

**AIR BAND ANTENNAS
SUMMARY**



- Â Collinear**
85 – 140 MHz, any 5% Bandwidth
- Â Coaxial Dipoles**
118 – 136 MHz, any 3% Bandwidth
- Â Sidemount Dipoles**
118 – 136 MHz Full Band
- Â Stack Dipole Arrays**
118 – 136 MHz Full Band
- Â Monocones**
118 – 136 MHz Full Band
- Â Discones**
70 – 1000 MHz Full Band

Section 1b

AIR BAND ANTENNAS

Updated 14 February 2011

G12 Air Band Collinear

Frequency
85 – 140 MHz

Bandwidth
Any 5 %



Where some gain is desired for omnidirectional Air Band communications, then consider the G12 collinear base station antenna. With 3 dBd gain, this collinear can be manufactured to cover any 5% bandwidth within the frequency range 118 to 136 MHz.

Built to full commercial standard, the radiating elements are enclosed within a robust fiberglass radome providing full protection against the elements and minimal wind loading.

An N-Female connector rated for up to 250 watts power is located at the base of the aluminium mount tube.

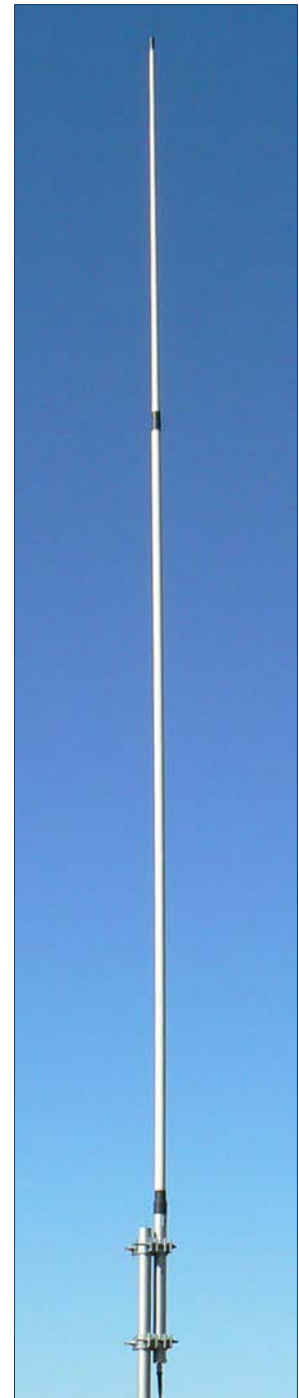
If a power rating higher than 250 watts is required, please contact ZCG Scalar for advice.

Mast mounting clamps, feeder cable, connectors and other accessories are available separately to complete the installation.

SPECIFICATIONS	G12
Construction	Aluminium internals, white fiberglass tapered radome and aluminium mount tube
Frequency Range	85 to 140 MHz. Suitable for air band communications in the 118 to 136 MHz range
Maximum Bandwidth	Any 5 %. Specify your Transmit and Receive frequencies in writing when ordering
Return Loss, VSWR	Better than -15 dB, < 1.5:1 across the bandwidth specified
Tuning	Factory
Gain	3 dBd
Maximum Power	250 Watts
Impedance (Nom.)	50 Ohms
DC Grounding	Yes
Polarisation	Vertical
E Plane	32°
H Plane	360° omnidirectional, ± 0.5 dBd
Cable Tail	None
Connector	N-Female connector located at the base of the mount tube
Height at lowest frequency 85 MHz	4.8 metres. At higher frequencies, the collinear antenna height reduces
Weight (Bare)	9 kg
Projected Area	0.14 m ²
Wind Load at 160 kph	17 kg, 0.170 kN
Mount Tube	48 mm diameter x 600 mm, aluminium
Mast Mount Clamps recommended	2 x UAM180L

UAM180L clamps are recommended for mounting the G12 collinear antenna to a round mast between 40 mm and 75 mm in diameter. These clamps are galvanised steel designed for heavy duty service.

For larger diameter masts up to 115 mm, UAM180UNI and UAM180UNIL parallel clamps are available.



