



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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

June 12, 2000

J. Brendan Sharkey, Esq. VoiceStream Wireless Corporation 100 Filley Street Bloomfield, CT 06002

RE:

TS-VOICESTREAM-004-000530 - VoiceStream Wireless request for an order to approve tower sharing at an existing telecommunications facility located at 376 Deercliff Road in Avon. Connecticut.

Dear Mr. Sharkey

At a public meeting held June 7, 2000, 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. This ruling is conditioned on the replacement of overstressed diagonals with new replacements on the existing tower to increase the structural capability of the tower. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or 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. 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 May 30, 2000.

Thank you for your attention and cooperation.

Very truly yours,

n A. Helitan funn Mortimer A. Gelston

Chairman

MAG/RKE/ilh

c: Philip K. Schenck, Jr., Town Manager, Town of Avon Ronald C. Clark, Nextel Communications Sam J. D'Agostino, Zoning Specialist, c/o PageNet, Inc.

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TS-VOICESTREAM-004-000530



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

30 May, 2000

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

MAY 30 2000

SITING COUNCIL

Re:

Request by VoiceStream Wireless

for an Order to Approve the Shared Use of a Tower Facility

376 Deercliff Road, Avon, Connecticut

Dear Chairman Gelston and Members of the Council:

Pursuant to Connecticut General Statutes §16-50aa, VoiceStream Wireless ("VoiceStream") hereby requests an order from the Connecticut Siting Council ("Council") to approve the proposed shared of an existing tower located at 376 Deercliff Road in Avon, Connecticut. The tower is owned and operated by Pinnacle Towers, Inc. ("Pinnacle"). VoiceStream proposes to install antennas on the existing tower located within Pinnacle's leased compound area, and to install related equipment near the base of the tower within the existing compound (see "Exhibit A"). VoiceStream 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

VoiceStream 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 Pinnacle tower at 376 Deercliff Road in Avon is a 560-foot guyed lattice tower located on an extensive tower compound. The coordinates for this location are 41-46-30 N and 72-48-04 W. The tower currently holds a number of communications antennas, the most recent having been approved by the Siting Council in September, 1999 for Nextel Communications ("Nextel"). VoiceStream and Pinnacle have agreed to mutually acceptable terms and conditions for the proposed shared use of this tower, and Pinnacle has authorized VoiceStream 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, VoiceStream proposes to install a total of four (4) antennas on a platform with centerlines at the 250-foot level. The antennas are EMS Dual-Pol Model RR90-17-02DP. The radio transmission equipment associated with these antennas, a Nortel S8000 cabinet, would be mounted on a concrete slab near the base of the monopole.



376 Deercliff Road, Avon Page 2

- 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. <u>Technical Feasibility</u> The existing tower was designed to accommodate multiple carriers. As the structural analysis attached as Exhibit C indicates, with minor reinforcements 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 Deercliff Road in Avon. (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. <u>Environmental Feasibility</u> 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 Pinnacle compound area.
 - 2. The proposed installations would not increase the noise levels at the existing facility by six decibels or more.
 - 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 recently-approved Nextel antennas, is currently 75.1699% of the ANSI standard. VoiceStream's proposed installation will add 0.009087 mW/cm2, or 0.9087% of the ANSI standard, for a total of 75.1790% of the ANSI standard. These calculations are attached as Exhibit D.



376 Deercliff Road, Avon Page 3

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.** <u>Economic Feasibility</u> As previously mentioned, VoiceStream has entered into an agreement with Pinnacle 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 VoiceStream antennas. The tower stands on a raw land compound off 376 Deercliff Road east of Route 10 and south of Route 44. The size and location of the tower have also been approved by the Avon Planning and Zoning Commission which considered public health and safety in its review. VoiceStream 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 376 Deercliff Road in Avon, 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. VoiceStream 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 VoiceStream Wireless

