

Daniel F. Caruso
Chairman

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

February 13, 2009

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

RE: **EM-T-MOBILE-064-090113A** - Omnipoint Communications, as subsidiary of T-Mobile USA, Inc., notice of intent to modify an existing telecommunications facility located at 439-455 Homestead Avenue, 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 with the following conditions:

- The coax shall be configured per Appendix B of the structural analysis report dated January 5, 2009 and sealed by J. Russell Hill, P.E.
- The Council shall be notified in writing that the coax was installed as specified.

The proposed modifications are to be implemented as specified here and in your notice dated January 12, 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.

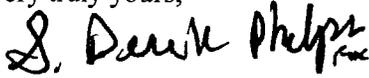
This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies 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.



CONNECTICUT SITING COUNCIL
Affirmative Action / Equal Opportunity Employer

Thank you for your attention and cooperation.

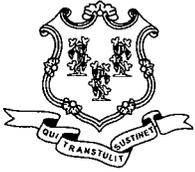
Very truly yours,

A handwritten signature in black ink that reads "S. Derek Phelps". The signature is written in a cursive style with a small "Inc" written below the name.

S. Derek Phelps
Executive Director

SDP/MP/laf

- c: The Honorable Eddie A. Perez, Mayor, City of Hartford
- Lee C. Erdmann, Chief Operating Officer, City of Hartford
- Roger J. O'Brien, Director of Planning, City of Hartford
- Crown Castle USA, Inc.



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January 16, 2009

The Honorable Eddie A. Perez
Mayor
City of Hartford
Municipal Building
550 Main Street
Hartford, CT 06103

RE: **EM-T-MOBILE-064-090113A** - Omnipoint Communications, as subsidiary of T-Mobile USA, Inc., notice of intent to modify an existing telecommunications facility located at 439-455 Homestead Avenue, Hartford, Connecticut.

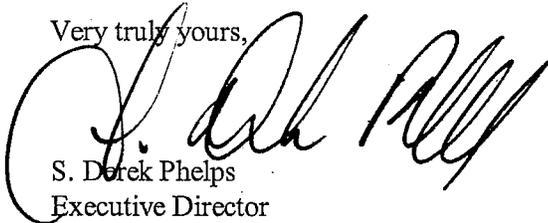
Dear Mayor Perez:

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.

If you have any questions or comments regarding this proposal, please call me or inform the Council by January 30, 2009.

Thank you for your cooperation and consideration.

Very truly yours,



S. Derek Phelps
Executive Director

SDP/jb

Enclosure: Notice of Intent

c: Roger J. O'Brien, Director of Planning, City of Hartford
Lee C. Erdmann, Chief Operating Officer, City of Hartford



EM-T-MOBILE-064-090113A

January 12, 2009

ORIGINAL

RECEIVED
JAN 13 2009

CONNECTICUT
SITING COUNCIL

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

Re: Omnipoint Communications, Inc. – exempt modification
439-455 Homestead Avenue, 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 Hartford.

T-Mobile plans to modify the existing facility at 439-455 Homestead Avenue, Hartford (coordinates 41°47'01” N, -72°42'18” 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 with an approximate center line of 124’ AGL on the 140’ tower. Eight of the nine existing antennas will be replaced; one will be removed. Existing TMAs also will be replaced. None of the modifications will extend the height of the tower.
2. The proposed changes will not extend the site boundaries. T-Mobile will add one cabinet to its existing concrete pad. Thus, there will be no effect on the site compound.

Mr. S. Derek Phelps
January 12, 2009
Page 2

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 7.5768%; the combined site operations will result in a total power density of 71.8068%.

