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

October 26, 2012

Eric Dahl
Nexlink Global Services
55 Lynn Road
Ivoryton, CT 06442

RE: **EM-AT&T-036-121009** - AT&T Mobility notice of intent to modify an existing telecommunications facility located at 10 Pent Road, Deep River, 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:

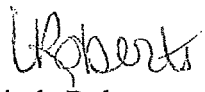
- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after 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 October 8, 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 Richard H. Smith, First Selectman, Town of Deep River
Amy Petrone, Zoning Enforcement Officer, Town of Deep River

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October 9, 2012

The Honorable Richard H. Smith
First Selectman
Town of Deep River
174 Main Street
Deep River, CT 06417

RE: **EM-AT&T-036-121009** - AT&T Mobility notice of intent to modify an existing telecommunications facility located at 10 Pent Road, Deep River, Connecticut.

Dear First Selectman Smith:

The Connecticut Siting Council (Council) received a request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72. A copy of which has already been provided to you.

If you have any questions or comments regarding the proposal, please call me or inform the Council by October 23, 2012.

Thank you for your cooperation and consideration.

Very truly yours,

LRoberts

Linda Roberts
Executive Director

LR/cm

c: Amy Petrone, Zoning Enforcement Officer, Town of Deep River

EM-AT&T-036-121009

October 8, 2012

ORIGINAL

RECEIVED
OCT - 9 2012
CONNECTICUT
SITING COUNCIL

VIA OVERNIGHT DELIVERY

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

RE: AT&T Mobility – Notice of Exempt Modification
10 Pent Road, Deep River CT (a/k/a 15 Pent Road)

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 First Selectman of the Town of Deep River.

AT&T plans to modify the existing facility at 10 Pent Road, Deep River, CT owned by T-Mobile (coordinates 41°22'21.3"N, -72°26'6.0"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 is 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 add three (3) new antennas, six (6) 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 inside the monopole.

2.The proposed changes will not extend the site boundaries. AT&T will install additional equipment on a concrete pad within the existing fenced equipment area. 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 1.39%; the combined site operations will result in a total power density of 17.55%.

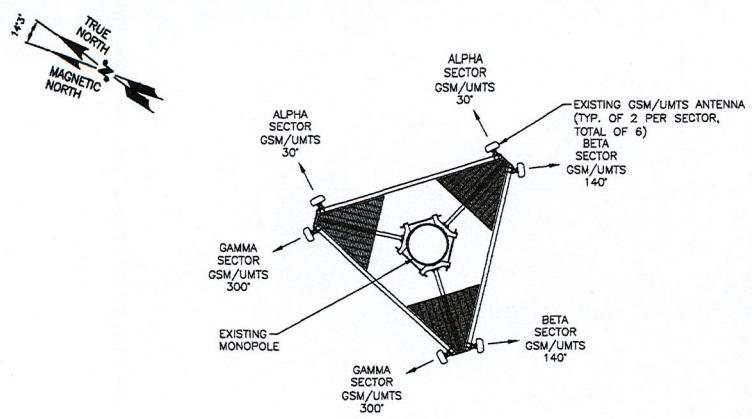
Please feel free to call me with any questions or concerns regarding this matter. Thank you for your consideration.

Respectfully submitted,
AT&T Mobility

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

cc: Honorable Richard H. Smith, First Selectman, Town of Deep River

Attachments



EXISTING GSM/UMTS ANTENNA PLAN

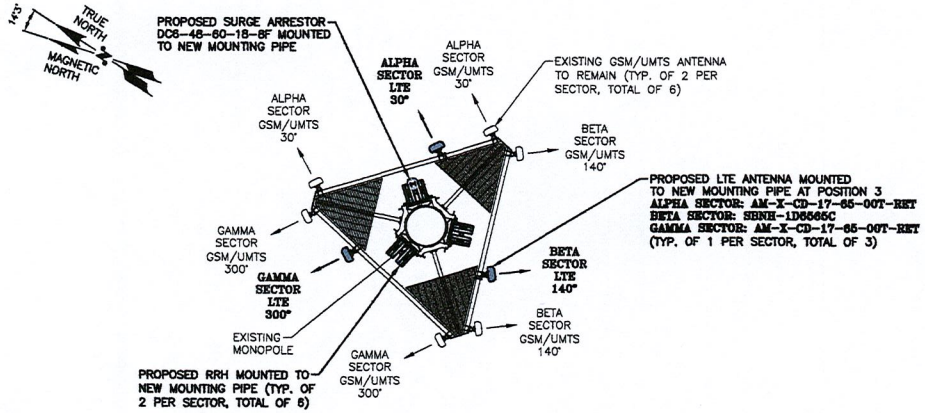
SCALE: N.T.S.

NOTE:

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

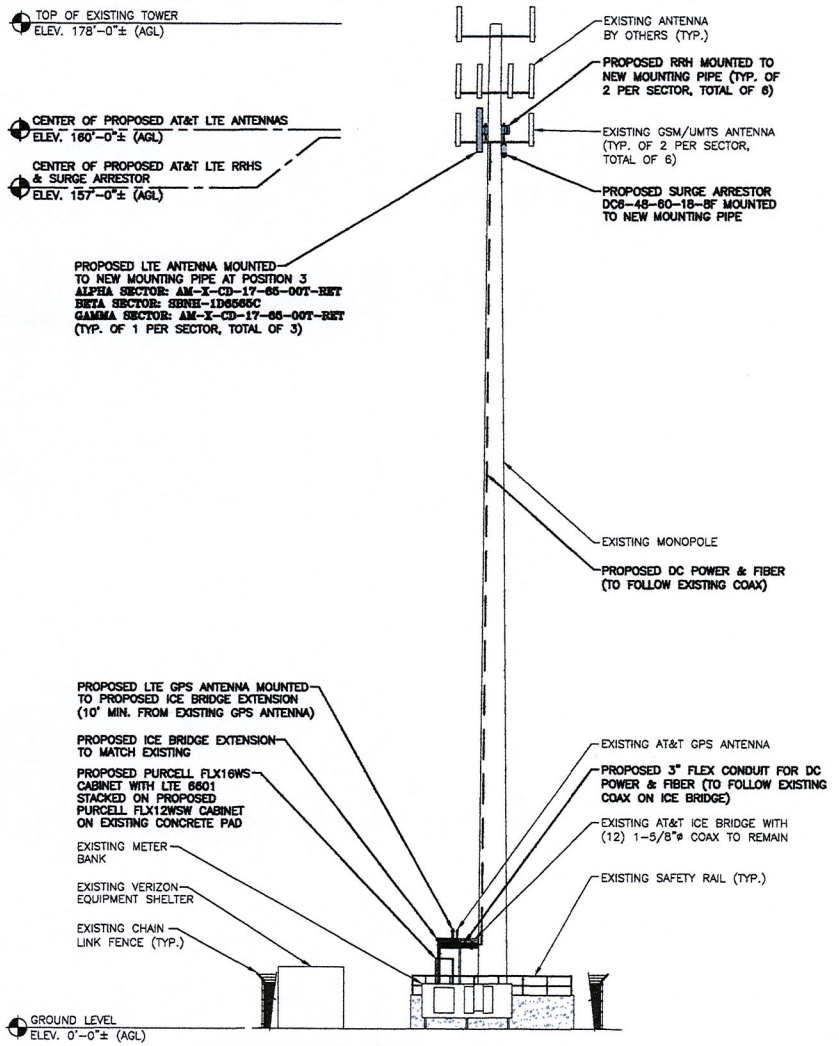
NOTE:

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.



