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

June 22, 2012

Eric Dahl, Consultant
NexLink Global Services
55 Lynn Road
Ivoryton, CT 06442

RE: **EM-AT&T-166-120601** – AT&T Mobility notice of intent to modify an existing telecommunications facility located at 1233 Wolcott Road, Wolcott, Connecticut.

Dear Mr. Dahl:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- The coax lines and TMAs be installed in accordance with the recommendations made in the Structural Analysis Report prepared by FDH Engineering dated May 18, 2012 and stamped by Christopher Murphy; and
- Following the installation of the proposed equipment, AT&T shall provide documentation certifying that the installation complied with the engineer's recommendation.
- 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 June 1, 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.

CSC
CONNECTICUT SITING COUNCIL

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,

L. Roberts

Linda Roberts
Executive Director

LR/CDM/cm

c: The Honorable Thomas G. Dunn, Mayor, Town of Wolcott
David Kalinowski, Zoning Enforcement Officer, Town of Wolcott
SBA

EM-AT&T-166-120601

June 1, 2012

VIA OVERNIGHT DELIVERY

ORIGINAL

Ms. Linda Roberts, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: AT&T Mobility – Notice of Exempt Modification
1233 Wolcott Road, Wolcott, CT

Dear Ms. Roberts:

This letter and attachments are submitted on behalf of AT&T Mobility ("AT&T"). AT&T is enhancing the capabilities of its wireless system in Connecticut by implementing LTE technology. In order to do so, AT&T will modify antenna and equipment configurations at a number of 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 Wallingford.

AT&T plans to modify the existing facility at 1233 Wolcott Road, Wolcott owned by SBA Towers (coordinates 41°37'17.61"N, -72°58'25.22"W). Attached are drawings depicting the planned changes, and documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration. Also included are a power density calculation 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. The height of the overall structure will be unaffected. AT&T proposes to replace six (6) of its nine (9) existing antennas, and add six (6) new RRU's and one (1) surge arrestor. Additionally, AT&T will install one (1) fiber cable and two (2) DC control cables within a 3" flex conduit on the tower leg.

2. The proposed changes will not extend the site boundaries. AT&T will install additional equipment in the existing equipment room. 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 in the attached power density calculations, AT&T's operations at the site will result in a power density of 1.13%; the combined site operations will result in a total power density of 11.57%.

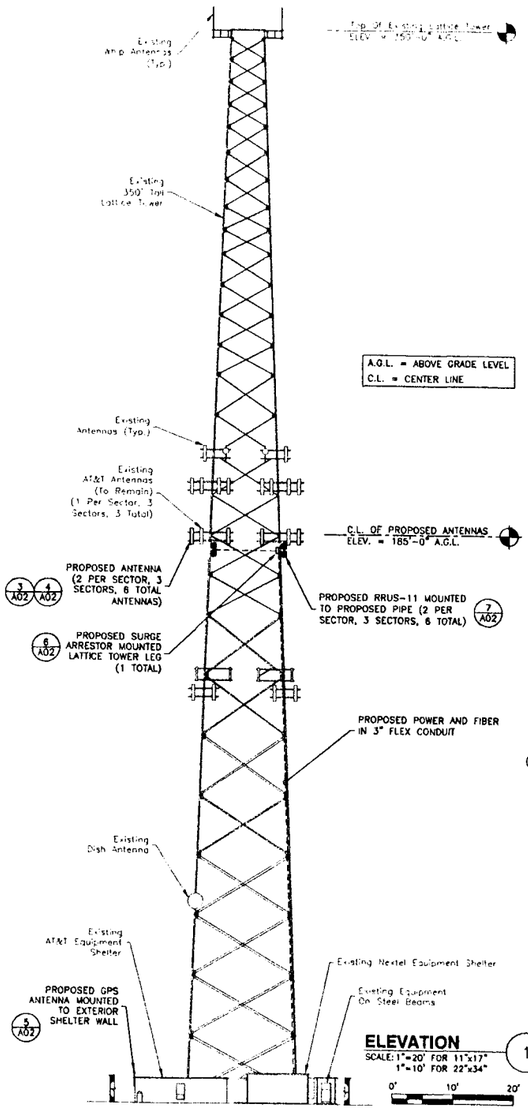
Please feel free to call me with any questions or concerns regarding this matter. Thank you for your consideration.

Respectfully submitted,
AT&T Mobility

By: _____
Eric Dahl, Consultant
edahl@comcast.net
860-227-1975

cc: Honorable Thomas G. Dunn, Mayor, Town of Wolcott
Edward F. Cleary, Property Owner

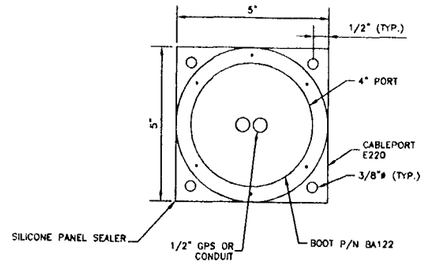
Attachments



A.G.L. = ABOVE GRADE LEVEL
C.L. = CENTER LINE

ELEVATION 1

SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34"

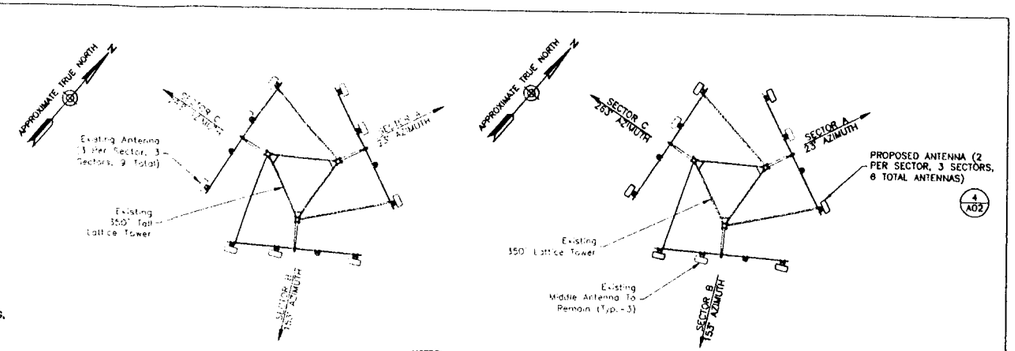


NOTES:

1. CONTRACTOR TO THOROUGHLY DRY AREA BEFORE CORING, INSTALLING AND SEALING CABLEPORT & BOOTS.
2. ALL PART NUMBERS ARE SITE PRO ONE.
3. WATERPROOF ALL EDGES AND HOLES.

