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

July 27, 2012

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

RE: **EM-CING-077-120713** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 53 Slater Street, Manchester, 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 July 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/cm

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

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

July 13, 2012

The Honorable Louis A. Spadaccini
Mayor
Town of Manchester
Town Hall
41 Center Street
P. O. Box 191
Manchester, CT 06040-0191

RE: **EM-CING-077-120713** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 53 Slater Street, Manchester, Connecticut.

Dear Mayor Spadaccini:

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 July 27, 2012.

Thank you for your cooperation and consideration.

Very truly yours,

LRoberts

Linda Roberts
Executive Director

LR/cm

Enclosure: Notice of Intent

c: Scott A. Shanley, General Manager, Town of Manchester
James Davis, Zoning Enforcement Officer, Town of Manchester

EM-CING-077-120713

ORIGINAL

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

HPC WIRELESS SERVICES

July 12, 2012

VIA OVERNIGHT COURIER

RECEIVED
JUL 13 2012
CONNECTICUT
SITING COUNCIL

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

Re: New Cingular Wireless PCS, LLC – exempt modification
53 Slater Street, Manchester, 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 Section 16-50j-73 of the Regulations of Connecticut State Agencies ("R.S.C.A."), 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 Town of Manchester.

AT&T plans to modify the existing wireless communications facility owned by Crown Castle and located at 53 Slater Street, Manchester (coordinates 41°-48'-18" N, 72°-32'-1" W). 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).

1. AT&T will add three (3) LTE panel antennas to the existing platform at a center line of approximately 145', and relocate the (3) existing GMS/UMTS at the same height for a total of six (6) antennas. Six (6) RRUs (remote radio units) and a surge arrestor will

be mounted to the tower at approximately the same height. AT&T will also place a DC power and fiber run from the equipment to the antennas along the existing coaxial cable run. The changes will not extend the height of the approximately 155' structure.

2. AT&T will replace one (1) cabinet and add one (1) new cabinet, which will be mounted onto the existing Purcell Cabinet, all on the existing concrete pad. A new GPS antenna will be mounted to the new cabinet. 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 (6) 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 approximately 1.68%; the combined site operations will result in a total power density of approximately 48.75%.

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

Jennifer Young Gaudet

Attachments

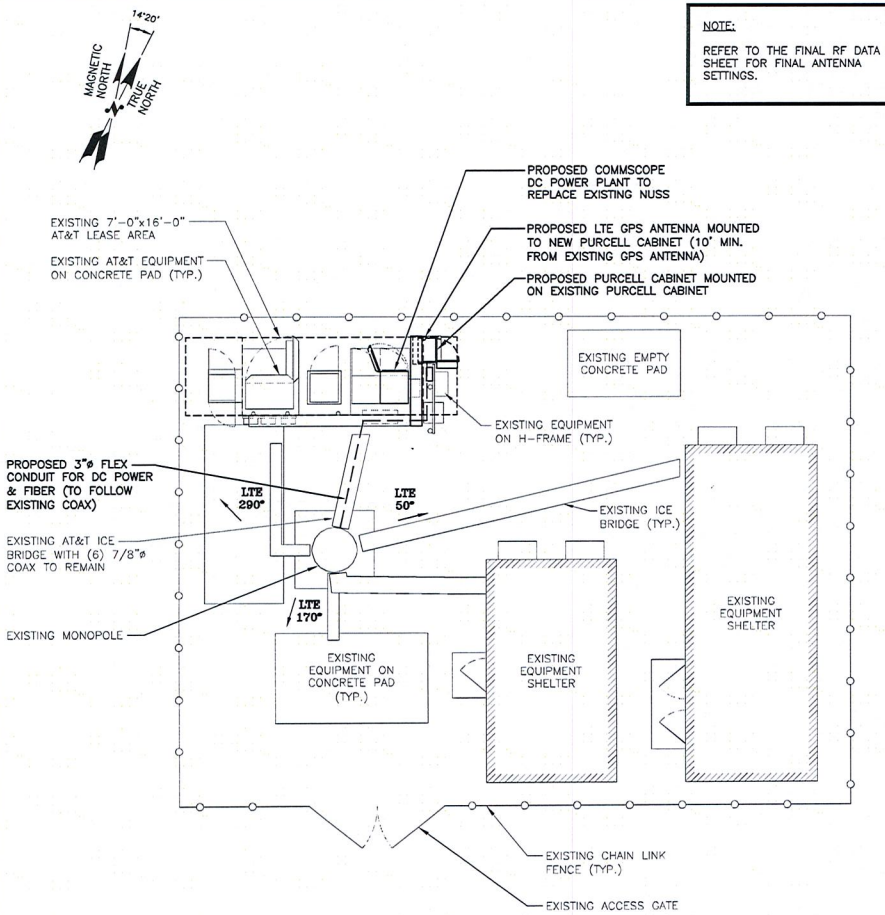
cc: Honorable Leo V. Diana, Mayor, Town of Manchester
One Twenty One Connecticut Avenue Associates, LLC (underlying property owner)

