OMNIPOINT
COMMUNICATIONS INC.

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

29 February, 2000

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
811 Stonington Road, Stonington, 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 of an existing tower located at 811 Stonington Road in Stonington, Connecticut. The tower, which is designed as a flagpole, is owned and operated by SBA Towers, Inc. ("SBA"). Omnipoint proposes to install antennas on the existing tower located within SBA's leased compound area, and to install related equipment near the base of the tower within the existing compound (see "Exhibit A"). Omnipoint 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 is licensed by the Federal Communications Commission (FCC) to provide PCS wireless telecommunications service in the State of Connecticut, which includes the area to be served by the proposed installation.

The SBA tower at 811 Stonington Road in Stonington is a 150-foot stealth flagpole structure located on an approximately 47' x 47', or approximately 2,200 sq. ft. compound. The coordinates for this location are 41-21-12 N and 72-53-13 W. Sprint Spectrum PCS ("Sprint") will have antennas mounted within the flagpole with centerlines at approximately 144 feet above ground level ("AGL"). Omnipoint and SBA have agreed to mutually acceptable terms and conditions for the proposed shared use of this tower, and SBA has 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.

As shown on the site plan drawings and tower elevations attached as Exhibit A, Omnipoint proposes to install a total of three antennas at the 134-foot level. The antennas are EMS Dual-Pol Model RR90-17-02DP. The radio transmission equipment associated with these antennas, Nortel S8000 cabinets, would be mounted on a concrete slab at the base of the monopole.