Section 1b

AIR BAND ANTENNAS

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**B14 and B18
Air Band Coaxial Dipoles**

Frequency
118 – 136 MHz

Bandwidth
Any 3 %



The **B14** and **B18** omnidirectional coaxial dipoles are an effective and economical air band base station antenna. For use in the 118 to 136 MHz frequency range, specify any 3% bandwidth you require and your dipole will be manufactured and tuned accordingly at better than 1.5:1 VSWR.

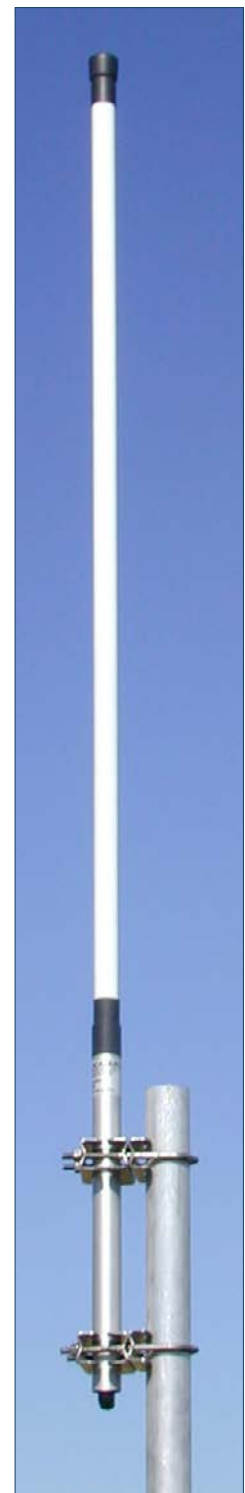
At the lowest frequency 118 MHz the coaxial dipole will stand 3 metres tall. When manufactured for higher frequencies, the fiberglass radome height reduces slightly.

- Ⓐ B14** has an aluminium mount tube.
- Ⓐ B18** has a higher quality stainless steel mount tube more suitable for harsh environments and locations where extreme weather conditions prevail.

An N-Female connector rated for up to 100 watts input power is located at the base of the mount tube.

Mast mounting clamps, coaxial feeder cable, connectors and other installation accessories are all available separately.

SPECIFICATIONS	B14	B18
Construction	Aluminium mount tube Aluminium internals and white fiberglass radome	Stainless Steel mount tube
Frequency Range	Air Band frequency range 118 to 136 MHz	
Maximum Bandwidth	Any 3 %. Specify your Transmit and Receive frequencies in writing when ordering.	
Return Loss, VSWR	Better than -15 dB, < 1.5:1 across the 3% bandwidth specified	
Tuning	Factory	
Gain	0 dBd	
Maximum Power	100 Watts	
Impedance (Nom.)	50 Ohms	
DC Grounding	Yes	
Polarisation	Vertical	
H Plane	360° omnidirectional, ± 0.5 dBd	
E Plane	46°	
Cable Tail	None	
Connector	N-Female connector located at the base of the mount tube	
Height at lowest frequency 118 MHz	3 metres. At higher frequencies the coaxial dipole antenna height reduces	
Weight	1.0 kg	1.9 kg
Projected Area	0.05 m ²	
Wind Load at 160 kph	6.0 kg, 0.08 kN	
Mount Tube	32 mm diameter x 500 mm long	
Mounting Situation	At 118 MHz the antenna must be more than 2 metres away from the nearest vertical structure	
Mast Mount Clamps recommended	2 x EB1SS clamps are available to order separately	



EB1SS clamps have all stainless steel components and are recommended to mount the **B14** or **B18** coaxial dipole antenna parallel to a round mast between 20 mm and 50 mm in diameter.

Two clamps will be required.

Section 1b

AIR BAND ANTENNAS

Updated 14 February 2011

B42 and B42SS Air Band Sidemount Dipoles

Frequency
118 – 136 MHz

Bandwidth
FULL BAND



The B42 sidemount dipoles are for Air Band communications across the entire frequency range 118 to 136 MHz at better than 1.5:1 VSWR.

⚠ **B42** is constructed from aluminium.

