EM-Cing-142-120430

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

HPC WIRELESS SERVICES

ORIGINAL

April 27, 2012

VIA OVERNIGHT COURIER

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

Re: New Cingular Wireless PCS, LLC – exempt modification
497 Old Post Road, Tolland, 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 Town Council Chairman of the Town of Tolland.

AT&T plans to modify the existing wireless communications facility owned by Old Post Road Holdings, LLC and located at 497 Old Post Road in the Town of Tolland (coordinates 41°-51'-35" N, 72°-24'-17" 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 T-arm mounts to the tower at approximately the 126' elevation of the tower. Three (3) existing antennas will be replaced and three (3) LTE panel antennas

will be added to the mounts. Six (6) RRHs (remote radio heads) and a surge arrestor will also be mounted to the new mounts. AT&T will also place a DC power and fiber run from the equipment to the antennas, up the tower along the existing coaxial cable run. The proposed modifications will not extend the height of the 150' guyed structure.

2. The proposed changes will not extend the site boundaries. AT&T will install one additional cabinet within its existing equipment shelter 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 approximately 3.23%; the combined site operations will result in a total power density of approximately 63.55%

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

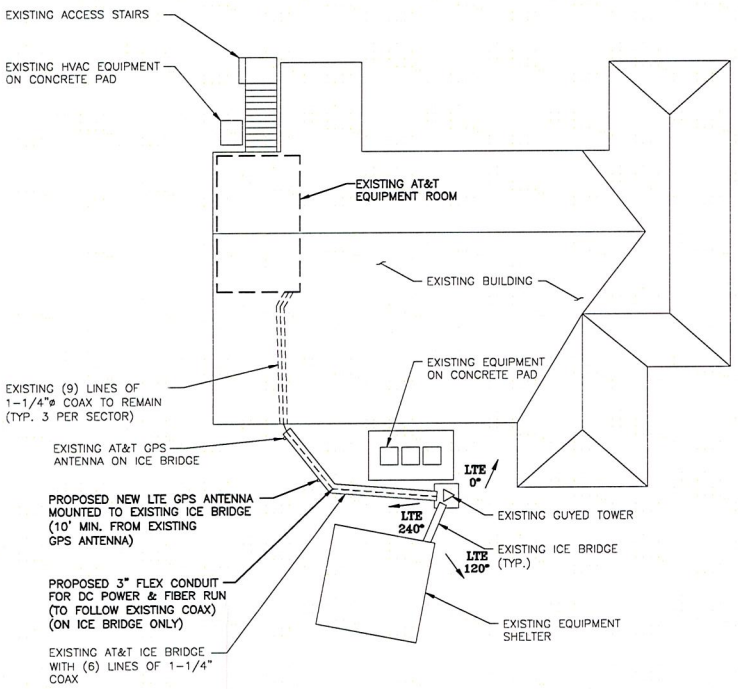
cc: Mr. Jack Scavone, Chairman, Town Council, Town of Tolland
Mr. Steven Werbner, Town Manager, Town of Tolland
Old Post Road Holdings, LLC (underlying property owner)

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

NOTE:

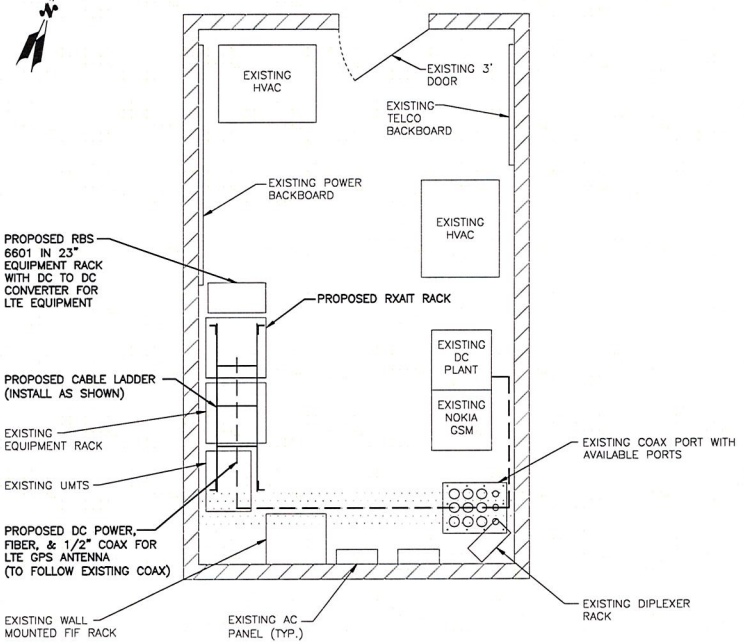
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