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 flagpole design will accommodate at least two carriers, and Omnipoint is the second carrier to propose co-location. As the structural analysis attached as Exhibit C indicates, the tower is structurally sound and capable of supporting the proposed 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 Stonington Road in Stonington. (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 not extend the boundaries of the existing SBA 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 the Sprint and Omnipoint antennas, would be 0.03351 mW/cm2 (3.35% of the ANSI standard). These calculations are attached as Exhibit D.

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 for 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, Omnipoint has entered into an agreement with SBA 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 raw land compound that is accessed from the Boston Post Road by an existing gravel driveway. The size and location of the tower have also been approved by the Stonington Planning and Zoning Commission which considered public health and safety in its review. 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 and travelers.

Conclusion

For the reasons discussed above, the proposed shared use of the existing tower facility at Stonington Road in Stonington, 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. Omnipoint therefore request that the Siting Council issue an order approving the proposed shared use.

Thank you for your consideration of this matter.

Sincerely,

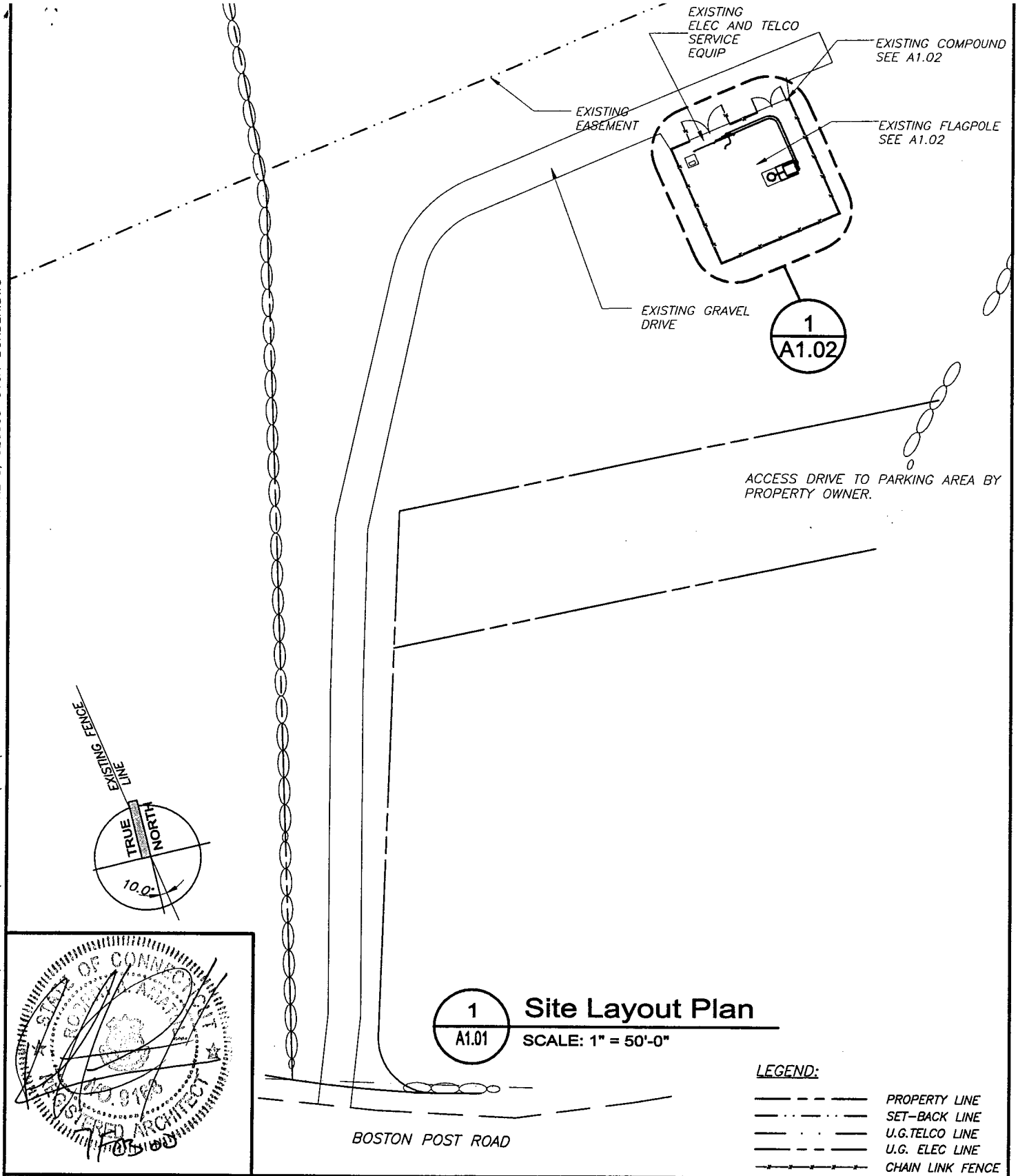
J. Brendan Sharkey, Esq.
for Omnipoint Communications, Inc.

