



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@ct.gov

Internet: ct.gov/csc

Daniel F. Caruso
Chairman

March 11, 2009

Jennifer Young Gaudet
HPC Development LLC
53 Lake Avenue Ext.
Danbury, CT 06811

RE: **EM-T-MOBILE-043-090206** - Omnipoint Communications, a subsidiary of T-Mobile USA, Inc., notice of intent to modify an existing telecommunications facility located at 1441/1455 Forbes Street, East Hartford, Connecticut.

Dear Mrs. Gaudet:

The Connecticut Siting Council (Council) hereby acknowledges 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 February 5, 2009, including the placement of all necessary equipment and shelters within the tower compound. 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. Please be advised that the validity of this action shall expire one year from the date of this letter. 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,

S. Derek Phelps
Executive Director

SDP/MP/laf

c: The Honorable Melody A. Currey, Mayor, Town of East Hartford
Michael J. Dayton, Town Planner, Town of East Hartford
Crown Castle USA, Inc.



CONNECTICUT SITING COUNCIL

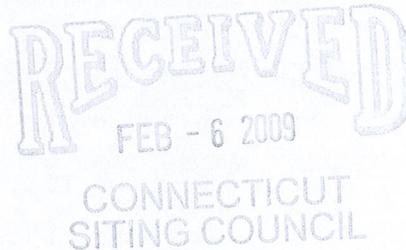
Affirmative Action / Equal Opportunity Employer



EM-T-MOBILE-043-090206

ORIGINAL

February 5, 2009



VIA OVERNIGHT DELIVERY

Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051
Attn: Mr. S. Derek Phelps, Executive Director

Re: Omnipoint Communications, Inc. – exempt modification
1441/1455 Forbes Street, East Hartford, Connecticut

Dear Mr. Phelps:

This letter and attachments are submitted on behalf of Omnipoint Communications, Inc. (also referred to herein as “T-Mobile”). T-Mobile is enhancing the capabilities of its wireless system in Connecticut by implementing UMTS technology. In order to do so, T-Mobile will modify antenna and equipment configurations at a number of its existing sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the Mayor of East Hartford.

T-Mobile plans to modify the existing facility at 1441/1455 Forbes Street, East Hartford (coordinates 41°43'55" N, -72°36'57" W). Attached are a compound plan and elevation depicting the planned changes, and documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration. Also included is a power density calculation reflecting the modification to T-Mobile’s operations at the site.

The changes to the facility do not constitute a modification as defined in Connecticut General Statutes (“C.G.S.”) Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. The height of the overall structure will be unaffected. Both T-Mobile’s existing and proposed antennas will be located at an approximate center line of 87’ AGL on the approximately 130’ tower. T-Mobile will remove its three existing panel antennas and replace them with two antennas per sector and six TMAs. The modifications will not extend the height of the tower.

2. The proposed changes will not extend the site boundaries. T-Mobile will install one additional cabinet and related appurtenances on a frame adjacent to its existing equipment pad within the site compound.
3. The proposed changes will not increase the noise level at the existing facility by six decibels or more. The incremental effect of the proposed changes will be negligible.
4. The changes to the facility will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site. As indicated on the attached power density calculation, T-Mobile's operations at the site will result in a power density of 15.2813%; the combined site operations will result in a total power density of 61.4413%.

Please feel free to call me at (860) 798-7454 with questions concerning this matter.
Thank you for your consideration.

