Product Catalogue

PMR &
Critical Communications

PANORAMA ANTENNAS

Almost 70 Years of Experience

Panorama Antennas is A family business now in its third generation and 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 the transistor radio trend of the 1960s, Panorama's expert knowledge of television antennas was put to the manufacture of 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 Britain. In 1990, Panorama filed a patent application for the first ever solid state coupling circuit, revolutionising cellular glass mount antenna technology and creating a new benchmark for quality in the production of components. As the cellular telecommunications industry has grown worldwide, so has Panorama.

Today Panorama produces antennas for the world's leading communication companies. While Panorama has grown to include 8 international offices, 2 subsidiaries, and over 70 staff; manufacturing, design and development are retained in London less than a mile from the original factory. Our network of international sales representatives means that all customers get the attention and advice they require, providing local support on global scale.

Antennas For Next Generation Technology

Panorama's constant cutting-edge research ensures that our antennas meet the demands of the very latest public safety communications technology. Trusted by thousands of professionals the world over, our antennas are depended on to provide critical communications even in the most challenging conditions.

With nearly 70 years experience in delivering world-class antenna products, Panorama's current product range reflects our unparalleled expertise in providing high-quality performance antennas.

Contents

Catalogue Key

Products within this catalogue feature symbols to identify their potential uses and particular attributes. This guide will assist in identifying each symbol, and help clarify a product's full specification.

iBwave
Products with this icon are profiled in the iBwave component database for wireless network planning.

PIMGuard
PIMGuard products have been designed to give protection from passive intermodulation, thereby increasing network efficiency.

SAR Approved
SAR approved antennas have been tested by an approved test house according to EN 50385:2002 and test data is available for input power levels meeting Specific Absorption Rate requirements.

Ingress Protection Rating
This denotes the antenna's IP rating, and its subsequent resistance to dirt, water and pressure.

Ground Plane Independent
Antennas with this symbol are ground plane independent and as such do not need a ground plane to operate.

MiMo
Meaning 'Multiple Input Multiple Output, antennas with this symbol have two or more inputs and outputs of a particular feed.

GPS Satellite Navigation
Our GPS antennas feature a high-performance GPS element that provides reliable signal, utilising GPS, GLONASS, Gallileo and BeiDou.

InBuilding
These antennas are designed to be used on or inside buildings in order to provide network coverage.

Public Safety
Ideal for use in critical communication environment, these antennas are available for a range of frequencies and applications.

Transport
These specialist antennas are developed to exacting standards in order to withstand the toughest conditions on or in a vehicle.

Utility
For creating and extending a network service in challenging environments, these utility antennas are reliable and high-performance.

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 9001-2008 certificate for quality assurance.

Patents

Panorama Antennas currently holds several 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 materials supplied to us as soon as they arrive at the factory, ensuring that noncompliant material is not 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 an 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 is committed to meeting REACH requirements and can provide information about substances in accordance with the requirements.

Associations

Panorama Antennas is currently a member of the following professional associations:

- *Federation of Communication Services*
- *TCCA TETRA Association*
- *British Safety Council*
- *British APCO*

RoHS COMPLIANT

The 'Great White' Range

2 x Wideband LTE/cellular elements
Optional integrated GPS antenna (LGMM[B] range)
Up to 3 x 2.4 & 4.9-6GHz WiFi/WiMAX elements
Magnetic version available

Ground Plane Independent

This antenna does not require a ground plane, and maintains a high level of performance even when mounted on a non-metallic surface.

GPS
Public Safety
Transport
Utility

LTE IP66 RATED GPI MiMo ● Black ○ White

The Panorama LGMM[B] and LPMM[B] low profile MiMo antenna range has been designed to support the new generation of vehicular LTE routers.

The antenna enclosure contains up to six isolated high performance antenna elements; two ultra-wideband elements covering 698-2700MHz and supporting MiMo/diversity at cellular/LTE frequencies, up to three optional dual band elements covering 2.4 & 4.9-6GHz supporting MiMo/diversity operation for WiFi and WiMAX. The LGMM[B] range also contains a GPS antenna with an integrated 26dB gain LNA with high performance filtering.

WINNER fcs
Winner - FCS Gerald David OBE Innovation in Business Radio Award 2014

2016 INTERNATIONAL TETRA AWARDS FINALIST

Standard Data

Electrical Data		
Frequency Range (MHz)		698-960, 1700-2700 (Cellular) 2400, 4900-6000 (WiFi / WLAN), 1575 (GPS)
Peak Gain: Isotropic		2.3dBi (698-960), 5dBi (1700-2700), 2dBi (2400/4900-6000)
Typical VSWR		< 2.5:1 (Cellular) < 2:1 (WiFi/WLAN)
Mechanical Data		
Dimensions (mm)	Height	62 (2.4"in)
	Diameter	176 (6.7"in)
Material		ASA & diecast aluminium
Mounting type		Panel Mount (standard) *Panel Extension Kit (LGMM-EXT), Magnetic Mount (LGMMM), Trunk Mount Kit (SAB-207)*
Ingress Protection		IP66 (EN 60529:1992)

Variants

	GPS	MiMo LTE (2x2)	MiMo WLAN (2x2)	MiMo WLAN (3x3)
LPMM[B]-7-27		●		
LPMM[B]-7-27-24-58		●	●	
LGMM[B]-7-27	●	●		
LGMM[B]-7-27-24-58	●	●	●	
LGMTM[B]-7-27-24-58	●	●		●

Accessories

Extension Collar
LGMM-EXT-R

No-hole Trunk Mount
SAB-207

Shark Fin MiMo Antenna

2x2 MiMo + GPS/GNSS + 2x2 WiFi
Shark fin housing
A single antenna means faster installation and decommission
Mounting boss for optional external whip

The GPSD range offers 2x2 MiMo antennas for 698-960/1710-2700MHz with active GPS/GLONASS (26dB LNA) and optional 2x2 MiMo WiFi 2.4/5.0GHz.

With a built in whip mounting boss the GPSD can also support a range of Panorama Antennas' whips.

Requiring only a single hole fixing, the GPSD reduces vehicle damage, visual impact and cost of installation, whilst protecting vehicle resale value.

Variants

	GPS	MiMo LTE (2x2)	MiMo WLAN (2x2)
GPSD-7-27	●	●	
GPSD-7-27-24-58	●	●	●

GLONASS
The GPSD features a GPS antenna that also supports GLONASS.

GPS
Public Safety
Transport
Utility

MiMo LTE

Standard Data

Part No.		GPSD (configure whip separately)
Frequency Range (MHz)		698-960, 1700-2700 (2 x Cellular)
		2300-2500, 4900-5000 (2 x WiFi - optional) + Optional Whip
		1562-1612 (GPS/GNSS)
Operational Bands		GPS / LTE / Cellular, WiFi / WiMAX
Max. Input Power		50 watts
Mechanical Data		
Dimensions (mm)	Height	50 (1.97")
	Length	170 (6.69")
	Width	60 (2.36")
Material		ASA
Mounting type		Panel mount

'The Sharkee®' Combination Antenna

All 4G, 3G & 2G cellular bands
Integrated GPS and 2.4/4.9-6GHz WiFi & WiMAX
Optional detachable whip element

GPS
Public Safety
Transport
Utility

The GPSB provides antenna functionsfor multiple technologies within one antenna housing. Trusted by public safety organisations, utilities and transportation companies all over the world, the GPSB sets the industry standard in functionality.

The GPSB offers three internal antenna systems, GPS, 4G/3G/2G cellular, dual-band WiFi/WiMAX as well as an optional external whip.

Requiring only a single hole fixing, the GPSB reduces vehicle damage, visual impact and cost of installation, whilst protecting vehicle resale value.

IP66 RATED

2015 TETRA AWARDS FINALIST

Standard Data

Part No.		GPSB (configure whip separately)
Frequency Range (MHz)		698-960, 1710-2170, 2500-2700 (Cellular), 2400, 4900-6000 (WLAN / WiFi) + Optional Whip 1575 (GPS)
Peak gain: Isotropic		1dBi (Cellular), 2dBi (WLAN/WiFi) 26dB (GPS)
Pattern		Omnidirectional
Mechanical Data		
Dimensions (mm)	Height	50 (2"in)
	Length	120 (4.72"in)
	Width	58 (2.3"in)
Ingress Protection		IP66

Configure Your Whip & Cable

Turn to page 59 to select a cable set and connectors for this product. To select a whip suitable for this combination base, please turn to pages 41-48.

Combination GPS/Whip

- Combined GPS and VHF, UHF or cellular whips
- Integrated GPS antenna
- Best seller
- Optional magnetic mount

The GPSK, GPSGK and GPSKM antenna ranges are dual function, high performance TETRA antennas with an active GPS element. The GPSGK is compatible with GPS, GLONASS and Beidou navigation systems

The GPSK & GPSGK bases are compatible with a range of Panorama whips depending on the application. 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 & GPSGK range makes them a popular choice for police, buses, taxis and other public service and utility vehicles.

GLONASS

The GPSK can be configured to work with the GLONASS navigation system.

GPS
Public Safety
Transport
Utility
IP65 RATED

Variants

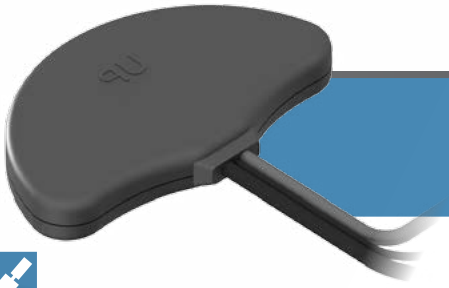
Part No.	Frequency (MHz)	Mount Type	Certification
GPSK-FF	1575	Panel Mount	E11 'E-Mark'
GPSGK-FF	1575-1610 (GLONASS)	Panel Mount	-
GPSKM	1575	Magnetic Mount	E11 'E-Mark'

Standard Data

Electrical data		
Peak Gain: LNA		26dB
Operating Voltage		3 - 5V DC (fed via coax)
Current		Typical 15mA
Mechanical		
Dimensions (mm)	Base Width	50mm (2.0")
	Base Height	18.5mm (0.7")
Operating Temp (°C)		-40°/+80°C (-40°/+176°F)
Material		High Impact U.V. Stable A.B.S
Ingress Protection		IP65

Configure Your Whip & Cable

Turn to page 59 to select a cable set and connectors for this product. To select a whip suitable for this combination base, please turn to pages 41-48.



‘The Stingray’ Combination Antenna

- Dashboard or windshield mount
- Cellular, WiFi and GPS/GNSS
- Suitable for M3 category vehicles (UNECE Reg 118)
- Available with SMA or FAKRA connectors

GPS
Public Safety
Transport
Utility

The GPSCO[F]-7-27-24-58 range of telematics antennas offer a “3 in 1” product for vehicle communications and telematics.The housing incorporates antennas for Cellular/LTE, Dual Band WiFi and GPS/GLONASS/BEIDOU with a 26dB gain LNA.

Meeting the requirements of UNECE Regulation R 118, the antenna is suitable for use in M3 Category vehicles (Transportation). The antenna housing is UV resistant and flame retardant, while the 3m length integrated coax cables are flame retardant, low smoke specification.

