



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: [siting.council@po.state.ct.us](mailto:siting.council@po.state.ct.us)

Web Site: [www.ct.gov/csc](http://www.ct.gov/csc)

March 22, 2004

Stephen J. Humes, Esq.  
LeBoeuf, Lamb, Greene & MacRae LLP  
Goodwin Square  
225 Asylum Street  
Hartford, CT 06103

RE: **EM-T-MOBILE-043-040301** – Omnipoint Communications, Inc. notice of intent to modify an existing telecommunications facility located at 1455 Forbes Street, East Hartford, Connecticut.

Dear Attorney Humes:

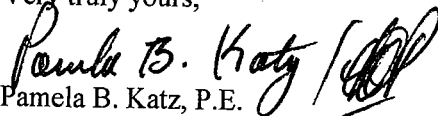
At a public meeting held on March 17, 2004, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated March 1, 2004. 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,

  
Pamela B. Katz, P.E.  
Chairman

PBK/mp

c: Honorable Timothy D. Larson, Mayor, Town of East Hartford  
Michael J. Dayton, Town Planner, Town of East Hartford  
Christopher B. Fisher, Esq., Cuddy & Feder LLP  
Kenneth C. Baldwin, Esq., Robinson & Cole LLP  
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels LLP  
Christine Belvin, LCC International, Inc.  
Tara K. Rand, Crown Atlantic Company, LLC

**LEBOEUF, LAMB, GREENE &  
L.L.P.**

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SAN FRANCISCO

GOODWIN SQUARE  
225 ASYLUM STREET, 13TH FLOOR  
HARTFORD, CT 06103

(860) 293-3500

FACSIMILE: (860) 293-3555

E-MAIL ADDRESS: STEPHEN.HUMES@LLGM.COM

WRITER'S DIRECT DIAL: (860) 293-3744

WRITER'S DIRECT FACSIMILE: (860) 241-1344

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BEIJING

March 1, 2004

Pamela Katz, Chairman  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

**RECEIVED**  
MAR - 1 2004  
CONNECTICUT  
SITING COUNCIL

Re: Notice of Exempt Modification  
1455 Forbes Street East Hartford, Connecticut

Dear Chairman Katz and Members of the Council:

Please be advised that LeBoeuf, Lamb, Greene & MacRae, L.L.P. represents Omnipoint Communications, Inc., a subsidiary of T-Mobile USA, Inc. (hereinafter T-Mobile) in the above-referenced matter. T-Mobile intends add one (1) S8000 cabinet for a total of two (2) S8000 cabinets. Also, three (3) antennas will be added for a total of six (6) EMS RR90-17-02DP antennas mounted on an existing platform on the existing monopole tower facility at 1455 Forbes Street in East Hartford. Please accept this letter as notification, pursuant to R.C.S.A. § 16-50j-73, of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Mayor of East Hartford, Timothy D. Larson.

**Background**

T-Mobile holds 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. T-Mobile 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.

## **Discussion**

The existing facility consists of a one hundred foot (100') monopole tower (see drawing attached as Exhibit B) and surrounding compound. The coordinates for the site are **Lat: 41°-43-53** and **Long: 72°-36-28**. The tower is in the southwest corner of East Hartford. The tower is approximately one thousand five hundred seventy-four feet (1,574') south of Maple Street and roughly two hundred seventeen feet (217') north of Linwood Drive.

T-Mobile's proposal calls for the addition of three (3) antennas to its existing three (3) antenna array, creating a total of six (6) antennas. The proposed configuration is a cluster of three sectors with two (2) antennas per sector mounted on an existing low profile platform at the eighty-seven foot (87') centerline above ground level ("AGL"). The antennas will be mounted on dual antenna brackets with six (6) 1-5/8" coax cables installed on the outside of the monopole. The model number for the new antennas are RR90-17-02DP. A new structural analysis of the tower has been completed and is attached as Exhibit D. As stated in the structural analysis, the existing tower structure is capable of supporting the proposed T-Mobile installation. One new S8000 equipment cabinet will be installed. The existing concrete equipment pad will be enlarged to 8'6" x 9'6" to support the relocated cabinet and the new cabinet. Utilities will be run via underground conduit from those currently in place.

The planned modifications to the East Hartford facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modification will not increase the height of T-Mobile's approved antennas on the tower and will not extend the boundaries of the existing compound area. The enclosed tower drawings confirm that the planned changes will not increase the overall height of the tower.
2. The installation of T-Mobile equipment, as reflected on the attached site plan, will not require an extension of the site boundaries.
3. The proposed modification to the facility will not increase the noise levels at the existing facility by six decibels or more. T-Mobile's equipment is self-contained and requires no additional heating, ventilation or cooling equipment.
4. The operation of the additional antennas will not increase the total radio frequency (RF) power density, measured at the site boundary, to a level at or above the applicable standard. The "worst-case" RF power density calculations, for a point at the site boundary, are attached hereto as Exhibit E.

