

# Exposed Dipole Quasi-Omni Antenna

127 - 174 MHz & 220 - 285 MHz / 6 or 9 dBd Gain

DB 224



30-512 MHz

**T**his popular lightweight, durable antenna is available with four folded dipoles for high-gain and broad bandwidth applications. It is factory adjusted and checked for minimum VSWR over a wide band of frequencies. Clamps for top mounting are supplied with the antenna but an additional side mount kit (Model DB5001) must be ordered when side mounting the antenna.

- **Broad Response** — 10 MHz bandwidth provides optimum performance in single or multi-frequency systems, on both transmit and receive. Unique model, DB224-FAA, available for most VHF air control systems.
- **Optional Radiation Pattern** — The radiation pattern of the DB224 can be easily changed from a 6 dBd gain omni-directional pattern, to a 9 dBd maximum gain offset pattern, or from an offset to an omni-directional pattern. When the four-dipole elements are positioned evenly, every 90 degrees around the mast, a circular radiation pattern results. When all four dipoles are in line (collinear) along one side of the mast, the antenna has a directional characteristic.
- **Bandwidth** — Through the use of folded dipole elements and binary cable harness, the DB224 has an exceptionally broad bandwidth. Performance characteristics (gain, VSWR) are essentially constant over a frequency range of 10 MHz or more. This permits the DB224 to provide optimum performance when used in either single or multi-frequency systems.
- **Two-Piece Mast** — For ease of handling and to facilitate shipment, the mast is made in two sections. Assembly of the sections is quite simple and requires only the use of ordinary hand tools. The unique center splice assures proper alignment.
- **Split Version** — The DB224S is a split version of the DB224. It consists of two independent antennas on the same mast; each with a separate feedline terminated at the bottom of the mast. Essentially, it amounts to two 3 dBd gain in an omni-directional pattern (DB224S) or two 6 dBd gain in an offset pattern (DB224ES). Each antenna may be used omni-directionally or directionally without regard to the other. Isolation between the two antennas is 35 dB or more.
- **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, refer to table.



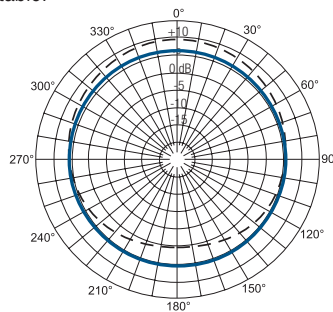
- Simple but secure stainless steel banding clamp allows an easy change from circular to offset radiation pattern.



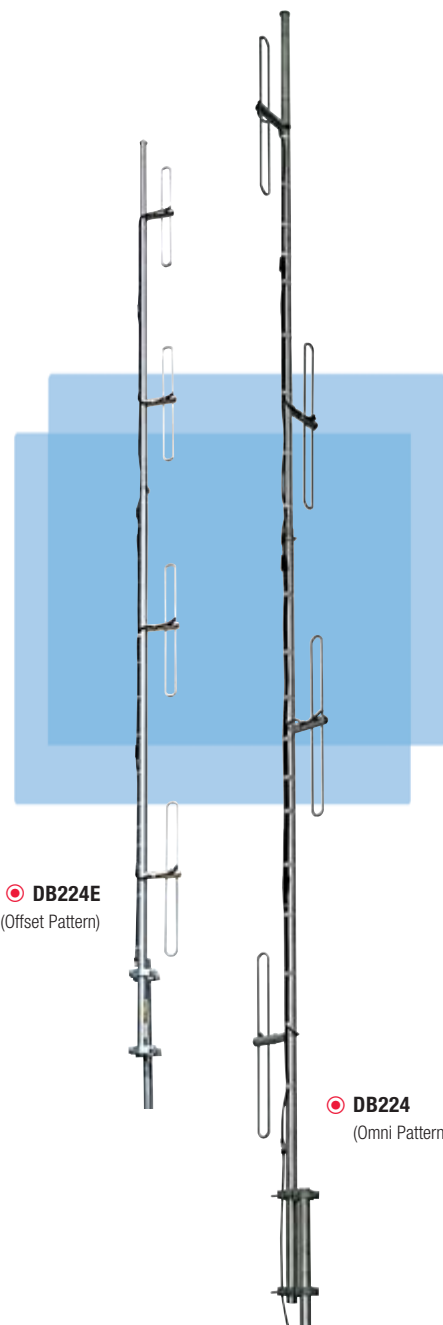
- Molded connections for weatherproof operation.



- Unique center splice prevents misalignment; two piece construction for easier handling before installation.

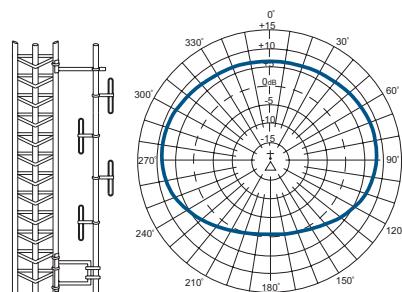


- **Horizontal patterns illustrate the maximum gain of the DB224 (6 dBd) and DB224E (9 dBd) with respect to a half-wave dipole (0 dBd level).**

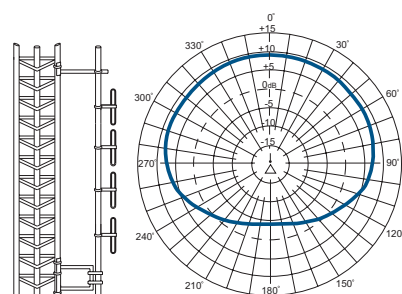


## ORDERING INFORMATION

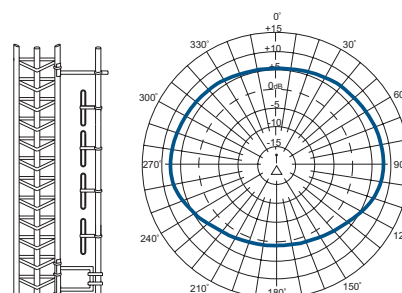
See model number table for correct frequency and type. DB365-OS Mounting Clamps are included. For side mounting, order DB5001 Side Mount Kit. For Stabilizer Kit, order 12088 (four required). For shortened mast, order DB224X. Order jumper cable separately.



