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# 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.



## 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.



## Utility

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



## M2M

Designed for machine-to-machine communication, these antennas provide are purpose-built for mounting on or near networked devices.



## End User

These antennas are designed to work with consumer end user electronic devices to provide or enhance network capabilities.



## Transport

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



## 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.

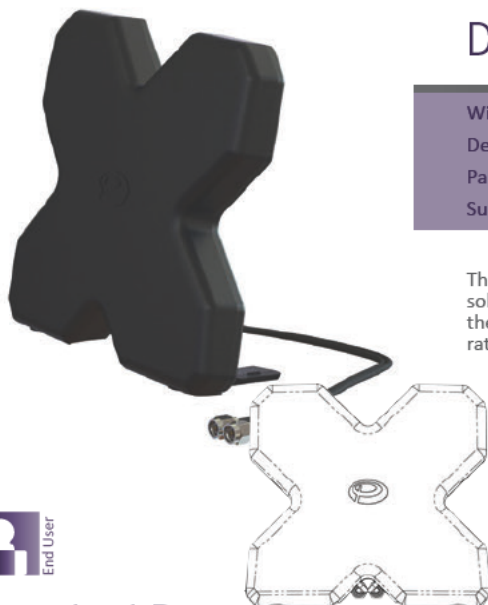
### Associations

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

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



## Portable 4G, 3G & 2G Consumer Wireless Antennas



End User

### DMM-7-27

Wideband MiMo solution

Desk stand, screen clip and window mount options

Packs flat for easy transportation

Supplied in retail packaging

The DMM offers a portable, lightweight and stylish MiMo solution for your 4G connection. With 2G/3G fallback, the DMM guarantees a secure connection and high data rates in any location. The unique 'X' design enables MiMo connectivity across all 4G frequencies.

The DMM comes fully equipped with 3 solutions for different mounting options. With fold away feet, laptop screen clips and suction cups for window mounting, the DMM is ready for every possible situation.

### Standard Data

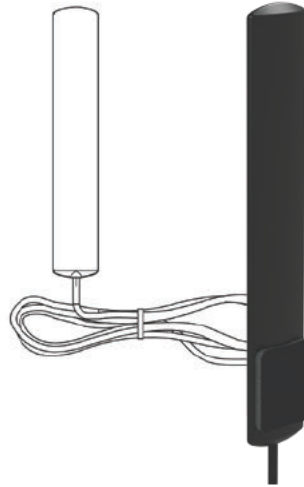
Electrical Data		
Frequency Range (MHz)		698-960, 1710-2700
Radiation Pattern		Omnidirectional
Typical VSWR		< 2.5:1
Peak Gain (excluding cable loss)		2.5dBi (698-960) 4dBi (1710-2170) 3dBi (2200-2700)
Correlation Coefficient (all bands)		< 0.1
Element Isolation		> 20dB
Mechanical Data		
Dimensions (mm)	Height	137 (5.4" in)
	Width	151 (5.9" in)
Material		UV Stabilised ABS
Fixing		Desk mount / screen clip / window mount
Cable Data		
Type		2 x RG174
Length (m)		2 (6'Ft 6" in)
Termination		2 x SMA male (Part No. DMM-7-27-2SP) 2 x SMK TS9 male (Part No. DMM-7-27-2TS9) 2 x CRC9 male (Part No. DMM-7-27-2CRC9)

## TPD-BC3G-26

Hook and loop attachment for laptops  
Suitable for OEM bundling  
Slim line and lightweight to enhance LTE signal on the go

This simple multi-band solution can be used to enhance performance of USB modems. The small size and low cost makes it an ideal in-box accessory for customer retention offers or promotional deals.

Its innovative hook and loop attachment for laptops allows it to easily be utilised on the move, whilst its small and streamlined design means that when not in use it slips conveniently into a laptop bag or briefcase.



## Standard Data

Electrical Data		
Frequency Range (MHz)		698-960, 1710-2170, 2500-2700
Typical VSWR		<2.5:1
Peak Gain: Isotropic (excluding cable loss)		2dBi
Pattern		Omnidirectional
Mechanical Data		
Dimensions (mm)	Length	131 (5.2" in)
	Width	20 (0.8" in)
	Depth	7 (0.3" in)
Material		UV Stabilised ABS
Type		Adhesive hook & loop pad
Cable Data		
Type		RG174
Length (m)		0.5 (19.7" in)
Termination		SMA male (Part No. TPD-BC3G-26-05SMA) TS9 male (Part No. TPD-BC3G-26-05TS9) CRC9 male (Part No. TPD-BC3G-26-05CRC9)

## Portable 4G, 3G & 2G Consumer Wireless Antennas



### PWB-BC3G-26-RSMAP

Easy to install plug and play solution  
Articulated right angled SMA Male connector  
Ground plane independent

Ultra-broadband antenna with articulated right-angled connector, ideal for modems and terminals. Performing at all 2G, 3G & 4G frequencies, the PWB keeps up with the most advanced terminals on the market today.