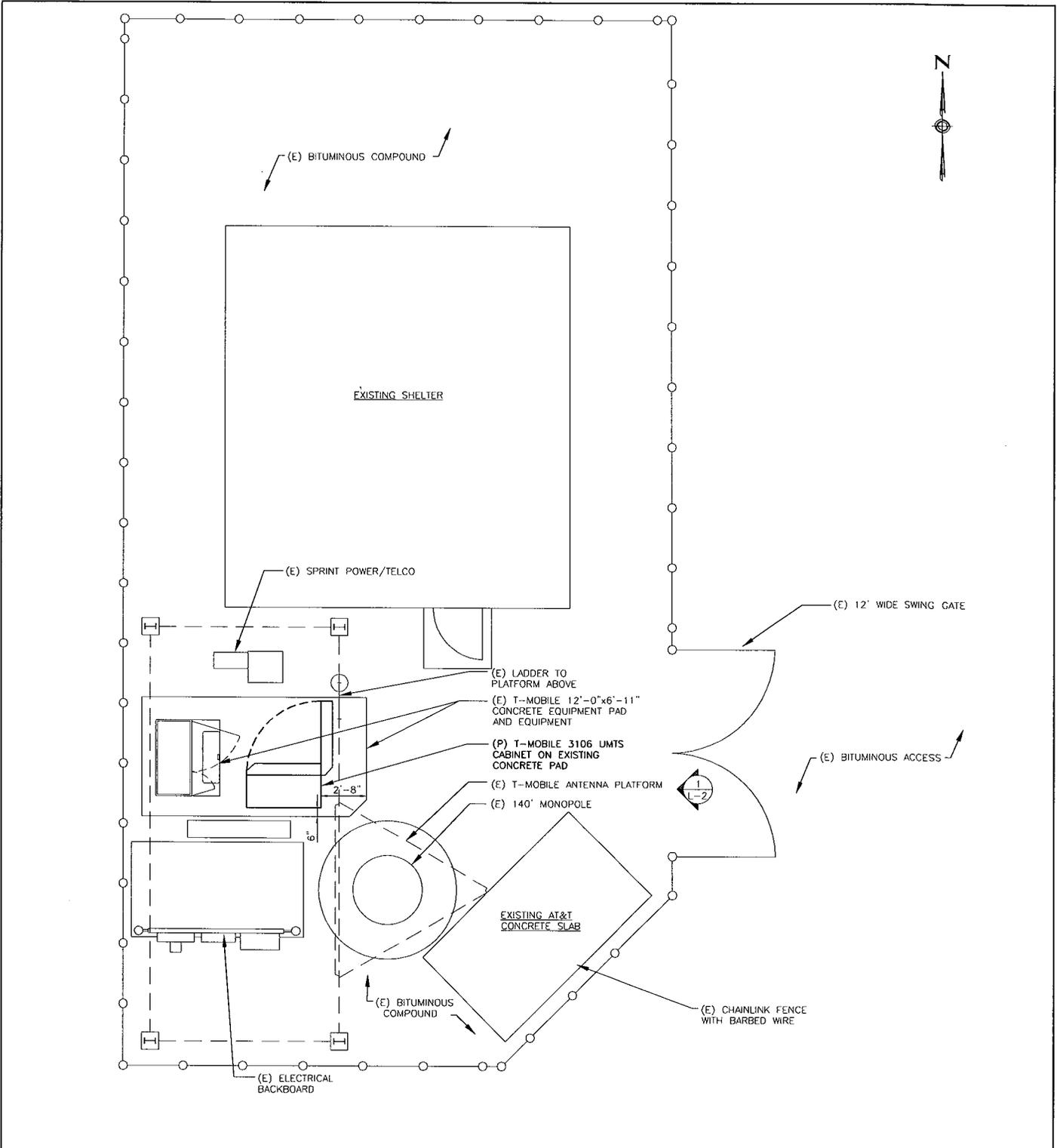
Please feel free to call me at (860) 798-7454 with questions concerning this matter.
Thank you for your consideration.

Respectfully yours,


Jennifer Young Gaudet

cc: Honorable Eddie Perez, Mayor, City of Hartford
Talar Properties LLC (underlying property owner)

Attachments



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



CT11161D

SITE ID NO:
36917318
 Designed by:
MJE
 Drawn by:
TPN
 Checked by:
ICA
 Approved by:

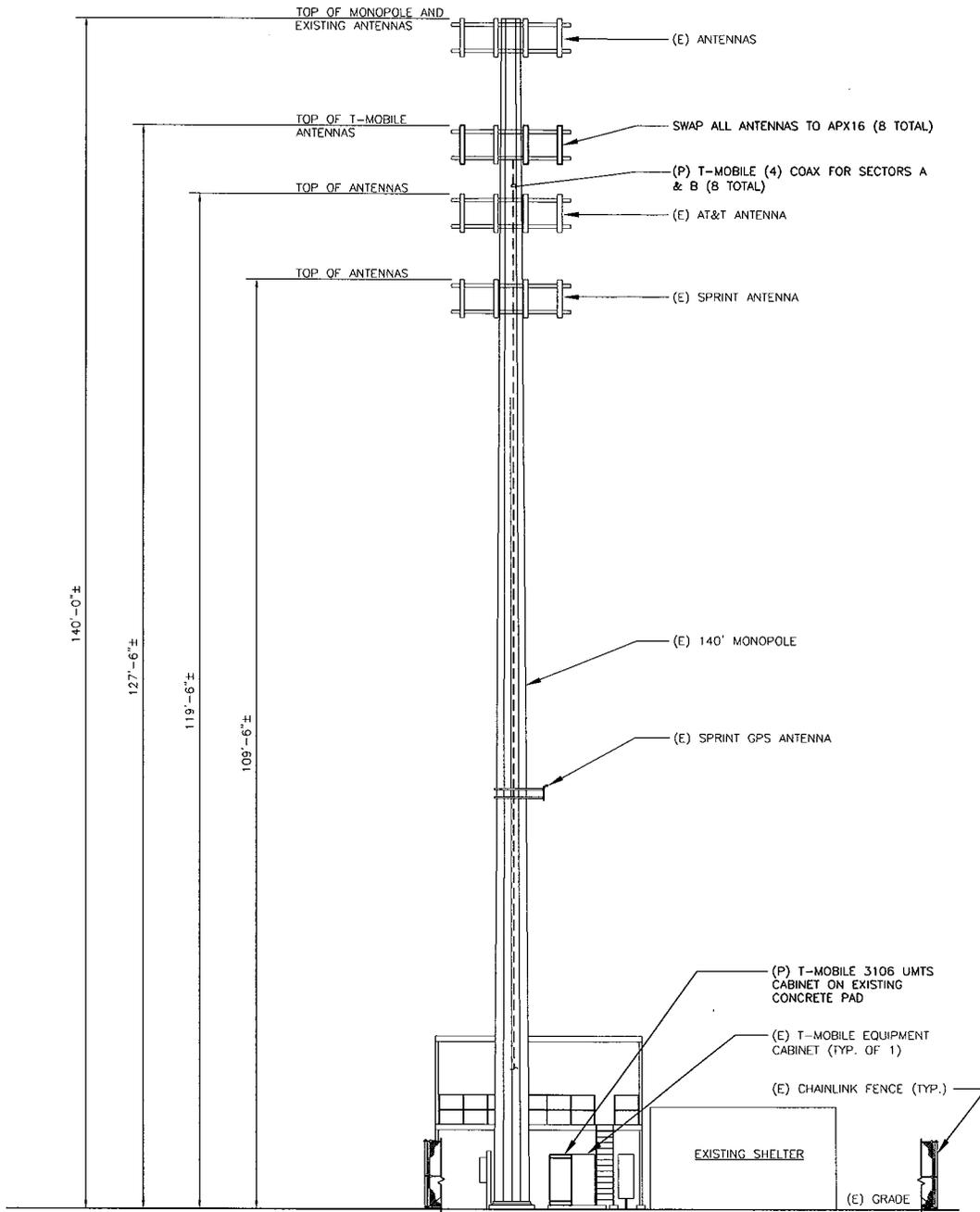
URS CORPORATION AES
 500 ENTERPRISE DRIVE
 ROCKY HILL, CONNECTICUT
 1-(860)-529-8882

HPC DEVELOPMENT LLC FOR T-Mobile
 53 LAKE AVENUE EXT. DANBURY, CONNECTICUT 06811 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CONNECTICUT 06002
 SITE ADDRESS:
CROWN MONOPOLE
 439 HOMESTEAD AVENUE
 HARTFORD, CONNECTICUT 06114

REV.	DATE:	DESCRIPTION

Scale: AS NOTED Date: 11/21/08
 Job No. HPC 008 File No. L-1

Dwg. No.
L-1
 Dwg. 1 of 2



1 ELEVATION
L-2 SCALE: 1" = 20'-0"



CT11161D

SITE ID NO:
36917318
Designed by:
MJE
Drawn by:
TPN
Checked by:
ICA
Approved by:

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

HPC DEVELOPMENT LLC FOR T-Mobile
53 LAKE AVENUE EXT. 35 GRIFFIN ROAD SOUTH
DANBURY, CONNECTICUT 06811 BLOOMFIELD, CONNECTICUT 06002
SITE ADDRESS:
CROWN MONOPOLE
439 HOMESTEAD AVENUE
HARTFORD, CONNECTICUT 06114

REV.	DATE:	DESCRIPTION

Scale: AS NOTED Date: 11/21/08
Job No. HPC 008 File No. L-2 Dwg. 2 of 2

Dwg. No.
L-2

Date: **January 5, 2009**

Marianne Leech
Crown Castle USA Inc.
3530 Toringdon Way, Suite 300
Charlotte, NC 28277



Tower Engineering Professionals, Inc.
3703 Junction Blvd.
Raleigh, NC 27603
(919) 661-6351
mnichols@tepgroup.net

Subject: Structural Analysis Report

Carrier Designation:	T-Mobile Co-Locate	
	Carrier Site Number:	CT11161
	Carrier Site Name:	CT161/Jn of Albany_1
Crown Castle Designation:	Crown Castle BU Number:	806369
	Crown Castle Site Name:	HRT 094 943225
	Crown Castle JDE Job Number:	113376
	Crown Castle Work Order Number:	246036
Engineering Firm Designation:	TEP Project Number:	083375
Site Data:	439-455 Homestead Avenue, Hartford, Hartford County, CT 06105	
	Latitude 41° 47' 1.61", Longitude -72° 42' 13.66"	
	140 Foot - Monopole Tower	

Dear Ms. Leech,

Tower Engineering Professionals, Inc. 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 315538, in accordance with application 71520, revision 0.

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 and 2006 International Building Code 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, Inc. 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:

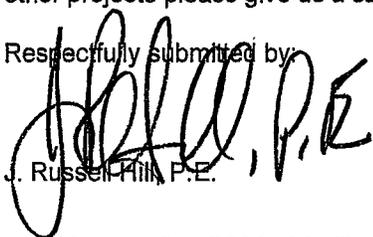

J. Russel Hill, P.E.



TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

- Table 1 - Proposed Antenna and Cable Information
- Table 2 - Existing and Reserved Antenna and Cable Information
- Table 3 - Design Antenna and Cable Information

3) ANALYSIS PROCEDURE

- Table 4 - Documents Provided
- 3.1) Analysis Method
- 3.2) Assumptions

4) ANALYSIS RESULTS

- Table 5 - Tower Component Stresses vs. Capacity
- Table 6 - Tower Component Stresses vs. Capacity - Foundation
- 4.1) Recommendations

5) APPENDIX A

- RISATower Output

6) APPENDIX B

- Base Level Drawing

7) APPENDIX C

- Additional Calculations

1) INTRODUCTION

This tower is a 140 ft Monopole tower.

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
124	127	8	Celwave	APX16DWW-16DWW-S-E-A20	6	1 5/8	-
		6	Siemens	DTMA GSM 1900 (TMA)			

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
137	141	6	Allgon	7130.16	12	7/8	1
		5	Decibel	948F85T4E-M			
		1	Decibel	DB948F85T2E-M			
137 MLA	141	12	BAM MLA	BAM MLA Antenna	12	1 5/8	4
124	127	9	EMS Wireless	RR90-17-02DP	18	1 5/8	1
124 SLA	127	9	EMS Wireless	DR90-17-02DP	-	-	3
117	119	6	Powerwave	7770.00	12	1 5/8	1
		12	Powerwave	LGP21401 (TMA)			
		3	Powerwave	7770.00			2
102	104	6	EMS Wireless	RV65-17-02DPL2	6	1 5/8	1
		3	EMS Wireless	RV65-17-02DPL2	3	1 5/8	2
102 SLA	104	9	EMS Wireless	FV65-17-00DP	-	-	4
94	94	3	Kathrein	742-213	6	1 5/8	2
74	80	1	Antel	BCD-87010	1	7/8	2
49	50	1	Lucent	KS24019-L112A	1	1/2	1

Notes:

- 1) Existing equipment
- 2) Reserved equipment
- 3) MLA loading was used in place of existing and proposed loading
- 4) SLA/MLA loading was used in place of existing loading