NOTE:

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

NOTE:

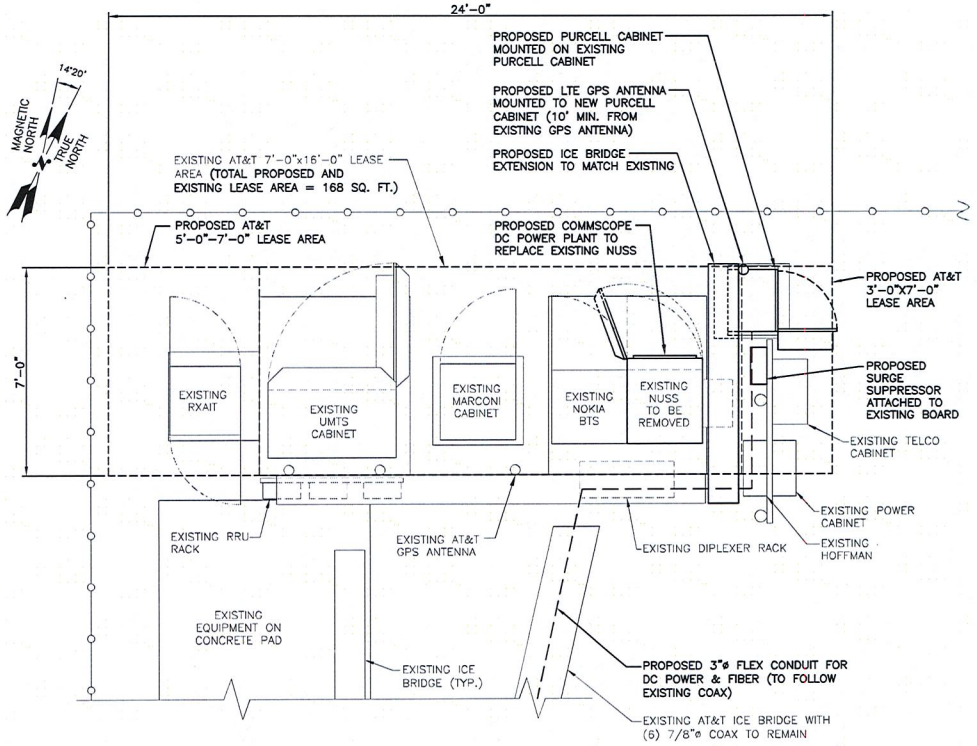
ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.



COMPOUND PLAN

SCALE: 3/16"=1'-0"

0 2'-8" 5'-4" 10'-8" 16'-0"



EQUIPMENT PLAN

SCALE: 1/2"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 2-101
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

NEXLINK GLOBAL SERVICES
a UniTek GLOBAL SERVICES company
800 MARSHALL PHELPS ROAD UNIT#: 2A
WINDSOR, CT 06095

SITE NUMBER: CT5307
SITE NAME: MANCHESTER NORTH
CROWN SITE ID: 876347
53-73 SLATER STREET
MANCHESTER, CT 06040
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	07/06/12	CONSTRUCTION REVISED	HD	DC	DPH
1	06/19/12	ISSUED FOR CONSTRUCTION	DB	DC	DPH
0	03/28/12	ISSUED FOR REVIEW	DB	DC	DPH