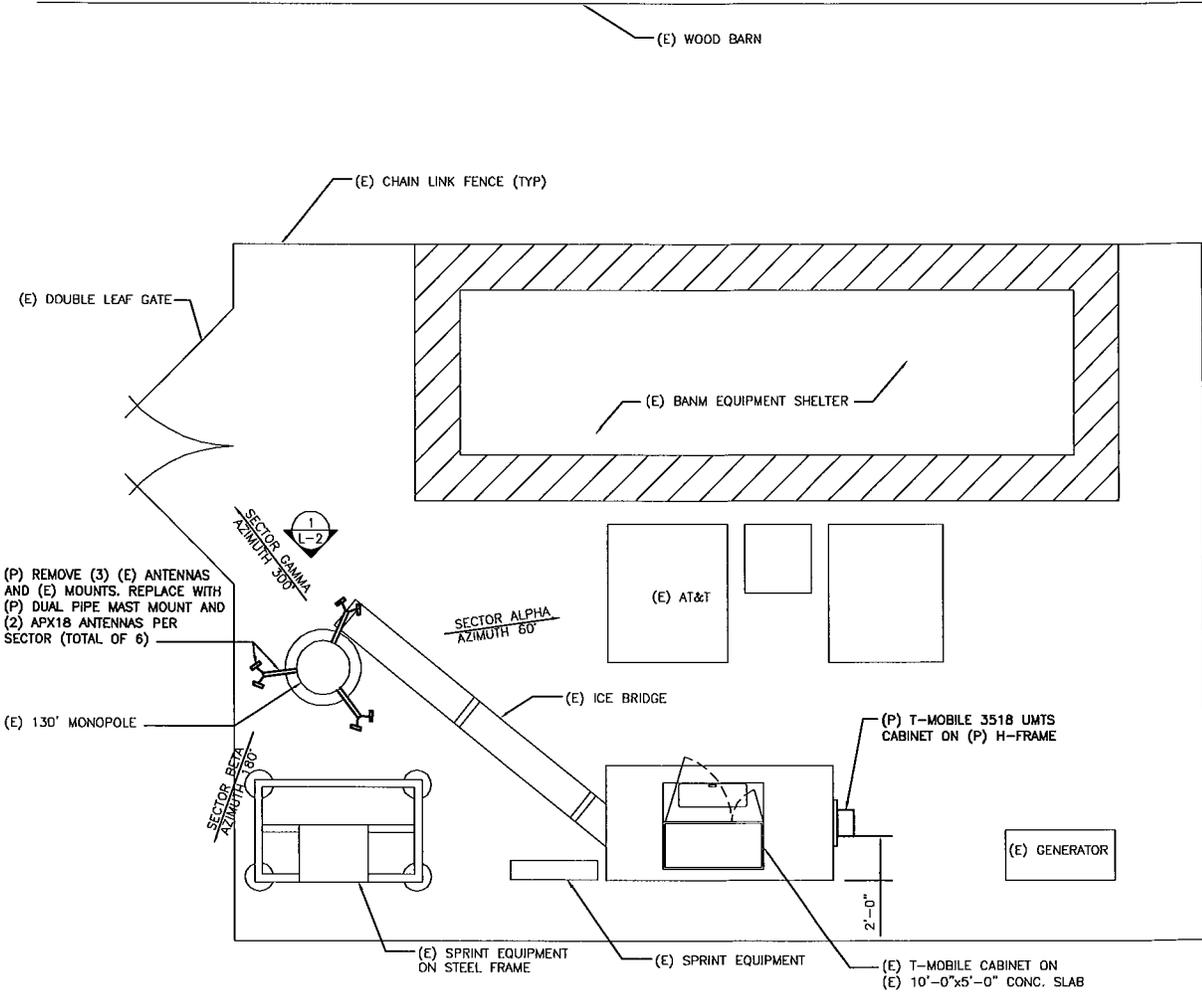
Respectfully yours,



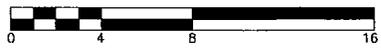
Jennifer Young Gaudet

cc: Honorable Melody A. Currey, Mayor, Town of East Hartford
Jessie K. Handel (underlying property owner)