The antenna offers easy and quick installation on/under the dashboard or on the windshield using the supplied acrylic adhesive pad*

Standard Data

Part No.		
Frequency Range (MHz)		698-960, 1700-3800 (Cellular), 2400, 4900-6000 (WLAN / WiFi) 1562-1612 (GPS)
Peak gain: Isotropic		1.5dBi (890-960), 4.5dBi (1710-2170) 4.5dB (2500-3800), 6dBi (2.4GHz), 7dBi (4.9-6.0GHz)
Pattern		Omnidirectional
Max input power (W)		20
Mechanical Data		
Dimensions (mm)	Height	50 (2”in)
	Length	120 (4.72”in)
	Width	58 (2.3”in)
Ingress Protection		IP66

Select Your Cables

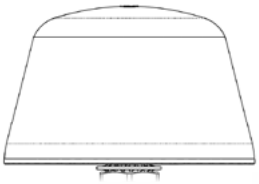
Turn to page 59 to select a cable set and connectors for this product. Panorama’s wide range of adaptor cables means that it’s simple to get the right termination for any antenna application.

‘The Fez’ Combination Antenna

Ground plane independent
Wideband LTE/cellular element
2.4 & 4.9-6 GHz WiFi/WiMAX element (Optional)
Integrated GPS antenna (Optional)

The LG[P]E antenna series is a range of low profile antennas incorporating a combination of wideband cellular element covering 2G, 3G and 4G frequencies along with an active GPS patch with 26dB LNA gain and a dual band WiFi element all in a robust compact housing.

Designed to be tough yet cost effective, the antennas are completely enclosed in a moulded housing made from weather and impact resistant plastic. The range is supplied with short fly leads and can be kitted with Panorama Antennas’ low loss extension cables in various lengths.



GPS
Public Safety
Transport
Utility

IP66 RATED GPI MiMo LTE

Ground Plane Independent

This antenna does not require a ground plane, and maintains a high level of performance even when mounted on a non-metallic surface.

Standard Data

Part No.		
Frequency Range (MHz)		698-960, 1700-2700 (Cellular), 2300-2500, 4900-6000 GHz (WiFi), 1575 (GPS)
Operational Bands		GPS / LTE / Cellular, WiFi / WiMAX
Peak Gain: Isotropic		2dBi
Max input power		50 watts
Mechanical Data		
Dimensions (mm)	Height	70 (2.8”in)
	Diameter	111 (4.4”in)
Material		ASA
Mounting type		Panel mount
Ingress Protection		IP66

Variants

	GPS	LTE	WLAN	MiMo WLAN (2x2)
LPE-7-27		●		
LGE-7-27	●	●		
LGE-7-27-24-58	●	●	●	
LGEM-7-27-24-58	●	●		●

Select Your Cables

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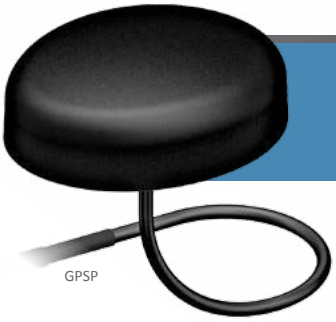
GPS Antennas



- Excellent performance
- Active GPS element
- Easy installation

GPS
Public Safety
Transport
Utility

Knowing the position of a vehicle is vital for fleet management and logistics planning. With a GPS antenna you can identify the position of a vehicle at any time.

The GPSP offers a permanent, panel mounted option, While the GPSME provides the convenience and flexibility of a temporary, no holes solution with a tough magnetic fixing.

The GPSSV is a unique velcro/sticky pad solution for temporary or covert installs.

GLONASS

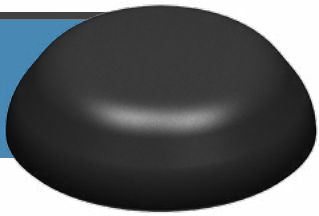
GPSME, GPSP and GPSSV models are available in GLONASS compatible versions upon request.

Standard Data

Part No.		GPSME	GPSP	GPSSV
Frequency Range (MHz)		1575		
VSWR		<1.5:1 @ 1575MHz ± 4MHz		
LNA Peak Gain		26dB		
Operating Voltage		3 - 5V DC (fed via coax)		
Current (Typical)		15mA		
Impedance		50Ω		
Mechanical Data				
Dimensions (mm)	Length	48.6 (1.9”)	60 (2.4”)	34.6 (1.36”)
	Width	39.2 (1.5”)	50 (2.0”)	34.6 (1.36”)
	Height	15.6 (0.6”)	18.5 (0.7”)	13.2 (0.5”)
Fixing		Magnetic Mount	Panel Mount	Adhesive pad/hook & loop
Mounting Hole Diameter (mm)		-	15 (0.6”)	-
Certification		-	E11 ‘E-Mark’ Approved	E11 ‘E-Mark’ Approved
Termination Data				
Type		RG174		
Terminations Available		FME/MCX/MMCX/SMA/SMB/SMC		

Low Profile Antenna

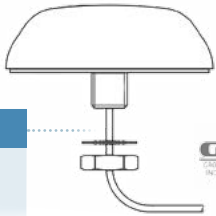
Rugged design for heavy duty applications
Easy installation
Ground plane Independent



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.

An excellent solution for demanding applications in transportation.

Available Colours:
- Black
- White



Ground Plane Independent

This antenna does not require a ground plane, and maintains a high level of performance even when mounted on a non-metallic surface.

iBwave
GPS
Public Safety
Transport
Utility
GPI
IP65 RATED

Variants

Non-GPS

Part No.	Freq. (MHz)
LP390	380-400
LP420	410-430
LP440	430-450
LP460	450-470
LPL-S5	806-870

GPS Variant

Part No.	Freq. (MHz)
LG390	380-400
LG420	410-430
LG440	430-450
LG460	450-470
LG-S5	806-870

Standard Data

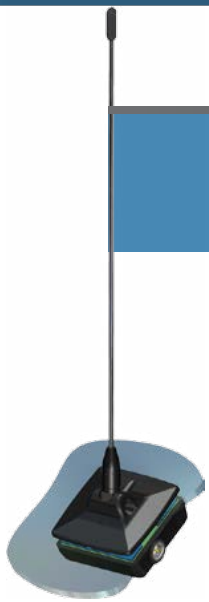
Electrical Data	
Peak Gain	0dBi
Impedance	50Ω
Max Input Power (W)	20
GPS Data	
Frequency (MHz)	1575
Gain: LNA	26dBi
Operating Voltage	3-5V DC (fed via coax)
Mechanical Data	
Certification	E11 'E-Mark' Approved
Operating Temp (°C)	-40°/+80°C (-40°/176°F)
Material	ASA
Ingress Protection	IP66

Configure Your Cable

Turn to page 59 to select a cable set and connectors for this product. Panorama's wide range of adaptor cables means that it's simple to get the right termination for any antenna application.

Glass Mount Antenna

- Excellent performance
- Solid state coupling
- No hole installation



Public Safety
Transport
Utility
IP65 RATED

The Panorama Glass Mount Antenna can be quickly and easily installed on a windscreen or rear window without making any holes or using any tools. The installed antenna will have a typical VSWR of 1:5:1.

The antenna couples capacitively through glass and its high positioning gives it the high performance and near omni-directional radiating pattern of a roof-mounted ¼ wave.

This antenna can be easily removed for the car wash and if you wish to transfer the assembly to another vehicle, the coupling box and mounting foot can be removed without damage, leaving the glass in its original state.

Standard Data

Electrical Data		
Peak Gain: Isotropic		2dBi
Max Input Power (W)		20
Mechanical Data		
Fixing		External glass mount
Mounting Foot Dimensions	Length (mm)	50.4 (2”)
	Width (mm)	51.4 (2.1”)
Ingress Protection		IP65
Cable Data		
Cable Type		CS23
Diameter (mm)		5 (0.2”)
Length (m)		5 (15’)

Variants

Part No.	Freq. (MHz)
AOG143	138-148
AOG151	142-160
AOG161	156-174
GM-390	380-400
GM420	410-430
GM455	445-470
GM435	425-455
GMG-S5	806-870

Please contact a member of the Panorama sales team for information on high gain versions of this antenna.

Re-Installation Kit - KRV393

Use the KRV393 Re-Installation Kit to apply our glass mount antennas on to a new surface. This extends the life of the antenna to be used on multiple vehicles.

½ Wave Ground Plane Independent Antenna

Ground plane independent antenna
Flexible whip
Moulded coaxial cable
Suitable for vehicles or fixed site applications

The HM range of antennas are 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, boats or fixed sites.

The HM antenna range has a rugged design with a flexible nylon covered whip. The base features a moulded cable entry and an M14 mounting bolt.

HM Whip

This antenna can be purchased without the base - please ask for more details

Public Safety
Transport
Utility

Variants

Part No.	Freq. (MHz)
HM-S1	380-400
HM-S2	410-430
HM-TET	380-430
HM-433	430-440
HM-451	438-472

Part No.	Freq. (MHz)
HM-S4	450-470
HM-480	470-490
HM-495	480-510
HM-S5	806-870
HM-D	896-960

Standard Data

Electrical Data	
Peak Gain: Isotropic	4dBi
Impedance	50Ω
Max Input Power (W)	5 (20 for some variants)
Mechanical Data	
Material	Nylon
Base Diameter (mm)	35 (1.4”)
Fixing	Panel mount
Mounting hole diameter	15 (0.6”)
Cable Data	
Cable	CS23 (RG58 C/U)
Terminations Available	BNC / TNC / FME / Bare End

GPS
Public Safety
Transport

UHF Marine Antenna

- Ratchet or deck mount option
- Various UHF frequencies
- Constructed from marine grade materials
- Optional GPS element

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

This antenna can be supplied as a stand alone UHF antenna or a GPS/UHF combination type with a 26dB gain low noise GPS antenna, offering a simpler and quicker installation for the customer.

This antenna will fit the standard 1”x14TPI marine mounting systems, Panorama offers both deck and ratchet mount solutions. We can also supply custom extension coaxial cable sets to meet the customer’s specific installation requirements

Variants

GPS Versions

Part No.	Freq. (MHz)
NA-S1-GPS	380-400
NA-S2-GPS	410-430
NA-440-GPS	430-450
NA-S4-GPS	450-470
NA-S5-GPS	806-870

Non-GPS Versions

Part No.	Freq. (MHz)
NA-S1	380-400
NA-S2	410-430
NA-440	430-450
NA-S4	450-470
NA-S5	806-870

Ratchet Mount NDRS-SL

Constructed from polished stainless steel, Panorama’s NDRS-SL Ratchet Mount is designed to endure the harshest marine environments.

Electrical Data		
Peak Gain: Isotropic		5dBi
Pattern		Omni-directional
Max Input Power (W)		25
Mechanical Data		
Dimensions (mm)	Length	620 (24.4”)
	Diameter	30 (1.2”)
Material		Fibre glass & stainless steel
GPS Data		
Frequency Range (MHz)		1575
GPS Gain		26dB

Heavy Duty Transit Antenna

Standard four hole rail fixing
Wideband UHF element
Optional Integrated GPS / GNSS element
Fully rail industry approved

The TRNC(G) antenna series has been designed specifically for use on trains, trams and buses underground or over ground.

The TRNC(G)-7-60 range covers 698-960/1710-6000MHz and the TRNC(G)-TET range covers 380-430MHz UHF. Both versions are available with an optional GPS/GNSS element with a 26dB LNA. The radiating element is DC grounded and, in versions with a GPS module it is protected by a gas discharge surge arrestor.

Housed in a high impact, flame retardant Ultem housing, the TRNC(G) series is weatherproof ensuring that the antenna's performance is never compromised.