As an easy to install, plug and play antenna, it is ideal for any 2G, 3G or 4G modem or router.



## Standard Data

Electrical Data		
Frequency Range (MHz)		698-960, 1710-2170, 2500-2700
Peak Gain: Isotropic		2dBi
Pattern		Omnidirectional
Mechanical Data		
Dimensions (mm)	Height	163 (6.5" in)
	Width	41 (1.6" in)
	Depth	13 (0.5" in)
Material		UV stable ABS
Terminal Data		
Type		Articulated hinge
Termination		SMA male

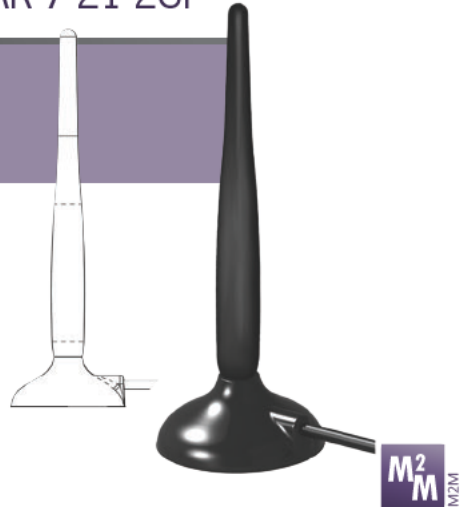
## Portable 4G, 3G & 2G Magnetic Mount Consumer Wireless Antennas

### MAR-7-21-2SP

Magnetic mount base for temporary installation  
Covers 2G, 3G, 4G cellular  
Compact overmoulded design for durability  
Slimline appearance

The MAR-7-21-2SP is a compact, flexible cellular whip with a magnetic base for temporary mounting situations. This versatile whip performs across six major cellular & GSM/LTE bands supporting 2G, 3G and 4G cellular technologies.

The stylish flexible design of the antenna whip makes it both discreet in appearance and resistant to damage.



### Standard Data

Electrical Data		
Frequency Range (MHz)		698-960, 1710-2170
Peak Gain: Isotropic (excluding cable loss)		2dBi
Pattern		Omnidirectional
Mechanical Data		
Dimensions (mm)	Whip Length	100 (3.9" in)
Material		TPE + Polyamide
Fixing		Magnetic Mount
Cable Data		
Type		RG174
Length (m)		2 (6' Ft 6" in)
Termination		SMA male

## 4G, 3G & 2G High Gain MiMo Consumer Wireless Antennas



### WMM8G-7-27

Supports MiMo & diversity across all 4G LTE bands  
Two wideband elements with high gain  
Durable housing for indoor or outdoor use  
Suitable for mast, wall and desk mounting

The WMM8G-7-27 antenna is a high directional gain 2x2 MiMo signal boosting antenna. Incorporating two separately fed wideband elements in a single housing, the WMM8G-7-27 is equipped to provide client side MiMo and diversity support for 2G, 3G and 4G networks.

The rugged, weather resistant housing is designed for wall mounting, and wall and mast mount brackets are provided. Supplied with fitted low loss double shielded twin cable the WMM8G-7-27 minimises exposed connector joints and simplifies cable management for easy installation.

The WMM8G-7-27 is an cost effective value added product for network operators and service providers ensuring a stable link with improved data rates for subscribers thereby improving satisfaction and retention.

## Standard Data

Electrical Data		
Frequency Range (MHz)		698-960, 1710-2700
Peak Gain (excl. cable loss)		6dBi (698-960), 9dBi (1710-2170), 6dBi (2396-2700)
Radiation pattern		Directional
Correlation co-efficient ( all bands)		< 0.05
Max input power		20 watts
Mechanical Data		
Dimensions (mm)	Height	230 (9" in)
	Width	180 (7.1" in)
	Depth	94 (3.7" in)
Material		ASA
Cable Data		
Type		2 x CS29 Coax (double shielded RG58)
Length (m)		5 (16' Ft)
Termination		2 x SMA male



## WMMG-7-27

Supports MiMo across 4G, 2G & 3G  
Two wideband elements with gain  
Durable housing for indoor or outdoor use  
Suitable for mast, wall & desk mounting

The WMMG antenna offers an innovative and futureproof solution for 2G, 3G & 4G networks. It incorporates two separately fed ultra wideband elements in a single housing to provide client side MiMo and diversity support for the networks of today and tomorrow. The WMMG provides extra directional gain performance for networks where it is needed most.