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

SITE NUMBER: CT5392
SITE NAME: DEEP RIVER EAST

10 PENT ROAD
DEEP RIVER, CT 06417
MIDDLESEX COUNTY

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

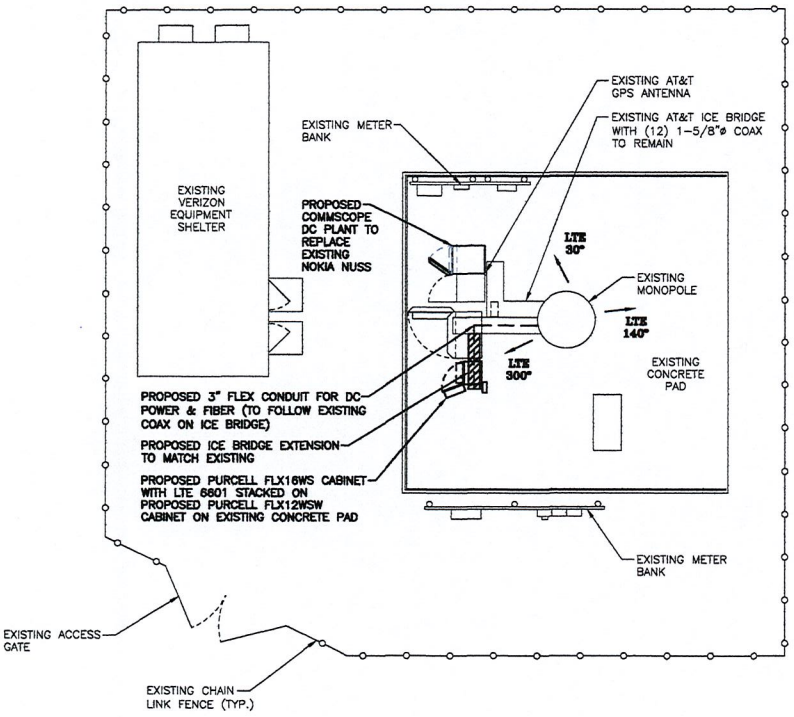
NO.	DATE	REVISIONS	BY	CHK	APP'D
0	06/17/12	ISSUED FOR REVIEW	RM	DC	DPH

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

AT&T

ELEVATION & ANTENNA PLAN (LTE)

JOB NUMBER	DRAWING NUMBER	REV
5392.01	A-2	0



COMPOUND PLAN

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

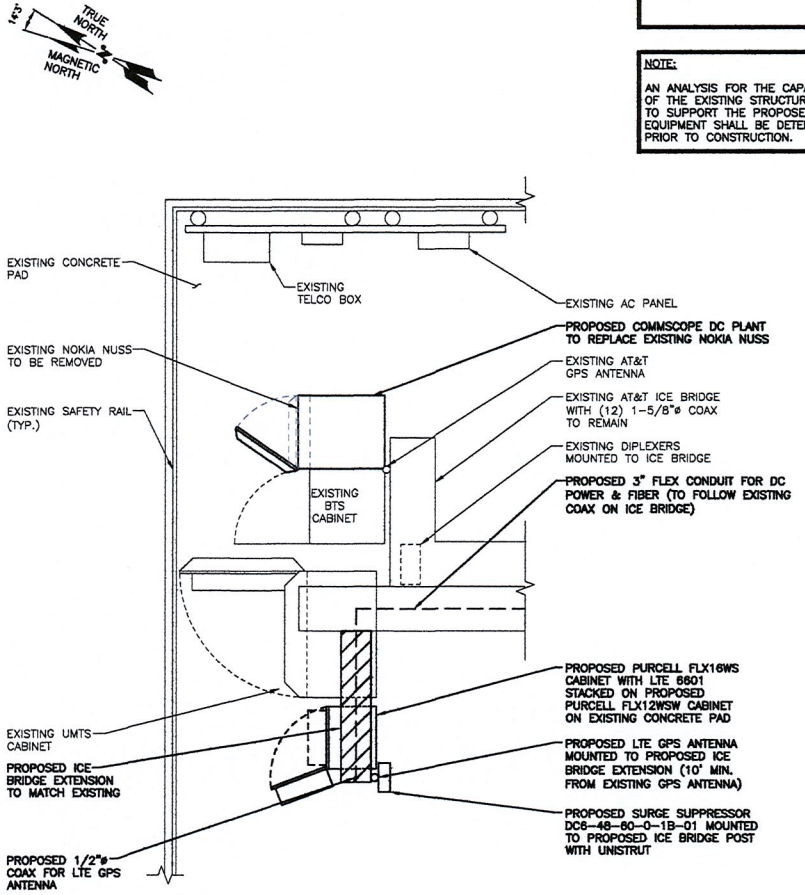
0 2'-8" 5'-4" 10'-8" 16'-0"

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.



EQUIPMENT PLAN

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

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

Hudson Design Group LLC
1400 OSGOOD STREET
BUILDING 20 NORTH, SUITE 2-101
N. ANDOVER, MA 01845
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800 MARSHALL PHELPS ROAD UNIT#: 2A
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SITE NUMBER: CT5392
SITE NAME: DEEP RIVER EAST
10 PENT ROAD
DEEP RIVER, CT 06417
MIDDLESEX COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	08/17/12	ISSUED FOR REVIEW	RM	DC	DPH

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

AT&T

COMPOUND AND EQUIPMENT PLAN (LTE)

JOB NUMBER	DRAWING NUMBER	REV
5392.01	A-1	0

GPD GROUP
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

STRUCTURAL ANALYSIS REPORT

REVIEWED
By Aaron Chandler at 9:55 am, Oct 03, 2012

T-Mobile TOWERS

SITE NUMBER: CT11237C
SITE NAME: DEEP RIVER/RT 9

SITE ADDRESS: 15 PENT ROAD
DEEP RIVER, CT 06417

NEW ANTENNA INSTALLATION
ON AN EXISTING
178' MONOPOLE

BY:

at&t
Your world. Delivered.

AT&T SITE NAME: CT5392

September 14, 2012

GPD Project #: 2012861.73

MONOPOLE

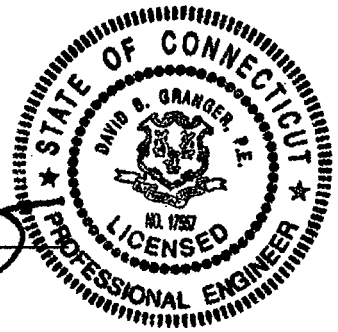
STRUCTURAL ANALYSIS REPORT

CT11237C DEEP RIVER/RT 9
15 Pent Road
Deep River, CT 06417
GPD Project #: 2012861.73

New Antenna Installation
Existing 178 ft Monopole

For:
T-Mobile Towers
Bellevue, Washington

Prepared By:



David B. Granger, P.E.
Registered Professional Engineer
Connecticut #: 17557

September 14, 2012

Glaus, Pyle, Schomer, Burns and DeHaven, Inc. dba GPD Group ENGINEERS • ARCHITECTS • PLANNERS
520 South Main Street • Suite 2531 • Akron • Ohio • 44311-1010 • Tel: 330-572-2100 • Fax: 330-572-2101

TABLE OF CONTENTS

APPENDICES

EXECUTIVE SUMMARY

The purpose of this analysis is to verify whether the existing tower is structurally capable of carrying the new antenna and coax loads as specified by AT&T to T-Mobile Towers. This report was commissioned by Mr. Chris DeVoist of T-Mobile Towers.