Variants

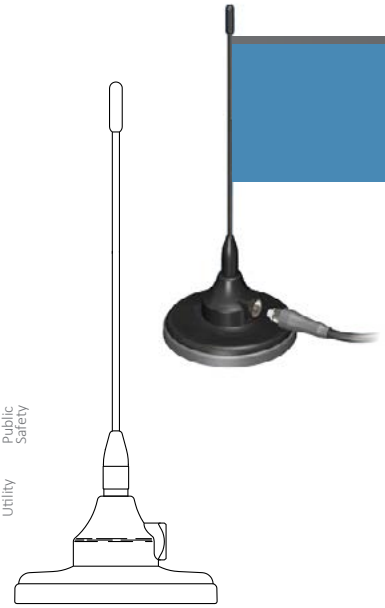
Part No.	Freq. (MHz)	GPS
TRNC-7-60	698-960/1710-6000	
TRNCG-7-60	698-960/1710-6000	•
TRNC-TET	380-430	
TRNCG-TET	380-430	•

GPS
Transport

Standard Data

Electrical Data		
Peak gain: Isotropic		5dBi
Pattern		Omnidirectional
Max Input Power (W)		60
Mechanical Data		
Dimensions (mm)	Height	110(4.3")
	Width	87 (3.4")
	Length	260 (10.2")
Radome Material		Ultem 1000
Base Material		Cast Aluminium
Mounting Type		4 x mounting holes to suit M12 bolts
Operating Temperature (°C)		-40 / +80°C (-40° / +176°F)
Radome Flame Retardance		V0 (UL94)
Termination Data		
Comms		N (female) - DC grounded
GPS		TNC (female) - surge protected
Approval Certificates		EN50155:2007 / EN61373:2010 / EN45545:2013

Magnetic Antenna



Public Safety

Utility

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 retain the antenna to the roof or boot but will leave no evidence it was ever there once repositioned or removed.

Available in all standard VHF and UHF bands, as well as customer-specific frequencies.

Variants

Part No.	Freq. (MHz)
MD146-5	141-151
MD-161-5	156-164
MD168-5	162-174
MD390-5	380-400

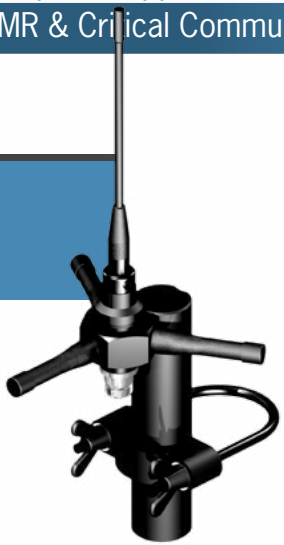
Part No.	Freq. (MHz)
MD420-5	410-430
MD-TET-5	380-430
MD-451-5	430-472
MD-S5-5	806-870

Standard Data

Electrical Data	
Peak Gain: Isotropic	2dBi
Compared to ¼ wave	0dB
Bandwidth @ 2:1 VSWR	10%
Polarisation	Vertical
Pattern	Omni-directional
Impedance	50Ω
Max Input Power (W)	50
Mechanical Data	
Operating Temp (°C)	-40° / +80°C (-40°/ 176°F)
Colour	Black

Base Station Antenna

Mast mount
VHF, UHF and multiband versions
Ideal for fixed radio terminal applications
Quick assembly



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 body to carry the radials and a moulded insulator for the radiator. The whip element is plastic coated for weather proofing and durability.

iBwave*
Public Safety
Utility

Variants

VHF Versions

Part No.	Freq. (MHz)	Peak Gain: Isotropic
BSV-E3	67-74	2dBi
BSV-E4	74-81	2dBi
BSV-E5	81-88	2dBi
BSV-H3	132-143	2dBi
BSV-H4	141-151	2dBi
BSV-H5	149-159	2dBi
BSV-H6	156-162	2dBi
BSV-H7	162-174	2dBi

UHF Versions

Part No.	Freq. (MHz)	Peak Gain: Isotropic
BSU-TET	380-430	2dBi
BSU-TETG5	380-430	5dBi
BSU-UT	406-472	2dBi
BSU-U	430-472	2dBi
BSU-S4	450-470	2dBi
BSU-W	470-512	2dBi
BS800	804-870	5dBi

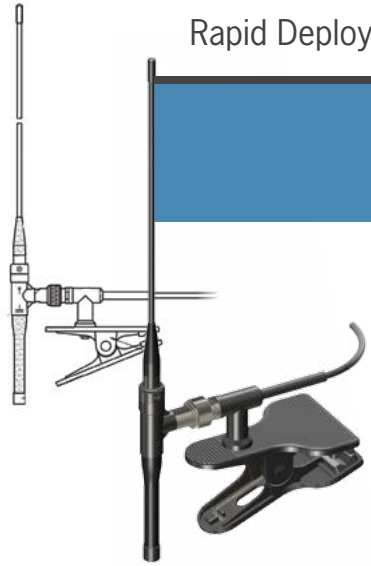
Tri-band Versions

Part No.	Frequencies (MHz)	Peak Gain: Isotropic
BSV-155-S4-821	145-174/420-480/764-894	2dBi
BSV-155-U1-B1	150-160/410-470/746-806	2dBi
BSV-155-U1-S1	150-160/410-470/806-870	2dBi

Standard Data

Electrical Data	
Peak Gain: Isotropic	2dBi
Pattern	Omni-directional
Max Input Power (W)	100
Mounting Data	
Max mast diameter (mm)	50 (1.97")
Connector	'N' Socket

Rapid Deployment Clip Dipole (CDV/CDU Series)



- Rugged construction
- Fast installation
- Moulded in coaxial cable

The 'Clip Dipole' range is designed for quick and easy assembly and installation on remote sites. It is used by the police and ambulance services when operating from remote venues, such as a public event or sports event.

Public Safety

Utility

Variants

Part No.	Freq. (MHz)
CDV-E3	67-74
CDV-E4	74-81
CDV-E5	81-88
CDV-H3	132-143
CDV-H4	141-151
CDV-H5	149-159

Part No.	Freq. (MHz)
CDV-H6	156-162
CDV-H7	162-174
CDV-JRC	139-157
CDV-K5	174-192
CDV-K6	192-208
CDV-K7	208-225

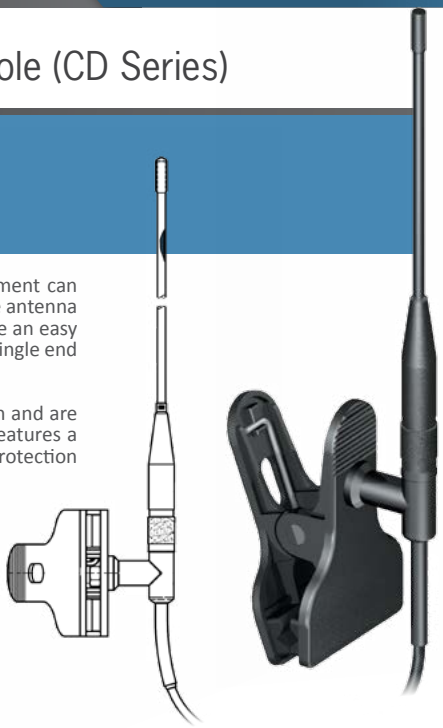
Part No.	Freq. (MHz)
CDV-M	245-275
CDV-N	270-300
CDV-P	300-336
CDV-R	330-366
CDU-S1	380-400
CDU-S2	410-430

Part No.	Freq. (MHz)
CDU-TET	380-430
CDU-U1	410-470
CDU-U2	450-512
CDU-U	430-472
CDU-T2	420-456

Electrical Data	
Peak Gain: Isotropic	2dBi
Compared to ¼ wave	0dB
VSWR	<2.2:1
Polarisation	Vertical
Pattern	Omni-directional
Impedance	50Ω
Max Input Power (W)	50
Mechanical Data	
Operating Temp (°C)	-40°/+80°C (-40°/176°F)
Colour	Black

Rapid Deployment Clip Dipole (CD Series)

Groundplane independent antenna
Fast 'clip on' installation
Moulded coaxial cable



The performance and scope of portable equipment can often be considerably improved by elevating the antenna to a more effective height. Clip antennas provide an easy way to do this. The CD series features a rugged single end fed ½ wave element.

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

Public Safety
Utility

Variants

Part No.	Freq. (MHz)
CD390	380-400
CD420	410-430
CD433	430-450
CD458	445-470
CD800	806-870
CD900	870-960

Standard Data

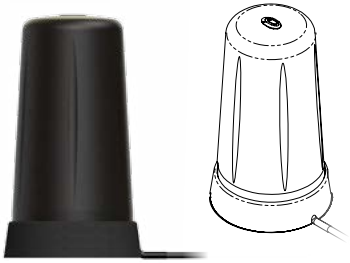
Electrical Data	
Peak Gain: Isotropic	3dBi
Compared to ¼ wave	1dB
VSWR	<2.2:1
Polarisation	Vertical
Pattern	Omni-directional
Impedance	50Ω
Max Input Power (W)	20
Mechanical Data	
Operating Temp (°C)	-40° / +80°C (-40°/ 176°F)
Colour	Black

Low Profile Cellular LTE

- Improves range
- Easy installation
- Lightweight solution

The Panorama LPB low profile antenna range has been designed to perform in any environment. At only 82mm (3.22") high and in a robust high impact radome, the antenna is almost impervious to daily wear, tear and impact.

The LPB offers excellent performance across a wide bandwidth. Mounted on a 400 x 400mm (15.75" x 15.75") ground plane, it covers LTE and global cellular bands in the ranges of 698-960 MHz and 1710-2700MHz, making it an extremely versatile product.


Magnetic Mount

Variants

Panel Mount

Part No.	Termination	Cable Length
LPB-7-27-05SP	SMA Plug	0.5 (19.6")
LPB-7-27-5SP	SMA Plug	5 (16'5")
LPB-7-27-5F	FME Jack	5 (16'5")

Magnetic Mount

Part No.	Termination	Cable Length
LPBEM-7-27-2SP	SMA Plug	0.5 (19.6")
LPBEM-7-27-2F	SMA Plug	5 (16'5")

Standard Data

Part No.		
Frequency (MHz)		698-960 / 1710-2170
Peak Gain: Isotropic		3dBi (700/800) 4dBi (900/1800) 5dBi (1900/2100/2400/2600)
Pattern		Omnidirectional
Mechanical Data		
Dimensions (mm)	Height	82 (3.2')
	Width	48 (1.9')
Material		High-impact UV stable ABS
Mounting Type		Automotive industry grade adhesive pad
Ingress Protection		IP66

On Glass Cellular LTE

700 MHz LTE, Quadband Cellular, 3G UMTS, AWS
LTE / WiMAX 2.6 GHz
Discreet adhesive pad fitment
Suitable for mounting to plastic or glass

EF-BC3G-26 is a highly efficient window mount 4G / 3G /2G antenna for discreet or covert installations. The antenna is easily positioned on a vehicle windscreen using the supplied automotive industry grade adhesive pad. The antenna can be installed on a non-metallic panel if required and is constructed from weather resistant plastic, making it suitable for installation in semi-exposed scenarios.

The antenna covers the full range of LTE & cellular 4G frequencies globally.

Public Safety
Transport
Utility
LTE

Variants

Part No.	Termination
EF-BC3G-26-3SP	SMA Plug
EF-BC3G-26-3FAKRAD	FAKRA D Jack

Standard Data

Part No.		
Frequency (MHz)		698-960 / 1710-2170 / 2396-2700
Operational Bands		LTE 700, GSM 850, CDMA 850, GSM 900, GSM 1800, PCS 1900, 3G UMTS, AWS, LTE / WiMAX
Peak Gain: Isotropic		2dBi
Max Input Power (W)		25
Mechanical Data		
Dimensions (mm)	Height	131 (5.2”)
	Width	21.7 (0.9”)
Material		ASA
Mounting Type		Automotive industry grade adhesive pad
Cable Data		
Type		RG174
Length (m)		3 (10’)
Diameter (mm)		5 (0.2’)

2x2 or 3x3 MiMo WiFi Antenna

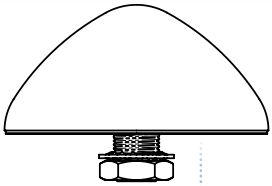
- Rugged low profile design
- Ground plane independent
- Optional GPS version (2 x 2 MiMo only)

With either two or three omni-directional dual band WiFi elements in a single housing, the LPM /LGM series is an ideal solution for WiFi modems and routers that require MiMo connectivity.

