

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

May 1, 2012

Jennifer Young Gaudet
HPC Wireless Services
46 Mill Plain Road, Floor 2
Danbury, CT 06811

RE: **EM-CING-064-120413** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 439-455 Homestead Avenue, Hartford, Connecticut.

Dear Ms. 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:

- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated April 12, 2012. 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. Thank you for your attention and cooperation.

Very truly yours,


Linda Roberts

Executive Director

LR/CDM/laf

c: The Honorable Pedro E. Segarra, Mayor, City of Hartford
David B. Panagore, Chief Operating Officer, City of Hartford
Roger J. O'Brien, Director of Planning, City of Hartford
Crown Castle USA, Inc.





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

April 17, 2012

The Honorable Pedro E. Segarra
Mayor
City of Hartford
Municipal Building
550 Main Street
Hartford, CT 06103

RE: **EM-CING-064-120413** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 439-455 Homestead Avenue, Hartford, Connecticut.

Dear Mayor Segarra:

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 May 1, 2012.

Thank you for your cooperation and consideration.

Very truly yours,

A handwritten signature in black ink that reads "Linda Roberts".

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: David B. Panagore, Chief Operating Officer, City of Hartford
Roger J. O'Brien, Director of Planning, City of Hartford

EM-CING-064-120413

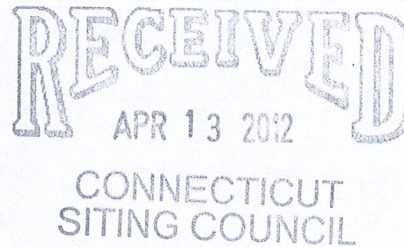
HPC Wireless Services
46 Mill Plain Rd.
Floor 2
Danbury, CT 06811
P.: 203.797.1112



ORIGINAL

April 12, 2012

VIA UPS



Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051
Attn: Ms. Linda Roberts, Executive Director

Re: New Cingular Wireless PCS, LLC – exempt modification
439-455 Homestead Ave., Hartford, Connecticut

Dear Ms. Roberts:

This letter and attachments are submitted on behalf of New Cingular Wireless PCS, LLC (“AT&T”). AT&T is making modifications to certain existing sites in its Connecticut system in order to implement LTE technology. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction that 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 the City of Hartford.

AT&T plans to modify the existing wireless communications facility located at 439-455 Homestead Avenue in the City of Hartford (coordinates 41-47-01.6 N, 72-42-13.63 W). The facility is owned by Crown Castle. Attached are a compound plan and elevation depicting the planned changes, and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration. Also included is a power density report reflecting the modification to AT&T’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).

Ms. Linda Roberts

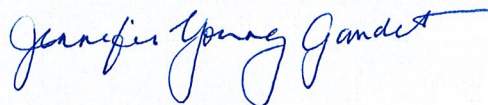
April 12, 2012

Page 2

1. AT&T will add three (3) antennas, six (6) RRHs (remote radio heads) and a surge arrester to its existing platform; the antennas and RRHs will be installed with a 117' centerline. AT&T will also place a DC power and fiber run from the equipment up the tower along the existing coaxial cable run. The proposed modifications will not extend the height of the 140' monopole.
2. The proposed changes will not extend the site boundaries. AT&T will install one additional cabinet on an H-frame adjacent to its existing concrete pad and will add a GPS antenna to the existing ice bridge. These changes will be within the existing compound and will have no effect on the site boundaries.
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 report prepared by C Squared Systems, LLC, AT&T's operations at the site will result in a power density of 27.06%; the combined site operations will result in a total power density of 55.25%

Please feel free to contact me by phone at (860) 798-7454 or by e-mail at jgaudet@hpcwireless.com with questions concerning this matter. Thank you for your consideration.

