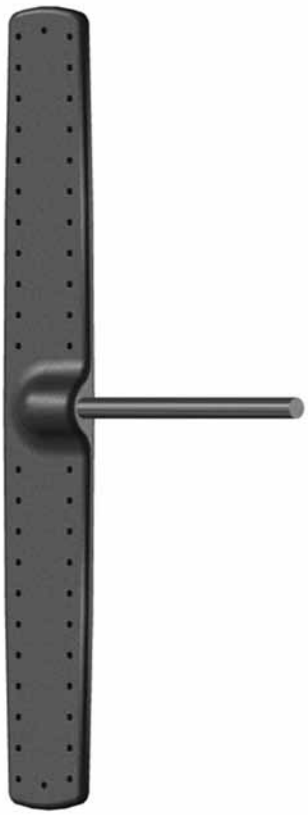


Part No.		
		LPL-S5-5BL
Electrical Data		
Frequency Range (MHz)		806-870
Operational Band		S5
Gain: Isotropic		0dBi
Compared to ¼ wave		-2dB
VSWR		2:1
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		20
Mechanical Data		
Dimensions (mm)	Height	104
	Diameter	32
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		Panel mount
Hole Size (mm)	Length	17
	Diameter	18
Cable Data		
Type		C35
Thickness (mm)		3.5
Length (m)		0.5 (with 5m extention cable)
Termination		FME plug (Bare end with loose BNC plug for extention cable)*

*Connector Configurations	
BNC (loose)	LPL-S5-5BL
TNC (loose)	LPL-S5-5TL
FME (fitted)	LPL-S5-5F
Bare End	LPL-S5-5

Internal Glass Mount Antenna

- TETRA 800MHz
- Public Safety
- Covert
- Omni Directional
- ROHS Compliant
- Vehicle Mount



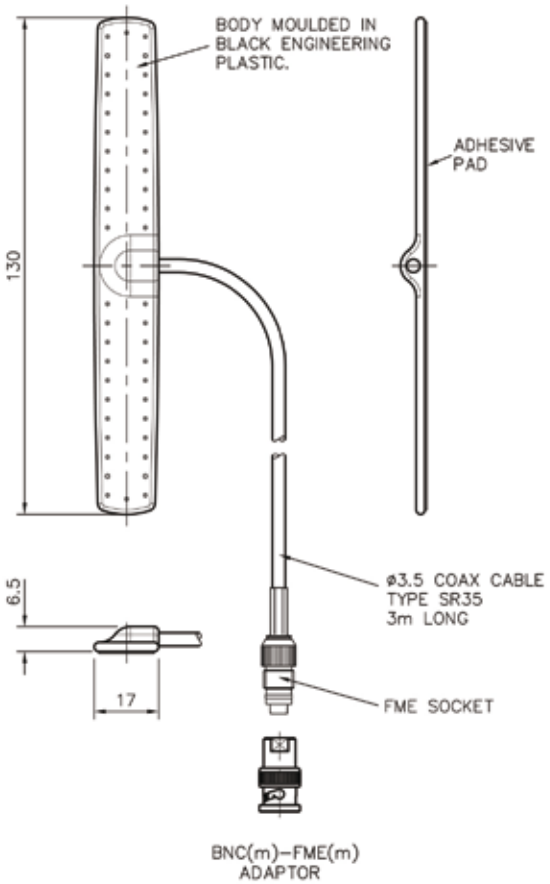
EF-S5-3B

Covert application
No-hole installation
Can be removed without a trace

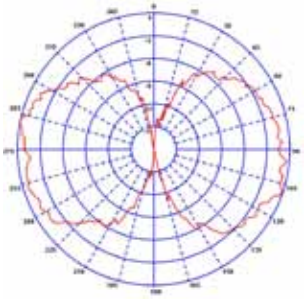
The EF-S5 'easy fit' antennas expand your voice and data coverage without spoiling your view. Connected to a car kit, the UHF easy fit antennas provide radical signal improvements in cities, suburbs and on the motorway.

With their secure but easy to fit adhesive pad mountings, the EF-S5 antenna provide a huge range of possibilities for the installer. Whether mounted by the door pillar or behind the rear view mirror the only thing the user will notice is the superb quality of their voice calls and data connection.

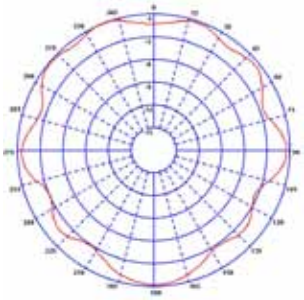
Technical Drawing



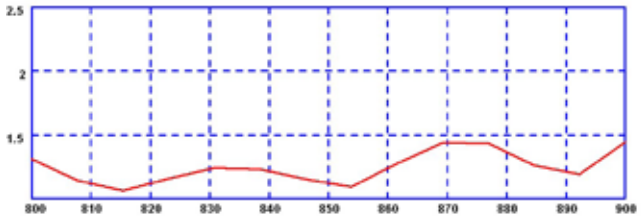
E-Plane (840MHz)



H-Plane (840MHz)



Typical VSWR



Part No.		
		EF-S5-3B
Electrical Data		
Frequency Range (MHz)		806-870
Operational Band		S5
Gain: Isotropic		2dBi
Compared to ¼ wave		0dB
VSWR		Tx ≤ 1.5:1, Rx ≤ 2:1
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		20
Mechanical Data		
Dimensions (mm)	Length	130
	Width	17
	Thickness	2.5
	Cable entry thickness	6.5
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		Internal on-glass mount
Material		Acrylic adhesive pad
Colour		Black
Cable Data		
Type		SR35
Thickness (mm)		3.5
Length (m)		3
Termination		FME plug with BNC plug adaptor*

*Connector Configurations	
BNC (adaptor)	EF-S5-3B
TNC (adaptor)	EF-S5-3T
FME (fitted)	EF-S5-3F

GPS Combination Antenna

- TETRA 800MHz
- Public Safety
- GPS
- Omni Directional
- ROHS Compliant
- Vehicle Mount

GPSK-S5

Excellent performance
Active GPS element
Single hole fixing

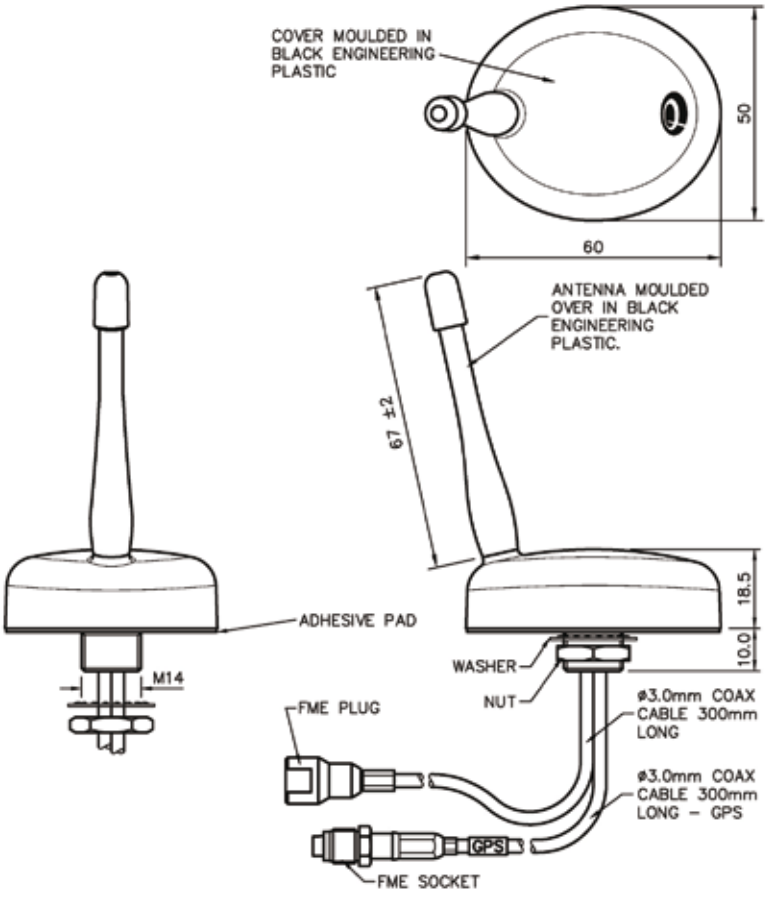
The GPSK antenna range is a dual function, high performance TETRA 800MHz antenna with an active GPS element.

The GPSK has the ability to mount on a roof up to 6mm thick using only a single 15mm hole.

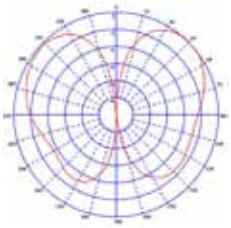
The dual functionality of the Panorama GPSK range makes the antenna a popular choice for police, buses, taxi's and other public service and utility vehicles.

This antenna can be provided as a 'plug & play' kit for all TETRA terminals.

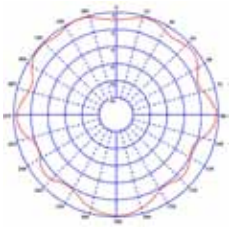
Technical Drawing



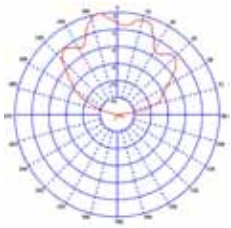
E-Plane (840MHz)



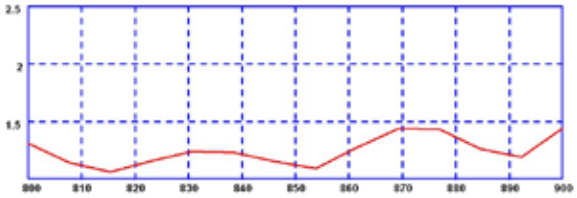
H-Plane (840MHz)



GPS



Typical VSWR



Part No.		
		GPSK-S5-FF
Electrical Data		
Frequency Range (MHz)		806-870
Operational Band		S5
Gain: Isotropic		2dBi
Compared to ¼ wave		0dB
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		25
GPS Data		
Frequency Range (MHz)		1575
VSWR		<1.5:1 ± 4MHz
Gain: LNA		26dB
Polarisation		Right Hand Circular
Operating Voltage		3 - 7V DC (fed via coax)
Current		Typical 14mA
Mechanical Data		
Dimensions (mm)	Whip Length	67
	Base Height	18.5
	Base Length	60
	Base Width	50
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		Panel mount
Hole Size (mm)		15
Cable Data		
GPS Cable	Type	RG174
	Length (m)	0.3
	Termination	FME socket
Comms Cable	Type	RG174
	Length (m)	0.3
	Termination	FME plug
Extension Cables		Extension cable sets to suit all TETRA terminals available

High Gain GPS Combination Antenna

- TETRA 800MHz
- Public Safety
- GPS
- Omni Directional
- ROHS Compliant
- Vehicle Mount
- High Gain

GPSK-S5G

5dBi gain
Highly flexible whip
Dual function

The GPSK antenna range is a dual function, high performance TETRA 800MHz antenna with an active GPS element.

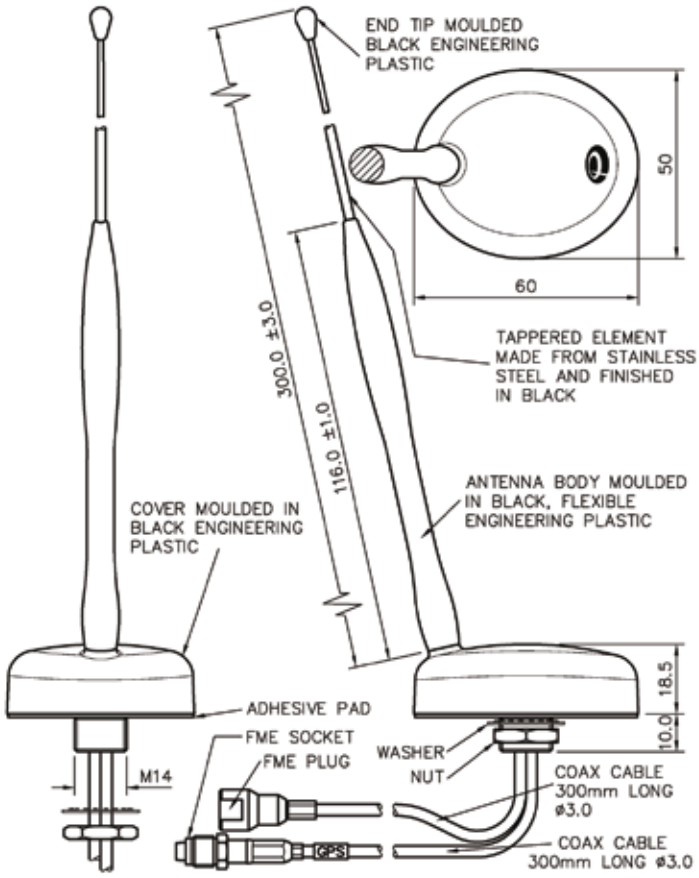
The GPSK has the ability to mount on a roof up to 6mm thick using only a single 15mm hole.

The dual functionality of the Panorama GPSK range makes the antenna a popular choice for police, buses, taxi's and other public service and utility vehicles.

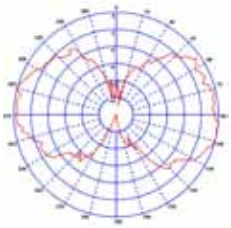
This antenna can be provided as a 'plug & play' kit for all TETRA terminals.

The antenna features 5dBi gain for use in network areas with poorer coverage.

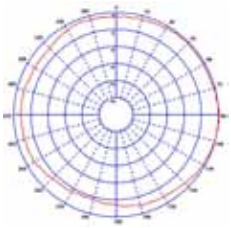
Technical Drawing



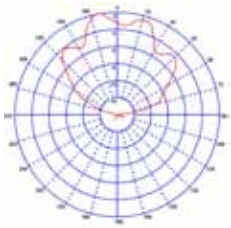
E-Plane (840MHz)



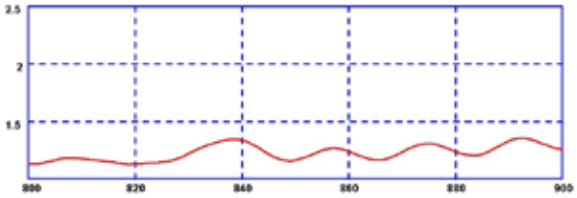
H-Plane (840MHz)



GPS



Typical VSWR



*measured on a 1m × 1m groundplane

Part No.		
		GPSK-S5G-FF
Electrical Data		
Frequency Range (MHz)		806-960
Operational Band		S5
Gain: Isotropic		5dBi
Compared to ¼ wave		3dB
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		20
GPS Data		
Frequency Range (MHz)		1575
VSWR		<1.5:1 ± 4MHz
Gain: LNA		26dB
Polarisation		Right Hand Circular
Operating Voltage		3 - 7V DC (fed via coax)
Current		Typical 14mA
Mechanical Data		
Dimensions (mm)	Whip Length	300
	Base Height	18.5
	Base Length	60
	Base Width	50
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		Panel mount
Hole Size (mm)		15
Cable Data		
GPS Cable	Type	RG174
	Length (m)	0.3
	Termination	FME socket
Comms Cable	Type	RG174
	Length (m)	0.3
	Termination	FME plug
Extension Cables		Extension cable sets to suit all TETRA terminals available

GPS Combination Antenna

- TETRA 800MHz
- Public Safety
- GPS
- Omni Directional
- ROHS Compliant
- Vehicle Mount

GPSF-S5

Excellent performance

Panel mount

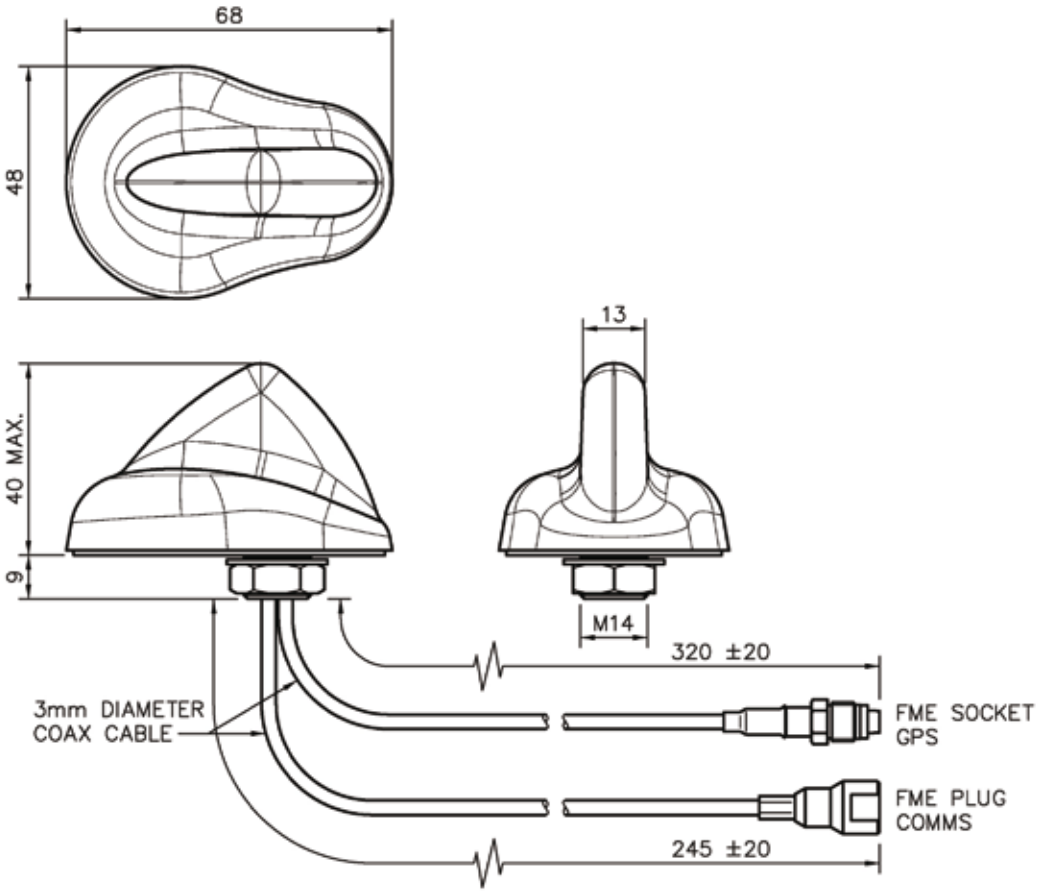
Single hole fixing

The GPSF is a dual function, compact 'fin' style antenna offering TETRA 800MHz along with an active GPS element, all within one housing.