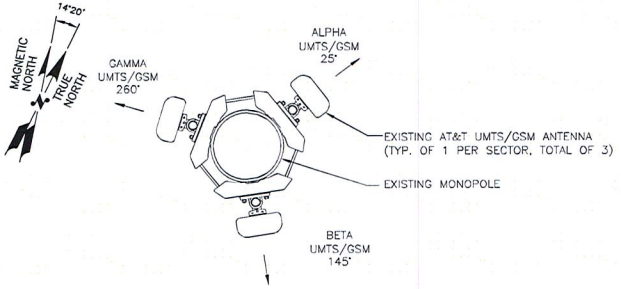
SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: DB

STATE OF CONNECTICUT — DANIEL P. HAMM — No. 24178 — LICENSED PROFESSIONAL ENGINEER

AT&T

COMPOUND & EQUIPMENT PLAN (LTE)

JOB NUMBER	DRAWING NUMBER	REV
5307.01	A-1	2



EXISTING UMTS/GSM ANTENNA PLAN

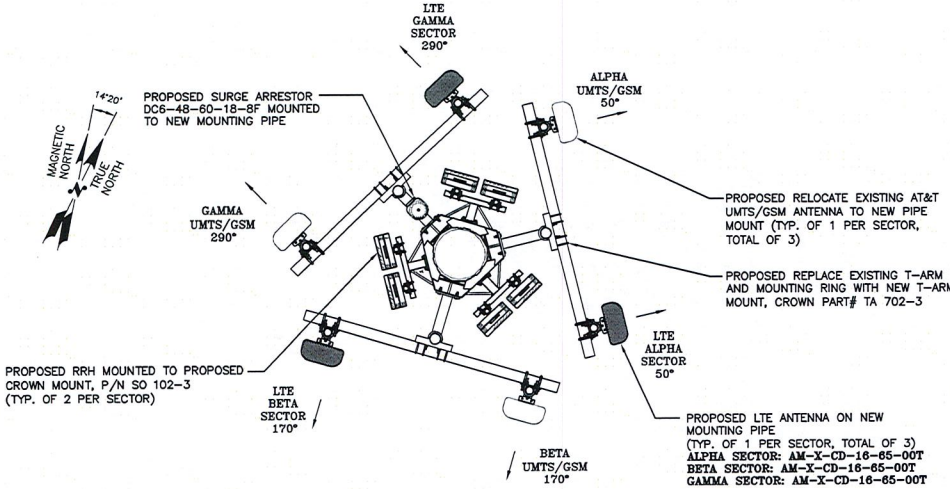
SCALE: N.T.S.

NOTE:

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

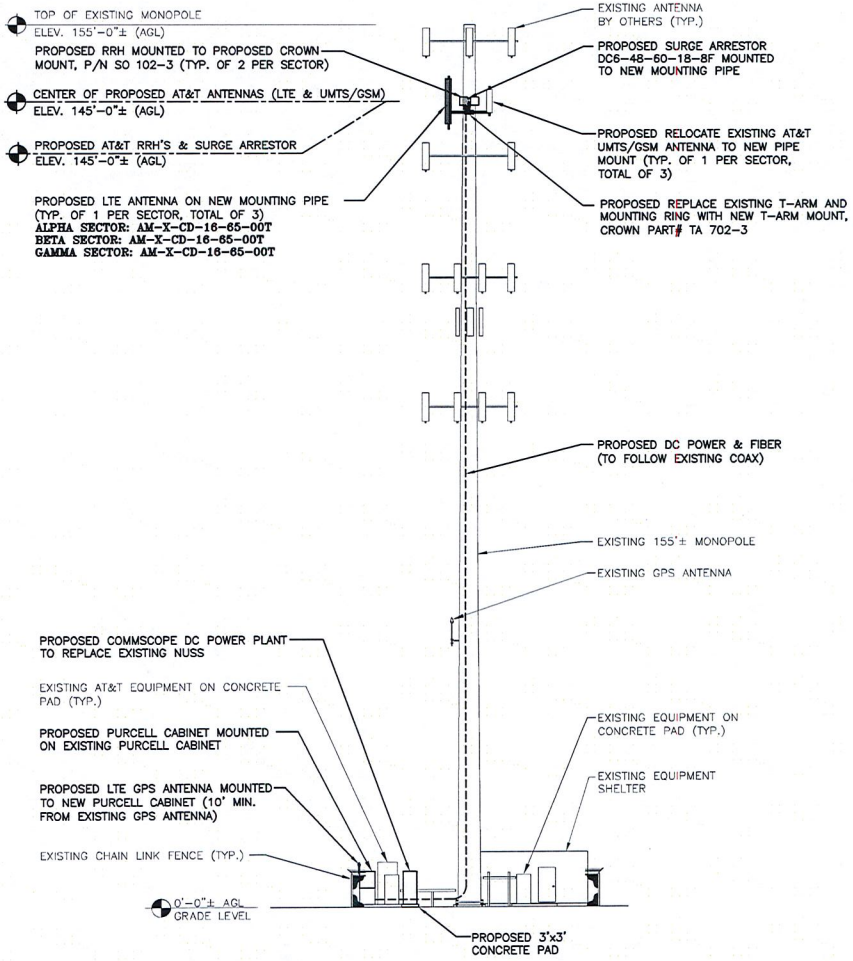
NOTE:

ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.



PROPOSED LTE ANTENNA PLAN

SCALE: N.T.S.



WEST ELEVATION

SCALE: 3/32"=1'-0"

0 5'-4" 10'-8" 21'-4" 32'-0"

Hudson Design Groupllc
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 2-101
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

NEXLINK GLOBAL SERVICES
a UniTek GLOBAL SERVICES company
800 MARSHALL PHELPS ROAD UNIT#: 2A
WINDSOR, CT 06095

SITE NUMBER: CT5307
SITE NAME: MANCHESTER NORTH
CROWN SITE ID: 876347
53-73 SLATER STREET
MANCHESTER, CT 06040
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	07/06/12	CONSTRUCTION REVISED	HC	DC	DPH
1	06/19/12	ISSUED FOR CONSTRUCTION	DB	DC	DPH
0	03/28/12	ISSUED FOR REVIEW	DB	DC	DPH

SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: DB

STATE OF CONNECTICUT DANIEL P. HAMM No. 24178 LICENSED PROFESSIONAL ENGINEER

AT&T

ANTENNA LAYOUT AND ELEVATION (LTE)

JOB NUMBER	DRAWING NUMBER	REV
5307.01	A-2	2

Date: **June 28, 2012**

Jason Rouse
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

FDH Engineering, Inc.
6521 Meridian Drive
Raleigh, NC 27616
(919) 755-1012

Subject: **Structural Analysis Report**

Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CT5307
	Carrier Site Name:	AWE-Manchester
North		
Crown Castle Designation:	**Crown Castle BU Number:**	876347
	Crown Castle Site Name:	BUCKLAND MALL
	Crown Castle JDE Job Number:	183576
	Crown Castle Work Order Number:	484857
	Crown Castle Application Number:	145140 Rev. 1
Engineering Firm Designation:	**FDH Engineering, Inc. Project Number:**	12-04605E S3
Site Data:	**53 Slater Street, MANCHESTER, Hartford County, CT** **Latitude *41° 48' 18"*, Longitude *-72° 32' 1"*** **155 Foot - Monopole Tower**	

Dear Jason Rouse,

FDH Engineering, 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 460212, in accordance with application 145140, 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:

LC7: 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 *FDH Engineering, Inc.* 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:

Krystyn M. Wagner, EI
Senior Project Engineer

Respectfully submitted by:

Christopher M. Murphy, PE
President
CT License No. 25842

6/28/12

tnxTower Report - version 6.0.4.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 155 ft Monopole tower designed by Paul J. Ford in February of 2002. The tower was originally designed for a wind speed of 80 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
145.0	145.0	1	crown mounts	Side Arm Mount [SO 102-3]	---	---	1
143.0	145.0	6	ericsson	RRUS-11	2	3/4	
		3	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		1	raycap	DC6-48-60-18-8F	1	3/8	
	143.0	1	crown mounts	T-Arm Mount [TA 702-3]			

