antenna catalogue

RFI

welcome to the revolution

RF Industries (RFI) is committed to the communications revolution. We have evolved from the days of despatched two way radio to be a significant manufacturer of antenna systems for the latest generation in wireless technologies. With continually expanding export markets we have become a globally relevant manufacturer working with all levels of the value chain across diverse markets including automotive, mobile telephony, digital radio, wireless LAN, and industrial, scientific and medical (ISM) applications.

We strive to provide a service that is of world standard yet retains the agility of a small player. Our motivated team of engineering and manufacturing professionals pride themselves on their design philosophy of "bettering the best". Our experience pays off when new technologies require an antenna solution that matches the latest in sophisticated design.

RFI utilises

- The latest in antenna design software
- Specialised test equipment
- An enormous depth of experience providing solutions to carriers, manufacturers and end users
- A flexible manufacturing environment for base and mobile antennas

And we can supply everything else you need to complete your system. Antenna combining equipment, coaxial cables, connectors, lightning protection, solar power, DC power supplies, hand portable antennas, installation accessories…the lot!

This catalogue is intended as our definitive guide to RFI's range of mobile and base station antennas. We have included comprehensive accurate technical information on each and every antenna offered for engineers, technicians and purchasing staff but we cannot hope to cover every product in one catalogue.

Our most up to date information is always on our website and we encourage you to utilise it when needed or alternatively contact one of our sales specialists for any further information you may require.

Where is the next step for the wireless juggernaut….time will tell. What we do know is that RFI will be there when it happens, providing solutions for the next revolution.

the RFI antenna catalogue

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Our policy and that of our partners is of continual improvement.

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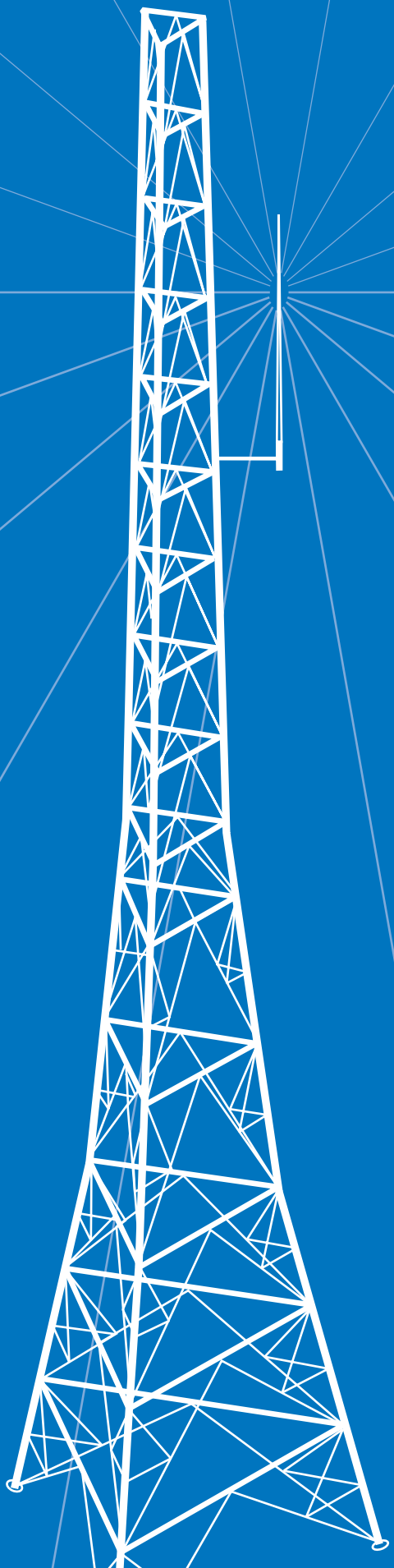


base station antennas

VHF Adjustable Ground Plane Antennas

70-175 MHz

GP Series

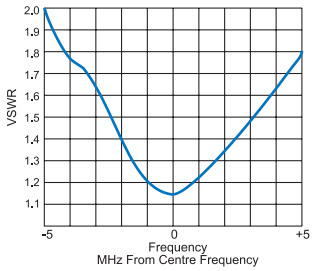
GP1

The GP Series is a range of omnidirectional unity gain adjustable ground plane antennas ideal for local area coverage when a high gain antenna is not required or justified. The broad vertical beamwidth offers excellent null fill for consistent signal coverage. GP Series antennas are easily tuned in the field by adjusting the position of the ground plane elements.

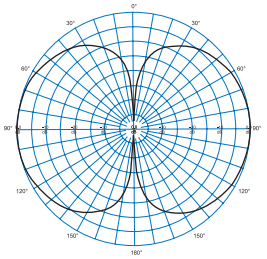
Electrically, the GP Series antenna is a quarter wave radiating element with the radials acting as a counterpoise. These radials are of one-piece construction and utilise a unique single bolt clamping design. The antennas are DC grounded for superior lightning protection and the reduction of precipitation static noise.

- Easily field tuned by adjusting the position of the radials
- Lightweight and easy to mount
- Broad vertical beamwidth for excellent null fill
- Compact - Shipped disassembled for ease of handling

Typical VSWR response (GP1)



GP1 - E Plane



Electrical

Model Number	GP1	GP3	GP4	GP2
Nominal Gain *dBi (dBd)*	2 (Unity)			
Frequency *MHz*	70 - 85	118 - 136	137 - 151	148 - 175
Tuned Bandwidth *MHz*	5	10	10	15
VSWR (Return Loss)	<1.5 :1 (14dB)			
Nominal Impedance Ω	50			
Vertical Beamwidth	110°	75°		
Horizontal Beamwidth	Omni +/-0.5dB			
Input Power *W*	200			

Mechanical

Model Number		GP1	GP3	GP4	GP2
Construction		Heavy duty aluminium radiating element encased in a PVC radome			
Length *m*		1.8	1.5	1.4	1.3
Weight *kg*		3.0	3.0	2.3	2.0
Termination		N female with 0.5m RG213 cable tail			
Mounting Area		500mm x 40mm diam. aluminium			
Suggested Clamps		2 x UB1 or 2 x UC1			
Projected Area *cm²*	No ice	1752	1246	1121	988
	With ice	3349	2160	1959	1730
Wind Load (Thrust) @ 160km/h *N*		208	148	133	117
Torque @160 km/h *Nm*		67	33	21	11

VHF Vertical Enclosed Dipole Antenna

30-50 MHz

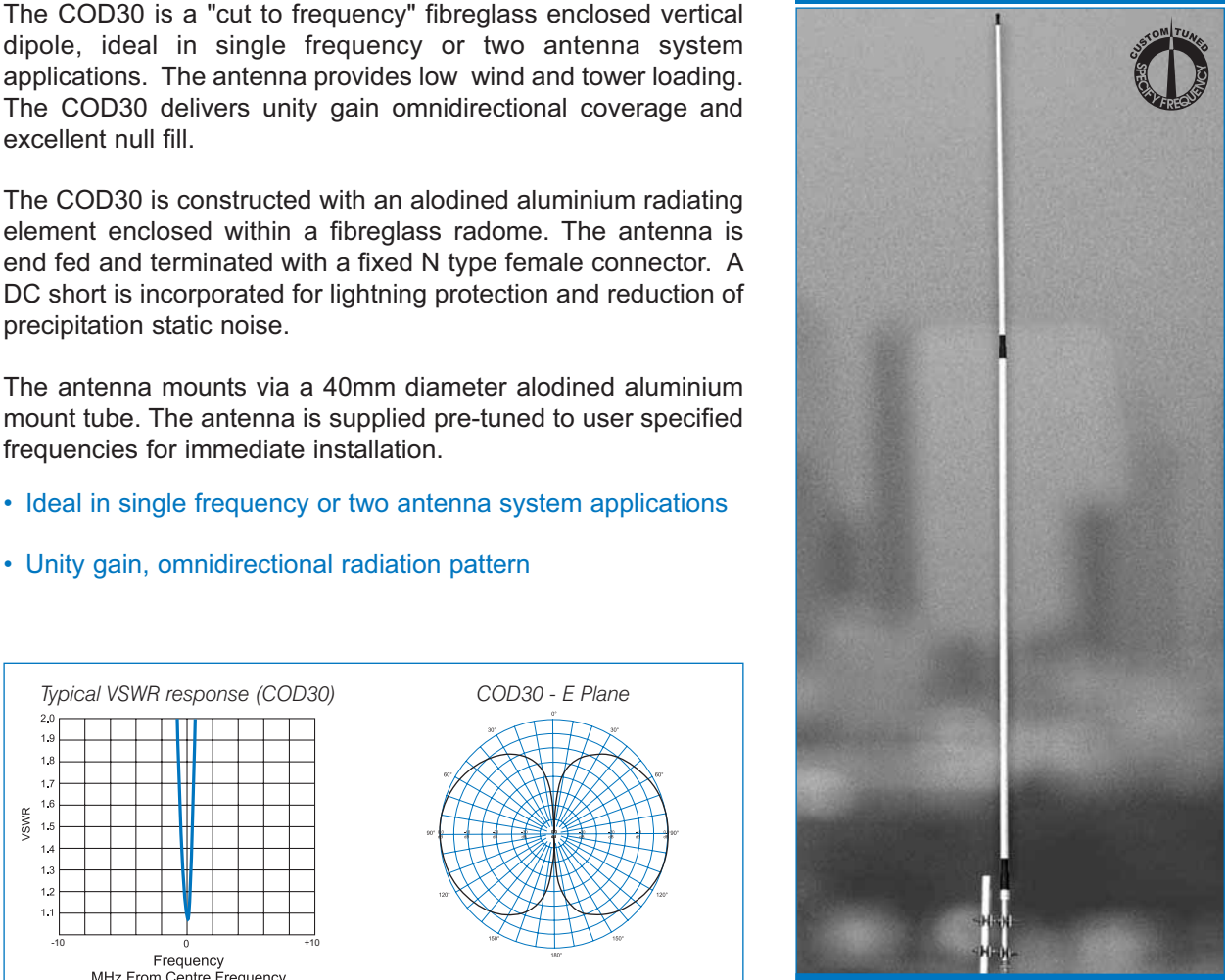
COD30

The COD30 is a "cut to frequency" fibreglass enclosed vertical dipole, ideal in single frequency or two antenna system applications. The antenna provides low wind and tower loading. The COD30 delivers unity gain omnidirectional coverage and excellent null fill.

The COD30 is constructed with an alodined aluminium radiating element enclosed within a fibreglass radome. The antenna is end fed and terminated with a fixed N type female connector. A DC short is incorporated for lightning protection and reduction of precipitation static noise.

The antenna mounts via a 40mm diameter alodined aluminium mount tube. The antenna is supplied pre-tuned to user specified frequencies for immediate installation.

- Ideal in single frequency or two antenna system applications
- Unity gain, omnidirectional radiation pattern



COD30

Typical VSWR response (COD30)

COD30 - E Plane

Electrical

Model Number	**COD30**
Nominal Gain ***dBi (dBd)***	2 (Unity)
Frequency ***MHz***	30 - 50
Tuned Bandwidth	1.0%
VSWR (Return Loss)	<1.5 :1 (14dB)
Nominal Impedance **Ω**	50
Vertical Beamwidth	77°
Horizontal Beamwidth	Omni +/- 0.5dB
Input Power ***W***	150

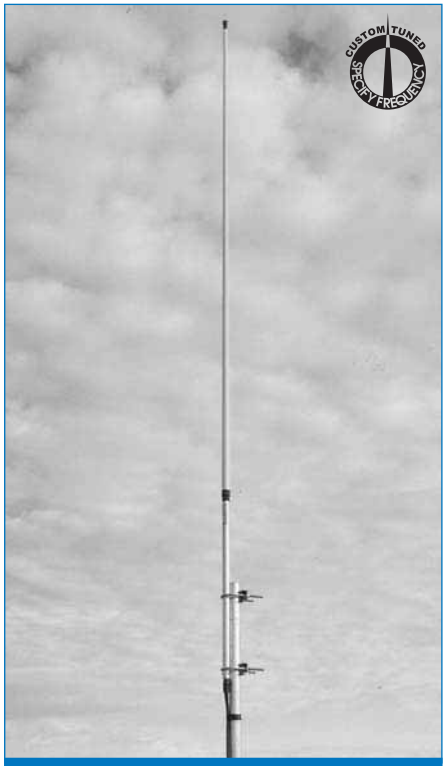
Mechanical

Model Number		**COD30**
Construction		Alodined aluminium elements with white fibreglass radome
Length ***m***		5.5
Weight ***kg***		4.0
Termination		N female bulkhead
Mounting Area		500mm x 40mm diam. alodined aluminium
Suggested Clamps		2 x UC1
Projected Area ***cm²***	No ice	1632
	With ice	3291
Wind Load (Thrust) @ 160km/h ***N***		193
Torque @160 km/h ***Nm***		447

VHF Vertical Enclosed Dipole Antennas

66-140 MHz

COD1 Series

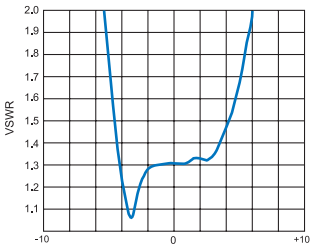


COD1

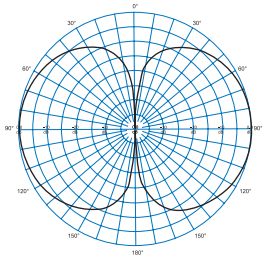
The COD1 series antennas are "cut to frequency" fibreglass enclosed vertical dipoles, featuring extremely broad vertical beamwidths and omnidirectional patterns for localised coverage.

- Low wind and tower loading - ideal in conditions where high winds are a factor.
- Ruggedised version (COD12) in an extra heavy duty black fibreglass radome to maximise solar heat retention - aiding in ice shedding
- Models available with 5% tuned bandwidth for duplex applications
- DC grounded for lightning protection and the reduction of precipitation static noise

VSWR response (COD14) @140MHz



COD14 - E Plane



Electrical

Model Number	COD1	COD12	COD14
Nominal Gain *dBi (dBd)*	2 (Unity)		
Frequency *MHz*	66 - 140		
Tuned Bandwidth	2.0%	5.0%	
VSWR (Return Loss)	<1.5 :1 (14dB)		
Nominal Impedance Ω	50		
Vertical Beamwidth	77°	76°	
Horizontal Beamwidth	Omni +/- 0.5dB		
Input Power *W*	150	200	

Mechanical

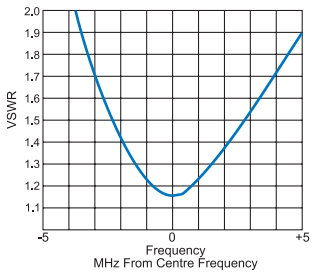
Model Number		COD1	COD12	COD14
Construction		Alodined alum. elements with white fibreglass radome	Alodined alum. elements with ruggedised black fibreglass radome	Alodined alum. elements with white fibreglass radome
Length *m*		3.4	3.0	2.7
Weight *kg*		1.0	3.2	2.5
Termination		N female bulkhead		
Mounting Area		280mm x 25mm diam. alodined aluminium	500mm x 60mm diam. alodined aluminium	600mm x 38mm diam. stainless steel
Suggested Clamps		2 x UB1	2 x UC1	
Projected Area *cm²*	No ice	728	1568	1297
	With ice	1706	2305	2284
Wind Load (Thrust) @ 160km/h *N*		86	186	154
Wind Gust Rating *km/h*		> 240		
Torque @160 km/h *Nm*		77	192	156

VHF Vertical Enclosed Dipole Antennas

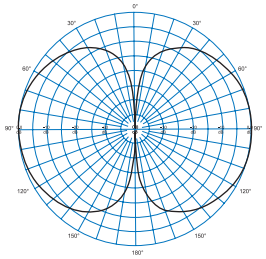
The COD2 series antennas are "cut to frequency" fibreglass enclosed vertical dipoles, featuring extremely broad vertical beamwidths and omnidirectional patterns for localised coverage.

- Low wind and tower loading
- Ruggedised version (COD22) in an extra heavy duty black fibreglass radome to maximise solar heat retention - aiding in ice shedding
- Stainless steel mounting version available (COD24) for corrosive marine environments
- DC grounded for lightning protection and the reduction of precipitation static noise

Typical VSWR response (COD2)

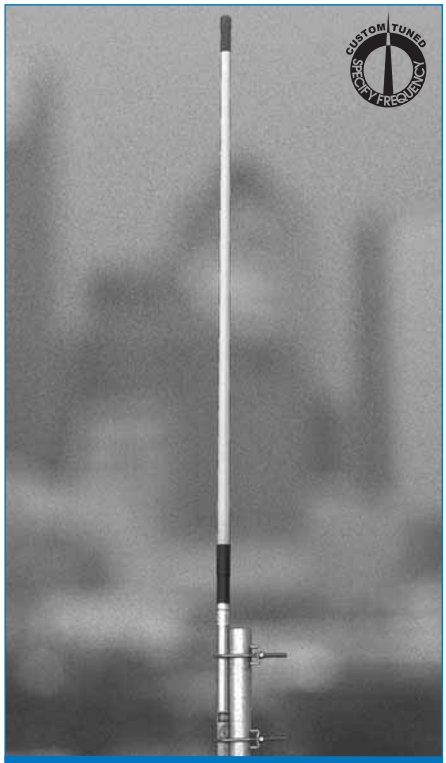


COD2 - E Plane



140-205 MHz

COD2 Series



COD2

Electrical

Model Number	COD2	COD22	COD24
Nominal Gain *dBi (dBd)*	2 (Unity)		
Frequency *MHz*	140 - 205	140 - 175	140 - 205
Tuned Bandwidth *MHz*	5		
VSWR (Return Loss)	<1.5 :1 (14dB)		
Nominal Impedance Ω	50		
Vertical Beamwidth	78°		
Horizontal Beamwidth	Omni +/- 0.5dB		
Input Power *W*	100		

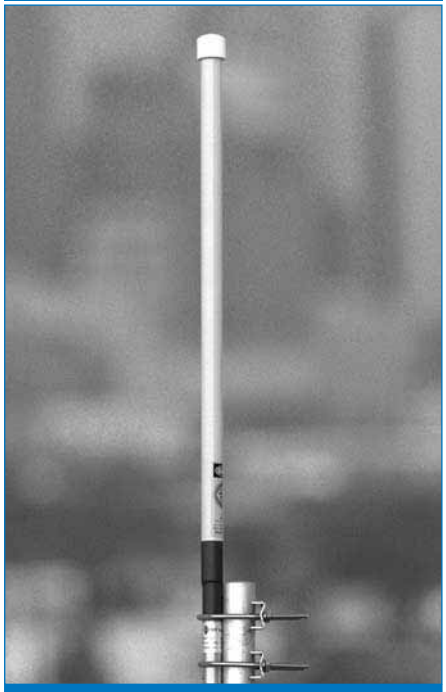
Mechanical

Model Number		COD2	COD22	COD24
Construction		Alodined aluminium elements with white fibreglass radome	Alodined aluminium elements with ruggedised black fibreglass radome	Alodined aluminium elements with white fibreglass radome
Length *m*		1.7	1.8	1.7
Weight *kg*		1.5	2.2	2.0
Termination		N female bulkhead		
Mounting Area		215mm x 25mm diam. alodined aluminium	500mm x 60mm diam. alodined aluminium	215mm x 25mm diam. stainless steel
Suggested Clamps		2 x UC1 or 2 x UB1	2 x UC1	2 x UC1 or 2 x UB1
Projected Area *cm²*	No ice	402	873	403
	With ice	804	1289	805
Wind Load (Thrust) @ 160km/h *N*		48	103	48
Wind Gust Rating *km/h*		>240		
Torque @160 km/h *Nm*		23	45	24

UHF Vertical Enclosed Dipole Antennas

375-520 MHz

COD4

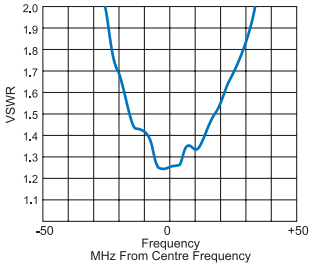


COD4

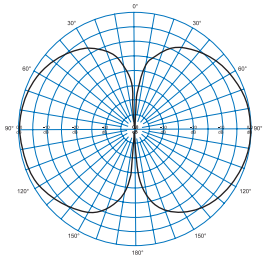
The COD4 series antennas are a range of fibreglass enclosed vertical dipoles ideal in local coverage applications. COD4 series antennas deliver extremely broad beamwidths which enhance close-in coverage. They are supplied pre-tuned in set bands and can be held as a stock antenna if required.

- Ideal for local area coverage
- Available spot tuned to user specified frequencies or in a number of pre-determined band configurations
- Unity gain omnidirectional radiation pattern with excellent null-fill characteristics
- Dual decoupling choke to ensure distortion-free pattern

Typical VSWR response (COD4)



COD4 - E Plane



Electrical

Model Number	COD4-65	COD4-70	COD4-71	COD4-63	COD4-72	COD4-99
Nominal Gain *dBi (dBd)*	2 (Unity)					
Frequency *MHz*	400 - 420	450 - 470	470 - 490	480 - 500	500 - 520	375 - 520
Tuned Bandwidth	Full					4%
VSWR (Return Loss)	<1.5 :1 (14dB)					
Nominal Impedance Ω	50					
Vertical Beamwidth	78°					
Horizontal Beamwidth	Omni +/- 0.5dB					
Input Power *W*	50					
Passive IM 3rd order *dBc*	-125					

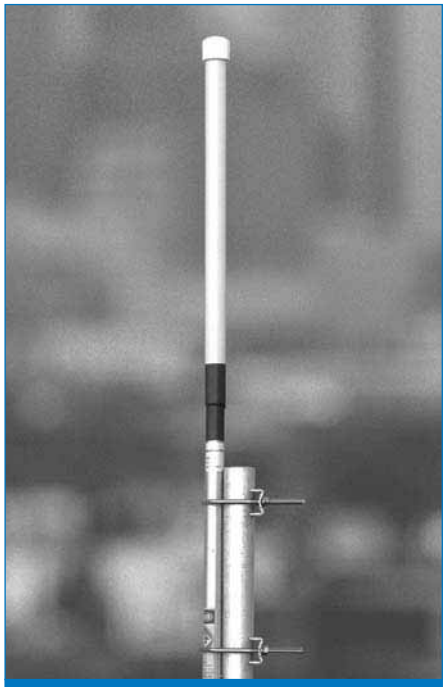
Mechanical

Model Number		COD4-65	COD4-70	COD4-71	COD4-63	COD4-72	COD4-99
Construction		Alodined aluminium elements with white fibreglass radome					
Length *m*		1.0	0.9				Variable
Weight *kg*		0.5					
Termination		N female bulkhead					
Mounting Area		100mm x 25mm diam. alodined aluminium					
Suggested Clamps		2 x UC1 or 2 x UB1					
Projected Area *cm²*	No ice	266	250	250	250	250	270
	With ice	494	463	463	463	463	497
Wind Load (Thrust) @ 160km/h *N*		32	30				32
Wind Gust Rating *km/h*		>240					
Torque @160 km/h *Nm*		10	8				11

UHF Vertical Enclosed Dipole Antennas

600-960 MHz

COD8

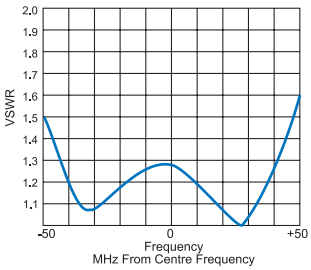


COD8

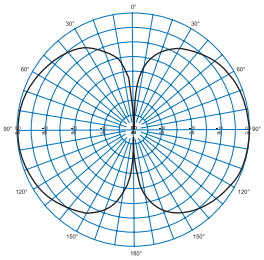
The COD8 Series antennas are a range of fibreglass enclosed vertical dipoles, ideal in point to multipoint, trunking, cellular and local coverage area applications. The antenna has a relatively broad bandwidth and easily accommodates both transmit and receive portions of any of the common 800MHz operating bands.

- Available spot tuned to user specified frequencies or in a number of pre-determined band configurations
- Excellent null fill coverage
- Omnidirectional unity gain performance

Typical VSWR response (COD8)



COD8 - E Plane



Electrical

Model Number	COD8-81	COD8-82	COD8-99
Nominal Gain *dBi (dBd)*	2 (Unity)		
Frequency *MHz*	820 - 880	850 - 930	600 - 960
Tuned Bandwidth *MHz*	Full		80
VSWR (Return Loss)	<1.5 :1 (14dB)		
Nominal Impedance Ω	50		
Vertical Beamwidth	78°		
Horizontal Beamwidth	Omni +/- 0.5dB		
Input Power *W*	25		
Passive IM 3rd order *dBc*	-120		

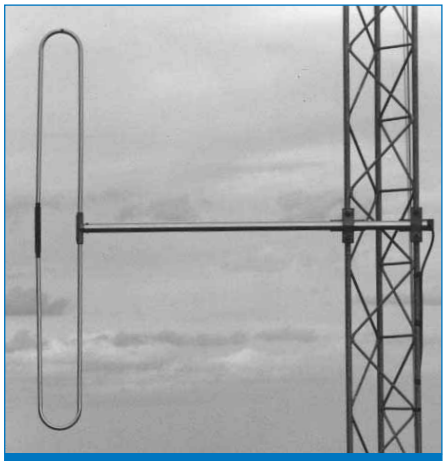
Mechanical

Model Number		COD8-81	COD8-82	COD8-99
Construction		Alodined aluminium elements with white fibreglass radome		
Length *m*		0.8		Variable
Weight *kg*		0.5		
Termination		N female bulkhead		
Mounting Area		315mm x 25mm diam. alodined aluminium	325mm x 25mm diam. alodined aluminium	230mm (minimum) x 25mm diam. alodined aluminium
Suggested Clamps		2 x UB1		
Projected Area *cm²*	No ice	267	266	285
	With ice	488	484	525
Wind Load (Thrust) @ 160km/h *N*		32	32	34
Wind Gust Rating *km/h*		>240		
Torque @160 km/h *Nm*		5	4	8

VHF Side Mounted Dipole Antennas

66-108 MHz

SMD1 Series



SMD1

The SMD1 Series side mounted dipoles are broad band antennas which, through different phasing and mounting arrangements, can offer a variety of patterns (generally cardioid) tailored to specific coverage requirements. These antennas can be mounted in dual arrays for 3dB gain, or four-stack arrays for 6dB gain over a single dipole.

The SMD1 is constructed of heavy gauge corrosion resistant anodised aluminium tubing with a high pressure cast aluminium hub assembly and stainless steel fittings. This combination provides an exceptionally strong antenna, suited for extreme weather conditions.

The SMD12, is a ruggedised antenna featuring extremely heavy walled tubing, all welded alodined aluminium construction and a black epoxy coating to aid in solar heat retention. The SMD14 is a stainless steel version and is ideal in corrosive marine environments. All of the antennas are electrically identical.

SMD antenna construction allows for the entire antenna to rest at ground potential making it highly recommended in lightning prone applications.

- Can be phased to provide 3dBd or 6dBd gain in a variety of patterns to suit specific requirements. See page 74 for our full range of phasing harnesses.
- Full bandwidth coverage for both single antennas and phased arrays - ideal in community sites
- Ruggedised and stainless steel versions available
- Normally available ex-stock for immediate delivery

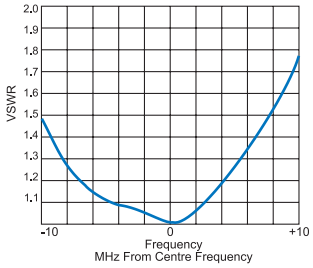
SMD series antennas are supplied with a boom for ¼ wave antenna to mast spacing. Booms for ½ wave spacing and full wave spacing are also available. Application details on phasing and mounting of SMD antennas are included in the technical notes at the back of this catalogue.

VHF Side Mounted Dipole Antennas

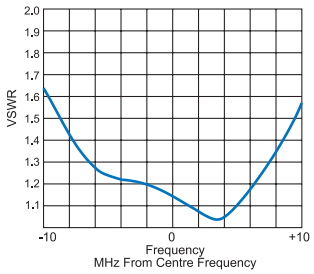
66-108 MHz

SMD1 Series

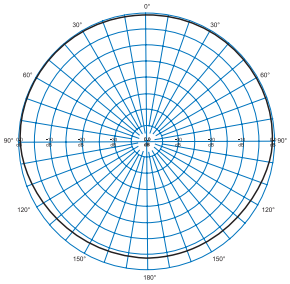
Typical VSWR response (SMD1,12,14) at ¼ wave spacing



Typical VSWR response (SMD1,12,14) at ½ wave spacing

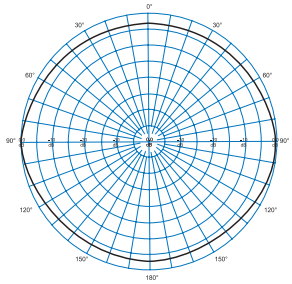


H Plane at ¼ wave antenna to mast spacing



Peak gain at 0° of 1dBd

H Plane at ½ wave antenna to mast spacing



Peak gain at 90°, 270° of 1dBd

Electrical

Model Number	SMD1	SMD12	SMD14	SMD1-99
Nominal Gain *dBi (dBd)*	Nominally 2 (Unity) but varies with mounting arrangements			
Frequency *MHz*	70 - 85			66 - 108
Tuned Bandwidth	Entire band			10%
VSWR (Return Loss)	<1.5 :1 (14dB)			
Nominal Impedance Ω	50			
Vertical Beamwidth	Typically 74° at ¼ λ antenna - mast spacing			
Horizontal Beamwidth	Typically 260° at ¼ λ antenna - mast spacing			
Input Power *W*	300			

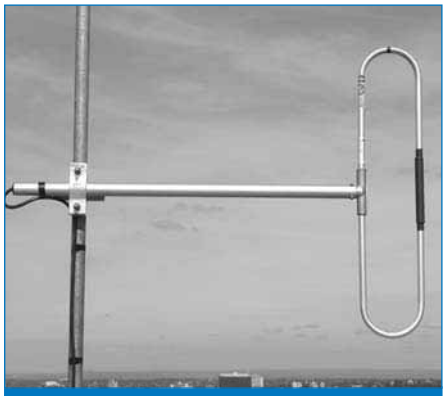
Mechanical

Model Number		SMD1	SMD12	SMD14	SMD1-99
Construction		Thick walled aluminium with cast aluminium hub	Heavy duty aluminium with black epoxy finish	Stainless steel with cast aluminium hub	Thick walled aluminium with cast aluminium hub
Length *m*		1.8			1.9
Weight *kg*		2.5	3.0	4.4	3.0
Termination		N female with RG213 cable tail			
Mounting Area		300mm x 40mm diam. aluminium		300mm x 38mm diam. stainless steel	300mm x 40mm diam. aluminium
Suggested Clamps		1 x UCR1 or UCR2			
Projected Area *cm²*	No ice	1566	1752	1501	1872
	With ice	3000	3157	2930	3527
Wind Load (Thrust) @ 160km/h *N*		186	208	178	222
Torque @160 km/h *Nm*		139	160	133	150

VHF Side Mounted Dipole Antennas

108-200 MHz

SMD2 Series



SMD2

The SMD2 Series side mounted dipoles are broad band antennas which, through different phasing and mounting arrangements can offer a variety of patterns (generally cardioid) tailored to specific coverage requirements. These antennas can be mounted in dual arrays for 3dB gain, or four-stack arrays for 6dB gain over a single dipole.

The SMD2 is constructed of heavy gauge corrosion resistant anodised aluminium tubing with a high pressure cast aluminium hub assembly and stainless steel fittings. This combination provides an exceptionally strong antenna, suited for extreme weather conditions.

The SMD22 is a ruggedised antenna featuring extremely heavy walled tubing, all welded aluminium construction and a black epoxy coating to aid in solar heat retention. The SMD24 is a stainless steel version and is ideal in corrosive marine environments. All of the antennas are electrically identical.

SMD antenna construction allows for the entire antenna to rest at ground potential, making it highly recommended in lightning prone applications.

- Can be phased to provide 3 dBd or 6 dBd gain, in a variety of patterns tailored to suit specific requirements. See page 74 for our full range of phasing harnesses.
- Full bandwidth coverage for both single antennas and phased arrays - ideal in community sites
- High strength - SMD2 features anodised aluminium construction and high pressure cast aluminium centrepiece
- Rugged and stainless steel versions also available
- Normally available ex-stock for immediate delivery

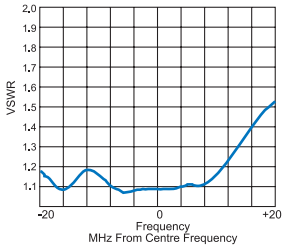
All antennas are supplied with a boom for ¼ wave antenna to mast spacing. Booms for ½ wave spacing and full wave spacing are also available. Application details on phasing and mounting of SMD antennas are included in the technical notes at the back of this catalogue.

VHF Side Mounted Dipole Antennas

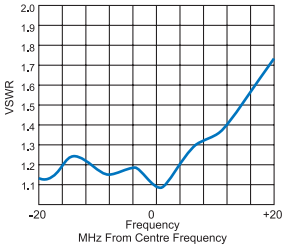
108-200 MHz

SMD2 Series

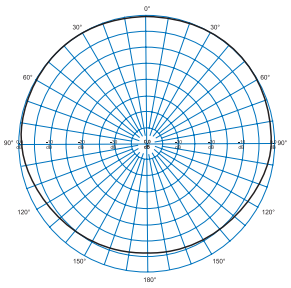
Typical VSWR response (SMD2,22,24) at ¼ wave spacing



Typical VSWR response (SMD2,22,24) at ½ wave spacing

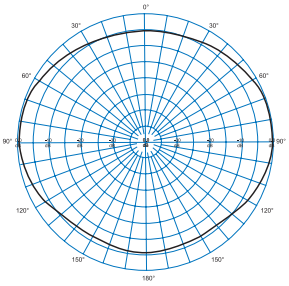


H Plane at ¼ wave antenna to mast spacing



Peak gain at 0° of 1dBd

H Plane at ½ wave antenna to mast spacing



Peak gain at 90°, 270° of 2dBd

Electrical

Model Number	SMD2	SMD22	SMD24	SMD2-99
Nominal Gain *dBi (dBd)*	Nominally 2 (Unity) but varies with mounting arrangements			
Frequency *MHz*	148 - 175			108 - 200
Tuned Bandwidth	Entire band			10%
VSWR (Return Loss)	<1.5 :1 (14dB)			
Nominal Impedance Ω	50			
Vertical Beamwidth	Typically 74° at ¼ λ antenna - mast spacing			
Horizontal Beamwidth	Typically 230° at ¼ λ antenna - mast spacing			
Input Power *W*	250			

Mechanical

Model Number		SMD2	SMD22	SMD24	SMD2-99
Construction		Thick walled aluminium with cast aluminium hub	Heavy duty aluminium with black epoxy finish	Stainless steel with cast aluminium hub	Thick walled aluminium with cast aluminium hub
Length *m*		0.9			1.3
Weight *kg*		1.5	2.0	3.0	2.0
Termination		N female with RG213 cable tail			
Mounting Area		300mm x 40mm diam. aluminium		300mm x 38mm diam. stainless steel	300mm x 40mm diam. aluminium
Suggested Clamps		1 x UCR1 or UCR2			
Projected Area *cm²*	No ice	849	927	810	1373
	With ice	1644	1633	1604	2524
Wind Load (Thrust) @ 160km/h *N*		101	110	96	163
Torque @160 km/h *Nm*		50	57	48	110

UHF Side Mounted Dipole Antennas

360-600 MHz

SMD4 Series

SMD4-67

The SMD4 series are a range of unity gain side mounted dipoles which can be used as a single antenna for short range applications or, if desired, phased together to provide high gain array coverage characteristics.

The SMD4-67 is of all welded aluminium construction. The feed point is protected by an ABS cap, with the internal PTFE based cable construction providing excellent intermodulation performance (-150dBc).

The stainless steel SMD41-67 is electrically identical to its aluminium counterpart and is recommended for corrosive environments.

All of the SMD4 series antennas are directly DC grounded for superior lightning protection and the reduction of precipitation static noise.

The SMD4 Series antennas are supplied with a boom for ¼ wave antenna to mast spacing. Application details on phasing and mounting of SMD antennas are included in the technical notes at the back of this catalogue.

- Versatile - Antennas can be phased and manipulated to achieve a variety of horizontal radiation patterns and varying gains. See page 74 for our full range of phasing harnesses
- Stock Antennas - Generally available off the shelf
- Lightweight - Easily mounted and installed with single clamps
- All welded, full folded dipole construction
- Varying boom lengths available to suit coverage requirements

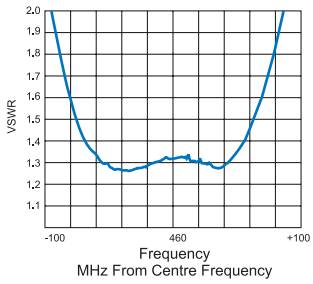
The SMD4-99 is a specific frequency version of the SMD4. This antenna is designed only for use as a single dipole, not as a component of a phased dipole array as the antenna is custom made to user specified frequencies and is not specifically matched to a phasing harness. It can be ordered with a specified centre frequency anywhere in the band from 360 to 600 MHz with an operating bandwidth of approximately 20% of centre frequency.

UHF Side Mounted Dipole Antennas

360-600 MHz

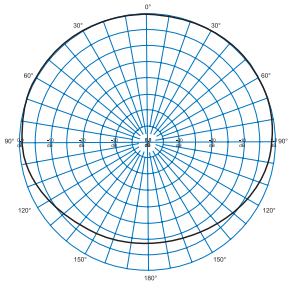
SMD4 Series

Typical VSWR response (SMD4-67)



SMD4-67 at ¼ wave antenna to mast spacing

SMD4-67 - H Plane



Peak gain at 0° of 2dBd

Electrical

Model Number	SMD4-67	SMD41-67	SMD4-99	SMD41-99
Nominal Gain *dBi (dBd)*	Nominally 2 (Unity) but varies with mounting arrangements			
Frequency *MHz*	400 - 520		360 - 600	
Tuned Bandwidth	Entire band		20.0%	
VSWR (Return Loss)	<1.5 :1 (14dB)			
Nominal Impedance Ω	50			
Vertical Beamwidth	Typically 70° at ¼ λ antenna - mast spacing			
Horizontal Beamwidth	Typically 220° at ¼ λ antenna - mast spacing			
Input Power *W*	500			
Passive IM 3rd order *dBc*	-150			

Mechanical

Model Number		SMD4-67	SMD41-67	SMD4-99	SMD41-99
Construction		All welded aluminium with alodined finish	Stainless steel	All welded aluminium with alodined finish	Stainless steel
Length *m*		0.4	0.4	0.5	0.5
Weight *kg*		0.3	0.6	0.3	0.6
Termination		N female with short 9142 cable tail			
Mounting Area		100mm x 25mm diam. alodined aluminium			
Suggested Clamps		1 x UNV			
Projected Area *cm²*	No ice	200		213	
	With ice	423		480	
Wind Load (Thrust) @ 160km/h *N*		24		25	
Wind Gust Rating *km/h*		>240			
Torque @160 km/h *Nm*		3		5	

UHF Side Mounted Dipole Antenna

806-960 MHz

SMD8-90

SMD8-90

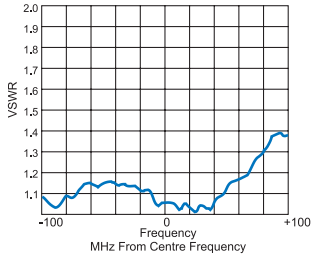
The SMD8-90 side mount dipole is an extremely broad bandwidth antenna recommended for local area coverage or short haul RF link applications.

The antenna is internally DC grounded for lightning protection and the reduction of precipitation static noise.

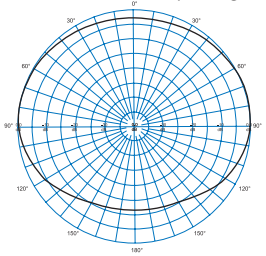
- Provides either directional or largely omnidirectional radiation pattern
- All welded and alodined aluminium construction

Please note, we recommend against phasing the SMD8-90 antenna as the required accuracy is far too critical to be adequately controlled in the field. Thus, we do not publish any information to assist in the phasing of our 800 MHz side mount dipole antennas.

Typical VSWR response (SMD8-90)



SMD8-90 H Plane at ¼ wave antenna to mast spacing



Peak gain at 0° of 2dBd

Electrical

Model Number	SMD8-90
Nominal Gain *dBi (dBd)*	Nominally 2 (Unity) but varies with mounting arrangements
Frequency *MHz*	806 - 960
Tuned Bandwidth	Entire band
VSWR (Return Loss)	<1.5 :1 (14dB)
Nominal Impedance Ω	50
Vertical Beamwidth	Typically 85° at ¼ λ antenna - mast spacing
Horizontal Beamwidth	Typically 213° at ¼ λ antenna - mast spacing
Input Power *W*	200

Mechanical

Model Number		SMD8-90
Construction		All welded aluminium with alodined finish
Length *m*		0.3
Weight *kg*		0.2
Termination		N female with short 9142 cable tail
Mounting Area		100mm x 25mm diam. alodined aluminium
Suggested Clamps		1 x UNV
Projected Area *cm²*	No ice	96
	With ice	227
Wind Load (Thrust) @ 160km/h *N*		11
Wind Gust Rating *km/h*		>240
Torque @160 km/h *Nm*		1

waves

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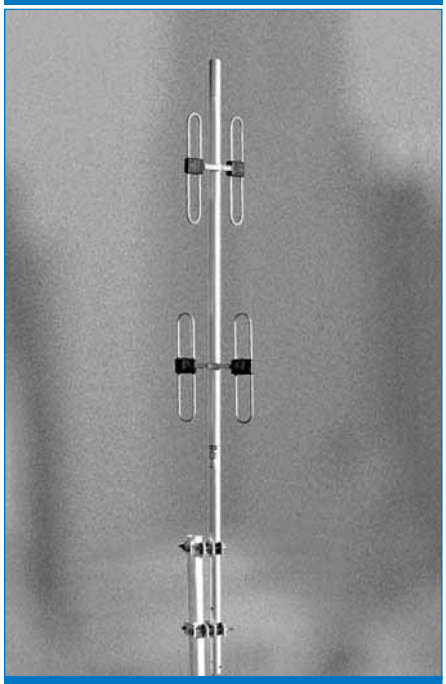
VHF Omnidirectional Dipole Arrays

136-174 MHz

BA40-41 Series
BA80-41 Series



BA40-41

These high performance VHF dipole omnidirectional arrays are for use in highly populated radio sites requiring long haul omnidirectional coverage. The arrays feature high gain, low noise performance and enhanced null fill coverage with omnidirectional coverage characteristics.

Each of the dipoles are fed via an internal phasing harness in stable, PTFE based double-screened coaxial cable with PE jacket for optimum weatherproofing. These omnidirectional arrays incorporate extensive side lobe suppression and null fill, and the binary phasing arrangement ensures consistent omnidirectional coverage and vertical pattern control.

These arrays provide unparalleled bandwidth, covering the entire 136-174 MHz band and offer gain of 3 or 6dBd over that band with a VSWR of less than 1.5:1. With input power levels of 750 watts, the antennas are suitable for high power paging sites or high density, multi-channel installations requiring maximum performance and service life.

With all welded construction and superior internal harness construction, these antennas provide not only excellent pattern characteristics but also defined, high levels of intermodulation and noise suppression. The entire array rests at ground potential and offers the ultimate in lightning resistant antennas.

- High gain omnidirectional patterns
- Operate over entire 136-174 MHz VHF band without tuning or adjustment
- Modular mix and match format allows future-proofing installations
- 3° downtilt option available on BA80 (four pair) version
- Inverted mounting version available
- **Industry leading PIM ratings (-150dBc) providing low IM and low noise characteristics for optimum performance**

Options available include

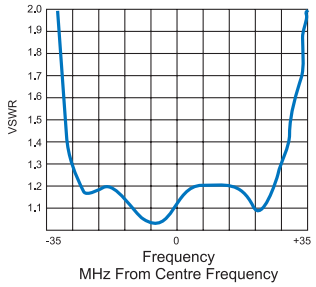
- *All stainless steel 316 grade construction (3dBd array only)*
- *Inverted mounting configuration*
- *BA80-41 may be operated as 2 x 3dBd arrays by removing external cable harness*

VHF Omnidirectional Dipole Arrays

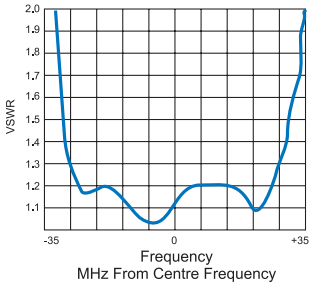
136-174 MHz

BA40-41 Series
BA80-41 Series

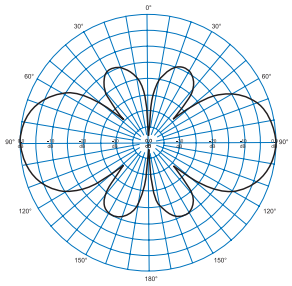
Typical VSWR response (BA40-41)



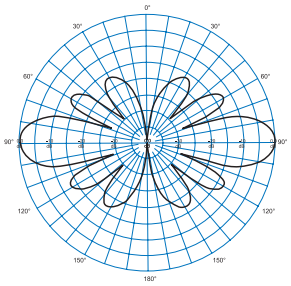
Typical VSWR response (BA80-41)



BA40-41 - E Plane



BA80-41 - E Plane



Electrical

Model Number	BA40-41	BA80-41
Nominal Gain *dBi (dBd)*	5 (3)	8 (6)
Frequency *MHz*	136 - 174	
Tuned Bandwidth	Entire band	
VSWR (Return Loss)	<1.5 :1 (14dB)	
Nominal Impedance Ω	50	
Downtilt	Not offered	0° Std, -3°. See note (1)
Vertical Beamwidth	35°	18°
Horizontal Beamwidth	Omni +/-0.5dB	
Input Power *W*	750	
Passive IM 3rd order *dBc*	-150	

Mechanical

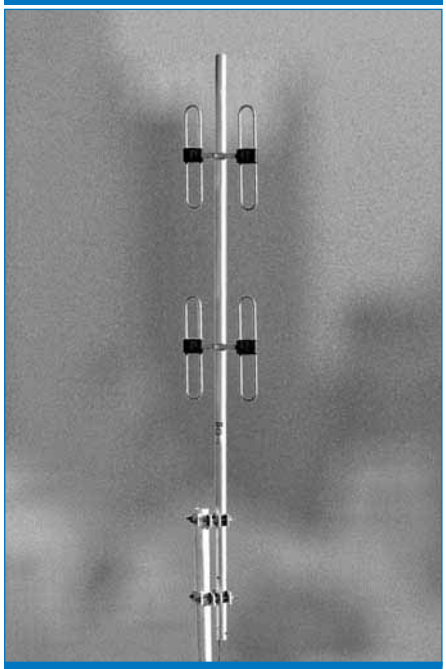
Model Number		BA40-41	BA80-41
Construction		All welded aluminium with alodined finish. See note (2)	
Length *m*		3.5	6.3
Weight *kg*		14.5	31
Termination		N female with 0.5m 9142 cable tail. See note (3)	
Mounting Area		500mm x 63mm diam. aluminium	500mm x 76mm diam. aluminium
Suggested Clamps		2 x UC1	
Projected Area *cm²*	No ice	4164	8294
	With ice	7117	13325
Wind Load (Thrust) @ 160km/h *N*		494	983
Wind Gust Rating *km/h*		240	184
Torque @160 km/h *Nm*		617	2605

(1) Factory pre-set downtilt of 3° may be specified on BA80 series antennas using model no. trailer -T3
(2) BA40 series can be optionally supplied in all welded 316 grade stainless steel. Dimensions vary slightly
(3) Connector termination option available of 7/16 DIN female connector using model no. trailer -DIN

VHF Elliptical Dipole Arrays

136-174 MHz

EA40-41
EA80-41



EA40-41

These high performance VHF binary phased elliptical arrays are ideal for the bi-directional coverage requirement of paging and VHF high band mobile “corridor” applications. The main lobe of these arrays is strong and highly controlled with extensive side lobe suppression ensuring the integrity of the pattern.

The folded dipoles utilise an internal phasing harness in stable, PTFE based double-screened coaxial cable with PE Jacket for optimal weatherproofing. These elliptical arrays incorporate extensive side lobe suppression, null fill, and accommodate power input levels of 750 watts continuous.

With all welded construction and superior internal harness construction these antennas provide not only excellent radiation characteristics but also high levels of intermodulation and noise suppression. The entire array rests at ground potential and offers the ultimate in lightning resistant antennas.

- High gain elliptical pattern with 5dBd or 8dBd versions available
- Operate over entire 136-174 MHz band without tuning or adjustment
- Inverted mounting version available
- **Industry leading PIM ratings (-150dBc) providing low IM and low noise characteristics for optimum performance**

Options available include

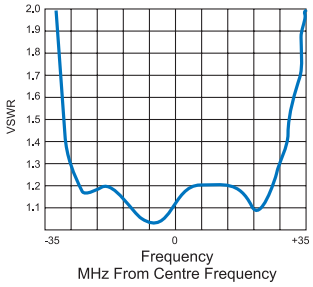
- *All stainless steel 316 grade construction (5dBd array only)*
- *Inverted mounting configuration*
- *EA40-41 may be operated as 2 x 5dBd arrays by removing external cable harness*

VHF Elliptical Dipole Arrays

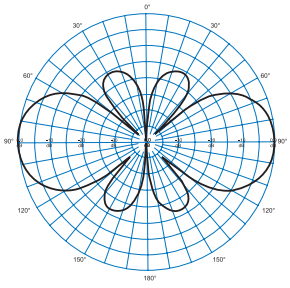
136-174 MHz

EA40-41
EA80-41

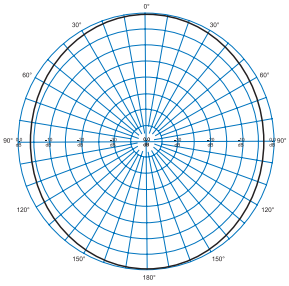
Typical VSWR response (EA40-41)



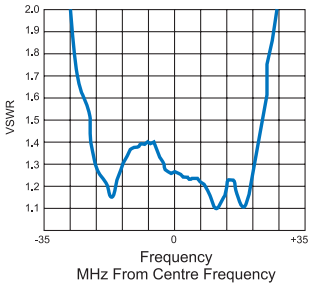
EA40-41 - E Plane



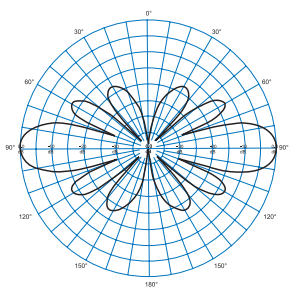
EA40-41 - H Plane



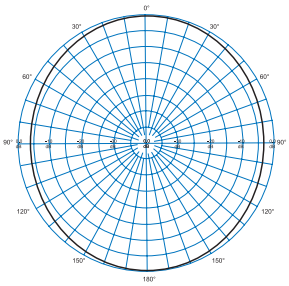
Typical VSWR response (EA80-41)



EA80-41 - E Plane



EA80-41 - H Plane



Electrical

Model Number	EA40-41	EA80-41
Nominal Gain *dBi (dBd)*	7 (5)	10 (8)
Frequency *MHz*	136 - 174	
Tuned Bandwidth	Entire band	
VSWR (Return Loss)	<1.5 :1 (14dB)	
Nominal Impedance Ω	50	
Downtilt	Not offered	0° Std, -3°. See note (1)
Vertical Beamwidth	35°	17°
Horizontal Beamwidth	104°	128°
Input Power *W*	750	
Passive IM 3rd order *dBc*	-150	

Mechanical

Model Number		EA40-41	EA80-41
Construction		All welded aluminium with alodined finish. See note (2)	
Length *m*		3.5	6.3
Weight *kg*		14.5	31.0
Termination		N female with 0.5m 9142 cable tail. See note (3)	
Mounting Area		500mm x 63mm diam. aluminium	500mm x 76mm diam. aluminium
Suggested Clamps		2 x UC1	
Projected Area *cm²*	No ice	4781	9513
	With ice	8701	16475
Wind Load (Thrust) @ 160km/h *N*		567	1127
Wind Gust Rating *km/h*		240	175
Torque @160 km/h *Nm*		708	2988

(1) Factory pre-set downtilt of 3° may be specified on EA80 series antennas using model no. trailer -T3
(2) EA40 series can be optionally supplied in all welded 316 grade stainless steel. Dimensions vary slightly
(3) Connector termination option available of 7/16 DIN female connector using model no. trailer -DIN

VHF Offset Dipole Arrays

136-174 MHz

OA20-41
OA40-41

OA20-41

These high performance VHF dipole offset arrays are ideal for use when a cardioid pattern is required. The arrays feature high gain, low noise performance and enhanced null fill coverage with typical cardioid coverage characteristics.

OA series arrays have an almost full 180° horizontal beamwidth. This eliminates the possibility of fading at the extremities of the target coverage area. Antenna gain is approximately unity at the rear of the antenna.

As would be expected from a cardioid array, the vertical beamwidth is slightly greater than its BA (omnidirectional) or EA (elliptical) pattern counterparts.

OA series arrays feature the same solid construction as the BA and EA Series. The folded dipoles utilise an internal phasing harness in stable, PTFE based double-screened coaxial cable with PE jacket for optimum weatherproofing. The offset arrays incorporate extensive side lobe suppression, null fill, and power input level of 750 watts continuous.

With all welded construction and superior internal harness construction these antennas provide not only excellent pattern characteristics but also high levels of intermodulation and noise suppression. The entire array rests at ground potential and offers the ultimate in lightning resistant antennas.

- High gain offset (cardioid) pattern. 5dBd or 9dBd versions available
- Operate over entire 136-174 MHz VHF band without tuning or adjustment
- Modular mix and match format allows future-proofing installations
- 3° downtilt option available
- Inverted mounting version available
- **Industry leading PIM ratings (-150dBc) providing low IM and low noise characteristics for optimum performance**

Options available include

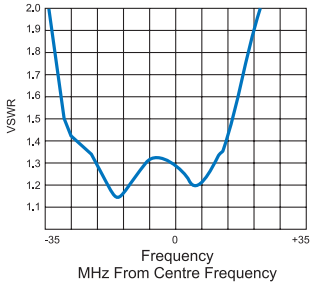
- *All stainless steel 316 grade construction (5dBd array only)*
- *Inverted mounting configuration*
- *OA40-41 may be operated as 2 x 5dBd arrays by removing external cable harness*

VHF Offset Dipole Arrays

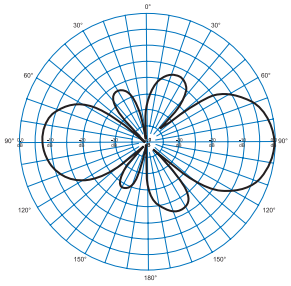
136 - 174 MHz

OA20-41
OA40-41

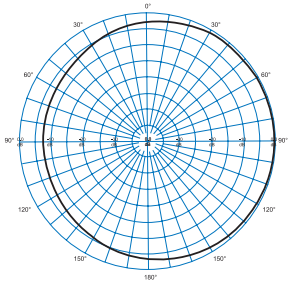
Typical VSWR response (OA20-41)



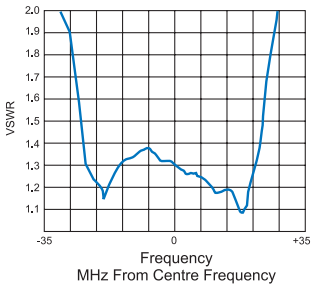
OA20-41 - E Plane



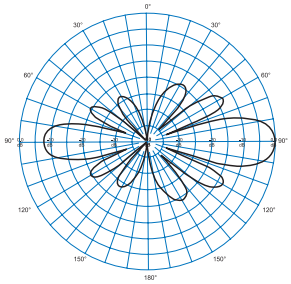
OA20-41 - H Plane



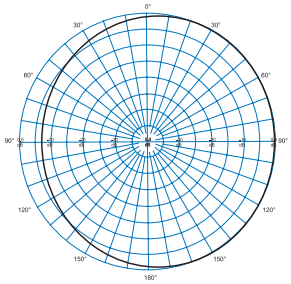
Typical VSWR response (OA40-41)



OA40-41 - E Plane



OA40-41 - H Plane



Electrical

Model Number	OA20-41	OA40-41
Nominal Gain *dBi (dBd)*	7 (5)	11 (9)
Frequency *MHz*	136 - 174	
Tuned Bandwidth *MHz*	Entire band	
VSWR (Return Loss)	<1.5 :1 (14dB)	
Nominal Impedance Ω	50	
Downtilt	Not offered	0 Std, -3°. See note (1)
Vertical Beamwidth	35°	17°
Horizontal Beamwidth	178°	176°
Input Power *W*	750	
Passive IM 3rd order *dBc*	-150	

Mechanical

Model Number		OA20-41	OA40-41
Construction		All welded aluminium with alodined finish. See note (2) for stainless steel options.	
Length *m*		3.5	6.3
Weight *kg*		12.5	29.0
Termination		N female with 0.5m 9142 cable tail. See note (3).	
Mounting Area		500mm x 63mm diam. aluminium	500mm x 76mm diam. aluminium
Suggested Clamps		2 x UC1	
Projected Area *cm²*	No ice	3710	7396
	With ice	6188	11481
Wind Load (Thrust) @ 160km/h *N*		440	877
Wind Gust Rating *km/h*		240	191
Torque @160 km/h *Nm*		550	2323

(1) Factory pre-set downtilt of 3° may be specified on OA40 series antennas using model no. trailer - T3
(2) OA20 series can be optionally supplied in all welded 316 grade stainless steel. Dimensions vary slightly
(3) Connector termination option available of 7/16 DIN female connector using model no. trailer -DIN

UHF Omnidirectional Dipole Arrays

330-520 MHz

BA40 Series
BA80 Series
BA160 Series

BA80

These high performance UHF dipole arrays are ideal for highly populated radio sites requiring long haul omnidirectional coverage. They operate over entire bands and offer gains of 3, 6 or 9dBd (depending on model) exhibiting a VSWR of <1.5:1 across the band.

The arrays utilise an internal phasing harness in PTFE based double screened coaxial cable with polyethylene jacket to aid waterproofing and resist bird attack. The use of a unique phasing arrangement provides extensive side lobe suppression and null fill characteristics. The arrays will accept an input power level of 500 watts continuous, making them ideal for high power multiple transmitter applications. The BA80 series are offered with 3°, 5° or 8° downtilt, to further enhance close-in coverage characteristics.

All welded alodined aluminium construction and new fabrication techniques in both the harness and dipole sections have proven to minimise intermodulation and noise generated within the antennas. The entire array rests at ground potential and offers the ultimate in lightning resistant antennas.

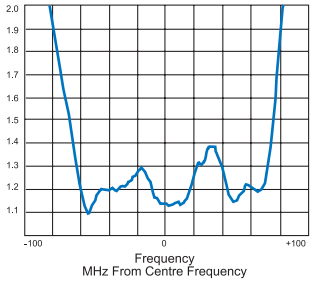
- Ideal for highly populated sites requiring long haul omnidirectional coverage
- Operate over entire 330-420 or 400-520 MHz bands
- 3, 6 or 9 dBd gain versions available
- Inverted mounting version available
- Versions with 0°, 3°, 5° or 8° of downtilt available
- Extensive side lobe suppression and null fill
- **Industry leading PIM ratings (-150dBc) providing low IM and low noise characteristics for optimum performance**

UHF Omnidirectional Dipole Arrays

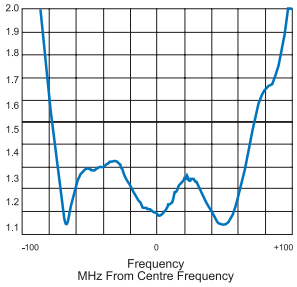
330-520 MHz

BA40 Series
BA80 Series
BA160 Series

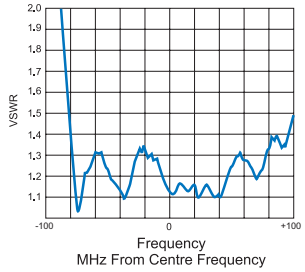
Typical VSWR response (BA40-67)



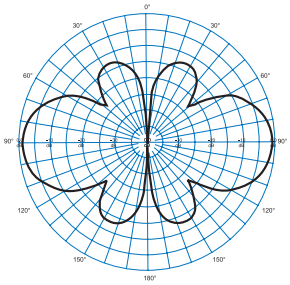
Typical VSWR response (BA80-67)



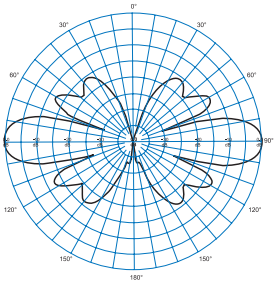
Typical VSWR response (BA160-67-T3)



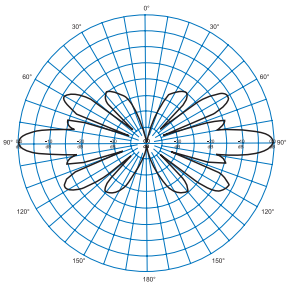
BA40-67 - E Plane



BA80-67 - E Plane



BA160-67 - E Plane



Electrical

Model Number	BA40-57	BA40-67	BA80-57	BA80-67	BA160-67-T3
Nominal Gain *dBi (dBd)*	5 (3)		8 (6)		11 (9)
Frequency *MHz*	330 - 420	400 - 520	330 - 420	400 - 520	
Tuned Bandwidth	Entire band				
VSWR (Return Loss)	<1.5 :1 (14dB)				
Nominal Impedance Ω	50				
Downtilt	Not offered		0° Std, -3°, -5°, -8°. See note (1)		3°
Vertical Beamwidth	30°		16°		9°
Horizontal Beamwidth	Omni +/- 0.5dB				
Input Power (Watts)	500				
Passive IM 3rd order *dBc*	-150				

Mechanical

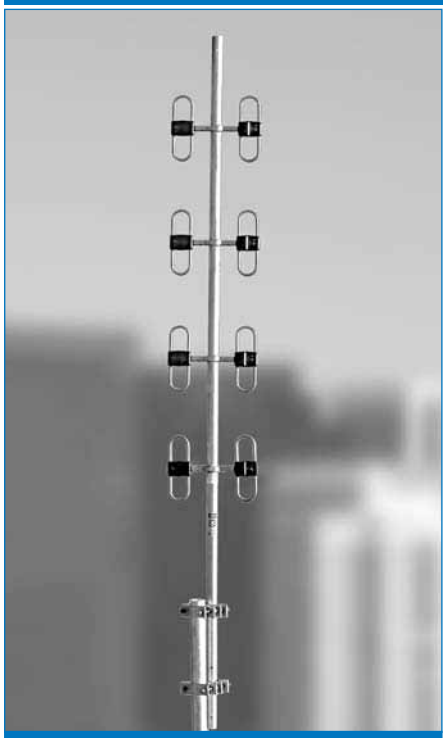
Model Number		BA40-57	BA40-67	BA80-57	BA80-67	BA160-67-T3
Construction		All welded aluminium with alodined finish. See (2) and (3) for alternate finishes				
Length *m*		2.1	2.1	3.0		5.0
Weight *kg*		5.0		8.0		20.0
Termination		N female with 0.5m 9142 cable tail. See note (4)				
Mounting Area		500mm x 48mm diam. aluminium				500mm x 63mm diam. aluminium
Suggested Clamps		2 x UC1				
Projected Area *cm²*	No ice	1913	1833	3222	3063	6040
	With ice	3182	2990	5835	5451	10085
Wind Load (Thrust) @ 160km/h *N*		227	217	382	363	716
Wind Gust Rating *km/h*		240		235	240	216
Torque @160 km/h *Nm*		116	111	382	363	1417

(1) Factory pre-set downtilt of 3°, 5° or 8° may be specified on BA80 series antennas using model no. trailer - T3, -T5 or -T8
(2) Ruggedised black powder coat finish (aids in ice shedding for extreme conditions) is available on all aluminium arrays.
(3) BA40 and BA80 series may be optionally supplied in all welded 316 Marine Grade Stainless steel. Dimensions vary slightly
(4) Connector termination option available of 7/16 DIN female connector using model no. trailer -DIN

UHF Elliptical Dipole Arrays

330-520 MHz

EA40 Series
EA80 Series



EA80

The EA series arrays provide exceptionally high gain with an elliptical shaped radiation pattern, ideal for the bi-directional coverage requirements of some "corridor" applications.

The array utilises an internal phasing harness in PTFE based double screened coaxial cable with polyethylene jacket to aid waterproofing and resist bird attack.

The main lobe of these antennas is strong and highly controlled with extensive side lobe suppression ensuring the integrity of the pattern. To further boost performance, users of the EA80 array may specify beamtilt of 0, -3 or -5 degrees. Superior performance is maintained over the entire operating bandwidth of the antenna (330-420 MHz or 400-520 MHz). VSWR is maintained at <1.5:1 and input power levels of 500 watts are catered to for true high density site requirements.

