

Side Mount Antennas

- PD320*** **2.5 dBd Offset-Gain**
- PD322*** **2.5 Omni (5.0 dBd Offset)**
- PD324*** **5.0 dBd Omni (7.5 Offset)**

*Exact frequencies must be specified.

This is a series of side mounted antennas designed for applications requiring the utilization of available space on the sides of towers. Each antenna is supplied cut to the desired operating frequency and assembled ready for installation.

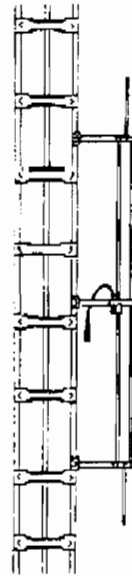
The single element side mounted PD320 provides an offset pattern with approximately 2.5 dBd gain in the forward direction. High strength aluminum alloy is used for all antenna parts, except the stainless steel mounting clamps.

The PD322, a 2.5 dBd Omni/5.0 dBd Offset Gain Antenna consists of two PD320 antenna elements and a matching harness. When mounted with its two elements on opposite sides of a small tower and spaced 3/4 wavelengths apart vertically, it produces an essentially circular pattern with approximately 2.5 dBd gain. The PD322 may also be mounted with both elements on one side of the tower in which case it will provide an offset pattern with approximately 5.0 dBd gain in the maximum direction.

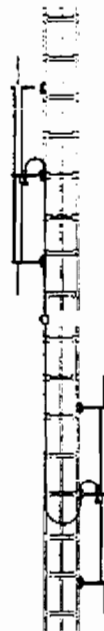
The PD324, a 5.0 dBd Omni/7.5 Offset Gain Antenna consists of four PD320 antenna elements and a matching harness. This antenna, when mounted with its elements staggered around the tower and spaced 3/4 wavelengths apart vertically, has essentially a circular pattern with approximately 5.0 dBd gain. The antenna may also be mounted with all elements on one side of the tower, in which case it will produce an offset pattern with approximately 7.5 dBd gain in the maximum direction.

Note: 1-1/2" is the maximum tower leg size to which antenna can be mounted without affecting performance. Maximum tower face dimension is 18".

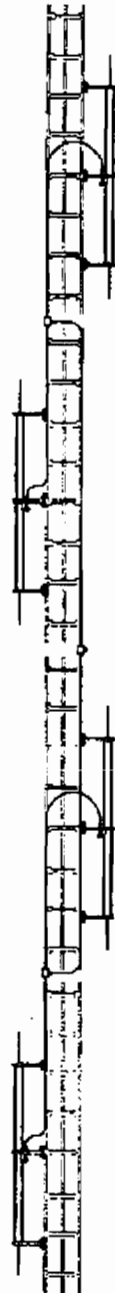
- **Field adjustable** Optimizes VSWR on different tower structures.
- **Side mount design** Makes low band operation possible when top mounting is not desirable.



PD320



PD322



PD324

CELWAVE®
DIVISION OF RADIO FREQUENCY SYSTEMS INC.

2 Ryan Road, Marlboro, NJ 07746-1899 • 1(800) CELWAVE • (908)462-1880

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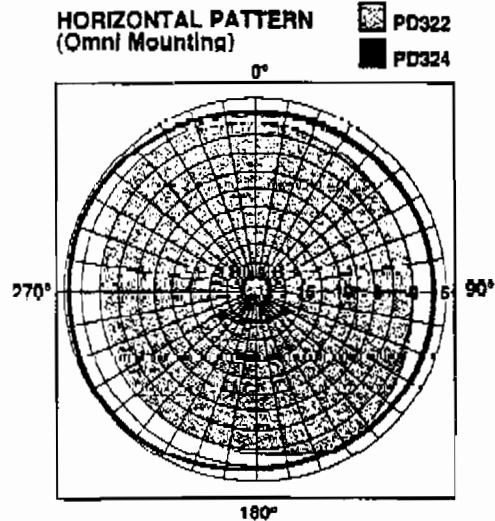
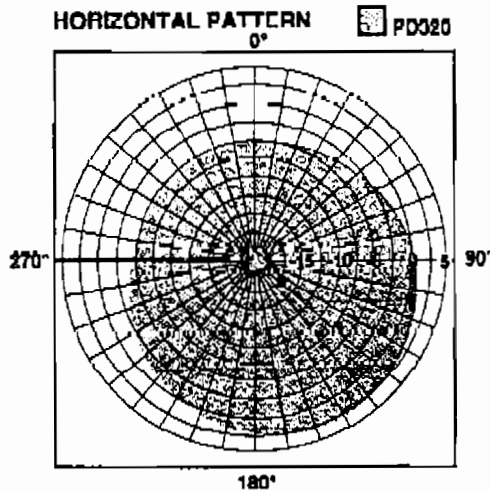
ELECTRICAL SPECIFICATIONS