Attachments
cc: Donald R. Maranell, First Selectman

OMNIPOINT
COMMUNICATIONS INC.

Exhibit A

Design Drawings
811 Stonington Road
Stonington, CT



1 / A1.01 **Site Layout Plan**

SCALE: 1" = 50'-0"

LEGEND:

- PROPERTY LINE
- SET-BACK LINE
- U.G.TELCO LINE
- U.G. ELEC LINE
- CHAIN LINK FENCE

STATE OF CONNECTICUT — ROBERT K. ARMATA — 20,918 — REGISTERED ARCHITECT

Client: OMNIPOINT

Approved By:
Owner/SAC: _____ Date: _____
R.F. Engr.: _____ Date: _____
Network: _____ Date: _____

Drawing Title: Site Layout Plan

Project: SBA–FLAGPOLE CO–LOCATE
811 STONINGTON ROAD
STONINGTON, CT

Client Project I.D. No: CT–11310A | C–B Project Number: 320303 | PM: KAM | Drawn By: TK | Date: Date: 02.01.00

Carter : Burgess
481 BUCKLAND ROAD, SUITE 201
SOUTH WINDSOR, CT 06074
TEL 860–648–5619 FAX 860–648–5665

Rev. No.	Date:

Drawing No. A1.01

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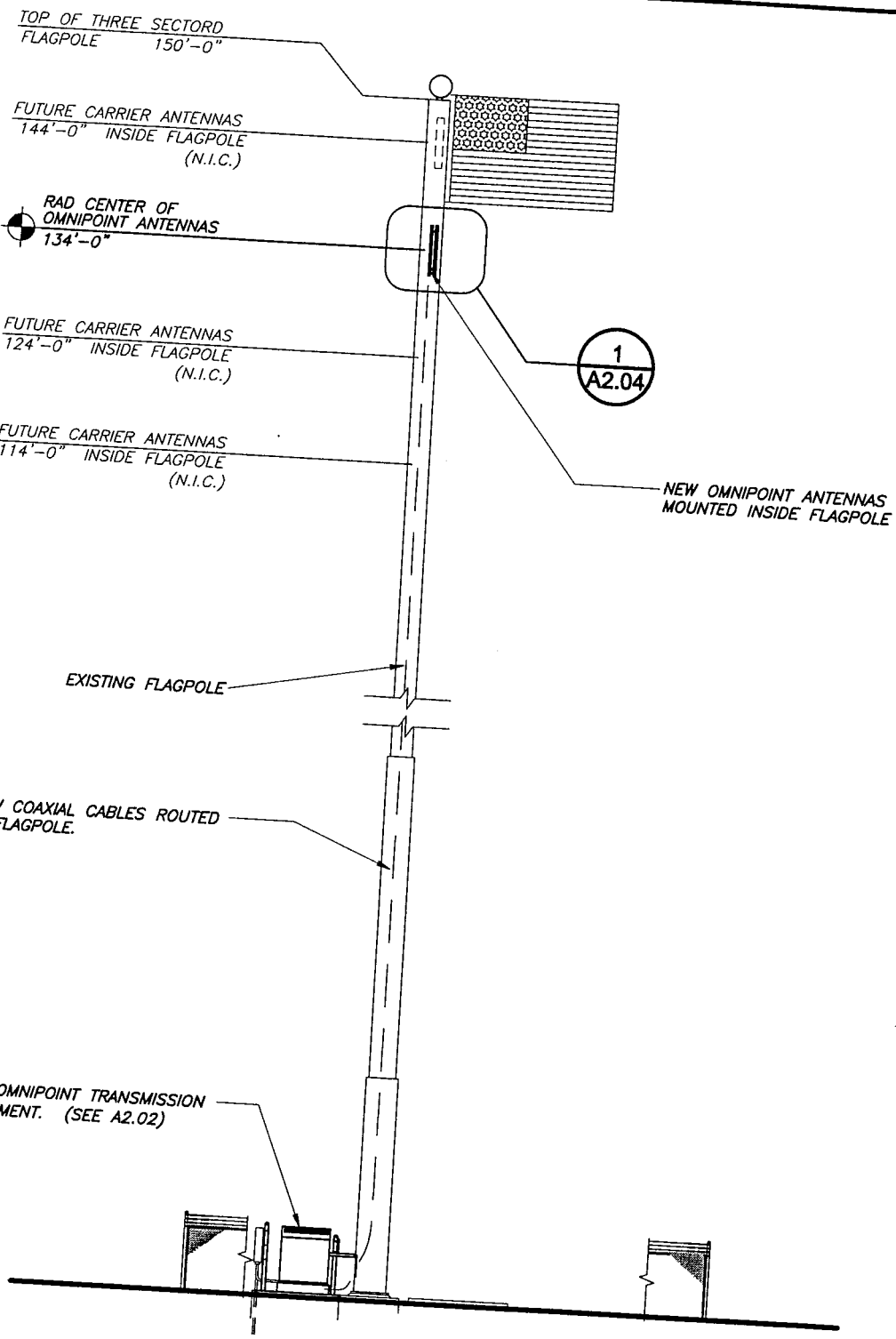

1 / A2.01 **Flagpole Elevation**

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

STATE OF CONNECTICUT ROBERT A. AMATUZZI NO. 9168 REGISTERED ARCHITECT

Client: OMNIPOINT

Approved By:
Owner/SAC: _____ Date: _____
R.F. Engr.: _____ Date: _____
Network: _____ Date: _____

Drawing Title: Flagpole Elevation

Project: SBA–FLAGPOLE CO–LOCATE
811 STONINGTON ROAD
STONINGTON, CT

Client Project I.D. No: CT–11310A

Carter : Burgess
481 BUCKLAND ROAD, SUITE 201
SOUTH WINDSOR, CT 06074
TEL 860–648–5619 FAX 860–648–5665

C–B Project Number: 320303 | PM: KAM | Drawn By: TK | Date: Date: 02.01.00

Rev. No.	Date:

Drawing No. A2.01

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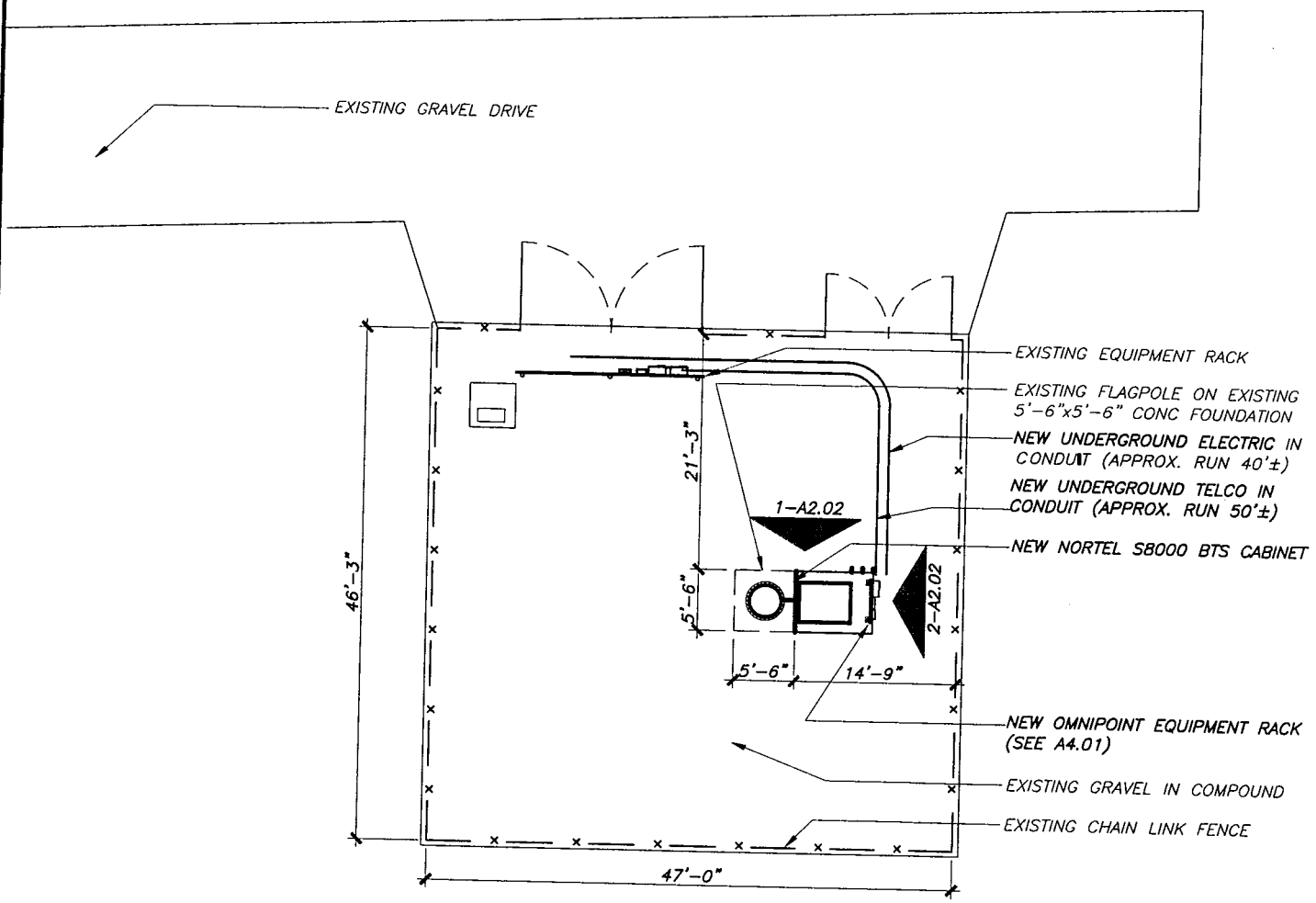

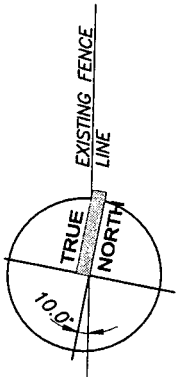

1 / A1.02 Enlarged Compound Plan

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

LEGEND:

- PROPERTY LINE
- SET-BACK LINE
- U.G.TELCO LINE
- U.G. ELEC LINE
- CHAIN LINK FENCE

STATE OF CONNECTICUT ROBERT K. GRAHAM 11 NO. 9168 REGISTERED ARCHITECT

Client: OMNIPOINT

Approved By:
Owner/SAC: _____ Date: _____
R.F. Engr.: _____ Date: _____
Network: _____ Date: _____

Drawing Title: Enlarged Compound Plan

Project: SBA-FLAGPOLE CO-LOCATE
811 STONINGTON ROAD
STONINGTON, CT

Client Project I.D. No: CT-11310A | C-B Project Number: 320303 | PM: KAM | Drawn By: TK | Date: Date: 02.01.00

Carter : Burgess
481 BUCKLAND ROAD, SUITE 201
SOUTH WINDSOR, CT 06074
TEL 860-648-5619 FAX 860-648-5665

Rev. No.	Date:

Drawing No. A1.02

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OMNIPOINT COMMUNICATIONS INC.

