



DB420

With an array of 8 dual dipole elements, the DB420 is heavy duty, lightweight, and provides high gain and constant performance across a broad omni or elliptical pattern. The antenna is suitable for mounting to the top, or on the side of a tower. Clamps for top mounting are supplied with the antenna.

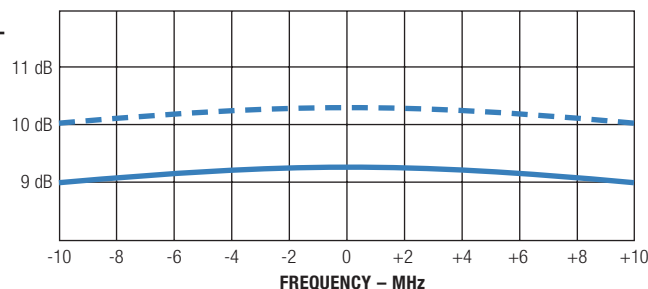
- **Rugged** — Resists winds to 100 mph (161 km/hr).
- **Broad Response** — With 14 to 24 MHz bandwidth, this antenna gives optimum performance in single or multi-frequency systems.
- **Moisture Resistant** — VAPOR-BLOC® cable harness provides weather protection and assures inphase signal distribution to all elements.
- **Lightning Resistant** — Radiators operate at DC ground, and the aluminum mast, with its pointed top, provides a low resistance discharge path to the tower or ground system.
- **Circular Pattern** — DB420 has dual dipoles positioned at 90° angles from each other. When the dual dipole elements are mounted with the top 4 at a 90° angle to the 4 at the bottom, an omni-directional pattern, with 9.2 dBd gain, is produced.
- **Offset Pattern** — DB420L has all dual dipoles mounted in line, collinearly, on the mast, an elliptical pattern with 10.4 dBd results. The pattern can be changed in the field with ordinary hand tools.
- **Dual** — Two antennas can operate on the same mast with any combination of circular and elliptical patterns. The DB420 is also available with independent antennas on a common mast, each with a separate feed line. Model DB420D consists of two DB408 type antennas.

The elements of these dual antennas can be aligned to produce either an omni or elliptical pattern, each without regard to other antennas on the mast.

4 models, each with a bandwidth of approximately 20 MHz, cover the 406-420 and 450-512 MHz bands. Gain and VSWR are virtually constant across the band, which permits the antenna to give optimum performance in single or multi-frequency systems.

A binary cable harness assures equal inphase signal distribution to all elements.

Antenna Gain vs Frequency



The curves illustrate the gain of the DB420 and DB420L across a 20 MHz bandwidth. Maximum gain of 9.2 dBd (DB420) and 10.4 dBd (DB420L) occur at the mid-band frequency of each frequency range. The gain of the DB420L is shown at the pattern maximum in the horizontal plane.

ORDERING INFORMATION

Use model number for correct frequency. Order the DB420 omni or DB420L elliptical. DB365-OS Clamps are included. Order DB5012 Side Mount Kit if needed. Additional sized clamps can be special ordered. **Example:** DB420-B or DB420L-B for 450-470 MHz range. Order jumper cable separately.

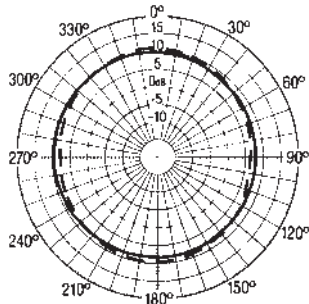
Exposed Dipole Quasi-Omni Antenna

406 - 512 MHz / 6.6 to 10.4 dBd Gain



DB420

30-512 MHz



Horizontal Radiation Pattern

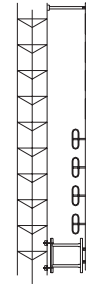
DB420(—) and DB420L(- - -)

with respect to a half-wave dipole (0 dB level).

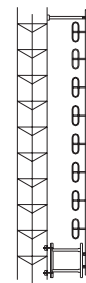
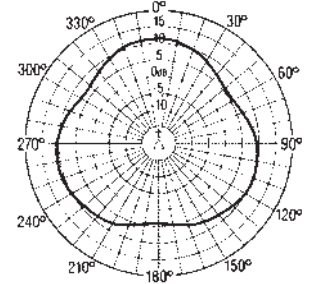
SIDE MOUNTING

The DB420 and DB420L patterns indicate the typical shape of the antenna side mounted on a tower with an 18" (457.2 mm) face. The patterns for 12" (304.8 mm) and 24" (609.6 mm) towers will be similar.