Respectfully yours,



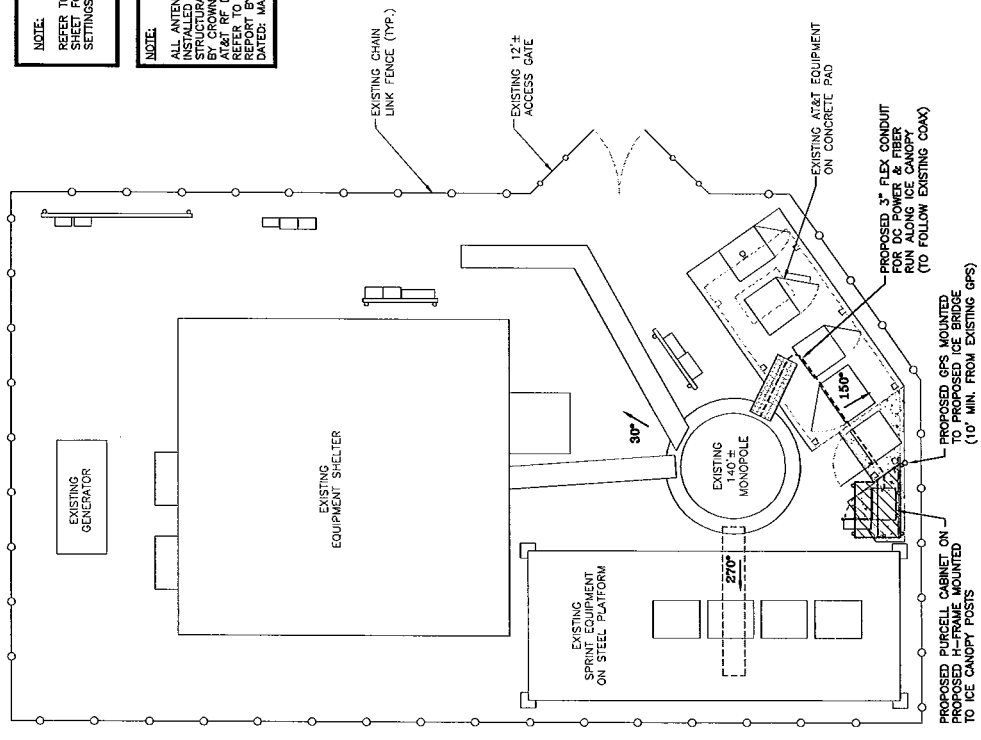
Jennifer Young Gaudet

cc: Honorable Pedro Segarra, Mayor City of Hartford
Hudson Associates (underlying property owner)

Attachments

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

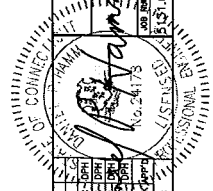
NOTE:
ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL DATA SHEET. THESE ARE SUBJECT TO STRUCTURAL ANALYSIS REPORT BY: CROWN CASTLE, DATED: MARCH 20, 2012.



COMPOUND PLAN
SCALE: 1/4"=1'-0"
0 2'-0" 4'-0" 8'-0" 12'-0"

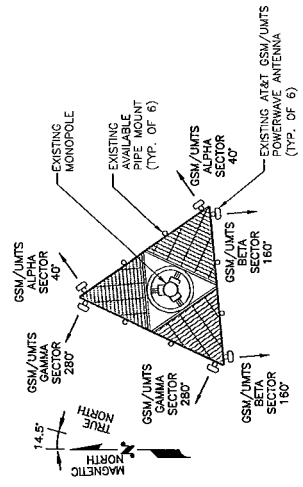


<p>500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 08687</p>		<p>SITE NUMBER: CT5131 SITE NAME: AVE - NW HARTFORD CROWN CASTLE ID: 806369 439-455 HOMESTEAD AVENUE HARTFORD, CT 06112 HARTFORD COUNTY</p>		<p>A Unitak GLOBAL SERVICES company 800 MARSHALL PHELPS ROAD UNIT# 2A WINDSOR, CT 06095</p>		<p>1400 CROCKETT WINDSOR, MA 01095 TEL: 413-533-5555</p>			
NO. DATE	BY	REVISIONS	DESIGNED BY:	DC	SCALE:	NOT SHOWN	DRAWN BY:	HC	
3	04/05/12	REVISED PER CROWN'S COMMENTS	DC	DCB					
2	03/28/12	CONSTRUCTION REVISED	DC	DCB					
1	07/24/12	ISSUED FOR CONSTRUCTION	DC	DCB					
0	07/04/12	ISSUED FOR REVIEW	DC	DCB					
JOB NUMBER: 10-24175		DRAWN BY: DC		DESIGNED BY: DC		SCALE: NOT SHOWN		JOB NUMBER: 10-24175	
AT&T		COMPOUND		(LTC)		DRAWING NUMBER:		A-1	
								3	