For the foregoing reasons, T-Mobile respectfully submits that the proposed addition of antennas and equipment at the East Hartford facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Thank you for your consideration of this matter.

Respectfully submitted,

OMNIPOINT COMMUNICATIONS, INC.

By: 

Its Counsel

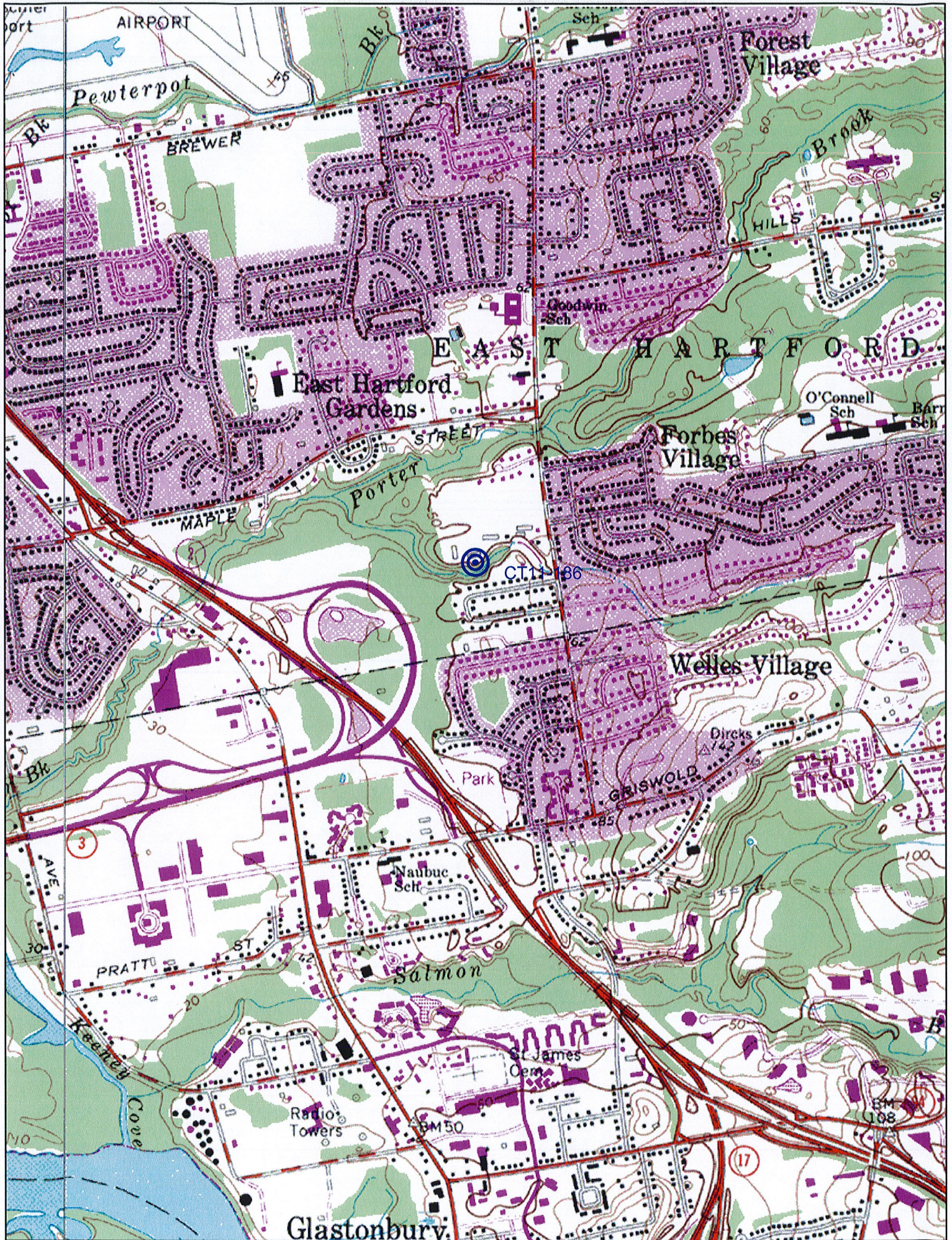
Stephen J. Humes

cc: East Hartford Mayor, Timothy D. Larson.

**Exhibit A**  
**Site Map**

**1455 Forbes Street**  
**East Hartford, Connecticut**





Glastonbury.