Exhibit B

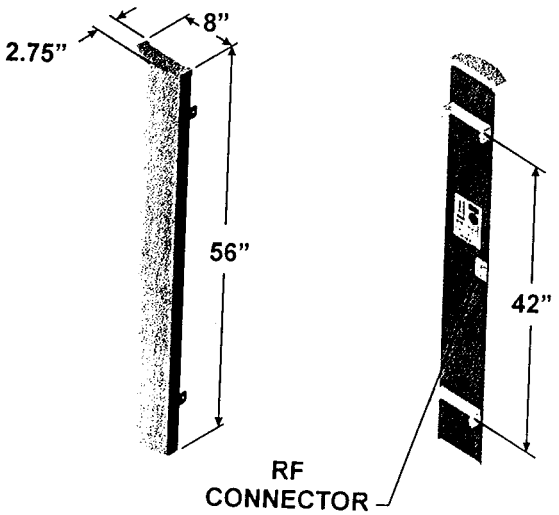
Equipment Specifications
811 Stonington Road
Stonington, CT

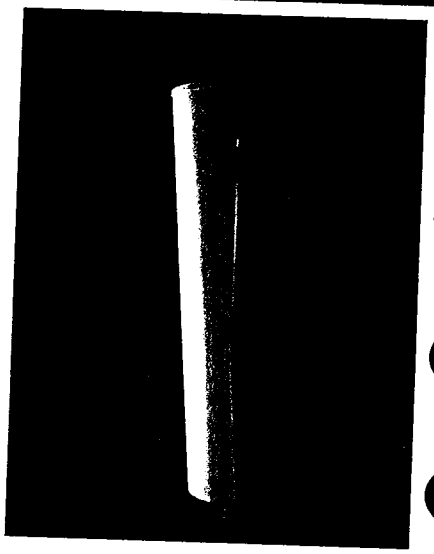
EMS WIRELESS

OptiRange™

RV90-17-XXXP

1850 MHz - 1990 MHz (P)





90° beamwidth

16.5 dBi gain

Vertical Polarization

56 inch

SPECIFICATIONS

Electrical

Azimuth Beamwidth	90°
Elevation Beamwidth	6°
Gain	16.5 dBi (14.4 dBd)
Polarization	Vertical
Front-to-Back Ratio	≥ 25 dB (≥ 30 dB Typ.)
Electrical Downtilt Options	0°, 2°, 4°, 6°
VSWR	1.35:1 Max
Connectors	1;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	3.1ft (.29 m)
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)

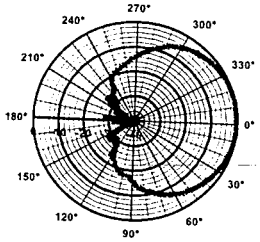
Note: Patent Pending and US Patent number 5, 757, 246.

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.

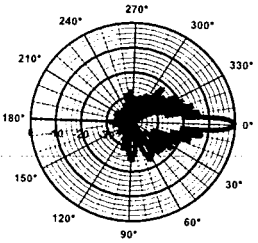
MOUNTING OPTIONS

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"

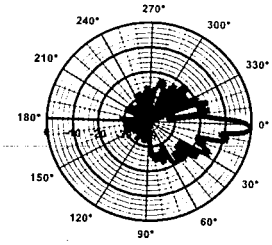
* Model number shown represents a series of products. See mounting options section for specific model number.



