



STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL

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

June 26, 2000

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

RE: EM-VOICESTREAM-135-000609 - VoiceStream Wireless notice of intent to modify an existing telecommunications facility located at 168 Catoona Lane in Stamford, Connecticut.

Dear Attorney Sharkey:

At a public meeting held on June 20, 2000, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies, with the condition that tower braces from the 25 foot to the 150 foot levels are reinforced, as determined by a Professional Engineer.

The proposed modifications are to be implemented as specified here and in your notice dated June 9, 2000. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. 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 will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of 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.

Thank you for your attention and cooperation.

Very truly yours,

  
Mortimer A. Gelston  
Chairman

MAG/FOC

c: Daniel P. Malloy, Mayor of Stamford



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

RECEIVED

JUN -9 2000  
CONNECTICUT  
SITING COUNCIL

June 9, 2000

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

Dear Chairman Gelston:

Enclosed is a Notice of Intent to Modify an Exempt Telecommunications Tower and Associated Equipment for facilities owned and operated by American Tower Corporation (formerly AT&T) at 168 Catoona Lane in Stamford, Connecticut.

The proposed modification can be generally described as the addition of "cellular type" PCS antennas for VoiceStream Wireless, consisting of nine panel antennas to be added to three previously approved antennas along with the necessary base station equipment. VoiceStream Wireless holds the "A Block" 1900 MHz "Wideband" PCS license for the entire State of Connecticut. The VoiceStream PCS wireless service is a voice-data system which will provide paging, data and voice communications services.

The top of the proposed antennas will be at the same level as those already located on the tower which are below the top of the existing tower. Minor structural reinforcements will be made to the tower to accommodate the new installation. The base station equipment will be located at the base of the tower structure within the existing compound area.

The attached pages detail the required information for this location. As shown in the attachments, the proposed addition meets all the necessary criteria established in the Regulations of Connecticut State Agencies Section 16-50j-72 (b) (2), and is an exempt facility pursuant to Section 16-50j-73.

Please record me as the contact for VoiceStream Wireless in this matter and in all correspondence from the Council.

Thank you in advance for your cooperation.

Sincerely,

J. Brendan Sharkey, Esq.  
for VoiceStream Wireless, Inc.

enclosures

cc: Daniel P. Malloy, Mayor of Stamford

## **NOTICE OF EXEMPT MODIFICATION**

### **168 Catoona Lane Stamford, Connecticut**

Pursuant to Section 16-50i(a)(5) of the Connecticut General Statutes and Section 16-50j-72(b)(2), as amended, of the Regulations of Connecticut State Agencies, VoiceStream Wireless Corp. ("VoiceStream") hereby notifies the Connecticut Siting Council that it intends to modify an existing communications facility by adding a total of nine (9) Personal Communications Services (PCS) antennas and one equipment cabinet to its existing antenna assembly and equipment already located on the facility tower. This additional antenna assembly and equipment will be owned, operated and maintained by VoiceStream. The tower is currently owned by American Tower Corporation and is located at 168 Catoona Lane in Stamford, Connecticut.

#### **Background**

The proposed modifications are at the site of a self-supporting 300-foot lattice tower formerly owned by AT&T and currently owned by American Tower Corporation ("ATS"). Associated equipment shelters are located at the base of the tower within a fenced compound. A site plan and elevation drawings are attached in Exhibit A.

The existing tower and compound currently support a total of 43 antennas: nine (9) panel antennas owned by Springwich Cellular Limited Partnership ("SNET"); nine (9) panel antennas owned by AT&T Wireless ("AT&T"); nine (9) panel antennas owned by Nextel Communications ("Nextel"); six (6) panel antennas owned by Sprint Spectrum ("Sprint"); three (3) panel antennas owned by VoiceStream; three (3) Omni antennas owned by SGI Communications; three (3) Omni antennas of an unknown owner; and one (1) reflector dish owned by the Stamford Fire Department.

#### **Discussion**

The purpose of this modification is to serve the public with Wideband PCS services while accommodating the Council's policy of encouraging co-location on existing telecommunications towers.

