CITY OF RAPID CITY

RAPID CITY, SOUTH DAKOTA 57701-2724

PLANNING DEPARTMENT

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MEMORANDUM

TO: Mayor Jim Shaw
City Council Members

FROM: Vicki L. Fisher, Planner III

DATE: August 6, 2003

RE: Ordinance Amendment #03OA003-To allow microcell cellular communication facilities in the High Density Residential District

The City Council is currently reviewing the above referenced Ordinance Amendment to allow:

"Cellular communication antenna panels mounted on the sides of buildings greater than or equal to 45 feet or five stories provided such panels do not exceed building height or project more than eighteen inches from the side of the building" as a Conditional Use in the High Density Residential Zoning District.

The City Council has requested clarification regarding the industry definition of "panel". A panel is a type of antenna with a rectangular shape, a flat or convex surface and can measure up to eight feet in height by one foot in width. A second type of antenna used as a microcell cellular communication facility is the omni directional antenna. An omni directional antenna is a whip or rod-like antenna and may range up to twenty feet in height. Both types of antennas can be designed and/or painted to match the façade of a structure. Typical design elevations of the two types of antennas are attached for your review.

Based on the above referenced information, staff is recommending that the proposed text be revised eliminating the term "panel". This will allow for either a panel or omni directional antenna to serve as a microcell cellular communication facility within the High Density Residential District. In addition, staff is recommending that the maximum size of an "antenna" be no larger than eight feet in height or one foot in width. (The applicant concurs with the proposed text change.)

Staff is recommending that the text be changed to read:

"Cellular communication antennas, no larger than eight feet in height or one foot in width, mounted on the sides of buildings greater than or equal to 45 feet or five stories provided such

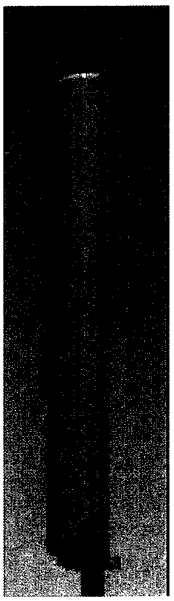
antennas do not exceed building height or project more than eighteen inches from the side of the building".

Panel 62° / 16 dBd

RWA-80017LS ___ 5° 25%

When ordering, replace "___" with connector type.

806-960 MHz



Mechanical specifications

Length	2450	mm	96.5	in
Width	295	mm	11.6	in
Depth	160	mm	6.3	in
Weight	14	kg	31.0	lbs
Wind Area	0.73	m^2	7.8	ft^2
Wind load at 50 m/s	1140	N	256	lbs

Mounting
Through two pair of clamps to pipe diameter Ø50-160 mm (2.0-6.3 in) or by U-clamps to a 2" pipe.

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting Bracket: #36210002
Downtilt Bracket: #36114003

Electrical specifications

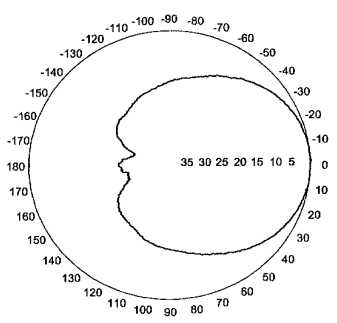
	Frequency Range	806-941 MHz*
	Impedance	50Ω
3)	Connector	N, NE, DIN, E-DIN
1)	VSWR	≤1.4:1
	Polarization	Vertical
1)	Gain	16 dBd
2)	Power Rating	500 W
1)	Half Power Angle	
	H-Plane	62°
	E-Plane	7°
1)	Lobe Tilt	5°
1)	Null Fill	25%
	Lightning Protection	Direct Ground

***Also available up to 960 MHz. Consult your Antel sales director for more information.**

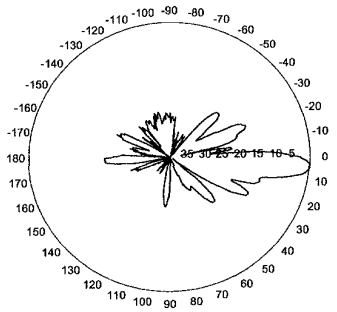
1) Typical Values
2) Power Rating limited by connector only.
3) NE indicates an elongated N Connector.
E-DIN indicates an elongated DIN Connector.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation-pattern[1)]



Horizontal



Vertical

Specially designed for enhanced upper side lobe suppression.

Radiation patterns for all Antel antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back Ratio.

Antel's Exclusive 3T (True Transmission Line Technology) Antenna Design:

- A 1 1/4" four-channel extrusion running the entire length of the antenna for unmatched strength and rigidity.
- Durable brass feedline design that eliminates the need for solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad band width and superior performance.
- Air as insulation for virtually no internal signal loss.

Every Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna available with bottom-fed connector only.

1300 Capital Drive Rockford, IL 61109 Toll-Free (888) 417-9562 Tel. (815) 399-0001
Fax. (815) 399-0156 Email: antel@antelinc.com www.antelinc.com

Revision Date: 2/21/03

DECIBEL®

DB809DK-XC

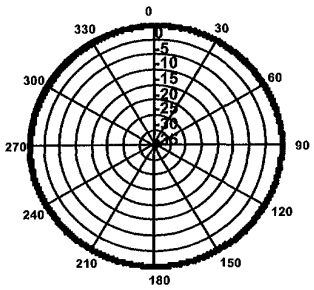
9 dBd, Omni, Dual Stack Antenna
806-869, 806-869 MHz

806-869 MHz
806-869 MHz

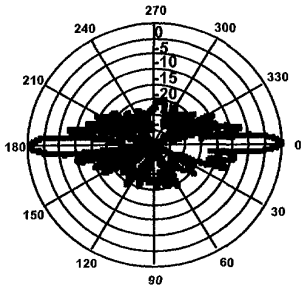
DECIBEL®

360°

- Stacked dual omni configuration
- Vertical separation provides 40 dB Tx-Tx isolation
- Rugged, durable construction, heavy duty radome for minimum tip deflection
- Lightning resistant, with large diameter conductor extending top to bottom



Azimuth 860 MHz (Tilt=0)



Vertical 860 MHz (Tilt=0)

ELECTRICAL		
Frequency (MHz):	806-869	806-869
Polarization:	Vertical	Vertical
Gain (dBd/dBi):	9/11.1	9/11.1
Azimuth BW:	360°	360°
Elevation BW:	8°	8°
Beam Tilt:	0°	0°
Isolation (dB):	>40	>40
VSWR:	<1.5:1	<1.5:1
Impedance:	50 Ohms	50 Ohms
Max Input Power:	250 Watts	250 Watts
Lightning Protection:	DC Ground	DC Ground
Opt Electrical Tilt:	3°	3°

MECHANICAL	
Weight:	64 lbs (29.1 kg)
Dimensions (LxUO):	254 X 3 in (6451.6 X 76.2 mm)
Max. Wind Area:	3.5 ft² (0.33 m²)
Max. Wind Load (@ 100mph):	140 lbf (623 N)
Max. Wind Speed:	225 mph (362 km/h)
Tip Deflection (@ 100mph):	2°
Radiator Material:	Brass
Radome Material:	Fiberglass
Mounting Hardware Material:	Galvanized Steel
Connector Type:	N-Female (Bottom)
Color:	Horizon Blue
Standard Mounting Hardware:	DB5091-3

ANDREW®

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Date: 7/24/2003