05SR064

11-6-19 SDCL Review Application for the Alltel SDRC Rapid City MTSO PCS Site

A Proposal Submitted to the City of Rapid City, SD

Prepared for
Alltel (Formerly Western Wireless)
3650 131st Ave SE, #400
Bellevue, Washington 98006

Prepared by
RealCom Associates
506 SW 6th Avenue
Suite 900
Portland, Oregon 97204

November 22, 2005

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I. PROPOSAL SUMMARY INFORMATION

File No:	SDRC Rapid City MTSO
Applicant:	Alltel (Formerly Western Wireless) 3650 131st Ave SE, #400 Bellevue, Washington 98006
Preparer for Applicant:	Paul Slotemaker, AICP 560 SW 6th Ave., Suite 900 Portland, Oregon 9204 (503) 241-0279
Property Owner:	West Park Plaza P.O. Box 2624 Rapid City, SD 57709
Request:	11-6-09 SDCL Review approval to permit 4 new omni antennas and remove 3 existing panel antennas on an existing 150-foot tall tower. No new ground equipment is proposed. The wireless telecommunication antennas are used for Personal Communications Service (PCS) transmissions.
Location:	2449 W. Chicago Street Rapid City, SD 57702
Legal Description:	Lot CR of Block 12-13(Ordinance #1925, 1945), Block 12, Providence Subdivision, Section 34, T2N, R7E, BHM, Rapid City, Pennington County, South Dakota
Zoning:	General Commercial

II. INTRODUCTION

Alltel (formerly Western Wireless) is in the process of upgrading its Personal Communication Services, or PCS network in South Dakota and many other western states. Alltel's telecommunication devices represent the next generation of wireless devices, such as: mobile phones with paging and voice mail, caller ID, call waiting, and call forwarding services, wireless internet service, wireless fax machines and fax modems, picture phones, text messaging and high speed data transfer.

PCS uses the latest digital technology to produce the highest quality transfer of voices and increased security of transmissions. This digital technology also accommodates the transfer of data and graphics, which is an essential capability in the information age. PCS operates at a high frequency, around 850 megahertz and 1,900 megahertz, which allows for more simultaneous callers, greatly reducing the possibility that a call will be rejected because of insufficient capacity.

In order to improve these services, Alltel is upgrading and expanding its PCS network in parts of South Dakota and other western states. PCS works by splitting a region into smaller geographic areas called cells, each cell is served by a transmitter and receiver or base station. As a caller moves across the landscape, the call is passed, or "handed-off", from one base station to another. Each base station is connected to a mobile telephone switching office, which is linked to the land based phone network serving your home or office.

The antenna modifications are located on an existing 150-foot tower at 2449 West Chicago Street. The proposed antenna upgrades are needed for maintenance and to provide the latest in wireless technology and keep up with the increasing demands for services and extra features. The proposed facility upgrade will provide these additional services and allow for uninterrupted PCS service throughout Rapid City.

Additionally, Alltel understands communities' concerns about tower proliferation and gives priority to sites collocated on existing power-lines, light standards, communication towers, and the tops of buildings, as long as they meet the other technical requirements of the system. Fortunately, the existing tower is available and meets the requirements to support the replacement antennas. No new towers will be constructed as part of this application.

III. PROPOSAL DESCRIPTION

Site Description

The site is located at 2449 West Chicago Street, and zoned General Commercial. The subject property is developed with an existing 150-foot monopole tower which is located on the south side of the property (Exhibit A). The existing wireless facility was initially approved at the September 4, 2001 City Council meeting under Case No. 01UR044. It was later modified with an 11-6-19 SDCL Review to relocate an existing dish antenna from a shorter pole onto the tower and install a new dish antenna on to the tower. The dish antennas were approved under Case No. 03SR048 (Exhibit A).

Proposal Description

The proposed technological upgrade will consist of 4 new omni PCS antennas mounted to the top of the tower. One of the omni antennas will measure 11 feet long and the remaining three will measure 7 feet long (Exhibit B). No new equipment or any other ground disturbance is proposed at the base of the tower.

In addition to the 4 new antennas, 15 existing panel PCS antennas and 2 dish antennas are currently located on the tower. Three of the existing panel antennas will be removed as part of this project, leaving only 12 panel antennas. Including the 4 proposed omni antennas, and 2 dish antennas, a total of 18 antennas will be located on the tower (See Exhibit A, Sheet A-2, Details 8 & 12 for the antennas at the top of the tower).