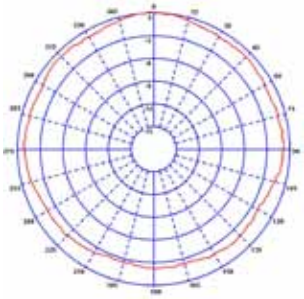
The antenna only requires a single hole for mounting for installation on the roof of a vehicle. The combination of a low profile design and multi-functionality that the fin offers makes it an ideal choice for discreet installations.

The GPSF meets stringent environmental testing to ensure it is suitable for rugged applications.

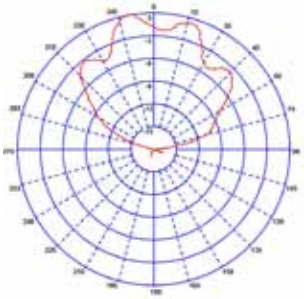
Technical Drawing



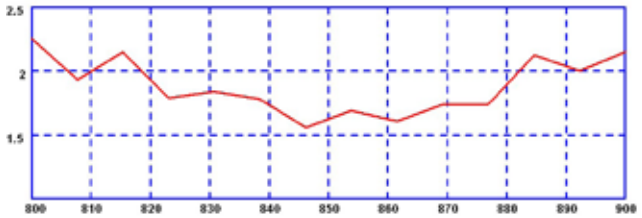
H-Plane (840MHz)



GPS



Typical VSWR



*measured on a 1m × 1m groundplane

Part No.		
		GPSF-S5-FF
Electrical Data		
Frequency Range (MHz)		806-880
Operational Band		S5
Gain: Isotropic		2dBi
Compared to ¼ wave		0dB
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		20
GPS Data		
Frequency Range (MHz)		1575
VSWR		<1.5:1 ± 4MHz
Gain: LNA		26dB
Polarisation		Right Hand Circular
Operating Voltage		3 - 7V DC (fed via coax)
Current		Typical 14mA
Mechanical Data		
Dimensions (mm)	Height	68
	Width	48
	Length	40
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		Panel mount
Hole Size (mm)		14
Cable Data		
GPS Cable	Type	RG174
	Length (m)	0.32
	Termination	FME socket
Comms Cable	Type	RG174
	Length (m)	0.245
	Termination	FME plug
Extension Cables		Extension cable sets to suit all TETRA terminals available

Magnetic GPS Combination Antenna

- TETRA 800MHz
- Public Safety
- GPS
- Omni Directional
- ROHS Compliant
- Vehicle Mount
- High Gain

GPSKM-S5G

Magnetic mount

Dual function GPS & TETRA 800MHz

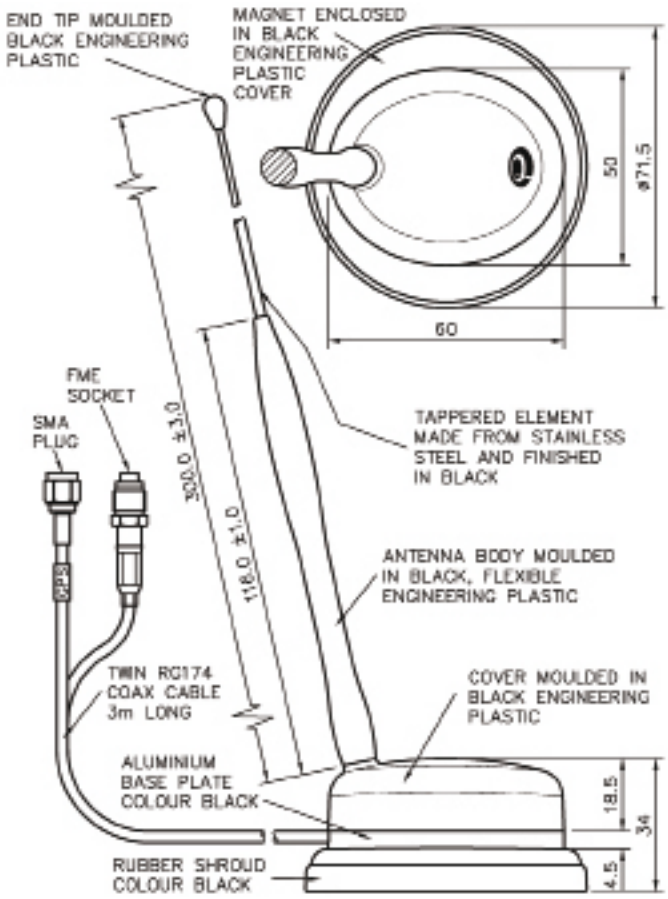
Flexible whip

The twin functionality of the Panorama GPSKM range makes these antennas a popular choice for police, buses, taxis and other public service and utility vehicles.

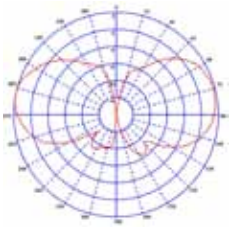
The GPSKM is a dual function, high performance Tetra antenna with an active GPS element. Standard GPS LNA gain is 26dB, version R has a 13dB gain LNA.

A strong magnet ensures the antenna stays in position and acts like a panel mount while leaving no evidence that it was ever there, when removed.

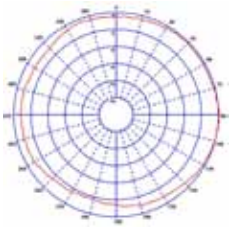
Technical Drawing



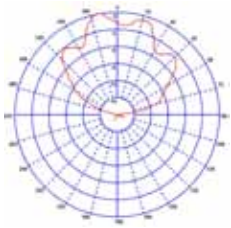
E-Plane (840MHz)



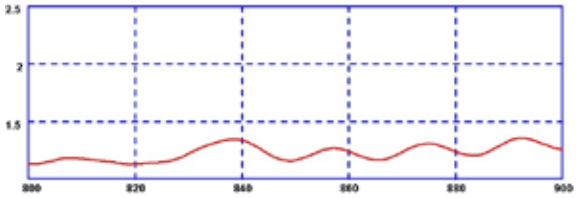
H-Plane (840MHz)



GPS



Typical VSWR*



*measured on a 1m × 1m groundplane

Part No.		
		GPSKM-3FS-ASF923
Electrical Data		
Frequency Range (MHz)		806-870
Operational Band		S5
Gain: Isotropic		5dBi
Compared to ¼ wave		3dB
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		25
GPS Data		
Frequency Range (MHz)		1575
VSWR		<1.5:1 ± 4MHz
Gain: LNA		26dB
Polarisation		Right Hand Circular
Operating Voltage		3 - 7V DC (fed via coax)
Current		Typical 14mA
Mechanical Data		
Dimensions (mm)	Whip Length	300
	Base Height	34
	Base Diameter	71.5
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		Magnetic mount
Cable Data		
GPS Cable	Type	Twin RG174
	Thickness (mm)	3
	Length (m)	3
	Termination	SMA plug†
Comms Cable	Type	Twin RG174
	Thickness (mm)	3
	Length (m)	3
	Termination	FME socket†

†Other connectors are available upon request

Low Profile Antenna with GPS

- TETRA 800MHz
- Public Safety
- GPS
- Omni Directional
- ROHS Compliant
- Vehicle Mount

LGL-S5

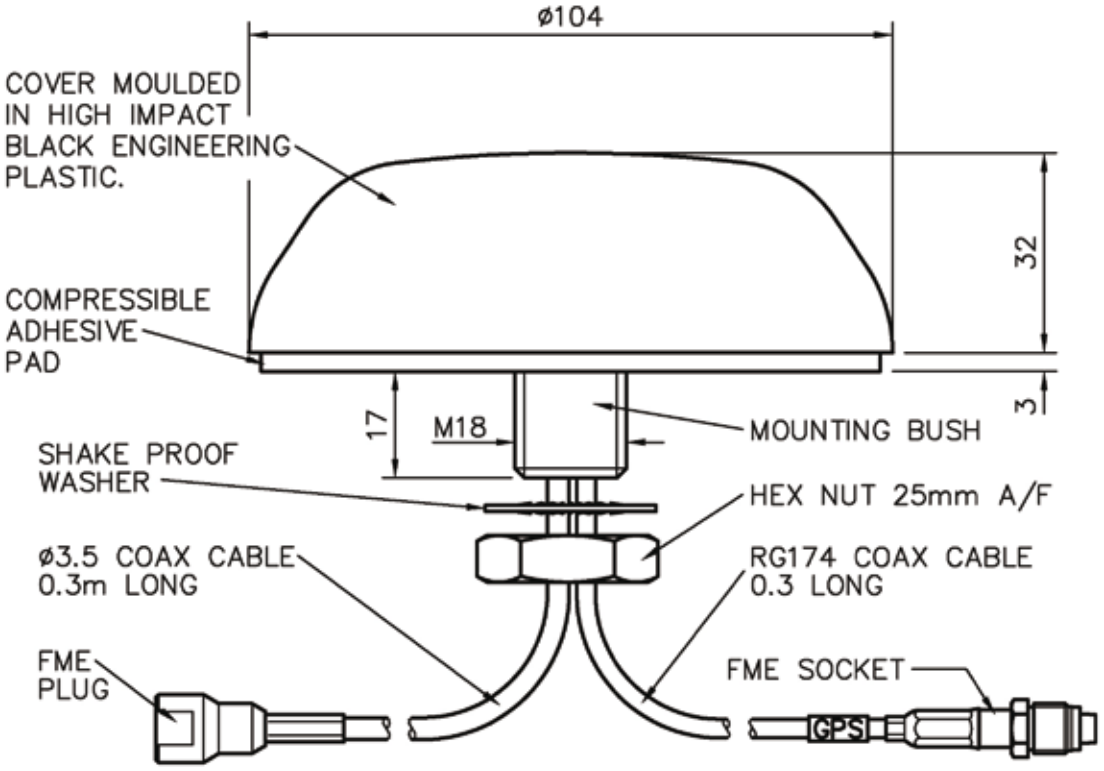
Rugged design
Heavy duty application
Integrated GPS antenna

The Panorama low profile antenna range has been designed to perform under extreme pressure. The outer housing is designed to withstand high impacts while maintaining its functionality. The LGL-S5 has the added bonus of an active 26dB GPS element built into each antenna.

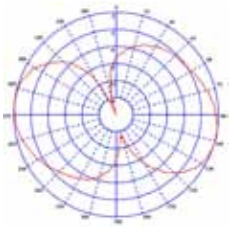
The antennas do not require a metalic ground plane, and maintain the same great performance when mounted on any surface.

The LGL-S5 antenna is also available without GPS, simply by exchanging the 'G' for a 'P' in the part number.

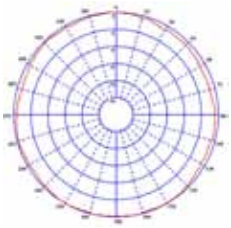
Technical Drawing



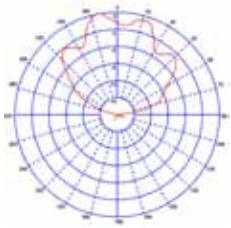
E-Plane (840MHz)



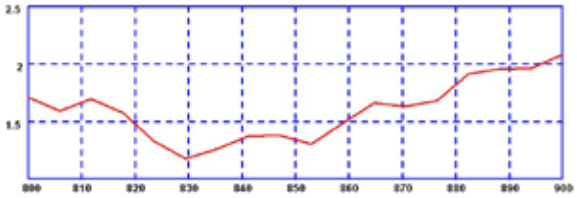
H-Plane (840MHz)



GPS



Typical VSWR



Part No.		
		LGL-S5-FF
Electrical Data		
Frequency Range (MHz)		806-870
Operational Band		S5
Gain: Isotropic		0dBi
Compared to ¼ wave		-2dB
VSWR		2:1
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		20
GPS Data		
Frequency Range (MHz)		1575
VSWR		<1.5:1 ± 4MHz
Gain: LNA		26dB
Polarisation		Right Hand Circular
Operating Voltage		3 - 7V DC (fed via coax)
Current		Typical 14mA
Mechanical Data		
Dimensions (mm)	Height	104
	Diameter	32
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		Panel mount
Hole Size (mm)	Length	17
	Diameter	18
Cable Data		
GPS Cable	Type	RG174
	Length (m)	0.3
	Termination	FME socket
Comms Cable	Type	RG174
	Length (m)	0.3
	Termination	FME plug
Extension Cables		Extension cable sets to suit all TETRA terminals available

†Other connectors are available upon request

GPS Combination Antenna with Diplexer

- TETRA 800MHz
- Public Safety
- GPS
- Omni Directional
- ROHS Compliant
- Vehicle Mount

GPSK-S5-CK

Combination antenna for car kit

Active GPS element

Single hole fixing

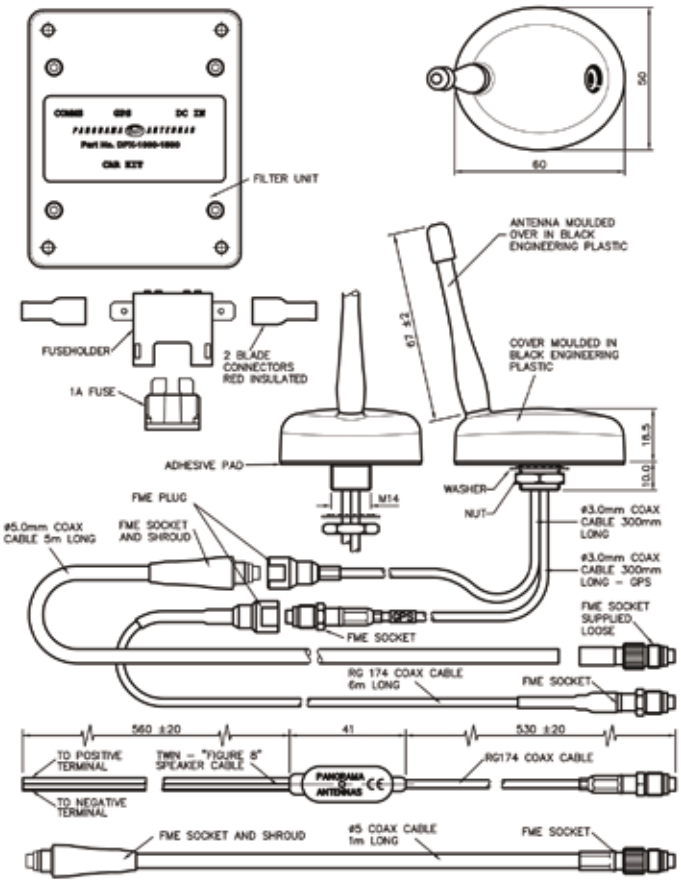
The GPSK antenna range is a dual function, high performance TETRA 800MHz antenna with an active GPS element.