5 metres (16') of fitted, low-loss, double shielded twin cable minimises exposed connector joints and simplifies cable management for easy installation.

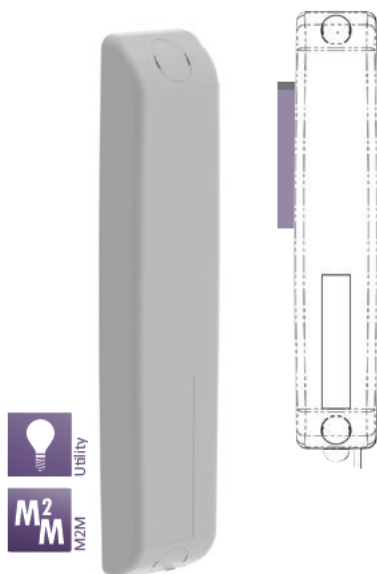
The WMMG is a cost effective, value added product for network operators and service providers. It ensures a stable link with improved data rates for subscribers, thereby improving satisfaction and retention.



## Standard Data

Electrical Data		
Frequency Range (MHz)		698-960, 1710-2700
Peak Gain (excluding cable loss)		2dBi (698-960) 5dBi (1710-2170) 4dBi (2200-2700)
Typical VSWR		< 2:1
Radiation Pattern		Hybrid
Correlation coefficient (all bands)		< 0.2
Element isolation		> 20dB
Mechanical Data		
Dimensions (mm)	Height	186 (7.3”in)
	Width	155 (6.1”in)
Material		ASA
Mounting Type		Wall mount / mast mount / desk mount
Cable Data		
Type		2 x CS29 Coax (double shielded RG58)
Length (m)		5 (16’Ft)
Termination		2 x SMA male (Part No. WMMG-7-27-5SP) 2 x FME female (Part No. WMMG-7-27-5F)

## 4G, 3G & 2G Wall Mount Fixed Site Antennas



### LPW-BC3G-26

Low profile, vandal & tamper proof design  
Simple adhesive pad or screw fix installation  
Covers all cellular & LTE bands  
Suitable for mounting on any surface

The Panorama LPW range of antennas are designed to decrease the lifetime cost of M2M and smart metering installations by offering a robust, effective antenna that is easy to install and lasts the lifetime of the installation without maintenance.

The antenna offers ground-plane independent omnidirectional performance across all cellular and LTE bands making it a versatile solution for many applications. The efficient element design ensures a high first time connection rate and an ongoing, robust communications link even in problematic areas.

Mounting possible through supplied automotive grade adhesive pad or by integrated screw mounting bosses. Can also be fitted with cable hidden from view.

## Standard Data

Electrical Data		
Frequency Range (MHz)		698-960, 1710-2700
Peak Gain: Isotropic (excluding cable loss)		2dBi
Pattern		Omnidirectional
Mechanical Data		
Dimensions (mm)	Height	19.6 (0.8" in)
	Length	165 (6.5" in)
	Width	32 (1.3" in)
Material		ASA
Fixing		Industrial grade acrylic adhesive pad / 2 x 4.8 mm (0.18") screws
Cable Data		
Type		RG174
Length (m)		2 (6'Ft 6" in)
Termination		SMA male (other terminations available)

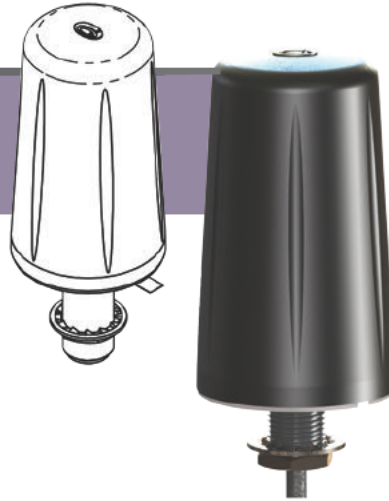
## LPB-7-27

Low Profile  
Excellent Bandwidth  
High impact resistant housing  
Compact design

The Panorama LPB low profile antenna range has been designed to perform in any environment. At only 82mm (3.2") 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 (15.7" x 15.7") ground plane, the LPB covers LTE frequencies as well as all global cellular frequencies from 698-960 MHz and 1710-2700MHz, making it an extremely versatile product.