⚠ **B42SS** is manufactured entirely from stainless steel and is more suitable for harsh environments and areas where extreme weather conditions prevail.

The exceptionally broad bandwidth and reliable construction make a sidemount dipole perfect for use as a base station antenna.

Nominally 0 dBd gain for a single bay, approximately 2.3 dBd of forward gain results by using the mount pole as a reflector at 0.2 wave spacing.

Mast to tower distance can be varied to produce the desired radiation pattern.



To achieve higher gain and power, mount dipoles in stack array formations using a power divider or phasing harness. Note that ZCG Scalar also manufacture 2 and 4 stack dipole arrays with internal power divider especially for this purpose.

Radiating elements operate at DC ground potential to eliminate static noise and interference.

An N-Female connector rated for up to 250 watts power is fitted to the 1 metre RG213 cable tail.

A right-angle mast mounting clamp, coaxial feeder cable, connectors and other installation accessories are all available separately to complete the installation.

SPECIFICATIONS	B42	B42SS
Construction	Aluminium	Stainless Steel
Frequency Range	Air Band 118 to 136 MHz	
Bandwidth	Full Band	
Return Loss, VSWR	Better than -15 dB, less than 1.5:1 across the entire band	
Tuning	Factory	
Gain	Nominal 0 dBd for a single bay, approximately 2.3 dBd forward gain results by using the mount pole as a reflector at 0.2 wave spacing	
Maximum Power	250 Watts	
Impedance (Nom.)	50 Ohms	
DC Grounding	Yes	
Polarisation	Vertical	
Cable Tail	1 metre of RG213 cable	
Connector	N-Female fitted to the cable	
Dipole Height	1.035 metre	
Weight	2.5 kg	3.8 kg
Projected Area	0.054 m ²	
Wind Load at 160 kph	6.5 kg	
Mount Tube	1.0 metre long x 40 mm diameter	
Right-Angle Mast Clamp recommended	Y2300	Y2300SS
	Suit a round mast between 30 mm and 50 mm diameter	

Section 1b

**AIR BAND
ANTENNAS**

Updated 14 February 2011

**S2B42/1C and S4B42/1C
Air Band Stack Dipole Arrays**

Frequency
118 – 136 MHz

Bandwidth
FULL BAND



Constructed from either aluminium or stainless steel, these 2 Stack and 4 Stack Dipole Arrays cover the full Air Band frequency range 118 to 136 MHz at less than 1.5:1 VSWR.

Each dipole in the array is end fed in phase via a power divider neatly concealed inside the 50 mm diameter mount tube. Terminated with an N-Female connector, these stack arrays are rated for up to 250 watts input power.

The dipole spacing of both the 2 stack and 4 stack models is calculated to give maximum accumulated gain and minimum side lobes in an array form.

For the 2 stack model, two clamps will be required to secure the array top and bottom. For the 4 stack model, three clamps are recommended to secure the antenna top, centre and bottom.

There are various methods of mounting these stack dipole arrays to a mast or tower. Clients are invited to consult ZCG Scalar for advice about the heavy duty clamps available to best suit their mounting arrangement.

Coaxial feeder cable, connectors and other accessories are available to complete your base station antenna installation.



SPECIFICATIONS	S2B42/1C	S4B42/1C
Construction	Aluminium, or add the letters 'SS' for Stainless Steel	
Dipoles in Array	2	4
Frequency	Air Band 118 to 136 MHz	Air Band 118 to 136 MHz
Bandwidth	Full Band	Full Band
Return Loss, VSWR	Better than -15 dB, less than 1.5:1 across the full band	
Tuning	Factory	Factory
Gain	4.5 dBd	7.5 dBd
Maximum Power	250 Watts	250 Watts
Impedance (Nom.)	50 Ohms	50 Ohms
DC Grounding	Yes	Yes
Polarisation	Vertical	Vertical
E-Plane	33°	16°
H-Plane	240°	240°
Cable Tail	None	None
Connector	N-Female located at the base of the mount tube	
Mount Tube Dimensions	3.3 metres long x 50 mm diameter	5.6 metres long x 50 mm diameter
Weight	18 kg in Aluminium 30 kg in S/Steel	30 kg in Aluminium 50 kg in S/Steel
Projected Area	0.27 m ²	0.41 m ²
Wind Load at 160 kph	24 kg	48 kg
Mounting	2 Clamps required to secure top and bottom	3 Clamps required to secure top, centre, bottom

The heavy duty right-angle or parallel clamps required will depend upon the mounting arrangement at your site. Contact our consultants to discuss your requirements.