Attachments



1 COMPOUND PLAN
L-1 SCALE: 1/8" = 1'-0"



CT11186A

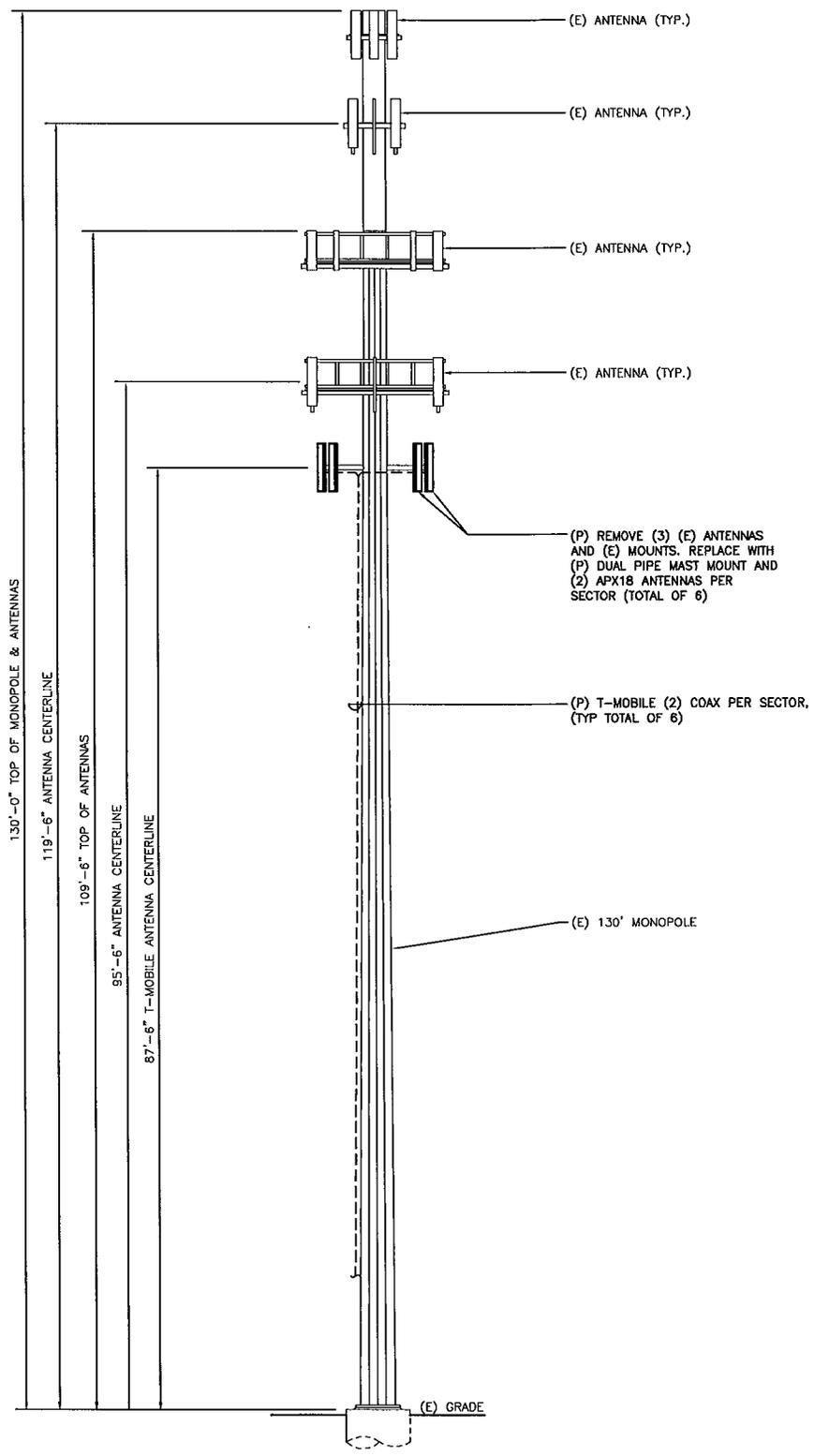
SITE ID NO:
38917323
Designed by:
MJE
Drawn by:
TPN
Checked by:
ICA
Approved by:

UNIS CORPORATION AES
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
1-(860)-529-8882

HPC DEVELOPMENT LLC
53 LAKE AVENUE EXT.
DANBURY, CONNECTICUT 06811
FOR
Omnipoint dba
T-Mobile USA
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CONNECTICUT 06002
SITE ADDRESS:
BANM MONOPOLE
1441 FORBES STREET
EAST HARTFORD, CONNECTICUT 06118

REV.	DATE:	DESCRIPTION
V2	12-04-08	FINAL
Scale: AS NOTED		Date: 12/01/08
Job No. HPC 013	File No. L-1	Dwg. 1 of 2

Dwg. No.
L-1



1 MONOPOLE ELEVATION
L-2 SCALE: 1" = 15'-0"



CT11186A

SITE ID NO:
38917323
Designed by:
MJE
Drawn by:
TPN
Checked by:
ICA
Approved by:

UNIS CORPORATION AES
500 ENTERPRISE DRIVE
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BANM MONOPOLE
1441 FORBES STREET
EAST HARTFORD, CONNECTICUT 06118

REV.	DATE	DESCRIPTION
V2	12-04-08	FINAL

Scale: AS NOTED Date: 12/01/08
Job No. HPC 013 File No. L-2

Dwg. No.
L-2
Dwg. 2 of 2

Date: January 02, 2009

Veronica Harris
Crown Castle USA Inc.
1200 McArthur Boulevard
Mahwah, NJ 07430



Tower Engineering Professionals
3703 Junction Boulevard
Raleigh, NC 27603
(919) 661-6351
mlackey@tepgroup.net