COMPOUND PLAN

SCALE: 1/8"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-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: CT1047
SITE NAME: TOLLAND-GETCHELL
497 OLD POST ROAD
TOLLAND, CT 06084
HARTFORD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK'D	APP'D
1	04/18/12	ISSUED FOR CONSTRUCTION	DB	DC	DPH
0	03/01/12	ISSUED FOR REVIEW	DB	DC	DPH

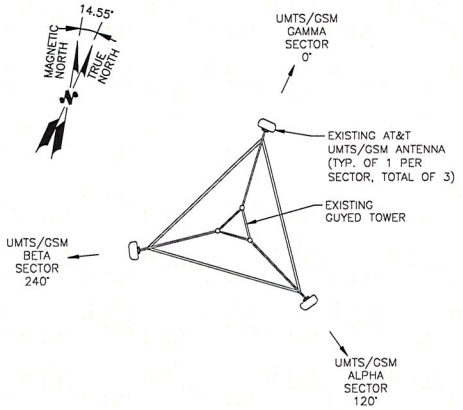
SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: DB

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

AT&T

COMPOUND & EQUIPMENT PLAN (LTE)

JOB NUMBER	DRAWING NUMBER	REV
1047.01	A-1	1



EXISTING UMTS/GSM ANTENNA PLAN

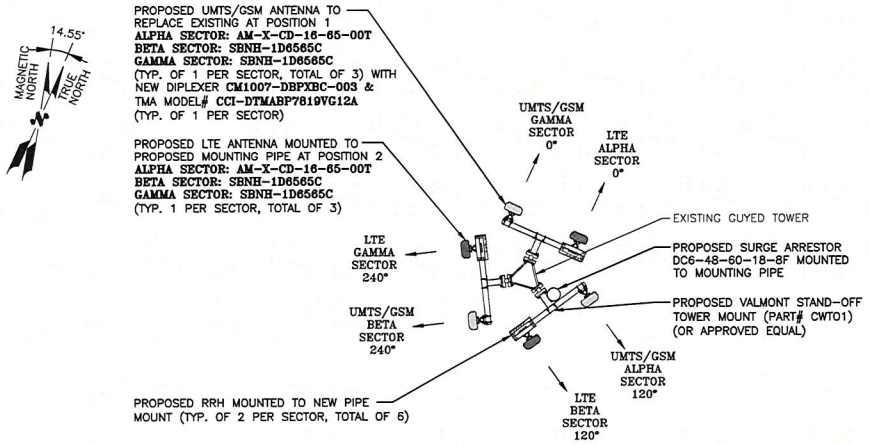
SCALE: N.T.S.

NOTE:

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

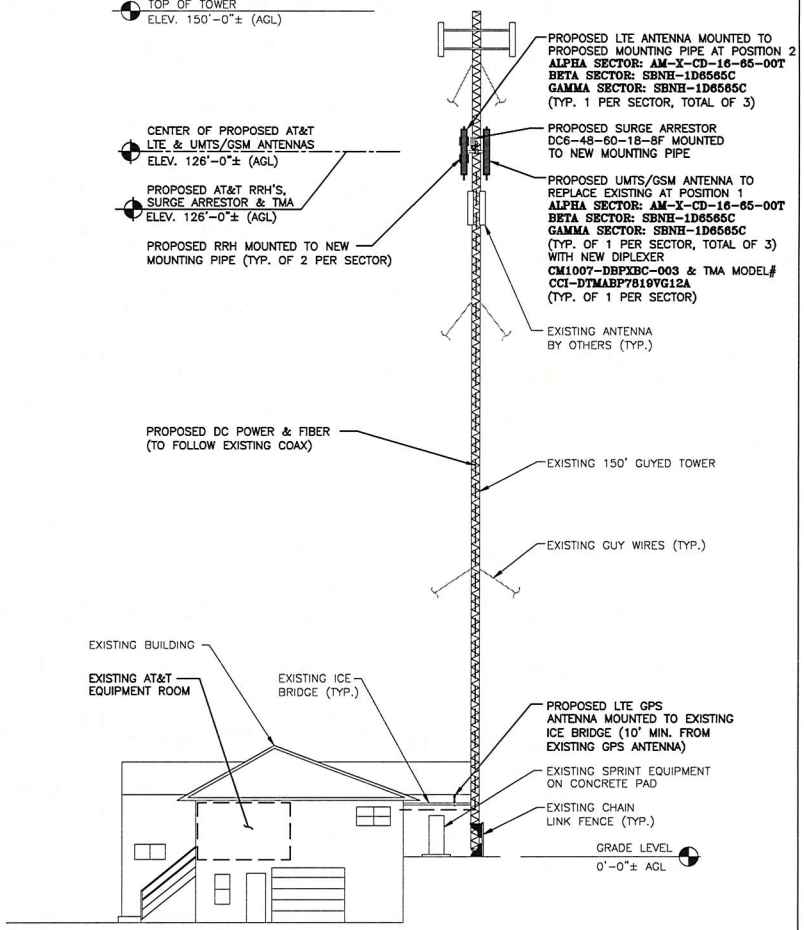
NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.



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 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
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800 MARSHALL PHELPS ROAD UNIT#: 2A
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SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: DB

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24175
LICENSED PROFESSIONAL ENGINEER

AT&T

ANTENNA LAYOUT AND ELEVATION (LTE)

JOB NUMBER	DRAWING NUMBER	REV
1047.01	A-2	1

STRUCTURAL ANALYSIS REPORT

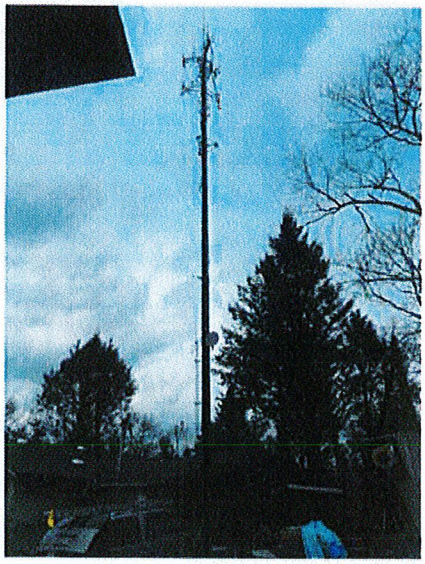
For

CT1047

TOLLAND WEST

497 Old Post Road
Tolland, CT 06084

Antennas Mounted to the Tower



Prepared for:

at&t

500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

Dated:
April 19, 2012

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

4/19/2012

Prepared by:
HUDSON DESIGN GROUP, LLC.
1600 Osgood Street Building 20 North, Suite 2-101
North Andover, MA 01845
Phone: (978) 557-5553
www.hudsondesigngroupllc.com

Hudson Design Group LLC

SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by AT&T to conduct a structural evaluation of the 150' guyed supporting tower supporting the proposed AT&T antennas located at elevation 126' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of AT&T's existing and proposed antennas listed below.

Record drawings of the existing tower were not available for our use. The previous structural analysis report prepared by Malouf Engineering Intl., Inc., dated October 8, 2008 was available and obtained for our use. This office conducted an on-site visual survey and tower mapping on April 9, 2012 to record dimensional properties of the existing tower and its appurtenances. Attendees included Bradley Loeb (HDG – Associate) and Nick Bestor (HDG - Associate).

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing tower **is in conformance** with the ANSI/TIA-222-F Standard for the loading considered under the criteria listed in this report. The tower structure is rated at **87.5%** - (Leg at Tower Section T4 from EL.80' to El.100' Controlling).