SINGLE COAX PORT 2

SCALE: N.T.S.

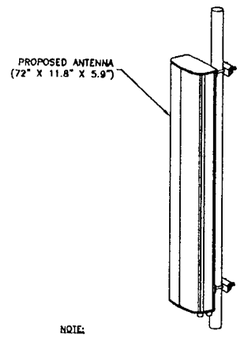


NOTES:

1. AZIMUTHS BASED ON TRUE NORTH.

PLATFORM ANTENNA ORIENTATION 3

SCALE: N.T.S.

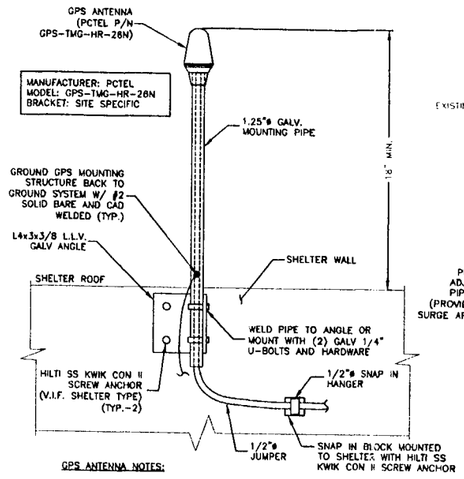


NOTE:

1. PLEASE SEE RFDS FOR SPECIFIC ANTENNA MODEL.

ISOMETRIC ANTENNA DETAIL 4

SCALE: N.T.S.

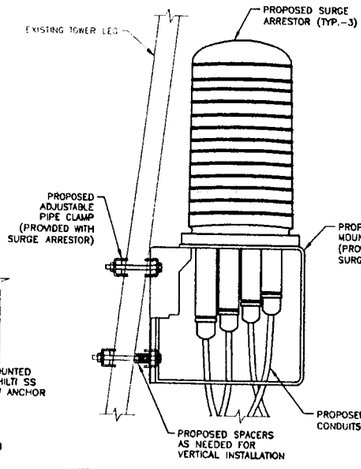


GPS ANTENNA NOTES:

1. GROUND ANTENNAS AND MOUNTS PER MANUFACTURERS RECOMMENDATIONS AND AT&T STANDARDS.
2. FIELD LOCATE GPS ANTENNA A MINIMUM OF 10' HORIZONTALLY FROM EXISTING GPS ANTENNA WITH AT&T CM APPROVAL.
3. SEAL ALL WALL PENETRATIONS WILL SILICONE SEALANT.

GPS ANTENNA 5

SCALE: N.T.S.

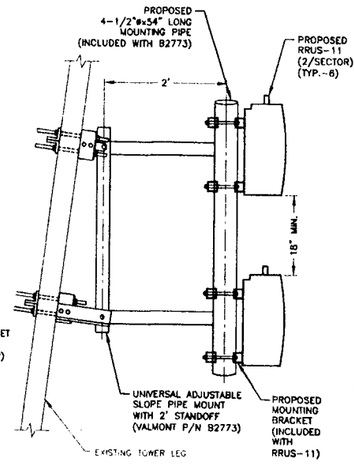


NOTE:

1. MOUNT PER STRUCTURAL ANALYSIS AND MANUFACTURER SPECIFICATIONS

SURGE ARRESTOR MOUNTING DETAIL 6

SCALE: N.T.S.



NOTE:

1. MOUNT PER STRUCTURAL ANALYSIS AND MANUFACTURER SPECIFICATIONS

RRH MOUNTING DETAIL 7

SCALE: N.T.S.

Dewberry
Dewberry Engineers, Inc.
280 SUMMER ST.
10TH FLOOR
BOSTON, MA 02210
PHONE: 617 695 3400
FAX: 617 695 3310

NEXLINK GLOBAL SERVICES
800 MARSHALL PHELPS ROAD #2A
WINDSOR, CT 06095

WOLCOTT NORTH
SITE NO. CT1111
1233 WOLCOTT ROAD
WOLCOTT, CT 06716

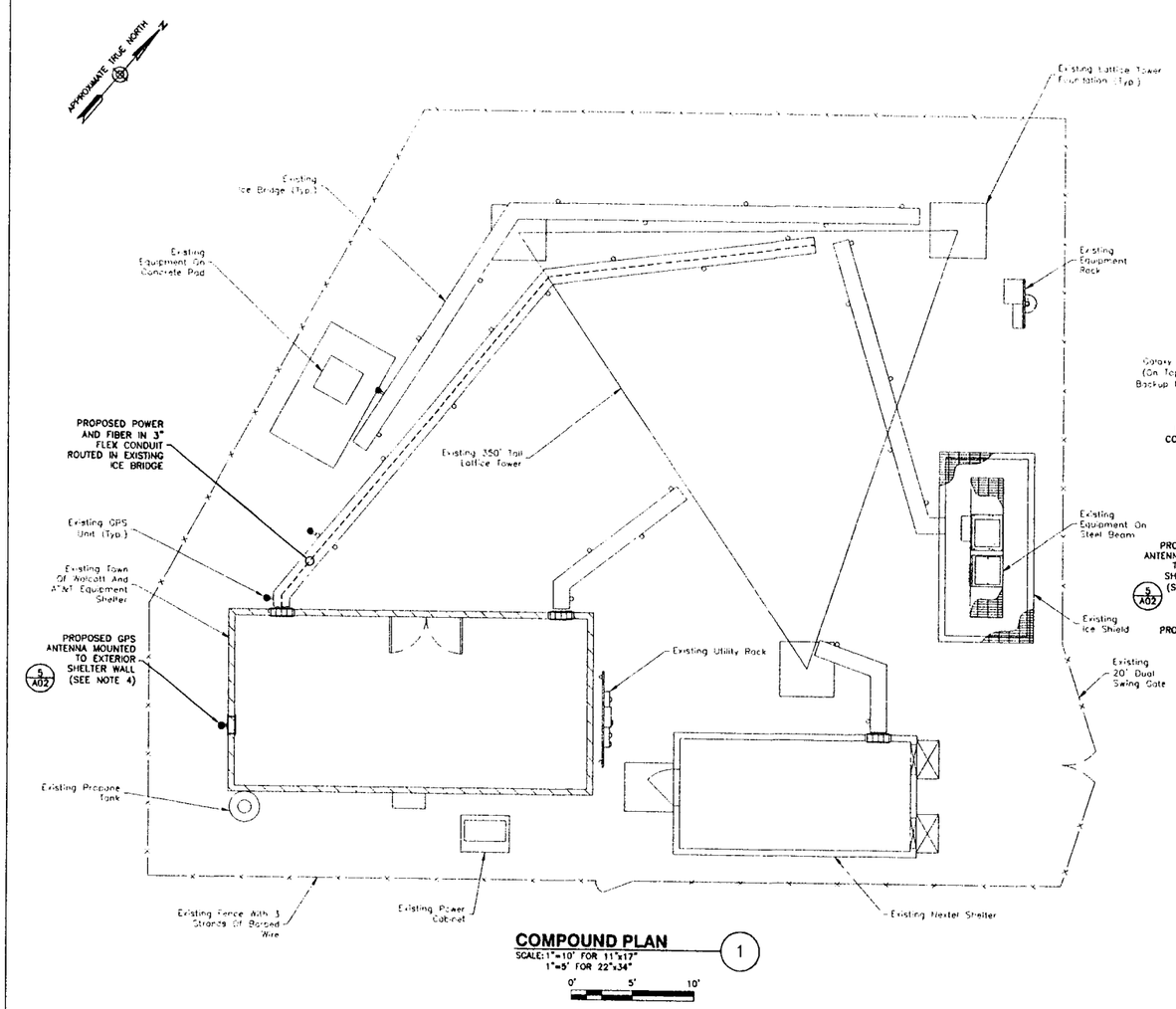
at&t
500 ENTERPRISE DRIVE,
SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/02/12	PRELIMINARY SUBMISSION	DAS	GHN	GHN