On December 18, 1997, the Connecticut Siting Council acknowledged a Notice to Exempt and Modify an Existing Telecommunications Facility from VoiceStream's predecessor, Omnipoint Communications, Inc., for the installation of its existing three (3) antennas and an associated equipment cabinet at the Catoona Lane tower site. VoiceStream now proposes to install a total of nine (9) additional panel antennas for a total of twelve (12) all at the height of its current antennas - 267 feet above ground level ("AGL") - to increase its capacity in downtown Stamford and along Interstate 95. The antennas are EMS Model No. RR90-17-02DP, and the equipment cabinet is the Nortel S8000 BTS unit. The equipment specifications for this installation are shown in Exhibit B.

VoiceStream and ATS have entered into a lease agreement that authorizes VoiceStream's installation of its additional antennas on the tower along with the associated equipment at the base. The parties conducted a structural analysis that indicates that with minor structural reinforcements the tower can support its existing loading as well as VoiceStream's proposed antennas. This structural analysis is attached as Exhibit C<sup>1</sup>.

Attached as Exhibit D is a power density analysis that calculates existing and proposed non-ionizing radiation levels. The current Connecticut (and ANSI/IEEE) power density level standards for non-ionizing radiation are also shown in Exhibit D. The levels shown indicate the total power density in milliwatts per square centimeter. These levels have been calculated at both the tower base and at the site boundary and include all the existing and proposed antennas in its calculations. These calculations conform to the procedures described by FCC OST Bulletin No. 65, and the levels identified in this case are well below all applicable standards.

### **Conclusion**

The proposed additions do not constitute a "modification" of an existing facility as defined in the Connecticut General Statutes Section 16-50i(d). There will be no change to the tower height or to the boundaries of the site. The tower is structurally sufficient to support the proposed antennas with minor additional bracing. There will be no increase in noise levels at the site's boundary by six (6) decibels or more and the total radio frequency electromagnetic radiation is not at or above the standard set forth in Section 22(a)-162 of the Connecticut General Statutes. This addition will not have a substantially adverse environment effect.

For these reasons, VoiceStream requests that the Council acknowledge that this Notice of Modification meets the Council's exemption criteria.