Hudson Design Group LLC

APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
	15' Dipole	167.5'	Tower Leg
	10' Dipole	155'	Tower Leg
	15' Dipole	150.5'	3' Side Mount Standoff
	10' Dipole	148'	5' Side Mount Standoff
	(6) 6' Panel Antennas	144'	12' T-Frame
	6' Omni	134'	3' Side Mount Standoff
AT&T	***(2) AM-X-CD-16-65-00 Antennas***	126'	***WiMax Tower Mount***
AT&T	***(4) SBNH-1D6565C Antennas***	126'	***WiMax Tower Mount***
AT&T	***(6) RRUs***	126'	***WiMax Tower Mount***
AT&T	***(3) DTMABP7819VG12A***	126'	***WiMax Tower Mount***
AT&T	***(12)CM1007-DBPXBC***	126'	***WiMax Tower Mount***
AT&T	***(3)CCDP-665***	126'	***WiMax Tower Mount***
AT&T	***Surge Arrestor DC6-48-60-18-8F***	126'	***WiMax Tower Mount***
	4' Yagi	122'	Tower Leg
	(3) APXV18-206517 Antennas	116'	1' Side Mount Standoff
	10' Omni	92'	Torque Arm
	15' Omni	88.5'	4' Side Mount Standoff
	8' Dipole	53'	2' Side Mount Standoff
	GPS	52'	2' Side Mount Standoff
	2' Dish	34'	2' Side Mount Standoff

Proposed AT&T Appurtenances shown in Bold.

AT&T EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
AT&T	(9) 7/8" Cables	126'	Face of Tower
AT&T	***(3) 7/8" Cables***	126'	Face of Tower
AT&T	***Fiber Cable***	126'	Face of Tower
AT&T	***(2) DC Power Cables***	126'	Face of Tower

Proposed AT&T Coax Cables shown in Bold.

Hudson Design Group LLC

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Legs	87.5 %	80 – 100	PASS	
Diagonals	62.5 %	120 – 140	PASS	
Top Girt	30.5 %	120 – 140	PASS	
Bottom Girt	17.0 %	140 – 150	PASS	
Mid Girt	13.4 %	40 – 60	PASS	
Guy	85.7 %	137.7	PASS	
Torque Arm	61.4 %	137.7	PASS	

Hudson Design Group LLC

DESIGN CRITERIA:

1. EIA/TIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

   County: Tolland
   Wind Load: 85 mph (fastest mile)
   105 mph (3 second gust)
   Nominal Ice Thickness: 1/2 inch

2. Approximate height above grade to proposed antennas: 126'-0"

***Calculations and referenced documents are attached.**

ASSUMPTIONS:

1. The tower and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.

2. The appurtenances configuration is as stated in this report. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer requirements.

3. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.

4. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.

5. The foundation of the tower was not checked due to lack of information. As-built foundation drawings and geotechnical report would be required to determine whether the foundation is capable of supporting the proposed loadings.

Hudson Design Group LLC

SUPPORT RECOMMENDATIONS:

HDG recommends that the proposed antennas, RRHs and surge arrestor be mounted on the proposed WiMax Tower Mount supported by the existing tower.

Reference HDG's Latest Construction Drawings for all component and connection requirements (attached).

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

Calculated Radio Frequency Emissions

at&t

CT1047

(Tolland West)

497 Old Post Road, Tolland, CT 06084

April 24, 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 guyed tower located at 497 Old Post Road, Tolland, CT. The coordinates of the tower are 41-51-38.52 N, 72-24-11.88 W.

AT&T is proposing the following modifications:

1) Replace three existing dual-band (850/1900 MHz) panel antennas with six multi-band (700/850/1900/2100 MHz) antennas (two 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
SBMS/TDMA	*127*	*880*	*16*	*100*	*0.0357*	*0.5867*	*6.08%*
SBMS/GSM	*127*	*880*	*2*	*296*	*0.0132*	*0.5867*	*2.25%*
SBMS/GSM	*127*	*1930*	*2*	*427*	*0.0190*	*1.0000*	*1.90%*
NE Paging	149	450	1	100	0.0016	0.3000	0.54%
Sprint	145	1962.5	11	122	0.0230	1.0000	2.30%
Hamden Cmmcns	133	461	2	250	0.0102	0.3073	3.31%
Conn Radio Rocky Hill	136.75	222	2	250	0.0096	0.2000	4.81%
Airtouch	119.5	160	2	250	0.0126	***0.2000***	***6.29%***
Verizon	147	874.5	19	100	0.0316	0.5830	5.42%
Verizon	80	406	3	250	0.0421	0.2707	15.57%
Verizon	51.5	74	1	250	0.0339	0.2000	16.95%
Pocket	115	2130	3	631	0.0515	1.0000	5.15%
AT&T UMTS	126	880	2	1077	0.0049	0.5867	0.83%
AT&T UMTS	126	1900	2	1556	0.0070	1.0000	0.70%
AT&T LTE	126	734	1	1375	0.0031	0.4893	0.64%
AT&T GSM	126	880	1	538	0.0012	0.5867	0.21%
AT&T GSM	126	1900	4	934	0.0085	1.0000	0.85%
						Total	**63.55%**

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

[1] The existing CSC filing for SBMS 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] Based on the frequency listed for Airtouch, the MPE limit would be 0.2 mW/cm^2 instead of 2.0 mW/cm^2 as currently shown in the CSC database. The bolded values for Airtouch in Table 1 should be used to update the CSC database.

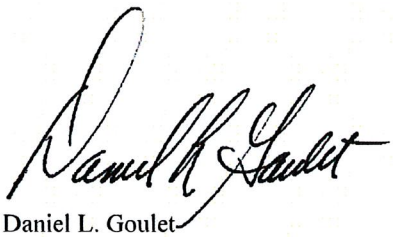
5. Conclusion

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 **63.55% 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

April 24, 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

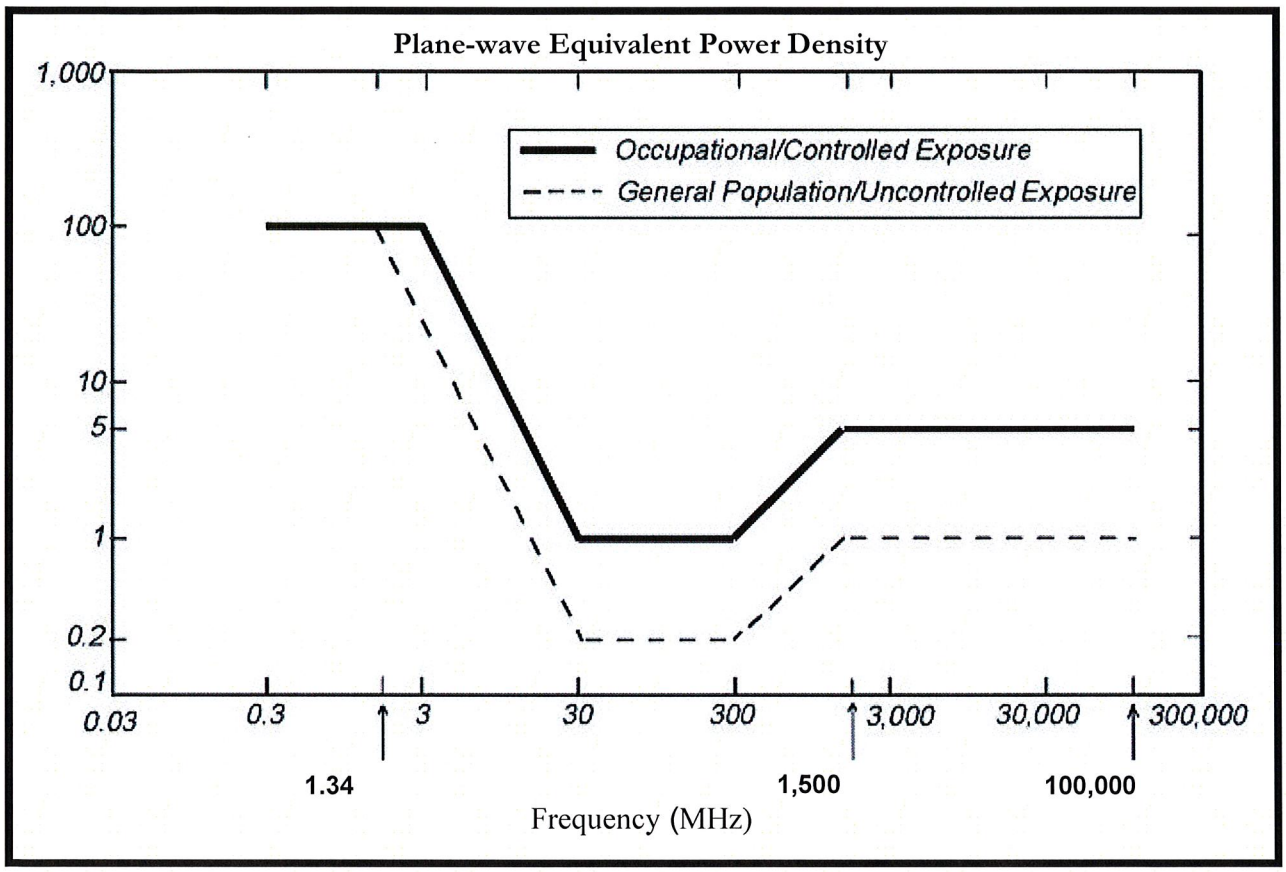
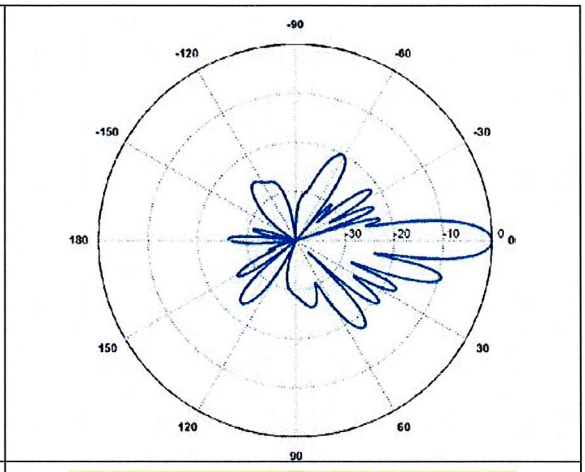


