



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

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

November 15, 2000

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

RE: **TS-VOICESTREAM-155-001106** - VoiceStream Wireless Corporation request for an order to approve tower sharing at an existing telecommunications facility located at 7 Berkshire Road, West Hartford, Connecticut.

Dear Attorney Sharkey:

At a public meeting held November 14, 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 November 6, 2000.

Thank you for your attention and cooperation.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/RKE/laf

c: Mr. Barry M. Feldman, Town Manager, Town of West Hartford
Julie M. Cashin, Esq., Hurwitz & Sagarin LLC
Sandy M. Carter, Verizon Wireless

6 November, 2000

Mortimer A. Gelston, Chairman
Connecticut Siting Council
10 Franklin Square
West Hartford, CT 06051

RECEIVED

NOV - 6 2000

CONNECTICUT
SITING COUNCIL

**Re: Request by VoiceStream Wireless for an Order
to Approve the Shared Use of a Tower Facility
7 Berkshire Road, West Hartford, 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 use by the applicant of an existing tower located at 7 Berkshire Road in West Hartford, Connecticut. The tower is owned and operated by Sprint Spectrum L.P. ("Sprint"). VoiceStream 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 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

In February, 2000, VoiceStream acquired from Omnipoint Communications, Inc. the "A block" "Wideband PCS" license for the 2-GHz PCS frequencies for the Greater New York City area, including the entire State of Connecticut. VoiceStream provides PCS wireless telephone service in the State of Connecticut, which includes the area to be served by VoiceStream's proposed installation.

The Sprint tower at 7 Berkshire Road in West Hartford is a 125-foot monopole located on a leased compound off Berkshire Road. The coordinates for the site are 41-43-51 N and 72-45-13 W. The tower currently holds Sprint's antennas at the top level with centerlines at 125 feet above ground level ("AGL"), and those of Verizon Wireless ("Verizon") with centerlines at 115 feet AGL. VoiceStream and Sprint have agreed to the proposed shared use of this tower pursuant to mutually acceptable terms and conditions, and Sprint 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.

7 Berkshire Road, West Hartford

Page 2

VoiceStream proposes to install six (6) EMS RR 90-1702 DP antenna with a centerlines at the 105-foot level. The radio transmission equipment associated with these antennas, a Nortel S8000 cabinet, would be located near the base of the tower on an existing concrete pad. 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 was initially designed to support multiple carriers, and VoiceStream is the third carrier to propose co-location. A structural analysis of the tower with the proposed VoiceStream installation has been performed and is attached as Exhibit C. That analysis indicates the tower can support the proposed VoiceStream installation. 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 Berkshire Road in West Hartford. 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 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 the Sprint, Verizon and VoiceStream antennas, would be 16.79% 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 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 VoiceStream 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 VoiceStream antennas. The tower stands on a compound accessible from an existing access drive off Berkshire Road. 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 will enhance the safety and welfare of area residents.



7 Berkshire Road, West Hartford
Page 4

Conclusion

For the reasons discussed above, the proposed shared use of the existing tower facility at 7 Berkshire Road in West Hartford, 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 requests that the Siting Council issue an order approving the proposed shared use of this tower.

Thank you for your consideration of this matter.

Sincerely,

A handwritten signature in blue ink, appearing to read "J. Brendan Sharkey".