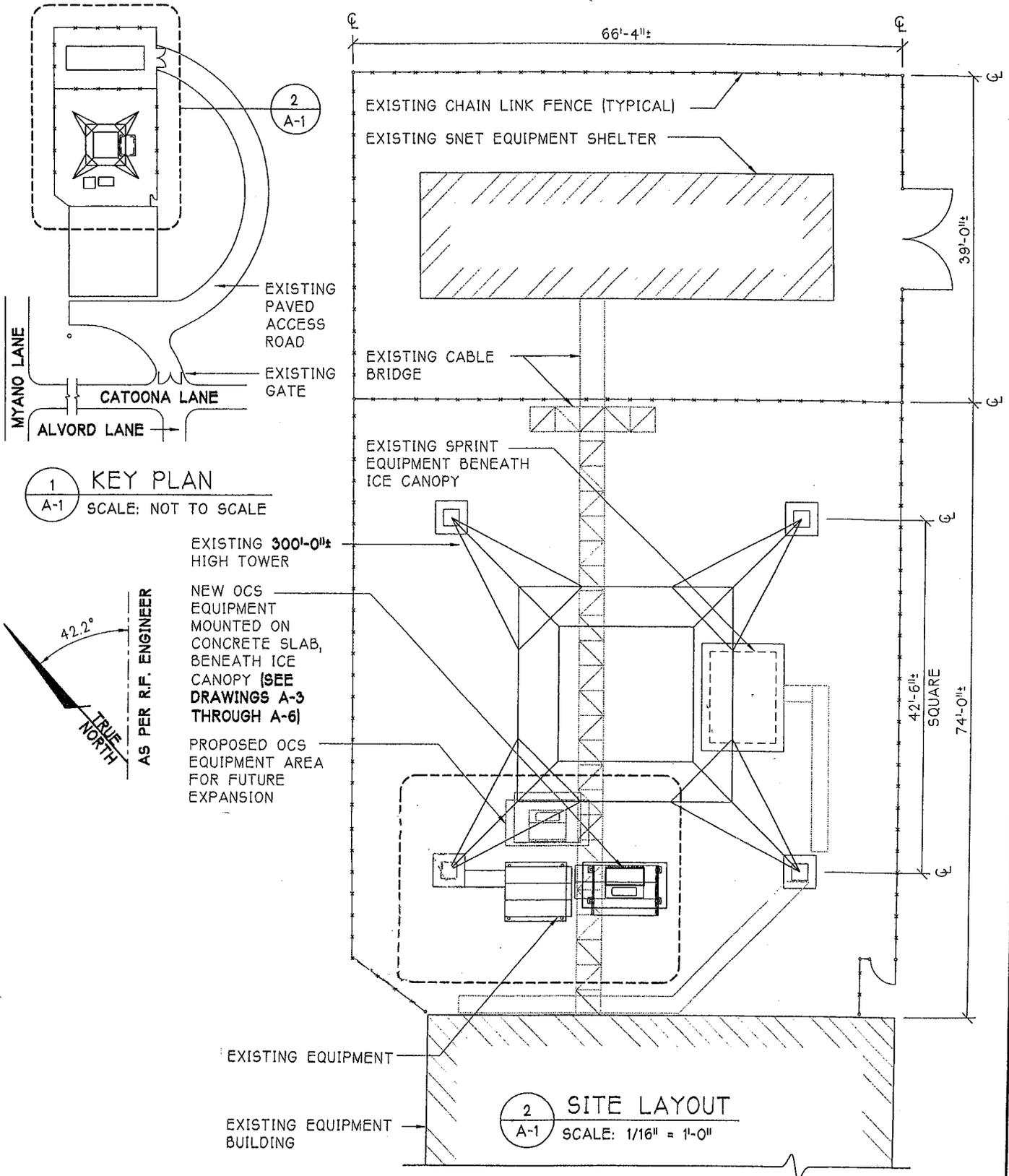
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<sup>1</sup> Please note that the attached structural analysis refers to six "existing" Omnipoint/VoiceStream antennas. VoiceStream's original lease with AT&T/ATS allows for a total of six antennas, though VoiceStream has only installed three antennas to date pursuant to its current Siting Council approval.

# **EXHIBIT A**

- 1) SITE PLAN**
- 2) ELEVATION**





1 KEY PLAN  
A-1 SCALE: NOT TO SCALE

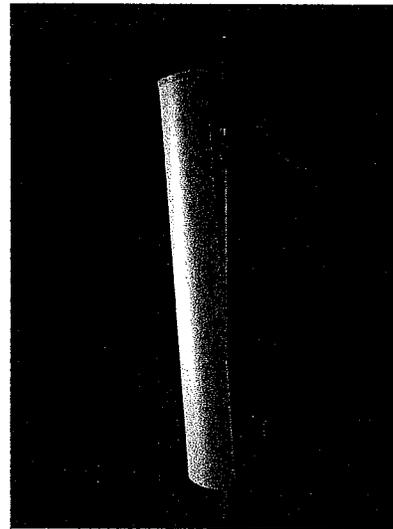
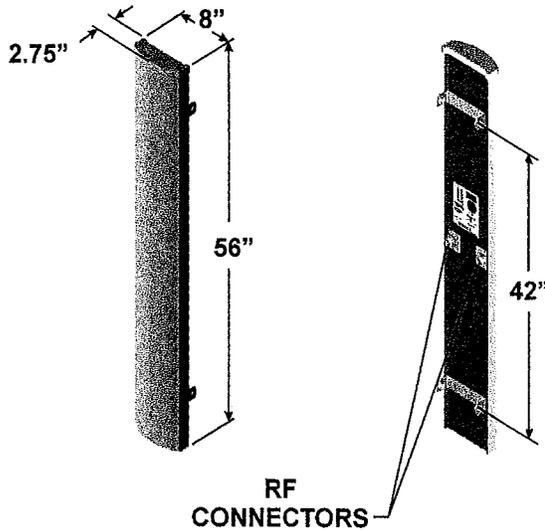
2 SITE LAYOUT  
A-1 SCALE: 1/16" = 1'-0"