The existing structure meets the requirements of TIA/EIA-222-F and the 2005 Connecticut State Building Code for an 85 mph fastest-mile wind speed with 1/2" of radial ice (w/ 25% wind load reduction) for the proposed antenna configuration.

The foundation reactions, with the proposed loading configuration, were found to be less than the existing foundation design. Therefore, the existing foundation is sufficient, assuming it was properly constructed according to original design.

Section Results

Monopole	**% Capacity**	**Result**
164.3' – 178'	15.4%	Pass
129.8' – 164.3'	56.6%	Pass
96.1' – 129.8'	65.3%	Pass
63.3' – 96.1'	74.7%	Pass
31.3' – 63.3'	79.9%	Pass
0' – 31.3'	87.2%	Pass
Anchor Rods	77.6%	Pass
Base Plate	80.2%	Pass
Foundation	**% Capacity**	**Result**
Bearing	41.0%	Pass
Overturning	78.7%	Pass
Tower Rating:	**87.2%**	

TOWER DESCRIPTION

The existing 178' monopole is located in Deep River, Connecticut. The tower was originally designed for Voicestream Wireless by PiROD Inc. of Plymouth, Indiana. The original design load for the tower was for an 85 mph basic wind speed with 1/2" radial ice (w/ 25% wind load reduction) in accordance with EIA/TIA-222-F. The tower was originally designed to hold the following:

Original Configuration

Antennas:	
Elev. 180'	(9) 1' x 5' Panel Antennas on a LP Platform, w/ 1-5/8" internal coax
Elev. 170'	(9) 1' x 5' Panel Antennas on a LP Platform, w/ 1-5/8" internal coax
Elev. 160'	(12) 1' x 5' Panel Antennas on a LP Platform, w/ 1-5/8" internal coax
Elev. 150'	(12) 1' x 5' Panel Antennas on a LP Platform, w/ 1-5/8" internal coax
Elev. 140'	(12) 1' x 5' Panel Antennas on a LP Platform, w/ 1-5/8" internal coax

The existing monopole has six major sections connected by slip joints. It has 18 sides and is evenly tapered from 62.9375" (flat-flat) at the base to 22.6400" (flat-flat) at the top. The structure is galvanized and has no tower lighting.

DOCUMENTS PROVIDED

Description	**Remarks**	**Source**
Tower Drawings	PiROD Inc. Eng. File #: A-117035, dated 8/29/00	T-Mobile
Foundation Drawings	PiROD Inc. Eng. File #: A-117035, dated 8/29/00	T-Mobile
Geotechnical Report	Dr. Clarence Welti P.E., P.C., dated 5/1/00	T-Mobile
Site Inspection Report	SiteMaster, dated 7/24/09	T-Mobile
Previous Analysis	GPD Project #: 2011711.11, dated 4/25/12	GPD

TOWER MATERIALS

Data on the steel strength was available from the information provided. The following table details the steel strength used in the analysis.

Monopole	ASTM A572 (65 KSI Yield Strength)
Anchor Rods	ASTM A687 (105 KSI Yield Strength)
Base Plate	ASTM A572 (50 KSI Yield Strength)

TOWER LOADING

The following data shows the major loading that the tower supports. The existing, reserved, and proposed antenna information was provided by T-Mobile Towers.

Existing and Reserved Configuration

Elevation	Carrier	Antennas
177.5′	T-Mobile	(12) Andrew TMBXX-6516-R2M Antennas, (6) Andrew ETW190VS12UB TMAs & (1) 4′ HP MW Dish on a 16.5′ LP Platform, w/ (25) 1-5/8″ internal coax
170′	Verizon	(3) Antel BXA-70063-6CF Antennas, (6) Antel LPA-80080-4CF Antennas, (3) Antel BXA-171085/8CF Antennas & (6) RFS FD9R6004/2C-3L Diplexers on a 12.5′ LP Platform, w/ (12) 1-5/8″ internal coax
160′	AT&T	(6) Powerwave 7770 Antennas, (6) Powerwave LGP21401 TMAs & (6) Powerwave 21903 Diplexers on a12.5′ LP Platform, w/ (12) 1-5/8″ internal coax
150′	Pocket	(3) Kathrein 742 213 Antennas, flush mounted, w/ (6) 1-5/8″ internal coax

Proposed Configuration

Elevation	Carrier	Antennas
177.5′	T-Mobile	(9) Ericsson AIR21Antennas, (3) Ericsson AIR33 Antennas, (3) Andrew ETW190VS12UB Twin TMAs, (1) HCS Fiber/DC Box [Large] & (1) 2′ MW Dish on a 16.5′ LP Platform, w/ (14) 1-5/8″ internal coax & (3) 1-5/8″ internal hybrid cables
170′	Verizon	(3) Antel BXA-70063-6CF Antennas, (6) Antel LPA-80080-4CF Antennas, (3) Antel BXA-171085/8CF Antennas & (6) RFS FD9R6004/2C-3L Diplexers on a 12.5′ LP Platform, w/ (12) 1-5/8″ internal coax
160′	**AT&T**	**(6) Powerwave 7770 Antennas,** **(2) KMW AM-X-CD-17-65-00T-RET Antennas,** **(1) Commscope SBNH-1D6565C Antenna,** **(6) Powerwave LGP21401 TMAs,** **(6) Powerwave 21903 Diplexers,** **(1) Raycap DC6-48-60-18-8F Surge Suppressor &** **(6) Ericsson RRUS-11 RRUs on a12.5′ LP Platform,** **w/ (12) 1-5/8″ internal coax & (2) 3/8″ DC power cables &** **(1) 5/16″ fiber cable inside (1) 3″ internal innerduct**
150′	Pocket	(3) Kathrein 742 213 Antennas, flush mounted, w/ (6) 1-5/8″ internal coax

Notes: - **BOLD** type indicates proposed carrier's final configuration.
- See Appendix 2 for the proposed feedline plan.

The purpose of this independent structural analysis review is to determine if the existing tower, with the proposed configuration, is in conformance to the latest TIA/EIA-222-F and the 2005 Connecticut State Building Code standard requirements.

ANALYSIS

The purpose of this structural analysis review is to determine if the existing tower is in conformance to the latest TIA/EIA-222-F standard requirements. TnxTower (Version v6.0.4.0), a commercially available software program, was used to create a three-dimensional model of the tower and calculate member stresses for various dead, live, wind, and ice load cases. All loads were computed in accordance with the ANSI/TIA/EIA-222-F standard and all local building code requirements. Selected output from the analysis is included in Appendix 1.

The current requirements of TIA/EIA-222-F and the 2005 Connecticut State Building Code are for a fastest-mile wind speed of 85 mph with 1/2" radial ice. A 25% reduction in wind load is allowed when wind and ice are applied simultaneously. TIA/EIA-222-F requires tower within Middlesex County, Connecticut to be analyzed with an 85 mph fastest-mile wind speed at this tower location.

ANALYSIS FASTEST-MILE WIND SPEED:	85 MPH

The tower and foundations are assumed, for the purpose of this analysis, to have been properly fabricated, constructed, maintained, and to be in good condition with no structural defects. This is not a condition assessment of the tower and has been provided without the benefit of recent detailed tower photos, a recent detailed tower mapping, or a recent GPD Group site visit. This analysis assumes all antennas and coax have been installed in a neat and orderly fashion. Proposed antennas are assumed to be installed on standard sized mounts. The existing/proposed mounts are assumed to have been verified by the carrier to support the existing/proposed loading for the required various load cases.