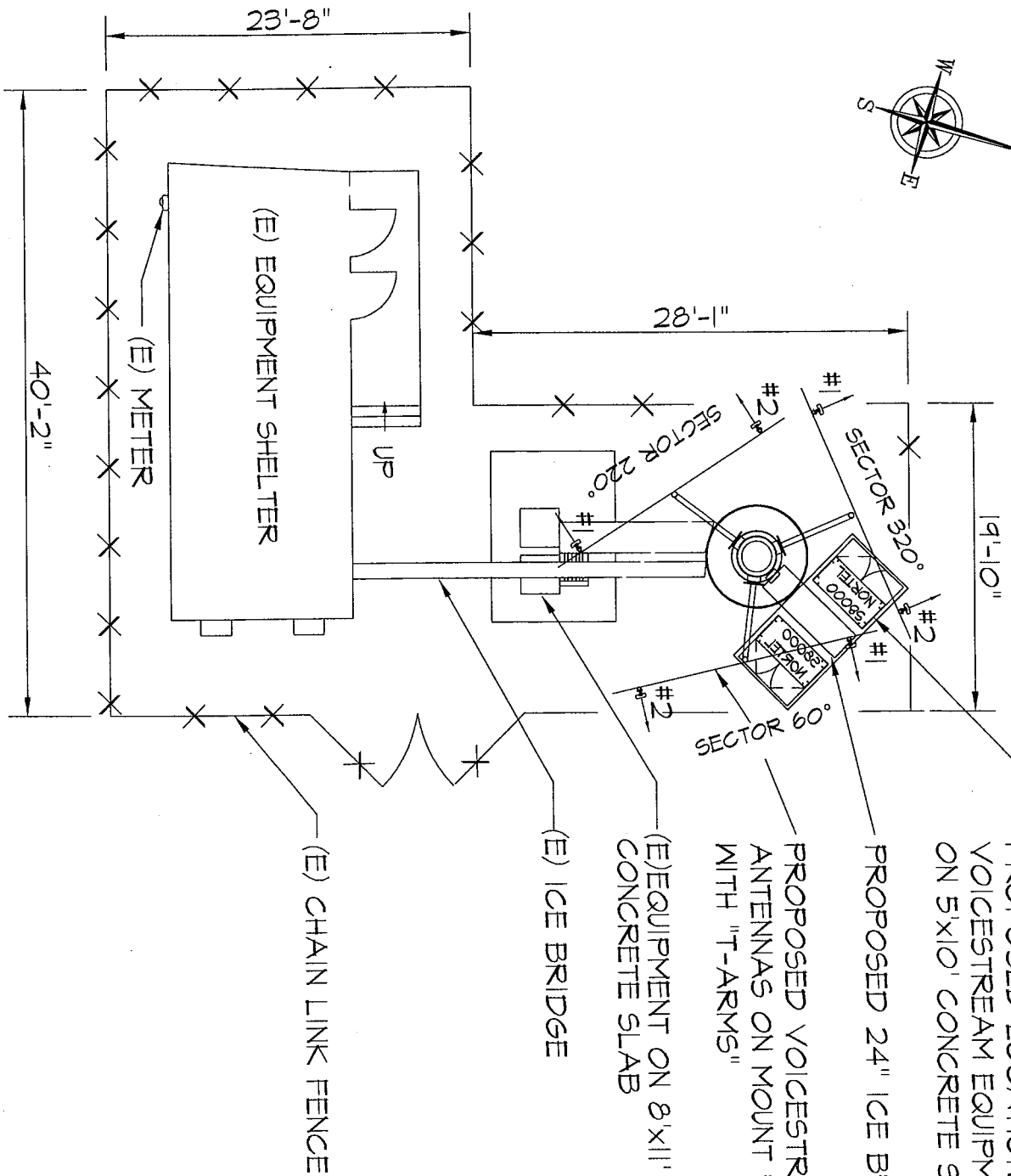
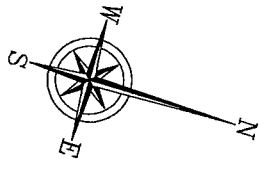
J. Brendan Sharkey
for VoiceStream Wireless, Inc.

Attachments

cc: Robert R. Bouvier, Mayor of West Hartford

Exhibit A

Design Drawings
7 Berkshire Road
West Hartford, CT



PROPOSED LOCATION OF VOICESTREAM EQUIPMENT ON 5'x10' CONCRETE SLAB.

PROPOSED 24" ICE BRIDGE

PROPOSED VOICESTREAM ANTENNAS ON MOUNT RING WITH "T-ARMS"

(E)EQUIPMENT ON 8'x11' CONCRETE SLAB

(E) ICE BRIDGE

(E) CHAIN LINK FENCE

NOTE:
EXISTING WIRELESS COMPANIES' ANTENNAS NOT SHOWN FOR CLARITY.