	PD320		PD322		PD324	
	30-54	66-88	30-54	66-88	30-54	66-88
Frequency Range - MHz	30-54	66-88	30-54	66-88	30-54	66-88
Gain - dBd	2.5 (Offset)		2.5 (Omni), 5.0 (Offset)		5.0 (Omni), 7.5 (Offset)	
Bandwidth - MHz for 1.5:1 VSWR						
@ 30 MHz	0.6		0.6		0.6	
@ 76 MHz	1.0		1.0		1.0	
Vertical Beamwidth 1/2 Power Points	Installation Dependent		Installation Dependent		Installation Dependent	
Maximum Power Input - Watts	500		500		500	
Lightning Protection	Direct Ground		Direct Ground		Direct Ground	
Termination - Direct Fixed	UHF-female		UHF-male		UHF-female	
Flexible Extension - Supplied w/PD320	24 in. (610 mm) RG8A/U Flexible Cable with N-male Connector Attached					

Note: All VSWR data referenced to 50 Ohms.

MECHANICAL SPECIFICATIONS

	PD320	PD322	PD324
Overall Length - ft. (m)			
@ 30 MHz	16.5 (5.03)	41 (12.5)	92 (28)
@ 50 MHz	10 (3.05)	24 (7.32)	55 (16.8)
@ 74 MHz	6 (1.83)	16 (4.88)	36 (11)
Spacing from Tower - in. (mm)	8 (203)	8 (203)	8 (203)
Weight - lbs. (kg)	15 (6.8)	32 (14.5)	66 (30)
Radiating Element Material	6061-T6 Aluminum	6061-T6 Aluminum	6061-T6 Aluminum
Wind Loading Area Flat Plate Equivalent - ft. ² (cm ²)	1.13 (.105)	2.25 (.209)	4.60 (.418)
Rated Wind Velocity - mph (km/hr)	100 (161)	100 (161)	100 (161)
Lateral Thrust @ 100 mph - lbs. (kg)	45 (20.5) @ 30 MHz	90 (40.9) @ 30 MHz	180 (81.8) @ 30 MHz
Mounting Hardware - Supplied	Stainless Steel Mounting Clamps mount antenna on round tower legs 1 in. (25 mm) to 1.5 (38 mm) in. diameter		
Shipping Weight - lbs. (kg)	22 (10) @ 30 MHz	44 (20) @ 30 MHz	88 (40) @ 30 MHz
Shipping Volume - ft. ³ (cm ³)	2.8 (0.08) @ 30MHz	5.5 (0.16) @ 30 MHz	11.1 (0.31) @ 30 MHz
Shipping Mode	30-54 MHz - Common Carrier; 55-88 MHz - UPS		



Ordering Information

Item No.	Freq. Range - MHz	Item No.	Freq. Range - MHz	Item No.	Freq. Range - MHz
PD320-1	30-39	PD322-1	30-39	PD324-1	30-39
PD320-2	40-54	PD322-2	40-54	PD324-2	40-54
PD320-3	66-88	PD322-3	66-88	PD324-3	66-88