Each element covers both the 2.4GHz and 5GHz bands. Supplied with short fly leads, the LPM/LGM series is easy to install.

GPS
Public Safety
Transport
Utility

GPI GROUND PLANE INDEPENDENT MiMo



Ground Plane Independent

This antenna does not require a ground plane, and maintains a high level of performance even when mounted on a non-metallic surface.

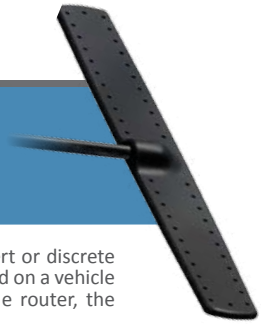
Variants

	GPS	2 x 2 WLAN	3 x 3 WLAN
LPM2-24-58		•	
LPM3-24-58			•
LGM2-24-58	•	•	

Standard Data

Electrical Data		
Frequency (MHz)		2400 / 4900-6000 (2.4GHz WiFi / 4.9GHz WIMAX / 5.8 GHz WiFi)
		1562 (GPS)
Peak Gain: Isotropic		2dBi (individual elements)
Pattern		Omni-directional
Max Input Power (W)		25 watts
Mechanical Data		
Operating Temp (°C)	Height	50 (1.97")
	Diameter	102 (4")
Material		ABS
Mounting type		Panel mount

Internal On Glass WiFi Antenna



Compact dipole antenna
Flexible moulded design
Integral sealed coaxial cable

Public Safety
Transport
Utility

The EF-W24 range of antennas is a flexible dipole type, suitable for covert or discrete installations. The antenna is supplied with an adhesive pad and can be fixed on a vehicle window glass or plastic trim panel. Ideal for connection to an in-vehicle router, the antenna can provide a 2.4GHz wireless hot spot function.

Using two of these antennas, with the correct minimum spacing, can provide an effective MiMo antenna system. The antenna is supplied with a reverse polarity SMA plug as standard, to suit most router devices. A version with standard SMA plug is also available.

Part No.	EF-W24
Frequency (MHz)	2400-2485
Operational Bands	2.4 GHz WiMAX
Peak Gain	0dBd (Unity)
Impedance	50Ω
Max. Input Power (W)	10
Mechanical Data	
Material	TPE
Termination	SMA Rev. Pol.

WiFi 'Paddle' Terminal Antenna

Dual Band 2.4 / 5.0GHz
Suitable for routers and terminals
Articulated connector

Public Safety
Transport
Utility

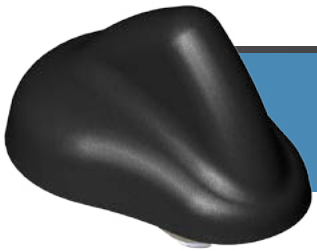
The PWB-24-58 antenna is a ground plane independent antenna covering 2.4 / 5.0GHz. Designed for distributing signal from WiFi terminals and routers, the PWB-24-58 offers an articulated connector for flexible positioning and a sleek profile for low visual impact.

Part No.	EF-W24
Frequency (MHz)	2400-2485
Operational Bands	2.4 GHz WiMAX
Peak Gain	0dBd (Unity)
Impedance	50Ω
Max. Input Power (W)	10
Mechanical Data	
Material	TPE
Termination	SMA Rev. Pol.

Variants

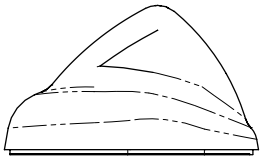
Part No.	Termination
PWB-24-58-RSMAP	SMA Plug
PWB-24-58-RSMARV	SMA Plug (Rev. Pol.)

Compact Dual Band WiFi Antenna



- Compact, stylish shape
- Covers 2.4 & 5GHz for WiFi/WLAN
- Optional GPS version

GPS
Public Safety
Transport



The GPSF-24-58 is a dual function, compact 'fin' stlye antenna offering 2.4GHz / 5GHz WiFi coverage along with an active GPS element, all within one housing.

The FIN-24-58 features the same compact housing and dualband WiFi function but without GPS.

The antenna only requires a single hole for mounting and is installed 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 logistics and fleet vehicles.

Variants

	WiFi	GPS
GPSF-24-58	●	●
FIN-24-58	●	

Ground Plane Independent

This antenna does not require a ground plane, and maintains a high level of performance even when mounted on a non-metallic surface.

Standard Data

Electrical Data	
Frequency Range (MHz)	2400 / 4900-6000 (WiFi)
	1575 (GPS)
Gain: Isotropic	2dBi
Impedance	50Ω
Pattern	Omni-directional
Impedance	50Ω
Max Input Power (W)	50
Mechanical Data	
Operating Temp (°C)	-40° / +80°C (-40°/ 176°F)
Colour	Black

Dual Band WiFi Panel Antenna

High gain directional antenna
Covers 2.4 & 5GHz for WiFi/WLAN
Ideal WiFi coverage extender

This mini panel antenna is a dual band WiFi antenna covering 2.4 & 5GHz. The antenna can be used internally or externally and has 60° beam width in both azimuth and elevation planes.

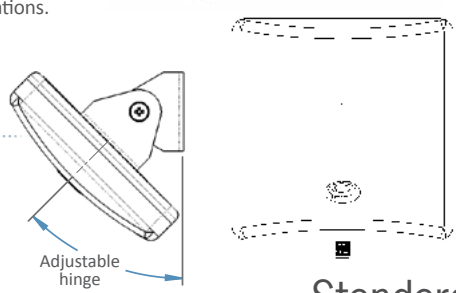
The antenna is supplied with a 90 degree adjustable angle bracket to give optimal mounting flexibility.

Ideal for use with a WiFi router, the W24-58-CP-9 is a cost effective solution for in- building or vehicle applications.

Public Safety
Utility
Transport

Adjustable Hinge Bracket

The W24-58-CP-9 comes supplied with a bracket that allows lateral adjustment to the installed angle of the antenna.

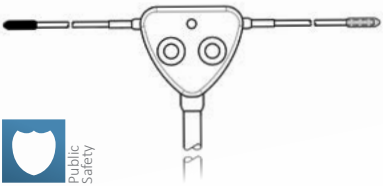


Standard Data

Electrical data		
Frequency Range		2400-2485 / 4900 - 6000
Operational Bands		2.4GHz / 5GHz WLAN
Current		9dBi
3dB Beamwidth	Azimuth 2.4GHz	60°
	Azimuth 5GHz	90°
Max Input Power (W)		50
Mechanical Data		
Dimensions (mm)	Width	93 (3.6”)
	Height	93 (3.6”)
	Depth	25 (1”)
Operating Temp (°C)		-30°/+80°C (-40°/+176°F)
Material		Geloy PC/ASA & die cast aluminium

Dipole Antenna

Dipole construction
Covert bumper mounting
Flexible wire elements for easy positioning



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

This specialist antenna is available in versions for VHF of UHF bands and requires tuning during installation to achieve optimal VSWR match. The antenna feed incorporates a 'Bazooka' balun to improve the frequency stability.

Variants

Part No.	Frequency (MHz)
VCD-VL-5F	68-88
VCD-VH-5F	130-175
VCD-S1-5F	380-400
VCD-S2-5F	410-430
VCD-S4-5F	450-470

Standard Data

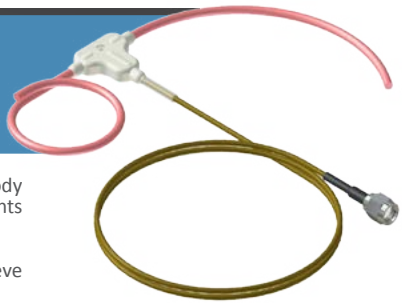
Electrical Data	
Peak Gain	2dBi
Compared to ¼ wave	0dB
Ground plane	Not required
Impedance	50Ω
Max Input Power (W)	100

Configure Your Cable

Turn to page 59 to select a cable set and connectors for this product. Panorama's wide range of adaptor cables means that it's simple to get the right termination for any antenna application.

Bodyworn Dipole

- Dipole antenna
- Tuning optimised to individuals body
- Flexible wire elements
- Features fully molded T-piece



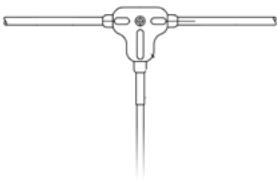
This antenna can be incorporated in clothing or body armour/stab vests and should be oriented with elements on a vertical plane.

Once in position, the antenna can be tuned to achieve the optimum VSWR/match.

Variants

Part No.	Freq. (MHz)
BWDT-H3	132-143
BWDT-H4	141-151
BWDT-H5	149-159
BWDT-H6	156-162
BWDT-H7	162-174
BWDT-TET	380-430

Part No.	Freq. (MHz)
BWDT-T2	156-162
BWDT-S4	162-174
BWDT-495	139-157
BWDT-815	174-192
BWDT-24	192-208

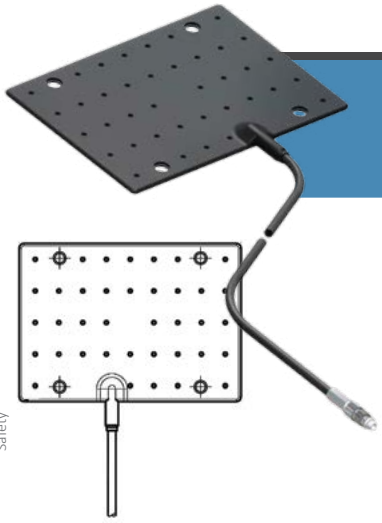


Public Safety

Standard Data

Electrical Data	
Peak Gain	2dBi
Impedance	50Ω
Max Input Power (W)	10
Mechanical Data	
Operating Temp (°C)	-40°/+80°C (-40°/176°F)
Material	Grey TPE
Colour	Grey
Antenna Elements	
Type	Multistrand copper wires
Colour	Pink
Termination Data	
Connector	Various available on request

Bumper Antenna



Public Safety

Transport

- Fully covert application
- Mounted behind plastic bumper
- Flexible construction
- Does not require any tuning

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.

For optimum performance two bumper antennas can be used, one at the front of the vehicle and one at the rear, to help create a more omni-directional pattern around the vehicle and enable better network coverage. The BMP2 kits come complete with a power divider and 2 bumper mount antennas.