Section 1b

**AIR BAND
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B55SS	
Air Band Monocone	
Frequency 118 – 136 MHz	Bandwidth FULL BAND



Suitable for mounting to lightweight towers, the B55SS monocone covers the entire Air Band 118 to 136 MHz making this the ideal base station antenna for Airports where a variety of channels are used.

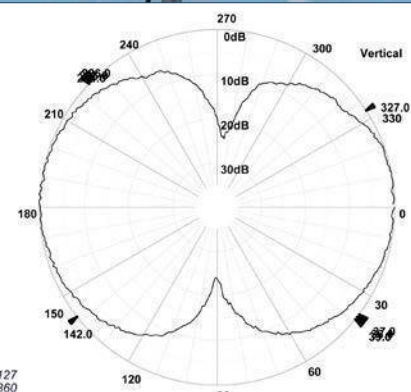
With an omnidirectional radiation pattern and integral ground plane, this monocone produces a low angle of radiation making it comparable with a centre fed dipole.

The radome is a high quality UV resistant ABS with stainless steel radials and stainless steel mount tube. This high quality construction ensures reliable performance over a long service life.

The 1 metre RG213 cable tail is terminated with an N-Female connector rated for up to 500 watts input power.

Mounting clamps, coaxial feeder cable, connectors and other accessories are available to complete the installation.

SPECIFICATIONS	B55SS
Construction	UV resistant ABS radome, stainless steel radials and stainless steel mount tube
Frequency	118 to 136 MHz Air Band
Bandwidth	Full Band
Return Loss, VSWR	Better than -15 dB, less than 1.5:1
Tuning	Factory
Gain	0 dBd
Maximum Power	500 Watts
Impedance (Nom.)	50 Ohms
DC Grounding	Yes
Polarisation	Vertical
E Plane	65° vertical beamwidth
H Plane	360° omnidirectional ± 0.5 dBd
Cable Tail	1 metre of RG213
Connector	N-Female fitted to the cable
Height	1.55 metres
Base of mount tube to radial exit point	1 metre
Weight	4.6 kg
Projected Area	0.143 m ²
Wind Load at 160 kph	12.7 kg
Mount Tube Diameter	38 mm
Mounting Clamps recommended	2 x EB1SS



Frequency 127
 H beamwidth 360
 V beamwidth 65
 Front to Back 0
 Gain 0
 Tilt 0
 Polarisation OMNIDIRECTIONAL
 Comment UNITY GAIN BROADBAND MONOCONE

EB1SS clamps have all stainless steel components and are recommended to mount the **B55SS** Monocone antenna parallel to a round mast between 20 mm and 50 mm in diameter.



Two clamps will be required.

Section 1b

AIR BAND ANTENNAS

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B55AL Air Band Monocone

Frequency
118 – 136 MHz

Bandwidth
Any 8 MHz



Constructed from aluminium, the B55AL monocone is an economical and effective antenna for airport communications. Using the lower part of the air band for transmit, the sliding radials can be easily field tuned to receive across any 8 MHz bandwidth within the frequency range 118 to 136 MHz.

Other key features of this air band monocone antenna are :

- Omnidirectional 360° radiation pattern.
- Broad 74° vertical beamwidth.
- Rated for up to 200 watts input power.
- Lightweight at just 3.1 kg.
- Low wind loading.
- The radials can be easily removed for transportation.
- Simple to mount to a round mast using 2 parallel clamps.

The 1 metre RG213 cable tail is terminated with an N-Female connector. Mounting clamps, coaxial feeder cable, connectors and other accessories are all available separately to complete the installation.