Attachments

cc: Phillip K. Schenck, Avon Town Manager



Exhibit A

Design Drawings
376 Deercliff Road
Avon, CT

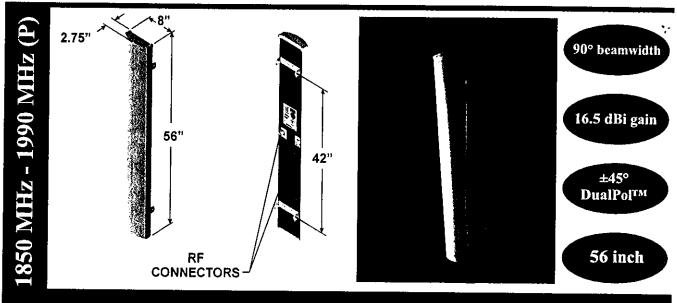


Exhibit B

Equipment Specifications 376 Deercliff Road Avon, CT



RR90-17-XXXP



SPECIFICATIONS

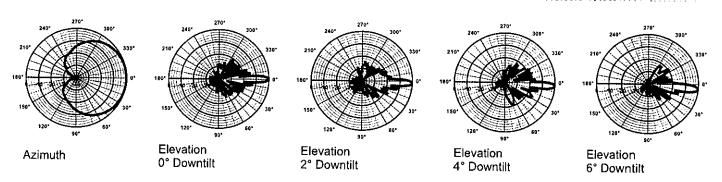
SHEETHICATIONS						
Electrical		Mechanical				
Azimuth Beamwidth Elevation Beamwidth Gain Polarization Port-to-Port Isolation Front-to-Back Ratio Electrical Downtilt Options	90° 6° 16.5 dBi (14.4 dBd) Slant, ±45° ≥ 30 dB ≥ 25 dB (≥ 30 dB Typ.) 0°. 2°. 4°. 6°	Dimensions (L x W x D) Rated Wind Velocity Equivalent Flat Plate Area Front Wind Load @ 100 mph (161 kph) Side Wind Load @ 100 mph (161 kph) Weight	56in x 8in x 2.75in (142 cm x 20.3 cm x 7.0 cm) 150 mph (241 km/hr) 3.1ft (.29 m) 90 lbs (400 N) 31 lbs (139 N)			
VSWR Connectors Power Handling Passive Intermodulation	1.35:1 Max 2;Type N or 7-16 DIN (female) 250 Watts CW <-147 dBc (2 tone					

<-147 dBc (2 tone @ +43 dBm {20W} ea.)
Chassis Ground
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 MTG-S02-10	Standard Mount (Supplied with antenna) Swivel Mount	Mounts to Wall or 1.5 inch to 5.0 inch O.D. Pole (3.8 cm to 12.7 cm)
MTG-DXX-20*	Mechanical Downtilt Kits	Mounting kit providing azimuth adjustment. 0° - 10° or 0° - 15° Mechanical Downtilt
MTG-CXX-10* MTG-C02-10	Cluster Mount Kits U-Bolt Cluster Mount Kit	3 antennas 120° apart or 2 antennas 180° apart 3 antennas 120° apart , 4.5" О.D. pole.
MTG-TXX-10*	Steel Band Mount	Pole diameters 7.5" - 45"
Model number snown re	epresents a series of products. See mounting op	tions section for specific model number.



EMS Wireless

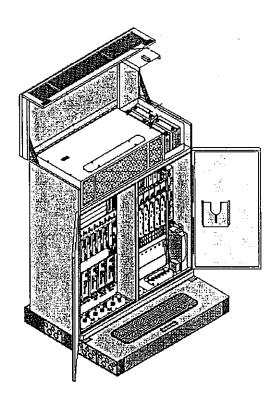
Lightning Protection

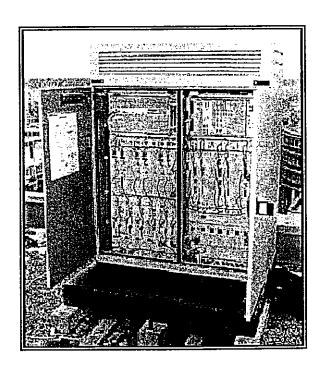
+1(770) 582-0555

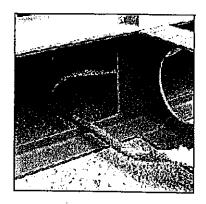
Fax +1(770) 729-0036

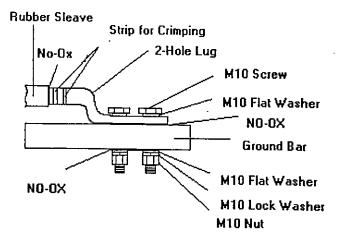
NETWORKS

S8000 BTS Site Specifications









Apply a fight 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:

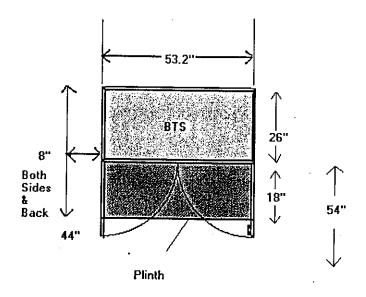
53.2"W x 44"D x 10.2"H

Floor Characteristics

Minimum Floor Resistance: 123 pounds/foot²

Flatness:

1/4 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

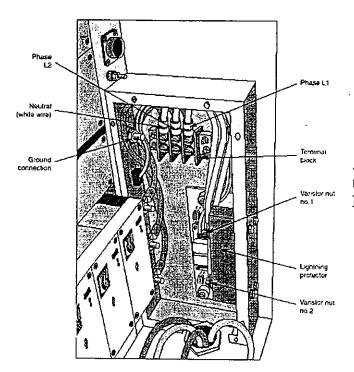
Ground: Yellow/Green 6 gauge

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.



Exhibit C

Structural Analysis 376 Deercliff Road Avon, CT



PAUL J. FORD AND COMPANY STRUCTURAL ENGINEERS 250 East Broad Street • Suite 500 • Columbus, Ohio 43215

May 17, 2000

ARCNET 100 Filley Street Bloomfield, CT 06002

Attn: Mr. Joe Dibernardo

Re: Existing 560-ft. guyed tower

Avon, Connecticut

CT-11-376A - Farmington Site

(PJF Job No. 34300-5)

Dear Joe,

We have completed our analysis of the existing Avon tower. Although the date of manufacture is unknown, the existing tower geometry resembles that manufactured by Stainless, Inc. Our analysis was performed to determine if the existing tower has the capacity to safely support the revised loading as shown on page one of the enclosed sketches.

Our analysis was performed in accordance with the Electronic Industries Association Standard ANSI/EIA-222 revision F 1996. The standard recommends a minimum design wind velocity of 80-mph for Hartford County. If ice accumulation is to be considered, then the EIA standard allows a reduced design wind velocity of 69 mph with simultaneous ½" radial ice. The existing tower has the capacity to safely withstand 76 mph winds with no ice and 68 mph winds with ½" ice. Our calculations indicate that the existing 5/8" diameter diagonal rods from 460' to 435' and from 285' to 260' are overstressed by as much as 10%. For the most part, the tower has some reserve capacity except for these diagonal members, and if these overstressed diagonals are replaced with new 3/4" diameter rods, the tower capacity will be increased to meet the minimum recommendations of the EIA standard.

We could not calculate the capacity of the existing foundation system since the below grade dimensions were unknown and a site specific soils report was not available.

If you have any questions or require any additional information, please call.

