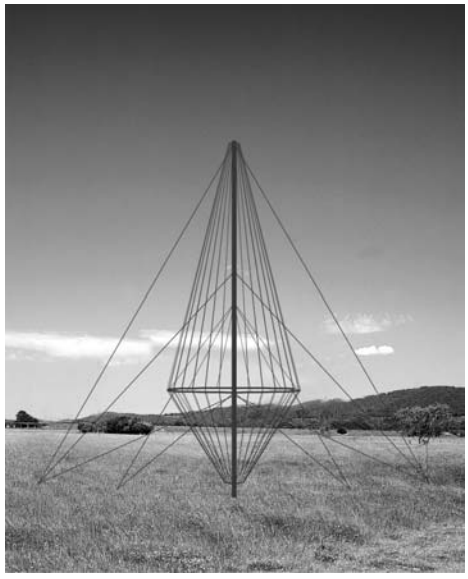
WM Series

Designed for medium to long distance omnidirectional operation, RFS monopoles are vertically polarized and are characterized by low angle radiation patterns and a wide selection of frequency ranges and bandwidths.

For detailed model specifications and ordering information please contact RFS.

- These antennas provide an economical solution for high power applications for general HF communications with their long term reliability and stability of electrical characteristics. Particular attention has been paid to the matching of dissimilar metals to minimize electro-chemical corrosion as well as noise and intermodulation components.
- Monopole antennas require a radial ground mat system for specified performance. Ground mat kits are supplied with each antenna. The radiator is comprised of a biconical cage of stranded marine grade stainless steel wire.
- The standard, optional, support structure is a guyed triangular galvanized steel mast supported on a heavy duty ceramic insulator. The insulated tower base is fitted with a horn gap for lightning protection. For very severe environments an option is available with the WM series for a wind rating of 305km/hr.