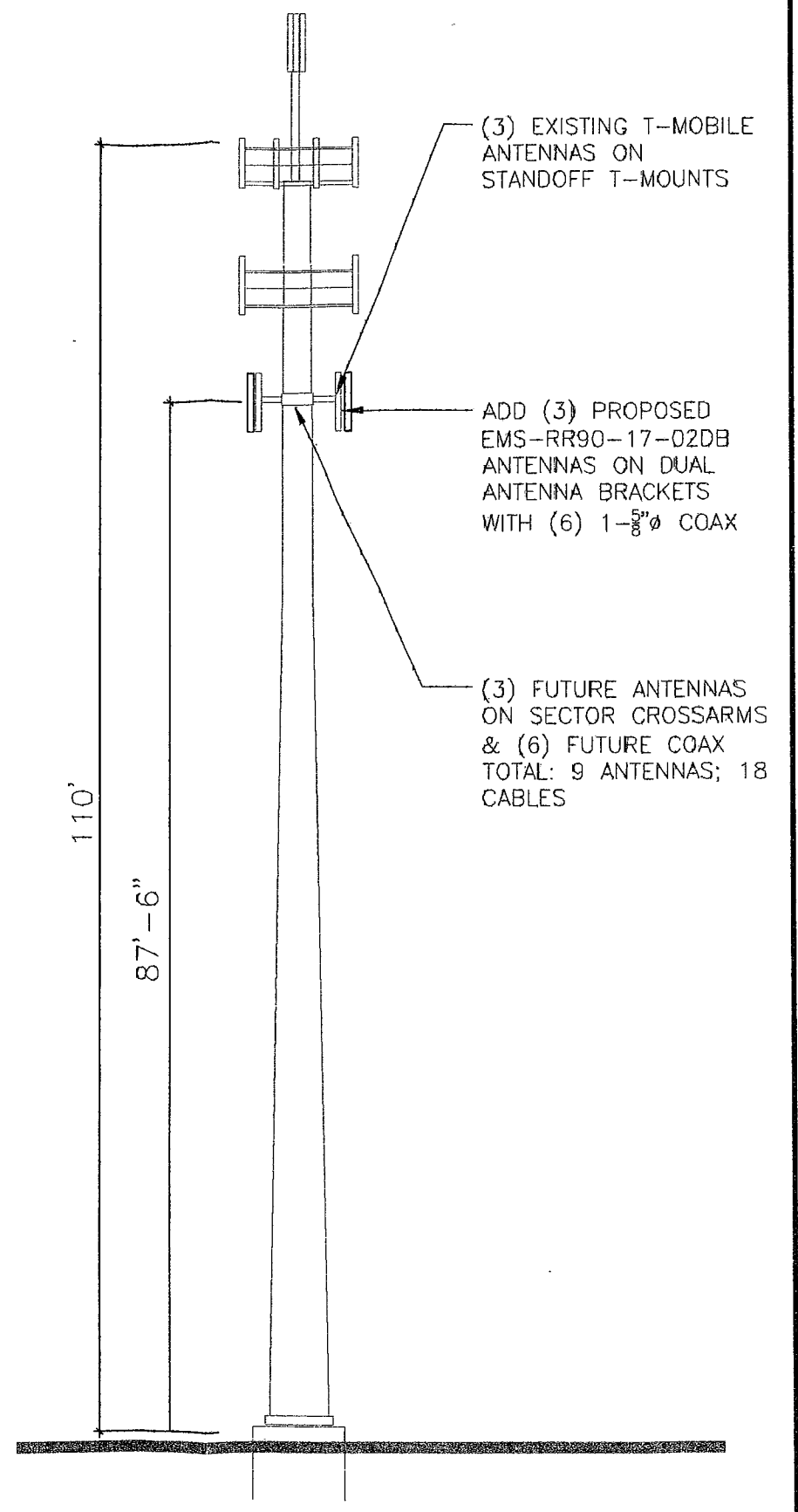
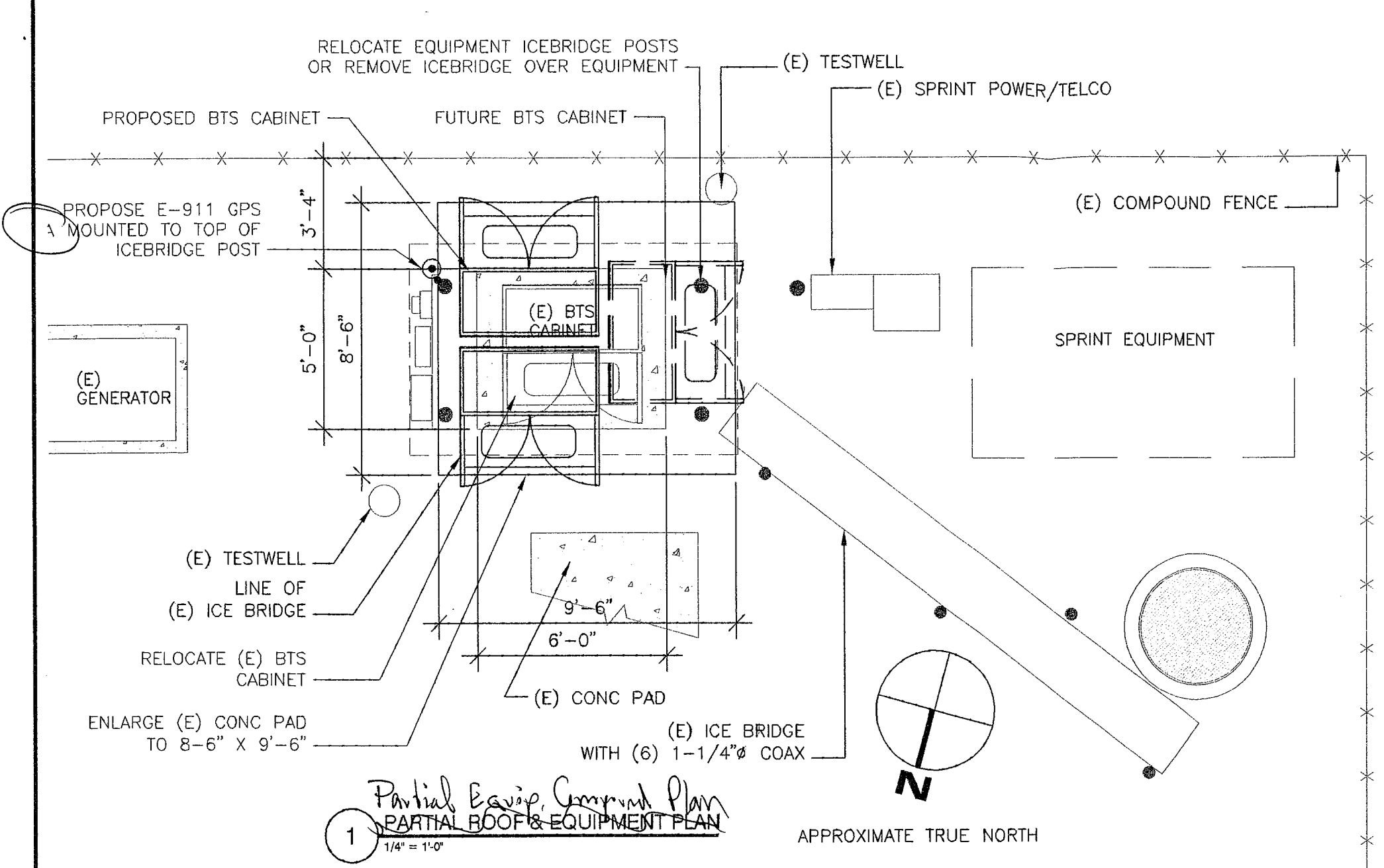