Subject: Structural Analysis Report

Carrier Designation: *T-Mobile Co-Locate*
Carrier Site Number: CT11186
Carrier Site Name: East Hartford/Hills_1

Crown Castle Designation:
Crown Castle BU Number: 806376
Crown Castle Site Name: HRT 100 943239
Crown Castle JDE Job Number: 113379
Crown Castle Work Order Number: 246461

Engineering Firm Designation: Tower Engineering Professionals Project Number: 083376

Site Data: 1455 Forbes Street, East Hartford, CT (Hartford County) 06118
Latitude 41° 43' 53.3", Longitude -72° 36' 28"
131 Foot - Monopole Tower

Dear Ms. Harris,

Tower Engineering Professionals is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 315542, in accordance with application 71567, revision 1.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC1: Existing + Reserved + Proposed Equipment

Sufficient Capacity

Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard based upon a wind speed of 80 mph fastest mile.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

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

Respectfully submitted by:

J. Russell Hill, P.E.

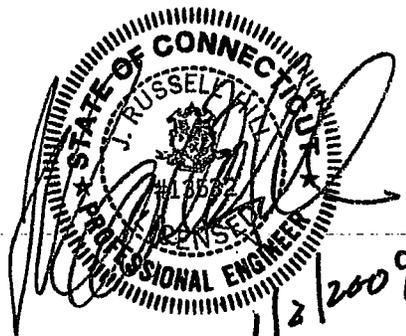


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1) INTRODUCTION

This tower is a 131 ft Monopole tower designed by Valmont in November of 1991. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F. The tower was originally a 110-ft monopole with a 21-ft extension added to make the overall tower height 131-ft.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 69.3 mph with 0.5 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
87	87	6	Andrew	E15S09P94 (TMA)	12	1-5/8	6
		6	Celwave	APX16DWV-16DWV-S-E-A20			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
128	128	3	Kathrein	742 213	6	1-5/8	2
118	120	3	Powerwave	7770.00	6	1-1/4	1
		6	Powerwave	LGP21401 (TMA)			
107	109	1	ADC	800/1900 FB (TMA)	-	-	2
		12	BAM MLA	BAM MLA ANTENNA	12	1-5/8	3,4
		6	Decibel	DB844G65ZAXY	12	1-5/8	1,4
		6	Decibel	DB948F85T2E-M			
97	97	-	-	-	9	1-5/8	3,5
		6	Decibel	DB980H90E-M	6	1-1/4	1,5
		3	Decibel	DB980H90E-M	3	1-5/8	2,5
87	87	3	EMS Wireless	RR90-17-02DP	6	1-1/4	1,6
		3	EMS Wireless	RR90-17-02DP	6	1-5/8	2

Notes:

- 1) Existing Equipment
- 2) Reserved Equipment
- 3) MLA/SLA Loading
- 4) MLA/SLA antennas used in place of existing antennas
- 5) MLA/SLA feed lines used in place of existing feed lines
- 6) Existing antennas, feed lines, and mounts to be replaced by proposed antennas, feed lines, and mounts

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
130	130	1	Unknown	Lightning Rod	-	-
129	129	1	Unknown	TA-2350-LCC-H	-	-
119	119	3	EMS Wireless	FR90-16-00DP	-	-
108	108	12	Allgon	7130.16	-	-
		1	Valmont	Platform w/ rail, 13.42'		
98	98	4	Allgon	7184.05	-	-
		2	Decibel	DB980H		
		1	Unknown	Platform w/ rail, 13.42'		
87	87	3	EMS Wireless	RR90-17-00NP	-	-
		3	Unknown	Antenna Mount Standoff		
12	12	1	Unknown	Std. MW Dish, 3' Dia.	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Report	Dr. Clarence Welti, P.E., P.C. Geotechnical Engineering, Project Name 1455 Forbes Street, dated November 11, 1991	262381	Crown Castle
Manufacturer Drawings/Design/Specs	Valmont Industries, dated November 12, 1991	262386	Crown Castle
Foundation Drawings/Design/Specs	Valmont Industries, Valmont no. 10613-91 and 10614-91, dated November 30, 1991	262389	Crown Castle
Previous Structural Analysis	Tower Engineering Professionals, Inc., TEP job no. 081217, dated June 11, 2008	2267304	Tower Engineering Professionals
Extension Drawings/Design/Specs	Valmont Industries, Valmont Order no. 10888-91, dated August 8, 2001	645113	Crown Castle

3.1) Analysis Method

RISATower (version 5.3.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.
- 5) This report is not a construction document.

