

# STATE OF CONNECTICUT

# CONNECTICUT SITING COUNCIL

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

October 23, 2000

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

RE:

TS-VOICESTREAM-036-001010 - VoiceStream Wireless Corporation request for an order to approve tower sharing at an existing telecommunications facility located at 220 Winthrop Road, Deep River, Connecticut.

# Dear Attorney Sharkey:

At a public meeting held October 19, 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 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. 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 October 10, 2000 and corrected material received October 18, 2000.

Thank you for your attention and cooperation.

Very truly yours,

Martiner A. Gelston A. Gelston

Chairman

MAG/RKE/laf

c: Honorable Richard H. Smith, First Selectman, Town of Deep River Ronald C. Clark, Nextel Communications



# STATE OF CONNECTICUT

# CONNECTICUT SITING COUNCIL

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

October 12, 2000

Honorable Richard H. Smith First Selectman Town of Deep River Town Hall 174 Main Street Deep River, CT 06417

RE:

TS-VOICESTREAM-036-001010 - VoiceStream Wireless Corporation request for an order to approve tower sharing at an existing telecommunications facility located at 220 Winthrop Road, Deep River, Connecticut.

Dear Mr. Smith:

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 October 19, 2000, at 2:00 p.m. in Hearing Room Two, 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.

Very truly yours,

JoeLM. Rinebold
Executive Director

JMR/RKE/laf

Enclosure: Notice of Tower Sharing



CORRECTED PAGE

100 Filley Street, Bloomfield, CT 06002

(860) 692-7154 phone (860) 692-7159 fax

10 October, 2000

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

RECEIVED

OCT 18 2000

Re:

Request by VoiceStream Communications, Inc.

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

SITING COUNCIL

220 Winthrop Road, Deep River, Connecticut

Dear Chairman Gelston and Members of the Council:

Pursuant to Connecticut General Statutes §16-50aa, VoiceStream Wireless Corporation ("VoiceStream") hereby requests an order from the Connecticut Siting Council ("Council") to approve the proposed shared of an existing monopole tower located at 220 Winthrop Road in Deep River, Connecticut. The tower is owned and operated by Nextel Communications ("Nextel"). VoiceStream proposes to install antennas on the existing tower located within Nextel'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 Nextel tower at 220 Winthrop Road in Deep River was approved by the Deep River Planning and Zoning Commission and is a 180-foot monopole located on an approximately 50' x 50', or 2,500 sq. ft. compound. The coordinates for this location are 41-21-05 N and 72-28-29 W. Nextel currently has its antennas installed with centerlines at 180 feet above ground level ("AGL"). VoiceStream and Nextel have agreed to mutually acceptable terms and conditions for the proposed shared use of this tower, and Nextel 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 six antennas, two per sector, with centerlines at 160 feet AGL. The antennas are EMS RR90-1702 DP. The radio transmission equipment associated with these antennas, a Nortel S8000 cabinet, would be mounted on a concrete slab at the base of the pole.



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

10 October, 2000

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

CONNECTICUT
SITING COUNCIL

Re:

Request by VoiceStream Communications, Inc. for an Order to Approve the Shared Use of a Tower Facility 220 Winthrop Road, Deep River, Connecticut

Dear Chairman Gelston and Members of the Council:

Pursuant to Connecticut General Statutes §16-50aa, VoiceStream Wireless Corporation ("VoiceStream") hereby requests an order from the Connecticut Siting Council ("Council") to approve the proposed shared of an existing flagpole tower located at 220 Winthrop Road in Deep River, Connecticut. The tower is owned and operated by Nextel Communications ("Nextel"). VoiceStream proposes to install antennas on the existing tower located within Nextel'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.

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# 220 Winthrop Road, Deep River 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, and VoiceStream 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 Winthrop Road in Deep River. (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 Nextel 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 Nextel and VoiceStream antennas, would be 3.3448% of the ANSI standard). These calculations are attached as Exhibit D.