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FREQ. Mc	GUT LENGTH	3/4 LAMBDA ROLL /U CABLE INCHES	SPACING BETWEEN ANTENNAS INCHES	USED ON
38.0	17		233	
38.5	16		230	
39.0	15		227	
39.5	14		224	
STANDARD - USING 67 1/2 DIPOLE & REGULAR STANDOFFS				
40.0	14 1/4		221	
40.5	14 1/2		214.5	
41.0	14 1/2		203	
41.5	14 3/4		206.5	
42.0	14		205	
42.5	13 7/8		204	
43.0	13 3/4		203	
43.5	13 3/8		202	
44.0	13 1/2		201	
44.5	13 5/8		199	
45.0	13 7/8		197	
45.5	13		194.5	
46.0	12 7/8		192	
46.5	12 3/4		190	
47.0	12 1/2		188	
47.5	12 1/2		186	
48.0	12 1/4		184	
48.5	12 1/8		182.5	
49.0	12		181	
49.5	11 7/8		179	
50.0	11 3/4		177	
53	11 1/2		181	
53.5	10 7/8		183.5	
54	10 3/4		184	

Unless otherwise specified — All dimensions are in inches and title block tolerances apply. All thread dimensions to be met after plating where be gauge checked. Break all sharp edges .010-.015 after finish machining. All machined surfaces shall be smooth within 63 mic

REVISION		2	
5-22352		11-29-70	
5-22357			
ELIMINATED			
R19020			
TITLE CUTTING CHART FOR		SIDE MOUNT GAIN ANTS	
DRAWN BY SLP		11-28-70 APPROVED BY [Signature]	
PHELPS DODGE COMMUNICATIONS COMPANY		NEW JERSEY	

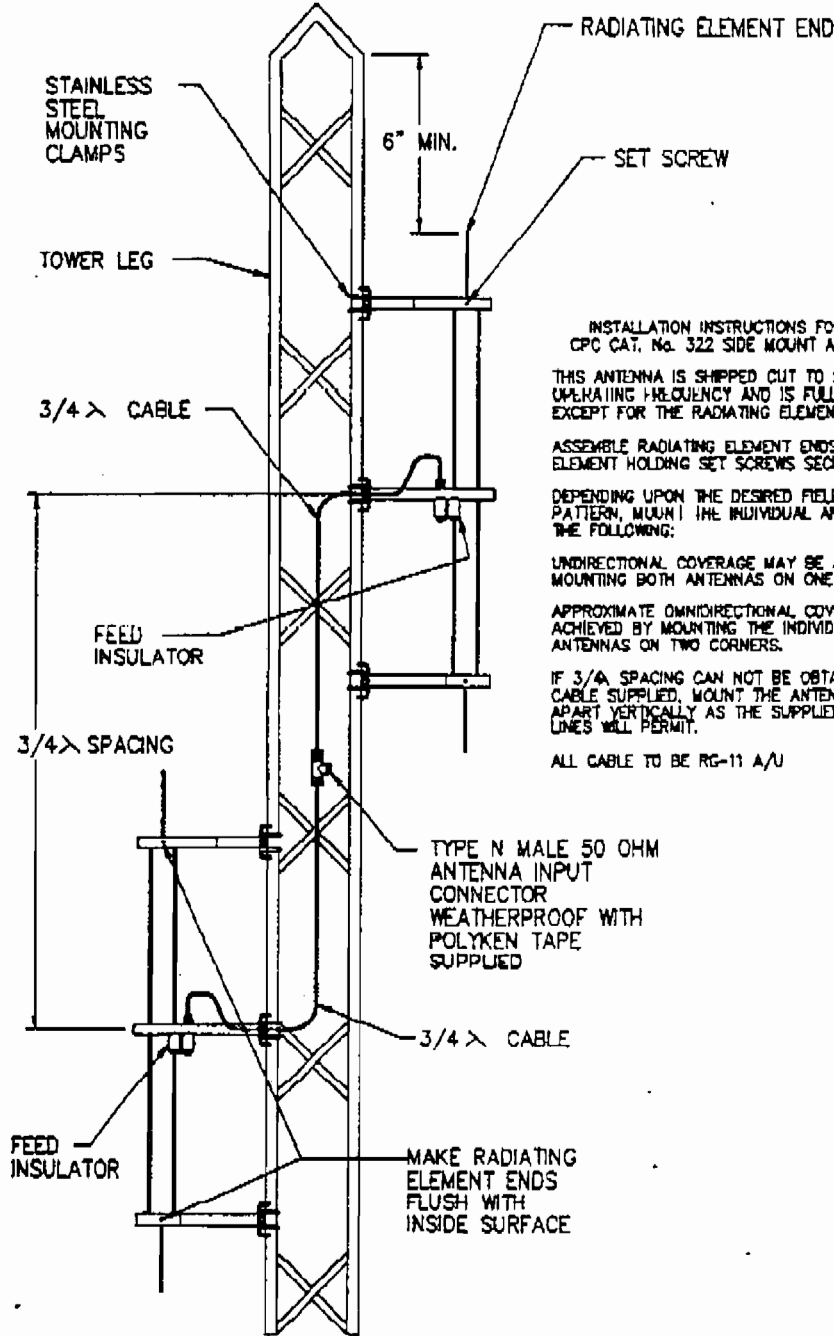
NOTE: THE ANTENNA TIP MUST BE AT LEAST 6" BELOW TOP OF TOWER.
THE CAPACITANCE BETWEEN THE ANTENNA AND THE TOWER LEG
IS REQUIRED FOR PROPER OPERATION