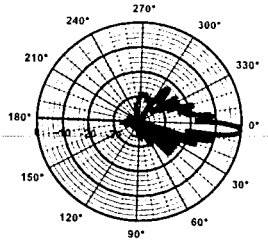
Azimuth



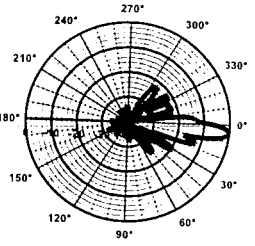
Elevation
0° Downtilt



Elevation
2° Downtilt



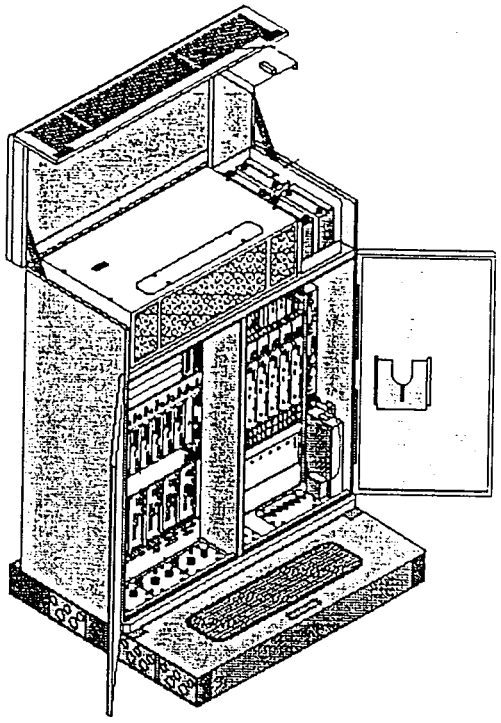
Elevation
4° Downtilt

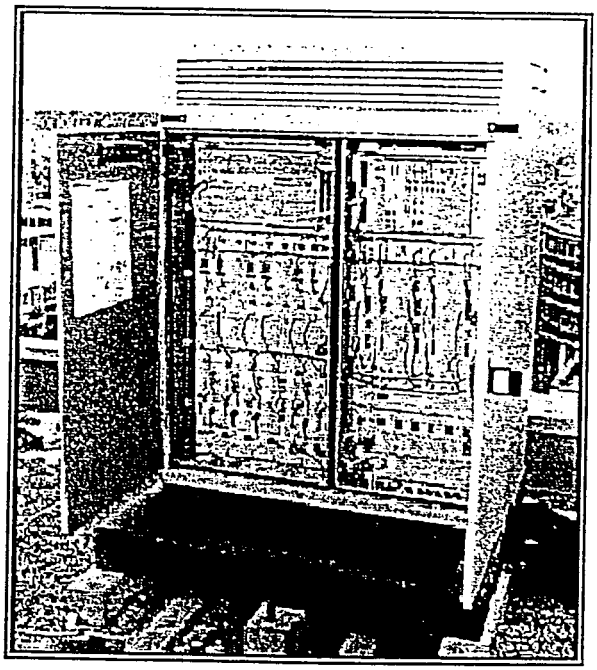


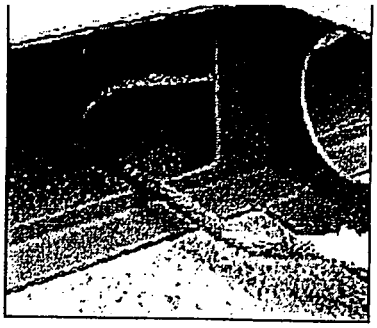
Elevation
6° Downtilt

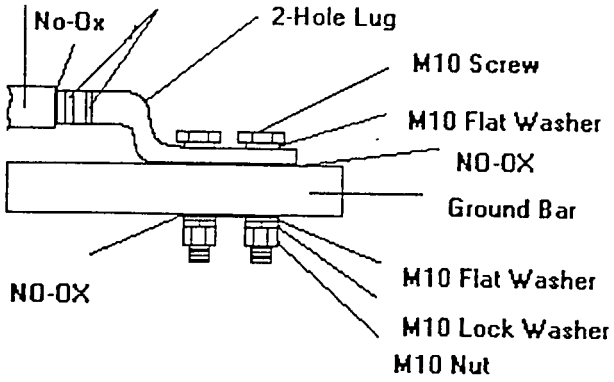
NORTEL NETWORKS™

S8000 BTS
Site Specifications









Apply a light coating of No Oxidation (NO-OX) to the ground bar area.

Dimensions, Weights & Clearances

BTS

Weight: 915 pounds
Dimensions: 53.2"W x 26"D x 63"H

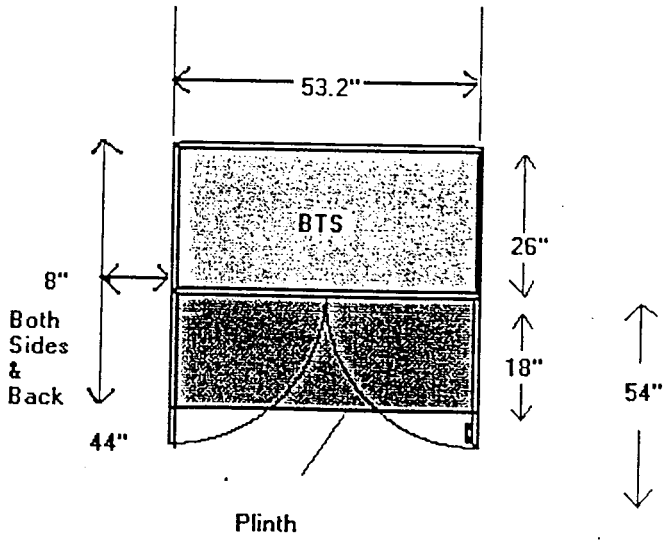
Clearances while transporting in building:
- Door Access:
  - Height: 6.6 feet
  - Width 3 feet
- Corridor Access:
  - Height: 6.6 feet
  - Width: 3.6 feet (straight), 6.6 feet (right angle)

Clearances when installed:
- Above: 28 inches for opening of hood
- Rear: 8 inches for installation of outer skin
- Sides: 8 inches for adjustment of door hinges
- Front: 54 inches to open door and technician access