The GPSK has the ability to mount on a roof up to 6mm thick using only a single 15mm hole.

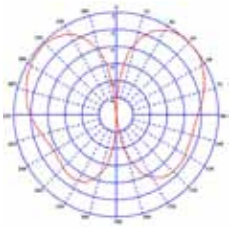
The dual functionality of the Panorama GPSK range makes the antenna a popular choice for police, buses, taxi's and other public service and utility vehicles.

This antenna can be provided as a 'plug & play' kit for all TETRA terminals.

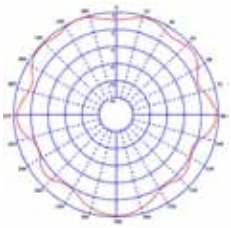
Technical Drawing



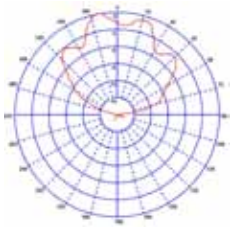
E-Plane (840MHz)



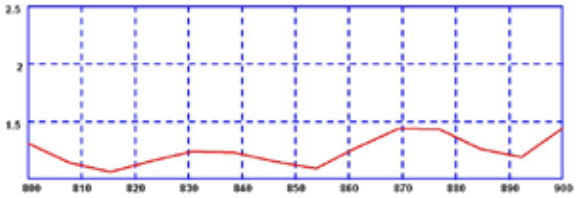
H-Plane (840MHz)



GPS



Typical VSWR



Part No.		
		GPSK-S5-MOT-CK
Electrical Data		
Frequency Range (MHz)		806-870
Operational Band		S5
Gain: Isotropic		2dBi
Compared to ¼ wave		0dB
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		25
GPS Data		
Frequency Range (MHz)		1575
VSWR		<1.5:1 ± 4MHz
Gain: LNA		26dB
Polarisation		Right Hand Circular
Operating Voltage		3 - 7V DC (fed via coax)
Current		Typical 14mA
Mechanical Data		
Dimensions (mm)	Whip Length	67
	Base Height	18.5
	Base Length	60
	Base Width	50
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		Panel mount
Hole Size (mm)		15
Cable Data		
GPS Cable to DPX-1000-1500	Type	RG174
	Length (m)	6
	Termination	FME socket
Comms Cable to DPX-1000-1500	Type	CS23
	Length (m)	5
	Termination	FME socket
Radio Cable	Length (m)	1
	Termination	FME socket
Voltage Regulator (Part No VR5-F)	Length (m)	1
	More Information	See page 68

Train Antenna

- TETRA 800MHz
- Public Safety
- Train
- Omni Directional
- ROHS Compliant

TRNB

Standard four hole rail fixing

Suitable for overground & underground trains

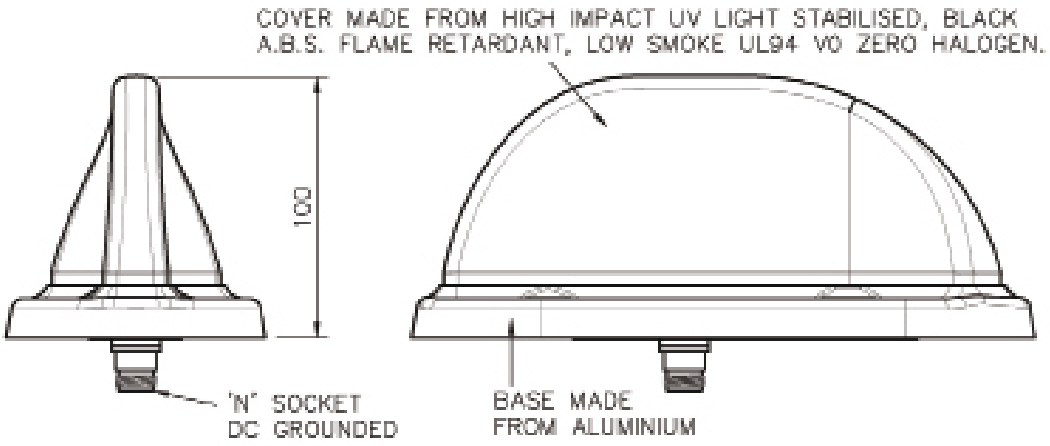
Waterproof N connector

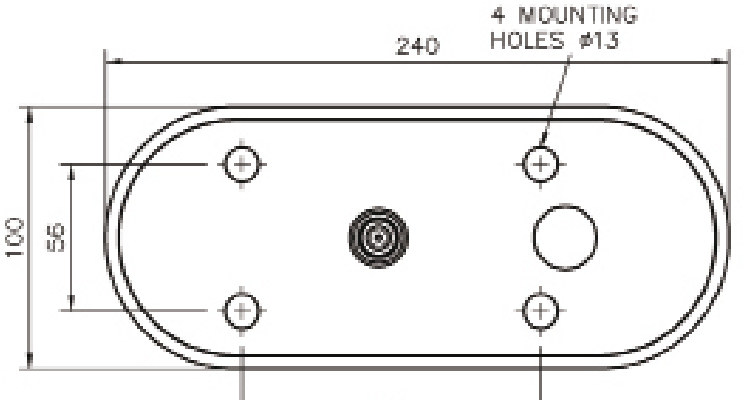
The TRNB antenna series is designed specifically for use on trains, underground or overground. With an omnidirectional peak gain of over 5dBi the TRNB series covers the TETRA 800MHz trunking bands along with multiband GSM, GSM-R, 3G UMTS & 2.4GHz WLAN and has the option of a DC grounded GPS antenna, all in one housing.

Housed in a UV stabilised, low flame, smoke and toxicity (FST) housing, the TRNB series is fully weatherproof with an IP68 rating ensuring the antennas performance is never compromised even when subjected to industrial carriage wash systems. With less than 100g of flame retardant plastic, the TRNB series can also be used on underground trains.

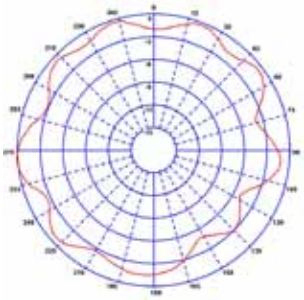
The TRNB antennas have also been tested to meet various European industry traction standards.

Technical Drawing

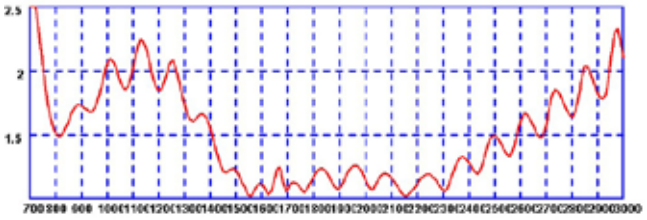




H-Plane (840MHz)



Typical VSWR*



*measured on a 1m × 1m groundplane

Part No.		
		TRNB-7-27
Electrical Data		
Frequency Range (MHz)		746-2700
Operational Band		S5, GSM850, GSM900, GSM1800, PCS1900, 3G UMTS & 2.4GHz WLAN
Gain: Isotropic		5dBi
Compared to ¼ wave		3dB
Polarisation		Vertical
VSWR		2:1
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		25
Mechanical Data		
Dimensions (mm)	Height	100
	Width	100
	Length	240
Environmental Specification		
Operating Temp (°C)		-40° / +80°C
Radome Material		High Impact UV Stabilised, Low Flame, Smoke & Toxicity
Radome Weight (g)		< 100
Mounting Data		
Fixing		4 × 13mm diameter holes
Termination Data		
Termination		N (female)

Train Antenna with GPS

- TETRA 800MHz
- Public Safety
- Train
- GPS
- Omni Directional
- ROHS Compliant

TRNBG

Standard four hole rail fixing

Suitable for overground & underground trains

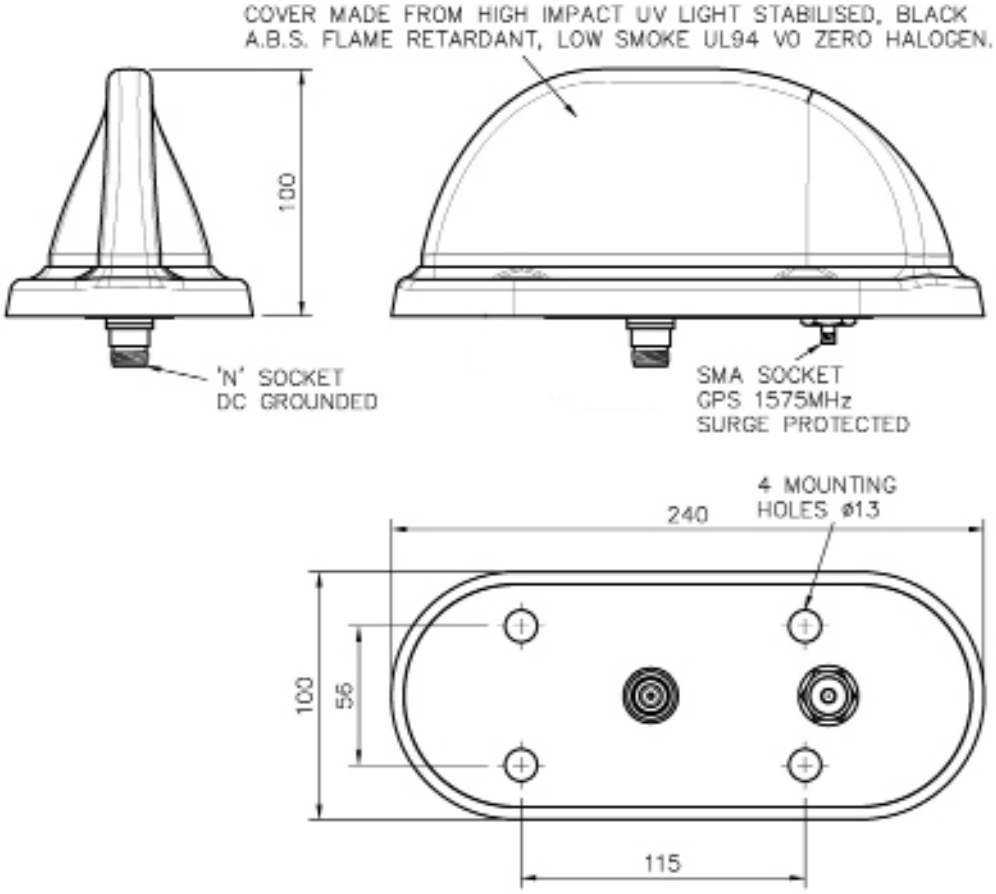
Waterproof N connector

The TRNB antenna series is designed specifically for use on trains, underground or overground. With an omnidirectional peak gain of over 5dBi the TRNB series covers the TETRA 800MHz trunking bands along with multiband GSM, GSM-R, 3G UMTS & 2.4GHz WLAN and has the option of a DC grounded GPS antenna, all in one housing.

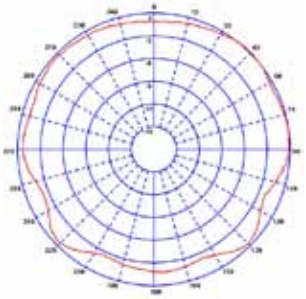
Housed in a UV stabilised, low flame, smoke and toxicity (FST) housing, the TRNB series is fully weatherproof with an IP68 rating ensuring the antennas performance is never compromised even when subjected to industrial carriage wash systems. With less than 100g of flame retardant plastic, the TRNB series can also be used on underground trains.

The TRNB antennas have also been tested to meet various European industry traction standards.

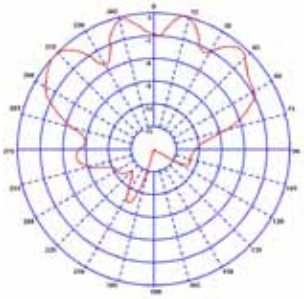
Technical Drawing



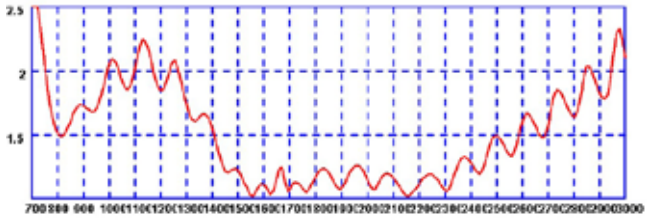
H-Plane (840MHz)



GPS



Typical VSWR



Part No.		
		TRNBG-7-27
Electrical Data		
Frequency Range (MHz)		746-2700
Operational Band		S5, GSM850, GSM900, GSM1800, PCS1900, 3G UMTS & 2.4GHz WLAN
Gain: Isotropic		5dBi
Compared to ¼ wave		3dB
Polarisation		Vertical
VSWR		2:1
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		25
GPS Data		
Frequency Range (MHz)		1575
Impedance		50Ω
LNA Gain		26dB ± 3
Polarisation		Rigth Hand Circular
Operating Voltage		+2.5V DC to +12V DC
Current (Typical)		11mA to 13mA (max)
Mechanical Data		
Dimensions (mm)	Height	100
	Width	100
	Length	240
Environmental Specification		
Operating Temp (°C)		-40° / +80°C
Radome Material		High Impact UV Stabilised, Low Flame, Smoke & Toxicity
Radome Weight (g)		< 100
Mounting Data		
Fixing		4 × 13mm diameter holes
Termination Data		
Termination	TETRA	N (female)
	GPS	SMA socket (female)

Temporary Clip Mount Antenna

- TETRA 800MHz
- Public Safety
- Fixed Site
- Omni Directional
- ROHS Compliant

CD800

Rugged construction

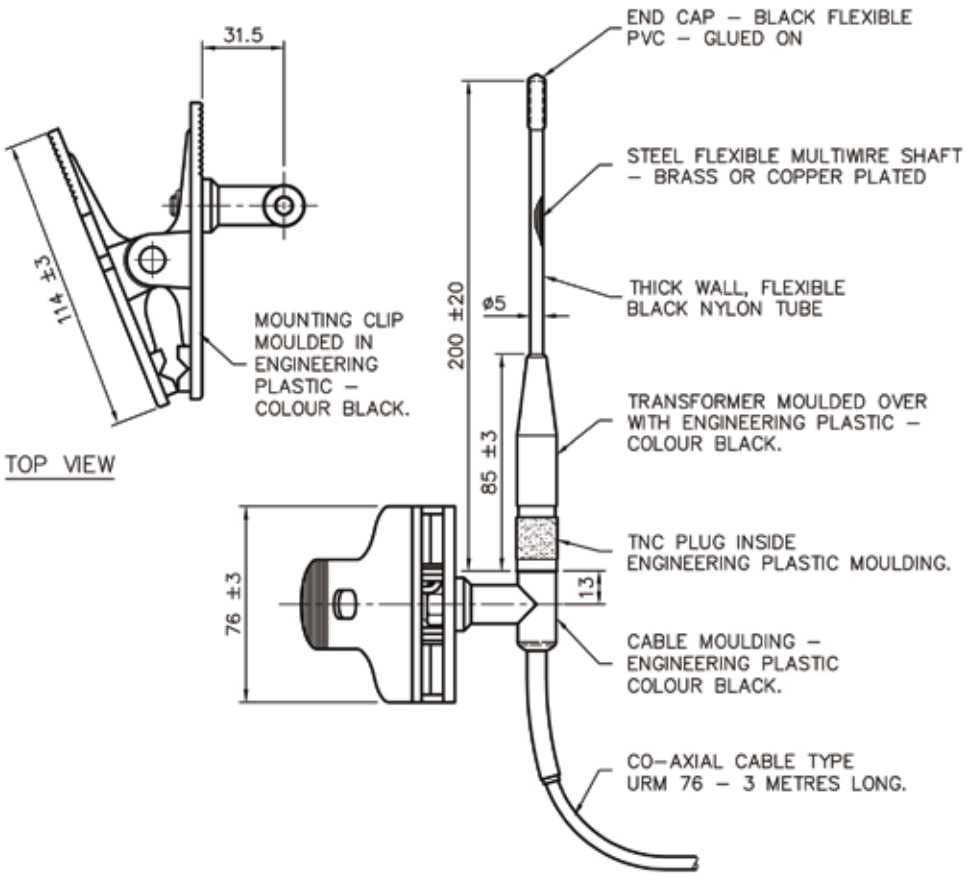
Fast installation

Moulded in coaxial cable

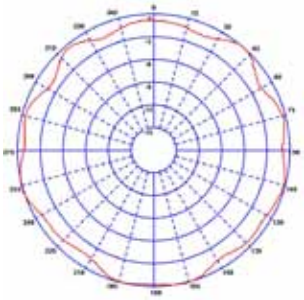
The performance and scope of portable equipment can often be considerably improved by extending the antenna to a more efficient height. Spring clip antennas provide an easy way to do this.