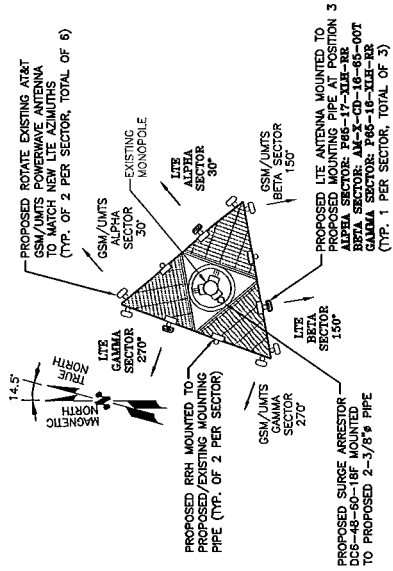


NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

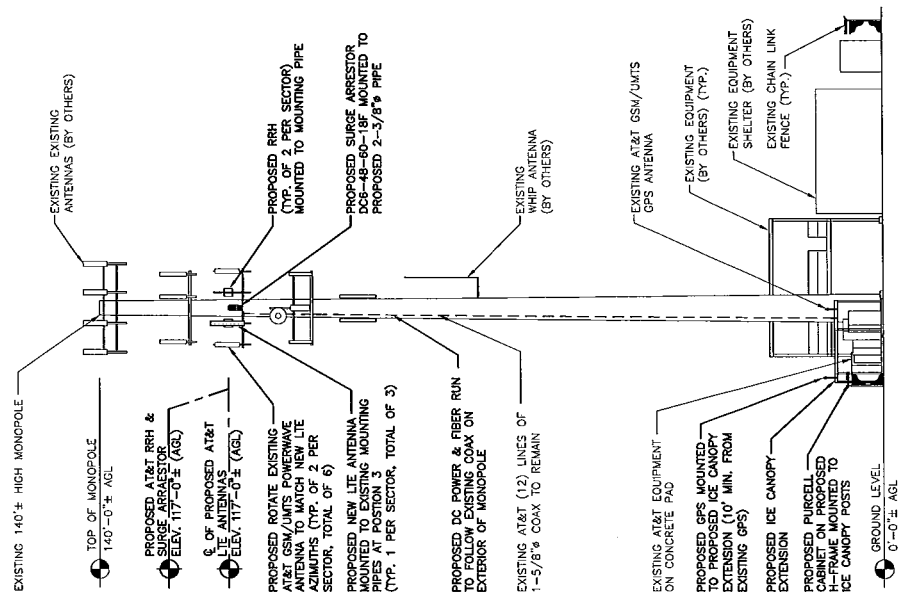
NOTE:
ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH THE CROWN CASTLE SITE PROVIDED BY CROWN CASTLE. SEE FINAL AT&T RF DATA SHEET. REFER TO STRUCTURAL ANALYSIS REPORT BY: CROWN CASTLE, DATED: MARCH 20, 2012.



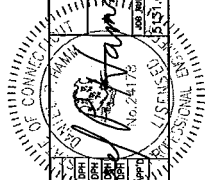
EXISTING GSM/UMTS ANTENNA PLAN
SCALE: N.T.S.



PROPOSED LTE ANTENNA PLAN
SCALE: N.T.S.