With all welded construction and superior internal harness construction (using highly stable PTFE based cables) the antennas provide not only excellent radiation characteristics but also high levels of intermodulation and noise suppression. IM performance is a world leading -150dBC based on a two carrier test. The entire array rests at ground potential and offers the ultimate in lightning resistant antennas.

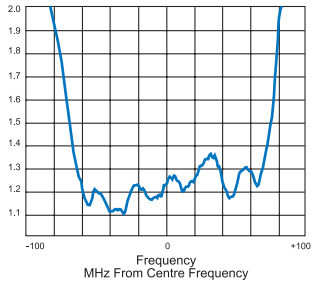
- Ideal for highly populated sites requiring "corridor" style largely bidirectional coverage
- 5dBd or 8dBd gain versions available
- Inverted mounting version available
- 0°, 3° or 5° of downtilt available
- Extensive side lobe suppression and null fill
- Hermetically sealed internal phasing harness
- **Industry leading PIM ratings (-150dBc) providing low IM and low noise characteristics for optimum performance**

UHF Elliptical Dipole Arrays

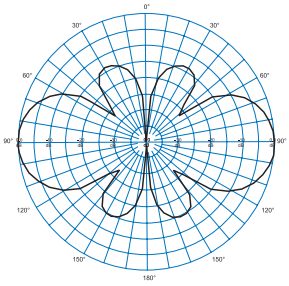
330-520 MHz

EA40 Series
EA80 Series

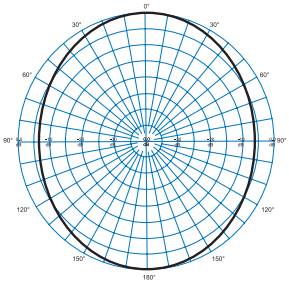
Typical VSWR response (EA40-67)



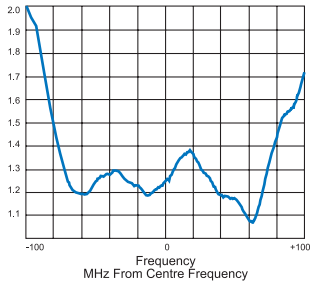
EA40-67 - E Plane



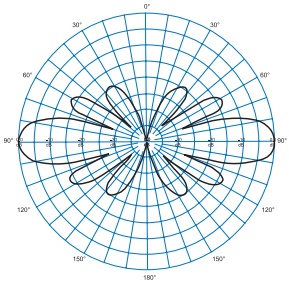
EA40-67 - H Plane



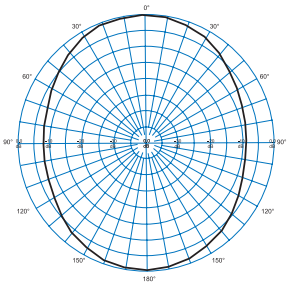
Typical VSWR response (EA80-67)



EA80-67 - E Plane



EA80-67 - H Plane



Electrical

Model Number	EA80-57	EA40-67	EA80-67
Nominal Gain *dBi (dBd)*	10 (8)	7 (5)	10 (8)
Frequency *MHz*	330 - 420	400 - 520	
Tuned Bandwidth *MHz*	Entire band		
VSWR (Return Loss)	<1.5 :1 (14dB)		
Nominal Impedance Ω	50		
Downtilt	Not offered	Not offered	0° Std -3°, -5°. See note (1)
Vertical Beamwidth	17°	34°	17°
Horizontal Beamwidth	74°	70°	74°
Input Power *W*	500		
Passive IM 3rd order *dBc*	-150		

Mechanical

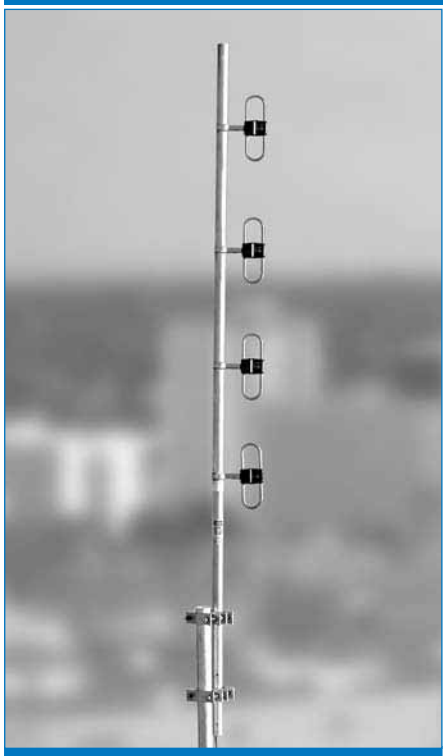
Model Number		EA80-57	EA40-67	EA80-67
Construction		All welded aluminium with alodined finish. See note (2)		
Length *m*		3.0	2.1	3.0
Weight *kg*		8.0	5.0	8.0
Termination		N female with 0.5m 9142 cable tail. See note (3)		
Mounting Area		500mm x 48mm diam. aluminium		
Suggested Clamps		2 x UC1		
Projected Area *cm²*	No ice	3827	2118	3633
	With ice	7053	3527	6527
Wind Load (Thrust) @ 160km/h *N*		454	251	431
Wind Gust Rating *km/h*		226	240	219
Torque @160 km/h *Nm*		454	128	431

(1) Factory pre-set downtilt of 3° or 5° may be specified on EA80-67 series antennas using model no. trailer -T3 or -T5
(2) EA40 and EA80 series may be optionally supplied in all welded 316 Marine Grade Stainless steel. Dimensions vary slightly
(3) Connector termination option available of 7/16 DIN female connector using model no. trailer -DIN

UHF Offset Dipole Arrays

330-520 MHz

OA20 Series
OA40 Series



OA40

Offset arrays are directional antennas for use when a base station is at one end of the coverage area. These new arrays feature improved gains, low noise performance and enhanced null fill coverage in an array with typical cardioid coverage characteristics.

OA Series arrays feature the same solid construction as the BA and EA series. The array utilises an internal phasing harness in PTFE based double screened coaxial cable with polyethylene jacket to aid waterproofing and resist bird attack.

The OA Series have slightly more than 170° horizontal beamwidth, thus everything in front of the antenna is given coverage. This eliminates the possibility of fading at the extremities of the target coverage area. The level of radiation at the rear of the antenna is approximately unity gain.

As would be expected from a cardioid array, the vertical beamwidth is slightly greater than its BA omnidirectional or EA elliptical pattern counterparts.

These antennas are also offered with -3°, -5° or -8° of beamtilt, and all include extensive side lobe suppression, null fill and a power input level of 500 Watts continuous.

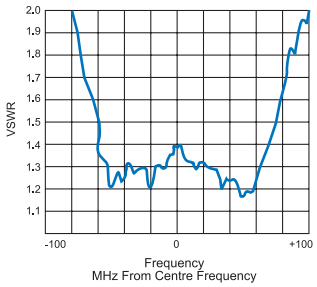
- Operate over entire 330-420MHz or 400-520 MHz bands
- Inverted mounting version available
- 5dBd or 9dBd gain versions available
- Hermetically sealed internal phasing harness
- **Industry leading PIM ratings (-150dBc) providing low IM and low noise characteristics for optimum performance**

UHF Offset Dipole Arrays

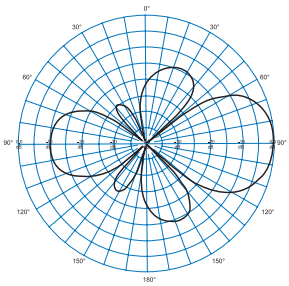
330-520 MHz

OA20 Series
OA40 Series

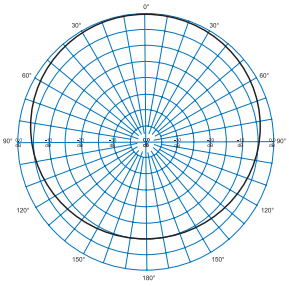
Typical VSWR response (OA20-67)



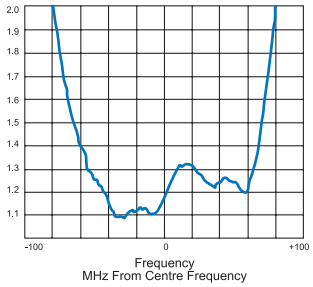
OA20-67 - E Plane



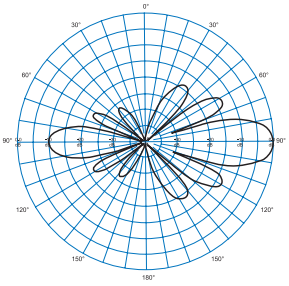
OA20-67 - H Plane



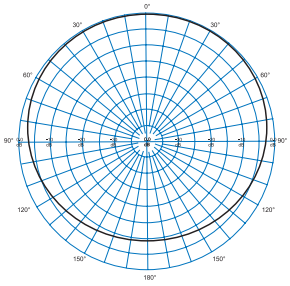
Typical VSWR response (OA40-67)



OA40-67 - E Plane



OA40-67 - H Plane



Electrical

Model Number	OA20-57	OA20-67	OA40-57	OA40-67
Nominal Gain *dBi (dBd)*	7 (5)		11 (9)	
Frequency *MHz*	330 - 420	400 - 520	330 - 420	400 - 520
Tuned Bandwidth *MHz*	Entire band			
VSWR (Return Loss)	<1.5 :1 (14dB)			
Nominal Impedance Ω	50			
Downtilt	Not offered		0° Std, -3°, -5°, -8°. See Note (1)	
Vertical Beamwidth	35°		17°	
Horizontal Beamwidth	175°	180°	173°	178°
Input Power (Watts)	500			
Passive IM 3rdOrder *dBc*	-150			

Mechanical

Model Number		OA20-57	OA20-67	OA40-57	OA40-67
Construction		All welded aluminium with alodined finish. See notes (2) and (3) for alternative finishes.			
Length *m*		2.1		3.0	
Weight *kg*		4.0		6.5	
Termination		N female with 0.5m 9142 cable tail. See note (4).			
Mounting Area		500mm x 48mm diam. aluminium			
Suggested Clamps		2 x UC1			
Projected Area *cm²*	No ice	1694	1646	2785	2688
	With ice	2697	2565	4865	4602
Wind Load (Thrust) @ 160km/h *N*		201	195	330	319
Wind Gust Rating *km/h*		>240			
Torque @160 km/h *Nm*		102	99	330	319

(1) Factory pre-set downtilt may be specified on OA40 series antennas using model no. trailer - T3, -T5 or -T8
(2) Ruggedised black powder coated finish (aids in ice shedding for extreme conditions) is available on all aluminium arrays
(3) OA20 and OA40 series may be optionally supplied in all welded 316 Marine Grade Stainless steel. Dimensions vary slightly
(4) Connector termination option available of 7/16 DIN female connector using model no. trailer - DIN

Array Combinations

330-520 MHz

UHF Array Combinations

The RFI range of UHF dipole arrays provide expanded bandwidth, high power ratings and unequalled performance in gain, pattern and intermodulation performance.

Ever increasing costs and site density requirements are reducing availability of antenna positions on prime sites. In order to reduce the overall number of antennas the RFI dipole array series provides system engineers and site owners with a flexible solution to reduce antenna numbers.

The RFI combination arrays are available in three types:

The Single Section Multiple Array

A combination of two arrays mounted upon a single piece of 48.4mm diameter, 3 meter length mast section. These arrays are common where any combination of medium gain UHF omnidirectional, offset or elliptical arrays are required. The feeding of each of the arrays is via separate coaxial cable tails at the base of the array.

Some common configuration examples are shown in the following tables. The electrical specifications are very similar to those provided for the individual arrays listed within the catalogue. *Shown on the left is the BA4040-67.*

The Dual Section Combination Dipole Array

These arrays are provided in two sections for ease of shipping and handling and can be assembled on site.

The lower section array is made on a larger diameter mast stock, the upper array telescoping into the lower section. Both upper and lower arrays can be any one of our standard UHF arrays or be externally coupled for even higher gain using a PH42-67 phasing harness. This type of configuration provides unrestricted gain, pattern and beamtilt combinations.

Some more common configuration examples are shown in the following table. The electrical specifications are very similar to those provided for the individual arrays previously listed within the catalogue. *Shown on the left is the BA80-67L lower section with OA40-67 upper section.*

The Combination Collinear and Dipole Array

Similar in many regards to the above arrays this type of combination array employs a collinear antenna as the upper section of the array. These arrays are ideal where tower wind loading is a critical consideration. The collinear antenna fits into a lower section array, which can be essentially any style of our higher gain UHF dipole arrays.

The collinear antenna (COL8 or COL17) is held in an adaptor which can be fitted to any appropriately configured UHF dipole array.

A sample of the more common configurations are provided in the following table. The electrical specifications are very similar to those provided for the individual arrays previously listed within the catalogue. *Shown on the left is the BX80-67 lower section with COL8 upper section.*

Array Combinations

Ordering Details

Single Section Multiple Arrays

Part number	Description	Frequency
Omnis		
BA4040-57	2 x 3dBd omnis with separate feeds	330-420MHz
BA4040-67	2 x 3dBd omnis with separate feeds	400-520MHz
Elliptical		
EA4040-57	2 x 5dBd ellipticals with separate feeds	330-420MHz
EA4040-67	2 x 5dBd ellipticals with separate feeds	400-520MHz
Offset Sections		
OA2020-67	2 x 5dBd offsets with separate feeds	400-520MHz

Dual Section Combination Dipole Arrays

Shown below are lower sections only which include a through harness to connect your choice of upper section. Select your upper section from the arrays section shown on pages **22** to **27**.

Part number	Description	Frequency
Omnis		
BA4040-57L	2 x 3dBd omnis with separate feeds	330-420MHz
BA80-57L	1 x 6dBd omni	330-420MHz
BA4040-67L	2 x 3dBd omnis with separate feeds	400-520MHz
BA80-67L	1 x 6dBd omni	400-520MHz
Elliptical Sections		
EA4040-57L	2 x 5dBd ellipticals with separate feeds	330-420MHz
EA80-57L	1 x 8dBd elliptical	330-420MHz
EA4040-67L	2 x 5dBd ellipticals with separate feeds	400-520MHz
EA80-67L	1 x 8dBd elliptical	400-520MHz
Offset Sections		
OA2020-67L	2 x 5dBd offsets with separate feeds	400-520MHz
OA40-67L	1 x 9dBd offset	400-520MHz

When ordering a dual section combination array you will need to order as follows:

1. Specify your lower Section from the list above eg: BA80-67L **PLUS**
2. Specify your single upper section from pages **22** to **27**. eg: OA40-67.

Combination Collinear and Dipole Arrays

These lower sections are for use with COL series collinears. They are provided with a through harness to connect your choice of COL8 (UHF), COL15 (VHF) or COL17 (VHF) collinears.

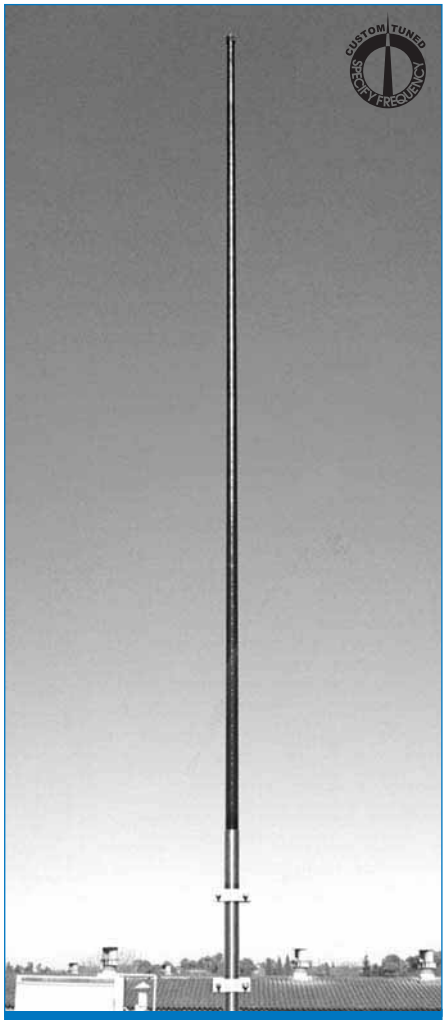
Omnis		
BX40-67	1 x 3dBd omni	400-520MHz
BX4040-67	2 x 3dBd omnis with separate feeds	400-520MHz
BX80-67	1 x 6dBd omni	400-520MHz
Elliptical Sections		
EX40-67	1 x 5dBd elliptical	400-520MHz
EX4040-67	2 x 5dBd ellipticals with separate feeds	400-520MHz
EX80-67	1 x 8dBd elliptical	400-520MHz
Offset Sections		
OX2020-67	2 x 5dBd offsets with separate feeds	400-520MHz
OX40-67	1 x 9dBd offset	400-520MHz

When ordering a combination collinear and dipole array you will need to order as follows:

1. Specify your lower Section from the list above eg: BX80-67 **PLUS**
2. Specify your COL collinear either COL15, COL17 or COL8 eg: COL8 (and remember to specify frequency)

66-88 MHz

COL16
COL1
COL34-T1



COL1

The 66-88 MHz COL range is a series of "cut to frequency" 3dBd gain vertical collinears. The range includes models suitable for simplex, duplex and heavy duty applications. They all include internal DC grounding for lightning protection and the reduction of static noise. Drainage vents at the base allow the antennas to 'breathe' and thus prevent condensation build up.

COL16

The COL16 is specifically designed to cater for transmit to receive separations of up to 2.0 MHz. The antenna is a series fed Collinear which is housed in a heavy duty tapered fibreglass radome, fitted with a alodined aluminium mounting tube. The COL16 (and the electrically identical COL1) have been specifically designed to maintain stable vertical radiation pattern characteristics at the extremities of the tuned bandwidth. This ensures reciprocity of transmit and receive signal characteristics.

COL1

The COL1 is an electrically identical internal design to the COL16 with ruggedised construction, designed for use in the most extreme climatic conditions. The radome which houses the active elements of the COL1 was originally designed to serve as the mast of recreational sail boards and is immensely strong. The radome is coloured black to maximise solar heat retention and this has been shown to aid significantly in ice shedding. The antenna is fitted with a large, 60mm diameter alodined aluminium mounting tube.

COL34-T1

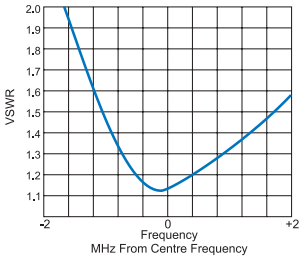
The COL34 is a two piece antenna designed for applications where the overall length of collinears for this band create transportation/ logistic issues. The antenna employs a machined brass coupling to ensure long term integrity over the service life of the antenna.

VHF Vertical Collinear Antennas

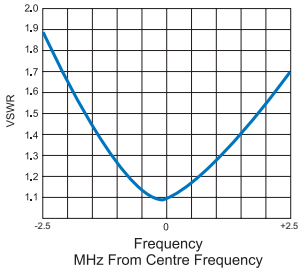
66-88 MHz

COL16
COL1
COL34-T1

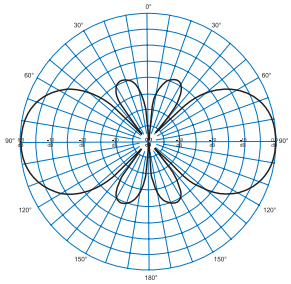
Typical VSWR response (COL16)



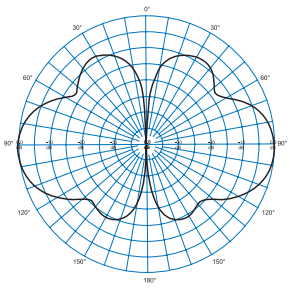
Typical VSWR response (COL34-T1)



COL16 - E Plane



COL34-T1 - E Plane



Electrical

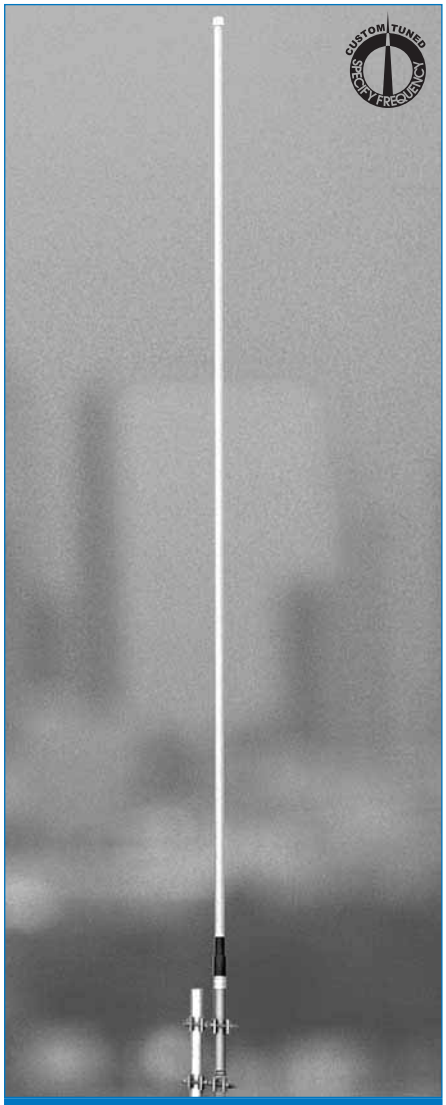
Model Number	COL16	COL1	COL34-T1
Nominal Gain *dBi (dBd)*	5 (3)		4 (2)
Frequency *MHz*	67 - 88	70 - 88	66 - 88
Tuned Bandwidth	3.0%		3.7%
VSWR (Return Loss)	<1.5 :1 (14dB)		
Nominal Impedance Ω	50		
Vertical Beamwidth	36°		40°
Horizontal Beamwidth	Omni +/- 0.5dB		
Input Power *W*	200		100

Mechanical

Model Number		COL16	COL1	COL34-T1
Construction		Alodined aluminium elements with white fibreglass radome	Alodined aluminium elements with ruggedised black fibreglass radome	Two part antenna joins with brass ferrules. White fibreglass radome
Length *m*		5.9	5.8	5.2
Weight *kg*		4.5	8.0	4.0
Termination		N female bulkhead		0.45m of RG213 with N female
Mounting Area		500mm x 44mm diam. alodined aluminium	750mm x 60mm diam. alodined aluminium	670mm x 38mm diam. stainless steel
Suggested Clamps		2 x UC1		
Projected Area *cm²*	No ice	1974	2736	1435
	With ice	3761	4459	2819
Wind Load (Thrust) @ 160km/h *N*		234	324	170
Wind Gust Rating *km/h*		212	240	164
Torque @160 km/h *Nm*		588	712	335

88-148 MHz

COL22
COL28
COL29



COL28

A series of "cut to frequency" 3 dBd gain vertical collinears. The range includes antennas suitable for simplex, duplex and heavy duty applications. These antennas are all rated at 200watt input power. They are DC grounded to provide maximum resistance to lightning and reduction of precipitation static noise.

COL22

This antenna is suited to single frequency applications in the 88-115 MHz band. The centre fed two-element design eliminates distortion of the radiation pattern and ensures a vertical pattern free of beamtilt. The radiating elements are of welded aluminium construction which minimise generation of intermodulation and spurious products. The radiating elements are enclosed in a tapered fibreglass radome which is fitted to a 40mm diameter alodined aluminium mounting tube. The antenna is terminated with a fixed N-type female connector which is easily accessible for sealing.

COL28

This is a broadband duplex antenna for the 115-148 MHz band specifically designed to cater for transmit to receive separations of up to 4.6 MHz. The antenna is a series fed Collinear which is housed in a heavy duty tapered fibreglass radome, fitted to an alodined aluminium mounting tube. The COL28 (and the electrically identical COL29) have been specifically designed to maintain stable vertical radiation pattern characteristics at the extremities of the spot tuned bandwidth.

COL29

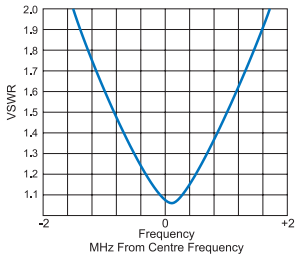
The COL29 is electrically identical to the COL28 antenna and may be used in duplex or simplex applications in the 115-148 MHz band. The COL29 is a ruggedised antenna, designed for use in the most extreme climatic conditions. The radome which houses the active elements of the COL29 was originally designed to serve as the mast of recreational sail boards and is immensely strong. The radome is coloured black to maximise solar heat retention and this has been shown to aid significantly in ice shedding. A 60mm aluminium mounting tube supports the radome, the alodine finish providing a conductive surface to ensure effective earthing of the antenna when mounted.

VHF Vertical Collinear Antennas

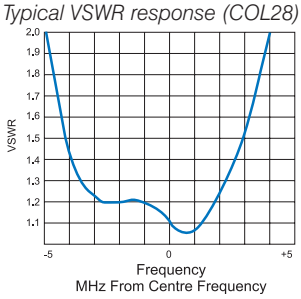
88-148 MHz

COL22
COL28
COL29

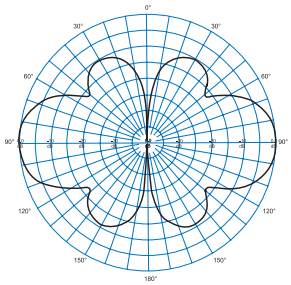
Typical VSWR response (COL22)



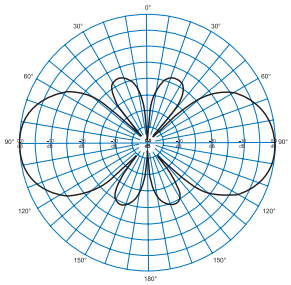
Typical VSWR response (COL28)



COL22 - E Plane



COL28 - E Plane



Electrical

Model Number	COL22	COL28	COL29
Nominal Gain *dBi (dBd)*	5 (3)		
Frequency *MHz*	88 - 115	115 - 148	
Tuned Bandwidth	1.0%	4.0%	
VSWR (Return Loss)	<1.5 :1 (14dB)		
Nominal Impedance Ω	50		
Vertical Beamwidth	32°	38°	
Horizontal Beamwidth	Omni +/- 0.5dB		
Input Power *W*	200		

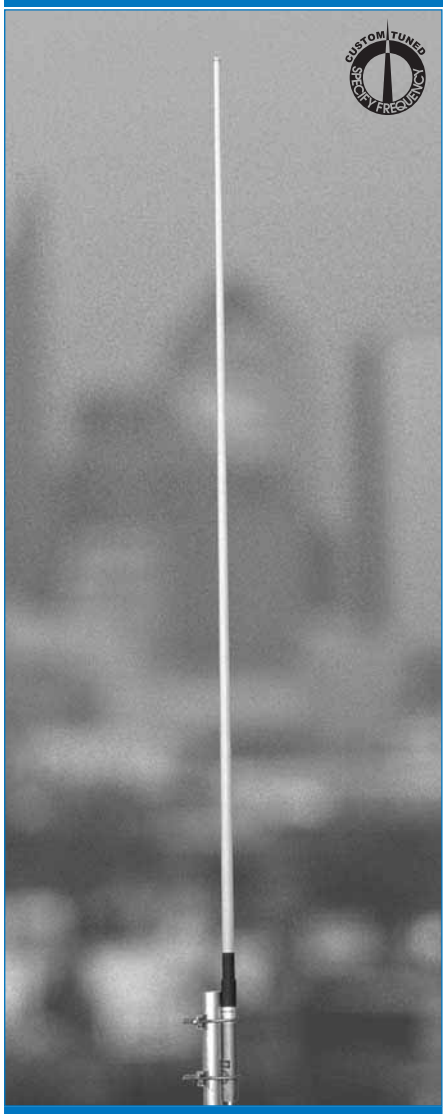
Mechanical

Model Number		COL22	COL28	COL29
Construction		Alodined aluminium elements with white fibreglass radome		Alodined aluminium elements with ruggedised black fibreglass radome
Length *m*		4.8	3.8	
Weight *kg*		4.0	4.2	5.0
Termination		N female bulkhead		
Mounting Area		500mm x 40mm diam. alodined aluminium	500mm x 44mm diam. alodined aluminium	500mm x 60mm diam. alodined aluminium
Suggested Clamps		2 x UC1		
Projected Area *cm²*	No ice	1483	1533	1904
	With ice	2906	2650	2852
Wind Load (Thrust) @ 160km/h *N*		176	182	226
Wind Gust Rating *km/h*		164	212	240
Torque @160 km/h *Nm*		338	260	325

VHF Vertical Collinear Antennas

144-175 MHz

COL15
COL17
COL3
COL35



COL15

The 144-175 MHz COL range is a series of "cut to frequency" 3dBd gain vertical collinears. The range includes antennas suitable for simplex, duplex and rugged applications. All of the antennas include internal DC grounding for lightning protection and the reduction of static noise. Drainage vents at the base allow the antennas to 'breathe' and thus prevent condensation build up. The alodine finish of the aluminium mounting tube provides a conductive surface which ensures effective earthing when mounted.

COL 15

The COL15 is a centre fed two-element design which eliminates distortion of the radiation pattern and ensures a true omnidirectional horizontal pattern. The radiating elements are constructed from welded alodined aluminium to minimise generation of intermodulation and spurious products. The radiating elements are enclosed in a tapered fibreglass radome which is fitted to an alodined aluminium mounting tube. This lightweight antenna has minimal wind loading and is ideal for mounting on moderate support structures.

COL17

The COL17 is suited for broadband and duplex applications designed to cater for transmit to receive separations of up to 5.0 MHz. The antenna is a series fed collinear which is housed in a heavy duty tapered fibreglass radome, fitted to a ruggedised alodined aluminium mounting tube. The COL17 (and the electrically identical COL3) have been specifically designed to maintain stable vertical radiation pattern characteristics at the extremities of the tuned bandwidth, ensuring reciprocity of transmit and receive signal.

COL3

The COL3 is electrically identical to the COL17 antenna. The COL3 is a ruggedised antenna, designed for use in the most extreme climatic conditions. The radome which houses the active elements of the COL3 was originally designed to serve as the mast of recreational sail boards and is immensely strong. The radome is coloured black to maximise solar heat retention and this has been shown to aid significantly in ice shedding. A large alodined aluminium mounting tube supports the radome.

COL35

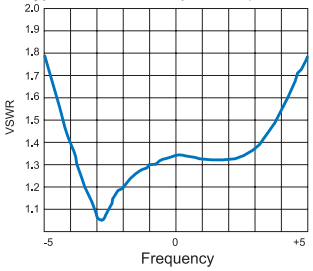
The COL35 is a high gain omnidirectional collinear antenna specifically designed for the most extreme conditions. It incorporates sleeved broadband dipole elements enclosed with a ruggedised, heavy walled fibreglass radome. The radome is coloured black to maximise solar heat retention and this has been shown to aid significantly in ice shedding. A heavy duty hot dip galvanised steel mounting tube supports the radome.

VHF Vertical Collinear Antennas

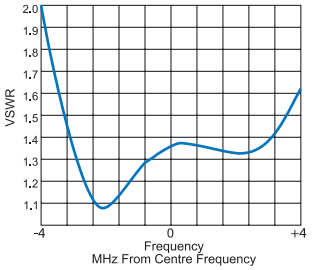
144-175 MHz

COL15
COL17
COL3
COL35

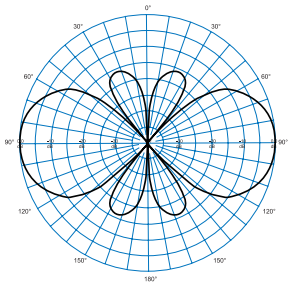
Typical VSWR response (COL35)



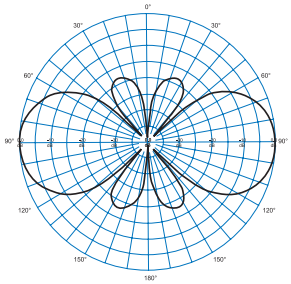
Typical VSWR response (COL17)



COL35 - E Plane



COL17 - E Plane



Electrical

Model Number	COL15	COL17	COL3	COL35
Nominal Gain *dBi (dBd)*	5 (3)			
Frequency *MHz*	144 - 175			148 - 175
Tuned Bandwidth	1.0%	4.0%		
VSWR (Return Loss)	<1.5 :1 (14dB)			
Nominal Impedance Ω	50			
Vertical Beamwidth	30°	38°		39°
Horizontal Beamwidth	Omni +/- 0.5dB			
Input Power *W*	200			250

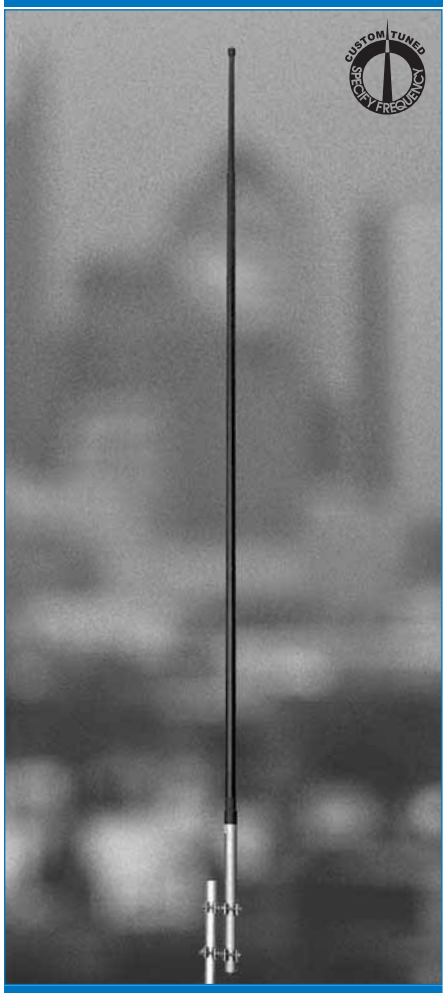
Mechanical

Model Number		COL15	COL17	COL3	COL35
Construction		Alodined aluminium elements with white fibreglass radome		Alodined aluminium elements with ruggedised black fibreglass radome	Extra heavy duty black fibreglass radome
Length *m*		2.9	3.0		2.9
Weight *kg*		2.0	3.2	4.2	9
Termination		N female bulkhead. For COL17 see note (1)			
Mounting Area		300mm x 44mm diam. alodined aluminium	500mm x 40mm diam. alodined aluminium	500mm x 60mm diam. alodined aluminium	358mm x 73mm diam. galvanised steel
Suggested Clamps		2 x UC1			
Projected Area *cm²*	No ice	906	1160	1607	1662
	With ice	1791	2045	2384	2358
Wind Load (Thrust) @ 160km/h *N*		107	137	190	197
Wind Gust Rating *km/h*		>240			
Torque @160 km/h *Nm*		129	146	201	215

(1) COL17 is available with 1 metre of RG213 cable tail with N female connector using model no. trailer - T1

144-175 MHz

COL4
COL18
COL24
COL36



COL36

This range of 'custom tuned' collinear antennas all exhibit very similar radiation patterns. The antennas are suitable for single frequency or duplex applications and vary only in their construction.

COL4

The COL4 is a broadband antenna manufactured to suit high power operation. The collinear is specifically designed to cater for transmit to receive separations of up to 6.0 MHz. The antenna is a series fed collinear which is housed in a heavy duty tapered fibreglass radome, fitted to a rugged aluminium mounting tube. The COL4 (and the electrically identical COL18 and COL24) have been specifically designed to maintain stable vertical radiation pattern characteristics at the extremities of the operating bandwidth. This ensures reciprocity of transmit and receive signal characteristics.

COL18

The COL18 is electrically identical to the COL4 antenna. The COL18 is a ruggedised antenna, designed for use in the most extreme climatic conditions. The radome which houses the active elements of the COL18 was originally designed to serve as the mast of recreational sail boards and is immensely strong. The radome is coloured black to maximise solar heat retention and this has been shown to aid significantly in ice shedding. A substantial diameter alodine aluminium mounting tube supports the radome.

COL24

The COL24 is electrically identical to the COL4 but features a stainless steel mounting tube and upgraded construction for superior resistance to weathering, particularly in corrosive environments.

COL36

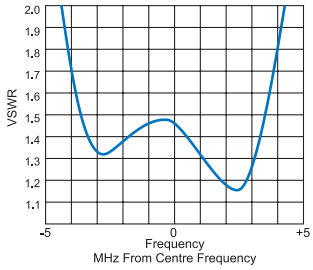
The COL36 is a high gain omnidirectional collinear antenna specifically designed for the most extreme conditions. It incorporates sleeved broadband dipole elements enclosed with a ruggedised, heavy walled fibreglass radome. The radome is coloured black to maximise solar heat retention and this has been shown to aid significantly in ice shedding. A heavy duty hot dip galvanised steel mounting tube supports the radome.

VHF Vertical Collinear Antennas

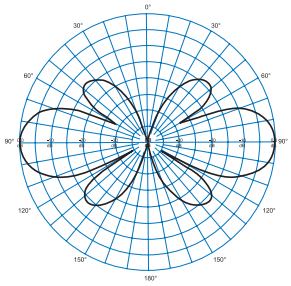
144-175 MHz

COL4
COL18
COL24
COL36

Typical VSWR response (COL4)



COL4 - E Plane



Electrical

Model Number	COL4	COL24	COL18	COL36
Nominal Gain *dBi (dBd)*	6.6 (4.5)			
Frequency *MHz*	144 - 175			148 - 175
Tuned Bandwidth	4.0%			
VSWR (Return Loss)	<1.5 :1 (14dB)			
Nominal Impedance Ω	50			
Vertical Beamwidth	20°			
Horizontal Beamwidth	Omni +/- 0.5dB			
Input Power *W*	200			250
Passive IM 3rd order *dBc*	-125			

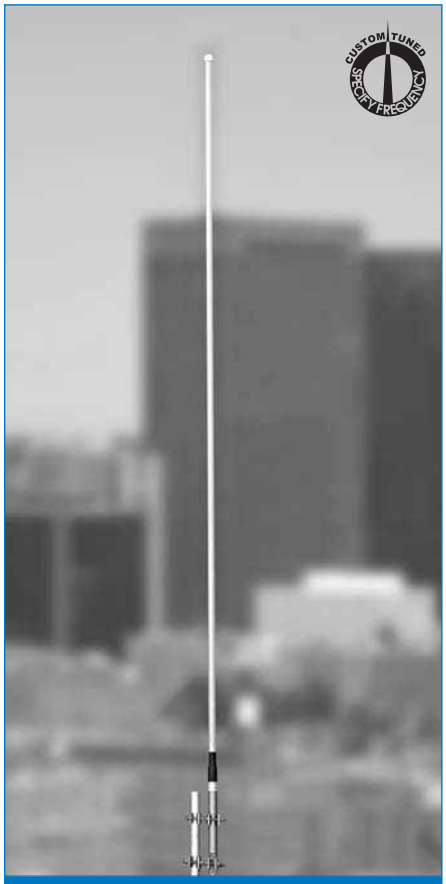
Mechanical

Model Number		COL4	COL24	COL18	COL36
Construction		Alodined aluminium elements, white fibreglass radome		Alodined aluminium elements with ruggedised black fibreglass radome	Sleeved dipole elements with extra heavy duty black fibreglass radome
Length *m*		4.4		4.7	4.6
Weight *kg*		4.5		6.0	12
Termination		N female bulkhead			
Mounting Area		500mm x 44mm diam. alodined aluminium	500mm x 48mm diam. stainless steel	750mm x 60mm diam. alodined aluminium	500mm x 73mm diam. galvanised steel
Suggested Clamps		2 x UC1			
Projected Area *cm²*	No ice	1698	1711	2403	2457
	With ice	2977	2993	3697	3553
Wind Load (Thrust) @ 160km/h *N*		201	203	285	291
Wind Gust Rating *km/h*		>240			
Torque @160 km/h *Nm*		355	358	468	536

VHF Vertical Collinear Antenna

175-310 MHz

COL27



COL27

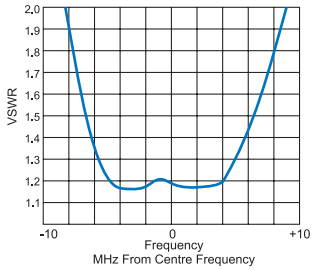
The COL27 is a "cut to frequency" 3 dBd gain broadband vertical collinear suitable for single frequency or duplex applications.

This antenna can be used in multiple transmitter or paging applications at 200 watts input. Being relatively broadband, the COL27 caters to bandwidths of 5% of the specified frequency (It is advisable to specify both transmit and receive frequencies when ordering).

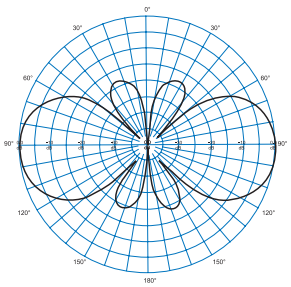
The COL27 is a series fed collinear design with the radiating element housed in a heavy duty fibreglass radome, fitted with an alodined aluminium mounting tube.

This antenna has been specifically designed to maintain stable vertical radiation pattern characteristics at the extremities of the tuned bandwidth. This ensures reciprocity of transmit and receive signal characteristics. The lightweight design delivers minimum wind loading and is ideal for mounting on moderate support structures.

Typical VSWR response (COL27)



COL27 - E Plane



Electrical

Model Number	COL27
Nominal Gain *dBi (dBd)*	5 (3)
Frequency *MHz*	175 - 310
Tuned Bandwidth	5.0%
VSWR (Return Loss)	<1.5 :1 (14dB)
Nominal Impedance Ω	50
Vertical Beamwidth	38°
Horizontal Beamwidth	Omni +/- 0.5dB
Input Power *W*	200
Passive IM 3rd order *dBc*	-125

Mechanical

Model Number		COL27
Construction		Alodined aluminium elements with white fibreglass radome
Length *m*		2.7
Weight *kg*		3.5
Termination		N female bulkhead
Mounting Area		500mm x 40mm diam. alodined aluminium
Suggested Clamps		2 x UC1
Projected Area *cm²*	No ice	1033
	With ice	1795
Wind Load (Thrust) @ 160km/h *N*		122
Wind Gust Rating *km/h*		>240
Torque @160 km/h *Nm*		110

UHF Vertical Collinear Antenna

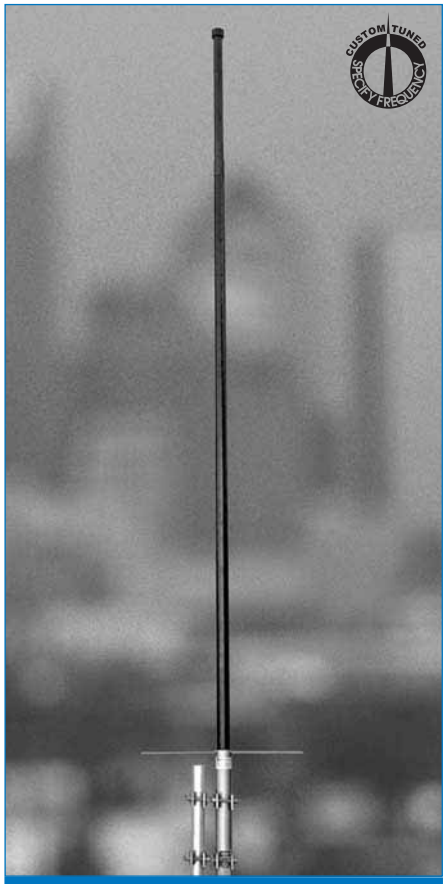
300-390 MHz

COL23

The COL23 is a high gain omnidirectional collinear antenna suitable for simplex, duplex or multiple transmit/receive applications. The combination of 6 dBd gain and a nominal 2° of negative beamtilt results in a vertical radiation pattern that is ideal for almost all coverage requirements, both local and wide area.

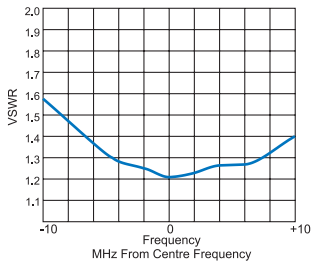
The COL23 is a series fed collinear design which is custom tuned to user specified frequencies. The radiating element is constructed of alodined aluminium, enclosed in a tapered ruggedised fibreglass radome, which is fitted to a alodined aluminium mounting tube. The mounting tube is fitted with three radials to aid in decoupling and enhance pattern control.

The antenna is internally DC grounded aiding in lightning protection and the reduction of static noise. Drainage vents at the base allow the antenna to "breathe," and thus prevent condensation build up.

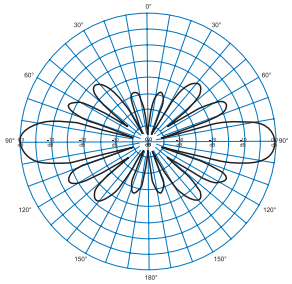


COL23

Typical VSWR response (COL23)



COL23 - E Plane



Electrical

Model Number	COL23	COL23-T1
Nominal Gain *dBi (dBd)*	8 (6)	
Frequency *MHz*	300 - 390	
Tuned Bandwidth	4.0%	
VSWR (Return Loss)	<1.5 :1 (14dB)	
Nominal Impedance Ω	50	
Vertical Beamwidth	14°	
Horizontal Beamwidth	Omni +/- 0.5dB	
Input Power *W*	200	

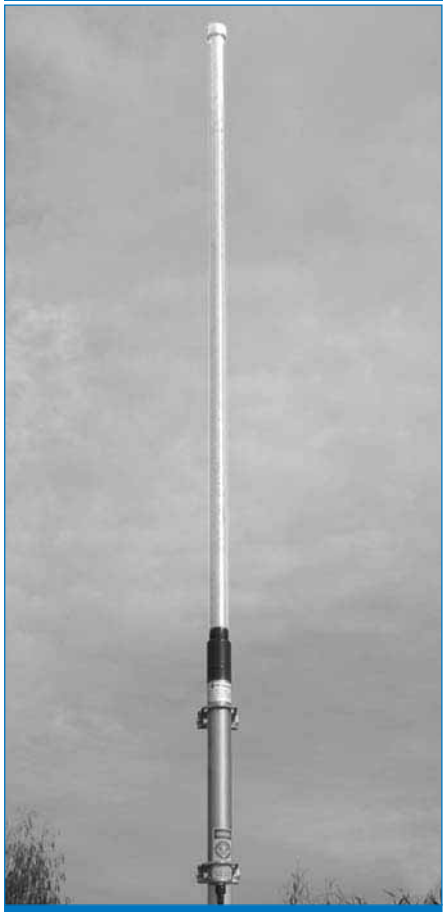
Mechanical

Model Number		COL23	COL23-T1
Construction		Alodined aluminium elements with two piece black ruggedised fibreglass radome with radials	
Length *m*		3.7	
Weight *kg*		3.3	
Termination		N female bulkhead	1m RG213 cable tail with N female
Mounting Area		468mm x 60mm diam. alodined aluminium	500mm x 60mm diam. alodined aluminium
Suggested Clamps		2 x UC1	
Projected Area *cm²*	No ice	1853	
	With ice	2785	
Wind Load (Thrust) @ 160km/h *N*		220	
Wind Gust Rating *km/h*		>240	
Torque @160 km/h *Nm*		310	

UHF Vertical (Tetra) Collinear Antennas

380-400 MHz

COL40 Series



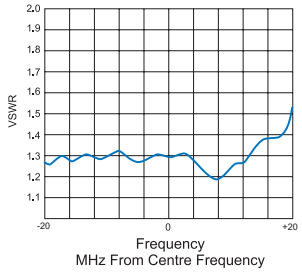
COL43

This range of collinear antennas have been specifically designed for Tetra UHF applications requiring high performance, broad bandwidth and exceptional PIM specifications.

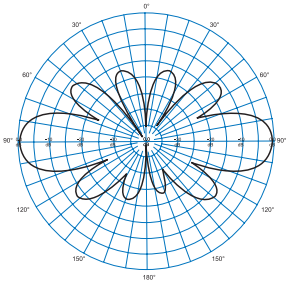
Utilising RFI's patented meander collinear technology, the unique design of this radiating element offers pattern stability across the band. This antenna is extremely robust in design with a single PCB based radiating element housed in a parallel fibreglass radome fitted to an alodined aluminium mounting tube.

- Broad Bandwidth
- Tightly controlled radiation patterns for optimum coverage
- Patented PCB design for optimum RF pattern stability
- Full band coverage
- **Industry leading PIM ratings (-150dBc) providing low IM and low noise characteristics for optimum performance**

Typical VSWR response (COL43)



COL43 - E Plane



Electrical

Model Number	COL42	COL43
Nominal Gain *dBi (dBd)*	5 (3)	8 (6)
Frequency *MHz*	380 - 400	
Tuned Bandwidth	Entire band	
VSWR (Return Loss)	<1.5:1 (14dB)	
Nominal Impedance Ω	50	
Vertical Beamwidth	21°	13°
Horizontal Beamwidth	Omni +/- 0.5dB	
Input Power *W*	250	
Passive IM 3rd order *dBc*	-150	

Mechanical

Model Number		COL42	COL43
Construction		Flexible PCB radiator with white fibreglass radome	
Length *m*		2.3	3.5
Weight *kg*		3.2	4.6
Termination		N female bulkhead	
Mounting Area		500mm x 50mm diam. alodined aluminium	
Suggested Clamps		2 x UC1	
Projected Area *cm²*	No ice	1076	1649
	With ice	1598	2699
Wind Load (Thrust) @ 160km/h *N*		127	195
Wind Gust Rating *km/h*		>240	
Torque @160 km/h *Nm*		89	253

USA Patent: 6909403
Patent App. No.: Australia 2003255049 / Europe 03 023406.6 / China 200310100548.5 / India 844/CHE/2003

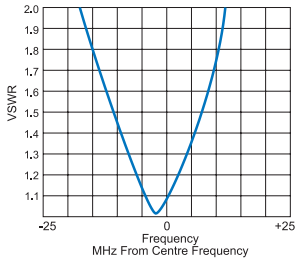
UHF Vertical Collinear Antennas

These are 3dBd gain omnidirectional collinear antennas characterised by broad operating bandwidths making them suitable for single frequency or duplex applications.

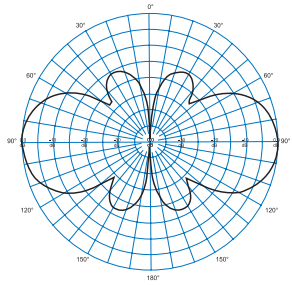
The COL7 is a lightweight collinear design with minimal wind loading, making it ideal for mounting on moderate support structures. The radiating elements are constructed from alodined aluminium and are arranged as a series fed array. The internal elements are enclosed in a fibreglass radome which is fitted to a aluminium mounting tube.

The COL11 is electrically identical to the COL7 antenna (although it does feature an up-rated stub design for additional power handling capabilities). The ruggedised radome which houses the active elements of the COL11 was originally designed to serve as the mast of recreational sail boards and is immensely strong. The radome is coloured black to maximise solar heat retention and this has been shown to aid significantly in ice shedding. A large, 60mm diameter alodined aluminium mounting tube supports the radome.

Typical VSWR response (COL7)

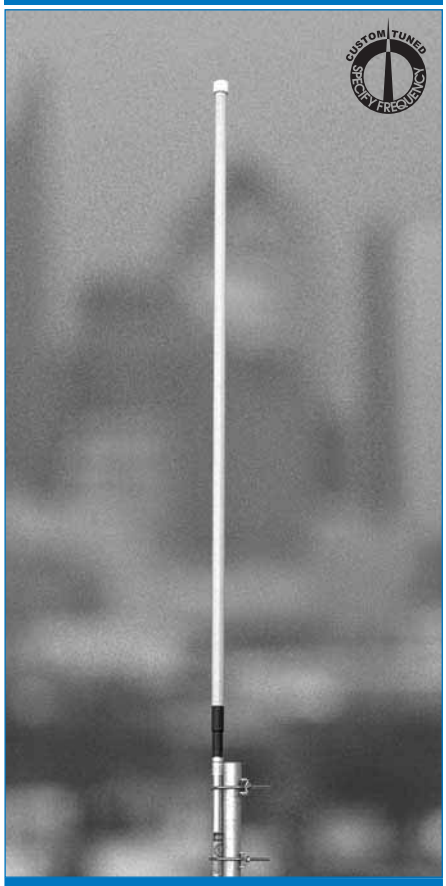


COL7 - E Plane



380-530 MHz

COL7
COL11



COL7

Electrical

Model Number	COL7	COL11
Nominal Gain *dBi (dBd)*	5 (3)	
Frequency *MHz*	380 - 530	390 - 520
Tuned Bandwidth	4.0%	
VSWR (Return Loss)	<1.5 :1 (14dB)	
Nominal Impedance Ω	50	
Vertical Beamwidth	30°	
Horizontal Beamwidth	Omni +/- 0.5dB	
Input Power *W*	150	200
Passive IM 3rd order *dBc*	-130	

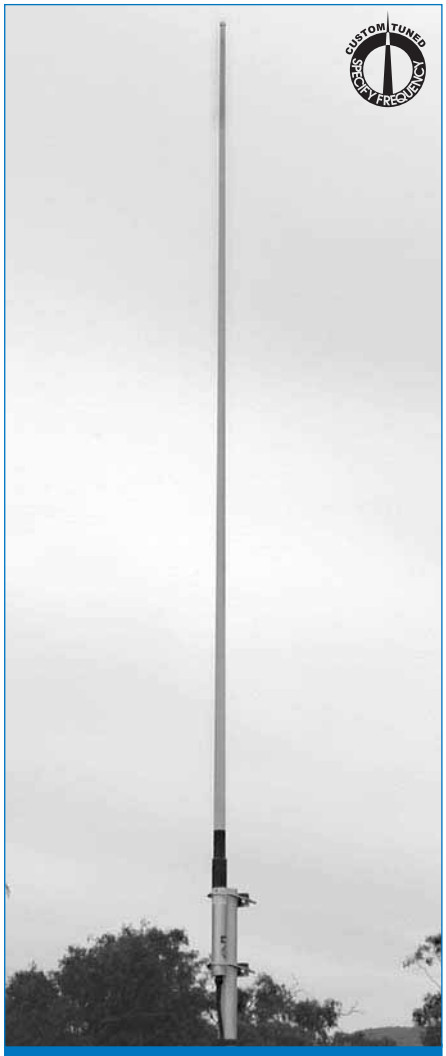
Mechanical

Model Number		COL7	COL11
Construction		Alodined aluminium elements with white fibreglass radome	Alodined aluminium elements with black ruggedised fibreglass radome
Length *m*		2.2	
Weight *kg*		0.5	1.2
Termination		N female bulkhead	
Mounting Area		200mm x 25mm diam. alodined aluminium	500mm x 60mm diam. alodined aluminium
Suggested Clamps		2 x UB1	
Projected Area *cm²*	No ice	666	1134
	With ice	1138	1615
Wind Load (Thrust) @ 160km/h *N*		79	134
Wind Gust Rating *km/h*		>240	
Torque @160 km/h *Nm*		62	85

UHF Vertical Collinear Antennas

380-530 MHz

COL8
COL12
COL19



COL8

A range of high gain omnidirectional collinear antennas, the COL8, COL12 and COL19 are electrically identical and differ only in their physical construction. An operating bandwidth of 10 MHz is provided within VSWR limits of less than 1.5:1, making them suitable for single and multi frequency applications. The antennas include internal DC grounding for lightning protection and the reduction of static noise.

COL8

The COL8 is our most popular and widely used UHF base station antenna. The COL8 is a series fed collinear which is custom tuned to user specified frequencies. By design, each antenna is constructed to exhibit a beam tilt of -2° at the highest of the operating frequencies specified. This negative beam tilt gradually increases with lower frequencies within the defined operational bandwidth. The result is an antenna which provides excellent null fill coverage and optimised range for antenna sites where average height above ground level is not greater than 2000m.

COL12

The COL12 is electrically identical to the COL8 however it's ruggedised design makes it ideal for use in the most extreme climatic conditions. The radome which houses the active elements of the COL12 was originally designed to serve as the mast of recreational sail boards and is immensely strong. The radome is coloured black to maximise solar heat retention and this has been shown to aid significantly in ice shedding. A large, 60mm dia.x 500mm aluminium mounting tube supports the radome.

COL19

The COL19 is also electrically identical to the COL8 but features a super heavy duty radome which is double the thickness (4.5mm) of the COL12 to withstand extremely severe conditions. The COL19 also features a heavy duty galvanised mounting tube, measuring 73mm in diameter and 7mm thick to support the radome. It is recommended in areas where extreme icing is anticipated.

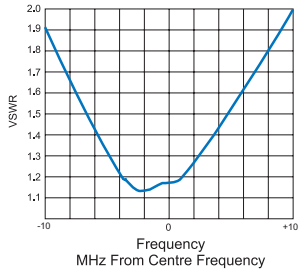
- 6dBd gain omnidirectional pattern
- Range of models to cater for varying environments
- The radiating elements are constructed of alodined aluminium with all internal metal junctions welded to prevent the generation of intermodulation products and spurious emissions

UHF Vertical Collinear Antennas

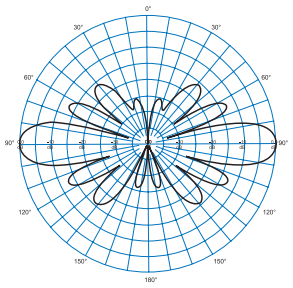
380-530 MHz

COL8
COL12
COL19

Typical VSWR response (COL12)



COL12 - E Plane



Electrical

Model Number	COL8	COL12	COL19
Nominal Gain *dBi (dBd)*	8 (6)		
Frequency *MHz*	380 - 530		
Tuned Bandwidth *MHz*	10		
VSWR (Return Loss)	<1.5 :1 (14dB)		
Nominal Impedance Ω	50		
Vertical Beamwidth	14°		
Horizontal Beamwidth	Omni +/- 0.5dB		
Input Power *W*	200		
Passive IM 3rd order *dBc*	-130		

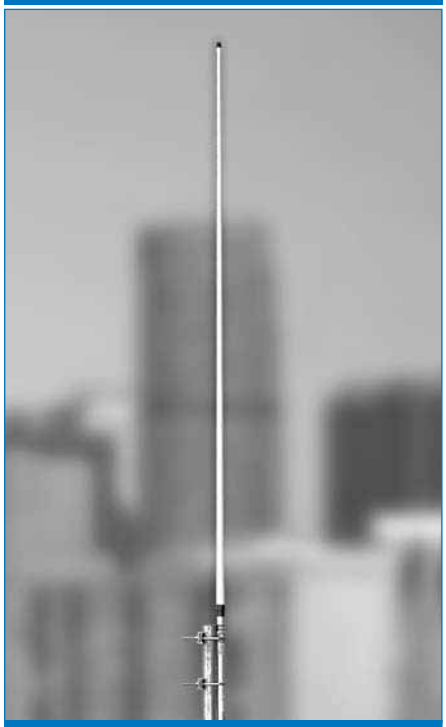
Mechanical

Model Number		COL8	COL12	COL19
Construction		Alodined aluminium elements with white fibreglass radome	Alodined aluminium elements with black ruggedised fibreglass radome	Alodined aluminium elements with black ultra ruggedised fibreglass radome
Length *m*		3.1	3.0	3.0
Weight *kg*		1.5	3.0	7.5
Termination		N female bulkhead		
Mounting Area		300mm x 38mm diam. alodined aluminium	500mm x 60mm diam. alodined aluminium	750mm x 73mm diam. galvanised steel
Suggested Clamps		2 x UC1		
Projected Area *cm²*	No ice	816	1624	1831
	With ice	1746	2421	2489
Wind Load (Thrust) @ 160km/h *N*		97	193	217
Wind Gust Rating *km/h*		211	240	240
Torque @160 km/h *Nm*		124	205	176

UHF CBRS Vertical Collinear Antennas

477 MHz

COL477-6
COL477-9



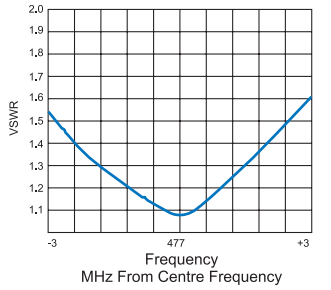
COL477-6

The COL477 Series are collinear antennas designed specifically to provide maximum range and performance in all UHF citizen band applications. Two models are offered according to gain and coverage requirements.

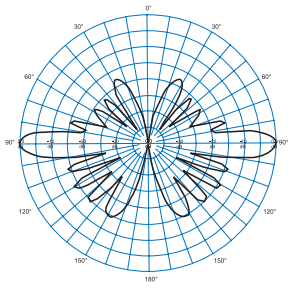
Both antennas are series fed collinear arrays within an enclosed tapered fibreglass radome. The antennas are low profile and lightweight so they can be easily mounted. They are DC grounded providing lightning protection and reduced precipitation noise.

- Specially designed for UHFCB requirements
- Performance - high gain with omnidirectional pattern
- Broad Beamwidth - provides excellent null fill coverage
- Lightweight - easy to mount
- Protection - DC grounded for lightning protection and reduction of precipitation noise

Typical VSWR response (COL477-6)



COL477-9 - E Plane



Electrical

Model Number	COL477-6	COL477-9
Nominal Gain *dBi (dBd)*	6.1 (4.0)	9.6 (7.5)
Frequency *MHz*	477	
Tuned Bandwidth *MHz*	2	
VSWR (Return Loss)	<1.5 :1 (14dB)	
Nominal Impedance Ω	50	
Vertical Beamwidth	17°	15°
Horizontal Beamwidth	Omni +/- 0.5dB	
Input Power *W*	50	

Mechanical

Model Number		COL477-6	COL477-9
Construction		Aluminium elements with white fibreglass radome	
Length *m*		2.3	4.0
Weight *kg*		0.5	2.0
Termination		N female bulkhead	
Mounting Area		300mm x 25mm diam. anodised aluminium	400mm x 40mm diam. anodised aluminium
Suggested Clamps		2 x UB1	
Projected Area *cm²*	No ice	604	1115
	With ice	1291	2293
Wind Load (Thrust) @ 160km/h *N*		72	132
Torque @160 km/h *Nm*		62	207

CDMA/GSM Collinear Antennas

824-960 MHz

COL1790 Series

COL1798

The COL1790 Series are high gain cellular antennas catering for both CDMA and GSM900 bands and ideally suited for use in fringe areas and rural applications.

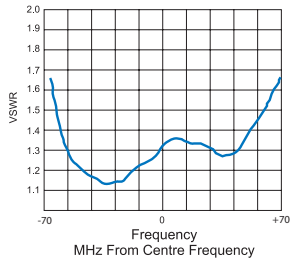
These antennas are extremely robust in design with a patented PCB designed radiating element housed in a black fibreglass radome fitted to an integral heavy duty electro-polished stainless steel spring.

With a 13mm stud mount, these antennas may be installed on a number of mounting brackets and are ideal as fixed base station antennas for wireless local loop applications.

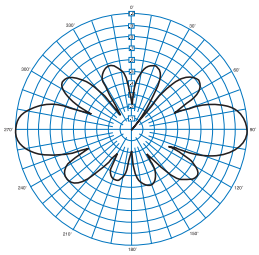
The COL1790 series antennas have been factory terminated to simplify installation.

- CDMA and GSM900 compatible
- High gain ideal for fringe areas and rural applications
- Patented PCB based collinear design offering the ultimate in pattern and gain stability
- Also available in white radome. COL1798-W or COL1799-W

Typical VSWR response (COL1798)

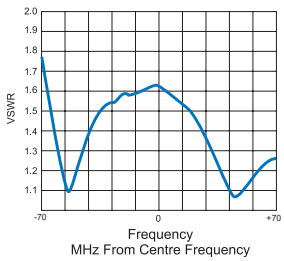


Typical E-Plane response (COL1798)

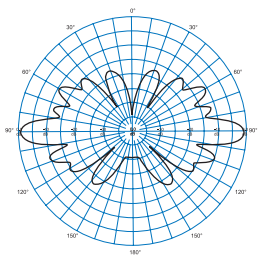


E plane radiation pattern at 892MHz

Typical VSWR response (COL1799)



Typical E-Plane response (COL1799)



Electrical

Model Number	COL1798	COL1799
Gain ***dBi***	6.5	9
Frequency ***MHz***	824 - 960	
Max Power ***W***	25	
Tuned Bandwidth	Full	
Tuning	Supplied pre-tuned	

Mechanical

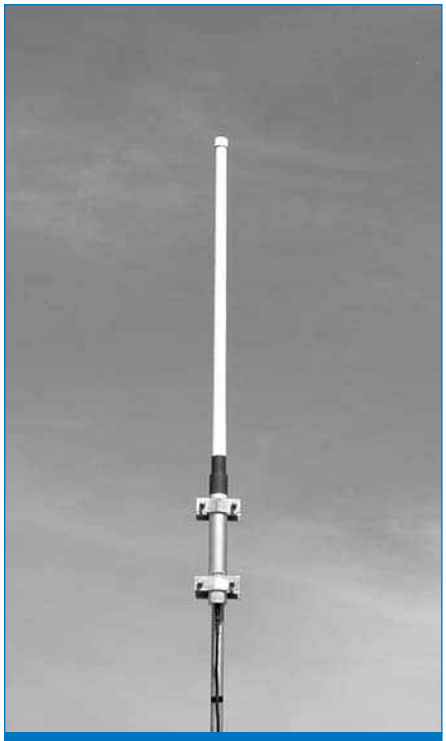
Model Number	COL1798	COL1799
Construction	Flexible PCB radiator in high gloss black radome on 19mm stainless steel mounting tube	
Whip Length ***mm***	920	1770
Mounting	2 x Hose Clamps (supplied)	2 x Hose Clamps (supplied)
Cable and Connector	12m Low Loss Cellfoil® fitted with FME 101 connector. 1 x Terminated, 1 x loose.	500mm of Low Loss Cellfoil® fitted with N series jack

USA Patent: 6909403
Patent App. No.: Australia 2003255049 / Europe 03 023406.6 / China 200310100548.5 / India 844/CHE/2003

800 MHz Collinear Antennas

806-960 MHz

COL803 Series
COL806 Series
COL809 Series



COL803

The COL800 Series are high gain base station collinear antennas built to the highest specifications. These antennas were engineered to minimise intermodulation and utilise a superior matching technique, integrating the coaxial connector directly into a precision brass feedline section. Better control in the feedline section delivers higher efficiencies and superior bandwidth.