The jaws of the spring clip are moulded in nylon and are fully adjustable for any angle. The antenna features a fully moulded coaxial connection for weather protection and resilience.

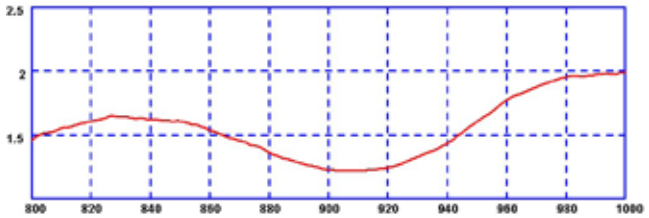
Technical Drawing



H-Plane (840MHz)



Typical VSWR

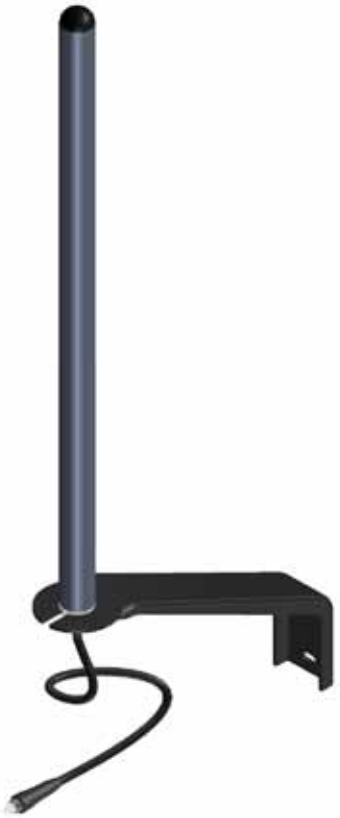


Part No.	
	CD800-3B
Electrical Data	
Frequency Range (MHz)	806-870
Operational Band	S5
Gain: Isotropic	4.2dBi
Compared to ¼ wave	2.2dB
VSWR	Tx ≤ 1.5:1, Rx ≤ 2:1
Polarisation	Vertical
Pattern	Omni-directional
Impedance	50Ω
Max Input Power (W)	25
Mechanical Data	
Total length (mm)	200
Operating Temp (°C)	-40° / +80°C
Colour	Black
Cable Data	
Type	URM 76
Length (m)	3
Thickness (mm)	5
Termination	BNC plug*

*Connector Configurations	
BNC (fitted)	CD800-3B
TNC (fitted)	CD800-3T
FME (fitted)	CD800-3F
Bare End	CD800

Bracket Mount Antenna

- TETRA 800MHz
- Public Safety
- Fixed Site
- Omni Directional
- ROHS Compliant



B5B-S5

Used with fixed radio terminal

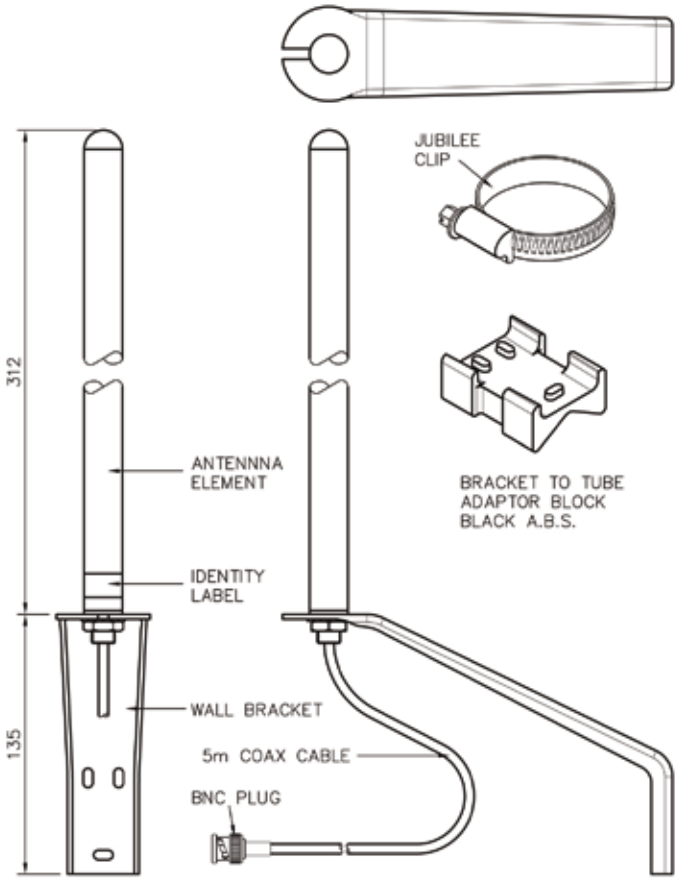
Improves range

Wall mount or mast mount options

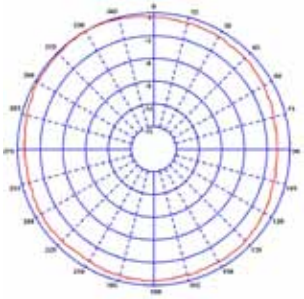
The bracket mount antenna range are easy to install solutions ideal for Police stations and public safety buildings.

Emergency services often need a dispatcher in the hub to co-ordinate the activities of the various forces. The B5B range provides a simple and reliable solution to this complicated activity.

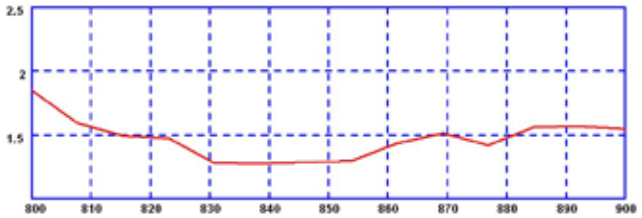
Technical Drawing



H-Plane (840MHz)



Typical VSWR



Part No.		
		B5B-S5-5B
Electrical Data		
Frequency Range (MHz)		806-870
Operational Band		S5
Gain: Isotropic		5dBi
Compared to ¼ wave		3dB
VSWR		Tx ≤ 1.5:1, Rx ≤ 2:1
Polarisation		Vertical
Pattern		Omni directional
Impedance		50Ω
Max Input Power (W)		20
Mechanical Data		
Dimensions (mm)	Total Length	447
	Length of whip	312
Off-Set from wall (mm)		180
Operating Temp (°C)		-40° / +80°C
Colour		Grey
Mast diameter range (mm)		50.8 / 32.0
Cable Data		
Type		CS23
Length (m)		5
Colour		Black
Thickness (mm)		5
Termination		BNC plug*

*Connector Configurations	
BNC (fitted)	B5B-S5-5B
TNC (fitted)	B5B-S5-5T
FME (fitted)	B5B-S5-5F
Bare End	B5B-S5-5

Elevated Antenna

- TETRA 800MHz
- Public Safety
- Fixed Site
- Omni Directional
- ROHS Compliant

BS800

5dBi gain

Mast mount

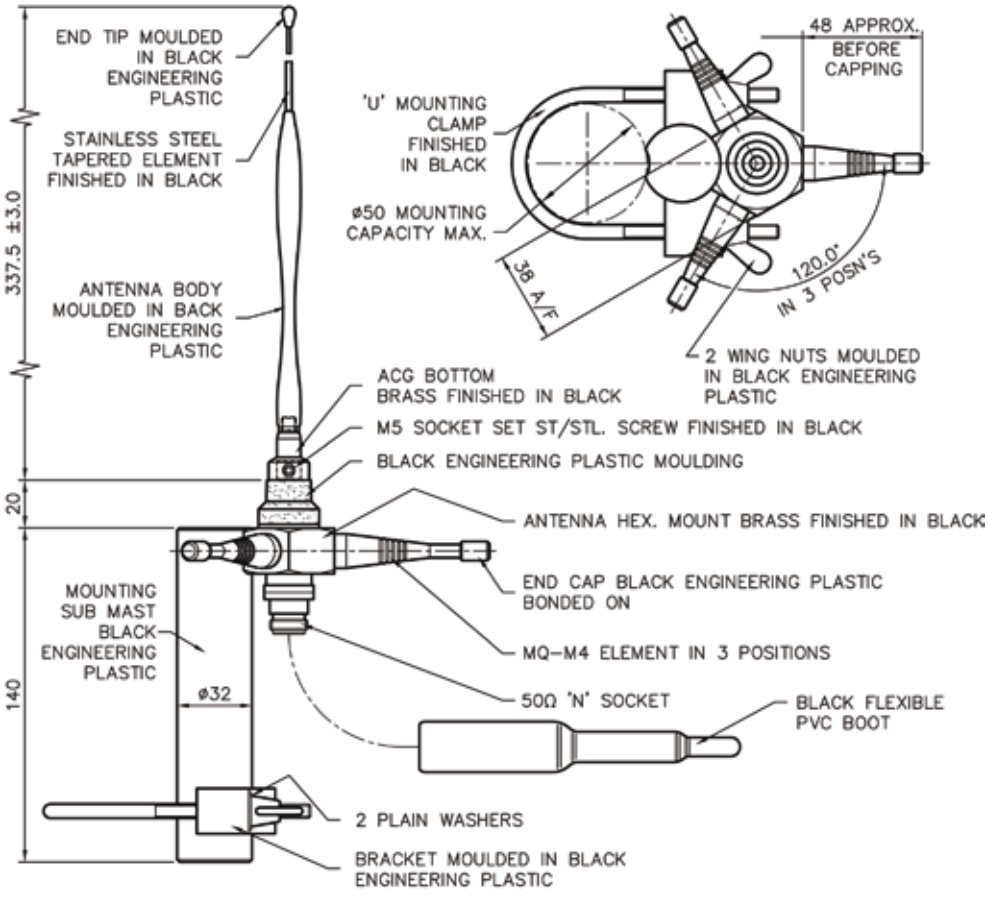
Temporary or permanent fixing

Panorama Elevated Antennas can be used for temporary field use or permanent installations. The range uses flexible helical elements to provide an effective but compact groundplane.

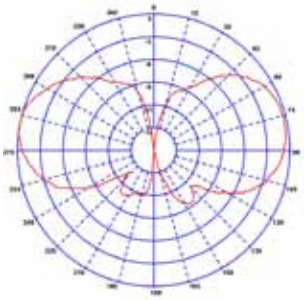
The antenna's centre fitting has a metal hub to mount the radials and a moulded insulator for the radiator. The whip element is plastic coated for weather proofing and durability.

An N socket connector is fitted to enable a wide range of coaxial cable types to be used.

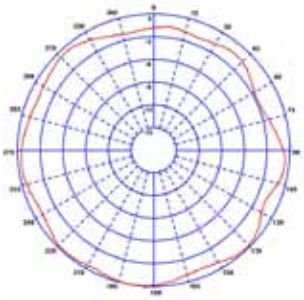
Technical Drawing



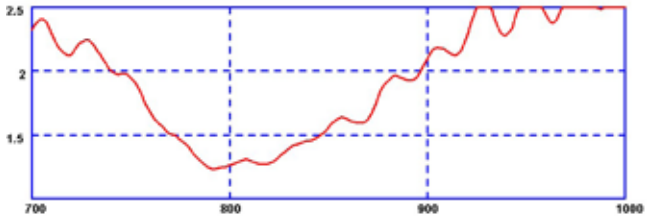
E-Plane (840MHz)



H-Plane (840MHz)



Typical VSWR



Part No.		
		BS800
Electrical Data		
Frequency Range (MHz)		804-870
Operational Band		S5
Gain: Isotropic		5dBi
Compared to ¼ wave		3dB
VSWR		Tx ≤ 1.5:1, Rx ≤ 2:1
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		25
Mechanical Data		
Dimensions (mm)	Whip Length	357
	Ground plane element length	48
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Mounting Data		
Fixing		Mast mount
Maximum Mast Diameter (mm)		50
Termination Data		
Termination		N Socket

Find Your Perfect Antenna in 3 Steps

1 Select a base

2 Choose your antenna

3 Additional items

1

M8-5BL	GPSA-FF	GPSA-DEP3G
Panel Mount with 5m cable, BNC plug loose	GPS Combination Antenna	GPS & GSM/3G Combination Antenna

2

AS-E4-5-H7-S1	AS-E4-S1	AS-H6-7-S1-462
74-88MHz, 165-174MHz & 380-400MHz	74-88MHz & 380-400MHz	165-174MHz & 380-400MHz
2dBi	2dBi	2dBi

3

TPX-VL-VH-BNC	DPX-210-270-BJ
VHF & UHF Triplexer	VHF & UHF Diplexer
To be used with whip: AS-E4-5-H7-S1	To be used with whips: AS-E4-S1 & AS-H6-7-S1-462
Cables required: 3 × C23B-1	Cables required: 2 × C23B-1

1. Selecting a base
Panel Mount

M8-5BL

Panel mount
Rugger design
Modular stud fitting
Interchangeable whips

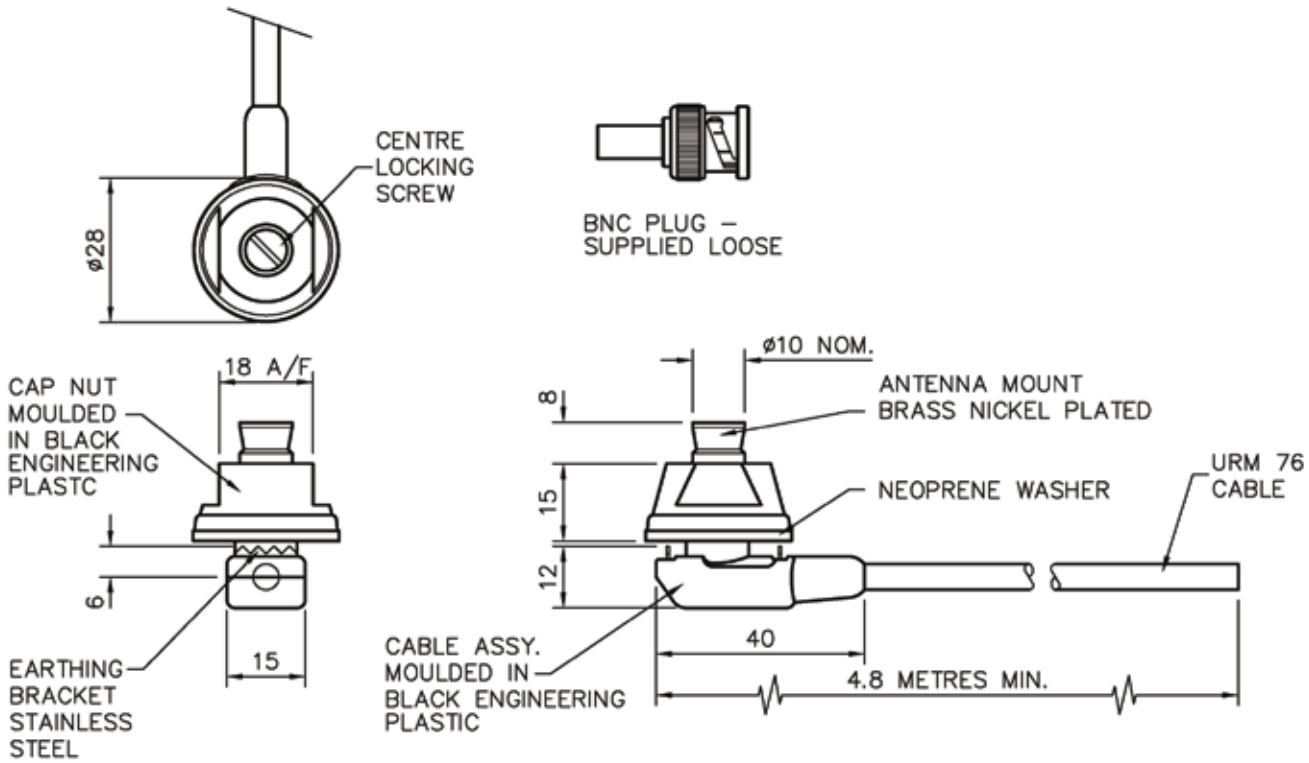
The M8 is the “industry standard” panel mount base.
It incorporates a fully moulded construction with high quality coaxial cable for low loss and long term reliability.