CONCLUSIONS AND RECOMMENDATIONS

Based on the computer structural analysis results, the existing 178' monopole meets the requirements of TIA/EIA-222-F and then 2005 Connecticut State Building Code for an 85 mph fastest-mile wind speed with 1/2" of radial ice (w/ 25% wind load reduction) for the proposed antenna configuration.

The foundation reactions, with the proposed loading configuration, were found to be less than the capacity of the existing foundation design. Therefore, the existing foundation is adequate assuming it was properly constructed according to original design.

Summary of Findings

Monopole	Satisfactory
Anchor Rods	Satisfactory
Base Plate	Satisfactory
Foundation	Satisfactory

Therefore, based on our analysis results, the existing structure is structurally satisfactory for the proposed loading configuration.

DISCLAIMER OF WARRANTIES

GPD GROUP has not performed a recent site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD GROUP in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. All tower components have been assumed to only resist dead loads when no other loads are applied. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

GPD GROUP does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD GROUP provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD GROUP, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts etc. have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

GPD GROUP makes no warranties, expressed and/or implied, in connection with this report and disclaim any liability arising from material, fabrication, and erection of this tower. GPD GROUP will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD GROUP pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDICES

1. TnxTower Analysis Printout

2. Tower Elevation Drawing and Feedline Plan

3. Anchor Rod and Base Plate Analysis

4. Foundation Analysis

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Middlesex County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	177.50 - 8.00	14	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
1-5/8" Hybrid Cable	C	No	Inside Pole	177.50 - 8.00	3	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	B	No	Inside Pole	170.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	A	No	Inside Pole	160.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
3/8" Power Cable	A	No	Inside Pole	160.00 - 8.00	2	No Ice	0.00	0.30
						1/2" Ice	0.00	0.30
9207 (5/16 FOAM)	A	No	Inside Pole	160.00 - 8.00	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
3" Flex Conduit	A	No	Inside Pole	160.00 - 8.00	1	No Ice	0.00	0.48
						1/2" Ice	0.00	0.48
LDF7-50A (1-5/8 FOAM)	B	No	Inside Pole	150.00 - 8.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
Climbing Pegs	B	No	CaAa (Out Of Face)	178.00 - 8.00	1	No Ice	0.00	0.31
						1/2" Ice	0.00	0.71
Safety Line 3/8	B	No	CaAa (Out Of Face)	178.00 - 8.00	1	No Ice	0.04	0.22
						1/2" Ice	0.14	0.75

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Pirod 16.5' LP Platform	C	None		0.0000	177.50	No Ice	20.80	20.80	1800.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
						1/2" Ice	28.10	28.10	2066.00
PiROD 12' Lightweight T-Frame (GPD)	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	177.50	No Ice 1/2" Ice	10.20 16.20	2.94 4.96	253.00 355.00
(3) AIR21 Antenna w/ mount pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	177.50	No Ice 1/2" Ice	6.73 7.24	5.62 6.42	111.08 165.11
(3) AIR21 Antenna w/ mount pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	177.50	No Ice 1/2" Ice	6.73 7.24	5.62 6.42	111.08 165.11
(3) AIR21 Antenna w/ mount pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	177.50	No Ice 1/2" Ice	6.73 7.24	5.62 6.42	111.08 165.11
AIR33 Antenna w/ mount pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	177.50	No Ice 1/2" Ice	6.65 7.17	5.60 6.43	103.38 157.14
AIR33 Antenna w/ mount pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	177.50	No Ice 1/2" Ice	6.65 7.17	5.60 6.43	103.38 157.14
AIR33 Antenna w/ mount pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	177.50	No Ice 1/2" Ice	6.65 7.17	5.60 6.43	103.38 157.14
ETW190VS12UB	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	177.50	No Ice 1/2" Ice	0.66 0.78	0.35 0.44	11.00 15.83
ETW190VS12UB	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	177.50	No Ice 1/2" Ice	0.66 0.78	0.35 0.44	11.00 15.83
ETW190VS12UB	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	177.50	No Ice 1/2" Ice	0.66 0.78	0.35 0.44	11.00 15.83
HCS Fiber/DC Box (Large)	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	177.50	No Ice 1/2" Ice	3.22 3.47	1.16 1.34	19.00 38.06
4" x 4' Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	177.50	No Ice 1/2" Ice	1.21 1.47	1.21 1.47	36.48 48.11
MTS 12.5' LP Platform	C	None		0.0000	170.00	No Ice 1/2" Ice	14.66 18.87	14.66 18.87	1250.00 1481.33
BXA-70063-6CF w/ 72" Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	7.75 8.29	5.58 6.52	38.90 94.85
BXA-70063-6CF w/ 72" Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	7.75 8.29	5.58 6.52	38.90 94.85
BXA-70063-6CF w/ 72" Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	7.75 8.29	5.58 6.52	38.90 94.85
(2) LPA-80080/4CF w/ 6' Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	3.11 3.58	7.48 8.38	33.90 80.49
(2) LPA-80080/4CF w/ 6' Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	3.11 3.58	7.48 8.38	33.90 80.49
(2) LPA-80080/4CF w/ 6' Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	3.11 3.58	7.48 8.38	33.90 80.49

tnxTower	Job: CT11237C Deep River/Rt 9	Page: 3 of 6
GPD Group 520 South Main Street, Suite 2531 Akron, OH 44311 Phone: (330) 572-2100 FAX: (330) 572-3709	Project: 2012861.73	Date: 08:30:51 09/13/12
	Client: T-Mobile Towers	Designed by: Teveslage

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
BXA-171085-8BF w/ 2"x48" Mountpipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	2.94 3.26	3.02 3.57	25.10 52.92
BXA-171085-8BF w/ 2"x48" Mountpipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	2.94 3.26	3.02 3.57	25.10 52.92
BXA-171085-8BF w/ 2"x48" Mountpipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	2.94 3.26	3.02 3.57	25.10 52.92
(2) FD9R6004/2C-3L	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	0.37 0.45	0.08 0.14	3.10 5.40
(2) FD9R6004/2C-3L	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	0.37 0.45	0.08 0.14	3.10 5.40
(2) FD9R6004/2C-3L	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	0.37 0.45	0.08 0.14	3.10 5.40
MTS 12.5' LP Platform	C	None		0.0000	160.00	No Ice 1/2" Ice	14.66 18.87	14.66 18.87	1250.00 1481.33
(2) 7770.00 w/ 6' Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	6.22 6.77	4.35 5.20	60.90 106.99
(2) 7770.00 w/ 6' Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	6.22 6.77	4.35 5.20	60.90 106.99
(2) 7770.00 w/ 6' Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	6.22 6.77	4.35 5.20	60.90 106.99
AM-X-CD-17-65-00T-RET w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	11.31 11.93	9.10 10.52	105.82 189.52
AM-X-CD-17-65-00T-RET w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	11.31 11.93	9.10 10.52	105.82 189.52
SBNH-1D6565C w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	11.45 12.06	9.12 10.21	82.70 162.03
(2) LGP21401	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	1.29 1.45	0.23 0.31	14.10 21.26
(2) LGP21401	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	1.29 1.45	0.23 0.31	14.10 21.26
(2) LGP21401	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	1.29 1.45	0.23 0.31	14.10 21.26
(2) LGP21903 Diplexer	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	0.27 0.34	0.18 0.25	11.02 13.44
(2) LGP21903 Diplexer	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	0.27 0.34	0.18 0.25	11.02 13.44
(2) LGP21903 Diplexer	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	0.27 0.34	0.18 0.25	11.02 13.44
(2) RRUS 11	A	From	4.00	0.0000	160.00	No Ice	2.94	1.25	55.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral / Vert	Azimuth Adjustment	Placement		C_AA_A Front	C_AA_A Side	Weight
			ft / ft / ft	°	ft		ft^2	ft^2	lb
		Centroid-Leg	0.00 0.00			1/2" Ice	3.17	1.41	74.32
(2) RRUS 11	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	2.94 3.17	1.25 1.41	55.00 74.32
(2) RRUS 11	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	2.94 3.17	1.25 1.41	55.00 74.32
DC6-48-60-18-8F Surge Suppression Unit	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	1.47 1.67	1.47 1.67	32.80 50.52
Valmont Light Duty Tri-Bracket (1)	C	None		0.0000	150.00	No Ice 1/2" Ice	1.76 2.08	1.76 2.08	54.00 70.00
742 213 w/ Mount Pipe	A	From Leg	0.50 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice	5.37 5.95	4.62 6.00	48.92 90.56
742 213 w/ Mount Pipe	B	From Leg	0.50 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice	5.37 5.95	4.62 6.00	48.92 90.56
742 213 w/ Mount Pipe	C	From Leg	0.50 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice	5.37 5.95	4.62 6.00	48.92 90.56