The gain is stable and predictable with well defined major lobes across the entire band. As tilt in vertical collinears varies with frequency, the COL800 patterns are controlled to deliver defined tilt and gain over their rated bandwidths.

The COL800 series are built with white, super thick walled radomes and heavy duty alodined aluminium mounting tubes. Strong power ratings make these collinears well suited to single or combined Tx applications.

The COL800 range includes 3dBd, 6dBd and 9dBd gain versions across the 800MHz band.

- High power handling capability
- Broad bandwidth
- Controlled patterns and consistent gain at band edges
- Available in the following bands

  806-870MHz (when ordering use **-89** suffix eg: COL803-89)

  820-896MHz (when ordering use **-81** suffix eg: COL803-81)

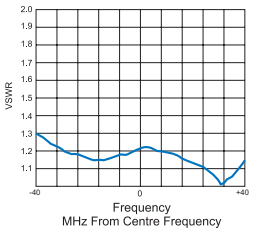
  850-930MHz (when ordering use **-82** suffix eg: COL803-82)

  890-960MHz (when ordering use **-94** suffix eg: COL803-94)

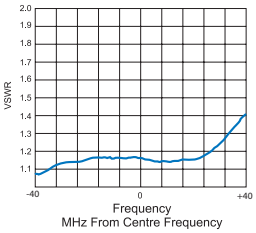
806-960 MHz

COL803 Series
COL806 Series
COL809 Series

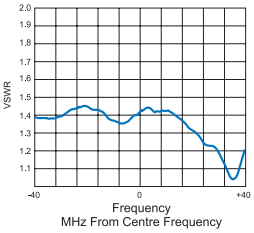
Typical VSWR response (COL803-82)



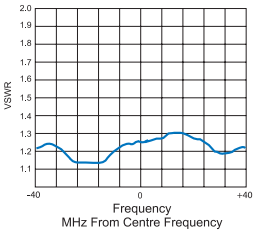
Typical VSWR response (COL806-94)



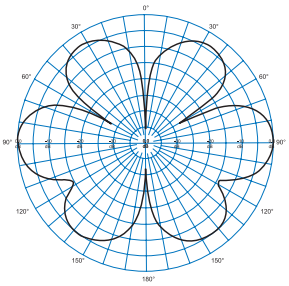
Typical VSWR response (COL809-82)



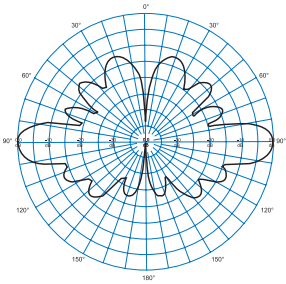
Typical VSWR response (COL809-94)



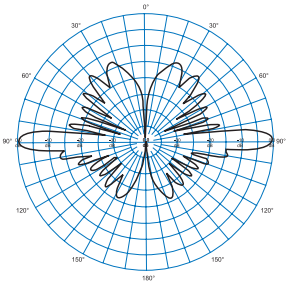
COL803-82 - E Plane



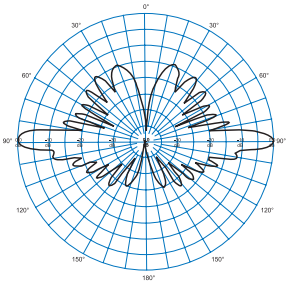
COL806-94 - E Plane



COL809-82 - E Plane



COL809-94 - E Plane



Electrical

Model Number	COL803 Series	COL806 Series	COL809 Series
Nominal Gain *dBi (dBd)*	5 (3)	8 (6)	11 (9)
Frequency *MHz*	806 - 960	806 - 960	806 - 960
Tuned Bandwidth *MHz*	Supplied in bands: 806-870, 820-896, 850-930 or 890-960		
VSWR (Return Loss)	<1.5 :1 (14dB)		
Nominal Impedance Ω	50		
Vertical Beamwidth	33°	16°	8°
Horizontal Beamwidth	Omni +/- 0.5dB		
Input Power *W*	500		
Passive IM 3rd order *dBc*	-140		

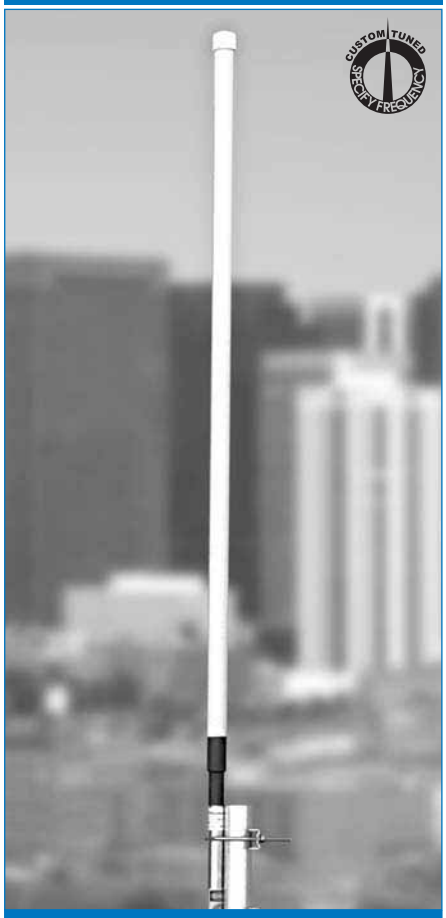
Mechanical

Model Number		COL803 Series	COL806 Series	COL809 Series
Construction		Alodined aluminium elements with ruggedised white fibreglass radome		
Length *m*		1.1	1.7	2.9
Weight *kg*		3.3	3.8	4.8
Termination		N female bulkhead		
Mounting Area		500mm x 63mm diam. alodined aluminium		
Suggested Clamps		2 X UC1		
Projected Area *cm²*	No ice	526	829	1469
	With ice	771	1232	2285
Wind Load (Thrust) @ 160km/h *N*		62	98	174
Wind Gust Rating *km/h*		240		
Torque @160 km/h *Nm*		9	44	183

UHF Vertical Collinear Antennas

600-1000 MHz

COL903
COL906

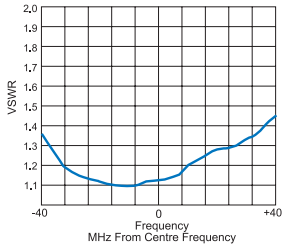


COL906

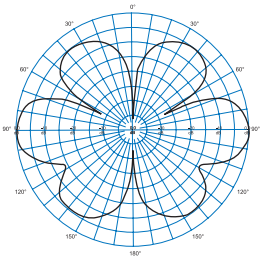
These omnidirectional collinear antennas are ideal for use in trunking, point to multipoint base station sites and rural distributed television applications. The centre fed design of the array eliminates distortion of the radiation pattern and delivers a vertical pattern free of beamtilt across the operating range.

- DC grounded for superior lightning protection and reduction of precipitation static noise
- Supplied pre-tuned to spot frequency, ready for installation
- Mount easily on lightweight support structures

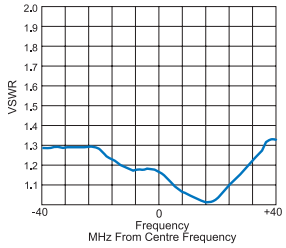
Typical VSWR response (COL903) at 800MHz



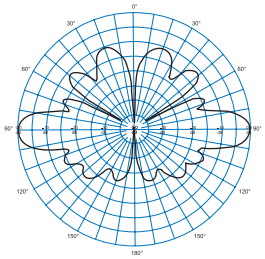
COL903 - E Plane



Typical VSWR response (COL906) at 800MHz



COL906 - E Plane



Electrical

Model Number	COL903	COL906
Nominal Gain *dBi (dBd)*	5 (3)	8 (6)
Frequency *MHz*	600 - 1000	
Tuned Bandwidth	5% <800MHz 9% >800MHz	
VSWR (Return Loss)	<1.5 :1 (14dB)	
Nominal Impedance Ω	50	
Vertical Beamwidth	33°	15°
Horizontal Beamwidth	Omni +/- 0.5dB	
Input Power *W*	500	
Passive IM 3rd order *dBc*	-140	

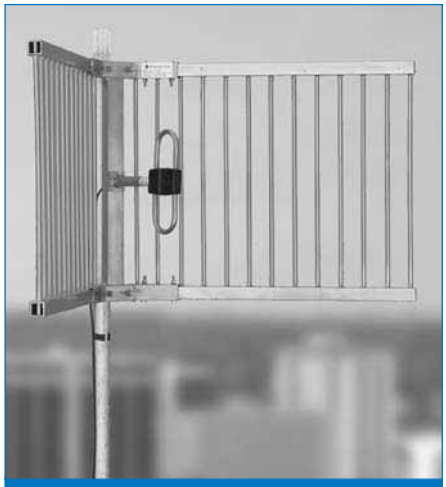
Mechanical

Model Number		COL903	COL906
Construction		Alodined aluminium elements with white fibreglass radome	
Length *m*		1.5	2.2
Weight *kg*		1.2	1.5
Termination		N female bulkhead	
Mounting Area		320mm x 25mm diam. stainless steel	
Suggested Clamps		2 x UB1 or UB2	
Projected Area *cm²*	No ice	516	835
	With ice	847	1445
Wind Load (Thrust) @ 160km/h *N*		61	99
Wind Gust Rating *km/h*		>240	
Torque @160 km/h *Nm*		29	86

Corner Reflector Antennas

136-960 MHz

CR Series



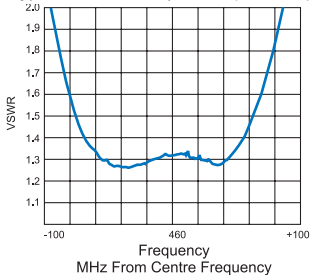
CR4-67

The CR Series are single element 90° corner reflectors, delivering high gain and high front to back ratios for critical long path or high interference applications. The CR2 and CR4 are constructed with an aluminium grid-style back screen with close element spacing to maximise pattern control characteristics. The all welded screens are of alodined aluminium finish for corrosion protection and the single folded dipole element is mounted using all stainless steel fittings.

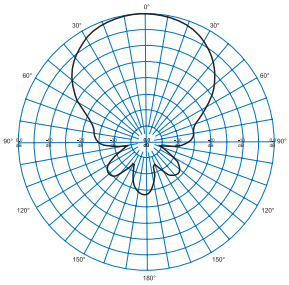
The CR8 corner reflector is similar in electrical design however it features a solid sheet back screen, constructed of all stainless steel with a dipole element enclosed in a small UPVC radome.

- Extremely high front to back ratios and minimal side lobe characteristics
- Shipped unassembled for ease of handling, easily assembled on site
- Direct DC grounded for lightning protection and reduction of precipitation static noise

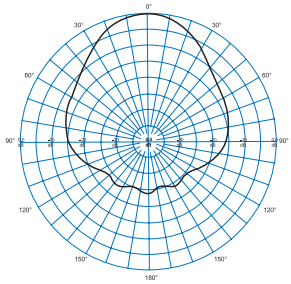
Typical VSWR response (CR4-67)



CR4 - E Plane



CR4 - H Plane



Electrical

Model Number	CR2	CR4-67	CR8
Nominal Gain *dBi (dBd)*	9 (7)	11 (9)	11 (9)
Frequency *MHz*	136 - 174	400 - 520	800 - 960
Tuned Bandwidth *MHz*	Entire band		60
VSWR (Return Loss)	<1.5 :1 (14dB)		
Nominal Impedance Ω	50		
Vertical Beamwidth	69°	57°	52°
Horizontal Beamwidth	57°	40°	45°
Front / Back Ratio *dB*	27	23	30
Input Power *W*	750	500	50

Mechanical

Model Number		CR2	CR4	CR8
Construction		Welded aluminium grid with alodined finish and stainless steel fittings		Solid stainless steel screen, dipole enclosed in UPVC radome
Length *m*		1.3 x 1.3 x 1.2	0.9 x 0.9 x 0.6	0.4 x 0.4 x 0.4
Weight *kg*		13.0	6.0	5.0
Termination		N female with short 9142 cable tail		N female bulkhead
Mounting Area		Clamps to diam. 40-85mm, 1166mm apart	Clamps to diam. 40-52mm, 568mm apart	Clamps to diam. <50mm, 236mm apart
Suggested Clamps		Supplied	Supplied	Supplied
Projected Area *cm²*	No ice	9170	3868	4004
	With ice	15452	8463	4488
Wind Load (Thrust) @ 160km/h *N*		1087	458	479
Wind Gust Rating *km/h*		214	240	178
Torque @160 km/h *Nm*		602	181	86

Panel Reflector Antenna

400-520 MHz

CRA40-67

CRA40-67

The CRA series panel reflectors are based on the popular OA series offset arrays, but incorporate a fully alodined grid reflector. The array features 11 dBi gain, low noise performance and enhanced null fill coverage in an array with typical cardioid coverage characteristics.

The CRA Series have slightly more than 130° horizontal beamwidth. The use of the grid reflector boosts the front to back ratio considerably making the CRA40 series ideal for tailoring antenna patterns to allow frequency re-use in extended networks. The optional electrical beamtilt allows for significant further suppression of unwanted signals and allows enhanced coverage in the target areas.

CRA Series arrays feature the same solid construction as the standard array series. The folded dipoles utilise an internal phasing harness in PTFE based double screened coaxial cable with polyethylene jacket. The antennas are offered with 0°, 5°, 8° or 10° of downtilt, and all include extensive side lobe suppression, null fill and a power input level of 500 watts continuous.

With all welded construction and superior internal harness construction the antennas provide not only excellent radiation characteristics but also defined, high levels of intermodulation and noise suppression. IM performance is a world leading -150dBC based on a two carrier test. The entire array rests at ground potential and offers the ultimate in lightning resistant antennas.

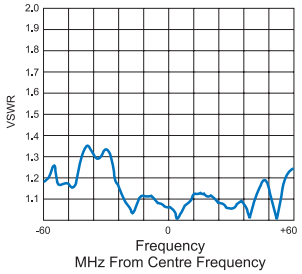
- Offset (cardioid) pattern
- 0°, 5°, 8° or 10° of downtilt available
- High front to back ratio and use of optional beamtilt to allow frequency re-use by tailoring coverage areas
- Extensive side lobe suppression and null fill
- Hermetically sealed internal phasing harness
- **Industry leading PIM ratings (-150dBc) providing low IM and low noise characteristics for optimum performance**

Panel Reflector Antenna

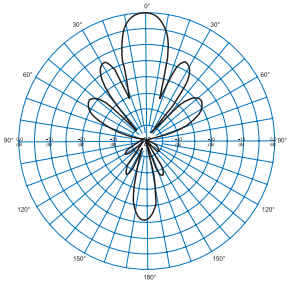
400-520 MHz

CRA40-67

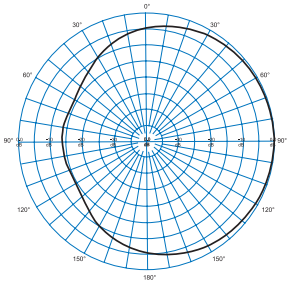
Typical VSWR response (CRA40-67)



CRA40-67 - E Plane



CRA40-67 - H Plane



Electrical

Model Number	CRA40-67
Nominal Gain ***dBi (dBd)***	11 (9)
Frequency ***MHz***	400 - 520
Tuned Bandwidth ***MHz***	Entire band
VSWR (Return Loss)	<1.5 :1 (14dB)
Nominal Impedance **Ω**	50
Downtilt	0° Std, -5°, -8°, -10°. See note (1)
Vertical Beamwidth	7°
Horizontal Beamwidth	167°
Front / Back Ratio ***dB***	13
Input Power ***W***	500
Passive IM 3rd order ***dBc***	-150

Mechanical

Model Number		CRA40-67
Construction		All welded aluminium with alodined finish
Length ***m***		3.0
Weight ***kg***		10
Termination		N female with 0.5m 9142 cable tail. See note (2)
Mounting Area		500mm x 48mm diam. aluminium
Suggested Clamps		2 x UC1
Projected Area ***cm²***	No ice	4802
	With ice	9487
Wind Load (Thrust) @ 160km/h ***N***		569
Wind Gust Rating ***km/h***		180
Torque @160 km/h ***Nm***		569

(1) Factory pre-set downtilt of -5°, -8° or -10° may be specified on CRA40 series antennas using model no. trailer -T5, -T8 or -T10
(2) Connector termination option available of 7/16 DIN female connector using model no. trailer -DIN

VHF Directional Yagi Antennas

70-250 MHz

YL Series
YH Series

YL03

The YL and YH Series yagi antennas are ideal in applications requiring directional gain. These yagis, with predictable beamwidths and consistently high front to back ratios are ideal for long or short haul links and other applications demanding specific radiation pattern control.

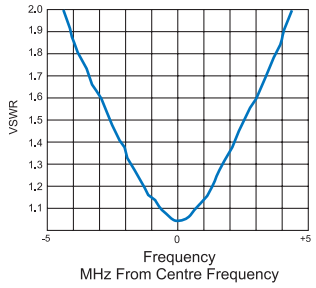
The boom and the elements are constructed from thick walled alodined aluminium tubing. The passive elements are of one-piece construction and clamped to the boom with a unique wrap around single bolt bracket. The radiating element is through mounted onto the boom. All fittings and fasteners are made from marine grade stainless steel and self locking nuts are used throughout the assembly to prevent loosening due to vibration.

All yagi antennas are directly DC grounded to provide lightning protection and reduced precipitation static noise. Termination is via an N-type female coaxial connector fitted to a short RG213 cable tail.

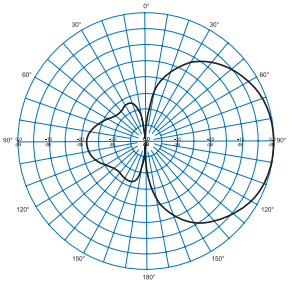
YL and YH yagis are supplied unassembled for ease of handling and are quickly assembled using only basic tools. Colour coding of elements and the boom section further simplify the assembly and installation.

- High performance - ideal in long or short haul applications
- Controlled Beamwidths - predictable beamwidths and consistently high front to back ratios
- Simplified Installation - colour coding and unique single bolt clamps simplify installation

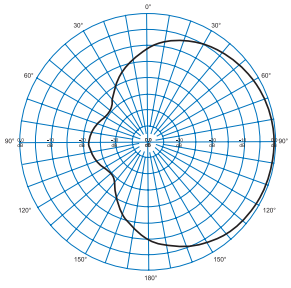
Typical VSWR response (YL03)



YL03 - E Plane



YL03 - H Plane

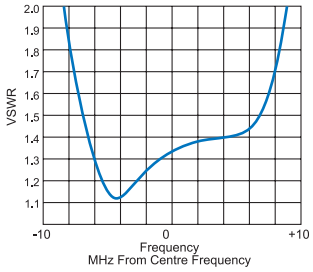


VHF Directional Yagi Antennas

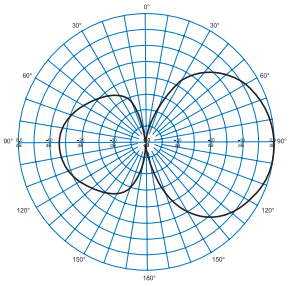
70-250 MHz

YL Series
YH Series

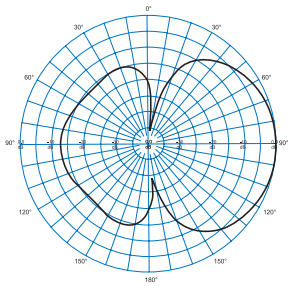
Typical VSWR response (YH04)



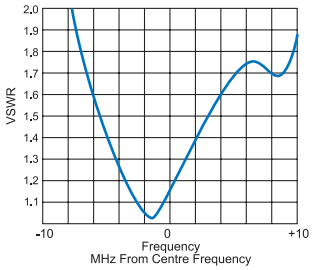
YH04 - E Plane



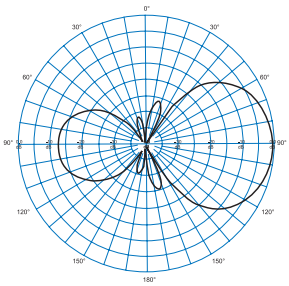
YH04 - H Plane



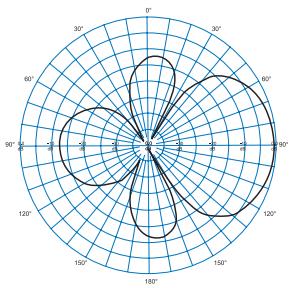
Typical VSWR response (YH06)



YH06 - E Plane



YH06 - H Plane



Electrical

Model Number	YL02	YL02D	YL03	YL04	YH02	YH02D	YH03	YH04	YH06	YH09
Nominal Gain *dBi (dBd)*	5 (3)	6 (4)	8 (6)	9 (7)	5 (3)	6 (4)	8 (6)	9 (7)	11 (9)	12 (10)
Frequency *MHz*	70 - 100				100 - 250					
Tuned Bandwidth *MHz*	6	3	5	4	12	6	9	8		
VSWR (Return Loss)	<1.5 :1 (14dB)									
Nominal Impedance Ω	50									
Vertical Beamwidth	70°	60°	60°	55°	80°	70°	60°	55°	52°	35°
Horizontal Beamwidth	140°	105°	75°	60°	140°	130°	75°	70°	50°	50°
Front / Back Ratio *dB*	10	up to 20 See note (1)	15	16	11	up to 20 See note (1)	Typically 15			
Input Power *W*	250									

Mechanical

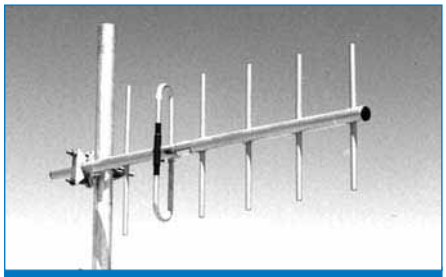
Model Number		YL02	YL02D	YL03	YL04	YH02	YH02D	YH03	YH04	YH06	YH09
Construction		Thick walled aluminium boom and elements with alodined finish									
Length *m*		1.5	2.0	2.1	3.1	1.0	1.0	1.8	2.4	3.5	5.4
Weight *kg*		3.0	3.0	4.0	5.0	2.0	2.0	2.6	3.5	5.0	7.3
Termination		N female with RG213 cable tail									
Mounting Area		300mm x 40mm diam. alum.	400mm x 40mm diam. aluminium			100mm x 40mm diam. alum.	200mm x 40mm diam. alum.	400mm x 40mm diam. aluminium			
Suggested Clamps		UCR1		UCR2		UCR1		UCR2			
Projected Area *cm²*	No ice	2186	2332	2878	3814	1456	1358	2141	2772	3870	5650
	With ice	4418	4584	5826	7790	3001	2735	4080	5368	7434	10698
Wind Load (Thrust) @ 160km/h *N*		259	276	341	452	173	161	254	329	459	670
Torque @160 km/h *Nm*		104	249	320	648	69	64	199	355	764	1748

(1) The front to back ratio of the YL02D and YH02D "deep null" yagis is dependent on mounting arrangements. Correctly mounted as per the supplied instructions, 18-20dB front to back ratio is achieved.

UHF Directional Yagi Antennas

300-600 MHz

YB Series



YB6

YB16

The YB Series are high gain yagi antennas which will provide excellent point to point communication in RF control, short or long haul link and other applications calling for highly directional antennas. YB Series antennas exhibit narrow beamwidths and high front to back ratios to help minimise potential interference to and from other systems.

The feed element of each antenna is of full folded dipole construction thus offering maximum bandwidth and reliability. The dipole element is welded to the boom to ensure low intermodulation performance and maximum durability. The passive elements are through mounted to the circular boom section and welded at each side to further minimise the potential for both corrosion and generation of intermodulation products. The alodined protective finish provides a conductive surface to ensure effective earthing of the antenna when mounting.

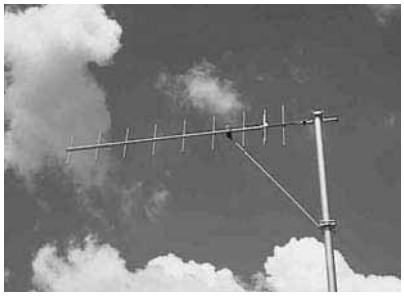
Constructed with 2 to 16 elements, YB Series yagi antennas offer a choice of gain and beamwidth characteristics and can be configured in stacks or bays for higher gain applications in either horizontally or vertically polarised systems. Application details on phasing and mounting yagi antennas are included in the technical notes section of this catalogue.

Yagi antennas rest at ground potential to provide excellent lightning protection and reduced precipitation static noise.

Termination is via an 'N' female coaxial connector fitted to a short Durathene cable tail. Durathene polyethylene jacketed cable provides superior resistance to weathering and abrasion and is less susceptible to bird attack than standard PVC sheathed cables.

For extreme climatic or corrosive applications, the stainless steel YBSS Series or black ruggedised RDA Series yagis should be considered.

- All welded construction for maximum and reliable performance
- Narrow beamwidths & high front to back ratios effective in reducing interference
- Alodine finish provides an excellent conductive surface for earthing
- Can be configured in stacks or bays for higher gain applications using PH and PHE series phasing harnesses



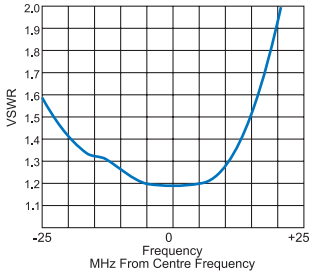
Bracing kit available
Part No. M-4528

UHF Directional Yagi Antennas

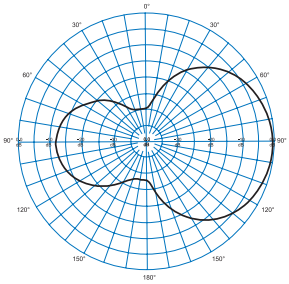
300-600 MHz

YB Series

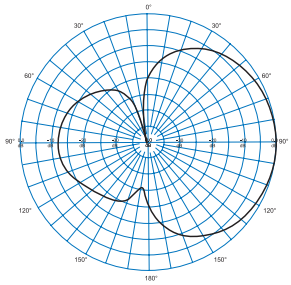
Typical VSWR response (YB03-99)



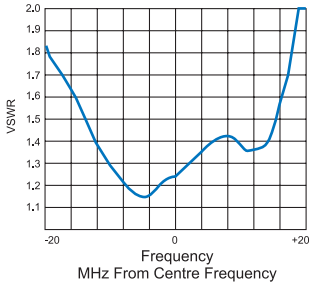
YB03-99 - E Plane



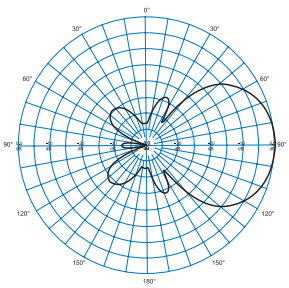
YB03-99 - H Plane



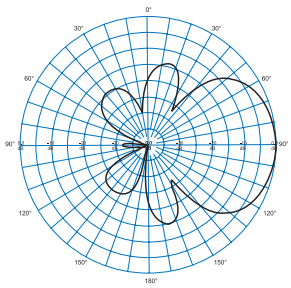
Typical VSWR response (YB6-61)



YB6-61 - E Plane



YB6-61 - H Plane



Electrical

Model Number	YB02-99	YB03-99	YB6-65	YB6-61	YB6-62	YB6-75	YB6-99
Nominal Gain *dBi (dBd)*	5 (3)	8 (6)	11 (9)				
Frequency *MHz*	300 - 600	350 - 600	400 - 420	450 - 480	480 - 520	580 - 600	350 - 600
Tuned Bandwidth	5%		Full band				5%
VSWR (Return Loss)	<1.5 :1 (14dB)						
Nominal Impedance Ω	50						
Vertical Beamwidth	77°	63°	47°				
Horizontal Beamwidth	161°	98°	56°				
Front / Back Ratio *dB*	9	13	18 (Typical)				
Input Power *W*	100						

Mechanical

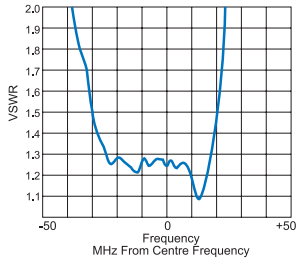
Model Number		YB02-99	YB03-99	YB6-65	YB6-61	YB6-62	YB6-75	YB6-99
Construction		All welded aluminium with alodined finish						
Length *m*		0.6	0.7	0.9	1.0	0.8	0.8	1.3
Weight *kg*		0.4	0.5	0.7	0.7	0.6	0.6	0.8
Termination		N female with short 9008 cable tail						
Mounting Area		100mm x 25mm diam. alodined aluminium						
Suggested Clamps		1 X UNV						
Projected Area *cm²*	No ice	283	337	485	477	394	349	600
	With ice	676	811	1169	1099	967	857	1367
Wind Load (Thrust) @ 160km/h *N*		33	40	57	56	47	41	71
Wind Gust Rating *km/h*		>240						
Torque @160 km/h *Nm*		6	10	22	24	16	13	42

UHF Directional Yagi Antennas

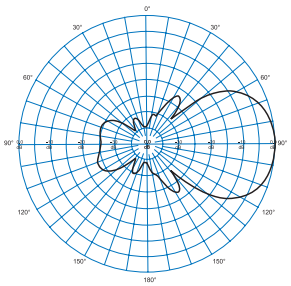
300-600 MHz

YB Series

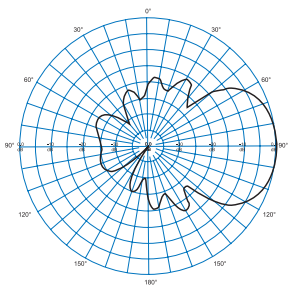
Typical VSWR response (YB9-61)



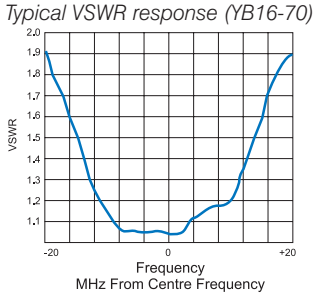
YB9-61 - E Plane



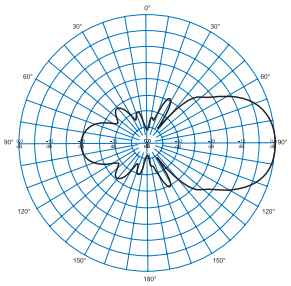
YB9-61 - H Plane



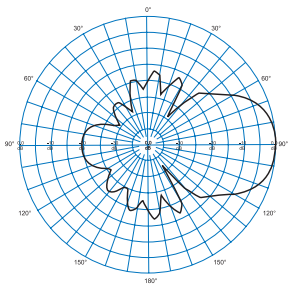
Typical VSWR response (YB16-70)



YB16-70 - E Plane



YB16-70 - H Plane



Electrical

Model Number	YB9-65	YB9-61	YB9-62	YB9-99	YB16-65	YB16-70	YB16-71	YB16-63	YB16-72	YB16-99
Nominal Gain *dBi (dBd)*	13 (11)				14 (12)					
Frequency *MHz*	400 - 420	450 - 480	480 - 520	400 - 600	400 - 420	450 - 470	470 - 490	480 - 500	500 - 520	400 - 600
Tuned Bandwidth	Full band			5.0%	Full band					5.0%
VSWR (Return Loss)	<1.5 :1 (14dB)									
Nominal Impedance Ω	50									
Vertical Beamwidth	46°			42°	34°					
Horizontal Beamwidth	54°			48°	36°					
Front / Back Ratio *dB*	18 (Typical)									
Input Power *W*	100									

Mechanical

Model Number		YB9-65	YB9-61	YB9-62	YB9-99	YB16-65	YB16-70	YB16-71	YB16-63	YB16-72	YB16-99
Construction		All welded aluminium with alodined finish									
Length *m*		2.0	1.8	1.6	2.0	2.5	2.3	2.3	2.2	2.2	2.5
Weight *kg*		1.2	1.0	1.0	1.2	1.7	1.5	1.5	1.4	1.4	1.7
Termination		N female with short 9008 cable tail									
Mounting Area		100mm x 25mm diam. alodined aluminium									
Suggested Clamps		1 X UCR1				1 X UCR1 + 1 x M-4528 bracing kit					
Projected Area *cm²*	No ice	859	771	694	859	1186	1048	1030	989	981	1186
	With ice	2078	1842	1640	2078	2983	2666	2617	2530	2507	2983
Wind Load (Thrust) @ 160km/h *N*		102	91	82	102	141	124	122	117	116	141
Wind Gust Rating *km/h*		207	220	240	207	147	165	165	173	173	147
Torque @160 km/h *Nm*		92	75	60	92	165	130	128	117	116	165

UHF Stainless Steel Yagi Antennas

350-600 MHz

YBSS Series

YBSS6

The YBSS Series is a range of high gain stainless steel yagi antennas which provide excellent point to point communications in highly corrosive environments. YBSS Series antennas exhibit narrow beamwidths and high front to back ratios to help minimise potential interference to and from other radio systems.

The antennas are constructed from 316 marine grade stainless steel with the passive elements through mounted to the boom and welded at each side. The feed element is of full folded dipole construction and is also welded to the boom to ensure low intermodulation performance and durability.

Available with 6, 9 or 16 elements, YBSS antennas can be configured in stacks or bays for higher gain applications in both horizontally or vertically polarised systems. Application details on phasing and mounting yagi antennas are included in the technical notes section in the back of this catalogue.

Yagi antennas rest at ground potential to provide excellent lightning protection and reduced precipitation static noise.

Termination is via an 'N' female coaxial connector fitted to a short Durathene cable tail. Durathene polyethylene jacketed cable provides superior resistance to weathering and abrasion and is less susceptible to bird attack than standard PVC sheathed cables.

- All welded construction for maximum performance and reliability
- Deliver high front to back ratios - reducing interference to and from other radio systems
- Marine grade stainless steel construction ideal in highly corrosive environments
- Full folded dipole driven element construction for maximum reliability
- Can be configured in stacks or bays for higher gain applications using PH and PHE series phasing harnesses

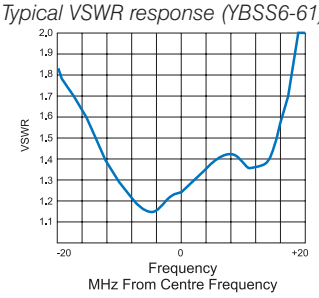
Bracing kit available
Part No. M-4528

UHF Stainless Steel Yagi Antennas

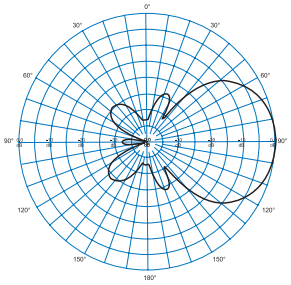
350-600 MHz

YBSS Series

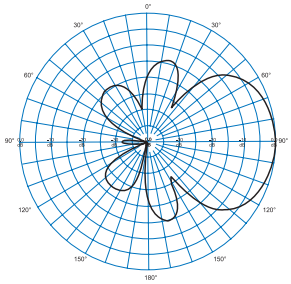
Typical VSWR response (YBSS6-61)



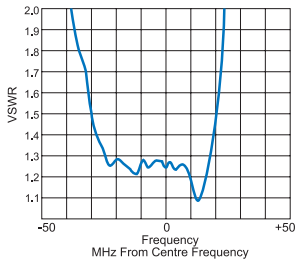
YBSS6-61 - E Plane



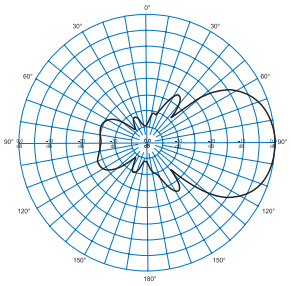
YBSS6-61 - H Plane



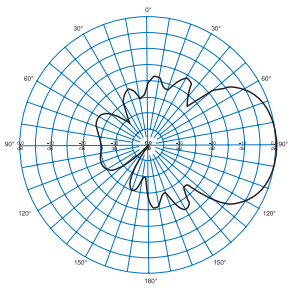
Typical VSWR response (YBSS9-61)



YBSS9-61 - E Plane



YBSS9-61 - H Plane



Electrical

Model Number	YBSS6-65	YBSS6-61	YBSS6-62	YBSS6-75	YBSS6-99	YBSS9-65	YBSS9-61	YBSS9-62	YBSS9-99
Nominal Gain *dBi (dBd)*	11 (9)					13 (11)			
Frequency *MHz*	400 - 420	450 - 480	480 - 520	580 - 610	350 - 600	400 - 420	450 - 480	480 - 520	400 - 600
Tuned Bandwidth	Full band				5%	Full band			5%
VSWR (Return Loss)	<1.5 :1 (14dB)								
Nominal Impedance Ω	50								
Vertical Beamwidth	47°					46°			42°
Horizontal Beamwidth	56°					54°			48°
Front / Back Ratio *dB*	>18 (Typical)								
Input Power *W*	100								

Mechanical

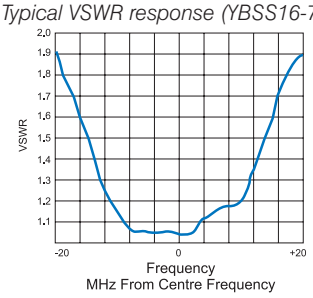
Model Number		YBSS6-65	YBSS6-61	YBSS6-62	YBSS6-75	YBSS6-99	YBSS9-65	YBSS9-61	YBSS9-62	YBSS9-99
Construction		All welded stainless steel construction with polished finish								
Length *m*		0.9	1.0	0.8	0.8	1.3	2.0	1.8	1.6	2.0
Weight *kg*		0.7	0.7	0.6	0.6	0.8	1.2	1.0		1.2
Termination		N female with short 9008 cable tail								
Mounting Area		100mm x 25mm diam. stainless steel								
Suggested Clamps		1 X UNV					1 X UCR1			
Projected Area *cm²*	No ice	485	477	394	349	600	859	771	694	859
	With ice	1169	1099	967	857	1367	2078	1842	1640	2078
Wind Load (Thrust) @ 160km/h *N*		57	56	47	41	71	102	91	82	102
Wind Gust Rating *km/h*		>240					201	220	240	201
Torque @160 km/h *Nm*		22	24	16	13	42	92	75	60	92

UHF Stainless Steel Yagi Antennas

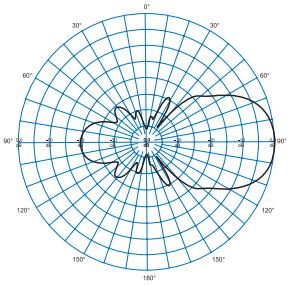
350-600 MHz

YBSS Series

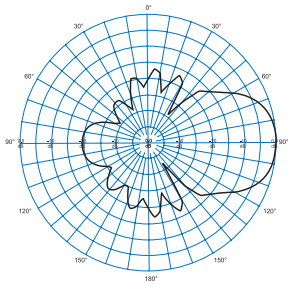
Typical VSWR response (YBSS16-70)



YBSS16-70 - E Plane



YBSS16-70 - H Plane



Electrical

Model Number	YBSS16-65	YBSS16-70	YBSS16-71	YBSS16-63	YBSS16-99
Nominal Gain *dBi (dBd)*	14 (12)				
Frequency *MHz*	400 - 420	450 - 470	470 - 490	480 - 500	400 - 600
Tuned Bandwidth	Full band				5.0%
VSWR (Return Loss)	<1.5 :1 (14dB)				
Nominal Impedance Ω	50				
Vertical Beamwidth	34°				
Horizontal Beamwidth	36°				
Front / Back Ratio *dB*	18 (Typical)				
Input Power *W*	100				

Mechanical

Model Number		YBSS16-65	YBSS16-70	YBSS16-71	YBSS16-63	YBSS16-99
Construction		All welded stainless steel construction with polished finish				
Length *m*		2.5	2.3	2.3	2.2	2.5
Weight *kg*		1.7	1.5	1.5	1.4	1.7
Termination		N female with short 9008 cable tail				
Mounting Area		100mm x 25mm diam. stainless steel				
Suggested Clamps		1 X UCR1 + 1 x M-4528 bracing kit				
Projected Area *cm²*	No ice	1186	1048	1030	989	1186
	With ice	2983	2666	2617	2530	2983
Wind Load (Thrust) @ 160km/h *N*		141	124	122	117	144
Wind Gust Rating *km/h*		147	165	165	173	147
Torque @160 km/h *Nm*		165	130	128	117	165

Ruggedised UHF Yagi Antennas

300-600 MHz

RDA Series

RDA16

The RDA Series are ruggedised high gain yagi antennas which will provide excellent point to point communication in extreme climatic environments. RDA Series antennas exhibit narrow beamwidths and high front to back ratios to help minimise any potential interference to and from other radio systems.

Built specifically for hostile conditions, the boom and the elements of the RDA Series yagis are significantly larger and more robust than on the standard YB range. The feed element is of full folded dipole construction for maximum bandwidth and performance and all elements, including the feed element are welded to the boom. Welding ensures both maximum strength and minimal potential for the generation of intermodulation and other interference products.

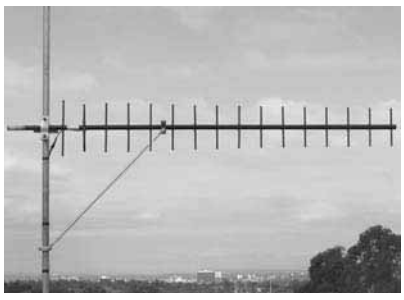
The entire welded assembly is etched and finished with a black powder coating which aids significantly in ice shedding by maximising solar heat retention.

Constructed with 3, 6, 9 or 16 elements, RDA yagis can be configured in stacks or bays for higher gain applications in horizontally or vertically polarised systems. Application details on phasing and mounting yagi antennas are included in the technical notes section in the back of this catalogue.

RDA Yagis rest at DC ground potential and, properly earthed, provide excellent lightning protection and aid in the reduction of precipitation static noise.

Termination is via an 'N' female coaxial connector fitted to a short Durathene cable tail. Durathene is a PTFE dielectric and polyethylene jacketed cable providing superior resistance to weathering and abrasion and is less susceptible to bird attack than standard PVC sheathed cables.

- All welded construction for maximum and reliable performance
- High front to back ratios - reducing interference to and from other systems
- Black powder coating aids in snow and ice shedding by maximising solar heat retention
- Ruggedised construction for use in extreme conditions
- Can be configured in stacks or bays for higher gain applications using PH and PHE series phasing harnesses



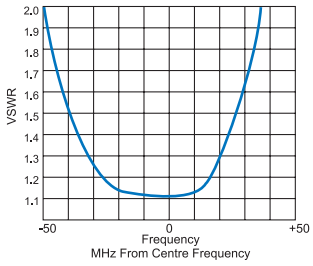
Bracing kit available
Part No. M-4529

Ruggedised UHF Yagi Antennas

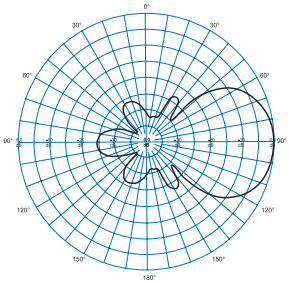
300-600 MHz

RDA Series

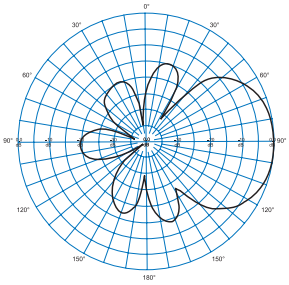
Typical VSWR response (RDA6-99)



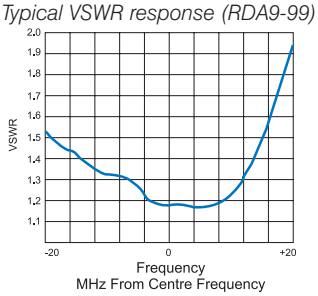
RDA6-99 - E Plane



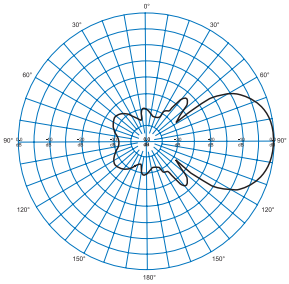
RDA6-99 - H Plane



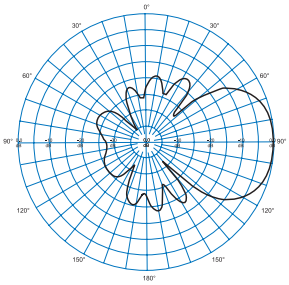
Typical VSWR response (RDA9-99)



RDA9-99 - E Plane



RDA9-99 - H Plane



Electrical

Model Number	RDA3-99	RDA6-65	RDA6-61	RDA6-62	RDA6-99	RDA9-65	RDA9-61	RDA9-62	RDA9-99
Nominal Gain *dBi (dBd)*	8 (6)	11 (9)				13 (11)			
Frequency *MHz*	300 - 600	400 - 420	450 - 480	480 - 520	330 - 600	400 - 420	450 - 480	480 - 520	350 - 600
Tuned Bandwidth	4%	Full band			4%	Full band			4%
VSWR (Return Loss)	<1.5 :1 (14dB)								
Nominal Impedance Ω	50								
Vertical Beamwidth	62°	45°				41°			
Horizontal Beamwidth	90°	54°				46°			
Front / Back Ratio *dB*	15	20				18			
Input Power *W*	250								
Passive IM 3rd order *dBc*	-150								

Mechanical

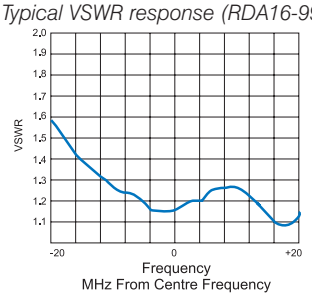
Model Number		RDA3-99	RDA6-65	RDA6-61	RDA6-62	RDA6-99	RDA9-65	RDA9-61	RDA9-62	RDA9-99
Construction		All welded aluminium with black powder coated finish. See note (1)								
Length *m*		0.8	1.3	1.1	1.0	1.5	2.0	1.8	1.7	2.4
Weight *kg*		0.7	1.0	0.9	0.8	1.3	1.6	1.4	1.3	1.9
Termination		N female with short 9302 cable tail								
Mounting Area		100mm x 32mm diam. powder coated aluminium								
Suggested Clamps		1 X UCR1								
Projected Area *cm²*	No ice	469	710	572	531	879	1057	948	867	1293
	With ice	1007	1433	1211	1137	1770	2209	1954	1774	2746
Wind Load (Thrust) @ 160km/h *N*		56	84	68	63	104	125	112	103	153
Wind Gust Rating *km/h*		>240								
Torque @160 km/h *Nm*		17	46	31	27	69	113	93	77	172

(1) RDA series yagis may be ordered in alternative unpainted, plain alodined aluminium finish. Specify "RDB" prefix.

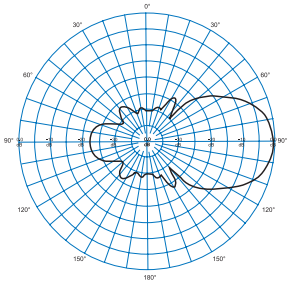
300-600 MHz

RDA Series

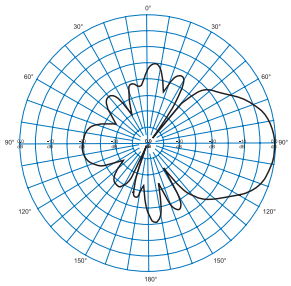
Typical VSWR response (RDA16-99)



RDA16-99 - E Plane



RDA16-99 - H Plane



Electrical

Model Number	RDA16-65	RDA16-70	RDA16-71	RDA16-63	RDA16-72	RDA16-99
Nominal Gain *dBi (dBd)*	14 (12)					
Frequency *MHz*	400 - 420	450 - 470	470 - 490	480 - 500	500 - 520	350 - 600
Tuned Bandwidth	Full band					4.0%
VSWR /Return Loss	<1.5 :1 (14dB)					
Nominal Impedance Ω	50					
Vertical Beamwidth	35°					
Horizontal Beamwidth	36°					
Front / Back Ratio *dB*	20					
Input Power *W*	250					
Passive IM 3rd order *dBc*	-150					

Mechanical

Model Number		RDA16-65	RDA16-70	RDA16-71	RDA16-63	RDA16-72	RDA16-99
Construction		All welded aluminium with black powder coated finish. See note (1)					
Length *m*		2.5	2.3	2.3	2.2	2.2	2.9
Weight *kg*		2.2	1.9	1.8	1.9	1.8	2.5
Termination		N female with short 9302 cable tail					
Mounting Area		100mm x 32mm diam. powder coated aluminium					
Suggested Clamps		1 x UCR1 + 1 x M-4529 bracing kit					
Projected Area *cm²*	No ice	1448	1281	1261	1212	1202	1730
	With ice	3245	2894	2843	2741	2695	3814
Wind Load (Thrust) @ 160km/h *N*		172	152	149	144	142	205
Wind Gust Rating *km/h*		174	195	195	205	205	147
Torque @160 km/h *Nm*		202	159	157	144	142	285

(1) RDA series yagis may be ordered in alternative unpainted, plain alodined aluminium finish. Specify "RDB" prefix.

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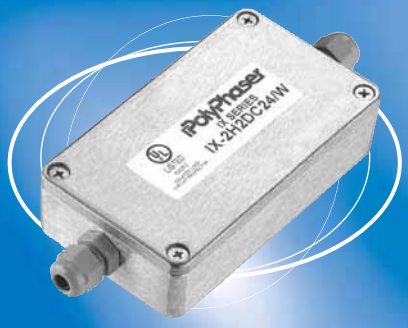

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RFI

700 MHz Yagi Antennas

700-820 MHz

YB700 Series

YB715

The YB700 Series are high gain yagi antennas which will provide excellent point to point communication in RF control, short or long haul link and other applications calling for highly directional antennas. YB700 Series antennas exhibit narrow beamwidths and high front to back ratios to help minimise potential interference to and from other systems.

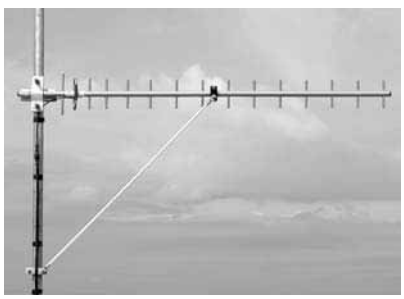
The feed element of each antenna is of full folded dipole construction thus offering maximum bandwidth and reliability. The dipole element is welded to the boom to ensure low intermodulation performance and maximum durability. The passive elements are through mounted to the circular boom section and welded at each side to further minimise the potential for both corrosion and generation of intermodulation products. The alodined protective finish provides a conductive surface to ensure effective earthing of the antenna when mounting.

Constructed with 3, 6, 9 or 15 elements, YB700 Series yagi antennas offer a choice of gain and beamwidth characteristics and can be configured in stacks or bays for higher gain applications in either horizontally or vertically polarised systems. Application details on phasing and mounting yagi antennas are included in the technical notes section of this catalogue.

Yagi antennas rest at ground potential to provide excellent lightning protection and reduced precipitation static noise.

Termination is via an 'N' female coaxial connector fitted to a short 9302 Durathene cable tail. Durathene is a PTFE dielectric and polyethylene jacketed cable providing superior resistance to weathering and abrasion and is less susceptible to bird attack than standard PVC sheathed cables.

- All welded construction for maximum and reliable performance
- Narrow beamwidths & high front to back ratios effective in reducing interference
- Alodine finish provides an excellent conductive surface for earthing
- Can be configured in stacks or bays for higher gain applications using PH and PHE series phasing harnesses

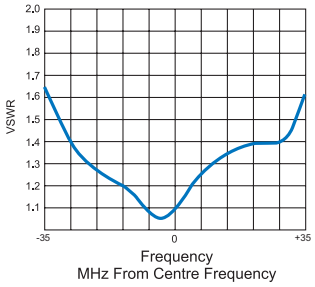


Bracing kit available
Part No. M-4528

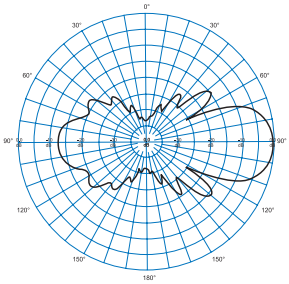
700-820 MHz

YB700 Series

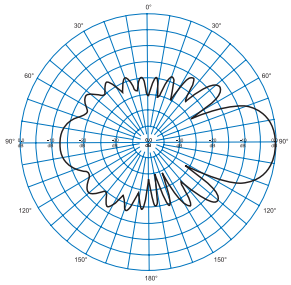
Typical VSWR response (YB715-99)



YB715-99 - E Plane



YB715-99 - H Plane



Electrical

Model Number	YB703-99	YB706-99	YB709-99	YB715-99
Nominal Gain *dBi (dBd)*	8 (6)	11 (9)	13 (11)	15 (13)
Frequency *MHz*	700 - 820			
Tuned Bandwidth	10%			
VSWR /Return Loss	<1.5 :1 (14dB)			
Nominal Impedance Ω	50			
Vertical Beamwidth	64°	47°	39°	30°
Horizontal Beamwidth	102°	57°	44°	31°
Front / Back Ratio *dB*	14			13
Input Power *W*	500			
Passive IM 3rd order *dBc*	-150			

Mechanical

Model Number		YB703-99	YB706-99	YB709-99	YB715-99
Construction		All welded aluminium with alodined finish			
Length *m*		0.3	0.7	1.0	2.0
Weight *kg*		0.2	0.4	0.6	1.2
Termination		N female with short 9302 cable tail			
Mounting Area		100mm of 25mm diam. aluminium			
Suggested Clamps		1 x UNV	1 x UCR1		1 x UCR1 + 1 x M-4528
Projected Area *cm²*	No ice	123	265	439	785
	With ice	339	676	1031	1963
Wind Load (Thrust) @ 160km/h *N*		15	31	52	93
Wind Gust Rating *km/h*		240			210
Torque @160 km/h *Nm*		1	7	22	82

800 MHz Yagi Antennas

540-1000 MHz

YB800 Series

YB815-81

The YB800 Series are high gain yagi antennas which provide excellent point to point communications in RF control, short or long haul link, point to multipoint and other applications calling for highly directional antennas. YB800 Series antennas exhibit narrow beamwidths and high front to back ratios to help minimise any potential interference to and from other systems.

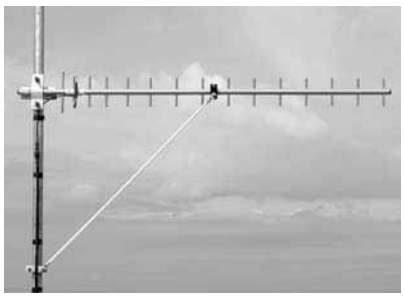
The feed element of each antenna is of full folded dipole construction, welded to the mounting boom for maximum bandwidth, low intermodulation performance and reliability. The passive elements are through mounted to the circular boom section and welded at each side before plating. The alodine protective finish provides a conductive surface to ensure effective earthing of the antenna when mounting.

The YB800 Series are offered in 3, 6, 9, 15 or 20 element form and are generally held in stock for immediate delivery in the commercial bands.

YB800 Series antennas can be configured in stacks or bays for higher gain applications in either horizontally or vertically polarised systems. Application details on phasing and mounting yagi antennas are included in the technical notes section in the back of this catalogue.

YB800 Series rest at ground potential and provide excellent lightning protection and reduced precipitation static noise. Termination is via an 'N' female coaxial connector fitted to a short 9302 Durathene cable tail. Durathene is a PTFE dielectric and polyethylene jacketed cable providing superior resistance to weathering and abrasion and is less susceptible to bird attack than standard PVC sheathed cables.

- All welded construction for maximum and reliable performance
- Narrow beamwidth & high front to back ratios effective in reducing interference
- Standard units feature alodine finish providing an excellent conductive surface for earthing. Full stainless steel versions also available.
- Can be configured in stacks or bays for higher gain applications using PH and PHE series phasing harnesses



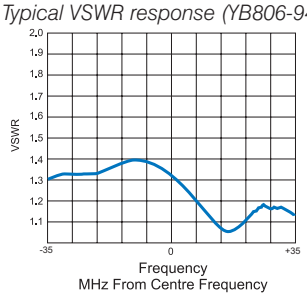
Bracing kit available
Part No. M-4528

800 MHz Yagi Antennas

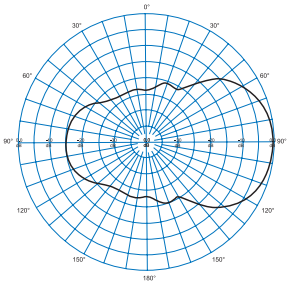
540-1000 MHz

YB800 Series

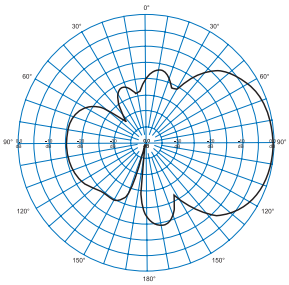
Typical VSWR response (YB806-94)



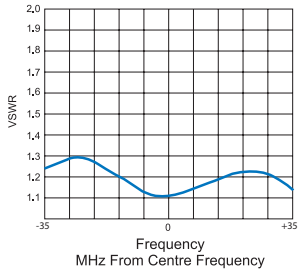
YB806-94 - E Plane



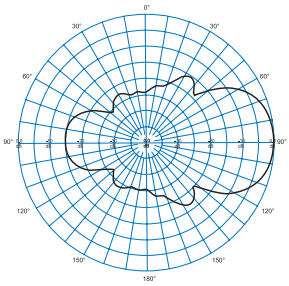
YB806-94 - H Plane



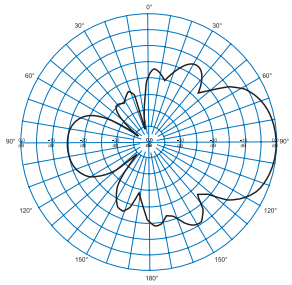
Typical VSWR response (YB809-94)



YB809-94 - E Plane



YB809-94 - H Plane



Electrical

Model Number	YB803-82	YB803-99	YB806-81	YB806-82	YB806-94	YB806-99	YB809-81	YB809-82	YB809-94	YB809-99
Nominal Gain *dBi (dBd)*	8 (6)		11 (9)				12 (10)			
Frequency *MHz*	850 - 930	540 - 1000	806 - 896	850 - 930	890 - 960	540 - 1000	806 - 896	850 - 930	890 - 960	540 - 1000
Tuned Bandwidth	Full band	5%	Full band			5%	Full band			5%
VSWR (Return Loss)	<1.5 :1 (14dB)									
Nominal Impedance (Ω)	50									
Vertical Beamwidth	64	65	49				41			
Horizontal Beamwidth	100	103	61				48			
Front / Back Ratio *dB*	14		22	20	15	17	16	18	15	16
Input Power *W*	100									
Passive IM 3rd order *dBc*	-150									

Mechanical

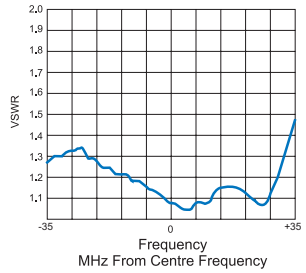
Model Number		YB803-82	YB803-99	YB806-81	YB806-82	YB806-94	YB806-99	YB809-81	YB809-82	YB809-94	YB809-99
Construction		All welded aluminium with alodined finish									
Length *m*		0.3	0.4	0.6	0.6	0.6	0.8	0.9	0.9	1.0	1.4
Weight *kg*		0.2	0.4	0.5	0.4	0.4	0.6	0.7	0.6	0.5	0.9
Termination		N female with short 9302 cable tail									
Mounting Area		100mm x 25mm diam. aluminium									
Suggested Clamps		1 x UNV									
Projected Area *cm²*	No ice	97	167	230	238	213	368	361	343	372	590
	With ice	281	439	593	600	547	902	878	842	874	1396
Wind Load (Thrust) @ 160km/h *N*		11	20	27	28	25	44	43	41	44	70
Wind Gust Rating *km/h*		>240									
Torque @160 km/h *Nm*		1	1	5	6	4	13	15	13	16	40

800 MHz Yagi Antennas

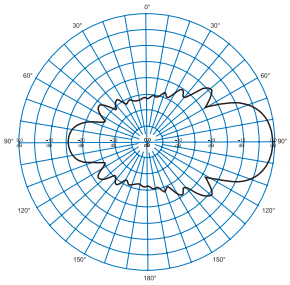
540-1000 MHz

YB800 Series

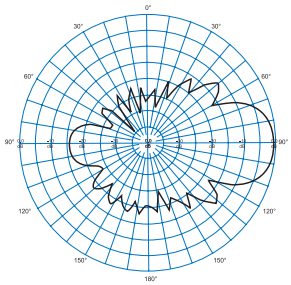
Typical VSWR response (YB815-94)



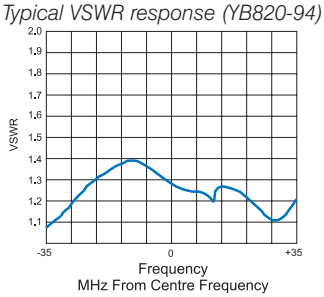
YB815-94 - E Plane



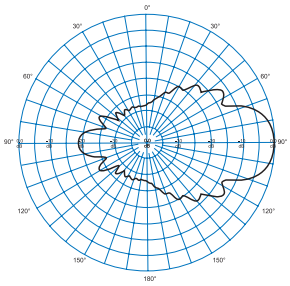
YB815-94 - H Plane



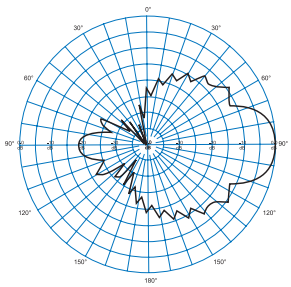
Typical VSWR response (YB820-94)



YB820-94 - E Plane



YB820-94 - H Plane



Electrical

Model Number	YB815-81	YB815-82	YB815-94	YB815-99	YB820-82	YB820-94
Nominal Gain *dBi (dBd)*	14 (12)				16 (14)	
Frequency *MHz*	806 - 896	850 - 930	890 - 960	540 - 1000	850 - 930	890 - 960
Tuned Bandwidth	Full band			5.0%	Full band	
VSWR (Return Loss)	<1.5 :1 (14dB)					
Nominal Impedance Ω	50 Ohm					
Vertical Beamwidth	30°				27°	
Horizontal Beamwidth	30°				24°	27°
Front / Back Ratio *dB*	20	18	17	17	18	
Input Power *W*	100					
Passive IM 3rd order *dBc*	-150					

Mechanical

Model Number		YB815-81	YB815-82	YB815-94	YB815-99	YB820-82	YB820-94
Construction		All welded aluminium with alodined finish					
Length *m*		1.6			2.6	2.3	2.2
Weight *kg*		1.0		0.9	1.6	1.3	
Termination		N female with short 9302 cable tail					
Mounting Area		100mm x 25mm diam. aluminium					
Suggested Clamps		1 x UCR1 + 1 x M-4528 bracing kit					
Projected Area *cm²*	No ice	636	639	628	1067	863	846
	With ice	1539	1550	1514	2630	2168	2121
Wind Load (Thrust) @ 160km/h *N*		75	76	74	126	102	100
Wind Gust Rating *km/h*		240			156	186	189
Torque @160 km/h *Nm*		53	53	52	152	104	100

800MHz Broadband Yagi Antenna

850-930 MHz

YBA818-82

YBA818-82

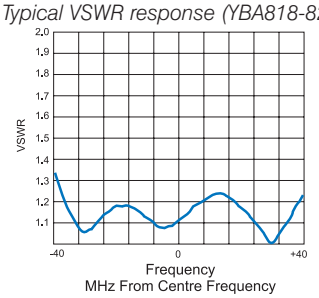
The YBA818-82 is a highly directional antenna ideally suited for point to point communications in RF Control and Point to Multi-Point long haul link applications.

Both feed elements are constructed from a fully folded dipole welded to the boom, providing maximum bandwidth, excellent intermodulation performance and high reliability. The passive elements are thru mounted to the circular boom section which is fully welded to the mounting tube with a welded spacer between both booms before plating. The entire antenna is then plated in an alodine finish to provide an excellent conductive surface to ensure effective earthing of the antenna when it is mounted.