Plinth

Weight:
87 pounds

Dimensions:
53.2"W x 44"D x 10.2"H



Plinth

Floor Characteristics

Minimum Floor Resistance:
123 pounds/foot^2

Flatness:
¼ inch over 78 inches

Electrical Specifications

Split Single-Phase

3 wires plus ground

L1: Black 6 gauge

L2: Red 6 gauge

Neutral: White 6 gauge

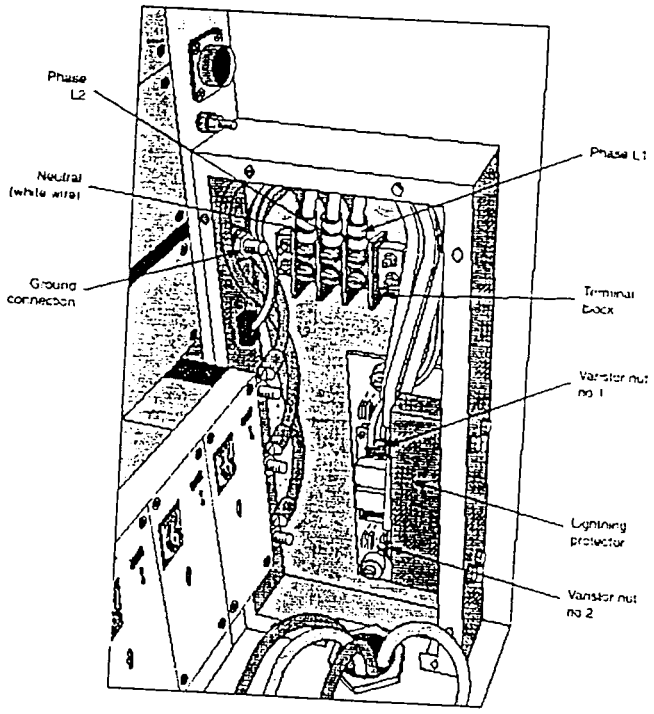
Ground: Yellow/Green 6 gauge

Maximum distance between AC box and BTS: 105 feet

187 ~ 254 VAC between L1 and L2

99 ~ 127 VAC between Neutral and L1 or L2

45 ~ 65 Hertz



AC connection to BTS located at the front, lower, right-hand side of BTS

Circuit Breaker in AC Box

Up to 4 transmitters

30 A, bipolar, C curve

5 or more transmitters

40A, bipolar, C curve

BTS to Ground connection

Minimum 2 AWG, run in most direct route as possible towards true earth, minimizing bends. No bend shall be less than 90 degrees.

OMNIPOINT
COMMUNICATIONS INC

Exhibit C

Structural Analysis
811 Stonington Road
Stonington, CT

PiROD INC.

1545 PIDCO DRIVE
P.O. BOX 128
PLYMOUTH, INDIANA 46563-0128
(219) 936-4221
SALES FAX (219) 936-6796
ENG. FAX (219) 936-4873
ACCOUNTING FAX: (219) 936-4567
PURCHASING FAX: (219) 936-6356

February 29, 2000

Mr. Kemp Morhardt
Carter and Burgess
481 Backland Road, Suite 201
South Windsor, CT 06074

Reference: A-116225 MP36 x 150' in Stonington, CT

Dear Mr. Morhardt:

Thank you for your inquiry concerning tower design codes and practices as they relate to your tower designs in Stonington, CT.

PiROD has been designing and building guyed, self-supporting towers and monopoles since the early 1950's. During this time, we have sold thousands of structures ranging in height from as little as 50' high to in excess of 1400'. These structures were individually engineered to accommodate the loading requirements imparted by the design windspeed, ice considerations, antenna loading, and other factors dictated by the national code requirements existing at the time the tower was built.

The present national tower and monopole code, ANSI/EIA/TIA-222-"F", represents the latest refinement of specific minimum requirements for engineers and manufacturers to follow to help assure that the structure and its foundations are designed to meet the most realistic conditions for local weather while assuring that the structure is designed to stringent factors of safety.

In the case of the monopole under consideration, while meeting the stipulated code requirements for windspeed, the owner has also requested that 1/2" ice be included in the analysis. Ice is considered on all tower members, antennas, and lines and results in a substantially heavier tower design than one considered without ice.

The "F" version of the code incorporates an escalating wind factor based on tower height. Thus 85 mph is the basic design windspeed at the 10 meter height. This speed is then increased in stages up the tower. "Meeting the code" implies that the design quoted has all of the code requirements for safety factors intact at the windspeed specified. Thus, the ultimate survival speed would be considerably higher. Again, adding ice to the design loading also adds a further safety factor, in effect, to the final tower strength.