# **Exhibit B**

## **Design Drawings**

**1455 Forbes Street**

**East Hartford, Connecticut**



NOTE:  
PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE IS REQUIRED TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. T-MOBILE IMPLEMENTATION REQUIRES DEPLOYMENT OF EQUIPMENT AND ANTENNAS GENERALLY DEPICTED ON THIS PLAN, ATTACHED TO OR MOUNTED IN CLOSE PROXIMITY TO THE BTS RADIO CABINETS. T-MOBILE RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS TO E911 EQUIPMENT AND LOCATION AS TECHNOLOGY EVOLVES TO MEET REQUIRED SPECIFICATIONS.

**T-Mobile**

100 FILLEY STREET  
BLOOMFIELD, CT. 06002

REVISIONS	DESIGNED BY:
	DRAWN BY: MW
	PM:
	FILE:

**SITE MODIFICATION**

DATE: 06/01/03  
SCALE: AS NOTED  
**L-1**  
Sheet No.

**SITE NUMBER: CT11-186A**  
**SITE NAME: EAST HARTFORD/HILLS**  
**ADDRESS: 1441 FORBES STREET EAST HARTFORD CT**



**Exhibit C**  
**Equipment Specifications**

**1455 Forbes Street**  
**East Hartford, Connecticut**

**EMS**  
Wireless



## RR90-17-XXDP

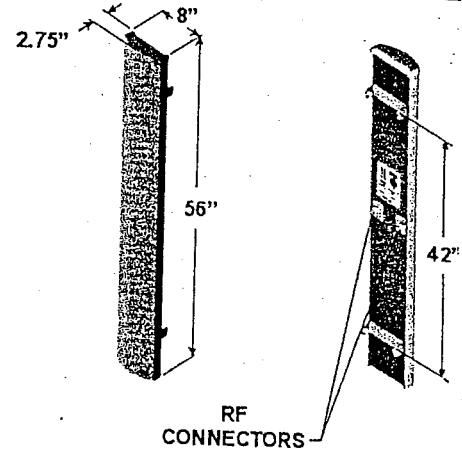
DualPol® Polarization  
1850 MHz - 1990 MHz