SCALE: AS SHOWN | DESIGNED BY: DAS | DRAWN BY: VR

ELEVATION & CONSTRUCTION DETAILS

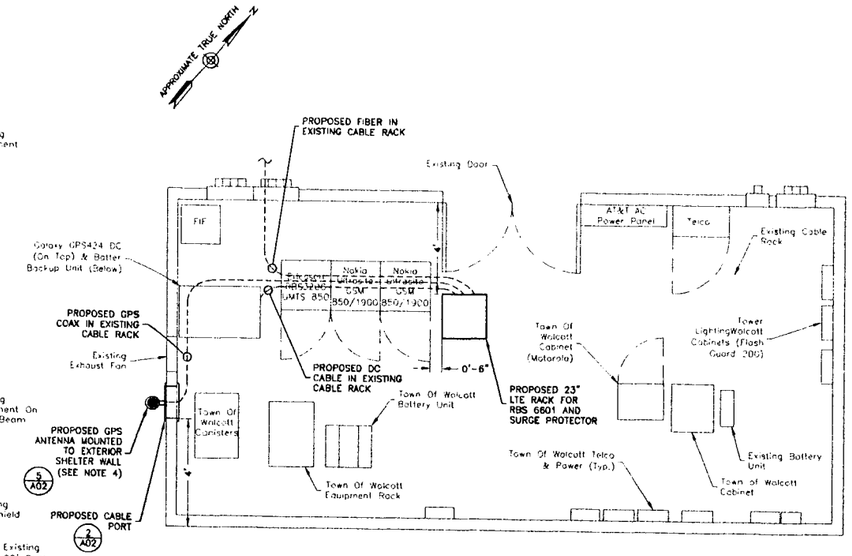
DEWBERRY NO.	DRAWING NUMBER	REV
50048347/50048379	A02	0



COMPOUND PLAN 1

SCALE: 1"=10' FOR 11"x17"
1"=5' FOR 22"x34"

0' 5' 10'



EQUIPMENT ROOM PLAN 2

SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"

0' 2' 4' 8'

NOTES:

1. NORTH SHOWN AS APPROXIMATE.
2. MOUNT ALL ANTENNAS, COAX, SURGE ARRESTORS, RRU'S, ETC. IN ACCORDANCE WITH STRUCTURAL ANALYSIS BY OTHERS.
3. NOT ALL INFORMATION SHOWN FOR CLARITY.
4. FIELD LOCATE PROPOSED GPS UNIT A MINIMUM OF 10' HORIZONTALLY FROM EXISTING GPS UNIT.

Dewberry®
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280 SUMMER ST.
10TH FLOOR
BOSTON, MA 02210
PHONE: 617.695.3400
FAX: 617.695.3310

NEXLINK GLOBAL SERVICES
800 MARSHALL PHELPS ROAD, #2A
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SITE NO. CT1111

1233 WOLCOTT ROAD
WOLCOTT, CT 06716

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/02/12	PRELIMINARY SUBMISSION	DAS	GHN	GHN

SCALE: AS SHOWN | DESIGNED BY: DAS | DRAWN BY: MR

COMPOUND & EQUIPMENT ROOM PLAN

DEWBERRY NO.	DRAWING NUMBER	REV
50048347/50048379	A01	0

FDH Engineering, Inc., 6521 Meridien Dr. Raleigh, NC 27616, Ph. 919.755.1012, Fax 919.755.1031

Structural Analysis for SBA Network Services, Inc.

350' Self-Support Tower

SBA Site Name: Cleary Tower (Edward)
SBA Site ID: CT20021-A
AT&T Site ID: CT1111
AT&T Site Name: Wolcott

FDH Project Number 12-04939E S1

Analysis Results

Tower Components	100.4%	Sufficient
Foundation	69.1%	Sufficient

Prepared By:

Randy C. Williams

Randy C. Williams, EI
Project Engineer

Reviewed By:

Christopher M. Murphy

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

FDH Engineering, Inc.
6521 Meridien Dr.
Raleigh, NC 27616
(919) 755-1012
info@fdh-inc.com

May 18, 2012

Prepared pursuant to TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and 2005 Connecticut Building Code

TABLE OF CONTENTS

EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the existing self-supported tower located in Wolcott, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads pursuant to the *Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, TIA/EIA-222-F* and *2005 Connecticut Building Code*. Information pertaining to the existing/proposed antenna loading, current tower geometry, the member sizes, and foundation dimensions was obtained from:

- Paul J. Ford & Co. (Job No. A03-T143) Structural Analysis Report dated December 22, 2003
- FDH, Inc. (Job No. 06-0879T) EIA/TIA Inspection Report dated September 19, 2006
- FDH Engineering, Inc. (Project No. 11-11229E S2) Modifications Drawings for a 350' Self-Support Tower dated January 31, 2012
- FDH Engineering, Inc. (Project No. 11-11229E S2) Post Construction Inspection Report dated March 7, 2012
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and *2005 Connecticut Building Code* is 85 mph without ice and 38 mph with 3/4" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the existing and proposed antennas from AT&T in place at 186 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and *2005 Connecticut Building Code* provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundations were designed and constructed to support the original design reactions (see Paul J. Ford & Co. Job No. A03-T143), the foundations should have the necessary capacity to support the existing and proposed loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

Our structural analysis has been performed assuming all information provided to FDH Engineering, Inc. is accurate (i.e., the steel data, tower layout, existing antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

Recommendations

To ensure the requirements of the *TIA/EIA-222-F* standards and *2005 Connecticut Building Code* are met with the existing and proposed loading in place, we have the following recommendations:

1. Coax must be installed as shown in **Figure 1**.
2. The proposed TMAs should be installed directly behind the proposed panel antennas.

APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in **Table 1**. *If the actual layout determined in the field deviates from the layout, FDH Engineering, Inc. should be contacted to perform a revised analysis.*

Table 1 - Appurtenance Loading

Existing Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
360	(1) Andrew 600200-4 Omni	(1) 1-1/4"	Marcus	350	(1) Star Mount w/ (9) Standoffs
	(1) RFS CAT #200 Omni	(1) 1/2"	---		
	(1) Celwave CAT #1110-0	(1) 7/8"	LoJack		
350	(1) Decibel DB809DKOmni	---	---		
338.5	(1) Andrew 600200-4 Omni	(1) 1-1/4"	---	328.5	(1) 4' Standoff
328	(2) TX RX 101-58-10-0-03	(2) 1-1/4"	Marcus	318	(1) 6' Standoff
222	(6) Andrew HBX-6516DS-VTM w/ Mount Pipe (6) Andrew ATM200-A20 RETs	(12) 1-5/8" (1) 3/8"	Metro PCS	222	(3) Andrew QT-SF10-B 10.5' T-Frames
212	(3) Argus LLPX310R w/ Mount Pipe (3) BTSs (1) Andrew VHLP2-11 Dish (1) Andrew VHLP2.5-11 Dish	(2) 1/2" (3) 5/8" (3) 1/4" (3) 5/16"	Clearwire	212	(3) 10' T-Frames
201.5	(8) Decibel DB844H90E-XY w/ Mount Pipe (4) Decibel DB844H65E-XY w/ Mount Pipe	(12) 1-1/4"	Nextel	201.5	(3) 15' T-Frames
186	(9) CSS DUO1417-8686-4-0 w/ Mount Pipe (3) Powerwave 7770.00 w/ Mount Pipe (6) ADC Cleargain CG1900w/850 TMAs (6) Powerwave LGP13519 Diplexers	(12) 1-5/8"	AT&T	186	(3) 13.5' T-Frames
172.5	(1) Radiowaves SPD2-5.8NS Dish (1) Radiowaves SPD3-2.4NS Dish	(2) 1/2"	Marcus	172.5	(2) Pipe Mounts (5.25' x 4.5")
158	(1) Celwave 201-7	(1) 5/8"	Wolcott	158	(1) 17" Standoff Mount
---	---	---	---	140	(3) 10' T-Frames
134	(9) Decibel DB980H90T2E-M w/ Mount Pipe	(9) 1-5/8"	Sprint	134	(3) 15' T-Frames
70	(1) Channel Master 1.0M Dish	(1) 1/2"	---	70	(1) Pipe Mount (27" x 2.4")

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
186	(6) KMW AM-X-CD-16-65-00T w/ Mount Pipe (3) Kathrein 800 10121 w/ Mount Pipe (3) Powerwave 7770.00 w/ Mount Pipe (6) CCI DTMABP7819VG12A TMAs (6) Powerwave LGP13519 Diplexers (6) Ericsson RRUS-11 RRUs (1) Raycap DC6-48-60-18-8F Surge Arrestor	(12) 1-5/8" (1) 10mm Fiber (2) 12 gauge DC	AT&T	186	(3) 13.5' T-Frames