The base is easy to fit and can also be installed from outside the vehicle if under panel access is not available.

With the modular stud fitting, any antenna in the Panorama range can be fitted to the base.

A long reach version (M8A-5BL) is available for installations with a thick panel

Technical Drawing



Part No.		
		M8-5BL
Mechanical Data		
Dimensions (mm)	Base Height	18
	Base Diameter	28
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic & Brass nickel plated
Colour		Black
Cable Data		
Type		CS23
Diameter (mm)		5
Length (m)		4.8
Termination		Bare end with loose BNC Plug

1. Selecting a base
Panel Mount with GPS

GPSA-FF

Rugged Dual Function Panel Mount Base
Integral Active GPS Antenna
Heavy Duty Antenna Mounting

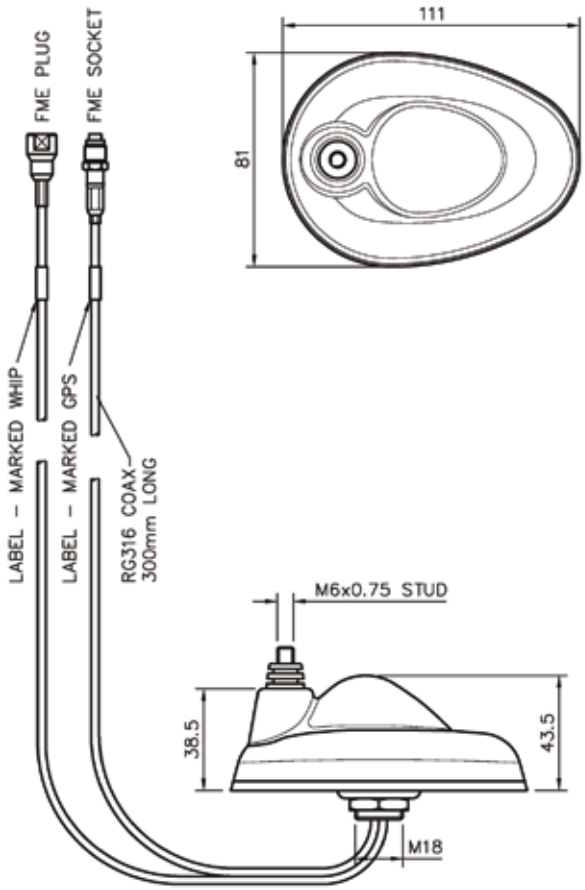
The GPSA-FF is a dual function panel mount antenna with integral GPS element in a single hole mounting.

This enables faster, more cost effective installation and reduces the number of holes required in the vehicle roof.

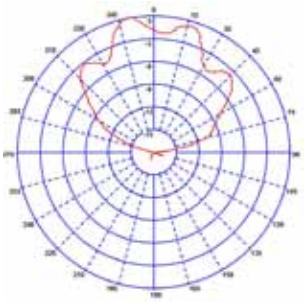
The GPS antenna incorporates a 26dB gain low noise amplifier for reliable satellite acquisition.

Combined with a Panorama dual or tri-band antenna and filter unit, this base can provide a complete system solution.

Technical Drawing



GPS



Part No.		
		GPSA-FF
GPS Data		
Frequency Range (MHz)		1575
VSWR		<2.0:1 ± 4MHz
Gain: LNA		26dB
Polarisation		Right Hand Circular
Operating Voltage (V)		3-7DC (fed via coax)
Current		Typical 14mA
Mechanical Data		
Dimensions (mm)	Height	43.5
	Length	111
	Width	81
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Cable Data		
Type		RG316
Diameter (mm)		2.8
Length (m)		0.3
Termination	Whip	FME plug
	GPS	FME socket

1. Selecting a base
Panel Mount with GPS & GSM / 3G

GPSA-DEP3G

Rugged Tri Function Panel Mount Base
Integral Active GPS & GSM/3G Antennas
Heavy Duty Antenna Mounting

The GPSA-DEP3G is a three function panel mount antenna with integral GPS & GSM/3G elements in a single hole mounting.

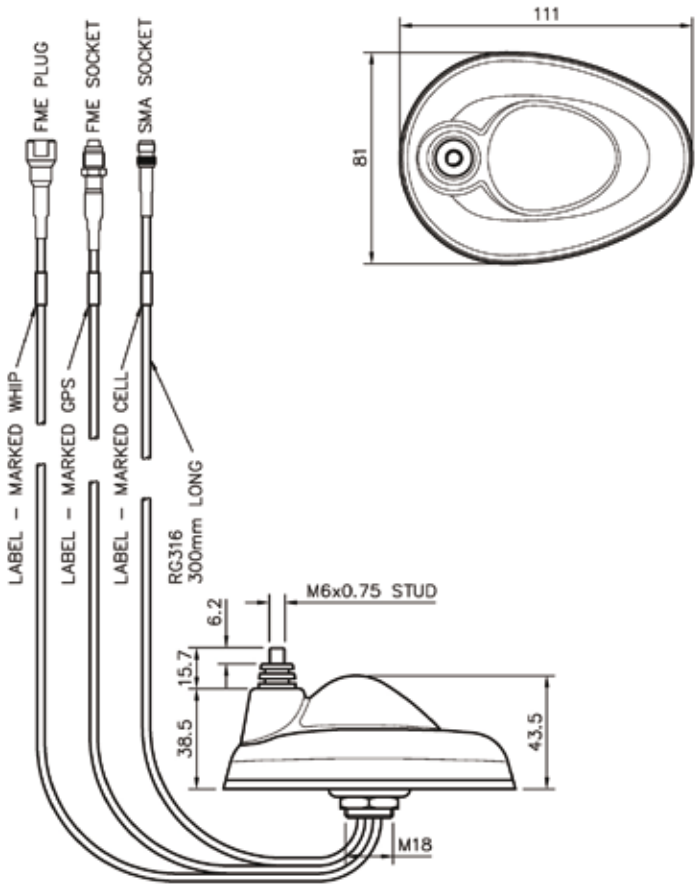
This enables faster, more cost effective installation and reduces the number of holes required in the vehicle roof.

The GPS antenna incorporates a 26dB gain low noise amplifier for reliable satellite acquisition.

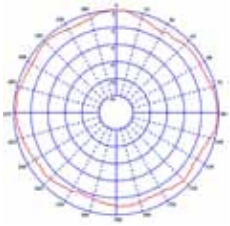
The GSM/3G antenna provides 900/1800MHz GSM and 2100MHz 3G functions with 0dBd gain.

Combined with a Panorama dual or tri-band antenna and filter unit, this base can provide a complete system solution where GPRS or 3G data is also be required.

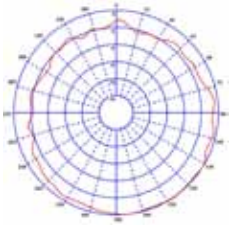
Technical Drawing



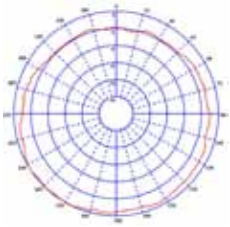
H-Plane (900MHz)



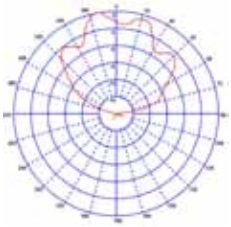
H-Plane (1800MHz)



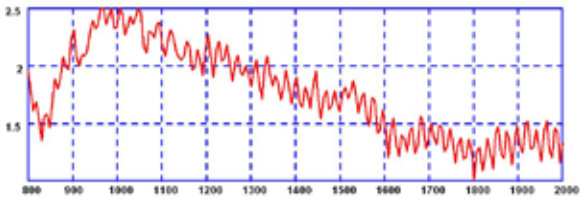
H-Plane (2000MHz)



GPS



Typical VSWR*



Part No.		
		GPSA-DEP3G
Electrical Data		
Frequency Range (MHz)		890-960, 1710-1880, 1850-1990, 1900-2170
Operational Band		GSM900, GSM1800, PCS1900, 3G UMTS
Gain: Isotropic		2dBi (on all bands)
Compared to ¼ wave		0dB (on all bands)
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power		25
GPS Data		
Frequency Range (MHz)		1575
VSWR		<2.0:1 ± 4MHz
Gain: LNA		26dB
Polarisation		Right Hand Circular
Operating Voltage (V)		3-7DC (fed via coax)
Current		Typical 14mA
Mechanical Data		
Dimensions (mm)	Height	43.5
	Length	111
	Width	81
Operating Temp (°C)		-40° / +80°C
Material		Engineering plastic
Colour		Black
Cable Data		
Type		RG316
Diameter (mm)		2.8
Length (m)		0.3
Termination	Whip	FME plug
	Cellular	SMA socket
	GPS	FME socket

2. Choose your antenna
Tri-Band - 4 metre, 2 metre & TETRA

- VHF Migration
- Public Safety
- Omni Directional
- ROHS Compliant

AQHB-E4-5-H7-S1 (for M8 base)
AS-E4-5-H7-S1 (for GPSA base)

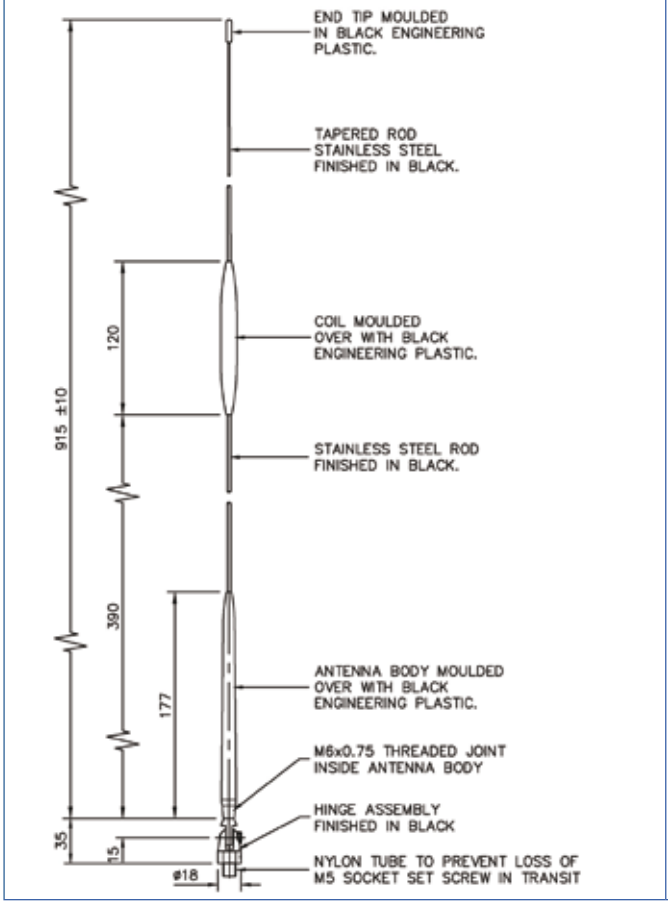
Combines 4 metre band, 2 metre band & TETRA

Can be used with panel mount and GPS base

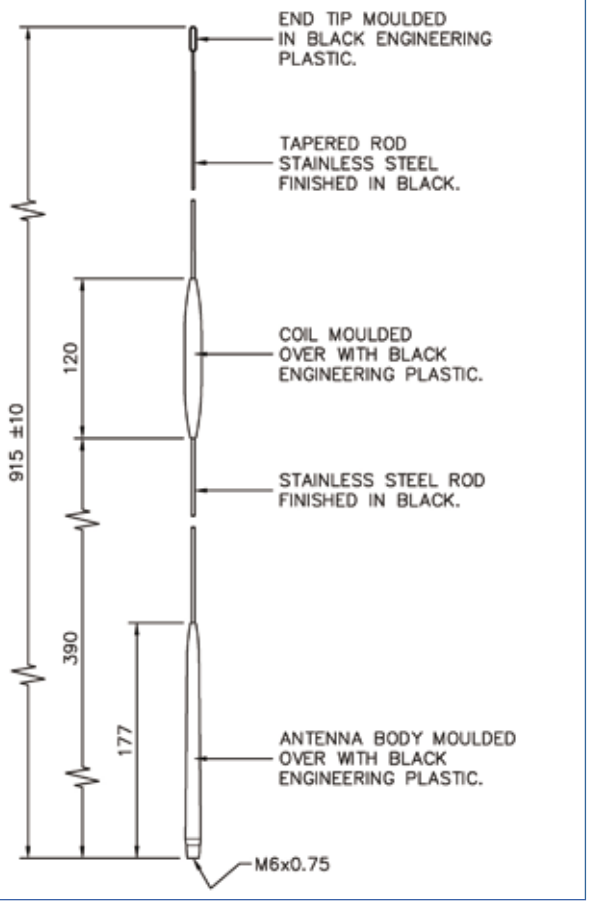
This antenna operates on 4m (74-88MHz), 2m (165-174MHz) and Tetra band (380-400MHz).
The antenna is resonant on each band and does not require a matching unit.
Used with Panorama's high effieciency triplexer unit, this enables a 4m, 2m and Tetra radio to effectively operate on one antenna.

Technical Drawing

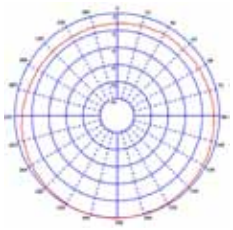
Antenna for M8 base



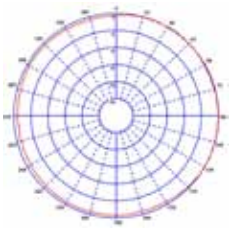
Antenna for GPSA base



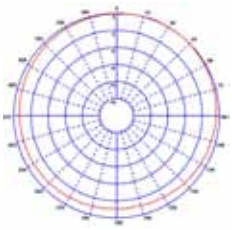
H-Plane (81MHz)



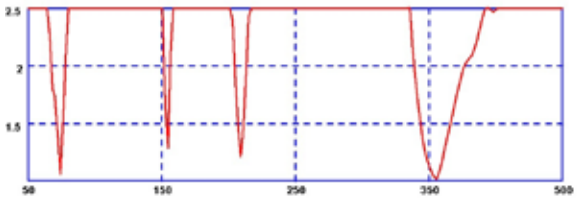
H-Plane (170MHz)



H-Plane (390MHz)



Typical VSWR*



	Antenna for M8 base	*Antenna for GPSA base*
Part No.		
	AQHB-E4-5-H7-S1	AS-E4-5-H7-S1
Electrical Data		
Frequency Range (MHz)	74-88, 165-174 & 380-400	74-88, 165-174 & 380-400
Operational Band	4m, 2m & TETRA (S1)	4m, 2m & TETRA (S1)
Gain: Isotropic	2dBi (on all bands)	2dBi (on all bands)
Compared to ¼ wave	0dB (on all bands)	0dB (on all bands)
Polarisation	Vertical	Vertical
Pattern	Omni-directional	Omni-directional
Impedance	50Ω	50Ω
Max Input Power	25	25
Mechanical Data		
Dimensions (mm) Height	915	915
Operating Temp (°C)	-40° / +80°C	-40° / +80°C
Material	Engineering plastic & stainless steel	Engineering plastic & stainless steel
Colour	Black	Black

2. Choose your whip
Dual Band - 4 metre & TETRA

- VHF Migration
- Public Safety
- Omni Directional
- ROHS Compliant

AQHB-E4-S1 (for M8 base)
AS-E4-S1 (for GPSA base)

Combines 4 metre band & TETRA

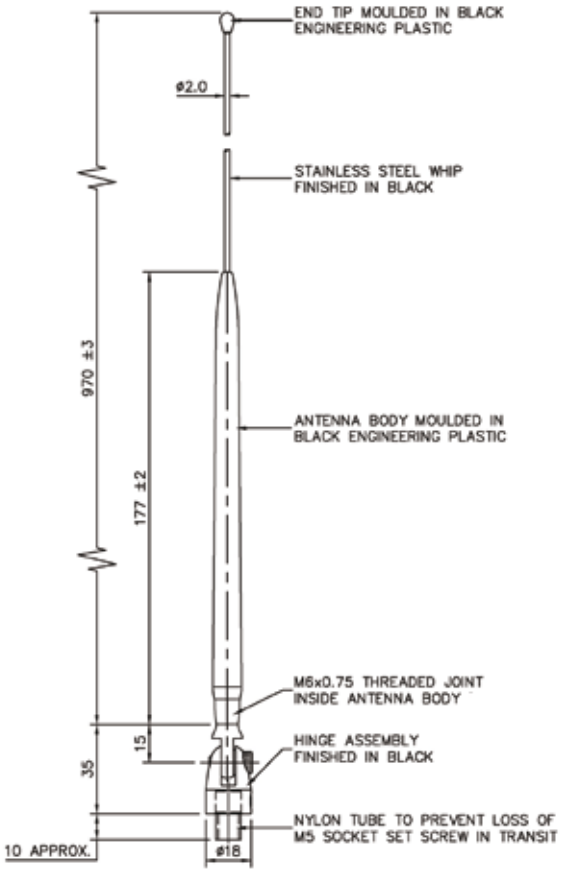
Can be used with panel mount and GPS base

This antenna operates on 4m (74-88MHz), and Tetra band (380-400MHz). The antenna is resonant on each band and does not require a matching unit.