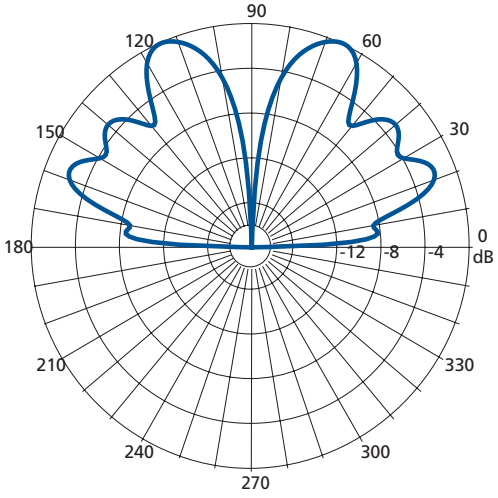


Model WM330

Ordering Information

WM230	•	3	1	0
Model		Always 3	Input Connection	Always 0

1	N Type
2	7/8" EIA
3	1-5/8" EIA
4	3-1/8" EIA



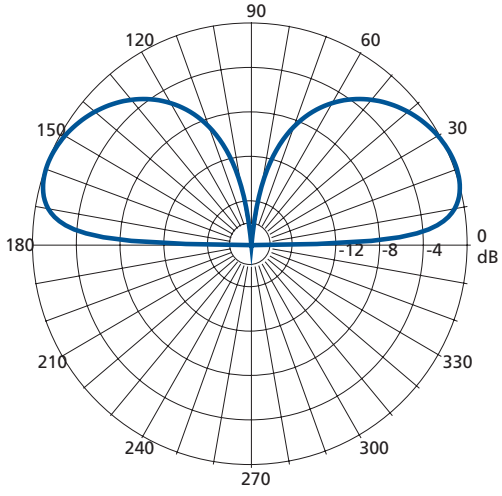
WM230 Elevation Cut
30MHz

WM230 Elevation Pattern

HF & TACTICAL ANTENNA SYSTEMS
7

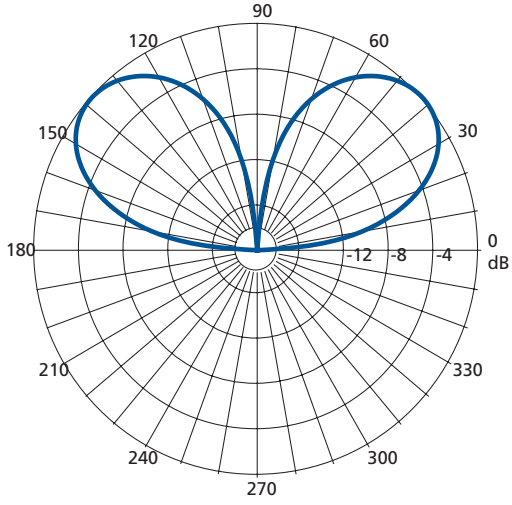
WM Series

ELECTRICAL SPECIFICATIONS			
Model Number	WM230.xxx	WM330.xxx	WM430.xxx
Frequency Range, MHz	2 - 30	3 - 30	4 - 30
Power Rating, kW	1 Average - 40 Average Note#1	1 Average - 40 Average Note#1	1 Average - 40 Average Note#1
Impedance, ohms	50 unbalanced	50 unbalanced	50 unbalanced
Azimuth Radiation Pattern	Omnidirectional	Omnidirectional	Omnidirectional
Polarization	Vertical	Vertical	Vertical
Isotropic Gain, dBi	4	4	4
VSWR	<2.5:1 2.0 to 2.15MHz, 2.0:1 2.15MHz up	<2.5:1 2.0 to 2.15MHz, 2.0:1 2.15MHz up	<2.5:1 2.0 to 2.15MHz, 2.0:1 2.15MHz up
Elevation Radiation Pattern	refer diagrams	refer diagrams	refer diagrams
Input Connector	N type;7/8"EIA; 1-5/8"EIA; 3-1/8" EIA	N type;7/8"EIA; 1-5/8"EIA; 3-1/8" EIA	N type;7/8"EIA; 1-5/8"EIA; 3-1/8" EIA
MECHANICAL SPECIFICATIONS			
Mast Type	MS3 (steel) sections,3m (9.8ft) length,30cm(11.8in) side	MS3 (steel) sections,3m (9.8ft) length,30cm(11.8in) side	MS3 (steel) sections,3m (9.8ft) length,30cm(11.8in) side
Mast/Antenna Height, m (ft)	34 (111.55)	25 (82)	19 (62.34)
Mast Guy Radius, m (ft)	23 (75.50)	17 (55.78)	12 (39.37)
Earth Mat Radius, m (ft)	38 (124.70)	26 (85.31)	20 (65.62)
Wind Survival Rating, km/h (mph)	250 (155);305 (190) Optional. Note#2	250 (155);305 (190) Optional. Note#2	250 (155);305 (190) Optional. Note#2
Material - Support Mast	Heavy duty welded galvanized steel	Heavy duty welded galvanized steel	Heavy duty welded galvanized steel
Material - Radiators	Marine grade stainless steel	Marine grade stainless steel	Marine grade stainless steel
Material - Guy Assemblies	Galvanized steel and heavy duty fail-safe insulators	Galvanized steel and heavy duty fail-safe insulators	Galvanized steel and heavy duty fail-safe insulators
Material - Earth Mat	64 radials of 16 SWG (1.6mm) copper wire	64 radials of 16 SWG (1.6mm) copper wire	64 radials of 16 SWG (1.6mm) copper wire
Packed Weight, Kg (lb)	1320 (2904)	1090 (2398)	820 (1804)
Packed Volume, cu m (cu ft)	9 (317.80)	7.5 (264.83)	5.6 (197.74)



WM230 Elevation Cut
2MHz

WM230 Elevation Pattern



WM230 Elevation Cut
7MHz

WM230 Elevation Pattern

TDG Series

A high angle radiating antenna designed for ionospheric propagation over short to medium distances. Specifically designed for ground to air systems utilizing high performance and reliability.

For detailed model specifications and ordering information please contact RFS.

- The Tandem Delta is a derivation of the RFS series of delta antennas.
- Unlike the standard delta or other traveling wave antennas, where radiation results from a wave traveling upward to a resistive termination at the apex, the new Tandem Delta does not incorporate a terminating resistor. All input power is therefore radiated and, in consequence, these new antennas have a 2 to 4dB higher gain than the standard delta. Furthermore, removal of the terminating resistor means that higher power ratings are more readily achieved.
- Due to it's high radiation angle characteristics, the Tandem delta antenna is less prone to long distance interference and local electrical noise. It is strongly recommended for high grade communication networks.
- Tandem Delta antennas operate completely independently of ground conditions. Their polarization is elliptical.
- RFS masts and stubmasts for this antenna, are available as options.

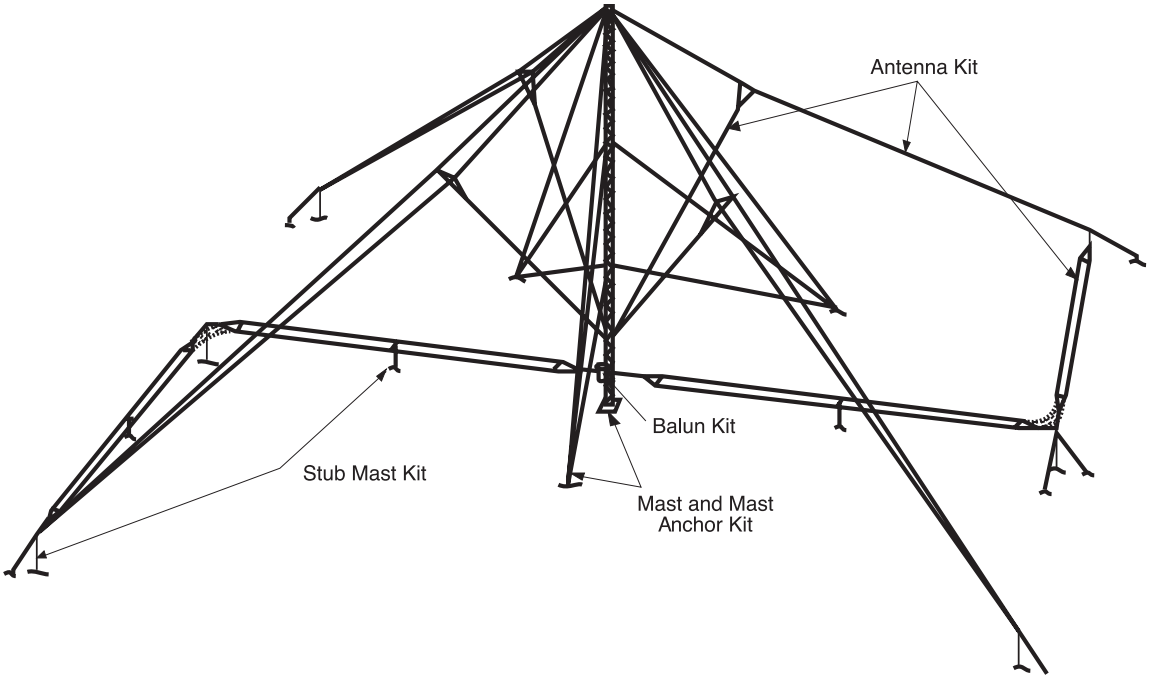
Model TDG230

Ordering Information

1. Specify Model
2. Specify Input Impedance/Power
3. Specify Mast Requirements

TDG230	•	0	1	0
Model		Input Impedance/ Power	Always 1.	Mast Requirements

	Input Impedance/ Power		Mast Requirements
0	600Ω/20kW (no balun)	0	None
1	50Ω/250kW	3	Mast, Anchor & Stub Mast kits
2	50Ω/1kW		
3	50Ω/10kW		