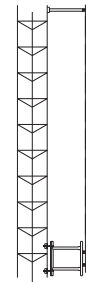
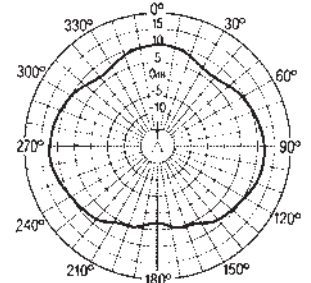
The DB5012 Side Mount Kit position the antenna approximately 16" from the tower and consists of an upper sway brace, lower bracket (both galvanized) and the necessary hardware for attaching the bracket to round tower members up to 3" OD, or angular members up to 2" on a side. Additional sized clamps can be supplied on special order.



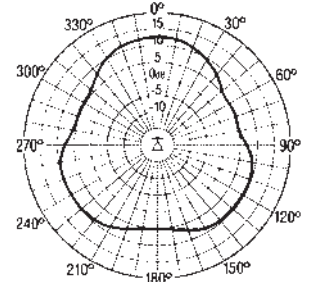
DB420 (Omni) mounted on side of tower



DB420L elements pointed toward tower



DB420L elements broadside to tower



ELECTRICAL DATA

Frequency Ranges – MHz	See table
Bandwidth – MHz	Same as above
VSWR	1.5 to 1 or less
Nominal Impedance – Ohms	50
Gain (over half-wave dipole) – dBd	9.2 or 10.4
Maximum Power Input – Watts	250
Vertical Beamwidth (half-power) - Deg.	7
Decoupling Between Antennas (dual and quad models) – dB	30 minimum
Lightning Protection	Direct ground
Standard Termination	Captive Type N-Male attached to end of flexible lead.

MECHANICAL DATA

Mast – Upper (aluminum) – in. (mm)	1.75 (44.45) OD with 0.0625 to 0.125 (1.59 to 3.18) wall
Mast – Lower (aluminum) – in. (mm)	2 (50.8) OD with 0.125 to 0.25 (3.18 to 6.35) wall
Radiating Elements (aluminum) – in. (mm)	0.375 (9.53) OD with 0.058 (1.47) wall
Maximum Exposed Area (flat plate equivalent) – ft ² (m ²)	3.33 (.309)
Wind Rating:*	
Survival w/o Ice – mph (km/hr)	100 (161)
Survival with 0.5" (12.7 mm) Radial Ice – mph (km/hr)	70 (112.65)
Lateral Thrust at 100 mph (161 km/hr) – lbf (N)	133 (592.5)
Overall Length – in. (mm)	See table
Net Weight (w/clamps) – lbs. (kg)	See table
Shipping Weight (w/clamps) – lbs. (kg)	See table
Mounting Clamps (Galv. steel)	DB365-OS

* Top mounted antenna. Wind rating is greatly increased when antenna is side mounted with appropriate side mount kit. Calculation of wind survivability does not include damage due to flying debris.

NOTE: The mechanical specifications are slightly degraded for the antenna covering the 406-420 MHz band.

Model	Frequency - MHz	Gain - dBd /dBi	Overall Length - in. (mm)	Net Weight (w/clamps) - lbs. (kg)	Shipping Weight (w/clamps) - lbs. (kg)
DB420-A	406 - 420	9.2 / 10.4	231 (5,867.4)	34 (15.4)	58 (26.3)
DB420-B	450 - 470	9.2 / 10.4	233 (5,918.2)	34.5 (15.7)	58.5 (26.6)
DB420-C	470 - 488	9.2 / 10.4	227 (5,765.8)	33.5 (15.2)	57 (25.9)
DB420-D	488 - 512	9.2 / 10.4	212 (5,384.8)	31.5 (14.3)	53 (24.1)
DB420D-A	406 - 420	6.6 / 7.8	232 (5,892.8)	34.5 (15.7)	58 (26.3)
DB420D-B	450 - 470	6.6 / 7.8	236 (5,994.4)	35 (15.9)	59 (26.8)
DB420D-C	470 - 488	6.6 / 7.8	227 (5,765.8)	33.5 (15.2)	57 (25.9)
DB420D-D	488 - 512	6.6 / 7.8	212 (5,384.8)	31.5 (14.3)	53 (24.1)
DB420D-E	482 - 494	6.6 / 7.8	230 (5,842)	34 (15.4)	50 (22.7)
DB420L-B	450 - 470	10.4	233 (5,918.2)	34.5 (15.7)	58.5 (26.6)
DB420MS-E	485 - 505	8	188 (4,775)	30 (13.6)	46 (20.9)