STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

August 18, 1999

J. Brendan Sharkey
Omnipoint Communications, Inc.
100 Filley Street
Bloomfield, CT 06002

RE: TS-OCI-164-990719 - Omnipoint Communications request for an order to approve tower sharing at an existing telecommunications facility located at 440 Hayden Station Road in Windsor, Connecticut.

Dear Mr. Sharkey:

At a public meeting held August 16, 1999, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. The Council conditioned this order with a requirement for Omnipoint Communications to use low-profile antennas.

This facility has been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequency now used on this tower. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated July 19, 1999, with use of low-profile antennas. Please notify the Council when all work is complete.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/RKE/tsg

c: Honorable Mary Drost, First Selectman, Town of Windsor
R. Leon Churchill Jr. Town Manager, Town of Windsor
Mario Zavarella, Town Planner, Town of Windsor

TS-OCI-164-990719

OMNIPOINT COMMUNICATIONS INC.

100 Filley Street, Bloomfield, CT 06002
(860) 692-7154 phone
(860) 692-7159 fax

19 July, 1999

Mortimer A. Gelston, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Request by Omnipoint Communications, Inc. for an Order to Approve the Shared Use of a Tower Facility 440 Hayden Station Road, Windsor, Connecticut

Dear Chairman Gelston and Members of the Council:

Pursuant to Connecticut General Statutes §16-50aa, Omnipoint Communications, Inc. ("Omnipoint") hereby requests an order from the Connecticut Siting Council ("Council") to approve the proposed shared use by the Applicant of an existing tower located at 440 Hayden Station Road in Windsor, Connecticut. The tower is owned and operated by Sprint Spectrum. L.P. ("Sprint"). Omnipoint proposes to install antennas on the existing tower located within Sprint's leased compound area, and the equipment associated with this facility would be located near the base of the tower within an expanded compound (see "Exhibit A"). The Applicant requests that the Council find that the proposed shared use of the tower satisfies the criteria stated in §16-50aa and issue an order approving the proposed use.

Background

Omnipoint Communications, Inc. is licensed by the Federal Communications Commission (FCC) to provide PCS wireless telephone service in the State of Connecticut, which includes the area to be served by Omnipoint's proposed installation.

The Sprint tower at 440 Hayden Station Road in Windsor is an approximately 85-foot monopole located on an approximately 25'x 36', or 900 sq. ft. compound. Omnipoint and Sprint have agreed to the proposed shared use of this tower pursuant to mutually acceptable terms and conditions. Sprint has also authorized Omnipoint to act on its behalf to apply for all necessary local, state and federal permits, approvals, and authorizations which may be required for the proposed shared use of this facility.

Omnipoint proposes to install two (2) EMS RR65-18-02DP dual pol antennas whose top is 75 feet Above Grade Level ("AGL"). The radio transmission equipment associated with these antennas, a Nortel S2000H cabinet, would be mounted on a unistrut frame at the base of the tower. Exhibit B contains specifications for the proposed antennas and equipment cabinet.

C.G.S. §16-50aa (c) (1) provides that, upon written request for approval of a proposed shared use, "if the council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such shared use." The shared use of the tower satisfies those criteria as follows:

A. **Technical Feasibility** The existing tower is structurally sound and capable of supporting the proposed Omnipoint antennas. The proposed shared use of this tower therefore is technically feasible.

B. **Legal Feasibility** Under C.G.S. § 16-50aa, the Council has been authorized to issue orders approving the proposed shared use of an existing tower facility such as the facility on Hayden Station Road in Windsor. (Public Acts 93-268, Section 2; and 94-242, Section 6 (c). This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. C.G.S. § 16-50x (a) vests exclusive jurisdiction over these facilities in the Council, which shall "give such consideration to other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing towers facilities. Under this statutory authority vested in the Council, an order by the Council approving the shared use would permit the applicant to obtain a building permit for the proposed installations.