DB224 (omni) mounted on side of tower.



DB224E, elements pointed away from the tower.



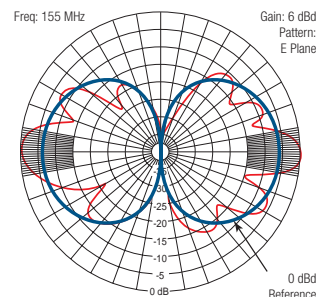
DB224E, elements pointed toward the tower.

### 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, using the DB5001 Side Mount Kit.

The DB5001 Side Mount Kit positions the antenna approximately 18" from the tower and consists of an upper sway brace, lower bracket (both galvanized) and the necessary hardware for attaching the bracket to round tower members up to 3" OD, or angular members up to 2" on a side. Other size clamps can be supplied on special order.

### DB224 Vertical Pattern



### ELECTRICAL DATA

Frequency Ranges* – MHz	See Model Table	
Bandwidth (150-174 MHz) – MHz	10	
VSWR	1.5 to 1 or less	
Nominal Impedance – Ohms	50	
Gain (over half-wave dipole) – dBd	Omni Pattern	Offset Pattern
	6.0	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

<b>Mast – Upper</b> (aluminum) – in. (mm)	1.75 (44.45) OD with 0.062 to 0.125 (1.57 to 3.18) wall	
<b>Mast – Lower</b> (aluminum) – in. (mm)	2 (50.8) OD with 0.125 to 0.187 (3.18 to 4.75) wall	
<b>Radiating Elements</b> (aluminum) – in. (mm)	0.5 (12.7) OD with 0.058 (1.47) wall	
<b>Maximum Exposed Area</b> (flat plate equivalent) – ft² (m²)	3.15 (0.292)	
<b>Lateral Thrust at 100 mph</b> (161 km/hr) – lbf (N)	126 (560.5)	
<b>Wind Rating:*</b>	<b>Top Mounted</b>	<b>Side Mounted</b>
<b>Survival w/o Ice</b> – mph (km/hr)	80 (129)	100 (161)
<b>Survival with 0.5" (12.7 mm) Radial Ice</b> – mph (km/hr)	55 (89)	70 (113)
<b>Mounting Clamps</b> (Galv. steel)	DB365-OS	

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

Circular	Offset	Dual	Dual Offset	Frequency	Overall Length - in. (mm)	Net Weight (w/clamps) - lbs. (kg)	Shipping Length - in. (mm)	Shipping Width - in. (mm)	Shipping Height - in. (mm)	Shipping Weight (w/clamps) - lbs. (kg)
DB224-FAA	DB224E-FAA			127-141	279 (7087)	38 (17.25)	149 (3784.6)	17 (431.8)	8 (203.2)	48 (21.8)
DB224-A	DB224E-A			150-160	255 (6477)	35 (15.89)	149 (3784.6)	17 (431.8)	8 (203.2)	45 (20.43)
DB224-B	DB224E-B			155-165	255 (6477)	35 (15.89)	149 (3784.6)	17 (431.8)	8 (203.2)	45 (20.43)
DB224-C	DB224E-C			164-174	255 (6477)	35 (15.89)	149 (3784.6)	17 (431.8)	8 (203.2)	45 (20.43)
DB224-E	DB224E-E			138-150	279 (7087)	38 (17.25)	149 (3784.6)	17 (431.8)	8 (203.2)	48 (21.8)
DB224-F				160-170	255 (6477)	35 (15.89)	149 (3784.6)	17 (431.8)	8 (203.2)	45 (20.43)
DB224-J				276-285	165 (4191)	27 (12.26)	100 (2540)	17 (431.8)	8 (203.2)	37 (16.8)
DB224-JJ	DB224E-JJ	DB224S-JJ	DB224ES-JJ	220-225	209.75 (5328)	35 (15.89)	121 (3073.4)	17 (431.8)	8 (203.2)	42 (19.07)
		DB224S-A	DB224ES-A	150-158	255 (6477)	36 (16.34)	149 (3784.6)	17 (431.8)	8 (203.2)	46 (20.89)
<b>Antennas with Shortened Mast for Air Shipment</b>										
DB224X-A				150-160	191.25 (4858)	38 (17.25)	124 (3150)	21 (533.4)	12 (304.8)	48 (21.8)
DB224X-B				155-165	191.25 (4858)	44 (19.98)	125 (3175)	21 (533.4)	12 (304.8)	54 (24.52)
DB224X-C				164-174	191.25 (4858)	38 (17.25)	124 (3150)	21 (533.4)	12 (304.8)	48 (21.8)
DB224X-E				138-150	191.25 (4858)	44 (19.98)	96 (2438)	17 (431.8)	17 (431.8)	54 (24.52)