# 220 Winthrop Road, Deep River 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 Nextel 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 at a transfer station on Winthrop Road. The size and location of the tower have also been approved by the Deep River 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 220 Winthrop Road in Deep River, 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 Communications, Inc.

Attachments

cc: Richard H. Smith, First Selectman



# Exhibit A

Design Drawings
220 Winthrop Road
Deep River, CT



20 Fawn Ridge Drive, Brookfield, CT. 06804 (203) 775-0232

September 25, 2000

SCIENTECH, Inc. 44 Shelter Rock Road Danbury, CT 06810

Attention: Mr. Thomas Keenan

Subject: Structural On-site Inspection, Review/Evaluation and Certification of VoiceStream Antennas Mounting At Elevation 160' on the Existing 180' high Monopole at 220 Winthrope Road (Transfer Station), Deep River, CT, CT-11-408A. SCIENTECH PROJECT NO. 17193-0013.

References: 1) Valmont' Project Drawings for Valmont Order # 17593-98

- 2) Towercraft Foundation Dwg. No. 2633-F and Tectonic Geotechnical Evaluation Report
- 3) Nextel Site Number 'CT-0750' Dwgs.

## Dear Mr. Keenan:

I have performed the site inspection and structural review/evaluation of the drawings furnished to us by VoiceStream, for the subject installation. Valmont project drawing number DC4725Z, indicates that the existing tower has been designed per ANSI/TIA/EIA-222-F, 1996 Code design requirements for the following tower loading:

- 1. (1) Lightning Rod @ elevation 180'
- 2. (12)-ALP 9212-N antennas and (1) 9' platform assembly @ 177' elevation
- 3. (12)-ALP 9212-N antennas and (1) 9' platform assembly @ 170' elevation
- 4. (12)-ALP 9212-N antennas and (1) 9' platform assembly @ 160' elevation
- 5. (12)-ALP 9212-N antennas and (1) 9' platform assembly @ 150' elevation

The design assumes (12) 1 5/8" feedline for the antennas.



20 Fawn Ridge Drive, Brookfield, CT. 06804 (203) 775-0232

VoiceStream proposes to install (6) EMS RR90-17-02\_DP antennas at 160' elevation on (3) sector antenna mounts. The design dead weight and wind load imposed by the proposed (6) EMS RR90-17-02\_DP antennas at 160' elevation, is less than the (12) ALP 9212-N antennas and platform at 160' elevation, for which the Valmont Monopole and its foundation have been designed. Therefore, it can be concluded that the existing Valmont Monopole and its foundation design are adequate to withstand the loads imposed by the proposed VoiceStream antenna installation. It should be noted that this conclusion is based on the assumption that the existing monopole and its foundation have been designed and built correctly by other vendors. It should further be noted that VoiceStream furnished us Reference 1 and 3 drawings only. Currently there are Nextel antennas at ~180' elevation and Sprint plans to put antennas at 170' elevation. In our evaluation, it is assumed that the dead weight and wind loadings for these Nextel and Sprint antennas are less than that for which the Valmont monopole and its foundation have been designed. Design calculations for the monopole and foundation design drawings were not furnished to us. SCIENTECH obtained monopole foundation drawing (Reference 2) from Valmont. Our discussion with Valmont engineers indicated that Towercraft modified the foundation design at the site, and is certified by Dr. Dennis Lee. The foundation design should therefore be assumed correct. The monopole design drawings were not certified by a Connecticut Professional Engineer (P.E.).

Please do not hesitate to call the undersigned if you have any questions or require additional information. We appreciate the opportunity to be of service to SCIENTECH/VoiceStream.