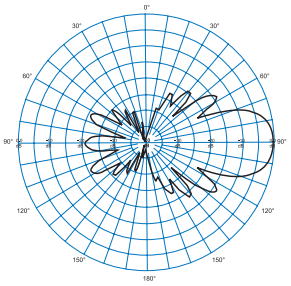
The YBA818-82 can be double stacked into a 4-boom array for additional gain by simply ordering two antennas and the PA84-82 stacking kit which includes 2 spacing control frames, two fibreglass upright supports and a two-way phasing harness for phasing both arrays together.

Note: Suitable for vertically polarised installations only

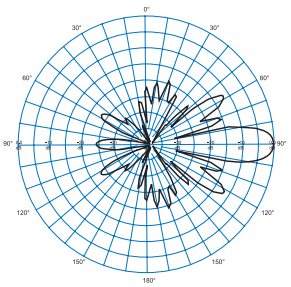
Typical VSWR response (YBA818-82)



YBA818-82 - E Plane



YBA818-82 - H Plane



Electrical

Model Number	YBA818-82
Nominal Gain *dBi (dBd)*	19 (17)
Frequency *MHz*	850 - 930
Tuned Bandwidth	Full band
VSWR (Return Loss)	<1.5 :1 (14dB)
Nominal Impedance Ω	50
Vertical Beamwidth	28
Horizontal Beamwidth	14
Front / Back Ratio *dB*	24
Input Power *W*	200
Passive IM 3rd order *dBc*	-150

Mechanical

Model Number		YBA818-82
Construction		Welded aluminium with alodined finish with fibreglass supports
Length *m*		1.9
Weight *kg*		5.5
Termination		External harness with N female and short 9142 cable tail
Mounting Area		Clamps to diam. 40-85mm
Suggested Clamps		Clamps supplied
Projected Area *cm²*	No ice	2127
	With ice	4821
Wind Load (Thrust) @ 160km/h *N*		252
Wind Gust Rating *km/h*		>177
Torque @160 km/h *Nm*		221

800 MHz Stainless Steel Yagi Antennas

540-1000 MHz

YBS800 Series

YBS815

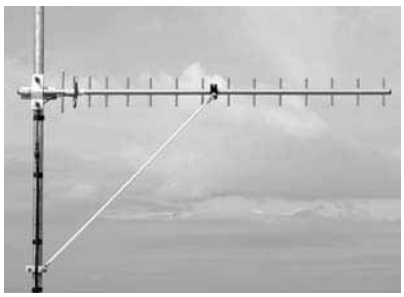
The stainless steel YBS800 series yagis are high gain antennas specifically designed to cater for extreme and corrosive environments. They provide an excellent solution for point to point applications in RF control, short or long haul link, point to multipoint and other applications requiring highly directional antennas.

Manufactured from all welded 316 grade stainless steel these antennas provide identical performance to the YB800 series yagis but are better suited for extreme climatic or corrosive applications. The feed element of each antenna is of full folded dipole construction, welded to the boom for maximum bandwidth and reliability.

The YBS800 series antennas are offered in 3, 6, 9 or 15 element form and are available ex stock in small quantities. They can be configured in stacks or bays for higher gain applications in either horizontally or vertically polarised systems. Application details on phasing and mounting yagi antennas are included in the technical notes at the back of this catalogue.

Yagi antennas rest at ground potential and provide excellent lightning protection and reduced precipitation static noise. Termination is via an N female connector fitted to a short 9302 Durathene cable tail. Durathene is a PTFE dielectric and polyethylene jacketed cable providing superior resistance to weathering and abrasion and is less susceptible to bird attack than standard PVC sheathed cables.

- Rugged construction 316 grade stainless steel for extreme conditions
- Broadband available in a number of models to cover trunking, cellular and ISM bands
- Narrow beamwidth and high front to back ratios
- Can be configured is stacks or bays for higher gain applications using PH and PHE series phasing harnesses
- Ideal for point to point or point to multipoint applications



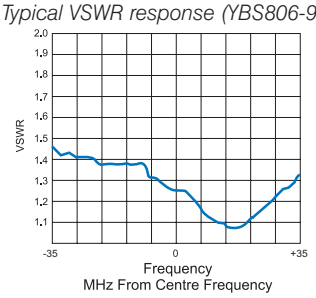
Bracing kit available
Part No. M-4528

800 MHz Stainless Steel Yagi Antennas

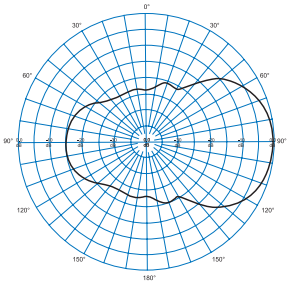
540-1000 MHz

YBS800

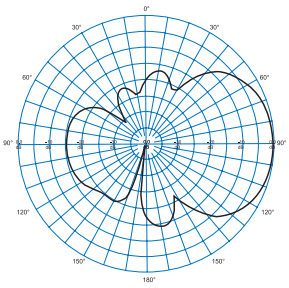
Typical VSWR response (YBS806-94)



YBS806-94 - E Plane



YBS806-94 - H Plane



Electrical

Model Number	YBS803-82	YBS803-99	YBS806-81	YBS806-82	YBS806-94	YBS806-99
Nominal Gain *dBi (dBd)*	8 (6)		11 (9)			
Frequency *MHz*	850 - 930	540 - 1000	806 - 896	850 - 930	890 - 960	540 - 1000
Tuned Bandwidth	Full band	5%	Full band			5%
VSWR (Return Loss)	<1.5 :1 (14dB)					
Nominal Impedance Ω	50					
Vertical Beamwidth	64°	65°	49°	50°		
Horizontal Beamwidth	100°	103°	61°	62°		
Front / Back Ratio *dB*	14		22	20	15	17
Input Power *W*	100					
Passive IM 3rd order *dBc*	-150					

Mechanical

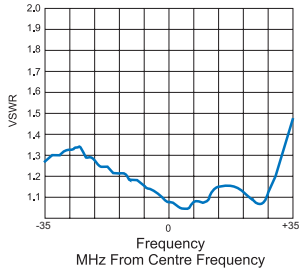
Model Number		YBS803-82	YBS803-99	YBS806-81	YBS806-82	YBS806-94	YBS806-99
Construction		All welded stainless steel with polished finish					
Length *m*		0.3	0.4	0.6			0.8
Weight *kg*		0.3	0.5	0.7	0.7	0.7	1.0
Termination		N female with short 9302 cable tail					
Mounting Area		100mm of 25mm diam. stainless steel					
Suggested Clamps		1 x UNV					
Projected Area *cm²*	No ice	95	164	228	236	211	364
	With ice	279	436	584	597	543	897
Wind Load (Thrust) @ 160km/h *N*		11	19	27	28	25	43
Wind Gust Rating *km/h*		>240					
Torque @160 km/h *Nm*		0.2	1	5	6	4	13

800 MHz Stainless Steel Yagi Antennas

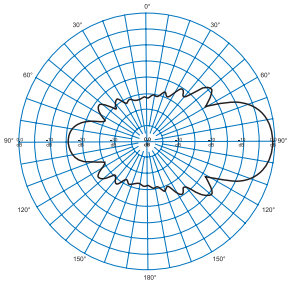
540-1000 MHz

YBS800

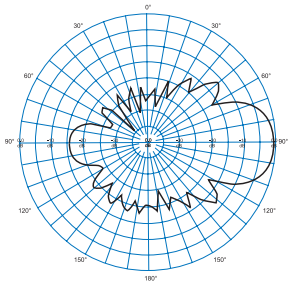
Typical VSWR response (YBS815-94)



YBS815-94 - E Plane



YBS815-94 - H Plane



Electrical

Model Number	YBS809-81	YBS809-82	YBS809-94	YBS809-99	YBS815-81	YBS815-82	YBS815-94	YBS815-99
Nominal Gain *dBi (dBd)*	12 (10)			13 (11)		15 (13)		
Frequency *MHz*	806 - 896	850 - 930	890 - 960	540 - 1000	806 - 896	850 - 930	890 - 960	540 - 1000
Tuned Bandwidth	Full band			5.0%	Full band			5.0%
VSWR (Return Loss)	<1.5 :1 (14dB)							
Nominal Impedance Ω	50							
Vertical Beamwidth	43°		41°	44°	36°	30°	31°	36°
Horizontal Beamwidth	49°	49°	48°	51°	39°	30°	32°	39°
Front / Back Ratio *dB*	16	18	15	16	20	18	17	17
Input Power *W*	100							
Passive IM 3rd order *dBc*	-150							

Mechanical

Model Number		YBS809-81	YBS809-82	YBS809-94	YBS809-99	YBS815-81	YBS815-82	YBS815-94	YBS815-99
Construction		All welded stainless steel with polished finish							
Length *m*		0.9		1.0	1.4	1.6			2.6
Weight *kg*		1.0			1.6	1.7	1.8	1.7	2.8
Termination		N female with short 9302 cable tail							
Mounting Area		100mm of 25mm diam. stainless steel							
Suggested Clamps		1 x UCR1				1 x UCR1 + 1 x M-4528 bracing kit			
Projected Area *cm²*	No ice	358	341	370	589	635	639	628	1067
	With ice	874	838	870	1390	1533	1543	1508	2626
Wind Load (Thrust) @ 160km/h *N*		42	40	44	70	75	76	74	127
Wind Gust Rating *km/h*		240							156
Torque @160 km/h *Nm*		15	13	16	40	53		52	152

UHF GridPak™ Antennas

403-960 MHz

KP Series

The KP Series GridPak™ antennas are aluminium grid construction parabolic antennas manufactured by Andrew. They deliver high wideband gain and excellent pattern characteristics making them ideal in applications where extremely high front to back ratios are required. The KP Series antennas are lightweight with low windload specifications, to minimise tower loadings.

GridPak™ antennas are shipped disassembled in a flat, lightweight package to simplify handling.

Each antenna is supplied with 750mm of flexible cable eliminating the necessity for a separate jumper cable. The input connector is an N type female.

- Easy installation - Lightweight aluminium grid construction
- Deliver high wideband gain and superior front to back ratios
- Shipped disassembled for easy and economical shipping and handling

KP Series

Electrical

Part No		KP6F-403-NWM	KP6F-820-NWM	KP10F-403-NWM	KP10F-820-NWM	KP13F-403-NWM	KP13F-820-NWM
Gain *dBi* +/- 0.2 dBi	Bottom	16.4	21.8	20.0	25.2	22.0	27.3
	Mid	16.3	22.6	19.6	25.9	22.2	28.0
	Top	16.6	23.2	20.4	26.5	22.6	28.6
Frequency *MHz*		403 - 470	820 - 960	403 - 470	820 - 960	403 - 470	820 - 960
Tuned Bandwidth		Entire specified bandwidth					
VSWR		1.35:1	1.4:1	1.35:1	1.35:1	1.35:1	1.35:1
Vertical Beamwidth		19.3°	9.5°	12.6°	6.7°	13.0°	4.9°
Horizontal Beamwidth		22.9°	10.8°	16.8°	8.0°	13.0°	5.8°
Front / Back Ratio *dB*		20	28	22	25	24	30

Mechanical

Model No.		KP6F-403-NWM	KP6F-820-NWM	KP10F-403-NWM	KP10F-820-NWM	KP13F-403-NWM	KP13F-820-NWM
Construction		Aluminium grid with N female input connector on cable tail. See note (1)					
Diameter *m*		2	2	3	3	4	4
Weight *kg*		90	90	190	190	235	235
Wind forces at 200kph *N*	F_A max	3650	3650	8120	8120	13940	13940
	F_S max	1910	1910	4540	4540	7780	7780
	M_T max	1824	1824	5259	5259	10903	10903

F_A = Axial force
F_S = Side force
M_T = Twisting moment

(1) Connector termination options available of 7/16 DIN female, 7/8 EIA or F flange upon request

PH & PHE Series Phasing Harnesses

PH and PHE Series phasing harnesses are for use in feeding multiple antennas from a single input. These are impedance matching harnesses of coaxial cable construction which can be used in a large variety of applications.

PH Series harnesses, our standard range, suit side mounted dipole and smaller yagi antenna applications. Larger yagi antennas require significantly larger antenna to antenna spacings and require the PHE (E for extended length) Series.

For technical information regarding phasing of side mount dipole antennas see pages 186-188.

PLEASE NOTE: For ALL applications using side mounted dipole antennas, the standard PH Series are recommended.

To ensure that you choose the correct phasing harness for your application, please use the following matrix.

PH Series Harnesses for VHF Applications

Model No.	No. of Antenna Outputs	Frequency *MHz*	Side Mount Dipoles	Yagis 2-4 Elements	Yagis 6-9 Elements	Bandwidth
PH12-24	2	70 - 85	Ideal for this application		Not suitable for this application. These antennas require significantly larger antenna to antenna spacing and require PHE Series Phasing Harnesses.	Full band as shown
PH12-99	2	60 - 136	Used only with custom antennas. Specify frequency.			20%
PH14-24	4	70 - 85	Ideal for this application			Full band as shown
PH14-99	4	60 - 136	Used only with custom antennas. Specify frequency.			20%
PH22-41	2	148 - 174	Ideal for this application			Full band as shown
PH22-99	2	137 - 250	Used only with custom antennas. Specify frequency.			20%
PH24-41	4	148 - 174	Ideal for this application			Full band as shown
PH24-99	4	137 - 250	Used only with custom antennas. Specify frequency.			20%

PHE Series Harnesses for VHF Applications

Model No.	No. of Antenna Outputs	Frequency *MHz*	Side Mount Dipoles	Yagis 2-4 Elements	Yagis 6-9 Elements	Bandwidth
PHE12-99	2	60 - 136	Suitable but not recommended as cable length is excessive. Specify frequency.		Suitable with custom antennas Specify frequency.	8%
PHE14-99	4	60 - 136				
PHE22-99	2	137 - 250				
PHE24-99	4	137 - 250				

PH Series Harnesses for UHF Applications

<table>
<tr><th>Model No.</th><th>No. of Antenna Outputs</th><th>Frequency MHz</th><th>Side Mount Dipoles</th><th>Yagis 2-6 Elements</th><th>Yagis 9-16 Elements</th><th>Bandwidth</th></tr>
<tr><td>PH42-65</td><td>2</td><td>400 - 420</td><td colspan="2" rowspan="4">Ideal for this application</td><td rowspan="11">Not suitable for this application. These antennas require significantly larger antenna to antenna spacing and require PHE Series Phasing Harnesses.</td><td rowspan="4">Full band as shown</td></tr>
<tr><td>PH42-70</td><td>2</td><td>450 - 470</td></tr>
<tr><td>PH42-71</td><td>2</td><td>470 - 490</td></tr>
<tr><td>PH42-72</td><td>2</td><td>490 - 520</td></tr>
<tr><td>PH42-99</td><td>2</td><td>300 - 600 (Specify)</td><td>Used only with custom SMD antennas. Specify frequency</td><td>Ideal with custom antennas (Outside standard bands). Specify frequency.</td><td>20%</td></tr>
<tr><td>PH44-65</td><td>4</td><td>400 - 420</td><td colspan="2" rowspan="4">Ideal for this application</td><td rowspan="4">Full band as shown</td></tr>
<tr><td>PH44-70</td><td>4</td><td>450 - 470</td></tr>
<tr><td>PH44-71</td><td>4</td><td>470 - 490</td></tr>
<tr><td>PH44-72</td><td>4</td><td>490 - 520</td></tr>
<tr><td>PH44-99</td><td>4</td><td>300 - 600 (Specify)</td><td colspan="2">Ideal with custom antennas (Outside standard bands). Specify frequency.</td><td>20%</td></tr>
<tr><td>PH82-81</td><td>2</td><td>820 - 900</td><td rowspan="2">Not suitable for this application</td><td rowspan="2">Ideal for six element yagis only</td><td rowspan="2">Full band as shown</td></tr>
<tr><td>PH82-82</td><td>2</td><td>850 - 930</td></tr>
<tr><td>PH82-99</td><td>2</td><td>600 - 999 (Specify)</td><td rowspan="2">Not suitable. SMD8 dipoles are not suited for phasing.</td><td rowspan="2">Ideal with custom antennas (outside standard bands). Specify frequency.</td><td rowspan="2">20%</td></tr>
<tr><td>PH84-99</td><td>4</td><td>600 - 999 (Specify)</td></tr>
</table>

PHE Series Harnesses for UHF Applications

<table>
<tr><th>Model No.</th><th>No. of Antenna Outputs</th><th>Frequency MHz</th><th>Side Mount Dipoles</th><th>Yagis 2-6 Elements</th><th>Yagis 9-16 Elements</th><th>Bandwidth</th></tr>
<tr><td>PHE42-65</td><td>2</td><td>400 - 420</td><td colspan="2" rowspan="4">Suitable but not recommended as cable length is excessive.</td><td rowspan="4">Ideal for this application</td><td rowspan="4">Full band as shown</td></tr>
<tr><td>PHE42-70</td><td>2</td><td>450 - 470</td></tr>
<tr><td>PHE42-71</td><td>2</td><td>470 - 490</td></tr>
<tr><td>PHE42-72</td><td>2</td><td>490 - 520</td></tr>
<tr><td>PHE42-99</td><td>2</td><td>300 - 600 (Specify)</td><td colspan="2">Suitable (with custom antennas outside normal bands) but not recommended as cable length is excessive. Specify frequency.</td><td>Ideal where frequency is outside normal bands. Specify frequency.</td><td>20%</td></tr>
<tr><td>PHE44-65</td><td>4</td><td>400 - 420</td><td colspan="2" rowspan="4">Suitable but not recommended as cable length is excessive.</td><td rowspan="4">Ideal for this application</td><td rowspan="4">Full band as shown</td></tr>
<tr><td>PHE44-70</td><td>4</td><td>450 - 470</td></tr>
<tr><td>PHE44-71</td><td>4</td><td>470 - 490</td></tr>
<tr><td>PHE44-72</td><td>4</td><td>490 - 520</td></tr>
<tr><td>PHE44-99</td><td>4</td><td>300 - 600 (Specify)</td><td colspan="2">Suitable (with custom antennas outside normal bands) but not recommended as cable length is excessive. Specify frequency.</td><td>Ideal where frequency is outside normal bands. Specify frequency.</td><td>20%</td></tr>
<tr><td>PHE82-81</td><td>2</td><td>820 - 900</td><td rowspan="2">Not suitable. SMD8 dipoles are not suited for phasing.</td><td rowspan="2">Suitable but not recommended as cable length is excessive.</td><td rowspan="2">Suitable for 9 and 15 element yagis only</td><td rowspan="2">Full band as shown</td></tr>
<tr><td>PHE82-82</td><td>2</td><td>850 - 930</td></tr>
<tr><td>PHE82-99</td><td>2</td><td>600 - 999 (Specify)</td><td colspan="2" rowspan="2">Suitable (with custom antennas outside normal bands) but not recommended as cable length is excessive. Specify frequency.</td><td rowspan="2">Ideal where frequency is outside normal bands. Specify frequency.</td><td rowspan="2">20%</td></tr>
<tr><td>PHE84-99</td><td>4</td><td>600 - 999 (Specify)</td></tr>
</table>

Vertical Collinear Antennas

2.4-2.5 GHz

COL2402
COL2406
COL2408
COL2410

COL2408

These antennas meet the exacting performance criteria for spread spectrum operation, including those of the IEEE802.11 wireless standard. This range of rugged, collinear antennas offers an omni pattern, with gains ranging from 2 to 10dBi, enabling optimum network configuration.

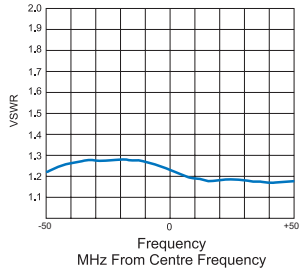
The patented PCB based design delivers superior pattern stability across the entire band avoiding inherent pattern tilting common in more traditional collinear designs.

Their UV stable white fibreglass housings make them the ideal choice in a wide range of industrial spread spectrum applications.

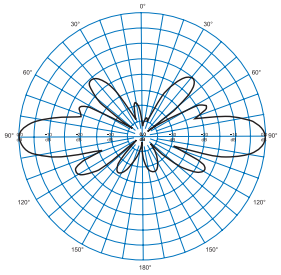
- Tightly controlled radiation patterns for optimum coverage
- Rugged construction meets all installation requirements
- Small inobtrusive design
- PCB design for optimum RF pattern stability
- Also available in mobile configurations with spring base

USA Patent No. 690940382
Australia Patent App. No. 2003255049 / EU Patent App. No. 03023406.6 / China Patent App. No. 200310100548.5

Typical VSWR response (COL2408)



COL2408 - E Plane



Electrical

Model Number	COL2402	COL2406	COL2408	COL2410
Nominal Gain *dBi*	2	6	8	10
Frequency *MHz*	2400 - 2500			
Tuned Bandwidth *MHz*	100			
VSWR (Return Loss)	<1.5:1 (14dB)			
Nominal Impedance Ω	50			
Vertical Beamwidth	81°	22.2°	16.5°	8°
Horizontal Beamwidth	360°			
Input Power *W*	25			

Mechanical

Model Number	COL2402	COL2406	COL2408	COL2410
Construction	White fibreglass collinear antenna with stud mount base			White fibreglass collinear antenna with stainless steel mounting tube
Length *mm*	170	340	430	1095
Weight *kg*	0.15	0.17	0.2	0.25
Suggested Clamps	1 x MM2 bracket supplied			Mast mount 2 x stainless steel hose clamps supplied
Cable and Connector	300mm of 9006 and N-Female connector			

Vertical Collinear Antennas

5.7-5.8 GHz

COL5806
COL5808
COL5810

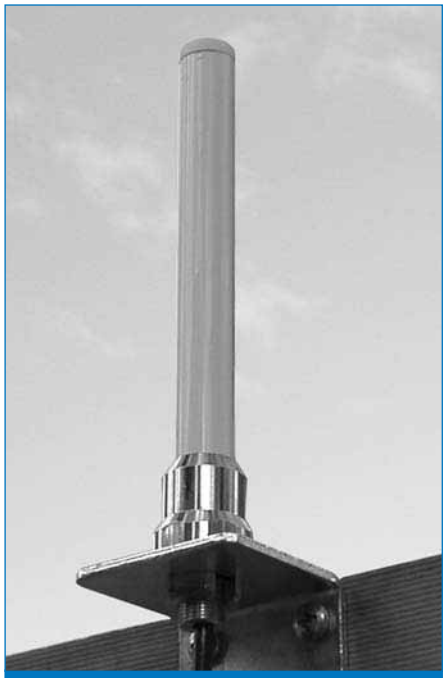
These antennas offer a rugged omnidirectional solution for many varied applications in the unlicensed 5.8GHz spectrum including fixed wireless, wireless video, 802.11a and rural telephony. With gains ranging from 6 to 10dBi these collinears deliver maximum range and versatility for the network designer.

The patented PCB based design offers superior pattern stability across the entire band avoiding inherent pattern tilting common in more traditional collinear designs.

Their UV stable white fibreglass housings make them the ideal choice for indoor or outdoor requirements.

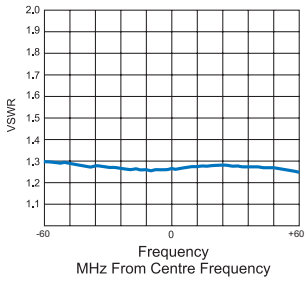
- Tightly controlled radiation patterns for optimum coverage
- Rugged construction meets all installation requirements
- Small inobtrusive design
- PCB design for optimum RF pattern stability

USA Patent No. 690940382
Australia Patent App. No. 2003255049 / EU Patent App. No. 03023406.6 / China Patent App. No. 200310100548.5

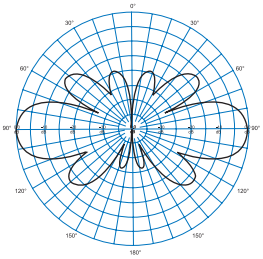


COL5806

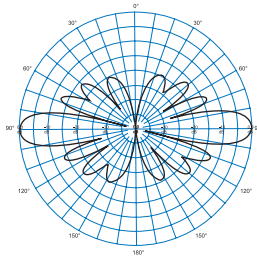
Typical VSWR response (COL5808)



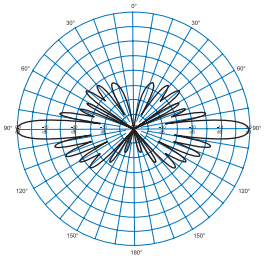
COL5806 - E Plane



COL5808 - E Plane



COL5810 - E Plane



Electrical

Model Number	COL5806	COL5808	COL5810
Nominal Gain *dBi*	6	8	10
Frequency *MHz*	5725 - 5850		
Tuned Bandwidth *MHz*	Entire band		
VSWR (Return Loss)	<1.5:1		
Nominal Impedance Ω	50		
Vertical Beamwidth	23°	14°	8°
Horizontal Beamwidth	360°		
Input Power *W*	5		

Mechanical

Model Number	COL5806	COL5808	COL5810
Construction	Flexible PCB radiator in white fibreglass radome fitted to bright chrome ferrule.		
Length *mm*	155	235	395
Weight *kg*	0.12	0.13	0.15
Suggested Clamps	1 x MM2 bracket		
Cable and Connector	300mm of 9142 and an N-Female		

Halo Omnidirectional Antennas

2.4-2.5 GHz
5.7-5.9 GHz

ISM-2403-C
ISM-2403-V
ISM-5803-C
ISM-5803-V

ISM-2403-C

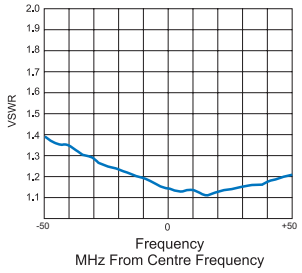
The RFI "Halo" antennas offer a stylish, low profile design required by today's more aesthetically demanding environments such as stylish office space and retail outlets where 802.11 technology is finding itself more readily deployed.

This style of antenna lends itself perfectly to mounting on a ceiling tile in public arenas and internet kiosks. Whilst not appearing to be an antenna it offers deceptively high performance. Applications such as WiFi hotspots are well served by this discrete design.

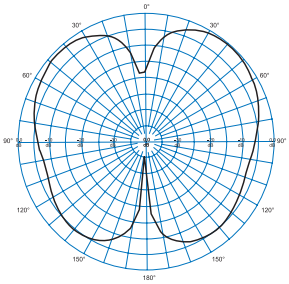
These antennas support a radiation pattern that is very low in vertical beamwidth and offer 3.5dBi gain to the horizon, assisting in coverage of a greater floor space such as found in an office application. No longer do you inject RF into the floor, it is fed more efficiently to farther regions of the desired coverage area.

The "Halo" series is available in it's standard format (ISM-XX03-C) for ceiling mounting and also with a sealing gasket for vehicle mounting (ISM-XX03-V).

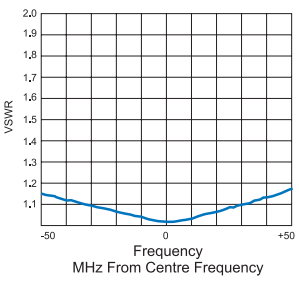
Typical VSWR response (ISM2403)



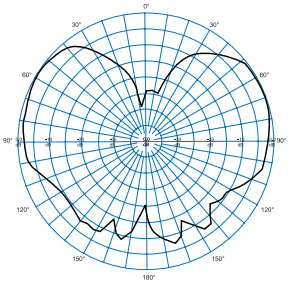
ISM2403 - E Plane



Typical VSWR response (ISM5803)



ISM5803 - E Plane



Electrical

Model No	ISM-2403-C	ISM-2403-V	ISM-5803-C	ISM-5803-V
Nominal Gain *dBi*	3.5		3	
Frequency *MHz*	2400 - 2500		5725 - 5875	
Tuned Bandwidth	Full			
VSWR (Return Loss)	<1.5:1 (14dB)			
Nominal Impedance Ω	50			
Vertical Beamwidth	57° @ 45° elevation		33° @ 50° elevation	
Input Power *W*	25			

Mechanical

Model No	ISM-2403-C	ISM-2403-V	ISM-5803-C	ISM-5803-V
Construction	White ABS radome on aluminium base			
Dimensions *mm* *L x W x D*	100 x 100 x 25			
Weight *kg*	0.05			
Termination	N Female with 400mm 9142 cable tail			
Suggested Mounting	Ceiling mount. 2 x studs with wing nuts (supplied)	Vehicle mount. 4 x screws with gasket (supplied)	Ceiling mount. 2 x studs with wing nuts (supplied)	Vehicle mount. 4 x screws with gasket (supplied)

Multi-band Indoor / Microcell Antenna

800-2500MHz

DAS-M1

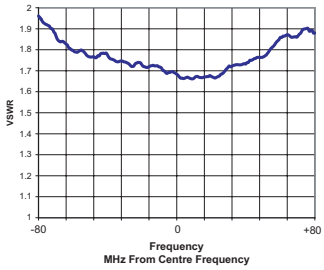
DAS-M1

The DAS-M1 antenna is a revolutionary solution for indoor/outdoor distributed antenna systems. With multi-band coverage from 800-2500 MHz and a ground independent design, the applications are limitless.

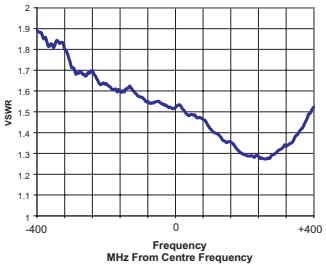
The DAS-M1 is a discrete, lightweight design for mounting on ceilings as a part of a multi-band distributed antenna system. It can also be "inverted" and mounted outdoors for wireless payphone, microcellular or picocellular applications, maintaining an IP66 ingress rating as the antenna includes multiple sealing gaskets.

- Easy to install on metallic or non-metallic surfaces,
- Excellent PIM characteristics
- Multi band design offers one solution for CDMA, GSM, 3G, PCS, DECT, WLAN and Bluetooth applications
- Strong omnidirectional performance

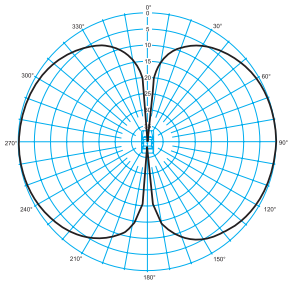
Typical VSWR response for DAS-M1
800-960MHz



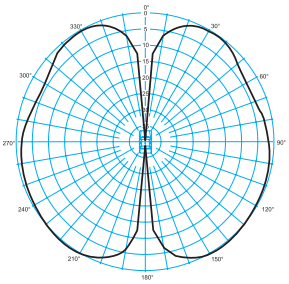
Typical VSWR response for DAS-M1
1700 - 2500MHz



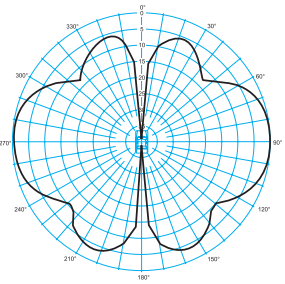
DAS-M1 - E Plane 890MHz



DAS-M1 - E Plane 1900MHz



DAS-M1 - E Plane 2450MHz



Electrical

Model No	DAS-M1		
Nominal Gain *dBi*	1.6	2.0	3.3
Frequency *MHz*	800 - 960	1710 - 2200	2400 - 2500
Tuned Bandwidth	Entire specific band		
VSWR (Return Loss)	<2.0:1		
Nominal Impedance Ω	50		
Vertical Beamwidth	95°	80°	50°
Input Power *W*	50W		

Mechanical

Model No	DAS-M1
Construction	All silver plated brass construction with Geloy ASA radome
Dimensions *mm* *H x D*	90 x 160
Weight *kg*	0.05
Termination	Silver plated N-Type female connector
Suggested Mounting	Ceiling or external. Complete with all gaskets to maintain IP66

Power for Telecommunications

Putting the sun to work

As the worlds telecommunications networks are extended and upgraded, greater focus is being placed on the provision of rural communications services. Today, major telecom network operators, carriers and turnkey equipment manufacturers routinely install photovoltaic powered communication systems - testimony to the reliability of solar power.

RFI have a longstanding partnership with BP Solar and as a key distributor in the region can offer an unbeatable range and service level.

The BP range of solar panels are built tough, as they need to be for remote applications. They feature the latest in photovoltaic technology, providing the highest current output available. The range is ideal for:

- **Radio Sites**
- **Telemetry Installations**
- **Microwave Repeater Sites**
- **Rural Telephony**

We hold comprehensive stock of Solar panels, regulators, inverters, mounting frames and DC wiring equipment and can rapidly satisfy any order. Our engineering staff are ready at hand to assist in system design for your application.

bp solar

Distributor

mobile antennas

VHF Unity Gain Roof Mount

35-45 MHz

SW35

SW35

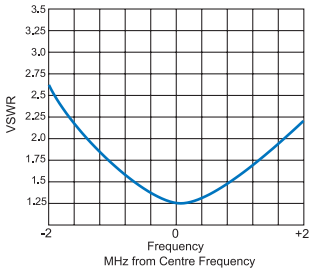
The SW35 is the mobile antenna which RFI recommends in VHF low band, two frequency simplex or duplex applications. The relatively broad bandwidth of this base loaded antenna allows coverage of both transmit and receive frequencies in a small, physically manageable antenna.

The whip section of highly flexible 17-7PH stainless steel provides maximum durability, retaining its shape after knocks, bumps or bends. This whip section is fitted to a base loading coil which incorporates an impedance matching circuit. The coil is housed in black fibreglass with chrome plated brass end-fittings. The antenna is suitable for field tuning over the band 35-45 MHz.

The antenna is designed to fit standard VHF bases, such as the MB9 and can utilise the full line of accessories and fittings which are offered with this range.

- Recommended for two frequency applications
- Broad bandwidth allows coverage of both transmit and receive frequencies (Tx to Rx splits of up to 2 MHz)
- Base loaded construction
- Strong - fibreglass coil with chrome plated brass end-fittings
- Flexible 17-7PH tapered stainless steel radiator takes the knocks and keeps its shape

Typical VSWR response (SW35)



Electrical

Model No.	SW35
Gain	Unity over a ¼ wave
Frequency *MHz*	35 - 45
Power *W*	100
Tuned Bandwidth	1.5 MHz @ 1.5:1 VSWR
	2 MHz @ 1.75:1 VSWR
Tuning	Field tune to minimum VSWR

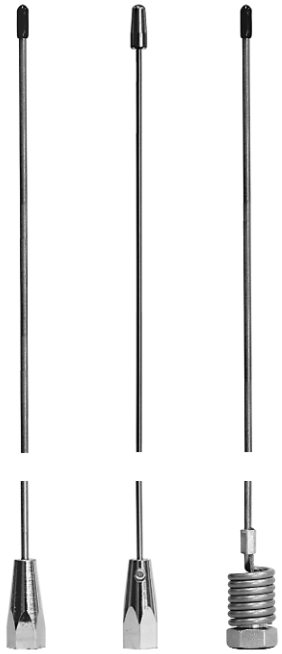
Mechanical

Model No.	SW35
Whip Material	Tapered 17-7PH stainless steel
Whip Length *mm*	1600 (including base coil)
Mounting	MB9, MB10 or MB12 bases (not included)
Cable and Connector	Not included, order separately

VHF Unity Gain Roof Mount

66-175 MHz

SW1
TSW1
111ST



SW1, TSW1, 111ST

In the 66-175 MHz band, ¼ wave antennas are preferred in many mobile applications. Mounted high on a vehicle they provide excellent omnidirectional performance, are easily tuned and are extremely affordable. They fit standard VHF roof mount bases such as the MB9 and can utilise the full line of accessories and fittings available for such applications.

SW1

- Parallel stainless steel whip
- Interference thread locking mechanism prevents loosening of whip due to vibration

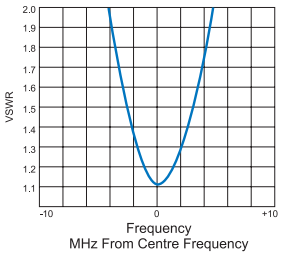
TSW1

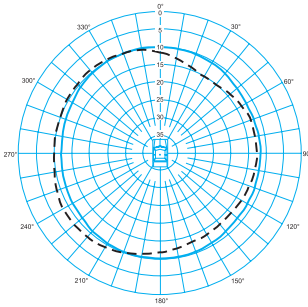
- 17-7PH tapered stainless steel whip
- Resilient construction retains shape after bending or knocks

111ST

- ¼ wave stainless whip with integral spring
- Ideal for heavy industrial applications

Typical VSWR response (SW1)





MOUNTING NOTES
The SW1 and all the other antennas featured on this page are excellent performers when mounted on the roof. Mounting these antennas in other positions will result in degraded performance. As an example, in a gutter mount position as shown here, the result is a pattern 'pulled' to the open side of the roof which is likely to impact considerably on performance.

TEST FREQUENCY: 77 MHz
REFERENCE ANTENNA *MODEL: SW1* —— *MOUNT: MB9* *POSITION: Roof Centre*
TEST ANTENNA *MODEL: SW1* - - - - - - *MOUNT: Gutter Mount Driver Side*

Electrical

Model No.	SW1	TSW1	111ST
Gain	Unity over a ¼ wave		
Frequency *MHz*	66 - 88	66 - 175	
Power *W*	100		
Tuned Bandwidth	3% @ <1.5:1 VSWR on MB9 base (typically at 70MHz)		
Tuning	Field tune to minimum VSWR		

Mechanical

Model No.	SW1	TSW1	111ST
Whip Material	Parallel stainless steel	Tapered 17-7PH stainless steel	Parallel stainless steel with integral spring
Whip Length *mm*	1205	1277	1270
Mounting	Suit MB9, MB10 or MB12 bases (not included)		
Cable and Connector	Not included, order separately		

Delta Series Broad Band Roof Mount

66-1000 MHz

DSW1401
DSW1402

MB14 Base

DSW1402 DSW1401

Delta Series antennas are broadband ¼ wave antennas designed to cater to modern mobile transceivers which commonly cover an entire operating band of frequencies.

The Delta series antennas allow coverage of greater than 6% bandwidth for a VSWR of less than 1.5:1 in the VHF bands. This bandwidth is even greater at UHF frequencies due to the increased diameter to length ratio of the whip section.

This bandwidth is made possible through the extraordinary performance characteristics of the MB14 antenna base. The MB14 base is intricately constructed, much like a coaxial connector, and provides a useable frequency range extending well above 1000 MHz. The precisely controlled termination results in a superb match, and facilitates the unusually broad bandwidth.

Delta Series antennas are unity gain antennas, which deliver a standard, omnidirectional pattern when mounted in the centre of a metal roof.

The radiating sections are constructed from extremely flexible 17-7PH stainless steel to resist bending and deformity. The DSW1401 features a bright stainless steel finish and the DSW1402 is finished in stylish black high gloss plating. The antennas are supplied packaged complete with whip section, mounting base fitted with cable and an instruction sheet for easy installation by semi-skilled personnel.

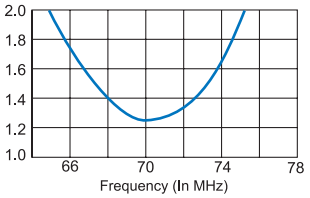
- Broad bandwidth allows coverage of entire operating bands
- MB14 constant impedance base designed specifically for high performance at frequencies up to and above 1000 MHz
- Whip sections are interchangeable and easily replaced in the field
- 17-7PH stainless steel whip section
- Supplied package includes base, whip, cable and instruction sheet for easy installation
- Slimline ferrule

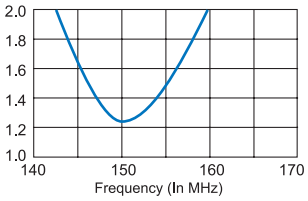
Delta Series Broad Band Roof Mount

66-1000 MHz

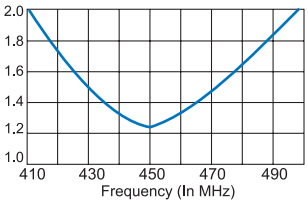
DSW1401
DSW1402

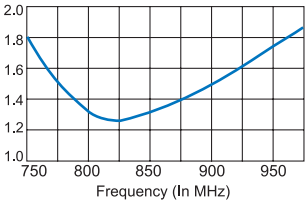
Typical VSWR response (DSW1401)

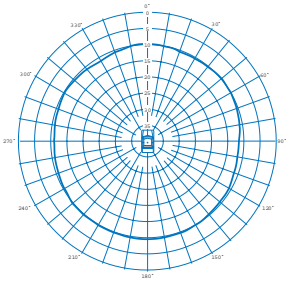




Typical VSWR response (DSW1402)







The Delta Series antenna is an excellent performer providing an omnidirectional pattern expected from any quarter wave antenna correctly mounted.

TEST FREQUENCY: 160 MHz
REFERENCE ANTENNA
MODEL: DSW1402
MOUNT: MB14 Roof Centre

Electrical

Model No.		DSW1401Series		DSW1402 Series	
Gain		Unity over a ¼ wave			
Frequency *MHz*		66 - 175		118 - 1000	
Power *W*		100			
Tuned Bandwidth	1.5:1 VSWR	>5 MHz @ 70 MHz	>9 MHz @ 150 MHz	>40 MHz @ 450 MHz	>95 MHz @ 850 MHz
	2.0:1 VSWR	>10 MHz @ 70 MHz	>18 MHz @ 150 MHz	>80 MHz @ 450 MHz	>230 MHz @ 850 MHz
Tuning		Field tune with supplied chart			

Mechanical

Model No.	DSW1401 Series	DSW1402 Series
Whip Material	Tapered 17-7PH stainless steel	17-7PH stainless steel with black high gloss finish
Whip Length *mm*	1260	655
Mounting	MB14 base (included)	
Cable and Connector	Pre-terminated with 9001 Cellfoam®, specify with order. Connectors not included	

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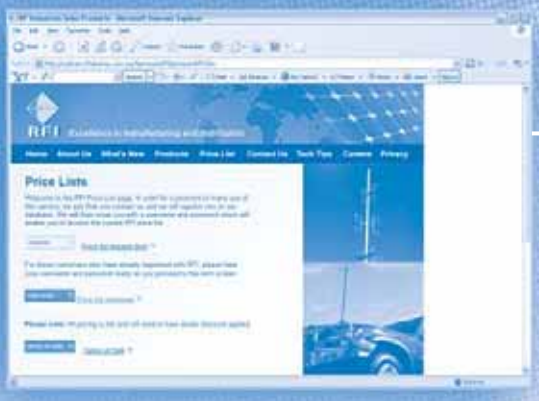
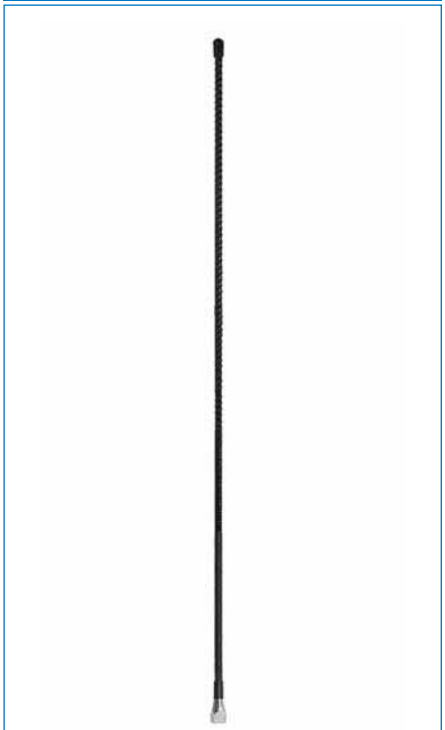


updated pricelists & technical information

VHF High Gain Roof Mount

70-108 MHz

FW11



FW11

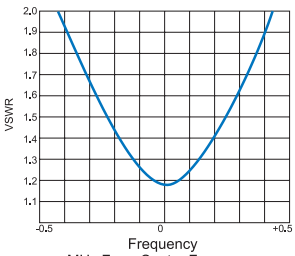
The FW11 is a fibreglass roof mount antenna which provides the highest gain available in this frequency band. The gain and performance of this antenna make it ideal in areas with low or inconsistent signal strength. It fits standard VHF mounting bases such as the MB9 and can utilise the full line of accessories and fittings which are offered with this range.

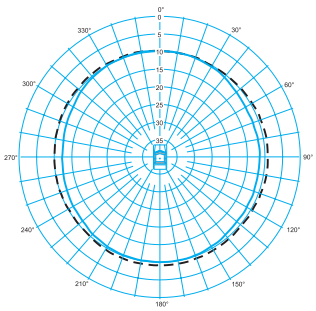
It is important to note the narrow operating bandwidth of this antenna limits it's use to single frequency applications.

The antenna is supplied to be tuned over its entire operating band. The antenna must be tuned in its installed position for minimum VSWR, with tuning quite critical due to the inherently high Q of the antenna. It fits standard VHF mounting bases, such as the MB9 and can utilise the full line of accessories and fittings which are offered with this range.

- 2.5dB high gain for superior performance
- Ideal in areas with low or inconsistent signal strength
- End fed ¾ wave in a ⅝ wave package

Typical VSWR response





Even though centre roof mounted here, the FW11 pattern is showing consistent gain, but with a slightly elliptical pattern. This pattern distortion is actually a function of the vehicle roof being slightly undersize for this frequency band.

TEST FREQUENCY: 77 MHz
REFERENCE ANTENNA *MODEL: SW1* —— *MOUNT: MB9 Roof Centre*
TEST ANTENNA *MODEL: FW11* - - - - - - - *MOUNT: MB9 Roof Centre*

Electrical

Model No.	FW11	FW11-28	FW11-29
Gain	2.5dB over a ¼ wave		
Frequency *MHz*	70 - 85	81 - 88	89 - 108
Power *W*	50		
Tuned Bandwidth	0.5 MHz @ 1.5:1 VSWR		
Tuning	Field tune to minimum VSWR		

Mechanical

Model No.	FW11	FW11-28	FW11-29
Whip Material	UV stable heatshrink over copper wound fibreglass with black heat shrink		
Whip Length *mm*	1550		
Mounting	Suits MB9, MB10 or MB12 bases (not included)		
Cable and Connector	Not included, order separately		

VHF Roof Mount

70-175 MHz

HPM-RM-99

HPM-RM-99

The HPM-RM-99 is a flexible, helically loaded electrical ¼ wave for applications where height restrictions prohibit the use of standard quarter wave antennas.

Fitted to a standard MB9 antenna base, the HPM-RM-99 is less than 350mm tall. The lower section of the antenna is a solid fibreglass former. The upper section is a helically wound stainless steel section providing a flexible antenna suitable for height restricted areas. The antenna is ideal in mining applications because of this flexibility.

The antenna is ordered to a specified frequency and should be fine tuned in the field.

- Helically loaded electrical ¼ wave which stands less than 350mm tall
- Extremely small and flexible

NOTE: For low profile applications, also consider the TLA80 Series of transmission line style antennas

Electrical

Model No.	HPM-RM-99
Gain	-3dB over a ¼ wave
Frequency *MHz*	70 - 175
Power *W*	25
Tuned Bandwidth	1.1% @ <1.5:1 VSWR
Tuning	Specify frequency, fine tune in field

Mechanical

Model No.	HPM-RM-99
Whip Material	Fibreglass brass and stainless steel
Whip Length *mm*	350mm (max)
Mounting	Suits MB9 (not included)
Cable and Connector	Not included, order separately

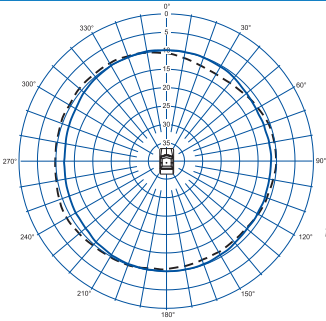
VHF Ground Independent Mopole™

70-85 MHz

CD17 Series
CD18 Series

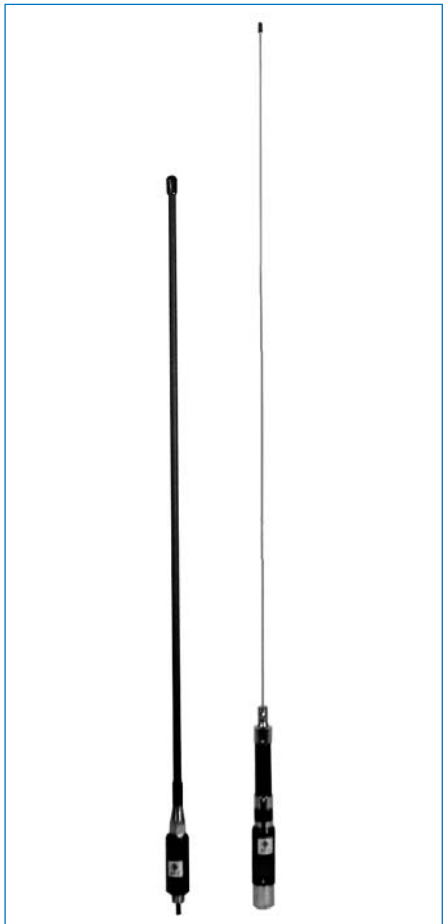
The CD17 and CD18 are ground plane independent Mopole™ antennas which provide excellent performance in a "compromise" mounting position. The CD17 and CD18 also provide an extended bandwidth in a physical arrangement which is ideal for every application from sedans to the heaviest industrial vehicles.

- Ground independent Mopole™ design allows installation in a variety of mounting locations
- Bandwidth of over 3MHz for VSWR <1.5:1 (slightly less for CD18) Accommodates most duplex requirements
- High impedance matching transformer allows end feeding of electrical half wave element
- Shortened half wave radiators suit restricted height applications
- Tapered stainless steel or fibreglass versions available



The CD17 exhibits 1.5dB of gain (over a ¼ whip) and excellent, almost omnidirectional pattern, even when gutter mounted as in this typical pattern.

TEST FREQUENCY: 77 MHz
REFERENCE ANTENNA *MODEL: SW1* —— *MOUNT: MB9 Roof Centre*
TEST ANTENNA *MODEL: CD17* - - - - - - - *MOUNT: Gutter Mount* *Driver Side*



CD18 CD17

NOTE:The CD17 and CD18 are highly compressed ½ wave antennas and although they function independently of a ground plane, perform markedly better if earthed. Earthing via a gutter or mirror style bracket will ensure the best possible field performance.

Electrical

Model No.	CD17-xx-73	CD17-xx-50	CD18-xx-73	CD18-xx-50
Gain	1.5dB over a ¼ wave			
Frequency *MHz*	xx denotes Freq band: **26** = 70 - 77 MHz **27** = 77 - 85 MHz			
Power *W*	50			
Tuned Bandwidth	3.0 MHz @ <1.5:1 VSWR		2.5 MHz @ <2.0:1 VSWR	
Tuning	Field tune to minimum VSWR with supplied chart			

Mechanical

Model No.	CD17-xx-73	CD17-xx-50	CD18-xx-73	CD18-xx-50
Whip Material	17-7PH stainless steel whip with fibreglass base coil assembly		Fibreglass helically loaded whip with moulded base coil assembly	
Whip Length *mm*	1500		1050	
Mounting	Threaded stud	MBC base (included)	Threaded stud	MBC base (included)
Cable and Connector	5.0m RG58 C/U	Not included	5.0m RG58 C/U	Not included

VHF High Gain Roof Mount

148-175 MHz

FW12
SW12

SW12 FW12

The SW12 stainless steel and FW12 fibreglass antennas are base loaded e wave high gain antennas which, when mounted high on a roof clear of obstructions, provide superior gain and pattern characteristics. The antennas are identical in performance so the choice of antenna depends on user preference.

Both antennas are easily tuned in the field for minimum VSWR. They mount via standard VHF bases and can utilise the full line of accessories and fittings which are offered in this range.

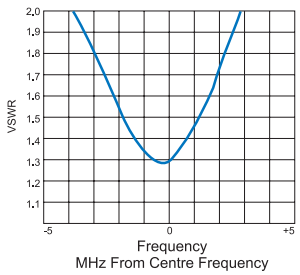
SW12

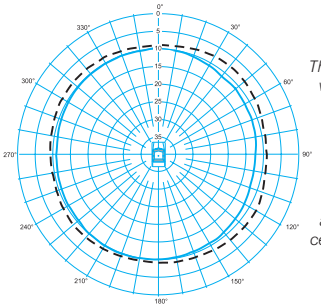
- 17-7PH tapered stainless steel whip fitted to a durable fibreglass base loading coil
- Resilient construction retains shape after bending or knocks

FW12

- Braided fibreglass antenna with integrated base loading coil
- Black UV stabilised heatshrink mounted over chrome plated brass ferrule

Typical VSWR response (FW12)





The FW12 and SW12, when mounted in the centre of the roof, provide excellent gain and omnidirectional performance - free from any nulls or holes. The antennas are ideal for applications requiring centre roof mounting.

TEST FREQUENCY: 160 MHz
REFERENCE ANTENNA
MODEL: SW2
MOUNT: MB9 Roof Centre
TEST ANTENNA
MODEL: FW12
MOUNT: MB9 Roof Centre

Electrical

Model No.	SW12	FW12
Gain	3dB over a ¼ wave	
Frequency *MHz*	148 - 175	
Power *W*	100	
Tuned Bandwidth	3.0 MHz @ 1.5:1 VSWR	
Tuning	Field tune to minimum VSWR	

Mechanical

Model No.	SW12	FW12
Whip Material	Tapered 17-7 PH stainless steel	Fibreglass with black heatshrink
Whip Length *mm*	1340	1345
Mounting	MB9, MB10 or MB12 bases (not included)	
Cable and Connector	Not included, order separately	

VHF Unity Gain Roof Mount

66-175 MHz

SW2
TSW1
111ST

In the 136-175 MHz band, ¼ wave roof mount antennas remain a popular choice. Mounted high on a vehicle they provide excellent omnidirectional performance, are easily tuned and are extremely affordable. All of these antennas can be mounted to a standard 5/16 " - 26 TPI base such as the MB9, MB10 or MB12. They can utilise the full line of accessories and fittings available for such applications.

SW2

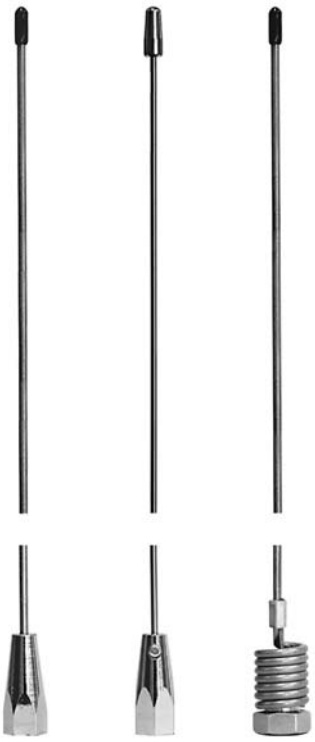
- Parallel stainless steel whip
- Interference thread locking mechanism prevents loosening of whip due to vibration

TSW1

- 17-7PH tapered stainless steel whip
- Resilient construction retains shape after bending or knocks

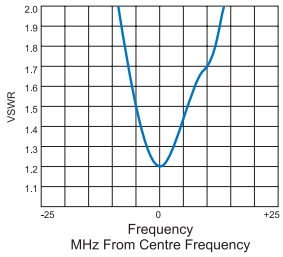
111ST

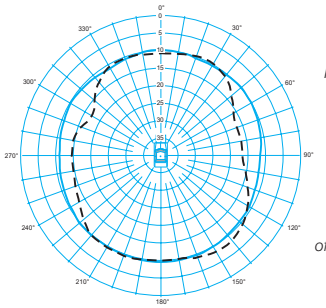
- ¼ wave stainless whip with integral spring
- Ideal for heavy industrial applications



SW2, TSW1, 111ST

Typical VSWR response (SW2)





MOUNTING NOTES
When moved to the vehicle gutter as shown here, the degradation in performance of these ¼ wave whips is dramatic. We strongly recommend against gutter or fender mounting of these antennas.

TEST FREQUENCY: 160 MHz
REFERENCE ANTENNA
MODEL: SW2 ——
MOUNT: MB9 Roof Centre
TEST ANTENNA
MODEL: SW2 - - - - - - - -
MOUNT: Gutter Mount Driver Side

Electrical

Model No.	SW2	TSW1	111ST
Gain	Unity over a ¼ wave		
Frequency *MHz*	136 - 175	66 - 175	
Power *W*	100		
Tuned Bandwidth	6% @ <1.5:1 VSWR (Typically at 150MHz)		
Tuning	Field tune to minimum VSWR		

Mechanical

Model No.	SW2	TSW1	111ST
Whip Material	Parallel stainless steel with chrome plated ferrule	Tapered 17-7PH stainless steel	Parallel stainless steel with integral spring
Whip Length *mm*	633	1277	1270
Mounting	MB9, MB10 or MB12 bases (not included)		
Cable and Connector	Not included, order separately		

VHF Ground Independent Mopole™

148-175 MHz

CD25

CD25

The CD25 has been designed for applications where height restrictions are an issue. The antenna lends itself well to mining applications or other low clearance installations .

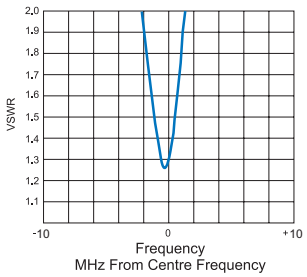
The CD25 is essentially a “shortened” version of our popular CD28 series antenna design. As the height has been shortened for lower profile applications, so the performance and associated bandwidth have been compromised.

The end fed design of this Mopole™ incorporates a unique transformer in the base section. The transformer is housed in a high impact thermoplastic moulding matched to a rugged PVC whip section.

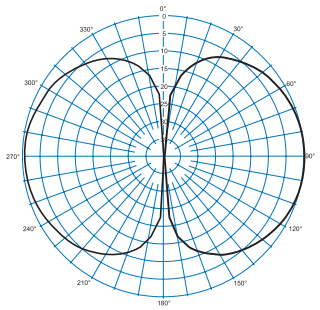
The CD25 is a ground independent antenna, making it ideal for use in “alternative” mounting locations such as gutters, mirrors or non-conductive surfaces. The antenna is supplied with an MBC base allowing for the entire antenna to be removed and replaced at will.

- Reduced height - ideal for use in mining and underground use
- Robust construction
- Unique patented design (Aust Pat. #596830)

Typical VSWR response (CD25-42-50)



Free space radiation pattern



Electrical

Model No.	CD25-42-50	CD25-43-50
Gain	Unity over a ¼ wave	
Frequency *MHz*	148 - 163	157 - 175
Power *W*	10	
Tuned Bandwidth	2% @ <2.0:1 VSWR	
Tuning	Field tune to minimum VSWR	

Mechanical

Model No.	CD25-42-50	CD25-43-50
Whip Material	Black nylon plastic housing	
Whip Length *mm*	570	540
Mounting	MBC base (included)	
Cable and Connector	Not included, order separately	

VHF Ground Independent Mopole™

133-175 MHz

CD28 Series

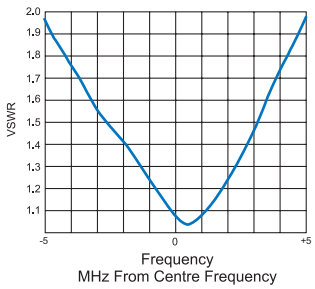
The CD28 series are ground independent Mopole™ antennas ideal in "alternative" mounting positions such as gutter, mirror or trunk mounts.

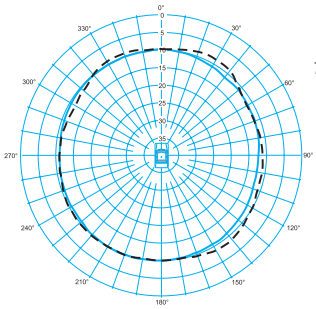
Utilising a patented matching circuit, the CD28 series antennas are end fed dipole antennas combining a durable thermoplastic housing with a flexible tapered stainless whip section resistant to knocks and bends.

- Performance - Exhibits 3 dB improvement in performance over a ¼ wave whip
- Versatile - Ground independent design allows use in alternative mounting locations
- Rugged - The transformer circuit is housed within a high impact thermoplastic moulding which is virtually indestructible
- Unique termination method simplifies installation and re-cabling in the field
- Designed, manufactured and patented in Australia [Australian Patent # 596830 and 656793]

CD28

Typical VSWR response





The CD28 Series Mopole™ antenna is shown here mounted on the driver's side gutter. The pattern demonstrates that the antenna is providing excellent omnidirectional performance.

TEST FREQUENCY: 160 MHz
REFERENCE ANTENNA *MODEL: SW2* —— *MOUNT: MB9 Roof Centre*
TEST ANTENNA *MODEL: CD28* - - - - - - - - - *MOUNT: Gutter Mount Drivers Side*

Electrical

Model No.	CD28-37-50	CD28-41-50	CD28-37-70	CD28-41-70
Gain	3dB over a ¼ wave. See note (1)			
Frequency ***MHz***	133 - 163	148 - 175	133 - 163	148 - 175
Power ***W***	50			
Tuned Bandwidth	4 MHz @ 1.5:1 VSWR 8 MHz @ 2.0:1 VSWR	4 MHz @ 1.5:1 VSWR 8 MHz @ 2.0:1 VSWR	4 MHz @ 1.5:1 VSWR 8 MHz @ 2.0:1 VSWR	5 MHz @ 1.5:1 VSWR 10 MHz @ 2.0:1 VSWR
Tuning	Field tune to minimum VSWR using supplied chart			

Mechanical

Model No.	CD28-xx-50	CD28-xx-70
Whip Material	17-7 PH tapered stainless steel whip with moulded base coil assembly	
Whip Length ***mm***	1340	
Mounting	MBC base (included)	Threaded stud
Cable and Connector	Not included, order separately. See note (2)	

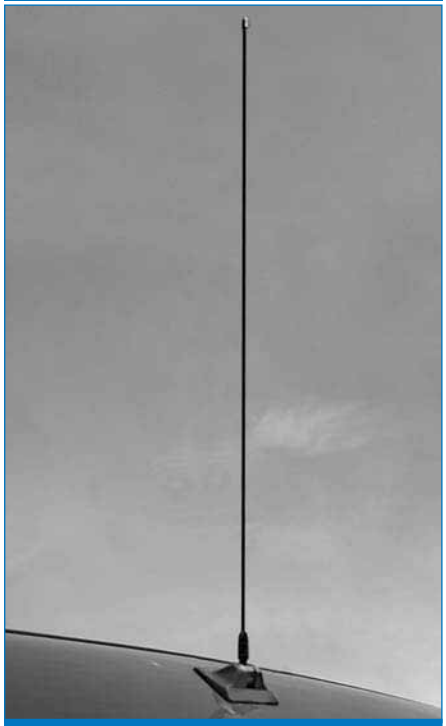
(1) Mopole™ antennas such as the CD28 have been shown to exhibit a 3dB improvement in received signal level in the field when compared to a ¼ wave whip however in pattern tests exhibit only 1.5 to 2dB over a ¼ wave (equivalent to 1.5-2dBi). This improvement in performance can be attributed to a lower radiation angle level of these ground independent antennas.
(2) Available preterminated with 5m 8058 RG58C/U. Use -73 or -53 suffix to replace -70 or -50 suffix.

Australian Patent No. 596830 and 656793

VHF Glass Mount

144-175 MHz

APS151.3

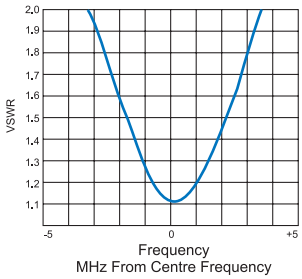


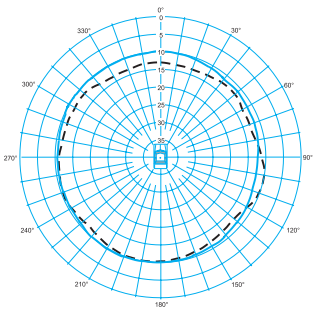
APS151.3

The APS151.3 is a glass mount antenna employing a small, stylish coupling box mounted inside the vehicle. This allows the radio signal to be transmitted through the vehicle glass to a half wave radiating element mounted externally. This high impedance matching network delivers low loss power transfer and the end result is comparable to a roof mounted antenna without drilling a hole.

- Performance - unity gain end fed ½ wave elements don't require a ground plane to achieve low VSWR and low radiation angle
- Secure Mounting - the high performance mounting provides long lasting holding power
- Convenient - installation and tuning complete in minutes with comprehensive instructions

Typical VSWR response





The APS151.3 is most commonly mounted on a rear window. This pattern is a little distorted in shape but will offer good all round performance.

TEST FREQUENCY: 160 MHz
REFERENCE ANTENNA *MODEL: SW2* —— *MOUNT: MB9 Roof Centre*
TEST ANTENNA *MODEL: APS151.3* - - - - - - *MOUNT: Glass Mount Rear Window*

Electrical

Model No.	APS151.3
Gain	Unity over a ¼ wave
Frequency *MHz*	144 - 175
Power *W*	100
Tuned Bandwidth	3.8 MHz @ 1.5:1 VSWR
Tuning	Field tune to minimum VSWR

Mechanical

Model No.	APS151.3
Whip Material	Stainless steel with black high gloss finish
Whip Length *mm*	838
Mounting	Glass mount
Cable and Connector	Supplied with 5.0m 8058 (RG58)

UHF Roof Mount

Mounted high on a vehicle, ¼ wave antennas provide excellent omnidirectional performance, are easily tuned and are extremely affordable. All of these antennas can be mounted to a standard 5 1/16" - 26 TPI base such as the MB10 or MB12 and utilise the full line of accessories and fittings available for such applications.