Supplied with a convenient adhesive pad and a short pigtail for connection to a cable extension or run an integrated 5m cable run, the antenna is cost effective to install and adaptable to any install environment.



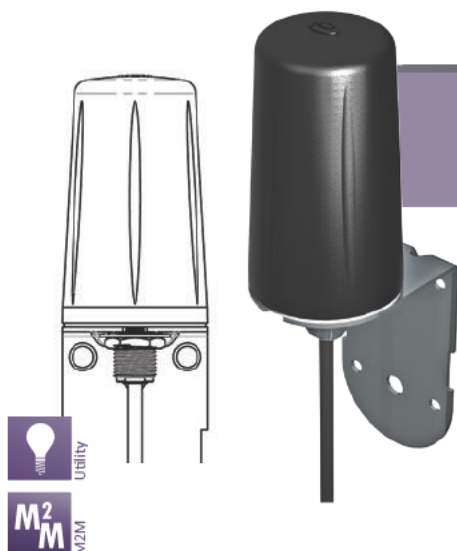
## Standard Data

Electrical Data		
Frequency Range (MHz)		698-960, 1710-2700
Peak Realised Gain: Isotropic		3dBi (700/800) 4dBi (900/1800) 5dBi (1900/2100/2400/2600)
Typical VSWR		<2.5:1
Pattern		Omnidirectional
Mechanical Data		
Dimensions (mm)	Height	82 (3.2" in)
	Diameter	48 (1.9" in)
Material		High impact UV Stable ABS
Mounting Type		Panel mount (requires ground plane)
Cable Data		
Length (m)		0.5 (19.6" in) or 5 (16' Ft 5" in)
Termination		SMA male or FME female

## 4G, 3G & 2G Wall Mount Fixed Site Antennas

### B4BE-7-27

Cost effective 2G/3G/4G LTE antenna  
Easy installation  
Bracket or mast mount  
Low profile design



The B4BE range has been designed to provide cost effective coverage booster antennas for 2G, 3G & 4G devices. The antennas are designed for wall or mast mounting and are weather proof allowing the device to reap the benefits of an antenna mounted in an elevated or external location where the signal is strongest.

The omnidirectional radiation pattern allows the antenna to be quickly installed while the global Cellular, GSM and LTE coverage provided by the antenna allows it to be utilised for any 2G, 3G and 4G applications.

These antennas provide an ideal solution for modem devices whether for domestic or business wireless data or for machine to machine applications.

## Standard Data

Electrical Data		
Frequency Range (MHz)		698-960, 1710-2700
Typical VSWR		< 2.5:1
Peak Gain: Isotropic		2dBi (698-960) 4dBi (1710-2700)
Pattern		Omnidirectional
Mechanical Data		
Dimensions (mm)	Height (with bracket)	164 (6.5" in)
	Depth	48 (1.9" in)
Material		ABS, Aluminium and Galvanised Steel
Mounting Data		
Fixing		Wall mount or mast mount
Cable Data		
Type		CS29 (double shielded RG58)
Length (m)		5 (16' 4" in) (Part No. B4BE-7-27-5SP)
		0.5 (19.6" in) (Part No. B4BE-7-27-05SP)
Termination		SMA Male

*Available without bracket for panel mount application (Part No. LPB-7-27-05SP)*

## CM-7-60-NJ

Discreet ceiling mount design  
Highly efficient wideband coverage  
Small footprint and removable valance

A compact ceiling antenna providing optimum InBuilding or DAS coverage for all network requirements. Concealed beneath the antenna housing is a highly efficient wideband element capable of supporting 2G, 3G & 4G, WLAN and WiMAX networks from 698-960MHz and 1710-6000MHz.

Suitable for indoor use, the antenna only requires one mounting hole for installation but offers additional screw fixing holes located beneath a rotating valance. The antenna is ground plane independent and can be fitted onto both thick and thin ceiling tiles.