<p>670 North Beers Street, Building 2, Holmdel, NJ 07733 Tel: 732.739.3200 Fax: 732.739.0440</p>	Drawing Title: <b>KEY PLAN AND SITE LAYOUT</b>		Project: <b>ATS TOWER</b>		Revision No. Date:  Drawing No. <b>A-1</b>
	Client: 		Address: CATOONA LANE STAMFORD, CT		
P.C.: JDi	P.C. Chkd.:	Chkd. by:	ARCNET Project No. A96.506.462A	Drawn: RSo	Date: 2/25/00
			Search Area: ATS - GREENWICH/I-95		
			Site ID No.: CT-11-007-A		
			Approved By: CLIENT: _____ DATE: _____		

# **EXHIBIT B**

## **EQUIPMENT SPECIFICATIONS**

**1850 MHz - 1990 MHz (P)**



- 90° beamwidth
- 16.5 dBi gain
- ±45° DualPol™
- 56 inch

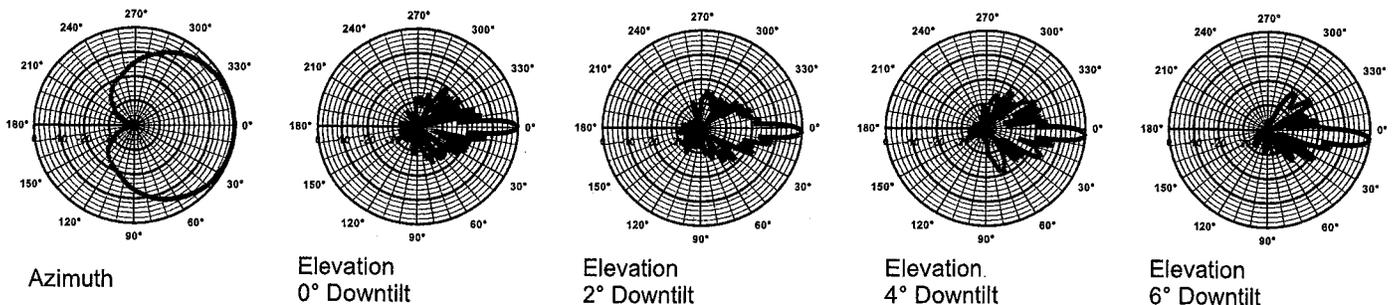
## SPECIFICATIONS

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 <sup>2</sup> (.29 m <sup>2</sup> )
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°	<p>Note: Patent Pending and US Patent number 5, 757, 246.</p> <p>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 <a href="http://www.emswireless.com">www.emswireless.com</a> and reflect all updates.</p>	
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"