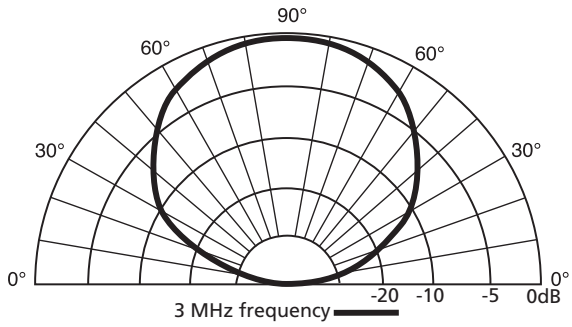


TDG Antenna

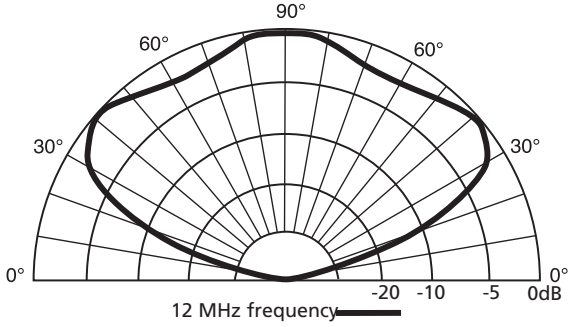
TDG Series

ELECTRICAL SPECIFICATIONS		
Model Number	TDG230.xxx	TDG330.xxx
Frequency Range, MHz	2 - 30	3 - 30
Power Rating, kW	0.25 - 20	0.25 - 20
Impedance, ohms	600 balanced; 50 (balun)	600 balanced; 50 (balun)
Azimuth Radiation Pattern	Omnidirectional	Omnidirectional
Polarization	Elliptical	Elliptical
Isotropic Gain, dBi	5 - 7	5 - 7
VSWR	<2.5:1	<2.5:1
Elevation Radiation Pattern	refer diagrams	refer diagrams
MECHANICAL SPECIFICATIONS		
Mast/Antenna Height, m (ft)	30 (98.43)	20 (65.62)
Ground Dimensions, m (ft)	92 (301.85) x 92 (301.85)	60 (196.86) x 60 (196.86)
Wind Rating (no ice), km/h (mph)	250 (155) Note#1	250 (155) Note#1
Material - Radiators	Marine grade stainless steel	Marine grade stainless steel
Packed Weight, Kg (lb)	1300 (2860)	860 (1892)
Packed Volume, cu m (cu ft)	8 (282.48)	6 (211.86)

Note 1
Wind ratings calculated in accordance with AS1170-1981: Part 2, "SAA Loading Codes, Wind Forces".



TDG330 Azimuth Radiation Pattern - perfect ground



TDG330 Elevation Radiation Pattern

D Series

Delta antennas are designed for coverage over short to medium distances and exhibit essentially a omni-directional, high angle radiation pattern. Radiation results from a wave traveling upwards to a resistive termination at the apex of the antenna.

For detailed model specifications and ordering information please contact RFS.

- Each antenna is available with or without a support mast and is supplied complete with the appropriate balun and termination. When masts are supplied they include all installation hardware.
- Within the range of delta antennas are models where the oblique elements are fed by open wire, as well as others which are fed by a coaxial cable that can be ducted over or underground. When ordering coaxial cable models the type of cable should be specified: standard RG213 cable or optional half inch foam dielectric cable. The input connector can either be N type (balun) or open wire feed.

Models D230 and D330

- With these omni-directional models, antenna elements are in a single plane with the feed distributed from a central balun transformer, through horizontal feed "wings", to the bottom of the oblique elements. Each element is fed anti-phase to the other. Ground anchors secure wings and oblique elements in position.
- Two of these omni-directional deltas can be attached to a single mast and operated as separate transmit antennas. Isolation between the two is 30dB. A dual antenna variant, for circular polarization, can also be supplied.

Models DC230 and DC330

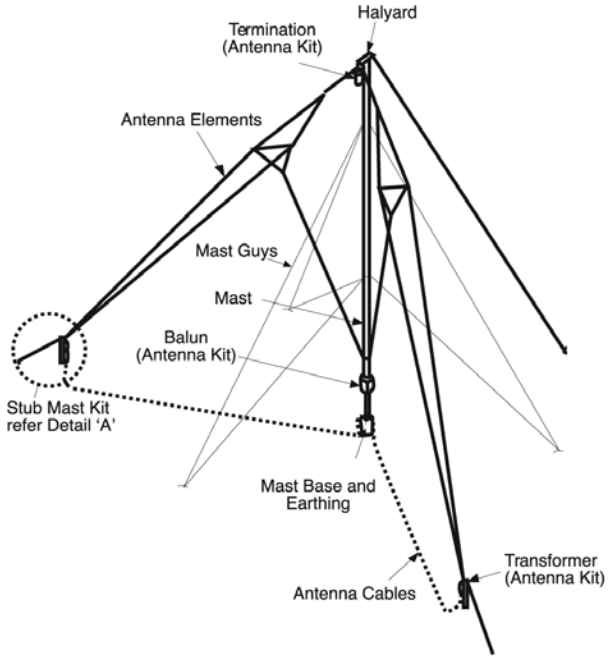
- Although these omni-directional deltas are more expensive than Model D antennas, the lack of over ground wings offer advantages where personnel safety and peculiar site features are an issue. With these a different form of wing is used. Again a central balun supplies anti-phase signals to the bottom of the oblique elements, but in this case via underground interconnect coaxial cable lines and secondary balun transformers.
- Two of these antennas can be attached to one mast and operated as separate transmit antennas. Isolation between the two is 30dB.

Models DDC230 and DDC330

- These semi-directional models have two oblique elements set at an angle to each other supported by a common mast. Arrangement of the feed is similar to that used with the DC Series.