### About PIMGuard™

This product features Panorama Antennas' PIM Guard Technology and will meet or exceed a third order intermodulation level of <-150 dBc (2 x 43 dBm)



## Standard Data

Electrical Data		
Frequency Range (MHz)	698-960, 1500-6000	
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+	<-150	
SAR & ‘Touch Safe’ Test Data	According to EN 50385:2002 (Bands: 850,900,1800,2100,2600 MHz)	
Mechanical Data		
Dimensions (mm)	Height	93 (3.6”in)
	Diameter	205 (8”in)
Material	UV Stabilised flame retardant ABS, aluminium base plate	
Mounting Data		
Fixing	3 x 4.5mm fixing holes and/or N socket lock wheel	
Diameter (mm)	4.5 (0.2”in) / 16 (0.6”in)	
Depth (mm)	41 (1.6”in)	
Termination	N female	

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

## Wideband MiMo Ceiling Mount InBuilding & DAS Antennas

### CMMG-7-60-NJ



Discreet ceiling mount design

2 x ultra wideband 700-6000MHz elements

Concealed screw fixings

Low PIM & SAR tested to EN50385:2002

The CMMG-7-60-NJ ceiling antenna offers low PIM 2x2 MiMo coverage across 2G, 3G & 4G frequencies for InBuilding and DAS installations in a discreet and easy to install housing.

The antenna only requires two mounting holes for installation via the fitted low PIM female connectors. It is ground plane independent and can be fitted onto both thick and thin ceiling tiles.



IBwave



#### About PIMGuard™

This product features Panorama Antennas' PIM Guard Technology and will meet or exceed a third order intermodulation level of <-150 dBc (2 x 43 dBm)

## Standard Data

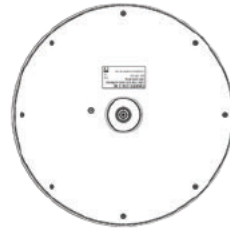
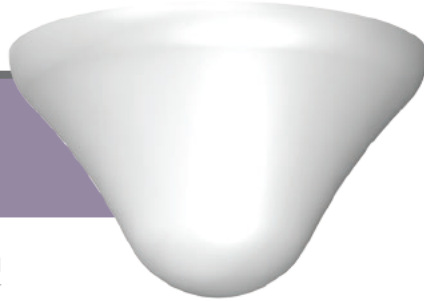
Electrical Data		
Frequency Range (MHz)		698-960, 1500-6000
Radiation pattern		Omnidirectional
Typical VSWR		< 2.5:1
Isolation (across connectors)		>15dB
Peak Gain (both elements fed)		2dBi (698-960) 5dBi (1710-2170) 7dBi (2200-6000)
Typical Passive intermod. (2x20W, 3rd ord.) dBc +		<-150
SAR and 'Touch Safe' Test Data		According to EN 50385:2002 (Bands: 850, 900, 1800, 2100, 2600MHz)
Mechanical Data		
Dimensions (mm)	Height	90 (3.5" in)
	Length	220 (8.6" in)
	Width	106 (4.2" in)
Material		UV Stabilised flame retardant ABS, aluminium base plate
Mounting Data		
Fixing		4 x 6mm screw fixing holes and/or 2x female lock wheel
Diameter (mm)		6 (0.2" in)/15.9 (0.6" in)
Depth (mm)		41 (1.6" in)
Termination		2 x N female

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

## CMWBD-038-3-NJ

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

Panorama's CMWB-038-3-NJ allows businesses and facilities to support multi-service and multi-operator wireless coverage. A huge number of services are supported from 380 MHz UHF to 6 GHz - including UHF, GSM900, AWS 1700 MHz, Quadband GSM, 3G UMTS, 2.4 GHz WLAN, LTE & WiMAX etc. This versatility enables simultaneous connectivity for employees, consumers and emergency services and DAS installers with a convenient 'one size fits all' solution.



### About 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)



## Standard Data

Electrical Data		
Frequency Range (MHz)	380-470, 698-960, 1710-6000	
	UHF, 2G, 3G, 4G, WLAN / WiMAX	
Radiation pattern	Omnidirectional	
Typical VSWR	< 2.5:1	
Peak Gain	2dBi (380-960) 5dBi (1710-2170) 7dBi (2200-6000)	
Typical Passive intermod. (2x20W, 3rd ord.) dBc+	<-140	
Mechanical Data		
Dimensions (mm)	Height	150 (5.9" in)
	Diameter	266 (10.5" in)
Material	Geloy PC/ASA (chlorine and bromine free)	
Mounting Data		
Fixing	N female lock wheel	
Diameter (mm)	16 (0.6" in)	
Depth (mm)	41 (1.6" in)	
Termination	N female	

## 4G, 3G, & 2G Directional InBuilding & DAS Antennas



### WM8-BADEP3G-26-NJ

- High gain
- Mast mount or wall mount
- Weather proof housing
- Integrate multiple wireless services into one antenna

A versatile high gain directional antenna for InBuilding applications, Panorama's WM8 range allows businesses and facilities to support multi-service/multi-operator wireless coverage. The WM8-BADEP3G-26-NJ supports 2G, 3G, 3G+ and 4G technologies including AMPS, PCS, GSM, UMTS & AWS.