Voicestream
WIRELESS

187 BEECHWOOD ROAD
SUITE 400
SOUTHBRIDGE, MASSACHUSETTS 01545
TEL: (978) 262-1000
FAX: (978) 262-1000

PROJECT INFORMATION:
WEST HARTFORD
CT-11-735
1 BERGSHIRE ROAD
WEST HARTFORD, CT

CURRENT ISSUE DATE:
10/20/00

ISSUED FOR:
LEASE EXHIBIT

REV./DATE	DESCRIPTION	BY
1/0/20/00	ISSUED FOR LEASE EXHIBIT	KP

SCIENTECH.
44 SHEPHERD ROCK RD.
DANBURY, CT 06810
TEL: 203-746-5250
FAX: 203-746-5212

PROPERTY OWNER: _____
ZONING: _____
CONSTRUCTION: _____
OPERATIONS: _____
RF: _____
NETWORK: _____
CONTRACTOR: _____

DRAWN BY: _____
CHECKED BY: _____
APPROVED BY: _____

LICENSE: _____
KP XXX XXX

SHEET TITLE:
LEASE EXHIBIT

SHEET NUMBER: **L1**
REVISION: **A**
1/193-0022



100 RULYER ST
SPOONFIELD, CT 06080
PHONE: (860) 463-1100
FAX: (860) 463-1150

PROJECT INFORMATION:
WEST HARTFORD
CT-11-202A
7 BERRIDGE ROAD
WEST HARTFORD, CT
HARTFORD COUNTY

CURRENT ISSUE DATE:
10/20/00

ISSUED FOR:
LEASE EXHIBIT

REV. # DATE DESCRIPTION BY

REV. #	DATE	DESCRIPTION	BY
1	10/20/00	ISSUED FOR LEASE EXHIBIT	TK

PLANS PREPARED BY:

SCIENTECH.
44 SHELTER ROCK RD.
DANBURY, CT 06810
TEL: 203-746-5300
FAX: 203-746-5212

APPROVALS:

PROPERTY OWNER _____
 ZONING _____
 CONSTRUCTION _____
 OPERATIONS _____
 RF _____
 NETWORK _____
 CONTRACTOR _____

DRAWN BY: _____
 CHECKED BY: _____
 APPROVED BY: _____

LICENSURE: AD RG SC

SHEET TITLE:
ELEVATION

SHEET NUMBER: **L2**
 REVISION: **A**

7/143-0022

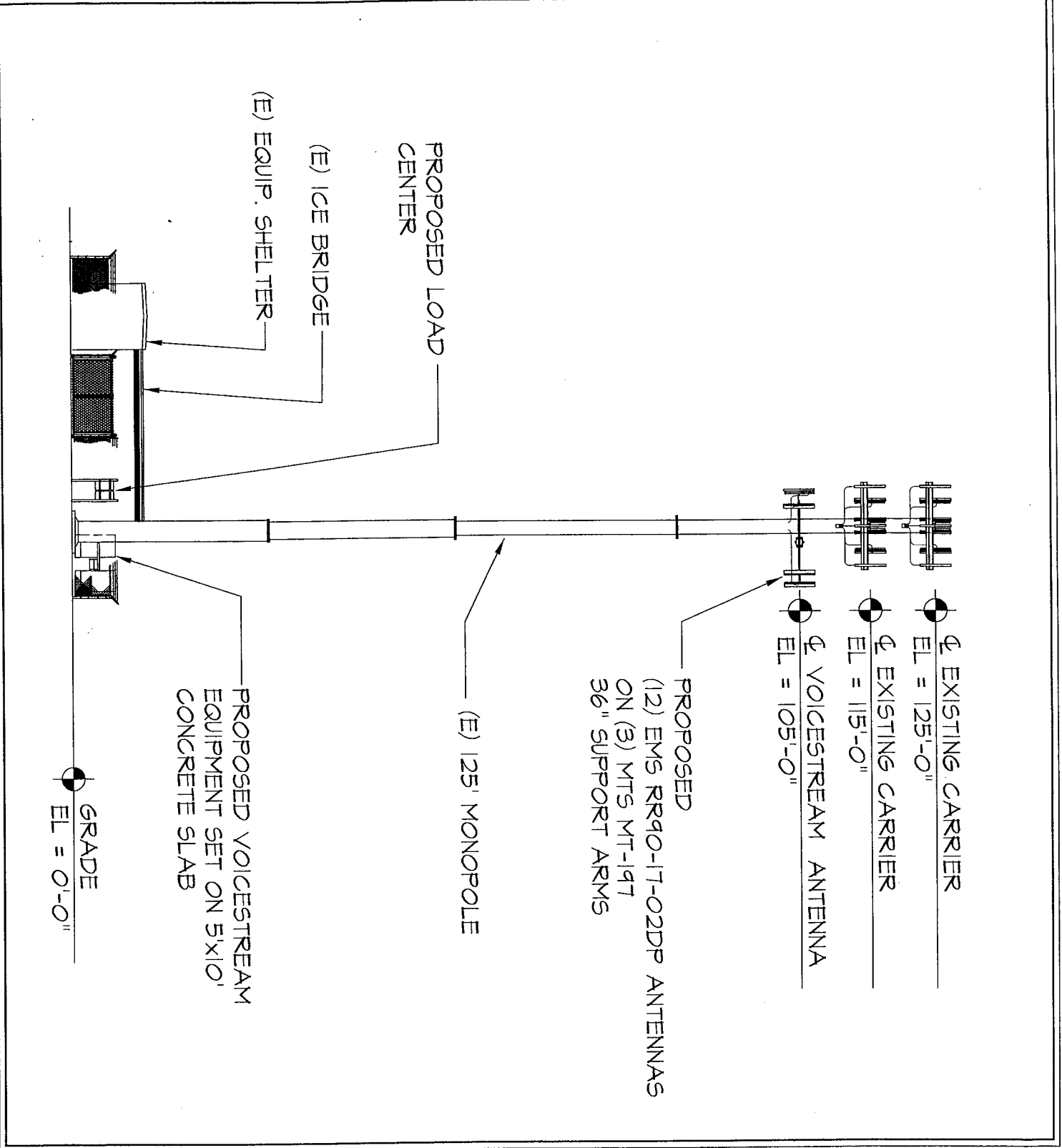
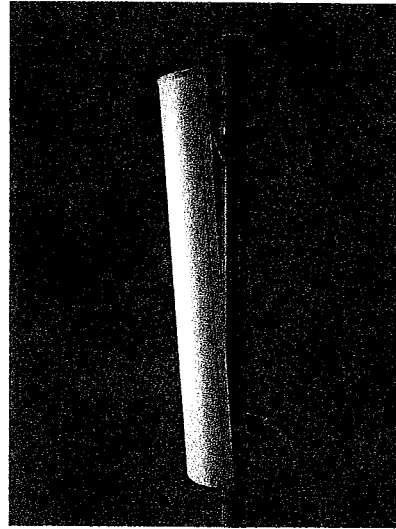
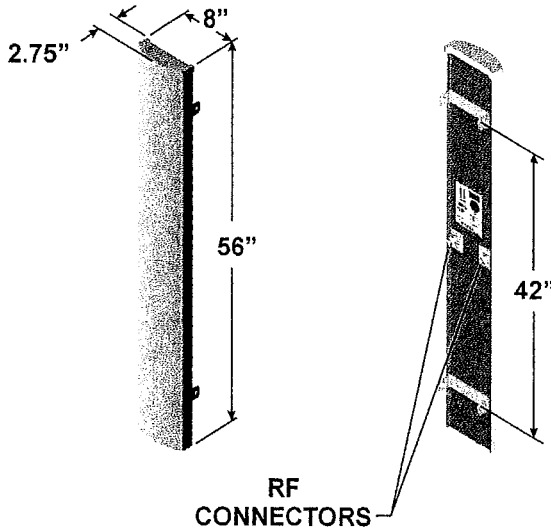


Exhibit B

Equipment Specifications

**7 Berkshire Road
West Hartford, CT**

1850 MHz - 1990 MHz (P)



90° beamwidth

16.5 dBi gain

±45° DualPol™

56 inch

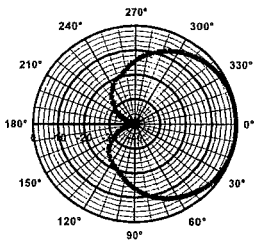
SPECIFICATIONS

Electrical		Mechanical	
Azimuth Beamwidth	90°	Dimensions (L x W x D)	56in x 8in x 2.75in (142 cm x 20.3 cm x 7.0 cm)
Elevation Beamwidth	6°	Rated Wind Velocity	150 mph (241 km/hr)
Gain	16.5 dBi (14.4 dBd)	Equivalent Flat Plate Area	3.1ft ² (.29 m ²)
Polarization	Slant, ±45°	Front Wind Load @ 100 mph (161 kph)	90 lbs (400 N)
Port-to-Port Isolation	≥ 30 dB	Side Wind Load @ 100 mph (161 kph)	31 lbs (139 N)
Front-to-Back Ratio	≥ 25 dB (≥ 30 dB Typ.)	Weight	18 lbs (8.2 kg)
Electrical Downtilt Options	0°, 2°, 4°, 6°	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.	
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		