Standard Data

Electrical Data		
Peak Gain: Isotropic		Vary on installation
Bandwidth @ 2:1 VSWR		10%
Pattern		Omni-directional
Max Input Power (W)		25 (5 for BMP2)
Mechanical Data		
Operating Temp (°C)		-40°/+80°C (-40°/+175°F)
Material		TPE
Dimensions (mm)	Length	140 (5.5")
	Width	100 (3.9")
	Diameter	4 (0.1") (including adhesive pad)
Fixing		Adhesive pad & 4 × fixing holes
Termination Data		
Connector		FME socket/BNC

Variants

Part No.	Frequency (MHz)
BMP1-S1	380-400
BMP1-S2	410-430
BMP1-U	430-472
BMP1-S4	450-470
BMP1-7-27	700-2700

Dual Version

Part No.	Frequency (MHz)
BMP2-S1-DPD	380-400
BMP2-S2-DPD	410-430
BMP2-S4-DPD	450-470

BMP2-DPD

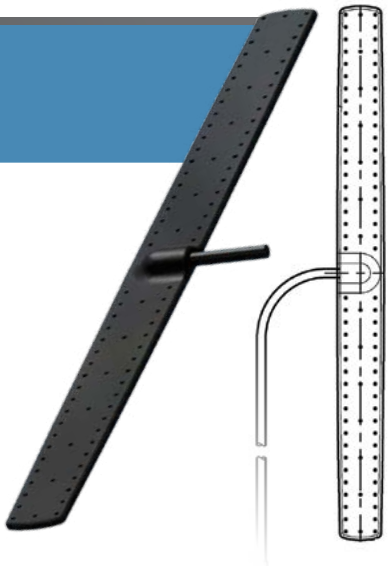
Combine two BMPs with a splitter to maximise coverage.

Internal On Glass Antenna

Semi covert window mount antenna
Install with no vehicle damage
Flexible moulding to allow fitting to curved glass

The EF 'easy fit' antennas provide an effective low-visibility 'no-hole' solution.

With their secure but easy to fit adhesive pad mountings, the EF antenna provide a huge range of possibilities for the installer and is ideal for temporary installation in short-term use vehicles.



Public Safety
Transport
Utility
IP65 RATED

Variants

Part No.	Freq. (MHz)
EF-S1	380-400
EF-S2	410-430
EF-S3	380-420
EF-S4	450-470

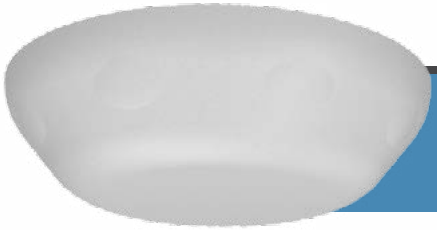
Part No.	Freq. (MHz)
EF-W	470-512
EF-S5	806-870
EFBAD	698-960

Standard Data

Electrical Data	
Peak Gain	2dBi
Impedance	50Ω
Max Input Power (W)	30
Mechanical Data	
Operating Temp (°C)	-40°/+80°C (-40°/176°F)
Material	TPE
Colour	Black
Ingress Protection	IP65
Termination Data	
Connector	Various available on request

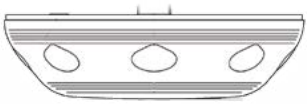
Configure Your Cable

Turn to page 59 to select a cable set and connectors for this product. Panorama's wide range of adaptor cables means that it's simple to get the right termination for any antenna application.



Ceiling Mount UHF Antenna

- Easy installation
- In building UHF coverage
- Suitable for airports and stadiums



The Panorama UHF ceiling antenna can be used to provide network coverage in large buildings for the emergency services. Used in airports, large campus sites and shopping centres the antenna can help to reduce holes in coverage and improve signal strength.

InBuilding
Public Safety

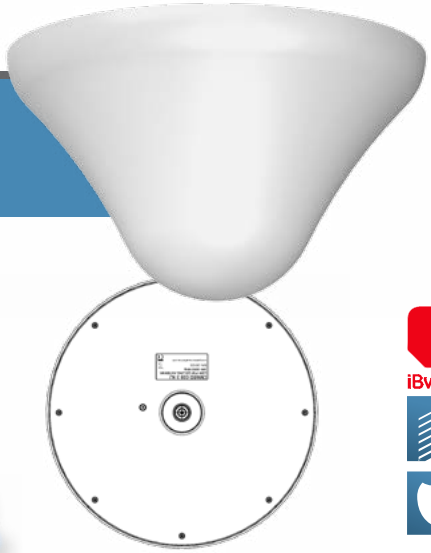
Variants

Part No.	Frequency (MHz)
CM-S1-08NJ	380-400
CM-S2-08NJ	410-430
CM-S4-03NJ	450-470

Standard Data

Electrical Data		
Gain: Isotropic		0dBi
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		25
Mechanical Data		
Dimensions (mm)	Height	42
	Width	160
Operating Temp (°C)		-40°/+80°C (-40°/176°F)
Material		ABS
Colour		White (RAL9010)
Mounting Data		
Fixing		Ceiling tile mounting
Mounting hole size (mm)		18
Cable Data		
Length (m)		0.8
Termination		N Socket

Ultra-wideband Ceiling Mount



- Discreet ceiling mount design
- Future-proof UHF and cellular coverage
- Flame retardant radome
- Low PIM

Panorama's CMWBD-038-3-NJ allows businesses and facilities to support multi-service / multi-operator wireless coverage. A wide range of services are supported from 380 MHz UHF to 6 GHz - including TETRA UHF, GSM900, AWS, Quadband GSM, 3G UMTS, 2.4 GHz WLAN, LTE & WiMAX etc.

This antenna provides DAS installers with a convenient 'one size fits all' soution.

Featuring PIMGuard™

This product features Panorama Antennas' PIM Guard Technology and will meet or exceed a third order intermodulation level of <-140 dBc (2 x 43 dBm)

PIMGUARD™ TECHNOLOGY

iBwave

InBuilding

Public Safety

Standard Data

Part No.		CMWBD-038-3-NJ
Frequency Range (MHz)		380-470, 698-960, 1710-6000
Operational Bands		UHF/2G/3G/4G/WLAN/WiMAX
Radiation pattern		Omnidirectional
Typical VSWR		< 2.5:1
Peak Gain		2dBi (698-960) 5dBi (1710-2170) 7dBi (2200-6000)
Typical Passive intermod. (2x20W, 3rd ord.) dBc+		<-140
Mechanical Data		
Dimensions (mm)	Height	150 (5.9")
	Diameter	266 (10.47")
Material		Geloy PC/ASA (chlorine and bromine free)
Mounting Data		
Fixing		N socket lock wheel
Diameter (mm)		6 (0.24")/16 (0.6")
Depth (mm)		41 (1.6")
Termination		N Socket

+Typical range PIM performance verified @ 1900MHz under controlled conditions by Anritsu PIM Master test equipment.

High-gain UHF Directional

8dBi peak gain
Directional panel antenna
Wall or mast mount

InBuilding
Public Safety
IP65 RATED

The WM8-TET is a directional panel antenna for UHF frequencies with a peak gain of 8dBi.

The heavy duty ASA radome is resistant to weathering and suitable for outdoor use in challenging environments. The enclosure is vented by a high performance GORE® gland which allows it to breathe while keeping moisture and contaminants out, further increasing service life.

Supplied with a multi-tilt wall and mast mount bracket the WM8-TET-NJ is perfect for inbuilding or light duty infrastructure applications.

Variants

Part No.	Frequency (MHz)
WM8-TET	380-450
WM8-U2	450-520

Circularly Polarised

Part No.	Frequency (MHz)	Polarisation
WM8RCP-TET-NJ	380-430	RHCP
WM8LCP-TET-NJ	380-430	LHCP

Standard Data

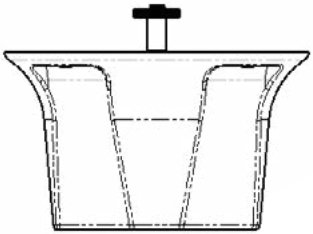
Electrical Data		
Peak Gain: Isotropic		8dBi
Compared to a dipole		6dB
Pattern		Directional
Impedance		50Ω
Max Input Power (W)		100
Mechanical Data		
Dimensions (mm)	Height	416 (16.37”)
	Width	416 (16.37”)
	Depth	60 (2.36”)
Materials		ASA & aluminium
Mounting Data		
Mounting type		Wall mount or mast mount
Termination Data		
Termination		N socket

VHF & UHF Combined Ceiling Mount

Covers VHF and UHF frequencies
Ceiling mount design
Low smoke halogen free flame retardant radome

Panorama's ceiling mounted solution is a dual band VHF/ UHF ceiling mounted antenna designed for short range inbuilding, DAS and network infill applications.

The antenna combines omni-directional VHF and UHF coverage in a single feed, minimising cable runs and allowing UHF radio systems to be integrated with existing VHF systems. The ceiling mount enclosure is weather-proof and constructed from flame retardant, low smoke, halogen free PC/ASA.



InBuilding
Public Safety

Variants

Part No.	Frequency (MHz)
CM-H7-TET-NJ	162-174 / 380-430
CM-H7-S4-NJ	162-174 / 450-470

Standard Data

Electrical Data		
Radiation pattern		Omni-directional
Peak Gain		-2dBi
Max input power (W)		50 Watts
Impedance		50Ω
Mechanical Data		
Dimensions (mm)	Height	155mm (6.1")
	Diameter	266mm (10.5")
Operating temp (°C)		-30° / +70°C (-22° /158°F)
Material		Geloy PC/ASA (meets UL746C f1)
Flame Retardance		UL94-V0 (chlorine and bromine free)
Mounting Data		
Termination		N Socket

Offset Dipole

Improves range
Easy installation
Light weight solution

The ODP wall mount antenna range is a simple and cost efficient way of providing a fixed antenna for terminals.

With 4 screw holes for mounting, the ODP is waterproof and can be fitted internally or externally.

iBwave*
InBuilding
Public Safety

Black
Grey

Variants

Part No.	Frequency (MHz)	Gain
ODP-H5	149-159	2dBi
ODP-H6	156-162	2dBi
ODP-H7	162-174	2dBi
ODP-TET	380-430	2dBi
ODP-433	410-450	2dBi
ODP-S4	450-470	2dBi
ODP-S1G6-4B	380-400	6dBi
ODP-S2G6-4B	410-430	6dBi
ODP-S4G6-4B	450-470	6dBi

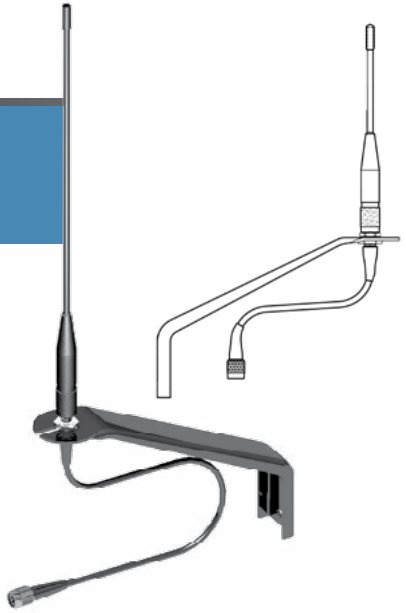
Standard Data

Electrical Data	
Polarisation	Vertical
Pattern	Omni directional
Impedance	50Ω
Max Input Power (W)	20
Mechanical	
Operating Temp (°C)	-40°/+80°C (-40°/176°F)
Material	Engineering plastic
Colours	Black / grey
Termination Data	
Cable/Connector	Various available on request

*Some variants listed

Bracket Mount

Used with fixed radio terminals
Improves range
Wall mount or mast mount options



The bracket mount antenna range is an easy to install solution, ideal for a fixed radio terminal in an office.

Emergency services often need a dispatcher radio and the BM range provides a simple and reliable solution for this application.

Variants

Part No.	Frequency (MHz)
BM390	380-400
BM420	410-430
BM451	430-472
BM460	450-470
BM-S5	806-872
BM900	890-960

Standard Data

Electrical Data		
Gain: Isotropic		4dBi
Pattern		Omni directional
Impedance		50Ω
Max Input Power (W)		5
Mechanical Data		
Dimensions (mm)	Total Length	555 (21.8”)
	Length of whip	420 (16.5”)
Operating Temp (°C)		-40°/+80°C (-40°/176°F)
Mast diameter range (mm)		50.8 / 32.0
Cable Data		
Type		CS23
Length (m)		4.5 (14’9”)
Diameter (mm)		5 (0.2’)
Cable/Connector		Various available on request

*Some variants listed

Modular Stud Mount Antenna Bases

The modular whip range are interchangeable and any whip will fit on any of the modular bases. This allows a high level of flexibility and a wide range of options to suit every application.

