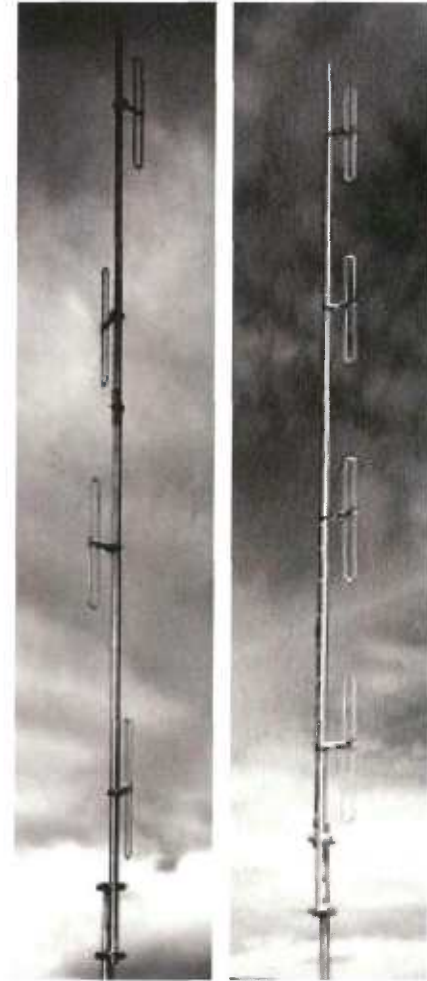


This popular antenna is available with four folded dipoles for high gain and broad bandwidth.

- **Broad Response** – 10 MHz bandwidth provides optimum performance in single or multi-frequency systems, on both transmit and receive.
- **Circular Pattern** – DB224 has four elements positioned evenly, every 90 degrees around the mast, for omni pattern.
- **Offset Pattern** – DB224E comes with four elements aligned collinearly on the same side of the mast for maximum directional gain.
- **Dual Version** – Two antennas on the same mast are fed and operated separately, providing 3 dB omni or 6 dB directional patterns.
- **Two-Piece Mast** – For ease of shipment and handling, the mast is made in two sections. A unique center splice assures proper alignment.
- **Lightning-Resistant** – The radiators operate at DC ground, and the aluminum mast with its pointed cap provides a low resistant discharge path to the tower or ground system.
- **For Air Shipment** – Model DB224X has a shortened mast, 124" (3150 mm).

Ordering Information – Use model number for correct frequency and specify termination if non-standard. Add E for offset pattern, S for dual omni or ES for dual offset pattern. DB365-OS Mounting Clamps are included. For side mounting order DB5001 Side Mount Kit. For Stabilizer Kit, order 12088 (four required). For shortened mast, order DB224X. Order jumper cable separately.

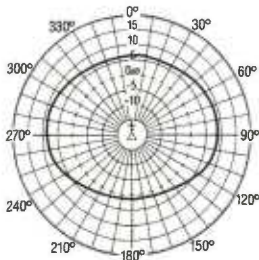


DB224

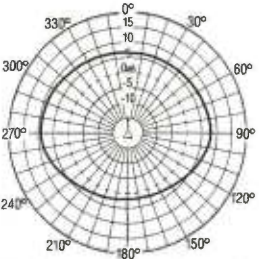
DB224E

Side Mounting

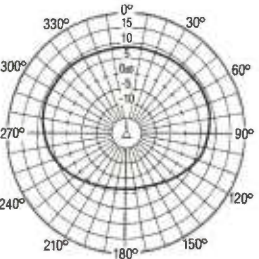
The patterns indicate the typical pattern shape of the antenna side mounted on a tower with an 18" to 24" (457.2 to 609.6 mm) face.