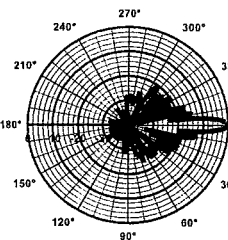
MOUNTING OPTIONS

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"

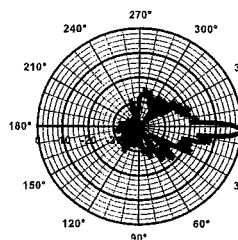
* Model number shown represents a series of products. See mounting options section for specific model number.



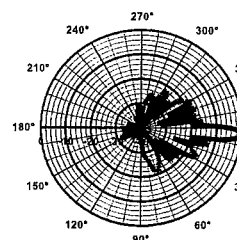
Azimuth



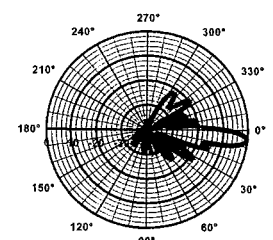
Elevation
0° Downtilt



Elevation
2° Downtilt



Elevation
4° Downtilt

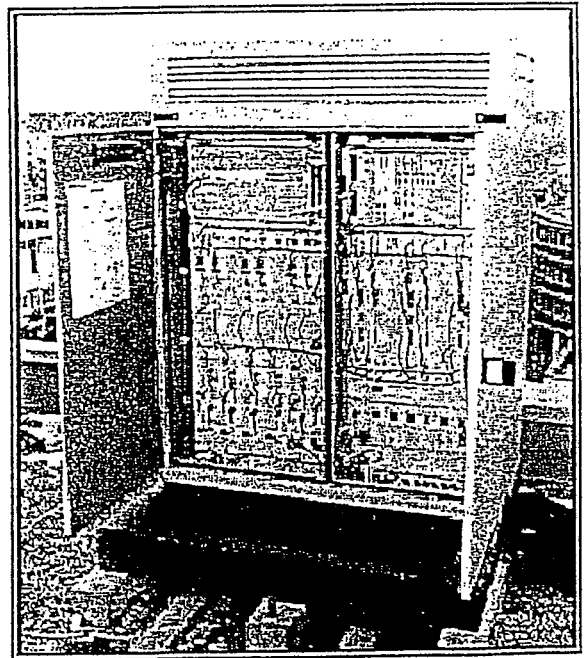
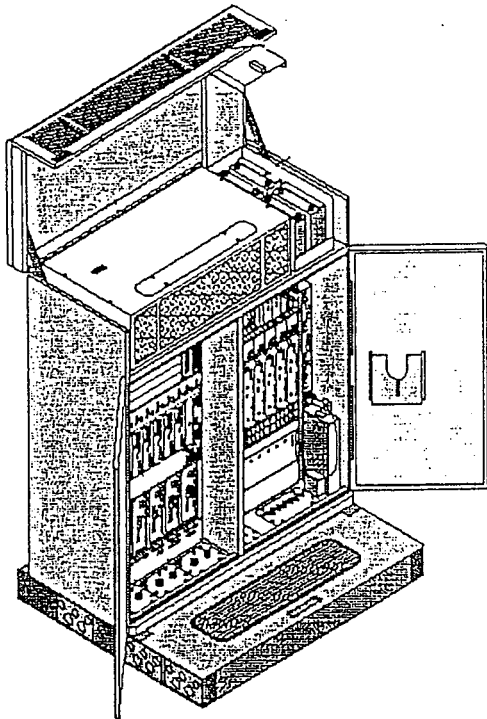


