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
www.ct.gov/csc

February 26, 2009

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

RE: **EM-T-MOBILE-077-090123B** - Omnipoint Communications (T-Mobile) notice of intent to modify an existing telecommunications facility located at 55 Slater Street, Manchester, 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 January 22, 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 Louis A. Spadaccini, Mayor, Town of Manchester
Scott A. Shanley, General Manager, Town of Manchester
James Davis, Zoning Enforcement Officer, Town of Manchester
Crown Castle USA, Inc.

HPC DEVELOPMENT LLC

ORIGINAL

January 22, 2009

Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 060..
Attn: Mr. S. Derek Phelps, Executive Director

EM-T-MOBILE-077-090123B

RECEIVED
JAN 23 2009
CONNECTICUT
SITING COUNCIL

Re: Omnipoint Communications, Inc. – exempt modification
55 Slater Street, Manchester, 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 Manchester.

T-Mobile plans to modify the existing facility at 55 Slater Street, Manchester (coordinates 41°48'18" N, -72°32'01" 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 133' on the 155' tower. T-Mobile's six existing antennas and three TMAs will be replaced, and three new TMAs will be added. None of the modifications will extend the height of the tower.

2. The proposed changes will not extend the site boundaries. T-Mobile will install one additional cabinet on the existing concrete pad. Thus, there will be no effect on 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 6.2472%; the combined site operations will result in a total power density of 26.0772%.