Model D330

Model DC330



Model DDC230

D Series

ELECTRICAL SPECIFICATIONS				
Model Number	D230.xxx	D330.xxx	DC230.xxx	DC330.xxx
Frequency Range, MHz	2 - 30	3 - 30	2 - 30	3 - 30
Power Rating, kW	0.25 Average - 1 Average	0.25 Average - 1 Average	0.25 Average - 1 Average	0.25 Average - 1 Average
Impedance, ohms	600 balanced; 50 (balun)	600 balanced; 50 (balun)	50	50
Isotropic Gain, dBi	4 - 7	4 - 7	4 - 7	4 - 7
VSWR	2.0:1	2.0:1	2.0:1	2.0:1
MECHANICAL SPECIFICATIONS				
Mast/Antenna Height, m (ft)	22 (72.18)	16.5 (54.14)	22 (72.18)	16.5 (54.14)
Antenna Width, m (ft)	58 (190.29)	46 (151)	44 (144.36)	32 (105)
Mast Guy Radius, m (ft)	14.5 (47.57)	12.5 (41)	14.5 (47.57)	12.5 (41)
Mast/Antenna Height, m (ft)	22 (72.18)	16.5 (54.14)	22 (72.18)	16.5 (54.14)
Wind Rating (no ice), km/h (mph)	230 (143) Note#1	230 (143) Note#1	230 (143) Note#1	230 (143) Note#1
Material - Radiators	Marine grade stainless steel	Marine grade stainless steel	Marine grade stainless steel	Marine grade stainless steel
Packed Weight, Kg (lb)	35 (77) excludes mast and balun	30 (66) excludes mast and balun	40 (88) excludes mast and balun	35 (77) excludes mast and balun
Packed Dimensions, cm (in)	90 x 65 x 30 (35-7/16 x 25-19/32 x 11-13/16) excludes mast and balun	90 x 65 x 30 (35-7/16 x 25-19/32 x 11-13/16) excludes mast and balun	90 x 65 x 30 (35-7/16 x 25-19/32 x 11-13/16) excludes mast and balun	100 x 70 x 30 (39-3/8 x 27-1/2 x 11-13/16) excludes mast and balun

ELECTRICAL SPECIFICATIONS		
Model Number	DDC230.xxx	DDC330.xxx
Frequency Range, MHz	2 - 30	3 - 30
Power Rating, kW	0.25 Average - 1 Average	0.25 Average - 1 Average
Impedance, ohms	50	50
Isotropic Gain, dBi	4 - 7	4 - 7
VSWR	2.0:1	2.0:1
MECHANICAL SPECIFICATIONS		
Mast/Antenna Height, m (ft)	19 (62.34)	14 (46)
Antenna Width, m (ft)	41 (134.52)	29 (95)
Mast Guy Radius, m (ft)	14.5 (47.57)	12.5 (41)
Mast/Antenna Height, m (ft)	19 (62.34)	14 (46)
Wind Rating (no ice), km/h (mph)	230 (143) Note#1	230 (143) Note#1
Material - Radiators	Marine grade stainless steel	Marine grade stainless steel
Packed Weight, Kg (lb)	40 (88) excludes mast and balun	35 (77) excludes mast and balun
Packed Dimensions, cm (in)	100 x 70 x 30 (39-3/8 x 27-1/2 x 11-13/16) excludes mast and balun	100 x 70 x 30 (39-3/8 x 27-1/2 x 11-13/16) excludes mast and balun

Note 1
Wind ratings are calculated to the following Australian standards:
1. AS1664-1975 - SAA Aluminum Structures Code (which gives a safety factor of 65% to material yield)
2. AS1250-1981 - SAA Steel Structures Code (which gives a safety factor of 65% to material yield)
3. AS1170-1981 - Part 2 - SAA Loading Code, Wind Forces

D Series

Ordering Information D Series

1. Specify Model
2. Specify Power Rating (Av.)
3. Specify Input Impedance
4. Specify Mast Requirements

D230	•	2	0	0
Model		Power Rating	Input Impedance	Mast Requirements

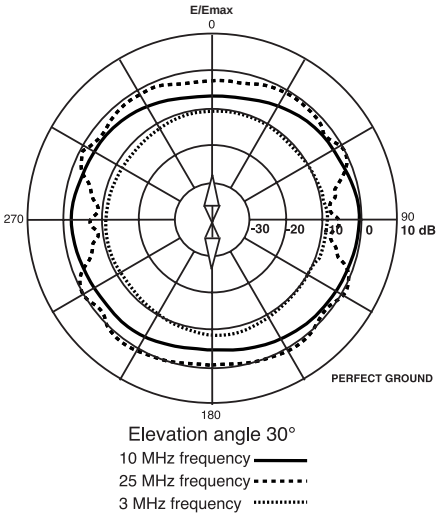
Power Rating		Input Impedance		Mast Requirements	
2	250W A	0	600 ohm (no balun)	0	None
3	1000W A	1	50 ohm (balun)	1	Mast Kit & Halyard
				2	Mast Kit, Jury Mast & Halyard

Ordering Information DC & DDC Series

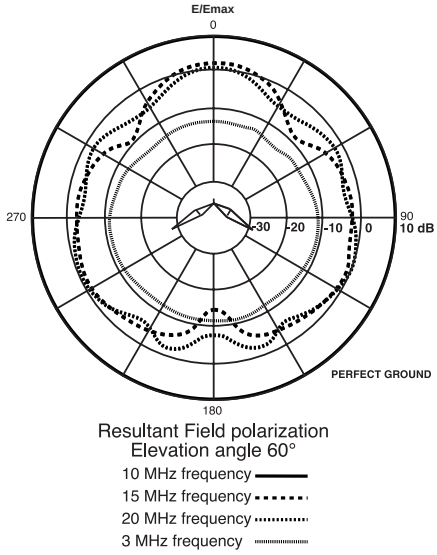
1. Specify Model
2. Specify Power Rating (Av.)
3. Specify Antenna Cable required
4. Specify Mast Requirements