SW20

- Flexi whip - UV stabilised PVC coating on twisted stainless wire
- Supplied within specified bands (colour coded) then trimmed for fine tuning

SW7

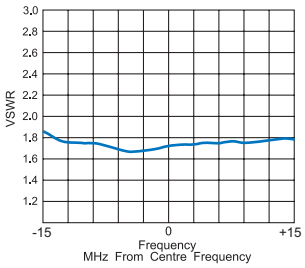
- Parallel Stainless steel whip
- Interference thread locking mechanism prevents loosening of whip due to vibration
- Trimmed to user frequency

380-520 MHz

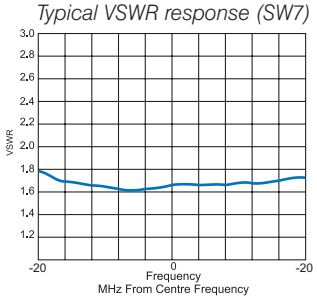
SW7 Series
SW20 Series

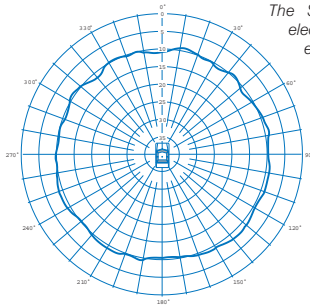
SW24

Typical VSWR response (SW23)



Typical VSWR response (SW7)





The SW20 Series and SW7 are electrically identical and therefore exhibit identical radiation patterns. Shown here centre roof mounted, the SW7 antenna exhibits a classic pattern. While these ¼ wave antennas are ideal in this application, they are not recommended mounted in any other position.

TEST FREQUENCY: 460 MHz
REFERENCE ANTENNA
MODEL: SW7
MOUNT: MB10 Roof Centre

Electrical

Model No.	SW7	SW22	SW23	SW24	SW25	SW26
Colour Code	-	White	Black	Red	Blue	Yellow
Gain	Unity over a ¼ wave					
Frequency *MHz*	380 - 520	380 - 400	400 - 420	450 - 470	470 - 490	490 - 520
Power *W*	100					
Tuned Bandwidth	Any 40 MHz segment @ <2.0:1 VSWR	Entire specified band @ <2.0:1 VSWR				
Tuning	Field tune to minimum VSWR	Supplied pre-tuned for specific bands				

Mechanical

Model No.	SW7	SW20 Series
Whip Material	Parallel stainless steel with chrome plated ferrule	Flexible stranded stainless steel whip coated with black PVC
Whip Length *mm*	330 (un-tuned)	165 (max)
Mounting	MB10 base or MB12 base	
Cable and Connector	Not included, order separately	

UHF Ground Independent Mopole™

380-520 MHz

CD50 Series
CD51 Series

CD50

The CD50 and CD51 Series UHF ground independent Mopole™ antennas are versatile and popular antennas, providing excellent performance in virtually any mounting position.

When mounted on a vehicle gutter or similar position, these UHF Mopoles™ provide optimum performance with a largely omnidirectional pattern. Due to the low angle of radiation inherent in the dipole antenna pattern, a 4.0 dB improvement in performance is typical when compared to a ¼ wave whip in the centre of a metal roof.

The end fed design of the UHF Mopoles™ incorporates a truly unique transformer in the base section. In this patented feed assembly, the dielectric of the coaxial feeder cable is trimmed to a set length and then introduced into the coil in termination. The result is a precisely matched feed which is so consistent that tuning to frequency from a chart becomes a matter of course.

CD51 antennas are fitted with a flexible nylon radome over a copper element - ideal in industrial applications. CD50 antennas have an elegant and durable tapered stainless steel whip section.

There are two styles of mounting arrangements offered. The CD50-xx-70 and CD51-xx-70 versions mount via a threaded stud and nut assembly. The antenna can be easily terminated, tuned and re-terminated in the field using the instructions supplied. Its patented design allows the coaxial cable to be replaced in the field without specialised tools or soldering.

The CD50-xx-50 and CD51-xx-50 versions mate with the MBC coaxial base providing an internal, permanent connection in a completely sealed unit. The MBC base is easy to install and allows the entire antenna to be removed and replaced at will.

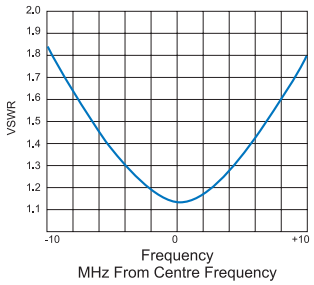
- Versatile - Ground plane independence allows alternative mounting locations
- Performance - High performance and largely omni-directional pattern when not centre roof mounted
- Convenient - Patented design allows termination or re-termination in seconds
- Stainless steel whip or flexible nylon whips cater to individual needs
- Durable - Base coil is virtually indestructible
- Unique transformer design
- Australian Patents #596830 and #656793

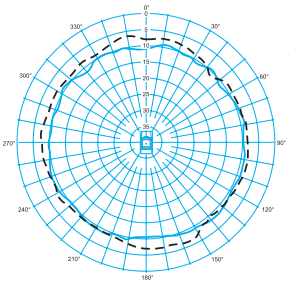
UHF Ground Independent Mopole™

380-520 MHz

CD50 Series
CD51 Series

Typical VSWR response (CD51)

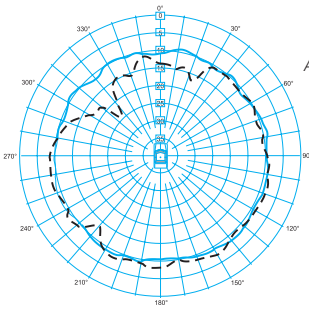




UHF Mopoles™ are excellent performers even when gutter mounted as this pattern demonstrates.
The Mopole™ design has resulted in an antenna which is largely omnidirectional in spite of its gutter mounting position.

TEST FREQUENCY: 460 MHz
REFERENCE ANTENNA MODEL: SW7 —— MOUNT: MB10 Roof Centre
TEST ANTENNA MODEL: CD51 - - - - - - MOUNT: GM2 Gutter Drivers Side

MOUNTING NOTES



Although the CD51 Mopole™ style works extremely well when gutter mounted, moving the antenna down to the vehicle fender , as shown here, will result in severe pattern degradation. This antenna should not be used in this mounting position.

TEST FREQUENCY: 460MHz
REFERENCE ANTENNA MODEL: SW7 —— MOUNT: MB10 POSITION: Roof Centre
TEST ANTENNA MODEL: CD51 - - - - - - MOUNT: Trunk Mount POSITION: Rear Driver Side

CD50-xx-70 cross section with cable fitted

Electrical

Model No.	CD50-65-50	CD50-65-70	CD50-68-50	CD50-68-70	CD51-65-50	CD51-65-70	CD51-68-50	CD51-68-70
Gain	4dB over a ¼ wave. See note (1)							
Frequency *MHz*	380 - 440		450 - 520		380 - 440		450 - 520	
Power *W*	50							
Tuned Bandwidth	13 MHz @ <1.5:1 VSWR							
Tuning	Field tune to minimum VSWR using supplied tuning chart							

Mechanical

Model No.	CD50-XX-50	CD50-XX-70	CD51-XX-50	CD51-XX-70
Whip Material	17-7 PH Stainless steel		Copper braid element in flexible nylon tubing	
Whip Length *mm*	395		360	
Mounting	MBC base (included)	Threaded stud	MBC base (included)	Threaded stud
Cable and Connector	Not included, order separately. See note (2)			

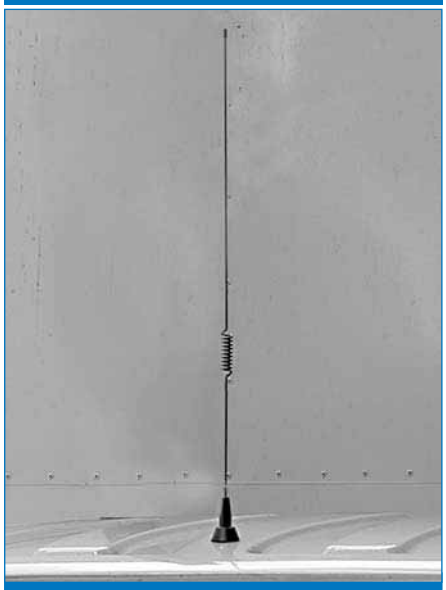
(1) Mopole™ antennas such as the CD50 and CD51 exhibit a 4dB improvement in performance over a ¼ wave whip but in pattern tests deliver only 2.0 to 2.5dB of actual gain. This improvement in performance can be attributed to a lower angle of radiation and is of particular benefit to users in rugged terrain conditions and in heavily built up city areas.
(2) Available preterminated with 5m 8058 RG58C/U. Use -73 or -53 suffix to replace -70 or -50 suffix.

Australian Patent No. 596830 and 656793

UHF Phasemaster™ Roof Mount

400-520 MHz

CSW10 Series
CSW20 Series

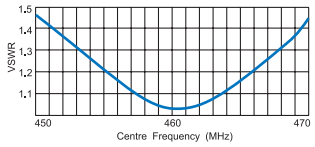


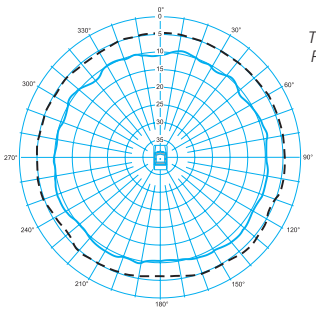
CSW24

The CSW10 and CSW20, the original Phasemaster™ antennas, are our most popular roof mounts due to their unmatched performance and superior strength. The highly flexible stainless steel whip and consistent 4.5dB gain has made them a favourite in virtually all roof mount applications.

- Outstanding performance - precisely matched phasing coil separating ⅝ wave over ½ wave electrical elements
- Available in classic s/s finish or black high gloss finish
- Supplied in colour coded bands then fine tuned in field with chart
- Flexible 17-7PH Stainless steel whip will always bounce back after knocks and bumps

Typical VSWR response (CSW14)





This pattern shows that the Phasemaster™ antenna is meeting the gain and omnidirectional performance we have stated in our specifications. The antenna is producing a "textbook" pattern and is delivering 4.5dB gain. This antenna is an excellent performer and is highly recommended for any roof mount application.

TEST FREQUENCY: 460 MHz
REFERENCE ANTENNA *MODEL: SW7* —— *MOUNT: MB9 Roof Centre*
TEST ANTENNA *MODEL: CSW24* - - - - - - - *MOUNT: MB10 Centre Roof*

Electrical

Model No.	CSW13/ CSW23	CSW13-66/ CSW23-66	CSW14/ CSW24	CSW15/ CSW25	CSW16/ CSW26
Gain	4.5dB over a ¼ wave				
Frequency *MHz*	400 - 420	420 - 440	450 - 470	470 - 490	490 - 520
Power *W*	100				
Tuned Bandwidth	20 MHz @ <1.5:1 VSWR (<1.2:1 VSWR @ resonant frequency)				
Tuning	Trim to frequency using supplied tuning chart				

Mechanical

Model No.	CSW13	CSW13-66	CSW14	CSW15	CSW16	CSW23	CSW23-66	CSW24	CSW25	CSW26
Colour Code	Black	Black	Red	Blue	Yellow	Black	Black	Red	Blue	Yellow
Whip Material	17-7 PH Stainless steel					17-7 PH Stainless steel with black high gloss plating				
Whip Length *mm*	720	687	630	590	560	720	687	630	590	560
Mounting	MB10 or MB12 bases									
Cable and Connector	Not included, order separately									

UHF Elevated Feed Mopole™

400-520 MHz

CD91 Series

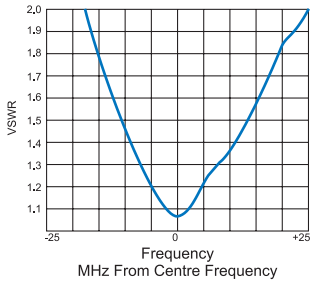
CD91

The CD91 Series are 4 dB elevated feed Mopole™ antennas which are suited to mounting on vehicle roof racks and gutters. These antennas are specifically designed for use on emergency service vehicles to elevate a ¼ wave antenna above lights and sirens.

The antenna can easily be upgraded to a high gain antenna in seconds, by unscrewing and replacing the whip section. The antenna is ordered pre-tuned to a specific band.

- Performance - provides 4 dB improvement over ¼ wave even when mounted on roof rack or gutter mount
- Quality construction - choke assembly is hand crafted from solid brass and chrome plated
- Ideal on emergency service vehicles elevating the antenna above lights and sirens
- Upgrades to high gain antenna in seconds
- Order in pre-tuned bands
- Can be used with a variety of mounts. See accessories section for options.

Typical VSWR response (CD91)



Electrical

Model No.	CD91-65-70	CD91-70-70	CD91-71-70	CD91-72-70
Gain	4dB over a ¼ wave. See note (1)			
Frequency ***MHz***	400 - 420	450 - 470	470 - 490	490 - 520
Power ***W***	100			
Tuned Bandwidth	Entire specified band @ <1.5:1 VSWR			
Tuning	Supplied pre-tuned			

Mechanical

Model No.	CD91-65-70	CD91-70-70	CD91-71-70	CD91-72-70
Colour Code	Black	Red	Blue	Yellow
Whip Material	Flexible stranded stainless steel whip with black PVC coating and chrome plated brass elevated feed choke assembly			
Whip Length ***mm***	395 (includes whip and choke section)			
Mounting	Threaded stud and nut assembly mounts in either 16mm or 13mm dia. mount hole			
Cable and Connector	Not included, order separately. See note (2)			

(1) Mopole™ antennas such as the CD91 exhibit a 4dB improvement in performance over a ¼ wave whip but in pattern tests deliver only 2.0 to 2.5dB of actual gain. This improvement in performance can be attributed to a lower angle of radiation and is of particular benefit to users in rugged terrain conditions and in heavily built up city areas.
(2) Available preterminated with 5M RG58 cable. Use -73 (8058 cable) or -75 (9001 cable) to replace -70 suffix.

UHF Elevated Feed Mopole™

400-520 MHz

CD93 Series
CD94 Series

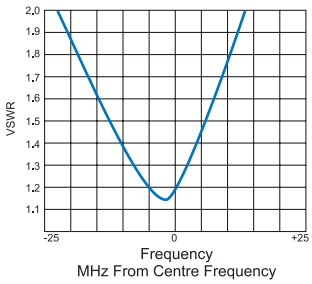
CD93

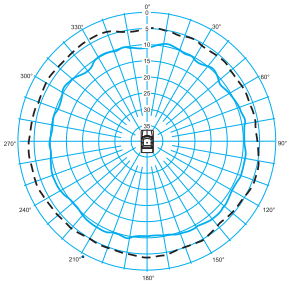
The CD93 and CD94 Series are high performance elevated feed mobile antennas which can be used in virtually any mounting position. When gutter or roof bar mounted, high above a vehicle, CD93 and CD94 Series antennas deliver a full 6.5dB of gain over a ¼ wave whip.

- Totally ground plane independent
- Elevated feed boosts radiating element above obstructions
- "Phasemaster™" whip section provides superior performance and strength
- Quality construction - choke assembly is crafted from solid brass and available in both chrome and black finishes
- Fibreglass whip option available
- Can be used with a variety of mounts. See accessories section for options.

See also new CD900 Series UHF CBRS antennas on page 132

Typical VSWR response (CD93 Series)





This pattern shows that when elevated above obstructions, the CD93 is fully ground independent and delivers superior gain. This pattern is showing that the published gain figures of 6.5dB over a ¼ wave whip are justified.

TEST FREQUENCY: 460 MHz

REFERENCE ANTENNA
MODEL: SW7
MOUNT: MB10 Roof Centre

TEST ANTENNA
MODEL: CD93
MOUNT: GM2 Gutter Drivers Side

Electrical

Model No.	CD93-65-70 CD94-65-70	CD93-70-70 CD94-70-70	CD93-71-70 CD94-71-70	CD93-72-70 CD94-72-70
Colour Code	Black	Red	Blue	Yellow
Gain	6.5dB over a ¼ wave. See note (1)			
Frequency *MHz*	400-420	450-470	470-490	490-520
Power *W*	100			
Tuned Bandwidth	Entire specified band @ <1.6:1 VSWR			
Tuning	Supplied pre-tuned			

Mechanical

Model No.	CD93 Series	CD94 Series
Whip Material	17-7PH stainless steel with black high gloss finish	17-7PH plain stainless steel
Whip Length *mm*	810 max (Includes whip and choke section)	
Mounting	Threaded stud and nut assembly mounts in either 13mm or 16mm dia. mount hole	
Cable and Connector	Not supplied, order separately. See note (2)	

(1) Mopole™ antennas such as the CD93 and CD94 have been shown to exhibit a 6.5dB improvement in received signal level in the field when compared to a ¼ wave whip however in pattern tests exhibit only 1.5 to 2dB over a ¼ wave (equivalent to 1.5-2dBi). This improvement in performance can be attributed to a lower radiation angle level of these ground independent antennas.
(2) Available preterminated with 5M RG58 cable. Use -73 (8058 cable) or -75 (9001 cable) to replace -70 suffix.

UHF Broadband Dipole

400-470 MHz

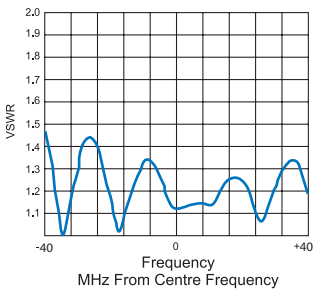
CD440

CD440

The CD440 is a broadband UHF Mopole™ designed to cover the entire 400-470MHz band without adjustment. Being a ground independent design, the CD440 is suited to alternative (non-roof) mounting locations such as bull bar or roof rack. It's versatility makes it ideal for emergency service applications requiring broad bandwidth and high performance.

- Broadband - covers 400-470MHz without adjustment
- Circuit board radiator provides consistent gain across entire frequency band
- Versatile - Ground plane independent allowing alternative mounting locations
- Durable - thick fibreglass radome fitted to a heavy duty spring
- Can be used with a variety of mounts. See accessories section for options.

Typical VSWR response



Electrical

Model No.	CD440
Gain	4dB over a ¼ wave. See note (1)
Frequency *MHz*	400 - 470
Power *W*	100
Tuned Bandwidth	Entire specified band @ <1.5:1 VSWR
Tuning	Supplied pre-tuned

Mechanical

Model No.	CD440
Whip Material	31mm dia. woven black fibreglass
Whip Length *mm*	490
Spring	Electropolished stainless steel (integrated)
Mounting	Mounts via a 12mm dia. threaded stud
Cable and Connector	5.0m RG58C/U fitted, no connector supplied

(1) As the CD440 is a half wave dipole antenna, actual pattern tests show unity gain vs. a half wave dipole. In the field, however, the CD440 will deliver performance which is approximately 4dB better than a ¼ wave whip mounted in the centre of a metal roof, mainly because it exhibits a lower angle of radiation.

UHF Glass Mount

380-474 MHz

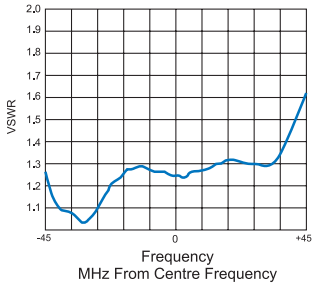
AP354 Series

AP354

The AP354 is a broadband glass mount antenna specifically designed for Tetra mobile applications. Featuring patented On-Glass technology the AP354 transmits and receives through the glass making it ideal for fleet use with a no-holes installation. The antenna has been specifically designed for broadband use with no additional tuning required across the whole band from 380-474MHz for a VSWR of less than 1.9:1.

- Unique - glass mount design transmits and receives through the glass
- Weatherproof - water cannot enter the vehicle through gasket failure or cable channels
- Efficient - mounts high on the vehicle for maximum omnidirectional radiation pattern
- Broadband - requires no field tuning across entire frequency range
- Time-saving - simple mounting method allows no-hole installation in minutes

Typical VSWR response (AP354)



Electrical

Model No.	AP354
Gain	Unity over ¼ wave
Frequency *MHz*	380 - 474
Power *W*	10
Tuned Bandwidth	94 MHz @ <1.9:1 VSWR
Tuning	Supplied tuned

Mechanical

Model No.	AP354
Whip Material	Stainless steel with black high gloss finish
Whip Length *mm*	254
Mounting	Glass mount
Cable and Connector	5.0m RG58C/U fitted, no connector supplied

UHF Glass Mount

400-520 MHz

AP454 Series

The AP454 Series is a third generation glass mount antenna for UHF applications. The AP454 features an unobtrusive interior mounted coupling box and a number of whip options.

- Convenient - installation and tuning completed in minutes
- High gain options available
- Broadband - AP454-72-4G provides broadband 3dB gain across entire specified bandwidth

AP454-3G

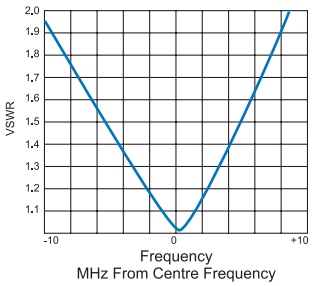
WHIP OPTIONS

AP454-3G - end fed ½ wave

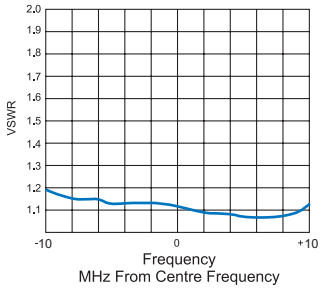
AP454-xx-5G - ⅝ over a ½ wave collinear

AP454-72-4G - end fed ⅝ wave

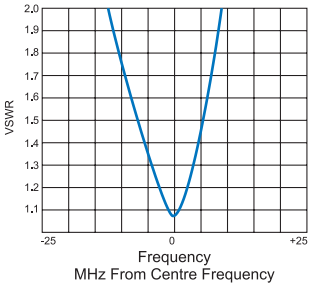
Typical VSWR response (AP454-5G)

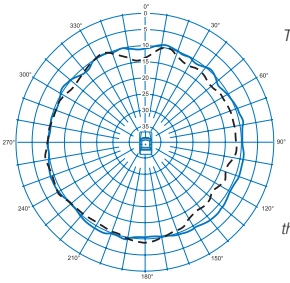


Typical VSWR response (AP454-72-4G)



Typical VSWR response (AP454-3G)





The radiation pattern for the AP454-3G, while clearly a compromise in performance over a ¼ wave whip, remains a much better option in the UHF band than a mis-applied antenna. The nulls in the pattern shown are largely due to the placement of the antenna slightly below the vehicle roof line.

TEST FREQUENCY: 460 MHz
REFERENCE ANTENNA *MODEL: SW7* —— *MOUNT: MB10 Roof Centre*
TEST ANTENNA *MODEL: AP454.3G* ------ *MOUNT: Glass Mount* *Rear Window*

Electrical

Model No.	AP454-3G	AP454-65-5G	AP454-70-5G	AP454-71-5G	AP454-72-4G
Gain	Unity over a ¼ wave	3dB over a ¼ wave			2dB over a ¼ wave
Frequency *MHz*	403 - 520	400 - 420	450 - 470	470 - 490	500 - 520
Power *W*	100				
Tuned Bandwidth	12 MHz @ <1.5:1 VSWR	10 MHz @ <1.5:1 VSWR			Entire specified band @ <1.5:1 VSWR
Tuning	Field tune to minimum VSWR				

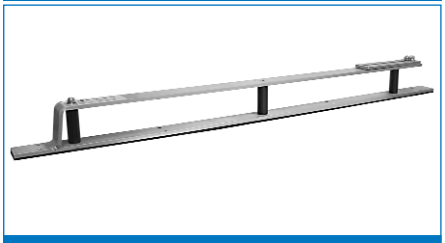
Mechanical

Model No.	AP454.3G	AP454-xx.5G Series	AP454-72-4G
Whip Material	Stainless steel with black high gloss finish		
Whip Length *mm*	230	871	380
Mounting	Glass mount		
Cable and Connector	5.0m RG58C/U		

VHF Low Profile

70-85 MHz

TLA 80



TLA80

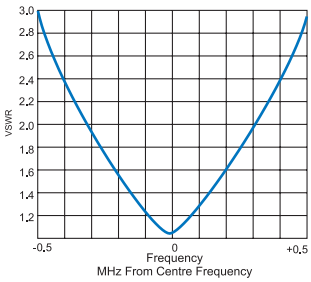
The TLA80 is a low profile transmission line antenna for use in mobile applications with severe height restrictions. Transmission line design allows the antenna to deliver excellent omnidirectional coverage with a substantial height reduction over standard whip style antennas.

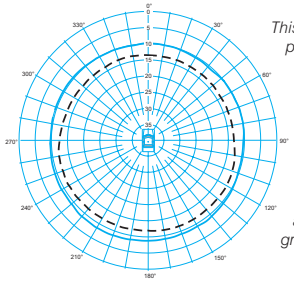
These exceptionally rugged antennas are commonly used in high risk applications such as trains and emergency vehicles or in high vibration environments.

The TLA80 is constructed from alodined aluminium and supplied with a rubber gasket for secure sealing.

- Low Profile - Only 70mm tall makes it ideal for height restricted applications
- Vertically polarised radiation pattern when mounted horizontally
- Frequency tuneable in the field

Typical VSWR response





This transmission line antenna provides excellent omnidirectional coverage. The antenna is approximately 3dB down in gain over a ¼ wave whip, due to its low profile. The antenna is highly recommended in applications where height is critical though it is important to note the performance trade off and need for a large, flat ground plane.

TEST FREQUENCY: 77 MHz
REFERENCE ANTENNA *MODEL: SW1* —— *MOUNT: MB9 Roof Centre*
TEST ANTENNA *MODEL: TLA80* - - - - - - - *MOUNT: 1800 x 1200* *Ground Plane*

Electrical

Model No.	TLA80-BK	TLA80-R	TLA80-G
Gain	-3dB over ¼ wave		
Frequency *MHz*	70 - 75	75 - 80	80 - 85
Power *W*	100		
Tuned Bandwidth	0.6 MHz @ <2.0:1 VSWR		
Tuning	Field tune to minimum VSWR		

Mechanical

Model No.	TLA80 Series
Whip Material	Alodined Aluminium
Length *mm*	954
Height *mm*	70
Width *mm*	40
Cable and Connector	UHF female connector fitted. Cable not included

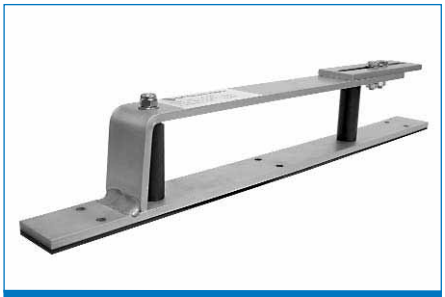
VHF Low Profile

118-175 MHz

TLA150
TLA160
TLR Series

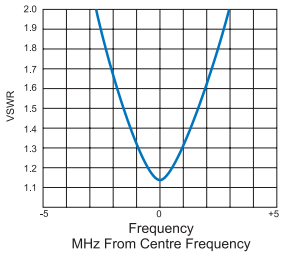
Transmission line antenna designs, as used in this group of antennas, provide excellent omnidirectional radiation patterns for vertically polarised antennas but allow a substantial height reduction over standard ¼ wave whip style antennas. A number of design styles available to suit a variety of applications including heavy duty industrial, mining, rail, commercial, airforce and security.

- TLA150 - For extra heavy duty applications
- TLA160 - Lightweight, field tunable
- TLR Series - Enclosed radiator, field tunable

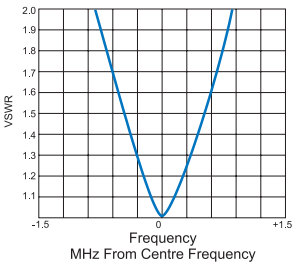


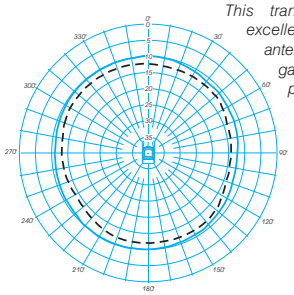
TLA160

Typical VSWR response (TLA160)



Typical VSWR response (TLR160)





This transmission line antenna provides excellent omnidirectional coverage. The antenna is approximately 2dB down in gain over a ¼ wave whip, due to its low profile. The antenna is highly recommended in applications where height is critical though it is important to note the performance trade off and need for a large, flat ground plane.

TEST FREQUENCY: 460 MHz
REFERENCE ANTENNA *MODEL: SW2* —— *MOUNT: MB9 Roof Centre*
TEST ANTENNA *MODEL: TLA160* - - - - - - - - - - *MOUNT: 1800 x 1200 Ground Plane*

Electrical

Model No.	TLA160	TLA150	TLR160	TLR150
Gain	-2dB over ¼ wave			
Frequency ***MHz***	148 - 175 (also available in 118-136)	166 - 175	148 - 160	160 - 174
Power ***W***	100			
Tuned Bandwidth	3.0 MHz@ <1.5:1 VSWR	1.5 MHz@ <1.5:1 VSWR	1.6 MHz@ <2.0:1 VSWR	
Tuning	Field tune to minimum VSWR	Supplied tuned to user specified frequency	Field tune to minimum VSWR	

Mechanical

Model No.	TLA160	TLA150	TLR Series
Whip Material	Alodined aluminium	Rugged cast aluminium coated in chlorinated rubber	Copper plated steel element covered in ASA plastic radome
Length ***mm***	650		429
Height ***mm***	100		104
Width ***mm***	56		83
Cable and Connector	N-type receptacle connector fitted. Cable not included.		UHF female connector fitted. Cable not included.

UHF Low Profile

255-530 MHz

TLA600 Series

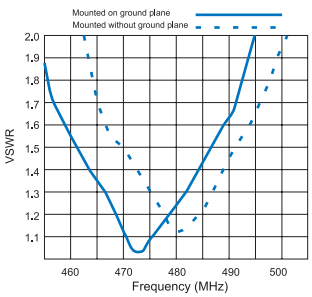
TLA600-57

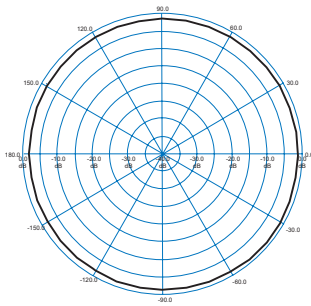
The TLA600 series is a range of low profile transmission line antennas for use in applications where little or no ground plane exists.

These antennas can be used on buses, trucks, trains or in telemetry applications where the antennas are to be mounted on a fibreglass roof or similar non-conductive surface.

- Available with integrated active GPS antenna for asset tracking/vehicle location applications on request. *
- Functions with or without a ground plane, allowing one antenna to be used in an entire system, regardless of mounting application.**
- Performance equivalent to a ¼ whip wave mounted in the centre of a metal roof
- All antennas supplied pre-tuned to the nominated bands and require no field adjustment
- Low profile (<80mm) height overall
- Plastic moulded radome is attractive and durable, resistant to car washes, UV Stable and weatherproofed
- Neoprene gasket seal provides excellent waterproofing of fitted antenna
- Available in all major UHF bands

Typical VSWR response for TLA600-71





This is a logarithmic plot of the horizontal (H Plane) pattern of the TLA600 Series. With a peak gain of 2.1 dBi, the TLA-600 is performing effectively identically to a ¼ wave whip.

** When ordering specify - GPS suffix - i.e. TLA600-57-GPS*
*** TLA620-99 cannot be used without a ground plane*

255-530 MHz

TLA600 Series

Electrical

Model No.	TLA600-57	TLA600-65	TLA600-70	TLA600-71	TLA600-72	TLA620-99
Gain	Unity over a ¼ wave					
Frequency *MHz*	380 - 400	400 - 420	450 - 470	470 - 500	500 - 530	255 - 380
Power *W*	50					
Tuned Bandwidth	Entire band @ VSWR <2.0:1 off ground plane <2.4:1 on ground plane	Entire operating band @ <2.0:1 VSWR on or off ground plane				4% @<1.5:1 VSWR 5% @ <2.0:1 VSWR
Tuning	Supplied pre-tuned					Supplied pre-tuned, requires ground plane

Mechanical

Model No.	TLA600 Series
Construction	White Geloy ASA radome
Length *mm*	375
Height *mm*	78
Width *mm*	140
Mounting	Screw and gasket
Termination	N female connector. Alternative BNC connector also available (subject to MOQ) Optional GPS unit terminates with MCX connector

GPS Specifications

Model No.	TLA600-XX-GPS
Fo	1575.42 MHz
Operation Temperature	-40 to +85°C
Storage Temperature	-40 to +100°C
System Gain at Fo	28dBi including cable and filter losses
Impedance	50 Ohm
Polarization	RHCP
VSWR at Fo	1.5:1
Noise Figure at Fo	<1.8 dB max.
Power Input	+2.5Vdc to +12Vdc input, Auto Switching
Power Consumption	11mA to 13mA (max)
Power Input	Reverse Polarity Short Circuit Shutdown
Over-Current	Thermal over-current shutdown >+150°C

UHF Unity Gain Low Profile

380-520 MHz

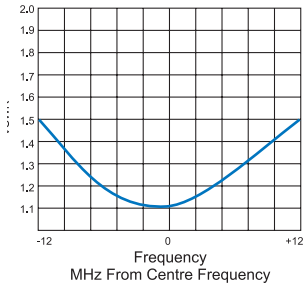
TLA400 Series

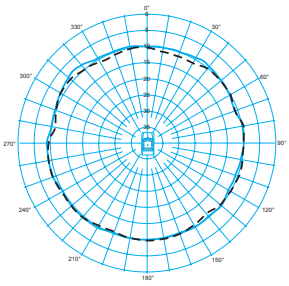
TLA400

The TLA400 is a low profile transmission line antenna ideal for applications with strict height requirements. The TLA400 delivers performance equivalent to a ¼ wave whip, yet measures only 66mm tall. It's rugged construction and low profile make it an ideal choice for industrial, rail and mining applications.

- Low Profile - Only 66mm tall - ideal for height restricted applications
- Extremely Rugged - Cast aluminium construction
- Reliable - Fully pattern tested in verified range conditions
- Corrosion Resistant
- Fully interchangeable with existing products in the field

Typical VSWR response





This is a sweep in the horizontal plane of the TLA400. It is clear that the pattern is identical to that of a ¼ wave whip. This antenna is highly recommended but must be centre roof mounted.

TEST FREQUENCY: 410 MHz
REFERENCE ANTENNA
MODEL: DSW1402 ——
MOUNT: MB14
POSITION: Roof Centre
TEST ANTENNA
MODEL: TLA400 - - - - - -
MOUNT: 1800 x 1200
Ground Plane

Electrical

Model No.	TLA400 Series	TLA401 Series
Gain	Unity over a ¼ wave	
Frequency ***MHz***	380 - 520	
Power ***W***	100	
Tuned Bandwidth	Supplied in 20 MHz bands @ <1.5:1 VSWR. See note (1)	
Tuning	Supplied pre-tuned	

Mechanical

Model No.	TLA400 Series	TLA401 Series
Whip Material	Rugged cast aluminium coated with baked enamel finish	
Length ***mm***	255	
Height ***mm***	66.5	
Width ***mm***	60	
Hole spacing for mounting ***mm***	44	40
Cable and Connector	N connector, no cable supplied, order separately (UHF connector available subject to MOQ)	

(1) When ordering specify suffix: *-57 (380-400MHz)*
-65 (400-420MHz)
-70 (450-470MHz)
-71 (470-490MHz)
-72 (500-520MHz)

Cellular Transit Antenna

890-960 MHz
1710-1880 MHz

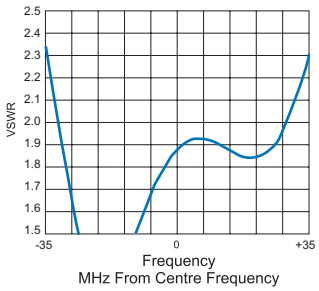
TLA2000
TLA3000

TLA2000/3000

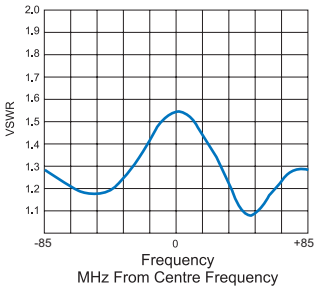
The TLA2000 is an ideal antenna solution for GSM data applications in both fixed and mobile situations. Designed to offer true dual band performance the TLA2000 is ready for use with the latest GSM (GPRS) modems. With a high impact resistant vacuum formed ABS radome and neoprene mounting gasket, the TLA2000 can be used for indoor or outdoor applications.

- Applications include public vending machines, ATM kiosks and industrial automotive use
- Designed for use on conductive or nonconductive surfaces
- TLA3000 model incorporates integrated GPS antenna

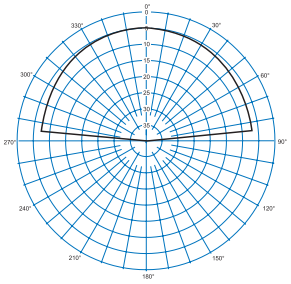
Typical VSWR response GSM900



Typical VSWR response GSM1800



Typical E-Plane response @ 890MHz



Electrical

Model No.	TLA2000/3000
Gain *dBi*	2
Frequency *MHz*	890 - 960 / 1710 - 1880
Power *W*	10
Tuned Bandwidth	Entire specified band @<2.5:1 VSWR
Tuning	Pre-tuned

Mechanical

Model No.	TLA2000	TLA3000
Construction	White Geloy ASA radome	
Diameter *mm*	135	
Height *mm*	61 (including gasket)	
Mounting	M4 hardware (not included)	
Cable and Connector	500mm low loss 9014 RG58 type	Cellular: 5m 9014 RG58 type - FME connector GPS: 5m low loss RG174 type - MCX connector

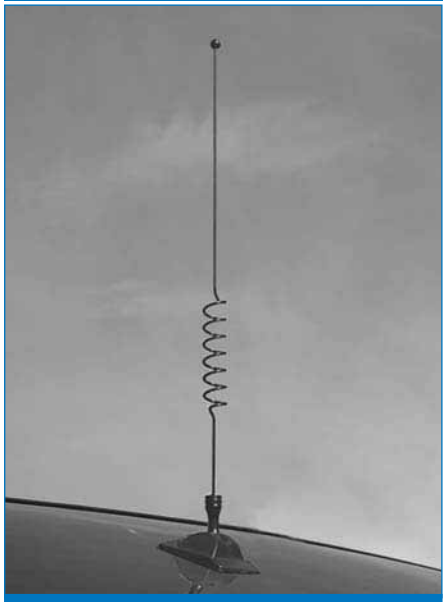
GPS Specifications

Fo	1575.42 MHz
Operation Temperature	-40 to +85°C
Storage Temperature	-40 to +100°C
System Gain at Fo	28dBi including cable and filter losses
Impedance	50 Ohm
Polarization	RHCP
VSWR at Fo	1.5:1
Noise Figure at Fo	<1.8 dB max.
Power Input	+2.5Vdc to +12Vdc input, Auto Switching
Power Consumption	11mA to 13mA (max)
Power Input	Reverse Polarity Short Circuit Shutdown
Over-Current	Thermal over-current shutdown >+150°C

Trunking Glass Mount

806-870 MHz

AP868.3

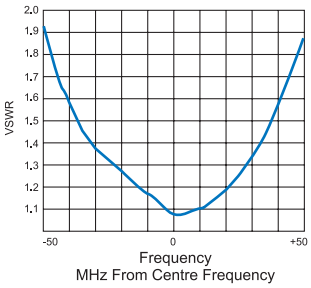


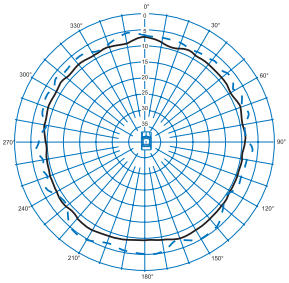
AP868.3

The AP868.3 has been specifically designed for the 806-870MHz international trunked mobile band. The antennas look identical to their cellular cousins but are optimised for full 3dB gain performance within the trunking band.

- Limited lifetime warranty
- No-fuss installation - antenna supplied completely assembled and ready for installation
- High performance - unique coupling design delivers genuine 3 dB gain
- Pliable mounting foot for maximum adhesion to curved windows
- Black high gloss plating won't scratch, chip or peel

Typical VSWR response





The pattern shown for the AP868.3 shows that the antenna provides an excellent, largely omnidirecitonal radiation pattern and exhibits 3dB gain over a ¼ wave whip mounted in the centre of a metal roof.

TEST FREQUENCY: 850 MHz
REFERENCE ANTENNA *MODEL: SW1405* —— *MOUNT: MB14 Roof Centre*
TEST ANTENNA *MODEL: AP868.3* ------ *MOUNT: Glass Mount Rear Window*

Electrical

Model No.	AP868.3
Gain	3dB over a ¼ wave
Frequency ***MHz***	806 - 870
Power ***W***	50
Tuned Bandwidth	Entire specified band @ <1.9:1 VSWR
Tuning	Supplied pre-tuned

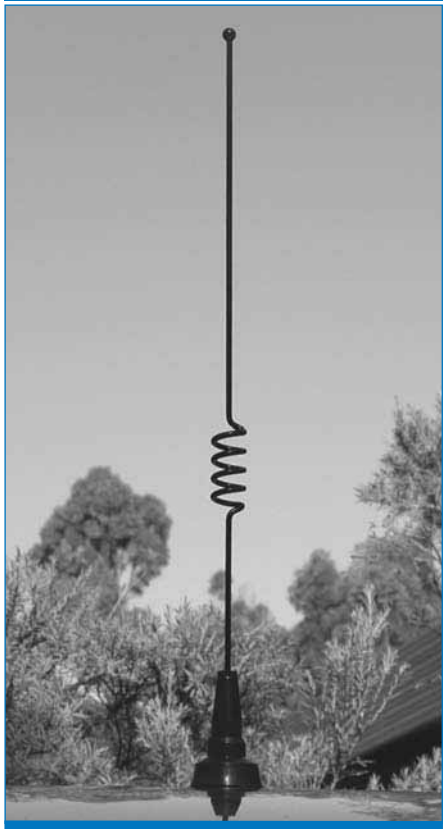
Mechanical

Model No.	AP868.3
Whip Material	Stainless steel with high gloss plating
Whip Length ***mm***	355
Mounting	Glass mount
Cable and Connector	5.0m RG58C/U fitted, please specify connector

High Gain Trunking Roof Mount

806-870 MHz

SW1585



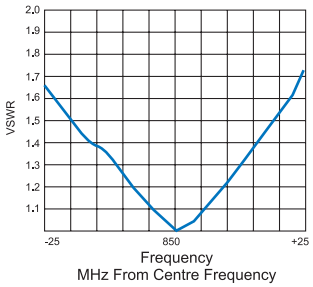
SW1585

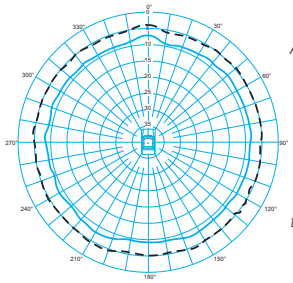
The SW1585 antenna is derived directly from our high performance cellular roof mount antenna. It is a 3 dB gain antenna, optimised for the 806-870MHz international trunked mobile bands. The SW1585 will deliver excellent all-round performance and is generally considered to be the optimum choice for professional users.

At the heart of the SW1585 is the MB14 antenna base. This base is intricately constructed, much like a coaxial connector. The precisely controlled termination which is achieved is reliable electrically and mechanically and provides a superb match, resulting in a broad bandwidth, and extremely low VSWR.

- High performance
- Limited lifetime warranty
- Roof mounting for optimum performance
- MB14 base for superior match and bandwidth
- Black high gloss plating won't scratch, chip or peel

Typical VSWR response





As the pattern shows for the SW1585, this antenna delivers excellent gain and omnidirectional performance, as would be expected from a roof mount antenna. The antenna is actually exhibiting slightly more than 3.0dB gain.

TEST FREQUENCY: 825 MHz
REFERENCE ANTENNA *MODEL: SW1405* —— *MOUNT: MB14 Roof Centre*
TEST ANTENNA *MODEL: SW1585* - - - - - - *MOUNT: MB14 Roof Centre*

Electrical

Model No.	SW1585
Gain	3dB over a ¼ wave
Frequency ***MHz***	806 - 870
Power ***W***	50
Tuned Bandwidth	Entire specified band @ <1.9:1 VSWR
Tuning	Supplied pre-tuned

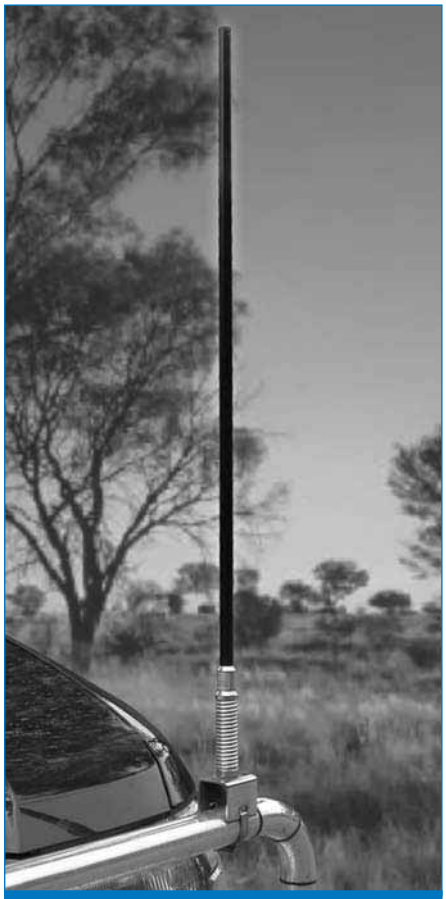
Mechanical

Model No.	SW1585
Whip Material	17-7PH Stainless steel with brass ferrule and black high gloss finish
Whip Length ***mm***	310
Mounting	MB14 base
Cable and Connector	5.0m CellFoam®, connector not included

High Gain Trunking Collinear

806-870 MHz

CD1595



CD1595

The CD1595 is a high gain mobile trunking band antenna providing a genuine 6 dB gain, ideally suited for use in fringe areas and rural applications where performance is paramount.

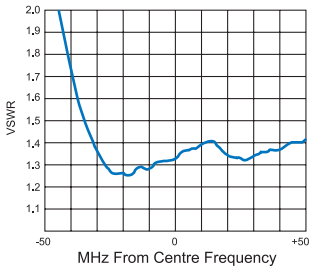
These antennas are extremely robust in design with the radiating element housed in a black fibreglass radome fitted to an integral heavy duty electropolished stainless steel spring.

With a 13mm stud mount, these antennas may be installed onto a number of mounting brackets such as mirror, bull bar, gutter or fender mounts and are ideal for installations in commercial vehicles, four wheel drives and trucks.

These antennas have been factory terminated with an FME connector and are supplied complete with a Mini-UHF adapter to simplify installation.

- Suits Australian and International trunking bands
- 6 dB Gain ideal for fringe areas and rural applications
- Supplied pre-terminated with connectors to suit most radio types
- Robust design for heavy duty applications

Typical VSWR response



Electrical

Model No.	CD1595
Gain	6dB over ¼ wave
Frequency *MHz*	806 - 870
Power *W*	50
Tuned Bandwidth	Entire specified band @ <1.5:1VSWR
Tuning	Supplied pre-tuned

Mechanical

Model No.	CD1595
Whip Material	Black fibreglass radome
Length *mm*	890
Spring	Electropolished stainless steel
Mounting	Threaded stud and nut assembly 13 or 16mm clearance hole required
Cable and Connector	5.0m Cellfoil® low loss cable with FME fitted mini UHF adaptor included

Systems engineering services

RFI offer an extensive range of design, development and related services in support of our customers. These include:

- Site layout and construction advice
- RF systems design
- Intermodulation and interference analysis
- Retuning
- Reconfiguration advice
- Site fault finding
- Multicoupling equipment design and selection

We welcome the opportunity to work with you through each requirement including initial design, tender preparation, right through to installation and commissioning of systems.

Our objective is to provide you with the most complete service utilising our extensive engineering expertise and product knowledge across our entire product portfolio.

RESEARCH

MANUFACTURING

INSTALLATION

For more information on the extensive range of specialist systems products and services call us today or...

visit www.rfi.com.au

Dual Band Cellular Glass Mount

890-960 MHz
1710-1880 MHz

ITG2000

ITG2000

A breakthrough in mobile antenna design!

Finally, an antenna which can radiate effectively from the inside of the vehicle. Unlike most mobile antennas, which have a vertical whip section, the antenna is a tiny radiator which lies flat inside the vehicle windscreen!

Not only is the Duet™ the first truly effective antenna designed to be mounted inside the vehicle, it provides full dual band performance, covering both the 900 and 1800 MHz bands. The secret of the design lies in it's unique patented matching circuit. The antenna uses a stripline fed slot radiator with a patch circuit used to introduce dual resonance at 900 MHz and 1800 MHz. The result is an omnidirectional pattern in both bands and a unique mix of vertical and horizontally polarized radiation.

In performance terms the Duet™ is extraordinary. Free space field tests show the antenna exhibiting unity gain over a ¼ wave at GSM900 (2.1 dBi) and 1.5 dB Gain over a ¼ wave in the GSM1800 MHz band (3.5dBi). When mounted on a vehicle in full network drive tests however the amazing performance of this antenna is really revealed.

The Duet™, mounted on a vehicle screen and tested in network drive tests, is rated at –2dB over a ¼ wave, but this is some 4-5 dB BETTER than even the best externally mounted glass mount antennas and more than 11dB better than using a portable phone in the car without an external antenna! The unique mix of polarization and great efficiency of the radiator make the Duet™ a high performance antenna, not a performance trade off as would normally be expected when using an internal antenna.

Superb performance (especially in urban areas) and no external parts. This simplifies installation, pleases ever more fastidious car owners and eliminates vandalism and car wash problems. The Duet™ antenna is truly a breakthrough product, one which finally addresses the requirements of the network operators and still meets the desires of end users.

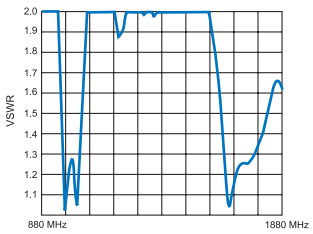
Dual Band Cellular Glass Mount

890-960 MHz
1710-1880 MHz

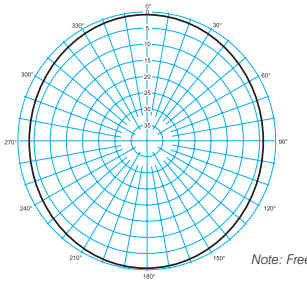
ITG2000

- Easy to install - A simple peel and stick mounting foot is placed on the inside of the vehicle glass. Run the pre-terminated cable assembly to the car kit - connect and go!
- Discreet - The mounting section is slimline and unobtrusive
- Dual Band compatible - Designed to operate in single and dual band GSM applications
- Completely Internal - No threat of vandalism, no concerns of external wind noise and no car wash damage
- Versatile - The tiny radiating section can be mounted on front or rear windscreens
- High Performance - Optimised for operation with mixed polarization cell sites. Eliminates signal fading and outperforms most external glass mounted antennas

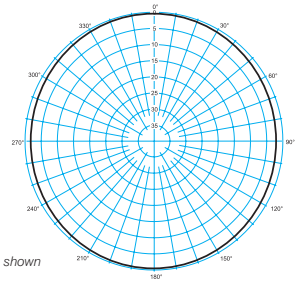
Typical VSWR response



Duet™ vertically placed
H-Plane 1.795 GHz



Duet™ vertically placed
H-Plane - 925 MHz



Note: Free space patterns shown

Electrical

Model No.	ITG2000	
Gain *dBi*	2.1	3.5
Frequency *MHz*	890 - 960	1710 - 1880
Power *W*	10	
Tuned Bandwidth	Entire specified band @ <2.0:1 VSWR	
Tuning	Supplied pre-tuned	

Mechanical

Model No.	ITG2000
Housing Material	Black ABS/Polycarbonate alloy
Dimensions	70 x 70 x 16mm
Mounting	On glass inside vehicle. Pre-fitted with self adhesive foam tape.
Cable and Connector	5.0m 9014 low loss, fully shielded cable terminated with SMA male (antenna end) and FME nipple (adapters available).

Australian Patent No. 764117, USA Patent No. 6346919, Germany Patent App No. 100 38 831.0, Israel Patent App No. 137716

Multi Band Cellular Glass Mount

806-890 MHz
890-960 MHz
1710-1880 MHz
1850-1990 MHz

ITG4000

ITG4000

The Global Antenna

The Quadrant™ is perhaps the most versatile cellular antenna in the world. It can be used in almost any of the existing cellular systems, will provide superior performance to externally glass mounted antennas and yet can be mounted quickly and easily inside the vehicle with no external parts.

A derivation of the Duet™ dual band product (and included in the same patent), the Quadrant™ uses the same stripline fed slot radiator technology with patch circuits used to introduce multi band performance. Being slightly larger than the dual band Duet™, the Quadrant™ has been configured to suit not only GSM900 and GSM1800 systems but also covers AMPS, TDMA and CDMA 800 systems. It also covers the GSM1900 and PCS1900 bands. This enables the Quadrant™ to be used in more than nine out of ten cellular systems anywhere on the globe.

Ship the Quadrant™ to almost any market in the world, and the antenna can be installed quickly, easily and yet deliver incredible performance. With a unique mix of vertical and horizontal polarisation (as is also shown by the cell sites themselves), the Quadrant™ will work especially well in urban and suburban areas. It even (just) out performs it's sister, the Duet™, because of the very slightly larger footprint.

Free space field tests show the Quadrant™ exhibiting just over unity gain relative to a quarter wave at GSM900 and AMPS/TDMA/CDMA 800 Bands (i.e. 2.5 dBi) and 1.8 dB of Gain relative to a quarter wave in the GSM1800 MHz and GSM/PCS1900 MHz bands (i.e. 4dBi). When mounted on a vehicle and tested in full network drive tests (which were performed in an urban environment) it performs even better.

Mounted on a vehicle screen, the Quadrant™ is rated at –1dB over a ¼ wave, but this is some 5-6 dB BETTER than even the best externally mounted glass mount antennas and more than 12dB better than using a portable phone in the car without an external antenna!

The Quadrant™ is truly a breakthrough. There is no performance trade-off. One antenna provides global cellular coverage (ideal for vehicle manufacturers or hands-free kit manufacturers) with a single item. No installation mistakes, with one antenna for every job, and a simple installation with no external parts to be fitted.

Supplied complete with mounting instructions and a pre-terminated low loss, fully shielded coaxial cable, the Quadrant™ can help reduce inventories, reduce installation costs, boost air time and deliver superior customer satisfaction in just about every cellular system in the world.

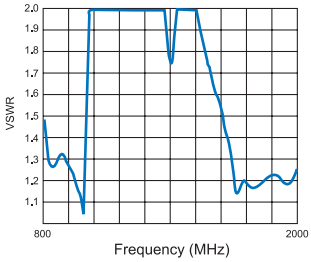
Multi Band Cellular Glass Mount

806-890 MHz
890-960 MHz
1710-1880 MHz
1850-1990 MHz

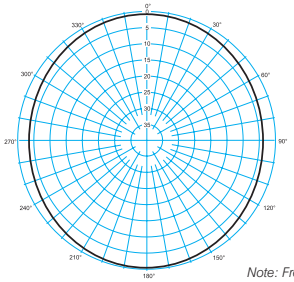
ITG4000

- Truly global cellular coverage.- One antenna suits all of the following systems: GSM 900, GSM 1800 (DCS 1800, PCN 1800), GSM 1900, AMPS, TDMA, CDMA 800, DECT, PCS 1900, (CDMA1900)
- Superb performance – approaches a quarter wave antenna and easily out-performs external mounted glass mount antennas. Patented mixed polarity design.
- Reduce inventories – one antenna suits all systems and can be shipped globally
- Completely internal – no impact on prestige vehicles, no threat of vandalism, no car wash damage and simplified installation
- Supplied ready to go with peel and stick mounting and pre-terminated, fully shielded low loss coaxial cable

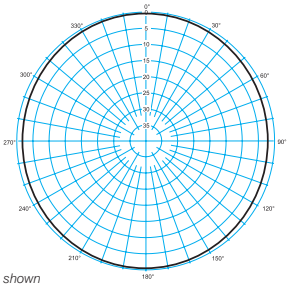
Typical VSWR response



Quadrant™ vertically placed H-Plane 1.795 GHz



Quadrant™ vertically placed H-Plane - 890 MHz



Note: Free space patterns shown

Electrical

Model No.	ITG4000			
Gain *dBi*	2.5		4	
Frequency *MHz*	806 - 890	890 - 960	1710 - 1880	1850 - 1990
Power *W*	10			
Tuned Bandwidth	Entire specified band @ <2.0:1VSWR			
Tuning	Supplied pre-tuned			

Mechanical

Model No.	ITG4000
Housing Material	Black ABS/Polycarbonate alloy
Dimensions	80 x 80 x 16mm
Mounting	On glass inside vehicle. Pre-fitted with self adhesive foam tape.
Cable and Connector	5.0m 9014 low loss, fully shielded cable terminated with SMA male (antenna end) and FME nipple (adapters available).

Australian Patent No. 764117, USA Patent No. 6346919, Germany Patent App No. 100 38 831.0, Israel Patent App No. 137716

Multi Band Cellular-GPS Combination

806-890 MHz
890-960 MHz
1710-1880 MHz
1850-1990 MHz
1910-2170 MHz

ITG5000
ITG5001

ITG5000

The Quintet™ offers incredible versatility. It can be used in almost any cellular system, will provide superior performance to externally glass mounted antennas and yet can be mounted quickly and easily inside the vehicle with no external components.

A derivation of the Duet™ and Quadrant™ dual/multi band products, the antenna uses stripline fed slot radiator technology with patch circuits used to introduce multi band performance. Being slightly larger than the multi band Quadrant™, the Quintet™ has been configured to suit not only GSM900 and GSM1800 systems but also covers AMPS, DAMPS and CDMA 800, SMR systems, PCS1900, DCS1800 and UMTS/3G.

The incredible versatility of the ITG5001 is taken one step further with the ITG5000 version which is effectively two antennas in one. This antenna provides global cellular coverage and GPS satellite coverage making it an ideal telematics solution for vehicle manufacturers, or car kit installers, reducing inventory and installation time.

The GPS element is a small ceramic patch antenna with a high performance active amplifier and industry leading noise figure to ensure faster acquisition of multiple satellites. The Quintet™ is equally appropriate for in-vehicle integrated telematics solutions or after market applications calling for both cellular and GPS installations in recreational or industrial vehicles.

Ship the Quintet™ to any market in the world, and the antenna can be installed quickly, easily and yet deliver incredible performance. With a unique mix of vertical and horizontal polarization (as is also shown by the cell sites themselves), the antenna can be mounted at any angle and still deliver optimum performance.

- The ultimate telematics solution - GPS and cellular in one antenna for almost any market worldwide. (ITG5000)
- Perfect solution for private vehicles, fleet management and vehicle OEMs etc.
- Completely internal – simple installation, no external parts.

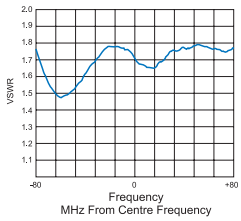
Australian Patent No. 764117, USA Patent No. 6346919, Germany Patent App No. 100 38 831.0, Israel Patent App No. 137716

Multi Band Cellular-GPS Combination

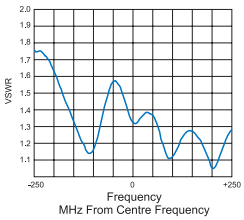
806-890 MHz
890-960 MHz
1710-1880 MHz
1850-1990 MHz
1910-2170 MHz

ITG5000
ITG5001

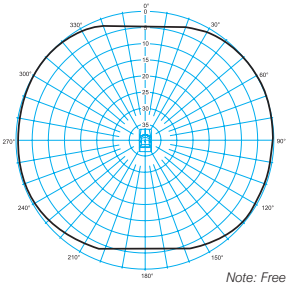
Typical VSWR response CDMA and GSM



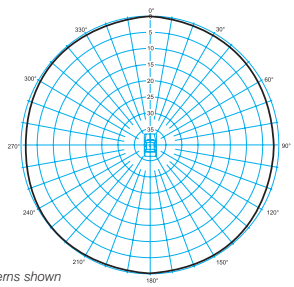
Typical VSWR response DCS, PCS and 3G



Quintet™ vertically placed H-Plane 1.795 GHz



Quintet™ vertically placed H-Plane - 890 MHz



Note: Free space patterns shown

Electrical

Model No.	ITG5000 / ITG5001				
Gain *dBi*	1.1		4.4		4.5
Frequency *MHz*	806 - 890	890 - 960	1710 - 1880	1850 - 1990	1910 - 2170
Max Power *W*	10				
Tuned Bandwidth	Entire specified band @ <2.0:1 VSWR				
Tuning	Supplied pre-tuned				

Mechanical

Model No.	ITG5000 / ITG5001
Housing Material	Black ABS/Polycarbonate alloy
Dimensions	90 x 90 x 17mm
Mounting	On glass inside vehicle. Pre-fitted with self adhesive foam tape.
Cable and Connector	Cellular feeder of 5.0m 9014 low loss, fully shielded cable terminated with SMA male and FME nipple (adapters available).
	ITG5000 ONLY - GPS feeder of 5.0m RG174 type cable MCX connector fitted

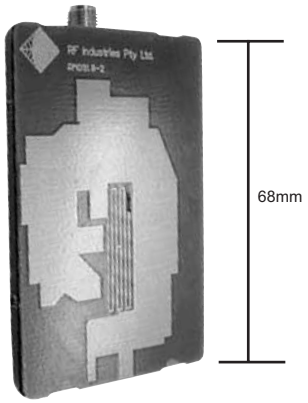
GPS Specifications

Fo	1575.42 MHz
Operation Temperature	-40 to +85°C
Storage Temperature	-40 to +100°C
System Gain at Fo	28dBi including cable and filter losses
Impedance	50 Ohm
Polarization	RHCP
VSWR at Fo	1.5:1
Noise Figure at Fo	<1.8 dB max.
Power Input	+2.5Vdc to +12Vdc input, auto switching
Power Consumption	11mA to 13mA (max)
Power Input	Reverse polarity short circuit shutdown
Over-Current	Thermal over-current shutdown >+150°C

Embedded Cellular Antenna

890-960MHz
1710-1880MHz

EAM2000



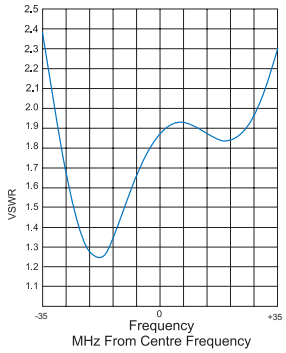
EAM2000

The EAM2000 is a breakthrough antenna, able to be mounted completely inside wireless equipment. This makes it ideal for use in a variety of “new” wireless applications including ATM’s, vending machines and remote monitoring units.

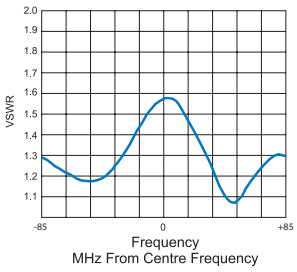
Being ground plane insensitive it can be installed either on or off ground plane. With a depth of only 13 mm, this makes the EAM2000 ideal for the tightest of mounting positions.

- Ideal for the latest M2M applications
- Slimline - for ease of installation
- GSM Dual or single band compatible
- Completely internal - no threat of vandalism or damage

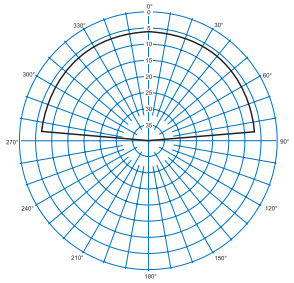
Typical VSWR response GSM 900



Typical VSWR response GSM 1800



Typical E-Plane response @ 890MHz



Electrical

Model Number	EAM2000
Gain *dBi*	2
Frequency	890 - 960 MHz / 1710 - 1880 MHz
Max Power *W*	5
Tuned Bandwidth	Entire specified band @ <2.5:1 VSWR
Tuning	Supplied pre-tuned

Mechanical

Model Number	EAM2000
Construction Material	FR4 composite and tinned brass
Dimensions *mm*	68 x 43 x 13
Mounting	Customer specific
Connector	SMA female connector

Cellular Roof Mount

824-960 MHz

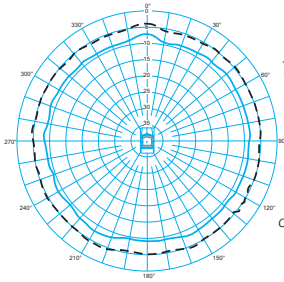
SW1400 Series
SW1600 Series

SW1605

Roof mount antennas are recommended by system operators, mobile manufacturers and system designers as they provide the strongest reception and most reliable performance of any cellular mobile antenna.