While failure is extremely rare in any kind of tower, it is especially so for monopoles and self-supporting towers. In fact, only if a monopole were subjected to a direct hit from a tornado or the severest of hurricanes would failure be predicted.

We are aware of very few instances of monopole failure. The most common mode of failure would be in the middle region of the monopole, with the upper portion of the monopole remaining connected and "bowing over" against the base of the pole. The fact that the wind is normally greater on the upper portion of the structure contributes to the likelihood of this type of failure. Thus, if a failure condition is reached, it should be reached in the upper middle region of the monopole first.

In regards to this particular monopole it has been designed to accommodate antennas at four loading heights. They are 145', 135', 125', and 115' with all antennas mounted behind the fiberglass shrouds. As long as you are occupying one of these particular heights on this monopole there will be no adverse effects to the structure as this is part of the original antenna loading for which it was designed.

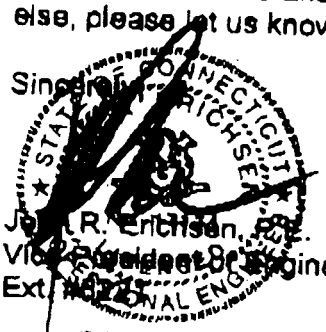
Needless to say, the engineering codes which govern tower and monopole designs are extremely conservative. Monopoles are designed for extreme wind conditions, and even under these extreme conditions, stringent factors of safety are required.

As Vice President of Engineering and a registered P.E. in 41 states, I oversee all engineering and application of our towers. I am a graduate engineer from Notre Dame University and have been with the company since 1984. I am assisted by two other registered professional engineers, Mr. Myron Noble, who has been the owner of PiROD, Inc., since 1973 and Mr. William Rettig our Chief Engineer. Four other qualified engineers are also on our staff.

All of PIROD welders are certified to the high standards of AWS D1.1 or are in the process of becoming certified. Mathematical and physical tests are performed routinely on structure sections and designs as required. Our total design, engineer and build process has been quality audited by our customers including public utilities, telephone companies and government agencies.

We trust the above and the attached will be helpful to you. If you should need anything else, please let us know at your convenience.

Sincerely,



Jeff R. Erichsen, P.E.
Vice President of Engineering
Ext. 1225

ewk FEB 29 2000

PIROD INC.
P.O. BOX 128 • PLYMOUTH, INDIANA 46563-0128 • (219) 936-4221

** TOTAL PAGE.02 **

OMNIPOINT
COMMUNICATIONS INC.

Exhibit D

Power Density Calculations
811 Stonington Road
Stonington, CT

OMNIPOINT

OMNIPOINT COMMUNICATIONS
100 Filley St
Bloomfield, CT 06002
Phone: (860) 692-7131
Fax: (860) 692 - 7159

Technical Memo

To: Brendan Sharkey
From: Haider Syed (Radio Engineering Consultant)
cc: Mike Fulton
Subject: Power Density Report for CT11310A
Date: 3/19/99

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 SBA Tower/Flagpole at 808 Stonington Rd, Stonington 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 three 3 sectors, with 1 antenna per sector. The model number for each antenna is EMS RR901702DP
3) The antenna height is 137 feet Center Line.
4) The maximum transmit power from each sector is 1030.05 Watts Effective Isotropic Radiated Power (EiRP) assuming two channel capacituy.
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 at SBA Tower/Flagpole at 808 Stonington Rd, Stonington 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 808 Stonington Rd, Stonington, CT

Region 11 - Connecticut
Power Density Calculation - Worst Case

Base Station TX output	20 W	43.01	
Number of channels	2		
Antenna Model	EMS: RR-90-17/ RV-90-17		
Antenna Gain	16.5 dBi		
Cable Size	1 5/8"		
Cable Length	120 ft		
Jumper & Connector loss	1 dB		
Cable Loss per foot	0.0116		
Total Cable Loss	1.392 dB		
Total Attenuation	2.392 dB		
Total EIRP per channel	57.12 dB	515.03	W
Total EIRP per sector	60.13 dB	1030.05	W
Ground Reflection	1.6		
Frequency	1930 MHz		
Antenna Height	137 ft	4175.76	cm
nsg	14.108		
Power Density (S) =	**0.012040 mW / cm^2**		
% MPE =	**1.2040%**		

SPRINT PCS MPE%	2.1472
OMNIPOINT MPE%	1.204
TOTAL MPE%	**3.3512**

Equation Used :

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

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Martin Drive/Rt 1
SBA Towers 2/24/00