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral / Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter		Aperture Area	Weight
				ft	°	°	ft	ft		ft^2	lb
2' MW	C	Paraboloid w/Shroud (HP)	From Centroid -Leg	4.00 0.00 0.00	0.0000		177.50	2.00	No Ice 1/2" Ice	3.14 3.41	40.00 67.13

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
177.50	2' MW	35	38.416	1.9501	0.0055	22587
170.00	MTS 12.5' LP Platform	35	35.360	1.9339	0.0046	14189
160.00	MTS 12.5' LP Platform	35	31.366	1.8791	0.0036	8008
150.00	Valmont Light Duty Tri-Bracket (1)	35	27.521	1.7845	0.0028	6030

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
L1	178 - 164.333 (1)	TP26x22.64x0.25	13.67	0.00	0.0	39.000	19.8636	-5014.05	774681.00	0.006
L2	164.333 - 129.75 (2)	TP34.0625x24.7829x0.3125	37.50	0.00	0.0	39.000	32.5349	-11775.40	1268860.00	0.009
L3	129.75 - 96.0833 (3)	TP41.75x32.4889x0.375	37.50	0.00	0.0	39.000	47.8748	-18536.00	1867120.00	0.010
L4	96.0833 - 63.25 (4)	TP49.0625x39.8475x0.375	37.50	0.00	0.0	39.000	56.3416	-26546.10	2197320.00	0.012
L5	63.25 - 31.25 (5)	TP56.125x46.961x0.375	37.50	0.00	0.0	39.000	64.5385	-35654.60	2517000.00	0.014
L6	31.25 - 0 (6)	TP62.9375x53.8477x0.375	37.50	0.00	0.0	37.124	74.4650	-47610.90	2764410.00	0.017

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	178 - 164.333 (1)	TP26x22.64x0.25	78849.08	7.728	39.000	0.198	0.00	0.000	39.000	0.000
L2	164.333 - 129.75 (2)	TP34.0625x24.7829x0.3125	636269.17	29.042	39.000	0.745	0.00	0.000	39.000	0.000
L3	129.75 - 96.0833 (3)	TP41.75x32.4889x0.375	1327491.67	33.573	39.000	0.861	0.00	0.000	39.000	0.000
L4	96.0833 - 63.25 (4)	TP49.0625x39.8475x0.375	2101891.67	38.329	39.000	0.983	0.00	0.000	39.000	0.000
L5	63.25 - 31.25 (5)	TP56.125x46.961x0.375	2950591.67	40.965	39.000	1.050	0.00	0.000	39.000	0.000
L6	31.25 - 0 (6)	TP62.9375x53.8477x0.375	4077350.00	42.483	37.124	1.144	0.00	0.000	37.124	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V lb	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T lb-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	178 - 164.333 (1)	TP26x22.64x0.25	10851.40	0.546	26.000	0.042	2.85	0.000	26.000	0.000
L2	164.333 - 129.75 (2)	TP34.0625x24.7829x0.3125	19497.30	0.599	26.000	0.046	13.19	0.000	26.000	0.000
L3	129.75 - 96.0833 (3)	TP41.75x32.4889x0.375	22641.30	0.473	26.000	0.036	25.00	0.000	26.000	0.000
L4	96.0833 - 63.25 (4)	TP49.0625x39.8475x0.375	25709.40	0.456	26.000	0.035	37.58	0.000	26.000	0.000
L5	63.25 - 31.25 (5)	TP56.125x46.961x0.375	28503.20	0.442	26.000	0.034	50.02	0.000	26.000	0.000
L6	31.25 - 0 (6)	TP62.9375x53.8477x0.375	31557.40	0.424	26.000	0.033	61.80	0.000	26.000	0.000

tnxTower	Job	Page
	CT11237C Deep River/Rt 9	6 of 6
GPD Group 520 South Main Street, Suite 2531 Akron, OH 44311 Phone: (330) 572-2100 FAX: (330) 572-3709	**Project** 2012861.73	**Date** 08:30:51 09/13/12
	Client T-Mobile Towers	**Designed by** Teveslage

Pole Interaction Design Data

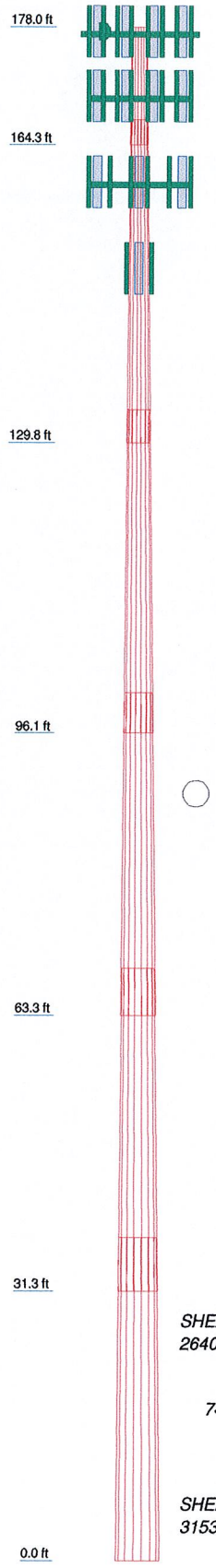
Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	178 - 164.333 (1)	0.006	0.198	0.000	0.042	0.000	0.205 ✔	1.333	H1-3+VT ✔
L2	164.333 - 129.75 (2)	0.009	0.745	0.000	0.046	0.000	0.754 ✔	1.333	H1-3+VT ✔
L3	129.75 - 96.0833 (3)	0.010	0.861	0.000	0.036	0.000	0.871 ✔	1.333	H1-3+VT ✔
L4	96.0833 - 63.25 (4)	0.012	0.983	0.000	0.035	0.000	0.995 ✔	1.333	H1-3+VT ✔
L5	63.25 - 31.25 (5)	0.014	1.050	0.000	0.034	0.000	1.065 ✔	1.333	H1-3+VT ✔
L6	31.25 - 0 (6)	0.017	1.144	0.000	0.033	0.000	1.162 ✔	1.333	H1-3+VT ✔