DB224 (omni) mounted on side of tower

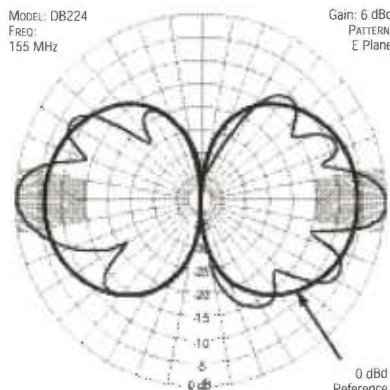


DB224E elements pointed toward the tower



DB224E elements pointed away from the tower

DB224 Vertical Pattern



Electrical Data

Frequency Ranges* – MHz	A = 150-160, B = 155-165, C = 164-174, E = 138-150, J = 276-285, JJ = 220-222
Bandwidth (150-174 MHz) – MHz	10
VSWR	1.5 to 1 or less
Nominal impedance – ohms	50
Gain (over half-wave dipole)	
Omni pattern – dBd	6.0
Offset pattern – dBd	9.0
Maximum power input – watts	500
Vertical beamwidth (half power points)	16°
Decoupling between antennas (split models) – dB	35 minimum
Lightning protection	Direct ground
Standard Termination: Captive Type N-Male attached to end of flexible lead.	

*Special frequencies are available; contact factory for details.

Mechanical Data

Mast – upper (aluminum) – in. (mm)	1.75 (44.45) OD with .062 to .125 (1.57 to 3.18) wall
Mast – lower (aluminum) – in. (mm)	2 (50.8) OD with .125 to .187 (3.18 to 4.75) wall
Radiating elements (aluminum) – in. (mm)	.5 (12.7) OD with .058 (1.47) wall
Maximum exposed area (flat plate equivalent) – ft ² (m ²)	3.15 (.292)
Lateral thrust at 100 mph (161 km/hr)	
– lbf (N)	126 (560.5)
Wind rating:*	Top Side
Survival w/o ice – mph (km/hr)	Mounted Mounted
Survival with .5" (12.7mm) radial ice – mph (km/hr)	80 (129) 100 (161)
	55 (89) 70 (113)
Overall length (150-174 MHz)	
– in. (mm)	255 (6477)
Shipping length – in. (mm)	148 (3759)
Net weight (w/clamps) – lbs. (kg)	32 (14.51)
Shipping weight (w/clamps) – lbs. (kg)	48 (21.77)
Mounting clamps (Galv. steel)	DB365-OS

*Calculation of wind survivability does not include damage due to flying debris.

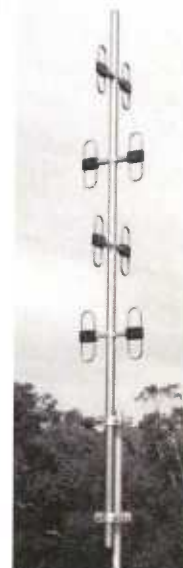
UHF Omnidirectional Dipole Arrays

330-520 MHz
Binary Array Series



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.

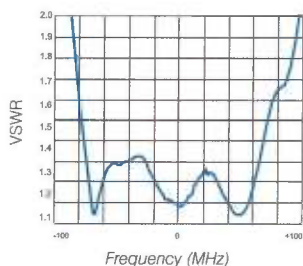
The arrays utilise an internal phasing harness in PTFE based double screened coaxial cable with polyethylene jacket to aid waterproofing and resist bird attack. The use of a unique phasing arrangement provides extensive side lobe suppression and null fill characteristics. The arrays will accept an input 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.



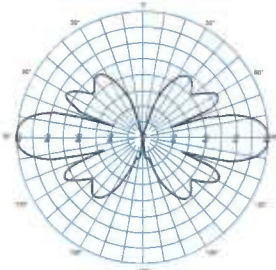
Features:

- Ideal for highly populated sites requiring long haul omnidirectional coverage
- Operate over entire 330-420 or 400-520 MHz bands
- Inverted mounting version available
- Industry leading PIM ratings (-150dBc) providing low IM and low noise characteristics for optimum performance
- DC grounding on all elements for the ultimate in lightning protection and dissipation of static noise
- Hermetically sealed internal phasing harness

Typical VSWR Response (BA80-67)



BA80-67 - E Plane



Electrical

Mode 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 cm ²	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

DCR-L

- 1 kW for a single bay
- Circularly polarized
- Pressurization not required
- Stainless steel construction
- Very low weight and windload
- Option available for field adjustable arms to any FM frequency