C. **Environmental Feasibility** The proposed shared use would have a minimal environmental effect, for the following reasons:

1. The proposed installations would have an insignificant incremental visual impact, and would not cause any significant change or alteration in the physical or environmental characteristics of the existing site. In particular, the proposed installations would not increase the height of the existing tower, and would only minimally extend the boundaries of the existing Sprint compound area.

2. The proposed installations would not increase the noise levels at the existing facility by six decibels or more.

3. Operation of antennas at this site would not exceed the total radio frequency electromagnetic radiation power density level adopted by the American National Standards Institute ("ANSI"). The "worst-case" exposure calculated for operation of this facility (i.e., calculated at the base of the tower, which represents the closest publicly accessible point within the broadcast field of the antennas), with both the Sprint and Omnipoint antennas, would be 0.106694 mW/cm2 (10.67% of the ANSI standard). These calculations are attached as Exhibit C.

4. The proposed installations, would not require any water or sanitary facilities, or generate air emissions or discharges to water or sanitary facilities, or generate air emissions or discharges to water bodies. After construction is complete (approximately two weeks), the proposed installations would not generate any traffic other than periodic maintenance visits.

The proposed use of this facility would therefore have a minimal environmental effect, and is environmentally feasible.

E. **Economic Feasibility** As previously mentioned, Sprint and Omnipoint have entered into a mutual agreement to share the use of the existing tower on terms agreeable to the parties. The proposed tower sharing is therefore economically feasible.

F. **Public Safety Concerns** As stated above, the existing tower is structurally capable of supporting the proposed Omnipoint antennas. The tower stands on a compound accessible from Hayden Station Road. Omnipoint is not aware of any other public safety concerns relative to the proposed sharing of the existing tower. In fact, the provision of new or improved phone service through shared use of the existing tower is expected to enhance the safety and welfare of area residents.

Conclusion

For the reasons discussed above, the proposed shared use of the existing tower facility at Hayden Station Road in Windsor, Connecticut satisfies the criteria stated in C.G.S. §16-50aa, and advances the General Assembly's and the Siting Council's goal of preventing the proliferation of towers in Connecticut. The Applicant therefore requests that the Siting Council issue an order approving the proposed shared use.

Thank you for your consideration of this matter.