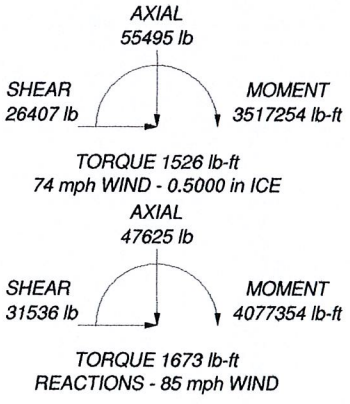
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	178 - 164.333	Pole	TP26x22.64x0.25	1	-5014.05	1032649.73	15.4	Pass
L2	164.333 - 129.75	Pole	TP34.0625x24.7829x0.3125	2	-11775.40	1691390.31	56.6	Pass
L3	129.75 - 96.0833	Pole	TP41.75x32.4889x0.375	3	-18536.00	2488870.86	65.3	Pass
L4	96.0833 - 63.25	Pole	TP49.0625x39.8475x0.375	4	-26546.10	2929027.44	74.7	Pass
L5	63.25 - 31.25	Pole	TP56.125x46.961x0.375	5	-35654.60	3355160.86	79.9	Pass
L6	31.25 - 0	Pole	TP62.9375x53.8477x0.375	6	-47610.90	3684958.38	87.2	Pass
							Summary	
						Pole (L6)	87.2	Pass
						RATING =	**87.2**	**Pass**

TOWER ELEVATION DRAWING AND FEEDLINE PLAN

Length (ft)	13.67	37.50	37.50	37.50	37.50	37.50	37.50
Number of Sides	18	18	18	18	18	18	18
Thickness (in)	0.2500	0.3125	0.3750	0.3750	0.3750	0.3750	0.3750
Socket Length (ft)	2.92	3.83	4.67	5.50	6.25		
Top Dia (in)	22.6400	24.7829	32.4889	39.8475	46.9610	53.8477	
Bot Dia (in)	26.0000	34.0625	41.7500	49.0625	56.1250	62.9375	
Grade	A572-65						
Weight (lb)	888.2	3684.4	5580.8	6694.9	7771.5	8811.8	33431.6





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Pirod 16.5' LP Platform	177.5	MTS 12.5' LP Platform	170
PiROD 12' Lightweight T-Frame (GPD)	177.5	(2) 7770.00 w/ 6' Mount Pipe	160
(3) AIR21 Antenna w/ mount pipe	177.5	(2) 7770.00 w/ 6' Mount Pipe	160
(3) AIR21 Antenna w/ mount pipe	177.5	(2) 7770.00 w/ 6' Mount Pipe	160
(3) AIR21 Antenna w/ mount pipe	177.5	AM-X-CD-17-65-00T-RET w/ Mount Pipe	160
AIR33 Antenna w/ mount pipe	177.5	AM-X-CD-17-65-00T-RET w/ Mount Pipe	160
AIR33 Antenna w/ mount pipe	177.5	SBNH-1D6565C w/ Mount Pipe	160
AIR33 Antenna w/ mount pipe	177.5	(2) LGP21401	160
ETW190VS12UB	177.5	(2) LGP21401	160
ETW190VS12UB	177.5	(2) LGP21401	160
ETW190VS12UB	177.5	(2) LGP21903 Diplexer	160
HCS Fiber/DC Box (Large)	177.5	(2) LGP21903 Diplexer	160
4" x 4' Mount Pipe	177.5	(2) LGP21903 Diplexer	160
2' MW	177.5	(2) RRUS 11	160
BXA-70063-6CF w/ 72" Mount Pipe	170	(2) RRUS 11	160
BXA-70063-6CF w/ 72" Mount Pipe	170	(2) RRUS 11	160
BXA-70063-6CF w/ 72" Mount Pipe	170	DC6-48-60-18-8F Surge Suppression Unit	160
(2) LPA-80080/4CF w/ 6' Mount Pipe	170	MTS 12.5' LP Platform	160
(2) LPA-80080/4CF w/ 6' Mount Pipe	170	742 213 w/ Mount Pipe	150
(2) LPA-80080/4CF w/ 6' Mount Pipe	170	742 213 w/ Mount Pipe	150
BXA-171085-8BF w/ 2"x48" Mountpipe	170	742 213 w/ Mount Pipe	150
BXA-171085-8BF w/ 2"x48" Mountpipe	170	Valmont Light Duty Tri-Bracket (1)	150
BXA-171085-8BF w/ 2"x48" Mountpipe	170		
(2) FD9R6004/2C-3L	170		
(2) FD9R6004/2C-3L	170		
(2) FD9R6004/2C-3L	170		

MATERIAL STRENGTH

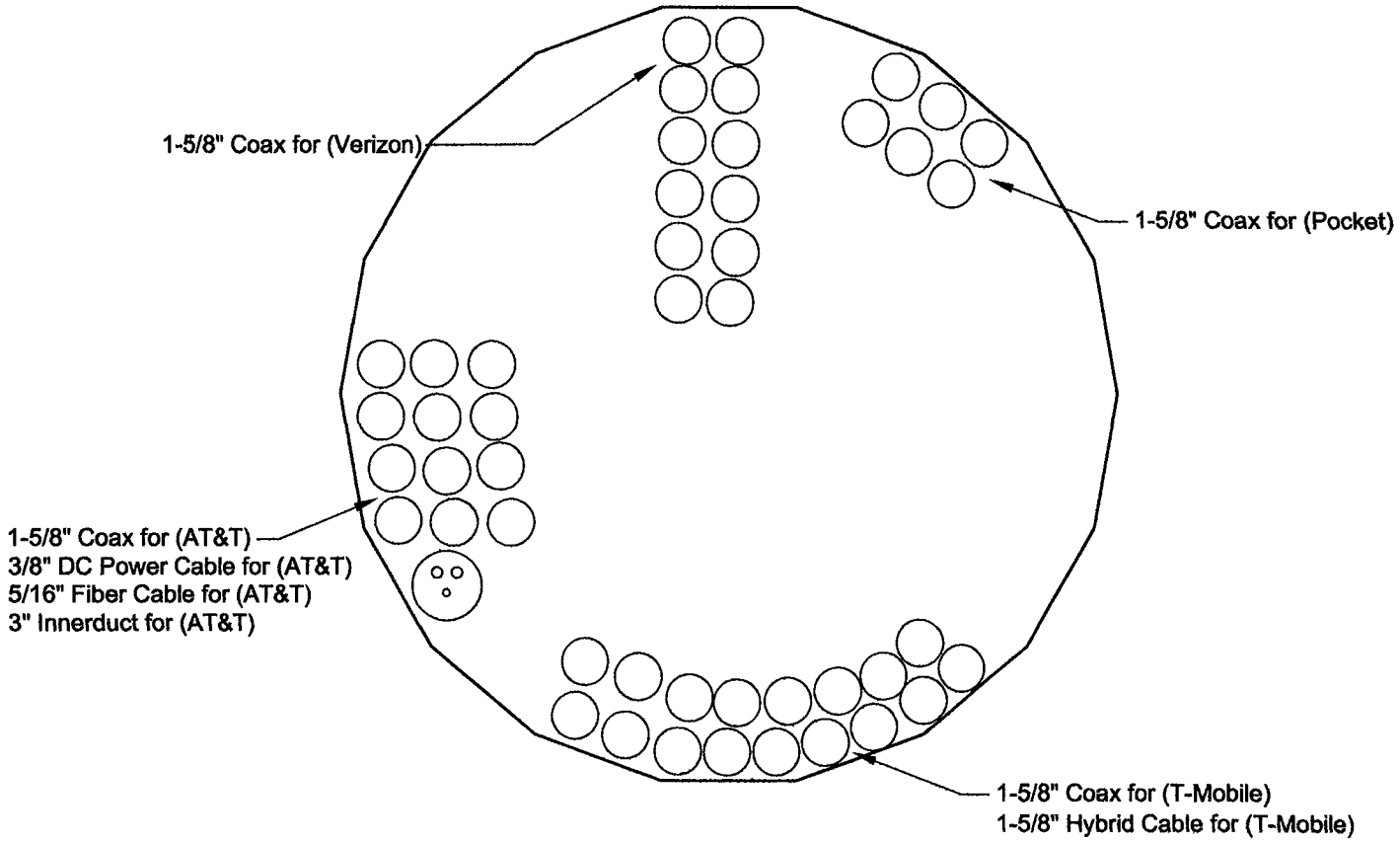
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Middlesex 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 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 87.2%