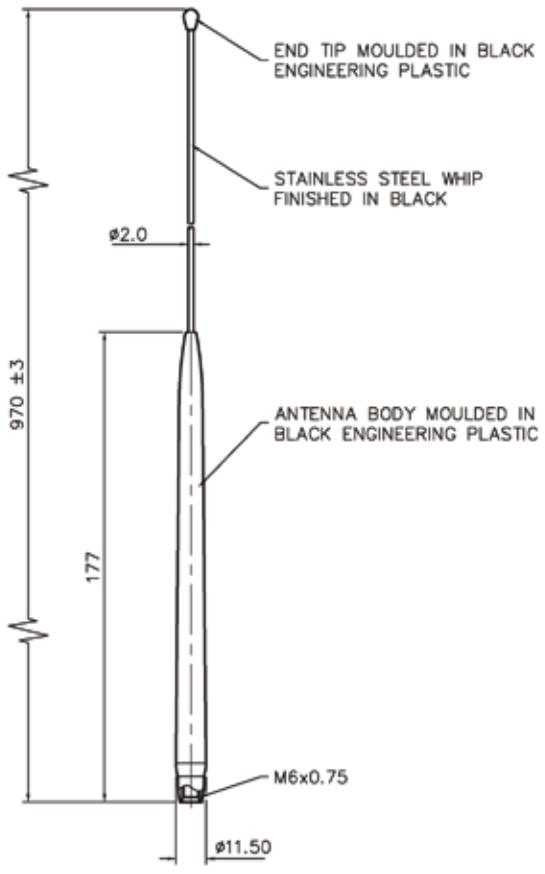
Used with Panorama's high efficiency diplexer unit, this enables a 4m, and Tetra radio to effectively operate on one antenna.

Technical Drawing

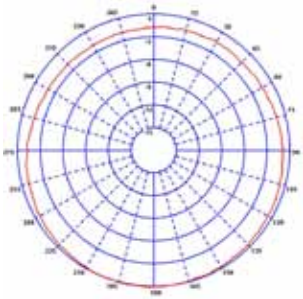
Antenna for M8 base



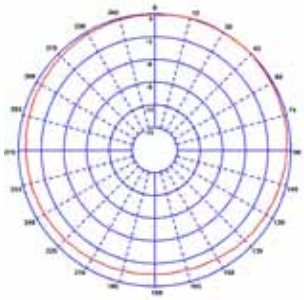
Antenna for GPSA base



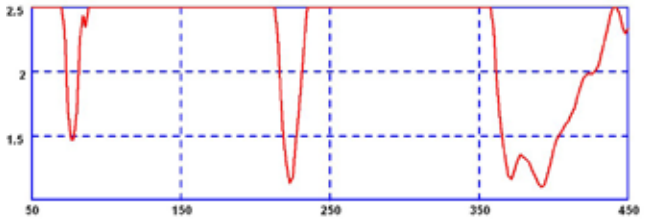
H-Plane (81MHz)



H-Plane (390MHz)



Typical VSWR*



*measured on a 1m × 1m groundplane

	Antenna for M8 base	*Antenna for GPSA base*
Part No.		
	AQHB-E4-S1	AS-E4-S1
Electrical Data		
Frequency Range (MHz)	74-88 & 380-400	74-88 & 380-400
Operational Band	4m & TETRA (S1)	4m & TETRA (S1)
Gain: Isotropic	2dBi (both bands)	2dBi (both bands)
Compared to ¼ wave	0dB (both bands)	0dB (both bands)
Polarisation	Vertical	Vertical
Pattern	Omni-directional	Omni-directional
Impedance	50Ω	50Ω
Max Input Power	25	25
Mechanical Data		
Dimensions (mm) Height	970	970
Operating Temp (°C)	-40° / +80°C	-40° / +80°C
Material	Engineering plastic & stainless steel	Engineering plastic & stainless steel
Colour	Black	Black

2. Choose your antenna
Dual Band - 2 metre & TETRA

- VHF Migration
- Public Safety
- Omni Directional
- ROHS Compliant

AQHB-H6-7-S1-462 (for M8 base)
AS-H6-7-S1-462 (for GPSA base)

Combines 2 metre band & TETRA

Can be used with panel mount and GPS base

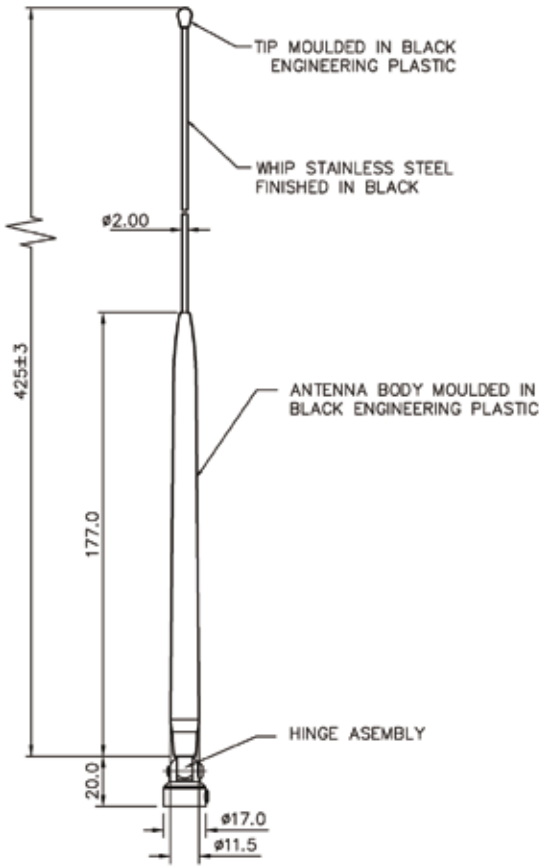
This antenna operates on 2m (165-174MHz) and Tetra band (380-400MHz).

The antenna is resonant on each band and does not require a matching unit.

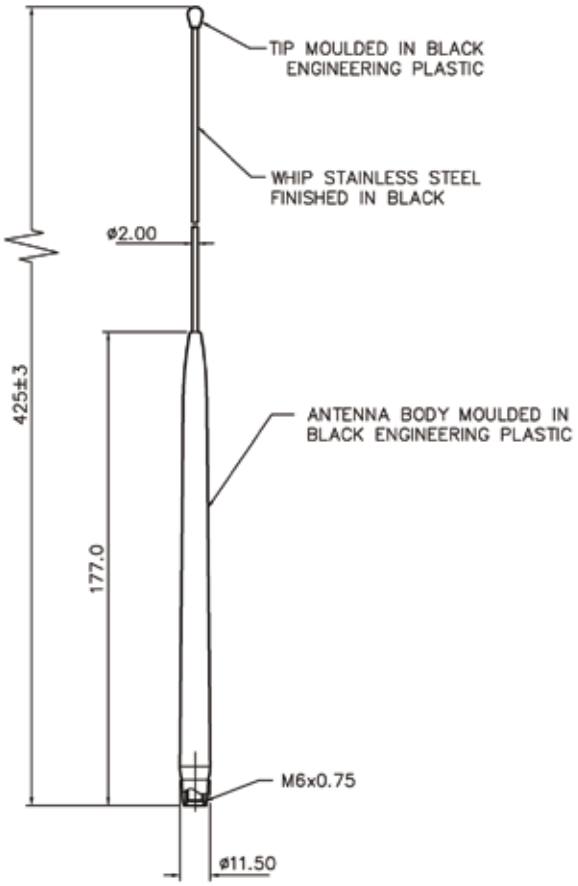
Used with Panorama's high efficiency diplexer unit, this enables a 2m and Tetra radio to effectively operate on one antenna.

Technical Drawing

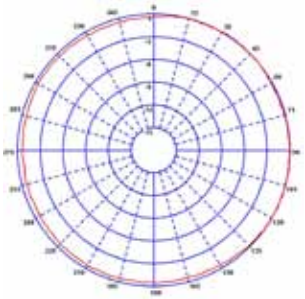
Antenna for M8 base



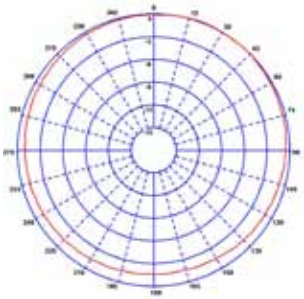
Antenna for GPSA base



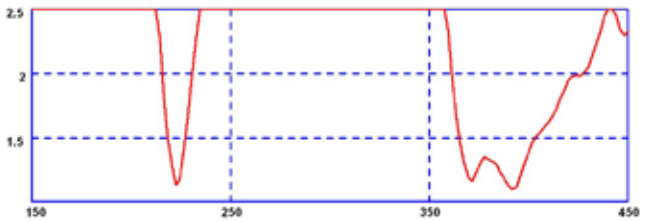
H-Plane (170MHz)



H-Plane (390MHz)



Typical VSWR*



*measured on a 1m × 1m groundplane

	Antenna for M8 base	*Antenna for GPSA base*
Part No.		
	AQHB-H6-7-S1-462	AS-H6-7-S1-462
Electrical Data		
Frequency Range (MHz)	165-174 & 380-400	165-174 & 380-400
Operational Band	2m & TETRA (S1)	2m & TETRA (S1)
Gain: Isotropic	2dBi (both band)	2dBi (both band)
Compared to ¼ wave	0dB (both bands)	0dB (both bands)
Polarisation	Vertical	Vertical
Pattern	Omni-directional	Omni-directional
Impedance	50Ω	50Ω
Max Input Power	25	25
Mechanical Data		
Dimensions (mm) Height	425	425
Operating Temp (°C)	-40° / +80°C	-40° / +80°C
Material	Engineering plastic & stainless steel	Engineering plastic & stainless steel
Colour	Black	Black

3. Additional items
Triplexer Unit

VHF Migration

Public Safety

ROHS Compliant

TPX-VL-VH-UHF-BNC

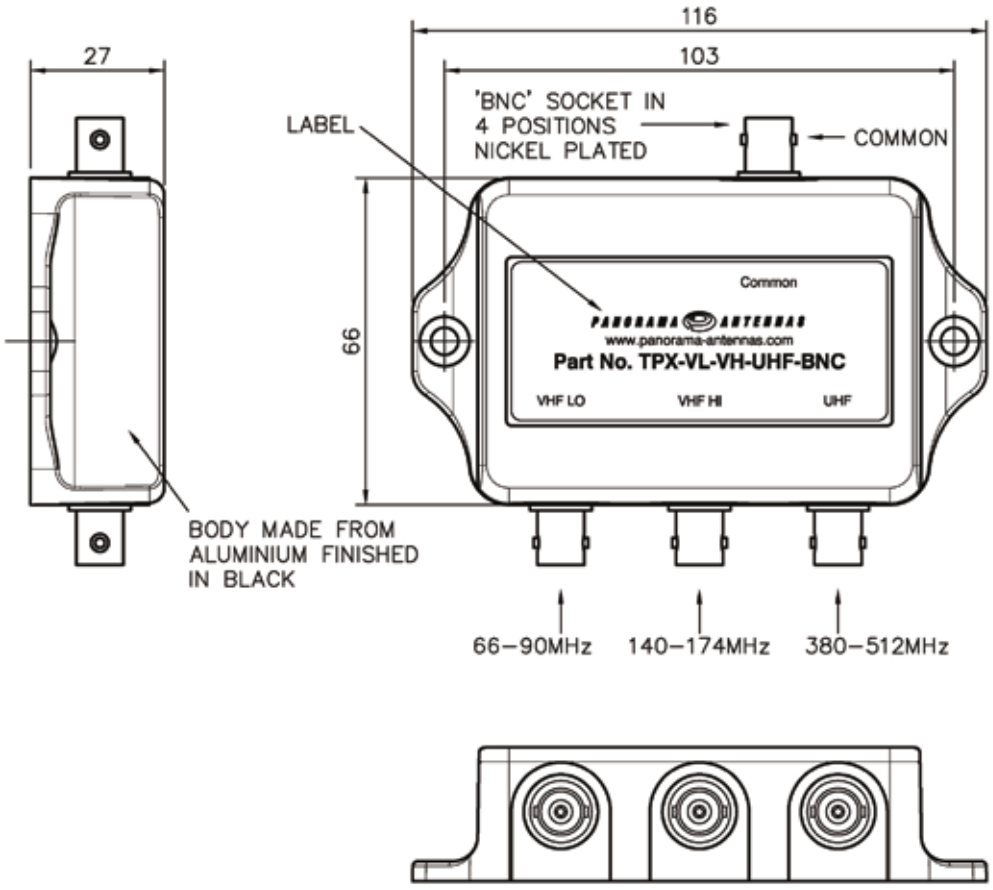
Allows multiband antenna to be used with 3 radios
4m, 2m & TETRA Bands

The Panorma Triplexer is housed in a compact, robust die cast case for reliablity and easy mounting.

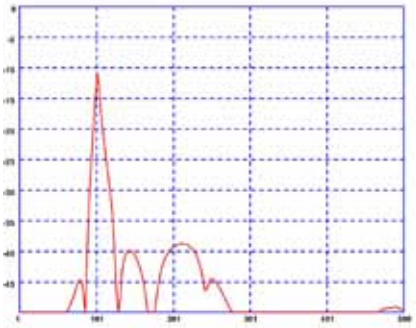
This Triplexer allows the Panorama multiband antenna to be used with up to 3 single band radios (4m, 2m & TETRA).

The Triplexer uses efficient design to provide low insertion loss with high port to port isolation and high power handling capability.