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

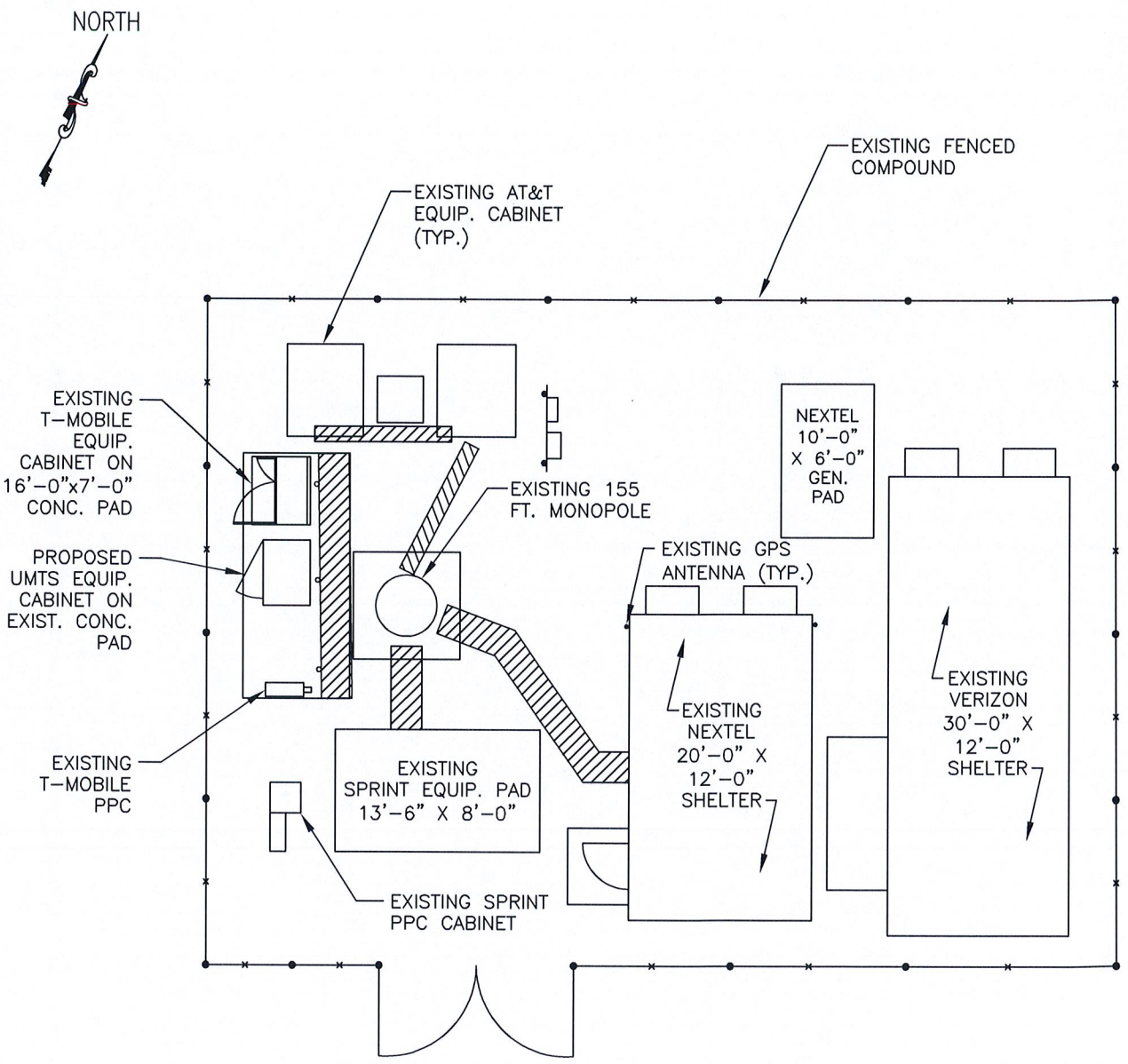
Respectfully yours,

Jennifer Young Gaudet

Jennifer Young Gaudet

cc: Honorable Louis A. Spadaccini, Mayor, Town of Manchester
Scott Shanley, General Manager, Town of Manchester
121 Connecticut Avenue Association

Attachments

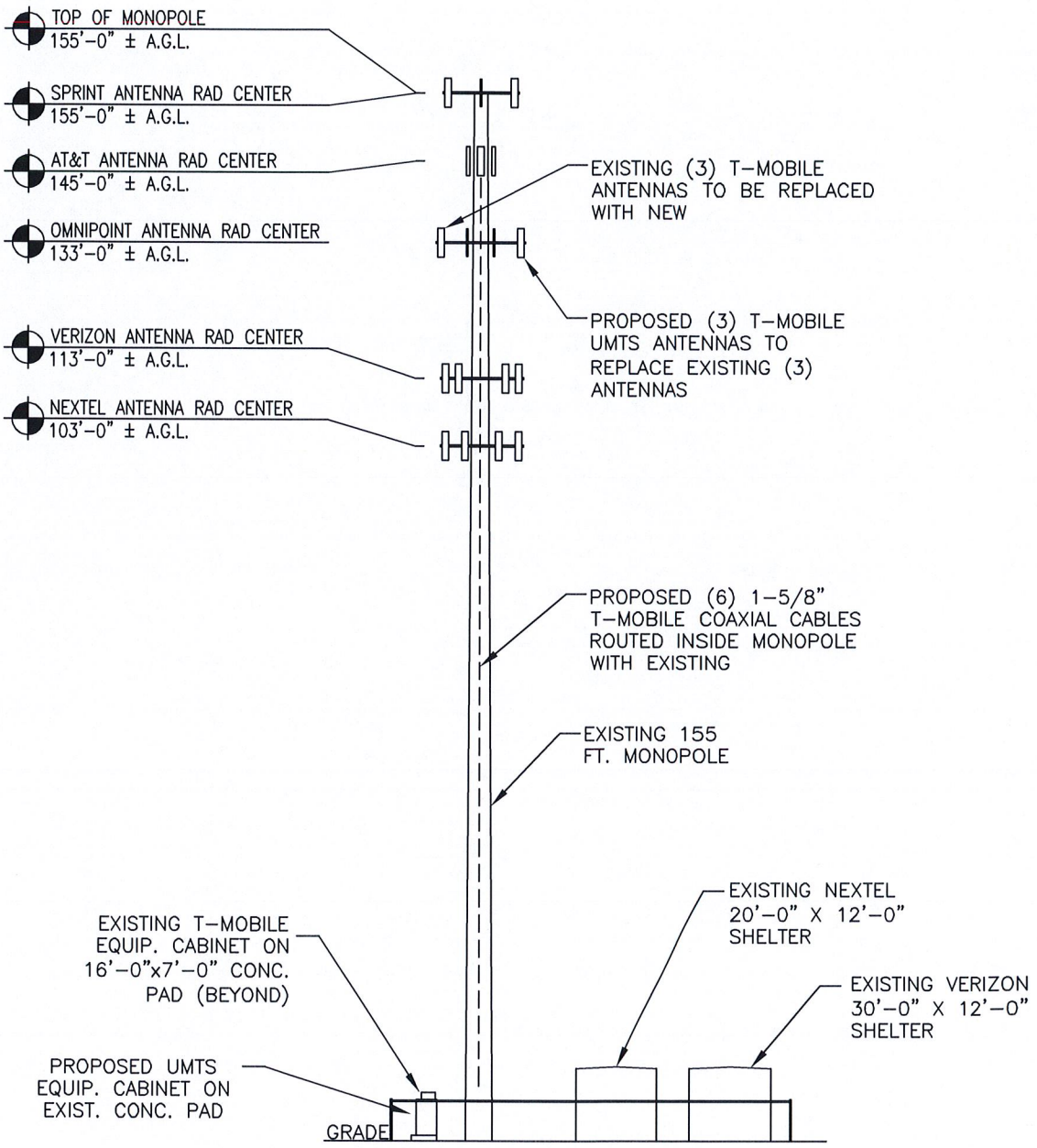


1 / LE-2

1 / LE-1 COMPOUND PLAN
SCALE: 3/32"=1'-0"