Very truly yours,

J. Brendan Sharkey
for Omnipoint Communications, Inc.

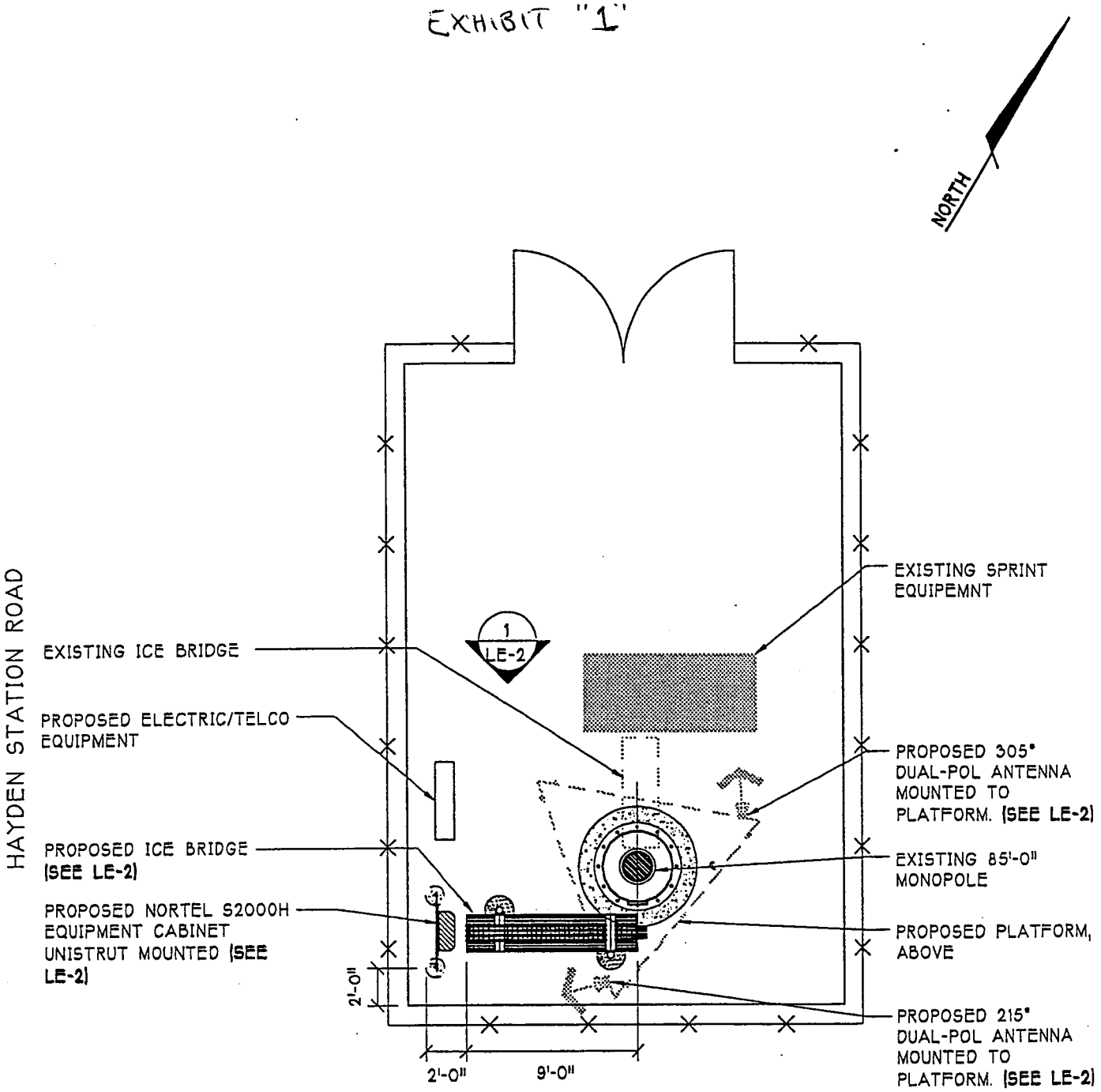
Attachments

OMNIPOINT COMMUNICATIONS INC.

Exhibit A

Design Drawings
440 Hayden Station Road
Windsor, CT

EXHIBIT "1"