Antenna Inventory:

Current Antenna Inventory:	**Proposed Antenna Inventory:**
15 Panel Antennas	12 Panel Antennas
2 Dish Antennas	2 Dish Antennas
	4 Omni Antennas
17 TOTAL ANTENNAS	**18 TOTAL ANTENNAS**

This 11-6-19 SDCL Review application is needed to permit the 4 proposed omni antennas, as a collocation on the existing tower. The locations of the existing and proposed antennas are illustrated in the attached site plan drawings (Exhibit A).

IV. APPLICABLE STANDARDS

The following paragraphs are a response to the Development Standards associated with the GC District, Chapter 17.18 of the Rapid City Municipal Code.

17.18 GC GENERAL COMMERCIAL DISTRICT

.050 Area regulations.
The following regulations shall apply to all uses permitted in this district:

A. Front Yard. All buildings shall set back a minimum of twenty-five feet from the front property line.

B. Side Yard. No side yard is required except that the width of a side yard which abuts a residential district shall not be less than twenty-five feet.

C. Rear Yard. Where a commercial building is to be serviced from the rear, there shall be provided an alleyway, service court, rear yard, or combination thereof of not less than thirty feet in depth. The depth of a rear yard which abuts a residential district shall be not less than fifteen feet. In all other cases no rear yard is required.

D. Set Back from Section Lines. Principal and accessory buildings and structures shall be set back no less than fifty-eight feet from any section line. No set back is required from any legally vacated section line; however, if the vacated section line forms a property line, the applicable side, rear or front yard setbacks shall be observed.

E. Maximum Lot Coverage. Main and accessory buildings shall cover not more than seventy-five percent of the lot area. (Ord. 3744 (part), 2001: prior code Appendix A, Art. IV (§ 6 (C)))

Response: As illustrated in the attached site plan drawings (Exhibit A), the proposed collocation meets the setback requirements. This application is to install four new omni antennas to the top of the existing tower. No new towers, ground mounted equipment or other structures are proposed. This standard is met.

.060 Height regulations.
No building or structure shall exceed four stories or forty-five feet in height except as provided in Section 17.50.260.

17.50.260 Height.
The following requirements are intended to provide exceptions or qualify and supplement, as the case may be, the specific district regulations set forth in Chapters 17.08 through 17.48 of this code:

B. The following structures or parts thereof are exempt from the height limitations set forth in the zoning districts:

3. *Radio and television antennas and towers, observation towers, power transmission towers and* ***cellular communication towers,***

Response: Cellular communication tower are exempt from the height limits. Therefore, the additional antennas are not subject to the base zone height limit. This standard is met.

.070 *Off-street parking.*

Response: Off-street parking is already provided for the existing wireless telecommunication facility. The additional antennas will not generate additional traffic beyond the monthly maintenance visits currently generated by the facility. This standard is met.

.080 *Screening requirements.*
When a general commercial zoning district is adjacent to a residential district, an opaque ornamental screening fence not less than five nor more than six feet in height shall be constructed along the adjacent property lines and shall be maintained in good condition.

Response: Not applicable. The subject property is not adjacent to a residential district. Additionally, nothing is proposed on the ground and no ground disturbances are proposed as part of this application. This standard is met.

.090 *Landscaping.*
When a general commercial zoning district is adjacent to a residential district, landscaping shall be provided as regulated in the landscape regulations adopted by Section 17.50.300. Fifty percent of the plant material shall be visible from the residential district whenever possible.

Response: Not applicable. The subject property is not adjacent to a residential district. Additionally, nothing is proposed on the ground and no ground disturbances are proposed as part of this application. This standard is met.

.100 *Flood fringe building district.*

Response: Not applicable. The subject property is not in a flood fringe building district. This standard is met

V. CONCLUSION

Based on the foregoing analysis and findings, the applicant requests approval of the 11-6-19 SDCL Review application. The application meets all applicable criteria for approval.