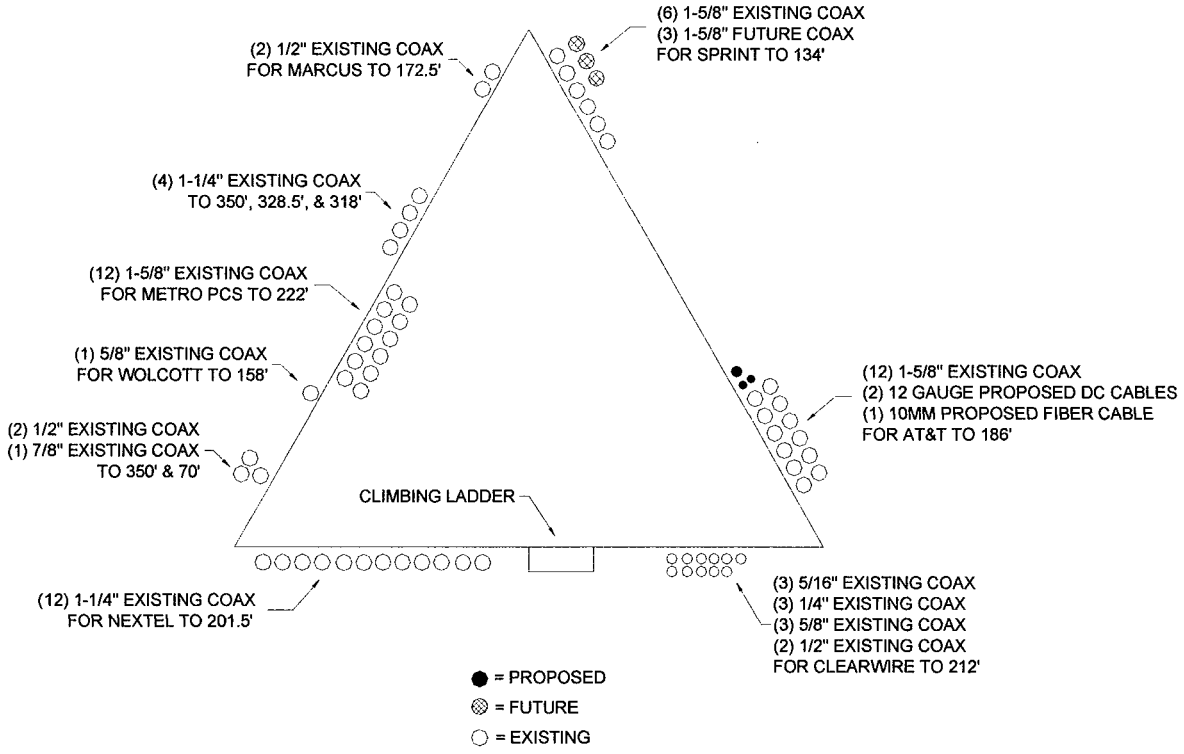


Figure 1 – Coax Layout

RESULTS

The following yield strength of steel for individual members was used for analysis:

Table 2 - Material Strength

Member Type	Yield Strength
Legs	50 ksi
Bracing	36 ksi

Table 3 displays the summary of the ratio (as a percentage) of force in the member to their capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. *Note: Capacities up to 100% are considered acceptable.* **Table 4** displays the maximum foundation reactions.

If the assumptions outlined in this report differ from actual field conditions, FDH Engineering, Inc. should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the existing or proposed appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the **Appendix** for detailed modeling information

Table 3 - Summary of Working Percentage of Structural Components

Section No.	Elevation ft	Component Type	Size	% Capacity*	Pass Fail
T1	350 - 340	Leg	2	22.1	Pass
		Diagonal	L2x1 1/2x3/16	26.0 36.0 (b)	Pass
		Top Girt	L2x1 1/2x3/16	7.3 7.4 (b)	Pass
T2	340 - 320	Leg	2	58.4	Pass
		Diagonal	L2x1 1/2x3/16	35.1 50.3 (b)	Pass
T3	320 - 300	Leg	2 1/2	56.4	Pass
		Diagonal	L2x2x3/16	23.6 38.1 (b)	Pass
T4	300 - 280	Leg	3 1/4	43.7	Pass
		Diagonal	L2 1/2x2 1/2x3/16	22.5 33.0 (b)	Pass
T5	280 - 260	Leg	3 1/4	53.4	Pass
		Diagonal	L2 1/2x2 1/2x3/16	33.2 36.5 (b)	Pass
T6	260 - 240	Leg	3 1/2	49.8	Pass
		Diagonal	L3x3x3/16	28.6 42.9 (b)	Pass
T7	240 - 220	Leg	3 1/2	46.7	Pass
		Diagonal	2L2 1/2x2 1/2x3/16x3/8	22.5 28.1 (b)	Pass
		Secondary Horizontal	L2 1/2x2 1/2x3/16	30.5	Pass
T8	220 - 200	Leg	3 3/4	46.4	Pass
		Diagonal	2L2 1/2x2 1/2x3/16x3/8	39.7	Pass
		Secondary Horizontal	L2 1/2x2 1/2x3/16	48.2	Pass
T9	200 - 180	Leg	4	47.5	Pass
		Diagonal	2L3x3x3/16x3/8	37.9 52.2 (b)	Pass
		Secondary Horizontal	L3x3x3/16	42.5	Pass

Section No.	Elevation ft	Component Type	Size	% Capacity*	Pass Fail
T10	180 - 160	Leg	4 1/4	49.0	Pass
		Diagonal	2L3x3x3/16x3/8	50.0 60.2 (b)	Pass
		Secondary Horizontal	L3x3x3/16	63.4	Pass
T11	160 - 140	Leg	4 1/4	57.1	Pass
		Diagonal	2L3x3x3/16x3/8	62.3 64.2 (b)	Pass
		Secondary Horizontal	L3 1/2x3 1/2x1/4	42.9 50.3 (b)	Pass
T12	140 - 120	Leg	4 1/2	100.4	Pass
		Diagonal	2L3x3x1/4x3/8	60.6 68.0 (b)	Pass
		Horizontal	2L2 1/2x2 1/2x3/16x3/8	40.0	Pass
		Redund Horz 1 Bracing	L2x2x3/16	97.4	Pass
		Redund Diag 1 Bracing	L2 1/2x2 1/2x3/16	61.3	Pass
		Inner Bracing	L3 1/2x3 1/2x1/4	0.5	Pass
T13	120 - 100	Leg	4 3/4	93.4	Pass
		Diagonal	2L3x3x1/4x3/8	65.9 69.2 (b)	Pass
		Horizontal	2L2 1/2x2 1/2x3/16x3/8	54.1	Pass
		Redund Diag 1 Bracing	L2 1/2x2 1/2x3/16	74.8	Pass
		Inner Bracing	L4x4x1/4	0.5	Pass
T14	100 - 80	Leg	4 3/4	61.8	Pass
		Diagonal	2L3x3x1/4x3/8	74.3	Pass
		Horizontal	2L2 1/2x2 1/2x3/16x3/8	70.6	Pass
		Redund Horz 1 Bracing	L2x2x3/8	92.7	Pass
		Redund Diag 1 Bracing	L2 1/2x2 1/2x3/16	89.4	Pass
		Inner Bracing	L4x4x1/4	0.6	Pass
T15	80 - 60	Leg	5	96.2	Pass
		Diagonal	2L3 1/2x3 1/2x1/4x3/8	53.2 59.7 (b)	Pass
		Horizontal	2L3x3x3/16x3/8	51.2	Pass
		Redund Diag 1 Bracing	L3x3x3/16	60.6	Pass
		Inner Bracing	2L3x3x3/16x3/8	0.6	Pass
T16	60 - 40	Leg	5 1/4	89.5	Pass
		Diagonal	2L3 1/2x3 1/2x1/4x3/8	59.9 60.9 (b)	Pass
		Horizontal	2L3x3x3/16x3/8	64.1	Pass
		Redund Diag 1 Bracing	L3x3x3/16	71.1	Pass
		Inner Bracing	2L3x3x3/16x3/8	0.7	Pass
T17	40 - 20	Leg	5 1/4	97.3	Pass
		Diagonal	2L3 1/2x3 1/2x1/4x3/8	65.8	Pass
		Horizontal	2L3 1/2x3 1/2x1/4x3/8	37.9	Pass
		Redund Diag 1 Bracing	L3x3x3/16	83.3	Pass
		Inner Bracing	2L3 1/2x3 1/2x1/4x3/8	0.6	Pass
T18	20 - 0	Leg	5 1/2	90.6	Pass
		Diagonal	2L3 1/2x3 1/2x1/4x3/8	72.4	Pass
		Horizontal	2L3 1/2x3 1/2x1/4x3/8	46.0	Pass
		Redund Diag 1 Bracing	L3x3x3/16	96.3	Pass
		Inner Bracing	2L3 1/2x3 1/2x1/4x3/8	0.7	Pass

*Capacities include 1/3 allowable stress increase for wind.