The WM8 range is housed in impact resistant, UV light stable and flame retardant plastic. The antenna is sealed to be weatherproof and features a heavy duty N female connector making it ideal for indoor and outdoor deployment.



#### About PIMGuard™

This product features Panorama Antennas' PIM Guard Technology and will meet or exceed a third order intermodulation level of <-150 dBc (2 x 43 dBm)

### Standard Data

Electrical Data		
Frequency Range (MHz)		698-960, 1710-2700
Peak Gain: Isotropic (All bands)		6.5dBi (698-960) 9dBi (1710-2170) 6dBi (2400-2700)
Typical VSWR		<2:1
Pattern		Directional
Typical Passive Intermod. (2x20W, 3rd ord.) dBc *		<-140
SAR and 'Touch Safe' Test Data		According to EN 50385:2002 (Bands: 850, 900, 1800, 2100, 2600MHz)
Mechanical Data		
Dimensions (mm)	Height	230 (9.05" in)
	Width	180 (7.08" in)
	Length	94 (3.7" in)
Material		Geloy PC / ASA
Mounting Type		Pole mount / wall mount
Connector Data		
Type		N female

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



## WMMLP8G-7-27-03NJ

Supports MiMo & diversity across all 4G LTE bands  
Highly efficient wideband coverage  
Flexible Plenum rated cable  
Low PIM

The WMMLP8G-7-27 is a high directional gain 2x2 MiMo wall mount antenna for inbuilding/DAS networks. Incorporating two separately fed wideband elements in a single housing, the WMMLP8G-7-27 is equipped to offer MiMo and diversity support for 2G, 3G and 4G inbuilding networks. With 6dBi of peak gain 698-960 MHz and 9 dBi peak gain at 1710-2700 MHz the WMMLP8G-7-27 provides a wall mounted solution for next generation networks.

The rugged, weather resistant housing meets UL746C and is flame retardant to UL94-V0.



### About PIMGuard™

This product features Panorama Antennas' PIM Guard Technology and will meet or exceed a third order intermodulation level of <-150 dBc (2 x 43 dBm)

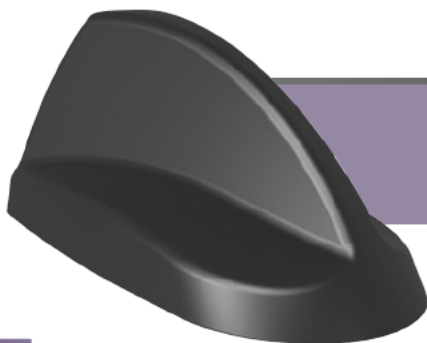


## Standard Data

Electrical Data		
Frequency Range (MHz)	698-960, 1710-2700	
Peak Gain (excluding cable loss)	6dBi (698-960) 9dBi (1710-2170) 6dBi (2396-2700)	
Radiation Pattern	Directional	
Correlation coefficient (all bands)	< 0.05	
Max input power	20 watts	
Typical Passive intermod. (2x20W, 3rd ord.) dBc *	<-150	
Mechanical Data		
Dimensions (mm)	Height	230 (9" in)
	Width	180 (7.1" in)
Material	PC / ASA	
Mounting Type	Wall mount / mast mount	
Cable Data		
Type	2 x Times Microwave TFT-LF 402	
Length (m)	0.3 (1" in)	
Termination	2 x N female	

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

## Low Profile 4G, 3G & 2G, GPS & WiFi Vehicular Antennas



### GPSB

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

The GPSB provides antenna coverage for 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, 2G, 3G & 4G 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.

The OEM shark fin style design provides multiple antenna functions whilst remaining discreet.