### Electrical Specifications

Azimuth Beamwidth  
Elevation Beamwidth  
Gain  
Polarization  
Port-to-Port Isolation  
Front-to-Back Ratio  
Electrical Downtilt Options  
VSWR  
Connectors  
Power Handling  
Passive Intermodulation

Lightning Protection

90°  
6°  
16.5 dBi (14.4 dBd)  
Dual Linear Slant ( $\pm 45^\circ$ )  
 $\geq 30$  dB  
 $\geq 28$  dB ( $\geq 30$  dB Typ.)  
0°, 2°, 4°, 6°  
1.35:1 Max  
2; 7-16 DIN (female)  
250 Watts CW  
 $\leq -150$  dBc  
[2 x 20 W (+ 43 dBm)]  
Chassis Ground

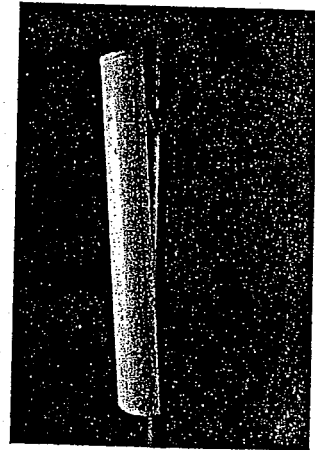


### Mechanical Specifications

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

56 in x 8 in x 2.75 in  
(142 cm x 20.3 cm x 7.0 cm)  
150 mph (241 km/hr)  
3.1ft<sup>2</sup> (.29 m<sup>2</sup>)  
90 lbs (400 N)  
31lbs (139 N)  
18 lbs (8.2 kg)

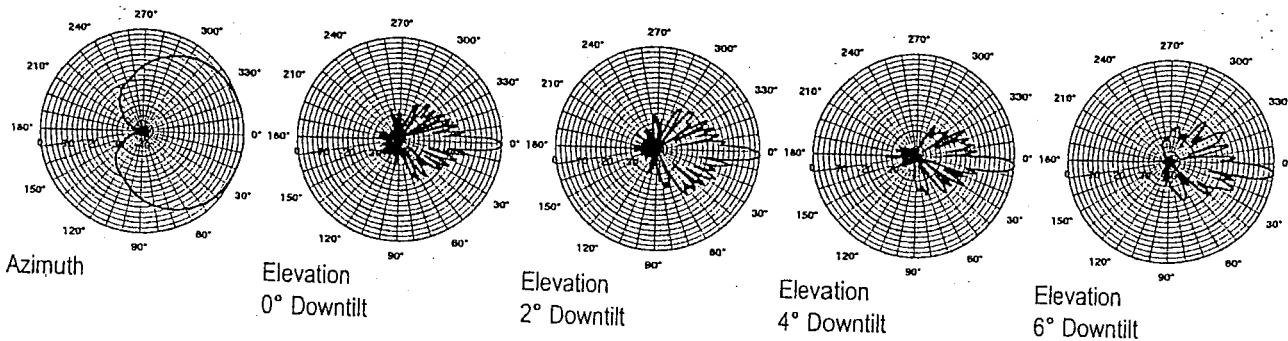


### Mounting Options

MTG-P00-10, MTG-S02-10, MTG-DXX-20\*, MTG-CXX-10\*, MTG-C02-10, MTG-TXX-10\*

Note: \*Model number shown represents a series of products. See Mounting Options section for specific model number.

### Patterns



Revised 04/05/02

## Mobile Wireless Introduction

Drawing from more than 30 years in the development of highly reliable systems, EMS Wireless has applied that knowledge and experience to the needs of commercial wireless communication service providers.

EMS Wireless offers a broad selection of innovative base station antennas offering superior performance for all wireless protocols including PCS, cellular, GSM, CDMA, TDMA and IDEN among others.

## Mobile Wireless Products

### Frequency Bands:

- PCS (1850-1990 MHz)
- Cellular (806-960 MHz)
- Dualband (806-896 and 1850-1900 MHz)
- CDMA 450 (450-470 MHz)
- GSM 900 (890-960 MHz)
- GSM 1800 (1710-1880 MHz)
- MMDS (2305-2360 MHz)