Table 4 - Maximum Base Reactions

Load Type	Direction	Current Analysis *(TIA/EIA-222-F)*	Original Design *(EIA/TIA-222-E)*
Individual Foundation	Horizontal	56 k	---
	Uplift	397 k	631 k
	Compression	519 k	751 k
Overturning Moment	---	14,897 k-ft	---

GENERAL COMMENTS

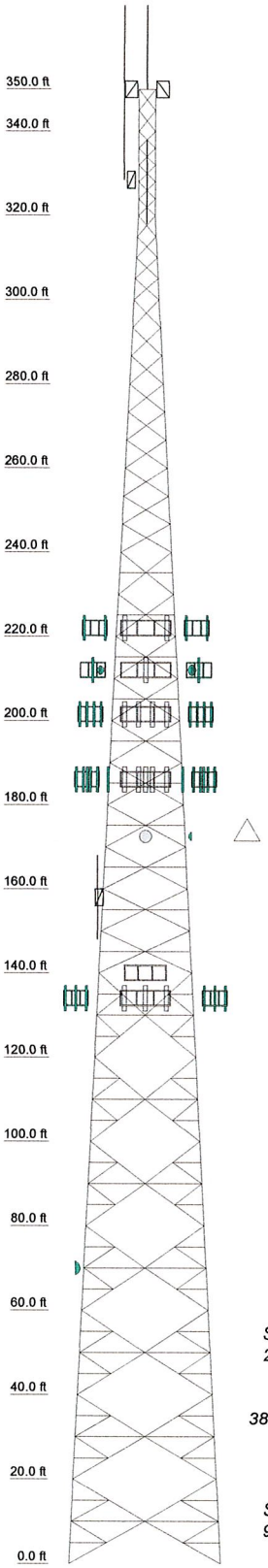
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading information) modeled. If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, FDH Engineering, Inc. should be notified immediately to perform a revised analysis.

LIMITATIONS

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of FDH Engineering, Inc.

APPENDIX

Section	T18	T17	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	SR 5 1/2	SR 5 1/4		SR 5	SR 4 3/4		SR 4 1/2		SR 4 1/4	SR 4	SR 3 3/4	SR 3 1/2		SR 3 1/4		SR 2 1/2	SR 2	
Leg Grade									A572-50									
Diagonals	2L3 1/2x3 1/2x1/4x3/8				2L3x3x1/4x3/8				2L3x3x3/16x3/8		2L2 1/2x2 1/2x3/16x3/8		L3x3x3/16	L2 1/2x2 1/2x3/16		L2x2x3/16	L2x1 1/2x3/16	
Diagonal Grade									A36									
Top Girts																		A
Horizontals	2L3 1/2x3 1/2x1/4x3/8		2L3x3x3/16x3/8		2L2 1/2x2 1/2x3/16x3/8				N.A.				N.A.					
Sec. Horizontals			N.A.					B	L3x3x3/16		L2 1/2x2 1/2x3/16			N.A.				
Red. Horizontals	L3x3x3/16	L2 1/2x2 1/2x3/16		L2x2x3/8	L2 1/2x2 1/2x3/16								N.A.					
Red. Diagonals		L3x3x3/16			L2 1/2x2 1/2x3/16								N.A.					
Inner Bracing	2L3 1/2x3 1/2x1/4x3/8		2L3x3x3/16x3/8		L4x4x1/4		B						N.A.					
Face Width (ft)	36	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4 @ 5	5 @ 4	2 @ 5
# Panels @ (ft)	3.4					24 @ 10							9 @ 6.66667					
Weight (K)	89.7	8.5	8.7	8.1	7.0	6.7	6.1	5.7	5.2	4.7	3.9	3.4	2.8	2.3	2.2	1.4	1.0	0.5