At the heart of each RFI roof mount antenna is the MB14 base. The base is intricately constructed, much like a coaxial connector. The precisely controlled termination is reliable electrically and mechanically provides a superb match resulting in a broad bandwidth.

- Roof mounting for optimum performance
- Black finish will not scratch or peel
- Limited lifetime warranty
- SW1495 (CDMA only) offers 5 dB gain for maximum range in country or fringe areas
- SW1486/1686 Magnetic base versions available for portable applications complete with protective rubber boot



This antenna is providing excellent gain and omnidirectional performance as expected when mounted as recommended. The published gain figure for this antenna of 3 dB is conservative and could more correctly be stated at 3.5dB.

TEST FREQUENCY: 825 MHz

REFERENCE ANTENNA
MODEL: SW1405 ——
MOUNT: MB14 Roof Centre

TEST ANTENNA
MODEL: SW1485 - - - - - - -
MOUNT: MB14 Roof Centre

Electrical

Model No.	SW1405	SW1605	SW1485/6	SW1685/6	SW1495
Gain	Unity over ¼ wave		3dB over ¼ wave		5dB over ¼ wave
Frequency *MHz*	824 - 896	890 - 960	824 - 896	890 - 960	824 - 896
Power *W*	50				
Tuned Bandwidth	Entire specified band @ <1.9:1 VSWR				
Tuning	Supplied pre-tuned				

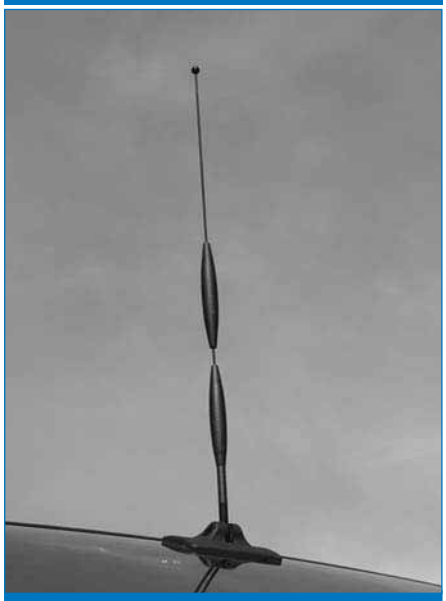
Mechanical

Model No.	SW1405	SW1605	SW1485	SW1685	SW1486	SW1686	SW1495
Whip Material	17-7 PH stainless steel with brass ferrule, black finish						
Whip Length *mm*	70	65	350	340	380	370	624
Mounting	MB14				Heavy duty magnetic mount		MB14
Cable and Connector	Supplied with 5.0m Cellfoam® cable. Please specify mini UHF, FME or TNC connector.						

e-glass® Cellular Dual Band

890-960 MHz
1710-1880 MHz

EG880 Series



EG883

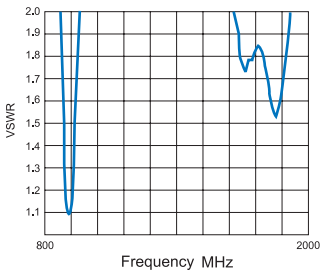
The EG800 series e-glass® antennas are genuine dual band antennas designed specifically for GSM 900/GSM 1800 applications. All of these antennas offer superb, true dual band performance.

The e-glass® utilises an elliptical slot radiator in the coupling box, with a patch element housed in the mounting foot. The patch element is E-shaped to allow the coupling of both bands very effectively. The whip element is fully moulded with dual phasing coils (3dB whip only), the result being an antenna that provides abundant gain in both the 900MHz and 1800MHz bands.

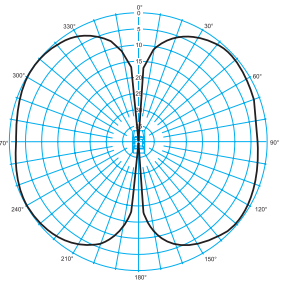
Featuring a new-look mounting foot and coupling box, e-glass® antennas are supplied complete with a pre-terminated lead of low loss, fully shielded coaxial cable.

- True dual band performance at 900 and 1800 MHz
- Fully shielded low loss pre-terminated cable supplied
- EG884 combination kit supplied with unity and 3dB gain whips offering choice of gain and reducing inventory

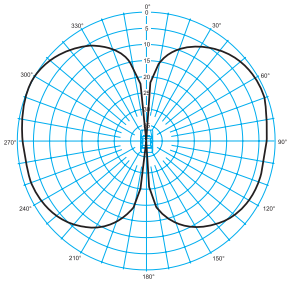
Typical VSWR response (EG880)



EG880 typical E-plane response at 925 MHz



EG880 typical E-plane response at 1795 MHz



Electrical

Model No.	EG880	EG883	EG884
Gain	Unity over a ¼ wave	3dB over a ¼ wave	Unity and 3dB over a ¼ wave
Frequency *MHz*	890 - 960 & 1710 - 1880		
Power *W*	50		
Tuned Bandwidth	Entire specified band @ <2:1 VSWR		
Tuning	Supplied pre-tuned		

Mechanical

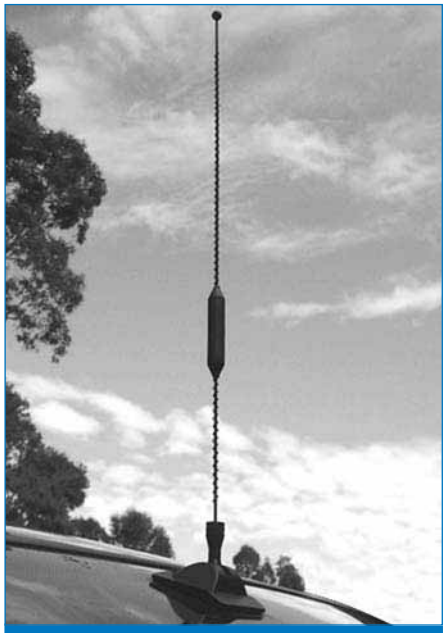
Model No.	EG880	EG883	EG884
Whip Material	One piece black chrome plated stainless steel with plastic over moulding		
Whip Length *mm*	155	352	As per EG880 + EG883
Mounting	Flexible polyurethane moulded mounting foot attaches with self adhesive foam tape		
Cable and Connector	Pre-terminated lead with 5m 9014 flexible foam dielectric low loss fully shielded cable pre-terminated with FME nipple connector for transceiver connector and SMA male to suit coupling box		

Australian Patent App No. 34316/02

CDMA Cellular Glass Mount

820-896 MHz

AMD877.3 Series

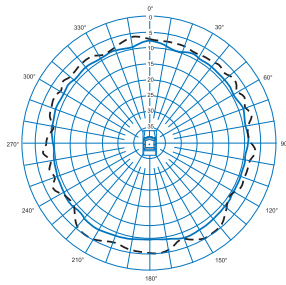


AMD877.3

The glass mount antenna has long been the world standard for cellular mobile antennas. This glass mount antenna is supplied completely assembled ready for quick, effortless installation. The mounting foot is constructed from flexible plastic and mounts securely using very high bond tape.

Established as the world's premier cellular mobile antenna, the glass mount antenna is ideal for both end-users and original equipment manufacturers ideal for virtually all applications.

- 'Solid State' Slimline Coupling Box - Unsurpassed performance in a low profile housing
- Pliable mounting foot for maximum adhesion to curved windows coupled with a choice of whips.
- Simple Installation - Supplied completely assembled and ready for installation with very high bond tape (VHB) - simply peel and stick
- Distinctive packaging for easy stock identification
- Incorporates turbulence spiral for whisper quiet performance



The pattern shown for the AMD873.3 shows that the antenna provides an excellent, largely omnidirecitonal radiation pattern and exhibits 3dB gain over a ¼ wave whip mounted in the centre of a metal roof.

TEST FREQUENCY: 850 MHz
REFERENCE ANTENNA *MODEL: SW1405* —— *MOUNT: MB14* *POSITION: Roof Centre*
TEST ANTENNA *MODEL: AMD873.3* - - - - - *MOUNT: Glass Mount* *POSITION: Rear Window*

Electrical

Model No.	AMD877.3 Series
Gain	3dB over a ¼ wave
Frequency *MHz*	820 - 896
Power *W*	50
Tuned Bandwidth	Entire specified band @ <1.9:1 VSWR
Tuning	Supplied pre-tuned, ready for installation

Mechanical

Model No.	AMD877.3 Series
Whip Material	Stainless steel with black finish
Whip Length *mm*	386
Mounting	Mounted on glass with VHB tape
Cable and Connector	Supplied with 5.0m Cellfoam® cable. Please specify mini UHF, FME or TNC connector.

Cellular Elevated Feed

820-960 MHz

CD1210
CD1610
CD1515

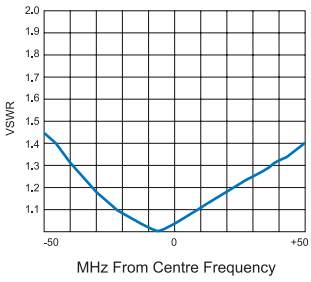
CD1610

This elevated feed 1.5dB gain mobile antenna is available in CDMA, GSM and PTMP bands. The "elevated feed" construction of the antenna is designed to keep the upper radiating portion of the antenna above the roof level to achieve an omnidirectional pattern.

This versatile ground independent design allows installation in "alternative" mounting locations where a roof or glass mount antenna is not desired or will not provide adequate performance. The antenna can be used with or without the optional mounting kits available. These mounting kits provide these antennas with the versatility to be mounted on vehicle gutter, fender, boot and other locations.

- High performance - Elevated feed design requires no ground plane for omnidirectional 1.5 dB gain coverage
- Ground independent design allows installation in almost any location
- Large variety of mounts available to suit any application

Typical VSWR response (CD1610)



Electrical

Model No.	CD1210	CD1610	CD1515
Gain	1.5dB over a ¼ wave		
Frequency *MHz*	820 - 896	890 - 960	850 - 930
Power *W*	40		
Tuned Bandwidth	Entire specified band @ <1.9:1 VSWR		
Tuning	Supplied pre-tuned ready for installation		

Mechanical

Model No.	CD1210	CD1610	CD1515
Whip Material	Stainless steel with black finish		
Whip Length *mm*	195	180	188
Mounting	14mm Stud mount		
Cable and Connector	Supplied with 5.0m Cellfoam® cable. Specify FME, mini UHF, FME or N-male connectors		

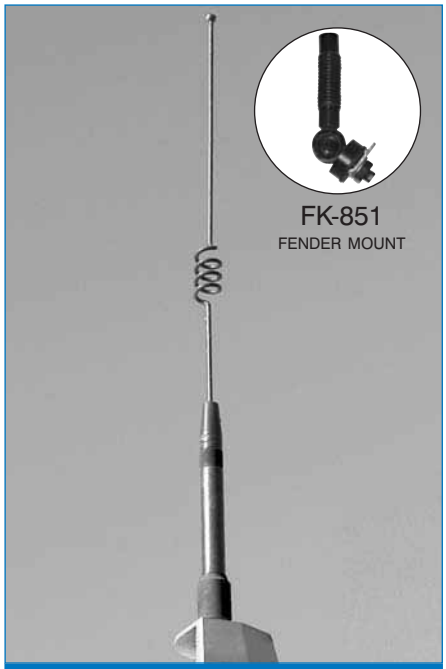
Cellular Elevated Feed

824-1880 MHz

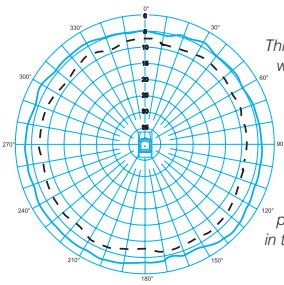
CD1220 Series
CD1620 Series
CD1250 Series

Elevated feed antennas provide high performance in virtually any mounting position. The elevated feed design raises the radiating element above the vehicle roof or other obstructions to provide a strong omnidirectional pattern and high performance for vehicle gutter, fender, boot or magnetic mounting.

- High performance omnidirectional gain
- 'Problem Solver' - Elevated feed design eliminates need for a ground plane and boosts the radiating element over obstructions
- Black finish will not scratch or peel
- Limited lifetime warranty
- CD1250 (CDMA only) offers 5 dB gain for maximum range in country or fringe areas
- Range of fittings available including fender (shown), gutter and magnetic mount



CD1625



This pattern clearly shows that when mounted on the gutter clear of obstructions, this antenna is providing a gain of 4.5dB or more over a ¼ wave whip and a pattern variance of only 1-2dB. The antenna is clearly operating independent of the ground plane and is a superior choice in this mounting position.

TEST FREQUENCY: 850 MHz
REFERENCE ANTENNA *MODEL: SW1405* —— *MOUNT: MB14 Roof Centre*
TEST ANTENNA *MODEL: CD1225* - - - - - - *MOUNT: Gutter Mount* *Passenger Side*

Electrical

Model No.	CD1225 Series	CD1625 Series	CD1228 Series	CD1628 Series	CD1250
Gain	3dB over a ¼ wave				5dB over a ¼ wave
Frequency *MHz*	824 - 896	890 - 960 1710 - 1880	824 - 896	890 - 960 1710 - 1880	824 - 896
Power *W*	50				
Tuned Bandwidth	Entire specified band @ <2.0:1 VSWR				
Tuning	Supplied pre-tuned, ready for installation				

Mechanical

Model No.	CD1225 Series	CD1625 Series	CD1228 Series	CD1628 Series	CD1250
Whip Material	17-7PH Stainless steel black finish				
Whip Length *mm*	470	432	595	557	765
Mounting	14mm Stud		FK-851 Fender Mount		14mm Stud
Cable and Connector	Supplied with 5.0m Cellfoam® cable. Please specify mini UHF, FME or N-male connectors.				

Cellular High Gain Collinear

824-960 MHz

CD1790 Series

CD1795

The CD1790 Series are high gain mobile cellular antennas catering for both CDMA and GSM900 bands and ideally suited for use in fringe areas and country applications.

These antennas are extremely robust in design with a patented PCB designed radiating element housed in a black or white fibreglass radome fitted to an integral heavy duty electro-polished stainless steel spring.

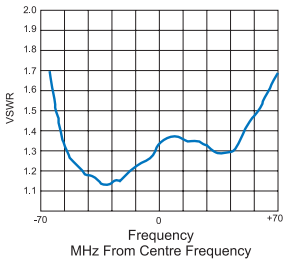
With a 13mm stud mount, these antennas may be installed on a number of mounting brackets and are ideal for installations in commercial vehicles, four wheel drives and trucks. They can also be used as fixed base station antennas for wireless local loop applications.

These antennas have been factory terminated with an FME connector to simplify installation and come complete with a TNC and Mini-UHF adapter to suit all phones and require no further cable termination.

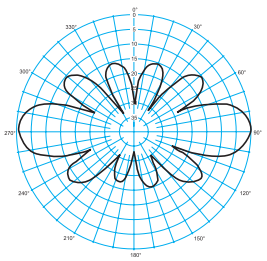
- CDMA and GSM900 compatible
- High gain ideal for fringe areas and rural applications
- Available in white: CD1795-W or CD1797-W
- Available with GPS sub-assembly (see page 53)
- Patented PCB based collinear design offering the ultimate in pattern and gain stability

Other model and gain variations available upon request

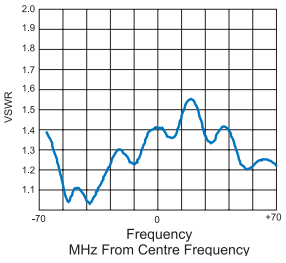
Typical VSWR response (CD1795)



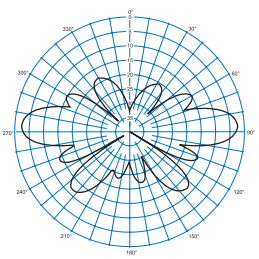
Typical E-Plane response (CD1795)



Typical VSWR response (CD1797)



Typical E-Plane response (CD1797)



Electrical

Model Number	CD1795	CD1797
Gain *dBi*	6.5dB over a ¼ wave	7.5dB over a ¼ wave
Frequency *MHz*	824 - 960	
Max Power *W*	25	
Tuned Bandwidth	Entire specified band @ <2.0:1 VSWR	
Tuning	Supplied pre-tuned	

Mechanical

Model Number	CD1795	CD1797
Whip Length *mm*	860	1100
Mounting	Threaded stud and nut assembly 13mm clearance hole required	
Cable and Connector	5.0m of RG58 9006 fitted with FME 101 connector and supplied with TNC (A-86) and Mini UHF (A-87) adapters	

USA Patent: 6909403
Patent App. No.: Australia 2003255049 / Europe 03 023406.6 / China 200310100548.5 / India 844/CHE/2003

Elevated Feed Mopole™

806-960 MHz

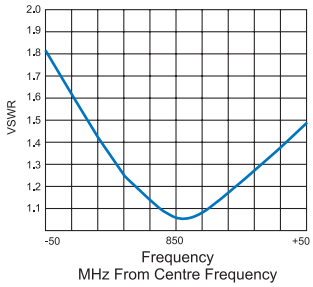
CD1100 Series

CD1160

These 1.5 dB gain elevated feed antennas are ideal in applications where height and aesthetics are a consideration. The elevated feed design raises the radiating element above the vehicle roof level to provide a strong omnidirectional pattern and high performance. The ground independent design provides consistent performance regardless of mounting position. Mounting kits are available for both gutter and mirror mounts.

- Economical - Our most affordable cellular antenna for gutter and mirror mount or fixed applications
- Performance - Ground plane independent design allows mounting in a variety of applications
- Simple Installation - Stud mounted design allows for installation on a gutter or mirror mount
- Flexible - PVC enclosed radiator allows for superior flexibility

Typical VSWR response (CD1150)



Electrical

Model No.	CD1140	CD1150	CD1160
Gain	1.5dB over a ¼ wave		
Frequency *MHz*	806 - 870	820 - 896	890 - 960
Power *W*	40	50	
Tuned Bandwidth	Entire specified band @ <1.5:1 VSWR	70 MHz @ <2:1 VSWR	
Tuning	Supplied pre-tuned, ready for installation		

Mechanical

Model No.	CD1140	CD1150	CD1160
Whip Material	Brass elevated feed, radiator enclosed in flexible PVC tubing		
Whip Length *mm*	195 (including elevated feed section)		
Mounting	Threaded stud and nut assembly 16mm clearance hole required		
Cable and Connector	5.0m Cellfoam® cable. Please specify connector		

GPS Antenna

1575.42 MHz

GPS1
GPS1-BKT

GPS1-BKT

GPS1

The GPS1 is a high performance compact GPS antenna designed to accommodate automotive applications and a wide variety of OEM, system integrator and end user applications.

This 25mm patch antenna is coupled with a 28dBi gain active amplifier which operates from 2.5 VDC to 12 VDC with a low 11mA consumption (at 2.5 VDC).

The GPS1 comes enclosed in a UV stable, high impact, fully weatherised housing, with 5m of double screened low-loss RG174 (type) cable terminated with an MCX connector (other connectors available on request).

The GPS1-BKT is an optional mounting bracket kit which mates with the GPS1 antenna. This kit includes a black chrome plated stainless steel bracket and fittings. The bracket's 16mm hole allows mounting of a variety of RFI ground independent mobile antennas. The result is a neat multiband antenna installation.

Electrical

Model	GPS1
Frequency *MHz*	1575.42
System Gain	28dBi
Impedance	50 Ohm
Cable Attenuation	4 dB over 5m
Polarization	RHCP
VSWR	1.5 typical @ fo
Noise Figure	+2.75 dB
Power Input	+2.5Vdc to +12Vdc input, auto switching
Power Consumption	11mA to 15mA (max)
Power Input	Reverse polarity short circuit shutdown
Over-Current	Thermal over-current shutdown >+150°C

Mechanical

Model	GPS1
Operation Temperature	-40 to +85°C
Storage Temperature	-40 to +100°C
Dimensions *mm*	44 x 34 x 12 ±0.5mm
Weight *kg*	0.088
Mounting	Magnet
Cable and Connector	5m RG174 terminated with MCX connector. See note (1)

(1) GPS1 available terminated with other connectors subject to a MOQ upon request

2.4-2.5 GHz

CDM2400 Series

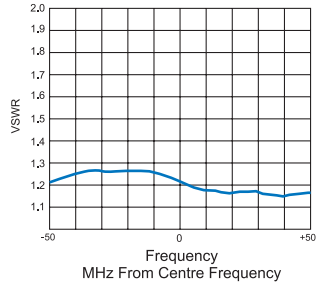
CDM-2408

The CDM2400 series are a range of mobile antennas specifically designed for mobile WLAN applications. Utilising a fibreglass radome with a heavy duty stainless steel spring these antennas offer a robust and high performance solution, well suited to mining, warehousing, public transport and emergency services applications.

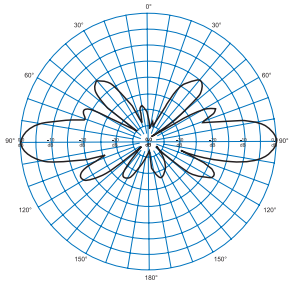
The CDM2400 series utilise a patented PCB based collinear design offering the ultimate in pattern stability. Their ground independent design makes them suitable for a variety of mounting positions including bullbar, gutter and roof rack.

- Robust construction
- Integrated heavy duty spring
- Outstanding performance

Typical VSWR response (CDM2408)



Typical E-Plane response (CDM2408)



Electrical

Part No	CDM2402	CDM2406	CDM2408	CDM2410
Gain *dBi*	2	6	8	10
Frequency *MHz*	2400 - 2500			
Beamwidth E / H	81° / 360°	22° / 360°	16.5° / 360°	8° / 360°
VSWR	Entire specified band @ <1.5:1 VSWR			

Mechanical

Part No	CDM2402	CDM2406	CDM2408	CDM2410
Description	White fibreglass, ISM band, collinear antenna with stainless steel spring			
Dimensions *mm*	250 (L) 16 (Dia)	420 (L) 16 (Dia)	510 (L) 16 (Dia)	1200 (L) 16 (Dia)
Weight *kg*	0.25	0.26	0.27	0.4
Mounting	Supplied with spring and nut for stud mount. Requires 16mm hole. Suits a variety of RFI brackets			

USA Patent: 6909403
Patent App. No.: Australia 2003255049 / Europe 03 023406.6 / China 200310100548.5 / India 844/CHE/2003

UHF CBRS Mopole™

476-477 MHz

CD33 Series

CD33

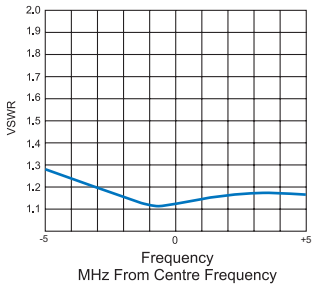
The CD33 Series Mopole™ antenna is specifically designed to be used in a variety of mounting positions such as vehicle mirror, gutter or roof bar mounts according to individual needs.

Mounted in such positions, the CD33 is the ideal substitute for an antenna which would normally need to be mounted in the centre of a metal roof to obtain maximum efficiency.

The CD33 Series antenna is an end-fed dipole (½ wave). A tuned circuit has been incorporated in the base and the radiating element enclosed in a flexible nylon radome. The end result is an attractive, yet tremendously rugged package suited for almost any application.

- Workhorse - A terrific antenna for agricultural and work vehicle applications where durability is critical
- Versatile - Ground plane independent design allows installation in almost any location
- High Performance - Exhibits 4 dB gain over ¼ wave whip mounted in the centre of a metal roof
- Rugged- Radiating element is enclosed in flexible UV resistant nylon tubing
- Convenient - Available in a number of kits with full instructions for fitting by inexperienced installers

Typical VSWR response



Electrical

Model No.	CD33-71-73
Gain	4dB over a ¼ wave. See note (1)
Frequency *MHz*	476 - 477
Power *W*	20
Tuned Bandwidth	Entire specified band @ <1.5:1 VSWR
Tuning	Supplied pre-tuned

Mechanical

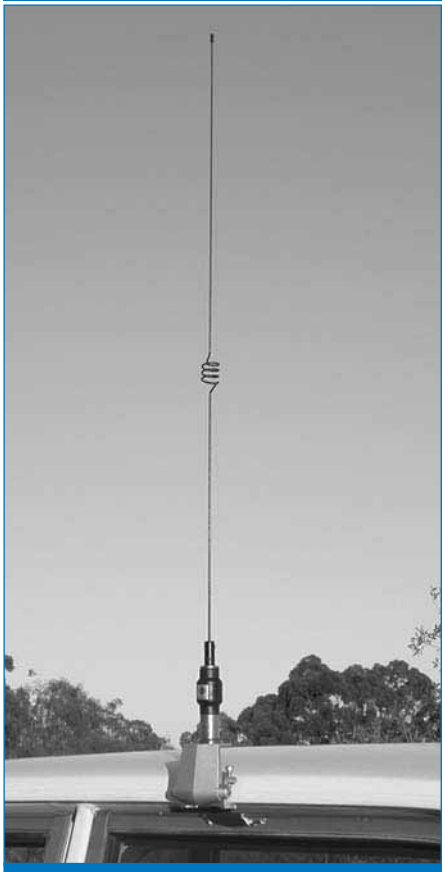
Model No.	CD33-71-73
Whip Material	UV resistant flexible nylon tubing
Whip Length *mm*	330
Mounting	Base mounts in 16mm hole
Cable and Connector	5.0m RG58C/U cable fitted. A variety of pre-packed kits including connectors and fittings are also available

(1) As the CD33 is a half wave dipole antenna, actual pattern tests show unity gain vs. a half wave dipole. In the field, however, the CD33 will deliver performance which is approximately 4dB better than a ¼ wave whip mounted in the centre of a metal roof, mainly because it exhibits a lower angle of radiation.

UHF CBRS Mopole™

476-477 MHz

CD63 Series



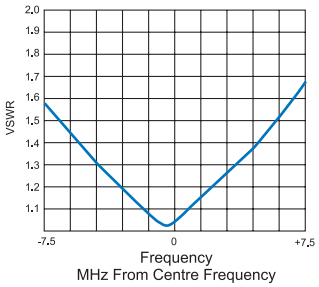
CD63-71-50

The CD63 Series Mopole™ antennas offer complete versatility in mounting options. Unlike conventional roof mount antennas, the CD63 Series antennas have true ground independence which allows mounting in a variety of positions including vehicle mirror, gutter or roof bar mounts.

This extraordinary performance is made possible by the use of an exclusive (and patented) high impedance matching circuit in the base coil. This allows the end feeding of the collinear whip section, a ⅝ over ½ wave radiator wound from a single piece of high resilience 17-7PH stainless steel.

- Available in two mounting options, removable MBC style (CD63-71-50) or threaded stud and nut (CD63-71-70)
- Excellent performance - Exhibits 6.0dB gain over a ¼ wave whip mounted in the centre of a metal roof
- Flexible - Stainless steel whip returns to original shape after bending
- Rugged - The base coil is housed in a high impact thermoplastic moulding and is practically indestructible
- Stylish - Attractive black finish, complements vehicle styling

Typical VSWR response



Electrical

Model No.	CD63-71-50	CD63-71-70
Gain	6dB over a ¼ wave. See note (1)	
Frequency *MHz*	476 - 477	
Power *W*	20	
Tuned Bandwidth	Entire specified band @ <1.5:1 VSWR	
Tuning	Supplied pre-tuned	

Mechanical

Model No.	CD63-71-50	CD63-71-70	CD63-71-73
Whip Material	17-7PH Stainless steel		
Whip Length *mm*	800 (whip and coil only)		
Mounting	MBC base supplied to fit 16mm hole	16mm stud mount	
Cable and Connector	None supplied		5m RG58C/U cable

(1) Mopole™ antennas such as the CD63 have been shown to exhibit a 6dB improvement in received signal level in the field when compared to a ¼ wave whip however in pattern tests exhibit only 1.5 to 2dB over a ¼ wave (equivalent to 1.5-2dBi). This improvement in performance can be attributed to a lower radiation angle level of these ground independent antennas.

Australian Patent No. 596830

Elevated Feed Mopole™

470-490 MHz

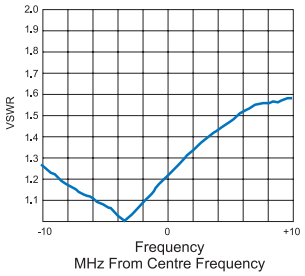
CD900 Series

CD921-71-75

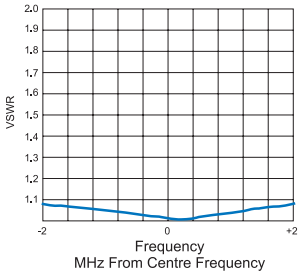
The CD900 Series are high performance elevated feed mobile antennas which can be used in virtually any mounting position. When gutter or roof bar mounted, high above a vehicle, CD900 series antennas deliver a full 6.5dB gain over a ¼ wave whip. When mounted in other positions, such as on a vehicle fender or bull bar, the elevated feed design places a large portion of the antenna above the vehicle cabin, providing good all round performance regardless of mounting position.

- Totally ground plane independent
- Elevated feed boosts radiating element above obstructions
- MSW25 "Phasemaster II™" whip section provides unsurpassed performance and strength
- Quality construction - Choke assembly is crafted from solid brass and available in both chrome and black finishes
- Supplied pre-terminated with FME connector and UHF adaptor
- Can be used with a variety of mounts. See accessories section for options.

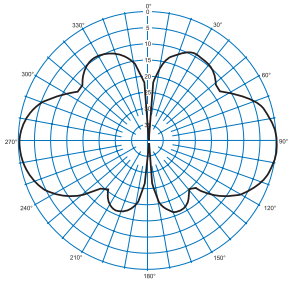
Typical full band VSWR Response (CD920)



Typical UHF CBRS band VSWR Response (CD920)



Typical E-Plane response for CD920



Electrical

Model No.	CD900 Series
Gain	6.5dB over ¼ wave. See note (1)
Frequency *MHz*	470 - 490
Power *W*	100
Tuned Bandwidth	Entire UHF CBRS band for <1.25:1 VSWR; Entire 470-490 MHz band for <1.6:1 VSWR
Tuning	Supplied pre-tuned

Mechanical

Model No.	CD920-71-75	CD921-71-75	CD930-71-75	CD931-71-75
Whip Material	Polyurethene over moulded 17-7PH black chrome plated whip section on bright chrome choke		Polyurethene over moulded 17-7PH black chrome plated whip section on black chrome choke	
Spring Options	No spring	SK954 spring included	No spring	SK953 spring included
Whip Length *mm*	850			
Mounting	Threaded stud and nut assembly mounts in either 13 or 16mm dia. hole			
Cable and Connector	5m Cellfoam™ with FME-101 terminated, UHF adapter supplied.			

(1) Mopole™ antennas such as the CD900 Series has been shown to exhibit a 6.5dB improvement in received signal level in the field when compared to a ¼ wave whip however in pattern tests exhibit only 1.5 to 2dB over a ¼ wave (equivalent to 1.5-2dBi). This improvement in performance can be attributed to a lower radiation angle level of these ground independent antennas.

UHF CBRS Collinear

476-477 MHz

CD5000

CD5000

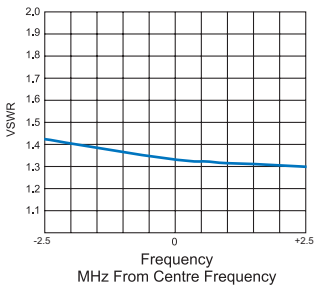
The CD5000 is a high gain mobile CBRS antenna providing a genuine 5 dB gain and is ideally suited for use in fringe areas and country applications where performance is paramount.

This antenna is extremely robust in design with the patented PCB designed radiating element housed in a black or white (CD5000-W) fibreglass radome fitted to an integral heavy duty electro-polished stainless steel spring.

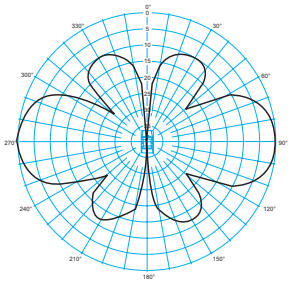
With a 13mm stud mount and ground plane independent design, this antenna may be installed onto a number of mounting brackets such as mirror, bull bar, gutter or fender mounts and are ideal for installations in commercial vehicles, four wheel drives and trucks. They can even be used as a base station antenna due to their ground plane independent design.

- 5 dB Gain ideal for fringe areas and country applications
- Robust design for heavy duty applications
- Available with GPS sub-assembly on request (see page 53)
- Available in white - CD5000-W
- Patented PCB based collinear design offering the ultimate in pattern and gain stability

Typical VSWR response



Typical E-Plane response



Electrical

Model No.	CD5000
Gain	5dB over a ¼ wave
Frequency *MHz*	476 - 477
Power *W*	25
Tuned Bandwidth	Entire specified band @ <1.5:1 VSWR
Tuning	Supplied pre-tuned

Mechanical

Model No.	CD5000
Whip Length *mm*	900
Mounting	Threaded stud and nut assembly 13mm clearance hole required
Cable and Connector	5.0m 9006 supplied with FME-101 connector terminated and UHF adapter supplied

USA Patent: 6909403
Patent App. No.: Australia 2003255049 / Europe 03 023406.6 / China 200310100548.5 / India 844/CHE/2003

UHF CBRS Collinear

476-477 MHz

CD6000 Series

CD6000

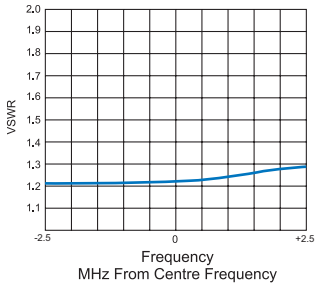
The CD6000 Series antenna is an ultra high performance antenna for use with 477 MHz UHF CB transceivers. The antenna delivers superior gain and will deliver exceptional range in fringe and country applications.

The radiating element is a series fed collinear enclosed in either a black or white fibreglass radome. The heavy duty stainless steel spring mounted at the base allows the antenna to flex and absorb vibrations.

The CD6000 is easy to install being fitted simply with a 12mm (M12) bolt. The antenna can be installed on a number of mounting brackets but we recommend use of a heavy duty bullbar mount for most applications. The CD6000 can be used on 4-wheel drives, trucks, agricultural machinery, boats or even as a base station antenna and will provide superior gain and performance in all applications.

- The ultimate in range and performance for UHF CB
- Built for extreme environments with stainless steel spring integrated for vibration absorption
- Retail ready - Packaged complete with cable and connector for hassle free installation
- Also available in white - CD6000-W

Typical VSWR response



Electrical

Model No.	CD6000
Gain	6dB over a ¼ wave
Frequency *MHz*	476 - 477
Power *W*	20
Tuned Bandwidth	Entire specified band @ <1.5:1 VSWR
Tuning	Supplied pre-tuned

Mechanical

Model No.	CD6000	
Whip Material	Black fibreglass radome fitted with a 30cm aluminium mount tube locked to the base assembly	White fibreglass radome fitted with a 30cm aluminium mount tube locked to the base assembly
Whip Length *mm*	2000	
Mounting	Base assembly is heavy duty electropolished stainless steel spring and collar fitted with 12mm aluminium bolt. Fixes to mounting bracket up to 12mm thick.	
Cable and Connector	5.0m 9001 supplied to mate with UHF receptacle on base of antenna. UHF connector supplied for radio connection.	

27 MHz

MDA-201
MDA-301
MMA-301

The 27MHz marine antenna range includes three ground independent antennas designed specifically for the harsh marine environment. The ground independent design allows great mounting versatility in the marine environment.

These 27MHz marine unity gain antennas are housed within a flexible fibreglass radome with a tightly sealed enclosed element to provide protection in inherently corrosive marine applications.

The MDA Series deck mount antennas utilise the MAM1 marine mount which can be adjusted through 180° across both planes for great flexibility in mounting. The MDA-201 measures 1.9m tall and is ideal when mounting on a flybridge, above obstructions or on smaller vessels. The 3.1m MDA-301 antenna is designed to mount to the lower deck and provides the extra height needed to boost performance for long range communications.

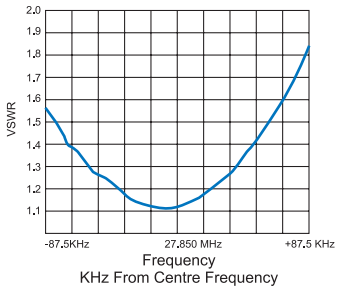
The MMA-301 is a 3.4m antenna which mounts to a mast using two stainless steel U-bolts (not included).

- Performance - Ground independent design allows for mounting in virtually any location
- MAM1 Marine mount allows for adjustability in every direction
- Rugged - Designed specifically for the marine environment

MAM1

MDA-201

Typical VSWR response (MDA-201)



Electrical

Model No.	MDA-201	MDA-301	MMA-301
Gain	Unity over a ¼ wave		
Frequency *MHz*	27.7 - 28.0		
Power *W*	25		
Tuned Bandwidth	Entire specified band @ <2.0:1 VSWR		
Tuning	Supplied pre-tuned		

Mechanical

Model No.	MDA-201	MDA-301	MMA-301
Whip Material	Flexible white fibreglass radome		
Whip Length *mm*	1900	3100	3400
Mounting	MAM1 marine mount (supplied)		2 x UB2 U-bolts (not included)
Cable and Connector	3.6m RG58 cable, no connector supplied		

VHF Mast Mount Marine

156-162 MHz

MME-101
MME-331

MME-101

These VHF marine antennas are designed specifically for the VHF international maritime bands and seaphone frequencies. They are ground independent mast mounting antennas which mount to a mast using customer chosen mounting hardware.

The antennas are housed within a fibreglass radome, with a tightly sealed radiating element to provide protection from the corrosive marine environment.

The MME-101 is a unity gain antenna measuring 1.5 m high and is ideal for mounting on a flybridge, above obstructions.

The MME-331 antenna is a 3 dB gain antenna which measures 2.9m in length. It is ideal in applications requiring high gain or in situations where extra height is needed.

- Unity or 3 dB gain versions
- Performance - ground independent design allows for mounting in virtually any location
- Rugged - designed specifically for the marine environment

Electrical

Model No.	MME-101	MME-331
Gain	Unity over a ¼ wave	3dB over a ¼ wave
Frequency *MHz*	156 - 162	
Power *W*	25	
Tuned Bandwidth	Entire specified band @ <1.8:1 VSWR	
Tuning	Supplied pre-tuned	

Mechanical

Model No.	MME-101	MME-331
Whip Material	Flexible fibreglass radome	
Whip Length *mm*	1500	2900
Mounting	2 x UB2 U-bolts (not included)	
Cable and Connector	Short RG213 cable tail fitted with N-type connector (female)	

VHF Marine Deck Mount

156-162 MHz

MDE-101
MDE-331

MAM1

MDE-101

These VHF marine antennas are designed specifically for the VHF international maritime bands and seaphone frequencies. The ground independent design allows great mounting flexibility in the marine environment.

The antennas are housed within a fibreglass radome with the radiating element tightly sealed to provide protection from the corrosive marine environment.

The MDE Series deck mount antennas mount on an MAM1 marine mount which can be adjusted through 180° in both planes allowing great mounting flexibility. The MDE101 is a unity gain antenna measuring 1.3m high and is ideal for mounting on a flybridge, above obstructions or on smaller vessels.

The MDE331 antenna is a 3 dB gain antenna measuring 2.7m high. The MDE331 is ideal when mounting on the lower deck where it provides the extra height needed to elevate the radome section above flybridges and other obstructions. It is also useful in applications requiring a deck mounted high gain antenna.

- Unity or 3 dB gain versions
- Performance - Ground independent design allows for mounting in virtually any location
- MAM1 marine mount allows flexibility in mounting attitude
- Rugged - Designed specifically for the marine environment

Electrical

Model No.	MDE-101	MDE-331
Gain	Unity over a ¼ wave	3dB over a ¼ wave
Frequency *MHz*	156 - 162	
Power *W*	25	
Tuned Bandwidth	Entire specified band @ <1.8:1 VSWR	
Tuning	Supplied pre-tuned	

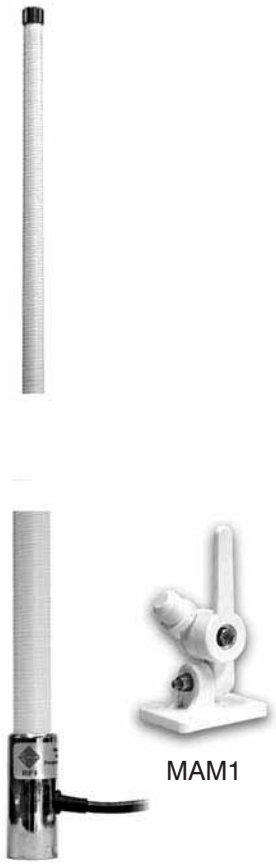
Mechanical

Model No.	MDE-101	MDE-331
Whip Material	White fibreglass radome	
Whip Length *mm*	1300	2700
Mounting	MAM1 marine mount (supplied)	
Cable and Connector	3.6m RG58 cable. No connector supplied.	

Cellular Marine Deck Mount

824-960 MHz

MDD-203
MDG-203



MDG-203

The MDD and MDG Marine antennas are high gain omnidirectional antennas designed specifically for marine applications. The antennas do not require a ground plane and are supplied with a MAM1 marine antenna mount which allows the antenna to be mounted vertically regardless of the mounting surface which is used.

The high gain (3 dB) radiating element is enclosed in a white fibreglass radome. The radiating element has been placed near the top of the radome to ensure maximum range and to maintain omnidirectivity by keeping the antenna well above obstructions or occupants of the vessel.

To minimise connection and cable losses the MDD and MDG are supplied with 10.0 metres of 9006 low loss cable which is pre-terminated to ensure the integrity of this vital connection. The antenna is supplied complete with adapters to allow connection to almost any cellular phone car kit even by inexperienced installers.

The MDD and MDG offer superior performance, maximum range and the ultimate in reliability for marine applications.

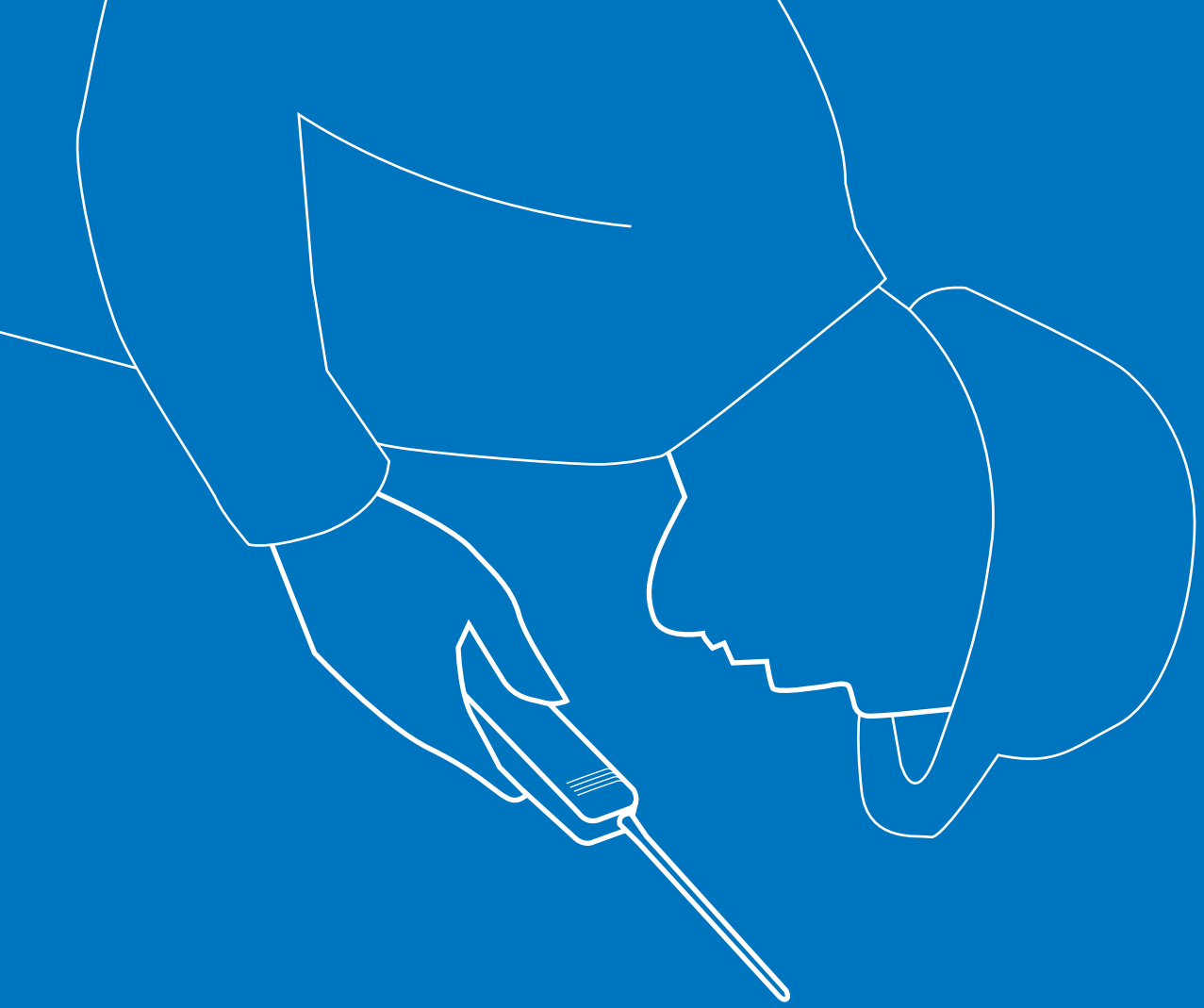
- MAM1 Marine Mount allows for 180° adjustability
- Rugged design specifically for harsh marine environments
- Flexible construction from heavy duty fibreglass
- Retail ready packaging with pre-terminated feeder for use by inexperienced installers

Electrical

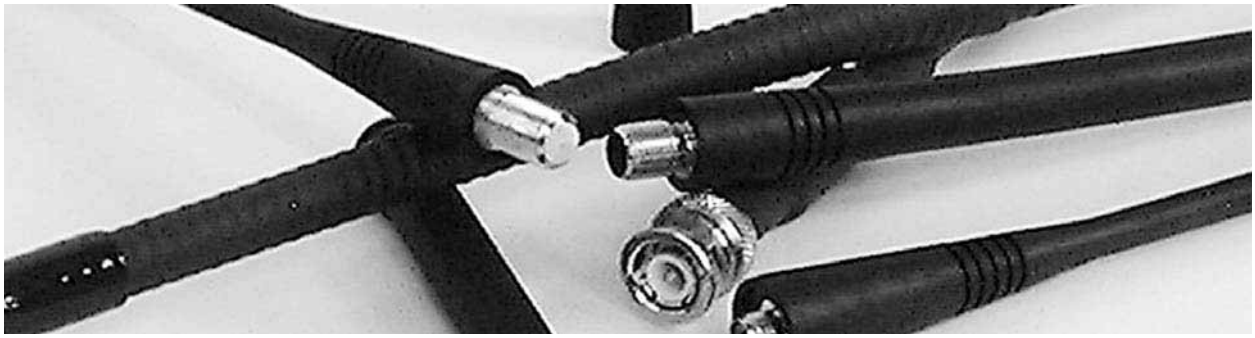
Model No.	MDD-203	MDG-203
Gain	3dB over a ¼ wave	
Frequency *MHz*	824 - 896	890 - 960
Power *W*	10	
Tuned Bandwidth	Entire specified band @ <1.5:1	
Tuning	Supplied pre-tuned	

Mechanical

Model No.	MDD-203	MDG-203
Whip Material	Flexible white fibreglass radome	
Whip Length *mm*	1500	
Mounting	MAM1 marine mount (supplied)	
Cable and Connector	10m Cellfoil® fitted with FME connector. Mini UHF and TNC adapters included.	



hand portable antennas



Typical Data for a ¼ Wave Whip Antenna

RFI offer an extensive range of hand portable antennas for PMR, SMR and trunking applications. The majority of common connector options are catered to in a variety of different formats. The range of antennas is offered in an ideal form for workshop use with most models being tuneable in the field over an extended range of frequencies using the tuning chart provided. This results in reduced inventories and allows dealers to carry antennas "off the shelf" to be tuned to customer specified frequencies as required.

Each individual band is served by a separate series including:

HPCB Series

A tightly compressed helical ¼ wave antenna, shrink coated. Flexible only in the upper 200mm, L.O.A. approximately 400mm. The antennas are supplied pre-tuned for the 27 MHz citizen band, have a narrow bandwidth (approximately 200 KHz) and are not suited for fine tuning.

HPM Series

A fully flexible heatshrink coated helical antenna. L.O.A. is approximately 400mm at its lowest frequency and the antenna can be tuned using the supplied tuning chart over the band 66-88 MHz. Tuned bandwidth is approximately 3% of centre frequency.

HPH Series

A flexible helical antenna which is fully injection moulded for maximum durability. L.O.A. is approximately 250mm at its lowest frequency and the antenna can be tuned over the range 140-250 MHz using the tuning chart supplied. Tuned bandwidth is approximately 3%.

HPHS Series

A flexible, highly compressed helical which is fully injection moulded for maximum durablity. L.O.A. is approximately 200mm at the lowest frequency and the antenna can be tuned over the range 118-175 MHz using the tuning chart supplied. Tuned bandwidth is approximately 3%.

HPU Series

These are full ¼ wave antennas for maximum performance, fully injection moulded for maximum durability. L.O.A. is approximately 200mm at the lowest frequency and the antenna can be tuned over the range 380 - 1000 MHz using the supplied tuning chart. The antenna covers UHF, 800 MHz, and Tetra applications in a single antenna. Tuned bandwidth is approximately 7%.

HPUS Series

These are flexible helically loaded ¼ wave antennas which are fully injection moulded for maximum durability. L.O.A. is approximately 175mm and the antenna can be tuned over the range 260 - 800 MHz, covering Tetra and UHF applications. Tuned bandwidth is approximately 6%.

CRD Series

These half wave dipole antennas are available only with BNC or TNC terminations and offer a true high performance UHF antenna in hand held applications. The dipole element is enclosed in a flexible PVC tubing and the antennas can be trimmed using the enclosed tuning chart over the specified band. Tuned bandwidth is approximately 2% of centre frequency.

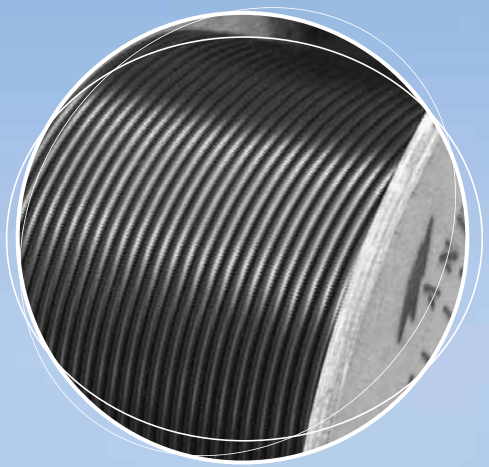
Hand Portable Antennas

			
MX Thread	BNC Male	TNC Male Overmoulded	UHF Male
			
SM SMA Male	SF Motorola SMA female flush dielectric	SFU Universal SMA female recessed dielectric	KR Series

Portable radio antenna reference chart

Band	HPCB Series	HPM Series	HPHS Series	High Band *Helical*	HPU Series *¼ Wave*	HPUS Series *Helical*	CRD Series *Dipoles*
Frequency *MHz*	27	66-88	118-175	140-250	380-1000	260-800	400-520
Tuning Specifications	Pre-Tuned	Tune with chart	Tune with chart	Tune with chart	Tune with chart	Tune with chart	Tune with chart
BNC Plug	HPCB-BNC	HPM-BNC-28	HPHS-BNC-33	HPH-BNC-37	HPU-BNC-67	HPUS-BNC-67	CRD-BNC-65 CRD-BNC-68
TNC Plug	-	-	HPHS-TNC-33	HPH-TNC-37	HPU-TNC-67	HPUS-TNC-67	CRD-TNC-68
UHF Plug	HPCB-UHF	HPM-UHF-28	-	-	-	-	-
MX Thread	-	-	-	-	HPU-MX-67	HPUS-MX-67	-
Bendix King	-	-	-	-	-	HPUS-KR-67	-
Universal (SFU Version Recessed dielectric)	-	-	-	-	HPU-SFU-67	HPUS-SFU-67	-
Motorola SMA Female (SF Version Flush dielectric)	-	HPM-SF-28	-	-	HPU-SF-67	HPUS-SF-67	-
SMA Male	-	-	HPHS-SM-33	-	HPU-SM-67	HPUS-SM-67	-

Note: Normal "stocked" configurations shown. Other formats and terminations are also available. Contact your nearest sales office for configurations not shown. (Minimum order quantities may apply on some items.)



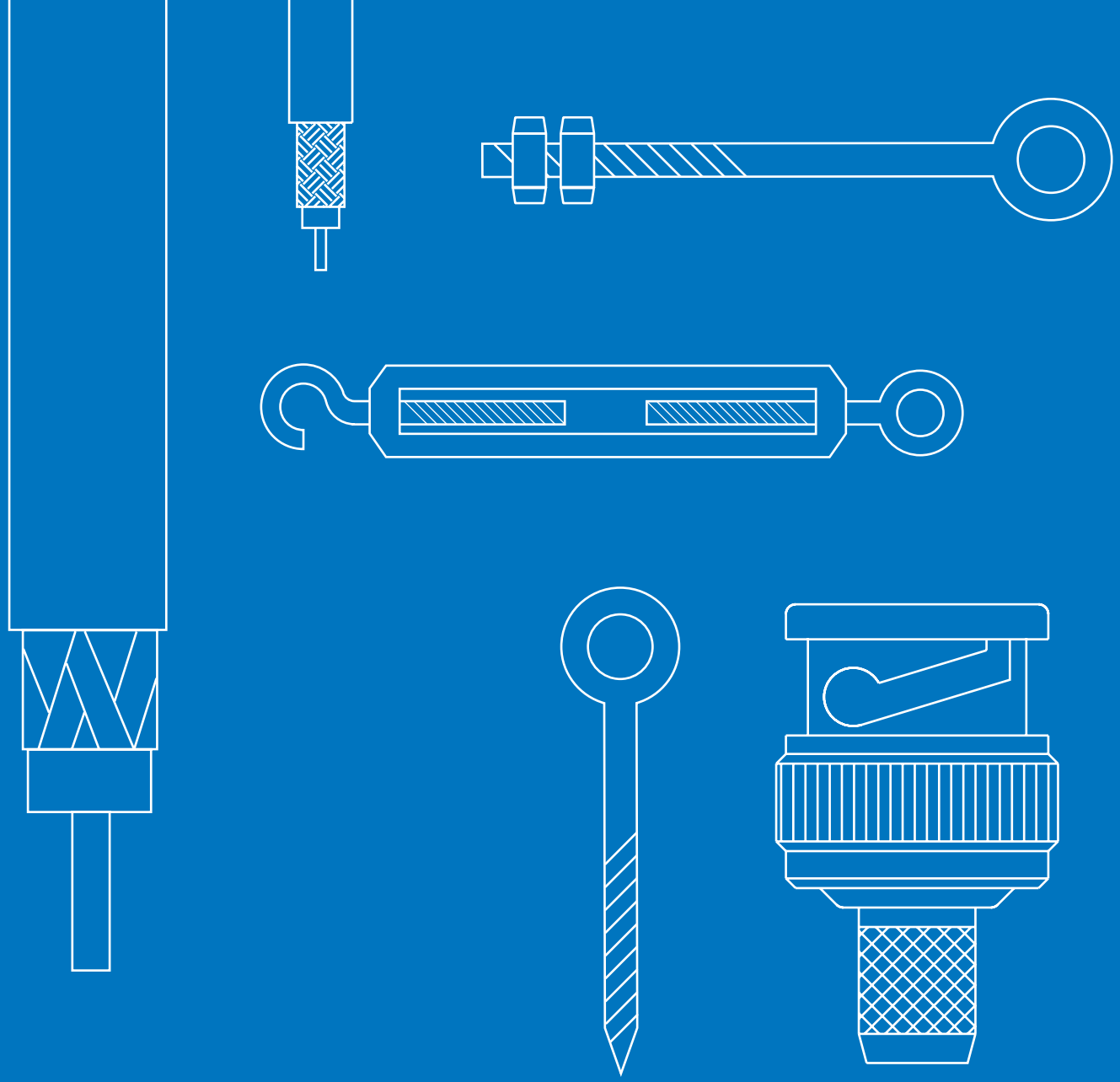
All of the ANDREW® cable you'll ever need is available at RFI

HELIAX® is the Andrew brand name that stands for the most complete, cost effective, high performance coaxial cable systems in the world. In land mobile, broadcast, cellular, HF, earth station, terrestrial microwave and many other applications, HELIAX® coaxial cable products are the industry standard of excellence. These outstanding cables are complemented by a range of compatible connectors, hangers, grounding systems and other installation accessories that form a complete RF transmission line system.

With our comprehensive stockholding and experienced sales team, RFI offers:

- **Complete Product range**
- **One Stop Shopping**
- **Fast Delivery**

So call us today for all your Andrew infrastructure requirements



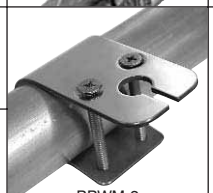
accessories

Mopole™ Accessories

Options for all Mopole™ antennas

Antenna Series Whip	Replacement	Other
CD17-XX-50	TSW150	MBC base available with or without 5.0m of RG58C/U cable
CD28-XX-50	TSW125	
CD50-XX-50		
CD28-XX-70		Base coil can be re-cabled in the field
CD50-XX-70		
CD51-XX-70	Replacement whip not available	
CD91 Series CD91-65 CD91-70 CD91-71 CD91-72	SW23 SW24 SW25 SW26	Choke section not sold separately. Choke can be recabled in the field using RG58 size cables including RG58C/U, CellFoam® or CellFoil® low noise foam cable
CD93 Series CD93-65 CD93-70 CD93-71 CD93-72	CSW23 CSW24 CSW25 CSW26	Choke section not sold separately. Choke can be recabled in the field using RG58 size cables including RG58C/U, CellFoam® or CellFoil® low noise foam cable
CD94 Series CD94-65 CD94-70 CD94-71 CD94-72	CSW13 CSW14 CSW15 CSW16	Choke section not sold separately. Choke can be recabled in the field using RG58 size cables including RG58C/U, CellFoam® or CellFoil® low noise foam cable
CD920 Series CD930 Series	MSW25	

Mounting Options for all Mopole™ antennas

Part. No.	Illustration	Description
GM7		Fibreglass reinforced plastic adjustable vehicle gutter mount. Attaches to gutter using a philips screwdriver.
GM2		Heavy duty cast aluminium adjustable gutter mount. Attaches to vehicle gutter using allen key (provided) and includes buffer plate.
TLM Series		Trunk Lip Mount Series brackets made of stainless steel. (TLM-6 shown)
TLM-1	Heavy duty "L" shaped bracket for use with larger antennas such as CD93.	
TLM-2	Heavy duty extra lip "Z" shaped bracket for use with larger antennas such as CD93.	
TLM-3	Standard "L" shaped bracket	
TLM-4	Standard extra lip "Z" bracket	
TLM-5	Identical to TLM-3 except black	
TLM-6	Identical to TLM-4 except black	
TLM-7	Standard "Z" shaped bracket with compensation angle (for use on tightly raked trunk lids)	
BK850		A black stainless steel bonnet or boot mount. Mounts directly to the bonnet or boot lid.
WM1		Slimline window mount allows ground independent antennas to be mounted on vehicles without gutters. Attaches using double sided tape and is angle adjustable with the use of an allen key.
MM2		Heavy duty mirror mount allows any mobile antenna to be mounted on a truck style mirror, roof rack or bull bar.
SK950 SK954 SK953		Heavy duty springs to suit CD90 Series antennas. SK950 - Parallel spring SK954 "Bellied" spring Both of stainless steel with plated-brass fittings SK953 black chrome equivalent to SK954
BBM-1		Black powder coated bull bar bracket for mounting mobile antennas onto vehicle bull bars. Comes complete with s/s hose clamp.
BBM-2		Polished stainless steel bull bar bracket for mounting mobile antennas onto vehicle bull bars. Comes complete with s/s hose clamp.
BBWM-1 BBWM-2	 BBWM-2	Polished wrap around stainless steel bull bar bracket with 6mm cable slot for ease of antenna mounting. BBWM-1 = 50mm BBWM-2 = 45mm

Part No.	Description	
MBC		Coaxial base providing an internal, permanent connection in a sealed unit. Easy to install and allows the entire antenna to be removed and replaced at will. Available with or without cable.
MBC-00-50F		MBC base with mini (RG174)lead. Allows feeder to be run through door jam or boot lid without crushing.
MB3		Magnetic style base, allows antennas to be transferred from car to car with ease. Complete with 5.0m of RG58 cable.
MK-850		Magnetic base for CD90 Series, CD1225 and CD1625 antennas. Rubber boot prevents magnet from scratching vehicle paint work. Cable exits via mounting turning.
MB9		VHF mobile base mounts either through the roof or on a bracket. Easy to terminate. 19mm hole required for blind hole mounting, Available with or without cable.
MB10		UHF mobile base mounts on a bracket or through the roof. A popular model measuring only 30mm diameter. 20mm hole required for blind hole mounting. Available with or without cable.
MB12		UHF mobile base mounts on a bracket or through the roof, measures 40mm in diameter. 20mm hole required for blind hole mounting. Available with or without cable.
MB14		Mobile base suitable for frequencies up to 2GHz. It delivers a precisely controlled termination resulting in a superb match. 19mm hole required for blind mounting. Only available with 5.0m of 8058 or 9001 cable pre-terminated.

Part No.	Description	
MSF1		Lightweight spring, fits any standard mobile antenna with 5/16 " thread. Allows flexibility for low clearance such as car parks or overhanging trees.
BAF2		Black ball adjuster to swivel the antenna so the correct vertical angle can be gained when the antenna base is on a slope. Easy to adjust and tighten.
KAV385		Re-installation kit for glass mount II, III, IV antennas
KAV382		Re-installation kit for glass mount antennas
KG880		Re-installation kit for E-glass antennas
KG2000		Re-installation kit for ITG-2000
KG4000		Re-installation kit for ITG-4000
KG5000		Re-installation kit for ITG-5000 series.

DC to DC Voltage Converters

Unitek DC/DC Converters

SDC08

A complete line of high quality switch mode DC to DC converters in compact housings. These high efficiency converters are suitable for applications requiring a stable output and low energy consumption, such as radio and navigation equipment.

- The SDC 20 and SDC 30 can also be used as a 13.8Vdc battery charger enabling the charging of a 12V starter or accessory battery from a 24V system.
- The IDC-charger 12-24V can be used to charge a 24V battery from a 12V system, isolated. The output voltage of this model can be adjusted with a potentiometer.

Non isolated Converters

Models	SDC05	SDC08	SDC12	SDC20	SDC30	STEP7	STEP10
Input voltage range *V*	18-35	18-35	20-35	20-35	20-35	9-18	9-18
Output voltage *V*	13.2	13.2	13.2	13.8	13.8	24	24
Max. output current *A*	5.5	8	12	20	30	7	10
Fan assisted cooling (temp. controlled)	no	no	no	no	yes	no	no
Galvanic isolation	no	no	no	no	no	no	no
Off load current *mA*	< 5	< 5	< 5	appr.25	appr.25	< 15	< 15
Temperature increase after 30 minutes at full load	30°C	20°C	30°C	25°C	33°C	30°C	30°C
Weight *kg*	0.17	0.25	0.26	0.48	0.6	0.3	0.4
Dimensions *H x W x D in mm*	49x88x68	49x88x98	49x88x98	49x88x126	49x88x151	49x88x98	49x88x126

Isolated Converters

Models	IDC 100W	IDC 200W	IDC 360W
Power rating *W*	100	200	360
Galvanic isolation	yes	yes	yes
Temperature increase after 30 minutes at full load	25°C	30°C	30°C
Fan assisted cooling (temp. controlled)	no	yes	yes
Weight *kg*	0.5	0.6	1.4
Dimensions *H x W x D in mm*	49 x 88 x 152	49 x 88 x 182	64 x 163 x 160
Input voltage *V*	A (9-18) B (20-35)	C (30-60)	D (60-120) See note (1)
Output voltage *V*	12.5 or 24		

Common Characteristics

Output voltage stability %	2% (STEP7 and STEP10: +0% / -5%)
Output noise *mV*	<50 rms
Off load current *mA*	<25 (isolated converters)
Efficiency %	Non isolated: appr. 92% Isolated: appr. 85%
Isolation *Vrms*	>400 between input, output and case (isolated products only)
Operating temperature *°C*	-20 to +30. Derate linearly to 0A at 70°C
Humidity %	Max 95% non condensing
Casework	Anodised aluminium
Connections	6.3mm push-on flat blade connectors
Protection: Overcurrent Overheating Reverse polarity conn. Overvoltage	Short circuit proof Reduction of output voltage Fuse and reverse connected diode across input Varistor (also protects against load dump)
Standards: Emissions Immunity Automotive directive	EN 50081-1 EN 50082-1 95/45/EC

(1) When ordering 9 - 18 volt model specify suffix -A
When ordering 20 - 35 volt model specify suffix -B
When ordering 30 - 60 volt model specify suffix -C
When ordering 60 - 120 volt model specify suffix -D

Batteryguard

The Unitek universal programmable batteryguard (BG) prevents excessive battery discharge and protects electric appliances against overvoltage.