Permanent

M8/M8A

Panel mount for a simple hole installation. The design ensures that installations are secure and watertight.

Temporary

MMR

MBM

Damage free and fast installations for drive testing or rental vehicles. These bases provide an effective solution where drilling holes is not possible.

1/4 Wave | High Gain | Multi-band

M8 & M8A

Panel mount
Rugged design
Modular stud fitting
Interchangeable whips

Public Safety
Transport
Utility

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

The base is easy to fit and can be installed from above or below the panel. With the modular stud fitting, almost any antenna in the Panorama range can be fitted to the base.

Part No.		M8	M8A
Dimensions (mm)	Base Height	15 (0.6”)	15 (0.6”)
	Base Diameter	28 (1.1”)	28 (1.1”)
Operating Temp (°C)		-40°/+80°C (-40°/+175°F)	-40°/+80°C (-40°/+175°F)
Material		Nylon, stainless steel & nickel plated brass	Nylon, stainless steel & nickel plated brass
Cable Data			
Type		CS23 (RG58 C/U)	CS23 (RG58 C/U)
Diameter (mm)		5 (0.2”)	5 (0.2”)
Length (m)		4.8 (16’)	4.8 (16’)
Termination		Bare end	Bare end

MMR & MBM

Temporary mount
Rugged design
Modular stud fitting
Interchangeable whips

MBM

MMR

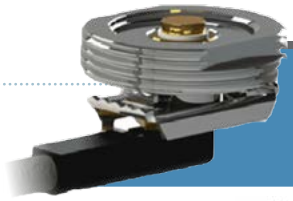
Public Safety
Transport
Utility

The MMR is large secure magnetic base for professional use that supports a full range of antenna whips. It features a fully moulded construction with high quality coaxial cable.

The MBM is a boot clip base designed for secure fixing.

Part No.		MMR-5	MBM
Dimensions (mm)	Base Height	40.2 (1.6”)	23 (0.9”)
	Base Diameter	102 (4.0”)	38 (1.5”)
	Base Length	-	42.5 (1.7”)
Material		Nylon & nickel plated brass	Nylon & nickel plated brass
Cable Data			
Type		CS23 (RG58 C/U)	CS23 (RG58 C/U)
Diameter (mm)		5 (0.2”)	5 (0.2”)
Length (m)		5 (16’)	5 (16’)
Termination		Bare End	Bare End

Panel Mount Base



Panel mount
Suitable for various whips
Stainless steel earthing teeth

SAB-181

The NMO fitting can be converted to Panorama modular stud with the SAB-181 accessory. This allows use with the full modular antenna range.

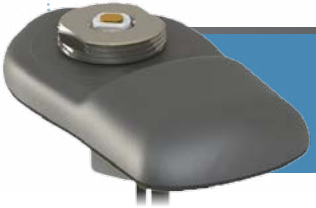
The Panorama 'NMO' 3/4 inch panel mount antenna base combines compatibility with NMO style antennas with rugged engineering and high quality construction.

This quality panel mount is made from nickel plated brass to resist corrosion, and the earthing teeth are stainless steel to provide excellent earthing with every installation.

Public Safety
Transport

Part No.		MNMOM-5	MNMOM-5F
Dimensions (mm)	Diameter	28 (1.1")	
	Height mounted	19 (0.75")	
Operating Temp (°C)		-40°/+80°C (-40°/+175°F)	
Material		Nylon, stainless steel & nickel plated brass	
Cable Data			
Type		CS23	CS23
Diameter (mm)		5 (0.2")	5 (0.2")
Length (m)		5.2 (17')	5.2 (17')
Termination		Bare end	FME (f)

Panel Mount Base With GPS



Panel mount
Rugged design
NMO fitting
Interchangeable whips

The GPSNMO is a GPS combination antenna that features a low-profile NMO mount and a high-performance GPS element with 26dB gain LNA.

This base fits on surfaces up to 6.5mm thick with a single hole.

GPS
Public Safety
Transport

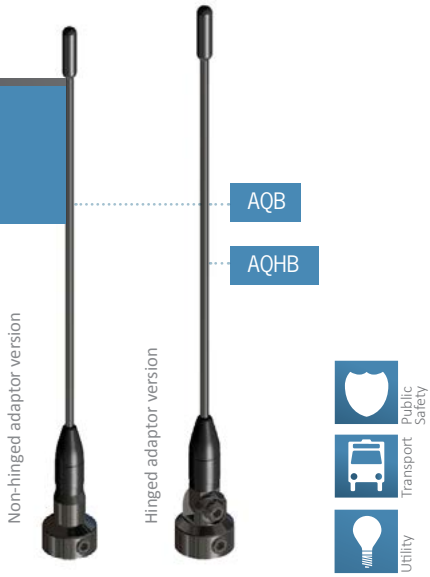
Part No.	GPSNMO
Frequency Range	130-2700 (dependent on whip)
Base Diameter	102 (4.0")
GPS Data	-
Frequency	1575
Gain: LNA	26dB
Termination Data	
Mounting Hole Size	19mm (3/4")
GPS Cable	SMA Plug
Comms Cable	Bare end

Rigid ¼ Wave Whip

1/4 wave whip
Removable for car wash
Hinged & non-hinged versions

The AQB & AQHB are Panorama's standard single frequency 1/4 wave rigid whips. These antennas feature a 17-7 PH stainless steel rod with a plated brass terminal protected by black nylon moulding.

The Panorama mounting system provides a high degree of interchangeability between whips and bases, making them suitable for all applications whether temporary or permanent. For use with all Panorama modular bases and available for VHF & UHF frequency bands.



Variants

Hinged Version

Part No.	Freq. (MHz)
AQHB-H4A	138-155
AQHB-H6A	155-174
AQHB-TET	380-430
AQHB-U	430-472
AQHB-W	470-512
AQHB-S5	806-870

Non-hinged Version

Part No.	Freq. (MHz)
AQB-H4A	138-155
AQB-H6A	155-174
AQB-TET	380-430
AQB-U	430-472
AQB-W	470-512
AQB-S5	806-870

Standard Data

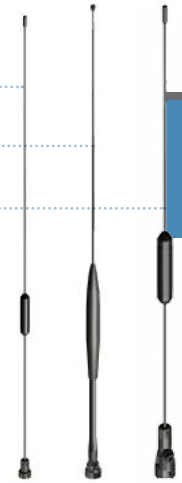
Electrical Data	
Peak Gain: Isotropic	2dBi
Compared to ¼ wave	0dB
Polarisation	Vertical
Pattern	Omni-directional
Impedance	50Ω
Max Input Power (W)	100
Mechanical Data	
Operating Temp (°C)	-40°/+80°C (-40°/+175°F)
Material	Stainless steel & nylon
Colour	Black

Configure Your Base

Turn to page 38 to select a compatible base for this product. Panorama's wide versatile range of bases mean that it's simple to get the right solution for any antenna application.

ACUB
A5GH
ACUHB

Public Safety
Transport
Utility



Colinear Gain Whips

High gain
Removable for car wash
Hinged & non-hinged versions

The A5G series is a broadband collinear antenna. the phasing coil is over-moulded to provide a rugged antenna for demanding applications.

The ACU series is a 7dBi gain antenna for use where network coverage is poor.

Both antennas are available is fixed or hinged versions.

Standard Data

Electrical Data	A5GH/A5GM	ACUB/ACUHB
Peak Gain: Isotropic	5dBi	7dBi
Compared to ¼ wave	3dB	5dB
VSWR	<2:1	
Polarisation	Vertical	
Pattern	Omni-directional	
Impedance	50Ω	
Max Input Power (W)	50	
Mechanical Data		
Operating Temp (°C)	-40°/+80°C (-40°/176°F)	
Material (coil)	Polyamide	
Material (whip)	17-7 Stainless steel	
Colour	Black	

Variants

Non-hinged

Part No.	Frequency (MHz)
A5GM-TET	380-430
A5GM-S4	450-470
ACUB-S1	380-400
ACUB-S2	410-430
ACUB-U	430-472
ACUB-460	450-470
ACUB-W	470-512

Hinged

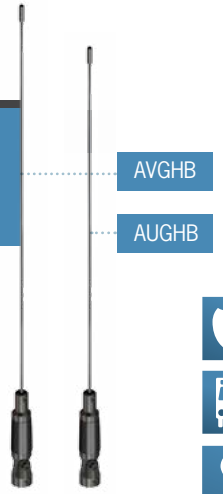
Part No.	Frequency (MHz)
A5GH-TET	380-430
A5GH-S4	450-470
ACUHB-S1	380-400
ACUHB-S2	410-430
ACUHB-U	430-472
ACUHB-460	450-470
ACUHB-W	470-512

Configure Your Base

Turn to page 38 to select a compatible base for this product. Panorama's wide versatile range of bases mean that it's simple to get the right solution for any antenna application.

Medium Gain Whips

Gain whips
Rugged construction
Hinged base and removable whip



Public Safety
Transport
Utility

The AVGHB/AUGHB range is a durable solution for vehicle installations requiring a medium gain antenna. The antennas feature a fully encapsulated impedance matching coil and a 17-7PH stainless steel whip.

The AVGHB & AUGHB ranges are compatible with the full range of Panorama Antennas modular bases and incorporates a hinge to enable vertical orientation.

Variants

Part No.	Frequency (MHz)	Peak Gain
AUGHB-S1	380-400	3.5dBi
AUGHB-S2	410-430	3.5dBi
AUGHB-TET	380-430	3.5dBi
AUGHB-U	430-472	3.5dBi
AUGHB-460	450-470	3.5dBi
AUGHB-W	470-512	3.5dBi

Part No.	Frequency (MHz)	Peak Gain
AVGHB-H4	141-151	5dBi
AVHGB-H5	149-159	5dBi
AVGHB-H6	156-162	5dBi
AVGHB-H7	162-174	5dBi

Standard Data

Electrical Data	
VSWR	<2:1
Polarisation	Vertical
Pattern	Omni-directional
Impedance	50Ω
Max Input Power (W)	50
Mechanical Data	
Operating Temp (°C)	-40°/+80°C (-40°/176°F)
Material (coil)	Polyamide
Material (whip)	17-7 Stainless steel
Colour	Black

VHF Wideband Antenna

Wideband VHF antenna

Shock mount base

Public Safety

Utility

The AVWB is a rugged wide band VHF antenna, suitable for users who operate over the full range of VHF frequencies.

The AVWB is compatible with all of the modular bases in the Panorama range.

Supplied with an integrated shock mount, the antenna is protected from impact and damage in low clearance situations.

Standard Data

Electrical Data		AVWB-SM-39-68
Frequency Range	VHF	138-169
Peak Gain	VHF	2dBi
VSWR		≤ 2.2:1
Maximum input power (W)		100
Mechanical Data		
Operating Temp (°C)		-40° / +80°C (-40° / +176°F)

Configure Your Base

Turn to page 38 to select a compatible base for this product. Panorama's wide versatile range of bases mean that it's simple to get the right solution for any antenna application.

3dB Gain Flexible Whips

OEM bee-sting style
High peak gain
Flexible overmoulded construction

The AFGB offers omni-directional performance with 5dBi peak gain. The antenna whip is styled like an OEM 'bee-sting' type antenna and is both discrete and durable featuring an overmoulded coil and stainless steel rod.