Notes:
1) Proposed Equipment

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
155.0	155.0	3	argus technologies	LPX310R w/ Mount Pipe	3	5/16	1
		1	crown mounts	Platform Mount [LP 602-1]			
		6	decibel	DB980H90E-M w/ Mount Pipe	6	1 5/8	
		3	samsung telecommunications	WIMAX DAP HEAD			
		9	sprint mla	SPRINT MLA_ANTENNA w/ Mount Pipe	9	1 5/8	2
	151.0	1	andrew	VHLP1-23	3	1/2	1
		1	andrew	VHLP2-11			
		1	andrew	VHLP2.5-18			
		3	dragonwave	HORIZON COMPACT			
145.0	145.0	1	crown mounts	Pipe Mount [PM601-3]	---	---	3
		3	kathrein	800 10121 w/ Mount Pipe	6	1 1/4	4
		6	powerwave technologies	LGP21401			
133.0	133.0	3	andrew	ETW190VS12UB	18	1 5/8	1
		1	crown mounts	Platform Mount [LP 403-1]			
		6	rfs celwave	APX16DWV-16DWV-S-E-			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
				A20 w/ Mount Pipe			
		3	rfs celwave	ATMAA1412D-1A20			
113.0	113.0	6	decibel	DB844G65ZAXY w/ Mount Pipe	12	1 5/8	1
		1	antel	BXA-70040/6CFx4 w/ Mount Pipe	---	---	3
		2	antel	BXA-70063/6CFx2 w/ Mount Pipe			
		3	rymsa wireless	MG D3-800Tx w/ Mount Pipe			
		1	crown mounts	Platform Mount [LP 601-1]	---	---	1
		2	antel	BXA-70063/6CFx2 w/ Mount Pipe	---	---	5
		1	antel	BXA-70063/6CFx4 w/ Mount Pipe			
		6	rfs celwave	FD9R6004/2C-3L			
		3	rymsa wireless	MG D3-800Tx w/ Mount Pipe			
103.0	103.0	1	crown mounts	Pipe Mount [PM 601-3]	3	1 5/8	1
		3	rfs celwave	APXV18-206517S-C w/ Mount Pipe			
78.0	78.0	1	crown mounts	Platform Mount [LP 303-1]	12	1 5/8	1
		12	decibel	844G65VTZASX w/ Mount Pipe			
60.0	60.0	1	crown mounts	Side Arm Mount [SO 701-1]	1	1/2	1
		1	trimble	ACUTIME 2000			

Notes:
1) Existing Equipment
2) MLA Equipment, not considered in this analysis
3) Existing Equipment, to be removed
4) Existing Equipment, to be relocated to the proposed T-Arm mount with a centerline elevation of 145'.
5) Reserved Equipment, considered in this analysis

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	---	---
50	50	1	---	GPS Antenna	---	---

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH Engineering, Inc (Job No. 12-04605E G1) dated June 12, 2012	1533476	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Paul J. Ford (Job No. 29298-597) dated September 11, 1998	1615406	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Paul J. Ford (Job No. A02-T0021) dated February 18, 2002	2068033	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.

This analysis may be affected if any assumptions are not valid or have been made in error. FDH Engineering, 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	TP29.308x22x0.25	1	-6.99	1080.07	47.2	Pass
L2	115.5 - 79.25	Pole	TP35.514x28.1142x0.3125	2	-13.66	1772.22	72.4	Pass
L3	79.25 - 43.75	Pole	TP41.456x34.0565x0.375	3	-22.70	2481.90	84.4	Pass
L4	43.75 - 0	Pole	TP48.8x39.7348x0.4375	4	-36.18	3491.31	88.0	Pass
							Summary	
						Pole (L4)	88.0	Pass
						RATING =	**88.0**	**Pass**

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	81.7	Pass
1	Base Plate	0	67.0	Pass
1	Base Foundation	0	49.5	Pass

Structure Rating (max from all components) =	88.0%

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

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the existing, reserved, 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

CT5307 – AWE Manchester North

53 Slater Street, Manchester, CT 06042

(a.k.a. Manchester - 53 Slater Road)

July 3, 2012

Table of Contents

List of Tables

List of Figures

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 53 Slater Street in Manchester, CT. The coordinates of the tower are 41° 48' 18" N, 72° 32' 1" 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:

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

Where:

EIRP = Effective Isotropic Radiated Power

R = 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
Cingular GSM	*145*	*1900*	*4*	*427*	*0.0292*	*1.0000*	*2.92%*
Cingular UMTS	*145*	*880*	*1*	*500*	*0.0086*	*0.5867*	*1.46%*
Cingular UMTS	*145*	*1900*	*1*	*500*	*0.0086*	*1.0000*	*0.86%*
Pocket	103	2130	3	631	0.0642	1.0000	6.42%
T-Mobile	133	1945	8	175	0.0285	1.0000	2.85%
T-Mobile	133	2100	2	699	0.0284	1.0000	2.84%
Verizon	113	869	9	338	0.0857	0.5793	14.79%
Verizon	113	1970	3	418	0.0353	1.0000	3.53%
Verizon	113	757	1	867	0.0244	0.5047	4.84%
Nextel	78	851	9	100	0.0532	0.5673	9.38%
Sprint	155	1962	11	100	0.0165	1.0000	1.65%
Clearwire	155	2496	2	153	0.0046	1.0000	0.46%
Clearwire	151	11 GHz	1	211	0.0033	1.0000	0.33%
AT&T UMTS	145	880	2	565	0.0019	0.5867	0.33%
AT&T UMTS	145	1900	2	1077	0.0037	1.0000	0.37%
AT&T LTE	145	734	1	1313	0.0022	0.4893	0.46%
AT&T GSM	145	880	1	283	0.0005	0.5867	0.08%
AT&T GSM	145	1900	4	646	0.0044	1.0000	0.44%
						Total	**48.75%**

Table 1: Carrier Information [1] [2] [3]

[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 3/29/2012. Please note that %MPE values listed are rounded to two decimal points. The total %MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

[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.

[3] Antenna height listed for AT&T is in reference to the FDH Engineering Inc. Structural Analysis dated June 28, 2012

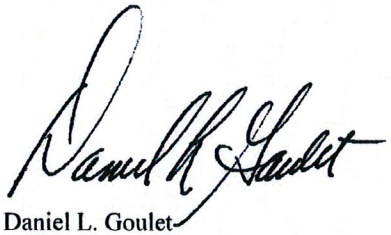
5. Conclusion

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 well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **48.75% 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.



Daniel L. Goulet
C Squared Systems, LLC

July 3, 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 Exposure[4]

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 Exposure[5]

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)