SOUTHEAST ELEVATION
SCALE: 1/16\"/>



500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

SITE NUMBER: CT5131
SITE NAME: AVE - NW HARTFORD CROWN CASTLE ID: 806369
439-455 HOMESTEAD AVENUE
HARTFORD, CT 06112
HARTFORD COUNTY

NEWLINK
A Unit of GLOBAL SERVICES company
800 MARSHALL PHELPS ROAD UNIT# 2A
WINDSOR, CT 06095

Hudson Design Group
1455 SPOCK STREET
WINDSOR, CT 06095
TEL: 860.339.5588
WWW.HUDSONDESIGN.COM

NO.	DATE	REVISIONS	BY	CHKD	APPD	DESIGNED BY:	DC	DRAWN BY:	HC	SCALE:	NOT SHOWN
3	04/05/12	REVISED PER CROWN COMMENTS	DC	HRH							
2	03/26/12	CONSTRUCTION REVISED	DC	HRH							
1	07/24/12	ISSUED FOR CONSTRUCTION	DC	HRH							
0	07/24/12	ISSUED FOR REVIEW	DC	HRH							

DATE: 04/05/12
JOB NUMBER: 120101
DRAWING NUMBER: A-3
SHEET: 3

Date: March 20, 2012

Cheryl Schultz
Crown Castle
3530 Torringdon Way, Suite 300
Charlotte, NC 28277



Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
(724) 416-2000

Subject: Structural Analysis Report

Carrier Designation: AT&T Mobility Co-Locate
Carrier Site Number: CT5131
Carrier Site Name: AWE-NW HARTFORD

Crown Castle Designation: **Crown Castle BU Number:** 806369
Crown Castle Site Name: HRT 094 943225
Crown Castle JDE Job Number: 180774
Crown Castle Work Order Number: 475187
Crown Castle Application Number: 141082 Rev. 1

Engineering Firm Designation: **Crown Castle Project Number:** 475187

Site Data: 439-455 HOMESTEAD AVE, HARTFORD, Hartford County, CT
Latitude 41° 47' 1.61", Longitude -72° 42' 13.66"
140 Foot - Monopole Tower

Dear Cheryl Schultz,

Crown Castle 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 475187, in accordance with application 141082, 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:

LC5: Existing + Proposed Equipment

Sufficient Capacity

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

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

Structural analysis prepared by: Tyler Stevens, EIT / GS
Respectfully submitted by:

Douglas K. Pineo, P.E.
Manager Structural Design



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 - Section Capacity (Summary)

Table 6 - Tower Components vs. Capacity

4.1) Recommendations

5) APPENDIX A

tnxTower Output

6) APPENDIX B

Base Level Drawing

7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 140 ft Monopole tower designed by VALMONT in August of 1999. The tower was originally designed for a wind speed of 125 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, 37.6 mph with 1 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
115.0	117.0	1	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe	2	3/4 3/8	
		2	powerwave technologies	P65-17-XLH-RR w/ Mount Pipe			
		1	raycap	DC6-48-60-18-8F			
113.0	115.0	6	ericsson	RRUS-11			
	113.0	1	tower mounts	Side Arm Mount [SO 702-3]			

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
140.0	140.0	3	antel	BXA-185090/8CF w/ Mount Pipe	12	7/8	1
		3	antel	BXA-70063/6CF w/ Mount Pipe			
		2	antel	LPA-80063/4CF w/ Mount Pipe			
		4	antel	LPA-80080/4CF w/ Mount Pipe			
		6	rfs celwave	FD9R6004/1C-3L			
		1	tower mounts	Platform Mount (LP 101-1)			
126.0	128.0	8	rfs celwave	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	24	1-5/8	1
		6	siemens	DTMA GSM 1900			
	126.0	1	tower mounts	Platform Mount [LP 1001-1]			
115.0	117.0	6	powerwave technologies	7770.00 w/ Mount Pipe	12	1-5/8	1
	115.0	1	tower mounts	Platform Mount [LP 712-1]			
		12	powerwave technologies	LGP21401			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
102.0	108.0	1	andrew	VHLP2-180	6 3 3 3	1-5/8 1/2 5/16 1/4	1
		1	andrew	VHLP2.5-11			
		2	dragonwave	HORIZON COMPACT			
	104.0	3	argus technologies	LLPX310R-V1 w/ Mount Pipe			
		6	decibel	950F40T4E-M w/ Mount Pipe			
		3	samsung telecommunications	WIMAX DAP HEAD			
102.0	1	tower mounts	Platform Mount [LP 602-1]				
94.0	94.0	3	kathrein	742 213 w/ Mount Pipe	6	1-5/8	1
		1	tower mounts	Side Arm Mount [SO 102-3]			
74.0	80.0	1	antel	BCD-87010	1	7/8	1
	74.0	1	tower mounts	Side Arm Mount [SO 701-1]			
40.0	41.0	1	lucent	KS24019-L112A	1	1/2	1
	40.0	1	tower mounts	Side Arm Mount [SO 701-1]			