Sincerely,

PAUL J. FORD AND COMPANY

Kirk R. Hall, EIT Project Engineer

Email: khall@pjfweb.com

No. 17841

COLUMBUS, OHIO 614-221-6679 FAX 614-221-2540 ATLANTA, GEORGIA 404-266-2407 FAX 404-869-4608

• www.pjfweb.com •

ORLANDO, FLORIDA 407-898-9039 FAX 407-897-3662

PAUL J. FORD AND COMPANY STRUCTURAL ENGINEERS BLOOMFIELD, CONNECTICUT 06002 250 East Broad Street Suite 500 Columbus, Ohio 43215 PH: (860) 692-7126 PH (614)-221-6679 FAX (614)-221-0166 FAX: (860) 692-7159 560 FT GUYED Page _____ 1 ___ Of ____ 3 Location AVON, CONNECTICUT By <u>KRH</u> Date <u>5-17-2000</u> CT-11-376A FARMINGTON Job No. ____ 34300-5 VOICESTREAM Renter___ Revision No._____Date___ Owner PINNACLE TOWERS EIA Min 80 MPH/69 MPH + 1/2" RADIAL ICE <u>ant</u>enna list <u>N0</u> <u>EL ANTENNA</u> Copocity 76 MPH/68 MPH + 1/2" RADIAL ICE AZ COAX TOP HARRIS WAVESTAR TWS-30 CH#18 16"x 8" RIGID i According to ANSI/EIA 222-F 1996 514' DB589T3 W/ 6' SIDEARM 2 1 5/8" 513' PD220 W/ 7' SIDEARM 1 1/4" (413'-513') **ASTM** 502' PG1NOF-0093-810 W/ 6' SIDEARM 1 5/8" ASSUMED 501' 4' x 1' ANGLE DIPOLE 3/8" 36 KSI 440' SRL229-12 W/ 6' SIDEARM 1 1/4" 560' 7 430' FACE MOUNTED ANTENNA (20' x 13') 7/8" 389' SRL229-12 W/ 6' SIDEARM 1/2×1, 1 1/4" 326' ANDREW WHIP W/ 4' SIDEARM 1 1/4 <u>5</u>10' 10 325' ANDREW WHIP W/ 4' SIDEARM 1 1/4" 1/4.6 11 290' PG1NOF-0090-310 W/ 4' SIDEARM 1 1/4" 0 491'-3" 1/2 270' 8CD8706 W/ 4' SIDEARM 12 485 1 1/4" <u>.</u> NEW 13-16 250' (4) EMS FR90-16 (4) 7/8"4 460' 250' (2) SECTOR ANTENNA MOUNTS NEW 17 249' DB809KYP W/ 7' SIDEARM 1 1/4" , 8, 2L2×2×3/16 1/4"ø 18 222' 4-ELEMENT YAGI (7'~8" LONG) 1/2" 176' PD220 W/ 6' SIDEARM <u>410'</u> 19 S 7/8" 20 138' 6' ANGLE DIPOLE EW63 385' 21 90' 4' x 1' ANGLE DIPOLE 3/8" INSIDE CLIMBING LADDER 360' <u>.</u> ALL COAX ASSUMED TO BE RUN INSIDE TOWER FULLY EXPOSED 335' TO THE WIND. COAX TO ANTENNAS #6 TO #12 AND #19 IS BUNLED. 1 1/11 1/2x2 316'-3" 310 1 13/16" BRIDGE STRAND .. 0 212 B.S. = 404K I.T. = 40.4K 285' 3/4" /8.º 1/2×2×3/1 4 ŝ 1 1/2" BRIDGE STRAND B.S. = 276K I.T. = 27.6K 210' 2/8"¢ 185' 1/2×1/4 160' 1 1/4" BRIDGE STRAND 153'-9" 5 1/2.6 11/4.0 B.S. = 192K 1/2x2 I.T. = 19.2K135' , O 22 110' 80 SOLID 2×2×3/16 2/8"0 1/4"ø 10' PIVOT BASE SLOPING SEE CHART FOR o' SITE ANCHOR ELEVATION 247 ΑZ **ELEVATION** DIAGONAL BASE REACTION **GUY ANCHOR REACTION** 265* H = 10.2kLEGS H = 149k145 $\pm 30'$ V = 523kV ≈ 193k 25' +30' R = 244k

ARCNET 100 FILLEY ST. BLOOMFIELD, CONNECTICUT 06002 PH: (860) 692-7126 FAX: (860) 692-7159

3430052

PAUL J. FORD AND COMPANY S T R U C T U R A L E N G I N E E R S 250 East Brood Street Suite 500 Columbus, Ohio 43215 PH (614)-221-6679 FAX (614)-221-0166

Page	2	_ Of	3	
Ву	KRH	_Date_	5-17-2000	
Job No.	34300-5	j 		
	No			
Tower	560 FT GUYED			
Location_	AVON, CONNEC	TICUT		_
Site	CT-11-376A	FARMIN	GTON	
Renter	VOICESTREAM			
Owner	PINNACLE TOWE	RS.		_