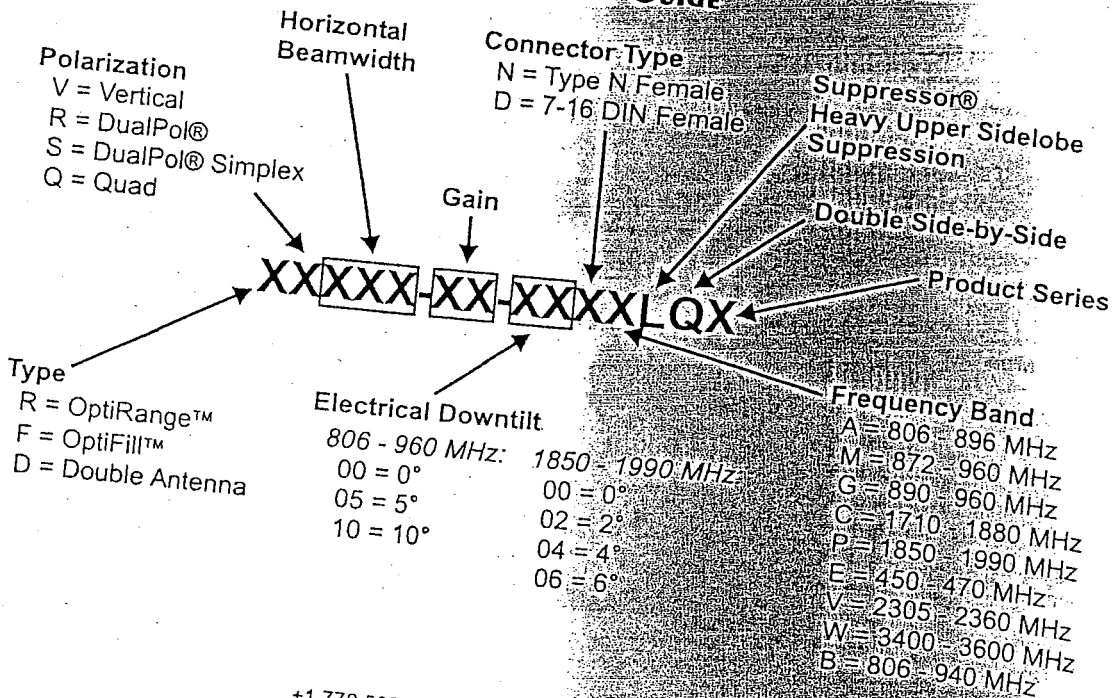
### Micro AcCELLerator™ Series:

- MTRR75-17-XXXDPL (PCS)
- MTFR90-11-XXXDAL2-CMX (Cellular)

### AcCELLerator™ Series:

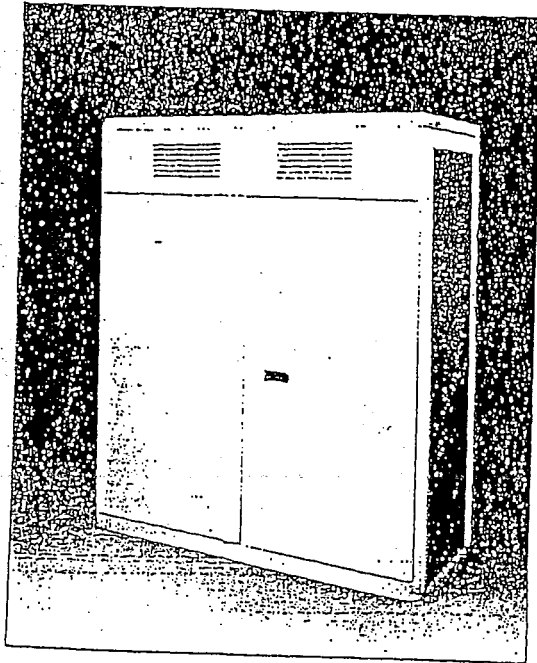
- 16" AcCELLerator™
- 19" AcCELLerator™
- 30" AcCELLerator™
- 36" AcCELLerator™

## Mobile Wireless Standard Model Number Guide





## S8000 Outdoor Base Transceiver Station



*Nortel's S8000 Outdoor Base Transceiver Station has been designed to meet the economic and performance requirements of network operators. Based on a highly integrated RF and digital design, the S8000 Outdoor Base Transceiver Station represents a major technology advancement and delivers all the benefits of a compact, modular, high quality and high performance product.*

**Nortel's S8000 Outdoor BTS: Radio Performance Leadership - Reduced Site Acquisition and Operating Costs**

### Installation

- The S8000 Outdoor Base Transceiver Station (BTS) offers compact packaging and requires minimal floor space, only .88 sq m (9.5 sq ft.). Front only access keeps total space required, including maintenance access, to only 1.8 sq m (19.4 sq ft.) per cabinet.

### Transmission

- Integrated drop and insert connection to the Base Station Controller (BSC) and signaling concentration on the A-bis interface provide significant transmission cost reduction.
- Optional integrated digital microwave radio.

### Maintenance

- Highly reliable technology, redundant architecture and integrated battery backup ensure high availability service.
- Front access and interconnections, as well as powerful fault detection, help reduce lifetime maintenance costs.