## Standard Data

Electrical Data		
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)
Material		Impact resistant UV light stabilised ABS
Ingress Protection		IP66 (EN 60529:1992)
Cable Data		
Cable Type (All)		RG174
Length m		Whip: 0.3 (14" in) GPS: 0.3 (13" in) Cellular: 0.3 (12" in) WLAN: 0.3 (12" in)
Termination	Whip	FME male
	GPS	FME female
	Cellular	SMA male
	WLAN	SMA female

## Low Profile 4G, 3G, 2G MiMo, GPS & WiFi MiMo Vehicular Antennas

### LGMM[B] & LPMM[B] Ranges

Rugged low profile antenna containing:  
2x Wideband LTE/cellular elements  
Optional integrated GPS antenna (LGMM[B] range)  
2x 2.4 & 4.9-GHz WiFi/WiMAX elements

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

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

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

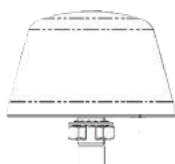
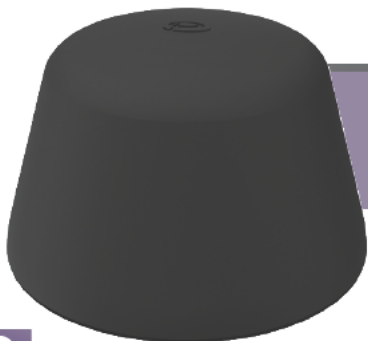


**IP66  
RATED**

### 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 (magnetic mount available upon request)
Ingress Protection		IP66 (EN 60529:1992)
Cable Data		
GPS Cables	Length (m)	0.3 (1' Ft)
	Termination	FME female
Cell/LTE Cables x2	Length (m)	0.3 (1' Ft)
	Termination	SMA male
WiFi/WiMAX Cables x2	Length (m)	0.3 (1' Ft)
	Termination	SMA female

## Low Profile 4G, 3G & 2G GPS & WiFi Vehicular Antennas



### LG[P]E-7-27-24-58

Rugged low profile design  
Wideband LTE/cellular element  
2.4 & 4.9-6 GHz WiFi/WiMAX element  
Integrated GPS antenna

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.

This antenna series can be mounted on or off a metallic groundplane, although performance will change if no groundplane is present.

## Standard Data

Electrical Data		
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
Cable Data		
GPS Cables	Length (m)	0.3 mm (1'Ft)
	Termination	FME female
Cell/LTE Cable	Length (m)	0.3 mm (1'Ft)
	Termination	SMA male
WiFi/WiMAX Cables	Length (m)	0.3 mm (1'Ft)
	Termination	SMA female

## EF-BC3G-26

700 MHz LTE, Quadband Cellular, 3G UMTS, AWS

LTE / WiMAX 2.6 GHz

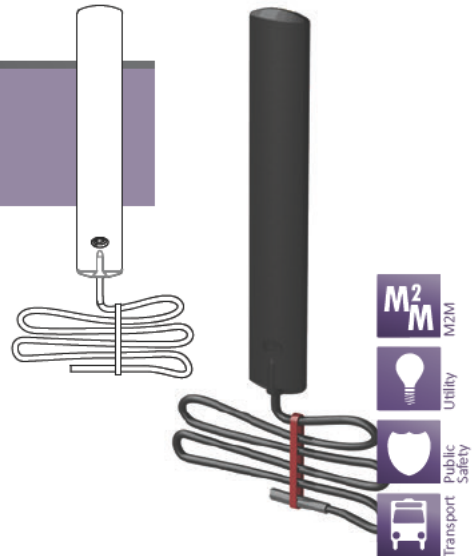
Discreet adhesive pad fitment

Suitable for mounting to plastic or glass

EF-BC3G-26 is a range of highly efficient and portable antennas for 2G, 3G and 4G modems and datacards. These paddle antennas are easily positioned on a device housing or vehicle windscreen using the supplied automotive industry grade adhesive pad.

The antenna is ultrawideband and ground plane independent making it ideal for machine-to-machine and mobile data applications. Covering 698-960, 1710-2170 and 2396-2700 MHz, the EF-BC3G-26 is designed to support the full range of 2G, 3G and 4G frequencies globally.

The antenna is constructed from weather resistant plastic and is suitable for use in semi-exposed scenarios.



## Standard Data

Electrical Data		
Frequency Range (MHz)		698-960, 1710-2170, 2396-2700
Operational bands		LTE 700, GSM850, CDMA850, GSM900, GSM1800, PCS1900, 3G UMTS, AWS, LTE / WiMAX
Peak gain: Isotropic (excluding cable loss)		2dBi
Pattern		Omnidirectional
Max input power		25 watts
Mechanical Data		
Dimensions (mm)	Height	131 (5.2”in)
	Width	21.7 (0.9”in)
Material		ASA
Mounting Type		Automotive industry grade adhesive pad
Cable Data		
Type		RG174
Length (m)		3 (10’Ft)
Termination		SMA plug (other connectors available)

## Window Mount 4G, 3G, 2G & GPS Vehicular Antennas

### GPSO-7-27 & GPSC-7-27



GPSC



GPSO



Windscreen or dashboard mount  
Adhesive pad fixing  
Combined GPS & Wideband LTE/Cellular element

The windshield mounted GPSO and the dashboard mounted GPSC make it easy to get around, allowing GPS and cellular & LTE coverage improvements in one small device. Power-up your modem and navigation system with these discreet antennas which can offer improved signal over embedded antennas.