VI. EXHIBITS

A. Site Plans & Elevations
B. Antenna Spec Sheets

www.dapacom.com
dapainfo@dapacom.com

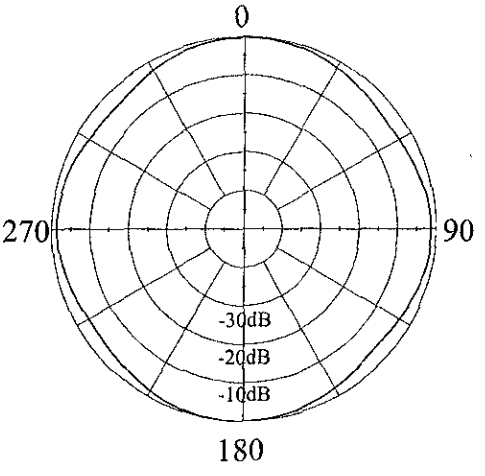
Model 09010, 14.1 dBi (12 dBd) Omni Module

ELECTRICAL CHARACTERISTICS

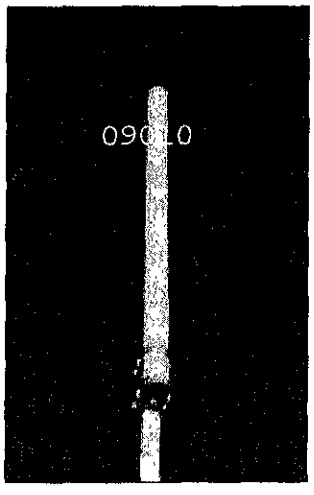
	DCS / PCS
Frequency Range	1710 - 1990 MHz
Beamwidth: Horizontal-plane	Omni ± 2 dB
Vertical-plane	5.5° ± 1° (at -3 dB)
Max/Min Gain	14.1/13.1 dBi (12/11 dBd)
Electrical Downtilt	0° (available -1°, -2°, -4°, -6°)
Side Lobes	≤ -11 dB

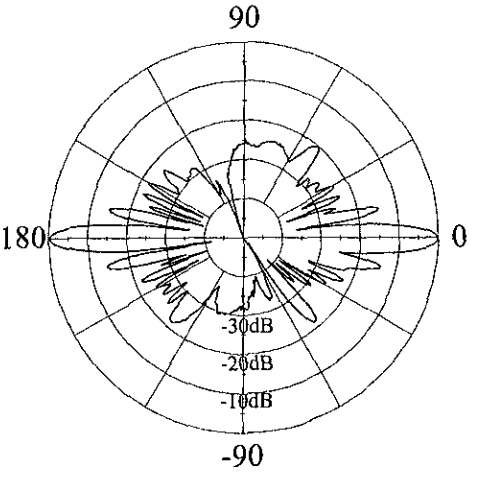
GENERAL CHARACTERISTICS

Impedance	50 Ω
VSWR	≤ 1.4:1
Polarization	Vertical
Rated Power	500 W



HORIZONTAL - PLANE





VERTICAL - PLANE

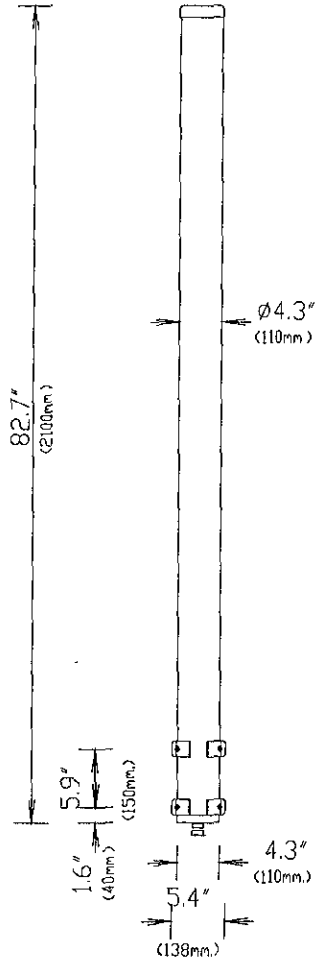
www.dapacom.com
dapainfo@dapacom.com

Model 09010, 14.1 dBi (12 dBd) Omni Module

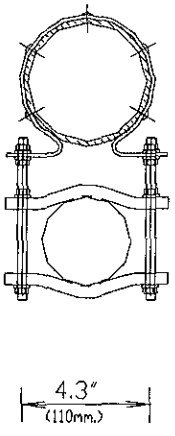
MECHANICAL CHARACTERISTICS

Height	82.7"(2100 mm)
Diameter	4.3"(110 mm)
Weight	22.1 lbs (10 kg)
Wind Survival Rating	125 mph (200 km/h)
Wind Load (at 100 mph)	195.5 N
Flat Plate Equivalent Area	2.49 ft² (0.23 m²)
Connector Types (Female)	7/16 DIN (Type N available)
Materials:Antenna/Radome	Aluminum / ABS

REAR VIEW



TOP VIEW



MOUNTING HARDWARE

Mounting Brackets	**Fix 903** (1.25" - 3.5" OD pipe) (30 - 90 mm OD pipe)

Vertically Polarized, Omni-Directional / 10 dBd

BCD-80010 ___

When ordering, replace "___" with connector type.