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	355	(3) 15' T-Frames (Nextel)	201.5
Flash Beacon Lighting	350	(2) RRUS-11 (Cingular)	186
DB809DK-Y	350	(2) RRUS-11 (Cingular)	186
Andrew 600200-5 (Marcus)	350	(2) RRUS-11 (Cingular)	186
RFS CAT #200	350	(2) DTMABP7819VG12A TMA (Cingular)	186
CAT #1110-9 (LoJack)	350		
Standoff Mount - 7'-9"	350	(2) DTMABP7819VG12A TMA (Cingular)	186
Standoff Mount - 7'	350		
Standoff Mount - 7'-9"	350	(2) DTMABP7819VG12A TMA (Cingular)	186
Standoff Mount - 7'-9"	350		
Standoff Mount - 7'	350	(2) Powerwave LGP13519 Diplexer (Cingular)	186
Standoff Mount - 7'-9"	350		
Standoff Mount - 7'-9"	350	(2) Powerwave LGP13519 Diplexer (Cingular)	186
Standoff Mount - 7'	350	(2) Powerwave LGP13519 Diplexer (Cingular)	186
Standoff Mount - 7'-9"	350		
Andrew 600200-4	328.5	DC6-48-60-18-8F Surge Arrestor (Cingular)	186
4' Side Mount Standoff (1)	328.5		
(2) TX RX 101-58-10-0-03 (Marcus)	318	(3) 13.5' T-Frames (Cingular)	186
6' Side Mount Standoff (1) (Marcus)	318	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (Cingular)	186
(2) HBX-6516DS-VTM w/ Mount Pipe (Metro PCS)	222	800 10121 w/Mount Pipe (Cingular)	186
(2) HBX-6516DS-VTM w/ Mount Pipe (Metro PCS)	222	800 10121 w/Mount Pipe (Cingular)	186
		800 10121 w/Mount Pipe (Cingular)	186
(2) HBX-6516DS-VTM w/ Mount Pipe (Metro PCS)	222	7770.00 w/Mount Pipe (Cingular)	186
		7770.00 w/Mount Pipe (Cingular)	186
(2) ATM200-A20 RET (Metro PCS)	222	7770.00 w/Mount Pipe (Cingular)	186
(2) ATM200-A20 RET (Metro PCS)	222	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (Cingular)	186
(2) ATM200-A20 RET (Metro PCS)	222		
(3) 10.5' T-Frames MNT (Metro PCS)	222	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe (Cingular)	186
Argus LLPX310R w/ Mount Pipe (Clearwire)	212	Pipe Mount 5.25' x 4.5" (Marcus)	172.5
Argus LLPX310R w/ Mount Pipe (Clearwire)	212	Pipe Mount 5.25' x 4.5" (Marcus)	172.5
		SPD2-5.8NS (Marcus)	172.5
Argus LLPX310R w/ Mount Pipe (Clearwire)	212	SPD3-2.4NS (Marcus)	172.5
		Standoff Mount - 17" (Wolcott)	158
BTS (Clearwire)	212	201-7 (Wolcott)	158
BTS (Clearwire)	212	(3) 10' T-Frames	140
BTS (Clearwire)	212	(3) DB980H90T2E-M w/Mount Pipe (Sprint)	134
(3) 10' T-Frames (Clearwire)	212		
VHLP2-11 (Clearwire)	212	(3) 15' T-Frames (Sprint)	134
VHLP2.5-11 (Clearwire)	212	(3) DB980H90T2E-M w/Mount Pipe (Sprint)	134
(4) DB844H90E-XY w/Mount Pipe (Nextel)	201.5	(3) DB980H90T2E-M w/Mount Pipe (Sprint)	134
(4) DB844H90E-XY w/Mount Pipe (Nextel)	201.5	Pipe Mount 27" x 2.4"	70
(4) DB844H65E-XY w/Mount Pipe (Nextel)	201.5	1M Dish	70

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L2x1 1/2x3/16	B	L3 1/2x3 1/2x1/4

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

MAX. CORN
DOWN:
SHEAR:

UPLIFT:
SHEAR:

AXIAL
204 K
SHEAR
25 K

TORQUE 19 kip-ft
38 mph WIND - 0.7500 in ICE

AXIAL
123 K
SHEAR
91 K
MOMENT
14897 kip-ft

TORQUE 54 kip-ft
REACTIONS - 85 mph WIND

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice.
4. Deflections are based upon a 50 mph wind.

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, North Carolina
Phone: (919) 755-1012
FAX: (919) 755-1031
Tower Analysis

Job: Cleary Tower, CT20021-A			
Project: 12-04939E S1			
Client: SBA	Drawn by: Randy Williams		App'd:
Code: TIA/EIA-222-F	Date: 05/18/12		Scale: NTS
Path: C:\Users\Randy Williams\Desktop\Cleary Tower (Edward, CT)\1- SA, ATT\Analysis\Cleary Tower, CT - CT20021-A.eri			Dwg No. E-1

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

Calculated Radio Frequency Emissions

CT1111

(Wolcott North)

1233 Wolcott Rd, Wolcott, CT 06716

May 30, 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 lattice tower located at 1233 Wolcott Rd in Wolcott, CT. The coordinates of the tower are 41-37-17.61 N, 72-58-25.22 W.

AT&T is proposing the following modifications:

1) Replace six of nine 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
Cingular UMTS	185	880	1	500	0.0053	0.5867	0.90%
Cingular GSM	185	880	1	296	0.0031	0.5867	0.53%
Cingular GSM	185	1900	1	427	0.0045	1.0000	0.45%
Sprint	300	1962	11	122	0.0054	1.0000	0.54%
LoJack	350	173.075	1	0	0.0000	0.2000	0.00%
TSR Wireless	350	929	1	1000	0.0029	0.6193	0.47%
Weblink Wireless	320	929	5	1000	0.0176	0.6193	2.83%
Wolcott Ambulance	150	463.475	1	100	0.0016	0.3090	0.52%
Nextel	200	851	9	100	0.0081	0.5673	1.43%
Clearwire	210	2496	2	153	0.0025	1.0000	0.25%
Clearwire	210	11000	1	211	0.0017	1.0000	0.17%
Marcus	328	450	5	100000	0.0040	0.3000	1.32%
Marcus	328	450	5	100000	0.0040	0.3000	1.32%
Marcus	165	5800	1	100	0.0000	1.0000	0.00%
Marcus	165	5800	1	100	0.0000	1.0000	0.00%
Marcus	165	5800	1	100	0.0000	1.0000	0.00%
Marcus	165	5800	1	100	0.0000	1.0000	0.00%
MetroPCS	222	2140	3	727	0.0159	1.0000	1.59%
AT&T UMTS	186	880	2	565	0.0012	0.5867	0.20%
AT&T UMTS	186	1900	2	1077	0.0022	1.0000	0.22%
AT&T LTE	186	734	1	1313	0.0014	0.4893	0.28%
AT&T GSM	186	880	1	491	0.0005	0.5867	0.09%
AT&T GSM	186	1900	4	813	0.0034	1.0000	0.34%
						Total	**11.57%**

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.

[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 Structural Analysis dated 5/18/2012.