REFERENCE NOTE:
THIS PLAN/ELEVATION IS BASED ON DRAWINGS BY SPRINT SITES USA, DATED 5-20-05 AND A LIMITED FIELD INVESTIGATION BY ON AIR ENGINEERING, LLC ON 11-19-08 AND IS SUBJECT TO A CURRENT COMPOUND/ELEVATION SURVEY.

Approved By: OWNER/SAC: _____ DATE: _____ Approved By: CONSTRUCTION: _____ DATE: _____ Approved By: RF ENGINEER: _____ DATE: _____	Client: HPC DEVELOPMENT LLC / T-Mobile 35 GRIFFIN ROAD SOUTH, BLOOMFIELD, CT 06002				Project: CROWN CASTLE 876347 Address: 53 SLATER ST. MANCHESTER, CT 06040 Site ID: CT-11-377-B Project Name: UMTS	
On Air Engineering, LLC 88 FOUNDRY POND RD., COLD SPRING, NY 10516	P.M.:	Drawn: AG	Chkd. by: DW	Date: 11-21-08	Drawing Title: COMPOUND PLAN	Drawing No. LE-1



1 / LE-2 SOUTH ELEVATION
SCALE: 1"=25'-0"

REFERENCE NOTE:
THIS PLAN/ELEVATION IS BASED ON DRAWINGS BY SPRINT SITES USA, DATED 5-20-05 AND A LIMITED FIELD INVESTIGATION BY ON AIR ENGINEERING, LLC ON 11-19-08 AND IS SUBJECT TO A CURRENT COMPOUND/ELEVATION SURVEY.

Approved By: OWNER/SAC: _____ DATE: _____ Approved By: CONSTRUCTION: _____ DATE: _____ Approved By: RF ENGINEER: _____ DATE: _____	Client: HPC DEVELOPMENT LLC / T-Mobile 35 GRIFFIN ROAD SOUTH, BLOOMFIELD, CT 06002	Project: CROWN CASTLE 876347 Address: 53 SLATER ST. MANCHESTER, CT 06040 Site ID: CT-11-377-B Project Name: UMTS	
On Air Engineering, LLC 88 FOUNDRY POND RD., COLD SPRING, NY 10516	P.M.:	Drawn: AG / Chkd. by: DW / Date: 11-21-08	Drawing Title: SOUTH ELEVATION Drawing No. LE-2

Date: **January 12, 2009**

David Eicher
Crown Castle USA Inc.
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Crown Castle USA, Inc.
2000 Corporate Dr.
Canonsburg, PA 15317
724-416-2149

Subject: **Structural Analysis Report**

Carrier Designation:	***T-MOBILE* Co-Locate**	
	Carrier Site Number:	CT11377
	Carrier Site Name:	Sprint/Manchester/Slater
Crown Castle Designation:	**Crown Castle BU Number:**	876347
	Crown Castle Site Name:	BUCKLAND MALL
	Crown Castle JDE Job Number:	113492
	Crown Castle Work Order Number:	248416
Engineering Firm Designation:	**Crown Castle USA, Inc. Project Number:**	248416
Site Data:	**53 Slater Street, MANCHESTER, Hartford County, CT** **Latitude *41° 48' 43.9"*, Longitude *-72° 32' 3.2"*** **155 Foot - Monopole Tower**	

Dear David Eicher,

Crown Castle USA, 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 248416, in accordance with application 72073, 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 and local code requirements 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 *Crown Castle USA, 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:

Aaron C. Poot, P.E
Engineering Supervisor

1/12/09

1) INTRODUCTION

This tower is a 155 ft Monopole tower designed by SUMMIT in February of 2002. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F.