1 LE-1 EQUIPMENT LAYOUT
SCALE: 1/8" = 1'-0"

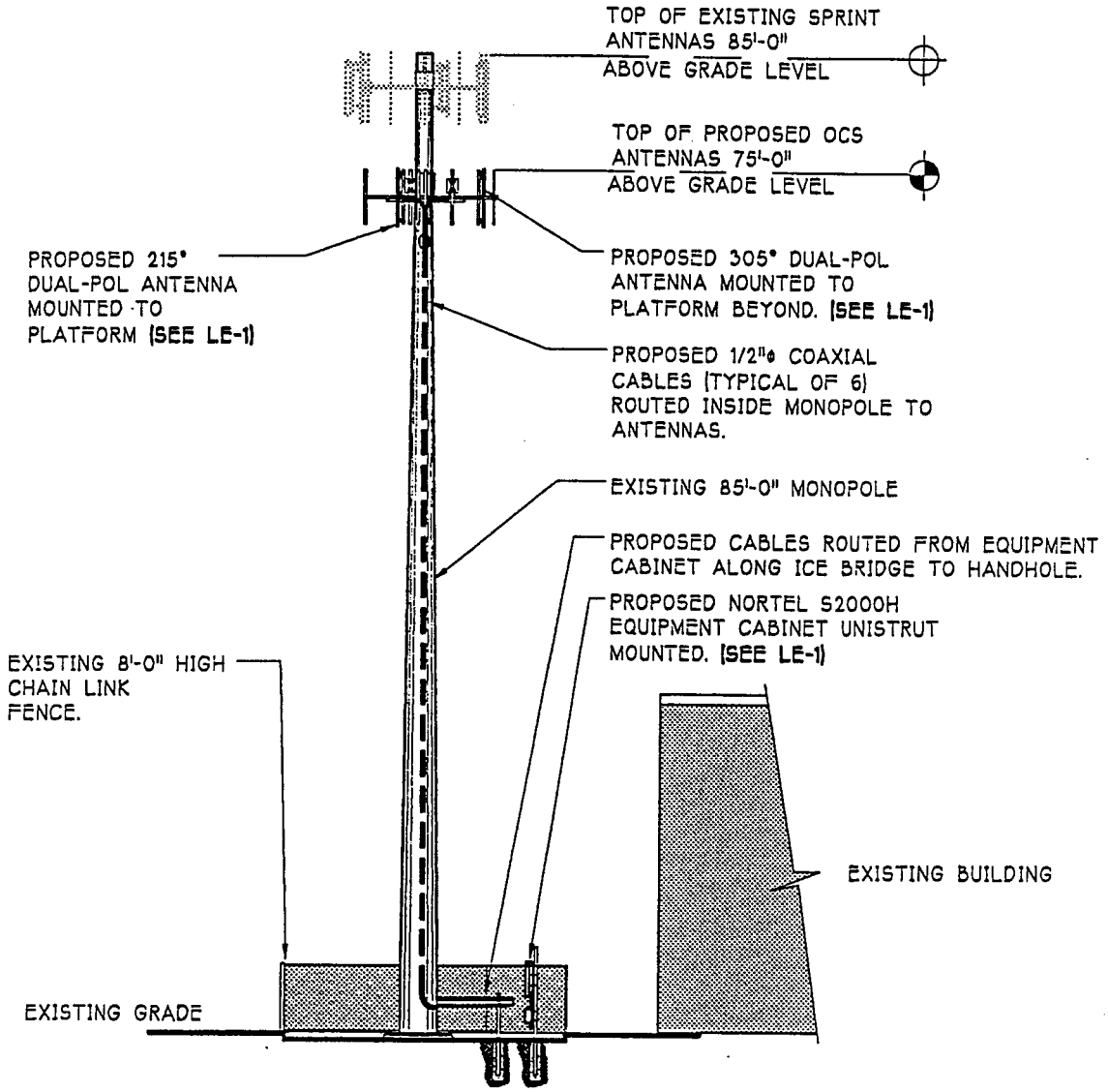
CT03XC065

NOTE: EXHIBITS SUBMITTED ARE A CONCEPTUAL REPRESENTATION OF THE LEASE AGREEMENT ONLY. ACTUAL CONSTRUCTION DOCUMENTATION MAY VARY TO COMPLY WITH ALL APPLICABLE CODES.

ARCNET ARCHITECTS, INC.
670 North Beers Street, Building 2, Holmdel, NJ 07733
Tel: 732.739.3200 Fax: 732.739.0440

Drawing Title:	KEY & EQUIPMENT LAYOUT
Client:	OCS
Project:	SPRINT-WINDSOR LOCKS
Address:	440 HAYDEN STATION ROAD NORTH WINDSOR, CT
Approved By:	PROJ. MGR: _____ DATE: _____ R.F. ENGR: _____ DATE: _____ SAC: _____ DATE: _____ OWNER: _____ DATE: _____
Search Area:	WINDSOR LOCKS
Site ID No.:	CT-11-280A
P.C.:	JDi
P.C. Chkd.:	
Chkd. by:	
ARCNET Project No.:	A99-506-818A
Drawn:	JVe
Date:	3//9/99
Revision No. / Date:	
Drawing No.:	LE-1

EXHIBIT "1" CONTINUED



1 / LE-2 ELEVATION

SCALE: 1/16" = 1'-0"

CT03XC065

NOTE: EXHIBITS SUBMITTED ARE A CONCEPTUAL REPRESENTATION OF THE LEASE AGREEMENT ONLY. ACTUAL CONSTRUCTION DOCUMENTATION MAY VARY TO COMPLY WITH ALL APPLICABLE CODES.