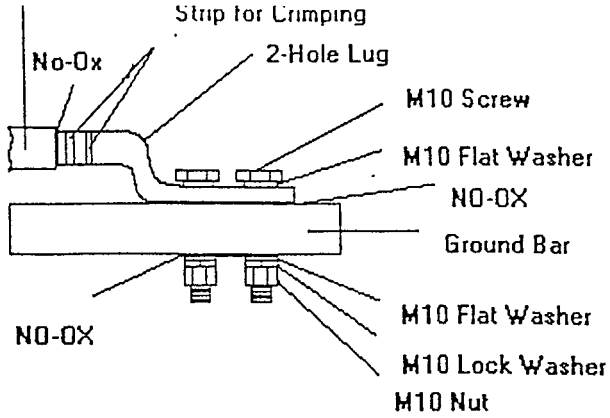
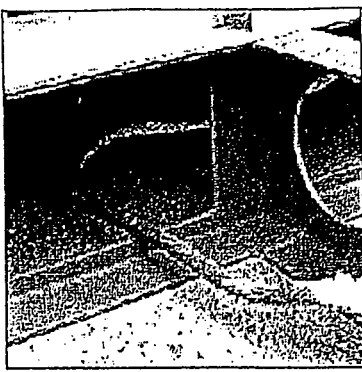
Elevation
6° Downtilt

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

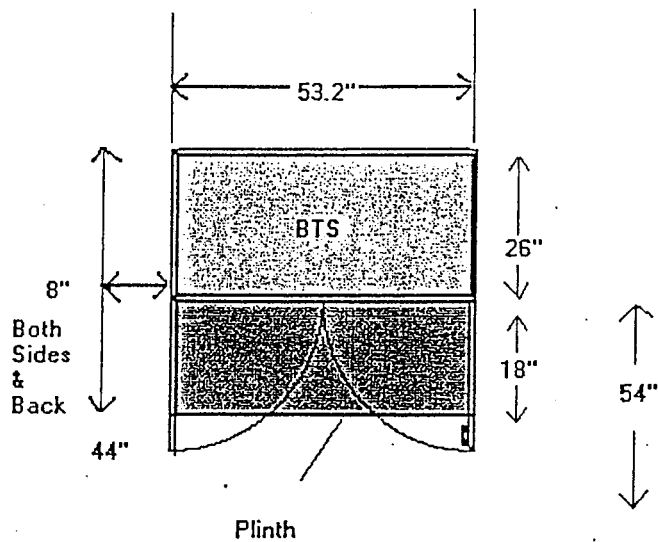
Weight:
 87 pounds

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

Floor Characteristics

Minimum Floor Resistance:
 123 pounds/foot²

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

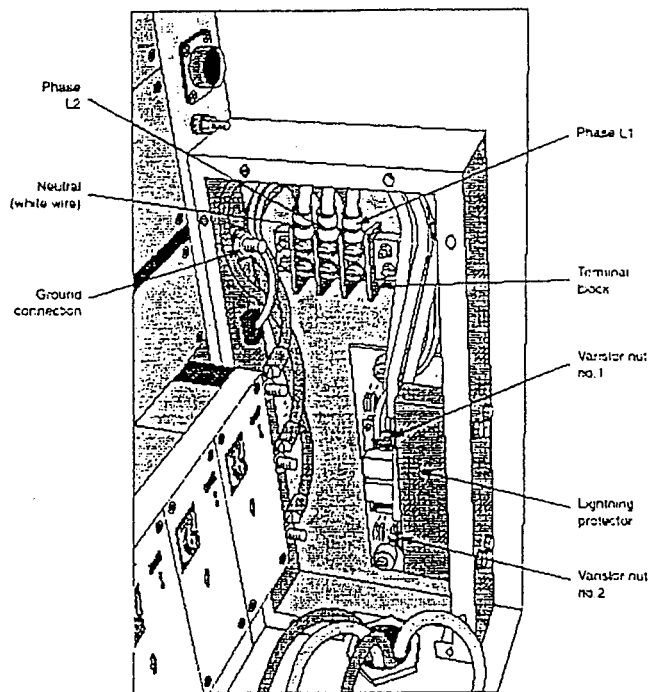
Ground: Yellow/Green 6 gauge

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.

Exhibit C

Structural Analysis

**7 Berkshire Road
West Hartford, CT**



AMB ENGINEERING, INC.

Ara M. Baltayan, P.E.