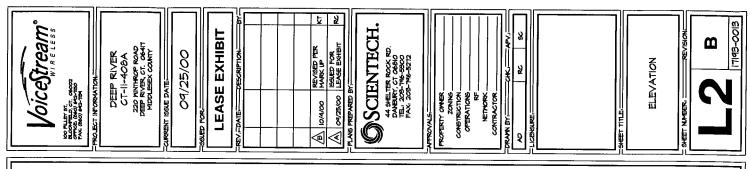
Sincerely,

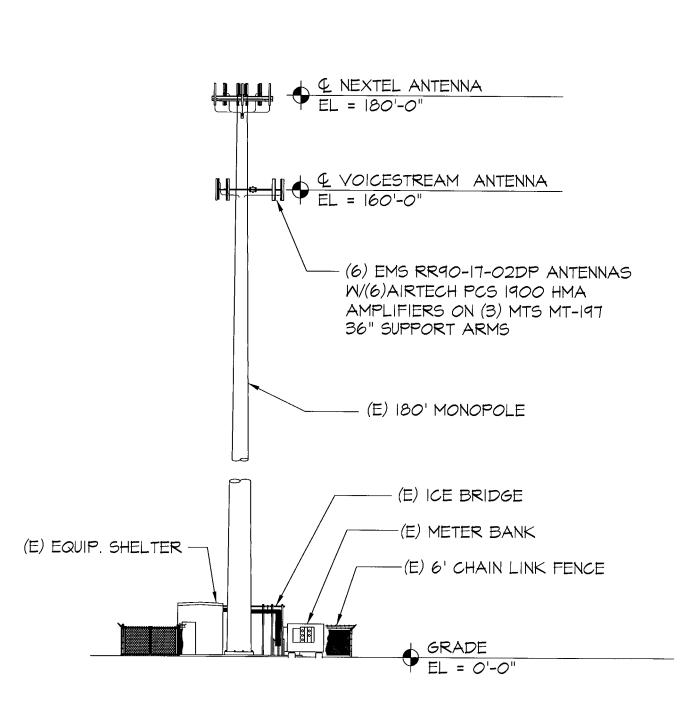
STRUCTURAL MECHANICS ASSOCIATES OF CONNECTICUT, INC.

Iqbal Husain, P.E.