ARCNET ARCHITECTS, INC.
670 North Beers Street, Building 2, Holmdel, NJ 07733
Tel: 732.739.3200 Fax: 732.739.0440

Drawing Title: ELEVATION

Client: OCS

Project: SPRINT-WINDSOR LOCKS
Address: 440 HAYDEN STATION ROAD NORTH WINDSOR, CT

Approved By:
PROJ. MGR: _____ DATE: _____
R.F. ENGR: _____ DATE: _____
SAC: _____ DATE: _____
OWNER: _____ DATE: _____

Search Area: WINDSOR LOCKS Site ID No: CT-11-280A	P.C.: JDi	P.C. Chkd.:	Chkd. by:	ARCNET Project No.: A99-506-818A	Drawn: JVe	Date: 3/9/99

Revision No.	Date:

Drawing No.: LE-2

OMNIPOINT COMMUNICATIONS INC.

Exhibit B

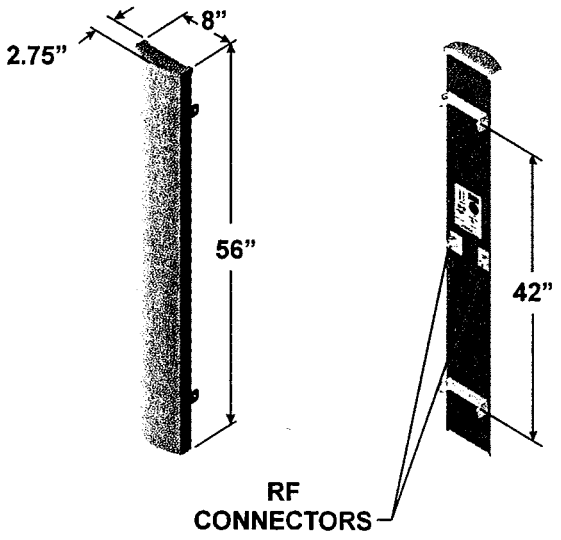
Equipment Specifications
440 Hayden Station Road
Windsor, CT

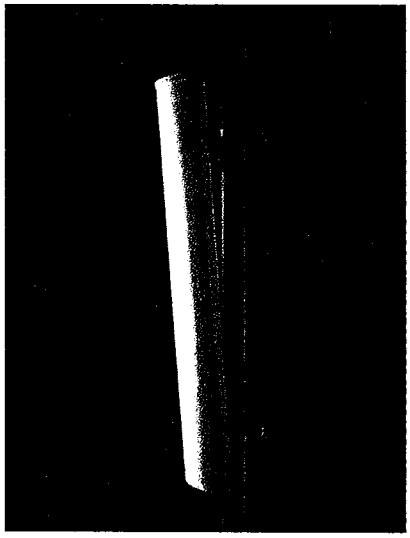
EMS WIRELESS

OptiRange™

RR65-18-XXXP

1850 MHz - 1990 MHz (P)





65° beamwidth

17.5 dBi gain

±45° DualPol™

56 inch

SPECIFICATIONS

Electrical

Azimuth Beamwidth	65°
Elevation Beamwidth	6°
Gain	17.5 dBi (15.4 dBd)
Polarization	Slant, ±45°
Port-to-Port Isolation	≥ 30 dB
Front-to-Back Ratio	≥ 25 dB (≥ 30 dB Typ.)
Electrical Downtilt Options	0°, 2°, 4°, 6°
VSWR	1.35:1 Max
Connectors	2;Type N or 7-16 DIN (female)
Power Handling	250 Watts CW
Passive Intermodulation	<-147 dBc (2 tone @ +43 dBm {20W} ea.)
Lightning Protection	Chassis Ground