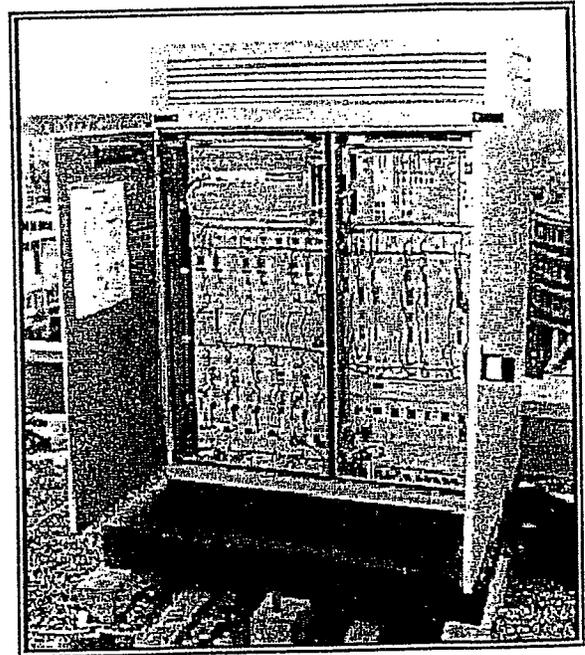
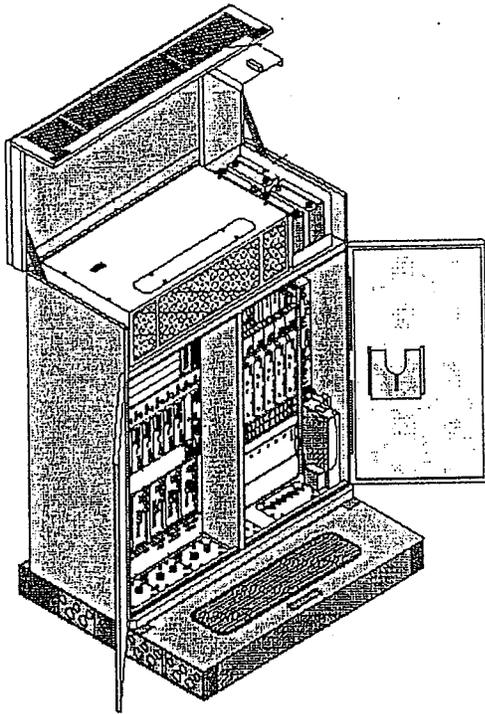
\* Model number shown represents a series of products. See mounting options section for specific model number.

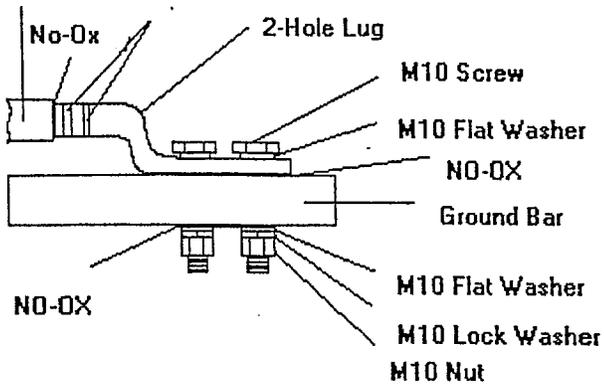
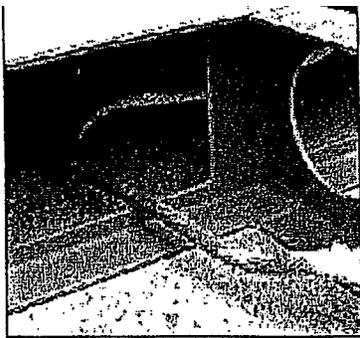