DC230	•	2	1	0
Model		Power Rating	Interconnect Cable Supplied	Mast Requirements

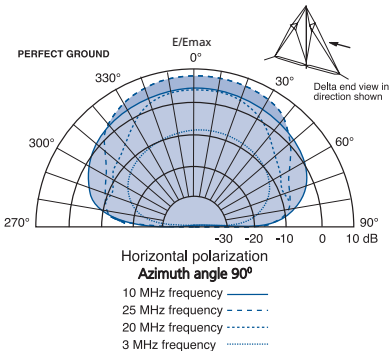
Power Rating		Interconnect Cable Supplied		Mast Requirements	
2	250W A	0	RG213	0	None
3	1000W A	1	LCF12	1	Mast Kit & Halyard
				2	Mast Kit, Halyard & Stub Mast Kit



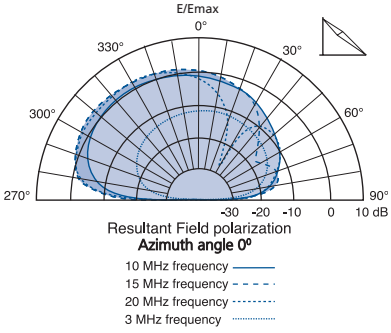
Azimuth Radiation Pattern, D330



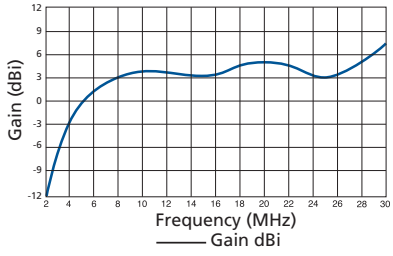
Azimuth Radiation Pattern, DDC330



Elevation Pattern, D330



Elevation Pattern, DDC330



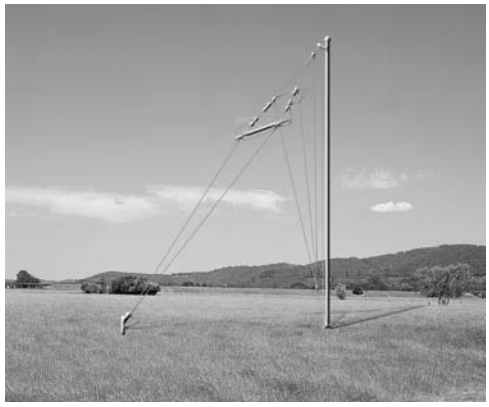
Typical Gain Curve

SD Series

An economical, broadband, omni-directional traveling wave antenna, the Model SD214 is designed for coverage over short to medium distances and exhibits essentially an omni-directional high angle radiation pattern. Two versions are available, one rated at 100W average, the other, 250W average.

For detailed model specifications and ordering information please contact RFS.

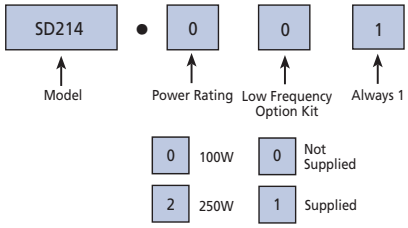
- The SD214 is simple to install and erection can be carried out by unskilled personnel within 30 minutes.
- A halyard is incorporated for ease of erection and enables the antenna to be deployed from a wide range of support structures.
- A simple metal stake or pipe is required to secure the lower end of the antenna and attach the supplied input balun.
- Where soil conditions are poor, antenna performance below approximately 3MHz can be affected. This problem can be overcome by using an optional low frequency kit.



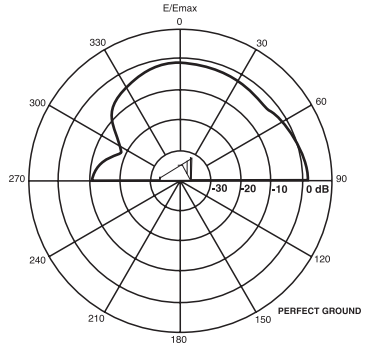
Model SD214

Ordering Information

1. Specify Model
2. Specify Power Rating (Av.)
3. Specify Low Freq. Option Kit

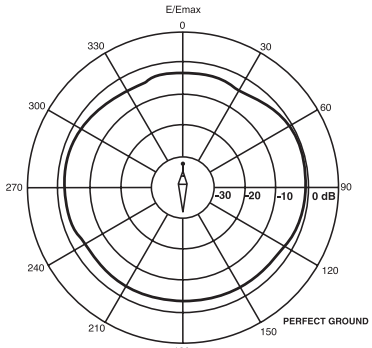


ELECTRICAL SPECIFICATIONS		
Model Number	SD214.0xx	SD214.2xx
Frequency Range, MHz	2 - 14	2 - 14
Power Rating, kW	0.1 Average, 0.4 PEP	0.25 Average, 1 PEP
Impedance, ohms	50 unbalanced	50 unbalanced
Azimuth Radiation Pattern	Omnidirectional	Omnidirectional
VSWR	2.5:1 max, 2.0:1 typical	2.5:1 max, 2.0:1 typical
Elevation Radiation Pattern	refer diagrams	refer diagrams
Input Connector	N type socket	N type socket
MECHANICAL SPECIFICATIONS		
Material - Radiators	Marine grade stainless steel	Marine grade stainless steel
Packed Weight, Kg (lb)	7 (15.4)	8 (17.6)
Packed Dimensions, cm (in)	88 x 34 x 10 (34-21/32 x 13-3/8 x 3-15/16)	100 x 35 x 12 (39-3/8 x 13-25/32 x 4-23/32)
Assembly Time, minutes	<30 for 1 person	<30 for 1 person



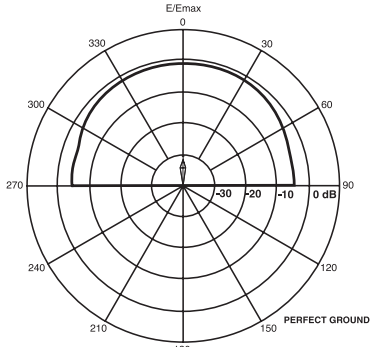
Elevation pattern
Azimuth angle 0°
8 MHz frequency

Radiation Pattern



Elevation pattern
Azimuth angle 60°
8 MHz frequency

Radiation Pattern



Elevation pattern
Azimuth angle 90°
8 MHz frequency

Radiation Pattern

BDH Series

This broadband series of antennas is designed for short to long (depending on frequency) range transmitting or receiving applications. Polarization is horizontal and the radiation pattern is essentially omnidirectional.