Mounting the GPSO antenna is simple thanks to its adhesive pad and its unique design. The antenna will still perform even on vertical windscreens, making ideal for use on heavy goods vehicles (HGVs) and lighter vehicles alike.

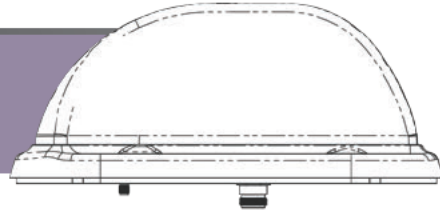
The GPSC is totally flexible and our unique 'either way up' mounting system enables you to position the antenna on or under any surface. This makes it the ideal antenna for secure asset management systems.

## Standard Data

Electrical Data			
Model		GPSO-7-27	GPSC-7-27
Frequency Range (MHz)		698-960, 1710-2170, 2500-2700	
Operational bands		LTE 700, AMPS800, GSM850, GSM900, GSM1800, PCS1900, 3G UMTS, LTE 2.6	
Peak Gain: Isotropic (excluding cable loss)		2dBi	
Max Input Power		10 watts	
Mechanical Data			
Dimensions (mm)	Height	13 (0.5" in)	15 (0.6" in)
	Width	64 (2.5" in)	70 (2.7" in)
	Length	80 (3.1" in)	70 (2.7" in)
Material		UV Stable ABS	
Fixing		Adhesive Pad	
Cable Data			
Type		2 x RG174	
Length (m)		3 (9'Ft 10" in)	3 (9'Ft 10" in)
Termination		2 x SMA male	SMA male (GPS), SMA male (comms)

## TRNB[G]-7-27

Standard four hole rail fixing  
Suitable for overground & underground trains  
Waterproof N connector  
Optional GPS available



The TRNB(G) antenna series is designed specifically for use on trains, trams and buses underground or over ground. Operating wideband across all frequencies from 698 MHz to 6000 MHz, the TRNB(G) range is versatile and future proof.

The TRNB(G)-7-27 series covers GSMR, 700 MHz LTE, 800MHz TETRA and trunking bands along with all cellular and GSM frequencies, 2.4 & 5.8 GHz WLAN, 2.6 GHz LTE and WiMAX all in one housing.

The TRNB(G) has a DC grounded radiating element and in versions with a GPS module it is protected by a gas discharge surge arrestor. Housed in a high impact, flame retardant LEXAN housing, the TRNB(G) series is weatherproof, ensuring that the antenna's performance is never compromised.



## Standard Data

Electrical Data		
Frequency Range (MHz)		698-960, 1700-6000, 1700-6000 MHz
Peak gain: Isotropic		5dBi (698-960), 7dBi (1710-2700), 10dBi (4.9-6GHz)
Pattern		Omnidirectional
Max input power		60 watts
Mechanical Data		
Dimensions (mm)	Height	98 (3.9" in)
	Width	102 (4" in)
	Length	242 (9.5" in)
Radome Material		LEXAN EXL9330
Base Material		Cast Aluminium - Alocrom 1000 coated
Mounting Type		4 x mounting holes to suit M12 bolts
Operating Temperature (°C)		-40 / +80°C ( -40° / +176°F )
Radome Flame Retardance		V0 (UL94)
Radome Outdoor Use Rating		f1 (UL 746c)
Termination Data		
Comms		N female - DC grounded
GPS		SMA female - surge protected

## CS29 Type - for 4G LTE

Cable Data	
Impedance	50Ω
Attenuation (per 10m)	2.2 dB @ 500 MHz, 3.8 dB @ 1 GHz, 5.5 dB @ 2 GHz
Outer Diameter (mm)	5 (0.2" in)

## CS32 Type for WiFi

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)

## 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)

## Adapter Leads

Part No.	Length (mm)	Termination 1	Termination 2
C74-FP-015-TS9S	15	FME male	TS9 Plug (male)
C74-FP-015-CRC9	15	FME male	CRC9 Plug (male)
C74-SJ-010-TS9S	10	SMA female	TS9 Plug (male)
C74-SJ-010-CRC9	10	SMA female	CRC9 Plug (male)