Technical Drawing

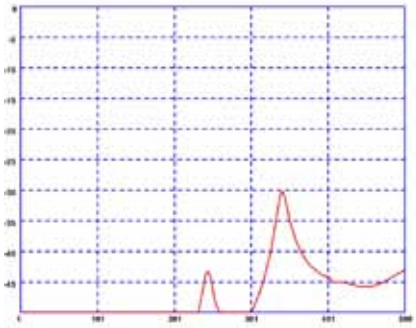


VL-VH Isolation

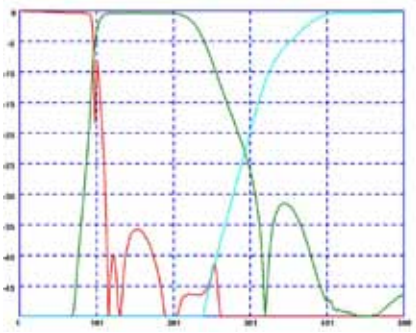


VL-UHF Isolation

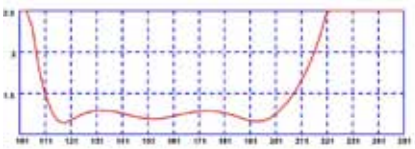
VH-UHF Isolation



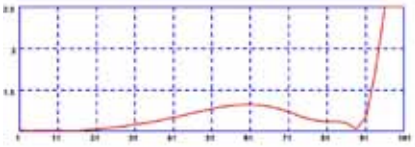
All Ports Isolation Loss



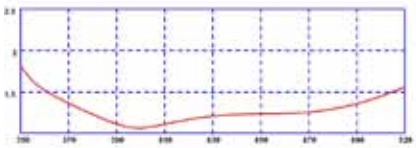
VH Port VSWR



VL Port VSWR



UHF Port VSWR



Part No.		
		TPX-VL-VH-UHF-BNC
Electrical Data		
Frequency Range (MHz)	VHF Low Band (4m)	66 - 90
	VHF High Band (2m)	140 - 174
	UHF (TETRA)	380 - 512
Insertion Loss	VHF Low Band (4m)	< 0.2dB
	VHF High Band (2m)	< 0.25dB
	UHF (TETRA)	< 0.3dB
Isolation between ports		>45dB
Maximum input power		50 Watts
Mechanical Data		
Dimensions (mm)	Length	66
	Width	116
	Height	27
Operating Temp (°C)		-40° / +80°C
Material		Aluminium
Colour		Black
Termination		BNC sockets on all ports
Mounting Data		
Fixing		2 × Mounting holes

3. Additional items
Diplexer Unit

VHF Migration

Public Safety

ROHS Compliant

DPX-210-270-BJ

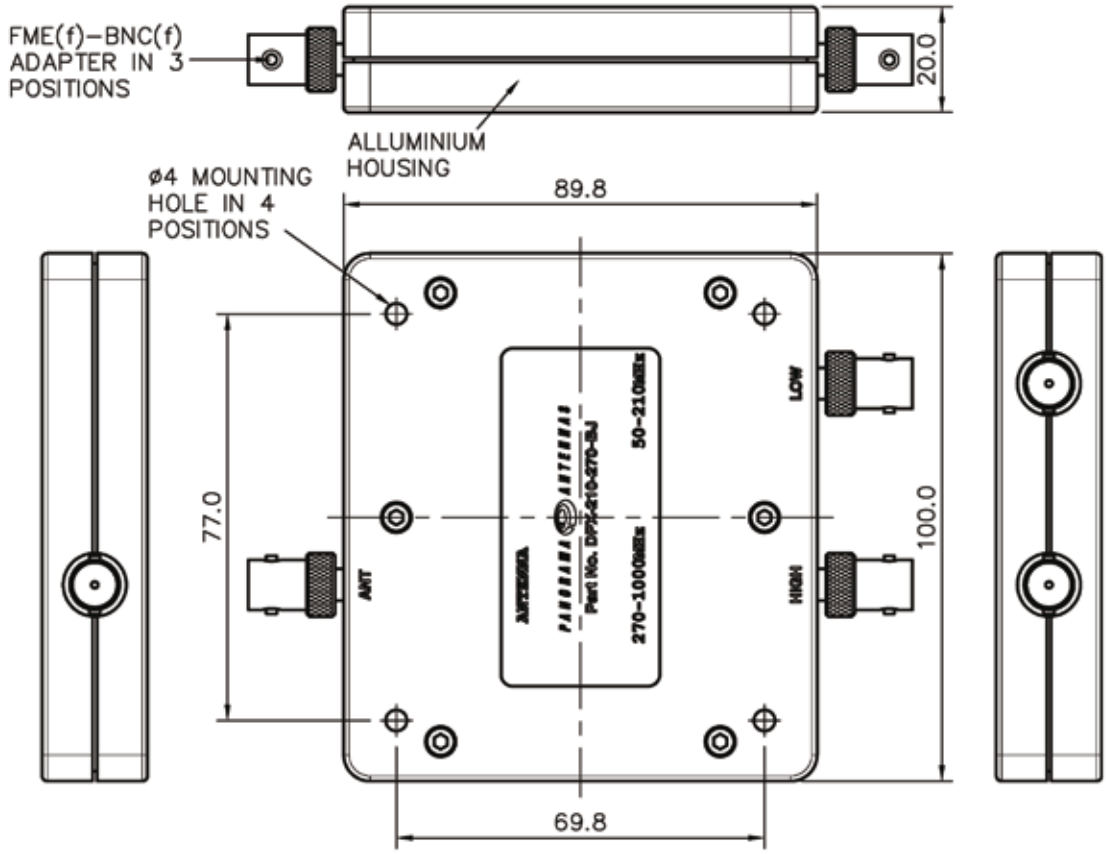
Allows dual band antenna to be used with 2 radios
4m OR 2m & TETRA Bands

The Panorma Diplexer is housed in a compact, robust die cast case for reliablity and easy mounting.

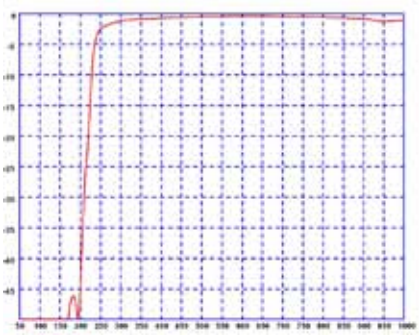
This Diplexer allows the Panorama dual band antenna to be used with 2 single band radios (4m OR 2m & TETRA).

The Diplexer uses a stripline design to provide low insertion loss with high port to port isolation and high power handling capability.

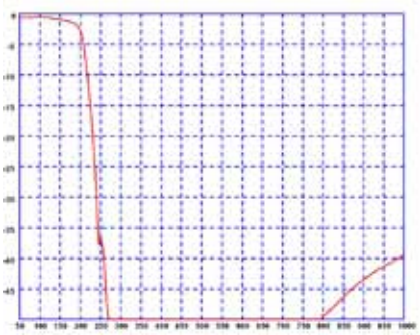
Technical Drawing



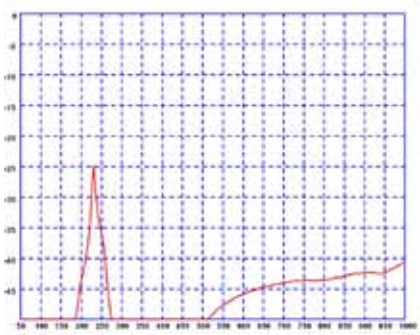
High Pass Insertion Loss



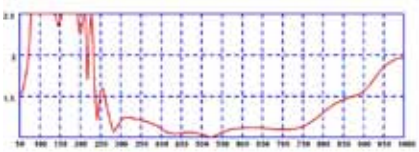
Low Pass Insertion Loss



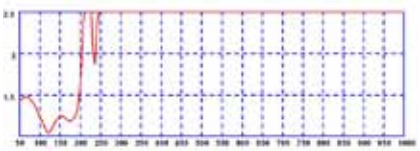
Port Isolation



High Pass VSWR



Low Pass VSWR



Part No.		
		DPX-210-270-BJ
Electrical Data		
Frequency Range (MHz)	VHF (2m or 4m)	50 - 210
	UHF (TETRA)	270 - 1000
Insertion Loss	VHF (2m or 4m)	< 1dB
	UHF (TETRA)	< 1dB
Isolation between ports		> 40dB
Maximum input power		20 Watts
Mechanical Data		
Dimensions (mm)	Length	100
	Width	90
	Thickness	20
Operating Temp (°C)		-40° / +80°C
Material		Aluminium
Colour		Black
Termination		BNC sockets on all ports
Mounting Data		
Fixing		4 × Mounting holes

TETRA UHF Ceiling Antenna

TETRA UHF

In Building

RoHS Compliant

Omni Directional

CM-S1-08NJ

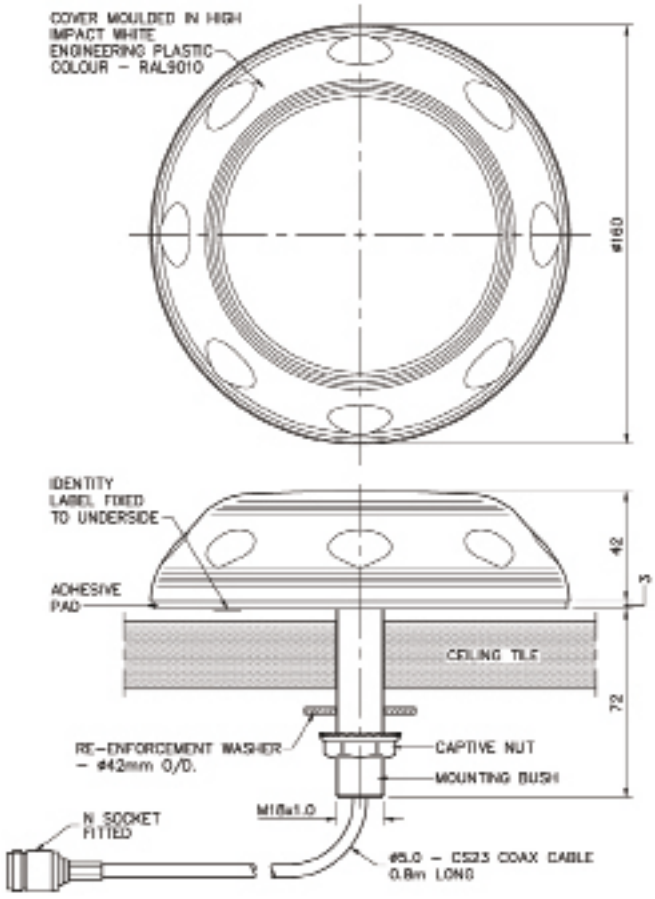
Easy installation

In building TETRA UHF coverage

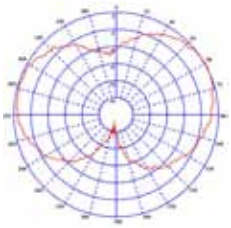
Suitable for airports and large campus sites

The Panorama TETRA UHF ceiling antenna is designed to enhance network coverage in large buildings for the emergency services. Used in airports, large campus sites and shopping centres the antenna ensures there are no black holes in coverage or a reduction in signal strength.

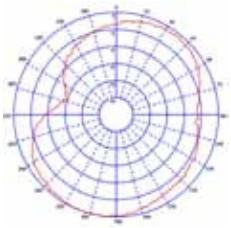
Technical Drawing



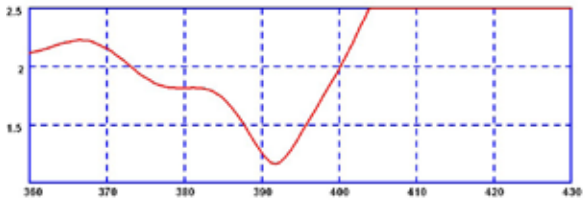
E-Plane (390MHz)



H-Plane (390MHz)

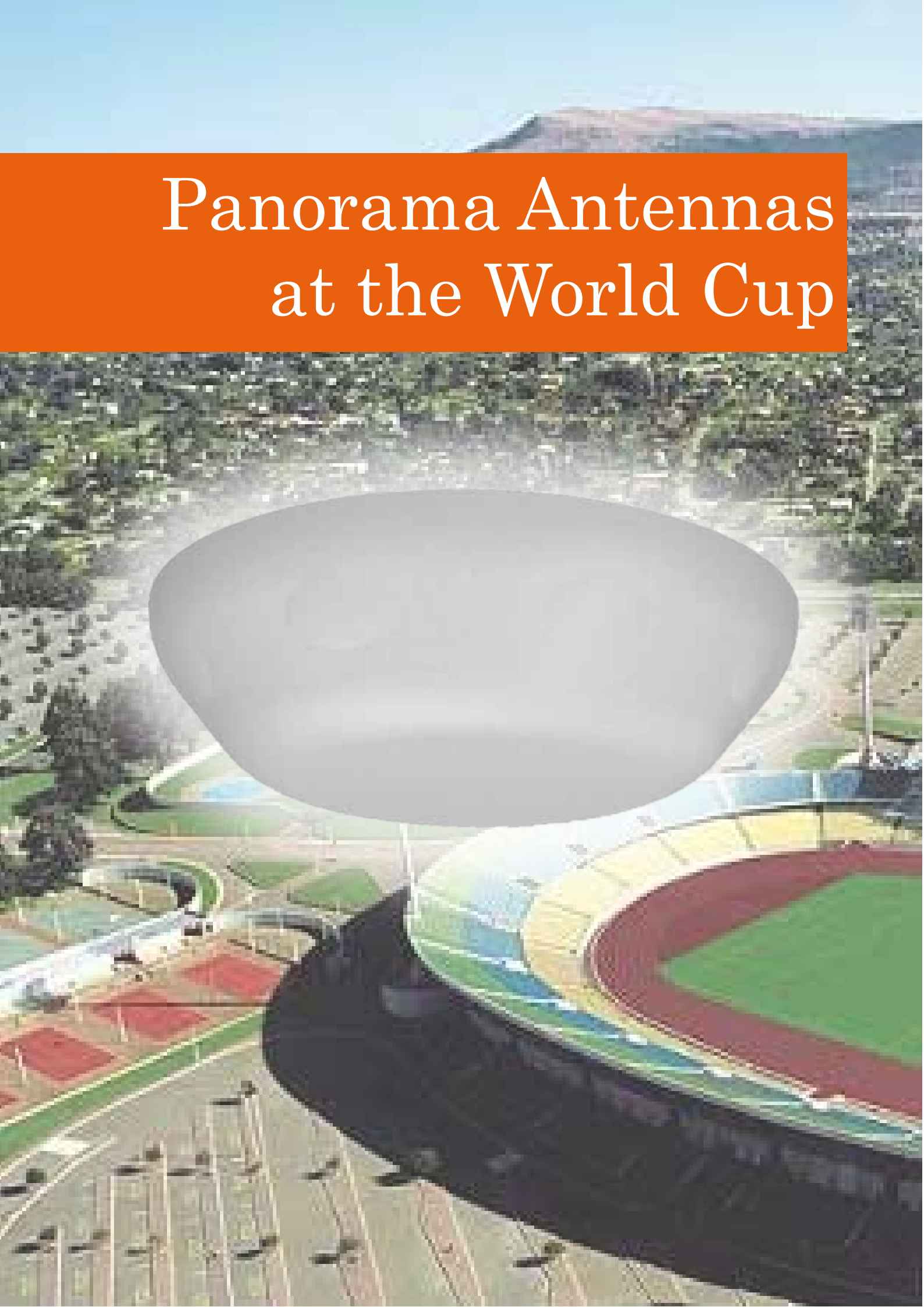


Typical VSWR



Part No.			
		CM-S1-08NJ	CM-S2-08NJ
Electrical Data			
Frequency Range (MHz)		380-400	410-430
Operational Band		S1	S2
Gain: Isotropic		0dBi	0dBi
Compared to ¼ wave		-2dB	-2dB
Polarisation		Vertical	Vertical
Pattern		Omni-directional	Omni-directional
Impedance		50Ω	50Ω
Max Input Power (W)		25	25
Mechanical Data			
Dimensions (mm)	Height	42	42
	Width	160	160
Operating Temp (°C)		-40° / +80°C	-40° / +80°C
Material		Engineering plastic	Engineering plastic
Colour		White (RAL9010)	White (RAL9010)
Mounting Data			
Fixing		Ceiling tile mounting	Ceiling tile mounting
Mounting hole size (mm)		18	18
Mounting length (mm)		72	72
Cable Data			
Type		CS23 Coaxial Cable	CS23 Coaxial Cable
Thickness (mm)		5	5
Length (m)		0.8	0.8
Termination		N Socket	N Socket

Panorama Antennas at the World Cup



Panorama Antennas in the stands at the FIFA World Cup 2010!