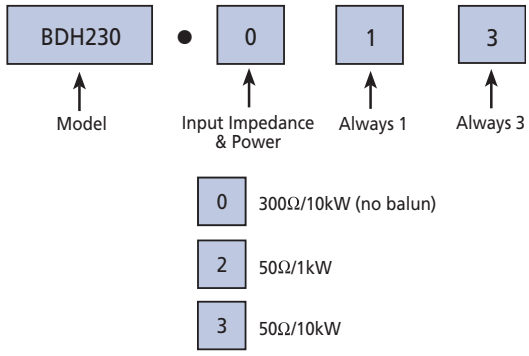
For detailed model specifications and ordering information please contact RFS.

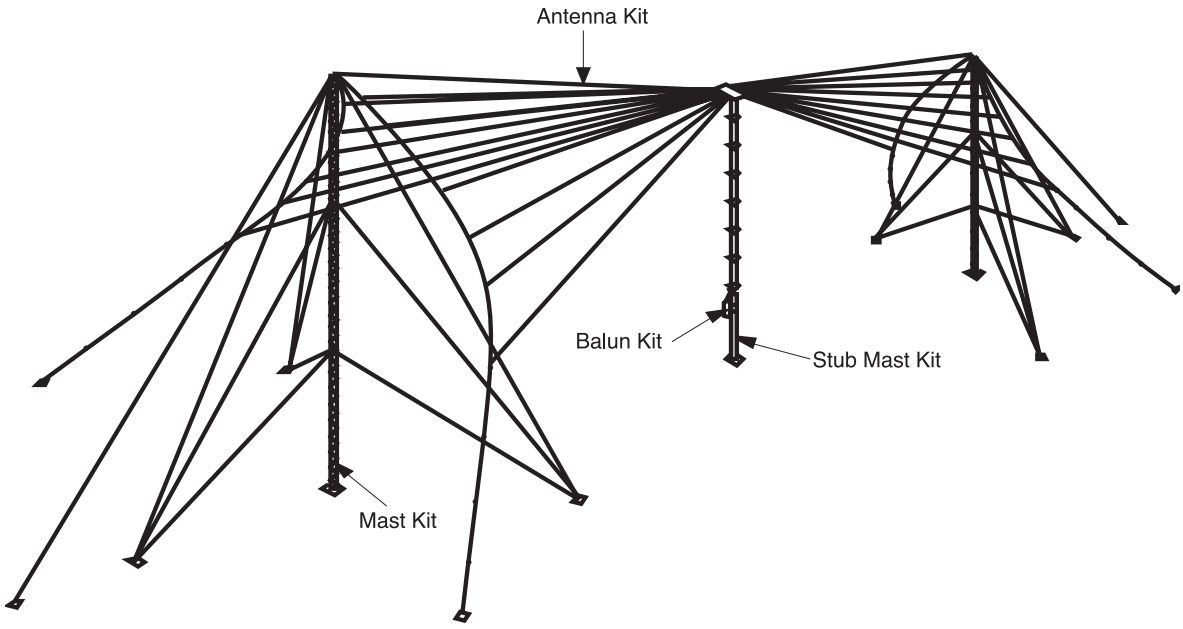
- These broadband antennas do not require tuning eliminating the need for any form of antenna tuning unit (ATU) with its associated losses. No terminating resistors are employed so full power is available for radiation.
- The broadband feature is ideal for multi-channel or frequency agile synthesized HF radio equipment.
- The antenna is comprised of two horizontal conical sections, the elements of which are connected in the center to a common feed line. Either a 300 ohm balanced line, or a 50 ohm coaxial feeder with a balun option may be used to feed the antenna.
- The Average power rating of the standard antenna is 10kW with higher ratings available on special order. The BDH-SW50 is a 50kW broadcast antenna version.
- Baluns are available with average power ratings of 1kW and 10kW. Higher ratings are also available.