### Industry leading performance

- New RF technology and advanced digital processing techniques provide very high receive sensitivity (-108 dBm guaranteed) and improved diversity gain (up to 6 dB). This provides higher resistance to interference, as well as, improved speech quality and cell coverage.
- Nortel's proven experience in frequency hopping, 1\*3 frequency reuse, sophisticated microcellular handover algorithms and support of half-rate vocoders enables the operator to maximize use of available spectrum and deploy fewer cell sites.

### Fast network deployment

- The S8000 BTS can be shipped fully equipped and tested, which provides fast network roll out to meet operator time to market requirements.

### Modular and flexible configuration

- The S8000 supports eight transceivers (TRX) per cabinet in Omni and sector configurations. The typical one cabinet S222 configuration may be expanded up to S332 or S422 without an additional cabinet.

• Frequency range		900 MHz GSM
		900 MHz GSM extended
		1800 MHz DCS
		1900 MHz PCS
• Receive sensitivity (guaranteed)		-108 dBm
• Dimensions	Height	1600 mm / 5 ft. 3 in.
	Width	1350 mm / 4 ft. 5 in.
	Depth	650 mm / 2 ft. 1 in.
• Weight	Fully equipped	600 kg / 1300 lbs.
• Capacity		8 TRX per cabinet
		up to 3 cabinets
• Configuration	Trisectorial	up to S888
	Omnidirectional	up to O16
• Amplifier output power		30 W (± 1.5 dB)
• Power control	Static	6 steps of 2 dB
	Dynamic	15 steps of 2 dB
• Frequency hopping		RF synthesized
• Supported vocoders		baseband
		Full rate
		Enhanced full rate
		Half rate
• Encryption algorithms		A5/1 A5/2
• Power supply		230V AC 50/60 Hz
• Power back-up		Integrated battery back-up plus optional battery cabinet allows provisioning up to 8 hours back-up time.
• Operating temperature range		-40°C to +50°C
		-40°F to +122°F

For more information,  
please contact your local Nortel account representative.

*In the USA:*  
Northern Telecom  
2221 Lakeside Boulevard  
Richardson TX 75082  
USA  
Telephone: 1-800-4 NORTEL  
1-800-466-7838 or (214) 684-5935 -  
<http://www.nortel.com/wireless>

*In Canada:*  
Northern Telecom  
2920 Matheson Boulevard East  
Mississauga ON L4W 4M7  
Canada  
Telephone: 1-800-4 NORTEL

*In the Caribbean and Latin America:*  
Northern Telecom (CALA) Corporation  
1500 Concord Terrace  
Sunrise FL 33323  
USA  
Telephone: (305) 851-8400

*In Asia:*  
Northern Telecom (Asia) Limited  
151 Lorong Chuan  
#02-01 New Tech Park  
Singapore 1955  
Telephone: (65) 287-2877

Nortel China Ltd.  
34th Floor, Central Plaza  
18 Harbour Road, Wanchai  
Hong Kong  
Telephone (852) 2585 2888

*In Europe:*  
Nortel Limited  
Stafferton Way  
Maidenhead  
Berkshire SL6 1AY  
England  
Telephone: (44) (1628) 812000

Nortel Matra Cellular  
BP 50  
1 place des Frères Montgolfier  
78042 Guyancourt Cedex  
France  
Telephone (33) (1) 34 52 52 52

Nortel Europe  
12-12bis rue Jean Jaurès  
92807 Puteaux  
France  
Telephone (33) (1) 46 96 15 15

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Information subject to change. Northern  
Telecom reserves the right to make  
changes, without notice, in equipment  
design as engineering or manufacturing  
methods warrant.

**NORTEL**  
NORTHERN TELECOM

**Exhibit D**  
**Structural Analysis**

**1455 Forbes Street**  
**East Hartford, Connecticut**





September 24, 2003

Mr. Lincoln Erhard  
Crown Castle International  
500 West Cummings Park  
Woburn, MA 01801  
781-729-4406

Morrison Hershfield  
66 Perimeter Center East, Ste 600  
Atlanta, GA 30346  
770-379-8500  
www.morrisonhershfield.com

**Subject: Structural Analysis Report**

**Carrier Designation**

**T-Mobile Co-Locate**  
**Carrier Site Number:** NA  
**Carrier Site Name:** NA

**Crown Castle Designation**

**Crown Castle BU Number:** 806376  
**Crown Castle Site Name:** HRT 100 943239  
**Crown Castle JDE Job No.:** 47664

**Engineering Firm Designation**

**MHC Project Number:** 6033016 / CN0-827

**Site Data**

1455 Forbes Street, East Hartford, CT / Hartford County  
Latitude 41-43-53, Longitude -72-36-28  
130 Foot Monopole Tower