Mechanical

Dimensions (L x W x D)	56in x 8in x 2.75in (142 cm x 20.3 cm x 7.0 cm)
Rated Wind Velocity	150 mph (241 km/hr)
Equivalent Flat Plate Area	3.1ft² (.29 m²)
Front Wind Load @ 100 mph (161 kph)	90 lbs (400 N)
Side Wind Load @ 100 mph (161 kph)	31 lbs (139 N)
Weight	18 lbs (8.2 kg)

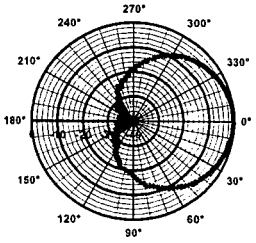
Note: Patent Pending and US Patent number 5, 757, 246.

Values and patterns are representative and variations may occur. Specifications may change without notice due to continuous product enhancements. Digitized pattern data is available from the factory or via the web site www.emswireless.com and reflect all updates.

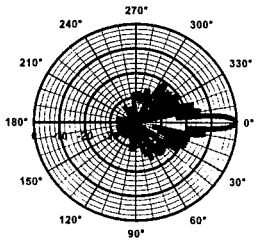
MOUNTING OPTIONS

Model Number	Description	Comments
MTG-P00-10	Standard Mount (Supplied with antenna)	Mounts to Wall or 1.5 inch to 5.0 inch O.D. Pole (3.8 cm to 12.7 cm)
MTG-S02-10	Swivel Mount	Mounting kit providing azimuth adjustment.
MTG-DXX-20*	Mechanical Downtilt Kits	0° - 10° or 0° - 15° Mechanical Downtilt
MTG-CXX-10*	Cluster Mount Kits	3 antennas 120° apart or 2 antennas 180° apart
MTG-C02-10	U-Bolt Cluster Mount Kit	3 antennas 120° apart , 4.5" O.D. pole.
MTG-TXX-10*	Steel Band Mount	Pole diameters 7.5" - 45"

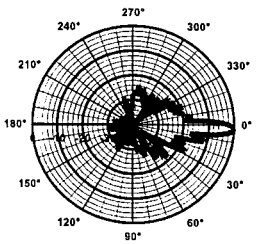
* Model number shown represents a series of products. See mounting options section for specific model number.