Two models are available, 25A (BG 30) and 60A (BG 60). The mosfet switch is capable of carrying either 25A or 60A continuous load, and up to 40A or 80A transient load.

- Fully programmable with jumpers, the Batteryguard can be set to engage/disengage at several different voltages.
- Overvoltage protection - load disconnected when DC voltage exceeds 16V or 32V.
- Ignition proof - No relay but MOSFET switches, and therefore no sparks.
- Alarm output - The alarm output is activated if the battery voltage drops below the preset disconnect level for more than 15 seconds. Starting the engine or genset will therefore not activate the alarm. The alarm output is an open collector output to the negative (minus) rail, max. current 500mA. The alarm is typically used to activate a buzzer and/or lamp.
- Load disconnect - 1 minute after the alarm has been activated the load will be disconnected, but if the battery voltage increases to the connect threshold within this minute (after the engine/genset has been started for example) the load will not be disconnected.

Batteryguard

BG30

Models	BG30	BG60
Maximum continuous load current	25A	60A
Operating voltage range	6 - 35V	
Current consumption	<7mA	
Alarm output delay	15 seconds	
Load disconnect delay	1 minute	
Casework	Anodised aluminium, black	
Weight kg *lbs*	0.2 (0.5)	0.2 (0.5)
Dimensions *H x W x D in mm* *H x W x D in inches*	49 x 88 x 68 2.0 x 3.5 x 2.7	80 x 60 x 40 3.2 x 2.4 x 1.6

DC to DC Voltage Converters

24V DC to 12V DC Converters

VC2412-3

RFI's VC Series 24V-12V DC converters have been designed specifically for mobile applications in the communications industry. The VC Series converters incorporate excellent protection features, including overload, short circuit and voltage surge protection.

All units employ a linear output design with over-voltage protection. This is provided in conjunction with a high power relay which is triggered in milliseconds to interrupt supply. The converters utilise an advanced ridged pattern heatsink extrusion, allowing the units to operate at lower temperatures than previously designed converters.

- Over-Voltage Protection - Converters utilise a crowbar protective device to shut down the unit in 35 milliseconds with a high power relay which resets when power supply is interrupted. This eliminates the need to open the converter to replace blown internal fuses
- Overload Safeguard - Units automatically foldback the output to less than one half of the peak output rating and return to normal operation when the overload is corrected
- Cooler Operation - Heatsink extrusions are based on a ridged pattern which substantially increases heat dissipation capacity and improves reliability
- Clear Communications - Low ripple, low noise circuitry to minimise radio interference
- Linear Output Stage - Unit uses 2N3055 transistors for reliability
- Designed and manufactured in Australia

HIGH POWER RELAY MEANS NO MORE BLOWN FUSES

Models		VC2412-3	VC2412-6	VC2412-10	VC2412-15	VC2412-20
Input voltage *Vdc*		22 (Min), 30 (Max)				
Output voltage *Vdc*		13.5				
Peak Rating *A*		3	6	10	15	20
Continuous rating *A*		3	4.3	7	10.5	14
Dimensions *mm*	Length	130	130	155	220	290
	Width	Footprint 95 Body 80	Footprint 140 Body 115		Footprint 140 Body 115	
	Height	38	60		60	
Applications		Cellular phones	CB and UHF CB radios, cellular phones	Synthesised mobile radios to 25 watts	Synthesised mobile radios to 25 watts	HF radios
Operating Temperature		-30°C to 50°C				

Base Station Power Supply & Battery Charger

240V Power Supplies

The SME240 series power supplies have been designed specifically for telecommunications applications demanding high reliability, low noise, fully automatic battery backup, battery protection and full protection of the output. Ideal in remote sites, they can be used completely unattended. With a host of protection features, the units are safe and reliable in any application.

The SME240-12-10 & SME 240-24-5 power supplies provide a power output of 140 watts at 13.6 and 27.2V respectively. The nominal input mains maybe 200V to 240V and 50Hz or 60Hz.

SME240-12-10

- Low noise output, ideal for telecommunications applications
- Lighter and more compact than comparable linear power supplies
- Battery overdischarge protection with automatic reset
- Mains failure and battery reverse polarity alarm output
- Convenient plug in output connector
- 5 year warranty
- Local technical support
- C-Tick approved (EMI/EMC)

Model No.	SME240-12-10	SME240-12-5
Input Voltage *Vac (Hz)*	200-240	
Output Voltage *V adjustable*	12.0 - 14.0	24.0 - 28.0
Output Ripple Voltage *mVp-p*	<20	<20
Output Current *A*	10.0	5.0
Over Voltage Protection *V*	<16.0	<32.0
Load Regulation 1	±2% from set point taking into account all of line and load regulation and temperature coefficient when load powered by power supply	
Load Regulation 2	+0-2% of battery terminal voltage when load powered by battery	
Alarm Relay Contact Rating	Normally closed contact 60V @ 0.2A	
Operating Environment	0-50°C Ambient. Convection cooled	
Efficiency	90% Typical	
Weight *kg*	<1.0	
Compliance	AS3260, AS3548, ACA, EMC compliance, C-Tick Mark	

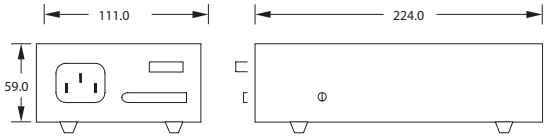


Figure 1 – Overall Dimensions

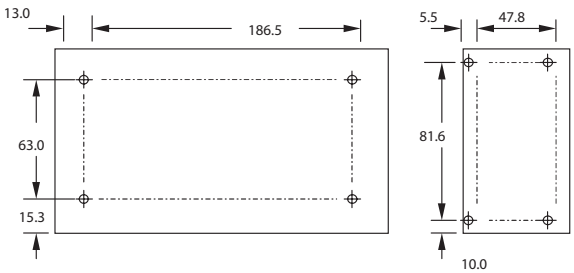
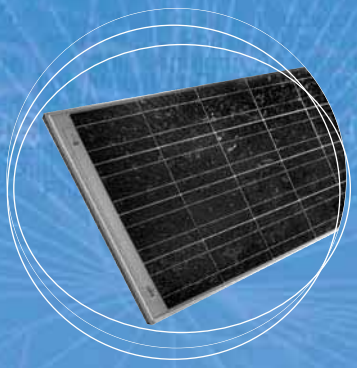
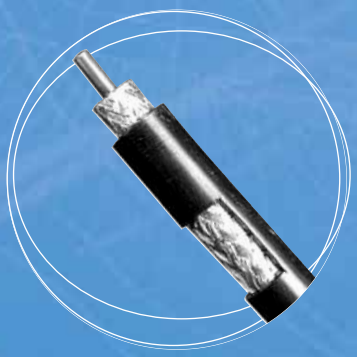
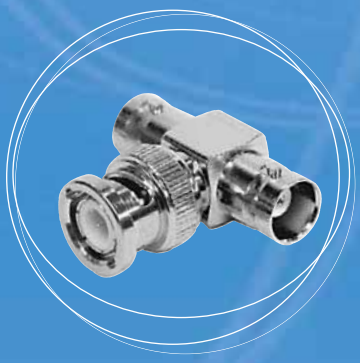


Figure 2 – Mounting Points







RFI DISTRIBUTED LINES

For more than 25 years RFI has served the needs of the wireless communications market. RFI has grown to be not only a world class manufacturer of antennas but also a leading distributor of over 6000 wireless products from around the globe.

We have formed alliances with “best of breed” wireless technology companies around the world. So, whatever your network: land mobile, cellular, paging, telemetry, telematics, WLAN, we are able to provide components from antenna port to air interface.

In renewable energy we are fast gaining the reputation as the industry’s benchmark distributor. Extensive stockholdings, competitive pricing, comprehensive range and an extensive dealer network all contribute to this reputation for service.

- ▷ Extensive product range
- ▷ Competitive pricing
- ▷ Fast delivery
- ▷ Technical advice

Pulse

bp solar Distributor

SYMMETRY

TX RX SYSTEMS INC.

steca

Panasonic

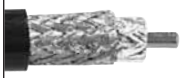
PolyPhaser CORPORATION

ANDREW®

50 Ohm Braided Coaxial Cables

Cable Type	RFI Part No.	Jacket O.D. *mm*	Construction					Impedance *Ohms*	Nominal Velocity %	Type of Jacket
			Dielectric	Centre Conductor	Shield					
					No.	Type	Coverage			
 RG178 B/U	**8178**	1.8	Solid PTFE	7 x SCCPS 0.1mm	1	SC Braid	96%	50	69	Tinted Brown FEP
 RG174/U	**8174**	2.79	Solid Polyethylene	7 x CCS 0.16mm	1	TC Braid	88%	50	66	Black PVC Non Contaminating UV stabilised
 RG58 Type	**9014**	4.62	Cellular Polyethylene (Foam)	22 x TC 0.98mm	2	TC Braid & Al foil	100%	50	80	Black Non Contaminating PVC
 RG58 C/U	**8058**	4.9	Solid Polyethylene	19 x TC 0.98mm	1	TC Braid	89%	50	66	Black PVC Non Contaminating UV stabilised
 RG58 CellFoam®	**9001**	4.9	Cellular Polyethylene (Foam)	19 x TC 0.2mm	1	TC Braid	96%	50	76	Black PVC Non Contaminating UV stabilised
 RG58 CellFoil®	**9006**	5.1	Cellular Polyethylene (Foam)	1 x BC 0.94mm	2	TC Braid & Al foil	100%	50	80	Black PVC Non Contaminating UV stabilised
 RG142 B/U	**8142**	4.95	Solid PTFE	1 x SCCPS 0.88mm	2	SC Braids	98%	50	70	Tinted Brown FEP
 RG142 Style	**9142**	4.95	Solid PTFE	19 x SC 0.98mm	2	SC Braids	98%	50	70	Black Polyethylene UV stabilised
 RG400	**8400**	4.95	Solid PTFE	19 x SC 0.98mm	2	SC Braids	98%	50	70	Tinted Brown FEP
 RG223/U	**8223**	5.4	Solid Polyethylene	1 x SC 0.91mm	2	SC Braids	98%	50	66	Black PVC Non Contaminating UV stabilised

50 Ohm Braided Coaxial Cables

Cable Type	RFI Part No.	Jacket O.D. *mm*	Construction					Impedance *Ohms*	Nominal Velocity %	Type of Jacket
			Dielectric	Centre Conductor	Shield					
					No.	Type	Coverage			
 RG213	**8213**	10.3	Solid Polyethylene	7 x BC 2.75mm	1	BC Braid	96%	50	66	Black PVC Non Contaminating UV stabilised
 RG8 Style	**CNT400**	10.3	Foam Polyethylene	1 x CCA 2.75mm	2	Al Foil TC Braid	100%	50	87	Black Polyethylene UV stabilised
 RG214/U	**8214**	10.8	Solid Polyethylene	7 x SC 2.26mm	2	SC Braids	98%	50	66	Black PVC Non Contaminating UV stabilised
 10DFB Style	**9005**	13.0	Cellular Polyethylene (Foam)	1 x BC 3.5mm	2	TC Braid & Al foil on plastic tape	100%	50	80	Black Polyethylene UV stabilised

Cable Type	RFI Part No.	Jacket O.D. *mm*	Construction					Impedance *Ohms*	Nominal Velocity %	Type of Jacket
			Dielectric	Centre Conductor	Shield					
					No.	Type	Coverage			
RG179	**8179**	2.54	Solid PTFE	7 x SC 0.03mm	1	SC Braid	95%	75	69.5	Tinted Brown FEP
 RG59B/U	**8059**	6.15	Solid Polyethylene	1 x CCS 0.57mm	1	BC Braid	95%	75	66	Black PVC Non Contaminating UV stabilised
 RG59B/U	**9008**	6.15	Solid Polyethylene	1 x CCS 0.57mm	1	BC Braid	95%	75	66	Black Polyethylene UV stabilised
 RG62A/U	**8062**	6.15	Polyethylene Helix Spiral	1 x CCS 0.64mm	1	BC Braid	93%	93	84	Black PVC Non Contaminating UV stabilised
 RG11A/U	**8011**	10.3	Solid Polyethylene	7 x BC 0.4mm	1	BC Braid	96%	75	66	Black PVC Non Contaminating UV stabilised
 RG11/U	**9011**	10.3	Foam Polyethylene	1 x BC 1.62mm	1	BC Braid	97%	75	84	Black Polyethylene UV stabilised

Corrugated Heliax® Coaxial Cables

Cable Type	Jacket O.D. *mm*	Construction					Impedance *Ohms*	Nominal Velocity %	Type of Jacket
		Dielectric	Centre Conductor	Shield					
				No.	Type	Coverage			
 FSJ1-50 Heliax®	7.4	Cellular Polyethylene (Foam)	1 x CCA 1.9mm	1	Corrugated Solid BC	100%	50	84	Black Polyethylene UV stabilised
 FSJ2-50 Heliax®	10.5	Cellular Polyethylene (Foam)	1 x CCA 2.8mm	1	Corrugated Solid BC	100%	50	83	Black Polyethylene UV stabilised
 FSJ4-50 Heliax®	13.2	Cellular Polyethylene (Foam)	1 x CCA 3.6mm	1	Corrugated Solid BC	100%	50	81	Black Polyethylene UV stabilised
 LDF1-50 Heliax®	8.8	Low Density Polyethylene (Foam)	1 x CCA 2.6mm	1	Corrugated Solid BC	100%	50	86	Black Polyethylene UV stabilised
 LDF2-50 Heliax®	11.2	Low Density Polyethylene (Foam)	1 x CCA 3.1mm	1	Corrugated Solid BC	100%	50	88	Black Polyethylene UV stabilised
 LDF4-50A Heliax®	15.9	Low Density Polyethylene (Foam)	1 x CCA 4.6mm	1	Corrugated Solid BC	100%	50	88	Black Polyethylene UV stabilised
 VXL5-50 Heliax®	27.5	Low Density Polyethylene (Foam)	1 x CCA 9.4mm	1	Corrugated Solid BC	100%	50	88	Black Polyethylene
 LDF5-50A Heliax®	28.0	Low Density Polyethylene (Foam)	1 x BC (Hollow) 9.0mm	1	Corrugated Solid BC	100%	50	88	Black Polyethylene UV stabilised
 LDF6-50 Heliax®	39.4	Low Density Polyethylene (Foam)	1 x BC (Hollow) 13.1mm	1	Corrugated Solid BC	100%	50	89	Black Polyethylene UV stabilised
 LDF7-50 Heliax®	50.1	Low Density Polyethylene (Foam)	1 x BC (Hollow) 17.3mm	1	Corrugated Solid BC	100%	50	88	Black Polyethylene UV stabilised
 RXL4-1A Heliax®	19.0	Low Density Polyethylene (Foam)	1 x CCA 4.6MM	1	SlottedBC	Not defined	50	88	Black Polyethylene
 AVA5-50 Heliax®	28.0	Low Density Polyethylene (Foam)	1 x BC (Hollow) 9.45mm	1	Corrugated Solid BC	100%	50	91	Black Polyethylene UV stabilised
 BR-400	10.29	Low Density Polyethylene (Foam)	1 x CCA 2.95mm	1	Corrugated Spiral Alluminium	100%	50	84	Black Polyethylene UV stabilised

BC	-	Bare Copper
TC	-	Tinned Copper
SC	-	Silver Coated Copper
CCS	-	Copper Clad Steel
CCA	-	Copper Clad Aluminium
SCCPS	-	Silver Coated Copper Clad Steel

Coaxial Cable Attenuation Chart

Nominal attenuation of 30.5 metres (100ft)

Cable Type	RFI Part Number	70-85 MHz	148-174 MHz	400-520 MHz	806-960 MHz	2.4-2.45 GHz	5.8-5.85 GHz
RG178B/U	8178	12.4 dB	17.0 dB	30.4 dB	40.8 dB	–	–
RG179	8179	9.2 dB	11.5 dB	17.0 dB	22.3 dB	–	–
RG174/U	8174	7.8 dB	10.8 dB	19.2 dB	26.9 dB	–	–
RG58C/U	8058	4.6 dB	7.1 dB	13.5 dB	18.2 dB	–	–
CELLFOAM™	9001	4.1 dB	5.6 dB	9.8 dB	13.2 dB	–	–
CELLFOIL™	9006	2.8 dB	4.2 dB	6.9 dB	9.0 dB	–	–
RG142B/U	8142	3.3 dB	4.9 dB	8.9 dB	12.0 dB	–	–
RG223/U	8223	4.2 dB	5.7 dB	10.0 dB	13.7 dB	–	–
RG59B/U	8059	3.1 dB	4.9 dB	9.0 dB	13.2 dB	–	–
RG62A/U	8062	2.3 dB	3.4 dB	5.9 dB	8.0 dB	–	–
RG11/U	8011	1.8 dB	2.5 dB	4.8 dB	6.6 dB	–	–
RG213/U	8213	2.0 dB	2.6 dB	5.0 dB	7.4 dB	–	–
RG214/U	8214	1.9 dB	2.6 dB	5.0 dB	7.4 dB	–	–
10D-FB Type	9005	0.9 dB	1.2 dB	2.4 dB	3.1 dB	–	–
RG8 Type	CNT-400	1.2 dB	1.7 dB	3.1 dB	4.5 dB	7.0 dB	10.6dB
1/4" Superflex	FSJ1-50	1.3 dB	2.2 dB	4.2 dB	5.6 dB	9.9 dB	15.8dB
3/8" Superflex	FSJ2-50	1.1 dB	1.5 dB	2.8 dB	3.8 dB	6.9 dB	10.9dB
1/2" Superflex	FSJ4-50	0.8 dB	1.3 dB	2.4 dB	3.4 dB	5.9 dB	10.2dB
1/4" HELIAX®	LDF1-50	1.1 dB	1.5 dB	2.7 dB	3.6 dB	5.8 dB	11.2dB
3/8" HELIAX®	LDF2-50	0.9 dB	1.3 dB	2.3 dB	3.3 dB	5.7 dB	9.5dB
1/2" HELIAX®	LDF4-50	0.6 dB	0.8 dB	1.6 dB	2.2 dB	3.7 dB	5.9dB
7/8" HELIAX®	VXL5-50	0.3 dB	0.5 dB	0.9 dB	1.3 dB	2.3 dB	–
7/8" HELIAX®	AVA5-50	0.3 dB	0.4 dB	0.8 dB	1.1 dB	2.0 dB	–
7/8" HELIAX®	LDF5-50	0.3 dB	0.4 dB	0.9 dB	1.2 dB	2.1 dB	–
1¼" HELIAX®	LDF6-50	0.2 dB	0.3 dB	0.6 dB	0.9 dB	1.6 dB	–
1⅝" HELIAX®	LDF7-50	0.2 dB	0.3 dB	0.5 dB	0.7 dB	1.4 dB	–

DC Power Cables

DC Power Cables

Cat. No.	Description	Roll Size *m*	Area of Conductor *mm²*	Conductor No./Diameter *mm*
3T-30	3mm Twin Fig 8	30	1.13	16/0.3
3T-100	3mm Twin Fig 8	100	1.13	16/0.3
4T-30	4mm Twin Fig 8	30	1.84	26/0.3
4T-100	4mm Twin Fig 8	100	1.84	26/0.3
5S-30	5mm Single (Red or Black)	30	2.90	41/0.3
5S-100	5mm Single (Red or Black)	100	2.90	41/0.3
6S-30	6mm Single (Red or Black)	30	4.59	65/0.3
6S-100	6mm Single (Red or Black)	100	4.59	65/0.3
3DS-100	3mm Twin Double Sheath	100	1.13	16/0.3
4DS-30	4mm Twin Double Sheath	30	1.84	26/0.3
4DS-100	4mm Twin Double Sheath	100	1.84	26/0.3
5DS-30	5mm Twin Double Sheath	30	2.90	41/0.3
5DS-100	5mm Twin Double Sheath	100	2.90	41/0.3
6DS-30	6mm Twin Double Sheath	30	4.59	65/0.3
6DS-100	6mm Twin Double Sheath	100	4.59	65/0.3
FPC6B-100	6mm Sq Single Core Black	100	6.00	192/0.2
FPC6R-100	6mm Sq Single Core Red	100	6.00	192/0.2
FPC10B-100	10mm Sq Single Core Black	100	10.00	322/0.2
FPC10R-100	10mm Sq Single Core Red	100	10.00	322/0.2

Speaker Cables

Cat. No.	Description	Roll Size *m*	Conductor Description *mm*
SPK-14	Light Duty Fig 8	100	14/0.14
SPK-24	Heavy Duty Fig 8	100	24/0.2

4T-100

6DS-100

FPC10R-100

SPK-24

BNC Series

Model. No.	Description	Cable Type	Centre Conductor	Crimp Set* or Tool
Cable Plugs				
BNC-04	Clamp	RG58, 9001, 9006	Solder	-
BNC-07	Clamp	RG59	Solder	-
BNC-09	Clamp	RG213	Solder, captive	-
BNC-97	Crimp	RG59	Crimp, captive	B
BNC-113	Crimp	RG58, 9001, 9006	Crimp, captive	A
BNC-113RG	Crimp	RG58, 9001, 9006	Crimp, captive	A
BNC-174	Crimp	RG174	Crimp, captive	E
BNC-223	Crimp	RG223, RG142	Crimp, captive	A
BNC-239	Right angle crimp	RG58, 9001, 9006	Crimp, captive	A
FIPBM-C	Clamp	FSJ1-50	Captive	-
Cable Jacks				
BNC-86	Crimp	RG58, 9001, 9006	Crimp, captive	A
BNC-87	Crimp	RG59	Crimp, captive	B
Panel Mount Jacks				**Mounting size and direction**
BNC-27	Flange mount (four holes)	Solder Pot	Solder captive	11.5mm (front), 8.5 (rear)
BNC-33	Bulkhead mount	Solder Pot	Solder captive	9.7mm (front)
BNC-88	Bulkhead mount	RG58, R9001, 9006	Crimp, captive	13mm (rear) A - crimp set
Adaptors				
BNC-41	F-F barrel			
BNC-49	M-F Right angle adaptor			
BNC-51	M-M barrel			
BNC-54	M-F-F Tee adaptor			
BNC-80	F-F-F Tee adaptor			

* See Pages 165-167 for Crimp Tools Matrix
** All listed BNC connectors feature the standard 50 Ohm interface dimensions. 75 Ohm interface dimensional connectors and an expanded range of other BNC connectors are available. Contact your nearest sales office for details.


BNC-04


BNC-27


BNC-33


BNC-41


BNC-51


BNC-54


BNC-86


BNC-88


BNC-97


BNC-174

N Series

Model. No.	Description	Cable Type	Centre Conductor	Crimp Set* or Tool
Cable Plugs				
N-07	Clamp - Silver plated	RG213	Solder, captive	-
N-15	Clamp - Nickel	RG58, 9001, 9006	Solder, captive	-
N-41	Right angle clamp	RG58, 9001, 9006	Solder, captive	-
N-87	Crimp silver plated	RG142, RG223	Crimp, captive	A
N-88	Crimp - Nickel	RG58, 9001, 9006	Crimp, captive	A
N-89	Crimp - Silver plated	RG58, 9001, 9006	Crimp, captive	A
N-95	Right angle crimp	RG58	Crimp, captive	A
N-114	Crimp - Nickel	RG213	Crimp, captive	C
N-119P	Crimp - Nickel plated	RG214	Crimp, captive	D
N-201	Crimp white bronze plated	CNT400, LMR400	Spring finger	D
N-203	Crimp Nickel plated	CNT400, LMR400	Spring finger	D
N-205	Crimp Nickel plated	CNT400, LMR400	Solder, captive	D
N-223	Crimp - Nickel plated	RG142, RG223	Crimp, captive	A
N-258	Right angle clamp	RG213, RG214	Solder, captive	-
N-284	Crimp	RG214	Crimp, captive	D
NP-10DFB	Clamp - Nickel	9005	Solder	-
L4PNM-RC	Ringflare	LDF4-50, RXL4-50	Captive, spring finger	Easiax Plus
L4PNR-HC	Right angle clamp, Self-Flare	LDF4-50, RXL4-50	Captive, spring finger	Easiax
L5PNM-RPC	Onepiece, Ring flare	LDF5-50	Captive, spring finger	Easiax Plus
L6PNM-RPC	Onepiece, Ring flare	LDF6-50	Captive, spring finger	Easiax Plus
L7PNM-RPC	Onepiece, Ring flare	LDF7-50	Captive, spring finger	Easiax Plus
F1PNM-HC	Hex Head, Self-Flare	FSJ1-50	Captive, spring finger	Easiax
F2PNM-HC	Hex Head, Self-Flare	FSJ2-50	Captive, spring finger	Easiax
F4NMV2-HC	Hex Head, Crush-Flare	FSJ4-50	Captive, spring finger	Easiax Plus
BR400PNM-TC	Crimp Silver Plated	BR-400	Spring Finger	D
CNT-400 Plugs				
400PNM-H-CR	Crimp Tri Metal Plated Hex	CNT-400, LMR-400	Solder	D
400PNM-HC-CR	Crimp Tri Metal Plated Hex	CNT-400, LMR-400	Spring Finger	D

* See Pages 165-167 for Crimp Tools Matrix


N-07


N-15


N-203


N-41


N-284


N-88

N Series

Model. No.	Description	Cable Type	Centre Conductor	Crimp Set* or Tool
Cable Jacks				
N-28	Clamp - Nickel	RG213, RG214	Solder, captive	-
N-30	Clamp - Nickel	RG58, 9001, 9006	Solder, captive	-
N-96	Crimp - Silver plated	RG142, RG223	Crimp, captive	A
N-98	Crimp - Silver plated	RG58, 9001, 9006	Crimp, captive	A
N-118	Crimp - Nickel	RG213	Crimp, captive	C
N-200	Crimp, White Bronze plated	CNT400, LMR400	Spring finger	D
N-202	Crimp, Nickel plated	CNT400, LMR400	Spring finger	D
N-204	Crimp, Nickel plated	CNT400, LMR400	Solder, captive	D
N-210	Crimp, Silver plated	RG59	Crimp, captive	B
L4PNF-RC	Ring Flare	LDF4-50, RXL4-50	Captive, spring finger	Easiax Plus
L5PNF-RPC	One Piece Ring Flare	LDF5-50	Captive, spring finger	Easiax Plus
L6PNF-RPC	One Piece Ring Flare	LDF6-50	Captive, spring finger	Easiax Plus
L7PNF-RPC	One Piece Ring Flare	LDF7-50	Captive, spring finger	Easiax Plus
F4PNF-C	Clamp, Self Flare	FSJ4-50	Captive, spring finger	Easiax
BR400PNF-TC	Crimp, Silver plated	BR-400	Spring Finger	D
BR400BHNF-TC	Crimp, Silver plated B/H	BR-400	Spring Finger	D
CNT-400 Jacks				
400PNF-C-CR	Crimp Tri Metal Plated	CNT-400, LMR-400	Spring Finger	D
400PNF-BHC	Clamp Tri Metal Plated B/H	CNT-400, LMR-400	Spring Finger	-
Panel Mount Jacks				**Mounting size and direction**
N-09P	Flange Mount, nickle plated		Solder pot, captive	11mm (front) 16mm (rear)
N-12	Bulkhead mount		Solder pot, captive	13mm (front)
N-20	Bulkhead mount, silver plated		Solder pot, captive	13mm (front)
N-38	Cable mounted, bulkhead, RG213		Solder pot, captive	16mm (front) 13.5mm across flat
N-120	Flange mount, silver plated		Solder pot, captive	16mm (front) 15mm (rear)
N-213	Cable mounted flange, nickle plated RG213		Crimp, captive	18mm (front) 16mm (rear)
N-237	Cable mounted flange, nickle plated RG58		Solder, captive	13mm (front) 16mm (rear)
N-288	Cable mounted bulkhead nickel plated RG58, 9001, 9006		Crimp, captive	16mm (rear) 13.7mm across flats
Adaptors				
N-10	F-F barrel			
N-46P	F-F bulkhead feed through			
N-48	F-F-F Tee adaptor			
N-49	M-F-F Tee adaptor			
N-243	M-M barrel, Nickel plated			
N-245	M-F Right angle adaptor, nickel plated			

* See Pages 165-167 for Crimp Tools Matrix

** All listed N connectors feature the standard 50 Ohm interface dimensions. 75 Ohm interface dimensional connectors and an expanded range of other N connectors are available. Contact your nearest sales office for details.

N-118

N-30

N-204

N-288

N-28

ANDREW

7-16 DIN Series

Model. No.	Description	Cable Type	Centre Conductor	Crimp Set* or Tool
Plugs				
400PDM	Clamp Tri Metal Plated	CNT-400, LMR-400	Solder	BCPT-3400
BR400PDM-TC	Crimp Silver Plated	BR-400	Captive, Spring finger	RCT-214
F4PDMV2-C	Self Flare	FSJ4-50	Captive, Spring finger	MCPT-1412
F4PDR-C	Right Angle Self Flare	FSJ4-50	Captive, Spring finger	MCPT-1412
L4PDM-RC	Ringflare	LDF4-50	Captive, Spring finger	MCPT-L4
L5PDM-RPC	Self Flare	LDF5-50	Captive, Spring finger	MCPT-78
V5PDM-RPC	Ringflare	VXL5-50	Captive, Spring finger	MCPT-78
A5TDM-PS	Ringflare, Positive Stop	AVA5-50	Captive, Spring finger	MCPT-78
L6PDM-RPC	Ringflare	LDF6-50	Captive, Spring finger	CPTL6
L7PDM-RPC	Ringflare	LDF7-50	Captive, Spring finger	CPTL7
CH-716P	Combi Head Sucoplate	Requires CEC-142 or CEC-214	Captive, Spring finger	-
Jacks				
400PDF	Clamp Tri Metal Plated	CNT-400, LMR-400	Solder	BCPT-3400
BR400PDF-TC	Crimp Silver Plated	BR-400	Captive, Spring finger	RCT-214
F4PDF-C	Self Flare	FSJ4-50	Captive, Spring finger	MCPT-1412
L4PDF-RC	Ringflare	LDF4-50	Captive, Spring finger	MCPT-L4
L5PDF-RPC	Self Flare	LDF5-50	Captive, Spring finger	MCPT-78
V5PDF-RPC	Ringflare	VXL5-50	Captive, Spring finger	MCPT-78
A5TDF-PS	Ringflare, Positive Stop	AVA5-50	Captive, Spring finger	MCPT-78
L6PDF-RPC	Ringflare	LDF6-50	Captive, Spring finger	CPTL6
L7PDF-RPC	Ringflare	LDF7-50	Captive, Spring finger	CPTL7
CH-716J	Combi Head Sucoplate	Requires CEC-142 or CEC-214	Captive, Spring finger	-
Adapters				
CEC-142	Crimp used with Combi Head	RG142	Captive	D
CEC-214	Crimp used with Combi Head	RG214	Captive	D

* See Pages 165-167 for Crimp Tools Matrix

L5PDM-RPC

L4PDF-RC

UHF Series

Model. No.	Description	Cable Type	Centre Conductor	Crimp Set* or Tool
Cable Plugs				
UHF-21	Clamp - Silver plated	RG58, 9001, 9006	Solder	-
UHF-44	Crimp - Nickel	RG58, 9001, 9006	Crimp, captive	A
UHF-66	Clamp - Right-angle plug	RG58	Solder, captive	-
UHF-104	Twist on nickel	RG58, 9001, 9006	Crimp, captive	A
UHF-119	Crimp - Nickel	RG58, 9001, 9006	Crimp, captive	A
UHF-204	Screw thread nickel	RG58, 9001, 9006	Solder, captive	-
UHF-45	Crimp - Nickel	RG59	Crimp, captive	B
UHF-46	Crimp - Nickel	RG213	Crimp, captive	C
UHF-27	Twist on - Nickel	RG213, RG214	Solder	-
UHF-04	Clamp - Silver plated	RG213, RG214	Solder, captive	-
MP10FB	Solder - Nickel plated	9005, 10DFB	Solder	-
44ASP	Solder, Tab flare	FSJ4-50	Solder	-
L44P	Solder, Self-Flare	LDF4-50, RXL4-50	Solder	-

* See Pages 165-167 for Crimp Tools Matrix

UHF connectors are non-constant impedance connectors suited for use at frequencies not exceeding 600 MHz. However, to ensure maximum performance at higher frequencies all UHF Series male connectors feature a high strength PTFE dielectric with the exception of the “CB style” connectors UHF-104, UHF-204 and UHF-27.


UHF-04


UHF-21


UHF-27


UHF-44


UHF-46


UHF-66


UHF-104


UHF-204


MP10FB

UHF Series

Model. No.	Description	Cable Type	Centre Conductor	
Cable Jacks				
UHF-42P	Solder - Nickel plated	RG58, 9001, 9006	Solder	
UHF-36	Solder - Nickel plated	RG213, RG214	Solder	
44ASU	Solder, Tab flare	FSJ4-50	Solder	
L44U	Solder - Self-Flare	LDF4-50, RXL4-50	Solder	
Panel Mount Jacks				**Mounting size and direction**
UHF-67	Flange Mount	RG58	Clamp	9.5mm (front)
UHF-28	Bulkhead - Nickel plated		Solder pot	12.5mm (front)
UHF-60	Flange Mount - Nickel plated		Solder pot	15mm (front) 16mm (rear)
UHF-117	Bulkhead - Nickel plated		Solder pot	16mm (front)
Adaptors				
UHF-14	Double female barrel			
UHF-15	Double female bulkhead - Nickel plated			
UHF-32	T-Adaptor (2 female) - Nickel plated			
UHF-116	Double male barrel - Nickel plated			
UHF-16	90 degree, male/female - Nickel plated			

UHF connectors are non-constant impedance connectors suited for use at frequencies not exceeding 600 MHz. However, to ensure maximum performance at higher frequencies all UHF Series female connectors feature a high strength PTFE dielectric with the exception of the “CB style” UHF-15, UHF-32 and UHF-60.


L44U


UHF-14


UHF-15


UHF-16


UHF-36


UHF-42P


UHF-67


UHF-116

TNC Series

Model. No.	Description	Cable Type	Centre Conductor	Crimp Set* or Tool
Cable Plugs				
TNC-01	Solder - Nickel plated	RG58, 9001, 9006	Solder	-
TNC-26	Crimp - Nickel plated	RG58, 9001, 9006	Crimp, captive	A
TNC-26RG	***Reverse gender*** - Nickel plated	RG58, 9001, 9006	Crimp	A
TNC-26RT	Reverse thread - Nickel plated	RG58, 9001, 9006	Crimp	A
TNC-223	Crimp - Nickel plated	RG223	Crimp, captive	A
TNC-207	Crimp - Nickel plated	CNT-400	Solder	D
TNC-207RG	***Reverse gender*** crimp - Nickel plated	CNT-400	Solder	D
BR400PTM-C	Clamp - Silver plated	BR-400	Spring Finger, captive	D
Cable Jacks				
TNC-86	Crimp - Nickel plated	RG58, 9001, 9006	Crimp, captive	A
TNC-86RG	***Reverse gender*** crimp - Nickel plated	RG58, 9001, 9006	Crimp, captive	A
TNC-206RG	Crimp - Nickel plated	CNT-400	Solder	-
Panel Mount Jacks				**Mounting size and direction**
TNC-33	Bulkhead - Nickel plated		Solder pot, captive	9.5mm (rear)
TNC-88	Cable mount, bulkhead - Nickel plated	RG58, 9001, 9006	Crimp, captive	13mm (front) A crimp set
Adaptors				
TNC-11	Double female barrel - Nickel plated			
TNC-15	90 degree male/female - Nickel plated			
TNC-42	Double female bulkhead - Nickel plated			

* See Pages 165-167 for Crimp Tools Matrix


TNC-01


TNC-26


TNC-26RG


TNC-26RT


TNC-33


TNC-88


TNC-206RG


TNC-207RG


TNC-223

Miscellaneous Connectors

Model. No.	Description	Cable Type	Centre Conductor	Crimp Set*
Cable Plugs				
FME-150	FME Crimp - Nickel plated	RG174, RG316, RG179	Crimp, captive	E
MCX-02	MCX Crimp - Gold plated	RG174, RG316, RG179	Solder	E
MMCX-01	MMCX Crimp - Gold plated	RG174, RG316, RG179	Solder	E
MMCX-02	MMCX Crimp - Gold plated	RG174, RG316, RG179	Crimp	E
SMA-174	SMA Crimp - Gold plated	RG174, RG316, RG179	Crimp	E
BL-734P	Belling Lee Solder, claw type - Nickel plated	RG58, 9001, 9006	Clamp	-
FME-116	FME Plug to Plug adaptor - Nickel plated	RG58, 9001, 9006	Captive	-
FME-120	FME Nipple, crimp, male - Nickel plated	RG58, 9001, 9006	Crimp	A
MPL-604	Mini UHF crimp - Nickel plated	RG58, 9001, 9006	Crimp, captive	A
MPL-605	Mini UHF crimp - Black chrome	RG58, 9001, 9006	Crimp, captive	A
SMA-40	SMA Crimp black - Chrome	RG58, 9001, 9006	Crimp	A
SMA-104	SMA Crimp, Pulse - Nickel plated	RG58, 9001, 9006	Crimp	A (centre - 1.09mm)
SMA-104KN	SMA Knurled nut interface - Black chrome	RG58, 9001, 9006	Crimp	A (centre - 1.09mm)
SMA-104RG	SMA ***Reverse gender*** - Nickel plated	RG58, 9001, 9006	Crimp	A (centre - 1.09mm)
SMA-104RT	SMA Reverse thread - Gold plated	RG58, 9001, 9006	Crimp	A (centre - 1.09mm)
Cable Jacks				
FME-140	FME Crimp - Nickel plated	RG174, RG316, RG179	Crimp, captive	E
MMCX-03	MMCX Crimp - Gold plated	RG174, RG316, RG179	Solder	E
FME-101	FME Crimp - Nickel plated	RG58, 9001, 9006	Crimp	A
MPL-86	Mini UHF - Nickel plated	RG58, 9001, 9006	Crimp	A
SMA-186	SMA Crimp - Gold plated	RG58, 9001, 9006	Crimp	A (centre - 1.09mm)
Panel Mount Jacks				
SMA-05	SMA Bulkhead - Gold plated	-	Solder pot	6.4mm (front)
SMA-06	SMA Cable mount bulkhead - Gold plated	RG174, RG316, RG179	Crimp	6.4mm (rear)
SMA-07	SMA Cable mount bulkhead - Gold plated	RG58, 9001, 9006	Crimp	6.4mm (rear)

*See Pages 165-167 for Crimp Tools Matrix


BL-734P


FME-101


FME-150


MMCX-03


MPL-604


SMA-06


SMA-104


SMA-104RG


SMA-174


SMA-186

AK-30 COAXIAL ADAPTOR KIT

The AK-30 coaxial kit allows virtually any test adaptor to be made up in seconds. Includes UHF, Mini-UHF, TNC, BNC, N and SMA male and female fittings.

Jumper Cables

Coaxial Jumper Cables

Model No.	Description	Cable Type
92-12NMNM-X	Cable Lead N Plug to N plug	LDF4-50
92-12NMNF-X	Cable Lead N Plug to N jack	LDF4-50
92-12NFNF-X	Cable Lead N Jack to N jack	LDF4-50
92-12DMDM-X	Cable Lead 7-16 DIN Plug to 7-16 DIN Plug	LDF4-50
92-12DMDF-X	Cable Lead 7-16 DIN Plug to 7-16 DIN Jack	LDF4-50
92-12DFDF-X	Cable Lead 7-16 DIN Jack to 7-16 DIN Jack	LDF4-50
92-13NMNM-X	Cable Lead N Plug to N plug	FSJ4-50
92-13NMNF-X	Cable Lead N Plug to N jack	FSJ4-50
92-13NFNF-X	Cable Lead N Jack to N jack	FSJ4-50
92-13DMDM-X	Cable Lead 7-16 DIN Plug to 7-16 DIN Plug	FSJ4-50
92-13DMDF-X	Cable Lead 7-16 DIN Plug to 7-16 DIN Jack	FSJ4-50
92-13DFDF-X	Cable Lead 7-16 DIN Jack to 7-16 DIN Jack	FSJ4-50
92-09NMNM-X	Cable Lead N Plug to N plug	CNT-400
92-09NMNF-X	Cable Lead N Plug to N jack	CNT-400
92-09NFNF-X	Cable Lead N Jack to N jack	CNT-400
92-09DMDM-X	Cable Lead 7-16 DIN Plug to 7-16 DIN Plug	CNT-400
92-09DMDF-X	Cable Lead 7-16 DIN Plug to 7-16 DIN Jack	CNT-400
92-09DFDF-X	Cable Lead 7-16 DIN Jack to 7-16 DIN Jack	CNT-400
92-23NMNM-X	Cable Lead N Plug to N plug	BR-400
92-23NMNF-X	Cable Lead N Plug to N jack	BR-400
92-23NFNF-X	Cable Lead N Jack to N jack	BR-400
92-23DMDM-X	Cable Lead 7-16 DIN Plug to 7-16 DIN Plug	BR-400
92-23DMDF-X	Cable Lead 7-16 DIN Plug to 7-16 DIN Jack	BR-400
92-23DFDF-X	Cable Lead 7-16 DIN Jack to 7-16 DIN Jack	BR-400
92-04NMNM-X	Cable Lead N Plug to N plug	RG214
92-04NMNF-X	Cable Lead N Plug to N jack	RG214
92-04NFNF-X	Cable Lead N Jack to N jack	RG214
92-04DMDM-X	Cable Lead 7-16 DIN Plug to 7-16 DIN Plug	RG214
92-04DMDF-X	Cable Lead 7-16 DIN Plug to 7-16 DIN Jack	RG214
92-04DFDF-X	Cable Lead 7-16 DIN Jack to 7-16 DIN Jack	RG214

Note 1: X denotes cable lead length in metres

Note 2: Other cable types available; LDF1-50, FSJ1-50, RG213, RG58, RG400, RG223. Minimum order quantities may apply.

Coaxial Crimp Tools

Part No.	Description	Illustration
RCT5859	Swedish manufactured ratchet style crimp tool to suit: • **RG58** • **RG223** • **RG400** • **RG142** • **RG59** Crimp Set A + B fitted	 RCT5859
RCT-213	Ratchet style crimp tool for RG213 connectors. Comfort Grip handles. Swedish manufacture. Crimp Set C fitted	 RCT-213
RCT-214	Ratchet style crimp tool to suit RG214 and RG63 connectors. Comfort Grip handles. Swedish manufacture. Crimp Set D fitted	 RCT-214
RCT-174	Ratchet style crimp tool to suit RG174, RG316, and RG179 connectors. Comfort Grip handles. Swedish manufacture. Crimp Set E fitted	 RCT-174
RCT-301G	Multi purpose tool includes 1.09mm jaw for SMA centre pin crimps and suits: • **RG58** • **RG59** • **RG179** • **RG174** • **RG316**	 RCT-301G
RCT-330K	Crimp tool with interchangeable jaws for cables from RG214 down to RG174. Comes packaged in a robust plastic case with cable cutter, stripper and screwdriver.	 RCT-330K

Cable Preparation Tools

Part No.	Description	Illustration
BR-CPT-400	**Cable prep tool** Hand tool for fast and easy preparation of BR-400 cable. Strips jacket and cuts through outer shield and dielectric making cable ready for connector attachment. Incorporates deburring blade to prepare centre conductor.	 BR-CPT-400
CST-399	**Coaxial cable stripping tool -** *Corex 2* 3 blade cutter. Adjustable blade height, reversable blade cartridge. Swedish precision tool to suit: • **RG58** • **RG59** • **RG62** • **RG174** • **RG188** • **RG316** • **RG6** • **RG195** • **RG180**	 CST-399
CST-213	**Coaxial cable stripping tool -** *Maxi Corex* 3 blade cutter. Adjustable blade height, reversable blade cartridge. Packaged in robust plastic case and comes complete with knife and adjustment tool. Swedish precision tool to suit: • **RG213** • **RG214** • **RG6** • **Twinax & Ethernet cables**	 CST-213
EASIAX®	**Cable prep tool** Hand tool for fast precision cuts in Heliax® cables. Available for: • **FSJ1 and 4 (MCPT-1412)** • **FSJ2 and 4 (MCPT-3812)** • **LDF4 and RXL4 (MCPT-L4)** • **LDF5 and RXL5 (MCPT-78)**	 MCPT-L4
EASIAX® Plus	**Automated cable prep tool** Fit to a standard power or battery drill for fast, reliable cable preparation in seconds. Removes jacket outer conducter and foam, then cuts back and chamfers the inner conductor for correct connector attachment. Available for cables from LDF1-50 through to LDF7-50. • **LDF1-50 (CPTL1)** • **LDF2-50 (CPT-E2L2N)** • **LDF4-50 (CPT-L4ARC1)** • **LDF5-50 (CPTL5A)** • **LDF6-50 (CPTL6)** • **LDF7-50 (CPTL7)**	 CPT-L4ARC1

Cutting and Stripping Tools and Accessories

Part No.	Description	Illustration
ACT-1	Ratchet crimp tool for insulated terminals. Incorporates 3 crimping positions for pre-insulated terminals (red, blue and yellow terminals)	 ACT-1
CST-001	Cable stripping tool for 32 to 8 AWG wires. Adjustable length stop, integrated cable cutter, strips single or twin wires. Swedish precision tool.	 CST-001

Crimp Tool Dimensions

Crimp Set	Hex Dimensions (Outer Conductor)	Hex/Square Dimensions (Centre Conductor)	Typical Cable Sizes Using Crimp Set
A	5.41	1.69	RG58, 9001, 9006, RG142, RG223, RG400
B	6.48	1.69	RG59, RG62
C	10.54	2.54	RG213
D	10.9	2.54	RG214, RG63
E	3.25	0.72	RG174, RG63, RG179

Cross Reference to Crimp Dies

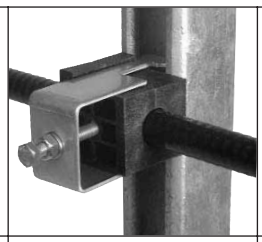
Cable Type	ERMA Crimp Code	Hex *mm*	Hex *inch*	Centre Crimp *mm*	Centre Crimp *inch*	Length *mm*	RFI Ref	RCT-330K
RG58C/U	HFD	5.41	0.213	1.69	0.067	8	RCT-5859	A or G
RG59C/U	XH	6.48	0.255	1.69	0.067	8	RCT-5859	A or G
RG62A/U	XH	6.48	0.255	1.69	0.067	8	RCT-5859	A or G
RG63B/U	HIA	10.9	0.429	2.54	0.100	10	RCT-214	K
RG142B/U	HFD	5.41	0.213	1.69	0.067	8	RCT-5859	A or G
RG174A/U	XCF	3.25	0.128	0.72	0.028	8	RCT-174	J outer only
RG178B/U	XB	2.67	0.105	0.72	0.028	8	RCT-174	J outer only
RG179B/U	XCF	3.25	0.128	0.72	0.028	8	RCT-174	J outer only
RG213/U	HIA	10.54	0.415	2.54	0.100	10	RCT-213	K
RG214/U	HIA	10.9	0.429	2.54	0.100	10	RCT-214	K
RG223/U	HFD	5.41	0.213	1.69	0.067	8	RCT-5859	A or G
RG316/U	XCF	3.25	0.128	0.72	0.028	8	RCT-174	J outer only
RG400/U	HFD	5.41	0.213	1.69	0.067	8	RCT-5859	A or G

Cable Clamps

Item	Part No.	Description
KwikClamp	***Ideal for installing multiple runs (1, 2 or 3) on towers where space is limited. Self clamping hangers eliminate the need for drilling or adapters.***	
	L4CLAMP-RDN-1	Multi-run hanger, self clamp (1 run) suits LDF4-50
	L4CLAMP-RDN-2	Multi-run hanger, self clamp (2 runs) suits LDF4-50
	L5CLAMP-RDN-1	Multi-run hanger, self clamp (1 run) suits LDF5-50
	L5CLAMP-RDN-2	Multi-run hanger, self clamp (2 runs) suits LDF5-50
	L6CLAMP-RDN-1	Multi-run hanger, self clamp (1 run) suits LDF6-50
	L6CLAMP-RDN-2	Multi-run hanger, self clamp (2 runs) suits LDF6-50
	L7CLAMP-RDN-1	Multi-run hanger, self clamp (1 run) suits LDF7-50
	L7CLAMP-RDN-2	Multi-run hanger, self clamp (2 runs) suits LDF7-50
Angle Adapter Kits	***Ideal for mounting standard hangers and Click-On hangers to angle tower members up to 22mm thick***	
	31768A	Suits all sizes of hangers. (pack of 10)
	UA-3	Suits snap in hangers. (pack of 10)
Galvanised Angle Adapter Kits	247763	Galvanised and non-marring. For mounting ½" to 2¼" cable to angle tower members up to 19mm thick
Compact Angle Adapter Kits	***Compact, lightweight angle adapter suitable for use with single runs up to 2-¼" in diameter.***	
	243684-M	Suits all sizes of cables, including FSJ and LDF series (pack of 10)
Cold Shrink Weatherproofing	***Simply slips over the connection and compressess around the interface using a pull tab applicator***	
	241474-4	Suits ½" to ½" N connectors
	241474-5	Suits ⅞" to ⅞" N connectors
Feed Thru Glands	FTN-4	Nylon, suits ½" cable including LDF4-50
	FTB-4	Brass, suits ½" cable including LDF4-50
	40656A-3	Neoprene gasket, suits ½" cable including LDF4-50
	FTN-5	Nylon, suits ⅞" cable including LDF5-50
	FTB-5	Brass, suits ⅞" cable including LDF5-50
	40656A-1	Neoprene gasket, suits ⅞" cable including LDF5-50
	40656A-5	Neoprene gasket, suits 1¼" cable including LDF6-50
	40656A-2	Neoprene gasket, suits 1⅝" cable including LDF7-50
Hoisting Grip	43094	Suits LDF4-50 cable
	19256B	Suits LDF5-50 cable
	29961	Suits LDF5-60 cable
	24312A	Suits LDF7-50 cable

FTB-4 Feed Thru Gland

43094 Hoisting Grip



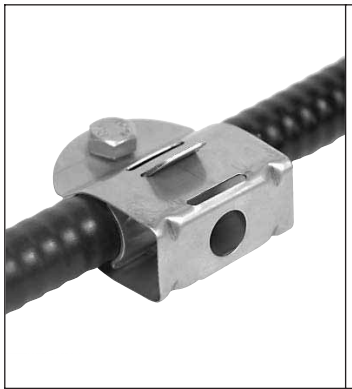
L4CLAMP

37168A Angle Adapter Kit

243684-M Compact Angle Adapter Kit

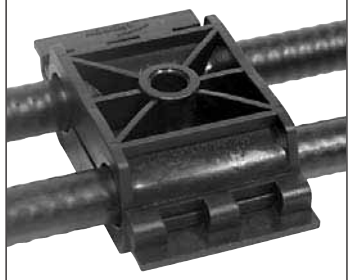
Grounding and Hanger Kits

Item	Part No.	Description
Universal Grounding Kit	UG1215-06B1	Universal grounding kit for ½" - 1⅝" cable
Sure Ground™ Grounding Kits	SGL4-06B2	SureGround™ grounding kit with standard weatherproofing butyl rubber sealing tape, 2 hole lug for ½" cable - LDF4-50
	SGL5-06B2	SureGround™ grounding kit with standard weatherproofing butyl rubber sealing tape, 2 hole lug for ⅞" cable - LDF5-50
	SGPL5-06B2	SureGround™ Plus grounding kit with weatherproofing rubber boot , 2 hole lug for ⅞" cable - LDF5-50
	SGL6-06B2	SureGround™ grounding kit with standard weatherproofing butyl rubber sealing tape, 2 hole lug for 1¼" cable - LDF6-50
	SGL7-06B2	SureGround™ grounding kit with standard weatherproofing butyl rubber sealing tape, 2 hole lug for 1⅝" cable - LDF7-50
	SGPL7-06B2	SureGround™ Plus grounding kit with weatherproofing rubber boot, 2 hole lug for 1⅝" cable - LDF7-50
Hanger Kits	43211A	Standard Hanger Kit for ½" cable including, LDF4-50 (pack of 10)
	42396A-5	Standard Hanger Kit for ⅞" cable including, LDF5-50 (pack of 10)
	42396A-1	Standard Hanger Kit for 1¼" cable including, LDF6-50 (pack of 10)
	42396A-2	Standard Hanger Kit for 1⅝" cable including, LDF7-50 (pack of 10)
Click-On Hangers	***Stackable Click-on hangers install in minutes and provide perfect fit, especially in confined spaces***	
	L4CLICK	Click-On hanger kit for ½" cable, including LDF4-50 (pack of 10)
	L5CLICK	Click-On hanger kit for ⅞" cable, including LDF5-50 (pack of 10)
	L6CLICK	Click-On hanger kit for 1¼" cable, including LDF6-50 (pack of 10)
	L7CLICK	Click-On hanger kit for 1⅝" cable, including LDF7-50 (pack of 10)
Snap-In Hangers	***Stackable Click-on hangers install in minutes and provide perfect fit, especially in confined spaces***	
	SSH-12	Snap-In hanger kit for ½" cable LDF4-50 (pack of 10)
	SSH-78	Snap-In hanger kit for ⅞" cable LDF5-50 (pack of 10)
	SSH-114	Snap-In hanger kit for 1¼" cable LDF6-50 (pack of 10)
	SSH-158	Snap-In hanger kit for 1⅝" cable LDF7-50 (pack of 10)



43211A

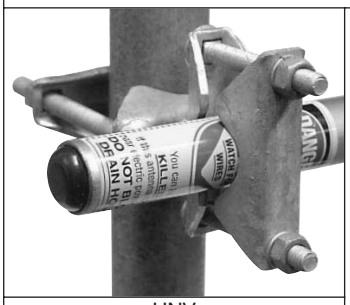
SureGround™ Grounding Kit



L4CLICK

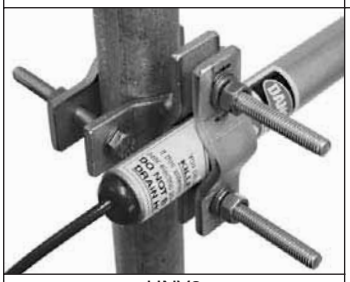
Antenna Clamps

UNV Series



UNV

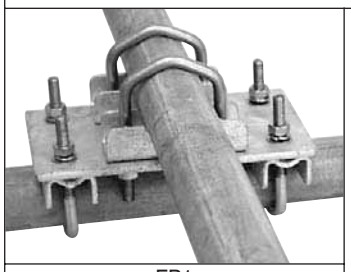
Lightweight right angle galvanised clamp. See the table below for mounting applications.



UNV2

Lightweight right angle stainless steel clamp. See the table below for mounting applications.

FP Series



FP1

The Flat Plate Series are lightweight galvanised clamps with stainless steel U-bolts for mounting in 90° or in-line applications. See the table below for mounting applications.

UB Series

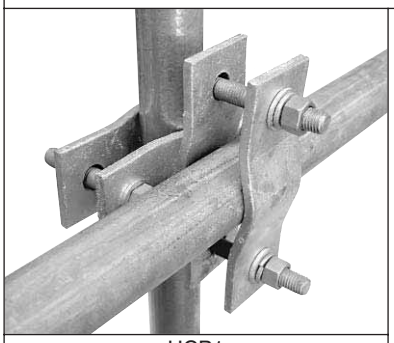
UB1

The UB1 antenna clamps are simple U-Bolt assemblies with “teeth”, around the inside of locating plates to prevent the antenna from slipping or shifting once mounted. Two separate clamps illustrated. See the table below for suggested mounting applications.

Stainless steel U-Bolt assemblies also available: UB2

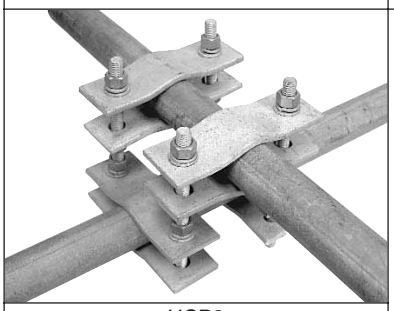
CLAMPS	UB1	UB2	UNV	UNV2	FP-1	FP-2
Weight per clamp *kg*	0.21	0.19	0.41	0.48	1.5	1.5
Body Finish	Zinc plated	Stainless Steel	Galvanised	Stainless Steel	Galvanised	Galvanised
Fastener Finish	Zinc plated	Stainless Steel	Galvanised	Stainless Steel	Stainless Steel	Stainless Steel
Min. boom size *mm*	25	25	20	20	25	Min. sq boom size 19 Min. boom size 30
Max. boom size *mm*	52	52	52	52	50	50
Application	In-line mounting small collinear and ground plane antennas		Mount small antennas in 90° arrangement		Right angle mounting of antenna or tube	

UCR Series



UCR1

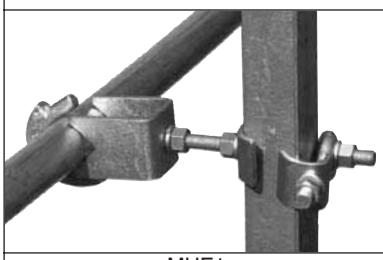
The UCR1 is a heavy duty antenna clamp with a welded centre piece. All parts are hot dipped galvanised. See the table below for suggested mounting applications.



UCR2

The UCR2 is a nested galvanised clamp set which is configured to make a heavy duty, right angle clamp.

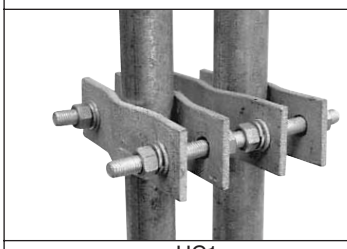
MUE Series



MUE1

Straddle clamps, also referred to as “Mueller” clamps are hot dipped galvanised clamps suited for large tower angles. See the table below for suggested mounting applications.

UC1



UC1

The UC1 is a heavy duty antenna clamp designed to mount larger antennas. The clamp is constructed of 6mm stamped galvanised steel plates, nuts, bolts and locking washers and allow for a high degree of adjustment during mounting. See the table below for suggested mounting applications.

CLAMP	UC1	MUE1	MUE2	UCR1	UCR1-120	UCR2
Weight per clamp *kg*	1.9	2.3	3.0	1.9	2.0	3.8
Body Finish	Galvanised	Galvanised		Galvanised	Galvanised	Galvanised
Fastener Finish	Galvanised	Galvanised		Galvanised	Galvanised	Galvanised
Min. boom size *mm*	20 both planes	50	50	20 both planes	20 both planes	20 both planes
Max. boom size *mm*	75 both planes	50	50	52 both planes	75 both planes	75 both planes
Min. angle size *mm*	Not applicable	40	70	Not applicable		
Min. angle size *mm*		75	200			
Application	In-line mounting of two tubular section. Mounts in 90° line	Designed to mount antennas and antenna structures onto a steel angle support tower		90° mounting with 75mm bolts	90° mounting with 120mm bolts for larger boom antennas	Heavy duty applications. Two members at 90°

Mounting Hardware

Mounts and Brackets

WF Series Wall Fitting

A stand off mount, used in pairs to stand masting off a wall. Features four hole mounting and hot dip galvanised finish.

WF12 - 30cm
WF36 - 90cm

HS Series Hockey Stick Mount

An L-shaped fascia bracket with mounting tube used to mount small yagis or dipoles. Allows the vertical mast to clear guttering. Features four hole mounting and hot dip galvanised finish

HS48 - 120cm
HS63 - 160cm
HS72 - 180cm

DRL Series "Duralium" Scaffold Mount

Scaffold Duralium tubing used as a stand off mast or as heavy duty outriggers on towers or guyed masts in light weight applications. Also used to mount SMD antennas when creating phased arrays.

DRL3: 3m x 49mm
DRL6: 6m x 49mm
DRL63-3: 3m x 4mm*

*(DRL3 or DRL6 will telescope internally in this tubing)

Roof or Ground - Satellite Dish Mounts

Roof or ground mount for mounting of microwave to satellite antennas. Hot dipped galvanised.

R9720
60mm OD x 1100mm
or
R9725
89mm OD x 1100mm

MST4.5 Steel Mast

A light duty steel mast used in conjunction with WF series mounts for stand off mounts can also be used to make light weight outriggers on towers or guyed masts.

MST4.5
One size available -
4.5m x 38mm

Tower or Wall - Satellite Dish Mounts

Tower or wall mounts for mounting of microwave to satellite antennas. Hot dipped galvanised.
102mm OD

R7500 - Round tower mount

R9721 - Angle tower mount

SCF6 Scaffold Steel Mast

A heavy duty steel tube used as a stand off mast or as heavy duty outriggers on towers or guyed masts.

SCF6
One size available -
6m x 48mm

R9731 Fascia Mount

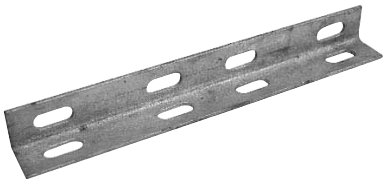
R9731
Heavy duty stand off mount

Mounting Accessories

Part No.	Description
R1002	**Wood Eye Screw** 125mm x 3/8"
R1003	**Eye Bolt** 25mm x 3/8"
R1004	**Guy Anchor Plate** 270mm x 25mm x 25mm
R1005	**Hook & Turnbuckle** 5/6" dia.
R1007	**'D' Shackle** 5/16" dia. Used as an interface between guy points and turnbuckles. Hot dip galvanised finish
R1008	**Guy Cleat** 40mm x 125mm x 35mm
R1009	**MST-4.5 Clamp Assembly Kit** Suits 38mm masting
R1010	**Stay Bar Collar** Used with Hocky Sticks or short masts to provide attachment points for Stay Bars up to 38mm dia.
R1014	**Stay Bar Kit** Used to stabilise HS Series mount or short masts. Screws down to roof surface
R1017	**Wire Rope Grip** 4mm

R1002

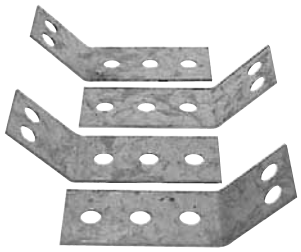
R1003



R1004

R1005

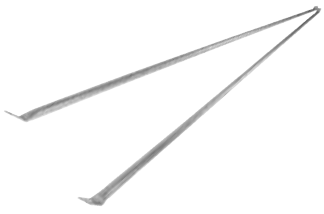
R1007



R1008

R1009

R1010



R1014

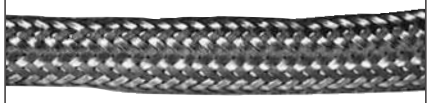
R1017

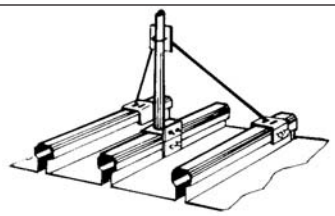
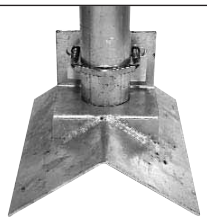
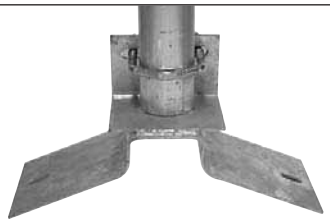
Mounting Accessories

Part No.	Description
R1021	**Wood Screw** - 1½" ⅜" ww
R2001	**Galvanised Steel Guy Wire** 180m 7 x 0.90mm G380 strand

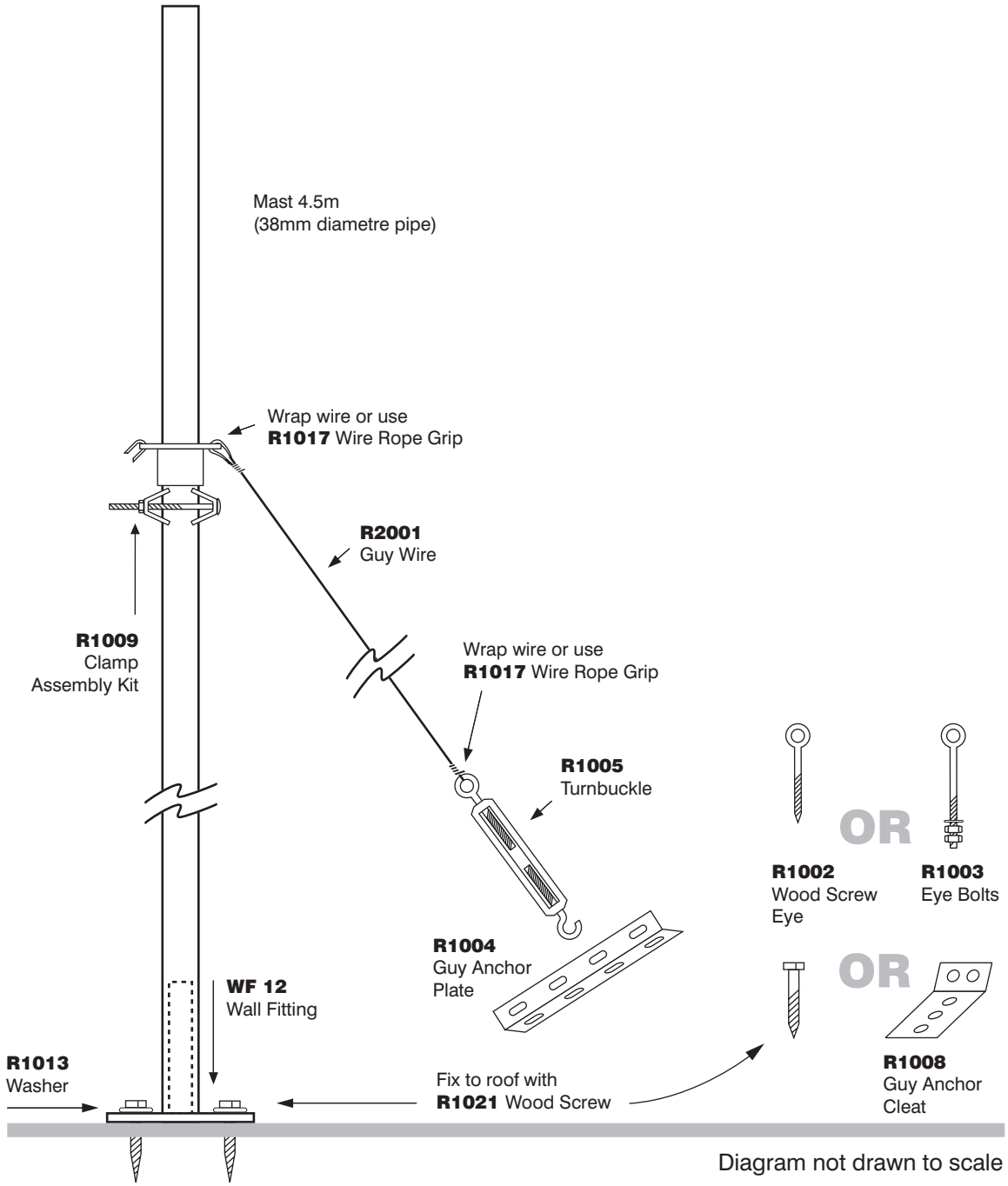
R1021

R2001

Conduit Cable Protection	
CPB Style - Nominal bore stainless steel braid tube. 10,14, 16, 21, 29 & 45mm dia. 1 metre lengths.	