# S8000 BTS

## 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

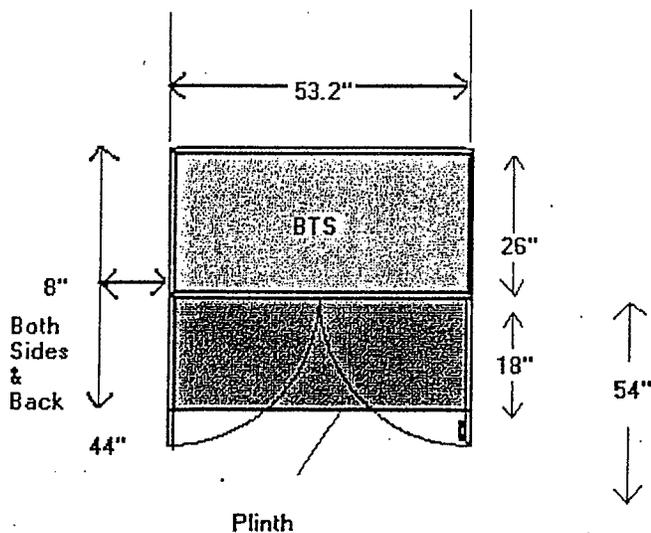
Weight:  
 87 pounds

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

## Floor Characteristics

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

Flatness:  
 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

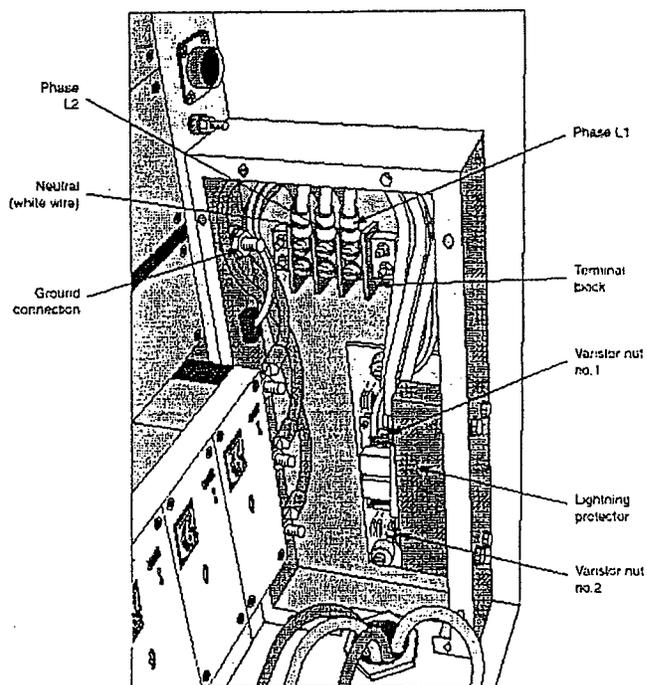
Ground: Yellow/Green 6 gauge

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**

Mr. Joe DiBernardo  
ARCNET Architects, Inc.  
100 Filley St.  
Bloomfield, CT 06002

May 30, 2000

Re: Structural Analysis of  
ATC's 300-ft. Modified Type 'H' Tower at  
Catoona Lane, Stamford, CT for  
Omnipoint Communications' Antenna Additions  
OCS Site ID # CT-11- 007-A / ARCNET Proj. No. A-99.506-462A

Dear Mr. Dibernardo,

Communication Structures Engineering, Inc. (CSEI) has completed a review of ATC's existing 300-ft Modified Type 'H' tower located at OCS Site ID #CT-11-007-A. In accordance with Omnipoint's request, we have performed a structural analysis of this tower to check its capability to support the existing tower, antenna and equipment loads as well as the new loads from Omnipoint's proposed panel antennas, antenna mounts, and transmission line additions. The specific loading criteria that we utilized in accordance with BOCA were those prescribed by the national standard "ANSI/TIA/EIA-222-F-1996". The applicable "basic wind speed" that was utilized for this tower site was the 85-mph, fastest-mile velocity, specified by the above standards for the Fairfield County, CT area. A summary of the loads considered and the results of our review follow.

**ANTENNA CONFIGURATION ( Used for Structural Analysis)**

**Existing Antennas & Cable to remain**

Unknown Customer: Three Omni Antennas at 315ft AGL or 310ft AGL w/ 3runs of 7/8 inch cable.  
SNET: Nine Panel Antennas at 295ft AGL or 290ft AGL w/ 9 runs of 1-5/8 inch cable.  
AT&T/W Services: Nine Panel Antennas at 250ft AGL or 237ft AGL w/ 9 runs of 1-5/8 inch cable.  
Nextel Communications: Nine Panel Antennas at 223ft AGL w/ 9 runs of 1-5/8 inch cable.  
SGI Communications: Three Omni Antennas at 201ft AGL or 181ft AGL w/ 3 runs of 7/8 inch cable.  
Local Fire Department: One 4-ft x6ft reflector at 200ft AGL w/ 1 run of 7/8 inch cable.  
Sprint Spectrum: Six Panel Antennas at 154-ft AGL w/ 6 runs of 1-5/8 inch cable.

**Existing Antennas to be removed**

Omnipoint Communications: Six Panel Antennas at 267ft AGL.