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
133	133	3	andrew	ETW190VS12UB	6	1-5/8	
		6	rfs celwave	APX16DWV-16DWV-S-E-A20 w/Mount Pipe			
		3	rfs celwave	ATMAA1412D-1A20			

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
155	155	9	MLA	MLA_ANTENNA w/ Mount Pipe	9	1-5/8	3
		6	ems wireless	RR90-18-00DP w/Mount Pipe	6	1-5/8	1
		1	tower mount	Platform Mount [LP 403-1]			
145	145	3	powerwave technologies	7770.00 w/ Mount Pipe	6	1-1/4	1
		6	powerwave technologies	LGP21401			
133	133	6	ems wireless	RR90-17-02DP w/Mount Pipe	12	1-5/8	5
		1	tower mount	Side Arm Mount [SO 202-3]			1
		1	tower mount	T-Arm Mount [TA 602-3]			
113	113	6	allgon	7144.24.05.50 w/Mount Pipe	6	1-5/8	1
		6	decibel	DB844H80-XY w/Mount Pipe	6	1-5/8	
		6	decibel	DB844H80-XY w/Mount Pipe			4
		1	tower mount	Platform Mount [LP 403-1]			1
103	103	3	kathrein	742 213 w/ Mount Pipe	6	1-5/8	2
		1	tower mount	Pipe Mount [PM 502-3]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
78	78	12	decibel	DB844G65ZAXY w/Mount Pipe	12	1-5/8	1
					3	1-5/8	2
		1	tower mount	Platform Mount [LP 304-1]			1
60	60	1	tower mount	Side Arm Mount [SO 201-1]	1	1/2	1
		1	trimble	ACUTIME 2000			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) MLA Equipment Controlling
4) SLA Equipment not used in this analysis
5) Equipment to be removed, feed lines to be reused for proposed equipment.

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)
155	155	9	Decibel	DB980H90		
145	145	6	Allgon	7250.03		
133	133	6	EMS	RR90-17-00DP PCS Panel		
50	50	1		GPS Antenna		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Clough, Harbour & Assoc. LLP, Project# 5835.07.78, 02/05/1998	1533476	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Summit Manufacturing Inc., Job# 29298-597, 09/11/1998	1615406	CCISITES
4-TOWER MANUFACTURER DRAWINGS	SEA Consultants Inc, SEA# 2002057.01-A, 02/18/2002	2068033	CCISITES

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.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle USA, 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 (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	155 - 115.5	Pole	TP29.3x22x0.25	1	-6.46	1079.79	39.1	Pass
L2	115.5 - 79.25	Pole	TP35.51x28.107x0.3125	2	-14.08	1772.00	60.7	Pass
L3	79.25 - 43.75	Pole	TP41.45x34.0522x0.375	3	-23.69	2481.54	72.5	Pass
L4	43.75 - 0	Pole	TP48.8x39.729x0.4375	4	-37.57	3491.31	77.0	Pass
							Summary	
						Pole (L4)	77.0	Pass
						Rating =	77.0	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC1

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	70.7	Pass
1	Base Plate	0	37.4	Pass
1	Base Foundation	0	78.5	Pass

Structure Rating (max from all components) =	78.5

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its base foundation have sufficient capacity to carry the existing, reserved and proposed loads. No modifications are needed at this time.

T-Mobile USA Inc.
35 Griffin Rd South, Bloomfield, CT 06002-1853
Phone: (860) 692-7100
Fax: (860) 692-7159

Technical Memo

To: HPC
From: Farid Marbouh - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CT11377C
Date: January 13, 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 55 Slater Street, Manchester, 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 2 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 133 ft.
4) UMTS antenna center line height is 133 ft.
5) The maximum transmit power from any GSM sector is 2299.11 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
5) The maximum transmit power from any UMTS sector is 2293.66 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 55 Slater Street, Manchester, CT, is 0.06247 mW/cm^2. This value represents 6.247% 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 19.83%. The combined Power Density for the site is 26.077% of the M.P.E. standard.

Connecticut Market

T-Mobile

Worst Case Power Density

Site:	**CT11377C**
Site Address:	**55 Slater Street**
Town:	**Manchester**
Tower Height:	**155 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	166 ft.	Cable Length	166 ft.
Antenna Height	133.0 ft.	Antenna Height	133.0 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	1.9256 dB	Total Cable Loss	1.9256 dB
Total Attenuation	6.4256 dB	Total Attenuation	3.4256 dB
Total EIRP per Channel	54.58 dBm	Total EIRP per Channel	60.59 dBm
(In Watts)	287.39 W	(In Watts)	1146.83 W
Total EIRP per Sector	63.62 dBm	Total EIRP per Sector	63.61 dBm
(In Watts)	2299.11 W	(In Watts)	2293.66 W
nsg	11.5744	nsg	14.5744
Power Density (S) =	0.031273 mW/cm^2	Power Density (S) =	0.031199 mW/cm^2

T-Mobile Worst Case % MPE = 6.2472%

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	8.6400 %
Cingular	5.7700 %
Sprint	1.6500 %
AT&T Wireless	
Nextel	3.7700 %
MetroPCS	
Other Antenna Systems	
Total Excluding T-Mobile	**19.8300 %**
T-Mobile	6.2472
Total % MPE for Site	**26.0772%**