SPECIFICATIONS	B55AL
Construction	Aluminium, removable radials for transport
Frequency	118 to 136 MHz Air Band
Bandwidth	Any 8 MHz. Specify your desired frequency range when ordering
Return Loss, VSWR	Better than -15 dB, less than 1.5:1
Tuning	Factory. (Radials can be field tuned)
Gain	0 dBd
Maximum Power	200 Watts
Impedance (Nom.)	50 Ohms
DC Grounding	Yes
Polarisation	Vertical
E Plane	74° vertical beamwidth
H Plane	360° omnidirectional ± 0.5 dBd
Cable Tail	1 metre of RG213
Connector	N-Female fitted to the cable
Height	1.5 metres
Radial Width	1.3 metres overall, 650 mm each side
Weight	3.1 kg
Projected Area	0.143 m ²
Wind Load at 160 kph	12.7 kg
Mount Tube Diameter	38 mm
Mounting Clamps recommended	2 x EB1SS



To field tune the antenna, loosen the U-bolts and slide the radials up or down the mount tube. Then check the tuning using a SWR meter.



EB1SS clamps have all stainless steel components and are recommended to mount the B55AL monocone antenna parallel to a round mast between 20 mm and 50 mm in diameter.

Two clamps will be required.

Section 1b

**AIR BAND
ANTENNAS**

Updated 14 February 2011

**B51H and B51HSS
Broadband Discone Scanning Antennas**

Frequency
70 – 1000 MHz

Bandwidth
FULL BAND



The B51H and B51HSS discone base station antennas provide an omnidirectional radiation pattern, low VSWR and genuine broadband coverage for both transmit and receive across the full frequency range 70 to 1000 MHz.

Built to full commercial specification, these discones are suitable for transmitting at up to 100 watts power. An N-Female connector is located at the base of the mount tube.

The antenna is available to order in either aluminium (B51H) or stainless steel (B51HSS). The rods, simulating disc and cone may be removed for packing and transportation.

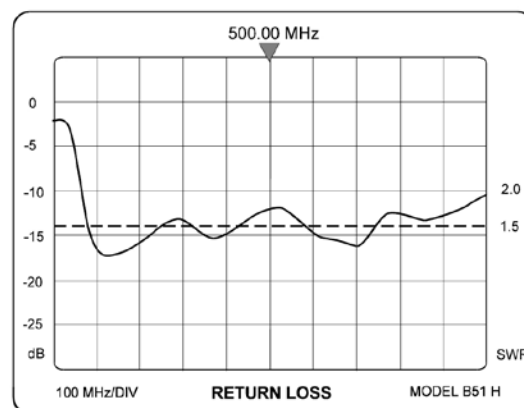
Generally, clients requiring a discone antenna for shortwave listening purposes or low power transmission use should consider purchasing one of the lighter duty alternatives, such as those offered by many dealers servicing this market.

Shortwave listeners may also consider purchasing a multi-frequency scanning whip for receive only purposes, such as our Model SM39 whip to be found in the "Mobile Antennas" section of our catalogue.

Mast mounting clamps, coaxial feeder cable, connectors and other accessories are all available separately to complete the antenna installation.



SPECIFICATIONS	B51H	B51HSS
Construction	Aluminium	Stainless Steel
Frequency Range	70 to 1,000 MHz	
Bandwidth	Full Band	
VSWR	Better than 2:1 across the entire range	
Tuning	Factory	
Gain	0 dBd	
Max Input Power	100 Watts	
Impedance	50 Ohms	
DC Grounding	No	
Polarisation	Vertical	
E-Plane	83° at 100 MHz	
H-Plane	360° Omnidirectional	
Connector	N-Female connector located at the base of the mount tube	
Height	1.2 metres	
Weight	6.0 kg	9.5 kg
Projected Area	0.167 m ²	
Wind Load 160 kph	31.449 kg, 0.308 kN	
Mount Tube	40 mm diameter	
Mounting Clamps (Not supplied)	2 x EB1SS stainless steel parallel clamps are recommended. Suit round mast between 20 mm and 50 mm in diameter	



2 x EB1SS parallel clamps are recommended and available to order separately