**New Omnipoint Antenna & Cable Additions (including future requirements)**

Omnipoint Communications: 12 Panel Antennas at 267ft AGL w/ 24 (6 exist. & 18 new) runs of 1-5/8 inch cable.

CSEI's structural analysis utilized the structural loads prescribed by "ANSI/TIA/EIA-222-F" "Structural Standards for Antenna Supporting Structures". The load carrying members of this structure were reviewed to check their compliance with the AISC 1989 ASD "Specification for Structural Steel Buildings". As a result of this structural analysis, we determined that some tower strengthening is required to enable this structure to support Omnipoint's new equipment. This strengthening is needed at tower face braces below Omnipoint's proposed antennas. The specific locations where tower strengthening work is needed is summarized on CSEI drawing TS-1, which is included with this letter. CSEI is presently detailing the necessary tower strengthening steel that will be installed as part of this project. After the strengthening work is properly completed, this tower will be capable of supporting the loads from both the existing antennas & cable and Omnipoint's proposed additions (including future antennas), in accordance with the referenced codes. It is important that the 18 new coaxial cables are routed up the west tower leg as specified. If Omnipoint or any other carriers add any additional equipment to this tower, additional tower strengthening will likely be necessary.

I hope that this information is sufficient for your present needs. We will be happy to supply you with additional information as required.

Sincerely,



James E. Boltz, P.E. (CT P.E. #20122)

encl: Drawing TS-1





# EXHIBIT D

## POWER DENSITY CALCULATIONS

**Worst Case Power Density for installation on the Existing Lattice Tower @ Catoonah Lane, Stamford Connecticut**

Region 11 - Connecticut	
Power Density Calculation - Worst Case	
Base Station TX output	20 W 43.01
Number of channels	8
Antenna Model	EMS: FR-90-16/ FV-90-16
Antenna Gain	15.5 dBi
Cable Size	1 5/8" <input type="button" value="▼"/>
Cable Length	310 ft
Jumper & Connector loss	1 dB
Cable Loss per foot	0.0116
Total Cable Loss	3.596 dB
Total Attenuation	4.596 dB
Total EIRP per channel	53.91 dB 246.28 W
Total EIRP per sector	62.95 dB 1970.24 W
Ground Reflection	1.6
Frequency	1930 MHz
Antenna Height	267 ft 8138.16 cm
nsq	10.904
Power Density (S) =	0.006063 mW / cm <sup>2</sup>
% MPE =	0.5063%

Current % MPE = 6.588%

\* Additional % MPE contribution Omnipoint = 0.6053

Total % MPE for all carriers = 7.1933

Equation Used :

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

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

\* 0.001 % submitted previously

## Technical Memo

To:  
From: Brian Liu (Radio Engineering Consultant)  
cc: Mike Fulton  
Subject: Power Density Report for CT11007A  
Date: 6/9/2000

### 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 AT&T Facility, Catoonah Lane, Stamford Connecticut. 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 VSW transmitters are in the 1930-1950 MHZ frequency band.
- 2) The antenna cluster consists of three sectors, with 4 antennas per sector. The model number for each antenna is EMS FR-90-16-02DP
- 3) The antenna height is 267 feet Center Line.
- 4) The maximum combined transmit power from each sector is 1970.24 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 VoiceStream Wireless PCS antenna installation are on the order of 10 to 1,00 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 VoiceStream Wireless on AT&T Facility, Catoonah Lane, Stamford Connecticut, 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.



STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL

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

June 12, 2000

Honorable Dannel P. Malloy  
Mayor  
City of Stamford  
888 Washington Boulevard  
P. O. Box 10152  
Stamford, CT 06904-2152

RE: EM-VOICESTREAM-135-000609 - VoiceStream Wireless notice of intent to modify an existing telecommunications facility located at 168 Catoona Lane in Stamford, Connecticut.

Dear Mayor Malloy:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for June 20, 2000, at 1:30 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,

A handwritten signature in black ink, appearing to read "Joel M. Rinebold".

Joel M. Rinebold  
Executive Director

JMR/grg

Enclosure: Notice of Intent

logged