President

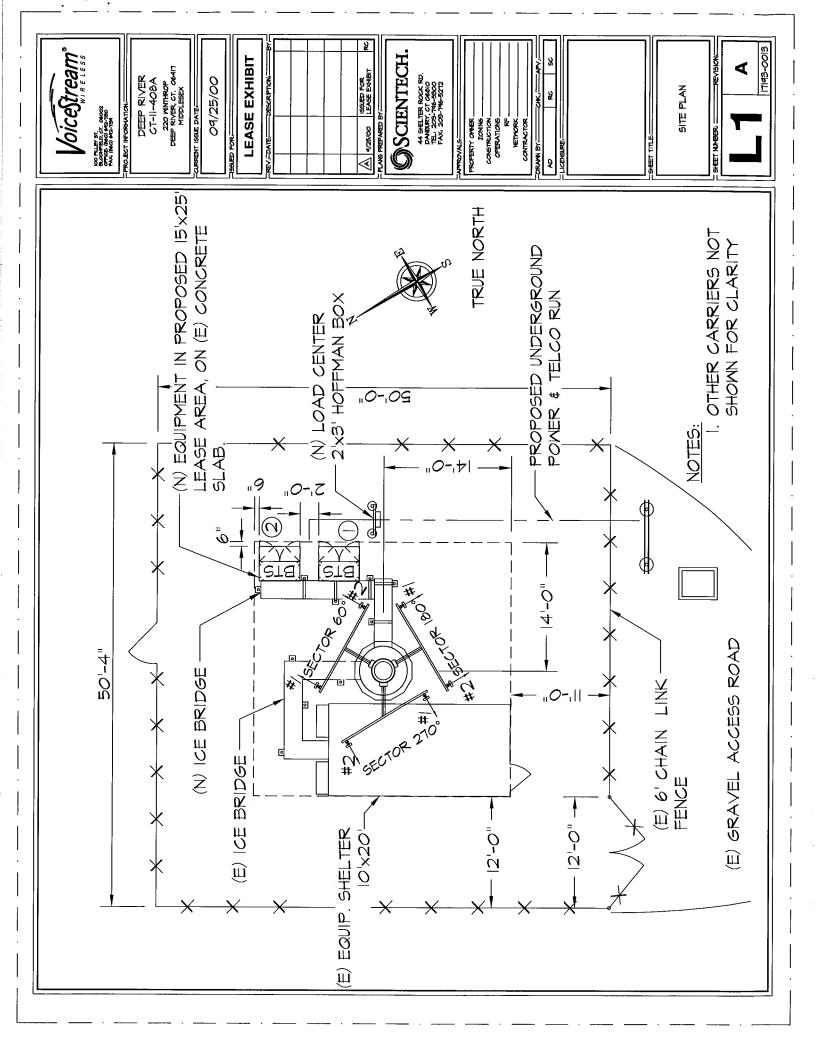
9-25-2000





NOTES:

I.DIAMETER OF POLE AT  $\P$  VS ANTENNA  $\phi=2'-6"$ 





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 CT11408

Date:

10/6/00

### 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 220 Winthrop Rd, Deep River 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:

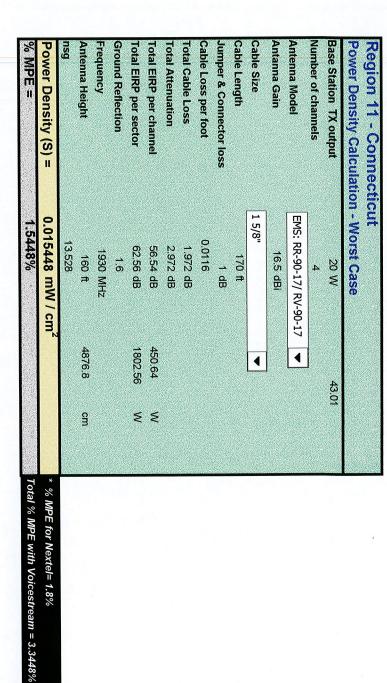
- 1) The emissions from the Voicestream transmitters are in the 1930-1945 MHz frequency band.
- 2) The antenna cluster consists of three sectors, with two antennas per sector. The model number for each antenna is EMS RR90 17 02 DP
- 3) The antenna height is 160 feet centerline.
- 4) The maximum transmit power from each sector is 1802.56Watts Effective Isotropic Radiated Power (EiRP) assuming four channel capacity.
- 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 220 Winthrop Rd in Deep River, CT is  $0.015448 \text{ mw/cm}^2$ . This value represents only 1.5448% 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. The combined Power Density with Nextel will be 3.3448% of the standard. Details are shown in the attachment. Furthermore, the proposed antenna location for VoiceStream Wireless 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 Antenna installation on Tower at 220 Winthrop, CT



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

\* 0.46 % submitted previously

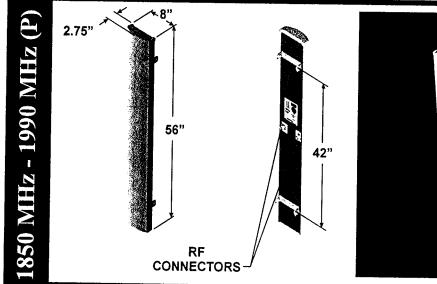


# Exhibit B

# Equipment Specifications 220 Winthrop Road Deep River, CT



# **RR90-17-XXXP**



90°



90° beamwidth

16.5 dBi gain

±45° DualPol<sup>TM</sup>

56 inch

# **SPECIFICATIONS**

	Electrical
Azimuth Beamwidth	90°
Elevation Beamwidth	6°
Gain	16.
Polarization	Sla
Port-to-Port Isolation	> 3
Front-to-Back Ratio	> 2
Electrical Downtilt Options	
VSWR	1.3
Connectors	0.70

Power Handling

Passive Intermodulation

Lightning Protection

16.5 dBi (14.4 dBd) Slant, ±45° ≥ 30 dB ≥ 25 dB (≥ 30 dB Typ.) 0°, 2°, 4°, 6° 1.35:1 Max 2; Type N or 7-16 DIN (female) 250 Watts CW <-147 dBc (2 tone @ +43 dBm {20W} ea.) Chassis Ground