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

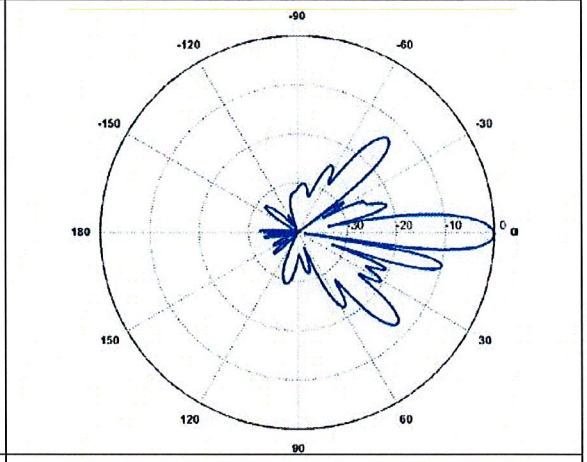
700 MHz

Manufacturer:	Commscope
Model #:	SBNH-1D6565C
Frequency Band:	698-806 MHz
Gain:	13.6 dBd
Vertical Beamwidth:	8.6°
Horizontal Beamwidth:	71°
Polarization:	Dual Linear ± 45°
Size L x W x D:	96.42" x 11.85" x 7.1"



850 MHz

Manufacturer:	Commscope
Model #:	SBNH-1D6565C
Frequency Band:	806-896 MHz
Gain:	14.3 dBd
Vertical Beamwidth:	16.4°
Horizontal Beamwidth:	67°
Polarization:	Dual Linear ±45°
Size L x W x D:	96.42" x 11.85" x 7.1"



1900 MHz

Manufacturer:	Commscope
Model #:	SBNH-1D6565C
Frequency Band:	1850-1990MHz
Gain:	15.9 dBd
Vertical Beamwidth:	18°
Horizontal Beamwidth:	57°
Polarization:	Dual Linear ±45°
Size L x W x D:	96.42" x 11.85" x 7.1"