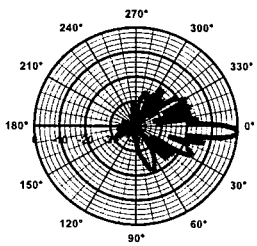
Azimuth



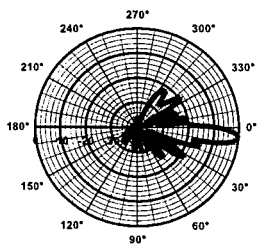
Elevation
0° Downtilt



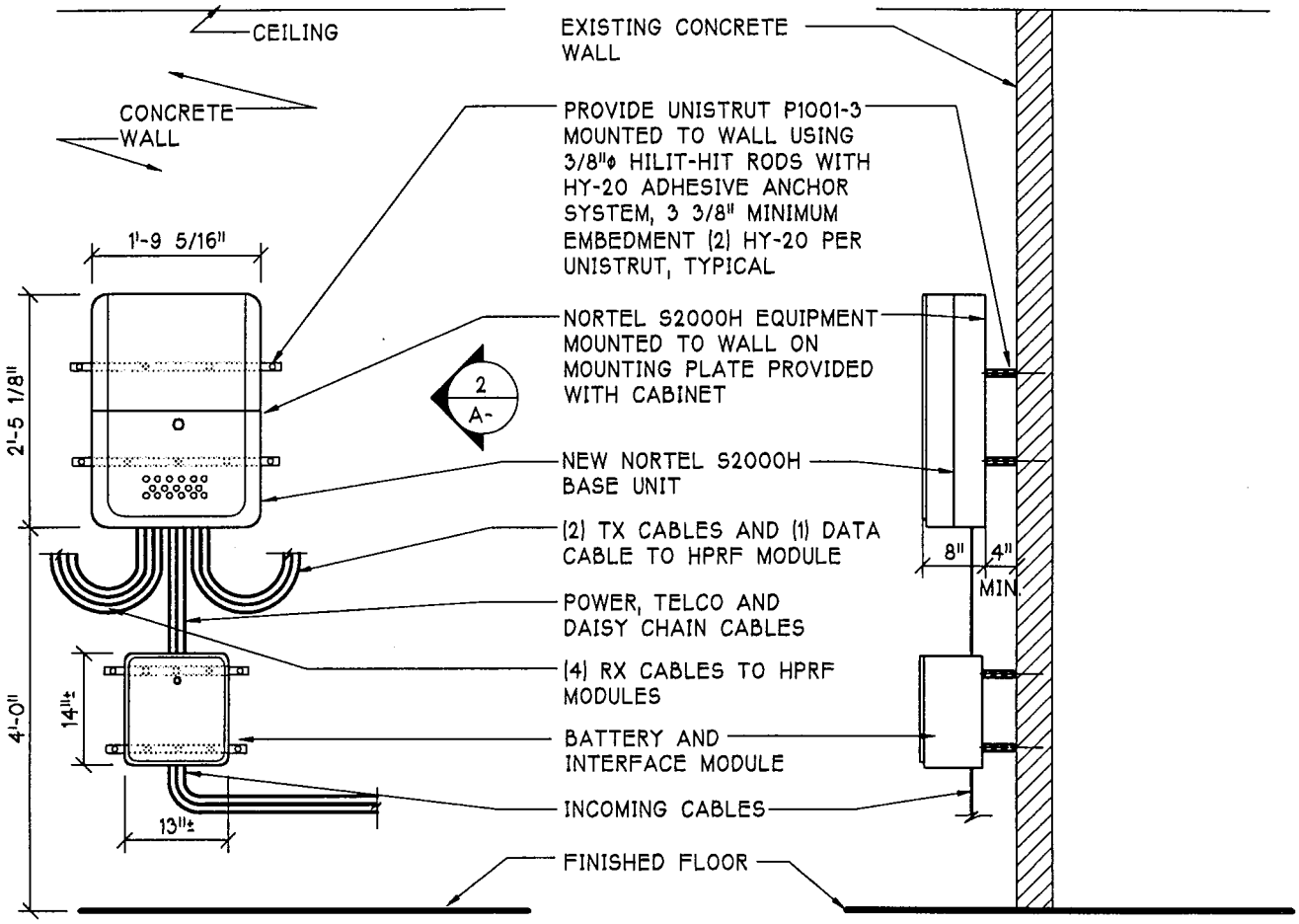
Elevation
2° Downtilt



Elevation
4° Downtilt



Elevation
6° Downtilt



1 / A-# FRONT ELEVATION
SCALE: 1/2" 1'-0"

2 / A-# SIDE ELEVATION
SCALE: 1/2" 1'-0"

ROBERT P. JUENGERT

CABINET WEIGHT SPECIFICATIONS

BASE UNIT = 74.8 LBS.

NOTE:
NORTEL SHALL BE RESPONSIBLE TO VERIFY INFORMATION FOR ALL MOUNTS AS REQUIRED.

ARCNET ARCHITECTS, INC.
670 North Beers Street, Building 2, Holmdel, NJ 07733
Tel: 732.739.3200 Fax: 732.739.0440

Drawing Title:

Client: OCS

Project

Address:

Approved By:
PROJ. MGR: _____ DATE: _____
R.F. ENGR: _____ DATE: _____
SAC: _____ DATE: _____
OWNER: _____ DATE: _____

Revision No. | Date:

Drawing No.