Mechanical specifications

Length			
Overall	3445	mm	136 in
Radome	2945	mm	116 in
Diameter	Ø65	mm	2.6 in
[4] Weight	12	kg	26.5 lbs
Wind Area	0.2	m^2	2.4 ft^2
Wind load at 50 m/s	351	N	79 lbs

Antenna consisting of aluminum alloy. Dipoles covered by a polyurethane painted fiberglass radome. **Inverted models available.**

Mounting

Support Pipe: Aluminum alloy diameter Ø70 mm (2.76 in), length 500 mm (19.7 in).

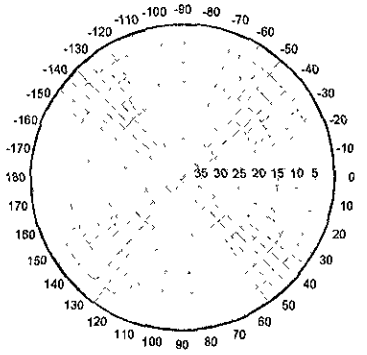
Mounting bracket kit #36312000 Standard -or- #36413001 Offset

Downtilt bracket kit N/A

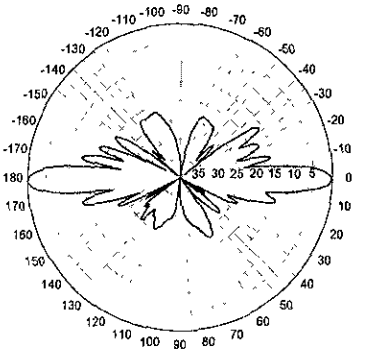
Electrical specifications

	Frequency Range	806-900 MHz
	Impedance	50Ω
[3]	Connector	NE, E-DIN
[1]	VSWR	≤1.43:1
	Polarization	Vertical
[1]	Gain	10 dBd
[2]	Power Rating	500 W
[1]	Half Power Angle	
	H-Plane	360°
	E-Plane	7°
[1]	Electrical Downtilt	1.25°
[1]	Null Fill	5%
	Lightning Protection	Direct Ground

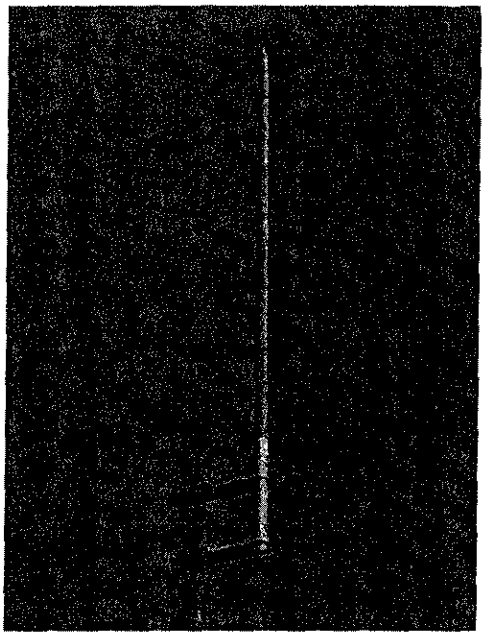
Radiation-pattern[1]



Horizontal



Vertical



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

- A 1¼" four-channel extrusion running the entire length of the antenna for unmatched strength and rigidity.
- Durable brass feedline design that eliminates the need for conventional 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 Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Inverted Models Available.

[1] Typical Values
[2] Power Rating limited by connector only.
[3] NE indicates an elongated N Connector
E-DIN indicates an elongated DIN Connector.
[4] The antenna weight listed above does not include the bracket weight.

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

806-900 MHz

Amphenol Antel, Inc.
The Antenna Technology Company
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

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