Notes:
 1) Existing 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)
137	137	12	swedcom	ALP 9212-N	-	-
124	124	6	rfs celwave	APN199015	-	-
114	114	9	allgon	7184.15	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	TEP	2294838	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	TEP (mapping)	2294380	CCISITES
4-TOWER MANUFACTURER DRAWINGS	TEP (mapping)	2294379	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	Valmont	823121	CCISITES

3.1) Analysis Method

tnxTower (version 6.0.4.0), 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) The existing base plate grout was not considered in this analysis.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle 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	140 - 86.8333	Pole	TP39.223x26.216x0.3125	1	-15.91	1950.17	45.9	Pass
L2	86.8333 - 39	Pole	TP50.56x36.967x0.4063	2	-28.61	3292.00	65.2	Pass
L3	39 - 0	Pole	TP59.05x48.0016x0.5	3	-46.69	4900.57	66.8	Pass
							Summary	
						Pole (L3)	66.8	Pass
						Rating =	66.8	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	71.6	Pass
1	Base Plate	0	33.4	Pass
1	Base Foundation	0	51.5	Pass

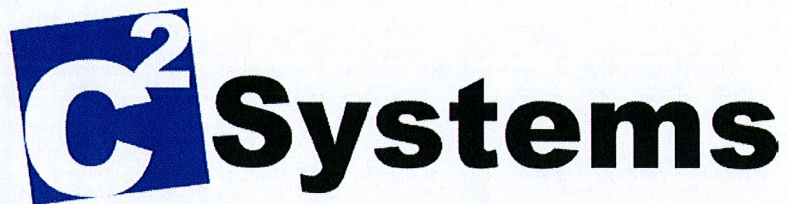
Structure Rating (max from all components) =	71.6%
---	--------------

Notes:

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

4.1) Recommendations

The tower and its base and anchor foundations have sufficient capacity to carry the existing and proposed loads. No modifications are required at this time.



C Squared Systems, LLC
65 Dartmouth Drive, Unit A3
Auburn, NH 03032
(603) 644-2800
support@csquaredsystems.com

Calculated Radio Frequency Emissions



CT5131

(AWE - NW Hartford)

439-455 Homestead Ave, Hartford, CT 06112

April 9, 2012

Table of Contents

1. Introduction.....	1
2. FCC Guidelines for Evaluating RF Radiation Exposure Limits.....	1
3. RF Exposure Prediction Methods	2
4. Calculation Results	3
5. Conclusion	4
6. Statement of Certification.....	4
Attachment A: References	5
Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)	6
Attachment C: AT&T Antenna Data Sheets and Electrical Patterns.....	8

List of Tables

Table 1: Carrier Information.....	3
Table 2: FCC Limits for Maximum Permissible Exposure (MPE)	6

List of Figures

Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE).....	7
---	---

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing AT&T antenna arrays mounted on the monopole tower located at 439-455 Homestead Ave in Hartford, CT. The coordinates of the tower are 41-47-1.61 N, 72-42-13.66 W.

AT&T is proposing the following modifications:

- 1) Install three 700 MHz LTE antennas (one per sector).

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{1.6^2 \times EIRP}{4\pi \times R^2} \right) \times \text{Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

$$R = \text{Radial Distance} = \sqrt{(H^2 + V^2)}$$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the finished modifications.