Search Area:
Site ID No.:

P.C.: | P.C. Chkd.: | Chkd. by:

ARCNET Project No. | Drawn: | Date:

OMNIPOINT
COMMUNICATIONS INC.

Exhibit C

Power Density Calculations
440 Hayden Station Road
Windsor, CT

OMNIPOINT

OMNIPOINT COMMUNICATIONS
100 Filley St
Bloomfield, CT 06002
Phone: (860) 692-7124
Fax: (860) 692-7159

Technical Memo

To: Brendan Sharkey
From: Michael Walker (Radio Engineering Consultant)
cc: Mike Fulton; Haider Syed
Subject: Power Density Report for CT11280A
Date: 7/19/99

1. Introduction:
This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the proposed OMNIPOINT Communications Inc. PCS antenna installation on Sprint Monopole at 440 Hayden Station Road, Windsor, CT. This study incorporates the most conservative considerations for determining the practical combined worst case power density levels that would be theoretically encountered from several locations surrounding the transmitting location.

2. Discussion:
The following assumptions were used in the calculations:

1) The emissions from the OCI transmitters are in the 1930-1950 MHZ frequency band.
2) The antenna cluster consists of two sectors, with 1 antenna per sector. The model number for each antenna is EMS RR651802DP.
3) The antenna height is 75 feet Center Line.
4) The maximum transmit power from each sector is 894 Watts Effective Isotropic Radiated Power (EiRP).
5) All the antennas are simultaneously transmitting and receiving, 24 hours a day.
6) Power levels emitting from the antennas are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
7) The average ground level of the studied area does not significantly change with respect to the transmitting location.

Equations given in "FCC OET Bulletin 65, Edition 97-01" were then used with the above information to perform the calculations.

3. Conclusion:
Based on the above worse case assumptions, the power density calculations from the proposed OMNIPOINT Communications Inc., PCS antenna installation are on the order of **1,000** to **10,000** times less than the FCC/ANSI/IEEE C95.1-1991 standard of 1000 microwatts per square centimeter ($\mu w/cm^2$). Details are shown in the attachment. Furthermore, the proposed antenna location for Omnipoint Communications on Sprint Monopole at 440 Hayden Station Road, Windsor, CT will not interfere with existing public safety telecommunications, AM band and FM band radio broadcast, TV, Police Communication, HAM Radio communications and other signals in the area.

Worst Case Power Density for installation on Sprint Monopole @ 440 Hayden Station Road, Windsor, CT

Region 11 - Connecticut Power Density Calculation - Worst Case			
Base Station TX output	20 W	43.01	
Number of channels	1		
Antenna Model	EMS: RR-65-18/ RV-65-18		
Antanna Gain	17.5 dBi		
Cable Size	1/2"		
Cable Length	0 ft		
Jumper & Connector loss	1 dB		
Cable Loss per foot	0.034		
Total Cable Loss	0 dB		
Total Attenuation	1 dB		
Total EIRP per channel	59.51 dB	893.37	W
Total EIRP per sector	59.51 dB	893.37	W
Ground Reflection	1.6		
Frequency	1930 MHz		
Antenna Height	75 ft	2286	cm
nsg	16.5		
Power Density (S) =	**0.034844 mW / cm^2**		
% MPE =	**3.4844%**		

Equation Used :

$$S = \frac{(1000)(grf)^2(Power) * 10^{(nsg/10)}}{4\pi (R)^2}$$

Office of Engineering and Technology (OET) Bulletin 65, Edition 97-01, August 1997

The cable loss is considered negligible due to masthead electronics unit at antennas.
The reported Sprint worst case power density value is 0.07185 milliwatts per squared centimeter.
The Omnipoint-Sprint combined worst case power density value will be 0.106694 milliwatts per squared centimeter which is 10.6694% of the Federal Standard of 1.0 milliwatts per squared centimeter.