The antenna base is flexible for added damage resistance and can be mounted on a range of Panorama GPS combination bases such as the GPSB and GPSK - please see page 6 for more information on the GPSB and page 9 for the GPSK.

Public Safety
Transport
Utility

Variants

Part No.	Frequency (MHz)
AFGB-395	380-410
AFGB-S2	410-430
AFGB-S4	450-470

Part No.	Frequency (MHz)
AFGB-832	760-870
AFGB-B1	745-806
AFGB-S5	806-870

Standard Data

Electrical Data	
Peak Gain: Isotropic	5dBi*
Typical VSWR	< 2:1
Polarisation	Vertical
Pattern	Omni-directional
Impedance	50Ω
Max Input Power (W)	60
Mechanical Data	
Operating Temp (°C)	-40° / +80°C (-40° / 176°F)
Material	Stainless Steel & TPE
Termination	M6 x 0.75

* Peak gain of AFGB-832 = 4dBi

VHF ¼ Wave Flexible Whip

OEM bee-sting style
Wideband ¼ wave
Flexible overmoulded base

Public Safety
Transport
Utility

The AFBQ is a rugged VHF ¼ wave whip for use on GPSK & GPSB base types. This antenna whip is styled to resemble an OEM 'bee sting' type design and is both discrete and durable, featuring an overmoulded shock spring ans stainless steel rod.

Variants

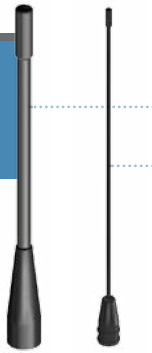
Part No.	Frequency (MHz)
AFBQ-H4A	138-155
AFBQ-H6A	155-174
AFBQ-H5	149-159
AFBQ-H7	162-174

Standard Data

Electrical Data	
Peak Gain: Isotropic	2dBi
Typical VSWR	< 2:1
Polarisation	Vertical
Pattern	Omni-directional
Impedance	50Ω
Max Input Power (W)	60
Mechanical Data	
Operating Temp (°C)	-40° / +80°C (-40° / 176°F)
Material	Stainless Steel & TPE
Fixing	M6 x 0.75

¼ Wave Flexible Whips

1/4 wave whip
Removable for car wash
Rugged, flexible design
Suitable for GPSK, GPSB and GPSKM bases



This antenna features a flexible construction within a black nylon tube. This provides damage resistance without compromising RF performance. The Panorama mounting system provides a high degree of interchangeability between whips and bases, making them suitable for all applications whether temporary or permanent.

Public Safety
Transport
Utility

Variants

Part No.	Frequency (MHz)
AFB-S1	380-400
AFB-S2	410-430
AFB-TET	380-430
AFB-U	430-472
AFB-UT	406-472
AFB-S4	450-470
AFB-W	470-520
AFM835	806-870

Part No.	Frequency (MHz)
AFNT-H4A	138-155
AFNT-H6A	155-174
AFNT-TET	380-430
AFNT-U430	450-470
AFNT-U2	450-512

Standard Data

Electrical Data	
Gain: Isotropic	2dBi
Compared to 1/4 wave	0dB
Polarisation	Vertical
Pattern	Omni-directional
Impedance	50Ω
Max Input Power (W)	100
Mechanical Data	
Operating Temp (°C)	-40° / +80°C (-40° / 176°F)
Fixing	M6 x 0.75 (GPSB, GPSD, GPSK & MAR bases)

Configure Your Base

Turn to page 38 to select a compatible base for this product. Panorama's wide versatile range of bases mean that it's simple to get the right solution for any antenna application.

Tri Band Whip

Tri band performance
Flexible rod with wound element
Fits Panorama GPS combination bases

This whip is stylish, discrete and durable, featuring a flexible overmoulded base section and a black jacketed flexible wound rod element.

This whip is designed to be mounted on the GPSB, GPSD and GPSK range of bases - please see the respective product pages in this catalogue for more information on these bases.

Public Safety
Utility

Variants

Part No.	Frequency (MHz)
ASFC-155-U2-B1	150-160 / 450-512 / 745-806
ASFC-155-U2-S5	150-160 / 450-512 / 806-876
ASF-155-S4-821	150-160 / 450-470 / 764-896
AS-H5-6-7-S1-440	148-174 / 380-400 / 430-450
AS-E4-TET	73-80 / 380-430

Standard Data

Electrical Data	
Peak Gain: Isotropic	2dBi
Typical VSWR	< 2:1 @ VHF / < 2.5:1 @ UHF / < 2:1 @ 800MHz
Polarisation	Vertical
Pattern	Omni-directional
Impedance	50Ω
Max Input Power (W)	60
Mechanical Data	
Operating Temp (°C)	-40° / +80°C (-40° / 176°F)
Material	Flexible TPU, FRP, EPDM
Colour	Black

VHF / UHF Diplexer

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

The Panorama VHF/UHF diplexer is housed in a compact, robust die cast case for reliability and easy mounting.

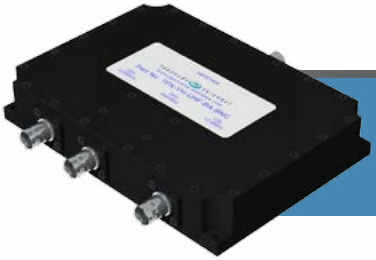
This Diplexer allows the Panorama dual band antenna to be used with 2 single band radios.

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

Public Safety

Standard Data

Electrical Data		DPX-210-270
Frequency Range (MHz)	VHF	50 - 210
	UHF	270 - 1000
Insertion Loss	VHF	< 1dB
	UHF	< 1dB
Min. port-to-port isolation		> 40dB
Maximum input power		100
Mechanical Data		
Dimensions (mm)	Length	100 (3.9”)
	Width	90 (3.5”)
	Height	20 (0.8”)
Operating Temp (°C)		-30°/+70°C (-22°/+158°F)
Material		Aluminium
Colour		Black
Termination		FME on all ports(male)
Mounting Data		
Fixing		4 × Mounting holes



VHF / UHF / 7-800MHz Triplexer

Use one antenna for 3 radios or vice versa
VHF, UHF, 7/800MHz
Low insertion loss, high port-to-port isolation

The Panorama triplexer, TPX-VH-UHF-BA-TNC can either combine the signals from three antennas to a single multiband radio or split the signal from a tri-band antenna to three separate radios. Each port provides a low insertion loss passband for the respective frequency range. The unit is available with TNC female connector type on each port

This compact unit requires no power and can easily be installed in the roof lining of any vehicle or mounted next to the radio.

Standard Data

Electrical Data		TPX-VH-UHF-BA-TNC
Frequency Range (MHz)	VHF	136-174
	UHF	380-520
	7/800	760-896
Insertion Loss	VHF	< 1dB
	UHF	< 1dB
	7/800	< 1dB
Isolation between ports		> 55dB
Maximum input power		150 Watts
Mechanical Data		
Dimensions (mm)	Length	140 (5.5”)
	Width	100 (3.94”)
	Thickness	25 (0.98”)
Operating Temp (°C)		-20° / +80°C (-4° / +175°F)
Material		Aluminium
Termination		TNC sockets on all ports
Mounting Data		
Fixing		4 × Mounting holes

VHF / UHF With 7-800MHz Diplexer

Use one antenna for 2 radios
Splits VHF & UHF from 7/800MHz & cellular
Easy to install

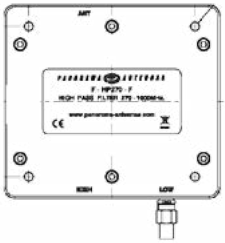
The DPX-500-700 offers the opportunity to utilise a single multiband antenna with two radios. This conserves valuable vehicle real estate and saves on antenna installation costs.

The diplexer has low loss characteristics and is perfect for splitting a single antenna to a VHF or UHF radio and a 7/800MHz radio.

The diplexer is compact enough to locate in a vehicle headliner and is fitted with FME (m) connectors.

Standard Data

Electrical Data		DPX-500-700
Frequency Range (MHz)	VHF / UHF	50 - 500
	700-2500MHz	700- 2500
Max. in-band insertion loss	VHF / UHF	< 0.75dB
	700-2500MHz	< 0.75dB
Min. alternate Band Rejection	VHF/UHF	>-40dB
	700-2500MHz	>-30dB
Min. port-to-port isolation		> 25dB
Maximum input power		50 Watts
Mechanical Data		
Dimensions (mm)	Length	91 (3.58”)
	Width	61 (2.4”)
	Height	14 (0.55”)
Operating temp (°C)		-30°/+70°C (-22°/+158°F)
Material		Aluminium
Termination		FME plugs on all ports
Mounting Data		
Fixing		4 × Mounting holes
Hole diameter (mm)		4 (0.16”)



F-HP270-F - High Pass Filter
F-LP210-F - Low Pass Filter

Low insertion loss

High out of band rejection

The F-HP270-F offers an ideal solution for protecting UHF transmitters from out of band interference. The F-HP270-F can be used with the F-LP210-F to protect co-located VHF / UHF systems from interfering with each other if this is a concern.

The filter has very low insertion loss characteristics combined with exceptional out of band rejection.

The filter is compact enough to locate in a vehicle headliner and is fitted with FME (m) connectors on all ports.

Standard Data

		F-LP210-F
Frequency pass range (MHz)		0-210
Max. in-band insertion loss		< 0.5dB
Min. out of band attenuation (dB)	270-1000MHz	> -30dB
	380-430MHz	> -60dB
Typical VSWR		<1.5:1
Maximum input power		50 Watts

		F-HP270-F
Frequency pass range (MHz)		270-1000
Max. in-band insertion loss	270-1000MHz	< 0.8dB
	380- 430MHz	< 0.2dB
Min. out of band attenuation (dB)	0-210MHz	> -45dB
	136-174MHz	> -60dB
Typical VSWR		<1.5:1
Maximum input power		50 Watts

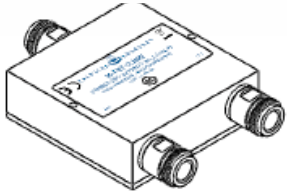
UHF Antenna Combiner

Combines two UHF radios on the same antenna
Combines two antennas on the same radio

When you can only fit one antenna on a vehicle, then this combiner is the solution providing > 26dB isolation over 380-430MHz with an antenna match at 1.2:1 and low insertion loss.

Technical Note:

The isolation provided by this device is dependent on the antenna VSWR. An antenna match of 1.5:1 VSWR will result in a reduction of isolation to 20dB. Higher VSWR on the antenna port will result in a further reduction in isolation between the TX ports. During operation extreme care should be taken to ensure that the VSWR of the antenna connected to the combiner does not exceed 1.5:1.



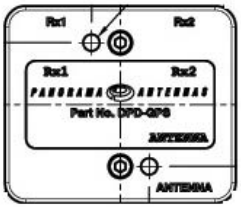
Standard Data

Part No		DBLC-TET-N
Frequency Range (MHz)		380-430
Split Loss		3dB
Insertion Loss		< 0.5dB
Isolation TX1 - TX2	≥ 26dB	VSWR of 1.1:1 at antenna port
	≥ 26dB	VSWR of 1.2:1 at antenna port
	≥ 20dB	VSWR of 1.5:1 at antenna port
VSWR at Tx1 / Tx2	< 1.5:1	VSWR of 1.5:1 at antenna port
Max input power (W)		20 per port
Mechanical Data		
Dimensions (mm)	Length	72 (2.83")
	Width	72(2.83")
	Height	23 (0.90")
Operating Temp (°C)		-40° / +80°C (-40° / 176°F)
Material		Aluminium
Termination		N sockets on all ports

GPS Splitter

Reduce installation costs

Run two GPS receivers from a single antenna



The Panorama DPD-GPS allows you to run two GPS receivers from a single antenna. The DPD-GPS splits the received signal from the antenna to two receivers while only allowing one of the receivers to feed voltage to the antenna ensuring that the antenna is able to function correctly.