4. Calculation Results

Table 1 below outlines the power density information for the site. Because the proposed AT&T antennas are directional in nature, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm ²)	Limit	%MPE
<i>Cingular UMTS</i>	117	1945	1	500	0.0131	1.0000	1.31%
<i>Cingular</i>	117	880	20	250	0.1313	0.5867	22.39%
<i>Cingular</i>	117	1945	3	427	0.0336	1.0000	3.36%
Sprint	104	1962.5	11	609	0.2227	1.0000	22.27%
Clearwire	104	2496	2	153	0.0102	1.0000	1.02%
Clearwire	108	11000	1	211	0.0065	1.0000	0.65%
Sensus (CL&P)	74	940.1125	1	200	0.0131	0.6267	2.10%
Pocket	94	2130	3	631	0.0770	1.0000	7.70%
T-Mobile GSM	127	1945	8	193	0.0344	1.0000	3.44%
T-Mobile UMTS	127	2100	2	770	0.0343	1.0000	3.43%
Verizon	137	869	9	269	0.0464	0.5793	8.01%
Verizon	137	1970	3	325	0.0187	1.0000	1.87%
Verizon	137	757	1	626	0.0120	0.5047	2.38%
AT&T UMTS	120	880	2	565	0.0282	0.5867	0.48%
AT&T UMTS	120	1900	2	875	0.0437	1.0000	0.44%
AT&T LTE	120	734	1	1615	0.0403	0.4893	0.82%
AT&T GSM	120	880	1	283	0.0071	0.5867	0.12%
AT&T GSM	120	1900	4	525	0.0524	1.0000	0.52%
						Total	55.25%

Table 1: Carrier Information¹²

¹ The existing CSC filing for Cingular should be removed and replaced with the updated AT&T technologies and values provided in Table 1. The power density information for carriers other than AT&T was taken directly from the CSC database dated 1/10/2012.

² In the case where antenna models are not uniform across all 3 sectors for the same frequency band, the antenna model with the highest gain was used for the calculations to present a worse-case scenario.

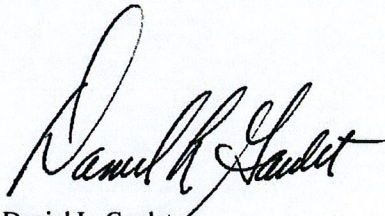
5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed transmit antennas at the existing facility is below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **55.25% of the FCC limit**.

As noted previously, obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the finished modifications.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.

A handwritten signature in black ink, appearing to read 'Daniel L. Goulet'.

Daniel L. Goulet
C Squared Systems, LLC

April 9, 2012

Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz. IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave. IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure³