GPD Group
Consulting Engineers
520 South Main Street, Suite 2531
Akron, OH 44311
Phone: (330) 572-2100
FAX: (330) 572-3709

Job: CT11237C Deep River/Rt 9			
Project: 2012861.73			
Client: T-Mobile Towers	Drawn by: Teveslage	App'd:	
Code: TIA/EIA-222-F	Date: 09/13/12	Scale:	
Path: \\Akm04\data\2012\2012861\73\Risa\CT11237C.eri		Dwg N	



FEEDLINE PLAN

NOT TO SCALE

NORTH

GPD GROUP
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.
520 South Main Street, Suite 2531
Akron, Ohio 44311
330-572-2100 Fax 330-572-2101

CT11237C DEEP RIVER/RT 9

JOB NO.
2012861.73
DATE
9/13/2012
DRAWN BY
TRE

ANCHOR ROD AND BASE PLATE ANALYSIS

GPD GROUP

Anchor Rod and Base Plate Stresses
CT11237C DEEP RIVER/RT 9
2012861.73

Overturning Moment =	4077.35	k*ft
Axial Force =	47.63	k
Shear Force =	31.54	k

Acceptable Stress Ratio =	100.0%

Anchor Rods		
Number of Rods =	45	
Type =	Bolt	
Rod Ultimate Strength (Fu) =	150	ksi
ASIF =	1.333	
Rod Circle =	68	in
Rod Diameter =	1.25	in
Area =	1.23	in^2
Max Tension on Rod =	62.89	kips
Max Compression on Rod =	65.01	kips
Allow. Rod Force =	80.99	kips
Anchor Rod Capacity =	**77.6%**	**OK**

Base Plate		
Location =	External	
Plate Strength (F_y) =	50	ksi
Outside Diameter =	71	in
Plate Thickness =	1.375	in
b =	4.00	in
Le =	4.00	in
fb =	40.10	ksi
Fb =	50	ksi
BP Capacity =	**80.2%**	**OK**

Stiffeners		
Configuration =	Every Rod	
Thickness =	0.75	in
Width =	4	in
Notch =	0.5	in
Height =	12	in
Stiffener Strength (F_y) =	50	ksi
Weld Info. Known? =	No	
Stiffener Vertical Force =	42.29	kips
Vert. Weld Capacity =	*Not Verified*	kips
Horiz. Weld Capacity =	*Not Verified*	kips
Stiffener Capacity =	44.7%	kips
Controlling Capacity =	**44.7%**	**OK**

Pole		
Pole Diameter =	62.9375	in
Number of Sides =	18	
Thickness =	0.375	in
Pole Yield Strength =	65	ksi

GPD GROUP

Mat Foundation Analysis
CT11237C DEEP RIVER/RT 9
2012861.73

General Info	
Code	TIA/EIA-222-F (ASD)
Bearing On	Rock
Foundation Type	Mono Pad
Pier Type	None
Reinforcing Known	Yes
Max Capacity	1

Tower Reactions		
Moment, M	4077.354	k-ft
Axial, P	47.625	k
Shear, V	31.536	k

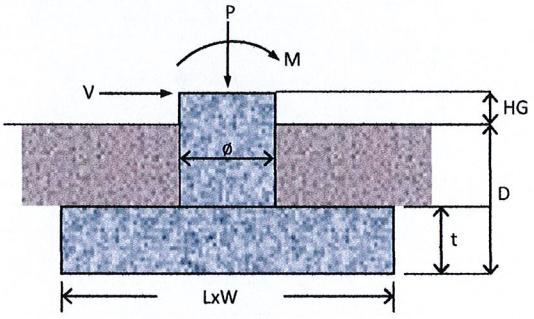
Pad & Pier Geometry		
Pier N/A	0	ft
Pad Length, L	29	ft
Pad Width, W	29	ft
Pad Thickness, t	3.5	ft
Depth, D	3.5	ft
Height Above Grade, HG	0.5	ft

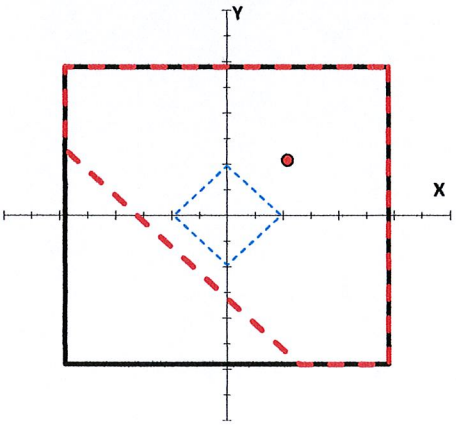
Pad & Pier Reinforcing		
Rebar Fy	60	ksi
Concrete Fc'	4	ksi
Clear Cover	3	in
Reinforced Top & Bottom?	Yes	
Pad Reinforcing Size	# 8	
Pad Quantity Per Layer	32	
Pier Rebar Size	# 8	
Pier Quantity of Rebar		

Soil Properties		
Soil Type	Cohesive	
Soil Unit Weight	120	pcf
Cohesion, Cu	0	ksf
Bearing Type	Gross	
Ultimate Bearing	12	ksf
Water Table Depth	Below	ft
Frost Depth	3.333	ft

Bearing Summary			Load Case
Qxmax	1.84	ksf	1D+1W
Qymax	1.84	ksf	1D+1W
Qmax @ 45°	2.46	ksf	1D+1W
$Q_{(all)\ Gross}$	6.00	ksf	
Controlling Capacity	**41.0%**	**Pass**	

Overturning Summary (Required FS=1.5)			Load Case
FS(ot)x	1.91	≥1.5	1D+1W
FS(ot)y	1.91	≥1.5	1D+1W
Controlling Capacity	**78.7%**	**Pass**	





C Squared Systems, LLC
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Calculated Radio Frequency Emissions

CT5392

(Deep River East)

10 Pent Road, Deep River, CT 06417

October 4, 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 10 Pent Road in Deep River, CT. The coordinates of the tower are 41° 22' 21.3" N, 72° 26' 6.0" W.

AT&T is proposing the following modifications:

1) Install three multi-band (700/850/1900/2100 MHz) antennas for their LTE network (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:

$$\text{Power Density} = \frac{1.6^2 \cdot EIRP}{4\pi \cdot R^2} \text{ x Off Beam Loss}$$

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 patterns 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
AT&T UMTS	*160*	*880*	*1*	*500*	*0.0070*	*0.5867*	*1.20%*
AT&T GSM	*160*	*1900*	*2*	*427*	*0.0120*	*1.0000*	*1.20%*
AT&T GSM	*160*	*880*	*4*	*296*	*0.0166*	*0.5867*	*2.83%*
Pocket	150	2130	3	631	0.0303	1.0000	3.03%
Verizon cellular	170	869	9	246	0.0275	0.5793	4.75%
Verizon PCS	170	1970	11	233	0.0319	1.0000	3.19%
Verizon AWS	170	2145	1	680	0.0085	1.0000	0.85%
Verizon LTE	170	698	1	810	0.0101	0.4653	2.17%
VoiceStream	180	1930	8	245.7	0.0218	1.0000	2.18%
AT&T UMTS	160	880	2	565	0.0016	0.5867	0.27%
AT&T UMTS	160	1900	2	875	0.0025	1.0000	0.25%
AT&T LTE	160	734	1	1771	0.0025	0.4893	0.51%
AT&T GSM	160	880	1	283	0.0004	0.5867	0.07%
AT&T GSM	160	1900	4	525	0.0029	1.0000	0.29%
						Total	**17.55%**

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

[1] The existing CSC filing for AT&T 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 7/26/2012. 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 GPD Group Structural Analysis dated September 14, 2012.