USED ON

PROPERTY NOTE: THE INFORMATION CONTAINED ON THIS DOCUMENT IS CONSIDERED TO BE CONFIDENTIAL, MATERIAL PROPRIETARY TO CELWAVE R.F. AND IS PROVIDED SOLELY FOR INFORMATIONAL PURPOSES. THIS INFORMATION SHALL NOT BE USED BY ANYONE OTHER THAN THE PERSON TO WHOM IT IS SPECIFICALLY INTENDED AND THE PERSON TO WHOM IT IS SPECIFICALLY INTENDED SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE INFORMATION CONTAINED HEREIN. THE FIRM SHALL BE CONSIDERED TO BE THE OWNER OF THE INFORMATION CONTAINED HEREIN.

Unless otherwise specified-

All dimensions are in inches and (like black tolerances apply.
All critical dimensions to be met after plating where applicable ends to be gauge checked. Break all sharp edges .010-.015 after flashmachining.
All machined surfaces shall be smooth within .65 mils/inches.



INSTALLATION INSTRUCTIONS FOR
CPC CAT. No. 322 SIDE MOUNT ANTENNA

THIS ANTENNA IS SHIPPED CUT TO SPECIFIED OPERATING FREQUENCY AND IS FULLY ASSEMBLED EXCEPT FOR THE RADIATING ELEMENT ENDS.

ASSEMBLE RADIATING ELEMENT ENDS AND TIGHTEN ELEMENT HOLDING SET SCREWS SECURELY.

DEPENDING UPON THE DESIRED FIELD STRENGTH PATTERN, MOUNT THE INDIVIDUAL ANTENNAS PER THE FOLLOWING:

UNIDIRECTIONAL COVERAGE MAY BE ACHIEVED BY MOUNTING BOTH ANTENNAS ON ONE TOWER LEG.

APPROXIMATE OMNIDIRECTIONAL COVERAGE MAY BE ACHIEVED BY MOUNTING THE INDIVIDUAL ANTENNAS ON TWO CORNERS.

IF 3/4\"/>

ALL CABLE TO BE RG-11 4/U

TYPE N MALE 50 OHM ANTENNA INPUT CONNECTOR WEATHERPROOF WITH POLYKEN TAPE SUPPLIED

MAKE RADIATING ELEMENT ENDS FLUSH WITH INSIDE SURFACE

FEED INSULATOR MUST POINT DOWN ON ALL ANTENNA BAYS.

DIMENSIONAL TOLERANCES	
BASIC	FRACTIONAL DECIMAL
0\"/>	

THREE
INSTALLATION INSTRUCTIONS
FOR A
322 SIDE MOUNT ANTENNA
CELWAVE R.F.
MARIBORO, NEW JERSEY
PHOENIX, ARIZONA

DRAWING NO. B-22400
DRAWN BY SLP/TAV 11-3-61
CHECKED BY
APPROVED BY

REVISION	DATE
6	FOR QUOTE FOR REVISION OF ANTENNA AND NOTES REMOVED TO NEW