This analysis may be affected if any assumptions are not valid or have been made in error. Tower Engineering Professionals should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	SF*P _{allow} (lb)	% Capacity	Pass / Fail
L1	131 - 110	Pole	TP15.525x10.525x0.1875	1	-884.75	481400.93	23.3	Pass
L2	110 - 70	Pole	TP25.531x15.525x0.25	2	-9878.62	1016123.20	84.0	Pass
L3	70 - 34.08	Pole	TP34.015x24.0304x0.313	3	-15368.70	1701361.15	89.0	Pass
L4	34.08 - 0	Pole	TP41.9x32.1584x0.344	4	-23525.50	2388562.61	88.0	Pass
							Summary	
						Pole (L3)	89.0	Pass
						Base Plate	83.3	Pass
						Rating =	89.0	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC1

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
	Anchor Rods	-	79.5	Pass
	Base Plate	-	83.3	Pass
1	Extension Flange	110	15.0	Pass
1	Extension Bolts	110	18.0	Pass
1	Base Foundation Soil Interaction	-	83.0	Pass

Structure Rating (max from all components) =	89.0%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.

4.1) Recommendations

None

Technical Memo

To: HPC
From: Farid Marbough - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CT11186A
Date: February 2, 2009

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 (1935-1944.8), (2140-2145), (2110-2120)MHz frequency Band.
- 2) The antenna array consists of three sectors, with 1 antennas per sector.
- 3) The model number for GSM antenna is APXV18-206516.
- 3) The model number for UMTS antenna is APXV18-206516.
- 4) GSM antenna center line height is 87 ft.
- 4) UMTS antenna center line height is 87 ft.
- 5) The maximum transmit power from any GSM sector is 2172.8 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
- 5) The maximum transmit power from any UMTS sector is 2397.12 Watts Effective Radiated Power (EiRP) assuming 2 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 0.15281 mW/cm². This value represents 15.281% of the Maximum Permissible Exposure (MPE) standard of 1 milliwatt per square centimeter (mW/cm²) 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 46.16%. The combined Power Density for the site is 61.441% of the M.P.E. standard.

Connecticut Market



Worst Case Power Density

Site: CT11186A
Site Address: 1441 Forbes Street
Town: East Hartford
Tower Height: 130 ft.
Tower Style: Monopole

GSM Data		UMTS Data	
Base Station TX output	20 W	Base Station TX output	40 W
Number of channels	8	Number of channels	2
Antenna Model	APXV18-206516	Antenna Model	APXV18-206516
Cable Size	1 1/4 in.	Cable Size	1 1/4 in.
Cable Length	115 ft.	Cable Length	115 ft.
Antenna Height	87.0 ft.	Antenna Height	87.0 ft.
Ground Reflection	1.6	Ground Reflection	1.6
Frequency	1945.0 MHz	Frequency	2.1 GHz
Jumper & Connector loss	4.50 dB	Jumper & Connector loss	1.50 dB
Antenna Gain	17.6 dBi	Antenna Gain	17.6 dBi
Cable Loss per foot	0.0154 dB	Cable Loss per foot	0.0116 dB
Total Cable Loss	1.7710 dB	Total Cable Loss	1.3340 dB
Total Attenuation	6.2710 dB	Total Attenuation	2.8340 dB
Total EIRP per Channel (In Watts)	54.34 dBm 271.60 W	Total EIRP per Channel (In Watts)	60.79 dBm 1198.56 W
Total EIRP per Sector (In Watts)	63.37 dBm 2172.80 W	Total EIRP per Sector (In Watts)	63.80 dBm 2397.12 W
nsg	11.3290	nsg	14.7660
Power Density (S) = 0.072656 mW/cm ²		Power Density (S) = 0.080157 mW/cm ²	
T-Mobile Worst Case % MPE =		15.2813%	

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	12.0000 %
Cingular	6.9200 %
Sprint	6.1500 %
AT&T Wireless	
Nextel	
MetroPCS	
Other Antenna Systems	21.0900 %
Total Excluding T-Mobile	46.1600 %
T-Mobile	15.2813
Total % MPE for Site	61.4413%