# Mechanical

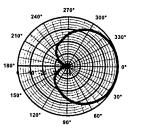
Rated Wind Velocity 150 mph (241 km/hr) Equivalent Flat Plate Area 3.1ft (.29 m) Front Wind Load @ 100 mph (161 kph) 90 lbs (400 N) Side Wind Load @ 100 mph (161 kph) 31 lbs (139 N) Weight 18 lbs (8.2 kg)	Dimensions (L x W x D)	56in x 8in x 2.75in
	Equivalent Flat Plate Area Front Wind Load @ 100 mph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

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

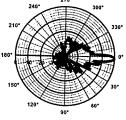
Values and patterns are representative and variations may occur. Specifications may change without notice due to continuous product enhancements. Digitized pattern data is available from the factory or via the web site www.emswireless.com and reflect all updates.

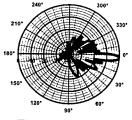
# **MOUNTING OPTIONS**

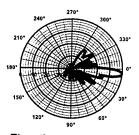
Model Number	Description	Comments	
MTG-P00-10	Standard Mount (Supplied with antenna)		
MTG-S02-10	Swivel Mount	Mounts to Wall or 1.5 inch to 5.0 inch O.D. Pole (3.8 cm to 12.7 cm)  Mounting kit providing azimuth adjustment.	
MTG-DXX-20*	Mechanical Downtilt Kits	0° - 10° or 0° - 15° Mechanical Downtilt	
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

0° Downtilt

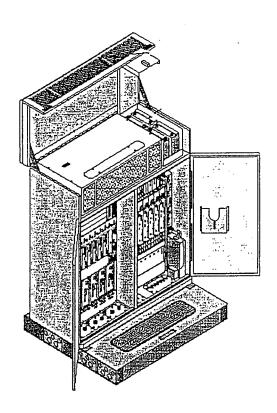
Elevation 2° Downtilt

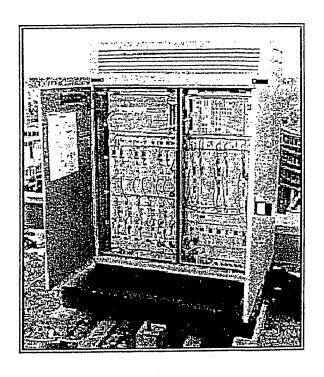
Elevation 4° Downtilt

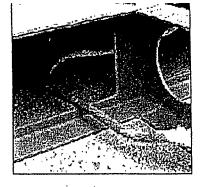
Elevation 6° Downtilt

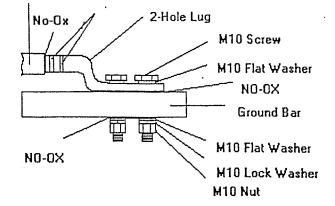


# S8000 BTS Site Specifications









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:

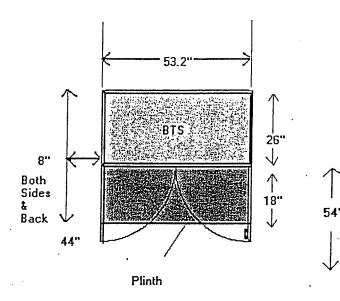
53.2"W x 44"D x 10.2"H

# Floor Characteristics

Minimum Floor Resistance: 123 pounds/foot<sup>2</sup>

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

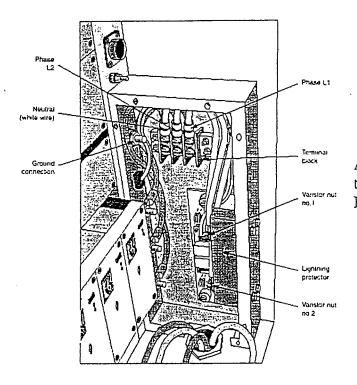
Ground: Yellow/Green 6 gauge

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
220 Winthrop Road
Deep River, CT



# **Exhibit C**

Structural Analysis
220 Winthrop Road
Deep River, CT



# **Exhibit D**

# Power Density Calculations 220 Winthrop Road Deep River, CT