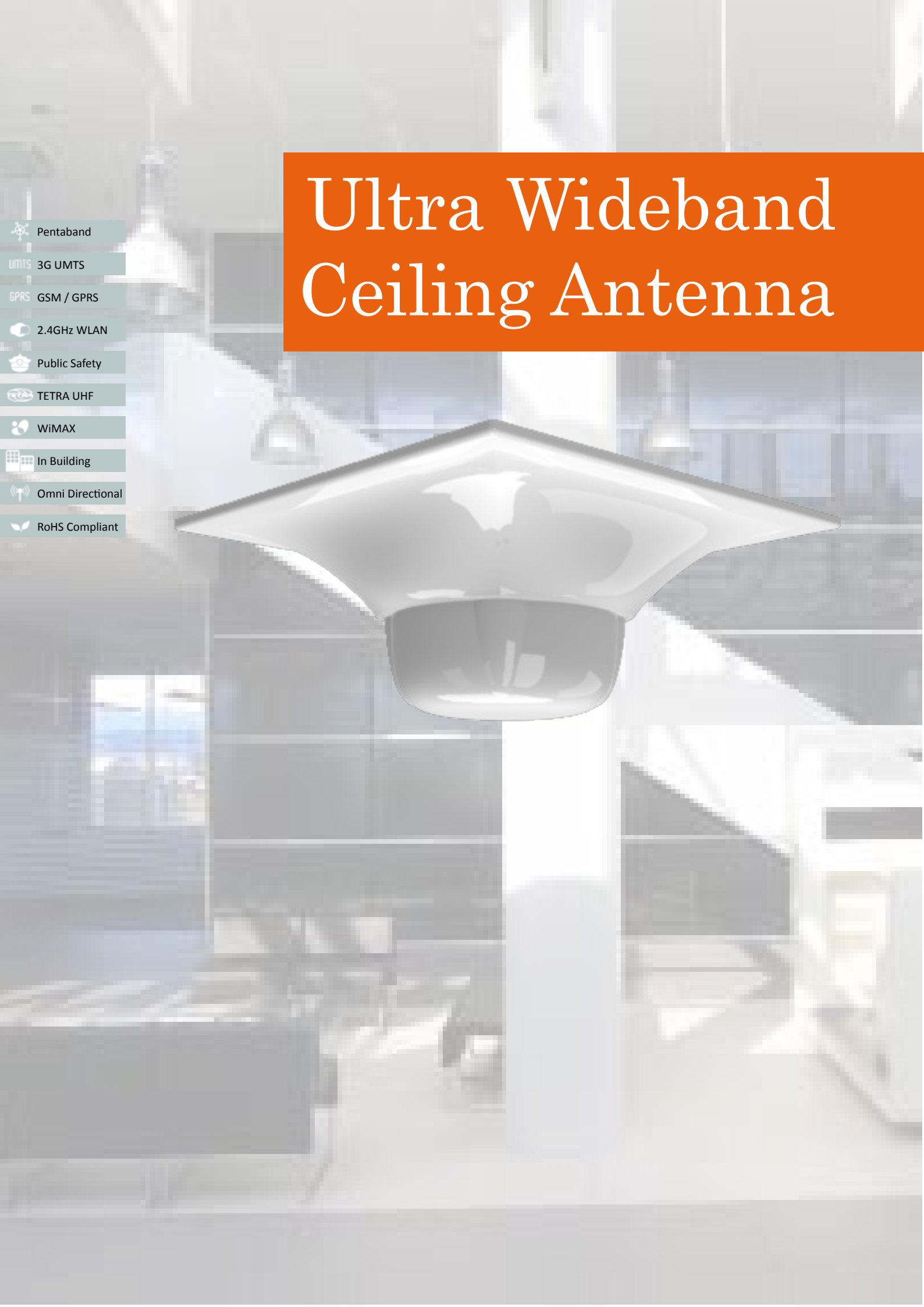
Panorama's CM-S1-08NJ antenna was chosen by the South African Police Service (SAPS) to provide TETRA communications in the Royal Bafokeng Stadium ensuring the players and fans were kept safe and secure during the matches. Fitted throughout the stadium, the low profile antenna from Panorama is the ideal solution for any inbuilding TETRA application.

Colonel Chris Jonck, Commanding Officer of SAPS said, "The soccer officials could not spot the dome antennas, they blend in with the surrounding structure and are just what they wanted!"

Christopher Jesman, Managing Director of Panorama Antennas added, "This demonstrates once again that Panorama's products are at the forefront of TETRA technology. Deployment at key events such as this only goes to reinforce Panorama's position as the world leader in TETRA antennas. Security is paramount in South Africa and the police recognise that they must use the best quality products to ensure the World Cup will be a success."

Ultra Wideband Ceiling Antenna

- Pentaband
- 3G UMTS
- GSM / GPRS
- 2.4GHz WLAN
- Public Safety
- TETRA UHF
- WiMAX
- In Building
- Omni Directional
- RoHS Compliant



CMWBK-038-6-NJ

Ultra wideband from 380MHz - 6GHz

Easy installation

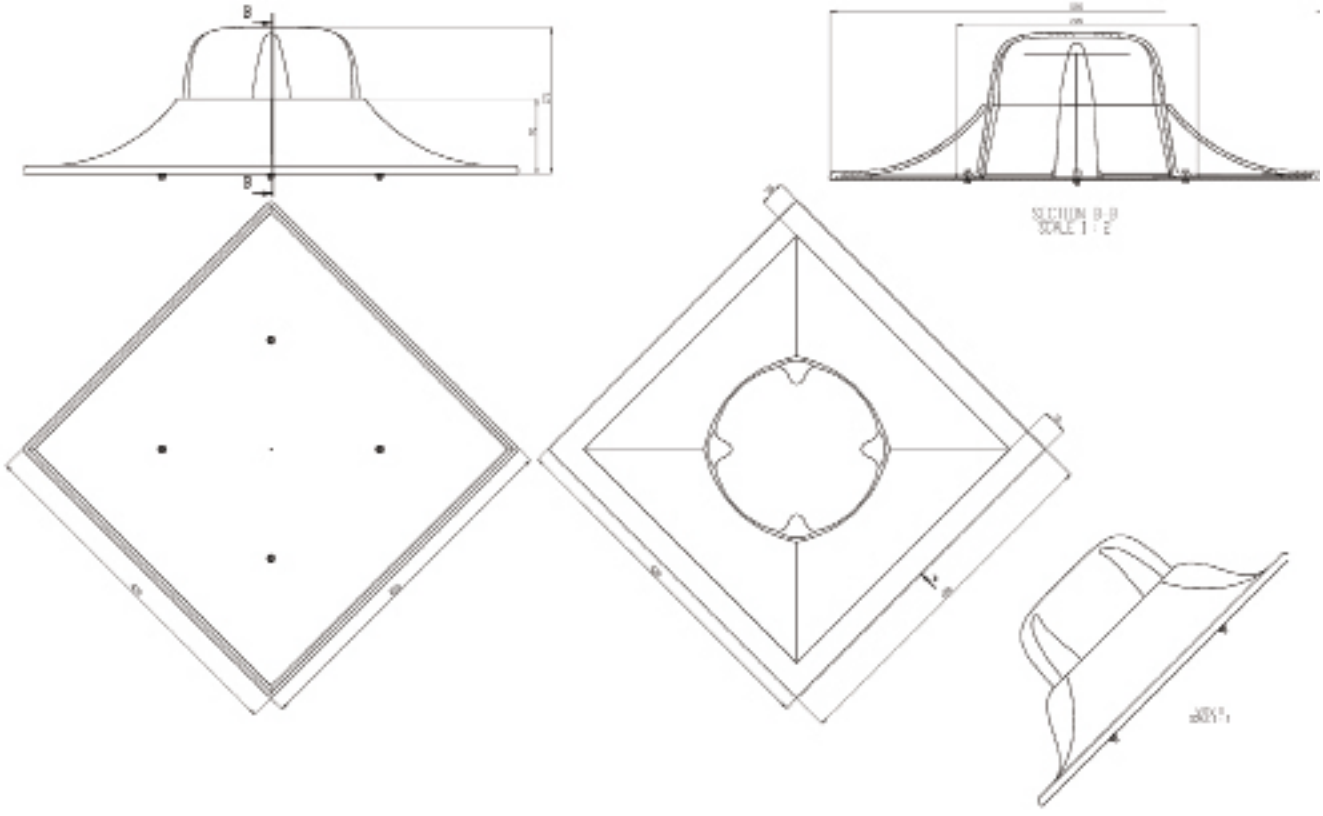
Integrate wireless services into one antenna

A true wideband system, Panorama's CMWBK-038-6 allows businesses and facilities to support multi-service / multi-operator wireless coverage. Any number or combination of services are supported - including TETRA / P25 , Cellular, 3G UMTS / AWS / CDMA, LTE, WLAN, WiMAX, 4.9GHz public safety.

The CWMB range enables simultaneous mobility for employees, consumers and emergency services and providies in-building service providers and DAS installers with a convenient one size fits all solution which is future proof. These antennas can be installed safe in the knowledge that they will be compatible with new wireless technologies which may come on stream.

The CWMBK features a protective cover formed from high performance flame retardant Kydex. Kydex meets the fire safety standards of both the U.S.A Federal Transit Administration (FTA) and the Federal Rail Administration (FRA) for smoke emission and flammability as tested under ASTM E-662 and ASTM E-162.

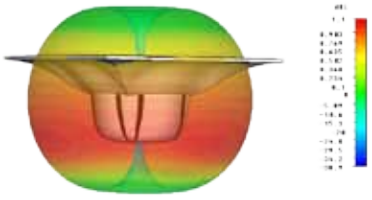
Technical Drawing



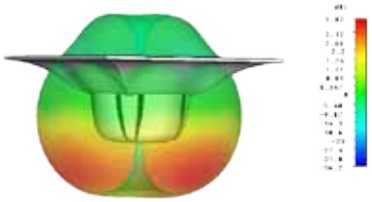
Ultra Wideband Ceiling Antenna

Simulated 3D Plots

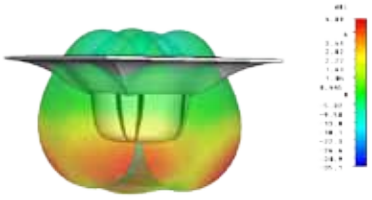
400MHz



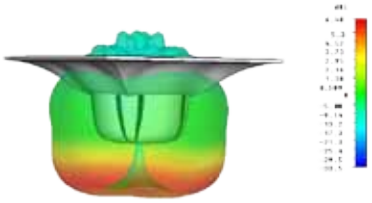
700MHz



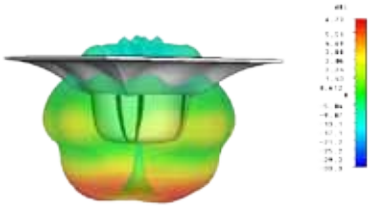
900MHz



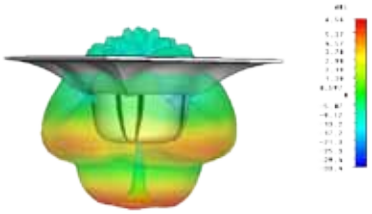
1800MHz



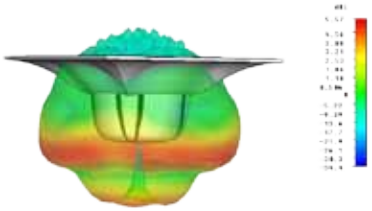
2100MHz



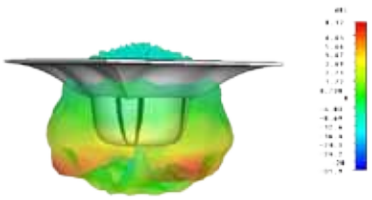
2400MHz



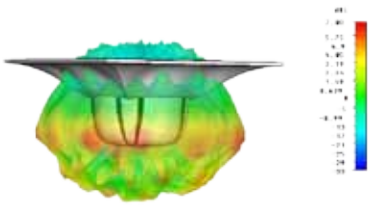
2600MHz



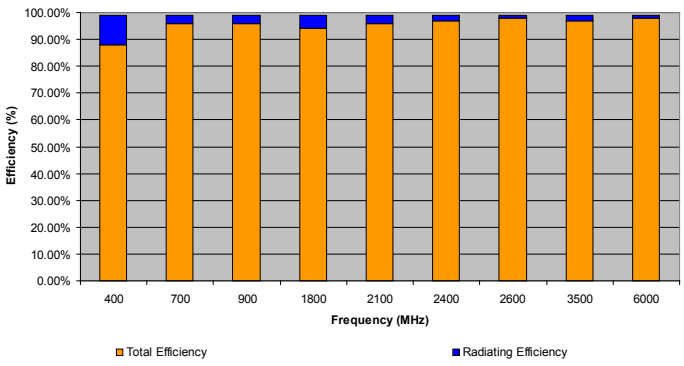
3500MHz



6000MHz

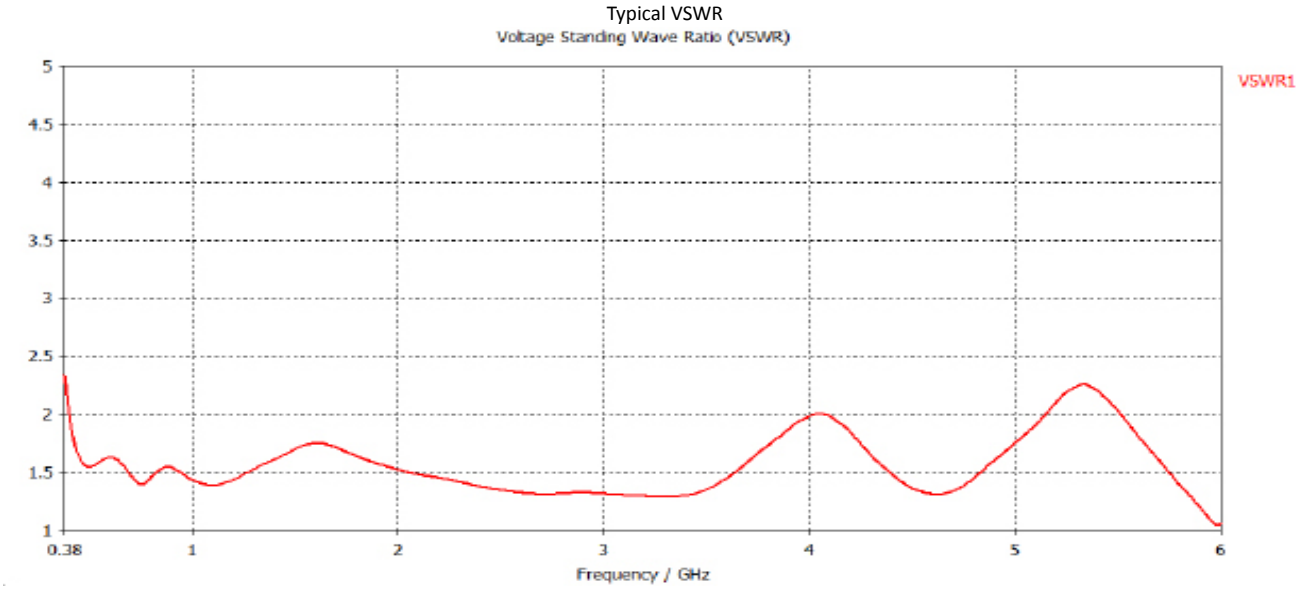


Antenna Efficiency



Frequency (MHz)	Radiating Efficiency (%)	Total Efficiency (%)
400	99	88
700	99	96
900	99	96
1800	99	94
2100	99	96
2400	99	97
2600	99	98
3500	99	97
6000	99	98

Chamber Measured VSWR



Part No.		
		CMWBK-038-6
Electrical Data		
Frequency Range (MHz)		380-6000
Operational Band		TETRA /P25 380-430, GSM850 / CDMA 800, GSM900, GSM1800, PCS1900, 3G UMTS, AWS, 2.4GHz WLAN, LTE, WiMAX
Peak Gain: Isotropic	TETRA / P25 400MHz	1dBi
	700 LTE / AMPS800 / GSM900	4.5dBi
	GSM1800 & PCS 1900	6.5dBi
	3G UMTS / AWS	6.5dBi
	2.4GHz WLAN	6.5dBi
	6GHz	7.5dBi
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		50
Mechanical Data		
Dimensions (mm)	Height	175 (6.89”)
	Width	420 (16.53”)
	Length	420 (16.53”)
Operating Temp (°C)		-40° / +80°C
Material		Flame Retardant Low Smoke and Fume Kydex
Colour		Light Grey
Mounting Data		
Fixing		Central Connector Boss / Optional Four 5.5mm Fixing Holes
Diameter (mm)		5.5 (0.22”)/ 19 (0.75”)
Termination		Extended N Socket

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Band Plan

Frequency (MHz)	Band
67-74	E3
74-81	E4
81-88	E5
132-143	H3
139-157	JRC
141-151	H4
149-159	H5
156-162	H6
162-174	H7
174-192	K5
192-208	K6
208-225	K7
220-250	L
245-275	M
270-300	N
300-334	R1
300-336	P
330-336	R
350-370	R2
350-392	S
380-400	S1
380-420	S3
380-430	TET
390-432	T
400-430	T1
410-430	S2
420-456	T2
430-472	U
450-470	S4
470-512	W
500-520	W2
806-870	S5
801-896	AMPS / CDMA850
872-960	GSM900
1575	GPS
1710-1882	GSM1800
1850-1990	GSM1900
1900-2170	UMTS
2400-2470	BLUETOOTH / WLAN

Panorama Support Tree

Panorama believes that quality service is essential and that every customer worldwide should have more than just one point of contact with us. Being a global company, Panorama has a number of international sales representatives responsible for countries and regions. This enables Panorama to have someone on the ground who knows the local market and can use this knowledge to help customers.

Whilst the local sales representative is ultimately responsible for all customers in their region, he may not be available 24/7. Therefore, Panorama's headquarters in London is able to liaise with the customer over issues like purchase orders, delivery schedules, shipping details and information, sending of samples for evaluation, technical datasheets and other matters that our international sales representative may not be able to deal with immediately.

Panorama aims to answer all questions, and deal with any problems or queries within 24 hours of the original email being sent.

Panorama Returns Policy

Any defect occurring in any goods supplied by Panorama Antennas due to faulty material, workmanship or design within a period of 12 months from the date of delivery of the goods, Panorama Antennas will replace or repair the defective goods free of charge.

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