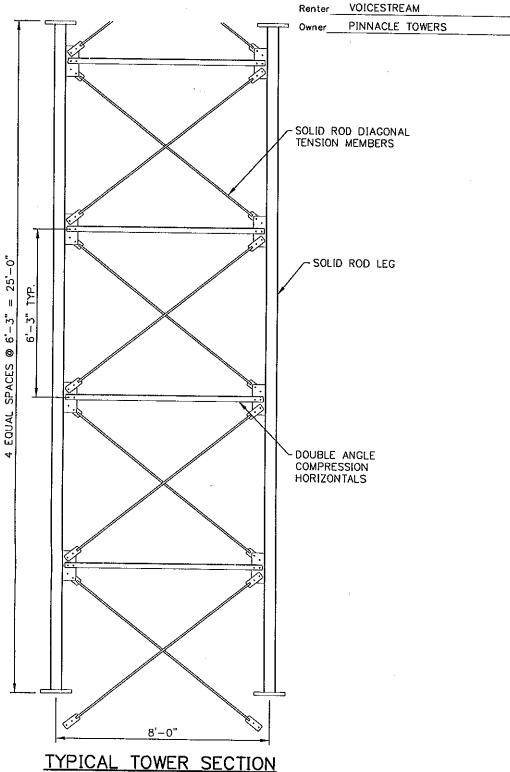




Exhibit D

Power Density Calculations 376 Deercliff Road Avon, CT



100 Filley St., Bloomfield, CT 06002

Phone: (860) 692 - 7129 Fax: (860) 692 - 7159

Technical Memo

To:

Brendan Sharkey

From:

Haider Syed (Radio Engineering Consultant)

CC:

Mike Fulton

Subject:

Power Density Report for CT11376

Date:

5/12/00

1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the proposed VoiceStream Wireless PCS antenna installation on Tower at Deercliff Rd in Avon, 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 1930-1945 MHz frequency band.
- 2) The antenna cluster consists of two sectors, with two antennas per sector. The model number for each antenna is EMS FR901702 DP.
- 3) The antenna height is 250 feet centerline.
- 4) The maximum transmit power from each sector is 2588.75 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 inphase 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 VoiceStream Wireless, PCS antenna installation at the Tower is $0.009087~\text{mw/cm}^2$. This value represents only 0.9087~% of the Maximum Permissible Emission (MPE) standard of 1000~microwatts per square centimeter ($\mu\text{w/cm}^2$) set forth in the FCC/ANSI/IEEE C95.1-1991. Details are shown in the attachment. The combined % MPE was calculated to be 75.1789872~%. Furthermore, the proposed antenna location for VoiceStream Wireless on Tower at Deercliff Rd in Avon, 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.

틍 ≩ ≥ 43.01 2588.75 647.19 7620 EMS: RR-90-17/ RV-90-17 0.009087 mW / cm Power Density Calculation - Worst Case 1930 MHz 0.4 dB 1 48 0.4 dB 58.11 dB 15.5 dBi 64.13 dB 20 W 250 ft 270 ft 9.1 0.0186 15.1 0.9087% Region 11 - Connecticut 1/8" Power Density (S) = Jumper & Connector loss Base Station TX output otal EIRP per channel Total EIRP per sector **Number of channels** Cable Loss per foot **Ground Reflection Fotal Attenuation Fotal Cable Loss Antenna Height** Antenna Model Antenna Gain Cable Length # MPE = -requency Cable Size

Worst Case Power Density for installation on Deercliff Rd in Avon, CT.

Cumualtive % MPE with Omnipoint = 75.1789872 % Current Cumulative % MPE = 75.1699 %

Equation Used:

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

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

^{*} See attached spread sheet for numbers.



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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

June 2, 2000

Mr. Philip K. Schenck, Jr. Town Manager Town of Avon 60 West Main Street Avon, CT 06001-3743

RE:

TS-VOICESTREAM-004-000530 - VoiceStream Wireless request for an order to approve tower sharing at an existing telecommunications facility located at 376 Deercliff Road in Avon, Connecticut.

Dear Mr. Schenck:

The Connecticut Siting Council (Council) received this request for tower sharing, pursuant to Connecticut General Statutes § 16-50aa.

The Council will consider this item at the next meeting scheduled for Wednesday, June 7, 2000, at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

Please call me or inform the Council if you have any questions or comments regarding this proposal.

Thank you for your cooperation and consideration.

sel M. Rinebold 924

Very truly yours,

Joel M. Rinebold

Executive Director

JMR/grg

Enclosure: Notice of Tower Sharing