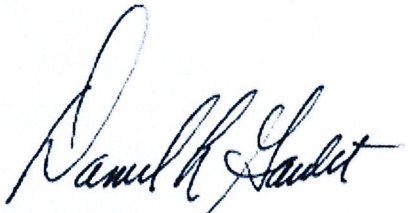
5. Conclusion

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 **17.55% 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

October 4, 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.

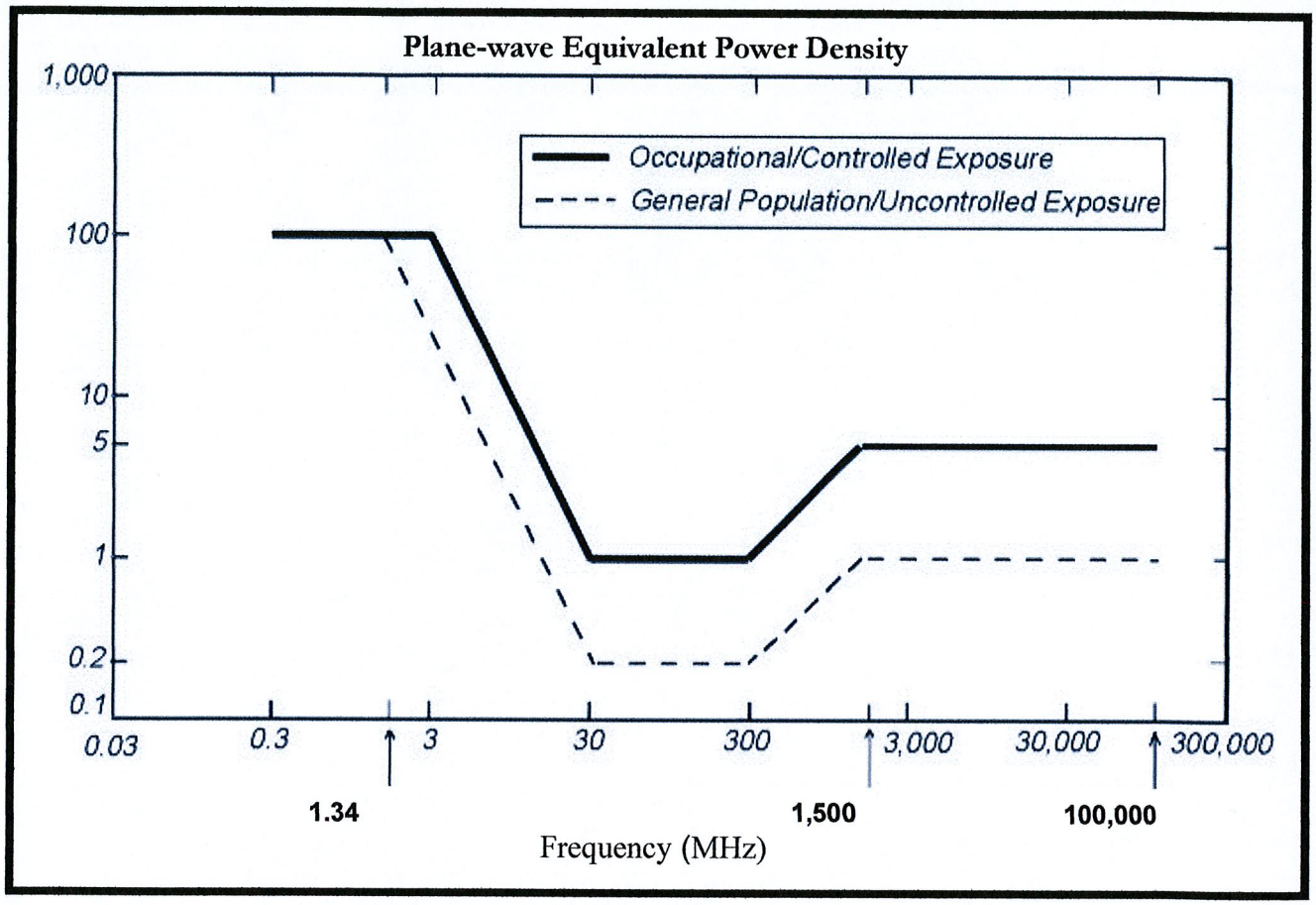
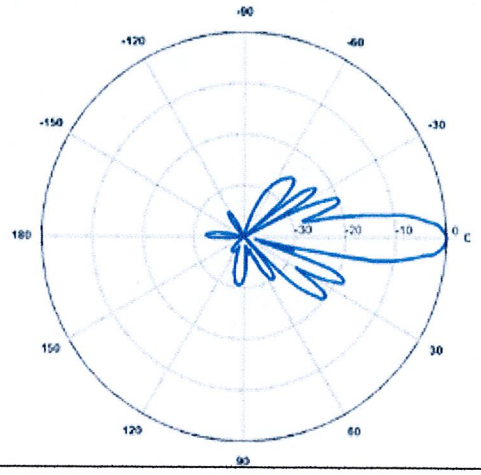


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

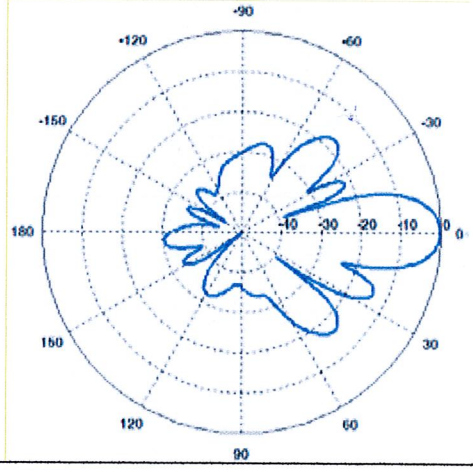
700 MHz

Manufacturer:	KMW
Model #:	AM-X-CD-17-65-00T-RET
Frequency Band:	698-806 MHz
Gain:	14.7 dBd
Vertical Beamwidth:	10°
Horizontal Beamwidth:	66°
Polarization:	Dual Slant ± 45°
Size L x W x D:	96.0" x 11.8" x 6.0"



850 MHz

Manufacturer:	Powerwave
Model #:	7770.00
Frequency Band:	824-896 MHz
Gain:	11.5 dBd
Vertical Beamwidth:	15°
Horizontal Beamwidth:	82°
Polarization:	Dual Linear ± 45°
Size L x W x D:	55.0" x 11.0" x 5.0"



1900 MHz

Manufacturer:	Powerwave
Model #:	7770.00
Frequency Band:	1850-1990 MHz
Gain:	13.4 dBd
Vertical Beamwidth:	7°
Horizontal Beamwidth:	86°
Polarization:	Dual Linear ± 45°
Size L x W x D:	55.0" x 11.0" x 5.0"