The DPD-GPS is perfect for ensuring that both GPS receivers can use an optimally located antenna, thereby reducing clutter and installation costs.

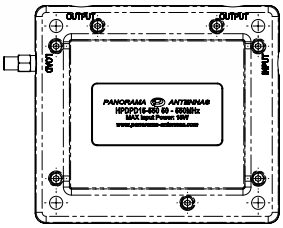
Standard Data

Part No.		DPD-GPS
Frequency Range (MHz)		1575
Insertion Loss		< 0.5dB
Isolation between GPS ports		> 15dB
Impedance		50Ω
Max input power		1W
DC Feed voltage		Fed via Rx1 Port
Mechanical Data		
Dimensions (mm)	Height	14 (0.5”)
	Length	47.8 (1.8”)
	Width	56 (2.2“)
Operating Temp (°C)		-30° / +80°C (-22° / 176°F)
Material		Aluminium
Connectors		FME plugs on all ports
DC Feed connector		FME plug

UHF Splitter

Optimise antenna performance

Connect two antennas to one radio



The HPDPD-550 series is a range of power dividers designed to split the power from a radio to distribute it to two separate antennas. Designed to support Panorama Antennas' covert VCD (VHF) and BMP (UHF) bumper / fender mount antennas the HPDPD-550 range comes in three variants for up to 15W, 60W and 150W input power respectively,

Covering a frequency range from 50-550MHz the HPDPD efficiently distributes power to two antennas with very low losses allowing users to distribute covert antennas at opposite ends of a vehicle to ensure maximal coverage.

Variants

Part No.	Max. Input Power
HPDPD15-550	15
HPDPD60-550	60
HPDPD150-550	150

Standard Data

Part No.		
Frequency Range (MHz)		50-550
Insertion Loss		< 0.5dB
Isolation between output ports		> 25dB
Impedance		50Ω
Mechanical Data		
Dimensions (mm)	Height	16 (0.6")
	Length	108 (4.2")
	Width	121 (4.7")
Operating Temp (°C)		-30° / +80°C (-22° / 176°F)
Material		Aluminium
Connectors		FME plugs on all ports

MTP850 Adapter

Remote antenna adaptor for Motorola MTP850 radio
Spring loaded contact pin
Sturdy quick release lock

A 'one of a kind product' the ADPT-85-05SJ is specifically designed for use with the Motorola MTP850 TETRA radio. With spring loaded contact pin and durable quick fit/ release feature, the ADPT is both simple to connect and reliable to use. Designed for use with any antennas from Panoramas' temporary, vehicle and body worn ranges the ADPT unlocks the full potential of the MTP850 radio for covert, surveillance and other tactical applications.

Note: The standard belt clip cannot be used in conjunction with this adaptor.

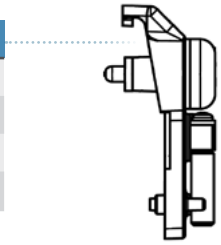
For Motorola MTP850

The ADPT-85-05SJ is for use with Motorola MTP850 series portable terminals.

Standard Data

Mechanical Data		MTP850
Dimensions (mm)	Height	47 (1.9")
	Width	30 (1.2")
	Depth	19 (0.7")
Operating Temp (°C)		-40° / +80°C
Material		PC/ABS
Colour		Black
Cable Data		
Type		RG316
Diameter (mm)		3 (0.12")
Length (m)		0.5 (1'7")
Termination		SMA Jack

Compatible Antennas
BWDT - Bodyworn Dipole (covert surveilance)
MD-TET - Magnetic Base TETRA Antenna (temporary vehicle)
EF Series - Covert TETRA Antenna (vehicle covert)
CD Series - Clip Dipole (temporary fixed)



Ultra-flexible UHF Antenna

- Radio specific ¼ wave whip
- Ultra-flexible multi strand wire whip
- Fully moulded connector
- Ideal for covert/bodyworn applications

This antenna features an ultra-flexible ¼ wave whip. Tuned to match the radio characteristics, it will provide consistent performance across the full operating frequency range.

The durable, ultra-flexiwire design with moulded connector makes it ideal for covert and body worn radio use.

Variants

Part No.	Compatability
SFQ-SRP2-TET	Sepura SRP/SRH
SFQ-MT8-TET	Motorola MTP850

Standard Data

Electrical Data		SFQ-MT8-TET
Frequency Range (MHz)		380-430
Gain: Isotropic		2dBi
Compared to ¼ wave		0dB
Bandwidth @ 2:1 VSWR		20%
Polarisation		Vertical
Pattern		Omni-directional
Impedance		50Ω
Max Input Power (W)		50
Mechanical Data		
Dimensions (mm)	Total Height	180 (7.1”)
	Height of Whip	11 (0.43”)
Operating Temp (°C)		-40° / +80°C (-40° / 176°F)
Material		Stainless steel & PVC
Colour		Black
Connector		MTP850

Portable Antennas

Panorama supplies portable antennas to many of the world's leading radio OEM manufacturers. This is due to our advanced design process, material selection and strict production control, to ensure that we supply accurately tuned and reliable products.

In addition to OEM supply, Panorama offers a comprehensive range of antennas for a wide range of portable radios, with differing connector types. As with our OEM products, the MFX, MXK,PXK helical and MQ UHF ¼ wave types are totally overmoulded in TPE or TPU thermoplastic.

Our other portable antennas feature a rugged Nylon moulding to secure the outer sleeve to the terminal. These features contribute to both the performance and the service life of the antenna.

Connector	Antenna
BNC	MXK, PXK, MVQ, MFX, MQ, MFXU
ICF4	XPK, MFX, MQ, MFXU
ICF5	PXK, MFX, MFXU, MQ
ICF9	MFX, MFXU, MQ
MX	MXK, PXK, MVQ, MFX, MQ, MFXU
MG	MXK, PXK, MVQ, MFX, MQ MFXU
MV	MXK, PXK, MVQ, MFX, MQ MFXU
PRP73	MXK, MFX, MFXU
SL100	PXK, MFX, MQ MFXU
SMAFR	PXK, MFX, MQ MFXU
SMAMO	MXK, MFX, MQ MFXU
TNC	MXK, PXK, MVQ, MFX, PUG, MQ MFXU
TNK	MXK, PXK, MVQ, MFX, MQ MFXU
TNM	MXK, PXK, MVQ, MFX, MQ MFXU
VX-410	PXK, MFX, MQ MFXU

Part No.	MXK	PXK	MFX	MFXU	MVQ	MQ	PUG
Description	moulded compressed helical	moulded compressed helical	moulded VHF helical	moulded UHF helical	moulded UHF quarterwave	moulded UHF quarterwave	UHF halfwave
Freq. (MHz)	67-88	141-225	141-366	330-512	141-336	330-512, 698-960	350-512
Length (inch)	7.68 @ 68MHz	3.25 @ 146MHz	6.69 @ 451MHz	2.84 @ 451MHz	19.69 @ 146MHz	6.14 @ 451MHz	13.39 @ 451MHz
Max Diameter (mm)	14	10	10	10	14	11	16

Cables

CS23 Type for VHF-UHF

Cable Data	
Impedance	50Ω
Attenuation (per 10m)	2.5 dB @ 400 MHz, 4 dB @ 1GHz, 5.8 dB @ 2GHz, 11 dB @ 6GHz
Outer Diameter (mm)	5 (0.2”in)

CS29 Type - for 4G LTE

Cable Data	
Impedance	50Ω
Attenuation (per 10m)	3dB @ 400 MHz, 5dB @ 1 GHz, 7.5dB @ 2 GHz
Outer Diameter (mm)	5 (0.2”in)

CS32 Type - for WiFi

Cable Data	
Impedance	50Ω
Attenuation (per 10m)	2.5dB @ 400 MHz, 4dB @ 1GHz, 5.8dB @ 2GHz, 11dB @ 6GHz
Outer Diameter (mm)	5 (0.2”in)

C74 Type - for GPS

Cable Data	
Impedance	50Ω
Attenuation (per 10m)	1.25 dB @ 1.575GHz
Outer Diameter (mm)	2.8 (0.1”in)

C240 Type - for 5m + extensions

Cable Data	
Impedance	50Ω
Attenuation (per 10m)	3.8 dB @ 2 GHz
Outer Diameter (mm)	6 (0.2”in)

C400 Type - for InBuilding

Cable Data	
Impedance	50Ω
Attenuation (per 10m)	1 dB @ 400 MHz, 1.4 dB @ 1 GHz, 2 dB @ 2GHz
Outer Diameter (mm)	10.29 (0.4”in)

Coaxial Adaptors

Part No.	CA-BP-FP	CA-FP-FP	CA-MP-FP
Termination 1	BNC Plug (male)	FME Plug (male)	Mini-UHF Plug (male)
Termination 2	FME Plug (male)	FME Plug (male)	FME Plug (male)

Part No.	CA-NP-FP	CA-PLP-FP	CA-SP-FP
Termination 1	N Plug (male)	PL259 Plug (male)	SMA Plug (male)
Termination 2	FME Plug (male)	FME Plug (male)	FME Plug (male)

Part No.	CA-TP-FP	CA-FJ-FJ
Termination 1	TNC Plug (male)	FME Jack (female)
Termination 2	FME Plug (male)	FME Jack (female)

Frequency Band Plan

VHF

UHF

Frequency (MHz)	Band
67-74	E3
74-81	E4
81-88	E5
132-143	H3
138-155	H4A
139-157	JRC
141-151	H4
149-159	H5
155-174	H6A
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
380-410	S1+
380-420	S3

UHF

SHF

Frequency (MHz)	Band
380-430	TET
390-432	T
400-430	T1
410-430	S2
410-470	U1
420-456	T2
430-472	U
450-470	S4
450-512	U2
470-512	W
500-520	W2
745-806	B1
806-870	S5
801-896	AMPS/CDMA850
872-960	GSM900
1575	GPS
1710-1882	GSM1800
1710-1755	AWS
1850-1990	PCS1900
1900-2170	UMTS
2100-2170	3G UMTS
2110-2155	AWS
2400-2470	BLUETOOTH/WLAN
2394-2696	WiMAX
4900-5800	WiMAX/WiFi

Important Waiver Information

All information and data in this catalogue is intended to provide an indication of the performance of our products under particular circumstances and none of it implies a guarantee of performance or fitness for any particular purpose.

We strongly encourage our customers to conduct their own tests in order to establish the appropriate product for any particular application.

All products should only be installed by a properly qualified installer familiar with appropriate local laws and regulations. We advise our customers to consult and comply with the appropriate Panorama Antennas installation instructions.

All specifications and product information in this catalogue are subject to change without notice.

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Panorama Antennas
PMR & Public Safety Catalogue

Panorama produces a wide range of tried and trusted antennas for PMR and public safety. Our antennas are used throughout the world by hundreds of public safety departments, NGOs and private users to deliver dependable performance when it is most needed.

Included in this catalogue:

- Multifunction Antennas
- GPS Antennas
- Special Application Antennas
- Cellular Antennas for Mobile Routers
- WiFi Antennas for Mobile Routers
- Covert Antennas
- InBuilding Antennas
- Modular Bases
- Modular Whips
- Combination Base Whips
- Accessories
- Portable Antennas
- Cables & Connectors

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