[4] 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

[5] 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

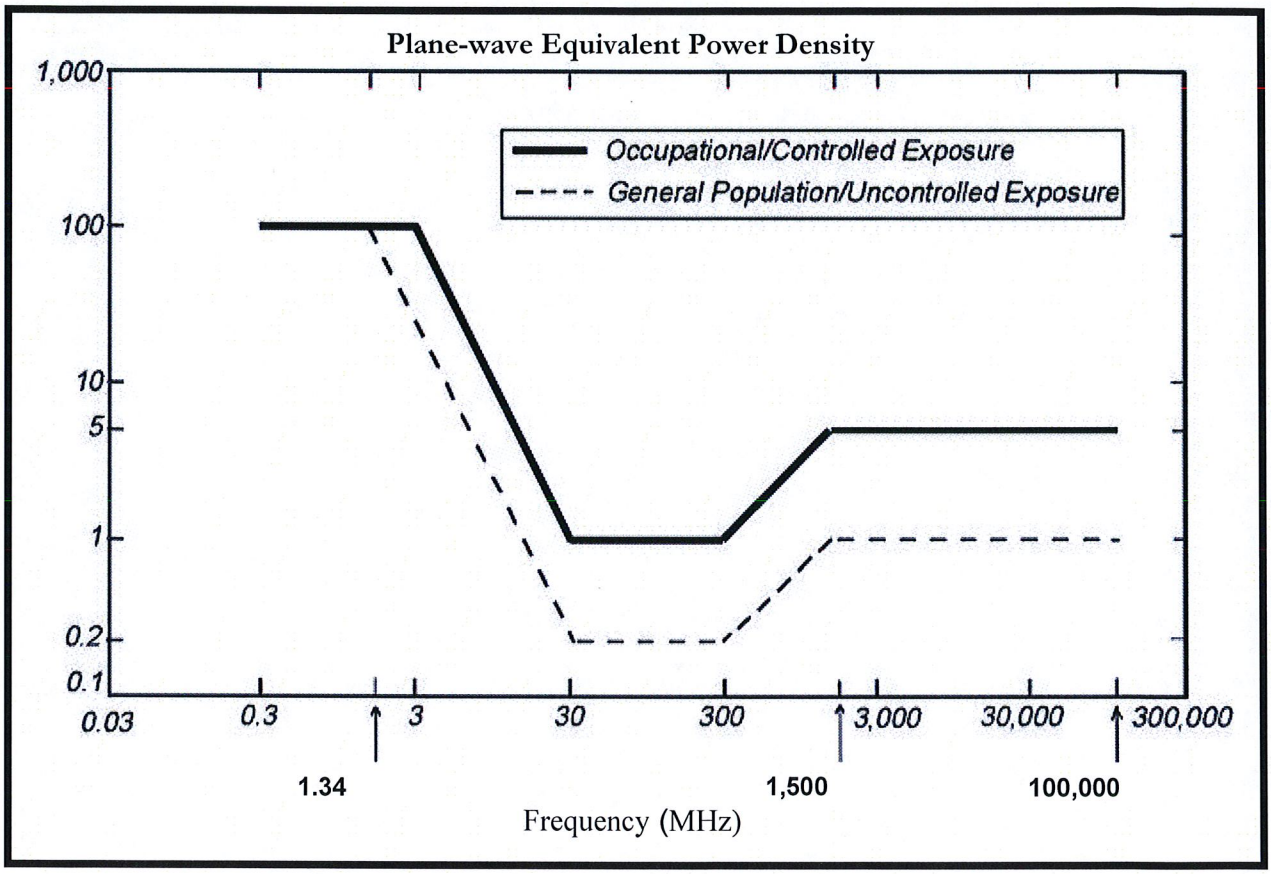
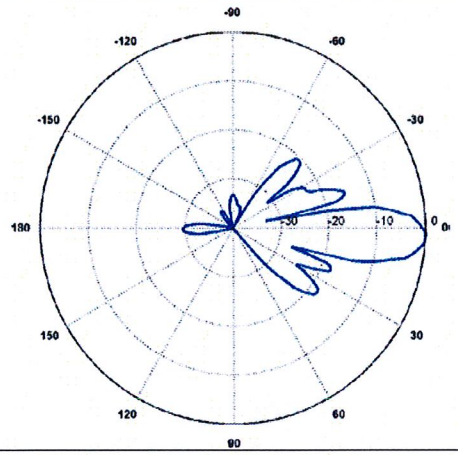


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

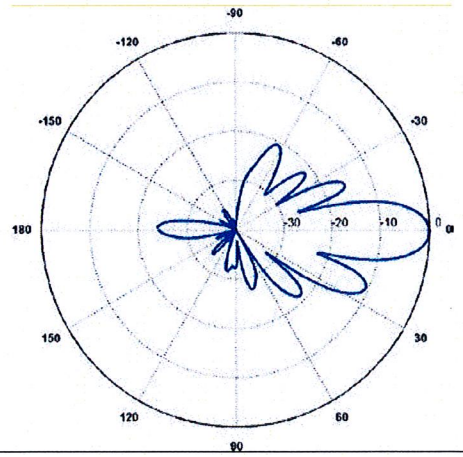
700 MHz

Manufacturer:	KMW Communications
Model #:	AM-X-CD-16-65-00T-RET
Frequency Band:	698-894 MHz
Gain:	13.4 dBd
Vertical Beamwidth:	12.3°
Horizontal Beamwidth:	65°
Polarization:	Dual Slant ± 45°
Size L x W x D:	72.0" x 11.8" x 5.9"



850 MHz

Manufacturer:	Kathhrein Scala
Model #:	80010121
Frequency Band:	824-896 MHz
Gain:	11.5 dBd
Vertical Beamwidth:	14.5°
Horizontal Beamwidth:	86°
Polarization:	±45°
Size L x W x D:	54.5" x 10.3" x 5.9"



1900 MHz

Manufacturer:	Kathhrein Scala
Model #:	80010121
Frequency Band:	1850-1990 MHz
Gain:	14.3 dBd
Vertical Beamwidth:	6.6°
Horizontal Beamwidth:	85°
Polarization:	±45°
Size L x W x D:	54.5" x 10.3" x 5.9"