Part No.	Description	
R3001	**Stramit Roof Mount** Specially designed mount to fit Stramit or Cliplock roof profiles with no penetrating holes. The cleats clamp to the roof profiles with pinch bolts. Will support masts up to 2.4m tall for yagis or small dipoles.	
R3002	**Tile Roof Mount** Distributes the weight of a guyed mast on a tile roof evenly over the ridge tile. Accepts up to 55mm tube and suits up to 50' Telo mast.	
R3003	**Iron Roof Mount** Shaped to fit the profile of standard steel roof ridge capping, can be located with roofing screws. Accepts up to 55mm tube and suits up to a 50' Telo mast.	
23 Tape	**Self-Amalgamating Tape** Scotch brand self fusing water proof tape can be stretched up to twice its original length to form a continuous water proof seal on connector joins.	
INS-BK	**Insulation Tape** Black insulation tape used to over wrap Scotch 23 tape. Also used to secure cables to masting.	

Typical Installation: Guyed Mast



OR USE

R3001 Stramit Roof Mount
R3002 Tile Roof Mount
R3003 Iron Roof Mount

Fuses, Connectors and Insulators

	Part No.	Description	Illustration
Insulated Lugs	SL2-4 SL2-6 SL2-8 SL5-4 SL5-6 SL5-8	Insulated lug, 4mm stud, blue for 3-4mm cable - Pack of 100 Insulated lug, 6mm stud, blue for 3-4mm cable - Pack of 100 Insulated lug, 8mm stud, blue for 3-4mm cable - Pack of 100 Insulated lug, 4mm stud, yellow for 4-6mm cable - Pack of 50 Insulated lug, 6mm stud, yellow for 4-6mm cable - Pack of 50 Insulated lug, 8mm stud, yellow for 4-6mm cable - Pack of 50	 SL2-8 Insulated lug
Insulated Spade Lugs	QC2 QC2I QC5 QC5I QCPB2 QCM2	Insulated spade lug, blue for 3-4mm cable - Pack of 100 Fully insulated spade lug, blue for 3-4mm cable - Pack of 50 Insulated spade lug, yellow for 5-6mm cable - Pack of 50 Fully insulated spade lug, yellow for 5-6mm cable - Pack of 100 Insulated piggyback spade lug, blue for 3-4mm cable - Pack of 100 Insulated miniature spade lug, blue for 3-4mm cable - Pack of 100	 QC2I Fully insulated spade lug
Insulated In-line Splices	IS-2 IS-5	Insulated in-line splice, blue for 3-4mm cable - Pack of 100 Insulated in-line splice, yellow for 4-6mm cable - Pack of 50	 IS-2
Bullet Connectors	BF2-7 BM2-7	Bullet female connector, blue for 3-4mm cable - Pack of 50 Bullet male connector, blue for 3-4mm cable - Pack of 100	  BF2-7 BM2-7
Glass Cartridge Fuses	20-1 20-2 20-10 3AG-1 3AG-5 3AG-10 3AG-15 3AG-20 3AG-25 3AG-30 3AG-35	20mm x 5mm glass fuse, 1A - Pack of 10 20mm x 5mm glass fuse, 2A - Pack of 10 20mm x 5mm glass fuse, 10A - Pack of 10 3AG (32 x 6.3) glass fuse, 1A - Pack of 10 3AG (32 x 6.3) glass fuse, 5A - Pack of 10 3AG (32 x 6.3) glass fuse, 10A - Pack of 10 3AG (32 x 6.3) glass fuse, 15A - Pack of 10 3AG (32 x 6.3) glass fuse, 20A - Pack of 10 3AG (32 x 6.3) glass fuse, 25A - Pack of 10 3AG (32 x 6.3) glass fuse, 30A - Pack of 10 3AG (32 x 6.3) glass fuse, 35A - Pack of 10	 20-0.5
Blade Fuses	BF-5-50 BF-10-50 BF-15-50 BF-20-50 BF-30-50	5 Amp blade fuse - Pack of 50 10 Amp blade fuse - Pack of 50 15 Amp blade fuse - Pack of 50 20 Amp blade fuse - Pack of 50 30 Amp blade fuse - Pack of 50	 BF-30
Fuse Holders	FM BU-HFB BFH-003	Nylon In-line fuse holder (MSP compatible) - Pack of 10 Waterproof fuse holder, submersible. Water resistant fuse Holder for Blade Fuses - 30amp rating.	 FM  BU-HFB  BFH-003

	Part No.	Description	Illustration
Power Connectors (Gender of the connector refers to pin, not body)	PC-2F PC-3F PC-4F PC-2M PC-3M PC-4M	2 Pin female with contact - Pack of 10 3 Pin female with contact - Pack of 10 4 Pin female with contact - Pack of 10 2 Pin male with contact - Pack of 10 3 Pin male with contact - Pack of 10 4 Pin male with contact - Pack of 10	 PC-2F
Cable Ties	RF523 RF524 RF525 RF526 RF527 RF528 TY533M TY534M TY535M LSY-4.6-200B LSY-4.6-360B LSY-7.9-360B	92mm (3.6”) Black, Standard Head - Pack of 100 140mm (5.5”) Black, Standard Head - Pack of 100 186mm (7.3”) Black, Standard Head - Pack of 100 281mm (11”) Black, Standard Head - Pack of 100 338mm (13.2”) Black, Standard Head - Pack of 100 360mm (14.2”) Black, Standard Head - Pack of 100 101mm (4”) White, Standard Head - Pack of 100 152mm (6”) White, Standard Head - Pack of 100 198mm (7.8”) White, Standard Head - Pack of 100 4.6mm x 201mm Stainless steel - Pack of 100 4.6mm x 360mm Stainless steel - Pack of 100 7.9mm x 360mm Stainless steel - Pack of 100	 Cable Ties
Cable Clips	TC5828 TC5344A 708 PC58 HC58 HC213	Screw on mounting plate for cable ties - Pack of 100 Stick on mounting plate cable ties - Pack of 100 Stick down cable clip to suit RG58 - Pack of 100 Nail down cable clip to suit RG58 - Pack of 100 Nail down cable clip ro suit RG213 - Pack of 100 Utilap connector, up to 4mm auto cable - Pack of 100	 PC58  TC5828
Heat Shrink Tubing (Mil Spec polyolefin tubing. Flame retardant)	STB-1.2 STB-1.6 STB-2.4 STB-3 STB-4 STB-6 M-3614 M-3519	1.2 (Before contraction) 0.6 (After contraction) 1.6 (Before contraction) 0.8 (After contraction) 2.4 (Before contraction) 1.2 (After contraction) 3.2 (Before contraction) 1.6 (After contraction) 4.8 (Before contraction) 2.4 (After contraction) 6.4 (Before contraction) 3.2 (After contraction) Heat shrink 12mm to 4mm hot melt glue lined Heat shrink 19mm to 6mm hot melt glue lines	 STB Series  M-3614  M-3519
Sealing and Adhesive Tapes	INS-BK 4008-0.5 4008-1 23 Tape 33 Tape 15 Tape	Black PVC insulation tape, 19mm x 20m Scotch double sided foam tape, 12mm x Scotch double sided foam tape, 25mm x 32.9m Scotch self amalgamating tape, 19mm x 9.15m Scotch flame retardant electrical tape, 19mm x 20.1m Nitto self amalgamating tape, 20mm x10m	 33 Tape  15 Tape

Microphones

Part No.	Description	Illustration
DM507	Standard 500 Ohm dynamic fist microphone with metal hang-up button	 DMC900
DMC900	500 Ohm dynamic fist microphone with metal hang-up button	
SMP-150	Small Speaker/Microphone with PTT (Press to Talk) & Metal clip	 SMP-150
SMP-400	Heavy Duty Speaker/Microphone with PTT & Metal Clip	
SMP-650	Heavy Duty Speaker/Microphone with Metal Clip	 DM507

Microphone Clips, Cords & Connectors

Part No.	Description	Illustration
Microphone Clips		
MC-SC	Screw-on	 MC-SC
MC-ST	Stick-on	
MC-MG	Magnetic	
Microphone Cords		
MC-5	5 Core (1 shielded) coiled cord 1.2m	 MC-5
Microphone Connectors		
MP-3 MP-4 MP-5 MP-6 MP-7 MP-8	3 Pin Plug, In-line 4 Pin Plug, In-line 5 Pin Plug, In-line 6 Pin Plug, In-line 7 Pin Plug, In-line 8 Pin Plug, In-line	 MP-4
MF-3 MS-6 MS-8	3 Pin Socket, In-line 6 Pin Socket, In-line 8 Pin Socket, In-line	 MS-6
MF-4 MF-6 MF-8	4 Pin Socket, Panel mount 6 Pin Socket, Panel mount 8 Pin Socket, Panel mount	 MF-8
MPRA4	4 Pin right angle plug	 MPRA4

Extension Speakers

324/328

Teknika universal extension speakers are compact speakers for professional radio installations. With a choice of 4W and 8W and a variety of mounting options, these speakers will suit the requirements of virtually any installation.

- Versatile Mounting - Magnetic, screw down and double-sided tape mounting available
- Small and Compact
- Rugged Construction - ABS plastic casing with metal mesh, metal screws and swivel brackets
- Excellent audio output volume
- Universal 3.5mm phono plug for quick and easy connection

Specifications

Model	324	328
Cabinet Size *H x W x D*	82 x 82 x 56	
Cone Construction	Mylar	
Cone Size	57mm	
Impedance	4 Ohms	8 Ohms
Power (Maximum)	5 Watts	
Mounting Options	Magnetic, screw down or double sided tape	
Weight	300g	

Panasonic Batteries

Valve Regulated Lead Acid Batteries

Model	Nominal Voltage *V*	Rated Capacity (Ah)	Terminal Type	Dimensions *mm* L x W x D	Weight *kg*	Carton Qty
LC-R061R3P	6	1.3	Faston 187 Tab	97 x 24 x 55	0.3	40
LC-R063R4P	6	3.4	Faston 187 Tab	134 x 34 x 66	0.62	24
LC-R064R2P	6	4.2	Faston 187 Tab	70 x 48 x 108	0.78	24
LC-R067R2P	6	7.2	Faston 187 Tab	151 x 34 x 100	1.26	12
LC-R0612P	6	12	Faston 187 Tab	151 x 50 x 100	1.95	12
LC-R0612P1	6	12	Faston 250 Tab	151 x 50 x 100	1.95	12
LC-R121R3P	12	1.3	Faston 187 Tab	97 x 47.5 x 55	0.59	20
LC-R122R2P	12	2.2	Faston 187 Tab	177 x 34 x 66	0.8	24
LC-R123R4P	12	3.4	Faston 187 Tab	134 x 67 x 66	1.2	12
LC-R127R2P	12	7.2	Faston 187 Tab	151 x 64.5 x 100	2.47	10
LC-R127R2P1	12	7.2	Faston 250 Tab	151 x 64.5 x 100	2.47	10
LC-RA1212P1	12	12	Faston 250 Tab	151 x 98 x 100	3.8	6
LC-RD1217P	12	17	M5 Bolt & Nut	181 x 76 x 167	6.5	4
LC-X1220P	12	20	M5 Bolt & Nut	181 x 76 x 167	6.6	4
LC-X1224P	12	24	M5 Bolt & Nut	165 x 125 x 175	9	2
LC-X1228P	12	28	M5 Bolt & Nut	165 x 125 x 175	11	2
LC-R1233P	12	33	M6 Bolt & Nut	195.6 x 130x 180	12	1
LC-X1242P	12	42	M6 Bolt & Nut	197 x 165 x 180	16	1
LC-X1265P	12	65	M6 Bolt & Nut	350 x 166 x 175	20	1
LC-XA12100P	12	100	M8 Bolt & Nut	407 x 173 x 236	33	1

Cycling Models

Model	Nominal Voltage *V*	Rated Capacity (Ah)	Terminal Type	Dimensions *mm* L x W x D	Weight *kg*	Carton Qty
LC-XC1228AP	12	28	M5 threaded post	165 x 125 x 179.5	10	2
LC-XC1238P	12	38	M6 Bolt & Nut	197 x 165 x 180	15	1

UP Series

Model	Nominal Voltage *V*	Rated Capacity *W* cell @ 10 minute rate	Terminal Type	Dimensions *mm* L x W x D	Weight *kg*	Carton Qty
UP-RW0645P1	6	45	Faston 250 Tab	151 x 34 x 100	1.3	10
UP-RW1220P1	12	20	Faston 250 Tab	140 x 38.5 x 100	1.35	12
UP-RWA1232P1	12	32	Faston 250 Tab	151 x 51 x 100	2	12
UP-RWA1232P2	12	32	Faston 250+ Faston 187-	151 x 51 x 100	2	12
UP-RW1245P1	12	45	Faston 250 Tab	151 x 64.5 x 100	2.6	10

Note: Height includes terminal height

tech support

Antenna Gain

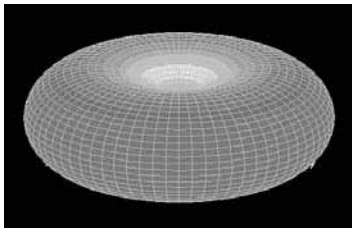
WHAT IS GAIN?

The gain of an antenna is a measure of the improvement in transmitted or received signal strength when its performance is measured against the theoretical standard isotropic radiator, whose radiation pattern represents a perfect sphere. Gain can only be achieved by focussing the radiation pattern in the direction in which it is needed by the addition of more radiating elements and/or directors and reflectors (such as in the case of yagis).

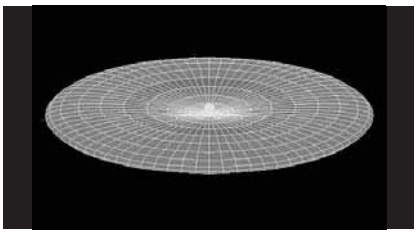
Some antennas can produce a "spotlight" radiation beam (or main lobe), focussing on a narrow target but covering large distances. Others produce a broad coverage area like a lantern. Generally, the higher the amount of gain the better the range, but this depends entirely on the application.

A well-designed high gain antenna will ensure the main radiation lobe is focussed on the horizon rather than up to the sky. That's great for rural areas, but for city use where base stations are located atop tall buildings, too much gain may not always be the best solution.

Typical unity gain radiation pattern



Typical high gain radiation pattern

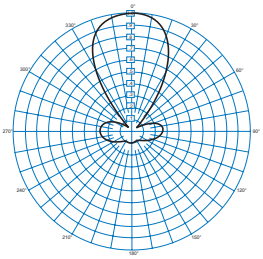


HOW IS GAIN DEFINED?

Various antenna manufacturers use different references when declaring their gain figures. Some use a dipole reference, some the theoretical isotropic radiator and some use a figure that in fact has no claimed reference.

Most readers of this catalogue know roughly how long an antenna must physically be to deliver it's claimed gain in a particular frequency band. The laws of physics cannot be defeated and without "capture area" there is simply no way to increase antenna gain.

Unfortunately, in the absence of a defined reference, some claims made in catalogues and on retail packaging by some manufacturers, are, well, wrong. Whilst this is "understood" by experienced dealers, who make their own informed judgments, publishing these often-exaggerated claims is very much an attempt to entice customers to purchase one product (with superior ratings) over another.



Typical yagi directional antenna pattern

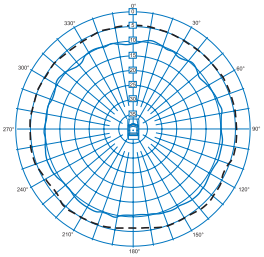
It is important to remember that the gain of an antenna MUST be related to a reference of some description, which in most cases will be either the isotropic radiator or a lossless half wave dipole. Gain statements that are made without an indication of a suitable reference are meaningless and misleading. The most commonly used and accepted gain measures are dB¼λ, dBi and dBd.

The gain specifications listed in our catalogue for our range of base station antennas are all referenced to an isotropic radiator, and are thus expressed in dBi. Also listed is the gain referenced to a lossless half wave dipole in dBd, which is simply 2.15dB below the dBi rating.

WHY ARE MOBILE ANTENNAS TREATED DIFFERENTLY?

Whilst the isotropic radiator and half wave dipole are appropriate gain references for base station antennas, a more meaningful and practical reference has been used for our range of mobile antenna gain specifications. This is the ¼ wave centre roof mounted whip (dB¼λ). Why? Because we can measure it, and we DO measure it. It is not a theoretical reference, but a practical one, and we believe it serves our customers best.

As a matter of almost pure coincidence, should you measure a roof mounted ¼ wave antenna on the horizon, it is a close approximation to the theoretical isotropic radiator. We have tested this in the field, comparing the ¼ wave whip to the ½ wave dipole, since we could not find an isotropic radiator in our toolbox. (Well perhaps it was there, but being infinitely small we just couldn't see it!).



Typical mobile antenna pattern

CONSISTENT WITH THEORY

Theoretically, a ¼ wave whip mounted on an infinite ground plane will exhibit the gain of a half wave dipole, or 2.15dBi, in a direction perpendicular to the axis of the whip. As the ground plane diminishes, the main lobe of the whip's radiation pattern will tilt upwards, away from the ground plane. Our pattern tests have shown that when mounted in the centre of a standard vehicle roof, a ¼ wave whip exhibits a gain of approximately 0dBi in the direction perpendicular to the whip, that is, at the horizon, and

Antenna Gain (cont.)

that the gain peak is at a point some 25-30 degrees above the horizon, due to the effect of the limited ground plane.

Therefore, when referencing the gain of a mobile antenna against a ¼ wave centre roof mounted whip, the gain can be considered as being referenced to an isotropic radiator at a plane perpendicular to the whip (that is, at the horizon or 0 degree elevation).

BUT THEN THERE'S MOUNTING

All antenna radiation patterns are affected by their mounting environment.

The gain exhibited by certain mobile antennas when mounted on a vehicle gutter or roof bar can be better than their specifications would suggest.

This is especially true for the ground independent Mopoles and high gain Mopoles offered by RFI. These antennas, being ground independent, are usually range tested and rated against a standard dipole reference. When a Mopole is placed on a vehicle gutter or roof bar, the vehicle's roof, again being a less than infinite ground plane, causes a slight uptilting AND compression of the major lobe, increasing the effective gain of the antenna. Thus, an end fed dipole antenna, range tested at 0dBd in controlled field tests (2.15dBi gain at the horizon) will, when gutter or roof bar mounted, perform significantly better than a roof mounted quarter wave due to this additional gain contribution.

The brief statements made on our Mopole antenna pages characterize this additional gain as "improved performance" rather than textbook gain, as the additional performance claimed is dependent on the mounting position for the antenna. RFI have collated and published extensive information on the performance of mobile antennas in various mounting locations to help illustrate the resulting compromises of antenna mounting and operational performance in mobile antennas.

Similarly, base station antennas are dramatically affected by antenna mounting positions. The side mounting of base station antennas is a point of particular interest and this can be characterized, and even quite accurately modelled. Each application however tends to be individual and mounting arrangements are rarely precisely controlled enough to allow system planners to take this into account.

The RFI engineering team is happy to advise on individual antenna selection and regularly prepares papers and presentations on the optimal antenna choices in typical applications.

CATALOGUED GAIN FIGURES

In general, stated gain specifications are nominal, and taken at the centre of the tuned bandwidth of the antenna, but slight variations can be expected. Where comprehensive data is required for use in coverage analysis software packages, RFI can provide digitised antenna pattern data in accordance with industry standard TIA-804-B formats for most of our base station antennas. For more specific gain information please contact your local RFI representative.

WIND RATINGS

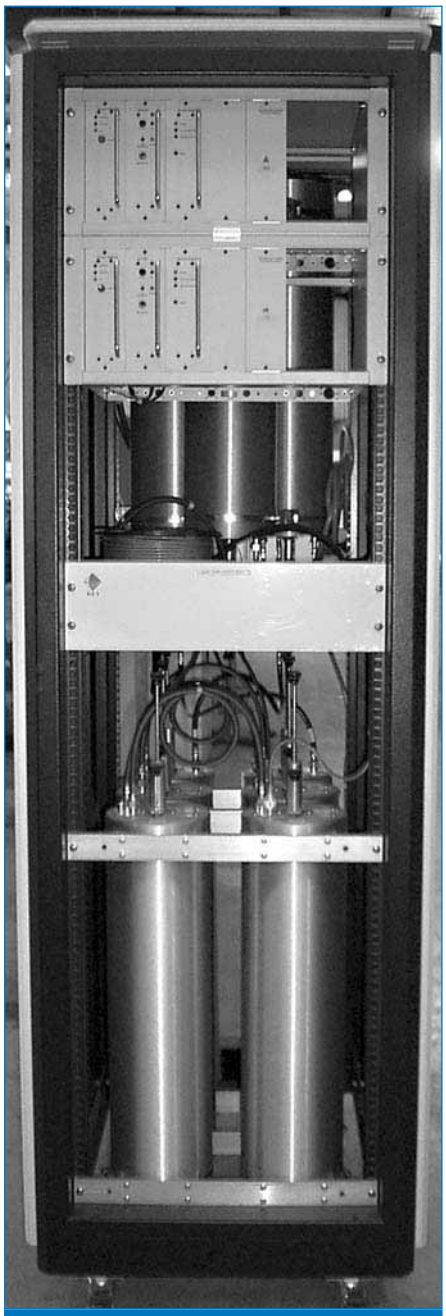
The listed wind ratings for base station antennas are defined as follows:

- **Projected Area (no ice)** - A statement of the equivalent flat plate surface area of the antenna. This has been calculated in accordance with AS1170.2:2002, the Australian Wind Loading standard, which is based on ISO4354, an international standard covering wind actions on structures.
- **Projected Area (with ice)** - A uniform radial build-up of 12.7mm of ice is applied to all surfaces of the antenna, in accordance with TIA329C. The projected area is then re-calculated in accordance with AS1170.2:2002.
- **Wind Load (thrust)** - The effective force applied perpendicular to the plane of the antenna presenting the greatest projected area, as a result of the pressure applied due to a constant 160km/h wind velocity.
- **Wind Gust Rating** - A structural engineering calculation in accordance with AS1170.2:2002, giving consideration to the yield strength of the materials used in the construction of the antenna. This figure determines the maximum wind velocity at which the mechanical stresses in the antenna components are just below the allowable yield strength of the boom and/or other elements.
- **Torque** - The bending or turning moment resulting from the Wind Load (thrust) calculated above, acting at the uppermost clamping point. For Corner Reflectors, the torque figure represents a rotational torque.

These important engineering specifications have been published in metric units. The following conversion factors may be used to convert these and other listed mechanical units to imperial units:

Length	1 ft = 0.305 m
	1 in = 25.4 mm
Weight	1 lbs = 0.454 kg
Projected Area	1 ft^2 = 929 cm^2
Wind Load	1lbs (f) = 4.448 N
Wind Gust Rating	1 mph = 1.609 km/h
Torque	1 ft-lbs = 1.356 Nm

Passive Intermodulation (PIM) Information



RFI's VHF Test Bed

WHAT IS PIM?

Intermodulation, or intermod, as it is commonly abbreviated, is generated whenever multiple RF signals are present in a conductor of RF energy. Any non-linearities in the signal path, whether through an amplifier or an antenna system for example, will cause a mixing of the fundamental RF signal frequencies and the creation of new RF signals at different, mathematically related frequencies.

These new signals, or intermod products, can become a source of interference if not carefully controlled. This has been a topic of much discussion and there is a wealth of technically detailed literature available on the subject.

The intermodulation products of greatest concern are the so-called odd-order products, since these will exist at frequencies that are close to the original fundamental signal frequencies. The 3rd order and 5th order products have the potential to cause the greatest harm, since their signal level can be substantial, and their frequencies are most likely to fall within co-sited receiver frequency bands.

Passive intermodulation, or PIM as it is commonly referred to, is intermodulation that occurs in passive devices, such as antennas, tower structures, antenna clamps and the like. The signals are mixed by non-linear properties of junctions between dissimilar metals, or where corrosion exists. Poor mechanical junctions, the use of material that exhibits hysteresis, or contaminated surfaces or contacts within the RF path can also cause high PIM levels.

HOW IS PIM CONTROLLED?

Careful selection of materials, construction methods and the use of high performance cables and connectors, are all factors that need to be considered in the construction of antennas to ensure good PIM performance. As multi-user sites become more and more congested, excellent PIM performance is essential to ensure lower levels of interference and improved receiver performance.

We at RFI are very proud of our achievements in obtaining world-class PIM specifications on our range of high spec base station antennas. This has not happened by chance, but has involved many years of research, testing and re-evaluation of mechanical construction methods. The knowledge gained as a result has raised our awareness of PIM related issues to such an extent that it is now an embedded part of our design approach - a design approach that started with the development of some of the earliest PIM measurement facilities.

HOW IS IT MEASURED?

PIM specifications must always be referenced to the power level of the two fundamental RF signal sources, which for testing purposes will always be set to the same level. Therefore, a PIM specification of -150dBc (150dB below carrier) for example will indicate that the actual PIM level generated by the antenna is 150dB below the carrier input level of the RF signal sources.

PIM Information cont'd

The measurement of PIM in antennas requires sophisticated PIM test facilities, which are generally designed to measure the 3rd order PIM levels in the devices being tested. These test "beds" will comprise two or more separate RF signal sources, combining and filtering equipment, and amplifiers to boost the resultant antenna PIM level above the noise floor of the test and measurement equipment.

However, even the most fastidiously constructed test bed itself will generate intermodulation products, referred to as the residual IM. Typically, a good antenna may exhibit a PIM spec of -140dBc, which means that the residual test bed IM must be at least -150dBc for this to be able to be measured reliably. This level of residual IM can only be achieved by paying a great deal of attention to the design and layout of the test bed, and through the use of the highest quality combining equipment, cables and connectors.

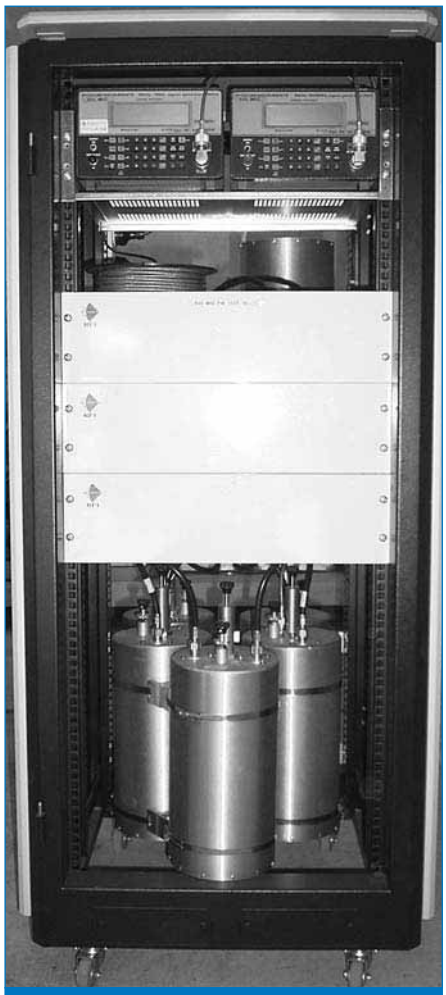
RFI'S PIM TEST BEDS

Four separate PIM test beds, covering VHF, UHF and 800 MHz test requirements, have been set up at our manufacturing facility in Melbourne. These test beds have the following specifications:

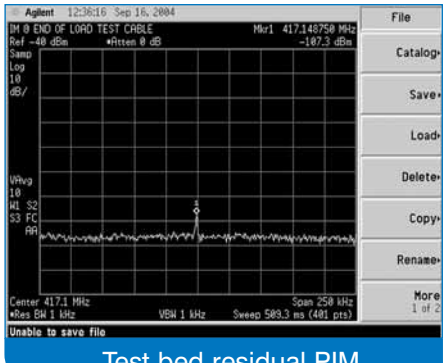
Test Bed	Frequency	Signal Sources	Residual IM
VHF	147-174 MHz	2 x 20W (+43dBm)	-160dBc
UHF	400-420 MHz	2 x 20W (+43dBm)	-161dBc
UHF	400-420 MHz	4 x 10W (+40dBm)	-161dBc
800 MHz	700- 1000 MHz	2 x 0.4W (+26dBm)	-160dBc

PIM measurements are made based on 3rd order products as these occur at higher, and therefore more easily measured, levels. The construction techniques which define the PIM performance of an antenna system component ensure that reducing the 3rd order PIM response has a like effect on all PIM outputs.

There are no true industry-defined power and performance levels for PIM, especially in the digital radio domain, but these are emerging. The power input levels chosen for our PIM test beds have been based on the anticipated typical power levels at the antenna and are therefore a close approximation to real site conditions.

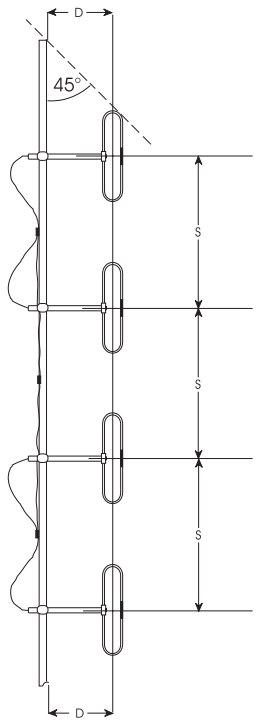


RFI's 800MHz Test Bed



Test bed residual PIM

Phasing of Side Mounted Dipole Antennas



Four Stack

MOUNTING

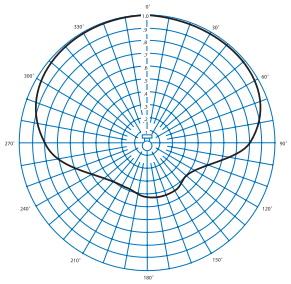
The SMD range of side mounted dipole antennas offer system designers a wide choice in the areas of horizontal radiation patterns and gain. The following radiation patterns were measured when an SMD1 was mounted with the stated antenna to mast spacings. The pattern changes dramatically with this spacing on other than a 50mm diameter mast. In the case of a larger mast (eg: lattice mast structure), the overall effect is thinner main lobes and more pronounced nulls.

PHASING

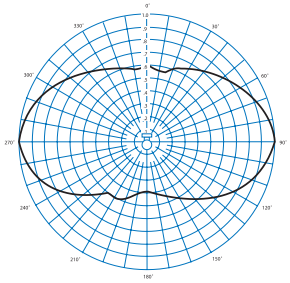
When phasing SMD antennas, designers should first take into account the antenna to mast spacings. The effect in the H plane of phasing SMD antennas is fairly minimal, with only a slight reduction in the horizontal beamwidths (as shown for a single antenna) when up to four antennas are phased. Gain is increased nominally by 3dB when a second antenna is used and 6db for an array of four.

Vertical radiation patterns are generally larger than for a series fed colinear (ie fibreglass enclosed) due to the directional nature of the array - one of the obvious advantages of using an SMD antenna. SMD antennas also offer beamtilt stability over a fairly broad bandwidth (up to +/- 10%) and direct grounding for lightning protection. The chart below indicates the optimum spacings between antennas when phasing. Our range of phasing harnesses is listed on page 74.

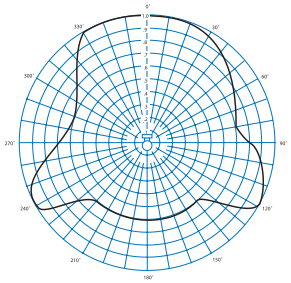
¼ wave spacing



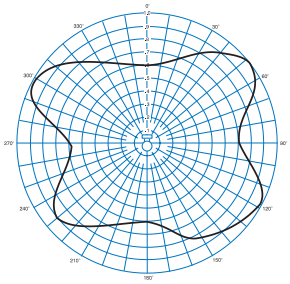
½ wave spacing



¾ wave spacing



1 wave spacing



Model Number	MHz Centre frequency	D= ¼ wave	D= ½ wave	D= ¾ wave	D= 1 wave	S
SMD1	77	974	1948	2922	3896	2922
SMD2	161	466	932	1398	1863	1398
SMD4	460	163	326	489	652	489

Phasing of Side Mounted Dipole Antennas cont'd

Phasing UHF Dipole Antennas

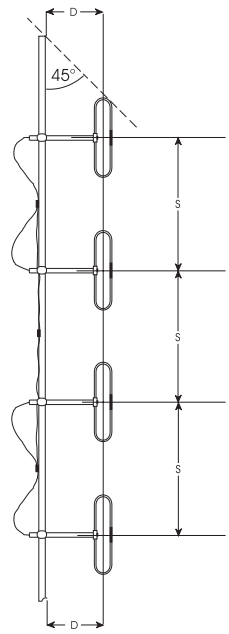
When using side mounted dipole antennas it is important to ensure that the antenna to mast spacings AND the antenna to antenna spacings are optimised for your application. The following graphs indicate the optimum antenna centre to antenna centre spacings and antenna to mast spacings for your frequency of use.

On the previous page is an illustration of the various patterns effected at VHF frequencies when side mounted dipole antennas are mounted at differing distances from the support mast.

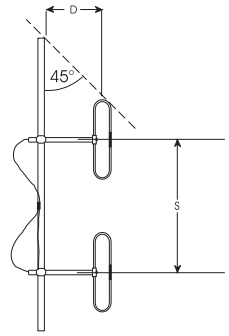
A similar series of patterns will also be effected at UHF frequencies, however it is important to note that for any given support mast, the effect on a UHF antenna will be greatly exaggerated, with deeper nulls and more pronounced peaks in the pattern. We urge the use of our BA, EA and OA Series arrays at UHF for predictable pattern performance.

Please note that when using two side mounted dipole antennas phased together, total antenna gain will be increased by 3 dB and if using four antennas, the antenna gain will be increased by 6 dB. This increase in gain is IN ADDITION to any gain which is afforded by the manipulation of the antenna pattern through antenna to mast spacings as shown opposite.

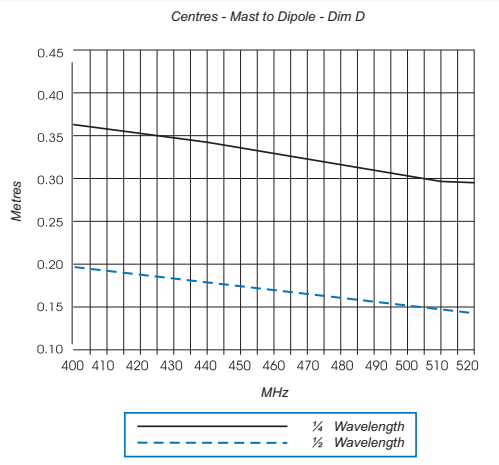
PLEASE NOTE: We strongly recommend against the phasing of 800 MHz side mounted dipole antennas as the control of the dimensions is far too critical to be adequately controlled in the field. Thus, we do not publish any information to assist in the phasing of our 800 MHz side mount dipole antennas.

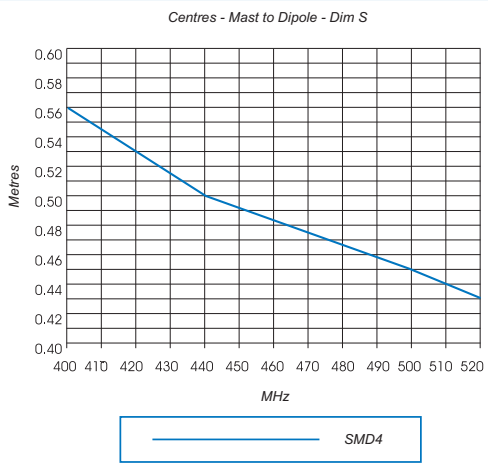


Four stack



Two stack





Dipole Spacing vs Frequency

Phasing of Side Mounted Dipole Antennas cont'd

Phasing VHF Dipole Antennas

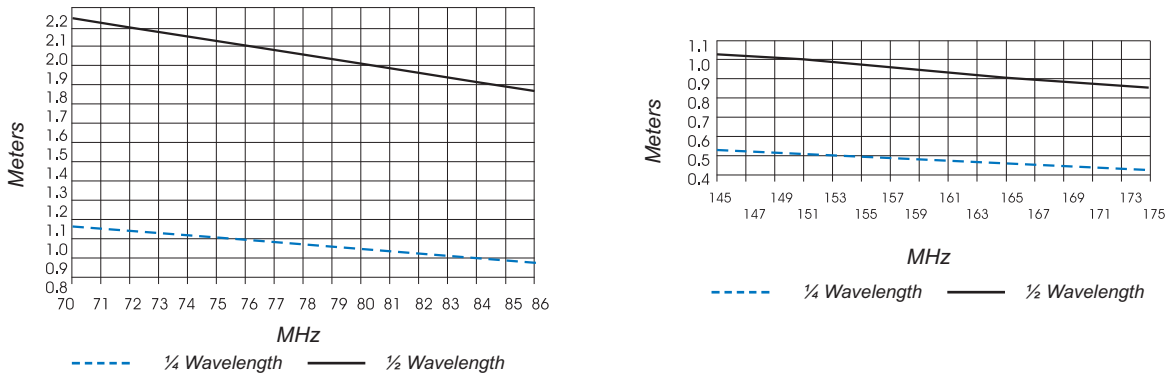
When using side mounted dipole antennas it is important to ensure that the antenna to mast spacings AND the antenna to antenna spacings are optimised for your application. The following graphs indicate the optimum vertical spacings and antenna to mast spacings for your frequency of use.

Earlier in this section is an illustration of the various patterns effected at VHF frequencies when side mounted dipole antennas are mounted at differing distances from the support mast.

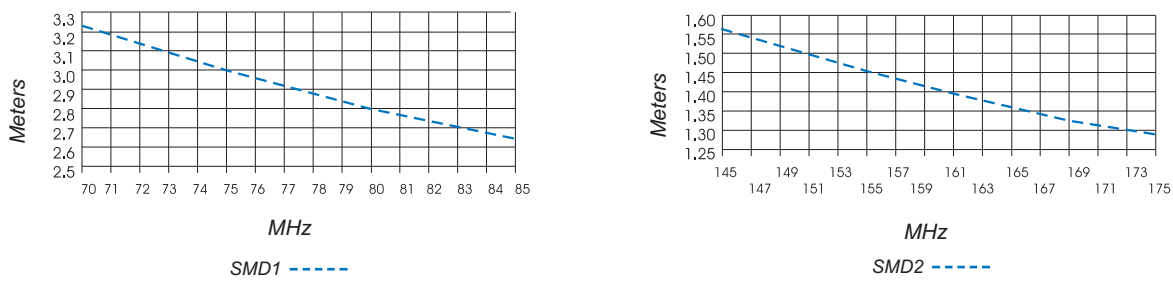
Please note that when using two side mounted dipole antennas phased together, total antenna gain will be increased by 3 dB and if using four antennas, the antenna gain will be increased by 6dB.

This increase in gains is IN ADDITION to any gain which is afforded by the manipulation of the antenna pattern through antenna to mast spacings as shown opposite.

PLEASE NOTE: For both SMD1 and SMD2 antennas, the full band coverage of the antennas can be maintained for a stack of two or four antennas if the correct phasing harness is used.



Two and four stack dipoles - D



Two and four stack dipoles - S

Phasing Yagi Antennas

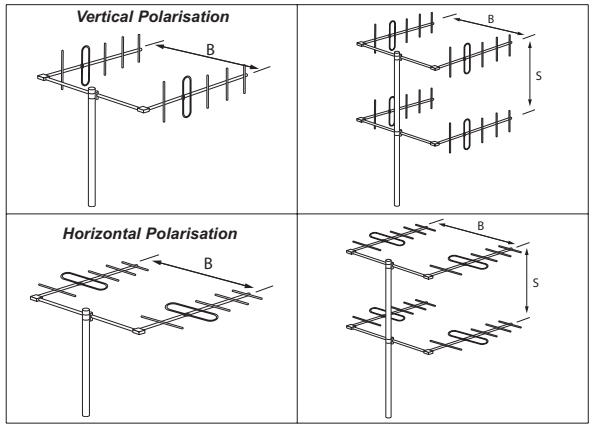
The phasing of yagi antennas can be done in vertical or horizontal polarisation and will, when properly implemented, boost the available gain by 3.0 dB (for two antennas) or 6.0 dB (for four antennas) over the gain for a single antenna.

The phasing of yagi antennas requires critical control of both the "Baying" and "Stacking" dimensions as shown in the illustrations. It is important to note that in all cases, these dimensions (B and S from our illustrations) should be identical at any one frequency.

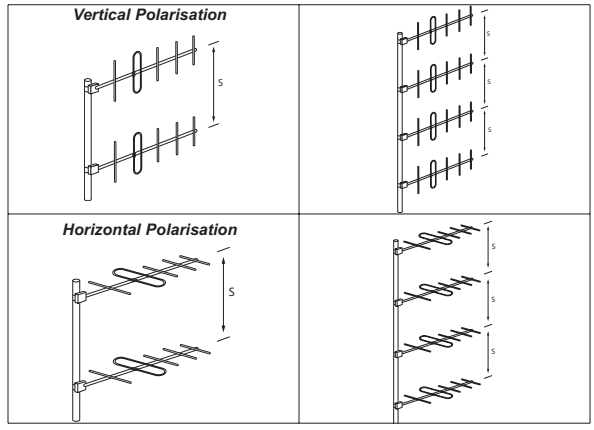
These distances vary with the number of antenna elements and the frequency of operation. To ensure that your antennas are phased at the optimum distance, use the following charts to determine the distance which should be used for the antennas you are using.

PLEASE NOTE: If you are phasing antennas in MULTIPLE directions, rather than phasing yagi antennas together for additional gain in a single direction, you will experience a net LOSS in gain over your individual antenna gain of 3.0 dB for a two way split and 6.0 dB for a four way split.

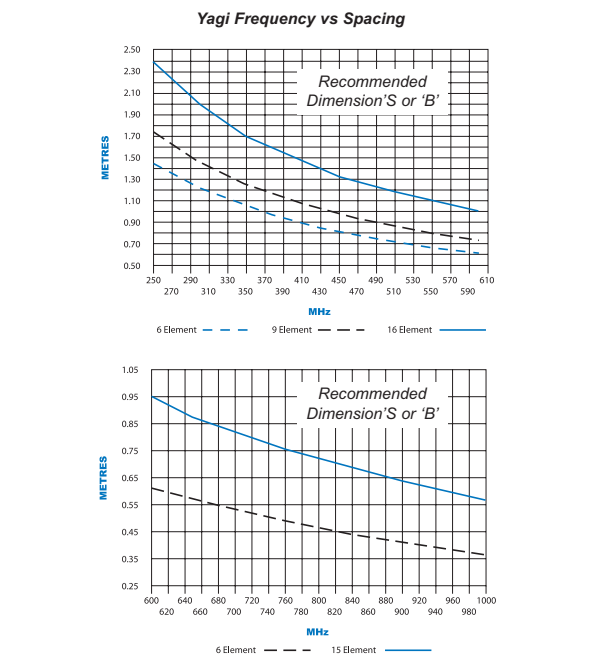
For more information on the effect of phasing yagi antennas, please contact your nearest RFI office.



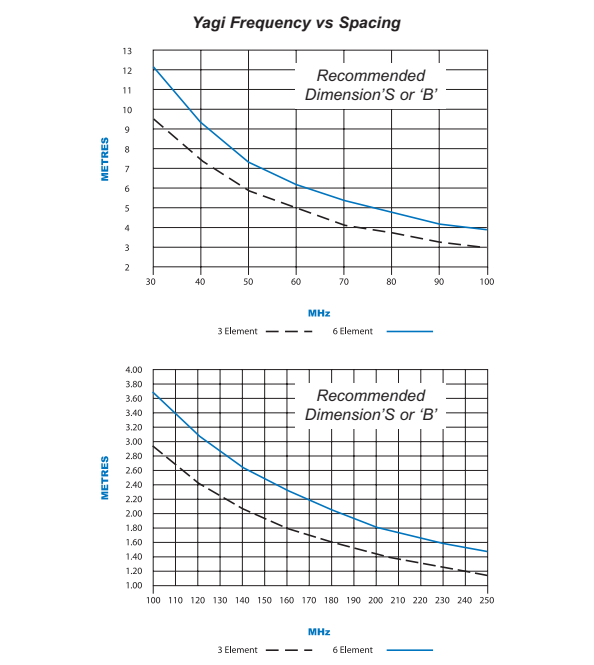
Baying Dimensions



Stacking Dimensions

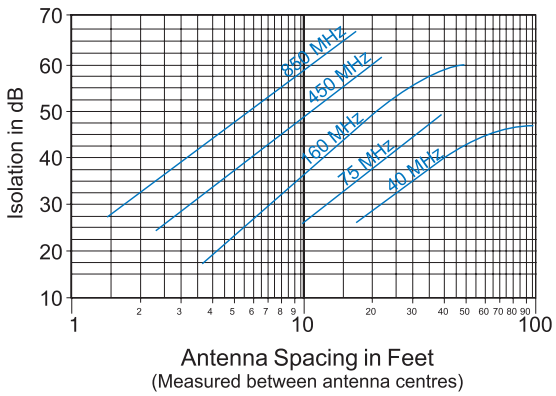


UHF

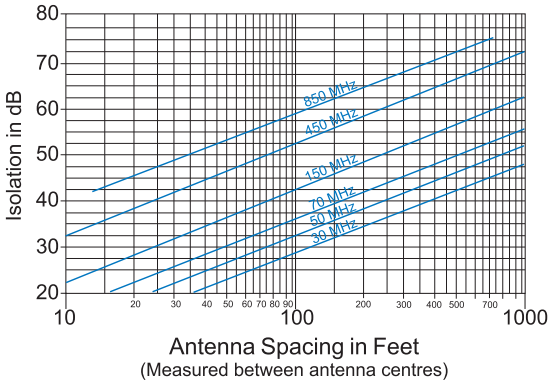


VHF

Isolation vs. Antenna Separation



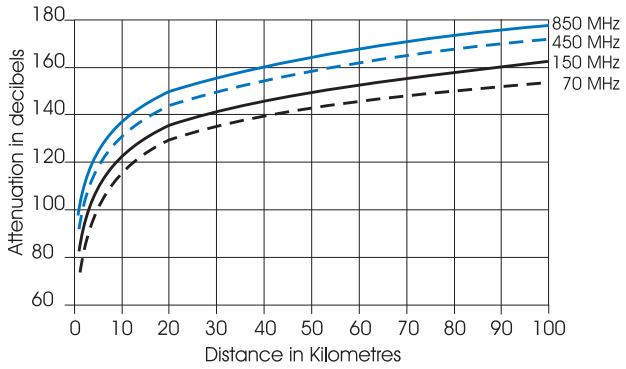
*Attenuation provided by **VERTICAL** separation of dipole antennas*



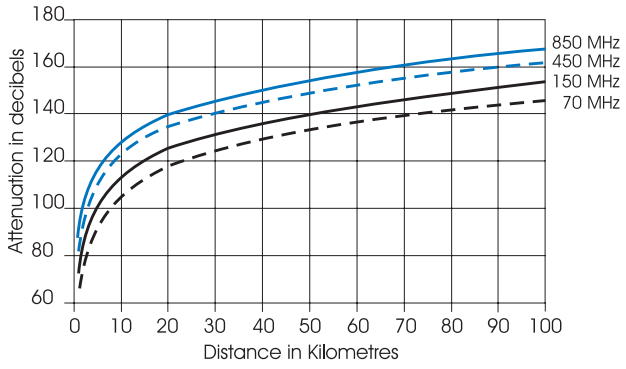
*Attenuation provided by **HORIZONTAL** separation of dipole antennas*

Range Estimation

The following graphs are based on the "Egli" model of propagation loss. This is an empirically based formula which is particularly valid for the gentle terrain conditions which prevail in much of Australia.



Base Station to Mobile Station
Base Station Height Above Average Terrain - 150 metres



Base Station to Mobile Station
Base Station Height Above Average Terrain - 450 metres

Estimated propagation loss

Explanatory Notes

Radiation Patterns

In our catalogue we have included radiation patterns for almost every antenna shown, both mobile and base station. These patterns are a “snapshot” of antenna characteristics and an important tool both in choosing antennas and undertaking system planning.

We have recently decided to move to “logarithmic” or power based plots from the previous default method of providing “linear” scaled (voltage based) plots. Linear plots offer greater “fine” definition of the major lobes of antennas but our new logarithmic based plots give output directly graduated in decibels, and this convenience has found great support amongst systems engineers.

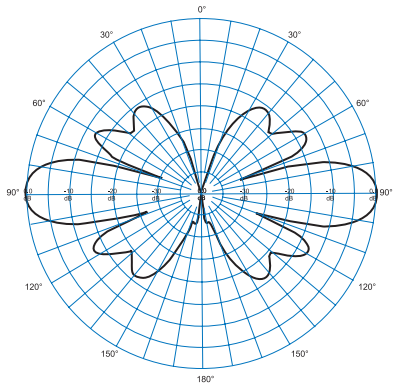
To check if the pattern you are viewing is linear or logarithmic, refer to the scale on the plot. Linear plots are scaled down from 1.0 to 0.1 per graduation on the perpendicular of the plot and our logarithmic plots are generally graduated in decibels, from 0dB (peak level) to -40dB on the centreline of the plot in 5dB increments.

BA80-67 Pattern - Logarithmic

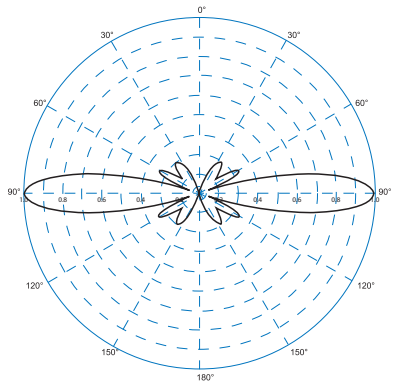
This is an example of our BA80-67 plotted in the logarithmic form. The power level in each “lobe” of the antenna can be clearly read from this pattern, with the level e.g. at -30° from the horizon (120° on plot shown) being 12.5 dB down on the peak gain level at the centreline.

BA80-67 Pattern - Linear

When the same plot for the BA80-67 is displayed based on a linear scale, there is excellent definition in the major lobe, but defining the actual gain offered at -30° from the main lobe becomes much more difficult. For this reason, we have moved to show all antenna plots in a logarithmic form.



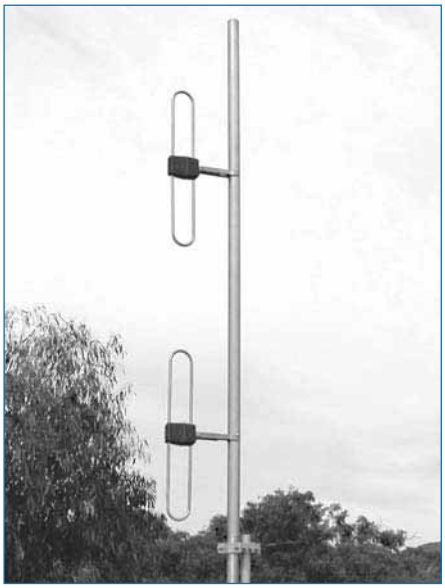
BA80-67 Pattern - Logarithmic



BA80-67 Pattern - Linear

What is alodining?

Most of our base station antennas feature “alodined aluminium” construction. Alodining is the end result of the “chromate passivation” of aluminium and in some countries is referred to as "iridited finish". This is a passive dip finish on aluminium which affords excellent environmental protection (similar to anodising) but maintains the full conductivity of the surface. Alodining our base station antennas ensures that the earthing of the antennas is guaranteed when they are clamped to towers, minimising intermodulation and noise generation at the clamp point and still providing the environmental protection needed for superior service life.



Explanatory Notes

Designed and Manufactured in Australia

RFI is an Australian company committed to designing and manufacturing as many products as possible in Australia. Most (>75%) of the antennas featured in this catalogue are manufactured in Australia. Our research and development teams utilise some of the most sophisticated software and hardware solutions in a constant drive to improve antenna performance and reliability and naturally, to keep pace with the changes in the marketplace.

Custom Tuned Antennas

Our “Custom tuned” logo is to highlight the need to specify transmit and receive frequencies when ordering. The antennas shown on pages with this logo are custom tuned to your specified frequencies and will be shipped including a full VSWR plot of performance. Should you have any doubt when ordering, simply specify the frequencies on your order in any case and we will review and accept full responsibility to ensure that the antenna functions of your nominated frequency.

17-7PH Stainless Steel

Throughout the mobile antenna section of this catalogue you will notice that many of our antenna whips are constructed from 17-7PH stainless steel. This is an extremely rugged grade of precipitation hardened stainless steel, which is incredibly strong, yet takes on a resilient "bounce back" characteristic. 17-7PH stainless steel is excellent in mobile antennas because it can take the knocks, bumps and bends common in mobile applications, and still returns to its original shape.

Quality Systems

RF Industries is an ISO-9001 accredited company, having achieved and maintained accreditation to this international standard since 1992. The company also maintains QS9000 accreditation, an enhanced level quality system for the automotive industry worldwide.

Recently we achieved accreditation to ISO14001 for our environmental management system.

Our quality systems provide us with the framework to deliver on every promise we make in product quality and service levels.

In purchasing or specifying RFI products you are assured of world class product from the design concept forward.

Explanatory Notes

Lightning Protection

Lightning damages equipment at radio communications sites every day. Although lightning is a DC pulse, the time from zero current to peak current can be very fast. When lightning energy travels through a coaxial cable, there is a slight propagation delay that occurs due to the unbalanced inductances of the shield and centre conductor, and the centre conductor's capacitive relationship through the dielectric to the shield. The higher-frequency shield energy will arrive at the equipment first, followed by the centre conductor energy. Since the pulse energy arrives at different times, a differential voltage occurs. A properly designed coaxial protector equalises this potential difference, which prevents current flow and therefore damage to the site's equipment.

However, the choice of a standard gas tube type coaxial protector without DC blocking may not offer the user complete protection. The fast rise-time lightning pulse can produce over 1000 Volts across the gas tube before the gas can ionise and become conductive. Since there is no DC blocking mechanism, this high voltage is applied directly to the equipment input before the gas tube turns on.

A quarter wave stub coaxial protector creates a band-pass filter, at a frequency determined by the length of the quarter wave coaxial section from the horizontal centre conductor to the grounded base. However, if the equipment input is DC-shorted, the quarter wave stub can allow significant divided DC and low frequency energy to flow towards the equipment input.

A "DC blocking mechanism" inside the protector (no DC continuity through the protector) will prevent harmful levels of throughput energy from reaching the equipment. RFI stocks and distributes the patented PolyPhaser DC-blocked coaxial protector line, which has the lowest throughput specifications in the industry. There is also a series of PolyPhaser coaxial protectors that block DC in the RF path to the equipment, and either inject, pass through, or pick off a specified DC voltage on the feeder's coaxial cable centre conductor. This series of protectors is particularly suited to applications requiring DC to be passed up the coaxial feeder cable to power tower-top amplifier electronics.

Remember that no matter how good your lightning protector is, it's not a fuse. It still needs to be correctly installed and connected to a suitable grounding system. RFI offers a complete range of products to protect your system, including the coaxial protector, grounding rods, copper strapping and grounding kits for the feeder cables.

Explanatory Notes

VSWR Conversion Chart

VSWR	Return loss *dB*	Transmission loss *dB*	Reflected power %
1.00		0.000	0.0
1.01	46.1	0.000	0.0
1.02	40.1	0.000	0.0
1.03	36.6	0.001	0.0
1.04	34.2	0.003	0.0
1.05	32.3	0.003	0.1
1.06	30.7	0.004	0.1
1.07	29.4	0.005	0.1
1.08	28.3	0.006	0.1
1.09	27.3	0.008	0.2
1.10	26.4	0.010	0.2
1.11	25.7	0.012	0.3
1.12	24.9	0.014	0.3
1.13	24.3	0.016	0.4
1.14	23.7	0.019	0.4
1.15	23.1	0.021	0.5
1.16	22.6	0.024	0.5
1.17	22.1	0.027	0.6
1.18	21.7	0.030	0.7
1.19	21.2	0.033	0.8
1.20	20.8	0.036	0.8
1.21	20.4	0.039	0.9
1.22	20.1	0.043	1.0
1.23	19.7	0.046	1.1
1.24	19.4	0.050	1.1
1.25	19.1	0.054	1.2
1.26	18.8	0.058	1.3
1.27	18.5	0.062	1.4
1.28	18.2	0.066	1.5
1.29	17.9	0.070	1.6
1.30	17.7	0.075	1.7
1.32	17.2	0.083	1.9
1.34	16.8	0.093	2.1
1.36	16.3	0.102	2.3
1.38	15.9	0.112	2.5
1.40	15.6	0.122	2.8

VSWR	Return loss *dB*	Transmission loss *dB*	Reflected power %
1.42	15.2	0.133	3.0
1.44	14.9	0.144	3.3
1.46	14.6	0.155	3.5
1.48	14.3	0.166	3.7
1.50	14.0	0.177	4.0
1.52	13.7	0.189	4.3
1.54	13.4	0.201	4.5
1.56	13.2	0.213	4.8
1.58	13.0	0.225	5.1
1.60	12.7	0.238	5.3
1.62	12.5	0.250	5.6
1.66	12.1	0.276	6.2
1.68	11.9	0.289	6.4
1.70	11.7	0.302	6.7
1.72	11.5	0.315	7.0
1.74	11.4	0.329	7.3
1.76	11.2	0.342	7.6
1.78	11.0	0.356	7.9
1.80	10.9	0.370	8.2
1.82	10.7	0.384	8.5
1.84	10.6	0.398	8.7
1.86	10.4	0.412	9.0
1.88	10.3	0.426	9.3
1.90	10.2	0.440	9.6
1.92	10.0	0.454	9.9
1.94	9.9	0.468	10.2
1.96	9.8	0.483	10.5
1.98	9.7	0.497	10.8
2.00	9.5	0.512	11.1
2.50	7.4	0.881	18.4
3.0	6.0	1.249	25.0
4.0	4.4	1.938	36.0
5.0	3.5	2.553	44.4
10	1.7	4.810	66.9
20	0.9	7.413	81.9

Explanatory Notes

Galvanic Table/ Dissimilar Metals
ELECTROCHEMICAL CORROSION POTENTIALS

The following table lists the corrosion potential (in volts) for various materials measured against a saturated calomel electrode in sea water at 25°C. The potential difference between any two materials should not exceed 0.50 volts for equipment installed inside, subject to salt free condensation, and 0.25 volts for equipment installed outside at any location. The material with the more negative potential will corrode.

Example, combination of stainless steel (CRS316) and galvanized Iron:

From table, stainless steel (CRS316) = -0.35 V, galvanized iron = -1.05 V
Potential difference = -0.35 - (-1.05) = 0.7 V
Therefore the galvanized iron will exhibit accelerated corrosion

Material	Potential (volts)
Magnesium & its alloys	-1.60
Zinc & its alloys	
Zinc die casting alloy	-1.10
Zinc plating on steel	-1.10
Zinc plating on steel, chromate passivated	-1.10
Zinc coated (galvanized) iron	-1.05
Tin-Zinc (80/20) alloy plating on steel	-1.05
Cadmium plating on steel	-0.80
Aluminium & its alloys	
Wrought aluminium-alloy-clad aluminium alloy	-0.90
Cast aluminium	-0.75
Wrought aluminium	-0.75
Aluminium-manganese alloy	-0.75
Aluminium-magnesium alloy	-0.75
Aluminium-silicon-magnesium alloy	-0.75
Duralium (unclad)	-0.60
Irons & steels	
Non corrosion resisting	-0.70
Stainless steel (CRS304)	-0.45
High chromium stainless steel (CRS316)	-0.35
Austenitic	-0.20
Lead & its alloys	
Lead	-0.55
Lead-silver solder (2.5% silver)	-0.50
Tin & its alloys (other than zinc plating)	-0.50
Tin-lead solders	-0.50
Tin plate	-0.50
Tin plating on steel	-0.45
Chromium	
Chromium plating on steel	-0.50
Chromium and nickel plating on steel	-0.45
Chromium	-0.45
Copper & its alloys (bronze, brass etc.)	-0.20
Nickel & its alloys	
Nickel copper alloys	-0.25
Nickel plating on steel	-0.15
Silver & its alloys	
Silver solder	-0.20
Silver	0.00
Silver plating on copper	0.00
Silver-gold alloy	+0.05
Electrical contact metals	
Rhodium plating on silver plated copper	+0.15
Gold	+0.15
Platinium	+0.15
Carbon	+0.10

We would like to share our vision with you...

RFI is a growing company, one which we are immensely proud of. Like any successful business we need to know we are all heading in the same direction. Our company vision simply ensures that all our team know the framework for our future success:

- **Be locally dominant in our chosen fields**
- **Be globally relevant in our chosen fields**
- **Be profitable**
- **Continue to add shareholder value**
- **Provide a strong and supportive employment environment**
- **Be environmentally responsible**

RFI

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Company background
RFI has been serving the needs of the wireless communications market for over 25 years. First founded as a manufacturer of antenna systems, RFI has grown to be a key player in the development, manufacturing and distribution of wireless technology and energy products. Through our extensive network of resellers, systems integrators and retail outlets, RFI is a key supplier to industry and Government.

A global approach
RFI is active around the globe, taking our Australian designed and manufactured products to key markets in Asia, the Pacific and throughout the world. Currently RFI exports to 47 countries.

A complete service
RFI's major strength is the company's ability to offer our customers a completely integrated service from design through to the manufacture, distribution and supply of antennas and multicoupling systems, lightning protection products, cables and connectors, rechargeable batteries and solar modules. Extensive engineering research and design expertise, sophisticated test equipment, state of the art software and a superior manufacturing environment, means that RFI can offer complete turnkey project services which includes consulting, testing, training, installation and technical support.

Manufacturing
Our research and manufacturing facility has talented people, sophisticated test equipment, state of the art software and a superior manufacturing environment. We have in place a quality management program which is certified to ISO9001, QS9000 and recently have achieved certification to ISO14001 for our environmental management system, giving you confidence in everything we do.

Distribution
We have formed alliances with “best of breed” wireless technology companies around the world. So, whatever your network, land mobile, cellular, paging, telemetry, telematics or WLAN, we are able to provide components from antenna port to air interface.

In renewable energy we are fast gaining the reputation as the industry’s benchmark distributor. Extensive stockholdings, competitive pricing, comprehensive range and an extensive dealer network all contribute to this reputation for service.

For our customer
Many thousand lines of inventory, conveniently located warehousing, more than two decades of industry experience and knowledgeable sales personnel nationwide means we offer a smooth, simple ordering process to make it easy for you.

RFI is totally customer focused and we recognise our future depends on the success of our customers. We know that to be chosen as your supplier we must add value to your business and to achieve this we will work hard to deliver the best product when and where you need it and will back this up with the very best technical support.

So, whatever your goals, we want you to know we are working with you.

for more information visit our website at **www.rfi.com.au**

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the RFI antenna catalogue

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