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure⁴

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

³ Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure

⁴ General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure

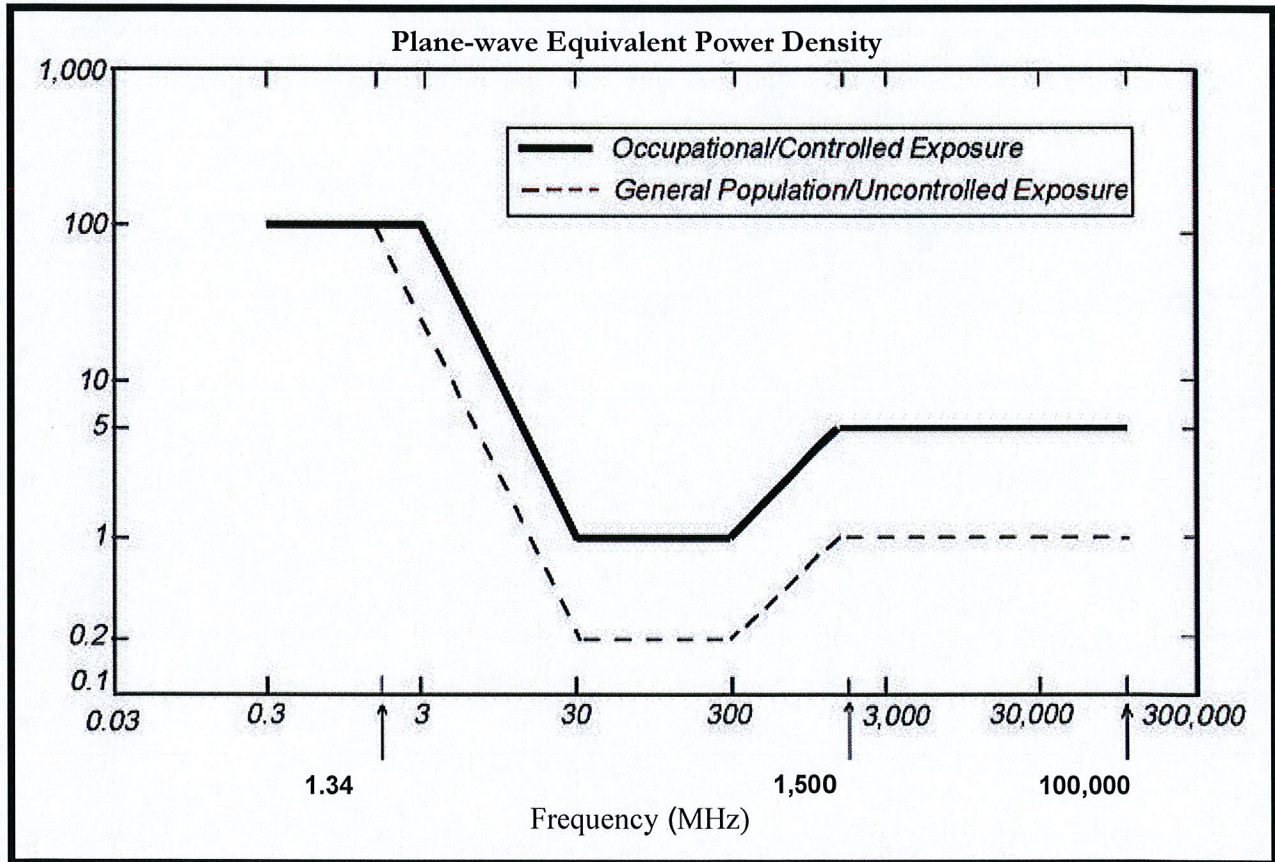
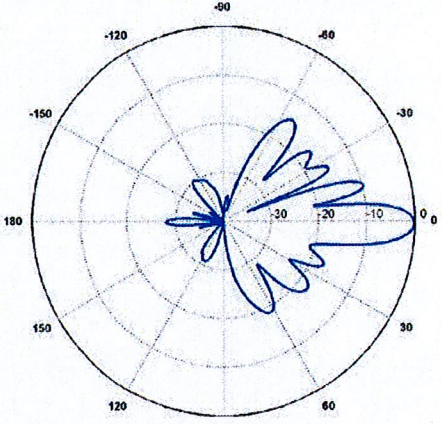
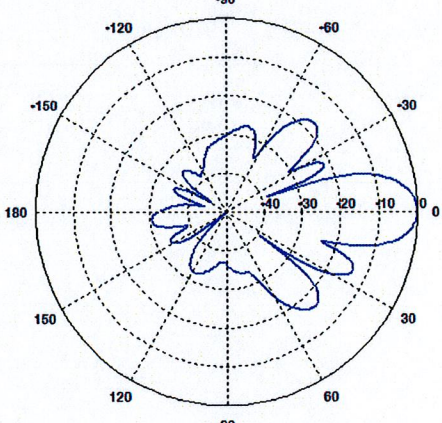


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: AT&T Antenna Data Sheets and Electrical Patterns

<p>700 MHz</p> <p>Manufacturer: Powerwave Model #: P65-17-XLH-RR Frequency Band: 698-806 MHz Gain: 14.3 dBd Vertical Beamwidth: 8.4° Horizontal Beamwidth: 70° Polarization: Dual Linear ± 45° Size L x W x D: 96.0" x 12.0" x 6.0"</p>	
<p>850 MHz</p> <p>Manufacturer: Powerwave Model #: 7770.00 Frequency Band: 824-896 MHz Gain: 11.4 dBd Vertical Beamwidth: 15° Horizontal Beamwidth: 85° Polarization: Dual Linear ±45° Size L x W x D: 55.4" x 11.0" x 5.0"</p>	
<p>1900 MHz</p> <p>Manufacturer: Powerwave Model #: 7770.00 Frequency Band: 1850-1990 MHz Gain: 13.4 dBd Vertical Beamwidth: 7° Horizontal Beamwidth: 90° Polarization: Dual Linear ±45° Size L x W x D: 55.4" x 11.0" x 5.0"</p>	