President

*P.O. Drawer AMB
Amity Station
New Haven, CT 06525-0135*

*(203) 397-2713
Fax: (203) 389-4069*

October 26, 2000

Scientech Corp.
44 Shelter Rock Road
Danbury, CT 06810

Attention: Ms Susan Cook, Project Manager

Re: Review/Evaluation and Certification of 12 VoiceStream antennas mounted at 105' elevation on an existing pole located at 7 Berkshire Road, W. Hartford Connecticut. CT-11-735

Dear Susan:

The following is an analysis I conducted per your request. I reviewed all the drawings and relevant cut sheets and data from different source that you provided. The subject site located at the above address has a 125' monopole manufactured by ROHN and it carries antennas on two arrays located at 115' and 120' respectively.

In 1996 Sprint provided ROHN, the pole manufacturer, the following anticipated antenna configuration:

- 12 Model ALP9011 Panel Antennas mounted on platform @ 105' elevation.
- 3 Model DB853DH90 Panel Antennas mounted on platform @ 130' elevation.
- 3 Model FV90-16-00DP Panel Antennas mounted on platform @ 95' elevation.
- 6 Model RR90-17-02DP Panel Antennas mounted on antenna mount @110'.

The analysis performed by ROHN for their pole with the above attachments indicates that the design is within the required criteria when the pole is subjected to wind loading per ANSI/EIA-222-DP dated 1991.

At present there are only two antenna arrays located at 115' and 120' elevation respectively. The installation of the proposed antennas consisting of a total of 12 EMS RR90-17-02DP on three mounts MT-197 with 36" supporting arms (see attached ROHN drawing D960686 R2) at elevation of 105' will create a total loading less than the load indicated above.

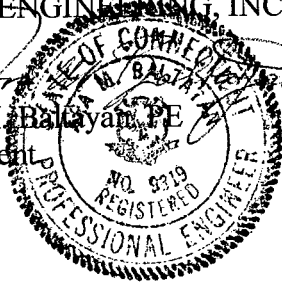
Scientech Corp.

It is my professional opinion that with the addition of the proposed antennas by Scientech as shown on drawing L2 A the loading on the pole will still be well within the design criteria of the pole. This evaluation is based on the assumption that the proposed antennas will be the only antennas added to the pole. Should more equipment be mounted on the pole in the future it will be necessary to re-evaluate the loading created by that addition. This certification is limited to the proposal listed in this letter.

Please feel free to call if you need additional information.

Sincerely,
AMB-ENGINEERING, INC.

Ara M. Balcayan, PE
President



Attach.

AMB/ab

Filename: Scient5.doc

Exhibit D

Power Density Calculations

**7 Berkshire Road
West Hartford, CT**



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

Technical Memo

From: Samson Bockrai (Radio Engineering Consultant)
Subject: Power Density Report for CT11735
Date: 6/11/2000

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 Sprints Monopole @ 105' high. Site CT11735 is located @ 7 Berkshire road, West Hartford, CT. This study incorporates the most conservative considerations for determining the practical combined worst case power density level 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 sectors, with 2 antenna per sector. The model number for each sector is EMS RR90-17-02DP.
- 3) The antenna height is 105' centerline.
- 4) The maximum transmit power from each sector is 1887.95 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 ($\mu\text{w}/\text{cm}^2$). Details are shown in the attachment. Furthermore, the proposed antenna location for Omnipoint Communications at 7 Berkshire road, West Hartford, 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.

Region 11 - Connecticut
Power Density Calculation - Worst Case

Base Station TX output	20 W	43.01
Number of channels	4	
Antenna Model	EMS: RR-90-17/ RV-90-17	
Antenna Gain	16.5 dBi	
Cable Size	1 1/4"	
Cable Length	115 ft	
Jumper & Connector loss	1 dB	
Cable Loss per foot	0.0154	
Total Cable Loss	1.771 dB	
Total Attenuation	2.771 dB	
Total EIRP per channel	56.74 dB	471.99 W
Total EIRP per sector	62.76 dB	1887.95 W
Ground Reflection	1.6	
Frequency	1930 MHz	
Antenna Height	105 ft	3200.4 cm
nsq	13.729	
Power Density (S) =	0.037569 mW / cm²	
% MPE =	3.7569%	VoiceStream
% MPE =	3.3500%	Sprint
% MPE =	9.6800%	BAW
% MPE =	16.79%	Total

Equation Used:

$$S = \frac{(1000 \text{ (grf)}^2 \text{ (Power)} * 10^{\text{(msg10)}}}{4\pi (R)^2}$$