Model BDH230

Ordering Information

1. Specify Model
2. Specify Input Impedance/Power



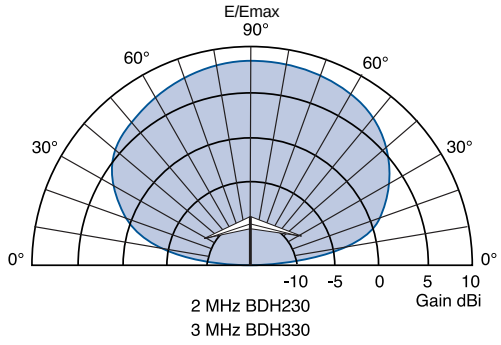


BDH Series

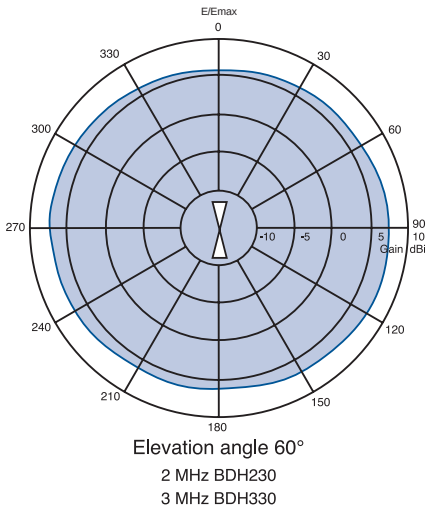
BDH Series

ELECTRICAL SPECIFICATIONS			
Model Number	BDH230.xxx	BDH330.xxx	BDH-SW50
Frequency Range, MHz	2 - 30	3 - 30	3 - 16
Power Rating, kW	1 Average, 4 PEP,10 Average, 40 PEP	1 Average, 4 PEP,10 Average, 40 PEP	50 Average, 200 PEP
Impedance, ohms	300 balanced; 50 (balun)	300 balanced; 50 (balun)	300 balanced; 50 unbalanced
Polarization	Horizontal	Horizontal	Horizontal
Isotropic Gain, dBi	8	8	8
VSWR	2.5:1 max, 2.0:1 typical	2.5:1 max, 2.0:1 typical	2.5:1 max, 2.1:1 typical
MECHANICAL SPECIFICATIONS			
Mast/Antenna Height, m (ft)	21 (69)	15 (49.22)	15 (49.22)
Ground Dimensions, m (ft)	45 (147.65) x 105 (344.5)	35 (114.8) x 75 (246)	35 (114.8) x 75 (246)
Wind Rating (no ice), km/h (mph)	300 (186.5) Note#1	200 (124) Note#1	200 (124) Note#1

Note 1
Wind ratings are calculated to the following Australian Standards:
1. AS1250 SAA Steel Structure Code (which gives a safety factor of 1.5 to material yield).
2. AS1170.2 SAA Loading Code, Wind Forces.
Options
MS3-30/21 mast, 21m(68.9ft), packed weight 550Kg(1210lb), Packed size, cm, 60x170x304(23.6x67x119.7in)
MS3-30/15 mast, 15m(49.2ft), packed weight 400Kg(880lb), Packed size, cm, 60x120x304(23.6x47.2x119.7in)
SMBDH Stubmast, packed weight 18Kg(39.6lb), Packed size, cm, 280x10x12(110.2x3.9x4.7in)



Elevation Radiation Pattern



Azimuth Radiation Pattern

TWD Series

These horizontally polarized antennas are suitable for short to medium distance coverage and provide an economical option to the full Biconical dipole where cost and ground area may be an issue.

For detailed model specifications and ordering information please contact RFS.

- The radiation pattern is essentially omnidirectional, however for long distance links the dipole should be orientated broadside to the required direction of communication.
- Three models are available:
  frequency range 2 - 30MHz: Model TWD230
  frequency range 3 - 30MHz: Model TWD330
  frequency range 5 - 30MHz: Model TWD530
- All models are available in 250W and 1000W power rating.
- Although not part of the basic package, support masts are available with all necessary hardware for installation.

TWD Antenna

Ordering Information

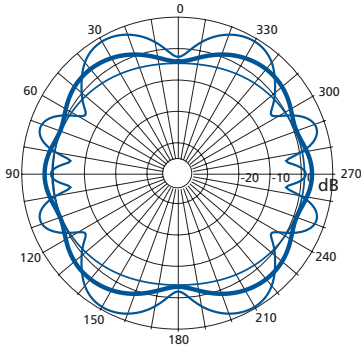
1. Specify Model
2. Specify Mast Requirements
3. Specify Power Rating (Avg.)

TWD230	•	0	0	0
Model		Mast Requirements	Always 0	Power Rating

1	None	0	250W avg.
2	Mast Kit Only	2	1000W avg.
3	Mast & Jury Kits		

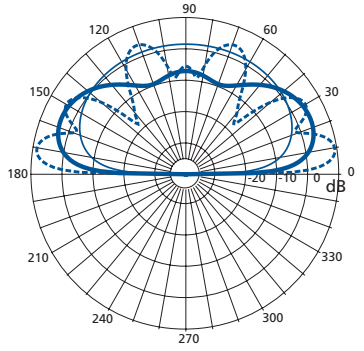
ELECTRICAL SPECIFICATIONS			
Model Number	TWD230.xxx	TWD330.xxx	TWD530.xxx
Frequency Range, MHz	2 - 30	3 - 30	5 - 30
Power Rating, kW	0.25 Average,1 Average	0.25 Average,1 Average	0.25 Average,1 Average
Impedance, ohms	50	50	50
Polarization	Horizontal	Horizontal	Horizontal
VSWR	2.5:1	2.5:1	2.5:1
Input Connector	N type socket	N type socket	N type socket
MECHANICAL SPECIFICATIONS			
Mast/Antenna Height, m (ft)	18 (59.10)	10 - 15 (32.81 - 49.22)	7 (22.97)
Distance Between Masts, m (ft)	53 (173.90)	40 (131.24)	29 (95)
Wind Survival Rating, km/h (mph)	160 (100) Note#1	200 (124.3) Note#1	200 (124.3) Note#1
Material - Radiators	Marine grade stainless steel	Marine grade stainless steel	Marine grade stainless steel

Note 1
Wind ratings calculated in accordance with AS1170-1981: Part 2, "SAA Loading Codes, Wind Forces".



TWD330 Azimuth Cut
Maximum Gain Curves
5MHz
12MHz
30MHz

Azimuth Pattern



TWD330 Elevation Cut
Maximum Gain Curves
5Mhz
12MHz
30MHz

Elevation Pattern

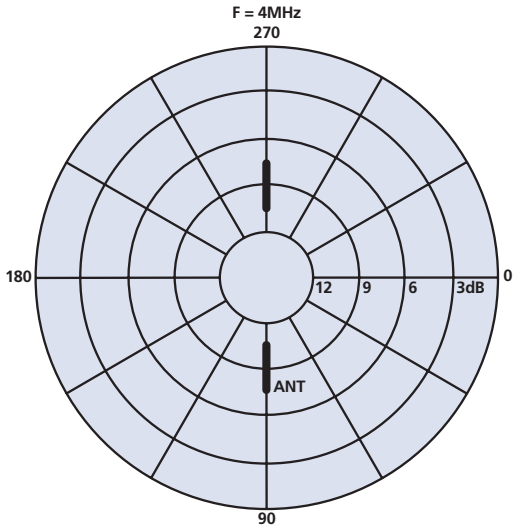
ADH Ground Version Series

The ADH antenna is a horizontally polarized antenna fitted with an adaptive tuning mechanism.