Table 3 - Design Antenna and Cable Information
 Unknown

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Steel and Antenna Mapping	Tower Engineering Professionals dated July 28, 2008, TEP # 081972	2294379	TEP
Foundation Mapping	Tower Engineering Professionals dated July 28, 2008, TEP # 081972	2294380	TEP
Geotechnical Report	Tower Engineering Professionals dated August 4, 2008, TEP # 081972.03	2294838	TEP
Previous Structural Analysis	Tower Engineering Professionals dated November 7, 2008, TEP # 083021	2342213	TEP

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, Inc. 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	140.12 - 88.36	Pole	TP39.19x26.12x0.31	1	-11732.90	1945366.79	39.7	Pass
L2	88.36 - 39.4	Pole	TP50.38x37.3529x0.42	2	-24495.00	3407134.53	54.3	Pass
L3	39.4 - 0	Pole	TP59.71x48.0406x0.5	3	-42220.50	4955827.19	56.6	Pass
							Summary	
						Pole (L3)	56.6	Pass
						Base Plate	68.7	Pass
						Rating =	68.7	Pass

Table 6 - Tower Component Stresses vs. Capacity - Foundation

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
5	Base Foundation (Soil Interaction)	-	47.5	Pass

Notes:

5) See Appendix C "Additional Calculations" for calculations supporting the % capacity listed

Structure Rating (max from all components) =	68.7%
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4.1) Recommendations

It should be noted that in order for the tower to pass in the current load scenario, the proposed and reserved coax must be configured as shown in Appendix B.

Technical Memo

To: HPC
From: Farid Marbough - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CT11161D
Date: January 8, 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 439 Homestead Avenue, 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 3 antennas per sector.
- 3) The model number for GSM antenna is APX16DWV-16DWV.
- 3) The model number for UMTS antenna is APX16DWV-16DWV.
- 4) GSM antenna center line height is 127 ft.
- 4) UMTS antenna center line height is 127 ft.
- 5) The maximum transmit power from any GSM sector is 2531.16 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
- 5) The maximum transmit power from any UMTS sector is 2525.17 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 439 Homestead Avenue, Hartford, CT, is 0.07577 mW/cm^2 . This value represents 7.577% of the Maximum Permissible Exposure (MPE) standard of 1 milliwatt per square centimeter (mW/cm^2) 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 64.23%. The combined Power Density for the site is 71.807% of the M.P.E. standard.

Connecticut Market



Worst Case Power Density

Site: CT11161D
Site Address: 439 Homestead Avenue
Town: Hartford
Tower Height: 140 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	APX16DWV-16DWV	Antenna Model	APX16DWV-16DWV
Cable Size	1 5/8 in.	Cable Size	1 5/8 in.
Cable Length	130 ft.	Cable Length	130 ft.
Antenna Height	127.0 ft.	Antenna Height	127.0 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	18.0 dBi	Antenna Gain	18.0 dBi
Cable Loss per foot	0.0116 dB	Cable Loss per foot	0.0116 dB
Total Cable Loss	1.5080 dB	Total Cable Loss	1.5080 dB
Total Attenuation	6.0080 dB	Total Attenuation	3.0080 dB
Total EIRP per Channel (In Watts)	55.00 dBm 316.40 W	Total EIRP per Channel (In Watts)	61.01 dBm 1262.58 W
Total EIRP per Sector (In Watts)	64.03 dBm 2531.16 W	Total EIRP per Sector (In Watts)	64.02 dBm 2525.17 W
nsg	11.9920	nsg	14.9920
Power Density (S) = 0.037929 mW/cm ²		Power Density (S) = 0.037839 mW/cm ²	
T-Mobile Worst Case % MPE =		7.5768%	

Equation Used :

$$S = \frac{(1000)(grf)^2 (Power)^{nsg}}{4\pi (R)^2}$$

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

Co-Location Total

Carrier	% of Standard
Verizon	7.2000 %
Cingular	27.0600 %
Sprint	22.2700 %
AT&T Wireless	
Nextel	
MetroPCS	
Other Antenna Systems	7.7000 %
Total Excluding T-Mobile	64.2300 %
T-Mobile	7.5768
Total % MPE for Site	71.8068%