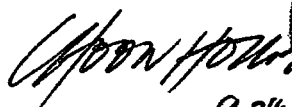
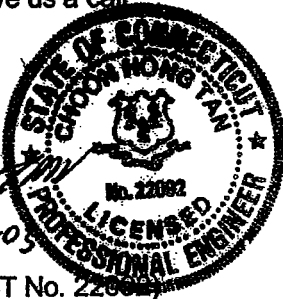
Dear Mr. Erhard,

Morrison Hershfield is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the aforementioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Blanket Order No. 1196. The purpose of the analysis is to determine the suitability of the tower with the addition of T-Mobile's proposed antenna installation of three (3) EMS RR90-17-02DP panel antennas, six (6) Ericsson KRY 112 71 amps, and six (6) 1-5/8" feedlines when combined with the existing and reserved equipment on the structure. The six new lines are installed on the outside of the monopole. This analysis has been performed in accordance with the TIA/EIA 222-F standard based upon a fastest-mile wind speed condition of 80 mph with 1/2" ice for Hartford County.

Based on our analysis, we have determined that the tower and foundation are sufficient for the proposed loading.

We at Morrison Hershfield appreciate the opportunity of providing our continuing professional services to you and Crown Castle International. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted,

  
9-24-03  


C.H. David Tan, P.E. (CT No. 22082)  
Senior Engineer

# **Exhibit E**

## **Power Density Calculations**

**1455 Forbes Street**

**East Hartford, Connecticut**



T-Mobile USA Inc.  
100 Filley St, Bloomfield, CT 06002-1853  
Phone: (860) 692-7100  
Fax: (860) 692-7159

## Technical Memo

To: Stephen Humes  
From: Hassan Syed - Radio Frequency Engineer  
cc: Jason Overbey  
Subject: Power Density Report for CT11186  
Date: February 10, 2004

---

### 1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the T-Mobile PCS antenna installation on a Monopole at 1441 Forbes Street, East Hartford, CT. This study incorporates the most conservative consideration for determining the practical combined worst case power density levels that would be theoretically encountered from locations surrounding the transmitting location.

### 2. Discussion:

The following assumptions were used in the calculations:

- 1) The emissions from T-Mobile transmitters are in the 1935-1945 MHz frequency band.
- 2) The antenna array consists of three sectors, with a total of 6 antennas
- 3) The model numbers is EMS RR90-17-02DP
- 4) The antenna center line height is 87 ft.
- 5) The maximum transmit power from any sector is 1778.77 Watts Effective Radiated Power (EIRP) assuming 8 channels per sector.
- 6) All the antennas are simultaneously transmitting and receiving, 24 hours a day.
- 7) 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.
- 8) The average ground level of the studied area does not change significantly 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 worst case assumptions, the power density calculation from the T-Mobile PCS antenna installation on a Monopole at 1441 Forbes Street, East Hartford, CT, is 0.05948 mW/cm<sup>2</sup>. This value represents 5.948% of the Maximum Permissible Emission (MPE) standard of 1 milliwatt per square centimeter (mW/cm<sup>2</sup>) set forth in the FCC/ANSI/IEEE C95.1-1991. Furthermore, the proposed antenna location for T-Mobile will not interfere with existing public safety communications, AM or FM radio broadcasts, TV, Police Communications, HAM Radio communications or any other signals in the area.

The combined Power Density from other carriers is 18.08%. The combined Power Density for the site is 24.028% of the M.P.E. standard.



# New England Market



Connecticut

## Worst Case Power Density

Site:	CT11186
Site Address:	1441 Forbes Street
Town:	East Hartford
Tower Height:	100 ft.
Tower Style:	Monopole
Base Station TX output	20 W
Number of channels	8
Antenna Model	EMS RR90-17-02DP
Cable Size	1 1/4 in.
Cable Length	100 ft.
Antenna Height	87.0 ft.
Ground Reflection	1.6
Frequency	1935.0 MHz
Jumper & Connector loss	4.50 dB
Antenna Gain	16.5 dBi
Cable Loss per foot	0.0154 dB
Total Cable Loss	1.5400 dB
Total Attenuation	6.0400 dB
Total EIRP per Channel	53.47 dBm
(In Watts)	222.35 W
Total EIRP per Sector	62.50 dBm
(In Watts)	1778.77 W
nsg	10.4600
<b>Power Density (S) =</b>	<b>0.059480 mW/cm<sup>2</sup></b>
<b>Voicestream Worst Case % MPE =</b>	<b>5.9480%</b>
Equation Used :	$S = \frac{(1000)(grf)^2 (Power) * 10^{(nsg/10)}}{4 \pi (R)^2}$

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

Co-Location Total	
Carrier	% of Standard
Verizon	9.9600 %
Cingular	
Sprint PCS	6.1500 %
AT&T Wireless	1.9700 %
Nextel	
<b>Total Excluding Voicestream</b>	<b>18.0800 %</b>
Voicestream	5.9480
<b>Total % MPE for Site</b>	<b>24.0280%</b>