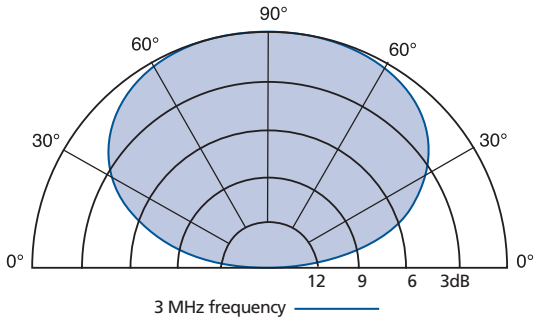
- Available in two frequency bands (2-30MHz and 3-30MHz), the antenna is mounted on a 9 meter high tubular mast.
- A hinged mast base is incorporated enabling ease of installation and access to the adaptive tuning mechanism.
- Up to 8MHz the antenna is predominantly omnidirectional becoming bidirectional when operated between 8-30MHz.
- The ADH series operates in conjunction with a fully automatic remote control unit.

ADH Ground Version Antenna

ELECTRICAL SPECIFICATIONS		
Model Number	ADH230G	ADH330G
Frequency Range, MHz	2 - 30	3 - 30
Power Rating, kW	1	1
Impedance, ohms	50	50
Azimuth Radiation Pattern	Omnidirectional +/- 2dB < 8MHz, Bidirectional > 8MHz	Omnidirectional +/- 2dB < 8MHz, Bidirectional > 8MHz
Polarization	Horizontal	Horizontal
VSWR	<1.5:1	<1.5:1
Elevation Radiation Pattern	refer diagrams	refer diagrams
Switching Time, mS	20	20
Remote Control Cable	28 pair, armored	28 pair, armored
Remote Control Location, m (ft)	500 (1640.5)	500 (1640.5)
MECHANICAL SPECIFICATIONS		
Antenna Width, m (ft)	16 (52.50)	12 (39.40)
Wind Survival Rating, km/h (mph)	160 (100)	200 (124.3)



Azimuth Radiation Pattern



Elevation Radiation Pattern

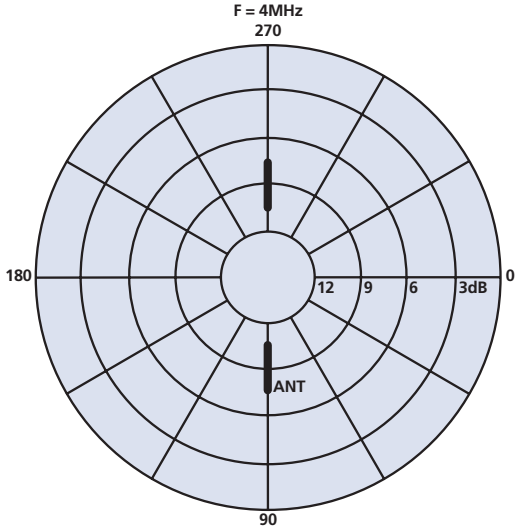
ADH Roof Version Series

The ADH antenna is a horizontally polarized dipole antenna fitted with an adaptive tuning mechanism.

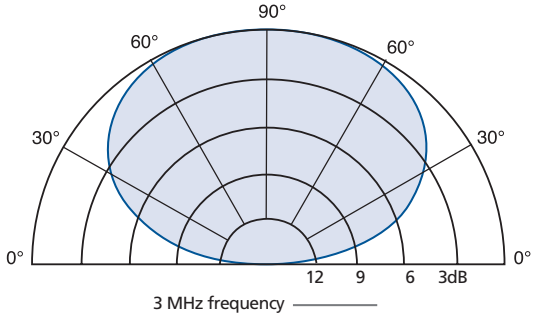
- Available in two frequency bands (2-30MHz and 3-30MHz), the roof mounted version of this antenna is mounted on a 6 meter high tubular mast.
- A hinged mast base is incorporated enabling ease of installation and access to the adaptive tuning mechanism.
- The antenna radiation pattern will vary dependent on the area of roof and height above the ground that it is deployed.
- On smaller buildings (5-7 meters in height) the antenna is predominantly omnidirectional up to 8MHz, becoming bidirectional when operated between 8-30MHz.
- On taller buildings (15-20 meters) the antenna is bidirectional across the full band of operation.

ADH Roof Version Antenna

ELECTRICAL SPECIFICATIONS		
Model Number	ADH230R	ADH330R
Frequency Range, MHz	2 - 30	3 - 30
Power Rating, kW	1	1
Impedance, ohms	50	50
Azimuth Radiation Pattern	Omnidirectional or Bidirectional depending on frequency and installation height	Omnidirectional or Bidirectional depending on frequency and installation height
Polarization	Horizontal	Horizontal
VSWR	<1.5:1	<1.5:1
Elevation Radiation Pattern	refer diagrams	refer diagrams
Switching Time, mS	20	20
Remote Control Cable	28 pair, armored	28 pair, armored
Remote Control Location, m (ft)	500 (1640.5)	500 (1640.5)
MECHANICAL SPECIFICATIONS		
Antenna Width, m (ft)	16 (52.50)	12 (39.40)
Wind Survival Rating, km/h (mph)	160 (100)	200 (124.3)



Azimuth Radiation Pattern



Elevation Radiation Pattern