

7 dB GAIN

EXHIBIT 'A'



BROAD DIRECTIONAL ANTENNA

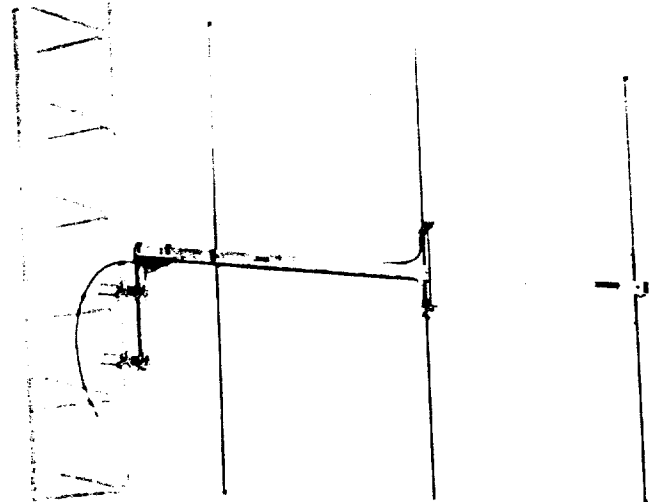
MODEL DB-230 is a three element Yagi antenna designed to provide maximum forward gain consistent with good front to back ratio. Gain is provided over a relatively broad horizontal pattern so that orientation is not critical. The antenna is suitable for mounting to the top or on the side of a tower and is supplied complete with mounting and orientation brackets. Special clamps (DB-365-W) can be ordered for mounting the antenna to a wood pole. To assure optimum performance, each antenna is cut to specified frequency, fully assembled, then factory adjusted for minimum VSWR. No further field pruning or adjustment is required.

APPLICATION. The DB-230 has a number of system applications, such as: (1) use in mobile systems requiring additional gain over a sector of a circle; (2) use in point to point systems where gain is required over a broad angle to reach several locations (3) use in systems to reduce interference from other stations on the "back" side of the antenna, i.e., reduction of transmitter noise, receiver desensitization, intermodulation interference.

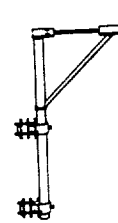
STACKED MODELS are available for use in systems requiring additional gain. Model DB-230-2 consists of two DB-230 antennas and the required interconnecting harness. Model DB-230-4 consists of four DB-230 antennas plus all required harnesses. For optimum performance, a vertical spacing of .75 to 1.0 wavelength between antennas is recommended.

CONSTRUCTION. The DB-230 is a rugged antenna, designed to withstand severe environmental conditions. For greater strength, the size and wall-thickness of materials increase as the size of the antenna is increased. (As an example, at frequencies below 50 MHz the support boom is made of 2" x 3" rectangular tubing with 1/8" wall thickness). Elements are made of 3/4" diameter tubing and reinforced with 7/8" diameter sockets at the boom. Since the antenna is constructed entirely of metal (except for the cable harness), with all elements directly grounded, it is almost immune to lightning damage.

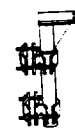
ORIENTATION BRACKETS are supplied with each of the larger (lower frequency) antennas to achieve greater strength and to simplify installation. With use of these heavy duty brackets, the antenna can be mounted securely to the tower, then easily oriented for the correct azimuth direction. The half Y-mount bracket is supplied with antennas for the 30-50 MHz band and the half T-mount bracket is supplied with 70-88 MHz antenna models. The smaller 120-174 MHz antenna models include an angle bracket and stainless steel Vee-bolts for mounting.



Model shown is for 70 MHz band.



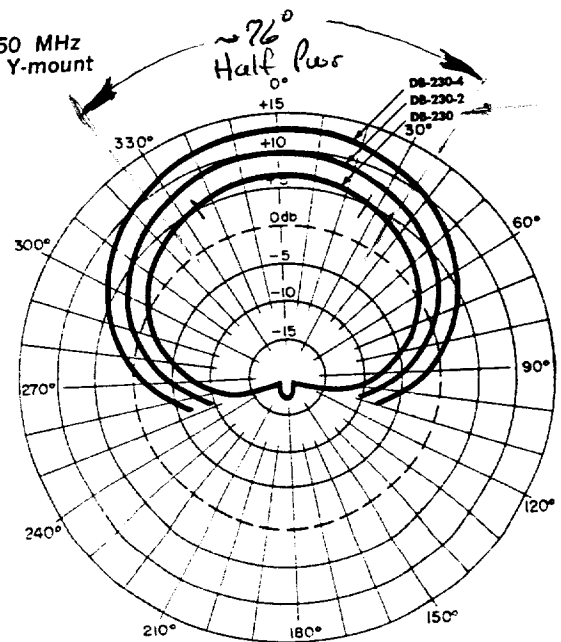
30-50 MHz
Half Y-mount



70-88 MHz
Half T-mount



120-175 MHz
Angle mount



Horizontal radiation pattern of DB-230 antennas with respect to a half wave dipole (0 dB level).

EXHIBIT 'B'

5 (c)

- 1 100 mi radius of TERLINGUA,TEXAS
 29 33' 00" N , 103 40' 12" W
- 2 100 mi radius of DALLAS,TEXAS
 33 00' 00" N, 96 37' 48" W
- 3 50 mi radius of MINA,NEVADA
 38 24' 00" N , 118 27' 00" W