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 **11.57% 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

May 30, 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

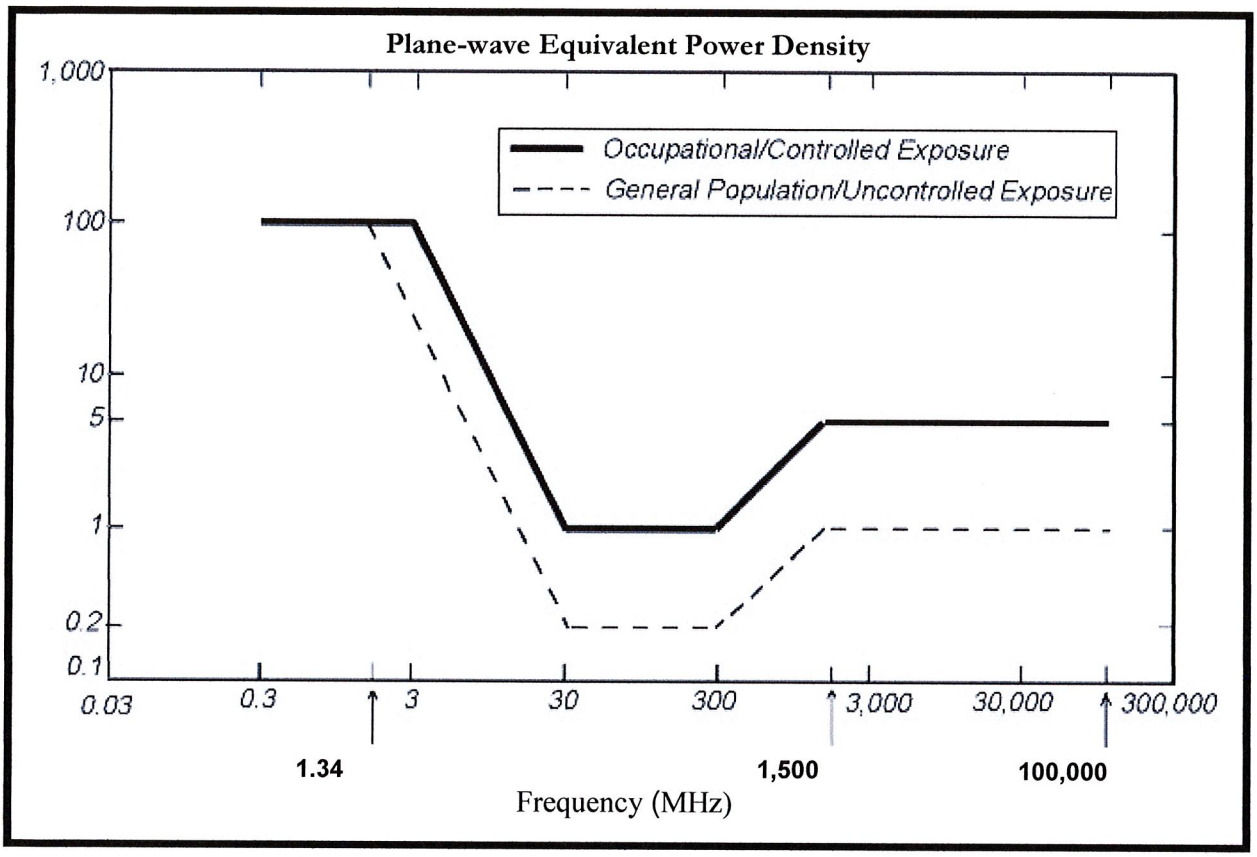
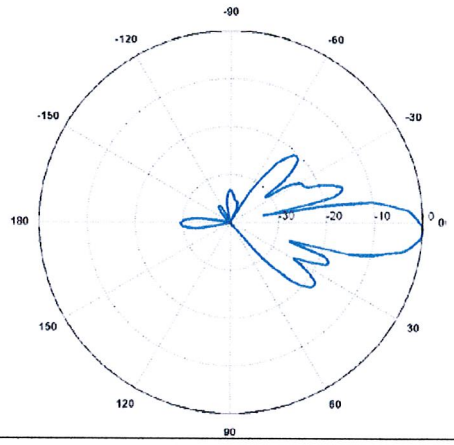


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

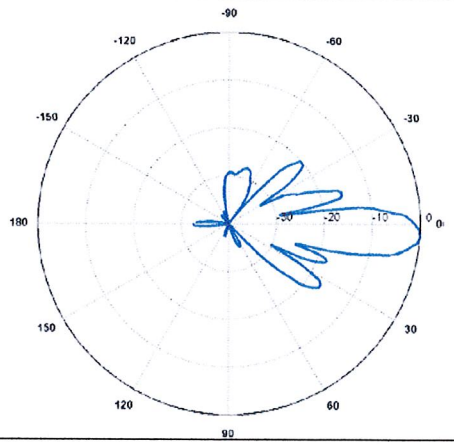
700 MHz

Manufacturer:	KMW Communications
Model #:	AM-X-CD-16-65-00T
Frequency Band:	698-806 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"



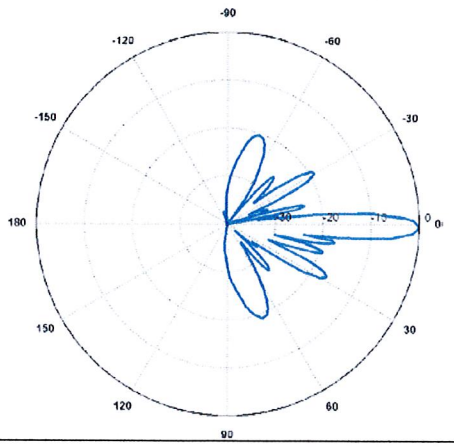
850 MHz GSM

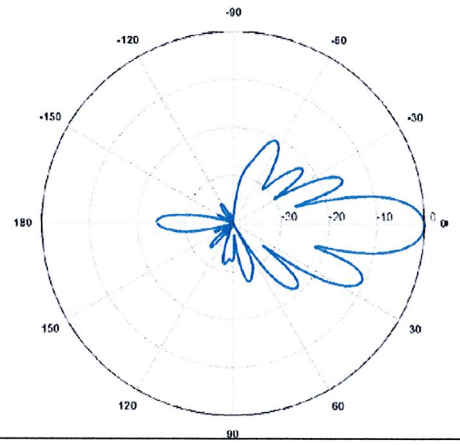
Manufacturer:	KMW Communications
Model #:	AM-X-CD-16-65-00T
Frequency Band:	824-894 MHz
Gain:	13.9 dBd
Vertical Beamwidth:	11.5°
Horizontal Beamwidth:	63°
Polarization:	Dual Slant ± 45°
Size L x W x D:	72.0" x 11.8" x 5.9"



1900 MHz GSM

Manufacturer:	KMW Communications
Model #:	AM-X-CD-16-65-00T
Frequency Band:	1850-1900 MHz
Gain:	15.3 dBd
Vertical Beamwidth:	6°
Horizontal Beamwidth:	67°
Polarization:	Dual Slant ± 45°
Size L x W x D:	72.0" x 11.8" x 5.9"



850 MHz UMTS Manufacturer: Kathrein-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 UMTS Manufacturer: Kathrein-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"