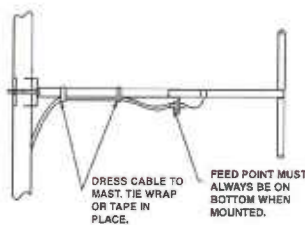
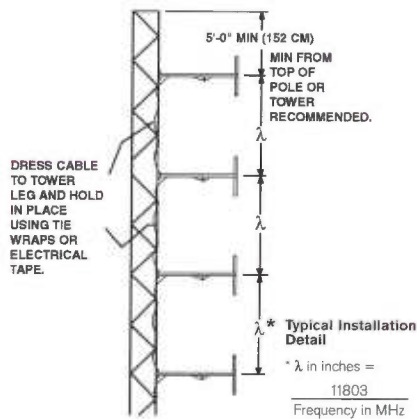
The DCR-L antenna series is intended for use by the low power broadcaster. The DCR-L is available in arrays from one to six sections. The antennas are constructed of stainless steel and are suitable for use in any environment. The type N connectors are weather tight so that no pressurization is needed. Low windload radomes are available for areas where protection from icing is desired.

Feed System

The feed system has a type N female input and can be used up to 1 kW. The interbay feedline is flexible coax cable. Custom feed systems are available for several variations including special bay spacing to minimize downward radiation.

Mounting

The DCR-L antennas are made with an integral mount designed to attach to a tower leg or pole from 1" to 3-1/2" in diameter.



DCR-L

Electrical Specifications

Antenna Type	Gain Polarization ¹		Power Rating kW ³		
	λ Spacing Power Gain	dB	$1/2 \lambda$ Spacing Power Gain	dB	
DCR-L1	0.46	-3.37	0.46	-3.37	1
DCR-L2	1.0	0	0.70	-1.55	1
DCR-L3	1.5	1.76	1.00	0	1
DCR-L4	2.1	3.22	1.30	1.14	1
DCR-L6	3.2	5.05	1.80	2.55	1

1. RMS gain data is given relative to dipole. Values are for each polarization and nominal for midband and include standard harness configurations. Actual gain will vary depending on feed system, frequency, null fill and beam tilt.
2. Average power ratings are nominal @ 40°C ambient. Assumes constant pressurization with dry air or nitrogen. Ratings may vary based on specific feed system design and local conditions.
3. If specified, antenna components and feed harnesses are optimized for FM channels of interest.

Mechanical Specifications

Antenna Type	# of bays	Without Radomes			With Radomes		
		Weight lbs (kg)	Windload lbs (kg)	Projected Area ft ² (m ²)	Weight lbs (kg)	Windload lbs (kg)	Projected Area ft ² (m ²)
DCR-L1	1	8 (4)	30 (14)	0.6 (0.1)	18 (8)	88 (40)	1.8 (0.2)
DCR-L2	2	31 (14)	75 (34)	1.5 (0.1)	51 (23)	176 (80)	3.5 (0.3)
DCR-L3	3	39 (18)	105 (48)	2.1 (0.2)	69 (31)	264 (120)	5.3 (0.5)
DCR-L4	4	47 (21)	135 (61)	2.7 (0.3)	87 (40)	352 (160)	7 (0.7)
DCR-L6	6	63 (29)	195 (89)	3.9 (0.4)	123 (56)	528 (240)	10.6 (1.0)

Notes:

1. Weights include bays and standard extension brackets for mounting. Excludes feed system and custom mounts. For antennas that included pattern studies, contact factory for additional information.
2. Projected area includes bays and standard extension brackets. Excludes feed system and custom mounts.
3. Dimensions are for antennas at 98.0 MHz and can vary $\pm 10\%$ across the band.
4. Ice shields are strongly recommended for areas subject to tower icing. Dielectric is not responsible for antenna damage caused by impact from falling ice.
5. Area calculated expressed in terms of equivalent flats (RS-222-C-standard).
6. Windload force calculated based on 50 pounds per square foot (50psf) on flats (RS-222-C-standard).
7. To convert area to equivalent rounds, multiply area by 1.5.
8. To convert area to Aerodynamic area (CaAa - linear or CaAc - discrete) based on EIA-222-F standard, multiply area by 1.8.